

FINAL REPORT NUMBER: SPNCAP-TRC-19-007

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

**FORD MOTOR CO.
2019 Ford Ranger Supercrew
NHTSA NUMBER: M20190212**

**PREPARED BY:
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Report Date: October 25, 2019

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: October 25, 2019

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

FINAL REPORT ACCEPTANCE BY OCWS:

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Technical Report Documentation Page

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16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject vehicle, a 2019 Ford Ranger Supercrew, in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on September 5, 2019. The impact velocity was 31.87 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 21.9° C. The test vehicle's post-test maximum crush was 404 mm at Level 3. The test or target vehicle's performance is given below: <table border="1"> <thead> <tr> <th></th> <th>Unit</th> <th>Threshold</th> <th>Front SID-IIs</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆):</td> <td>NA</td> <td>1000</td> <td>209</td> </tr> <tr> <td>Resultant Lower Spine Acceleration:</td> <td>g's</td> <td>82</td> <td>43.7</td> </tr> <tr> <td>Total Pelvic Force:</td> <td>N</td> <td>5525</td> <td>3037.0</td> </tr> <tr> <td>(sum of acetabular and iliac forces)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>24.2</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>24.5</td> </tr> </tbody> </table> * Proposed IARV The doors on the struck side did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					Unit	Threshold	Front SID-IIs	Head Injury Criteria (HIC ₃₆):	NA	1000	209	Resultant Lower Spine Acceleration:	g's	82	43.7	Total Pelvic Force:	N	5525	3037.0	(sum of acetabular and iliac forces)				Maximum Thoracic Rib Deflection	mm	38*	24.2	Maximum Abdomen Rib Deflection	mm	45*	24.5
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave Washington, DC 20590																													
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SECTION 1
TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY 19 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 2019 Ford Ranger Supercrew manufactured by FORD MOTOR CO.. 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 2019 Ford Ranger Supercrew. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 31.87 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, OH, on September 5, 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	209
Lower Spine Acceleration Resultant	G	82	43.7
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3037.0
Maximum Thoracic Rib Deflection	mm	38*	24.2
Maximum Abdominal Rib Deflection	mm	45*	24.5

* Proposed IARV

Supplemental restraint information is given below:

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

GENERAL COMMENTS

Left Lower A-Pillar Y-Axis Acceleration: Questionable data after 40.0 ms

Right Roof Y-Axis: Questionable data from 30-42 ms

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2019 Ford Ranger Supercrew
 Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
 Test Date: 9/5/2019

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20190212	Traction Control System (TCS)	Yes
Model Year	2019	Auto-Leveling System	No
Make	Ford	Automatic Door Locks (ADL)	Yes
Model	Ranger	Power Window Auto-Reverse	No
Body Style	Truck	Other Optional Feature	No
VIN	1FTER4EH6KLA58584	Driver Front Airbag	Yes
Body Color	Ingot Silver	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	59 mi	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.3	Driver Torso Airbag	No
Type/No. Cylinders	Gas/4	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Inline	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	No
Transmission Speeds	10	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	RWD	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	No	Rear Pass. Pelvis Airbag	No
Running Boards	No	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	Yes
Power Seats	Yes	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	Yes
		Other Safety Restraint	No

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

No

DATA FROM CERTIFICATION LABEL

Manufactured By	FORD MOTOR CO.	GVWR (kg)	2477
Date of Manufacturer	06/19	GAWR Front (kg)	1329
Vehicle Type	Truck	GAWR Rear (kg)	1588

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	N/A	5
Vehicle Capacity Weight (VCW) (kg)				787.0
DSC X 68.04 kg				340.2
Rated Cargo and Luggage Weight (RCLW) (kg)				446.8

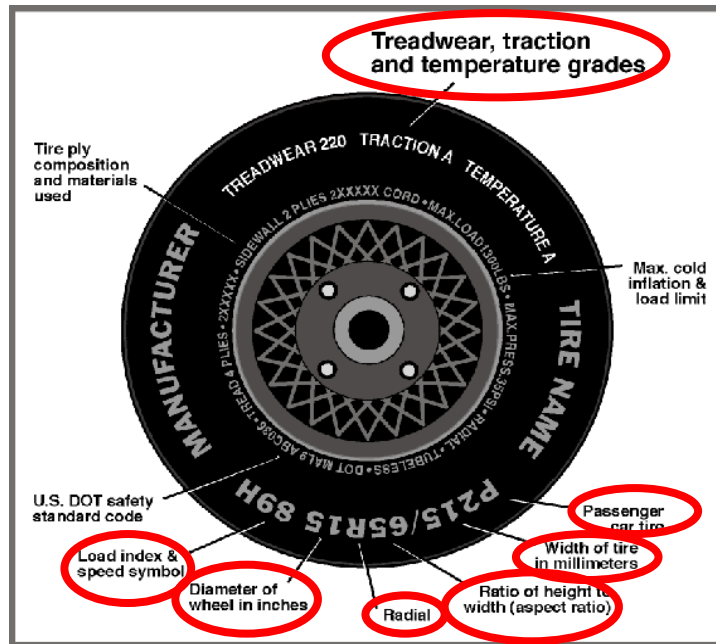
VEHICLE SEAT TYPE

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	Yes	N/A
Rear or Second Row Seat	N/A	Yes	N/A	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: 2019 Ford Ranger Supercrew
 Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
 Test Date: 9/5/2019



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	240	240
Recommended Tire Size	255/65R17 110T	255/65R17 110T
Tire Size on Vehicle	255/65R17 110T	255/65R17 110T
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Dueller	Dueller
Treadwear	520	520
Traction	B	B
Temperature Grades	B	B
Tire Plies Sidewall	5	5
Tire Plies Body	2	2
Load Index/Speed Symbol	110T	110T
Tire Material	Polyester/Steel/Nylon	Polyester/Steel/Nylon
DOT Safety Code Left	9B22 DHT 2119	9B22 DHT 2119
DOT Safety Code Right	9B22 DHT 2119	9B22 DHT 2119

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

Test Vehicle: 2019 Ford Ranger Supercrew
 Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
 Test Date: 9/5/2019

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	303	303	303	303
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	556.0	429.4		581.4	504.0		586.8	518.4	
Right	kg	523.6	405.2		524.6	481.6		516.6	477.4	
Ratio	%	56.4	43.6		52.9	47.1		52.6	47.4	
Totals	kg	1079.6	834.6	1914.2	1106.0	985.6	2091.6	1103.4	995.8	2099.2

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1914.2	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	49.0	(B)
Rated Cargo/Luggage Weight (RCLW) ¹	kg	136.0	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2099.2	(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.	-1.2	-1.1	-1.0	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	-1.2	-1.2	-0.8	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	-0.4	-0.5	-0.5	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg.	-0.6	-0.6	-0.7	Yes
Vehicle CG (Aft of Front Axle)	mm	1404	1517	1527	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	+23	+30	+41	

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

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

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast: Steel plate mounted in cargo bed	55.4
Components Removed: None	0.0

Test height adjustable suspension setting, if applicable:

N/A

¹ Rated cargo and luggage weight limited to 136.0 kg or 300.0 lbs.

DATA SHEET NO. 2

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

Test Vehicle: 2019 Ford Ranger Supercrew

NHTSA No.: M20190212

Test Program: SPNCAP Side Impact

Test Date: 9/5/2019

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	17.1	12.3	14.7
Front Passenger Seat	21.5	12.6	17.1
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	N/A	13.7
Non-Struck Side Rear Seat	Fixed	N/A	14.1
Rear Center Seat*	Fixed	N/A	12.0

* 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	14.7	262	Max	268	289	295
			Mid	252	262	278
			Min	236	242	261
Front Passenger Seat	17.1	248	Max	253	268	282
			Mid	232	248	259
			Min	212	228	235
Front Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Struck Side Rear Seat	13.7	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	Fixed	N/A
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	14.1	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	Fixed	N/A
			Min	N/A	N/A	N/A
Rear Center Seat*	12.0	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	Fixed	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: 2019 Ford Ranger Supercrew

NHTSA No.: M20190212

Test Program: SPNCAP Side Impact

Test Date: 9/5/2019

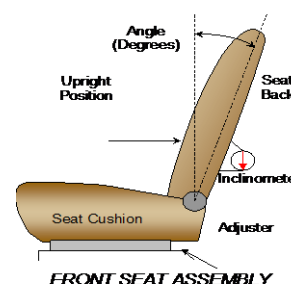
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	249	38	0	0
Front Passenger Seat	253	38	0	0
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	N/A	Fixed	N/A
Non-Struck Side Rear Seat	Fixed	N/A	Fixed	N/A
Rear Center Seat*	Fixed	N/A	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	44.8	26	2.9	5
Front Passenger Seat	50.3	26	2.9	5
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	N/A	Fixed	N/A
Non-Struck Side Rear Seat	Fixed	N/A	Fixed	N/A
Rear Center Seat*	Fixed	N/A	Fixed	N/A

* If applicable.

SEAT BELT ANCHORAGE ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	4	4, Uppermost

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	3	Lowest, Forwardmost

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2019 Ford Ranger Supercrew

NHTSA No.: M20190212

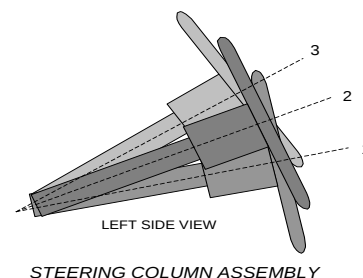
Test Program: SPNCAP Side Impact

Test Date: 9/5/2019

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.

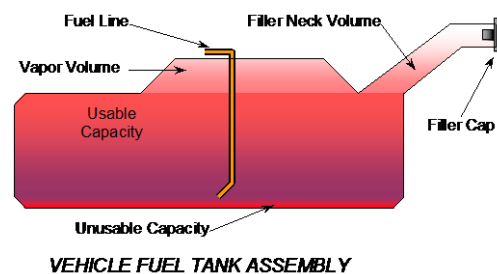
	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	23.7	0
Geometric Center, Position No. 2	25.1	22
Uppermost, Position No. 3	26.6	43
Telescoping Steering Wheel Travel		43
Test Position	25.1	22



FUEL PUMP

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

The electronic fuel pump operates for a prescribed amount of time to pressurize the fuel system following the actuation of the ignition. If no attempt has been made to start the engine within two seconds following ignition operation the fuel pump will shut-off. The fuel pump operates continuously while the engine is running. If the engine stalls the fuel pump is deactivated. A fuel system shut-off system is also equipped which is designed to stop the fuel flow to the engine if the vehicle sustains an impact above a certain magnitude.



FUEL TANK CAPACITY

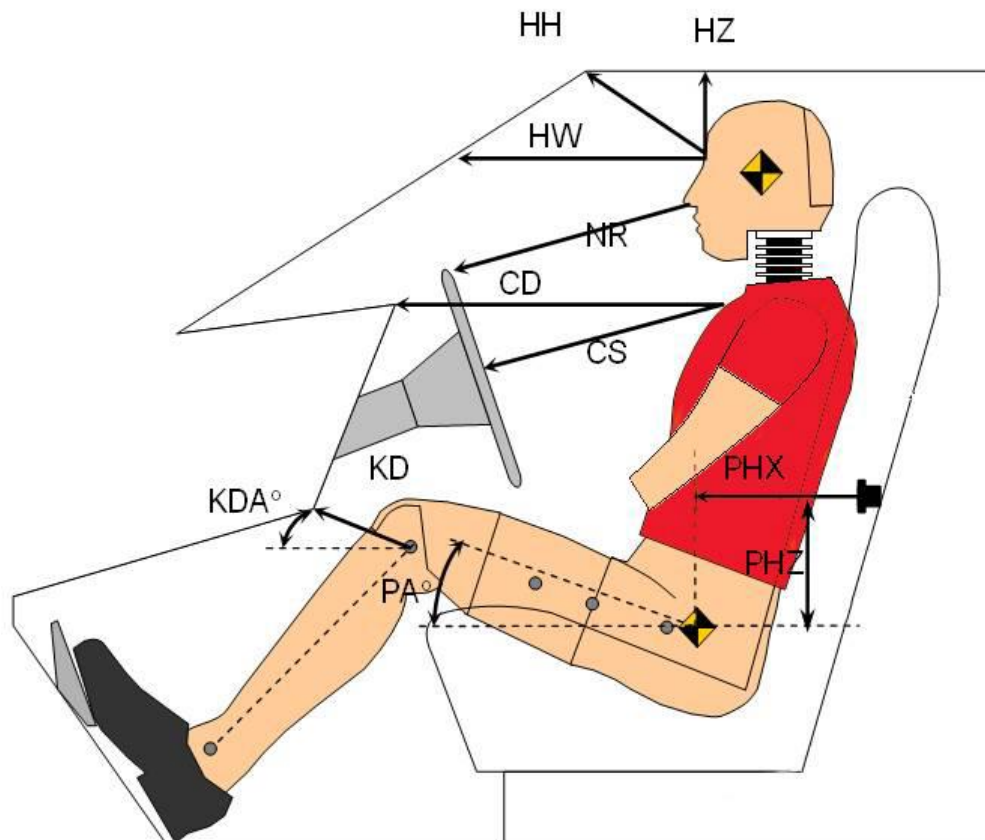
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	71.2
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	71.2
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	66.2
Actual Amount of Solvent Used in Test	66.2
1/3 of Usable Capacity	23.7

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

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2019 Ford Ranger Supercrew
 Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
 Test Date: 9/5/2019

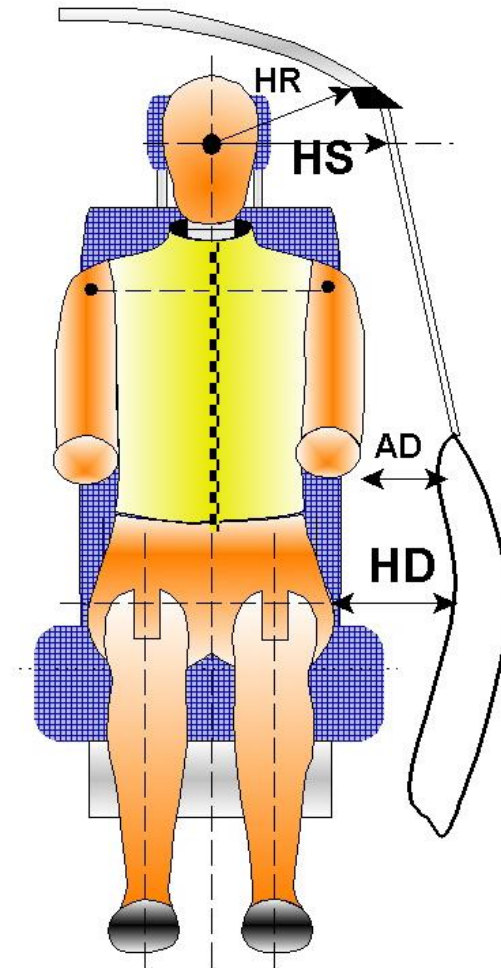


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	310	
HW	Head to Windshield	619	
HZ	Head to Visor	223	
NR	Nose to Rim	253	
CD	Chest to Dashboard	424	
CS	Chest to Steering Wheel	159	
KDL/KDLA°	Left Knee to Dash	110	34.2
KDR/KDRA°	Right Knee to Dash	96	32.9
PAX°	Pelvic Tilt Angle (X-axis)		0.6
PAY°	Pelvic Tilt Angle (Y-axis)		19.4
PHX	Hip Point to Striker (X-Axis)	258	
PHZ	Hip Point to Striker (Z-Axis)	149	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2019 Ford Ranger Supercrew
Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
Test Date: 9/5/2019

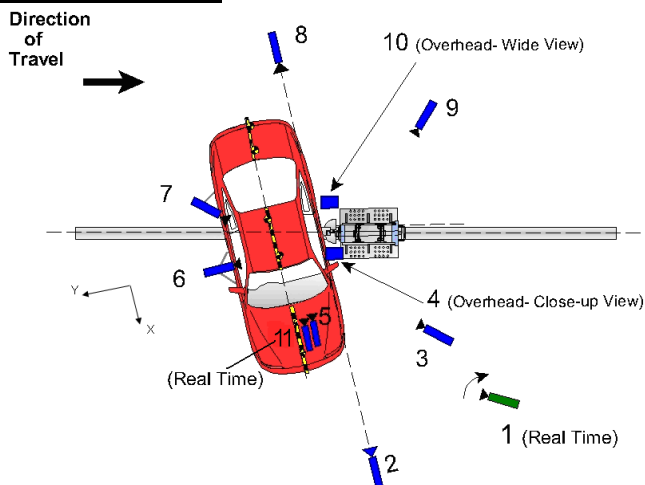


Code	Measurement Description	Length (mm)
HR	Head to Side Header	262
HS	Head to Side Window	360
AD	Arm to Door	133
HD	Hip Point to Door	167

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2019 Ford Ranger Supercrew
 Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
 Test Date: 9/5/2019



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	1149	5025	-1664	20	1000
3	Impact side 45° – forward pole view	2190	3127	-1670	20	1000
4	Overhead Close-up view of impact	0	0	-5750	28	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	-1376	5704	-1553	20	1000
9	Impact side 45° – rearward pole view	-1439	3175	-1537	20	1000
10	Overhead wide view of impact	193	0	-5750	18	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

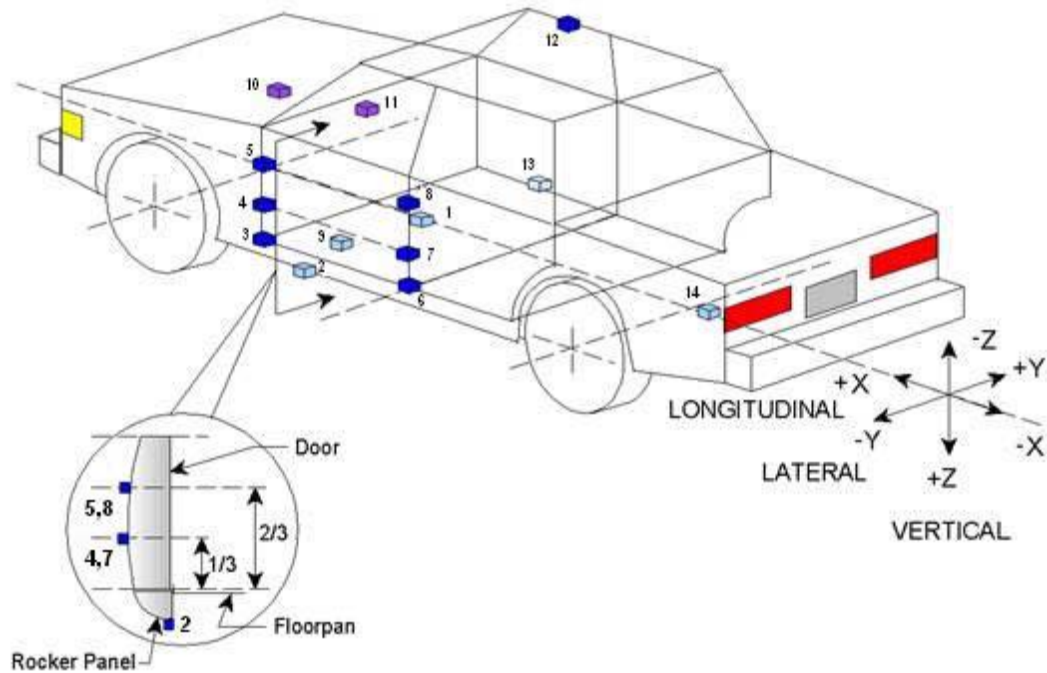
INSTRUMENTATION

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

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

Test Vehicle: 2019 Ford Ranger Supercrew
Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
Test Date: 9/5/2019



Accelerometer/Sensor Location				
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3553	135	-520
2	Left Floor Sill	3390	-686	-500
3	A-Pillar Sill	3766	-686	-503
4	A-Pillar Low	3807	-821	-678
5	A-Pillar Mid	3820	-826	-1120
6	B-Pillar Sill	2690	-685	-507
7	B-Pillar Low	2755	-822	-724
8	B-Pillar Mid	2760	-820	-1185
9	Driver Seat Track	3093	-576	-555
10	Engine Top	4620	5	-1050
11	Firewall	4266	0	-1134
12	Right Roof	2965	612	-1779
13	Right Floor Sill	3383	690	-515
14	Rear Floorpan	540	0	-832

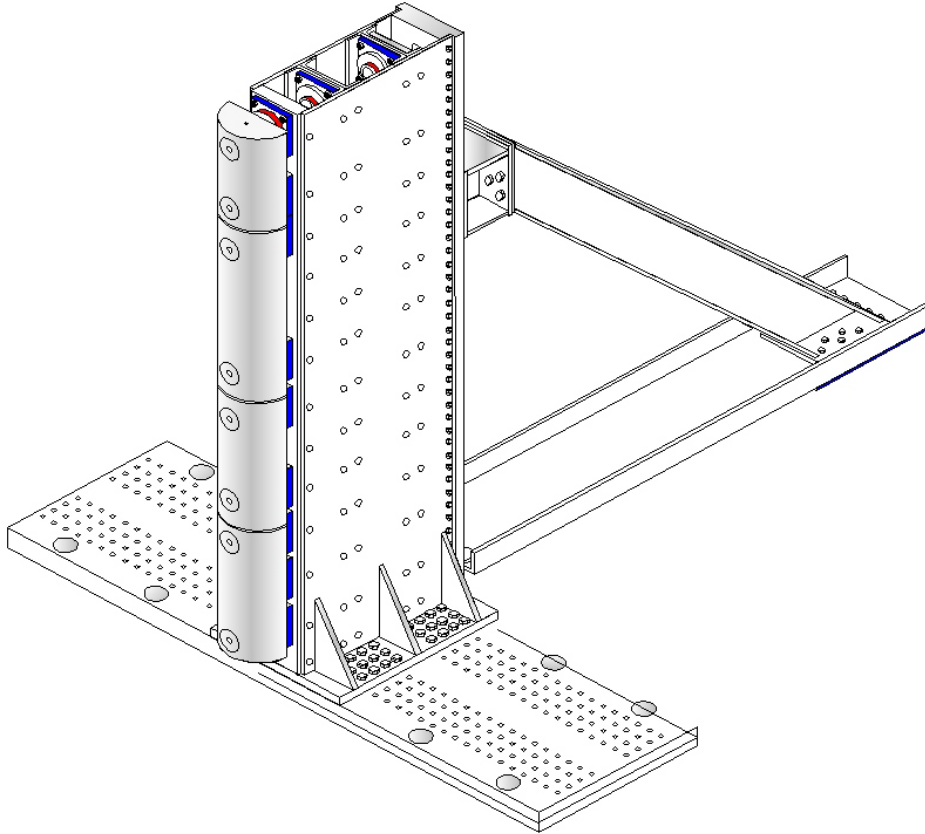
Reference: X - Test Vehicle Rear Bumper (+ forward)
Y - Test Vehicle Centerline (+ to right)
Z - Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2019 Ford Ranger Supercrew
Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
Test Date: 9/5/2019

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: 2019 Ford Ranger Supercrew
Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
Test Date: 9/5/2019

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	SCAB
Top of Head	SCAB
Left Side of Head	SCAB
Back of Head	SCAB
Left Shoulder	SAB
Upper Torso	Seatback bolster, SAB
Lower Torso	Seatback bolster
Left Hip	SAB, seat cushion bolster, 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	No	No	No
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	Separated at left A pillar, cracked overall
Side Window Damage	Broken, but intact
Other Notable Effects	None

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

Test Vehicle: 2019 Ford Ranger Supercrew
 Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
 Test Date: 9/5/2019

