

**FINAL REPORT NUMBER: SPNCAP-TRC-22-004**

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

**FCA US LLC  
2022 Jeep Grand Cherokee L  
NHTSA NUMBER: M20220304**

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



**Report Date: July 28, 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: July 28, 2023

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: \_\_\_\_\_

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: \_\_\_\_\_

Technical Report Documentation Page

1. Report No. SPNCAP-TRC-22-004	2. Government Accession No.	3. Recipient's Catalog No.																									
4. Title and Subtitle Final Report of New Car Assessment Program Side Impact Pole Testing of 2022 Jeep Grand Cherokee L NHTSA No.: M20220304		5. Report Date July 28, 2023																									
		6. Performing Organization Code TRC Inc.																									
7. Author(s) John Shultz, Project Manager		8. Performing Organization Report No. 220920																									
9. Performing Organization Name and Address Transportation Research Center Inc. 10820 State Route 347 East Liberty, OH 43319		10. Work Unit No.																									
		11. Contract or Grant No. 693JJ920D000018																									
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards Mail Code NRM-110 1200 New Jersey Ave, SE Washington, DC 20590		13. Type of Report and Period Covered Final Test Report September 20, 2022 – July 28, 2023																									
		14. Sponsoring Agency Code NRM-110																									
15. Supplemental Notes																											
<p>16. Abstract</p> <p>A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject vehicle, a 2022 Jeep Grand Cherokee L, 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 September 20, 2022.</p> <p>The impact velocity was 32.03 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 23.0° C. The test vehicle's post-test maximum crush was 372 mm at Level 2.</p> <p>The test or target vehicle's performance is given below:</p> <table border="1"> <thead> <tr> <th></th> <th><u>Unit</u></th> <th><u>Threshold</u></th> <th><u>Front SID-IIs</u></th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC<sub>36</sub>):</td> <td>NA</td> <td>1000</td> <td><u>376</u></td> </tr> <tr> <td>Resultant Lower Spine Acceleration:</td> <td>g's</td> <td>82</td> <td><u>31.5</u></td> </tr> <tr> <td>Total Pelvic Force: (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td><u>1921.0</u></td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td><u>23.9</u></td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td><u>21.7</u></td> </tr> </tbody> </table> <p>* Proposed IARV</p> <p>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.</p>					<u>Unit</u>	<u>Threshold</u>	<u>Front SID-IIs</u>	Head Injury Criteria (HIC <sub>36</sub> ):	NA	1000	<u>376</u>	Resultant Lower Spine Acceleration:	g's	82	<u>31.5</u>	Total Pelvic Force: (sum of acetabular and iliac forces)	N	5525	<u>1921.0</u>	Maximum Thoracic Rib Deflection	mm	38*	<u>23.9</u>	Maximum Abdomen Rib Deflection	mm	45*	<u>21.7</u>
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave Washington, DC 20590																									
19. Security Classification (of this report) Unclassified	20. Security Classification (of this page) Unclassified	21. Number of Pages 126	22. Price																								

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**SECTION 1**  
**TEST PURPOSE AND PROCEDURE**

**TEST PURPOSE AND PROCEDURE**

This side impact test was conducted as part of the MY22 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 2022 Jeep Grand Cherokee L manufactured by FCA US LLC. 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 2022 Jeep Grand Cherokee L. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.03 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, OH, on September 20, 2022. 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 <sub>36</sub> )	NA	1000	376
Lower Spine Acceleration Resultant	G	82	31.5
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1921.0
Maximum Thoracic Rib Deflection	mm	38*	23.9
Maximum Abdominal Rib Deflection	mm	45*	21.7

\* Proposed IARV

Supplemental restraint information is given below:

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

### GENERAL COMMENTS

Left Floor Sill Acceleration (Y); Channel failed after 32.0 ms

Left A-Pillar Sill Acceleration (Y); Channel failed after 22.0 ms

Left Mid A-Pillar Acceleration (Y); Channel failed after 32.0 ms

Left Lower B-Pillar Acceleration (Y); Channel failed after 77.0 ms

The post-test portable placard in photographs has the incorrect NHTSA number

**SECTION 3**  
**OCCUPANT AND VEHICLE INFORMATION**

**DATA SHEET NO. 1  
GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2022 Jeep Grand Cherokee L  
Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
Test Date: 9/20/2022

**TEST VEHICLE INFORMATION AND OPTIONS**

NHTSA No.	M20220304
Model Year	2022
Make	Jeep
Model	Grand Cherokee L
Body Style	MPV
VIN	1C4RJJBG8N8638851
Body Color	Velvet Red Pearl
Odometer Reading (km/mi)	19 mi
Engine Displacement (L)	3.6
Type/No. Cylinders	V/6
Engine Placement	Inline Front
Transmission Type	Automatic
Transmission Speeds	8
Overdrive	Yes
Final Drive	RWD
Roof Rack	No
Sunroof/T-Top	Yes
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	No
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Safety Restraint	No

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

No

**DATA FROM CERTIFICATION LABEL**

Manufactured By	FCA US LLC
Date of Manufacturer	07/22
Vehicle Type	MPV

GVWR (kg)	2949
GAWR Front (kg)	1293
GAWR Rear (kg)	1679

**VEHICLE SEATING AND WEIGHT CAPACITY DATA**

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	2	2	6
Vehicle Capacity Weight (VCW) (kg)				544.0
DSC X 68.04 kg				408.24
Rated Cargo and Luggage Weight (RCLW) (kg)				135.76

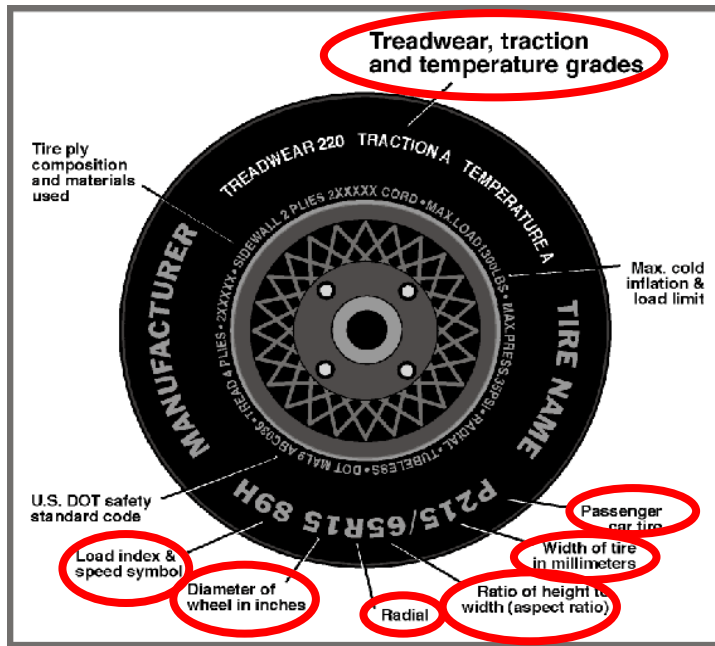
**VEHICLE SEAT TYPE**

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	Yes	N/A	N/A		N/A	Yes	N/A
Rear or Second Row Seat	Yes	N/A	N/A	N/A	N/A	Yes	N/A
Third row seat	N/A	N/A	Yes	N/A	Yes	N/A	N/A

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

Test Vehicle: 2022 Jeep Grand Cherokee L  
 Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
 Test Date: 9/20/2022



**DATA FROM TIRE PLACARD**

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	250	250
Recommended Tire Size	265/60R18	265/60R18
Tire Size on Vehicle	265/60R18	265/60R18
Tire Manufacturer	Michelin	Michelin
Tire Model	Primacy LTX	Primacy LTX
Treadwear	540	540
Traction	B	B
Temperature Grades	A	A
Tire Plies Sidewall	5	5
Tire Plies Body	2	2
Load Index/Speed Symbol	110H	110H
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	DOT 1AP 5E 01XX 2222	DOT 1AP 5E 01XX 2222
DOT Safety Code Right	DOT 1AP 5E 01XX 2122	DOT 1AP 5E 01XX 2122

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

Test Vehicle: 2022 Jeep Grand Cherokee L  
 Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
 Test Date: 9/20/2022

**TIRE PRESSURES**

	Units	LF	RF	LR	RR
As Delivered	kPa	228	221	255	221
Tire Placard	kPa	250	250	250	250
Owner's Manual	kPa	250	250	250	250
As Tested	kPa	250	250	250	250

**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	515.4	538.0		535.0	623.6		533.8	633.8	
Right	kg	525.2	523.6		502.2	619.6		510.2	609.2	
Ratio	%	49.5	50.5		45.5	54.5		45.6	54.4	
Totals	kg	1040.6	1061.6	2102.2	1037.2	1243.2	2280.4	1044.0	1243.0	2287.0

**TARGET TEST WEIGHT CALCULATION**

Measured Parameter	Units	Value
Total As Delivered Weight (UVW)	kg	2102.2
Actual Weight of 1 P572V ATD (SID-III) Dummy Used	kg	49.0
Rated Cargo/Luggage Weight (RCLW)	kg	135.76
Calculated Vehicle Target Weight (TVTW)	kg	2287.0

(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.	0.0	+0.9	+0.9	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	-0.6	-0.2	+0.6	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	+0.1	+0.1	0.0	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg.	+0.3	+0.1	0.0	Yes
Vehicle CG (Aft of Front Axle)	mm	1565	1690	1685	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	+2	+13	+18	

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

Test Vehicle: 2022 Jeep Grand Cherokee L                      NHTSA No.: M20220304  
Test Program: SPNCAP Side Impact                                      Test Date: 9/20/2022

**WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW**

Component Description	Weight (kg)
Ballast: Steel plates in cargo area	121.8
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	1565
Aft 25 mm target	1855

**DATA SHEET NO. 2**

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

Test Vehicle: 2022 Jeep Grand Cherokee L

NHTSA No.: M20220304

Test Program: SPNCAP Side Impact

Test Date: 9/20/2022

**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	19.5	14.6	17.1
Front Passenger Seat	19.6	15.1	17.5
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	N/A	N/A	18.2
Non-Struck Side Rear Seat	N/A	N/A	19.0
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	17.1	304	Max	298	303	311
			Mid	288	297	304
			Min	278	284	291
Front Passenger Seat	17.5	319	Max	309	318	321
			Mid	307	313	319
			Min	306	300	304
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	18.2	242	Max	N/A	N/A	N/A
			Mid	241	242	242
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	19.0	245	Max	N/A	N/A	N/A
			Mid	246	245	242
			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: 2022 Jeep Grand Cherokee L

NHTSA No.: M20220304

Test Program: SPNCAP Side Impact

Test Date: 9/20/2022

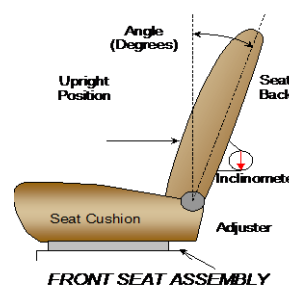
**SEAT FORE/AFT POSITION**

Seat	Total Fore/Aft Travel		Test Position from Forward most Position	
	mm	Detents*	mm	Detent*
Driver Seat	250	N/A	0	N/A
Front Passenger Seat	250	N/A	0	N/A
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	178	19	178	18
Non-Struck Side Rear Seat	182	19	182	18
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 5<sup>th</sup> 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	63.0	0	7.9	N/A
Front Passenger Seat	62.4	0	7.9	N/A
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	24.7	12	9.5	0
Non-Struck Side Rear Seat	24.3	12	9.5	0
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	3, 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	4	Full Down

**DATA SHEET NO. 2 (CONTINUED)**

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

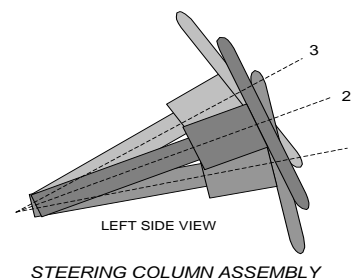
Test Vehicle: 2022 Jeep Grand Cherokee L  
 Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
 Test Date: 9/20/2022

**STEERING COLUMN ADJUSTMENT**

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

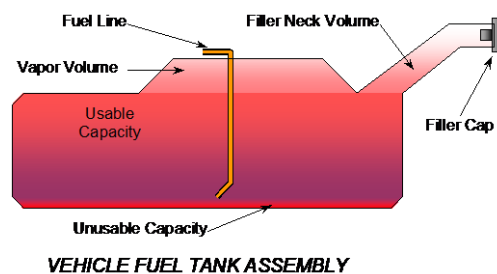
	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	19.0	0
Geometric Center, Position No. 2	21.8	30
Uppermost, Position No. 3	24.6	60
Telescoping Steering Wheel Travel		60
Test Position	21.8	30



**FUEL PUMP**

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

The fuel pump starts pumping fuel when the key is "ON" position. However, the fuel pump will stop in 5 seconds if the engine is not started.



**FUEL TANK CAPACITY**

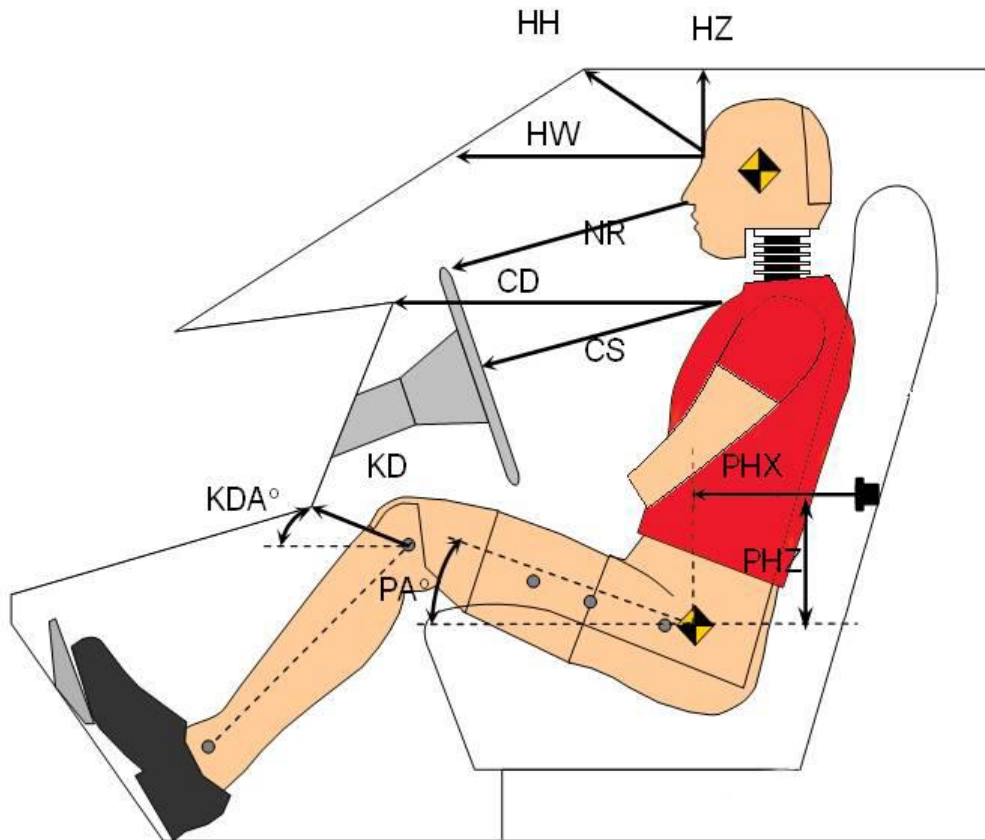
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	87.1
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	87.1
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	81.0
Actual Amount of Solvent Used in Test	81.0
1/3 of Usable Capacity	29.0

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

**DATA SHEET NO. 3  
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS**

Test Vehicle: 2022 Jeep Grand Cherokee L  
 Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
 Test Date: 9/20/2022

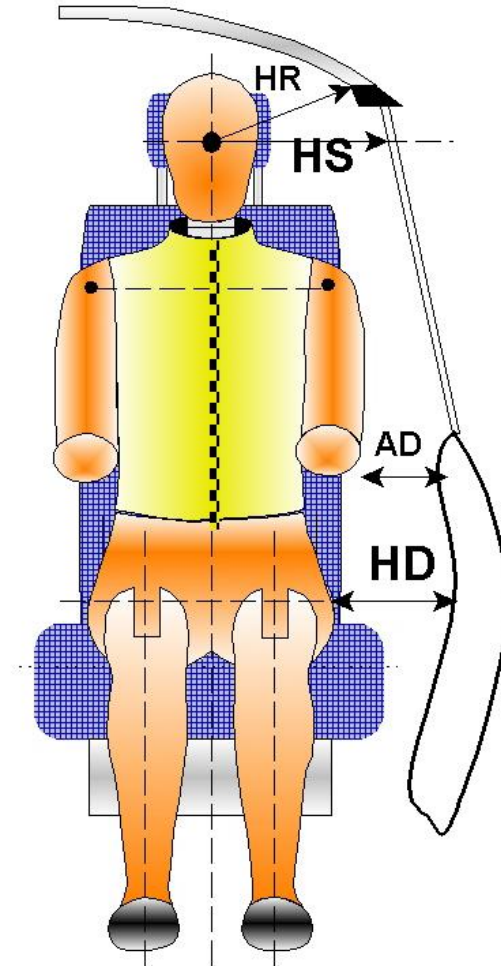


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	272	
HW	Head to Windshield	638	
HZ	Head to Visor	195	
NR	Nose to Rim	250	
CD	Chest to Dashboard	451	
CS	Chest to Steering Wheel	200	
KDL/KDLA°	Left Knee to Dash	158	18.8
KDR/KDRA°	Right Knee to Dash	142	18.5
PAX°	Pelvic Tilt Angle (X-axis)		19.7
PAY°	Pelvic Tilt Angle (Y-axis)		0.2
PHX	Hip Point to Striker (X-Axis)	298	
PHZ	Hip Point to Striker (Z-Axis)	37	

**DATA SHEET NO. 4**  
**DUMMY LATERAL CLEARANCE DIMENSIONS**

Test Vehicle: 2022 Jeep Grand Cherokee L  
 Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
 Test Date: 9/20/2022

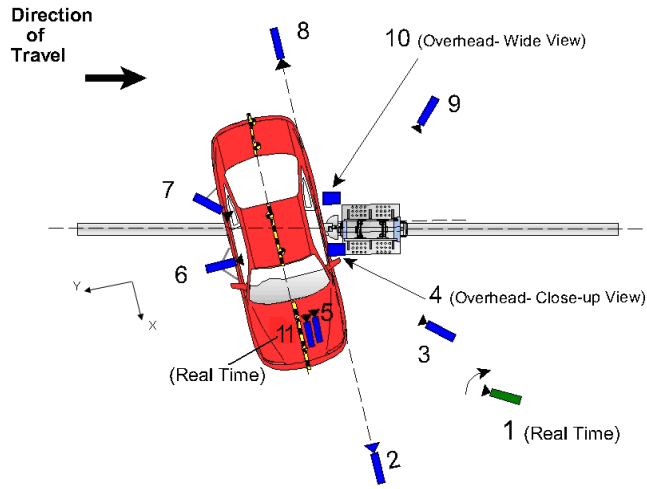


Code	Measurement Description	Length (mm)
HR	Head to Side Header	263
HS	Head to Side Window	380
AD	Arm to Door	174
HD	Hip Point to Door	170

**DATA SHEET NO. 5  
CAMERA AND INSTRUMENTATION DATA**

Test Vehicle: 2022 Jeep Grand Cherokee L  
Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
Test Date: 9/20/2022



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

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

All measurements accurate to +/- 6 mm.

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

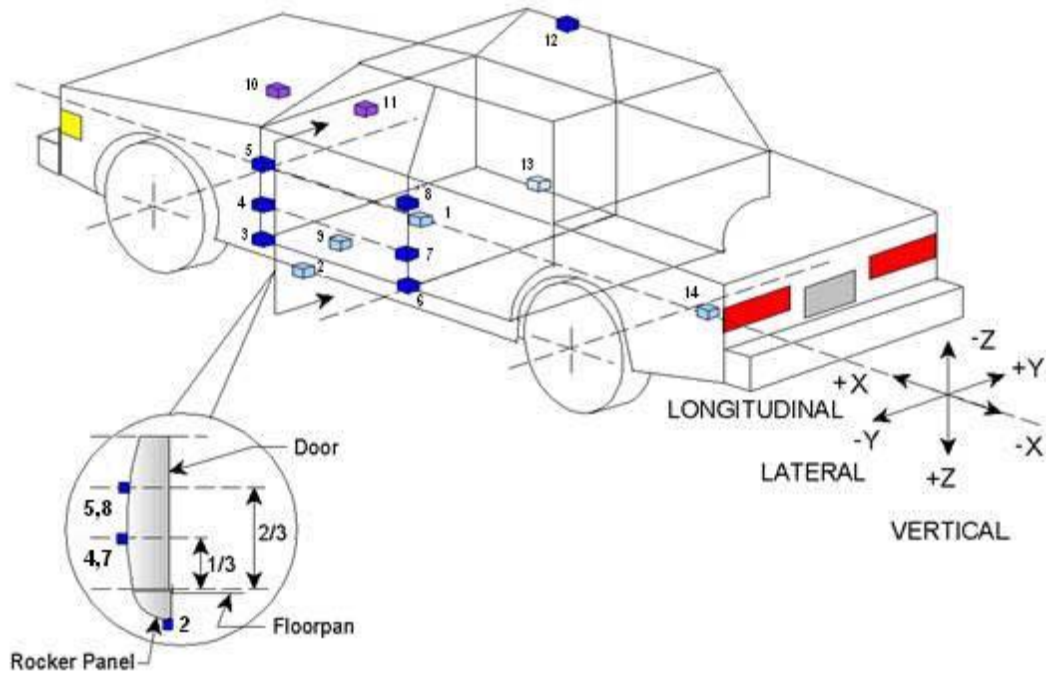
**INSTRUMENTATION**

	Number of Channels
Driver Dummy	16
Vehicle Structure	18
Pole Load Cells	8
<b>TOTAL</b>	<b>42</b>

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

Test Vehicle: 2022 Jeep Grand Cherokee L  
 Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
 Test Date: 9/20/2022



Accelerometer/Sensor Location				
ID		Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3105	125	-620
2	Left Floor Sill	3005	-730	-473
3	A-Pillar Sill	3487	-748	-490
4	A-Pillar Low	3665	-845	-725
5	A-Pillar Mid	3645	-815	-1145
6	B-Pillar Sill	2505	-735	-520
7	B-Pillar Low	2505	-859	-725
8	B-Pillar Mid	2555	-834	-1095
9	Driver Seat Track	2705	-583	-448
10	Engine Top	4406	170	-1053
11	Firewall	4146	0	-1102
12	Right Roof	2860	648	-1705
13	Right Floor Sill	2985	730	-464
14	Rear Floorpan	1045	0	-564

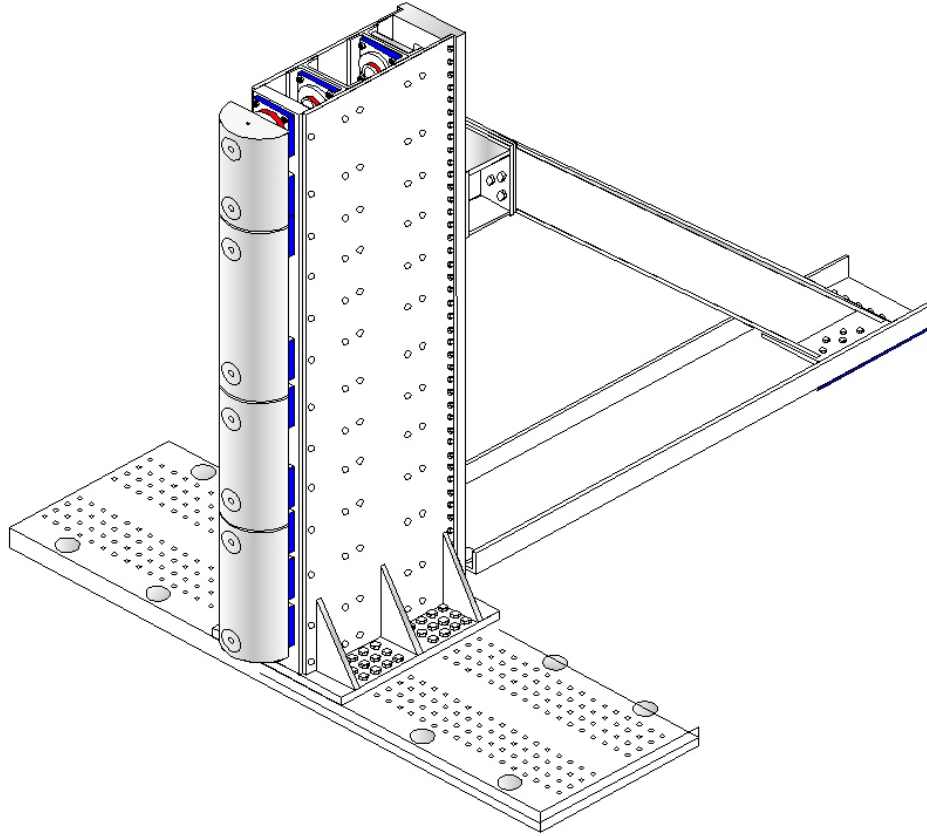
*Reference:* X - Test Vehicle Rear Bumper (+ forward)  
 Y - Test Vehicle Centerline (+ to right)  
 Z - Ground Plane (+ down)

