

FINAL REPORT NUMBER: SPNCAP-TRC-17-001

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

**General Motors LLC
2017 GMC Acadia
NHTSA NUMBER: M20170101**

**PREPARED BY:
Transportation Research Center Inc.
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Report Date: September 30, 2016

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: *Melinda Lackey*
Melinda Lackey

Approval Date: September 30, 2016

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

Technical Report Documentation Page

1. Report No. SPNCAP-TRC-17-001	2. Government Accession No.	3. Recipient's Catalog No.																													
4. Title and Subtitle Final Report of New Car Assessment Program Side Impact Pole Testing of 2017 GMC Acadia NHTSA No.: M20170101		5. Report Date September 30, 2016																													
		6. Performing Organization Code TRC Inc.																													
7. Author(s) Melinda Lackey, Project Manager		8. Performing Organization Report No. 160902																													
9. Performing Organization Name and Address Transportation Research Center Inc. 10820 State Route 347 East Liberty, OH 43319		10. Work Unit No.																													
		11. Contract or Grant No. DTNH22-14-D-00354																													
12. Sponsoring Agency Name and Address 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, DC 20590		13. Type of Report and Period Covered Final Test Report September 2, 2016 – September 30, 2016																													
		14. Sponsoring Agency Code NRM-110																													
15. Supplemental Notes																															
16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject vehicle, a 2017 GMC Acadia, in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on September 2, 2016. The impact velocity was 32.17 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 22° C. The test vehicle's post-test maximum crush was 342 mm at Level 3. The test or target vehicle's performance is given below: <table border="1"> <thead> <tr> <th></th><th>Unit</th><th>Threshold</th><th>Front SID-IIs</th></tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆):</td><td>NA</td><td>1000</td><td>319</td></tr> <tr> <td>Resultant Lower Spine Acceleration:</td><td>g's</td><td>82</td><td>32.9</td></tr> <tr> <td>Total Pelvic Force:</td><td>N</td><td>5525</td><td>2991.7</td></tr> <tr> <td>(sum of acetabular and iliac forces)</td><td></td><td></td><td></td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>38*</td><td>20.0</td></tr> <tr> <td>Maximum Abdomen Rib Deflection</td><td>mm</td><td>45*</td><td>17.6</td></tr> </tbody> </table> * Proposed IARV The two doors on the struck side did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					Unit	Threshold	Front SID-IIs	Head Injury Criteria (HIC ₃₆):	NA	1000	319	Resultant Lower Spine Acceleration:	g's	82	32.9	Total Pelvic Force:	N	5525	2991.7	(sum of acetabular and iliac forces)				Maximum Thoracic Rib Deflection	mm	38*	20.0	Maximum Abdomen Rib Deflection	mm	45*	17.6
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833																													
19. Security Classification (of this report) Unclassified	20. Security Classification (of this page) Unclassified	21. Number of Pages 123	22. Price																												

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SECTION 1

TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY 17 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 2017 GMC Acadia manufactured by General Motors LLC. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated October 2015.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a model year 2017 GMC Acadia. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.17 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, OH, on September 2, 2016. Pre-test and post-test photographs of the test vehicle and the side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated October 2015. Camera locations and other pertinent camera information are included in this report.

The Part 572V (SID-IIs) dummy was instrumented accordingly:

- Primary and Redundant Head CG Triaxial Accelerometers
- Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
- Abdomen Upper and Lower Rib Displacement Potentiometers
- Lower Spine (T12) Triaxial Accelerometers
- Iliac Load Cell
- Acetabulum Load Cell

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

Injury readings for the SID-IIs dummy were recorded as follows:

Measurement Description	Driver ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC ₃₆)	NA	1000	319
Lower Spine Acceleration Resultant	G	82	32.9
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2991.7
Maximum Thoracic Rib Deflection	mm	38*	20.0
Maximum Abdominal Rib Deflection	mm	45*	17.6

* Proposed IARV

Supplemental restraint information is given below:

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

GENERAL COMMENTS

Side sill crush measurement points -600 thru 300 were on hard plastic points that sheared off during the crash.

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2017 GMC Acadia
Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
Test Date: 9/2/16

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20170101
Model Year	2017
Make	GMC
Model	Acadia
Body Style	MPV
VIN	1GKKNP1S0HZ137354
Body Color	Crimson Red Tintcoat
Odometer Reading (km/mi)	6 mi.
Engine Displacement (L)	3.6
Type/No. Cylinders	V/6
Engine Placement	Front/Transverse
Transmission Type	Automatic
Transmission Speeds	6
Overdrive	Yes
Final Drive	FWD
Roof Rack	Rails
Sunroof/T-Top	Yes x2
Running Boards	Yes
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes

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

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

No

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors LLC
Date of Manufacturer	07/16
Vehicle Type	MPV

GVWR (kg)	2722
GAWR Front (kg)	1350
GAWR Rear (kg)	1545

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	2	2	6
Vehicle Capacity Weight (VCW) (kg)				782
DSC X 68.04 kg				408.24
Rated Cargo and Luggage Weight (RCLW) (kg)				373.76

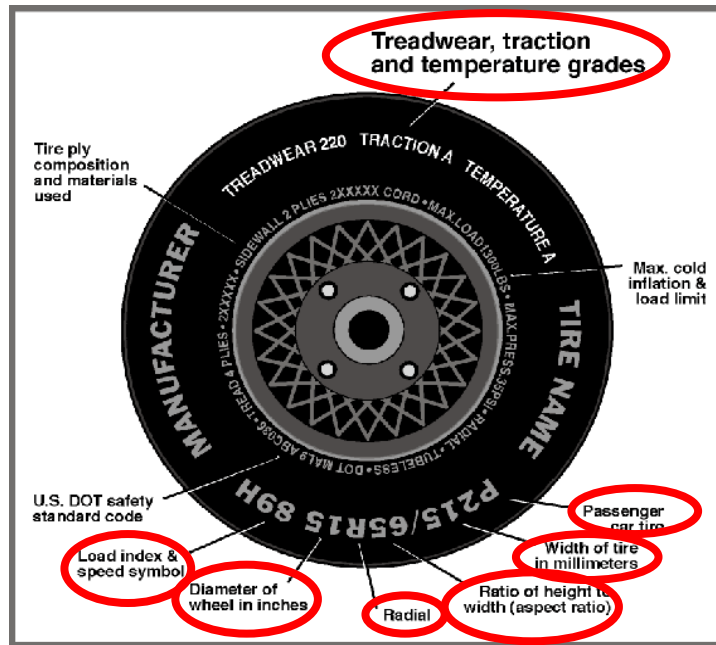
VEHICLE SEAT TYPE

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	Yes	N/A	N/A	N/A	N/A	Yes	N/A
Third row seat	N/A	N/A	Yes	Yes	Yes	N/A	N/A

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

Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
 Test Date: 9/2/16



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	250	250
Recommended Tire Size	235/55R20	235/55R20
Tire Size on Vehicle	235/55R20	235/55R20
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 H	102 H
Tire Material	Polyester, steel & polyamide	Polyester, steel & polyamide
DOT Safety Code Left	B9AJ OOTX 2716	B9AJ OOTX 2716
DOT Safety Code Right	B9AJ OOTX 2716	B9AJ OOTX 2716

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2017 GMC Acadia
Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
Test Date: 9/2/16

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	234	241	227	227
Tire Placard	kPa	250	250	250	250
Owner's Manual	kPa	N/A	N/A	N/A	N/A
As Tested	kPa	250	250	250	250

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	557.8	425.4		591.4	488.0		566.2	518.2	
Right	kg	539.2	409.4		556.0	473.4		538.4	494.0	
Ratio	%	56.8	43.2		54.4	45.6		52.2	47.8	
Totals	kg	1097.0	834.8	1931.8	1147.4	961.4	2108.8	1104.6	1012.2	2116.8

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1931.8	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	49.0	(B)
Rated Cargo/Luggage Weight (RCLW) ¹	kg	136.0	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2116.8	(A+B+C)

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

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	Deg.	-0.5	-0.5	+0.6	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	-0.5	-0.3	+0.1	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	-0.3	-0.3	-0.6	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg.	0.0	-0.3	-0.3	Yes
Vehicle CG (Aft of Front Axle)	mm	1235	1303	1367	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	+15	+19	+20	

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

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

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast: 11.3 kg on rack; 129.7 kg on floor at 3 rd row seats	141.0
Components removed: None	0.0

Test height adjustable suspension setting, if applicable:

N/A

¹ Rated cargo and luggage weight limited to 136 kg or 300 lbs.

DATA SHEET NO. 2

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

Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
 Test Date: 9/2/16

SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL(°)		
	Max.	Min.	Mid
Driver Seat	18.3	8.4	13.4
Front Passenger Seat	17.1	7.2	12.2
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	N/A	N/A	10.7
Non-Struck Side Rear Seat	N/A	N/A	10.4
Rear Center Seat*	N/A	N/A	N/A

* 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	13.4	249	Max	279	281	283
			Mid	245	247	249
			Min	214	216	218
Front Passenger Seat	12.2	246	Max	274	277	280
			Mid	240	243	246
			Min	209	211	214
Front Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Struck Side Rear Seat	10.7	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Non-Struck Side Rear Seat	10.4	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Rear Center Seat*	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

* If applicable.

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
 Test Date: 9/2/16

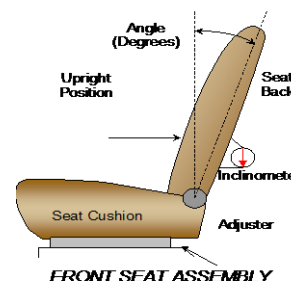
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	245	N/A	0	N/A
Front Passenger Seat	245	N/A	0	N/A
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	140	15	140	14
Non-Struck Side Rear Seat	140	15	140	14
Rear Center Seat*	N/A	N/A	N/A	N/A

* If applicable.

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck-side rear passenger seat back is positioned in accordance with the information provided by the manufacturer on Form No. 1. For the 5th percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back is set to match the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detent*
Driver Seat w/ Seated Dummy	66.4	N/A	29.9 Forward	N/A
Front Passenger Seat	66.2	N/A	29.9 Forward	N/A
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	11.6	8	0	0
Non-Struck Side Rear Seat	11.8	8	0	0
Rear Center Seat*	N/A	N/A	N/A	N/A

* If applicable.

SEAT BELT ANCHORAGE ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	1, Fixed	1, Fixed

HEAD RESTRAINT ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	8, numbered from 0 to 7	0, Lowermost

DATA SHEET NO. 2 (CONTINUED)

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

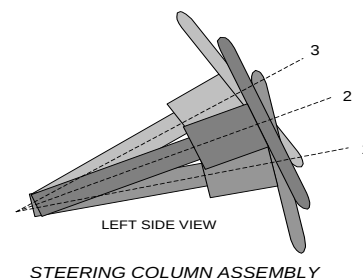
Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
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STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel geometric locus it describes when moved through its full range of motion.

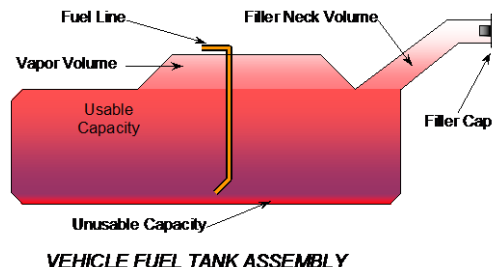
	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	21.2	N/A
Geometric Center, Position No. 2	23.55	N/A
Uppermost, Position No. 3	25.9	N/A
Telescoping Steering Wheel Travel		50
Test Position	23.5	25



FUEL PUMP

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

The vehicle is equipped with an electric fuel pump. The electric fuel pump will run for about 3 seconds when the key is turned on and then will not run unless the engine is cranking or running



FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	78.0
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	73.4
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	72.5
Actual Amount of Solvent Used in Test	72.5
1/3 of Usable Capacity	26.0

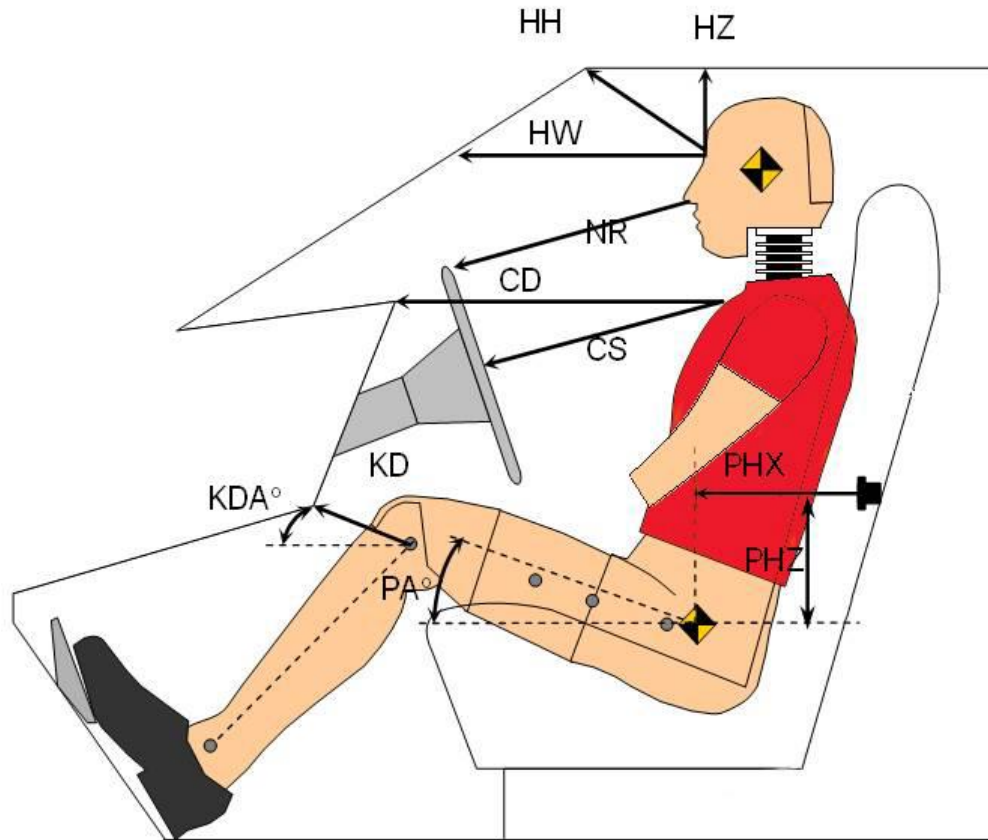
Is the Actual Amount of Solvent Used in the test equal to 93% +/- 1% of the Usable Capacity stated on Form No. 1? ☒ YES ☐ NO

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
 Test Date: 9/2/16

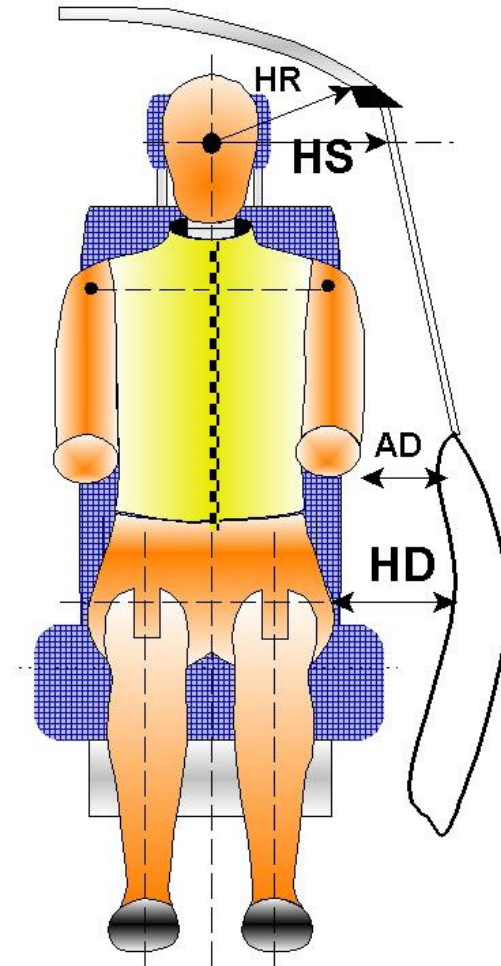


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	324	
HW	Head to Windshield	657	
HZ	Head to Visor	215	
NR	Nose to Rim	255	
CD	Chest to Dashboard	425	
CS	Chest to Steering Wheel	205	
KDL/KDLA°	Left Knee to Dash	161	34.0
KDR/KDRA°	Right Knee to Dash	164	34.0
PAX°	Pelvic Tilt Angle (X-axis)		0.2
PAY°	Pelvic Tilt Angle (Y-axis)		20.8
PHX	Hip Point to Striker (X-Axis)	326	
PHZ	Hip Point to Striker (Z-Axis)	63	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2017 GMC Acadia
Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
Test Date: 9/2/16

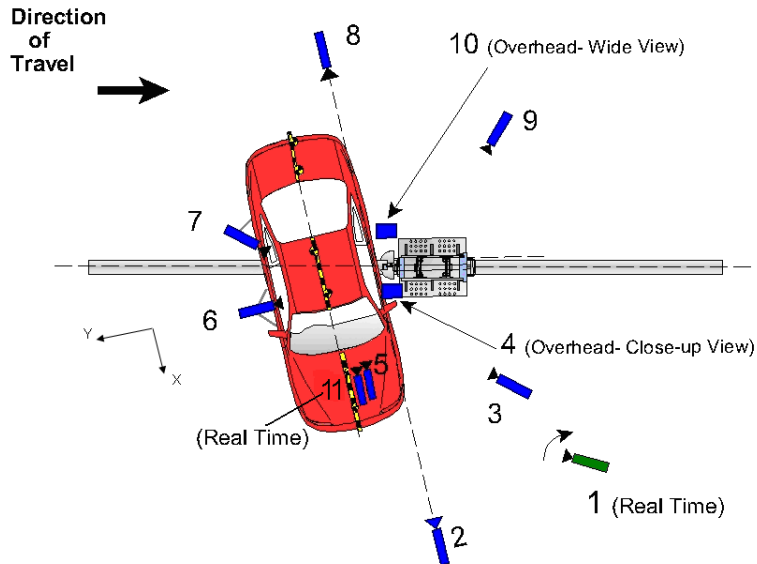


Code	Measurement Description	Length (mm)
HR	Head to Side Header	280
HS	Head to Side Window	392
AD	Arm to Door	160
HD	Hip Point to Door	176

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
 Test Date: 9/2/16



REFERENCE: (from point of impact for X and Y; from ground for Z)
 + X = Forward of vehicle, + Y = Right of vehicle, + Z = Down

Camera No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Real time (24-30 fps) pan view of impact				Zoom	30
2	Front ground level – impact view	5153	0	-1309	20	1000
3	Impact side 45° – forward pole view	3884	-892	-1429	25	1000
4	Overhead Close-up view of impact	0	0	5700	50	1000
5	Onboard – dummy front view				25	1000
6	Onboard – dummy side view				12.5	1000
7	Onboard – dummy rear oblique view				12.5	1000
8	Rear ground level – impact view	-5523	-150	-1229	20	1000
9	Impact side 45° – rearward pole view	-3426	-2598	-1343	20	1000
10	Overhead wide view of impact	-150	410	5703	18	1000
11	Real time dummy front view				Zoom	30

All measurements accurate to +/- 6 mm.

NOTE: Vehicle was at a 75° angle to the rigid pole.

