

FINAL REPORT NUMBER: SINCAP-TRC-18-006

**NEW CAR ASSESSMENT PROGRAM (NCAP)
MOVING DEFORMABLE BARRIER SIDE IMPACT TEST**

**FCA US LLC
2018 Dodge Durango SUV
NHTSA NUMBER: M20180301**

**PREPARED BY:
Transportation Research Center Inc.
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Report Date: May 31, 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: May 31, 2018

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

Technical Report Documentation Page

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15. Supplemental Notes																																																											
16. Abstract <p>This 55 / 28 km/h 90° Moving Deformable Barrier SINCAP Side Impact Test was conducted on the subject 2018 Dodge Durango SUV, in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on April 27, 2018.</p> <p>The impact velocity of the Moving Deformable Barrier (MDB) was 61.51 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 21.1° C. The target vehicle post-test maximum crush was 227 mm at Level 2. The test vehicle's performance was as follows:</p> <table border="1"> <thead> <tr> <th colspan="4">Driver ATD (ES-2re)</th> </tr> <tr> <th>Measurement Description</th> <th>Units</th> <th>IARV</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td>28</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>44</td> <td>27.7</td> </tr> <tr> <td>Total Abdominal Force</td> <td>N</td> <td>2500</td> <td>499.2</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>6000</td> <td>-668.7</td> </tr> <tr> <td>Lower Spine Acceleration</td> <td>G</td> <td>82*</td> <td>24.2</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="4">Passenger ATD (SID-IIs)</th> </tr> <tr> <th>Measurement Description</th> <th>Units</th> <th>IARV</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td>N/A</td> <td>1000</td> <td>25</td> </tr> <tr> <td>Lower Spine Resultant Acceleration</td> <td>g's</td> <td>82</td> <td>33.3</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>2410.6</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>12.4</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td>mm</td> <td>45*</td> <td>27.4</td> </tr> </tbody> </table> <p>* Proposed IARV</p> <p>The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.</p>				Driver ATD (ES-2re)				Measurement Description	Units	IARV	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	28	Maximum Thoracic Rib Deflection	mm	44	27.7	Total Abdominal Force	N	2500	499.2	Pubic Symphysis Force	N	6000	-668.7	Lower Spine Acceleration	G	82*	24.2	Passenger ATD (SID-IIs)				Measurement Description	Units	IARV	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	25	Lower Spine Resultant Acceleration	g's	82	33.3	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2410.6	Maximum Thoracic Rib Deflection	mm	38*	12.4	Maximum Abdominal Rib Deflection	mm	45*	27.4
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SECTION 1
TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test was conducted as part of the MY 2018 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 Dodge Durango SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated October 2015.

SECTION 2

SUMMARY OF TEST RESULTS

A 2018 Dodge Durango SUV was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.51 km/h (38.22 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Transportation Research Center Inc. in East Liberty, Ohio, on April 27, 2018. Pre-test and post-test photographs of the test vehicle and the MDB and the dummies (ES-2-re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated October 2015. The side impact event was documented by 11 cameras. Camera locations are included in this report.

The dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

Primary and redundant head CG tri-axial accelerometers

Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers

Abdomen forward, middle, and rear y-axis load cells

Lower spine (T12) tri-axial accelerometers

Pubic symphysis y-axis load cell

PASSENGER ATD (SID-IIs)

Primary and redundant head CG triaxial accelerometers

Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers

Abdomen upper rib and lower rib y-axis displacement potentiometers

Lower spine (T12) tri-axial accelerometers

Acetabulum and iliac wing y-axis load cells

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 of this report contains the test equipment and instrumentation calibration data.

Dummy injury readings were recorded as follows:

Measurement Description	Driver ATD (ES-2-re)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	28
Maximum Thoracic Rib Deflection	mm	44	27.7
Combined Abdominal Force	N	2500	499.2
Pubic Symphysis Force	N	6000	-668.7
Lower Spine (T12) Resultant Acceleration	G	82*	24.2

* Proposed IARV

Measurement Description	Passenger ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	25
Lower Spine (T12) Resultant Acceleration	G	82	33.3
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2410.6
Maximum Thoracic Rib Deflection	mm	38*	12.4
Maximum Abdominal Rib Deflection	mm	45*	27.4

* 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		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	N/A
Side Pelvis Airbag	No	N/A	No	N/A
Knee Airbag	Yes	No	No	N/A
Seat Belt Pretensioner	Yes	Yes	No	N/A
Seat Belt Load Limiter	Yes	Unknown	No	N/A
Other Safety Restraint	No	N/A	No	N/A

GENERAL COMMENTS

All doors remained closed throughout the test. No fuel spillage occurred during the impact or the static rollover test which followed. Injury values for both ATDs were within the established performance thresholds.

Left Front Sill Y; Channel failed after 14.0 MS

Left Rear Sill Y; Channel failed after 26.0 MS

Left Lower A-Post Y; QD after 25.0 MS

Left Lower B-Post Y; QD throughout

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

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

Test Vehicle: 2018 Dodge Durango SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180301
Test Date: 4/27/2018

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20180301
Model Year	2018
Make	Dodge
Model	Durango SXT
Body Style	MPV
VIN	1C4RDHAG8JC184075
Body Color	Granite Metallic
Odometer Reading (km/mi)	224 mi
Engine Displacement (L)	3.6
Type/No. Cylinders	Gas/6
Engine Placement	Front Longitudinal
Transmission Type	Automatic
Transmission Speeds	8
Overdrive	Yes
Final Drive	RWD
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	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Passenger Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Passenger Load Limiter	No
Other Safety Restraint	No

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

DATA FROM CERTIFICATION LABEL

Manufactured By	FCA US LLC
Date of Manufacture	9-17
Vehicle Type	MPV

GVWR (kg)	2949
GAWR Front (kg)	1452
GAWR Rear (kg)	1770

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	N/A	5
Capacity Weight (VCW) (kg)				521
DSC x 68.04 (kg)				340.2
Cargo Weight (RCLW) (kg)				180.8

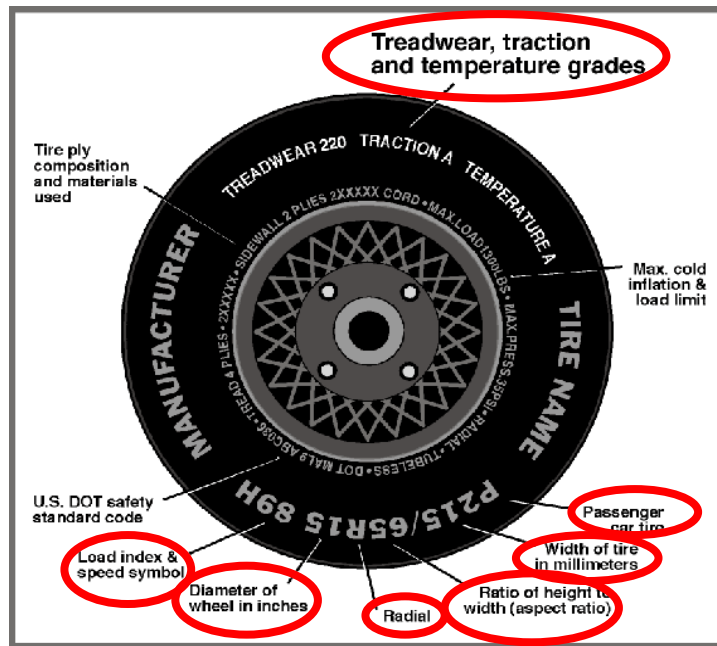
VEHICLE SEAT TYPE

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

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

Test Vehicle: 2018 Dodge Durango SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180301
 Test Date: 4/27/2018



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	250	250
Recommended Tire Size	265/60R18	265/60R18
Tire Size on Vehicle	265/60R18	265/60R18
Tire Manufacturer	Michelin	Michelin
Tire Model	Premier LTX	Premier LTX
Treadwear	620	620
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	110T	110T
Tire Material	Polyester, Polyamide, Steel	Polyester, Polyamide, Steel
DOT Safety Code Left	AP5E 0TEX 3617	AP5E 0TEX 3617
DOT Safety Code Right	AP5E 0TEX 3617	AP5E 0TEX 3617

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

Test Vehicle: 2018 Dodge Durango SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180301
 Test Date: 4/27/2018

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	276	255	262	290
Tire Placard	kPa	250	250	250	250
Owner's Manual	kPa	N/A	N/A	N/A	N/A
As Tested	kPa	250	250	250	250

MDB TIRE SPECIFICATIONS

	Units	Requirement	LF	RF	LR	RR
Tire Size		P205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	kPa	200 ± 21 kPa	207	207	207	207

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	526.0	545.0		580.4	661.6		567.6	681.4	
Right	kg	534.6	552.6		526.8	644.0		525.2	645.0	
Ratio	%	49.1	50.9		45.9	54.1		45.2	54.8	
Totals	kg	1060.6	1097.6	2158.2	1107.2	1305.6	2412.8	1092.8	1326.4	2419.2

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	2158.2	(A)
Actual Weight of 1 P572V ATD (SID-ILs) Dummy Used	kg	125.0	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	136.0 ¹	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2419.2	(A+B+C)

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

TEST VEHICLE ATTITUDES AND CG

Measurement Description	Units	Fully Loaded	As Tested	Meets Requirement
LF	mm	831	830	Yes
RF	mm	838	840	Yes
RR	mm	828	820	Yes
LR	mm	815	823	Yes
Vehicle CG (Aft of Front Axle)	mm	1671	1648	
Vehicle CG (Left(+)/Right(-) from Longitudinal Centerline)	mm	+27	+24	

***The "As Tested" vehicle attitude measurements must be equal to or within ± 10 mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. Indicate "Yes" or "No" for "Meets Requirement".

Test height adjustable suspension setting, if applicable:

N/A

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast: Steel plate mounted in cargo area	132.2
Removed: None	0.0

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

DATA SHEET NO. 2
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

Test Vehicle: 2018 Dodge Durango SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180301
 Test Date: 4/27/2018

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL(°)		
	Max.	Min.	Mid
Driver Seat	17.0	16.9	17.0
Front Passenger Seat	17.6	17.5	17.5
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	N/A	N/A	12.1
Non-Struck Side Rear Seat	N/A	N/A	11.9
Rear Center Seat*	N/A	N/A	8.2

* If applicable.

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid-Fore/Aft	Forward-Most
Driver Seat	17.0	257	Max	N/A	N/A	N/A
			Mid	241	257	275
			Min	N/A	N/A	N/A
Front Passenger Seat	17.6	253	Max	N/A	N/A	N/A
			Mid	239	253	267
			Min	N/A	N/A	N/A
Front Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Struck Side Rear Seat	12.1	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	11.9	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*	8.2	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 SYSTEM DATA

Test Vehicle: 2018 Dodge Durango SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180301
 Test Date: 4/27/2018

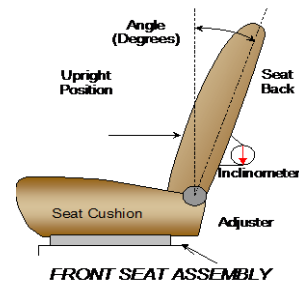
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents	mm	Detent
Driver Seat	283	42	145	21
Front Passenger Seat	237	35	75	10
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	0	Fixed	N/A	N/A
Non-Struck Side Rear Seat	0	Fixed	N/A	N/A
Rear Center Seat*	0	fixed	N/A	N/A

* If applicable

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned to the manufacturer's designated seat back angle. 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 seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as 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	76.5	39	13.6	10
Front Passenger Seat	64.6	35	13.8	8
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat w/ Seated Dummy	12	9	12.1	0
Non-Struck Side Rear Seat	12	6	12.1	0
Rear Center Seat*	12	9	12.1	0

* If applicable

SEAT BELT ANCHORAGE ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	5, Numbered from 0 to 4	4, Uppermost
Rear Seat	1, Fixed	1, Fixed

HEAD RESTRAINT ADJUSTMENT

The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	5 vertical; 2 horizontal	Full up, Full forward
Rear Seat	1, Fixed	1, Fixed

DATA SHEET NO. 2 (CONTINUED)

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

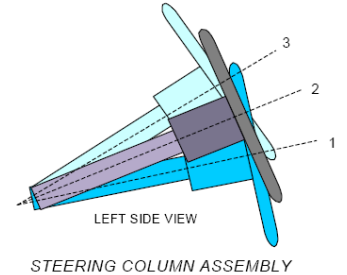
Test Vehicle: 2018 Dodge Durango SUV
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STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.

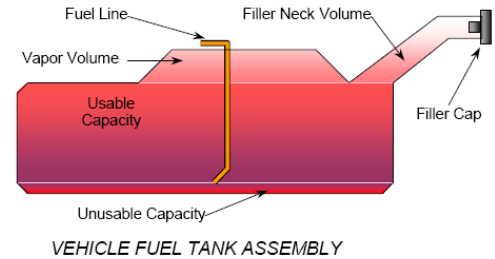
	Degrees	Fore/Aft Position (mm)
Lowermost, Position No. 1	19.7	0
Geometric Center, Position No. 2	21.5	27
Uppermost, Position No. 3	24.2	54
Telescoping Steering Wheel Travel		54
Test Position	21.5	27



FUEL PUMP

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

The fuel pump starts pumping fuel when the key is "ON" position



FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	93.5
Usable Capacity of "Optional Tank" (see Form No. 1)	93.5
Usable Capacity of Standard Tank (see Owner's Manual)	93.0
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	86.9
Actual Amount of Solvent Used in Test	86.9
1/3 of Usable Capacity	31.2

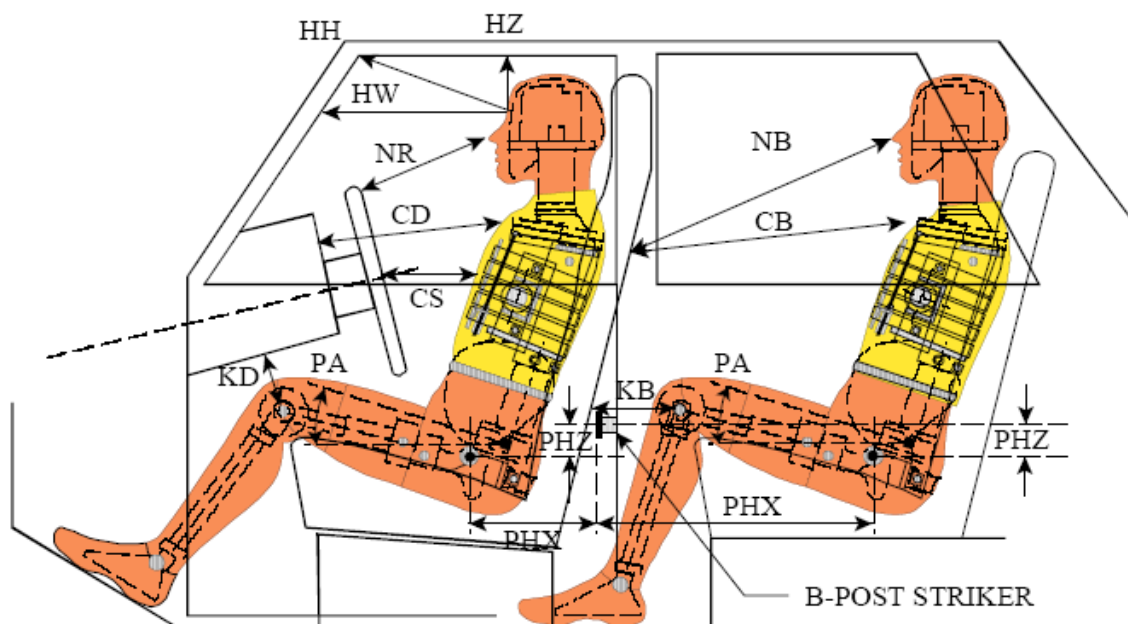
Is the Actual Amount of Solvent Used in the test equal to 93% ± 1% of the Usable Capacity stated in on Form No. 1? YES NO

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2018 Dodge Durango SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180301
 Test Date: 4/27/2018



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
 REAR DUMMY PHX & PHZ
 MEASUREMENTS FOR A 4-DOOR
 VEHICLE WOULD USE THE C-POST
 STRIKER AS A REFERENCE POINT

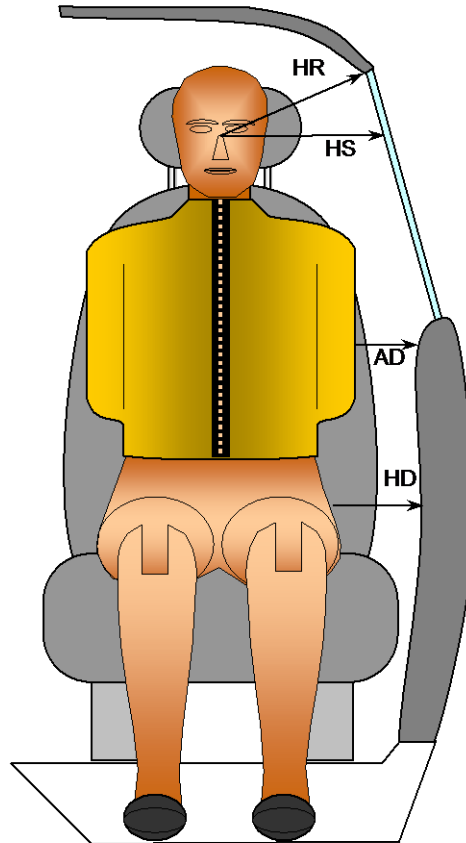
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle	Length (mm)	Angle
HH		Header to Header	448			
HW		Header to Windshield	623			
HZ	HZ	Head to Roof Liner	181		301	
NR	NB	Nose to Rim/Seat Back	454		607	
CD	CB	Chest to Dash/Seat Back	591		562	
CS		Chest to Steering Wheel	340			
KD(L)/KDA(L) [°]	KB(L)/KBA(L) [°]	Left Knee to Dash/Seat Back	162	30.9	295	0
KD(R)/KDA(R) [°]	KB(R)/KBA(R) [°]	Right Knee to Dash/Seat Back	156	30.9	288	0
PAX [°]	PAX [°]	Pelvic Tilt Angle X		0.8		0.2
	PAY [°]	Pelvic Tilt Angle Y				20.8
PHX	PHX	Hip Point to Striker (X-Axis)	188		376	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	64		175	

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

Test Vehicle: 2018 Dodge Durango SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180301
 Test Date: 4/27/2018



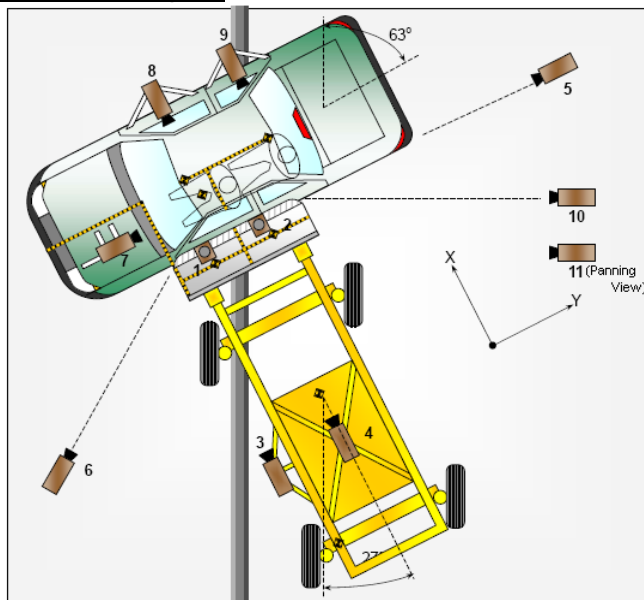
FRONT VIEW OF DUMMY

Code	Description	Units	Driver	Passenger
HR	Head to Side Header	mm	211	268
HS	Head to Side Window	mm	342	350
AD	Arm to Door	mm	104	130
HD	H-Point to Door	mm	176	172

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

Test Vehicle: 2018 Dodge Durango SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180301
Test Date: 4/27/2018



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	0	-256	-4872	8.5	1000
2	Overhead Close-up	0	256	-4872	25	1000
3	Left Impact Point (MDB)	1425	-978	-862	25	1000
4	Side Overall (MDB)	2312	0	-1495	12.5	1000
5	Rear	0	7693	-1280	20	1000
6	Left Front	2016	-3970	-1280	20	1000
7	Driver Front (OB)				25	1000
8	Driver Side (OB)				12.5	1000
9	Passenger Side (OB)				12.5	1000
10	Real-time Left Rear				Zoom	30
11	Real-time Inrun				Zoom	30

Reference: Impact Point projected to Ground; +X = To Front of MDB +Y = To Right of MDB; +Z = Down

*All measurements accurate to ± 6 mm.

If applicable, explain why camera(s) did not operate as intended: N/A

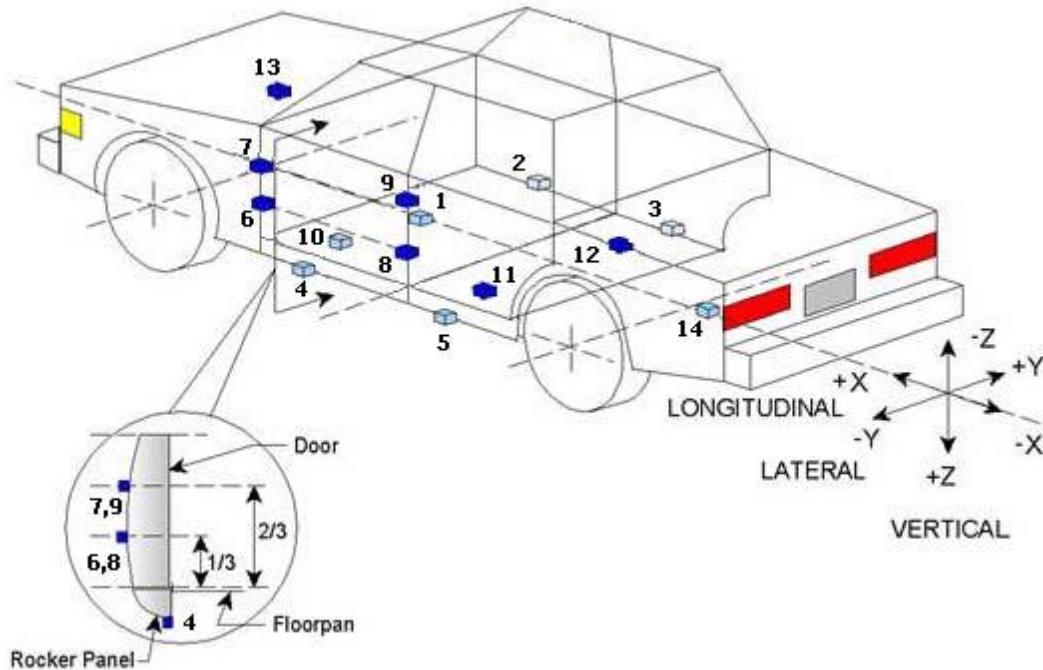
INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	16
Vehicle Structure Accelerometers	23
MBD Accelerometers	5
TOTAL	60

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

Test Vehicle: 2018 Dodge Durango SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180301
Test Date: 4/27/2018



TEST VEHICLE ACCELEROMETER LOCATIONS

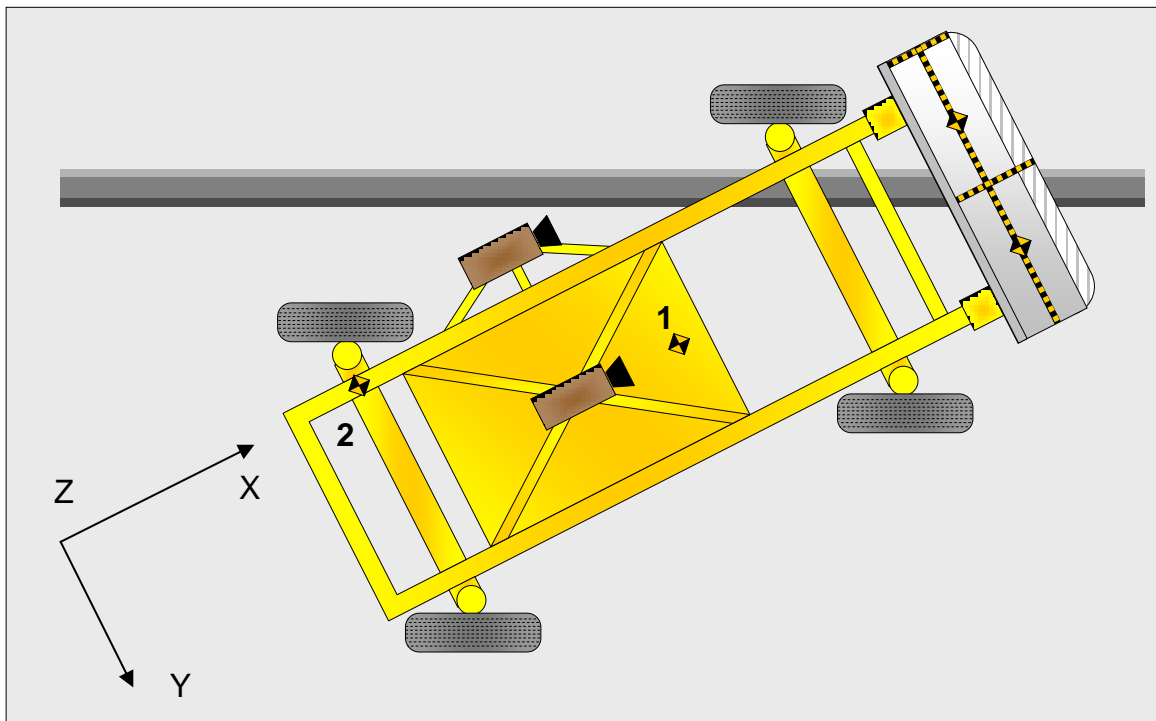
Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3298	150	-590
2	Right Sill at Front Seat	3120	740	-469
3	Right Sill at Rear Seat	2190	740	-485
4	Left Sill at Front Door	3120	-740	-468
5	Left Sill at Rear Door	2184	-740	-471
6	A-Post Lower	3600	-861	-543
7	A-Post Middle	3590	-865	-1067
8	B-Post Lower	2495	-862	-547
9	B-Post Middle	2495	-865	-1074
10	Front Seat Track	2776	-572	-533
11	Rear Seat Structure	1735	-380	-555
12	Right Rear Occ. Compartment	1741	365	-602
13	Engine Block	4245	-22	-1004
14	Rear Above Axle	533	0	-682

Reference: X - Rear surface of vehicle (+ forward)
Y - Vehicle Centerline (+ to right)
Z - Ground Plane (+ down)

**DATA SHEET NO. 7
MDB ACCELEROMETER LOCATIONS**

Test Vehicle: 2018 Dodge Durango SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180301
 Test Date: 4/27/2018



MDB ACCELEROMETER LOCATIONS

Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	MDB CG	-2179	0	-505
2	MDB Rear	-3648	-650	-618

Reference : X - Face of MDB (+ forward)
 Y - MDB Centerline (+ to right)
 Z - Ground Plane (+ down)

**DATA SHEET NO. 8
POST-TEST OBSERVATIONS**

Test Vehicle: 2018 Dodge Durango SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180301
Test Date: 4/27/2018

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (ES2-re)	Rear Seat Dummy (SID-IIs)
Face	SCAB	SCAB
Top of Head	Side headliner	SCAB
Left Side of Head	Side headliner	SCAB
Back of Head	Side headliner	SCAB
Left Shoulder	SAB	Door panel
Upper Torso	Seatback bolster, SAB	Door panel
Lower Torso	Seatback bolster, SAB	Door panel
Left Hip	SAB	Door panel
Left Knee	Door panel	Door panel

POST-TEST DOOR PERFORMANCE

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

POST-TEST SEAT PERFORMANCE

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

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Good
Sill Separation	None
Windshield Damage	None
Side Window Damage	Driver's side window broken
Other Notable Effects	None

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

Test Vehicle: 2018 Dodge Durango SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180301
Test Date: 4/27/2018

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		3048
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		508
Actual Impact Point (Aft of Front Axle)	mm		505
Horizontal Offset (+ forward / - rearward)	mm	+/- 50 of Intended Impact point	+3
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact point	-7

**DATA SHEET NO. 9
MDB SUMMARY OF RESULTS**

Test Vehicle: 2018 Dodge Durango SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180301
Test Date: 4/27/2018

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Face	4115
Wheel Base of Framework Carriage	2591
C.G. Location aft of Front Axle	1099

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	354.0	325.0	679.0
Right	kg	430.8	253.2	684.0
Ratio	%	57.6	42.4	100.0
Totals	kg	784.8	578.2	1363.0

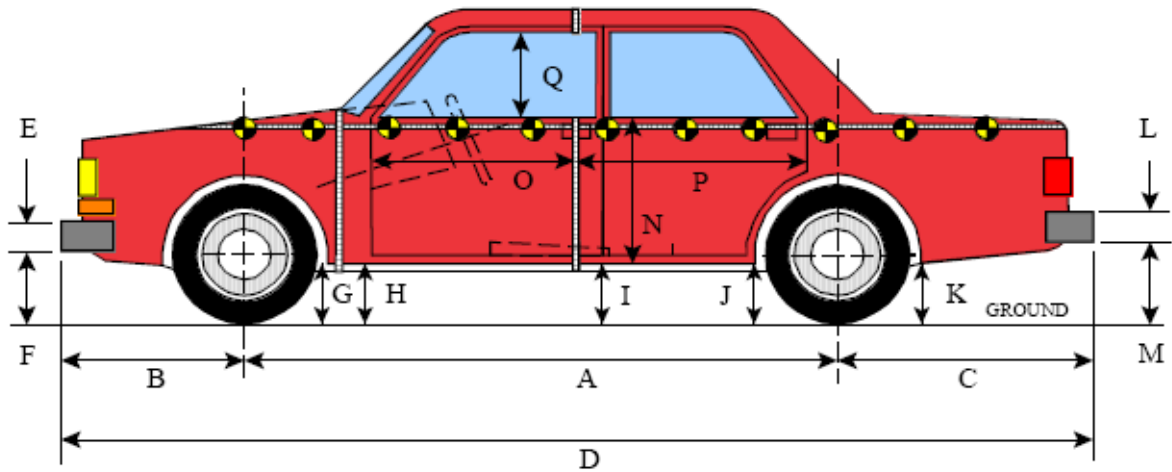
SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.51
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.52
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26 to 28	27

DATA SHEET NO. 10
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2018 Dodge Durango SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180301
Test Date: 4/27/2018



LEFT SIDE VIEW

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

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

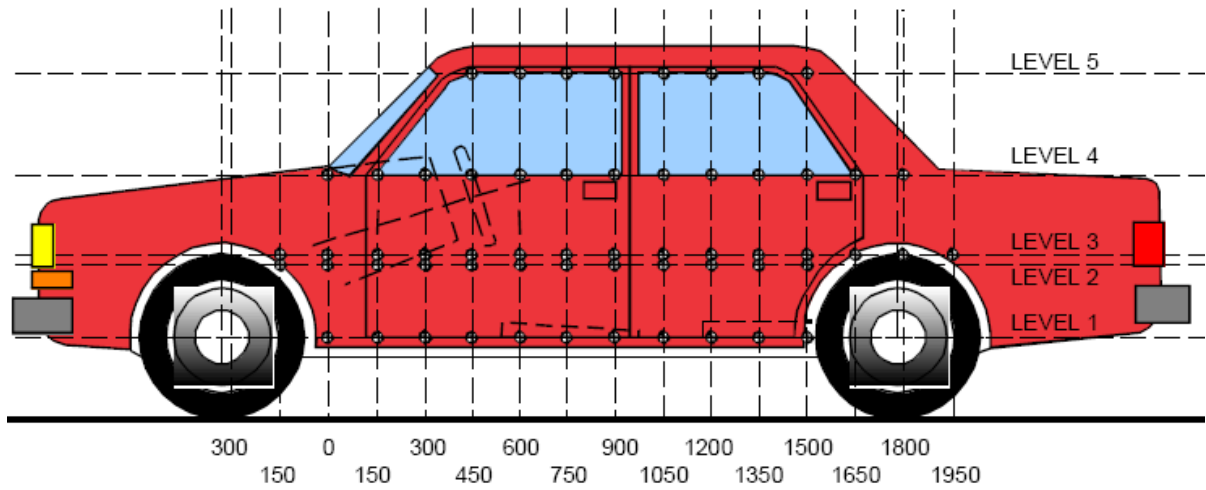
Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	3048	3060	-12
B	Front Axle to Front Surface of Vehicle	860	838	22
C	Rear Axle to Rear Surface of Vehicle	1171	1178	-7
D	Total Length at Centerline	5115	5100	15
E	Front Bumper Thickness	140	140	0
F	Front Bumper Bottom to Ground	527	525	2
G	Sill Height at Front Wheel Well	353	358	-5
H	Sill Height at Front Door Leading Edge	384	408	-24
I	Sill Height at B-Pillar	385	455	-70
J1	Sill Height at Rear Wheel Well	383	430	-47
J2	Pinch Weld Height at Rear Wheel Well	213	255	-42
K	Sill Height Aft of Rear Wheel Well	440	487	-47
L	Rear Bumper Thickness	115	115	0
M	Rear Bumper Bottom to Ground	540	590	-50
N	Sill Height to Window Bottom Sill	803	750	53
O	Front Door Leading Edge to Impact CL	731	710	21
P	Rear Door Trailing Edge to Impact CL	1555	1518	37
Q	Front Window Opening	446	440	6
R	Right Side Length	4926	4925	1
S	Left Side Length	4930	4890	40
T	Vehicle Width	1920	1920	0

DATA SHEET NO. 11

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2018 Dodge Durango SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180301
 Test Date: 4/27/2018



LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance From Impact
1	Sill Top ¹	478	172	1500
2	Driver Hip Point	788	227	1500
3	Mid-Door	798	226	1500
4	Window Sill	1142	77	1350
5	Window Top	1654	8	1950

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

DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2018 Dodge Durango SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180301
 Test Date: 4/27/2018

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-300	0	0	0	821	0	0	0	0	828	0	0	0	0	-7	0
-150	0	958	959	845	0	0	941	942	835	0	0	17	17	10	0
0	914	953	954	859	0	893	921	922	834	0	21	32	32	25	0
150	913	946	946	865	0	795	877	879	871	0	118	69	67	-6	0
300	913	941	942	869	0	785	830	832	868	0	128	111	110	1	0
450	916	938	938	877	0	775	771	773	869	0	141	167	165	8	0
600	918	935	936	883	0	771	751	754	869	0	147	184	182	14	0
750	919	933	934	887	0	767	740	742	865	0	152	193	192	22	0
900	920	932	933	890	665	767	730	731	858	665	153	202	202	32	0
1050	920	932	933	893	677	767	720	722	847	675	153	212	211	46	2
1200	919	933	934	895	685	766	736	742	830	770	153	197	192	65	-85
1350	915	933	933	896	688	753	735	740	819	726	162	198	193	77	-38
1500	913	934	934	899	688	741	707	708	833	726	172	227	226	66	-38
1650	910	936	936	902	689	741	713	714	846	725	169	223	222	56	-36
1800	907	940	941	908	687	777	751	750	862	723	130	189	191	46	-36
1950	912	946	946	914	684	838	812	807	877	676	74	134	139	37	8
2100	0	955	955	917	680	0	887	882	890	676	0	68	73	27	4
2250	0	0	0	919	677	0	0	0	904	675	0	0	0	15	3
2400	0	0	0	920	675	0	0	0	907	674	0	0	0	13	1
2550	0	0	0	917	0	0	0	0	909	0	0	0	0	8	0

NOTE: Pre-test measurements are taken when the vehicle is in the “As Tested” weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point.

DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2018 Dodge Durango SUV
Test Program: SINCAP Side Impact

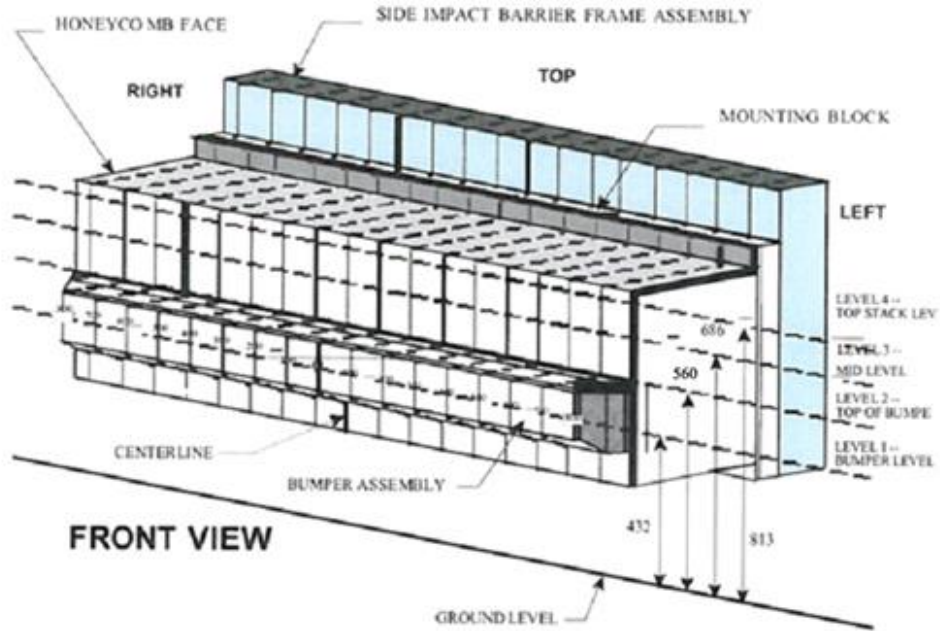
NHTSA No.: M20180301
Test Date: 4/27/2018



**DATA SHEET NO. 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS**

Test Vehicle: 2018 Dodge Durango SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180301
Test Date: 4/27/2018



NOTE: Dimensions are shown in millimeters, mm

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Right	262
B	Top of Bumper	560	800	Left	194
C	Mid-Level	686	800	Left	208
D	Top of Stack	813	800	Left	234

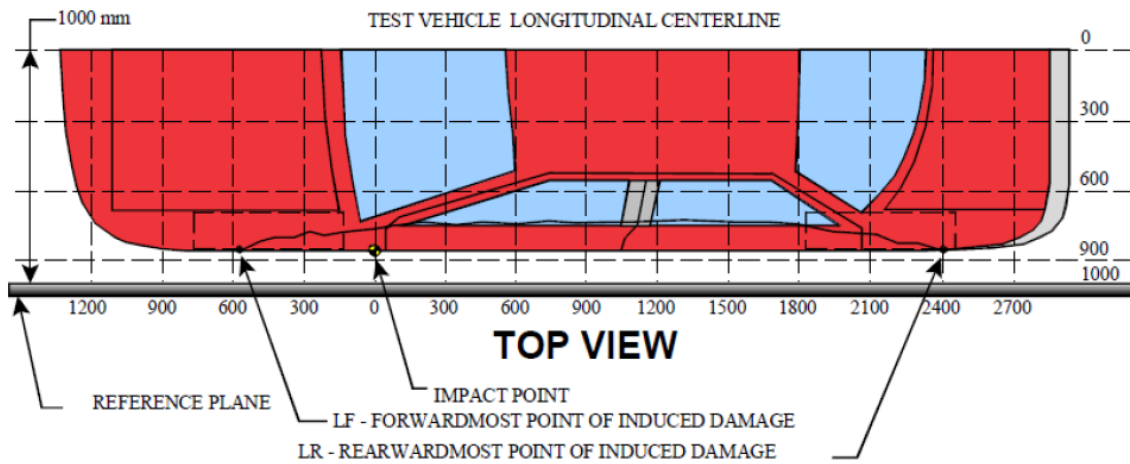
DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		0	100	200	300	400	500	600	700
1	262	257	255	253	252	250	248	246	244	242	240	238	236	235	234	241	236
2	159	156	156	156	159	163	158	152	150	146	144	141	141	141	141	151	194
3	164	112	86	99	122	136	120	95	78	85	91	97	93	92	112	159	208
4	143	113	91	93	113	115	112	91	84	95	102	121	134	142	146	195	234

DATA SHEET NO. 13
VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2018 Dodge Durango SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180301
 Test Date: 4/27/2018



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	2550	4	909	917	8
2	2100	3	882	955	73
3	1500	2	707	934	227
4	900	2	730	932	202
		3	731	933	
5	450	2	771	938	167
6 ¹	-150	2	941	958	0
		3	942	959	

MDB DAMAGE PROFILE DISTANCES

DPD	Distance From Center of MDB	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	800 mm Left of Center	1	236	472	236
2	500 mm Left of Center	1	250	485	235
3	200 mm Left of Center	1	245	485	240
4	200 mm Right of Center	1	238	486	248
5	500 mm Right of Center	1	233	486	253
6	800 mm Right of Center	1	211	473	262

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

**DATA SHEET NO. 14
FMVSS NO. 301 STATIC ROLLOVER RESULTS**

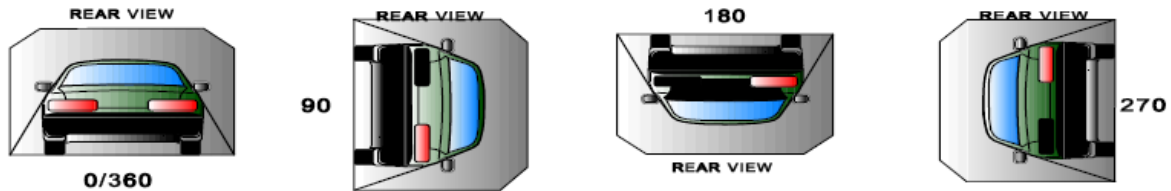
Test Vehicle: 2018 Dodge Durango SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180301
Test Date: 4/27/2018

Test Time: 15:31 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	N/A
90 to 180	0	0	0	N/A
180 to 270	0	0	0	N/A
270 to 360	0	0	0	N/A

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

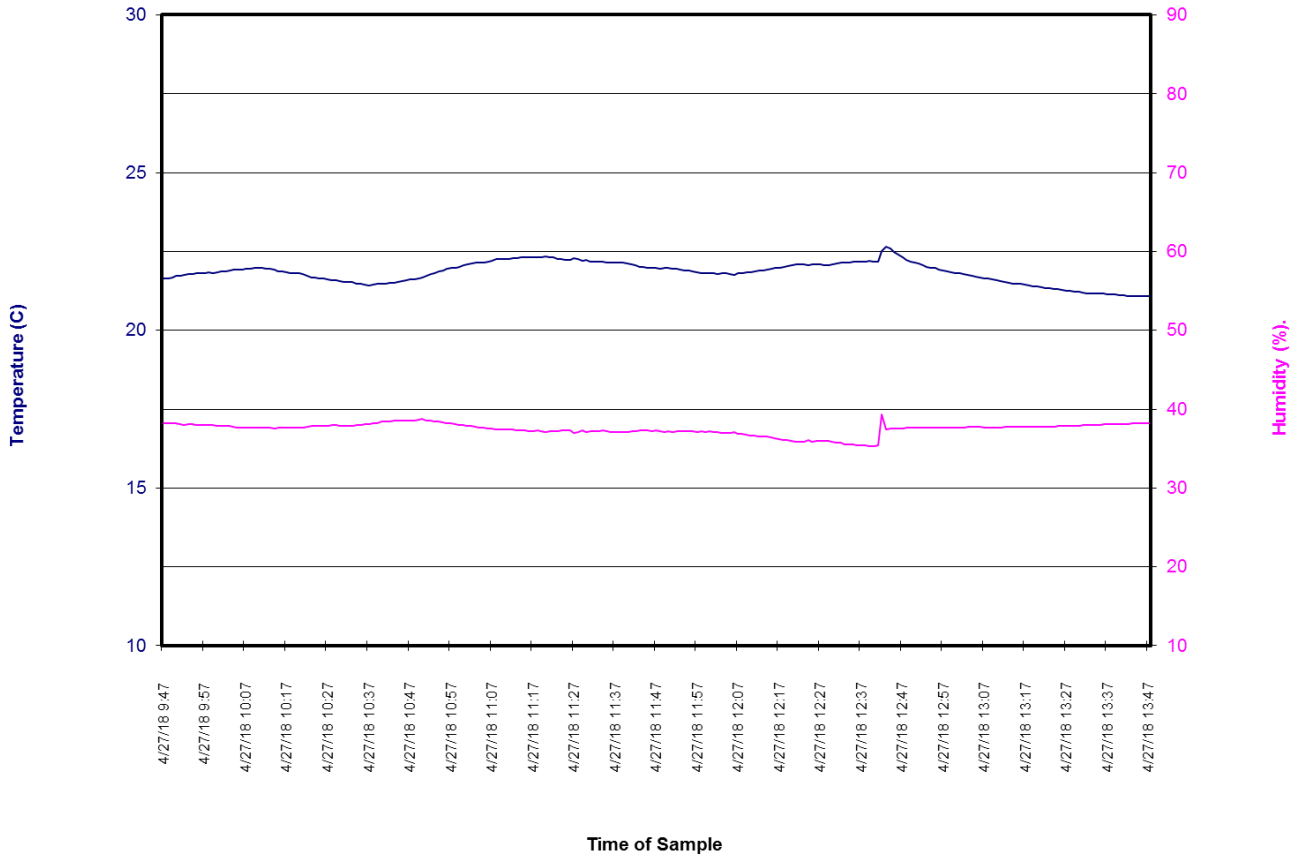
Test Phase	Spillage Location
0 to 90	None
90 to 180	None
180 to 270	None
270 to 360	None

DATA SHEET NO. 15
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2018 Dodge Durango SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180301
Test Date: 4/27/2018

