

FINAL REPORT NUMBER: SINCAP-TRC-18-001

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

**GENERAL MOTORS DE MEXICO, S. DE R.L. DE C.V.
2018 Chevrolet Equinox SUV
NHTSA NUMBER: M20180106**

**PREPARED BY:
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Report Date: November 10, 2017

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 Approved By: 

John Shultz

Approval Date: November 10, 2017

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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16. Abstract This 55 / 28 km/h 90° Moving Deformable Barrier SINCAP Side Impact Test was conducted on the subject 2018 Chevrolet Equinox 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 October 5, 2017. The impact velocity of the Moving Deformable Barrier (MDB) was 62.41 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 20.9° C. The target vehicle post-test maximum crush was 269 mm at Level 3. The test vehicle's performance was as follows: <table border="1"> <thead> <tr> <th colspan="4">Driver ATD (ES-2re)</th> </tr> <tr> <th>Measurement Description</th><th>Units</th><th>IARV</th><th>Result</th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td><td>N/A</td><td>1000</td><td>72</td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>44</td><td>25.7</td></tr> <tr> <td>Total Abdominal Force</td><td>N</td><td>2500</td><td>871.4</td></tr> <tr> <td>Pubic Symphysis Force</td><td>N</td><td>6000</td><td>-1225.8</td></tr> <tr> <td>Lower Spine Acceleration</td><td>G</td><td>82*</td><td>27.2</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="4">Passenger ATD (SID-IIs)</th> </tr> <tr> <th>Measurement Description</th><th>Units</th><th>IARV</th><th>Result</th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td><td>N/A</td><td>1000</td><td>186</td></tr> <tr> <td>Lower Spine Resultant Acceleration</td><td>g's</td><td>82</td><td>62.5</td></tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td><td>N</td><td>5525</td><td>5087.2</td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>38*</td><td>31.0</td></tr> <tr> <td>Maximum Abdominal Rib Deflection</td><td>mm</td><td>45*</td><td>31.5</td></tr> </tbody> </table> * 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.				Driver ATD (ES-2re)				Measurement Description	Units	IARV	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	72	Maximum Thoracic Rib Deflection	mm	44	25.7	Total Abdominal Force	N	2500	871.4	Pubic Symphysis Force	N	6000	-1225.8	Lower Spine Acceleration	G	82*	27.2	Passenger ATD (SID-IIs)				Measurement Description	Units	IARV	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	186	Lower Spine Resultant Acceleration	g's	82	62.5	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	5087.2	Maximum Thoracic Rib Deflection	mm	38*	31.0	Maximum Abdominal Rib Deflection	mm	45*	31.5
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SECTION 1
TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test was conducted as part of the MY 2018 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-14-D-00354. The purpose of this test is to generate comparative side impact performance in a 2018 Chevrolet Equinox 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 Chevrolet Equinox 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 62.41 km/h (38.78 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 October 5, 2017. Pre-test and post-test photographs of the test vehicle and the MDB and the dummies (ES-2-re and SID-IIs) are included in this report.

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

The dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

Primary and redundant head CG tri-axial accelerometers

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

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

Lower spine (T12) tri-axial accelerometers

Pubic symphysis y-axis load cell

PASSENGER ATD (SID-IIs)

Primary and redundant head CG triaxial accelerometers

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

Abdomen upper rib and lower rib y-axis displacement potentiometers

Lower spine (T12) tri-axial accelerometers

Acetabulum and iliac wing y-axis load cells

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

Dummy injury readings were recorded as follows:

Measurement Description	Driver ATD (ES-2-re)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	72
Maximum Thoracic Rib Deflection	mm	44	25.7
Combined Abdominal Force	N	2500	871.4
Pubic Symphysis Force	N	6000	-1225.8
Lower Spine (T12) Resultant Acceleration	G	82*	27.2

* Proposed IARV

Measurement Description	Passenger ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	186
Lower Spine (T12) Resultant Acceleration	G	82	62.5
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	5087.2
Maximum Thoracic Rib Deflection	mm	38*	31.0
Maximum Abdominal Rib Deflection	mm	45*	31.5

* Proposed IARV

Supplemental Restraint Information is given below:

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

GENERAL COMMENTS

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.

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2018 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20180106
Model Year	2018
Make	Chevrolet
Model	Equinox LS
Body Style	MPV
VIN	3GNAXHEV8JL130221
Body Color	Nightfall Gray Metallic
Odometer Reading (km/mi)	14 mi
Engine Displacement (L)	1.5
Type/No. Cylinders	Straight / 4
Engine Placement	Front Transverse
Transmission Type	Automatic
Transmission Speeds	6
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	No
Other Optional Feature	No
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear 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	GENERAL MOTORS DE MEXICO, S. DE R.L. DE C.V.
Date of Manufacture	07/17
Vehicle Type	MPV

GVWR (kg)	2025
GAWR Front (kg)	1175
GAWR Rear (kg)	1200

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	N/A	5
Capacity Weight (VCW) (kg)				493
DSC x 68.04 (kg)				340.2
Cargo Weight (RCLW) (kg)				152.8

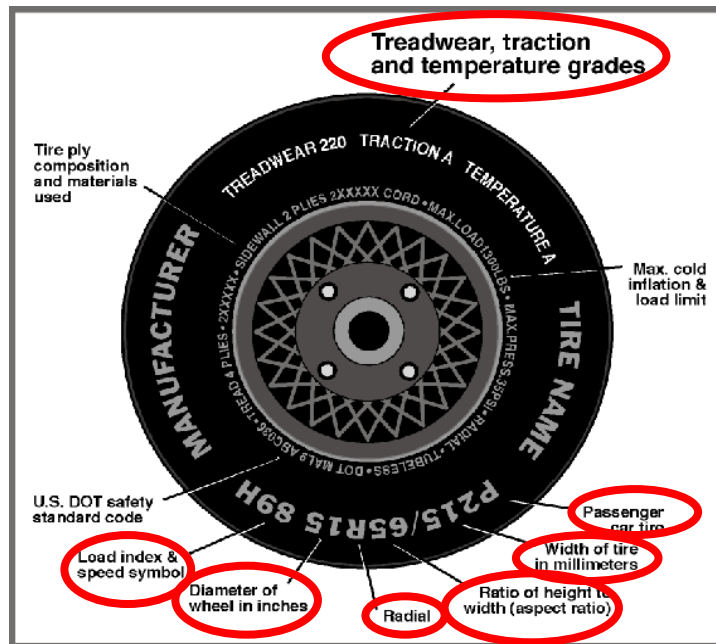
VEHICLE SEAT TYPE

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

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

Test Vehicle: 2018 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	240	240
Recommended Tire Size	255/65 R17	255/65 R17
Tire Size on Vehicle	255/65 R17	255/65 R17
Tire Manufacturer	Michelin	Michelin
Tire Model	Premier LTX	Premier LTX
Treadwear	620	620
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	102	102
Tire Material	Polyester, Polyamide, Steel	Polyester, Polyamide, Steel
DOT Safety Code Left	M33T 02VX 1717	M33T 02VX 1717
DOT Safety Code Right	M33T 02VX 1717	M33T 02VX 1717

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

Test Vehicle: 2018 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	221	221	221	207
Tire Placard	kPa	240	240	240	240
Owner's Manual	kPa	240	240	240	240
As Tested	kPa	240	240	240	240

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	456.0	321.6		502.6	428.0		494.6	438.8	
Right	kg	418.0	312.4		425.8	404.6		430.4	405.2	
Ratio	%	58.0	42.0		52.7	47.3		52.3	47.7	
Totals	kg	874.0	634.0	1508.0	928.4	832.6	1761.0	925.0	844.0	1769.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1508.0	(A)
Actual Weight of 1 P572V ATD (SID-ILs) Dummy Used	kg	125.0	(B)
Rated Cargo/Luggage Weight (RCLW) ¹	kg	136.0	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1769.0	(A+B+C)

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e.

Calculated Test Vehicle Target Weight – 4.5 kg to 9 kg)?

☒ YES

☐ NO

TEST VEHICLE ATTITUDES AND CG

Measurement Description	Units	Fully Loaded	As Tested	Meets Requirement
LF	mm	784	785	Yes
RF	mm	793	791	Yes
RR	mm	771	774	Yes
LR	mm	760	764	Yes
Vehicle CG (Aft of Front Axle)	mm	1302	1291	
Vehicle CG (Left(+)/Right(-) from Longitudinal Centerline)	mm	+44	+45	

***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	93.9
Removed: None	0.0

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

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

Test Vehicle: 2018 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17

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	13.1	17.4	15.2
Front Passenger Seat	10.9	15.0	12.9
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	N/A	N/A	16.9
Non-Struck Side Rear Seat	N/A	N/A	17.7
Rear Center Seat*	N/A	N/A	16.4

* 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	15.2	203	Max	N/A	N/A	N/A
			Mid	154	203	214
			Min	N/A	N/A	N/A
Front Passenger Seat	12.9	265	Max	N/A	N/A	N/A
			Mid	208	265	272
			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	16.9	221	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	17.7	223	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Rear Center Seat*	16.4	223	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A

* If applicable.

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2018 Chevrolet Equinox SUV

NHTSA No.: M20180106

Test Program: SINCAP Side Impact

Test Date: 10/5/17

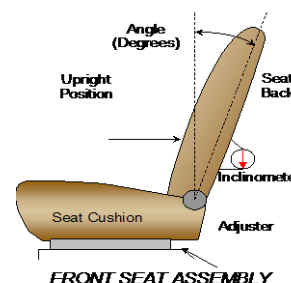
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents	mm	Detent
Driver Seat	240	25	120	12
Front Passenger Seat	240	25	120	12
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	N/A	Fixed	N/A
Non-Struck Side Rear Seat	Fixed	N/A	Fixed	N/A
Rear Center Seat*	Fixed	N/A	Fixed	N/A

* If applicable

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned 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	140	33	10.2	10
Front Passenger Seat	140	33	9.9	10
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat w/ Seated Dummy	4.9	2	0	0
Non-Struck Side Rear Seat	5.0	2	0	0
Rear Center Seat*	5.0	2	0	0

* If applicable

SEAT BELT ANCHORAGE ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	1, Fixed	1, Fixed
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	7, Numbered from 0 to 6	6, Uppermost
Rear Seat	4, Numbered from 0 to 3	1, Lowermost

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2018 Chevrolet Equinox SUV

NHTSA No.: M20180106

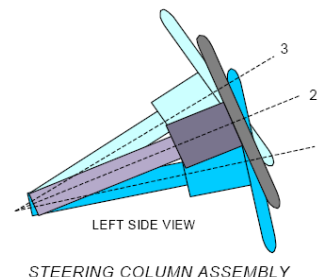
Test Program: SINCAP Side Impact

Test Date: 10/5/17

STEERING COLUMN ADJUSTMENT

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

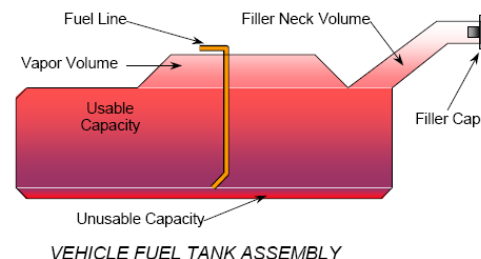
	Degrees	Fore/Aft Position (mm)
Lowermost, Position No. 1	25.7	120
Geometric Center, Position No. 2	27.3	145
Uppermost, Position No. 3	29.0	170
Telescoping Steering Wheel Travel		50
Test Position	27.3	145



FUEL PUMP

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

The fuel pump will activate when the ignition is in the 'Run' position. When the working fuel system pressure is achieved; the pump will turn OFF.



FUEL TANK CAPACITY

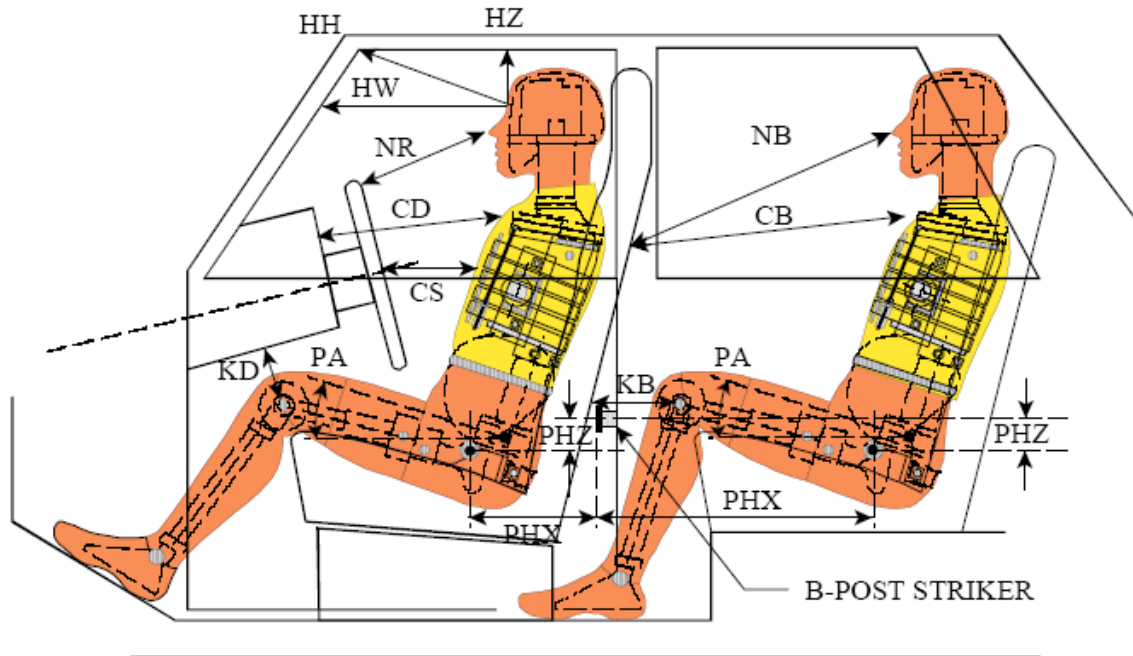
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	56.3
Usable Capacity of "Optional Tank" (see Form No. 1)	59.0
Usable Capacity of Standard Tank (see Owner's Manual)	56.0
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	52.4
Actual Amount of Solvent Used in Test	52.4
1/3 of Usable Capacity	18.8

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

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2018 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17



LEFT SIDE VIEW

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

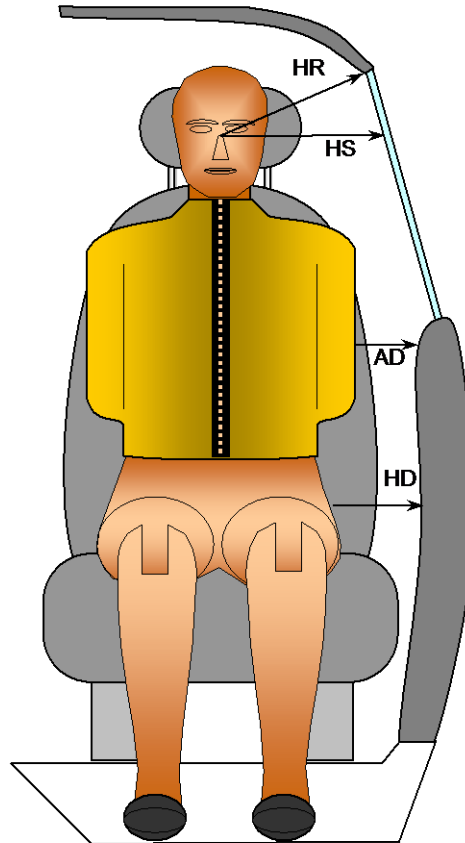
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle	Length (mm)	Angle
HH		Header to Header	474			
HW		Header to Windshield	741			
HZ	HZ	Head to Roof Liner	230		296	
NR	NB	Nose to Rim/Seat Back	510		643	
CD	CB	Chest to Dash/Seat Back	603		593	
CS		Chest to Steering Wheel	412			
KD(L)/KDA(L) ^o	KB(L)/KBA(L) ^o	Left Knee to Dash/Seat Back	174	28.8	291	16.2
KD(R)/KDA(R) ^o	KB(R)/KBA(R) ^o	Right Knee to Dash/Seat Back	148	28.6	295	16.2
PAX ^o	PAX ^o	Pelvic Tilt Angle X		0.4		0.1
	PAY ^o	Pelvic Tilt Angle Y				21.7
PHX	PHX	Hip Point to Striker (X-Axis)	129		192	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	120		184	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2018 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17



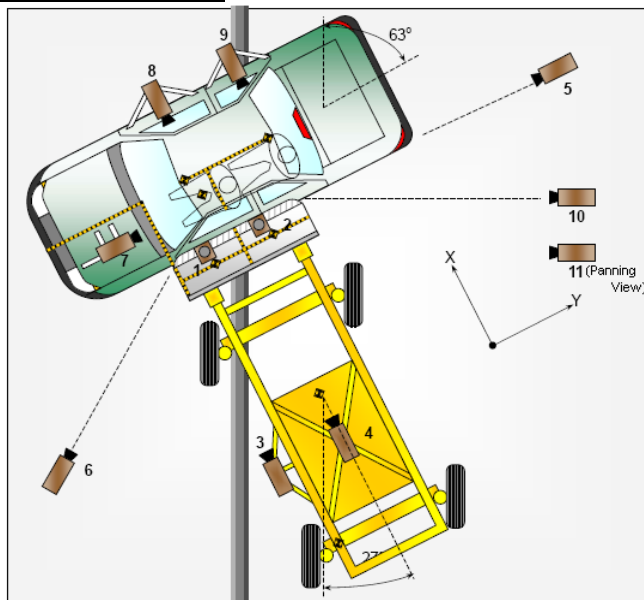
FRONT VIEW OF DUMMY

Code	Description	Units	Driver	Passenger
HR	Head to Side Header	mm	215	258
HS	Head to Side Window	mm	331	361
AD	Arm to Door	mm	87	158
HD	H-Point to Door	mm	156	177

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2018 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17



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)	1621	937	954	25	1000
4	Side Overall (MDB)	2448	0	1561	12.5	1000
5	Rear	0	7785	1362	20	1000
6	Left Front	4228	-4446	1243	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: Camera 3 and 4 triggered early.

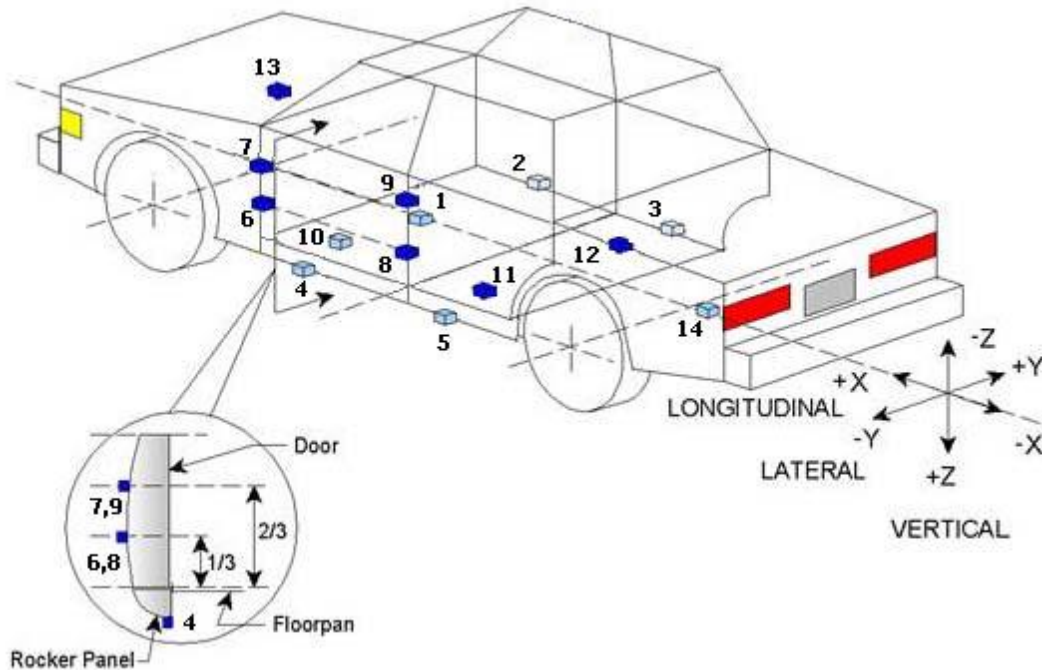
INSTRUMENTATION

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 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17



TEST VEHICLE ACCELEROMETER LOCATIONS

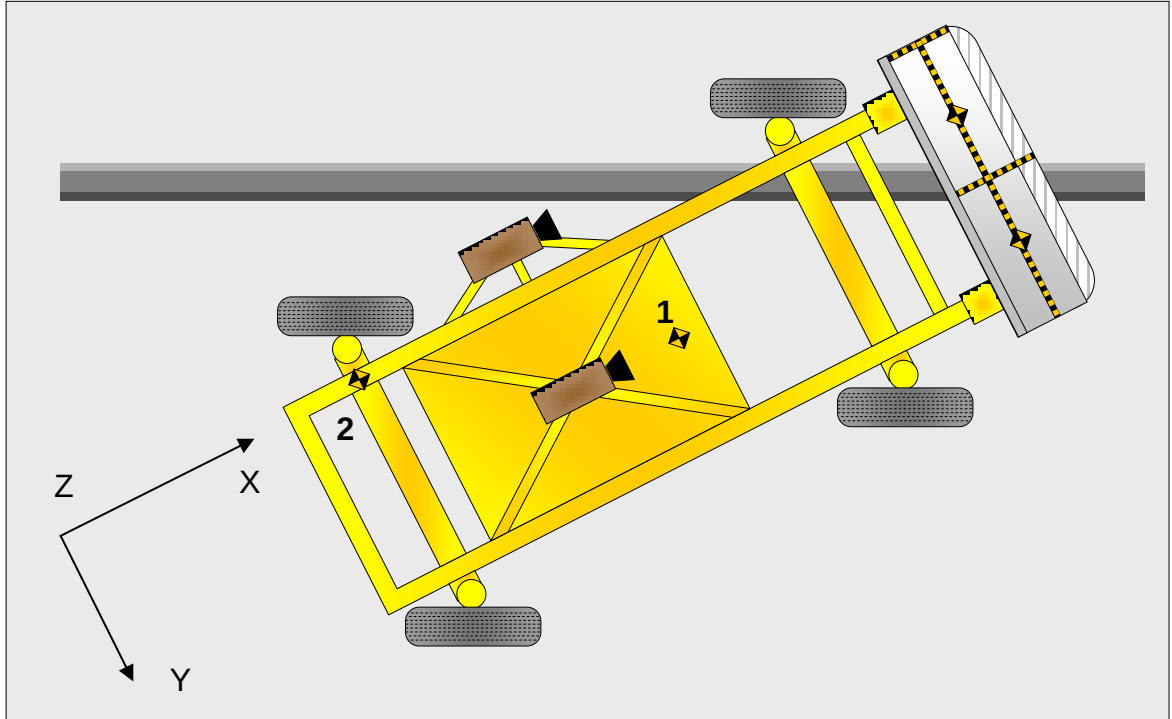
Loc. No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2943	137	-338
2	Right Sill at Front Seat	2903	757	-394
3	Right Sill at Rear Seat	1975	744	-310
4	Left Sill at Front Door	2893	757	-393
5	Left Sill at Rear Door	1911	746	-386
6	A-Post Lower	3180	872	-577
7	A-Post Middle	3190	874	-950
8	B-Post Lower	2135	851	-639
9	B-Post Middle	2170	847	-1006
10	Front Seat Track	2379	498	-484
11	Rear Seat Structure	1675	581	-468
12	Right Rear Occ. Compartment	1680	581	-316
13	Engine Block	3853	-10	-843
14	Rear Above Axle	1037	0	-530

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 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17



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 Chevrolet Equinox SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180106
Test Date: 10/5/17

TEST DUMMY INFORMATION AND CONTACT POINTS

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

POST-TEST DOOR PERFORMANCE

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

POST-TEST SEAT PERFORMANCE

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

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Good
Sill Separation	None
Windshield Damage	None
Side Window Damage	None
Other Notable Effects	None

DATA SHEET NO. 8 (CONTINUED)
POST TEST OBSERVATIONS

Test Vehicle: 2018 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	No	N/A		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	N/A
Side 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		2730
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		425
Actual Impact Point (Aft of Front Axle)	mm		421
Horizontal Offset (+ forward / - rearward)	mm	+/- 50 of Intended Impact point	+4
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact point	-4

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2018 Chevrolet Equinox SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180106
Test Date: 10/5/17

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	1109

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	402.4	277.8	680.2
Right	kg	377.6	305.8	683.4
Ratio	%	57.2	42.8	100.0
Totals	kg	780.0	583.6	1363.6

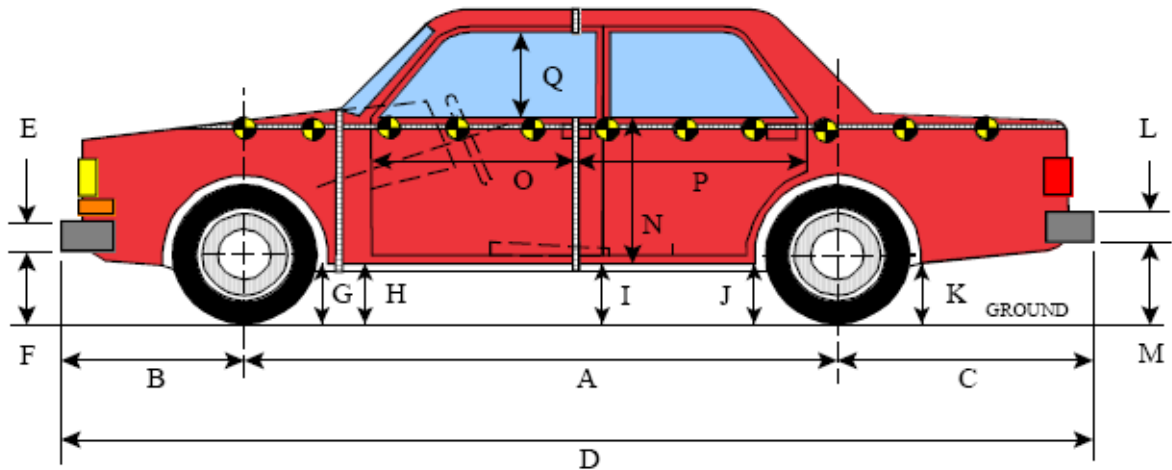
SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.41
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.45
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 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17



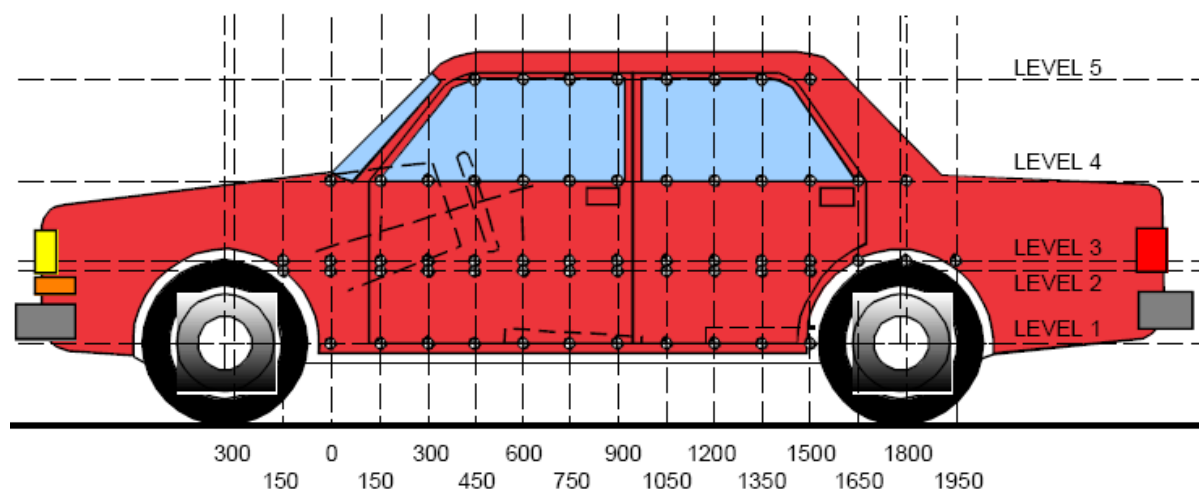
LEFT SIDE VIEW

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

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2730	2741	-11
B	Front Axle to Front Surface of Vehicle	950	954	-4
C	Rear Axle to Rear Surface of Vehicle	970	993	-23
D	Total Length at Centerline	4650	4688	-38
E	Front Bumper Thickness	113	113	0
F	Front Bumper Bottom to Ground	469	450	19
G	Sill Height at Front Wheel Well	198	232	-34
H	Sill Height at Front Door Leading Edge	253	N/A ¹	N/A ¹
I	Sill Height at B-Pillar	253	N/A ¹	N/A ¹
J1	Sill Height at Rear Wheel Well	248	318	-70
J2	Pinch Weld Height at Rear Wheel Well	223	287	-64
K	Sill Height Aft of Rear Wheel Well	261	331	-70
L	Rear Bumper Thickness	123	123	0
M	Rear Bumper Bottom to Ground	454	527	-73
N	Sill Height to Window Bottom Sill	871	803	68
O	Front Door Leading Edge to Impact CL	785	812	-27
P	Rear Door Trailing Edge to Impact CL	1430	1342	88
Q	Front Window Opening	445	441	4
R	Right Side Length	4470	4464	6
S	Left Side Length	4470	4512	-42
T	Vehicle Width	1840	1831	9

¹ The door sill level of the measurement grid was across plastic side panels that subsequently fell off during the test leaving this level unmeasurable.

DATA SHEET NO. 11**TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**Test Vehicle: 2018 Chevrolet Equinox SUVNHTSA No.: M20180106Test Program: SINCAP Side ImpactTest Date: 10/5/17**LEFT SIDE VIEW****MAXIMUM EXTERIOR CRUSH MEASUREMENTS**

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance From Impact
1	Sill Top ¹	391	N/A	N/A
2	Driver Hip Point	673	265	1650
3	Mid-Door	732	269	1650
4	Window Sill	1062	91	1350
5	Window Top	1600	2	1350

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

¹ The door sill level of the measurement grid was across plastic side panels that subsequently fell off during the test leaving this level unmeasurable.

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

Test Vehicle: 2018 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-300	0	0	0	794	0	0	0	0	793	0	0	0	0	1	0
-150	0	0	914	810	0	0	0	912	799	0	0	0	2	11	0
0	0	911	912	808	0	0	899	903	806	0	0	12	9	2	0
150	885	905	906	805	0	N/A ¹	799	804	811	0	N/A ¹	106	102	-6	0
300	885	901	902	814	0	N/A ¹	751	743	818	0	N/A ¹	150	159	-4	0
450	885	898	900	824	0	N/A ¹	712	715	822	0	N/A ¹	186	185	2	0
600	886	897	899	833	0	N/A ¹	694	699	825	0	N/A ¹	203	200	8	0
750	887	897	900	843	0	N/A ¹	701	692	829	0	N/A ¹	196	208	14	0
900	889	898	901	853	574	N/A ¹	706	700	831	576	N/A ¹	192	201	22	-2
1050	891	900	903	858	590	N/A ¹	720	741	823	590	N/A ¹	180	162	35	0
1200	891	900	903	862	593	N/A ¹	730	719	794	592	N/A ¹	170	184	68	1
1350	891	902	905	866	594	N/A ¹	698	682	775	592	N/A ¹	204	223	91	2
1500	890	905	908	868	595	N/A ¹	664	652	795	594	N/A ¹	241	256	73	1
1650	889	908	911	869	595	N/A ¹	643	642	811	594	N/A ¹	265	269	58	1
1800	889	911	914	867	592	N/A ¹	656	674	822	593	N/A ¹	255	240	45	-1
1950	0	911	916	865	589	0	885	789	825	588	0	26	127	40	1
2100	0	0	0	862	578	0	0	0	861	578	0	0	0	1	0
2250	0	0	0	858	550	0	0	0	916	549	0	0	0	-58	1
2400	0	0	0	851	0	0	0	0	847	0	0	0	0	4	0
2550	0	0	0	843	0	0	0	0	840	0	0	0	0	3	0
2700	0	0	0	832	0	0	0	0	832	0	0	0	0	0	0
2850	0	0	0	819	0	0	0	0	818	0	0	0	0	1	0

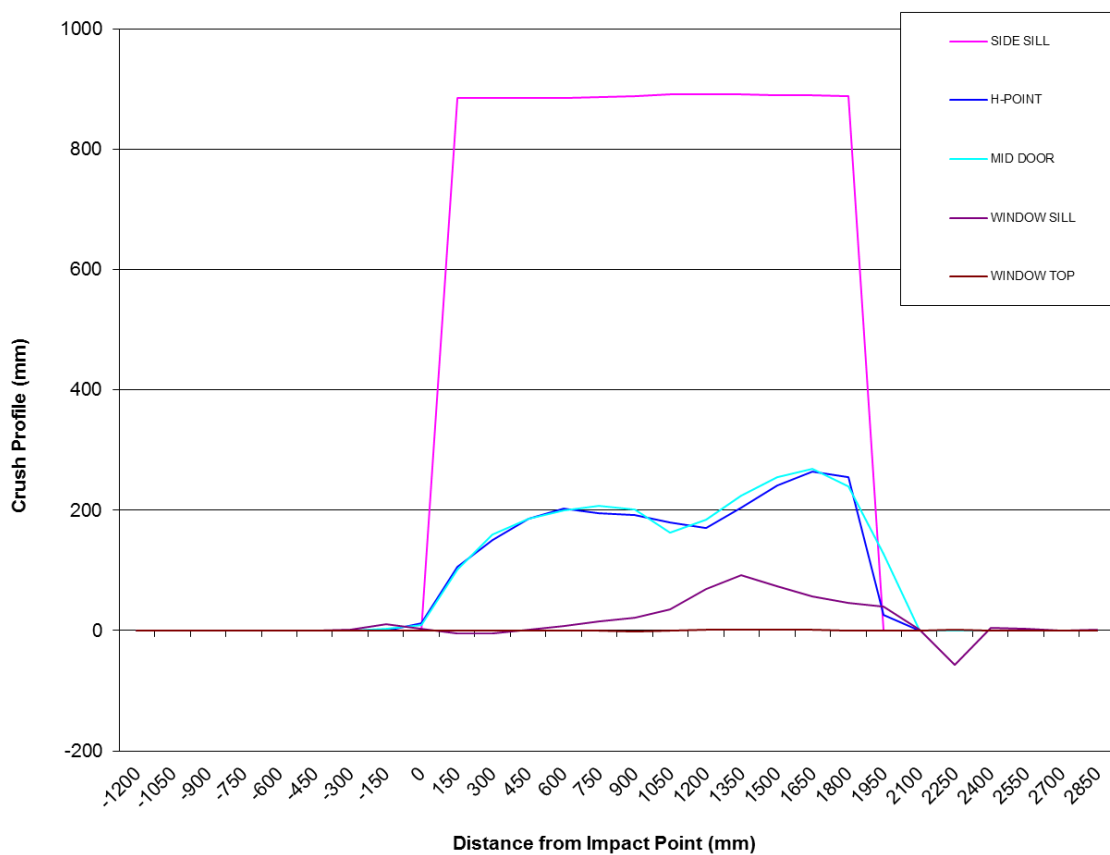
NOTE: Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point.

¹ The door sill level of the measurement grid was across plastic side panels that subsequently fell off during the test leaving this level unmeasurable.

DATA SHEET NO. 11 (CONTINUED)¹
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2018 Chevrolet Equinox SUV
Test Program: SINCAP Side Impact

NHTSA No.: M20180106
Test Date: 10/5/17

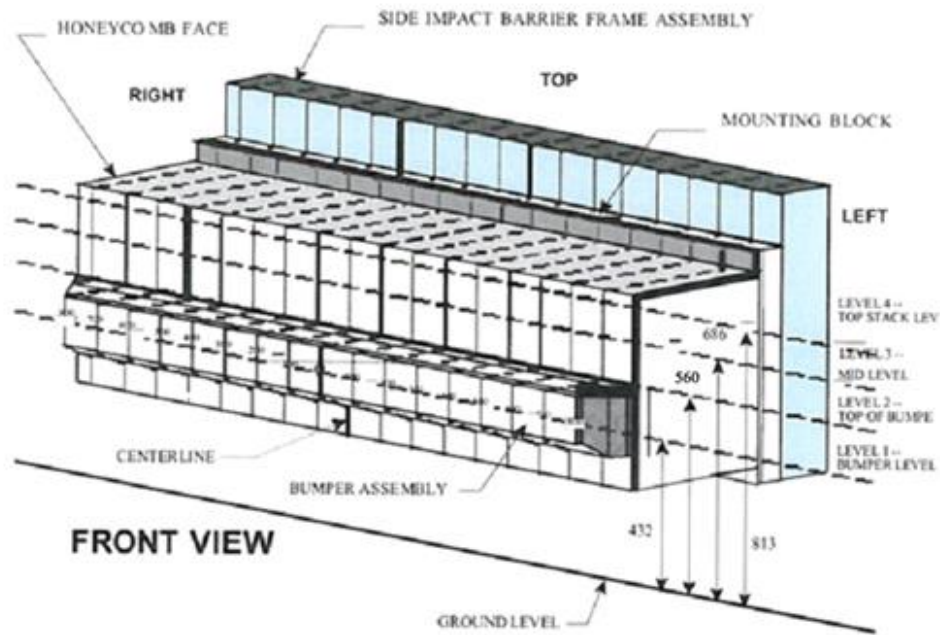


¹ The door sill level of the measurement grid was across plastic side panels that subsequently fell off during the test leaving this level unmeasurable.

DATA SHEET NO. 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2018 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17



NOTE: Dimensions are shown in millimeters, mm

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Left	234
B	Top of Bumper	560	200	Right	384
C	Mid-Level	686	800	Left	150
D	Top of Stack	813	800	Left	161

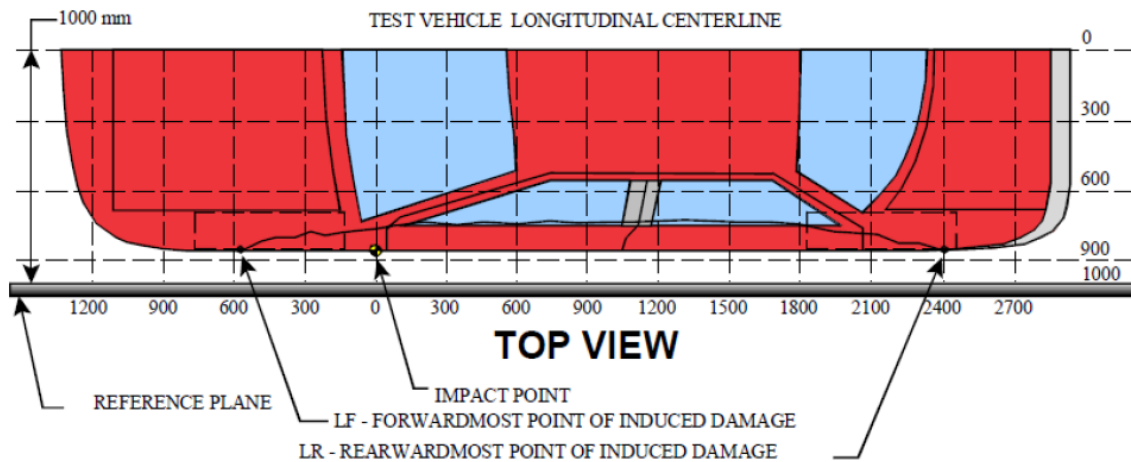
DEFORMABLE BARRIER STATIC CRUSH

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	208	203	200	201	202	203	204	205	207	208	208	209	210	211	214	223	234		
2	94	97	100	383	383	383	384	383	383	109	108	107	109	110	112	120	149		
3	52	28	30	38	53	68	84	72	61	42	39	38	43	57	74	103	150		
4	75	41	35	33	40	57	81	111	78	62	65	76	84	92	109	119	161		

DATA SHEET NO. 13
VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2018 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17



VEHICLE DAMAGE PROFILE DISTANCES¹

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	2850	4	818	819	1
2	2250	5	549	550	1
3	1650	3	642	911	269
4	900	3	700	901	201
5	300	3	743	902	159
6 ¹	-300	4	793	794	1

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	241	475	234
2	500 mm Left of Center	1	274	485	211
3	200 mm Left of Center	1	277	485	208
4	200 mm Right of Center	2	N/A ²	384	384
5	500 mm Right of Center	2	N/A ²	383	383
6	800 mm Right of Center	1	266	474	208

¹ The door sill level of the measurement grid was across plastic side panels that subsequently fell off during the test leaving this level unmeasurable.

² Missing MDB points 38 thru 43 post test.