If applicable, explain why camera(s) did not run: Not Applicable

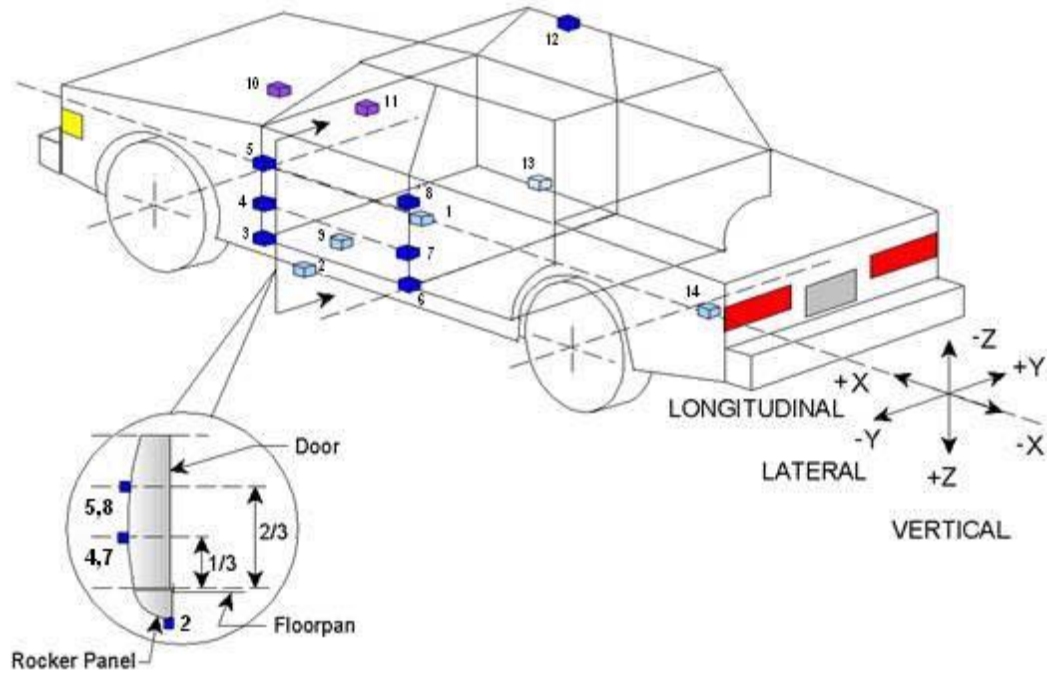
INSTRUMENTATION

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

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
 Test Date: 9/2/16



Accelerometer/Sensor Location				
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2780	98	-455
2	Left Floor Sill	3994	-685	-418
3	A-Pillar Sill	2774	-735	-425
4	A-Pillar Low	4040	-88	-600
5	A-Pillar Mid	4070	-848	-935
6	B-Pillar Sill	2780	-735	-437
7	B-Pillar Low	2955	-840	-664
8	B-Pillar Mid	2965	-820	-1072
9	Driver Seat Track	3368	-597	-467
10	Engine Top	4290	84	-975
11	Firewall	3887	0	-972
12	Right Roof	2860	671	-1622
13	Right Floor Sill	3696	715	-418
14	Rear Floorpan	1473	0	-598

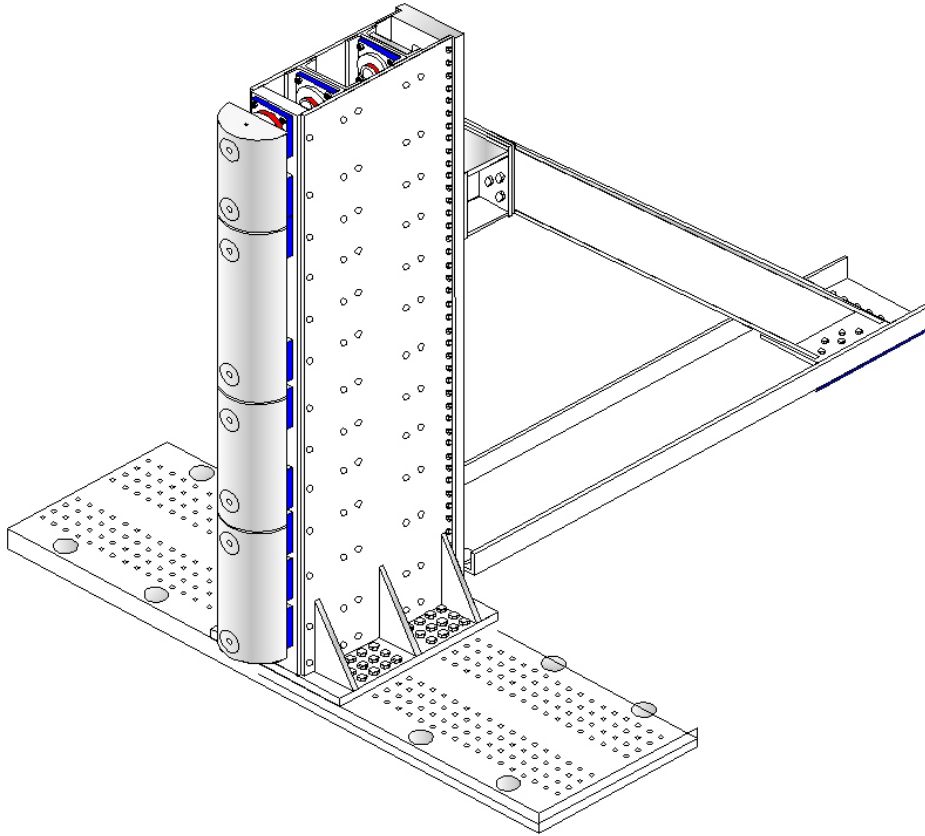
Reference: X - Test Vehicle Rear Bumper (+ forward)
 Y - Test Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2017 GMC Acadia
Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
Test Date: 9/2/16

FOIL 300K RIGID POLE



Load Cell Locations	
ID	Height From Top of Carrier (mm)
1	87
2	468
3	648
4	978
5	1168
6	1651
7	1816
8	2057

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

Test Vehicle: 2017 GMC Acadia
Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
Test Date: 9/2/16

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	SCAB
Top of Head	SCAB, Head Restraint
Left Side of Head	SCAB, Head Restraint
Back of Head	Head Restraint
Left Shoulder	Torso/Pelvis Bag
Upper Torso	Seat Bight
Lower Torso	Seat Bight, Torso/Pelvis Bag
Left Hip	Torso/Pelvis Bag, Seat Bight, Door Panel
Left Knee	Door Panel

POST-TEST DOOR PERFORMANCE

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

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

POST-TEST SEAT PERFORMANCE

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

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

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Major Deformation
Sill Separation	None Visible
Windshield Damage	Broken
Side Window Damage	Left front shattered
Other Notable Effects	Sunroof shattered

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

Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
 Test Date: 9/2/16

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

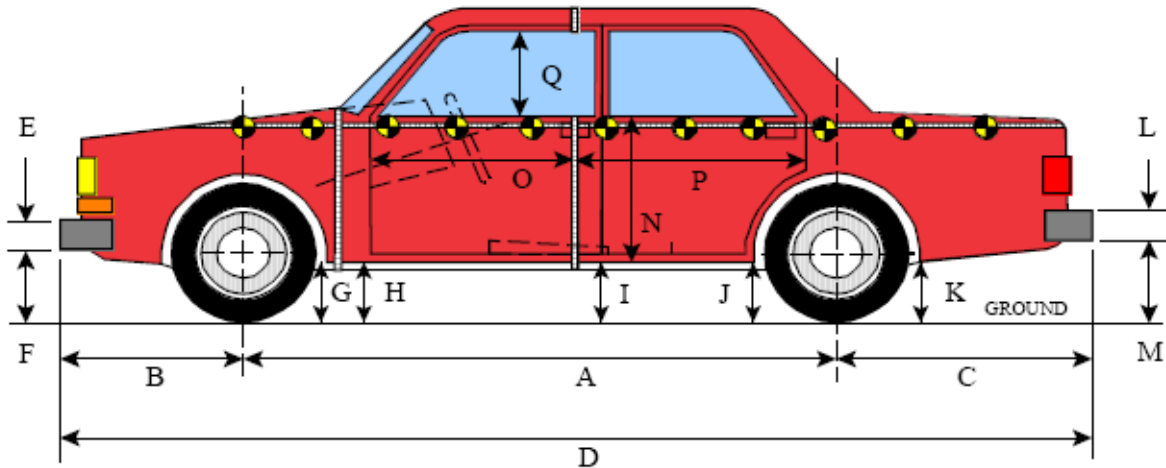
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1142
Actual Impact Point (Aft of Front Axle)	mm		1139
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 of Intended Impact point	+3
Angle Between Vehicle's Longitudinal Centerline and Line of Motion	degrees	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.17
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.17

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
 Test Date: 9/2/16



LEFT SIDE VIEW

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

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

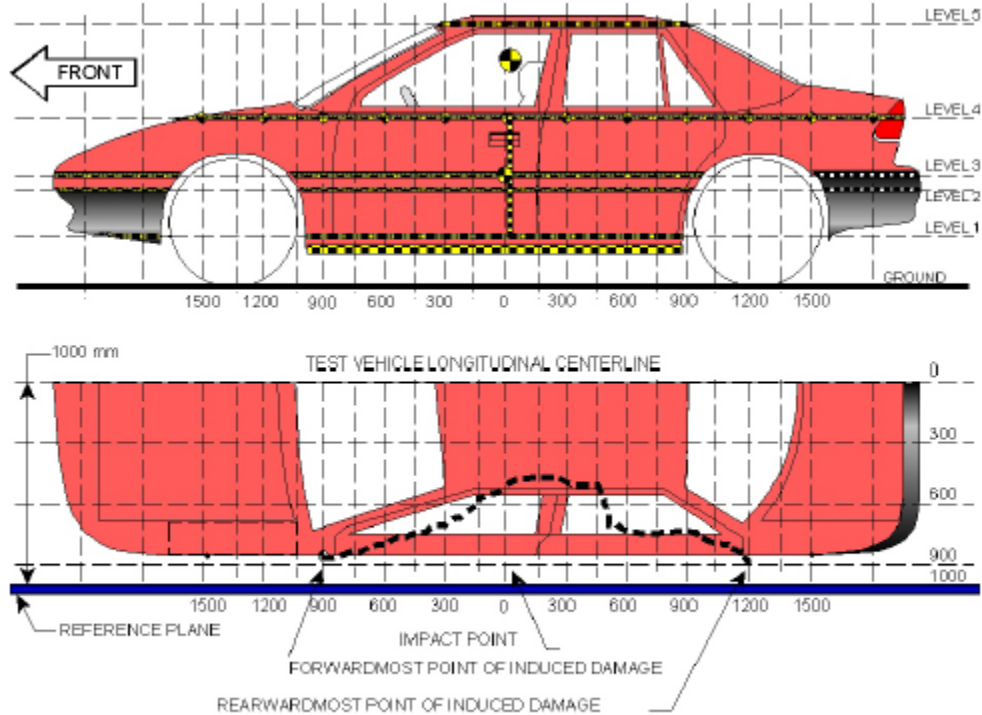
Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2858	2817	41
B	Front Axle to Front Surface of Vehicle	964	960	4
C	Rear Axle to Rear Surface of Vehicle	1110	1135	-25
D	Total Length at Centerline	4932	4912	20
E	Front Bumper Thickness	160	160	0
F	Front Bumper Bottom to Ground	480	498	-18
G	Sill Height at Front Wheel Well	308	285	23
H	Sill Height at Front Door Leading Edge	311	283	28
I	Sill Height at B-Pillar	336	359	-23
J1	Sill Height at Rear Wheel Well	338	391	-53
J2	Pinch Weld Height at Rear Wheel Well	280	309	-29
K	Sill Height Aft of Rear Wheel Well	349	403	-54
L	Rear Bumper Thickness	100	100	0
M	Rear Bumper Bottom to Ground	566	614	-48
N	Sill Height to Bottom of Front Window Sill	870	801	69
O	Front Door Leading Edge to Impact CL	630	500	130
P	Rear Door Trailing Edge to Impact CL	1541	1439	102
Q	Front Window Opening	453	370	83
R	Right Side Length	4730	4725	5
S	Left Side Length	4730	4685	45
T ¹	Vehicle Width at B-Pillars	1883	1792	91

¹ maximum width not at B-Pillars; maximum width = 1910 mm

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
 Test Date: 9/2/16



NOTE: All measurements are in millimeters (mm)

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1 ¹	Sill Top	427	74	450
2	Occupant H-Point	668	337	0
3	Mid-Door	753	342	0
4	Window Sill	1109	315	0
5	Window Top	1632	124	150

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

¹ The Side Sill points -600 thru 300 were on hard plastic panels which sheared off during the crash.

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

Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
 Test Date: 9/2/16

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1050	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-900	0	0	0	849	0	0	0	0	841	0	0	0	0	8	0
-750	941	951	952	855	0	1040	943	942	844	0	-99	8	10	11	0
-600	940	941	940	860	0	N/A ¹	911	909	835	0	N/A ¹	30	31	25	0
-450	934	937	937	868	0	N/A ¹	830	828	793	0	N/A ¹	107	109	75	0
-300	932	936	937	876	0	N/A ¹	748	744	719	0	N/A ¹	188	193	157	0
-150	931	935	936	883	0	N/A ¹	658	652	640	0	N/A ¹	277	284	243	0
0	930	935	936	889	0	N/A ¹	598	594	574	0	N/A ¹	337	342	315	0
150	929	934	936	892	649	N/A ¹	670	661	632	525	N/A ¹	264	275	260	124
300	928	933	935	894	640	N/A ¹	796	786	737	550	N/A	137	149	157	90
450	927	931	933	896	646	853	856	858	820	589	74	75	75	76	57
600	926	931	932	896	649	869	871	872	837	616	57	60	60	59	33
750	926	931	932	898	652	885	887	888	855	633	41	44	44	43	19
900	929	934	935	902	652	905	906	907	874	641	24	28	28	28	11
1050	933	943	943	909	652	925	931	932	897	644	8	12	11	12	8
1200	933	950	955	919	650	940	952	958	922	645	-7	-2	-3	-3	5
1350	0	0	0	926	649	0	0	0	944	643	0	0	0	-18	6
1500	0	0	0	928	645	0	0	0	925	640	0	0	0	3	5
1650	0	0	0	928	638	0	0	0	924	634	0	0	0	4	4
1800	0	0	0	923	630	0	0	0	921	628	0	0	0	2	2
1950	0	0	0	914	620	0	0	0	912	618	0	0	0	2	2
2100	0	0	0	894	605	0	0	0	892	603	0	0	0	2	2
2250	0	0	0	866	0	0	0	0	864	0	0	0	0	2	0
2400	0	0	0	830	0	0	0	0	829	0	0	0	0	1	0

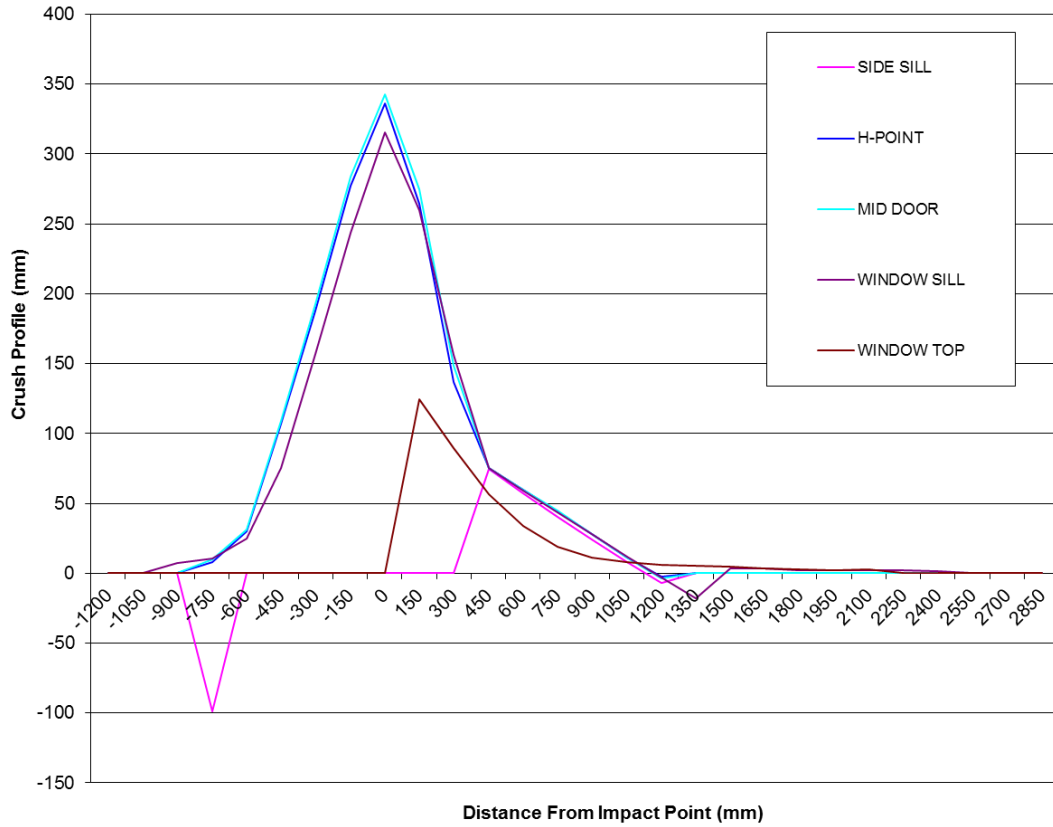
NOTE: Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point. The final distance from impact is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

¹ The Side Sill points -600 thru 300 were on hard plastic panels which sheared off during the crash.

