

FINAL REPORT NUMBER: SPNCAP-TRC-18-005

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

**VOLSKWAGEN DE MEXICO S.A. DE C.V. MEXICO
2018 Volkswagen Tiguan
NHTSA NUMBER: M20185804**

**PREPARED BY:
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Report Date: March 27, 2018

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
Mail Code: NRM-110
1200 New Jersey Ave, SE
Room W43-410
Washington, D.C. 20590**

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Report Prepared By: ILO Project Operations Group

Report Approved By: _____



John Shultz

Approval Date: March 27, 2018

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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Date: _____

Technical Report Documentation Page

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		14. Sponsoring Agency Code NRM-110																													
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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 2018 Volkswagen Tiguan, in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on December 15, 2017. The impact velocity was 32.14 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 18.3° C. The test vehicle's post-test maximum crush was 312 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>330</td></tr> <tr> <td>Resultant Lower Spine Acceleration:</td><td>g's</td><td>82</td><td>48.9</td></tr> <tr> <td>Total Pelvic Force:</td><td>N</td><td>5525</td><td>3804.2</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>24.7</td></tr> <tr> <td>Maximum Abdomen Rib Deflection</td><td>mm</td><td>45*</td><td>17.2</td></tr> </tbody> </table> * Proposed IARV The doors on the struck side did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					Unit	Threshold	Front SID-IIs	Head Injury Criteria (HIC ₃₆):	NA	1000	330	Resultant Lower Spine Acceleration:	g's	82	48.9	Total Pelvic Force:	N	5525	3804.2	(sum of acetabular and iliac forces)				Maximum Thoracic Rib Deflection	mm	38*	24.7	Maximum Abdomen Rib Deflection	mm	45*	17.2
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833																													
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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 18 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 2018 Volkswagen Tiguan manufactured by VOLSKWAGEN DE MEXICO S.A. DE C.V. MEXICO. 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 2018 Volkswagen Tiguan. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.14 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, OH, on December 15, 2017. 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	330
Lower Spine Acceleration Resultant	G	82	48.9
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3804.2
Maximum Thoracic Rib Deflection	mm	38*	24.7
Maximum Abdominal Rib Deflection	mm	45*	17.2

* Proposed IARV

Supplemental restraint information is given below:

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

GENERAL COMMENTS

Non struck side curtain airbag not disabled

Left A-Post Y; questionable data after 22 ms

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2018 Volkswagen Tiguan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20185804
Model Year	2018
Make	Volkswagen
Model	Tiguan
Body Style	MPV
VIN	3VV1B7AX2JM016042
Body Color	Silk Blue Metallic
Odometer Reading (km/mi)	102 mi
Engine Displacement (L)	2.0
Type/No. Cylinders	Straight/4
Engine Placement	Front/Transverse
Transmission Type	Automatic
Transmission Speeds	8
Overdrive	Yes
Final Drive	FWD
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	No
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	Yes
Other Safety Restraint	No

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

Yes*

DATA FROM CERTIFICATION LABEL

Manufactured By	VOLSKWAGEN DE MEXICO S.A. DE C.V. MEXICO
Date of Manufacturer	07/17
Vehicle Type	MPV

GVWR (kg)	2380
GAWR Front (kg)	1160
GAWR Rear (kg)	1270

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	2	7
Vehicle Capacity Weight (VCW) (kg)				550.0
DSC X 68.04 kg				476.3
Rated Cargo and Luggage Weight (RCLW) (kg)				73.7

VEHICLE SEAT TYPE

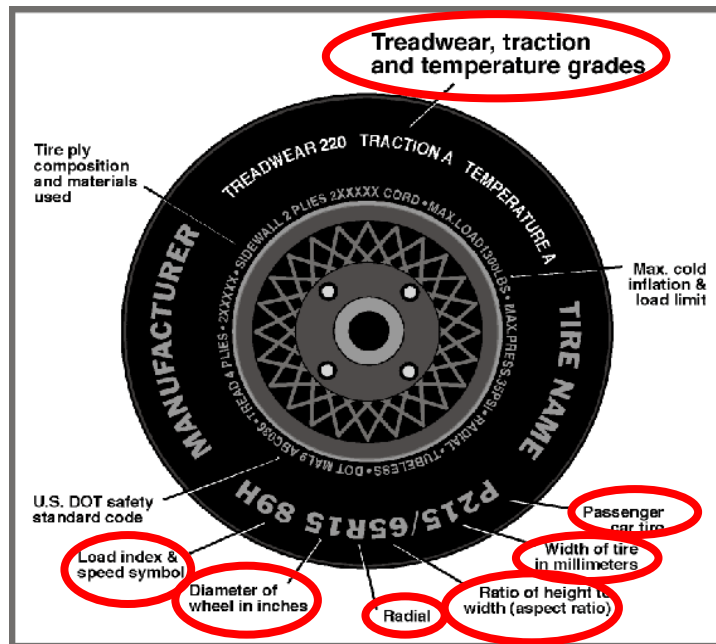
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	Yes	N/A	N/A		N/A	Yes	N/A
Rear or Second Row Seat	N/A	N/A	Yes	Yes	N/A	Yes	N/A
Third row seat	N/A	N/A	Yes	N/A	Yes	N/A	N/A

* This functionality cannot be completed in the Infotainment system. It would have to be conducted at an authorized dealer.

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

Test Vehicle: 2018 Volkswagen Tiquan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	260	260
Recommended Tire Size	215/65R17	215/65R17
Tire Size on Vehicle	215/65R17	215/65R17
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Ecopia H/L 422 Plus	Ecopia H/L 422 Plus
Treadwear	600	600
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2	2
Tire Plies Body	4	4
Load Index/Speed Symbol	99H	99H
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	V6E3 EC1 2517	V6E3 EC1 2517
DOT Safety Code Right	V6E3 EC1 2517	V6E3 EC1 2617

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

Test Vehicle: 2018 Volkswagen Tiguan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	245	245	245	245
Tire Placard	kPa	260	260	260	260
Owner's Manual	kPa	N/A	N/A	N/A	N/A
As Tested	kPa	260	260	260	260

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	478.8	381.8		504.8	429.2		512.0	446.2	
Right	kg	476.2	372.6		476.0	414.4		464.6	409.4	
Ratio	%	55.9	44.1		53.8	46.2		53.3	46.7	
Totals	kg	955.0	754.2	1709.4	980.8	843.6	1824.4	976.6	855.6	1832.2

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1709.4	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	49.0	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	73.7	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1832.1	(A+B+C)

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

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	Deg.	-0.6	-0.1	0.0	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	-0.7	0.0	0.0	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	-0.6	-0.6	-0.6	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg.	-0.1	-0.1	-0.4	Yes
Vehicle CG (Aft of Front Axle)	mm	1231	1290	1302	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	+6	+19	+37	

*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 area	63.5
Components None	0.0

Test height adjustable suspension setting, if applicable:

N/A

DATA SHEET NO. 2

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

Test Vehicle: 2018 Volkswagen Tiguan

NHTSA No.: M20185804

Test Program: SPNCAP Side Impact

Test Date: 12/15/17

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	20.0	15.7	17.85
Front Passenger Seat	19.5	15.3	17.4
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	N/A	N/A	10.6
Non-Struck Side Rear Seat	N/A	N/A	9.7
Rear Center Seat*	N/A	N/A	11.6

* If applicable.

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRIP Height (mm)	SCRIP Height Position	SCRIP Height (mm)		
				Rearmost	Mid- Fore/Aft	Forward- Most
Driver Seat	17.8	217	Max	252	254	245
			Mid	220	221	217
			Min	209	210	205
Front Passenger Seat	17.4	224	Max	258	256	248
			Mid	232	230	224
			Min	210	217	215
Front Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Struck Side Rear Seat	10.6	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	9.7	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Rear Center Seat*	11.6	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A

* If applicable.

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2018 Volkswagen Tiguan

NHTSA No.: M20185804

Test Program: SPNCAP Side Impact

Test Date: 12/15/17

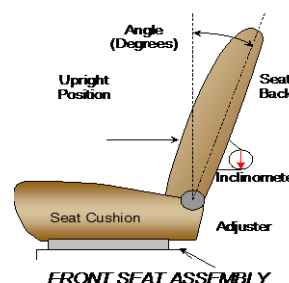
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	253	39	0	0
Front Passenger Seat	253	39	0	0
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	180	19	180	19
Non-Struck Side Rear Seat	180	19	180	19
Rear Center Seat*	180	19	180	19

* 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	63.9	36	8.5	9
Front Passenger Seat	65.1	36	8.5	9
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	9.8	6	17.4	0
Non-Struck Side Rear Seat	9.7	6	17.4	0
Rear Center Seat*	9.8	6	17.4	0

* 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, numbered from 0 to 3	0, Lowermost

HEAD RESTRAINT ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	5, numbered from 0 to 4	4, Lowermost

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2018 Volkswagen Tiguan

NHTSA No.: M20185804

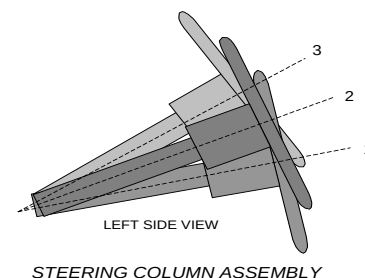
Test Program: SPNCAP Side Impact

Test Date: 12/15/17

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.

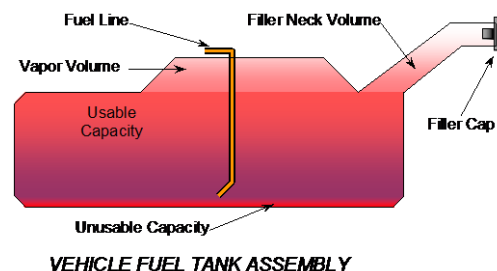
	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	24.0	0
Geometric Center, Position No. 2	26.8	27
Uppermost, Position No. 3	29.5	55
Telescoping Steering Wheel Travel		55
Test Position	26.8	27



FUEL PUMP

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

The fuel pump runs for 2 seconds after ignition is switched on. If the engine doesn't run, the fuel pump stops running. If there is a crash signal, it will also stop running.



FUEL TANK CAPACITY

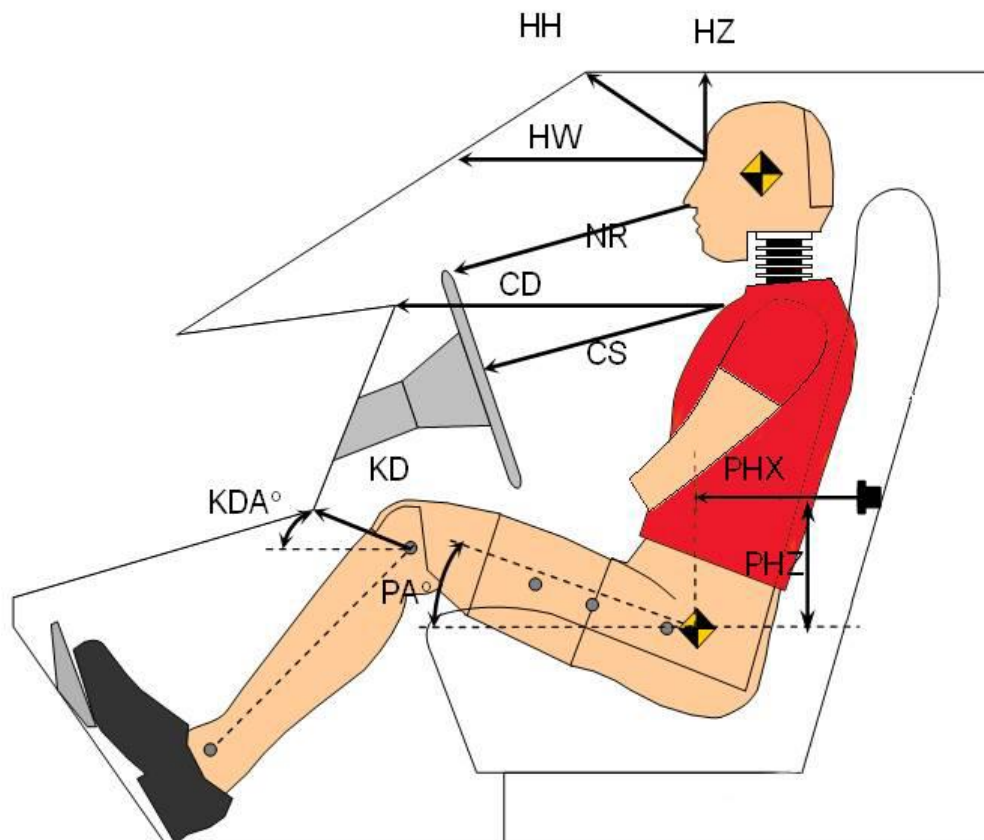
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	57.9
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	57.9
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	53.9
Actual Amount of Solvent Used in Test	53.9
1/3 of Usable Capacity	19.1

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: 2018 Volkswagen Tiguan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17

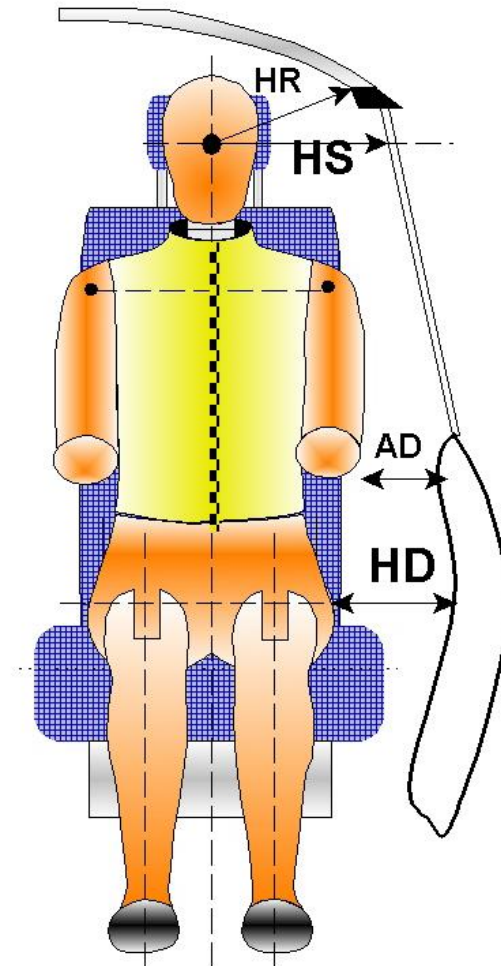


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	319	
HW	Head to Windshield	607	
HZ	Head to Visor	234	
NR	Nose to Rim	269	
CD	Chest to Dashboard	436	
CS	Chest to Steering Wheel	216	
KDL/KDLA°	Left Knee to Dash	127	28.0
KDR/KDRA°	Right Knee to Dash	126	28.0
PAX°	Pelvic Tilt Angle (X-axis)		0.4
PAY°	Pelvic Tilt Angle (Y-axis)		19.3
PHX	Hip Point to Striker (X-Axis)	361	
PHZ	Hip Point to Striker (Z-Axis)	229	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2018 Volkswagen Tiguan
Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
Test Date: 12/15/17

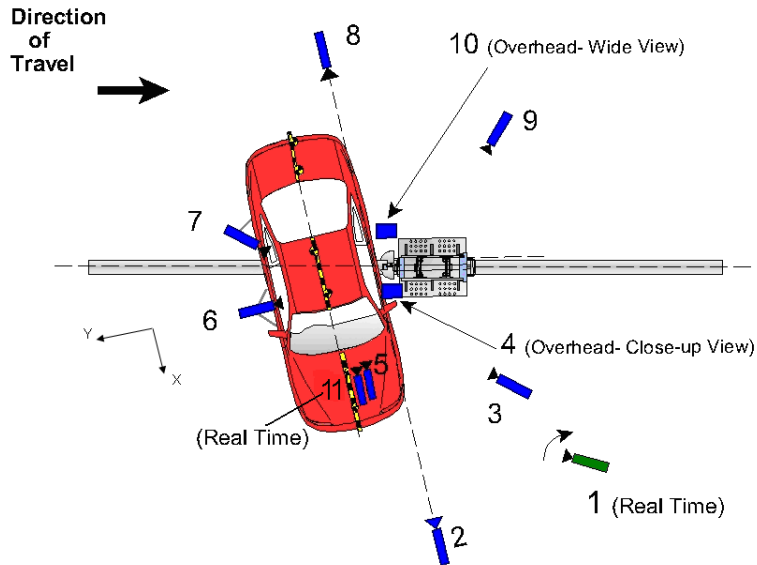


Code	Measurement Description	Length (mm)
HR	Head to Side Header	279
HS	Head to Side Window	397
AD	Arm to Door	183
HD	Hip Point to Door	174

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2018 Volkswagen Tiguan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17



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	5710	0	-1353	20	1000
3	Impact side 45° – forward pole view	4026	-1004	-1227	20	1000
4	Overhead Close-up view of impact	0	0	-5708	50	1000
5	Onboard – dummy front view				25	1000
6	Onboard – dummy side view				12.5	1000
7	Onboard – dummy rear oblique view				25	1000
8	Rear ground level – impact view	-5438	0	-1500	20	1000
9	Impact side 45° – rearward pole view	-5568	-2980	-1652	28	1000
10	Overhead wide view of impact	-70	360	-5696	28	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

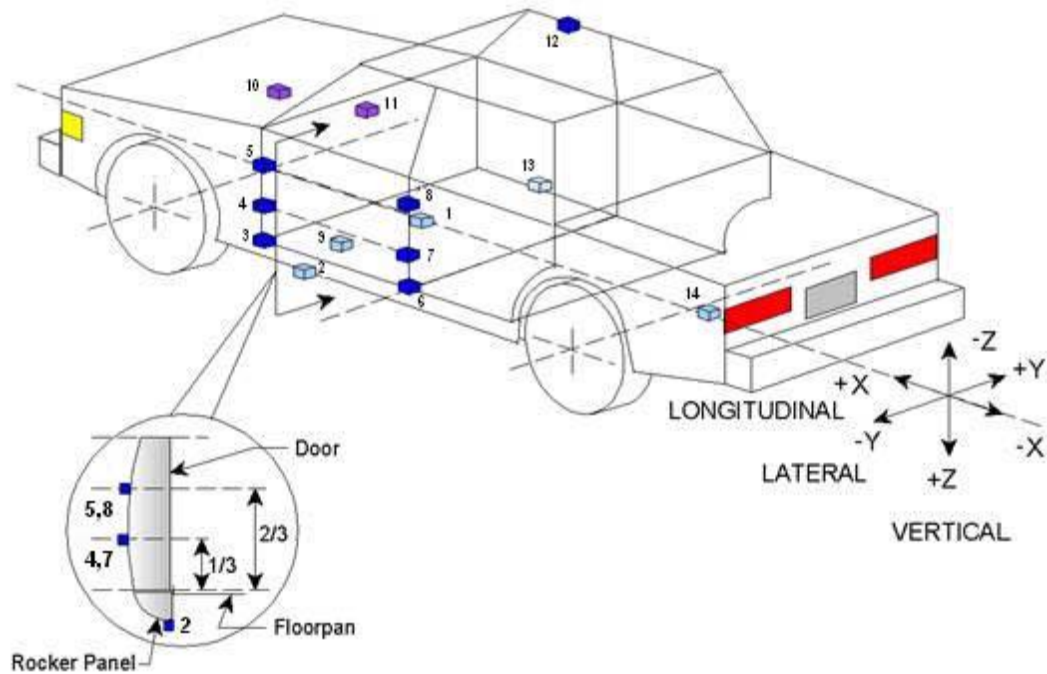
INSTRUMENTATION

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

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2018 Volkswagen Tiguan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17



Accelerometer/Sensor Location				
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3118	79	-435
2	Left Floor Sill	2960	-685	-328
3	A-Pillar Sill	3216	-721	-418
4	A-Pillar Low	3288	-835	-540
5	A-Pillar Mid	3280	-834	-949
6	B-Pillar Sill	1971	-687	-330
7	B-Pillar Low	2227	-840	-575
8	B-Pillar Mid	2221	-838	-950
9	Driver Seat Track	2600	-603	-434
10	Engine Top	4042	215	-826
11	Firewall	3810	13	-999
12	Right Roof	2450	605	-1605
13	Right Floor Sill	2904	685	-337
14	Rear Floorpan	891	0	-446

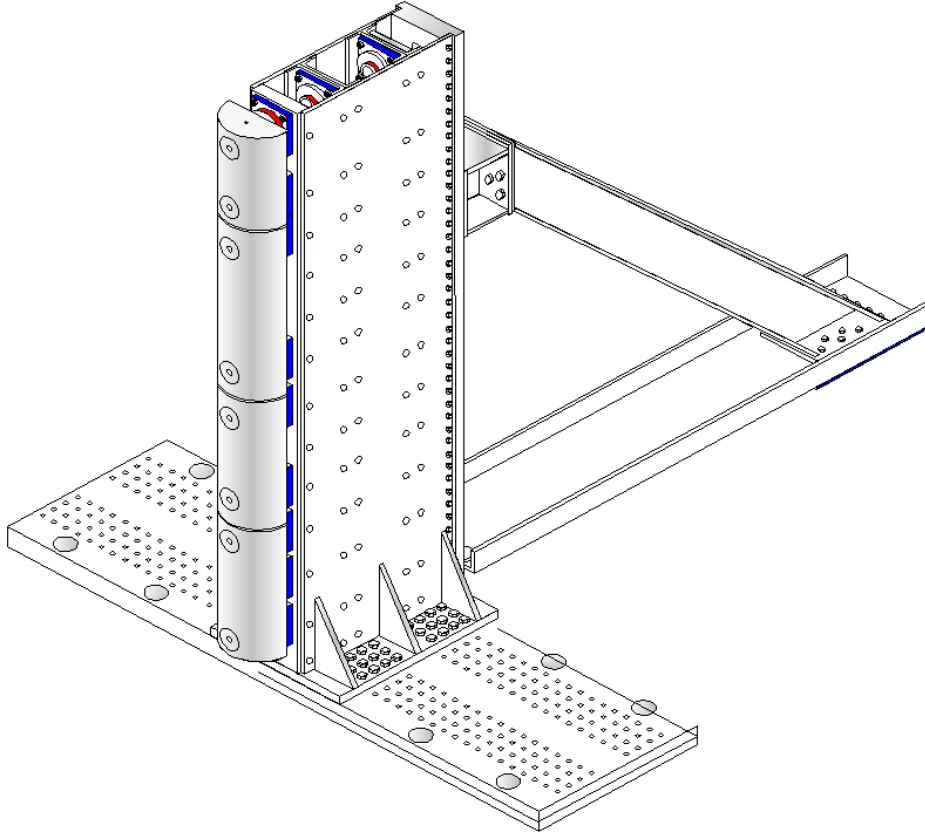
Reference: X - Test Vehicle Rear Bumper (+ forward)
 Y - Test Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2018 Volkswagen Tiguan
Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
Test Date: 12/15/17

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: 2018 Volkswagen Tiguan
Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
Test Date: 12/15/17

TEST DUMMY INFORMATION AND CONTACT POINTS

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

POST-TEST DOOR PERFORMANCE

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

* Indicate "Yes", "No", or "NA".

POST-TEST SEAT PERFORMANCE

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

* Indicate "Yes", "No", or "NA".