**DATA SHEET NO. 7**  
**RIGID POLE LOAD CELL DATA**

Test Vehicle: 2022 Jeep Grand Cherokee L  
Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
Test Date: 9/20/2022

**FOIL 300K RIGID POLE**



<b>Load Cell Locations</b>	
<b>ID</b>	<b>Height From Top of Carrier (mm)</b>
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: 2022 Jeep Grand Cherokee L  
 Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
 Test Date: 9/20/2022

**TEST DUMMY INFORMATION AND CONTACT POINTS**

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

**POST-TEST DOOR PERFORMANCE**

Description	Struck Side		Non-Struck Side		Rear Hatch/ Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	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 separated from the a pillar
Side Window Damage	Cracked
Other Notable Effects	None

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

Test Vehicle: 2022 Jeep Grand Cherokee L  
Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
Test Date: 9/20/2022

**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

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

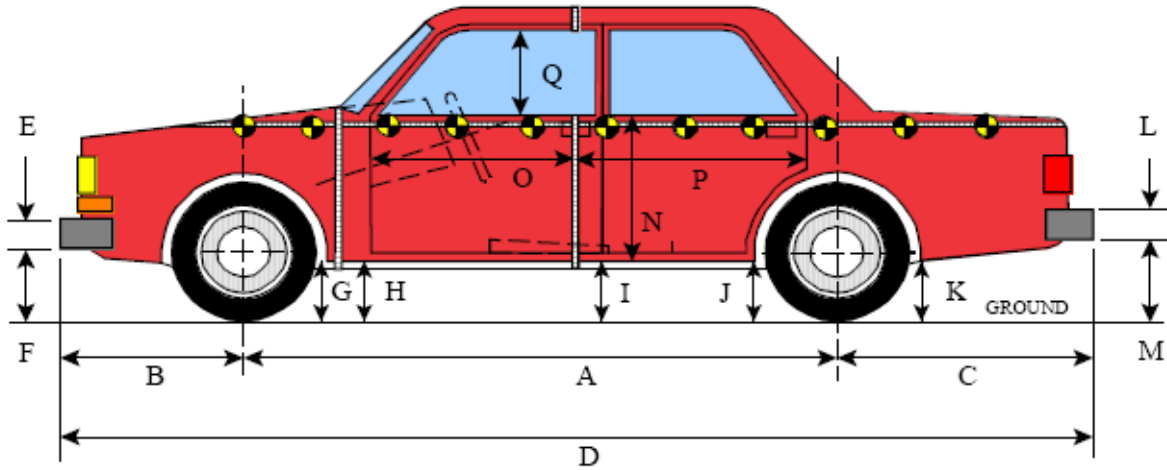
**VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA**

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1335
Actual Impact Point (Aft of Front Axle)	mm		1338
Horizontal Offset ( + forward / - rearward)	mm	+/- 38 of Intended Impact point	-3
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	32.03
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.02

**DATA SHEET NO. 9**  
**VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2022 Jeep Grand Cherokee L  
Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
Test Date: 9/20/2022



**LEFT SIDE VIEW**

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

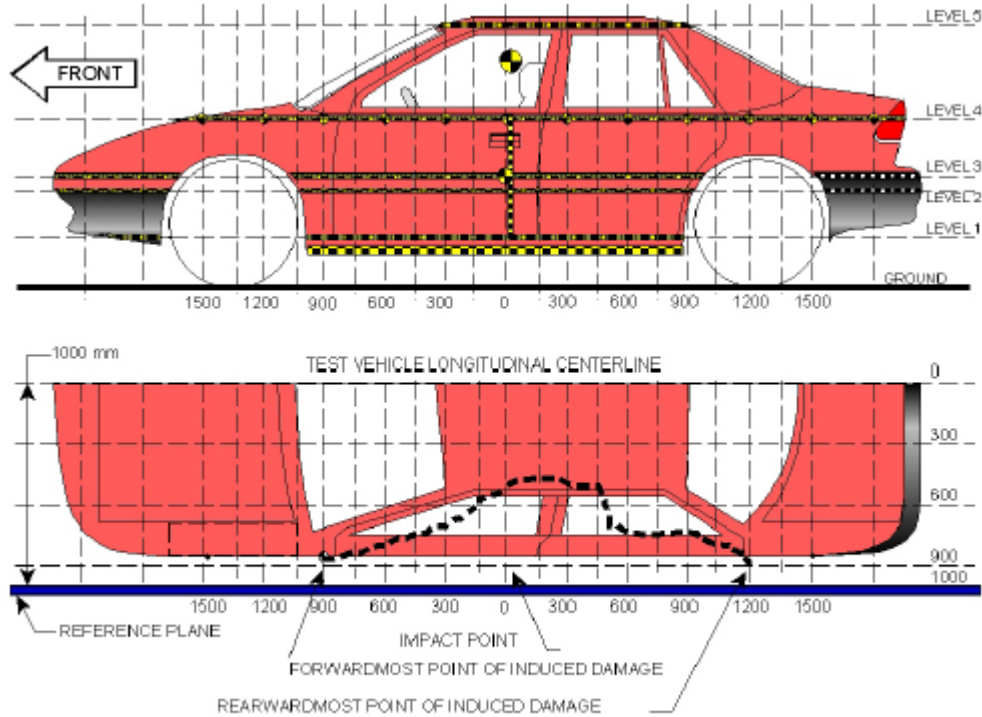
**VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION**

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	3100	2921	-179
B	Front Axle to Front Surface of Vehicle	910	910	0
C	Rear Axle to Rear Surface of Vehicle	1200	1200	0
D	Total Length at Centerline	5210	5180	-30
E	Front Bumper Thickness	103	103	0
F	Front Bumper Bottom to Ground	555	575	20
G	Sill Height at Front Wheel Well	414	434	20
H	Sill Height at Front Door Leading Edge	423	440	17
I	Sill Height at B-Pillar	427	394	-33
J1	Sill Height at Rear Wheel Well	430	482	52
J2	Pinch Weld Height at Rear Wheel Well	300	328	28
K	Sill Height Aft of Rear Wheel Well	373	382	9
L	Rear Bumper Thickness	150	150	0
M	Rear Bumper Bottom to Ground	440	435	-5
N	Sill Height to Bottom of Front Window Sill	804	835	31
O	Front Door Leading Edge to Impact CL	700	639	-61
P	Rear Door Trailing Edge to Impact CL	1583	1391	-192
Q	Front Window Opening	425	410	-15
R	Right Side Length	4950	4949	-1
S	Left Side Length	4950	4876	-74
T	Vehicle Width at B-Pillars	1898	1787	-111
U	Front Wheel Track Width	1666	1653	-13
V	Rear Wheel Track Width	1661	1665	4

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

Test Vehicle: 2022 Jeep Grand Cherokee L  
Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
Test Date: 9/20/2022



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

3

**MAXIMUM EXTERIOR CRUSH MEASUREMENTS**

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	489	324	0
2	Occupant H-Point	811	372	0
3	Mid-Door	784	370	0
4	Window Sill	1188	310	0
5	Window Top	1700	143	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: 2022 Jeep Grand Cherokee L  
 Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
 Test Date: 9/20/2022

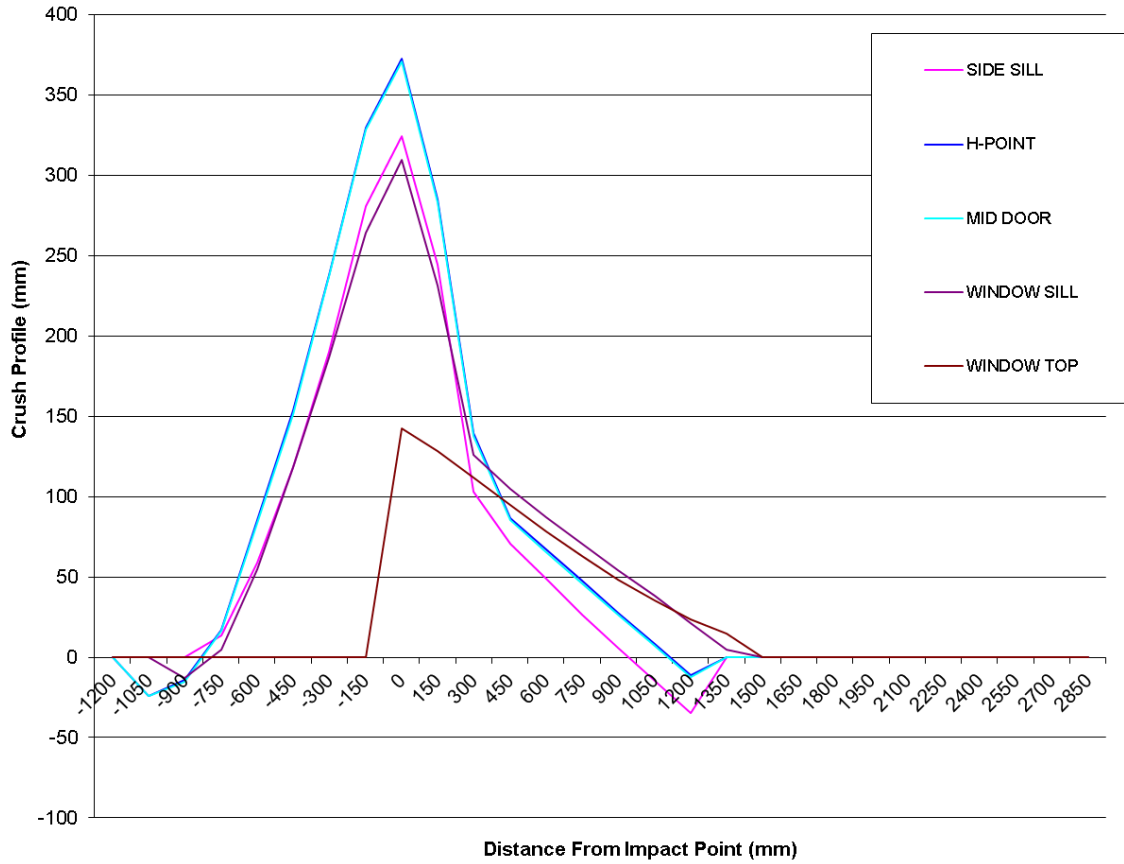
	Pre-Test					Post-Test					Crush				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1050	0	959	960	0	0	0	983	984	0	0	0	-24	-24	0	0
-900	920	940	940	819	0	936	954	956	832	0	-16	-14	-16	-13	0
-750	900	931	930	832	0	887	914	913	827	0	13	17	17	5	0
-600	890	930	928	843	0	831	844	845	788	0	59	86	83	55	0
-450	892	932	931	847	0	774	778	779	729	0	118	154	152	118	0
-300	894	934	932	857	0	704	696	695	670	0	190	238	237	187	0
-150	896	936	934	865	0	615	606	606	601	0	281	330	328	264	0
0	896	937	935	872	632	572	565	565	562	489	324	372	370	310	143
150	897	938	937	878	660	653	654	653	647	532	244	284	284	231	128
300	896	939	937	882	664	793	799	799	756	553	103	140	138	126	111
450	894	937	936	885	667	823	851	850	780	572	71	86	86	105	95
600	893	937	936	888	667	844	870	870	801	589	49	67	66	87	78
750	893	938	936	891	668	866	890	890	820	605	27	48	46	71	63
900	898	940	939	893	667	892	912	912	839	619	6	28	27	54	48
1050	913	947	946	895	667	928	939	939	857	632	-15	8	7	38	35
1200	940	963	962	892	666	975	974	974	871	643	-35	-11	-12	21	23
1350	0	0	0	898	665	0	0	0	893	650	0	0	0	5	15

**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: 2022 Jeep Grand Cherokee L  
 Test Program: SPNCAP Side Impact

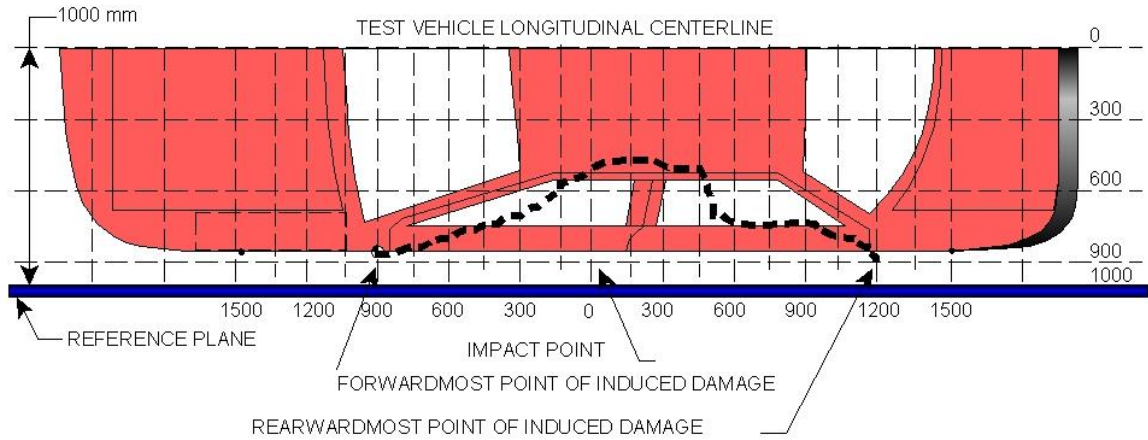
NHTSA No.: M20220304  
 Test Date: 9/20/2022



**DATA SHEET NO. 11  
VEHICLE DAMAGE PROFILE DISTANCES**

Test Vehicle: 2022 Jeep Grand Cherokee L  
Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
Test Date: 9/20/2022



**VEHICLE DAMAGE PROFILE DISTANCES**

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	1350	5	650	665	15
2	900	4	839	893	54
3	450	4	780	885	105
4	0	2	565	937	372
5	-300	2	696	934	238
6 <sup>1</sup>	-750	2	914	931	0
		3	913	930	

<sup>1</sup> 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**

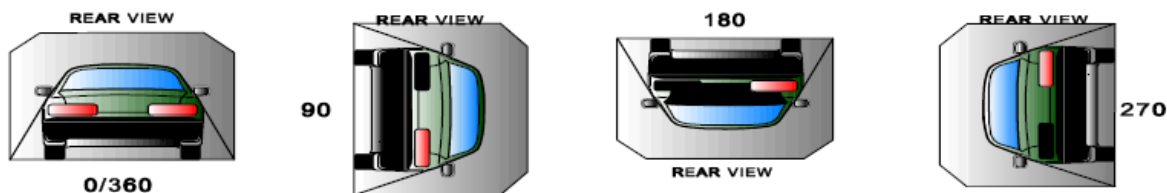
Test Vehicle: 2022 Jeep Grand Cherokee L  
 Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
 Test Date: 9/20/2022

**Test Time:** 14:45    **Temperature:** 23.0°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

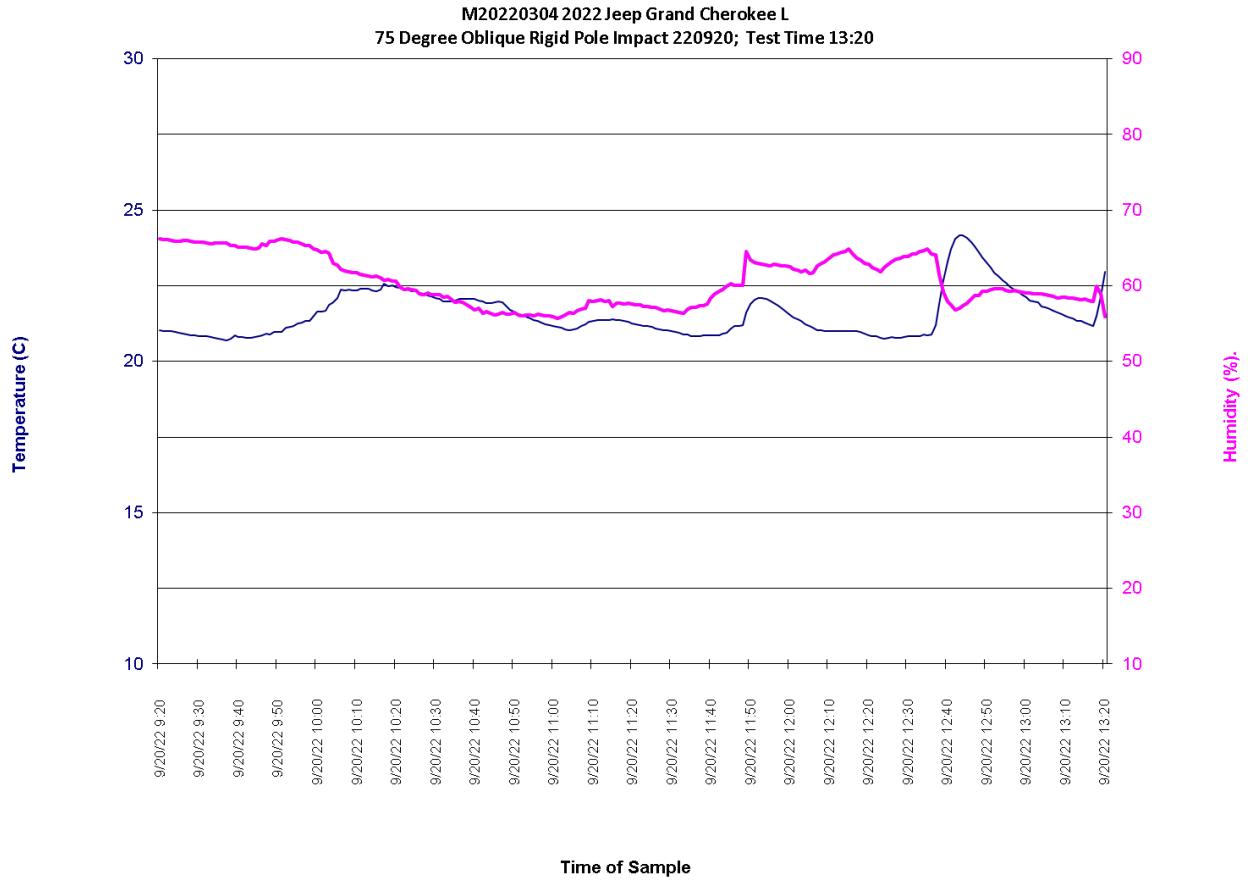
**ROLLOVER SOLVENT SPILLAGE LOCATION TABLE**

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: 2022 Jeep Grand Cherokee L  
Test Program: SPNCAP Side Impact

NHTSA No.: M20220304  
Test Date: 9/20/2022



**APPENDIX A  
PHOTOGRAPHS**

## TABLE OF PHOTOGRAPHS

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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
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11	Pre-Test Rear View of Test Vehicle	A-9
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17	Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	A-12
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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
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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
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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
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35	Pre-Test View of Disengaged Parking Brake	A-21

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<b>No.</b>	<b>Description</b>	<b>Page</b>
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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
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45	Post-Test Inner Driver Door Panel View Showing Dummy Contact Location	A-26
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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
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62	Post-Test Pole Barrier Side View	A-35
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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 3/4 View of Test Vehicle**



**No. 006 Post-Test Left Front 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**



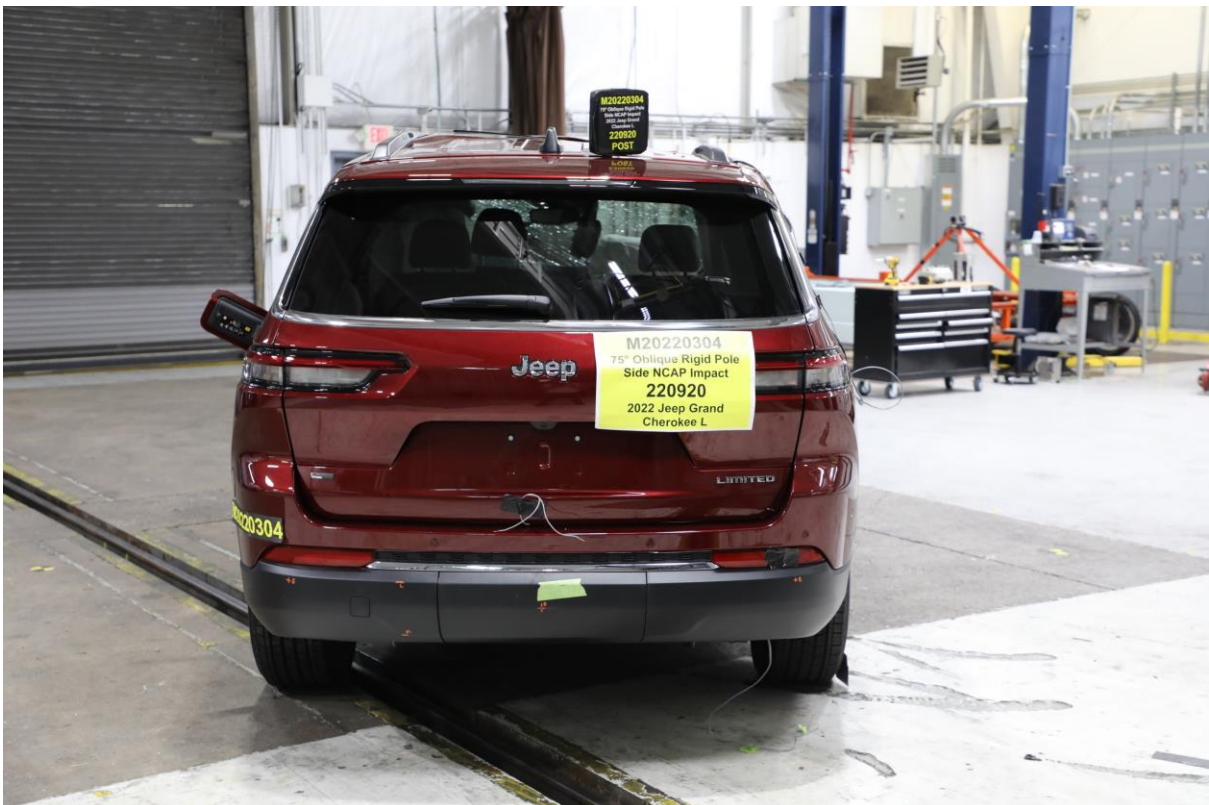
**No. 009 Pre-Test Left Rear 3/4 View of Test Vehicle**



**No. 010 Post-Test Left Rear 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<sup>1</sup>



**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<sup>1</sup>



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



**No. 022 Post-Test Front Close-Up View of Dummy<sup>1</sup>**



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

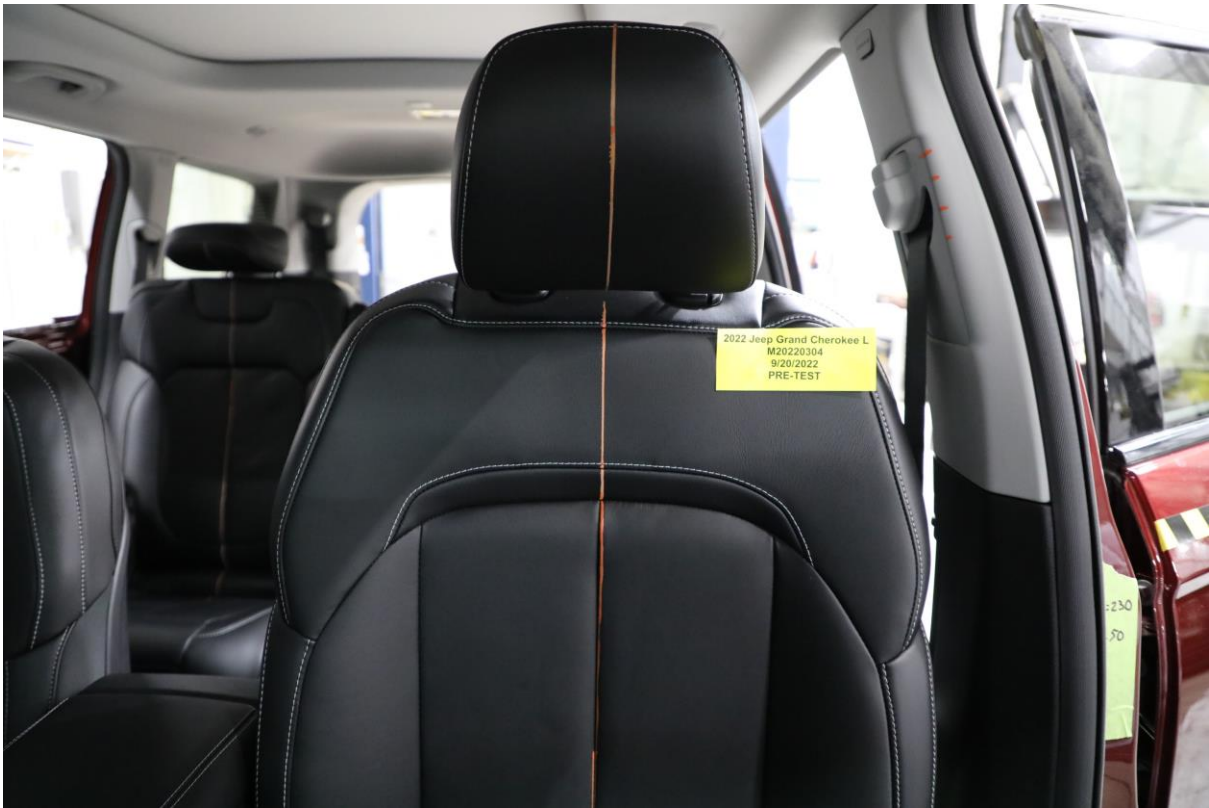
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No. 024 Pre-Test Left Side View of Dummy Shoulder and Door Top View