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

Test Vehicle: 2017 GMC Acadia
Test Program: SPNCAP Side Impact

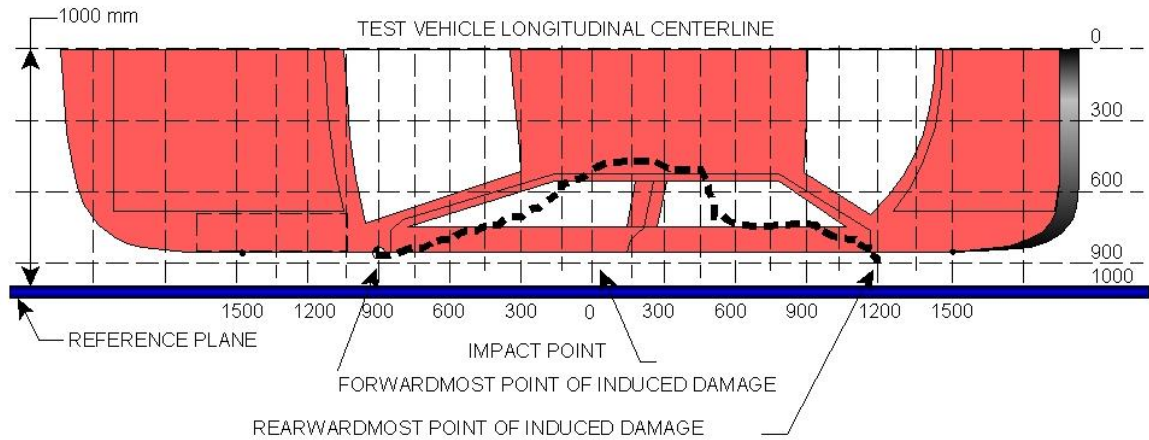
NHTSA No.: M20170101
Test Date: 9/2/16



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
 Test Date: 9/2/16



VEHICLE DAMAGE PROFILE DISTANCES¹

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	2400	4	829	830	0
2	1800	4	921	923	2
		5	628	630	2
3	1050	2	931	943	12
		4	897	909	12
4	450	4	820	896	76
5	-300	3	937	744	193
6	-900	4	841	849	0

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

DATA SHEET NO. 12

FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

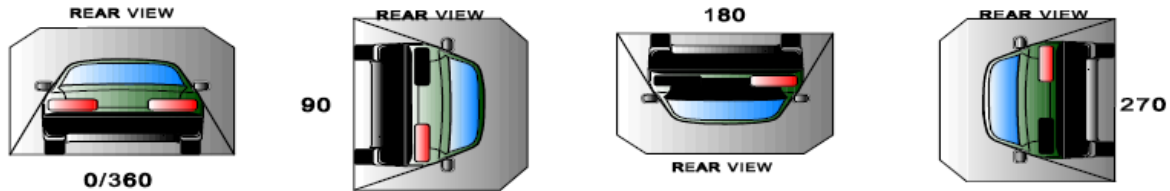
Test Vehicle: 2017 GMC Acadia
 Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
 Test Date: 9/2/16

Test Time: 12:24 Temperature: 22.0°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
 (Maximum allowable is 5 ounces)
- C. For the following 25 minutes: 0
 (Maximum allowable is 1 ounce/minute)
- D. Spillage Data1LS: 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

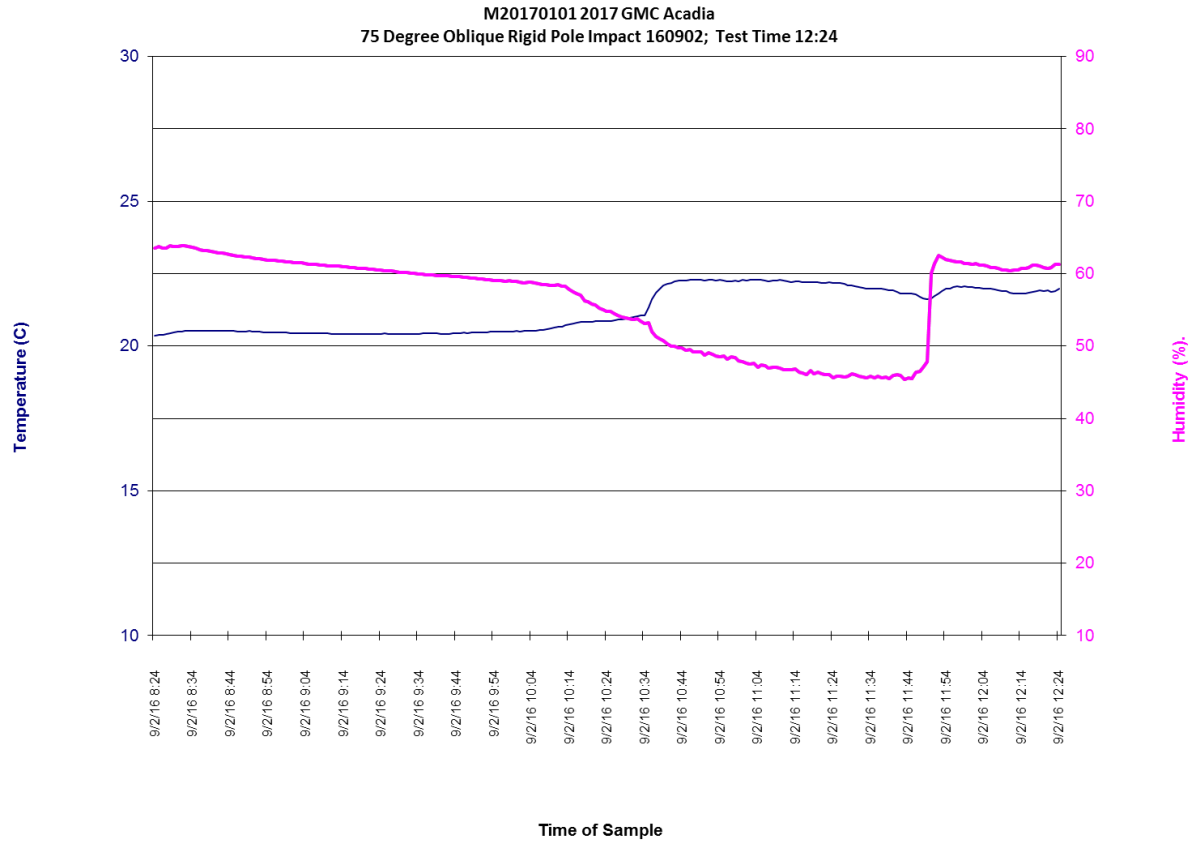
Test Phase	Spillage Location
0 to 90	None
90 to 180	None
180 to 270	None
270 to 360	None

DATA SHEET NO. 13

DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2017 GMC Acadia
Test Program: SPNCAP Side Impact

NHTSA No.: M20170101
Test Date: 9/2/16



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

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2	As Delivered Right Rear $\frac{3}{4}$ View of Test Vehicle	A-4
3	Pre-Test Frontal View of Test Vehicle	A-5
4	Post-Test Frontal View of Test Vehicle	A-5
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6	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-6
7	Pre-Test Left Side View of Test Vehicle	A-7
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11	Pre-Test Rear View of Test Vehicle	A-9
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21	Pre-Test Front Close-Up View of Dummy Head and Chest	A-14
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23	Pre-Test Left Side View of Dummy Showing Belt and Chalking	A-15
24	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-16
25	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-16
26	Pre-Test Front View of Seat Back Prior to Dummy Positioning	A-17
27	Pre-Test Front View of Dummy Head and Shoulders in Relation to Head Restraint	A-17
28	Pre-Test Front View of Seat Pan Prior to Dummy Positioning	A-18
29	Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-18
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37	Pre-Test Close-Up Left Side View of Driver Seat Track	A-22
38	Pre-Test Close-Up Left Side View of Driver Seat Back	A-23
39	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-23
40	Pre-Test Dummy and Door Clearance View	A-24
41	Post-Test Dummy and Door Clearance View	A-24
42	Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-25
43	Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-25
44	Pre-Test Inner Driver Door Panel View	A-26
45	Post-Test Inner Driver Door Panel View Showing Dummy Contact Location	A-26
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49	Post-Test Dummy Close-Up Torso Contact with Side Airbag View	A-28
50	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-29
51	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-29
52	Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View	A-30
53	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-31
54	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-31
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57	Pre-Test Pole Barrier Front View	A-33
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61	Pre-Test Ballast View	A-35
61a	Pre-Test Ballast View	A-35
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63	FMVSS No. 301 Static Rollover 0 Degrees	A-36
64	FMVSS No. 301 Static Rollover 90 Degrees	A-37
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69	Monroney Label	A-39
70	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-40
71	Post-Test View of Shattered Vehicle Inner Door Panel	A-40



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



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



No. 003 Pre-Test Frontal View of Test Vehicle



No. 004 Post-Test Frontal View of Test Vehicle



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



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



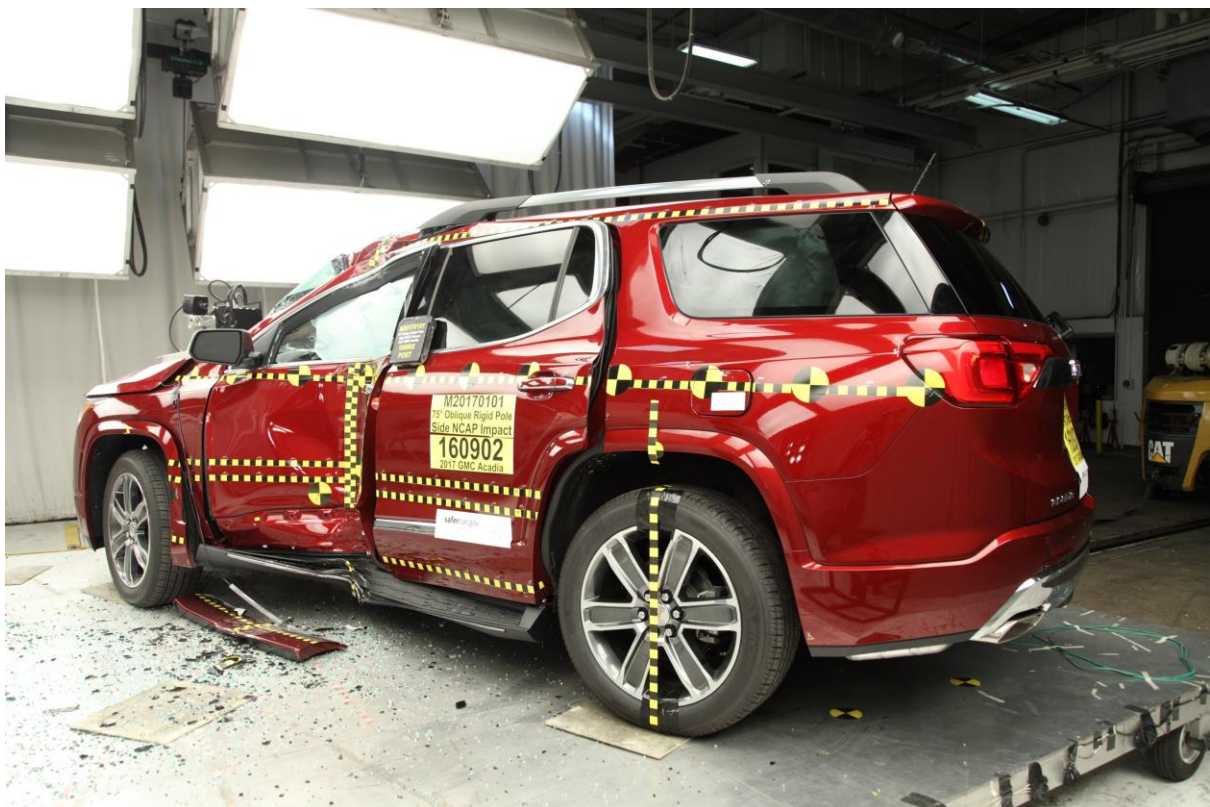
No. 007 Pre-Test Left Side View of Test Vehicle



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



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



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



No. 011 Pre-Test Rear View of Test Vehicle



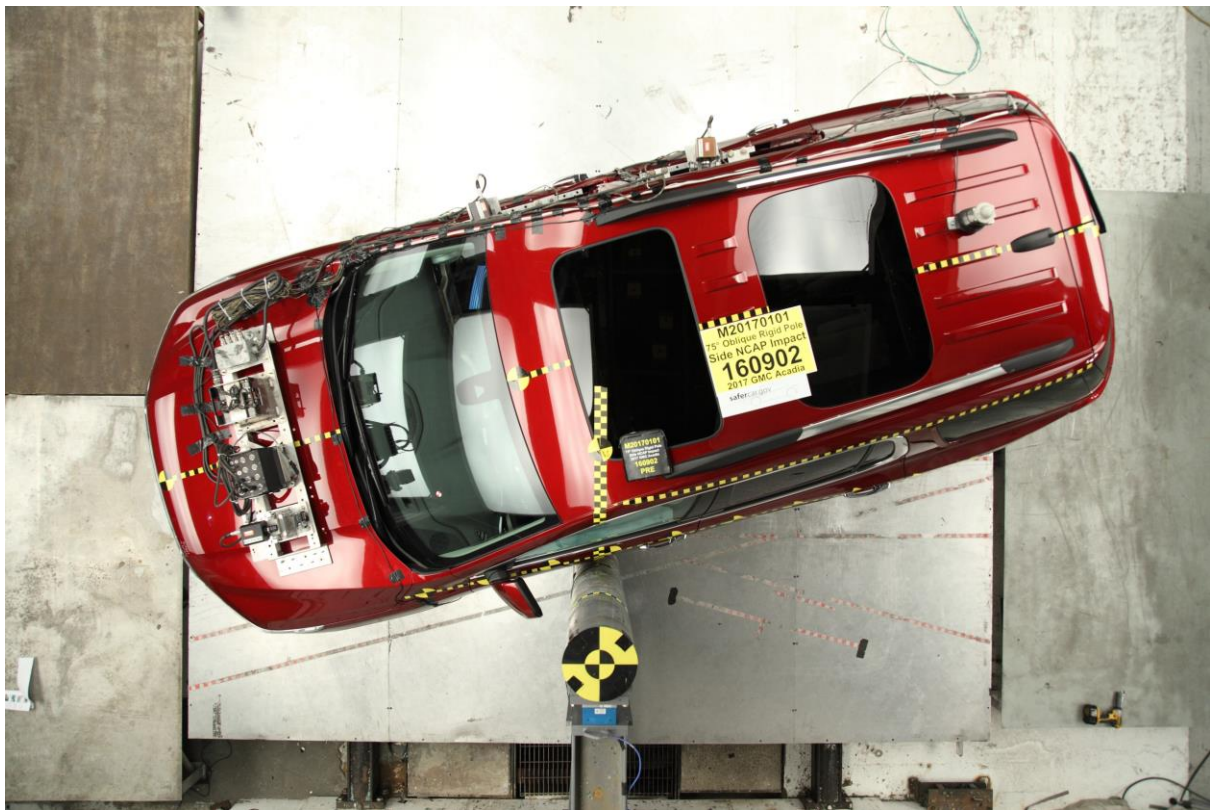
No. 012 Post-Test Rear View of Test Vehicle



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



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



No. 015 Pre-Test Overhead View of Test Area



No. 016 Post-Test Overhead View of Test Area



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



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



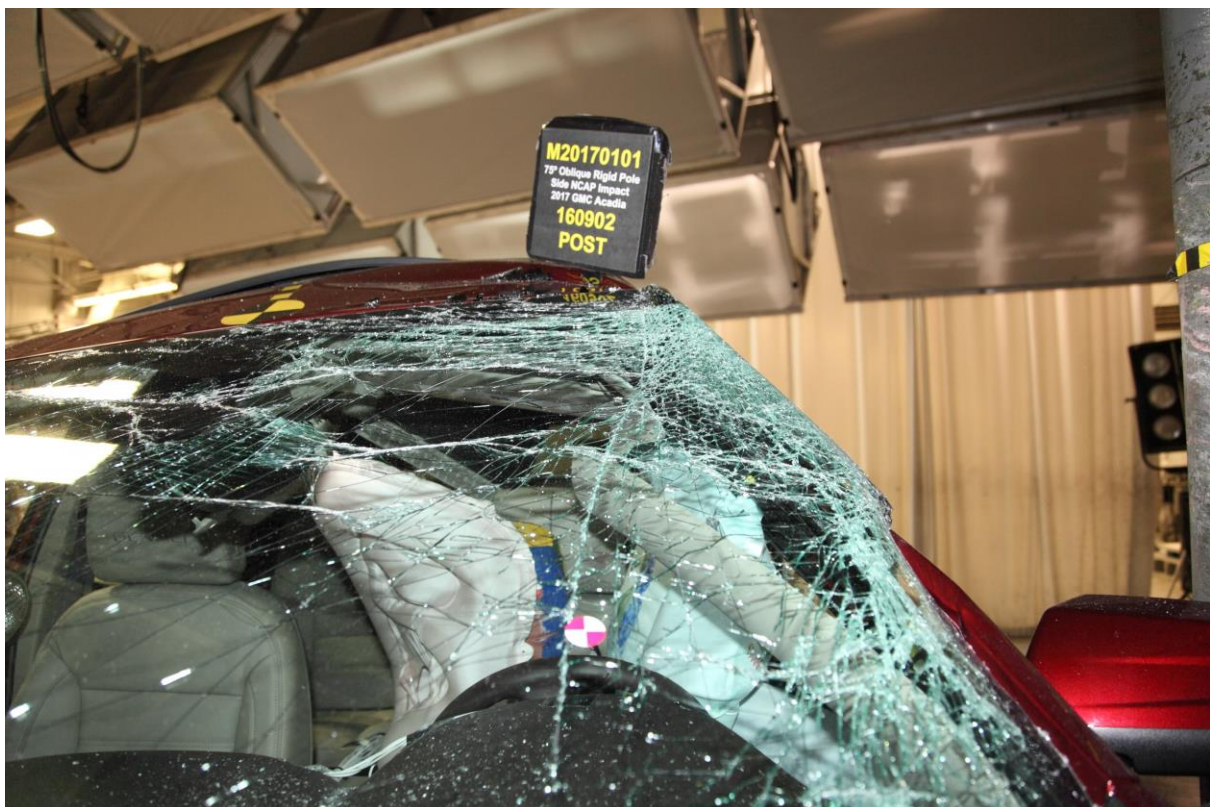
No. 019 Pre-Test Close-Up View of Impact Point Target



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



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



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



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

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



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



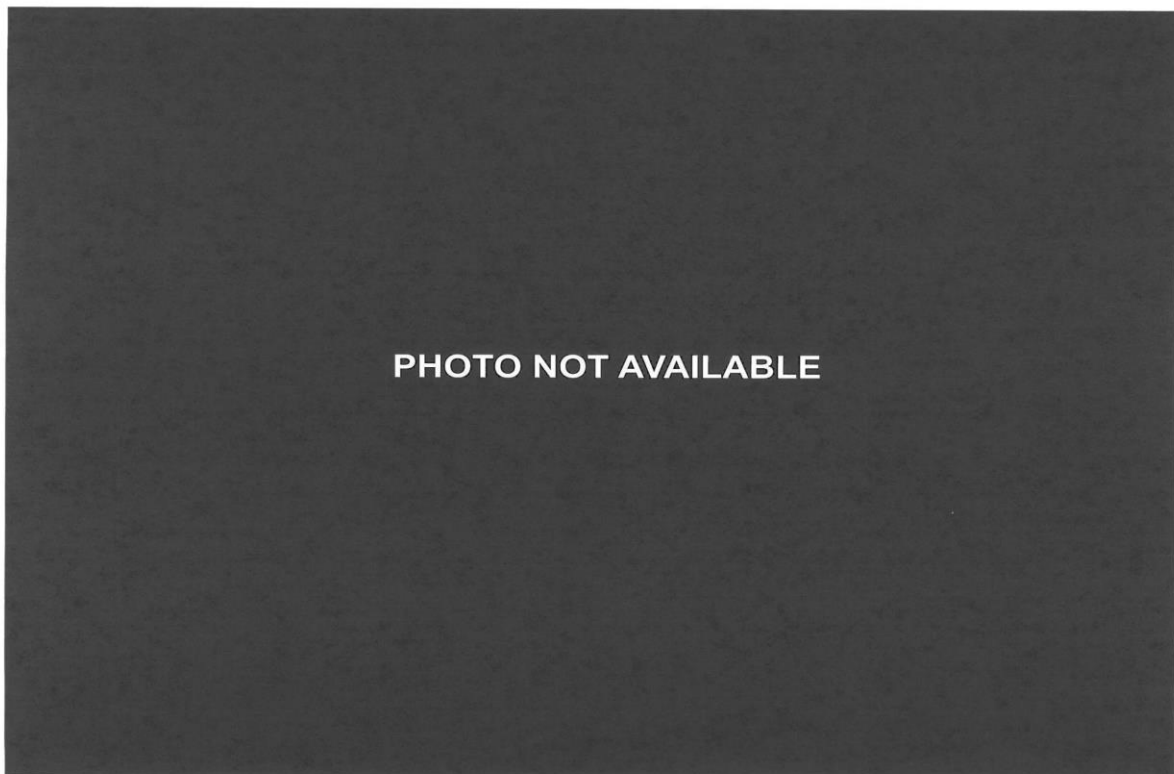
No. 026 Pre-Test Front View of Seat Back Prior to Dummy Positioning