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Good
Sill Separation	None
Windshield Damage	Major damage along driver A pillar
Side Window Damage	Driver side window broken out
Other Notable Effects	None

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

Test Vehicle: 2018 Volkswagen Tiguan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17

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	No	N/A
Seat Belt Load Limiter	Yes	Unknown	Yes	Unknown
Other	No	N/A	No	N/A

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

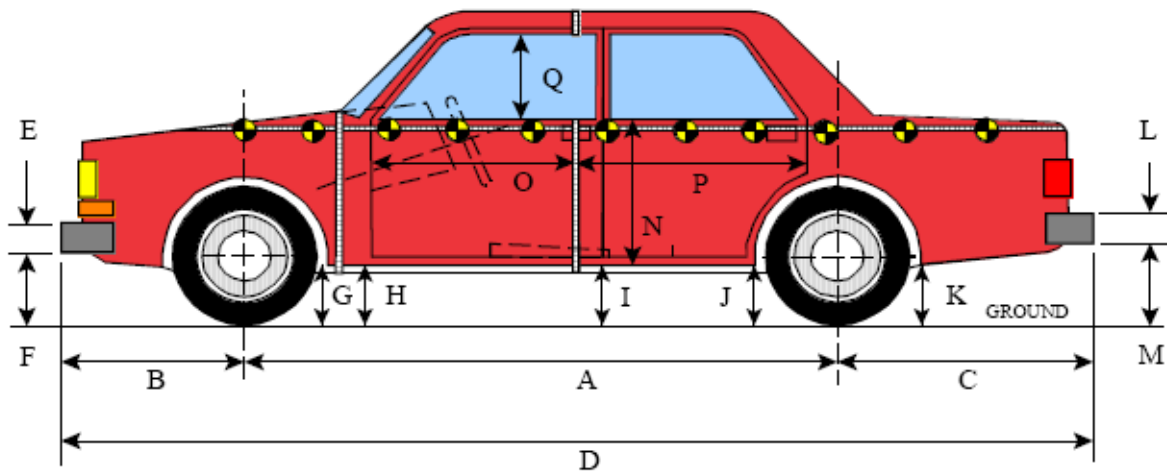
Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1079
Actual Impact Point (Aft of Front Axle)	mm		1081
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 of Intended Impact point	-2
Angle Between Vehicle's Longitudinal Centerline and Line of Motion	degrees	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	N/A ¹
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.14

¹ Trap No. 1 Velocity (Primary) was inoperable

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2018 Volkswagen Tiguan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17



LEFT SIDE VIEW

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

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

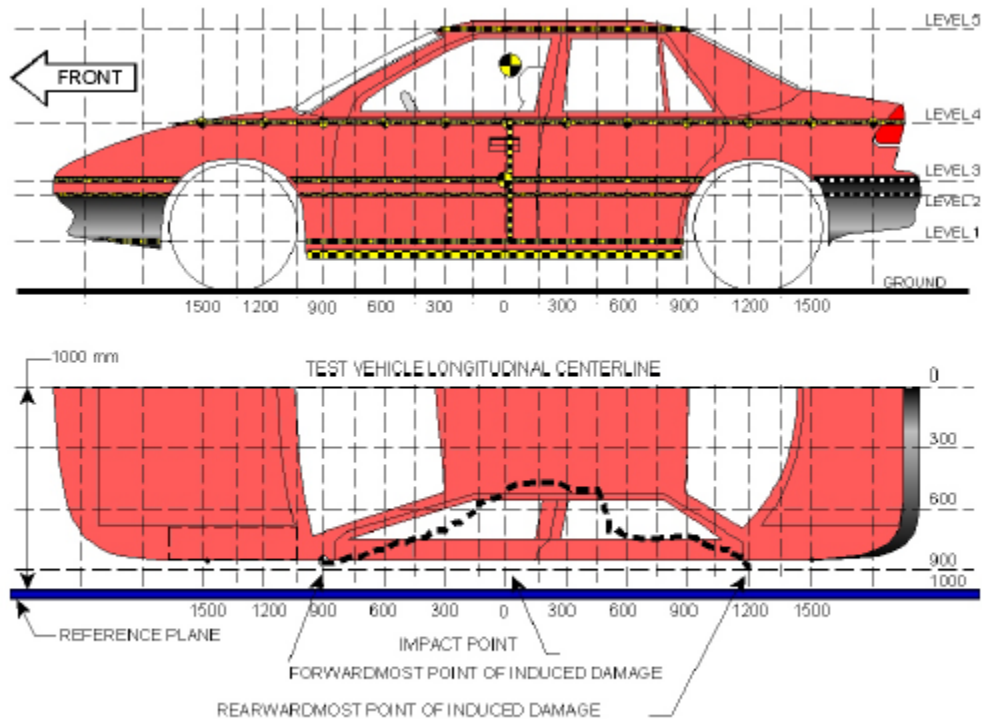
Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2789	2740	49
B	Front Axle to Front Surface of Vehicle	890	900	-10
C	Rear Axle to Rear Surface of Vehicle	1041	1041	0
D	Total Length at Centerline	4720	4670	50
E	Front Bumper Thickness	120	120	0
F	Front Bumper Bottom to Ground	520	519	1
G	Sill Height at Front Wheel Well	244	265	-21
H	Sill Height at Front Door Leading Edge	288	308	-20
I	Sill Height at B-Pillar	289	314	-25
J1	Sill Height at Rear Wheel Well	292	324	-32
J2	Pinch Weld Height at Rear Wheel Well	248	274	-26
K	Sill Height Aft of Rear Wheel Well	253	284	-31
L	Rear Bumper Thickness	111	111	0
M	Rear Bumper Bottom to Ground	538	574	-36
N	Sill Height to Bottom of Front Window Sill	886	882	4
O	Front Door Leading Edge to Impact CL	607	471	136
P	Rear Door Trailing Edge to Impact CL	1590	1562	28
Q	Front Window Opening	410	382	28
R	Right Side Length	4525	5420	-895
S	Left Side Length	4520	4480	40
T ¹	Vehicle Width at B-Pillars	1835	1735	100

¹ Maximum width is not a B-Pillars; maximum width is 1840

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2018 Volkswagen Tiguan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17



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	432	274	0
2	Occupant H-Point	672	308	0
3	Mid-Door	698	312	0
4	Window Sill	1040	290	0
5	Window Top	1585	81	300

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: 2018 Volkswagen Tiguan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17

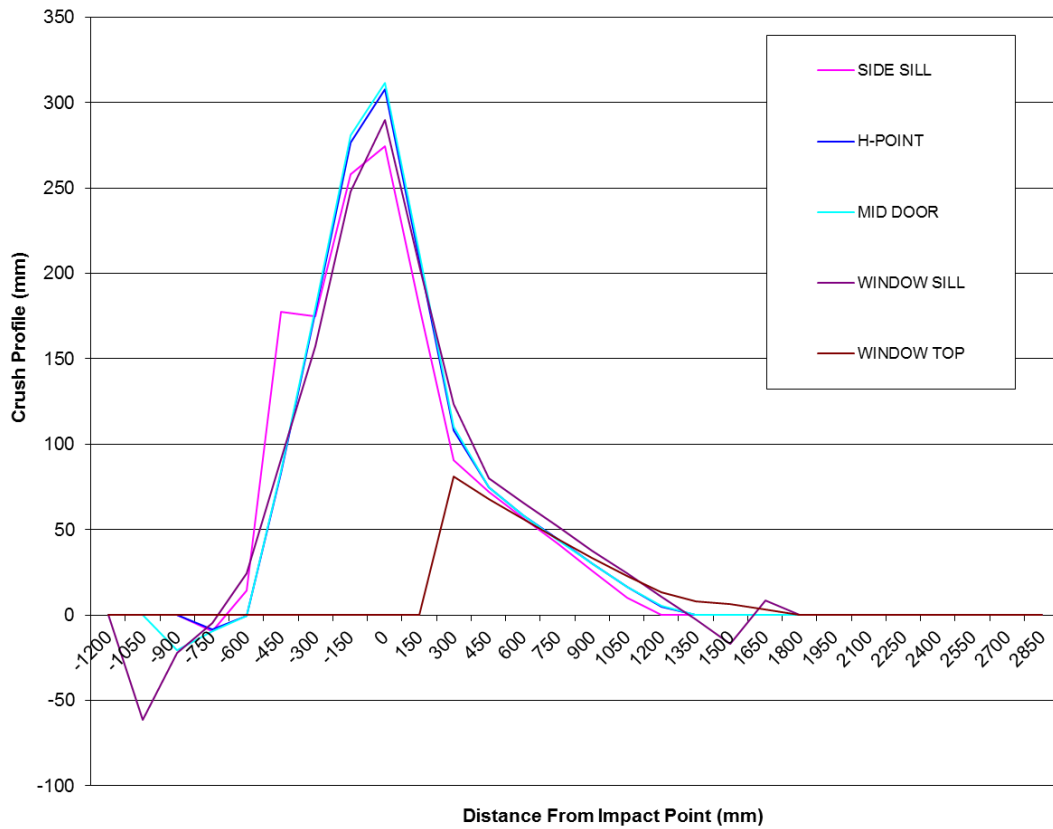
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1050	0	0	0	783	0	0	0	0	845	0	0	0	0	-62	0
-900	0	0	918	813	0	0	0	938	835	0	0	0	-20	-22	0
-750	902	915	916	837	0	912	924	925	841	0	-10	-9	-9	-4	0
-600	908	909	909	842	0	894	909	910	817	0	14	0	-1	25	0
-450	912	910	911	875	0	734	826	827	784	0	178	84	84	91	0
-300	914	911	912	855	0	739	734	733	698	0	175	177	179	157	0
-150	916	912	913	862	0	658	635	632	615	0	258	277	281	247	0
0	916	912	913	867	0	642	604	601	577	0	274	308	312	290	0
150	917	911	913	871	0	736	703	701	667	0	181	208	212	204	0
300	915	910	912	874	607	825	802	801	750	526	90	108	111	124	81
450	915	908	910	876	611	843	834	835	796	543	72	74	75	80	68
600	910	907	908	877	610	854	849	850	811	553	56	58	58	66	57
750	907	904	905	872	608	865	859	861	820	564	42	45	44	52	44
900	902	901	902	865	605	876	870	872	827	572	26	31	30	38	33
1050	897	900	901	859	599	887	884	885	834	576	10	16	16	25	23
1200	0	905	906	853	590	0	900	900	842	577	0	5	6	11	13
1350	0	0	0	838	578	0	0	0	841	570	0	0	0	-3	8
1500	0	0	0	844	561	0	0	0	861	554	0	0	0	-17	7
1650	0	0	0	841	537	0	0	0	832	534	0	0	0	9	3

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

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

Test Vehicle: 2018 Volkswagen Tiguan
Test Program: SPNCAP Side Impact

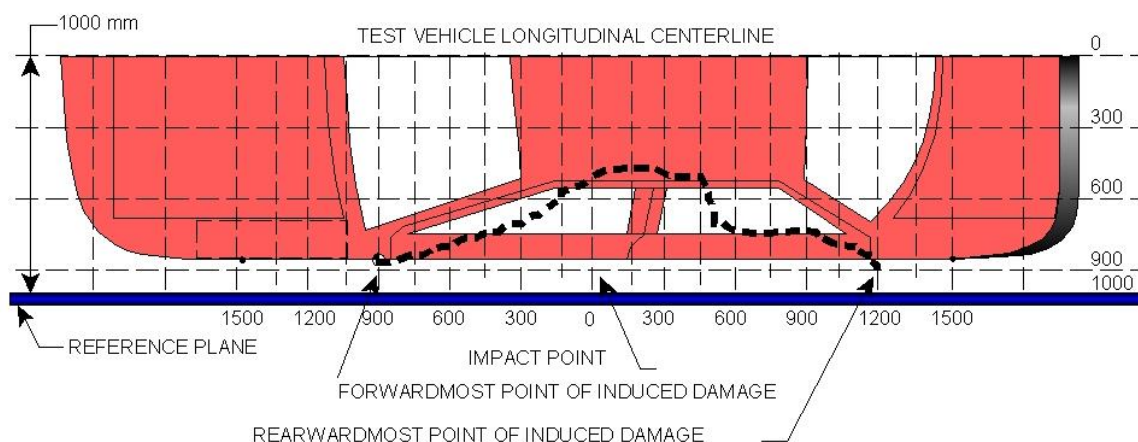
NHTSA No.: M20185804
Test Date: 12/15/17



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2018 Volkswagen Tiguan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	1650	4	832	841	9
2	1200	5	577	590	13
3	750	4	820	872	52
4	300	4	750	874	124
5	-150	3	632	913	281
6 ¹	-600	4	817	842	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

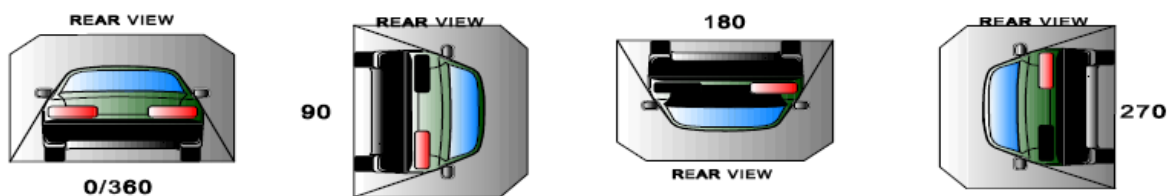
Test Vehicle: 2018 Volkswagen Tiguan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17

Test Time: 15:05 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

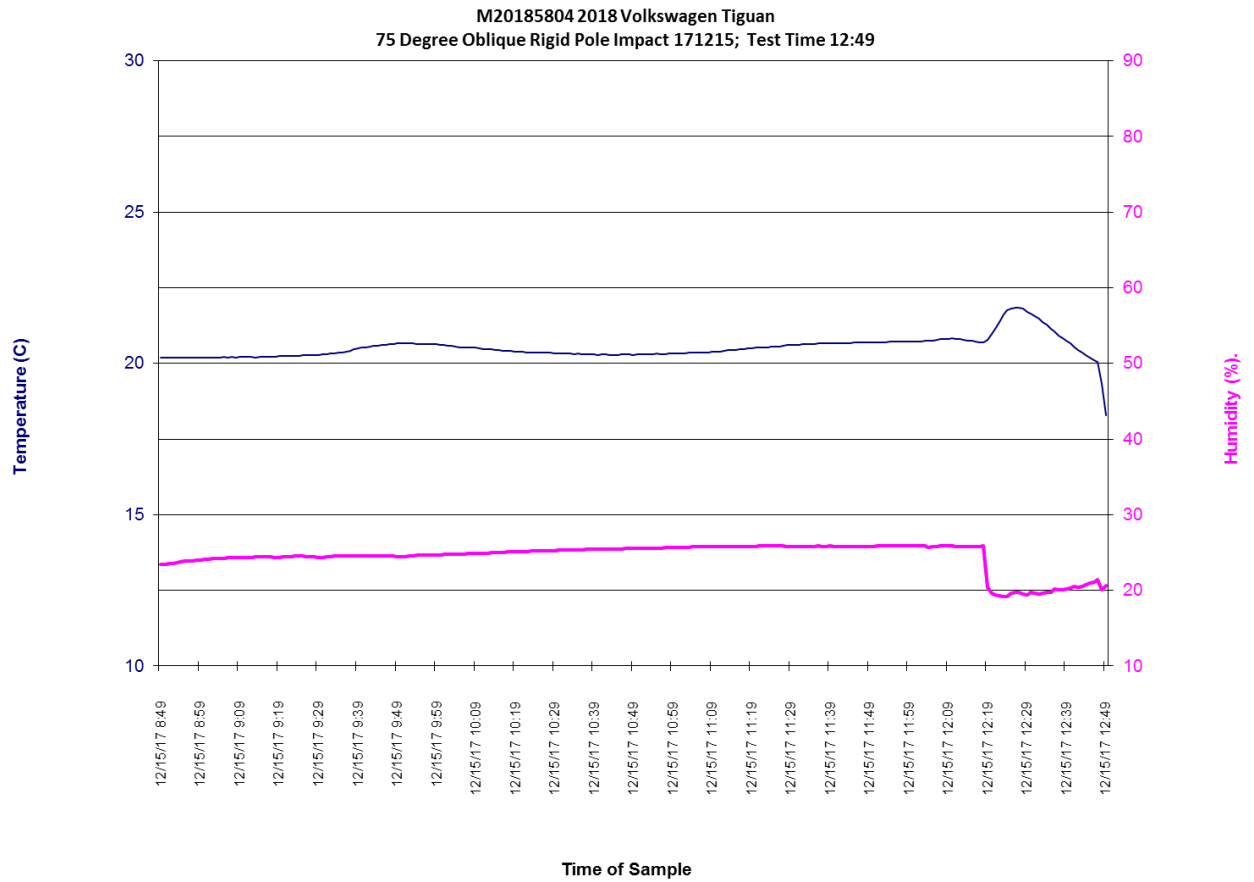
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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: 2018 Volkswagen Tiguan
 Test Program: SPNCAP Side Impact

NHTSA No.: M20185804
 Test Date: 12/15/17



APPENDIX A
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
7	Pre-Test Left Side View of Test Vehicle	A-7
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19	Pre-Test Close-Up View of Impact Point Target	A-13
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24	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-16
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26	Pre-Test Front View of Seat Back Prior to Dummy Positioning	A-17
27	Pre-Test Front 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
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34	Pre-Test Left Side View of Steering Wheel	A-21
35	Pre-Test View of Disengaged Parking Brake	A-21

TABLE OF PHOTOGRAPHS (CONTINUED)

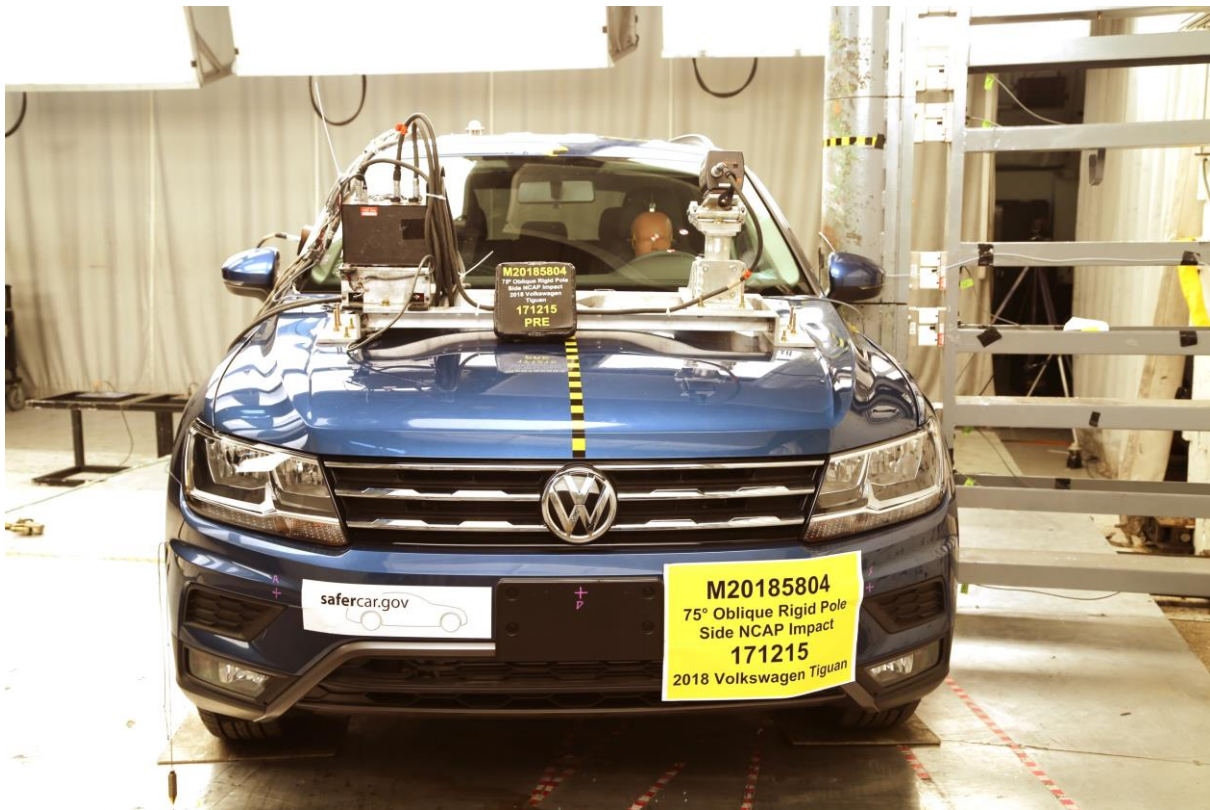
No.	Description	Page
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37	Pre-Test Close-Up Left Side View of Driver Seat Track	A-22
38	Pre-Test Close-Up Left Side View of Driver Seat Back	A-23
39	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-23
40	Pre-Test Dummy and Door Clearance View	A-24
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50	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-29
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58	Post-Test Pole Barrier Front View	A-33
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
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69	Monroney Label	A-39
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



No. 012 Post-Test Rear View of Test Vehicle



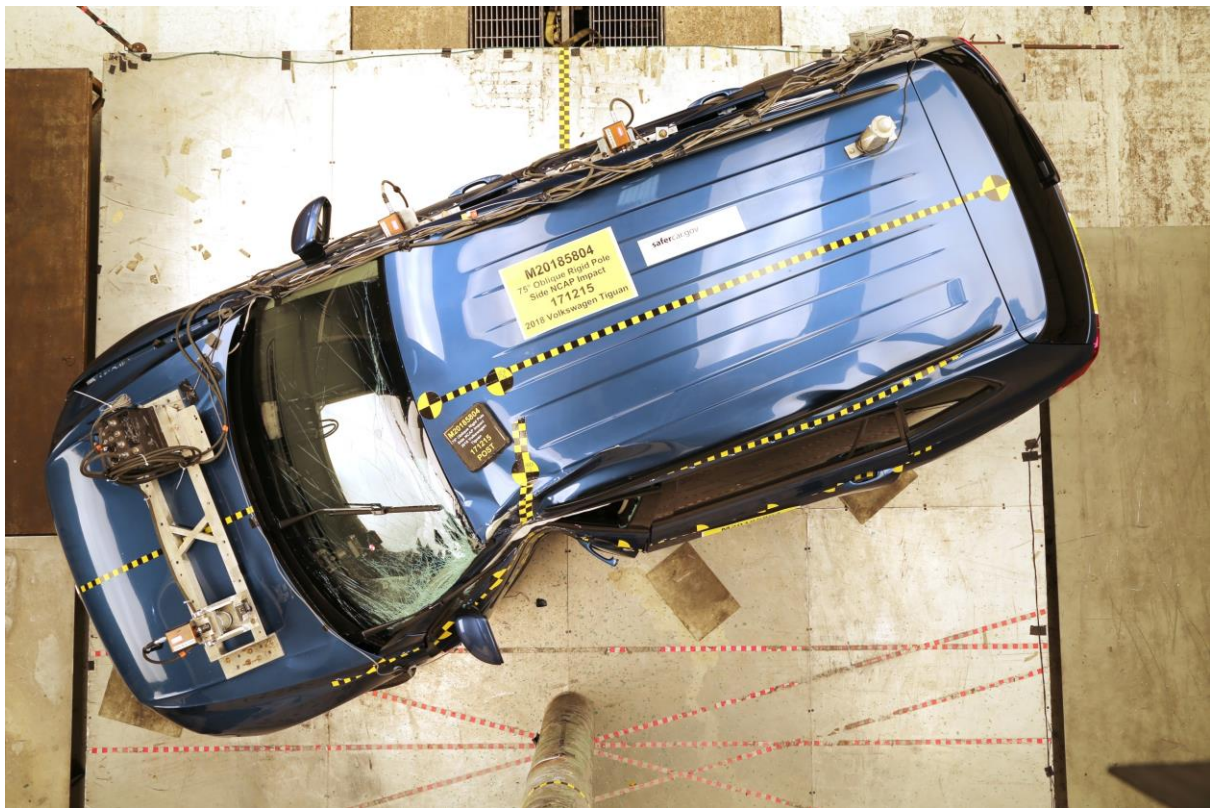
No. 013 Pre-Test Right Side View of Test Vehicle



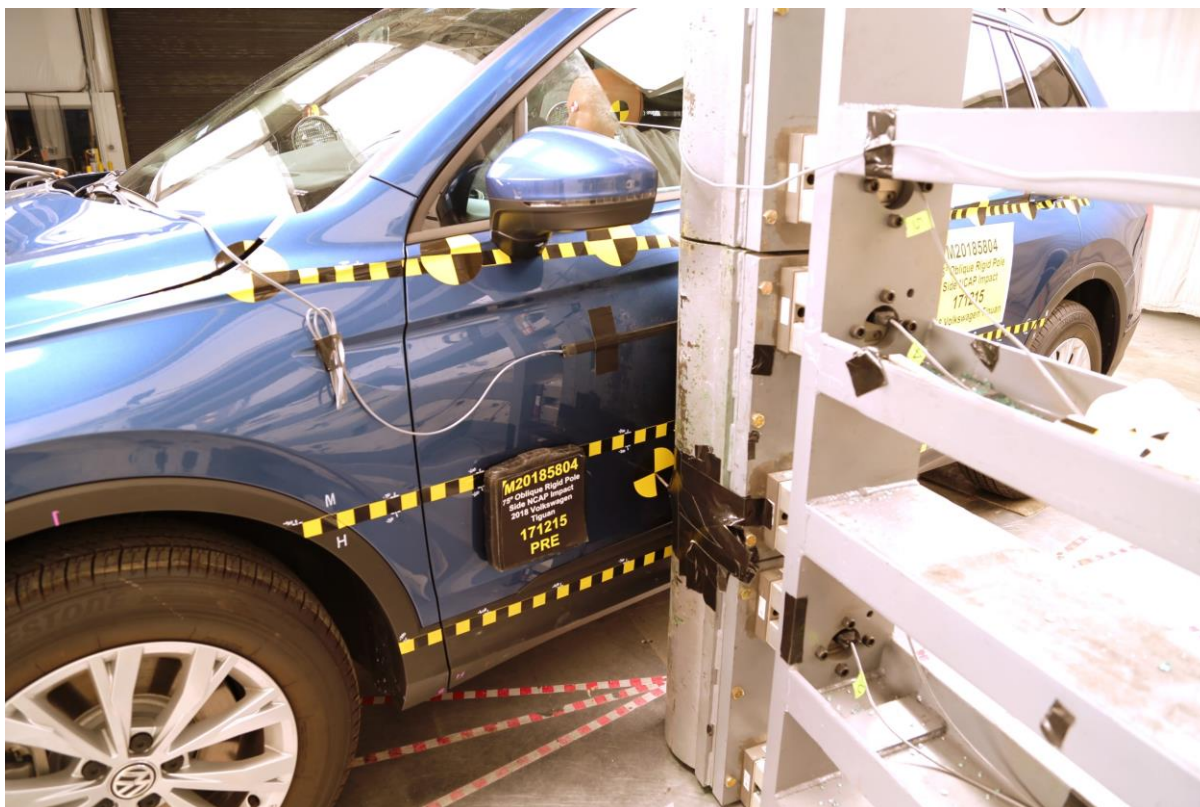
No. 014 Post-Test Right Side View of Test Vehicle



No. 015 Pre-Test Overhead View of Test Area



No. 016 Post-Test Overhead View of Test Area



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



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



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



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



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



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



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

Intentionally Left Blank



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



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



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



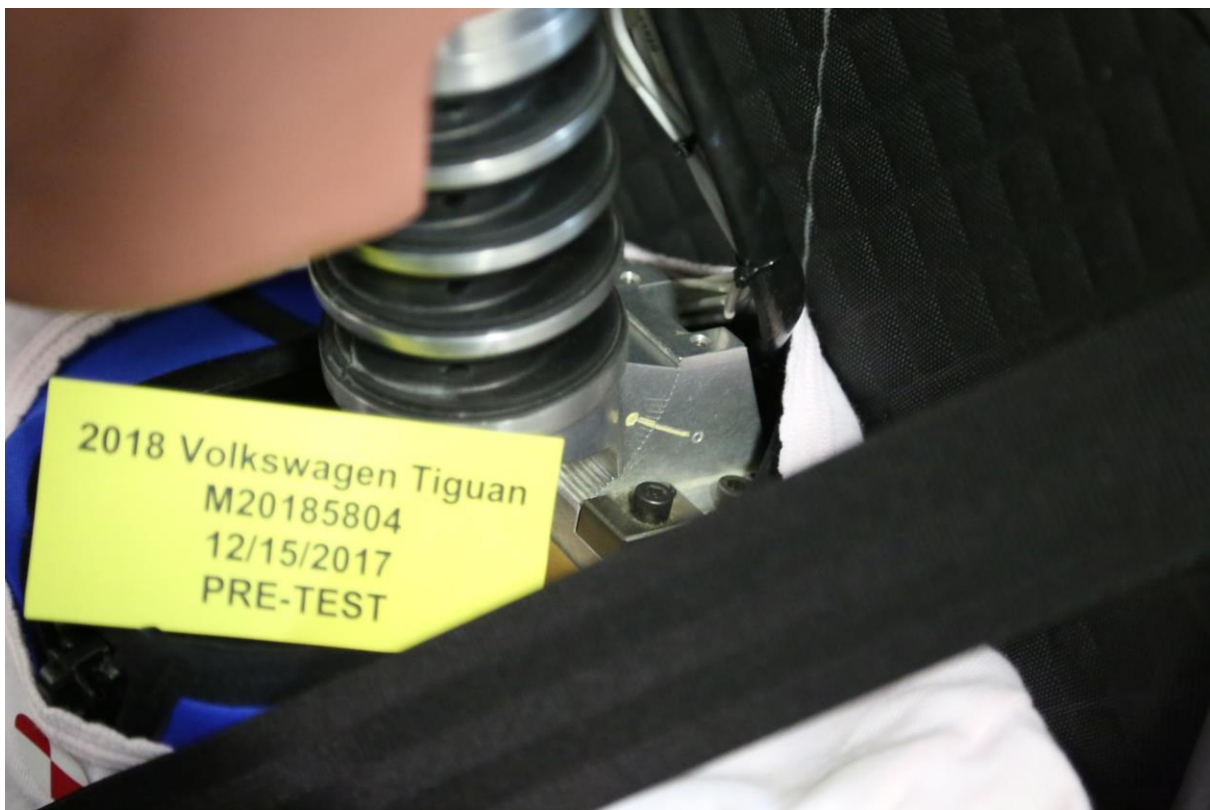
No. 027 Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