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

Test Vehicle: 2018 Chevrolet Equinox SUV
 Test Program: SINCAP Side Impact

NHTSA No.: M20180106
 Test Date: 10/5/17

Test Time: 15:45 **Temperature:** 21.8°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

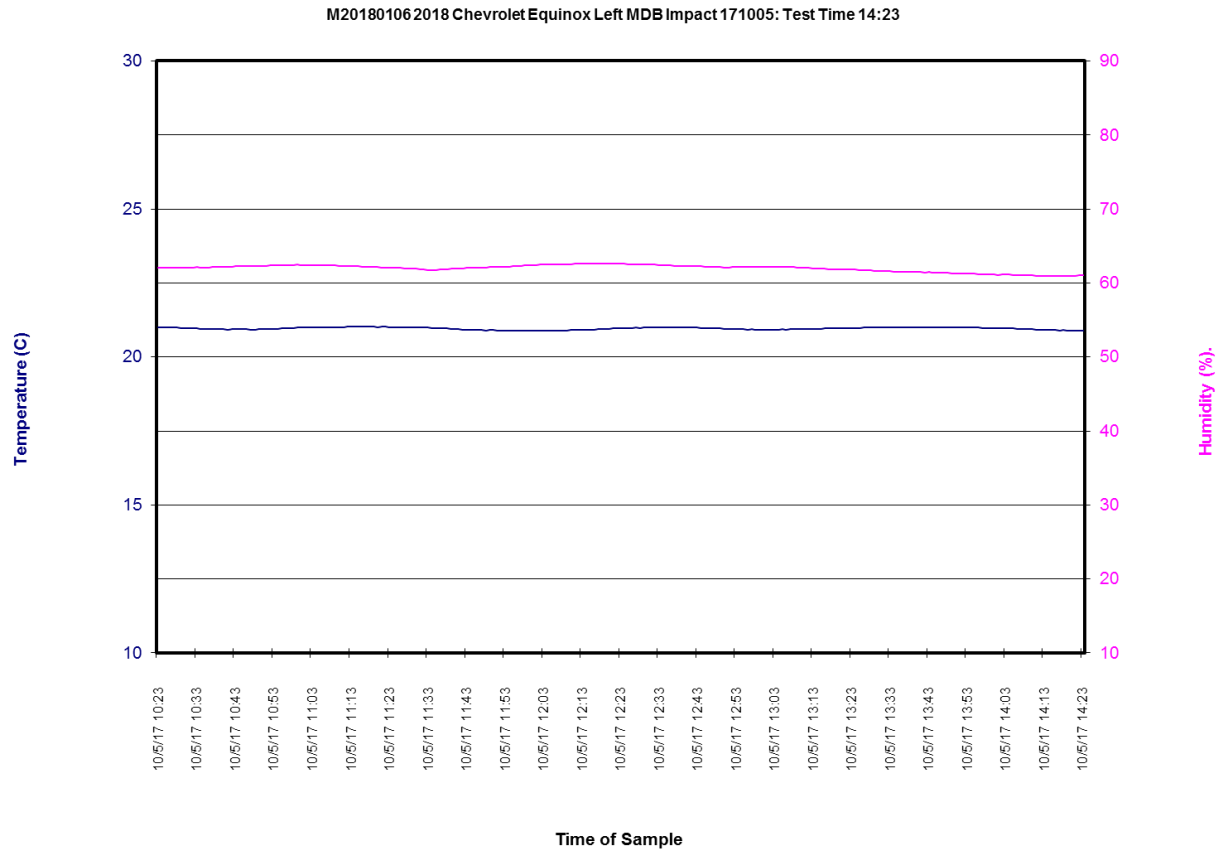
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	0	N/A
90 to 180	0	0	0	N/A
180 to 270	0	0	0	N/A
270 to 360	0	0	0	N/A

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: <u>2018 Chevrolet Equinox SUV</u>	NHTSA No.: <u>M20180106</u>
Test Program: <u>SINCAP Side Impact</u>	Test Date: <u>10/5/17</u>



APPENDIX A
PHOTOGRAPHS

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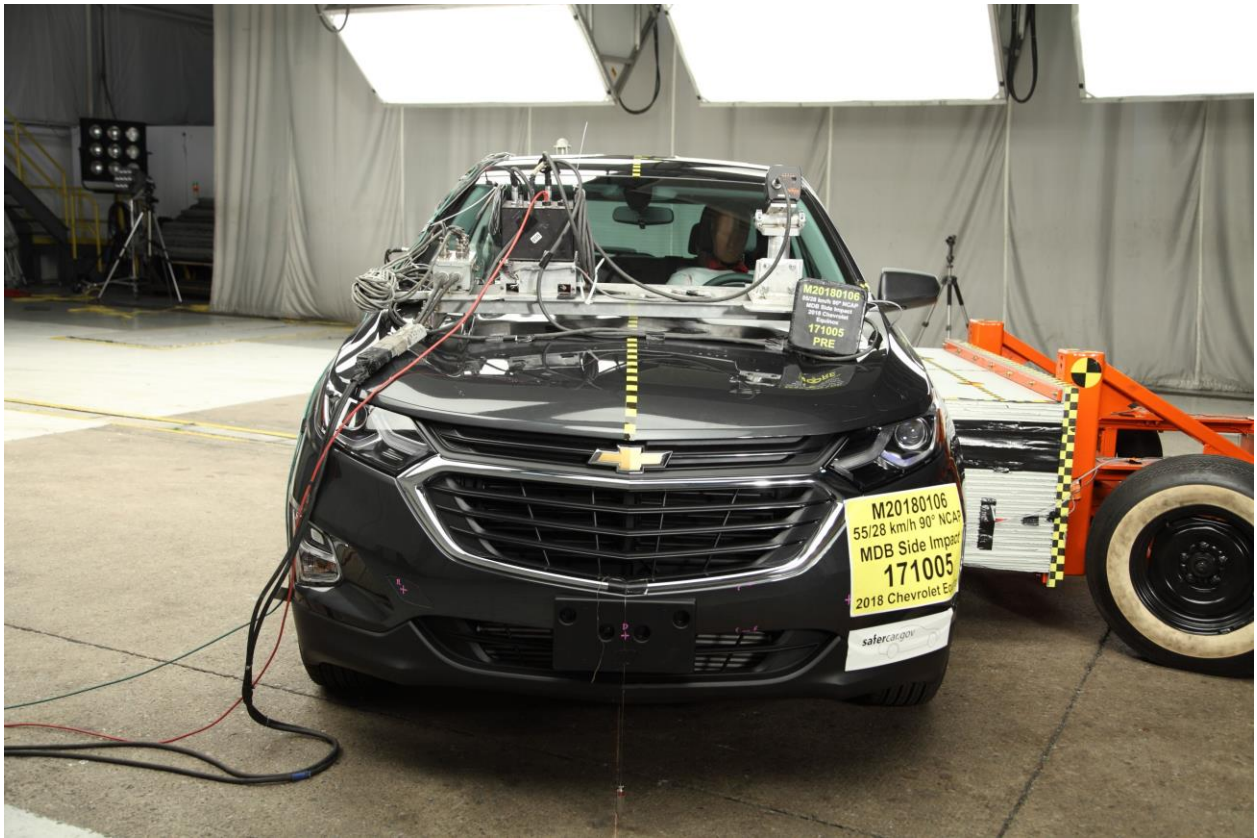
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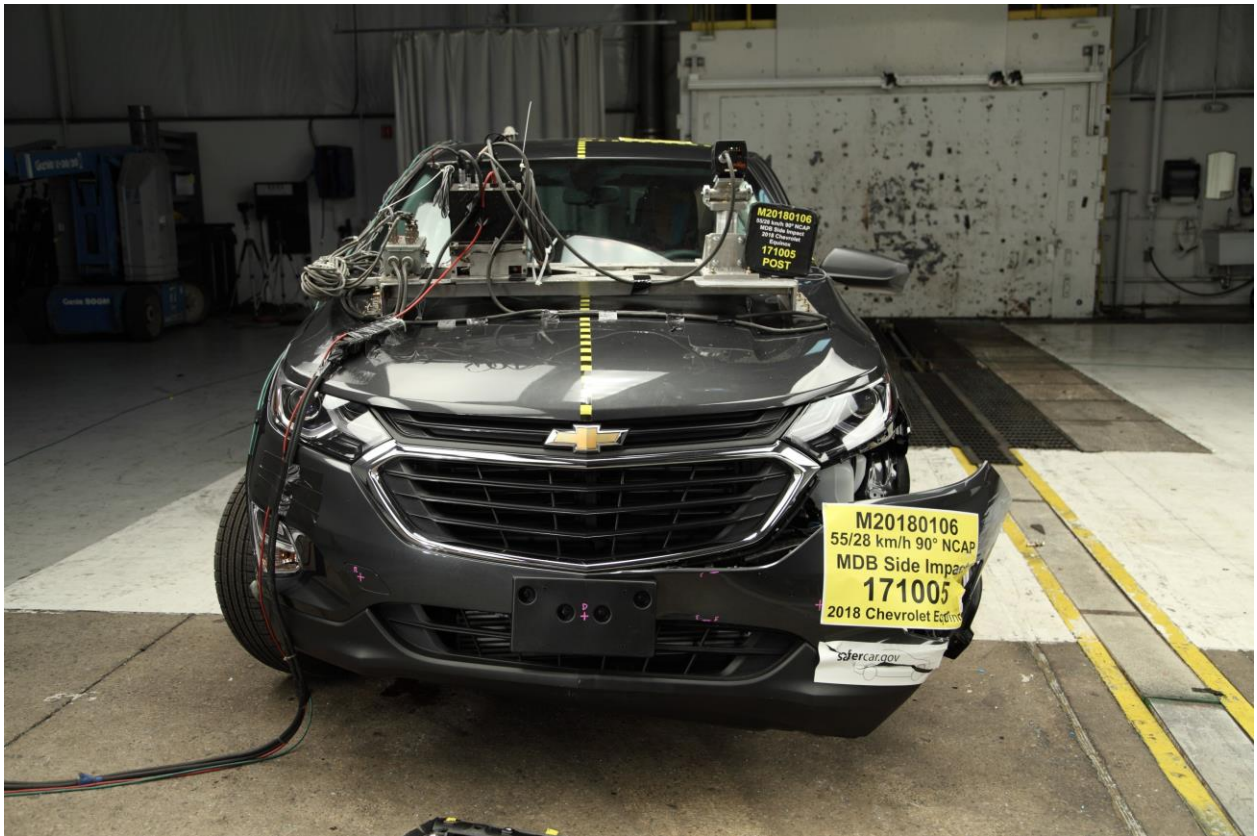
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002 As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



003 Pre-Test Frontal View of Test Vehicle



004 Post-Test Frontal View of Test Vehicle



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



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



010 Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



011 Pre-Test Rear View of Test Vehicle



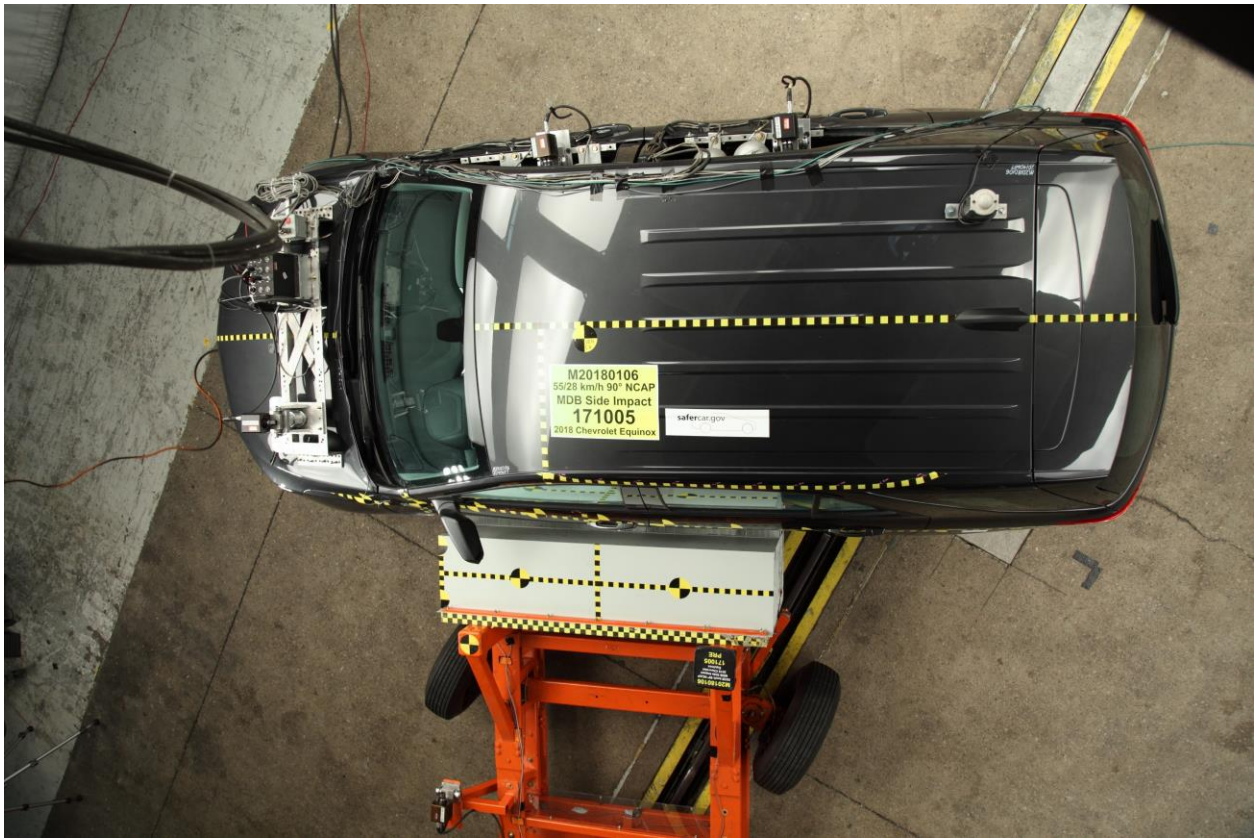
012 Post-Test Rear View of Test Vehicle



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 of MDB Positioned Against Side of Test Vehicle



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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

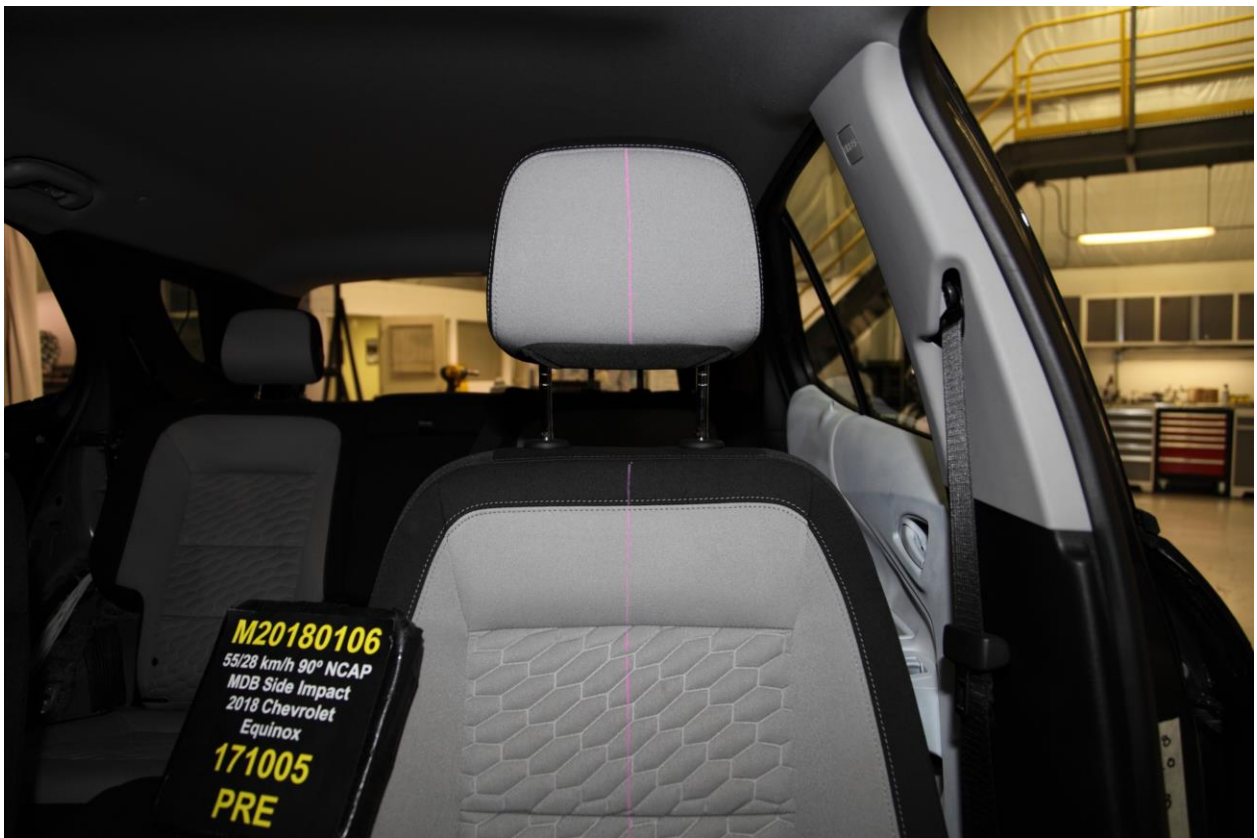
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028 Pre-Test Left Side View of Driver Dummy Shoulder and Door Top



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



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



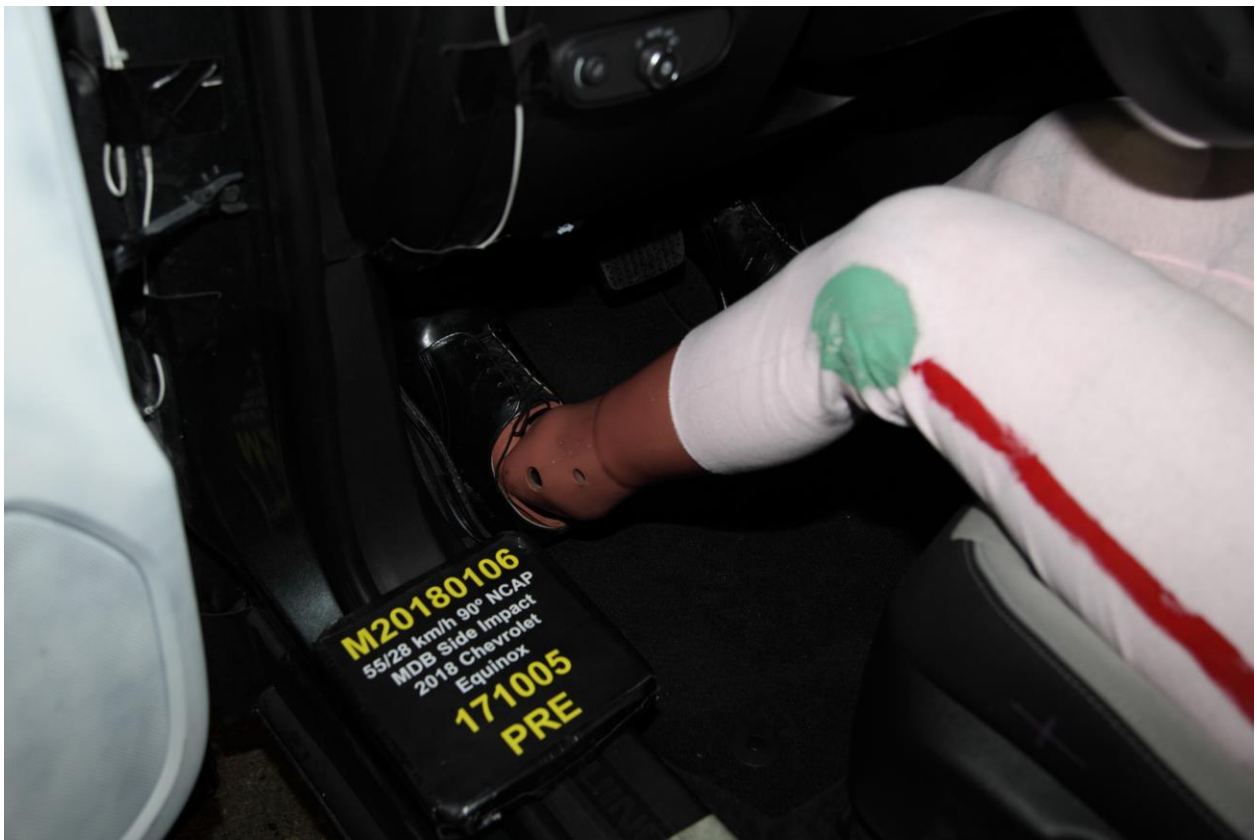
031 Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



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



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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



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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



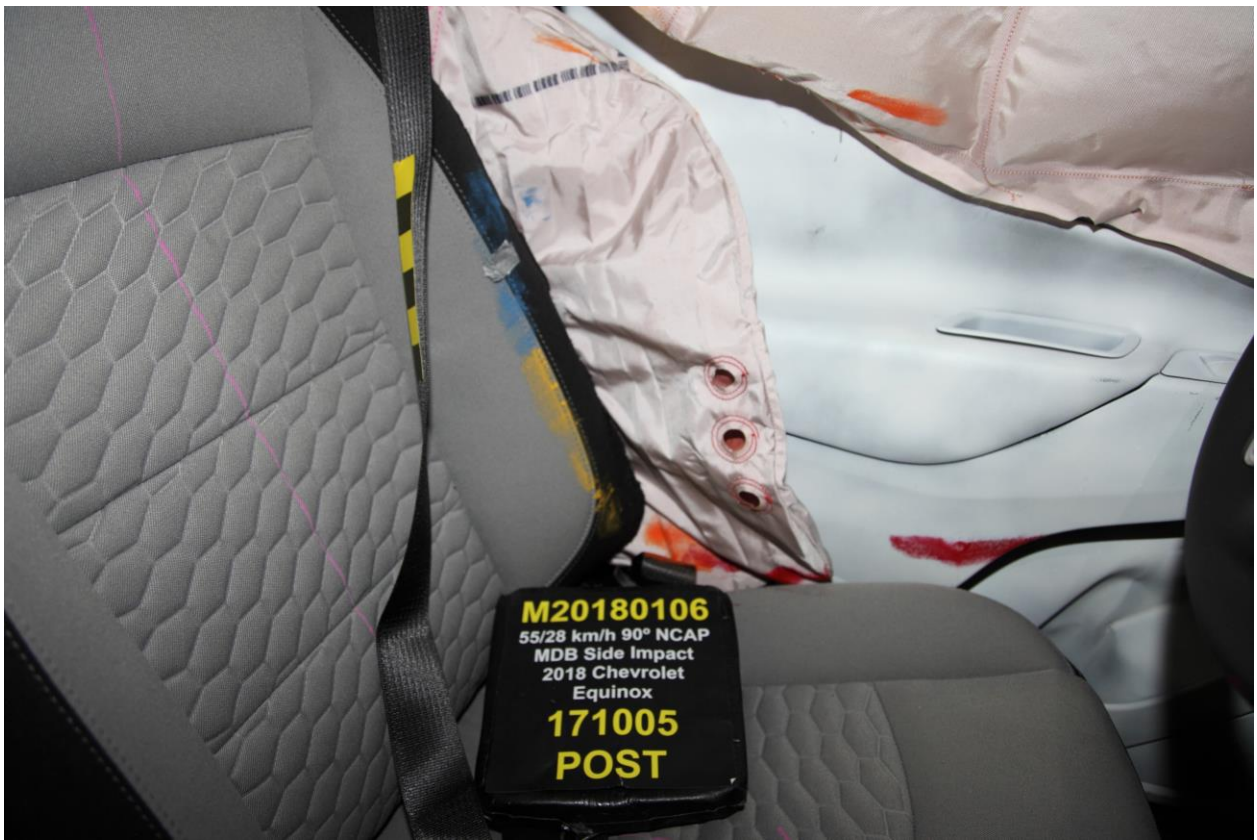
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049 Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View



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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



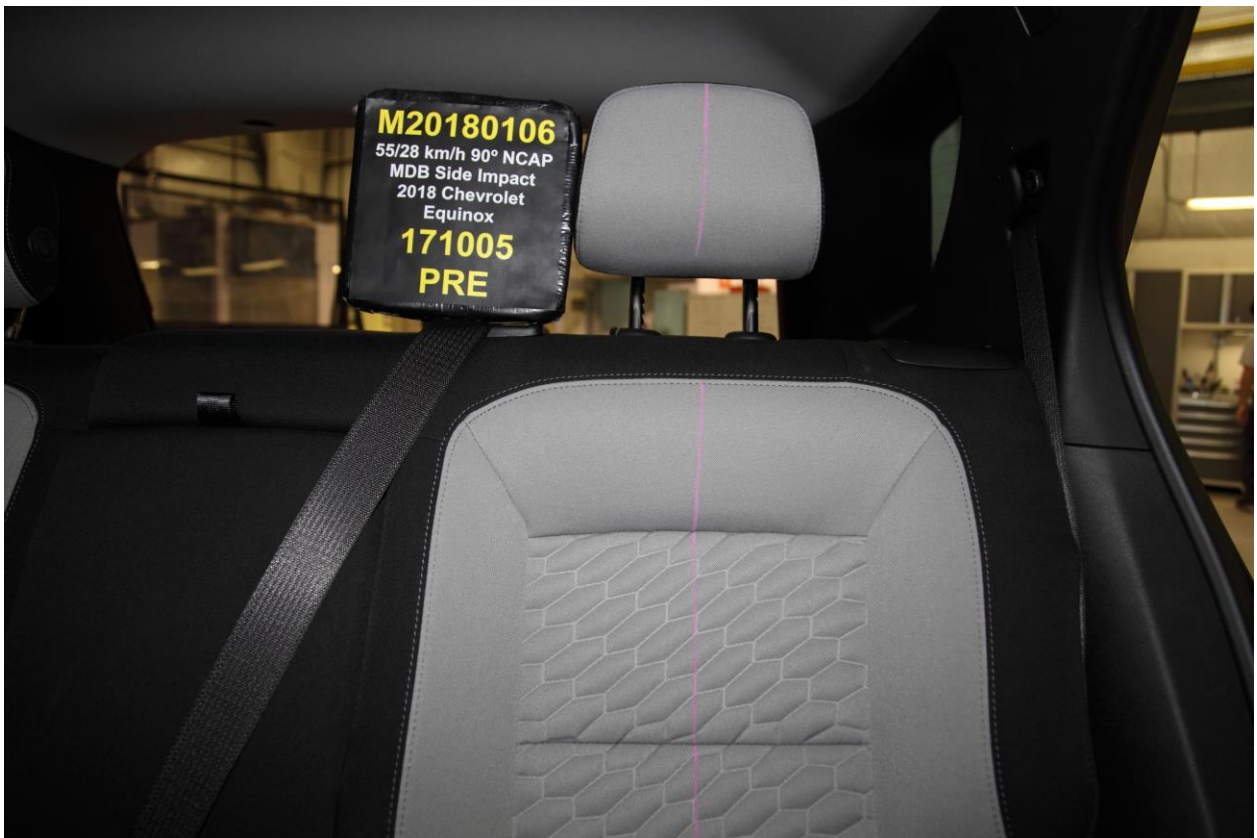
055 Pre-Test Left Side View of Passenger Dummy Showing Belt and Chalking



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



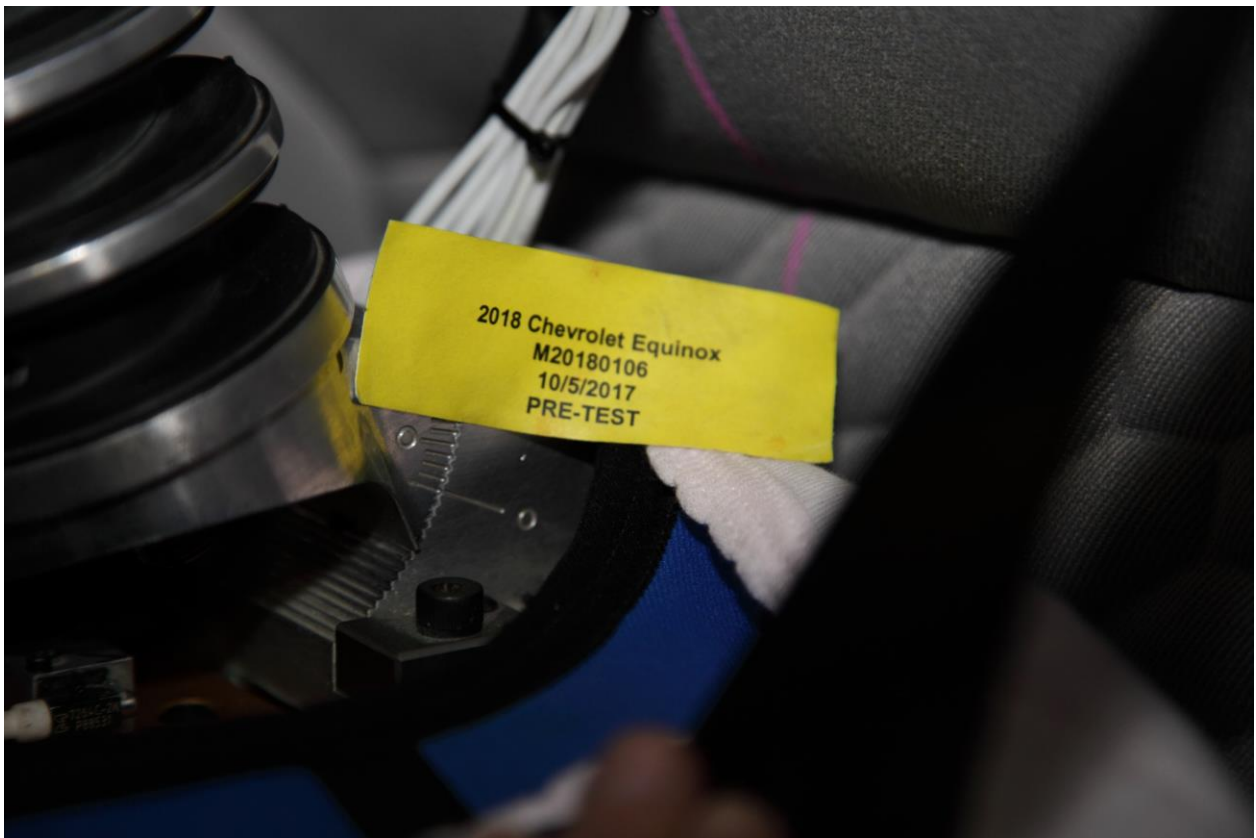
059 Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



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



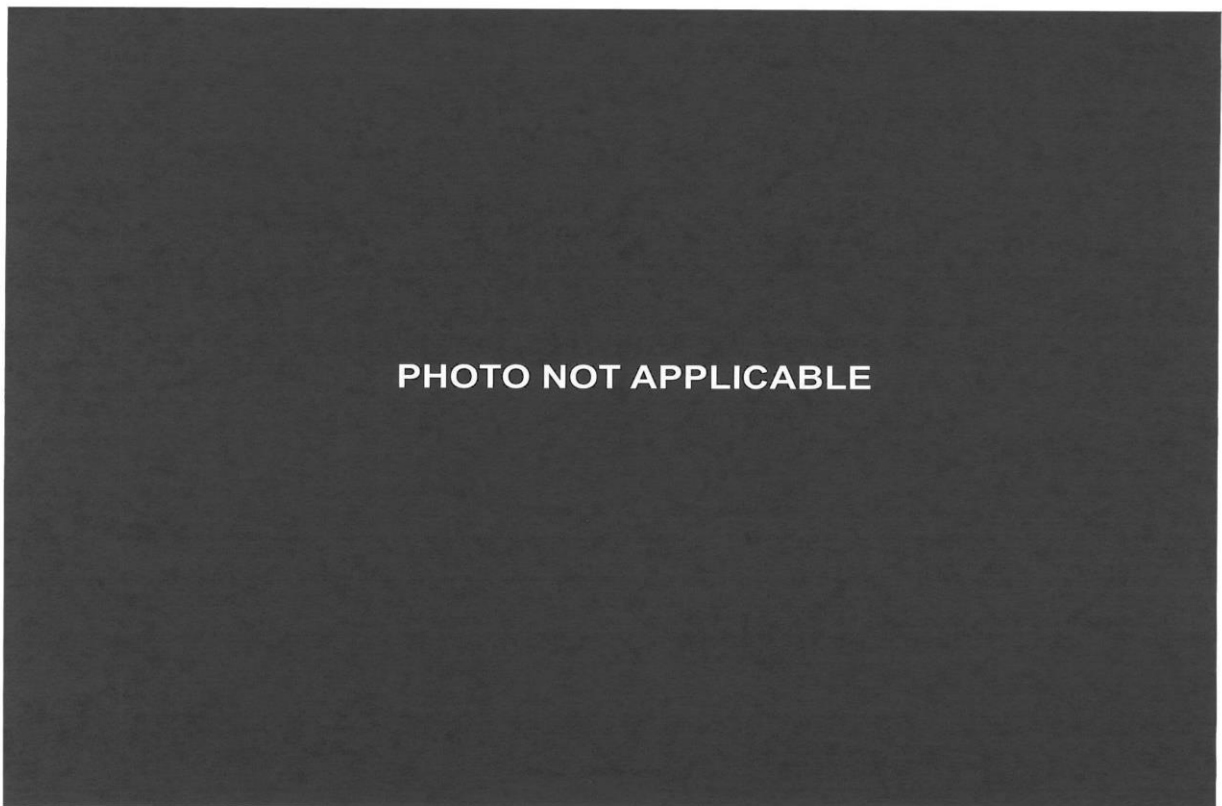
064 Pre-Test Placement of Rear Passenger Dummy's Feet



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

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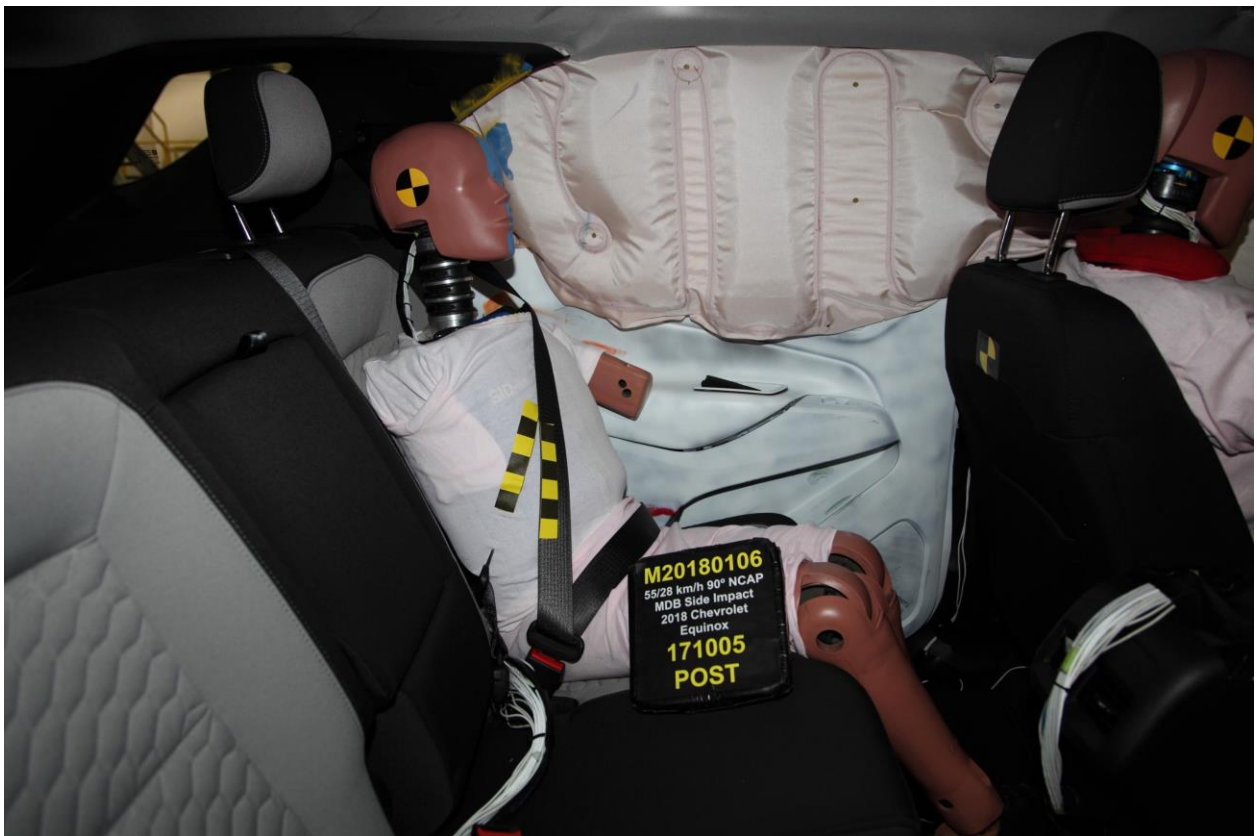
069 Pre-Test Passenger Dummy and Door Clearance View



070 Post-Test Passenger Dummy and Door Clearance View



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



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



073 Pre-Test Rear Passenger Inner Door Panel View



074 Post-Test Rear Passenger Inner Door Panel View



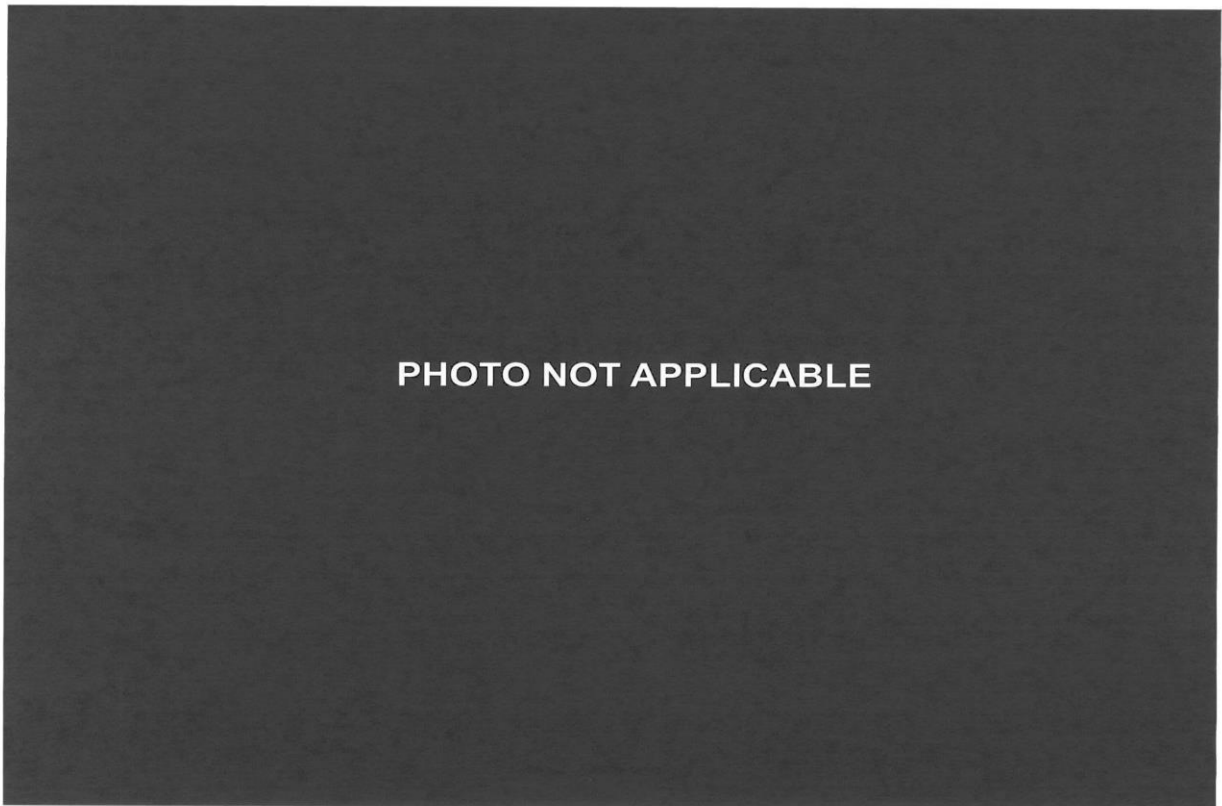
075 Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle View



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



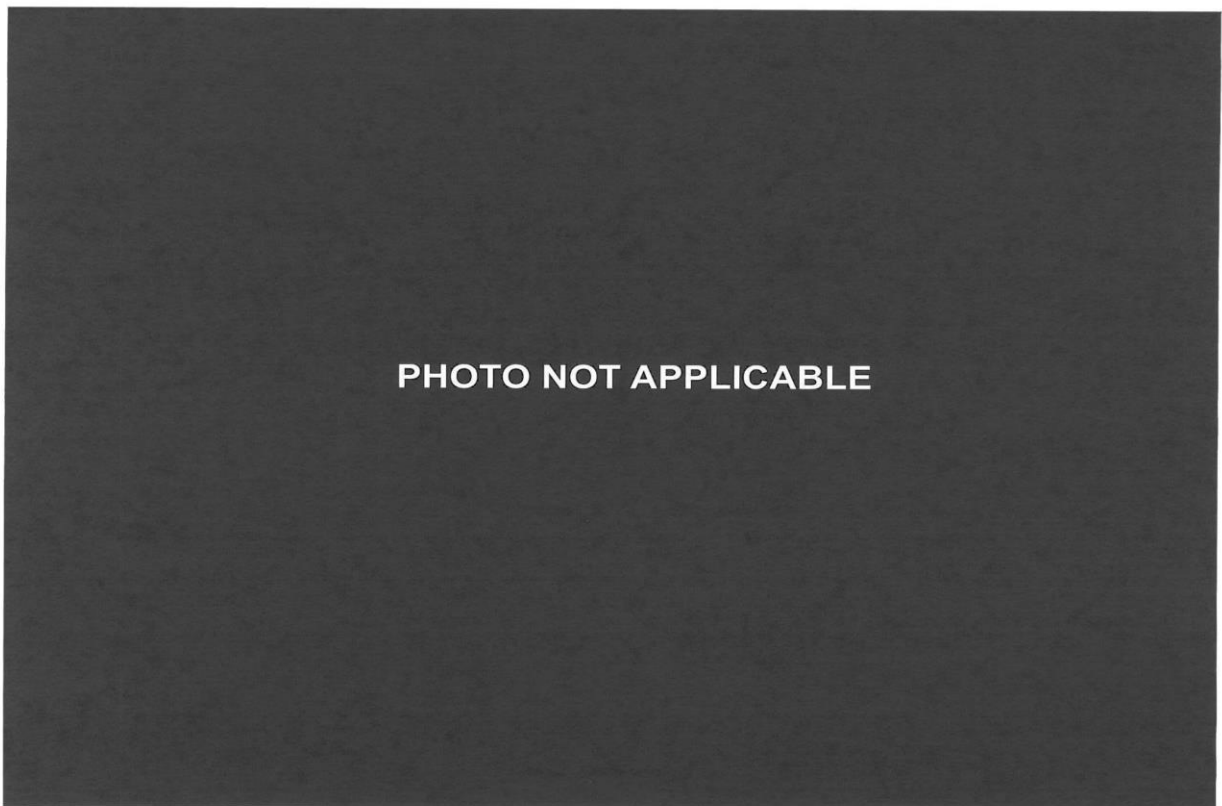
077 Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View