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



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



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



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



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



No. 032 Pre-Test Placement of Dummy Feet



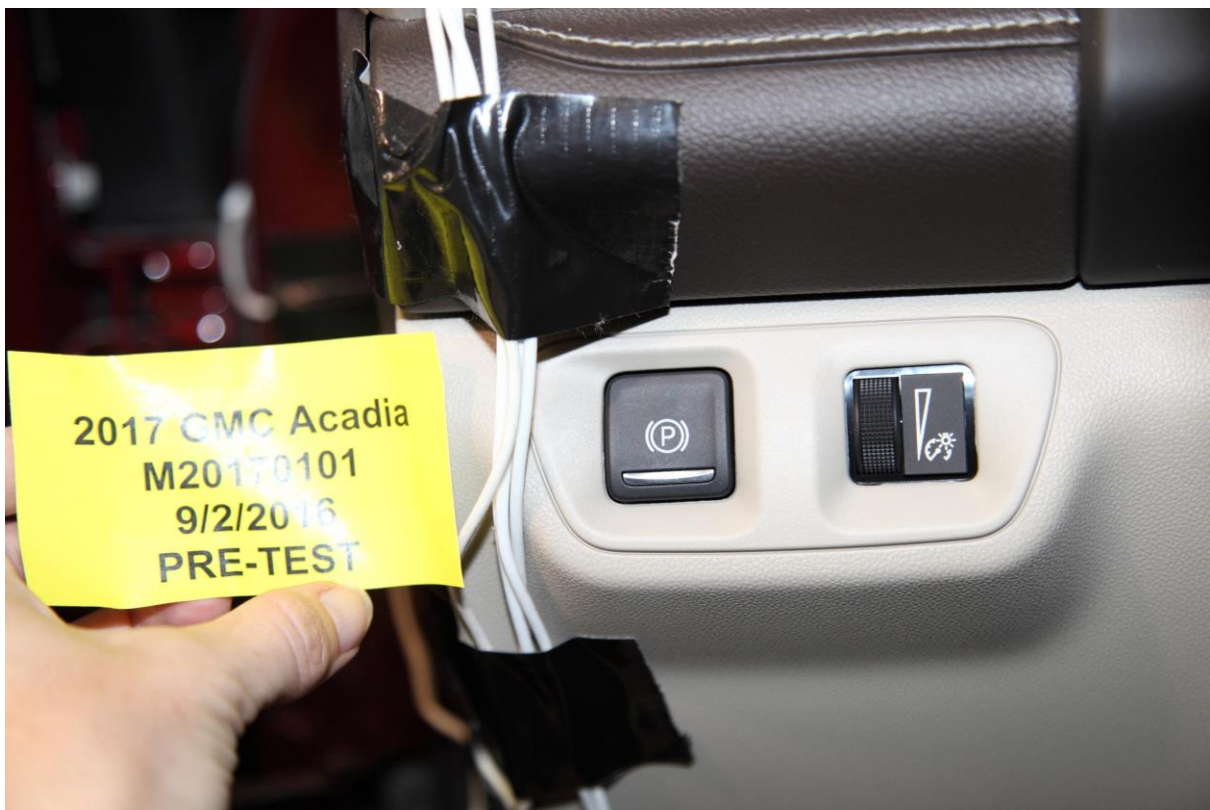
No. 033 Pre-Test View of Belt Anchorage for Dummy



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



No. 035 Pre-Test View of Disengaged Parking Brake



No. 036 Pre-Test View of Parking Brake



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

PHOTO NOT AVAILABLE

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



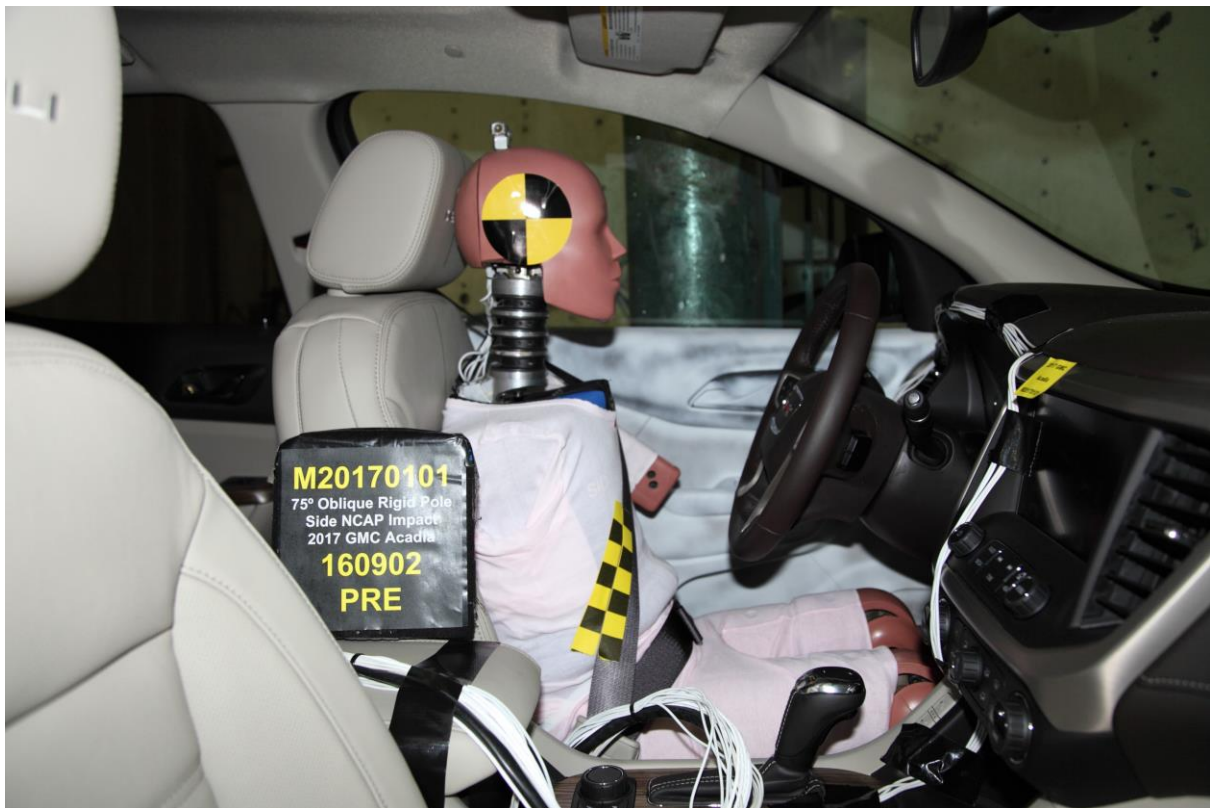
No. 039 Pre-Test Close-Up View of Driver Seat Back or Head Restraint



No. 040 Pre-Test Dummy and Door Clearance View



No. 041 Post-Test Dummy and Door Clearance View



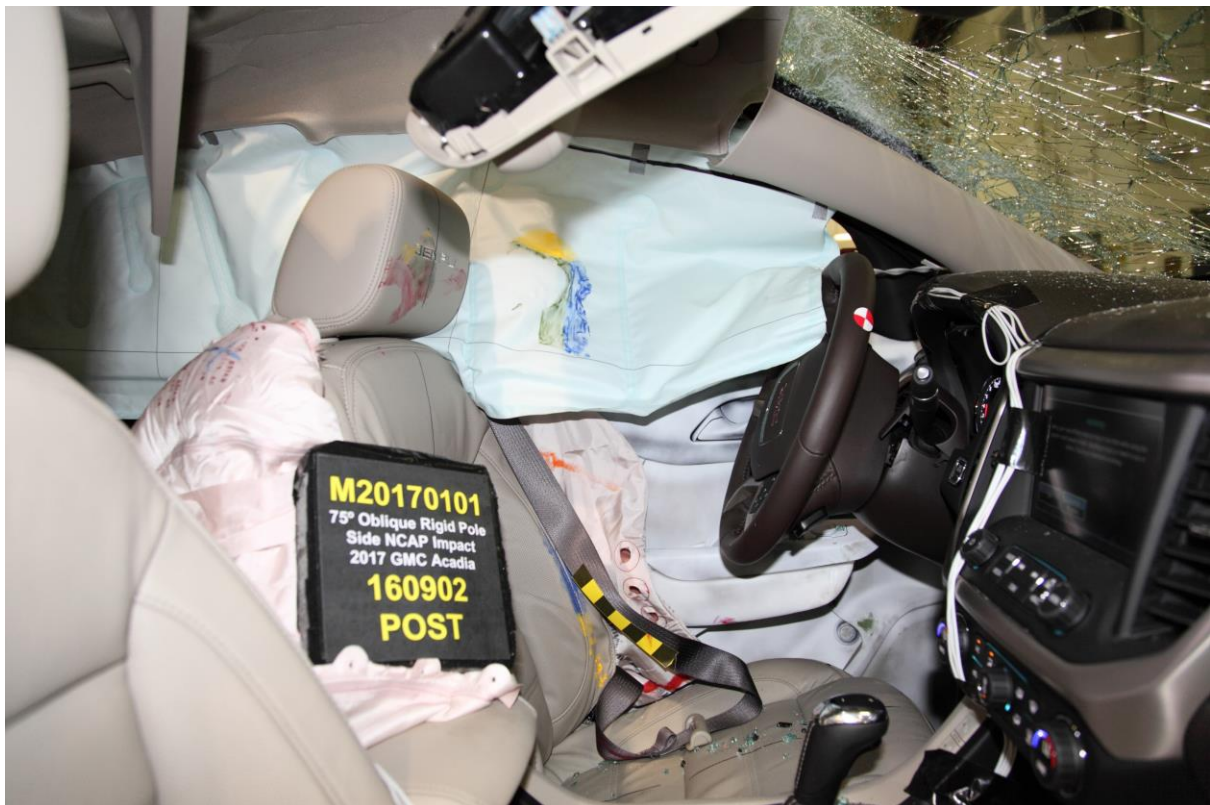
No. 042 Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



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



No. 044 Pre-Test Inner Door Panel View



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



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



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



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



No. 049 Post-Test Dummy Close-Up Torso Contact with Side Airbag View



No. 050 Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View



No. 051 Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



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

Intentionally Left Blank



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



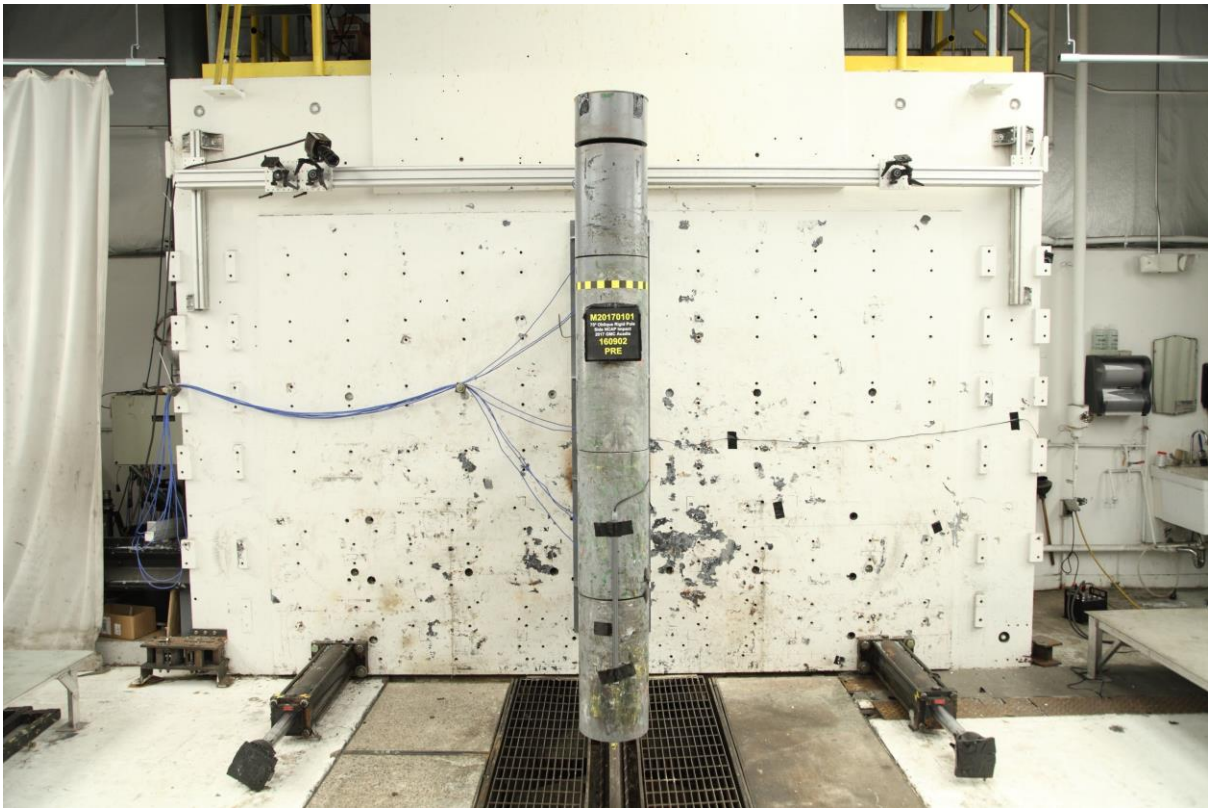
No. 054 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



No. 055 Close-Up View of Vehicle Certification Label



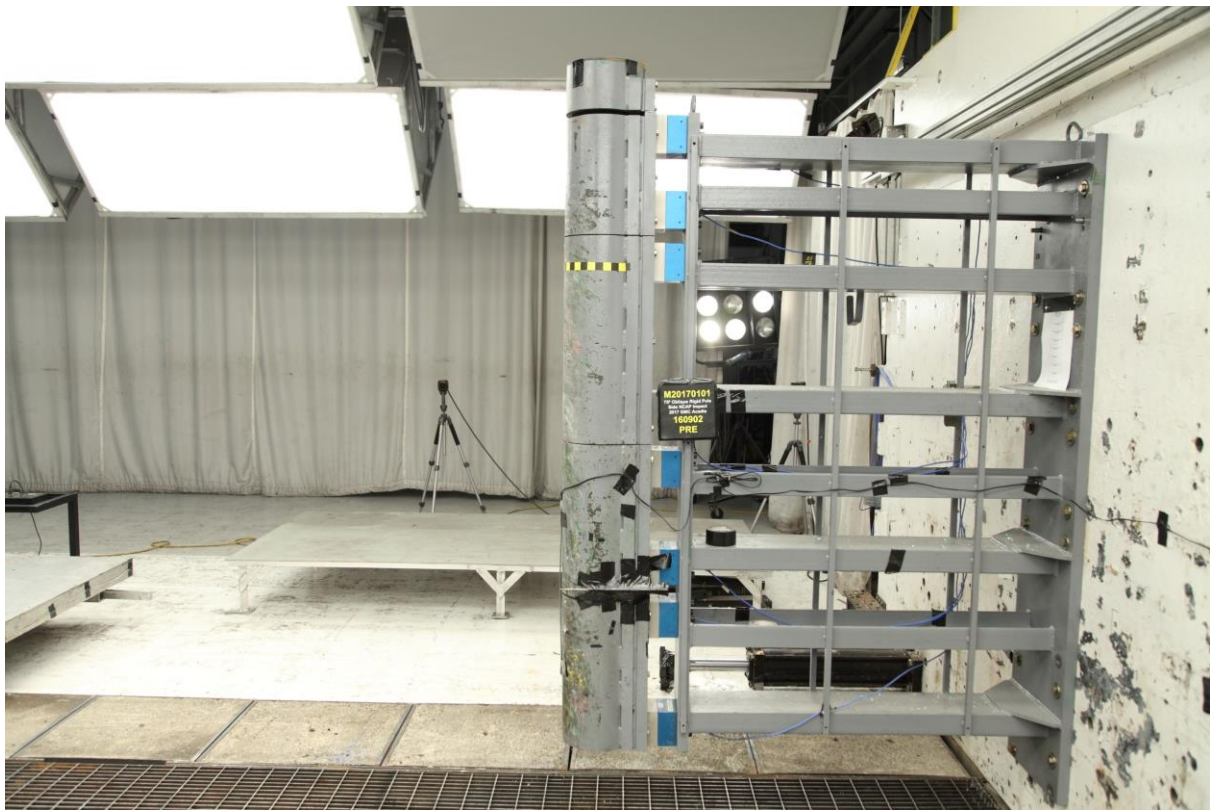
No. 056 Close-Up View of Vehicle Tire Information Placard or Label



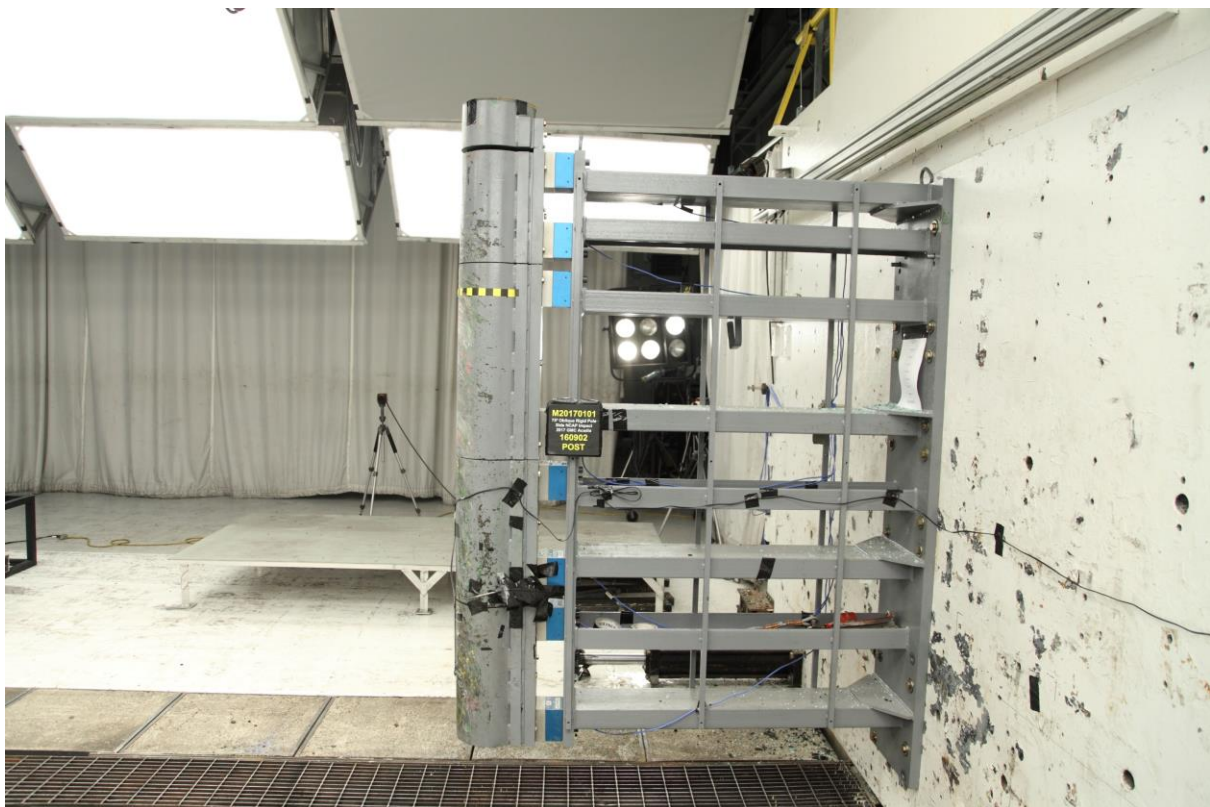
No. 057 Pre-Test Pole Barrier Front View



