FINAL REPORT NUMBER: SINCAP-TRC-18-007

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

FCA US LLC
2018 Dodge Journey SUV
NHTSA NUMBER: M20180305

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

Report Date: August 9, 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: August 9, 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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9. Performing Organization Name and Address Transportation Research Center Inc. 10820 State Route 347 East Liberty, OH 43319		10. Work Unit No. 11. Contract or Grant No. DTNH22-14-D-00354
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15. Supplemental Notes		

16. Abstract

This 55 / 28 km/h 90° Moving Deformable Barrier SINCAP Side Impact Test was conducted on the subject 2018 Dodge Journey 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 May 4, 2018.

The impact velocity of the Moving Deformable Barrier (MDB) was 61.16 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 21.9° C. The target vehicle post-test maximum crush was 179 mm at Level 3. The test vehicle's performance was as follows:

Driver ATD (ES-2re)

Measurement Description	**Units**	**IARV**	**Result**
Head Injury Criteria (HIC_{36})	N/A	1000	97
Maximum Thoracic Rib Deflection	mm	44	20.0
Total Abdominal Force	N	2500	583.3
Pubic Symphysis Force	N	6000	-844.6
Lower Spine Acceleration	G	82*	22.7

Passenger ATD (SID-IIs)

Measurement Description	**Units**	**IARV**	**Result**
Head Injury Criteria (HIC_{36})	N/A	1000	156
Lower Spine Resultant Acceleration	g's	82	41.9
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4322.8
Maximum Thoracic Rib Deflection	mm	38*	21.8
Maximum Abdominal Rib Deflection	mm	45*	36.7

* Proposed IARV

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.

17. Key Words New Car Assessment Program (NCAP) Side Impact MDB ES-2re SID-IIs	18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave, SE Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833

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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 Journey 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 Journey 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 61.16 km/h (38.00 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 May 4, 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 instrumenation 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	97
Maximum Thoracic Rib Deflection	mm	44	20.0
Combined Abdominal Force	N	2500	583.3
Pubic Symphysis Force	N	6000	-844.6
Lower Spine (T12) Resultant Acceleration	G	82*	22.7

* Proposed IARV

Measurement Description	Passenger ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC_{36})	N/A	1000	156
Lower Spine (T12) Resultant Acceleration	G	82	41.9
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4322.8
Maximum Thoracic Rib Deflection	mm	38*	21.8
Maximum Abdominal Rib Deflection	mm	45*	36.7

* Proposed IARV

Supplemental Restraint Information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	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 Lower A-Post Y; Channel failed after 13.0 MS

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20180305
Model Year	2018
Make	Dodge
Model	Journey SE
Body Style	MPV
VIN	3C4PDCAB8JT182880
Body Color	Billet Clear Coat
Odometer Reading (km/mi)	8 mi
Engine Displacement (L)	2.4
Type/No. Cylinders	Gas/4
Engine Placement	Front/Transverse
Transmission Type	Automatic
Transmission Speeds	4
Overdrive	Yes
Final Drive	FWD
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	No
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	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? No

DATA FROM CERTIFICATION LABEL

Manufactured By	FCA US LLC
Date of Manufacture	10-17
Vehicle Type	MPV

GVWR (kg)	2405
GAWR Front (kg)	1248
GAWR Rear (kg)	1316

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

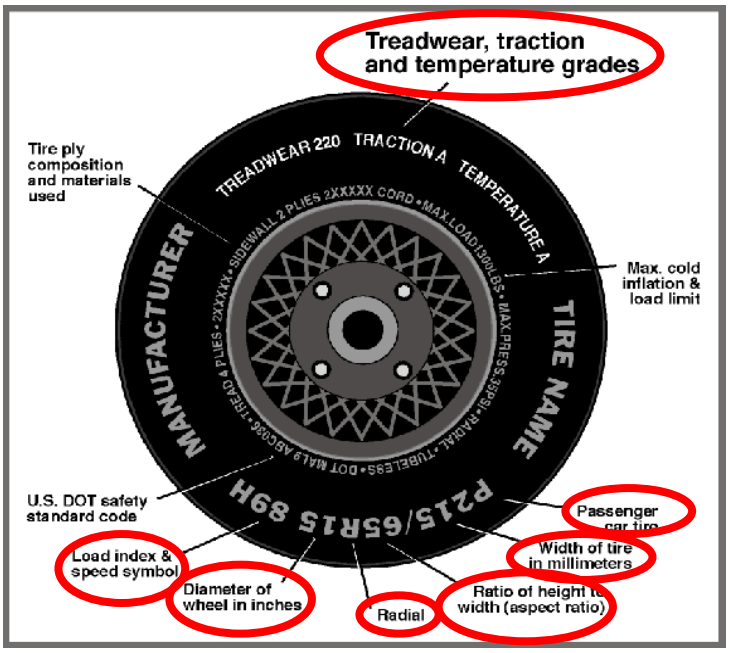
Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity DSC)	2	3	2	7
Capacity Weight (VCW) (kg)				528.0
DSC x 68.04 (kg)				476.28
Cargo Weight (RCLW) (kg)				51.72

VEHICLE SEAT TYPE

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable w/ Lever	Adjustable 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	Yes	N/A	N/A	Yes	N/A	N/A

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

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	250	250
Recommended Tire Size	P225/65R17	P225/65R17
Tire Size on Vehicle	P225/65R17	P225/65R17
Tire Manufacturer	Kumho	Kumho
Tire Model	Solus KH16	Solus KH16
Treadwear	N/A	N/A
Traction	N/A	N/A
Temperature Grades	N/A	N/A
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	100H	100H
Tire Material	Steel, Polyester, Nylon	Steel, Polyester, Nylon
DOT Safety Code Left	COE6 YP5M 3117	COE6 YP5M 3117
DOT Safety Code Right	COE6 YP5M 3117	COE6 YP5M 3217

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

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	275	275	275	275
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	490.8	417.4		549.8	471.0		536.6	490.4	
Right	kg	494.6	380.0		506.6	425.2		497.0	435.6	
Ratio	%	55.3	44.7		54.1	45.9		52.7	47.3	
Totals	kg	985.4	797.4	1782.8	1056.4	896.2	1952.6	1033.6	926.0	1959.6

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1782.8	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	125.0	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	51.7	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1959.5	(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	794	784	Yes
RF	mm	804	794	Yes
RR	mm	811	805	Yes
LR	mm	795	797	Yes
Vehicle CG (Aft of Front Axle)	mm	1365	1326	
Vehicle CG (Left(+)/Right(-) from Longitudinal Centerline)	mm	+38	+36	

***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	15.0
Removed: None	0.0

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

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018

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	18.5	14.8	16.7
Front Passenger Seat	16.4	16.2	16.3
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	11.5	11.3	11.4
Non-Struck Side Rear Seat	13.3	13.2	13.2
Rear Center Seat*	13.9	13.7	13.8

* 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	16.7	221	Max	247	255	269
			Mid	214	221	234
			Min	202	210	223
Front Passenger Seat	16.3	234	Max	N/A	N/A	N/A
			Mid	228	234	240
			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	11.4	235	Max	N/A	N/A	N/A
			Mid	235	235	235
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	13.2	237	Max	N/A	N/A	N/A
			Mid	237	237	237
			Min	N/A	N/A	N/A
Rear Center Seat*	13.8	237	Max	N/A	N/A	N/A
			Mid	237	237	237
			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 Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018

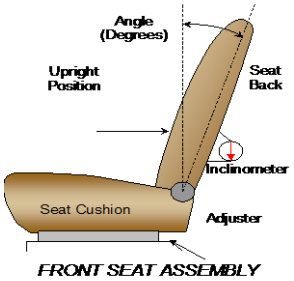
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents	mm	Detent
Driver Seat	234	35	117	18
Front Passenger Seat	234	35	117	18
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	120	13	120	13
Non-Struck Side Rear Seat	120	13	120	13
Rear Center Seat*	120	13	120	13

* 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	68.6	35	12.9	9
Front Passenger Seat	76.2	40	13.1	10
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat w/ Seated Dummy	22.2	12	17.4	1
Non-Struck Side Rear Seat	22.0	12	17.3	1
Rear Center Seat*	22.0	12	17.3	1

* 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.

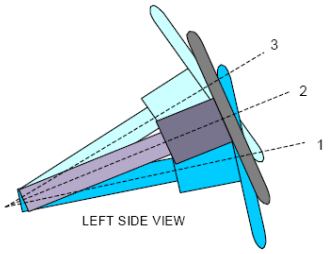
	Total # of Positions	Placed in Position #
Driver Seat	5 vertical; 2 horizontal	Uppermost, forwardmost
Rear Seat	3, Numbered from 0 to 2	0, Lowermost

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

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018

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.



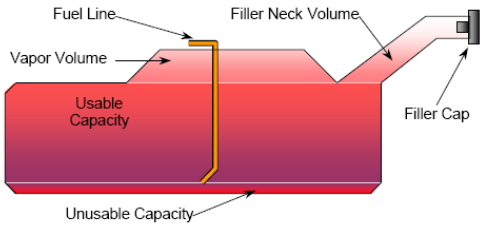
STEERING COLUMN ASSEMBLY

	Degrees	Fore/Aft Position (mm)
Lowermost, Position No. 1	21.5	0
Geometric Center, Position No. 2	24.7	22
Uppermost, Position No. 3	27.9	44
Telescoping Steering Wheel Travel		44
Test Position	24.7	22

FUEL PUMP

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

The Pump starts pumping fuel when the key is in the 'run' position (Push the button twice to set the engineer in the run position



VEHICLE FUEL TANK ASSEMBLY

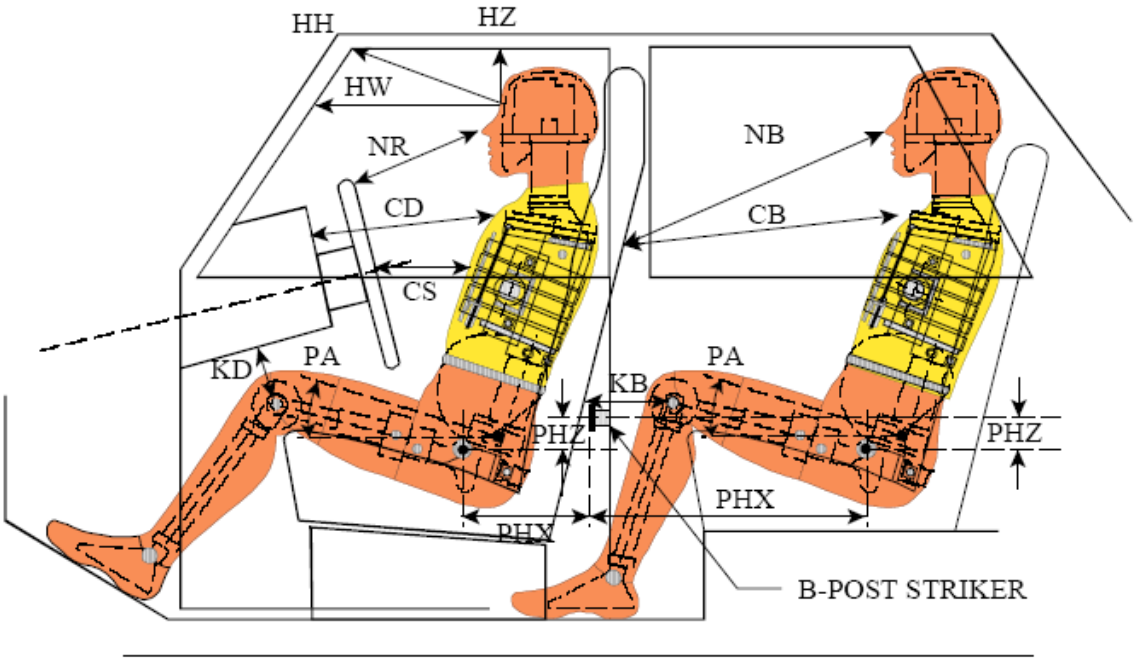
FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	77.6
Usable Capacity of "Optional Tank" (see Form No. 1)	77.6
Usable Capacity of Standard Tank (see Owner's Manual)	77.6
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	72.2
Actual Amount of Solvent Used in Test	72.3
1/3 of Usable Capacity	25.9

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 Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018



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

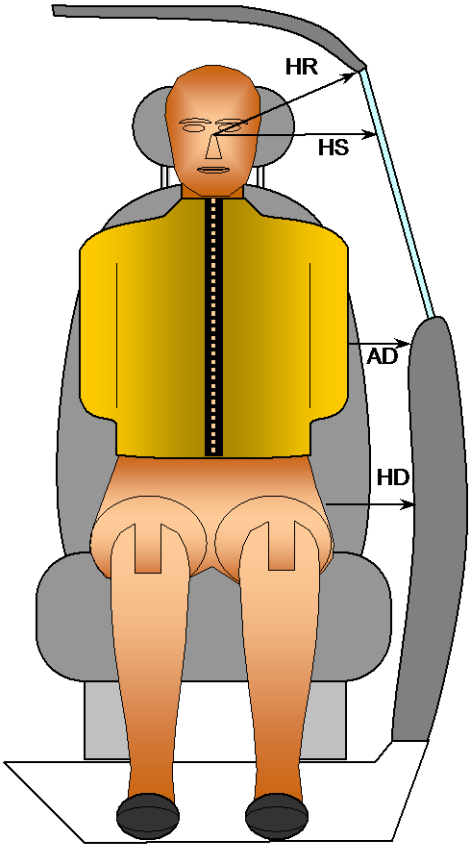
LEFT SIDE VIEW

DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle	Length (mm)	Angle
HH		Header to Header	506			
HW		Header to Windshield	782			
HZ	HZ	Head to Roof Liner	227		284	
NR	NB	Nose to Rim/Seat Back	462		532	
CD	CB	Chest to Dash/Seat Back	585		516	
CS		Chest to Steering Wheel	308			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	173	31.2	255	17.4
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	163	31.0	255	17.4
PAX°	PAX°	Pelvic Tilt Angle X		0.7		0.5
	PAY°	Pelvic Tilt Angle Y				19.2
PHX	PHX	Hip Point to Striker (X-Axis)	189		312	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	130		198	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018

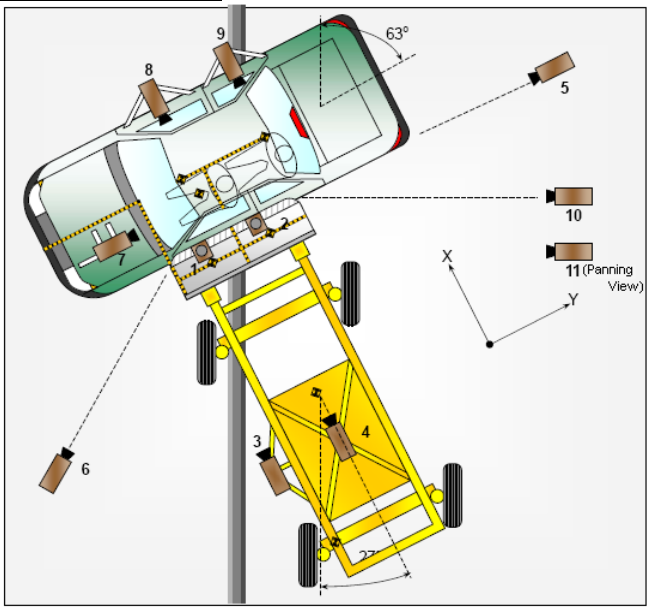


FRONT VIEW OF DUMMY

Code	Description	Units	Driver	Passenger
HR	Head to Side Header	mm	233	254
HS	Head to Side Window	mm	377	356
AD	Arm to Door	mm	109	121
HD	H-Point to Door	mm	146	141

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018



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	8226	-1277	20	1000
6	Left Front	-2601	-4073	-1322	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

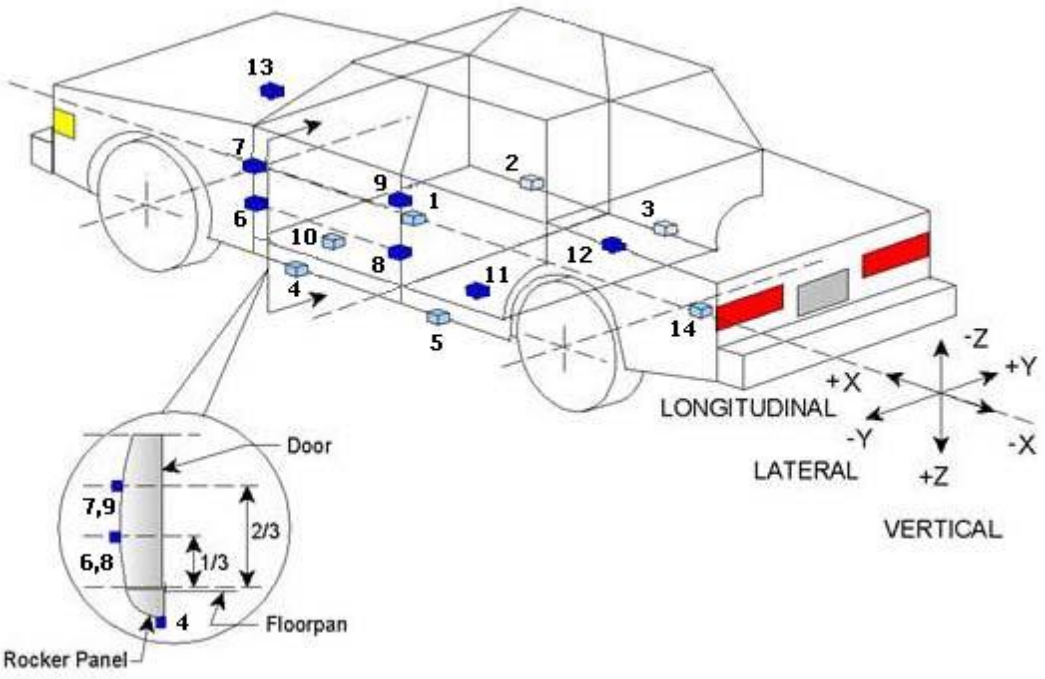
Reference: Impact Point projected to Ground; +X = To Front of MDB +Y = To Right of MDB; +Z = Down
*All measurements accurate to ± 6 mm.
If applicable, explain why camera(s) did not operate as intended: N/A

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 Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018



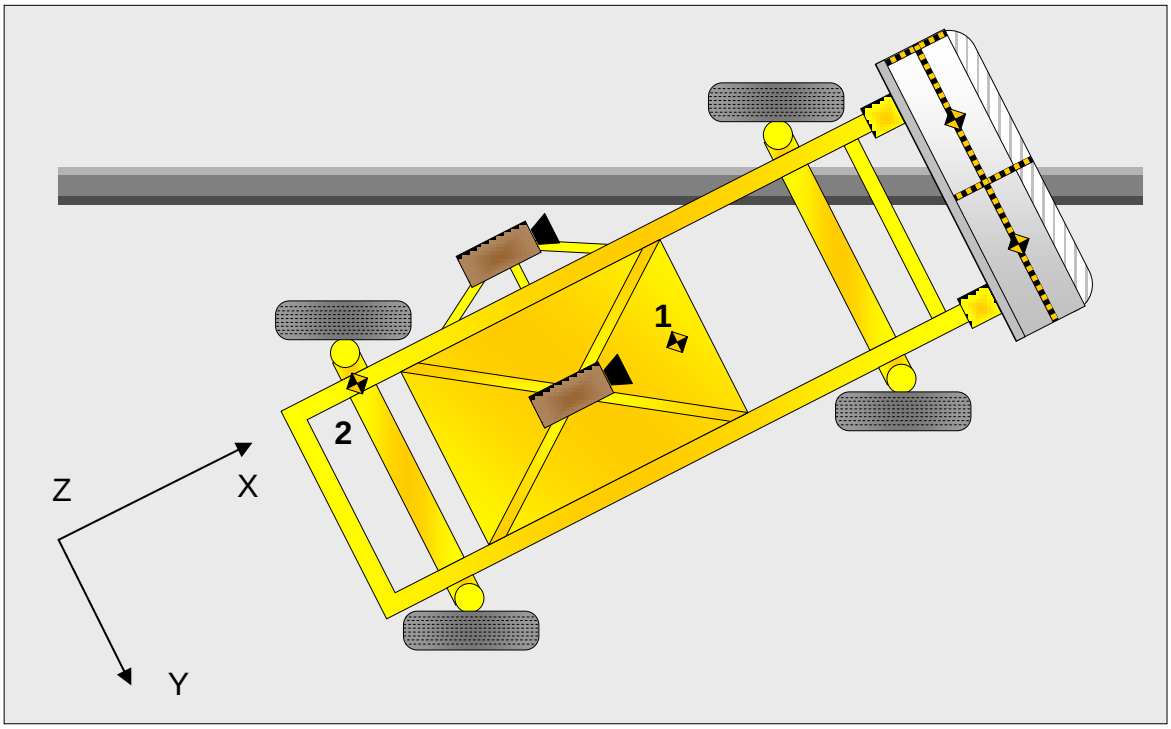
TEST VEHICLE ACCELEROMETER LOCATIONS

Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2970	101	-433
2	Right Sill at Front Seat	2830	715	-419
3	Right Sill at Rear Seat	1785	720	-419
4	Left Sill at Front Door	2827	-717	-424
5	Left Sill at Rear Door	1772	-718	-419
6	A-Post Lower	3360	-844	-574
7	A-Post Middle	3360	-840	-995
8	B-Post Lower	2285	-833	-602
9	B-Post Middle	2275	-837	-1048
10	Front Seat Track	2550	-557	-445
11	Rear Seat Structure	1386	-438	-610
12	Right Rear Occ. Compartment	1388	477	-480
13	Engine Block	4096	40	-923
14	Rear Above Axle	796	-5	-539

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 Journey SUV
Test Program: SINCAP Side Impact
NHTSA No.: M20180305
Test Date: 5/4/2018



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 Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (ES2-re)	Rear Seat Dummy (SID-IIs)
Face	SCAB, Headliner	SCAB
Top of Head	Headliner	SCAB
Left Side of Head	SCAB	SCAB
Back of Head	SCAB, Headliner	SCAB
Left Shoulder	SAB	Door panel
Upper Torso	SAB	None
Lower Torso	SAB	None
Left Hip	SAB, Door panel	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	Major Deformation
Sill Separation	None
Windshield Damage	None
Side Window Damage	None
Other Notable Effects	None

DATA SHEET NO. 8 (CONTINUED)
POST TEST OBSERVATIONS

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018

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		2888
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		504
Actual Impact Point (Aft of Front Axle)	mm		497
Horizontal Offset (+ forward / - rearward)	mm	+/- 50 of Intended Impact point	+7
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact point	-3

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018

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	1098

MDB WEIGHTS

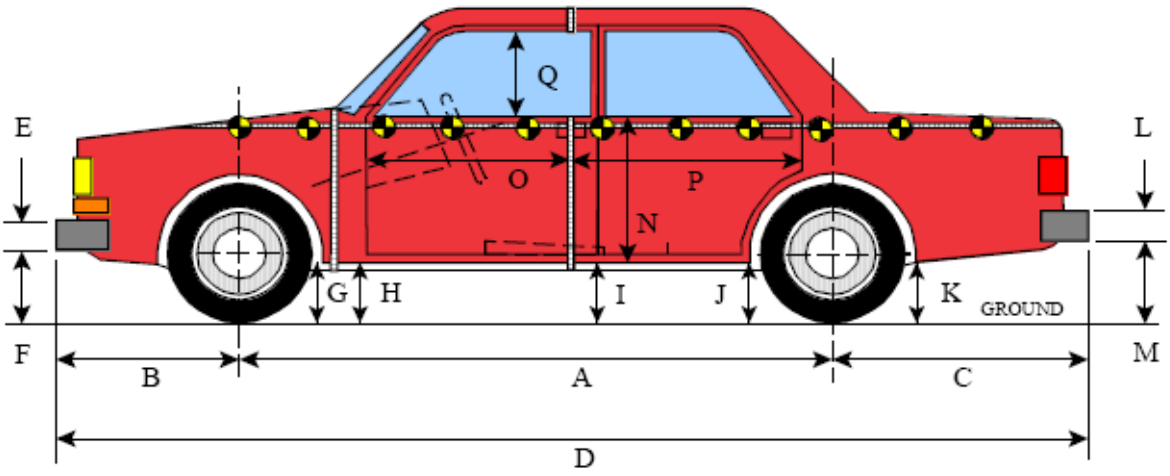
	Units	Front Axle	Rear Axle	Total
Left	kg	406.6	273.0	679.6
Right	kg	379.4	305.2	684.6
Ratio	%	57.6	42.4	100.0
Totals	kg	786.0	578.2	1364.2

SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.16
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.17
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 Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018



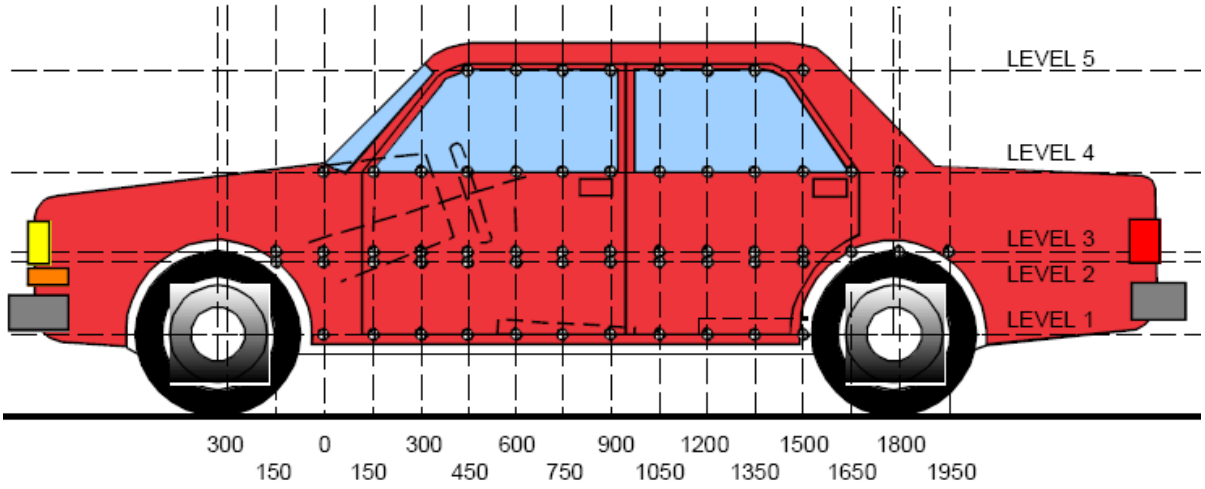
LEFT SIDE VIEW
All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2888	2890	2
B	Front Axle to Front Surface of Vehicle	985	960	-25
C	Rear Axle to Rear Surface of Vehicle	1017	1000	-17
D	Total Length at Centerline	4892	4880	-12
E	Front Bumper Thickness	123	123	0
F	Front Bumper Bottom to Ground	482	497	15
G	Sill Height at Front Wheel Well	332	339	7
H	Sill Height at Front Door Leading Edge	337	410	73
I	Sill Height at B-Pillar	352	412	60
J1	Sill Height at Rear Wheel Well	363	502	139
J2	Pinch Weld Height at Rear Wheel Well	258	284	26
K	Sill Height Aft of Rear Wheel Well	323	352	29
L	Rear Bumper Thickness	145	145	0
M	Rear Bumper Bottom to Ground	515	540	25
N	Sill Height to Window Bottom Sill	780	730	-50
O	Front Door Leading Edge to Impact CL	852	825	-27
P	Rear Door Trailing Edge to Impact CL	1320	1314	-6
Q	Front Window Opening	438	452	14
R	Right Side Length	4691	4680	-11
S	Left Side Length	4695	4690	-5
T	Vehicle Width	1855	1800	-55

DATA SHEET NO. 11
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018



LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance From Impact
1	Sill Top	413	127	450
2	Driver Hip Point	724	178	600
				750
3	Mid-Door	749	179	600
				1350
4	Window Sill	1043	102	1200
5	Window Top	1583	7	900

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 Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

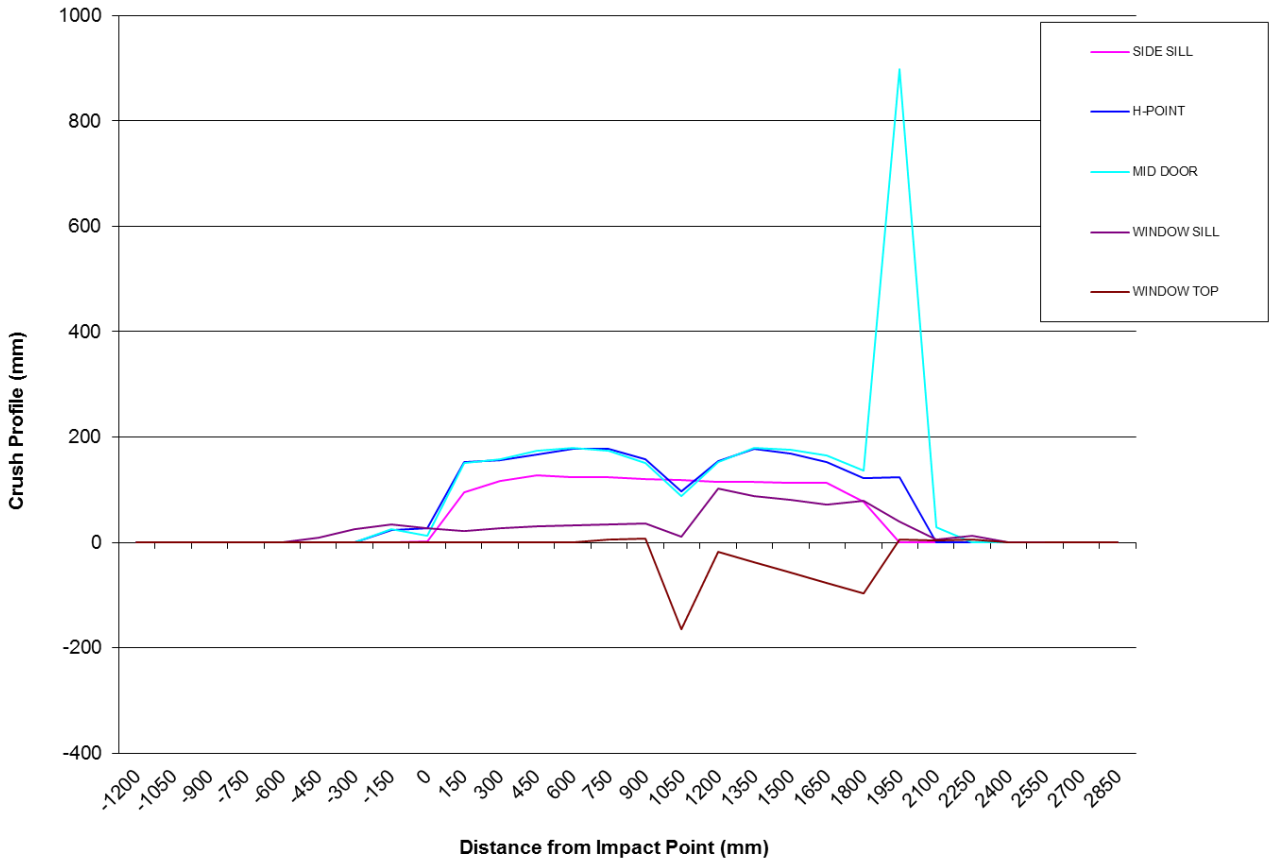
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-450	0	0	0	814	0	0	0	0	804	0	0	0	0	10	0
-300	0	0	0	836	0	0	0	0	810	0	0	0	0	26	0
-150	0	935	931	851	0	0	912	906	817	0	0	23	25	34	0
0	904	912	911	861	0	902	885	899	833	0	2	27	12	28	0
150	894	915	916	870	0	798	763	766	848	0	96	152	150	22	0
300	896	917	918	881	0	780	762	761	854	0	116	155	157	27	0
450	897	918	920	890	0	770	751	746	859	0	127	167	174	31	0
600	898	919	920	898	0	774	741	741	865	0	124	178	179	33	0
750	898	919	920	904	667	775	741	746	870	661	123	178	174	34	6
900	898	918	920	906	668	778	761	769	870	661	120	157	151	36	7
1050	897	917	919	906	672	779	820	831	895	837	118	97	88	11	-165
1200	894	913	914	903	674	779	759	762	801	692	115	154	152	102	-18
1350	891	909	911	901	674	776	732	732	813	711	115	177	179	88	-37
1500	887	905	907	898	672	774	736	731	817	729	113	169	176	81	-57
1650	883	900	902	895	669	770	747	737	822	746	113	153	165	73	-77
1800	879	895	897	891	666	801	772	760	812	762	78	123	137	79	-96
1950	0	908	899	877	662	0	784	N/A[1]	838	656	0	124	N/A[1]	39	6
2100	0	0	935	881	658	0	0	906	875	656	0	0	29	6	2
2250	0	0	0	873	652	0	0	0	860	648	0	0	0	13	4

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.

[1] Missing point 1950 post-test

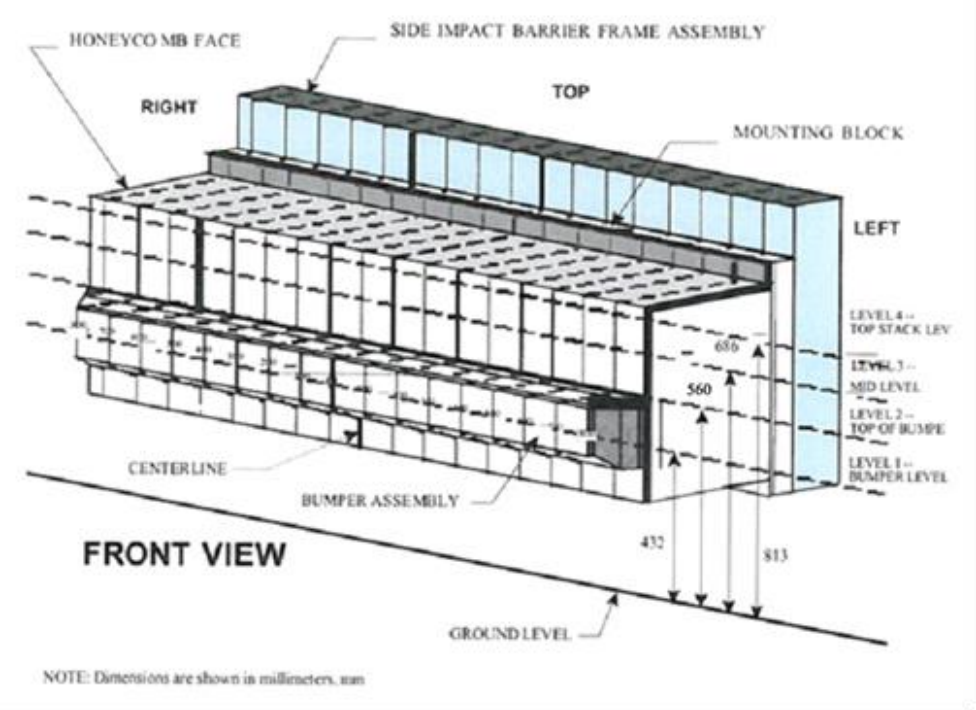
DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018



DATA SHEET NO. 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018



MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

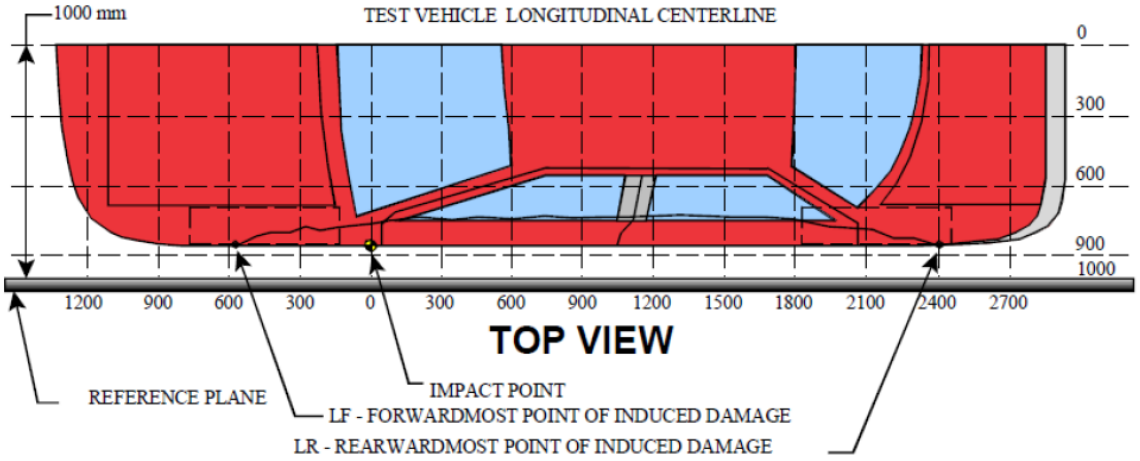
Vertical Location			From Centerline		Maximum Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Right	241
B	Top of Bumper	560	800	Right	131
C	Mid-Level	686	500	Right	134
D	Top of Stack	813	100	Right	167

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	800
1	241	236	231	230	229	228	226	225	223	222	221	219	218	217	215	214	210
2	131	129	127	127	128	102	124	130	95	122	116	113	110	108	108	107	110
3	123	117	125	134	117	99	120	131	106	78	64	63	68	77	90	105	116
4	139	144	141	119	103	111	147	167	144	112	92	91	94	108	114	129	148

DATA SHEET NO. 13
VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018



MEASUREMENT CONVENTIONS:
Forward of the impact point (towards front of vehicle) is considered negative (—).
Rearward of the impact point (toward rearend of vehicle) is considered positive (+).

VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	2250	4	860	873	13
2	1650	3	737	902	165
3	1200	2	759	913	154
4	600	3	741	920	179
5	150	2	763	915	152
6	-450	4	804	814	10

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	261	471	210
2	500 mm Left of Center	1	269	486	217
3	200 mm Left of Center	1	265	486	221
4	200 mm Right of Center	1	260	486	226
5	500 mm Right of Center	1	257	487	230
6	800 mm Right of Center	1	235	476	241

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

Test Vehicle: 2018 Dodge Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018

Test Time: 14:47 **Temperature:** 21.9°C

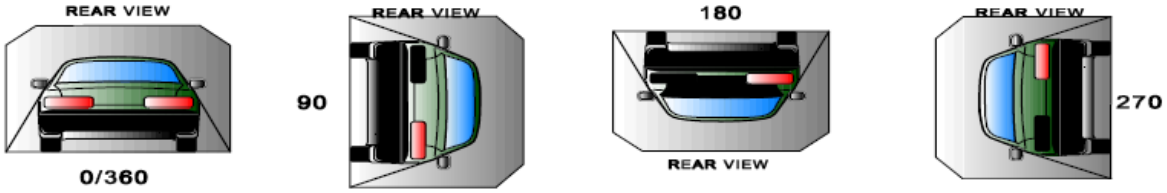
A. From impact until vehicle motion ceases: 0 oz.
(Maximum allowable is 1 ounce)

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

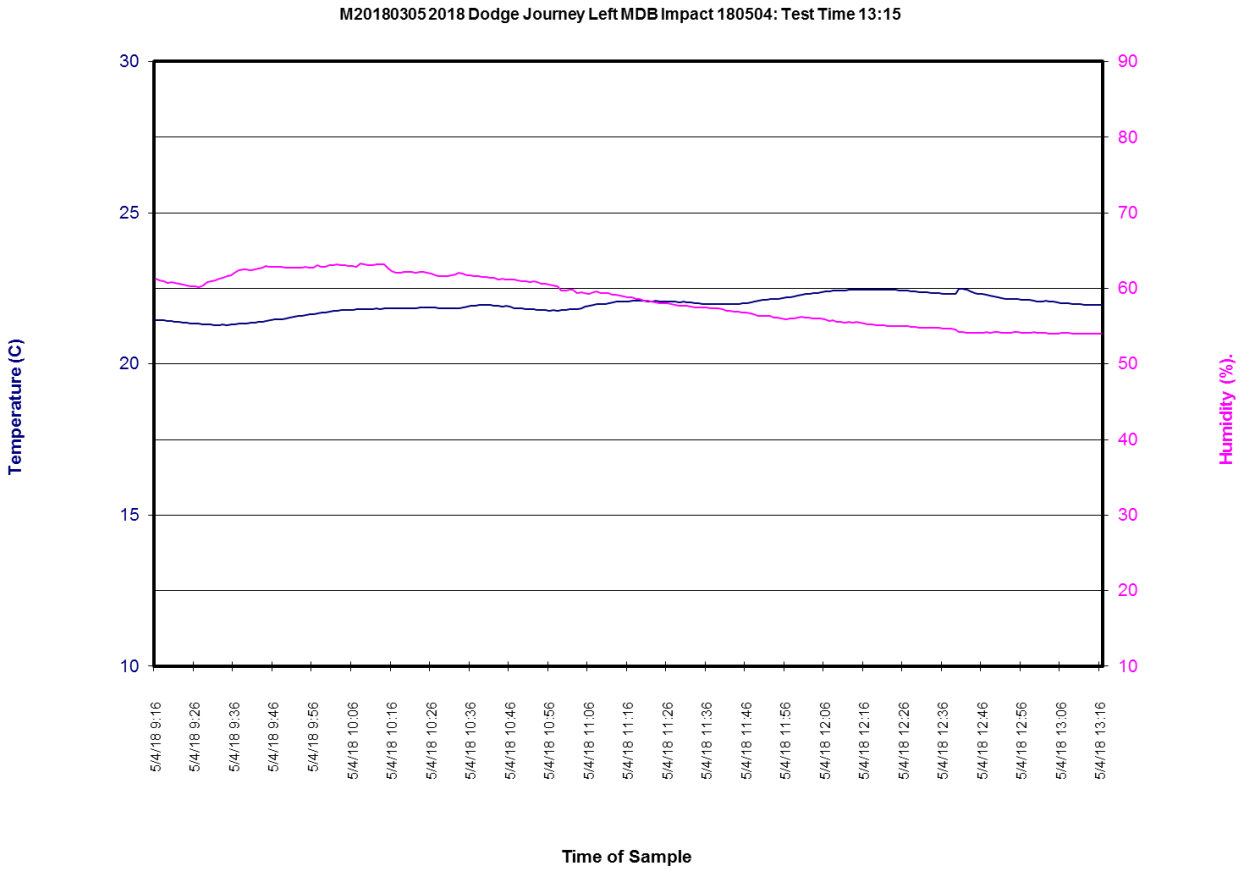
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	0	N/A
90 to 180	0	0	0	N/A
180 to 270	0	0	0	N/A
270 to 360	0	0	0	N/A

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 Journey SUV NHTSA No.: M20180305
Test Program: SINCAP Side Impact Test Date: 5/4/2018



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS (CONTINUED)

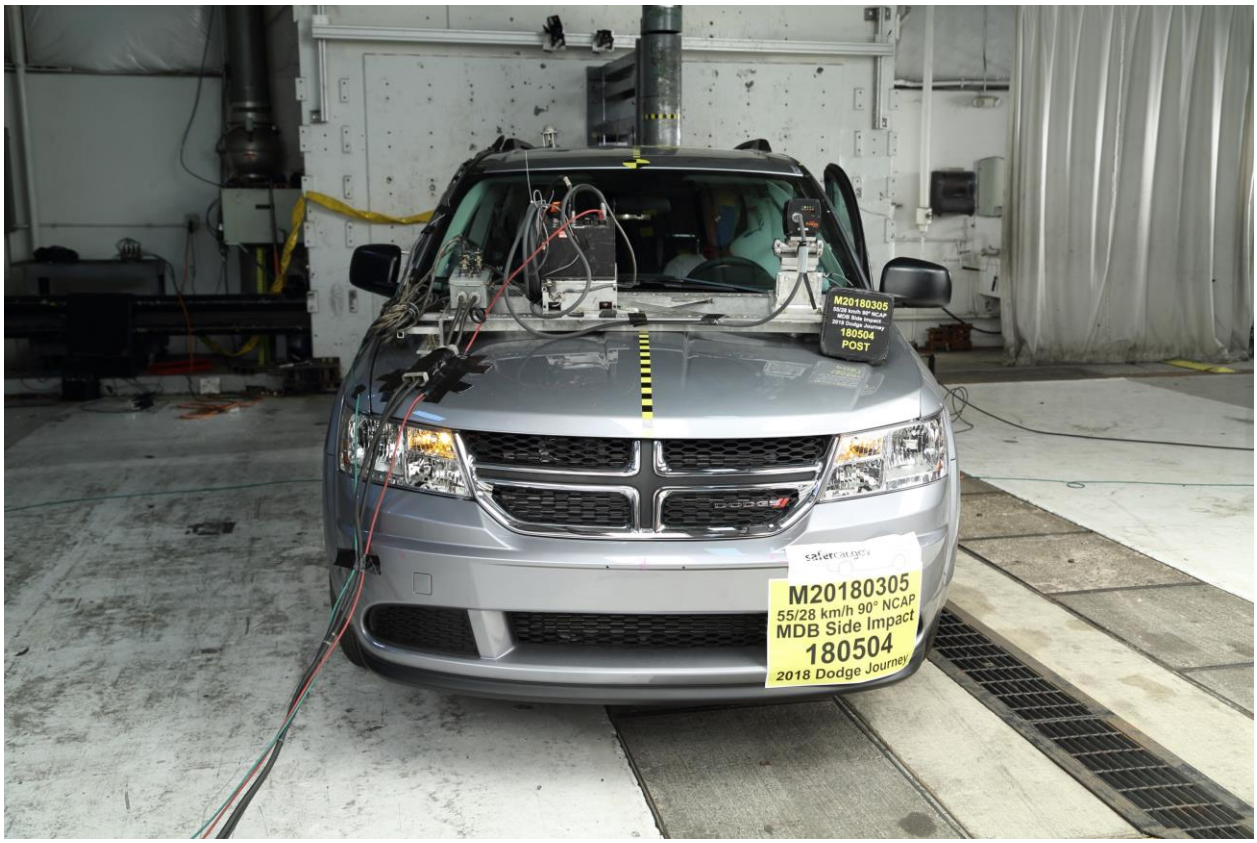
TABLE OF PHOTOGRAPHS (CONTINUED)

TABLE OF PHOTOGRAPHS (CONTINUED)

001 As-Delivered Right Front ¾ View of Test Vehicle

002 As-Delivered Left Rear ¾ View of Test Vehicle

003 Pre-Test Frontal View of Test Vehicle



004 Post-Test Frontal View of Test Vehicle

005 Pre-Test Left Front ¾ View of Test Vehicle

006 Post-Test Left Front ¾ View of Test Vehicle

007 Pre-Test Left Side View of Test Vehicle

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

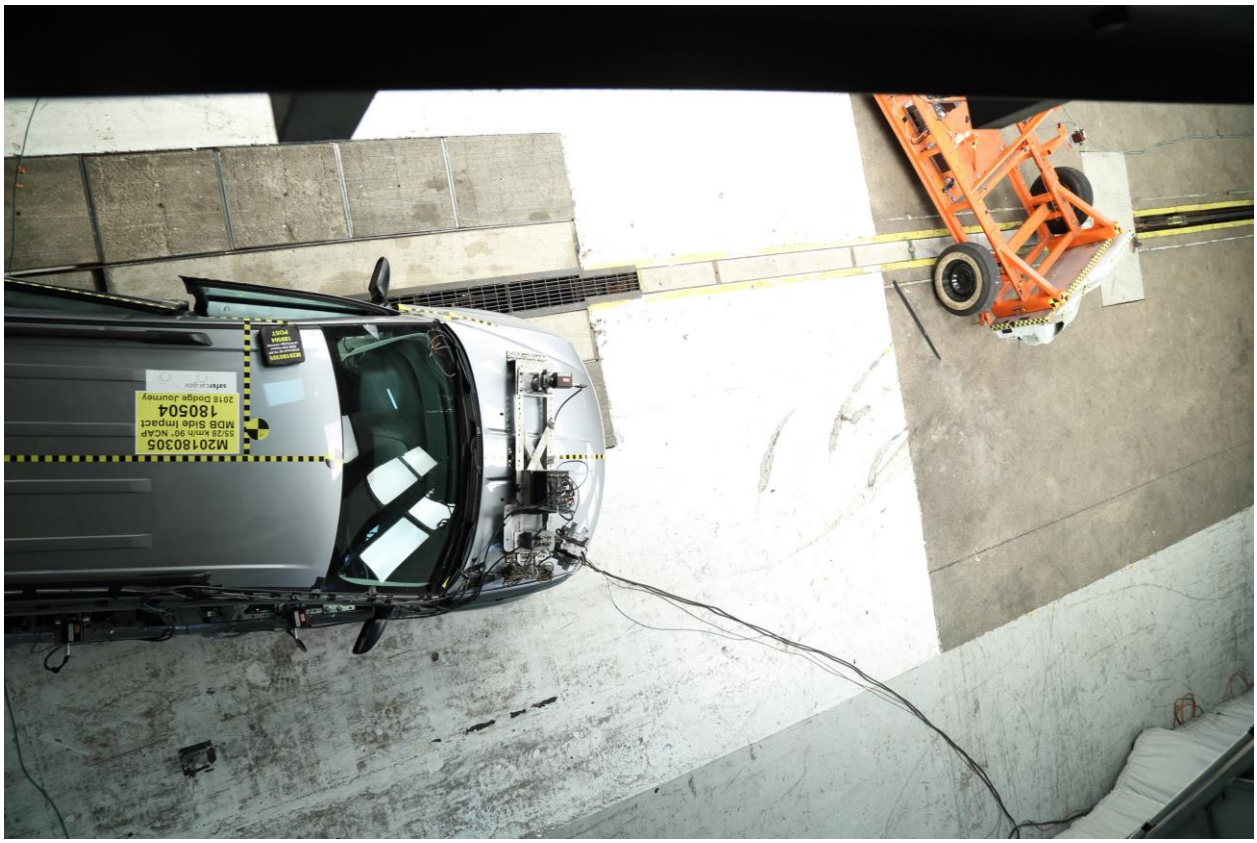
011 Pre-Test Rear View of Test Vehicle

012 Post-Test Rear View of Test Vehicle

013 Pre-Test Right Side View of Test Vehicle

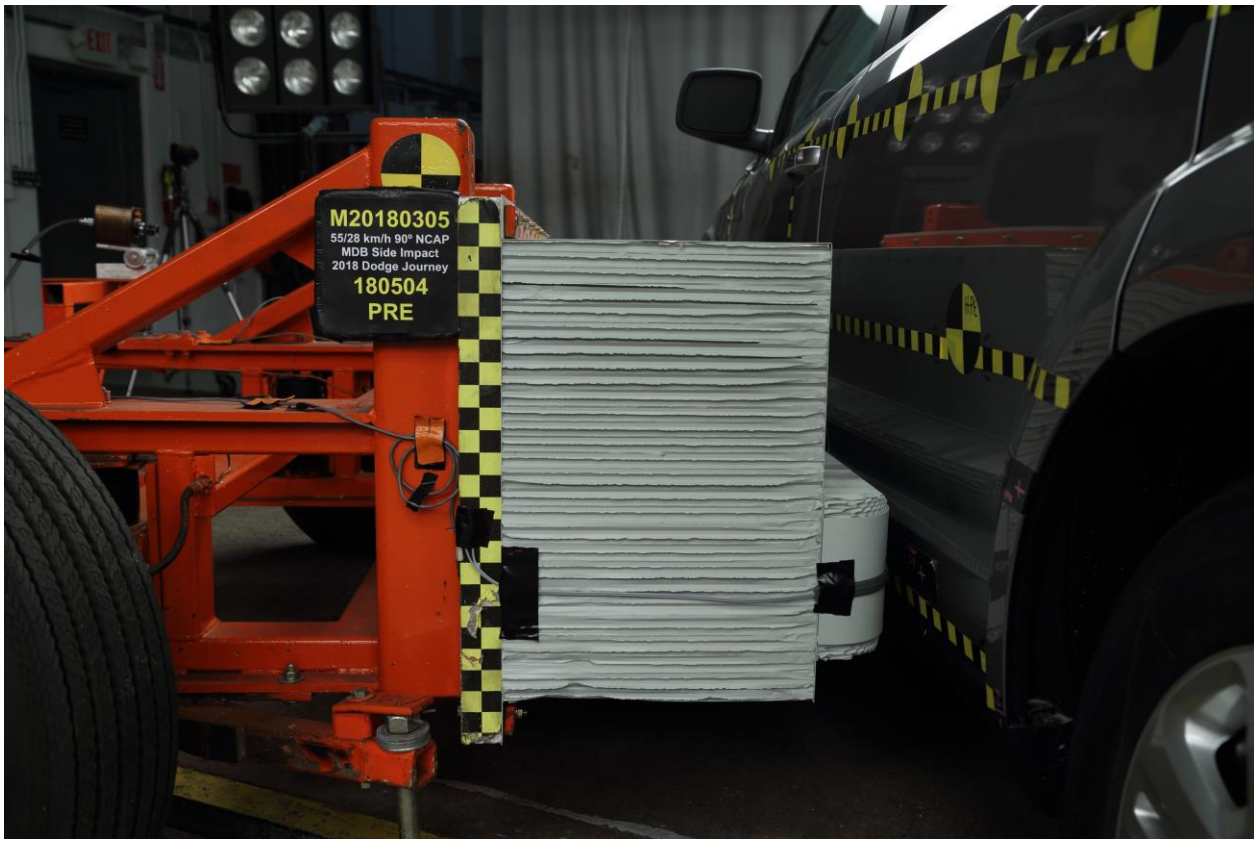
014 Post-Test Right Side View of Test Vehicle

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



018 Pre-Test Right Side View MDB Positioned Against Side of Test Vehicle

019 Pre-Test Close-Up View of Impact Point Target

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

021 Pre-Test Left Front Door Latch Close-Up

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

025 Pre-Test Front Close-Up View of Driver Dummy

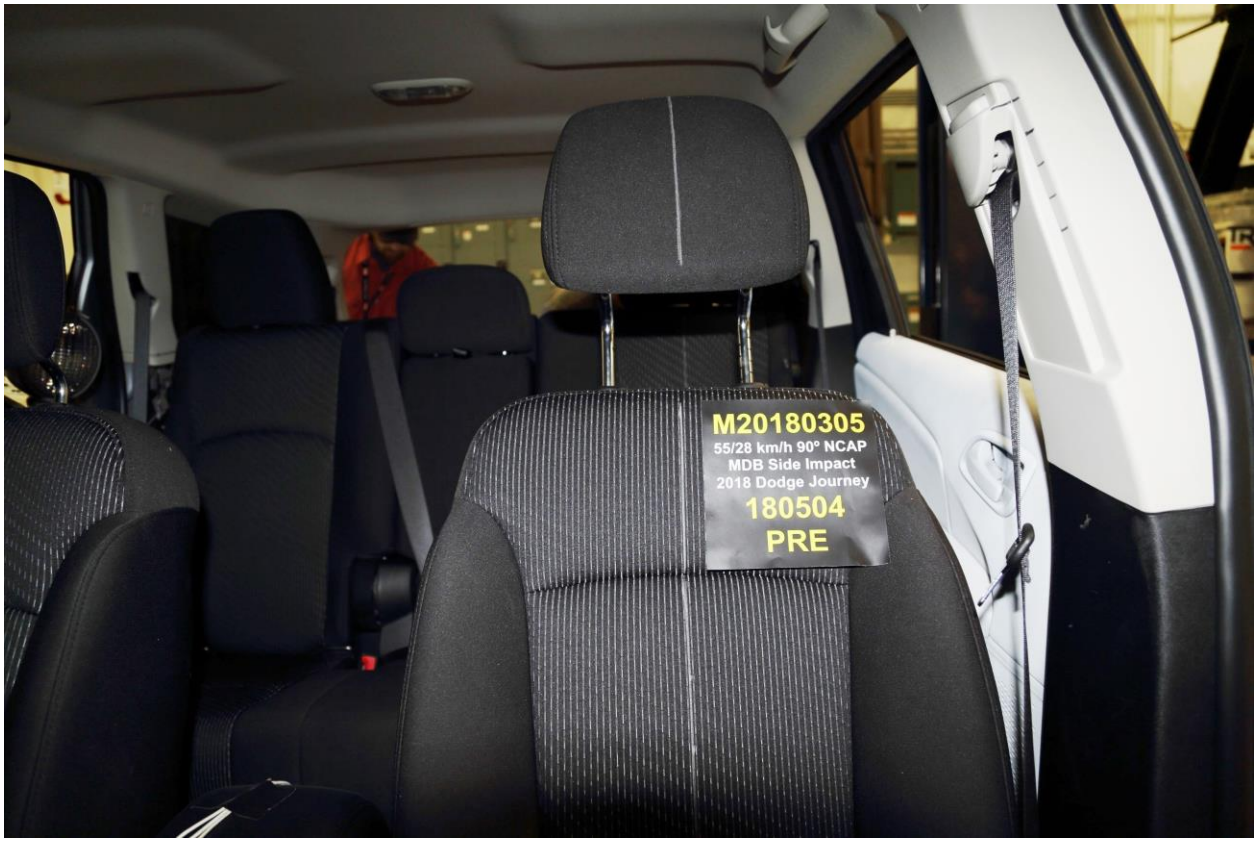
026 Post-Test Front Close-Up View of Driver Dummy

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

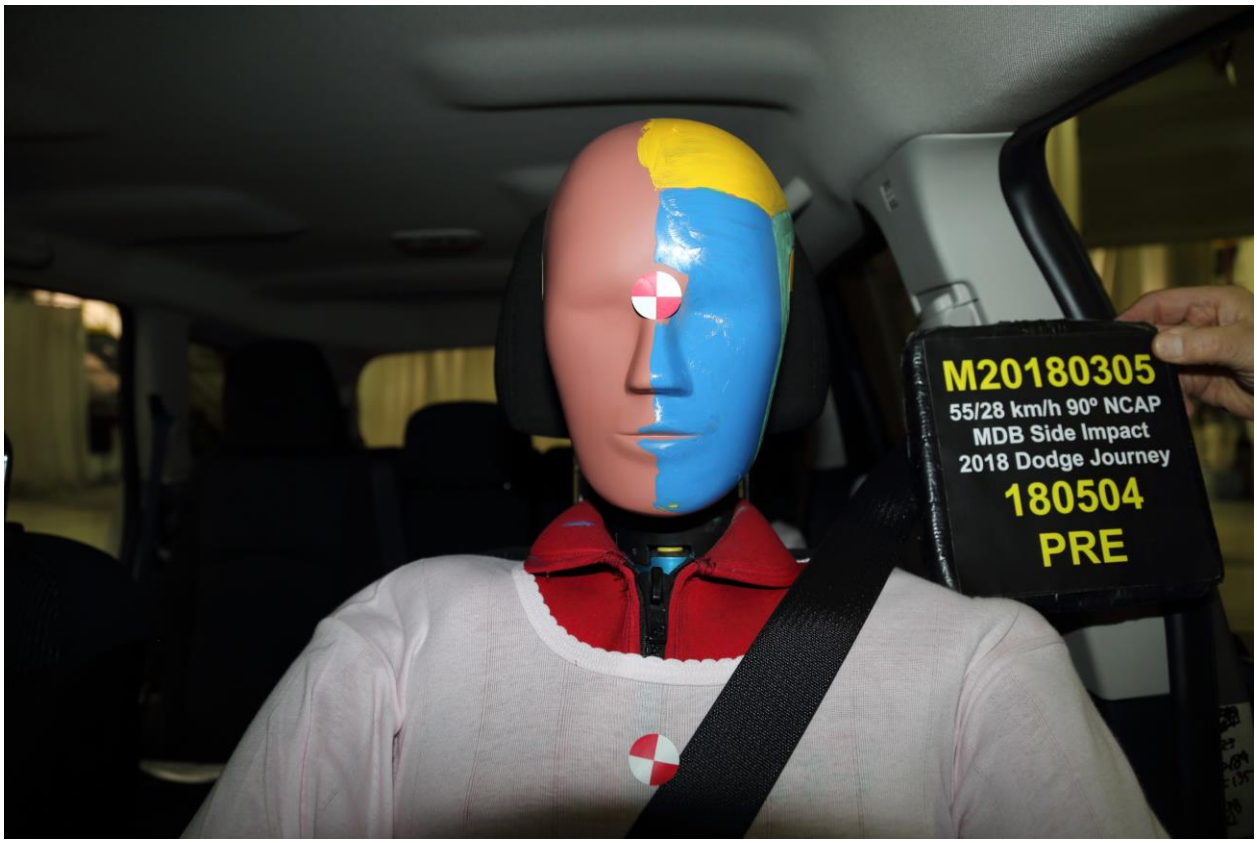
Intentionally Left Blank

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



030 Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning

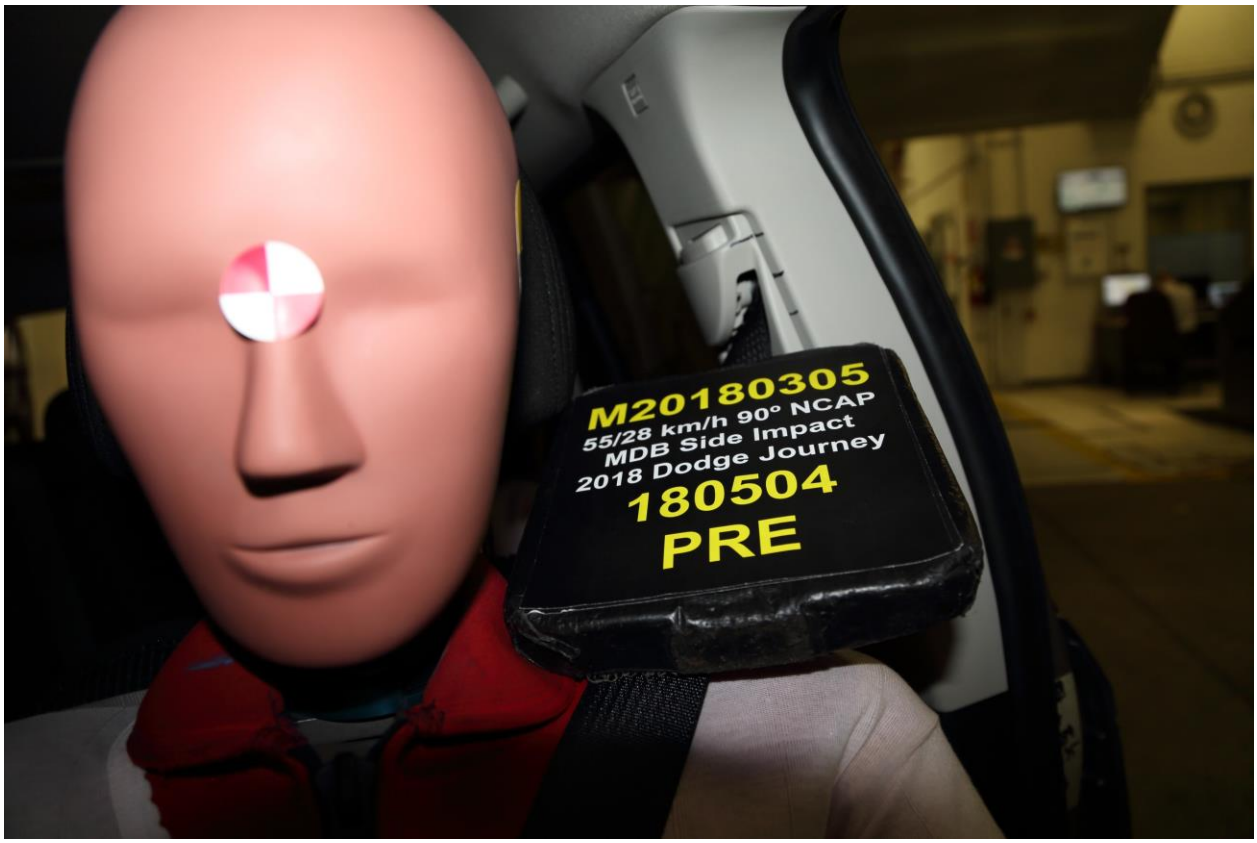


031 Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint

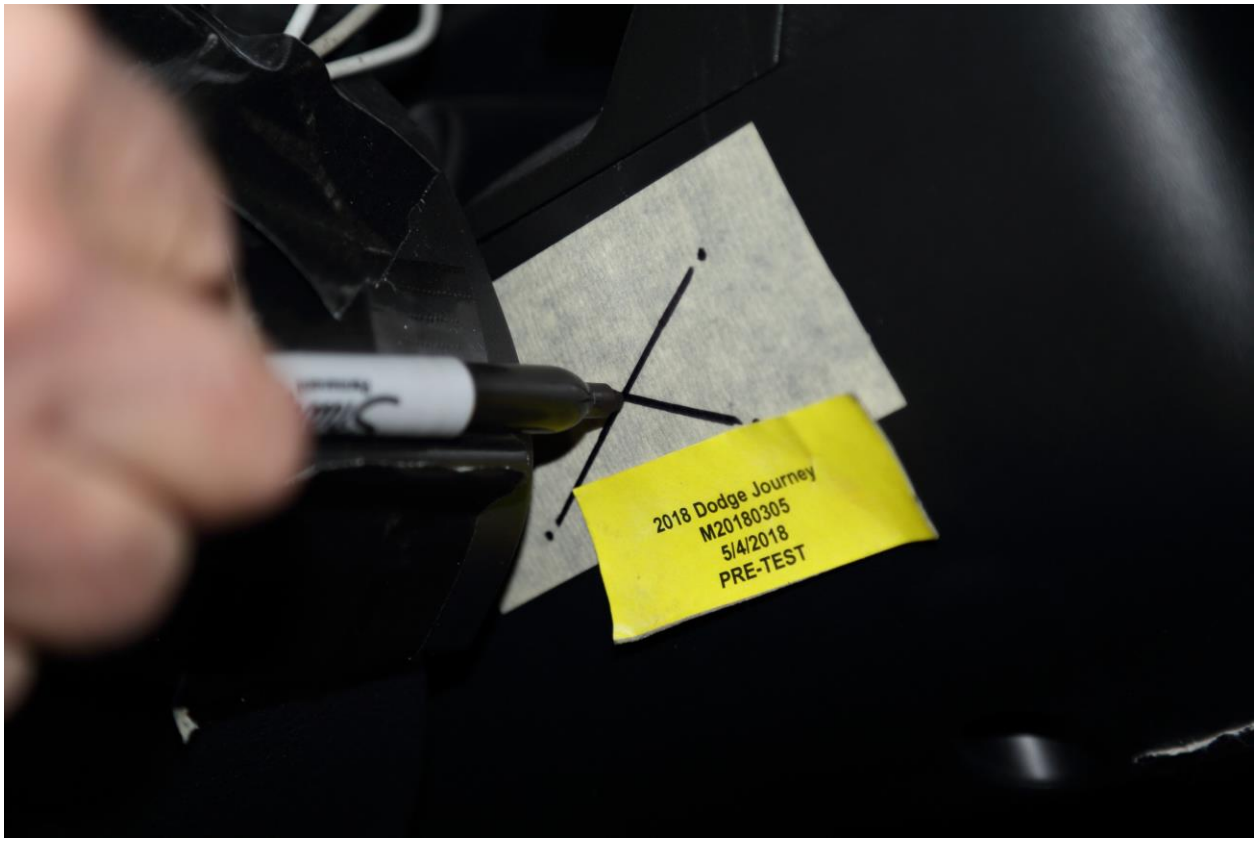
032 Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning

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

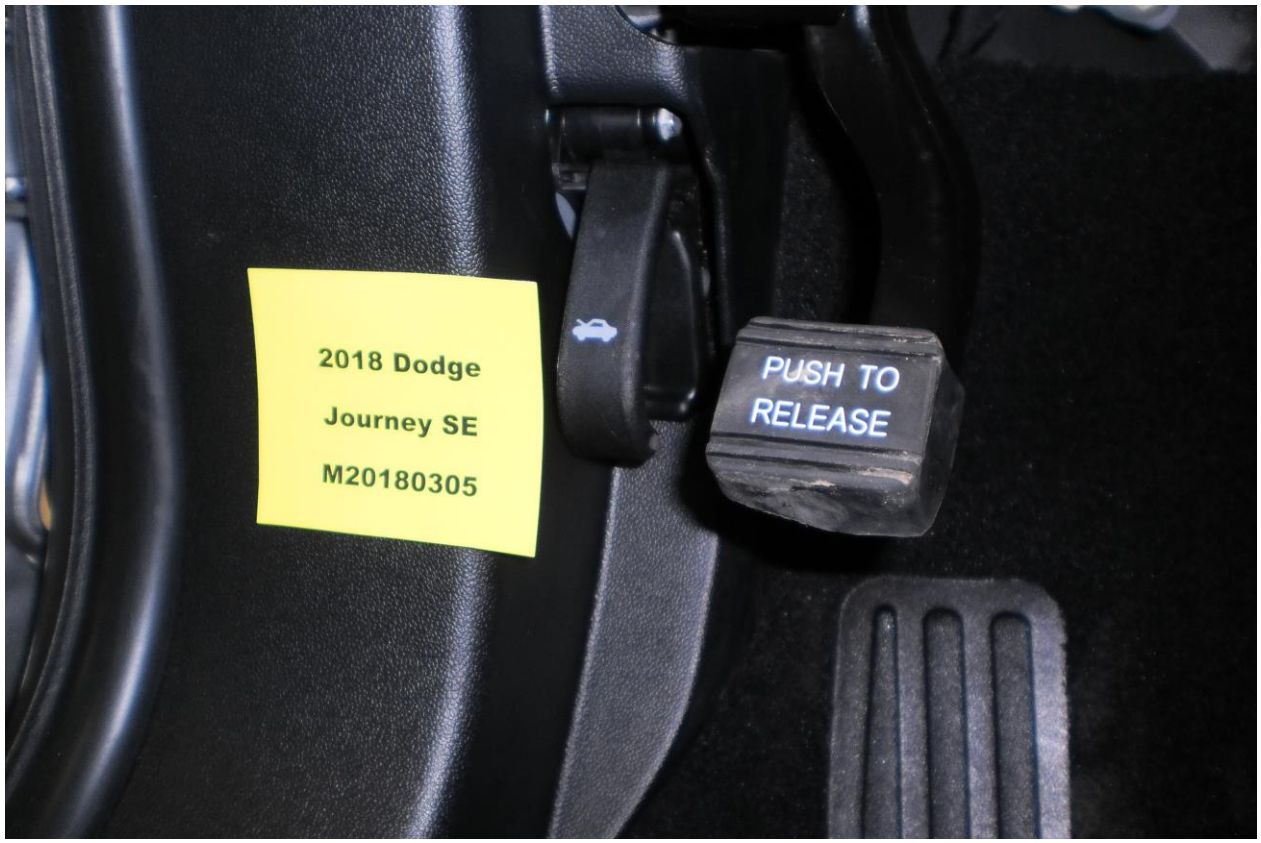
034 Pre-Test Placement of Driver's Dummy Feet



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

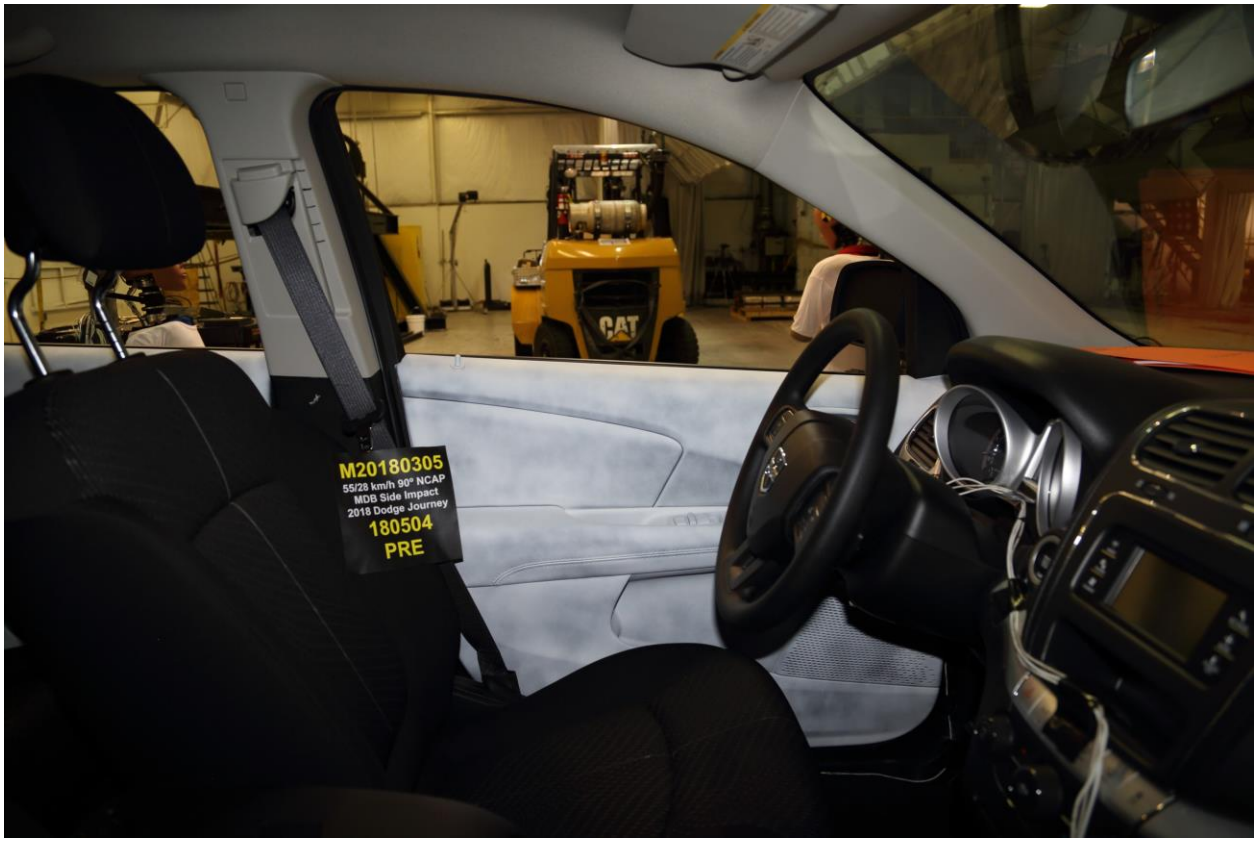
041 Pre-Test Close-Up View of Driver Seat Back or Head Restraint

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

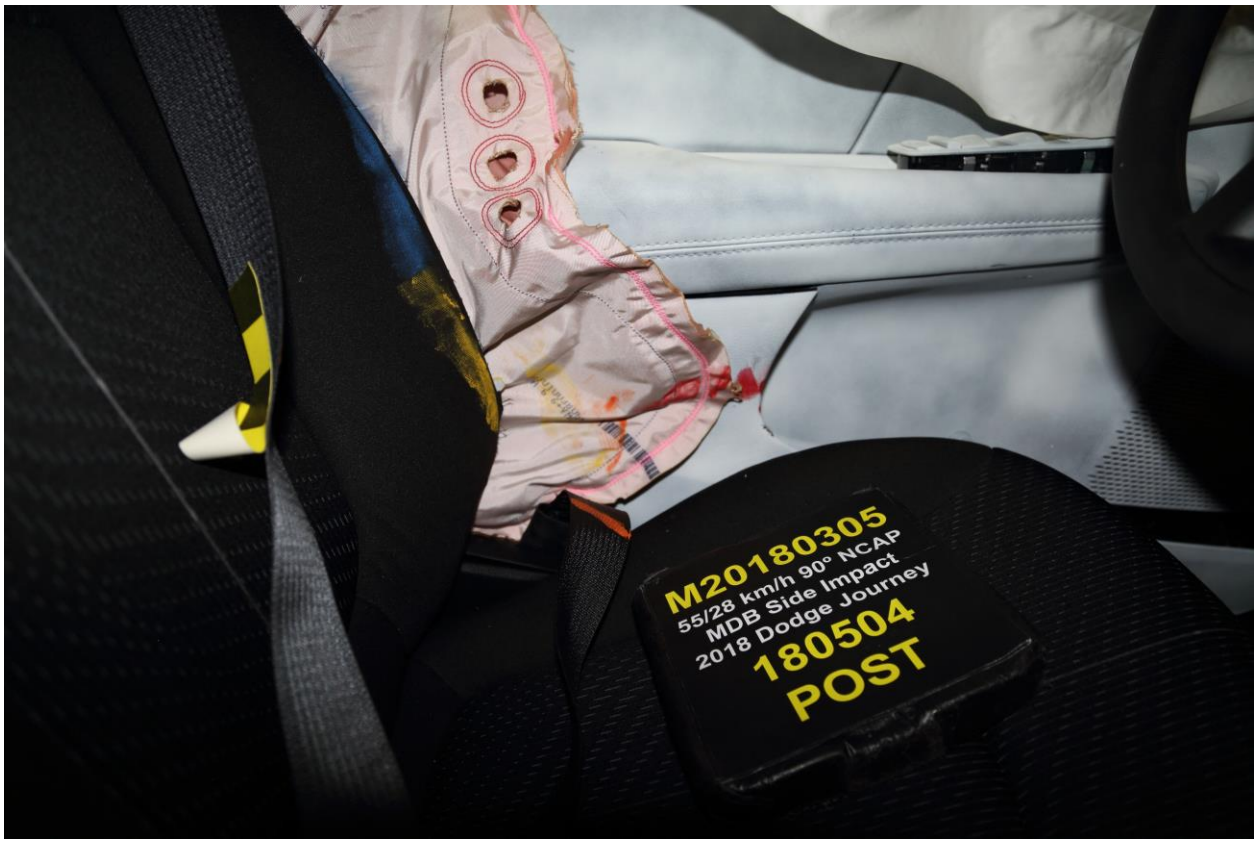
048 Post-Test Driver Dummy Close-Up Head Contact with Vehicle View

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

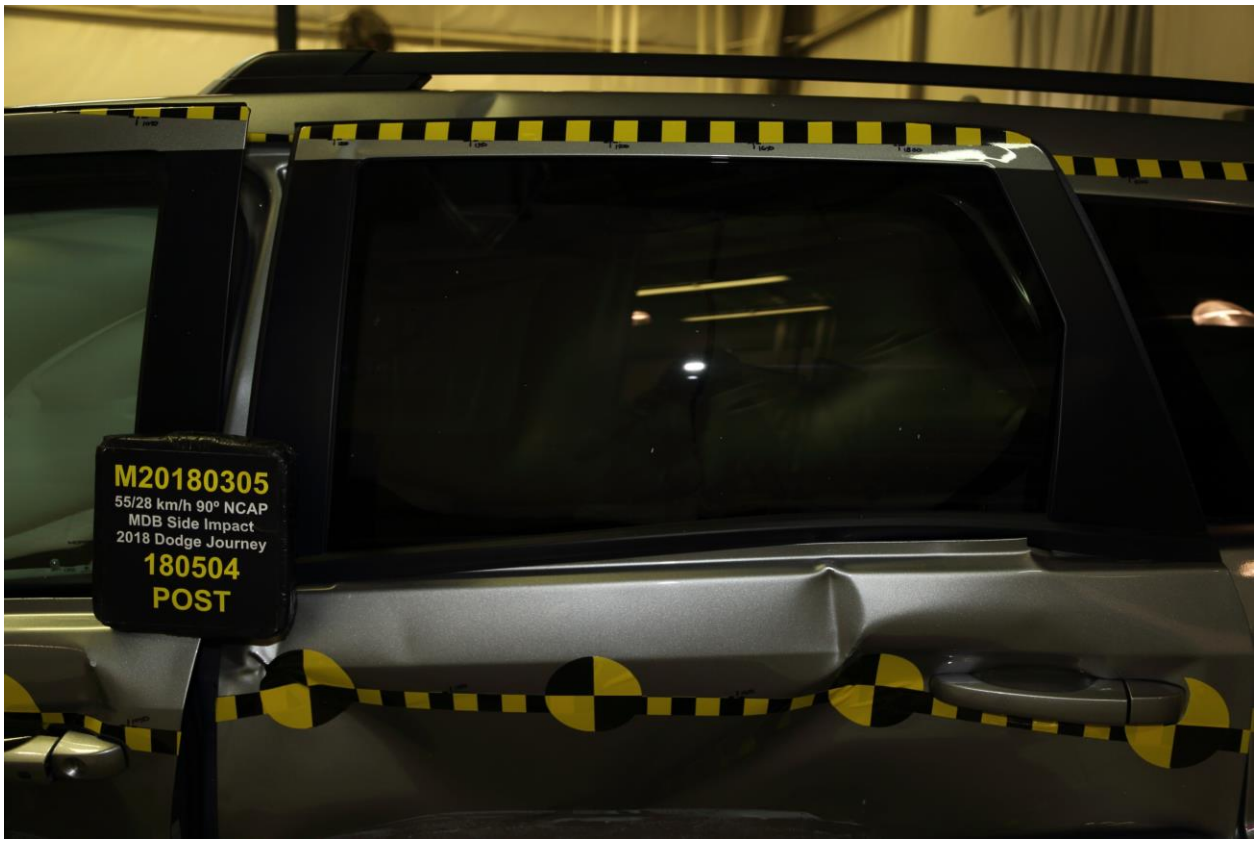


053 Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View

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



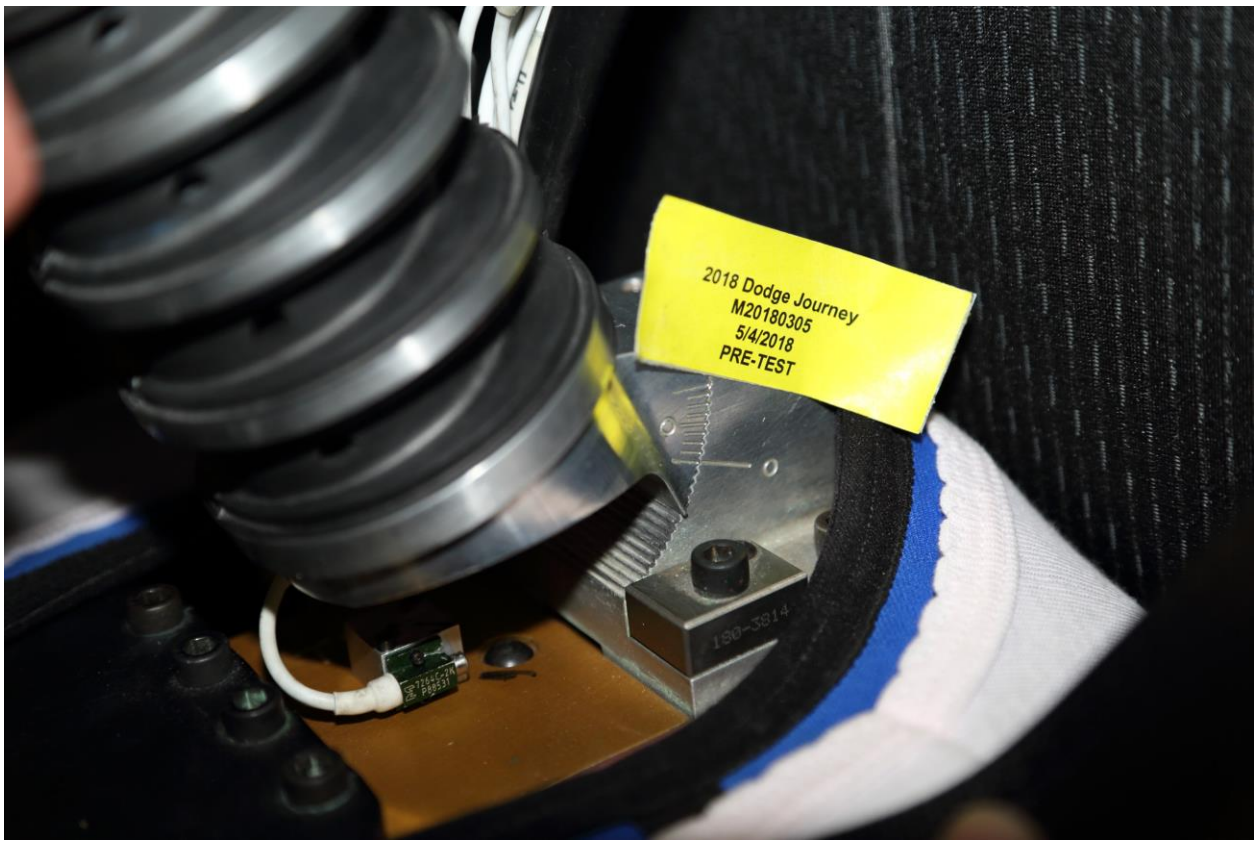
057 Post-Test Left Side View of Passenger Dummy Shoulder and Door Top View