No. 025 Post-Test Left Side View of Dummy Shoulder and Door Top View<sup>1</sup>



**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**



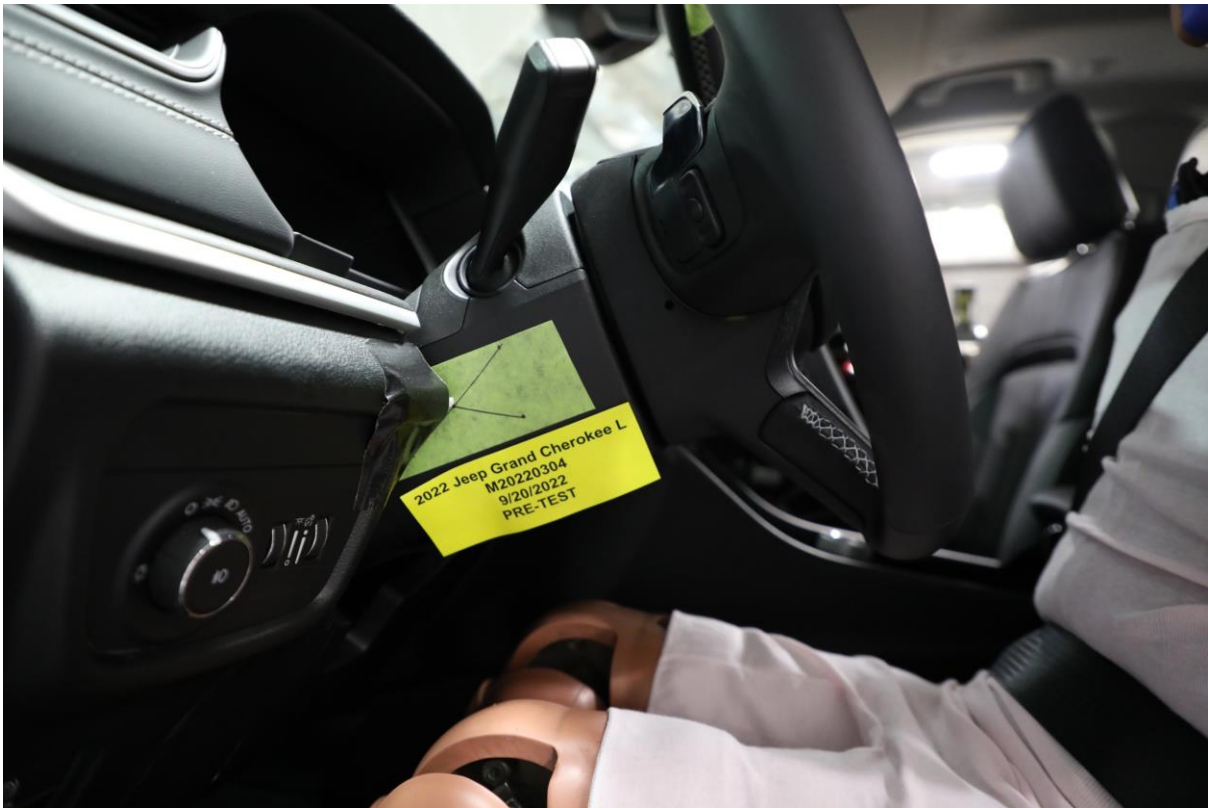
**No. 031 Pre-Test Left Side View of Dummy Head Showing Dummy Head is Level**



**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

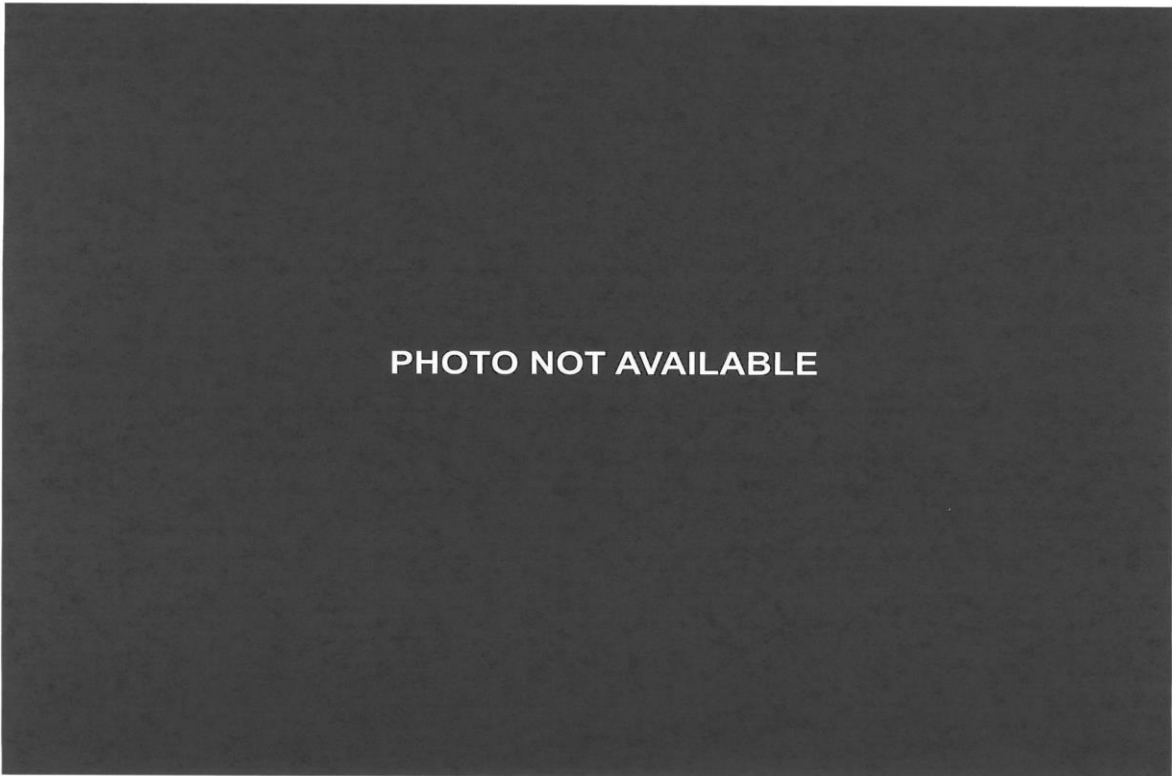
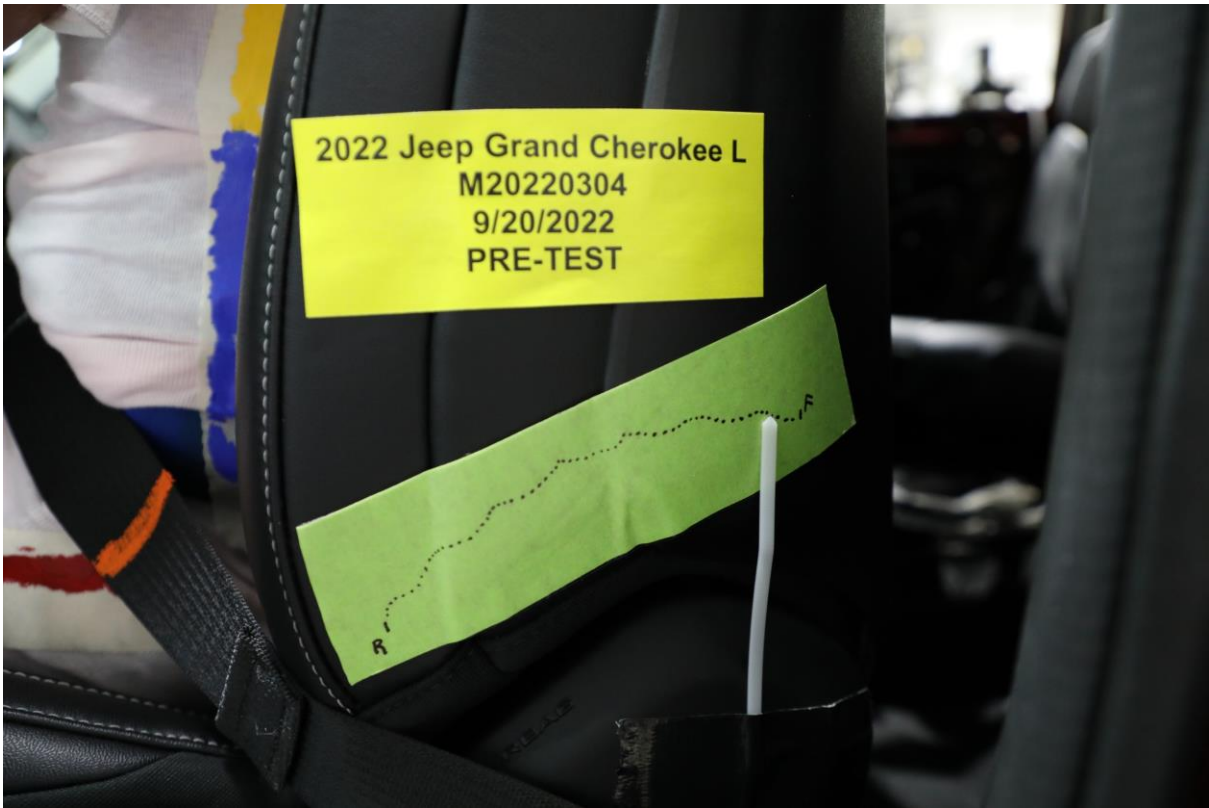


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**No. 036 Pre-Test View of Parking Brake**



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



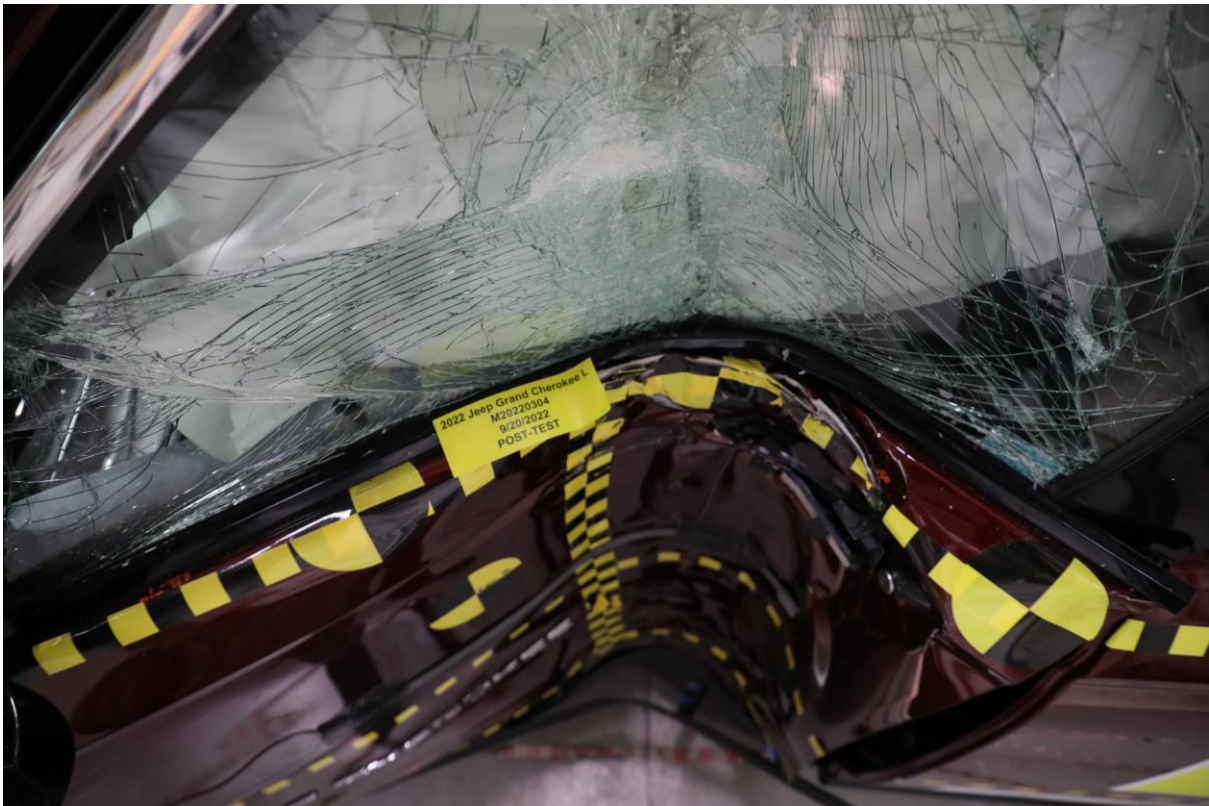
No. 038 Pre-Test Close-Up Left Side View of Driver Seat Back



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<sup>1</sup>**



**No. 044 Pre-Test Inner Door Panel View**

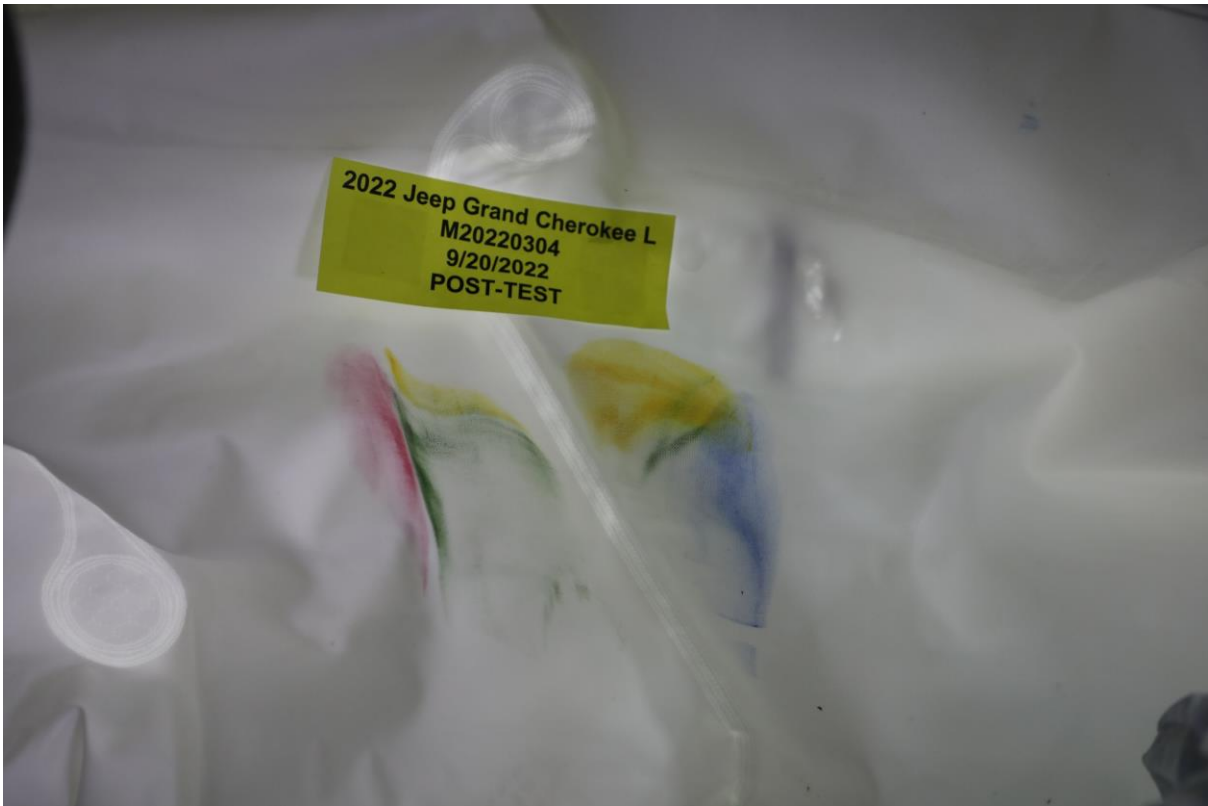


**No. 045 Post-Test Inner Door Panel View Showing Dummy Contact Location<sup>1</sup>**

**PHOTO NOT APPLICABLE**

**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**



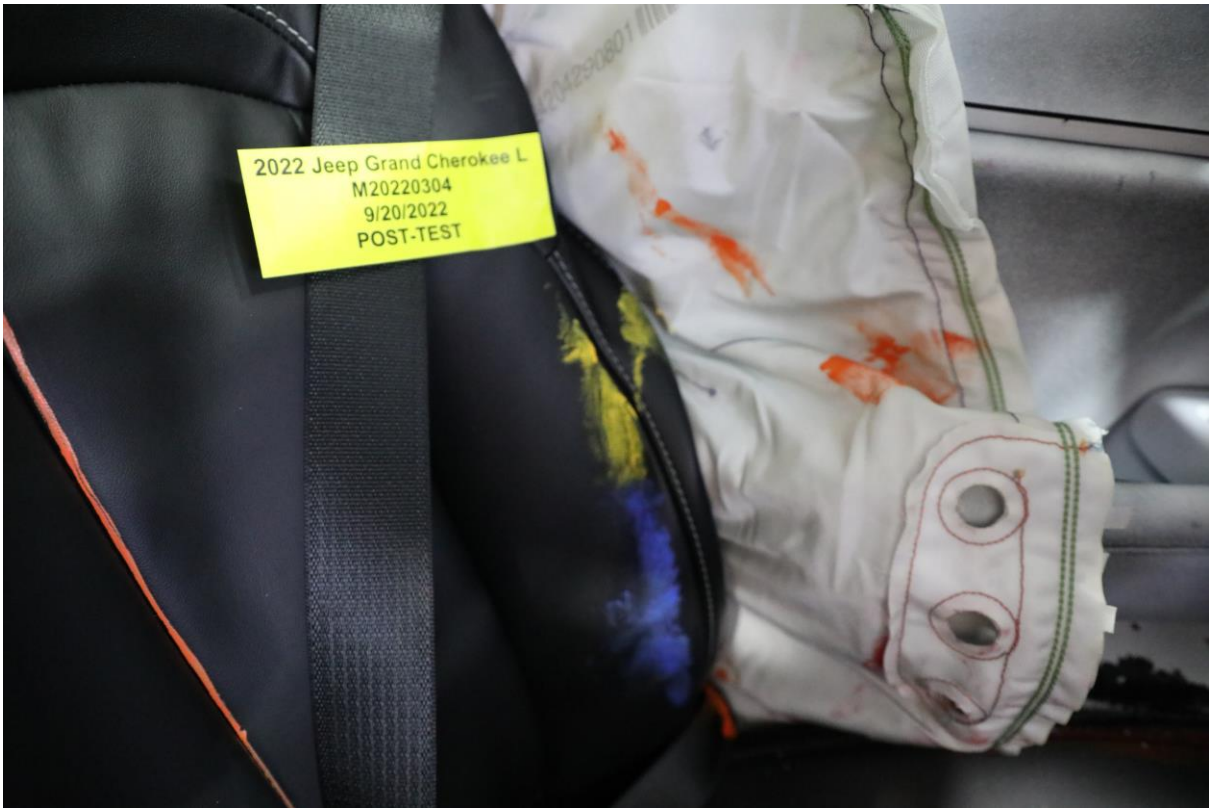
**No. 048 Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View**



**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**



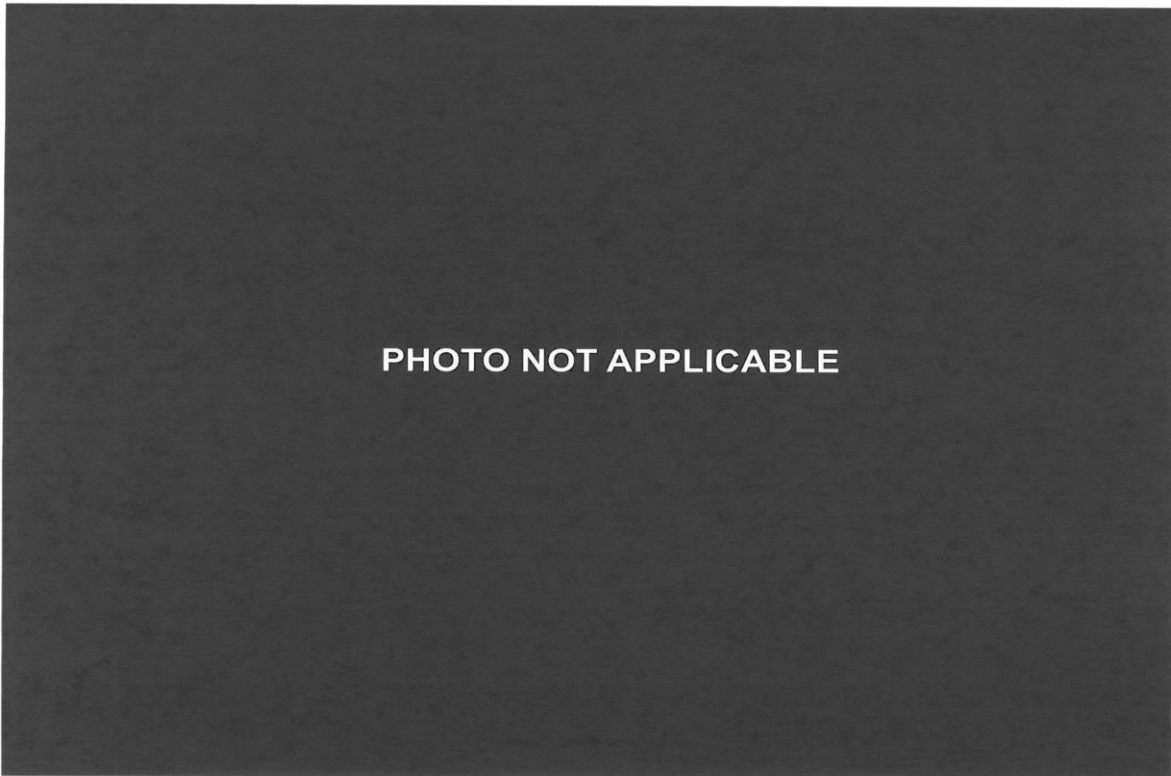
**No. 051 Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View**



**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. 55 Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



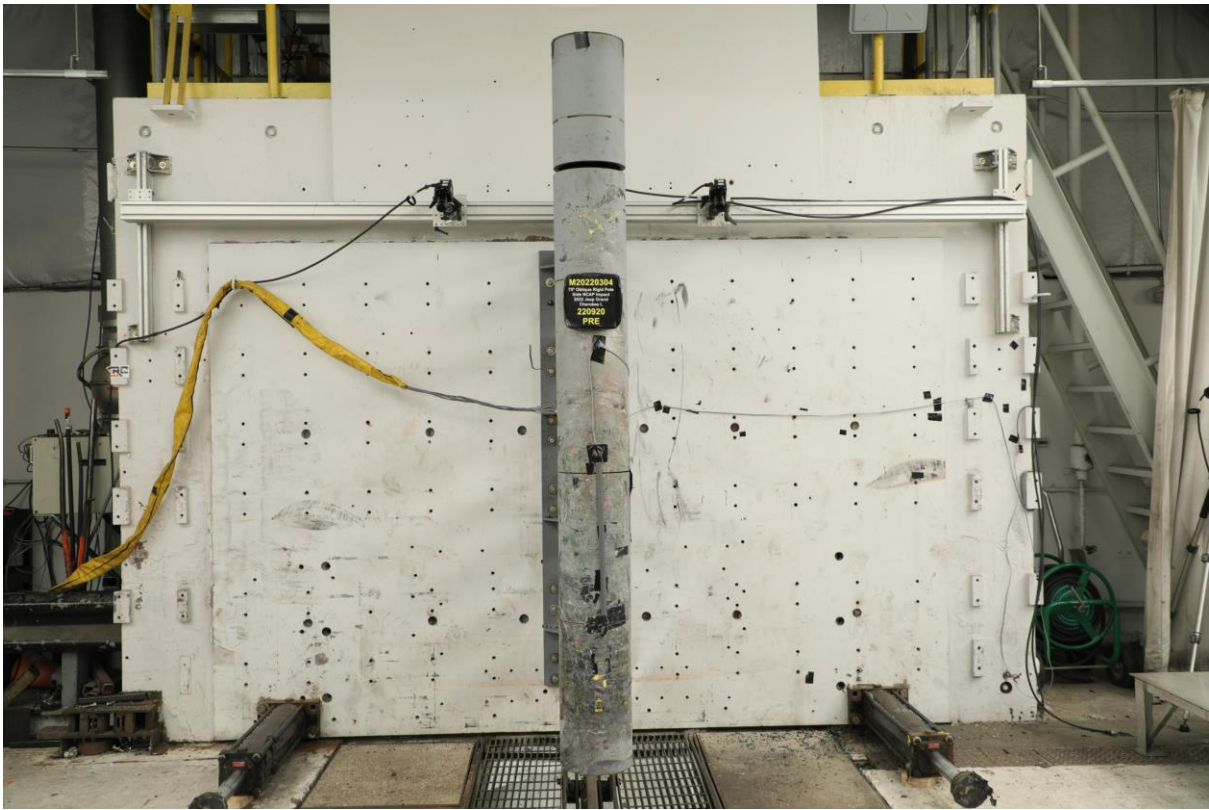
No. 056 Post-Test View of Fuel Filler Cap or Fuel Filler Neck<sup>1</sup>