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



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



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



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

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



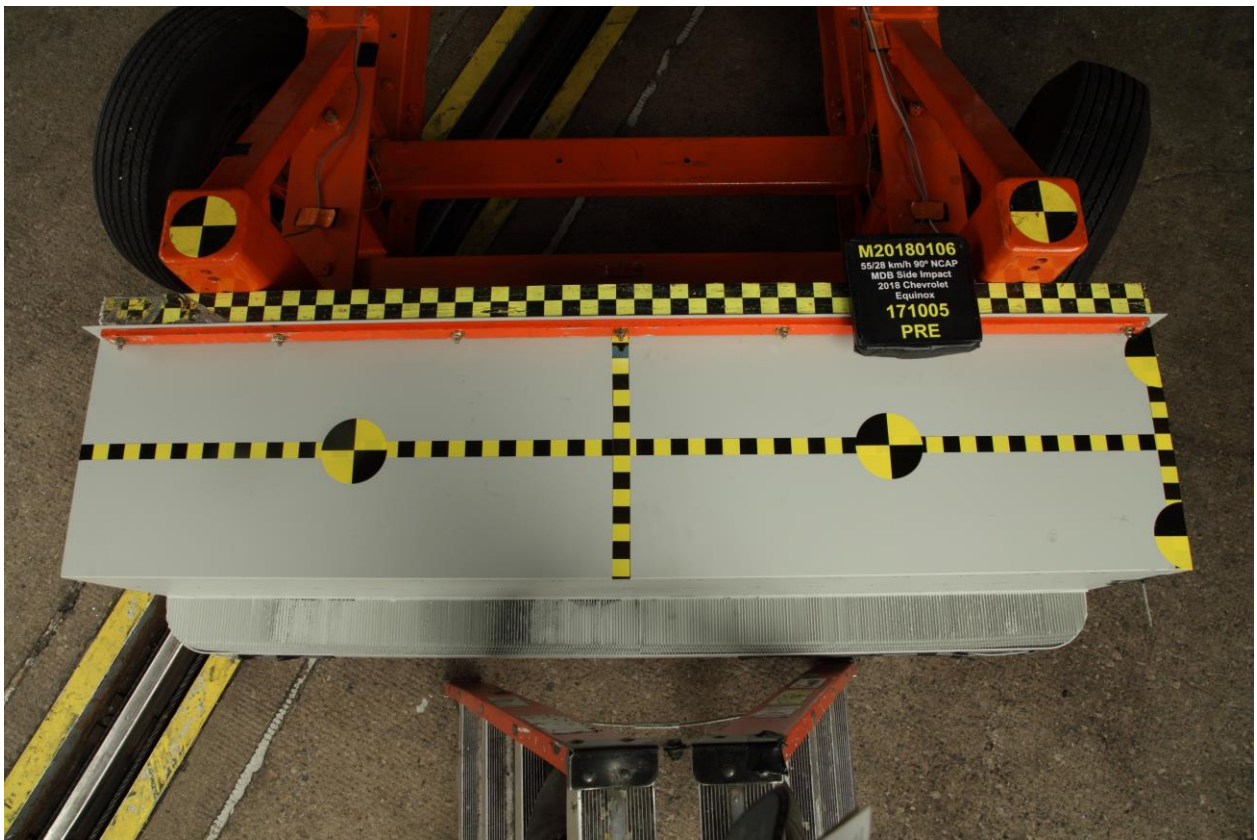
083 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



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



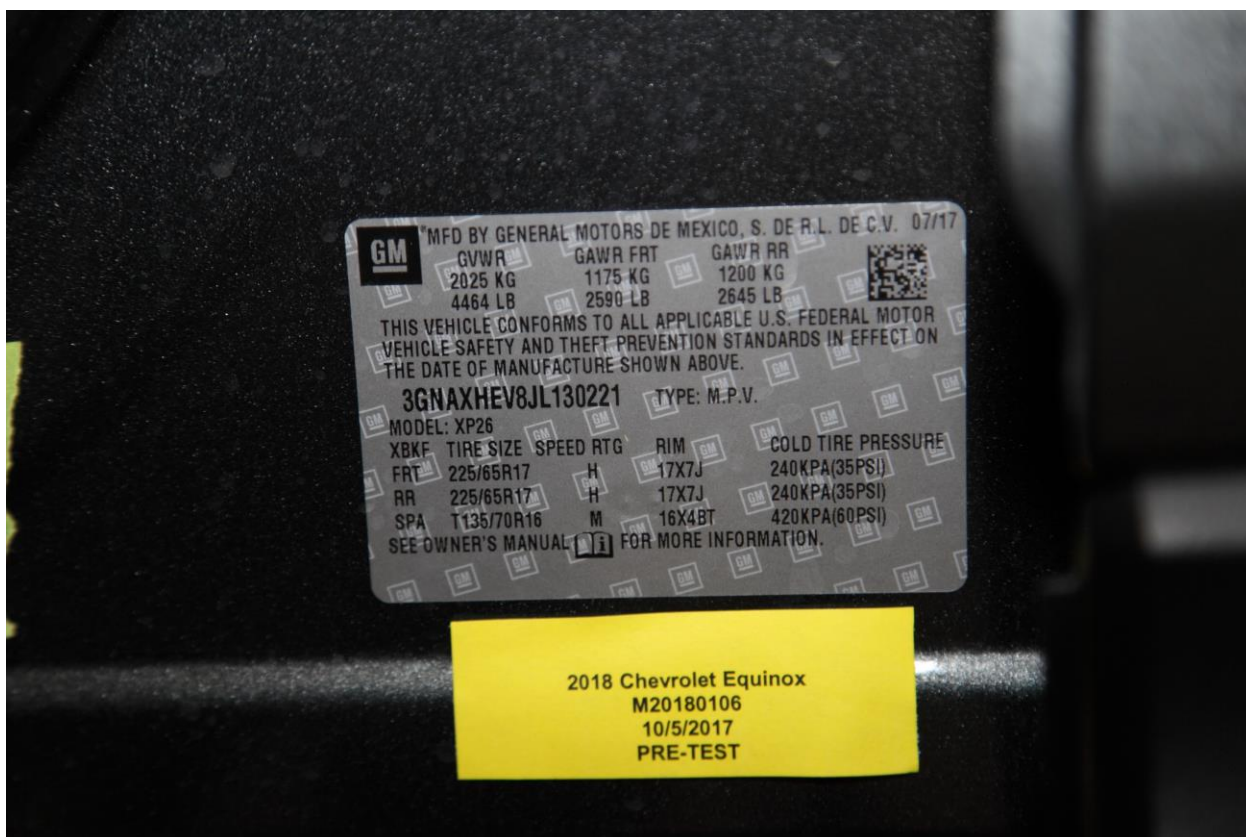
089 Post-Test Left Side View of MDB Impactor Face



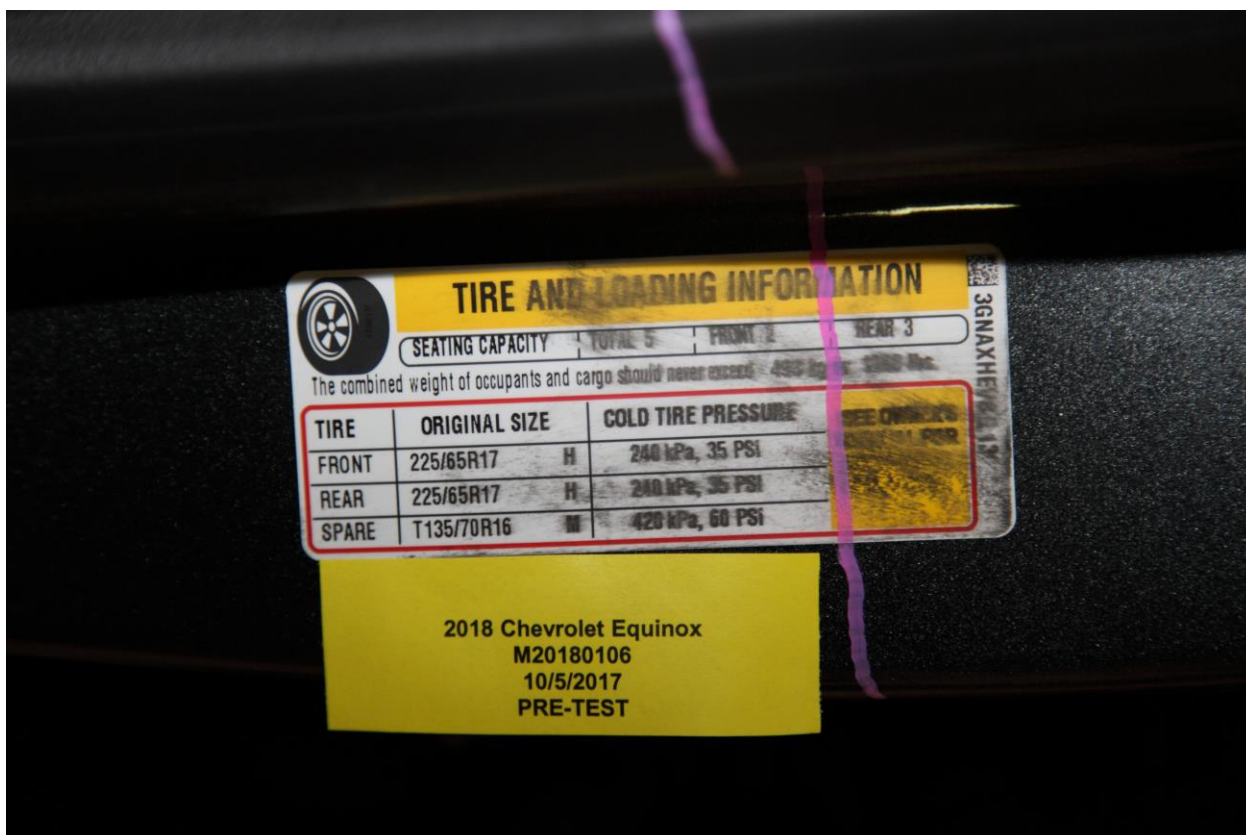
090 Pre-Test Right Side View of MDB Impactor Face



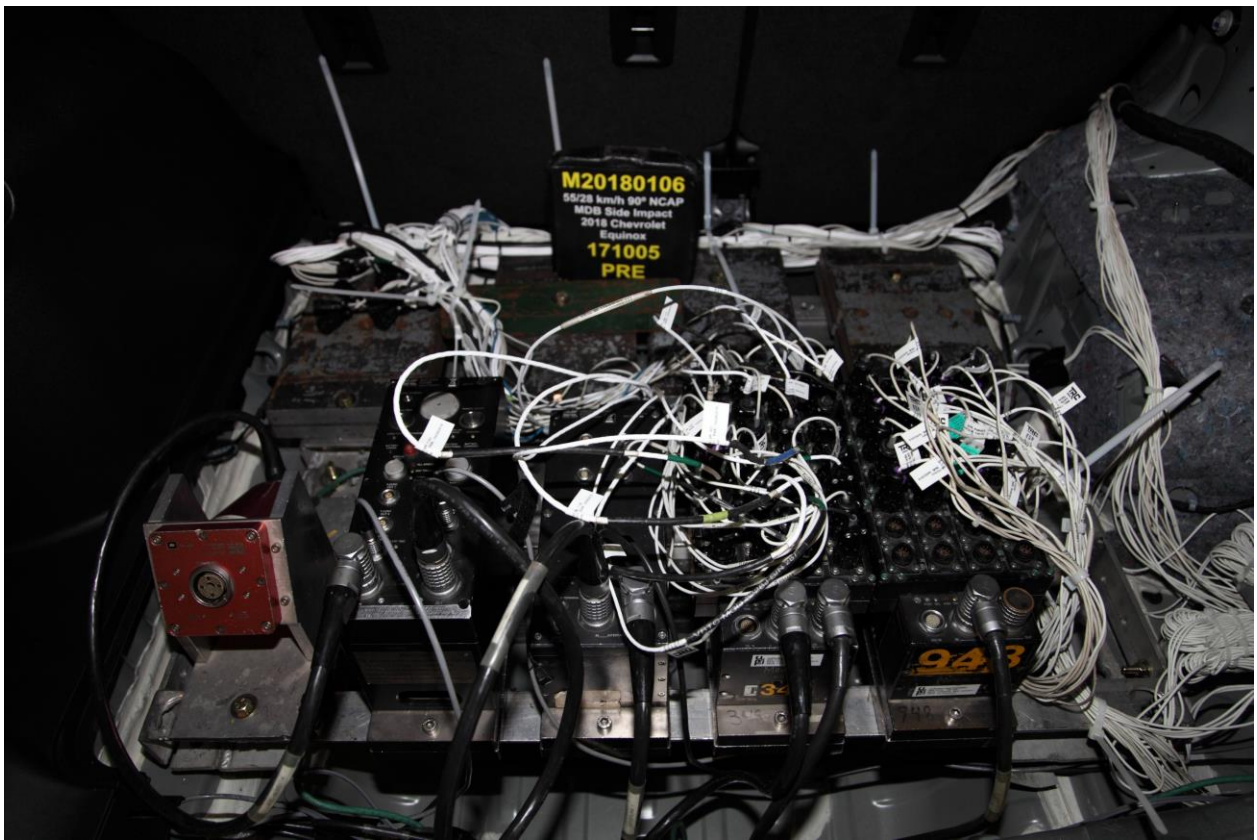
091 Post-Test Right Side View of MDB Impactor Face



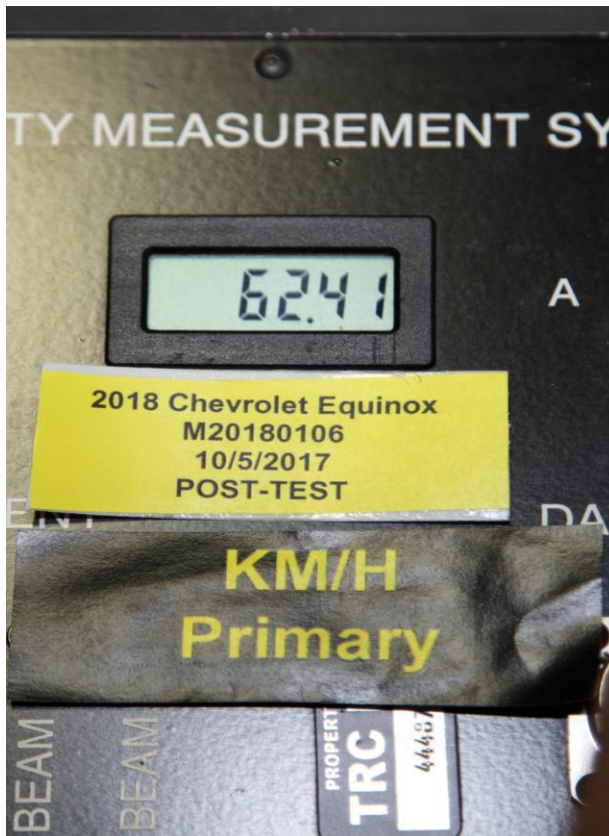
092 Close-Up View of Vehicle's Certification Label



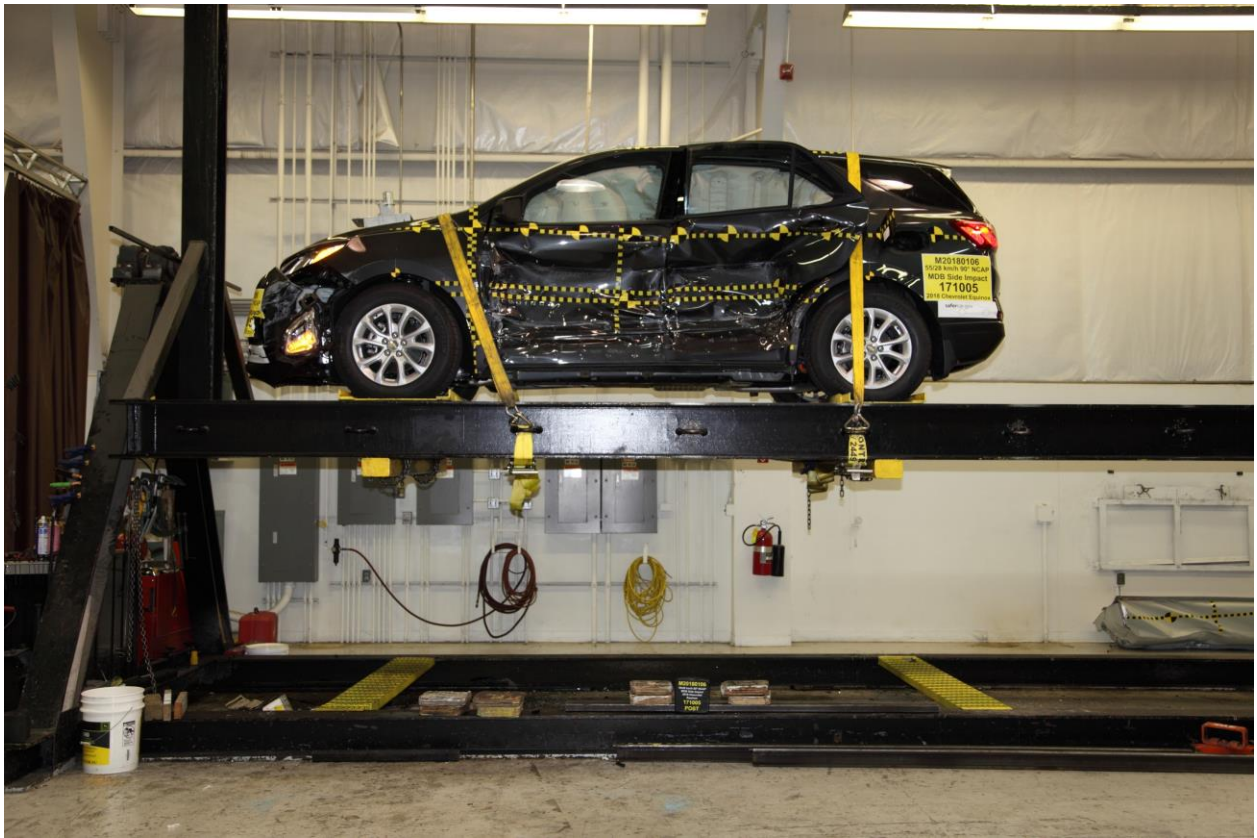
093 Close-Up View of Vehicle's Tire Information Placard or Label



094 Pre-Test Ballast View



095 Post-Test Primary and Redundant Speed Trap Read-Out



096 FMVSS No. 301 Static Rollover 0 Degrees



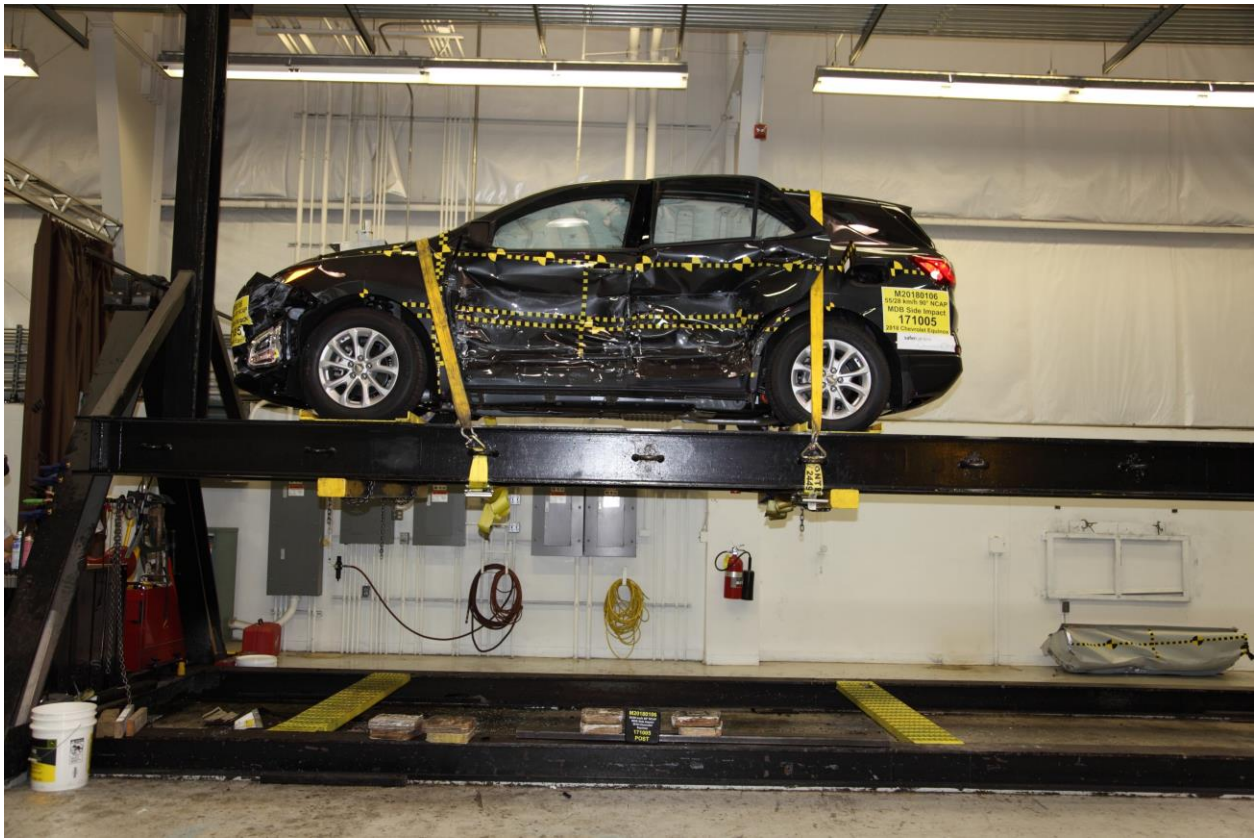
097 FMVSS No. 301 Static Rollover 90 Degrees



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



CHEVROLET

2018 EQUINOX FWD LS



EXTERIOR: NIGHTFALL GRAY METALLIC ENGINE: 1.5L TURBO DOHC 4-CYL
INTERIOR: MEDIUM ASH GRAY TRANSMISSION: 6-SPD AUTOMATIC

Visit us at www.chevy.com

STANDARD EQUIPMENT

ITEMS LISTED BELOW ARE INCLUDED AT NO EXTRA CHARGE IN THE STANDARD VEHICLE PRICE EXCEPT:

- CHEVROLET COMPLETE CARE
- SEE WWW.CHEVY.COM OR DEALER FOR TERMS, DETAILS & LIMITS
- TWO MAINTENANCE VISITS
- OIL & FILTER CHANGE
- 4-WHEEL TIRE ROTATION
- 27 POINT INSPECTION
- 3 YEAR/50,000 MILES BUMPER-TO-BUMPER WARRANTY
- 5 YEAR/100,000 MILES POWERTRAIN LIMITED WARRANTY
- ROADSIDE ASSISTANCE
- COURTESY TRANSPORTATION

MECHANICAL

- ENGINE, 1.5L TURBO DOHC 4-CYL
- WT
- TRANSMISSION, 6-SPD AUTOMATIC
- TIRE, COMPACT SPARE

SAFETY & SECURITY

- ANTILOCK BRAKE SYSTEM, 4 WHEEL DISC
- STABILITRAK® STABILITY CONTROL SYSTEM W/ TRACTION CONTROL
- TIRE PRESSURE MONITOR (EXCL. SPARE TIRE)
- AIR BAGS, DUAL-STAGE, FRONT DRIVER AND RIGHT FRONT PASS. W/ PASSENGER SENSING SYSTEM
- SIDE-IMPACT, SEAT MOUNTED, DRIVER AND RIGHT FRONT PASSENGER, HEAD CURTAIN, SIDE FRONT AND REAR OUTBOARD SEATING POSITIONS
- KEYLESS OPEN
- THEFT DETERRENT SYSTEM
- REAR VISION CAMERA
- TEEN DRIVER
- EXTERIOR
- WHEELS, 17" ALUMINUM

HEADLAMPS, HALOGEN

- DAYTIME RUNNING LAMPS, LED
- POWER ADJ. OUTSIDE MIRRORS, HEATED

INTERIOR

- PREMIUM CLOTH SEAT TRIM
- SEAT ADJUSTER DRIVER
- 4-WAY MANUAL
- SEAT, REAR SPLIT-FOLDING
- AIR CONDITIONING, MANUAL, SINGLE ZONE
- STEERING WHEEL CONTROLS, AUDIO / PHONE
- AUDIO SYSTEM, 6 SPEAKER

CONNECTIVITY FEATURES

- CHEVROLET MYLINK AUDIO SYSTEM
- 7" DIAGONAL COLOR TOUCHSCREEN
- SELECT BLUETOOTH STREAMING, APPLE CARPLAY CAPABILITY AND ANDROID AUTO CAPABILITY PROVIDED BY APPLE AND GOOGLE AVAILABLE WITH COMPATIBLE

SMARTPHONES

- ONSTAR (R) INCLUDES 5 YR BASIC PLAN PLUS LIMITED TRIAL OF GUIDANCE PLAN W/AUTOMATIC CRASH RESPONSE, NAVIGATION & MORE (SUBJECT TO TERMS SEE ONSTAR.COM)
- 4G LTE W/FIR HOTSPOT WITH LIMITED DATA TRIAL AND MORE (SUBJECT TO TERMS SEE ONSTAR.COM)

OPTIONS & PRICING

MANUFACTURER'S SUGGESTED RETAIL PRICE
STANDARD VEHICLE PRICE **\$25,510.00**

OPTIONS INSTALLED BY THE MANUFACTURER (MAY REPLACE STANDARD EQUIPMENT SHOWN)

PROTECTION PACKAGE: 220.00
FLOOR MATS, ALL WEATHER FRONT AND REAR (DEALER INSTALLED)
REAR MOLDED SPLASH GUARDS

(DEALER INSTALLED)

TOTAL OPTIONS	\$220.00
TOTAL VEHICLE & OPTIONS	\$25,730.00
DESTINATION CHARGE	\$45.00
TOTAL VEHICLE PRICE*	\$26,675.00

EPA DOT Fuel Economy and Environment

Fuel Economy
28 MPG
combined city/hwy
26 city
32 highway
3.6 gallons per 100 miles

Gasoline Vehicle

Small SUVs range from 18 to 34 MPG. The best vehicle rates 136 MPG.

You save \$250
in fuel costs
over 5 years
compared to the
average new vehicle.

Annual fuel cost
\$1,300

Fuel Economy & Greenhouse Gas Rating (tailpipe only)

1 6 10 Best

Smog Rating (tailpipe only)

1 5 10 Best

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 27 MPG and costs \$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 gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov
Calculate personalized estimates and compare vehicles

This vehicle emits 314 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions. Learn more at fuelconomy.gov.



GOVERNMENT 5-STAR SAFETY RATINGS

This vehicle has not been rated by the government for overall vehicle score, frontal crash, side crash or rollover risk.

Source: National Highway Traffic Safety Administration (NHTSA)
www.safercar.gov or 1-888-327-4236



Equipped with the safety and connectivity of OnStar.
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onstar.com/january

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE:
U.S./CANADIAN PARTS CONTENT: 45%
MAJOR SOURCES OF FOREIGN PARTS CONTENT: MEXICO 40%

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

FOR THIS VEHICLE:
FINAL ASSEMBLY POINT:
SAN LUIS POTOSI, MEXICO
COUNTRY OF ORIGIN:
ENGINE: UNITED STATES
TRANSMISSION: UNITED STATES

This label has been applied pursuant to Federal law - CTS not subject prior to delivery to the ultimate purchaser. *Includes Manufacturer's Recommended Pre-Delivery Service. Does not include dealer-installed options, and accessories not listed below, local taxes or license fees.

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ORDER NO. 1400781 SALES CODE E
SALES MODEL CODE 1000
DEALER NO. 11461
FINAL ASSEMBLY
SAN LUIS POTOSI, MEXICO
VIN 3GNAKHEVL130221
DEALER TO WHOM DELIVERED
RAY CHEVROLET, INC.
300 N RTE 12
FOX LAKE, IL 60020-1222



CE
1QA102892

102 Monroney Label

58 Seats and Restraints

Head Restraints

The vehicle's front seats have adjustable head restraints in the outboard seating positions.

Warning

With head restraints that are not installed and adjusted properly, there is a greater chance that occupants will suffer a neck/spinal injury in a crash. Do not drive until the head restraints for all occupants are installed and adjusted properly.

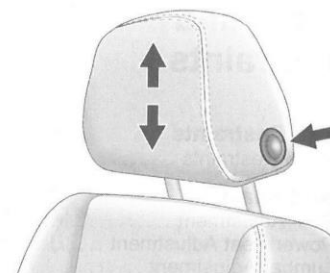
If your vehicle has rear head restraints that fold down, always return them to the full upright position whenever an occupant is seated in the seat.



Adjust the head restraint so that the top of the restraint is at the same height as the top of the occupant's head. This position reduces the chance of a neck injury in a crash.

Front Seats

The vehicle's front seats have adjustable head restraints in the outboard seating positions.



The height of the head restraint can be adjusted.

To raise or lower the head restraint, press the button located on the side of the head restraint and pull up or push the head restraint down, and release the button. Pull and push on the head restraint after the button is released to make sure that it is locked in place.

The front seat outboard head restraints are not removable.

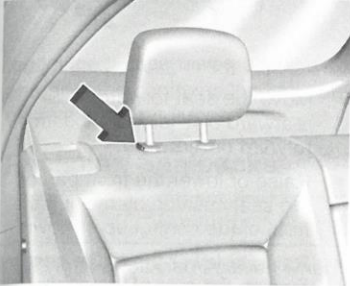
103 Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

Rear Seats

Adjusting the Rear Head Restraint

The vehicle's rear seats have adjustable head restraints in the outboard seating positions.

The height of the head restraint can be adjusted. Pull the head restraint up to raise it. Try to move the head restraint to make sure that it is locked in place.

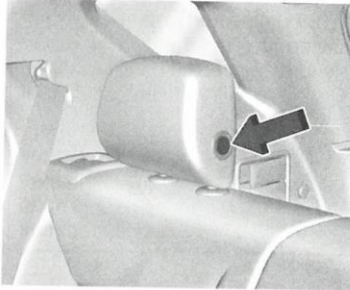


To lower the head restraint, press the button, located on the top of the seatback, and push the head restraint down. Try to move the

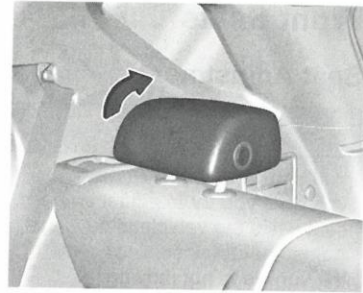
head restraint after the button is released to make sure that it is locked in place.

Folding the Rear Head Restraint

The head restraint can be folded rearward to allow for better visibility when the rear seat is unoccupied.



To fold the head restraint, press the button on the side of the head restraint.



The head restraint will fold rearward automatically.

When an occupant or child restraint is in the seat, always return the head restraint to the full upright position. Pull the head restraint up and forward until it locks into place. Push and pull on the head restraint to make sure that it is locked.

Always adjust the head restraint so that the top of the restraint is at the same height as the top of the occupant's head.

Rear outboard head restraints are not removable.

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

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

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Driver & Passenger Dummy Instrumentation Plots

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7	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-6
8	Driver Thorax Rib Deflection Maximum vs. Time	B-6
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12	Driver Total Abdominal Force (Y) vs. Time	B-7
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14	Passenger Head Acceleration (X) Primary vs. Time	B-9
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19	Passenger Lower Spine T12 Acceleration (Y) vs. Time	B-10
20	Passenger Lower Spine T12 Acceleration (Z) vs. Time	B-10
21	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-10
22	Passenger Iliac Force on Impact Side (Y) vs. Time	B-11
23	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-11
24	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-11

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

Additional Driver & Passenger Dummy Instrumentation Data

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

Vehicle Instrumentation Data

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

MDB Instrumentation Data

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

NHTSA

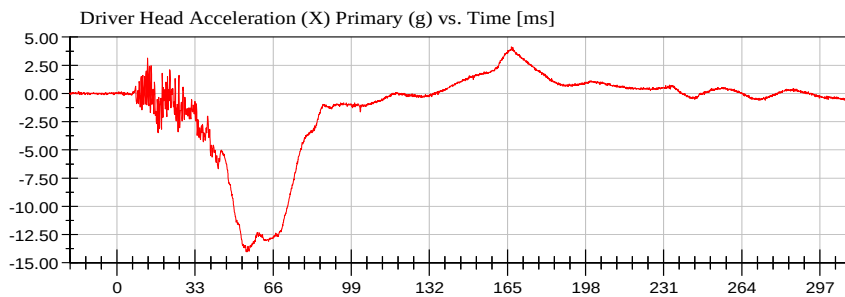
Test Lab: CTF

Test Number: 171005 (M20180106)

Test Date: 10/05/2017

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

Position #4 SID IIs Dummy (305)



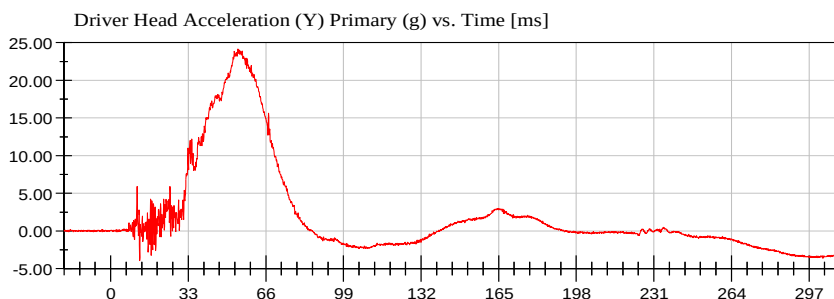
<Max>

4.14 g at 166.64 ms

<Min>

-14.03 g at 54.56 ms

CFC_1000



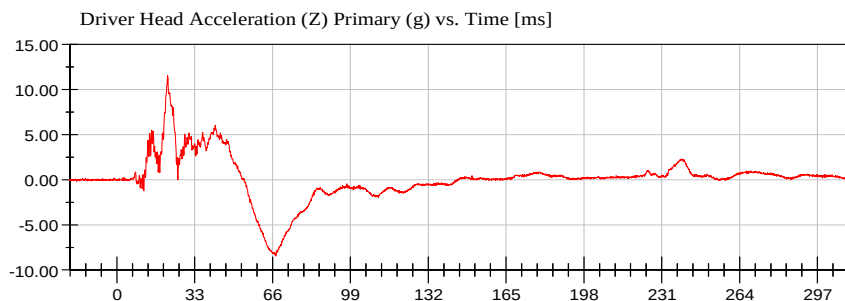
<Max>

24.15 g at 54.08 ms

<Min>

-3.98 g at 12.32 ms

CFC_1000



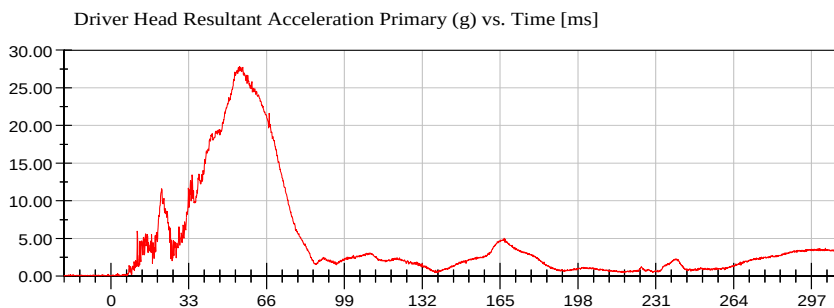
<Max>

11.56 g at 21.52 ms

<Min>

-8.47 g at 67.36 ms

CFC_1000



<Max>

27.83 g at 54.56 ms

<Min>

0.04 g at -19.76 ms

CFC_1000



NHTSA

Test Lab: CTF

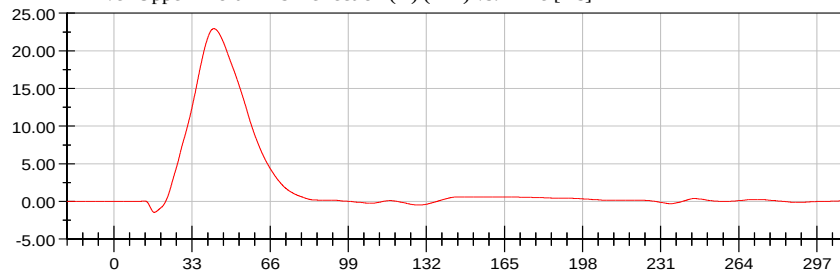
Test Number: 171005 (M20180106)

Test Date: 10/05/2017

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

Position #4 SID IIs Dummy (305)

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



<Max>

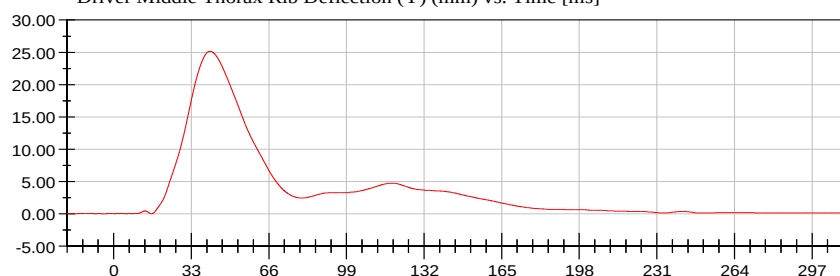
22.94 mm at 42.16 ms

<Min>

-1.45 mm at 17.04 ms

CFC_180

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



<Max>

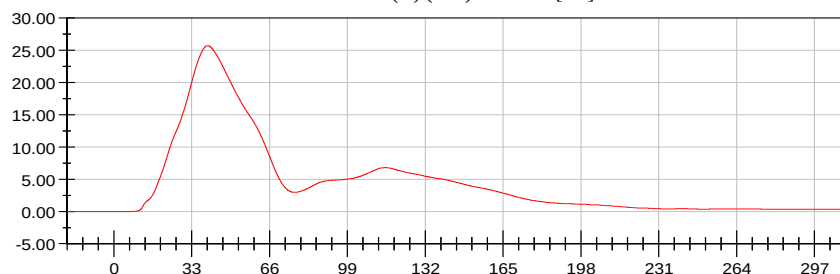
25.15 mm at 40.96 ms

<Min>

-0.01 mm at 16.08 ms

CFC_180

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



<Max>

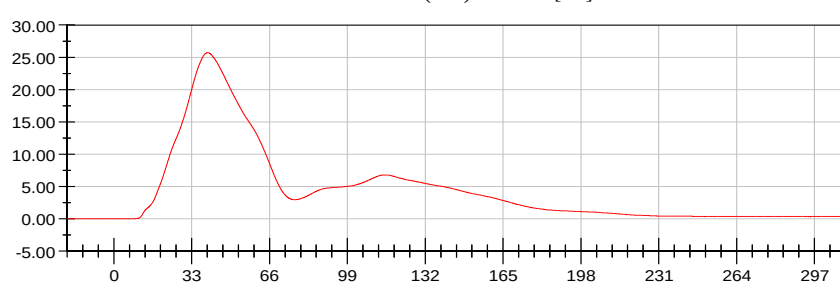
25.72 mm at 39.76 ms

<Min>

0.00 mm at 4.96 ms

CFC_180

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



<Max>

25.72 mm at 39.76 ms

<Min>

0.00 mm at 4.96 ms

CFC_180



NHTSA

Test Lab: CTF

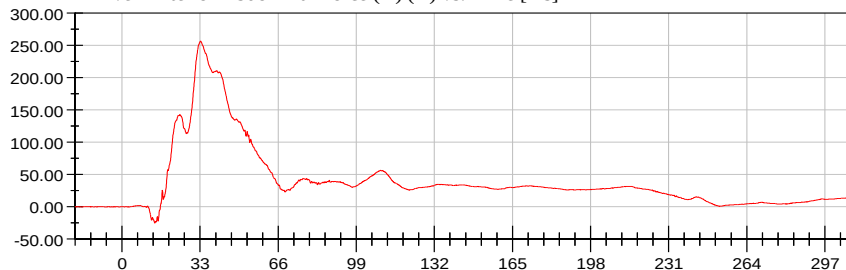
Test Number: 171005 (M20180106)

Test Date: 10/05/2017

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

Position #4 SID IIs Dummy (305)

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



<Max>

256.49 N at 33.20 ms

<Min>

-25.30 N at 13.84 ms

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



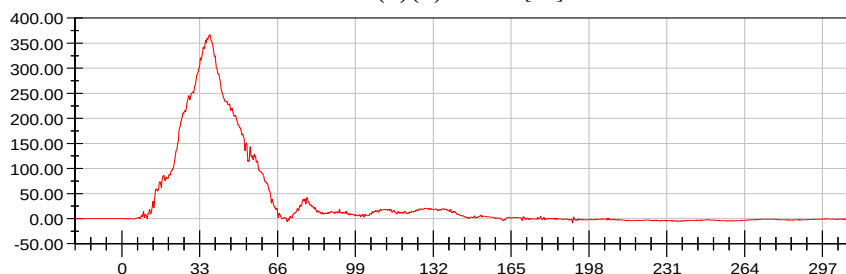
<Max>

280.75 N at 34.24 ms

<Min>

-1.85 N at 238.32 ms

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



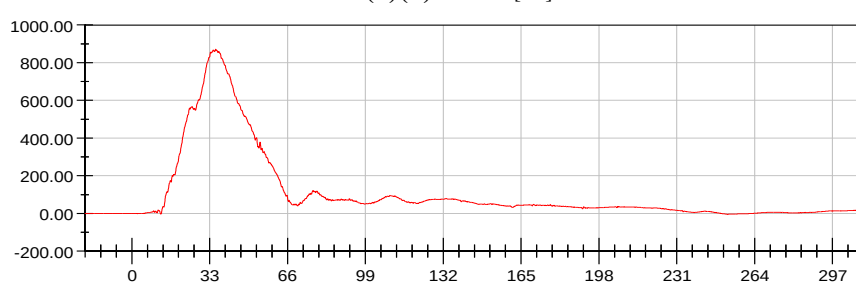
<Max>

367.04 N at 37.36 ms

<Min>

-8.51 N at 191.12 ms

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



<Max>

871.40 N at 35.52 ms

<Min>

-4.17 N at 252.56 ms



NHTSA

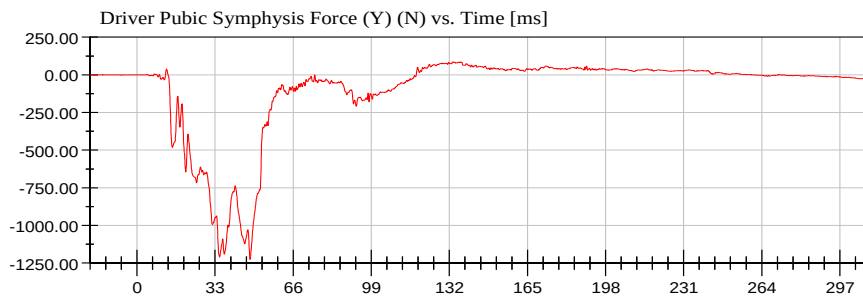
Test Lab: CTF

Test Number: 171005 (M20180106)

