FINAL REPORT NUMBER: SPNCAP-TRC-20-003

NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST

FCA ITALY S.P.A.
2020 Jeep Renegade SUV
NHTSA NUMBER: M20200308

PREPARED BY:
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Report Date: March 2, 2020

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
Room W43-410
Washington, D.C. 20590

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Report Prepared By: ILO Project Operations Group

Report Approved By: 

John Shultz

Approval Date: March 2, 2020

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

FINAL REPORT ACCEPTANCE BY OCWS:

COTR, New Car Assessment Program
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Technical Report Documentation Page

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15. Supplemental Notes		

16. Abstract

A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject vehicle, a 2020 Jeep Renegade SUV, in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on December 9, 2019.

The impact velocity was 32.02 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 20.5° C. The test vehicle's post-test maximum crush was 327 mm at Level 3.

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

	Unit	Threshold	Front SID-IIs
Head Injury Criteria (HIC_{36}):	NA	1000	314
Resultant Lower Spine Acceleration:	g's	82	38.7
Total Pelvic Force: (sum of acetabular and iliac forces)	N	5525	2781.6
Maximum Thoracic Rib Deflection[1]	mm	38*	28.0
Maximum Abdomen Rib Deflection	mm	45*	20.6

* Proposed IARV

[1] The middle thoracic rib data is anomalous

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

17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs	18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave Washington, DC 20590

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TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY 20 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-14-D-00354. The purpose of this test is to generate comparative side impact performance in a 2020 Jeep Renegade SUV manufactured by FCA ITALY S.P.A.. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated October 2015.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a model year 2020 Jeep Renegade SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.02 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, OH, on December 9, 2019. 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 October 2015. Camera locations and other pertinent camera information are included in this report.

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

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

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

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

Measurement Description	Driver ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC_{36})	NA	1000	314
Lower Spine Acceleration Resultant	G	82	38.7
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2781.6
Maximum Thoracic Rib Deflection[1]	mm	38*	28.0
Maximum Abdominal Rib Deflection	mm	45*	20.6

* Proposed IARV

[1] The middle thoracic rib data is anomalous

Supplemental restraint information is given below:

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

GENERAL COMMENTS

Driver Middle Thorax Rib Deflection (Y); data is anomalous

Left Mid A-Post Y; data has questionable spike at 23-25 MS

SECTION 3

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20200308
Model Year	2020
Make	Jeep
Model	Renegade
Body Style	MPV
VIN	ZACNJAB19LPK99241
Body Color	Glacier Metallic
Odometer Reading (km/mi)	155 mi
Engine Displacement (L)	1.3
Type/No. Cylinders	Inline/4
Engine Placement	Front Transverse
Transmission Type	Automatic
Transmission Speeds	9
Overdrive	Yes
Final Drive	FWD
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Driver Only
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 ITALY S.P.A.
Date of Manufacturer	09/19
Vehicle Type	MPV

GVWR (kg)	1945
GAWR Front (kg)	1050
GAWR Rear (kg)	960

VEHICLE SEATING AND WEIGHT CAPACITY DATA

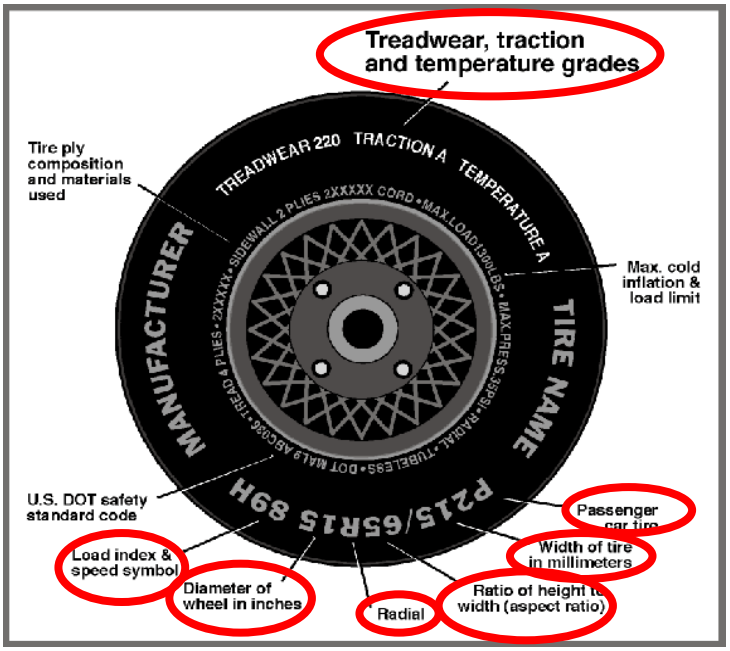
	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	N/A	5
Vehicle Capacity Weight (VCW) (kg)				390.0
DSC X 68.04 kg				340.2
Rated Cargo and Luggage Weight (RCLW) (kg)				49.8

VEHICLE SEAT TYPE

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

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

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	240	240
Recommended Tire Size	215/60R17	215/60R17
Tire Size on Vehicle	215/60R17	215/60R17
Tire Manufacturer	Dunlop	Dunlop
Tire Model	Signature II	Signature II
Treadwear	620	620
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	1	1
Tire Plies Body	3	3
Load Index/Speed Symbol	96T	96T
Tire Material	Polyester, Steel	Polyester, Steel
DOT Safety Code Left	M6KT JR1R 4818	M6KT JR1R 4818
DOT Safety Code Right	M6KT JR1R 4418	M6KT JR1R 4418

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

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019

TIRE PRESSURES

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

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	464.6	285.2		479.8	319.2		481.0	331.4	
Right	kg	438.2	267.2		442.4	303.8		439.0	302.6	
Ratio	%	62.0	38.0		59.7	40.3		59.2	40.8	
Totals	kg	902.8	552.4	1455.2	922.2	623.0	1545.2	920.0	634.0	1554.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1455.2	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	49.0	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	49.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1554.0	(A+B+C)

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

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	Deg.	-0.2	-0.2	0.5	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	-0.3	-0.3	0.0	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	-0.3	-0.5	-0.8	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg.	0.2	-0.3	-0.3	Yes
Vehicle CG (Aft of Front Axle)	mm	977	1038	1051	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	+24	+27	+35	

*ND=Nose Down (-), NU=Nose Up (+) **LD=Left Down (-), LU=Left Up (+)
*** The "As Tested" vehicle attitude measurements must be equal to or between the "As Delivered" and "Fully Loaded" vehicle attitude measurements. Indicate "Yes" or "No" for "Meets Requirements".

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast: None	0.0
Components Removed: Tail lights, rear fascia and bumper beam, rear hatch trim, right rear door window motor and speaker and front fascia.	31.6

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

DATA SHEET NO. 2

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

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019

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	25.8	17.2	21.5
Front Passenger Seat	N/A	N/A	19.0
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	N/A	N/A	10.7
Non-Struck Side Rear Seat	N/A	N/A	10.3
Rear Center Seat*	N/A	N/A	10.0

* 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	21.5	203	Max	216	221	226
			Mid	190	196	203
			Min	168	174	180
Front Passenger Seat	19.0	194	Max	N/A	N/A	N/A
			Mid	183	188	194
			Min	N/A	N/A	N/A
Front Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Struck Side Rear Seat	10.7	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	170	N/A
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	10.3	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	169	N/A
			Min	N/A	N/A	N/A
Rear Center Seat*	10.0	fixed	Max	N/A	N/A	N/A
			Mid	N/A	226	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: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019

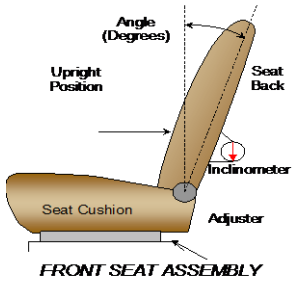
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	225	N/A	0	N/A
Front Passenger Seat	260	27	0	0
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	0	Fixed	Fixed	N/A
Non-Struck Side Rear Seat	0	Fixed	Fixed	N/A
Rear Center Seat*	0	Fixed	Fixed	N/A

* If applicable.

SEAT BACK ANGLE ADJUSTMENT

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



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detent*
Driver Seat w/ Seated Dummy	225	N/A	3.3	N/A
Front Passenger Seat	260	27	3.4	21
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	0	Fixed	21.3	Fixed
Non-Struck Side Rear Seat	0	Fixed	20.0	Fixed
Rear Center Seat*	0	Fixed	21.6	Fixed

* If applicable.

SEAT BELT ANCHORAGE ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	5	2 (50 mm from full up)

HEAD RESTRAINT ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	4	1, Lowermost

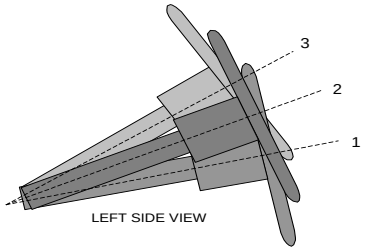
DATA SHEET NO. 2 (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019

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	25.1	0
Geometric Center, Position No. 2	27.7	25
Uppermost, Position No. 3	30.3	50
Telescoping Steering Wheel Travel		50
Test Position	27.7	25

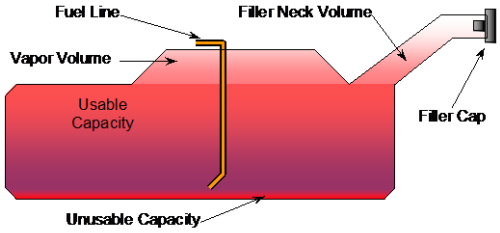


STEERING COLUMN ASSEMBLY

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 in “key on”



VEHICLE FUEL TANK ASSEMBLY

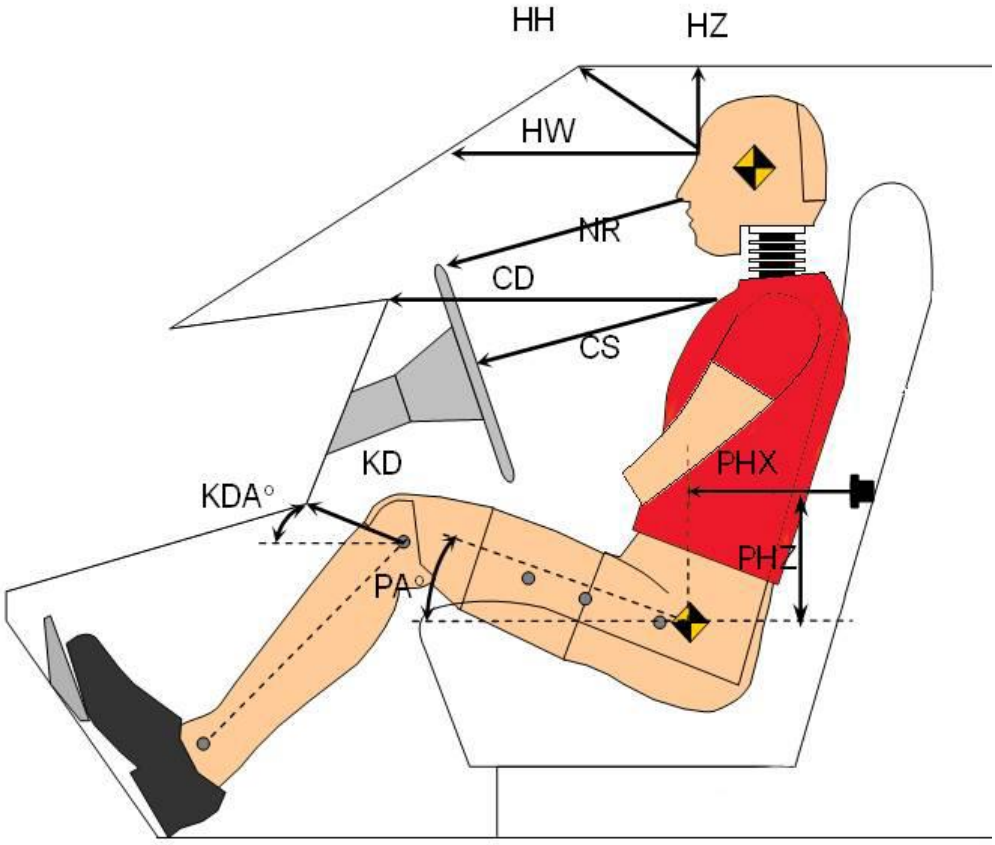
FUEL TANK CAPACITY

	Liters
Usable Capacity of “Standard Tank” (see Form No. 1)	48.1
Usable Capacity of “Optional” Tank (see Form No. 1)	48.1
Usable Capacity of Standard Tank (see Owner’s Manual)	48.1
Usable Capacity of Optional Tank (see Owner’s Manual)	N/A
93% of Usable Capacity	44.7
Actual Amount of Solvent Used in Test	44.7
1/3 of Usable Capacity	16.0

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

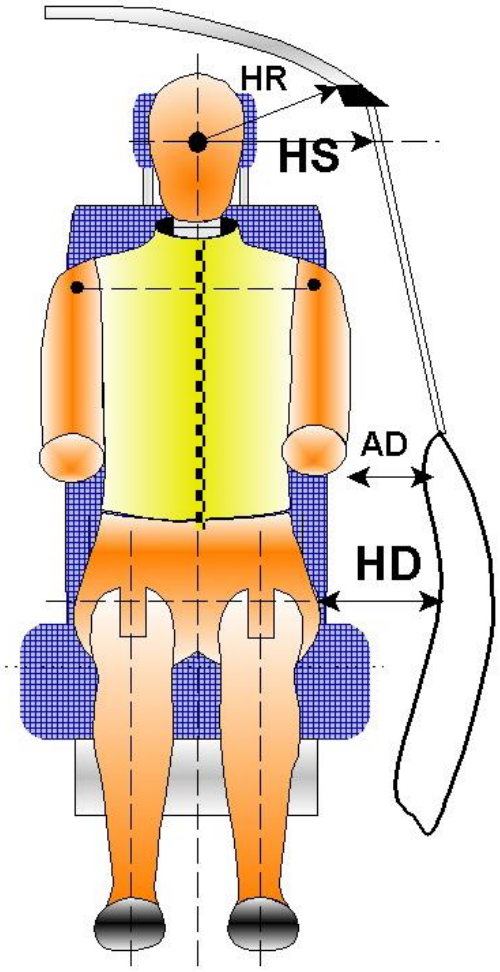
Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019



Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	441	
HW	Head to Windshield	750	
HZ	Head to Visor	315	
NR	Nose to Rim	307	
CD	Chest to Dashboard	465	
CS	Chest to Steering Wheel	215	
KDL/KDLA°	Left Knee to Dash	118	37.2
KDR/KDRA°	Right Knee to Dash	124	25.6
PAX°	Pelvic Tilt Angle (X-axis)		0.3
PAY°	Pelvic Tilt Angle (Y-axis)		21.7
PHX	Hip Point to Striker (X-Axis)	281	
PHZ	Hip Point to Striker (Z-Axis)	97	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

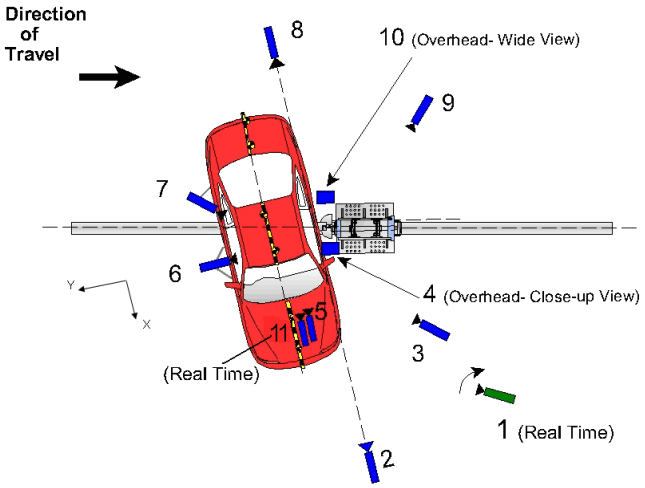
Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019



Code	Measurement Description	Length (mm)
HR	Head to Side Header	309
HS	Head to Side Window	414
AD	Arm to Door	163
HD	Hip Point to Door	180

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019



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	5188	0	-1724	20	1000
3	Impact side 45° – forward pole view	4003	-1222	-1765	20	1000
4	Overhead Close-up view of impact	1844	-1413	-2636	20	1000
5	Onboard – dummy front view				12.5	1000
6	Onboard – dummy side view				12.5	1000
7	Onboard – dummy rear oblique view				12.5	1000
8	Rear ground level – impact view	-5014	0	-1725	20	1000
9	Impact side 45° – rearward pole view	-2590	-2079	-1717	20	1000
10	Overhead wide view of impact	-275	375	-5751	18.5	1000
11	Real time dummy front view				Zoom	30

All measurements accurate to +/- 6 mm.

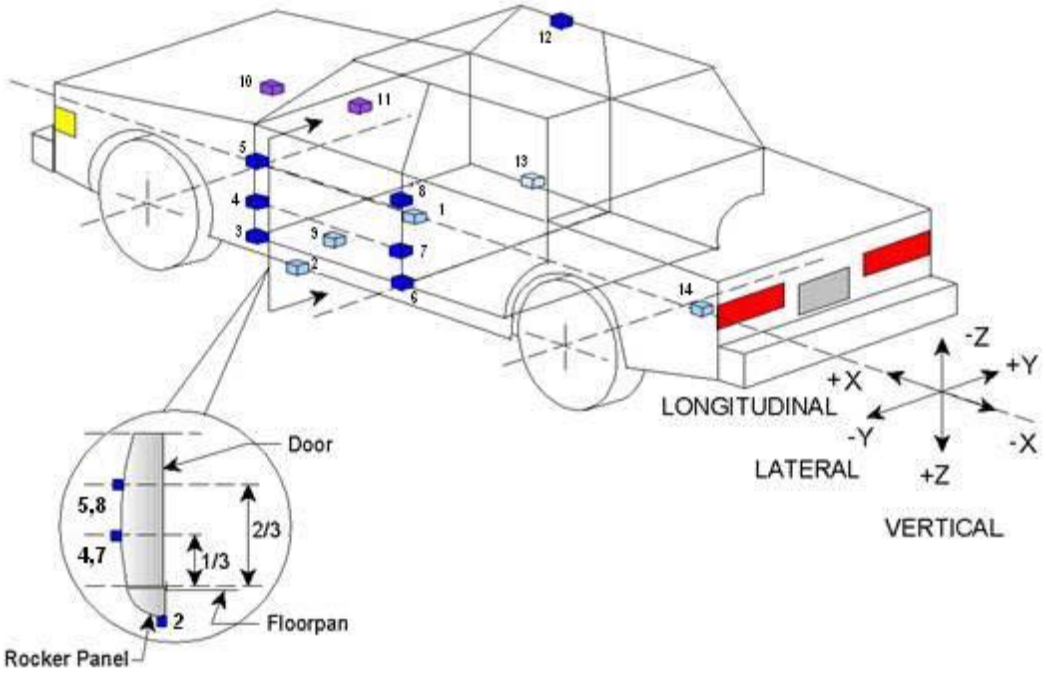
NOTE: Vehicle was at a 75° angle to the rigid pole.
If applicable, explain why camera(s) did not run: N/A

INSTRUMENTATION

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

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019



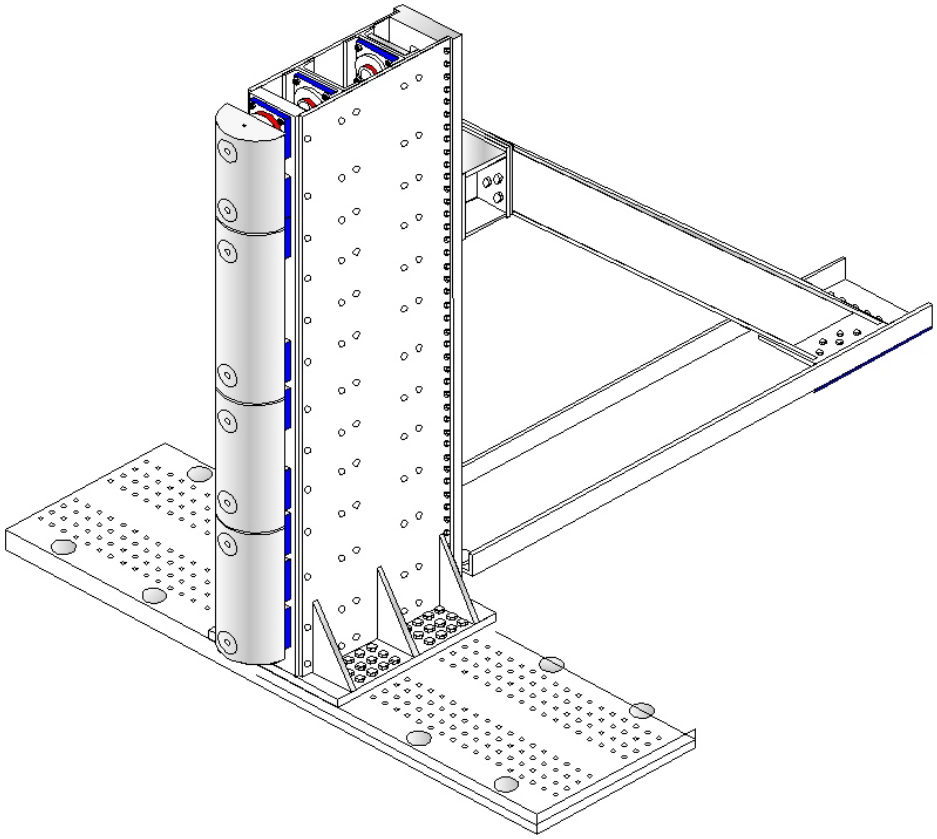
	Accelerometer/Sensor Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2516	92	-397
2	Left Floor Sill	2505	-712	-410
3	A-Pillar Sill	2835	-627	-461
4	A-Pillar Low	2840	-822	-566
5	A-Pillar Mid	2850	-837	-906
6	B-Pillar Sill	1812	-735	-422
7	B-Pillar Low	1840	-800	-660
8	B-Pillar Mid	1808	-795	-994
9	Driver Seat Track	2095	-525	-396
10	Engine Top	3695	0	-787
11	Firewall	3335	-70	-987
12	Right Roof	2199	615	-1591
13	Right Floor Sill	2510	707	-402
14	Rear Floorpan	992	0	-648

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: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019

FOIL 300K RIGID POLE



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

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	SCAB
Top of Head	SCAB
Left Side of Head	SCAB, Headrest
Back of Head	Headrest
Left Shoulder	SAB
Upper Torso	Seatback bolster
Lower Torso	Seatback bolster, SAB
Left Hip	SAB, Door panel
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

* Indicate “Yes”, “No”, or “NA”.

POST-TEST SEAT PERFORMANCE

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

* Indicate “Yes”, “No”, or “NA”.

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Good
Sill Separation	None
Windshield Damage	Along left A pillar
Side Window Damage	Driver window broken out
Other Notable Effects	None

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

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

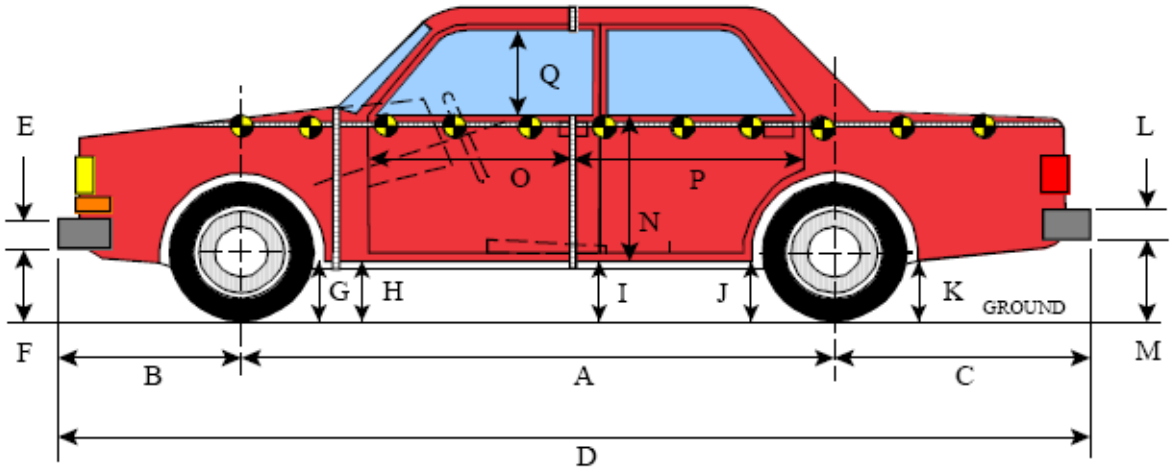
Restraint Type	Struck Side (Driver)		Struck Side (Rear Passenger)	
	Mounted	Deployed	Mounted	Deployed
Front Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	N/A
Side Torso Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	No	N/A
Seat Belt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

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

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1130
Actual Impact Point (Aft of Front Axle)	mm		1127
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	32.02
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.03

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019



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

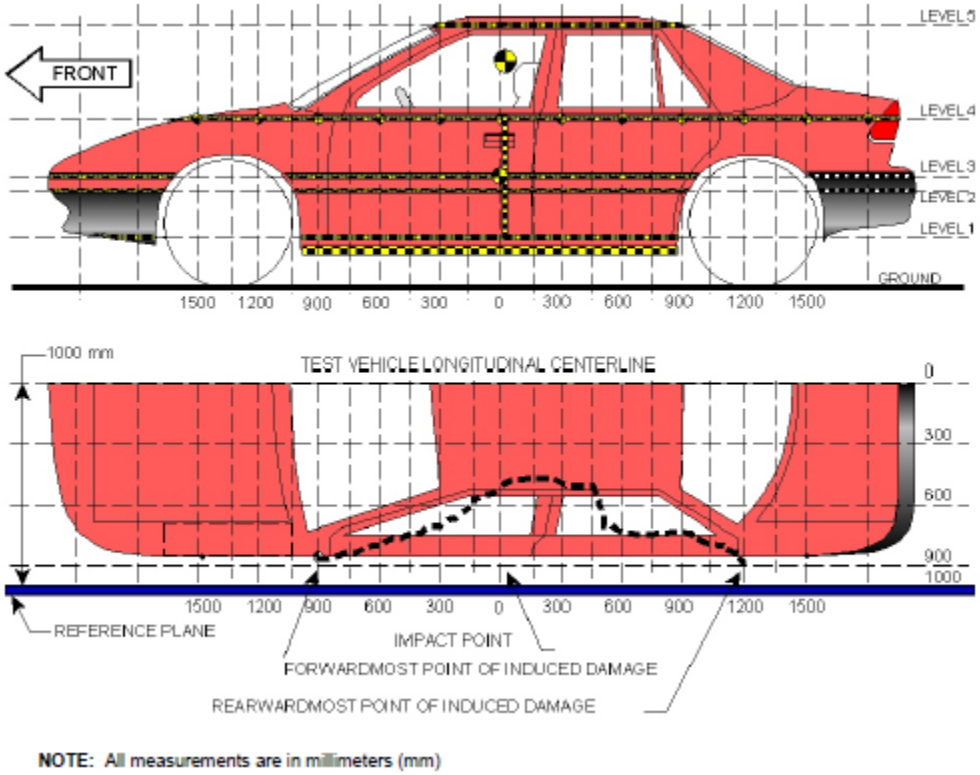
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2575	2520	55
B	Front Axle to Front Surface of Vehicle	865	865	0
C	Rear Axle to Rear Surface of Vehicle	790	790	0
D	Total Length at Centerline	4230	4215	15
E	Front Bumper Thickness	120	120	0
F	Front Bumper Bottom to Ground	455	480	-25
G	Sill Height at Front Wheel Well	435	443	-8
H	Sill Height at Front Door Leading Edge	434	445	-11
I	Sill Height at B-Pillar	485	520	-35
J1	Sill Height at Rear Wheel Well	442	480	-38
J2	Pinch Weld Height at Rear Wheel Well	240	250	-10
K	Sill Height Aft of Rear Wheel Well	454	480	-26
L	Rear Bumper Thickness	75	75	0
M	Rear Bumper Bottom to Ground	529	550	-21
N	Sill Height to Bottom of Front Window Sill	965	790	175
O	Front Door Leading Edge to Impact CL	648	725	-77
P	Rear Door Trailing Edge to Impact CL	1327	1275	52
Q	Front Window Opening	425	425	0
R	Right Side Length	3880	3940	-60
S	Left Side Length	3880	3785	95
T[1]	Vehicle Width at B-Pillars	1774	1650	124