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

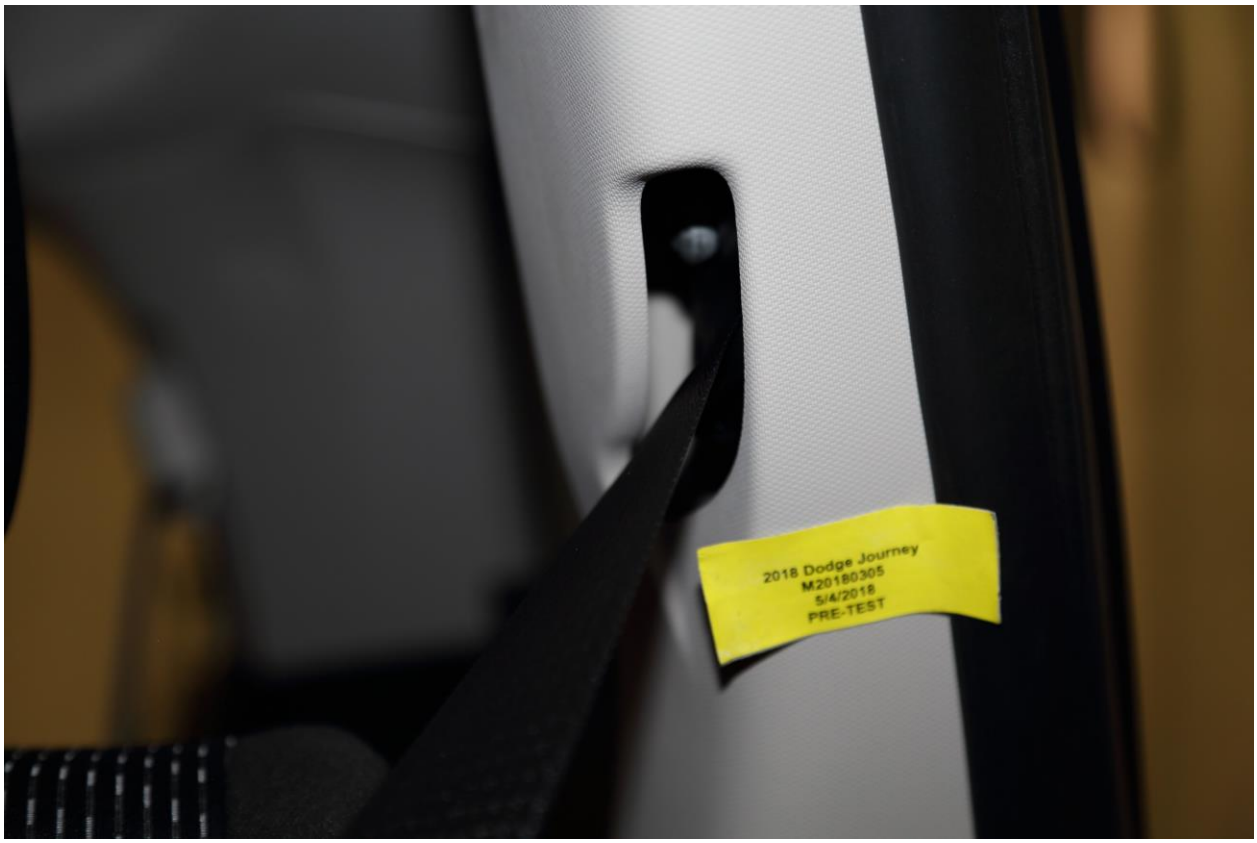
061 Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



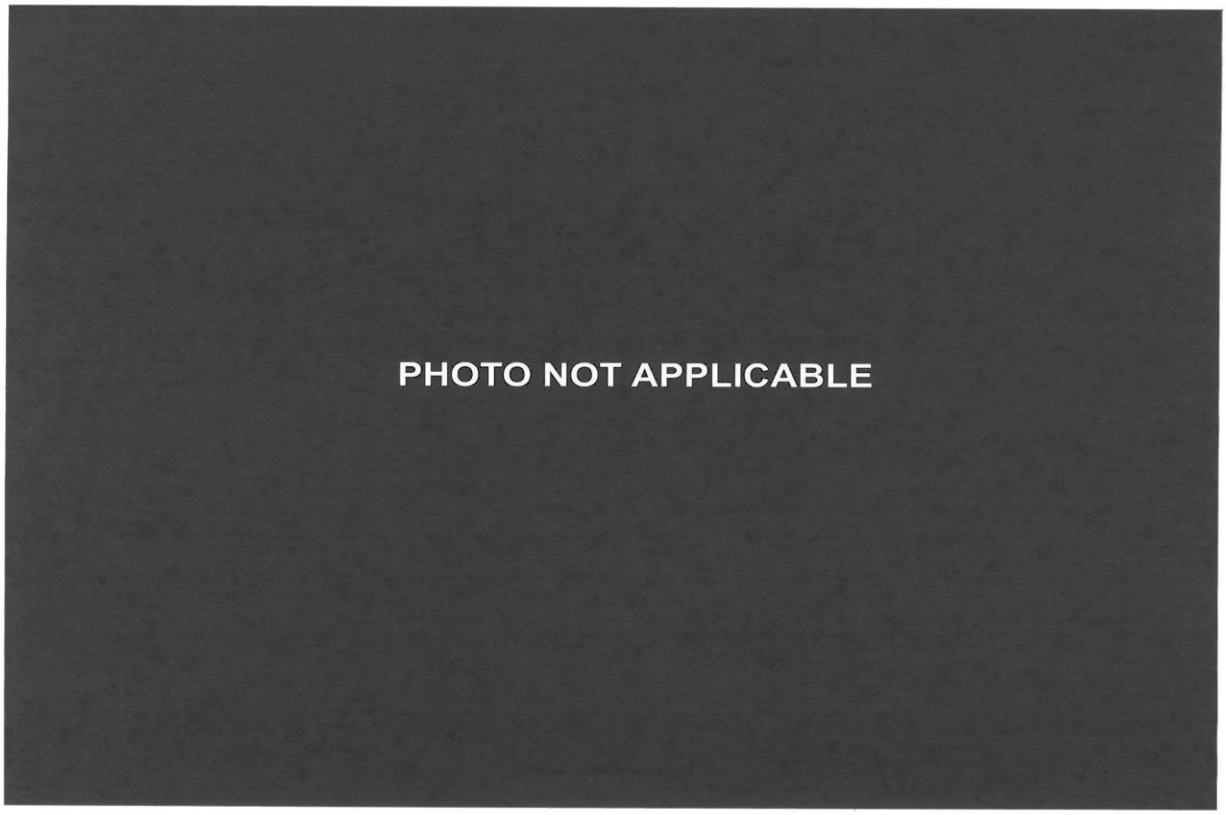
062 Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket

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

Intentionally Left Blank

069 Pre-Test Rear Passenger Dummy and Door Clearance View

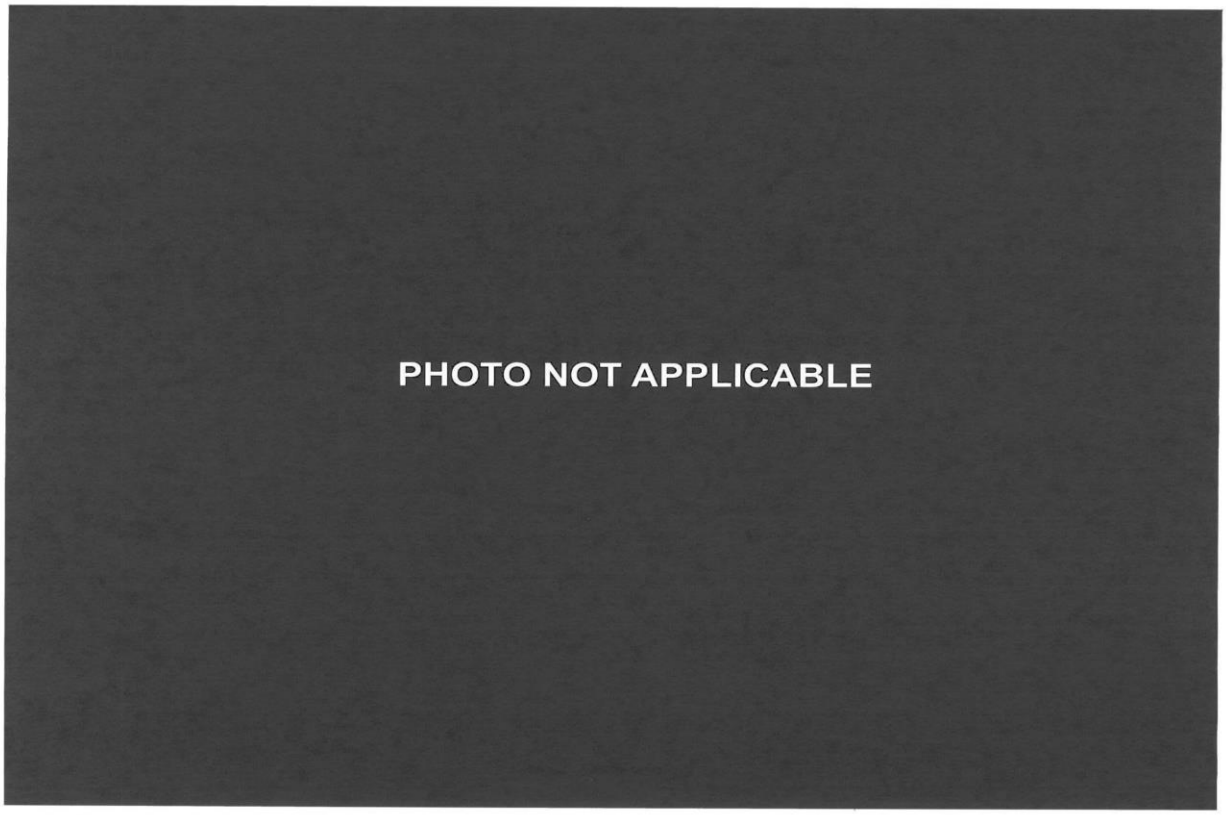
070 Post-Test Rear Passenger Dummy and Door Clearance View

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

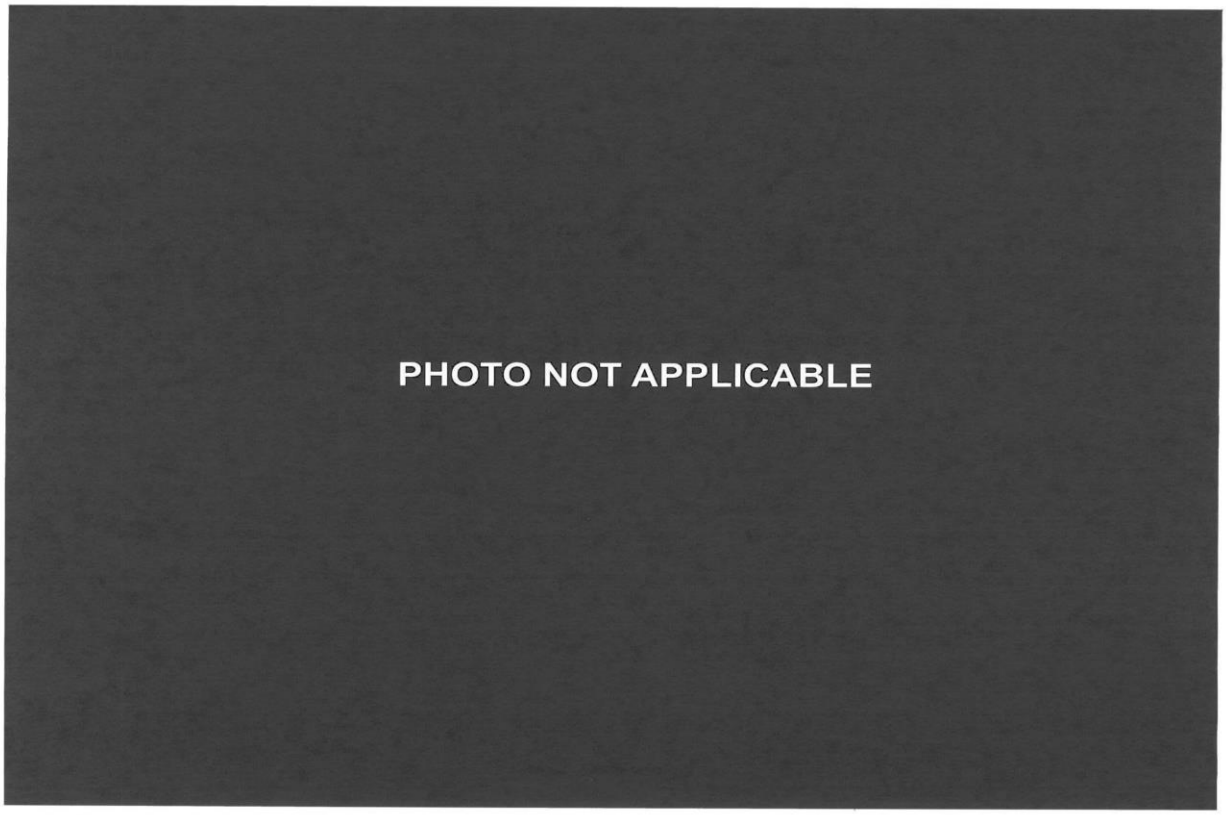
074 Post-Test Rear Passenger Inner Door Panel View



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

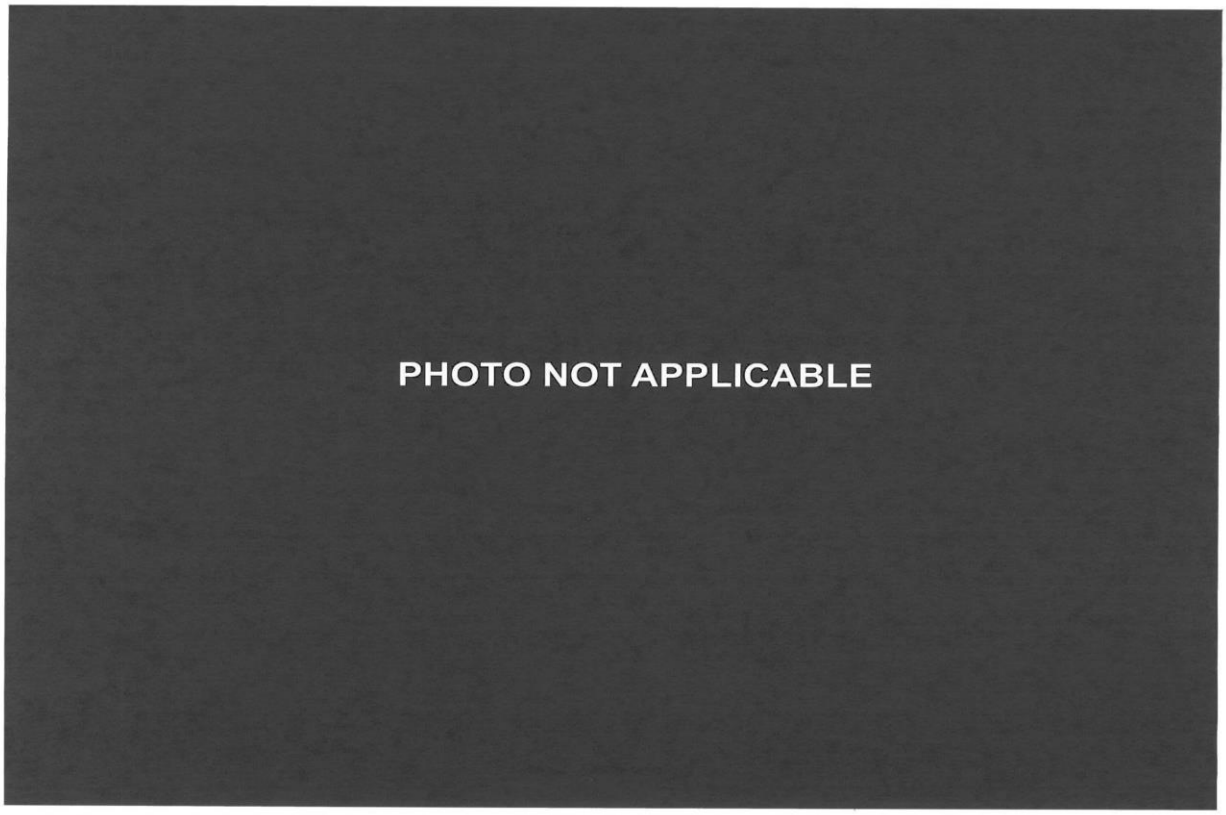
076 Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View

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

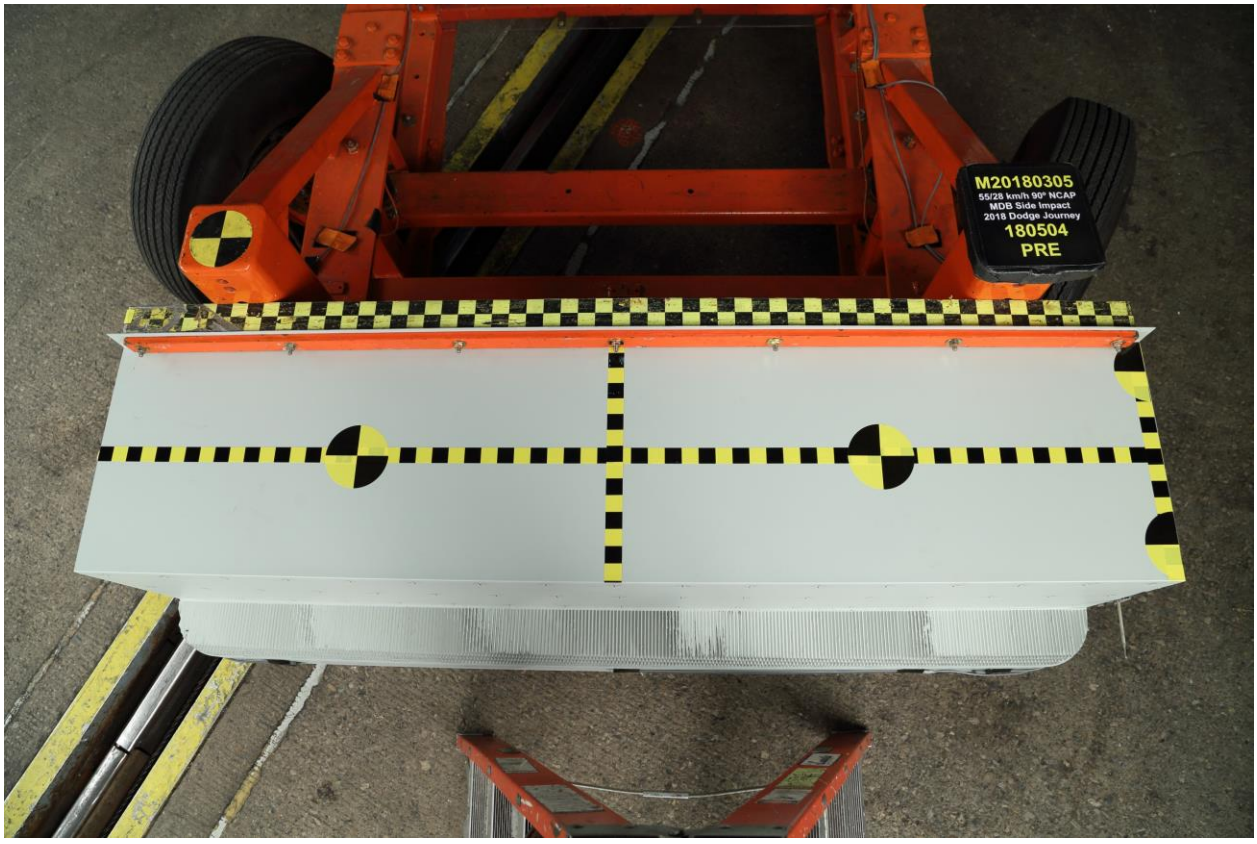
Intentionally Left Blank

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

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

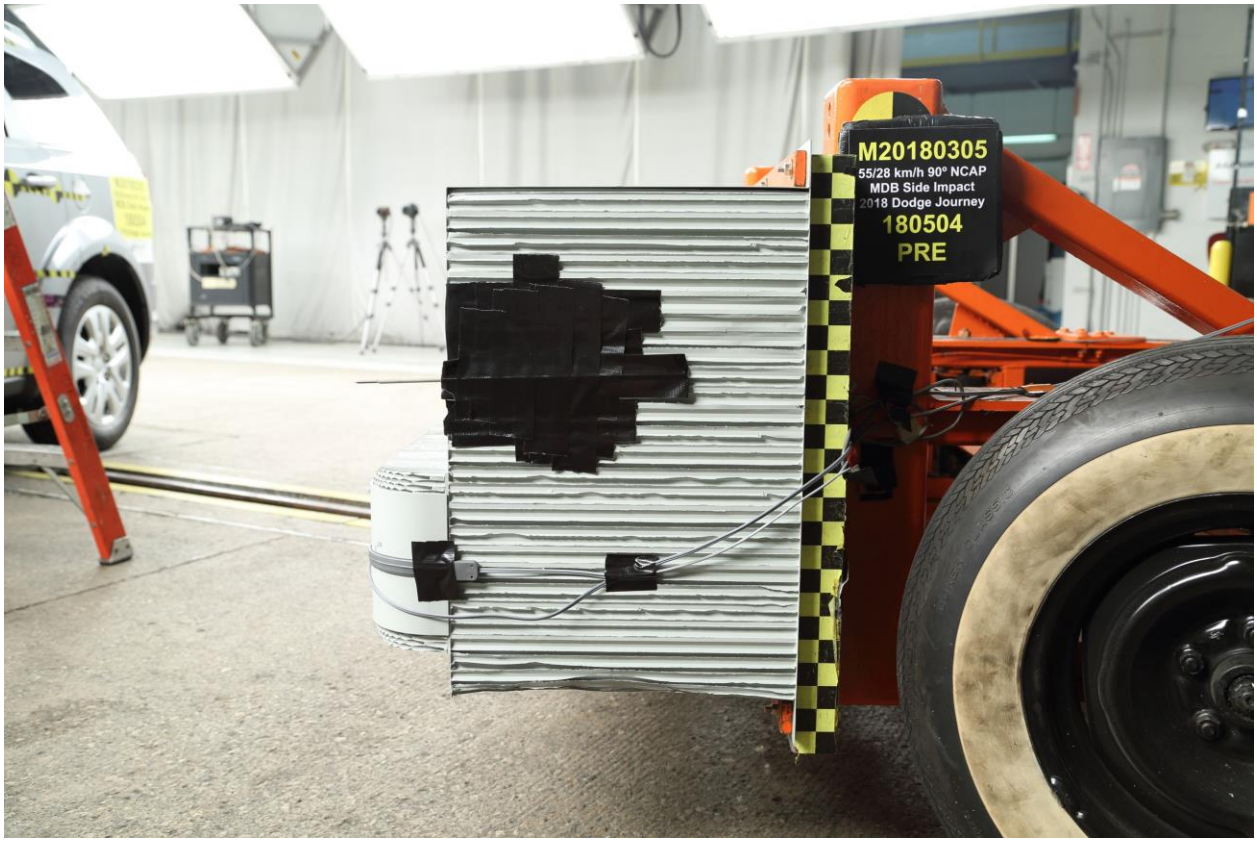
084 Pre-Test Front View of MDB Impactor Face

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

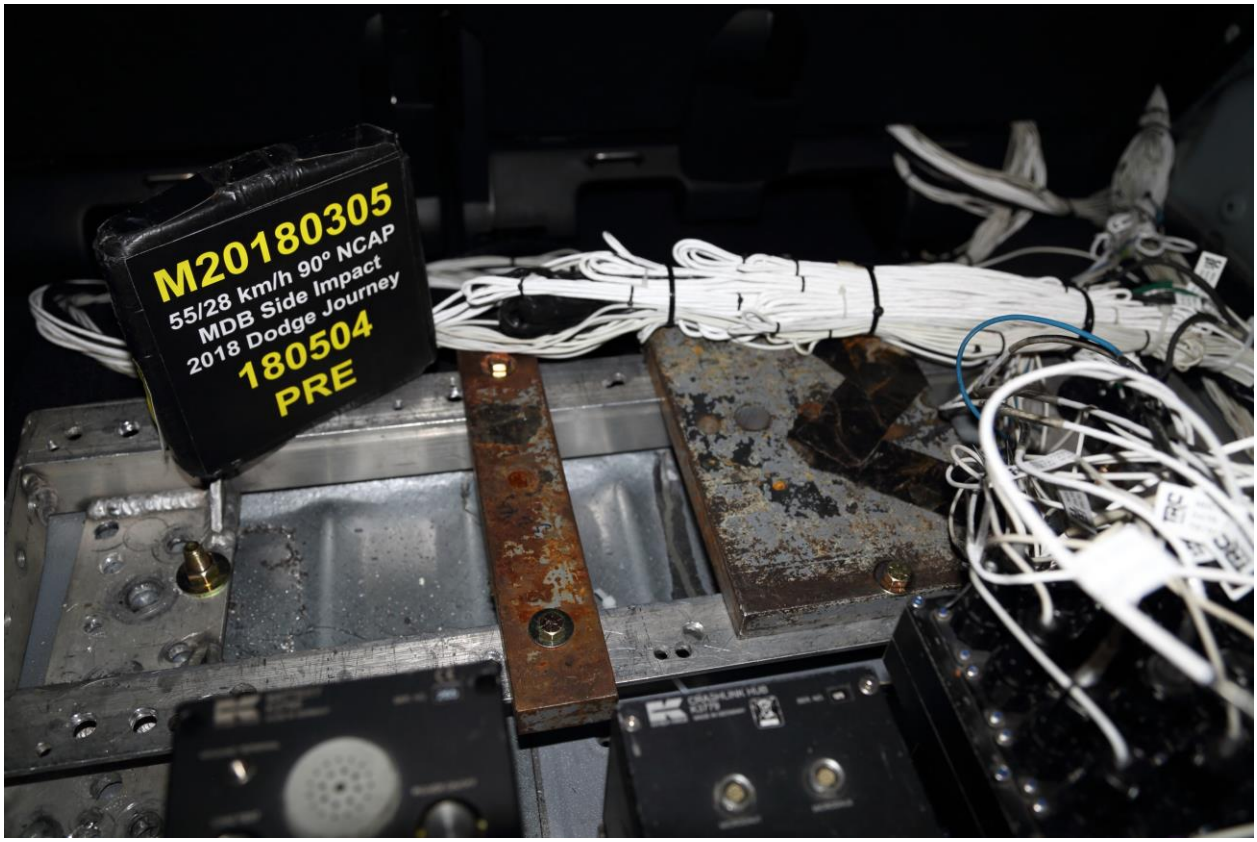
089 Post-Test Left Side View of MDB Impactor Face

090 Pre-Test Right Side View of MDB Impactor Face

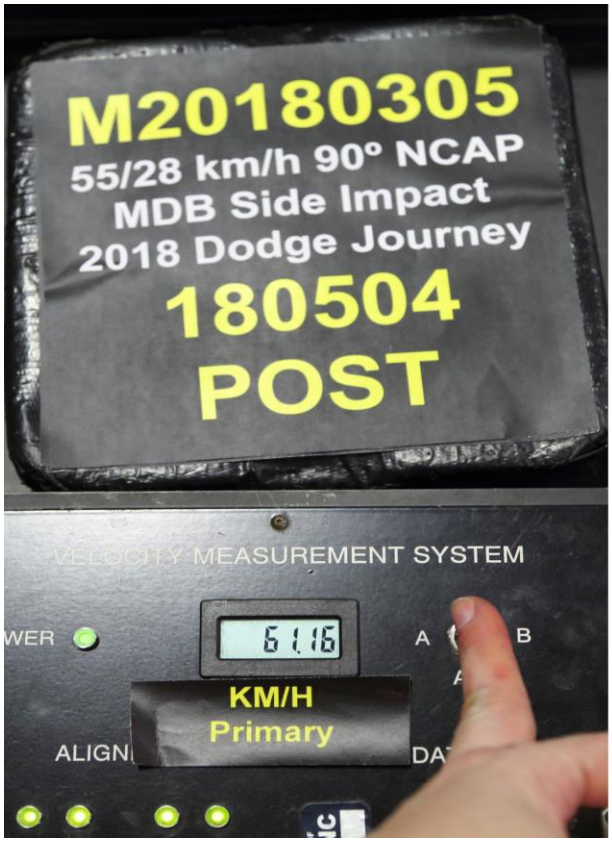
091 Post-Test Right Side View of MDB Impactor Face

092 Close-Up View of Vehicle's Certification Label

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

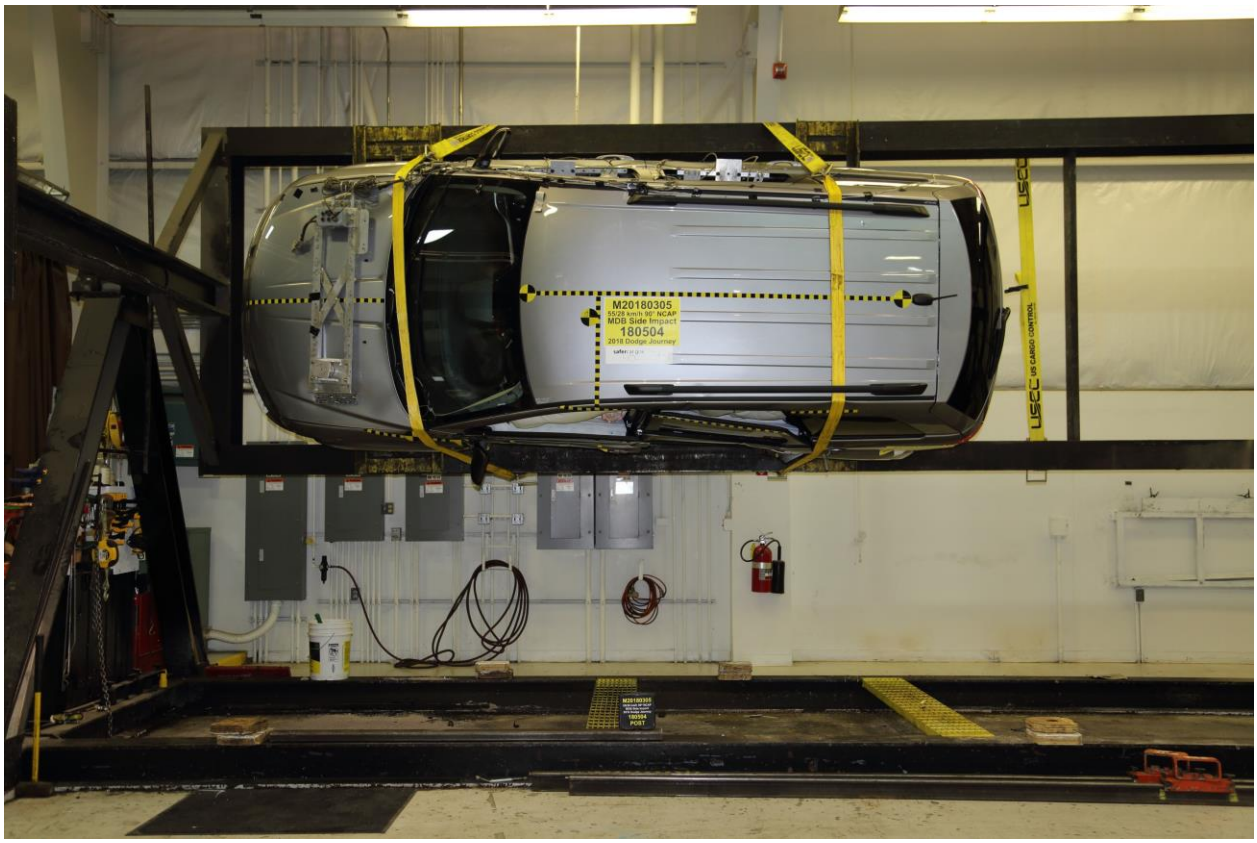


094 Pre-Test Ballast View

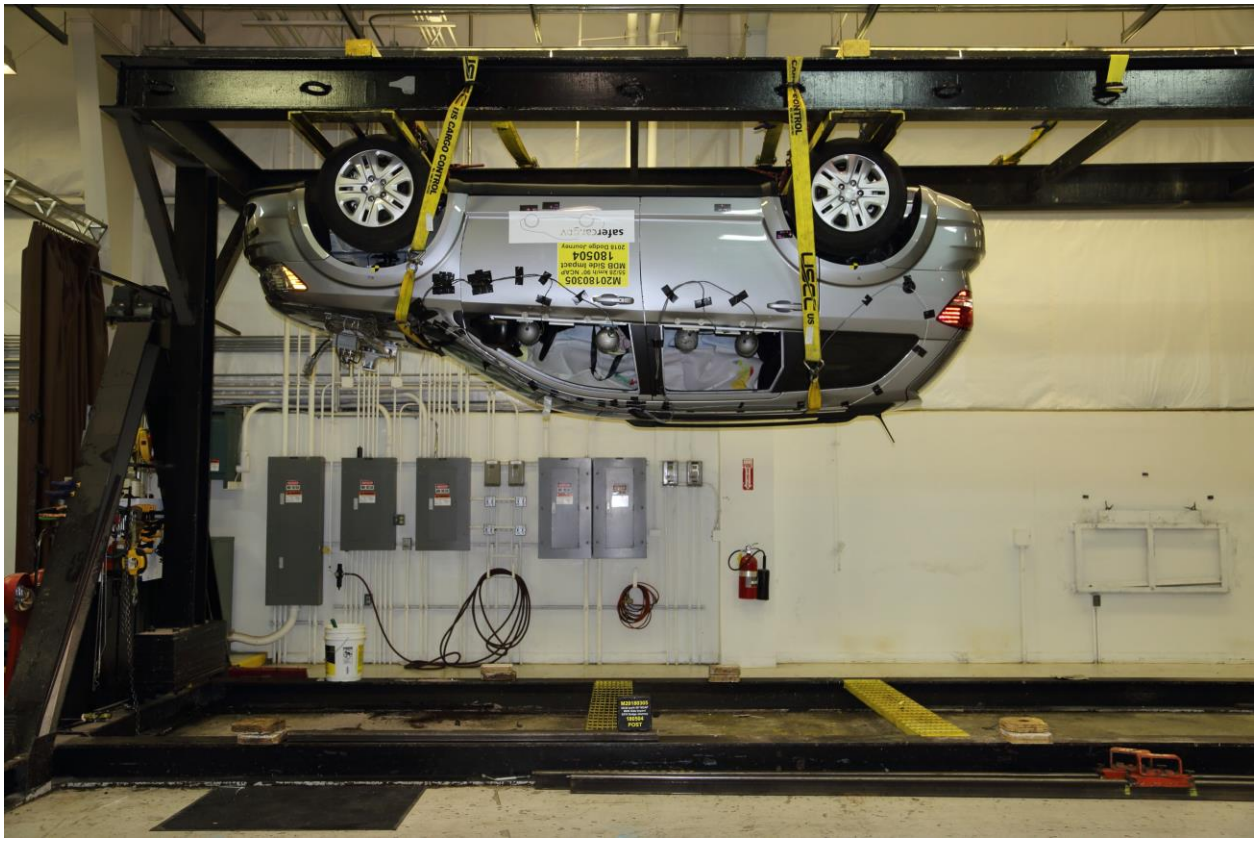


095 No. Post-Test Primary and Redundant Speed Trap Read-Out

096 FMVSS No. 301 Static Rollover 0 Degrees

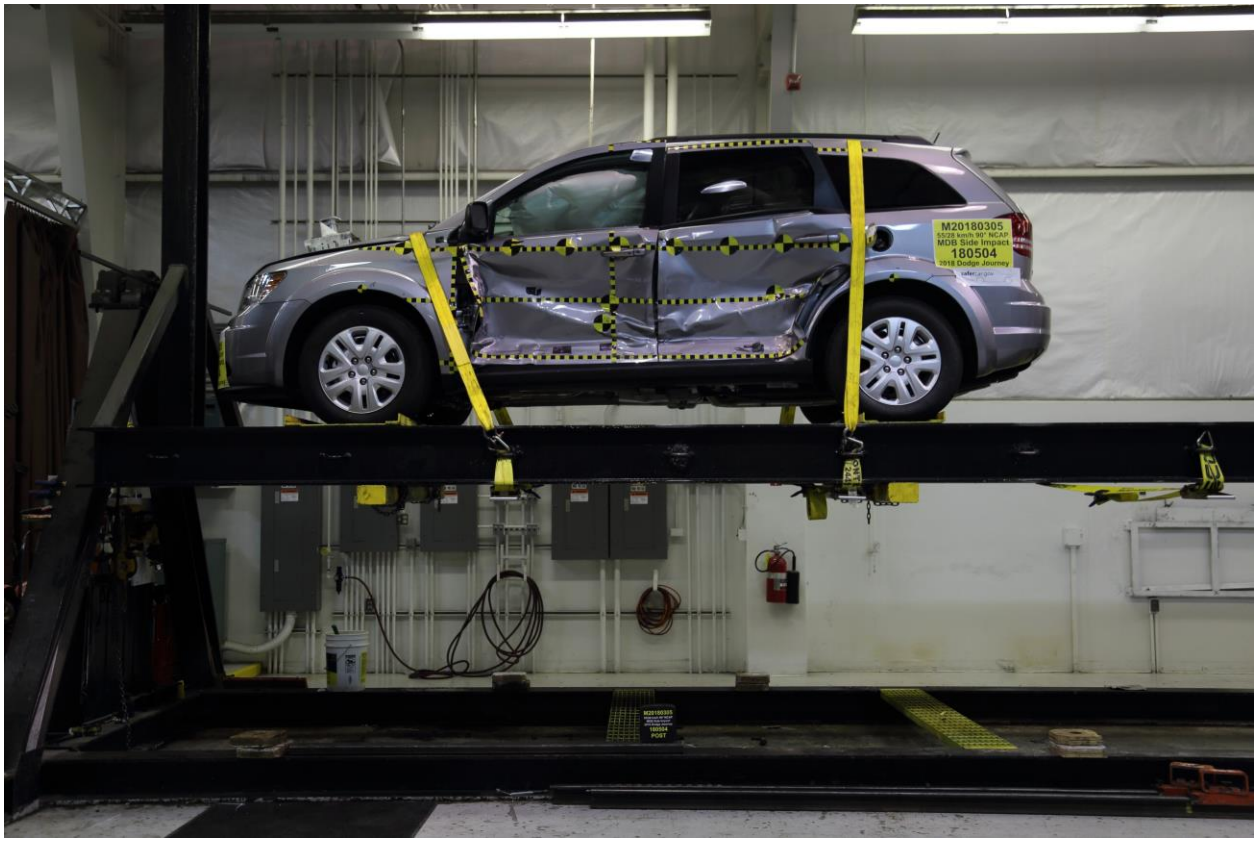


097 FMVSS No. 301 Static Rollover 90 Degrees



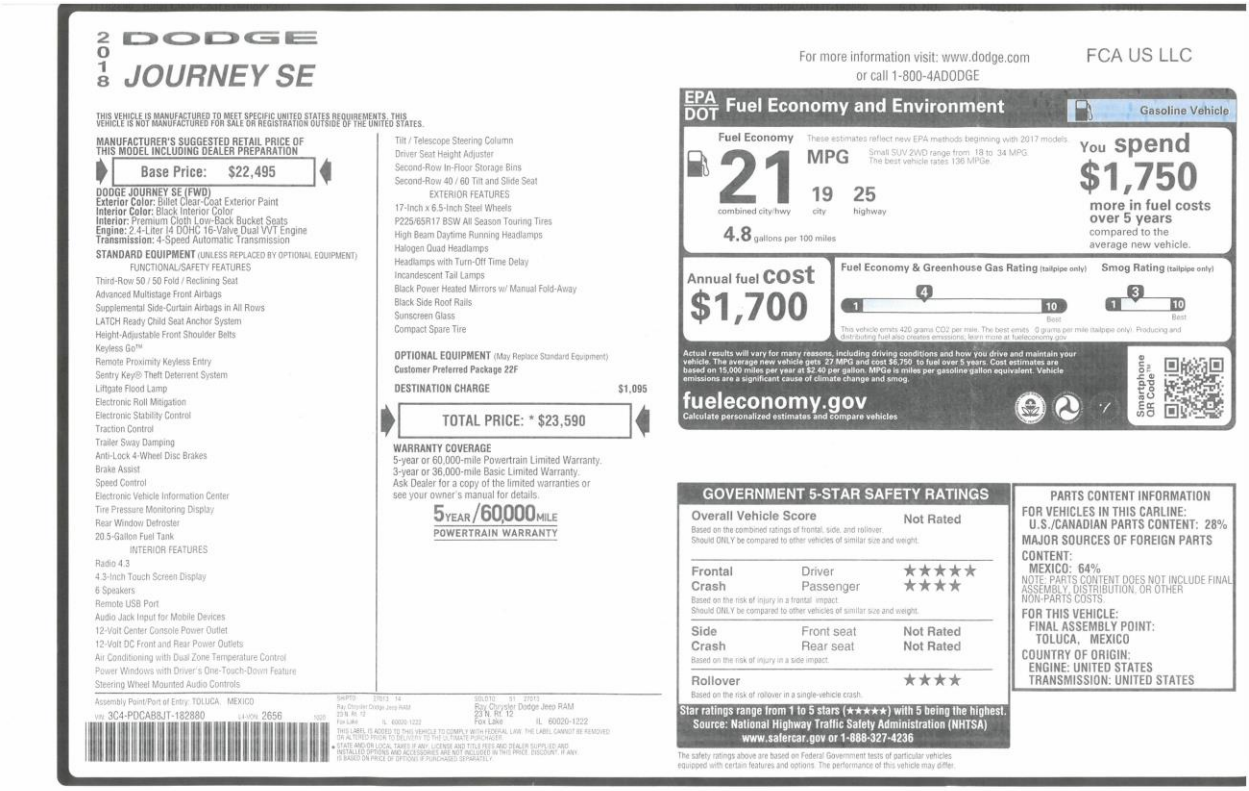
098 FMVSS No. 301 Static Rollover 180 Degrees

099 FMVSS No. 301 Static Rollover 270 Degrees



100 FMVSS No. 301 Static Rollover 360 Degrees

101 Impact Event



2018 DODGE JOURNEY SE

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: $22,495

DODGE JOURNEY SE (FWD)
Exterior Color: Billet Clear-Coat Exterior Paint
Interior Color: Black Interior Color
Interior: Premium Cloth Low-Back Bucket Seats
Engine: 2.4-Liter I4 DOHC 16-Valve Dual VVT Engine
Transmission: 4-Speed Automatic Transmission

STANDARD EQUIPMENT (UNLESS REPLACED BY OPTIONAL EQUIPMENT)

FUNCTIONAL/SAFETY FEATURES
Third-Row 50 / 50 Fold / Reclining Seat
Advanced Multistage Front Airbags
Supplemental Side-Curtain Airbags in All Rows
LATCH Ready Child Seat Anchor System
Height-Adjustable Front Shoulder Belts
Keyless Go™
Remote Proximity Keyless Entry
Sentry Key® Theft Deterrent System
Liftgate Flood Lamp
Electronic Roll Mitigation
Electronic Stability Control
Traction Control
Trailer Sway Damping
Anti-Lock 4-Wheel Disc Brakes
Brake Assist
Speed Control
Electronic Vehicle Information Center
Tire Pressure Monitoring Display
Rear Window Defroster
20.5-Gallon Fuel Tank

INTERIOR FEATURES
Radio 4.3
4.3-Inch Touch Screen Display
6 Speakers
Remote USB Port
Audio Jack Input for Mobile Devices
12-Volt Center Console Power Outlet
12-Volt DC Front and Rear Power Outlets
Air Conditioning with Dual Zone Temperature Control
Power Windows with Driver's One-Touch-Down Feature
Steering Wheel Mounted Audio Controls
Tilt / Telescope Steering Column
Driver Seat Height Adjuster
Second-Row In-Floor Storage Bins
Second-Row 40 / 60 Tilt and Slide Seat

EXTERIOR FEATURES
17-Inch x 6.5-Inch Steel Wheels
P225/65R17 BSW All Season Touring Tires
High Beam Daytime Running Headlamps
Halogen Quad Headlamps
Headlamps with Turn-Off Time Delay
Incandescent Tail Lamps
Black Power Heated Mirrors w/ Manual Fold-Away
Black Side Roof Rails
Sunscreen Glass
Compact Spare Tire

OPTIONAL EQUIPMENT (May Replace Standard Equipment)
Customer Preferred Package 22F

DESTINATION CHARGE $1,095

TOTAL PRICE: * $23,590

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 Point/Port of Entry: TOLUCA, MEXICO
VIN: 3C4-PDCAB8JT-182880 L4 VON: 2656

Ray Chrysler Dodge Jeep RAM
23 N. Rt. 12
Fox Lake IL 60020-1222

THIS LABEL IS ADDED TO THIS VEHICLE TO COMPLY WITH FEDERAL LAW. THE LABEL CANNOT BE REMOVED OR ALTERED PRIOR TO DELIVERY TO THE ULTIMATE PURCHASER.