Test Date: 10/05/2017

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

Position #4 SID IIs Dummy (305)



<Max>

86.27 N at 136.56 ms

<Min>

-1,225.84 N at 47.76 ms

CFC_600

TRC

NHTSA

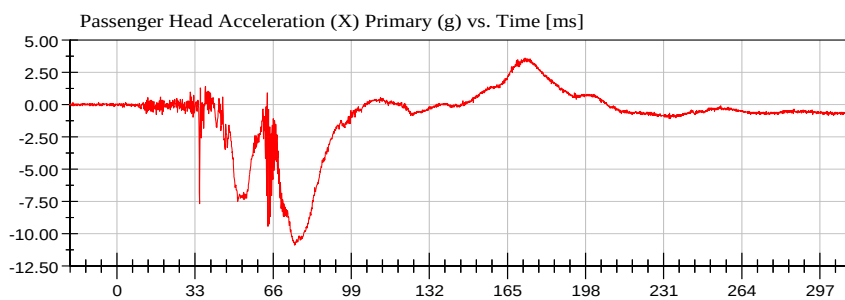
Test Lab: CTF

Test Number: 171005 (M20180106)

Test Date: 10/05/2017

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

Position #4 SID IIs Dummy (305)



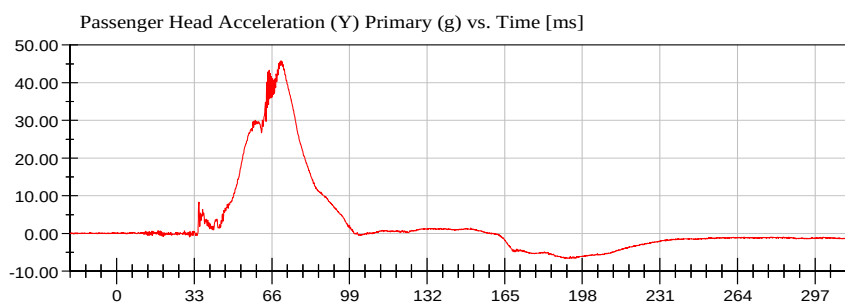
<Max>

3.62 g at 172.40 ms

<Min>

-10.87 g at 75.04 ms

CFC_1000



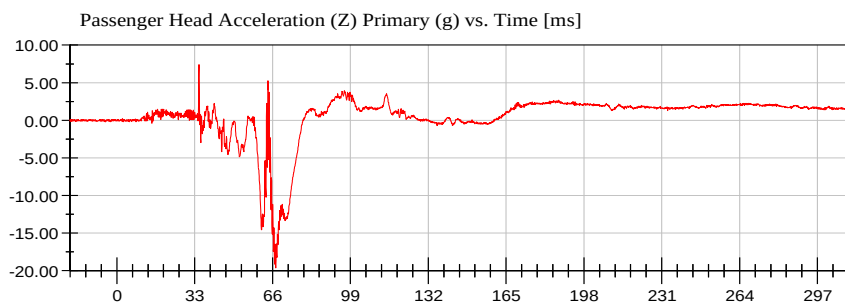
<Max>

45.81 g at 69.84 ms

<Min>

-6.71 g at 190.96 ms

CFC_1000



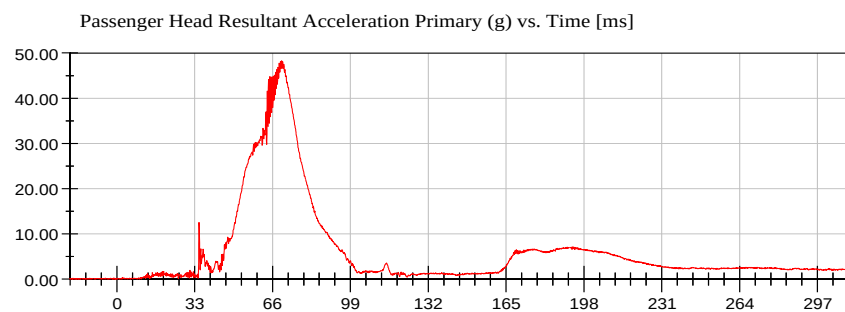
<Max>

7.39 g at 34.80 ms

<Min>

-19.64 g at 67.36 ms

CFC_1000



<Max>

48.27 g at 69.84 ms

<Min>

0.02 g at -19.12 ms

CFC_1000



NHTSA

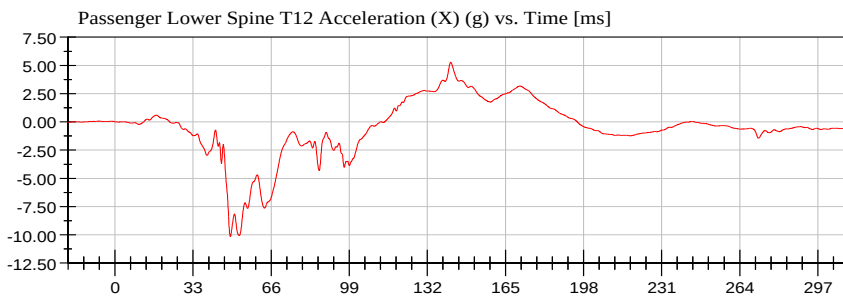
Test Lab: CTF

Test Number: 171005 (M20180106)

Test Date: 10/05/2017

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

Position #4 SID IIs Dummy (305)



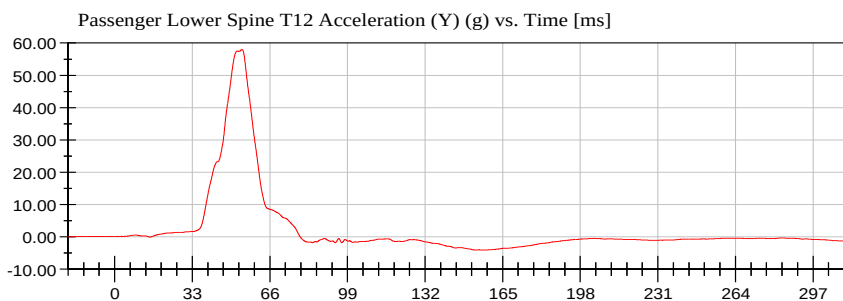
<Max>

5.27 g at 141.84 ms

<Min>

-10.16 g at 48.72 ms

CFC_180



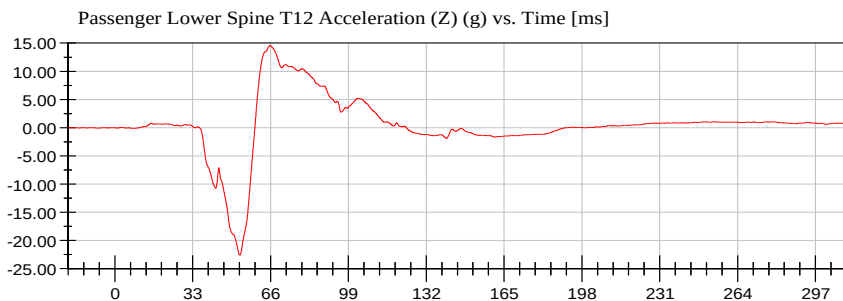
<Max>

57.96 g at 54.08 ms

<Min>

-4.17 g at 156.64 ms

CFC_180



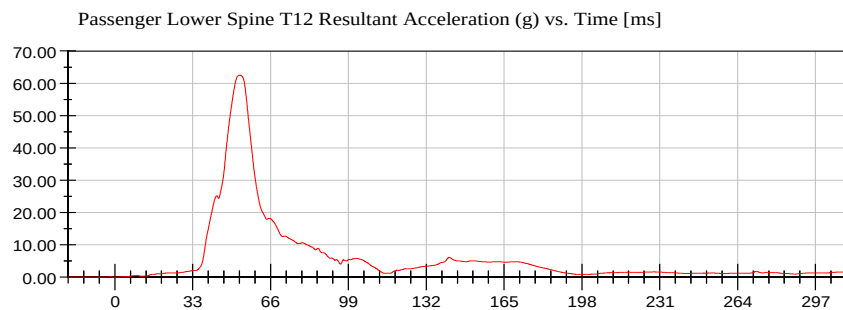
<Max>

14.55 g at 65.84 ms

<Min>

-22.59 g at 52.96 ms

CFC_180



<Max>

62.49 g at 53.12 ms

<Min>

0.02 g at -17.44 ms

CFC_180



NHTSA

Test Lab: CTF

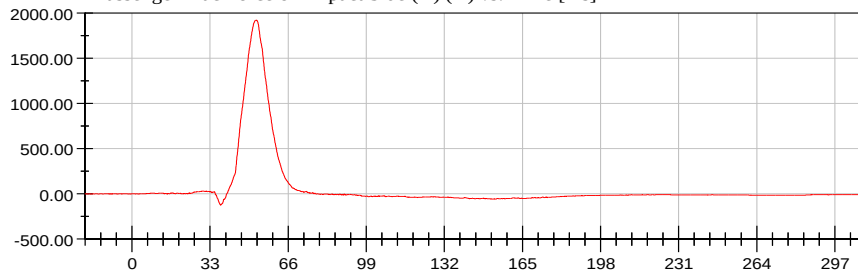
Test Number: 171005 (M20180106)

Test Date: 10/05/2017

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

Position #4 SID IIs Dummy (305)

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



<Max>

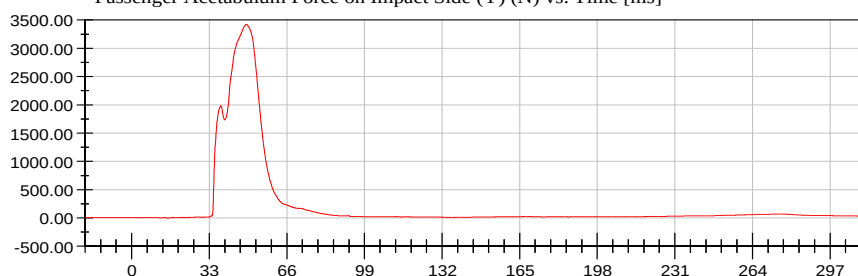
1,922.52 N at 52.56 ms

<Min>

-123.43 N at 37.44 ms

CFC_600

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



<Max>

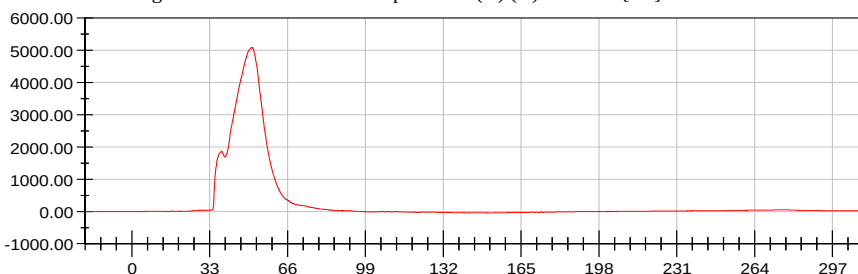
3,422.32 N at 48.80 ms

<Min>

-9.48 N at 15.28 ms

CFC_600

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



<Max>

5,087.22 N at 50.88 ms

<Min>

-45.98 N at 142.64 ms

CFC_600

TRC

APPENDIX C
DUMMY PERFORMANCE CALIBRATION TEST DATA

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS

ES-2re (Driver) Dummy

Description

Table 1. External Measurements

Table 2. Head Drop Test

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

Table 3 Neck Pendulum Test

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

Table 4. Shoulder Impact Test

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

Table 5. Thorax – Upper Rib Drop Test

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

Table 6. Thorax – Middle Rib Drop Test

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

Table 7. Thorax – Lower Rib Drop Test

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

Table 8. Thorax – Full Body Impact Test

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

Table 9. Abdomen Impact Test

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

Table 10. Lumbar Spine Flexion Test

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

Table 11. Pelvis Impact Test

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

TABLE OF CALIBRATION MEASUREMENTS AND PLOTS

SID-IIs (Rear Passenger) Dummy

Description

Table 1. External Measurements

Table 2. Head Drop Test

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

Table 3. Lateral Neck Pendulum Test

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

Table 4. Shoulder Impact Test

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

Table 5. Thorax (With Arm) Impact Test

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

Table 6. Thorax (Without Arm) Impact Test

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

Table 7. Abdomen Impact Test

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

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

Table 9. Pelvis Acetabulum Impact Test

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

Table 10. Pelvis Iliac Impact Test

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

Pre-Test Calibration Sheets
Driver S/N F030

Transportation Research Center Inc.
572U ES-2re Dummy
External Dimensions
Serial No. F030 Calibration No. 49

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	559	Yes
3	Seat to Lower Face of Thoracic Spine Box	346.0 - 356.0	350	Yes
4	Seat to Hip Joint (center of bolt)	97.0 - 103.0	98	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	325	Yes
9	Abdomen Width	273.0 - 287.0	280	Yes
10	Pelvis Lap Width	359.0 - 373.0	365	Yes
11	Head Depth	196.0 - 206.0	204	Yes
12	Thorax Depth	262.0 - 272.0	263	Yes
13	Abdomen Depth	194.0 - 204.0	200	Yes
14	Pelvis Depth	235.0 - 245.0	240	Yes
15	Back of Buttocks to Hip Joint (center of bolt)	150.0 - 160.0	158	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. 49-1

Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Peak Resultant Acceleration	125 - 155 g	140.2 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	7.8 g	Yes
Is Resultant Acceleration Curve Unimodal within 15% of Main Pulse?	Yes	Yes	Yes

Test meets specifications.

Condition: Used

Comments:

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

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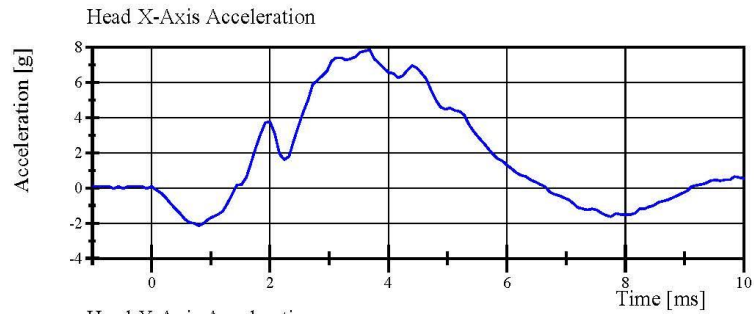


Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. F030 Certification No. 49-1

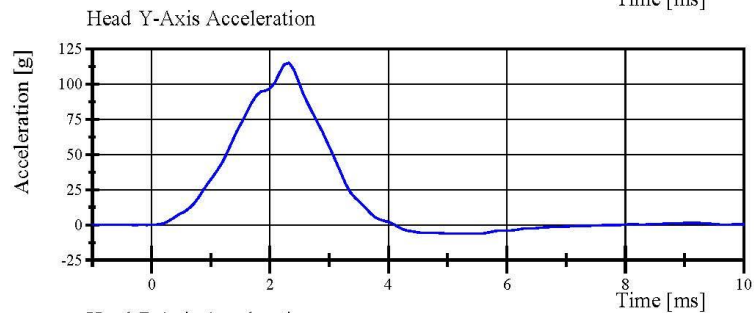
Test Date: 9/28/2017



Filter Class: CFC_1000

Max: 7.8 g at 3.7 ms

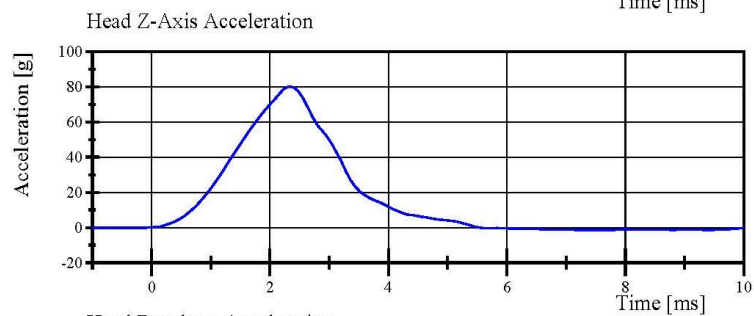
Min: -2.1 g at 0.8 ms



Filter Class: CFC_1000

Max: 115.1 g at 2.3 ms

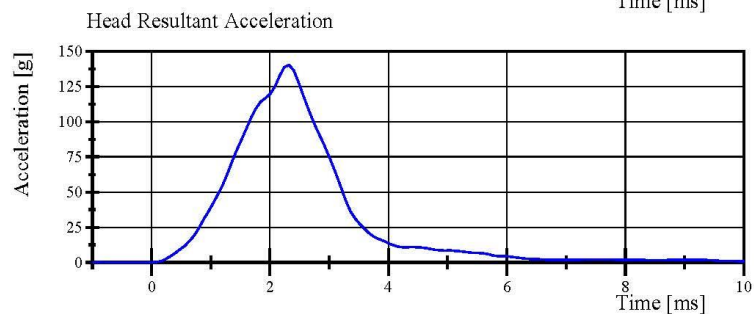
Min: -6.1 g at 5.0 ms



Filter Class: CFC_1000

Max: 80.1 g at 2.3 ms

Min: -1.5 g at 7.4 ms



Filter Class: CFC_1000

Max: 140.2 g at 2.3 ms

Min: 0.1 g at -0.1 ms

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

09.28.2017 13:16:49 362



Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 49-1

Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.36 m/s	Yes
Maximum Headform Flexion			
Peak	(-49) - (-59) deg	-55.2 deg	Yes
Time of Peak	54 - 66 ms	60.4 ms	Yes
Headform Flexion Decay			
- Peak to Zero	53 - 88 ms	68.0 ms	Yes

Test meets specifications.

Condition: Used

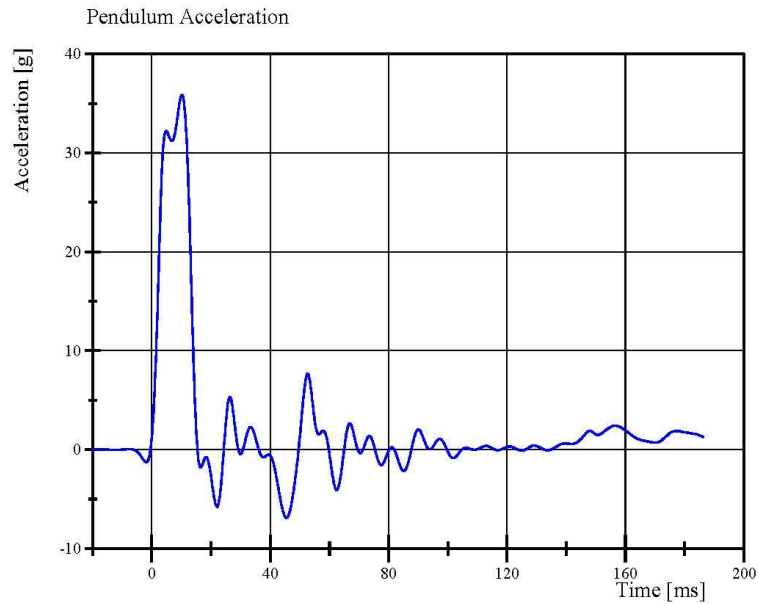
Comments:

Transportation Research Center Inc.

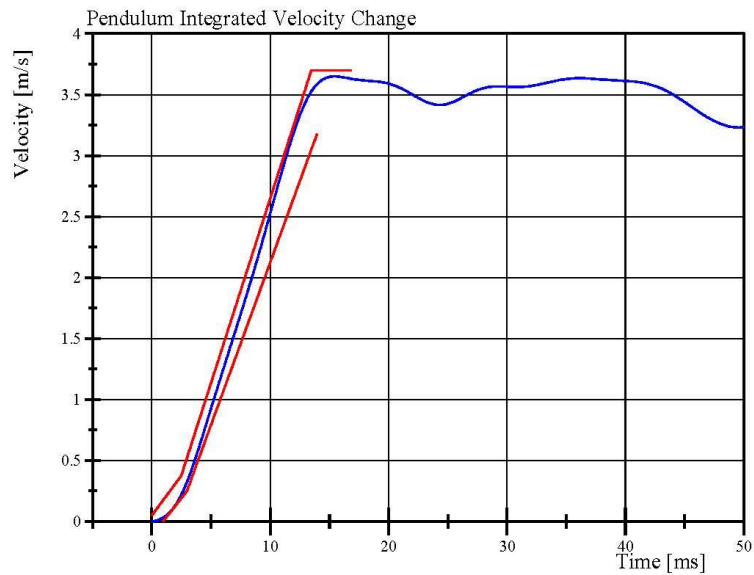
Left Lateral Neck

ES-2re Serial No. F030 Certification No. 49-1

Test Date: 9/28/2017



Filter Class: CFC_60
Max: 35.8 g at 10.2 ms
Min: -6.9 g at 45.4 ms



Filter Class: CFC_60
Max: 3.6 m/s at 15.4 ms
Min: 0.0 m/s at 0.0 ms

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

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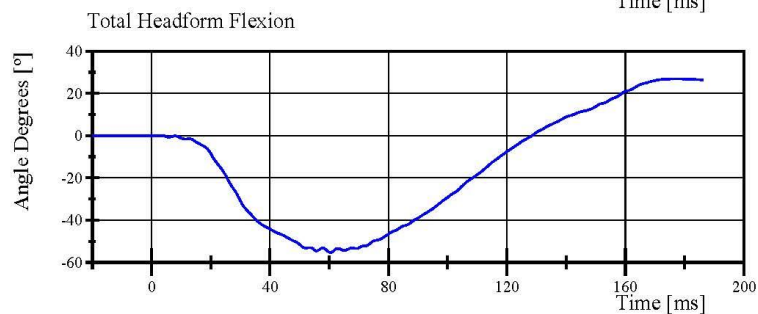
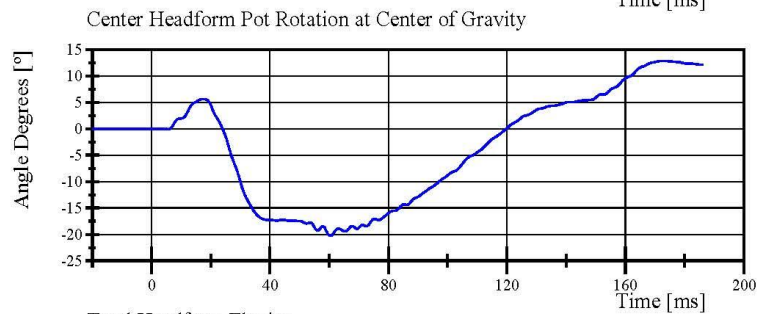
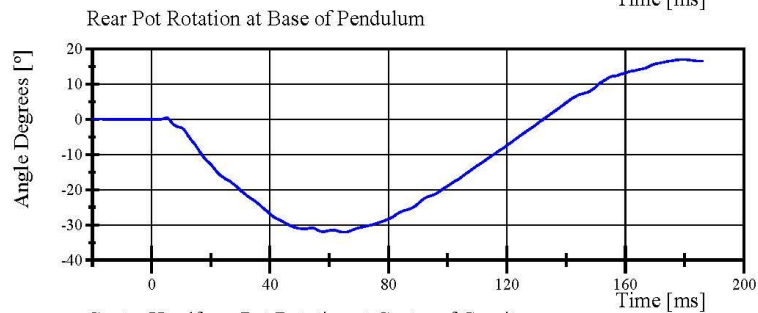
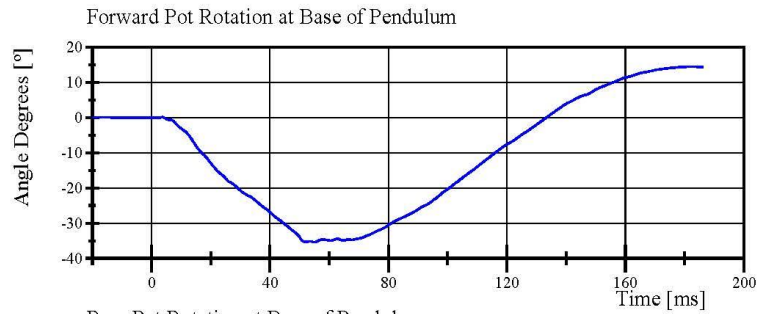


Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 49-1

Test Date: 9/28/2017



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

09.28.2017 09:56:16 1497



Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.30 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-9.19 g	Yes

Test meets specifications.

Condition: Used

Comments:

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

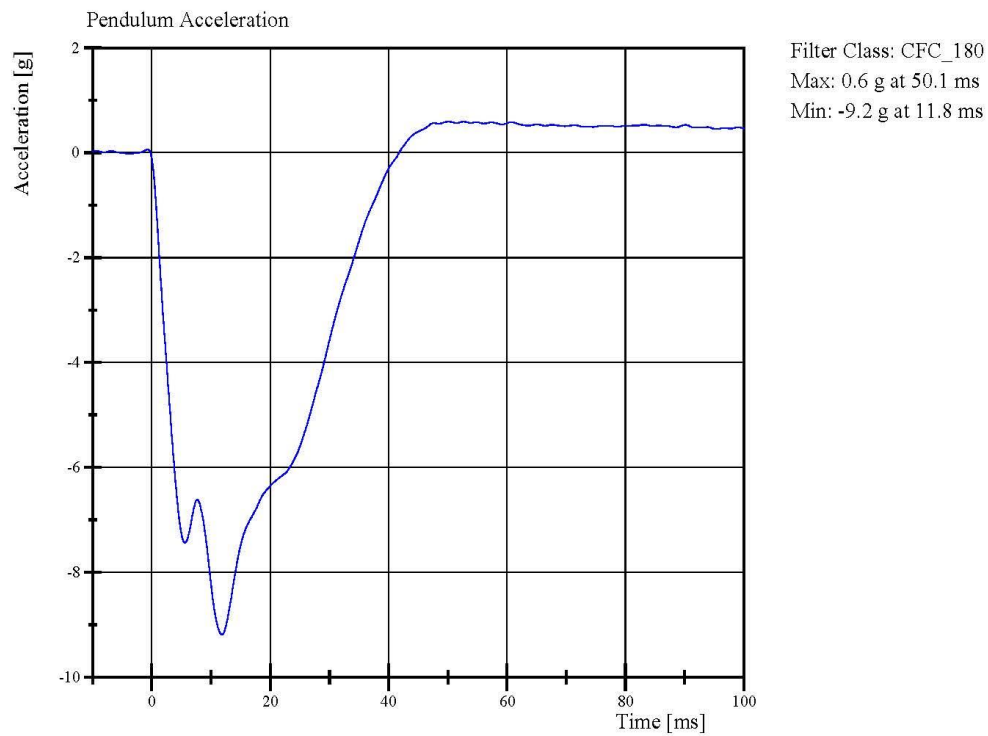
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Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017



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

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Transportation Research Center Inc.

3.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	36.8 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 462

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

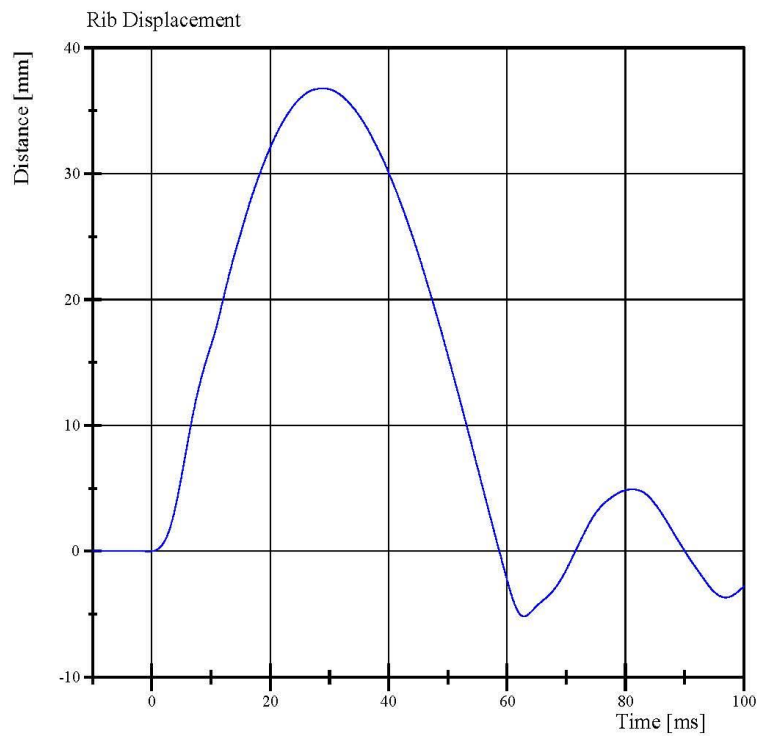
Page 12 of 33

09.28.2017 08:46:51 568



Transportation Research Center Inc.

3.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017



Filter Class: CFC_180
Max: 36.8 mm at 29.0 ms
Min: -5.2 mm at 62.8 ms

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

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09.28.2017 08:47:35 568



Transportation Research Center Inc.

4.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	46.8 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 816

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

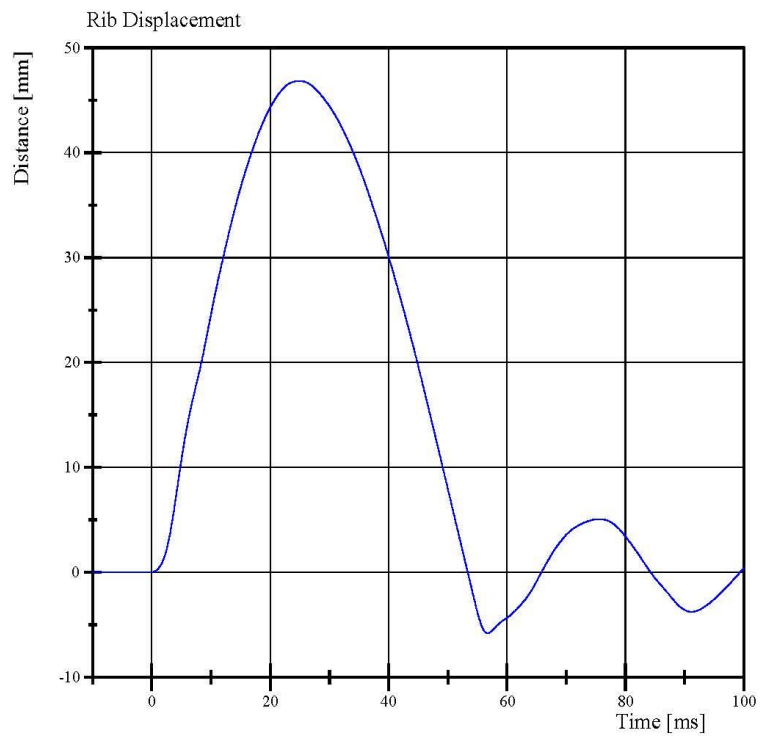
Page 10 of 33

09.28.2017 08:40:53 476



Transportation Research Center Inc.

4.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017



Filter Class: CFC_180
Max: 46.8 mm at 24.9 ms
Min: -5.8 mm at 56.7 ms

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

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09.28.2017 08:41:15 476



Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	46 %	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

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

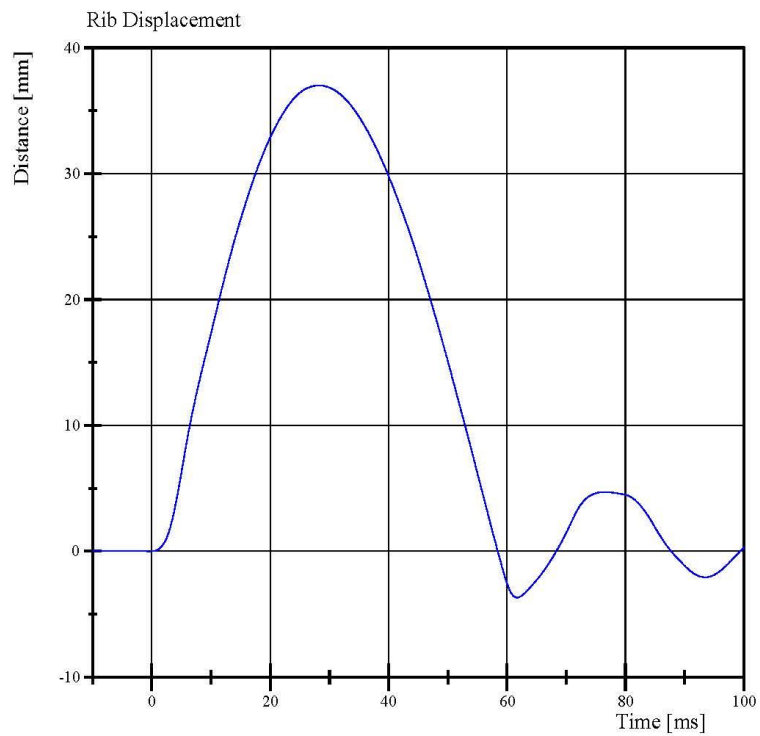
Page 16 of 33

09.28.2017 09:00:24 568



Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017



Filter Class: CFC_180
Max: 37.0 mm at 28.2 ms
Min: -3.7 mm at 61.7 ms

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

09.28.2017 09:00:38 568



Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.1 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 816

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

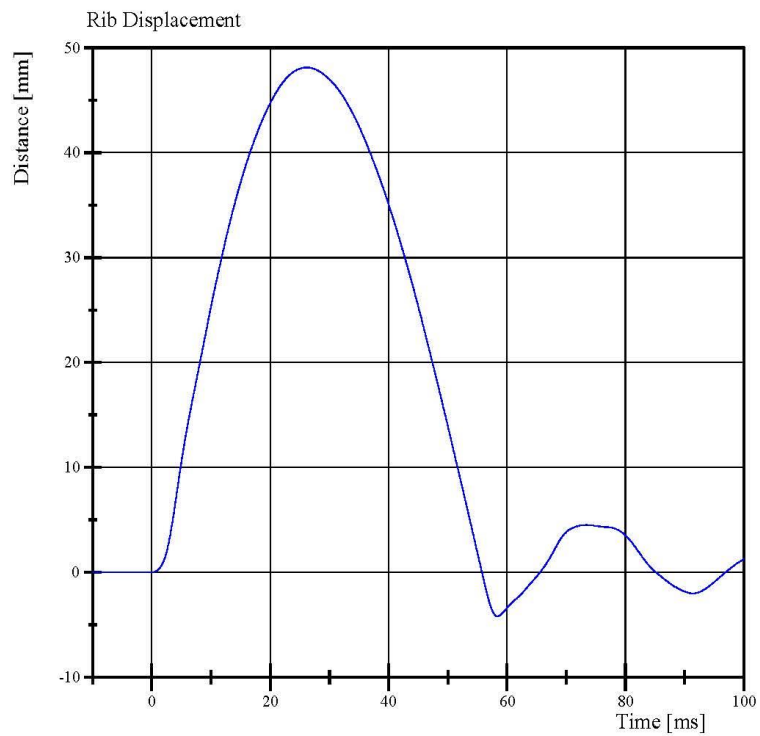
Page 14 of 33

09.28.2017 08:53:55 481



Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017



Filter Class: CFC_180
Max: 48.1 mm at 26.2 ms
Min: -4.2 mm at 58.4 ms

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

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09.28.2017 08:54:02 481



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	45 %	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: 462

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

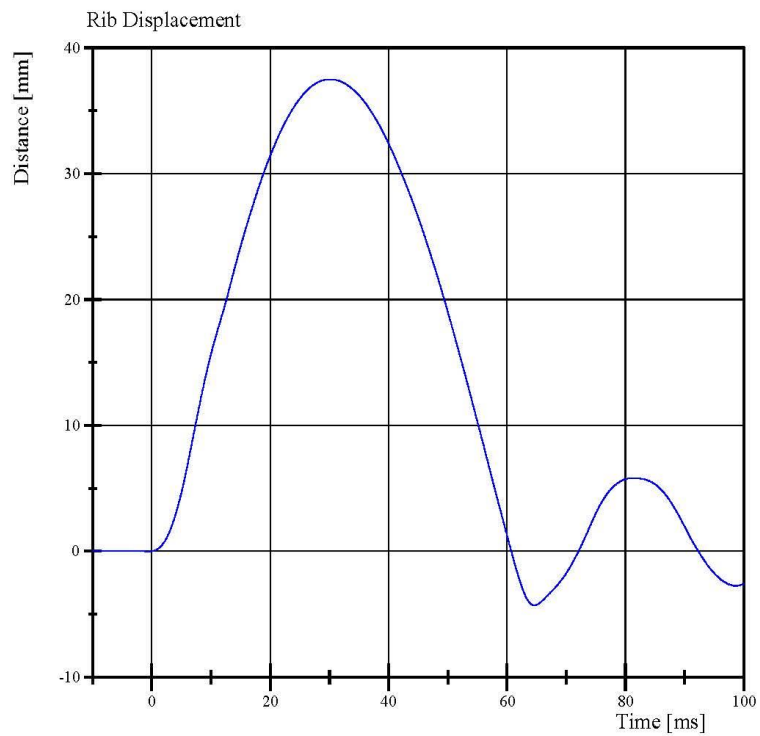
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09.28.2017 09:24:00 560



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017



Filter Class: CFC_180
Max: 37.5 mm at 30.2 ms
Min: -4.3 mm at 64.6 ms

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

09.28.2017 09:24:09 560



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. F030 Certification No. 49-1

Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.8 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 816

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

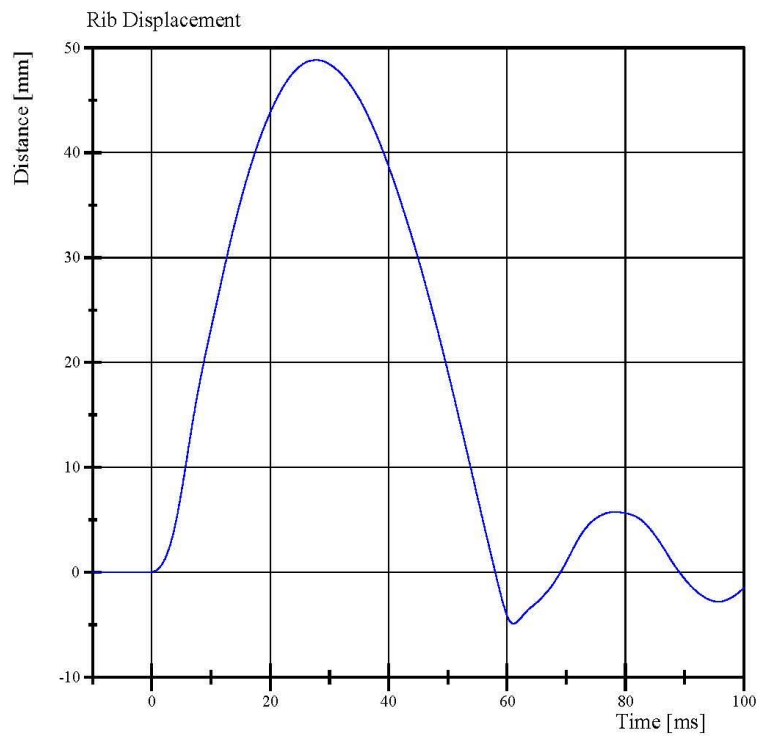
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Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017



Filter Class: CFC_180
Max: 48.8 mm at 27.8 ms
Min: -4.9 mm at 61.1 ms

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

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Transportation Research Center Inc.

Left Lower Thorax
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Impactor Velocity	5.4 - 5.60 m/s	5.553 m/s	Yes
Peak Impactor Force after 6 ms	(-5,100) - (-6,200) N	-5,137.1 N	Yes
Upper Rib Displacement	34 - 41 mm	37.4 mm	Yes
Center Rib Displacement	37 - 45 mm	42.2 mm	Yes
Lower Rib Displacement	37 - 44 mm	40.8 mm	Yes

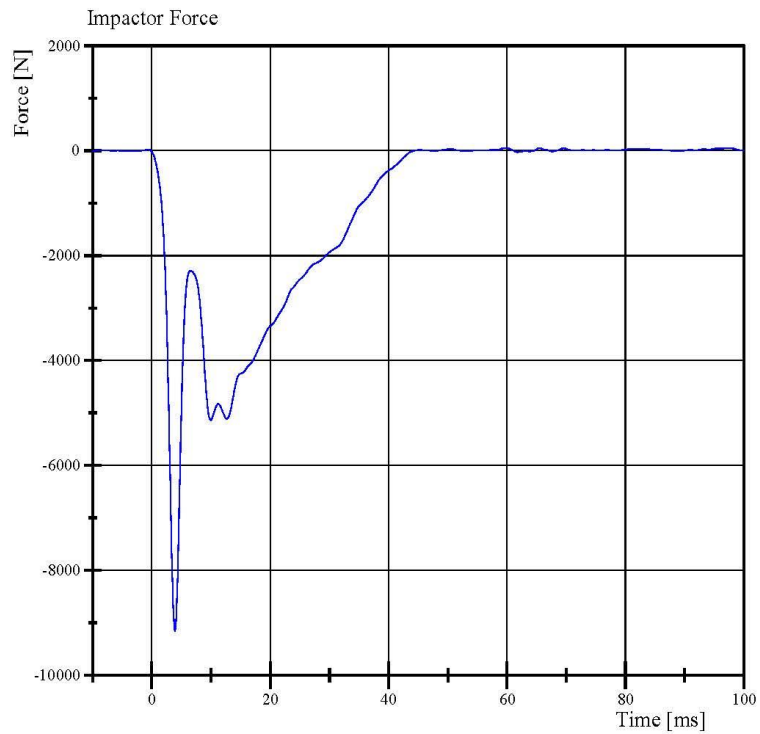
Test meets specifications.

Condition: Used

Comments:

Transportation Research Center Inc.