[1] Max width = 1805

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019



NOTE: All measurements are in millimeters (mm)

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	405	290	0
2	Occupant H-Point	657	320	0
3	Mid-Door	720	327	0
4	Window Sill	1063	297	0
5	Window Top	1557	173	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

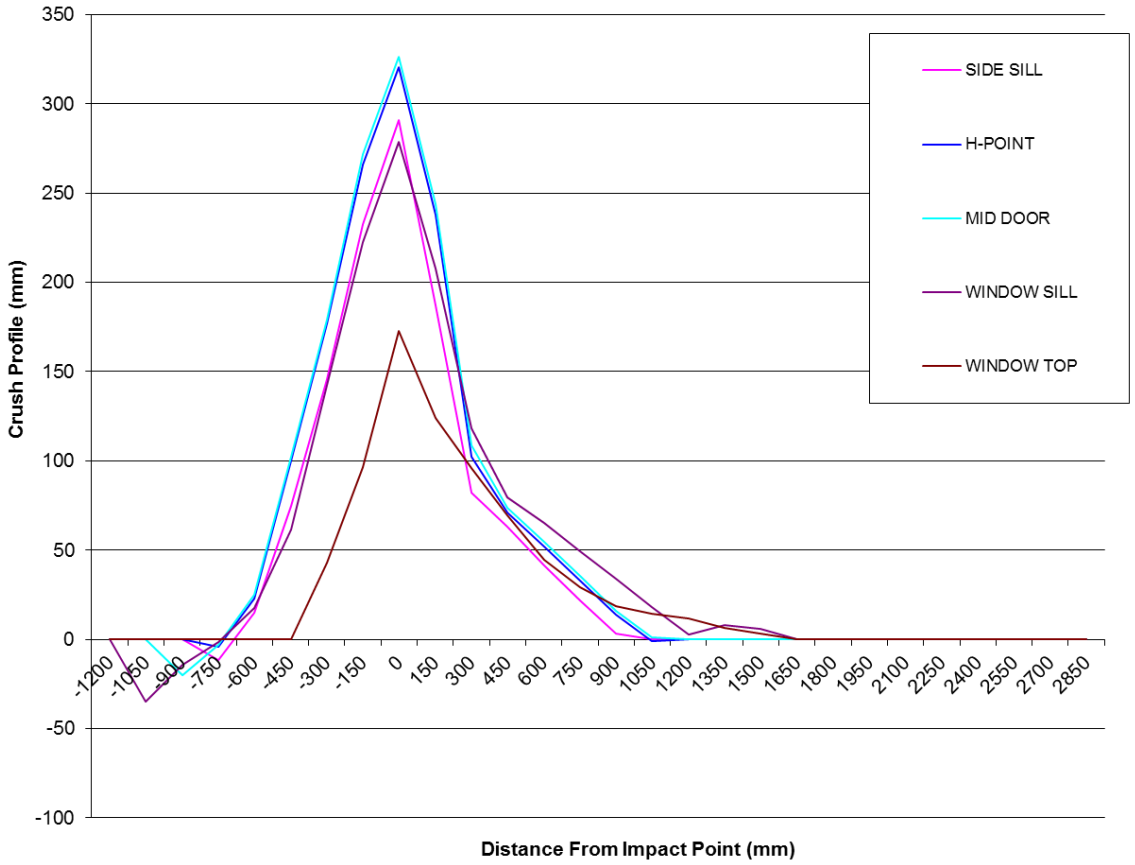
Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1050	0	0	0	767	0	0	0	0	802	0	0	0	0	-35	0
-900	0	0	898	793	0	0	0	918	807	0	0	0	-20	-14	0
-750	873	894	894	807	0	884	898	897	808	0	-11	-4	-3	-1	0
-600	868	878	878	817	0	853	855	853	800	0	15	23	25	17	0
-450	858	873	874	805	0	783	773	772	744	0	75	100	102	61	0
-300	859	874	876	811	608	713	697	696	669	565	146	177	180	142	43
-150	861	876	878	817	640	628	610	606	594	544	233	266	272	223	96
0	861	877	879	822	656	571	557	552	543	483	290	320	327	279	173
150	863	878	880	826	662	676	640	636	619	538	187	238	244	207	124
300	860	878	880	831	665	778	775	771	713	569	82	103	109	118	96
450	862	876	879	833	667	799	805	805	754	598	63	71	74	79	69
600	862	875	877	837	668	820	823	823	772	623	42	52	54	65	45
750	868	877	878	837	667	846	844	843	787	638	22	33	35	50	29
900	879	889	887	834	665	876	875	871	800	647	3	14	16	34	18
1050	0	895	897	831	662	0	896	896	813	647	0	-1	1	18	15
1200	0	0	0	829	657	0	0	0	826	645	0	0	0	3	12
1350	0	0	0	825	649	0	0	0	817	642	0	0	0	8	7
1500	0	0	0	818	635	0	0	0	812	632	0	0	0	6	3

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

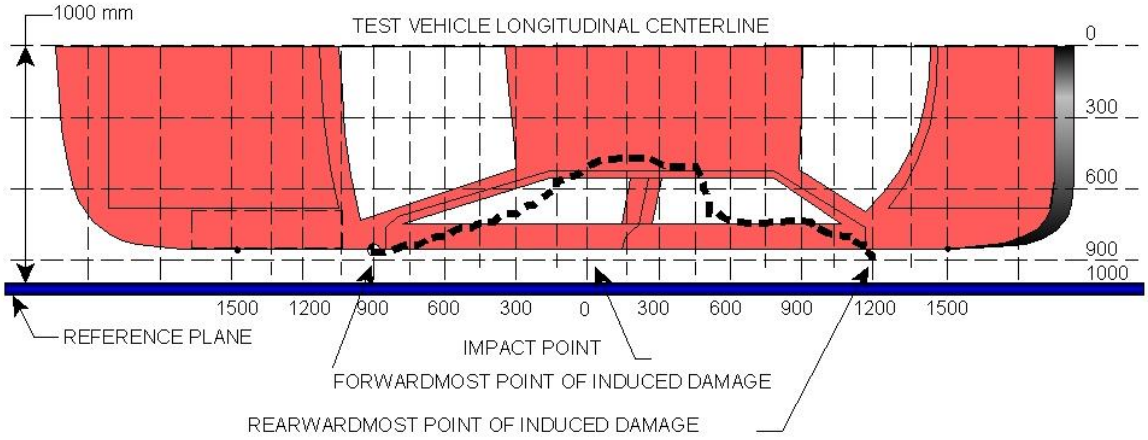
DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	1500	4	812	818	6
2	1050	4	813	831	18
3	600	4	772	837	65
4	300	4	713	831	118
5	-150	3	606	878	272
6[1]	-600	3	853	878	0

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

DATA SHEET NO. 12

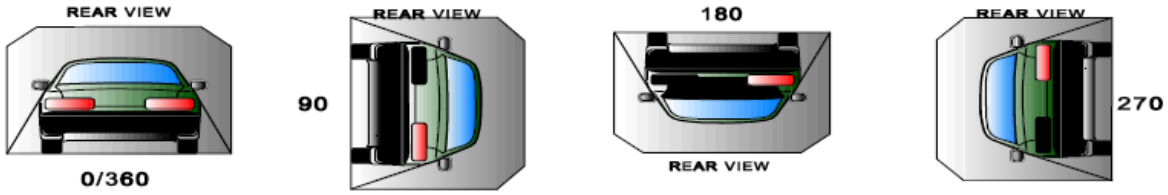
FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019

Test Time: 19:23 **Temperature:** 21.8ºC

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

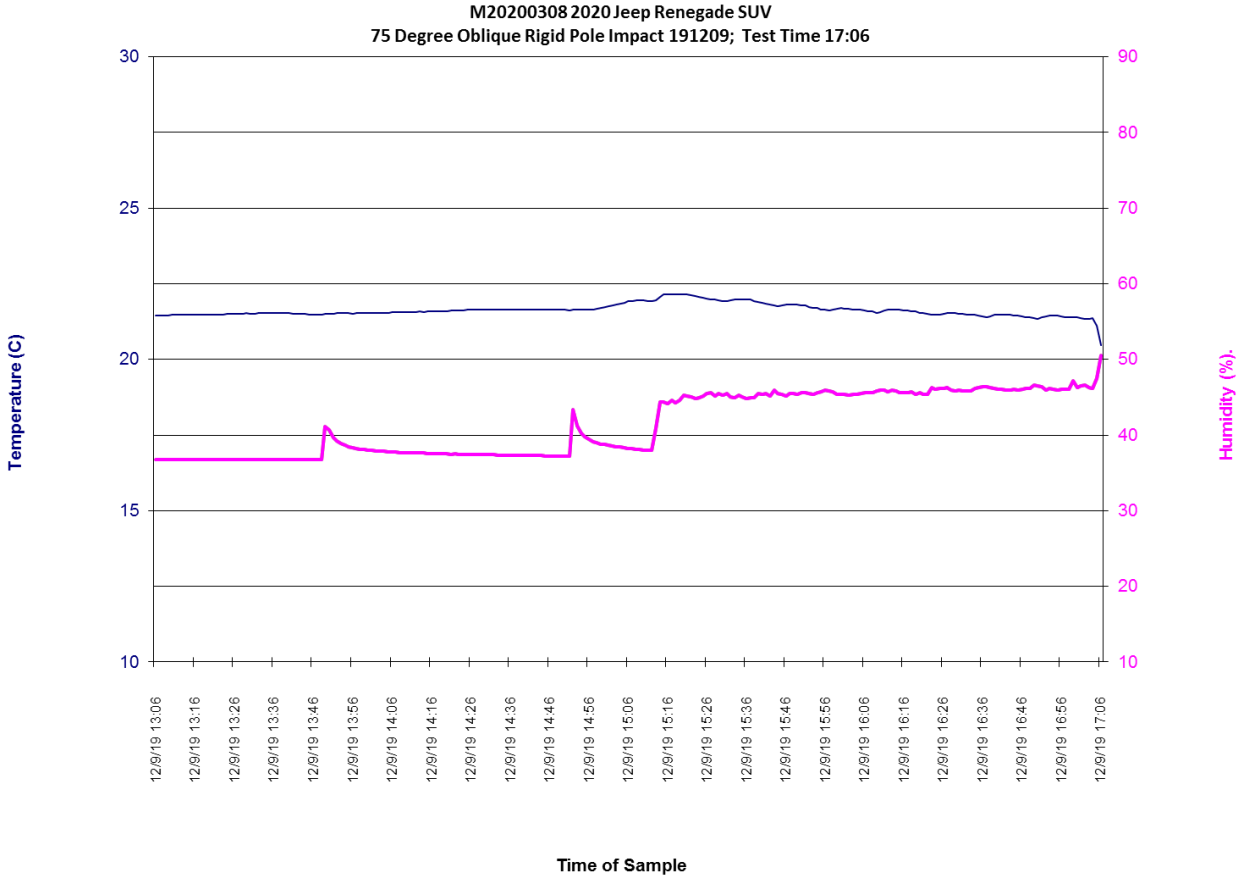
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	0	0
90 to 180	0	0	0	0
180 to 270	0	0	0	0
270 to 360	0	0	0	0

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: 2020 Jeep Renegade SUV NHTSA No.: M20200308
Test Program: SPNCAP Side Impact Test Date: 12/9/2019



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS (CONTINUED)

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

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

No. 003 Pre-Test Frontal View of Test Vehicle

No. 004 Post-Test Frontal View of Test Vehicle

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

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

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

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

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

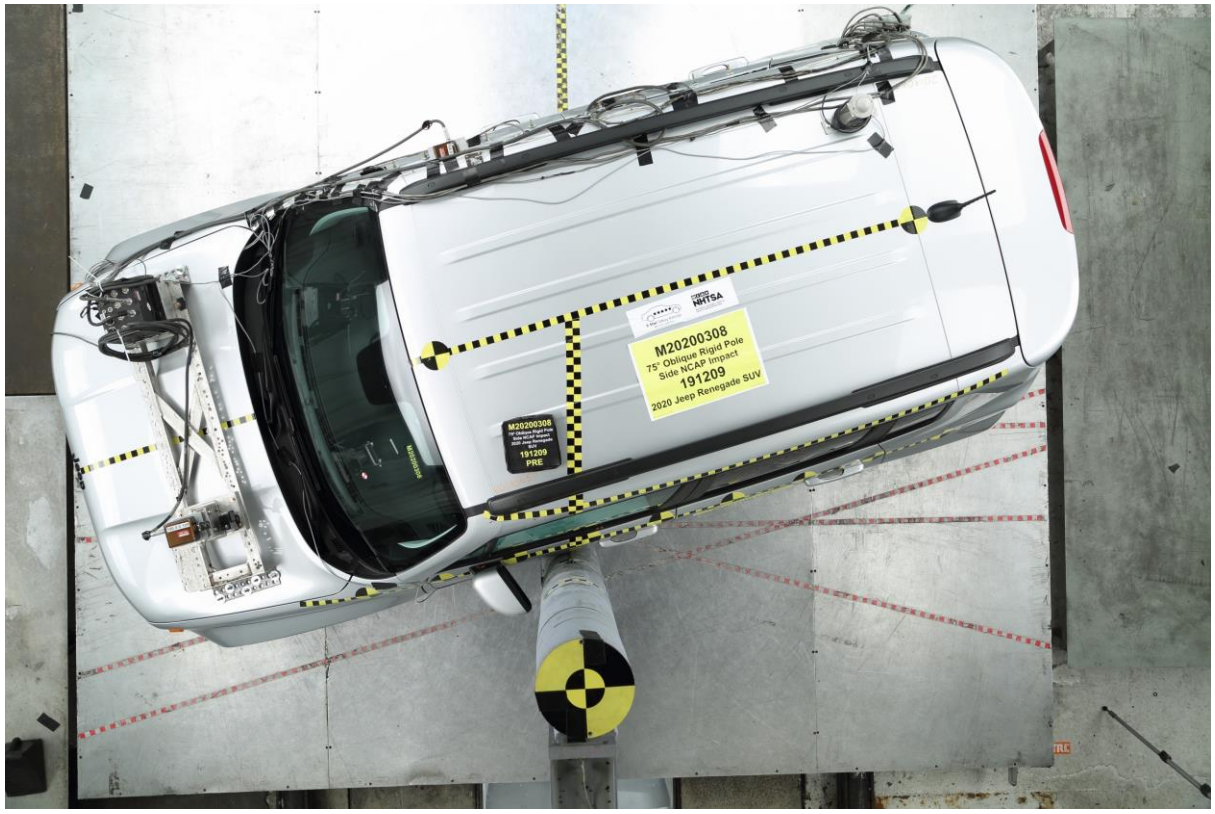
No. 010 Post-Test Left Rear ¾ View of Test Vehicle

No. 011 Pre-Test Rear View of Test Vehicle

No. 012 Post-Test Rear View of Test Vehicle

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

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



No. 015 Pre-Test Overhead View of Test Area

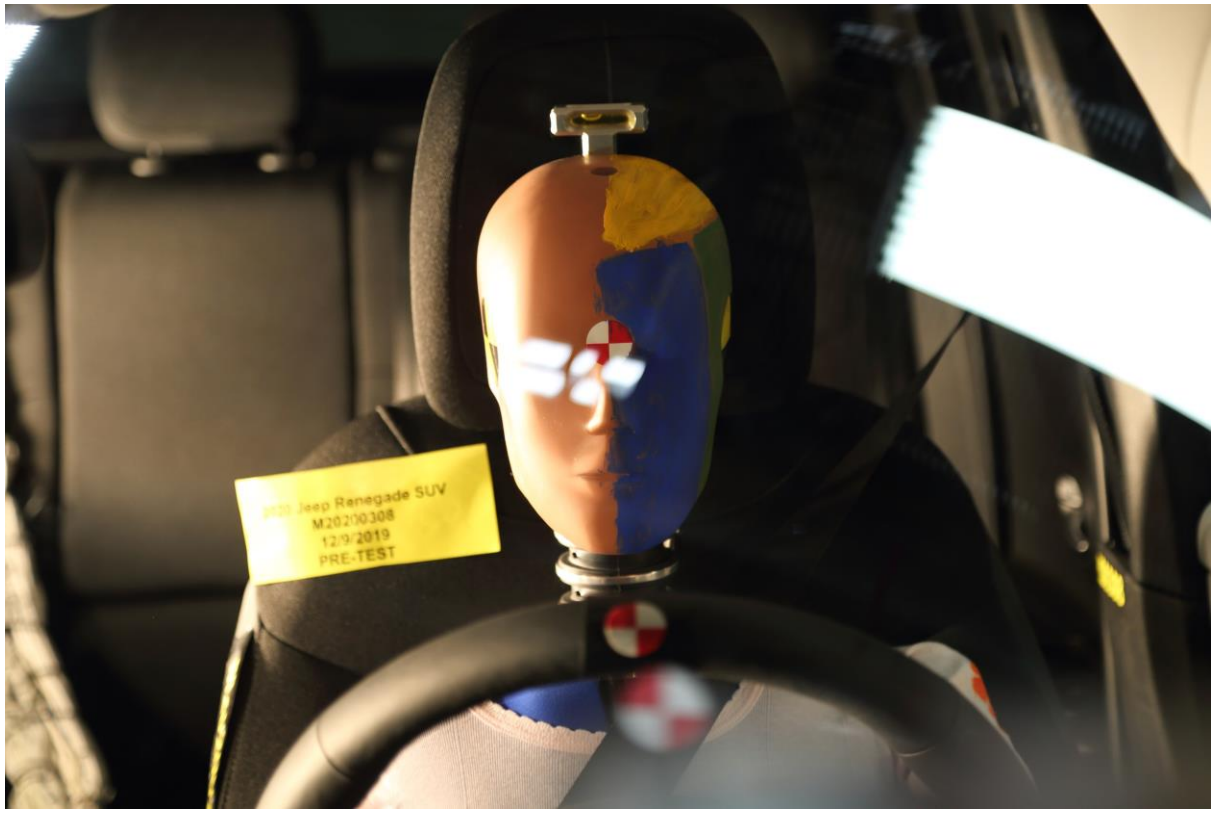
No. 016 Post-Test Overhead View of Test Area

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

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

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

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



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

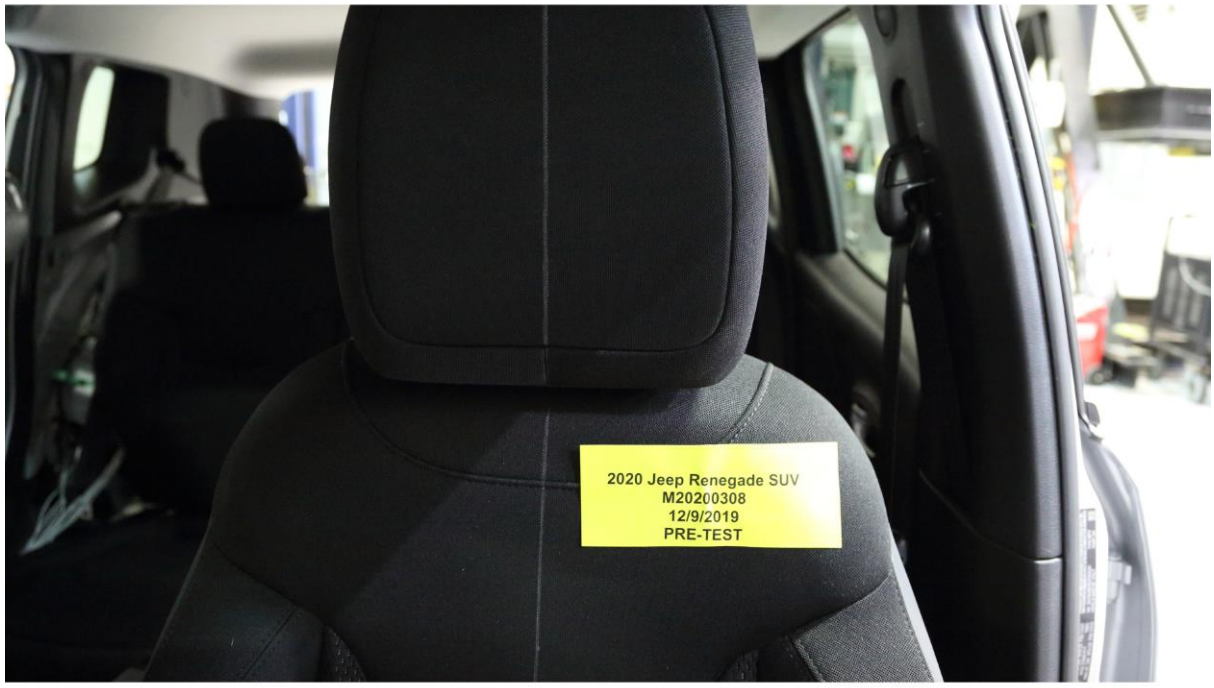
No. 022 Post-Test Front Close-Up View of Dummy

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

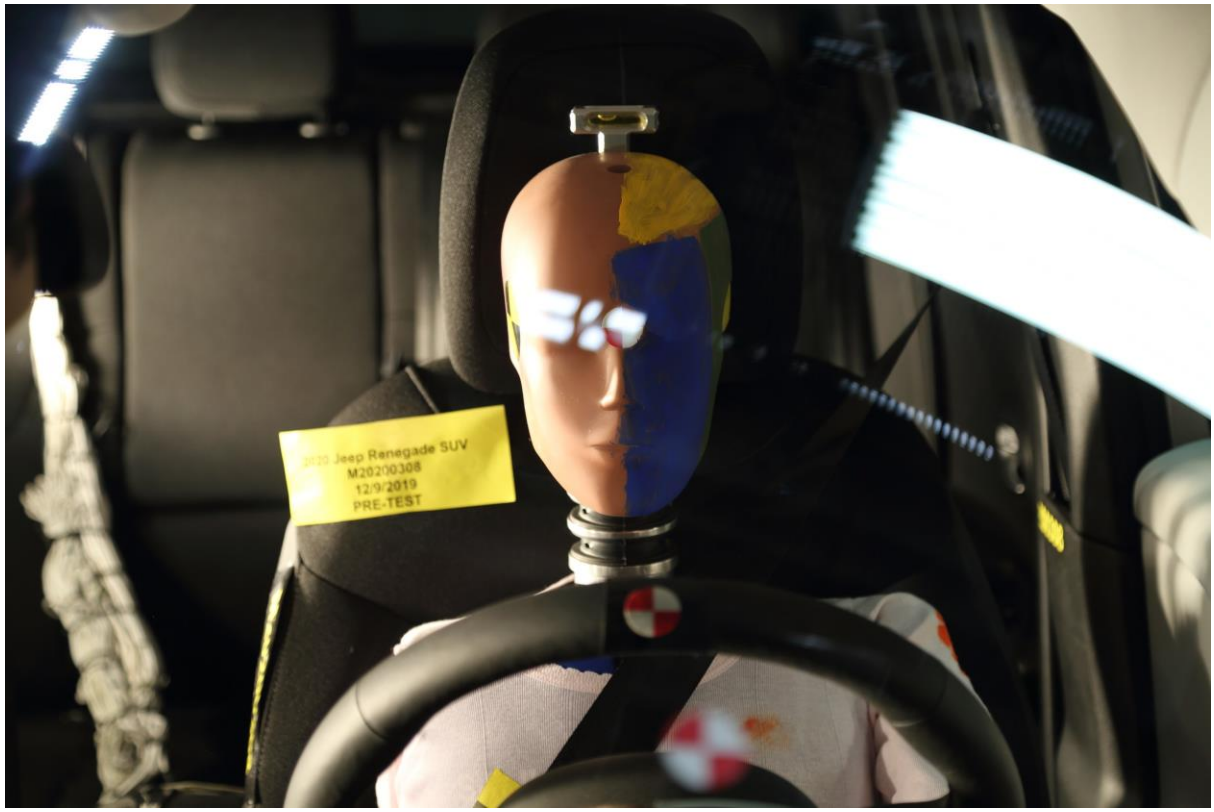
Intentionally Left Blank

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

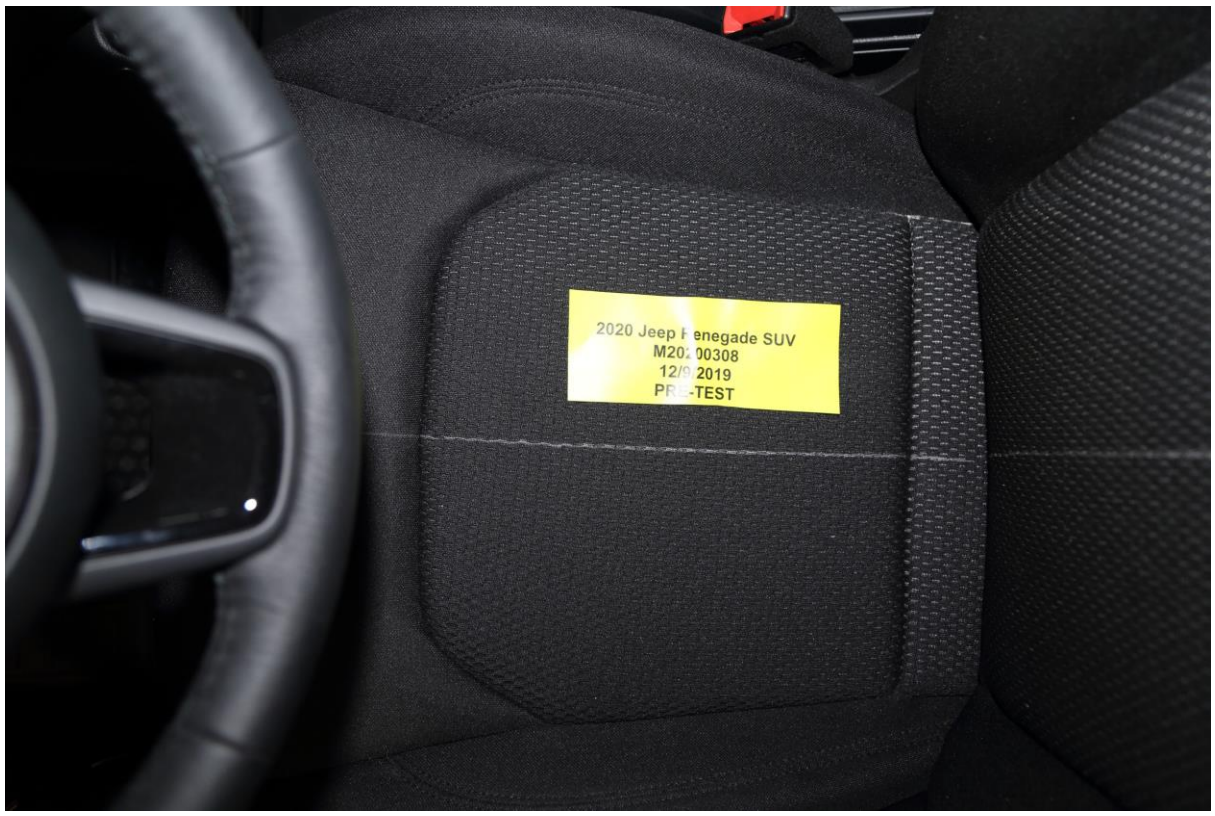
No. 025 Post-Test Left Side View of Dummy Shoulder and Door Top View



