

FINAL REPORT NUMBER: SPNCAP-TRC-23-002

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

**MITSUBISHI MOTORS CORPORATION, JAPAN
2023 Mitsubishi Outlander
NHTSA NUMBER: M20235601**

**PREPARED BY:
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Report Date: August 22, 2023

FINAL REPORT

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

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Report Prepared By: ILO Project Operations Group

Report Approved By: _____



John Shultz

Approval Date: August 22, 2023

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

Technical Report Documentation Page

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16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject vehicle, a 2023 Mitsubishi Outlander, in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on March 1, 2023. The impact velocity was 32.15 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 21.6° C. The test vehicle's post-test maximum crush was 342 mm at Level 2. The test or target vehicle's performance is given below: <table border="1"> <thead> <tr> <th></th><th>Unit</th><th>Threshold</th><th>Front SID-IIs</th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆):</td><td>NA</td><td>1000</td><td>335.699</td></tr> <tr> <td>Resultant Lower Spine Acceleration:</td><td>g's</td><td>82</td><td>36.2</td></tr> <tr> <td>Total Pelvic Force: (sum of acetabular and iliac forces)</td><td>N</td><td>5525</td><td>2735.7</td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>38*</td><td>21.6</td></tr> <tr> <td>Maximum Abdomen Rib Deflection</td><td>mm</td><td>45*</td><td>17.2</td></tr> </tbody> </table> * Proposed IARV The doors on the struck side did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					Unit	Threshold	Front SID-IIs	Head Injury Criteria (HIC ₃₆):	NA	1000	335.699	Resultant Lower Spine Acceleration:	g's	82	36.2	Total Pelvic Force: (sum of acetabular and iliac forces)	N	5525	2735.7	Maximum Thoracic Rib Deflection	mm	38*	21.6	Maximum Abdomen Rib Deflection	mm	45*	17.2
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave Washington, DC 20590																									
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TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	Test Purpose and Procedure	1
2	Summary of Test Results	2
3	Occupant and Vehicle Information	4
<u>Data Sheet No.</u>		<u>Page No.</u>
1	General Test and Vehicle Parameter Data	5
2	Seat, Seat Belt, Steering Wheel Adjustment and Fuel Systems Data	9
3	Dummy Longitudinal Clearance Dimensions	12
4	Dummy Lateral Clearance Dimensions	13
5	Camera and Instrumentation Data	14
6	Vehicle Accelerometer Data	15
7	Rigid Pole Load Cell Data	16
8	Post-Test Observations	17
9	Vehicle Profile Measurements	19
10	Vehicle Exterior Crush Measurements	20
11	Vehicle Damage Profile Distances	23
12	FMVSS No. 301 Fuel Integrity Post-Impact Data	24
13	Dummy/Vehicle Temperature and Humidity Stabilization Data	25
<u>Appendix</u>		<u>Page No.</u>
A	Photographs	A-1
B	Vehicle and Dummy Response Data Plots	B-1
C	Dummy Configuration and Performance Verification Data	C-1
D	Test Equipment And Instrumentation Calibration Data	D-1

SECTION 1

TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

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

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a model year 2023 Mitsubishi Outlander. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.15 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, OH, on March 1, 2023. Pre-test and post-test photographs of the test vehicle and the side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated March 2020. Camera locations and other pertinent camera information are included in this report.

The Part 572V (SID-IIs) dummy was instrumented accordingly:

- Primary and Redundant Head CG Triaxial Accelerometers
- Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
- Abdomen Upper and Lower Rib Displacement Potentiometers
- Lower Spine (T12) Triaxial Accelerometers
- Iliac Load Cell
- Acetabulum Load Cell

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

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

Measurement Description	Driver ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC ₃₆)	NA	1000	335.699
Lower Spine Acceleration Resultant	G	82	36.2
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2735.7
Maximum Thoracic Rib Deflection	mm	38*	21.6
Maximum Abdominal Rib Deflection	mm	45*	17.2

* Proposed IARV

Supplemental restraint information is given below:

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

GENERAL COMMENTS

None

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2023 Mitsubishi Outlander
 Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
 Test Date: 3/1/2023

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20235601
Model Year	2023
Make	Mitsubishi
Model	Outlander
Body Style	MPV
VIN	JA4J3UA85PZ019604
Body Color	Labrador Black Pearl
Odometer Reading (km/mi)	9 mi
Engine Displacement (L)	2.5
Type/No. Cylinders	Inline/4
Engine Placement	Transverse
Transmission Type	CVT
Transmission Speeds	N/A
Overdrive	N/A
Final Drive	FWD
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
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	Yes
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	No
Rear Pass. Torso/Pelvis Airbag	Yes
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Rear Pass. Load Limiter	Yes
Other: Front Center Airbag	Yes

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

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	MITSUBISHI MOTORS CORPORATION, JAPAN
Date of Manufacturer	OCT 2022
Vehicle Type	MPV

GVWR (kg)	2355
GAWR Front (kg)	1210
GAWR Rear (kg)	1365

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	2	7
Vehicle Capacity Weight (VCW) (kg)				525.0
DSC X 68.04 kg				476.28
Rated Cargo and Luggage Weight (RCLW) (kg)				49.0

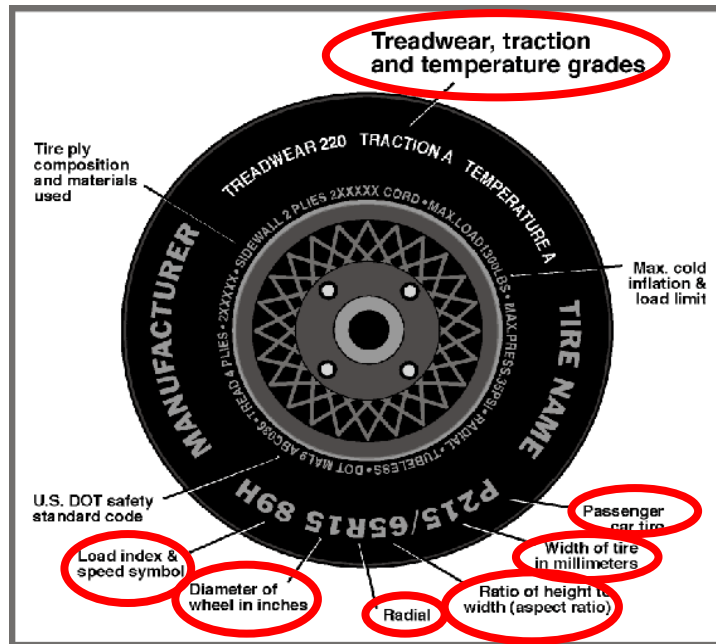
VEHICLE SEAT TYPE

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	N/A	Yes
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	Yes	N/A	N/A

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

Test Vehicle: 2023 Mitsubishi Outlander
 Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
 Test Date: 3/1/2023



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	240	240
Recommended Tire Size	P255/45R20	P255/45R20
Tire Size on Vehicle	P255/45R20	P255/45R20
Tire Manufacturer	Nexen	Nexen
Tire Model	Radial GTX	Radial GTX
Treadwear	600	600
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	101W	101W
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	1UAFD HABL 3822	1UAFD FMCR 3822
DOT Safety Code Right	1UAFD EMDL 3822	1UAFD HABR 3822

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

Test Vehicle: 2023 Mitsubishi Outlander
 Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
 Test Date: 3/1/2023

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	276	276	276	276
Tire Placard	kPa	240	240	240	240
Owner's Manual	kPa	240	240	240	240
As Tested	kPa	240	240	240	240

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	480.0	365.6		492.2	408.8		501.4	416.8	
Right	kg	482.6	349.8		478.2	388.8		476.0	381.6	
Ratio	%	57.4	42.6		54.9	45.1		55.0	45.0	
Totals	kg	962.6	715.4	1678.0	970.4	797.6	1768.0	977.4	798.4	1775.8

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total As Delivered Weight (UVW)	kg	1678.0
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	49.0
Rated Cargo/Luggage Weight (RCLW)	kg	49.0
Calculated Vehicle Target Weight (TVTW)	kg	1776.0

(A)
 (B)
 (C)
 (A+B+C)

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight – 4.5 kg to 9 kg)? ☒ YES ☐ NO

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	Deg.	-0.4	-0.5	-0.5	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	-0.3	-0.5	-0.6	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	-0.1	-0.3	-0.3	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg.	-0.3	-0.3	-0.4	Yes
Vehicle CG (Aft of Front Axle)	mm	1156	1223	1219	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	+7	+16	+29	

*ND=Nose Down (-), NU=Nose Up (+) **LD=Left Down (-), LU=Left Up (+)

*** The "As Tested" vehicle attitude measurements must be equal to or between the "As Delivered" and "Fully Loaded" vehicle attitude measurements. Indicate "Yes" or "No" for "Meets Requirements".

DATA SHEET NO. 1 (CONTINUED)**GENERAL TEST AND VEHICLE PARAMETER DATA**Test Vehicle: 2023 Mitsubishi OutlanderNHTSA No.: M20235601Test Program: SPNCAP Side ImpactTest Date: 3/1/2023**WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW**

Component Description	Weight (kg)
Ballast: Steel plates in cargo area	41.3
Components Removed: None	0.0

Test height adjustable suspension setting, if applicable:

N/A

TEST SURFACE MARKINGS

	Distance from 75° Impact Location Line (mm)
Fore 25 mm target	1715
Aft 25 mm target	1700

DATA SHEET NO. 2

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

Test Vehicle: 2023 Mitsubishi Outlander

NHTSA No.: M20235601

Test Program: SPNCAP Side Impact

Test Date: 3/1/2023

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL(°)		
	Max.	Min.	Mid
Driver Seat	22.8	18.8	20.8
Front Passenger Seat	17.3	17.3	17.3
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	10.7	10.7	10.7
Non-Struck Side Rear Seat	11.4	11.4	11.4
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	20.8	298	Max	294	302	311
			Mid	277	288	298
			Min	260	273	285
Front Passenger Seat	17.3	211	Max	N/A	N/A	N/A
			Mid	192	200	211
			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	10.7	272	Max	N/A	N/A	N/A
			Mid	272	268	269
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	11.4	280	Max	N/A	N/A	N/A
			Mid	280	280	280
			Min	N/A	N/A	N/A
Rear Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A

* If applicable.

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2023 Mitsubishi Outlander

NHTSA No.: M20235601

Test Program: SPNCAP Side Impact

Test Date: 3/1/2023

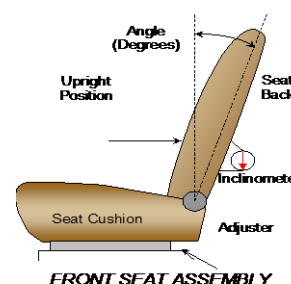
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forward most Position	
	mm	Detents*	mm	Detent*
Driver Seat	260	N/A	0	N/A
Front Passenger Seat	260	27	0	0
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	226	23	226	22
Non-Struck Side Rear Seat	220	23	220	22
Rear Center Seat*	N/A	N/A	N/A	N/A

* If applicable.

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck-side rear passenger seat back is positioned in accordance with the information provided by the manufacturer on Form No. 1. For the 5th percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back is set to match the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detent*
Driver Seat w/ Seated Dummy	84.5	N/A	1.0	N/A
Front Passenger Seat	71.3	38	1.6	6
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	22.0	14	17.1	3
Non-Struck Side Rear Seat	22.0	12	17.1	3
Rear Center Seat*	N/A	N/A	N/A	N/A

* If applicable.

SEAT BELT ANCHORAGE ADJUSTMENT

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

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

HEAD RESTRAINT ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	5	5, Full Down

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2023 Mitsubishi Outlander

NHTSA No.: M20235601

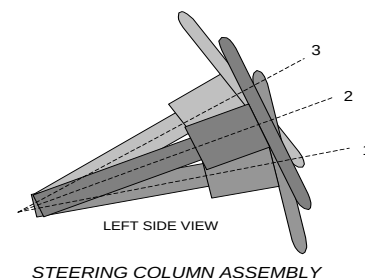
Test Program: SPNCAP Side Impact

Test Date: 3/1/2023

STEERING COLUMN ADJUSTMENT

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

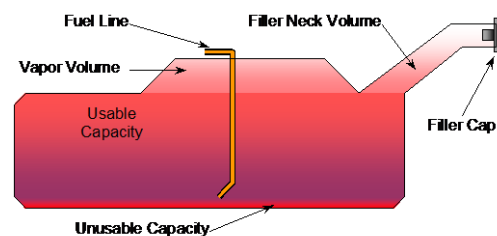
	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	22.7	0
Geometric Center, Position No. 2	25.3	27
Uppermost, Position No. 3	27.9	54
Telescoping Steering Wheel Travel		54
Test Position	25.3	27



FUEL PUMP

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

Pump Runs when ignition is on



FUEL TANK CAPACITY

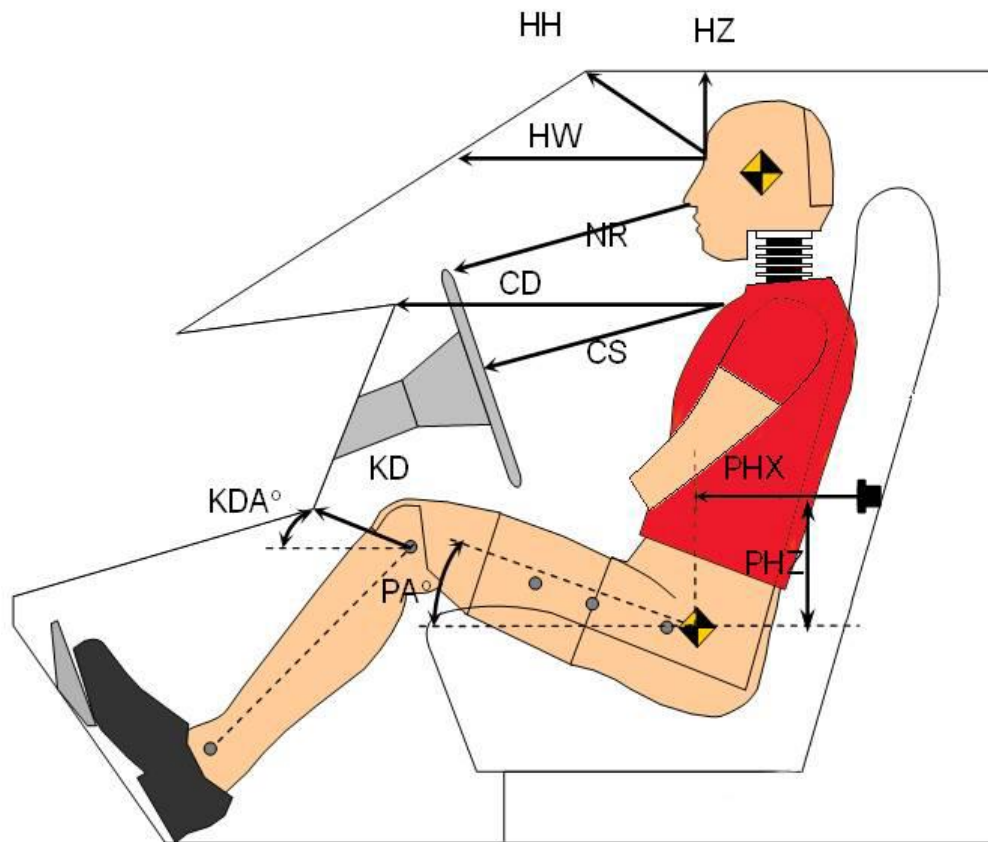
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	55.0
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	55.0
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	51.2
Actual Amount of Solvent Used in Test	51.0
1/3 of Usable Capacity	18.3

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

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2023 Mitsubishi Outlander
 Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
 Test Date: 3/1/2023

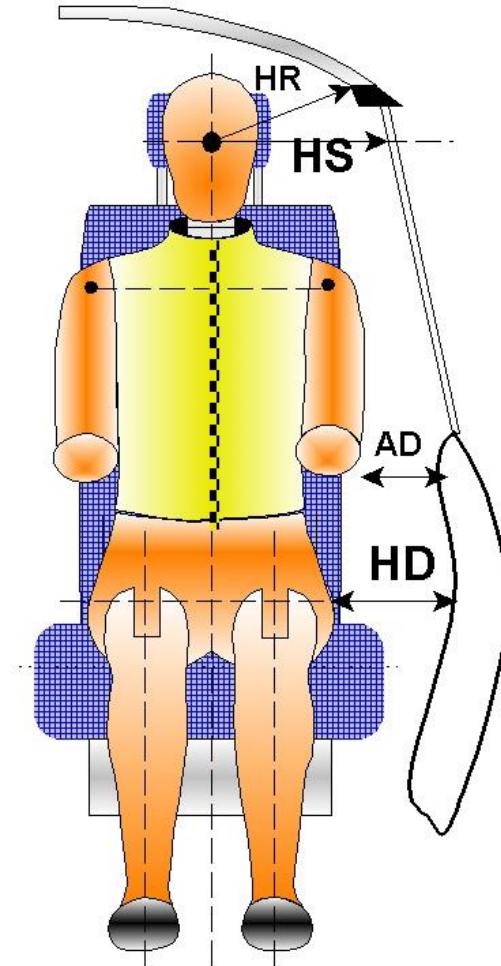


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	270	
HW	Head to Windshield	560	
HZ	Head to Visor	194	
NR	Nose to Rim	258	
CD	Chest to Dashboard	408	
CS	Chest to Steering Wheel	179	
KDL/KDLA°	Left Knee to Dash	84	29.0
KDR/KDRA°	Right Knee to Dash	26	29.0
PAX°	Pelvic Tilt Angle (X-axis)		0.1
PAY°	Pelvic Tilt Angle (Y-axis)		20.5
PHX	Hip Point to Striker (X-Axis)	418	
PHZ	Hip Point to Striker (Z-Axis)	224	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2023 Mitsubishi Outlander
 Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
 Test Date: 3/1/2023

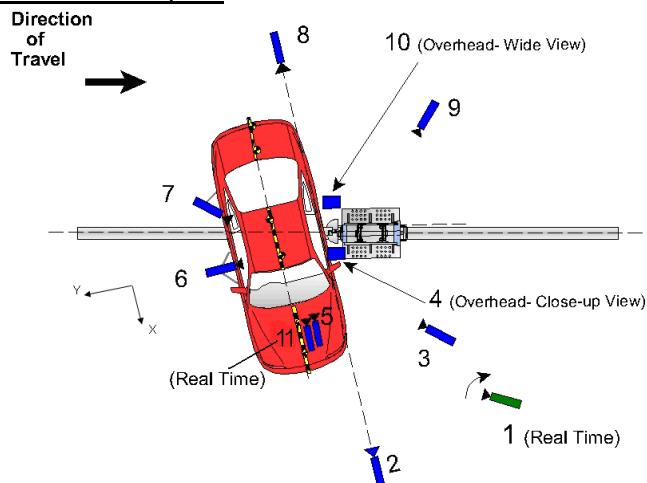


Code	Measurement Description	Length (mm)
HR	Head to Side Header	255
HS	Head to Side Window	422
AD	Arm to Door	130
HD	Hip Point to Door	155

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2023 Mitsubishi Outlander
 Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
 Test Date: 3/1/2023



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

Camera No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Real time (24-30 fps) pan view of impact				Zoom	30
2	Front ground level – impact view	5394	31	-1500	20	1000
3	Impact side 45° – forward pole view	-6003	10	-1360	20	1000
4	Overhead Close-up view of impact	-88	123	-4880	50	1000
5	Onboard – dummy front view				8.5	1000
6	Onboard – dummy side view				8.5	1000
7	Onboard – dummy rear oblique view				8.5	1000
8	Rear ground level – impact view	3145	1269	-1492	20	1000
9	Impact side 45° – rearward pole view	-3454	2278	-1510	20	1000
10	Overhead wide view of impact	0	0	-4895	12.5	1000
11	Real time dummy front view				Zoom	30

All measurements accurate to +/- 6 mm.

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

If applicable, explain why camera(s) did not run: Camera 11 failed to record

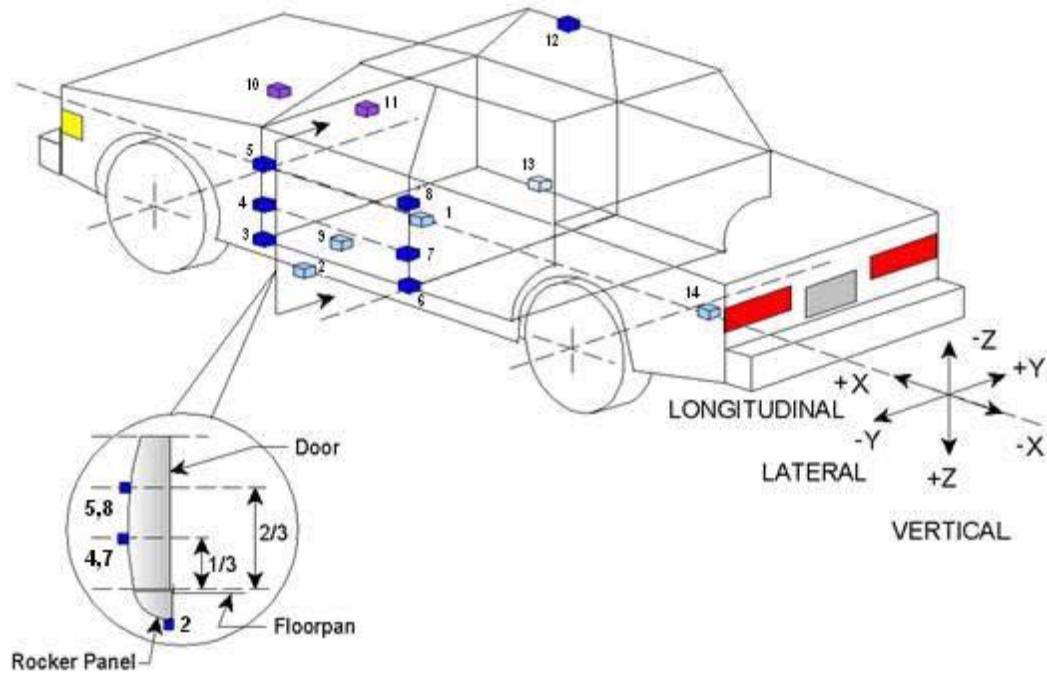
INSTRUMENTATION

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

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2023 Mitsubishi Outlander
Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
Test Date: 3/1/2023



Accelerometer/Sensor Location				
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2869	132	-442
2	Left Floor Sill	2903	-712	-442
3	A-Pillar Sill	3142	-692	-468
4	A-Pillar Low	3225	-822	-615
5	A-Pillar Mid	3255	-807	-1013
6	B-Pillar Sill	2064	-730	-513
7	B-Pillar Low	2150	-820	-632
8	B-Pillar Mid	2100	-795	-1090
9	Driver Seat Track	2390	-555	-442
10	Engine Top	3877	135	-889
11	Firewall	3685	50	-1020
12	Right Roof	2253	589	-1640
13	Right Floor Sill	2894	712	-425
14	Rear Floorpan	224	0	-883

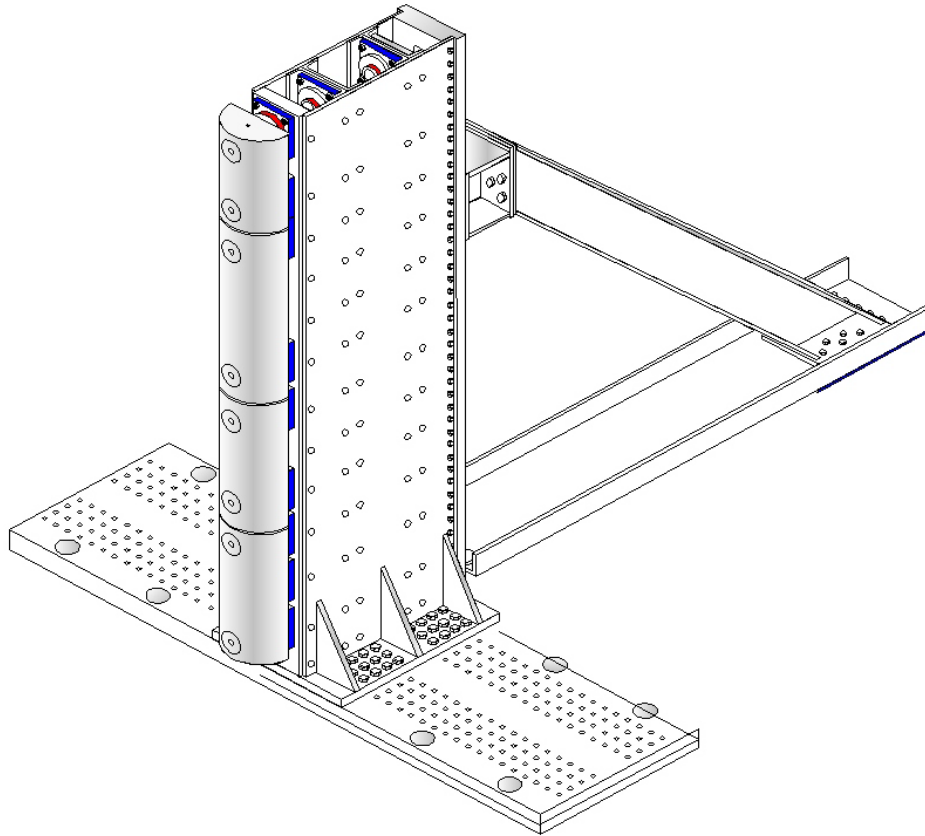
Reference: X - Test Vehicle Rear Bumper (+ forward)
Y - Test Vehicle Centerline (+ to right)
Z - Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2023 Mitsubishi Outlander
Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
Test Date: 3/1/2023

FOIL 300K RIGID POLE



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

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2023 Mitsubishi Outlander
Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
Test Date: 3/1/2023

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	SCAB
Top of Head	SCAB
Left Side of Head	SCAB
Back of Head	SCAB; Head Restraint
Left Shoulder	Side Seat Bolster, Side Airbag
Upper Torso	Side Seat Bolster, Side Airbag
Lower Torso	Side Seat Bolster, Side Airbag
Left Hip	Side Airbag
Left Knee	None

POST-TEST DOOR PERFORMANCE

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

POST-TEST SEAT PERFORMANCE

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

POST-TEST STRUCTURAL OBSERVATIONS

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

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

Test Vehicle: 2023 Mitsubishi Outlander
Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
Test Date: 3/1/2023