Left Lower Thorax
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017



Filter Class: CFC_180
Max: 51.5 N at 59.7 ms
Min: -9,164.2 N at 3.9 ms

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

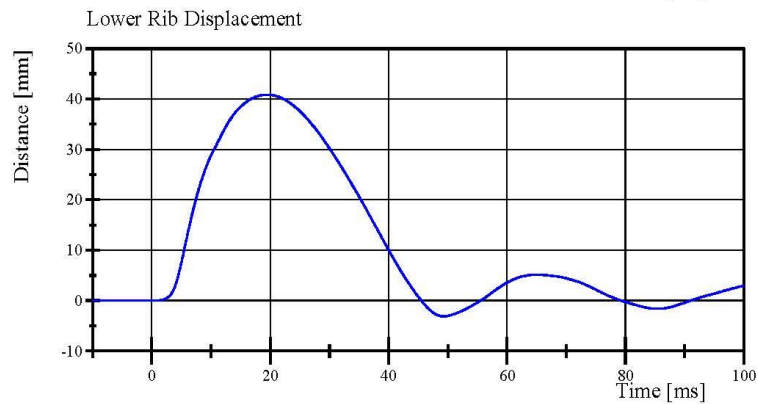
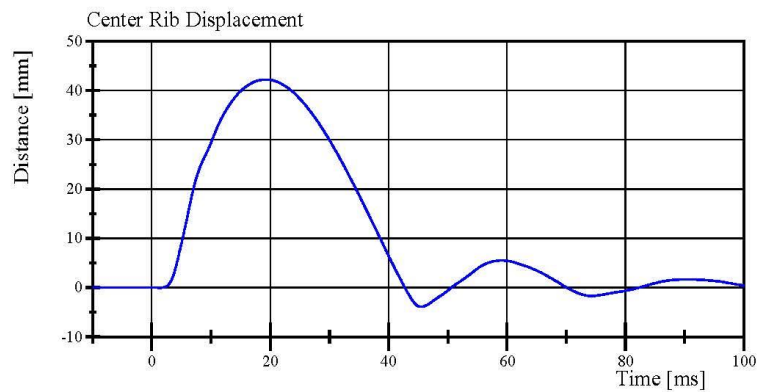
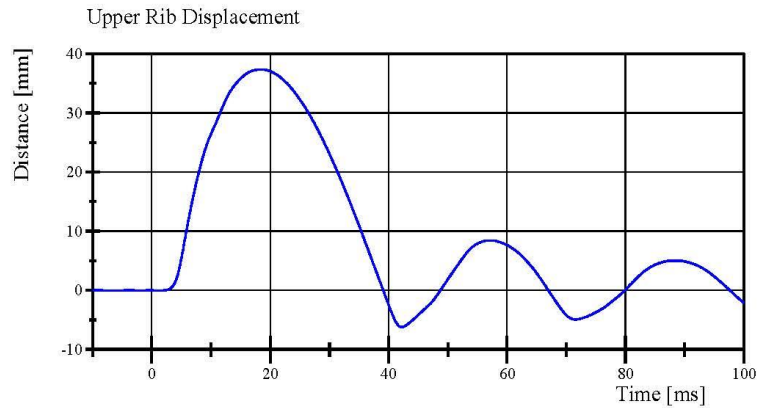
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Transportation Research Center Inc.

Left Lower Thorax
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017



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. 49-1

Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	4.07 m/s	Yes
Test Probe Force			
Peak	4,000 - 4,800 N	4,100.3 N	Yes
Time of Peak	10.6 - 13.0 ms	12.56 ms	Yes
Total Abdominal Force			
Peak	2,200 - 2,700 N	2,320.2 N	Yes
Time of Peak	10.0 - 12.3 ms	11.76 ms	Yes

Test meets specifications.

Condition: Used

Comments:

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

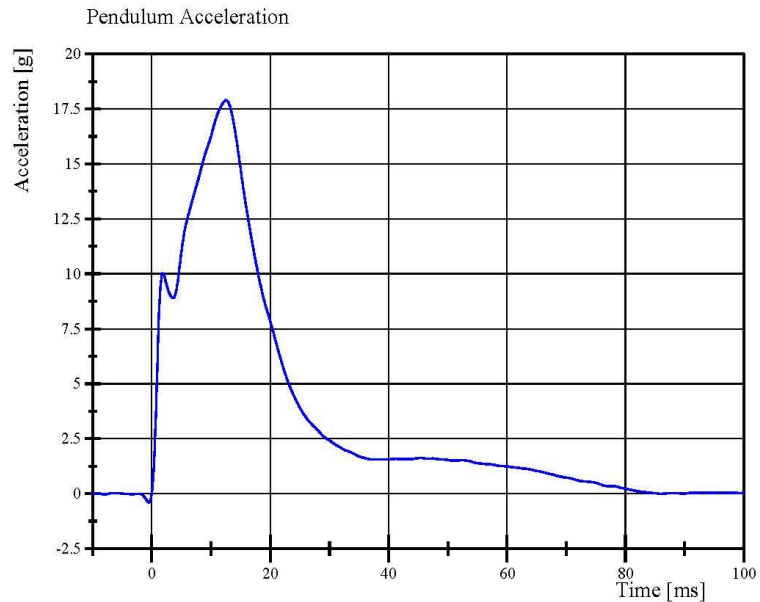
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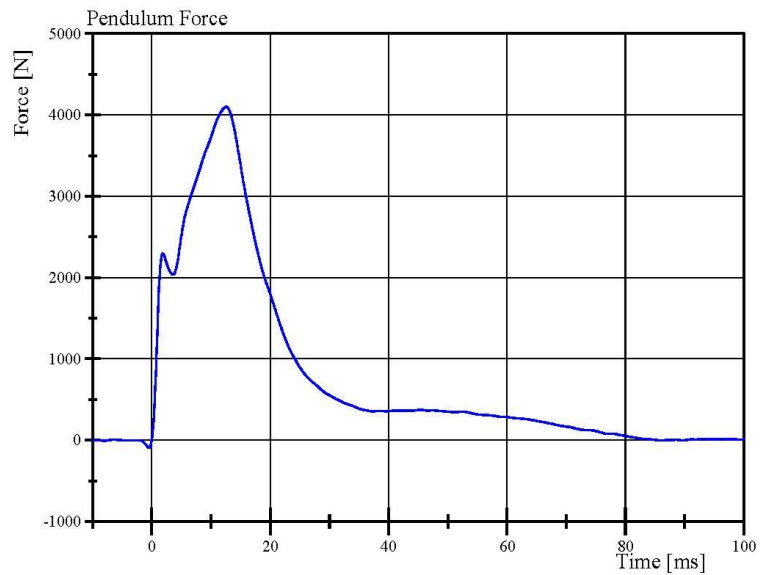


Transportation Research Center Inc.

Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017



Filter Class: CFC_180
Max: 17.9 g at 12.6 ms
Min: -0.4 g at -0.5 ms



Filter Class: CFC_180
Max: 4,100.3 N at 12.6 ms
Min: -90.7 N at -0.5 ms

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

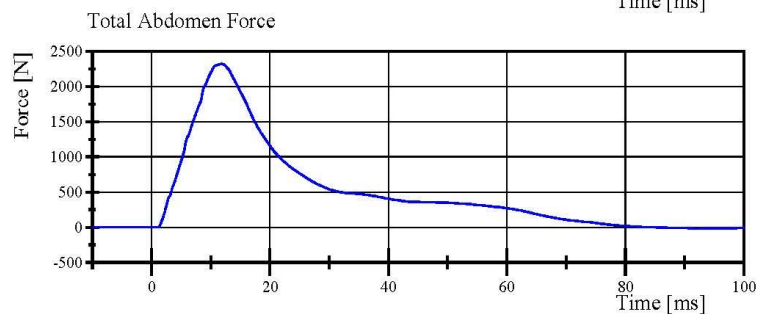
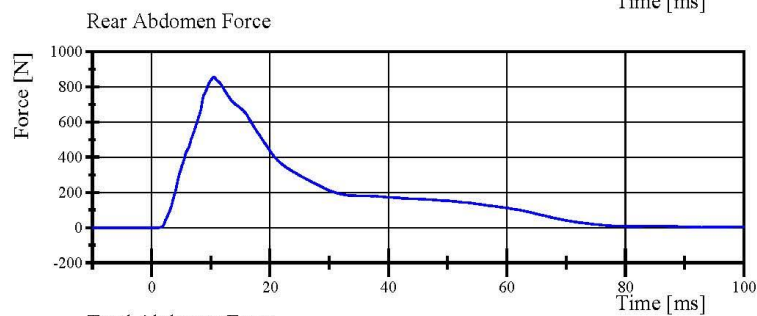
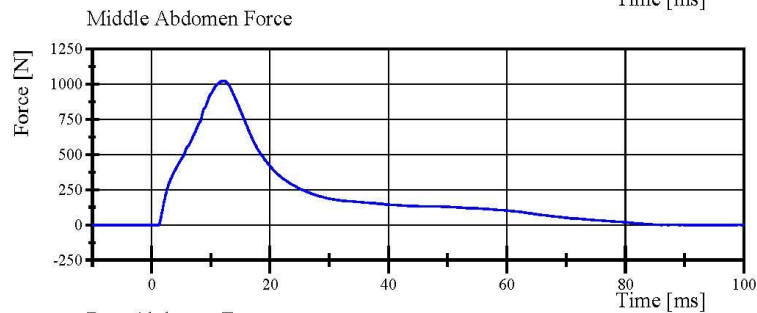
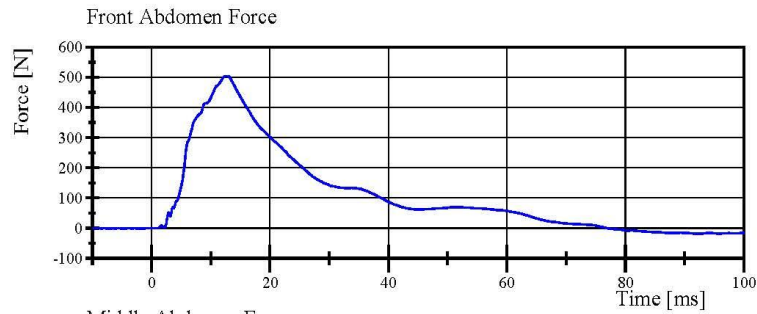
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Transportation Research Center Inc.

Left Lateral Abdomen
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017



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

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Transportation Research Center Inc.

Left Lateral Lumbar

ES-2re Serial No. F030 Certification No. 49-2

Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-5.95) - (-6.15) m/s	-6.106 m/s	Yes
Maximum Headform Flexion			
Peak	(-45) - (-55) deg	-50.9 deg	Yes
Time of Peak	39 - 53 ms	46.2 ms	Yes
Headform Flexion Decay			
- Peak to Zero	37 - 57 ms	37.8 ms	Yes

Test meets specifications.

Condition: Used

Comments:

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

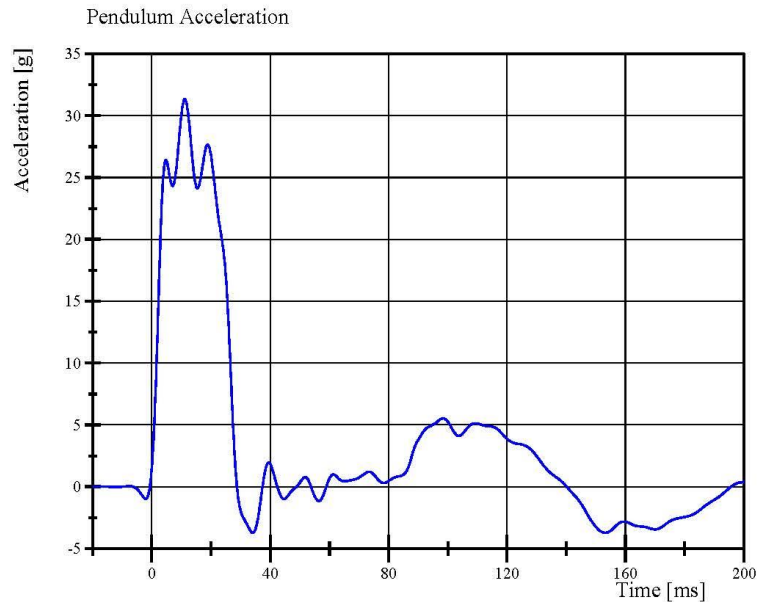
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09.28.2017 09:19:46 674

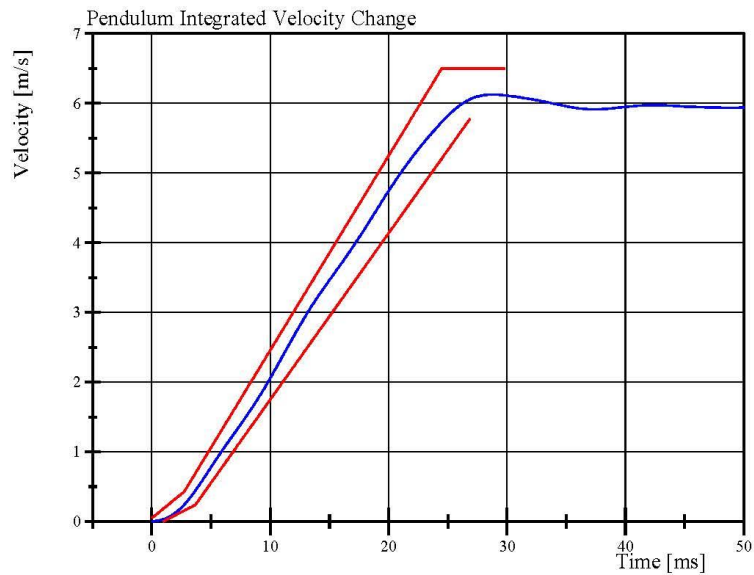


Transportation Research Center Inc.

Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 49-2
Test Date: 9/28/2017



Filter Class: CFC_60
Max: 31.4 g at 11.1 ms
Min: -3.7 g at 153.2 ms



Filter Class: CFC_60
Max: 6.1 m/s at 28.8 ms
Min: 0.0 m/s at 0.0 ms

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

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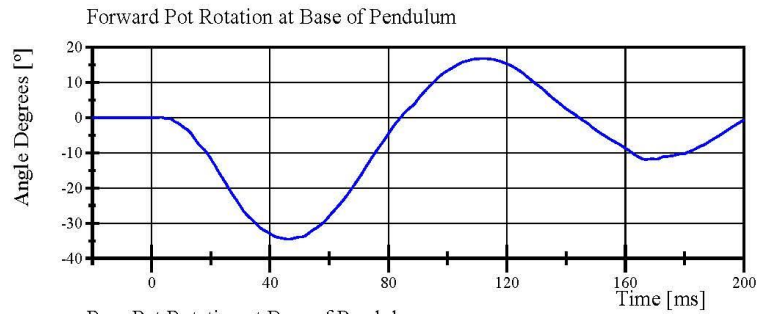


Transportation Research Center Inc.

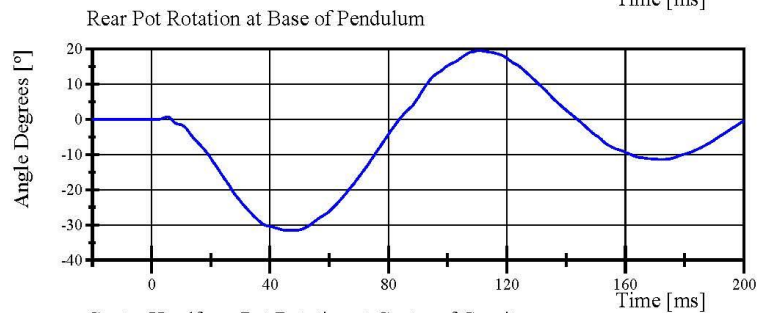
Left Lateral Lumbar

ES-2re Serial No. F030 Certification No. 49-2

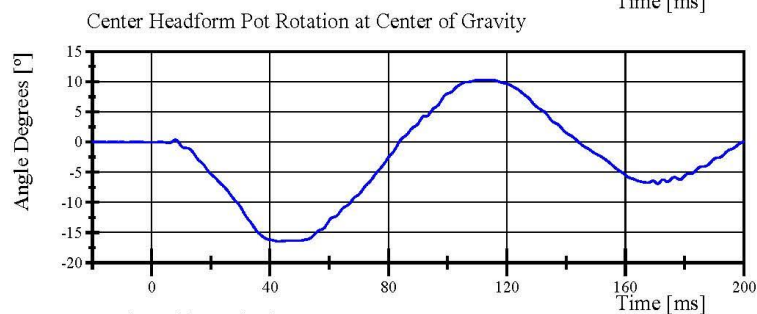
Test Date: 9/28/2017



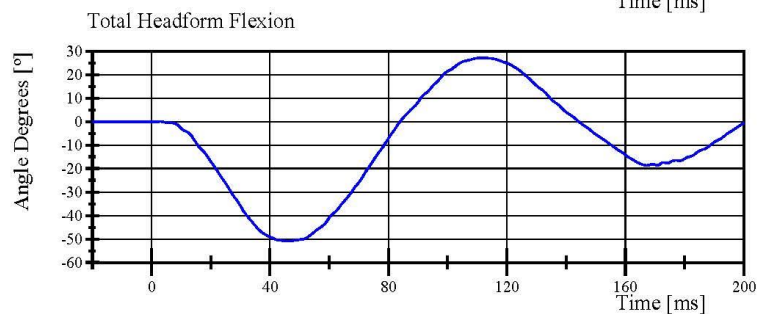
Filter Class: CFC_180
Max: 16.8 ° at 112.0 ms
Min: -34.6 ° at 46.2 ms



Filter Class: CFC_180
Max: 19.5 ° at 110.6 ms
Min: -31.6 ° at 47.5 ms



Filter Class: CFC_180
Max: 10.3 ° at 110.4 ms
Min: -16.4 ° at 42.8 ms



Filter Class: CFC_180
Max: 27.1 ° at 111.0 ms
Min: -50.9 ° at 46.2 ms

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

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Transportation Research Center Inc.

Left Lateral Pelvis
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.36 m/s	Yes
Test Probe Force			
Peak	4,700 - 5,400 N	5,154.2 N	Yes
Time of Peak	11.8 - 16.1 ms	13.52 ms	Yes
Pubic Symphysis Force			
Peak	(-1,230) - (-1,590) N	-1,299.3 N	Yes
Time of Peak	12.2 - 17.0 ms	14.16 ms	Yes

Test meets specifications.

Condition: Used

Comments:

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

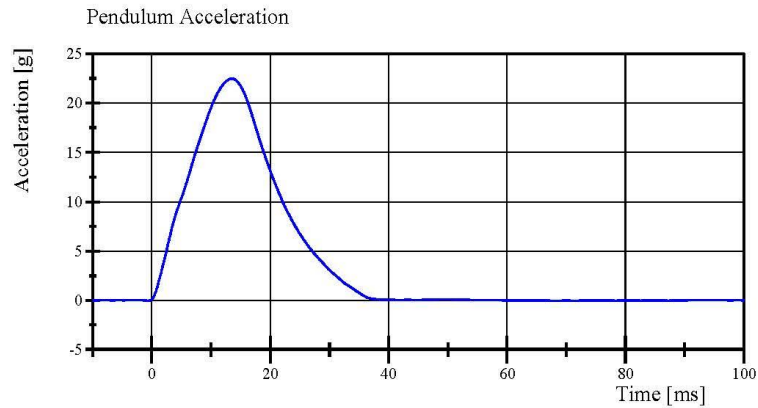
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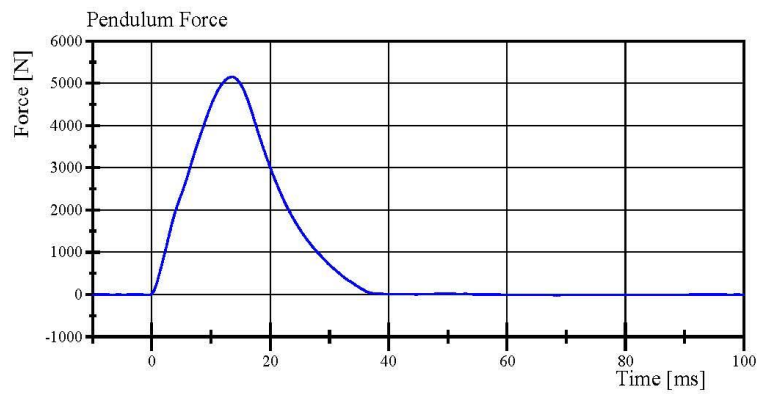


Transportation Research Center Inc.

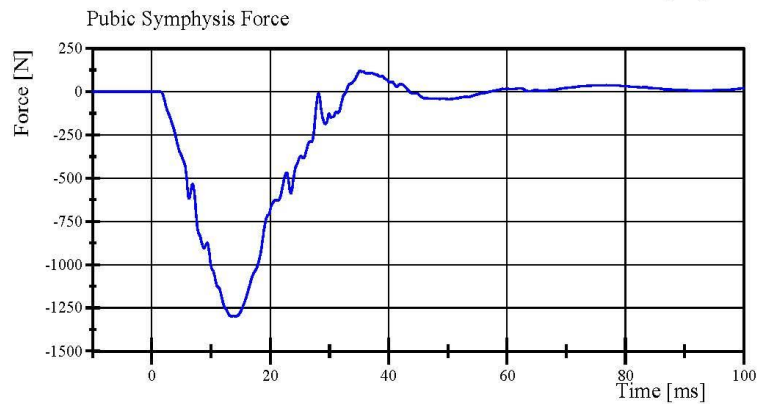
Left Lateral Pelvis
ES-2re Serial No. F030 Certification No. 49-1
Test Date: 9/28/2017



Filter Class: CFC_180
Max: 22.5 g at 13.5 ms
Min: -0.1 g at 68.5 ms



Filter Class: CFC_180
Max: 5,154.2 N at 13.5 ms
Min: -16.2 N at 68.5 ms



Filter Class: CFC_600
Max: 120.3 N at 35.1 ms
Min: -1,299.3 N at 14.2 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. 50

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	559	Yes
3	Seat to Lower Face of Thoracic Spine Box	346.0 - 356.0	350	Yes
4	Seat to Hip Joint (center of bolt)	97.0 - 103.0	98	Yes
5	Sole to Seat, Sitting	433.0 - 451.0	445	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	325	Yes
9	Abdomen Width	273.0 - 287.0	280	Yes
10	Pelvis Lap Width	359.0 - 373.0	365	Yes
11	Head Depth	196.0 - 206.0	204	Yes
12	Thorax Depth	262.0 - 272.0	263	Yes
13	Abdomen Depth	194.0 - 204.0	201	Yes
14	Pelvis Depth	235.0 - 245.0	240	Yes
15	Back of Buttocks to Hip Joint (center of bolt)	150.0 - 160.0	158	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. 50-1
Test Date: 10/6/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Peak Resultant Acceleration	125 - 155 g	154.9 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	11.3 g	Yes
Is Resultant Acceleration Curve Unimodal within 15% of Main Pulse?	Yes	Yes	Yes

Test meets specifications.

Condition: Used

Comments:

Skull S/N: N/A

Head Skin S/N: DP6812

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

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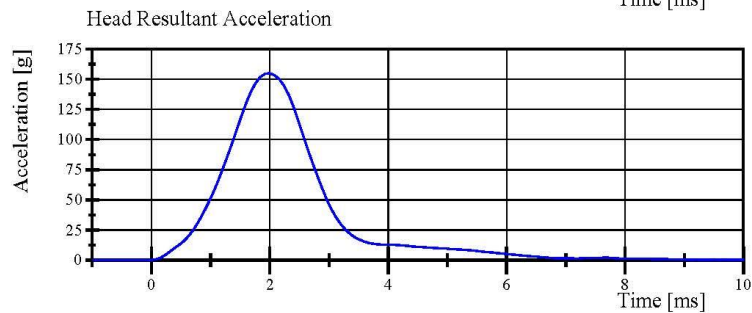
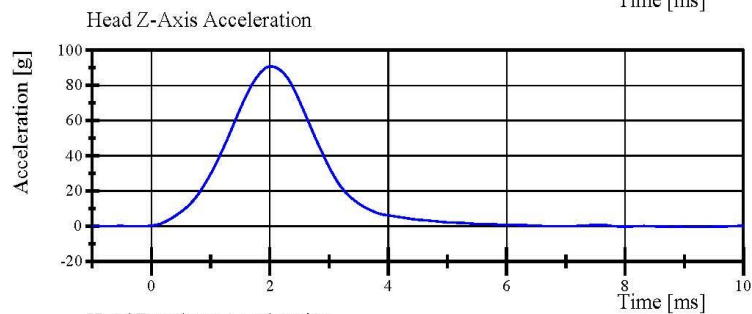
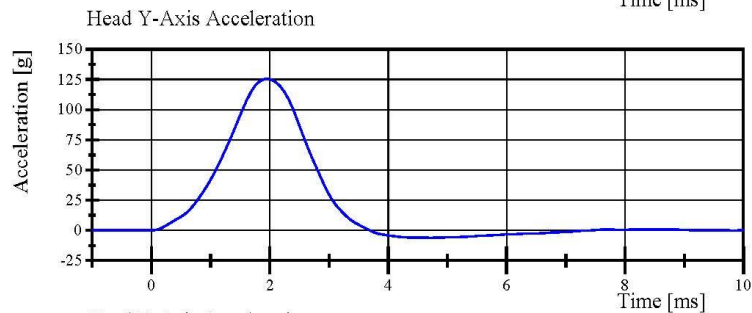
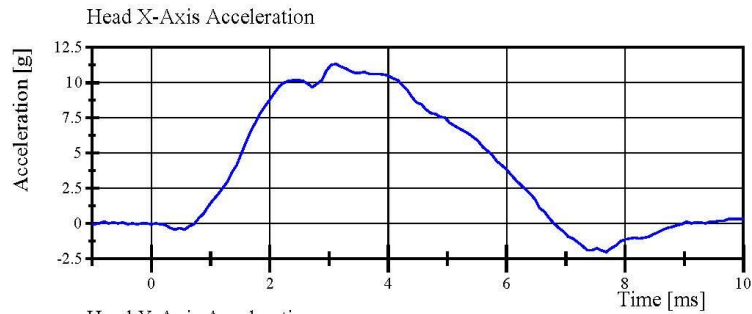


Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/6/2017



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

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10.08.2017 12:03:37 364



Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/8/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.38 m/s	Yes
Maximum Headform Flexion			
Peak	(-49) - (-59) deg	-51.4 deg	Yes
Time of Peak	54 - 66 ms	58.2 ms	Yes
Headform Flexion Decay			
- Peak to Zero	53 - 88 ms	63.9 ms	Yes

Test meets specifications.

Condition: Used

Comments:

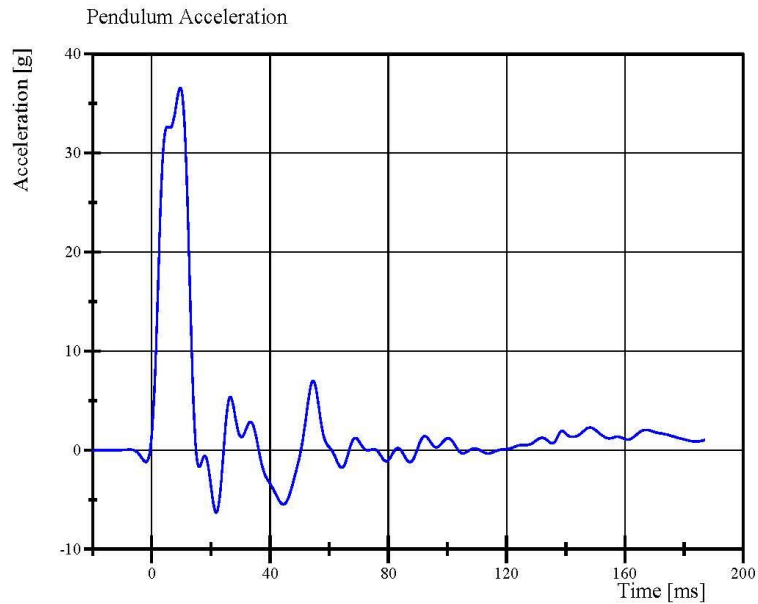
Neck S/N: DI5031

Transportation Research Center Inc.

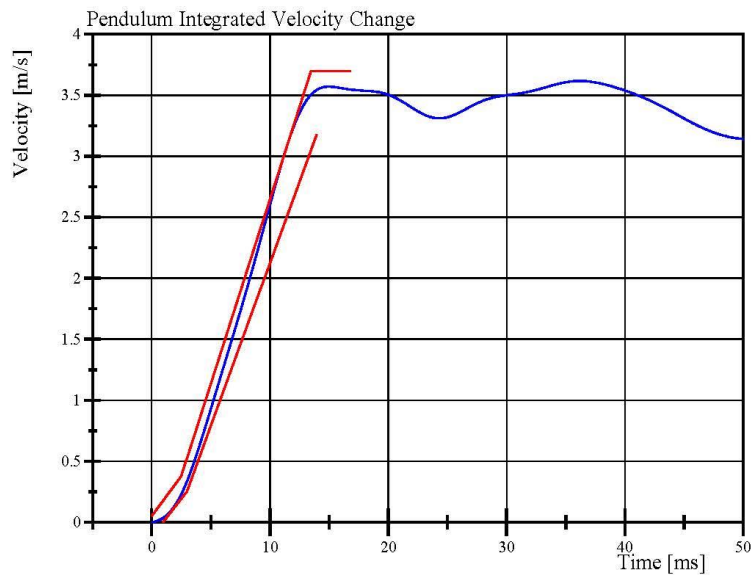
Left Lateral Neck

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/8/2017



Filter Class: CFC_60
Max: 36.6 g at 9.7 ms
Min: -6.3 g at 21.8 ms



Filter Class: CFC_60
Max: 3.6 m/s at 36.2 ms
Min: 0.0 m/s at 0.0 ms

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

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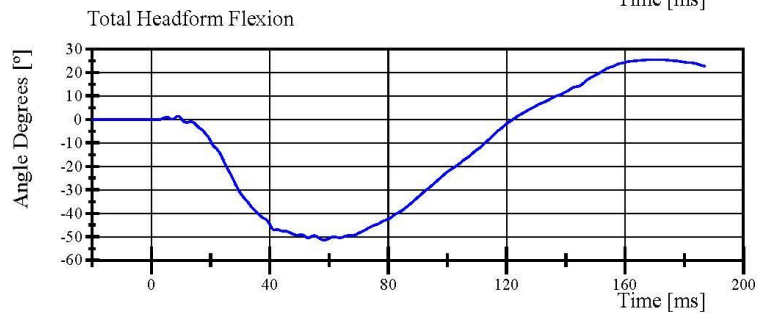
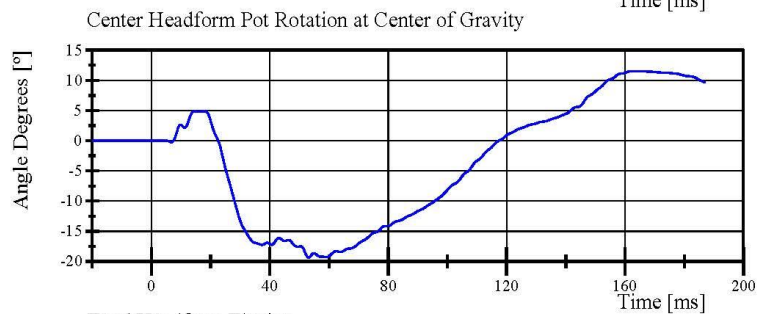
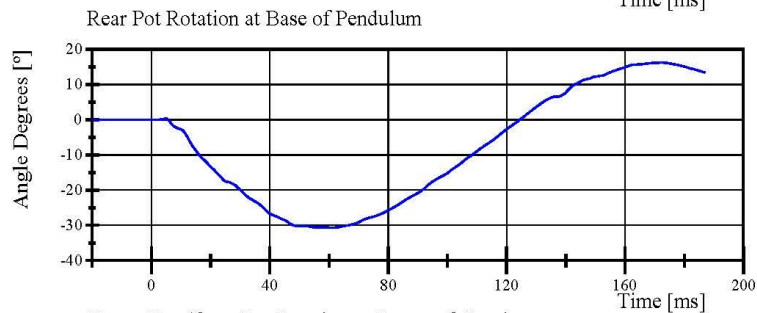
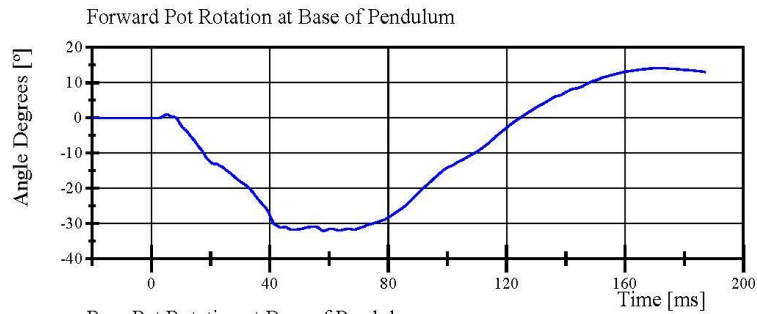


Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/8/2017



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

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Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/6/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.30 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-9.42 g	Yes

Test meets specifications.

Condition: Used

Comments:

Arm S/N: 175-3501-07014

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

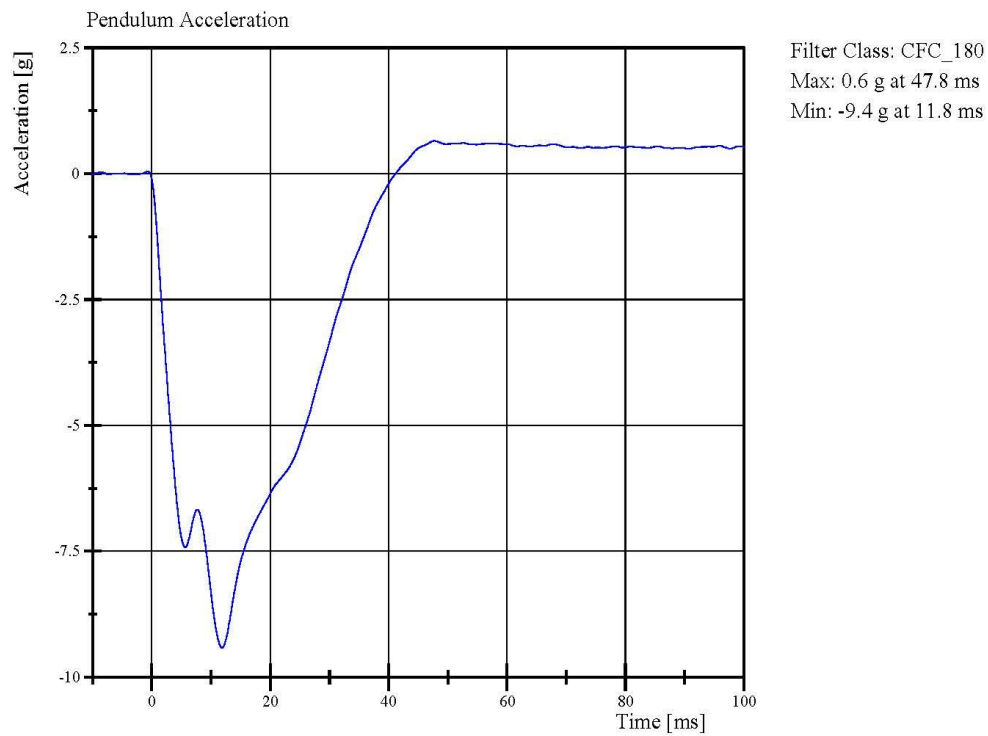
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10.06.2017 15:15:00 559



Transportation Research Center Inc.

Left Lateral Shoulder
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/6/2017



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

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Transportation Research Center Inc.

3.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/6/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	36.5 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 462

Rib Module: 175-4008-A

Rib Foam: 175-4003-07229

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

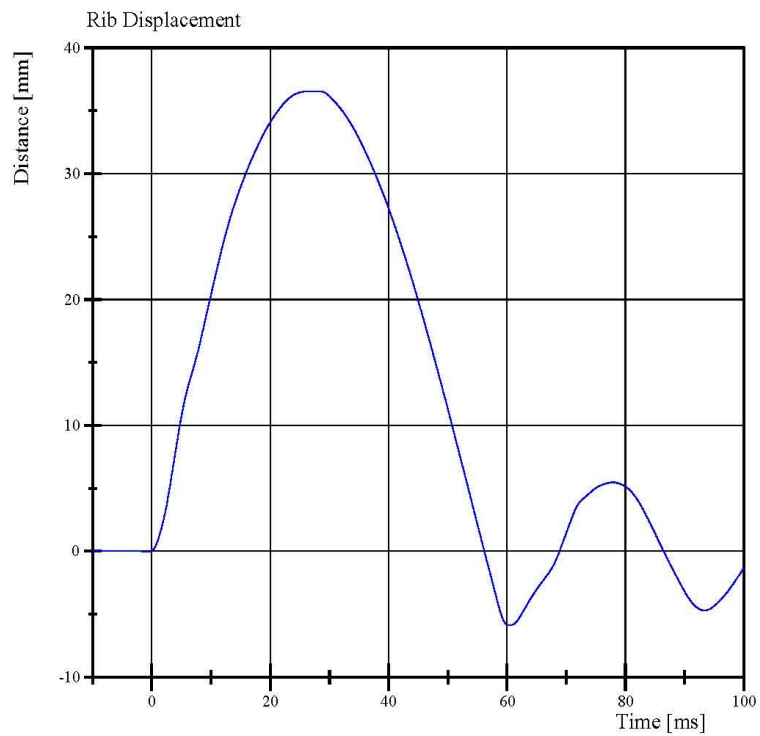
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10.06.2017 11:05:38 597



Transportation Research Center Inc.

3.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/6/2017



Filter Class: CFC_180
Max: 36.5 mm at 28.0 ms
Min: -5.9 mm at 60.4 ms

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

10.06.2017 11:08:41 597



Transportation Research Center Inc.

4.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/6/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	46.4 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 816

Rib Module: 175-4008-A

Rib Foam: 07229

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

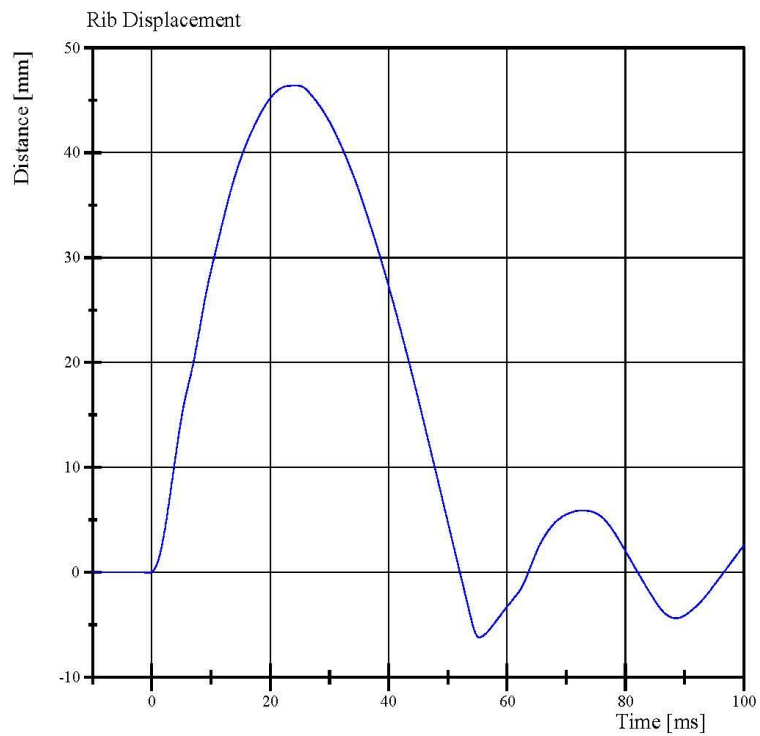
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10.06.2017 11:44:11 498



Transportation Research Center Inc.

4.0 m/s Upper Upper Full Rib Module
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/6/2017



Filter Class: CFC_180
Max: 46.4 mm at 24.5 ms
Min: -6.2 mm at 55.4 ms

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

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10.06.2017 11:45:13 498



Transportation Research Center Inc.

3.0 m/s Center Full Rib Module

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/6/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	37.2 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 462

Rib Module: 175-4008-A

Rib Foam: E2A-DCT-04082

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

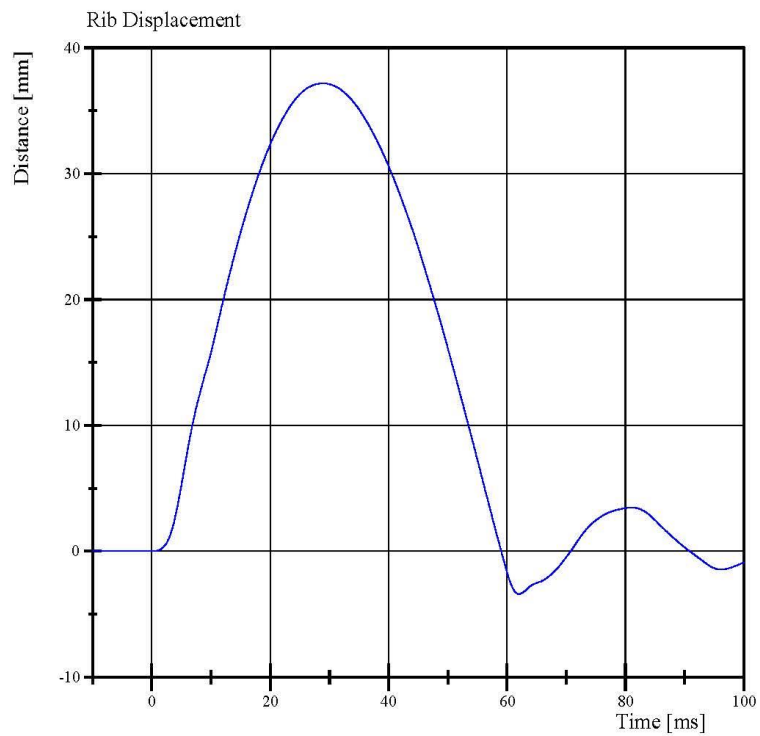
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Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/6/2017



Filter Class: CFC_180
Max: 37.2 mm at 29.0 ms
Min: -3.4 mm at 62.0 ms

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

10.06.2017 12:54:43 554



Transportation Research Center Inc.