STATE AND/OR LOCAL TAXES IF ANY, LICENSE AND TITLE FEES AND DEALER SUPPLIED AND INSTALLED OPTIONS AND ACCESSORIES ARE NOT INCLUDED IN THIS PRICE. DISCOUNT, IF ANY, IS BASED ON PRICE OF OPTIONS IF PURCHASED SEPARATELY.

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

FCA US LLC

EPA DOT Fuel Economy and Environment

Gasoline Vehicle

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

These estimates reflect new EPA methods beginning with 2017 models.
Small SUV 2WD range from 18 to 34 MPG.
The best vehicle rates 136 MPGe.

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 (tailpipe only) 4 (1 – 10, Best)

Smog Rating (tailpipe only) 3 (1 – 10, Best)

This vehicle emits 420 grams CO2 per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions; learn more at fueleconomy.gov

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 27 MPG and cost $6,750 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at $2.40 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fueleconomy.gov
Calculate personalized estimates and compare vehicles

Smartphone QR Code™

GOVERNMENT 5-STAR SAFETY RATINGS

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

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

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

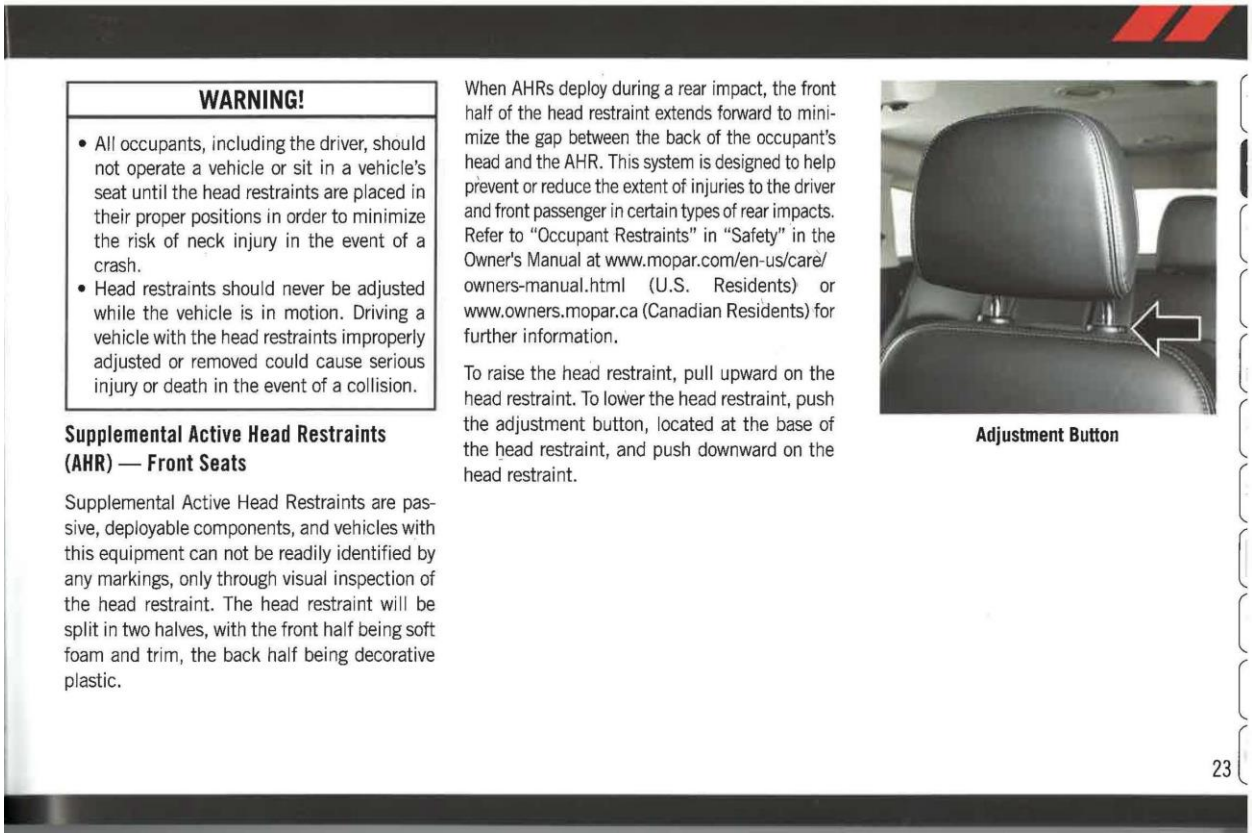
Rollover: ★★★★
Based on the risk of rollover in a single-vehicle crash.

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

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

PARTS CONTENT INFORMATION
FOR VEHICLES IN THIS CARLINE:
U.S./CANADIAN PARTS CONTENT: 28%
MAJOR SOURCES OF FOREIGN PARTS CONTENT:
MEXICO: 64%
NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS.
FOR THIS VEHICLE:
FINAL ASSEMBLY POINT:
TOLUCA, MEXICO
COUNTRY OF ORIGIN:
ENGINE: UNITED STATES
TRANSMISSION: UNITED STATES

102 Monroney Label



WARNING!

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

Supplemental Active Head Restraints (AHR) — Front Seats

Supplemental Active Head Restraints are passive, deployable components, and vehicles with this equipment can not be readily identified by any markings, only through visual inspection of the head restraint. The head restraint 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/owners-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.

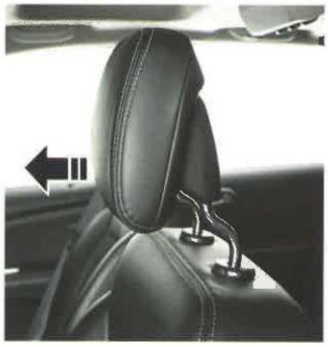
Adjustment Button

23

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

For comfort, the Active Head Restraints can be tilted forward and backward. 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 (Normal Position)



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/ Supplemental Active Head Restraints (AHR)/ Resetting Active Head Restraints (AHR)" in "Safety" in the Owner's Manual at www.mopar.com/en-us/care/owners-manual.html (U.S. Residents) or www.owners.mopar.ca (Canadian Residents) for further information.

WARNING!

- All occupants, including the driver, should not operate a vehicle or sit in a vehicle's seat until the head restraints are placed in their proper positions in order to minimize the risk of neck injury in the event of a collision.
- Do not place items over the top of the Active Head Restraint, such as coats, seat covers or portable DVD players. These items may interfere with the operation of the Active Head Restraint in the event of a collision and could result in serious injury or death.
- Active Head Restraints may be deployed if they are struck by an object such as a hand, foot or loose cargo. To avoid acciden-

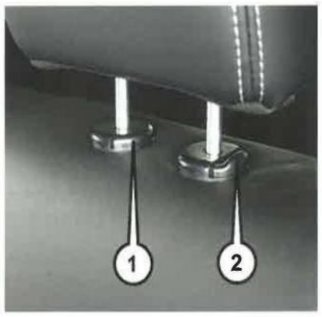
103a Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

WARNING!

tal deployment of the Active Head Restraint ensure that all cargo is secured, as loose cargo could contact the Active Head Restraint during sudden stops. Failure to follow this warning could cause personal injury if the Active Head Restraint is deployed.

Rear Head Restraint Adjustment

The second row seats are equipped with adjustable and removable head restraints. To raise the head restraint, pull upward on the head restraint. To lower the head restraint, push the adjustment button located on the base of the head restraint, and push downward on the head restraint.



Rear Head Restraint

1 — Release Button
2 — Adjustment Button

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.

Rear Head Restraint Removal

To remove the head restraint, push the adjustment and the release buttons while pulling upward on the whole assembly and raise it up as far as it can go. To reinstall the headrest, put the headrest posts into the holes while pushing the release buttons. Then adjust it 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.

104 Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Driver & Passenger Dummy Instrumentation Plots

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 Date: 05/04/2018

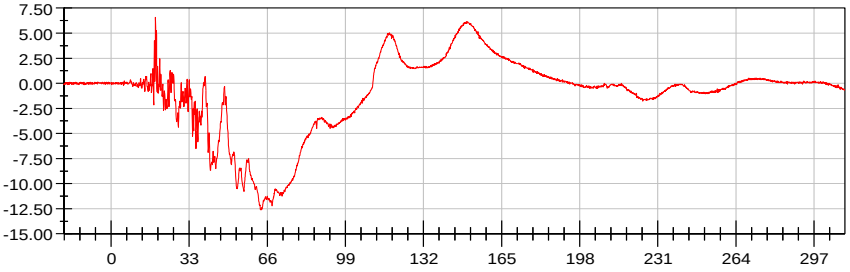
Test Lab: CTF

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

Test Number: 180504 (M20180305)

Position #4 SID IIs Dummy (305)

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



<Max>

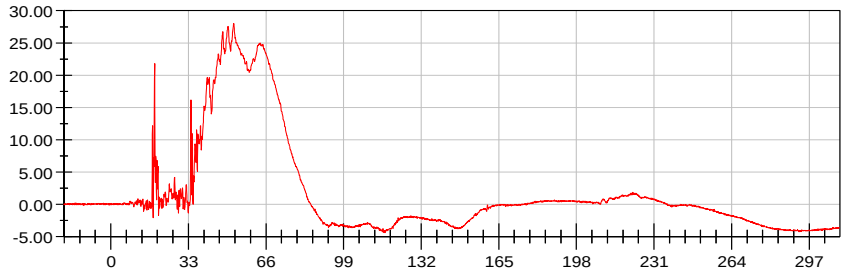
6.57 g at 18.72 ms

<Min>

-12.61 g at 63.20 ms

CFC_1000

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



<Max>

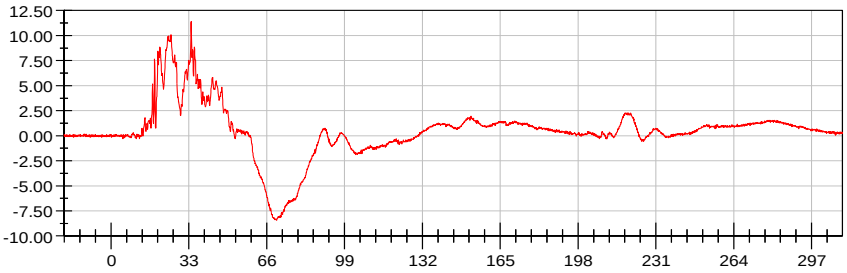
28.02 g at 52.24 ms

<Min>

-4.43 g at 116.00 ms

CFC_1000

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



<Max>

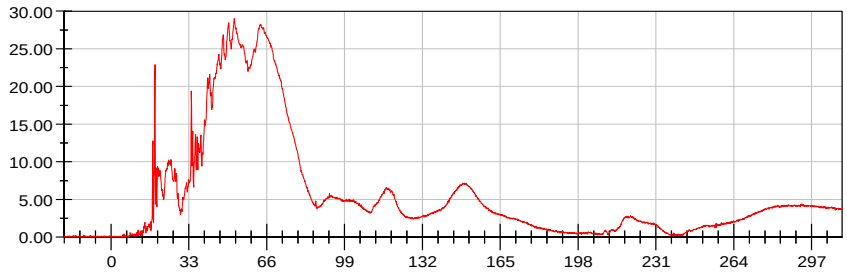
11.41 g at 34.00 ms

<Min>

-8.44 g at 70.16 ms

CFC_1000

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



<Max>

29.01 g at 52.24 ms

<Min>

0.04 g at -19.84 ms

CFC_1000

NHTSA

Test Date: 05/04/2018

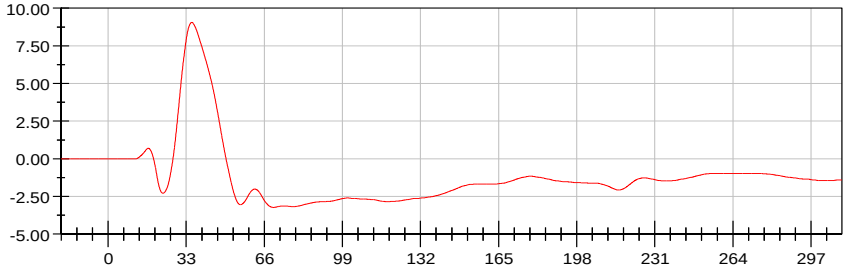
Test Lab: CTF

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

Test Number: 180504 (M20180305)

Position #4 SID IIs Dummy (305)

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



<Max>

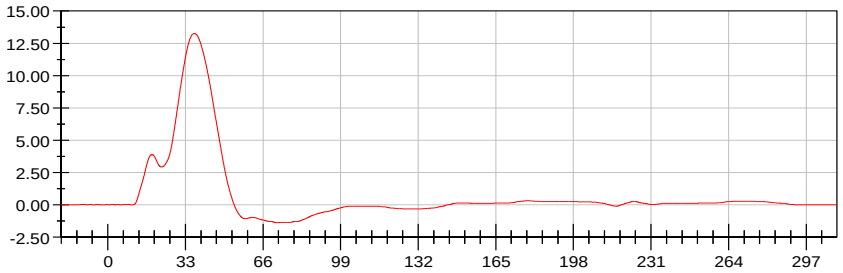
9.06 mm at 35.36 ms

<Min>

-3.23 mm at 69.92 ms

CFC_180

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



<Max>

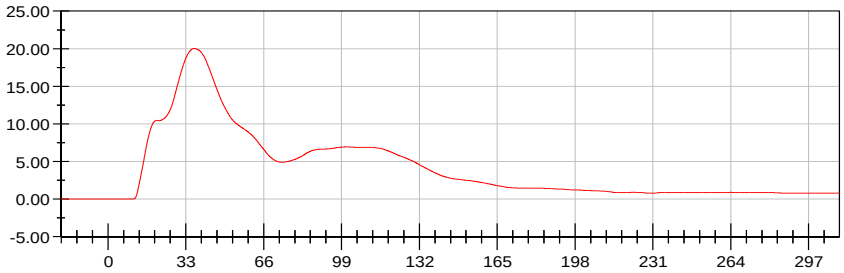
13.25 mm at 36.80 ms

<Min>

-1.39 mm at 72.08 ms

CFC_180

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



<Max>

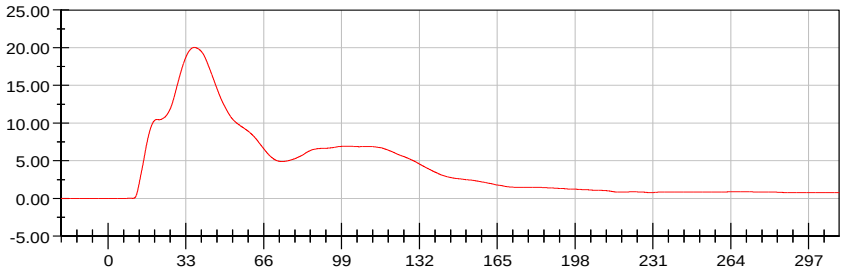
20.03 mm at 36.56 ms

<Min>

0.00 mm at 6.72 ms

CFC_180

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



<Max>

20.03 mm at 36.56 ms

<Min>

0.00 mm at 6.72 ms

CFC_180

NHTSA

Test Date: 05/04/2018

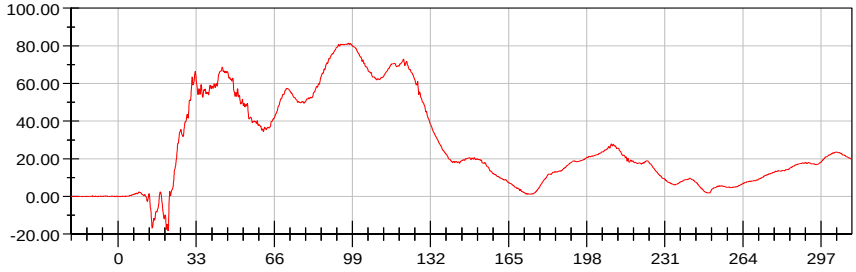
Test Lab: CTF

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

Test Number: 180504 (M20180305)

Position #4 SID IIs Dummy (305)

Driver Anterior Abdominal Force (Y) (N) vs. Time [ms]



<Max>

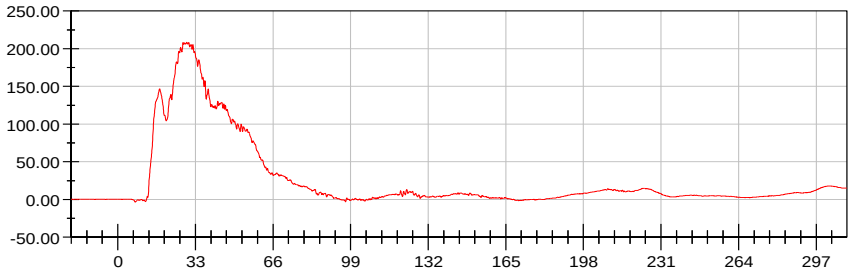
81.34 N at 97.36 ms

<Min>

-18.24 N at 21.12 ms

CFC_600

Driver Middle Abdominal Force (Y) (N) vs. Time [ms]



<Max>

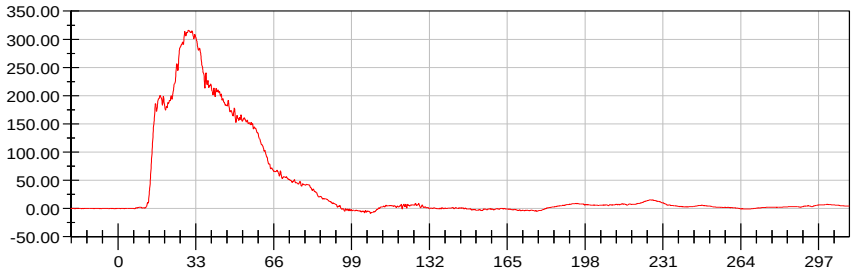
208.50 N at 29.28 ms

<Min>

-3.72 N at 7.36 ms

CFC_600

Driver Posterior Abdominal Force (Y) (N) vs. Time [ms]



<Max>

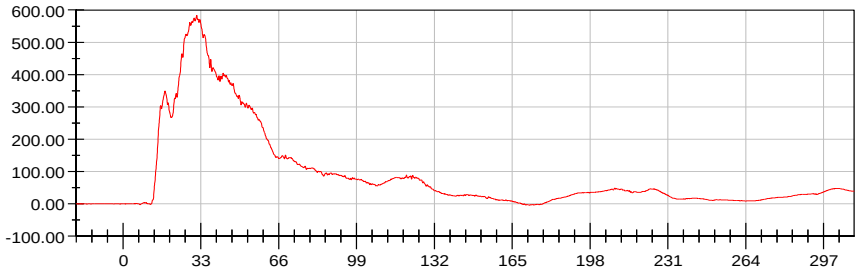
315.94 N at 29.84 ms

<Min>

-8.47 N at 107.12 ms

CFC_600

Driver Total Abdmoninal Force (Y) (N) vs. Time [ms]



<Max>

583.29 N at 31.28 ms

<Min>

-4.04 N at 172.32 ms

CFC_600

NHTSA

Test Date: 05/04/2018

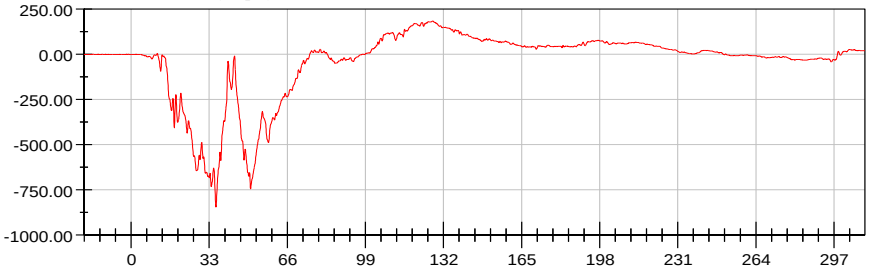
Test Lab: CTF

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

Test Number: 180504 (M20180305)

Position #4 SID IIs Dummy (305)

Driver Pubic Symphysis Force (Y) (N) vs. Time [ms]



<Max>

184.44 N at 127.44 ms

<Min>

-844.59 N at 35.84 ms

CFC_600

NHTSA

Test Date: 05/04/2018

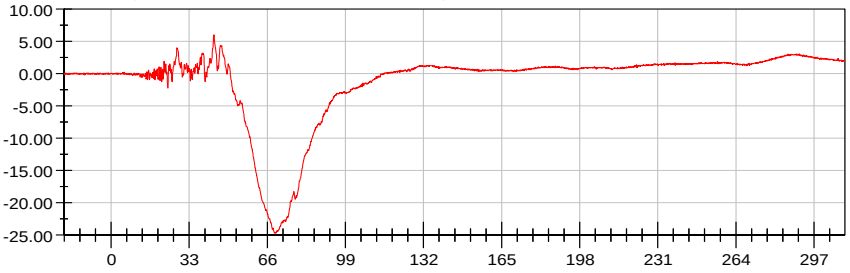
Test Lab: CTF

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

Test Number: 180504 (M20180305)

Position #4 SID IIs Dummy (305)

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



<Max>

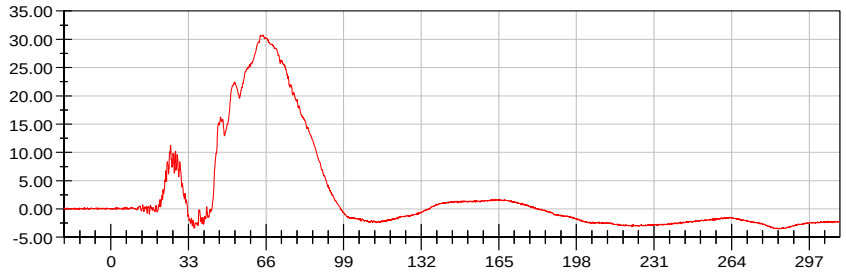
6.02 g at 43.44 ms

<Min>

-24.72 g at 69.04 ms

CFC_1000

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



<Max>

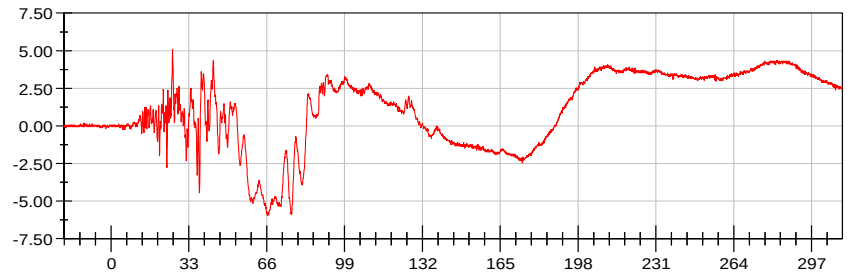
30.74 g at 63.60 ms

<Min>

-3.59 g at 283.84 ms

CFC_1000

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



<Max>

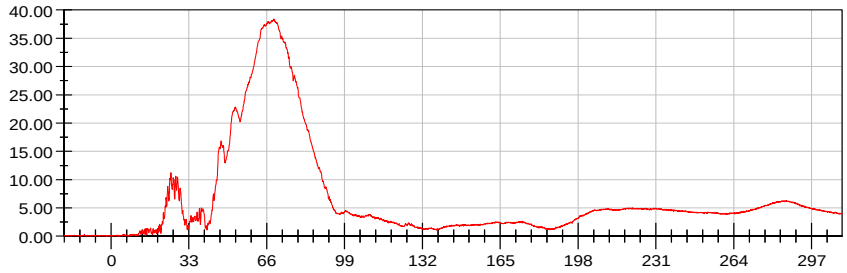
5.09 g at 26.08 ms

<Min>

-5.93 g at 66.32 ms

CFC_1000

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



<Max>

38.40 g at 69.04 ms

<Min>

0.03 g at -16.96 ms

CFC_1000

NHTSA

Test Date: 05/04/2018

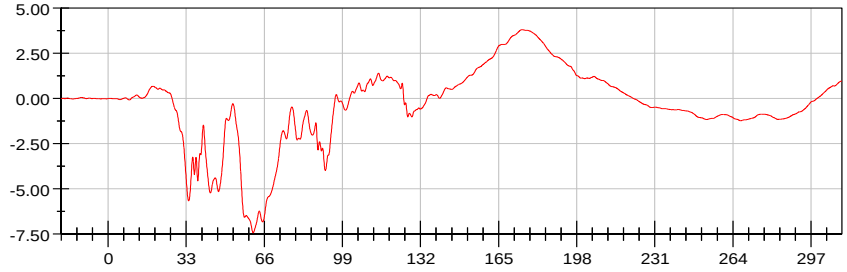
Position #1 ES-2 Dummy with Rib Extension (F030)

Position #4 SID IIs Dummy (305)

Test Lab: CTF

Test Number: 180504 (M20180305)

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



<Max>

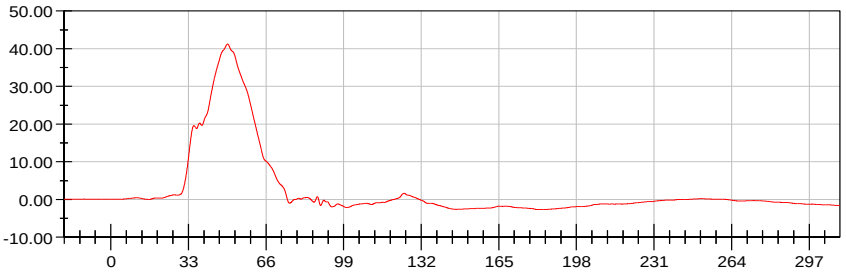
3.81 g at 174.96 ms

<Min>

-7.43 g at 61.28 ms

CFC_180

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



<Max>

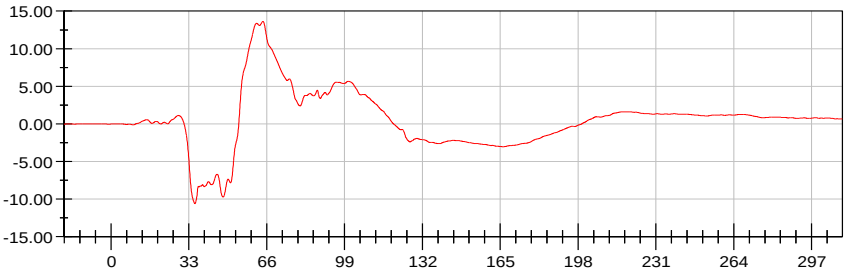
41.20 g at 49.68 ms

<Min>

-2.74 g at 182.08 ms

CFC_180

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



<Max>

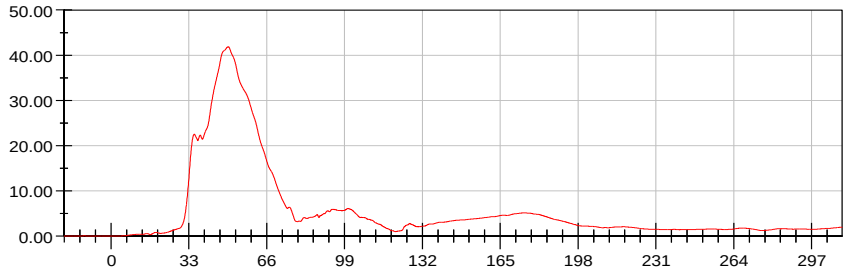
13.61 g at 64.40 ms

<Min>

-10.60 g at 35.60 ms

CFC_180

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



<Max>

41.87 g at 49.68 ms

<Min>

0.00 g at -18.08 ms

CFC_180

NHTSA

Test Date: 05/04/2018

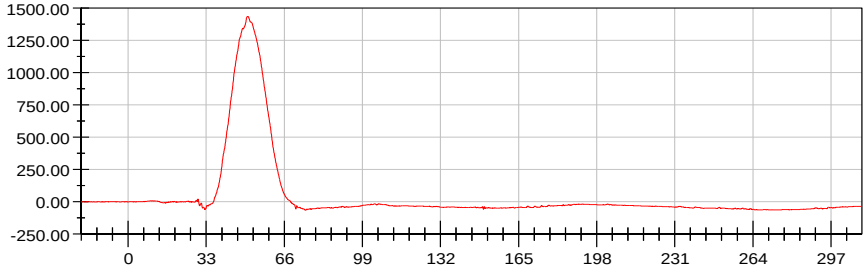
Test Lab: CTF

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

Test Number: 180504 (M20180305)

Position #4 SID IIs Dummy (305)

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



<Max>

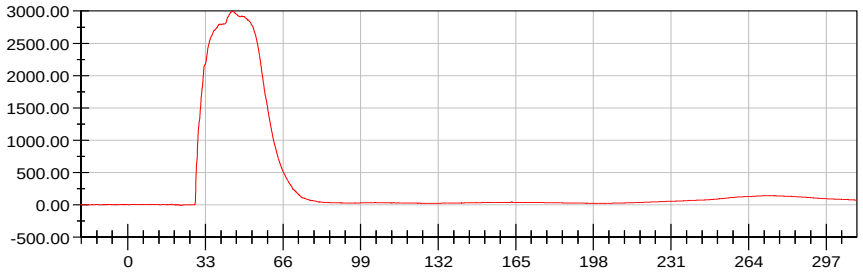
1,436.24 N at 50.56 ms

<Min>

-65.41 N at 74.96 ms

CFC_600

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



<Max>

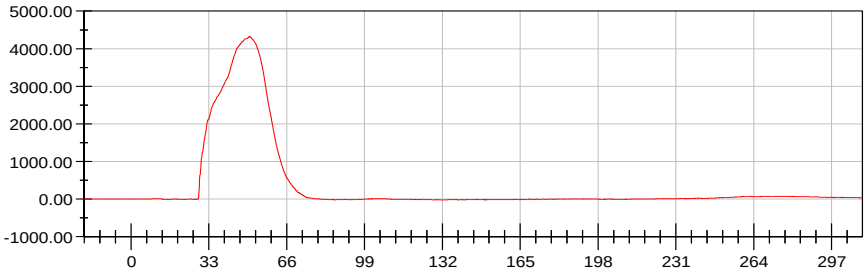
2,994.70 N at 44.48 ms

<Min>

-9.59 N at 22.88 ms

CFC_600

Passenger Total Pelvic Force on Impact Side (Y) (N) vs. Time [ms]



<Max>

4,322.84 N at 50.40 ms

<Min>

-27.52 N at 150.16 ms

CFC_600

APPENDIX C
DUMMY PERFORMANCE CALIBRATION TEST DATA

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS

ES-2re (Driver) Dummy

Description

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS

SID-IIs (Rear Passenger) Dummy

Description

Pre-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.

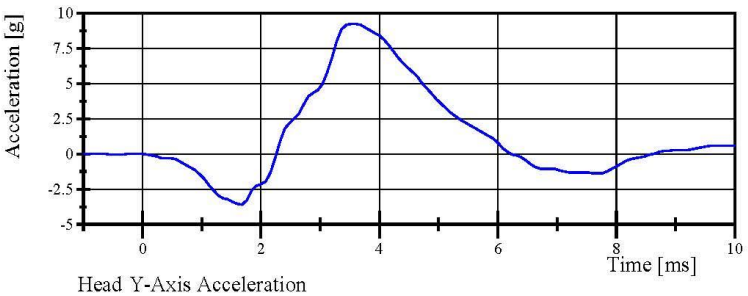
Condition: Used

Comments:
Head Skin S/N: DP6812
Skull S/N: N/A

Transportation Research Center Inc.

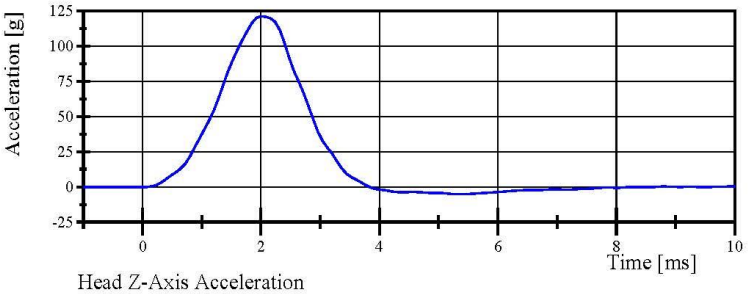
Left Lateral Head Drop
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/28/2018

Head X-Axis Acceleration



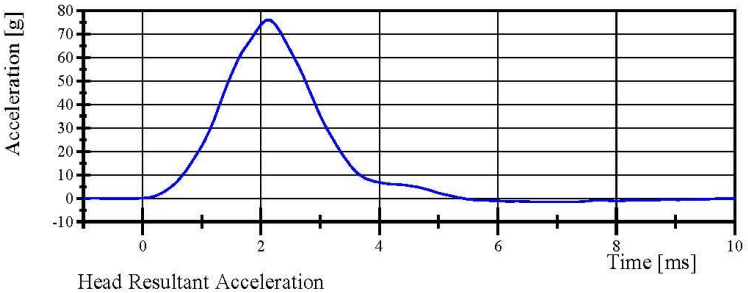
Filter Class: CFC_1000
Max: 9.2 g at 3.5 ms
Min: -3.6 g at 1.7 ms

Head Y-Axis Acceleration



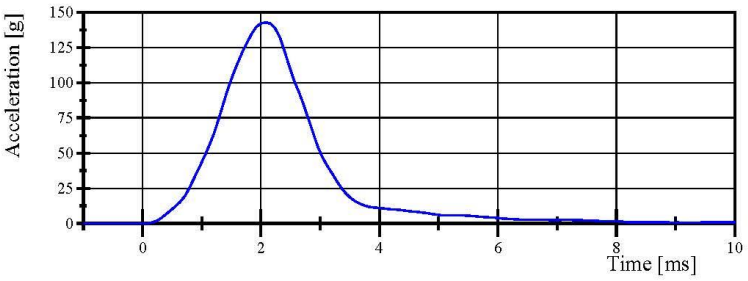
Filter Class: CFC_1000
Max: 121.2 g at 2.0 ms
Min: -5.2 g at 5.4 ms

Head Z-Axis Acceleration



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

Head Resultant Acceleration



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.

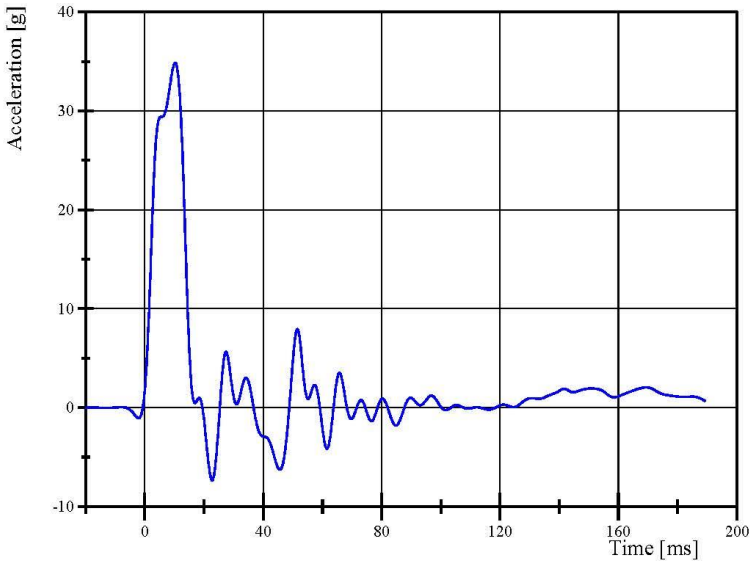
Condition: Used

Comments:
Neck S/N: DI5031
Neck Buffer Molded(Yellow) S/N: N/A

Transportation Research Center Inc.

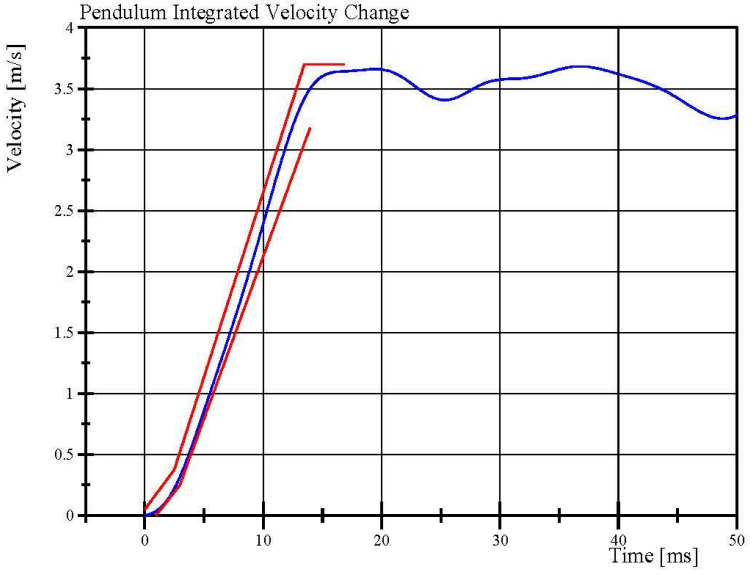
Left Lateral Neck
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018

Pendulum Acceleration



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

Pendulum Integrated Velocity Change



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

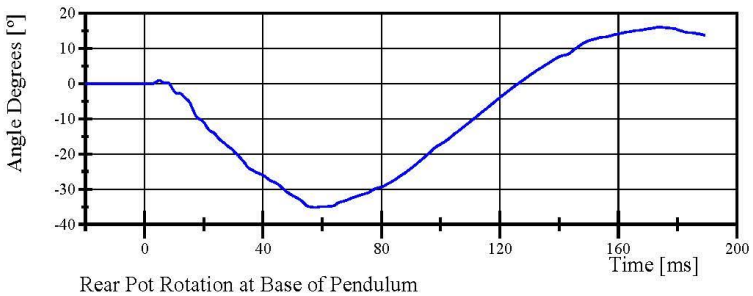
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

04.29.2018 06:59:05 1458

Transportation Research Center Inc.