No. 057 Close-Up View of Vehicle Certification Label



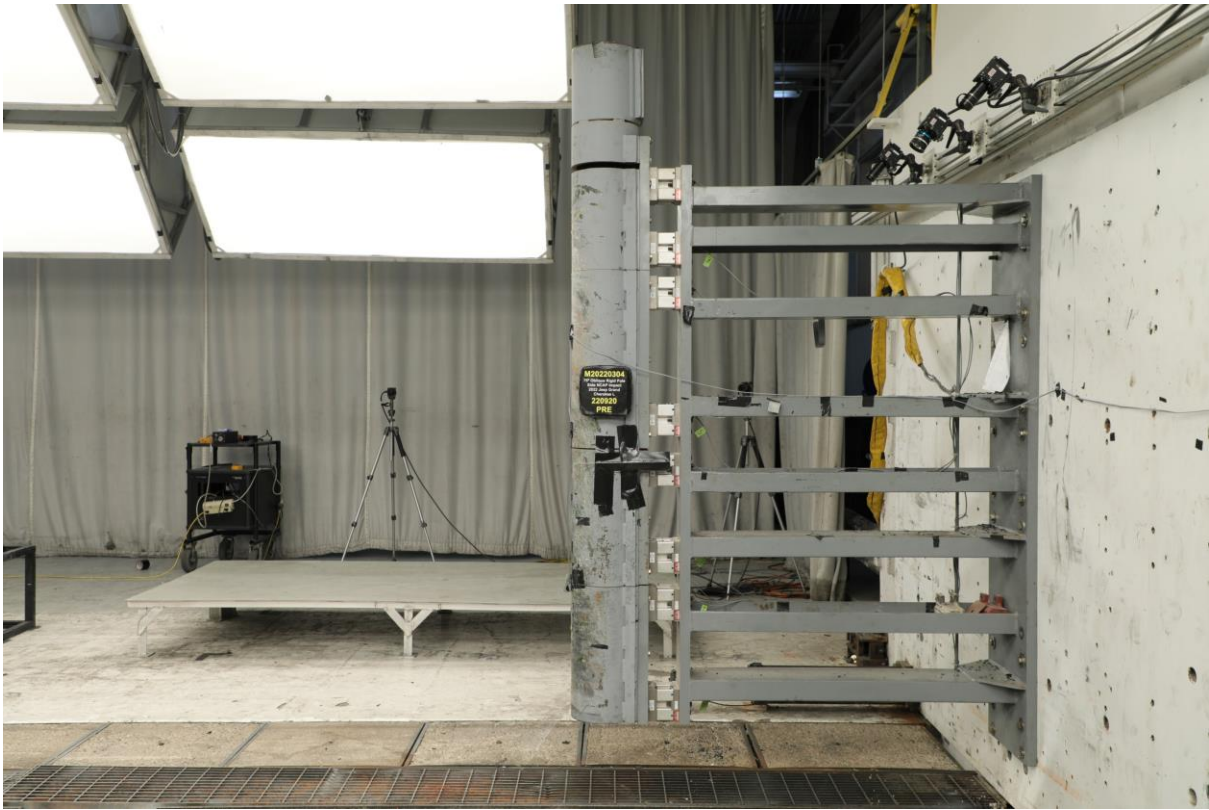
No. 058 Close-Up View of Vehicle Tire Information Placard or Label



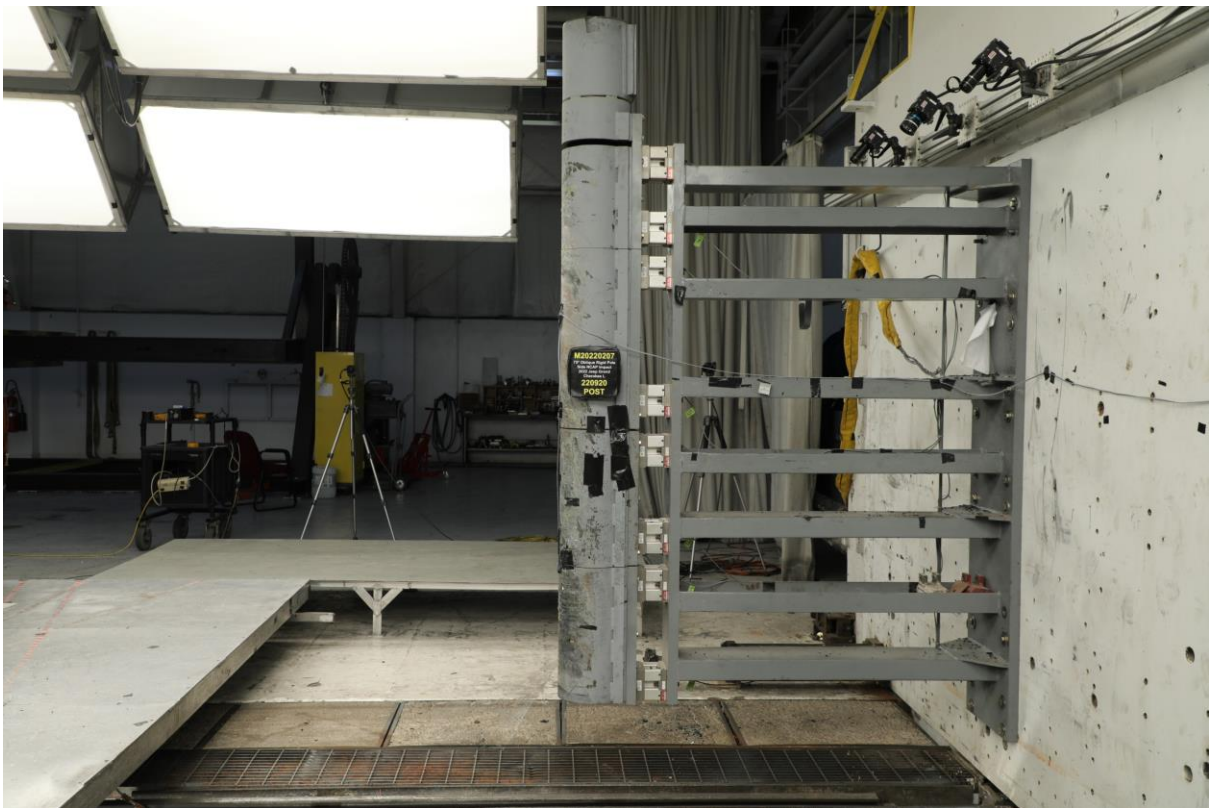
**No. 059 Pre-Test Pole Barrier Front View**



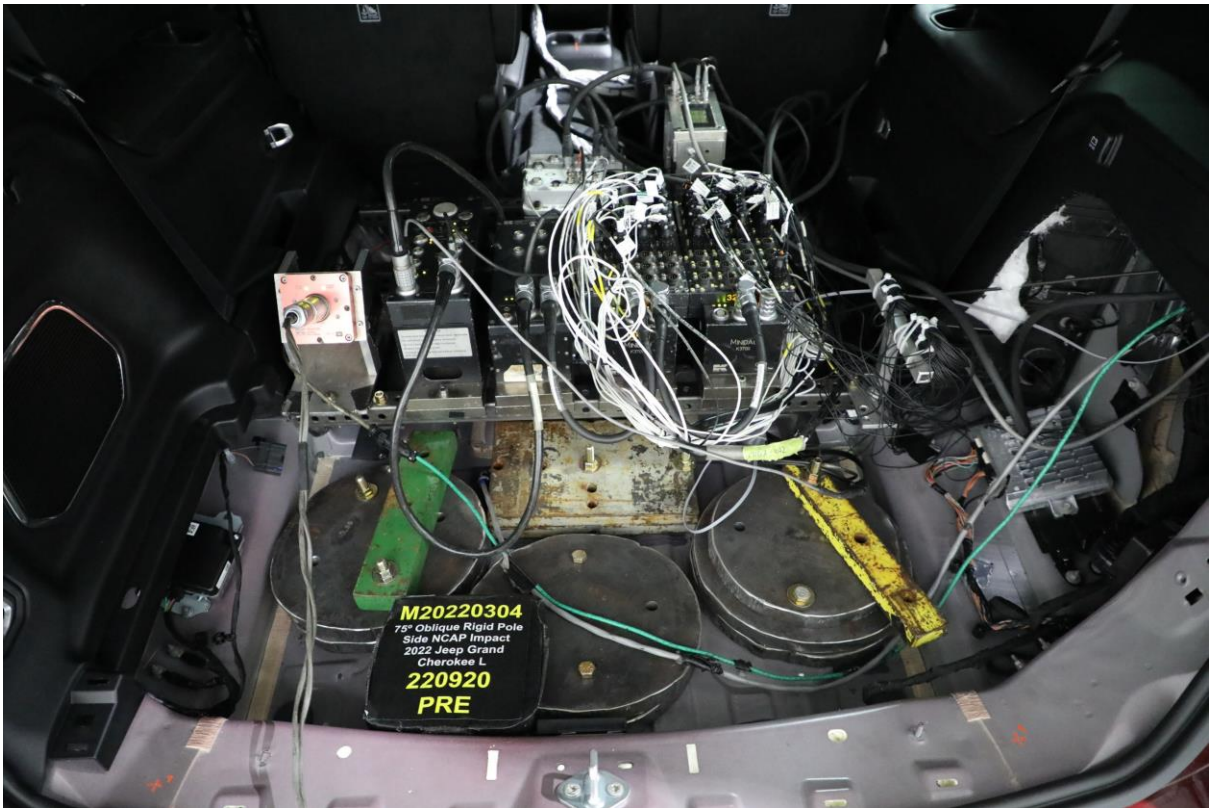
**No. 060 Post-Test Pole Barrier Front View<sup>1</sup>**



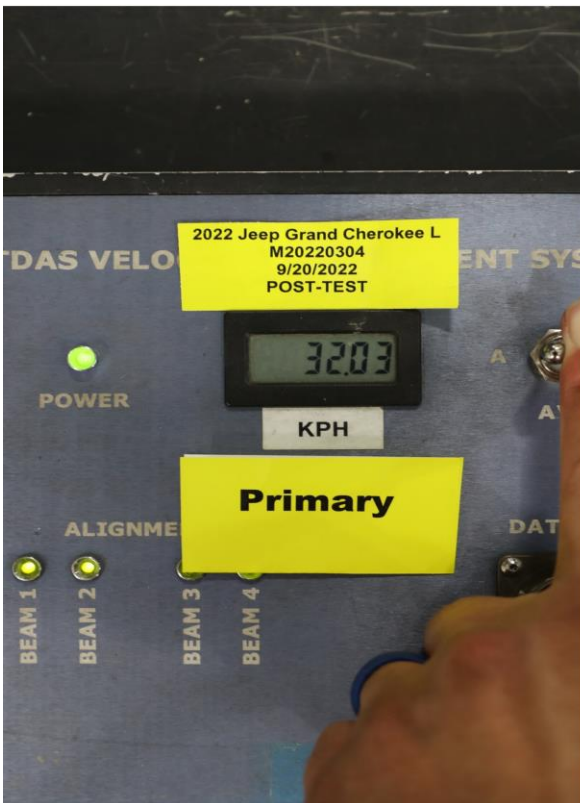
**No. 061 Pre-Test Pole Barrier Side View**



**No. 062 Post-Test Pole Barrier Side View<sup>1</sup>**



No. 063 Pre-Test Ballast View



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



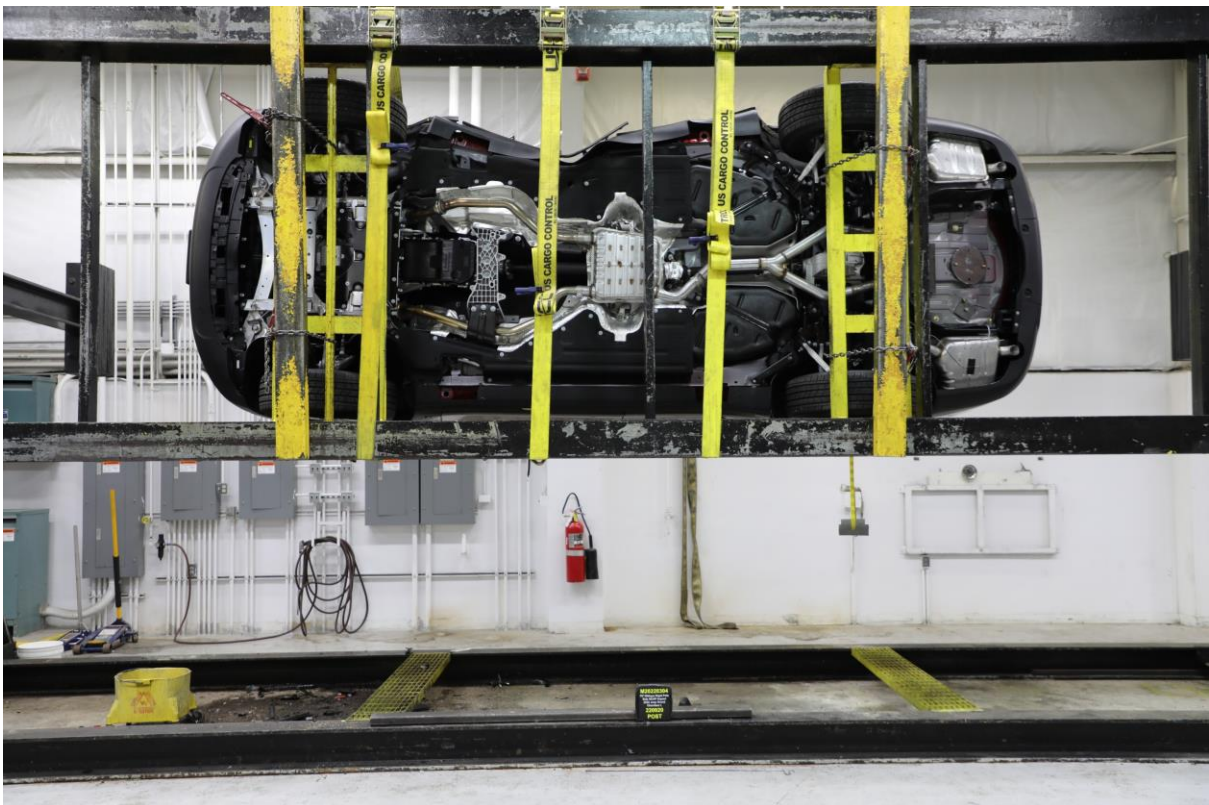
**No. 065 FMVSS No. 301 Static Rollover 0 Degrees**



**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**

**Jeep** 2022 MODEL YEAR **GRAND CHEROKEE L LIMITED 4X2**

For more information visit: [www.jeep.com](http://www.jeep.com) FCA US LLC  
or call 1-877-IAM-JEEP

THIS VEHICLE IS MANUFACTURED TO MEET SPECIFIC UNITED STATES REQUIREMENTS. THIS VEHICLE IS NOT MANUFACTURED FOR SALE OR REGISTRATION OUTSIDE OF THE UNITED STATES.

**MANUFACTURER'S SUGGESTED RETAIL PRICE OF THIS MODEL INCLUDING DEALER PREPARATION**

Base Price: **\$46,645**

**JEOP GRAND CHEROKEE LIMITED 4X2**  
 Exterior Color: Velvet Red Pearl-Coat Exterior Paint  
 Interior Color: Global Black Interior Color  
 Interior: Cloth Leather Seats  
 Engine: 3.6L V6 24V VVT Engine w/ ESSC  
 Transmission: 8-Speed Automatic 835RFE Transmission

**STANDARD EQUIPMENT (UNLESS REPLACED BY OPTIONAL EQUIPMENT)**

**FUNCTIONAL/SAFETY FEATURES**  
 Jeep Wave Membership (Retail Sales/50 States Only)  
 Four-Wheel Traction Control  
 Remote-Start System  
 Power Liftgate  
 Adaptive Cruise Control with Stop and Go  
 Active Lane-Management System  
 Full-Speed Forward-Collision Warning Plus  
 ParkView® Rear Back-Up Camera  
 ParkSense® Rear Park-Assist with Stop  
 Blind-Spot and Cross-Path Detection  
 Advanced Brake-Assist  
 Pedestrian / Cyclist Emergency Braking  
 Automatic High-Beam Headlamp-Control  
 Universal Garage-Door Opener  
 Rear-View Day / Night Mirror  
 Active Noise Control System  
 Anti-Lock 4-Wheel Disc Brakes  
 Electronic Stability Control  
 Hill-Start Assist  
 Tire Pressure Monitoring Display  
 Compact Spare Tire  
 Speed-Sensitive Power-Locks  
 Security Alarm  
 Rear-Seat Object Alert

**INTERIOR FEATURES**  
 Uconnect® 5 with 8.4-inch Touch Screen Display  
 Cluster 10.25-inch TFT Color Display  
 Apple CarPlay®  
 Google Android Auto™  
 Jeep Connect (Connected Services) w/ Trial  
 4G LTE Wi-Fi Hot Spot with Trial Included  
 SiriusXM® with 6-Month Radio Service Call 800-645-2112  
 Heated Steering Wheel  
 Heated Front Seats

Heated Second-Row Seats  
 6 Premium Speakers  
 2nd Row Buckets with Manual Easy-Entry Slide  
 3rd Row 50/50 Manual Folding Seat  
 8-Way Power Adjustable Driver Seat  
 Driver-Seat Memory  
 8-Way Power Adjustable Front Passenger Seat  
 Air Conditioning with 3-Zone Automatic Temp Control  
 2nd Row Dual Charge-Only USB Ports  
 3rd Row Charge-Only USB Ports  
 Full Function Media Hub with 2-USB Plus Aux Port

**EXTERIOR FEATURES**  
 18-Inch x 8.0-Inch Fully Painted Aluminum Wheel  
 265/60R18 BSW All-Season LRR Tires  
 LED Reflector Headlamps

**OPTIONAL EQUIPMENT (May Replace Standard Equipment)**

Velvet Red Pearl-Coat Exterior Paint \$395  
 Customer Preferred Package ZZE \$1,835  
 Dual-Pane Panoramic Sunroof  
 Interior Rear-Facing Camera  
 Uconnect® 5 Nav with 10.1-inch Touch Screen Display \$1,075  
 GPS Navigation  
 9 Amplified Speakers with Subwoofer  
 506 Watt Amplifier  
 Connected Travel and Traffic Services

**DESTINATION CHARGE \$1,795**

**TOTAL PRICE: \*\$51,845**

**WARRANTY COVERAGE**  
 5-year or 60,000-mile Powertrain Limited Warranty,  
 3-year or 36,000-mile Basic Limited Warranty.  
 Ask Dealer for a copy of the limited warranties or see your owner's manual for details.

**5 Year / 60,000 Mile POWERTRAIN WARRANTY**

Assembly Plant/Port of Entry: DETROIT, MICHIGAN, U.S.A.  
 VIN: 1C4RJ1BG8NB-638651 LA 1000 5838 07250

SALES TAX, TITLE, LICENSE AND FEES ARE NOT INCLUDED IN THIS PRICE. PRODUCTION, IF ANY, IS BASED ON PRICE OF OPTIONS IF PURCHASED SEPARATELY.

**EPA DOT Fuel Economy and Environment**

Fuel Economy: 21 combined city/hwy, 19 city, 26 highway  
 4.8 gallons per 100 miles

These estimates reflect new EPA methods beginning with 2017 models. Standard SUV 2WD range from 14 to 105 MPG. The best vehicle wins 142 MPG.

You spend **\$2,000** more in fuel costs over 5 years compared to the average new vehicle.

**Annual fuel cost \$1,700**

**Fuel Economy & Greenhouse Gas Rating (tailpipe only)**  
 4 (Best) 10 (Worst)

**Smog Rating (tailpipe only)**  
 7 (Best) 10 (Worst)

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 22 MPG and costs \$6,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.35 per gallon. MPG is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

**fuel economy.gov**  
 Calculate personalized estimates and compare vehicles

**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](http://www.safercar.gov) or 1-888-327-4236

**PARTS CONTENT INFORMATION FOR VEHICLES IN THIS CARLINE:**  
 U.S./CANADIAN PARTS CONTENT: 66%  
 MAJOR SOURCES OF FOREIGN PARTS CONTENT:  
 MEXICO: 24%  
 NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS.

**FOR THIS VEHICLE:**  
 FINAL ASSEMBLY POINT: DETROIT, MICHIGAN, U.S.A.  
 COUNTRY OF ORIGIN: UNITED STATES  
 ENGINE: UNITED STATES  
 TRANSMISSION: UNITED STATES

**MOBILITY** **VEHICLE PROTECTION**  
 A PRODUCT OF FCA US LLC  
 Ask for Mojar Vehicle Protection for your vehicle. We built it. We back it.

## No. 071 Monroney Label

### HEAD RESTRAINTS

Head restraints are designed to reduce the risk of injury by restricting head movement in the event of a rear impact. Head restraints should be adjusted so that the top of the head restraint is located above the top of your ear.

#### WARNING!

- All occupants, including the driver, should not operate a vehicle or sit in a vehicle's seat until the head restraints are placed in their proper positions in order to minimize the risk of neck injury in the event of a crash.
- Head restraints should never be adjusted while the vehicle is in motion. Driving a vehicle with the head restraints improperly adjusted or removed could cause serious injury or death in the event of a collision.

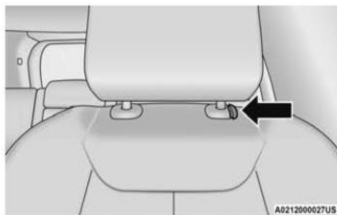
### Front Head Restraints

Your vehicle is equipped with front four-way driver and passenger head restraints.

To raise the head restraint, pull upward on the head restraint. To lower the head restraint, push the adjustment button, located at the base of the head restraint, and push downward on the head restraint.

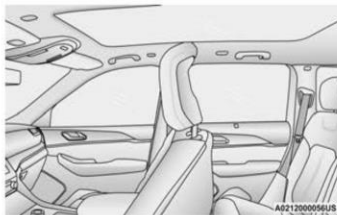
#### NOTE:

The head restraints should only be removed by qualified technicians, for service purposes only. If either of the head restraints require removal, see an authorized dealer.



Head Restraint Adjustment Button

To adjust the head restraint forward, pull the top of the head restraint toward the front of the vehicle as desired and release. To adjust the head restraint rearward, pull the top of the head restraint to the forward most position and release. The head restraint will return to the rear most position.



Upright Position



Forward Adjustment

#### WARNING!

- All occupants, including the driver, should not operate a vehicle or sit in a vehicle's seat until the head restraints are placed in their proper positions in order to minimize the risk of neck injury in the event of a crash.
- Head restraints should never be adjusted while the vehicle is in motion. Driving a vehicle with the head restraints improperly adjusted or removed could cause serious injury or death in the event of a collision.