M20180301 2018 Dodge Durango Left MDB Impact 180427: Test Time 13:47



**APPENDIX A
PHOTOGRAPHS**

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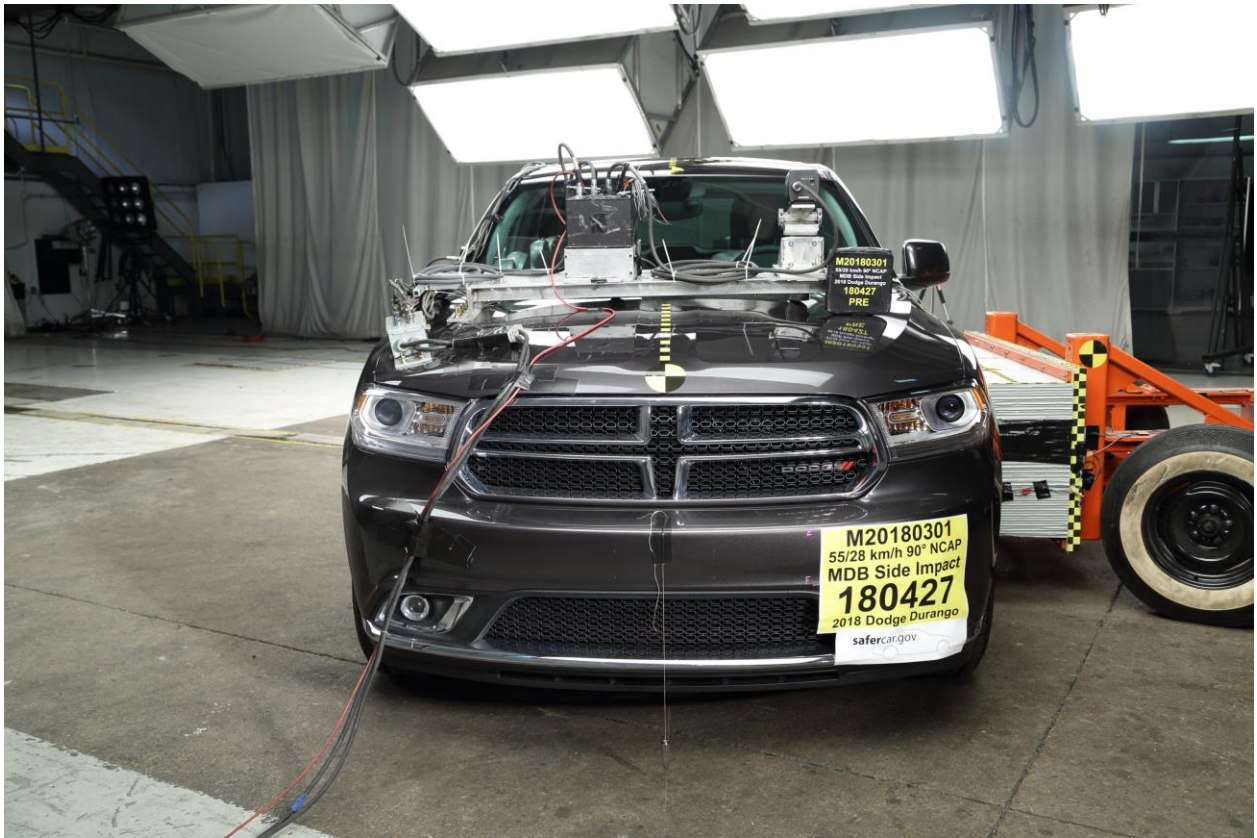
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003 Pre-Test Frontal View of Test Vehicle



004 Post-Test Frontal View of Test Vehicle



005 Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



006 Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



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008 Post-Test Left Side View of Test Vehicle



009 Pre-Test Left Rear ¾ View of Test Vehicle



010 Post-Test Left Rear ¾ View of Test Vehicle



011 Pre-Test Rear View of Test Vehicle



012 Post-Test Rear View of Test Vehicle



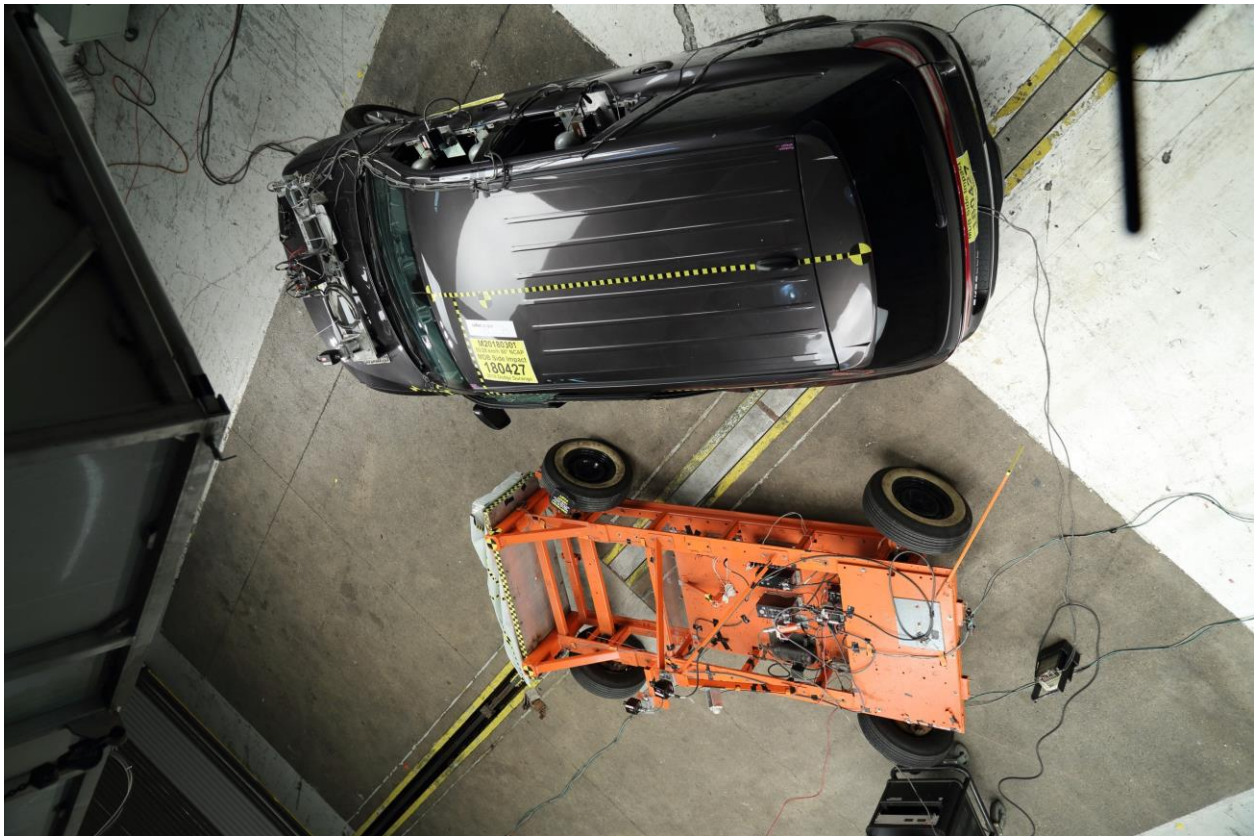
013 Pre-Test Right Side View of Test Vehicle



014 Post-Test Right Side View of Test Vehicle



015 Pre-Test Overhead View of Test Area



016 Post-Test Overhead View of Test Area



017 Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle



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020 Post-Test Close-Up View of Impact Point Target



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022 Post-Test Left Front Door Latch Close-Up



023 Pre-Test Left Rear Door Latch Close-Up



024 Post-Test Left Rear Door Latch Close-Up



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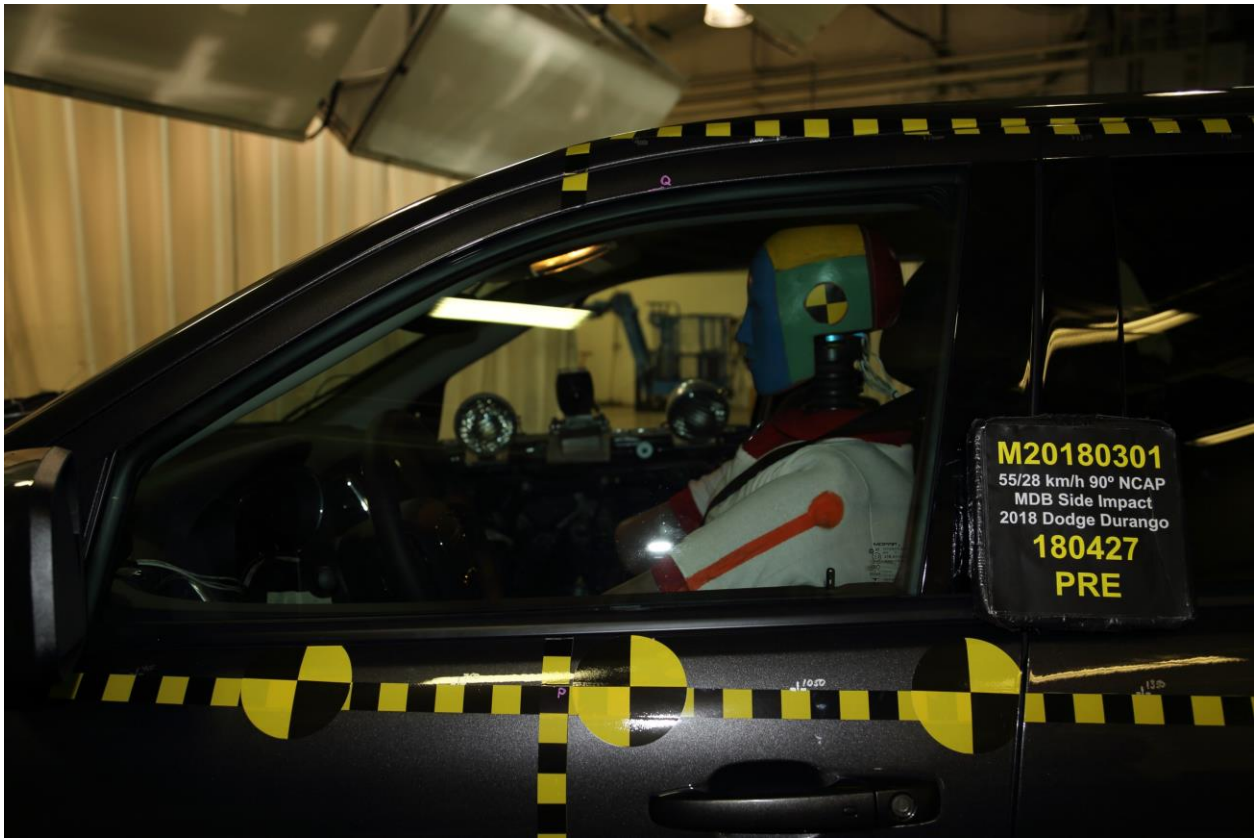


026 Post-Test Front Close-Up View of Driver Dummy



027 Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking

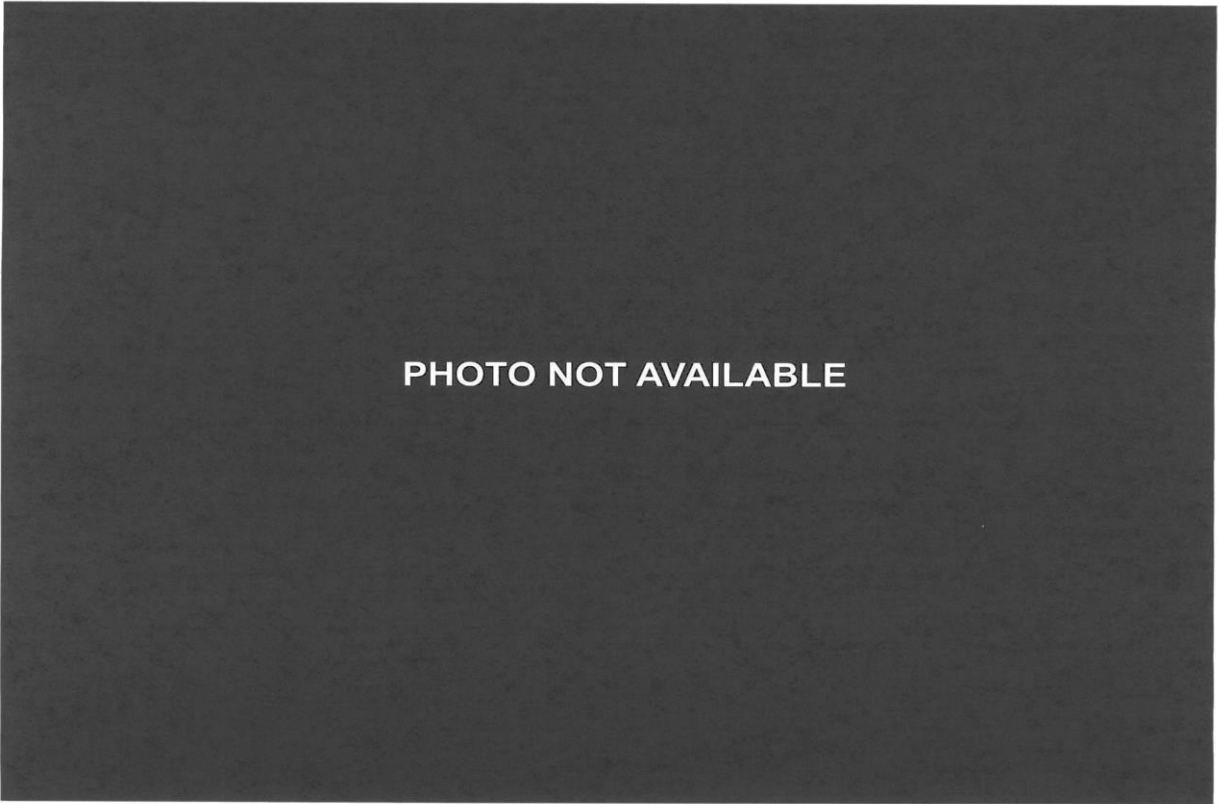
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028 Pre-Test Left Side View of Driver Dummy Shoulder and Door Top



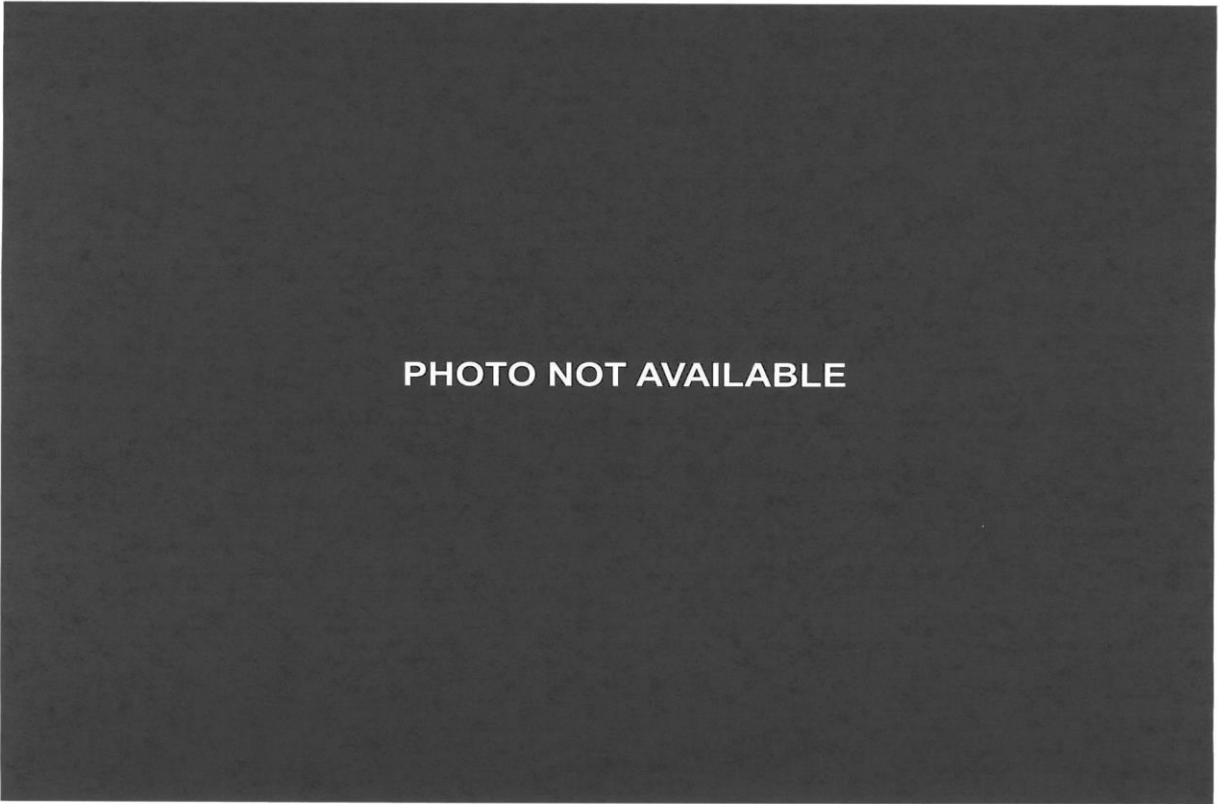
029 Post-Test Left Side View of Driver Dummy Shoulder and Door Top



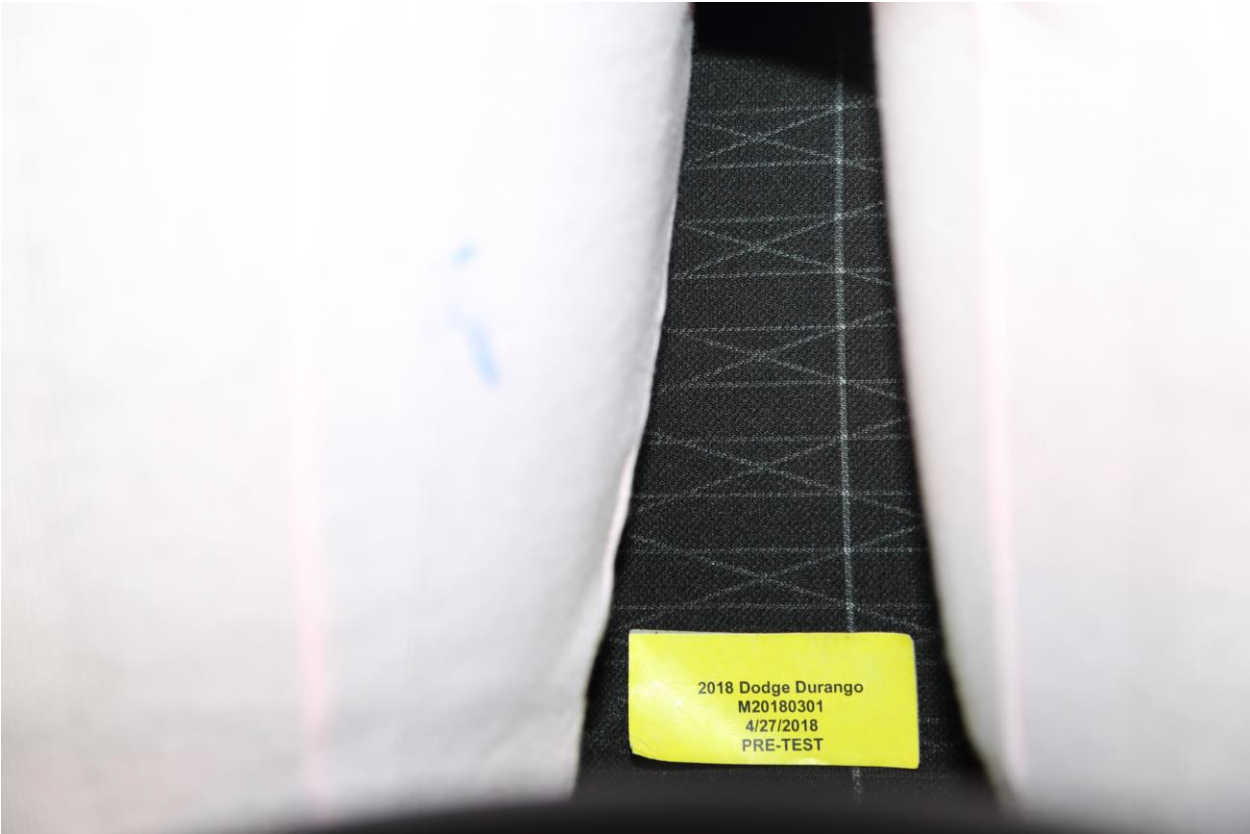
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031 Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



032 Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



033 Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



034 Pre-Test Placement of Driver's Dummy Feet



035 Pre-Test View of Belt Anchorage for Driver Dummy



036 Pre-Test Left Side View of Steering Wheel



037 View of Disengaged Parking Brake



038 Pre-Test View of Parking Brake



039 Pre-Test Close-Up Left Side View of Driver Seat Track



040 Pre-Test Close-Up Left Side View of Driver Seat Back



041 Pre-Test Close-Up View of Driver Seat Back or Head Restraint



042 Pre-Test Driver Dummy and Door Clearance View



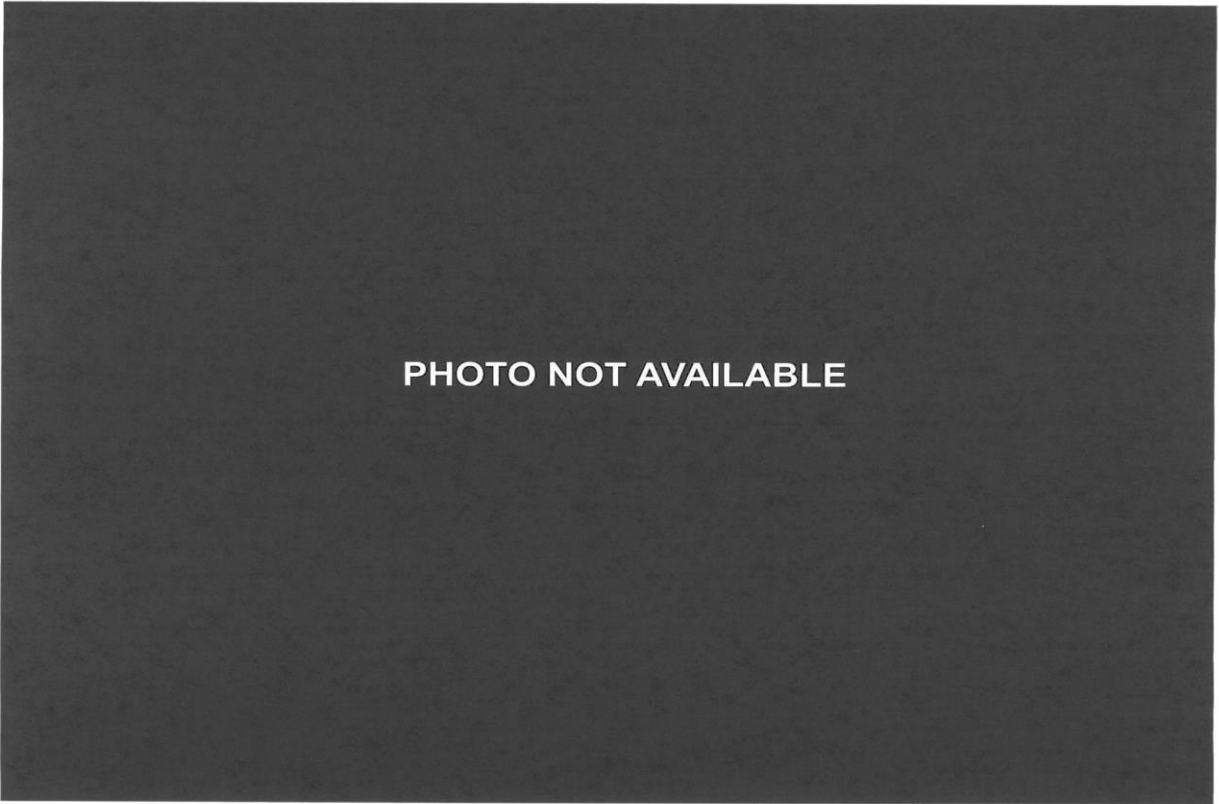
043 Post-Test Driver Dummy and Door Clearance View



044 Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



045 Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



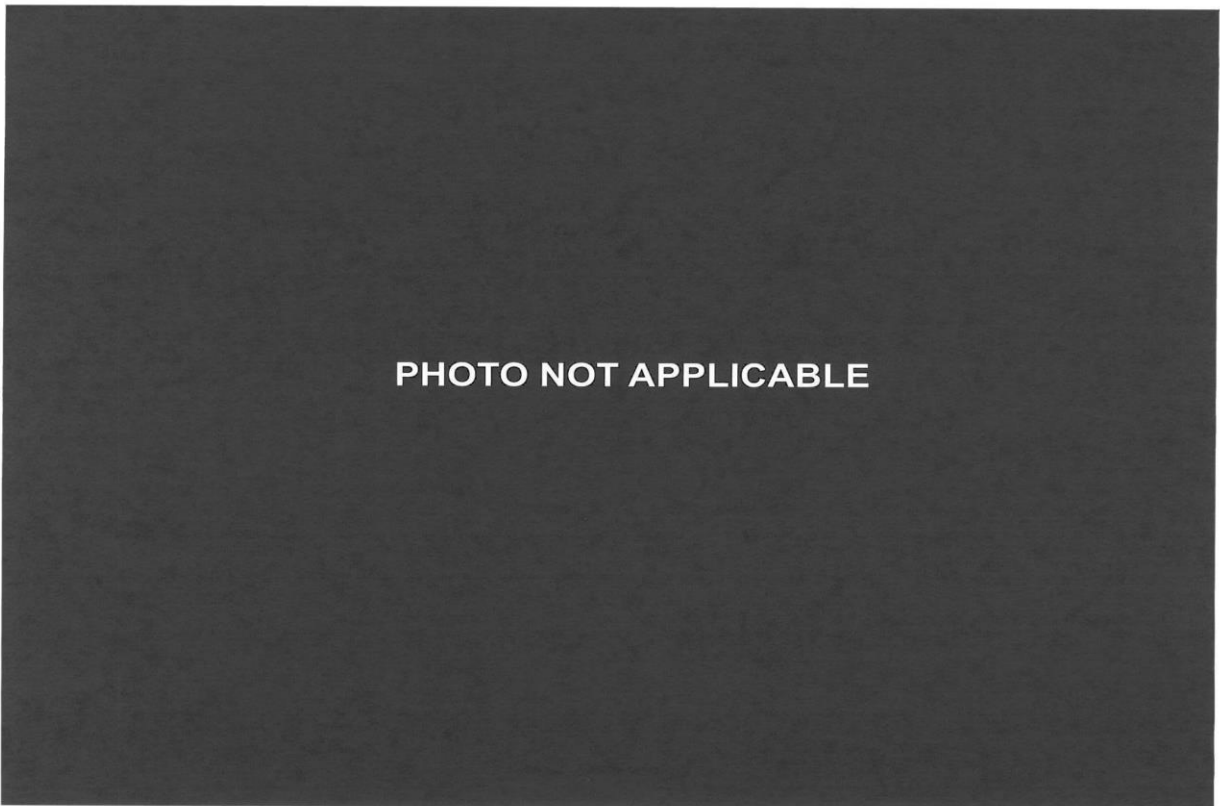
046 Pre-Test Driver Inner Door Panel View



047 Post-Test Driver Inner Door Panel View Showing Driver Dummy Contact Locations



048 Post-Test Driver Dummy Close-Up Head Contact with Vehicle View



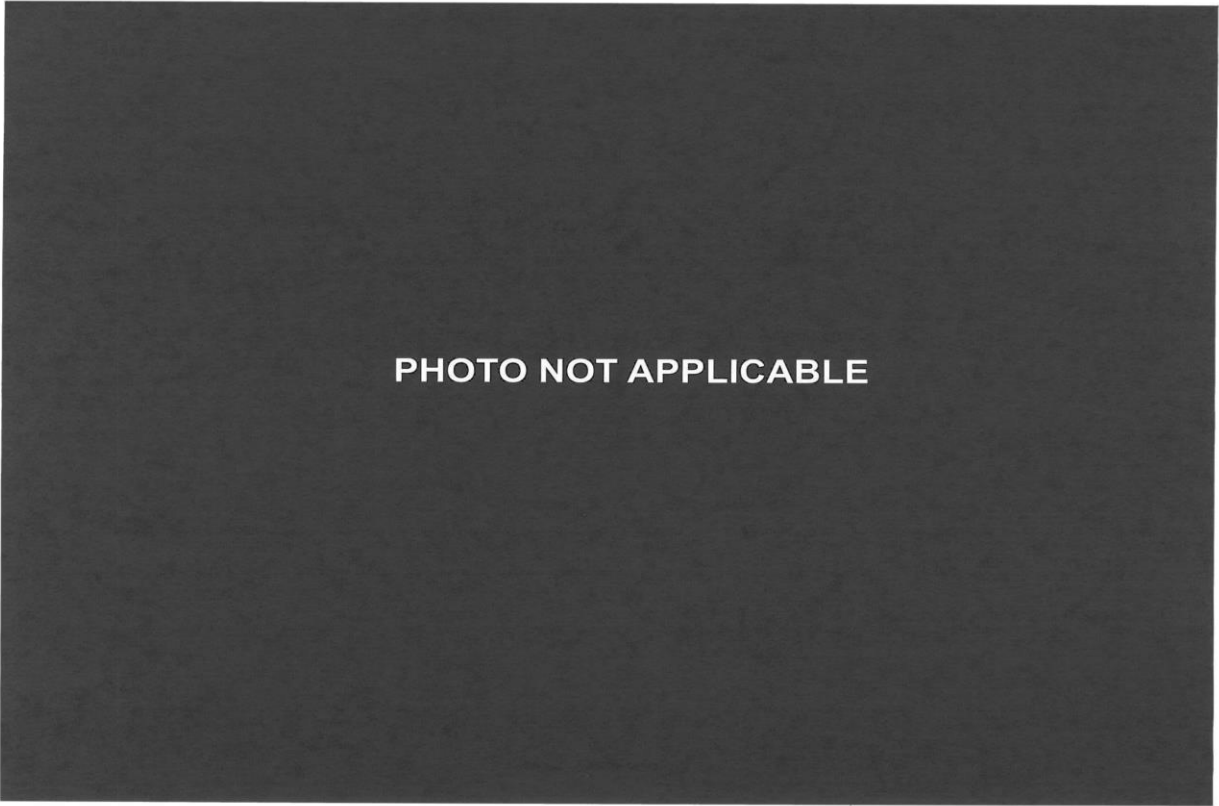
049 Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View



050 Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View



051 Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View



052 Post-Test Driver Dummy Close-Up Pelvis Contact View



053 Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View



054 Post-Test Driver Dummy Close-Up Knee Contact View



055 Pre-Test Left Side View of Passenger Dummy Showing Belt and Chalking



056 Pre-Test Left Side View of Passenger Dummy Shoulder and Door Top View



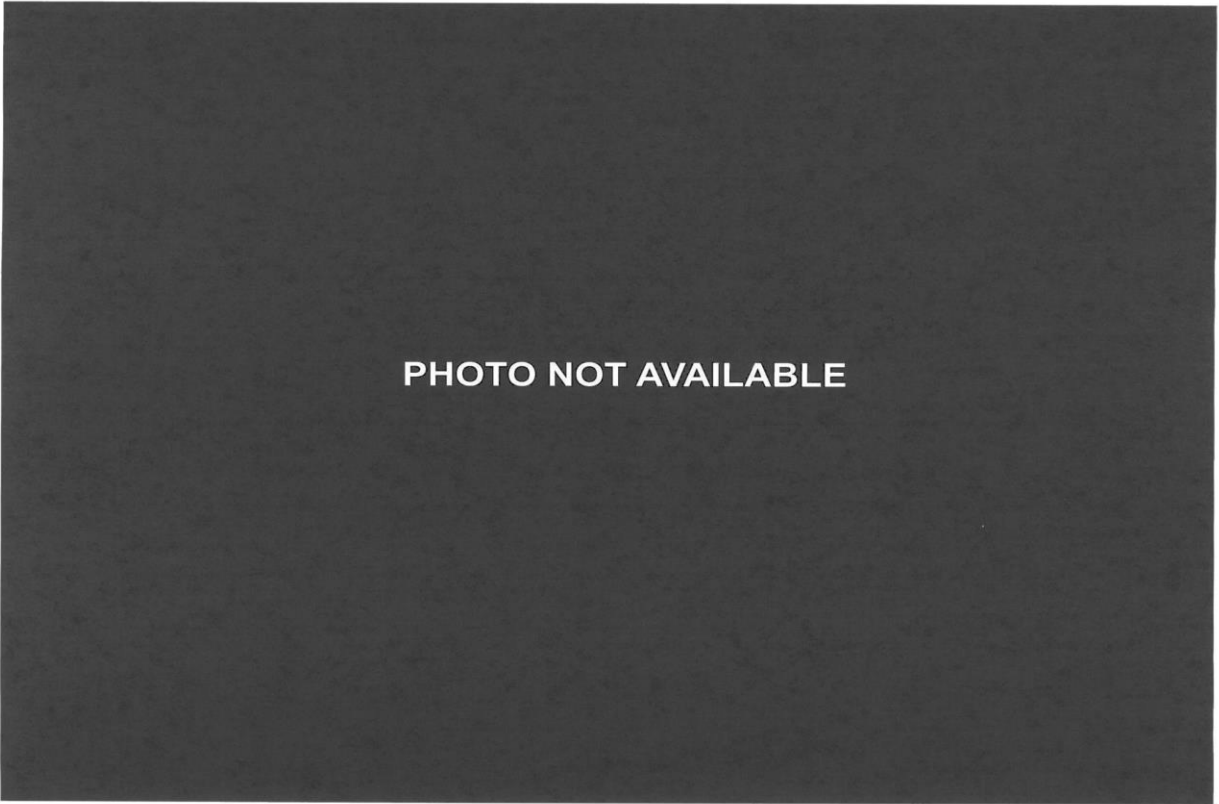
057 Post-Test Left Side View of Passenger Dummy Shoulder and Door Top View

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058 Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning



059 Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



060 Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



061 Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



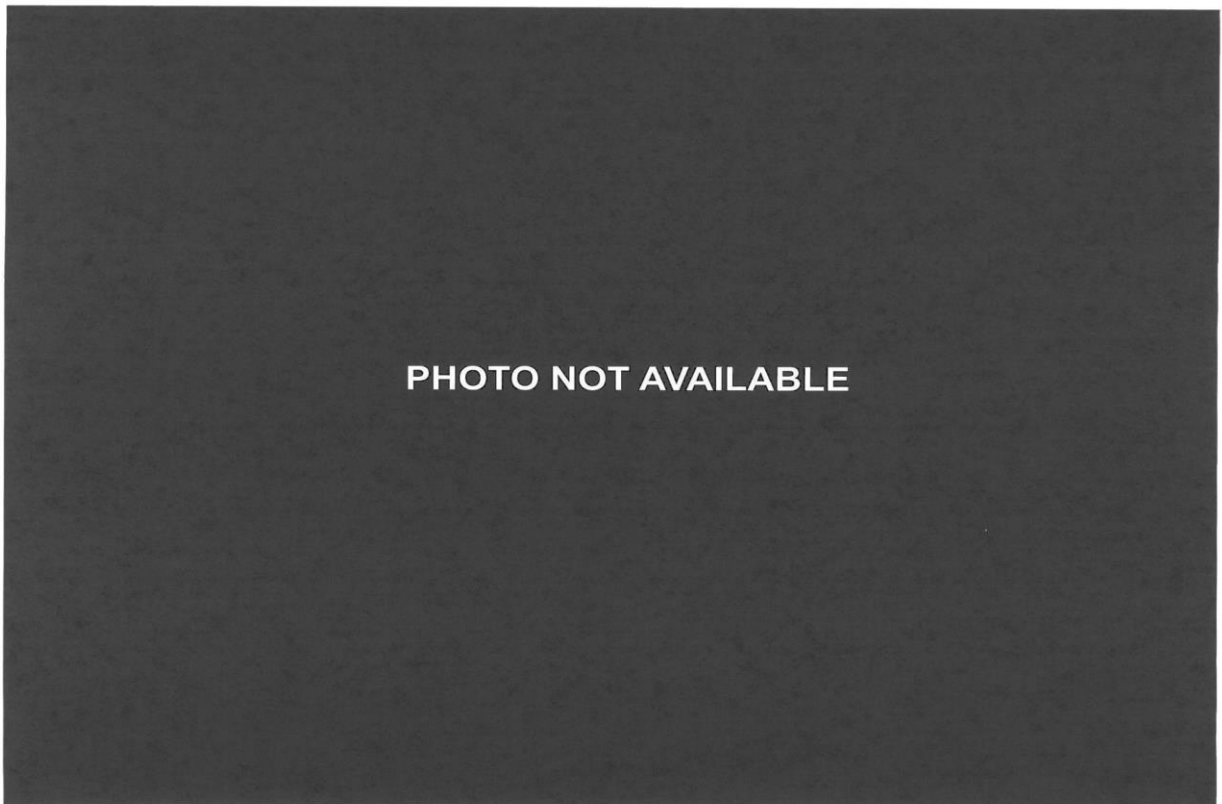
062 Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket



063 Pre-Test View of Rear Passenger Dummy's Head Showing Dummy Head is Level



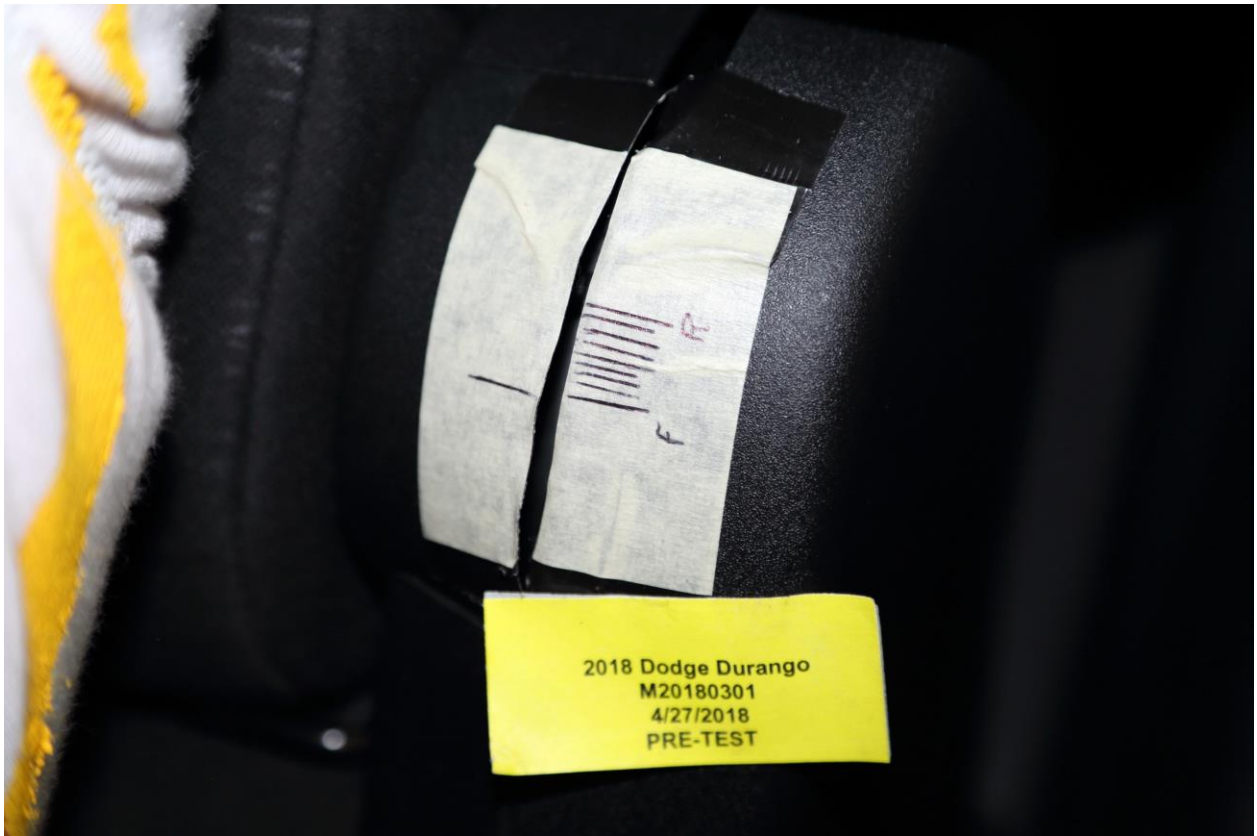
064 Pre-Test Placement of Rear Passenger Dummy's Feet



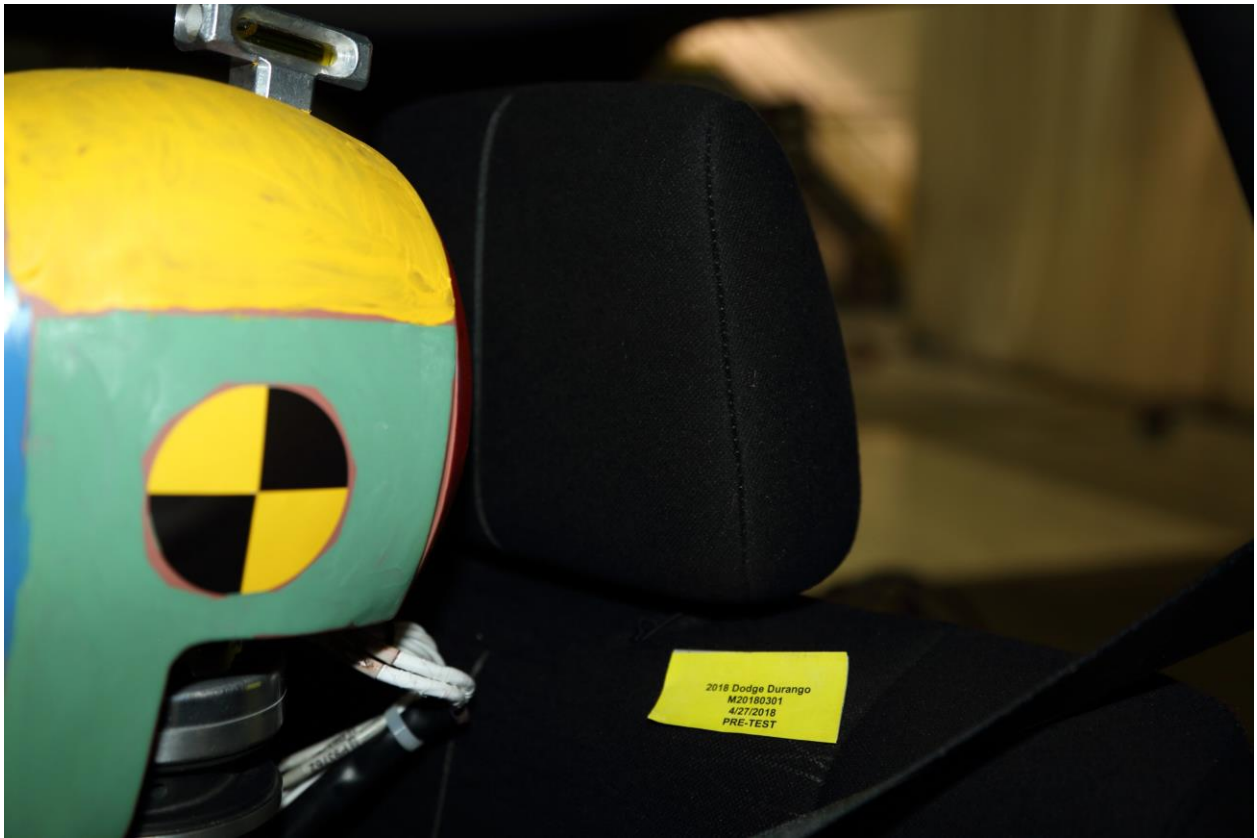
065 Pre-Test View of Belt Anchorage for Rear Passenger Dummy



066 Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



067 Pre-test Close-Up Left Side View of Rear Passenger Seat Back



068 Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint

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069 Pre-Test Rear Passenger Dummy and Door Clearance View



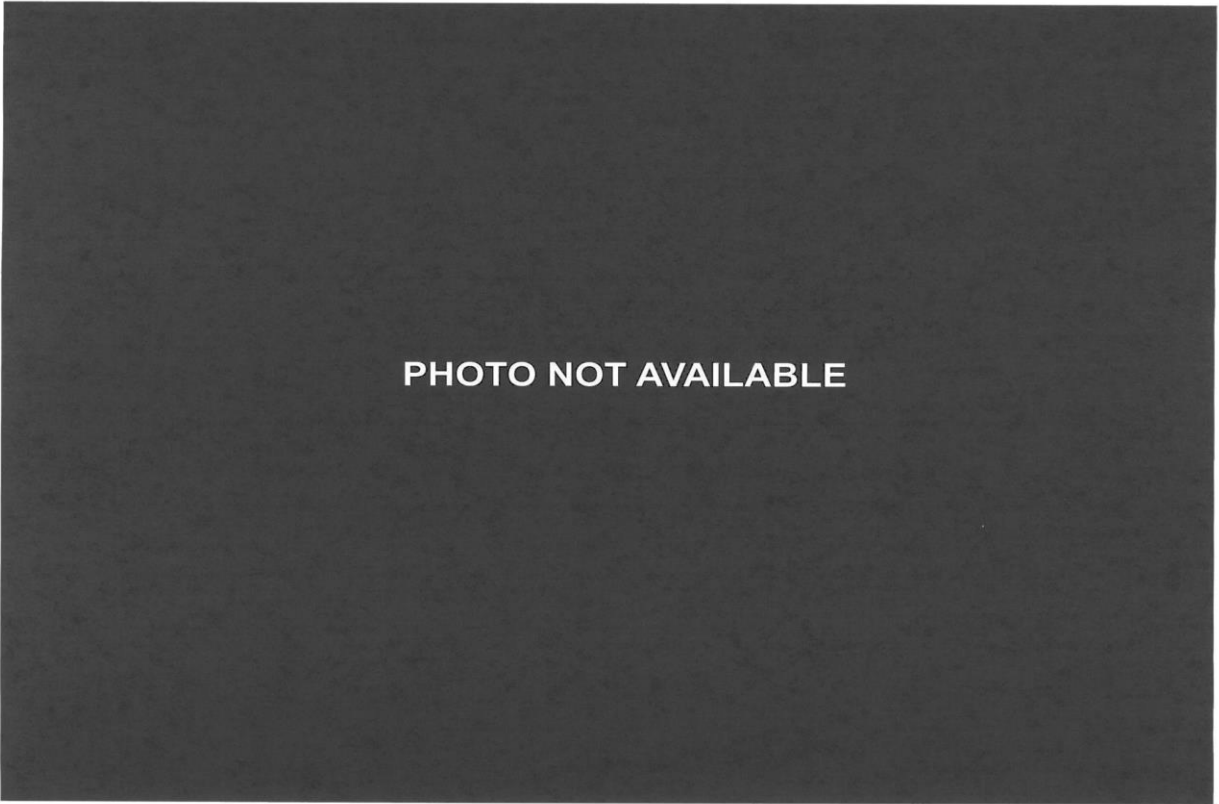
070 Post-Test Rear Passenger Dummy and Door Clearance View