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

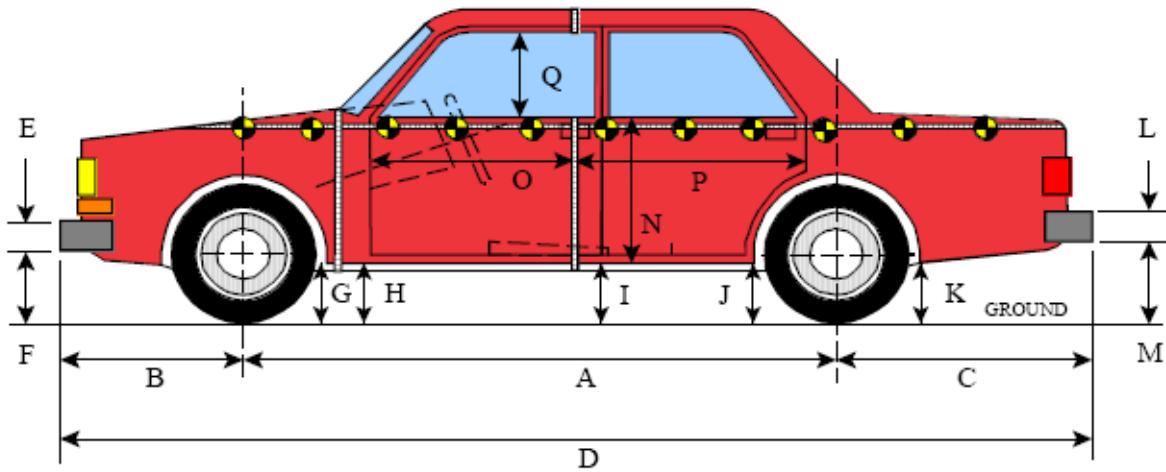
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1200
Actual Impact Point (Aft of Front Axle)	mm		1204
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 of Intended Impact point	-4
Angle Between Vehicle's Longitudinal Centerline and Line of Motion	degrees	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	31.87
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	31.89

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2019 Ford Ranger Supercrew
 Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
 Test Date: 9/5/2019



LEFT SIDE VIEW

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

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

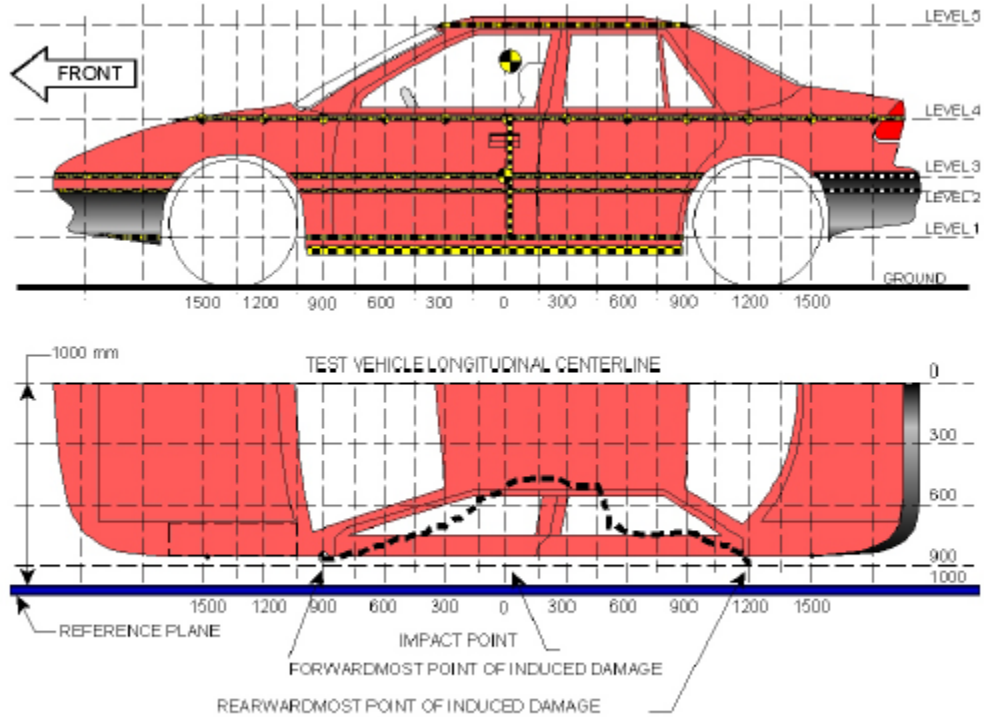
Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	3220	3210	10
B	Front Axle to Front Surface of Vehicle	900	900	0
C	Rear Axle to Rear Surface of Vehicle	1230	1240	-10
D	Total Length at Centerline	5350	5350	0
E	Front Bumper Thickness	75	75	0
F	Front Bumper Bottom to Ground	605	626	-21
G	Sill Height at Front Wheel Well	433	437	-4
H	Sill Height at Front Door Leading Edge	463	464	-1
I	Sill Height at B-Pillar	465	479	-14
J1	Sill Height at Rear Wheel Well	601	536	65
J2	Pinch Weld Height at Rear Wheel Well	406	437	-31
K	Sill Height Aft of Rear Wheel Well	525	608	-83
L	Rear Bumper Thickness	123	123	0
M	Rear Bumper Bottom to Ground	584	665	-81
N	Sill Height to Bottom of Front Window Sill	828	830	-2
O	Front Door Leading Edge to Impact CL	598	530	68
P	Rear Door Trailing Edge to Impact CL	1354	1295	59
Q	Front Window Opening	418	402	16
R	Right Side Length	5080	5079	1
S	Left Side Length	5080	5035	45
T ¹	Vehicle Width at B-Pillars	1810	1690	120

¹ Max width = 1865

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2019 Ford Ranger Supercrew
 Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
 Test Date: 9/5/2019



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	508	363	0
2	Occupant H-Point	856	403	0
3	Mid-Door	881	404	0
4	Window Sill	1193	369	0
5	Window Top	1730	153	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: 2019 Ford Ranger Supercrew
 Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
 Test Date: 9/5/2019

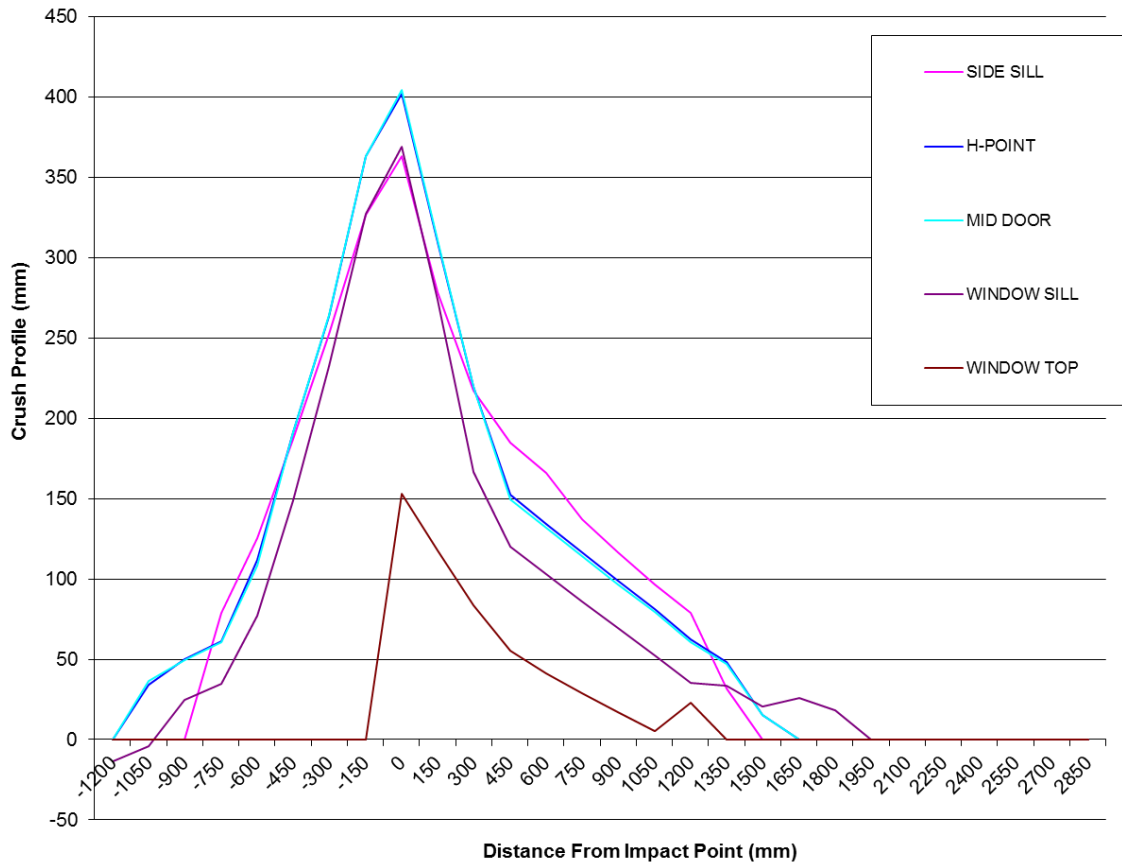
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1200	0	0	0	792	0	0	0	0	805	0	0	0	0	-13	0
-1050	0	920	921	809	0	0	886	885	813	0	0	34	36	-4	0
-900	0	912	910	819	0	0	862	860	794	0	0	50	50	25	0
-750	874	893	892	827	0	795	832	832	792	0	79	61	60	35	0
-600	866	891	891	835	0	741	779	783	757	0	125	112	108	78	0
-450	863	891	892	844	0	676	700	701	695	0	187	191	191	149	0
-300	862	892	893	852	0	609	628	628	619	0	253	264	265	233	0
-150	860	892	893	858	0	533	529	530	530	0	327	363	363	328	0
0	857	893	894	863	612	494	490	490	494	459	363	403	404	369	153
150	856	892	894	867	626	578	582	583	593	509	278	310	311	274	117
300	855	891	894	870	631	638	671	675	703	547	217	220	219	167	84
450	853	889	893	873	636	668	737	743	753	580	185	152	150	120	56
600	845	888	891	875	640	679	754	760	772	599	166	134	131	103	41
750	830	888	891	877	643	692	772	776	791	615	138	116	115	86	28
900	832	889	890	878	647	716	790	794	809	630	116	99	96	69	17
1050	837	889	891	862	650	741	808	811	810	644	96	81	80	52	6
1200	842	891	891	880	650	763	828	831	845	627	79	63	60	35	23
1350	858	874	873	877	0	826	826	826	844	0	32	48	47	33	0
1500	0	923	923	878	0	0	908	908	857	0	0	15	15	21	0
1650	0	0	0	879	0	0	0	0	853	0	0	0	0	26	0
1800	0	0	0	885	0	0	0	0	867	0	0	0	0	18	0

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

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

Test Vehicle: 2019 Ford Ranger Supercrew
Test Program: SPNCAP Side Impact

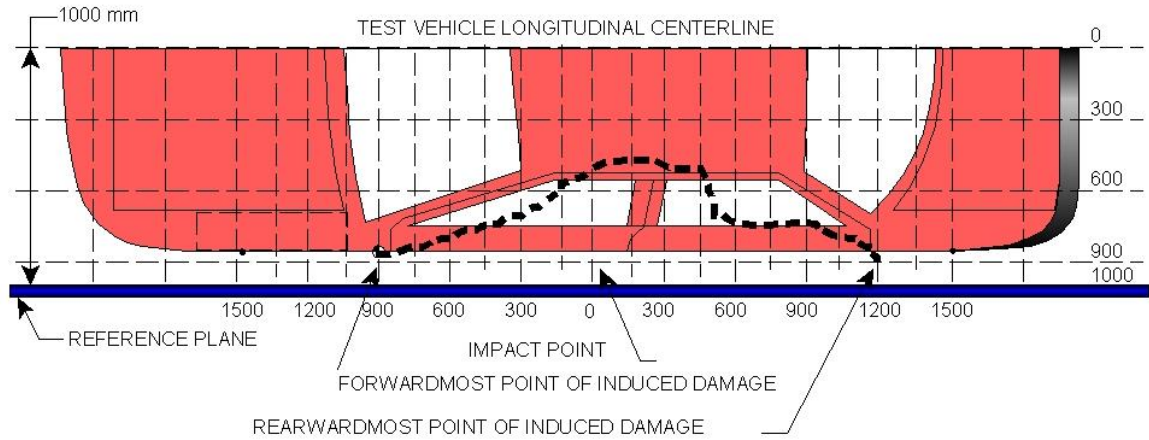
NHTSA No.: M20190212
Test Date: 9/5/2019



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2019 Ford Ranger Supercrew
 Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
 Test Date: 9/5/2019



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	1800	4	867	885	18
2	1200	1	763	842	79
3	600	1	679	845	166
4	150	3	583	894	311
5	-450	2	700	891	191
		3	701	892	191
6 ¹	-1050	3	885	921	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

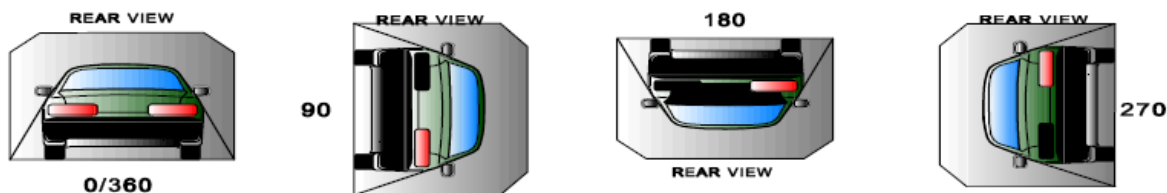
Test Vehicle: 2019 Ford Ranger Supercrew
 Test Program: SPNCAP Side Impact

NHTSA No.: M20190212
 Test Date: 9/5/2019

Test Time: 14:27 Temperature: 21.3°C

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

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

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

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

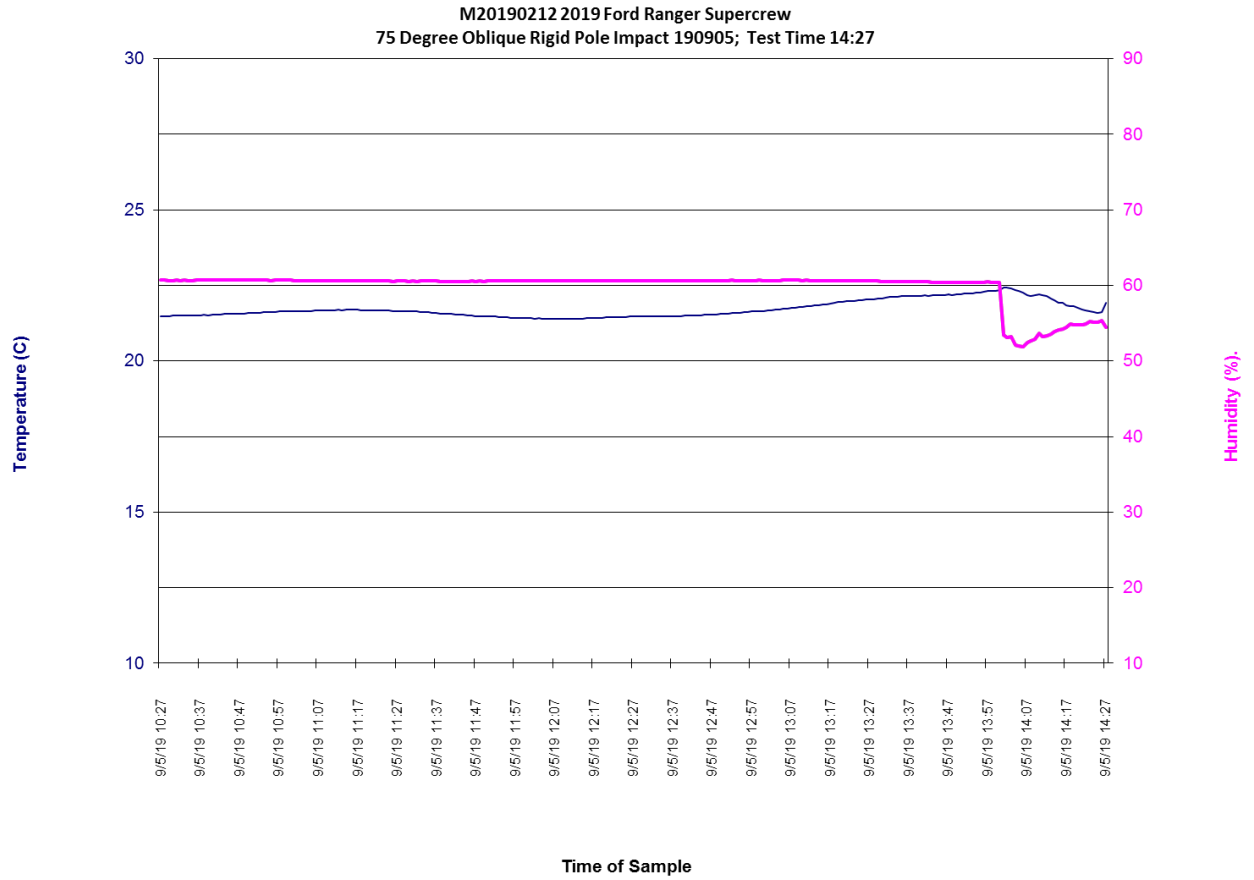
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	0	0
90 to 180	0	0	0	0
180 to 270	0	0	0	0
270 to 360	0	0	0	0

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

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

Test Vehicle: 2019 Ford Ranger Supercrew NHTSA No.: M20190212
Test Program: SPNCAP Side Impact Test Date: 9/5/2019



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

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2	As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-4
3	Pre-Test Frontal View of Test Vehicle	A-5
4	Post-Test Frontal View of Test Vehicle	A-5
5	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-6
6	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-6
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17	Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	A-12
18	Pre-Test Right Side View of Pole Positioned Against Side of Vehicle	A-12
19	Pre-Test Close-Up View of Impact Point Target	A-13
20	Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-13
21	Pre-Test Front Close-Up View of Dummy Head and Chest	A-14
22	Post-Test Front Close-Up View of Dummy	A-14
23	Pre-Test Left Side View of Dummy Showing Belt and Chalking	A-15
24	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-16
25	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-16
26	Pre-Test Front View of Seat Back Prior to Dummy Positioning	A-17
27	Pre-Test Front View of Dummy Head and Shoulders in Relation to Head Restraint	A-17
28	Pre-Test Front View of Seat Pan Prior to Dummy Positioning	A-18
29	Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-18
30	Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-19
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38	Pre-Test Close-Up Left Side View of Driver Seat Back	A-23
39	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-23
40	Pre-Test Dummy and Door Clearance View	A-24
41	Post-Test Dummy and Door Clearance View	A-24
42	Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-25
43	Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-25
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50	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-29
51	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-29
52	Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View	A-30
53	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-31
54	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-31
55	Close-Up View of Vehicle's Certification Label	A-32
56	Close-Up View of Vehicle's Tire Information Placard or Label	A-32
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59	Pre-Test Pole Barrier Side View	A-34
60	Post-Test Pole Barrier Side View	A-34
61	Pre-Test Ballast View	A-35
62	Post-Test Primary and Redundant Speed Trap Read-Out	A-35
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64	FMVSS No. 301 Static Rollover 90 Degrees	A-36
65	FMVSS No. 301 Static Rollover 180 Degrees	A-37
66	FMVSS No. 301 Static Rollover 270 Degrees	A-37
67	FMVSS No. 301 Static Rollover 360 Degrees	A-38
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70	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-39
71	Post-Test View of Shattered Vehicle Inner Door Panel	A-40



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



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



No. 003 Pre-Test Frontal View of Test Vehicle



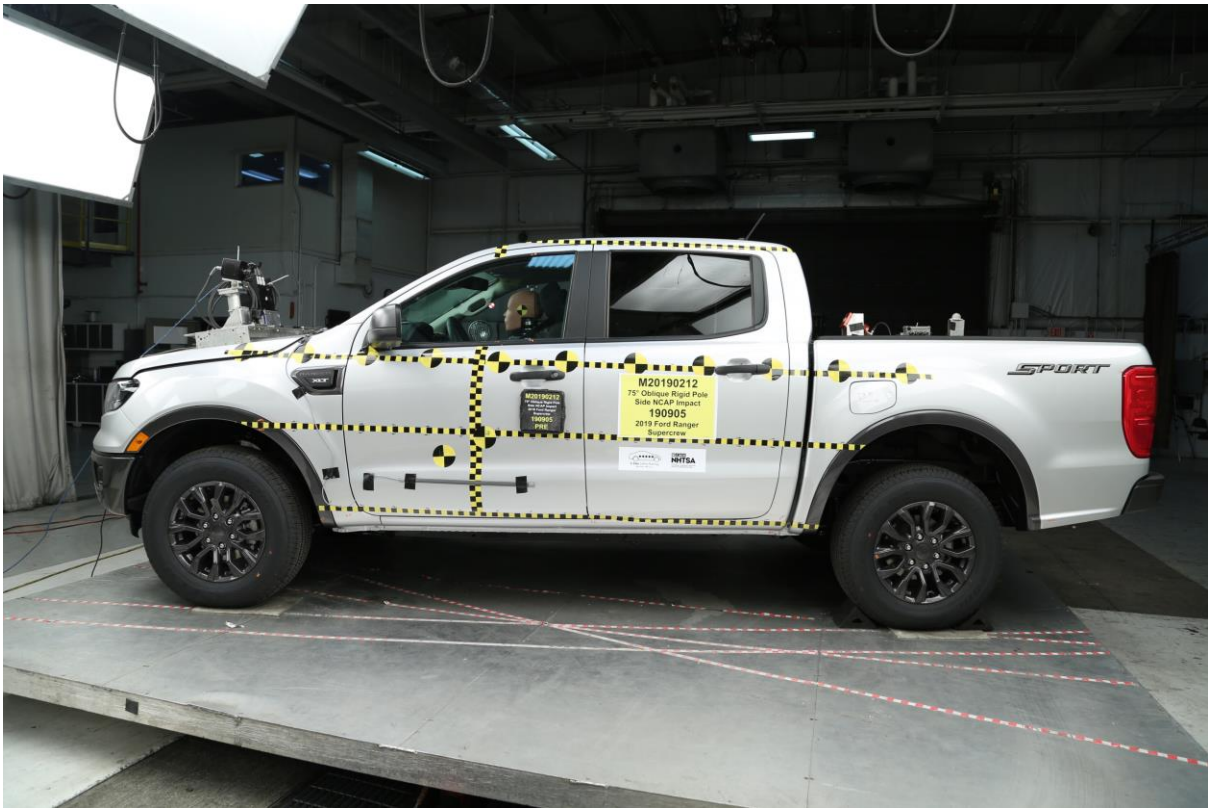
No. 004 Post-Test Frontal View of Test Vehicle