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

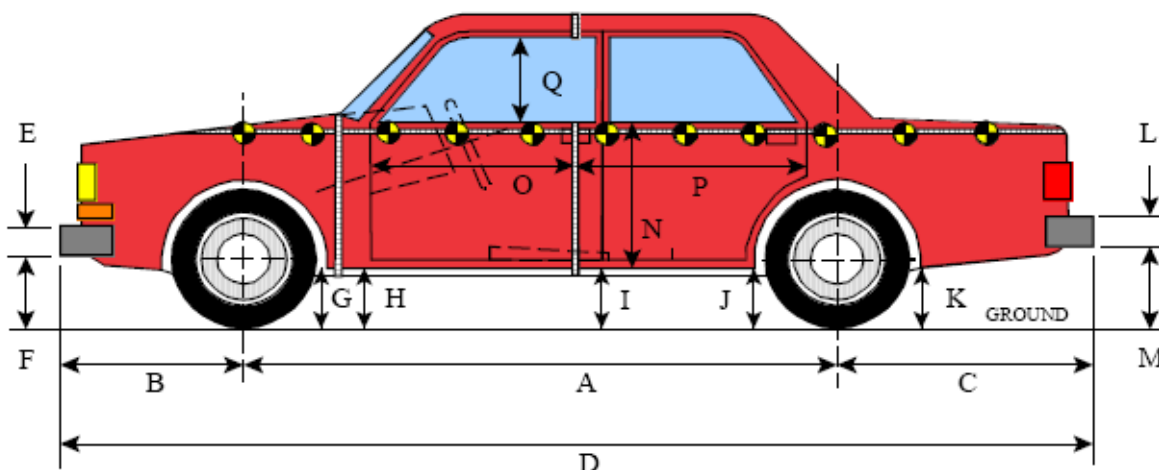
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1090
Actual Impact Point (Aft of Front Axle)	mm		1091
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 of Intended Impact point	-1
Angle Between Vehicle's Longitudinal Centerline and Line of Motion	degrees	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.15
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.12

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2023 Mitsubishi Outlander
Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
Test Date: 3/1/2023



LEFT SIDE VIEW

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

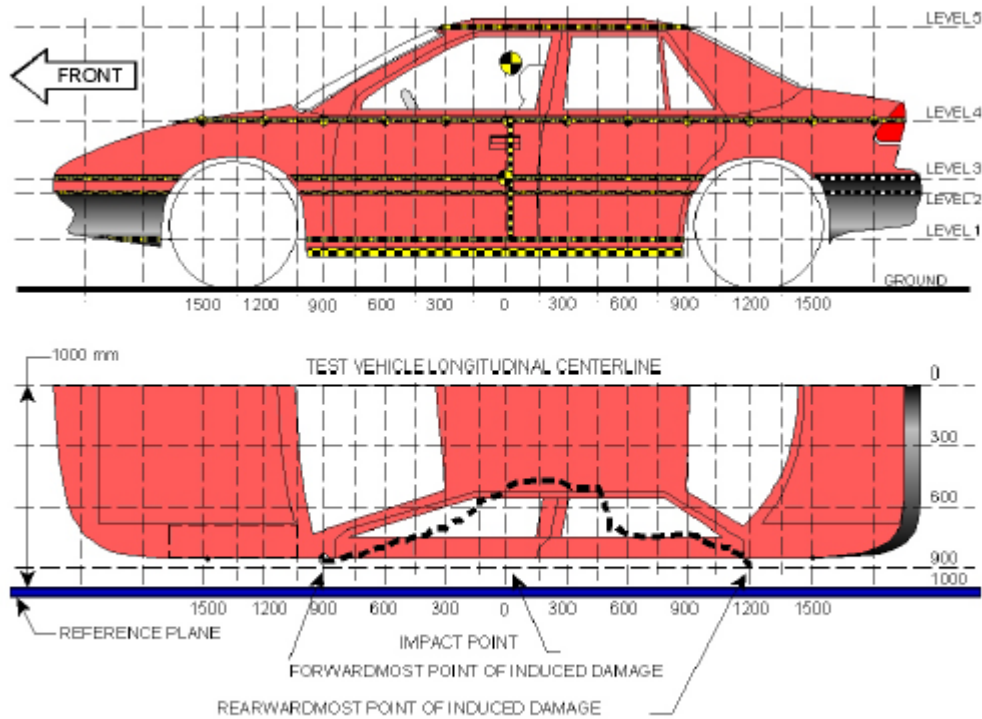
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	2712	2640	-72
B	Front Axle to Front Surface of Vehicle	900	900	0
C	Rear Axle to Rear Surface of Vehicle	1085	1085	0
D	Total Length at Centerline	4697	4655	-42
E	Front Bumper Thickness	82	82	0
F	Front Bumper Bottom to Ground	532	551	19
G	Sill Height at Front Wheel Well	355	365	10
H	Sill Height at Front Door Leading Edge	358	371	13
I	Sill Height at B-Pillar	372	419	47
J1	Sill Height at Rear Wheel Well	380	453	73
J2	Pinch Weld Height at Rear Wheel Well	300	365	65
K	Sill Height Aft of Rear Wheel Well	448	514	66
L	Rear Bumper Thickness	172	172	0
M	Rear Bumper Bottom to Ground	528	609	81
N	Sill Height to Bottom of Front Window Sill	898	892	-6
O	Front Door Leading Edge to Impact CL	634	635	1
P	Rear Door Trailing Edge to Impact CL	1520	1458	-62
Q	Front Window Opening	438	398	-40
R	Right Side Length	4468	4485	17
S	Left Side Length	4472	4410	-62
T	Vehicle Width at B-Pillars	1804	1790	-14
U	Front Wheel Track Width	1693	1610	-83
V	Rear Wheel Track Width	1603	1565	-38

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2023 Mitsubishi Outlander
 Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
 Test Date: 3/1/2023



NOTE: All measurements are in millimeters (mm)

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	422	333	0
2	Occupant H-Point	734	342	0
3	Mid-Door	705	337	0
4	Window Sill	1117	294	0
5	Window Top	1614	103	0

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

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

Test Vehicle: 2023 Mitsubishi Outlander
 Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
 Test Date: 3/1/2023

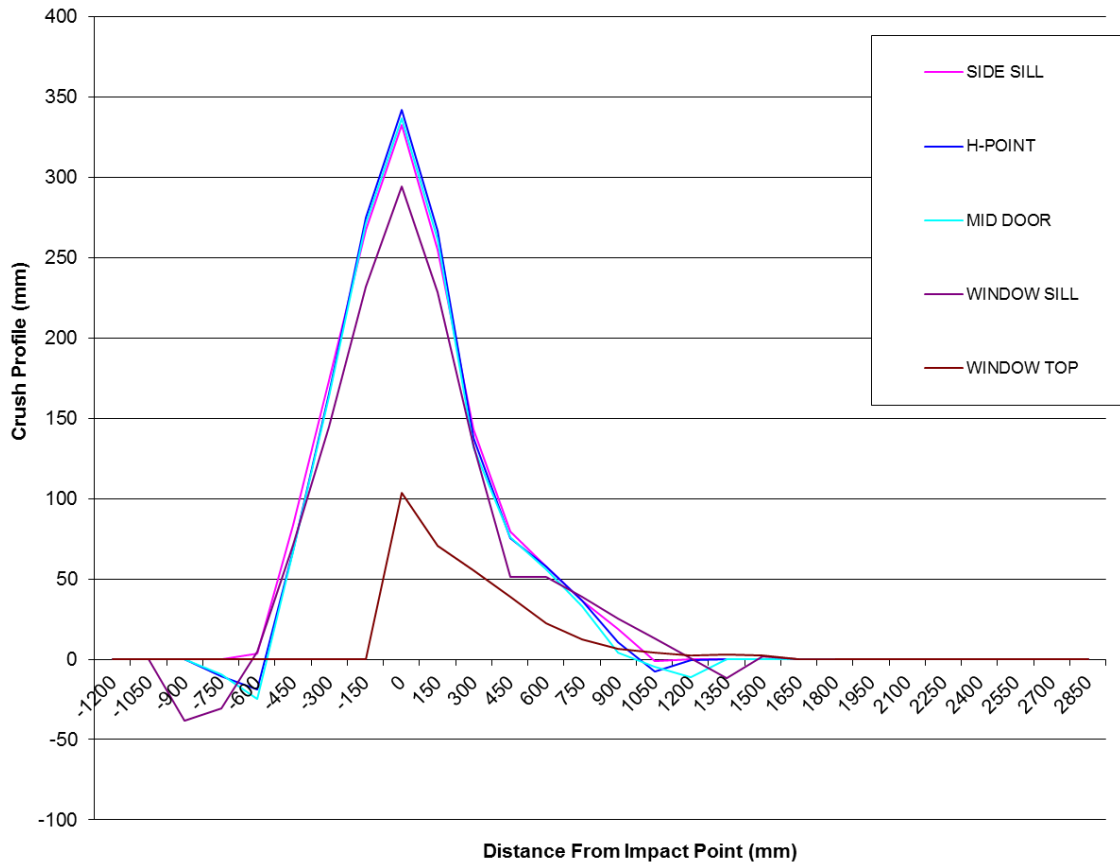
	Pre-Test					Post-Test					Crush				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900	0	0	0	818	0	0	0	0	856	0	0	0	0	-38	0
-750	0	929	928	821	0	0	940	937	852	0	0	-11	-9	-31	0
-600	911	926	926	823	0	908	945	951	819	0	3	-19	-25	4	0
-450	908	920	918	827	0	824	853	851	755	0	84	67	67	72	0
-300	909	915	912	839	0	736	749	748	694	0	173	166	164	145	0
-150	909	913	909	850	0	642	638	638	617	0	267	275	271	233	0
0	909	912	908	857	613	576	570	571	563	510	333	342	337	294	103
150	908	911	907	863	627	653	644	646	635	556	255	267	261	228	71
300	907	910	906	867	633	764	773	774	734	577	143	137	132	133	56
450	905	909	905	872	634	826	834	829	821	595	79	75	76	51	39
600	902	908	904	875	635	844	850	848	823	612	58	58	56	52	23
750	900	909	906	878	634	863	873	873	839	621	37	36	33	39	13
900	899	914	912	879	631	880	904	908	854	624	19	10	4	25	7
1050	901	922	921	879	628	902	930	925	867	624	-1	-8	-4	12	4
1200	0	926	928	870	623	0	927	939	869	621	0	-1	-11	1	2
1350	0	0	0	865	619	0	0	0	877	616	0	0	0	-12	3
1500	0	0	0	870	613	0	0	0	868	610	0	0	0	2	3

NOTE: Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point. The final distance from impact is determined after the final dummy positioning and the pole is aligned with the center of gravity of the dummy's head.

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

Test Vehicle: 2023 Mitsubishi Outlander
Test Program: SPNCAP Side Impact

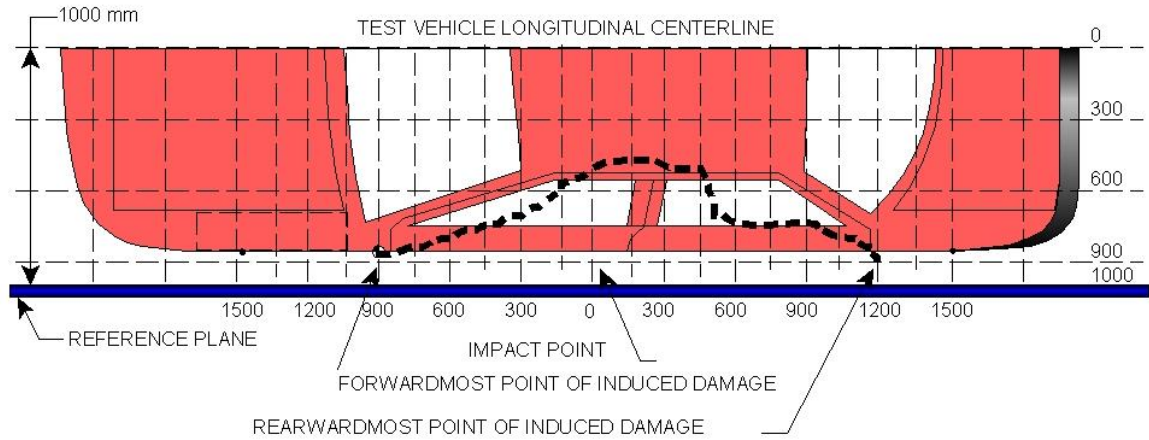
NHTSA No.: M20235601
Test Date: 3/1/2023



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2023 Mitsubishi Outlander
 Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
 Test Date: 3/1/2023



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	1500	5	610	613	3
2	1050	4	867	879	12
3	600	1	844	902	58
		2	850	908	
4	300	1	764	907	143
5	-150	3	638	909	271
6 ¹	-600	4	819	823	0

¹ DPD 6 is defined as zero crush since the crush does not extend to the end of the vehicle.

DATA SHEET NO. 12

FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

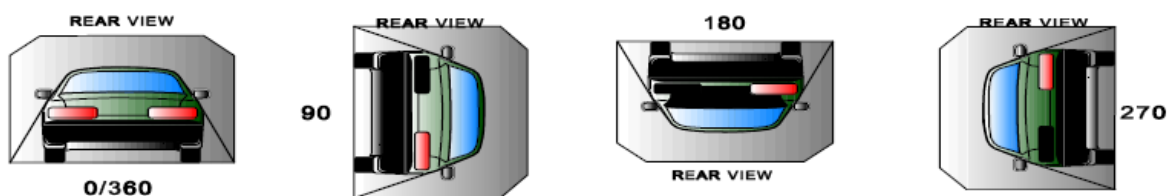
Test Vehicle: 2023 Mitsubishi Outlander
 Test Program: SPNCAP Side Impact

NHTSA No.: M20235601
 Test Date: 3/1/2023

Test Time: 15:30 Temperature: 21.6°C

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

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

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

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

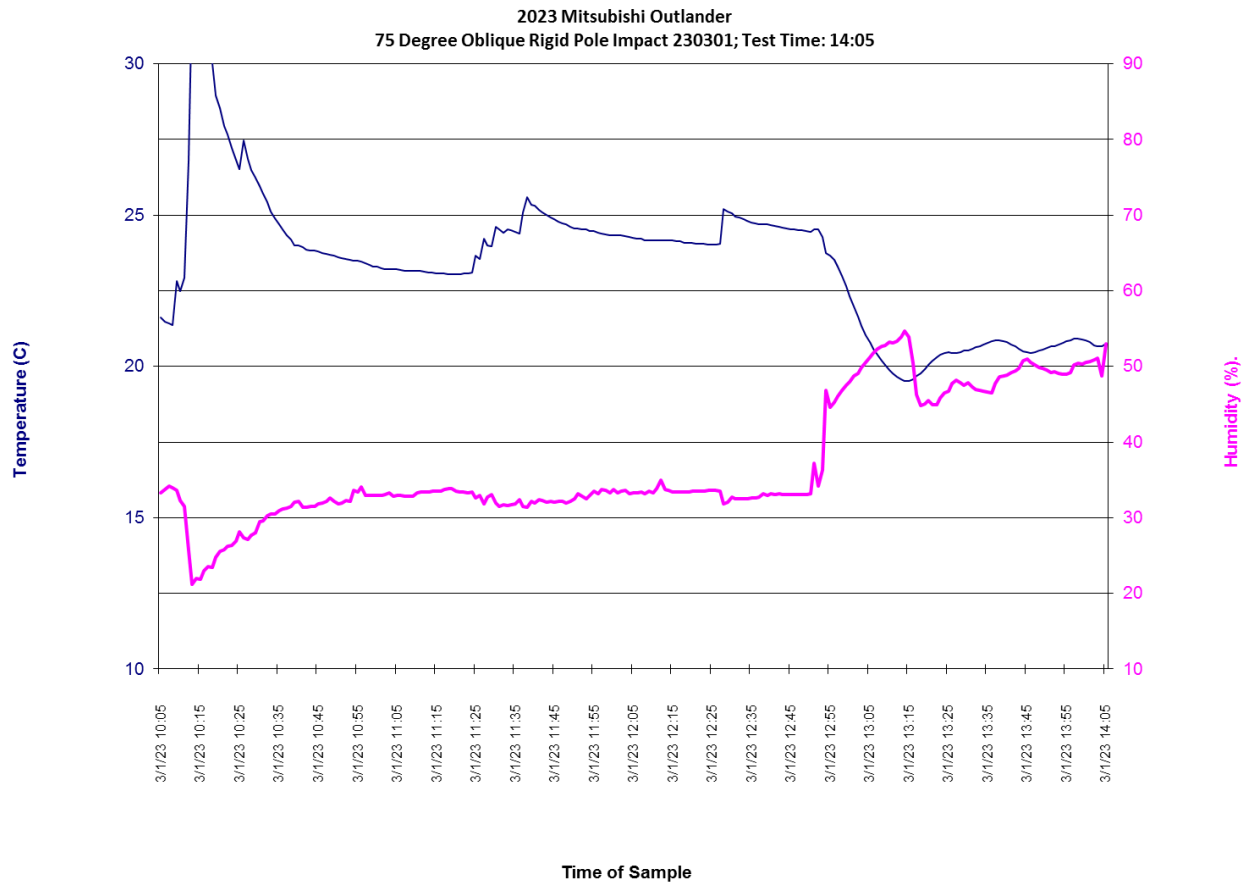
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	0	0
90 to 180	0	0	0	0
180 to 270	0	0	0	0
270 to 360	0	0	0	0

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

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

Test Vehicle: 2023 Mitsubishi Outlander NHTSA No.: M20235601
Test Program: SPNCAP Side Impact Test Date: 3/1/2023



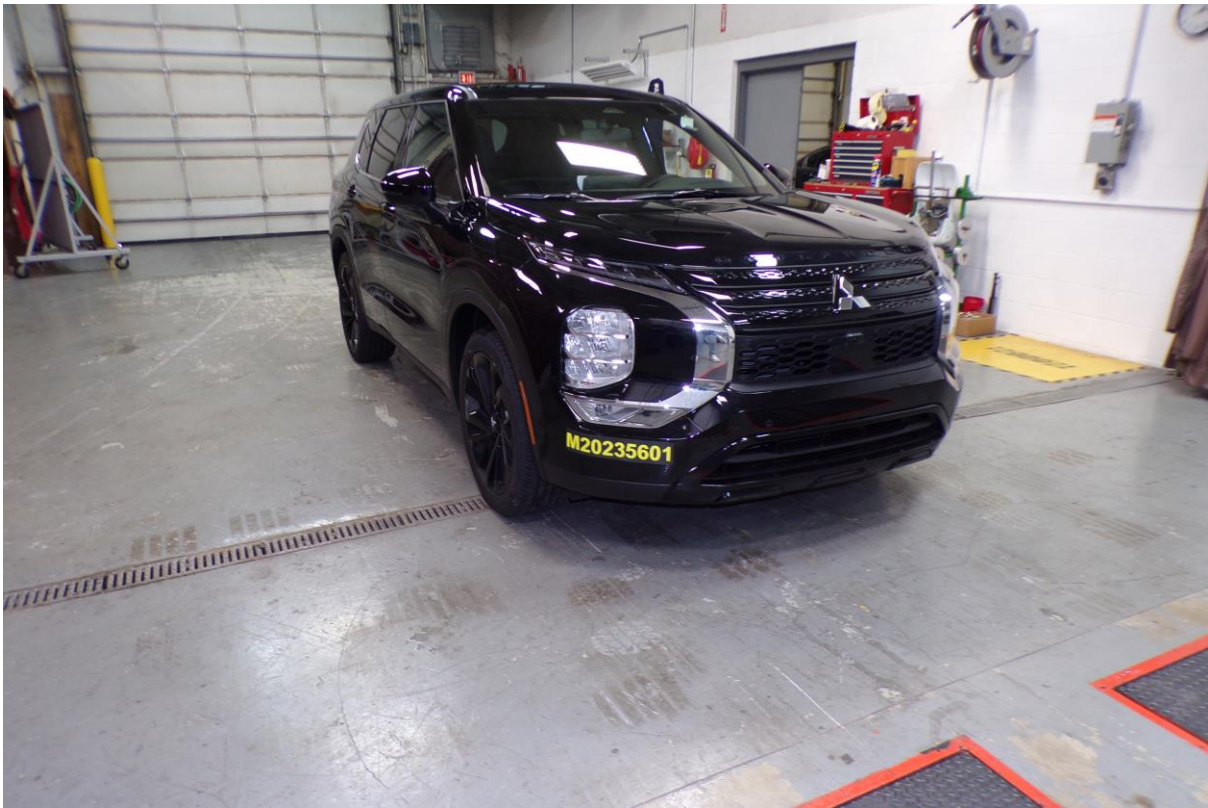
APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

No.	Description	Page
1	As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle	A-4
2	As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-4
3	Pre-Test Frontal View of Test Vehicle	A-5
4	Post-Test Frontal View of Test Vehicle	A-5
5	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-6
6	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-6
7	Pre-Test Left Side View of Test Vehicle	A-7
8	Post-Test Left Side View of Test Vehicle	A-7
9	Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-8
10	Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-8
11	Pre-Test Rear View of Test Vehicle	A-9
12	Post-Test Rear View of Test Vehicle	A-9
13	Pre-Test Right Side View of Test Vehicle	A-10
14	Post-Test Right Side View of Test Vehicle	A-10
15	Pre-Test Overhead View of Test Area	A-11
16	Post-Test Overhead View of Test Area	A-11
17	Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	A-12
18	Pre-Test Right Side View of Pole Positioned Against Side of Vehicle	A-12
19	Pre-Test Close-Up View of Impact Point Target	A-13
20	Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-13
21	Pre-Test Front Close-Up View of Dummy Head and Chest	A-14
22	Post-Test Front Close-Up View of Dummy	A-14
23	Pre-Test Left Side View of Dummy Showing Belt and Chalking	A-15
24	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-16
25	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-16
26	Pre-Test Front View of Seat Back Prior to Dummy Positioning	A-17
27	Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint	A-17
28	Pre-Test Front View of Seat Pan Prior to Dummy Positioning	A-18
29	Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-18
30	Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-19
31	Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level	A-19
32	Pre-Test Placement of Dummy's Feet	A-20
33	Pre-Test View of Belt Anchorage for Dummy	A-20
34	Pre-Test Left Side View of Steering Wheel	A-21
35	Pre-Test View of Disengaged Parking Brake	A-21

TABLE OF PHOTOGRAPHS (CONTINUED)

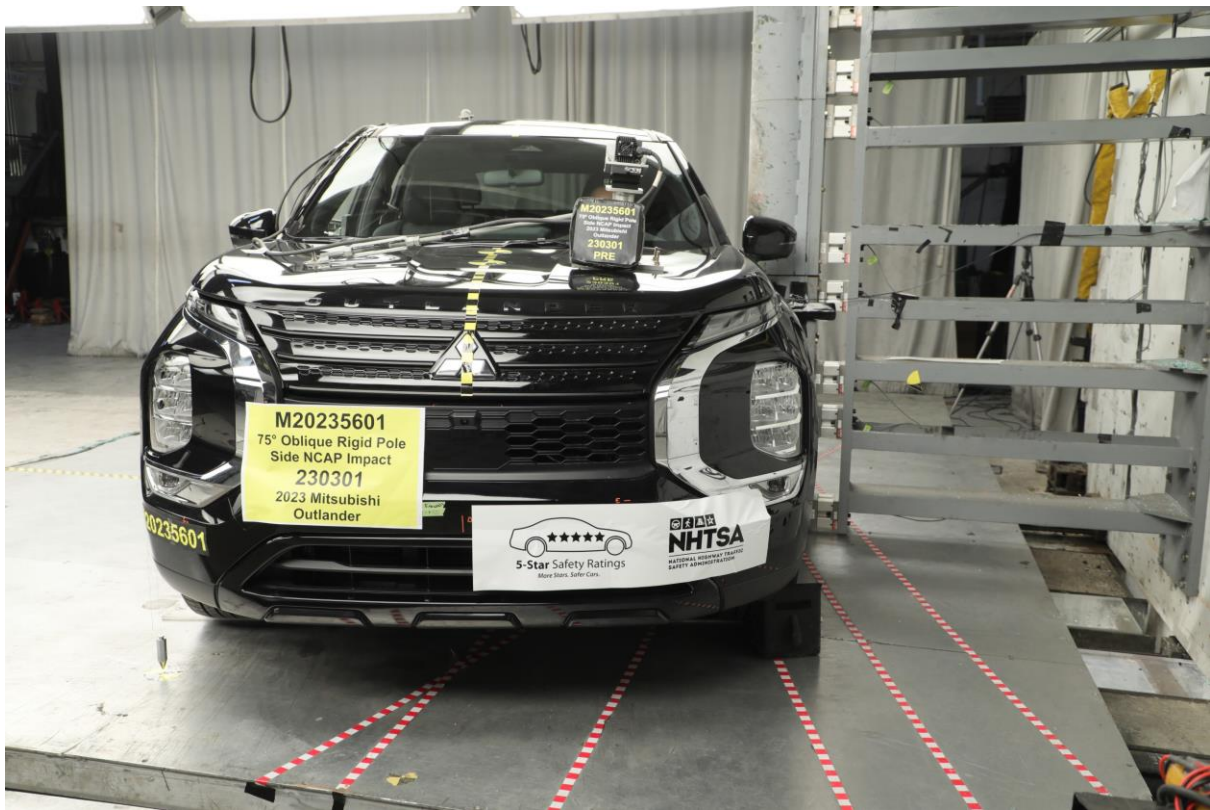
No.	Description	Page
36	Pre-Test View of Parking Brake	A-22
37	Pre-Test Close-Up Left Side View of Driver Seat Track	A-22
38	Pre-Test Close-Up Left Side View of Driver Seat Back	A-23
39	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-23
40	Pre-Test Dummy and Door Clearance View	A-24
41	Post-Test Dummy and Door Clearance View	A-24
42	Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-25
43	Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-25
44	Pre-Test Inner Driver Door Panel View	A-26
45	Post-Test Inner Driver Door Panel View Showing Dummy Contact Location	A-26
46	Post-Test Dummy Close-Up Head Contact with Vehicle Interior View	A-27
47	Post-Test Dummy Close-Up Head Contact with Side Airbag View	A-28
48	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-28
49	Post-Test Dummy Close-Up Torso Contact with Side Airbag View	A-29
50	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-29
51	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-30
52	Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View	A-30
53	Post-Test Right Side View of Dummy and Rear Seat of Occupant Compartment	A-31
54	Post-Test Inner Rear Passenger Torso Air Bag Deployment View	A-31
55	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-32
56	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-32
57	Close-Up View of Vehicle's Certification Label	A-33
58	Close-Up View of Vehicle's Tire Information Placard or Label	A-33
59	Pre-Test Pole Barrier Front View	A-34
60	Post-Test Pole Barrier Front View	A-34
61	Pre-Test Pole Barrier Side View	A-35
62	Post-Test Pole Barrier Side View	A-35
63	Pre-Test Ballast View	A-36
64	Post-Test Primary and Redundant Speed Trap Read-Out	A-36
65	FMVSS No. 301 Static Rollover 0 Degrees	A-37
66	FMVSS No. 301 Static Rollover 90 Degrees	A-37
67	FMVSS No. 301 Static Rollover 180 Degrees	A-38
68	FMVSS No. 301 Static Rollover 270 Degrees	A-38
69	FMVSS No. 301 Static Rollover 360 Degrees	A-39
70	Impact Event	A-39
71	Monroney Label	A-40
72	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-40
73	Post-Test View of Shattered Vehicle Inner Door Panel	A-41