071 Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



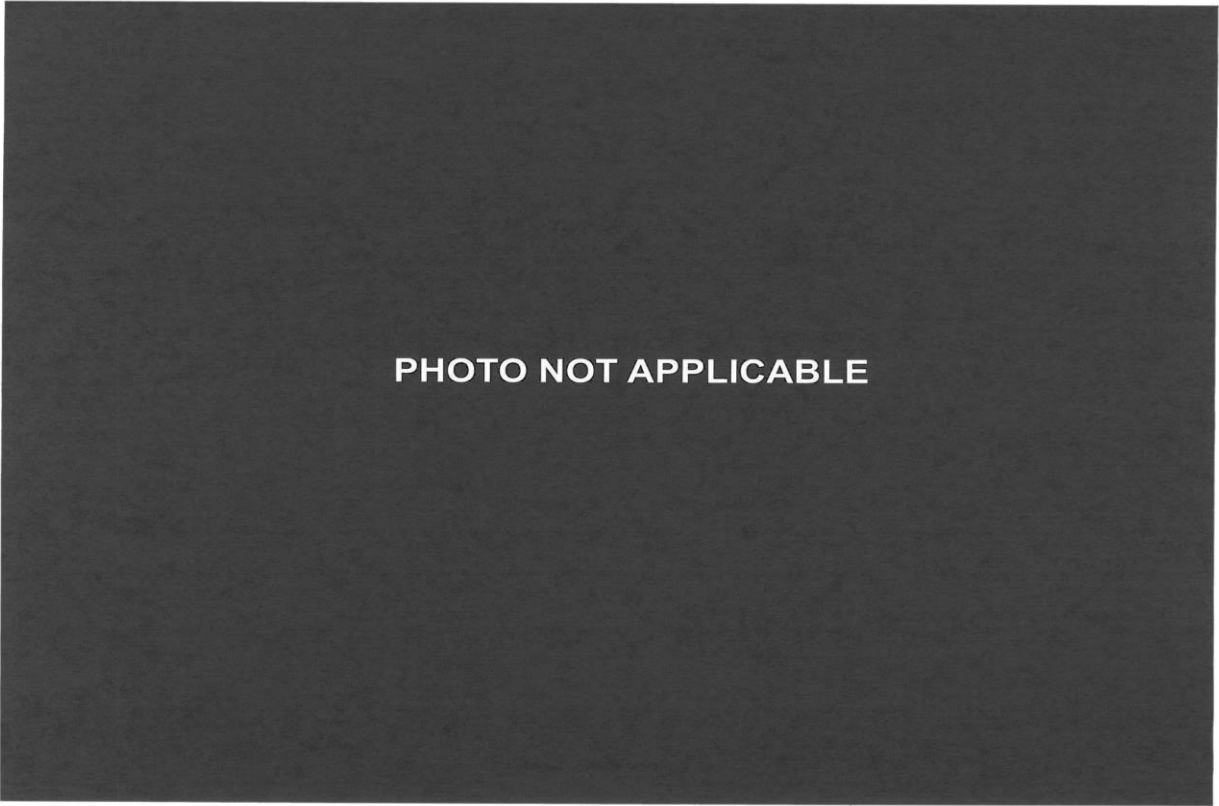
072 Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



073 Pre-Test Rear Passenger Inner Door Panel View



074 Post-Test Rear Passenger Inner Door Panel View



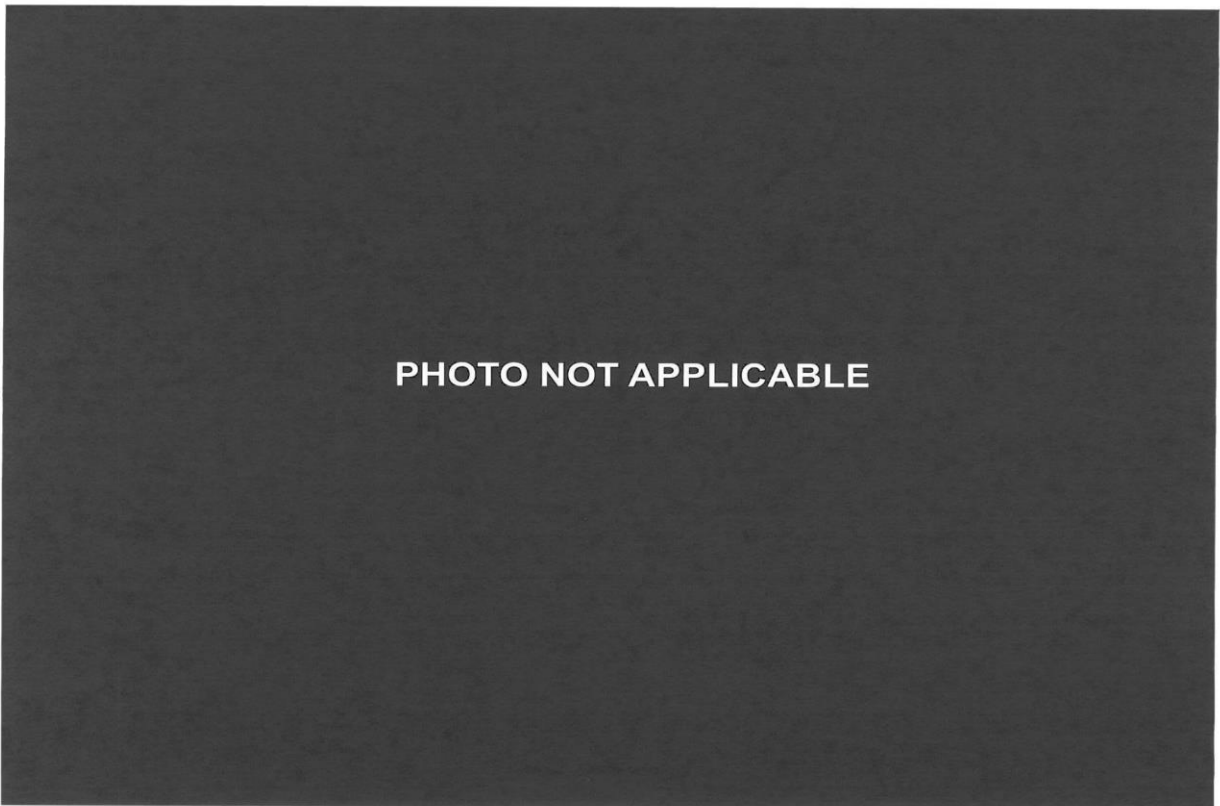
075 Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle View



076 Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View



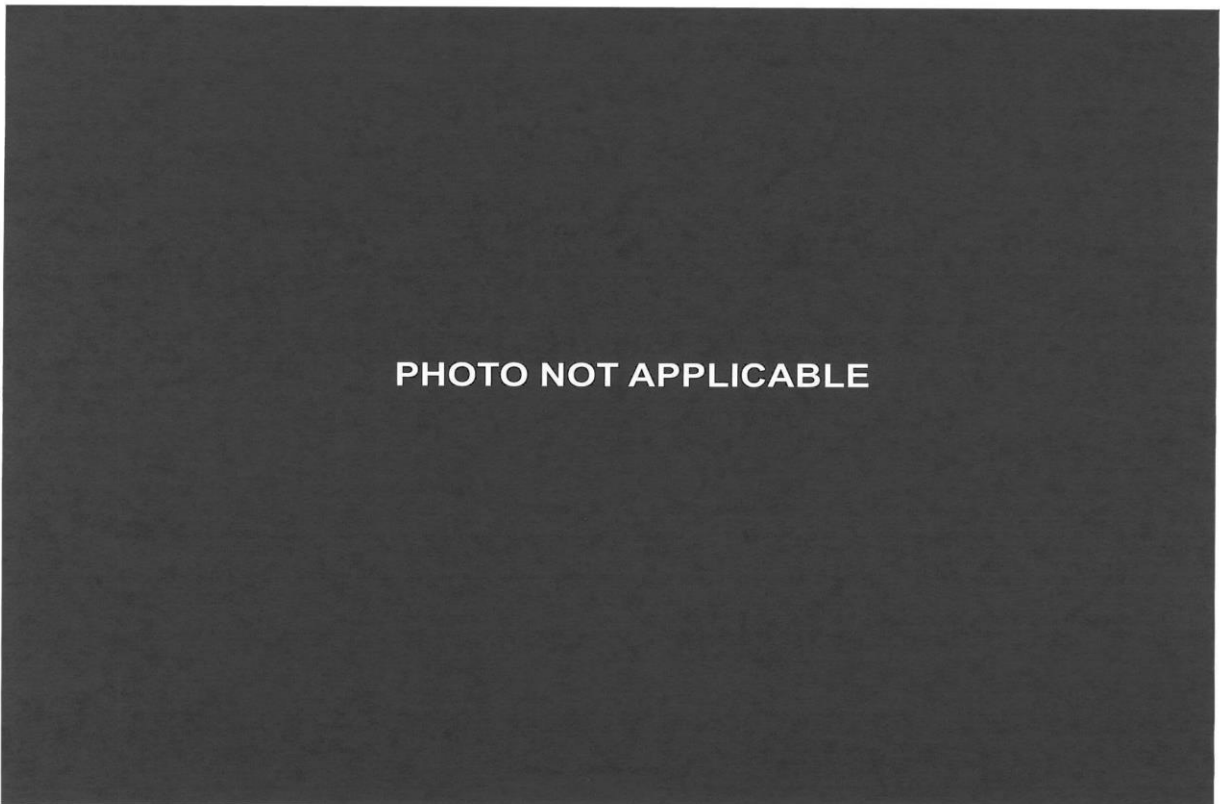
077 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View



078 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View



079 Post-Test Rear Passenger Dummy Close-Up Pelvis Contact View



080 Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View



081 Post-Test Rear Passenger Dummy Close-Up Knee Contact View

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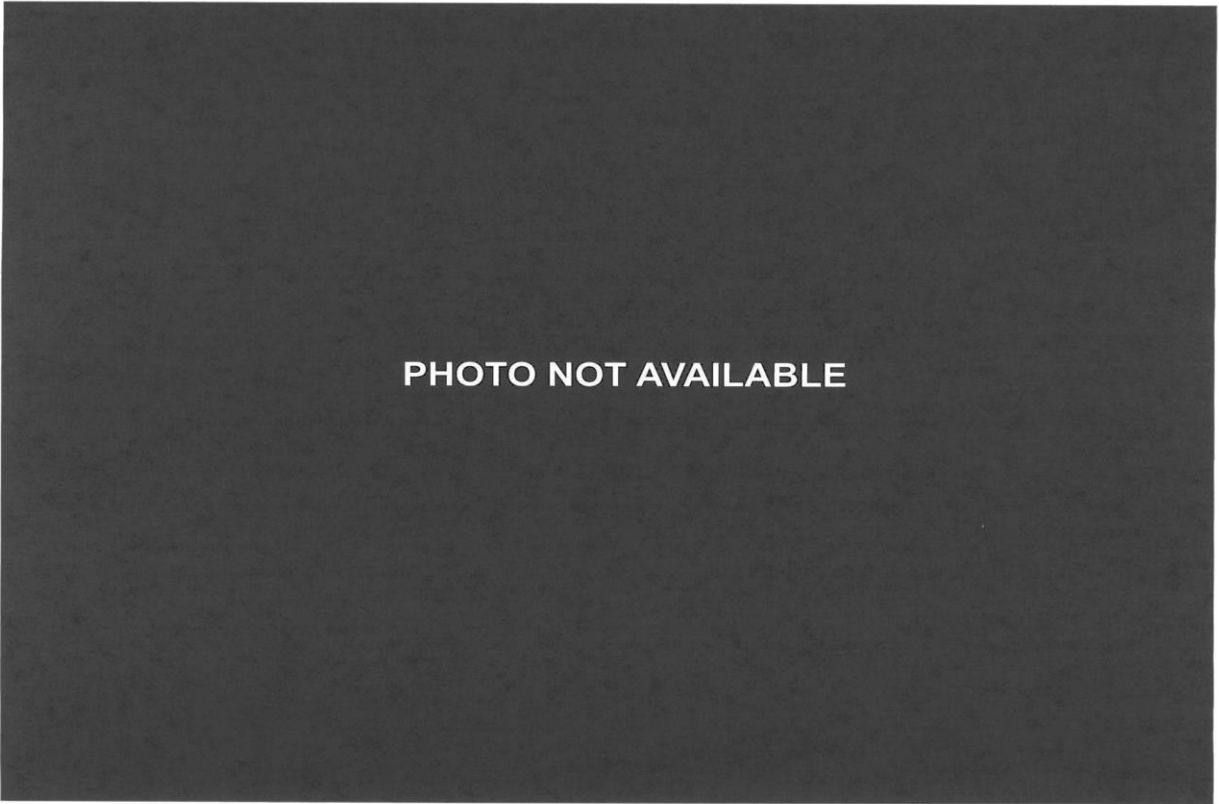


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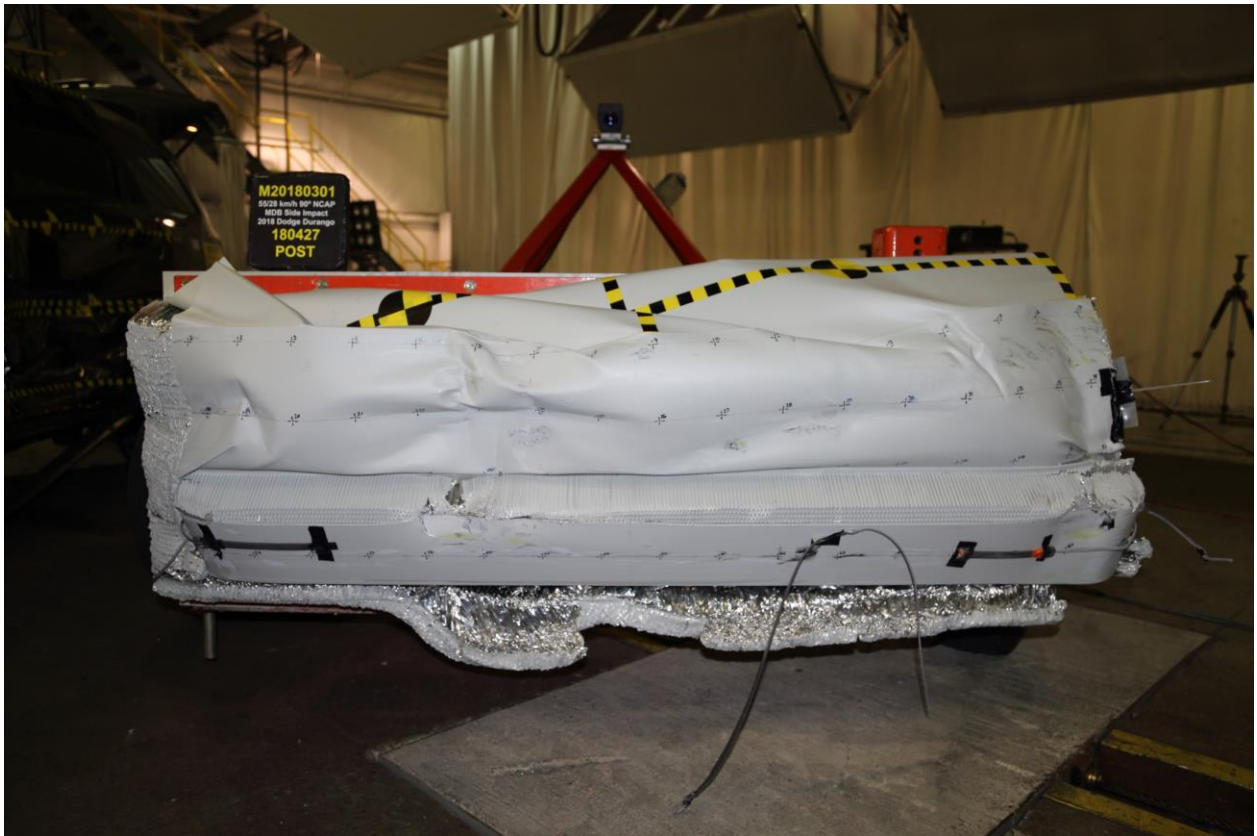
082 Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



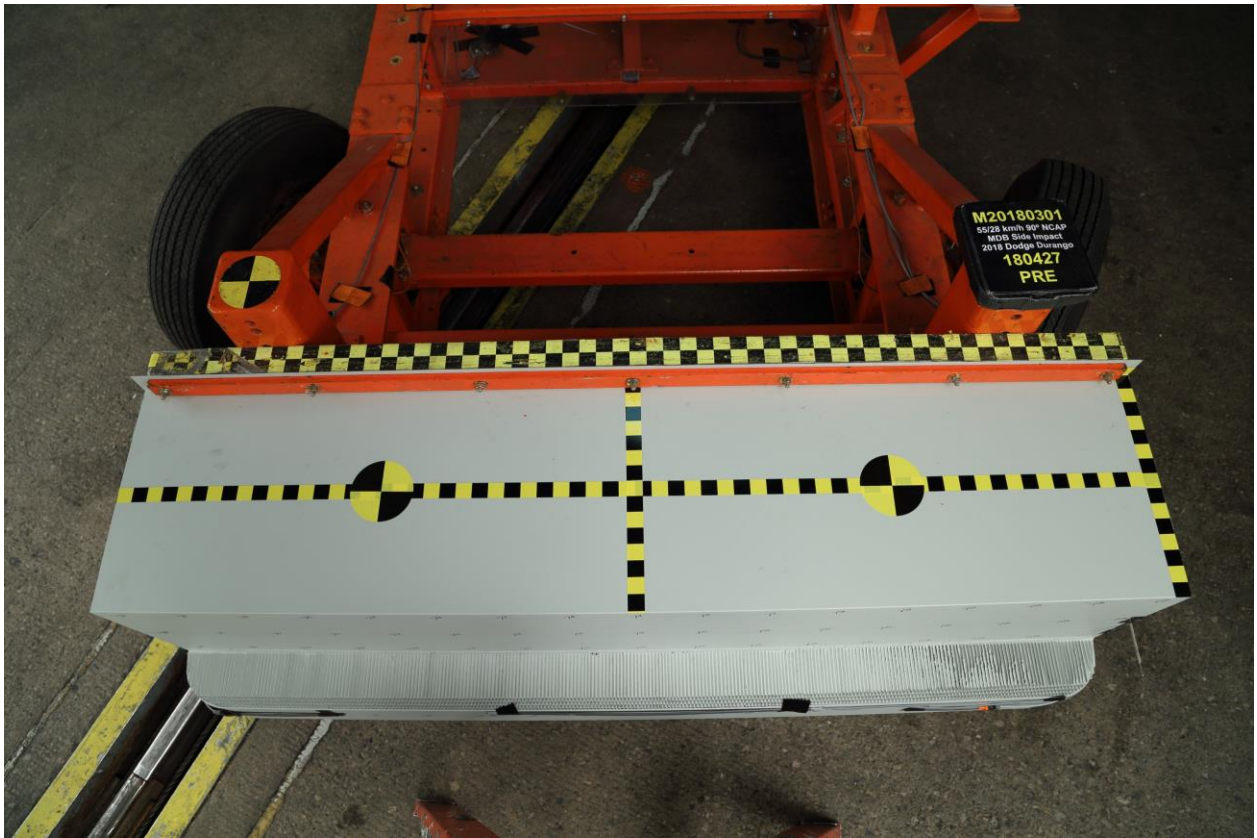
083 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



084 Pre-Test Front View of MDB Impactor Face



085 Post-Test Front View of MDB Impactor Face



086 Pre-Test Top View of MDB Impactor Face



087 Post-Test Top View of MDB Impactor Face



088 Pre-Test Left Side View of MDB Impactor Face



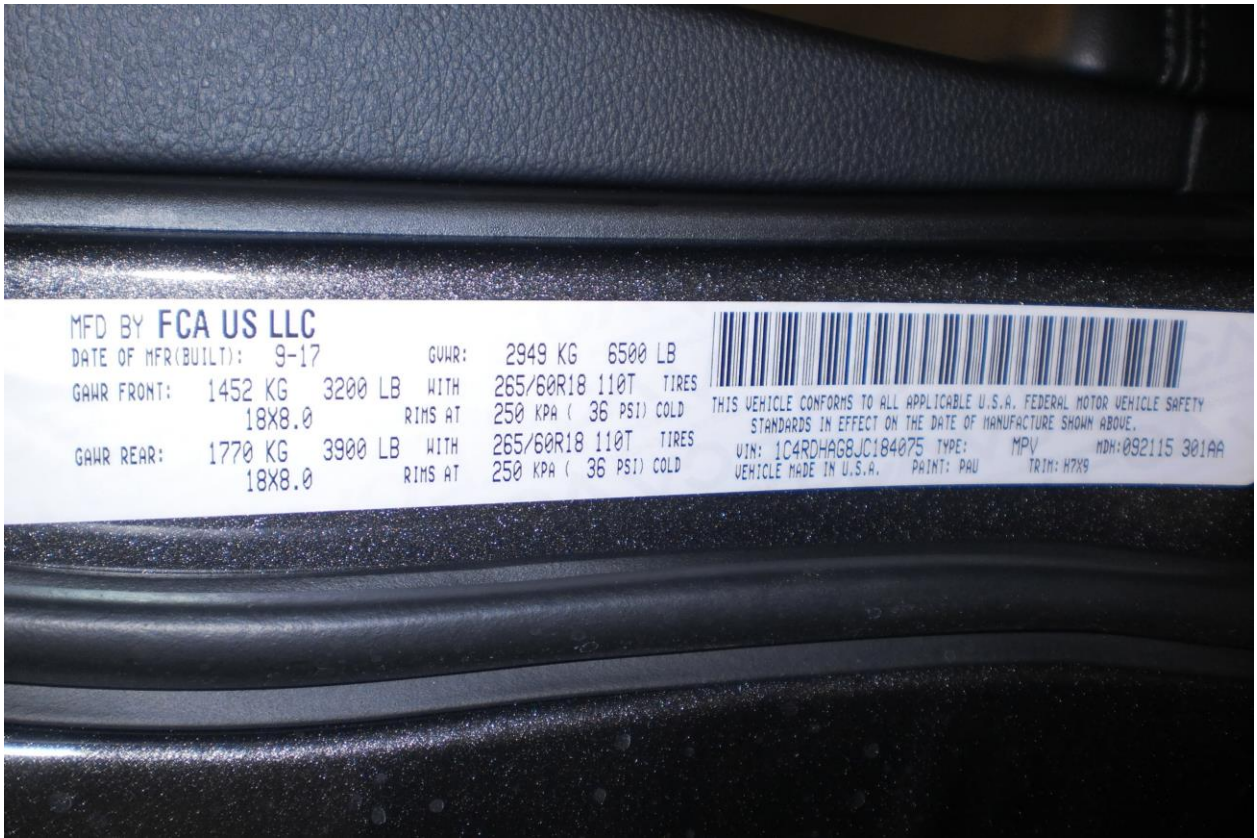
089 Post-Test Left Side View of MDB Impactor Face



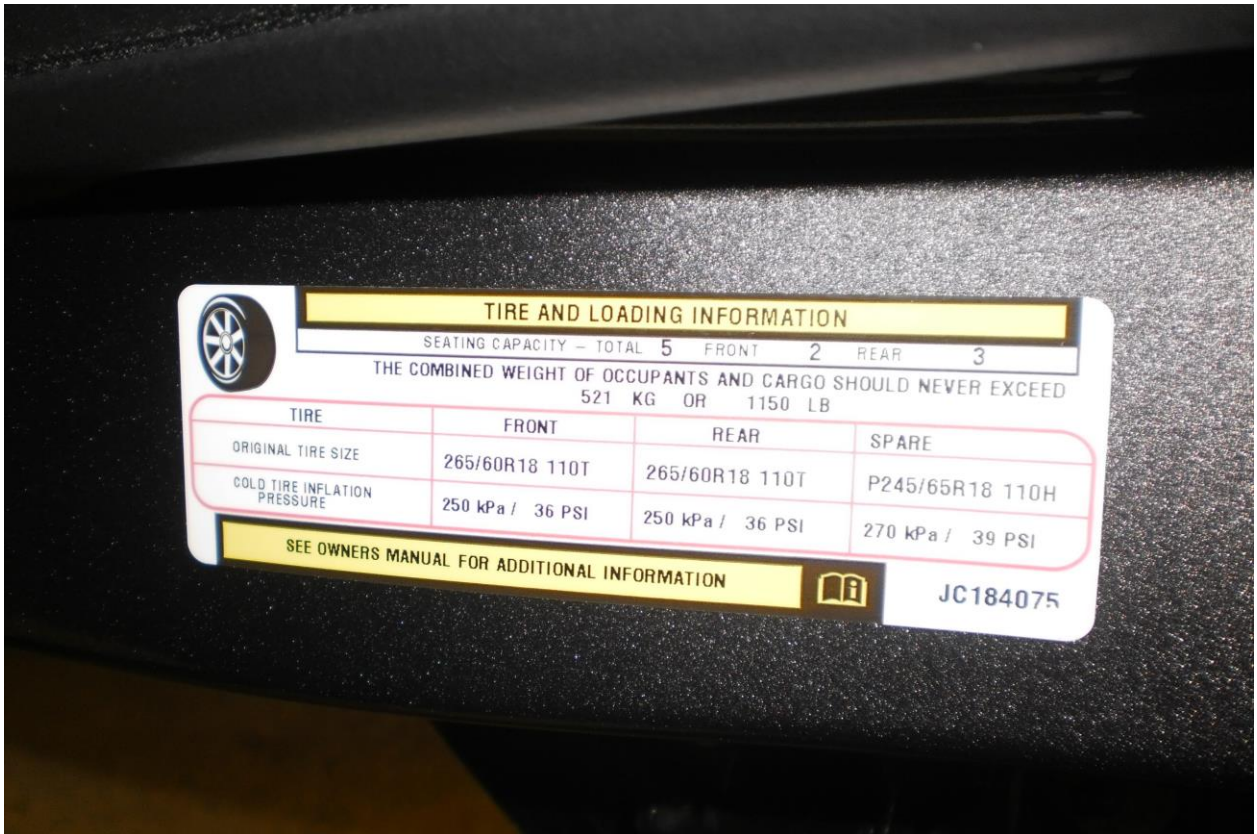
090 Pre-Test Right Side View of MDB Impactor Face



091 Post-Test Right Side View of MDB Impactor Face



092 Close-Up View of Vehicle's Certification Label



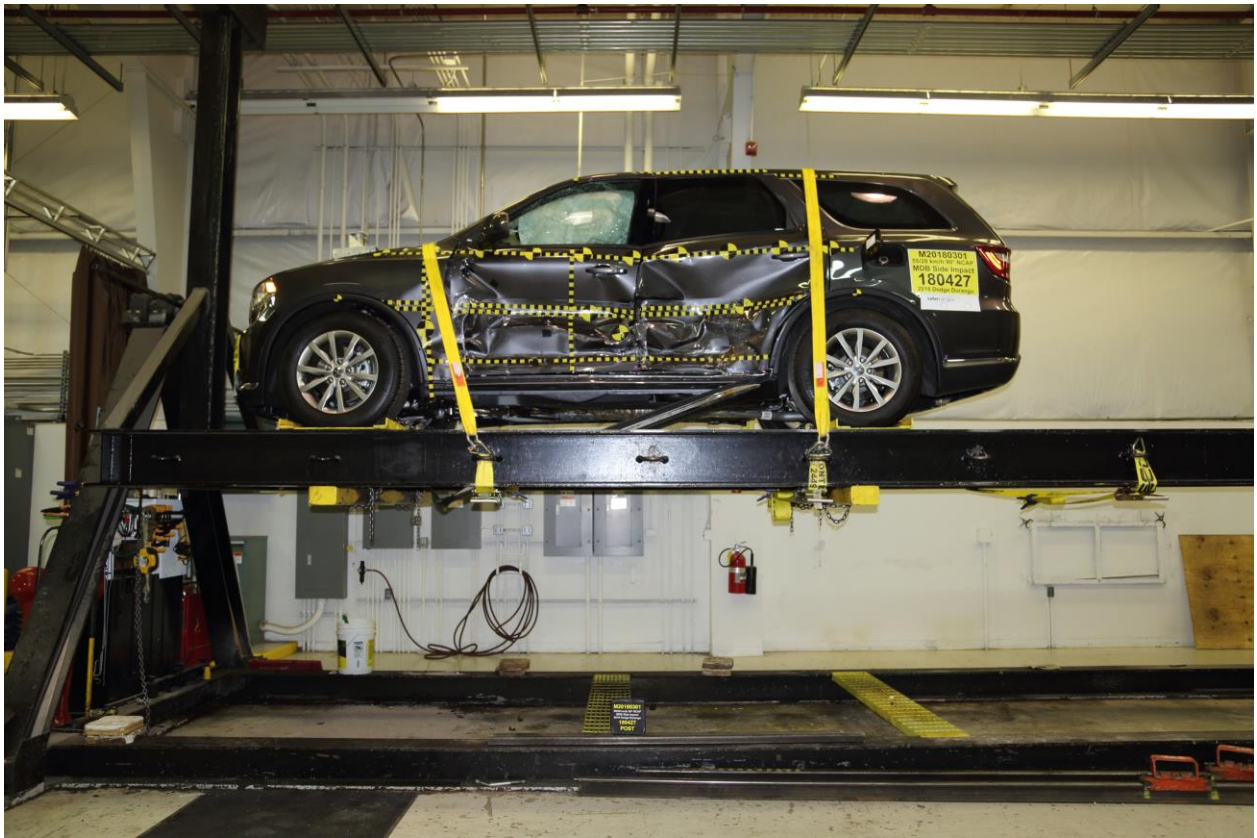
093 Close-Up View of Vehicle's Tire Information Placard or Label



094 Pre-Test Ballast View



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



096 FMVSS No. 301 Static Rollover 0 Degrees



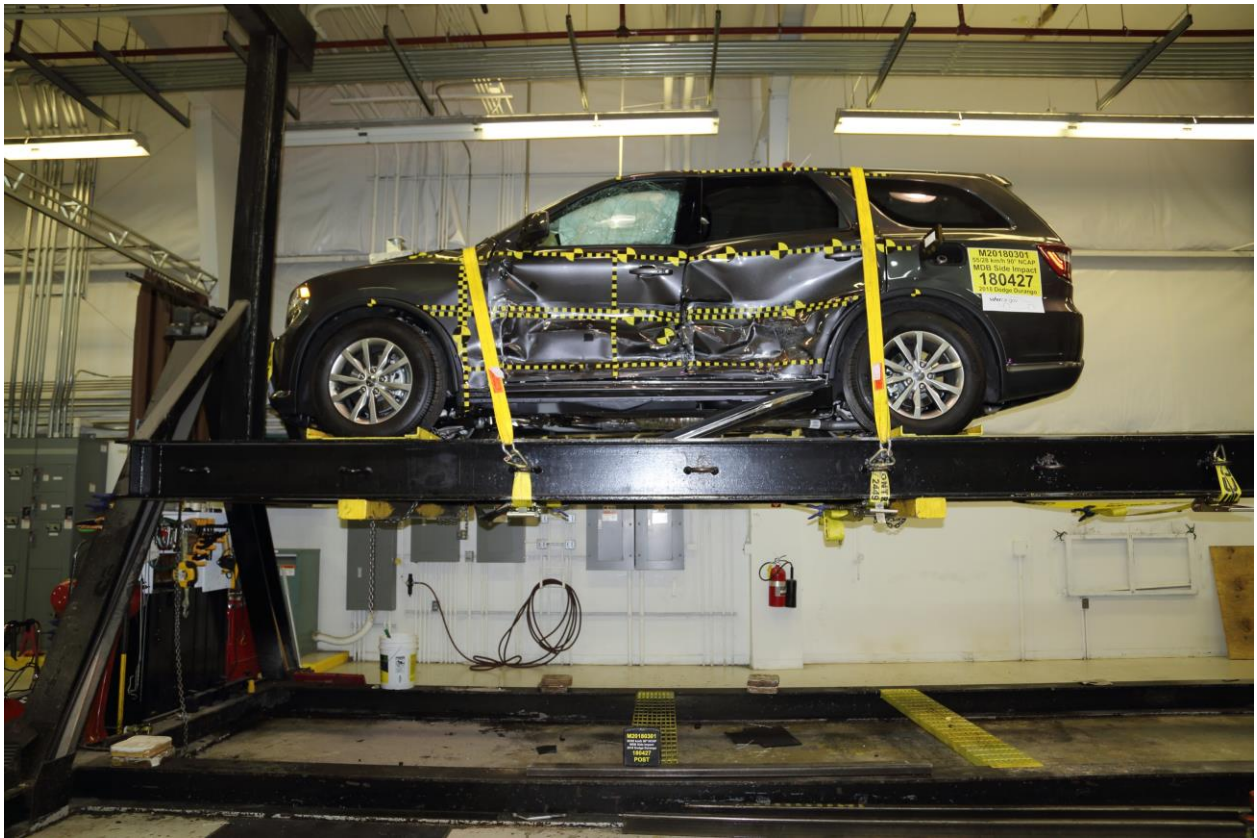
097 FMVSS No. 301 Static Rollover 90 Degrees



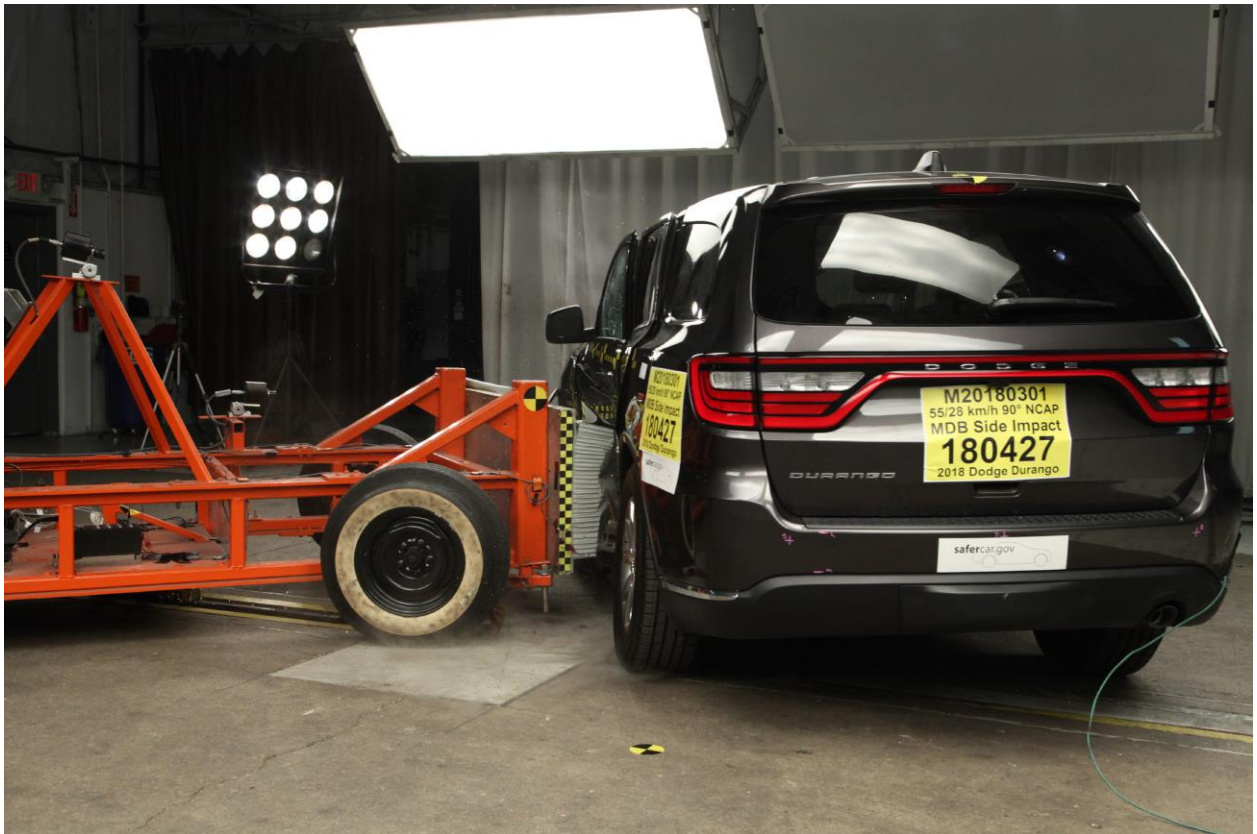
098 FMVSS No. 301 Static Rollover 180 Degrees



099 FMVSS No. 301 Static Rollover 270 Degrees



100 FMVSS No. 301 Static Rollover 360 Degrees



101 Impact Event

2018 DODGE DURANGO SXT RWD

For more information visit: www.dodge.com or call 1-800-4ADODGE FCA US LLC

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

MANUFACTURER'S SUGGESTED RETAIL PRICE OF THIS MODEL INCLUDING DEALER PREPARATION
Base Price: \$29,995

DODGE DURANGO SXT RWD
Exterior Color: Granite Metallic Clear-Coat Exterior Paint
Interior Color: Black Interior Color
Interior: Cloth Low-Back Bucket Seats
Engine: 3.6-Liter V6 24-Valve VVT Engine with ESS
Transmission: 8-Speed Automatic 800RE Transmission

STANDARD EQUIPMENT (unless replaced by optional equipment)
FUNCTIONAL/SAFETY FEATURES:

Advanced Multistage Front Airbags
 Supplemental Side-Curtain Airbags in All Rows
 Supplemental Front Seat-Mounted Side Airbags
 Rear Load Leveling Suspension
 Sport Mode
 Sentry Key® Theft Deterrent System
 ParkView® Rear Back-Up Camera
 Auto-Dimming Rear View Mirror
 Selectable Steering Modes
 Active Head Restraints
 Enhanced Accident Response System
 Electronic Stability Control
 Hill Start Assist
 Rear Brake Support
 24.6-Gallon Fuel Tank
 Remote Keyless Entry
 Keyless Go™
 650-Amp Maintenance Free AGM Battery

INTERIOR FEATURES:
 Uconnect® 4 with 7-inch Display
 Apple CarPlay® Capable
 Google Android Auto™ Capable
 Integrated Voice Commands with Bluetooth®
 Media Hub (2 USB, Aux)
 Alpine Audio System 6-Speakers
 Perforated Leather-Wrapped Steering Wheel
 Steering Wheel Mounted Audio Controls
 Power Front Windows w/ 1-Touch Up and Down Feature
 Air Conditioning with 3-Zone Automatic Temp Control
 Speed Control
 Power Door Locks
 Rear Window Defroster

TILT / Telescope Steering Column
Tire Pressure Monitoring Display
Luxury Front and Rear Floor Mats
12-Volt Auxiliary Power Outlet
Overhead Console
Full-length Floor Console
Illuminated Cup Holders
Front and Rear Interior LED Lamps

EXTERIOR FEATURES:
 18-inch x 8.0-inch Painted Aluminum Wheels
 PFS560R18 BSW All-Season LFR Tires
 Power Heated Exterior Mirrors w/ Manual Fold-Away
 Automatic Headlamps
 Halogen Headlamps
 Deep Tint Sunscreen Glass
 Rear Window Wiper / Washer

OPTIONAL EQUIPMENT (May Replace Standard Equipment)
Customer Preferred Package 28A
 Trailer Tow Group IV
 180-Amp Alternator
 7-and 4-Pin Wiring Harness
 Class IV Receiver Hitch
 Full Size Spare Tire
 Heavy Duty Engine Cooling

DESTINATION CHARGE \$1,995

TOTAL PRICE: *\$32,085

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

5 YEAR / 60,000 MILE POWERTRAIN WARRANTY

Assembly Plant/Port of Entry: DETROIT, MICHIGAN, U.S.A.
 VIN: 1C4RDHAG6JC184075 LA-074 7981

SALES TAX, LICENSE, AND TITLE FEES ARE NOT INCLUDED IN THIS PRICE. DISCOUNTS, IF ANY, ARE BASED ON PRICE OF OPTIONALLY PURCHASED SEPARATELY.
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EPA DOT Fuel Economy and Environment Gasoline Vehicle

These estimates reflect new EPA methods beginning with 2017 models. Standard SUV 2WD range from 12 to 19 MPG. The best vehicle rates 136 MPG.

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

You spend \$1,750 more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel Cost \$1,700

Fuel Economy & Greenhouse Gas Rating (multiple only)
 1 4 10 16

Smog Rating (multiple only)
 1 5 10

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 27 MPG and cost \$6,750 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.

fuel economy.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	★★★★★
Side Crash	Front seat Rear seat	Not Rated Not Rated
Rollover		★★★★

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

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

PARTS CONTENT INFORMATION FOR VEHICLES IN THIS CARLINE:
 U.S./CANADIAN PARTS CONTENT: 62%
 MAJOR SOURCES OF FOREIGN PARTS CONTENT:
 MEXICO: 28%
NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS.

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

102 Monroney Label

GETTING TO KNOW YOUR VEHICLE

WARNING!
 vehicle with the head restraints improperly adjusted or removed could cause serious injury or death in the event of a collision.

Supplemental Active Head Restraints — Front Seats

Active Head Restraints are passive, deployable components, and vehicles with this equipment cannot be readily identified by any markings, only through visual inspection of the head restraint. The Active Head Restraints (AHR) will be split in two halves, with the front half being soft foam and trim, the back half being decorative plastic.

When AHRs deploy during a rear impact, the front half of the head restraint extends forward to minimize the gap between the back of the occupant's head and the AHR. This system is designed to help prevent or reduce the extent of injuries to the driver and front passenger in certain types of rear impacts. Refer to "Occupant Restraints" in "Safety" in the Owner's Manual at www.mopar.com/en-us/care/owner-manual.html (U.S. Residents) or www.owners.mopar.ca (Canadian Residents) for further information.

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



Adjustment Button



Active Head Restraint (Normal Position)

For comfort the Active Head Restraints can be tilted forward and rearward. To tilt the head restraint closer to the back of your head, pull forward on the bottom of the head restraint. Push rearward on the bottom of the head restraint to move the head restraint away from your head.



Active Head Restraint (Tilted)

NOTE:

- The head restraints should only be removed by qualified technicians, for service purposes only. If either of the head restraints require removal, see your authorized dealer.
- In the event of deployment of an Active Head Restraint, refer to "Occupant Restraints" in "Safety" in the Owner's Manual at www.mopar.com/en-us/care/owner-manual.html (U.S. Residents) or www.owners.mopar.ca (Canadian Residents) for further information.

WARNING!

Head Restraints — Rear Seats

The head restraints on the outboard seats are not adjustable. They automatically fold forward when the rear seat is folded to a load floor position, but do not return to their normal position when the rear seat is raised. After returning either seat to its upright position, raise the head restraint until it locks in place. The outboard head restraints are not removable.

The center head restraint has limited adjustment. Lift upward on the head restraint to raise it or push downward on the head restraint to lower it.

WARNING!

Sitting in a seat with the head restraint in its lowered position could result in serious injury or death in a collision. Always make sure the outboard head restraints are in their upright positions when the seat is to be occupied.

103 Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

NOTE:

For proper routing of a Child Seat Tether, refer to "Occupant Restraints" in "Safety" in your Owner's Manual at www.mopar.com/en-us/care/owner-manual.html (U.S. Residents) or www.owners.mopar.ca (Canadian Residents) for further information.

Head Restraint Removal — Rear Seats

The center head restraint can be adjusted when occupied, or removed for Child Seat Tethering. To remove the head restraint, raise it as far as it can go by pulling upward. Then, push the release button at the base of the post while pulling the head restraint upward. To reinstall the head restraint, put the head restraint posts into the holes and push downward. Then, adjust the head restraint to the appropriate height.

WARNING!

- ALL the head restraints MUST be reinstalled in the vehicle to properly protect the occupants. Follow the re-installation instructions above prior to operating the vehicle or occupying a seat.

WARNING!

- Sitting in a seat with the head restraint in its lowered position could result in serious injury or death in a collision. Always make sure the outboard head restraints are in their upright positions when the seat is to be occupied.

NOTE:

For proper routing of a Child Seat Tether, refer to "Occupant Restraints" in "Safety" in your Owner's Manual at www.mopar.com/en-us/care/owner-manual.html (U.S. Residents) or www.owners.mopar.ca (Canadian Residents) for further information.

WARNING!

- A loose head restraint thrown forward in a collision or hard stop could cause serious injury or death to occupants of the vehicle. Always securely stow removed head restraints in a location outside the occupant compartment.
- ALL the head restraints MUST be reinstalled in the vehicle to properly protect


WARNING!

the occupants. Follow the re-installation instructions above prior to operating the vehicle or occupying a seat.

Power Folding Third Row Head Restraints

For improved visibility when in reverse, the third row head restraints can be folded using the Uconnect System.

Press the "Controls" button located on the bottom of the Uconnect display.