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



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



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



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



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



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



No. 011 Pre-Test Rear View of Test Vehicle



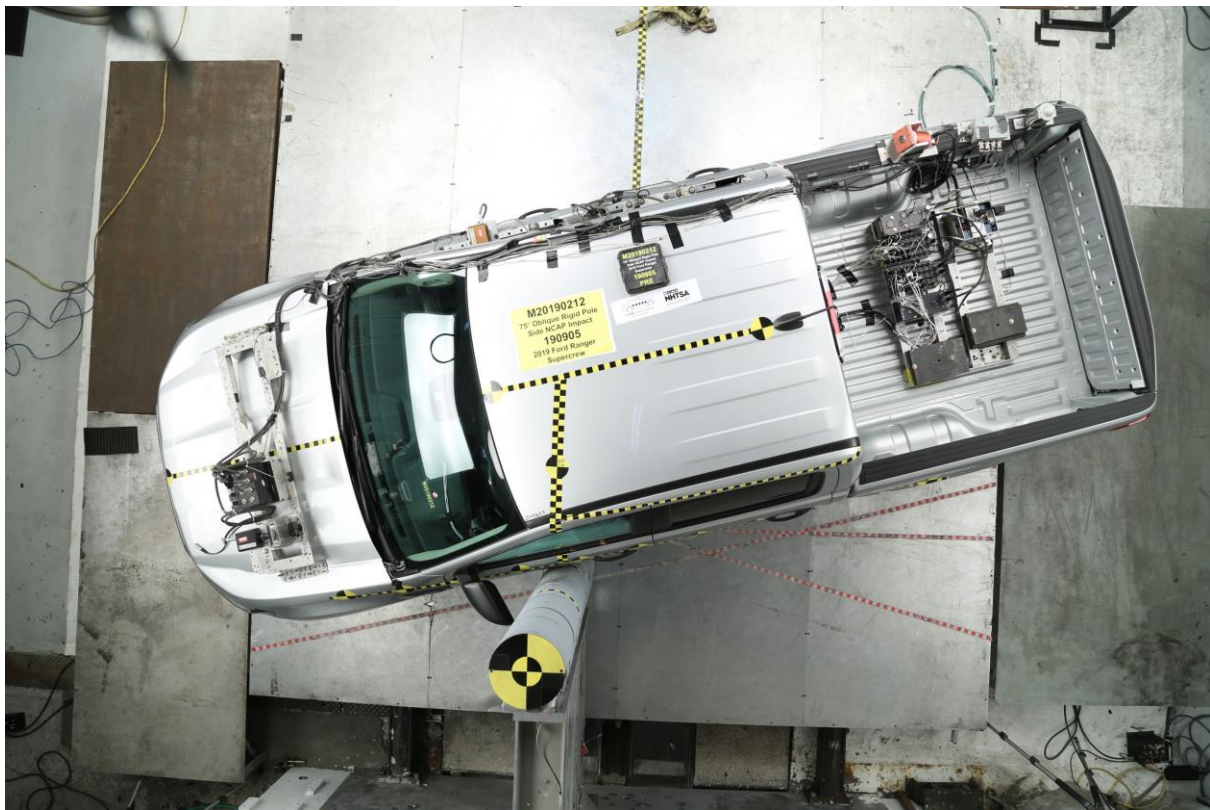
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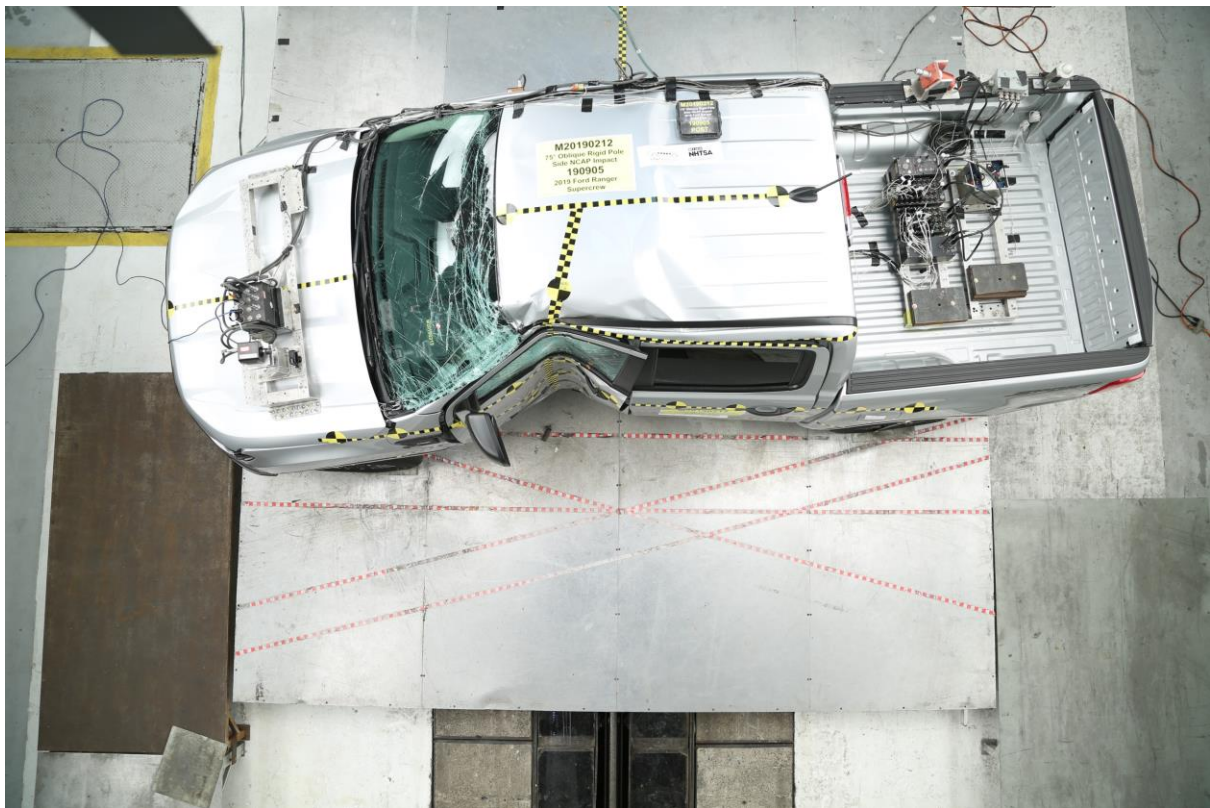
No. 013 Pre-Test Right Side View of Test Vehicle



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

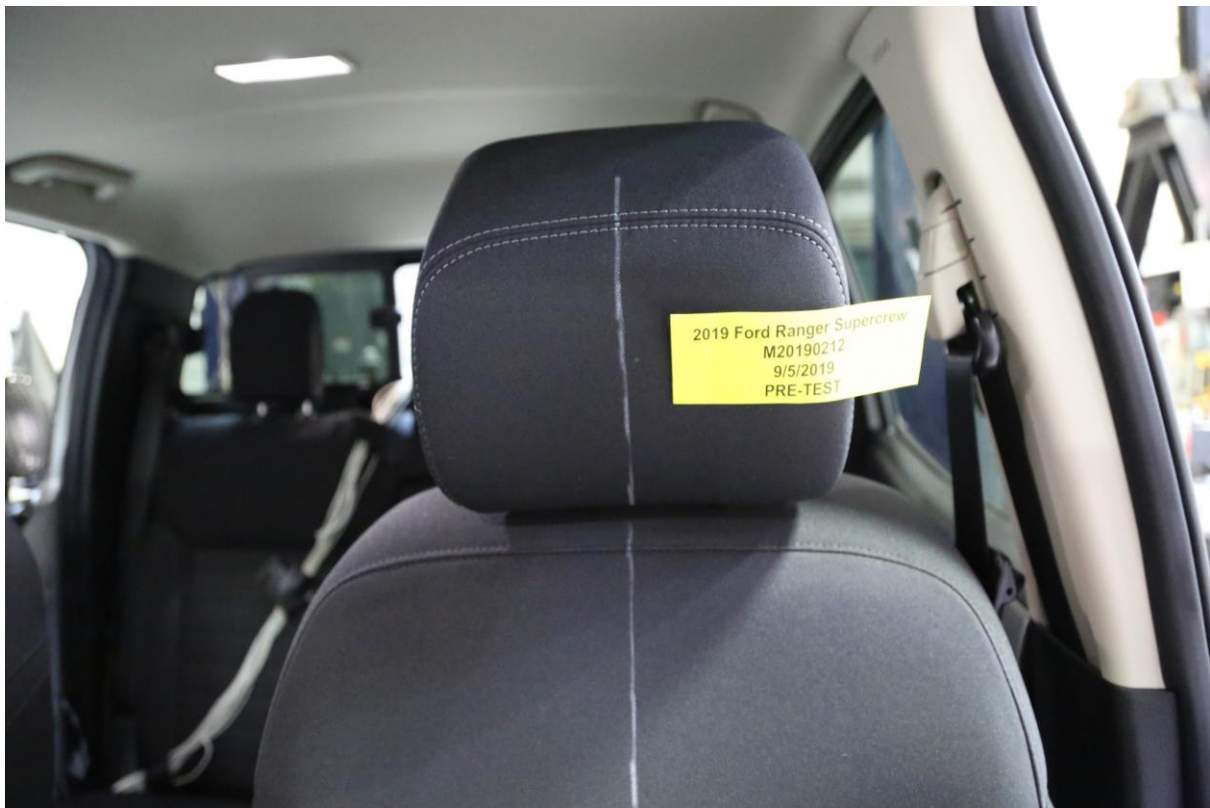
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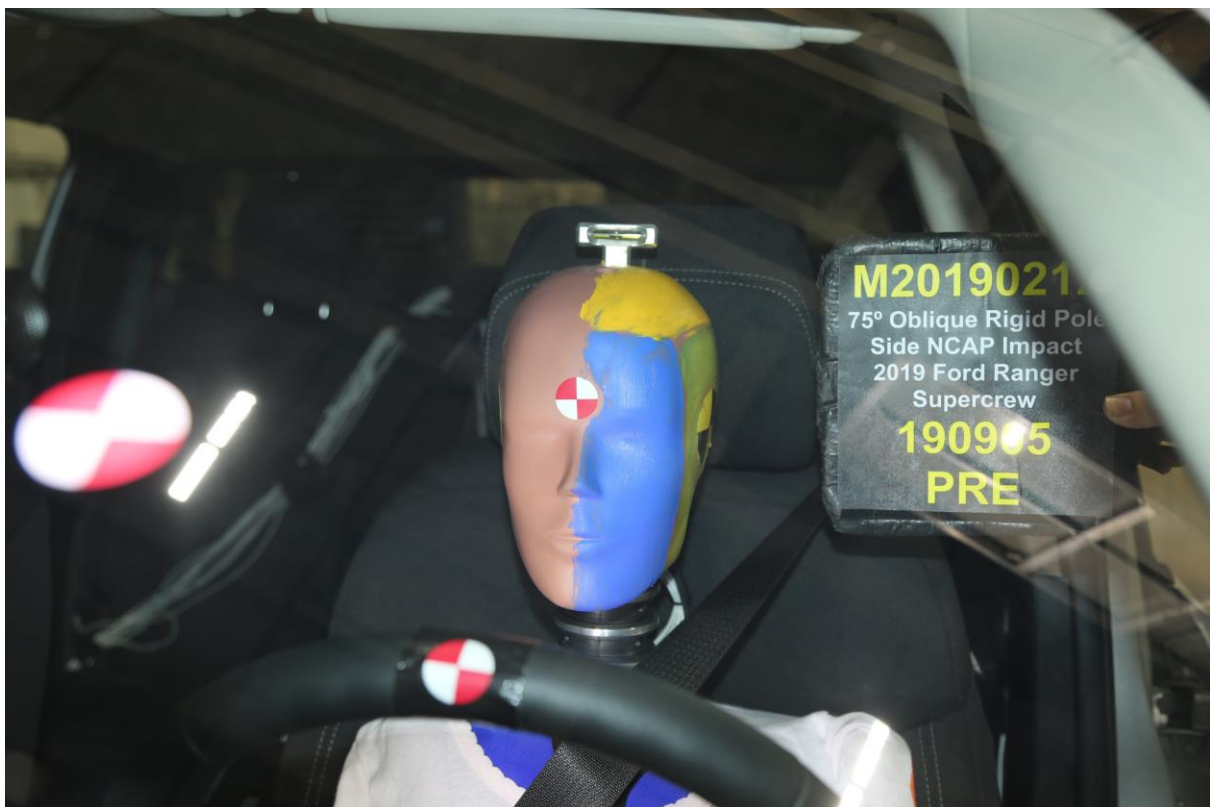
No. 024 Pre-Test Left Side View of Dummy Shoulder and Door Top View



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



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



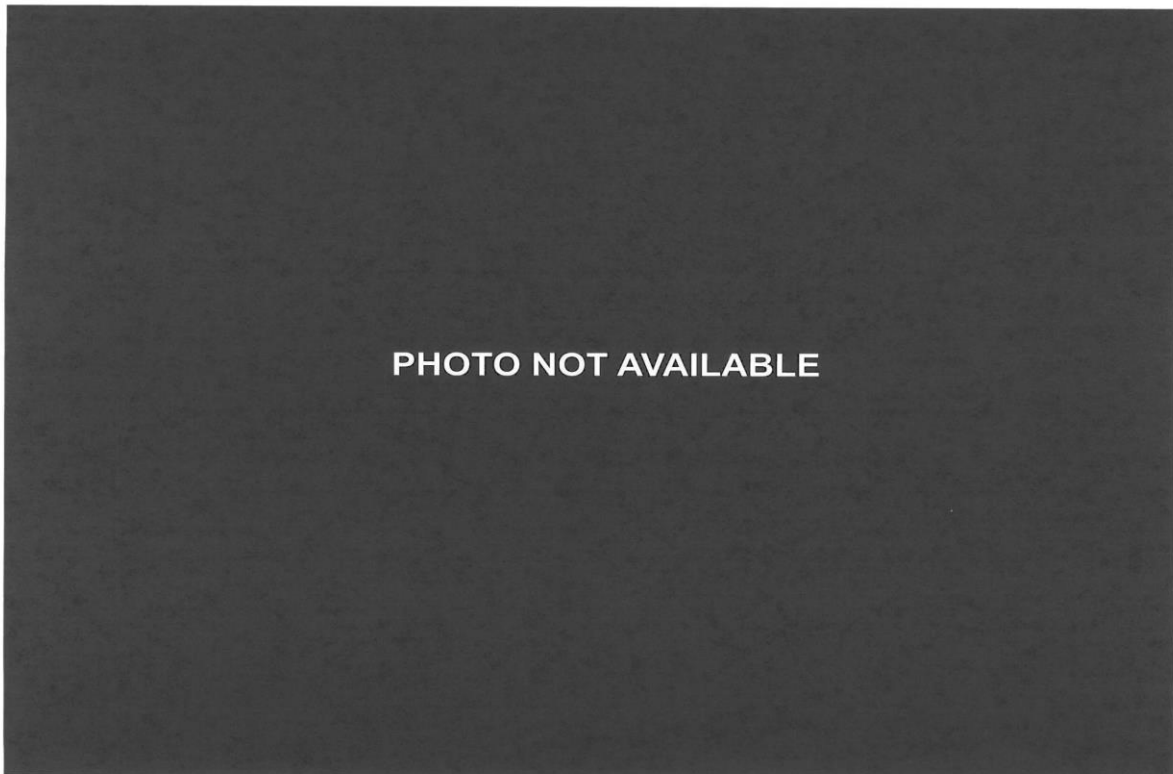
No. 036 Pre-Test View of Parking Brake



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

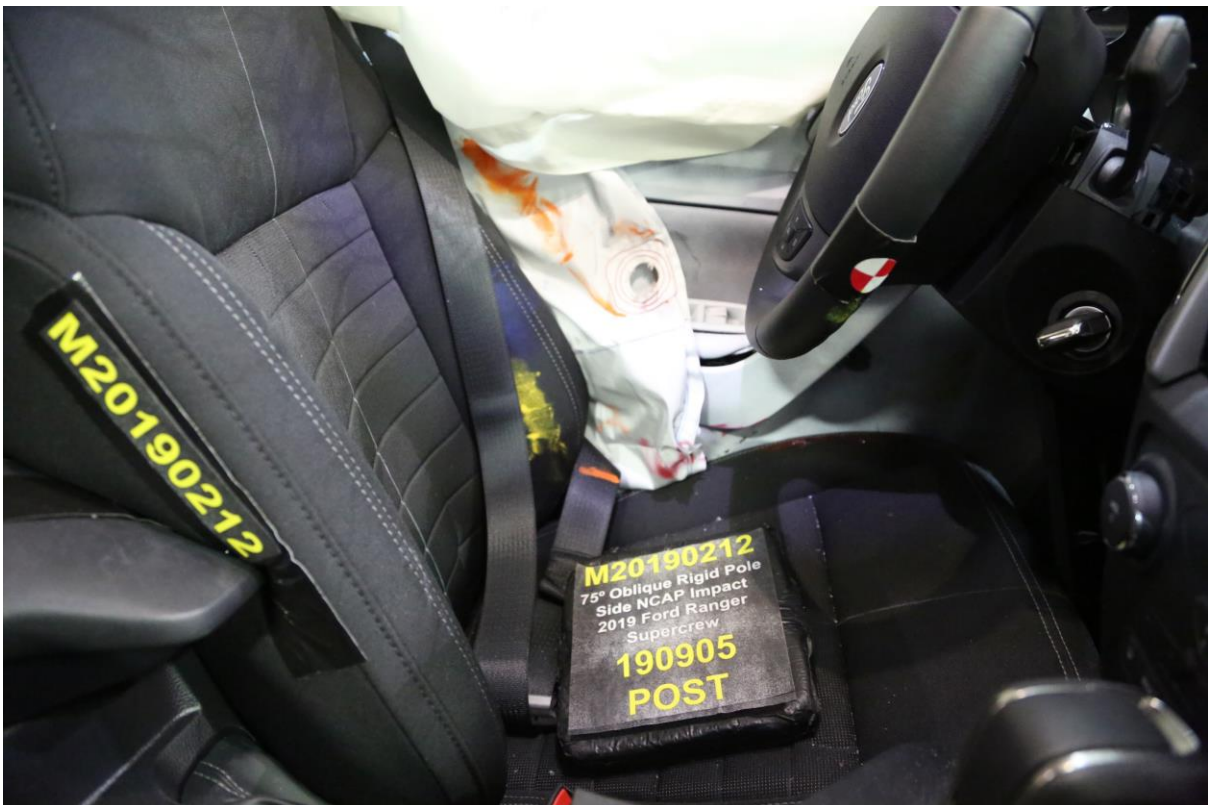
PHOTO NOT APPLICABLE

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

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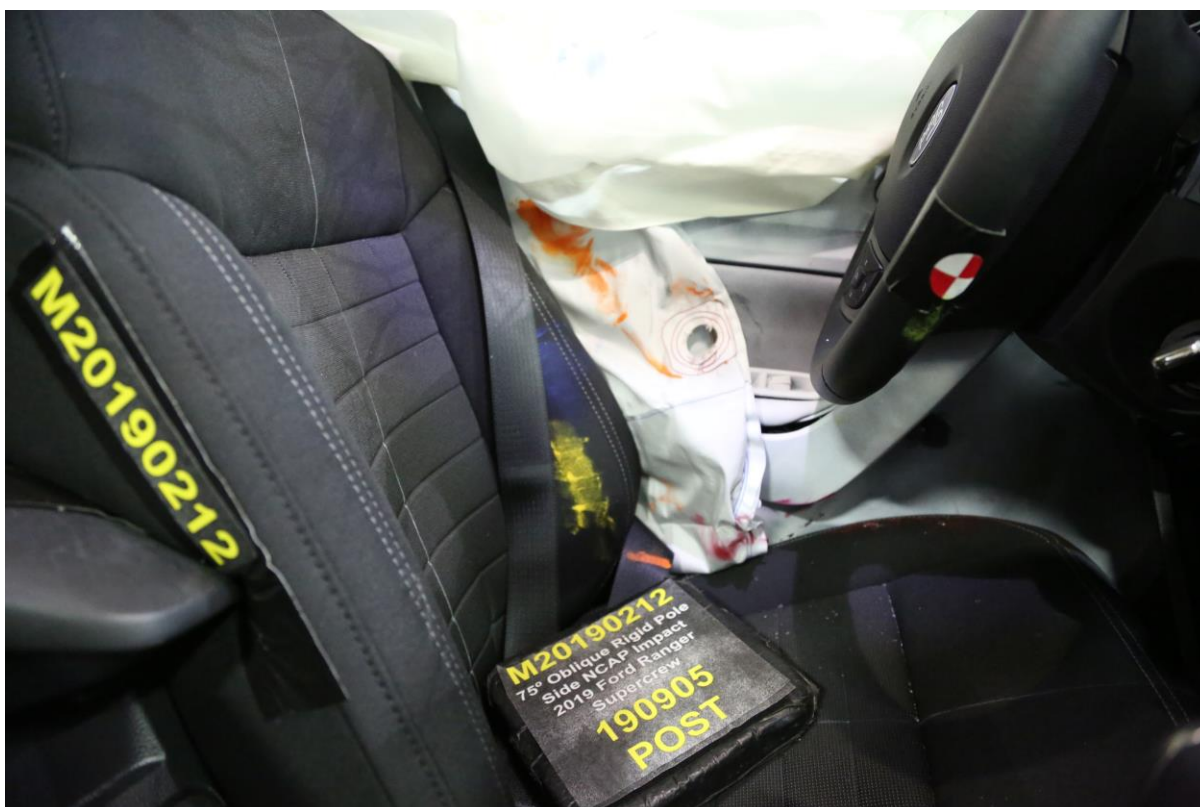
No. 047 Post-Test Dummy Close-Up Head Contact with Side Airbag View



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



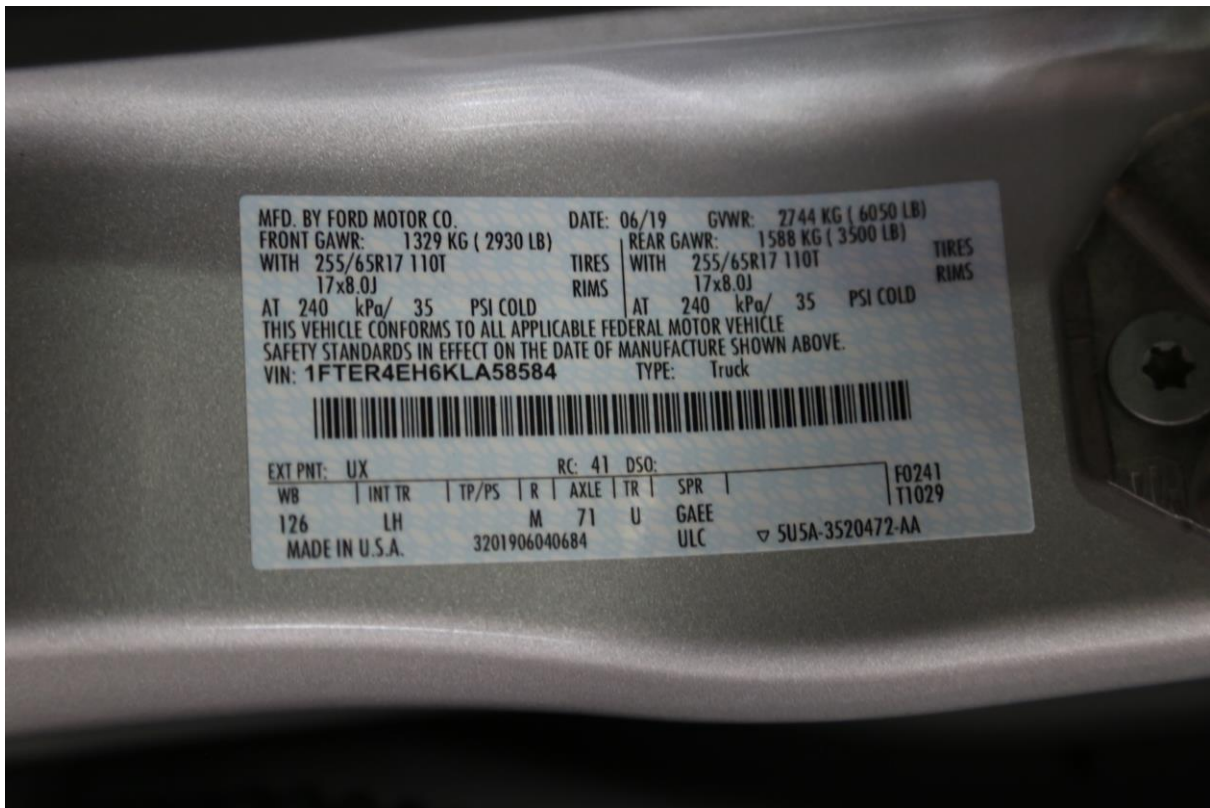
No. 052 Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