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



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



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



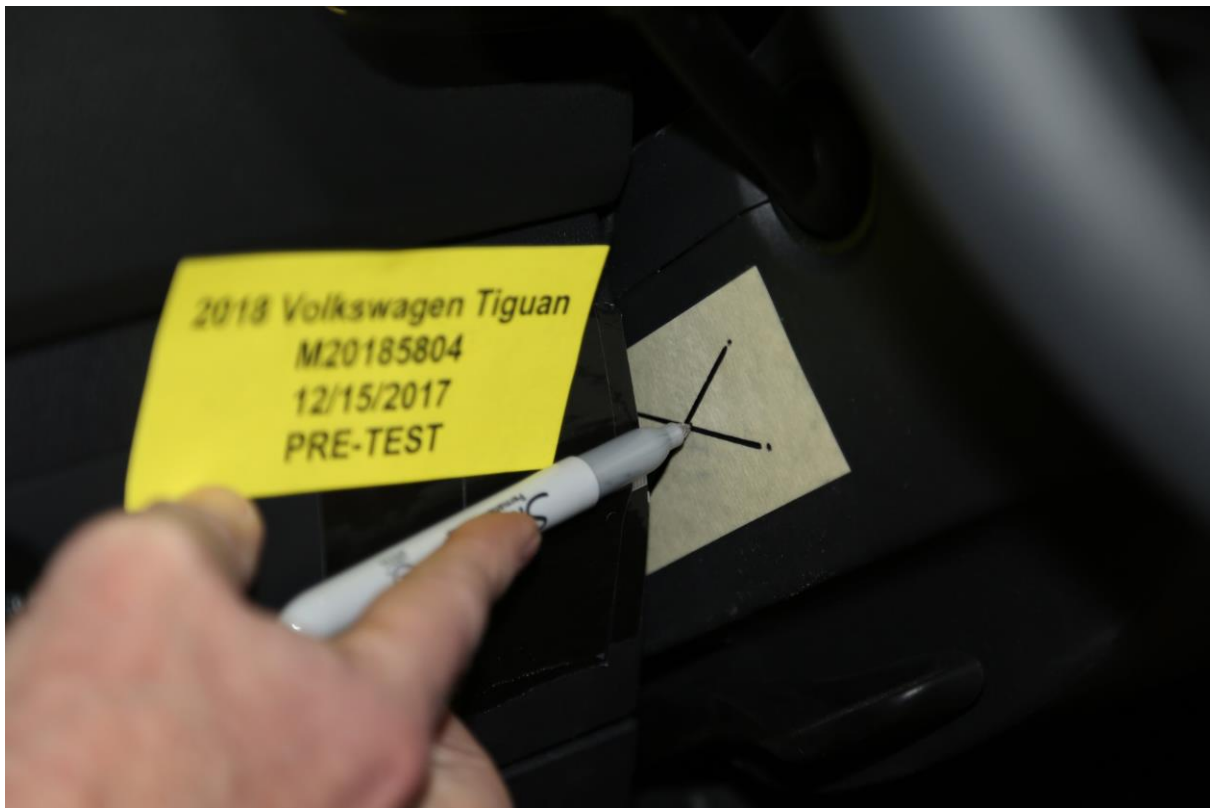
No. 031 Pre-Test Left Side View of Dummy Head Showing Dummy Head is Level



No. 032 Pre-Test Placement of Dummy Feet



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



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



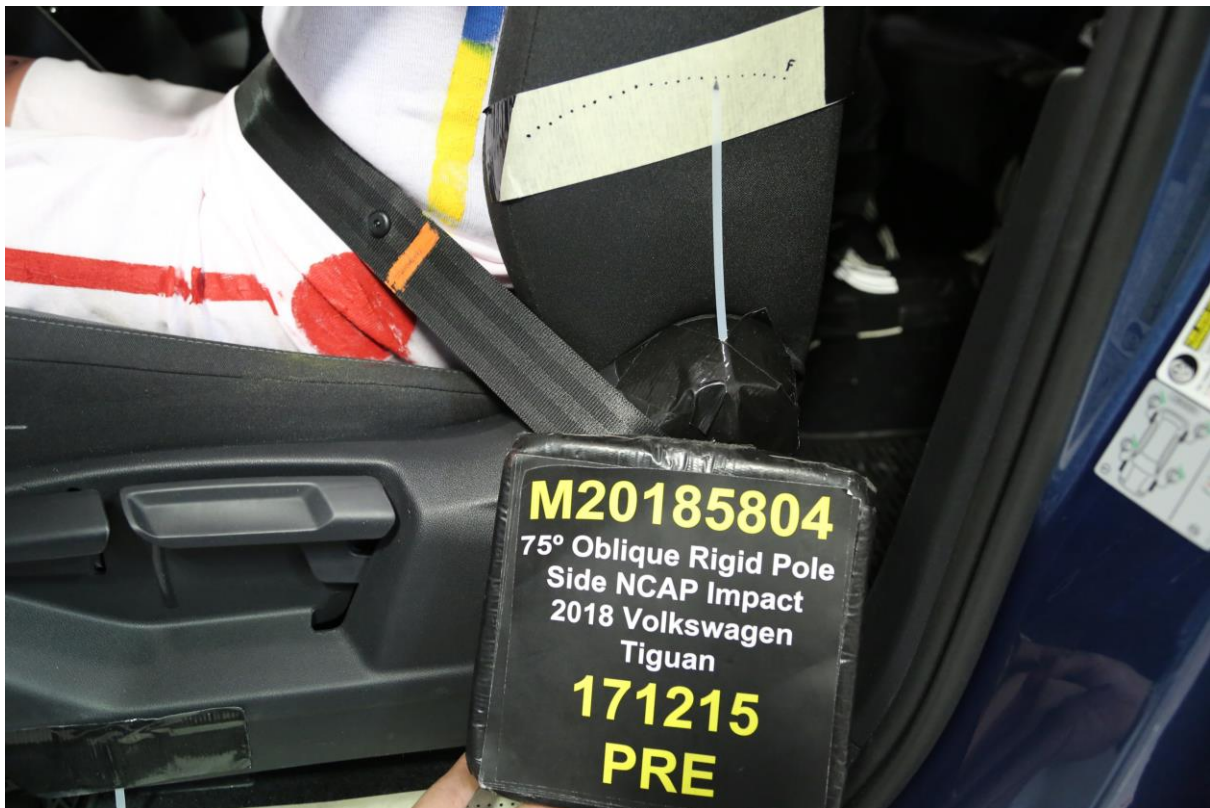
No. 035 Pre-Test View of Disengaged Parking Brake



No. 036 Pre-Test View of Parking Brake



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



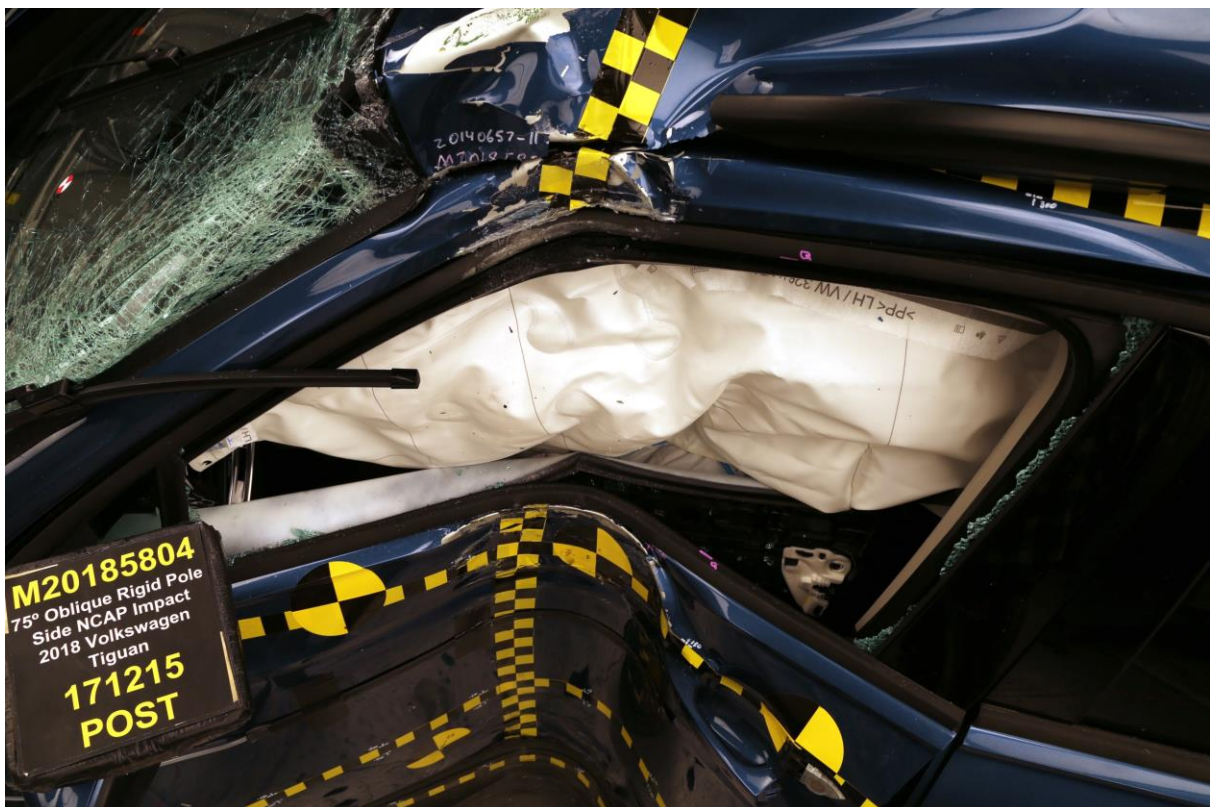
No. 038 Pre-Test Close-Up Left Side View of Driver Seat Back



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



No. 040 Pre-Test Dummy and Door Clearance View



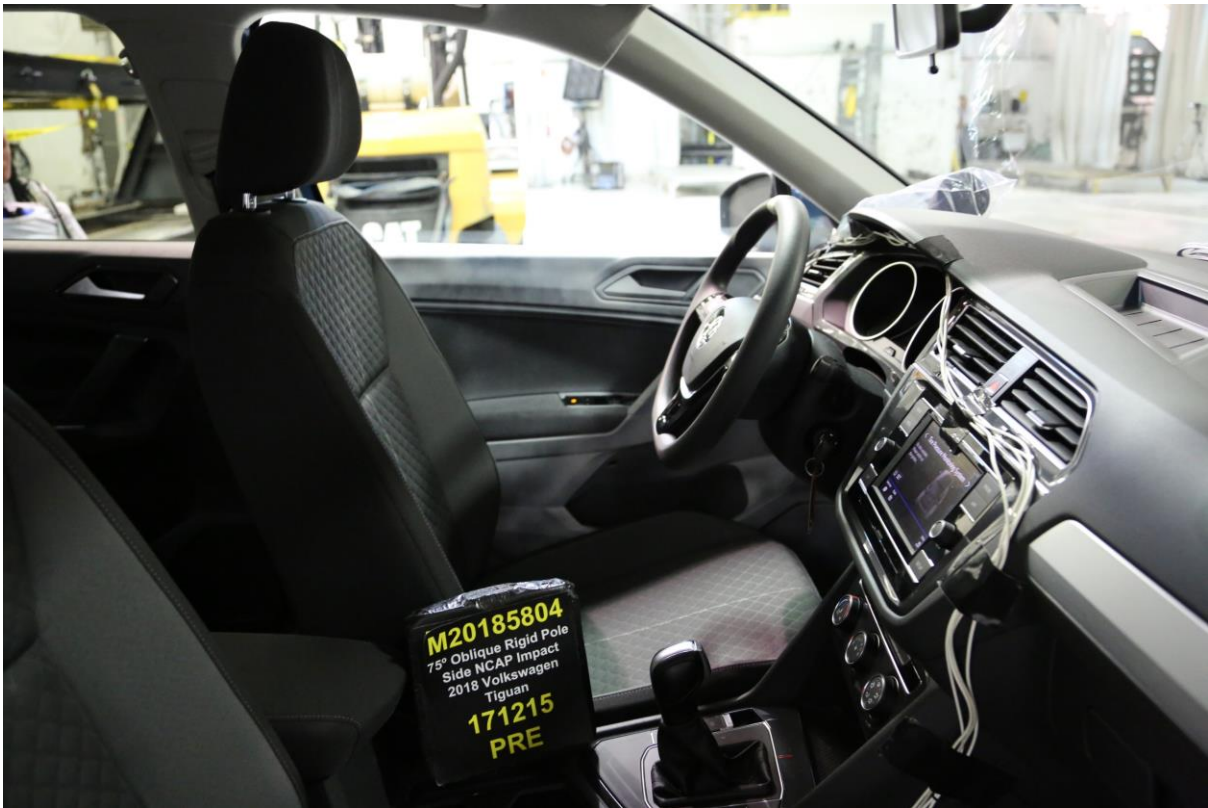
No. 041 Post-Test Dummy and Door Clearance View



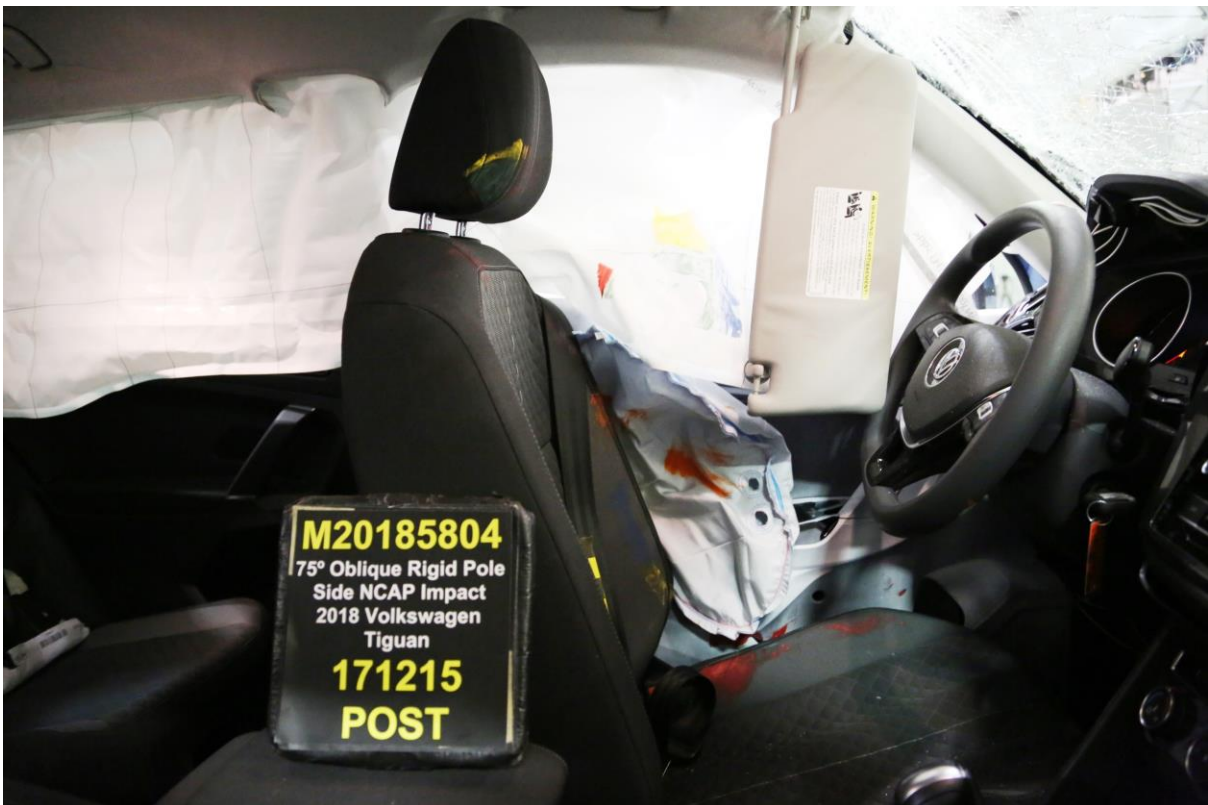
No. 042 Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



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



No. 044 Pre-Test Inner Door Panel View



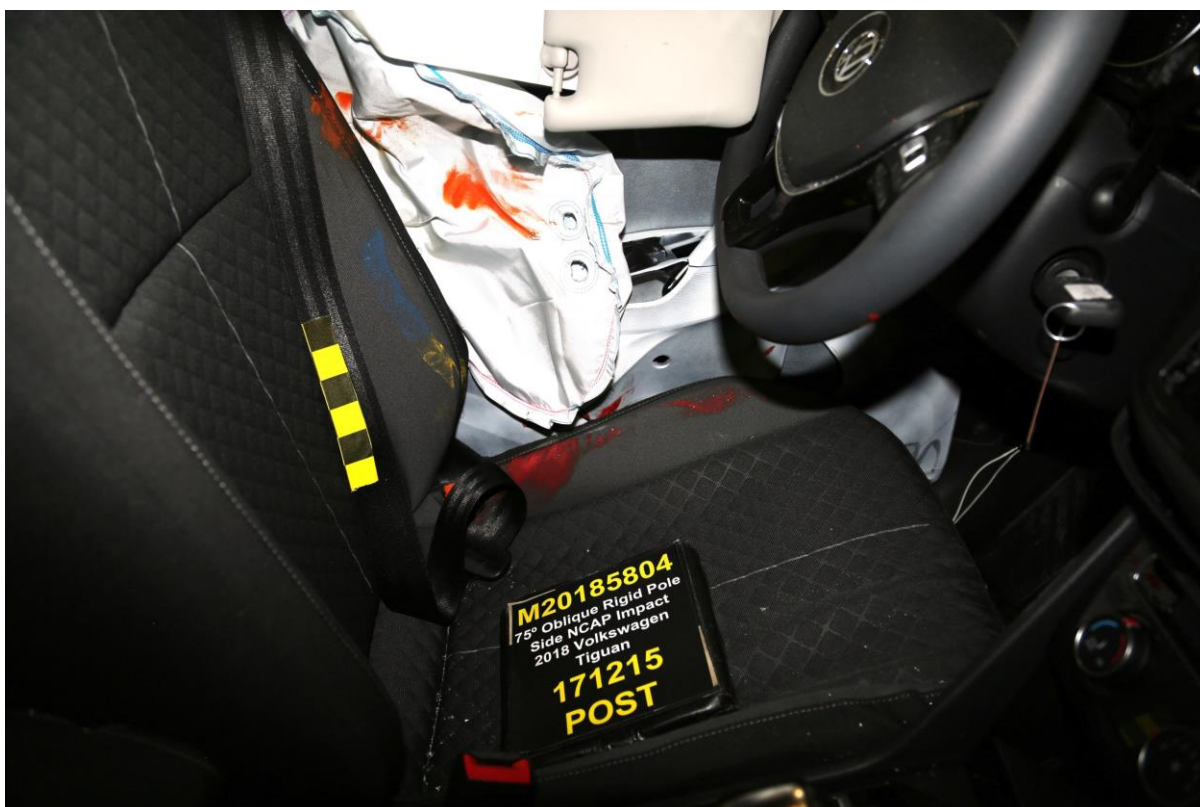
No. 045 Post-Test Inner Door Panel View Showing Dummy Contact Location



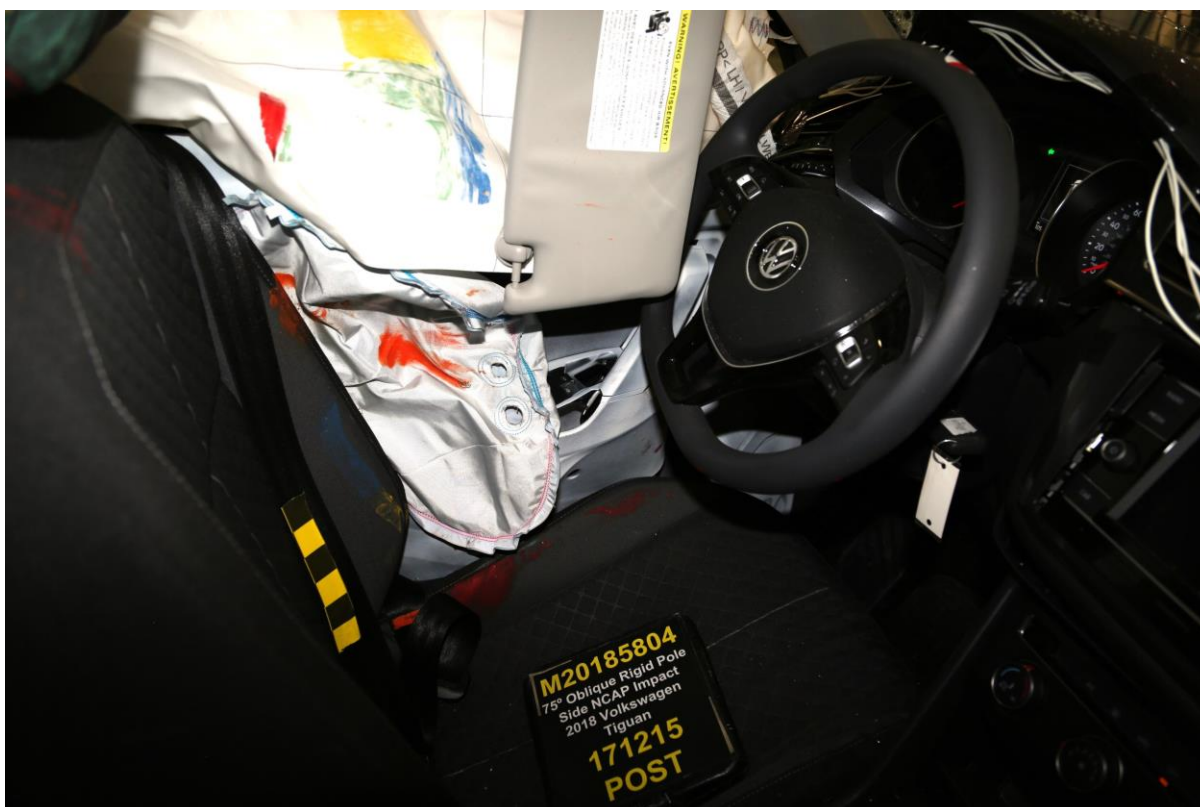
No. 046 Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



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



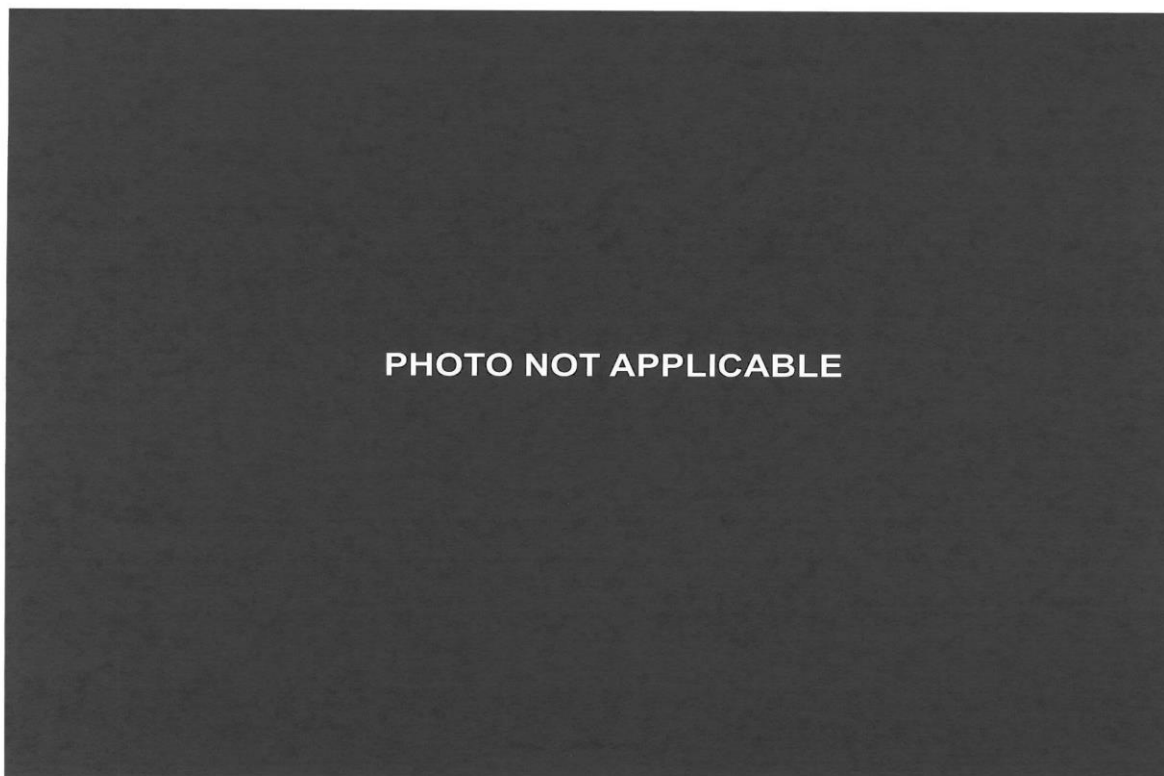
No. 048 Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