## 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**

<sup>1</sup> The portable placard has the incorrect NHTSA number

**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](http://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)

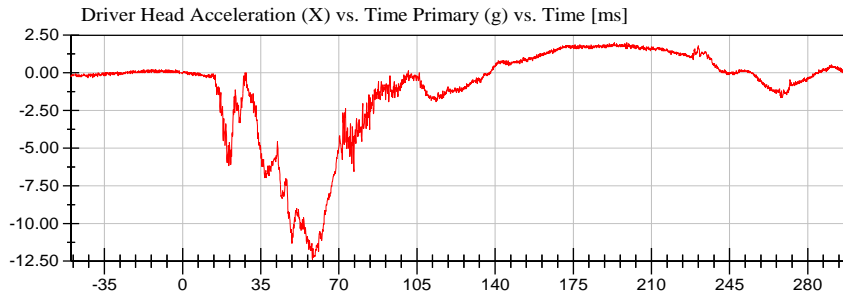
# NHTSA

Position #1 SID IIs Dummy (297)

Test Date: 09/20/2022

Test Lab: CTF

Test Number: 220920 (M20220304)



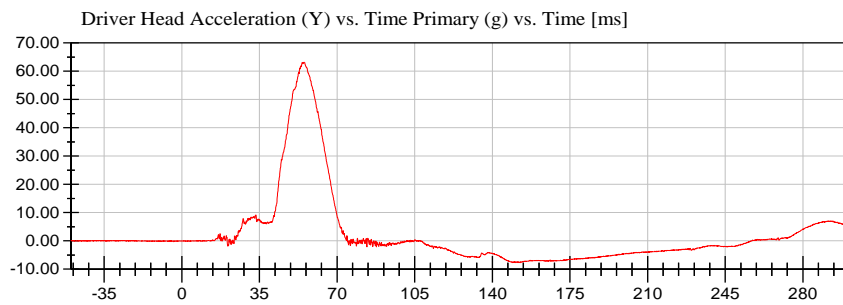
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-12.39 g at 58.16 ms

CFC\_1000



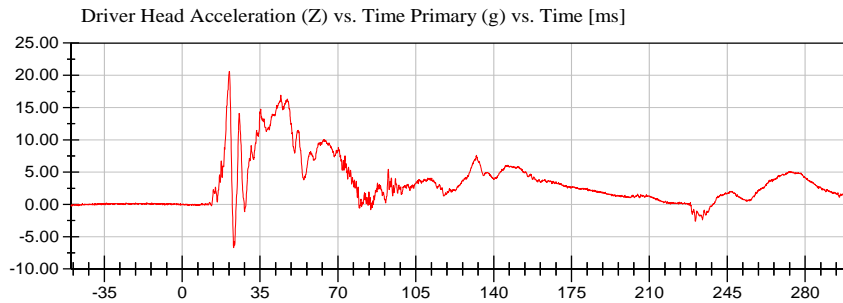
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63.24 g at 55.12 ms

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-7.66 g at 149.12 ms

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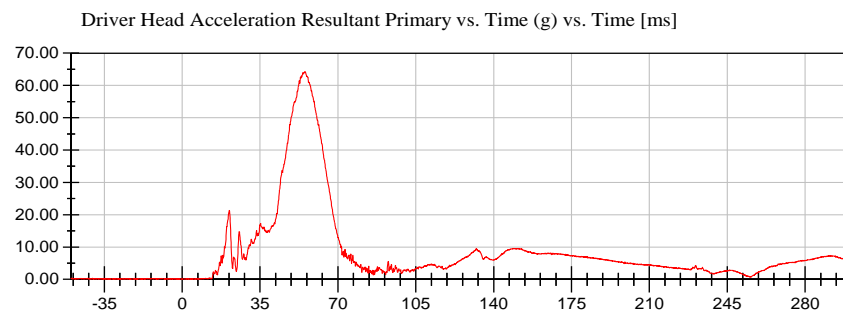
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20.61 g at 21.20 ms

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-6.72 g at 23.12 ms

CFC\_1000



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64.26 g at 55.12 ms

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0.03 g at -33.28 ms

CFC\_1000



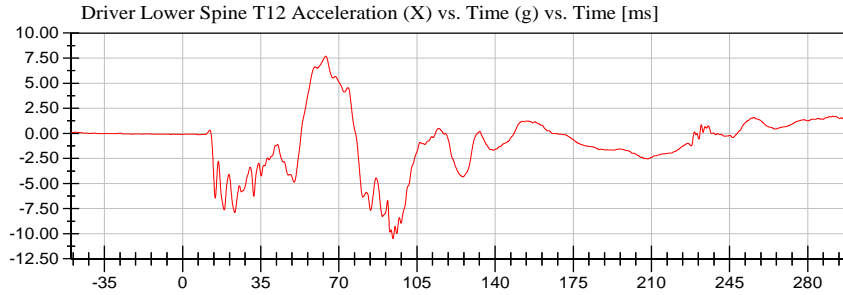
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Position #1 SID IIs Dummy (297)

Test Date: 09/20/2022

Test Lab: CTF

Test Number: 220920 (M20220304)



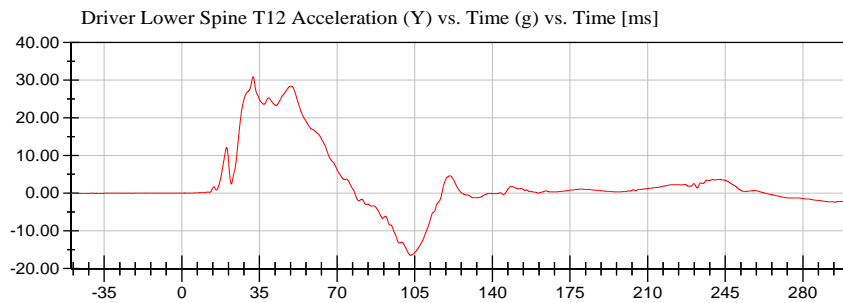
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-10.48 g at 94.24 ms

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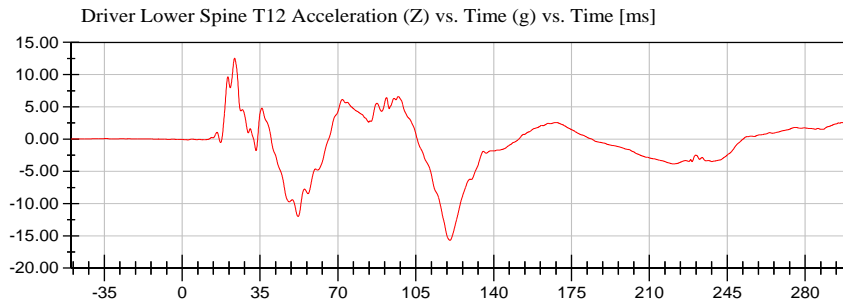
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-16.46 g at 103.20 ms

CFC\_180



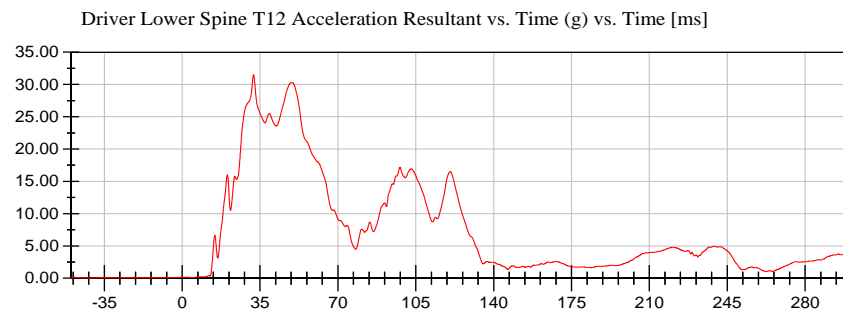
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12.53 g at 23.60 ms

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CFC\_180



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31.50 g at 32.08 ms

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0.03 g at -41.36 ms

CFC\_180



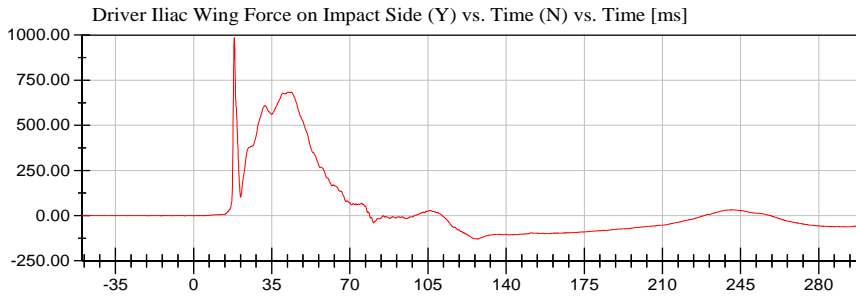
**NHTSA**

Position #1 SID IIs Dummy (297)

Test Date: 09/20/2022

Test Lab: CTF

Test Number: 220920 (M20220304)



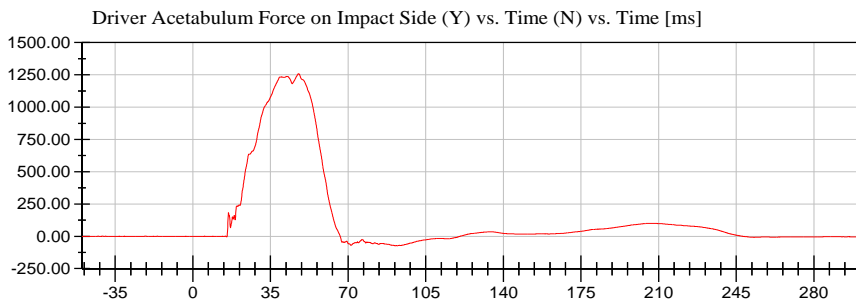
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985.70 N at 18.32 ms

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-129.29 N at 127.20 ms

CFC\_600



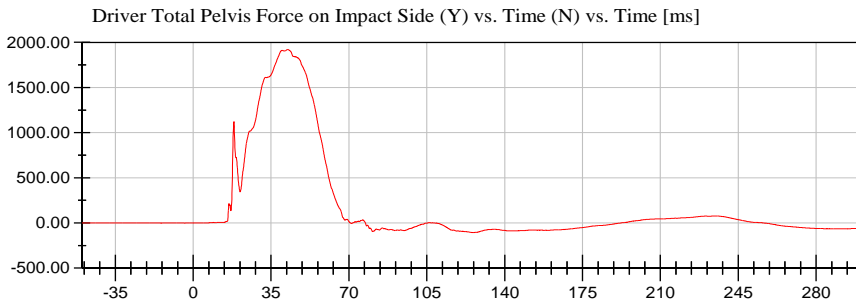
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1,258.67 N at 47.68 ms

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-73.61 N at 91.20 ms

CFC\_600



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1,921.04 N at 42.48 ms

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-107.28 N at 126.16 ms

CFC\_600



**APPENDIX C**  
**DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA**

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

**Table 1.** External Measurements

**Table 2.** Head Drop Test

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

**Table 3.** Lateral Neck Pendulum Test

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

**Table 4.** Shoulder Impact Test

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

**Table 5.** Thorax (With Arm) Impact Test

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

**Table 6.** Thorax (Without Arm) Impact Test

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

**Table 7.** Abdomen Impact Test

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

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

**Table 9.** Pelvis Acetabulum Impact Test

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

**Table 10.** Pelvis Iliac Impact Test

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

**Pre-Test Calibration Sheets**  
**Driver S/N 297**

**Transportation Research Center Inc.**  
**SIDIIs Dummy - Level D**  
**External Dimensions**  
**Serial No. 297 Calibration No. 57**

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

## Transportation Research Center Inc.

Left Lateral Head Drop  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	126.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-3.2 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.30 %	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

08.26.2022 13:13:47 232

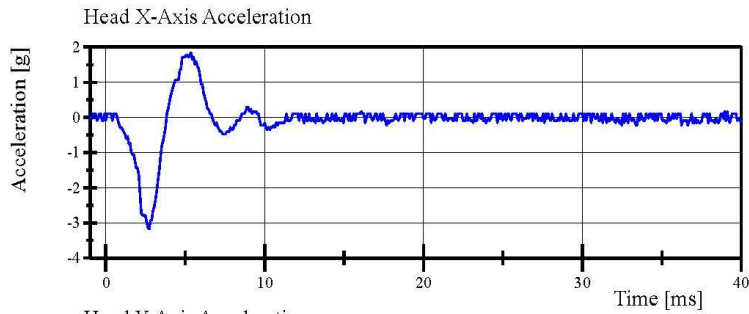


# Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 57-1

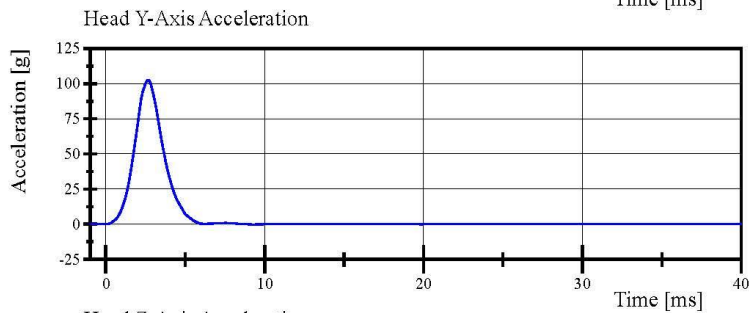
Test Date: 8/26/2022



Filter Class: CFC\_1000

Max: 1.8 g at 5.4 ms

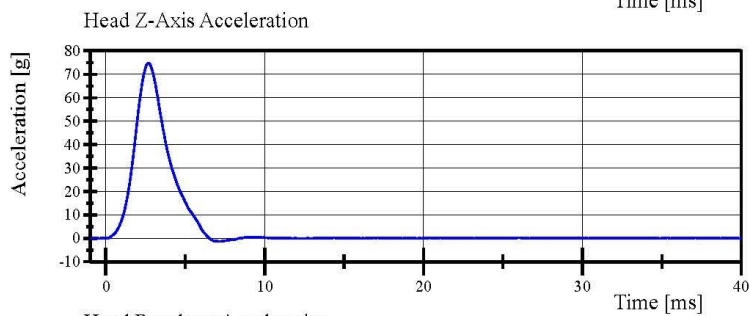
Min: -3.2 g at 2.7 ms



Filter Class: CFC\_1000

Max: 102.5 g at 2.6 ms

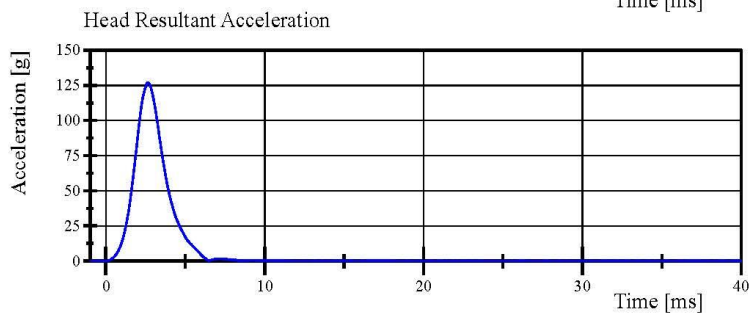
Min: -0.4 g at 9.2 ms



Filter Class: CFC\_1000

Max: 74.8 g at 2.6 ms

Min: -1.4 g at 7.1 ms



Filter Class: CFC\_1000

Max: 126.9 g at 2.6 ms

Min: 0.0 g at 26.6 ms

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

08.26.2022 13:14:15 232



## Transportation Research Center Inc.

Left Lateral Neck  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/29/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.614 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.673 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.948 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.280 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.854 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.855 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-80.0 deg	Yes
Time of Peak	50 - 70 ms	61.7 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	41.3 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	118.2 ms	Yes

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Neck S/N: 779**

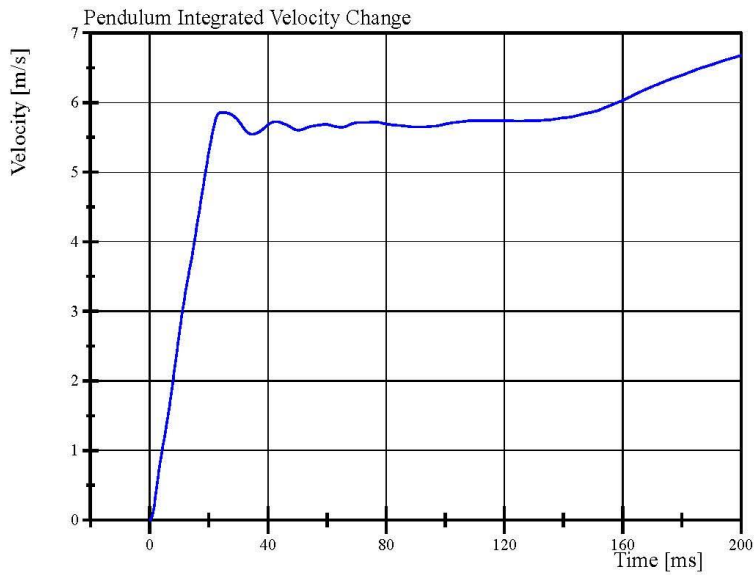
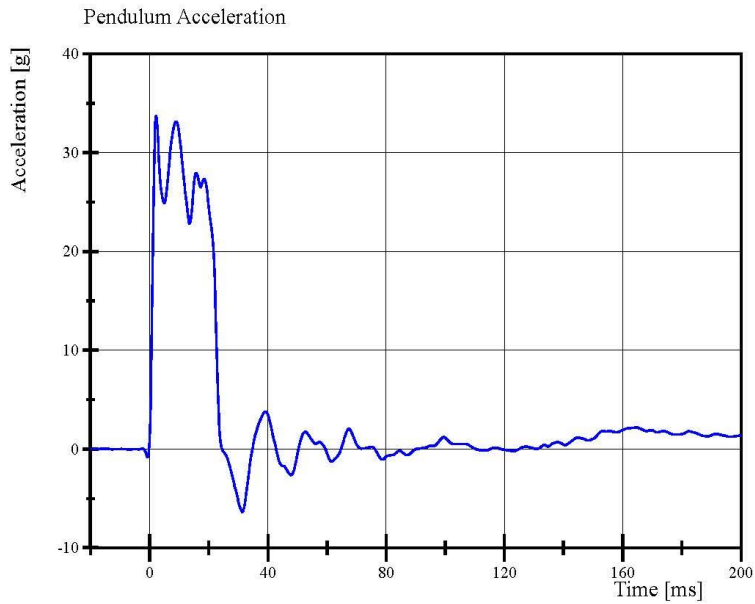
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

08.29.2022 09:41:32 747



# Transportation Research Center Inc.

Left Lateral Neck  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/29/2022



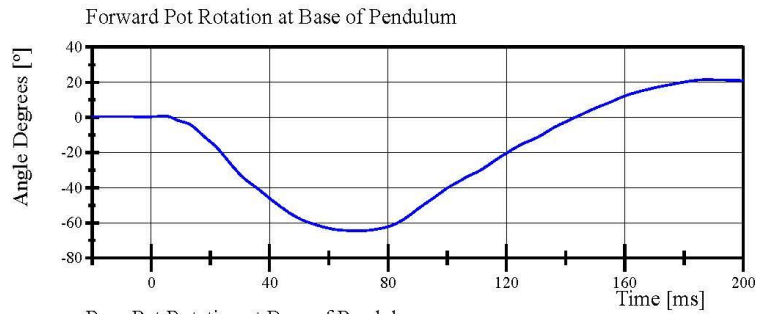
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

08.29.2022 09:42:08 747

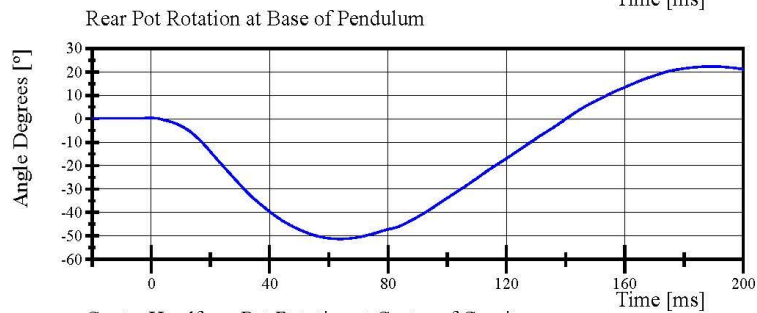


# Transportation Research Center Inc.

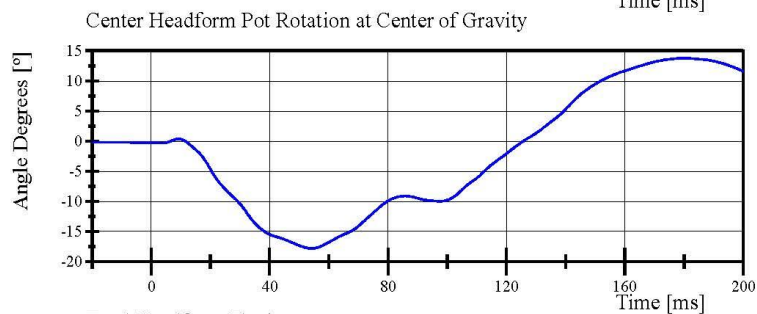
Left Lateral Neck  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/29/2022



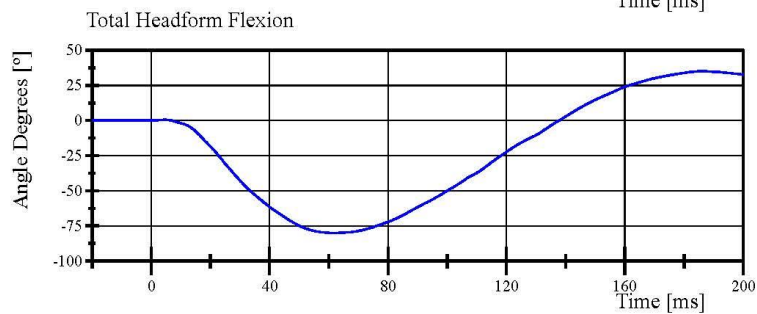
Filter Class: CFC\_60  
Max: 21.4 ° at 187.8 ms  
Min: -64.5 ° at 71.1 ms



Filter Class: CFC\_60  
Max: 22.3 ° at 189.4 ms  
Min: -51.3 ° at 63.8 ms



Filter Class: CFC\_60  
Max: 13.8 ° at 179.8 ms  
Min: -17.8 ° at 54.2 ms



Filter Class: CFC\_60  
Max: 35.0 ° at 186.2 ms  
Min: -80.0 ° at 61.7 ms

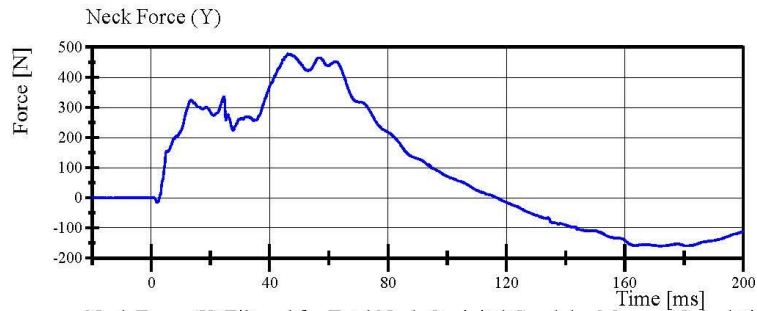
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

08.29.2022 09:42:09 747

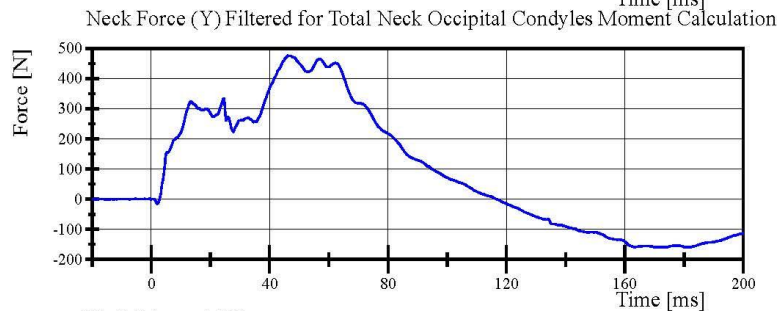


# Transportation Research Center Inc.

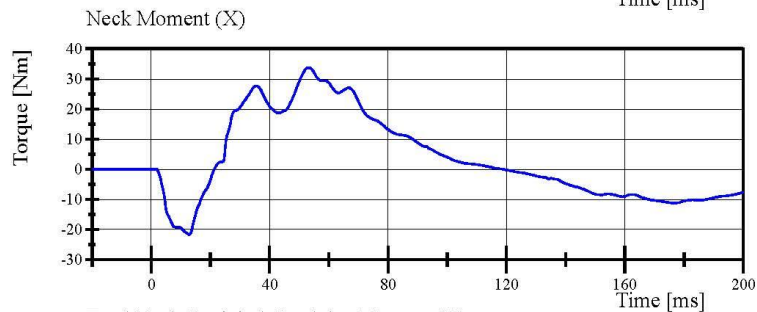
Left Lateral Neck  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/29/2022



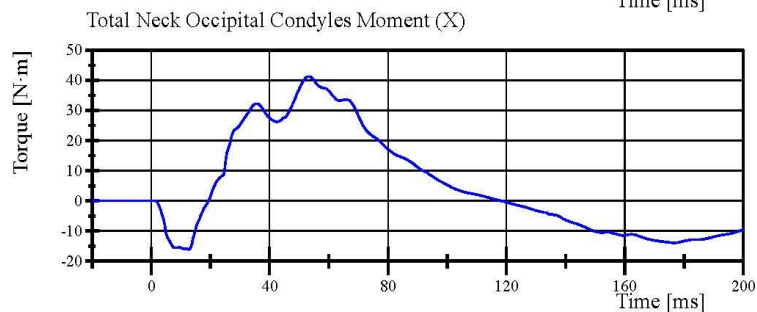
Filter Class: CFC\_1000  
Max: 477.6 N at 46.2 ms  
Min: -160.1 N at 171.5 ms



Filter Class: CFC\_600  
Max: 476.5 N at 46.2 ms  
Min: -159.9 N at 171.7 ms



Filter Class: CFC\_600  
Max: 33.8 Nm at 53.1 ms  
Min: -21.7 Nm at 12.9 ms



Filter Class: Without\_(Constar  
Max: 41.3 N.m at 53.1 ms  
Min: -16.1 N.m at 12.7 ms

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

08.29.2022 09:42:09 747



## Transportation Research Center Inc.

Left Lateral Shoulder  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	67 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.1 g	Yes
Shoulder Displacement	28 - 37 mm	31.5 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	20.1 g	Yes

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Left Arm S/N: 940L**

**Shoulder Rib S/N: 180-3355 259**

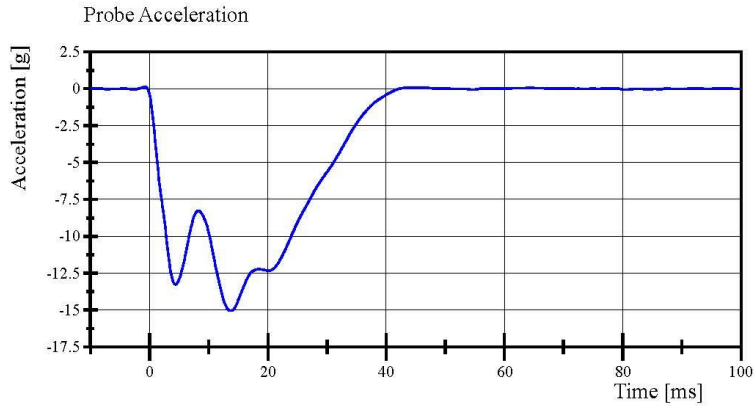
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