4.0 m/s Center Full Rib Module

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/6/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	50 %	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

Rib Module: 175-4008-A

Rib Foam: E2A-DCT-04082

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

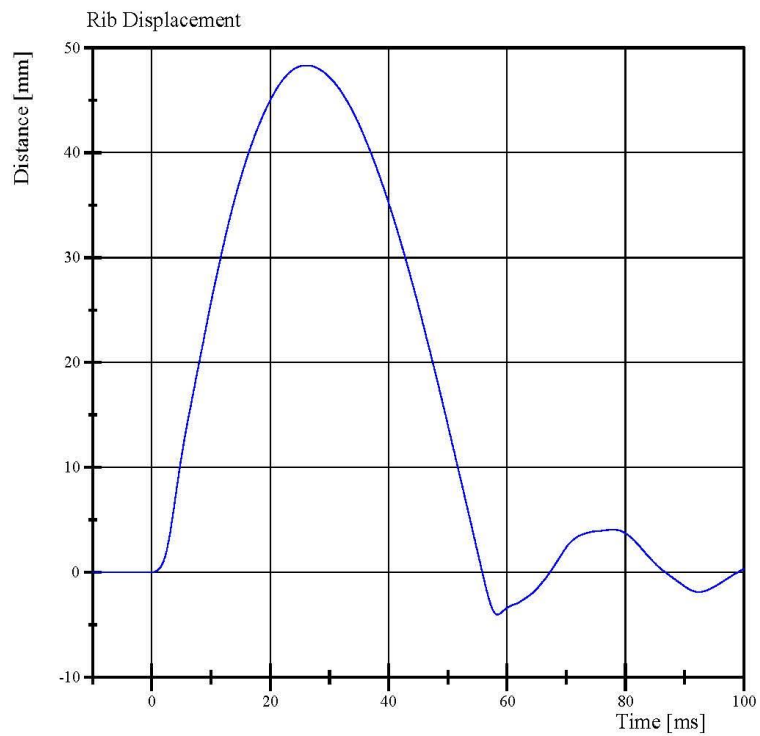
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Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/6/2017



Filter Class: CFC_180
Max: 48.3 mm at 26.2 ms
Min: -4.0 mm at 58.4 ms

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

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10.06.2017 11:34:14 491



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/6/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
3.0 m/s Test Rib Displacement (454 mm to 464 mm)	36 - 40 mm	38.0 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 462

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

Rib Foam: 175-4003-05125

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

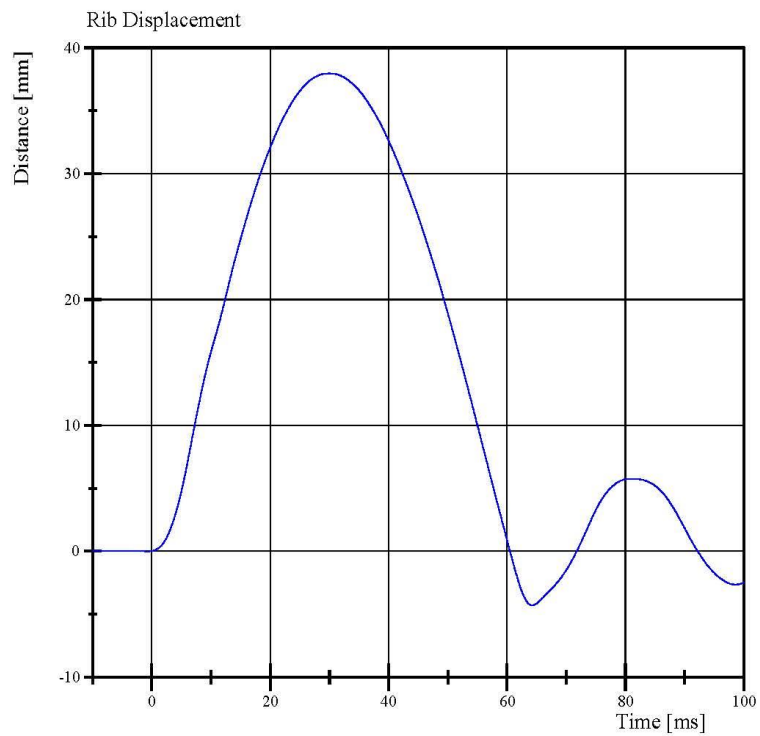
Page 20 of 33

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Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/6/2017



Filter Class: CFC_180
Max: 38.0 mm at 30.0 ms
Min: -4.3 mm at 64.2 ms

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

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10.06.2017 13:18:34 548



Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/6/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
4.0 m/s Test Rib Displacement (807 mm to 823 mm)	46 - 51 mm	48.8 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Drop Height: 816

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

Rib Foam: 175-4003-05125

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

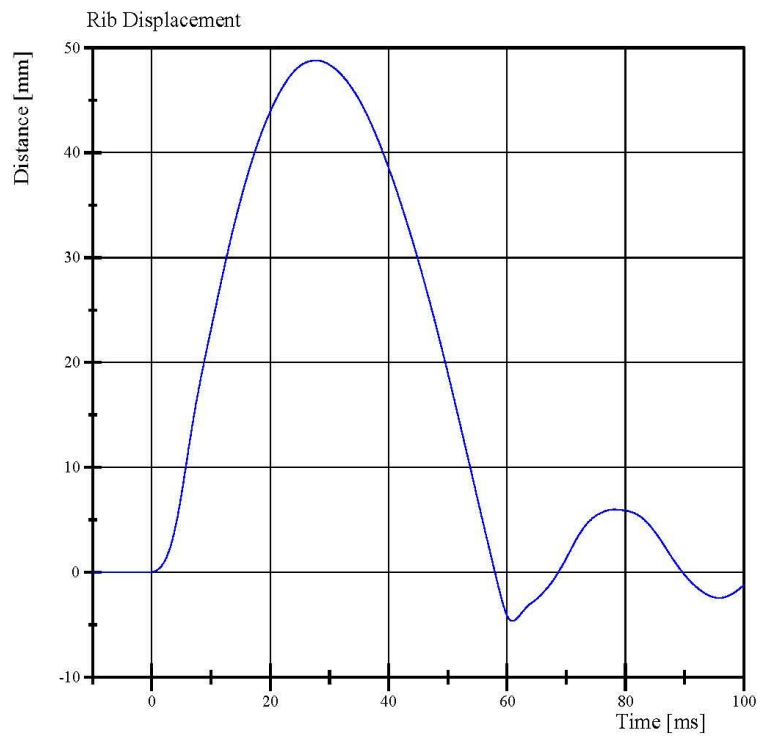
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Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/6/2017



Filter Class: CFC_180
Max: 48.8 mm at 27.7 ms
Min: -4.6 mm at 60.9 ms

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

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Transportation Research Center Inc.

Left Lower Thorax

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/6/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Impactor Velocity	5.4 - 5.60 m/s	5.540 m/s	Yes
Peak Impactor Force after 6 ms	(-5,100) - (-6,200) N	-5,286.6 N	Yes
Upper Rib Displacement	34 - 41 mm	37.5 mm	Yes
Center Rib Displacement	37 - 45 mm	42.3 mm	Yes
Lower Rib Displacement	37 - 44 mm	41.2 mm	Yes

Test meets specifications.

Condition: Used

Comments:

Upper Rib

Rib Module: 175-4008-A

Rib Foam: 175-4003-07229

Center Rib

Rib Module: 175-4008-A

Rib Foam: E2A-DCT-04082

Lower Rib

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

Rib Foam: 175-4003-05125

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

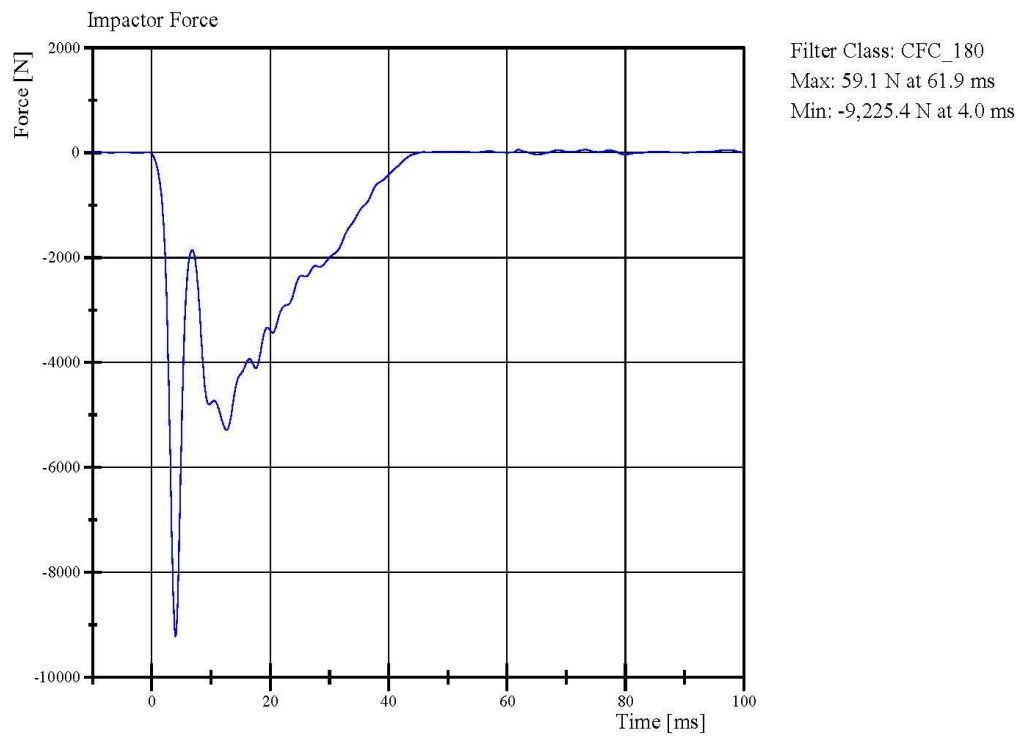
10.06.2017 15:21:18 487



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Transportation Research Center Inc.

Left Lower Thorax
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/6/2017



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

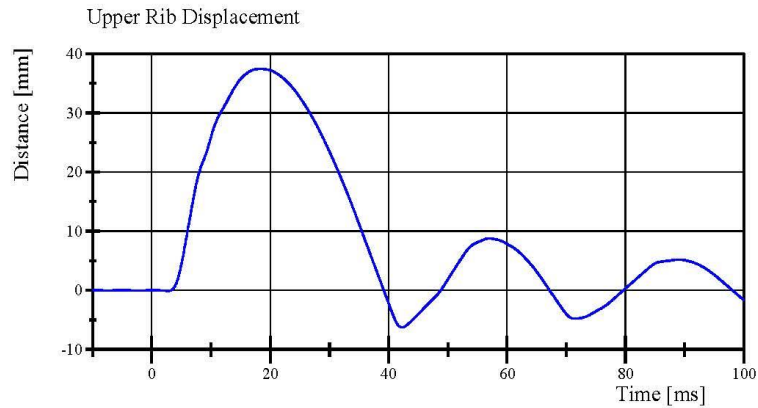
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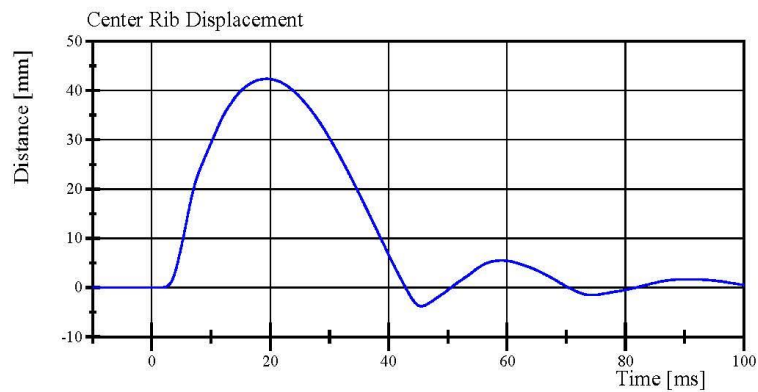


Transportation Research Center Inc.

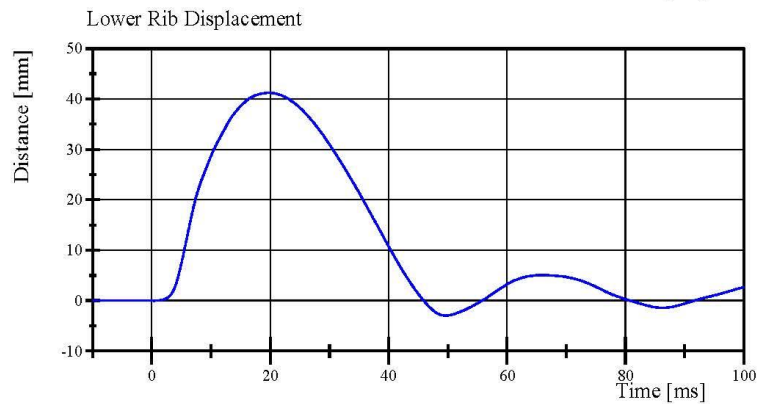
Left Lower Thorax
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/6/2017



Filter Class: CFC_180
Max: 37.5 mm at 18.3 ms
Min: -6.3 mm at 42.2 ms



Filter Class: CFC_180
Max: 42.3 mm at 19.4 ms
Min: -3.8 mm at 45.5 ms



Filter Class: CFC_180
Max: 41.2 mm at 19.8 ms
Min: -3.0 mm at 49.6 ms

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

10.06.2017 15:21:33 487



Transportation Research Center Inc.

Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/6/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	4.07 m/s	Yes
Test Probe Force			
Peak	4,000 - 4,800 N	4,054.9 N	Yes
Time of Peak	10.6 - 13.0 ms	11.60 ms	Yes
Total Abdominal Force			
Peak	2,200 - 2,700 N	2,433.4 N	Yes
Time of Peak	10.0 - 12.3 ms	11.68 ms	Yes

Test meets specifications.

Condition: Used

Comments:

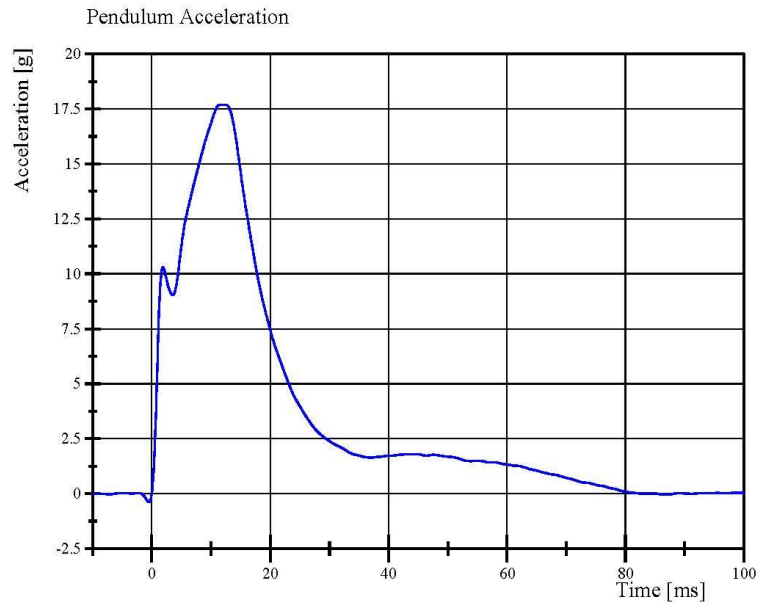
Abdomen S/N: 1066

Transportation Research Center Inc.

Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 50-1

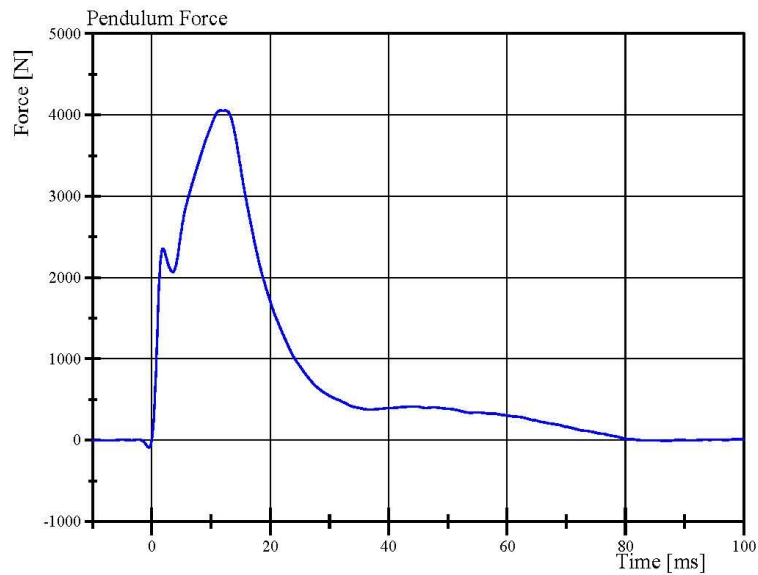
Test Date: 10/6/2017



Filter Class: CFC_180

Max: 17.7 g at 11.6 ms

Min: -0.4 g at -0.5 ms



Filter Class: CFC_180

Max: 4,054.9 N at 11.6 ms

Min: -87.9 N at -0.5 ms

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

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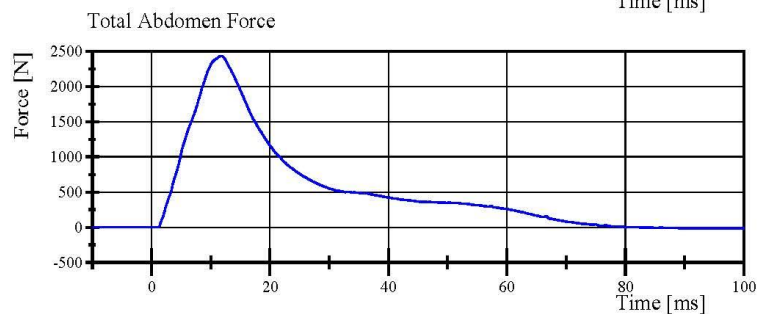
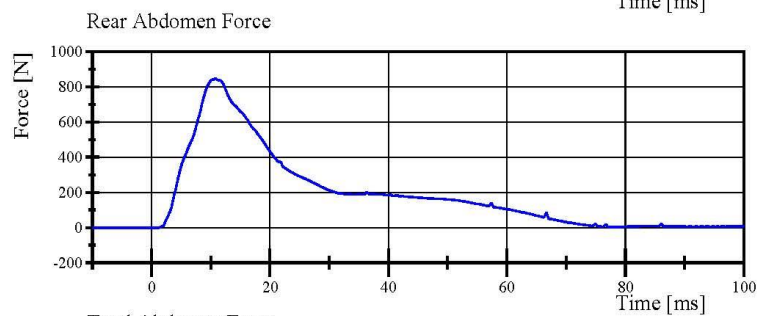
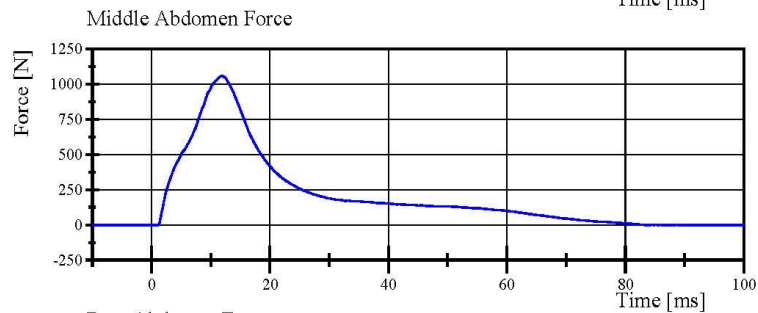
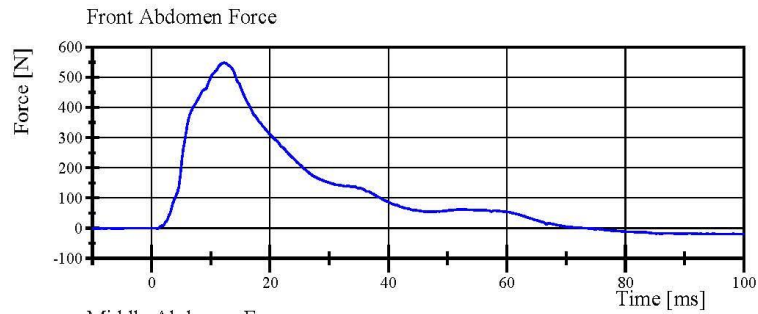
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Transportation Research Center Inc.

Left Lateral Abdomen

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/6/2017



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

10.06.2017 15:28:13 603



Transportation Research Center Inc.

Left Lateral Lumbar

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/8/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Pendulum Integrated Velocity Change within Corridor	Yes	Yes	Yes
Pendulum Velocity	(-5.95) - (-6.15) m/s	-6.108 m/s	Yes
Maximum Headform Flexion			
Peak	(-45) - (-55) deg	-47.5 deg	Yes
Time of Peak	39 - 53 ms	43.1 ms	Yes
Headform Flexion Decay			
- Peak to Zero	37 - 57 ms	37.6 ms	Yes

Test meets specifications.

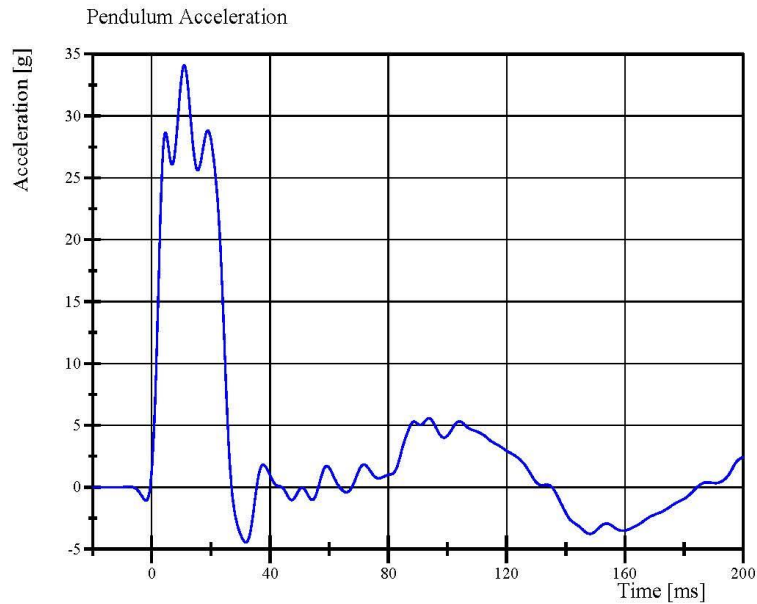
Condition: Used

Comments:

Lumbar S/N: 150375

Transportation Research Center Inc.

Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/8/2017



Filter Class: CFC_60
Max: 34.1 g at 11.0 ms
Min: -4.5 g at 31.8 ms



Filter Class: CFC_60
Max: 6.2 m/s at 27.0 ms
Min: 0.0 m/s at 0.0 ms

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

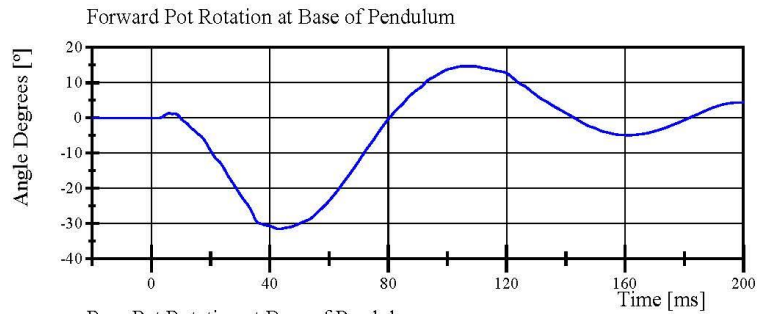
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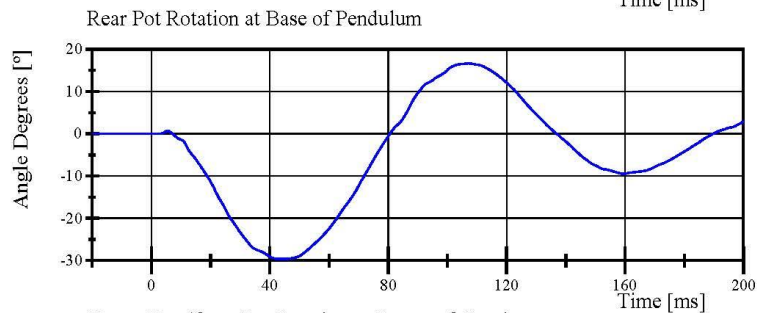


Transportation Research Center Inc.

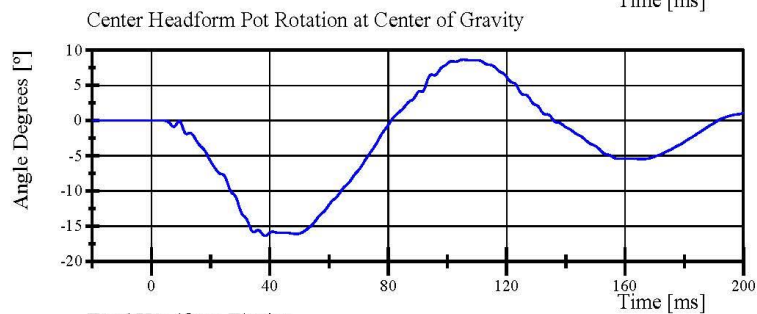
Left Lateral Lumbar
ES-2re Serial No. F030 Certification No. 50-1
Test Date: 10/8/2017



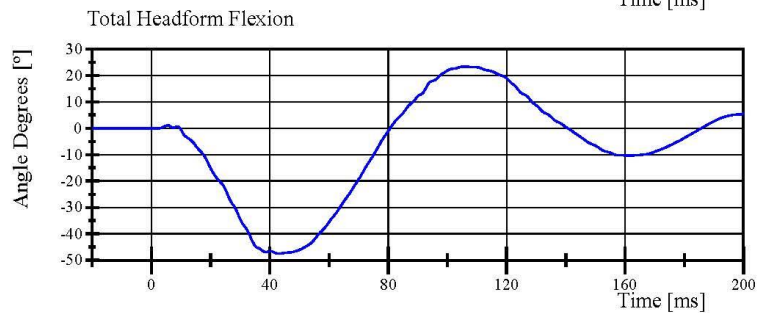
Filter Class: CFC_180
Max: 14.7 ° at 106.2 ms
Min: -31.6 ° at 43.1 ms



Filter Class: CFC_180
Max: 16.7 ° at 107.1 ms
Min: -29.6 ° at 45.5 ms



Filter Class: CFC_180
Max: 8.6 ° at 105.4 ms
Min: -16.4 ° at 38.4 ms



Filter Class: CFC_180
Max: 23.3 ° at 105.6 ms
Min: -47.5 ° at 43.1 ms

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

10.08.2017 12:09:03 670



Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 50-1

Test Date: 10/6/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.34 m/s	Yes
Test Probe Force			
Peak	4,700 - 5,400 N	5,251.5 N	Yes
Time of Peak	11.8 - 16.1 ms	13.92 ms	Yes
Pubic Symphysis Force			
Peak	(-1,230) - (-1,590) N	-1,331.8 N	Yes
Time of Peak	12.2 - 17.0 ms	14.56 ms	Yes

Test meets specifications.

Condition: Used

Comments:

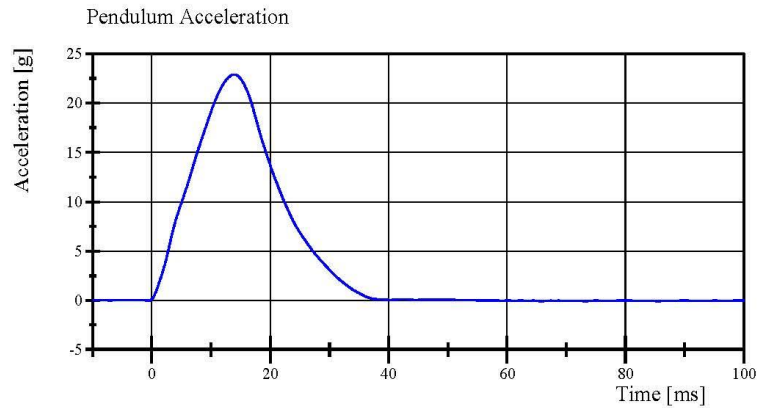
Pelvis Skin S/N: N/A

Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. F030 Certification No. 50-1

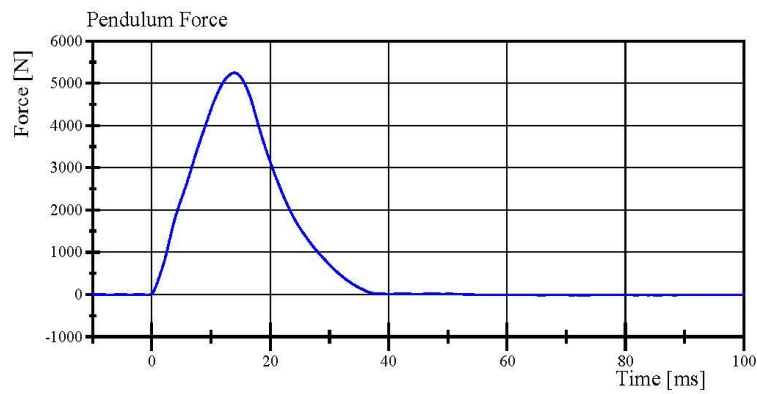
Test Date: 10/6/2017



Filter Class: CFC_180

Max: 22.9 g at 13.9 ms

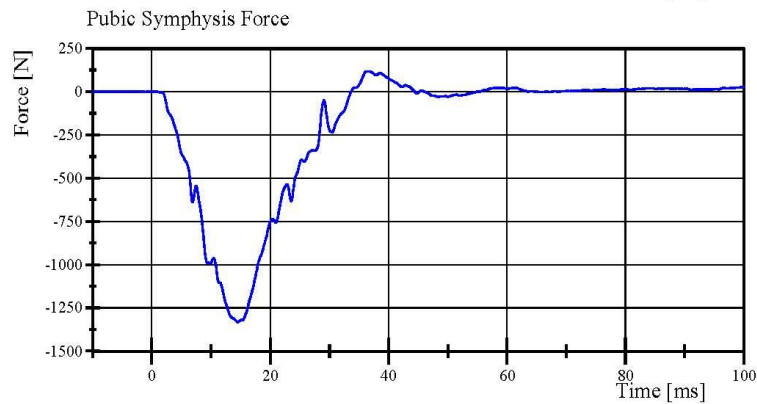
Min: -0.1 g at 65.8 ms



Filter Class: CFC_180

Max: 5,251.5 N at 13.9 ms

Min: -20.1 N at 65.8 ms



Filter Class: CFC_600

Max: 118.1 N at 36.4 ms

Min: -1,331.8 N at 14.6 ms

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

10.06.2017 15:33:17 588



Pre-Test Calibration Sheets
Passenger S/N 305

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 305 Calibration No.57

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	782	Yes
B	Shoulder Pivot Height	437.0 - 453.0	448	Yes
C	H-Point Height	79.0 - 89.0	87	Yes
D	H-Point from Seat Back	141.0 - 151.0	145	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	101	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	543	Yes
K	Buttock to Knee Length	514.0 - 540.0	535	Yes
L	Popliteal Height	343.0 - 369.0	348	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	395	Yes
N	Buttock Popliteal Length	416.0 - 442.0	434	Yes
O	Chest Depth without Jacket	195.0 - 211.0	200	Yes
P	Foot Length (right)	216.0 - 232.0	222	Yes
P	Foot Length (left)	216.0 - 232.0	222	Yes
Q	Hip Breadth	313.0 - 323.0	320	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to seat Back	478.0 - 493.0	482	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	349	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	873	Yes
Z	Waist Circumference	761.0 - 791.0	780	Yes

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIS Serial No. 305 Certification No. 57-2

Test Date: 9/29/2017

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	115.5 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	2.4 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

Test meets specifications.

Condition: Used

Comments:

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

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09.29.2017 14:30:15 230

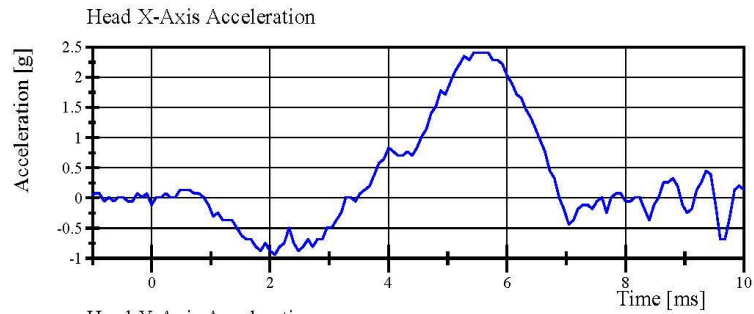


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 305 Certification No. 57-2

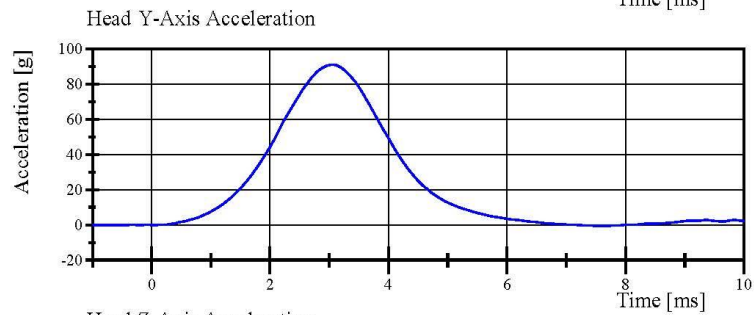
Test Date: 9/29/2017



Filter Class: CFC_1000

Max: 2.4 g at 5.4 ms

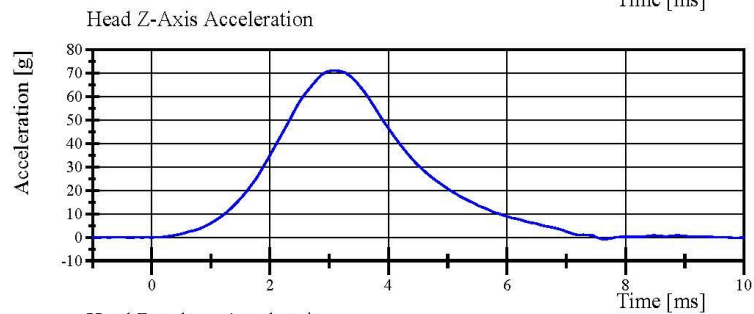
Min: -0.9 g at 2.1 ms



Filter Class: CFC_1000

Max: 91.1 g at 3.0 ms

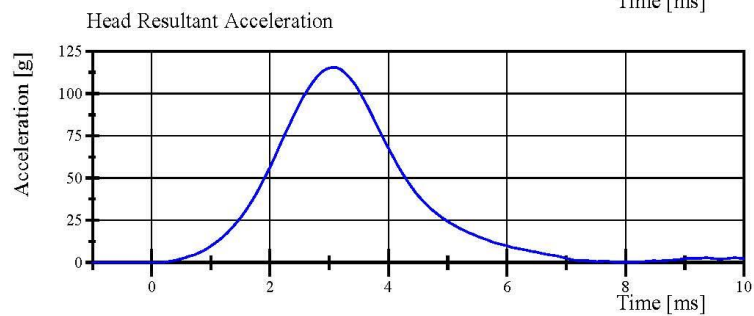
Min: -0.6 g at 7.5 ms



Filter Class: CFC_1000

Max: 71.1 g at 3.1 ms

Min: -0.7 g at 7.7 ms



Filter Class: CFC_1000

Max: 115.5 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

09.29.2017 14:30:30 230



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 57-1

Test Date: 9/29/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.612 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.633 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.846 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.183 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.768 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.769 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-76.9 deg	Yes
Time of Peak	50 - 70 ms	68.2 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	39.7 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	121.7 ms	Yes

Test meets specifications.

Condition: Used

Comments:

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

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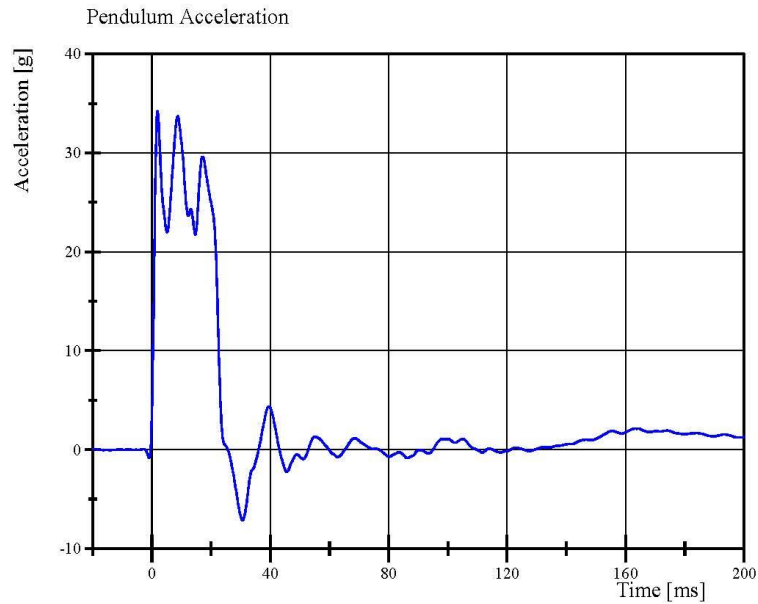


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 57-1

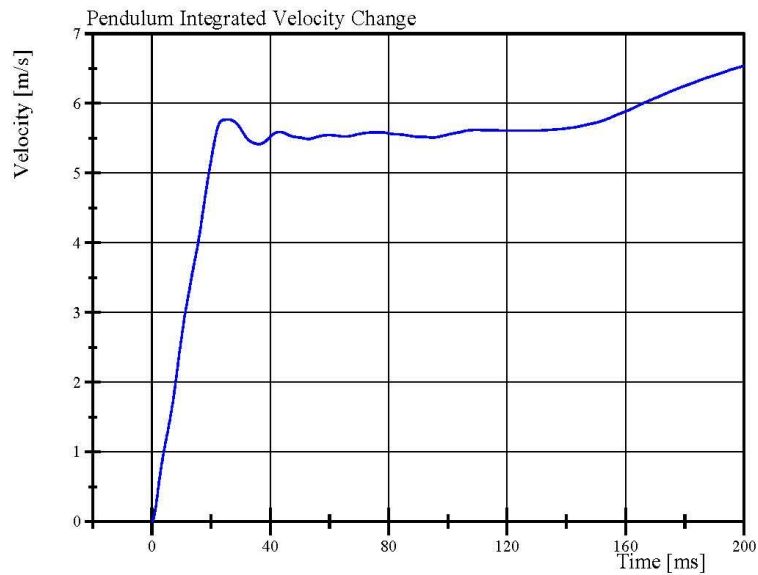
Test Date: 9/29/2017



Filter Class: CFC_180

Max: 34.2 g at 1.9 ms

Min: -7.1 g at 30.6 ms



Filter Class: CFC_180

Max: 6.5 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

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

09.29.2017 10:00:29 753

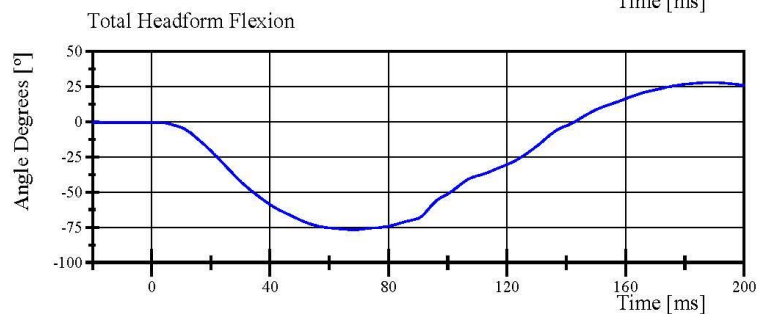
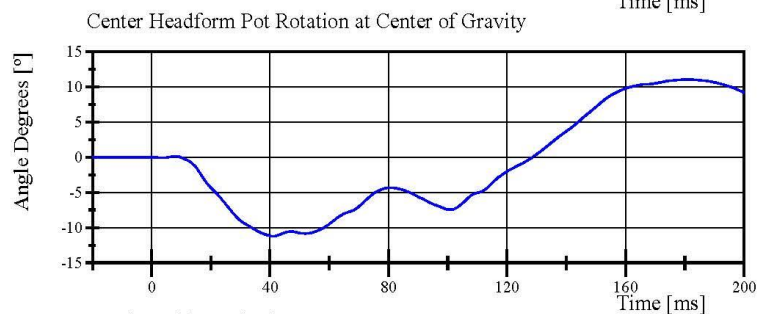
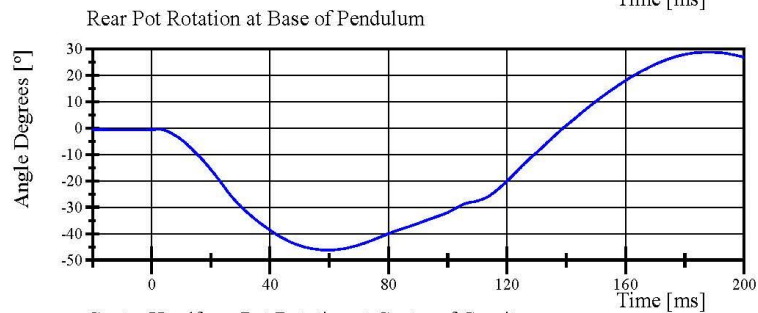
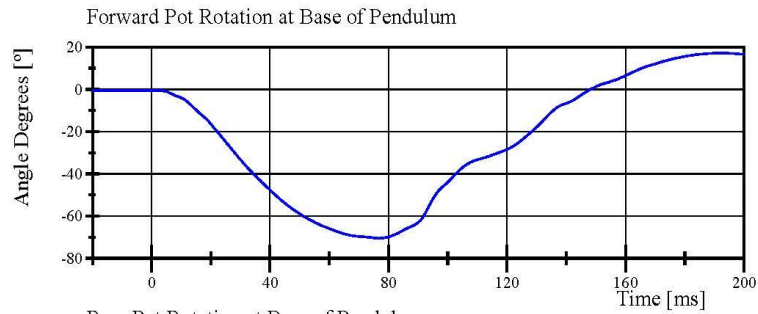


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 57-1

Test Date: 9/29/2017



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

09.29.2017 10:00:30 753



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Transportation Research Center Inc.