Press the Headrest Fold button  to power fold the third row head restraints.

NOTE:

- The head restraints can only be folded downward using the Headrest Fold button. The head restraints must be raised manually when occupying the third row.
- Do not fold if there are passengers seated in the third row seats.

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Driver & Passenger Dummy Instrumentation Plots

No.	Description	Page
1	Driver Head Acceleration (X) Primary vs. Time	B-5
2	Driver Head Acceleration (Y) Primary vs. Time	B-5
3	Driver Head Acceleration (Z) Primary vs. Time	B-5
4	Driver Head Resultant Acceleration Primary vs. Time	B-5
5	Driver Upper Thorax Rib Deflection (Y) vs. Time	B-6
6	Driver Middle Thorax Rib Deflection (Y) vs. Time	B-6
7	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-6
8	Driver Thorax Rib Deflection Maximum vs. Time	B-6
9	Driver Anterior Abdominal Force (Y) vs. Time	B-7
10	Driver Middle Abdominal Force (Y) vs. Time	B-7
11	Driver Posterior Abdominal Force (Y) vs. Time	B-7
12	Driver Total Abdominal Force (Y) vs. Time	B-7
13	Driver Pubic Symphysis Force (Y) vs. Time	B-8
14	Passenger Head Acceleration (X) Primary vs. Time	B-9
15	Passenger Head Acceleration (Y) Primary vs. Time	B-9
16	Passenger Head Acceleration (Z) Primary vs. Time	B-9
17	Passenger Head Resultant Acceleration Primary vs. Time	B-9
18	Passenger Lower Spine T12 Acceleration (X) vs. Time	B-10
19	Passenger Lower Spine T12 Acceleration (Y) vs. Time	B-10
20	Passenger Lower Spine T12 Acceleration (Z) vs. Time	B-10
21	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-10
22	Passenger Iliac Force on Impact Side (Y) vs. Time	B-11
23	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-11
24	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-11

The following additional data can be obtained from the Research and Development section of the NHTSA website (<http://www.nhtsa.dot.gov>)

Additional Driver & Passenger Dummy Instrumentation Data

Driver Lower Spine T12 Acceleration (X)
Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
Passenger Upper Thorax Rib Deflection (Y)
Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)
Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Right Side Sill at Front Seat Acceleration (X)
Right Side Sill at Front Seat Acceleration (Y)
Right Side Sill at Front Seat Acceleration (Z)
Right Side Sill at Rear Seat Acceleration (X)
Right Side Sill at Rear Seat Acceleration (Y)
Right Side Sill at Rear Seat Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Lower A-Post Acceleration (Y)
Middle A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Middle B-Post Acceleration (Y)
Front Seat Track Acceleration (Y)
Rear Seat Structure Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Engine Block (X)
Engine Block (Y)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)

MDB Instrumentation Data

MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch

NHTSA

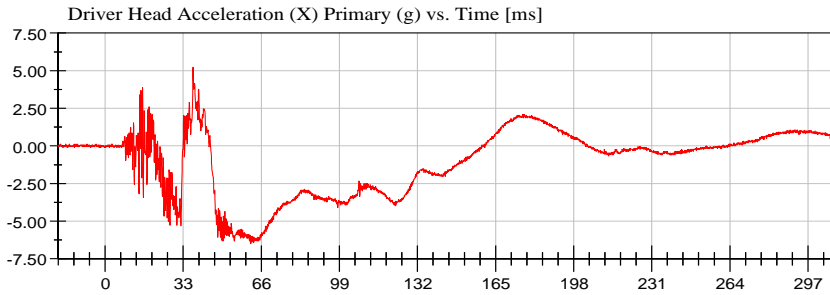
Test Lab: CTF

Test Number: 180427 (M20180301)

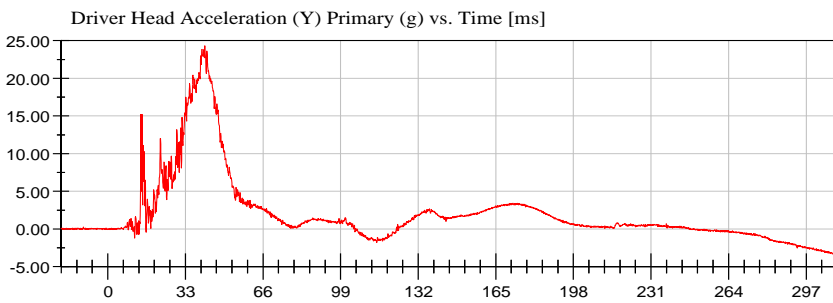
Test Date: 04/27/2018

Position #1 ES-2 Dummy with Rib Extension (F030)

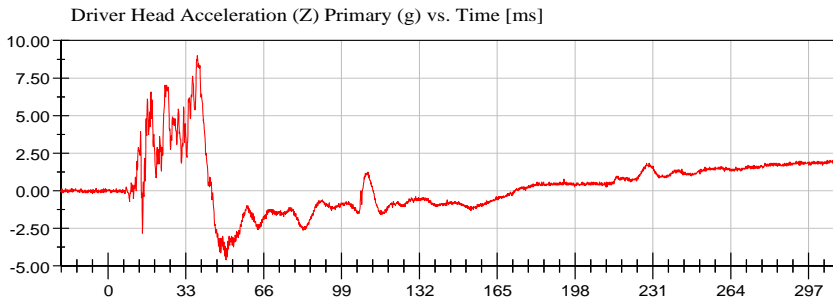
Position #4 SID IIs Dummy (305)



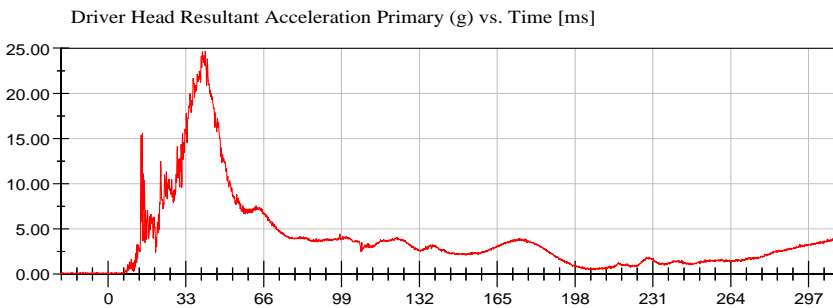
<Max>
5.24 g at 37.12 ms
<Min>
-6.50 g at 61.52 ms
CFC_1000



<Max>
24.33 g at 41.20 ms
<Min>
-3.47 g at 309.84 ms
CFC_1000



<Max>
9.00 g at 37.84 ms
<Min>
-4.60 g at 50.00 ms
CFC_1000



<Max>
24.64 g at 41.20 ms
<Min>
0.03 g at -18.32 ms
CFC_1000



NHTSA

Test Lab: CTF

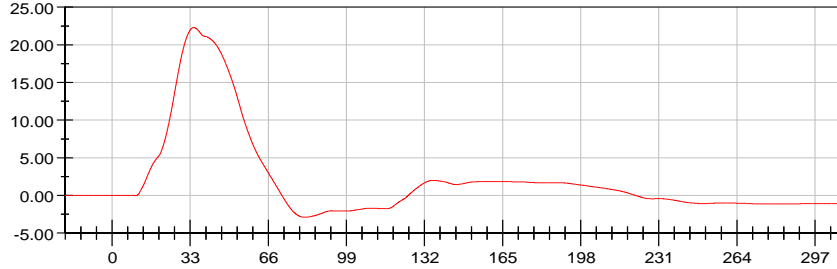
Test Number: 180427 (M20180301)

Test Date: 04/27/2018

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)

Driver Upper Thorax Rib Deflection (Y) (mm) vs. Time [ms]



<Max>

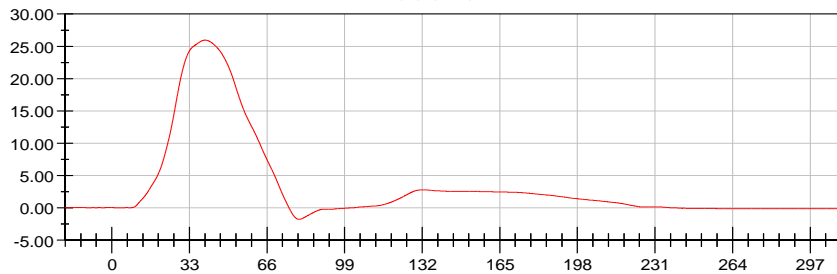
22.30 mm at 34.48 ms

<Min>

-2.89 mm at 81.52 ms

CFC_180

Driver Middle Thorax Rib Deflection (Y) (mm) vs. Time [ms]



<Max>

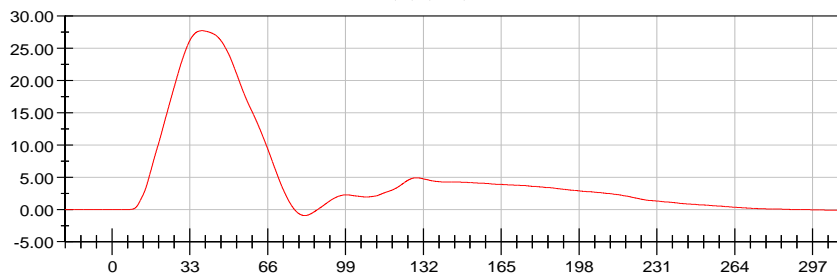
25.96 mm at 39.68 ms

<Min>

-1.81 mm at 79.68 ms

CFC_180

Driver Lower Thorax Rib Deflection (Y) (mm) vs. Time [ms]



<Max>

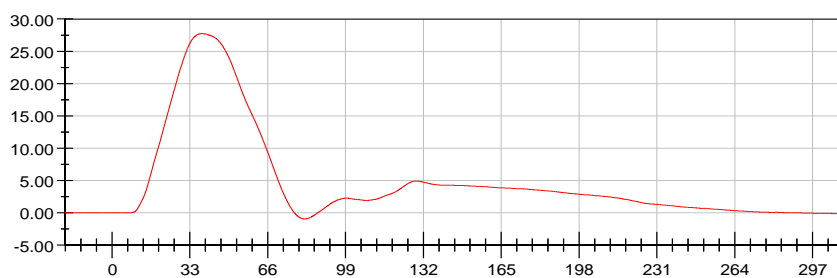
27.74 mm at 38.16 ms

<Min>

-0.94 mm at 81.76 ms

CFC_180

Driver Thorax Rib Deflection Maximum (mm) vs. Time [ms]



<Max>

27.74 mm at 38.16 ms

<Min>

-0.94 mm at 81.76 ms

CFC_180



NHTSA

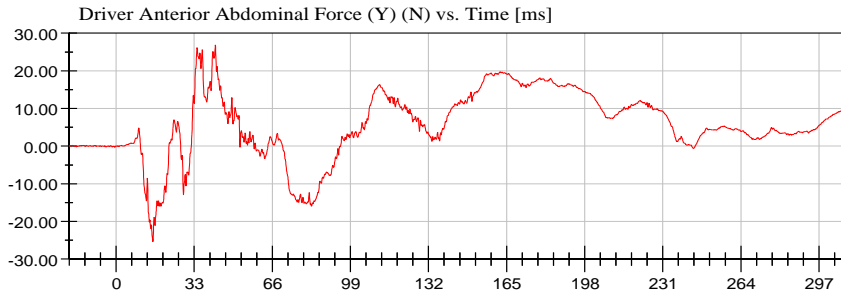
Test Lab: CTF

Test Number: 180427 (M20180301)

Test Date: 04/27/2018

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)



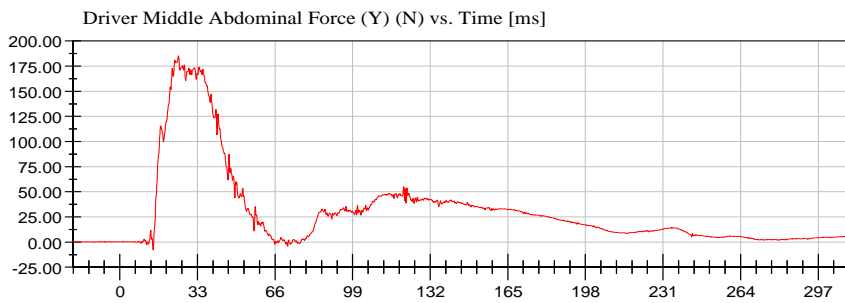
<Max>

26.82 N at 41.92 ms

<Min>

-25.36 N at 15.52 ms

CFC_600



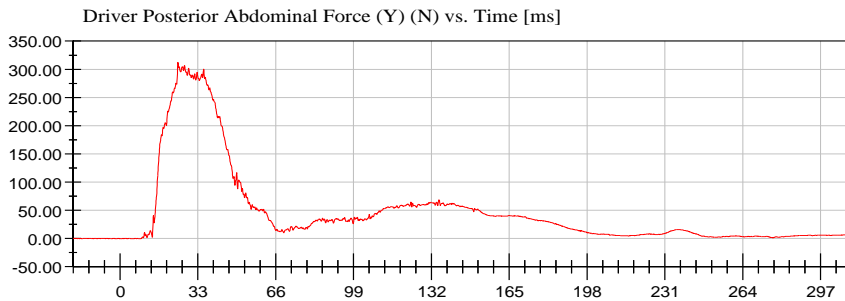
<Max>

185.24 N at 24.88 ms

<Min>

-7.80 N at 14.16 ms

CFC_600



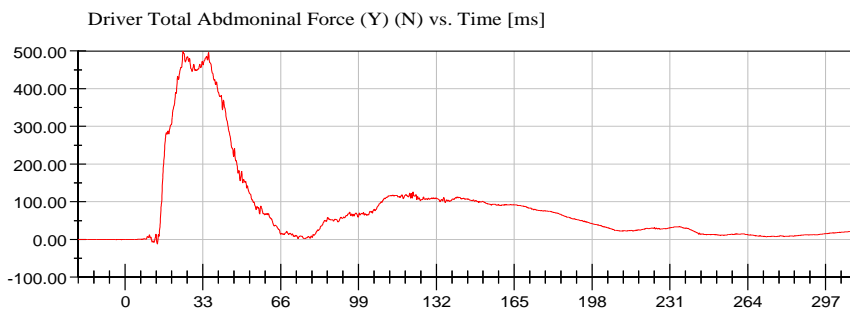
<Max>

312.15 N at 24.56 ms

<Min>

-0.40 N at 8.72 ms

CFC_600



<Max>

499.19 N at 24.64 ms

<Min>

-12.00 N at 13.68 ms

CFC_600



NHTSA

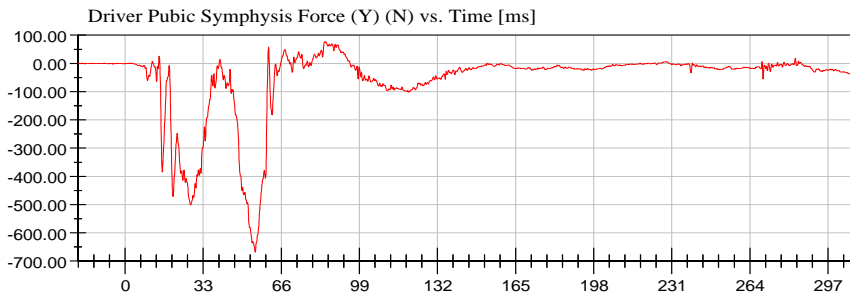
Test Lab: CTF

Test Number: 180427 (M20180301)

Test Date: 04/27/2018

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)



<Max>

76.92 N at 84.72 ms

<Min>

-668.69 N at 55.04 ms

CFC_600



NHTSA

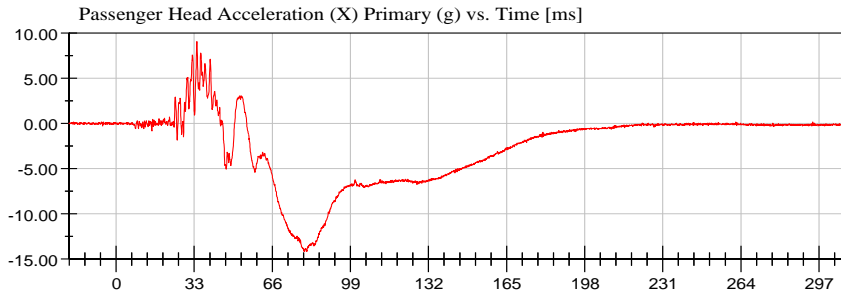
Test Lab: CTF

Test Number: 180427 (M20180301)

Test Date: 04/27/2018

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)



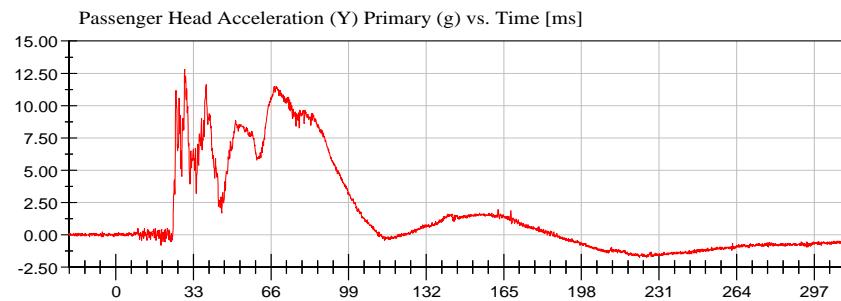
<Max>

9.08 g at 34.08 ms

<Min>

-14.13 g at 79.36 ms

CFC_1000



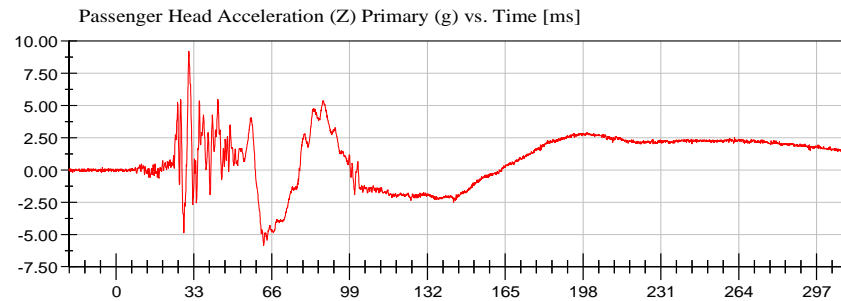
<Max>

12.81 g at 29.28 ms

<Min>

-1.75 g at 222.72 ms

CFC_1000



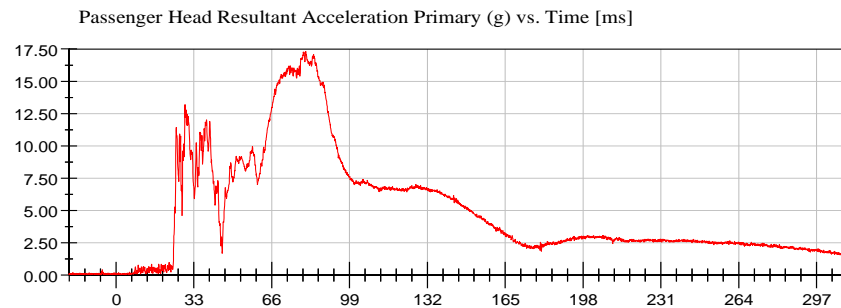
<Max>

9.23 g at 30.88 ms

<Min>

-5.84 g at 62.56 ms

CFC_1000



<Max>

17.30 g at 80.40 ms

<Min>

0.04 g at -18.64 ms

CFC_1000



NHTSA

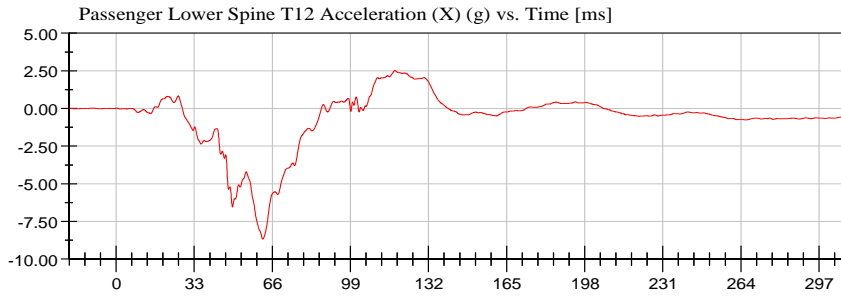
Test Lab: CTF

Test Number: 180427 (M20180301)

Test Date: 04/27/2018

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)



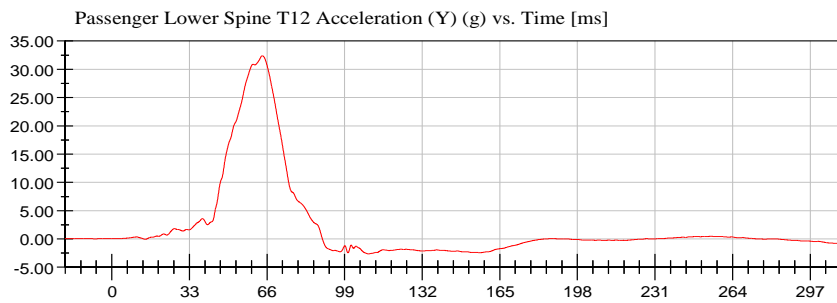
<Max>

2.52 g at 117.84 ms

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-8.66 g at 62.00 ms

CFC_180



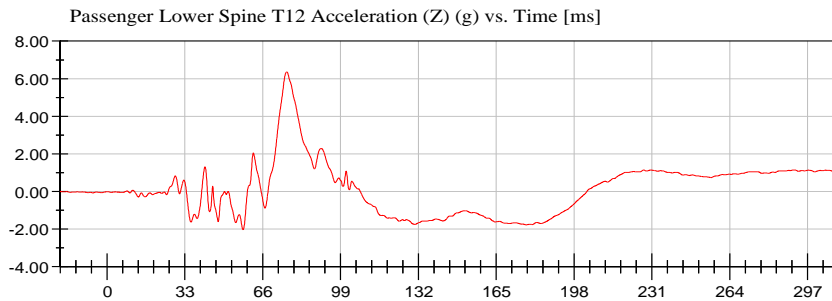
<Max>

32.39 g at 64.00 ms

<Min>

-2.69 g at 109.20 ms

CFC_180



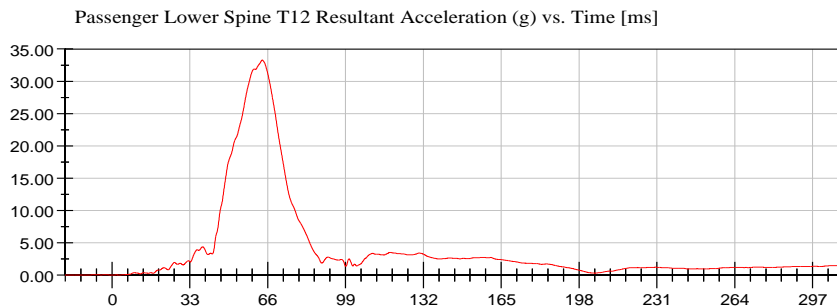
<Max>

6.36 g at 76.24 ms

<Min>

-2.03 g at 57.68 ms

CFC_180



<Max>

33.28 g at 63.76 ms

<Min>

0.01 g at -17.04 ms

CFC_180



NHTSA

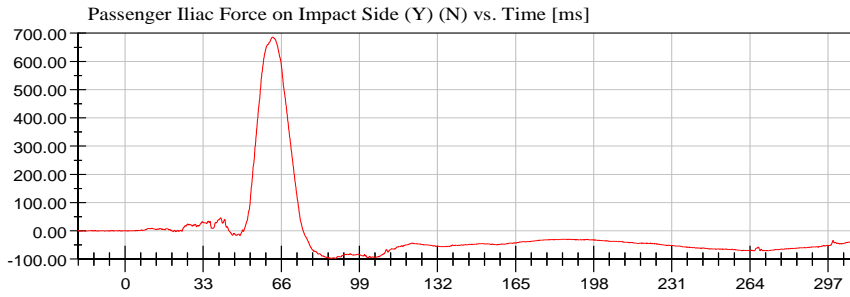
Test Lab: CTF

Test Number: 180427 (M20180301)

Test Date: 04/27/2018

Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)



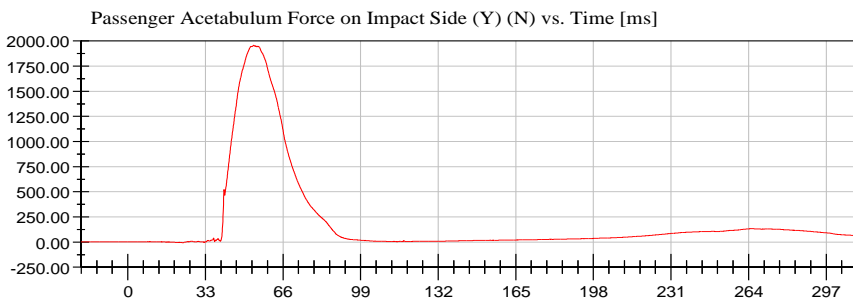
<Max>

686.16 N at 62.32 ms

<Min>

-98.36 N at 88.88 ms

CFC_600



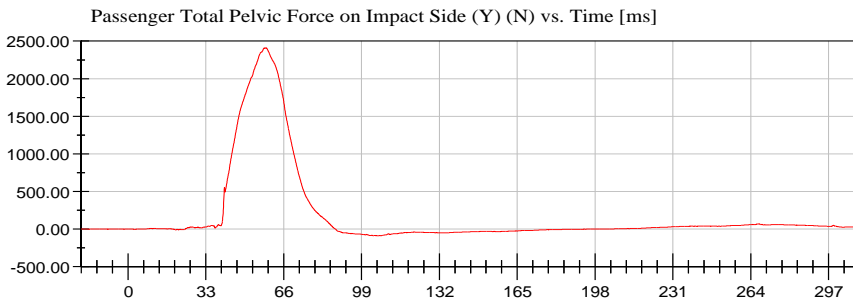
<Max>

1,956.71 N at 53.52 ms

<Min>

-9.60 N at 23.36 ms

CFC_600



<Max>

2,410.58 N at 58.48 ms

<Min>

-88.65 N at 105.84 ms

CFC_600



APPENDIX C
DUMMY PERFORMANCE CALIBRATION TEST DATA

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS

ES-2re (Driver) Dummy

Description

Table 1. External Measurements

Table 2. Head Drop Test

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

Table 3 Neck Pendulum Test

- Pendulum Velocity (m/s) vs. Time (ms)
- Flexion Angle (°) vs. Time (ms)
- Potentiometer A (°) vs. Time (ms)
- Potentiometer B (°) vs. Time (ms)
- Potentiometer C (°) vs. Time (ms)

Table 4. Shoulder Impact Test

- Impactor Acceleration (G's) vs. Time (ms)

Table 5. Thorax – Upper Rib Drop Test

- Upper Rib Displacement @ 459 mm Drop Height (mm) vs. Time (ms)
- Upper Rib Displacement @ 815 mm Drop Height (mm) vs. Time (ms)

Table 6. Thorax – Middle Rib Drop Test

- Middle Rib Displacement @ 459 mm Drop Height (mm) vs. Time (ms)
- Middle Rib Displacement @ 815 mm Drop Height (mm) vs. Time (ms)

Table 7. Thorax – Lower Rib Drop Test

- Lower Rib Displacement @ 459 mm Drop Height (mm) vs. Time (ms)
- Lower Rib Displacement @ 815 mm Drop Height (mm) vs. Time (ms)

Table 8. Thorax – Full Body Impact Test

- Pendulum Acceleration (G's) vs. Time (ms)
- Impactor Force (kN) vs. Time (ms)
- Upper Rib Displacement (mm) vs. Time (ms)
- Middle Rib Displacement (mm) vs. Time (ms)
- Lower Rib Displacement (mm) vs. Time (ms)

Table 9. Abdomen Impact Test

- Impactor Force (kN) vs. Time (ms)
- Front Abdomen Force (kN) vs. Time (ms)
- Middle Abdomen Force (kN) vs. Time (ms)
- Rear Abdomen Force (kN) vs. Time (ms)
- Total Abdomen Force (kN) vs. Time (ms)

Table 10. Lumbar Spine Flexion Test

- Pendulum Velocity (m/s) vs. Time (ms)
- Spine Flexion Angle (°) vs. Time (ms)
- Potentiometer A (°) vs. Time (ms)
- Potentiometer B (°) vs. Time (ms)
- Potentiometer C (°) vs. Time (ms)

Table 11. Pelvis Impact Test

- Pendulum Acceleration (G's) vs. Time (ms)
- Impactor Force (kN) vs. Time (ms)
- Pubic Symphysis (Y) Force (kN) vs. Time (ms)

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS

SID-IIs (Rear Passenger) Dummy

Description

Table 1. External Measurements

Table 2. Head Drop Test

- Head (X) Acceleration (G's) vs. Time (ms)
- Head (Y) Acceleration (G's) vs. Time (ms)
- Head (Z) Acceleration (G's) vs. Time (ms)
- Resultant Head 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 F030

Transportation Research Center Inc.
572U ES-2re Dummy
External Dimensions
Serial No. F030 Calibration No. 55

Symbol	Description	Specification	Results	Pass
		mm	mm	
1	Sitting Height	900.0 - 918.0	910	Yes
2	Seat to Shoulder Joint	558.0 - 572.0	560	Yes
3	Seat to Lower Face of Thoracic Spine Box	346.0 - 356.0	347	Yes
4	Seat to Hip Joint (center of bolt)	97.0 - 103.0	97	Yes
5	Sole to Seat, Sitting	433.0 - 451.0	444	Yes
6	Head Width	152.0 - 158.0	155	Yes
7	Shoulder/Arm Width	461.0 - 479.0	475	Yes
8	Thorax Width	322.0 - 332.0	326	Yes
9	Abdomen Width	273.0 - 287.0	281	Yes
10	Pelvis Lap Width	359.0 - 373.0	367	Yes
11	Head Depth	196.0 - 206.0	202	Yes
12	Thorax Depth	262.0 - 272.0	262	Yes
13	Abdomen Depth	194.0 - 204.0	199	Yes
14	Pelvis Depth	235.0 - 245.0	242	Yes
15	Back of Buttocks to Hip Joint (center of bolt)	150.0 - 160.0	156	Yes
16	Back of Buttocks to Front of Knee	597.0 - 615.0	605	Yes

Baseline 10/07/05



Transportation Research Center Inc.

Left Lateral Head Drop
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/11/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Peak Resultant Acceleration	125 - 155 g	141.0 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	9.5 g	Yes
Is Resultant Acceleration Curve Unimodal within 15% of Main Pulse?	Yes	Yes	Yes

Test meets specifications.

Condition: Used

Comments:

Head Skin S/N: DP6812

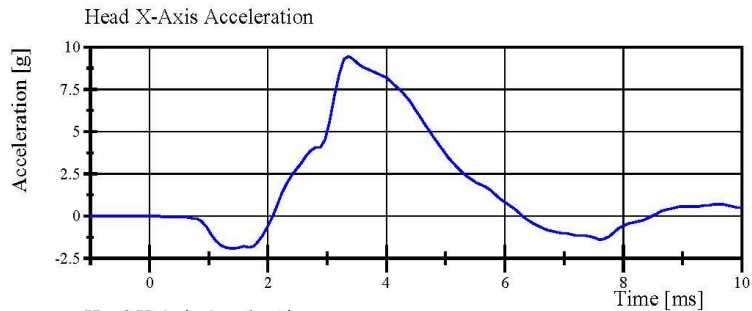
Skull S/N: N/A

Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. F030 Certification No. 55-1

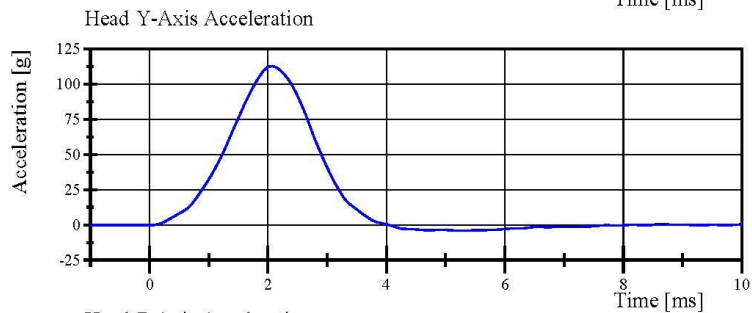
Test Date: 4/11/2018



Filter Class: CFC_1000

Max: 9.5 g at 3.4 ms

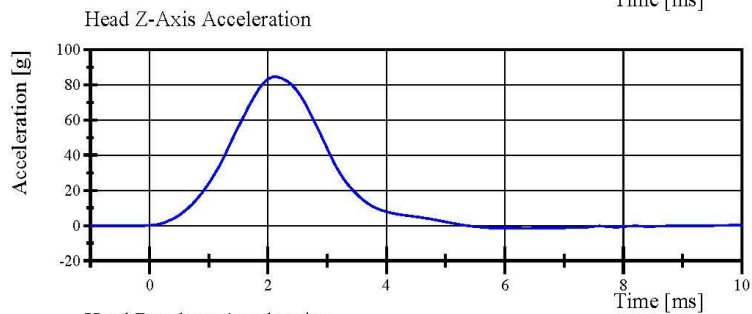
Min: -1.9 g at 1.4 ms



Filter Class: CFC_1000

Max: 112.8 g at 2.1 ms

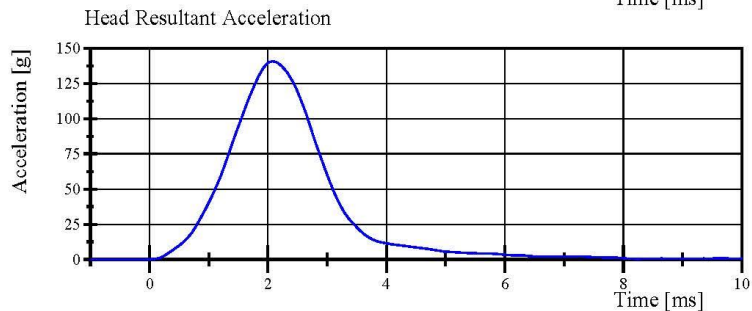
Min: -4.1 g at 5.2 ms



Filter Class: CFC_1000

Max: 84.5 g at 2.1 ms

Min: -1.5 g at 6.3 ms



Filter Class: CFC_1000

Max: 141.0 g at 2.1 ms

Min: 0.0 g at -1.0 ms

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

04.11.2018 11:38:58 327



Transportation Research Center Inc.

Left Lateral Neck
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/15/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.38 m/s	Yes
Maximum Headform Flexion			
Peak	(-49) - (-59) deg	-51.8 deg	Yes
Time of Peak	54 - 66 ms	60.0 ms	Yes
Headform Flexion Decay			
- Peak to Zero	53 - 88 ms	63.4 ms	Yes

Test meets specifications.

Condition: Used

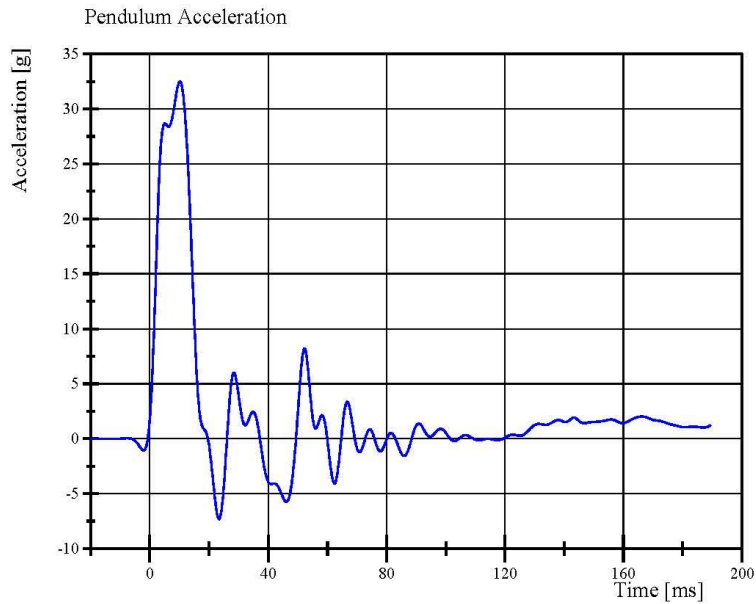
Comments:

Neck S/N: DI5031

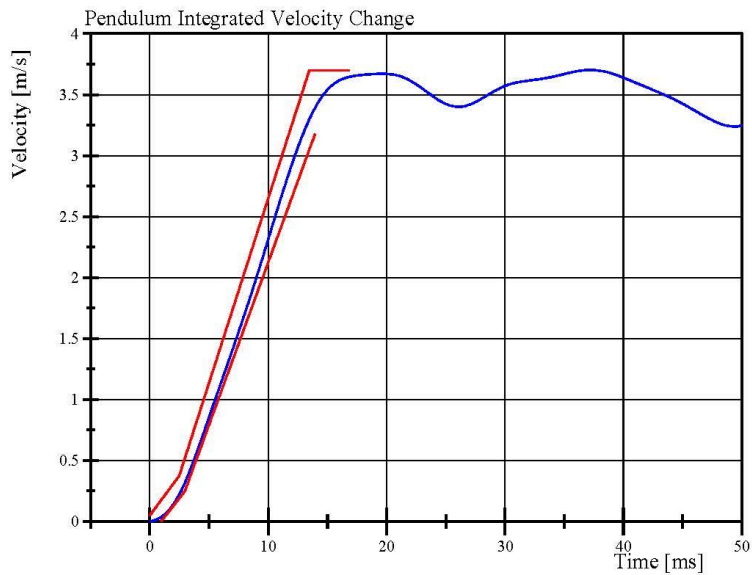
Neck Buffer Molded(Yellow) S/N: N/A

Transportation Research Center Inc.

Left Lateral Neck
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/15/2018



Filter Class: CFC_60
Max: 32.5 g at 10.2 ms
Min: -7.3 g at 23.4 ms



Filter Class: CFC_60
Max: 3.7 m/s at 37.2 ms
Min: 0.0 m/s at 0.0 ms

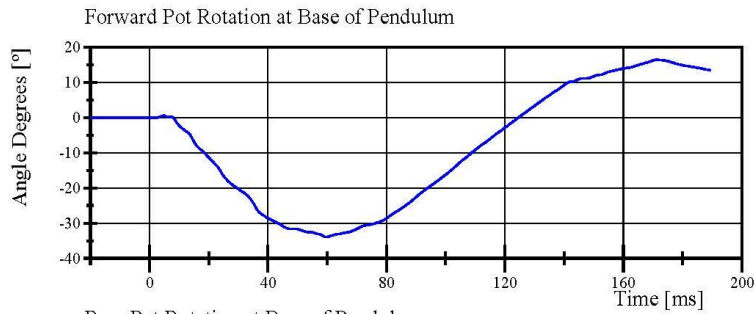
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

04.15.2018 07:39:47 1457

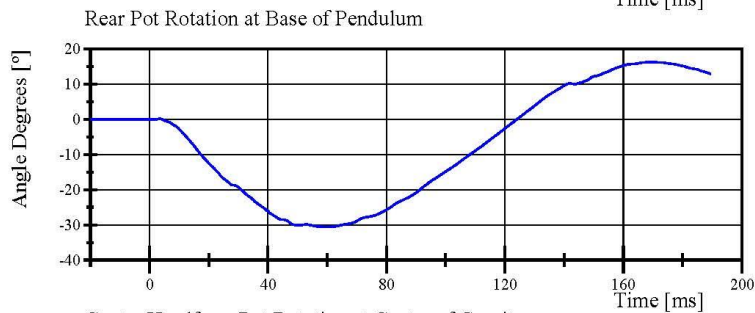


Transportation Research Center Inc.

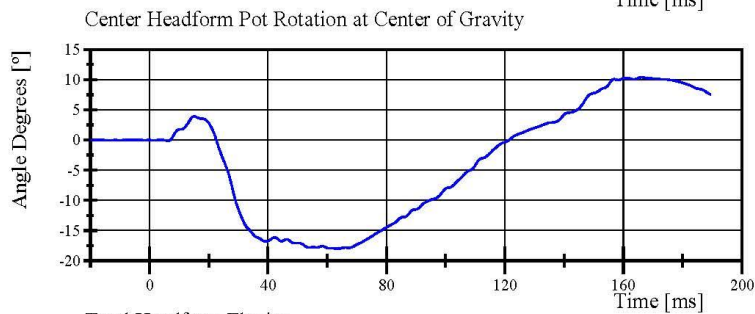
Left Lateral Neck
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/15/2018



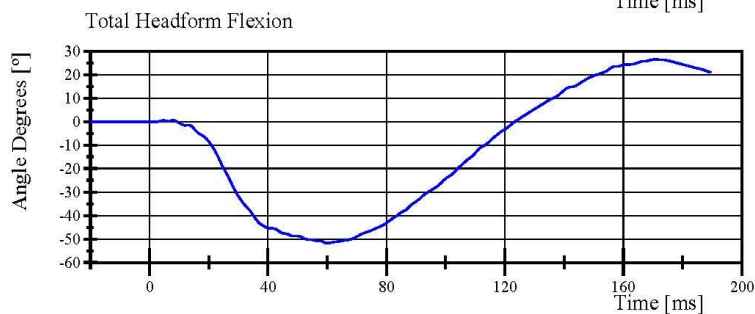
Filter Class: CFC_180
Max: 16.4 ° at 171.2 ms
Min: -33.9 ° at 59.6 ms



Filter Class: CFC_180
Max: 16.3 ° at 168.8 ms
Min: -30.6 ° at 59.5 ms



Filter Class: CFC_180
Max: 10.4 ° at 166.1 ms
Min: -18.0 ° at 63.5 ms



Filter Class: CFC_180
Max: 26.6 ° at 170.9 ms
Min: -51.8 ° at 60.0 ms

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

04.15.2018 07:39:47 1457



Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/15/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.30 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-10.21 g	Yes

Test meets specifications.

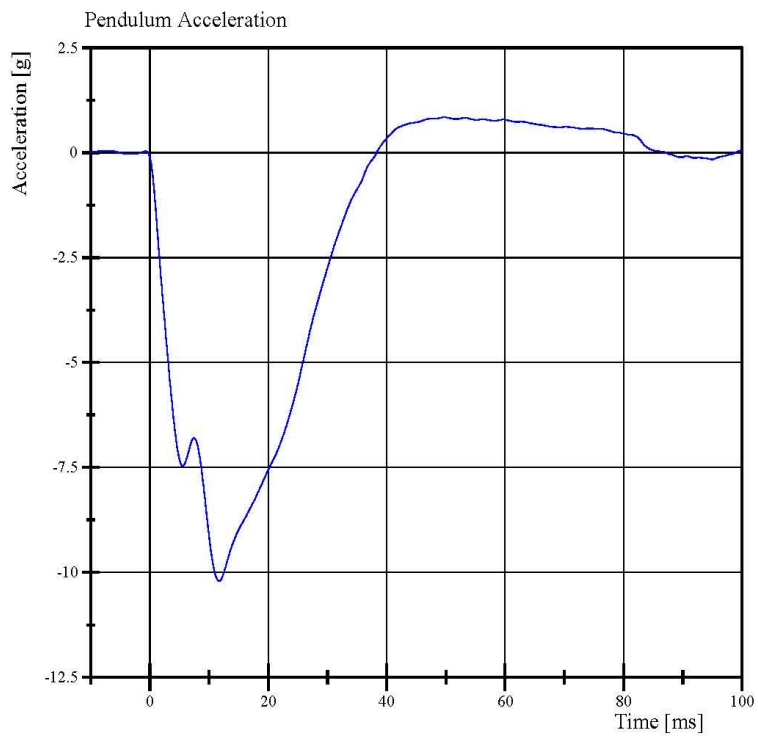
Condition: Used

Comments:

Arm S/N: 175-3501-07014

Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/15/2018



Filter Class: CFC_180
Max: 0.8 g at 49.8 ms
Min: -10.2 g at 11.7 ms

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

04.15.2018 08:49:42 528



Transportation Research Center Inc.

3.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/11/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.0 mm	Yes

Test meets specifications.

Condition: Used

Comments:

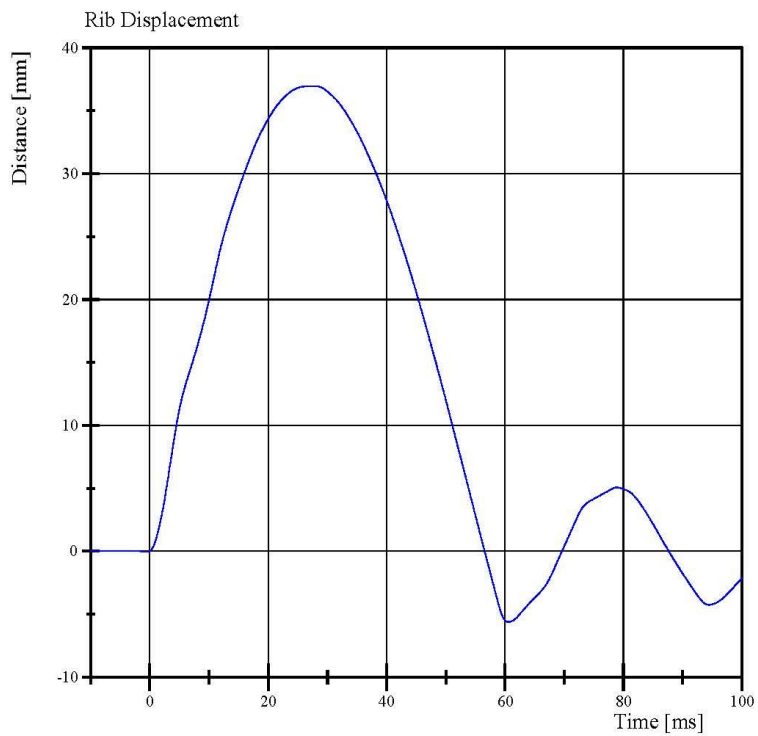
Drop Height: 462mm

Rib Module: 175-4008-A

Rib Foam: 07229

Transportation Research Center Inc.