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



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



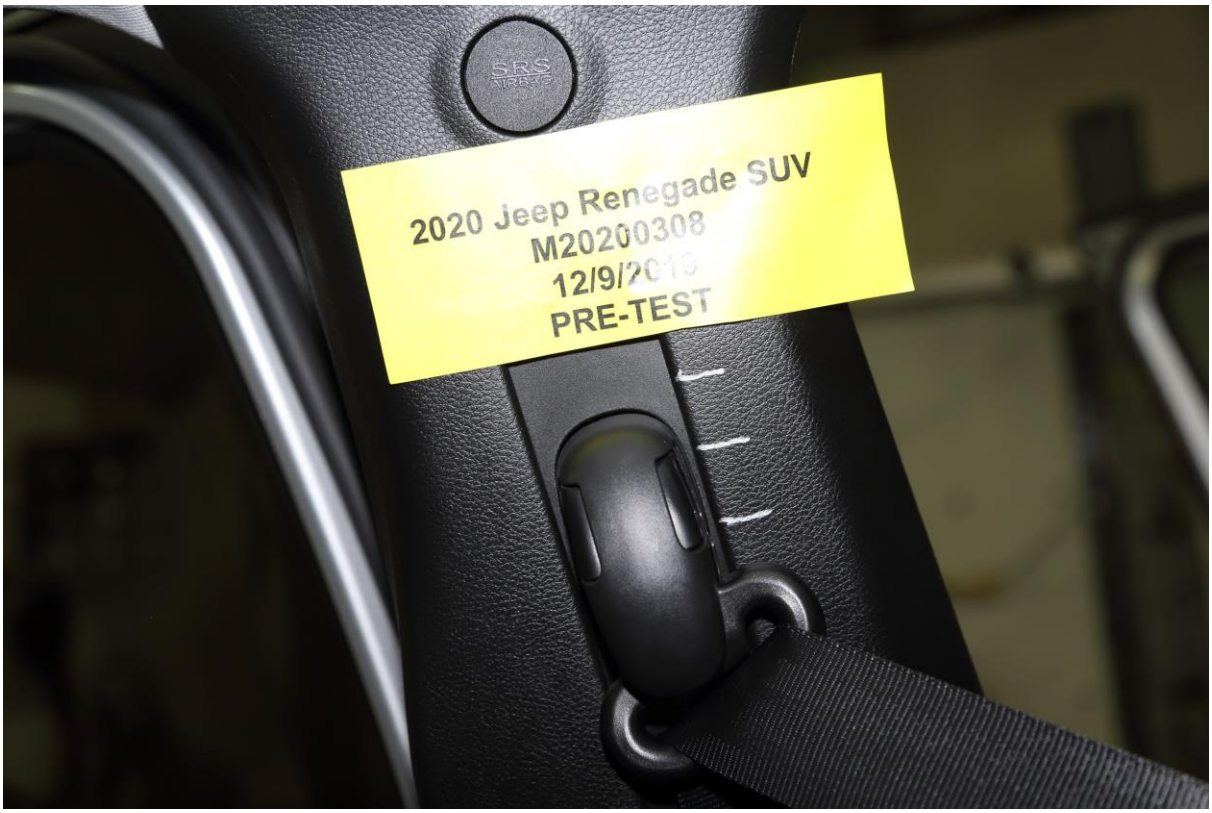
No. 028 Pre-Test Front View of Seat Pan Prior to Dummy Positioning

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

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

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

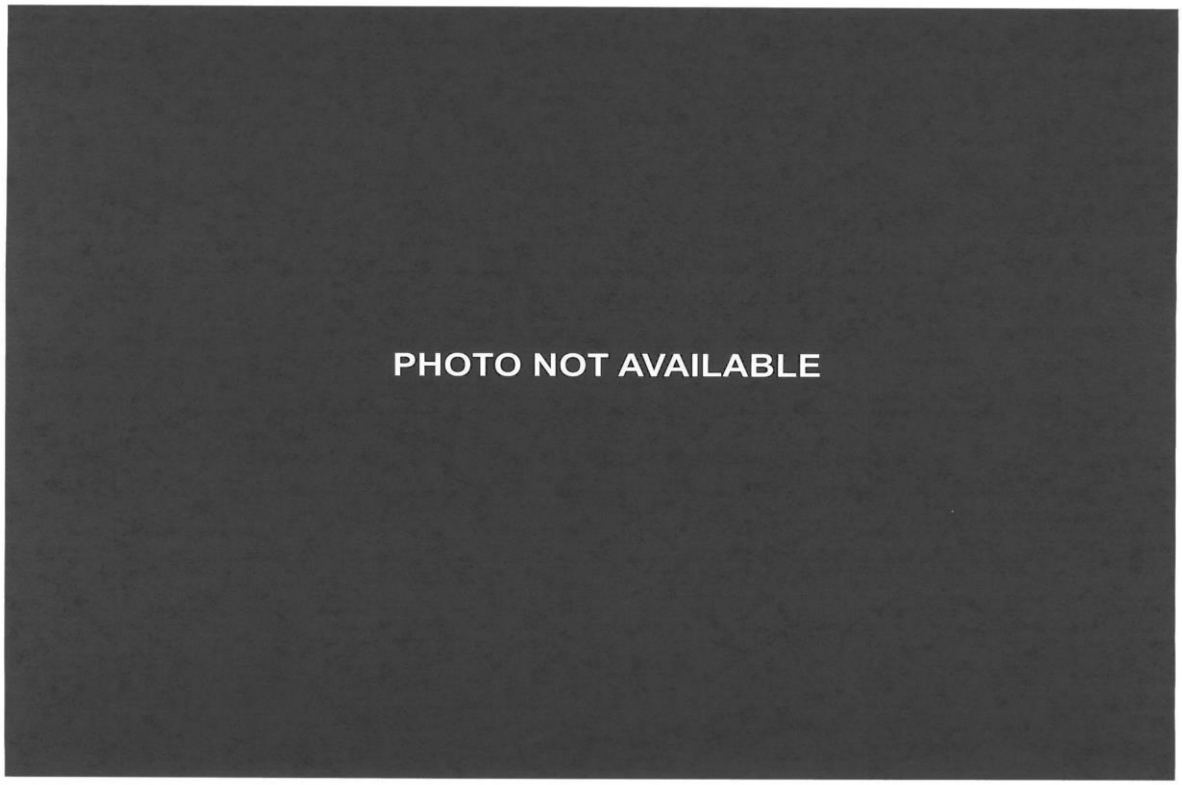
No. 032 Pre-Test Placement of Dummy Feet



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

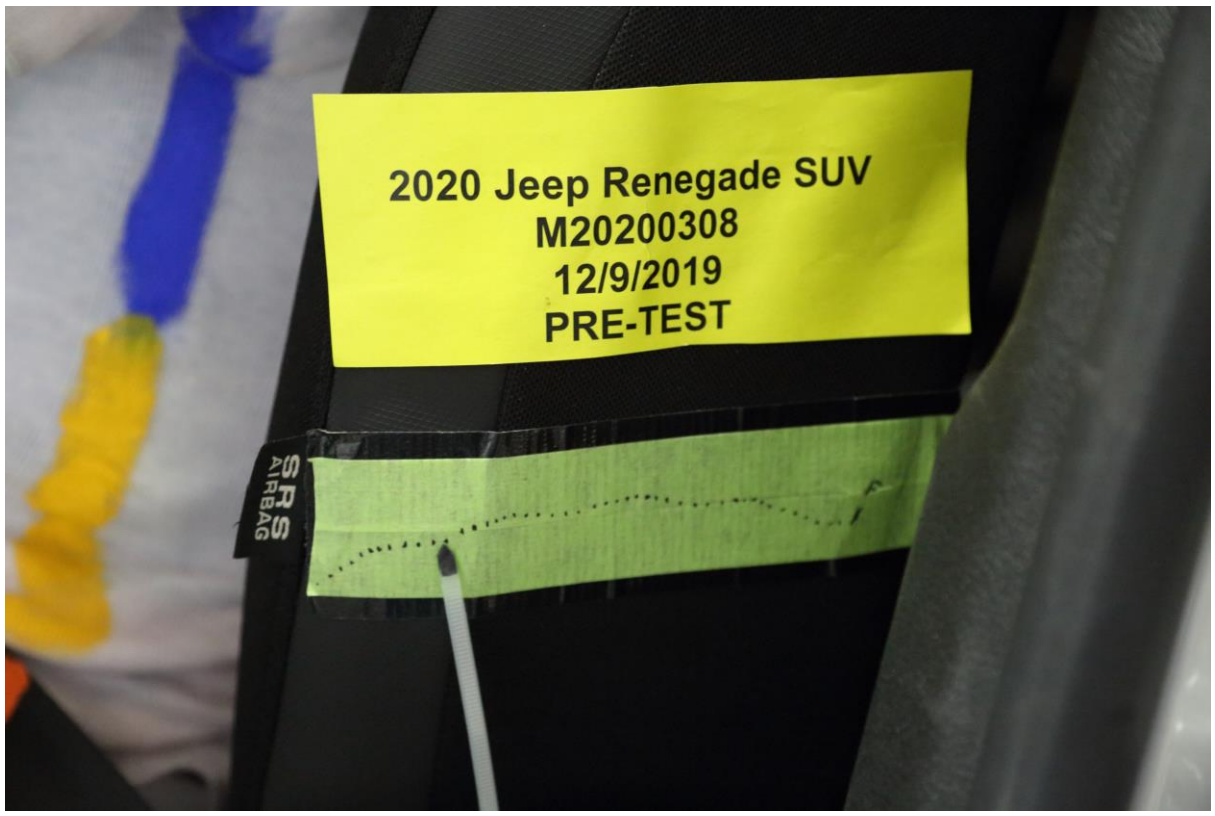
No. 034 Pre-Test Left Side View of Steering Wheel

No. 035 Pre-Test View of Disengaged Parking Brake



No. 036 Pre-Test View of Parking Brake

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



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

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

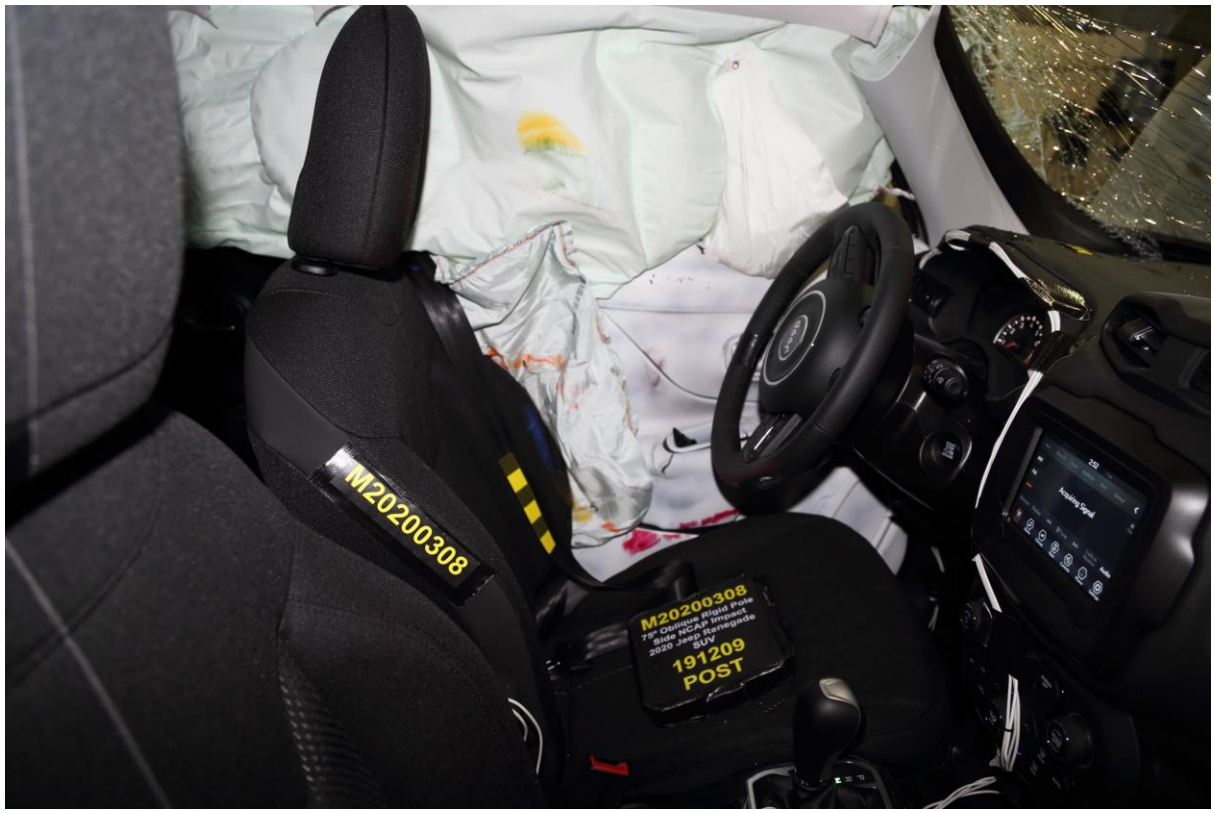
No. 040 Pre-Test Dummy and Door Clearance View

No. 041 Post-Test Dummy and Door Clearance View

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

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

No. 044 Pre-Test Inner Door Panel View



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

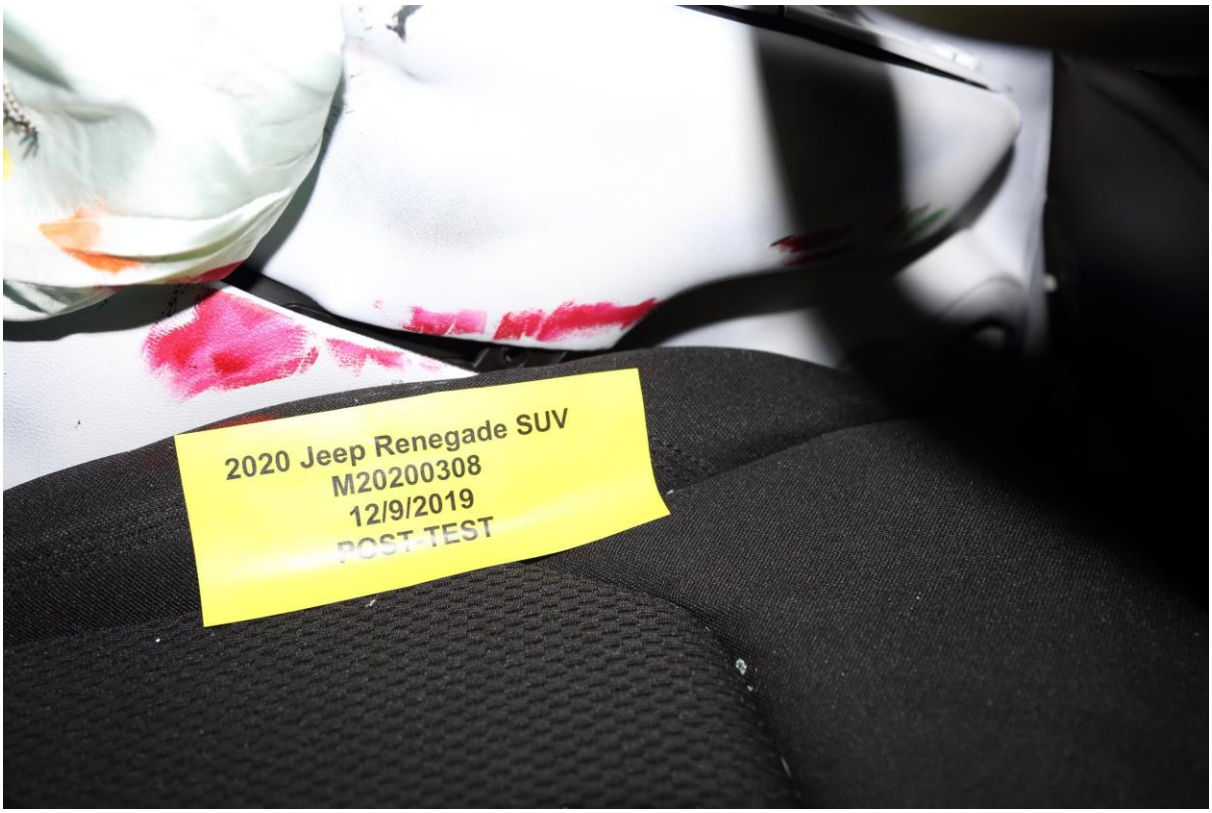
No. 046 Post-Test Dummy Close-Up Head Contact with Vehicle Interior View

Intentionally Left Blank

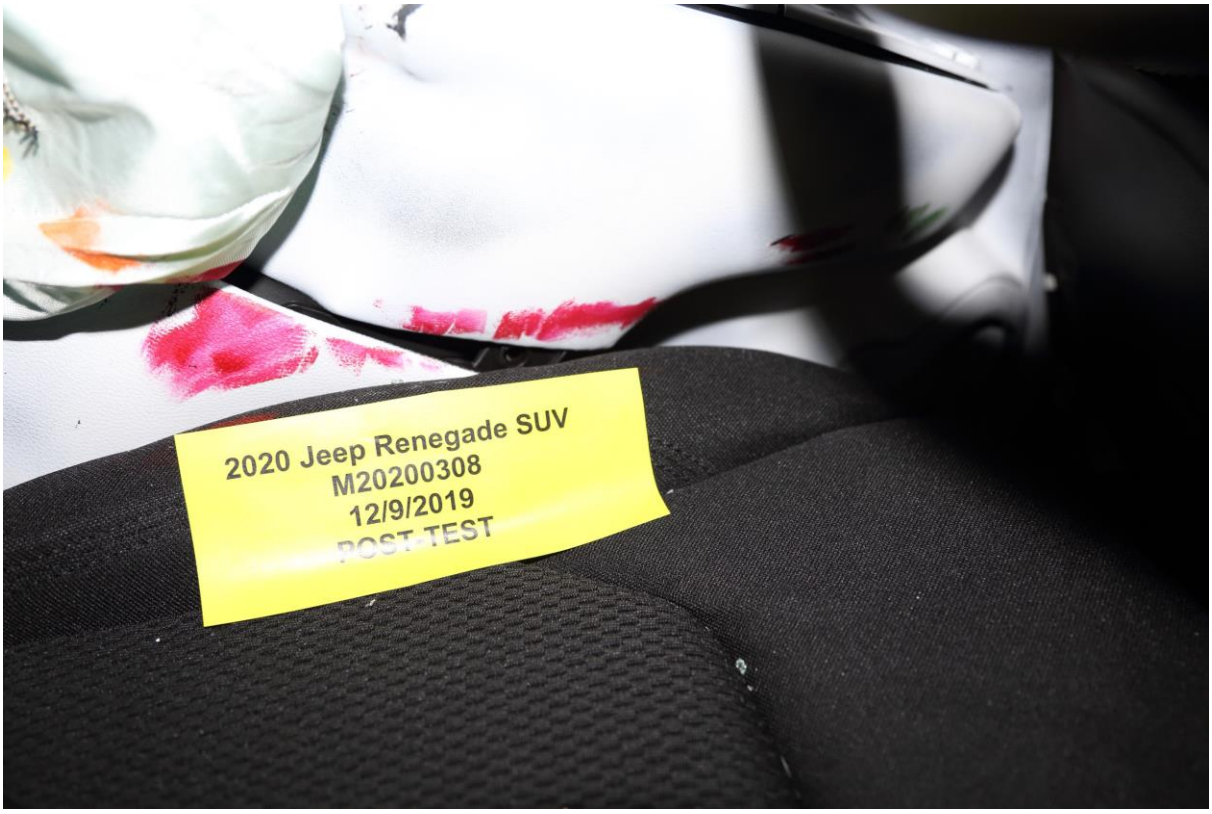
No. 047 Post-Test Dummy Close-Up Head Contact with Side Airbag View

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

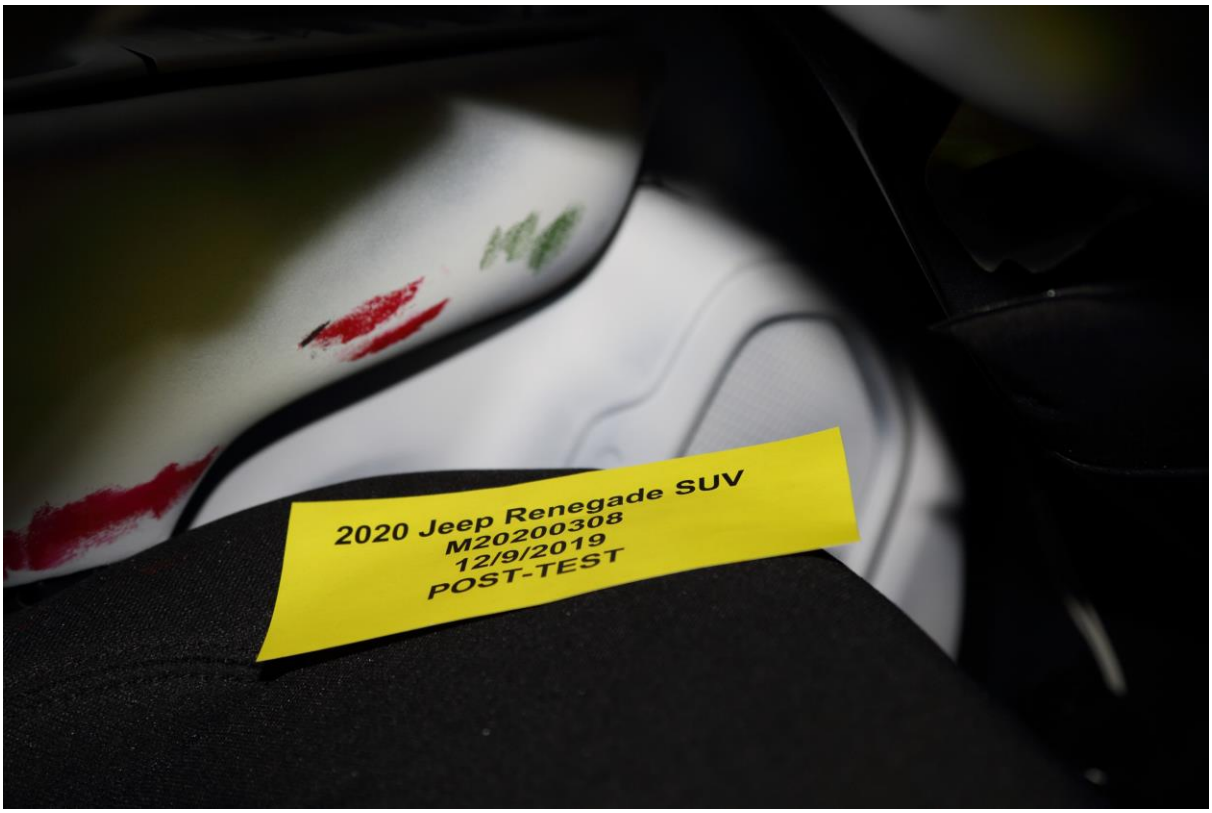
No. 049 Post-Test Dummy Close-Up Torso Contact with Side Airbag View



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



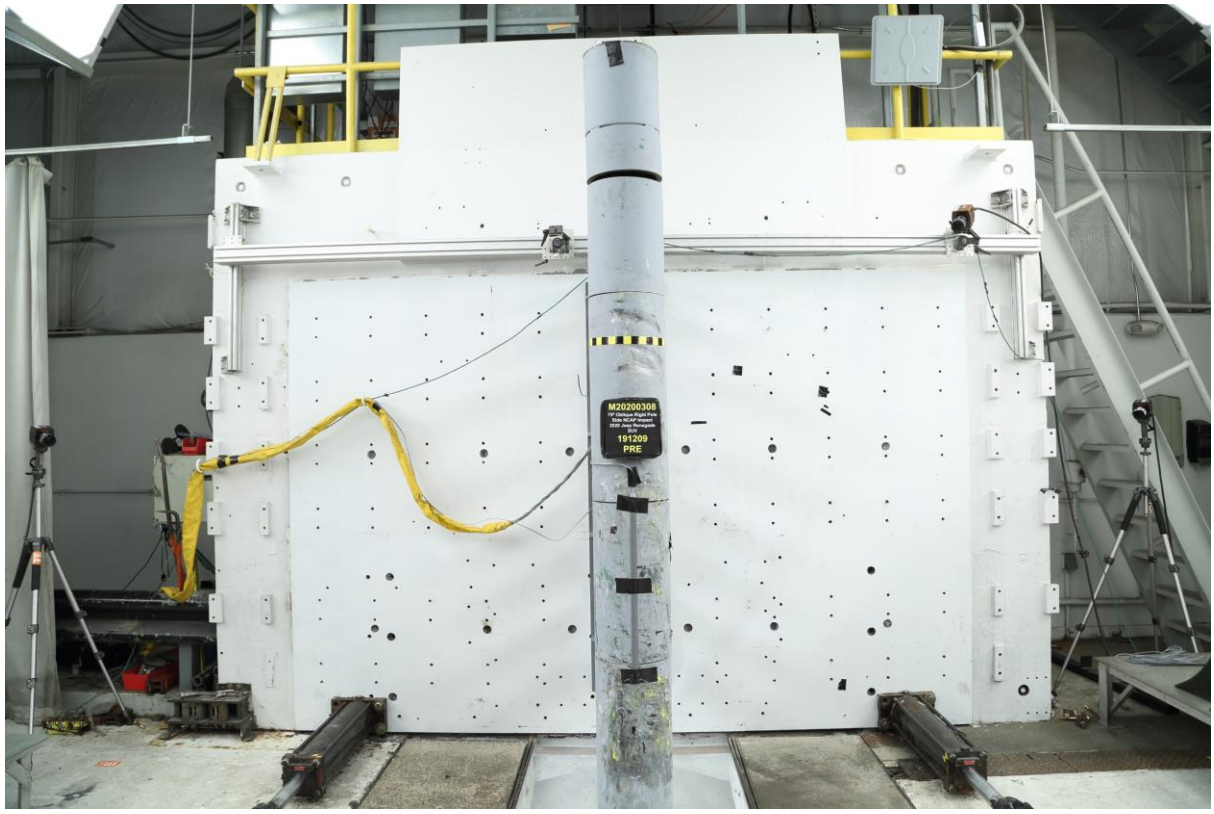
No. 052 Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View