No. 058 Post-Test Pole Barrier Front View



No. 059 Pre-Test Pole Barrier Side View



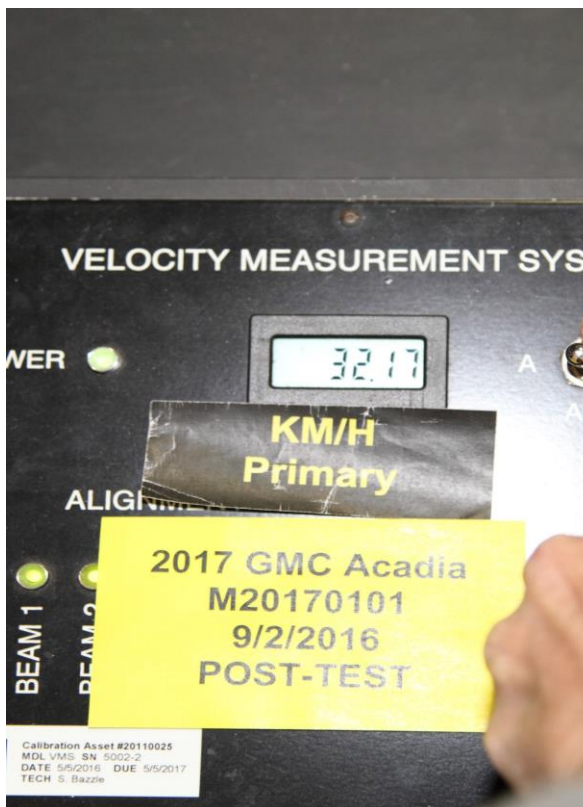
No. 060 Post-Test Pole Barrier Side View



No. 061 Pre-Test Ballast View



No. 061a Pre-Test Ballast View



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



No. 063 FMVSS No. 301 Static Rollover 0 Degrees



No. 064 FMVSS No. 301 Static Rollover 90 Degrees



No. 065 FMVSS No. 301 Static Rollover 180 Degrees



No. 066 FMVSS No. 301 Static Rollover 270 Degrees



No. 067 FMVSS No. 301 Static Rollover 360 Degrees



No. 068 Impact Event



2017 ACADIA FWD DENALI


EXTERIOR: CRIMSON RED TINTCOAT
INTERIOR: COCOA/ SHALE
ENGINE: 3.6L V6, SIDI, DOHC,
TRANSMISSION: 6-SPD AUTOMATIC

Visit us at www.gmc.com

STANDARD EQUIPMENT ITEMS LISTED BELOW ARE INCLUDED AT NO EXTRA CHARGE IN THE STANDARD VEHICLE PRICE SHOWN. • 75 YR 60,000 MILES POWERTRAIN LIMITED WARRANTY SEE DEALER FOR DETAILS • TWO MAINTENANCE VISITS OIL & FILTER • 4 WHEEL TIRE ROTATION SEE WWW.GMC.COM OR DEALER FOR DETAILS MECHANICAL • ENGINE, 3.6L V6, SIDI, DOHC, VVT • TRAILERING PACKAGE SAFETY & SECURITY • KEYLESS OPEN AND START • REMOTE VEHICLE START • AIR BAGS, FRONTAL AND SIDE IMPACT FOR DRIVER & FRONT PASSENGER, DRIVER INBOARD SEAT-MOUNTED SIDE-IMPACT, AND	HEAD CURTAIN SIDE-IMPACT FOR ALL ROWS IN OUTBOARD SEATING POSITIONS • ANTILOCK BRAKE SYSTEM, 4 WHEEL DISC • TEEN DRIVER • DRIVER ALERT PACKAGE II • HEADLAMP, INTELLIBEAM, AUTOMATIC HIGH-BEAM • FRONT & REAR PARKING ASSIST • FOLLOWING DISTANCE INDICATOR • FORWARD COLLISION ALERT • REAR CROSS TRAFFIC ALERT • LANE KEEP ASSIST • LOW SPEED FORWARD AUTOMATIC BRAKING • LANE CHANGE ALERT WITH SIDE BLIND ZONE ALERT • PEDESTRIAN DETECTION, FRONT EXTERIOR • MIRRORS, OUTSIDE HEATED POWER DRIVER SIDE AUTO DIMMING	• DAYTIME RUNNING LAMPS, LED • TIRE, COMPACT SPARE • WHEELS, 20" POLISHED ALUMINUM • HEADLAMP, HIGH INTENSITY DISCHARGE • LIFTGATE, POWER, HANDS FREE • ROOF RAILS, BRIGIT INTERIOR • AIR CONDITIONING, TRI ZONE AUTO CLIMATE CONTROL • MEMORY PACKAGE • SEATING, 6-PASSENGER • POWER SEAT ADJUSTER, DRIVER, 8-WAY • PWR SEAT ADJUSTER, FRONT PASSENGER, 8-WAY • POWER LUMBAR, DRIVER SEAT • POWER LUMBAR, FRONT PASSENGER • DRIVER & FRONT PASSENGER HEATED SEATS • SEATS, HEATED REAR OUTBOARD POSITIONS	• POWER OUTLET, 120 VOLT • SEATS, VENTILATED DRIVER & FR PASSENGER • LEATHER WRAP STEERING WHEEL • STEERING COLUMN, POWER TILT & TELESCOPIC • UNIVERSAL HOME REMOTE • DISPLAY, DRIVER INSTRUMENT INFO, 8" COLOR CONFIGURABLE • BOSE PREMIUM 8 SPEAKER AUDIO • HEATED STEERING WHEEL • LEATHER-APPOINTED SEATING CONNECTIVITY FEATURES • XM RADIO + SERVICE SUBSCRIPTION SOLD SEPARATELY BY SIRIUSXM AFTER 3 MTHS • ONSTAR(R) INCLUDES 5 YR BASIC PLAN PLUS 6 MTH SERVICE W/ AUTOMATIC CRASH RESPONSE, NAVIGATION & MORE (SUBJECT TO TERMS SEE ONSTAR.COM) • 4G LTE W-FW(R) HOTSPOT WITH
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OPTION & PRICING

MANUFACTURER'S SUGGESTED RETAIL PRICE

STANDARD VEHICLE PRICE	\$44,920.00
OPTIONS INSTALLED BY THE MANUFACTURER (MAY REPLACE STANDARD EQUIPMENT LISTING)	
DUAL SKYSCAPE SUNROOF	1,400.00
TECHNOLOGY PACKAGE	1,345.00
• ADAPTIVE CRUISE CONTROL WITH FULL SPEED FRONT AUTOMATIC	
TOTAL OPTIONS	\$4,315.00
TOTAL VEHICLE & OPTIONS	\$49,235.00
DESTINATION CHARGE	925.00
TOTAL VEHICLE PRICE*	\$50,160.00

BRKING • AUTOMATIC COLLISION PREPARATION • MOLDED ASSIST STEPS (DEALER INSTALLED) • CRIMSON RED TINTCOAT CARGO PACKAGE • CARGO SHADE, RETRACTABLE (DEALER INSTALLED) • CARGO NET (DEALER INSTALLED) • WHEEL LOCKS (DLR INSTALLED)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">TOTAL OPTIONS</td> <td style="text-align: right;">\$4,315.00</td> </tr> <tr> <td style="text-align: right;">TOTAL VEHICLE & OPTIONS</td> <td style="text-align: right;">\$49,235.00</td> </tr> <tr> <td style="text-align: right;">DESTINATION CHARGE</td> <td style="text-align: right;">925.00</td> </tr> <tr> <td style="text-align: right;">TOTAL VEHICLE PRICE*</td> <td style="text-align: right;">\$50,160.00</td> </tr> </table>	TOTAL OPTIONS	\$4,315.00	TOTAL VEHICLE & OPTIONS	\$49,235.00	DESTINATION CHARGE	925.00	TOTAL VEHICLE PRICE*	\$50,160.00
TOTAL OPTIONS	\$4,315.00								
TOTAL VEHICLE & OPTIONS	\$49,235.00								
DESTINATION CHARGE	925.00								
TOTAL VEHICLE PRICE*	\$50,160.00								

EPA DOT Fuel Economy and Environment
These estimates reflect new EPA methods beginning with 2017 models.

Fuel Economy

21 MPG

combined city/hwy

4.8 gallons per 100 miles

Special purpose range from 12 to 92 MPG. The best vehicle rates 119 MPG.

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

Annual fuel cost \$1,750

Fuel Economy & Greenhouse Gas Rating (tailpipe only)

Smog Rating (tailpipe only)

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 24.8 MPG and costs \$2,080 in fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.45 per gallon. MPG is miles per gallon (city/combined). Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov
Calculate personalized estimates and compare vehicles

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

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE: U.S./CANADIAN PARTS CONTENT: 65%

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

FOR THIS VEHICLE:
 FINAL ASSEMBLY POINT: SPRING HILL, TN U.S.A.
 COUNTRY OF ORIGIN: ENGINE: UNITED STATES
 TRANSMISSION: UNITED STATES

This label has been applied pursuant to Federal law. Do not remove and do not attempt to alter. It is the property of the manufacturer. It is not to be used for any other purpose. It is not to be used for any other purpose. It is not to be used for any other purpose.

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On 4G LTE
 Equipped with the safety and connectivity of OnStar.
www.onstar.com for details.

HL
 1GA0165599

No. 069 Monroney Label

Head Restraints

Front Seats

Warning

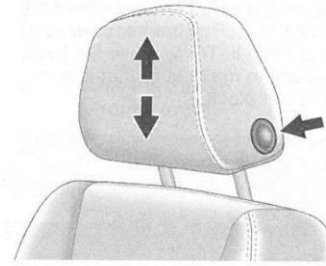
With head restraints that are not installed and adjusted properly, there is a greater chance that occupants will suffer a neck/spinal injury in a crash. Do not drive until the head restraints for all occupants are installed and adjusted properly.

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



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.

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.

Rear Seats

Second Row Seats

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

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

PHOTO NOT APPLICABLE

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

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

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

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

www.nhtsa.dot.gov.

Additional Driver Dummy Instrumentation Data

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

Vehicle Instrumentation Data

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

Pole Instrumentation Data

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

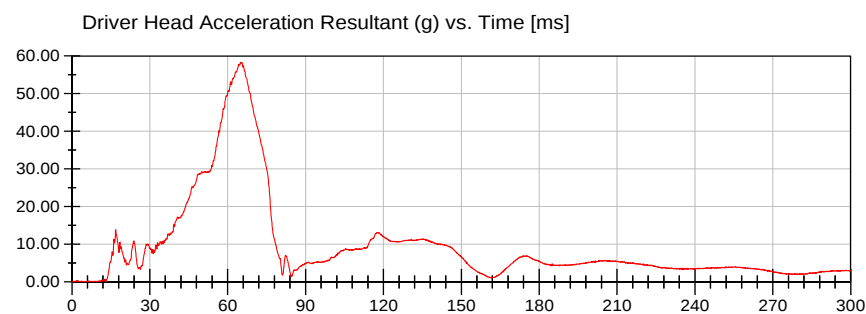
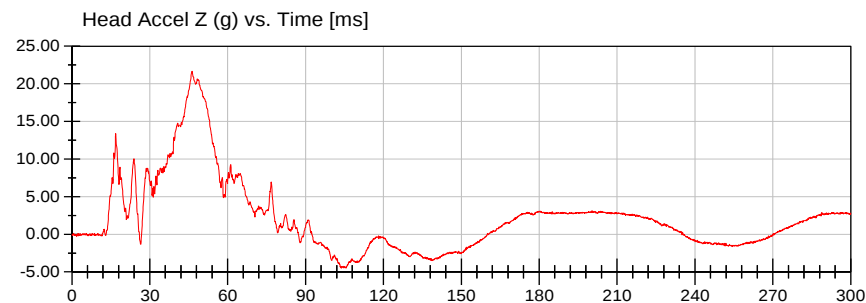
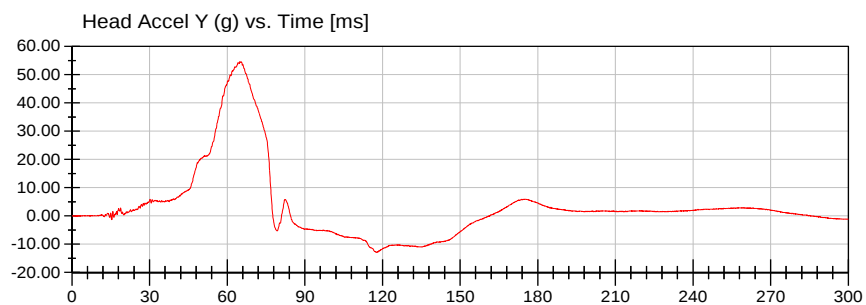
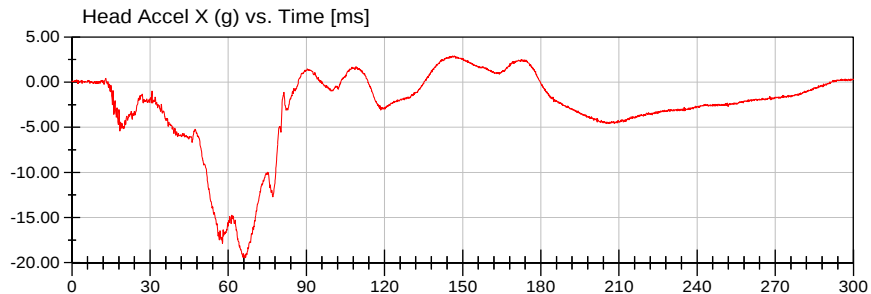
NHTSA

Position #1 SID IIs Dummy (297)

Test Date: 09/02/2016

Test Lab: Transportation Research Center, Inc.

Test Number: 160902 (M20170101)



NHTSA

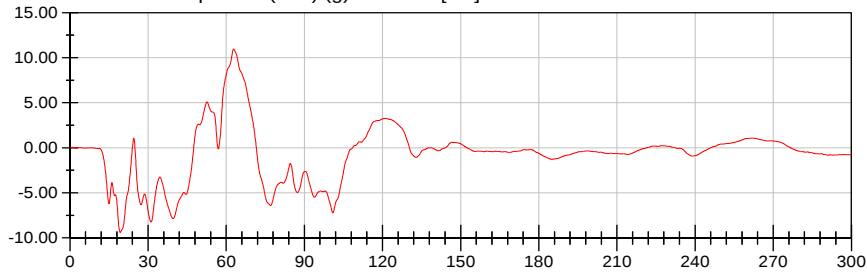
Position #1 SID IIs Dummy (297)

Test Date: 09/02/2016

Test Lab: Transportation Research Center, Inc.

Test Number: 160902 (M20170101)

Abdominal Spine X (T12) (g) vs. Time [ms]



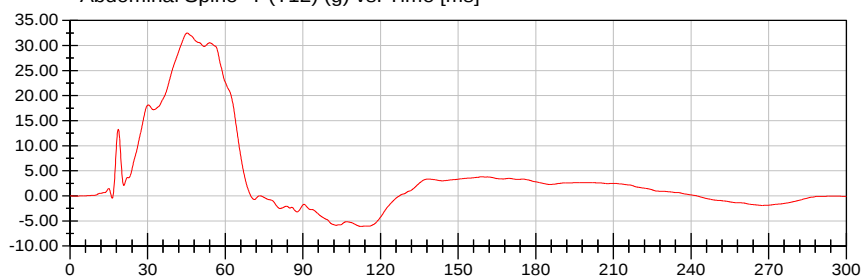
<Max>

10.95 g at 62.88 ms

<Min>

-9.39 g at 19.28 ms

Abdominal Spine Y (T12) (g) vs. Time [ms]



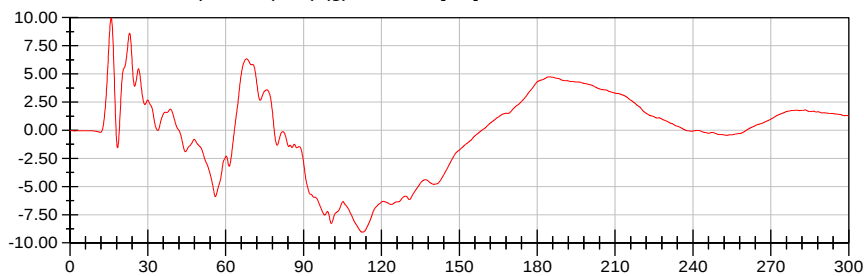
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32.50 g at 45.28 ms

<Min>

-6.09 g at 112.48 ms

Abdominal Spine Z (T12) (g) vs. Time [ms]



<Max>

9.96 g at 15.92 ms

<Min>

-9.04 g at 112.72 ms

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



<Max>

32.90 g at 45.12 ms

<Min>

0.04 g at 4.48 ms



NHTSA

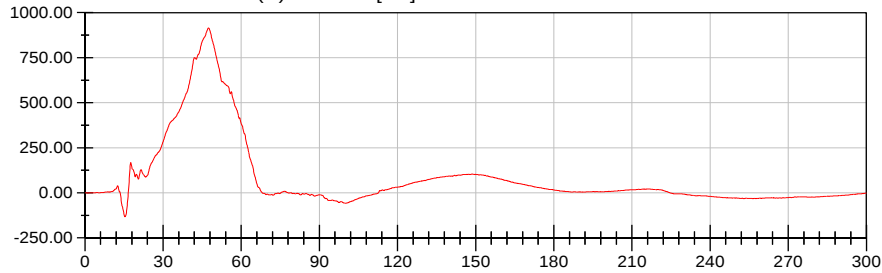
Position #1 SID IIs Dummy (297)

Test Date: 09/02/2016

Test Lab: Transportation Research Center, Inc.