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



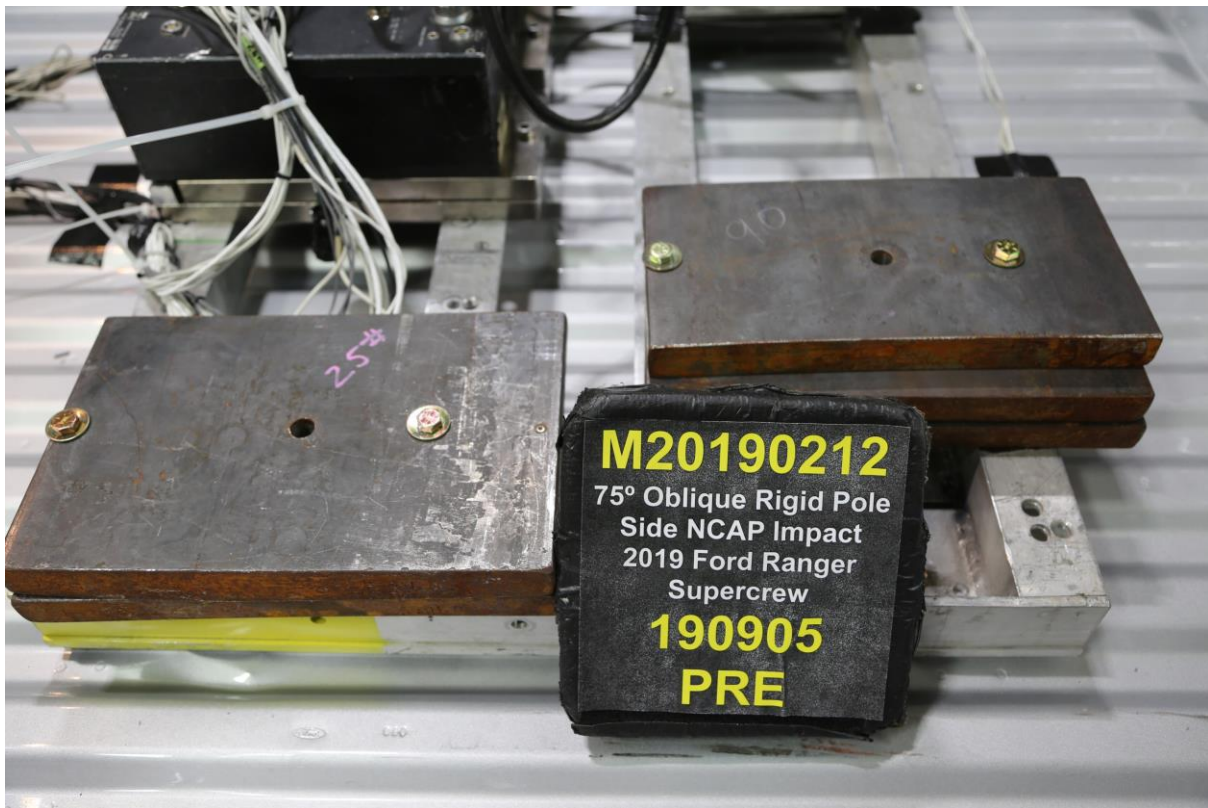
No. 058 Post-Test Pole Barrier Front View



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



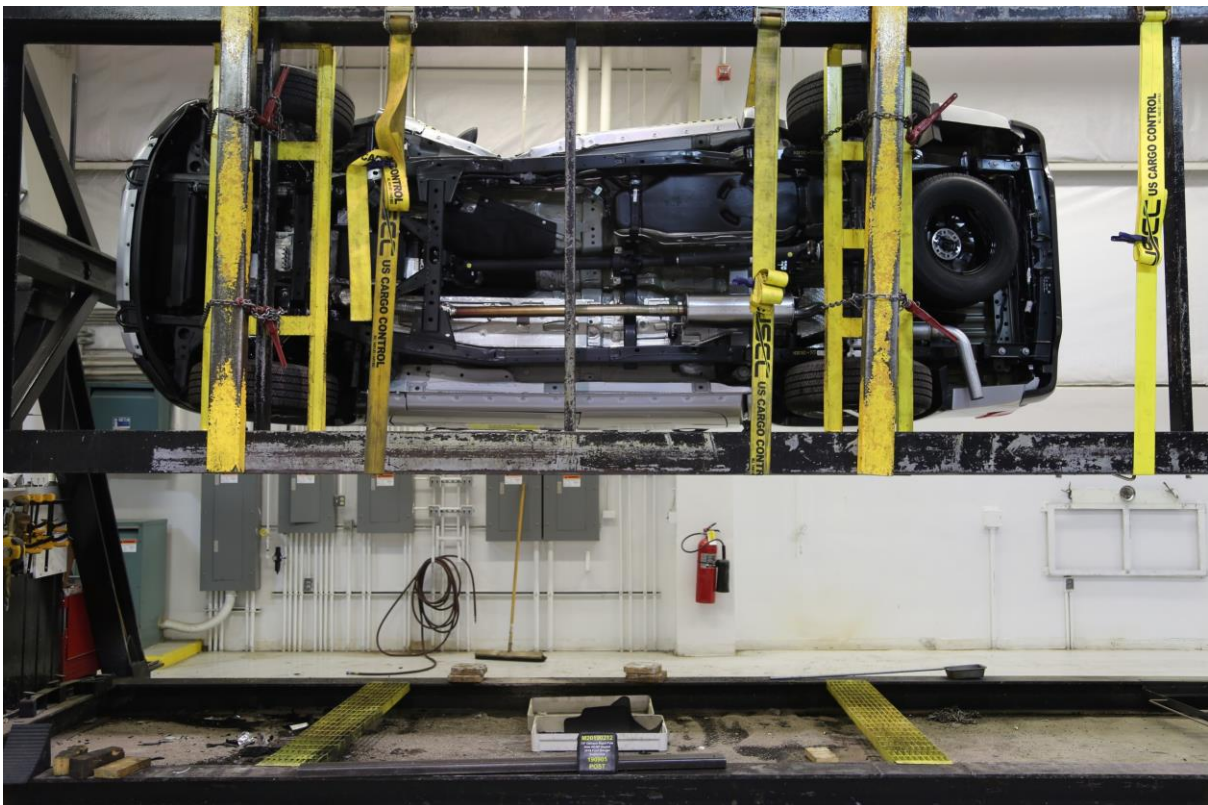
No. 063 FMVSS No. 301 Static Rollover 0 Degrees



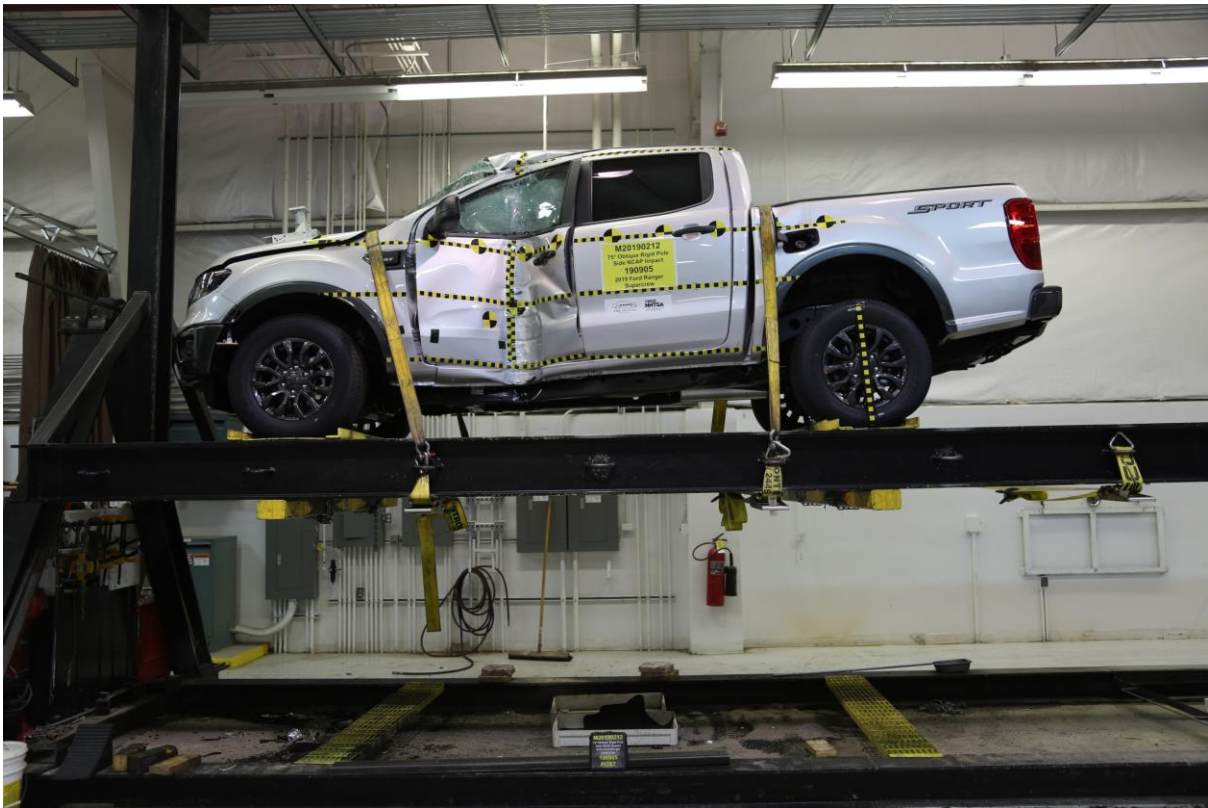
No. 064 FMVSS No. 301 Static Rollover 90 Degrees



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

Go Further
ford.com

VEHICLE DESCRIPTION

RANGER

2019 SUPERCREW 4X2 - 5' BOX
XL1 126.5" WHEELBASE
2.3L ECOBOOST ENGINE
ELEC 10-SPEED AUTO TRANS

EXTERIOR
INDOT SILVER
INTERIOR
EBONY PREMIUM CLOTH SEATS

KL A58584

STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE

EXTERIOR

- DAYTIME RUNNING LIGHTS
- EASY FUEL CAP/LESS FILLER
- FOG LAMPS
- FUEL TANK - 18.0 GALLON
- FULLY BOXED STEEL FRAME
- HEADLAMPS - AUTO HALOGEN
- HEADLAMPS - AUTO HIGH BEAM
- HEADLAMPS - AUTOLAMP (ON/OFF)
- POWER TAILGATE LOCK
- PRIVACY GLASS
- TOW HOOKS
- TRAILER SWAY CONTROL
- WHEEL LIP MOLDS

INTERIOR

- 110V OUTLET
- 2ND ROW FOLD BENCH
- DUAL SLIDING SUNVISORS
- LOCKING GLOVE BOX
- OUTSIDE TEMP DISPLAY
- OVERHEAD CONSOLE
- POWERPOINTS (2)
- TILT/TELESCOPE STR COLUMN (ON/OFF)

FUNCTIONAL

- 4-WHEEL DISC BRAKES W/ABS
- AUTO START STOP TECH
- BLIS W/CROSS TRAFFIC ALERT
- CURVE CONTROL
- ELECTRONIC PWR ASST STEER
- FORDPASS™ CONNECT (4G-Wi-Fi)
- HOTSPOT TELEMATICS MODM
- FORWARD SENSING SYSTEM
- HILL START ASSIST
- LANE KEEPING SYSTEM
- PRE-COLLISION ASSIST W/ABS
- REMOTE KEYLESS ENTRY
- REVERSE SENSING AND REAR VIEW CAMERA

SAFETY/SECURITY

- AIRBAGS - SAFETY CANOPY®
- BELT-MINDER CHIME
- CTR HIGH MOUNT STOP LAMP
- MYKEY
- PERIMETER ALARM
- SECURELOCK ANTI-THEFT SYS
- THE PRESSURE MOUNT SYS

WARRANTY

- 3YR/50,000 BUMPER-TO-BUMPER
- 5YR/100,000 POWERTRAIN
- 5YR/100,000 ROADSIDE ASSIST

INCLUDED ON THIS VEHICLE

EQUIPMENT GROUP 300A

XL1 SERIES
DUAL-ZONE ELIC CLIMATE CONTROL
SLIDING REAR WINDOW W/DEF
REMOTE START

OPTIONAL EQUIPMENT/OTHER

2500RPT AS B/W TIRE
SYNC3 LINKSOM RADIO-SPKR
17" MAGNETIC PANTED ALUM WHL
SPORT APPEARANCE PACKAGE
FRONT LICENSE PLATE BRACKET

MSRP

2,800.00

PRICE INFORMATION

BASE PRICE \$30,295.00
TOTAL OPTIONS/OTHER 2,800.00
TOTAL VEHICLE & OPTIONS/OTHER 33,095.00
DESTINATION & DELIVERY 1,195.00

MSRP

\$34,290.00

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 Not Rated Not Rated

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 Rear seat Not Rated Not Rated

Based on the risk of injury in a side impact.

Rollover To Be Rated

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

Fuel Economy and Environment

Fuel Economy

23 MPG
combined city/hwy

21 MPG
city

26 MPG
highway

4.3 gallons per 100 miles

You spend \$1,250 more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$1,650

Fuel Economy & Greenhouse Gas Rating (passage only)

Smog Rating (passage only)

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 costs \$1,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.50 per gallon. MPG is miles per gallon (city only). Producing and distributing fuel also creates emissions, learn more at fuelconomy.gov.

Calculate personalized estimates and compare vehicles

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 Not Rated Not Rated

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 Rear seat Not Rated Not Rated

Based on the risk of injury in a side impact.

Rollover To Be Rated

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

FordPass™ Connect

With a FordPass Connect-equipped vehicle, you can use FordPass for:

- Access Vehicle Control Features
- Remotely start, lock and unlock your vehicle
- Locate your vehicle and check approximate fuel range
- Receive vehicle health alerts

Activate 4G LTE Wi-Fi Hotspot

- New vehicles include a complimentary 3-month or 500-hour Wi-Fi trial
- Connect up to 10 Wi-Fi-equipped devices

Ask your sales consultant for more details.

Ford PROTECT™

Visit FordProtect.com for more information. The only extended service plan fully backed by Ford and honored at every Ford dealership in the U.S., Canada and Mexico. See your Ford dealer or visit www.FordOwner.com.

WARNING: Operating, servicing and maintaining a passenger vehicle, pickup truck, van, or off-road vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to www.P65Warnings.ca.gov/passenger-vehicle.

No. 069 Monroney Label

Seats

WARNING: The head restraint is a safety device. Whenever possible it should be installed and properly adjusted when the seat is occupied. Failure to adjust the head restraint properly could reduce its effectiveness during certain impacts.

Note: Adjust the seat backrest to an upright driving position before adjusting the head restraint. Adjust the head restraint so that the top of it is level with the top of your head and as far forward as possible. Make sure that you remain comfortable. If you are extremely tall, adjust the head restraint to its highest position.

Rear Seat Center Head Restraint

The head restraints consist of:

- A An energy absorbing head restraint.
- B Two steel stems.
- C Guide sleeve adjust and release button.
- D Guide sleeve unlock and remove button (if equipped).
- E Fold button (rear seat outermost only).

Adjusting the Head Restraint

Raising the Head Restraint
Pull the head restraint up.

Lowering the Head Restraint
1. Press and hold button C.
2. Push the head restraint down.

Removing the Head Restraint
1. Pull up the head restraint until it reaches the highest adjustment position.
2. Press and hold buttons C and D.
3. Pull up the head restraint.

Note: For rear outermost seats, fold the head restraint forward for easier removal.

Front Seat Head Restraint

Rear Seat Outermost Head Restraints

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

PHOTO NOT APPLICABLE

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

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

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

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

Additional Driver Dummy Instrumentation Data

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

Vehicle Instrumentation Data

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

Pole Instrumentation Data

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

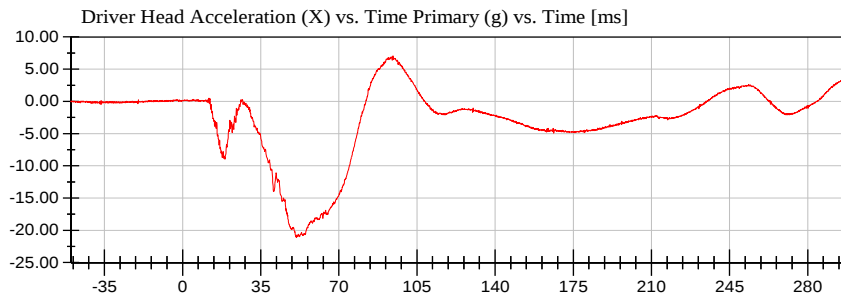
NHTSA

Test Lab: CTF

Test Number: 190905 (M20190212)

Position #1 SID IIs Dummy (297)

Test Date: 09/05/2019



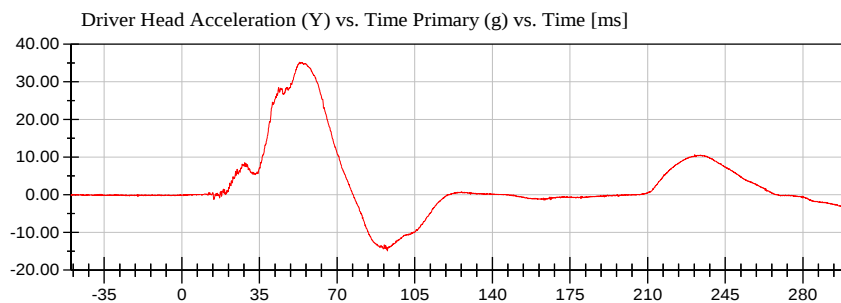
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7.05 g at 94.24 ms

<Min>

-21.07 g at 50.96 ms

CFC_1000



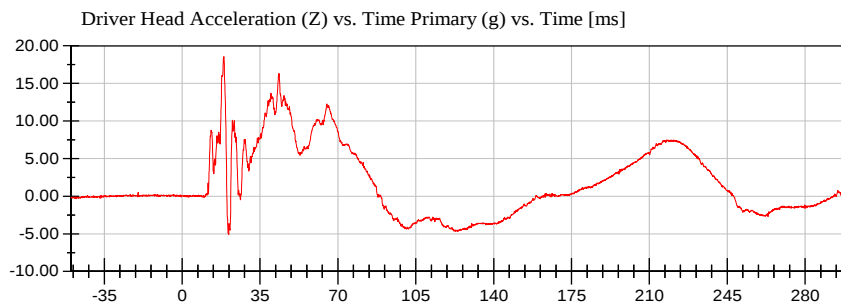
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35.22 g at 53.12 ms

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-14.91 g at 92.72 ms

CFC_1000



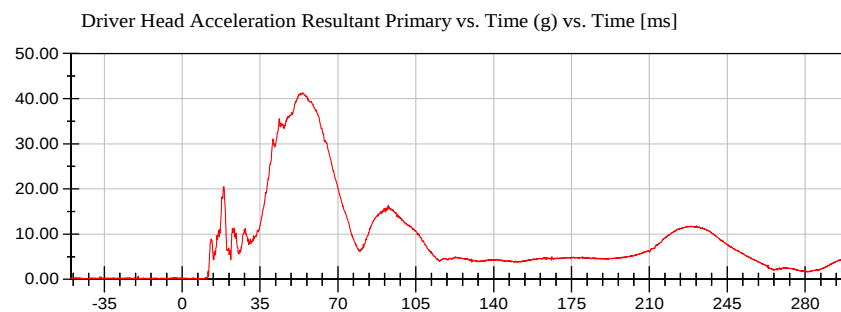
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18.57 g at 18.80 ms

<Min>

-5.09 g at 20.88 ms

CFC_1000



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41.28 g at 54.00 ms

<Min>

0.05 g at 2.88 ms

CFC_1000



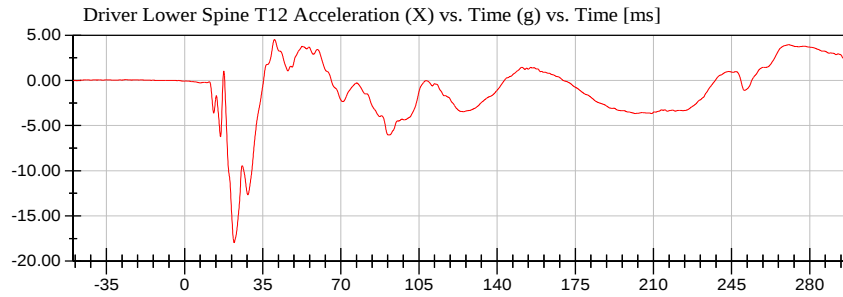
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Test Lab: CTF

Test Number: 190905 (M20190212)

Position #1 SID IIs Dummy (297)

Test Date: 09/05/2019



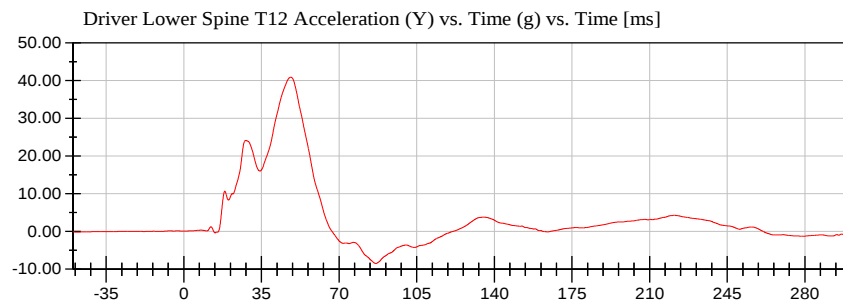
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4.52 g at 40.32 ms

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-17.95 g at 22.24 ms

CFC_180



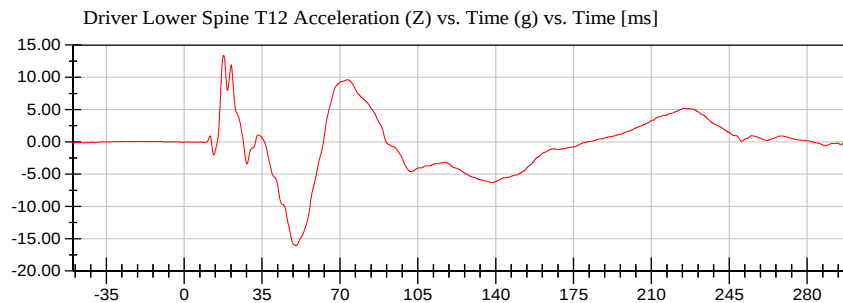
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40.91 g at 48.24 ms

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-8.49 g at 86.56 ms

CFC_180



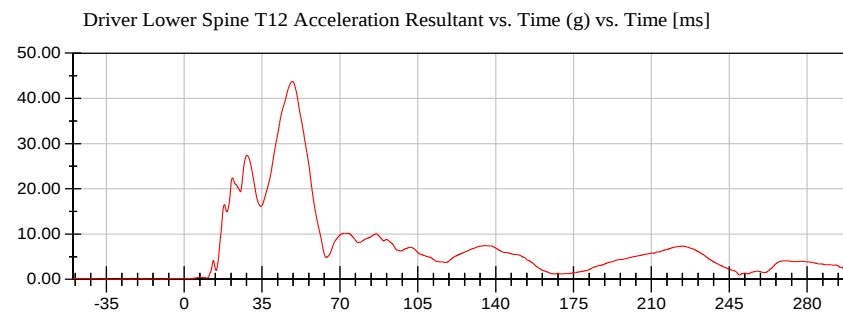
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13.42 g at 17.68 ms