No. 053 Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

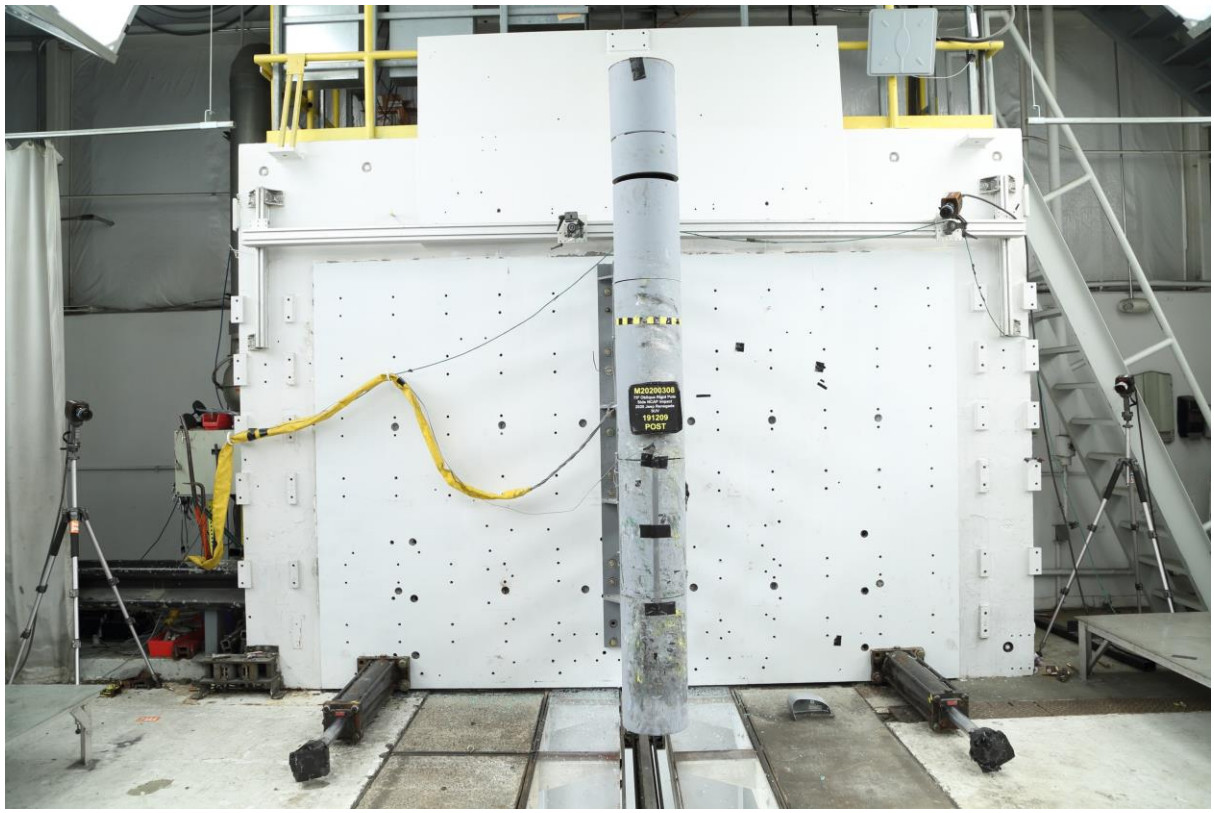
No. 054 Post-Test View of Fuel Filler Cap or Fuel Filler Neck

No. 055 Close-Up View of Vehicle Certification Label

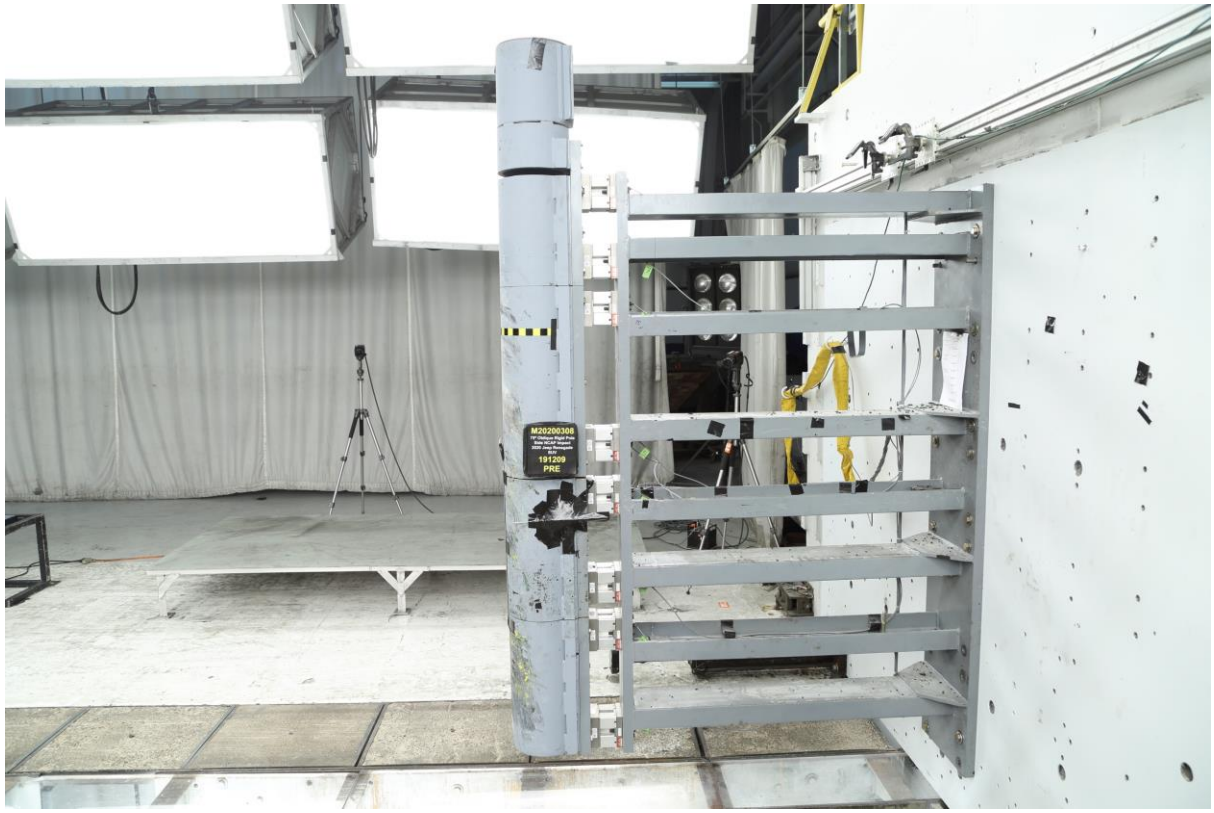
No. 056 Close-Up View of Vehicle Tire Information Placard or Label



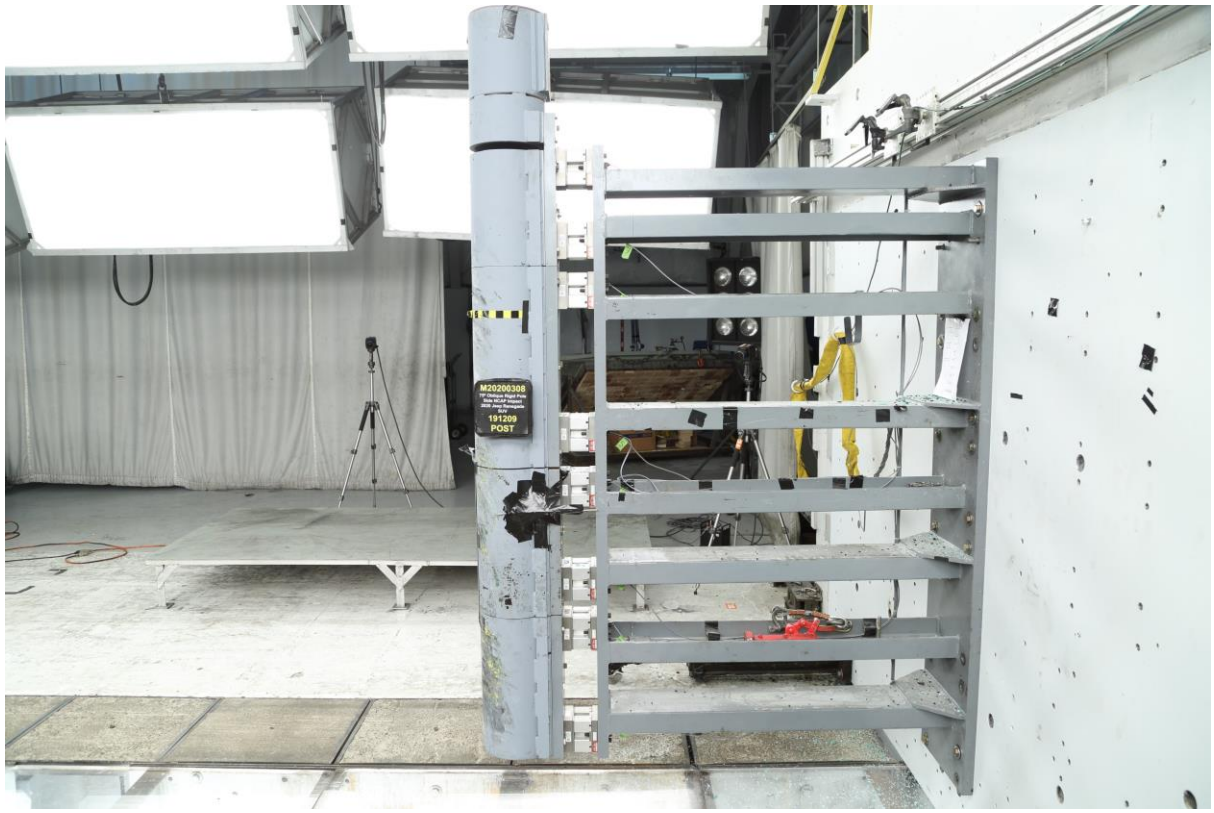
No. 057 Pre-Test Pole Barrier Front View



No. 058 Post-Test Pole Barrier Front View



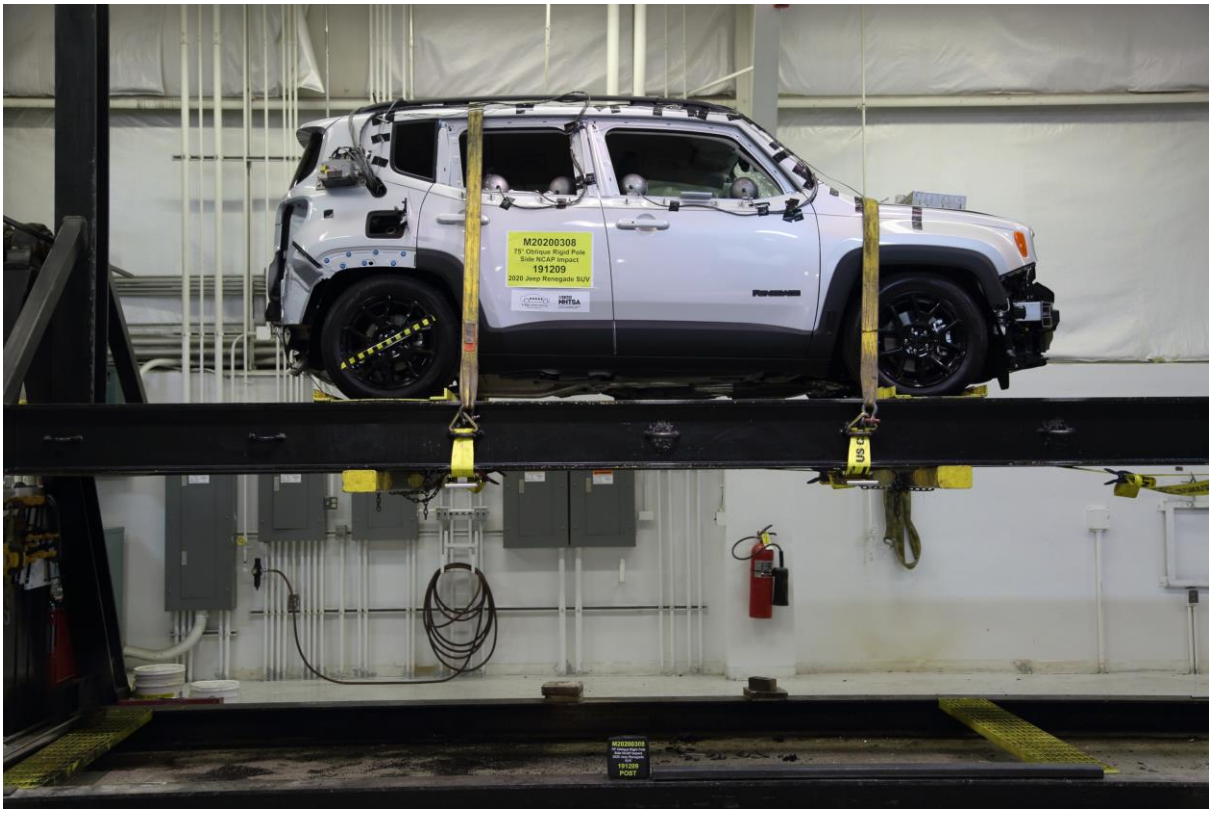
No. 059 Pre-Test Pole Barrier Side View



No. 060 Post-Test Pole Barrier Side View

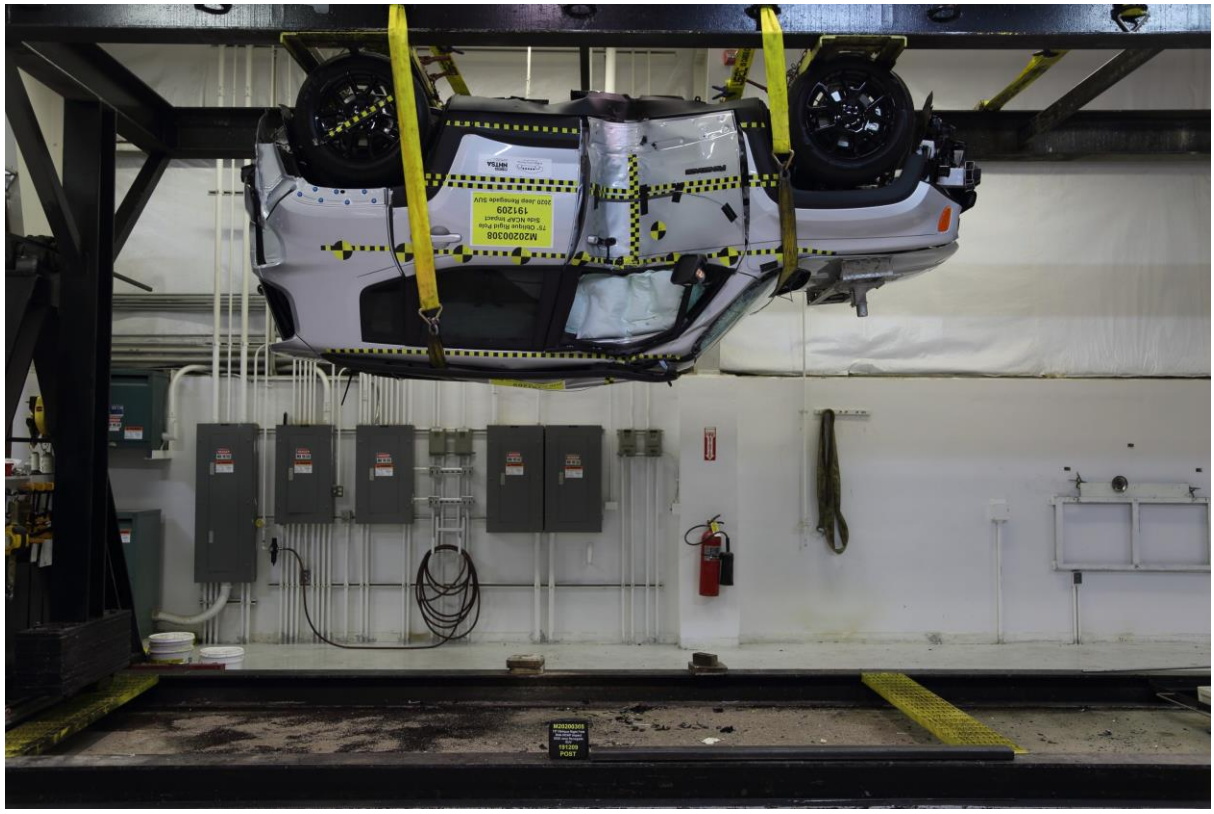
No. 061 Pre-Test Ballast View

No. 062 Post-Test Primary and Redundant Speed Trap Read Out

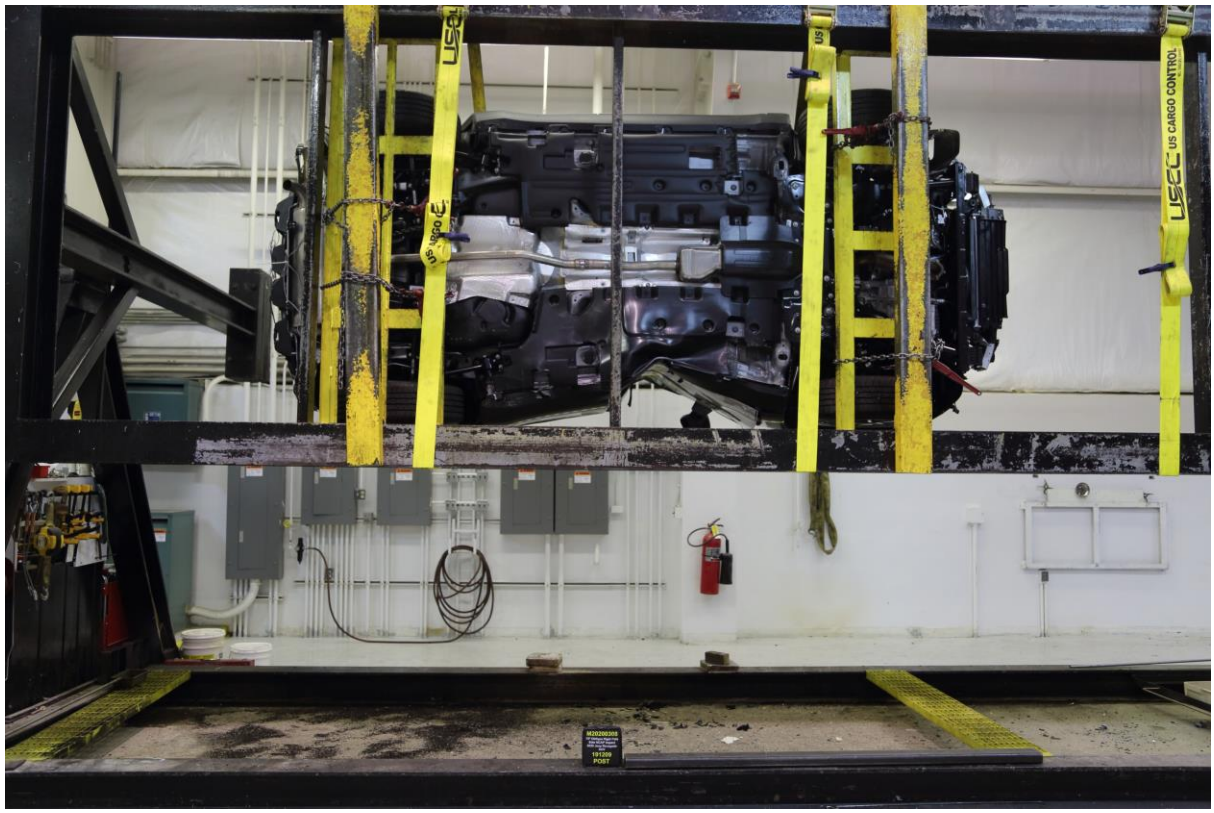


No. 063 FMVSS No. 301 Static Rollover 0 Degrees

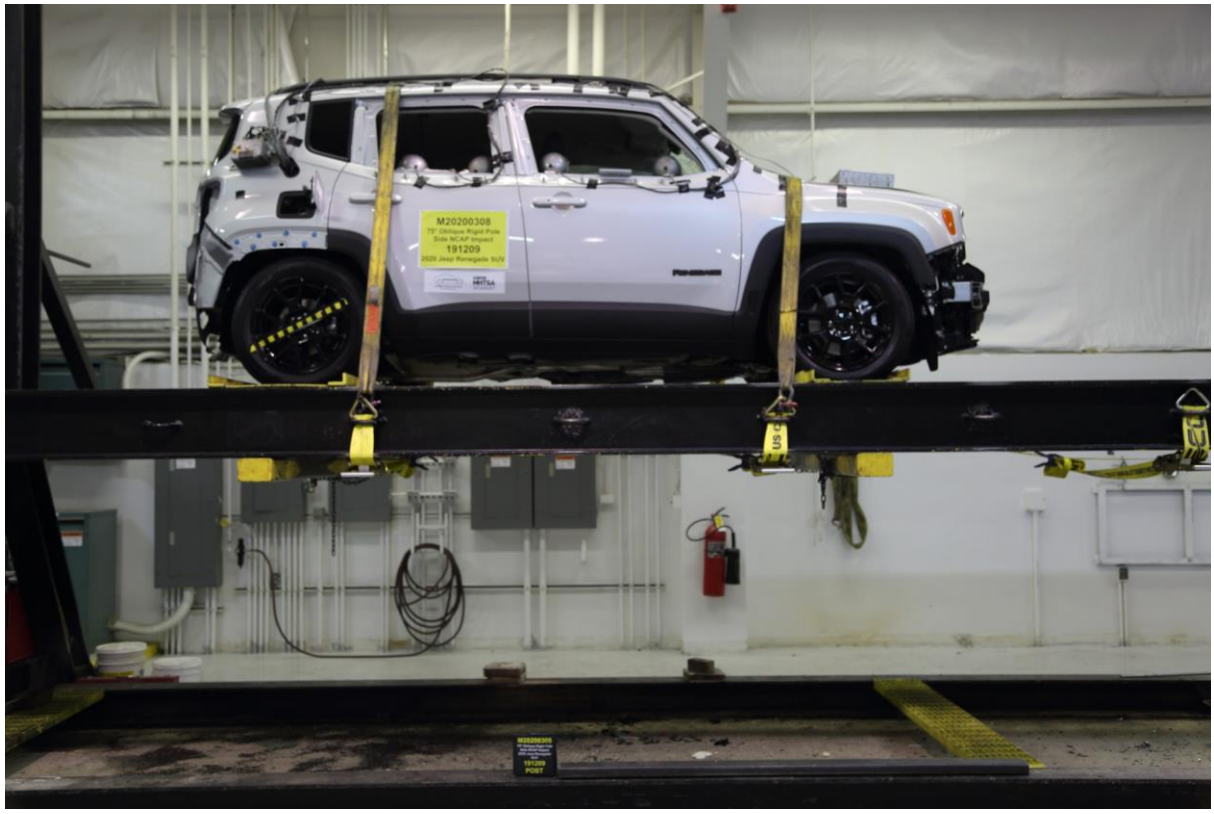
No. 064 FMVSS No. 301 Static Rollover 90 Degrees



No. 065 FMVSS No. 301 Static Rollover 180 Degrees

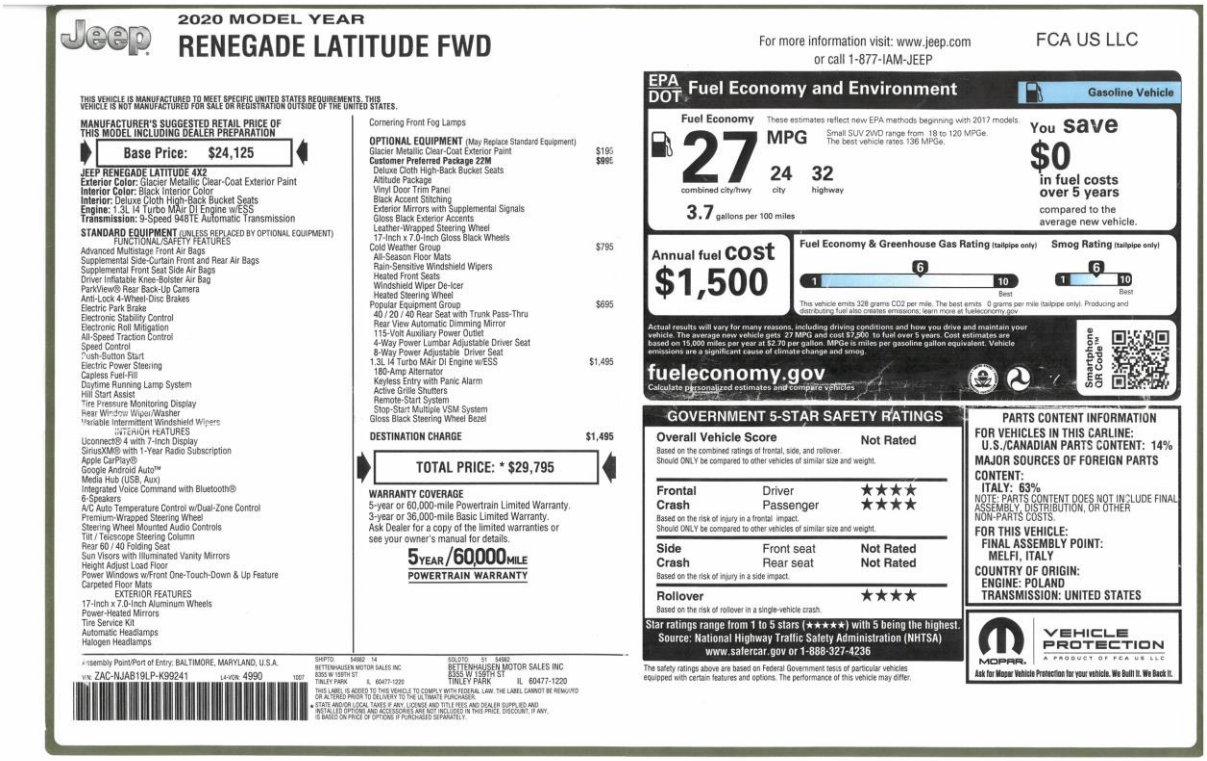


No. 066 FMVSS No. 301 Static Rollover 270 Degrees



No. 067 FMVSS No. 301 Static Rollover 360 Degrees

No. 068 Impact Event



2020 MODEL YEAR

RENEGADE LATITUDE FWD

FCA US LLC

For more information visit: www.jeep.com
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: $24,125

JEEP RENEGADE LATITUDE 4X2
Exterior Color: Glacier Metallic Clear-Coat Exterior Paint
Interior Color: Black Interior Color
Interior: Deluxe Cloth High-Back Bucket Seats
Engine: 1.3L I4 Turbo MAir DI Engine w/ESS
Transmission: 9-Speed 948TE Automatic Transmission

STANDARD EQUIPMENT (UNLESS REPLACED BY OPTIONAL EQUIPMENT)

FUNCTIONAL/SAFETY FEATURES
Advanced Multistage Front Air Bags
Supplemental Side-Curtain Front and Rear Air Bags
Supplemental Front Seat Side Air Bags
Driver Inflatable Knee-Bolster Air Bag
ParkView® Rear Back-Up Camera
Anti-Lock 4-Wheel-Disc Brakes
Electric Park Brake
Electronic Stability Control
Electronic Roll Mitigation
All-Speed Traction Control
Speed Control
Push-Button Start
Electric Power Steering
Capless Fuel-Fill
Daytime Running Lamp System
Hill Start Assist
Tire Pressure Monitoring Display
Rear Window Wiper/Washer
Variable Intermittent Windshield Wipers

INTERIOR FEATURES
Uconnect® 4 with 7-Inch Display
SiriusXM® with 1-Year Radio Subscription
Apple CarPlay®
Google Android Auto™
Media Hub (USB, Aux)
Integrated Voice Command with Bluetooth®
6-Speakers
A/C Auto Temperature Control w/Dual-Zone Control
Premium-Wrapped Steering Wheel
Steering Wheel Mounted Audio Controls
Tilt / Telescope Steering Column
Rear 60 / 40 Folding Seat
Sun Visors with Illuminated Vanity Mirrors
Height Adjust Load Floor
Power Windows w/Front One-Touch-Down & Up Feature
Carpeted Floor Mats

EXTERIOR FEATURES
17-Inch x 7.0-Inch Aluminum Wheels
Power-Heated Mirrors
Tire Service Kit
Automatic Headlamps
Halogen Headlamps
Cornering Front Fog Lamps

OPTIONAL EQUIPMENT (May Replace Standard Equipment)
Glacier Metallic Clear-Coat Exterior Paint $195
Customer Preferred Package 22M $995
Deluxe Cloth High-Back Bucket Seats
Altitude Package
Vinyl Door Trim Panel
Black Accent Stitching
Exterior Mirrors with Supplemental Signals
Gloss Black Exterior Accents
Leather-Wrapped Steering Wheel
17-Inch x 7.0-Inch Gloss Black Wheels
Cold Weather Group $795
All-Season Floor Mats
Rain-Sensitive Windshield Wipers
Heated Front Seats
Windshield Wiper De-Icer
Heated Steering Wheel
Popular Equipment Group $695
40 / 20 / 40 Rear Seat with Trunk Pass-Thru
Rear View Automatic Dimming Mirror
115-Volt Auxiliary Power Outlet
4-Way Power Lumbar Adjustable Driver Seat
8-Way Power Adjustable Driver Seat
1.3L I4 Turbo MAir DI Engine w/ESS $1,495
180-Amp Alternator
Keyless Entry with Panic Alarm
Active Grille Shutters
Remote-Start System
Stop-Start Multiple VSM System
Gloss Black Steering Wheel Bezel

DESTINATION CHARGE $1,495

TOTAL PRICE: * $29,795

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.