08.26.2022 10:28:18 836

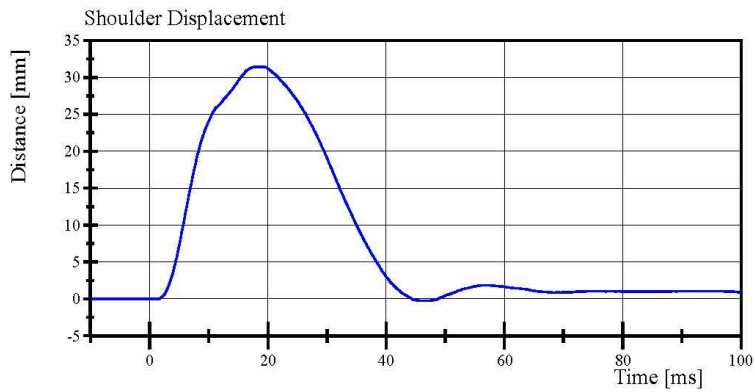


# Transportation Research Center Inc.

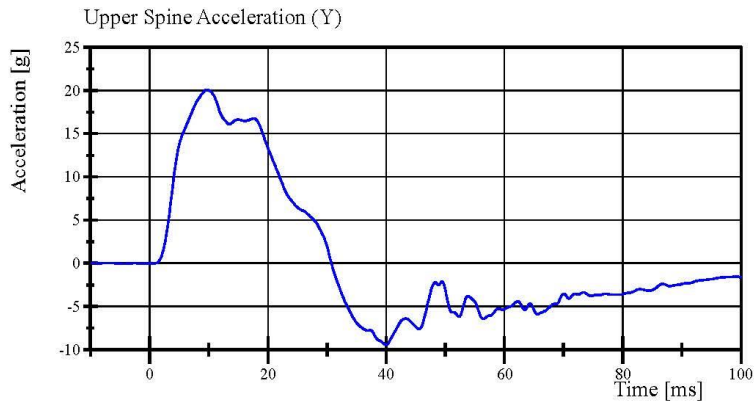
Left Lateral Shoulder  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022



Filter Class: CFC\_180  
Max: 0.1 g at -0.8 ms  
Min: -15.1 g at 13.7 ms



Filter Class: CFC\_600  
Max: 31.5 mm at 19.2 ms  
Min: -0.2 mm at 46.6 ms



Filter Class: CFC\_180  
Max: 20.1 g at 9.8 ms  
Min: -9.5 g at 40.0 ms

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

08.26.2022 10:28:50 836



## Transportation Research Center Inc.

Left Lateral Thorax with Arm  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.736 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.7 g	Yes
Shoulder Displacement	31 - 40 mm	35.4 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.9 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	32.7 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	35.7 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	37.9 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.3 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**

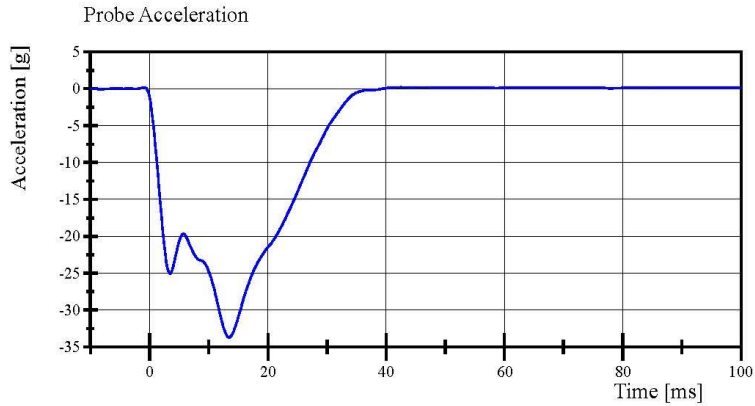
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

08.26.2022 11:26:44 609

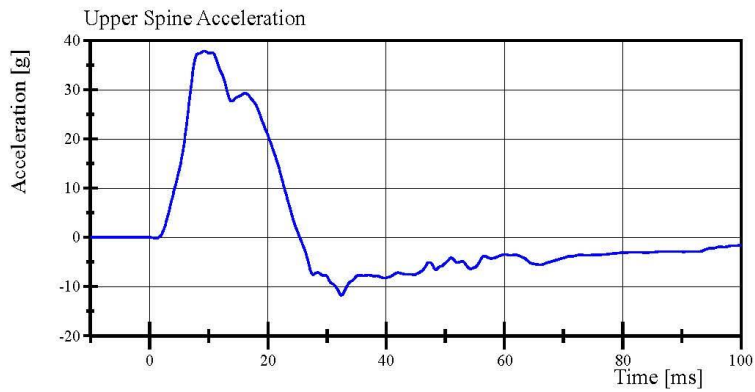


# Transportation Research Center Inc.

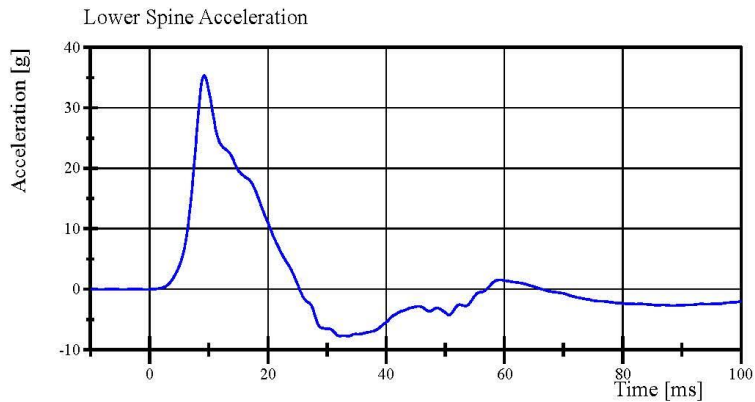
Left Lateral Thorax with Arm  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022



Filter Class: CFC\_180  
Max: 0.2 g at 42.5 ms  
Min: -33.7 g at 13.4 ms



Filter Class: CFC\_180  
Max: 37.9 g at 9.3 ms  
Min: -11.8 g at 32.4 ms



Filter Class: CFC\_180  
Max: 35.3 g at 9.2 ms  
Min: -7.8 g at 33.5 ms

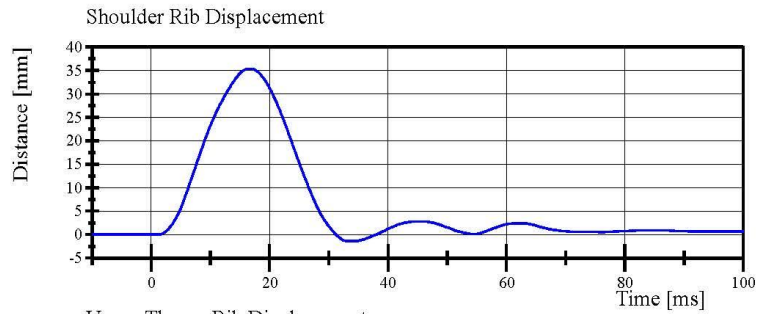
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

08.26.2022 11:27:42 609

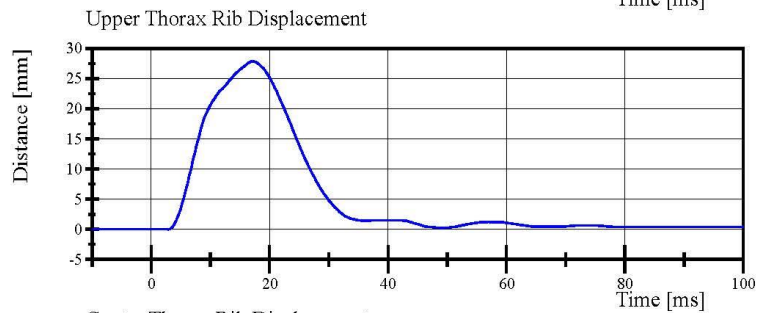


# Transportation Research Center Inc.

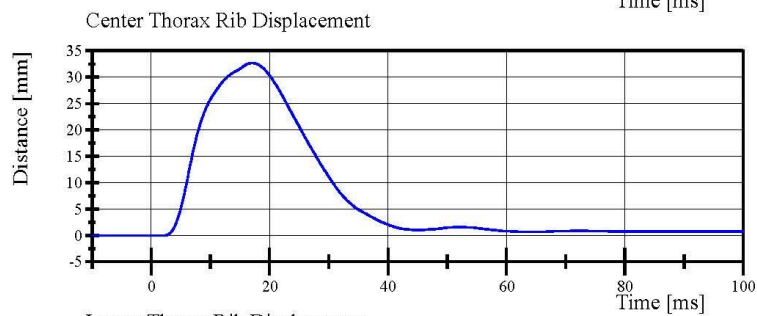
Left Lateral Thorax with Arm  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022



Filter Class: CFC\_600  
Max: 35.4 mm at 16.7 ms  
Min: -1.4 mm at 33.2 ms



Filter Class: CFC\_600  
Max: 27.9 mm at 17.1 ms  
Min: -0.0 mm at 2.9 ms



Filter Class: CFC\_600  
Max: 32.7 mm at 17.0 ms  
Min: -0.0 mm at 2.2 ms



Filter Class: CFC\_600  
Max: 35.7 mm at 17.4 ms  
Min: -0.0 mm at 2.8 ms

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

08.26.2022 11:27:42 609



## Transportation Research Center Inc.

Left Lateral Thorax without Arm  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	67 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.364 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.3 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	36.1 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	42.5 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	41.3 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.0 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.5 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**

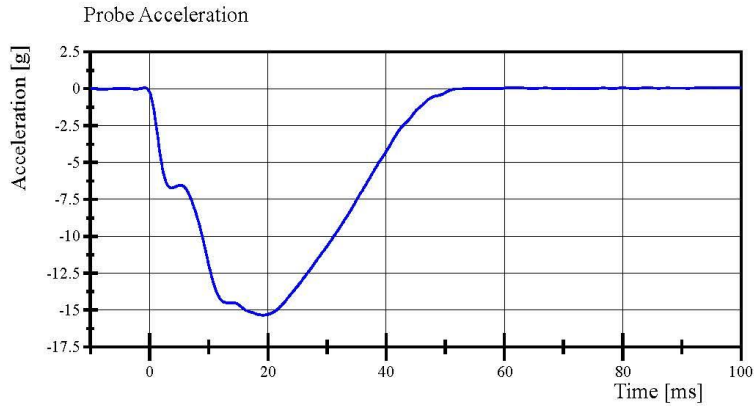
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

08.26.2022 10:54:16 830

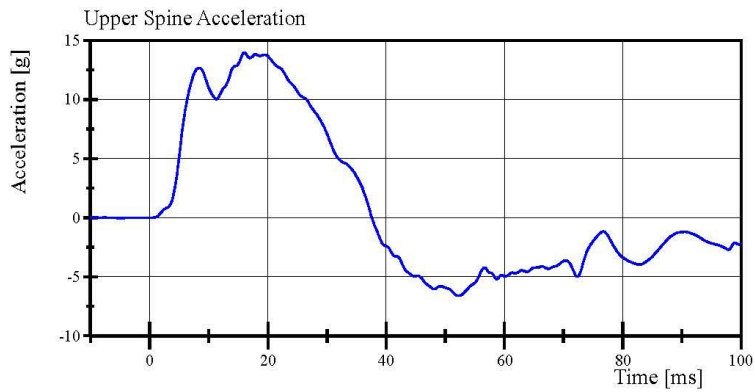


# Transportation Research Center Inc.

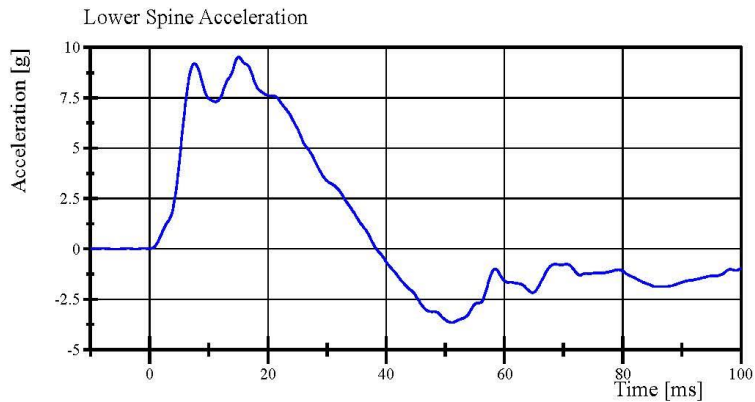
Left Lateral Thorax without Arm  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022



Filter Class: CFC\_180  
Max: 0.1 g at 95.4 ms  
Min: -15.3 g at 19.2 ms



Filter Class: CFC\_180  
Max: 14.0 g at 16.0 ms  
Min: -6.6 g at 52.2 ms



Filter Class: CFC\_180  
Max: 9.5 g at 15.0 ms  
Min: -3.7 g at 51.0 ms

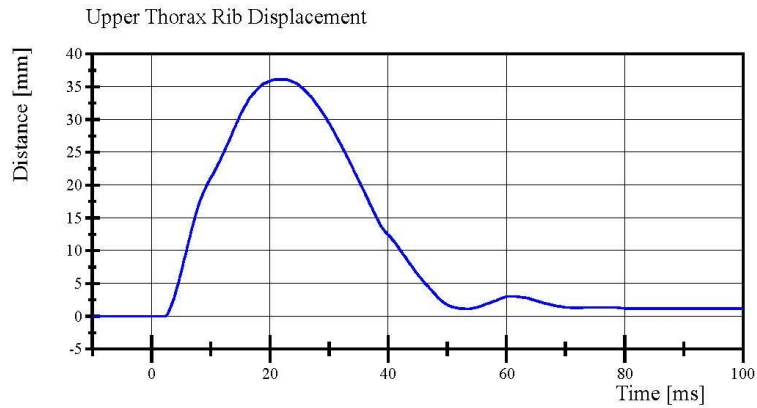
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

08.26.2022 10:55:01 830

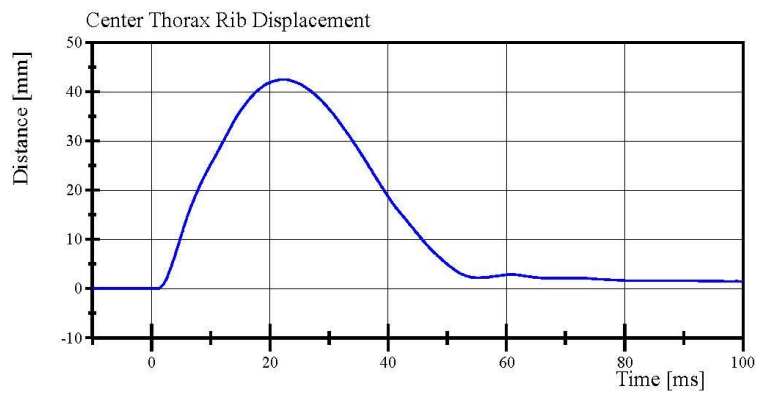


# Transportation Research Center Inc.

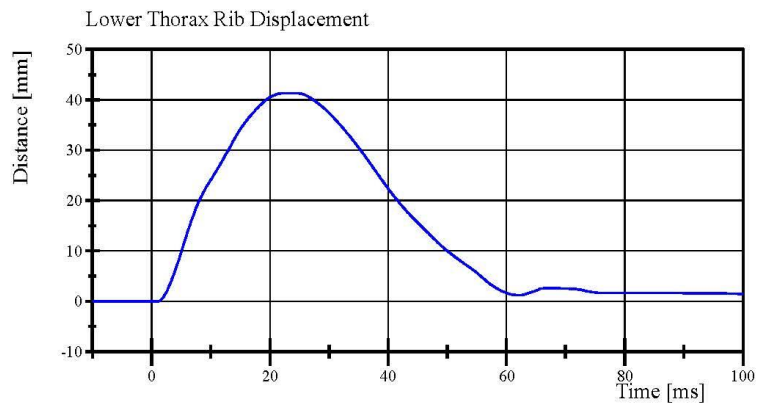
Left Lateral Thorax without Arm  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022



Filter Class: CFC\_600  
Max: 36.1 mm at 22.2 ms  
Min: -0.0 mm at 2.2 ms



Filter Class: CFC\_600  
Max: 42.5 mm at 22.2 ms  
Min: -0.0 mm at 0.9 ms



Filter Class: CFC\_600  
Max: 41.3 mm at 22.6 ms  
Min: -0.0 mm at 1.0 ms

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

08.26.2022 10:55:02 830



## Transportation Research Center Inc.

Left Lateral Abdomen  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-13.7 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	41.9 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	38.0 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.53 g	Yes

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Upper Abdominal Rib S/N: DM7281**

**Lower Abdominal Rib S/N: DM7275**

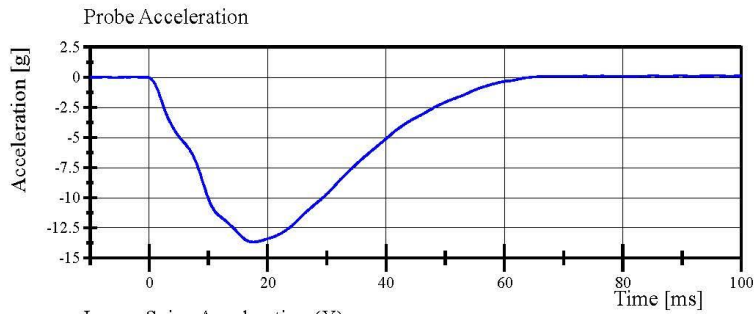
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

08.26.2022 10:36:51 661

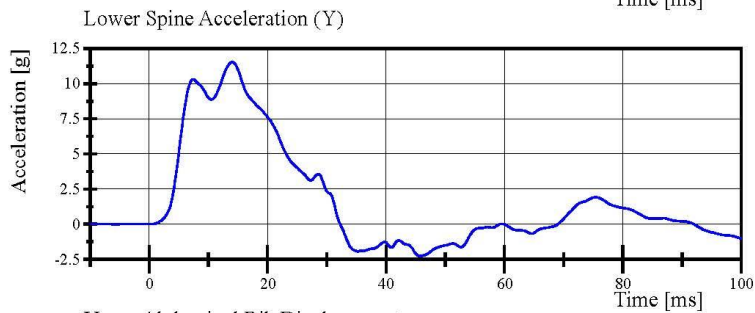


# Transportation Research Center Inc.

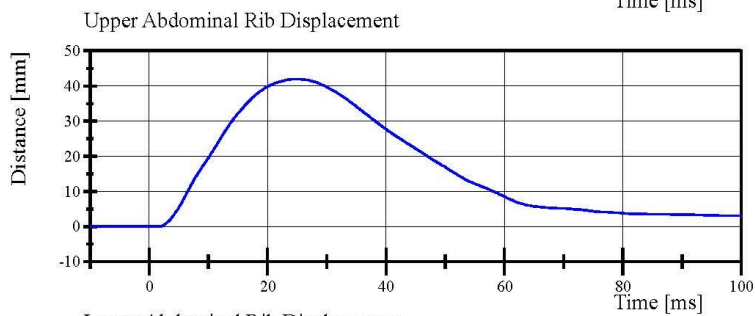
Left Lateral Abdomen  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022



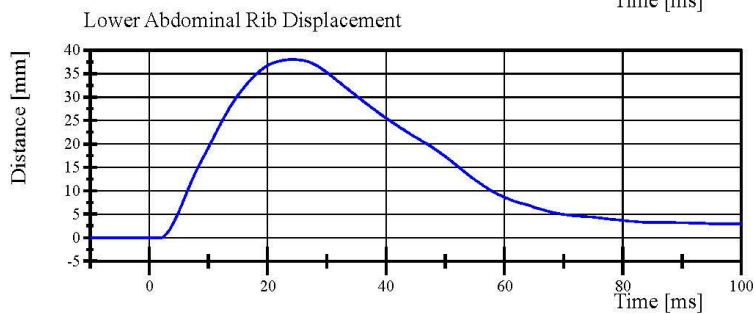
Filter Class: CFC\_180  
Max: 0.1 g at 95.9 ms  
Min: -13.7 g at 17.6 ms



Filter Class: CFC\_180  
Max: 11.5 g at 14.1 ms  
Min: -2.3 g at 45.7 ms



Filter Class: CFC\_600  
Max: 41.9 mm at 24.8 ms  
Min: -0.0 mm at -10.0 ms



Filter Class: CFC\_600  
Max: 38.0 mm at 24.3 ms  
Min: -0.0 mm at 2.0 ms

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

08.26.2022 10:37:36 661



## Transportation Research Center Inc.

Left Lateral Pelvis  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	67 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.63 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.91 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	36.6 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,991.1 N	Yes

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Pelvis Skin S/N: 1171**

**Pelvis Plug Info:**

**Manufacturer: Saco**

**S/N: 13763**

**Cal Date: 20200325**

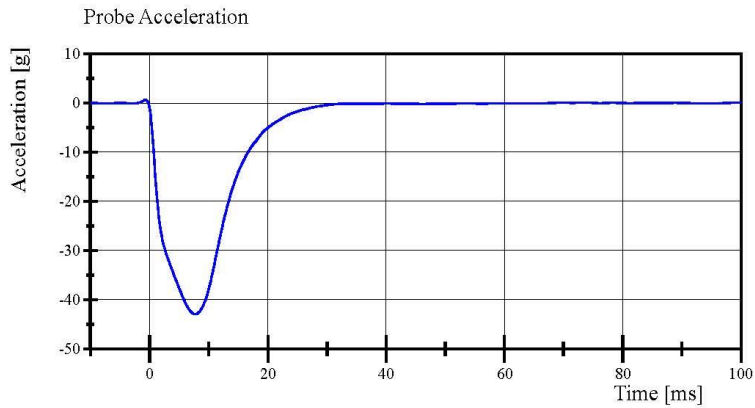
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

08.26.2022 09:53:23 473

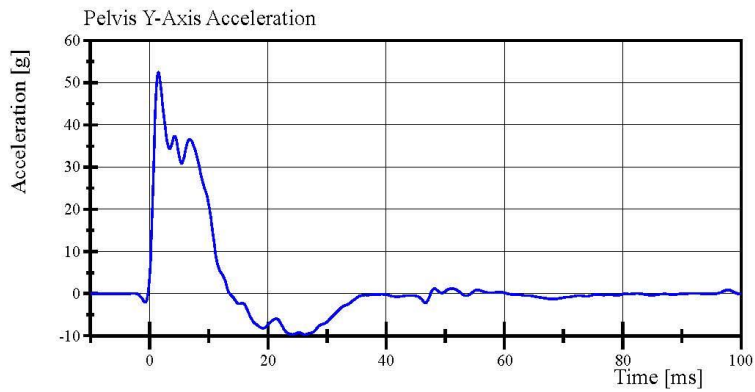


# Transportation Research Center Inc.

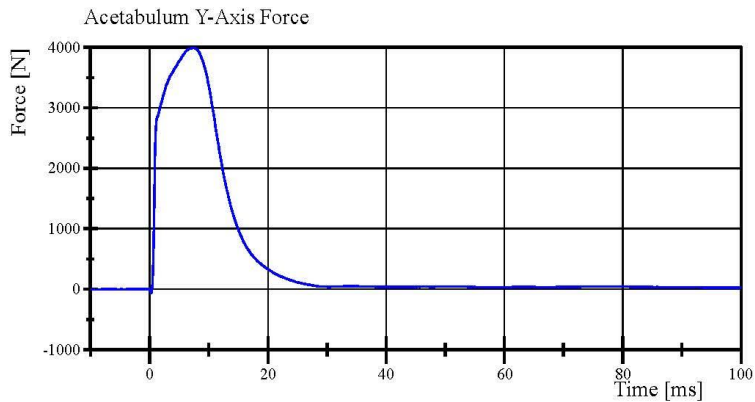
Left Lateral Pelvis  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022



Filter Class: CFC\_180  
Max: 0.7 g at -0.7 ms  
Min: -42.9 g at 7.7 ms



Filter Class: CFC\_180  
Max: 52.5 g at 1.4 ms  
Min: -9.7 g at 26.2 ms



Filter Class: CFC\_600  
Max: 3,991.1 N at 7.4 ms  
Min: -63.3 N at 0.3 ms

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

08.26.2022 09:55:10 473



## Transportation Research Center Inc.

Left Lateral Iliac  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-38.8 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	29.5 g	Yes
Iliac Force	4,100 - 5,100 N	4,451.9 N	Yes

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Pelvis Skin S/N: 1171**

**Pelvis Plug Info:**

**Manufacturer: Saco**

**S/N: 13763**

**Cal Date: 20200325**

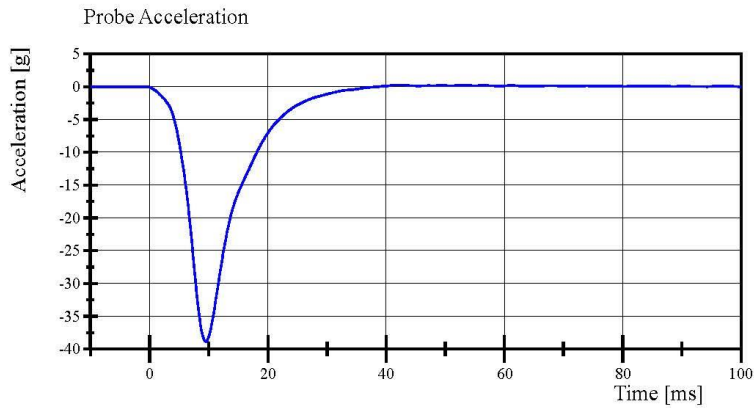
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