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-16.09 g at 50.40 ms

CFC_180



<Max>

43.74 g at 48.64 ms

<Min>

0.03 g at -9.92 ms

CFC_180



NHTSA

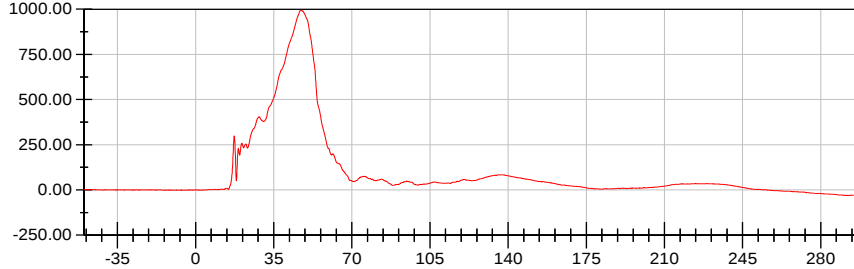
Test Lab: CTF

Test Number: 190905 (M20190212)

Position #1 SID IIs Dummy (297)

Test Date: 09/05/2019

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



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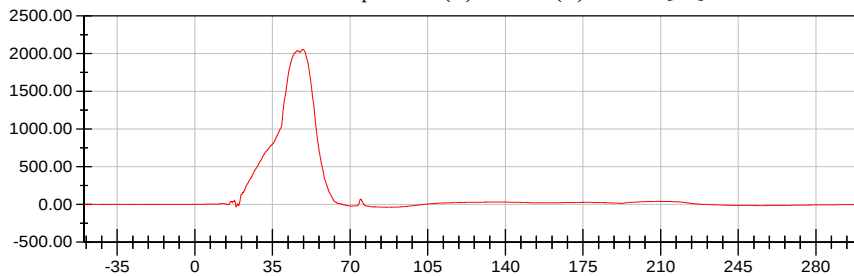
994.49 N at 47.28 ms

<Min>

-30.93 N at 292.32 ms

CFC_600

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



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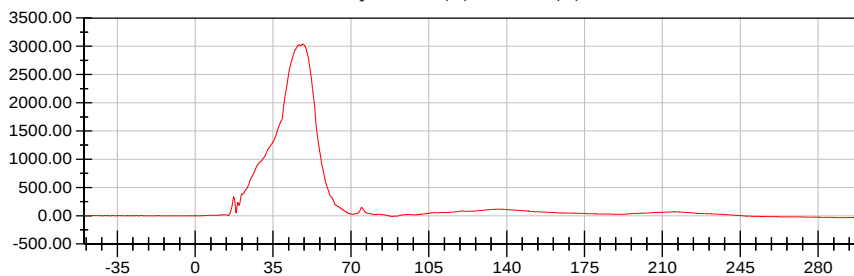
2,055.05 N at 48.64 ms

<Min>

-37.93 N at 86.16 ms

CFC_600

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



<Max>

3,036.97 N at 48.32 ms

<Min>

-33.63 N at 292.32 ms

CFC_600



APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

Table 1. External Measurements

Table 2. Head Drop Test

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

Table 3. Lateral Neck Pendulum Test

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

Table 4. Shoulder Impact Test

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

Table 5. Thorax (With Arm) Impact Test

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

Table 6. Thorax (Without Arm) Impact Test

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

Table 7. Abdomen Impact Test

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

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

Table 9. Pelvis Acetabulum Impact Test

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

Table 10. Pelvis Iliac Impact Test

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

Pre-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No. 38

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	103	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	147	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	528	Yes
L	Popliteal Height	343.0 - 369.0	353	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	400	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	200	Yes
P	Foot Length (right)	216.0 - 232.0	223	Yes
P	Foot Length (left)	216.0 - 232.0	221	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	880	Yes
Z	Waist Circumference	761.0 - 791.0	780	Yes

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 38-1

Test Date: 8/20/2019

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	118.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-2.5 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.26 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head S/N: 1330

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

08.20.2019 13:05:32 198



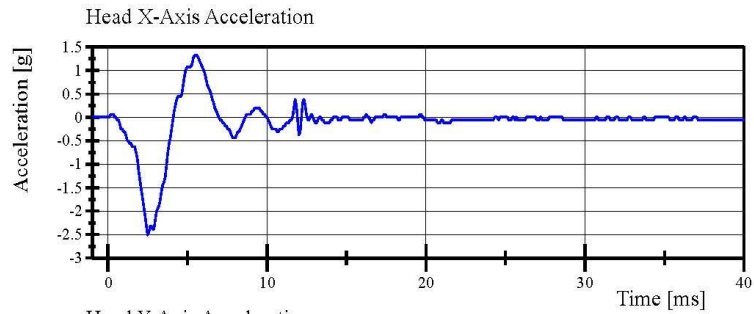
Page 9 of 31

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 38-1

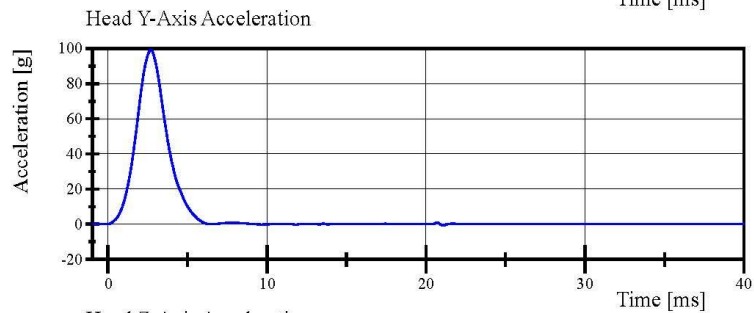
Test Date: 8/20/2019



Filter Class: CFC_1000

Max: 1.3 g at 5.4 ms

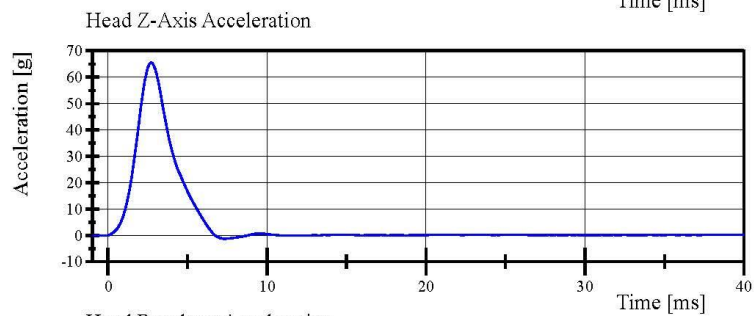
Min: -2.5 g at 2.5 ms



Filter Class: CFC_1000

Max: 99.2 g at 2.7 ms

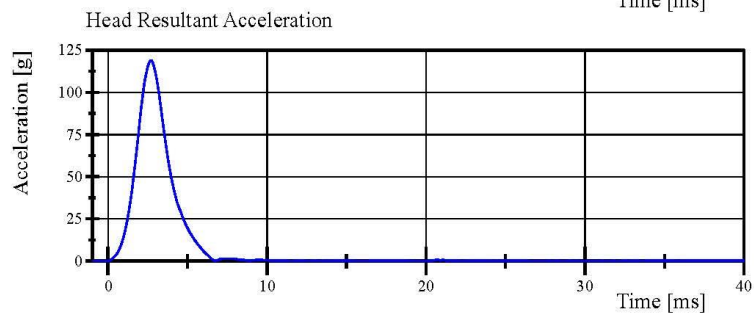
Min: -0.7 g at 21.0 ms



Filter Class: CFC_1000

Max: 65.6 g at 2.7 ms

Min: -1.3 g at 7.3 ms



Filter Class: CFC_1000

Max: 118.9 g at 2.7 ms

Min: 0.0 g at -1.0 ms

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

08.20.2019 13:06:14 198



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 38-4

Test Date: 8/21/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.616 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.417 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.684 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.072 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	6.077 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	6.153 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-71.2 deg	Yes
Time of Peak	50 - 70 ms	67.7 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	42.9 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	111.0 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: 779

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

08.21.2019 07:52:05 710



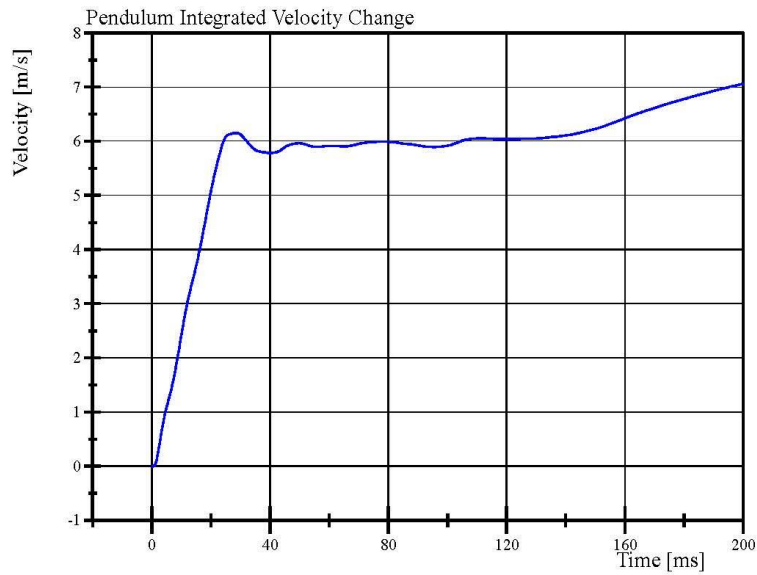
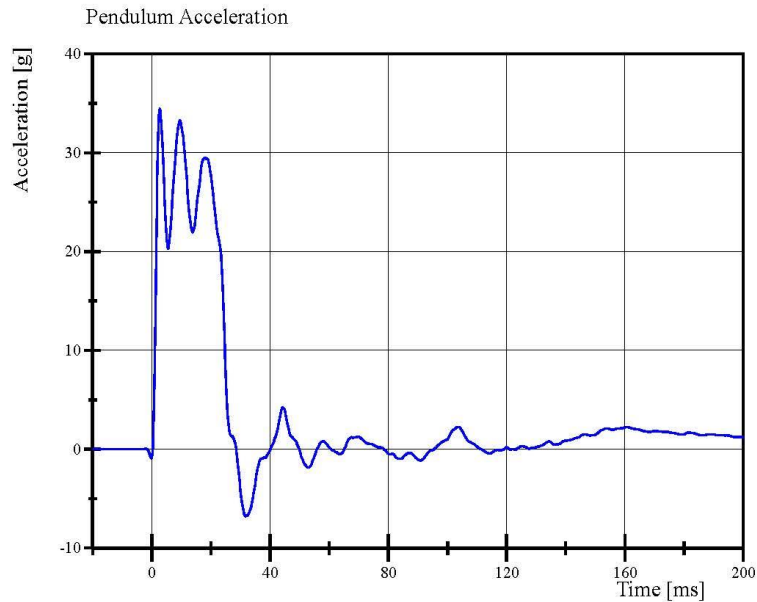
Page 11 of 31

Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 38-4

Test Date: 8/21/2019



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

08.21.2019 07:53:01 710

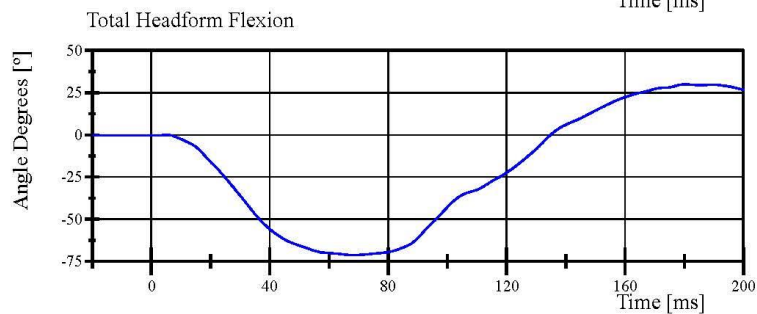
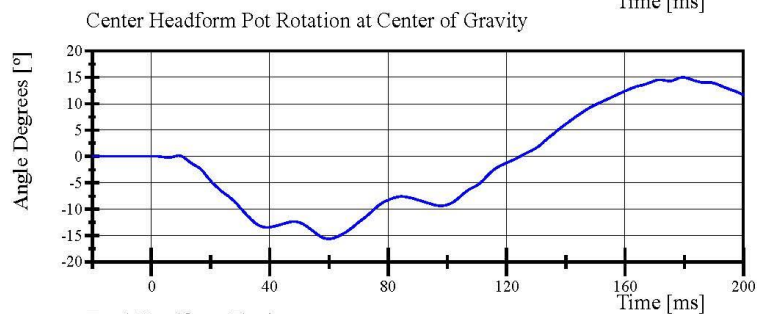
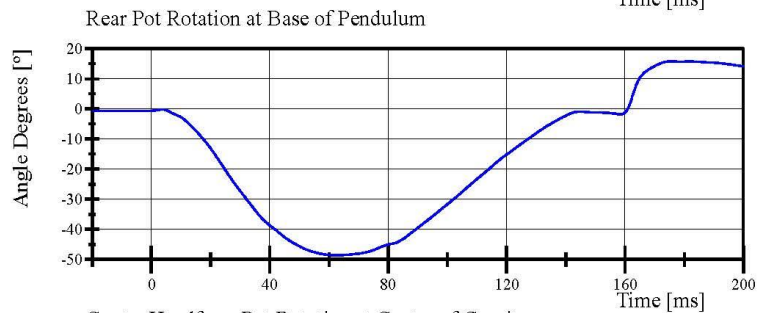
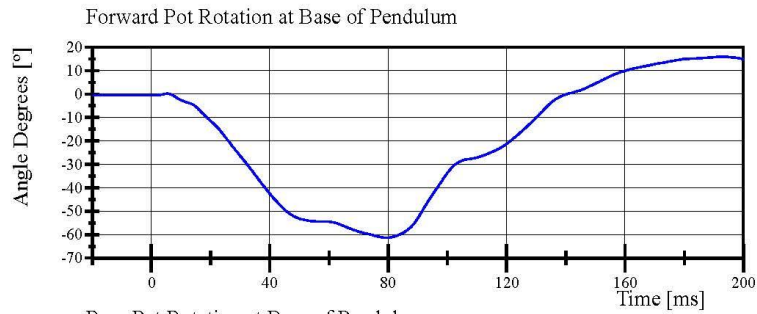


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 38-4

Test Date: 8/21/2019



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

08.21.2019 07:53:02 710

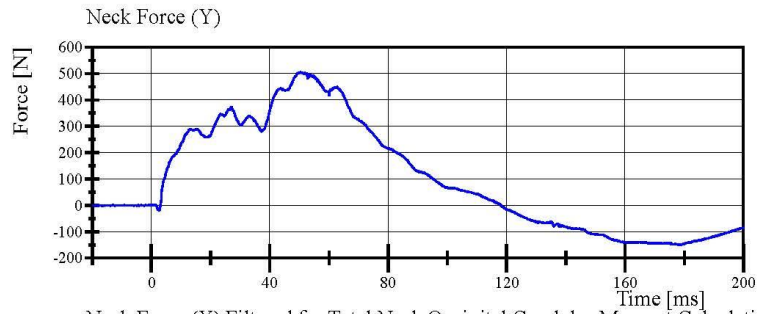


Transportation Research Center Inc.

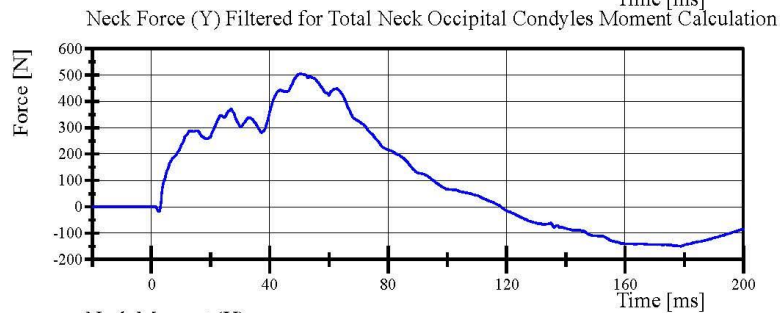
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 38-4

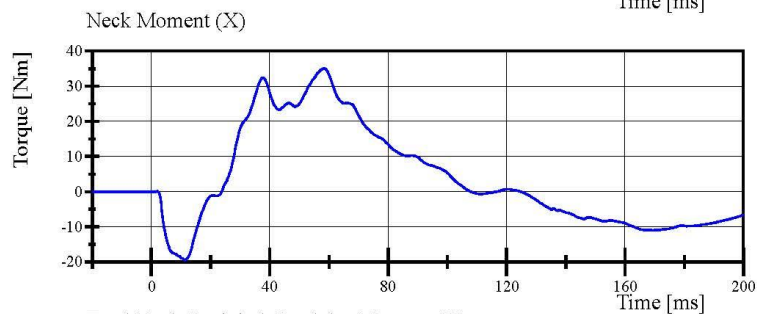
Test Date: 8/21/2019



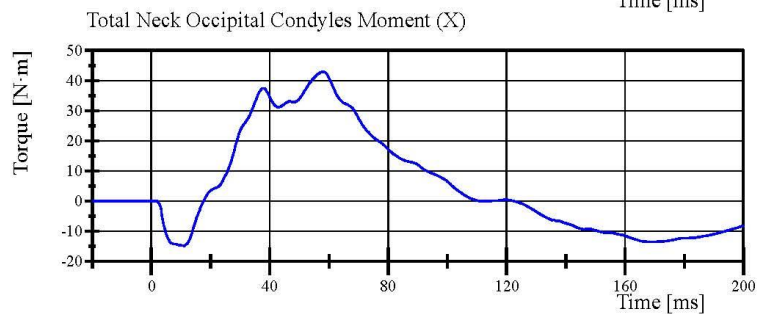
Filter Class: CFC_1000
Max: 505.0 N at 50.4 ms
Min: -150.0 N at 178.9 ms



Filter Class: CFC_600
Max: 504.3 N at 50.5 ms
Min: -149.4 N at 178.8 ms



Filter Class: CFC_600
Max: 35.0 Nm at 58.4 ms
Min: -19.5 Nm at 11.3 ms



Filter Class: Without_(Constar
Max: 42.9 N·m at 58.0 ms
Min: -14.8 N·m at 11.1 ms

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

08.21.2019 07:53:02 710



Transportation Research Center Inc.

Left Lateral Shoulder
SID IIS Serial No. 297 Certification No. 38-1
Test Date: 8/20/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.3 g	Yes
Shoulder Displacement	28 - 37 mm	30.7 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.5 g	Yes

Test meets specifications.

Condition: Used

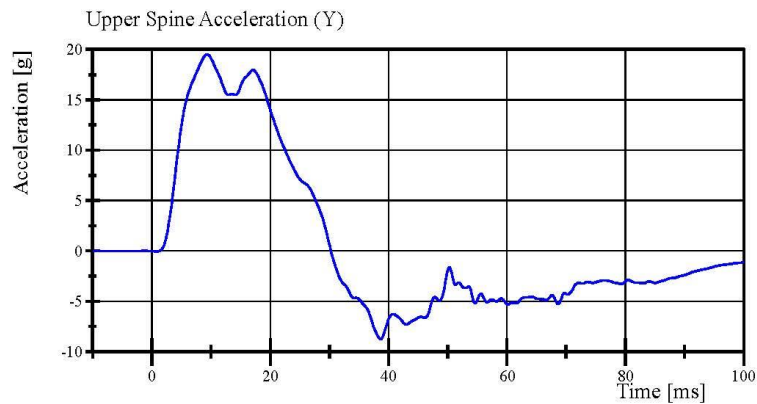
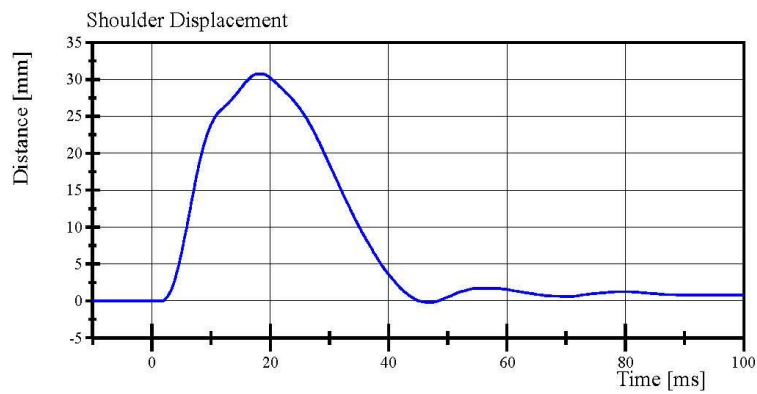
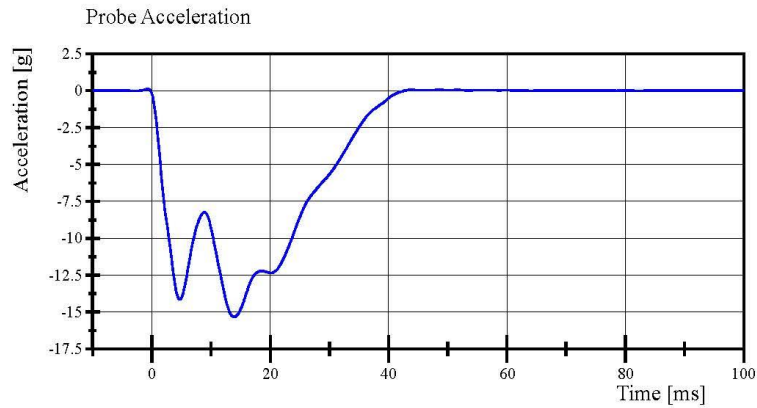
Comments:

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. 38-1
Test Date: 8/20/2019



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

08.20.2019 08:32:04 867



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 38-1
Test Date: 8/20/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.730 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.2 g	Yes
Shoulder Displacement	31 - 40 mm	34.6 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.2 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.4 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	35.4 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	37.5 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	34.5 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