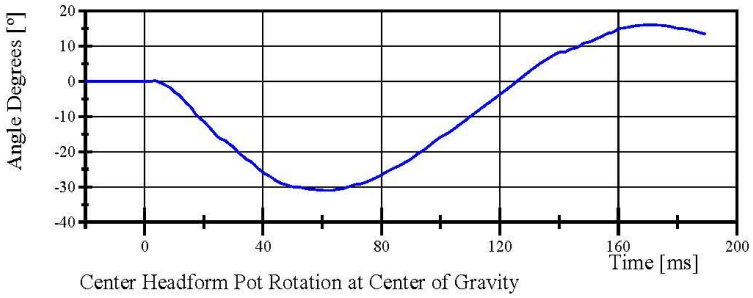
Left Lateral Neck
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018

Forward Pot Rotation at Base of Pendulum



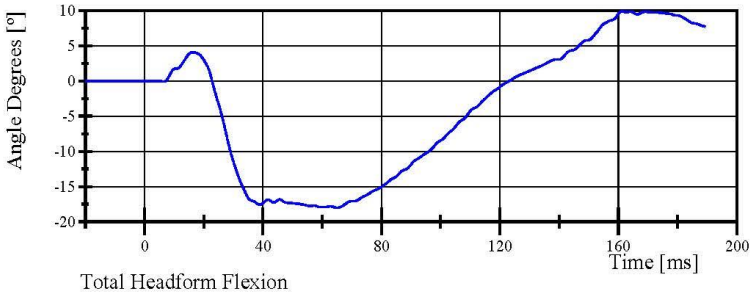
Filter Class: CFC_180
Max: 16.0 ° at 173.8 ms
Min: -35.2 ° at 57.8 ms

Rear Pot Rotation at Base of Pendulum



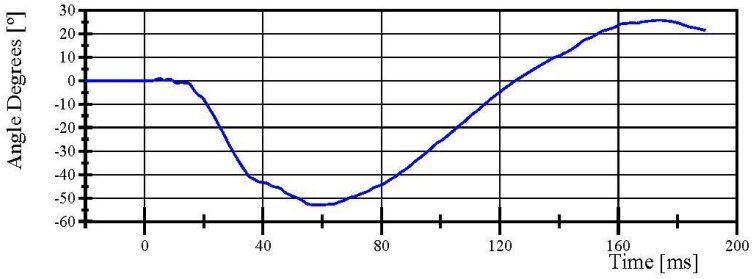
Filter Class: CFC_180
Max: 16.0 ° at 170.6 ms
Min: -31.1 ° at 61.5 ms

Center Headform Pot Rotation at Center of Gravity



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

Total Headform Flexion



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

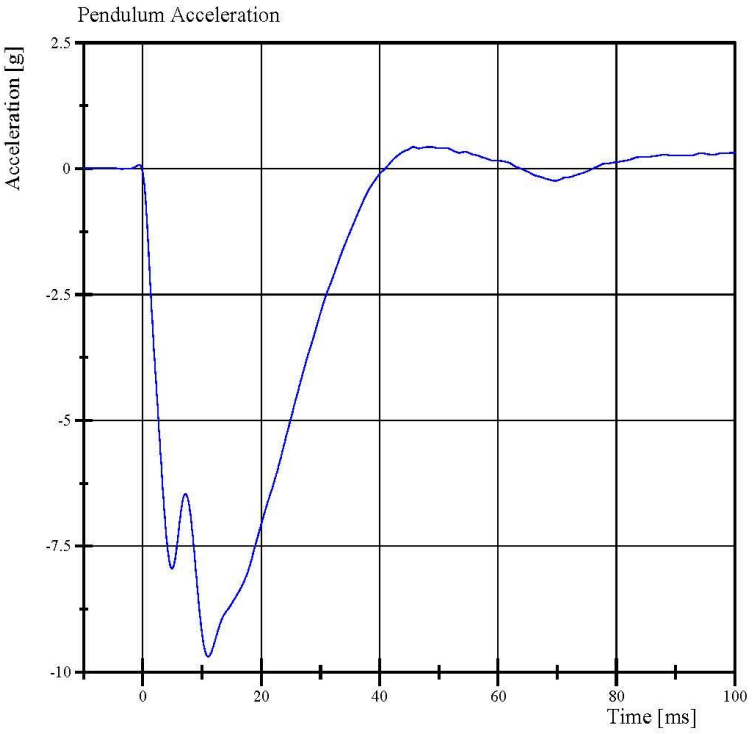
Test meets specifications.

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

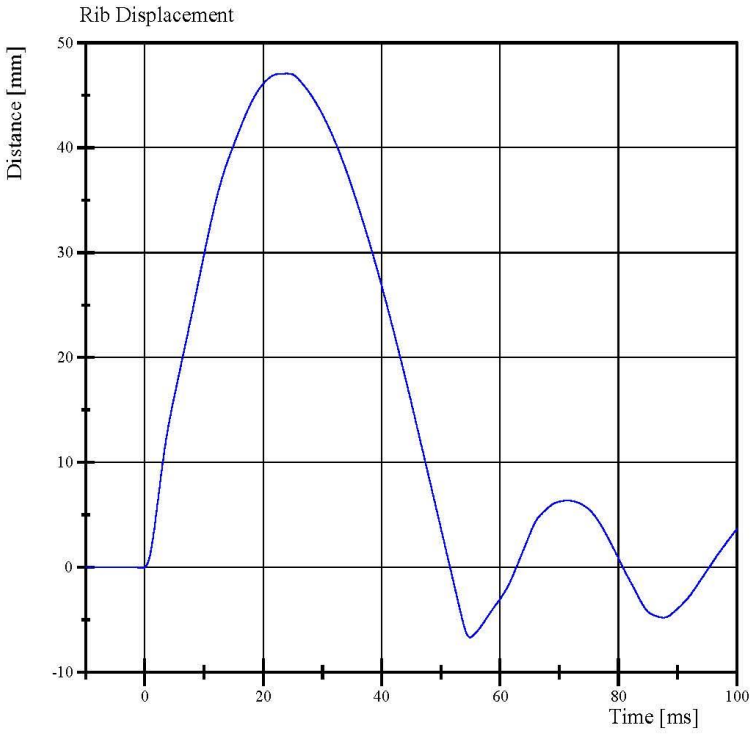
Test meets specifications.

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

04.28.2018 14:17:32 415

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

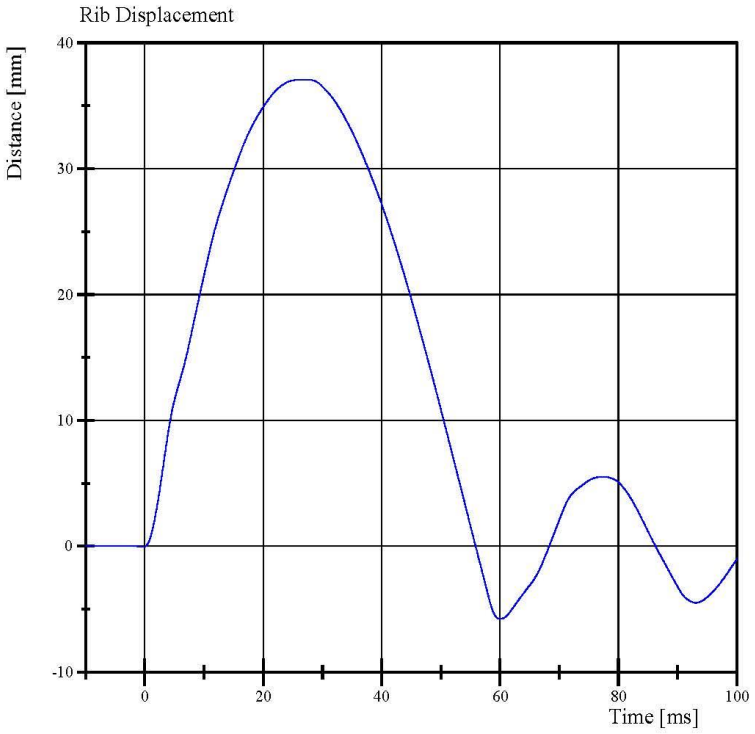
Test meets specifications.

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

04.28.2018 14:25:17 477

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

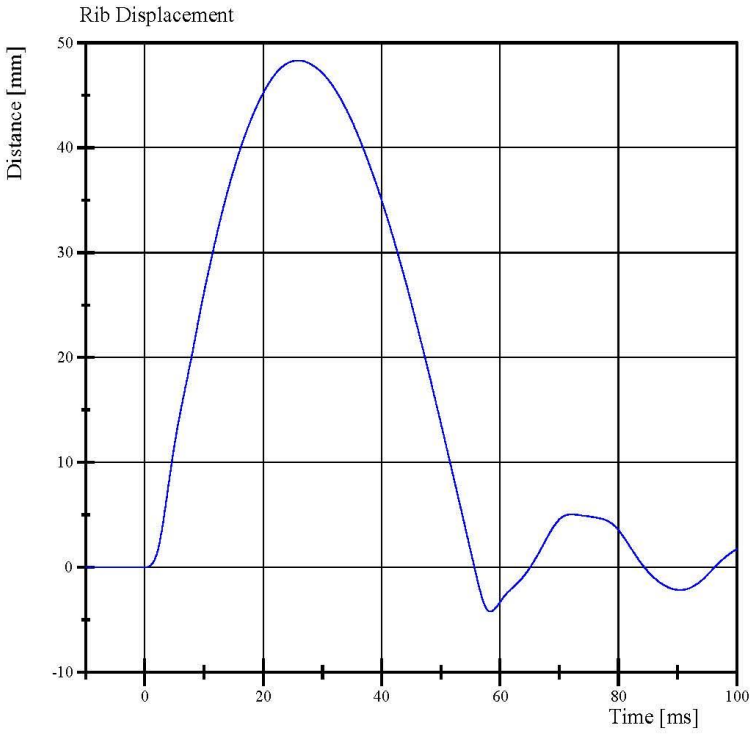
Test meets specifications.

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

04.28.2018 15:18:21 391

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

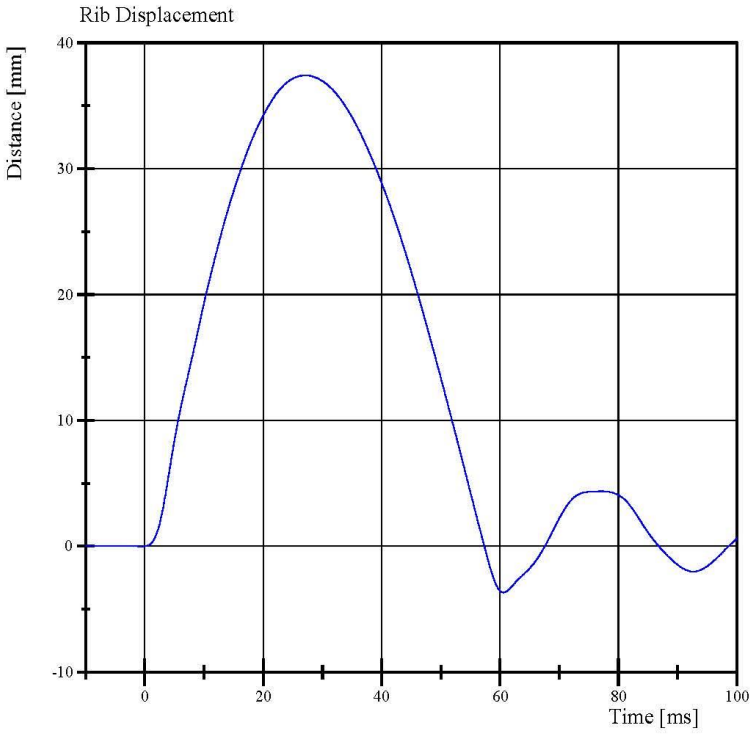
Test meets specifications.

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

04.28.2018 15:23:56 469

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

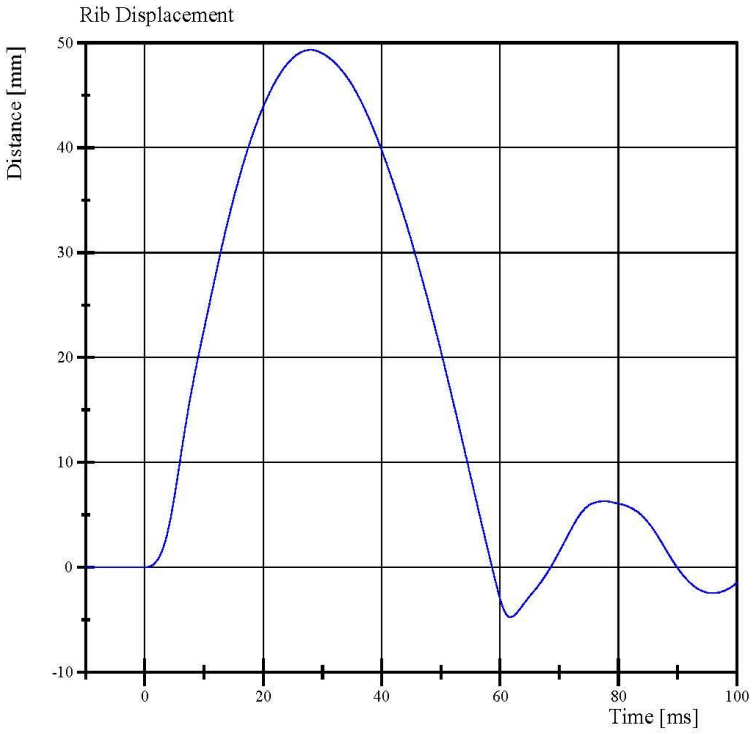
Test meets specifications.

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

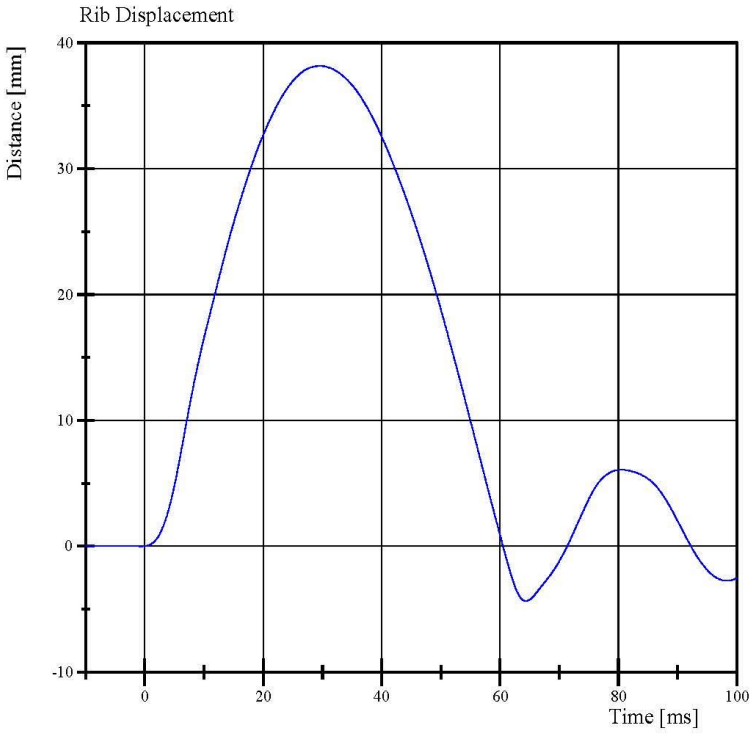
Test meets specifications.

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

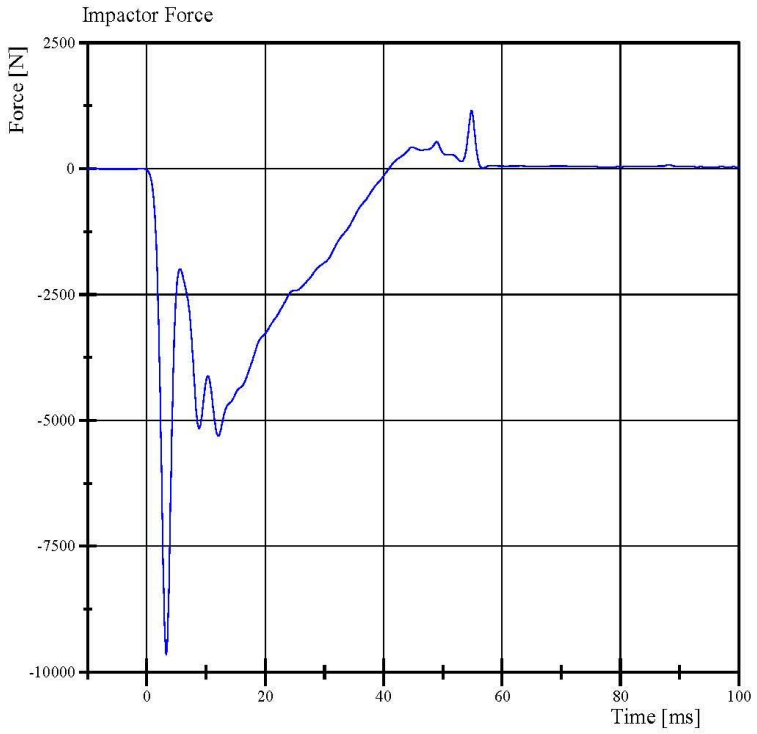
Comments:
Upper Rib:
Rib Module S/N: 175-4008-A
Rib Foam S/N: 175-4003-07229
Center Rib:
Rib Module S/N: 175-4008-A
Rib Foam S/N: E2A-DCT-04082
Lower Rib:
Rib Module S/N: 175-4008-A-06-017
Rib Foam S/N: 175-4003-05125

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

04.29.2018 10:40:16 439

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: 1,154.6 N at 54.9 ms
Min: -9,648.3 N at 3.3 ms

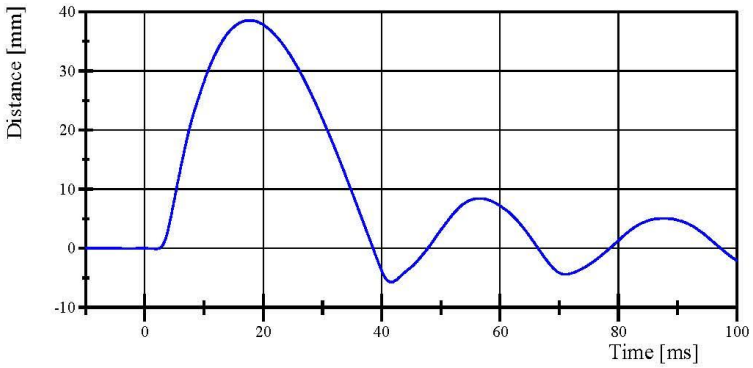
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

04.29.2018 10:42:32 439

Transportation Research Center Inc.

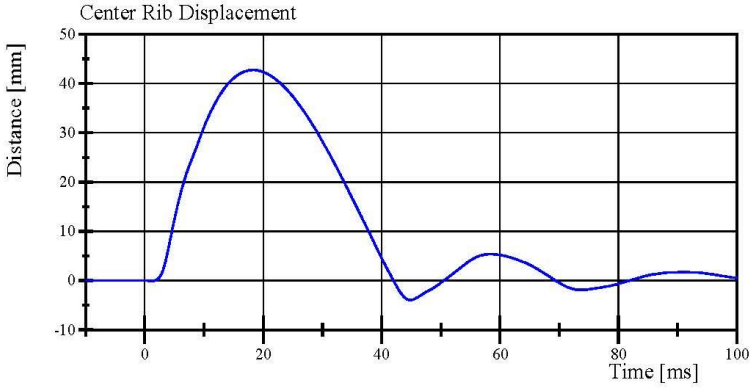
Left Lower Thorax
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018

Upper Rib Displacement



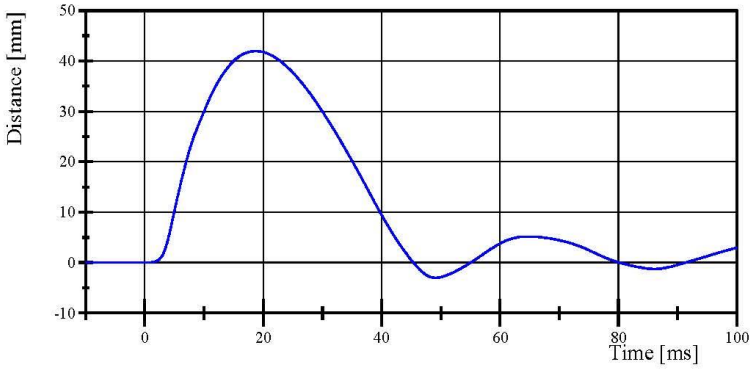
Filter Class: CFC_180
Max: 38.6 mm at 17.7 ms
Min: -5.7 mm at 41.6 ms

Center Rib Displacement



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

Lower Rib Displacement



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

04.29.2018 10:42:33 439

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.

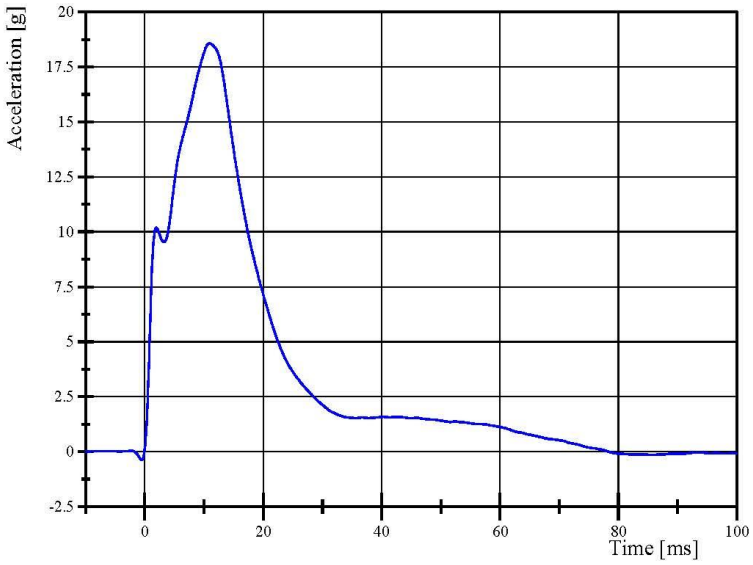
Condition: Used

Comments:
Abdomen S/N: 1066

Transportation Research Center Inc.

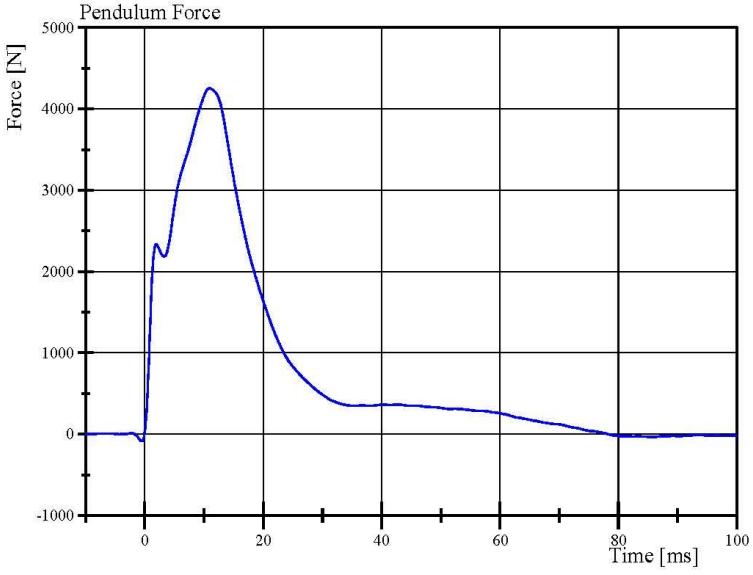
Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018

Pendulum Acceleration



Filter Class: CFC_180
Max: 18.6 g at 11.0 ms
Min: -0.4 g at -0.6 ms

Pendulum Force



Filter Class: CFC_180
Max: 4,254.8 N at 11.0 ms
Min: -86.7 N at -0.6 ms

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

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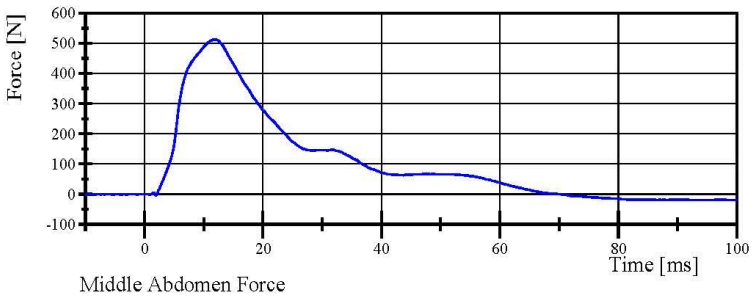
Transportation Research Center Inc.

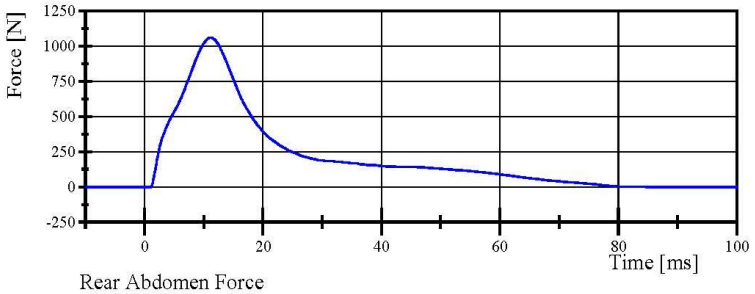
Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018

Front Abdomen Force



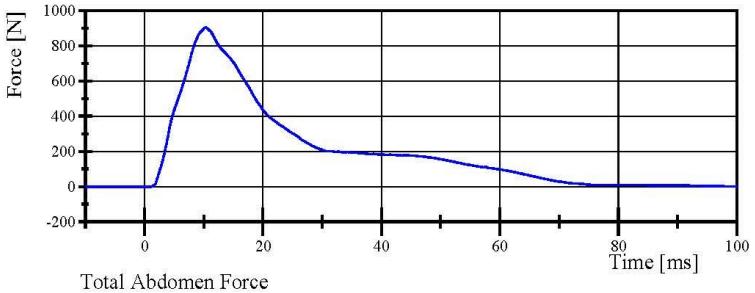
Filter Class: CFC_600
Max: 512.9 N at 11.8 ms
Min: -19.2 N at 100.0 ms

Middle Abdomen Force



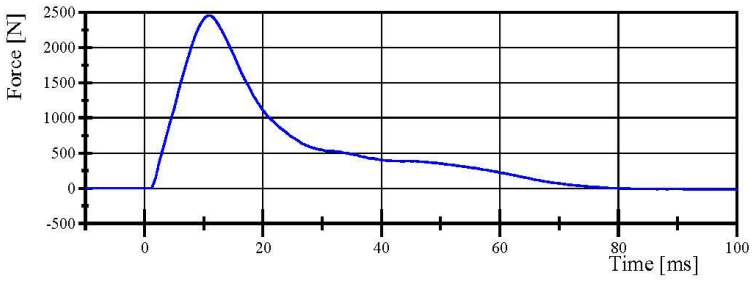
Filter Class: CFC_600
Max: 1,060.0 N at 11.2 ms
Min: -2.1 N at 1.0 ms

Rear Abdomen Force



Filter Class: CFC_600
Max: 903.4 N at 10.3 ms
Min: -0.2 N at 1.0 ms

Total Abdomen Force



Filter Class: CFC_600
Max: 2,453.4 N at 10.9 ms
Min: -19.4 N at 100.0 ms

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.

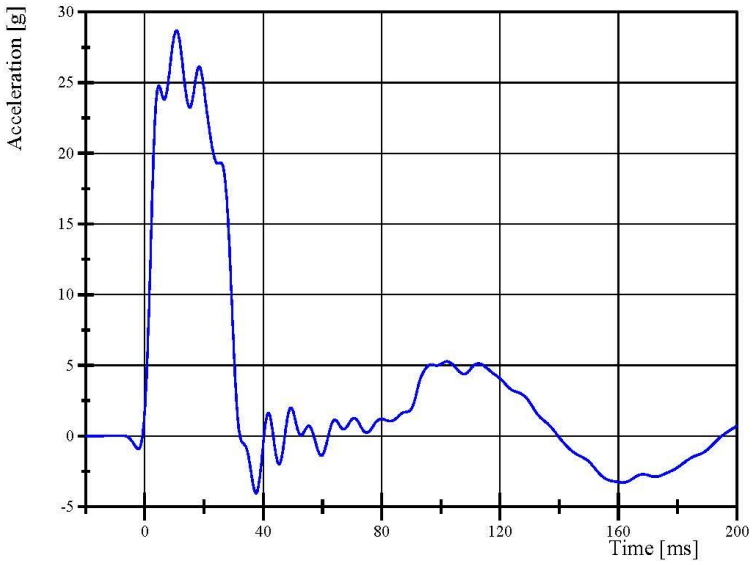
Condition: Used

Comments:
Lumbar S/N: 175-5501 DP0815

Transportation Research Center Inc.

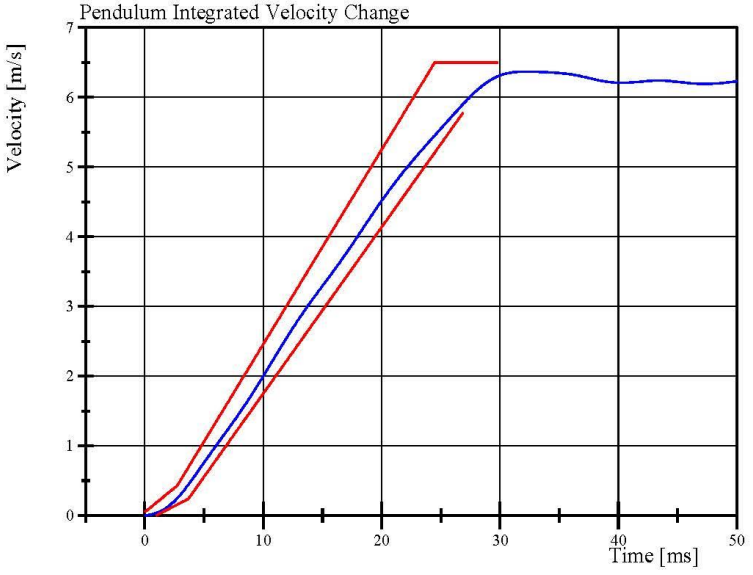
Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 56-2
Test Date: 4/29/2018

Pendulum Acceleration



Filter Class: CFC_60
Max: 28.7 g at 10.7 ms
Min: -4.1 g at 37.6 ms

Pendulum Integrated Velocity Change



Filter Class: CFC_60
Max: 6.4 m/s at 32.2 ms
Min: 0.0 m/s at 0.0 ms

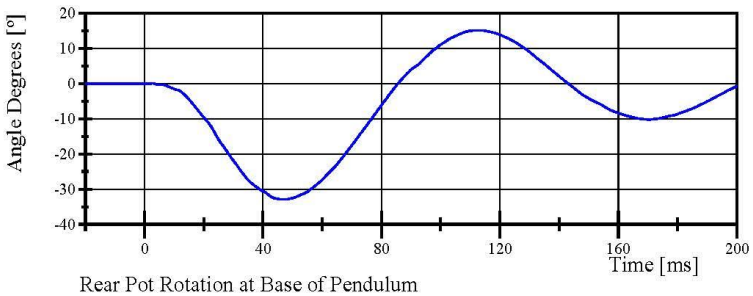
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

04.29.2018 08:35:00 644

Transportation Research Center Inc.

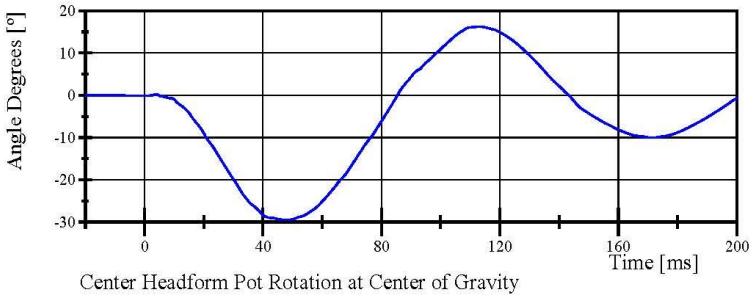
Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 56-2
Test Date: 4/29/2018

Forward Pot Rotation at Base of Pendulum



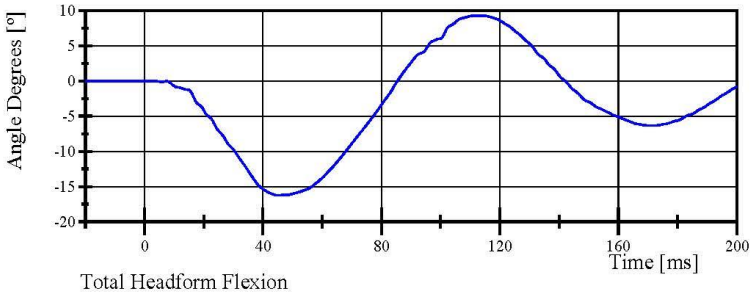
Filter Class: CFC_180
Max: 15.2 ° at 113.3 ms
Min: -32.9 ° at 46.9 ms

Rear Pot Rotation at Base of Pendulum



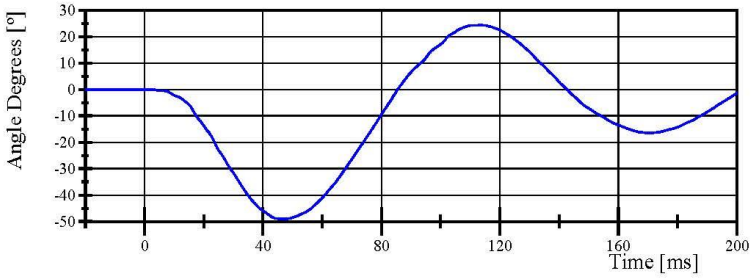
Filter Class: CFC_180
Max: 16.3 ° at 113.2 ms
Min: -29.5 ° at 48.4 ms

Center Headform Pot Rotation at Center of Gravity



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

Total Headform Flexion



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.

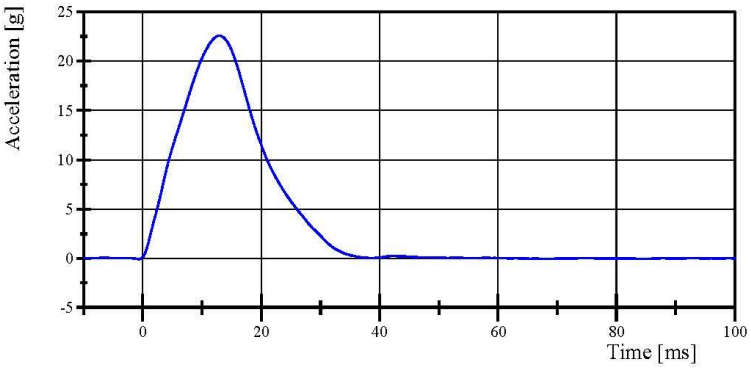
Condition: Used

Comments:
Pelvis Skin S/N: N/A

Transportation Research Center Inc.

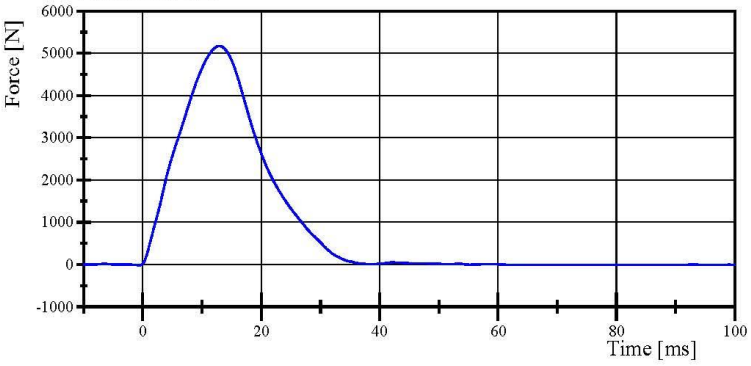
Left Lateral Pelvis
ES-2re Serial No. F030 Certification No. 56-1
Test Date: 4/29/2018

Pendulum Acceleration



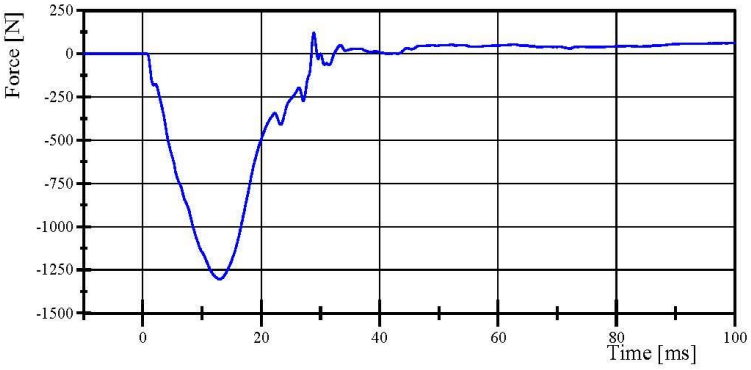
Filter Class: CFC_180
Max: 22.6 g at 13.0 ms
Min: -0.1 g at -0.6 ms

Pendulum Force



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

Pubic Symphysis Force



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

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Post-Test Calibration Sheets
Driver S/N F030

Transportation Research Center Inc.
572U ES-2re Dummy
External Dimensions
Serial No. F030 Calibration No. 57

Symbol	Description	Specification	Results	Pass
		mm	mm	
1	Sitting Height	900.0 - 918.0	911	Yes
2	Seat to Shoulder Joint	558.0 - 572.0	561	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	327	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. 57-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Peak Resultant Acceleration	125 - 155 g	126.3 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	9.0 g	Yes
Is Resultant Acceleration Curve Unimodal within 15% of Main Pulse?	Yes	Yes	Yes

Test meets specifications.

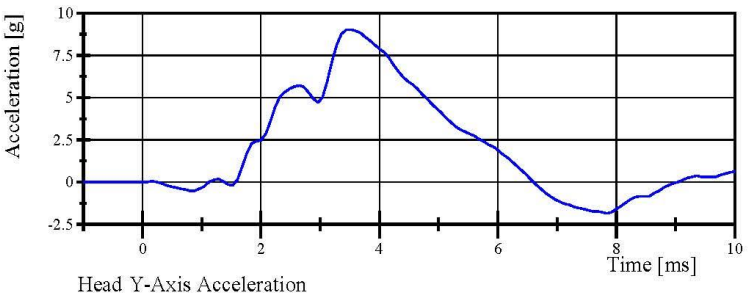
Condition: Used

Comments:
Head Skin S/N: DP6812
Skull S/N: N/A

Transportation Research Center Inc.

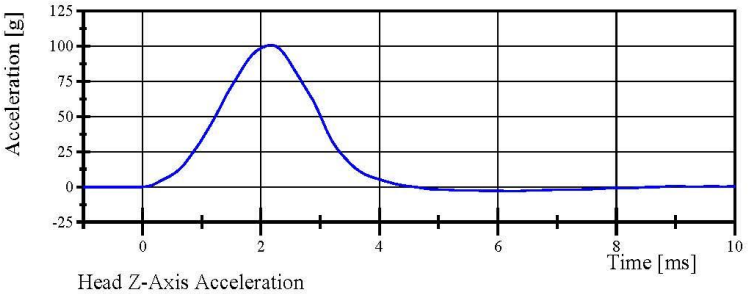
Left Lateral Head Drop
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/7/2018

Head X-Axis Acceleration



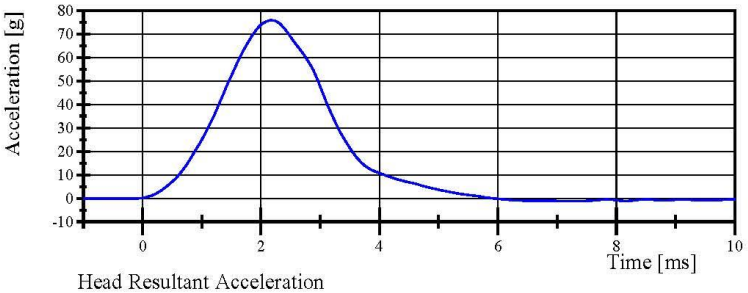
Filter Class: CFC_1000
Max: 9.0 g at 3.4 ms
Min: -1.8 g at 7.8 ms

Head Y-Axis Acceleration



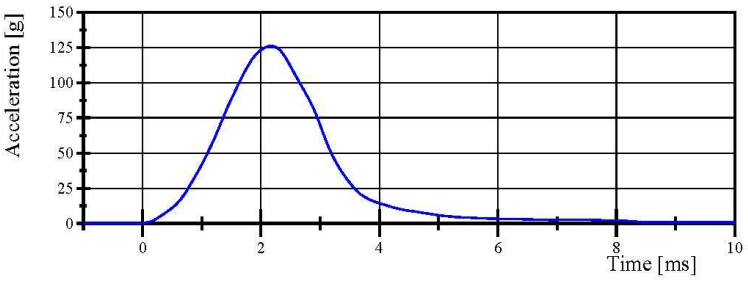
Filter Class: CFC_1000
Max: 100.8 g at 2.2 ms
Min: -2.9 g at 6.2 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 76.0 g at 2.2 ms
Min: -1.1 g at 7.0 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 126.3 g at 2.2 ms
Min: 0.0 g at -1.0 ms

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

05.07.2018 14:48:07 327

Transportation Research Center Inc.

Left Lateral Neck
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/8/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °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	-3.37 m/s	Yes
Maximum Headform Flexion			
Peak	(-49) - (-59) deg	-52.5 deg	Yes
Time of Peak	54 - 66 ms	55.8 ms	Yes
Headform Flexion Decay - Peak to Zero	53 - 88 ms	67.6 ms	Yes

Test meets specifications.

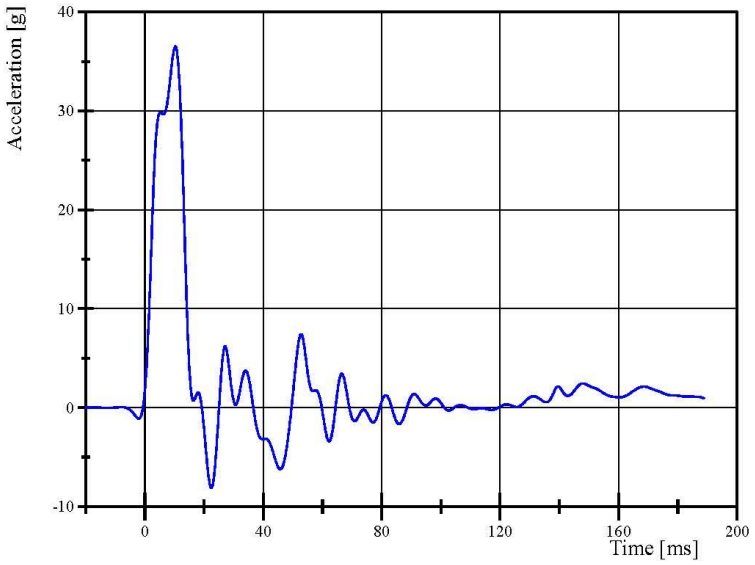
Condition: Used

Comments:
Neck S/N: DI5031
Neck Buffer Molded(Yellow) S/N: N/A

Transportation Research Center Inc.