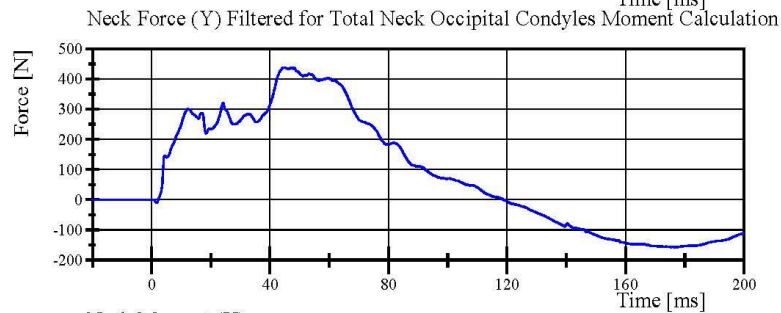
Left Lateral Neck

SID IIs Serial No. 305 Certification No. 57-1

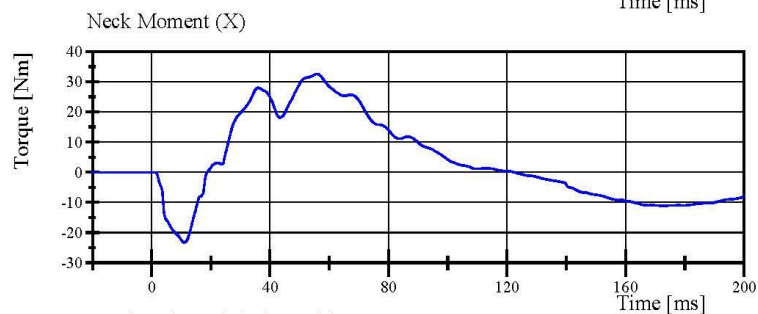
Test Date: 9/29/2017



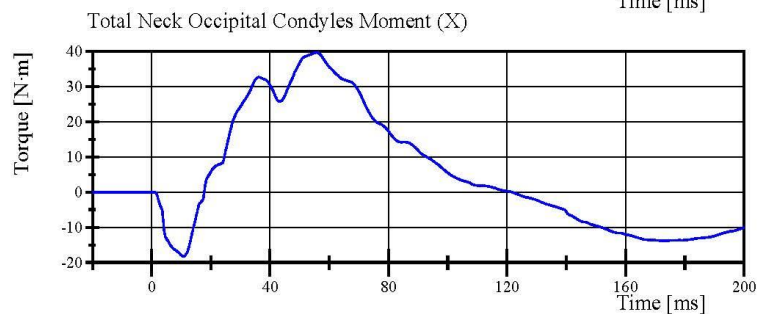
Filter Class: CFC_1000
Max: 441.0 N at 48.2 ms
Min: -156.7 N at 176.2 ms



Filter Class: CFC_600
Max: 438.5 N at 45.0 ms
Min: -156.3 N at 176.2 ms



Filter Class: CFC_600
Max: 32.6 Nm at 55.8 ms
Min: -23.2 Nm at 11.0 ms



Filter Class: Without_(Consta
Max: 39.7 N·m at 55.6 ms
Min: -18.3 N·m at 10.9 ms

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

09.29.2017 10:00:31 753



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIS Serial No. 305 Certification No. 57-1

Test Date: 9/29/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.6 g	Yes
Shoulder Displacement	28 - 37 mm	30.0 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	21.0 g	Yes

Test meets specifications.

Condition: Used

Comments:

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

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09.29.2017 11:42:32 868

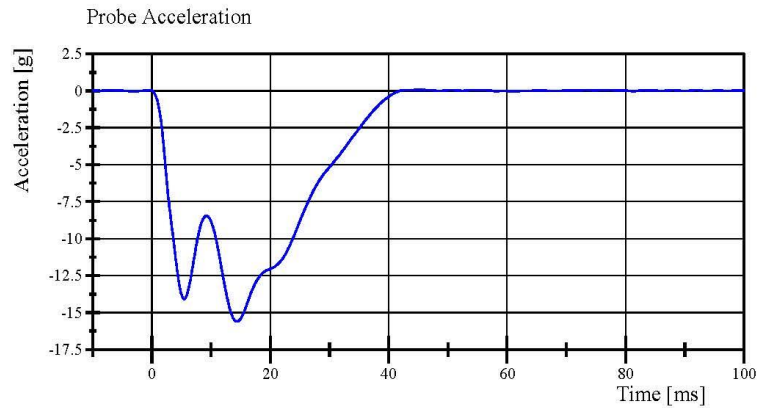


Transportation Research Center Inc.

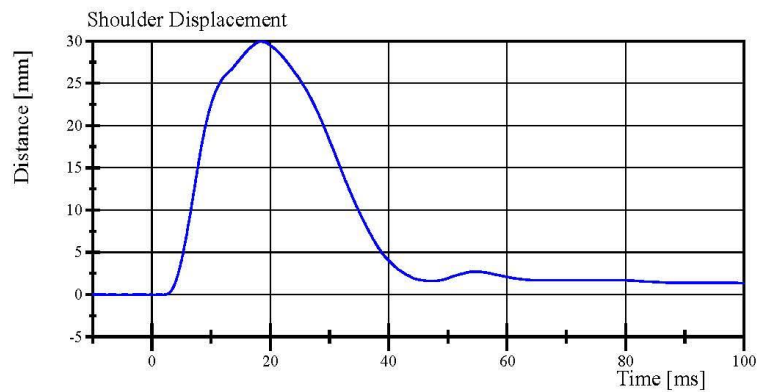
Left Lateral Shoulder

SID IIs Serial No. 305 Certification No. 57-1

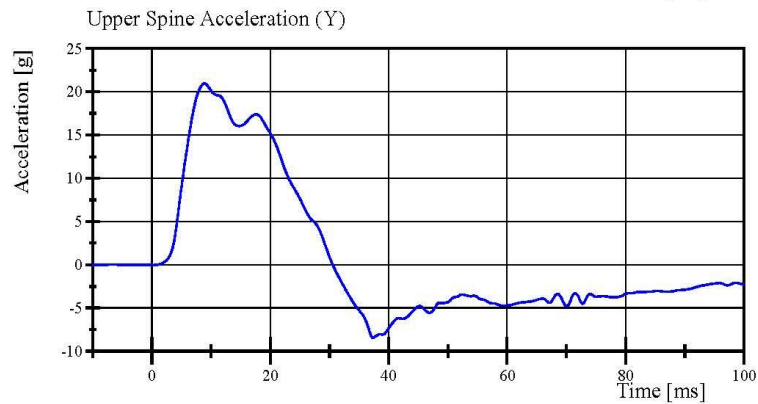
Test Date: 9/29/2017



Filter Class: CFC_180
Max: 0.1 g at 44.9 ms
Min: -15.6 g at 14.4 ms



Filter Class: CFC_600
Max: 30.0 mm at 18.5 ms
Min: -0.0 mm at 2.0 ms



Filter Class: CFC_180
Max: 21.0 g at 8.9 ms
Min: -8.5 g at 37.4 ms

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

09.29.2017 11:42:38 868



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 57-4
Test Date: 10/4/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.735 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-31.8 g	Yes
Shoulder Displacement	31 - 40 mm	35.4 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.4 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.8 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	33.9 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	39.5 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	32.1 g	Yes

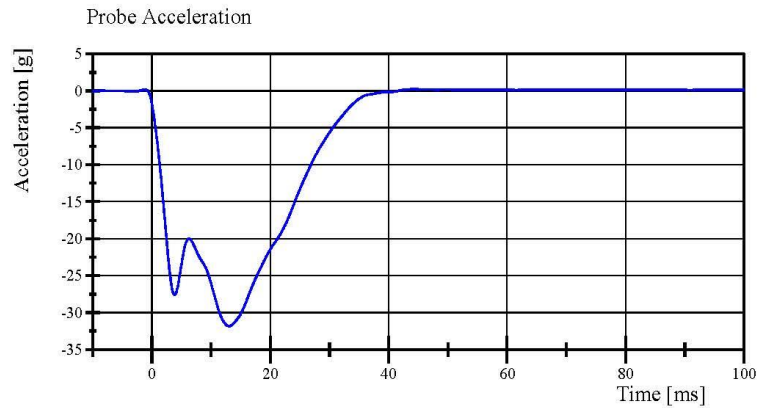
Test meets specifications.

Condition: Used

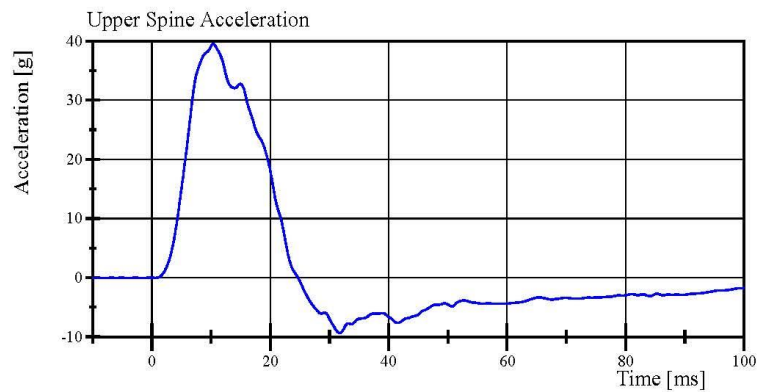
Comments:

Transportation Research Center Inc.

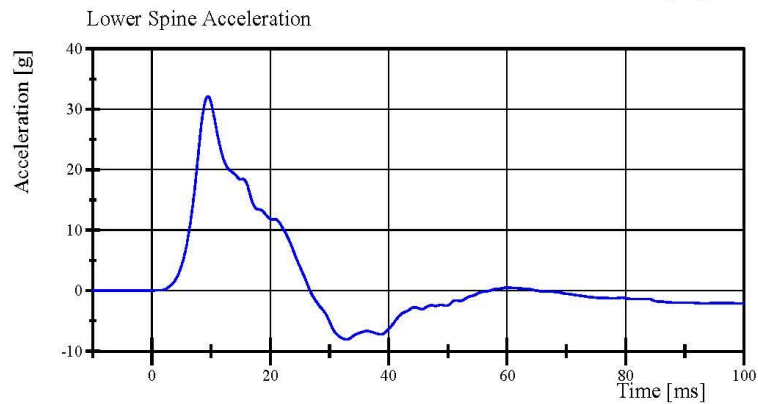
Left Lateral Thorax with Arm
SID IIS Serial No. 305 Certification No. 57-4
Test Date: 10/4/2017



Filter Class: CFC_180
Max: 0.2 g at 44.2 ms
Min: -31.8 g at 13.0 ms



Filter Class: CFC_180
Max: 39.5 g at 10.3 ms
Min: -9.4 g at 31.8 ms



Filter Class: CFC_180
Max: 32.1 g at 9.4 ms
Min: -8.1 g at 32.9 ms

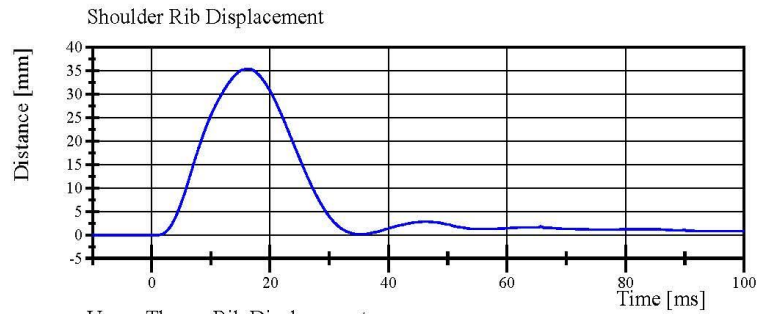
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

10.04.2017 09:57:15 619

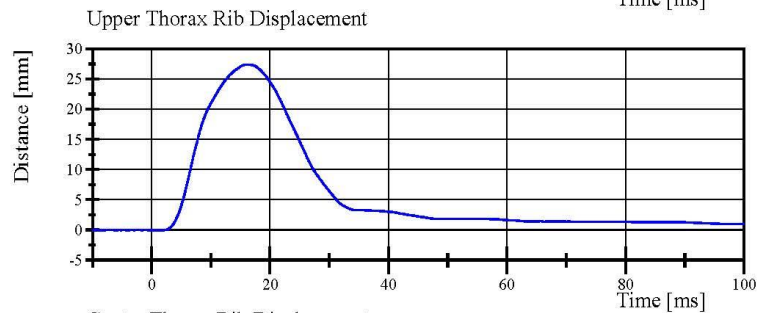


Transportation Research Center Inc.

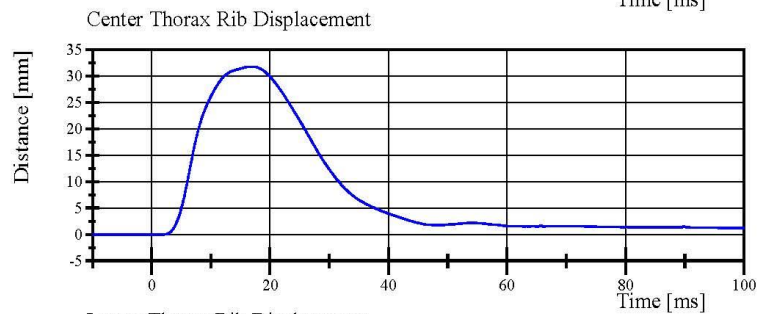
Left Lateral Thorax with Arm
SID IIS Serial No. 305 Certification No. 57-4
Test Date: 10/4/2017



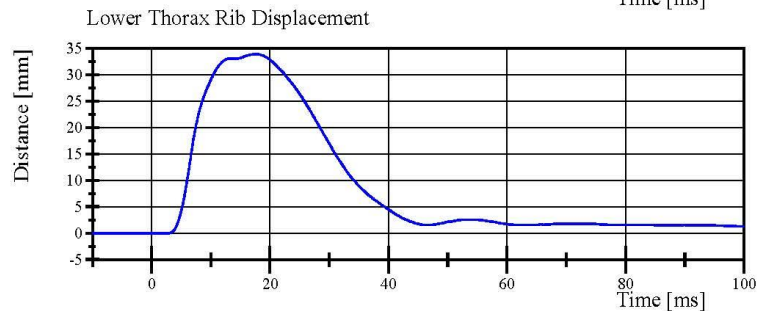
Filter Class: CFC_600
Max: 35.4 mm at 16.3 ms
Min: -0.0 mm at -4.0 ms



Filter Class: CFC_600
Max: 27.4 mm at 16.1 ms
Min: -0.0 mm at 2.0 ms



Filter Class: CFC_600
Max: 31.8 mm at 16.9 ms
Min: -0.0 mm at -6.2 ms



Filter Class: CFC_600
Max: 33.9 mm at 17.7 ms
Min: -0.0 mm at -8.6 ms

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

10.04.2017 09:57:16 619



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 57-2
Test Date: 10/4/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.289 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.6 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	36.6 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.0 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	9.3 g	Yes

Test meets specifications.

Condition: Used

Comments:

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

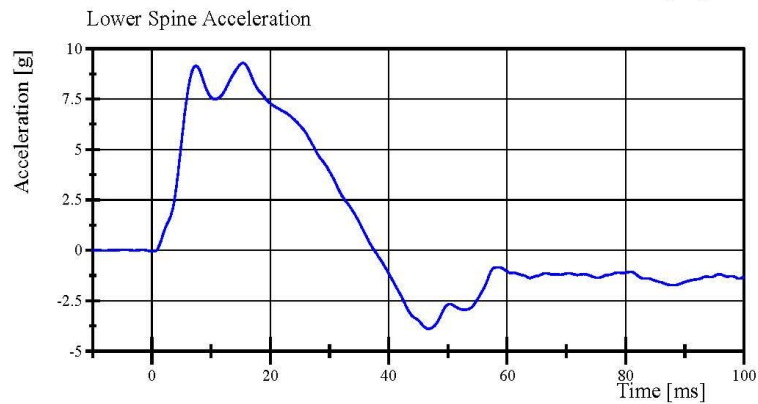
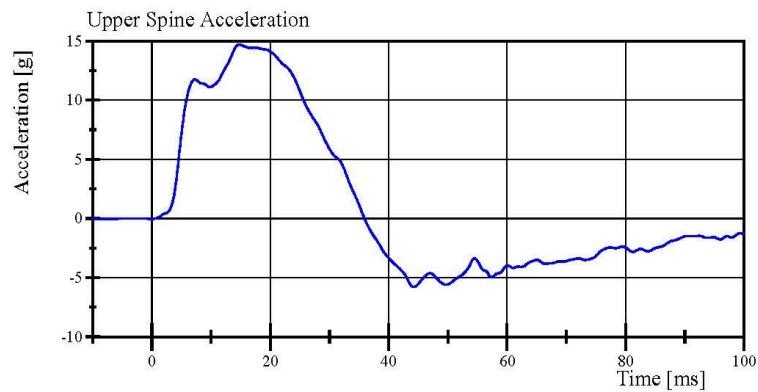
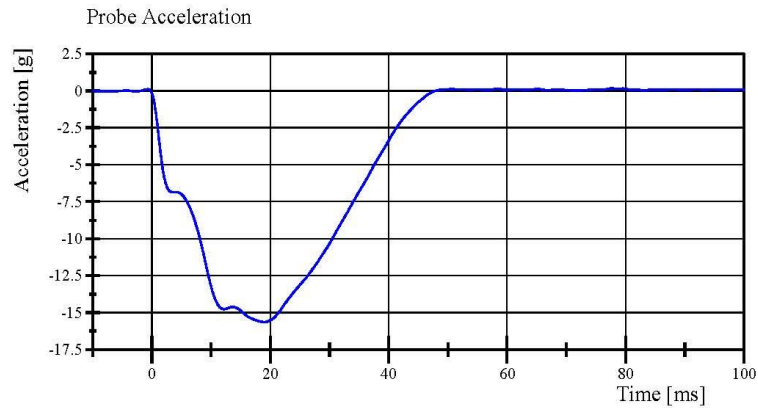
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Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 57-2
Test Date: 10/4/2017



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

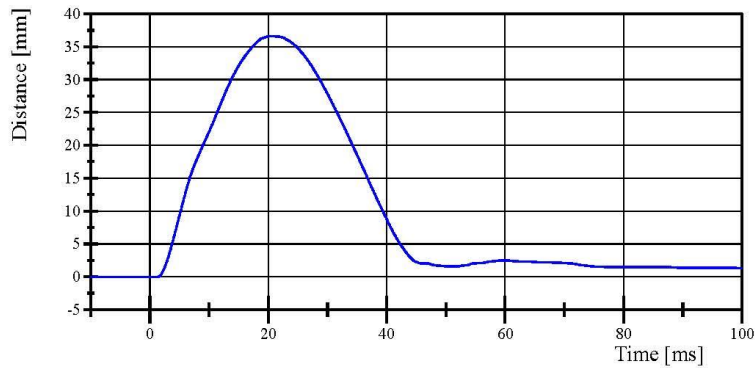
10.04.2017 10:31:38 850



Transportation Research Center Inc.

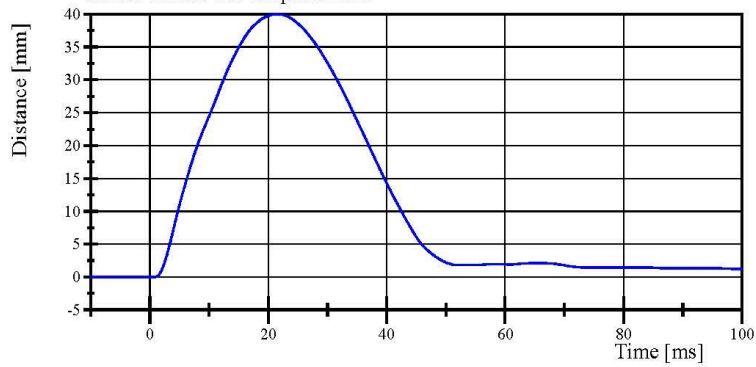
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 57-2
Test Date: 10/4/2017

Upper Thorax Rib Displacement



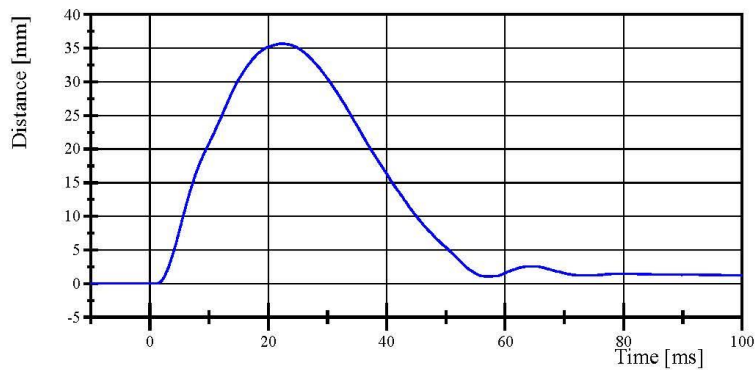
Filter Class: CFC_600
Max: 36.6 mm at 20.4 ms
Min: -0.0 mm at 1.4 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 40.0 mm at 21.6 ms
Min: -0.0 mm at -3.4 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 35.7 mm at 22.3 ms
Min: -0.0 mm at -9.0 ms

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

10.04.2017 10:31:39 850



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 305 Certification No. 57-1

Test Date: 9/29/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-13.0 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	44.8 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	42.2 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	9.86 g	Yes

Test meets specifications.

Condition: Used

Comments:

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

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09.29.2017 11:50:20 705

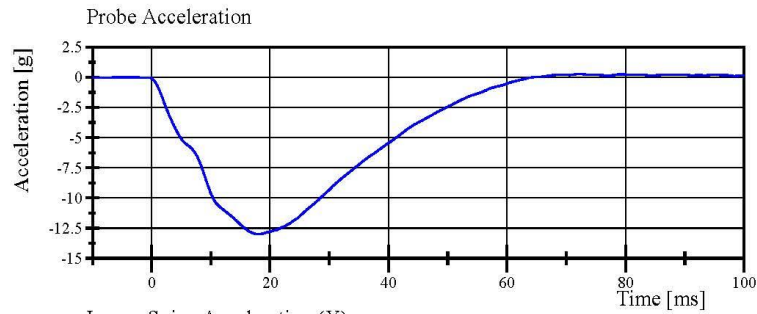


Transportation Research Center Inc.

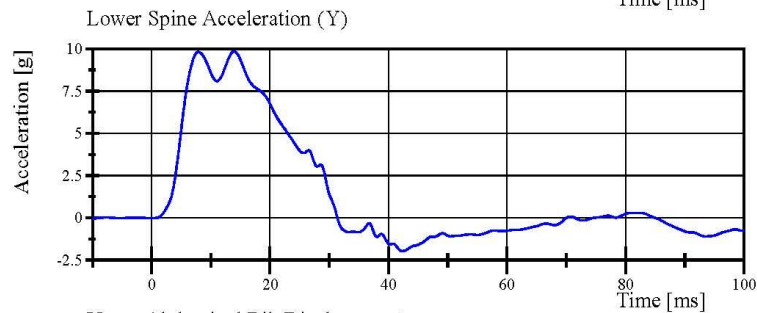
Left Lateral Abdomen

SID IIs Serial No. 305 Certification No. 57-1

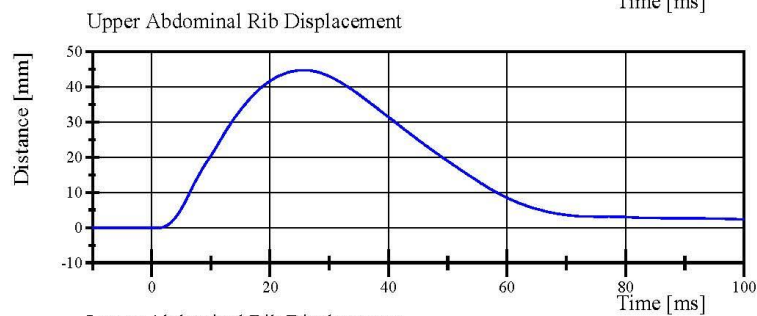
Test Date: 9/29/2017



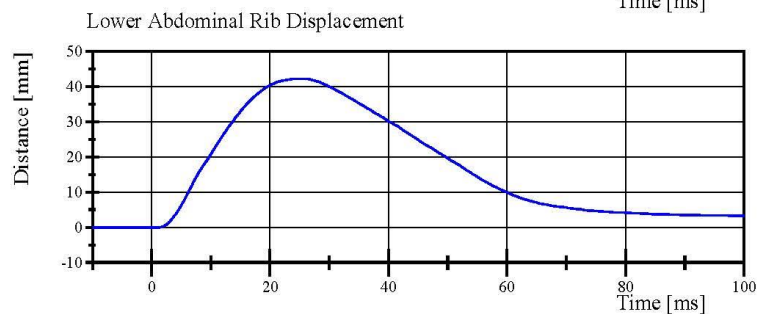
Filter Class: CFC_180
Max: 0.3 g at 72.2 ms
Min: -13.0 g at 18.0 ms



Filter Class: CFC_180
Max: 9.9 g at 13.9 ms
Min: -2.0 g at 42.3 ms



Filter Class: CFC_600
Max: 44.8 mm at 25.7 ms
Min: -0.0 mm at -3.1 ms



Filter Class: CFC_600
Max: 42.2 mm at 25.0 ms
Min: -0.0 mm at -7.4 ms

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

09.29.2017 11:50:32 705



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 305 Certification No. 57-2

Test Date: 10/2/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.62 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-41.72 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	37.2 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,940.7 N	Yes

Test meets specifications.

Condition: Used

Comments: Pelvis Plug info

Manufacturer: SACO

Serial number: 11130

Calibration date: 04/14/2016

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

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10.02.2017 08:54:57 448

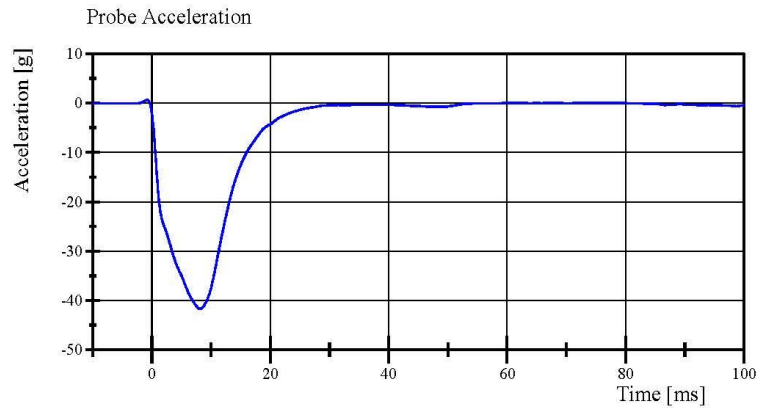


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 305 Certification No. 57-2

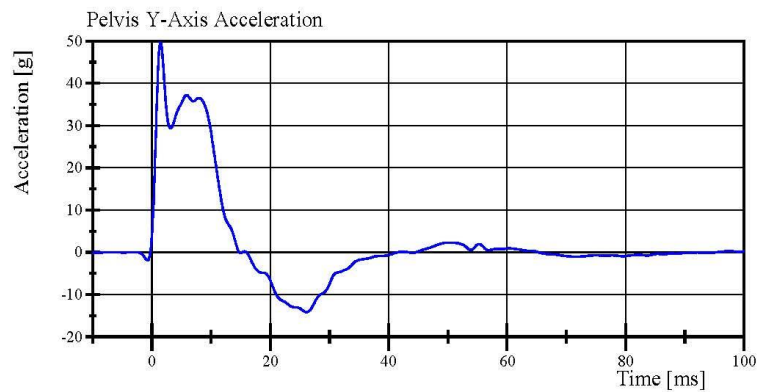
Test Date: 10/2/2017



Filter Class: CFC_180

Max: 0.6 g at -0.8 ms

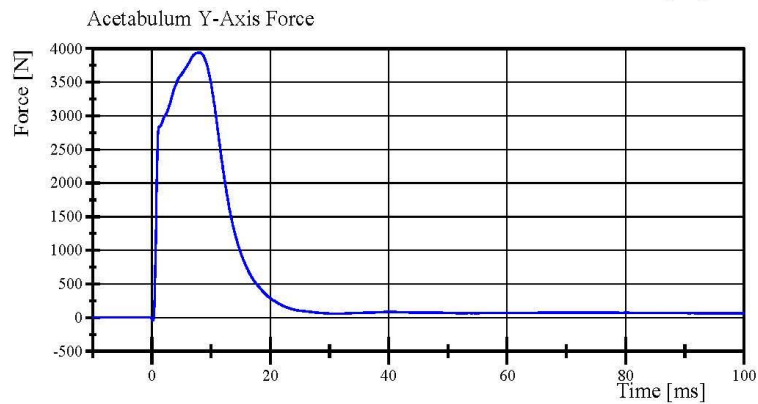
Min: -41.7 g at 8.2 ms



Filter Class: CFC_180

Max: 49.7 g at 1.4 ms

Min: -14.2 g at 26.2 ms



Filter Class: CFC_600

Max: 3,940.7 N at 8.0 ms

Min: -45.2 N at 0.2 ms

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

10.02.2017 08:57:48 448



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 57-1

Test Date: 9/29/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.34 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-36.3 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	30.2 g	Yes
Iliac Force	4,100 - 5,100 N	4,174.5 N	Yes

Test meets specifications.

Condition: Used

Comments:

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

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09.29.2017 13:57:12 646

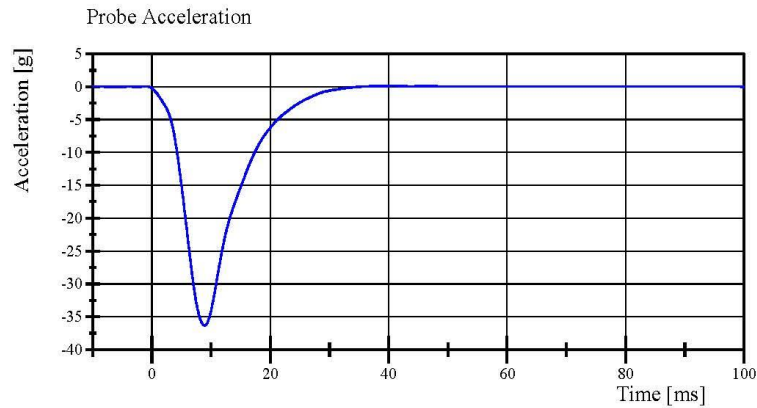


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 57-1

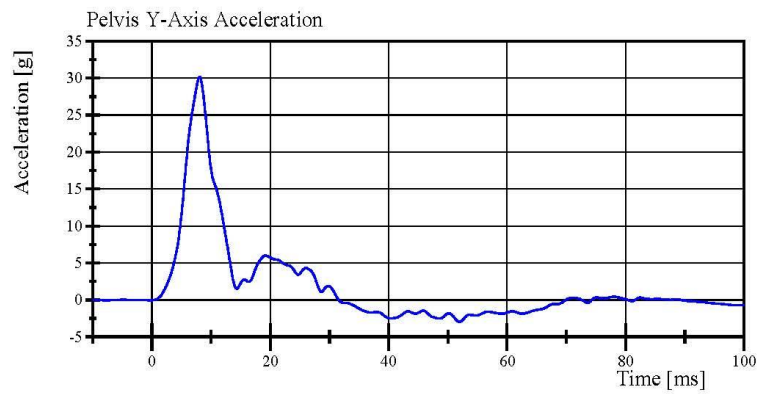
Test Date: 9/29/2017



Filter Class: CFC_180

Max: 0.2 g at 40.7 ms

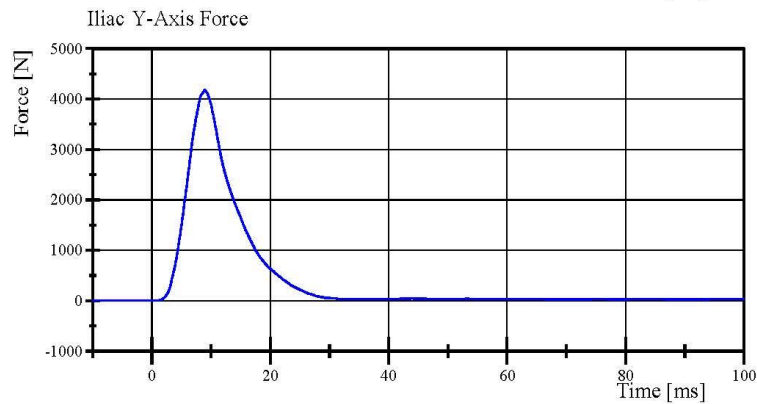
Min: -36.3 g at 8.9 ms



Filter Class: CFC_180

Max: 30.2 g at 8.1 ms

Min: -3.0 g at 51.9 ms



Filter Class: CFC_600

Max: 4,174.5 N at 8.9 ms

Min: -0.5 N at -2.5 ms

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

09.29.2017 13:57:21 646



Post-Test Calibration Sheets
Passenger S/N 305

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 305 Calibration No.58

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	782	Yes
B	Shoulder Pivot Height	437.0 - 453.0	448	Yes
C	H-Point Height	79.0 - 89.0	87	Yes
D	H-Point from Seat Back	141.0 - 151.0	145	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	101	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	543	Yes
K	Buttock to Knee Length	514.0 - 540.0	535	Yes
L	Popliteal Height	343.0 - 369.0	348	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	395	Yes
N	Buttock Popliteal Length	416.0 - 442.0	434	Yes
O	Chest Depth without Jacket	195.0 - 211.0	200	Yes
P	Foot Length (right)	216.0 - 232.0	222	Yes
P	Foot Length (left)	216.0 - 232.0	222	Yes
Q	Hip Breadth	313.0 - 323.0	320	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to seat Back	478.0 - 493.0	482	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	349	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	873	Yes
Z	Waist Circumference	761.0 - 791.0	780	Yes

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIS Serial No. 305 Certification No. 58-1

Test Date: 10/6/2017

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.7 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	119.4 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	2.3 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

Test meets specifications.

Condition: Used

Comments:

Skull: N/A

Skin: 1253

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

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10.06.2017 09:52:33 232

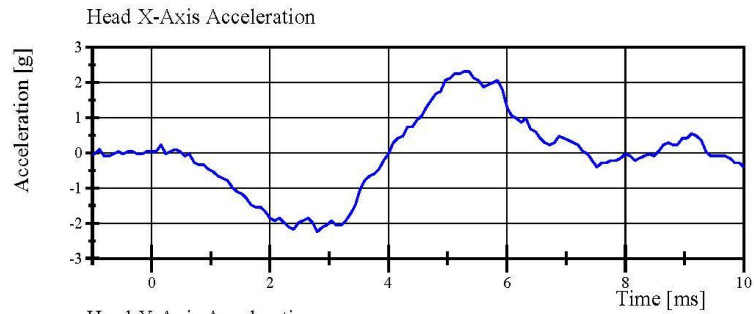


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 305 Certification No. 58-1

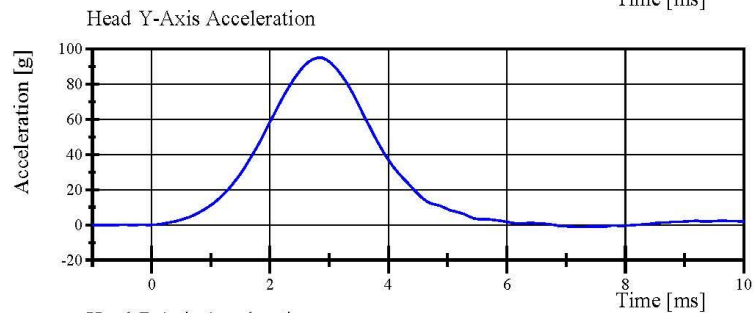
Test Date: 10/6/2017



Filter Class: CFC_1000

Max: 2.3 g at 5.3 ms

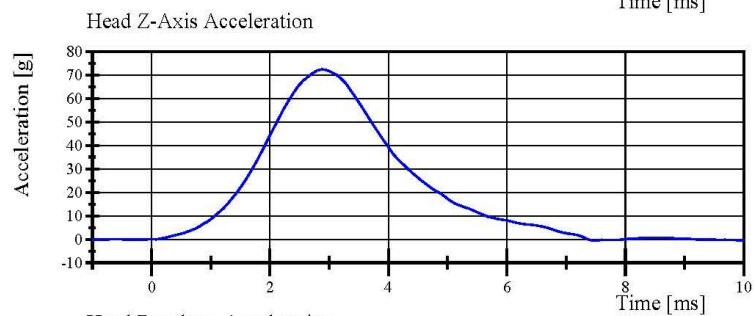
Min: -2.2 g at 2.8 ms



Filter Class: CFC_1000

Max: 95.0 g at 2.8 ms

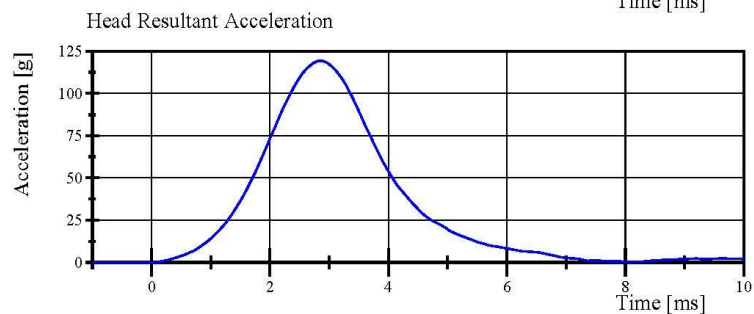
Min: -1.1 g at 7.2 ms



Filter Class: CFC_1000

Max: 72.5 g at 2.9 ms

Min: -0.5 g at 7.4 ms



Filter Class: CFC_1000

Max: 119.4 g at 2.9 ms

Min: 0.1 g at -0.2 ms

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

10.06.2017 09:55:00 232



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Transportation Research Center Inc.

Left Lateral Neck

SID IIS Serial No. 305 Certification No. 58-6

Test Date: 10/10/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.599 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.294 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.399 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.511 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.442 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.718 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-81.7 deg	No
Time of Peak	50 - 70 ms	63.1 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	38.5 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	118.5 ms	Yes

Test does not meet specifications.

Condition: Used

Comments:

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

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10.10.2017 10:27:59 754

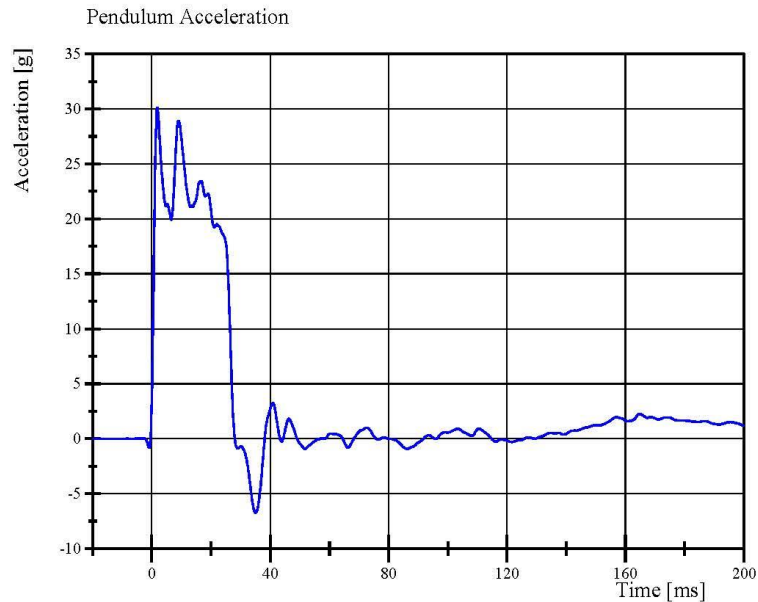


Transportation Research Center Inc.

Left Lateral Neck

SID IIS Serial No. 305 Certification No. 58-6

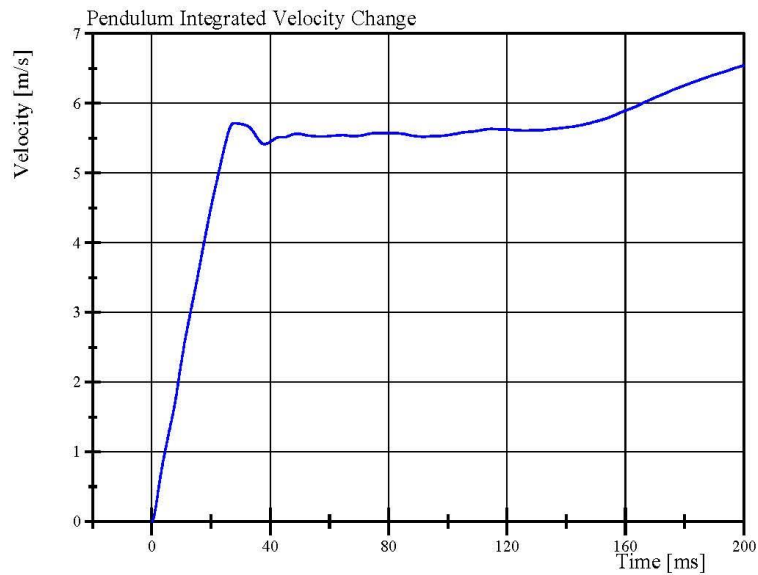
Test Date: 10/10/2017



Filter Class: CFC_180

Max: 30.1 g at 1.8 ms

Min: -6.7 g at 35.1 ms



Filter Class: CFC_180

Max: 6.5 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

10.10.2017 10:28:12 754



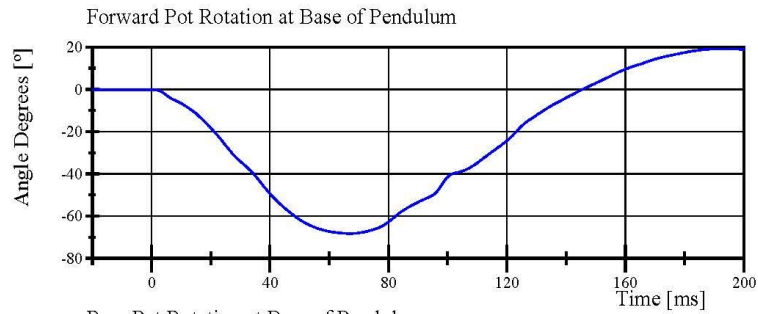
Page 6 of 23

Transportation Research Center Inc.