08.26.2022 12:05:21 689

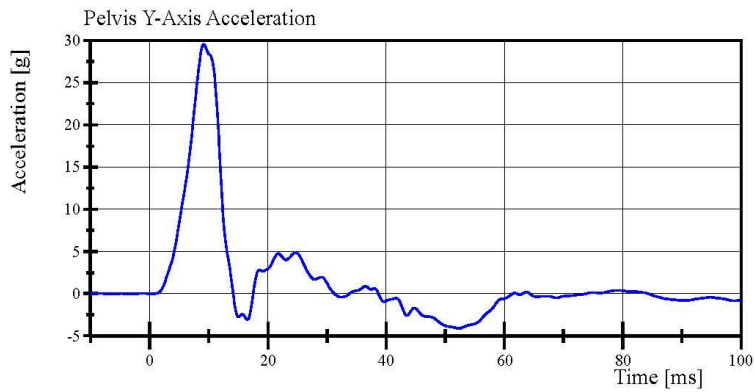


# Transportation Research Center Inc.

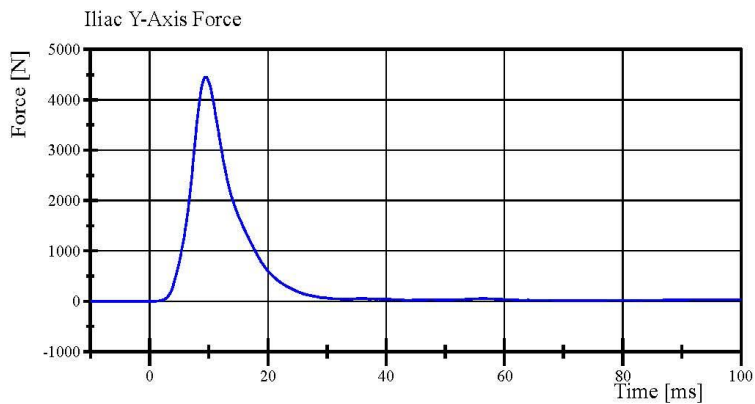
Left Lateral Iliac  
SID IIs Serial No. 297 Certification No. 57-1  
Test Date: 8/26/2022



Filter Class: CFC\_180  
Max: 0.2 g at 41.9 ms  
Min: -38.8 g at 9.5 ms



Filter Class: CFC\_180  
Max: 29.5 g at 9.1 ms  
Min: -4.1 g at 52.2 ms



Filter Class: CFC\_600  
Max: 4,451.9 N at 9.4 ms  
Min: -0.6 N at 0.0 ms

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

08.26.2022 12:06:35 689



**Post-Test Calibration Sheets**  
**Driver S/N 297**

**Transportation Research Center Inc.**  
**SIDIIs Dummy - Level D**  
**External Dimensions**  
**Serial No. 297 Calibration No. 58**

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

## Transportation Research Center Inc.

Left Lateral Head Drop  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	136.4 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	2.7 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	0.82 %	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

09.21.2022 10:32:42 224

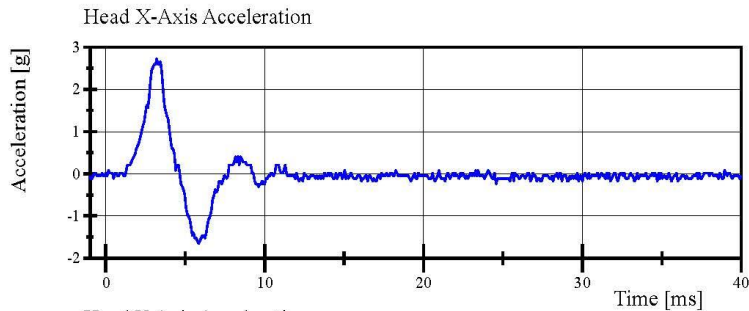


# Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 58-1

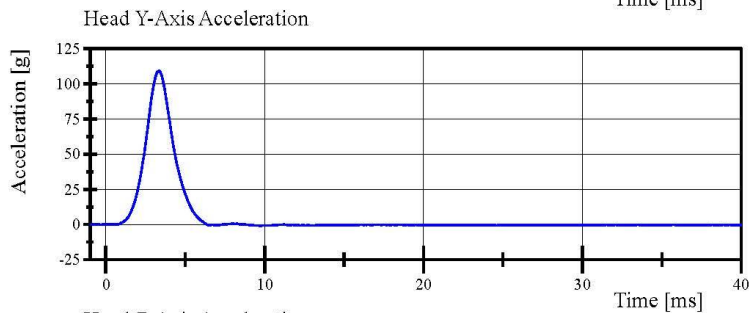
Test Date: 9/21/2022



Filter Class: CFC\_1000

Max: 2.7 g at 3.2 ms

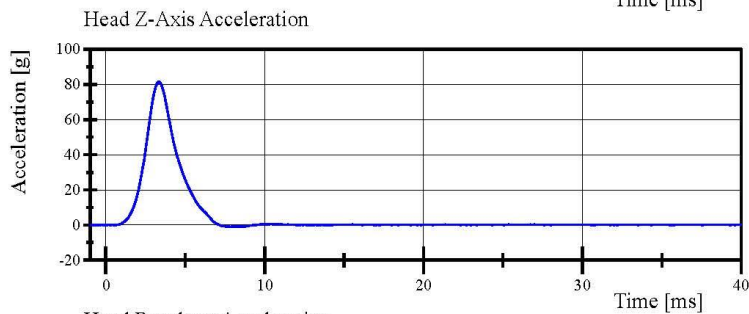
Min: -1.7 g at 5.8 ms



Filter Class: CFC\_1000

Max: 109.3 g at 3.4 ms

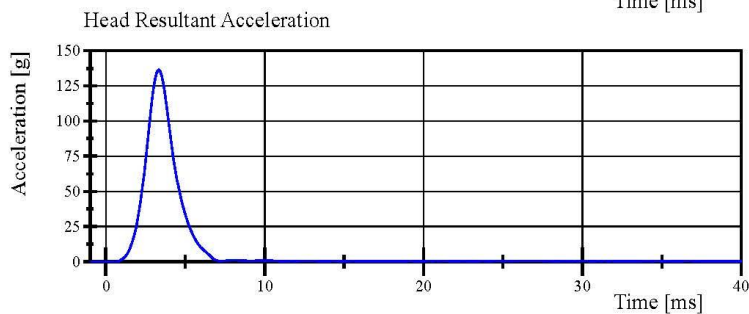
Min: -0.9 g at 9.7 ms



Filter Class: CFC\_1000

Max: 81.6 g at 3.4 ms

Min: -1.0 g at 7.8 ms



Filter Class: CFC\_1000

Max: 136.4 g at 3.4 ms

Min: 0.0 g at -0.7 ms

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

09.21.2022 10:33:25 224



## Transportation Research Center Inc.

Left Lateral Neck  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.623 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.640 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.919 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.289 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.840 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.852 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-77.7 deg	Yes
Time of Peak	50 - 70 ms	58.9 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	42.9 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	112.5 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

09.21.2022 11:34:21 745

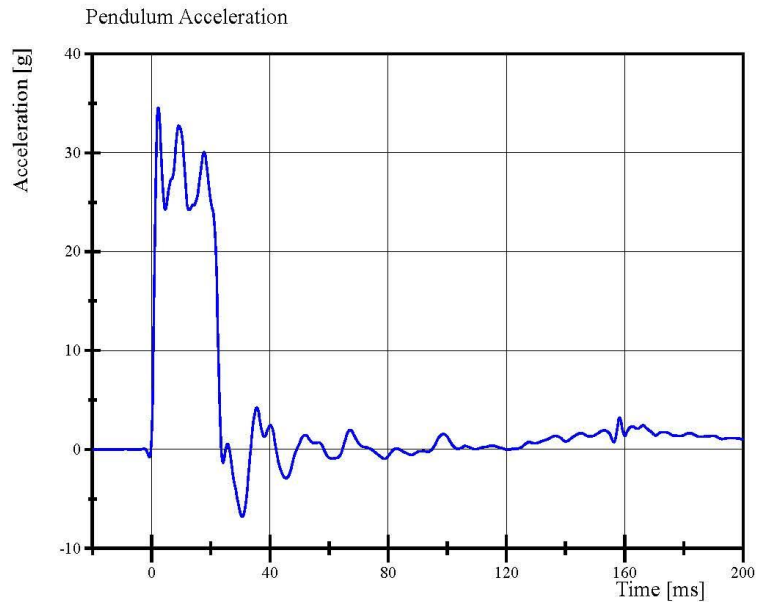


# Transportation Research Center Inc.

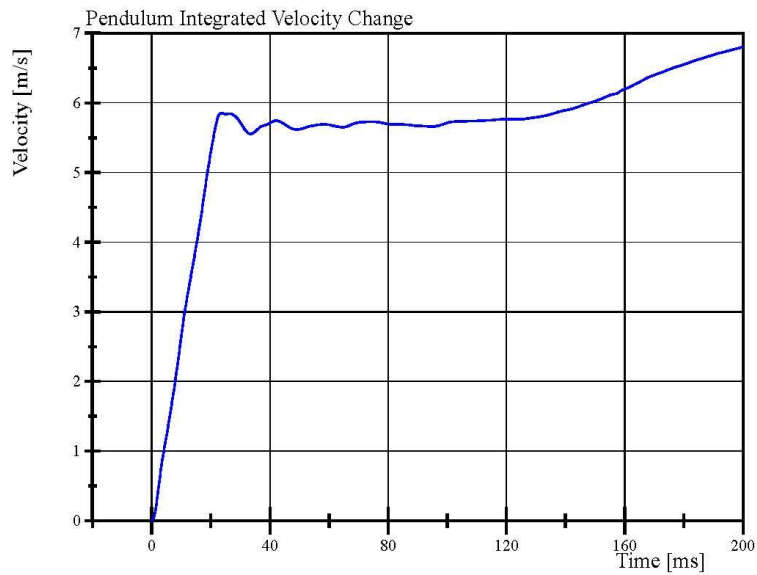
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 58-1

Test Date: 9/21/2022



Filter Class: CFC\_180  
Max: 34.6 g at 2.2 ms  
Min: -6.8 g at 30.6 ms



Filter Class: CFC\_180  
Max: 6.8 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

09.21.2022 11:34:48 745

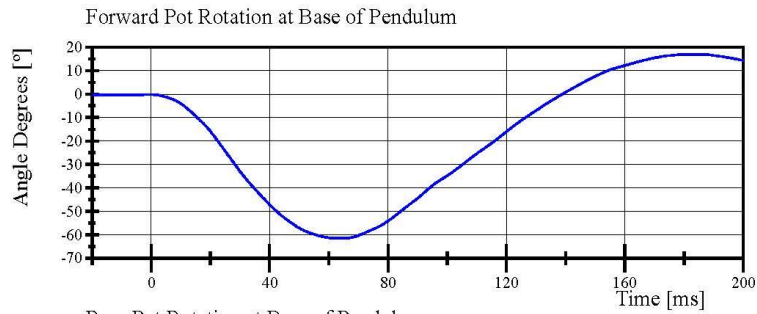


# Transportation Research Center Inc.

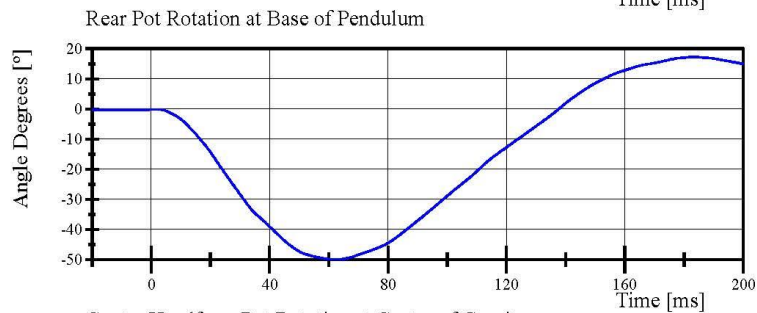
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 58-1

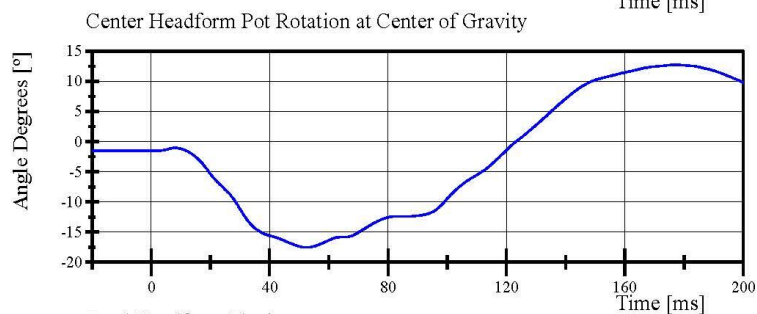
Test Date: 9/21/2022



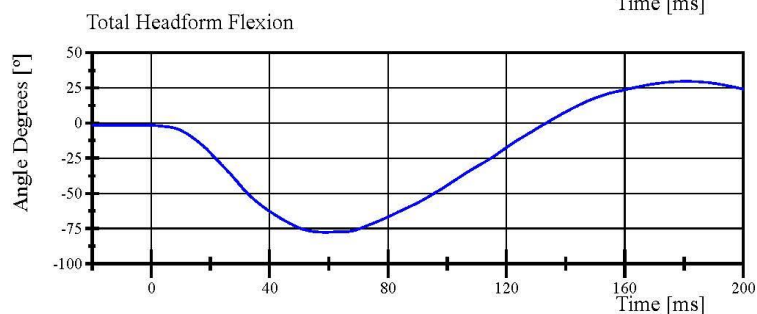
Filter Class: CFC\_60  
Max: 16.9 ° at 184.6 ms  
Min: -61.5 ° at 63.6 ms



Filter Class: CFC\_60  
Max: 17.3 ° at 183.2 ms  
Min: -49.9 ° at 62.1 ms



Filter Class: CFC\_60  
Max: 12.7 ° at 177.1 ms  
Min: -17.5 ° at 52.4 ms



Filter Class: CFC\_60  
Max: 29.6 ° at 180.6 ms  
Min: -77.7 ° at 58.9 ms

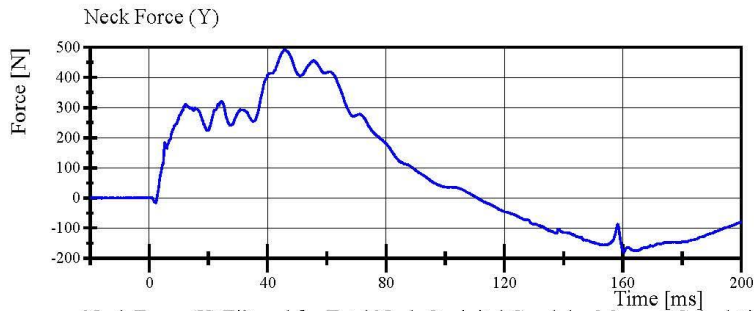
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

09.21.2022 11:34:48 745

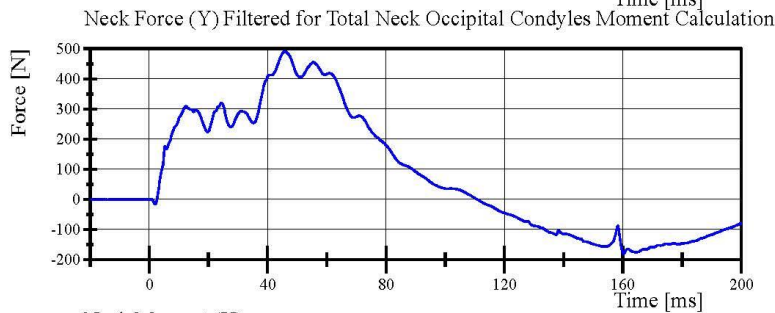


# Transportation Research Center Inc.

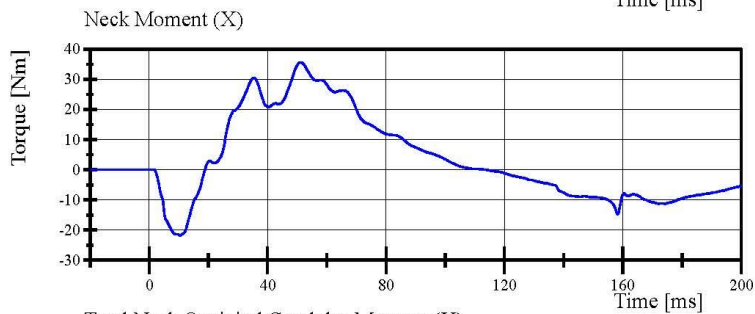
Left Lateral Neck  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022



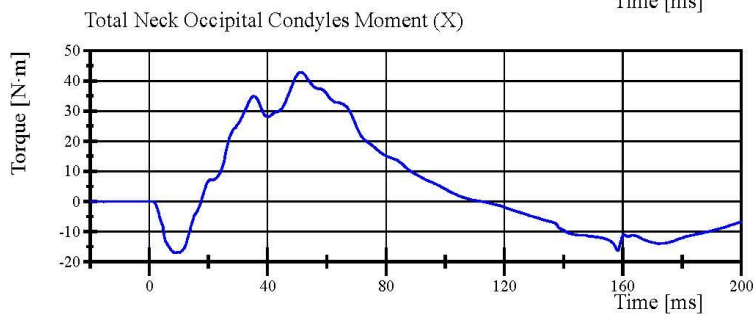
Filter Class: CFC\_1000  
Max: 491.0 N at 45.9 ms  
Min: -180.7 N at 160.3 ms



Filter Class: CFC\_600  
Max: 490.9 N at 45.8 ms  
Min: -180.3 N at 160.3 ms



Filter Class: CFC\_600  
Max: 35.6 Nm at 51.3 ms  
Min: -21.8 Nm at 10.4 ms



Filter Class: Without\_(Constar  
Max: 42.9 N.m at 51.3 ms  
Min: -17.0 N.m at 8.6 ms

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

09.21.2022 11:34:48 745



## Transportation Research Center Inc.

Left Lateral Shoulder  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.2 g	Yes
Shoulder Displacement	28 - 37 mm	31.3 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.8 g	Yes

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Left Arm S/N: 940L**

**Shoulder Rib S/N: 180-3355 259**

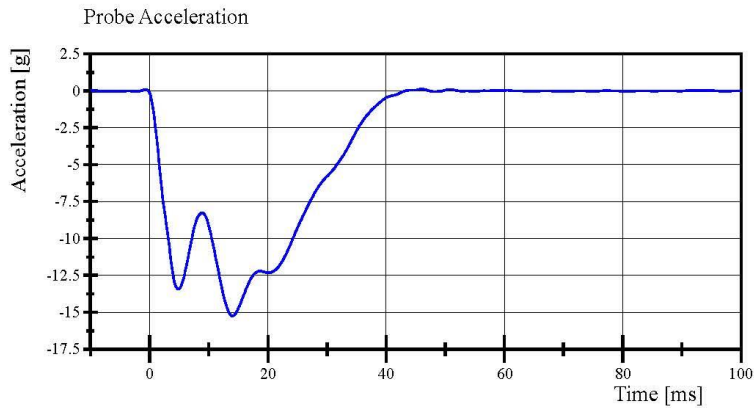
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

09.21.2022 09:59:58 828

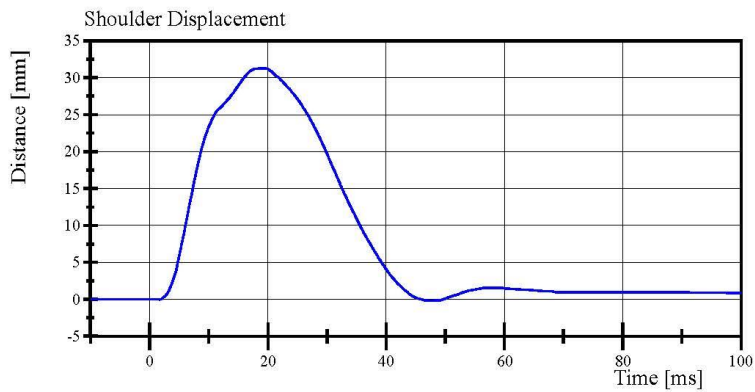


# Transportation Research Center Inc.

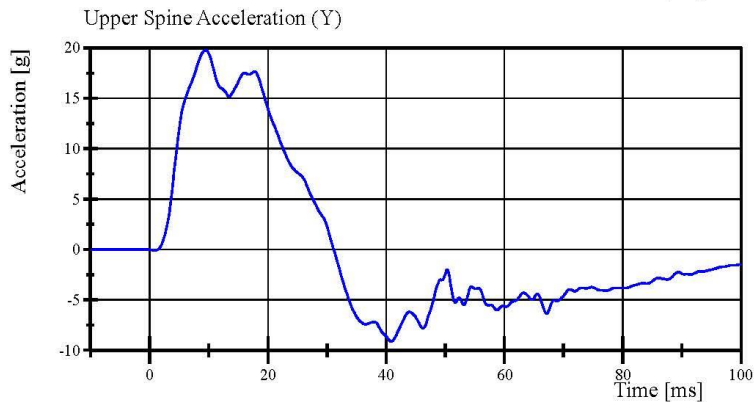
Left Lateral Shoulder  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022



Filter Class: CFC\_180  
Max: 0.1 g at 46.0 ms  
Min: -15.2 g at 14.0 ms



Filter Class: CFC\_600  
Max: 31.3 mm at 19.4 ms  
Min: -0.2 mm at 47.8 ms



Filter Class: CFC\_180  
Max: 19.8 g at 9.4 ms  
Min: -9.1 g at 40.8 ms

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

09.21.2022 10:00:29 828



## Transportation Research Center Inc.

Left Lateral Thorax with Arm  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.725 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.7 g	Yes
Shoulder Displacement	31 - 40 mm	37.2 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	28.2 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.5 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	33.7 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	36.8 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.5 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**

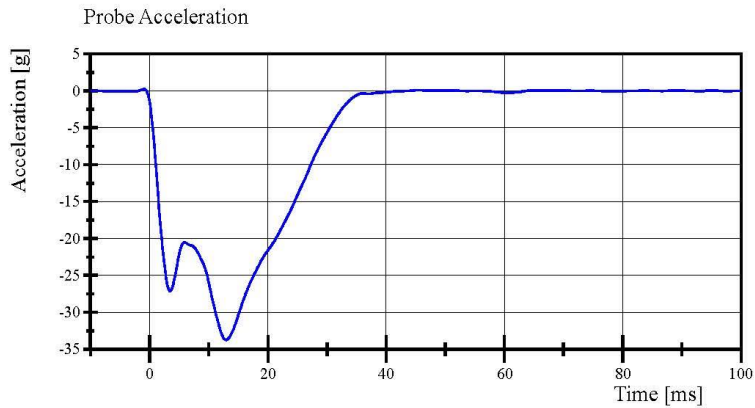
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

09.21.2022 10:03:21 610

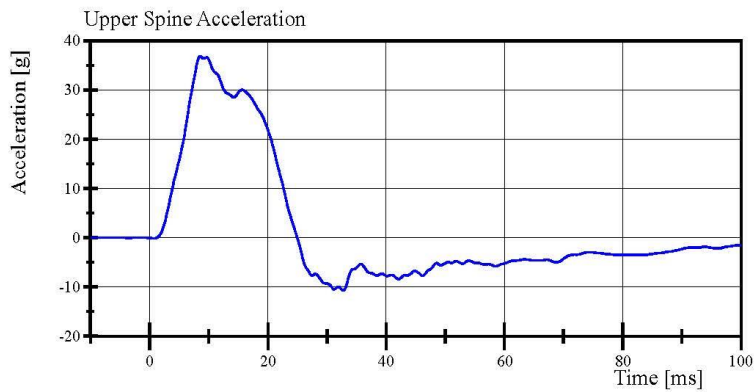


# Transportation Research Center Inc.

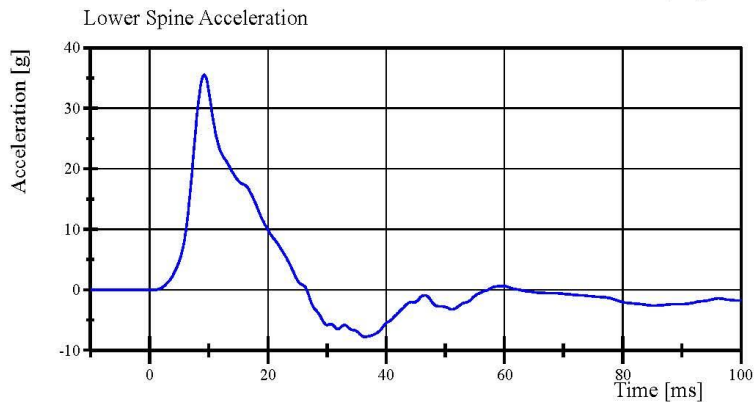
Left Lateral Thorax with Arm  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022



Filter Class: CFC\_180  
Max: 0.3 g at -1.0 ms  
Min: -33.7 g at 12.9 ms



Filter Class: CFC\_180  
Max: 36.8 g at 8.5 ms  
Min: -10.7 g at 32.7 ms



Filter Class: CFC\_180  
Max: 35.5 g at 9.2 ms  
Min: -7.8 g at 36.4 ms

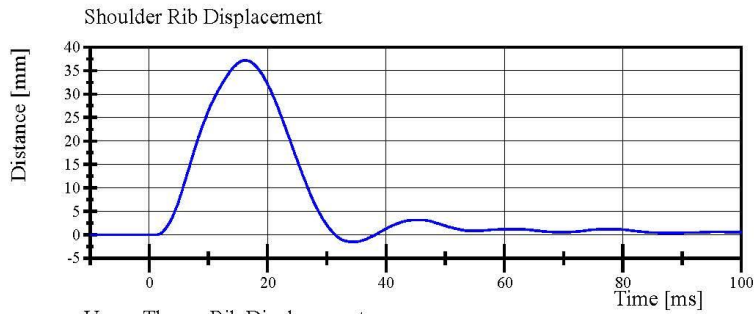
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