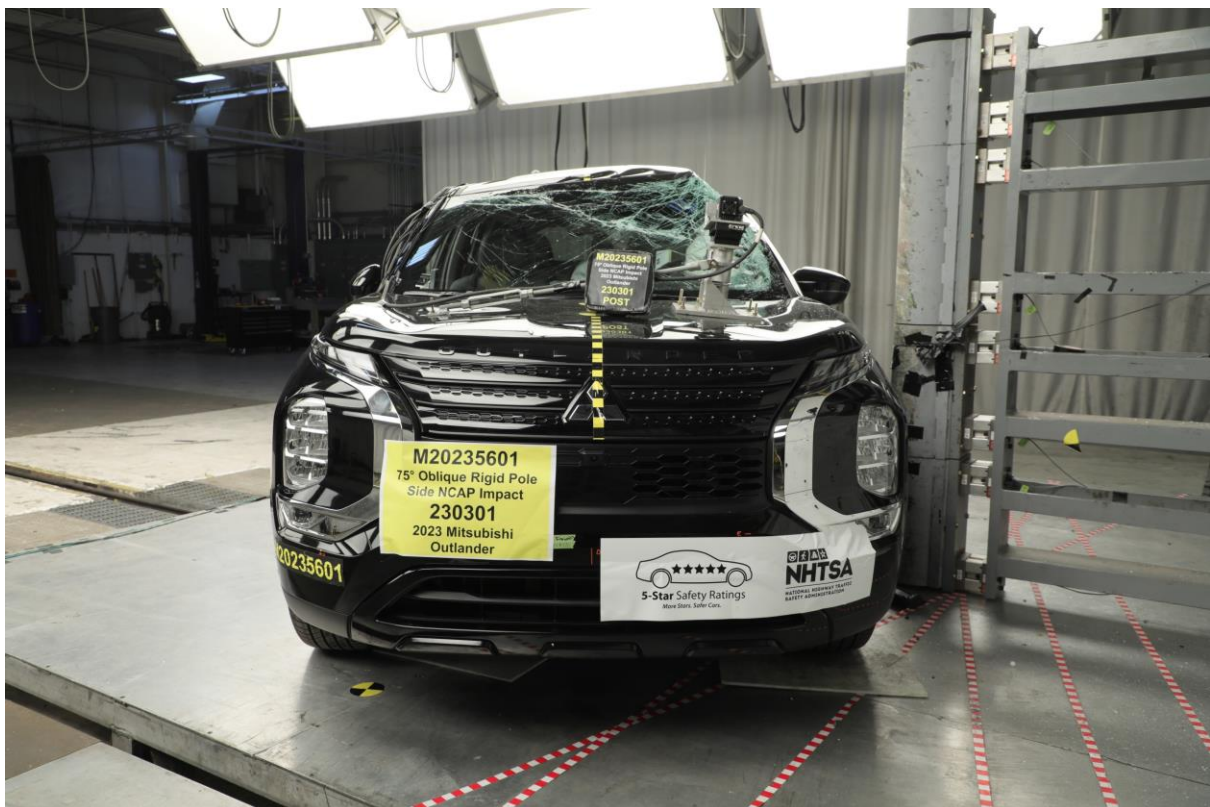
No. 001 As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



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



No. 003 Pre-Test Frontal View of Test Vehicle



No. 004 Post-Test Frontal View of Test Vehicle



No. 005 Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



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



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



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



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



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



No. 011 Pre-Test Rear View of Test Vehicle



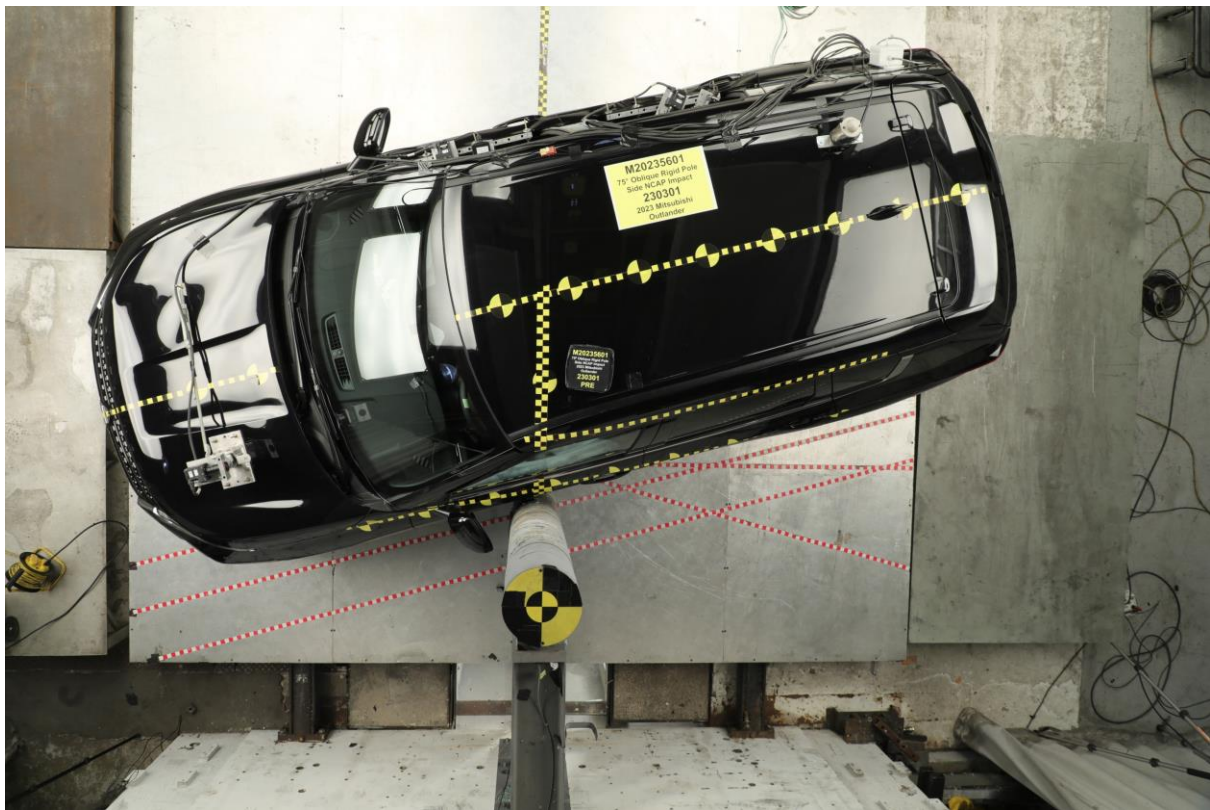
No. 012 Post-Test Rear View of Test Vehicle



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



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



No. 015 Pre-Test Overhead View of Test Area



No. 016 Post-Test Overhead View of Test Area

PHOTO NOT AVAILABLE

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



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



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



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



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



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



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

Intentionally Left Blank



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



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



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



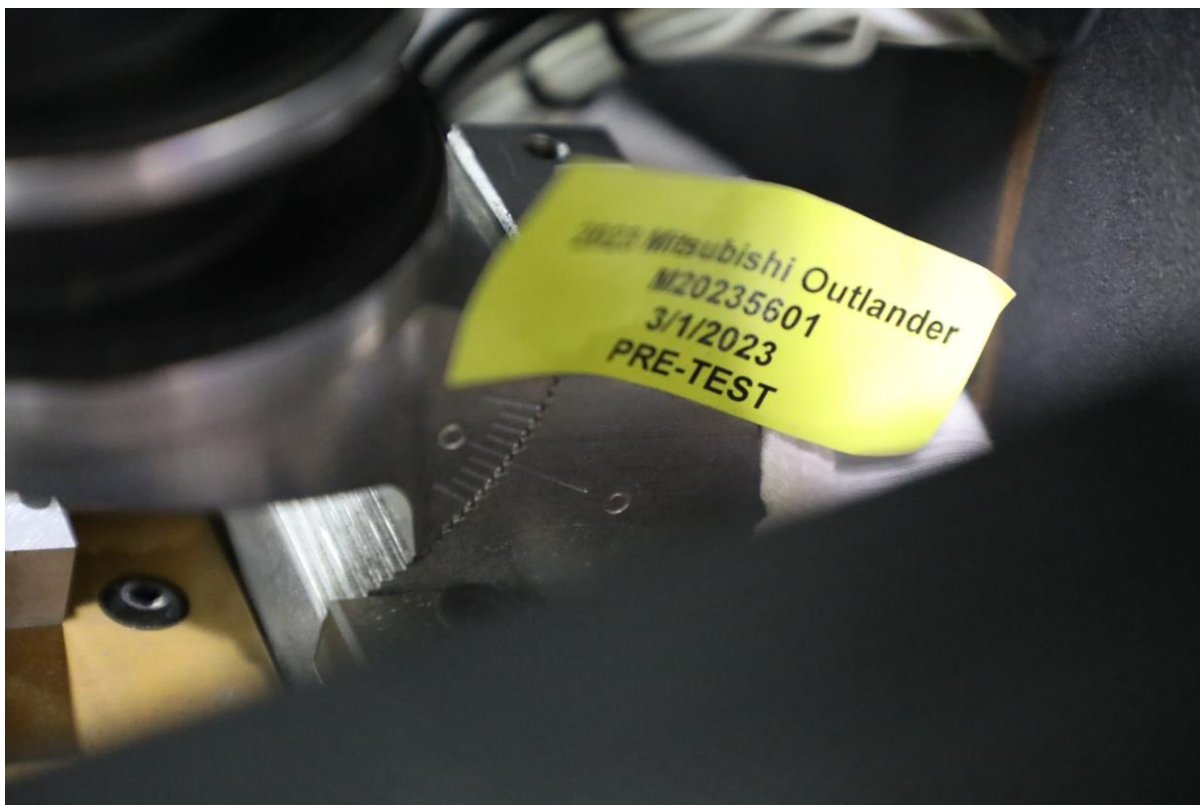
No. 027 Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



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



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



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



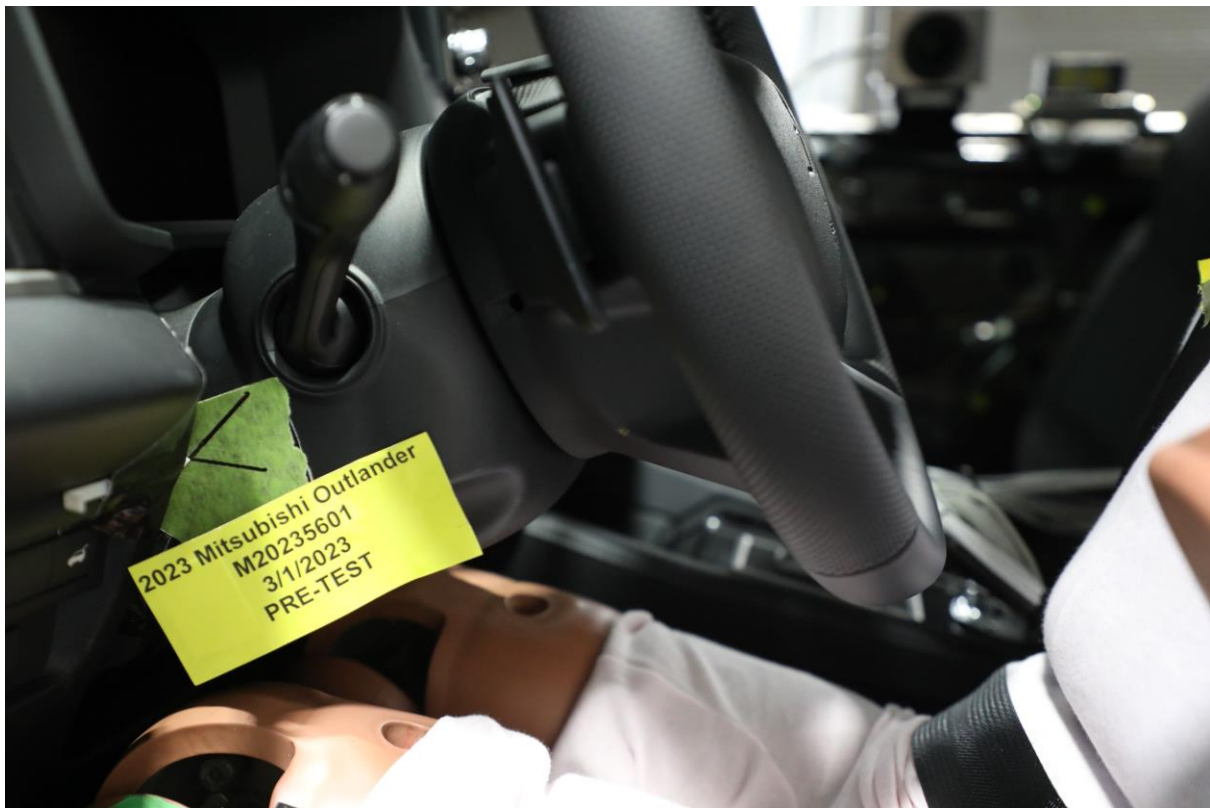
No. 031 Pre-Test Left Side View of Dummy Head Showing Dummy Head is Level



No. 032 Pre-Test Placement of Dummy Feet



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



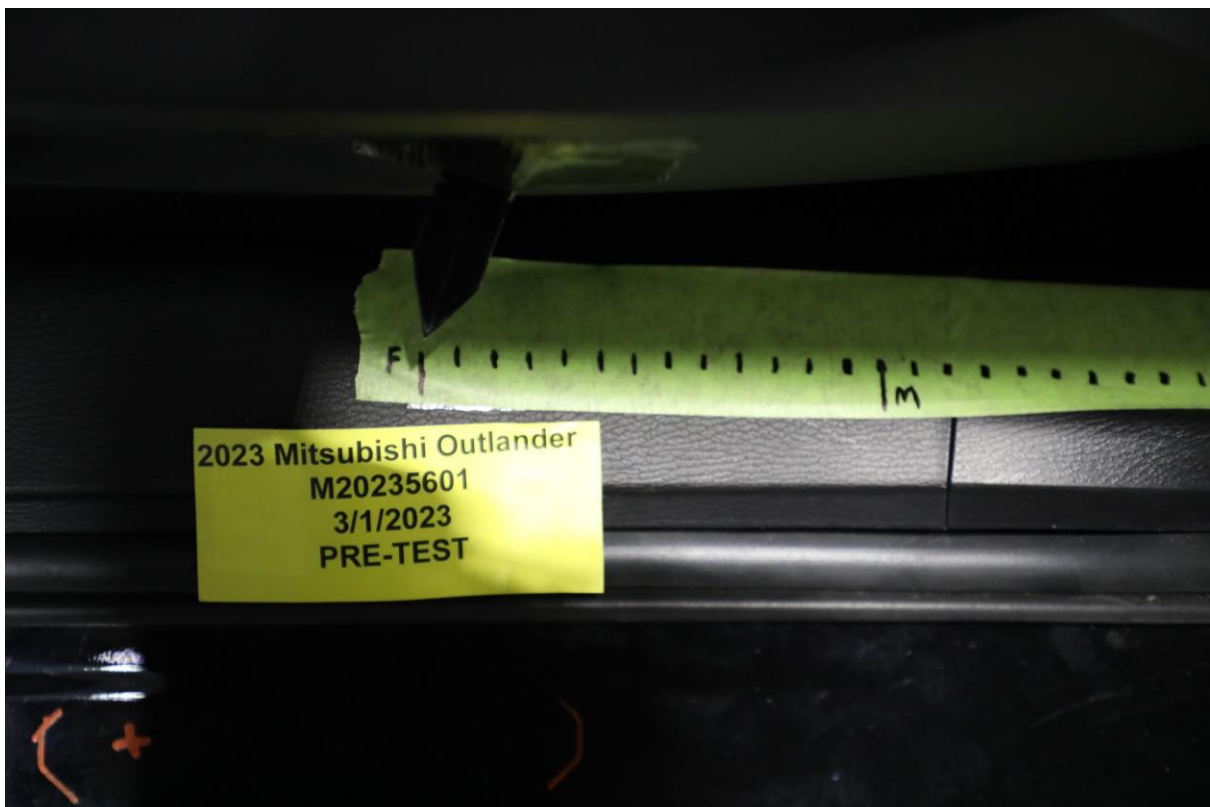
No. 034 Pre-Test Left Side View of Steering Wheel



No. 035 Pre-Test View of Disengaged Parking Brake



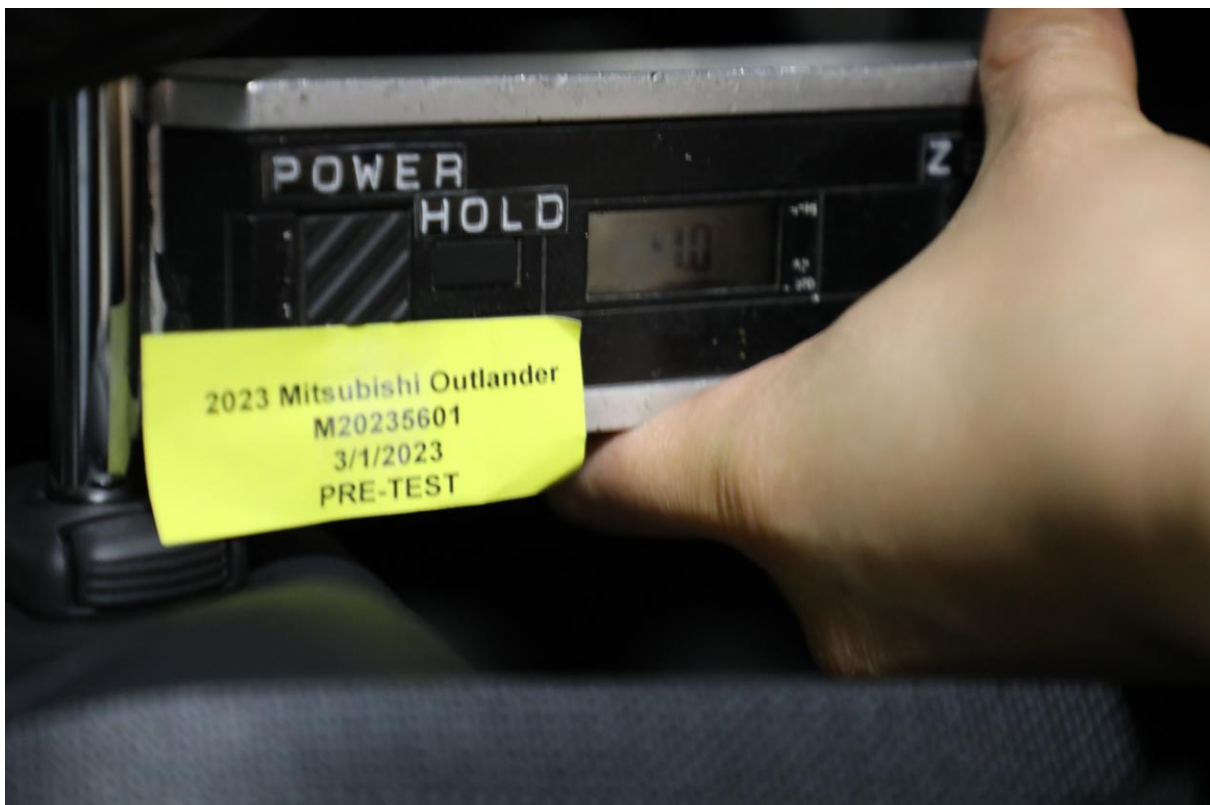
No. 036 Pre-Test View of Parking Brake



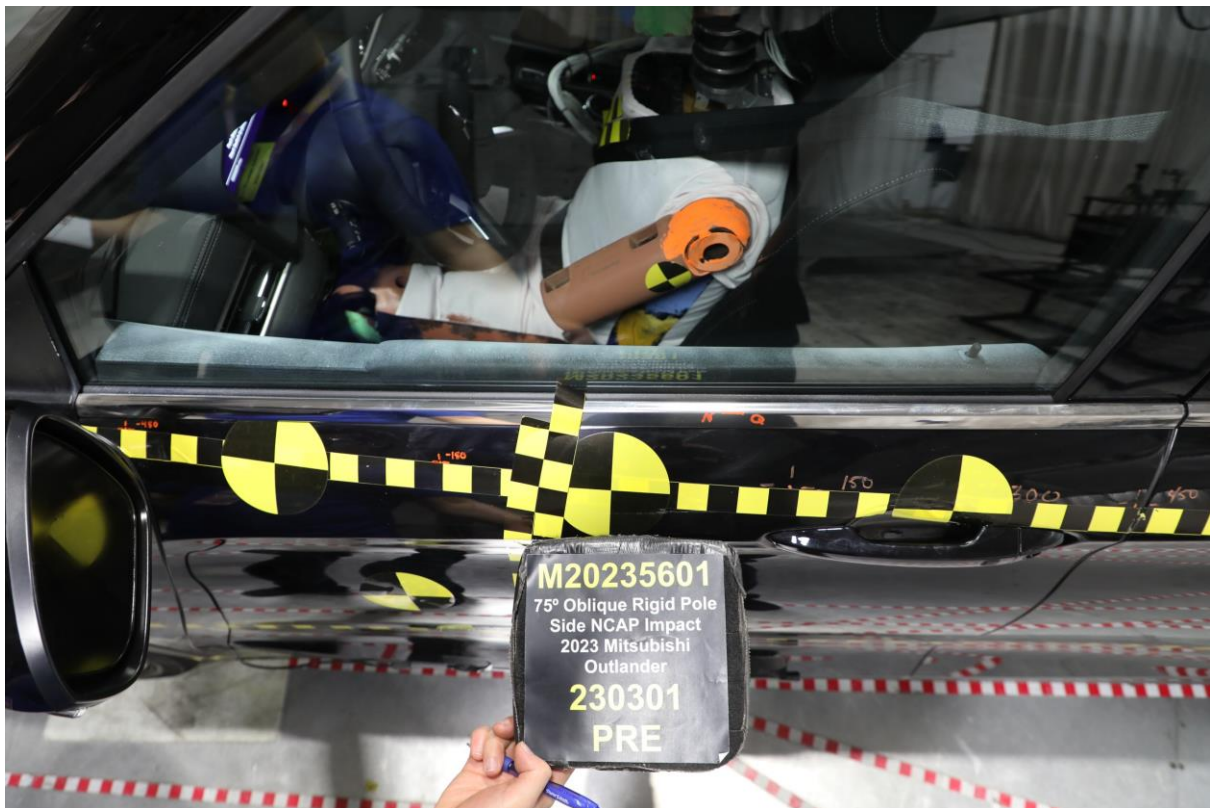
No. 037 Pre-Test Close-Up Left Side View of Driver Seat Track



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



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



No. 040 Pre-Test Dummy and Door Clearance View



No. 041 Post-Test Dummy and Door Clearance View



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



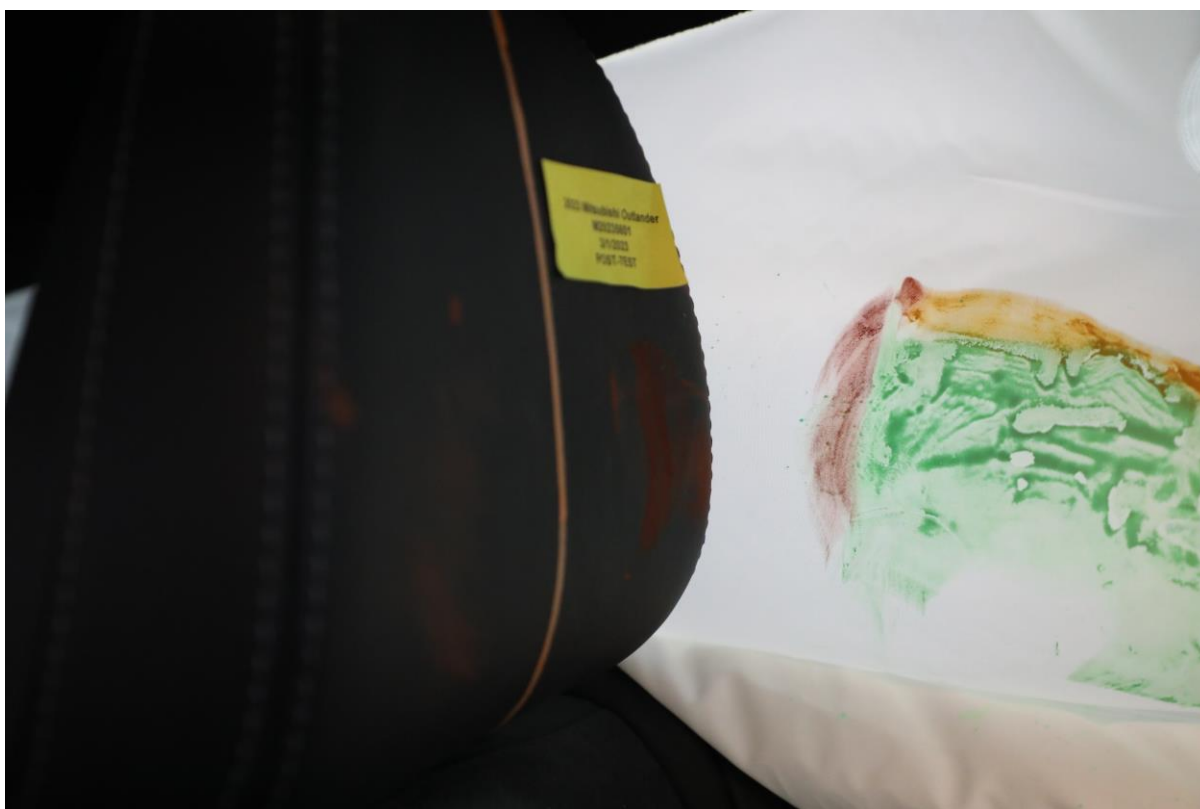
No. 043 Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment



No. 044 Pre-Test Inner Door Panel View



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



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

Intentionally Left Blank



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



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



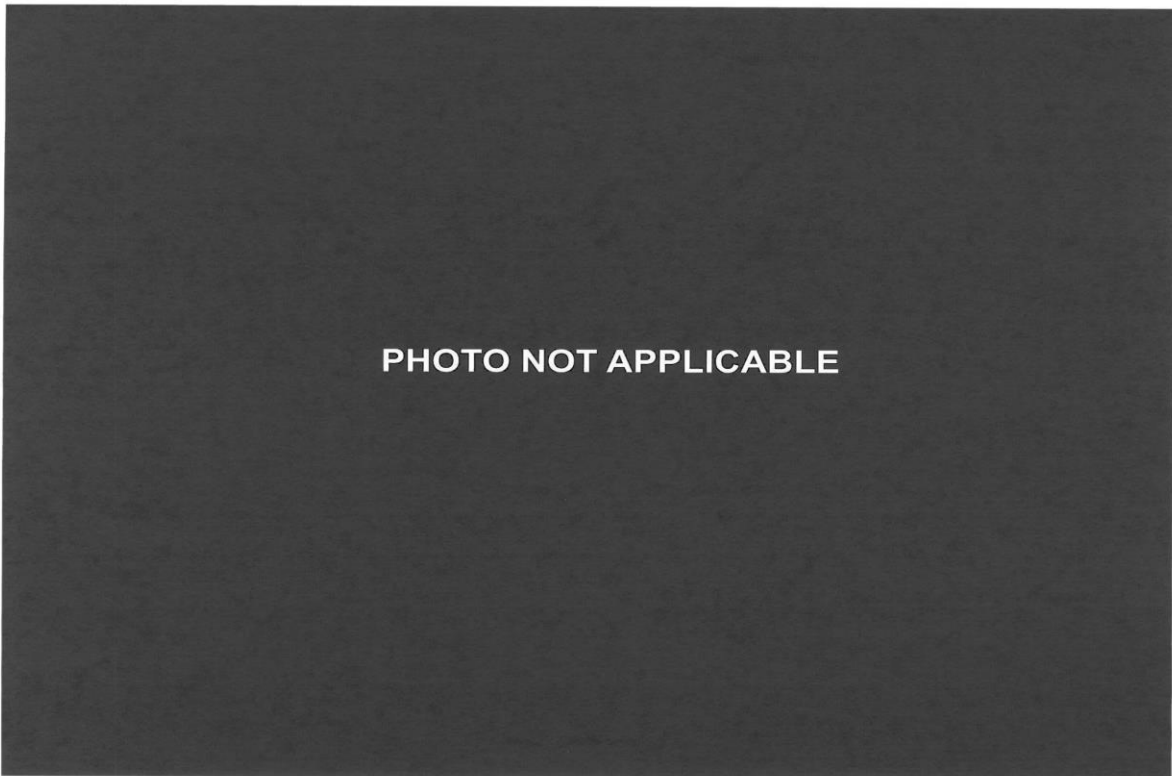
No. 049 Post-Test Dummy Close-Up Torso Contact with Side Airbag View