3.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/11/2018



Filter Class: CFC_180
Max: 37.0 mm at 27.7 ms
Min: -5.6 mm at 60.6 ms

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

04.11.2018 16:01:32 535



Transportation Research Center Inc.

4.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/11/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	46.8 mm	Yes

Test meets specifications.

Condition: Used

Comments:

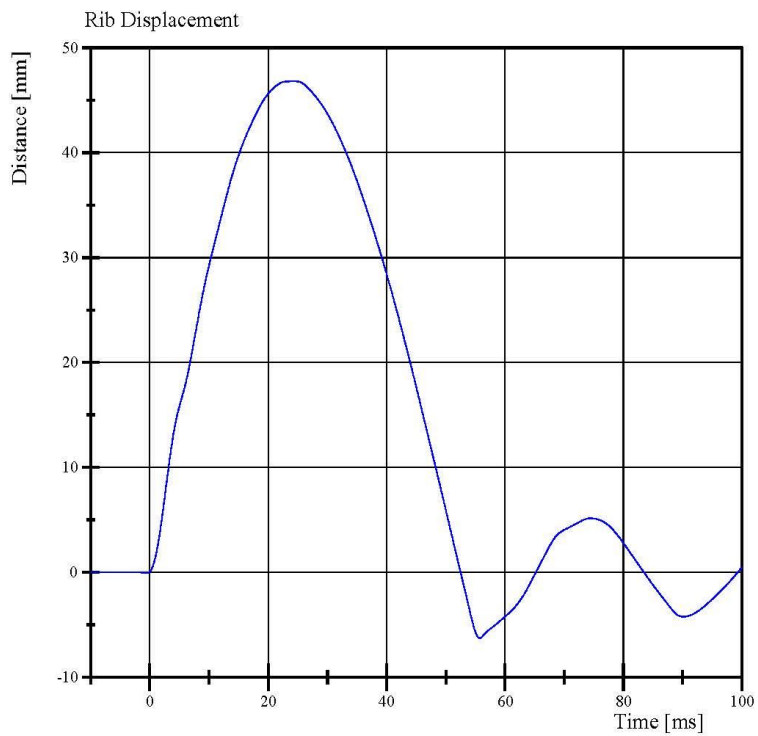
Drop Height: 816mm

Rib Module: 175-4008-A

Rib Foam: 07229

Transportation Research Center Inc.

4.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/11/2018



Filter Class: CFC_180
Max: 46.8 mm at 24.5 ms
Min: -6.3 mm at 55.7 ms

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

04.11.2018 15:50:22 440



Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/11/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.1 mm	Yes

Test meets specifications.

Condition: Used

Comments:

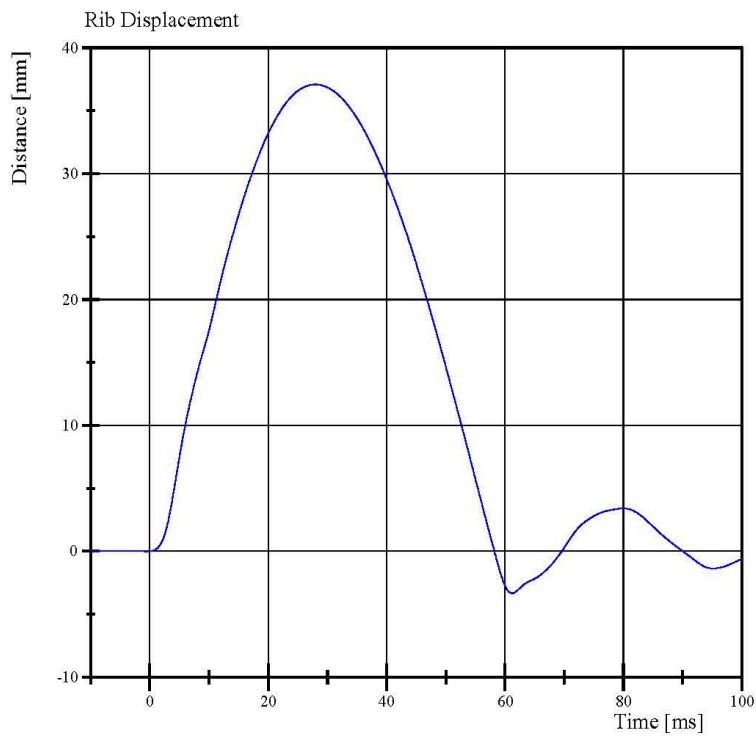
Drop Height: 462 mm

Rib Module: 175-4008-A

Rib Foam: E2A-DCT-04082

Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/11/2018



Filter Class: CFC_180
Max: 37.1 mm at 28.0 ms
Min: -3.3 mm at 61.2 ms

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

04.11.2018 16:18:48 504



Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/11/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	47.8 mm	Yes

Test meets specifications.

Condition: Used

Comments:

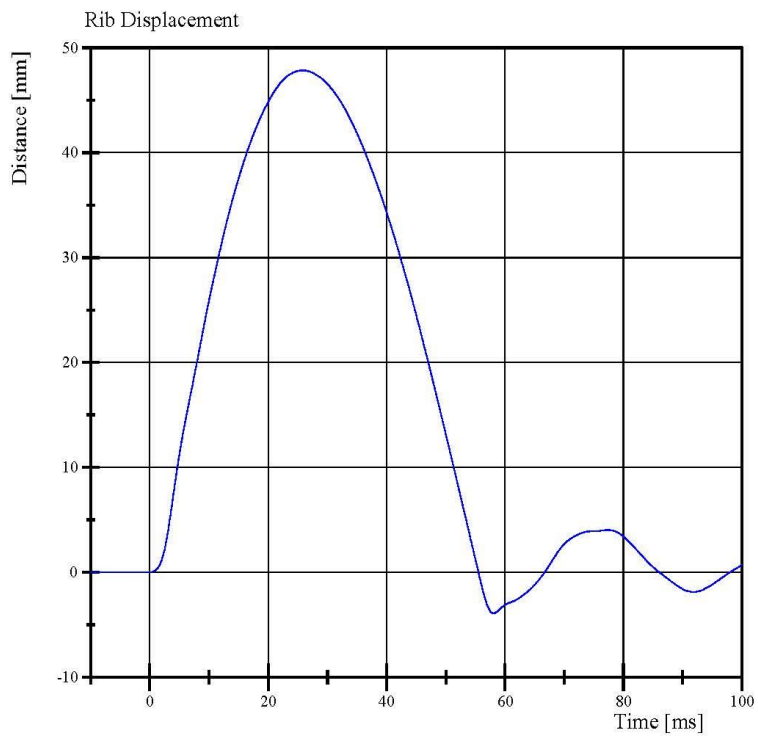
Drop Height: 816 mm

Rib Module: 175-4008-A

Rib Foam: E2A-DCT-04082

Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/11/2018



Filter Class: CFC_180
Max: 47.8 mm at 25.8 ms
Min: -3.9 mm at 58.1 ms

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

04.11.2018 16:12:22 422



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/14/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	38.3 mm	Yes

Test meets specifications.

Condition: Used

Comments:

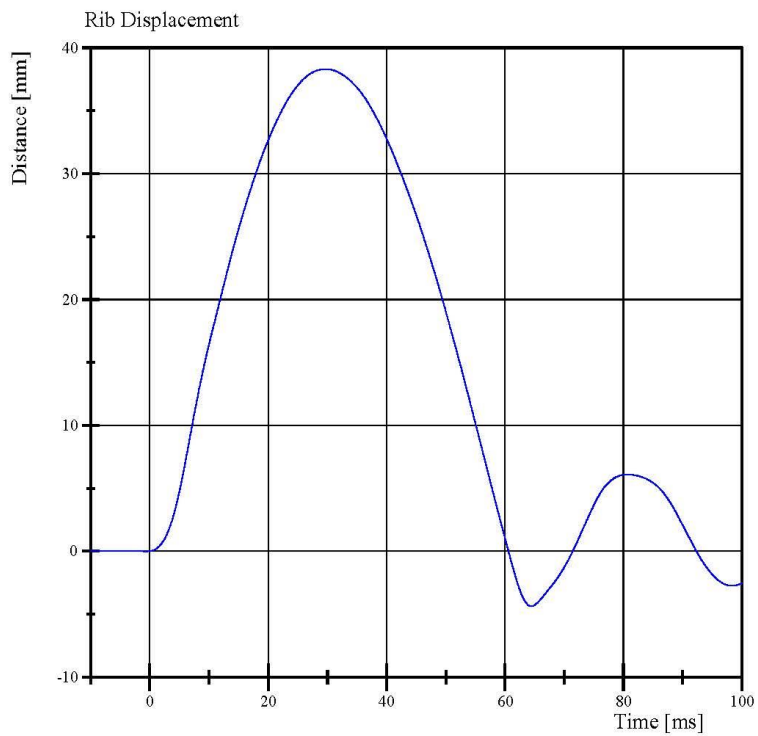
Drop Height: 462mm

Rib Module: 175-4008-A-06-017

Rib Foam: 175-4003-05125

Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/14/2018



Filter Class: CFC_180
Max: 38.3 mm at 29.8 ms
Min: -4.4 mm at 64.4 ms

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

04.14.2018 07:37:16 475



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/14/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	22.1 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	49.5 mm	Yes

Test meets specifications.

Condition: Used

Comments:

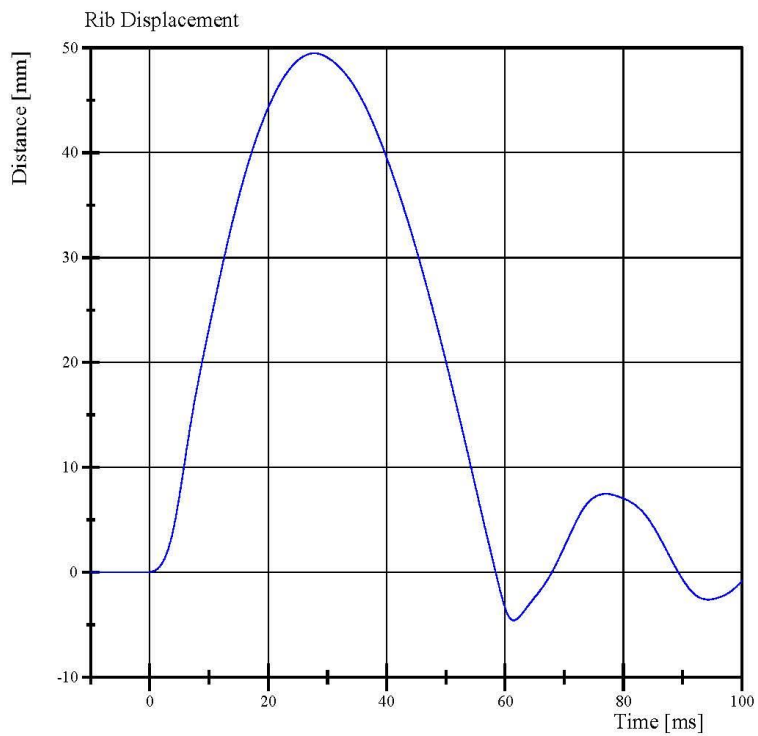
Drop Height: 816mm

Rib Module: 175-4008-A-06-017

Rib Foam: 175-4003-05125

Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/14/2018



Filter Class: CFC_180
Max: 49.5 mm at 27.8 ms
Min: -4.6 mm at 61.4 ms

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

04.14.2018 07:29:09 410



Transportation Research Center Inc.

Left Lower Thorax
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/15/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Impactor Velocity	5.4 - 5.60 m/s	5.551 m/s	Yes
Peak Impactor Force after 6 ms	(-5,100) - (-6,200) N	-5,323.0 N	Yes
Upper Rib Displacement	34 - 41 mm	37.7 mm	Yes
Center Rib Displacement	37 - 45 mm	41.2 mm	Yes
Lower Rib Displacement	37 - 44 mm	41.8 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Rib:

Rib Module: 175-4008-A

Rib Foam: 175-4003-07229

Center Rib:

Rib Module: 175-4008-A

Rib Foam: E2A-DCT-04082

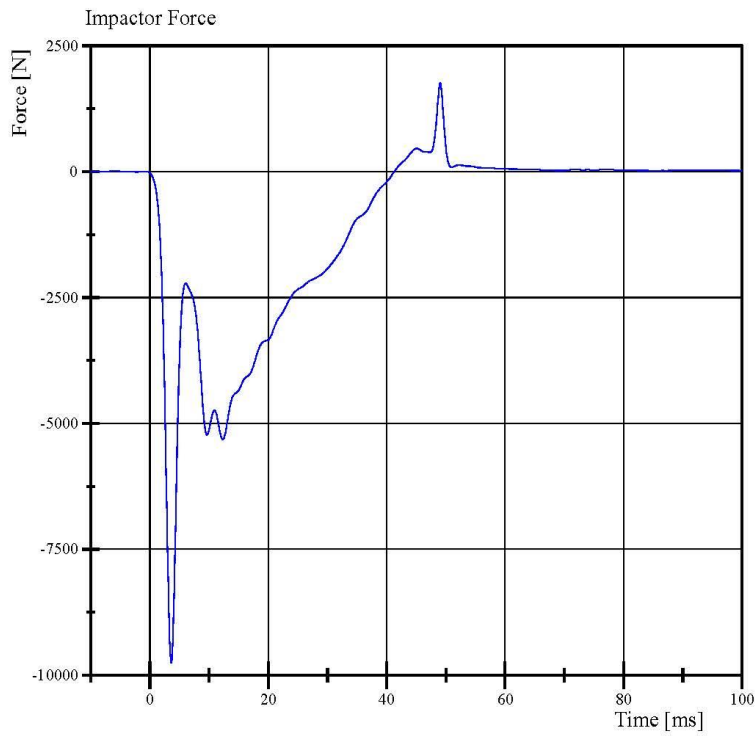
Lower Rib:

Rib Module: 175-4008-A-06-017

Rib Foam: 175-4003-05125

Transportation Research Center Inc.

Left Lower Thorax
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/15/2018



Filter Class: CFC_180
Max: 1,768.7 N at 49.0 ms
Min: -9,755.1 N at 3.6 ms

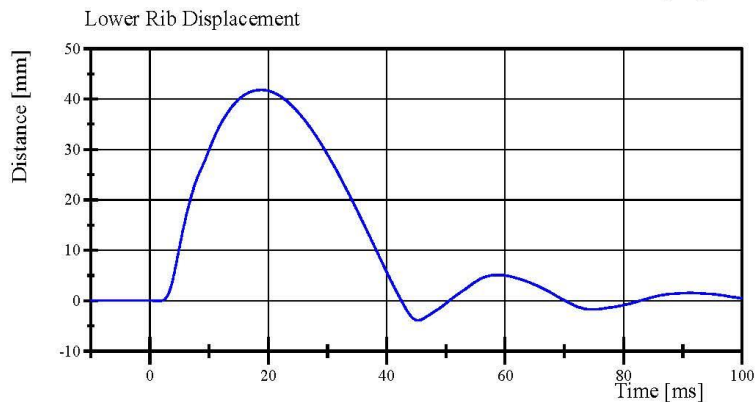
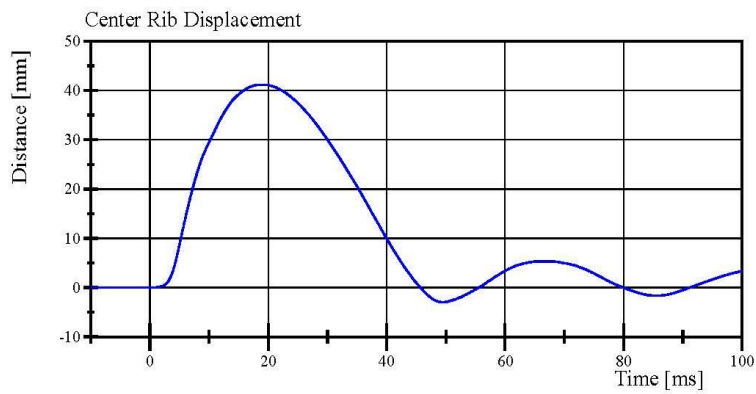
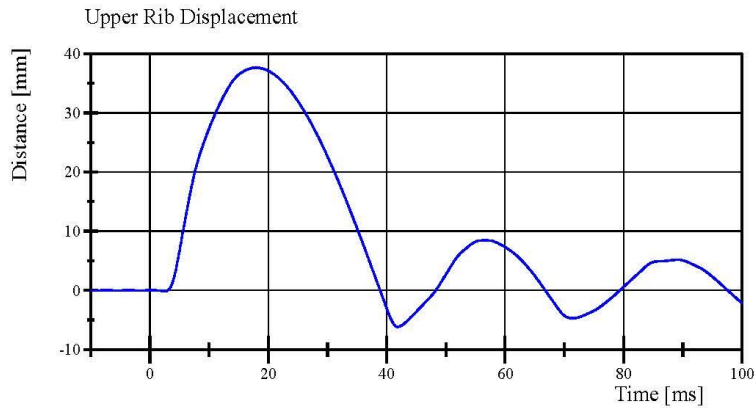
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

04.15.2018 08:59:57 399



Transportation Research Center Inc.

Left Lower Thorax
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/15/2018



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

04.15.2018 08:59:58 399



Transportation Research Center Inc.

Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/15/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	4.07 m/s	Yes
Test Probe Force			
Peak	4,000 - 4,800 N	4,165.9 N	Yes
Time of Peak	10.6 - 13.0 ms	11.36 ms	Yes
Total Abdominal Force			
Peak	2,200 - 2,700 N	2,502.8 N	Yes
Time of Peak	10.0 - 12.3 ms	11.12 ms	Yes

Test meets specifications.

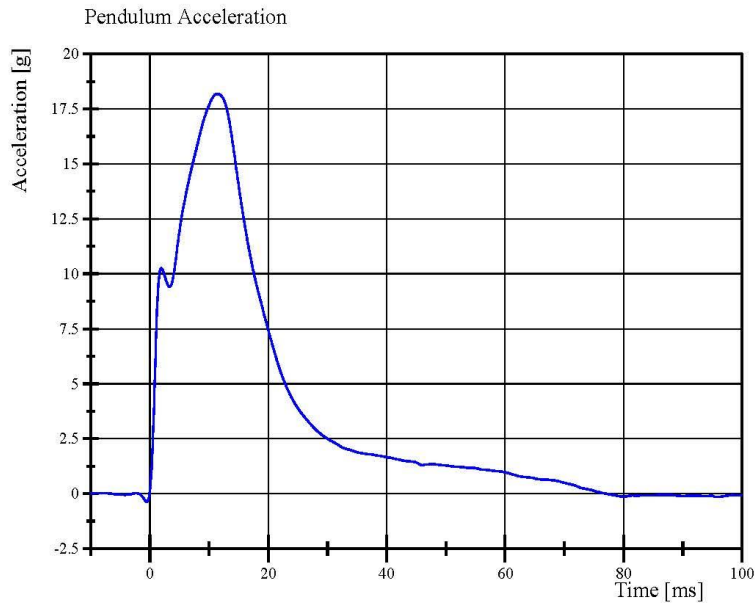
Condition: Used

Comments:

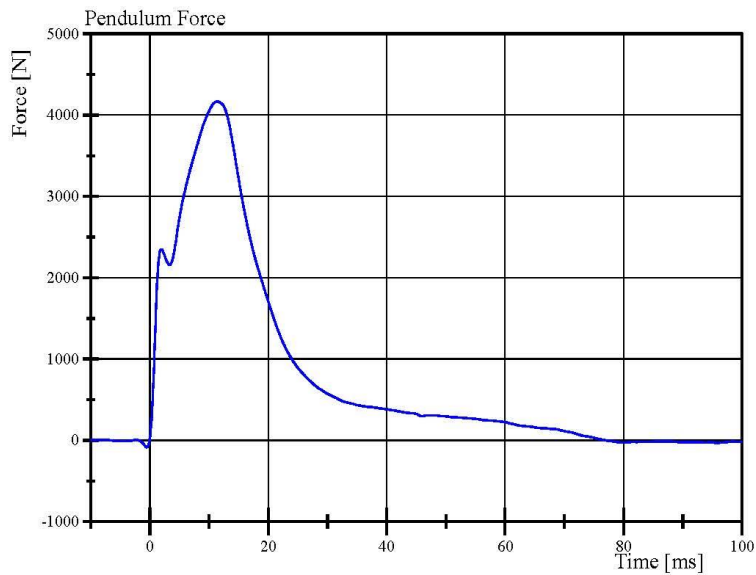
Abdomen S/N: 1066

Transportation Research Center Inc.

Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/15/2018



Filter Class: CFC_180
Max: 18.2 g at 11.4 ms
Min: -0.4 g at -0.6 ms



Filter Class: CFC_180
Max: 4,165.9 N at 11.4 ms
Min: -84.4 N at -0.6 ms

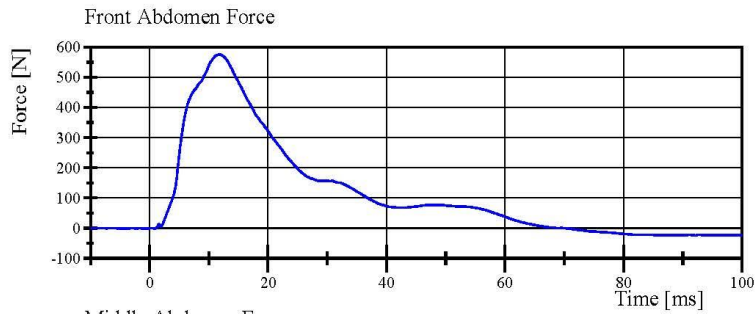
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

04.15.2018 09:19:31 548

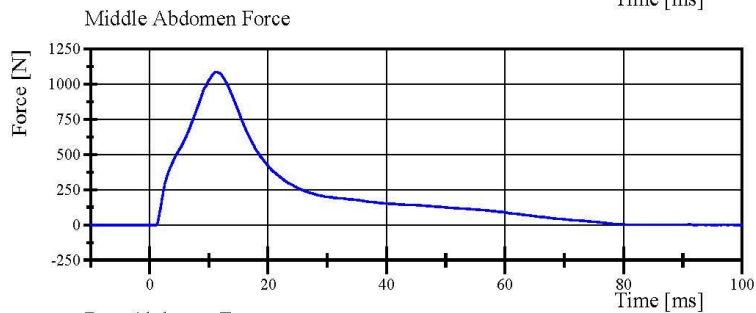


Transportation Research Center Inc.

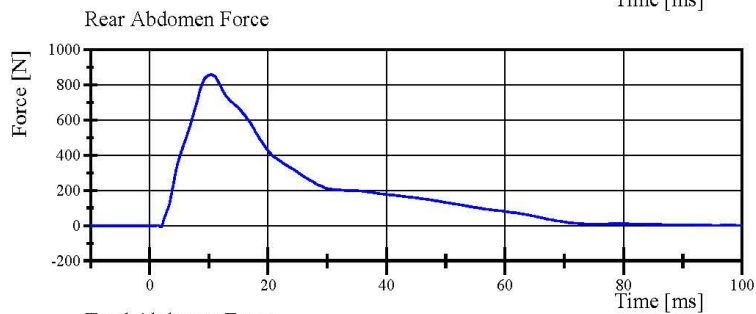
Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 55-1
Test Date: 4/15/2018



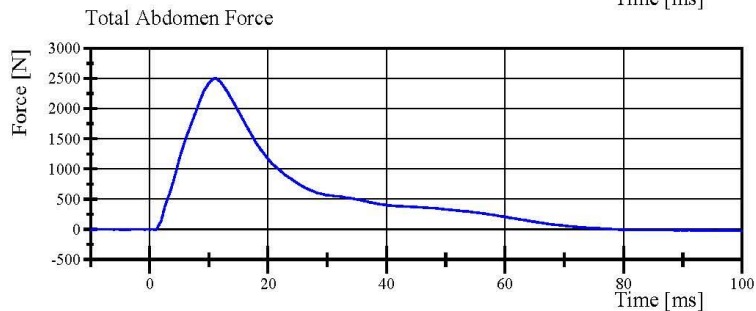
Filter Class: CFC_600
Max: 575.9 N at 11.8 ms
Min: -23.7 N at 92.2 ms



Filter Class: CFC_600
Max: 1,086.4 N at 11.3 ms
Min: -1.9 N at 1.0 ms



Filter Class: CFC_600
Max: 858.8 N at 10.4 ms
Min: -8.1 N at 1.9 ms



Filter Class: CFC_600
Max: 2,502.8 N at 11.1 ms
Min: -22.3 N at 99.9 ms

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

04.15.2018 09:19:32 548



Transportation Research Center Inc.

Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 55-5
Test Date: 4/12/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-5.95) - (-6.15) m/s	-6.067 m/s	Yes
Maximum Headform Flexion			
Peak	(-45) - (-55) deg	-49.5 deg	Yes
Time of Peak	39 - 53 ms	47.3 ms	Yes
Headform Flexion Decay			
- Peak to Zero	37 - 57 ms	38.0 ms	Yes

Test meets specifications.

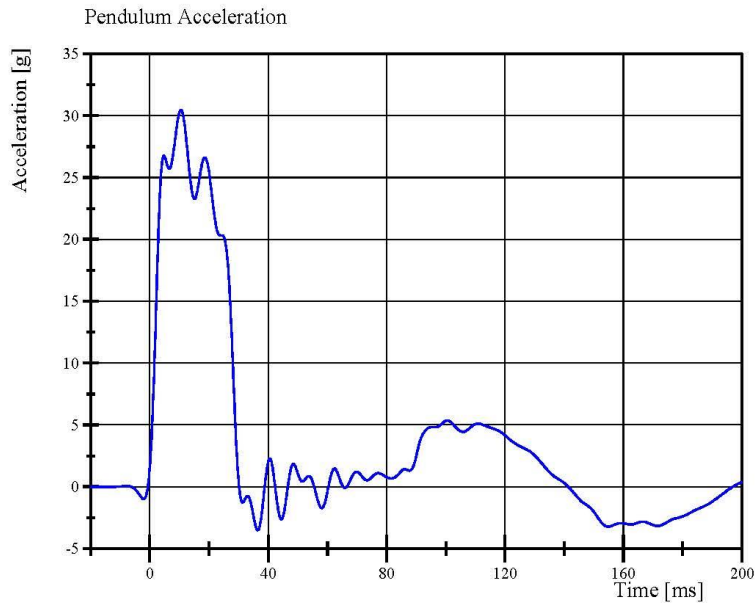
Condition: Used

Comments:

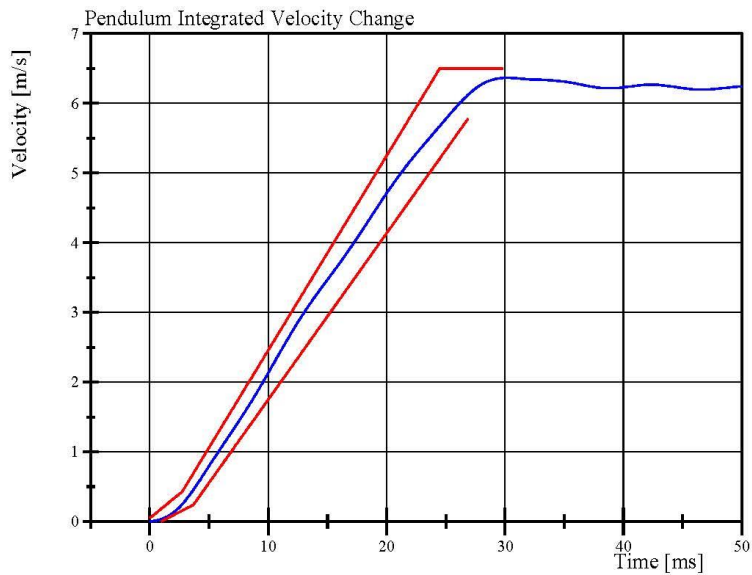
Lumbar S/N: 175-5501 DP0815

Transportation Research Center Inc.

Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 55-5
Test Date: 4/12/2018



Filter Class: CFC_60
Max: 30.5 g at 10.5 ms
Min: -3.5 g at 36.5 ms



Filter Class: CFC_60
Max: 6.4 m/s at 30.2 ms
Min: 0.0 m/s at 0.0 ms

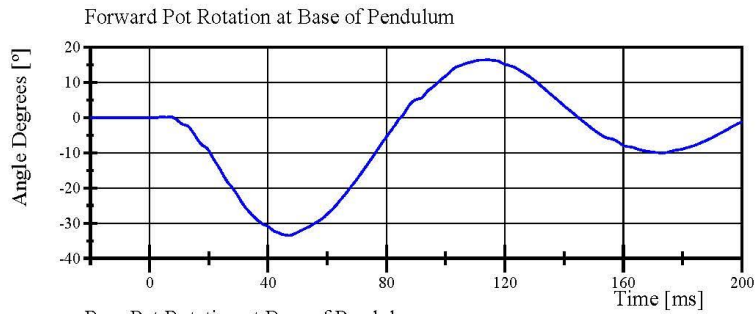
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

04.12.2018 08:56:44 641

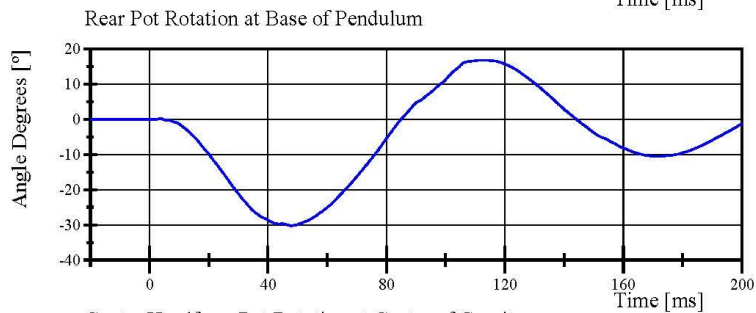


Transportation Research Center Inc.

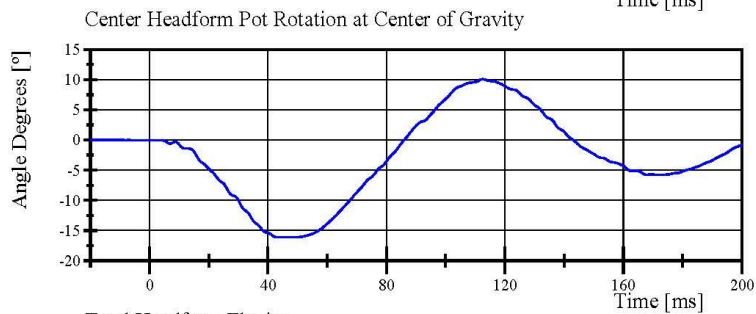
Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 55-5
Test Date: 4/12/2018



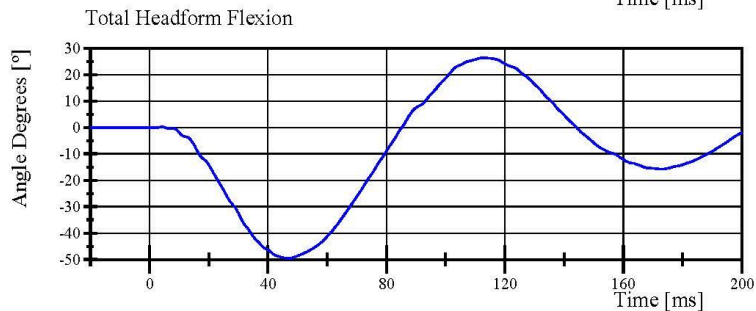
Filter Class: CFC_180
Max: 16.4 ° at 114.2 ms
Min: -33.4 ° at 47.3 ms



Filter Class: CFC_180
Max: 16.8 ° at 112.3 ms
Min: -30.2 ° at 47.9 ms



Filter Class: CFC_180
Max: 10.1 ° at 112.5 ms
Min: -16.1 ° at 43.0 ms



Filter Class: CFC_180
Max: 26.4 ° at 112.6 ms
Min: -49.5 ° at 47.3 ms

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

04.12.2018 08:56:45 641



Transportation Research Center Inc.

Left Lateral Pelvis
ES-2re Serial No. F030 Certification No. 55-2
Test Date: 4/15/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.36 m/s	Yes
Test Probe Force			
Peak	4,700 - 5,400 N	5,280.1 N	Yes
Time of Peak	11.8 - 16.1 ms	12.48 ms	Yes
Pubic Symphysis Force			
Peak	(-1,230) - (-1,590) N	-1,342.9 N	Yes
Time of Peak	12.2 - 17.0 ms	12.96 ms	Yes

Test meets specifications.

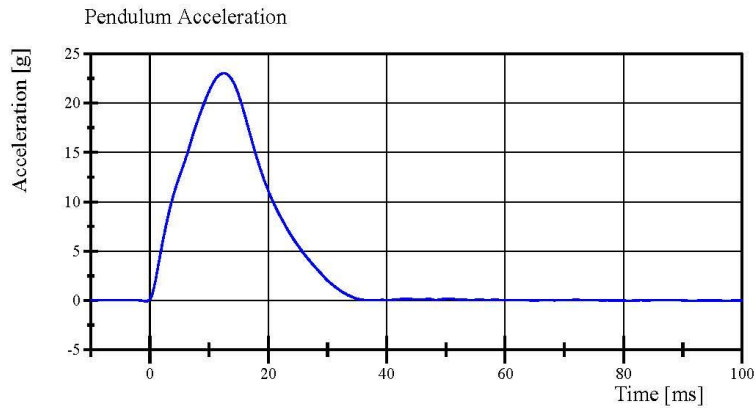
Condition: Used

Comments:

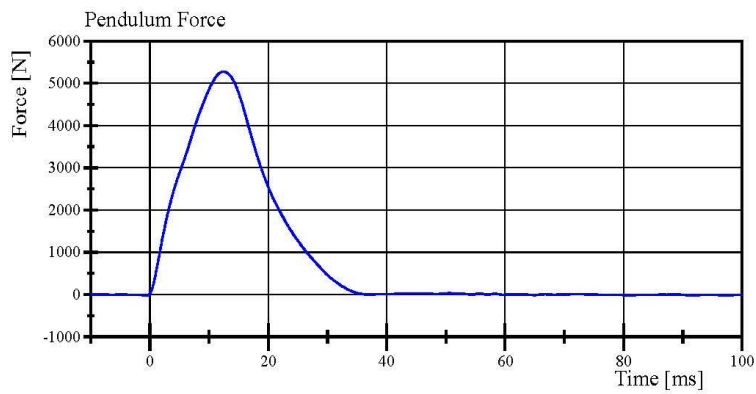
Pelvis Skin S/N: N/A

Transportation Research Center Inc.

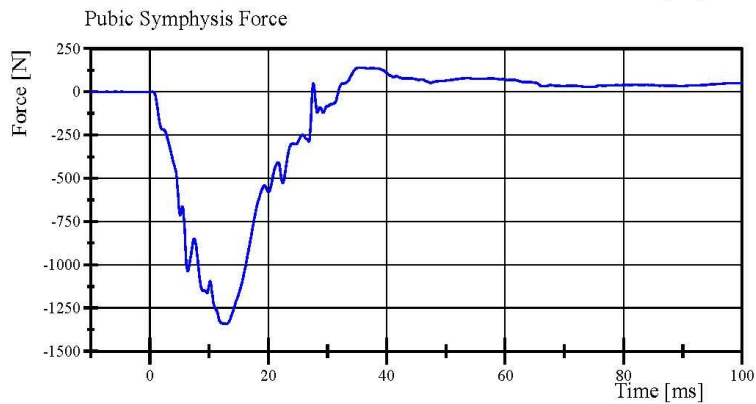
Left Lateral Pelvis
ES-2re Serial No. F030 Certification No. 55-2
Test Date: 4/15/2018



Filter Class: CFC_180
Max: 23.0 g at 12.5 ms
Min: -0.1 g at -0.6 ms



Filter Class: CFC_180
Max: 5,280.1 N at 12.5 ms
Min: -21.9 N at -0.6 ms



Filter Class: CFC_600
Max: 139.9 N at 35.9 ms
Min: -1,342.9 N at 13.0 ms

**Post-Test Calibration Sheets
Driver S/N F030**

Transportation Research Center Inc.
572U ES-2re Dummy
External Dimensions
Serial No. F030 Calibration No. 56

Symbol	Description	Specification	Results	Pass
		mm	mm	
1	Sitting Height	900.0 - 918.0	910	Yes
2	Seat to Shoulder Joint	558.0 - 572.0	560	Yes
3	Seat to Lower Face of Thoracic Spine Box	346.0 - 356.0	347	Yes
4	Seat to Hip Joint (center of bolt)	97.0 - 103.0	97	Yes
5	Sole to Seat, Sitting	433.0 - 451.0	444	Yes
6	Head Width	152.0 - 158.0	155	Yes
7	Shoulder/Arm Width	461.0 - 479.0	475	Yes
8	Thorax Width	322.0 - 332.0	326	Yes
9	Abdomen Width	273.0 - 287.0	280	Yes
10	Pelvis Lap Width	359.0 - 373.0	367	Yes
11	Head Depth	196.0 - 206.0	202	Yes
12	Thorax Depth	262.0 - 272.0	262	Yes
13	Abdomen Depth	194.0 - 204.0	199	Yes
14	Pelvis Depth	235.0 - 245.0	242	Yes
15	Back of Buttocks to Hip Joint (center of bolt)	150.0 - 160.0	156	Yes
16	Back of Buttocks to Front of Knee	597.0 - 615.0	605	Yes

Baseline 10/07/05



Transportation Research Center Inc.

Left Lateral Head Drop
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Peak Resultant Acceleration	125 - 155 g	142.8 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	9.2 g	Yes
Is Resultant Acceleration Curve Unimodal within 15% of Main Pulse?	Yes	Yes	Yes

Test meets specifications.

Condition: Used

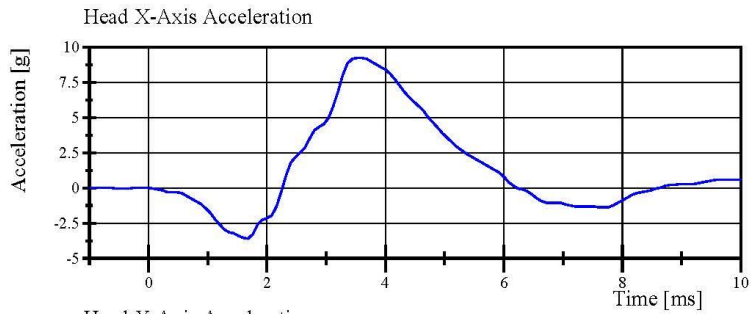
Comments:

Head Skin S/N: DP6812

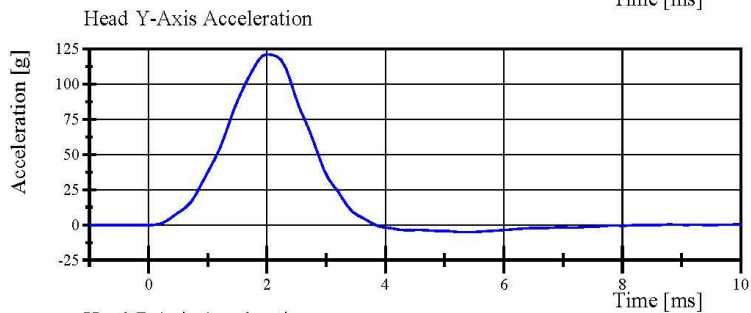
Skull S/N: N/A

Transportation Research Center Inc.

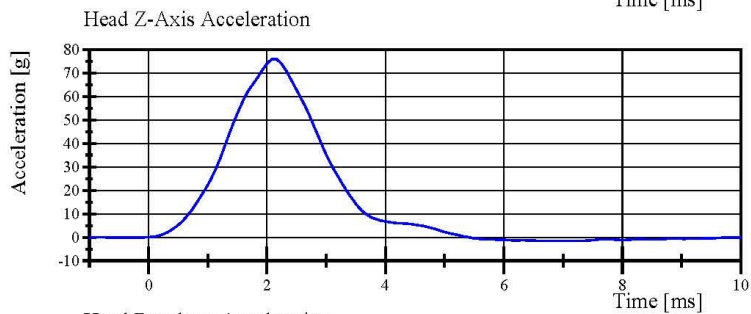
Left Lateral Head Drop
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018



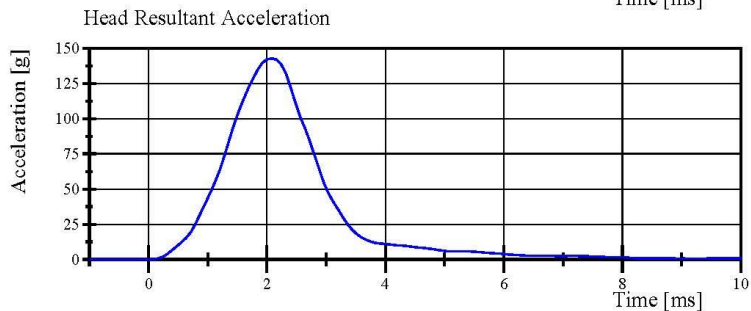
Filter Class: CFC_1000
Max: 9.2 g at 3.5 ms
Min: -3.6 g at 1.7 ms



Filter Class: CFC_1000
Max: 121.2 g at 2.0 ms
Min: -5.2 g at 5.4 ms



Filter Class: CFC_1000
Max: 76.0 g at 2.1 ms
Min: -1.4 g at 6.6 ms



Filter Class: CFC_1000
Max: 142.8 g at 2.1 ms
Min: 0.0 g at -1.0 ms

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

04.28.2018 13:09:53 327



Transportation Research Center Inc.

Left Lateral Neck
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.38 m/s	Yes
Maximum Headform Flexion			
Peak	(-49) - (-59) deg	-53.0 deg	Yes
Time of Peak	54 - 66 ms	58.4 ms	Yes
Headform Flexion Decay			
- Peak to Zero	53 - 88 ms	66.9 ms	Yes

Test meets specifications.

Condition: Used

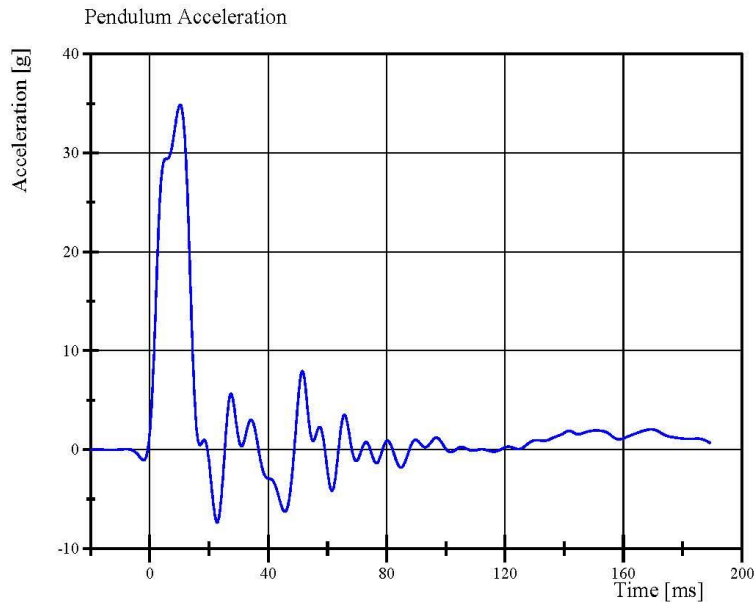
Comments:

Neck S/N: DI5031

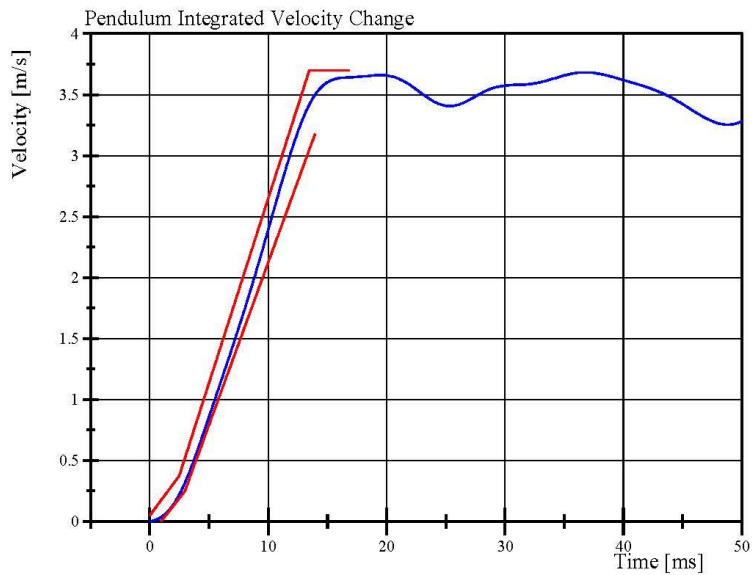
Neck Buffer Molded(Yellow) S/N: N/A

Transportation Research Center Inc.

Left Lateral Neck
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018



Filter Class: CFC_60
Max: 34.8 g at 10.2 ms
Min: -7.3 g at 22.7 ms



Filter Class: CFC_60
Max: 3.7 m/s at 36.7 ms
Min: 0.0 m/s at 0.0 ms

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

04.29.2018 06:59:05 1458

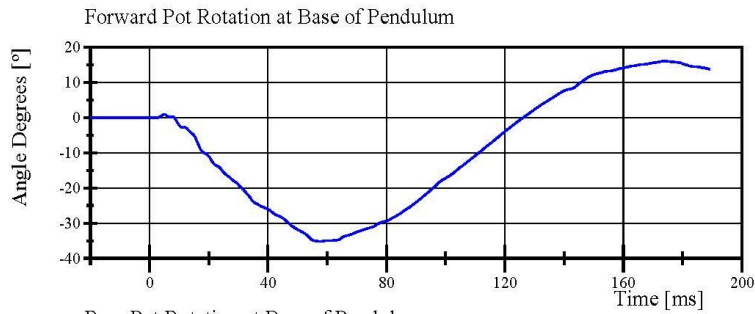


Transportation Research Center Inc.