Test Number: 160902 (M20170101)

Left Iliac Force Y (N) vs. Time [ms]



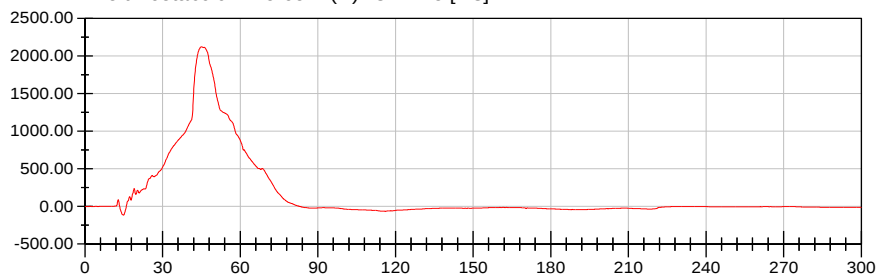
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915.17 N at 47.44 ms

<Min>

-132.39 N at 15.36 ms

Left Acetabulum Force Y (N) vs. Time [ms]



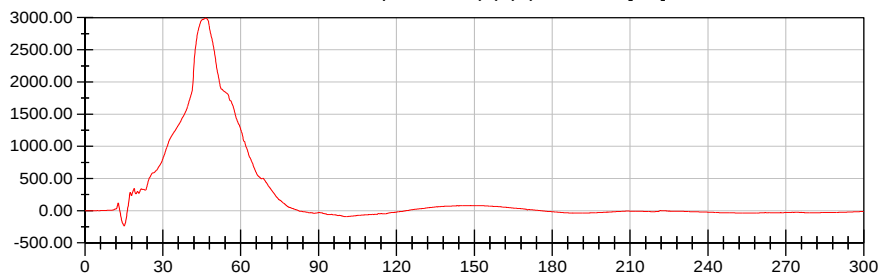
<Max>

2,123.17 N at 45.04 ms

<Min>

-115.09 N at 14.96 ms

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



<Max>

2,991.68 N at 46.48 ms

<Min>

-235.71 N at 15.12 ms



APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

Table 1. External Measurements

Table 2. Head Drop Test

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

Table 3. Lateral Neck Pendulum Test

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

Table 4. Shoulder Impact Test

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

Table 5. Thorax (With Arm) Impact Test

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

Table 6. Thorax (Without Arm) Impact Test

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

Table 7. Abdomen Impact Test

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

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

Table 9. Pelvis Acetabulum Impact Test

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

Table 10. Pelvis Iliac Impact Test

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

Pre-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No.09

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	781	Yes
B	Shoulder Pivot Height	437.0 - 453.0	448	Yes
C	H-Point Height	79.0 - 89.0	85	Yes
D	H-Point from Seat Back	141.0 - 151.0	146	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	102	Yes
F	Thigh Clearance	119.0 - 135.0	128	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	44	Yes
I	Head Depth	178.0 - 188.0	182	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	528	Yes
L	Popliteal Height	343.0 - 369.0	355	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	400	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	203	Yes
P	Foot Length (right)	216.0 - 232.0	221	Yes
P	Foot Length (left)	216.0 - 232.0	221	Yes
Q	Hip Breadth	313.0 - 323.0	319	Yes
R	Arm Length	249.0 - 259.0	254	Yes
S	Knee Joint to seat Back	478.0 - 493.0	487	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	347	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
W	Foot Width (left)	78.0 - 94.0	84	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	869	Yes
Z	Waist Circumference	761.0 - 791.0	778	Yes

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 9-1

Test Date: 8/31/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	133.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	4.6 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

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

08.31.2016 11:44:13 232

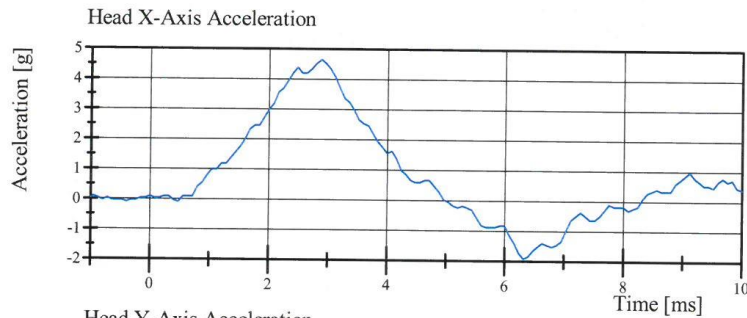


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 9-1

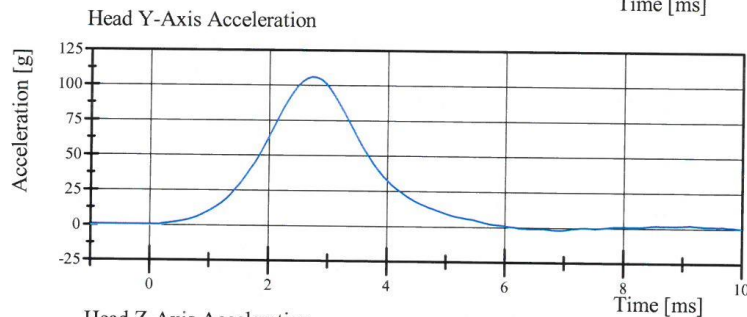
Test Date: 8/31/2016



Filter Class: CFC_1000

Max: 4.6 g at 2.9 ms

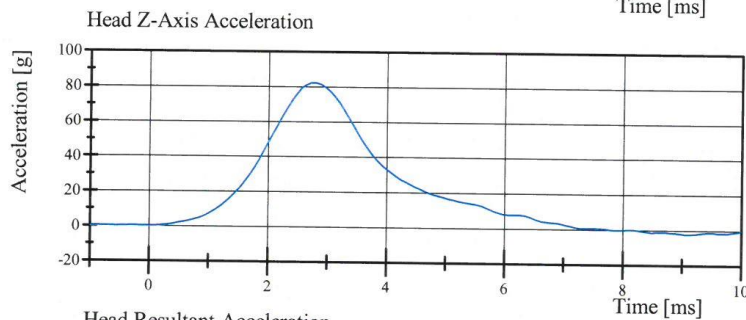
Min: -1.9 g at 6.3 ms



Filter Class: CFC_1000

Max: 105.7 g at 2.7 ms

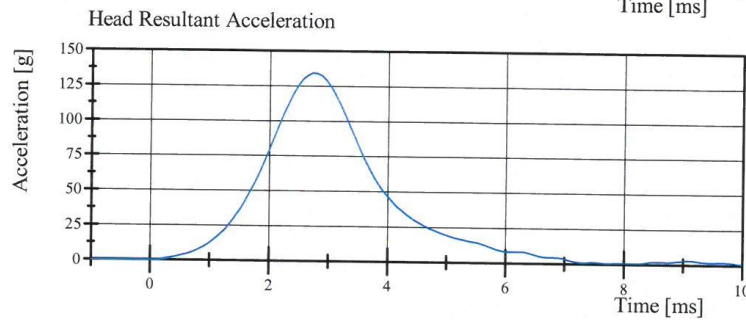
Min: -1.9 g at 6.9 ms



Filter Class: CFC_1000

Max: 82.1 g at 2.7 ms

Min: -2.3 g at 9.0 ms



Filter Class: CFC_1000

Max: 133.9 g at 2.7 ms

Min: 0.0 g at -0.7 ms

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

08.31.2016 11:44:22 232



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 9-1

Test Date: 8/31/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.588 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.313 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.346 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.473 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.413 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.737 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-71.9 deg	Yes
Time of Peak	50 - 70 ms	61.5 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	38.1 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	114.2 ms	Yes

Test meets specifications.

Comments:

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

08.31.2016 12:58:09 754

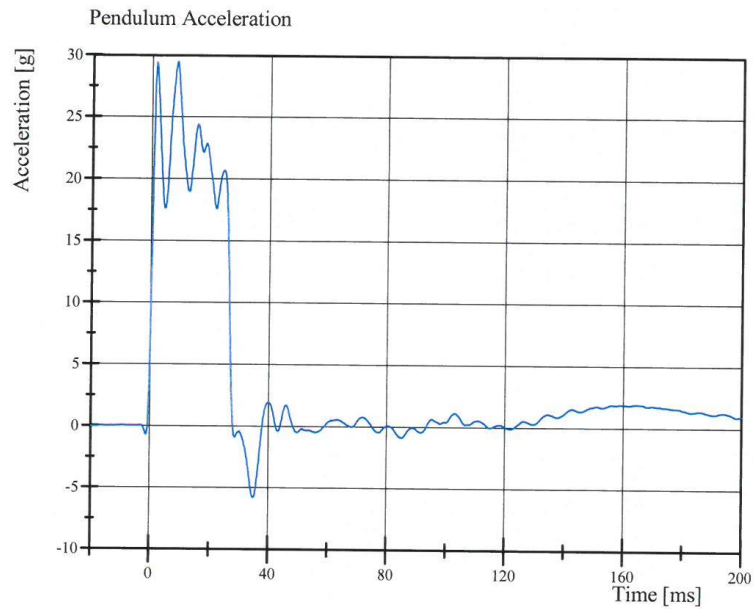


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 9-1

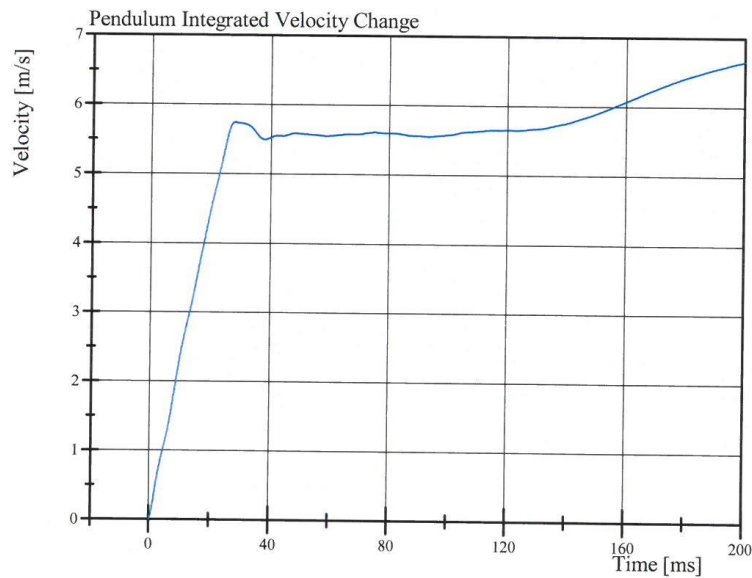
Test Date: 8/31/2016



Filter Class: CFC_180

Max: 29.4 g at 8.6 ms

Min: -5.8 g at 34.9 ms



Filter Class: CFC_180

Max: 6.7 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

08.31.2016 12:59:24 754

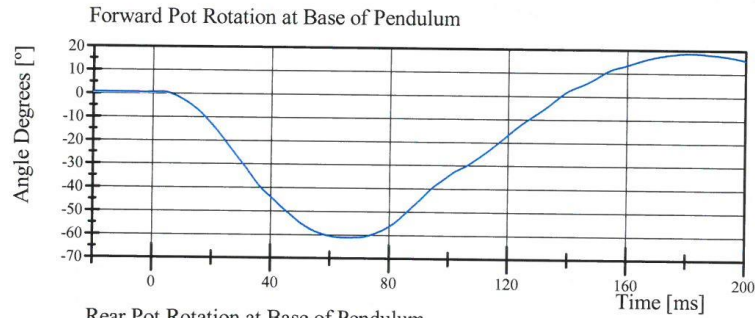


Transportation Research Center Inc.

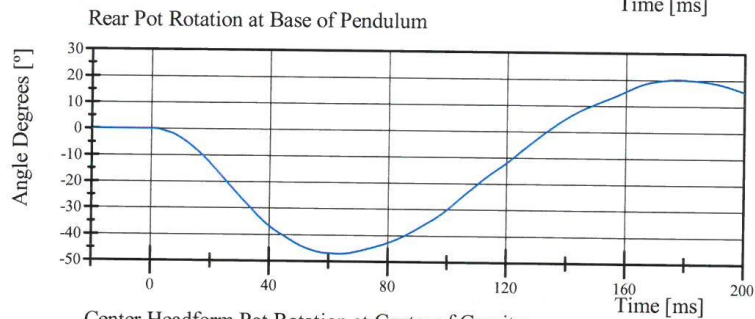
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 9-1

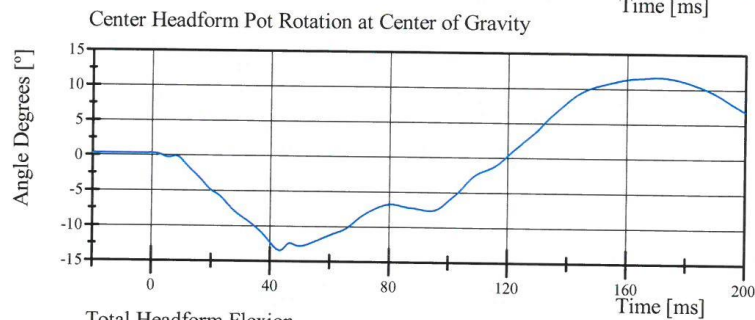
Test Date: 8/31/2016



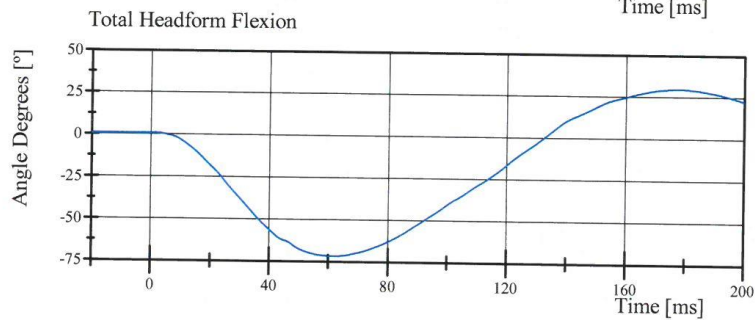
Filter Class: CFC_60
Max: 18.6 ° at 181.4 ms
Min: -61.2 ° at 65.6 ms



Filter Class: CFC_60
Max: 20.2 ° at 177.1 ms
Min: -47.2 ° at 63.5 ms



Filter Class: CFC_60
Max: 11.7 ° at 170.4 ms
Min: -13.5 ° at 43.3 ms



Filter Class: CFC_60
Max: 29.7 ° at 177.8 ms
Min: -71.9 ° at 61.5 ms

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

08.31.2016 12:59:25 754

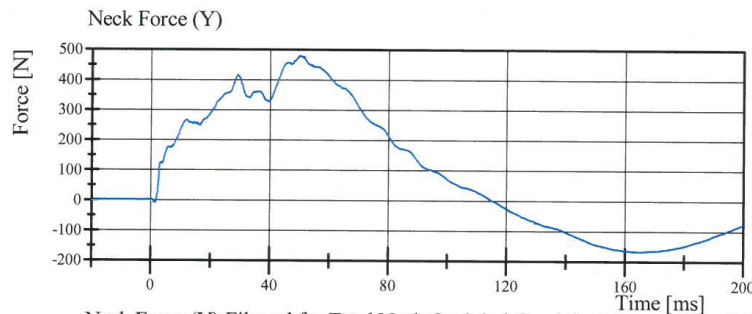


Transportation Research Center Inc.

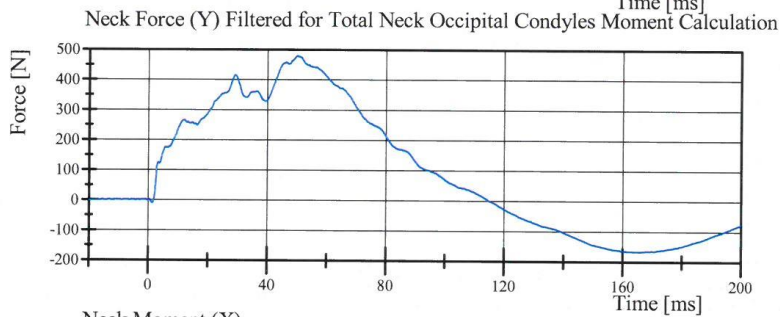
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 9-1

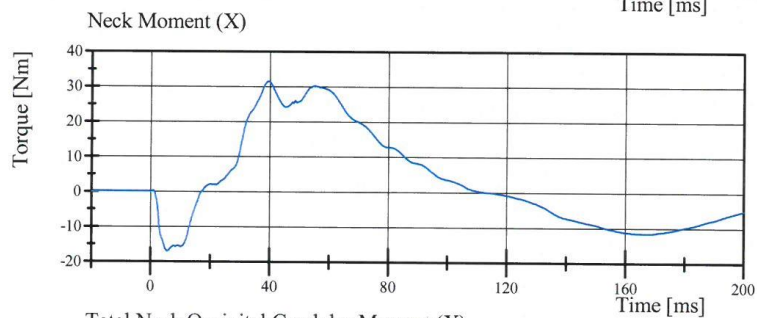
Test Date: 8/31/2016



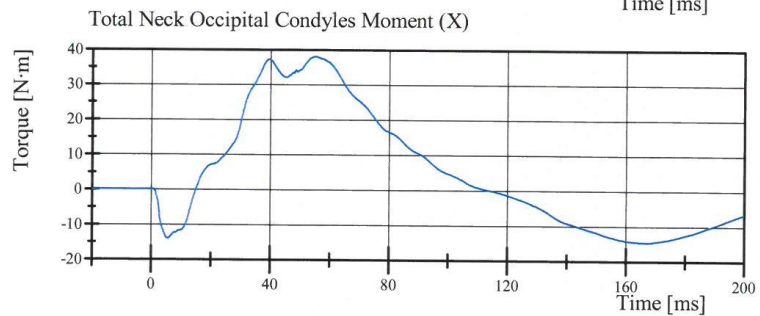
Filter Class: CFC_1000
Max: 479.0 N at 49.8 ms
Min: -167.1 N at 164.8 ms



Filter Class: CFC_600
Max: 478.7 N at 50.0 ms
Min: -166.7 N at 166.8 ms



Filter Class: CFC_600
Max: 31.4 Nm at 39.5 ms
Min: -17.2 Nm at 5.7 ms



Filter Class: Without_(Consta
Max: 38.1 N·m at 55.2 ms
Min: -14.5 N·m at 166.9 ms

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

08.31.2016 12:59:26 754



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 9-1

Test Date: 8/31/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.36 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.4 g	Yes
Shoulder Displacement	28 - 37 mm	30.6 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.8 g	Yes

Test meets specifications.

Comments:

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

08.31.2016 11:06:18 872

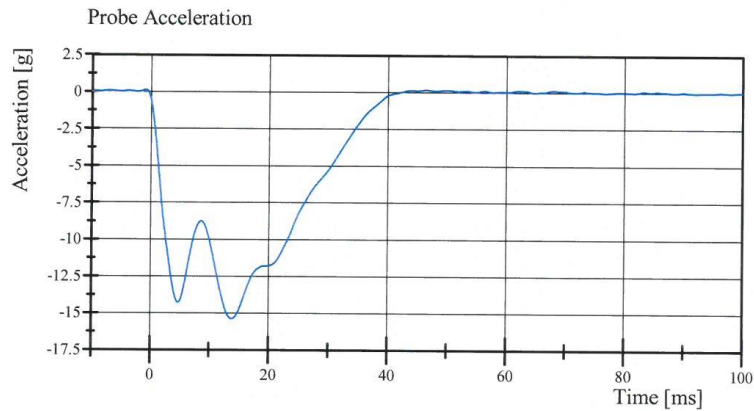


Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 9-1

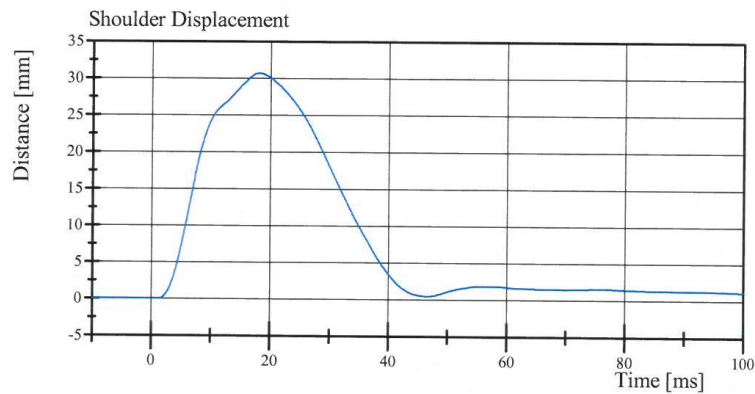
Test Date: 8/31/2016



Filter Class: CFC_180

Max: 0.1 g at 46.4 ms

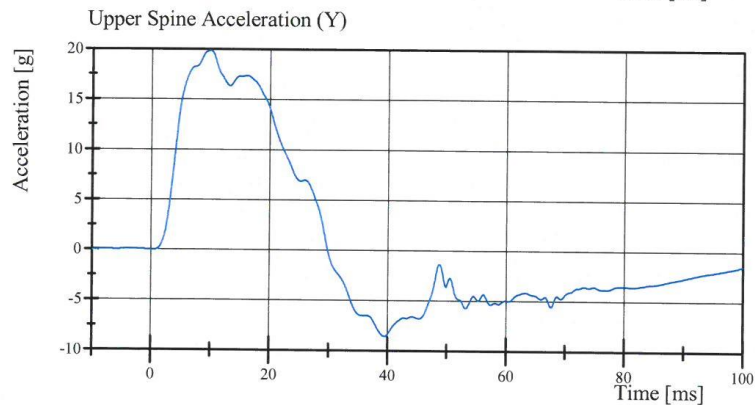
Min: -15.4 g at 13.8 ms



Filter Class: CFC_600

Max: 30.6 mm at 17.9 ms

Min: -0.0 mm at -1.0 ms



Filter Class: CFC_180

Max: 19.8 g at 10.0 ms

Min: -8.6 g at 39.5 ms

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

08.31.2016 11:06:34 872



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 9-1
Test Date: 8/31/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.723 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-34.0 g	Yes
Shoulder Displacement	31 - 40 mm	34.5 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	26.8 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.2 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	33.8 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	37.1 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.4 g	Yes

Test meets specifications.