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



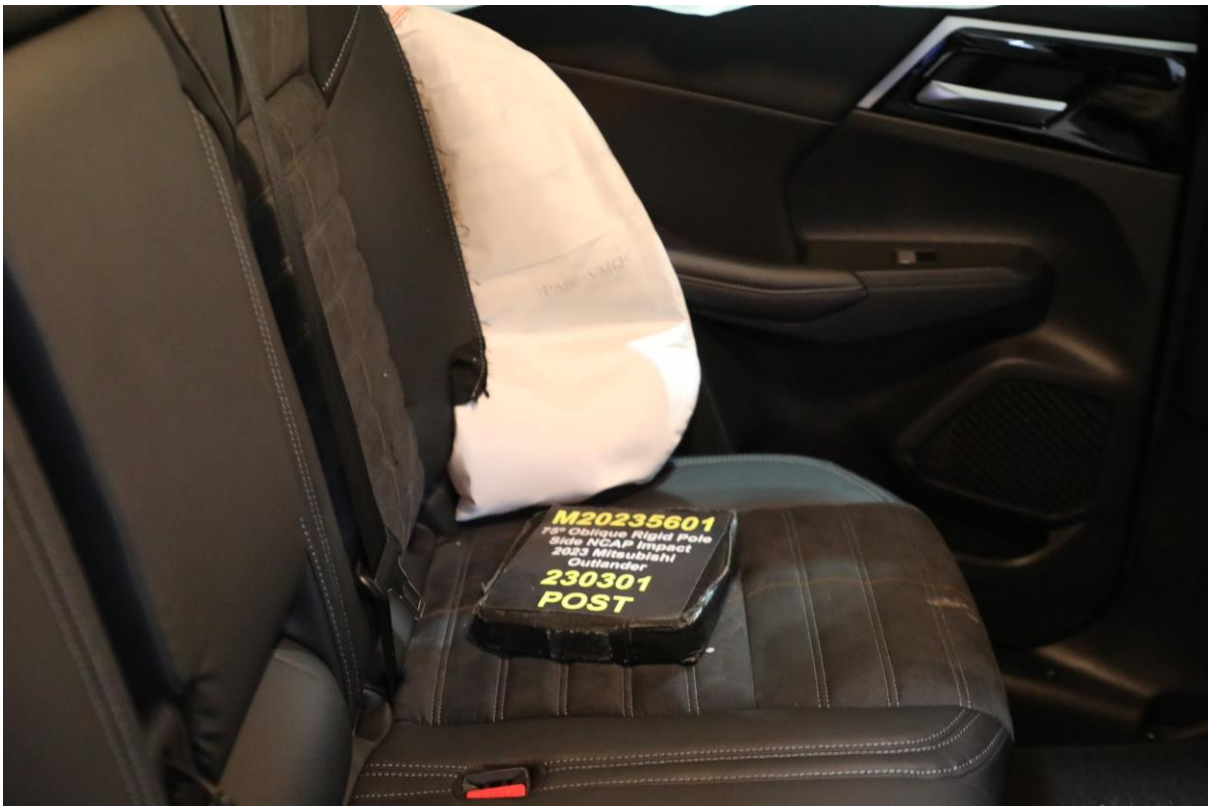
No. 051 Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



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



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



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



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



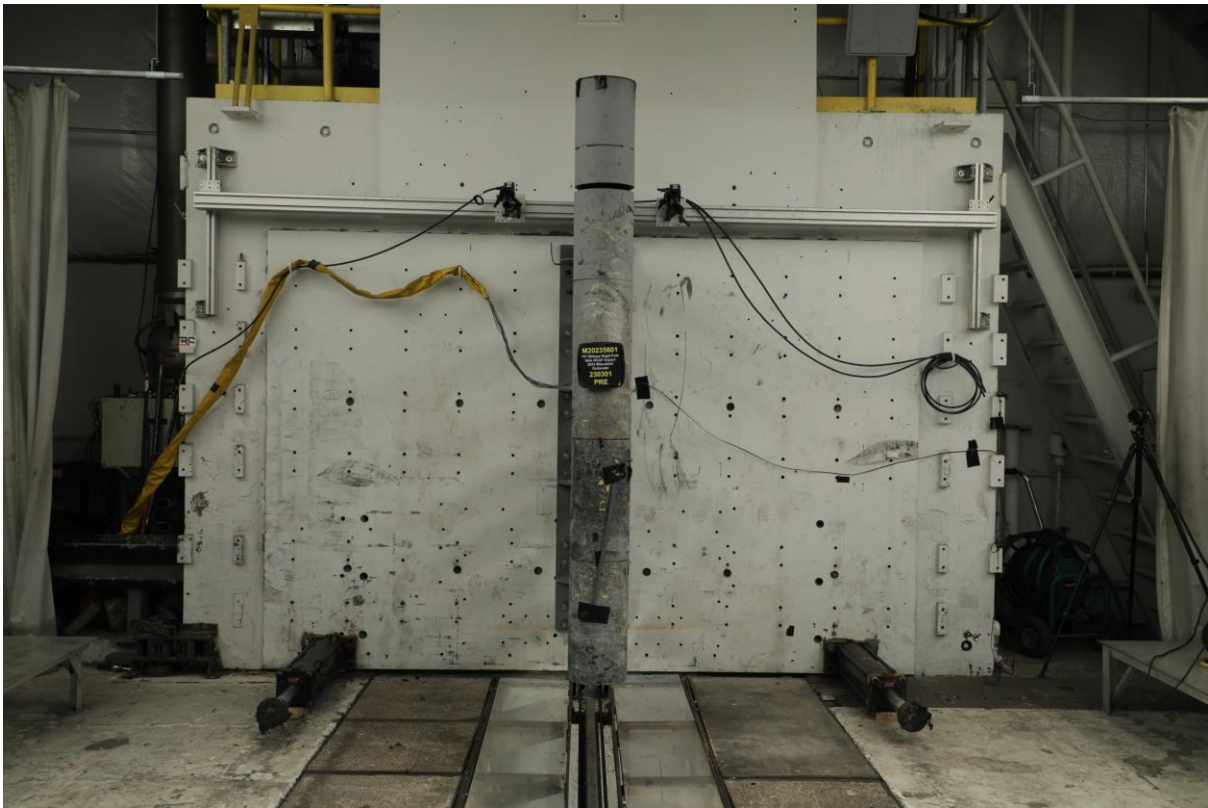
No. 056 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



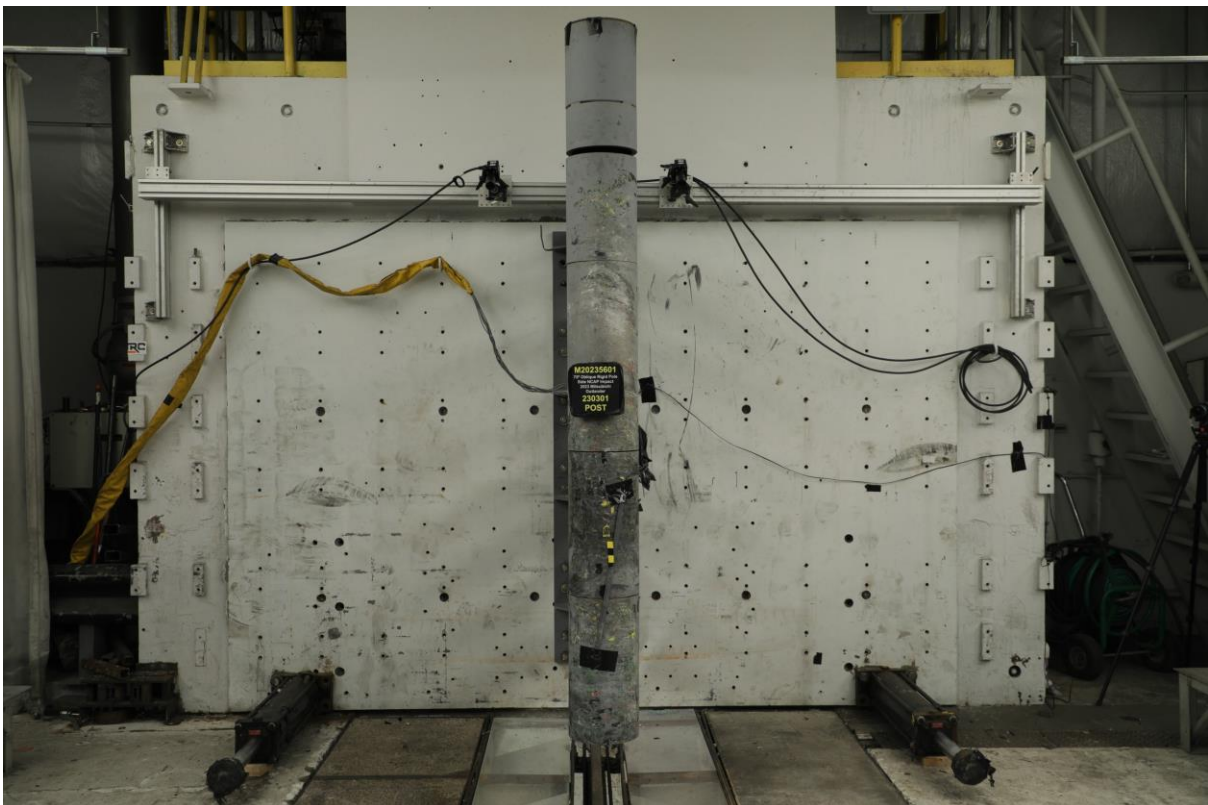
No. 057 Close-Up View of Vehicle Certification Label



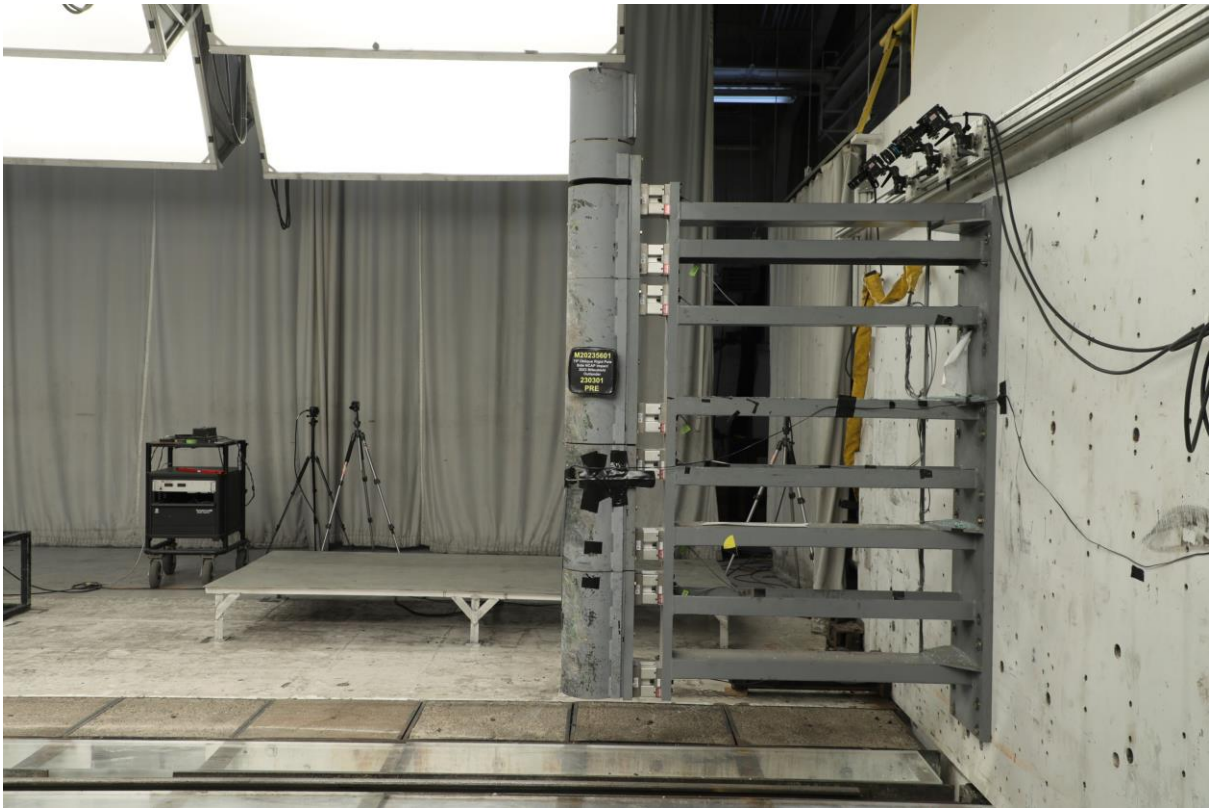
No. 058 Close-Up View of Vehicle Tire Information Placard or Label



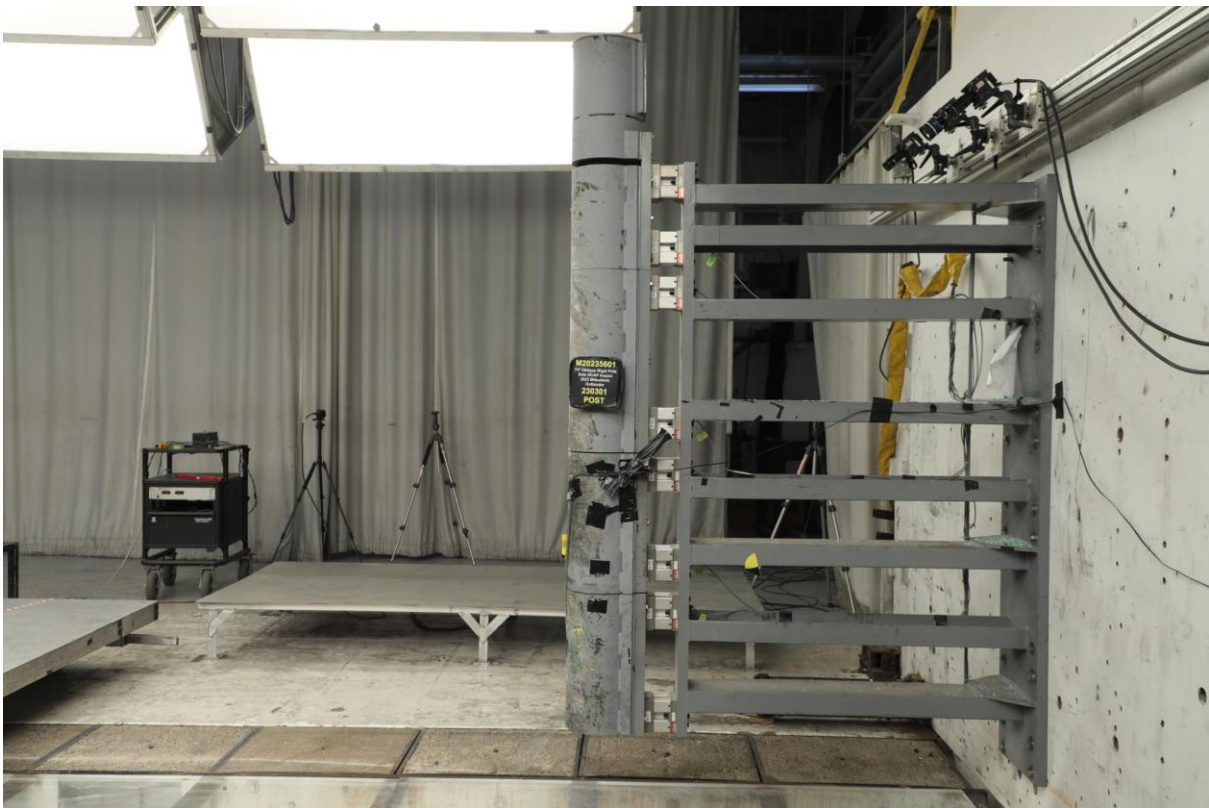
No. 059 Pre-Test Pole Barrier Front View



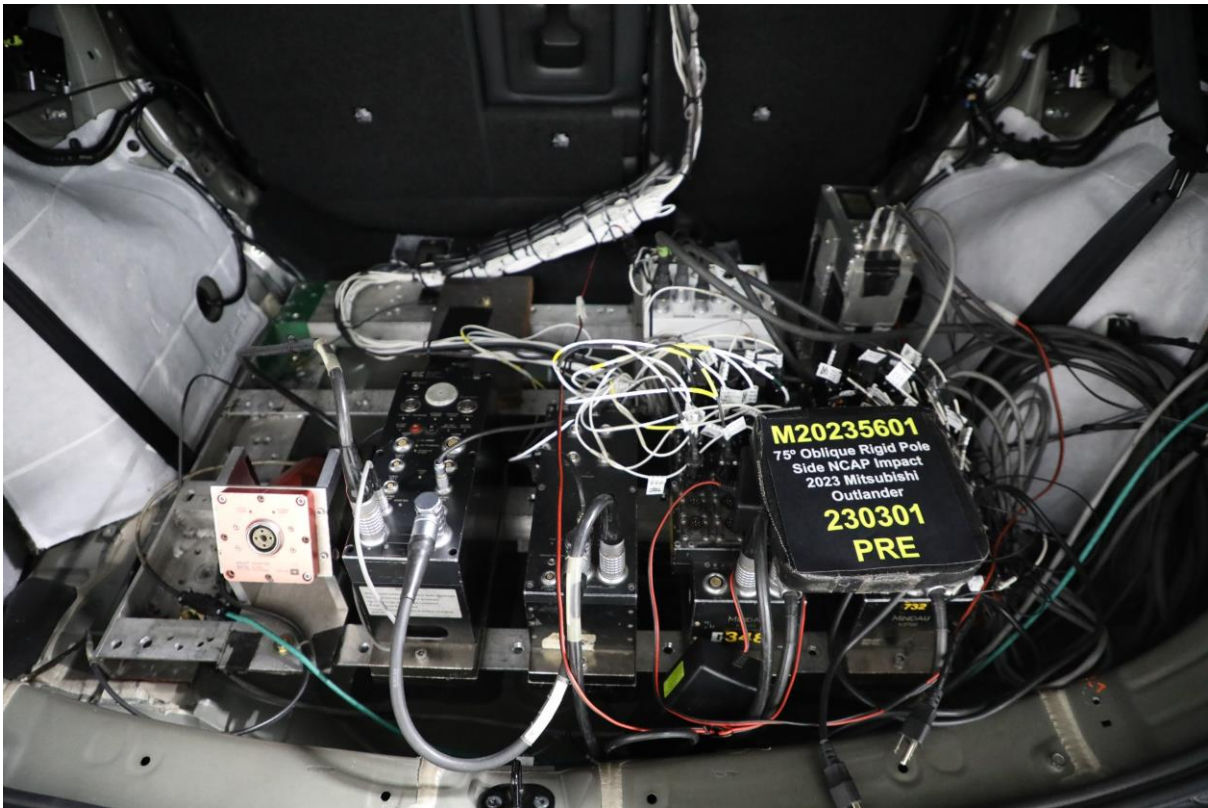
No. 060 Post-Test Pole Barrier Front View



No. 061 Pre-Test Pole Barrier Side View



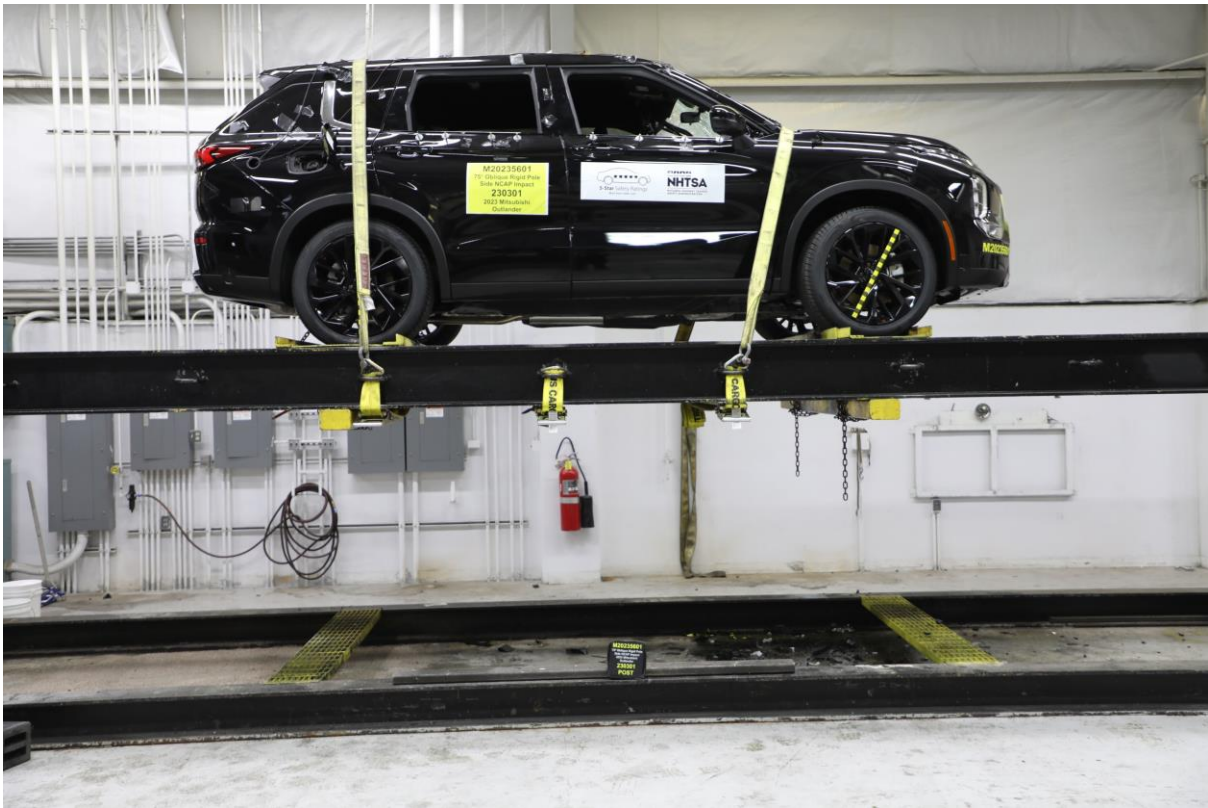
No. 062 Post-Test Pole Barrier Side View



No. 063 Pre-Test Ballast View



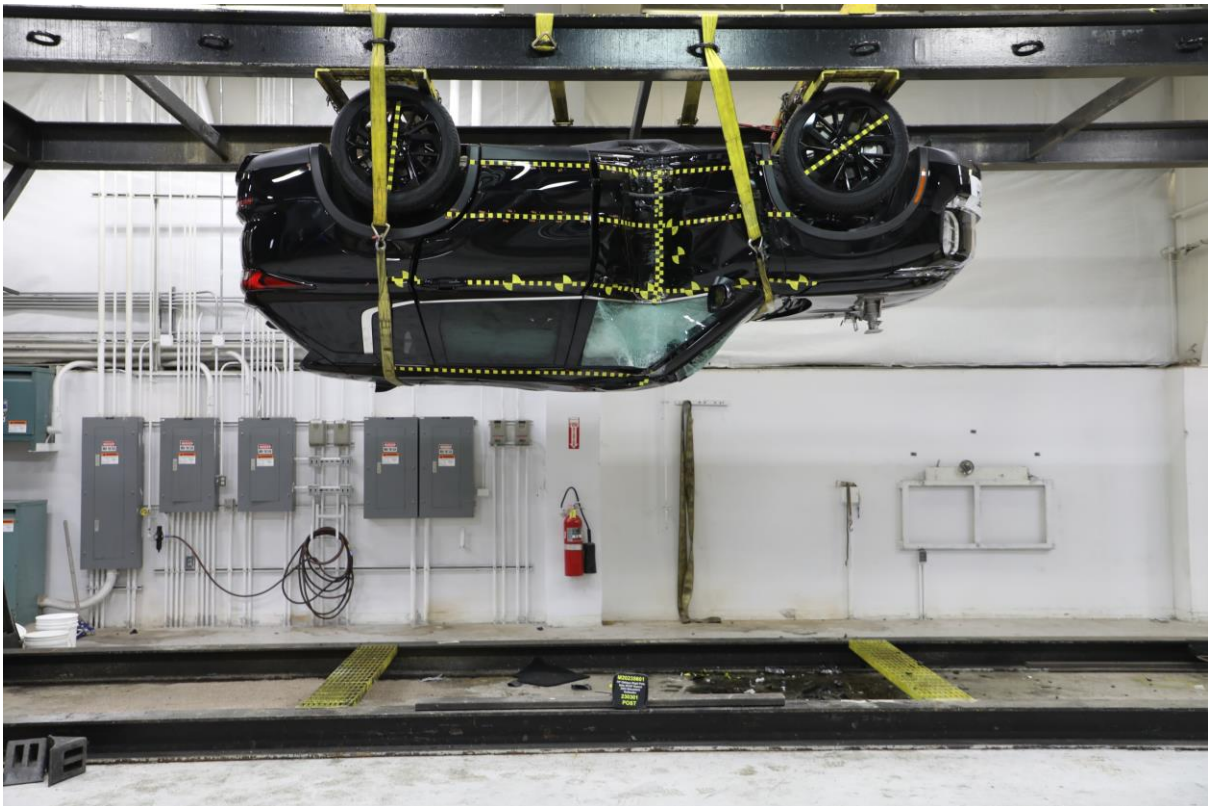
No. 064 Post-Test Primary and Redundant Speed Trap Read Out