Shoulder Rib S/N: 180-3355 259

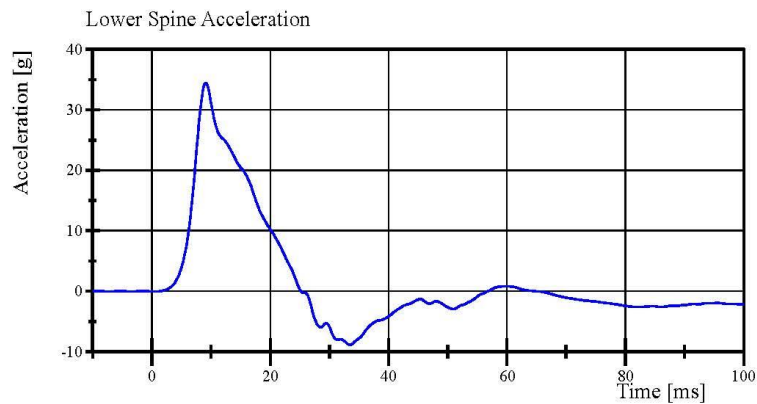
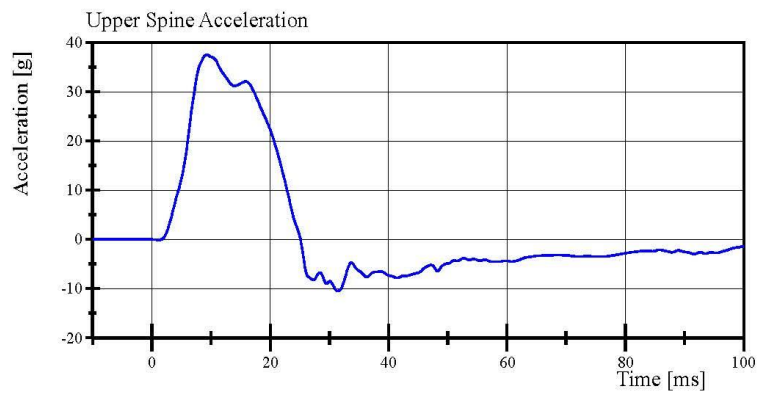
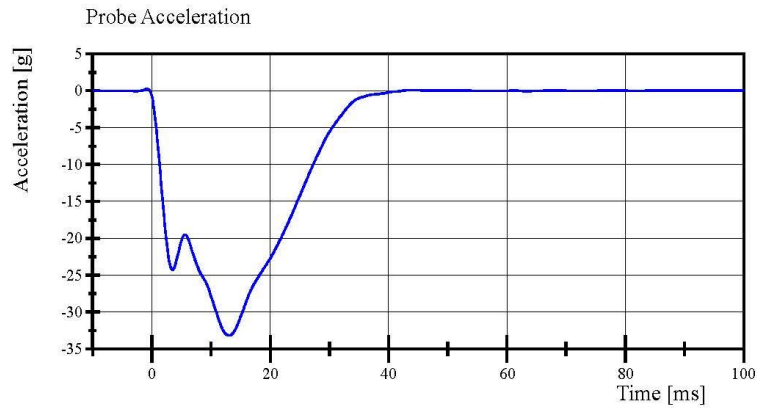
Upper Thorax Rib #1 S/N: 2009

Middle Thorax Rib #2 S/N: 2010

Lower Thorax Rib #3 S/N: 2029

Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 38-1
Test Date: 8/20/2019



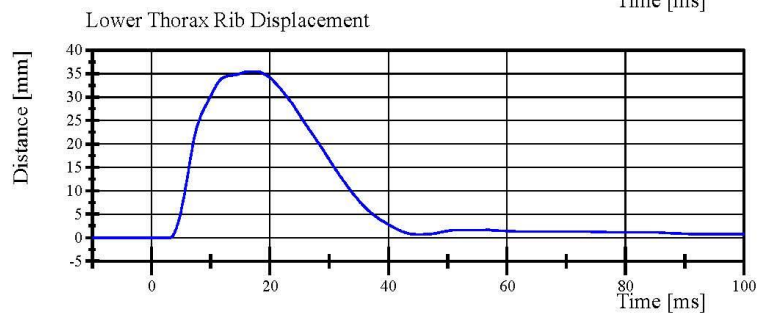
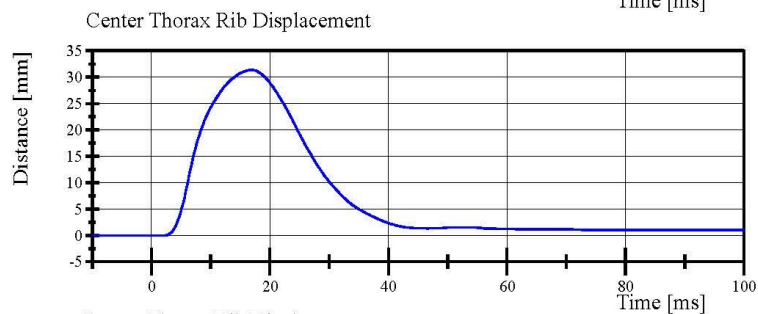
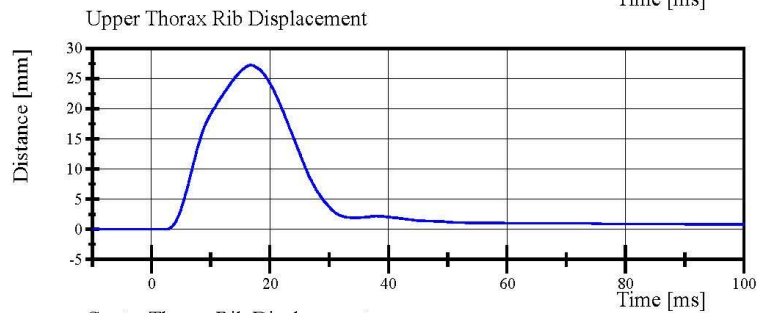
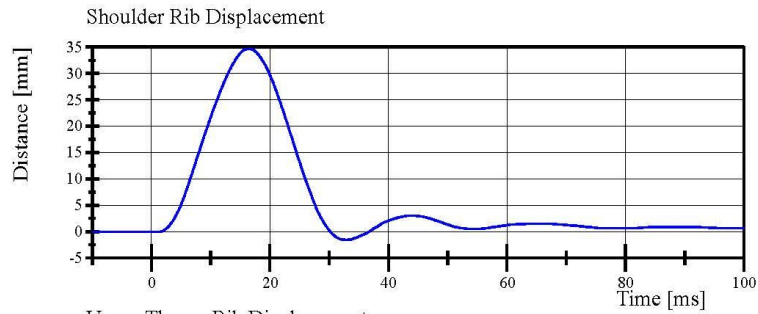
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

08.20.2019 09:37:39 600



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 38-1
Test Date: 8/20/2019



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

08.20.2019 09:37:40 600



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIS Serial No. 297 Certification No. 38-1
Test Date: 8/20/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.306 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.9 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	33.3 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.6 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	41.8 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.0 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	10.3 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Thorax Rib #1 S/N: 2009

Middle Thorax Rib #2 S/N: 2010

Lower Thorax Rib #3 S/N: 2029

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

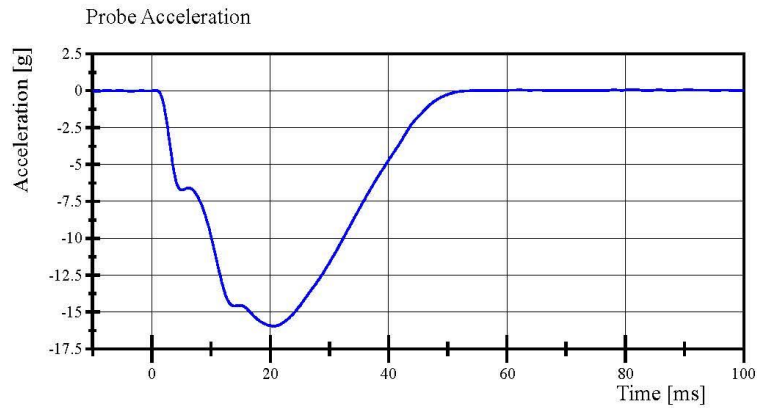
Page 20 of 31

08.20.2019 09:02:32 816

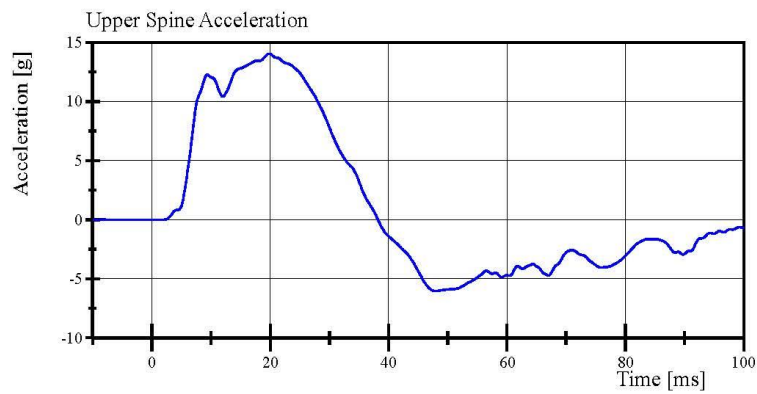


Transportation Research Center Inc.

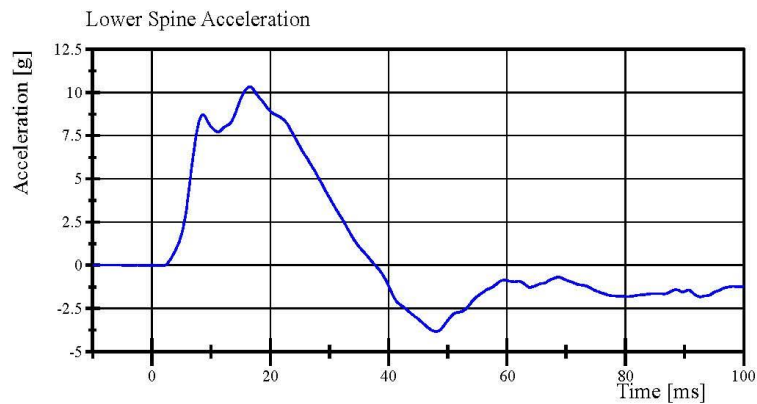
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 38-1
Test Date: 8/20/2019



Filter Class: CFC_180
Max: 0.1 g at 81.8 ms
Min: -15.9 g at 20.6 ms



Filter Class: CFC_180
Max: 14.0 g at 19.8 ms
Min: -6.0 g at 48.0 ms



Filter Class: CFC_180
Max: 10.3 g at 16.6 ms
Min: -3.8 g at 48.0 ms

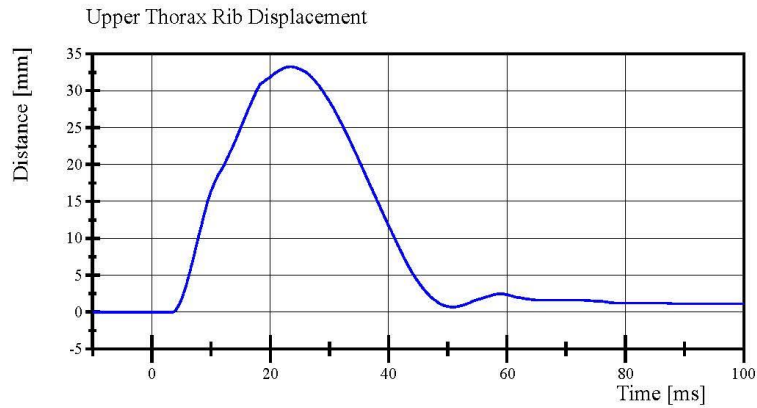
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

08.20.2019 09:03:20 816

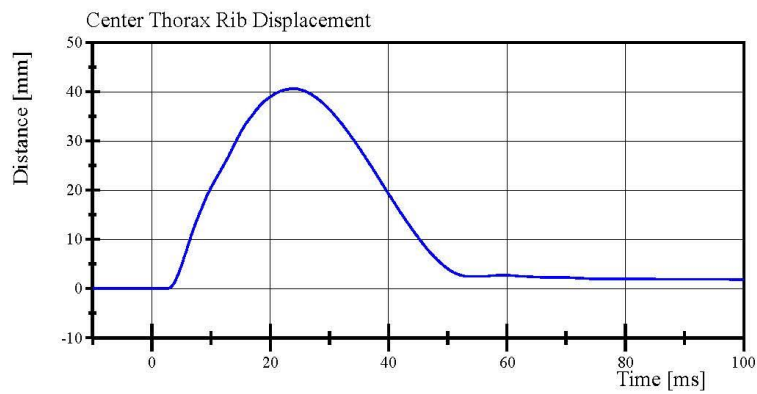


Transportation Research Center Inc.

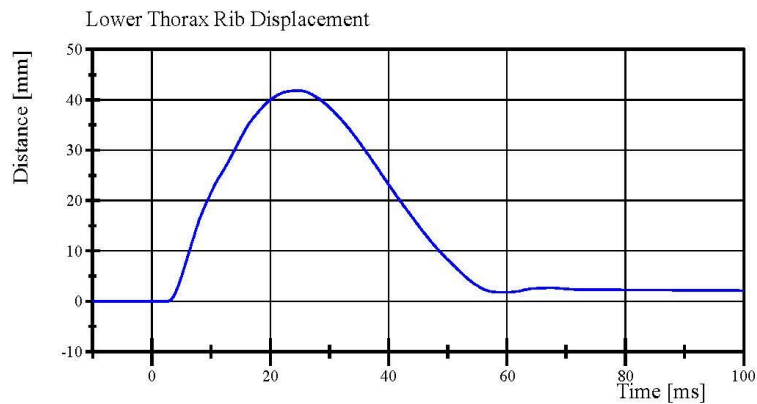
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 38-1
Test Date: 8/20/2019



Filter Class: CFC_600
Max: 33.3 mm at 23.4 ms
Min: -0.0 mm at 3.3 ms



Filter Class: CFC_600
Max: 40.6 mm at 24.2 ms
Min: -0.0 mm at 2.5 ms



Filter Class: CFC_600
Max: 41.8 mm at 24.6 ms
Min: -0.0 mm at 2.6 ms

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

08.20.2019 09:03:20 816



Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 297 Certification No. 38-1
Test Date: 8/20/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.2 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	37.0 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	40.0 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.77 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: DS1235

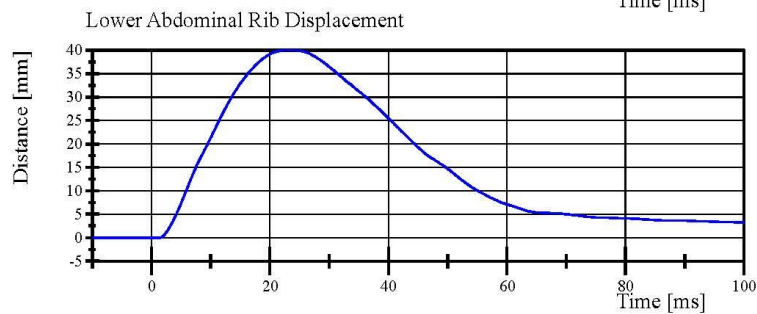
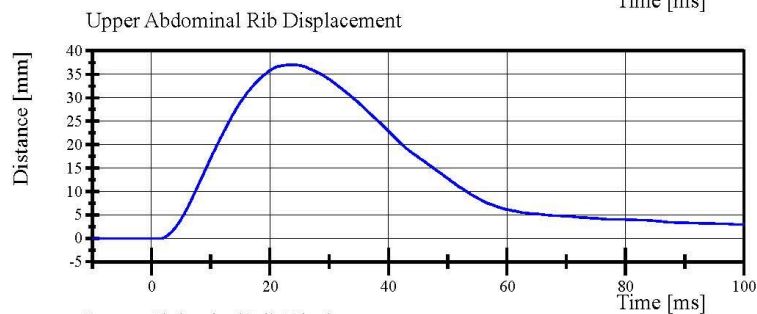
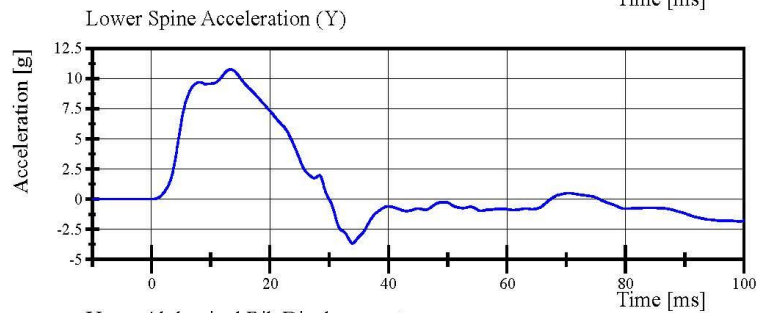
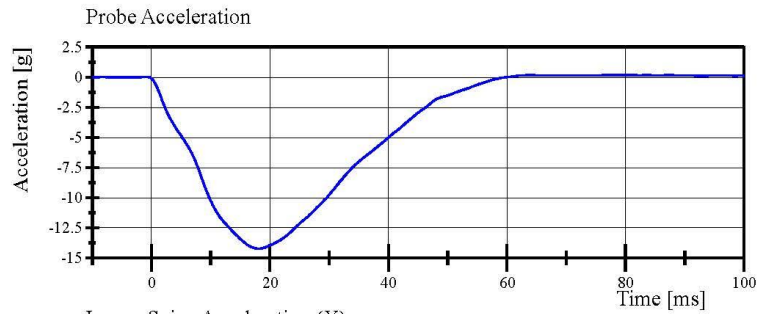
Lower Abdominal Rib S/N: DS1236

Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 38-1

Test Date: 8/20/2019



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

08.20.2019 08:44:06 663



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 38-1
Test Date: 8/21/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.63 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.36 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	37.7 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,772.8 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1141

Pelvis Plug Info:

Manufacturer: Saco

S/N: 11607

Cal Date: 20161004

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

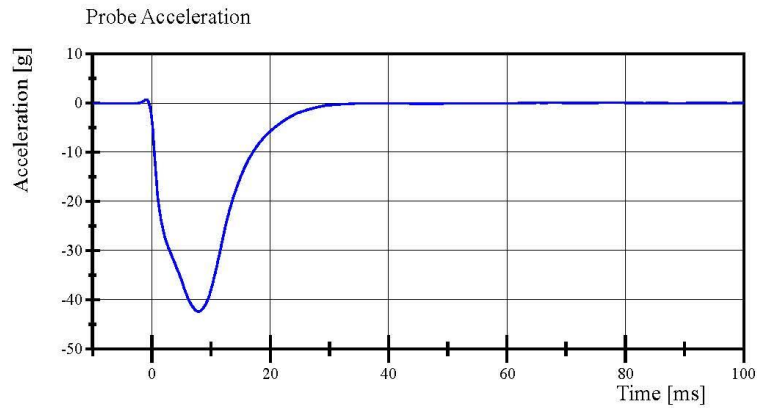
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08.21.2019 08:59:08.449

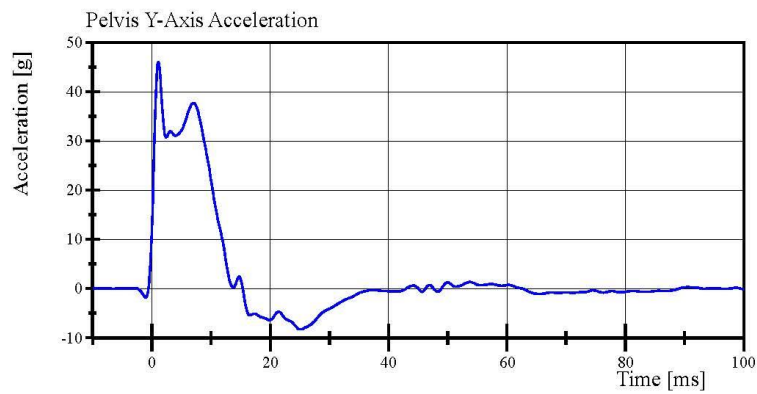


Transportation Research Center Inc.

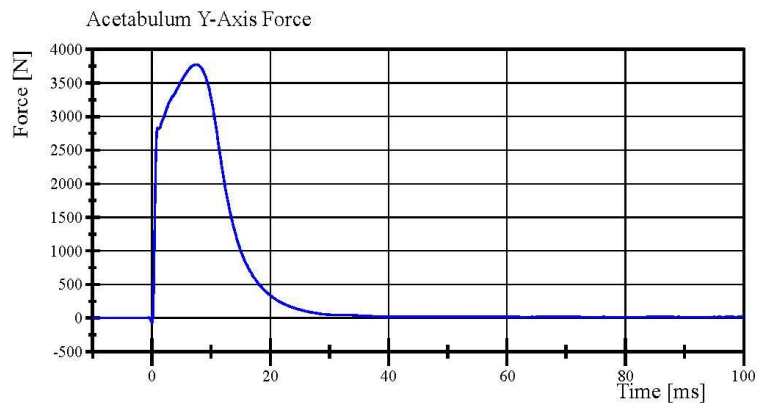
Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 38-1
Test Date: 8/21/2019



Filter Class: CFC_180
Max: 0.7 g at -1.0 ms
Min: -42.4 g at 7.8 ms



Filter Class: CFC_180
Max: 46.0 g at 1.0 ms
Min: -8.3 g at 25.1 ms



Filter Class: CFC_600
Max: 3,772.8 N at 7.5 ms
Min: -70.3 N at 0.0 ms

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

08.21.2019 09:00:35 449



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 38-1

Test Date: 8/20/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.21 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-42.6 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	35.2 g	Yes
Iliac Force	4,100 - 5,100 N	5,020.1 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1141

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

08.20.2019 08:12:29 660



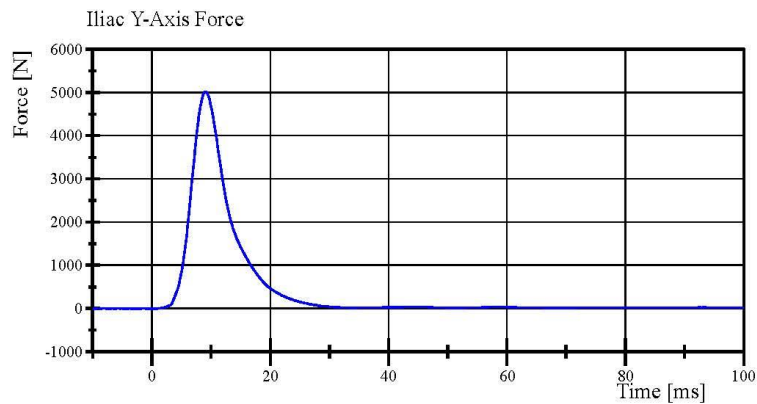
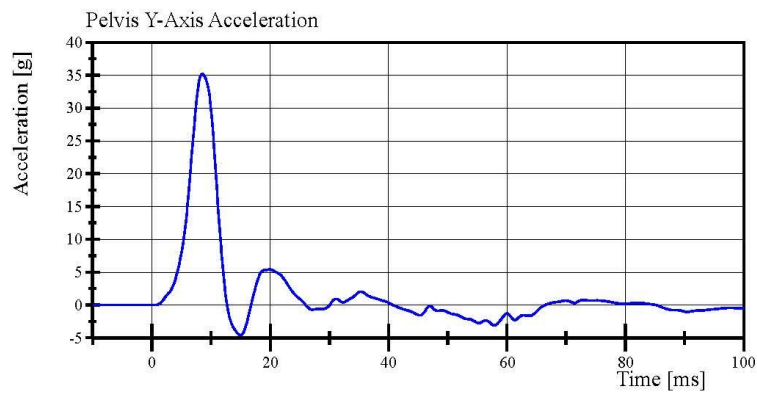
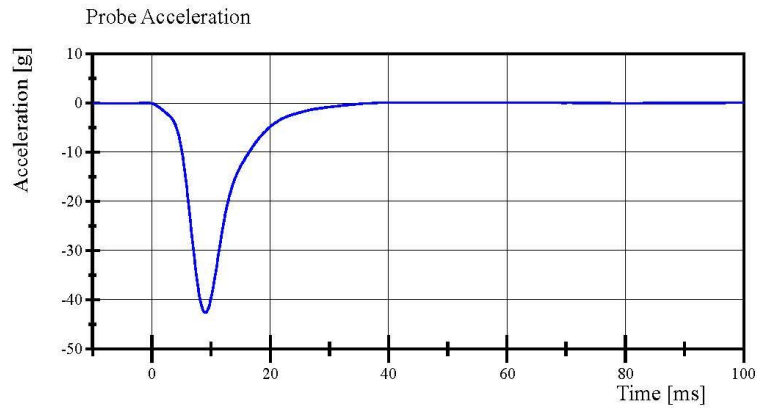
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Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 38-1

Test Date: 8/20/2019



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

08.20.2019 08:13:12 660



Post-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No. 39

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	103	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	147	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	528	Yes
L	Popliteal Height	343.0 - 369.0	353	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	400	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	200	Yes
P	Foot Length (right)	216.0 - 232.0	223	Yes
P	Foot Length (left)	216.0 - 232.0	221	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	880	Yes
Z	Waist Circumference	761.0 - 791.0	780	Yes

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 39-1

Test Date: 9/6/2019

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	133.3 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-3.0 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	< 15 %	1.38 %	Yes

Test meets specifications.