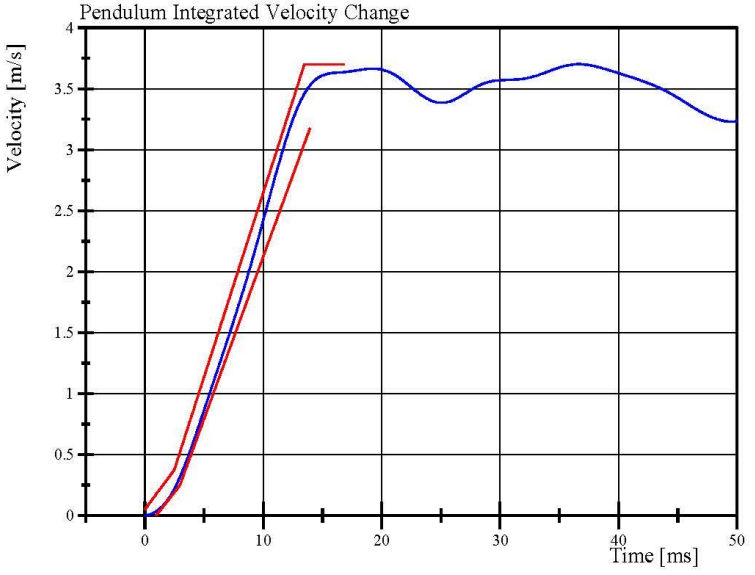
Left Lateral Neck
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/8/2018

Pendulum Acceleration



Filter Class: CFC_60
Max: 36.5 g at 10.3 ms
Min: -8.1 g at 22.5 ms

Pendulum Integrated Velocity Change



Filter Class: CFC_60
Max: 3.7 m/s at 36.6 ms
Min: 0.0 m/s at 0.0 ms

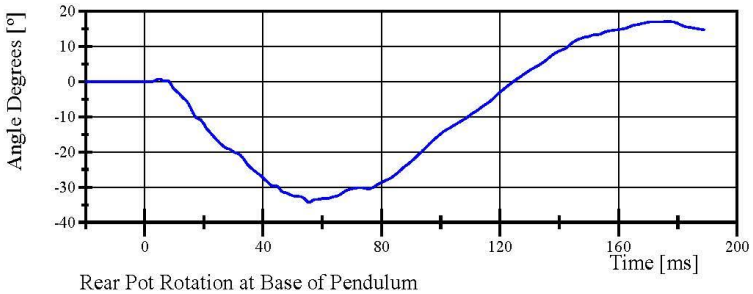
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

05.08.2018 06:51:18 1462

Transportation Research Center Inc.

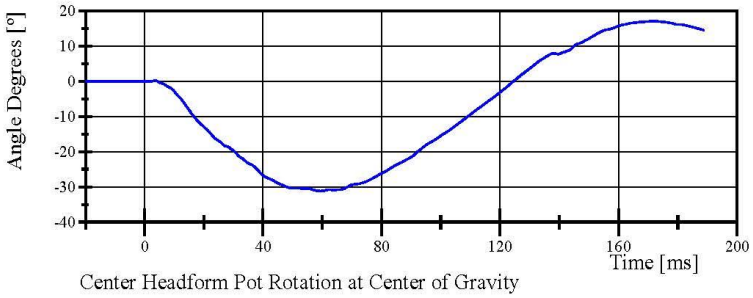
Left Lateral Neck
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/8/2018

Forward Pot Rotation at Base of Pendulum



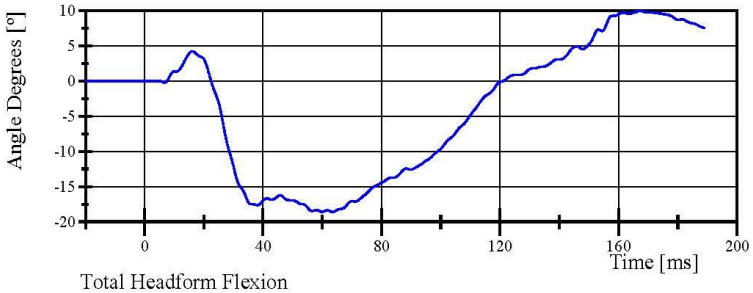
Filter Class: CFC_180
Max: 17.2 ° at 176.5 ms
Min: -34.3 ° at 55.5 ms

Rear Pot Rotation at Base of Pendulum



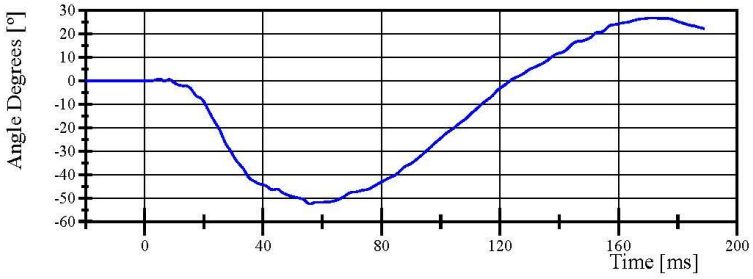
Filter Class: CFC_180
Max: 17.2 ° at 172.0 ms
Min: -31.2 ° at 59.4 ms

Center Headform Pot Rotation at Center of Gravity



Filter Class: CFC_180
Max: 10.0 ° at 167.2 ms
Min: -18.6 ° at 59.9 ms

Total Headform Flexion



Filter Class: CFC_180
Max: 26.7 ° at 171.0 ms
Min: -52.5 ° at 55.8 ms

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

05.08.2018 06:51:19 1462

Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/8/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-9.64 g	Yes

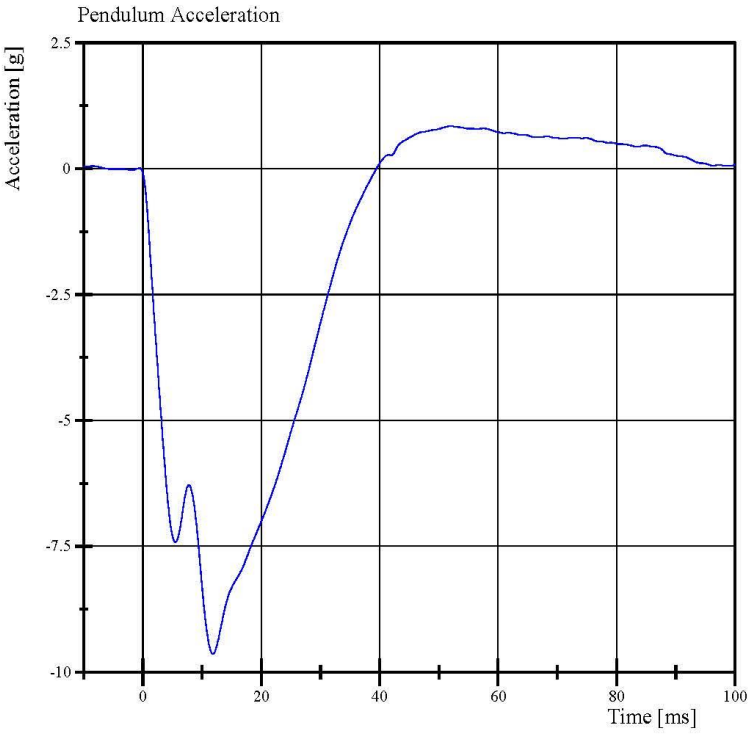
Test meets specifications.

Condition: Used

Comments:
Arm S/N: 175-3501-07014

Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/8/2018



Filter Class: CFC_180
Max: 0.8 g at 51.9 ms
Min: -9.6 g at 11.8 ms

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

05.08.2018 07:38:42 560

Transportation Research Center Inc.

3.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.5 mm	Yes

Test meets specifications.

Condition: Used

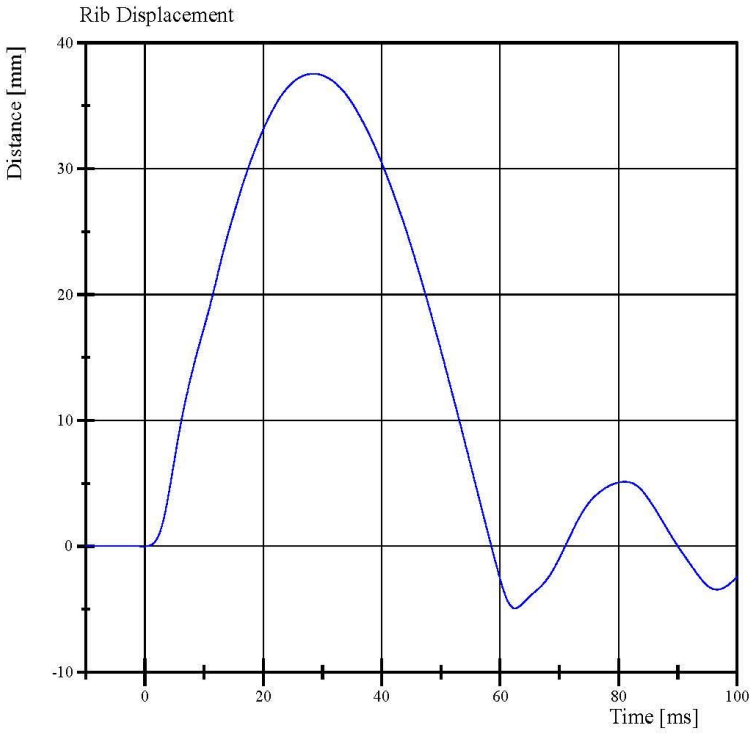
Comments:
Drop Height:462mm
Rib Module:175-4008-A
Rib Foam: 07229

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

05.07.2018 15:15:05 458

Transportation Research Center Inc.

3.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/7/2018



Filter Class: CFC_180
Max: 37.5 mm at 28.5 ms
Min: -4.9 mm at 62.5 ms

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

05.07.2018 15:15:42 458

Transportation Research Center Inc.

4.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	46.6 mm	Yes

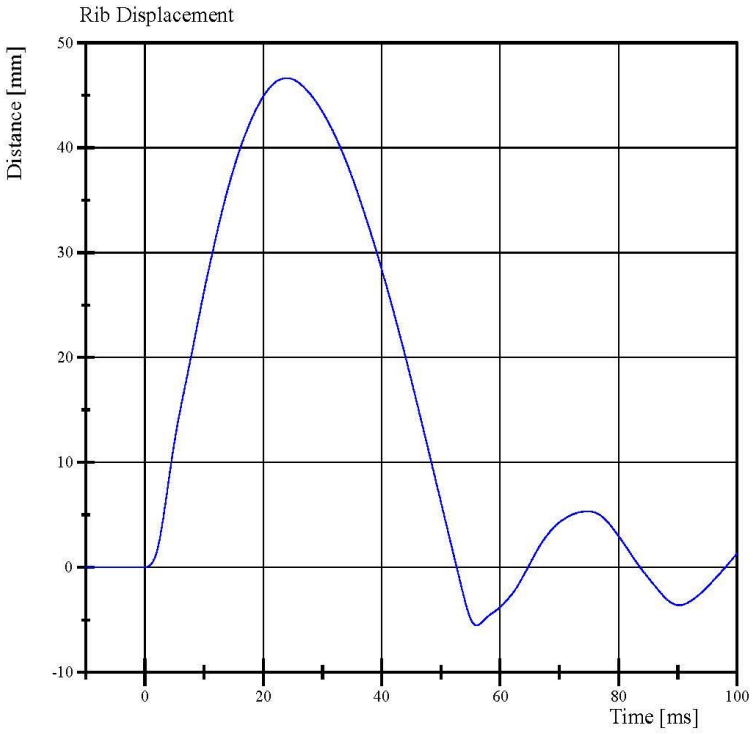
Test meets specifications.

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. 57-1
Test Date: 5/7/2018



Filter Class: CFC_180
Max: 46.6 mm at 23.9 ms
Min: -5.5 mm at 56.0 ms

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

05.07.2018 15:09:30 392

Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.3 mm	Yes

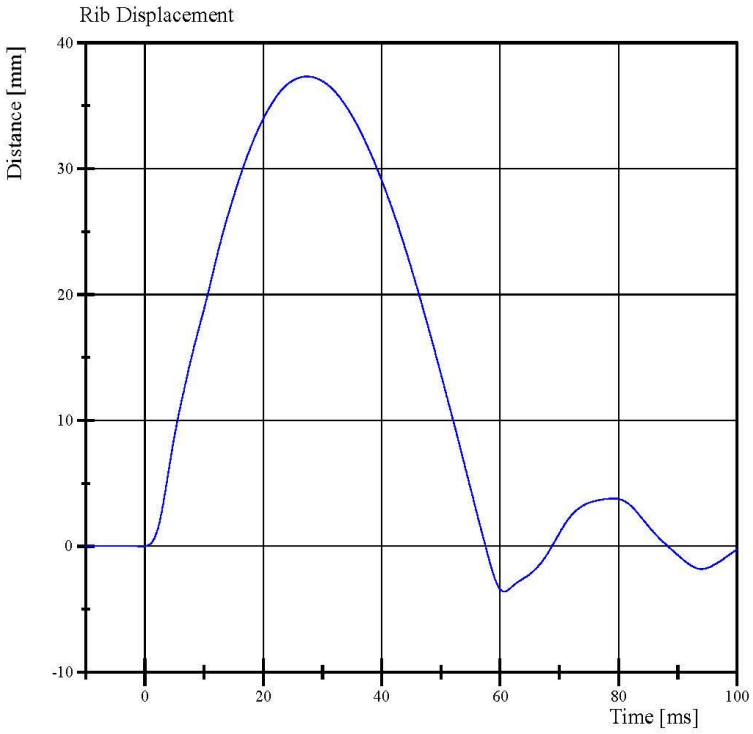
Test meets specifications.

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. 57-1
Test Date: 5/7/2018



Filter Class: CFC_180
Max: 37.3 mm at 27.4 ms
Min: -3.6 mm at 60.6 ms

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

05.07.2018 15:28:07 469

Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.2 mm	Yes

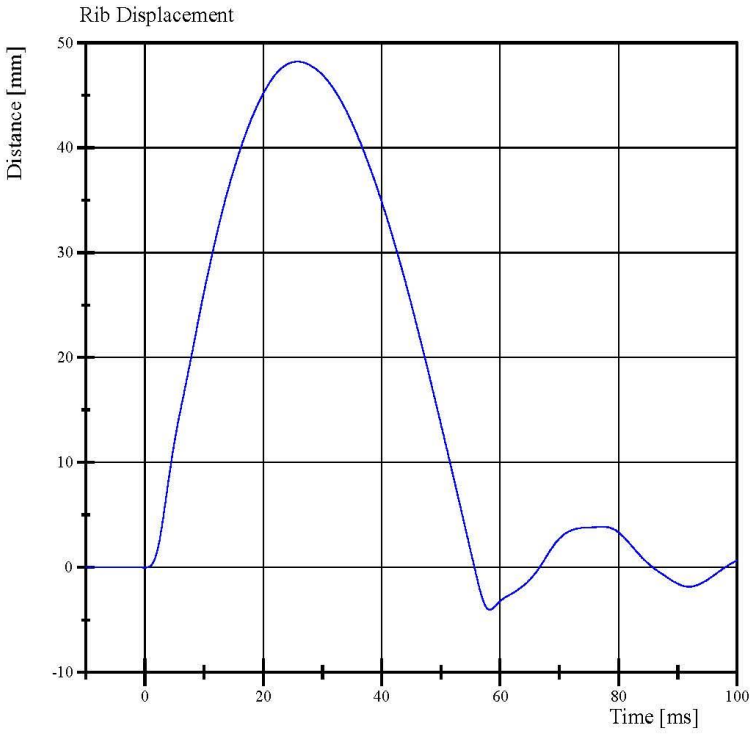
Test meets specifications.

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. 57-1
Test Date: 5/7/2018



Filter Class: CFC_180
Max: 48.2 mm at 25.8 ms
Min: -4.0 mm at 58.2 ms

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

05.07.2018 15:19:57 389

Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	38.5 mm	Yes

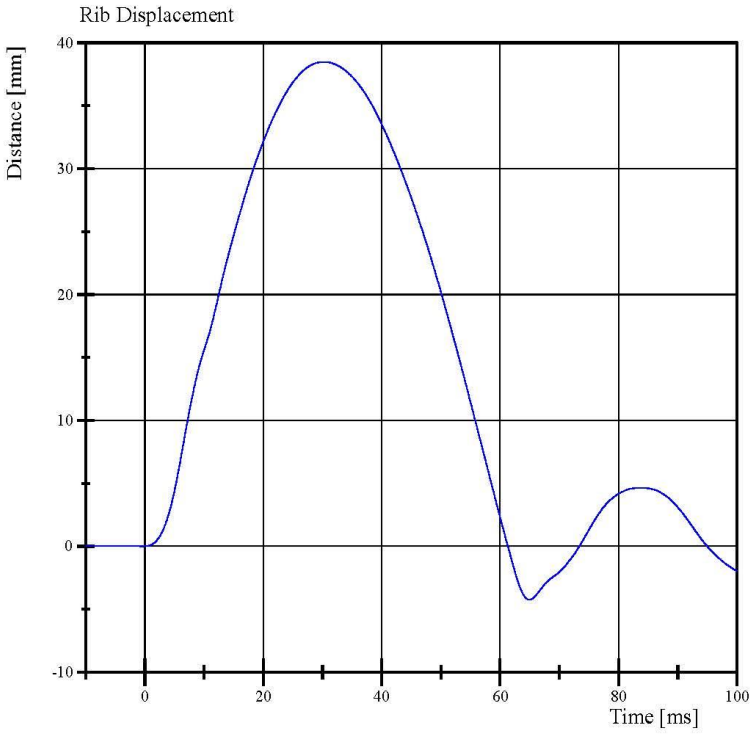
Test meets specifications.

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. 57-1
Test Date: 5/7/2018



Filter Class: CFC_180
Max: 38.5 mm at 30.3 ms
Min: -4.2 mm at 65.0 ms

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

05.07.2018 15:42:41 441

Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	49.1 mm	Yes

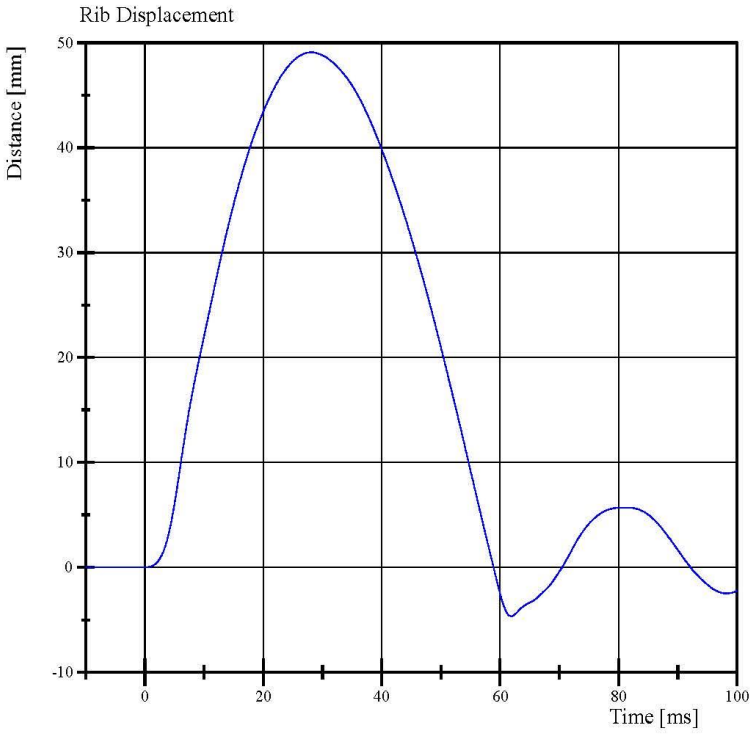
Test meets specifications.

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. 57-1
Test Date: 5/7/2018



Filter Class: CFC_180
Max: 49.1 mm at 28.1 ms
Min: -4.7 mm at 61.8 ms

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

05.07.2018 15:36:11 389

Transportation Research Center Inc.

Left Lower Thorax
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/8/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	5.4 - 5.60 m/s	5.525 m/s	Yes
Peak Impactor Force after 6 ms	(-5,100) - (-6,200) N	-5,368.3 N	Yes
Upper Rib Displacement	34 - 41 mm	38.2 mm	Yes
Center Rib Displacement	37 - 45 mm	42.5 mm	Yes
Lower Rib Displacement	37 - 44 mm	41.4 mm	Yes

Test meets specifications.

Condition: Used

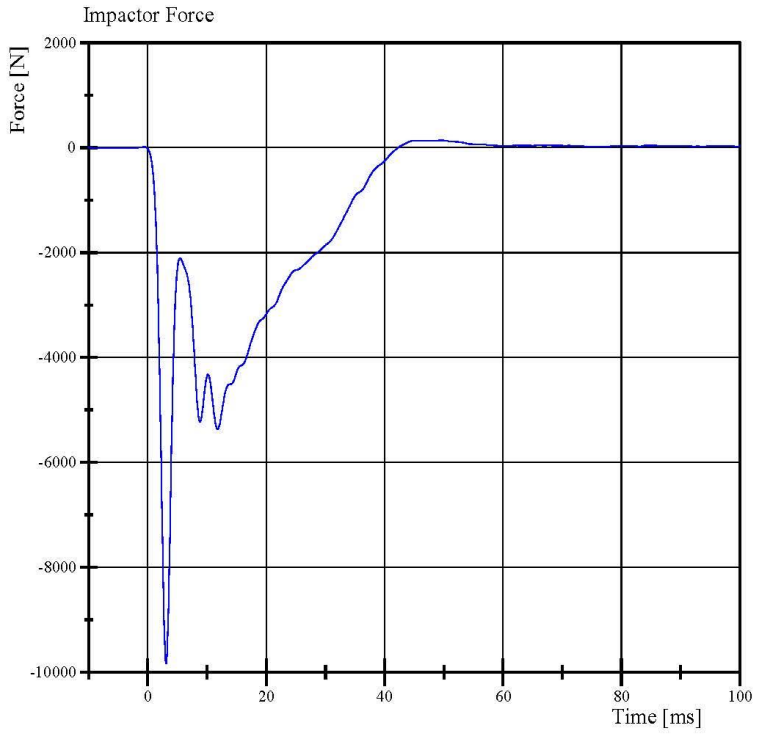
Comments:
Upper Rib:
Rib Module S/N: 175-4008-A
Rib Foam S/N: 175-4003-07229
Center Rib:
Rib Module S/N: 175-4008-A
Rib Foam S/N: E2A-DCT-04082
Lower Rib:
Rib Module S/N: 175-4008-A-06-017
Rib Foam S/N: 175-4003-05125

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

05.08.2018 07:48:30 423

Transportation Research Center Inc.

Left Lower Thorax
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/8/2018



Filter Class: CFC_180
Max: 138.4 N at 49.6 ms
Min: -9,833.6 N at 3.1 ms

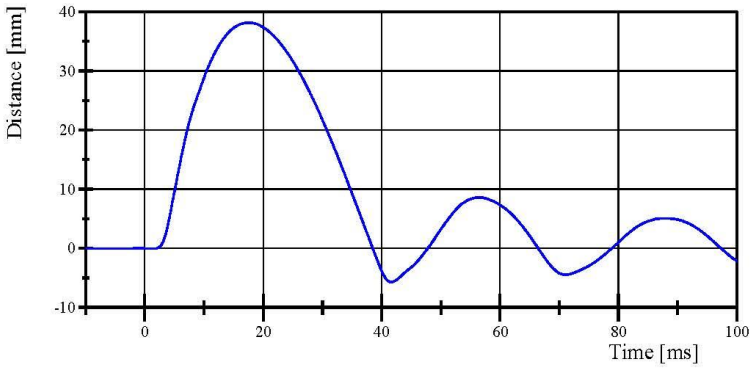
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

05.08.2018 07:49:45 423

Transportation Research Center Inc.

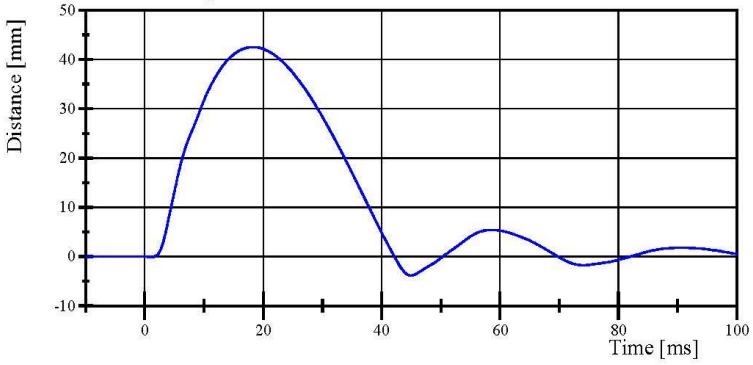
Left Lower Thorax
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/8/2018

Upper Rib Displacement



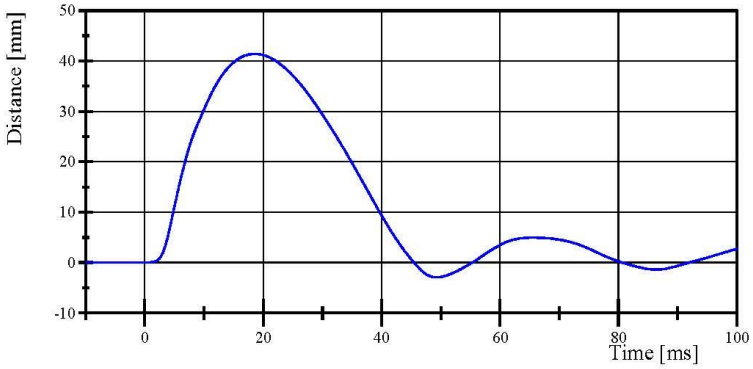
Filter Class: CFC_180
Max: 38.2 mm at 17.5 ms
Min: -5.7 mm at 41.6 ms

Center Rib Displacement



Filter Class: CFC_180
Max: 42.5 mm at 18.3 ms
Min: -3.8 mm at 45.0 ms

Lower Rib Displacement



Filter Class: CFC_180
Max: 41.4 mm at 18.6 ms
Min: -2.9 mm at 49.3 ms

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

05.08.2018 07:49:45 423

Transportation Research Center Inc.

Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/8/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	4.04 m/s	Yes
Test Probe Force			
Peak	4,000 - 4,800 N	4,201.7 N	Yes
Time of Peak	10.6 - 13.0 ms	11.84 ms	Yes
Total Abdominal Force			
Peak	2,200 - 2,700 N	2,488.2 N	Yes
Time of Peak	10.0 - 12.3 ms	11.52 ms	Yes

Test meets specifications.

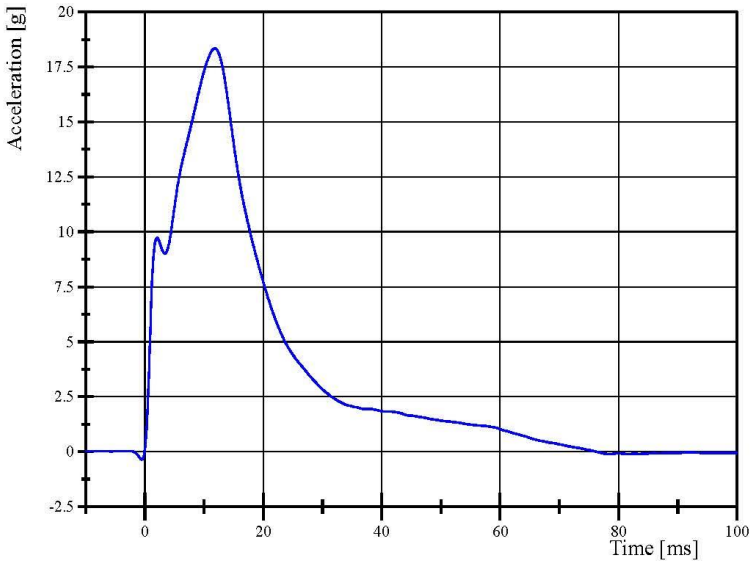
Condition: Used

Comments:
Abdomen S/N: 1066

Transportation Research Center Inc.

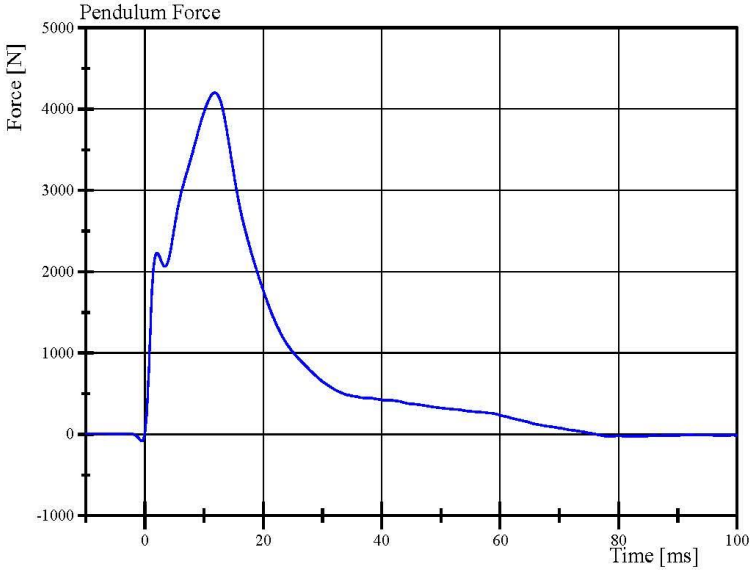
Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/8/2018

Pendulum Acceleration



Filter Class: CFC_180
Max: 18.3 g at 11.8 ms
Min: -0.4 g at -0.5 ms

Pendulum Force



Filter Class: CFC_180
Max: 4,201.7 N at 11.8 ms
Min: -81.4 N at -0.5 ms

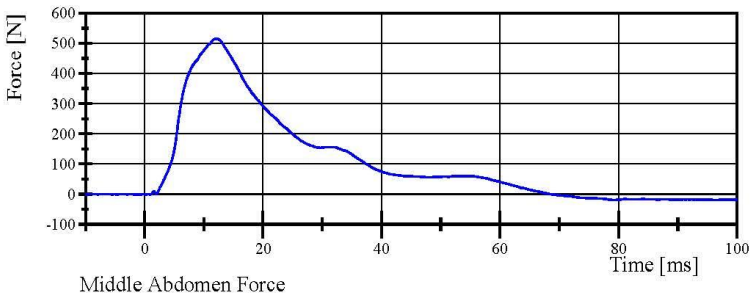
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

05.08.2018 07:57:50 552

Transportation Research Center Inc.

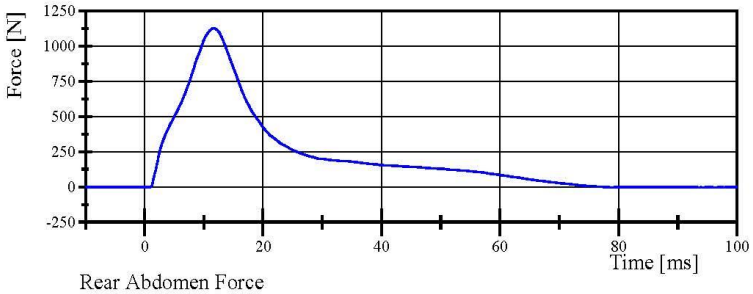
Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 57-1
Test Date: 5/8/2018

Front Abdomen Force



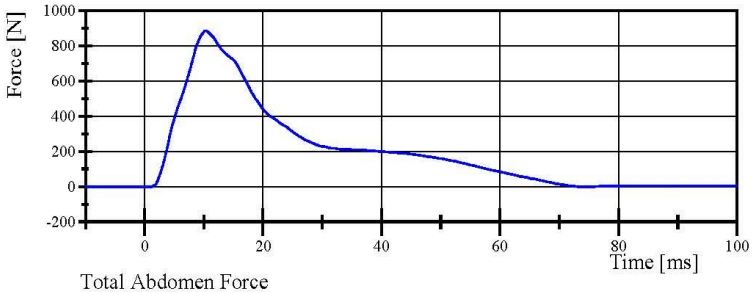
Filter Class: CFC_600
Max: 515.0 N at 12.2 ms
Min: -18.4 N at 79.4 ms

Middle Abdomen Force



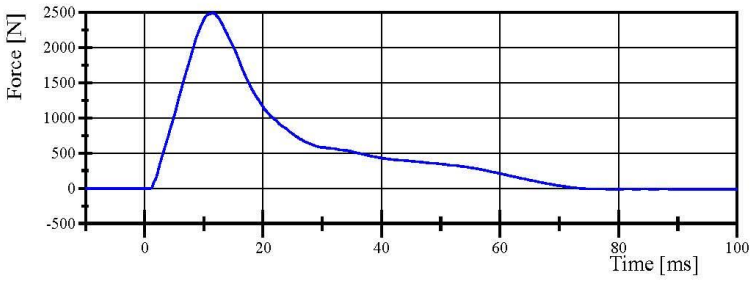
Filter Class: CFC_600
Max: 1,127.4 N at 11.7 ms
Min: -2.1 N at 78.8 ms

Rear Abdomen Force



Filter Class: CFC_600
Max: 886.3 N at 10.3 ms
Min: -0.9 N at 74.7 ms

Total Abdomen Force



Filter Class: CFC_600
Max: 2,488.2 N at 11.5 ms
Min: -16.7 N at 78.8 ms

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

05.08.2018 07:57:51 552

Transportation Research Center Inc.

Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 57-4
Test Date: 5/8/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-5.95) - (-6.15) m/s	-6.078 m/s	Yes
Maximum Headform Flexion			
Peak	(-45) - (-55) deg	-48.1 deg	Yes
Time of Peak	39 - 53 ms	43.4 ms	Yes
Headform Flexion Decay - Peak to Zero	37 - 57 ms	40.6 ms	Yes

Test meets specifications.

Condition: Used

Comments:
Lumbar S/N: 175-5501 DP0815

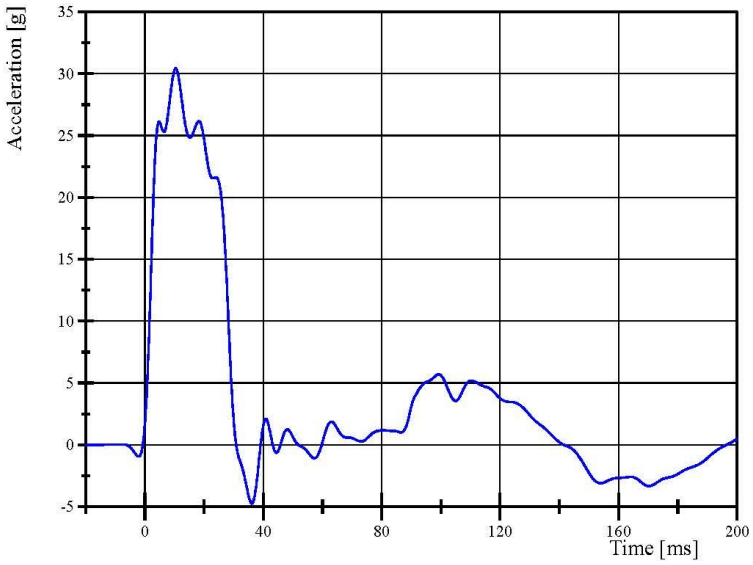
Specification Source: CFR49 Part 572 Subpart U with Polarity in accordance with J211

05.08.2018 06:31:16 641

Transportation Research Center Inc.

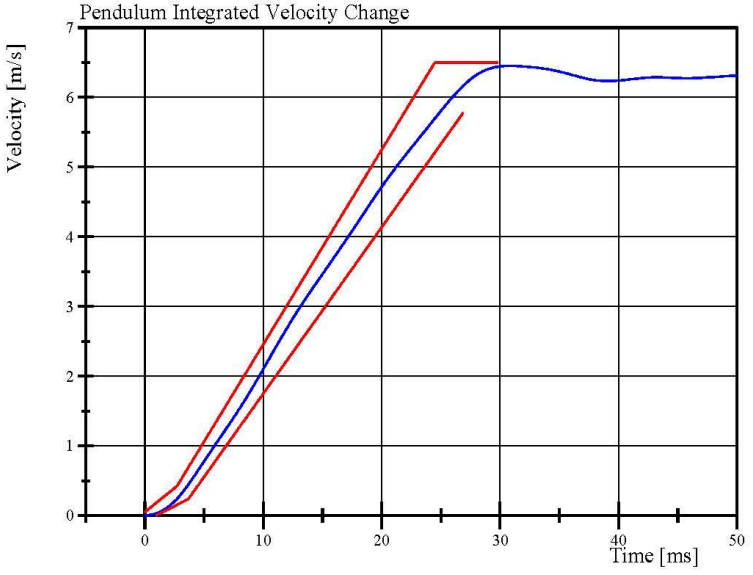
Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 57-4
Test Date: 5/8/2018

Pendulum Acceleration



Filter Class: CFC_60
Max: 30.4 g at 10.4 ms
Min: -4.7 g at 36.2 ms

Pendulum Integrated Velocity Change



Filter Class: CFC_60
Max: 6.5 m/s at 30.8 ms
Min: 0.0 m/s at 0.0 ms

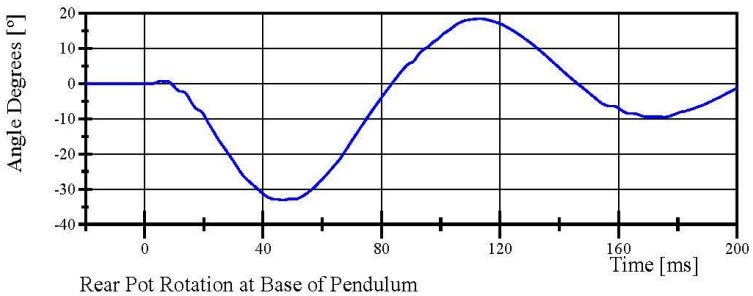
Specification Source: CFR49 Part 572 Subpart U
with Polarity in accordance with J211

05.08.2018 06:32:28 641

Transportation Research Center Inc.

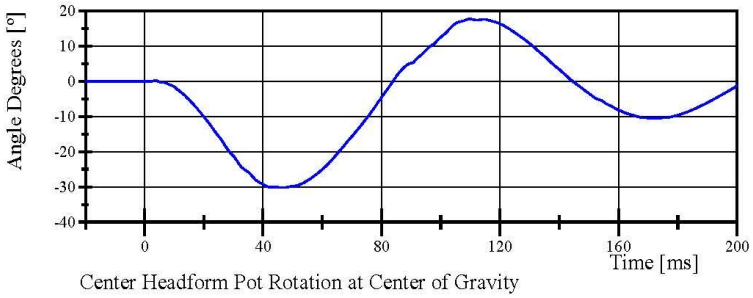
Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 57-4
Test Date: 5/8/2018

Forward Pot Rotation at Base of Pendulum



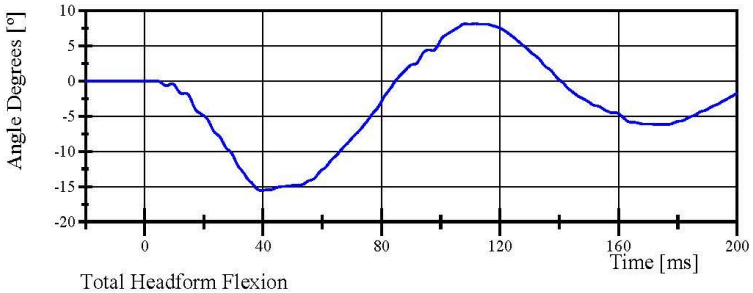
Filter Class: CFC_180
Max: 18.4 ° at 113.1 ms
Min: -33.0 ° at 46.7 ms

Rear Pot Rotation at Base of Pendulum



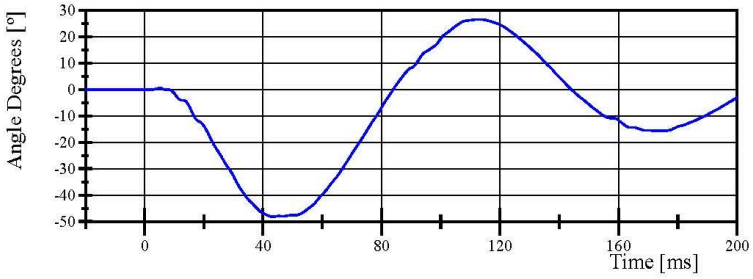
Filter Class: CFC_180
Max: 17.7 ° at 109.8 ms
Min: -30.2 ° at 46.7 ms

Center Headform Pot Rotation at Center of Gravity



Filter Class: CFC_180
Max: 8.2 ° at 111.5 ms
Min: -15.6 ° at 39.4 ms

Total Headform Flexion



Filter Class: CFC_180
Max: 26.5 ° at 111.9 ms
Min: -48.1 ° at 43.4 ms

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

05.08.2018 06:32:29 641

Transportation Research Center Inc.

Left Lateral Pelvis
ES-2re Serial No. F030 Certification No. 57-3
Test Date: 5/8/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.38 m/s	Yes
Test Probe Force			
Peak	4,700 - 5,400 N	5,321.5 N	Yes
Time of Peak	11.8 - 16.1 ms	12.48 ms	Yes
Pubic Symphysis Force			
Peak	(-1,230) - (-1,590) N	-1,308.6 N	Yes
Time of Peak	12.2 - 17.0 ms	12.24 ms	Yes

Test meets specifications.

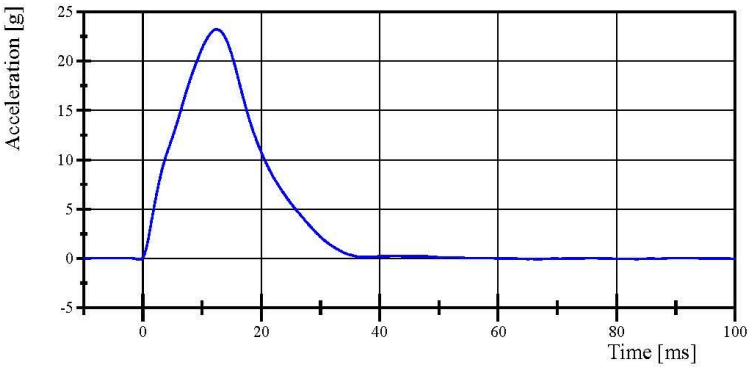
Condition: Used

Comments:
Pelvis Skin S/N: N/A

Transportation Research Center Inc.