No. 065 FMVSS No. 301 Static Rollover 0 Degrees



No. 066 FMVSS No. 301 Static Rollover 90 Degrees



No. 067 FMVSS No. 301 Static Rollover 180 Degrees



No. 068 FMVSS No. 301 Static Rollover 270 Degrees



No. 069 FMVSS No. 301 Static Rollover 360 Degrees



No. 070 Impact Event

2023 OUTLANDER BLACK EDITION 2WD
4-DOOR SUV
LABRADOR BLACK PEARL / BLACK

2.5L DOHC 4-CYLINDER DIRECT-INJECTION
 CONTINUOUSLY VARIABLE TRANSMISSION
 50-STATE EMISSIONS STANDARD

Mechanical Features

- 2.5L DOHC 4-cylinder Direct-Injection
- 8-Speed Continuously Variable Transmission (CVT)
- Shift by wire
- Paddle shifters

Exterior Features

- LED low and high beam headlights
- LED fog lights
- LED daytime running lights
- Automatic headlights
- Black front and rear bumper trim
- Black side mirrors w/ LED turn indicators
- Power folding side mirrors
- Heated side mirrors
- Front variable intermittent wipers w/integrated washers
- Power liftgate with adjustable height
- Rear window defroster with timer
- Cooling fuel filler
- Body-colored rear spoiler with LED high-mount stop light
- P255/45 R20 all-season tires
- 20-inch black alloy wheels
- Tire repair kit

Interior Features

- Leather-wrapped steering wheel
- Leather-wrapped shift knob
- Gloss black shift panel
- Synthetic leather door insert
- 8-way power adjustable driver seat
- Heated front seats
- Synthetic leather suede seating surfaces
- 40/20/40 split type 2nd row seat with folding function
- 7 Passenger seating
- Black roof lining and A/B/C Pillars

Convenience Features

- 12" Navigation system with Smartphone-link Display Audio (SDA)
- Wireless Apple CarPlay®
- Google Android Auto
- SXM All Access and SXM Traffic & Travel Link with 90-day subscription
- 12.3" full digital driver display
- Hi-Fi Radio®
- 6 speakers
- Smartphone wireless charger
- Bluetooth® wireless technology
- Steering wheel audio and phone controls
- Steering wheel voice recognition control
- Rear 1x USB-C and 1x USB-A
- Front 1x USB-C and 1x USB-A
- Multi-view camera system
- Drive mode selector (Tarmac, Gravel, Snow, Normal, Eco)
- Dual-zone automatic climate control

Additional Equipment

Full Tank of Gas INCLUDED

Mitsubishi Connect Subscriptions INCLUDED

- 24-month trial from the date of vehicle delivery (enrollment required)
- Safeguard Services
- Remote Services

REMOVE PHONE WIRELESS CHARGING -\$50.00

- Remove Smartphone Wireless Charger

Tonneau Cover \$200.00

- Tonneau Cover, Retractable

Welcome Package \$75.00

- Touch Up Paint Pen (Body Color)
- Console Tray Mat
- Floor Mats, Carpet
- Vehicle Manuals Binder

All-Weather Essentials \$75.00

- Cargo Mat, Reversible
- Floor Mats, All-Weather

Convenience Features (cont'd)

- 1837-key entry system w/ push button start
- Rear seat center armrest with cupholders

Safety & Security

- Anti-lock Braking System (ABS) with Electronic Brakeforce Distribution (EBD) and brake assist
- Electronic parking brake with auto hold
- Active Stability Control (ASC)
- Hill Start Assist (HSA)
- Traffic Stability Assist (TSA)
- Tire Pressure Monitoring System (TPMS) with tire fill notification
- Automatic High Beam (AHB)
- Forward Collision Mitigation (FCM) with pedestrian detection
- Driver Attention Alert (DAA)
- Pre-Crash Assist w/ New-line
- Adaptive Cruise Control (ACC) with Stop & Go
- Lane Keep Assist (LKA)
- Lane Departure Prevention (LDP)
- Traffic Sign Recognition (TSR)
- Blind Spot Warning (BSW) w/ Lane Change Assist (LCA)
- Rear Cross Traffic Alert (RCTA)
- Rear Automatic Emergency Braking (Rear AEB)
- Lane Departure Warning (LDW)
- Front parking sensors
- Rear parking sensors
- Advanced dual-stage front airbags
- Driver and passenger SRS knee airbags
- Side curtain SRS airbags
- Rear outer-board seat-mounted SRS side airbags
- Front seat-mounted SRS Center airbag
- Adjustable front seat shoulder belt anchors
- Three-point seatbelts with pretensioner for driver, passenger, outer sides of 2nd row seat
- LATCH (Super Anchors and Tethers for Children) for 2nd row
- Seatbelt reminder for all seating positions
- Child safety rear door locks
- Anti-theft alarm system
- Anti-theft engine immobilizer
- Rear seat alert

MSRP*: **\$31,345.00**

Total Additional Equipment: **\$550.00**

Subtotal: **\$32,195.00**

Destination/Handling: **\$1,545.00**

Total MSRP*: **\$33,740.00**

*MSRP includes destination and handling fees. Dealer sets actual price.

Fuel Economy and Environment

Fuel Economy

27 MPG
 combined city/hwy

24 MPG
 city

31 MPG
 highway

3.7 gallons per 100 miles

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

Annual fuel cost \$1,650

Fuel Economy & Greenhouse Gas Rating (tailpipe only) **5**

Smog Rating (tailpipe only) **7**

The vehicle emits 302 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions; learn more at fuelconomy.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 \$8000 to fuel over 5 years. Cost estimates are based on 15000 miles per year at \$2.55 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov
 Calculate personalized estimates and compare vehicles

10-year 100,000-mile LIMITED POWERTRAIN WARRANTY

10"/100,000" POWERTRAIN
5"/60,000" NEW VEHICLE LIMITED WARRANTY

7"/100,000" ANTI-CORROSION PROTECTION
5"/UNLIMITED" ROADSIDE ASSISTANCE

GOVERNMENT 5-STAR SAFETY RATINGS

This vehicle has not been rated by the government for overall vehicle score, frontal crash, side crash, or rollover risk.

Source: National Highway Traffic Safety Administration (NHTSA).
www.safercar.gov or 1-888-327-4236

Parts Content Information

For vehicles in this carline:
 U.S./Canadian Parts Content: 3%
 Major Sources of Foreign Parts Content: JAPAN 88%

For this vehicle:
 Final Assembly: OKAZAKI, JAPAN
 Country of Origin: JAPAN
 Engine: JAPAN
 Transmission: JAPAN

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

Mitsubishi Motors

Ship To: (DBA) MAX MADSEN'S AURORA
 15090 3900 S. OGDEN AVENUE
 AURORA, IL 60004-7108

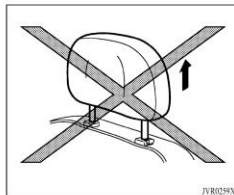
Sold To: (Same unless indicated)

Method of Transport: RAIL
 Plant/Port of Entry: TACOMA, WA

VIN: 3A433UABSP2019604
 Route Code: R30

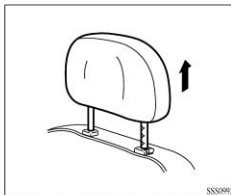
Gasoline, license and title fees, applicable federal, state and local taxes and dealer and distributor installed options and accessories are not included in the manufacturer's suggested retail price. This label has been applied to this vehicle pursuant to federal law and cannot be moved or altered prior to delivery to the ultimate purchaser.

No. 071 Monroney Label



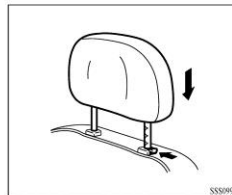
For non-adjustable head restraint

Make sure the head restraint is positioned so the lock knob is engaged in the notch before riding in that designated seating position.



Raise

To raise the head restraint, pull it up.
 Make sure the head restraint is positioned so the lock knob is engaged in the notch before riding in that designated seating position.



Lower

To lower, push and hold the lock knob and push the head restraint down.
 Make sure the head restraint is positioned so the lock knob is engaged in the notch before riding in that designated seating position.

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

PHOTO NOT APPLICABLE

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

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

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

The following additional data for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at: www.nhtsa.gov.

Additional Driver Dummy Instrumentation Data

Driver Head Acceleration (X) Redundant
 Driver Head Acceleration (Y) Redundant
 Driver Head Acceleration (Z) Redundant
 Driver Upper Thorax Rib Deflection (Y)
 Driver Middle Thorax Rib Deflection (Y)
 Driver Lower Thorax Rib Deflection (Y)
 Driver Upper Abdomen Rib Deflection (Y)
 Driver Lower Abdomen Rib Deflection (Y)
 Driver Head Angular Velocity (X)
 Driver Head Angular Velocity (Y)
 Driver Head Angular Velocity (Z)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (Y)
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy Hip Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration (Y)
Right Sill at Vertical Impact Reference Line Acceleration (Y)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

Pole Instrumentation Data

Load Cell Pole Barrier #1 Force (X)
Load Cell Pole Barrier #2 Force (X)
Load Cell Pole Barrier #3 Force (X)
Load Cell Pole Barrier #4 Force (X)
Load Cell Pole Barrier #5 Force (X)
Load Cell Pole Barrier #6 Force (X)
Load Cell Pole Barrier #7 Force (X)
Load Cell Pole Barrier #8 Force (X)

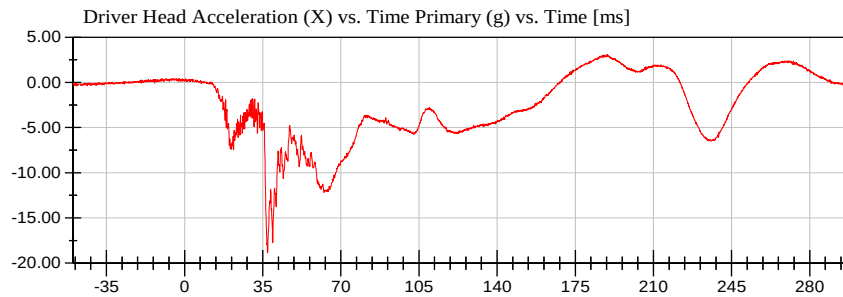
NHTSA

Test Lab: CTF

Test Number: 230301 (M20235601)

Position #1 SID II's Dummy (297)

Test Date: 03/01/2023



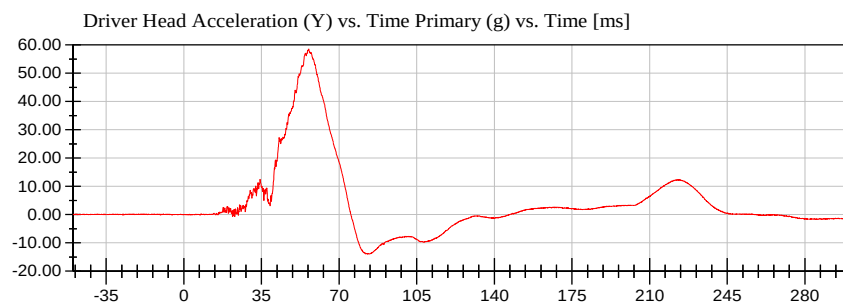
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3.09 g at 189.20 ms

<Min>

-18.85 g at 37.20 ms

CFC_1000



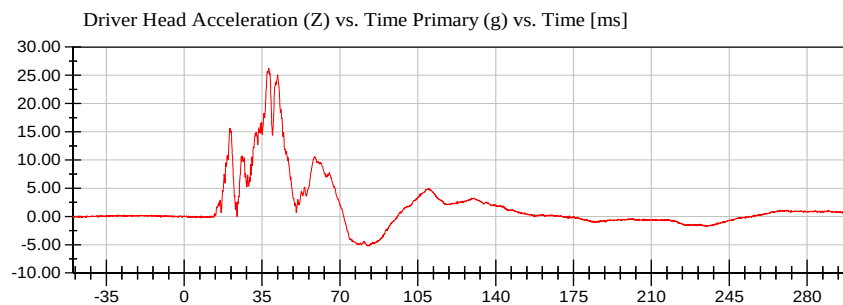
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58.58 g at 56.32 ms

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-13.96 g at 83.04 ms

CFC_1000



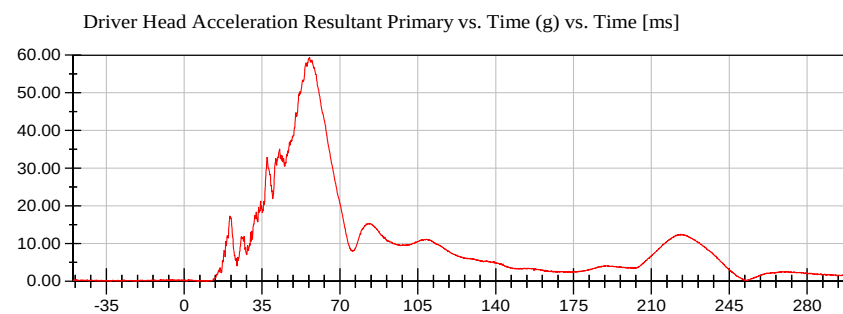
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26.23 g at 38.08 ms

<Min>

-5.18 g at 82.32 ms

CFC_1000



<Max>

59.45 g at 56.32 ms

<Min>

0.01 g at -38.40 ms

CFC_1000



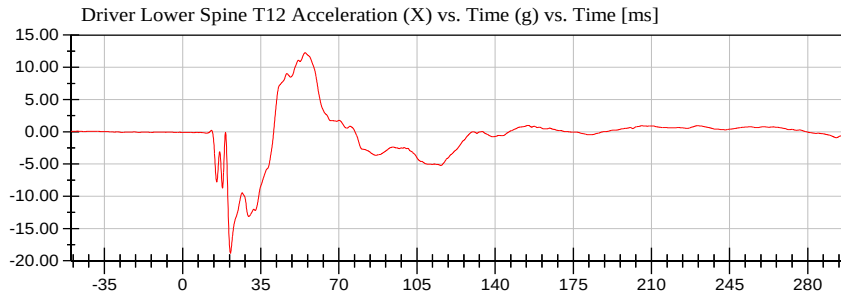
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Test Lab: CTF

Test Number: 230301 (M20235601)

Position #1 SID IIs Dummy (297)

Test Date: 03/01/2023



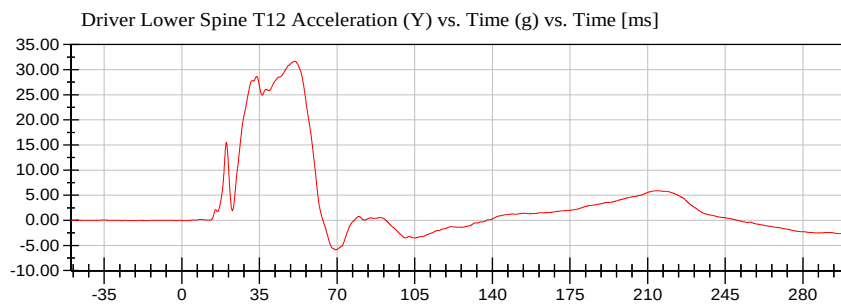
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12.26 g at 54.88 ms

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-18.85 g at 21.44 ms

CFC_180



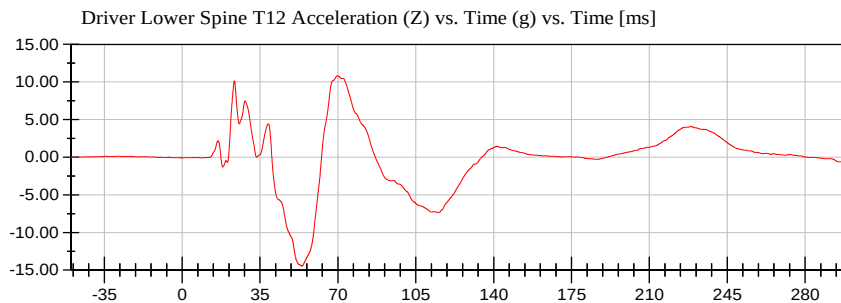
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31.70 g at 51.04 ms

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-5.85 g at 69.36 ms

CFC_180



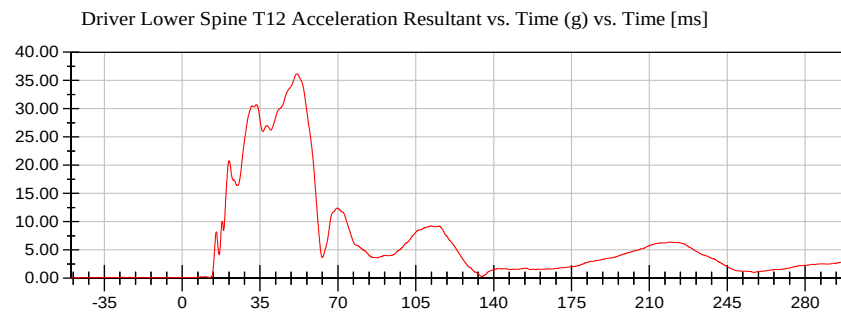
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10.82 g at 69.68 ms

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-14.46 g at 53.84 ms

CFC_180



<Max>

36.16 g at 51.60 ms

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0.05 g at -44.24 ms

CFC_180



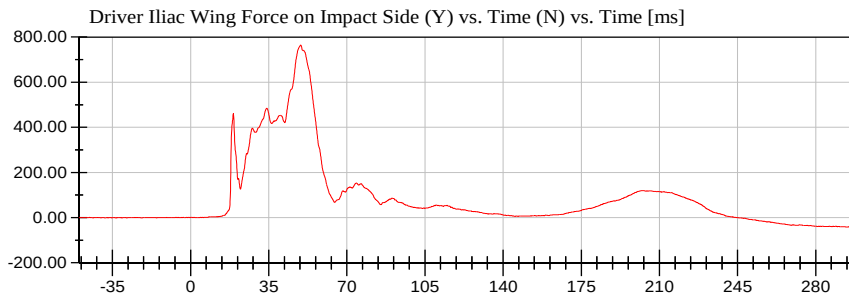
NHTSA

Test Lab: CTF

Test Number: 230301 (M20235601)

Position #1 SID IIs Dummy (297)

Test Date: 03/01/2023



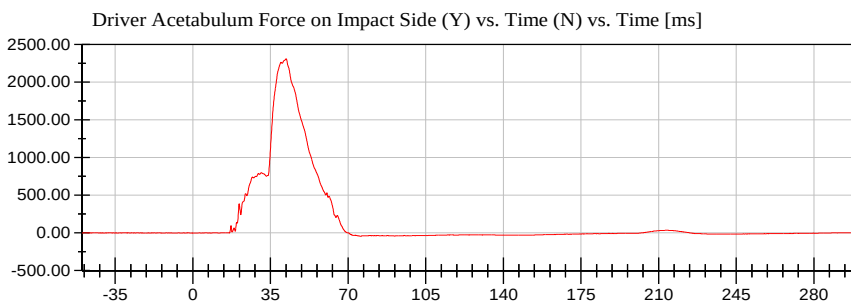
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764.11 N at 49.36 ms

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-41.85 N at 296.64 ms

CFC_600



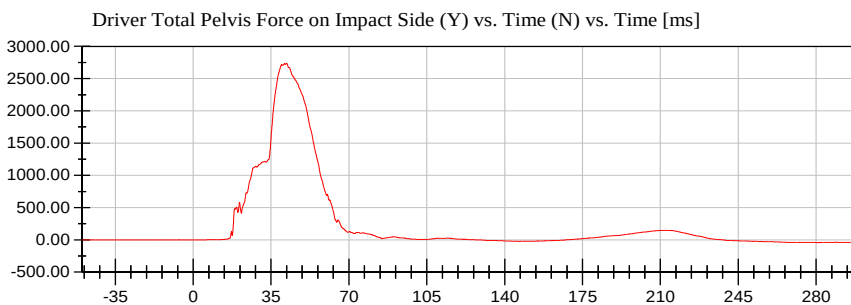
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2,312.89 N at 42.08 ms

<Min>

-45.56 N at 75.76 ms

CFC_600



<Max>

2,735.71 N at 42.00 ms

<Min>

-42.60 N at 280.64 ms

CFC_600



APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

Table 1. External Measurements

Table 2. Head Drop Test

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

Table 3. Lateral Neck Pendulum Test

Pendulum Velocity (m/s) vs. Time (ms)
Flexion Angle (°) vs. Time (ms)
Moment About Occipital Condyle (Nm) vs. Time (ms)

Table 4. Shoulder Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Shoulder Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)

Table 5. Thorax (With Arm) Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Shoulder Displacement (mm) vs. Time (ms)
Upper Rib Displacement (mm) vs. Time (ms)
Middle Rib Displacement (mm) vs. Time (ms)
Lower Rib Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 6. Thorax (Without Arm) Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Upper Rib Displacement (mm) vs. Time (ms)
Middle Rib Displacement (mm) vs. Time (ms)
Lower Rib Displacement (mm) vs. Time (ms)
Upper Spine Acceleration (G's) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 7. Abdomen Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Upper Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Abdominal Rib Displacement (mm) vs. Time (ms)
Lower Spine Acceleration (G's) vs. Time (ms)

Table 8. Pelvis Plug Quasi-Static Test (Optional*)

Table 9. Pelvis Acetabulum Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Pelvis (Y) Acceleration (G's) vs. Time (ms)
Acetabulum Force (N) vs. Time (ms)

Table 10. Pelvis Iliac Impact Test

Impactor Acceleration (G's) vs. Time (ms)
Pelvis (Y) Acceleration (G's) vs. Time (ms)
Iliac Force (N) vs. Time (ms)

Pre-Test Calibration Sheets
Driver S/N 297

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

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

Revised 9/29/2005

Report Number: 297_S2F60

Page 29 of 31



Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 60-1

Test Date: 2/16/2023

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

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: 1330

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

02.16.2023 08:36:01 233

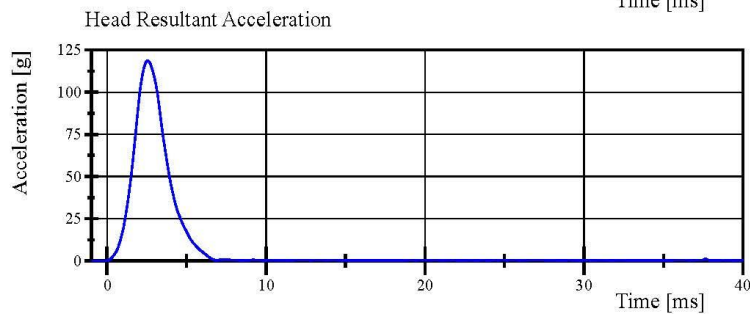
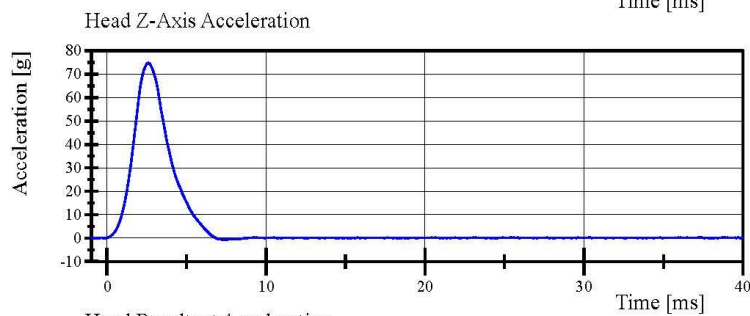
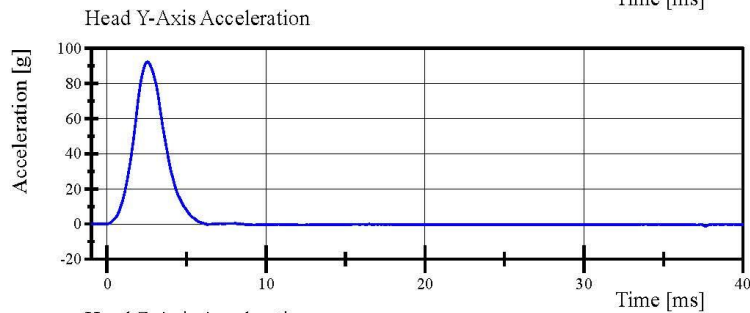
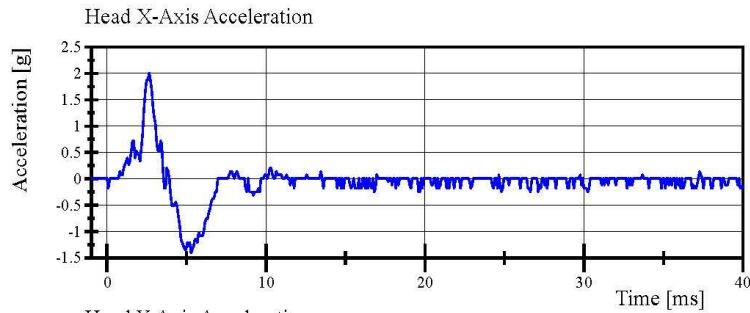


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 60-1

Test Date: 2/16/2023



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

02.16.2023 08:36:35 233



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 60-1

Test Date: 2/16/2023

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

Test meets specifications.