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

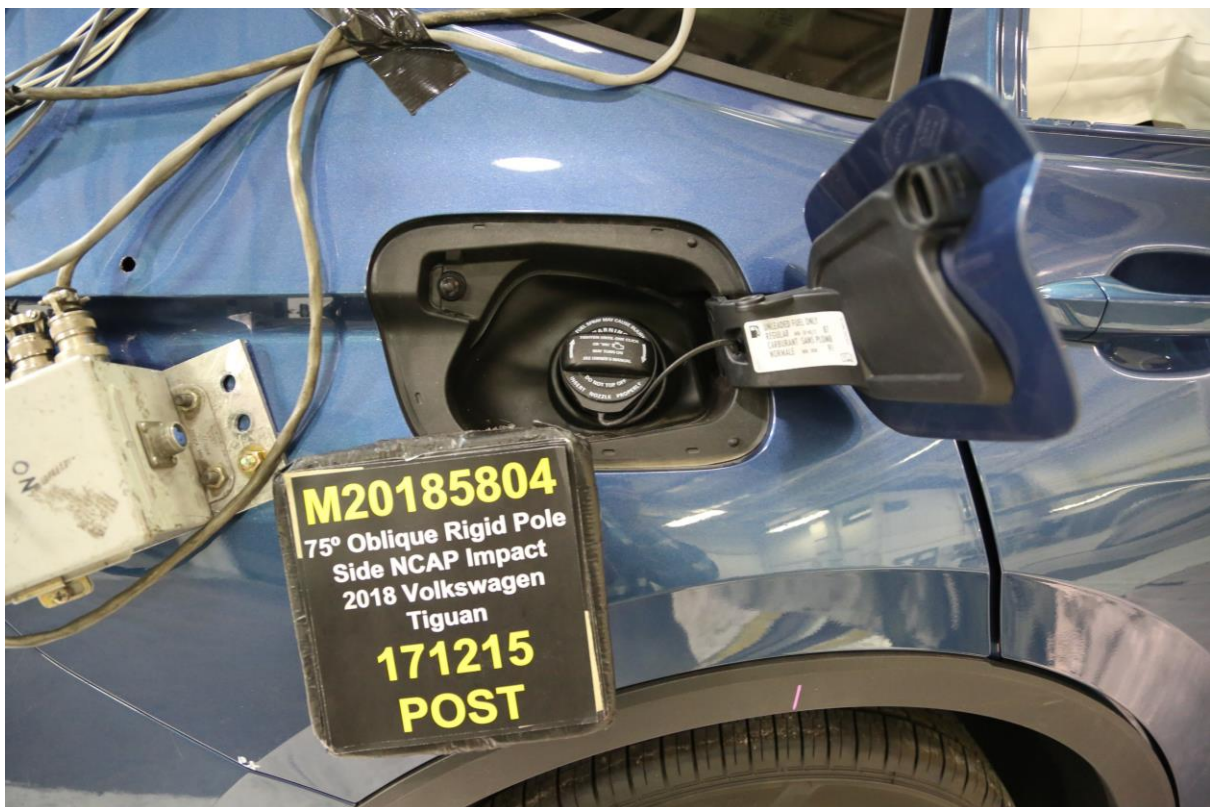
PHOTO NOT APPLICABLE

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

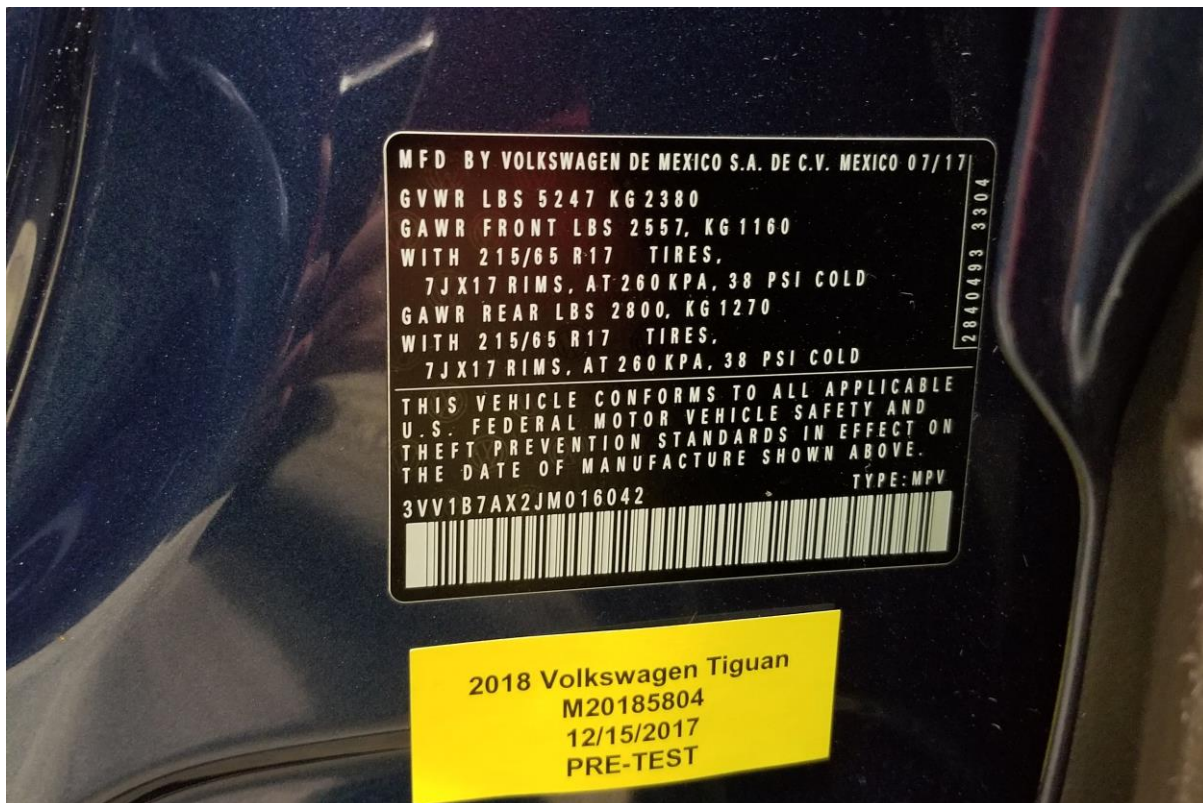
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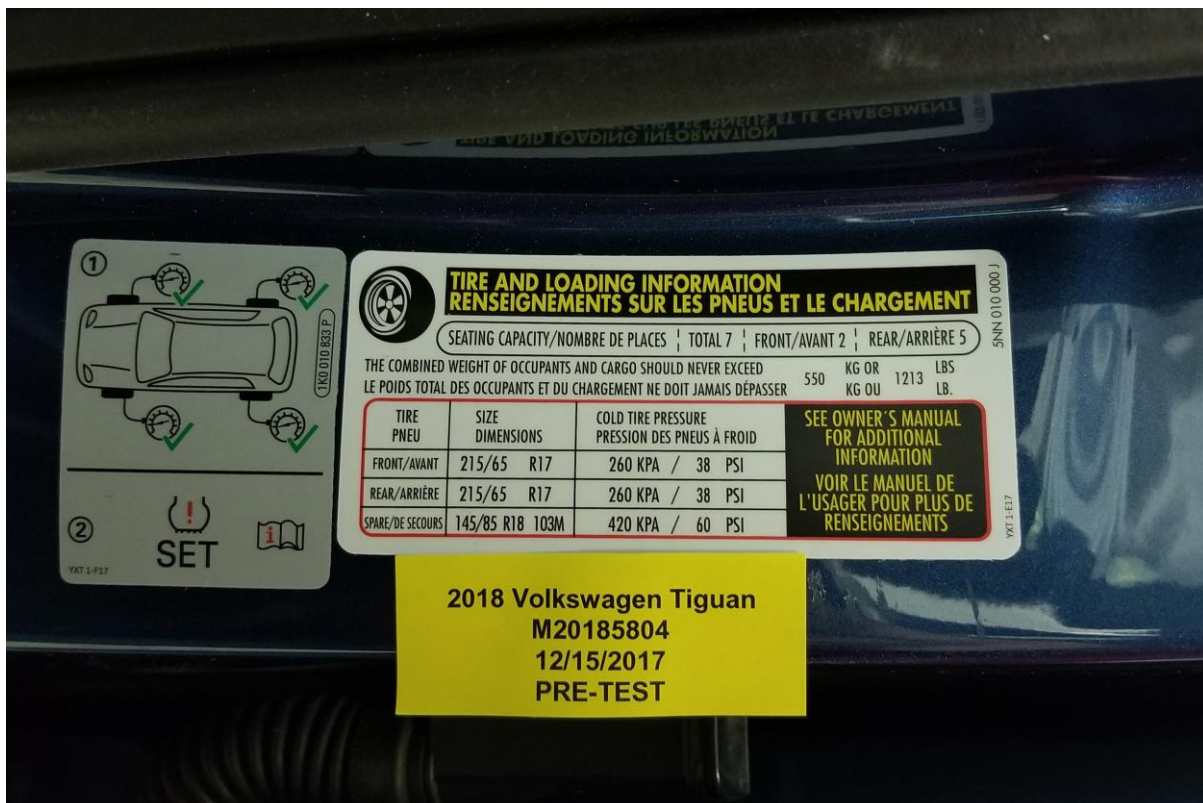
No. 053 Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



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



No. 055 Close-Up View of Vehicle Certification Label



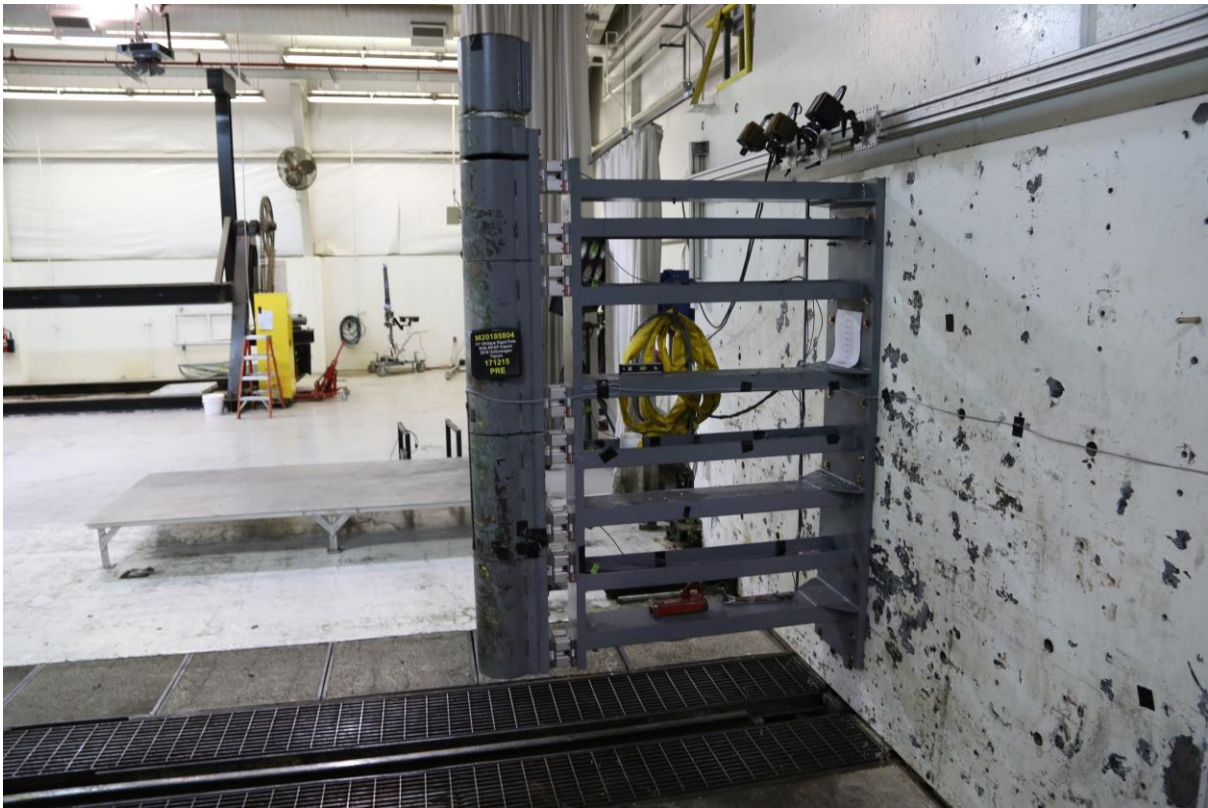
No. 056 Close-Up View of Vehicle Tire Information Placard or Label



No. 057 Pre-Test Pole Barrier Front View



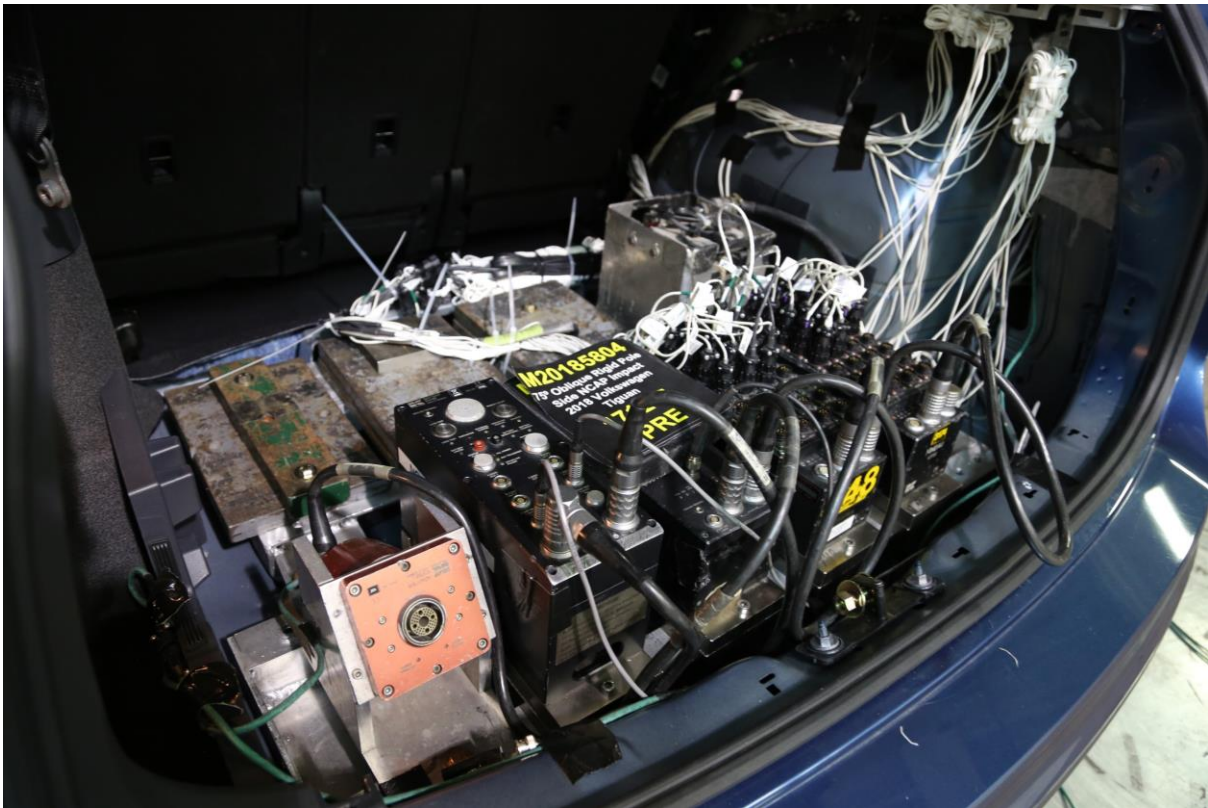
No. 058 Post-Test Pole Barrier Front View



No. 059 Pre-Test Pole Barrier Side View



No. 060 Post-Test Pole Barrier Side View



No. 061 Pre-Test Ballast View



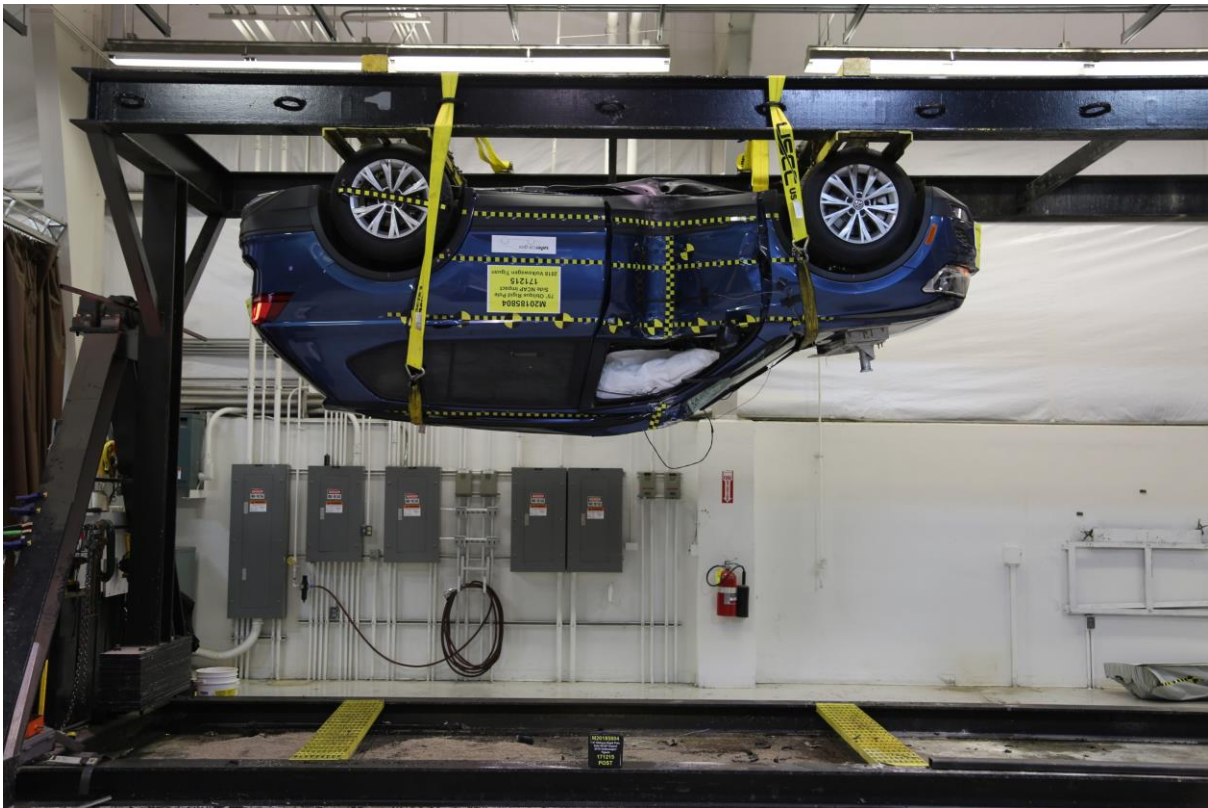
No. 062 Post-Test Primary and Redundant Speed Trap Read Out



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

2018 Tiguan 2.0T S

Silk Blue Metallic Exterior Titan Black Cloth Interior

STANDARD FEATURES (unless replaced by options)

PERFORMANCE

- 2.0L TSI® 16-valve DOHC turbo 4-cylinder engine w/ direct fuel injection
- Front-wheel drive
- Four-wheel independent suspension

SAFETY FEATURES

- Driver & front passenger front & side airbag supplemental restraint systems
- Side Curtain Protection head impact airbags
- 3-point safety belts, all seating positions
- Anti-Lock Braking System (ABS) w/ disc brakes
- Anti-Slip Regulation (ASR) & Engine Brake Assist (EBA)
- Electronic Brake-pressure Distribution (EBD) & Hydraulic Brake Assist (HBA)
- Electronic Stability Control (ESC) & Electronic Differential Lock (EDL)
- Intelligent Crash Response System (ICRS)
- Lower Anchors & Tethers for Children (LATCH)
- Tire Pressure Monitoring System (TPMS)

EXTERIOR

- 17" alloy wheels w/ all-season tires
- Automatic halogen headlights w/ LED Daytime Running Lights (DRL)
- Heated, foldable, power adjustable side mirrors w/ integrated turn signals
- Variable intermittent front wipers
- Rear window wiper & wiper
- Black roof rails

INTERIOR

- Manual climate control
- 3-spoke, multi-function steering wheel
- Tilting & telescoping adjustable steering column
- Driver's seat: 6-way manual w/ height adjustment
- Front passenger seat: 6-way manual w/ height adjustment
- 2nd-row seat: 40/20/40 split-folding, sliding & reclining w/ armrest
- 3rd-row seat: 50/50 split-folding & folds flat
- Cloth seating surfaces
- Front center console w/ cup holders, armrest & storage
- Front reading lights & illuminated vanity mirrors
- Capacitated cargo area w/ tie-down hooks

TECHNOLOGY

- Rear View Camera System
- Companion Color 8.5" touchscreen AM/FM radio w/ USB input
- 6-speaker sound system
- Bluetooth® connectivity (for compatible devices)
- Cruise control
- Color multi-function display (MFD) w/ trip computer
- Power door locks w/ remote locking panic button
- Electric parking brake

Manufacturer's Suggested Retail Price: \$25,195.00

VW CAR-NET® EQUIPPED. Features include:

- App-Connect® (Smartphone Integration & Interface)

DRIVER CARE PACKAGE

WARRANTY INFORMATION

- Volkswagen New Vehicle Limited Warranty
- 8 year/72,000 miles (whichever occurs first)
- *Includes coverage for powertrain components
- Limited Warranty against Corrosion Perforation
- 7 year/100,000 miles (whichever occurs first)

Please ask your dealer for a copy of the Volkswagen warranty booklet for details.

24-HOUR ROADSIDE ASSISTANCE

- 24 hours/24,000 miles (whichever occurs first)
- (Towing, Jump Starts, Tire Changes, Out of Fuel, and Lock-Out)
- Provided by a third party supplier

PACKAGE/OPTIONS

Silk Blue Metallic Exterior No Charge

Titan Black Cloth Interior No Charge

Monster Mats® (set of 5) w/ Trunk Liner & VW CarGo Blocks \$285.00

Roadside Assistance Kit \$85.00

8-Speed Automatic w/ Tiptronic® No Charge

Fuel Economy and Environment

Fuel Economy

24 MPG **22** MPG **27** MPG

combined city/hwy city highway

4.2 gallons per 100 miles

You spend \$750 more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$1,500

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

1 5 10 1 10

Best Best

This vehicle emits 368 grams of CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions. Learn more at fuelconomy.gov.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 23 MPG and costs \$6,780 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.40 per gallon. MPG is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov

Calculate personalized estimates and compare vehicles.

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
Side Crash <td>Front Seat</td> <td>Not Rated</td>	Front Seat	Not Rated
Rear Seat	Not Rated	

Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.

Rollover **Not 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

Who better to get you into a Volkswagen than us? Volkswagen Credit

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE: FOR THIS VEHICLE:

U.S./CANADIAN FINAL ASSEMBLY POINT:

PARTS CONTENT: 11% PUEBLA, MEXICO

MAJOR SOURCES OF FOREIGN COUNTRY OF ORIGIN:

PARTS CONTENT: ENGINE: MEXICO

MEXICO: 43% TRANSMISSION: JAPAN

GERMANY: 16%

NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION OR OTHER NON-PARTS COSTS.

Destination Charge \$900.00

Total Price: \$26,465.00

Fuel, license, title fees, taxes and dealer-installed accessories are not included.

No. 069 Monroney Label

Head restraints

Introduction

WARNING

Driving without head restraints or with improperly adjusted head restraints increases the risk of serious injuries in a collision.

- Never drive or let a passenger ride in the vehicle until the head restraints are properly adjusted to help minimize the risk of neck injury in a crash.
- Each head restraint must be adjusted according to the occupants' size so that the upper edge is even with the top of the person's head, but no lower than eye level. Always sit so that the back of your head is as close as possible to the head restraint.
- Never adjust head restraints while driving.

NOTICE

When removing or reinstalling the head restraint, take care that the head restraint does not strike the headliner or other parts of the vehicle. The headliner or other parts of the vehicle could otherwise be damaged.

Adjusting the front head restraints

Please read the introductory information and heed the Warnings and Notice ▲ and ① on page 144.

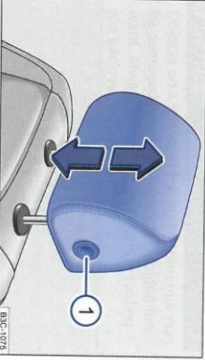


Fig. 89 Adjusting the front head restraints.

All seats are equipped with head restraints.

There are notches in the head restraint guide rods so that the head restraint can lock into place. Only properly installed head restraints can lock into place at the adjustment range notches. In order to help prevent inadvertent removal of the head restraints after installation, there are stops at the top and bottom of the adjustment range.

Adjusting the height of the front head restraints

- While pressing the button → Fig. 89 ①, pull the head restraint up or push it down → ▲ in Introduction on page 144.
- The head restraint must lock securely in position.

Proper head restraint adjustment

Adjust head restraints so that the upper edge of the head restraint is at least at eye level or higher. Position the back of the head as close as possible to the head restraint.

Adjusting the head restraint for shorter people

Push the head restraint down as far as it will go, even if this means the person's head is still below the top edge of the head restraint. A small gap may remain between the head restraint and the backrest when the head restraint is all the way down.

Adjusting the head restraint for taller people

Pull the head restraint up as far as it will go.