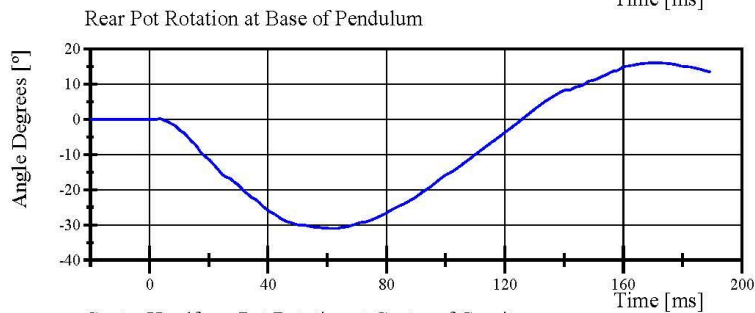
Left Lateral Neck

ES-2re Serial No. F030 Certification No. 56-1

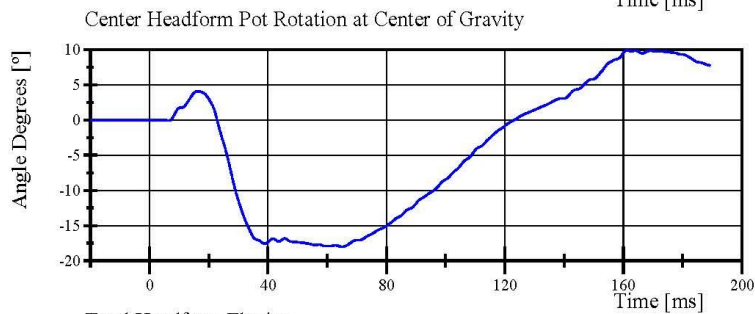
Test Date: 4/29/2018



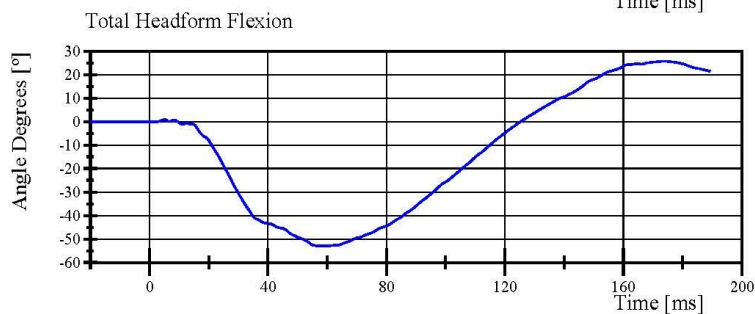
Filter Class: CFC_180
Max: 16.0 ° at 173.8 ms
Min: -35.2 ° at 57.8 ms



Filter Class: CFC_180
Max: 16.0 ° at 170.6 ms
Min: -31.1 ° at 61.5 ms



Filter Class: CFC_180
Max: 9.9 ° at 161.3 ms
Min: -18.0 ° at 65.0 ms



Filter Class: CFC_180
Max: 25.7 ° at 173.6 ms
Min: -53.0 ° at 58.4 ms

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

04.29.2018 06:59:06 1458



Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	32 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-9.69 g	Yes

Test meets specifications.

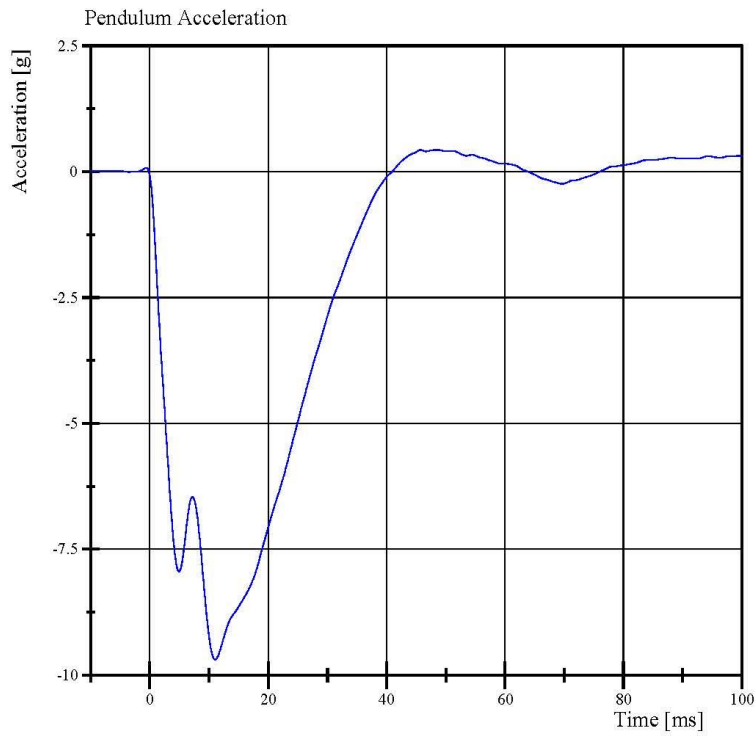
Condition: Used

Comments:

Arm S/N: 175-3501-07014

Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018



Filter Class: CFC_180
Max: 0.4 g at 48.2 ms
Min: -9.7 g at 11.0 ms

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

04.29.2018 10:15:16 553



Transportation Research Center Inc.

4.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	47.1 mm	Yes

Test meets specifications.

Condition: Used

Comments:

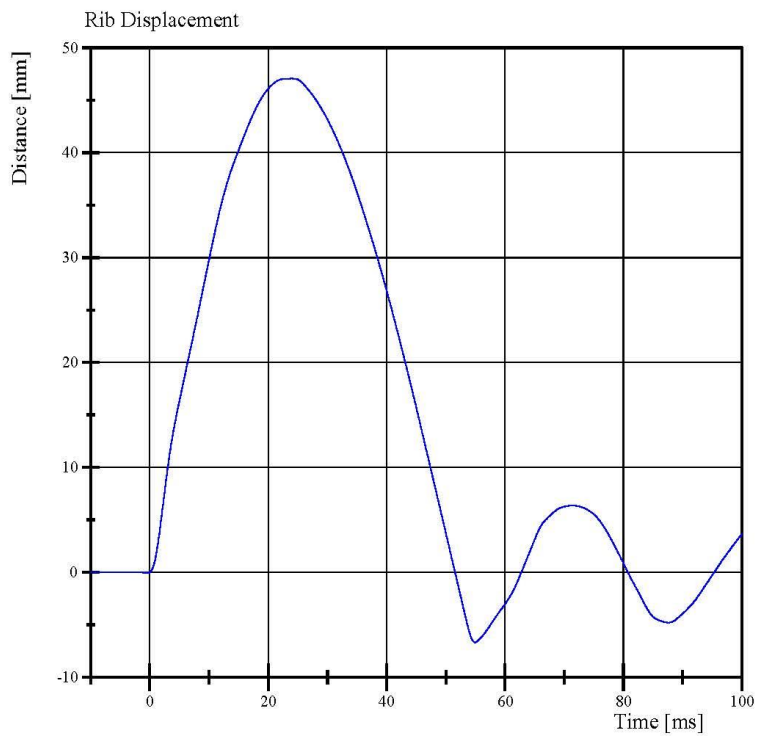
Drop Height: 816mm

Rib Module: 175-4008-A

Rib Foam: 07229

Transportation Research Center Inc.

4.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018



Filter Class: CFC_180
Max: 47.1 mm at 23.9 ms
Min: -6.7 mm at 54.9 ms

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

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Transportation Research Center Inc.

3.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.0 mm	Yes

Test meets specifications.

Condition: Used

Comments:

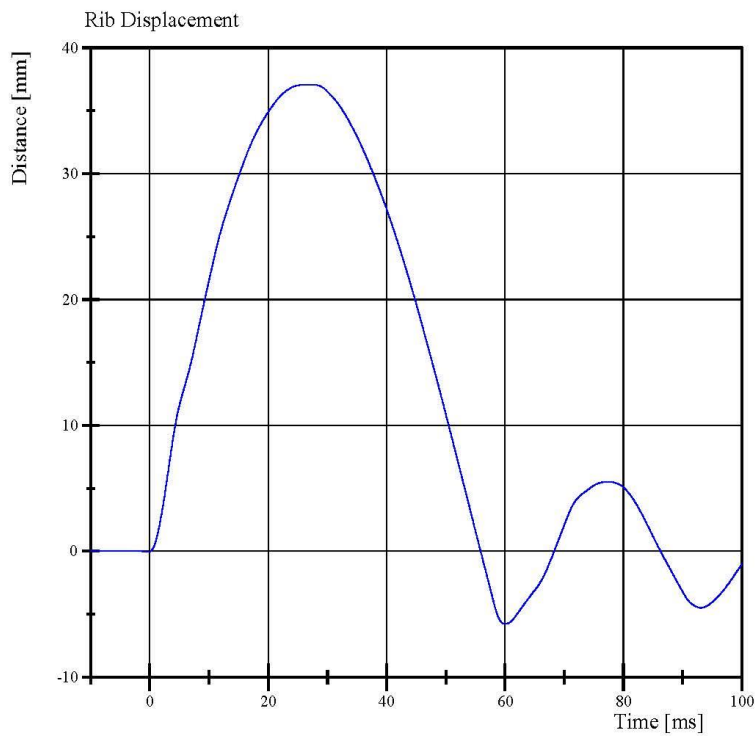
Drop Height: 462 mm

Rib Module: 175-4008-A

Rib Foam: 07229

Transportation Research Center Inc.

3.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018



Filter Class: CFC_180
Max: 37.0 mm at 27.6 ms
Min: -5.8 mm at 60.0 ms

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

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Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.3 mm	Yes

Test meets specifications.

Condition: Used

Comments:

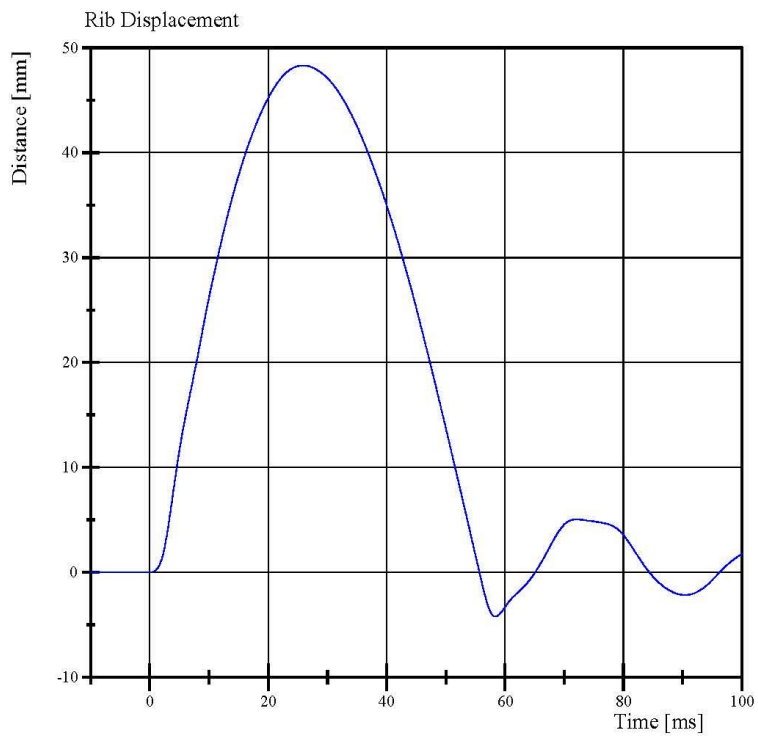
Drop Height: 816 mm

Rib Module: 175-4008-A

Rib Foam: E2A-DCT-04082

Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018



Filter Class: CFC_180
Max: 48.3 mm at 25.9 ms
Min: -4.2 mm at 58.3 ms

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

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Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.4 mm	Yes

Test meets specifications.

Condition: Used

Comments:

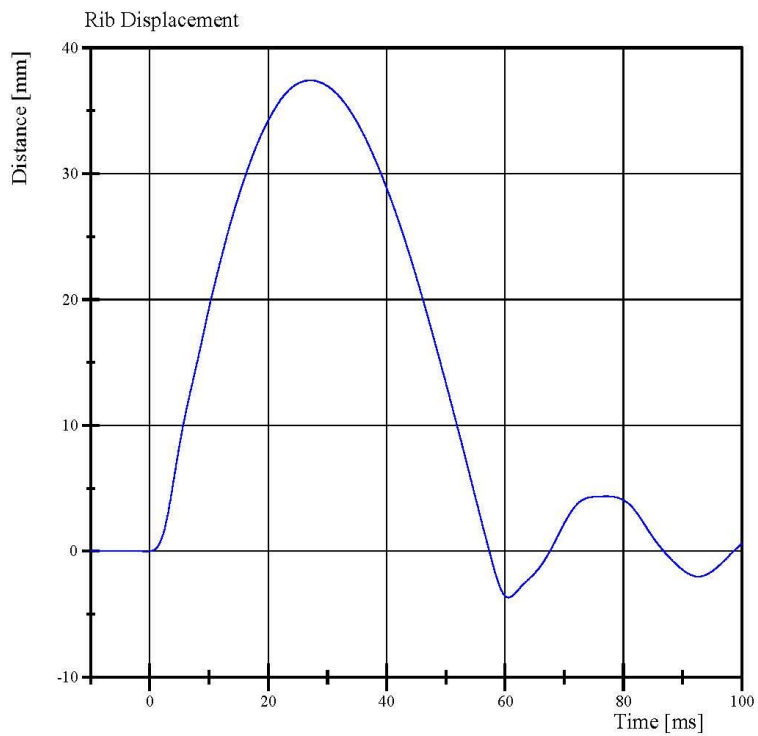
Drop Height: 462 mm

Rib Module: 175-4008-A

Rib Foam: E2A-DCT-04082

Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018



Filter Class: CFC_180
Max: 37.4 mm at 27.1 ms
Min: -3.7 mm at 60.6 ms

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

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Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	49.3 mm	Yes

Test meets specifications.

Condition: Used

Comments:

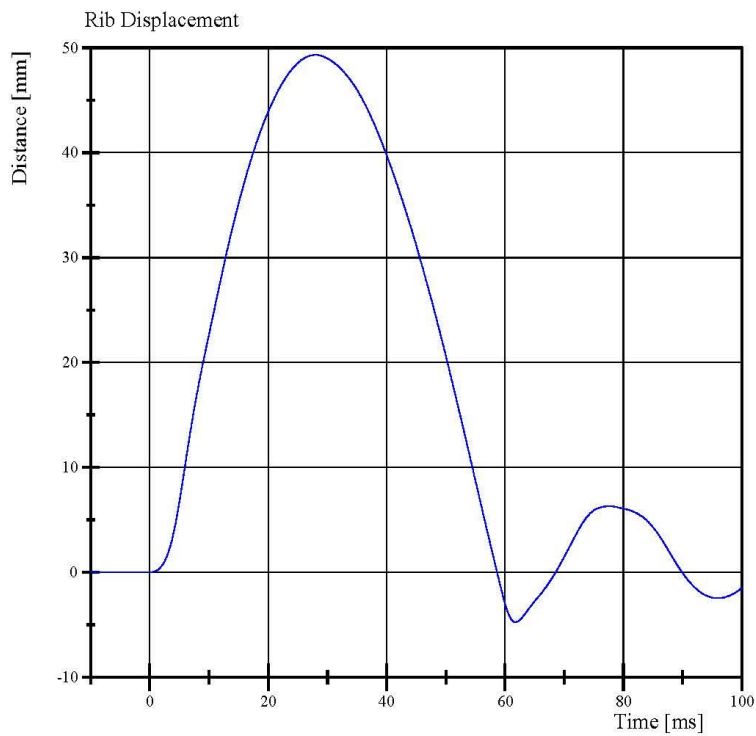
Drop Height: 816 mm

Rib Module: 175-4008-A-06-017

Rib Foam: 175-4003-05125

Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018



Filter Class: CFC_180
Max: 49.3 mm at 28.0 ms
Min: -4.8 mm at 61.8 ms

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

04.28.2018 15:57:16 373



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	38.2 mm	Yes

Test meets specifications.

Condition: Used

Comments:

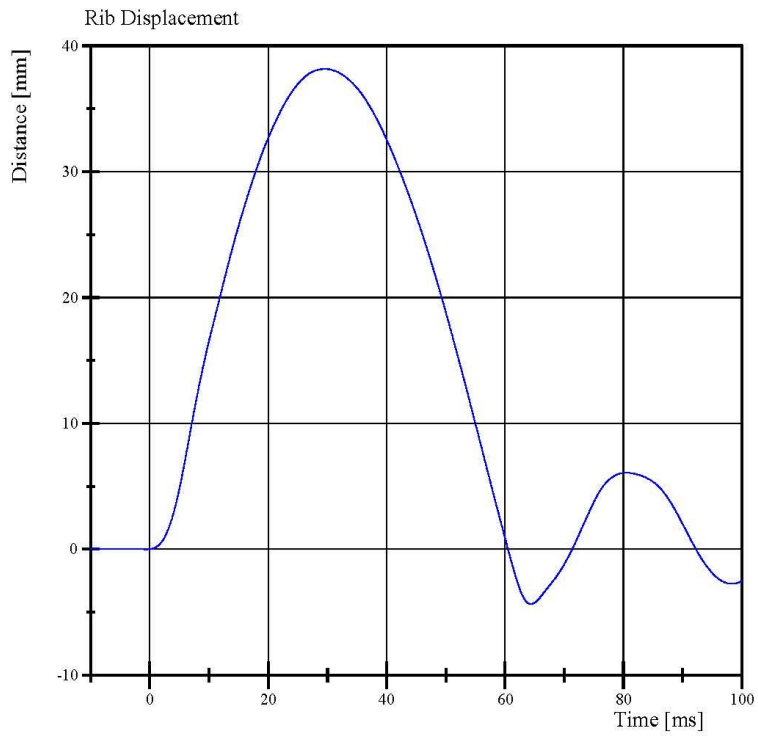
Drop Height: 462 mm

Rib Module: 175-4008-A-06-017

Rib Foam: 175-4003-05125

Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018



Filter Class: CFC_180
Max: 38.2 mm at 29.6 ms
Min: -4.4 mm at 64.3 ms

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

04.28.2018 16:13:52 435



Transportation Research Center Inc.

Left Lower Thorax
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Impactor Velocity	5.4 - 5.60 m/s	5.503 m/s	Yes
Peak Impactor Force after 6 ms	(-5,100) - (-6,200) N	-5,312.6 N	Yes
Upper Rib Displacement	34 - 41 mm	38.6 mm	Yes
Center Rib Displacement	37 - 45 mm	42.7 mm	Yes
Lower Rib Displacement	37 - 44 mm	41.9 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Rib:

Rib Module S/N: 175-4008-A

Rib Foam S/N: 175-4003-07229

Center Rib:

Rib Module S/N: 175-4008-A

Rib Foam S/N: E2A-DCT-04082

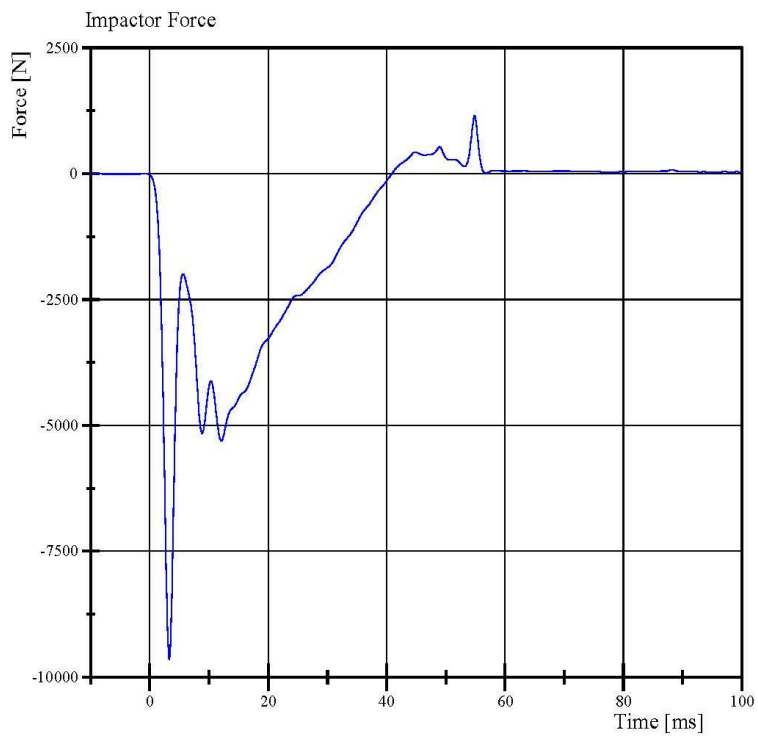
Lower Rib:

Rib Module S/N: 175-4008-A-06-017

Rib Foam S/N: 175-4003-05125

Transportation Research Center Inc.

Left Lower Thorax
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018



Filter Class: CFC_180
Max: 1,154.6 N at 54.9 ms
Min: -9,648.3 N at 3.3 ms

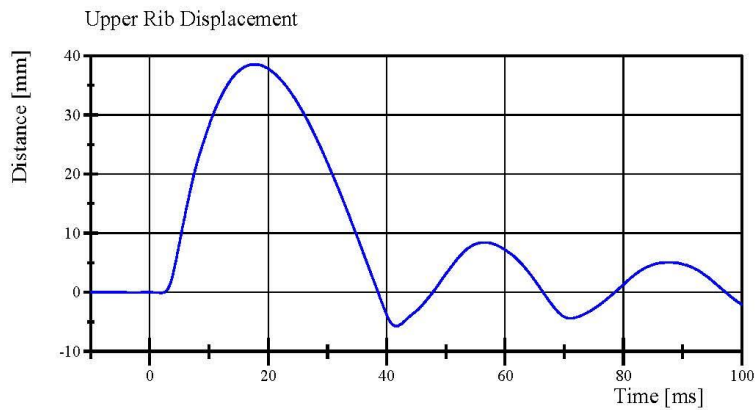
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

04.29.2018 10:42:32 439

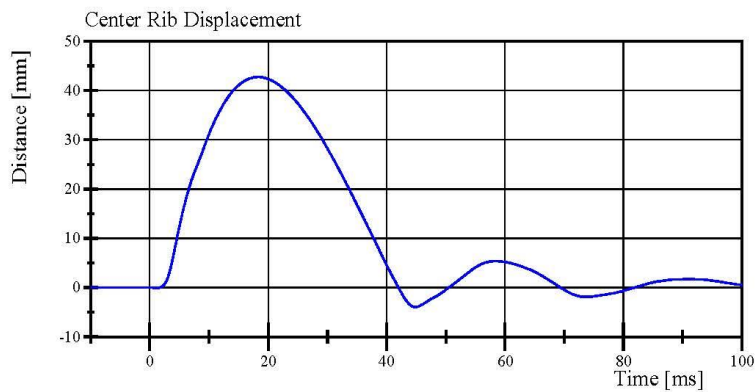


Transportation Research Center Inc.

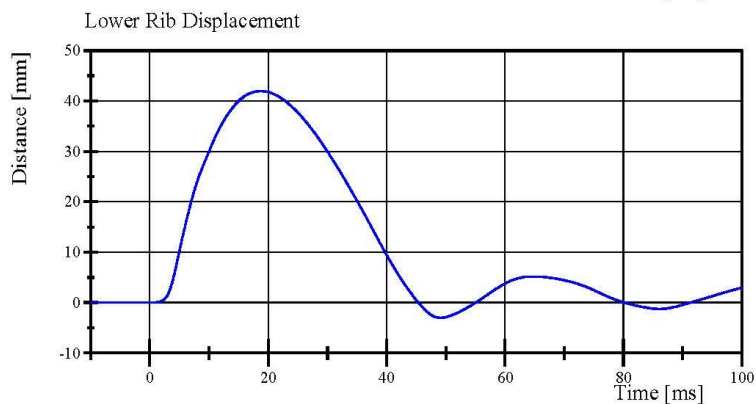
Left Lower Thorax
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018



Filter Class: CFC_180
Max: 38.6 mm at 17.7 ms
Min: -5.7 mm at 41.6 ms



Filter Class: CFC_180
Max: 42.7 mm at 18.3 ms
Min: -4.0 mm at 44.8 ms



Filter Class: CFC_180
Max: 41.9 mm at 18.7 ms
Min: -3.0 mm at 49.1 ms

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

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Transportation Research Center Inc.

Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	4.07 m/s	Yes
Test Probe Force			
Peak	4,000 - 4,800 N	4,254.8 N	Yes
Time of Peak	10.6 - 13.0 ms	10.96 ms	Yes
Total Abdominal Force			
Peak	2,200 - 2,700 N	2,453.4 N	Yes
Time of Peak	10.0 - 12.3 ms	10.88 ms	Yes

Test meets specifications.

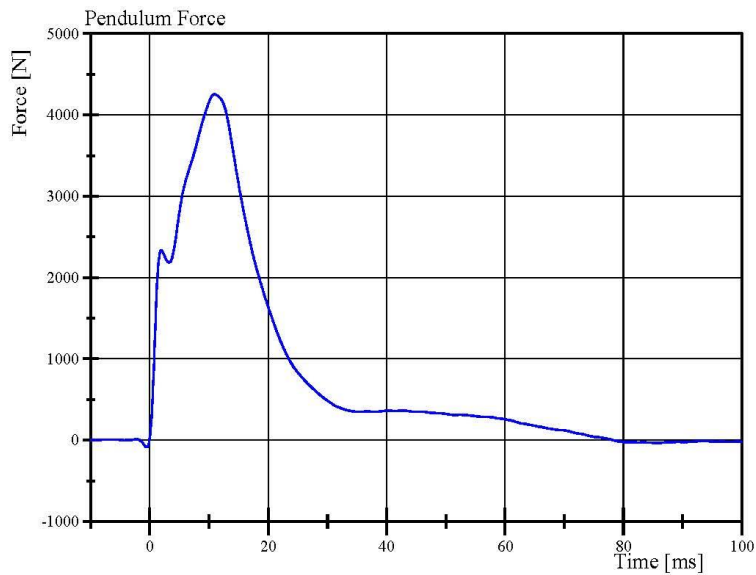
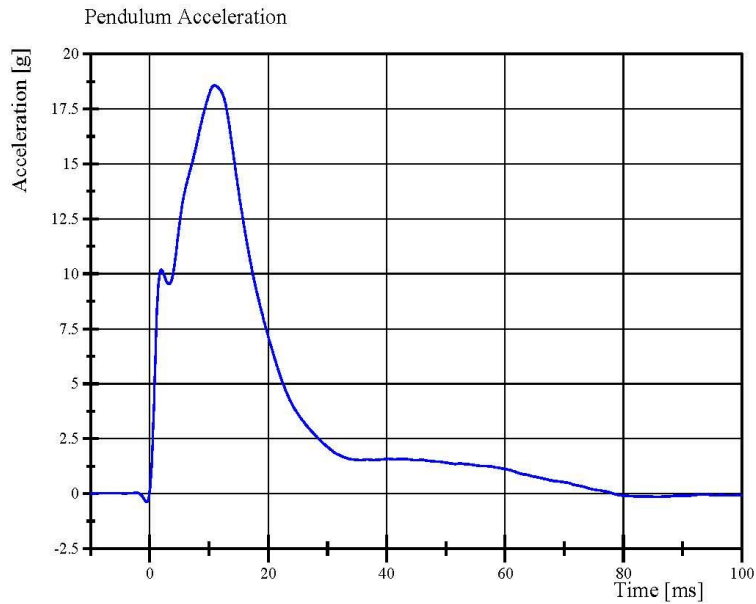
Condition: Used

Comments:

Abdomen S/N: 1066

Transportation Research Center Inc.

Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018



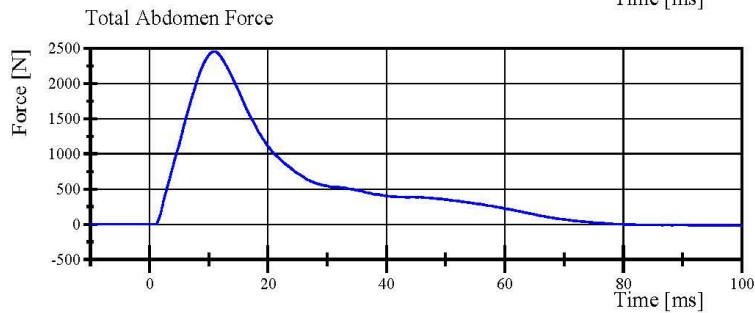
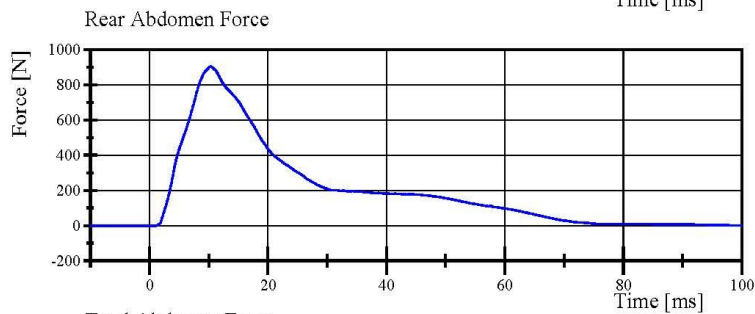
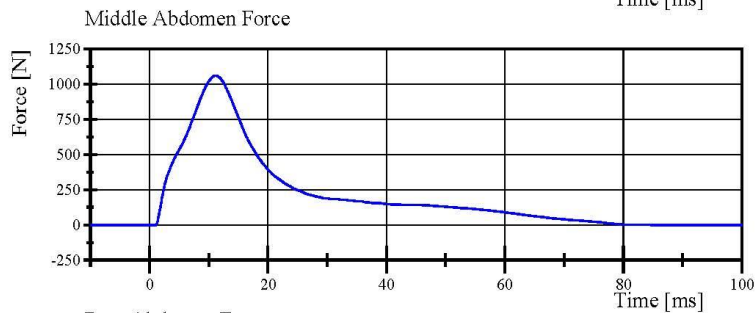
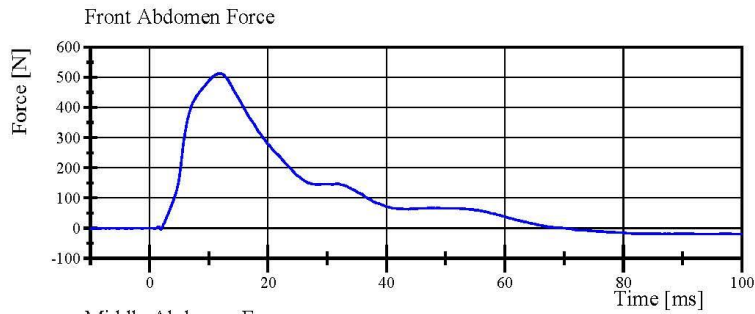
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

04.29.2018 11:31:39 585



Transportation Research Center Inc.

Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018



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

04.29.2018 11:31:40 585



Transportation Research Center Inc.

Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 56-2
Test Date: 4/29/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-5.95) - (-6.15) m/s	-6.065 m/s	Yes
Maximum Headform Flexion			
Peak	(-45) - (-55) deg	-49.1 deg	Yes
Time of Peak	39 - 53 ms	46.6 ms	Yes
Headform Flexion Decay			
- Peak to Zero	37 - 57 ms	39.0 ms	Yes

Test meets specifications.

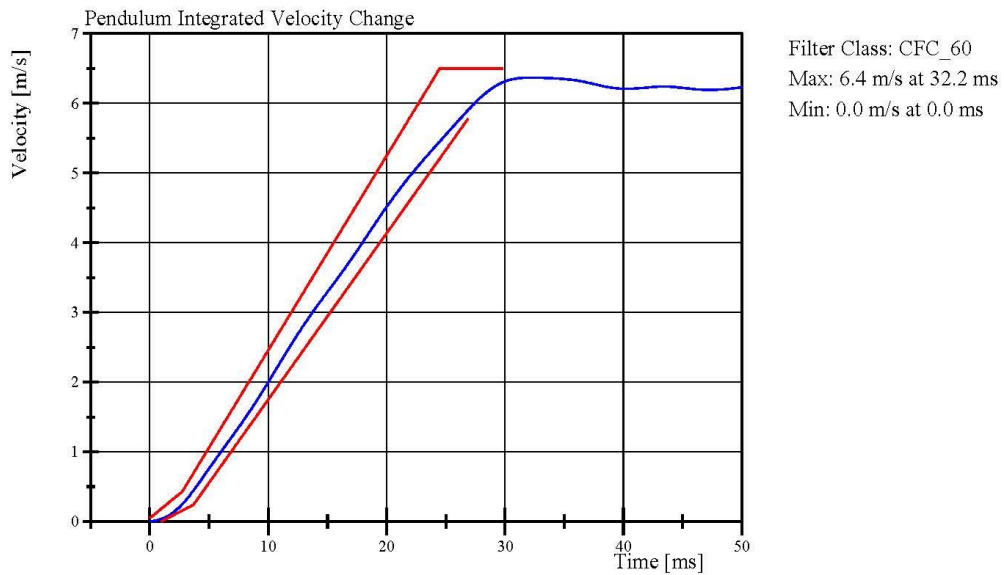
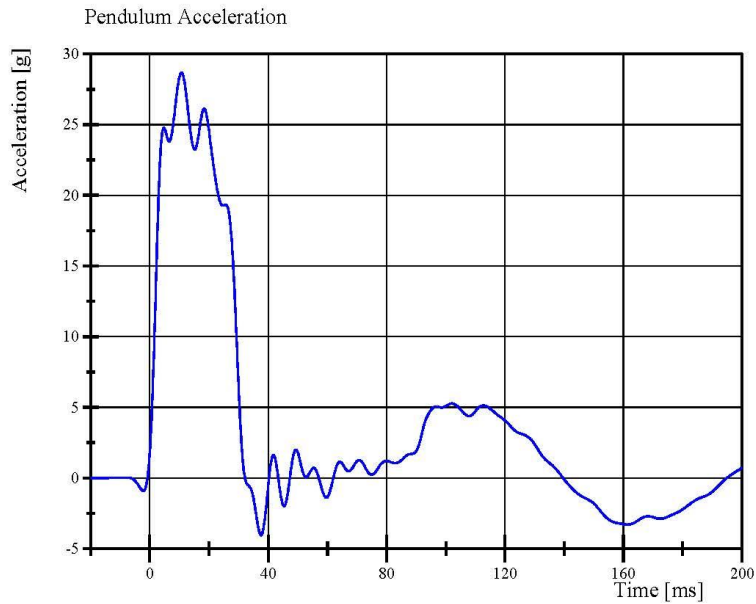
Condition: Used

Comments:

Lumbar S/N: 175-5501 DP0815

Transportation Research Center Inc.

Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 56-2
Test Date: 4/29/2018



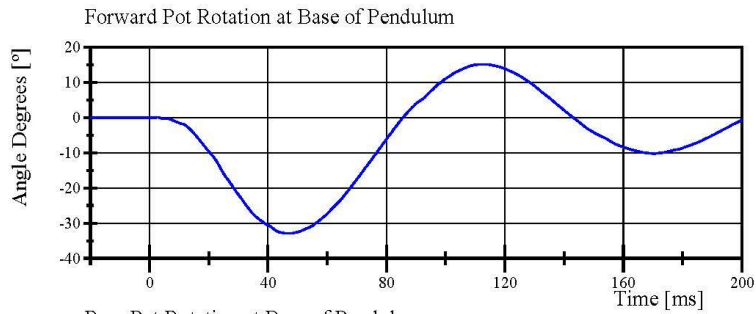
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

04.29.2018 08:35:00 644

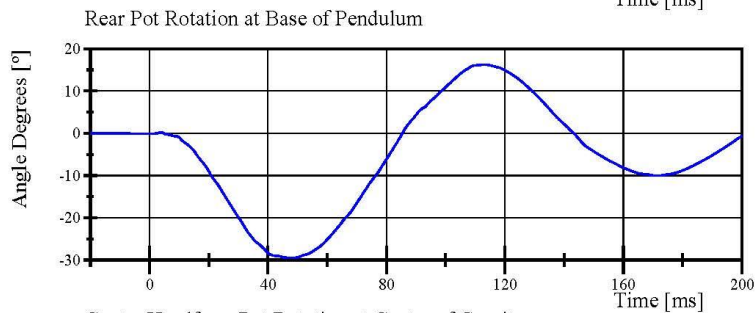


Transportation Research Center Inc.

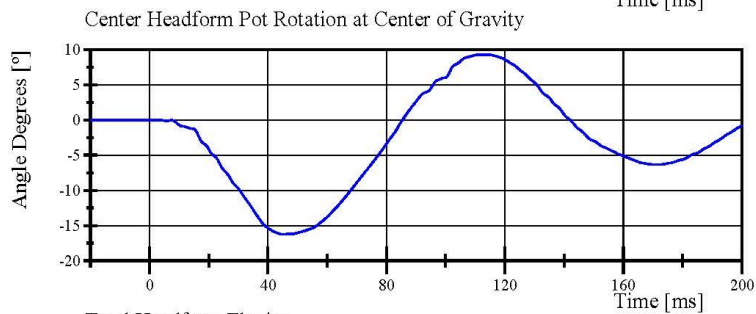
Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 56-2
Test Date: 4/29/2018



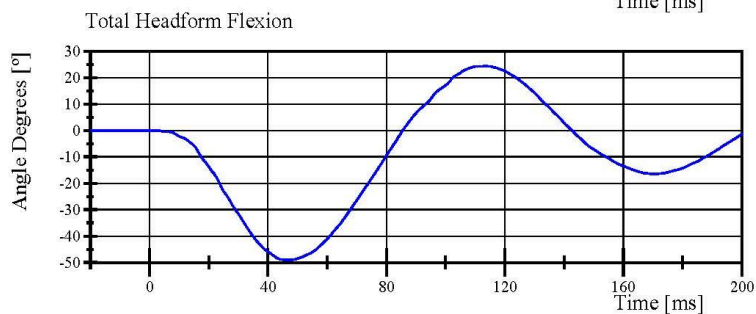
Filter Class: CFC_180
Max: 15.2 ° at 113.3 ms
Min: -32.9 ° at 46.9 ms



Filter Class: CFC_180
Max: 16.3 ° at 113.2 ms
Min: -29.5 ° at 48.4 ms



Filter Class: CFC_180
Max: 9.3 ° at 114.2 ms
Min: -16.2 ° at 44.9 ms



Filter Class: CFC_180
Max: 24.4 ° at 113.4 ms
Min: -49.1 ° at 46.6 ms

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

04.29.2018 08:35:01 644



Transportation Research Center Inc.

Left Lateral Pelvis
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Test Probe Force			
Peak	4,700 - 5,400 N	5,174.9 N	Yes
Time of Peak	11.8 - 16.1 ms	12.96 ms	Yes
Pubic Symphysis Force			
Peak	(-1,230) - (-1,590) N	-1,303.9 N	Yes
Time of Peak	12.2 - 17.0 ms	12.96 ms	Yes

Test meets specifications.

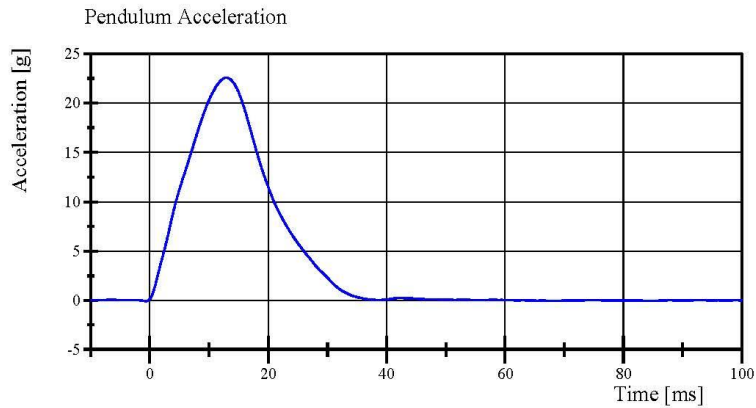
Condition: Used

Comments:

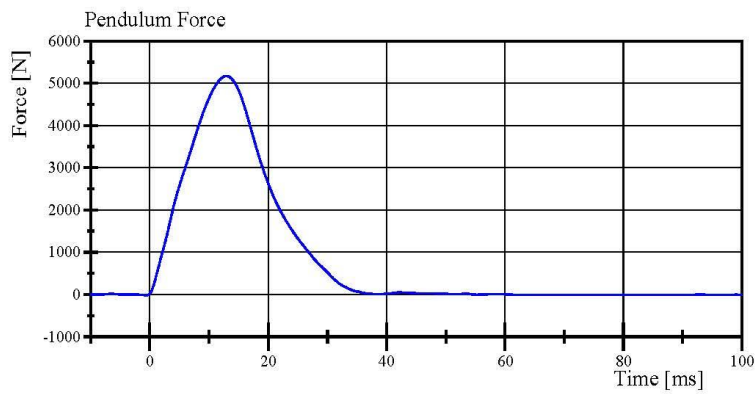
Pelvis Skin S/N: N/A

Transportation Research Center Inc.

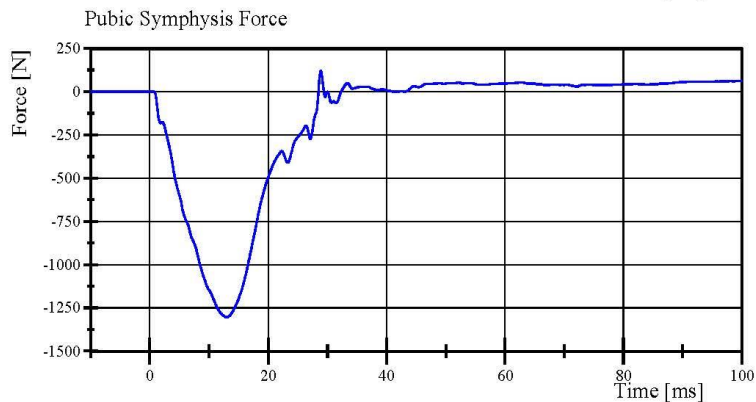
Left Lateral Pelvis
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018



Filter Class: CFC_180
Max: 22.6 g at 13.0 ms
Min: -0.1 g at -0.6 ms



Filter Class: CFC_180
Max: 5,174.9 N at 13.0 ms
Min: -17.3 N at -0.6 ms



Filter Class: CFC_600
Max: 121.2 N at 28.9 ms
Min: -1,303.9 N at 13.0 ms

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

04.29.2018 11:46:24 598



Pre-Test Calibration Sheets
Passenger S/N 305

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 305 Calibration No. 63

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	781	Yes
B	Shoulder Pivot Height	437.0 - 453.0	448	Yes
C	H-Point Height	79.0 - 89.0	86	Yes
D	H-Point from Seat Back	141.0 - 151.0	146	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	143	Yes
H	Head Back from Backline	40.0 - 46.0	44	Yes
I	Head Depth	178.0 - 188.0	185	Yes
J	Head Circumference	541.0 - 551.0	543	Yes
K	Buttock to Knee Length	514.0 - 540.0	535	Yes
L	Popliteal Height	343.0 - 369.0	348	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	396	Yes
N	Buttock Popliteal Length	416.0 - 442.0	434	Yes
O	Chest Depth without Jacket	195.0 - 211.0	200	Yes
P	Foot Length (right)	216.0 - 232.0	222	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	320	Yes
R	Arm Length	249.0 - 259.0	252	Yes
S	Knee Joint to seat Back	478.0 - 493.0	482	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	351	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	875	Yes
Z	Waist Circumference	761.0 - 791.0	782	Yes

Revised 9/29/2005



Transportation Research Center Inc.