Condition: Used

Comments:

Head S/N: 1330

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

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09.06.2019 12:22:46 196

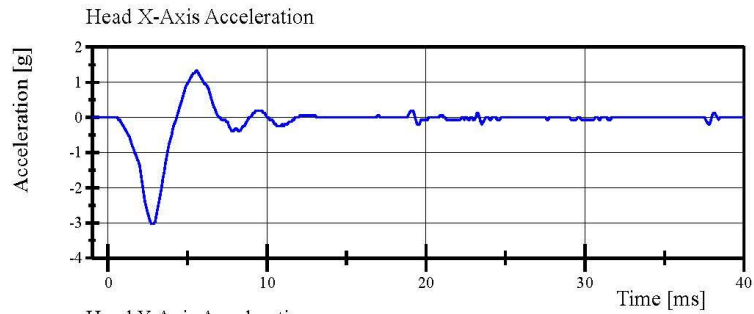


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 39-1

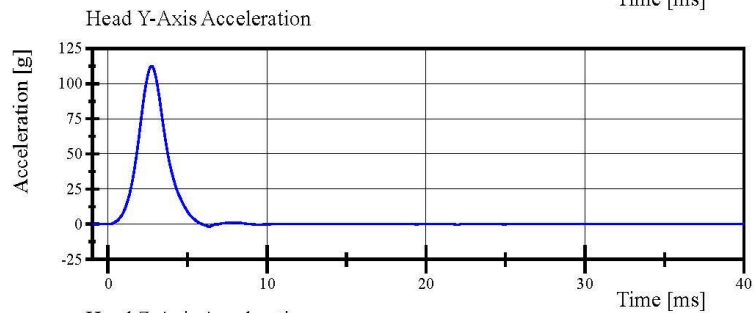
Test Date: 9/6/2019



Filter Class: CFC_1000

Max: 1.3 g at 5.5 ms

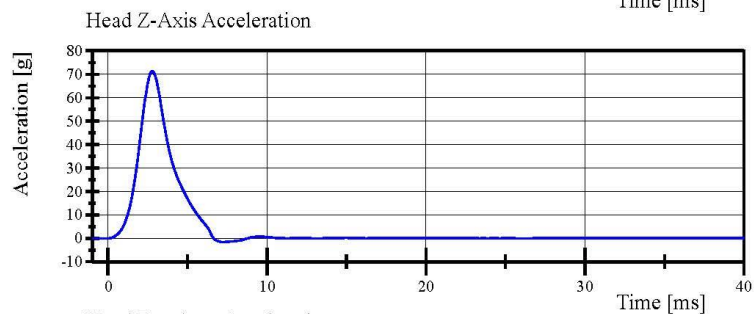
Min: -3.0 g at 2.7 ms



Filter Class: CFC_1000

Max: 112.6 g at 2.7 ms

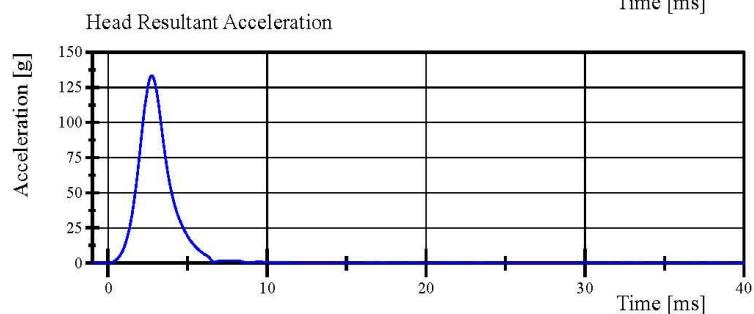
Min: -1.6 g at 6.3 ms



Filter Class: CFC_1000

Max: 71.4 g at 2.8 ms

Min: -1.6 g at 7.2 ms



Filter Class: CFC_1000

Max: 133.3 g at 2.7 ms

Min: 0.0 g at -1.0 ms

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

09.06.2019 12:24:12 196



Transportation Research Center Inc.

Left Lateral Neck
SID IIs Serial No. 297 Certification No. 39-1
Test Date: 9/6/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.615 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.621 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.815 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.182 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	6.091 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	6.154 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-71.8 deg	Yes
Time of Peak	50 - 70 ms	66.2 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	43.2 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	117.0 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

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09.06.2019 13:34:08 720

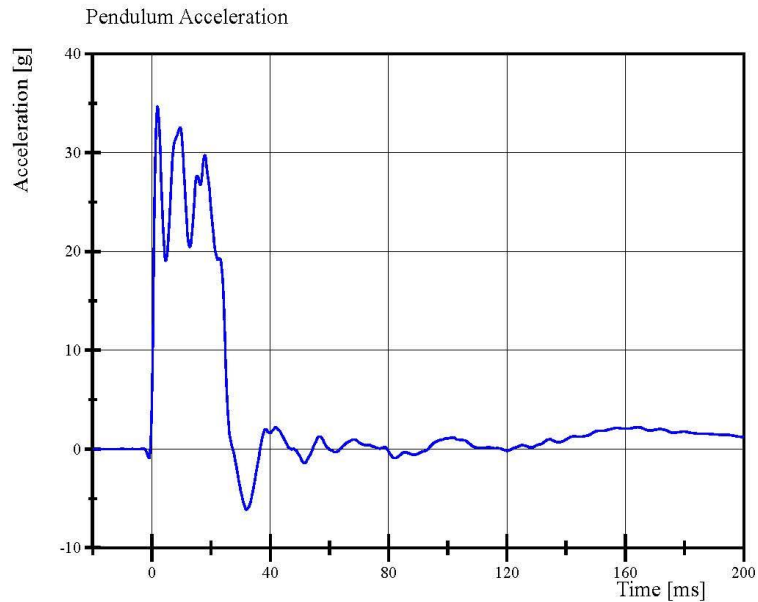


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 39-1

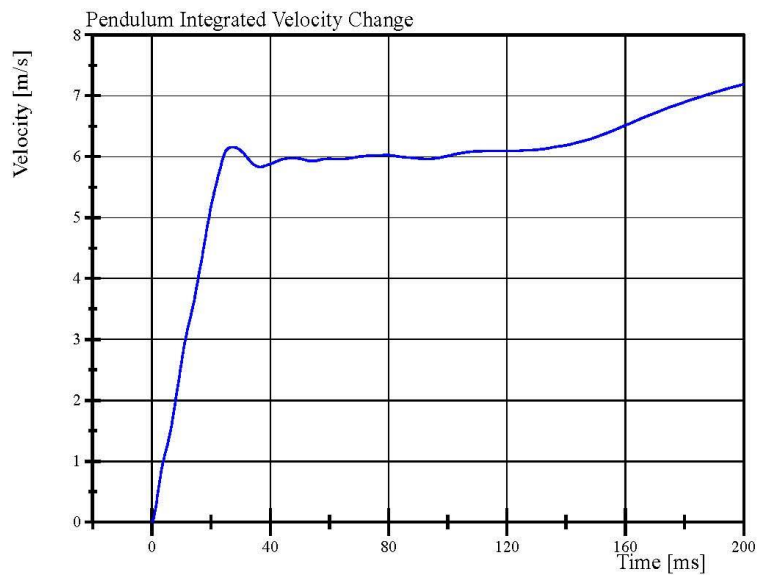
Test Date: 9/6/2019



Filter Class: CFC_180

Max: 34.7 g at 1.9 ms

Min: -6.1 g at 31.9 ms



Filter Class: CFC_180

Max: 7.2 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

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

09.06.2019 13:35:48 720

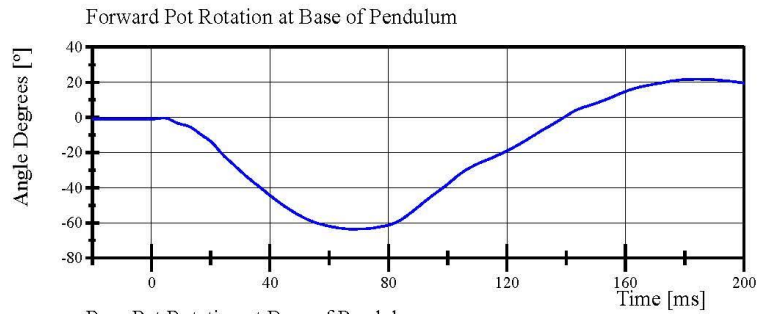


Transportation Research Center Inc.

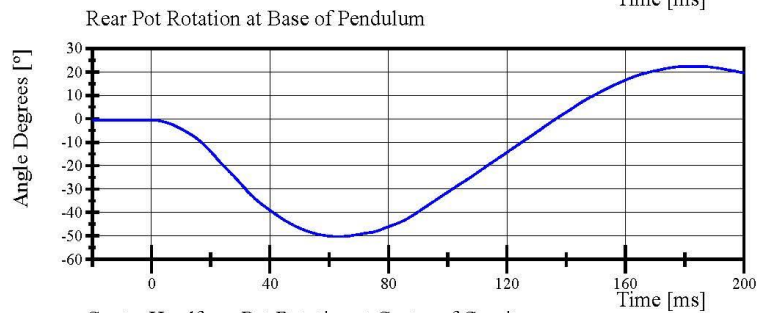
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 39-1

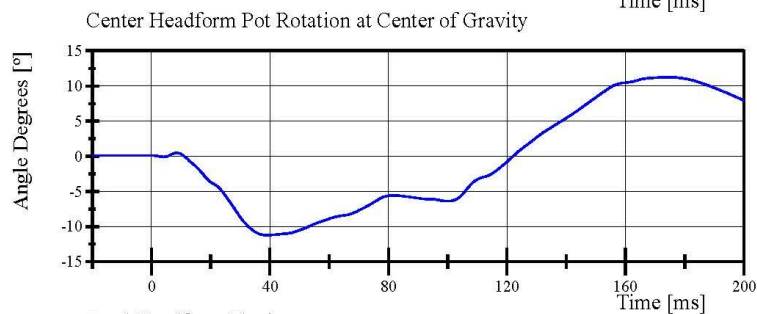
Test Date: 9/6/2019



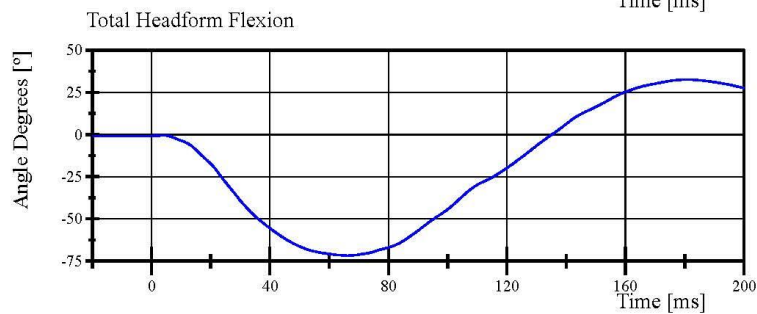
Filter Class: CFC_60
Max: 21.7 ° at 184.4 ms
Min: -63.5 ° at 67.8 ms



Filter Class: CFC_60
Max: 22.3 ° at 182.7 ms
Min: -50.3 ° at 63.1 ms



Filter Class: CFC_60
Max: 11.3 ° at 174.4 ms
Min: -11.2 ° at 39.0 ms



Filter Class: CFC_60
Max: 32.5 ° at 180.6 ms
Min: -71.8 ° at 66.2 ms

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

09.06.2019 13:35:48 720

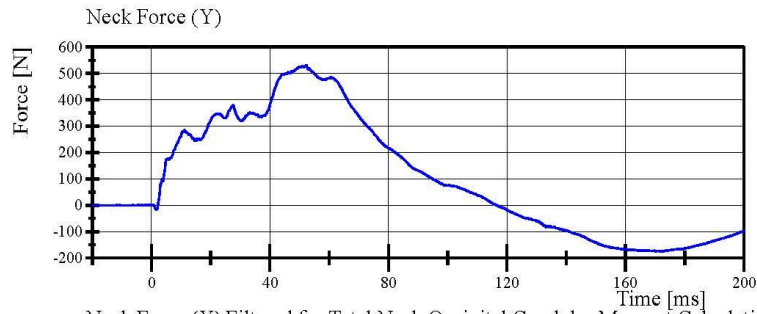


Transportation Research Center Inc.

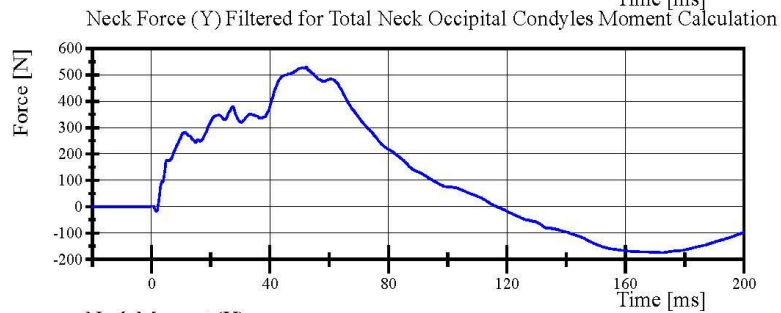
Left Lateral Neck

SID IIS Serial No. 297 Certification No. 39-1

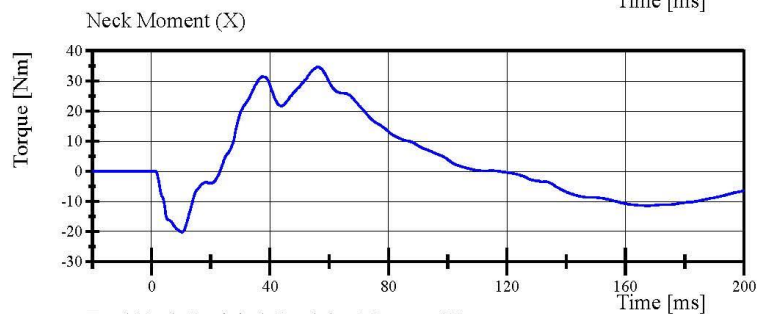
Test Date: 9/6/2019



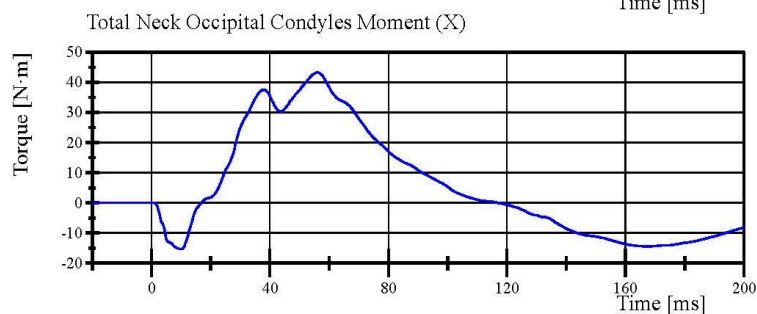
Filter Class: CFC_1000
Max: 531.7 N at 52.2 ms
Min: -174.2 N at 170.1 ms



Filter Class: CFC_600
Max: 530.4 N at 52.2 ms
Min: -173.8 N at 170.2 ms



Filter Class: CFC_600
Max: 34.6 Nm at 56.4 ms
Min: -20.2 Nm at 10.3 ms



Filter Class: Without_(Constar
Max: 43.2 N·m at 55.9 ms
Min: -15.4 N·m at 10.2 ms

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

09.06.2019 13:35:48 720



Transportation Research Center Inc.

Left Lateral Shoulder
SID IIS Serial No. 297 Certification No. 39-1
Test Date: 9/9/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.1 g	Yes
Shoulder Displacement	28 - 37 mm	30.2 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	18.6 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

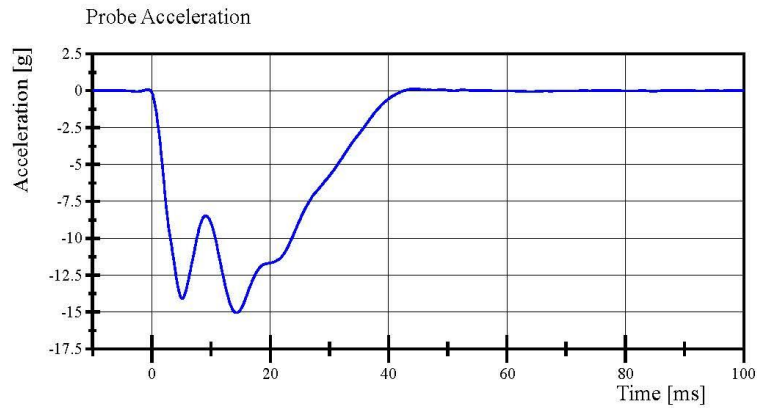
Shoulder Rib S/N: 180-3355 259

Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 39-1

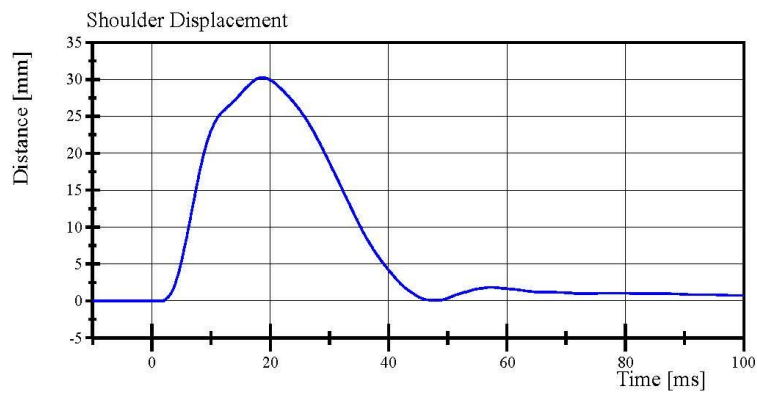
Test Date: 9/9/2019



Filter Class: CFC_180

Max: 0.1 g at 44.3 ms

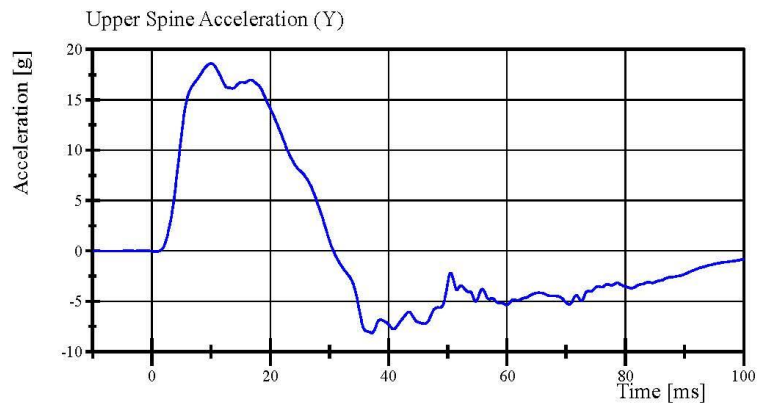
Min: -15.1 g at 14.3 ms



Filter Class: CFC_600

Max: 30.2 mm at 18.6 ms

Min: -0.0 mm at 1.8 ms



Filter Class: CFC_180

Max: 18.6 g at 10.0 ms

Min: -8.1 g at 37.1 ms

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

09.09.2019 07:40:20 858



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 39-1
Test Date: 9/9/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.731 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.5 g	Yes
Shoulder Displacement	31 - 40 mm	34.4 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	26.7 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.2 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	34.3 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	36.9 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	34.9 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

Shoulder Rib S/N: 180-3355 259

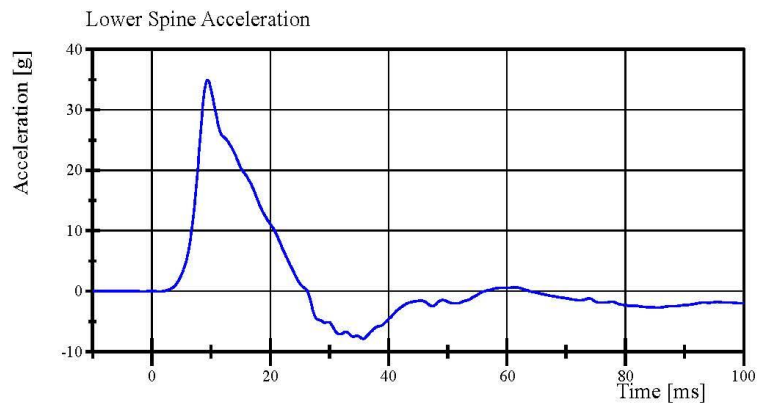
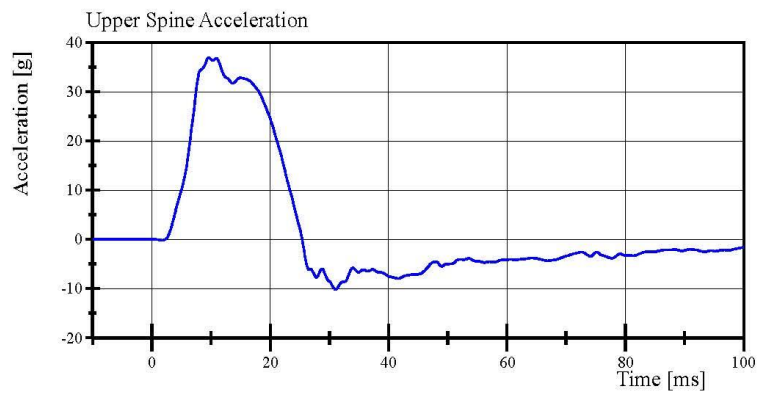
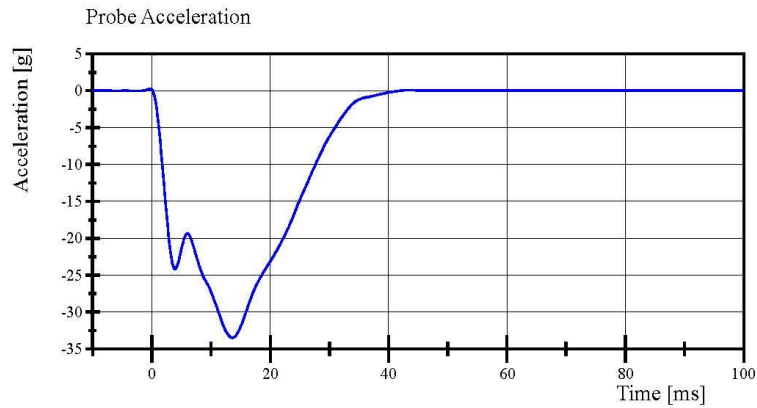
Upper Thorax Rib #1 S/N: 2009

Middle Thorax Rib #2 S/N: 2010

Lower Thorax Rib #3 S/N: 2029

Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 39-1
Test Date: 9/9/2019



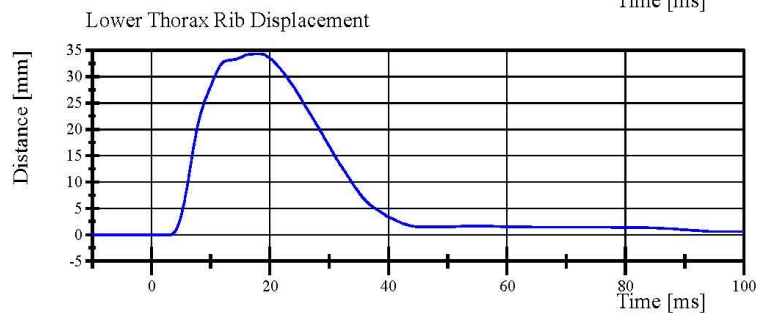
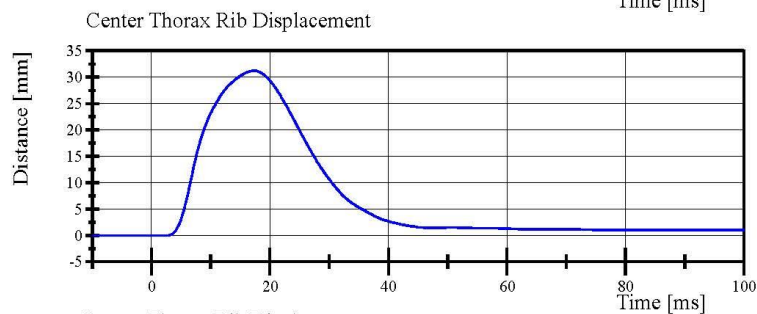
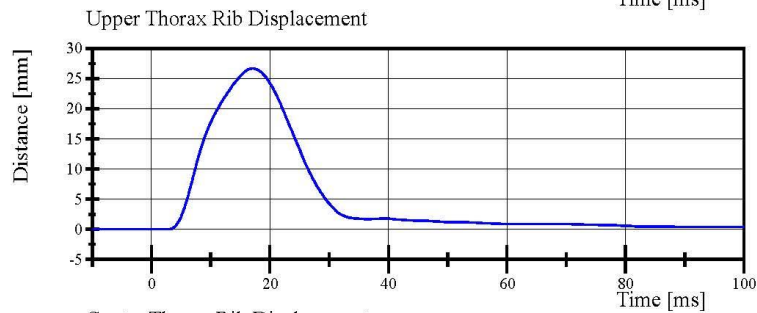
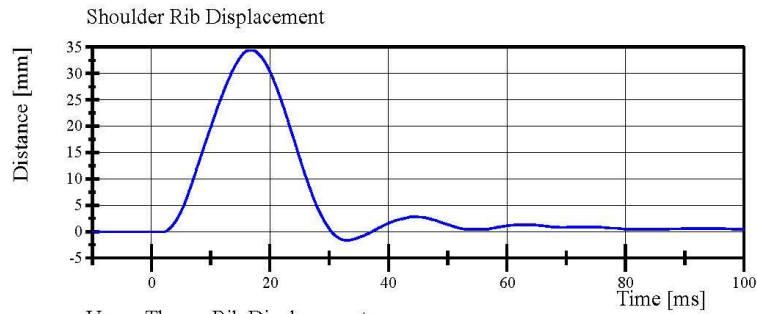
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

09.09.2019 09:06:06 614



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 39-1
Test Date: 9/9/2019



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

09.09.2019 09:06:07 614



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 39-1
Test Date: 9/9/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.335 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.0 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	33.9 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.4 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	40.1 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.5 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.8 g	Yes

Test meets specifications.