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.dot.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)

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)

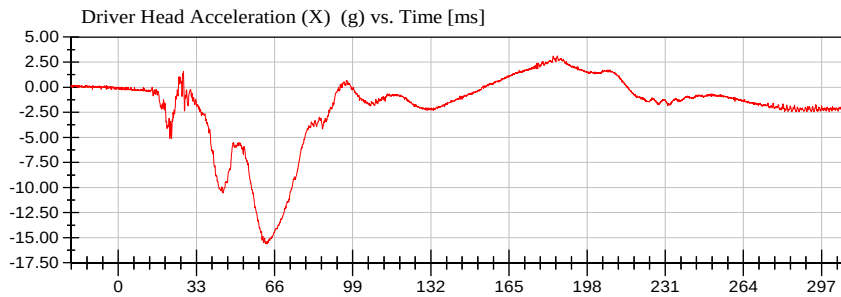
NHTSA

Test Lab: CTF

Test Number: 171215 (M20185804)

Position #1 SID IIs Dummy (297)

Test Date: 12/15/2017



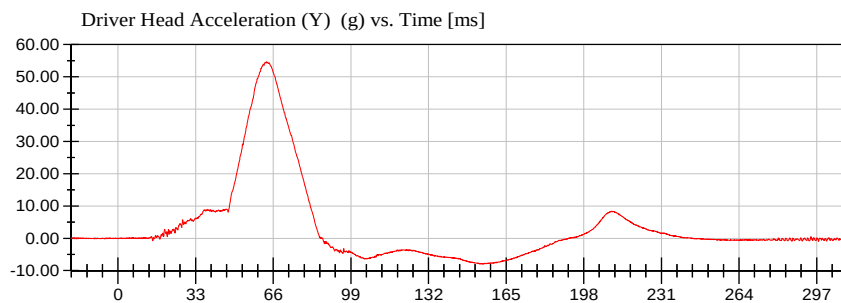
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3.11 g at 183.60 ms

<Min>

-15.64 g at 62.80 ms

CFC_1000



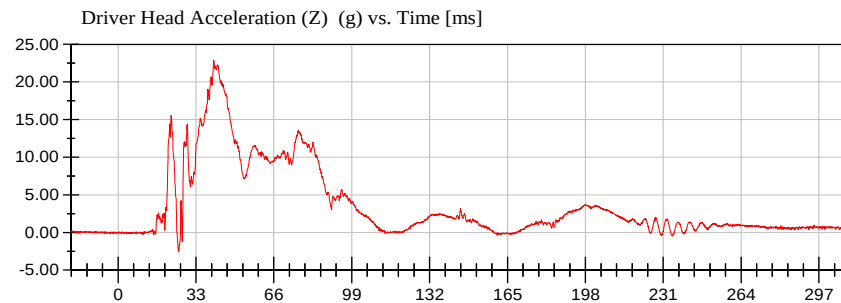
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54.65 g at 63.20 ms

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-7.97 g at 153.84 ms

CFC_1000



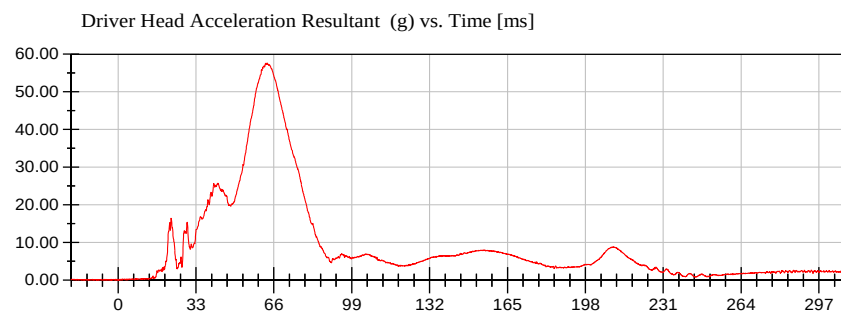
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22.86 g at 40.48 ms

<Min>

-2.59 g at 25.60 ms

CFC_1000



<Max>

57.68 g at 63.20 ms

<Min>

0.04 g at -8.96 ms

CFC_1000



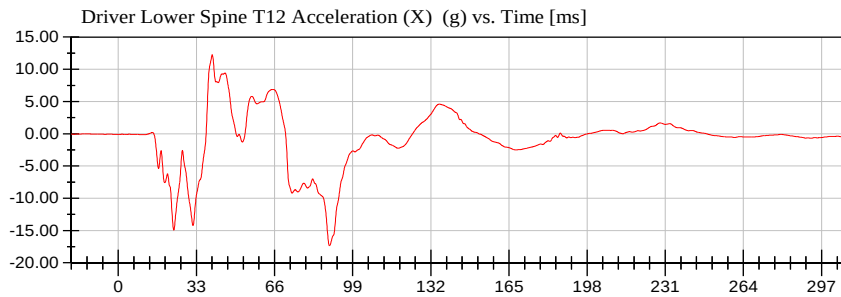
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Test Lab: CTF

Test Number: 171215 (M20185804)

Position #1 SID IIs Dummy (297)

Test Date: 12/15/2017



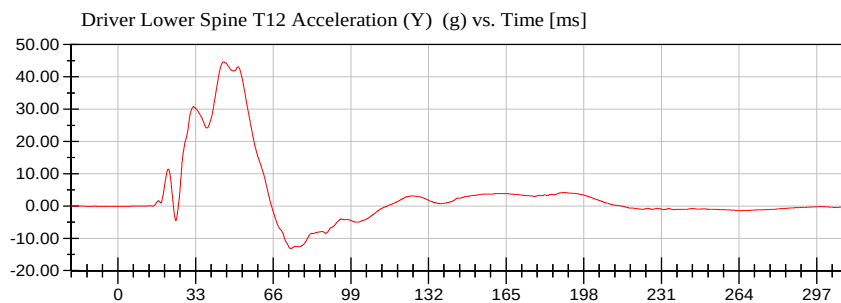
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12.27 g at 39.68 ms

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-17.34 g at 89.20 ms

CFC_180



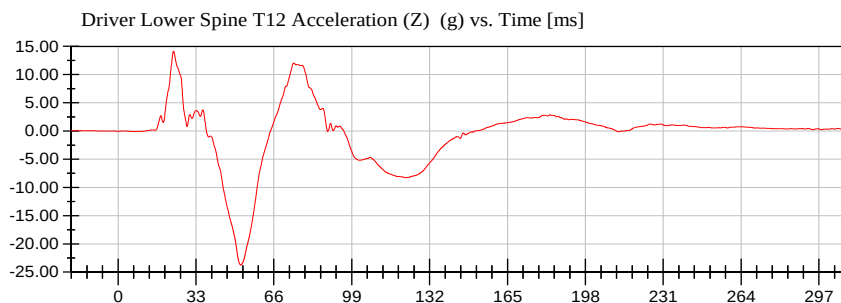
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44.62 g at 44.88 ms

<Min>

-13.19 g at 73.44 ms

CFC_180



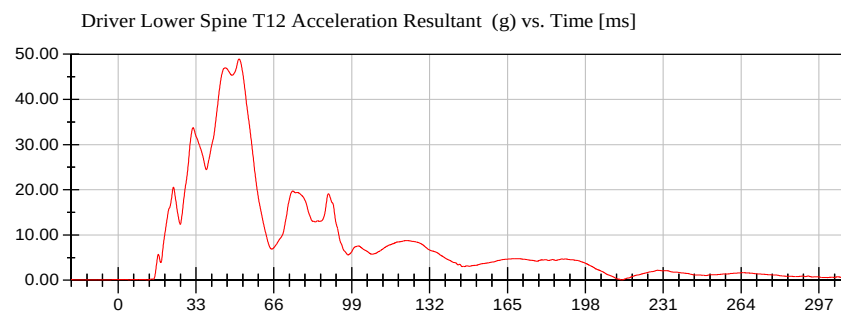
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14.14 g at 23.52 ms

<Min>

-23.75 g at 52.00 ms

CFC_180



<Max>

48.92 g at 51.28 ms

<Min>

0.06 g at 213.52 ms

CFC_180



NHTSA

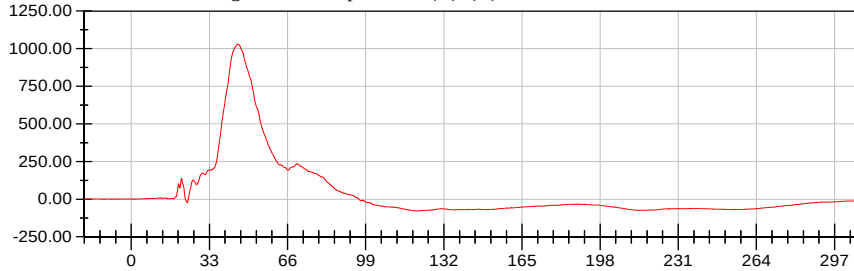
Test Lab: CTF

Test Number: 171215 (M20185804)

Position #1 SID IIs Dummy (297)

Test Date: 12/15/2017

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



<Max>

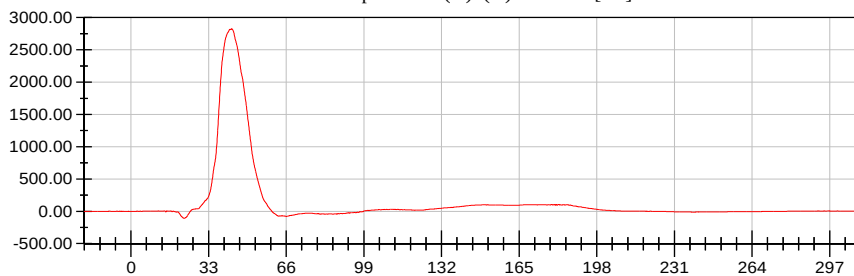
1,029.62 N at 45.04 ms

<Min>

-78.60 N at 120.72 ms

CFC_600

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



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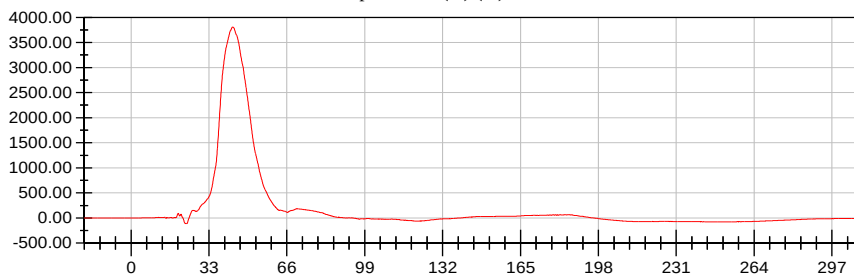
2,827.24 N at 42.80 ms

<Min>

-108.00 N at 22.56 ms

CFC_600

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



<Max>

3,804.19 N at 43.04 ms

<Min>

-111.32 N at 23.60 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. 23

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	782	Yes
B	Shoulder Pivot Height	437.0 - 453.0	448	Yes
C	H-Point Height	79.0 - 89.0	84	Yes
D	H-Point from Seat Back	141.0 - 151.0	147	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	100	Yes
F	Thigh Clearance	119.0 - 135.0	131	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	526	Yes
L	Popliteal Height	343.0 - 369.0	353	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	401	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	319	Yes
R	Arm Length	249.0 - 259.0	254	Yes
S	Knee Joint to seat Back	478.0 - 493.0	486	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	347	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
W	Foot Width (left)	78.0 - 94.0	82	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	877	Yes
Z	Waist Circumference	761.0 - 791.0	780	Yes

Revised 9/29/2005



Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 23-1

Test Date: 12/7/2017

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	128.1 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-2.7 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: 1330

Skull S/N: 180/1001/C

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

12.07.2017 10:20:34 200



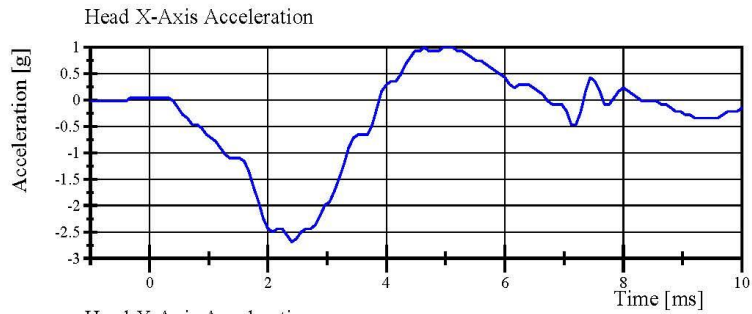
Page 9 of 31

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 23-1

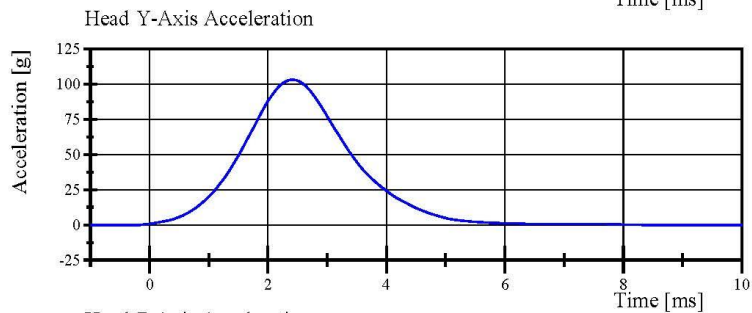
Test Date: 12/7/2017



Filter Class: CFC_1000

Max: 1.0 g at 4.6 ms

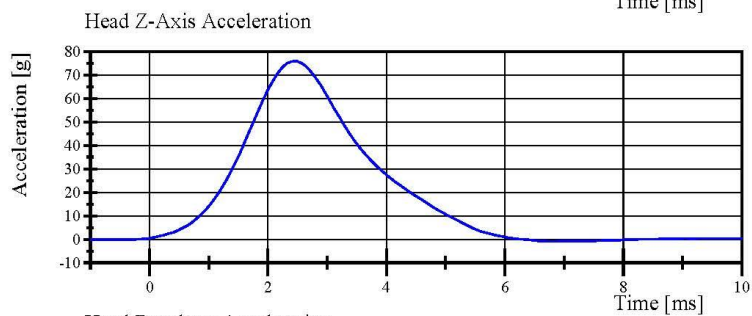
Min: -2.7 g at 2.4 ms



Filter Class: CFC_1000

Max: 103.2 g at 2.4 ms

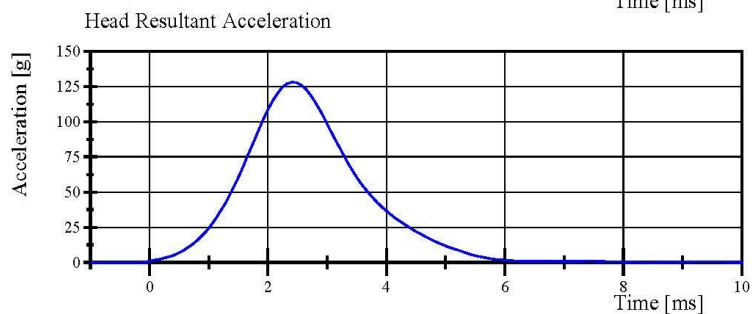
Min: -0.1 g at 9.8 ms



Filter Class: CFC_1000

Max: 75.9 g at 2.5 ms

Min: -0.8 g at 6.7 ms



Filter Class: CFC_1000

Max: 128.1 g at 2.4 ms

Min: 0.0 g at -1.0 ms

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

12.07.2017 10:22:08 200



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 23-10

Test Date: 12/14/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	32 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.610 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.454 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.573 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.805 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.833 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	6.017 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-76.0 deg	Yes
Time of Peak	50 - 70 ms	62.2 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	38.4 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	121.9 ms	Yes

Test meets specifications.

Condition: New

Comments:

Neck S/N: 779

Neck Cable S/N: N/A

Nodding Block's S/N's:

-Front: 8505 3012

-Rear: N/A

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

12.14.2017 10:53:13 716



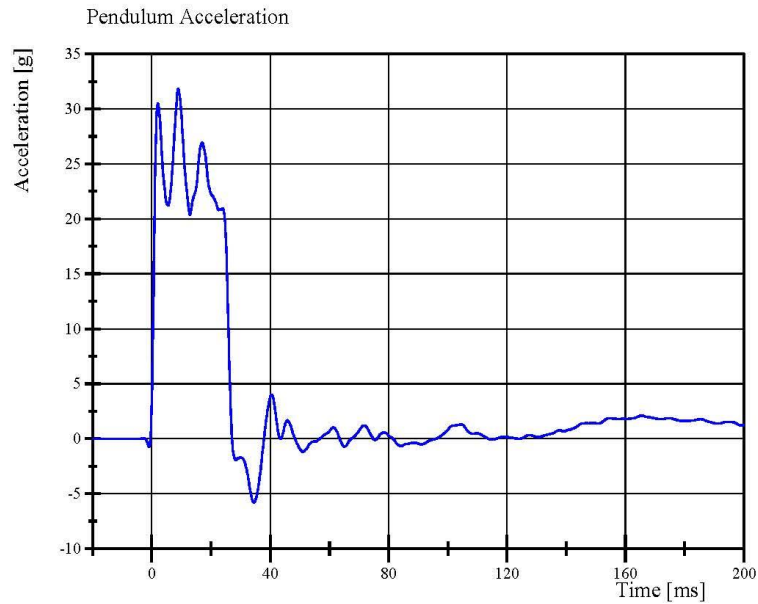
Page 11 of 31

Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 23-10

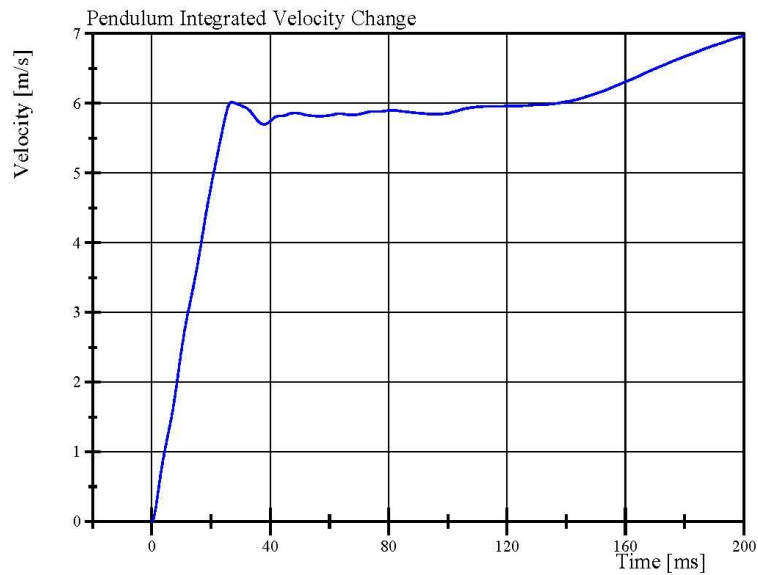
Test Date: 12/14/2017



Filter Class: CFC_180

Max: 31.8 g at 9.0 ms

Min: -5.8 g at 34.4 ms



Filter Class: CFC_180

Max: 7.0 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

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

12.14.2017 10:54:21 716

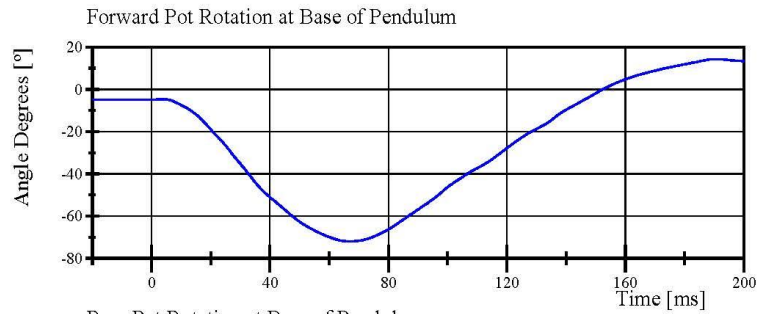


Transportation Research Center Inc.

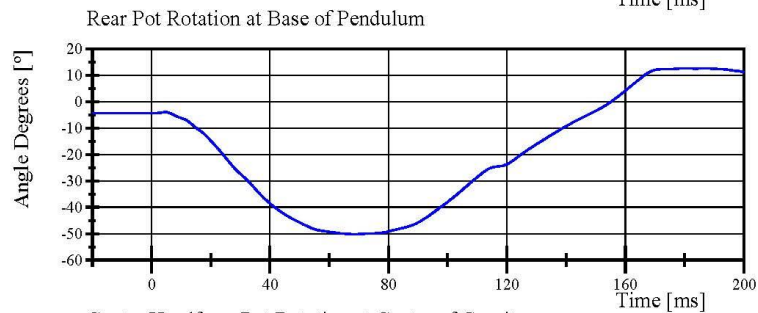
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 23-10

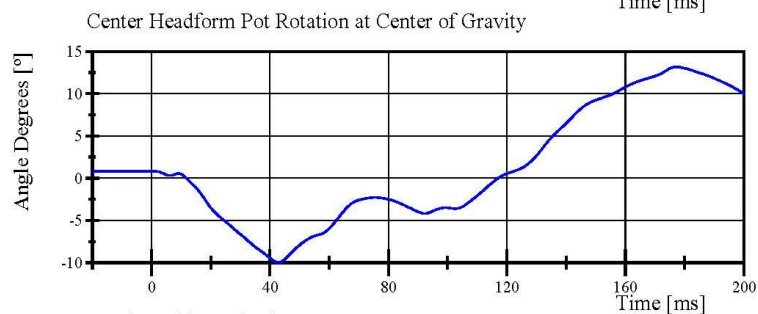
Test Date: 12/14/2017



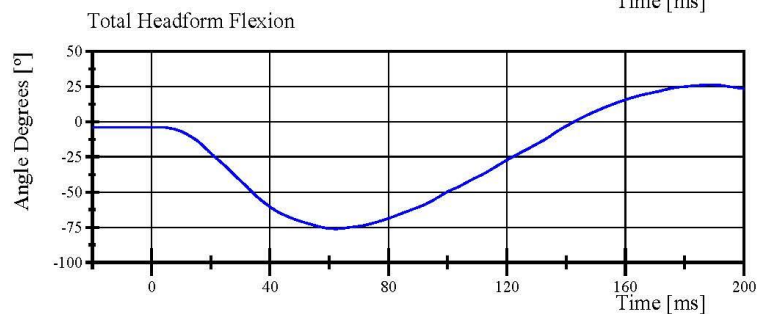
Filter Class: CFC_60
Max: 14.4 ° at 190.3 ms
Min: -71.9 ° at 67.0 ms



Filter Class: CFC_60
Max: 12.6 ° at 179.7 ms
Min: -50.2 ° at 68.3 ms



Filter Class: CFC_60
Max: 13.2 ° at 177.2 ms
Min: -9.9 ° at 42.8 ms



Filter Class: CFC_60
Max: 26.3 ° at 188.7 ms
Min: -76.0 ° at 62.2 ms

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

12.14.2017 10:54:22 716

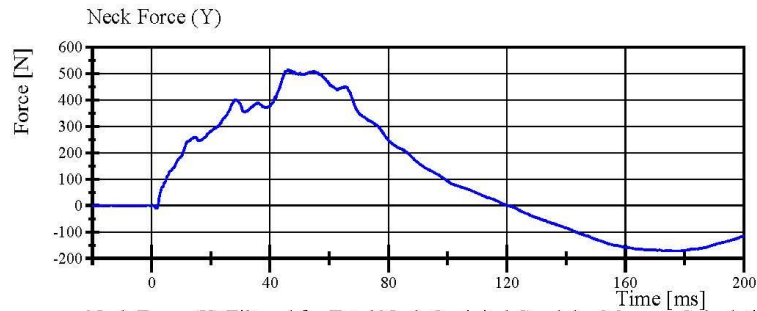


Transportation Research Center Inc.

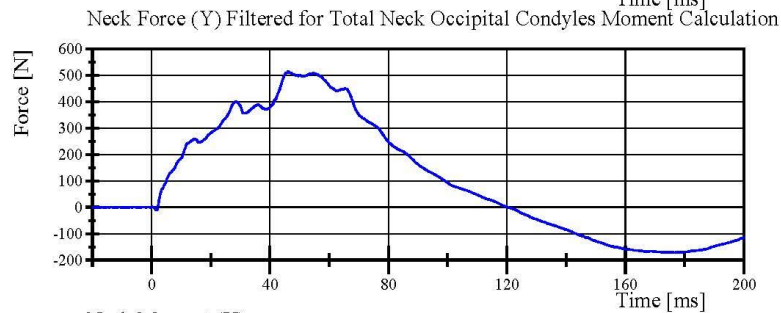
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 23-10

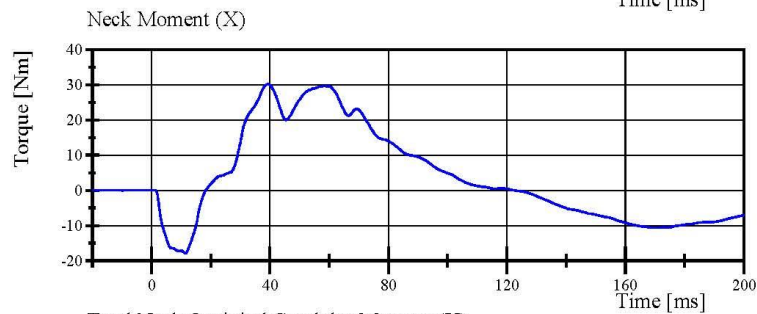
Test Date: 12/14/2017



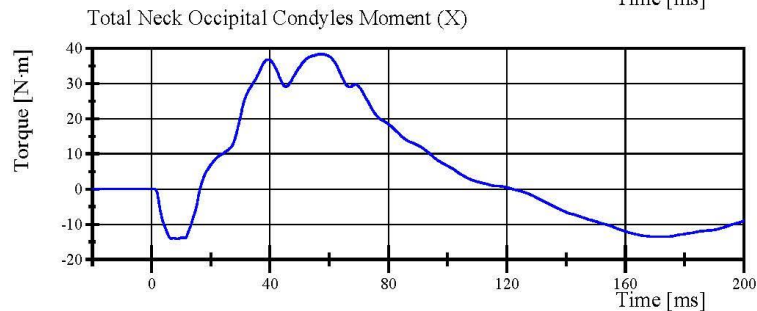
Filter Class: CFC_1000
Max: 515.4 N at 46.0 ms
Min: -172.3 N at 176.6 ms



Filter Class: CFC_600
Max: 514.5 N at 46.1 ms
Min: -171.9 N at 176.6 ms



Filter Class: CFC_600
Max: 30.2 Nm at 39.2 ms
Min: -17.9 Nm at 11.5 ms



Filter Class: Without_(Consta
Max: 38.4 N·m at 56.6 ms
Min: -14.1 N·m at 8.8 ms

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

12.14.2017 10:54:23 716



Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 23-1
Test Date: 12/7/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.4 g	Yes
Shoulder Displacement	28 - 37 mm	31.0 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	18.7 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

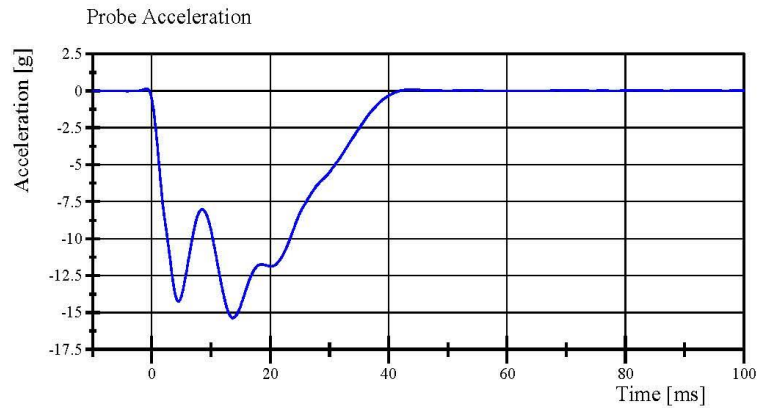
Shoulder Rib S/N: 180-3366 259

Transportation Research Center Inc.