Condition: Used

Comments:

Neck S/N: 779

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

02.16.2023 08:56:09 748

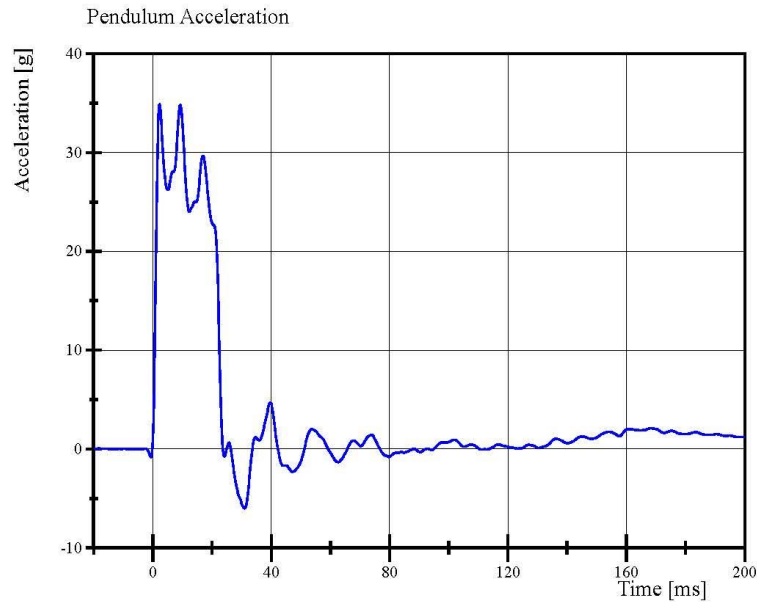


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 60-1

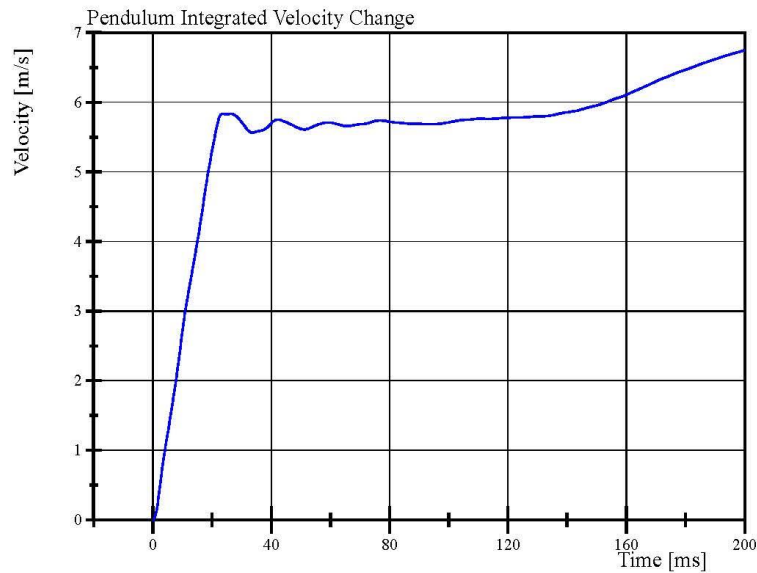
Test Date: 2/16/2023



Filter Class: CFC_180

Max: 34.9 g at 2.2 ms

Min: -6.0 g at 31.0 ms



Filter Class: CFC_180

Max: 6.7 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

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

02.16.2023 08:56:35 748

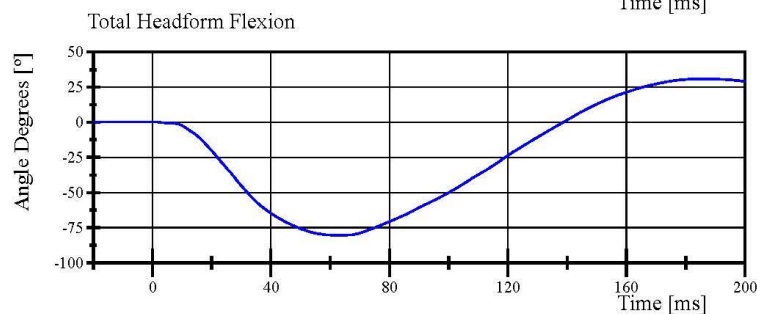
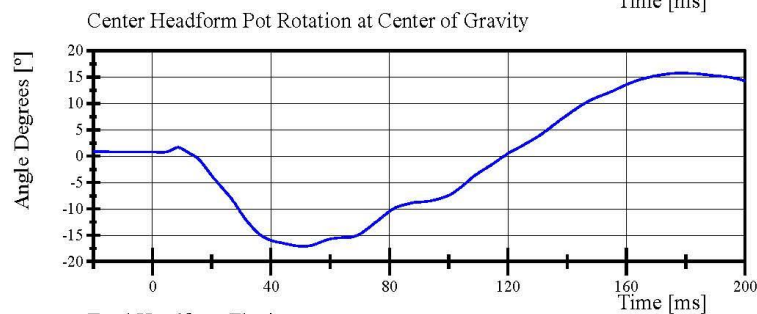
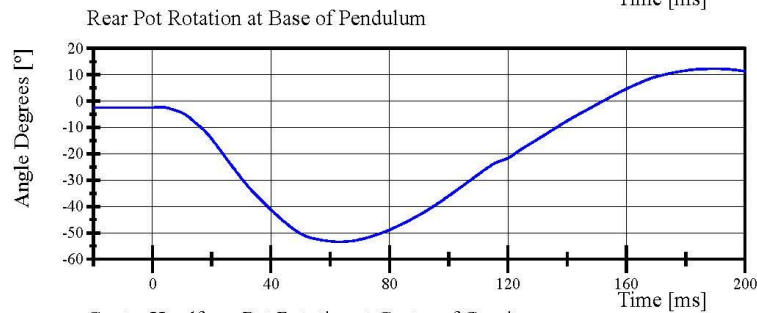
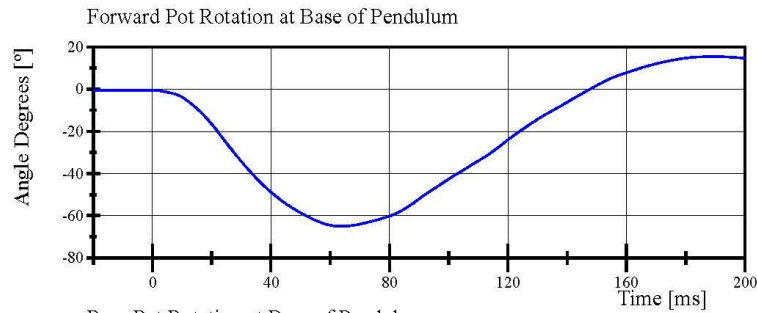


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 60-1

Test Date: 2/16/2023



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

02.16.2023 08:56:35 748

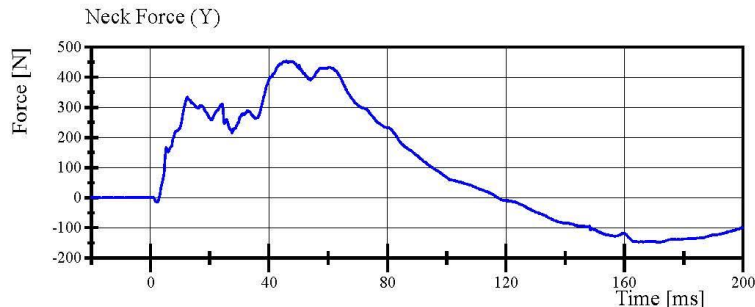


Transportation Research Center Inc.

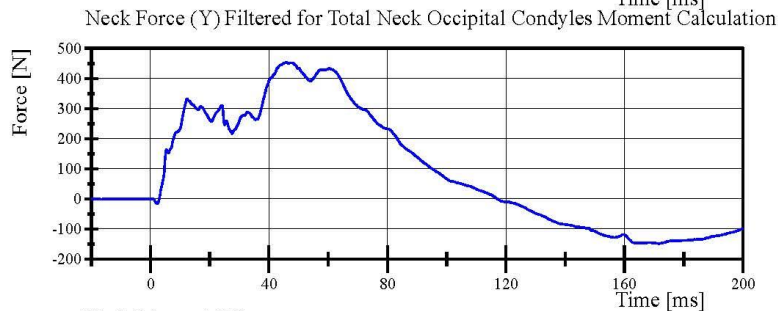
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 60-1

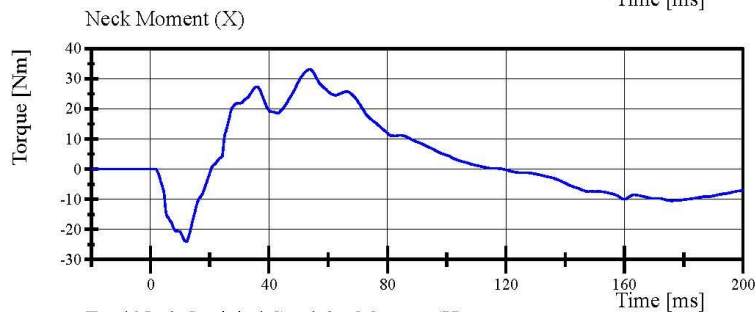
Test Date: 2/16/2023



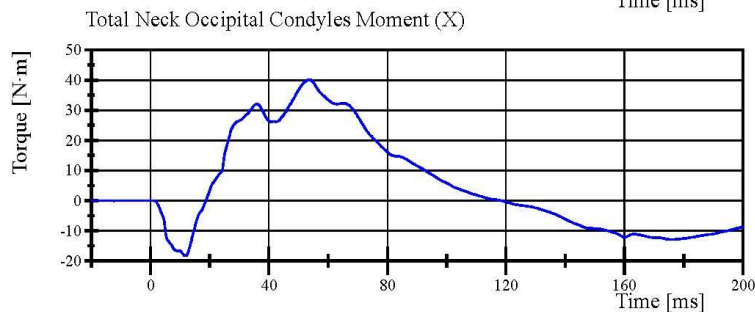
Filter Class: CFC_1000
Max: 453.3 N at 45.8 ms
Min: -148.2 N at 171.6 ms



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



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



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

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

02.16.2023 08:56:36 748



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 60-1

Test Date: 2/16/2023

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

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

Shoulder Rib S/N: 180-3355 259

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

02.16.2023 10:26:06 827

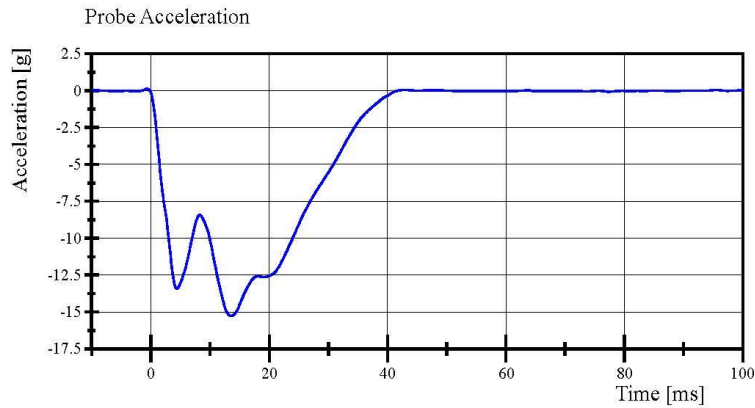


Transportation Research Center Inc.

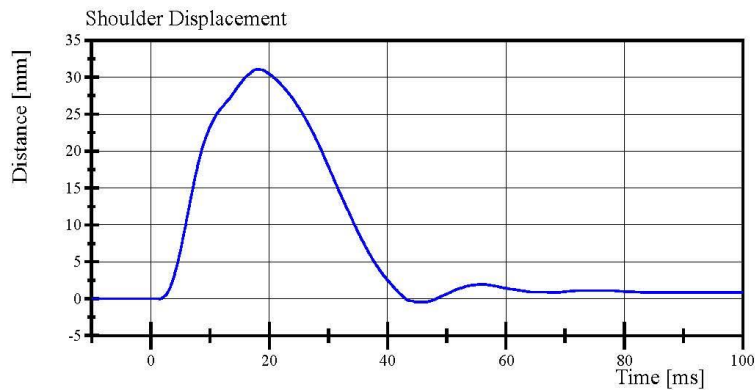
Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 60-1

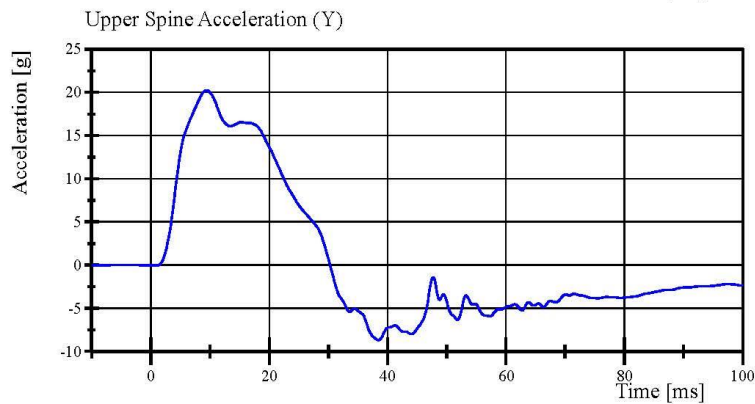
Test Date: 2/16/2023



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



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



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

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

02.16.2023 10:26:39 827



Transportation Research Center Inc.

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

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

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

Shoulder Rib S/N: 180-3355 259

Upper Thorax Rib S/N: DM5020

Middle Thorax Rib S/N: DM5021

Lower Thorax Rib S/N: DM5022

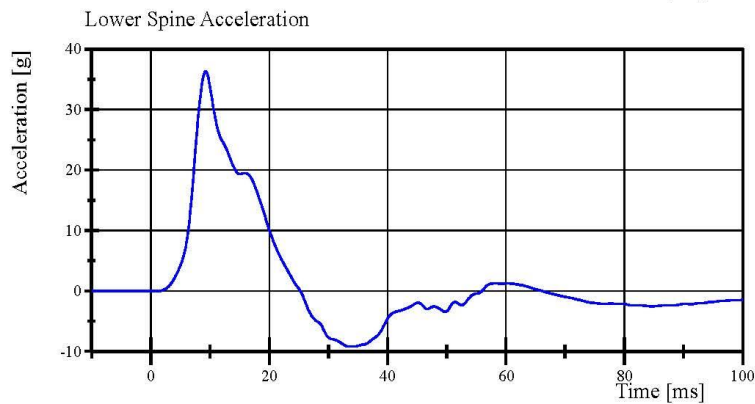
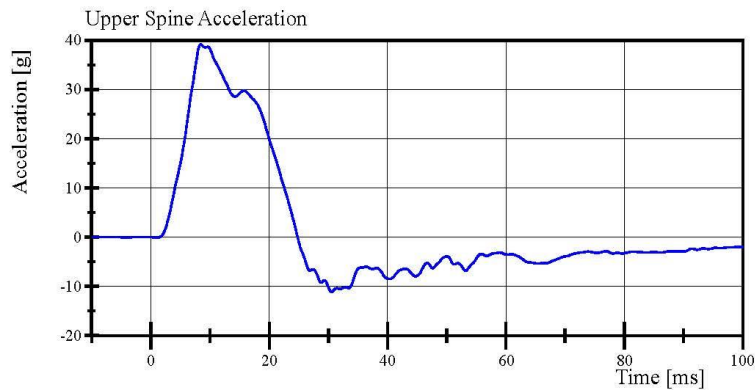
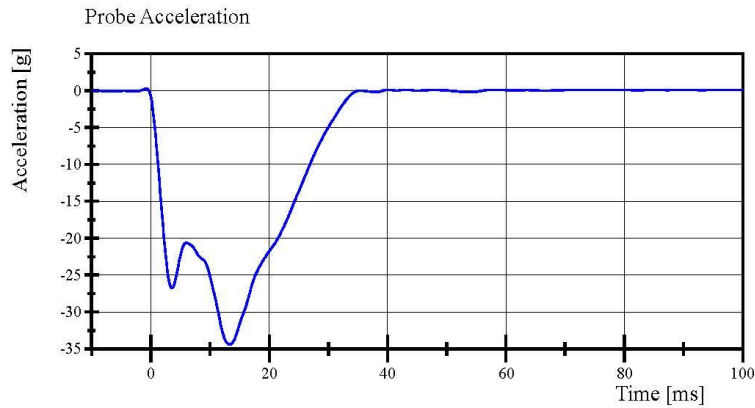
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 11:15:23 630



Transportation Research Center Inc.

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



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

02.16.2023 11:16:39 630

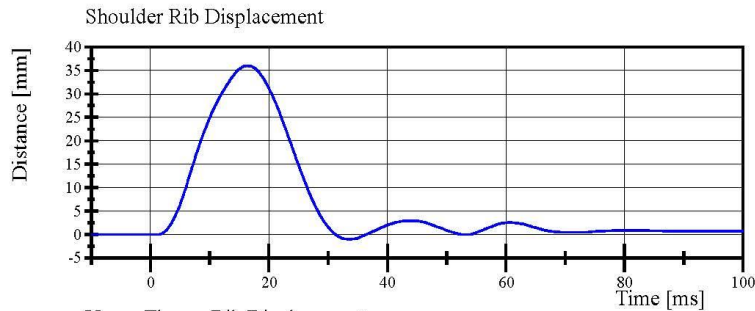


Transportation Research Center Inc.

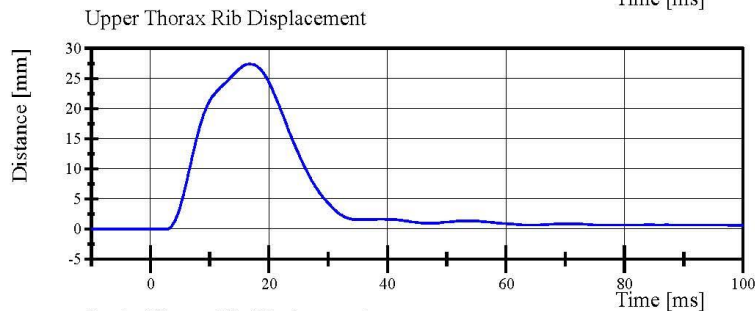
Left Lateral Thorax with Arm

SID IIs Serial No. 297 Certification No. 60-1

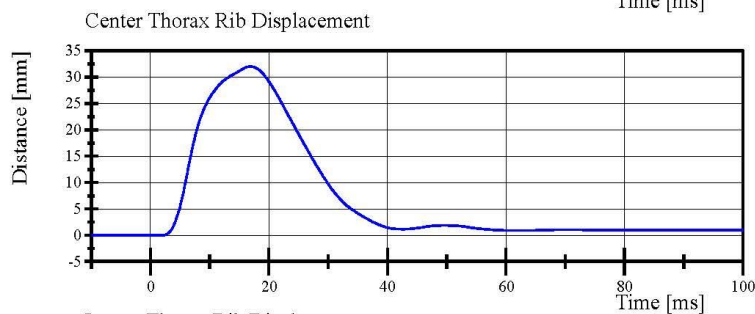
Test Date: 2/16/2023



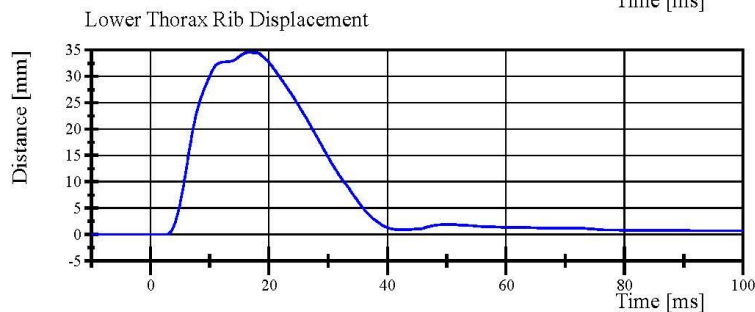
Filter Class: CFC_600
Max: 36.0 mm at 16.2 ms
Min: -1.0 mm at 33.8 ms



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



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



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

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

02.16.2023 11:16:39 630



Transportation Research Center Inc.

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

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

Test meets specifications.

Condition: Used

Comments:

Upper Thorax Rib S/N: DM5020

Middle Thorax Rib S/N: DM5021

Lower Thorax Rib S/N: DM5022

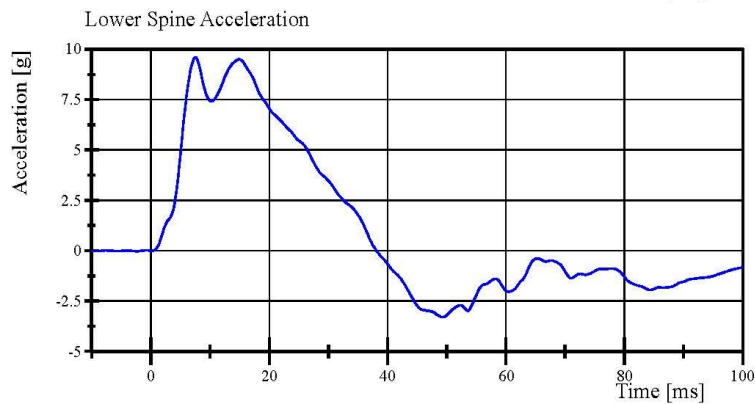
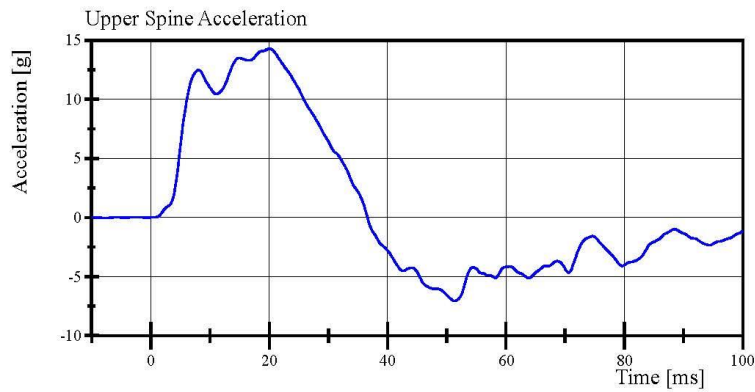
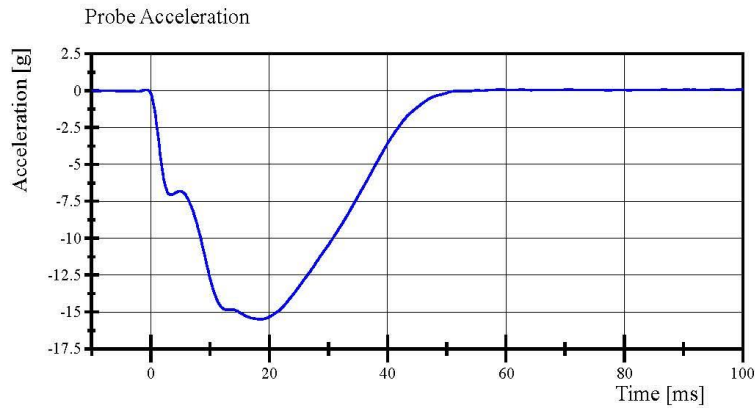
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 10:44:00 848



Transportation Research Center Inc.

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



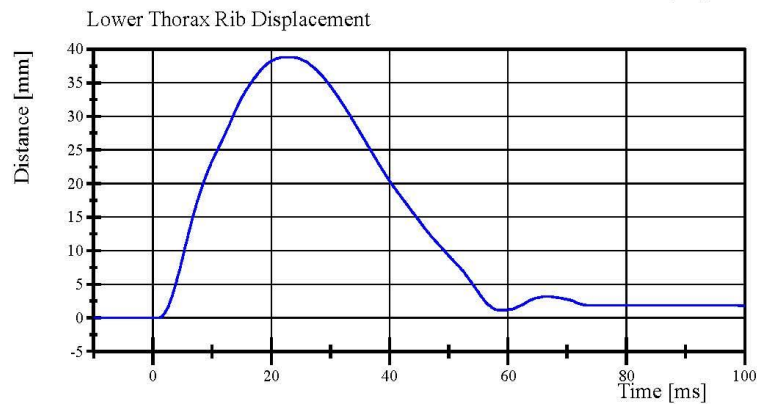
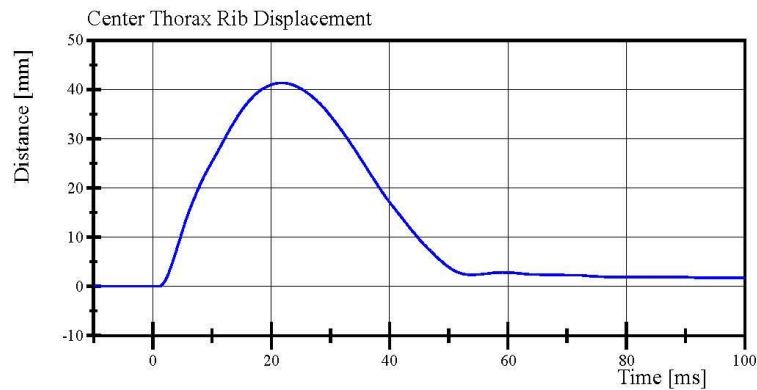
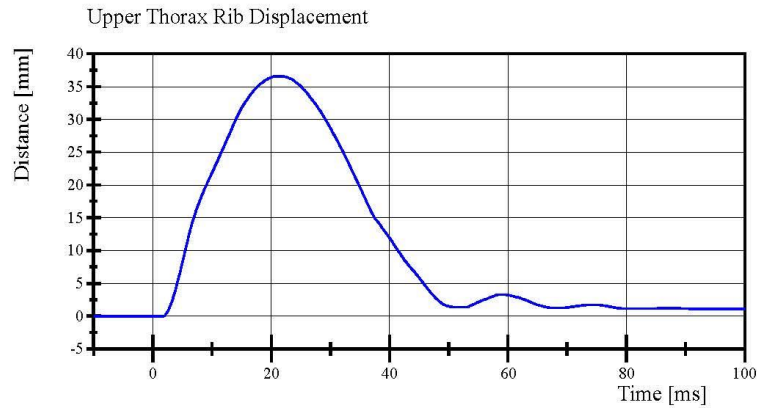
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

02.16.2023 10:44:40 848



Transportation Research Center Inc.

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



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

02.16.2023 10:44:40 848



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 60-1

Test Date: 2/16/2023

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

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: DM7281

Lower Abdominal Rib S/N: DM7275

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

02.16.2023 10:35:21 634

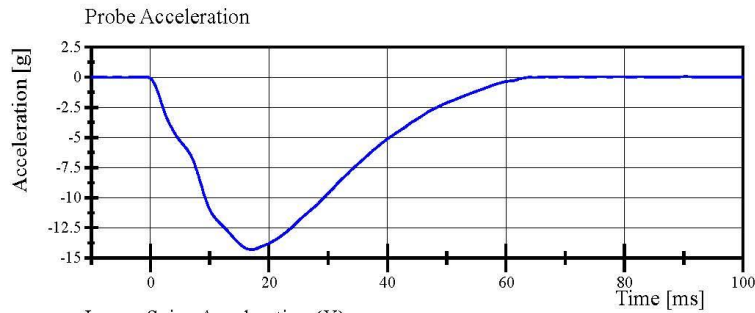


Transportation Research Center Inc.