5YEAR/60,000MILE
POWERTRAIN WARRANTY

Assembly Point/Port of Entry: BALTIMORE, MARYLAND, U.S.A.
VIN: ZAC-NJAB19LP-K99241 (4-VDK: 4990)

SHPTO: 54882 14
BETTENHAUSEN MOTOR SALES INC
8355 W 159TH ST
TINLEY PARK IL 60477-1220

SOLDTO: ST 54882
BETTENHAUSEN MOTOR SALES INC
8355 W 159TH ST
TINLEY PARK IL 60477-1220

THIS LABEL IS AFFIXED TO THIS VEHICLE TO COMPLY WITH FEDERAL LAW. THE LABEL CANNOT BE REMOVED OR ALTERED PRIOR TO DELIVERY TO THE ULTIMATE PURCHASER.
* STATE AND/OR LOCAL TAXES IF ANY, LICENSE AND TITLE FEES AND DEALER SUPPLIED AND INSTALLED OPTIONS AND ACCESSORIES ARE NOT INCLUDED IN THIS PRICE. DISCOUNT, IF ANY, IS BASED ON PRICE OF OPTIONS IF PURCHASED SEPARATELY.

EPA DOT Fuel Economy and Environment — Gasoline Vehicle

Fuel Economy: 27 MPG combined city/hwy (24 city, 32 highway)
3.7 gallons per 100 miles
These estimates reflect new EPA methods beginning with 2017 models.
Small SUV 2WD range from 18 to 120 MPGe.
The best vehicle rates 136 MPGe.

You save $0 in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost $1,500

Fuel Economy & Greenhouse Gas Rating (tailpipe only): 6 (1 Worst, 10 Best)
Smog Rating (tailpipe only): 6 (1 Worst, 10 Best)

This vehicle emits 328 grams CO2 per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions; learn more at fueleconomy.gov

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 27 MPG and cost $7,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at $2.70 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fueleconomy.gov
Calculate personalized estimates and compare vehicles

Smartphone QR Code™

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score: Not Rated
Based on the combined ratings of frontal, side, and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash — Driver ★★★★ / Passenger ★★★★
Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.

Side Crash — Front seat: Not Rated / Rear seat: Not Rated
Based on the risk of injury in a side impact.

Rollover: ★★★★
Based on the risk of rollover in a single-vehicle crash.

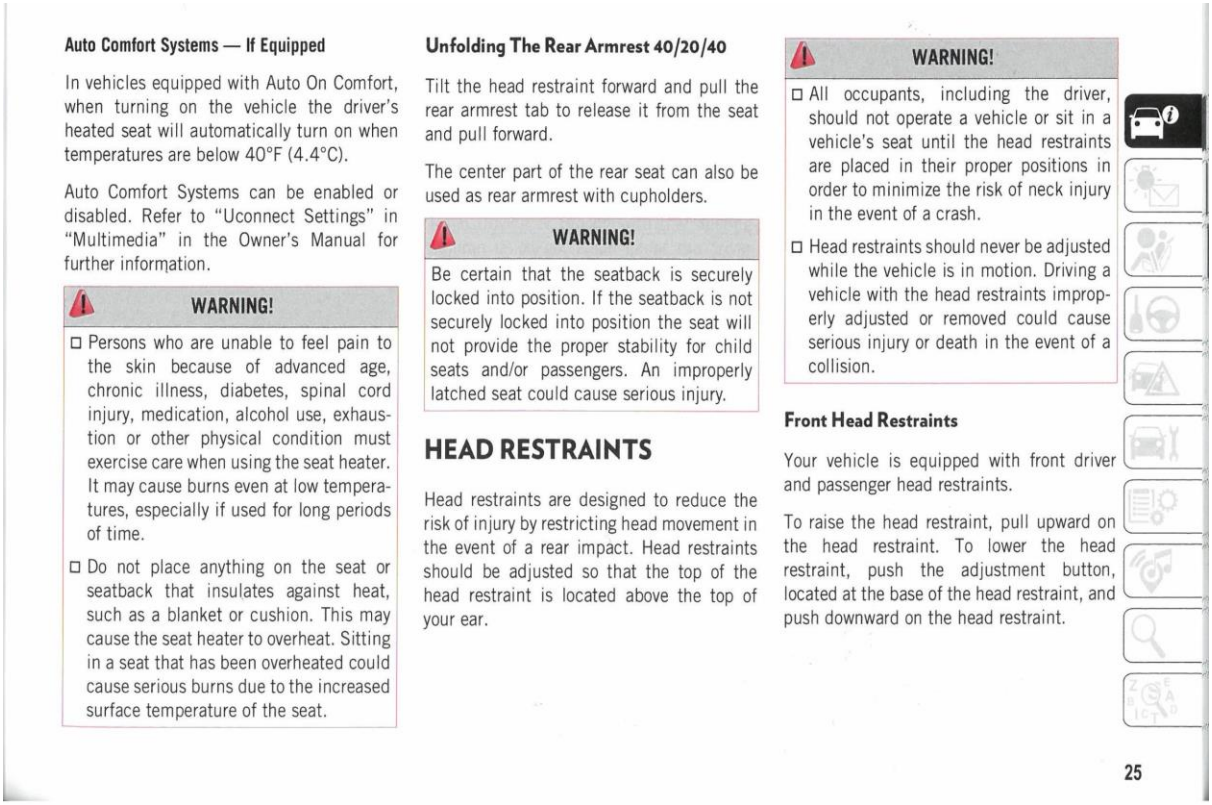
Star ratings range from 1 to 5 stars (★★★★★) with 5 being the highest.
Source: National Highway Traffic Safety Administration (NHTSA)
www.safercar.gov or 1-888-327-4236

The safety ratings above are based on Federal Government tests of particular vehicles equipped with certain features and options. The performance of this vehicle may differ.

PARTS CONTENT INFORMATION
FOR VEHICLES IN THIS CARLINE:
U.S./CANADIAN PARTS CONTENT: 14%
MAJOR SOURCES OF FOREIGN PARTS CONTENT:
ITALY: 63%
NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS.
FOR THIS VEHICLE:
FINAL ASSEMBLY POINT:
MELFI, ITALY
COUNTRY OF ORIGIN:
ENGINE: POLAND
TRANSMISSION: UNITED STATES

MOPAR VEHICLE PROTECTION
A PRODUCT OF FCA US LLC
Ask for Mopar Vehicle Protection for your vehicle. We Built It. We Back It.

No. 069 Monroney Label



Auto Comfort Systems — If Equipped

In vehicles equipped with Auto On Comfort, when turning on the vehicle the driver's heated seat will automatically turn on when temperatures are below 40°F (4.4°C).

Auto Comfort Systems can be enabled or disabled. Refer to "Uconnect Settings" in "Multimedia" in the Owner's Manual for further information.

WARNING!

- Persons who are unable to feel pain to the skin because of advanced age, chronic illness, diabetes, spinal cord injury, medication, alcohol use, exhaustion or other physical condition must exercise care when using the seat heater. It may cause burns even at low temperatures, especially if used for long periods of time.
- Do not place anything on the seat or seatback that insulates against heat, such as a blanket or cushion. This may cause the seat heater to overheat. Sitting in a seat that has been overheated could cause serious burns due to the increased surface temperature of the seat.

Unfolding The Rear Armrest 40/20/40

Tilt the head restraint forward and pull the rear armrest tab to release it from the seat and pull forward.

The center part of the rear seat can also be used as rear armrest with cupholders.

WARNING!

Be certain that the seatback is securely locked into position. If the seatback is not securely locked into position the seat will not provide the proper stability for child seats and/or passengers. An improperly latched seat could cause serious injury.

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.

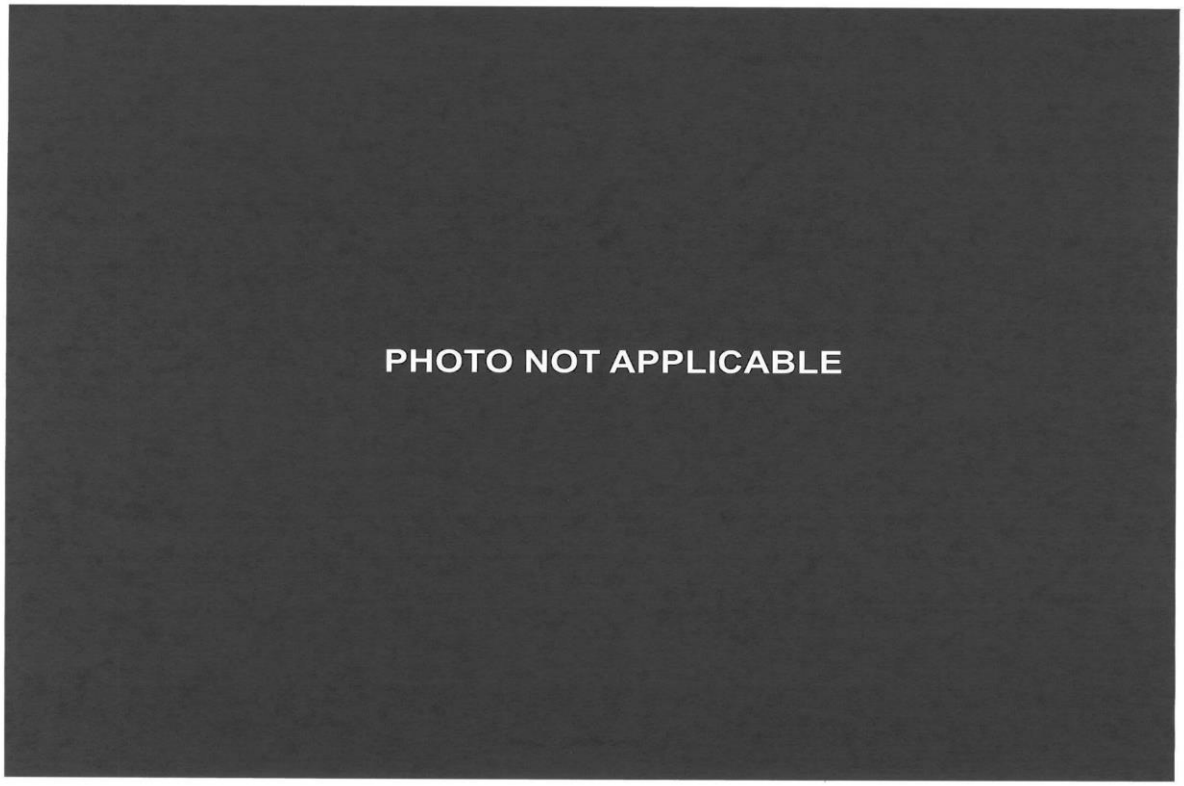
Front Head Restraints

Your vehicle is equipped with front 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.

25

No. 070 Head Restraint Use and Adjustment Information from Vehicle Owner Manual



No. 071 Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

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

Additional Driver Dummy Instrumentation Data

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

Vehicle Instrumentation Data

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

Pole Instrumentation Data

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

NHTSA

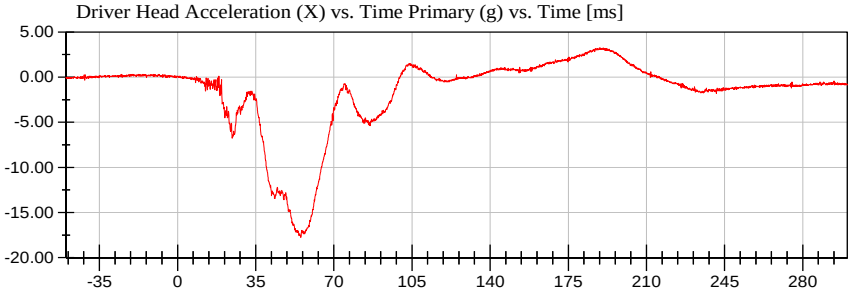
Test Date: 12/09/2019

Position #1 SID IIs Dummy (297)

Test Lab: CTF

Test Number: 191209 (M20200308)

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



<Max>

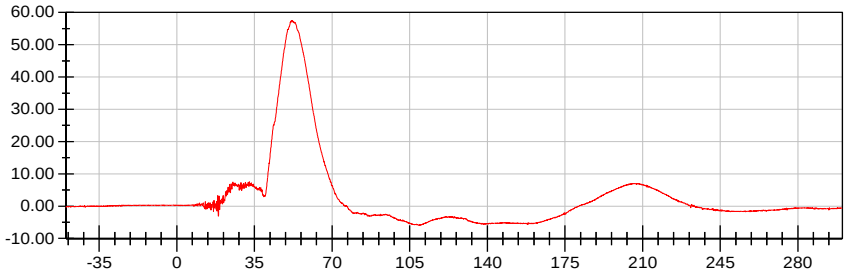
3.22 g at 188.88 ms

<Min>

-17.76 g at 55.12 ms

CFC_1000

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



<Max>

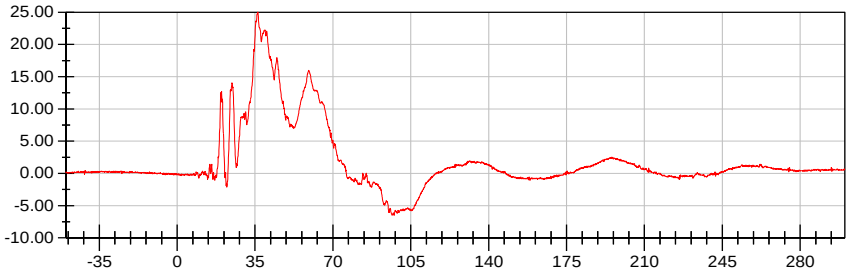
57.52 g at 51.68 ms

<Min>

-5.93 g at 108.80 ms

CFC_1000

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



<Max>

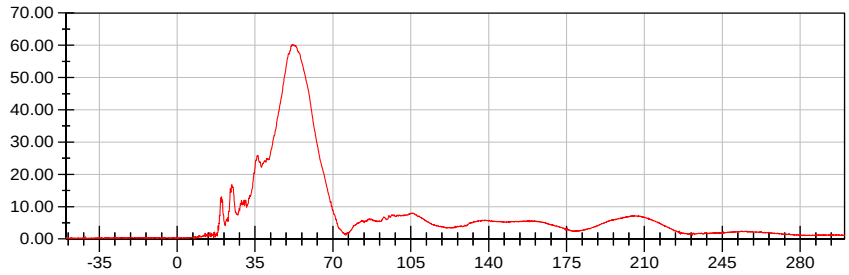
25.00 g at 36.24 ms

<Min>

-6.52 g at 96.56 ms

CFC_1000

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



<Max>

60.26 g at 51.68 ms

<Min>

0.09 g at -49.36 ms

CFC_1000

NHTSA

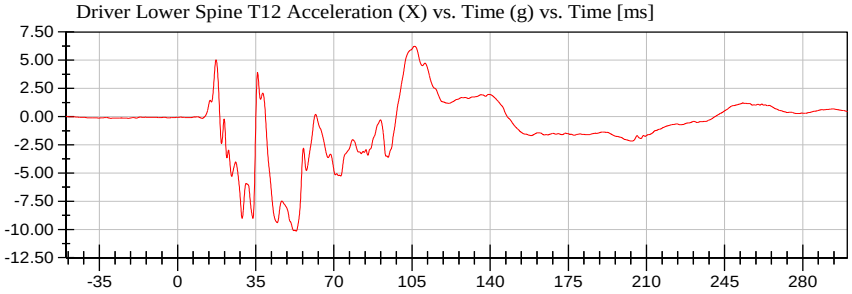
Test Date: 12/09/2019

Position #1 SID IIs Dummy (297)

Test Lab: CTF

Test Number: 191209 (M20200308)

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



<Max>

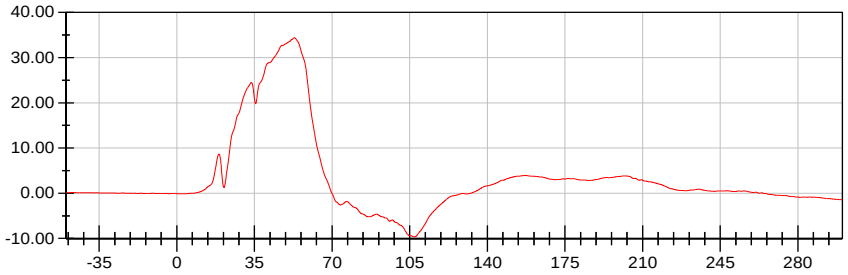
6.23 g at 106.16 ms

<Min>

-10.14 g at 53.12 ms

CFC_180

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



<Max>

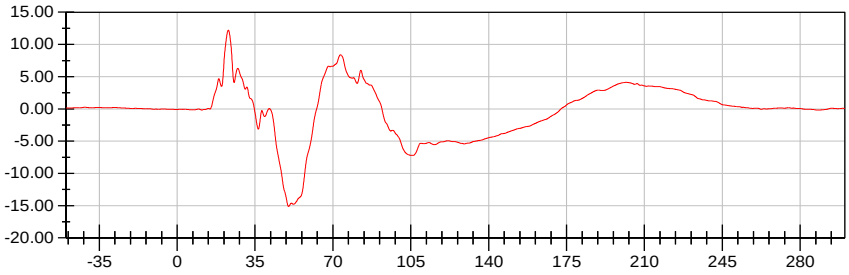
34.41 g at 53.04 ms

<Min>

-9.62 g at 107.04 ms

CFC_180

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



<Max>

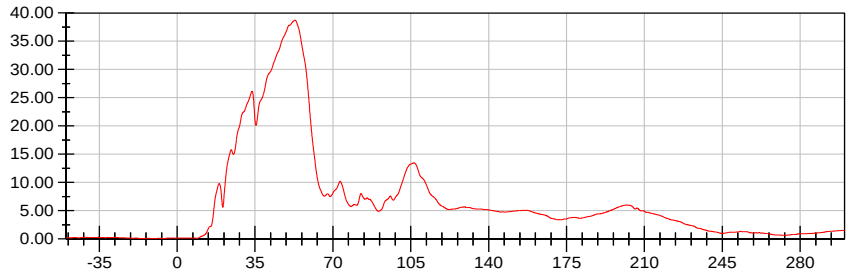
12.22 g at 23.04 ms

<Min>

-15.13 g at 50.08 ms

CFC_180

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



<Max>

38.74 g at 52.96 ms

<Min>

0.07 g at -11.44 ms

CFC_180

NHTSA

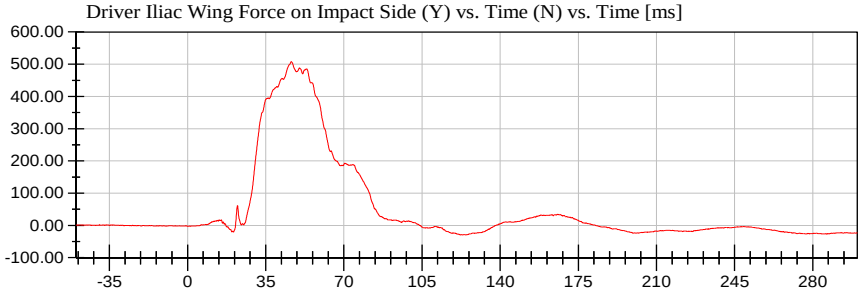
Test Date: 12/09/2019

Position #1 SID IIs Dummy (297)

Test Lab: CTF

Test Number: 191209 (M20200308)

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



<Max>

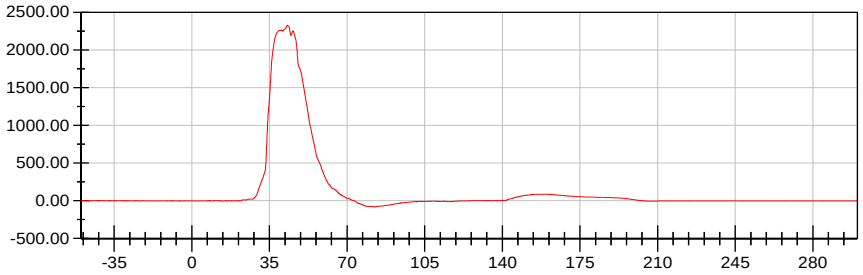
507.96 N at 46.48 ms

<Min>

-29.75 N at 123.12 ms

CFC_600

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



<Max>

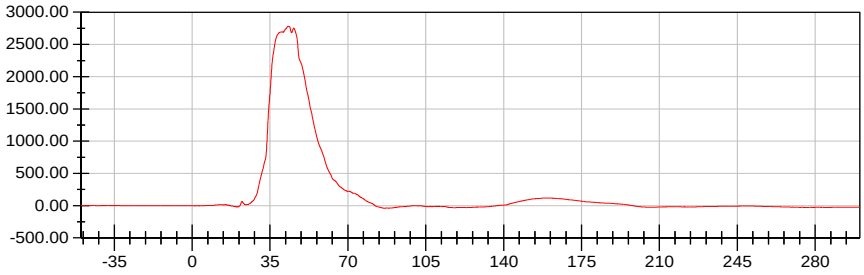
2,327.93 N at 43.04 ms

<Min>

-81.26 N at 82.32 ms

CFC_600

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



<Max>

2,781.57 N at 43.12 ms

<Min>

-39.74 N at 86.48 ms

CFC_600

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

Pre-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No. 43

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	781	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	879	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. 43-1
Test Date: 12/4/2019

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	134.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-7.0 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	0.89 %	Yes

Test meets specifications.

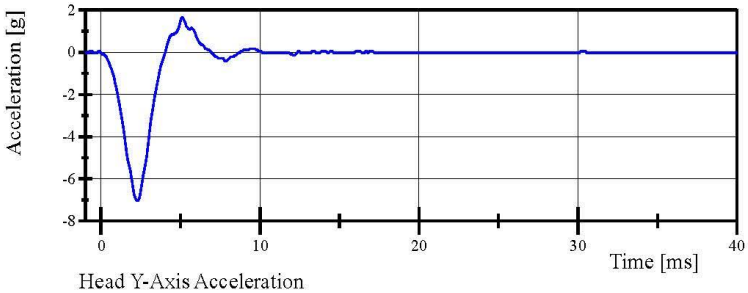
Condition: Used

Comments:
Head S/N: 1330

Transportation Research Center Inc.

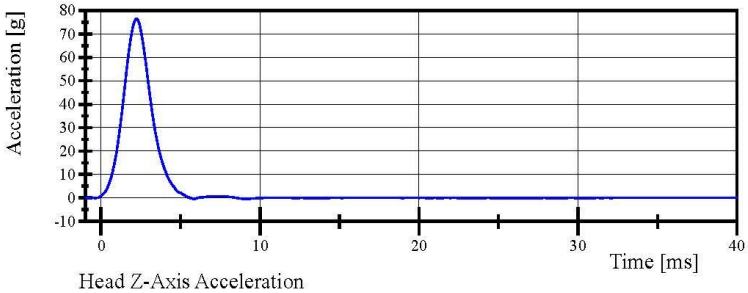
Left Lateral Head Drop
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Head X-Axis Acceleration



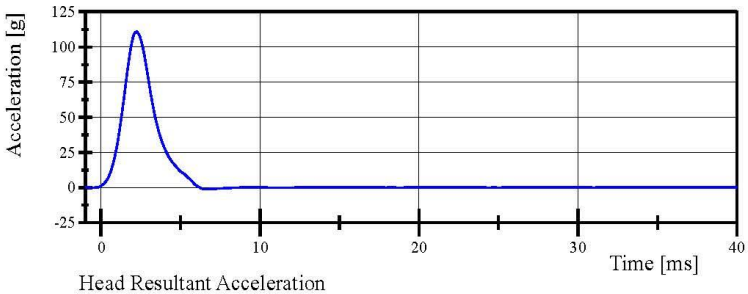
Filter Class: CFC_1000
Max: 1.7 g at 5.1 ms
Min: -7.0 g at 2.2 ms

Head Y-Axis Acceleration



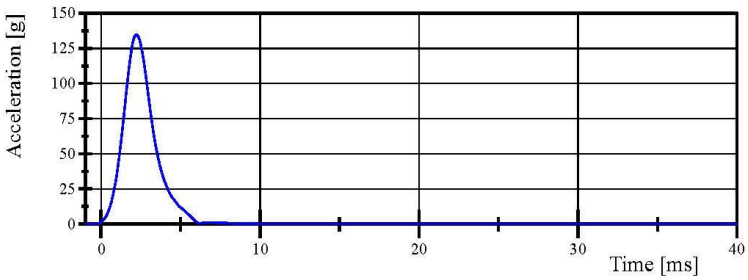
Filter Class: CFC_1000
Max: 76.5 g at 2.2 ms
Min: -0.4 g at 5.8 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 110.9 g at 2.2 ms
Min: -1.1 g at 6.6 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 134.9 g at 2.2 ms
Min: 0.0 g at -1.0 ms

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

12.04.2019 11:37:46 201

Transportation Research Center Inc.

Left Lateral Neck
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/5/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.599 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	2.20 - 2.80 m/s	2.457 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.631 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.873 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.822 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.882 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-76.9 deg	Yes
Time of Peak	50 - 70 ms	61.6 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	41.2 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	120.6 ms	Yes

Test meets specifications.

Condition: Used

Comments:
Neck S/N: 779

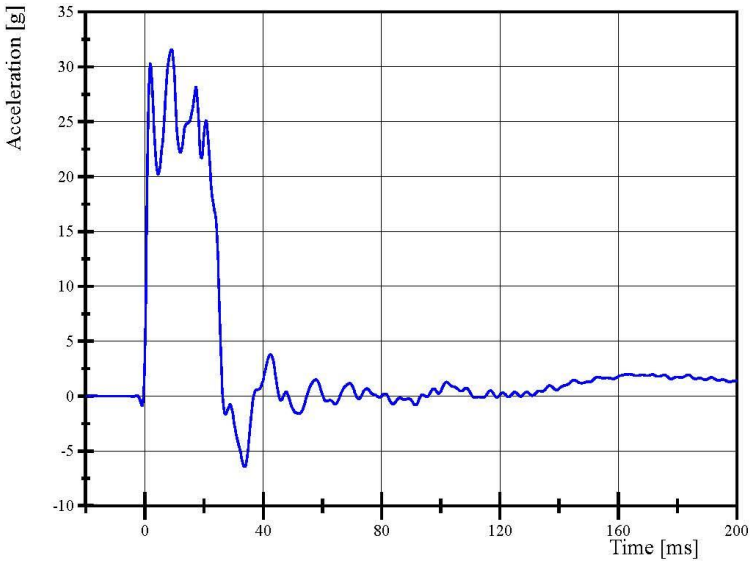
Specification Source: CFR49 Part 572 Subpart V with Polarity in accordance with J211

12.05.2019 08:55:01 718

Transportation Research Center Inc.