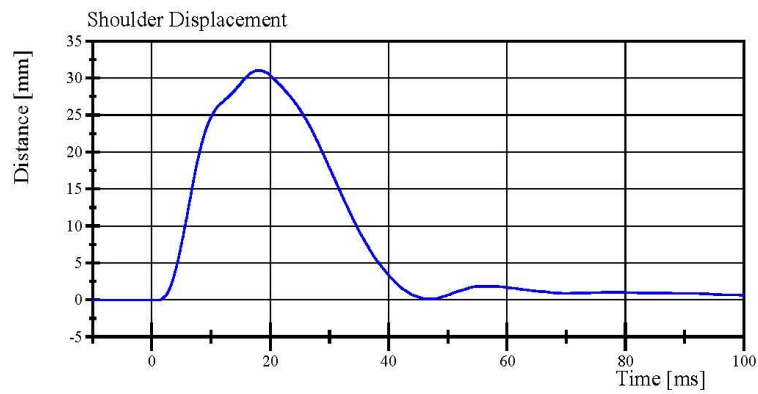
Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 23-1

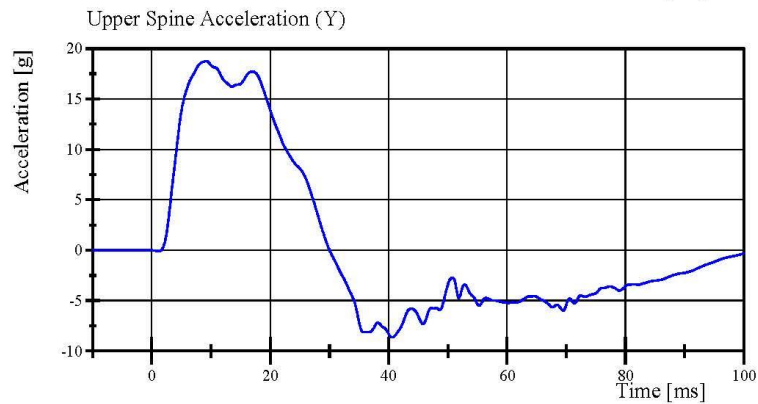
Test Date: 12/7/2017



Filter Class: CFC_180
Max: 0.1 g at -0.9 ms
Min: -15.4 g at 13.7 ms



Filter Class: CFC_600
Max: 31.0 mm at 17.9 ms
Min: -0.0 mm at 1.4 ms



Filter Class: CFC_180
Max: 18.7 g at 9.2 ms
Min: -8.6 g at 40.6 ms

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

12.07.2017 07:39:06 807



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 23-1
Test Date: 12/7/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.731 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.1 g	Yes
Shoulder Displacement	31 - 40 mm	35.3 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.2 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	32.1 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	35.6 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	36.0 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.4 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

Shoulder Rib S/N: 180-3366 259

Upper Thorax Rib #1 S/N: 2009

MiddleThorax Rib #2 S/N: 2010

LowerThorax Rib #3 S/N: 2029

Thorax Pad S/N: N/A

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

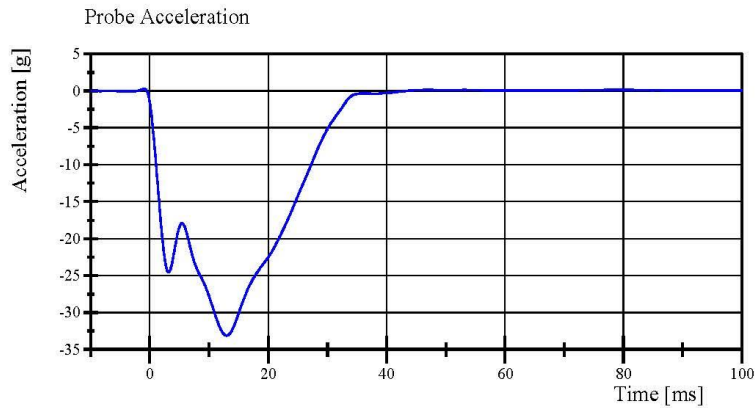
Page 17 of 31

12.07.2017 08:51:08 592

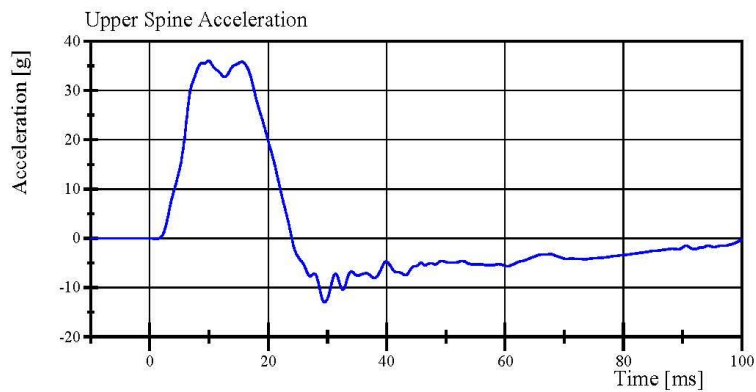


Transportation Research Center Inc.

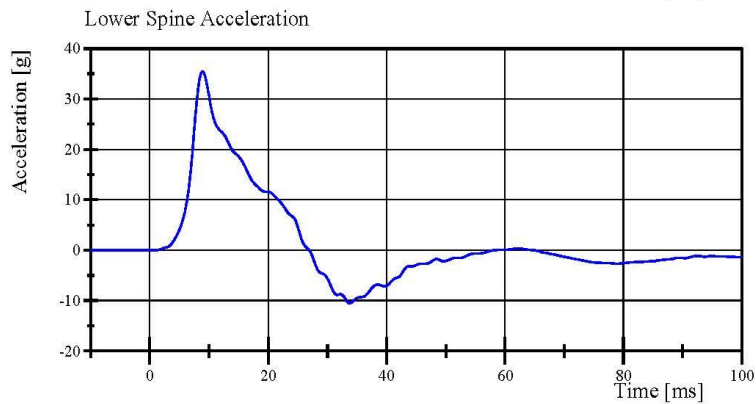
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 23-1
Test Date: 12/7/2017



Filter Class: CFC_180
Max: 0.3 g at -1.0 ms
Min: -33.1 g at 13.0 ms



Filter Class: CFC_180
Max: 36.0 g at 9.9 ms
Min: -13.0 g at 29.5 ms



Filter Class: CFC_180
Max: 35.4 g at 8.9 ms
Min: -10.5 g at 33.8 ms

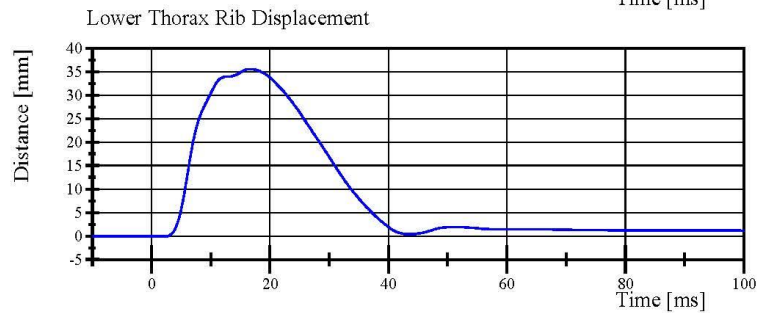
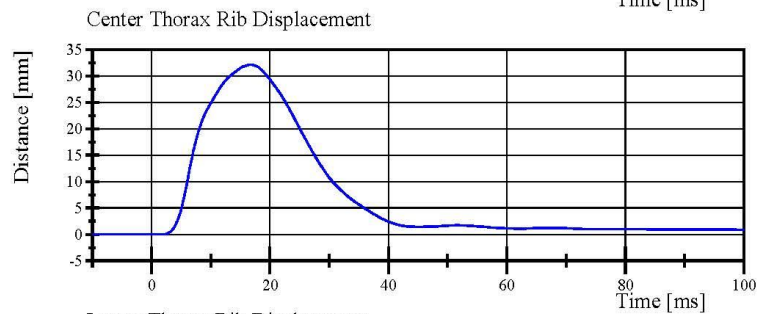
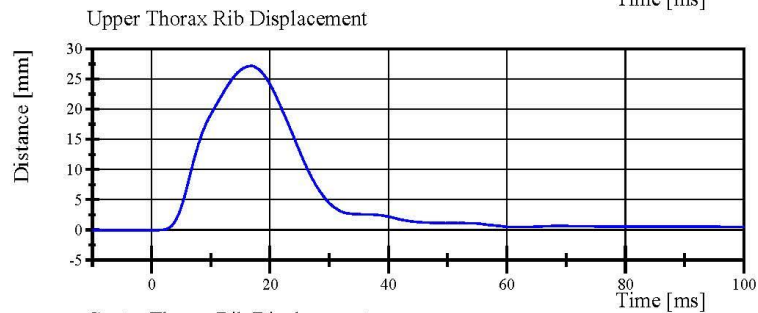
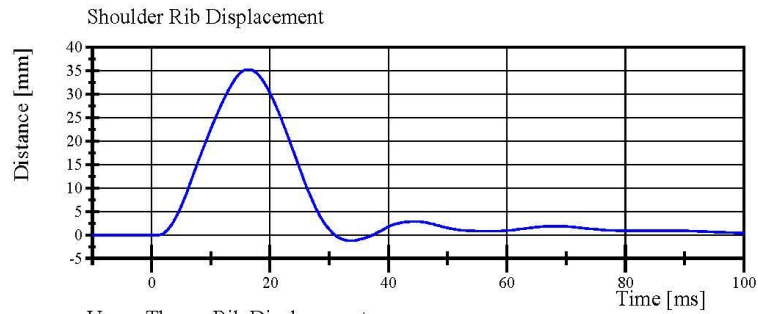
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.07.2017 08:53:10 592



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 23-1
Test Date: 12/7/2017



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

12.07.2017 08:53:10 592



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 23-1
Test Date: 12/7/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	22.1 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.310 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.9 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	35.0 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.0 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	39.3 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.5 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.7 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Thorax Rib #1 S/N: 2009

MiddleThorax Rib #2 S/N: 2010

LowerThorax Rib #3 S/N: 2029

Thorax Pad S/N: N/A

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

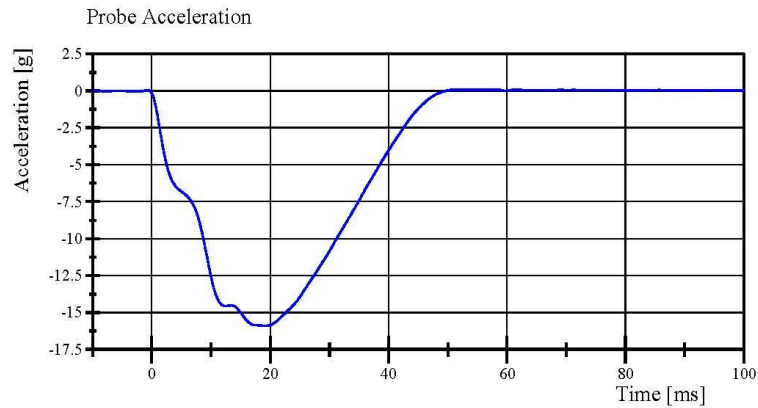
Page 20 of 31

12.07.2017 08:18:36 805

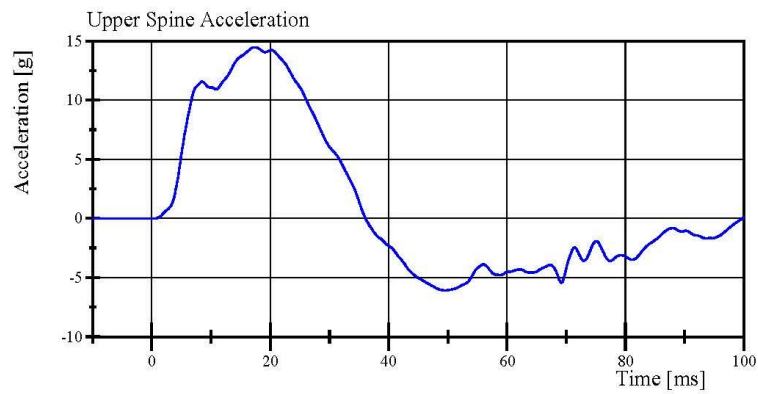


Transportation Research Center Inc.

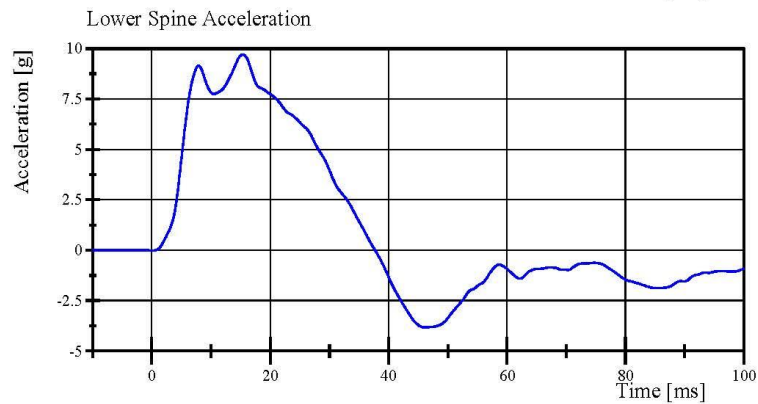
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 23-1
Test Date: 12/7/2017



Filter Class: CFC_180
Max: 0.1 g at 52.0 ms
Min: -15.9 g at 19.2 ms



Filter Class: CFC_180
Max: 14.5 g at 17.3 ms
Min: -6.1 g at 49.5 ms



Filter Class: CFC_180
Max: 9.7 g at 15.4 ms
Min: -3.8 g at 46.1 ms

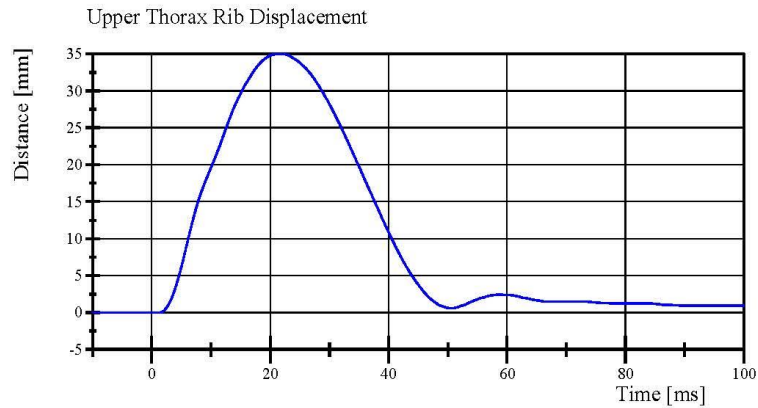
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.07.2017 08:20:15 805

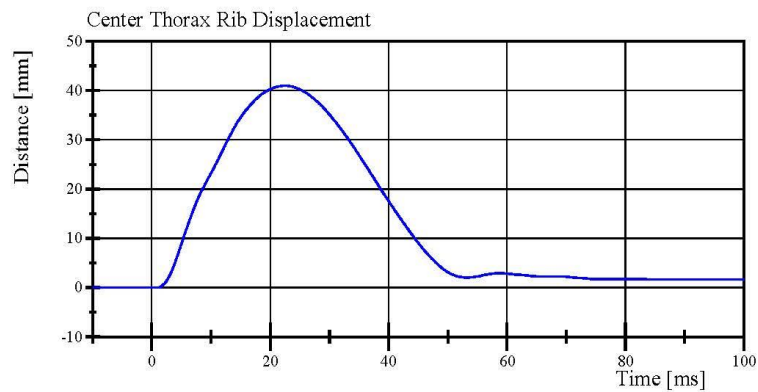


Transportation Research Center Inc.

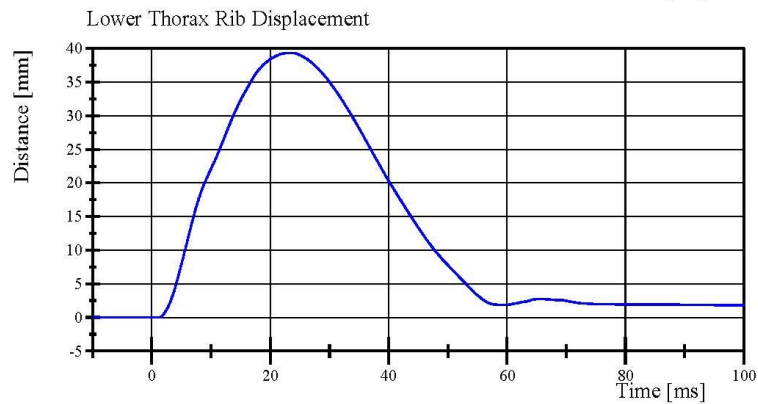
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 23-1
Test Date: 12/7/2017



Filter Class: CFC_600
Max: 35.0 mm at 21.5 ms
Min: -0.0 mm at 0.7 ms



Filter Class: CFC_600
Max: 41.0 mm at 22.5 ms
Min: -0.0 mm at -6.5 ms



Filter Class: CFC_600
Max: 39.3 mm at 23.8 ms
Min: -0.0 mm at 0.8 ms

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

12.07.2017 08:20:16 805



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 23-1

Test Date: 12/7/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.31 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.0 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	42.6 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	39.1 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.62 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: 1747

Lower Abdominal Rib S/N: 1748

Abdominal Pad S/N: N/A

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

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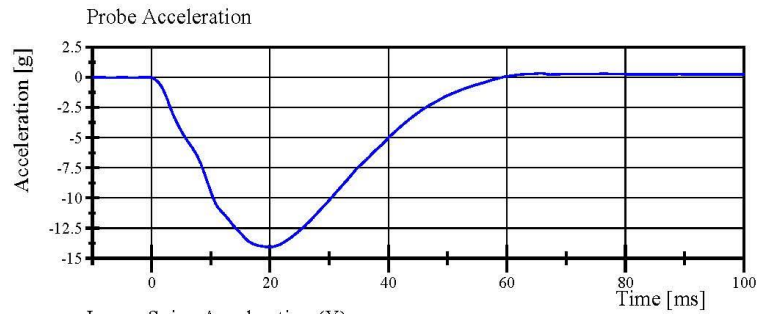


Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 23-1

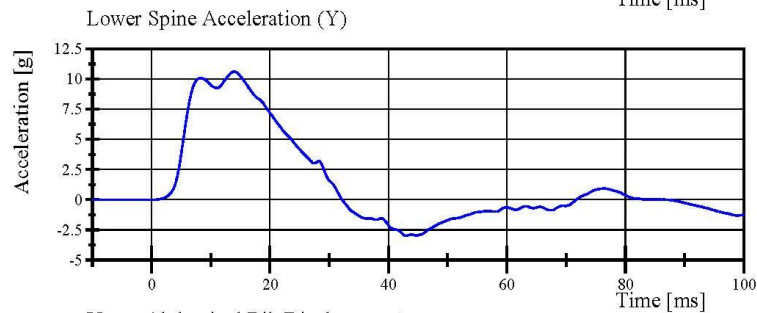
Test Date: 12/7/2017



Filter Class: CFC_180

Max: 0.3 g at 65.8 ms

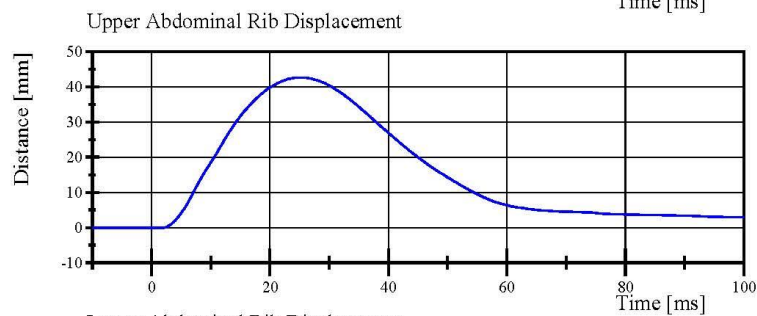
Min: -14.0 g at 19.8 ms



Filter Class: CFC_180

Max: 10.6 g at 13.9 ms

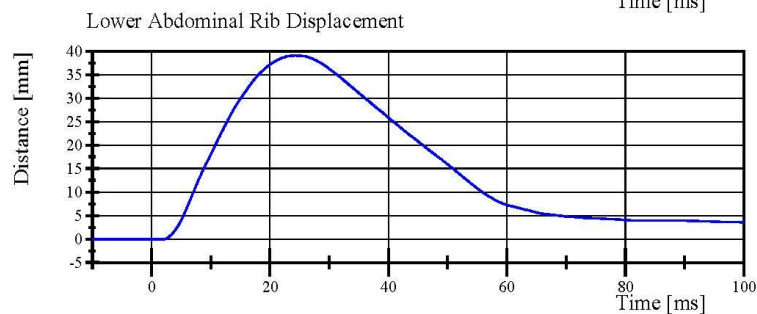
Min: -3.0 g at 43.0 ms



Filter Class: CFC_600

Max: 42.6 mm at 25.0 ms

Min: -0.0 mm at 1.9 ms



Filter Class: CFC_600

Max: 39.1 mm at 24.3 ms

Min: -0.0 mm at 2.1 ms

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

12.07.2017 07:56:27 587



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 23-1

Test Date: 12/7/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-44.3 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	31.4 g	Yes
Iliac Force	4,100 - 5,100 N	5,009.2 N	Yes

Test meets specifications.

Condition: Used

Comments:

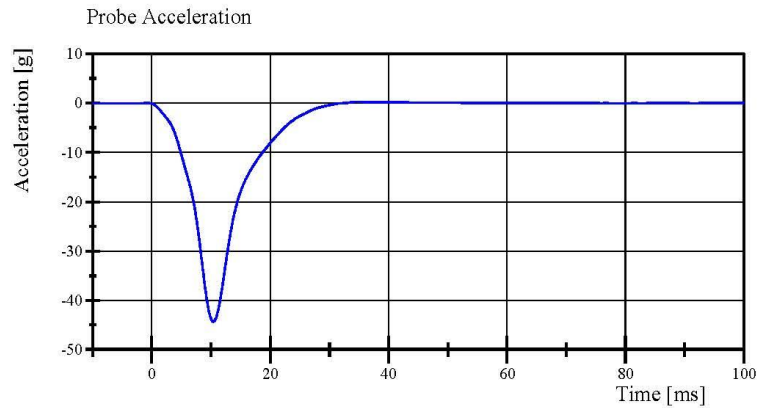
Pelvis S/N: DY5517

Transportation Research Center Inc.