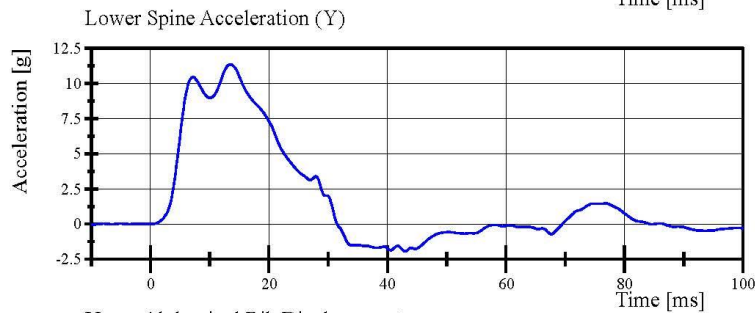
Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 60-1

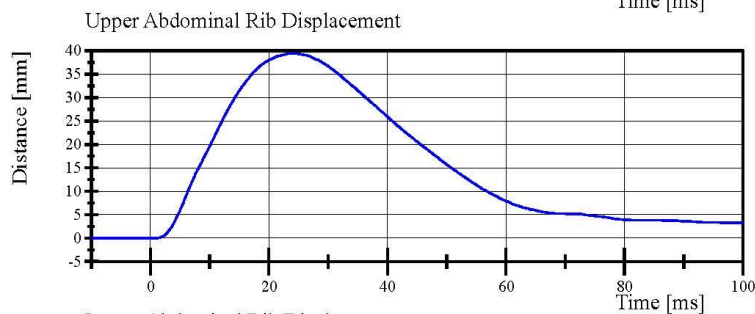
Test Date: 2/16/2023



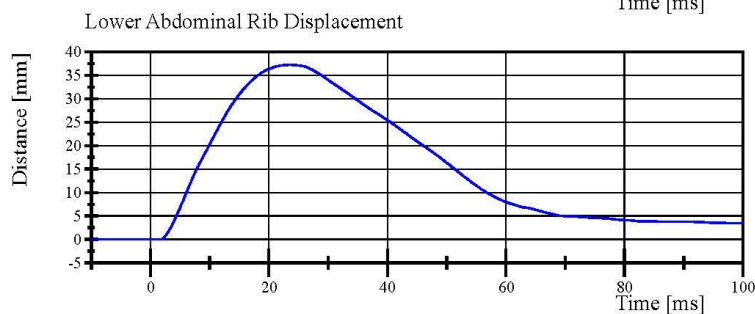
Filter Class: CFC_180
Max: 0.1 g at 90.3 ms
Min: -14.3 g at 17.1 ms



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



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



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

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

02.16.2023 10:35:51 634



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 60-1

Test Date: 2/16/2023

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

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1171

Pelvis Plug Info:

Manufacturer: Saco

S/N: 13790

Cal Date: 20200508

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

02.16.2023 10:15:31 454

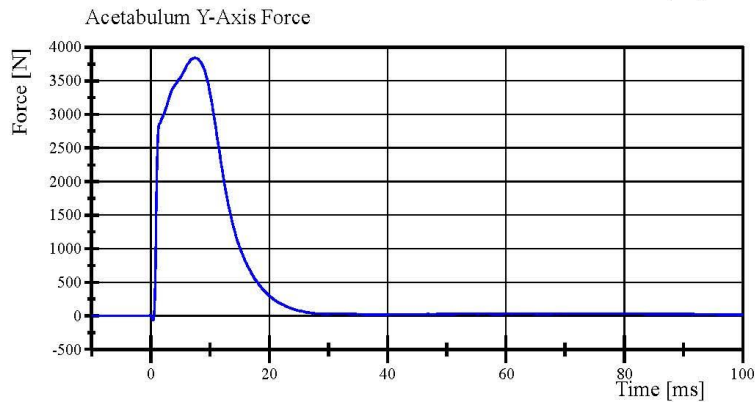
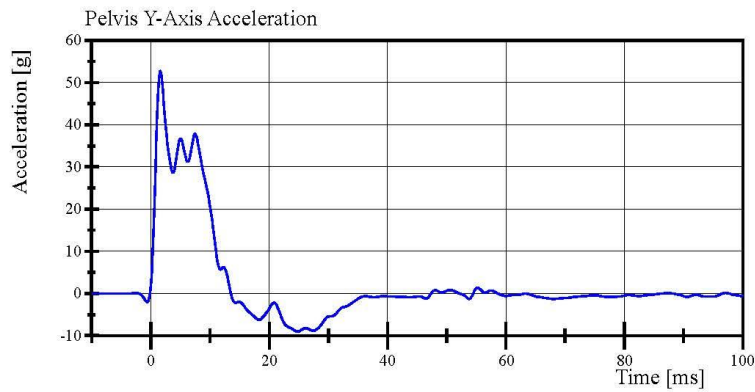
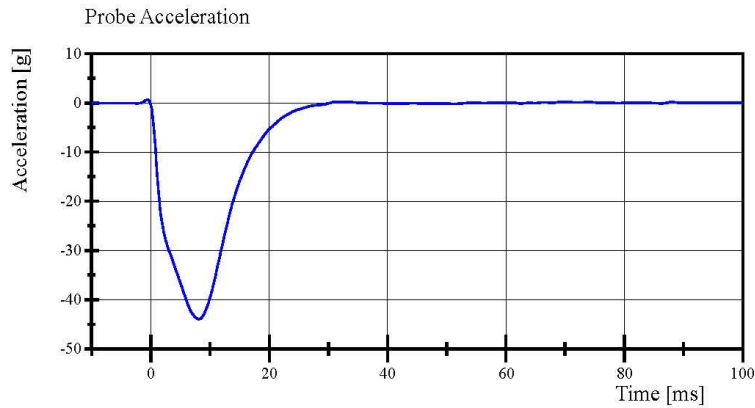


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 60-1

Test Date: 2/16/2023



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

02.16.2023 10:16:36 454



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 60-1

Test Date: 2/16/2023

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

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1171

Pelvis Plug Info:

Manufacturer: Saco

S/N: 13790

Cal Date: 20200508

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

02.16.2023 12:15:43 639

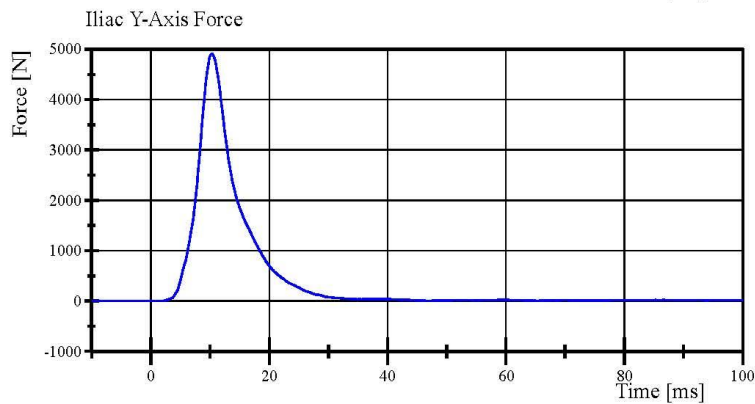
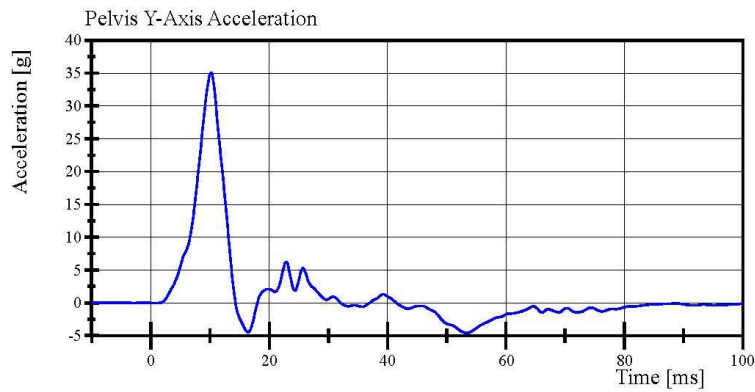
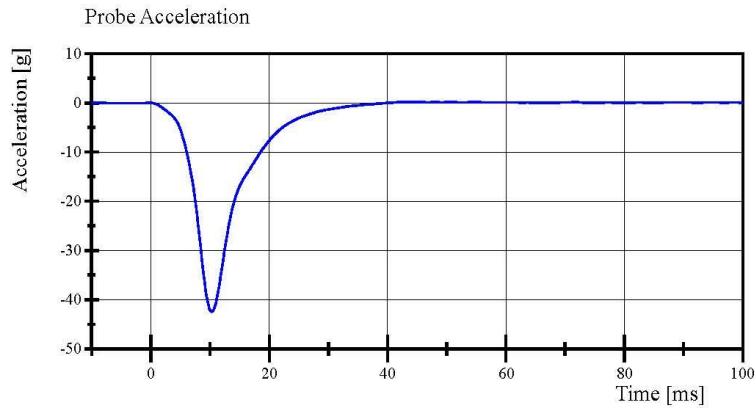


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 60-1

Test Date: 2/16/2023



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

02.16.2023 12:17:14 639



Post-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No. 61

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	780	Yes
B	Shoulder Pivot Height	437.0 - 453.0	450	Yes
C	H-Point Height	79.0 - 89.0	85	Yes
D	H-Point from Seat Back	141.0 - 151.0	147	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	102	Yes
F	Thigh Clearance	119.0 - 135.0	129	Yes
G	Head Breadth	140.0 - 148.0	147	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	528	Yes
L	Popliteal Height	343.0 - 369.0	353	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	400	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	200	Yes
P	Foot Length (right)	216.0 - 232.0	223	Yes
P	Foot Length (left)	216.0 - 232.0	223	Yes
Q	Hip Breadth	313.0 - 323.0	319	Yes
R	Arm Length	249.0 - 259.0	254	Yes
S	Knee Joint to seat Back	478.0 - 493.0	485	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	347	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	878	Yes
Z	Waist Circumference	761.0 - 791.0	782	Yes

Revised 9/29/2005

Report Number: 297_S2F61

Page 29 of 31



Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 61-1

Test Date: 3/2/2023

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	120.5 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	2.7 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	0.66 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: 1330

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

03.02.2023 12:39:56 229

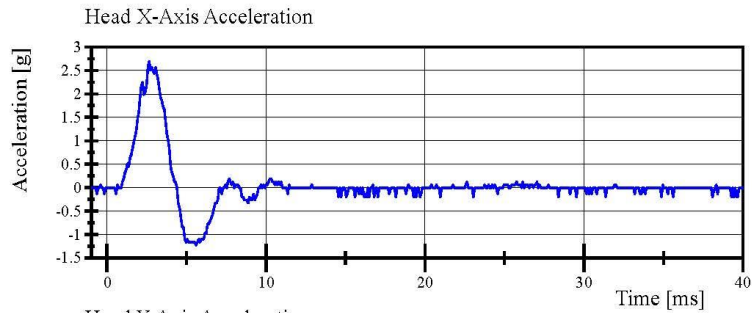


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 61-1

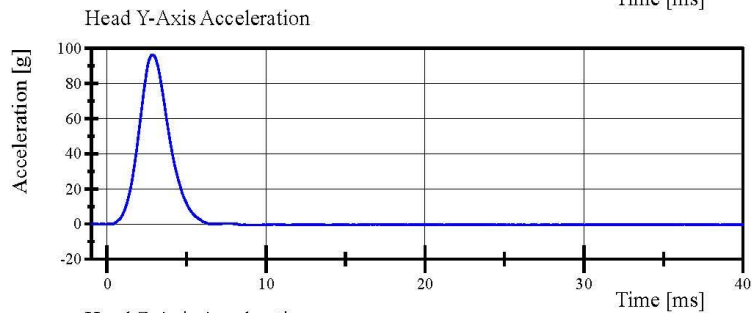
Test Date: 3/2/2023



Filter Class: CFC_1000

Max: 2.7 g at 2.6 ms

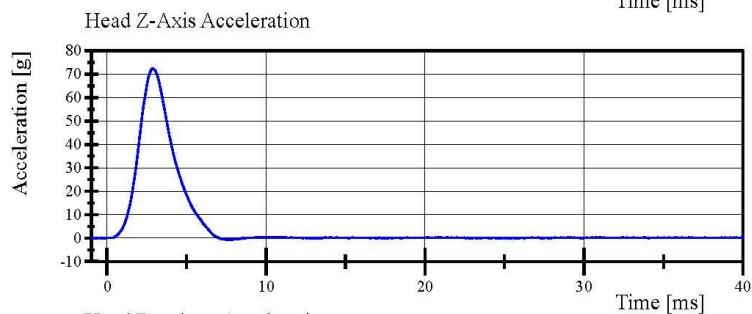
Min: -1.2 g at 5.6 ms



Filter Class: CFC_1000

Max: 96.3 g at 2.9 ms

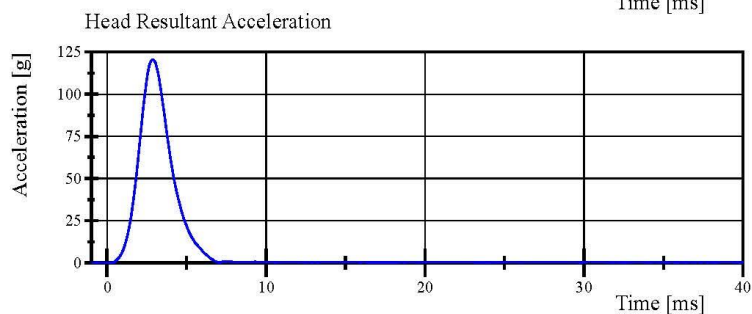
Min: -0.5 g at 9.3 ms



Filter Class: CFC_1000

Max: 72.4 g at 2.9 ms

Min: -0.7 g at 7.5 ms



Filter Class: CFC_1000

Max: 120.5 g at 2.9 ms

Min: 0.0 g at -1.0 ms

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

03.02.2023 12:40:54 229



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 61-1

Test Date: 3/3/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.604 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.643 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.926 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.265 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.828 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.844 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-74.2 deg	Yes
Time of Peak	50 - 70 ms	65.8 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	39.7 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	118.6 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: 779

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

03.03.2023 07:25:48 749

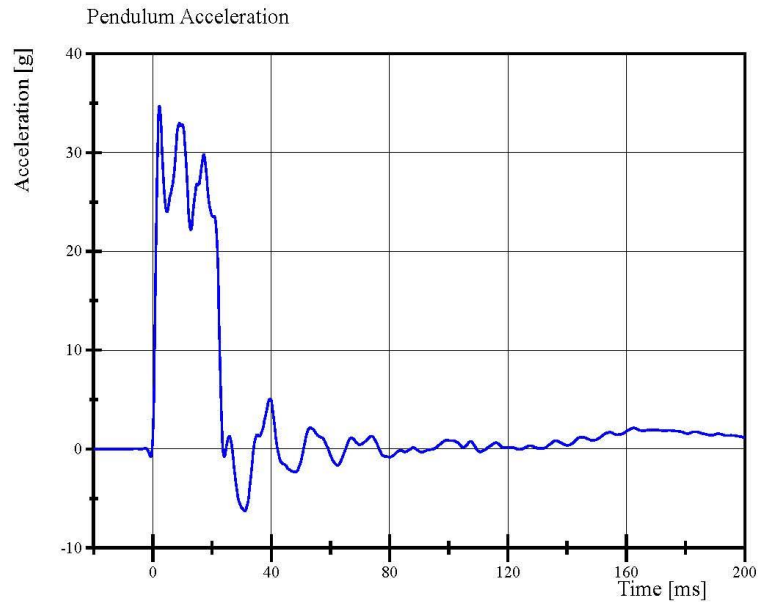


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 61-1

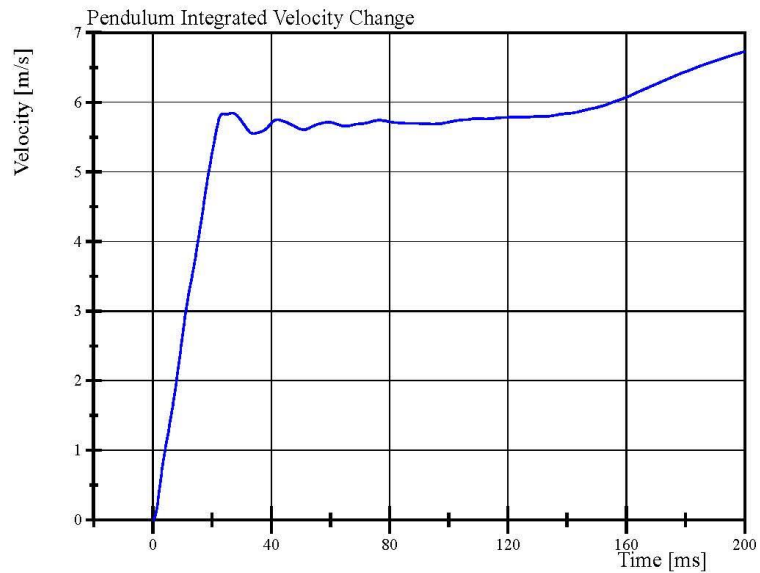
Test Date: 3/3/2023



Filter Class: CFC_180

Max: 34.7 g at 2.2 ms

Min: -6.3 g at 31.0 ms



Filter Class: CFC_180

Max: 6.7 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

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

03.03.2023 07:26:14 749

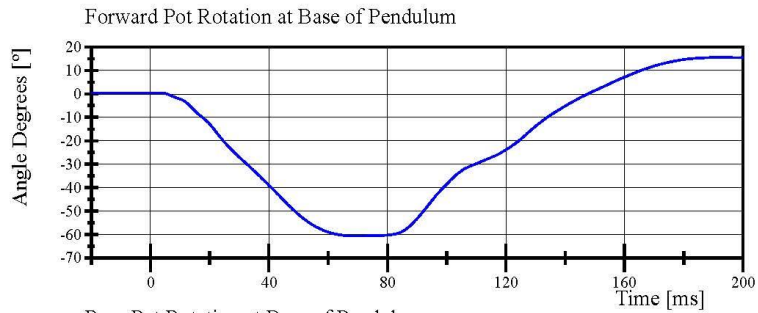


Transportation Research Center Inc.

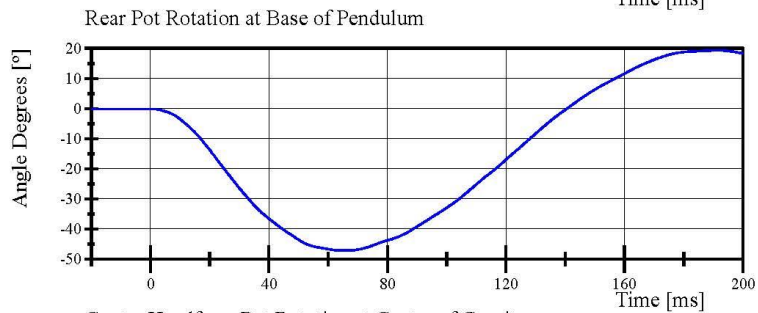
Left Lateral Neck

SID IIS Serial No. 297 Certification No. 61-1

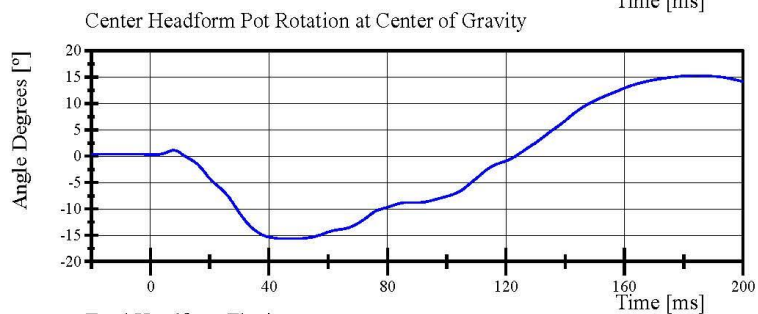
Test Date: 3/3/2023



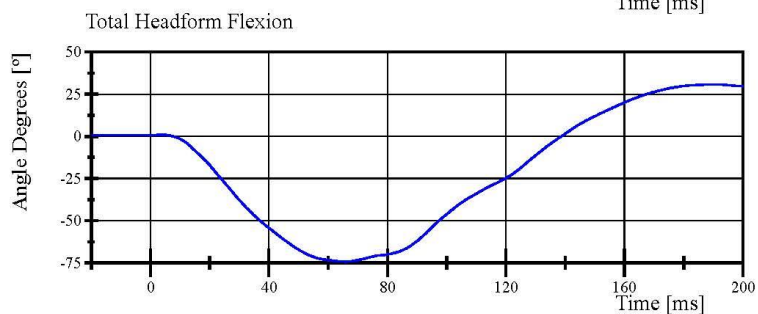
Filter Class: CFC_60
Max: 15.7 ° at 192.6 ms
Min: -60.6 ° at 68.4 ms



Filter Class: CFC_60
Max: 19.4 ° at 191.5 ms
Min: -47.1 ° at 65.3 ms



Filter Class: CFC_60
Max: 15.3 ° at 183.8 ms
Min: -15.7 ° at 47.4 ms



Filter Class: CFC_60
Max: 30.7 ° at 191.0 ms
Min: -74.2 ° at 65.8 ms

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

03.03.2023 07:26:14 749

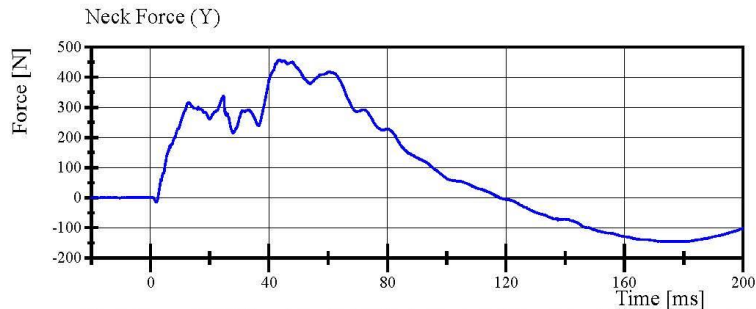


Transportation Research Center Inc.

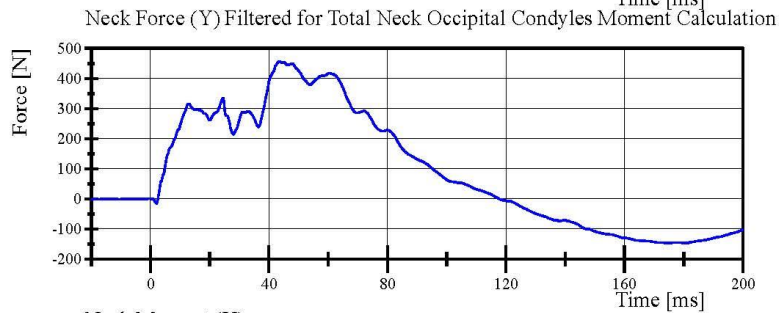
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 61-1

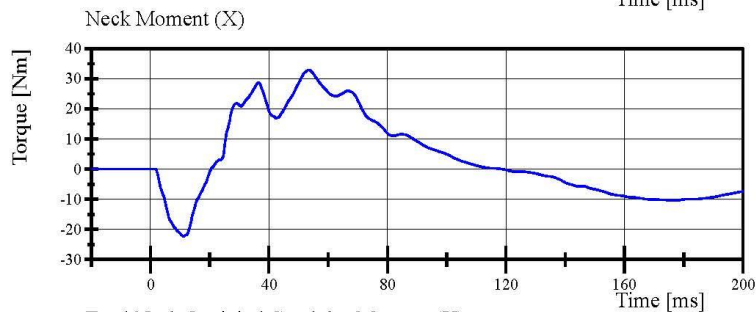
Test Date: 3/3/2023



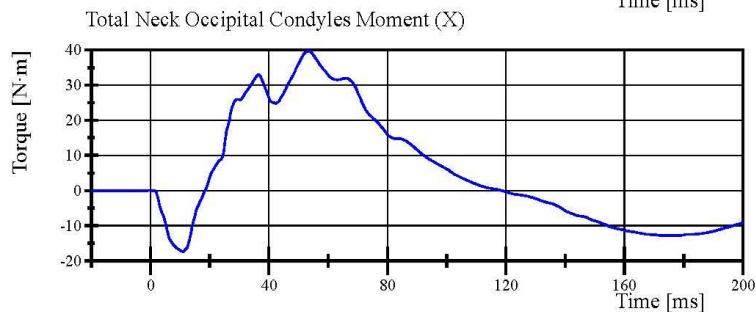
Filter Class: CFC_1000
Max: 456.3 N at 43.4 ms
Min: -146.6 N at 180.8 ms



Filter Class: CFC_600
Max: 456.3 N at 43.4 ms
Min: -146.2 N at 181.0 ms



Filter Class: CFC_600
Max: 32.9 Nm at 53.4 ms
Min: -22.3 Nm at 11.2 ms



Filter Class: Without_(Constar
Max: 39.7 N·m at 53.4 ms
Min: -17.4 N·m at 11.0 ms

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

03.03.2023 07:26:14 749



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 61-1

Test Date: 3/2/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.0 g	Yes
Shoulder Displacement	28 - 37 mm	30.7 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	20.0 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

Shoulder Rib S/N: 180-3355 259

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

03.02.2023 09:57:15 858

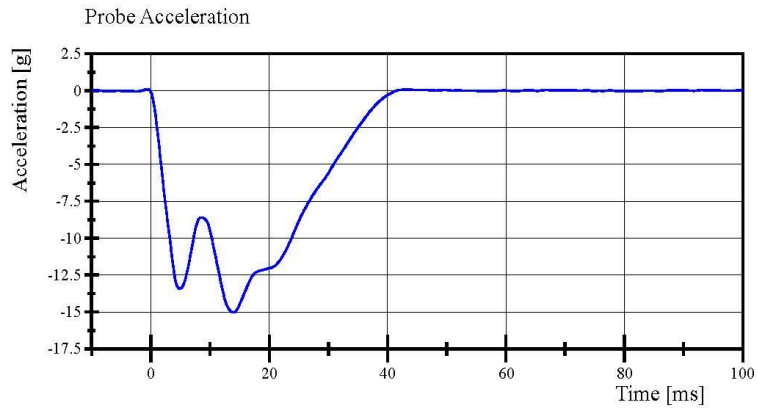


Transportation Research Center Inc.

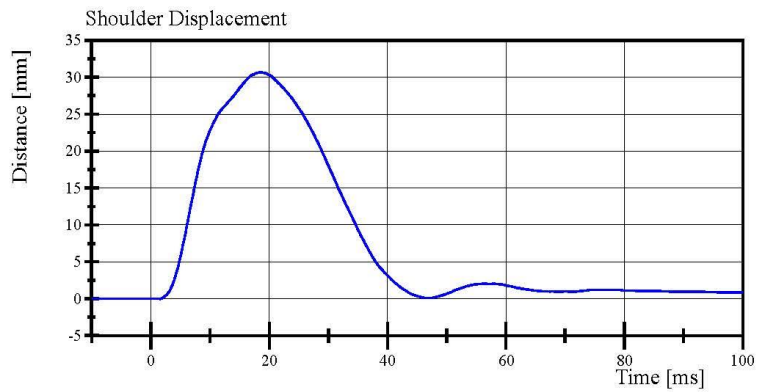
Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 61-1

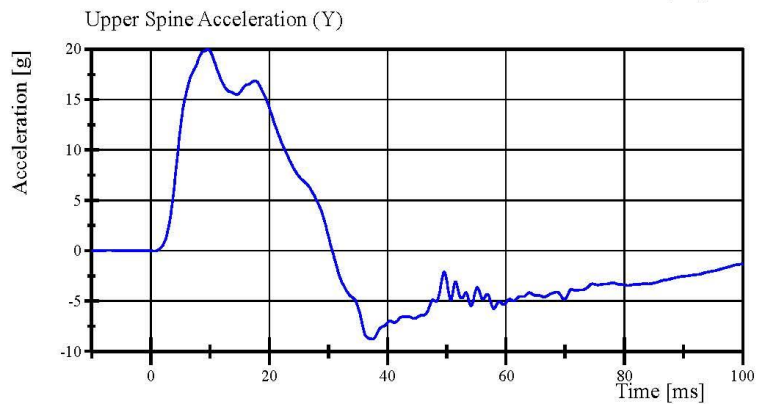
Test Date: 3/2/2023



Filter Class: CFC_180
Max: 0.1 g at -0.6 ms
Min: -15.0 g at 13.9 ms



Filter Class: CFC_600
Max: 30.7 mm at 18.5 ms
Min: -0.0 mm at 1.5 ms



Filter Class: CFC_180
Max: 20.0 g at 9.6 ms
Min: -8.8 g at 37.5 ms

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

03.02.2023 09:57:47 858



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 61-1
Test Date: 3/2/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.734 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.9 g	Yes
Shoulder Displacement	31 - 40 mm	35.7 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.5 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.2 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	34.1 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	38.4 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.8 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

Shoulder Rib S/N: 180-3355 259

Upper Thorax Rib S/N: DM5020

Middle Thorax Rib S/N: DM5021

Lower Thorax Rib S/N: DM5022

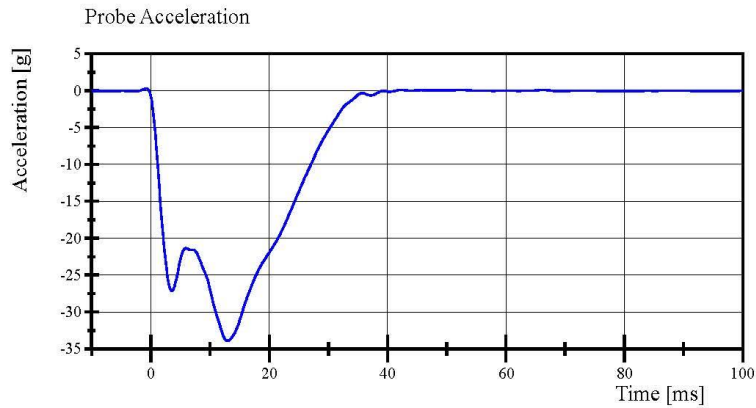
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

03.02.2023 11:42:23 600

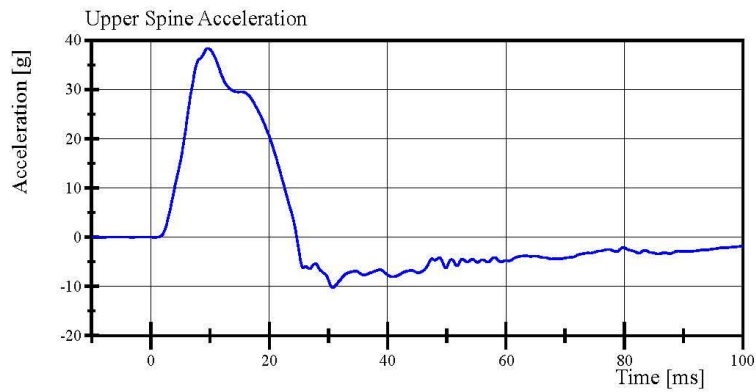


Transportation Research Center Inc.