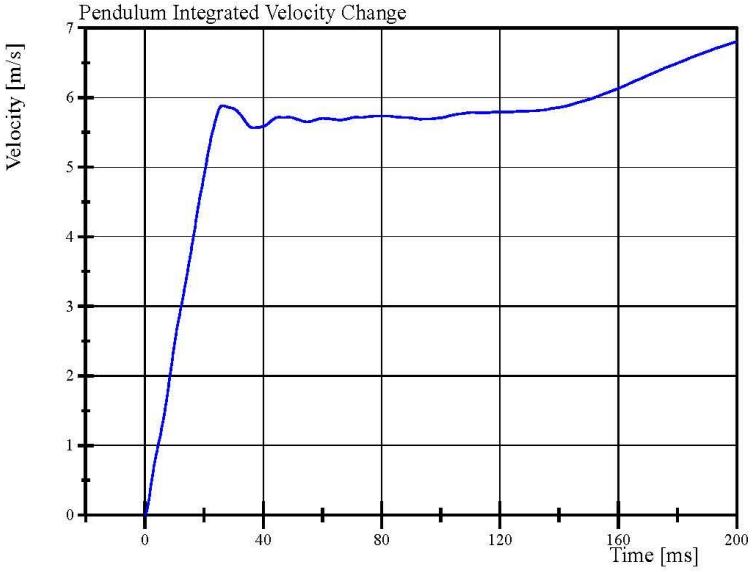
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/5/2019

Pendulum Acceleration



Filter Class: CFC_180
Max: 31.6 g at 9.0 ms
Min: -6.4 g at 33.7 ms

Pendulum Integrated Velocity Change



Filter Class: CFC_180
Max: 6.8 m/s at 200.0 ms
Min: 0.0 m/s at 0.0 ms

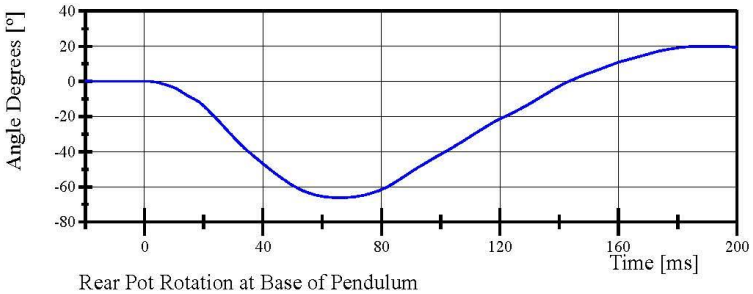
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.05.2019 08:55:33 718

Transportation Research Center Inc.

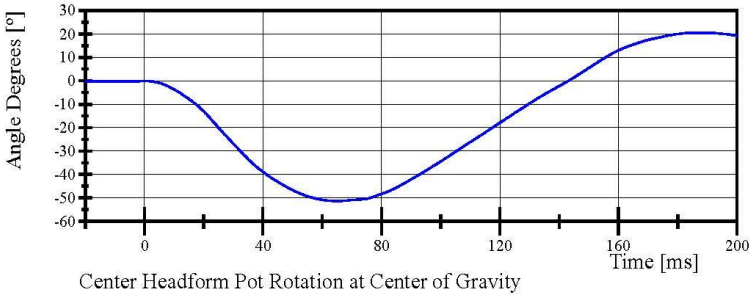
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/5/2019

Forward Pot Rotation at Base of Pendulum



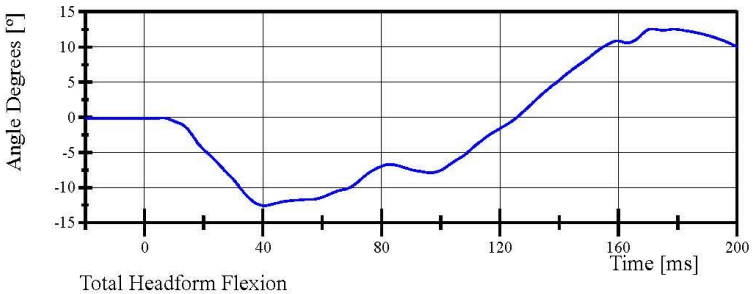
Filter Class: CFC_60
Max: 20.0 ° at 192.1 ms
Min: -66.1 ° at 65.8 ms

Rear Pot Rotation at Base of Pendulum



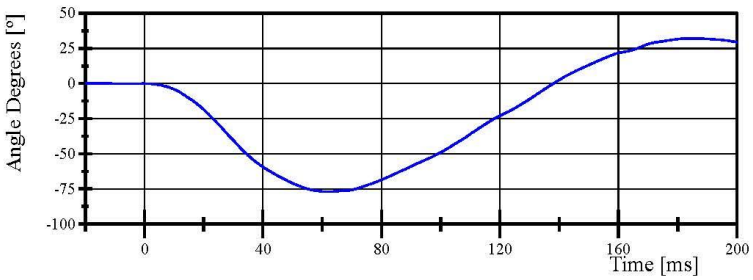
Filter Class: CFC_60
Max: 20.4 ° at 187.0 ms
Min: -51.3 ° at 65.0 ms

Center Headform Pot Rotation at Center of Gravity



Filter Class: CFC_60
Max: 12.6 ° at 171.4 ms
Min: -12.6 ° at 40.5 ms

Total Headform Flexion



Filter Class: CFC_60
Max: 32.0 ° at 184.7 ms
Min: -76.9 ° at 61.6 ms

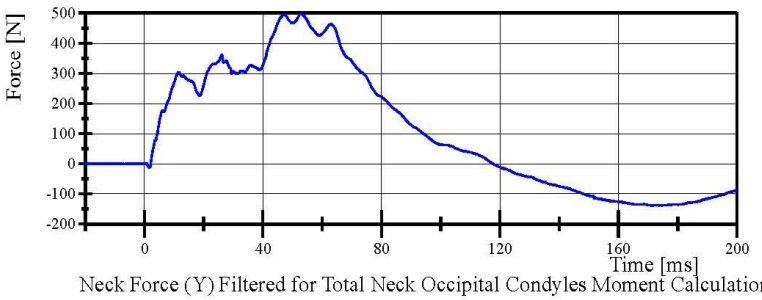
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.05.2019 08:55:33 718

Transportation Research Center Inc.

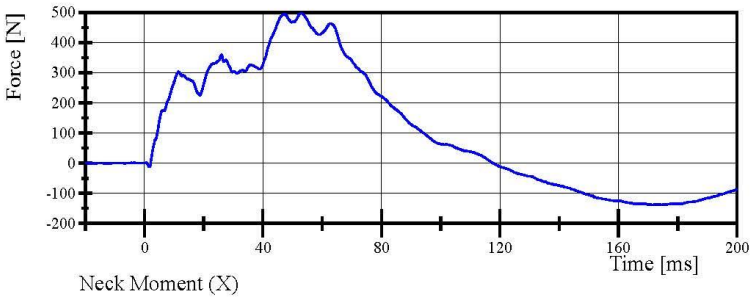
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/5/2019

Neck Force (Y)



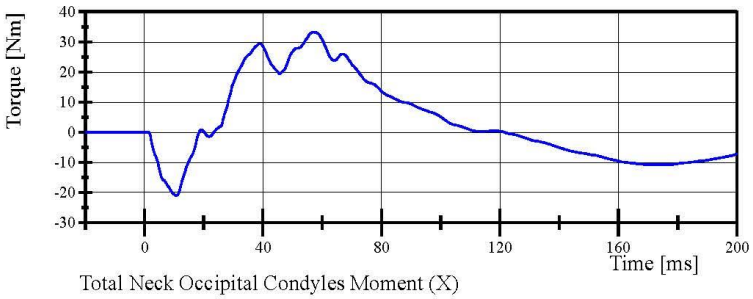
Filter Class: CFC_1000
Max: 497.3 N at 52.9 ms
Min: -139.7 N at 171.4 ms

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



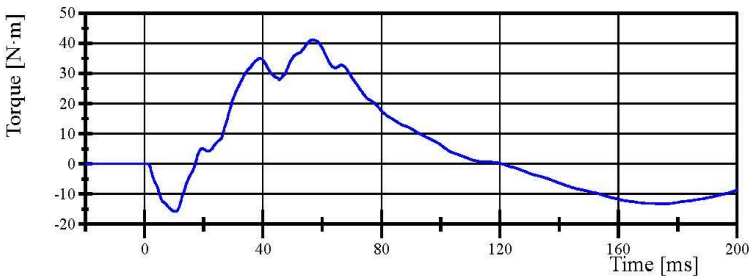
Filter Class: CFC_600
Max: 497.2 N at 52.9 ms
Min: -139.1 N at 171.4 ms

Neck Moment (X)



Filter Class: CFC_600
Max: 33.3 Nm at 57.1 ms
Min: -20.9 Nm at 10.8 ms

Total Neck Occipital Condyles Moment (X)



Filter Class: Without_(Constar
Max: 41.2 N·m at 57.0 ms
Min: -15.8 N·m at 10.5 ms

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

12.05.2019 08:55:34 718

Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-14.9 g	Yes
Shoulder Displacement	28 - 37 mm	30.4 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	18.9 g	Yes

Test meets specifications.

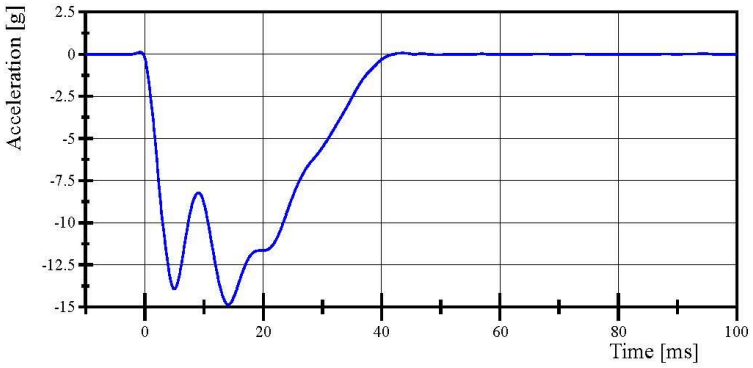
Condition: Used

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

Transportation Research Center Inc.

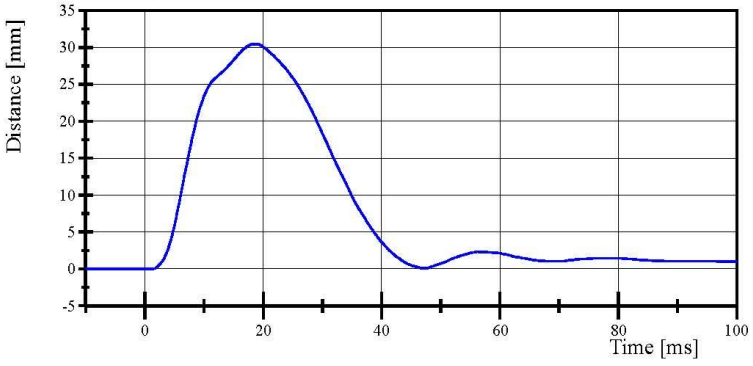
Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Probe Acceleration



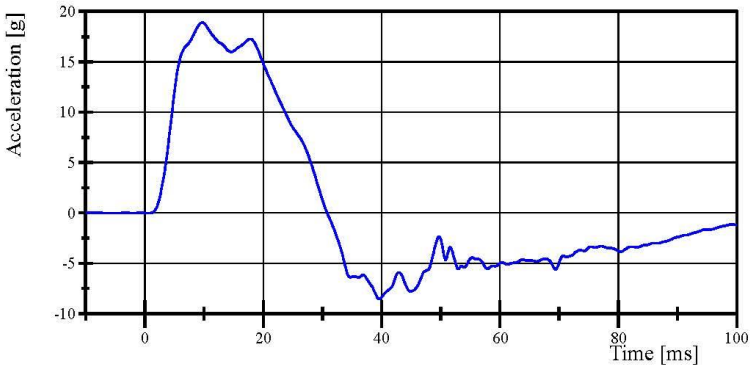
Filter Class: CFC_180
Max: 0.1 g at -0.7 ms
Min: -14.9 g at 14.1 ms

Shoulder Displacement



Filter Class: CFC_600
Max: 30.4 mm at 18.9 ms
Min: -0.0 mm at 1.0 ms

Upper Spine Acceleration (Y)



Filter Class: CFC_180
Max: 18.9 g at 9.7 ms
Min: -8.5 g at 39.6 ms

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

12.04.2019 09:12:19 819

Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.679 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-34.1 g	Yes
Shoulder Displacement	31 - 40 mm	35.6 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.4 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.4 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	34.4 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	38.2 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.3 g	Yes

Test meets specifications.

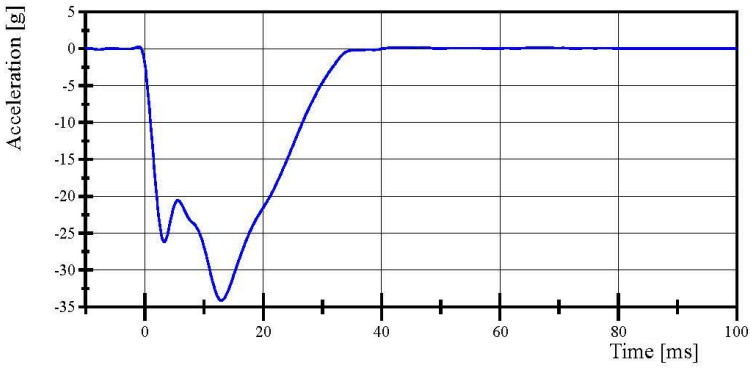
Condition: Used

Comments:
Left Arm S/N: 940L
Shoulder Rib S/N: 180-3355 259
Upper Thorax Rib #1 S/N: DM5020
Middle Thorax Rib #2 S/N: DM5021
Lower Thorax Rib #3 S/N: DM5022

Transportation Research Center Inc.

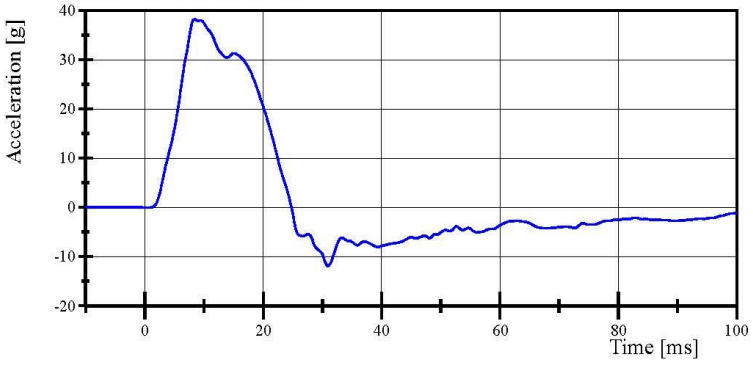
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Probe Acceleration



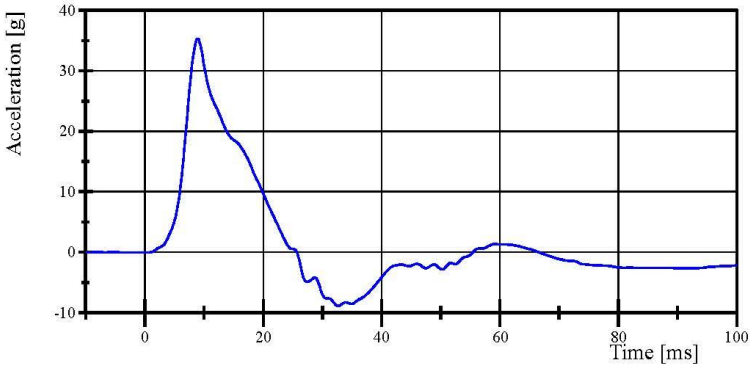
Filter Class: CFC_180
Max: 0.3 g at -1.0 ms
Min: -34.1 g at 12.9 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 38.2 g at 8.4 ms
Min: -11.9 g at 31.0 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 35.3 g at 9.0 ms
Min: -8.9 g at 32.6 ms

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

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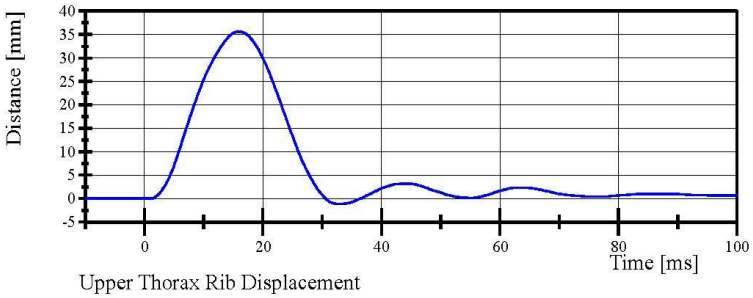
Transportation Research Center Inc.

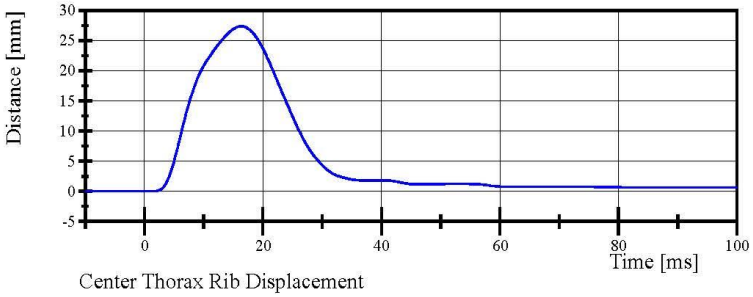
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Shoulder Rib Displacement



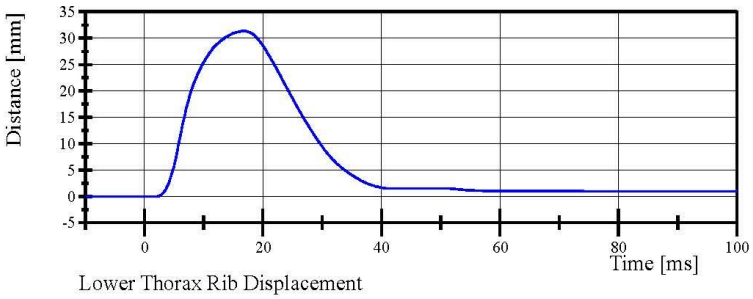
Filter Class: CFC_600
Max: 35.6 mm at 15.8 ms
Min: -1.1 mm at 32.4 ms

Upper Thorax Rib Displacement



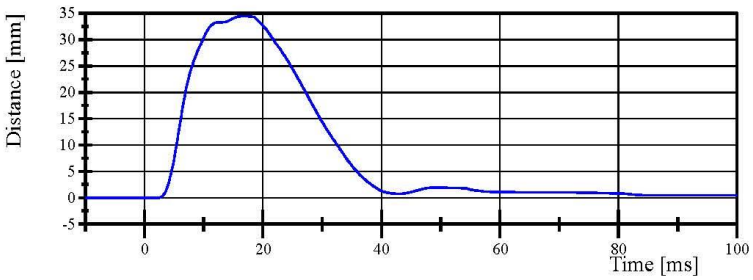
Filter Class: CFC_600
Max: 27.4 mm at 16.4 ms
Min: -0.0 mm at -6.4 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 31.4 mm at 16.7 ms
Min: -0.0 mm at 1.8 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 34.4 mm at 16.8 ms
Min: -0.0 mm at -9.6 ms

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

12.04.2019 10:30:37 623

Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.340 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.4 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	36.4 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.5 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	39.8 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.7 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.5 g	Yes

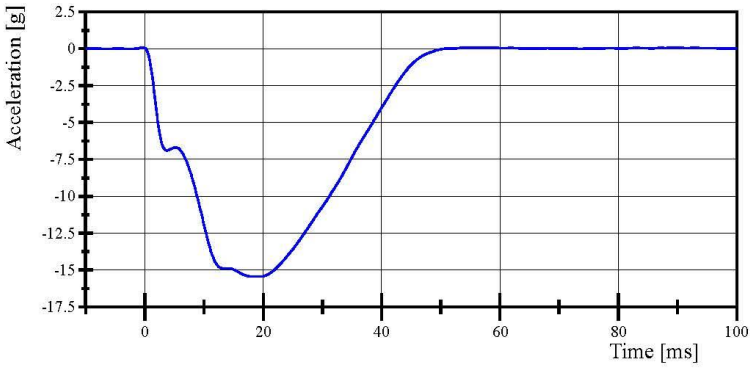
Test meets specifications.

Condition: Used
Comments:
Upper Thorax Rib #1 S/N: DM5020
Middle Thorax Rib #2 S/N: DM5021
Lower Thorax Rib #3 S/N: DM5022

Transportation Research Center Inc.

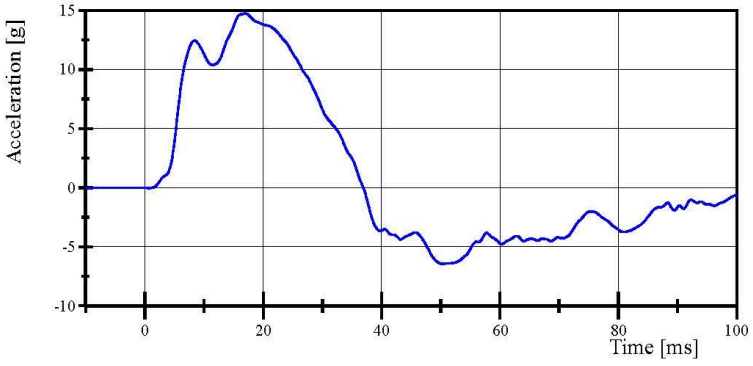
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Probe Acceleration



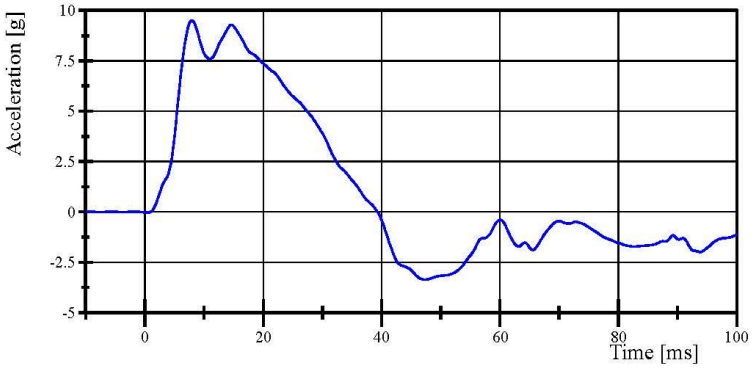
Filter Class: CFC_180
Max: 0.1 g at -0.3 ms
Min: -15.4 g at 19.4 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 14.7 g at 17.0 ms
Min: -6.4 g at 50.2 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 9.5 g at 7.9 ms
Min: -3.4 g at 47.4 ms

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

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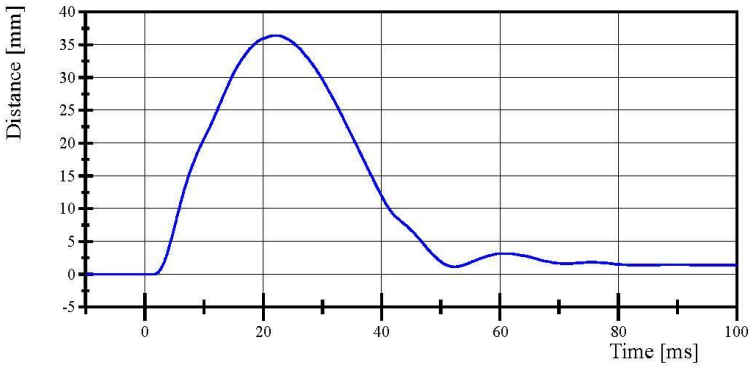
Transportation Research Center Inc.

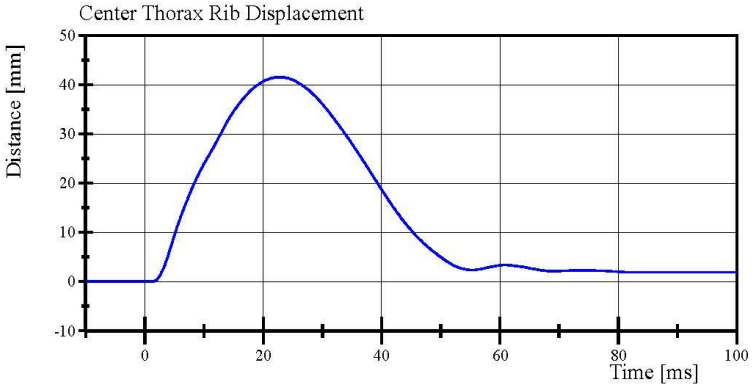
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Upper Thorax Rib Displacement



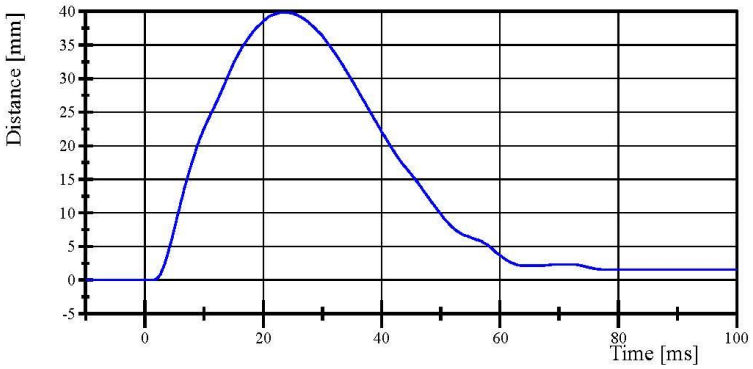
Filter Class: CFC_600
Max: 36.4 mm at 22.3 ms
Min: -0.0 mm at -8.3 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 41.5 mm at 22.6 ms
Min: -0.0 mm at 1.2 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 39.8 mm at 23.2 ms
Min: -0.0 mm at 1.4 ms

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

12.04.2019 09:38:42 848

Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	39 %	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	39.0 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	41.2 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.85 g	Yes

Test meets specifications.

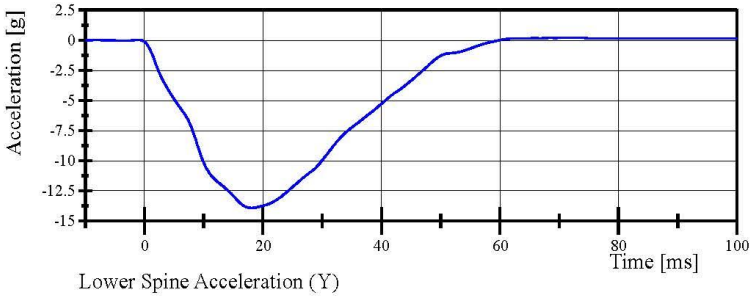
Condition: Used

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

Transportation Research Center Inc.