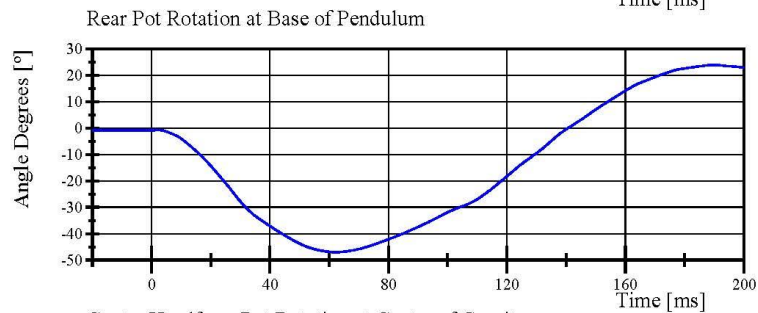
Left Lateral Neck

SID IIS Serial No. 305 Certification No. 58-6

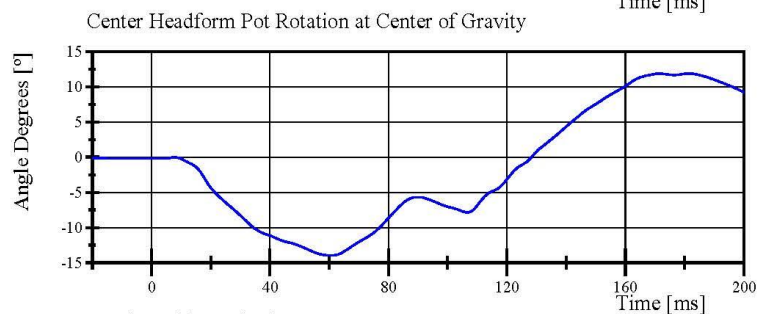
Test Date: 10/10/2017



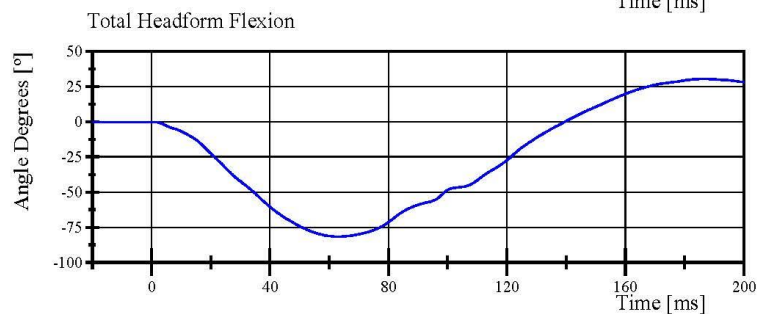
Filter Class: CFC_60
Max: 19.2 ° at 193.6 ms
Min: -68.2 ° at 67.0 ms



Filter Class: CFC_60
Max: 23.9 ° at 189.8 ms
Min: -47.0 ° at 62.2 ms



Filter Class: CFC_60
Max: 11.9 ° at 181.4 ms
Min: -14.0 ° at 60.5 ms



Filter Class: CFC_60
Max: 30.4 ° at 186.3 ms
Min: -81.7 ° at 63.1 ms

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

10.10.2017 10:28:13 754

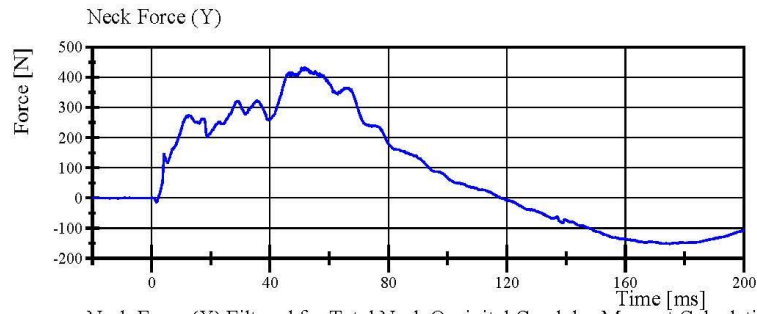


Transportation Research Center Inc.

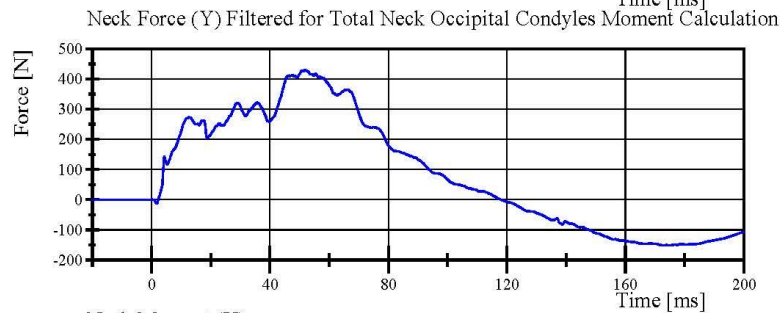
Left Lateral Neck

SID IIS Serial No. 305 Certification No. 58-6

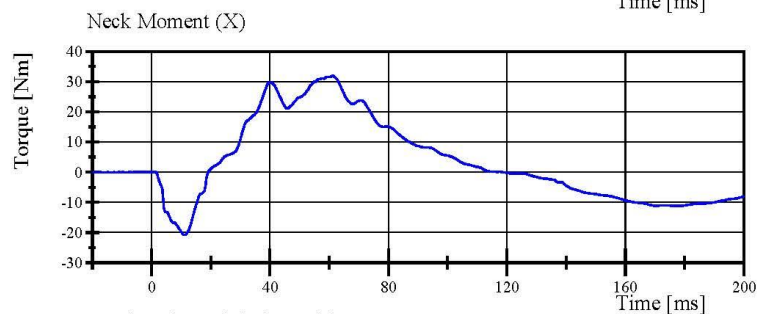
Test Date: 10/10/2017



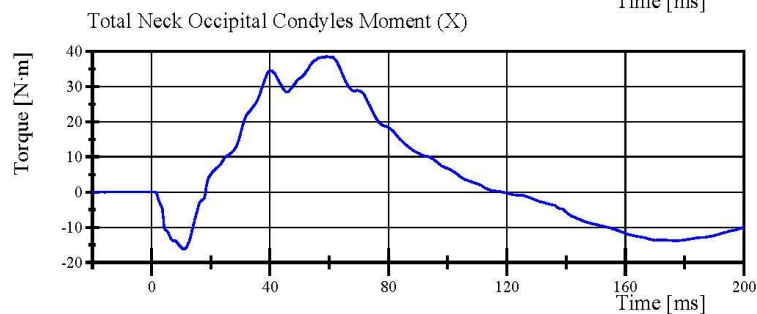
Filter Class: CFC_1000
Max: 432.8 N at 51.7 ms
Min: -151.4 N at 175.0 ms



Filter Class: CFC_600
Max: 429.8 N at 51.8 ms
Min: -151.1 N at 175.0 ms



Filter Class: CFC_600
Max: 32.1 Nm at 61.2 ms
Min: -20.8 Nm at 11.1 ms



Filter Class: Without_(Consta
Max: 38.5 N·m at 59.1 ms
Min: -16.2 N·m at 10.9 ms

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

10.10.2017 10:28:14 754



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIS Serial No. 305 Certification No. 58-1

Test Date: 10/9/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.8 g	Yes
Shoulder Displacement	28 - 37 mm	30.9 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	20.9 g	Yes

Test meets specifications.

Condition: Used

Comments:

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

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10.09.2017 10:50:34 887

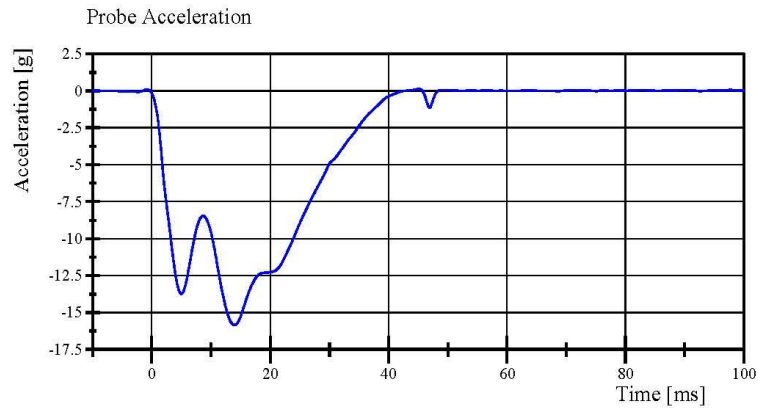


Transportation Research Center Inc.

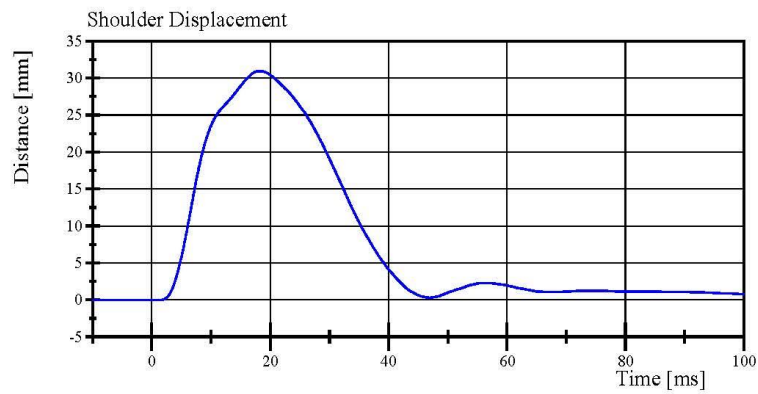
Left Lateral Shoulder

SID IIs Serial No. 305 Certification No. 58-1

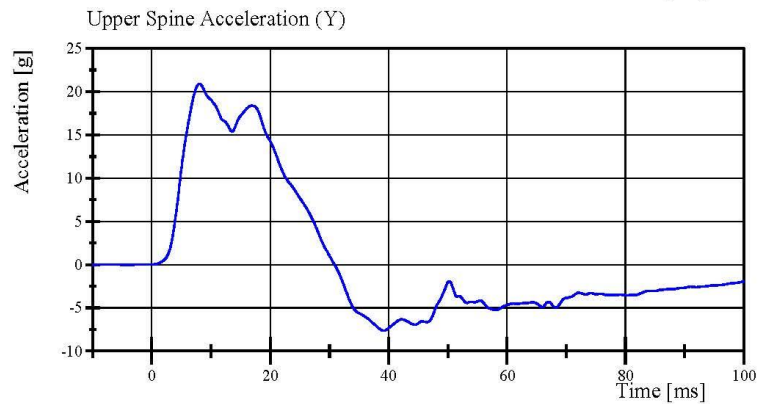
Test Date: 10/9/2017



Filter Class: CFC_180
Max: 0.1 g at 45.1 ms
Min: -15.8 g at 13.9 ms



Filter Class: CFC_600
Max: 30.9 mm at 18.1 ms
Min: -0.0 mm at -3.5 ms



Filter Class: CFC_180
Max: 20.9 g at 8.1 ms
Min: -7.6 g at 39.1 ms

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

10.09.2017 10:50:41 887



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 58-1
Test Date: 10/9/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.725 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-31.5 g	Yes
Shoulder Displacement	31 - 40 mm	33.3 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	26.2 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.8 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	35.3 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	39.2 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	31.2 g	Yes

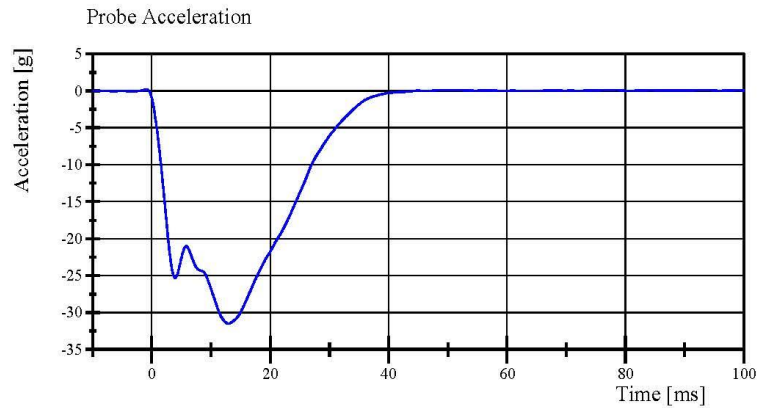
Test meets specifications.

Condition: Used

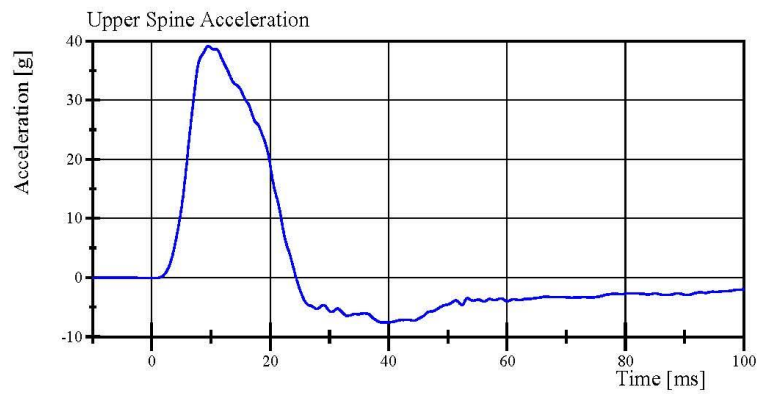
Comments:

Transportation Research Center Inc.

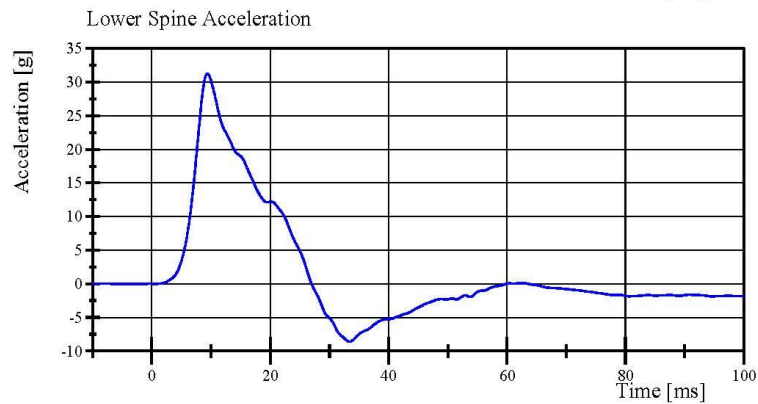
Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 58-1
Test Date: 10/9/2017



Filter Class: CFC_180
Max: 0.2 g at -1.0 ms
Min: -31.5 g at 13.0 ms



Filter Class: CFC_180
Max: 39.2 g at 9.5 ms
Min: -7.6 g at 39.0 ms



Filter Class: CFC_180
Max: 31.2 g at 9.4 ms
Min: -8.6 g at 33.4 ms

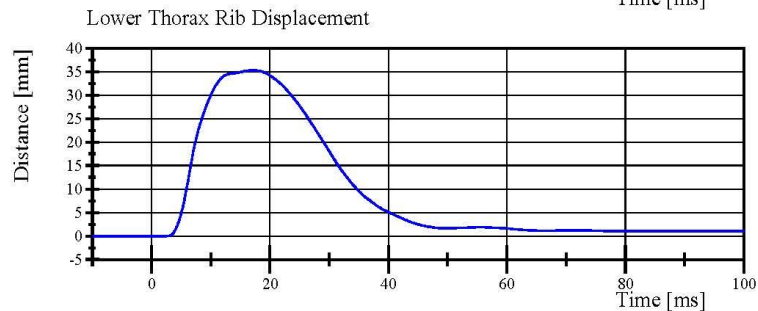
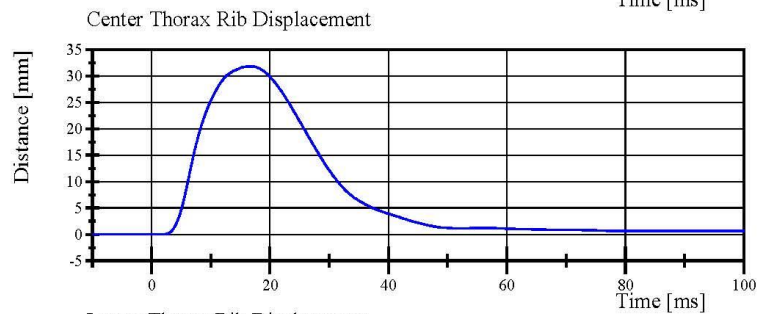
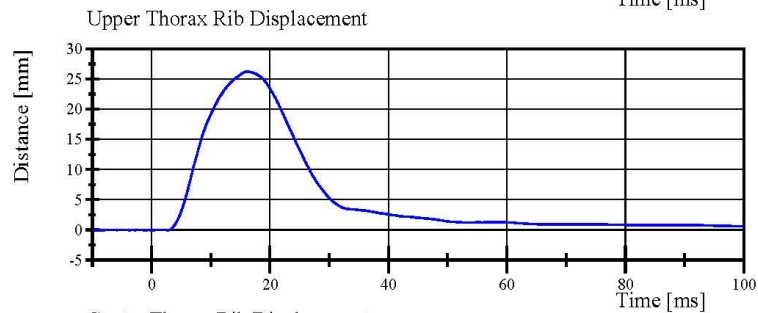
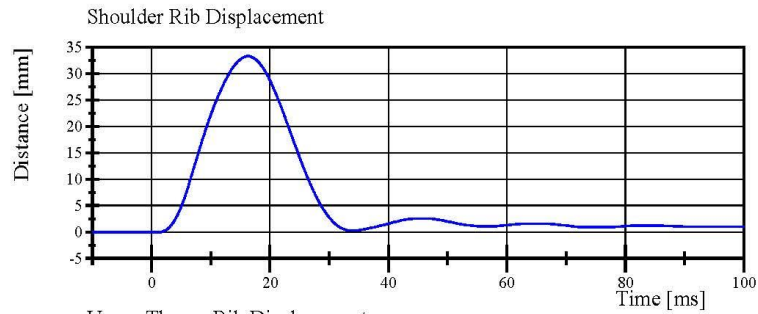
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

10.09.2017 09:48:33 618



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 305 Certification No. 58-1
Test Date: 10/9/2017



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

10.09.2017 09:48:34 618



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 58-3
Test Date: 10/9/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.398 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.9 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	37.5 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.8 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	36.3 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	15.9 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	10.5 g	Yes

Test meets specifications.

Condition: Used

Comments:

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

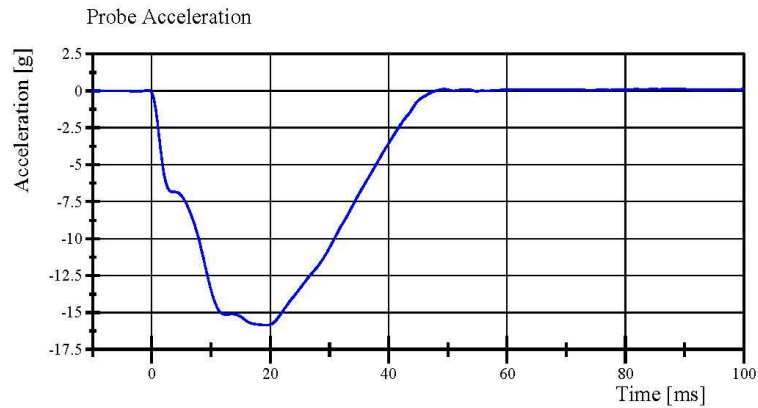
Page 14 of 23

10.09.2017 08:11:14 840

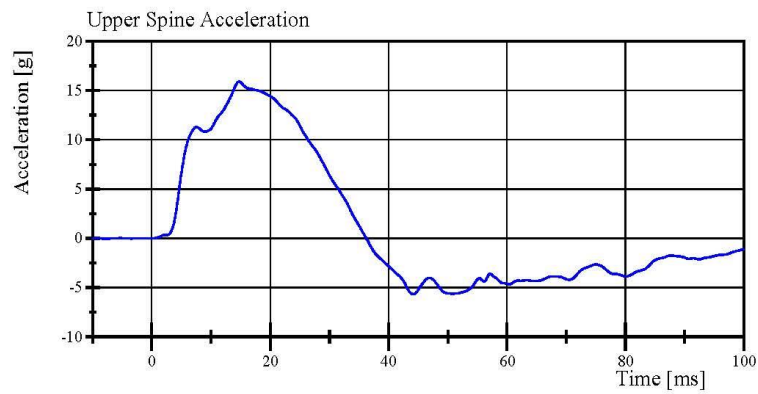


Transportation Research Center Inc.

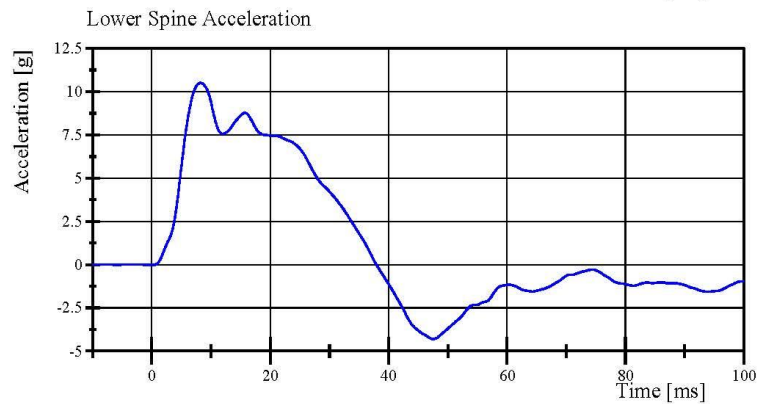
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 58-3
Test Date: 10/9/2017



Filter Class: CFC_180
Max: 0.1 g at 88.8 ms
Min: -15.9 g at 19.4 ms



Filter Class: CFC_180
Max: 15.9 g at 14.7 ms
Min: -5.7 g at 44.2 ms



Filter Class: CFC_180
Max: 10.5 g at 8.2 ms
Min: -4.3 g at 47.5 ms

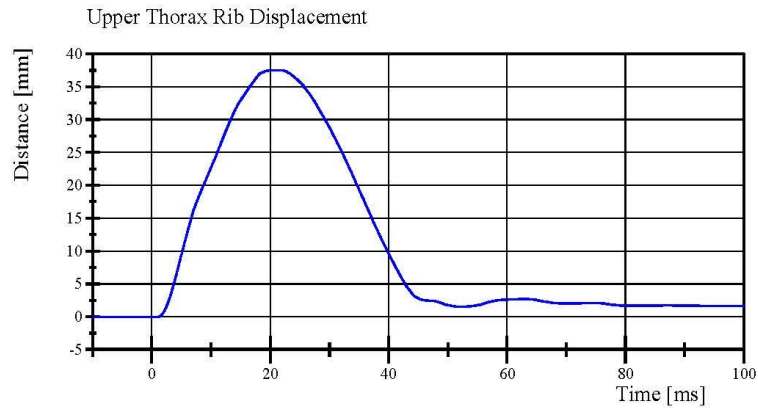
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

10.09.2017 08:12:13 840

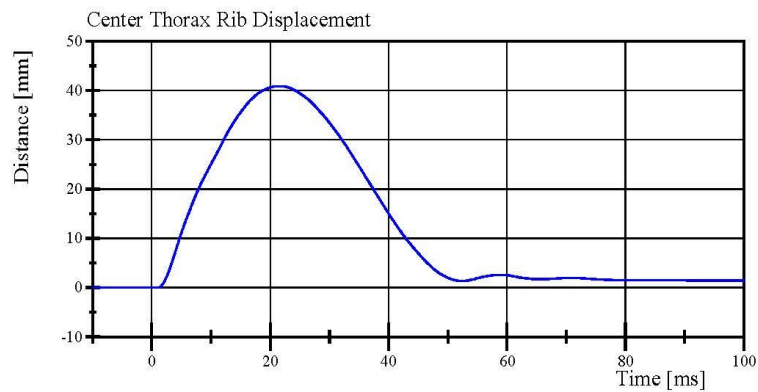


Transportation Research Center Inc.

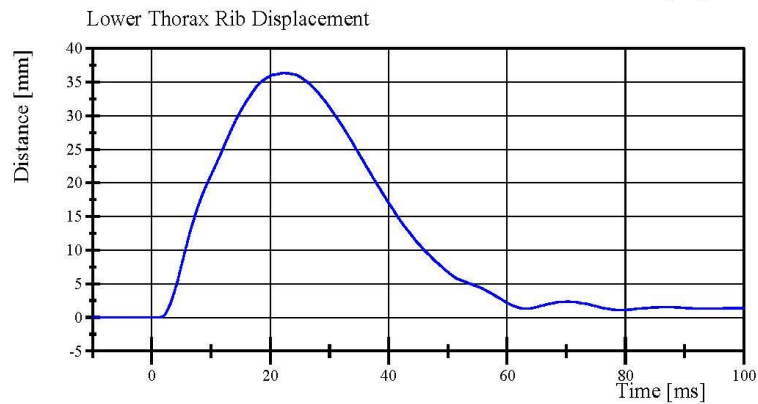
Left Lateral Thorax without Arm
SID IIs Serial No. 305 Certification No. 58-3
Test Date: 10/9/2017



Filter Class: CFC_600
Max: 37.5 mm at 20.4 ms
Min: -0.0 mm at 1.0 ms



Filter Class: CFC_600
Max: 40.8 mm at 21.6 ms
Min: -0.0 mm at -6.7 ms



Filter Class: CFC_600
Max: 36.3 mm at 22.3 ms
Min: -0.0 mm at -1.5 ms

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

10.09.2017 08:12:14 840



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 305 Certification No. 58-1

Test Date: 10/9/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-13.2 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	42.7 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	41.6 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.58 g	Yes

Test meets specifications.

Condition: Used

Comments:

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

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10.09.2017 10:09:34 634

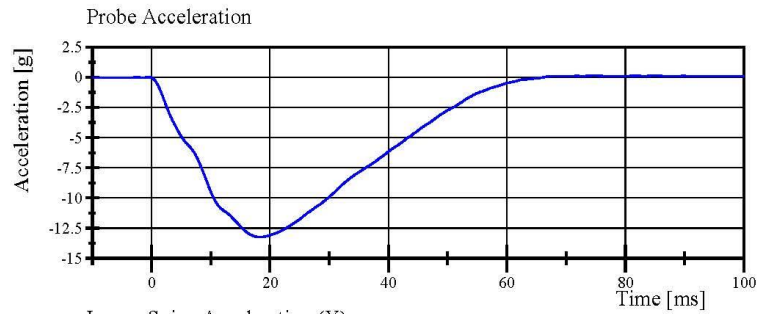


Transportation Research Center Inc.

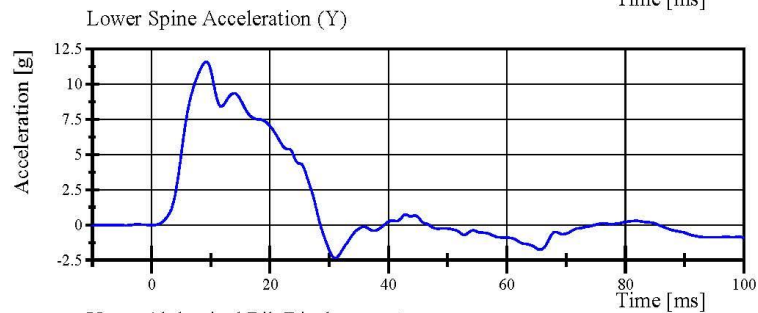
Left Lateral Abdomen

SID IIs Serial No. 305 Certification No. 58-1

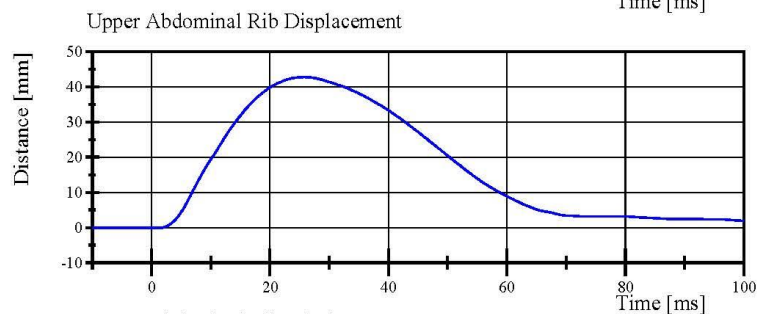
Test Date: 10/9/2017



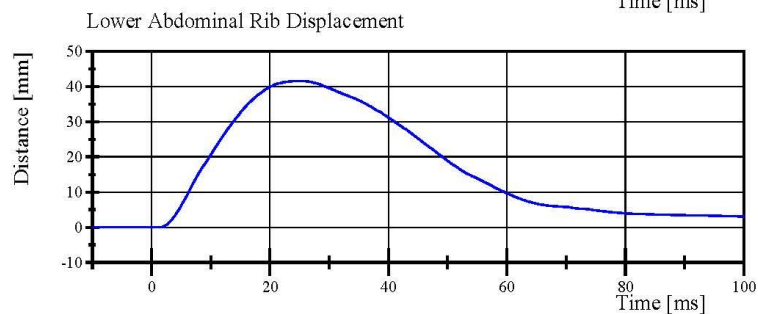
Filter Class: CFC_180
Max: 0.2 g at 84.9 ms
Min: -13.2 g at 18.4 ms



Filter Class: CFC_180
Max: 11.6 g at 9.3 ms
Min: -2.3 g at 31.0 ms



Filter Class: CFC_600
Max: 42.7 mm at 25.8 ms
Min: -0.0 mm at 1.5 ms



Filter Class: CFC_600
Max: 41.6 mm at 24.8 ms
Min: -0.0 mm at 1.3 ms

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

10.09.2017 10:09:42 634



Transportation Research Center Inc.

Left Lateral Pelvis
SID IIs Serial No. 305 Certification No. 58-2
Test Date: 10/10/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.61 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-43.78 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	40.0 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,224.8 N	Yes

Test meets specifications.

Condition: Used

Comments:

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

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10.10.2017 07:04:20 470

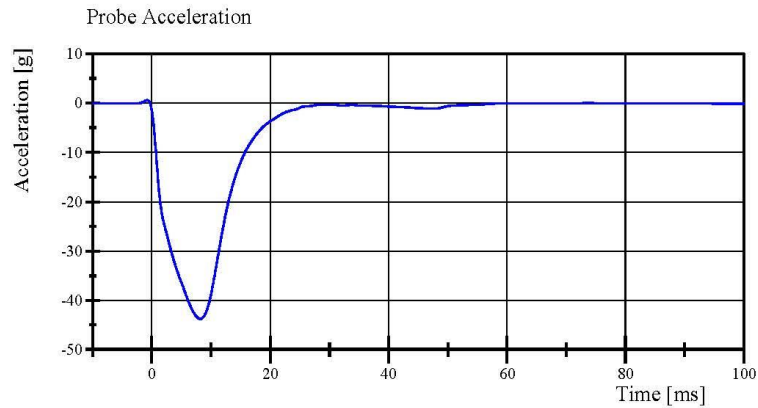


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 305 Certification No. 58-2

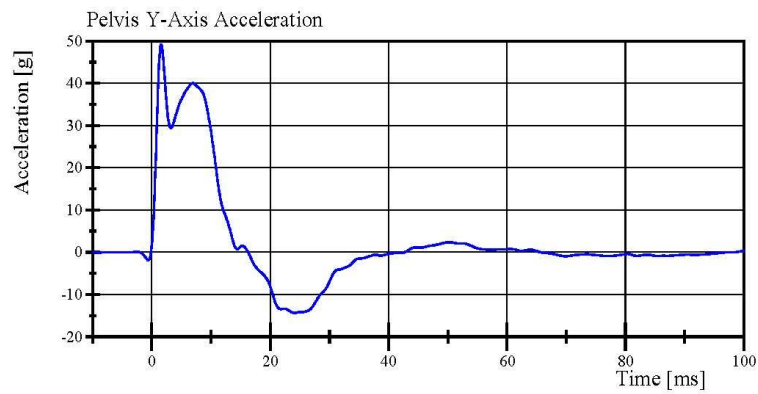
Test Date: 10/10/2017



Filter Class: CFC_180

Max: 0.6 g at -0.8 ms

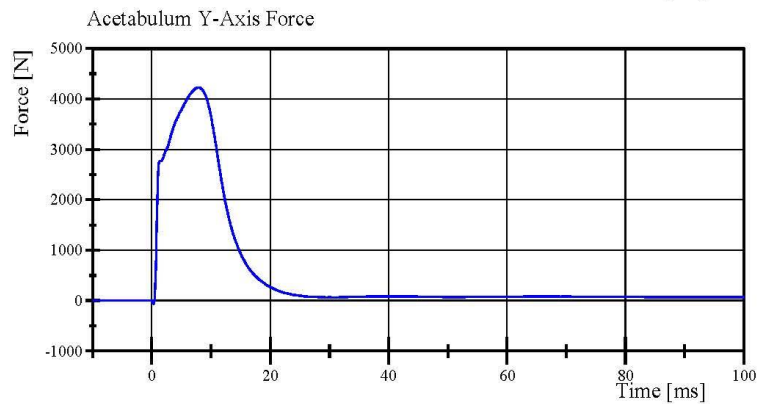
Min: -43.8 g at 8.2 ms



Filter Class: CFC_180

Max: 49.2 g at 1.6 ms

Min: -14.3 g at 24.1 ms



Filter Class: CFC_600

Max: 4,224.8 N at 7.9 ms

Min: -62.4 N at 0.3 ms

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

10.10.2017 07:04:59 470



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 58-1

Test Date: 10/9/2017

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.34 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-37.3 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	29.3 g	Yes
Iliac Force	4,100 - 5,100 N	4,258.8 N	Yes

Test meets specifications.

Condition: Used

Comments:

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

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10.09.2017 11:33:47 693

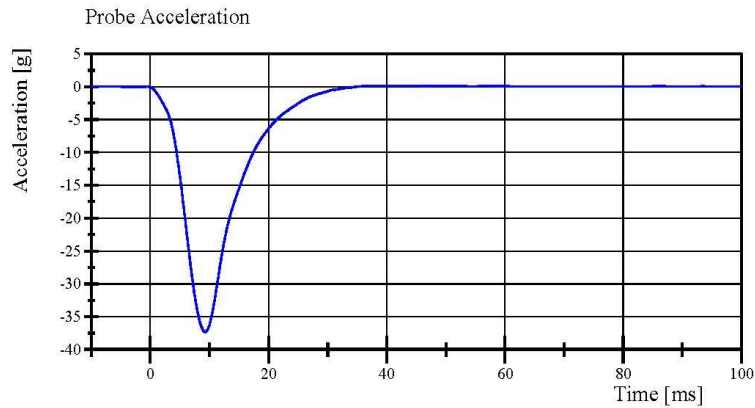


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 305 Certification No. 58-1

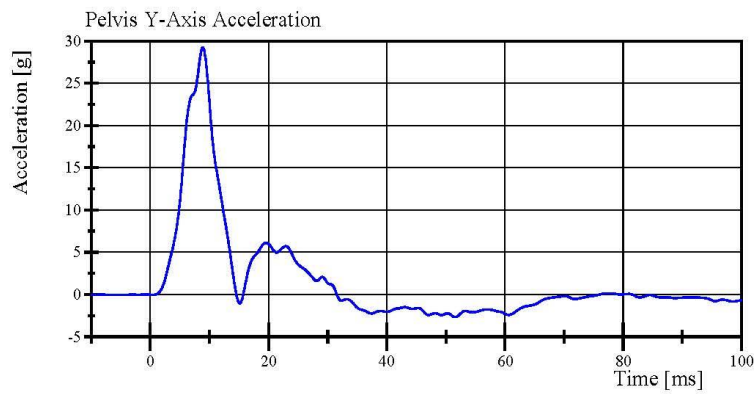
Test Date: 10/9/2017



Filter Class: CFC_180

Max: 0.2 g at 37.4 ms

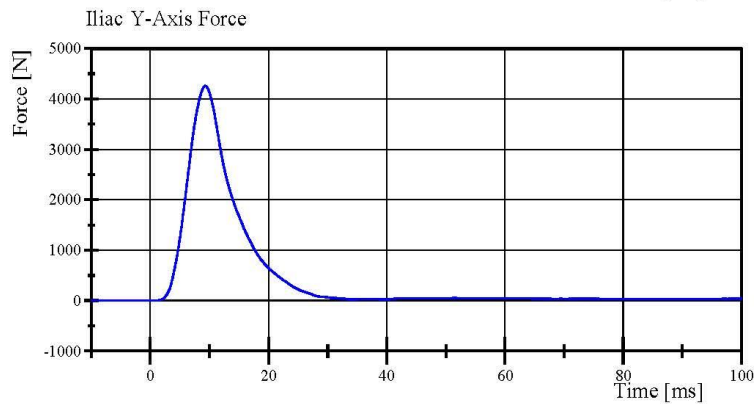
Min: -37.3 g at 9.3 ms



Filter Class: CFC_180

Max: 29.3 g at 8.9 ms

Min: -2.7 g at 51.6 ms



Filter Class: CFC_600

Max: 4,258.8 N at 9.3 ms

Min: -0.7 N at -6.9 ms

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

10.09.2017 11:33:53 693



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	28-Sep-2017
	Y		P66873	Endevco	26-Sep-2017
	Z		P91950	Endevco	26-Sep-2017
Redundant Head Accelerometers	X		P94566	Endevco	26-Sep-2017
	Y		P94429	Endevco	26-Sep-2017
	Z		P94483	Endevco	26-Sep-2017
Thoracic Rib Displacement Potentiometers	Upper	Y	111	Honeywell	26-Sep-2017
	Middle	Y	174	FTSS	26-Sep-2017
	Lower	Y	173	FTSS	26-Sep-2017
Abdomen Load Cells	Front	Y	1441	Denton	15-Mar-2017
	Middle	Y	1436	Denton	15-Mar-2017
	Rear	Y	1437	Denton	15-Mar-2017
Lower Spine Accelerometers (T12)	X		P89126	Endevco	25-Sep-2017
	Y		P87139	Endevco	25-Sep-2017
	Z		P64884	Endevco	25-Sep-2017
Acetabulum Load Cell		Y	N/A	N/A	N/A
Pubic Symphysis Load Cell		Y	457-FY	Denton	15-Mar-2017

TABLE 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 305			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	T11432	Endevco	03-Oct-2017
				Y	P93774	Endevco	28-Sep-2017
				Z	P91566	Endevco	28-Sep-2017
Redundant Head Accelerometers				X	P91615	Endevco	28-Sep-2017
				Y	P93762	Endevco	28-Sep-2017
				Z	P93761	Endevco	28-Sep-2017
Displacement Potentiometers	Shoulder			N/A	N/A	N/A	N/A
	Thoracic Rib	Upper	Y	007	Servo	28-Sep-2017	
		Middle	Y	037	Servo	28-Sep-2017	
		Lower	Y	1161	Servo	28-Sep-2017	
	Abdominal Rib	Upper	Y	1295	Servo	28-Sep-2017	
		Lower	Y	1136	Servo	28-Sep-2017	
Lower Spine Accelerometers (T12)				X	P94545	Endevco	28-Sep-2017
				Y	P94647	Endevco	28-Sep-2017
				Z	P94530	Endevco	28-Sep-2017
Acetabulum Load Cell				Y	DK7483S-FY	FTSS	28-Sep-2017
Iliac Wing Load Cell				Y	287-FY	Denton	28-Sep-2017
Pelvis Plug (struck side)					11128	SACO	04-Apr-2016
Pelvis Plug (non-struck side)					36473	FTSS	23-Jul-2010

TABLE 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	P29093	Endevco	3-Oct-2017
	Vehicle Center of Gravity	Y	P29109	Endevco	3-Oct-2017
	Vehicle Center of Gravity	Z	P94489	Endevco	3-Oct-2017
2	Right Sill at Front Seat	X	P93516	Endevco	2-Oct-2017
	Right Sill at Front Seat	Y	P94540	Endevco	2-Oct-2017
	Right Sill at Front Seat	Z	P81065	Endevco	2-Oct-2017
3	Right Sill at Rear Seat	X	T10344	Endevco	3-Oct-2017
	Right Sill at Rear Seat	Y	T10339	Endevco	3-Oct-2017
	Right Sill at Rear Seat	Z	T10342	Endevco	3-Oct-2017
4	Left Sill at Front Door	Y	P97632	Endevco	2-Oct-2017
5	Left Sill at Rear Door	Y	P97622	Endevco	3-Oct-2017
6	Left A-Post Lower	Y	P97621	Endevco	2-Oct-2017
7	Left A-Post Middle	Y	P97633	Endevco	2-Oct-2017
8	Left B-Post Lower	Y	P93537	Endevco	2-Oct-2017
9	B-Post Middle	Y	P93518	Endevco	2-Oct-2017
10	Front Seat Track	Y	P97245	Endevco	2-Oct-2017
11	Rear Seat Track or Structure	Y	P34250	Endevco	2-Oct-2017
12	Right Rear Occupant Compartment	Y	P97720	Endevco	2-Oct-2017
13	Engine Block	X	P88453	Endevco	7-Aug-2017
	Engine Block	Y	P79977	Endevco	7-Aug-2017
14	Rear Floorpan Above Axle	X	T10348	Endevco	3-Oct-2017
	Rear Floorpan Above Axle	Y	P97878	Endevco	3-Oct-2017
	Rear Floorpan Above Axle	Z	P97728	Endevco	3-Oct-2017

TABLE 4 – MDB Instrumentation

MDB Instrumentation		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	P97724	Endevco	26-Sep-2017
MDB Center of Gravity	Y	P97718	Endevco	26-Sep-2017
MDB Center of Gravity	Z	P97715	Endevco	26-Sep-2017
Left Frame Rail at Rear Axle Centerline	X	P97876	Endevco	26-Sep-2017
Left Frame Rail at Rear Axle Centerline	Y	P97729	Endevco	26-Sep-2017