Left Lateral Head Drop

SID IIS Serial No. 305 Certification No. 63-2

Test Date: 4/17/2018

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	32 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	121.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	3.2 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: 1253

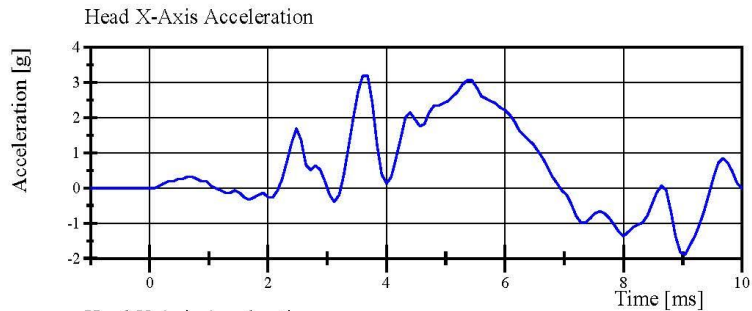
Skull S/N: 180/1001/C

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIS Serial No. 305 Certification No. 63-2

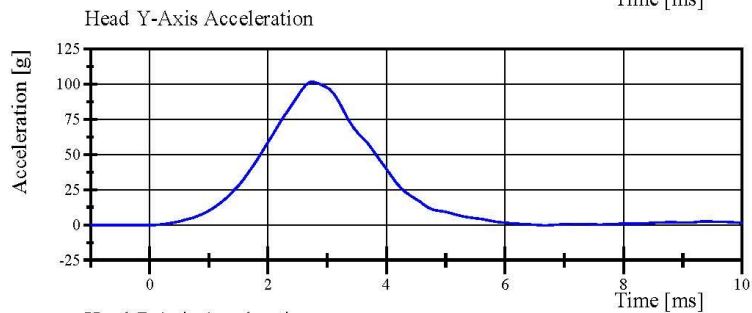
Test Date: 4/17/2018



Filter Class: CFC_1000

Max: 3.2 g at 3.6 ms

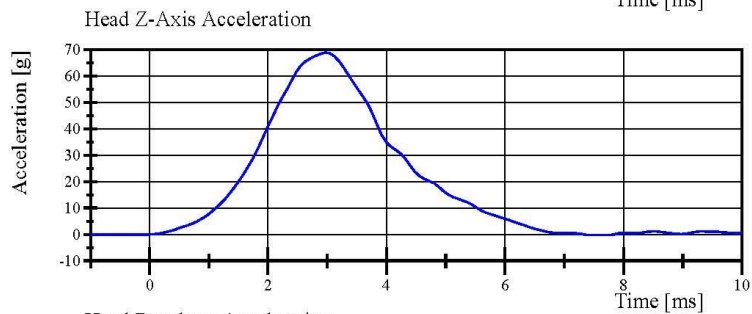
Min: -1.9 g at 9.0 ms



Filter Class: CFC_1000

Max: 101.7 g at 2.7 ms

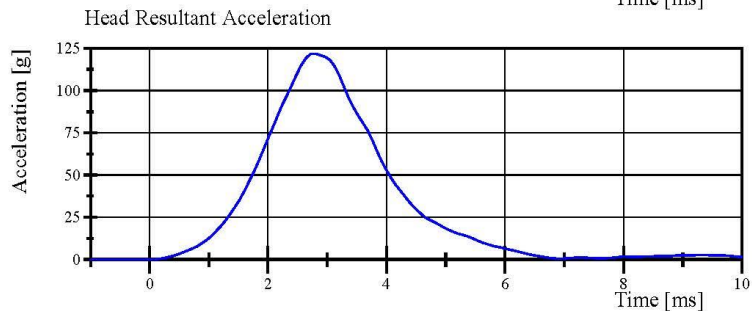
Min: -0.3 g at 6.6 ms



Filter Class: CFC_1000

Max: 68.9 g at 3.0 ms

Min: -0.3 g at 7.4 ms



Filter Class: CFC_1000

Max: 121.9 g at 2.8 ms

Min: 0.0 g at +0.6 ms

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

04.17.2018 07:22:45 196



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 63-3

Test Date: 4/18/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	33 %	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	2.671 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	4.007 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.385 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	6.013 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	-76.6 deg	Yes
Time of Peak	50 - 70 ms	60.6 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	40.4 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	122.4 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: 180-2001-606

Neck Cable S/N: N/A

Nodding Blocks:

Front S/N: DN-3094

Rear S/N: 8550-DL6580

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

04.18.2018 10:24:31 711



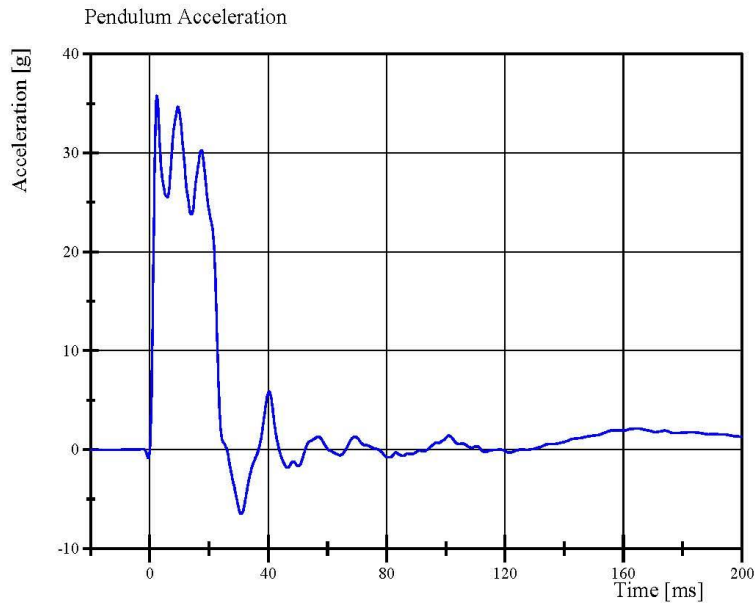
Page 11 of 31

Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 63-3

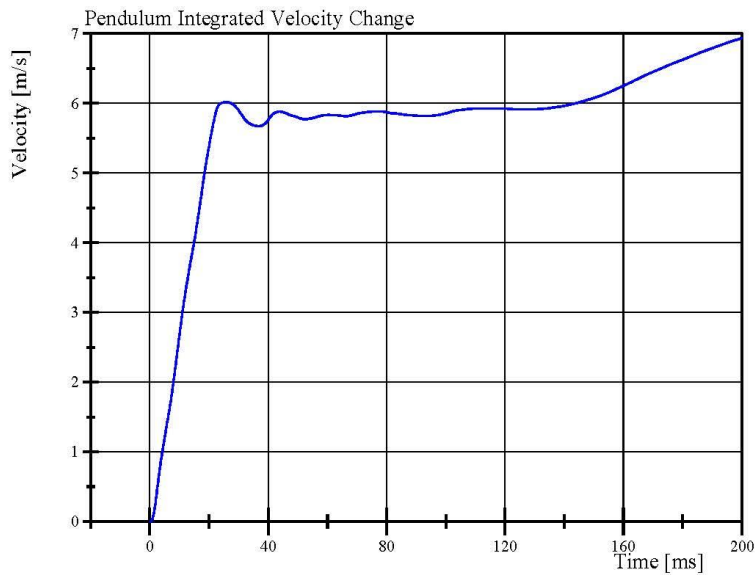
Test Date: 4/18/2018



Filter Class: CFC_180

Max: 35.8 g at 2.4 ms

Min: -6.5 g at 30.8 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

04.18.2018 10:25:18 711

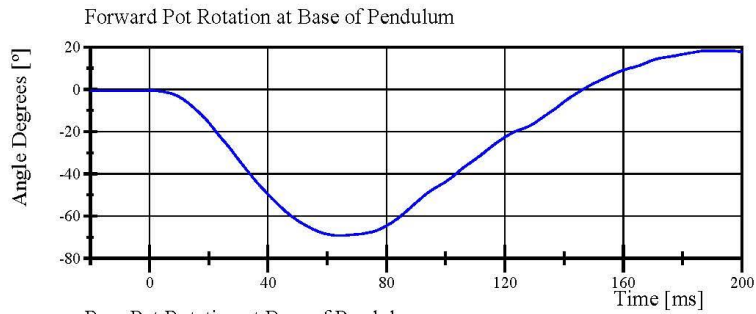


Transportation Research Center Inc.

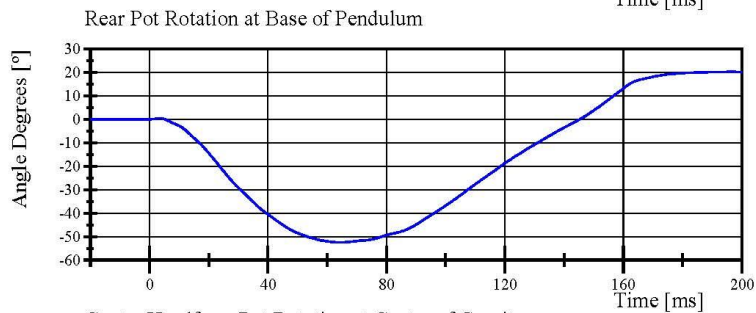
Left Lateral Neck

SID IIs Serial No. 305 Certification No. 63-3

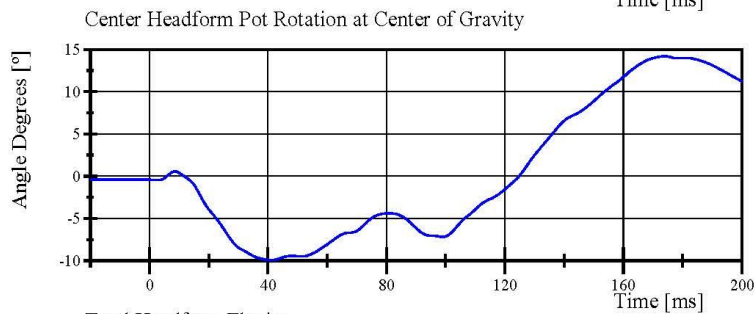
Test Date: 4/18/2018



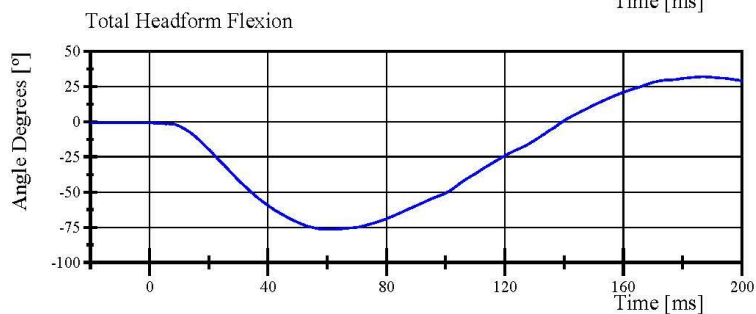
Filter Class: CFC_60
Max: 18.4 ° at 193.5 ms
Min: -69.1 ° at 64.2 ms



Filter Class: CFC_60
Max: 20.2 ° at 196.2 ms
Min: -52.4 ° at 64.4 ms



Filter Class: CFC_60
Max: 14.2 ° at 173.8 ms
Min: -9.9 ° at 41.2 ms



Filter Class: CFC_60
Max: 31.8 ° at 186.9 ms
Min: -76.6 ° at 60.6 ms

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

04.18.2018 10:25:18 711

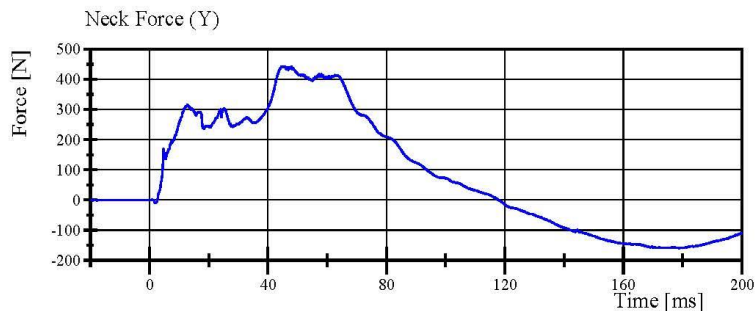


Transportation Research Center Inc.

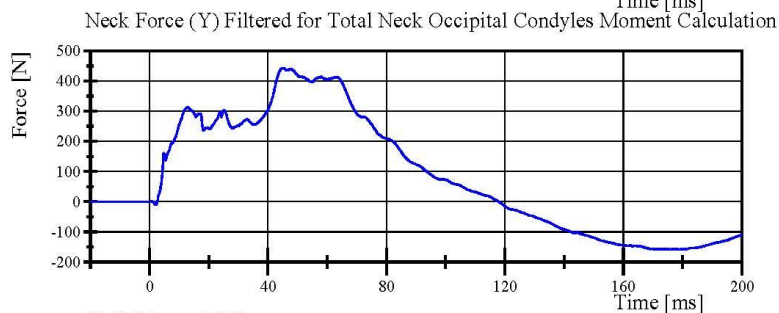
Left Lateral Neck

SID IIS Serial No. 305 Certification No. 63-3

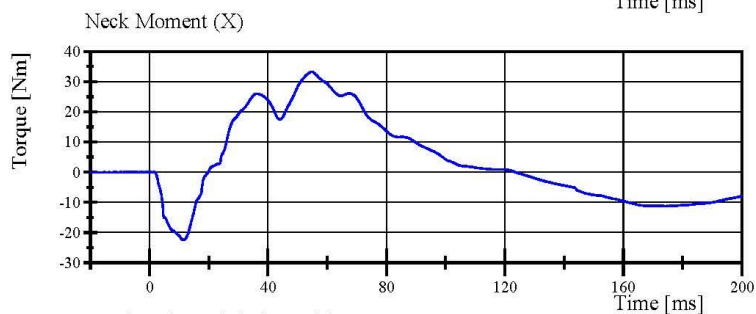
Test Date: 4/18/2018



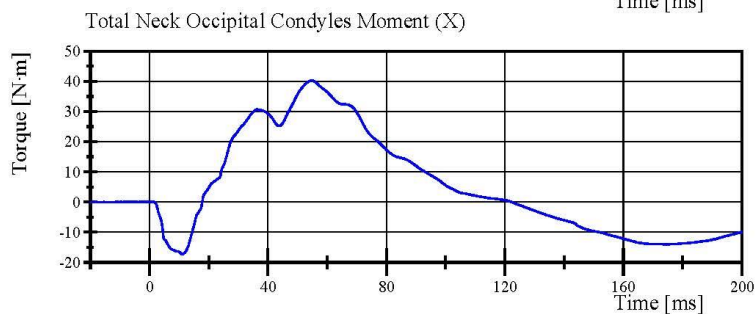
Filter Class: CFC_1000
Max: 443.7 N at 45.0 ms
Min: -159.3 N at 179.0 ms



Filter Class: CFC_600
Max: 443.5 N at 45.0 ms
Min: -158.5 N at 179.0 ms



Filter Class: CFC_600
Max: 33.3 Nm at 54.6 ms
Min: -22.4 Nm at 11.2 ms



Filter Class: Without_(Consta
Max: 40.4 N.m at 54.6 ms
Min: -17.3 N.m at 11.0 ms

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

04.18.2018 10:25:19 711



Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 305 Certification No. 63-1
Test Date: 4/17/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.36 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-16.4 g	Yes
Shoulder Displacement	28 - 37 mm	31.2 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	20.3 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 952

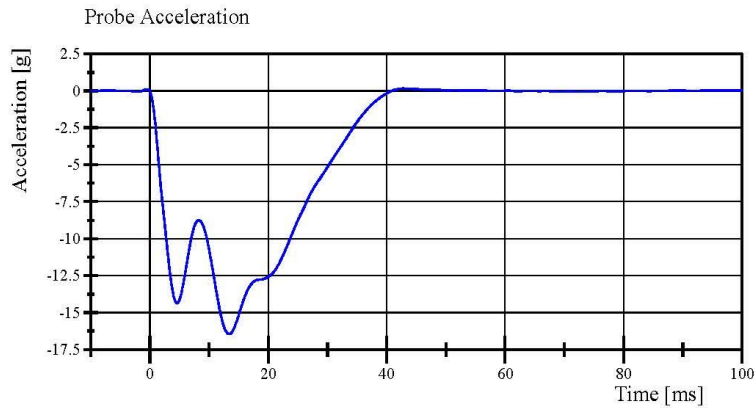
Shoulder Rib S/N: 180-3355 169

Transportation Research Center Inc.

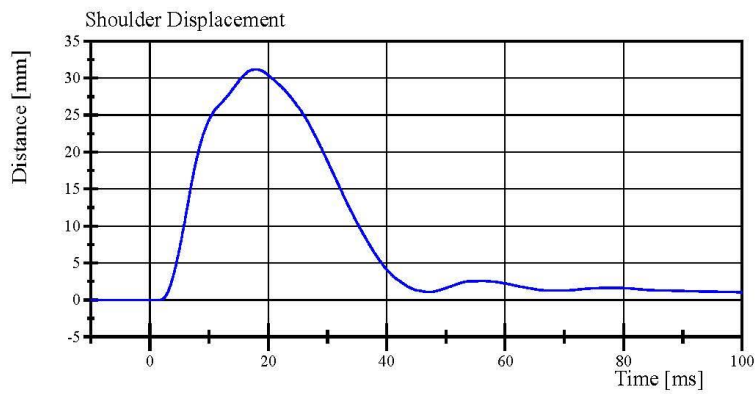
Left Lateral Shoulder

SID IIs Serial No. 305 Certification No. 63-1

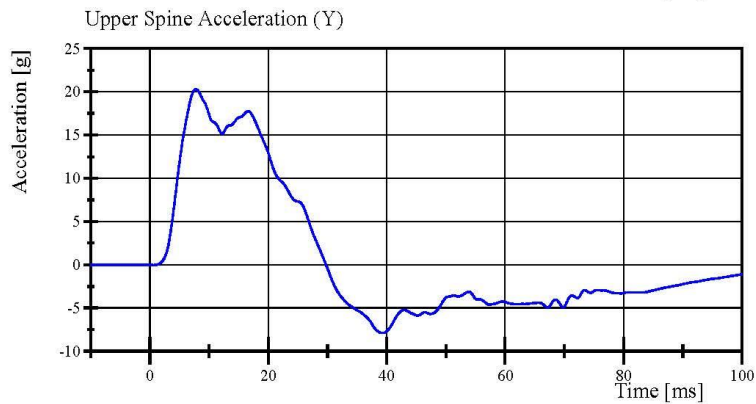
Test Date: 4/17/2018



Filter Class: CFC_180
Max: 0.2 g at 42.7 ms
Min: -16.4 g at 13.4 ms



Filter Class: CFC_600
Max: 31.2 mm at 17.9 ms
Min: -0.0 mm at 1.6 ms



Filter Class: CFC_180
Max: 20.3 g at 7.8 ms
Min: -7.9 g at 39.3 ms

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

04.17.2018 15:52:51 839



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIS Serial No. 305 Certification No. 63-1
Test Date: 4/18/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.752 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-32.4 g	Yes
Shoulder Displacement	31 - 40 mm	34.9 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	26.7 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.1 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	33.1 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	39.1 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	33.6 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 952

Upper Thorax Rib S/N: RS506

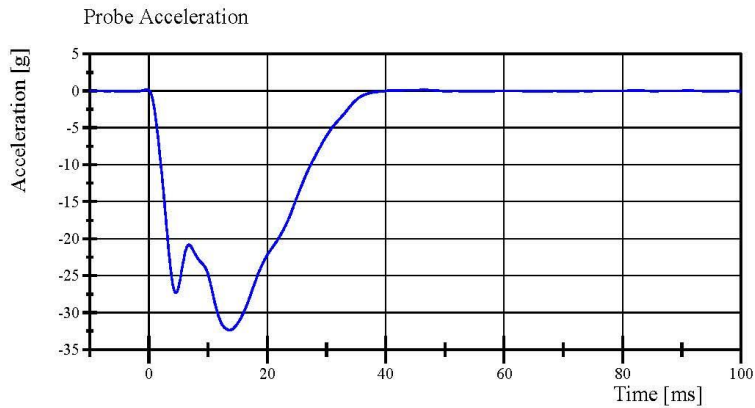
Middle Thorax Rib S/N: RS506

Lower Thorax Rib S/N: RS506

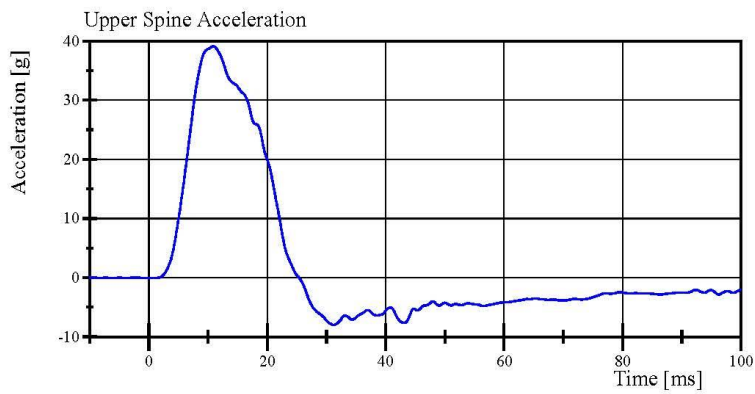
Upper Thorax Pad S/N: 180-3451

Transportation Research Center Inc.

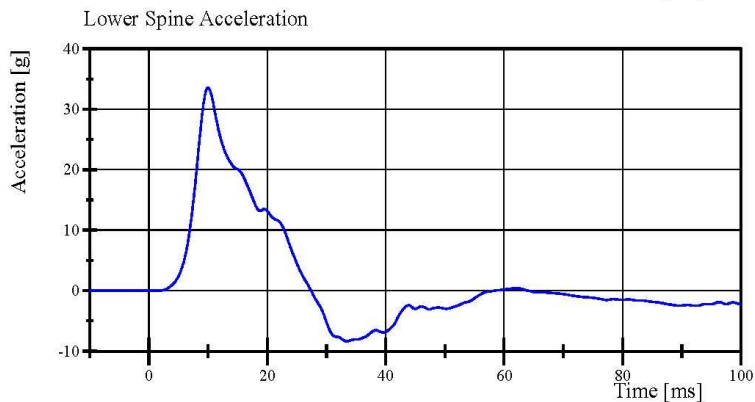
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 63-1
Test Date: 4/18/2018



Filter Class: CFC_180
Max: 0.2 g at -0.3 ms
Min: -32.4 g at 13.7 ms



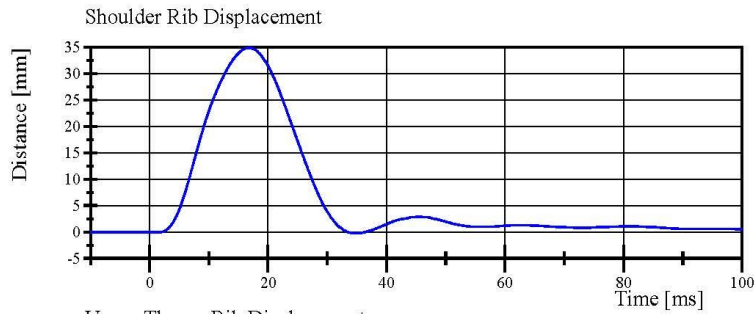
Filter Class: CFC_180
Max: 39.1 g at 10.9 ms
Min: -8.0 g at 31.2 ms



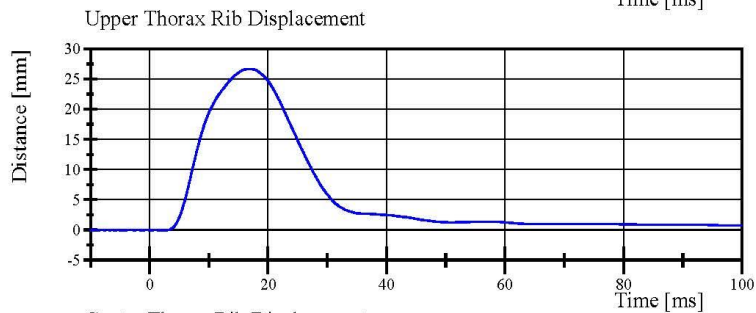
Filter Class: CFC_180
Max: 33.6 g at 10.0 ms
Min: -8.4 g at 33.4 ms

Transportation Research Center Inc.

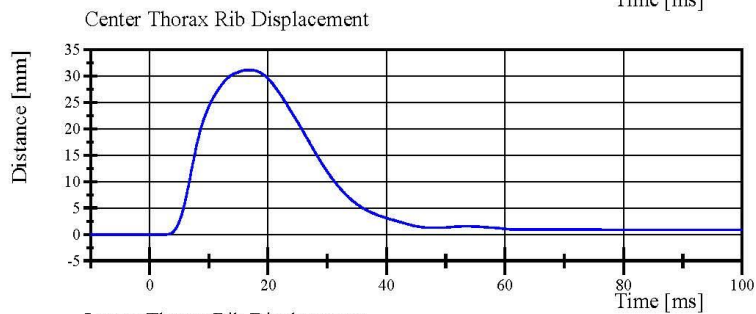
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 63-1
Test Date: 4/18/2018



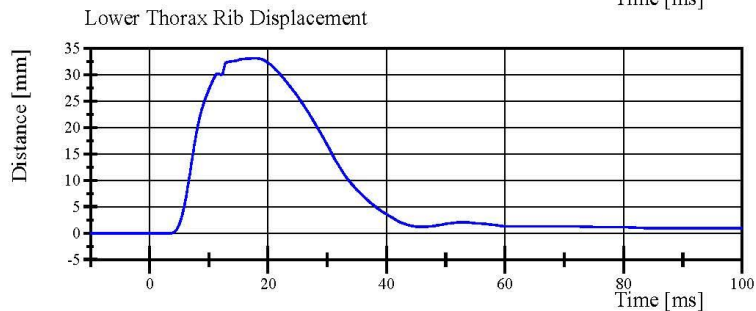
Filter Class: CFC_600
Max: 34.9 mm at 16.8 ms
Min: -0.2 mm at 34.9 ms



Filter Class: CFC_600
Max: 26.7 mm at 16.7 ms
Min: -0.0 mm at 1.9 ms



Filter Class: CFC_600
Max: 31.1 mm at 16.6 ms
Min: -0.0 mm at 0.0 ms



Filter Class: CFC_600
Max: 33.1 mm at 17.5 ms
Min: -0.0 mm at 3.3 ms

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

04.18.2018 07:35:16 602



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 63-2
Test Date: 4/18/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.376 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.6 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	33.6 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.7 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	38.5 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.5 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	10.7 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Thorax Rib S/N: RS506

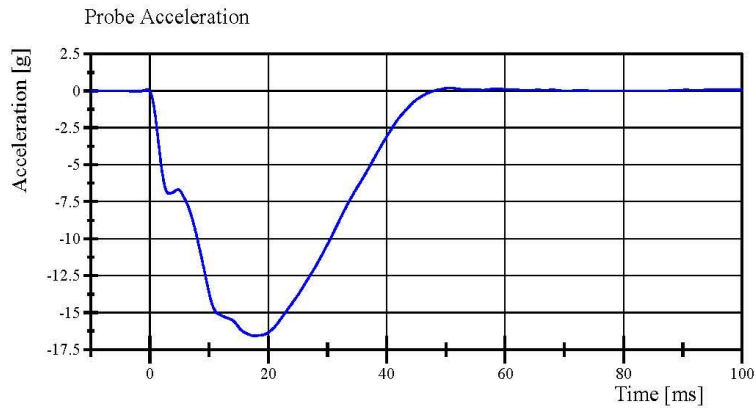
Middle Thorax Rib S/N: RS506

Lower Thorax Rib S/N: RS506

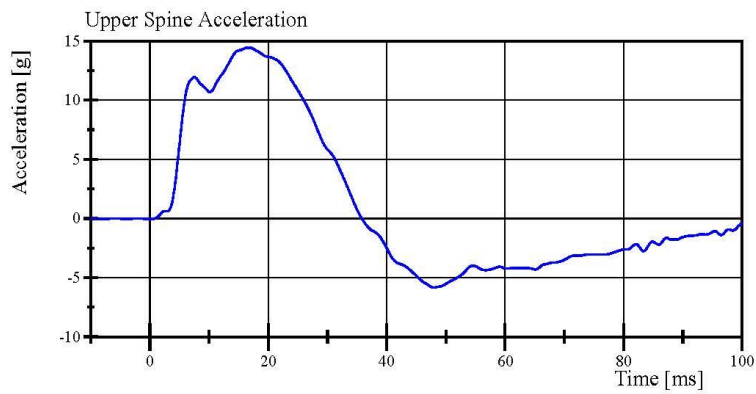
Upper Thorax Pad S/N: 180-3451

Transportation Research Center Inc.

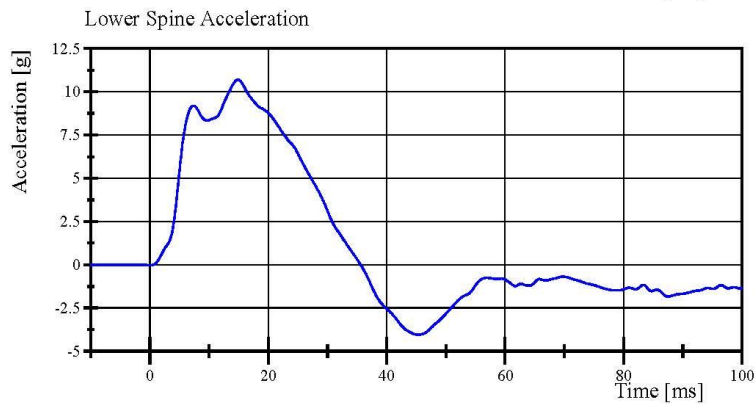
Left Lateral Thorax without Arm
SID II_s Serial No. 305 Certification No. 63-2
Test Date: 4/18/2018



Filter Class: CFC_180
Max: 0.2 g at 50.6 ms
Min: -16.6 g at 17.6 ms



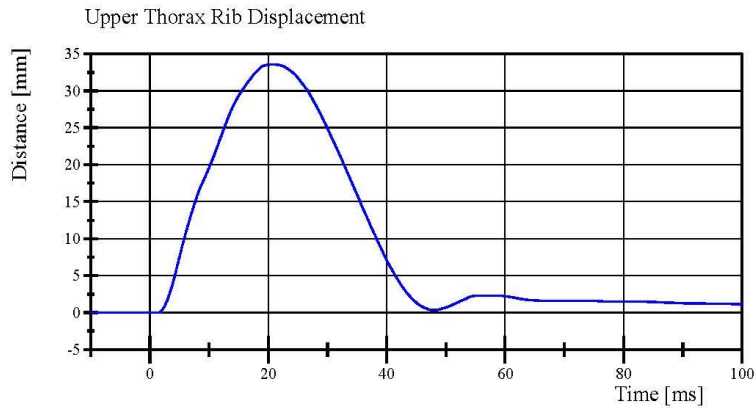
Filter Class: CFC_180
Max: 14.5 g at 16.6 ms
Min: -5.8 g at 48.0 ms



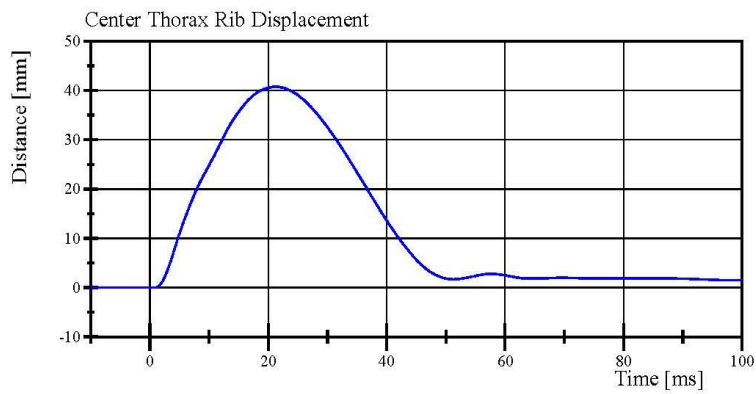
Filter Class: CFC_180
Max: 10.7 g at 14.9 ms
Min: -4.0 g at 45.3 ms

Transportation Research Center Inc.

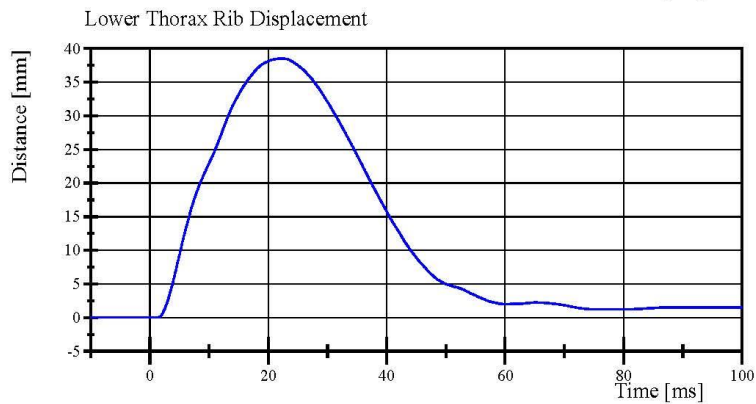
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 63-2
Test Date: 4/18/2018



Filter Class: CFC_600
Max: 33.6 mm at 20.7 ms
Min: -0.0 mm at 1.4 ms



Filter Class: CFC_600
Max: 40.7 mm at 21.3 ms
Min: -0.0 mm at 0.7 ms



Filter Class: CFC_600
Max: 38.5 mm at 22.2 ms
Min: -0.0 mm at 1.0 ms

Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 305 Certification No. 63-1
Test Date: 4/17/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.30 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-13.3 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	46.1 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	41.7 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.09 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: RS564

Lower Abdominal Rib S/N: 180-5368 DS1234

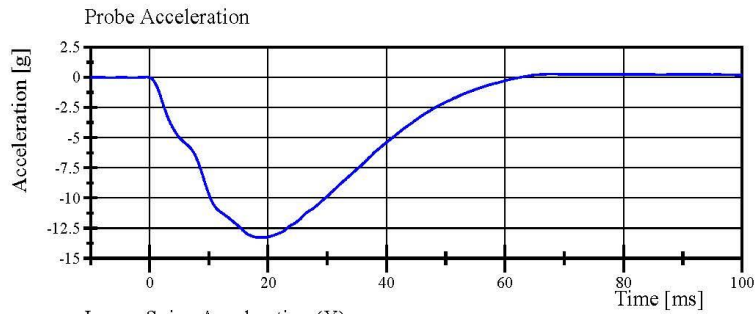
Abdominal Pad S/N: 180-3452

Transportation Research Center Inc.

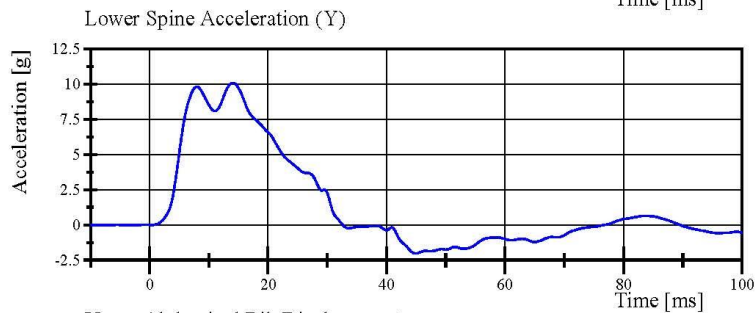
Left Lateral Abdomen

SID IIs Serial No. 305 Certification No. 63-1

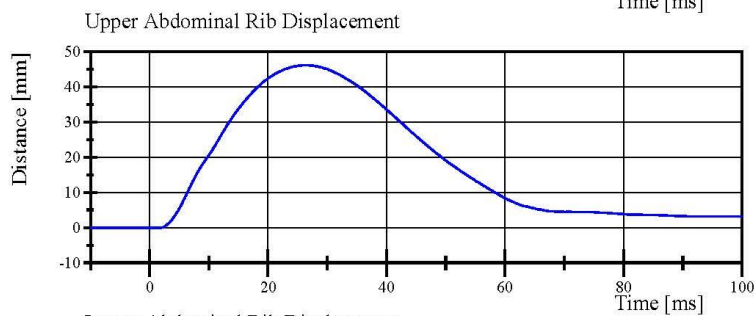
Test Date: 4/17/2018



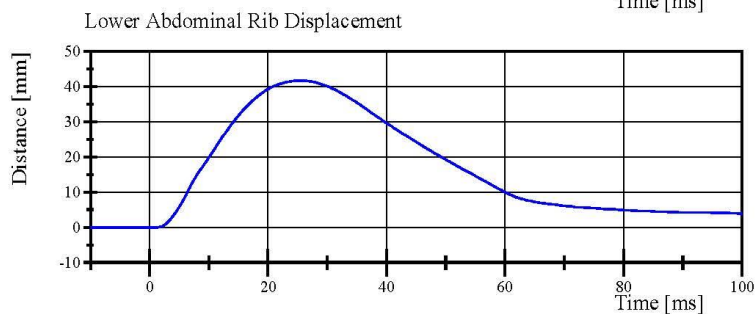
Filter Class: CFC_180
Max: 0.3 g at 67.8 ms
Min: -13.3 g at 18.9 ms



Filter Class: CFC_180
Max: 10.1 g at 14.1 ms
Min: -2.0 g at 45.0 ms



Filter Class: CFC_600
Max: 46.1 mm at 26.2 ms
Min: -0.0 mm at 1.4 ms



Filter Class: CFC_600
Max: 41.7 mm at 25.6 ms
Min: -0.0 mm at 1.0 ms

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

04.17.2018 16:03:02 655



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 305 Certification No. 63-1
Test Date: 4/18/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.61 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.06 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	37.2 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,874.0 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 884

Pelvis Plug Info:

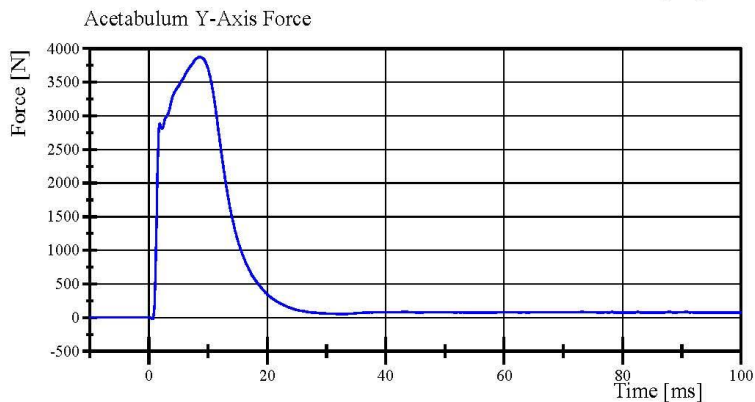
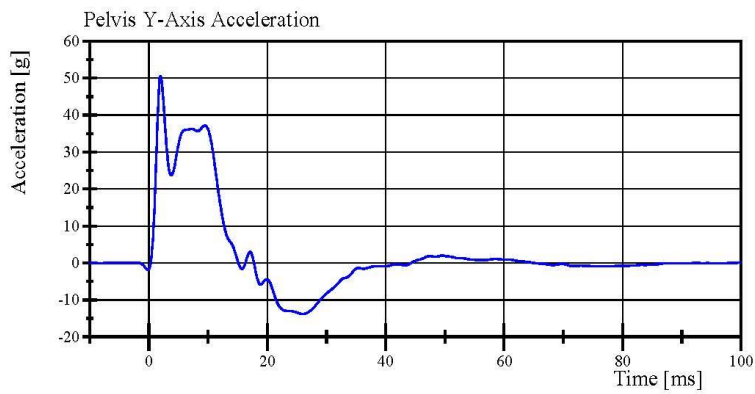
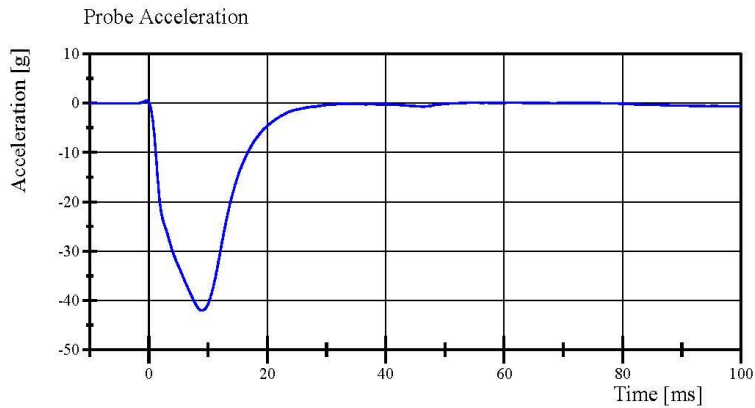
Manufacturer: SACO

S/N: 11452

Cal Date: 20160830

Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 305 Certification No. 63-1
Test Date: 4/18/2018



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

04.18.2018 08:01:49 415



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 63-1

Test Date: 4/17/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.36 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-38.6 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	30.5 g	Yes
Iliac Force	4,100 - 5,100 N	4,473.5 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 884

Pelvis Plug Info:

Manufacturer: SACO

S/N: 11452

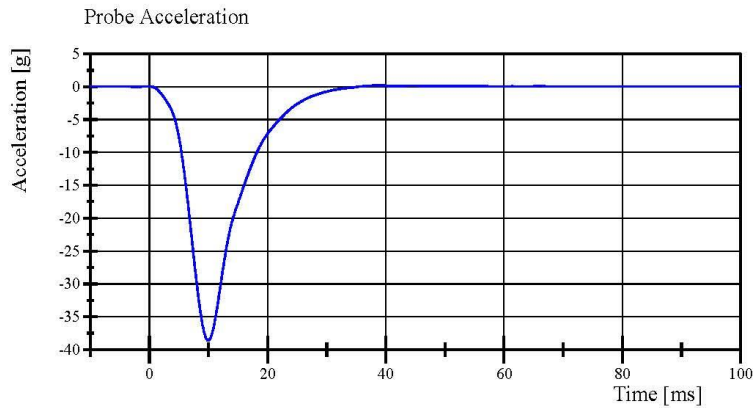
Cal Date: 20160830

Transportation Research Center Inc.

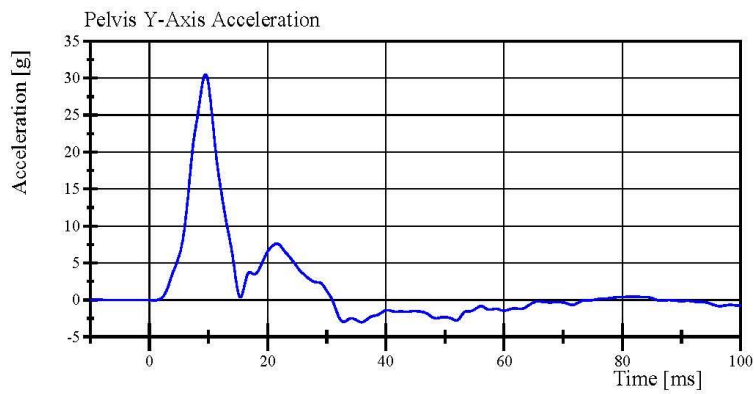
Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 63-1

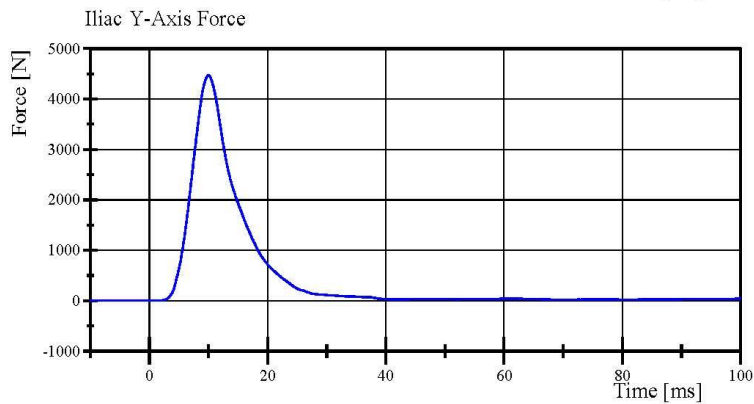
Test Date: 4/17/2018



Filter Class: CFC_180
Max: 0.2 g at 39.0 ms
Min: -38.6 g at 9.9 ms



Filter Class: CFC_180
Max: 30.5 g at 9.5 ms
Min: -3.0 g at 35.9 ms



Filter Class: CFC_600
Max: 4,473.5 N at 10.0 ms
Min: -0.7 N at -5.1 ms

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

04.17.2018 15:41:34 615



**Post-Test Calibration Sheets
Passenger S/N 305**

Transportation Research Center Inc.
SIDI's Dummy - Level D
External Dimensions
Serial No. 305 Calibration No. 64

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	781	Yes
B	Shoulder Pivot Height	437.0 - 453.0	448	Yes
C	H-Point Height	79.0 - 89.0	86	Yes
D	H-Point from Seat Back	141.0 - 151.0	146	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	143	Yes
H	Head Back from Backline	40.0 - 46.0	44	Yes
I	Head Depth	178.0 - 188.0	185	Yes
J	Head Circumference	541.0 - 551.0	543	Yes
K	Buttock to Knee Length	514.0 - 540.0	534	Yes
L	Popliteal Height	343.0 - 369.0	348	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	396	Yes
N	Buttock Popliteal Length	416.0 - 442.0	434	Yes
O	Chest Depth without Jacket	195.0 - 211.0	199	Yes
P	Foot Length (right)	216.0 - 232.0	222	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	320	Yes
R	Arm Length	249.0 - 259.0	252	Yes
S	Knee Joint to seat Back	478.0 - 493.0	482	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	351	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	875	Yes
Z	Waist Circumference	761.0 - 791.0	782	Yes

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIS Serial No. 305 Certification No. 64-1

Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	122.1 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-7.4 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: 1253

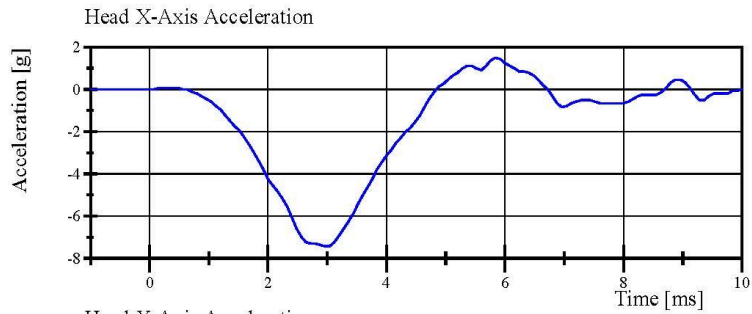
Skull S/N: 180/1001/C

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIS Serial No. 305 Certification No. 64-1

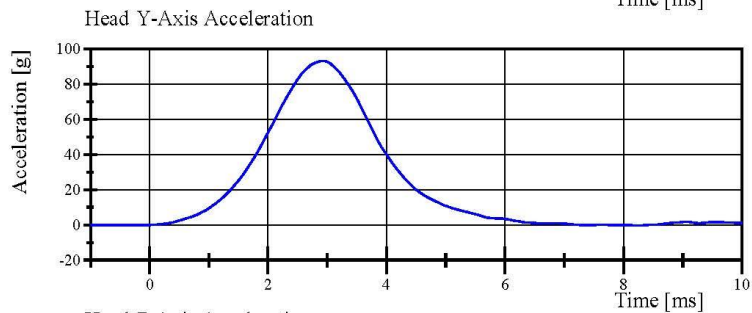
Test Date: 4/28/2018



Filter Class: CFC_1000

Max: 1.5 g at 5.8 ms

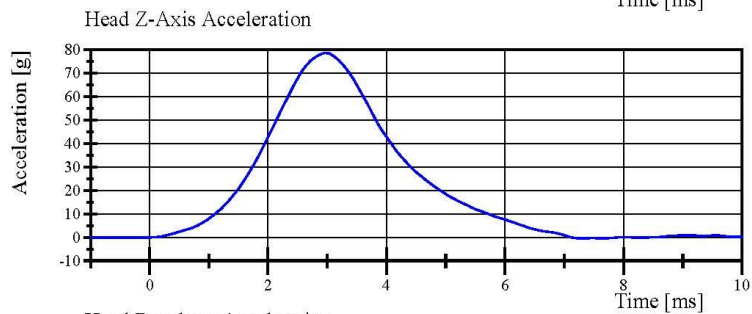
Min: -7.4 g at 3.0 ms



Filter Class: CFC_1000

Max: 93.2 g at 3.0 ms

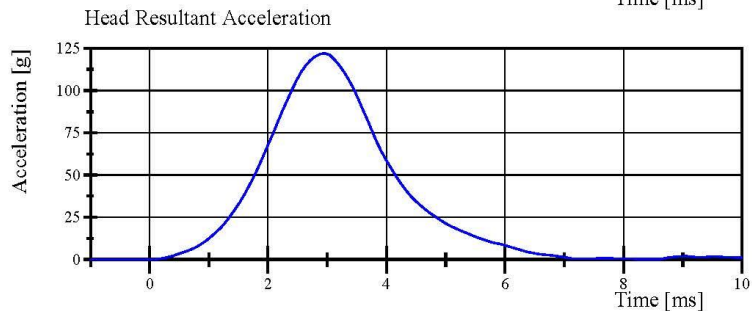
Min: -0.1 g at 8.2 ms



Filter Class: CFC_1000

Max: 78.6 g at 3.0 ms

Min: -0.4 g at 7.3 ms



Filter Class: CFC_1000

Max: 122.1 g at 3.0 ms

Min: 0.0 g at -1.0 ms

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

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Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 64-1

Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.623 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.554 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.746 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.008 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.977 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	6.019 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-77.3 deg	Yes
Time of Peak	50 - 70 ms	60.9 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	39.3 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	122.8 ms	Yes

Test meets specifications.