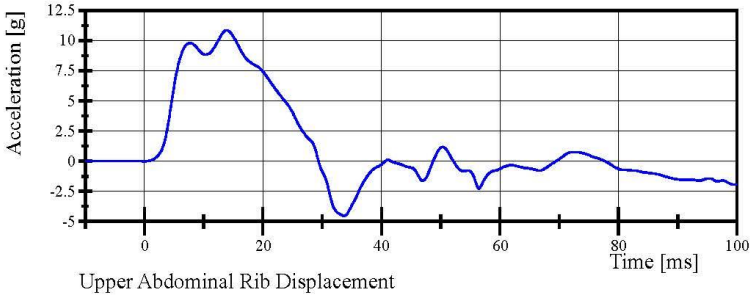
Left Lateral Abdomen
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Probe Acceleration



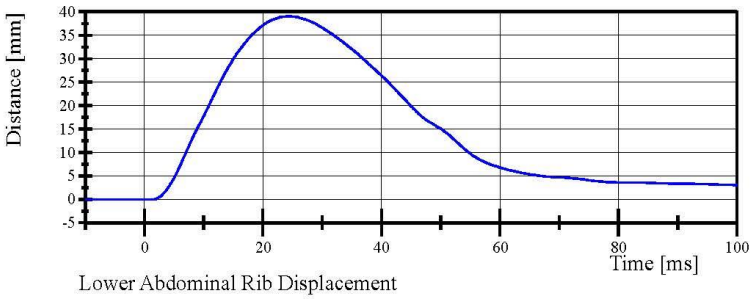
Filter Class: CFC_180
Max: 0.2 g at 73.4 ms
Min: -13.9 g at 18.1 ms

Lower Spine Acceleration (Y)



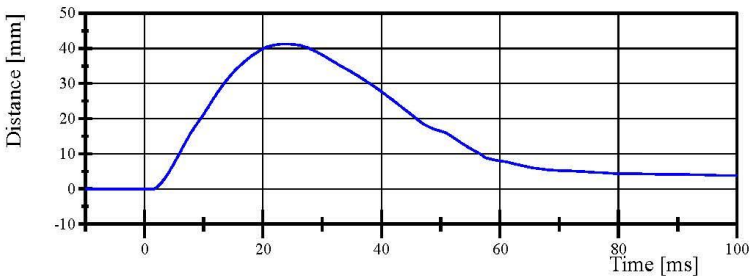
Filter Class: CFC_180
Max: 10.8 g at 13.9 ms
Min: -4.6 g at 33.7 ms

Upper Abdominal Rib Displacement



Filter Class: CFC_600
Max: 39.0 mm at 24.2 ms
Min: -0.0 mm at 1.4 ms

Lower Abdominal Rib Displacement



Filter Class: CFC_600
Max: 41.2 mm at 23.5 ms
Min: -0.0 mm at 1.3 ms

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

12.04.2019 09:25:44 665

Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.64 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-44.75 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	40.9 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,225.0 N	Yes

Test meets specifications.

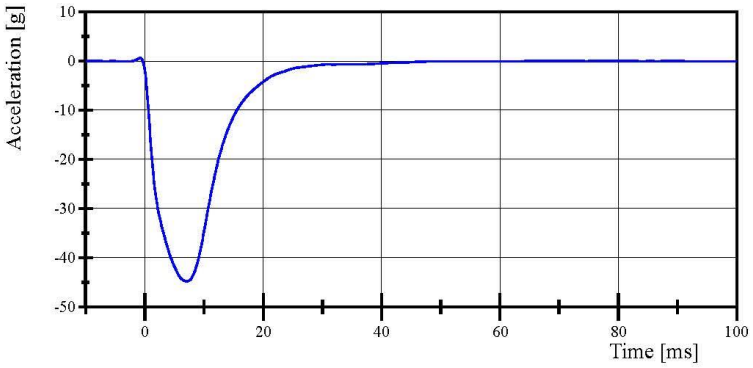
Condition: Used

Comments:
Pelvis Skin S/N: EN1590
Pelvis Plug Info:
Manufacturer: Saco
S/N: 12563
Cal Date: 20181003

Transportation Research Center Inc.

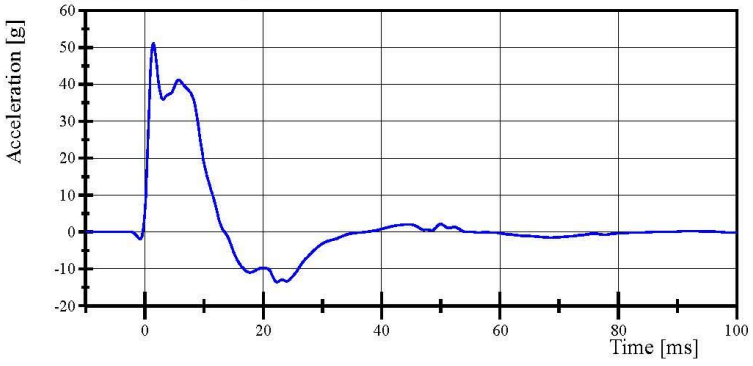
Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Probe Acceleration



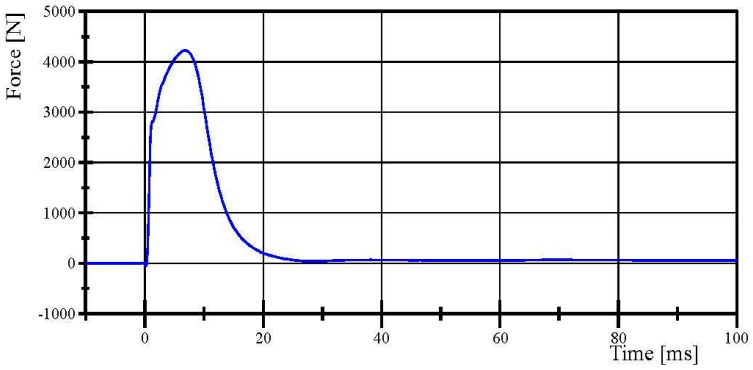
Filter Class: CFC_180
Max: 0.6 g at -0.8 ms
Min: -44.8 g at 7.1 ms

Pelvis Y-Axis Acceleration



Filter Class: CFC_180
Max: 51.1 g at 1.4 ms
Min: -13.6 g at 22.3 ms

Acetabulum Y-Axis Force



Filter Class: CFC_600
Max: 4,225.0 N at 6.7 ms
Min: -57.7 N at 0.2 ms

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

12.04.2019 10:51:58 451

Transportation Research Center Inc.

Left Lateral Iliac
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.21 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-39.3 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	30.4 g	Yes
Iliac Force	4,100 - 5,100 N	4,297.7 N	Yes

Test meets specifications.

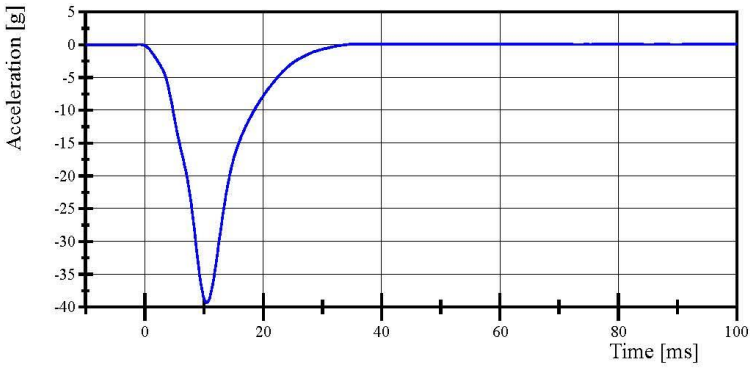
Condition: Used

Comments:
Pelvis S/N: EN1590

Transportation Research Center Inc.

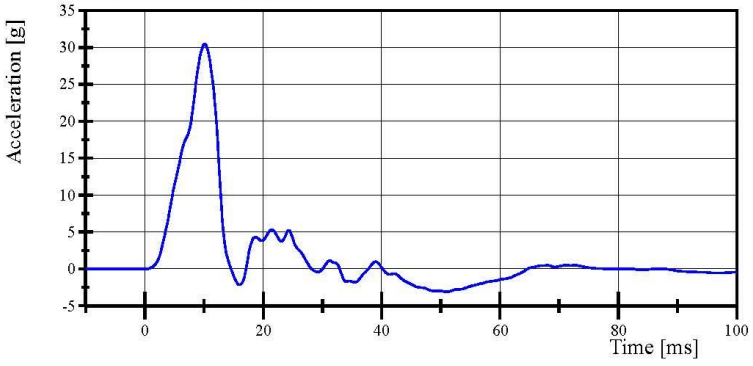
Left Lateral Iliac
SID IIs Serial No. 297 Certification No. 43-1
Test Date: 12/4/2019

Probe Acceleration



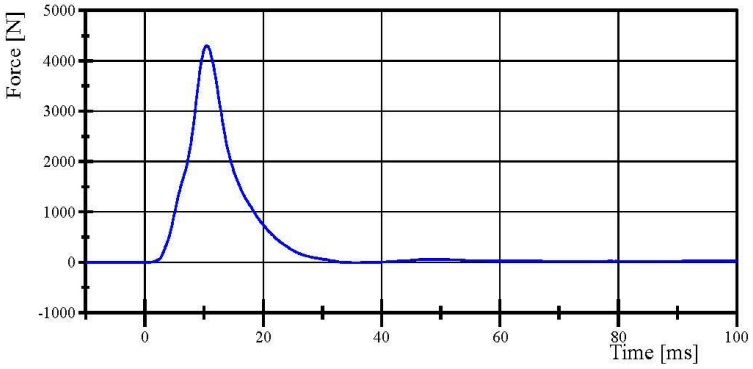
Filter Class: CFC_180
Max: 0.1 g at 45.5 ms
Min: -39.3 g at 10.5 ms

Pelvis Y-Axis Acceleration



Filter Class: CFC_180
Max: 30.4 g at 10.1 ms
Min: -3.1 g at 51.0 ms

Iliac Y-Axis Force



Filter Class: CFC_600
Max: 4,297.7 N at 10.5 ms
Min: -12.0 N at 35.5 ms

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

12.04.2019 13:51:05 669

Post-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No. 44

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	780	Yes
B	Shoulder Pivot Height	437.0 - 453.0	450	Yes
C	H-Point Height	79.0 - 89.0	85	Yes
D	H-Point from Seat Back	141.0 - 151.0	147	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	102	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	147	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	528	Yes
L	Popliteal Height	343.0 - 369.0	353	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	400	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	199	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	879	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. 44-1
Test Date: 12/10/2019

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	124.2 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-2.6 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.15 %	Yes

Test meets specifications.

Condition: Used

Comments:
Head S/N: 1330

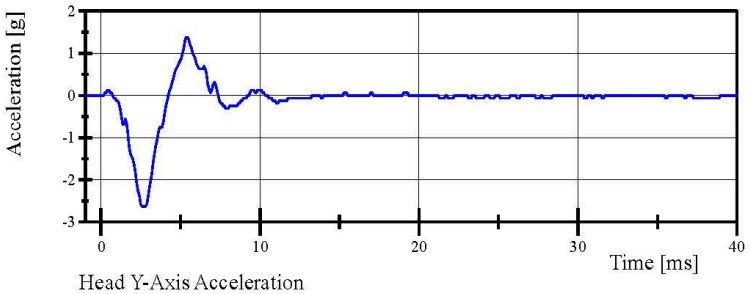
Specification Source: CFR49 Part 572 Subpart V with Polarity in accordance with J211

12.10.2019 11:44:05 197

Transportation Research Center Inc.

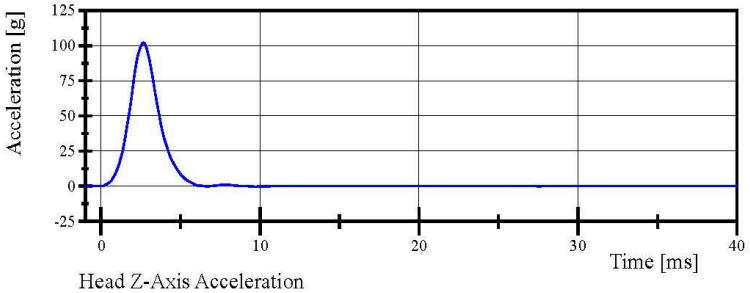
Left Lateral Head Drop
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Head X-Axis Acceleration



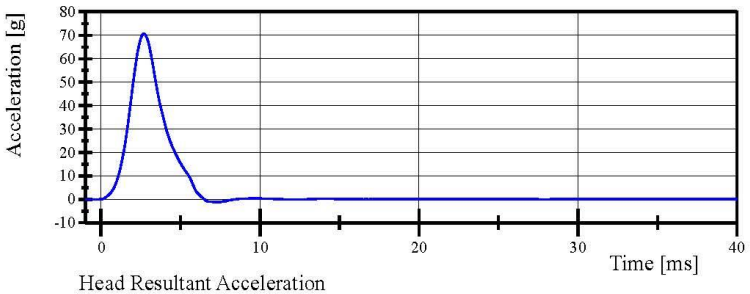
Filter Class: CFC_1000
Max: 1.4 g at 5.4 ms
Min: -2.6 g at 2.6 ms

Head Y-Axis Acceleration



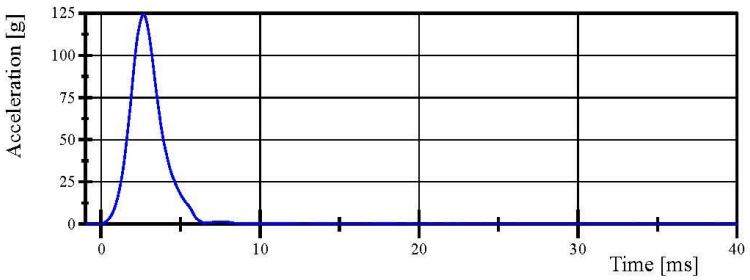
Filter Class: CFC_1000
Max: 102.1 g at 2.6 ms
Min: -0.2 g at 9.6 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 70.6 g at 2.7 ms
Min: -1.2 g at 7.2 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 124.2 g at 2.6 ms
Min: 0.0 g at -1.0 ms

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

12.10.2019 11:44:52 197

Transportation Research Center Inc.

Left Lateral Neck
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.604 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	2.20 - 2.80 m/s	2.467 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.607 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.847 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.787 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.911 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-79.6 deg	Yes
Time of Peak	50 - 70 ms	62.7 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	41.7 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	122.6 ms	Yes

Test meets specifications.

Condition: Used

Comments:
Neck S/N: 779

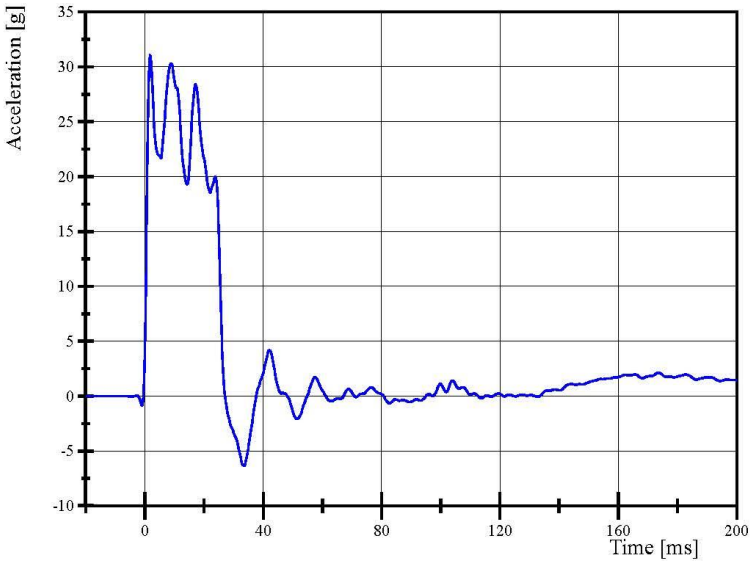
Specification Source: CFR49 Part 572 Subpart V with Polarity in accordance with J211

12.10.2019 12:10:22 718

Transportation Research Center Inc.

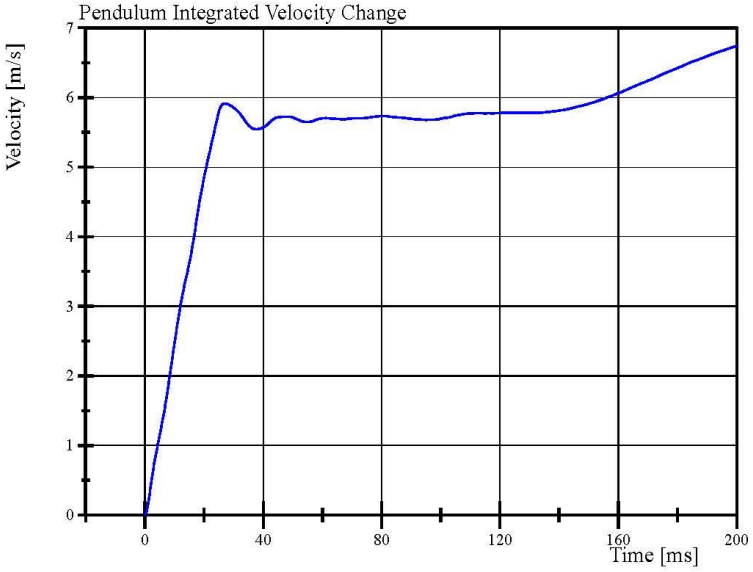
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Pendulum Acceleration



Filter Class: CFC_180
Max: 31.1 g at 1.8 ms
Min: -6.4 g at 33.6 ms

Pendulum Integrated Velocity Change



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

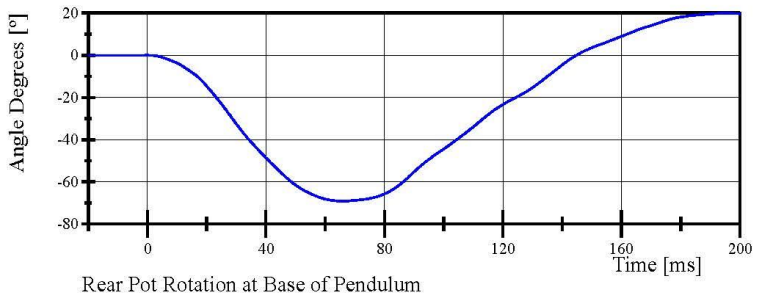
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.10.2019 12:10:48 718

Transportation Research Center Inc.

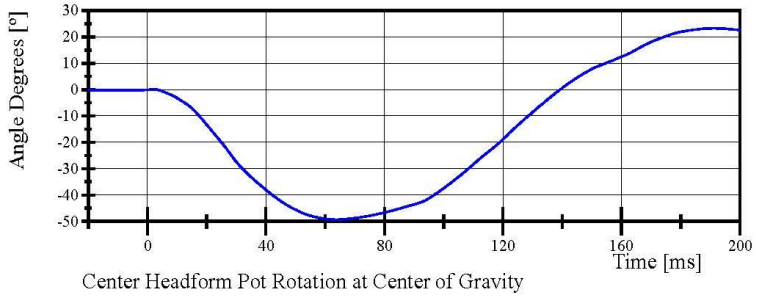
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Forward Pot Rotation at Base of Pendulum



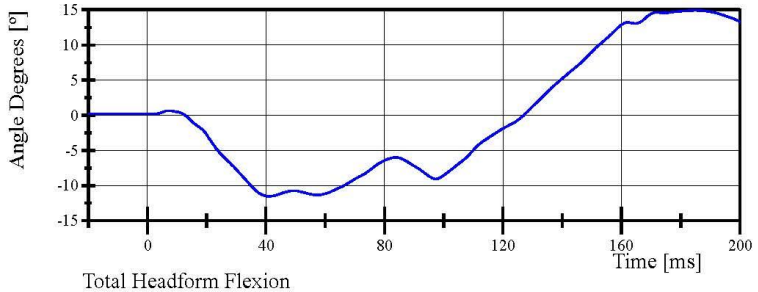
Filter Class: CFC_60
Max: 20.0 ° at 195.0 ms
Min: -69.2 ° at 65.8 ms

Rear Pot Rotation at Base of Pendulum



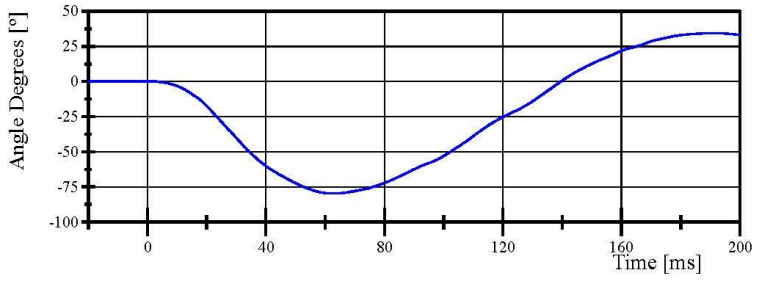
Filter Class: CFC_60
Max: 23.3 ° at 191.2 ms
Min: -49.3 ° at 63.9 ms

Center Headform Pot Rotation at Center of Gravity



Filter Class: CFC_60
Max: 14.9 ° at 184.8 ms
Min: -11.5 ° at 41.0 ms

Total Headform Flexion



Filter Class: CFC_60
Max: 34.4 ° at 191.1 ms
Min: -79.6 ° at 62.7 ms

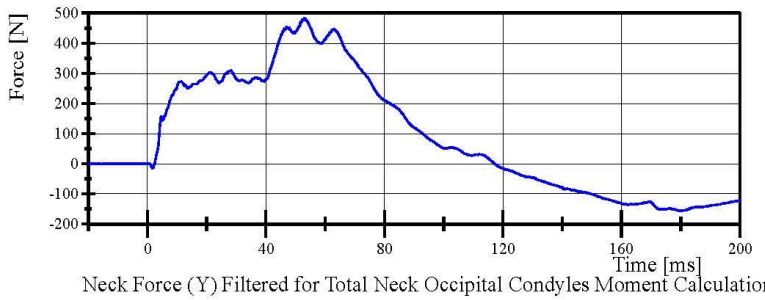
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.10.2019 12:10:48 718

Transportation Research Center Inc.

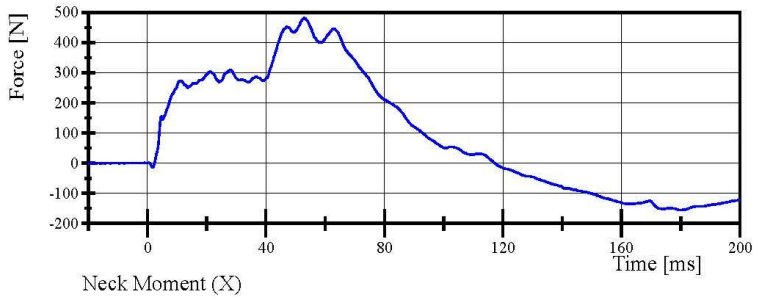
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Neck Force (Y)



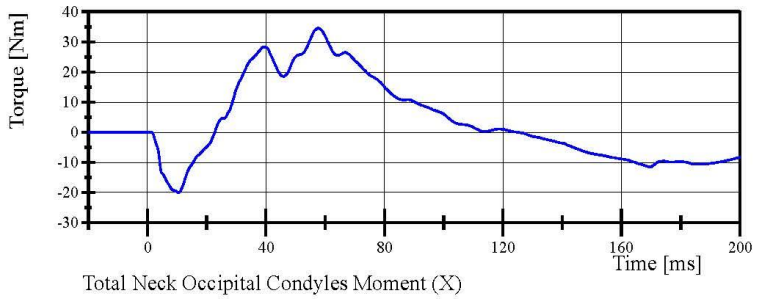
Filter Class: CFC_1000
Max: 482.9 N at 53.0 ms
Min: -155.7 N at 180.0 ms

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



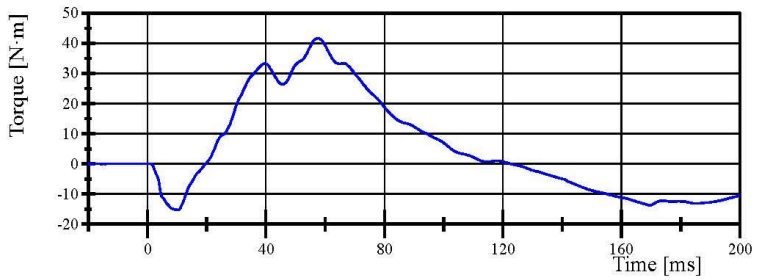
Filter Class: CFC_600
Max: 481.8 N at 53.0 ms
Min: -155.4 N at 180.1 ms

Neck Moment (X)



Filter Class: CFC_600
Max: 34.6 Nm at 57.6 ms
Min: -20.1 Nm at 10.5 ms

Total Neck Occipital Condyles Moment (X)



Filter Class: Without_(Constar
Max: 41.7 N·m at 57.5 ms
Min: -15.3 N·m at 10.3 ms

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

12.10.2019 12:10:49 718

Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-14.9 g	Yes
Shoulder Displacement	28 - 37 mm	30.9 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.1 g	Yes

Test meets specifications.

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

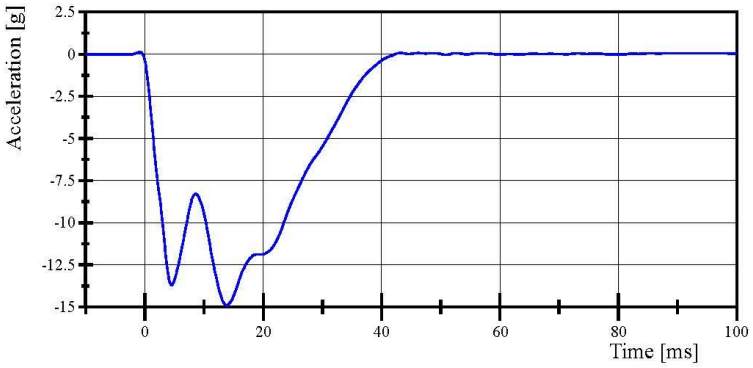
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.10.2019 08:50:22 911

Transportation Research Center Inc.

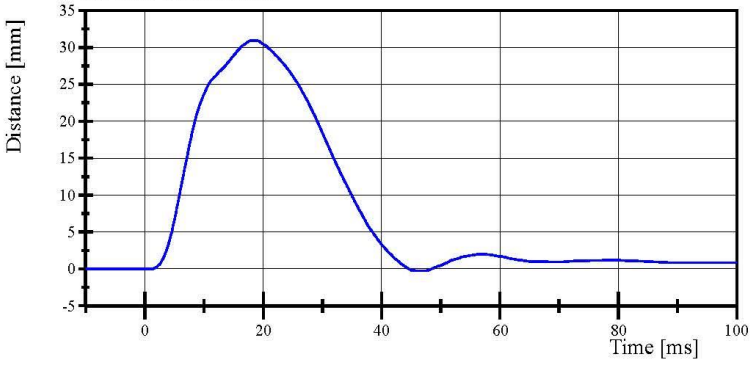
Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Probe Acceleration



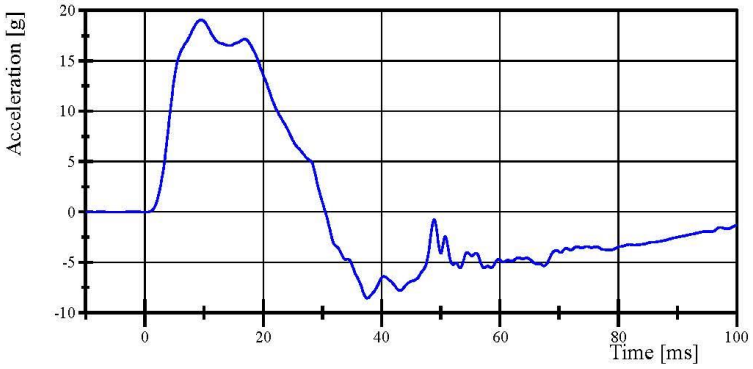
Filter Class: CFC_180
Max: 0.1 g at -0.8 ms
Min: -14.9 g at 13.8 ms

Shoulder Displacement



Filter Class: CFC_600
Max: 30.9 mm at 18.7 ms
Min: -0.2 mm at 47.4 ms

Upper Spine Acceleration (Y)



Filter Class: CFC_180
Max: 19.1 g at 9.5 ms
Min: -8.6 g at 37.5 ms

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

12.10.2019 08:50:53 911

Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.740 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-32.9 g	Yes
Shoulder Displacement	31 - 40 mm	35.7 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.0 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.0 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	34.1 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	37.7 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.1 g	Yes

Test meets specifications.