Condition: Used

Comments:

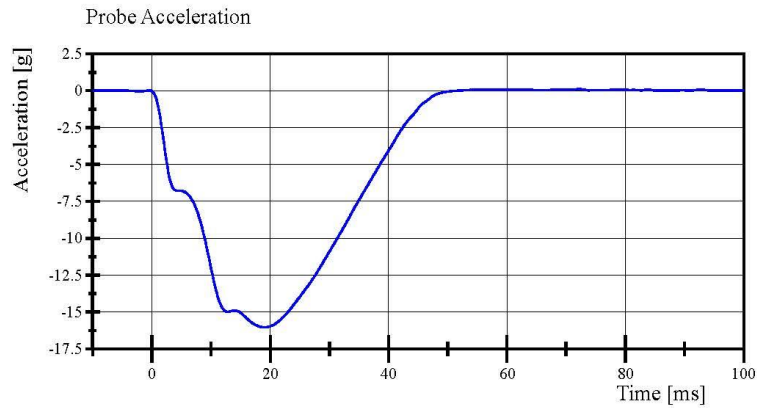
Upper Thorax Rib #1 S/N: 2009

Middle Thorax Rib #2 S/N: 2010

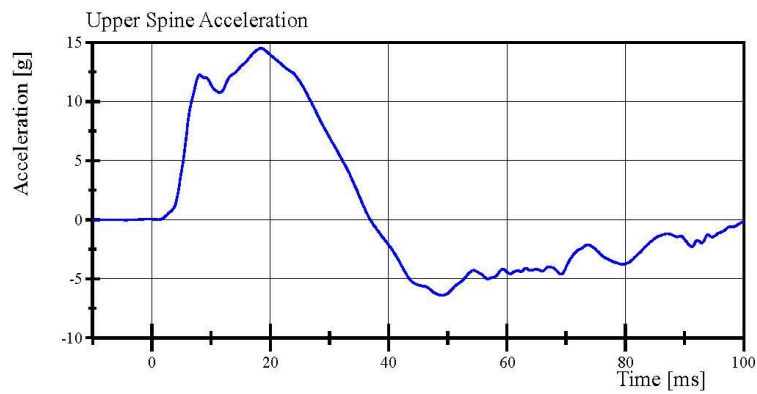
Lower Thorax Rib #3 S/N: 2029

Transportation Research Center Inc.

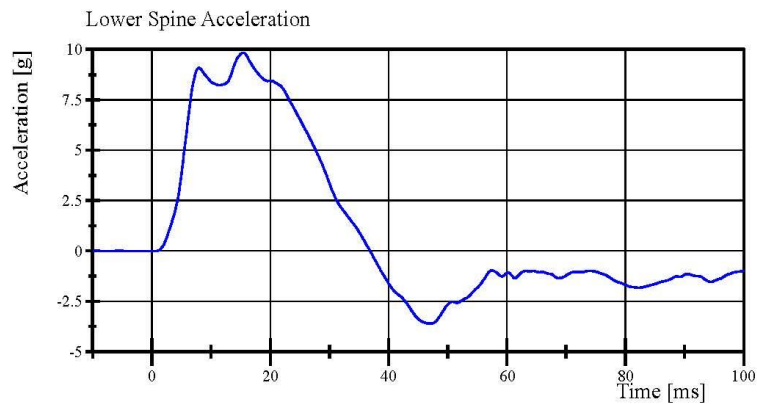
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 39-1
Test Date: 9/9/2019



Filter Class: CFC_180
Max: 0.1 g at 72.2 ms
Min: -16.0 g at 19.0 ms



Filter Class: CFC_180
Max: 14.5 g at 18.5 ms
Min: -6.4 g at 49.1 ms



Filter Class: CFC_180
Max: 9.8 g at 15.4 ms
Min: -3.6 g at 47.0 ms

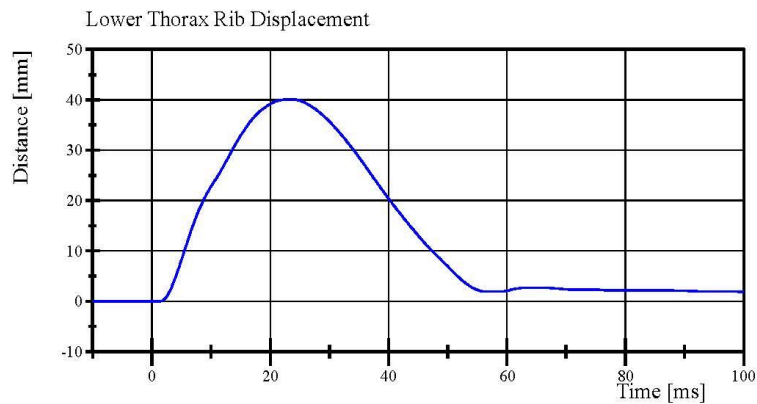
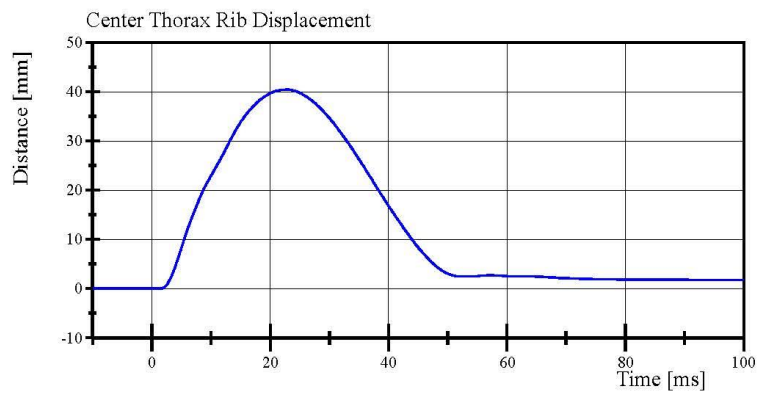
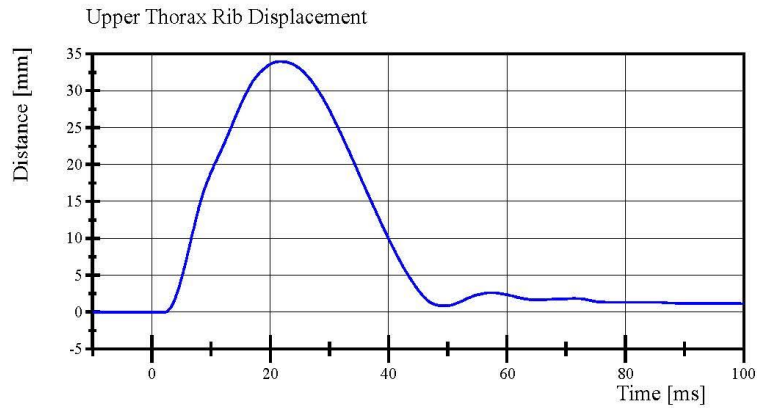
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

09.09.2019 08:32:12 816



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 39-1
Test Date: 9/9/2019



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

09.09.2019 08:32:12 816



Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 297 Certification No. 39-1
Test Date: 9/9/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	58 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.3 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	38.3 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	39.0 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.91 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: DS1235

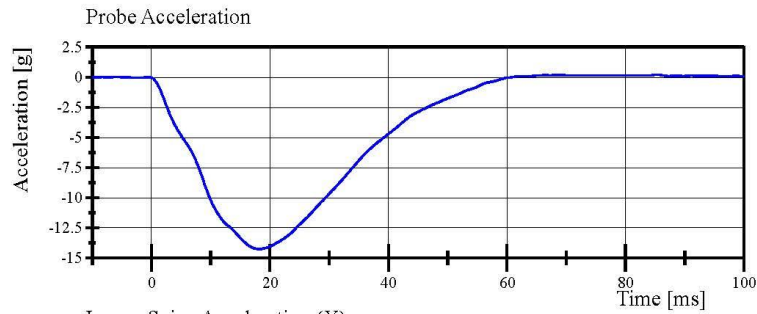
Lower Abdominal Rib S/N: DS1236

Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 39-1

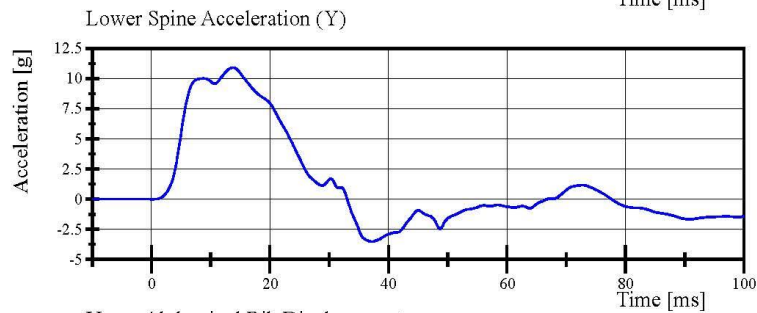
Test Date: 9/9/2019



Filter Class: CFC_180

Max: 0.2 g at 85.3 ms

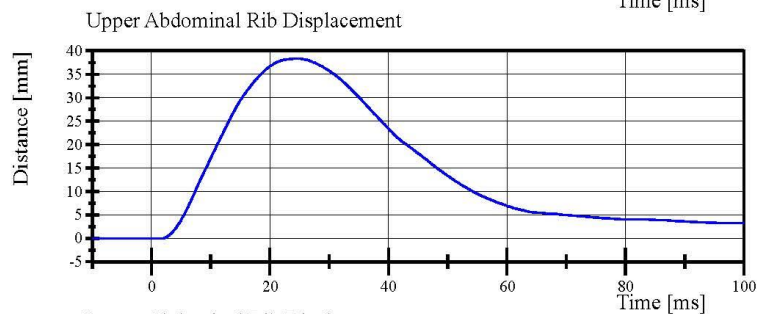
Min: -14.3 g at 18.2 ms



Filter Class: CFC_180

Max: 10.9 g at 13.7 ms

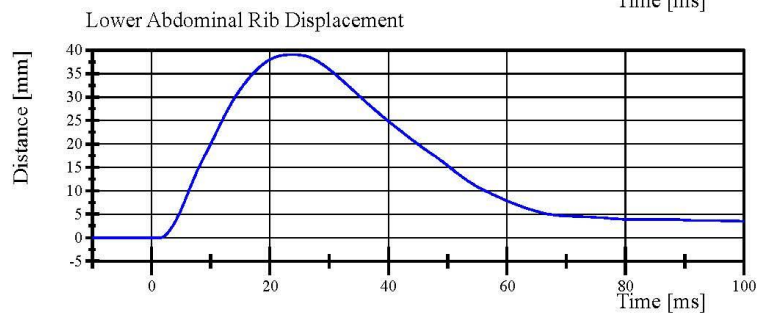
Min: -3.5 g at 37.2 ms



Filter Class: CFC_600

Max: 38.3 mm at 24.8 ms

Min: -0.0 mm at 1.8 ms



Filter Class: CFC_600

Max: 39.0 mm at 23.8 ms

Min: -0.0 mm at 1.4 ms

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

09.09.2019 07:50:48 651



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIS Serial No. 297 Certification No. 39-1
Test Date: 9/6/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.63 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-43.09 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	36.0 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,269.8 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 1141

Pelvis Plug Info:

Manufacturer: Saco

S/N: 12362

Cal Date: 20180323

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

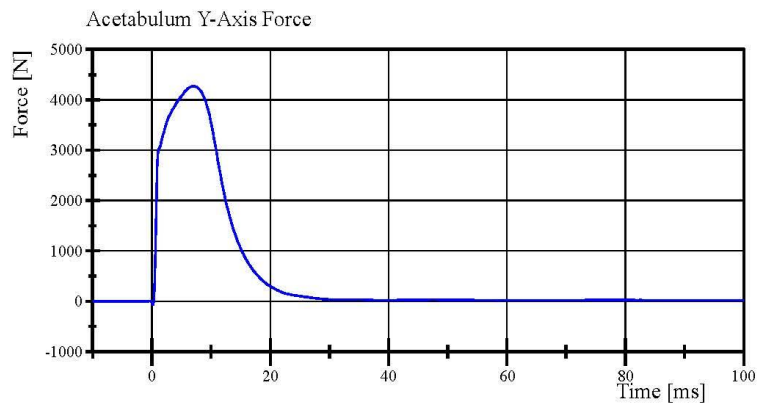
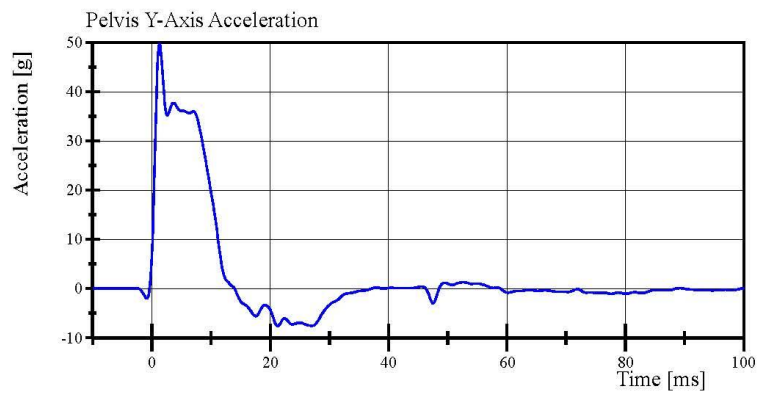
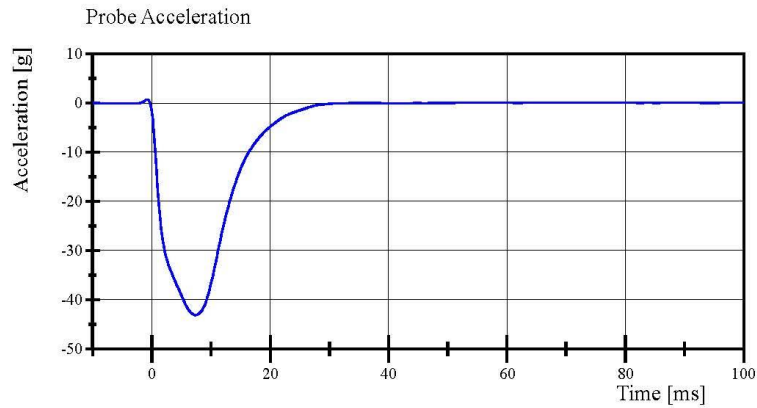
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09.06.2019 15:17:20.434



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 39-1
Test Date: 9/6/2019



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

09.06.2019 15:19:00 434



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 39-1

Test Date: 9/9/2019

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.21 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-40.9 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	33.5 g	Yes
Iliac Force	4,100 - 5,100 N	4,729.3 N	Yes

Test meets specifications.

Condition: Used

Comments:

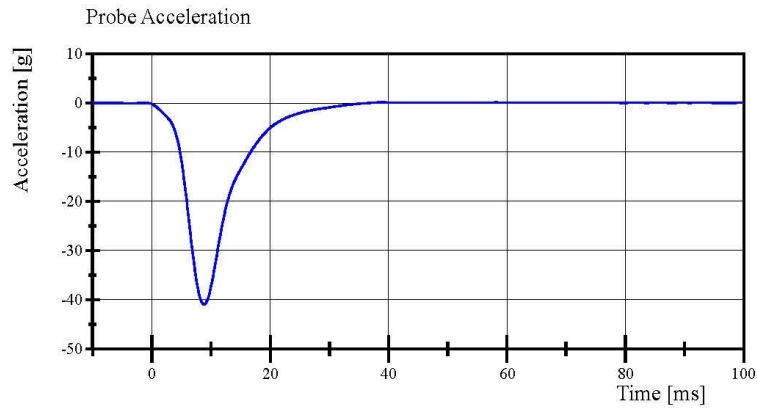
Pelvis Skin S/N: 1141

Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 39-1

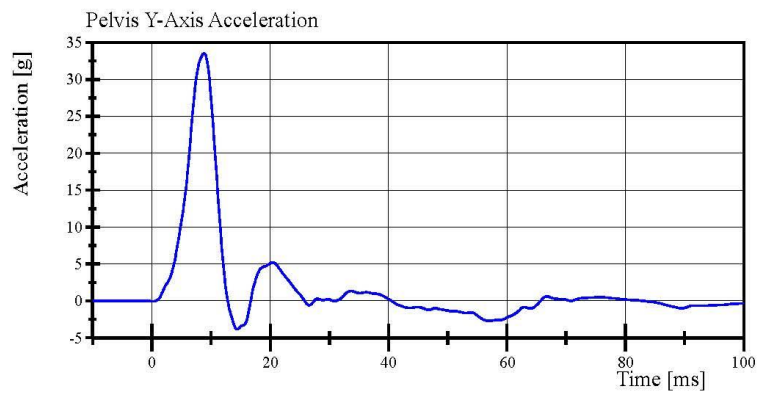
Test Date: 9/9/2019



Filter Class: CFC_180

Max: 0.2 g at 38.9 ms

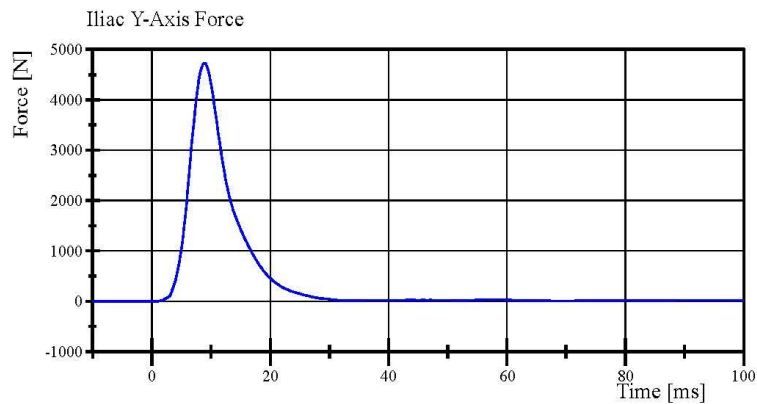
Min: -40.9 g at 8.8 ms



Filter Class: CFC_180

Max: 33.5 g at 8.8 ms

Min: -3.9 g at 14.4 ms



Filter Class: CFC_600

Max: 4,729.3 N at 8.9 ms

Min: -0.4 N at -4.5 ms

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

09.09.2019 09:27:51 700



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	17-Apr-2019
				Y	P93549	Endevco	17-Apr-2019
				Z	P93776	Endevco	17-Apr-2019
Displacement Potentiometers	Shoulder			Y	N/A	N/A	N/A
	Thoracic Rib	Upper	Y	047	Servo	18-Apr-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	17-Apr-2019
				Y	P91522	Endevco	17-Apr-2019
				Z	P91511	Endevco	17-Apr-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)					12344	SACO	21-Mar-2018
Pelvis Plug (non-struck side)					36505	FTSS	24-Sep-2010

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P94524	Endevco	18-Jun-2019
Vehicle Center of Gravity	Y	P88460	Endevco	18-Jun-2019
Vehicle Center of Gravity	Z	P87822	Endevco	18-Jun-2019
Left Floor Sill	Y	T10347	Endevco	6-May-2019
A-Pillar Sill	Y	P57961	Endevco	7-May-2019
A-Pillar Low	Y	P50491	Endevco	8-May-2019
A-Pillar Mid	Y	P50313	Endevco	8-May-2019
B-Pillar Sill	Y	P50400	Endevco	7-May-2019
B-Pillar Low	Y	P45629	Endevco	7-May-2019
B-Pillar Mid	Y	P50293	Endevco	7-May-2019
Driver Seat	Y	P91180	Endevco	6-May-2019
Engine Top	X	P57946	Endevco	8-May-2019
Engine Top	Y	P88038	Endevco	15-Apr-2019
Firewall	Y	P81065	Endevco	16-Jul-2019
Right Roof	Y	P91492	Endevco	7-May-2019
Right Floor Sill	Y	P97889	Endevco	8-May-2019
Rear Floor Pan	X	P50428	Endevco	7-May-2019
Rear Floor Pan	Y	P80720	Endevco	7-May-2019

TABLE 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DK7091S	Humanetics	14-Nov-2018
Load Cell 2	DK7120S	Humanetics	14-Nov-2018
Load Cell 3	DK7118S	Humanetics	14-Nov-2018
Load Cell 4	DK7124S	Humanetics	14-Nov-2018
Load Cell 5	DK7111S	Humanetics	14-Nov-2018
Load Cell 6	DK7126S	Humanetics	14-Nov-2018
Load Cell 7	DK7112S	Humanetics	14-Nov-2018
Load Cell 8	DK7074S	Humanetics	14-Nov-2018