Comments:

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

08.31.2016 12:09:41 645

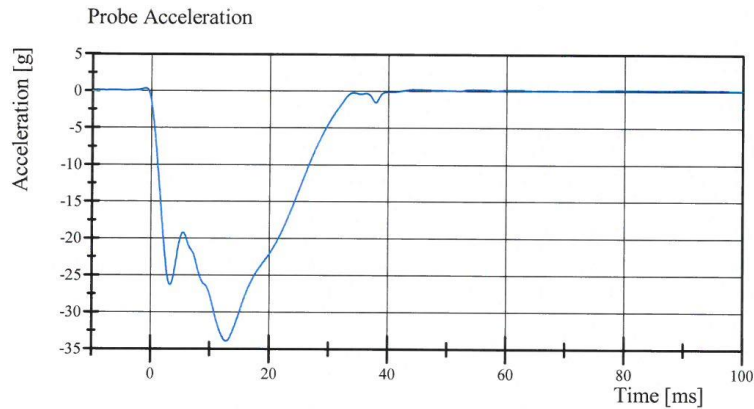


Transportation Research Center Inc.

Left Lateral Thorax with Arm

SID IIs Serial No. 297 Certification No. 9-1

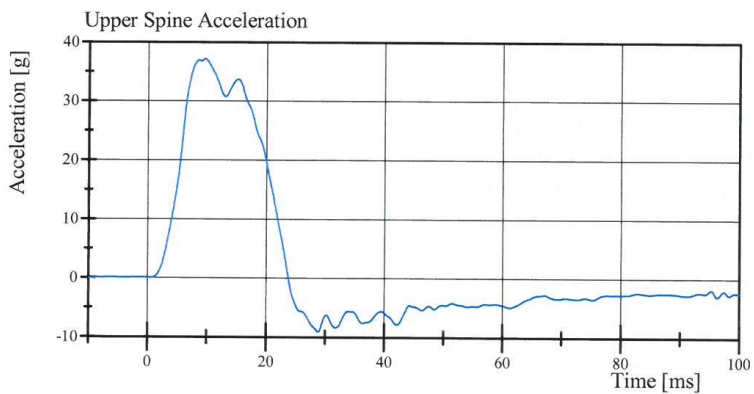
Test Date: 8/31/2016



Filter Class: CFC_180

Max: 0.3 g at -1.0 ms

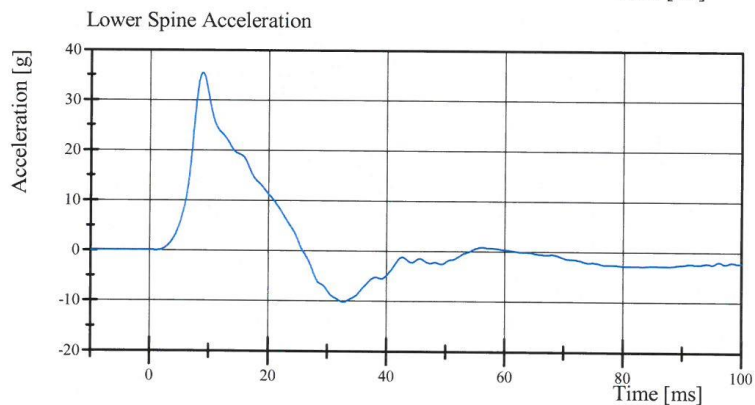
Min: -34.0 g at 12.8 ms



Filter Class: CFC_180

Max: 37.1 g at 9.6 ms

Min: -9.1 g at 28.8 ms



Filter Class: CFC_180

Max: 35.4 g at 8.9 ms

Min: -10.2 g at 32.7 ms

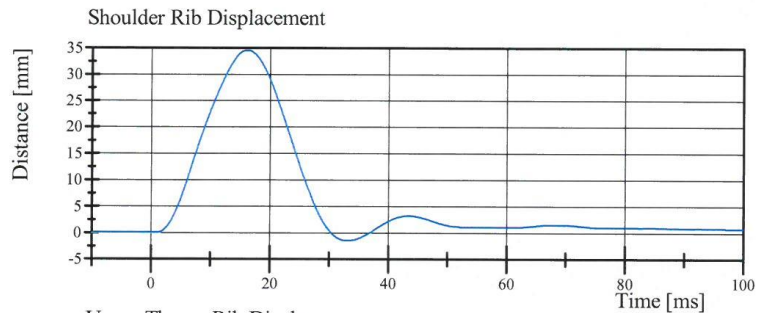
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

08.31.2016 12:10:02 645

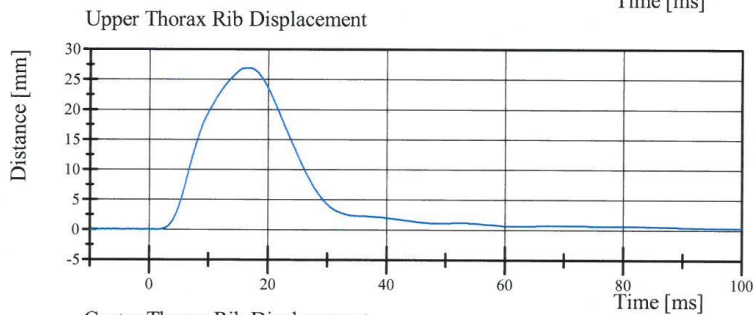


Transportation Research Center Inc.

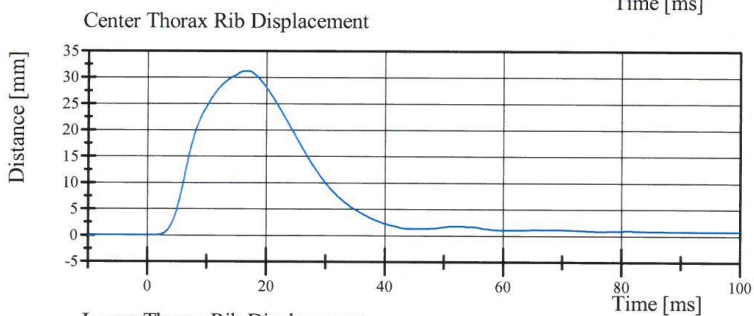
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 9-1
Test Date: 8/31/2016



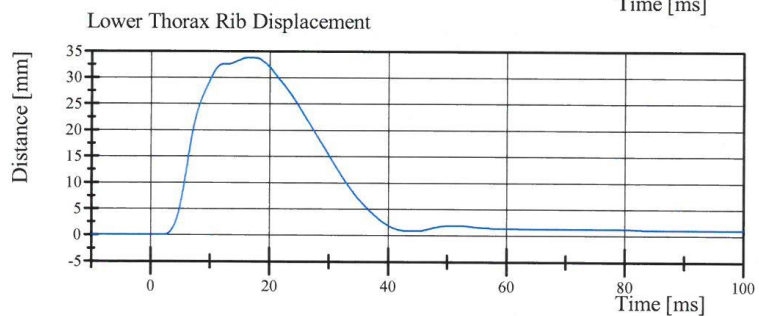
Filter Class: CFC_600
Max: 34.5 mm at 16.3 ms
Min: -1.5 mm at 33.0 ms



Filter Class: CFC_600
Max: 26.8 mm at 16.6 ms
Min: -0.0 mm at 1.5 ms



Filter Class: CFC_600
Max: 31.2 mm at 16.7 ms
Min: -0.0 mm at -8.3 ms



Filter Class: CFC_600
Max: 33.8 mm at 16.6 ms
Min: -0.0 mm at -10.0 ms

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

08.31.2016 12:10:03 645



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 9-1
Test Date: 8/31/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.352 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.1 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	35.1 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.6 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	38.4 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.9 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.9 g	Yes

Test meets specifications.

Comments:

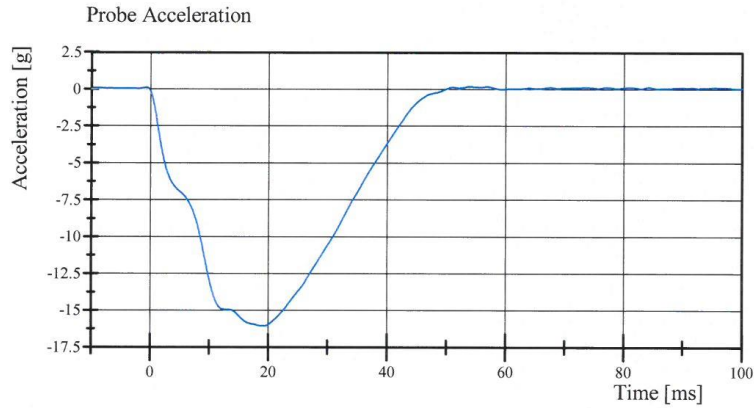
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

08.31.2016 11:36:35 870

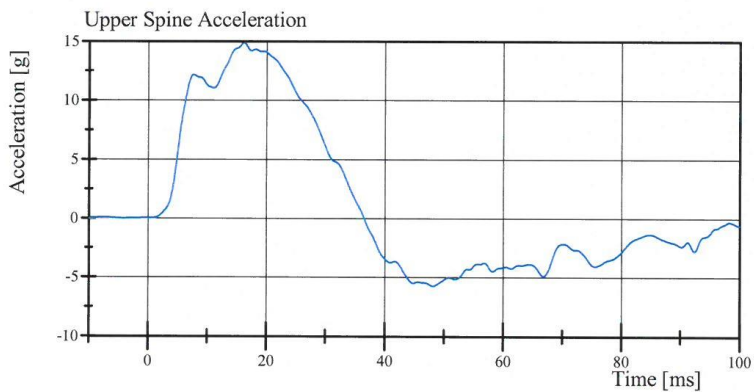


Transportation Research Center Inc.

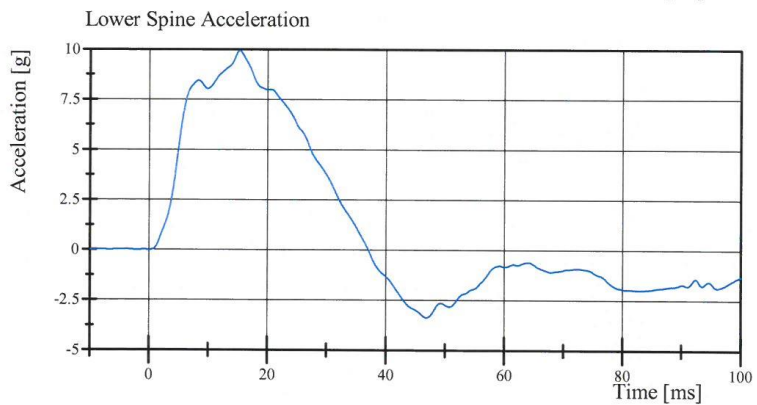
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 9-1
Test Date: 8/31/2016



Filter Class: CFC_180
Max: 0.1 g at 53.8 ms
Min: -16.1 g at 19.1 ms



Filter Class: CFC_180
Max: 14.9 g at 16.2 ms
Min: -5.8 g at 48.2 ms



Filter Class: CFC_180
Max: 9.9 g at 15.3 ms
Min: -3.4 g at 46.9 ms

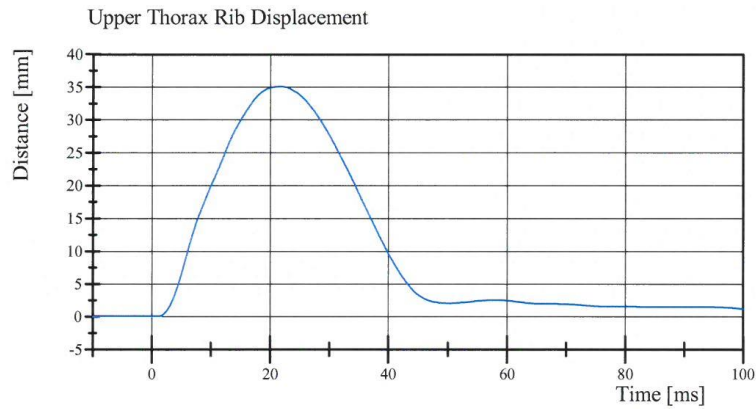
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

08.31.2016 11:36:47 870

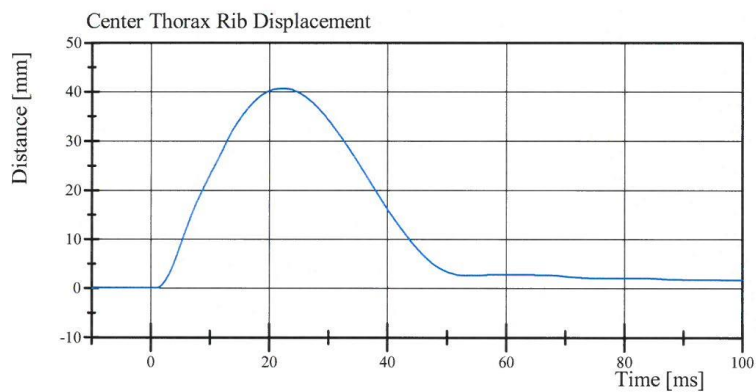


Transportation Research Center Inc.

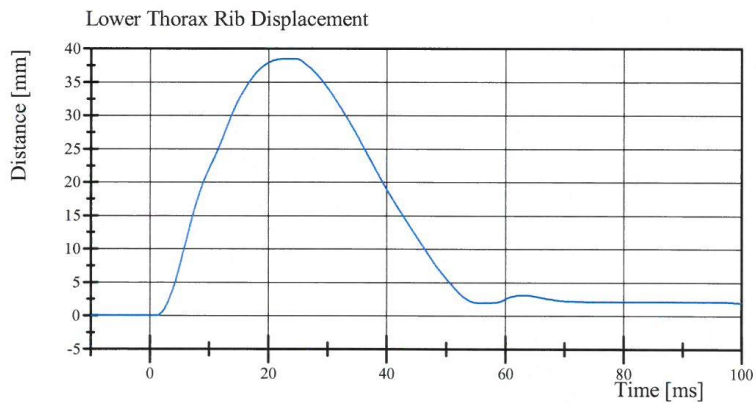
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 9-1
Test Date: 8/31/2016



Filter Class: CFC_600
Max: 35.1 mm at 21.7 ms
Min: -0.0 mm at 1.3 ms



Filter Class: CFC_600
Max: 40.6 mm at 22.4 ms
Min: -0.0 mm at 0.9 ms



Filter Class: CFC_600
Max: 38.4 mm at 23.0 ms
Min: -0.0 mm at 0.9 ms

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

08.31.2016 11:36:48 870



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 9-1

Test Date: 8/31/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.39 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.5 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	43.7 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	36.7 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.02 g	Yes

Test meets specifications.

Comments:

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

08.31.2016 11:19:19 678

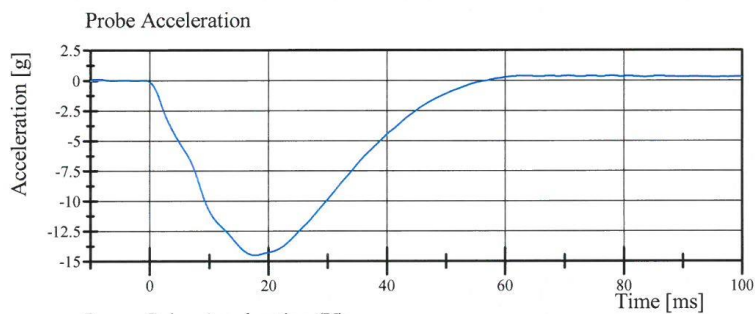


Transportation Research Center Inc.

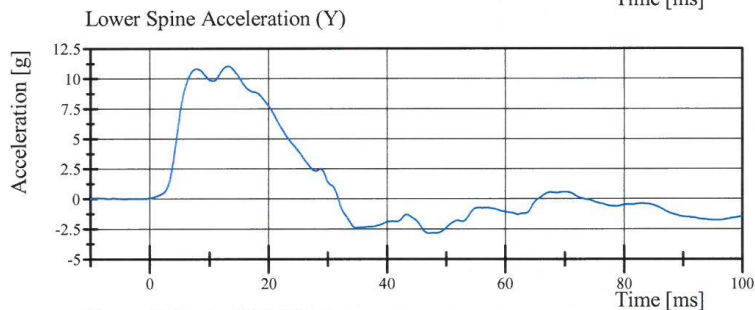
Left Lateral Abdomen

SID II's Serial No. 297 Certification No. 9-1

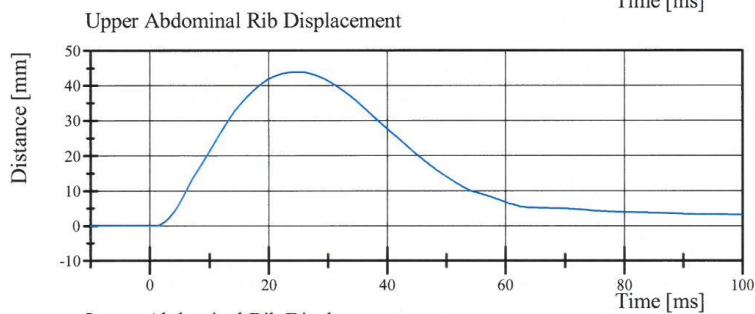
Test Date: 8/31/2016



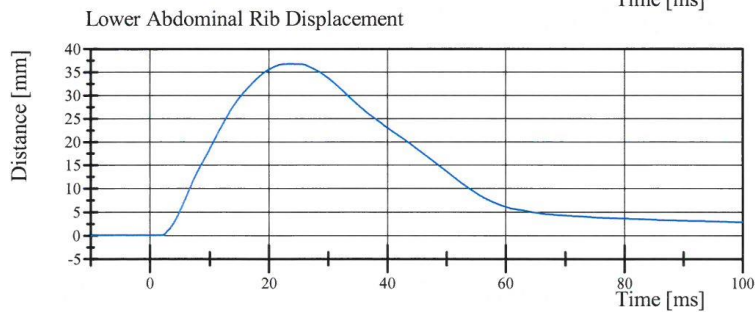
Filter Class: CFC_180
Max: 0.4 g at 78.1 ms
Min: -14.5 g at 17.7 ms



Filter Class: CFC_180
Max: 11.0 g at 13.2 ms
Min: -2.9 g at 47.0 ms



Filter Class: CFC_600
Max: 43.7 mm at 24.9 ms
Min: -0.0 mm at -2.2 ms



Filter Class: CFC_600
Max: 36.7 mm at 23.5 ms
Min: -0.0 mm at 2.1 ms

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

08.31.2016 11:19:29 678



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 9-1

Test Date: 8/31/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.64 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-46.06 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	39.6 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,066.7 N	Yes

Test meets specifications.