Condition: Used

Comments:
Left Arm S/N: 940L
Shoulder Rib S/N: 180-3355 259
Upper Thorax Rib #1 S/N: DM5020
Middle Thorax Rib #2 S/N: DM5021
Lower Thorax Rib #3 S/N: DM5022

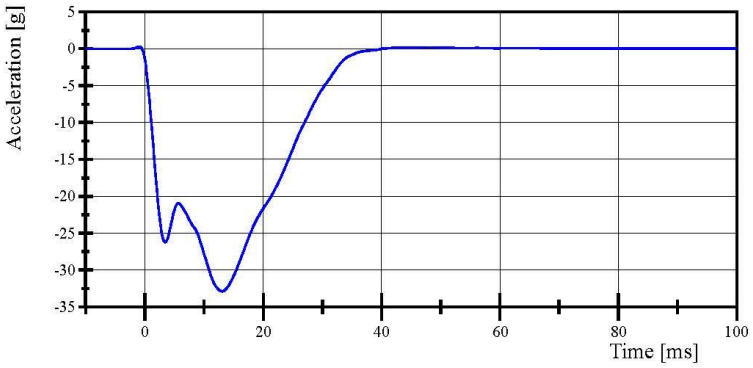
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.10.2019 10:09:29 606

Transportation Research Center Inc.

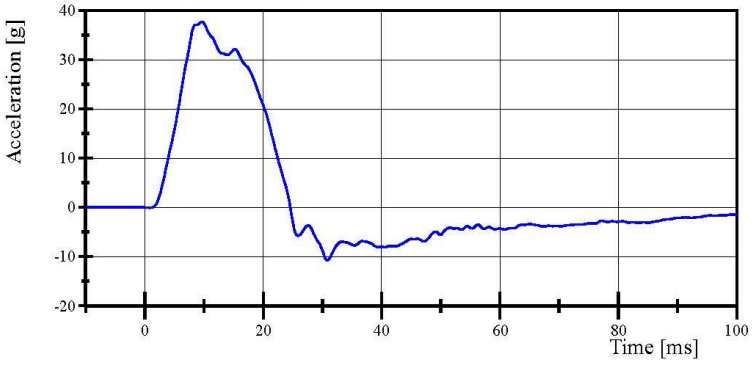
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Probe Acceleration



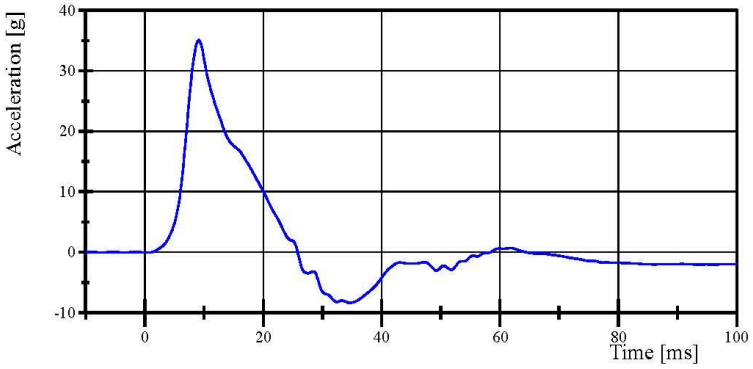
Filter Class: CFC_180
Max: 0.3 g at -1.0 ms
Min: -32.9 g at 13.1 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 37.7 g at 9.7 ms
Min: -10.8 g at 30.8 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 35.1 g at 9.1 ms
Min: -8.4 g at 34.6 ms

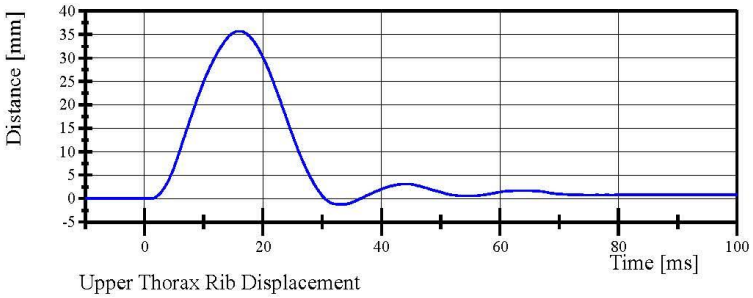
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.10.2019 10:10:22 606

Transportation Research Center Inc.

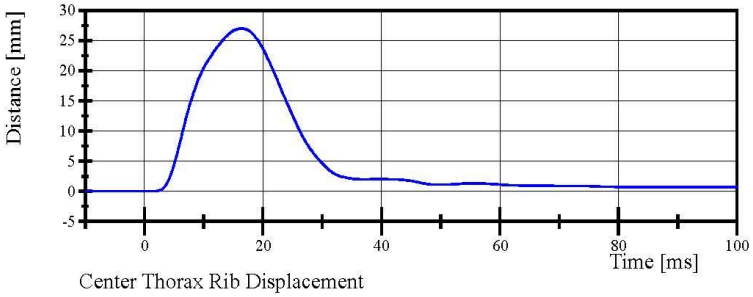
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Shoulder Rib Displacement



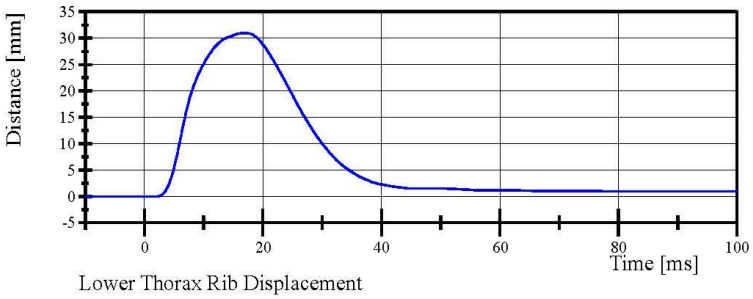
Filter Class: CFC_600
Max: 35.7 mm at 15.8 ms
Min: -1.3 mm at 32.9 ms

Upper Thorax Rib Displacement



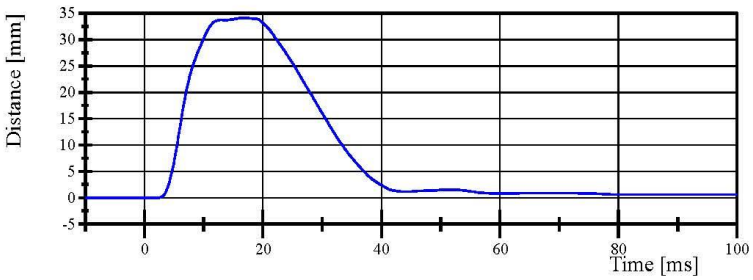
Filter Class: CFC_600
Max: 27.0 mm at 16.3 ms
Min: -0.0 mm at -6.8 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 31.0 mm at 16.7 ms
Min: -0.0 mm at 1.9 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 34.1 mm at 16.5 ms
Min: -0.0 mm at 1.4 ms

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

12.10.2019 10:10:22 606

Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.333 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.4 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	37.3 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.8 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	39.5 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.5 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.3 g	Yes

Test meets specifications.

Condition: Used

Comments:
Upper Thorax Rib #1 S/N: DM5020
Middle Thorax Rib #2 S/N: DM5021
Lower Thorax Rib #3 S/N: DM5022

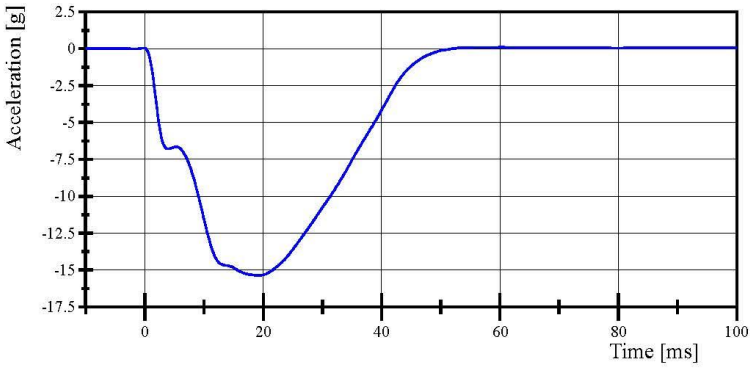
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.10.2019 09:22:14 840

Transportation Research Center Inc.

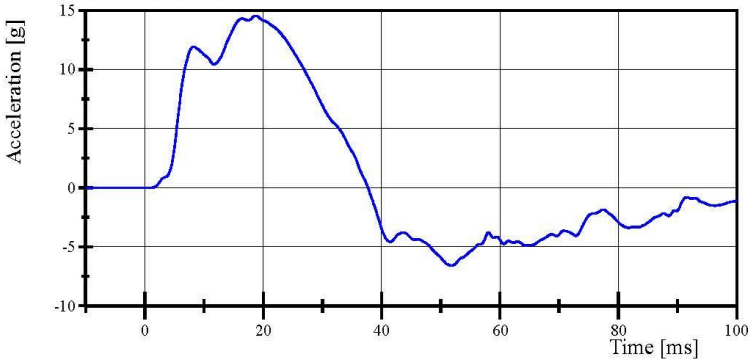
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Probe Acceleration



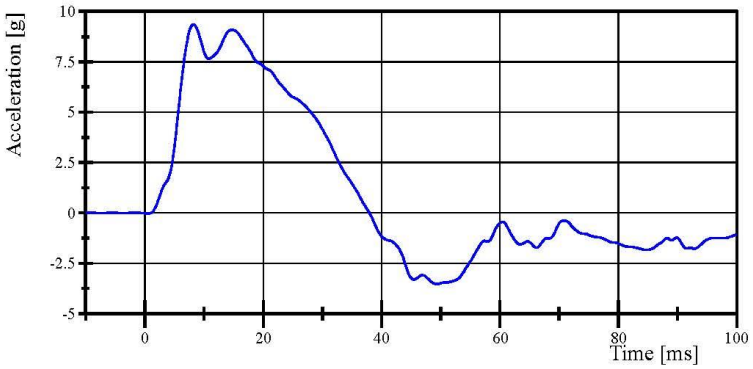
Filter Class: CFC_180
Max: 0.1 g at 60.4 ms
Min: -15.4 g at 19.1 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 14.5 g at 18.7 ms
Min: -6.6 g at 51.8 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 9.3 g at 8.2 ms
Min: -3.5 g at 49.4 ms

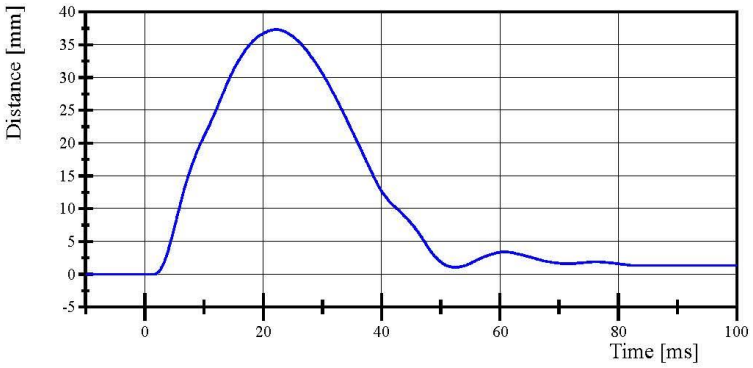
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.10.2019 09:22:58 840

Transportation Research Center Inc.

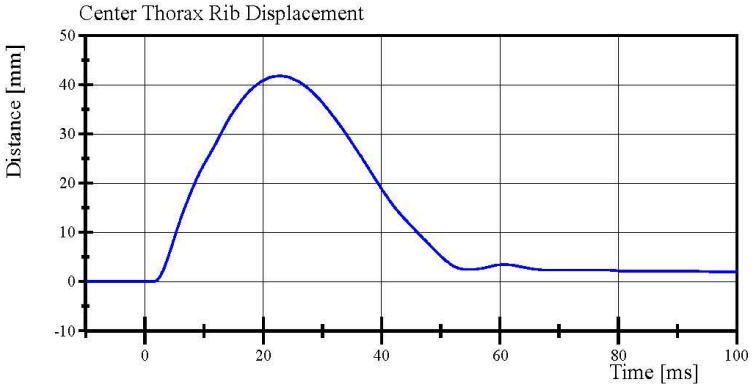
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Upper Thorax Rib Displacement



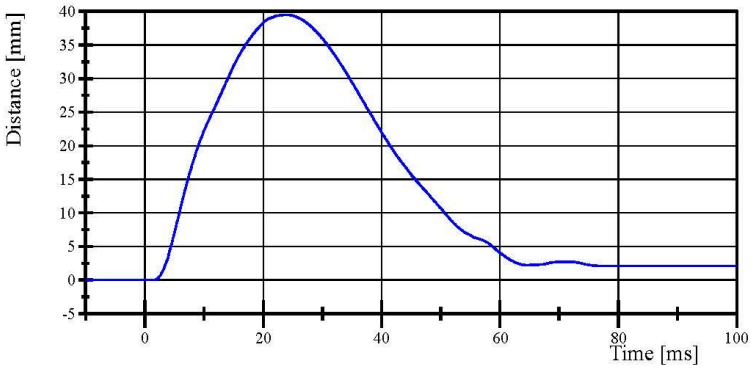
Filter Class: CFC_600
Max: 37.3 mm at 22.2 ms
Min: -0.0 mm at 1.2 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 41.8 mm at 22.8 ms
Min: -0.0 mm at 1.4 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 39.5 mm at 24.2 ms
Min: -0.0 mm at 1.4 ms

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

12.10.2019 09:22:59 840

Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.5 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	39.0 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	39.6 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.99 g	Yes

Test meets specifications.

Condition: Used

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

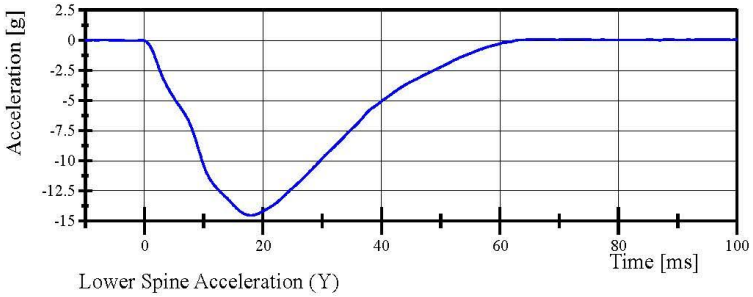
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.10.2019 09:03:19 669

Transportation Research Center Inc.

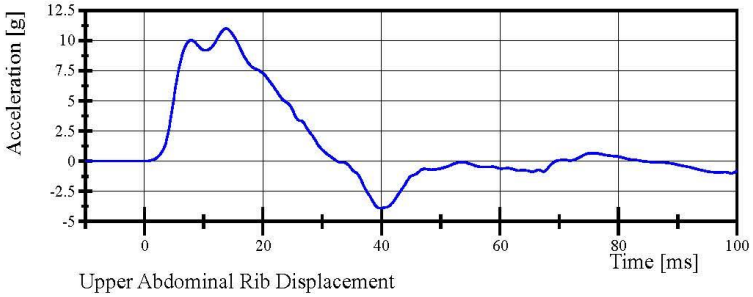
Left Lateral Abdomen
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Probe Acceleration



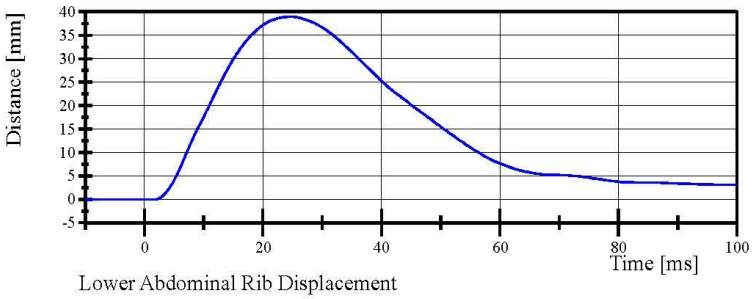
Filter Class: CFC_180
Max: 0.1 g at 67.3 ms
Min: -14.5 g at 17.9 ms

Lower Spine Acceleration (Y)



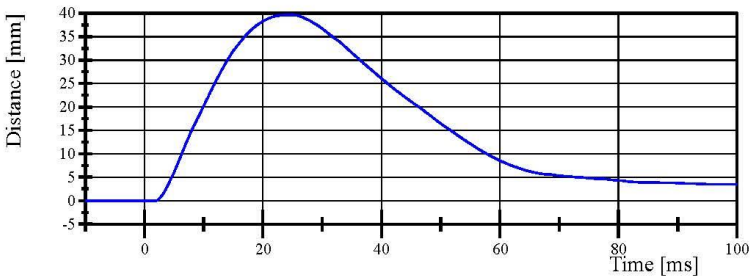
Filter Class: CFC_180
Max: 11.0 g at 13.8 ms
Min: -3.9 g at 39.8 ms

Upper Abdominal Rib Displacement



Filter Class: CFC_600
Max: 39.0 mm at 24.8 ms
Min: -0.0 mm at 1.7 ms

Lower Abdominal Rib Displacement



Filter Class: CFC_600
Max: 39.6 mm at 23.8 ms
Min: -0.0 mm at 1.8 ms

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

12.10.2019 09:04:12 669

Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.61 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-44.12 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	38.1 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,238.7 N	Yes

Test meets specifications.

Condition: Used

Comments:
Pelvis Skin S/N: EN1590
Pelvis Plug Info:
Manufacturer: Saco
S/N: 12779
Cal Date: 20190117

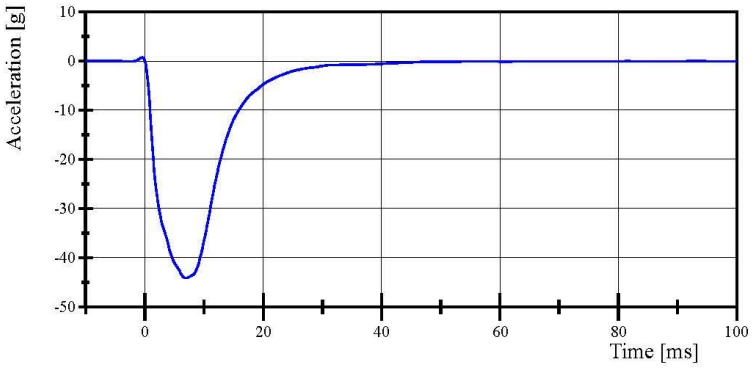
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.10.2019 08:31:11 422

Transportation Research Center Inc.

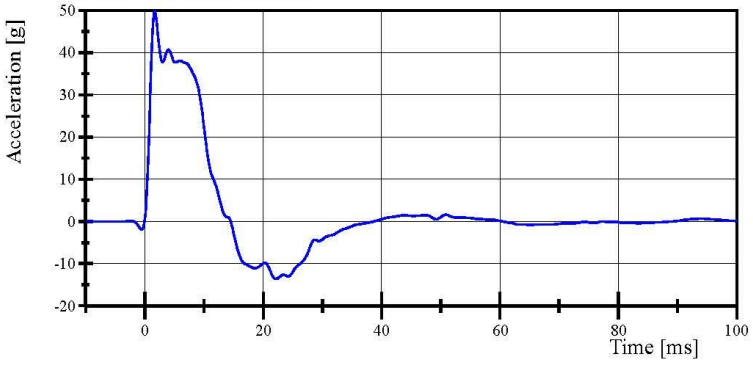
Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Probe Acceleration



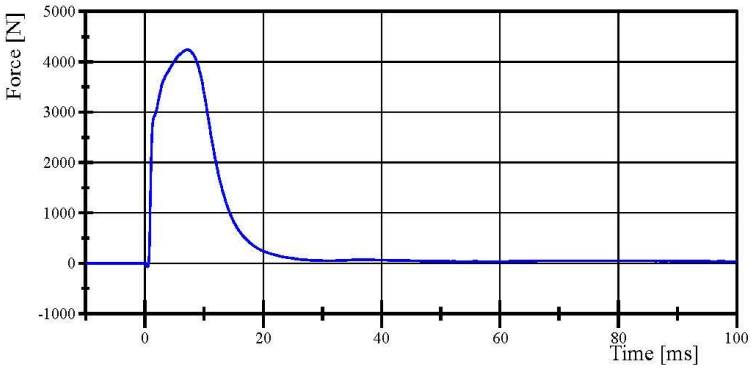
Filter Class: CFC_180
Max: 0.8 g at -0.5 ms
Min: -44.1 g at 7.0 ms

Pelvis Y-Axis Acceleration



Filter Class: CFC_180
Max: 49.8 g at 1.7 ms
Min: -13.6 g at 22.2 ms

Acetabulum Y-Axis Force



Filter Class: CFC_600
Max: 4,238.7 N at 7.2 ms
Min: -72.7 N at 0.5 ms

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

12.10.2019 08:37:21 422

Transportation Research Center Inc.

Left Lateral Iliac
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.23 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-40.4 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	29.4 g	Yes
Iliac Force	4,100 - 5,100 N	4,662.1 N	Yes

Test meets specifications.

Condition: Used

Comments:
Pelvis S/N: EN1590

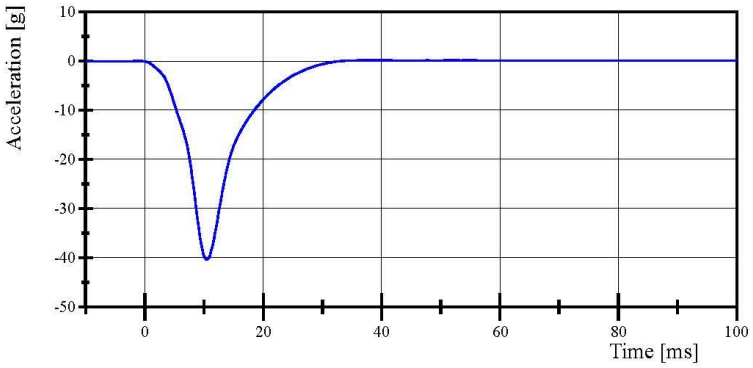
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.10.2019 11:06:36 702

Transportation Research Center Inc.

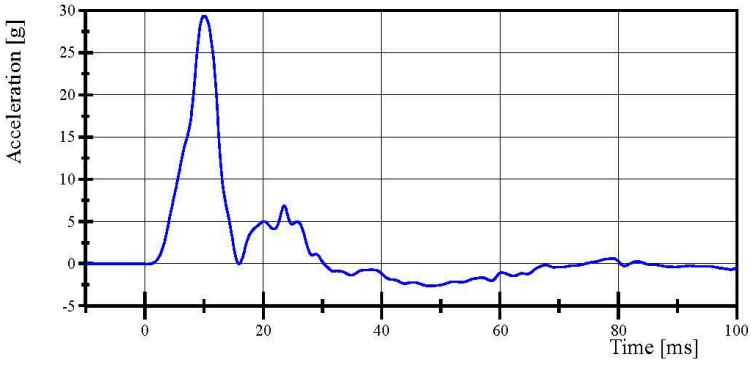
Left Lateral Iliac
SID IIs Serial No. 297 Certification No. 44-1
Test Date: 12/10/2019

Probe Acceleration



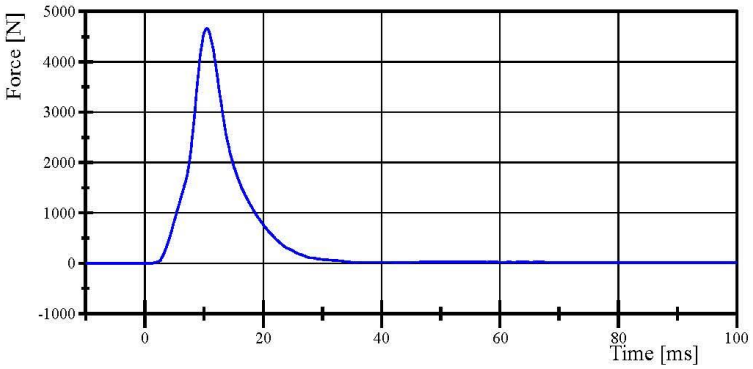
Filter Class: CFC_180
Max: 0.2 g at 55.1 ms
Min: -40.4 g at 10.5 ms

Pelvis Y-Axis Acceleration



Filter Class: CFC_180
Max: 29.4 g at 10.0 ms
Min: -2.6 g at 48.1 ms

Iliac Y-Axis Force



Filter Class: CFC_600
Max: 4,662.1 N at 10.5 ms
Min: -1.0 N at -4.1 ms

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

12.10.2019 11:07:22 702

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	9-Oct-2019
			Y	P93549	Endevco	10-Oct-2019
			Z	P93776	Endevco	10-Oct-2019
Displacement Potentiometers	Shoulder		Y	N/A	N/A	N/A
	Thoracic Rib	Upper	Y	023	Servo	25-Sep-2019
		Middle	Y	01815	Servo	9-Apr-2019
		Lower	Y	043	Servo	18-Apr-2019
	Abdominal Rib	Upper	Y	01811	Servo	9-Apr-2019
		Lower	Y	051	Servo	18-Apr-2019
Lower Spine Accelerometers (T12)			X	P94425	Endevco	10-Oct-2019
			Y	P91522	Endevco	10-Oct-2019
			Z	P91511	Endevco	10-Oct-2019
Acetabulum Load Cell			Y	235-FY	FTSS	18-Apr-2019
Iliac Wing Load Cell			Y	320-FY	FTSS	18-Apr-2019
Pelvis Plug (struck side)				12565	SACO	3-Oct-2018
Pelvis Plug (non-struck side)				12545	SACO	2-Oct-2018

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	T11841	Endevco	5-Sep-2019
Vehicle Center of Gravity	Y	T11815	Endevco	5-Sep-2019
Vehicle Center of Gravity	Z	T11813	Endevco	5-Sep-2019
Left Floor Sill	Y	P77595	Endevco	1-Aug-2019
A-Pillar Sill	Y	P74951	Endevco	1-Aug-2019
A-Pillar Low	Y	P50428	Endevco	1-Nov-2019
A-Pillar Mid	Y	P80720	Endevco	1-Nov-2019
B-Pillar Sill	Y	P79599	Endevco	1-Aug-2019
B-Pillar Low	Y	P44288	Endevco	1-Nov-2019
B-Pillar Mid	Y	T11449	Endevco	1-Nov-2019
Driver Seat	Y	T10347	Endevco	5-Nov-2019
Engine Top	X	T11856	Endevco	5-Sep-2019
Engine Top	Y	T11827	Endevco	5-Sep-2019
Firewall	Y	P81065	Endevco	16-Jul-2019
Right Roof	Y	P83421	Endevco	1-Aug-2019
Right Floor Sill	Y	P94561	Endevco	11-Oct-2019
Rear Floor Pan	X	T11835	Endevco	1-Nov-2019
Rear Floor Pan	Y	P61501	Endevco	1-Nov-2019

TABLE 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DK7091S	Humanetics	13-Nov-2019
Load Cell 2	DK7120S	Humanetics	13-Nov-2019
Load Cell 3	DK7118S	Humanetics	13-Nov-2019
Load Cell 4	DK7124S	Humanetics	13-Nov-2019
Load Cell 5	DK7111S	Humanetics	13-Nov-2019
Load Cell 6	DK7126S	Humanetics	13-Nov-2019
Load Cell 7	DK7112S	Humanetics	13-Nov-2019
Load Cell 8	DK7074S	Humanetics	13-Nov-2019