Condition: Used

Comments:

Neck S/N: 180-2001-606

Neck Cable S/N: N/A

Nodding Block S/N's:

- Front - DN-3094

- Rear - 8550-DL6580

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

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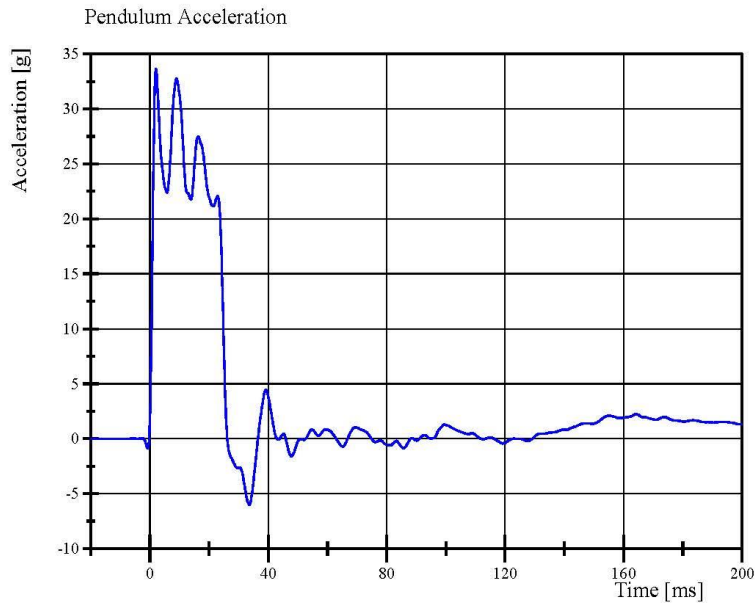
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Transportation Research Center Inc.

Left Lateral Neck

SID IIS Serial No. 305 Certification No. 64-1

Test Date: 4/28/2018



Filter Class: CFC_180
Max: 33.7 g at 2.1 ms
Min: -6.0 g at 33.6 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

04.28.2018 07:29:51 715

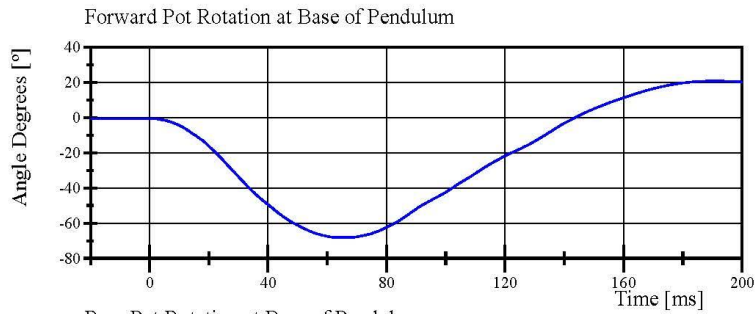


Transportation Research Center Inc.

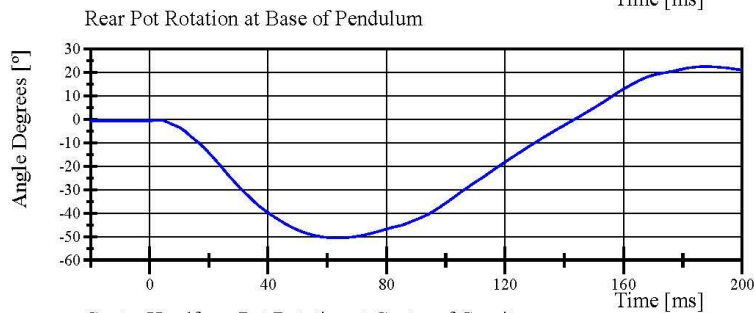
Left Lateral Neck

SID IIs Serial No. 305 Certification No. 64-1

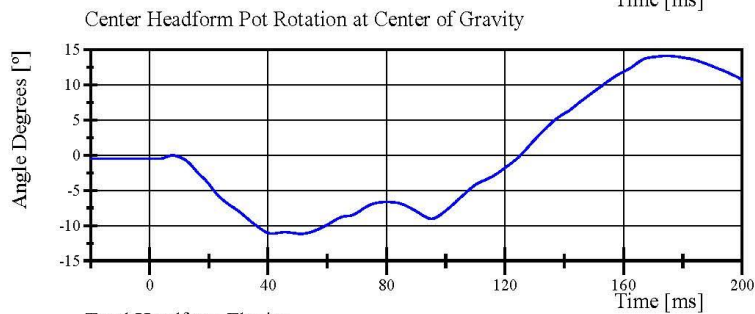
Test Date: 4/28/2018



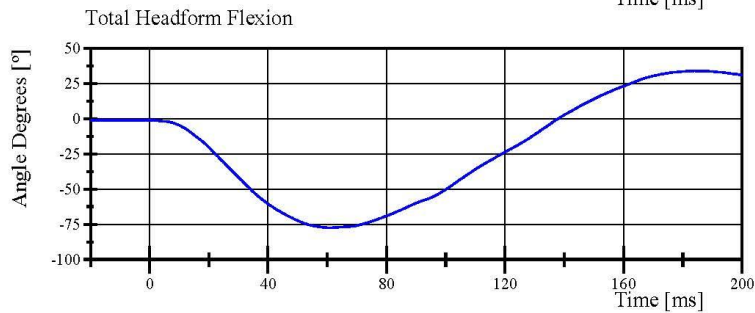
Filter Class: CFC_60
Max: 20.9 ° at 190.7 ms
Min: -68.2 ° at 65.1 ms



Filter Class: CFC_60
Max: 22.5 ° at 187.5 ms
Min: -50.6 ° at 63.5 ms



Filter Class: CFC_60
Max: 14.1 ° at 174.5 ms
Min: -11.2 ° at 51.2 ms



Filter Class: CFC_60
Max: 33.9 ° at 184.0 ms
Min: -77.3 ° at 60.9 ms

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

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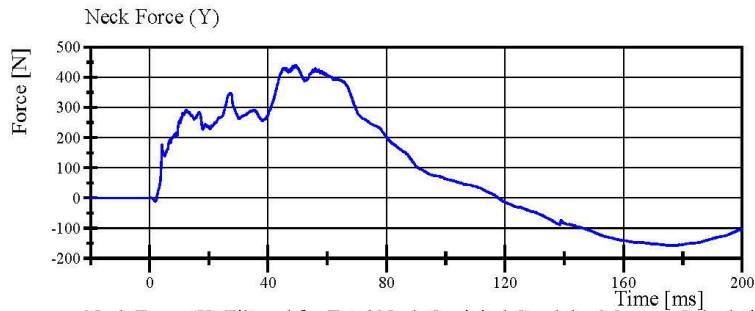


Transportation Research Center Inc.

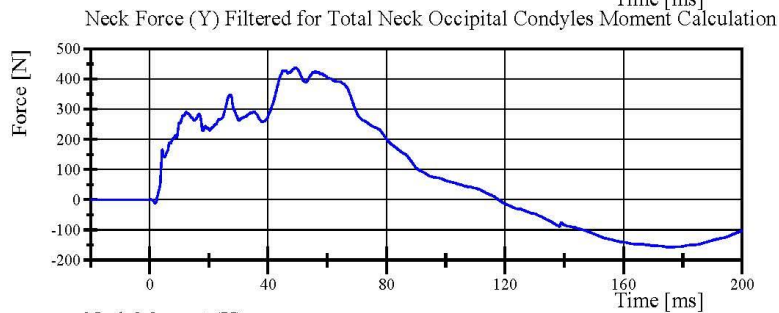
Left Lateral Neck

SID IIS Serial No. 305 Certification No. 64-1

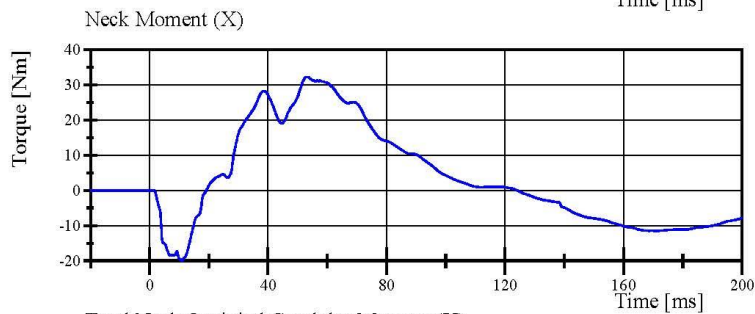
Test Date: 4/28/2018



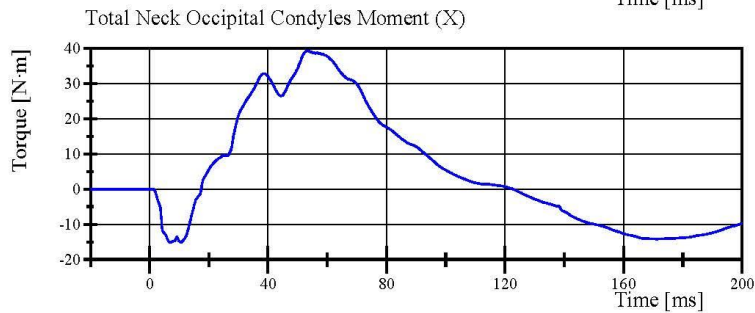
Filter Class: CFC_1000
Max: 439.9 N at 49.0 ms
Min: -156.8 N at 174.6 ms



Filter Class: CFC_600
Max: 438.1 N at 49.1 ms
Min: -156.5 N at 175.6 ms



Filter Class: CFC_600
Max: 32.3 Nm at 53.0 ms
Min: -19.8 Nm at 10.9 ms



Filter Class: Without_(Consta
Max: 39.3 N.m at 53.6 ms
Min: -15.1 N.m at 6.9 ms

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

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Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.6 g	Yes
Shoulder Displacement	28 - 37 mm	30.9 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	18.9 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 952

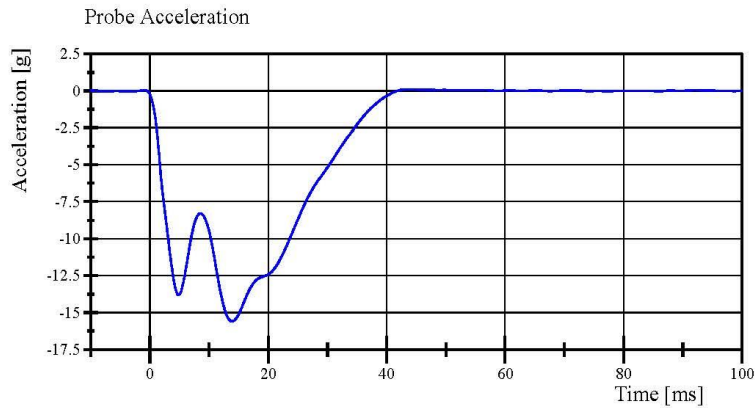
Shoulder Rib S/N: 180-3355 169

Transportation Research Center Inc.

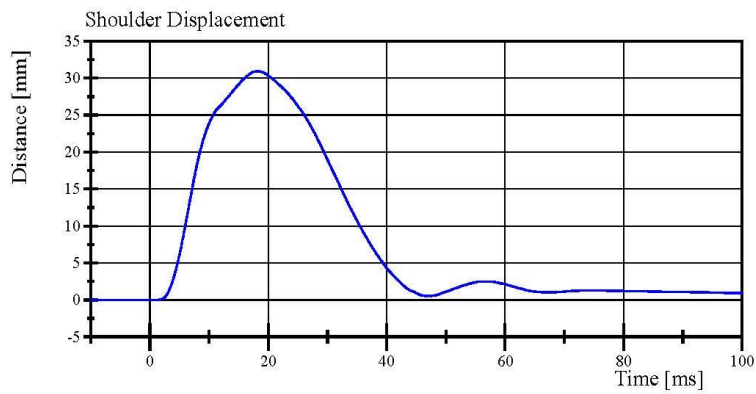
Left Lateral Shoulder

SID IIs Serial No. 305 Certification No. 64-1

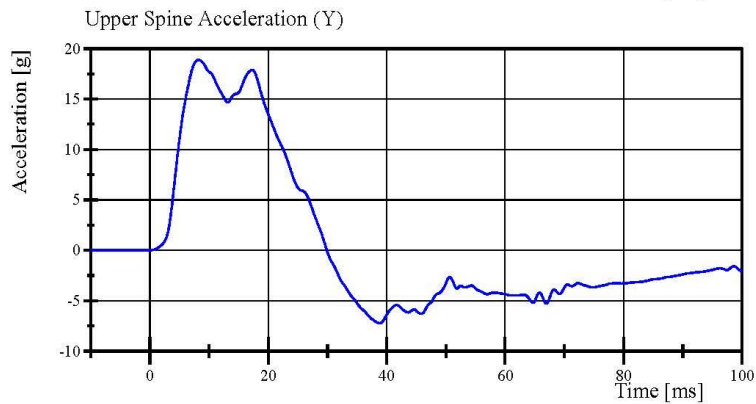
Test Date: 4/28/2018



Filter Class: CFC_180
Max: 0.1 g at 44.0 ms
Min: -15.6 g at 13.8 ms



Filter Class: CFC_600
Max: 30.9 mm at 18.2 ms
Min: -0.0 mm at 1.0 ms



Filter Class: CFC_180
Max: 18.9 g at 8.2 ms
Min: -7.2 g at 38.8 ms

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

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Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIS Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.728 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-31.3 g	Yes
Shoulder Displacement	31 - 40 mm	34.4 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	26.6 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	32.2 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	34.9 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	38.3 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	31.4 g	Yes

Test meets specifications.

Condition: Used

Comments:

Left Arm S/N: 952

Upper Thorax Rib S/N: RS506

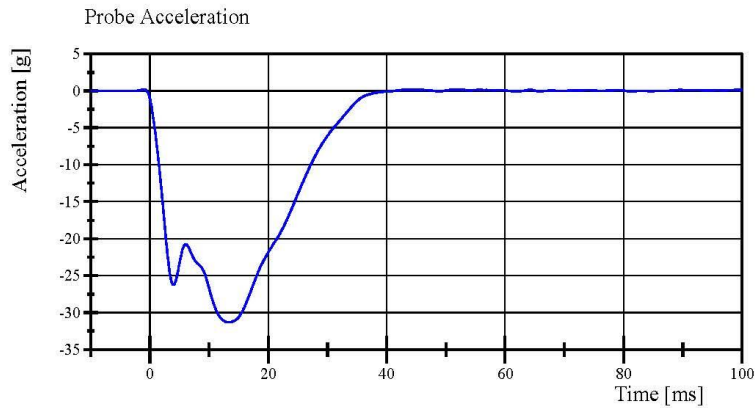
Middle Thorax Rib S/N: RS506

Lower Thorax Rib S/N: RS506

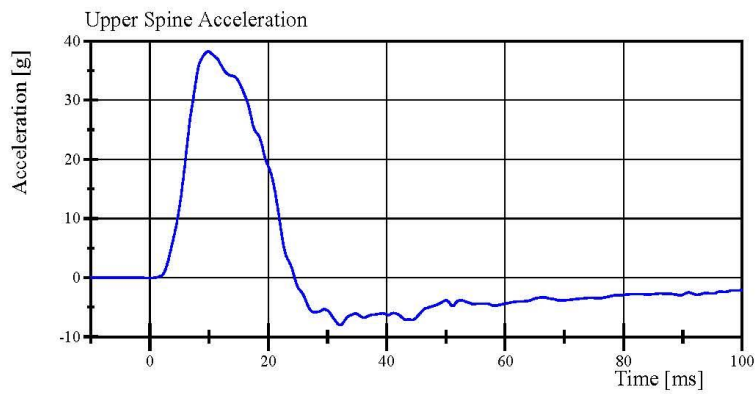
Upper Thorax Pad S/N: 180-3451

Transportation Research Center Inc.

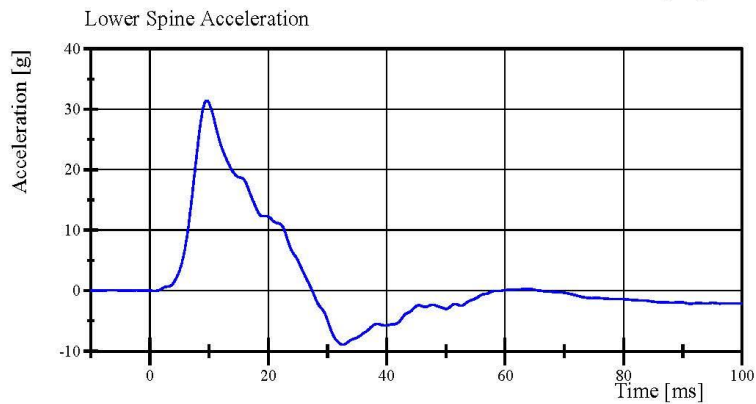
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018



Filter Class: CFC_180
Max: 0.2 g at -1.0 ms
Min: -31.3 g at 13.3 ms



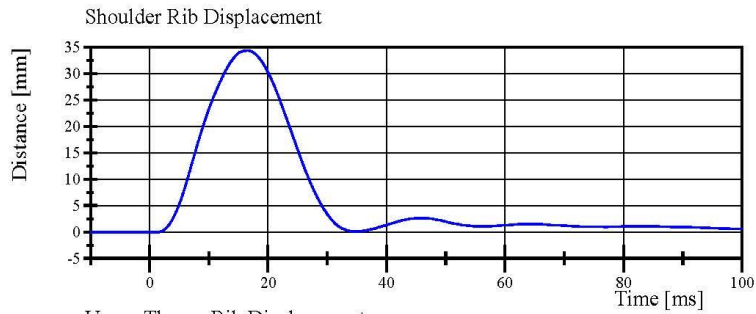
Filter Class: CFC_180
Max: 38.3 g at 9.9 ms
Min: -8.0 g at 32.1 ms



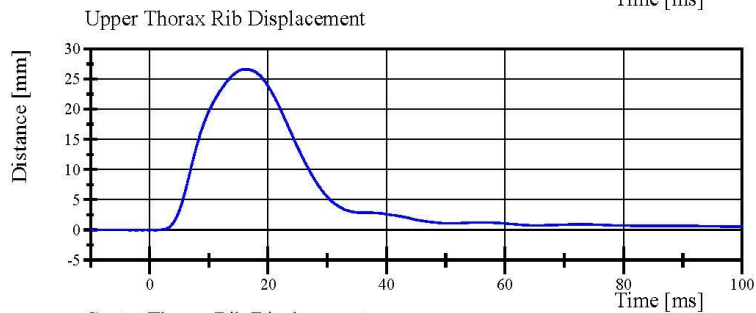
Filter Class: CFC_180
Max: 31.4 g at 9.6 ms
Min: -8.9 g at 32.6 ms

Transportation Research Center Inc.

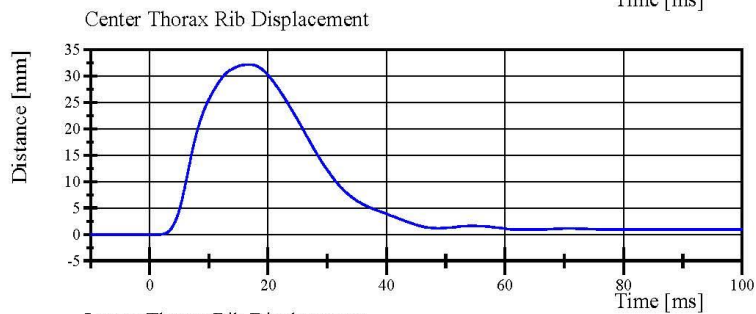
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018



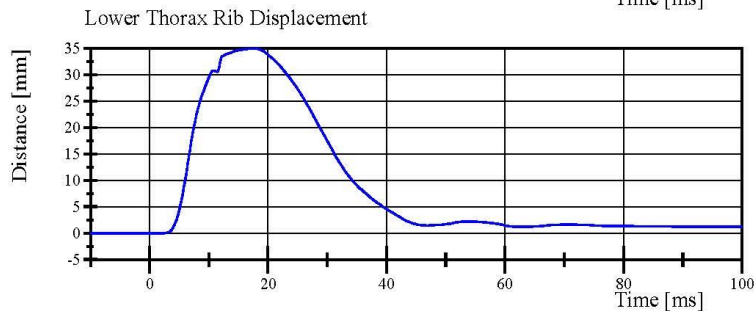
Filter Class: CFC_600
Max: 34.4 mm at 16.5 ms
Min: -0.0 mm at -1.8 ms



Filter Class: CFC_600
Max: 26.6 mm at 16.2 ms
Min: -0.0 mm at 1.1 ms



Filter Class: CFC_600
Max: 32.2 mm at 16.8 ms
Min: -0.0 mm at -4.6 ms



Filter Class: CFC_600
Max: 34.9 mm at 17.4 ms
Min: -0.0 mm at 1.6 ms

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

04.28.2018 08:57:06 593



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIS Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.339 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.0 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	35.0 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.7 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	39.4 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.1 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	10.4 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Thorax Rib S/N: RS506

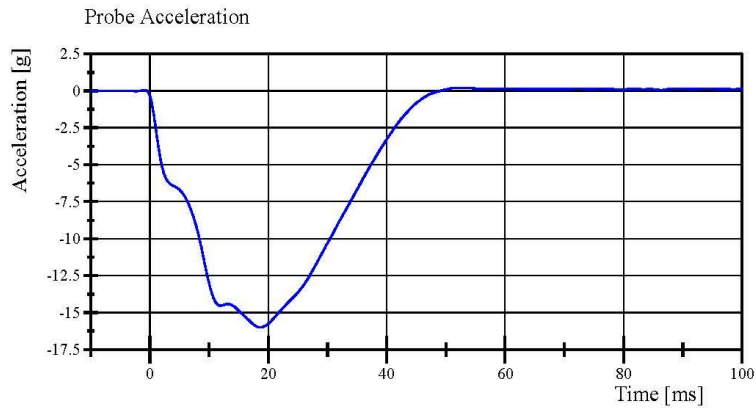
Middle Thorax Rib S/N: RS506

Lower Thorax Rib S/N: RS506

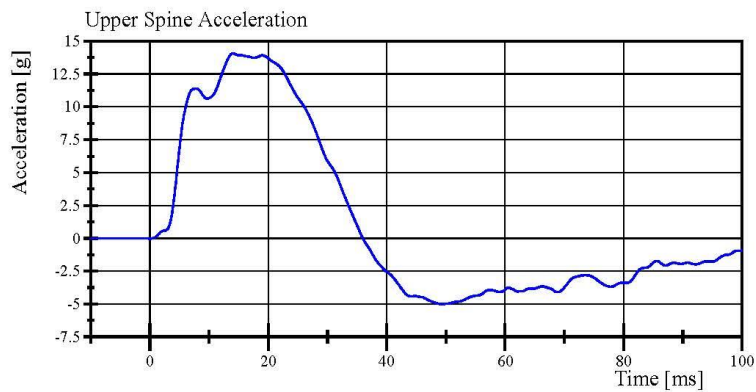
Upper Thorax Pad S/N: 180-3451

Transportation Research Center Inc.

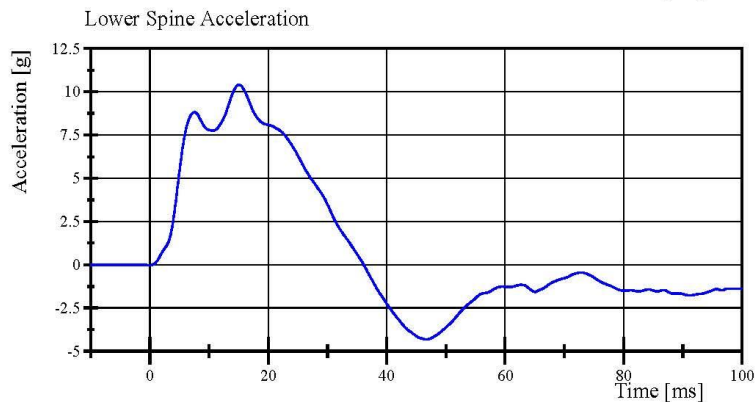
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018



Filter Class: CFC_180
Max: 0.2 g at 52.0 ms
Min: -16.0 g at 18.6 ms



Filter Class: CFC_180
Max: 14.1 g at 14.0 ms
Min: -5.0 g at 49.3 ms



Filter Class: CFC_180
Max: 10.4 g at 15.0 ms
Min: -4.3 g at 46.6 ms

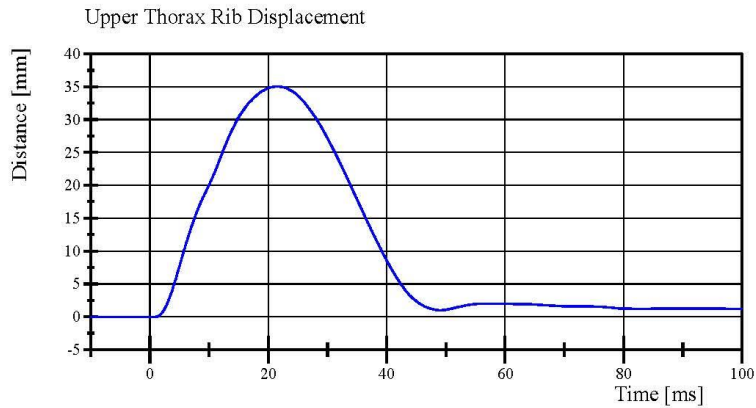
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.28.2018 09:52:50 817

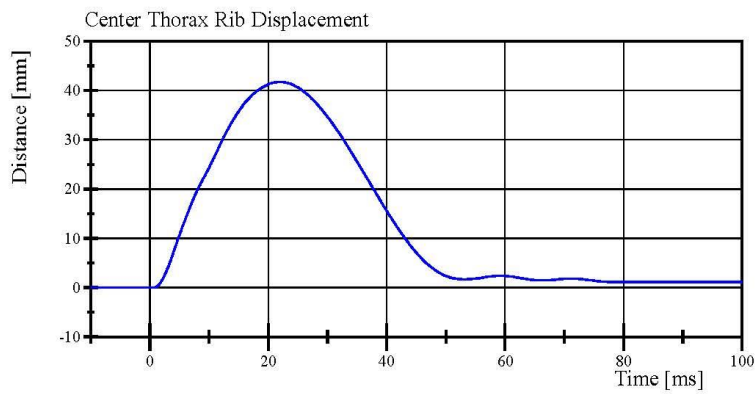


Transportation Research Center Inc.

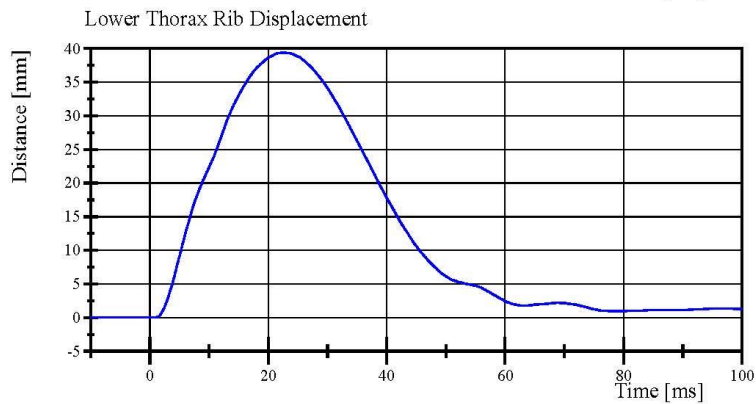
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018



Filter Class: CFC_600
Max: 35.0 mm at 21.5 ms
Min: -0.0 mm at 0.8 ms



Filter Class: CFC_600
Max: 41.7 mm at 22.0 ms
Min: -0.0 mm at 0.3 ms



Filter Class: CFC_600
Max: 39.4 mm at 22.6 ms
Min: -0.0 mm at 0.6 ms

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

04.28.2018 09:52:50 817



Transportation Research Center Inc.

Left Lateral Abdomen
SID IIS Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-12.9 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	43.4 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	36.9 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	9.67 g	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Abdominal Rib S/N: RS564

Lower Abdominal Rib S/N: 180-5368 DS1234

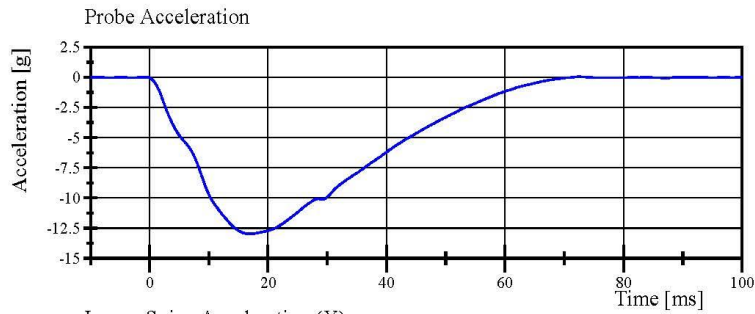
Abdominal Pad S/N: 180-3452

Transportation Research Center Inc.

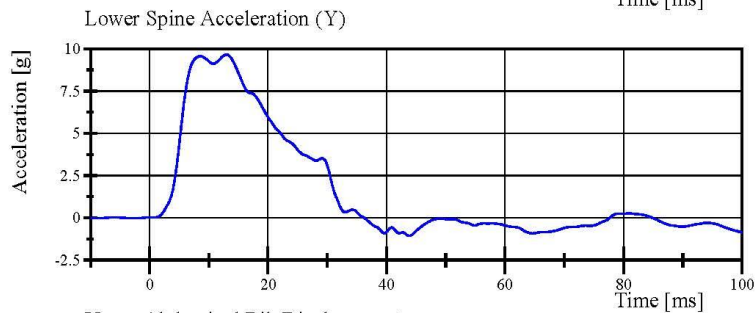
Left Lateral Abdomen

SID IIs Serial No. 305 Certification No. 64-1

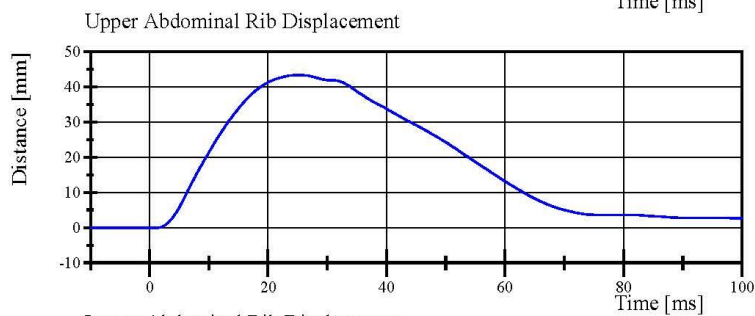
Test Date: 4/28/2018



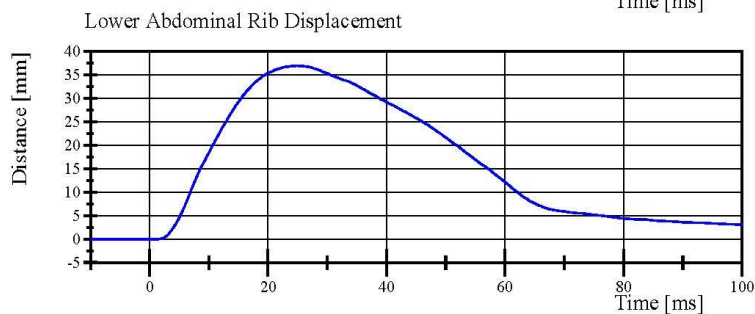
Filter Class: CFC_180
Max: 0.1 g at 72.5 ms
Min: -12.9 g at 17.0 ms



Filter Class: CFC_180
Max: 9.7 g at 13.0 ms
Min: -1.1 g at 43.8 ms



Filter Class: CFC_600
Max: 43.4 mm at 25.2 ms
Min: -0.0 mm at -7.8 ms



Filter Class: CFC_600
Max: 36.9 mm at 24.8 ms
Min: -0.0 mm at 1.0 ms

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

04.28.2018 10:04:23 638



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.61 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-40.64 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	35.5 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,694.5 N	Yes

Test meets specifications.

Condition: Used

Comments:

Pelvis Skin S/N: 884

Pelvis Plug Info:

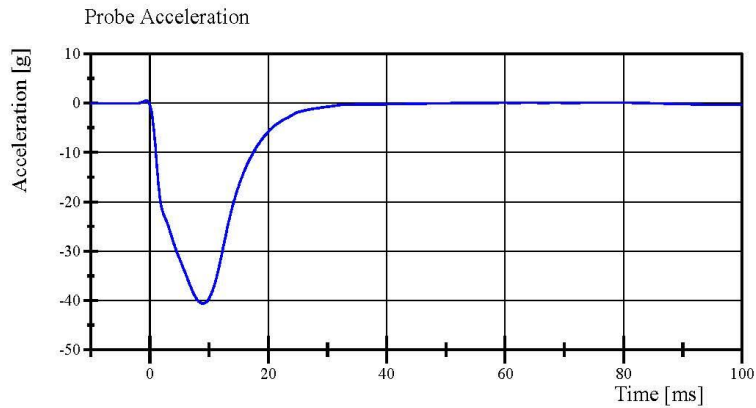
Manufacturer: SACO

S/N: 11425

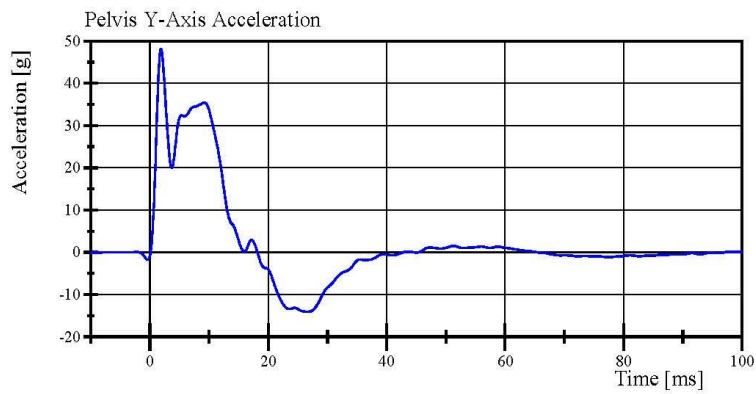
Cal Date: 20160829

Transportation Research Center Inc.

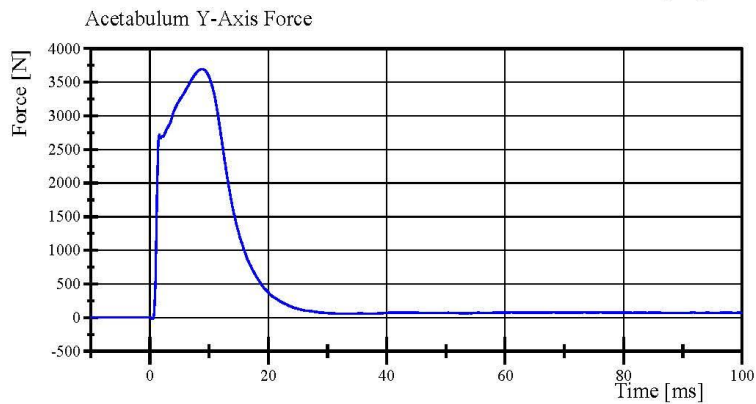
Left Lateral Pelvis
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018



Filter Class: CFC_180
Max: 0.5 g at -0.6 ms
Min: -40.6 g at 9.0 ms



Filter Class: CFC_180
Max: 48.1 g at 1.8 ms
Min: -14.0 g at 26.5 ms



Filter Class: CFC_600
Max: 3,694.5 N at 8.8 ms
Min: -21.2 N at 0.5 ms

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

04.28.2018 10:31:05 418



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 64-1

Test Date: 4/28/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.35 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-42.4 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	33.7 g	Yes
Iliac Force	4,100 - 5,100 N	5,018.0 N	Yes

Test meets specifications.

Condition: Used

Comments:

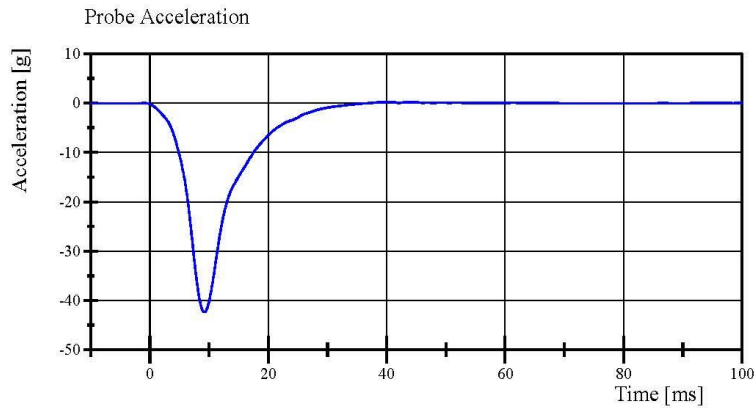
Pelvis Skin S/N: 884

Transportation Research Center Inc.

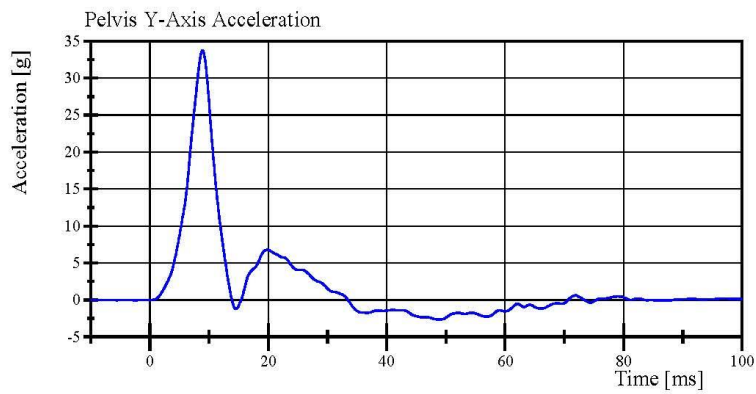
Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 64-1

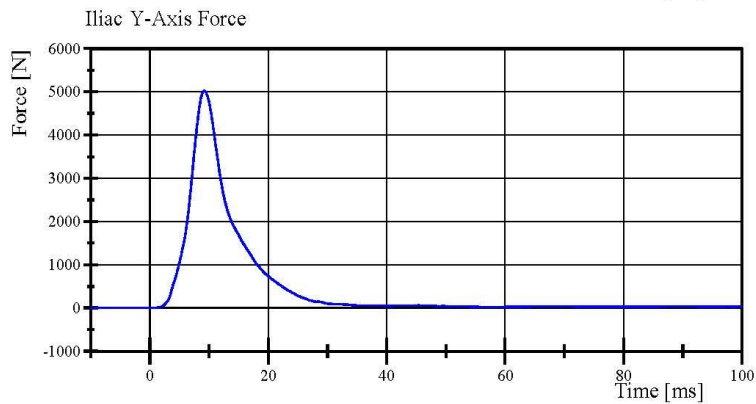
Test Date: 4/28/2018



Filter Class: CFC_180
Max: 0.2 g at 40.6 ms
Min: -42.4 g at 9.2 ms



Filter Class: CFC_180
Max: 33.7 g at 8.9 ms
Min: -2.6 g at 49.0 ms



Filter Class: CFC_600
Max: 5,018.0 N at 9.1 ms
Min: -1.0 N at -0.3 ms

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

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APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (ES-2re)

		ES-2re S/N F030			
		Serial Number	Manufacturer	Calibration Date	
Head Accelerometers	X	P87680	Endevco	12-Apr-2018	
	Y	P66873	Endevco	12-Apr-2018	
	Z	P91950	Endevco	12-Apr-2018	
Redundant Head Accelerometers	X	P94566	Endevco	12-Apr-2018	
	Y	P83368	Endevco	12-Apr-2018	
	Z	P94483	Endevco	12-Apr-2018	
Thoracic Rib Displacement Potentiometers	Upper	Y	111	Honeywell	11-Apr-2018
	Middle	Y	174	FTSS	11-Apr-2018
	Lower	Y	173	FTSS	11-Apr-2018
Abdomen Load Cells	Front	Y	1441	Denton	11-Apr-2018
	Middle	Y	1436	Denton	11-Apr-2018
	Rear	Y	1437	Denton	11-Apr-2018
Lower Spine Accelerometers (T12)	X	P89126	Endevco	12-Apr-2018	
	Y	P87139	Endevco	12-Apr-2018	
	Z	P64884	Endevco	12-Apr-2018	
Acetabulum Load Cell	Y	N/A	N/A	N/A	
Pubic Symphysis Load Cell	Y	457-FY	Denton	11-Apr-2018	

TABLE 2 – Dummy Instrumentation (SID-IIs)

			SID-IIs S/N 305			
			Serial Number	Manufacturer	Calibration Date	
Head Accelerometers			X	T11432	Endevco	17-Apr-2018
			Y	P93774	Endevco	17-Apr-2018
			Z	P91566	Endevco	17-Apr-2018
Redundant Head Accelerometers			X	P91615	Endevco	17-Apr-2018
			Y	P93762	Endevco	17-Apr-2018
			Z	P93761	Endevco	17-Apr-2018
Displacement Potentiometers	Shoulder		N/A	N/A	N/A	N/A
	Thoracic Rib	Upper	Y	007	Servo	17-Apr-2018
		Middle	Y	037	Servo	17-Apr-2018
		Lower	Y	1161	Servo	17-Apr-2018
	Abdominal Rib	Upper	Y	1295	Servo	17-Apr-2018
		Lower	Y	1136	Servo	17-Apr-2018
Lower Spine Accelerometers (T12)			X	P94545	Endevco	17-Apr-2018
			Y	P94647	Endevco	17-Apr-2018
			Z	P94530	Endevco	17-Apr-2018
Acetabulum Load Cell			Y	DK7483S-FY	FTSS	16-Apr-2018
Iliac Wing Load Cell			Y	287-FY	Denton	16-Apr-2018
Pelvis Plug (struck side)				11449	SACO	30-Aug-2016
Pelvis Plug (non-struck side)				36473	FTSS	23-Sep-2010

TABLE 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	P97716	Endevco	14-Mar-2018
	Vehicle Center of Gravity	Y	P56615	Endevco	13-Apr-2018
	Vehicle Center of Gravity	Z	P94485	Endevco	13-Nov-2017
2	Right Sill at Front Seat	X	P94577	Endevco	13-Nov-2017
	Right Sill at Front Seat	Y	P75115	Endevco	14-Nov-2017
	Right Sill at Front Seat	Z	P41055	Endevco	13-Nov-2017
3	Right Sill at Rear Seat	X	P94740	Endevco	23-Apr-2018
	Right Sill at Rear Seat	Y	P97719	Endevco	23-Apr-2018
	Right Sill at Rear Seat	Z	P88043	Endevco	23-Apr-2018
4	Left Sill at Front Door	Y	P90267	Endevco	13-Apr-2018
5	Left Sill at Rear Door	Y	P81034	Endevco	13-Apr-2018
6	Left A-Post Lower	Y	P81599	Endevco	13-Nov-2017
7	Left A-Post Middle	Y	P73587	Endevco	13-Apr-2018
8	Left B-Post Lower	Y	P73220	Endevco	13-Apr-2018
9	B-Post Middle	Y	P85452	Endevco	13-Apr-2018
10	Front Seat Track	Y	P94561	Endevco	13-Apr-2018
11	Rear Seat Track or Structure	Y	P88453	Endevco	8-Nov-2017
12	Right Rear Occupant Compartment	Y	P80466	Endevco	13-Mar-2018
13	Engine Block	X	P89124	Endevco	8-Nov-2017
	Engine Block	Y	P94424	Endevco	9-Nov-2017
14	Rear Floorpan Above Axle	X	P58611	Endevco	14-Nov-2017
	Rear Floorpan Above Axle	Y	P76454	Endevco	14-Nov-2017
	Rear Floorpan Above Axle	Z	P61293	Endevco	24-Apr-2018

TABLE 4 – MDB Instrumentation

MDB Instrumentation		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	P97724	Endevco	11-Apr-2018
MDB Center of Gravity	Y	P97718	Endevco	11-Apr-2018
MDB Center of Gravity	Z	P97715	Endevco	11-Apr-2018
Left Frame Rail at Rear Axle Centerline	X	P97729	Endevco	11-Apr-2018
Left Frame Rail at Rear Axle Centerline	Y	P97876	Endevco	11-Apr-2018