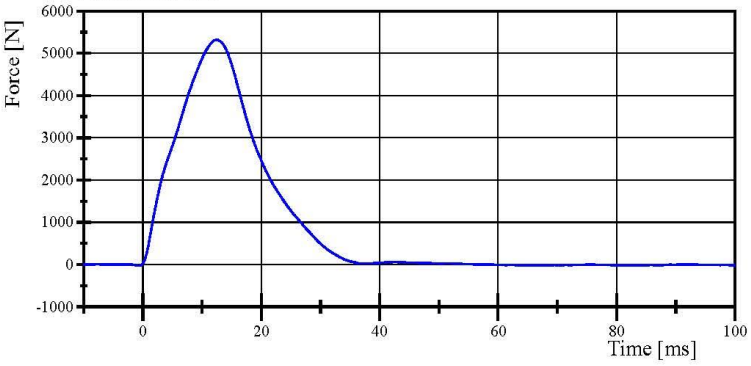
Left Lateral Pelvis
ES-2re Serial No. F030 Certification No. 57-3
Test Date: 5/8/2018

Pendulum Acceleration



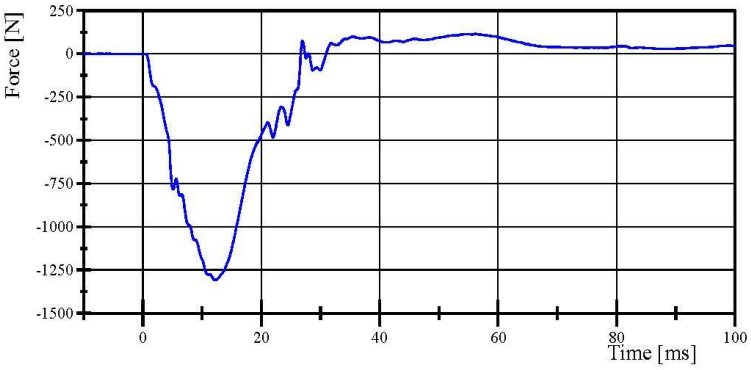
Filter Class: CFC_180
Max: 23.2 g at 12.5 ms
Min: -0.1 g at -0.6 ms

Pendulum Force



Filter Class: CFC_180
Max: 5,321.5 N at 12.5 ms
Min: -25.1 N at -0.6 ms

Pubic Symphysis Force



Filter Class: CFC_600
Max: 114.3 N at 56.2 ms
Min: -1,308.6 N at 12.2 ms

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

05.08.2018 09:05:01 569

Pre-Test Calibration Sheets
Passenger S/N 305

Transportation Research Center Inc.
SIDIIs 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.

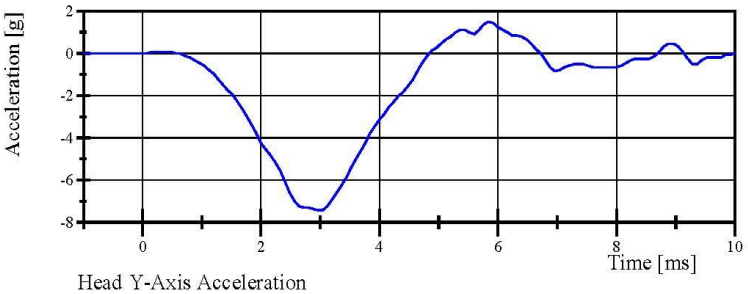
Condition: Used

Comments:
Head Skin S/N: 1253
Skull S/N: 180/1001/C

Transportation Research Center Inc.

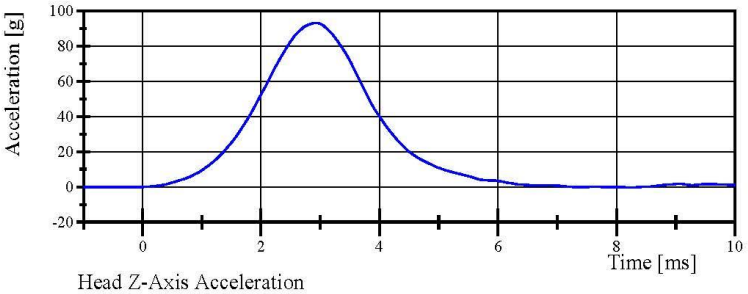
Left Lateral Head Drop
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Head X-Axis Acceleration



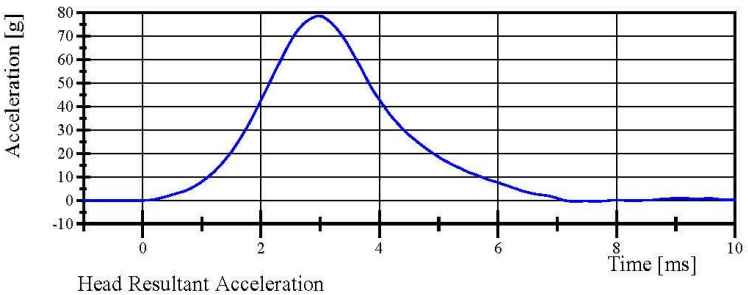
Filter Class: CFC_1000
Max: 1.5 g at 5.8 ms
Min: -7.4 g at 3.0 ms

Head Y-Axis Acceleration



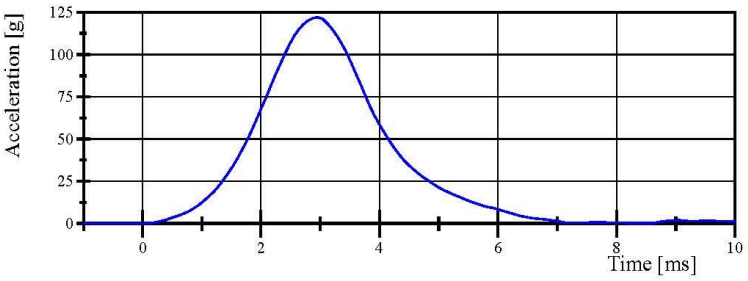
Filter Class: CFC_1000
Max: 93.2 g at 3.0 ms
Min: -0.1 g at 8.2 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 78.6 g at 3.0 ms
Min: -0.4 g at 7.3 ms

Head Resultant Acceleration



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

04.28.2018 06:46:23 196

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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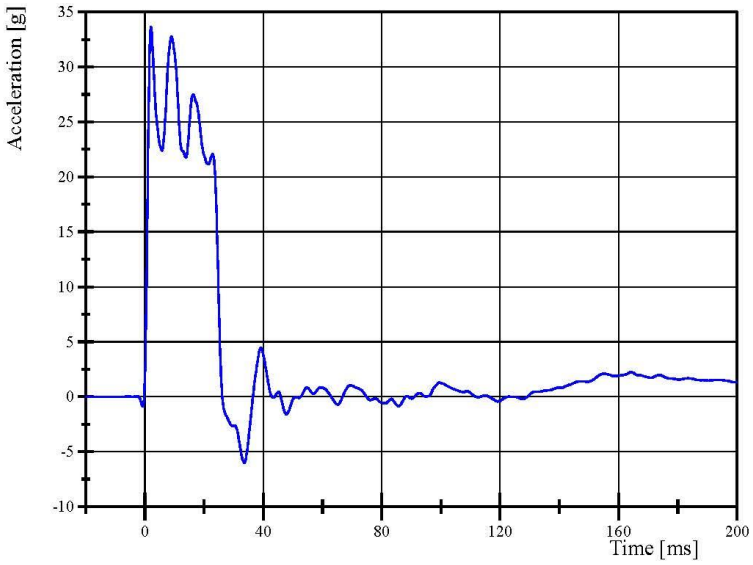
Transportation Research Center Inc.

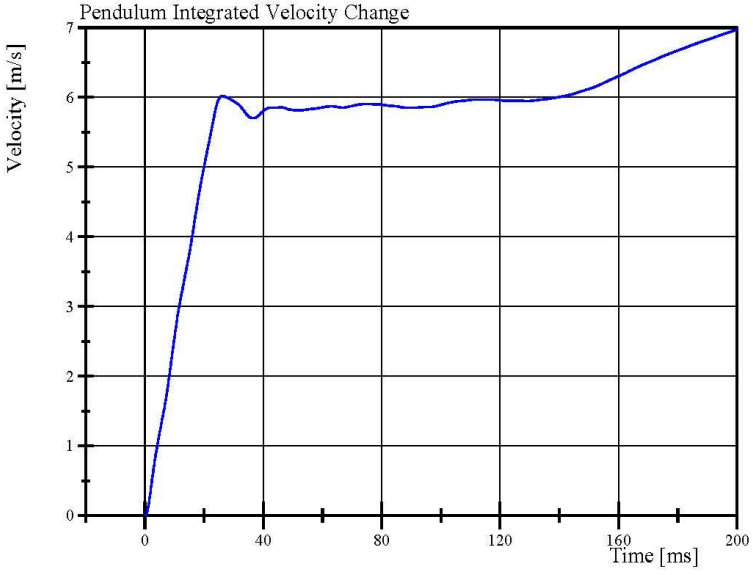
Left Lateral Neck
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Pendulum Acceleration



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

Pendulum Integrated Velocity Change



Filter Class: CFC_180
Max: 7.0 m/s at 200.0 ms
Min: 0.0 m/s at 0.0 ms

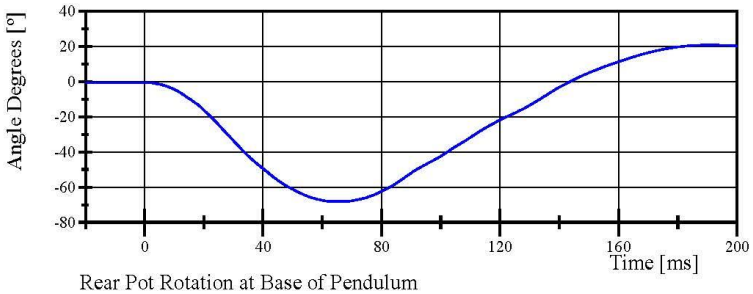
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.28.2018 07:29:51 715

Transportation Research Center Inc.

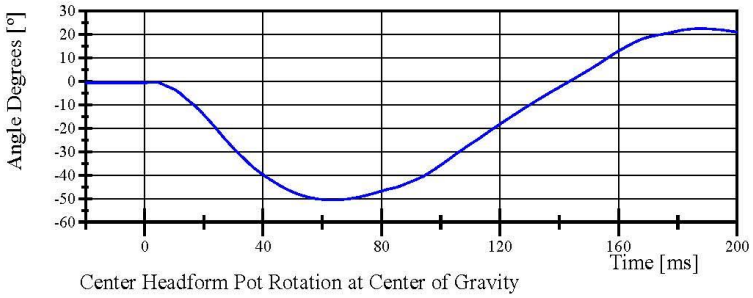
Left Lateral Neck
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Forward Pot Rotation at Base of Pendulum



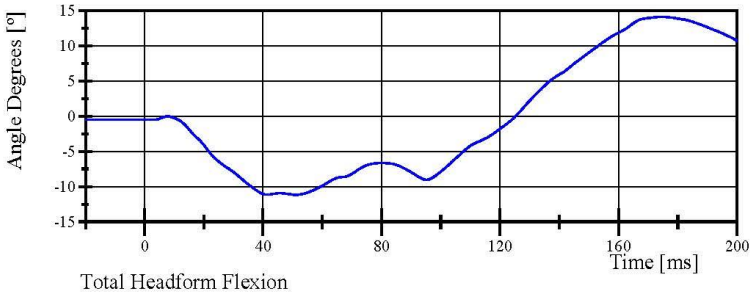
Filter Class: CFC_60
Max: 20.9 ° at 190.7 ms
Min: -68.2 ° at 65.1 ms

Rear Pot Rotation at Base of Pendulum



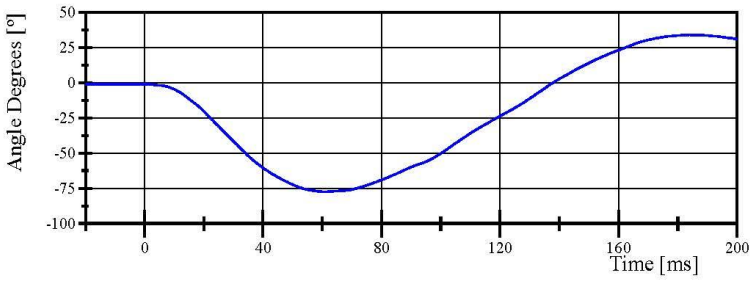
Filter Class: CFC_60
Max: 22.5 ° at 187.5 ms
Min: -50.6 ° at 63.5 ms

Center Headform Pot Rotation at Center of Gravity



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

Total Headform Flexion



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

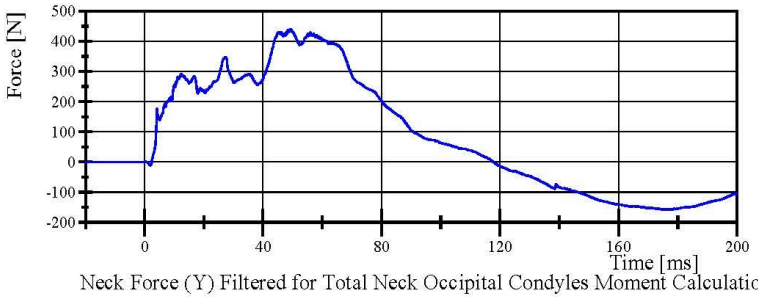
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.28.2018 07:29:52 715

Transportation Research Center Inc.

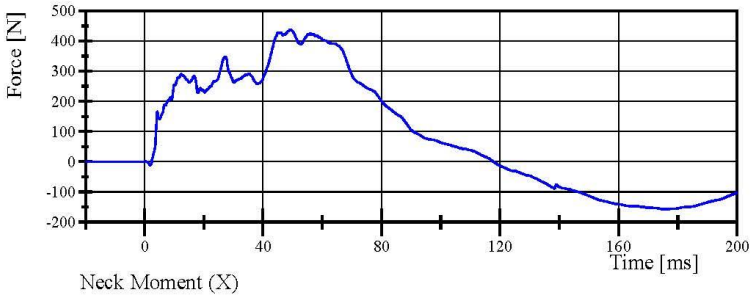
Left Lateral Neck
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Neck Force (Y)



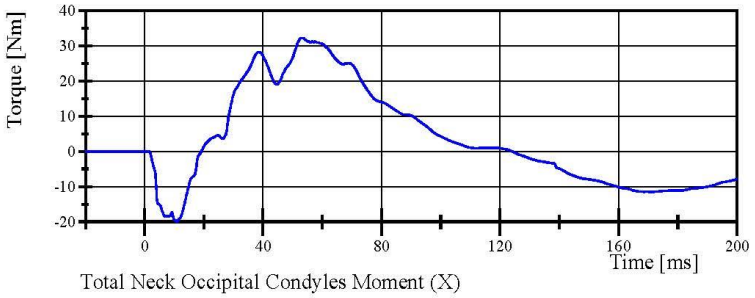
Filter Class: CFC_1000
Max: 439.9 N at 49.0 ms
Min: -156.8 N at 174.6 ms

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



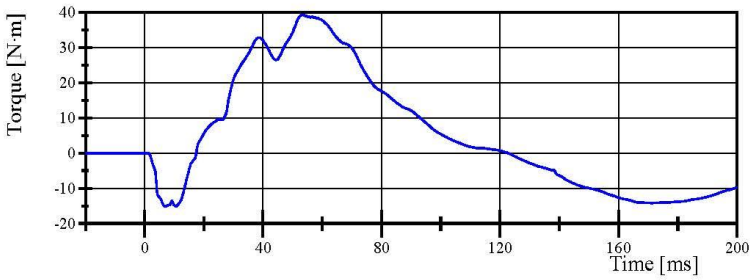
Filter Class: CFC_600
Max: 438.1 N at 49.1 ms
Min: -156.5 N at 175.6 ms

Neck Moment (X)



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

Total Neck Occipital Condyles Moment (X)



Filter Class: Without_(Constar
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

04.28.2018 07:29:53 715

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

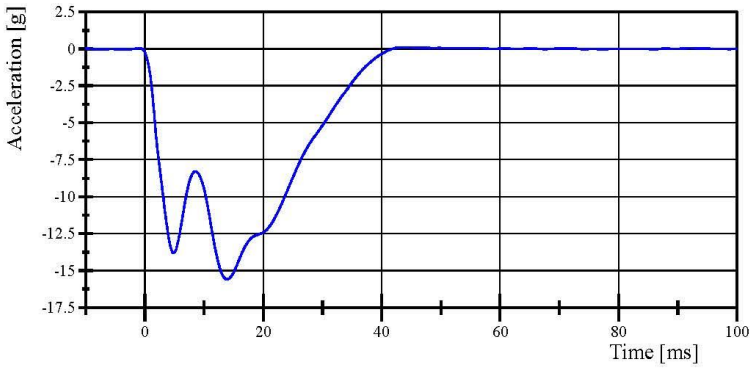
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.28.2018 08:39:07 865

Transportation Research Center Inc.

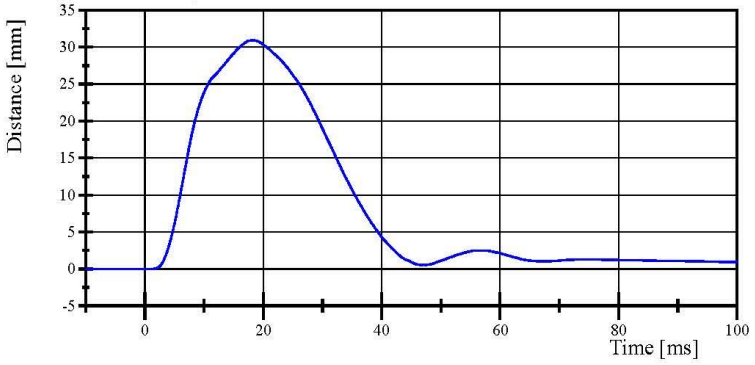
Left Lateral Shoulder
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Probe Acceleration



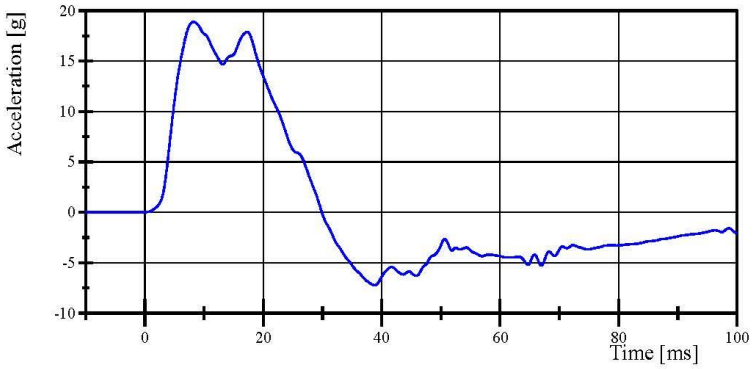
Filter Class: CFC_180
Max: 0.1 g at 44.0 ms
Min: -15.6 g at 13.8 ms

Shoulder Displacement



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

Upper Spine Acceleration (Y)



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

04.28.2018 08:39:46 865

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.

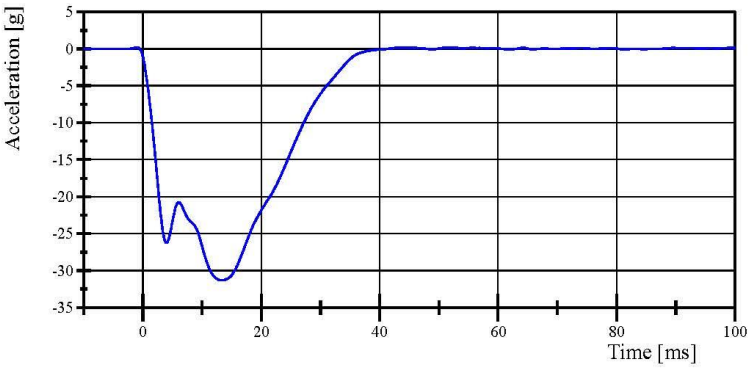
Condition: Used

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.

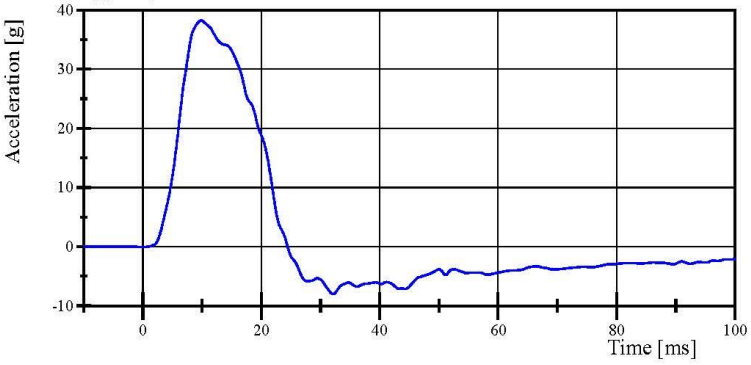
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Probe Acceleration



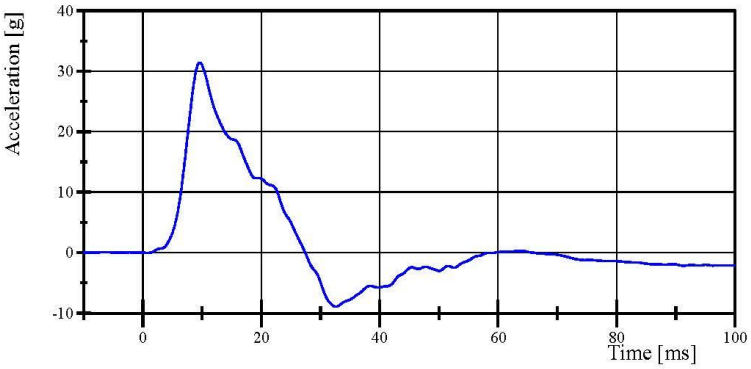
Filter Class: CFC_180
Max: 0.2 g at -1.0 ms
Min: -31.3 g at 13.3 ms

Upper Spine Acceleration



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

Lower Spine Acceleration



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

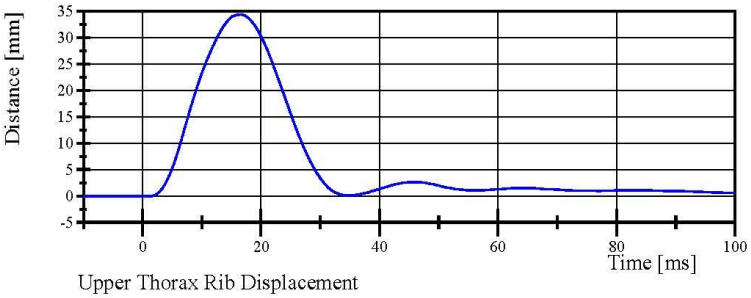
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.28.2018 08:57:05 593

Transportation Research Center Inc.

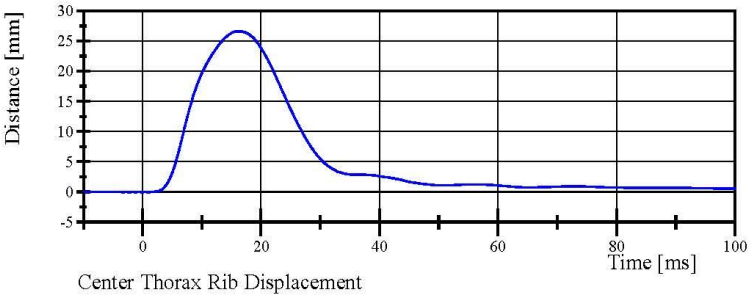
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Shoulder Rib Displacement



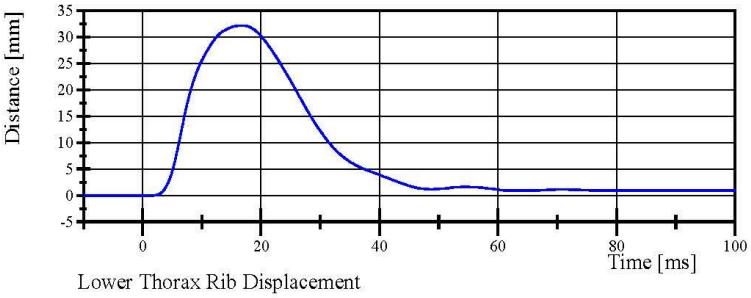
Filter Class: CFC_600
Max: 34.4 mm at 16.5 ms
Min: -0.0 mm at -1.8 ms

Upper Thorax Rib Displacement



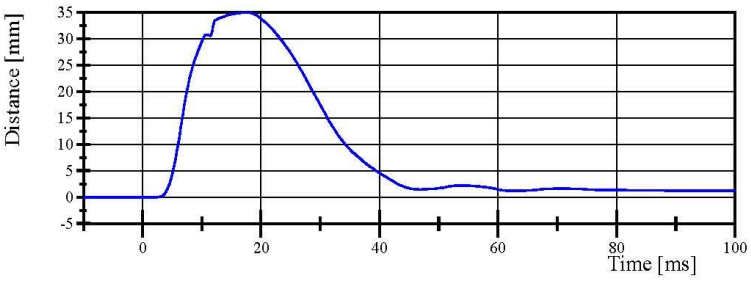
Filter Class: CFC_600
Max: 26.6 mm at 16.2 ms
Min: -0.0 mm at 1.1 ms

Center Thorax Rib Displacement



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

Lower Thorax Rib Displacement



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

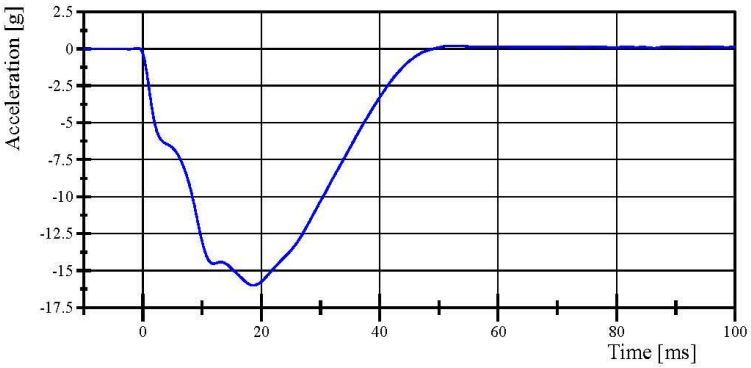
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.28.2018 09:52:00 817

Transportation Research Center Inc.

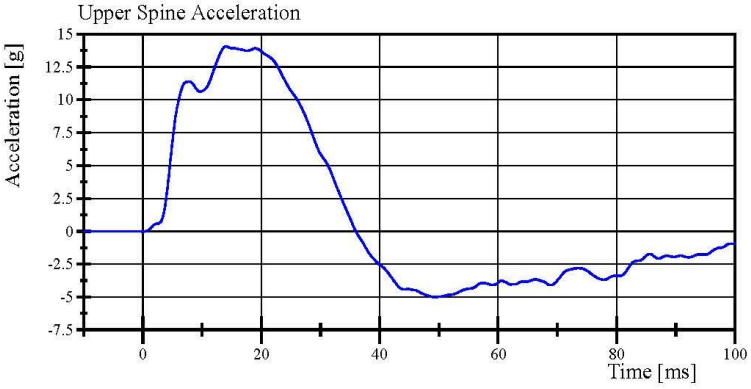
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Probe Acceleration



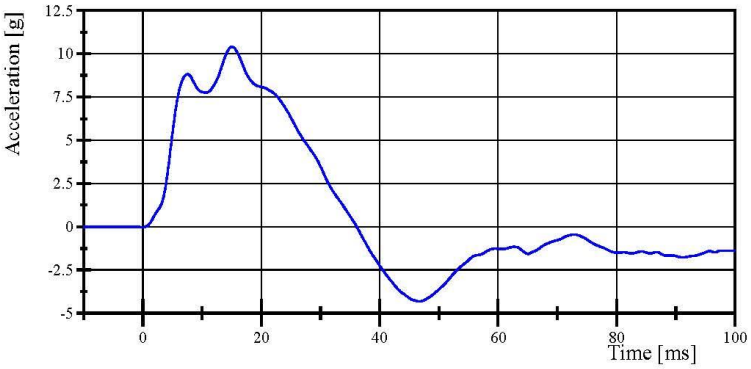
Filter Class: CFC_180
Max: 0.2 g at 52.0 ms
Min: -16.0 g at 18.6 ms

Upper Spine Acceleration



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

Lower Spine Acceleration



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

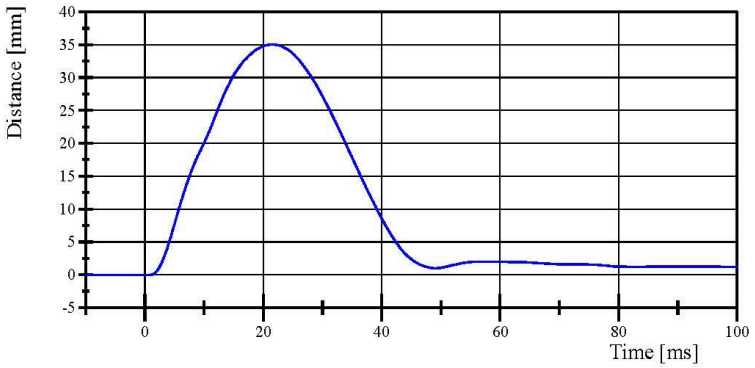
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

04.28.2018 09:52:50 817

Transportation Research Center Inc.

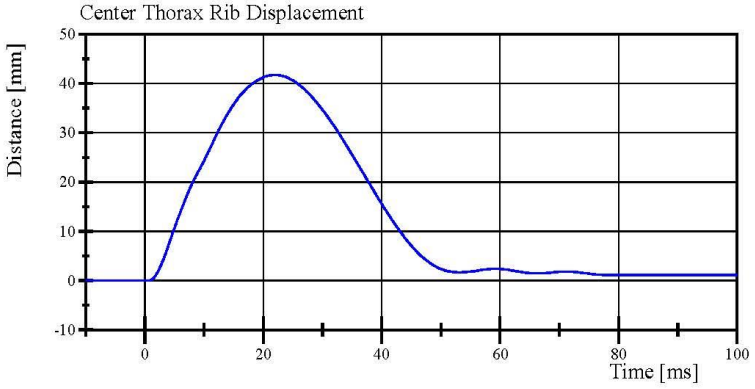
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Upper Thorax Rib Displacement



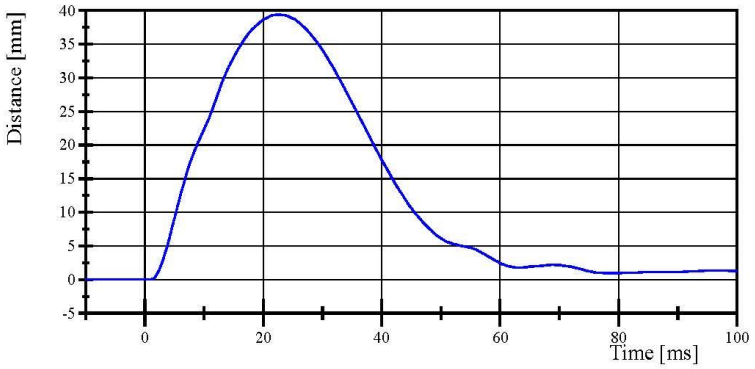
Filter Class: CFC_600
Max: 35.0 mm at 21.5 ms
Min: -0.0 mm at 0.8 ms

Center Thorax Rib Displacement



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

Lower Thorax Rib Displacement



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.

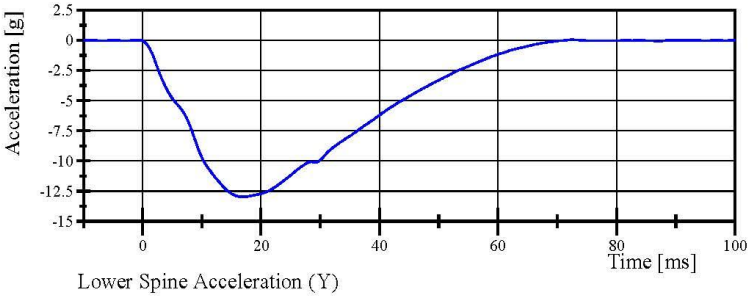
Condition: Used

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.

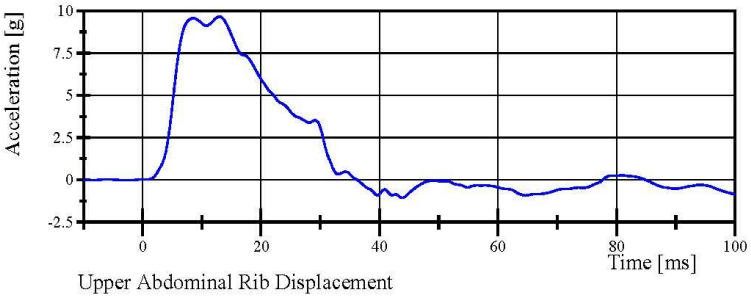
Left Lateral Abdomen
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Probe Acceleration



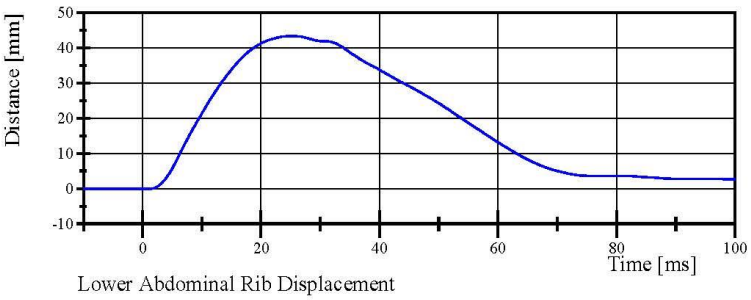
Filter Class: CFC_180
Max: 0.1 g at 72.5 ms
Min: -12.9 g at 17.0 ms

Lower Spine Acceleration (Y)



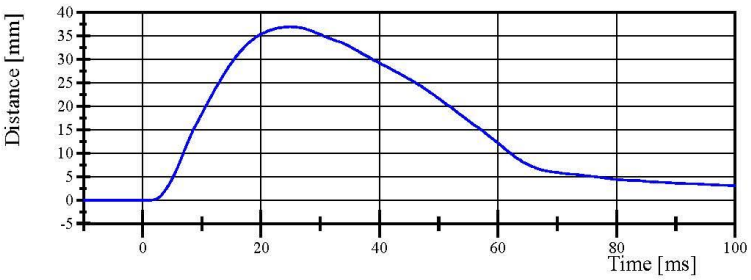
Filter Class: CFC_180
Max: 9.7 g at 13.0 ms
Min: -1.1 g at 43.8 ms

Upper Abdominal Rib Displacement



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

Lower Abdominal Rib Displacement



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.

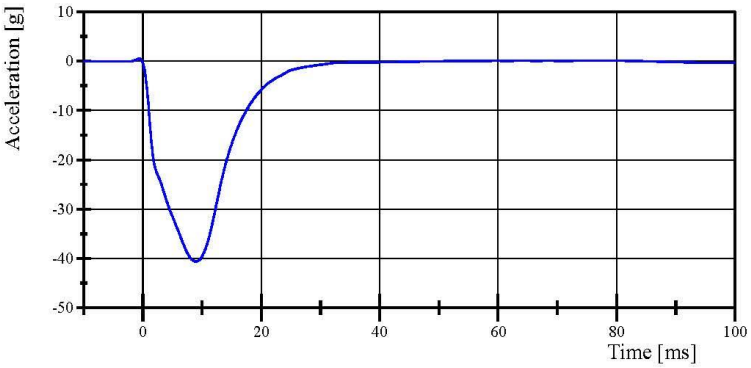
Condition: Used

Comments:
Pelvis Skin S/N: 884
Pelvis Plug Info:
Manufacturer: SACO
S/N: 11425
Cal Date: 20160829

Transportation Research Center Inc.

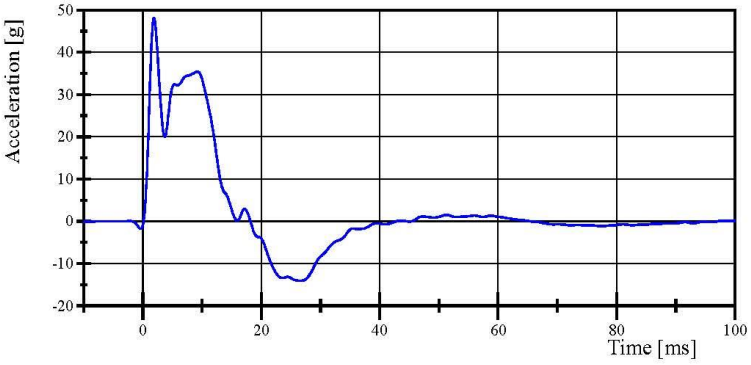
Left Lateral Pelvis
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Probe Acceleration



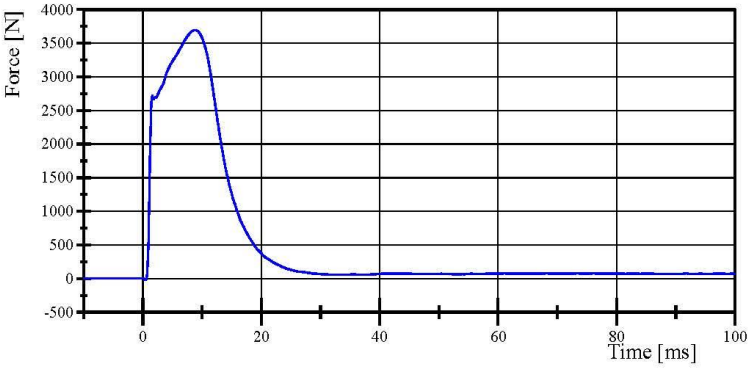
Filter Class: CFC_180
Max: 0.5 g at -0.6 ms
Min: -40.6 g at 9.0 ms

Pelvis Y-Axis Acceleration



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

Acetabulum Y-Axis Force



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

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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.

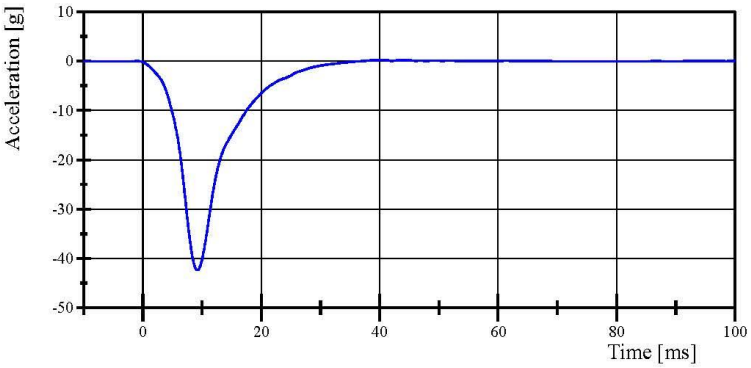
Condition: Used

Comments:
Pelvis Skin S/N: 884

Transportation Research Center Inc.

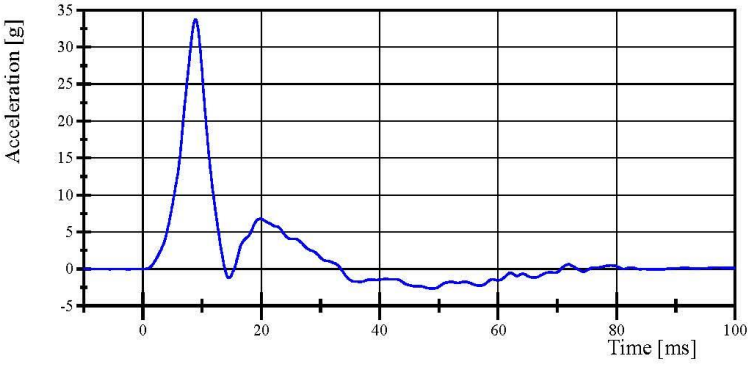
Left Lateral Iliac
SID IIs Serial No. 305 Certification No. 64-1
Test Date: 4/28/2018

Probe Acceleration



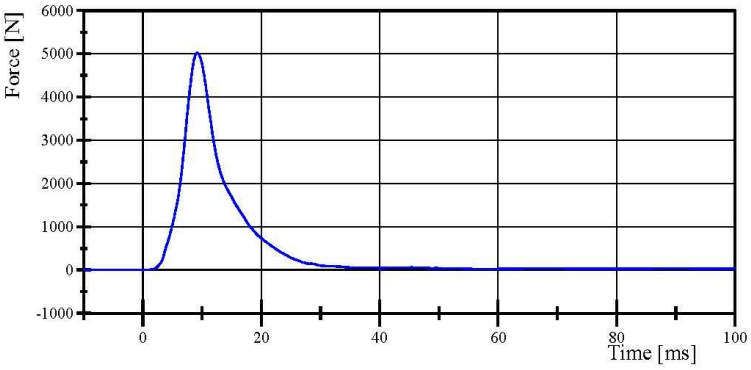
Filter Class: CFC_180
Max: 0.2 g at 40.6 ms
Min: -42.4 g at 9.2 ms

Pelvis Y-Axis Acceleration



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

Iliac Y-Axis Force



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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Post-Test Calibration Sheets
Passenger S/N 305

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 305 Calibration No. 65

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	198	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	877	Yes
Z	Waist Circumference	761.0 - 791.0	781	Yes

Transportation Research Center Inc.

Left Lateral Head Drop
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/5/2018

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	123.2 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.

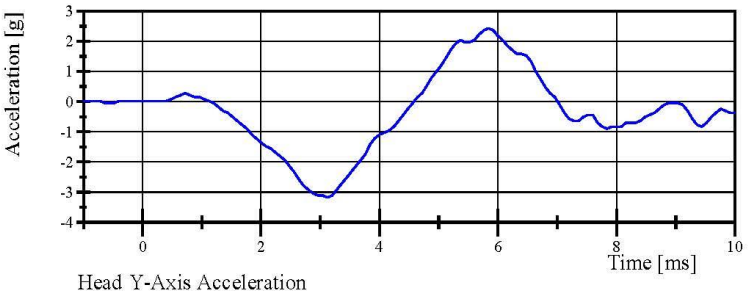
Condition: Used

Comments:
Head Skin S/N: 1253
Skull S/N: 180/1001/C

Transportation Research Center Inc.