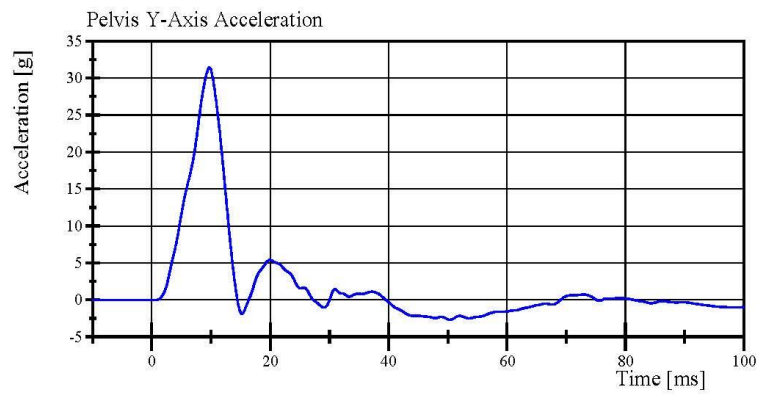
Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 23-1

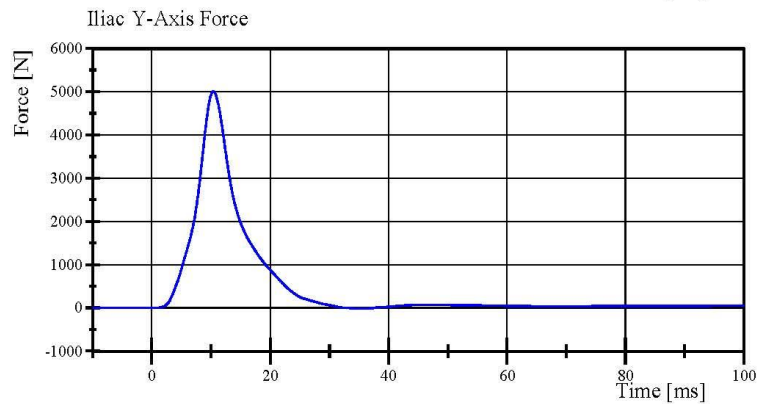
Test Date: 12/7/2017



Filter Class: CFC_180
Max: 0.2 g at 34.9 ms
Min: -44.3 g at 10.4 ms



Filter Class: CFC_180
Max: 31.4 g at 9.8 ms
Min: -2.7 g at 50.3 ms



Filter Class: CFC_600
Max: 5,009.2 N at 10.4 ms
Min: -20.3 N at 35.8 ms

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

12.07.2017 09:54:42 725



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 23-1

Test Date: 12/7/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.63 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-43.80 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	37.7 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,795.6 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: DY5517

Pelvis Plug Info:

Manufacturer: Saco

S/N: 11165

Cal Date: 20160415

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

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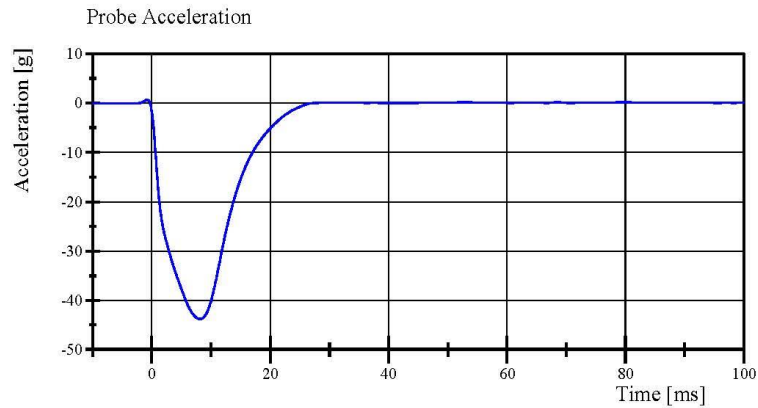


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 23-1

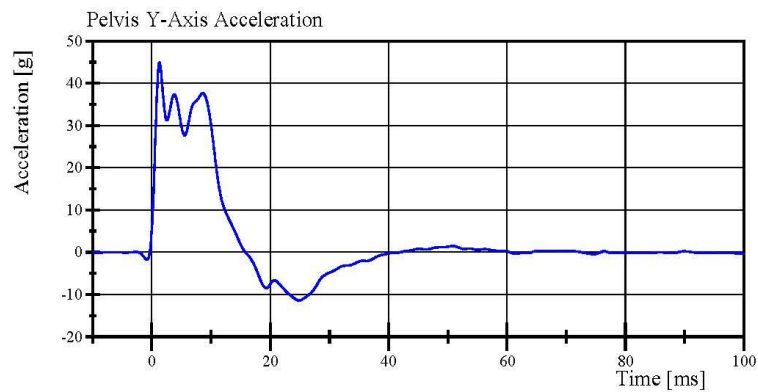
Test Date: 12/7/2017



Filter Class: CFC_180

Max: 0.7 g at -0.8 ms

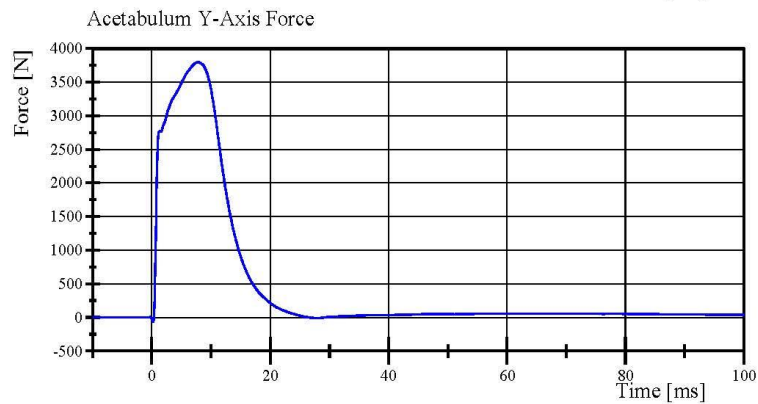
Min: -43.8 g at 8.2 ms



Filter Class: CFC_180

Max: 45.0 g at 1.3 ms

Min: -11.4 g at 24.9 ms



Filter Class: CFC_600

Max: 3,795.6 N at 7.8 ms

Min: -60.9 N at 0.2 ms

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

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Post-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No. 24

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	783	Yes
B	Shoulder Pivot Height	437.0 - 453.0	449	Yes
C	H-Point Height	79.0 - 89.0	84	Yes
D	H-Point from Seat Back	141.0 - 151.0	147	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	100	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	526	Yes
L	Popliteal Height	343.0 - 369.0	353	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	401	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	319	Yes
R	Arm Length	249.0 - 259.0	254	Yes
S	Knee Joint to seat Back	478.0 - 493.0	486	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	347	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
W	Foot Width (left)	78.0 - 94.0	82	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	877	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. 24-2

Test Date: 12/18/2017

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	22.1 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	122.0 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	2.1 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: 1330

Skull S/N: 180/1001/C

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

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12.18.2017 06:42:15 196

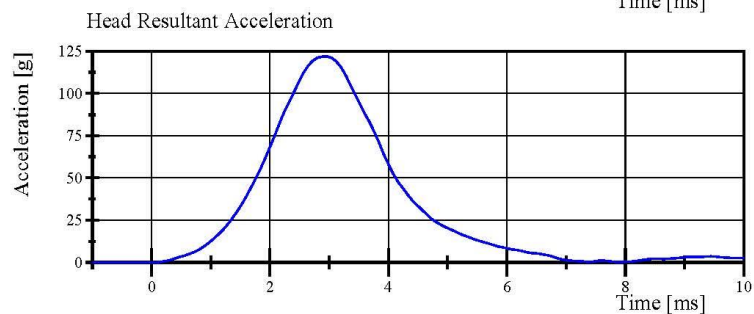
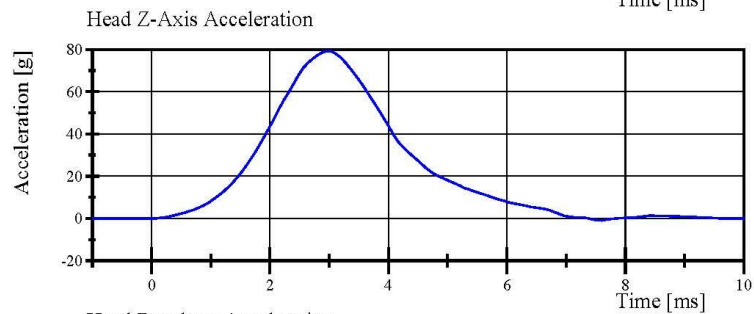
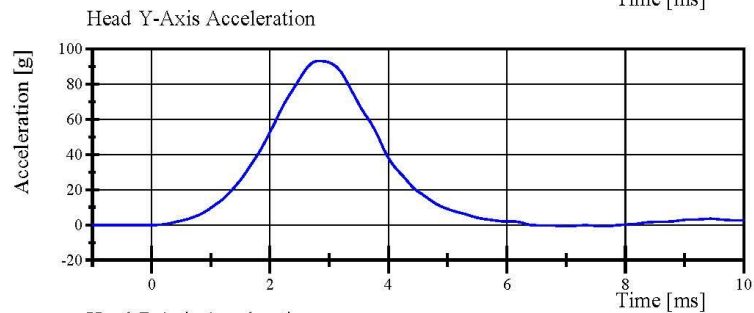
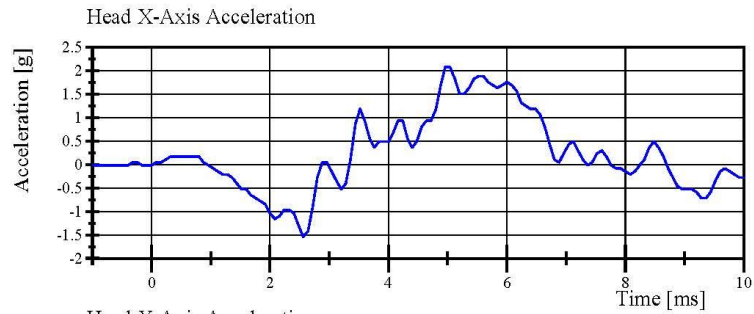


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 24-2

Test Date: 12/18/2017



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

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Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 24-2

Test Date: 12/17/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.618 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.299 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.419 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.646 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.713 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	6.010 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-75.5 deg	Yes
Time of Peak	50 - 70 ms	66.2 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	41.0 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	125.3 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: 779

Neck Cable S/N: N/A

Nodding Block's S/N's:

Front: 8505 3012

Rear: N/A

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

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12.17.2017 15:31:58 711

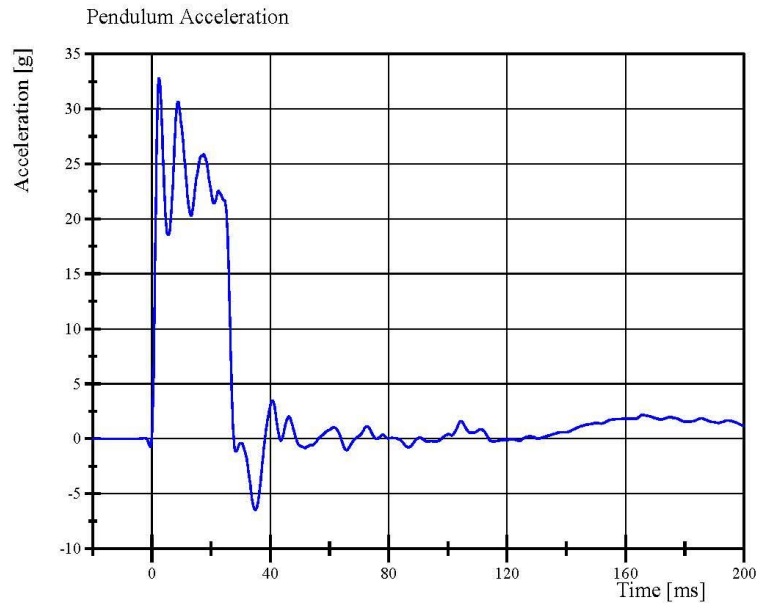


Transportation Research Center Inc.

Left Lateral Neck

SID IIS Serial No. 297 Certification No. 24-2

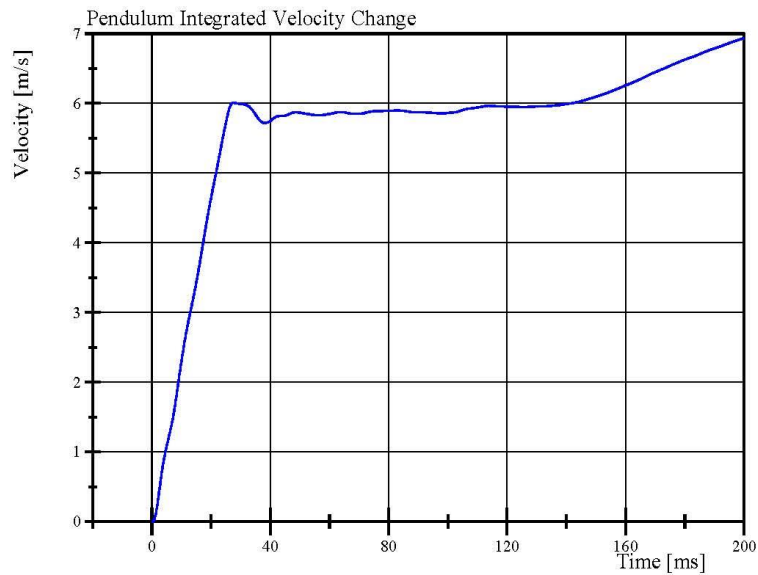
Test Date: 12/17/2017



Filter Class: CFC_180

Max: 32.8 g at 2.4 ms

Min: -6.5 g at 35.0 ms



Filter Class: CFC_180

Max: 6.9 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

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

12.17.2017 15:33:38 711

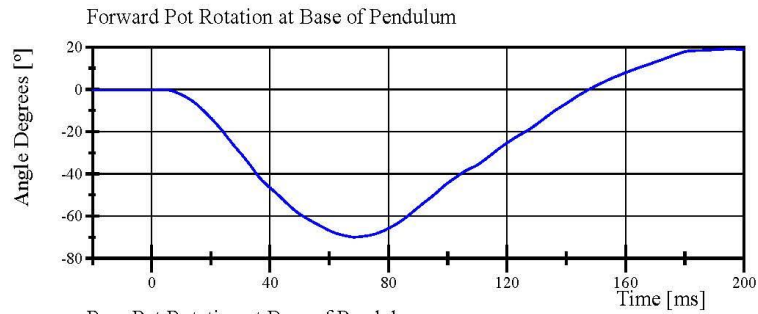


Transportation Research Center Inc.

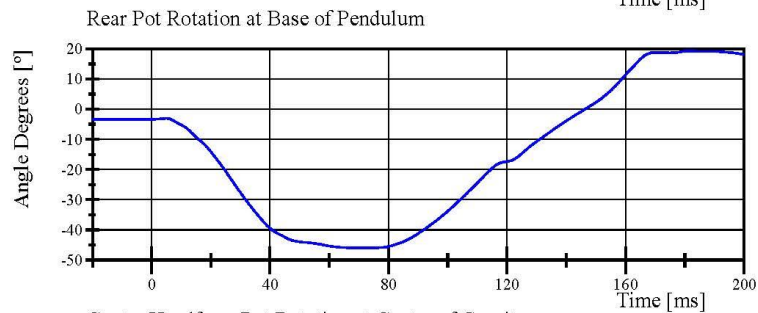
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 24-2

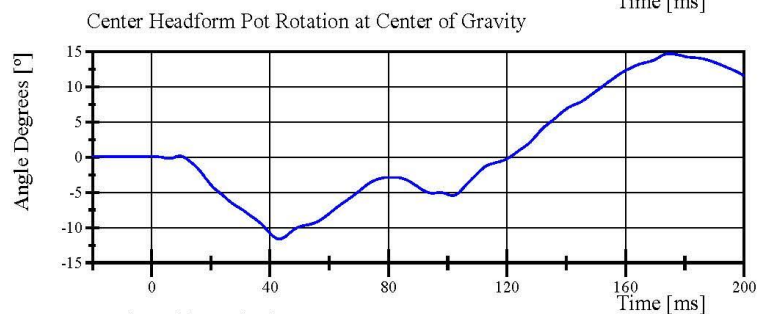
Test Date: 12/17/2017



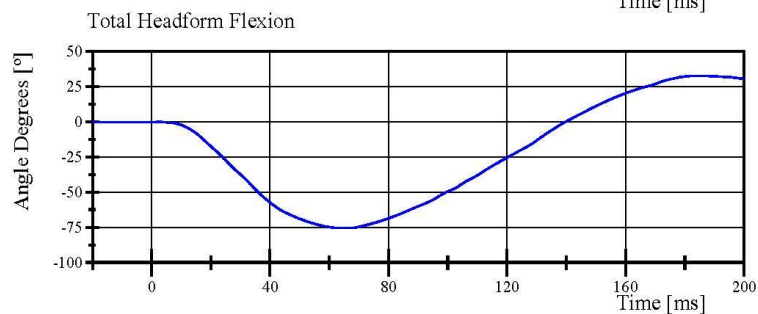
Filter Class: CFC_60
Max: 19.0 ° at 195.4 ms
Min: -69.9 ° at 68.5 ms



Filter Class: CFC_60
Max: 19.3 ° at 181.2 ms
Min: -46.0 ° at 68.0 ms



Filter Class: CFC_60
Max: 14.7 ° at 175.0 ms
Min: -11.6 ° at 43.1 ms



Filter Class: CFC_60
Max: 32.6 ° at 184.8 ms
Min: -75.5 ° at 66.2 ms

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

12.17.2017 15:33:39 711

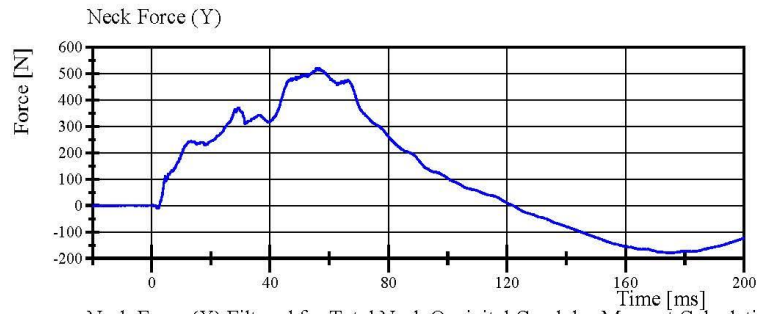


Transportation Research Center Inc.

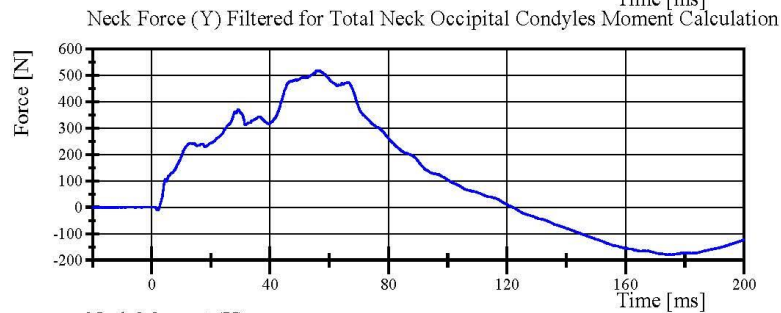
Left Lateral Neck

SID IIS Serial No. 297 Certification No. 24-2

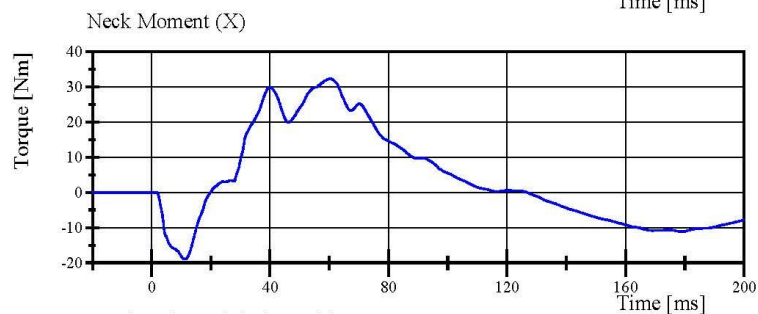
Test Date: 12/17/2017



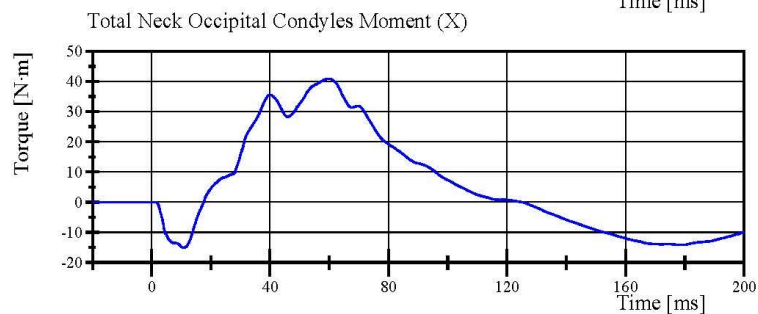
Filter Class: CFC_1000
Max: 520.1 N at 56.6 ms
Min: -180.4 N at 173.8 ms



Filter Class: CFC_600
Max: 518.3 N at 56.7 ms
Min: -179.6 N at 174.2 ms



Filter Class: CFC_600
Max: 32.5 Nm at 60.4 ms
Min: -19.0 Nm at 11.3 ms



Filter Class: Without_(Consta
Max: 41.0 N·m at 60.3 ms
Min: -15.0 N·m at 10.7 ms

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

12.17.2017 15:33:40 711



Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 24-1
Test Date: 12/17/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.2 g	Yes
Shoulder Displacement	28 - 37 mm	30.6 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.7 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

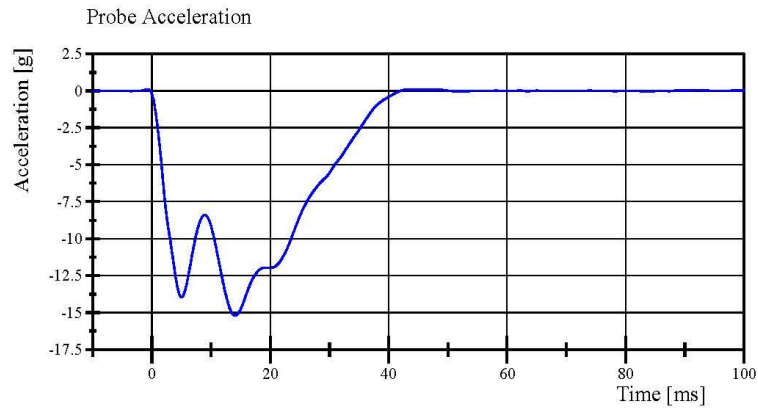
Shoulder Rib S/N: 180-3366 259

Transportation Research Center Inc.

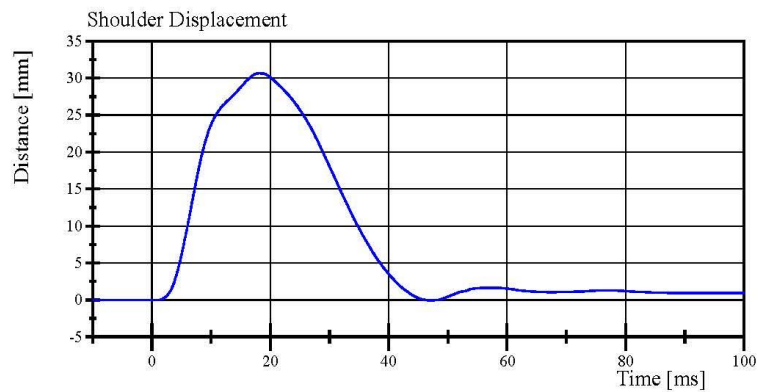
Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 24-1

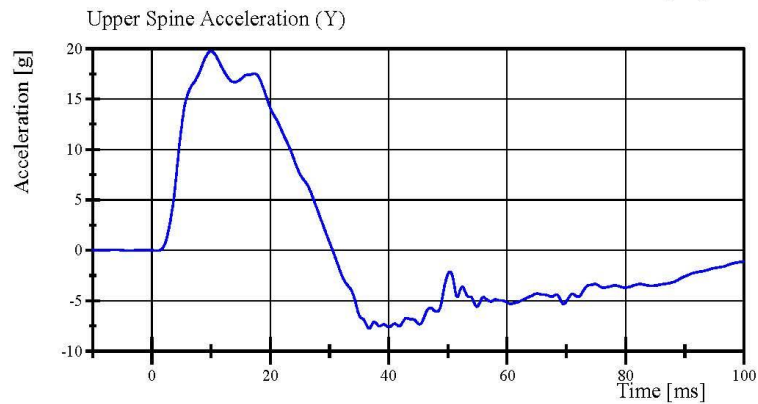
Test Date: 12/17/2017



Filter Class: CFC_180
Max: 0.1 g at -0.7 ms
Min: -15.2 g at 14.1 ms



Filter Class: CFC_600
Max: 30.6 mm at 18.1 ms
Min: -0.0 mm at 46.7 ms



Filter Class: CFC_180
Max: 19.7 g at 10.0 ms
Min: -7.7 g at 36.7 ms

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

12.17.2017 11:53:58 809



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 24-1
Test Date: 12/17/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.761 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-34.3 g	Yes
Shoulder Displacement	31 - 40 mm	36.6 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.8 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	32.1 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	35.5 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	39.0 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	36.4 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 940L

Shoulder Rib S/N: 180-3366 259

Upper Thorax Rib #1 S/N: 2009

MiddleThorax Rib #2 S/N: 2010

LowerThorax Rib #3 S/N: 2029

Thorax Pad S/N: N/A

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

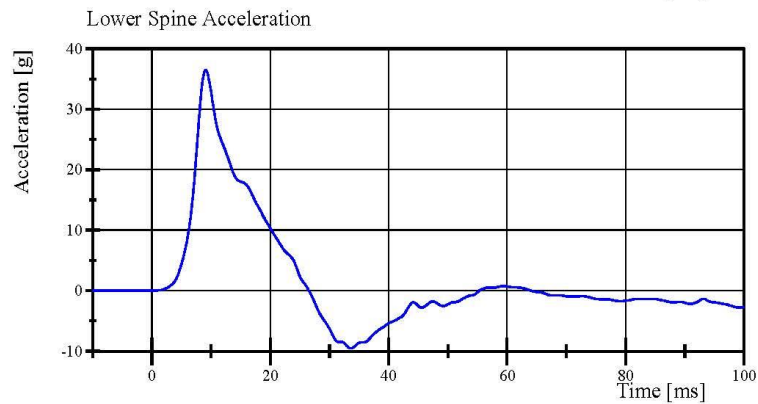
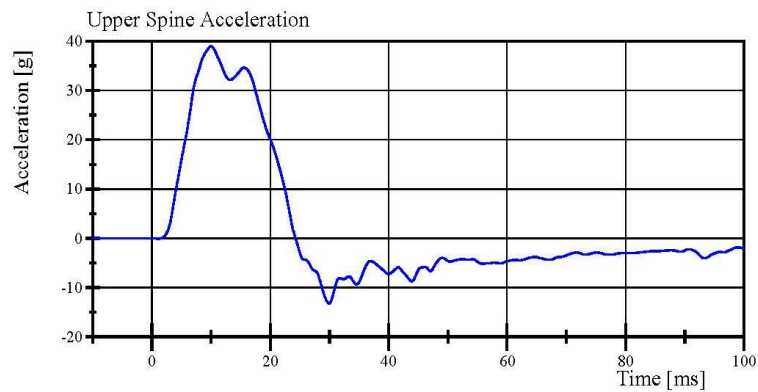
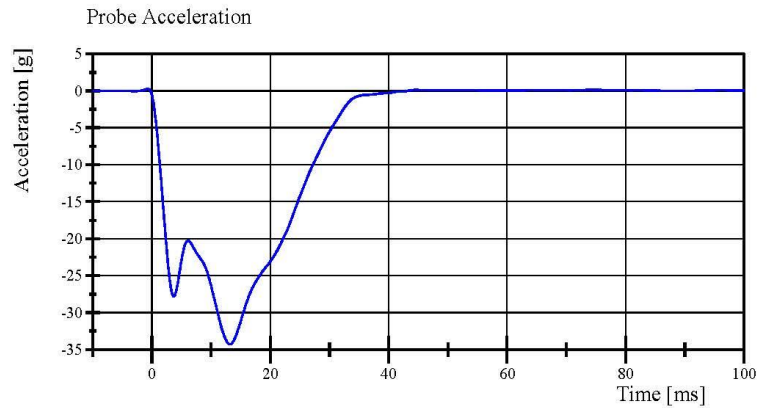
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12.17.2017 12:57:41 562



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 24-1
Test Date: 12/17/2017



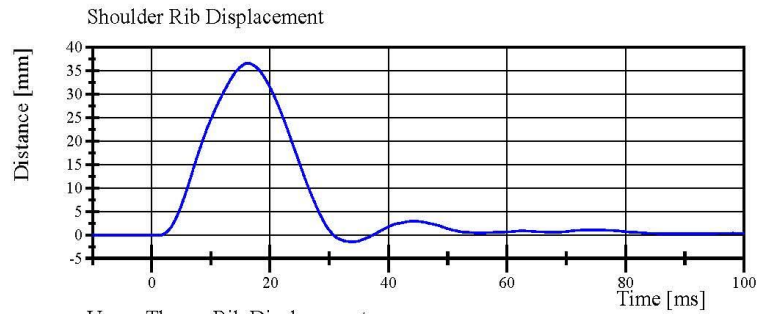
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.17.2017 12:58:33 562

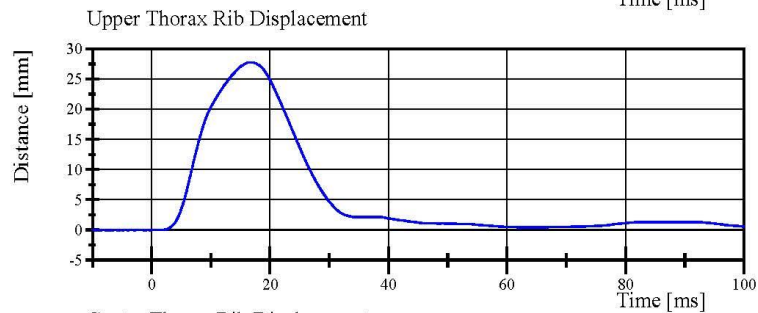


Transportation Research Center Inc.