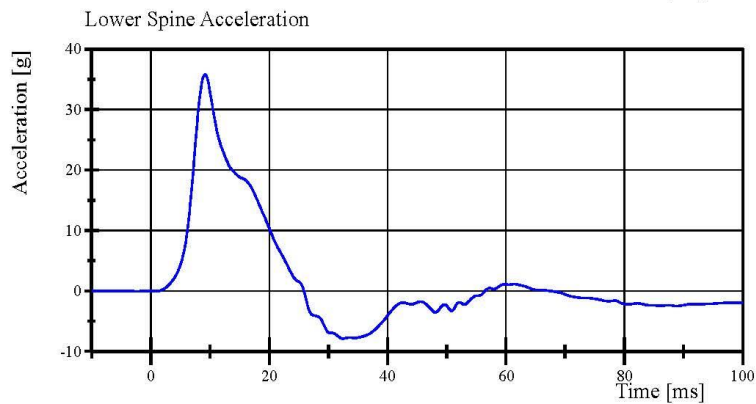
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 61-1
Test Date: 3/2/2023



Filter Class: CFC_180
Max: 0.3 g at -0.8 ms
Min: -33.9 g at 13.0 ms



Filter Class: CFC_180
Max: 38.4 g at 9.6 ms
Min: -10.2 g at 30.7 ms



Filter Class: CFC_180
Max: 35.8 g at 9.2 ms
Min: -7.9 g at 32.4 ms

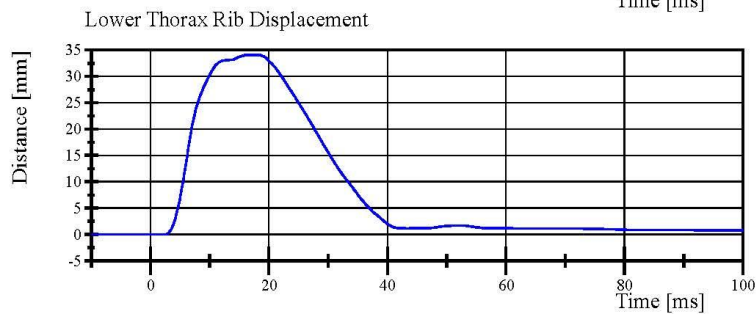
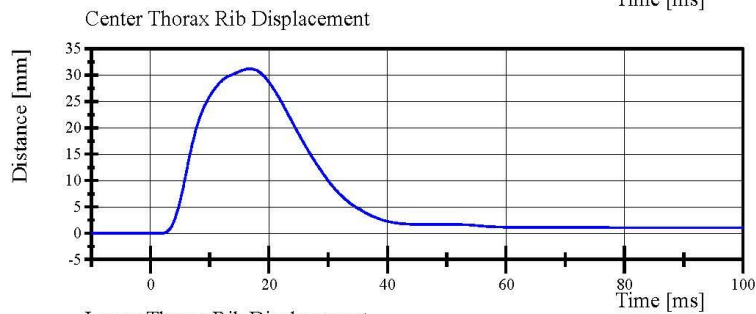
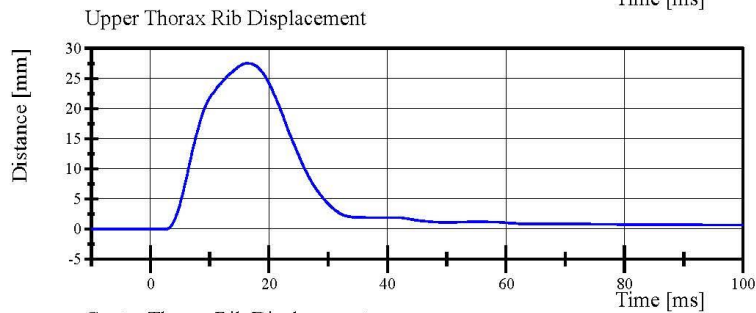
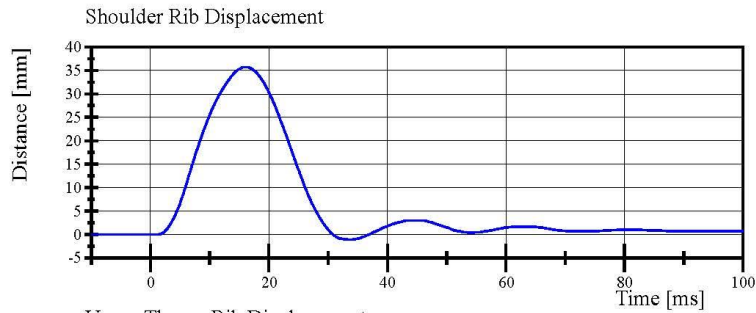
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

03.02.2023 11:44:05 600



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 61-1
Test Date: 3/2/2023



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

03.02.2023 11:44:05 600



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 61-1
Test Date: 3/2/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.355 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.4 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	37.2 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.4 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	39.2 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.1 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.8 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Thorax Rib S/N: DM5020

Middle Thorax Rib S/N: DM5021

Lower Thorax Rib S/N: DM5022

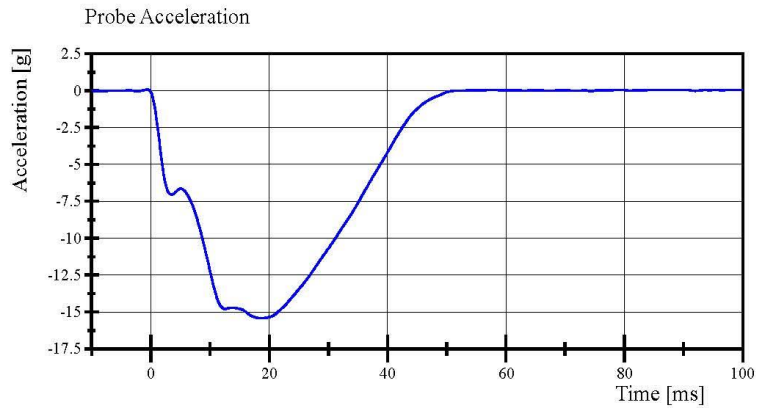
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

03.02.2023 10:15:02 783

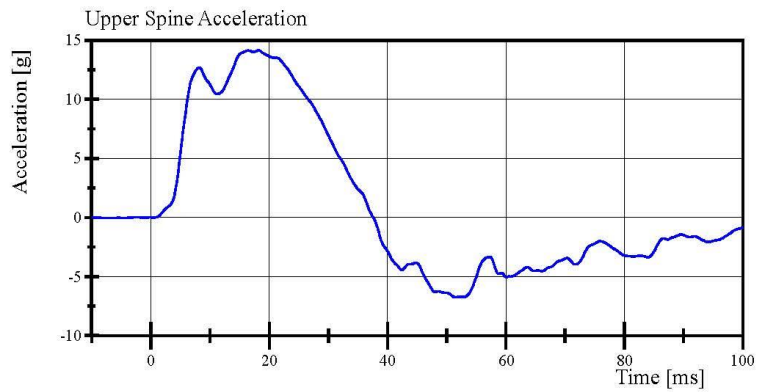


Transportation Research Center Inc.

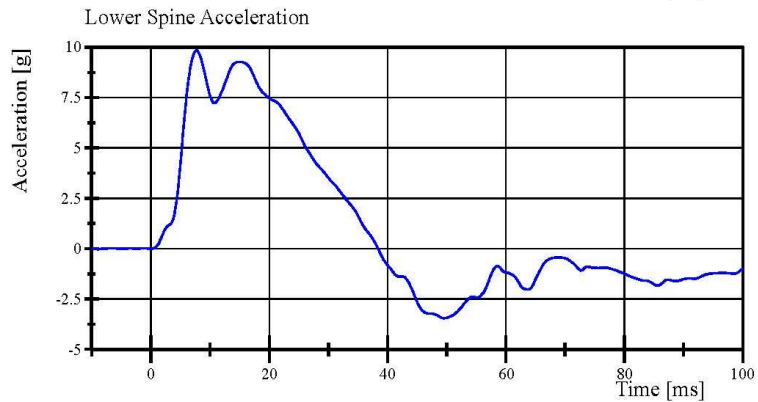
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 61-1
Test Date: 3/2/2023



Filter Class: CFC_180
Max: 0.1 g at -0.6 ms
Min: -15.4 g at 18.5 ms



Filter Class: CFC_180
Max: 14.1 g at 18.2 ms
Min: -6.8 g at 51.4 ms



Filter Class: CFC_180
Max: 9.8 g at 7.7 ms
Min: -3.5 g at 49.4 ms

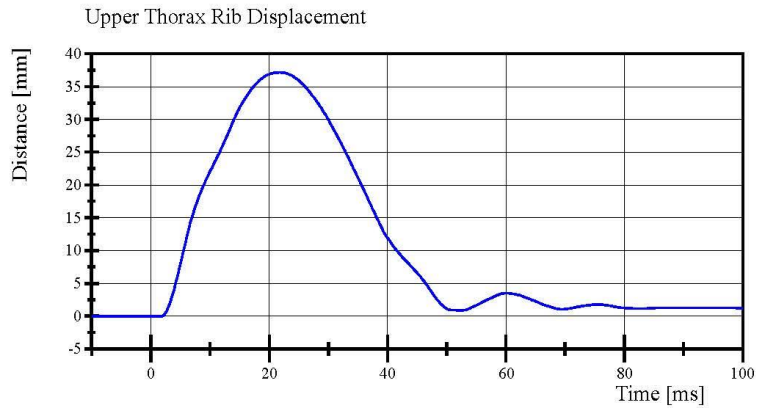
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

03.02.2023 10:15:37 783

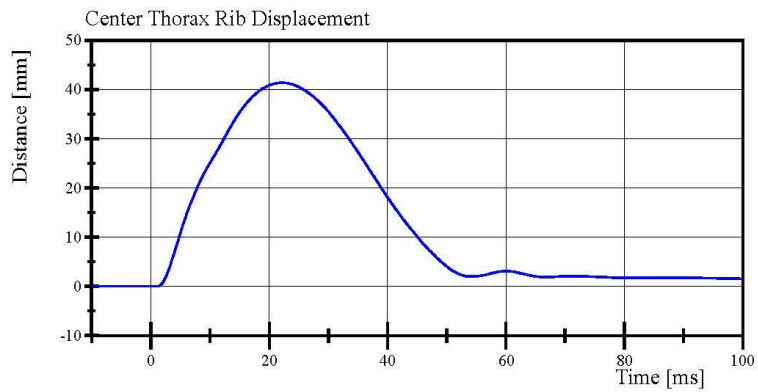


Transportation Research Center Inc.

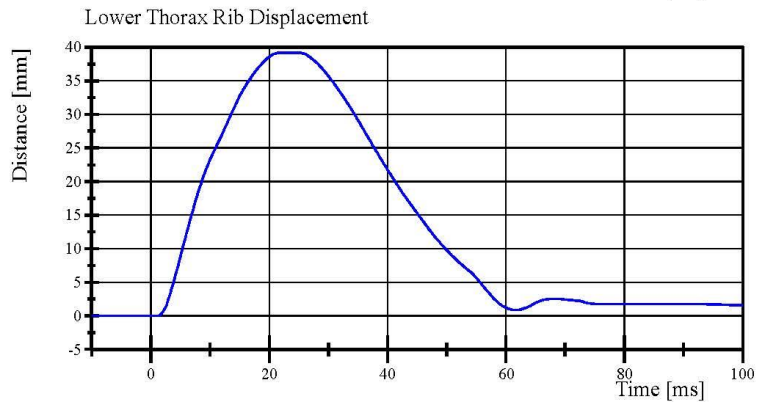
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 61-1
Test Date: 3/2/2023



Filter Class: CFC_600
Max: 37.2 mm at 21.8 ms
Min: -0.0 mm at 1.7 ms



Filter Class: CFC_600
Max: 41.4 mm at 22.1 ms
Min: -0.0 mm at 0.8 ms



Filter Class: CFC_600
Max: 39.2 mm at 22.2 ms
Min: -0.0 mm at 1.1 ms

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

03.02.2023 10:15:37 783



Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 297 Certification No. 61-1
Test Date: 3/2/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.6 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	37.2 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	40.6 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.35 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: DM7281

Lower Abdominal Rib S/N: DM7275

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

03.02.2023 10:05:32 638

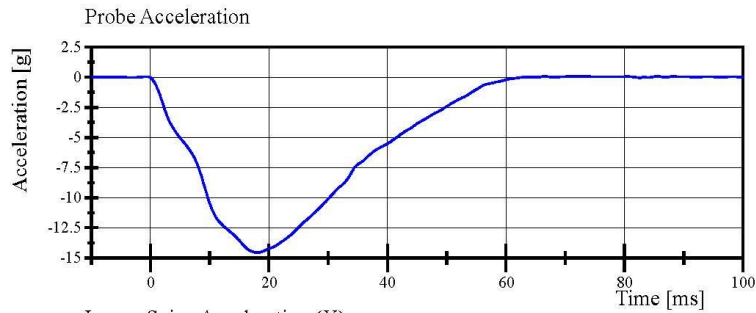


Transportation Research Center Inc.

Left Lateral Abdomen

SID II_s Serial No. 297 Certification No. 61-1

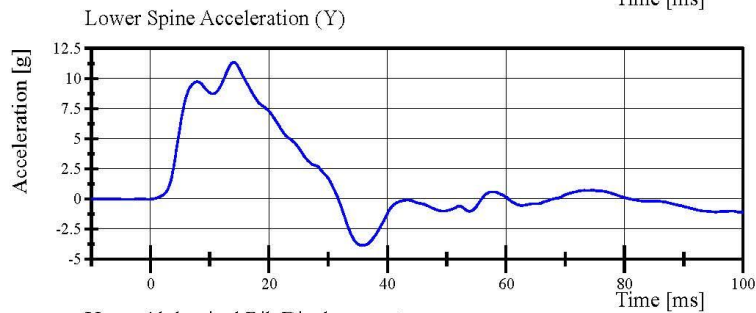
Test Date: 3/2/2023



Filter Class: CFC_180

Max: 0.1 g at 66.5 ms

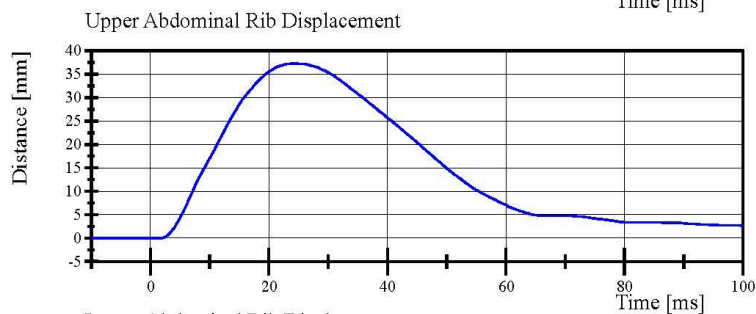
Min: -14.6 g at 18.1 ms



Filter Class: CFC_180

Max: 11.4 g at 14.1 ms

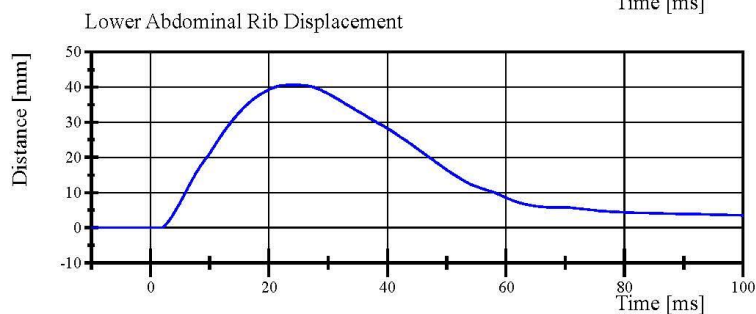
Min: -3.8 g at 35.9 ms



Filter Class: CFC_600

Max: 37.2 mm at 24.2 ms

Min: -0.0 mm at -6.7 ms



Filter Class: CFC_600

Max: 40.6 mm at 23.5 ms

Min: -0.0 mm at 1.8 ms

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

03.02.2023 10:06:03 638



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 61-1
Test Date: 3/2/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.62 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.97 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	37.2 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,877.5 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1171

Pelvis Plug Info:

Manufacturer: Saco

S/N: 13795

Cal Date: 20200508

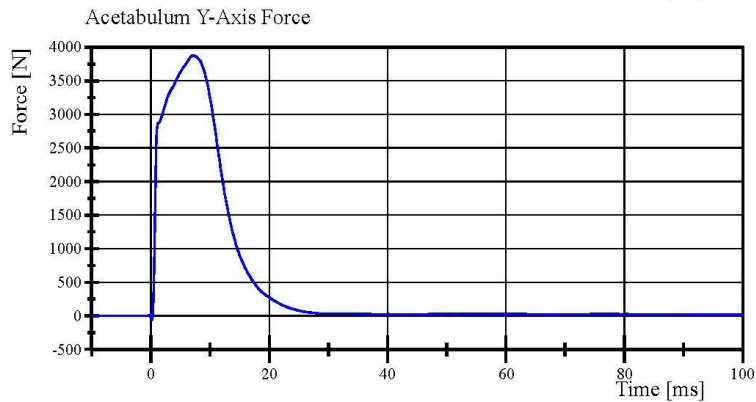
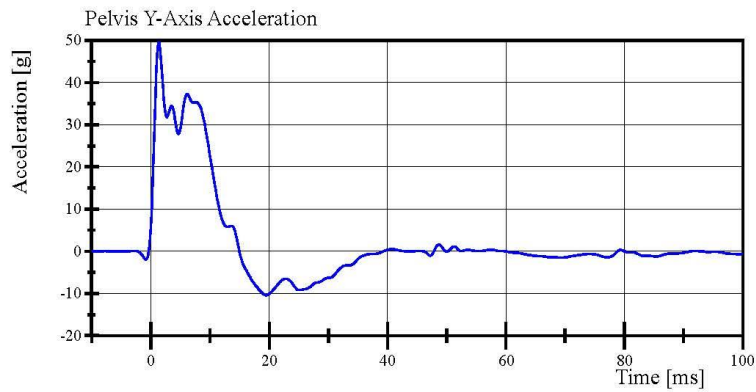
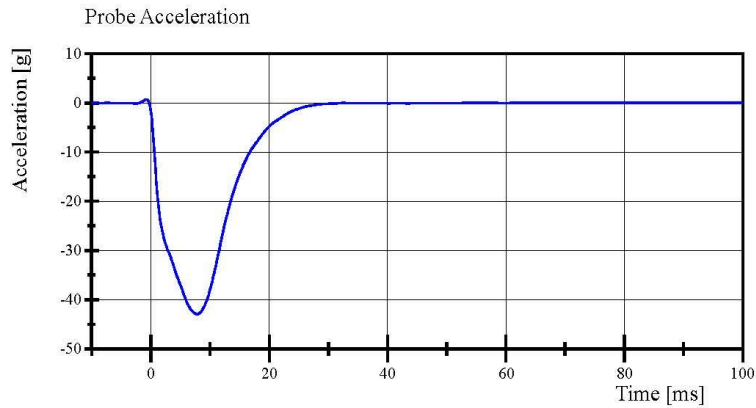
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

03.02.2023 09:03:43 438



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 61-1
Test Date: 3/2/2023



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

03.02.2023 09:04:44 438



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 61-2

Test Date: 3/3/2023

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.26 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-44.6 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	36.8 g	Yes
Iliac Force	4,100 - 5,100 N	5,247.4 N	No

Test does not meet specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1171

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

03.03.2023 08:44:05 632

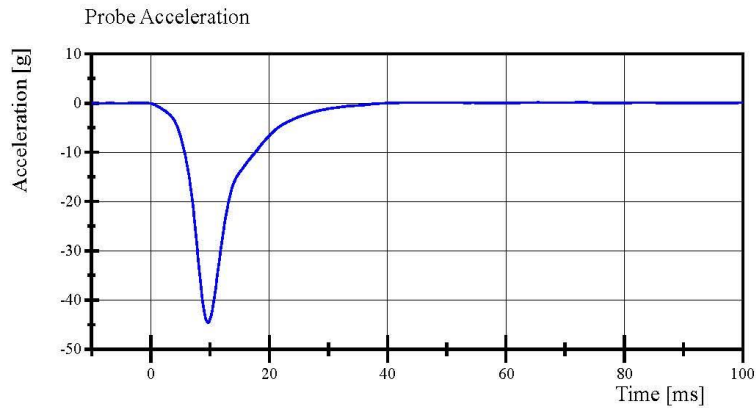


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 61-2

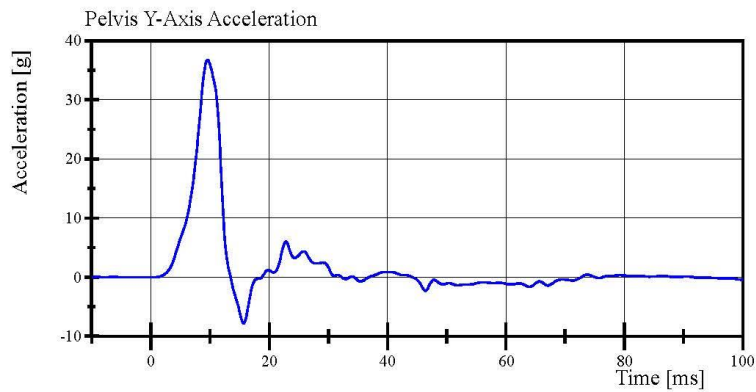
Test Date: 3/3/2023



Filter Class: CFC_180

Max: 0.2 g at 73.0 ms

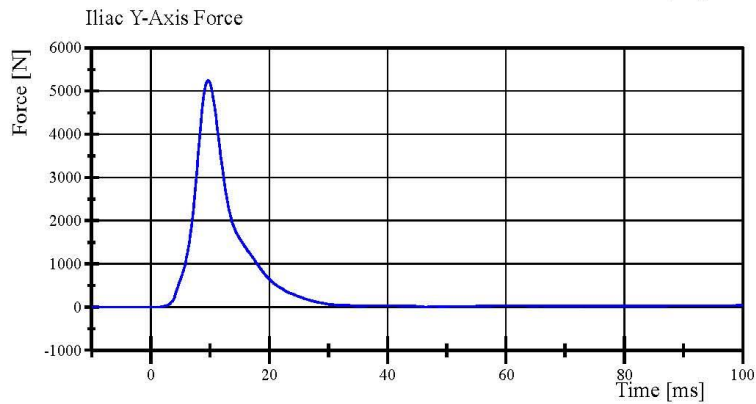
Min: -44.6 g at 9.7 ms



Filter Class: CFC_180

Max: 36.8 g at 9.6 ms

Min: -7.8 g at 15.7 ms



Filter Class: CFC_600

Max: 5,247.4 N at 9.7 ms

Min: -0.6 N at 0.3 ms

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

03.03.2023 08:44:45 632



APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 297			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	P93539	Endevco	31-Jan-2023
				Y	P93549	Endevco	31-Jan-2023
				Z	P93776	Endevco	31-Jan-2023
Displacement Potentiometers	Shoulder			Y	N/A	N/A	N/A
	Thoracic Rib	Upper	Y	023	Servo	1-Feb-2023	
		Middle	Y	063	Servo	1-Feb-2023	
		Lower	Y	043	Servo	1-Feb-2023	
	Abdominal Rib	Upper	Y	1152	Servo	1-Feb-2023	
		Lower	Y	051	Servo	1-Feb-2023	
Lower Spine Accelerometers (T12)				X	P94425	Endevco	31-Jan-2023
				Y	P91522	Endevco	31-Jan-2023
				Z	P91511	Endevco	31-Jan-2023
Acetabulum Load Cell				Y	235-FY	FTSS	31-Jan-2023
Iliac Wing Load Cell				Y	320-FY	FTSS	31-Jan-2023
Pelvis Plug (struck side)					13791	SACO	7-Apr-2020
Pelvis Plug (non-struck side)					13792	SACO	8-May-2020

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	A378323	Measurement Specialties	7-Oct-2022
Vehicle Center of Gravity	Y	A349782	Measurement Specialties	3-Feb-2023
Vehicle Center of Gravity	Z	A378308	Measurement Specialties	7-Oct-2022
Left Floor Sill	Y	A386351	Measurement Specialties	2-Feb-2023
A-Pillar Sill	Y	A377197	Measurement Specialties	7-Oct-2022
A-Pillar Low	Y	A349877	Measurement Specialties	10-Nov-2022
A-Pillar Mid	Y	A349788	Measurement Specialties	7-Oct-2022
B-Pillar Sill	Y	A298330	Measurement Specialties	4-Jan-2023
B-Pillar Low	Y	A378332	Measurement Specialties	6-Oct-2022
B-Pillar Mid	Y	A367450	Measurement Specialties	2-Feb-2023
Driver Seat	Y	A300456	Measurement Specialties	7-Oct-2022
Engine Top	X	A349806	Measurement Specialties	9-Feb-2023
Engine Top	Y	A386358	Measurement Specialties	3-Feb-2023
Firewall	Y	A400117	Measurement Specialties	3-Feb-2023
Right Roof	Y	A378379	Measurement Specialties	7-Oct-2022
Right Floor Sill	Y	A297050	Measurement Specialties	7-Oct-2022
Rear Floor Pan	X	A378375	Measurement Specialties	10-Nov-2022
Rear Floor Pan	Y	A297048	Measurement Specialties	3-Feb-2023

TABLE 3 – Pole Instrumentation

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