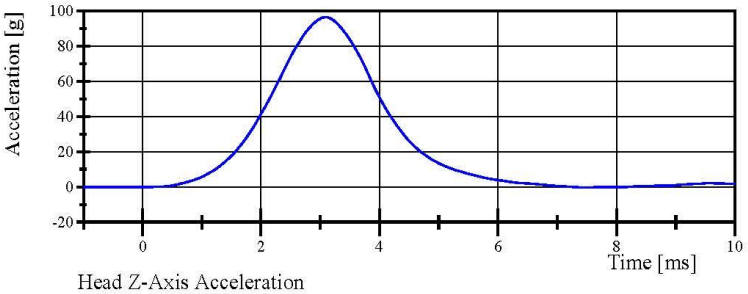
Left Lateral Head Drop
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/5/2018

Head X-Axis Acceleration



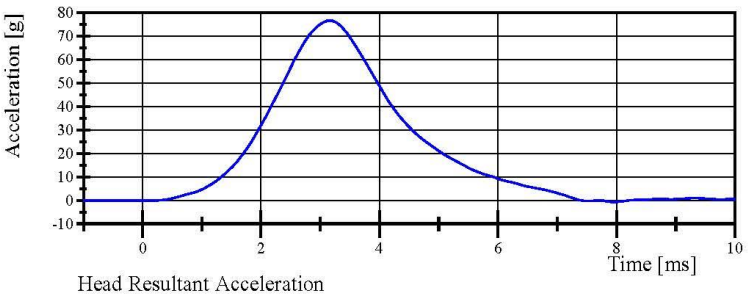
Filter Class: CFC_1000
Max: 2.4 g at 5.8 ms
Min: -3.2 g at 3.1 ms

Head Y-Axis Acceleration



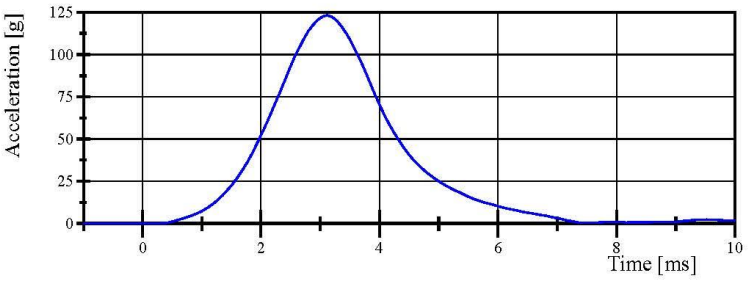
Filter Class: CFC_1000
Max: 96.5 g at 3.1 ms
Min: -0.3 g at 7.4 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 76.5 g at 3.1 ms
Min: -0.7 g at 7.9 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 123.2 g at 3.1 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. 65-1
Test Date: 5/5/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.630 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	2.20 - 2.80 m/s	2.535 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.838 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.185 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	6.036 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	6.044 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-76.2 deg	Yes
Time of Peak	50 - 70 ms	59.6 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	41.2 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	119.3 ms	Yes

Test meets specifications.

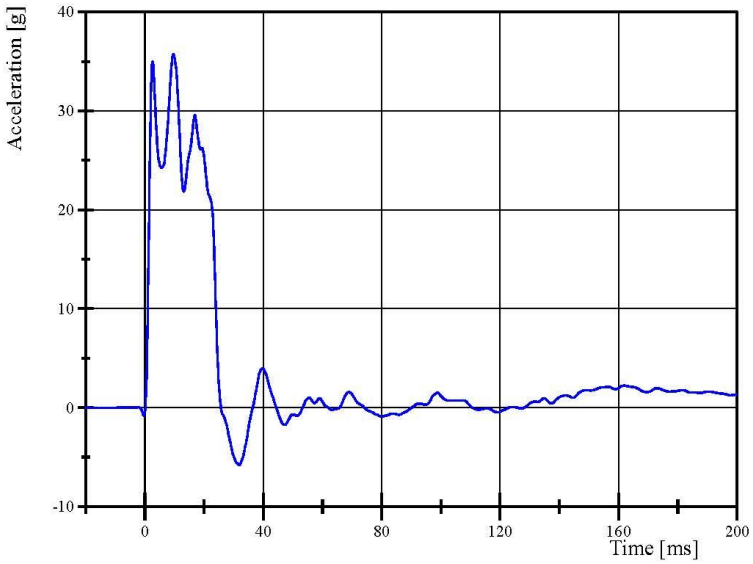
Condition: Used

Comments:
Neck S/N: 180-2001-606
Neck Cable S/N: N/A
Nodding Block S/N's:
- Front - DN-3094
- Rear - 8550-DL6580

Transportation Research Center Inc.

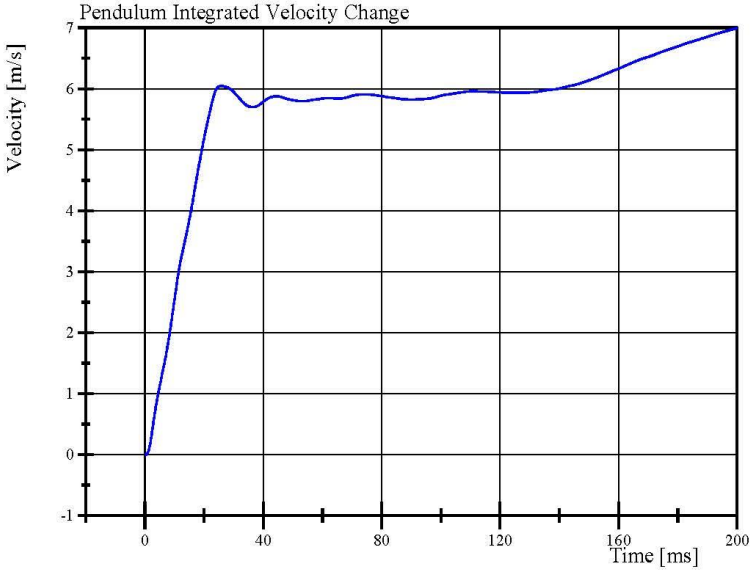
Left Lateral Neck
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/5/2018

Pendulum Acceleration



Filter Class: CFC_180
Max: 35.7 g at 9.6 ms
Min: -5.8 g at 31.9 ms

Pendulum Integrated Velocity Change



Filter Class: CFC_180
Max: 7.0 m/s at 200.0 ms
Min: -0.0 m/s at 0.2 ms

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

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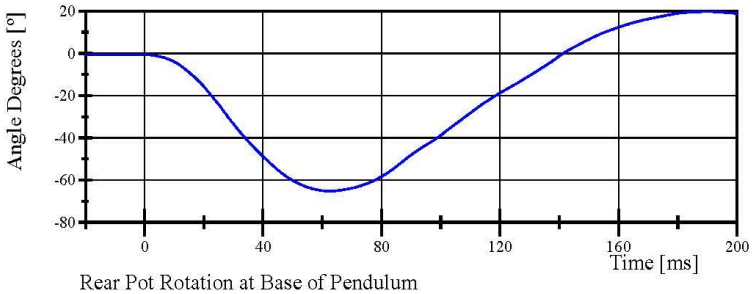
Transportation Research Center Inc.

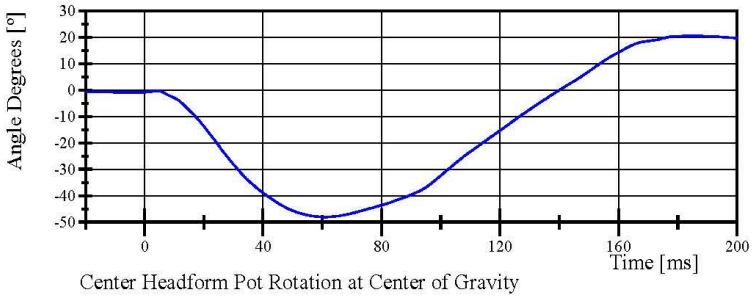
Left Lateral Neck
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/5/2018

Forward Pot Rotation at Base of Pendulum



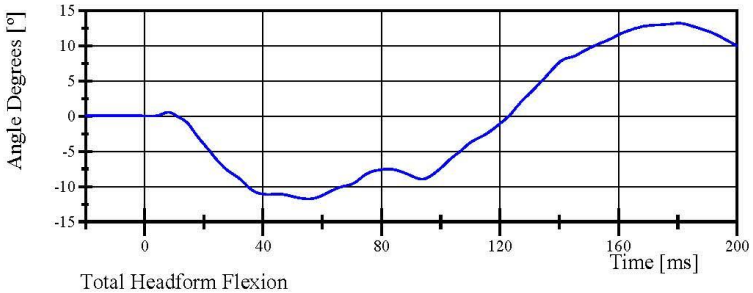
Filter Class: CFC_60
Max: 19.7 ° at 190.0 ms
Min: -65.1 ° at 62.4 ms

Rear Pot Rotation at Base of Pendulum



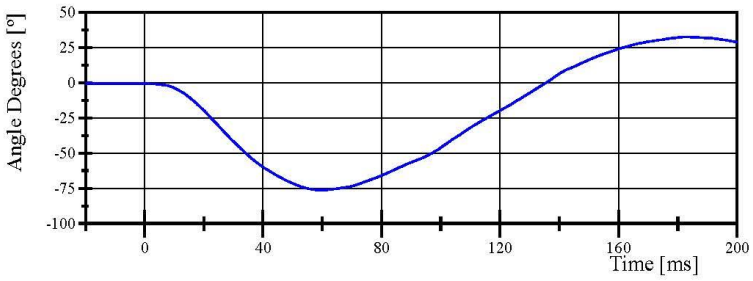
Filter Class: CFC_60
Max: 20.6 ° at 185.0 ms
Min: -48.1 ° at 60.9 ms

Center Headform Pot Rotation at Center of Gravity



Filter Class: CFC_60
Max: 13.2 ° at 180.4 ms
Min: -11.7 ° at 55.4 ms

Total Headform Flexion



Filter Class: CFC_60
Max: 32.5 ° at 182.8 ms
Min: -76.2 ° at 59.6 ms

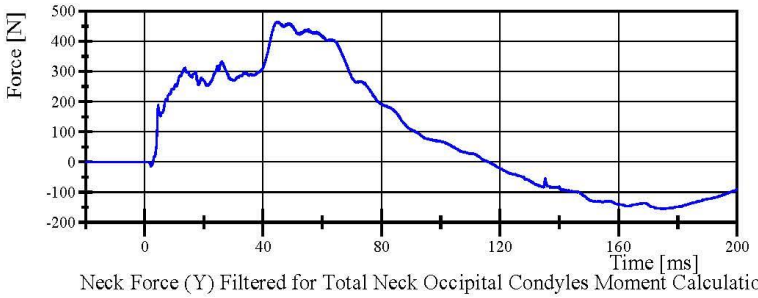
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.05.2018 14:38:24 707

Transportation Research Center Inc.

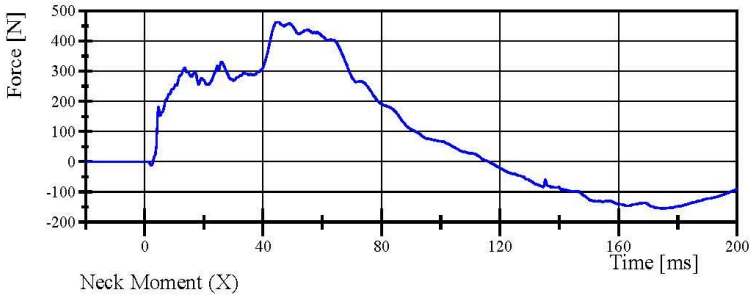
Left Lateral Neck
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/5/2018

Neck Force (Y)



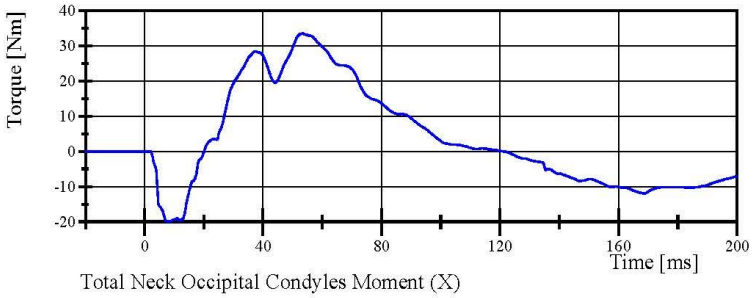
Filter Class: CFC_1000
Max: 464.2 N at 45.3 ms
Min: -154.9 N at 175.3 ms

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



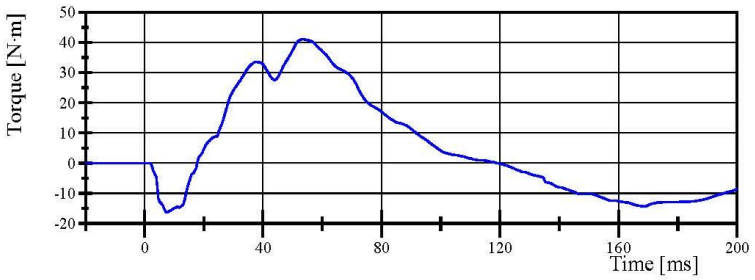
Filter Class: CFC_600
Max: 462.9 N at 44.7 ms
Min: -154.6 N at 175.4 ms

Neck Moment (X)



Filter Class: CFC_600
Max: 33.5 Nm at 53.3 ms
Min: -20.0 Nm at 7.7 ms

Total Neck Occipital Condyles Moment (X)



Filter Class: Without_(Constar
Max: 41.2 N·m at 53.5 ms
Min: -16.3 N·m at 7.6 ms

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

05.05.2018 14:38:25 707

Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-16.1 g	Yes
Shoulder Displacement	28 - 37 mm	31.0 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.8 g	Yes

Test meets specifications.

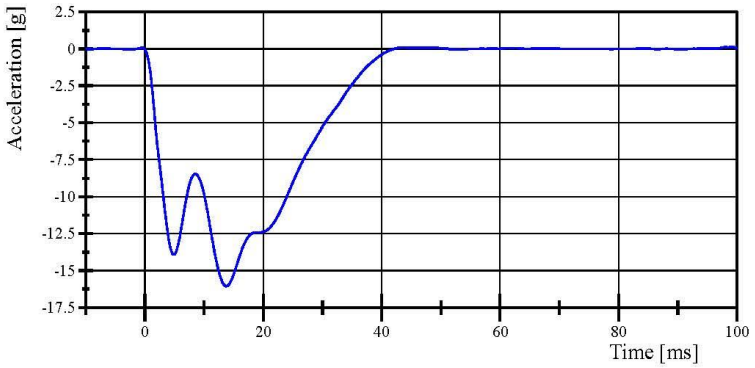
Condition: Used

Comments:
Left Arm S/N: 952
Shoulder Rib S/N: 180-3355 169

Transportation Research Center Inc.

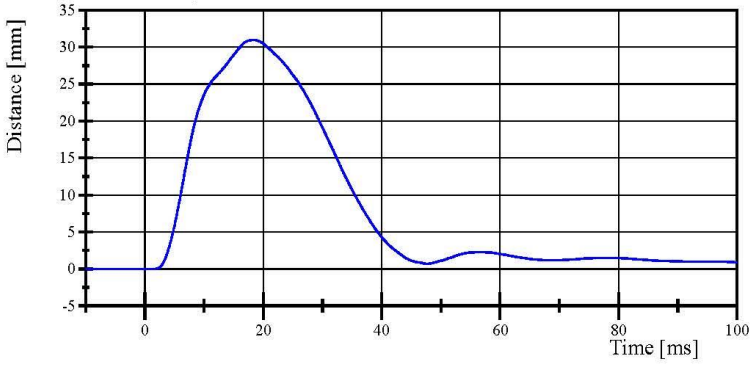
Left Lateral Shoulder
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Probe Acceleration



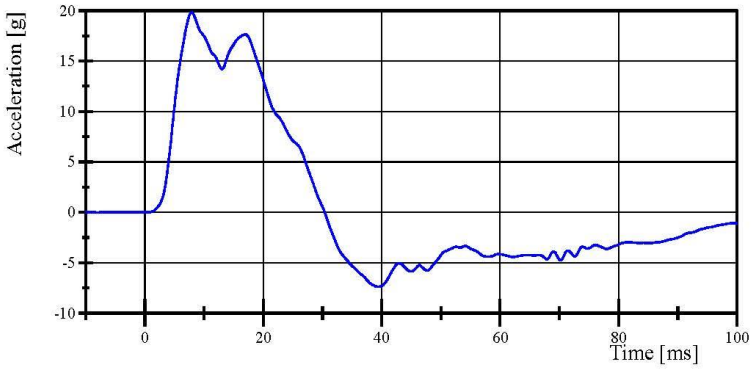
Filter Class: CFC_180
Max: 0.1 g at 99.0 ms
Min: -16.1 g at 13.8 ms

Shoulder Displacement



Filter Class: CFC_600
Max: 31.0 mm at 18.4 ms
Min: -0.0 mm at 1.5 ms

Upper Spine Acceleration (Y)



Filter Class: CFC_180
Max: 19.8 g at 7.9 ms
Min: -7.4 g at 39.5 ms

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

05.07.2018 07:41:38 878

Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.751 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-32.5 g	Yes
Shoulder Displacement	31 - 40 mm	32.7 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	26.1 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	32.2 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	35.6 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	39.1 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	31.1 g	Yes

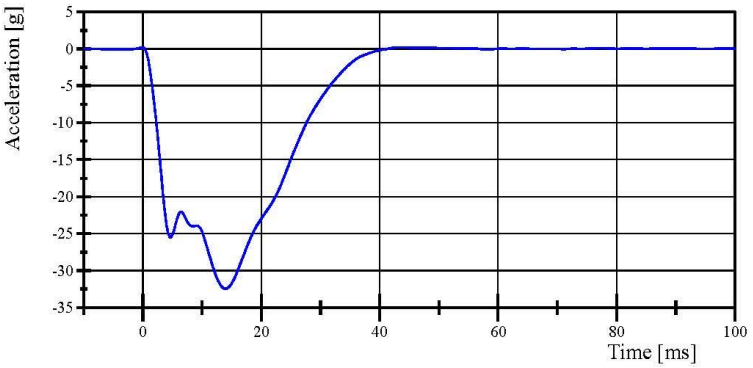
Test meets specifications.

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.

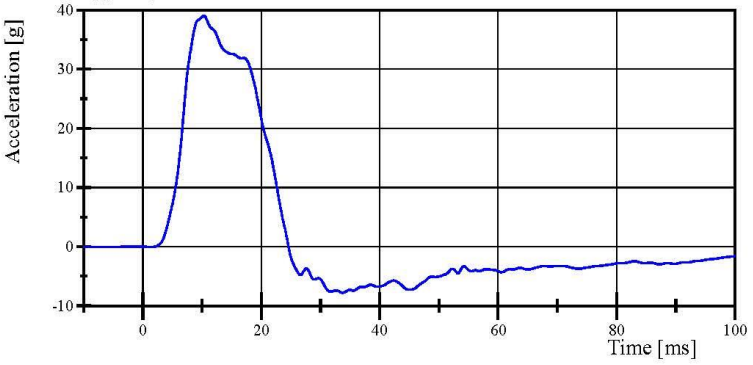
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Probe Acceleration



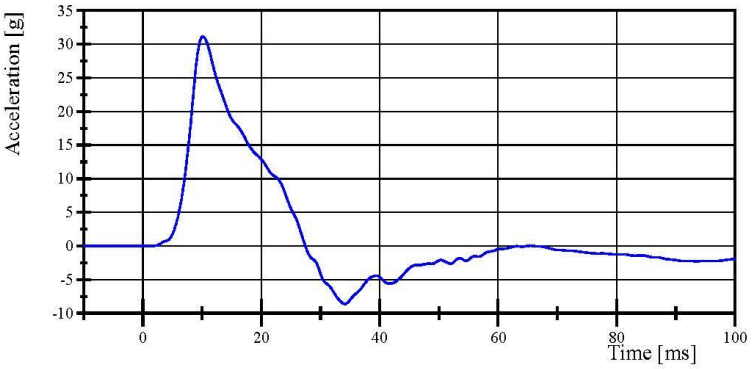
Filter Class: CFC_180
Max: 0.2 g at 43.5 ms
Min: -32.5 g at 13.9 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 39.1 g at 10.3 ms
Min: -7.8 g at 33.7 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 31.1 g at 10.1 ms
Min: -8.6 g at 34.2 ms

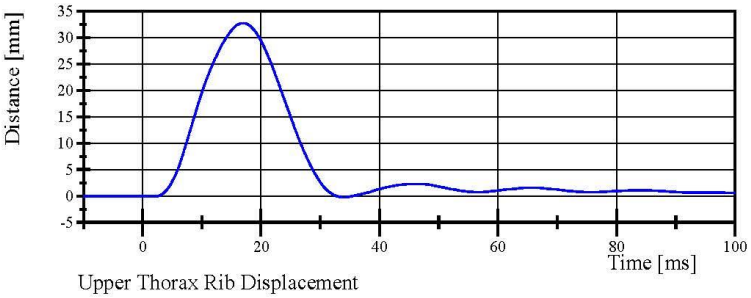
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.07.2018 08:43:38 597

Transportation Research Center Inc.

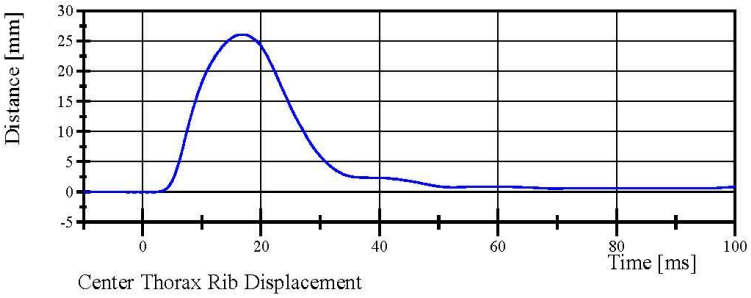
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Shoulder Rib Displacement



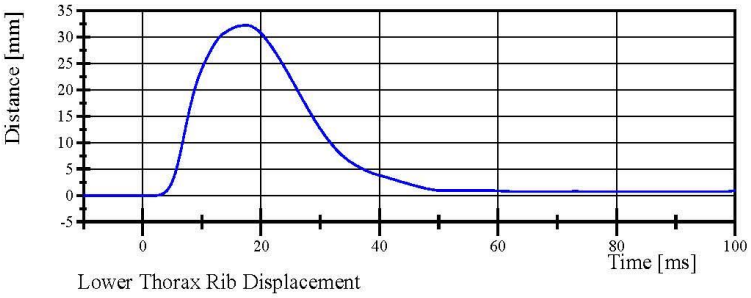
Filter Class: CFC_600
Max: 32.7 mm at 17.0 ms
Min: -0.2 mm at 33.9 ms

Upper Thorax Rib Displacement



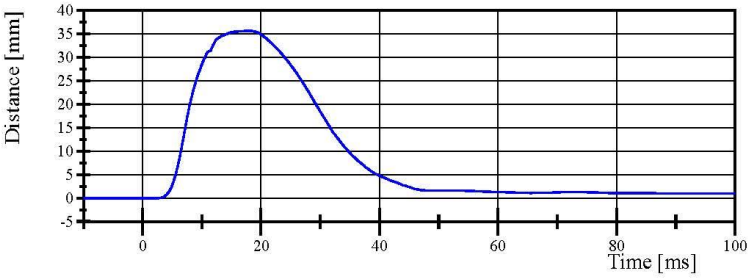
Filter Class: CFC_600
Max: 26.1 mm at 16.6 ms
Min: -0.0 mm at 2.0 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 32.2 mm at 17.4 ms
Min: -0.0 mm at -7.0 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 35.6 mm at 18.0 ms
Min: -0.0 mm at 1.4 ms

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

05.07.2018 08:43:39 597

Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.291 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.0 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	36.9 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.7 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	35.7 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.7 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.5 g	Yes

Test meets specifications.

Condition: Used

Comments:
Upper Thorax Rib S/N: RS506
Middle Thorax Rib S/N: RS506
Lower Thorax Rib S/N: RS506
Upper Thorax Pad S/N: 180-3451

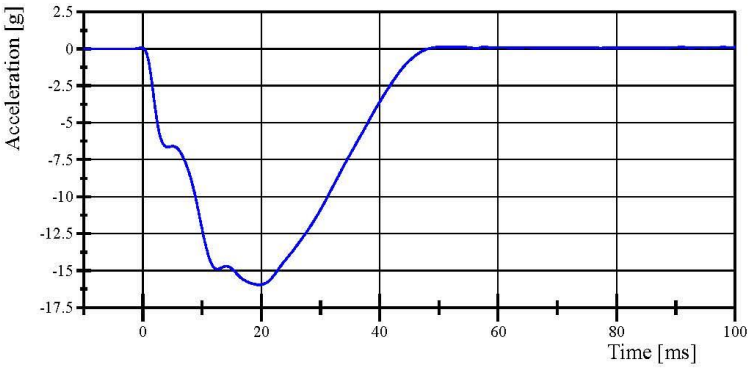
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.07.2018 07:56:50 841

Transportation Research Center Inc.

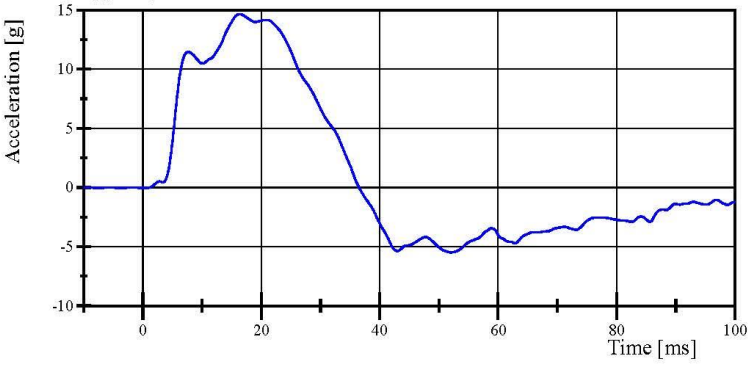
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Probe Acceleration



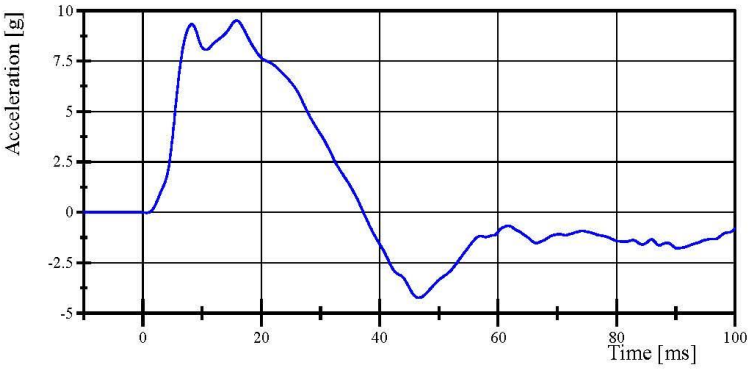
Filter Class: CFC_180
Max: 0.1 g at 57.7 ms
Min: -16.0 g at 19.5 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 14.7 g at 16.4 ms
Min: -5.5 g at 51.9 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 9.5 g at 15.8 ms
Min: -4.2 g at 46.6 ms

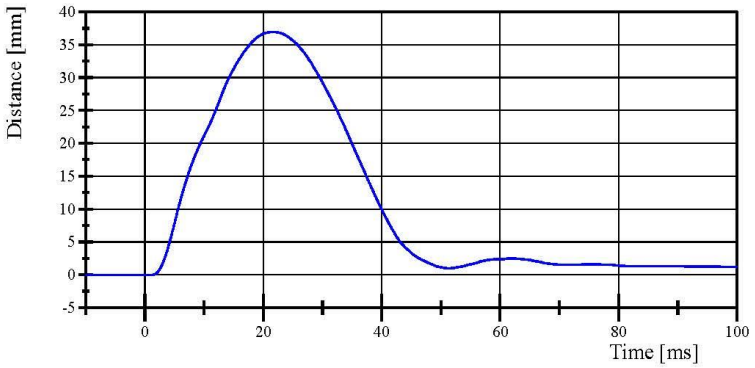
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

05.07.2018 07:57:33 841

Transportation Research Center Inc.

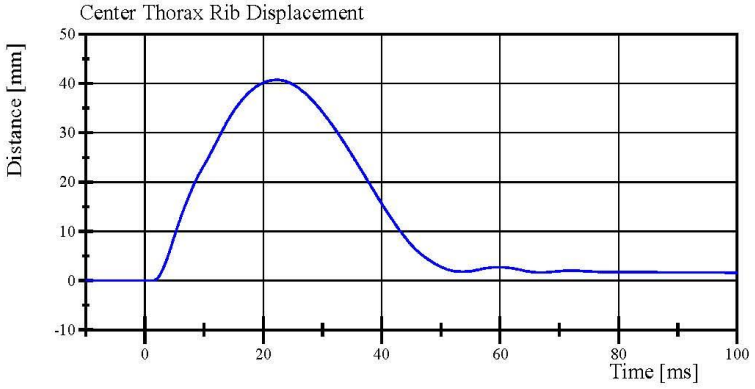
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Upper Thorax Rib Displacement



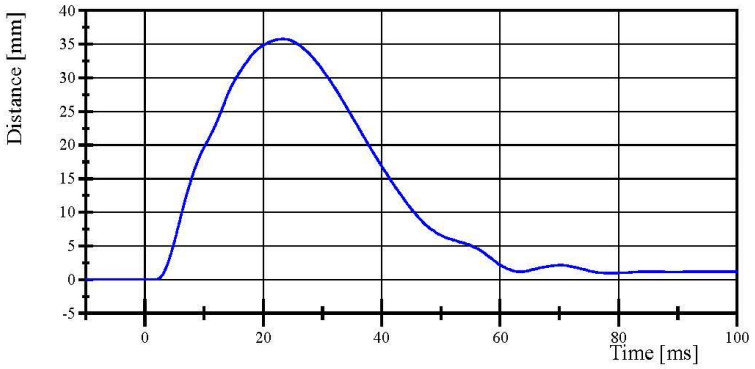
Filter Class: CFC_600
Max: 36.9 mm at 21.6 ms
Min: -0.0 mm at 1.2 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 40.7 mm at 22.2 ms
Min: -0.0 mm at -4.2 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 35.7 mm at 23.4 ms
Min: -0.0 mm at -5.9 ms

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

05.07.2018 07:57:34 841

Transportation Research Center Inc.

Left Lateral Abdomen
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	43 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-12.7 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	45.0 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	41.1 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.03 g	Yes

Test meets specifications.

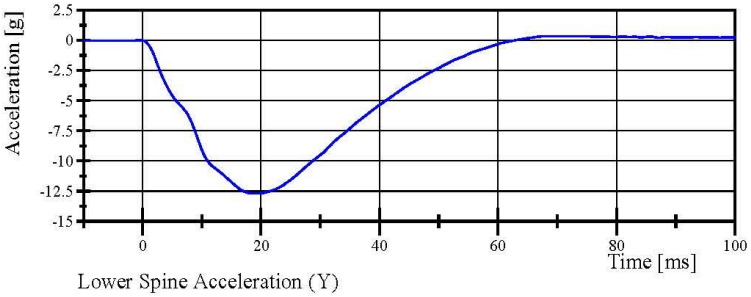
Condition: Used

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.

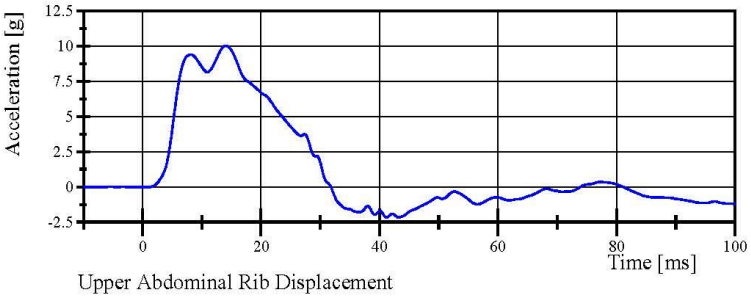
Left Lateral Abdomen
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Probe Acceleration



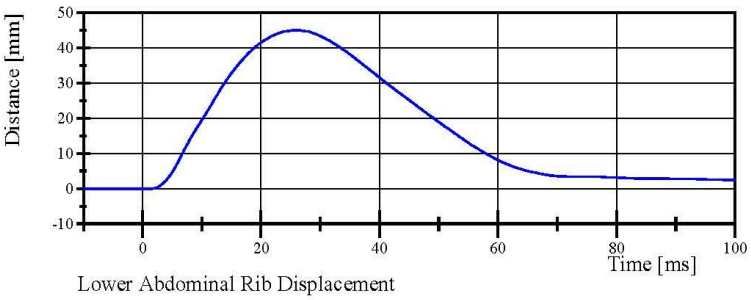
Filter Class: CFC_180
Max: 0.3 g at 68.1 ms
Min: -12.7 g at 19.0 ms

Lower Spine Acceleration (Y)



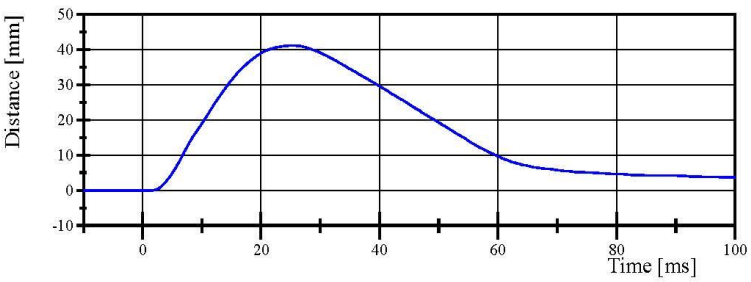
Filter Class: CFC_180
Max: 10.0 g at 14.0 ms
Min: -2.2 g at 41.2 ms

Upper Abdominal Rib Displacement



Filter Class: CFC_600
Max: 45.0 mm at 25.9 ms
Min: -0.0 mm at 0.7 ms

Lower Abdominal Rib Displacement



Filter Class: CFC_600
Max: 41.1 mm at 25.2 ms
Min: -0.0 mm at 0.5 ms

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

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Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.62 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-40.72 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	34.4 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,794.6 N	Yes

Test meets specifications.

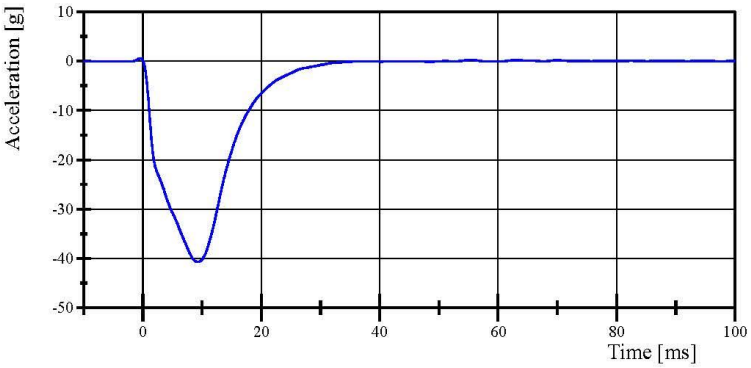
Condition: Used

Comments:
Pelvis Skin S/N: 884
Pelvis Plug Info:
Manufacturer: SACO
S/N: 11487
Cal Date: 20160831

Transportation Research Center Inc.

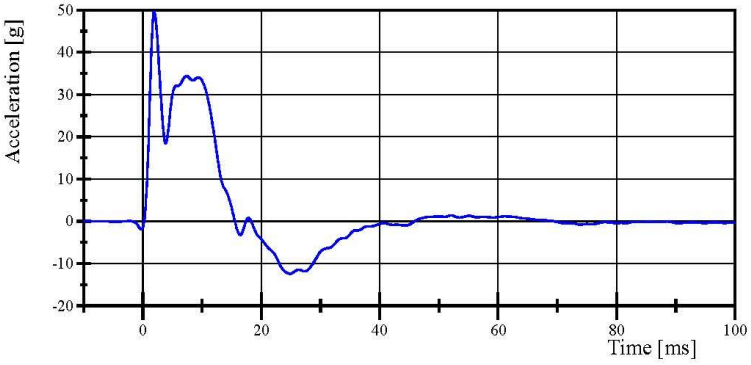
Left Lateral Pelvis
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Probe Acceleration



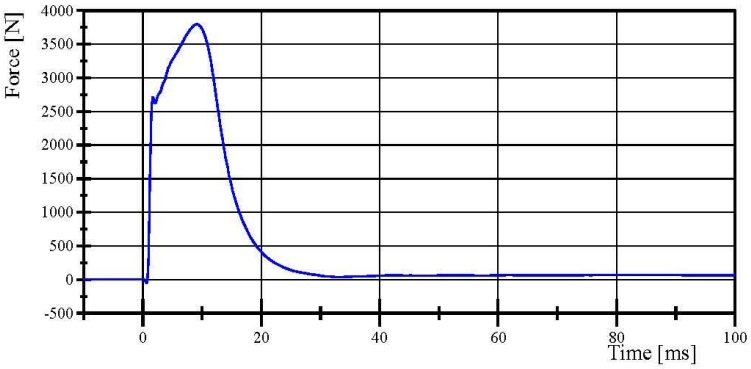
Filter Class: CFC_180
Max: 0.6 g at -0.4 ms
Min: -40.7 g at 9.3 ms

Pelvis Y-Axis Acceleration



Filter Class: CFC_180
Max: 49.7 g at 1.9 ms
Min: -12.4 g at 24.8 ms

Acetabulum Y-Axis Force



Filter Class: CFC_600
Max: 3,794.6 N at 9.1 ms
Min: -47.7 N at 0.6 ms

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

05.07.2018 09:38:00 408

Transportation Research Center Inc.

Left Lateral Iliac
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.36 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-37.6 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	29.9 g	Yes
Iliac Force	4,100 - 5,100 N	4,404.6 N	Yes

Test meets specifications.

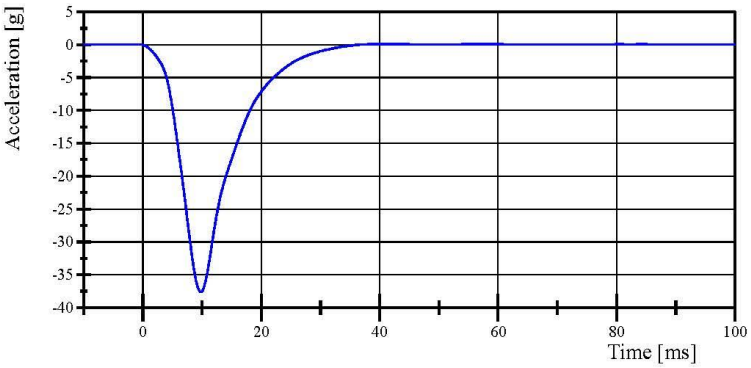
Condition: Used

Comments:
Pelvis Skin S/N: 884

Transportation Research Center Inc.

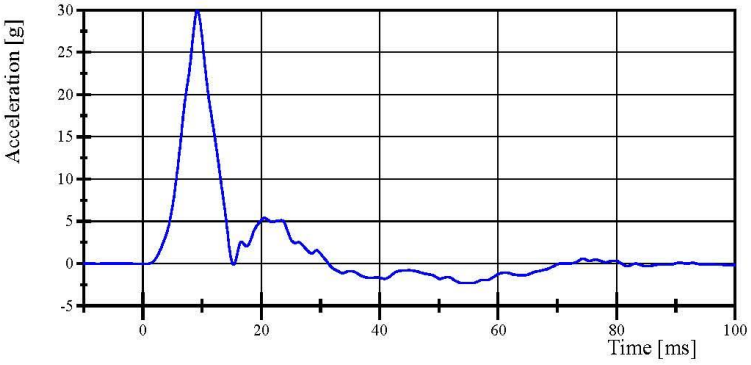
Left Lateral Iliac
SID IIs Serial No. 305 Certification No. 65-1
Test Date: 5/7/2018

Probe Acceleration



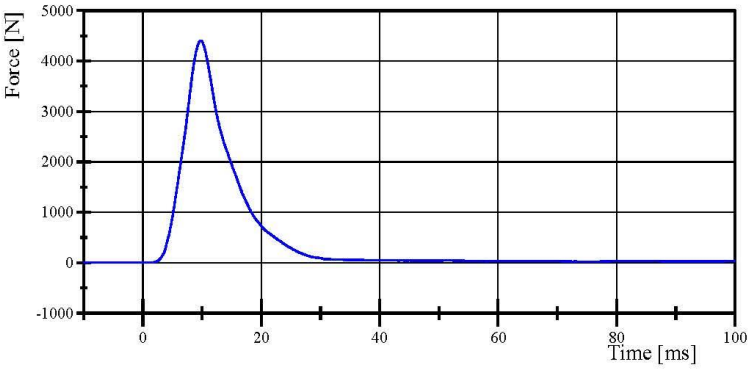
Filter Class: CFC_180
Max: 0.1 g at 39.4 ms
Min: -37.6 g at 9.8 ms

Pelvis Y-Axis Acceleration



Filter Class: CFC_180
Max: 29.9 g at 9.2 ms
Min: -2.3 g at 55.4 ms

Iliac Y-Axis Force



Filter Class: CFC_600
Max: 4,404.6 N at 9.8 ms
Min: -1.0 N at -9.0 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)				11415	SACO	29-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	P97719	Endevco	23-Apr-2018
	Vehicle Center of Gravity	Y	P88043	Endevco	23-Apr-2018
	Vehicle Center of Gravity	Z	P94740	Endevco	23-Apr-2018
2	Right Sill at Front Seat	X	P58611	Endevco	14-Nov-2017
	Right Sill at Front Seat	Y	P76454	Endevco	14-Nov-2017
	Right Sill at Front Seat	Z	P61295	Endevco	14-Nov-2017
3	Right Sill at Rear Seat	X	P94485	Endevco	13-Nov-2017
	Right Sill at Rear Seat	Y	P97716	Endevco	14-Mar-2018
	Right Sill at Rear Seat	Z	P56615	Endevco	13-Apr-2018
4	Left Sill at Front Door	Y	P88453	Endevco	8-Nov-2017
5	Left Sill at Rear Door	Y	P94567	Endevco	13-Apr-2018
6	Left A-Post Lower	Y	P85452	Endevco	13-Apr-2018
7	Left A-Post Middle	Y	P73220	Endevco	13-Apr-2018
8	Left B-Post Lower	Y	P88038	Endevco	30-Apr-2018
9	B-Post Middle	Y	P94580	Endevco	30-Apr-2018
10	Front Seat Track	Y	P94561	Endevco	13-Apr-2018
11	Rear Seat Track or Structure	Y	P97620	Endevco	13-Apr-2018
12	Right Rear Occupant Compartment	Y	P73570	Endevco	30-Apr-2018
13	Engine Block	X	P88455	Endevco	14-Mar-2018
	Engine Block	Y	P87583	Endevco	14-Mar-2018
14	Rear Floorpan Above Axle	X	P94577	Endevco	13-Nov-2017
	Rear Floorpan Above Axle	Y	P75115	Endevco	14-Nov-2017
	Rear Floorpan Above Axle	Z	P41055	Endevco	13-Nov-2017

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