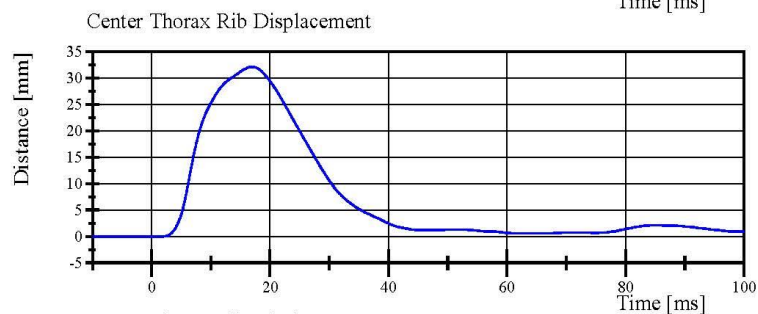
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 24-1
Test Date: 12/17/2017



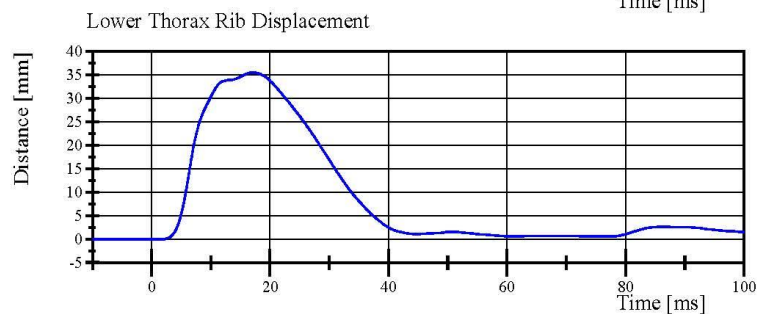
Filter Class: CFC_600
Max: 36.6 mm at 16.2 ms
Min: -1.4 mm at 34.1 ms



Filter Class: CFC_600
Max: 27.8 mm at 16.7 ms
Min: -0.0 mm at -1.2 ms



Filter Class: CFC_600
Max: 32.1 mm at 16.9 ms
Min: -0.0 mm at 1.4 ms



Filter Class: CFC_600
Max: 35.5 mm at 16.9 ms
Min: -0.0 mm at 1.8 ms

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

12.17.2017 12:58:33 562



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 24-1
Test Date: 12/17/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.315 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.7 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	37.9 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.3 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	36.7 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	15.3 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.0 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Thorax Rib #1 S/N: 2009

MiddleThorax Rib #2 S/N: 2010

LowerThorax Rib #3 S/N: 2029

Thorax Pad S/N: N/A

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

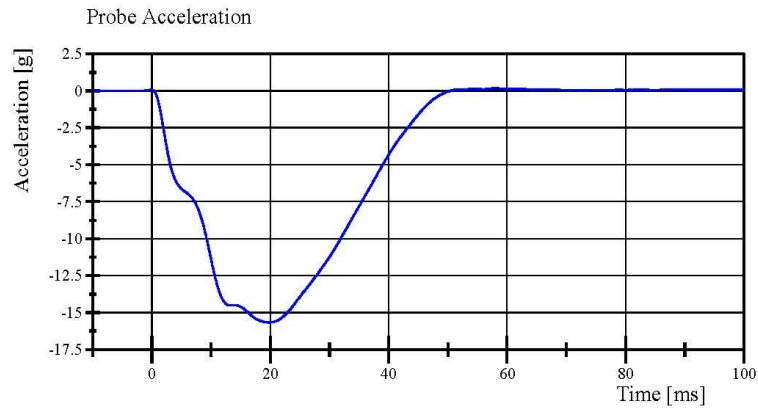
Page 20 of 31

12.17.2017 12:10:28 779

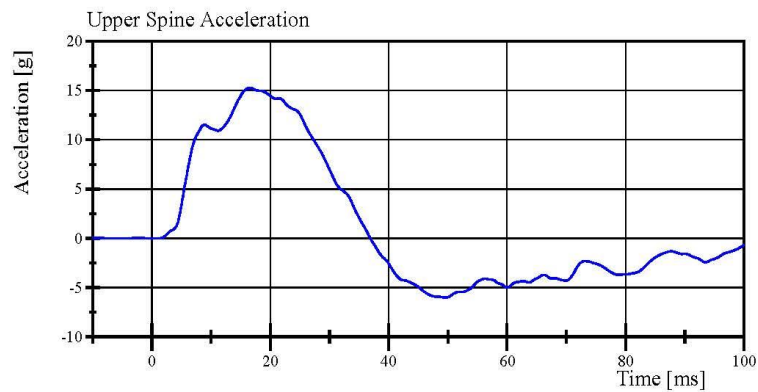


Transportation Research Center Inc.

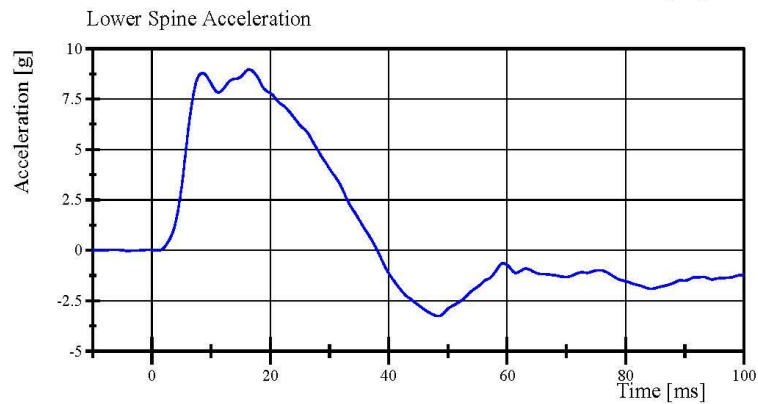
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 24-1
Test Date: 12/17/2017



Filter Class: CFC_180
Max: 0.2 g at 57.9 ms
Min: -15.7 g at 19.7 ms



Filter Class: CFC_180
Max: 15.3 g at 16.6 ms
Min: -6.0 g at 49.5 ms



Filter Class: CFC_180
Max: 9.0 g at 16.4 ms
Min: -3.3 g at 48.4 ms

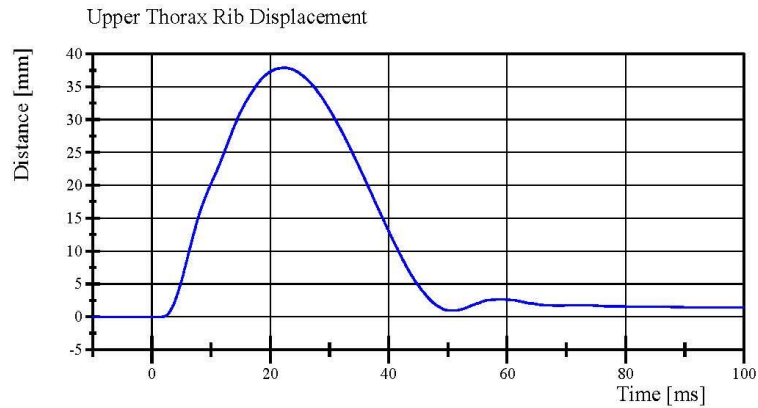
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

12.17.2017 12:11:08 779

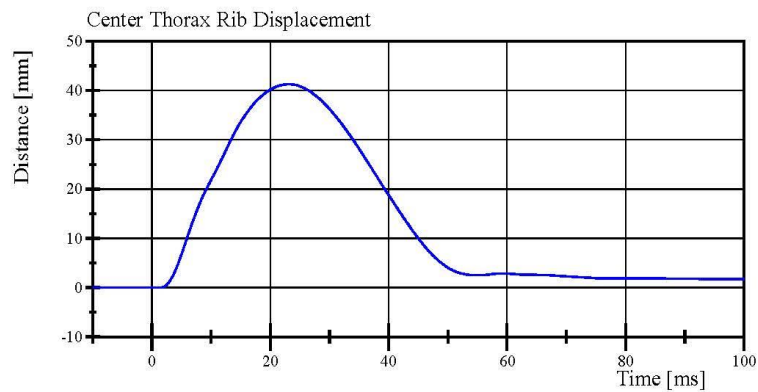


Transportation Research Center Inc.

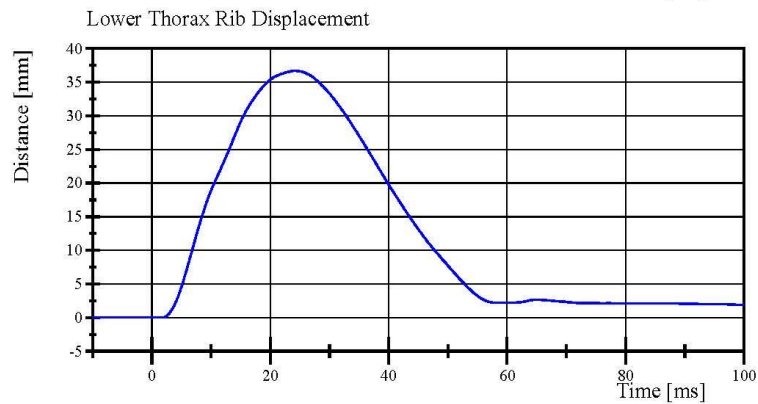
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 24-1
Test Date: 12/17/2017



Filter Class: CFC_600
Max: 37.9 mm at 22.4 ms
Min: -0.0 mm at -5.4 ms



Filter Class: CFC_600
Max: 41.3 mm at 23.1 ms
Min: -0.0 mm at 1.3 ms



Filter Class: CFC_600
Max: 36.7 mm at 24.1 ms
Min: -0.0 mm at 1.7 ms

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

12.17.2017 12:11:09 779



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 24-1

Test Date: 12/17/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.32 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.1 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	40.8 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	40.9 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.78 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: 1747

Lower Abdominal Rib S/N: 1748

Abdominal Pad S/N: N/A

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

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12.17.2017 12:01:57 649

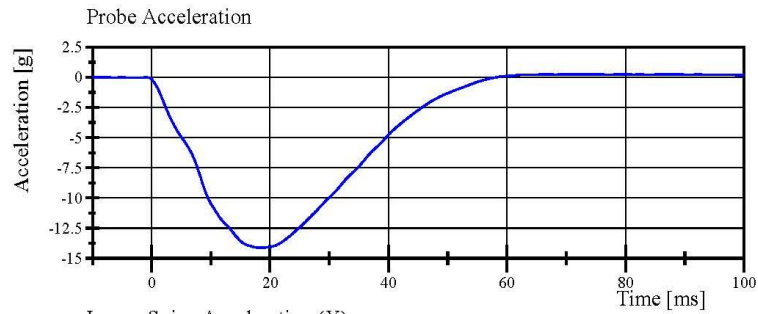


Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 24-1

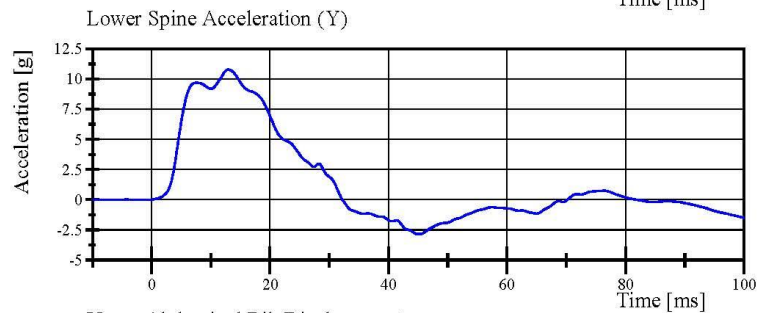
Test Date: 12/17/2017



Filter Class: CFC_180

Max: 0.3 g at 66.7 ms

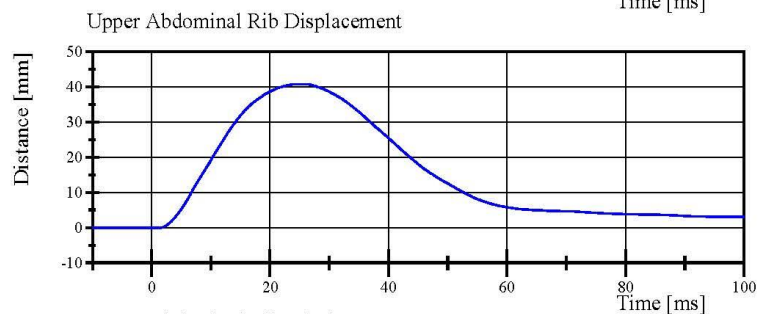
Min: -14.1 g at 18.2 ms



Filter Class: CFC_180

Max: 10.8 g at 13.0 ms

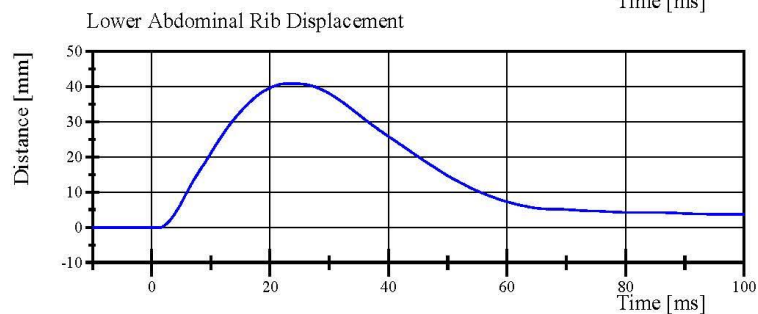
Min: -2.8 g at 45.0 ms



Filter Class: CFC_600

Max: 40.8 mm at 25.2 ms

Min: -0.0 mm at -5.0 ms



Filter Class: CFC_600

Max: 40.9 mm at 23.4 ms

Min: -0.0 mm at 1.4 ms

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

12.17.2017 12:02:46 649



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 24-1

Test Date: 12/17/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-41.0 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	29.0 g	Yes
Iliac Force	4,100 - 5,100 N	4,466.3 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis S/N: DY5517

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

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12.17.2017 11:42:55 638

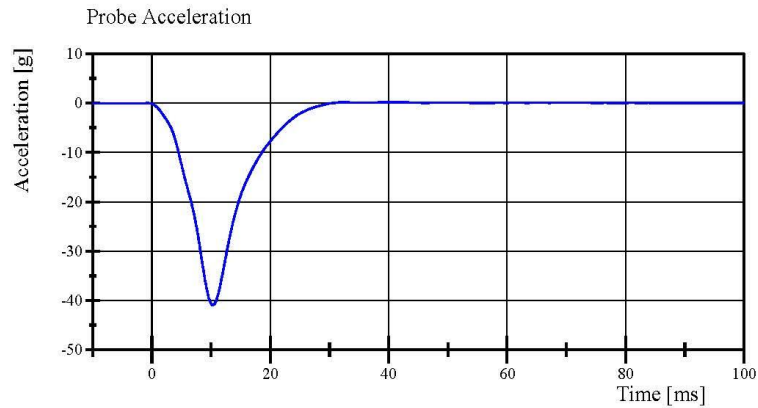


Transportation Research Center Inc.

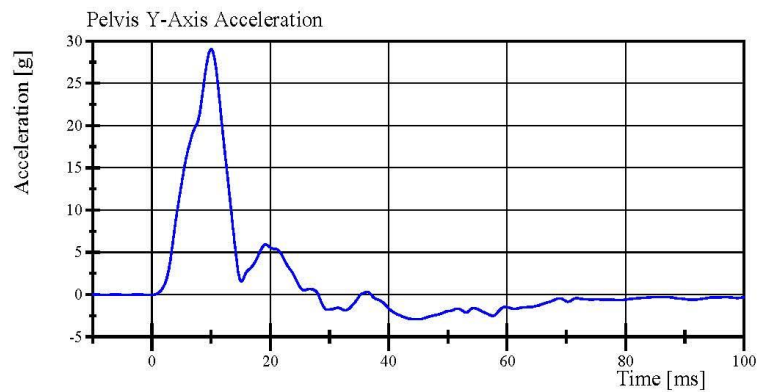
Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 24-1

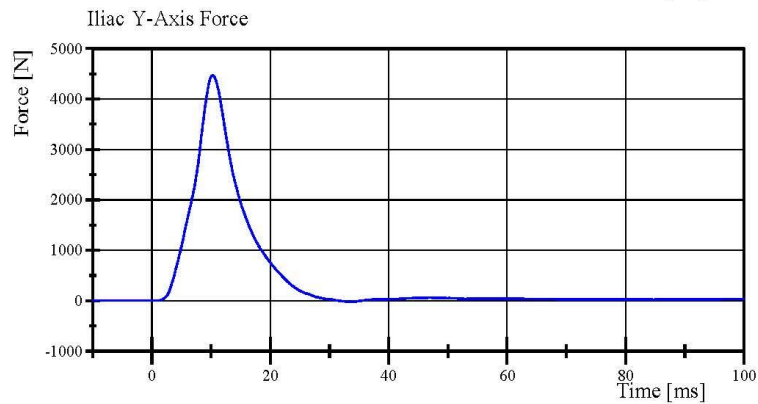
Test Date: 12/17/2017



Filter Class: CFC_180
Max: 0.2 g at 32.4 ms
Min: -41.0 g at 10.3 ms



Filter Class: CFC_180
Max: 29.0 g at 10.0 ms
Min: -2.9 g at 45.0 ms



Filter Class: CFC_600
Max: 4,466.3 N at 10.2 ms
Min: -20.2 N at 33.4 ms

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

12.17.2017 11:43:50 638



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 297 Certification No. 24-1
Test Date: 12/17/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.66 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-45.76 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	41.3 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,907.6 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: DY5517

Pelvis Plug Info:

Manufacturer: Saco

S/N: 11500

Cal Date: 20160831

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

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12.17.2017 13:56:09 385

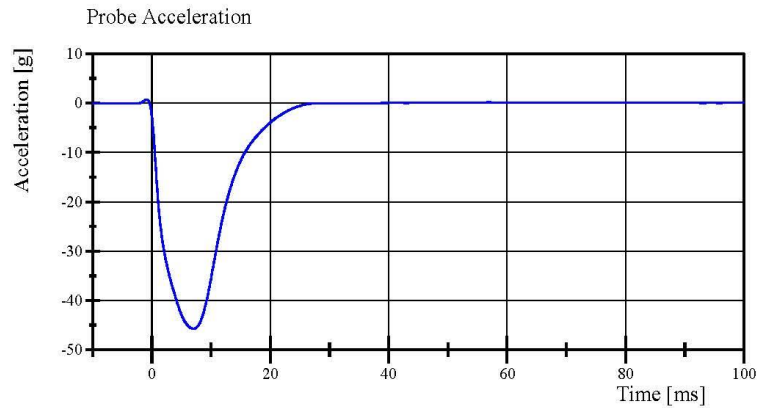


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 24-1

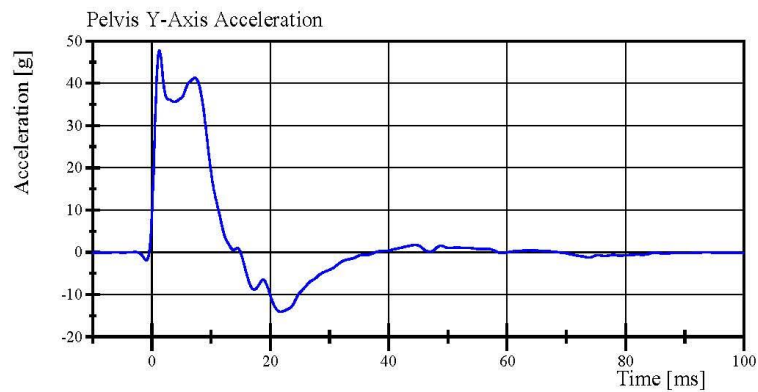
Test Date: 12/17/2017



Filter Class: CFC_180

Max: 0.7 g at -0.9 ms

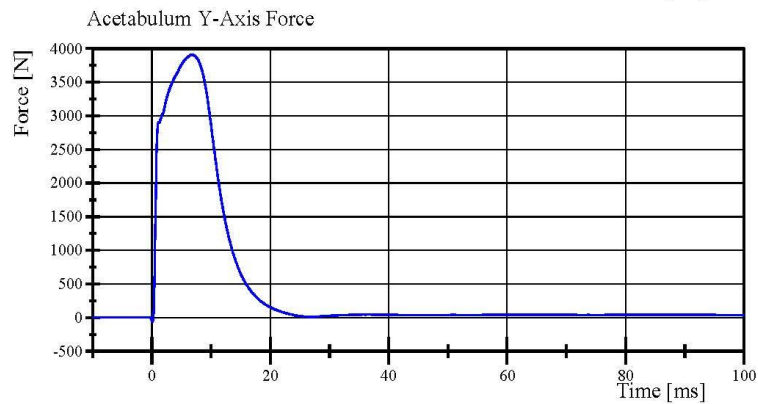
Min: -45.8 g at 7.0 ms



Filter Class: CFC_180

Max: 47.7 g at 1.3 ms

Min: -14.1 g at 21.8 ms



Filter Class: CFC_600

Max: 3,907.6 N at 6.8 ms

Min: -62.4 N at 0.1 ms

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

12.17.2017 13:58:07 385



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	29-Sep-2017
				Y	P93549	Endevco	29-Sep-2017
				Z	P93776	Endevco	29-Sep-2017
Displacement Potentiometers	Shoulder			Y	N/A	N/A	N/A
	Thoracic Rib	Upper	Y	047	Servo	28-Sep-2017	
		Middle	Y	01815	Servo	28-Sep-2017	
		Lower	Y	043	Servo	28-Sep-2017	
	Abdominal Rib	Upper	Y	01811	Servo	28-Sep-2017	
		Lower	Y	051	Servo	28-Sep-2017	
Lower Spine Accelerometers (T12)				X	P94425	Endevco	29-Sep-2017
				Y	P91522	Endevco	29-Sep-2017
				Z	P91511	Endevco	29-Sep-2017
Acetabulum Load Cell				Y	235-FY	FTSS	28-Sep-2017
Iliac Wing Load Cell				Y	320-FY	FTSS	22-Nov-2017
Pelvis Plug (struck side)					11417	SACO	29-Aug-2017
Pelvis Plug (non-struck side)					36473	FTSS	23-Sep-2010

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	T10654	Endevco	11-Dec-2017
Vehicle Center of Gravity	Y	T11046	Endevco	11-Dec-2017
Vehicle Center of Gravity	Z	T10649	Endevco	11-Dec-2017
Left Floor Sill	Y	P88038	Endevco	7-Aug-2017
A-Pillar Sill	Y	P97540	Endevco	13-Nov-2017
A-Pillar Low	Y	T11395	Endevco	11-Dec-2017
A-Pillar Mid	Y	T10351	Endevco	11-Dec-2017
B-Pillar Sill	Y	P87100	Endevco	11-Dec-2017
B-Pillar Low	Y	P87978	Endevco	13-Nov-2017
B-Pillar Mid	Y	P94551	Endevco	13-Nov-2017
Driver Seat	Y	P41055	Endevco	13-Nov-2017
Engine Top	X	P97716	Endevco	26-Sep-2017
Engine Top	Y	P97875	Endevco	26-Sep-2017
Firewall	Y	P94580	Endevco	8-Nov-2017
Right Roof	Y	T11393	Endevco	11-Dec-2017
Right Floor Sill	Y	T11387	Endevco	11-Dec-2017
Rear Floor Pan	X	P97631	Endevco	2-Oct-2017
Rear Floor Pan	Y	P97717	Endevco	2-Oct-2017

TABLE 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DK7091S	Humanetics	20-Nov-2017
Load Cell 2	DK7120S	Humanetics	20-Nov-2017
Load Cell 3	DK7118S	Humanetics	20-Nov-2017
Load Cell 4	DK7124S	Humanetics	20-Nov-2017
Load Cell 5	DK7111S	Humanetics	20-Nov-2017
Load Cell 6	DK7126S	Humanetics	20-Nov-2017
Load Cell 7	DK7112S	Humanetics	20-Nov-2017
Load Cell 8	DK7074S	Humanetics	20-Nov-2017