09.21.2022 10:04:06 610

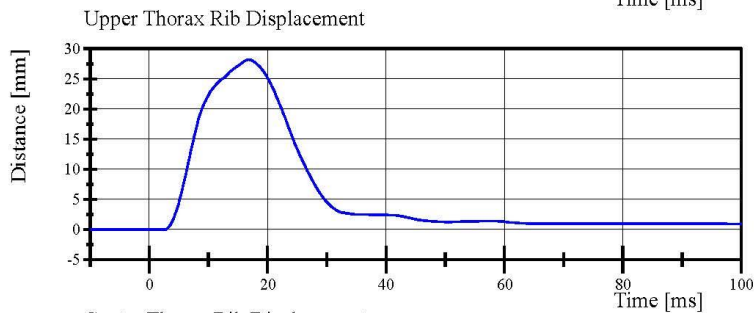


# Transportation Research Center Inc.

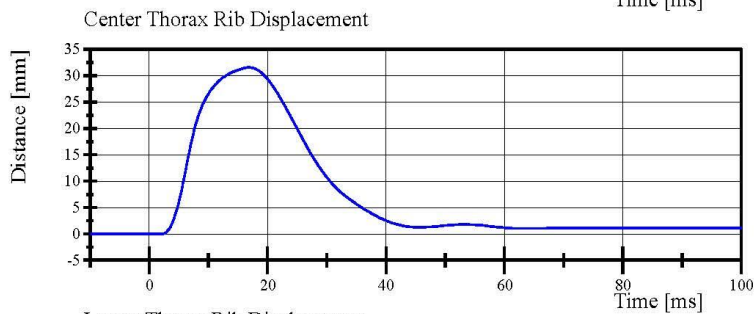
Left Lateral Thorax with Arm  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022



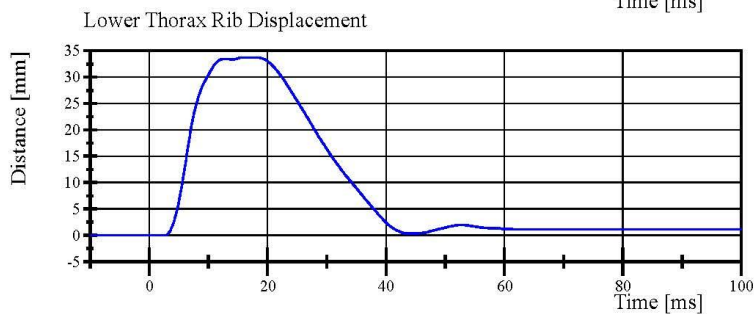
Filter Class: CFC\_600  
Max: 37.2 mm at 16.1 ms  
Min: -1.4 mm at 34.2 ms



Filter Class: CFC\_600  
Max: 28.2 mm at 16.8 ms  
Min: -0.0 mm at 2.5 ms



Filter Class: CFC\_600  
Max: 31.5 mm at 16.8 ms  
Min: -0.0 mm at 2.1 ms



Filter Class: CFC\_600  
Max: 33.7 mm at 17.0 ms  
Min: -0.0 mm at 2.6 ms

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

09.21.2022 10:04:06 610



## Transportation Research Center Inc.

Left Lateral Thorax without Arm  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.362 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.5 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	35.8 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	42.5 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	41.7 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.1 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.9 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**

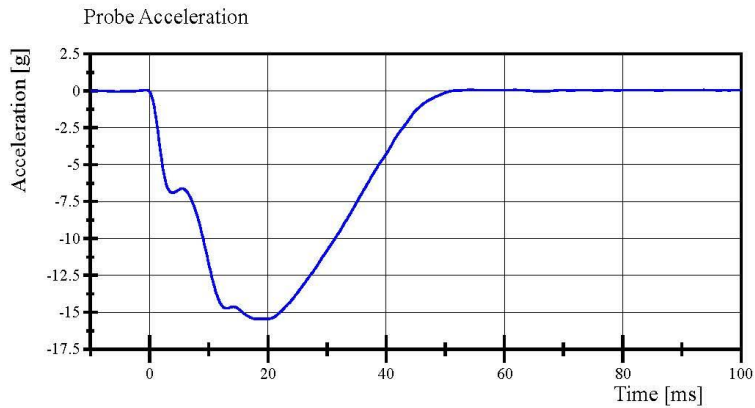
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

09.21.2022 10:02:03 815

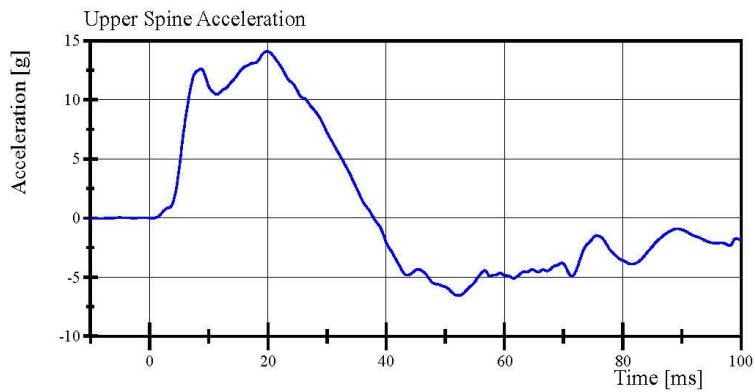


# Transportation Research Center Inc.

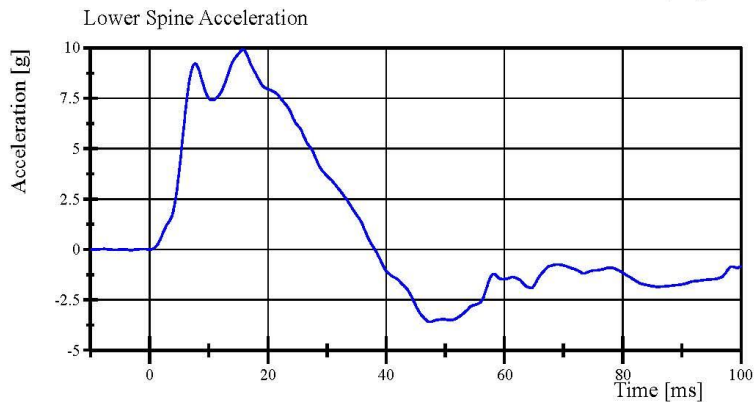
Left Lateral Thorax without Arm  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022



Filter Class: CFC\_180  
Max: 0.1 g at 54.3 ms  
Min: -15.5 g at 18.2 ms



Filter Class: CFC\_180  
Max: 14.1 g at 19.8 ms  
Min: -6.5 g at 52.2 ms



Filter Class: CFC\_180  
Max: 9.9 g at 15.8 ms  
Min: -3.6 g at 47.4 ms

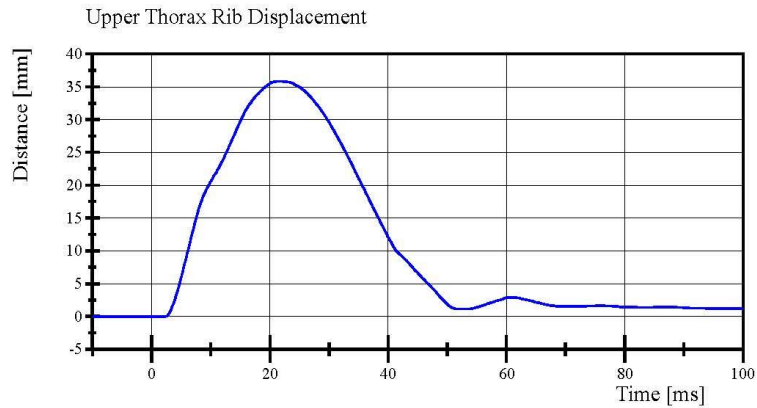
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

09.21.2022 10:02:46 815

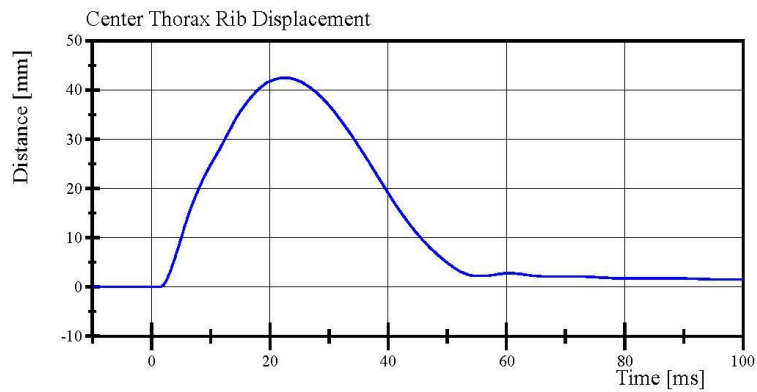


# Transportation Research Center Inc.

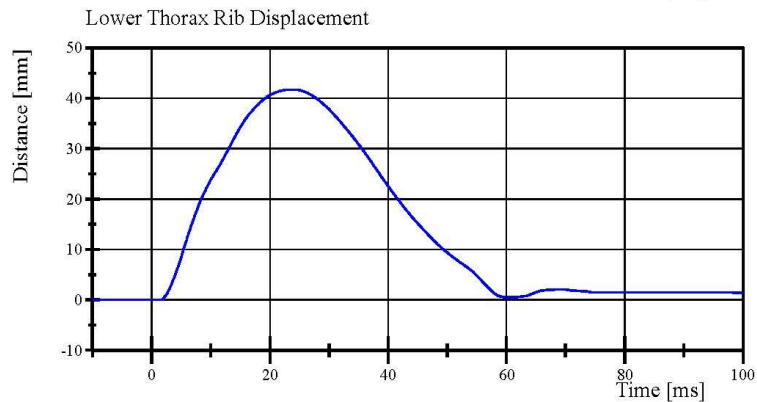
Left Lateral Thorax without Arm  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022



Filter Class: CFC\_600  
Max: 35.8 mm at 21.5 ms  
Min: -0.0 mm at 2.2 ms



Filter Class: CFC\_600  
Max: 42.5 mm at 22.6 ms  
Min: -0.0 mm at 1.2 ms



Filter Class: CFC\_600  
Max: 41.7 mm at 23.4 ms  
Min: -0.0 mm at 1.4 ms

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

09.21.2022 10:02:47 815



## Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 58-1

Test Date: 9/21/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	68 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-13.9 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	41.2 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	39.7 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.11 g	Yes

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Upper Abdominal Rib S/N: DM7281**

**Lower Abdominal Rib S/N: DM7275**

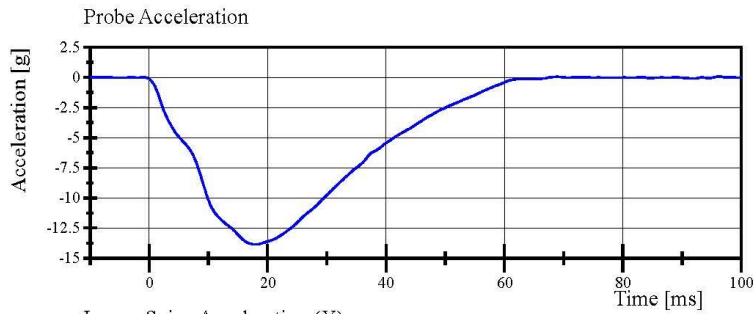
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

09.21.2022 10:01:00 664

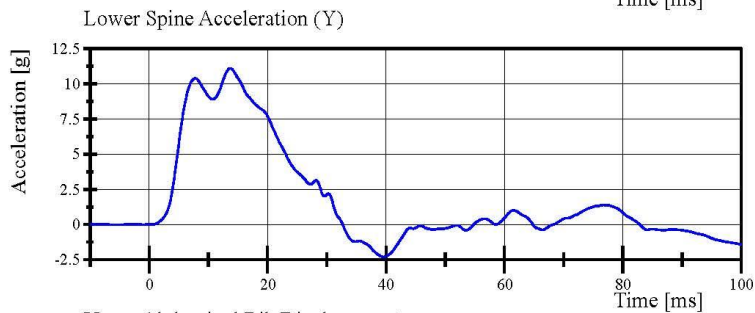


# Transportation Research Center Inc.

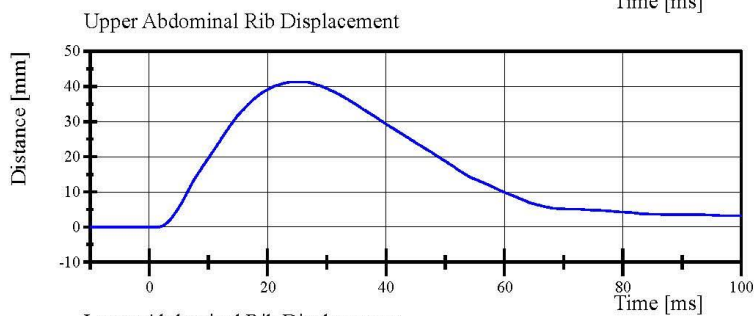
Left Lateral Abdomen  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022



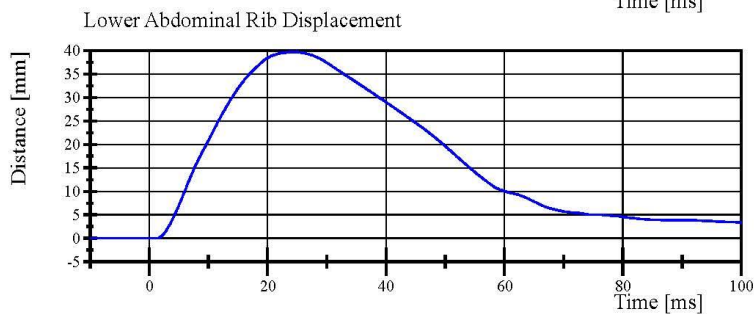
Filter Class: CFC\_180  
Max: 0.1 g at 96.2 ms  
Min: -13.9 g at 18.0 ms



Filter Class: CFC\_180  
Max: 11.1 g at 13.7 ms  
Min: -2.3 g at 39.6 ms



Filter Class: CFC\_600  
Max: 41.2 mm at 25.0 ms  
Min: -0.0 mm at -1.8 ms



Filter Class: CFC\_600  
Max: 39.7 mm at 24.5 ms  
Min: -0.0 mm at 1.0 ms

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

09.21.2022 10:01:26 664



## Transportation Research Center Inc.

Left Lateral Pelvis  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.62 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-43.50 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	35.4 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,989.0 N	Yes

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Pelvis Skin S/N: 1171**

**Pelvis Plug Info:**

**Manufacturer: Saco**

**S/N: 13769**

**Cal Date: 20200325**

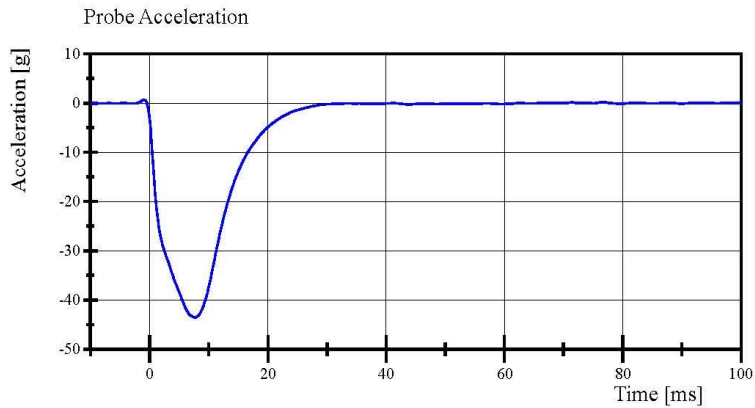
Specification Source: CFR49 Part 572 Subpart V  
with Polarity in accordance with J211

09.21.2022 09:52:53 448

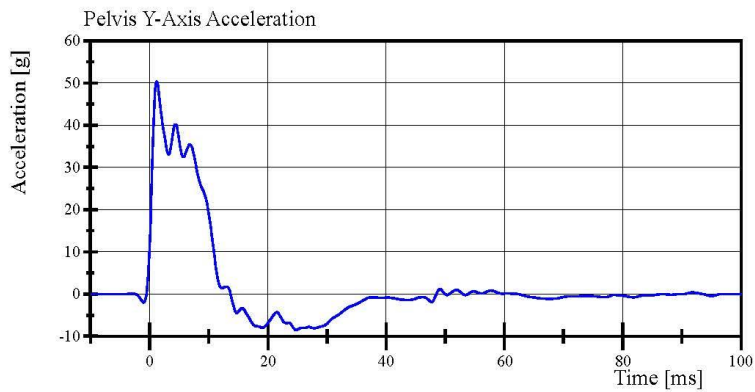


# Transportation Research Center Inc.

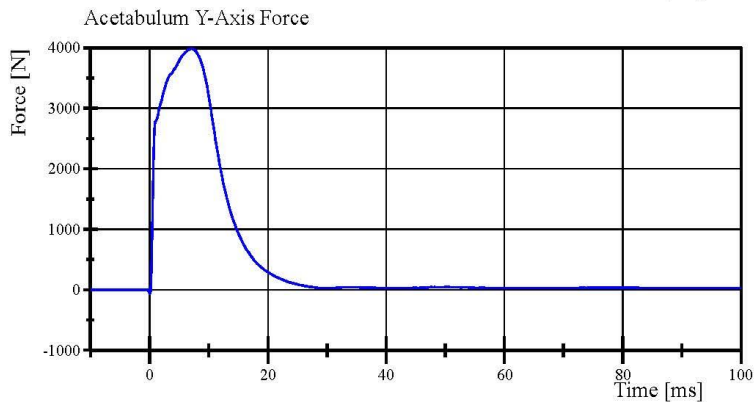
Left Lateral Pelvis  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022



Filter Class: CFC\_180  
Max: 0.7 g at -1.0 ms  
Min: -43.5 g at 7.7 ms



Filter Class: CFC\_180  
Max: 50.3 g at 1.2 ms  
Min: -8.5 g at 24.8 ms



Filter Class: CFC\_600  
Max: 3,989.0 N at 7.1 ms  
Min: -64.4 N at 0.0 ms

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

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## Transportation Research Center Inc.

Left Lateral Iliac  
SID IIs Serial No. 297 Certification No. 58-1  
Test Date: 9/21/2022

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	69 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-40.9 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	30.1 g	Yes
Iliac Force	4,100 - 5,100 N	4,732.8 N	Yes

**Test meets specifications.**

**Condition: Used**

**Comments:**

**Pelvis Skin S/N: 1171**

**Pelvis Plug Info:**

**Manufacturer: Saco**

**S/N: 13769**

**Cal Date: 20200325**

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

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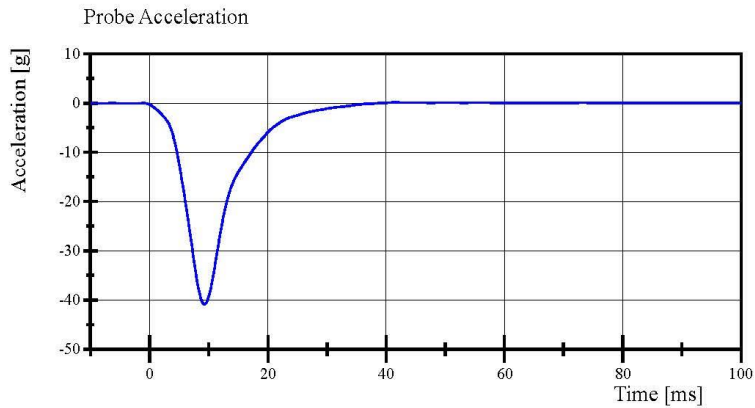


# Transportation Research Center Inc.

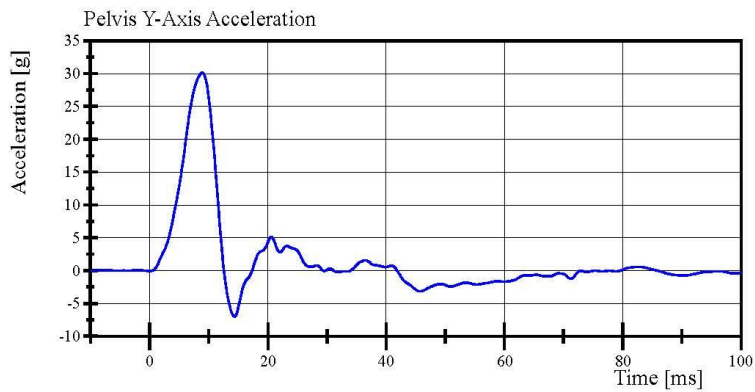
Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 58-1

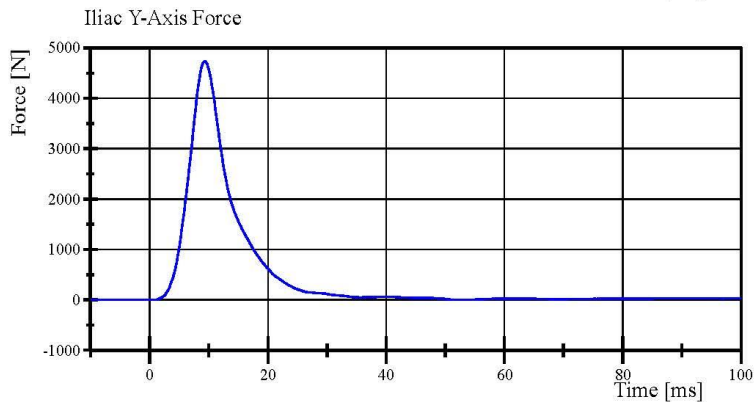
Test Date: 9/21/2022



Filter Class: CFC\_180  
Max: 0.2 g at 41.5 ms  
Min: -40.9 g at 9.3 ms



Filter Class: CFC\_180  
Max: 30.1 g at 8.9 ms  
Min: -7.0 g at 14.3 ms



Filter Class: CFC\_600  
Max: 4,732.8 N at 9.3 ms  
Min: -0.6 N at -1.4 ms

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

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**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	2-Aug-2022
				Y	P93549	Endevco	2-Aug-2022
				Z	P93776	Endevco	2-Aug-2022
Displacement Potentiometers		Shoulder		Y	N/A	N/A	N/A
		Thoracic Rib	Upper	Y	023	Servo	1-Mar-2022
			Middle	Y	063	Servo	1-Mar-2022
			Lower	Y	043	Servo	1-Mar-2022
		Abdominal Rib	Upper	Y	1152	Servo	1-Mar-2022
			Lower	Y	051	Servo	1-Mar-2022
Lower Spine Accelerometers (T12)				X	P94425	Endevco	2-Aug-2022
				Y	P91522	Endevco	2-Aug-2022
				Z	P91511	Endevco	2-Aug-2022
Acetabulum Load Cell				Y	235-FY	FTSS	28-Feb-2022
Iliac Wing Load Cell				Y	320-FY	FTSS	28-Feb-2022
Pelvis Plug (struck side)					13765	SACO	25-Mar-2020
Pelvis Plug (non-struck side)					13766	SACO	25-Mar-2020

**TABLE 2 – Vehicle Instrumentation**

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	A400088	Measurement Specialties	19-Apr-2022
Vehicle Center of Gravity	Y	A318460	Measurement Specialties	19-Apr-2022
Vehicle Center of Gravity	Z	A378308	Measurement Specialties	19-Apr-2022
Left Floor Sill	Y	A298334	Measurement Specialties	11-Apr-2022
A-Pillar Sill	Y	A254856	Measurement Specialties	12-Apr-2022
A-Pillar Low	Y	A377448	Measurement Specialties	19-Apr-2022
A-Pillar Mid	Y	A300452	Measurement Specialties	11-Apr-2022
B-Pillar Sill	Y	A300428	Measurement Specialties	11-Apr-2022
B-Pillar Low	Y	A298374	Measurement Specialties	19-Apr-2022
B-Pillar Mid	Y	A298341	Measurement Specialties	12-Apr-2022
Driver Seat	Y	A377457	Measurement Specialties	11-Apr-2022
Engine Top	X	A227200	Measurement Specialties	12-Apr-2022
Engine Top	Y	A300456	Measurement Specialties	19-Apr-2022
Firewall	Y	A298386	Measurement Specialties	12-Apr-2022
Right Roof	Y	A227171	Measurement Specialties	12-Apr-2022
Right Floor Sill	Y	A298323	Measurement Specialties	12-Apr-2022
Rear Floor Pan	X	A349794	Measurement Specialties	19-Apr-2022
Rear Floor Pan	Y	A378379	Measurement Specialties	19-Apr-2022

**TABLE 3 – Pole Instrumentation**

<b>Pole Instrumentation</b>	<b>Serial Number</b>	<b>Manufacturer</b>	<b>Calibration Date</b>
Load Cell 1	DK7091S	Humanetics	28-Dec-2021
Load Cell 2	DK7120S	Humanetics	28-Dec-2021
Load Cell 3	DK7118S	Humanetics	28-Dec-2021
Load Cell 4	DK7124S	Humanetics	28-Dec-2021
Load Cell 5	DK7111S	Humanetics	28-Dec-2021
Load Cell 6	DK7126S	Humanetics	28-Dec-2021
Load Cell 7	DK7112S	Humanetics	28-Dec-2021
Load Cell 8	DK7074S	Humanetics	28-Dec-2021