Comments:

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

08.31.2016 12:29:36 476

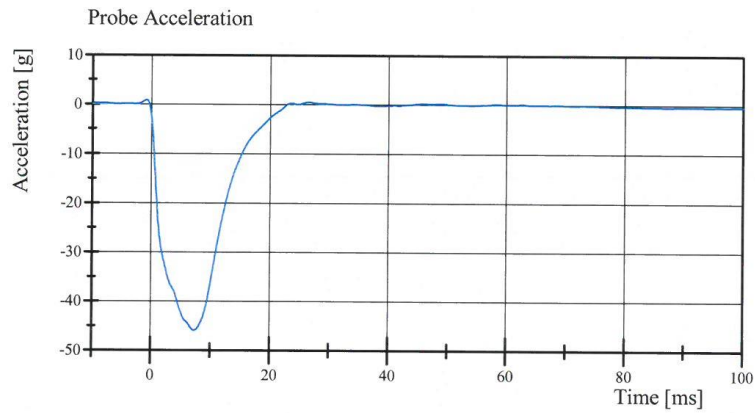


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 9-1

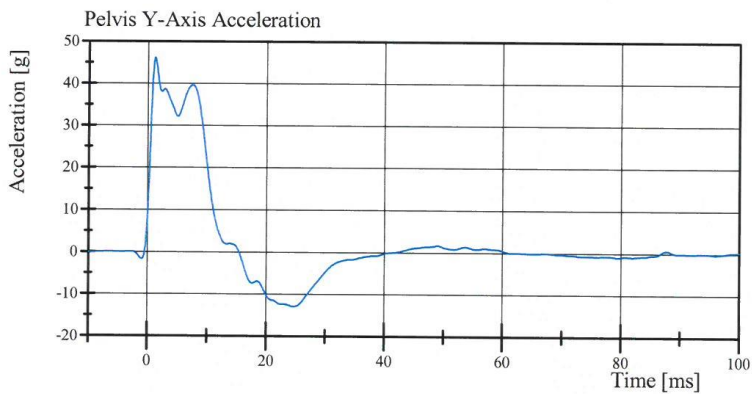
Test Date: 8/31/2016



Filter Class: CFC_180

Max: 0.7 g at -0.8 ms

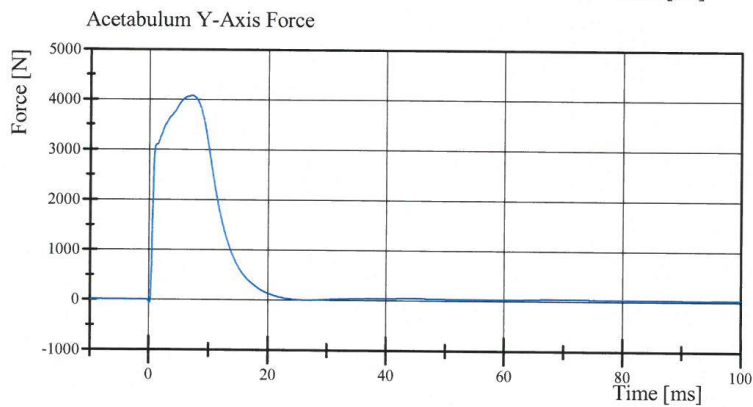
Min: -46.1 g at 7.4 ms



Filter Class: CFC_180

Max: 46.0 g at 1.2 ms

Min: -12.9 g at 24.6 ms



Filter Class: CFC_600

Max: 4,066.7 N at 7.2 ms

Min: -74.1 N at 0.2 ms

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

08.31.2016 12:29:51 476



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 9-1

Test Date: 8/31/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.38 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-43.0 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	30.4 g	Yes
Iliac Force	4,100 - 5,100 N	4,896.3 N	Yes

Test meets specifications.

Comments:

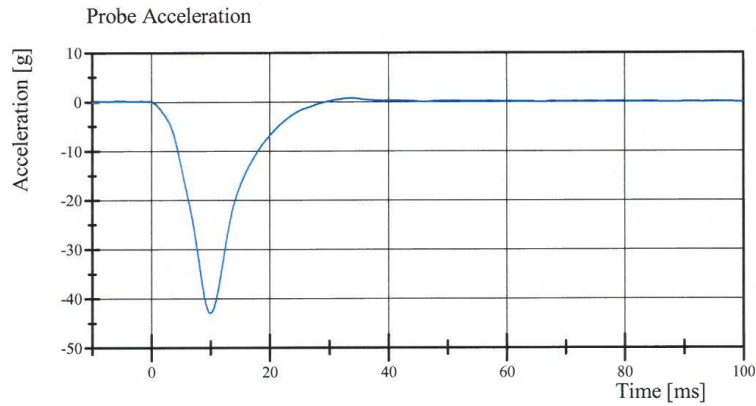
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

08.31.2016 09:49:30 660

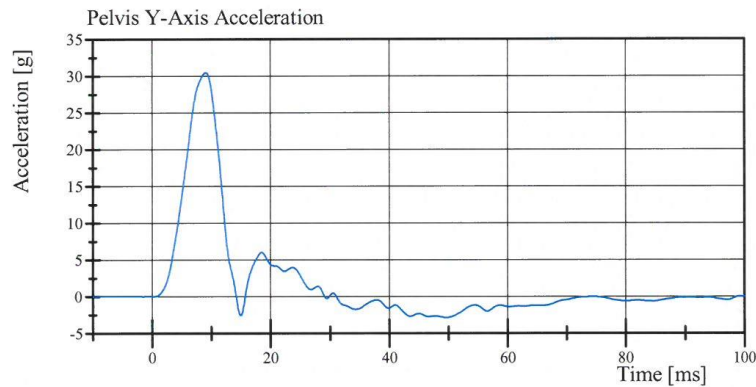


Transportation Research Center Inc.

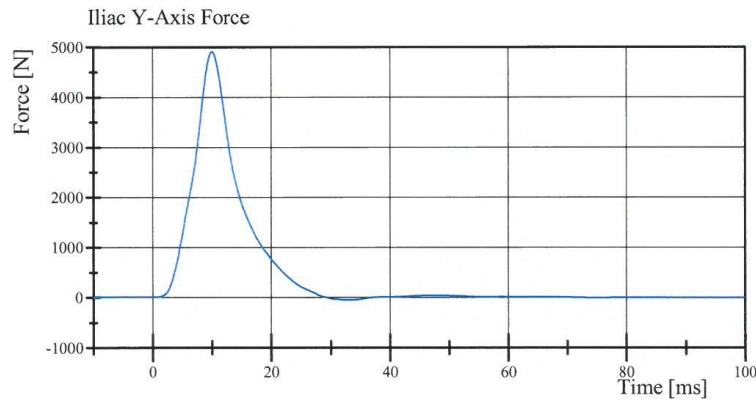
Left Lateral Iliac
SID IIs Serial No. 297 Certification No. 9-1
Test Date: 8/31/2016



Filter Class: CFC_180
Max: 0.7 g at 33.5 ms
Min: -43.0 g at 10.0 ms



Filter Class: CFC_180
Max: 30.4 g at 9.1 ms
Min: -2.9 g at 49.6 ms



Filter Class: CFC_600
Max: 4,896.3 N at 10.0 ms
Min: -54.7 N at 33.4 ms

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

08.31.2016 09:49:41 660



Post-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No.10

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	781	Yes
B	Shoulder Pivot Height	437.0 - 453.0	448	Yes
C	H-Point Height	79.0 - 89.0	85	Yes
D	H-Point from Seat Back	141.0 - 151.0	146	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	102	Yes
F	Thigh Clearance	119.0 - 135.0	128	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	44	Yes
I	Head Depth	178.0 - 188.0	182	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	528	Yes
L	Popliteal Height	343.0 - 369.0	355	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	400	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	203	Yes
P	Foot Length (right)	216.0 - 232.0	221	Yes
P	Foot Length (left)	216.0 - 232.0	221	Yes
Q	Hip Breadth	313.0 - 323.0	319	Yes
R	Arm Length	249.0 - 259.0	254	Yes
S	Knee Joint to seat Back	478.0 - 493.0	487	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	347	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
W	Foot Width (left)	78.0 - 94.0	84	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	869	Yes
Z	Waist Circumference	761.0 - 791.0	778	Yes

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 10-1

Test Date: 9/2/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	125.6 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.

Comments:

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

09.02.2016 17:41:14 234

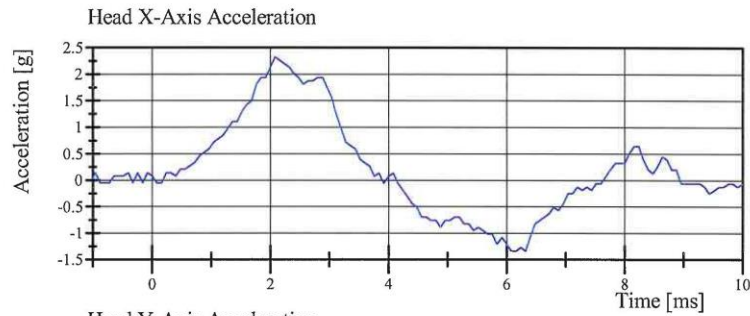


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 10-1

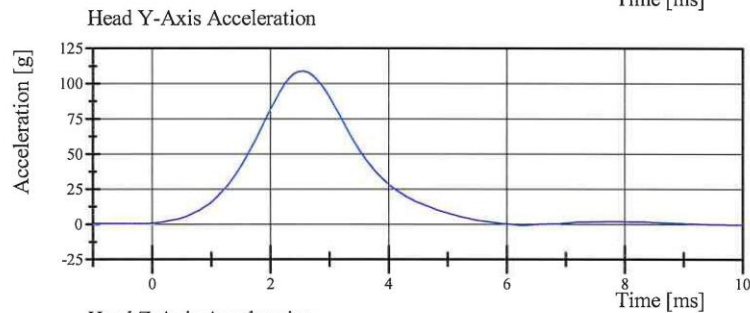
Test Date: 9/2/2016



Filter Class: CFC_1000

Max: 2.3 g at 2.1 ms

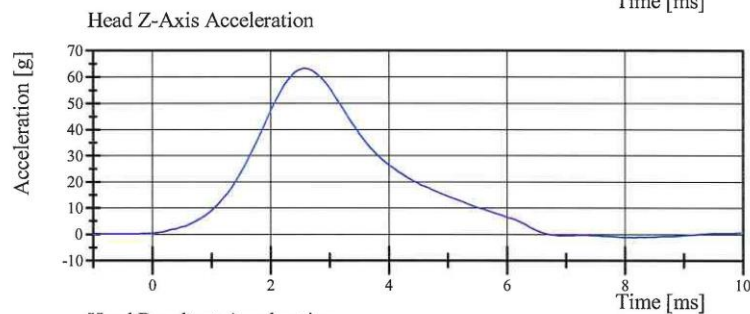
Min: -1.3 g at 6.1 ms



Filter Class: CFC_1000

Max: 108.6 g at 2.6 ms

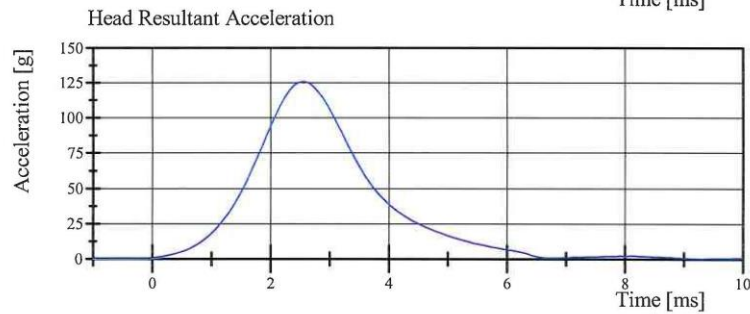
Min: -1.0 g at 6.3 ms



Filter Class: CFC_1000

Max: 63.2 g at 2.6 ms

Min: -1.2 g at 8.2 ms



Filter Class: CFC_1000

Max: 125.6 g at 2.6 ms

Min: 0.1 g at -0.3 ms

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

09.02.2016 17:41:21 234



Transportation Research Center Inc.

Left Lateral Neck
SID IIs Serial No. 297 Certification No. 10-1
Test Date: 9/6/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.618 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.347 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.502 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.752 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.701 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.784 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-74.3 deg	Yes
Time of Peak	50 - 70 ms	61.5 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	40.4 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	112.5 ms	Yes

Test meets specifications.

Comments:

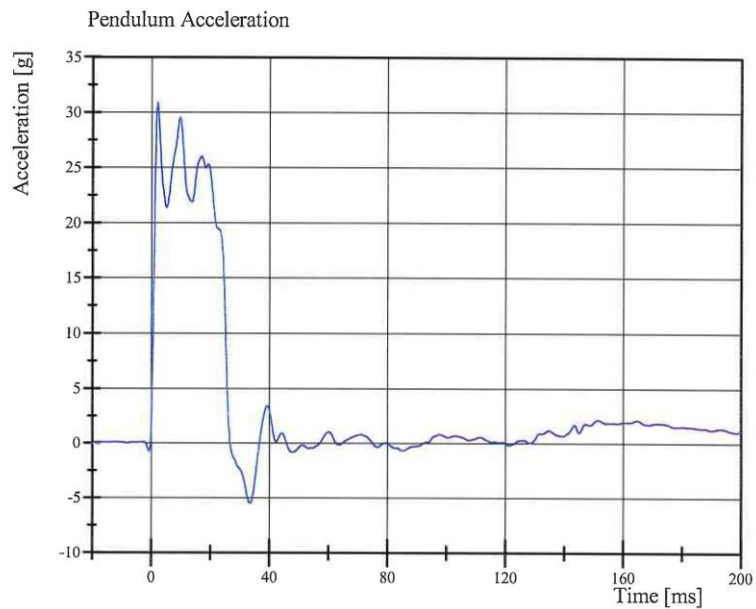
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

09.06.2016 08:32:40 745

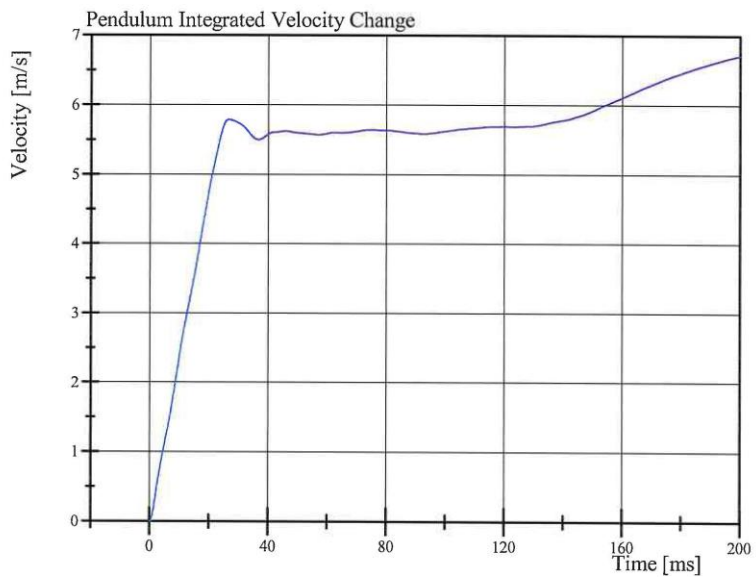


Transportation Research Center Inc.

Left Lateral Neck
SID IIs Serial No. 297 Certification No. 10-1
Test Date: 9/6/2016



Filter Class: CFC_180
Max: 30.8 g at 2.1 ms
Min: -5.5 g at 33.5 ms



Filter Class: CFC_180
Max: 6.7 m/s at 200.0 ms
Min: 0.0 m/s at 0.0 ms

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

09.06.2016 08:32:50 745

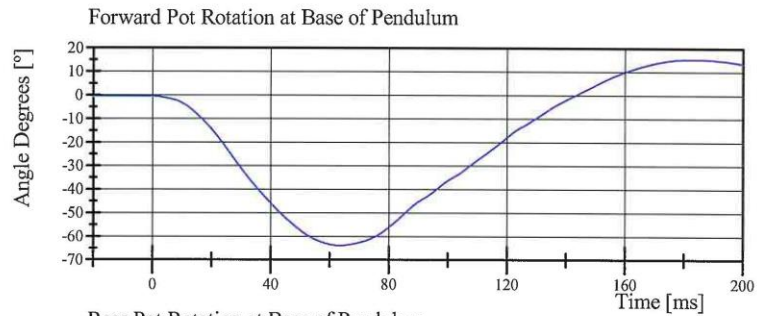


Transportation Research Center Inc.

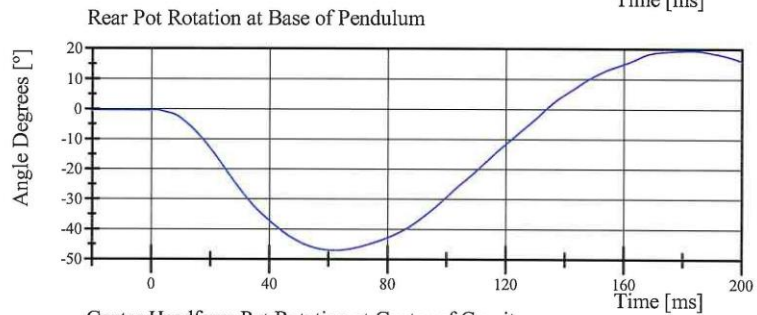
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 10-1

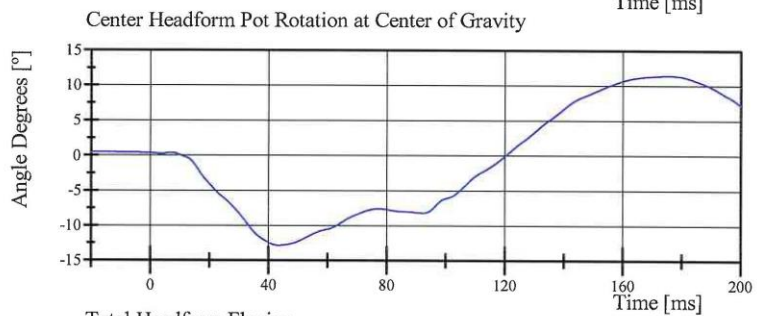
Test Date: 9/6/2016



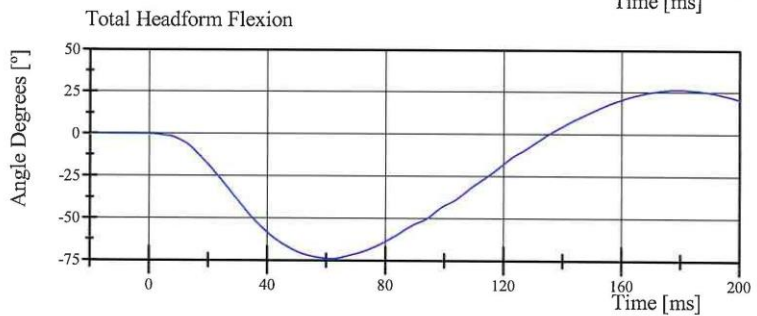
Filter Class: CFC_60
Max: 15.3 ° at 185.0 ms
Min: -64.1 ° at 63.4 ms



Filter Class: CFC_60
Max: 19.4 ° at 183.0 ms
Min: -47.2 ° at 62.3 ms



Filter Class: CFC_60
Max: 11.4 ° at 175.4 ms
Min: -12.9 ° at 43.4 ms



Filter Class: CFC_60
Max: 26.6 ° at 179.1 ms
Min: -74.3 ° at 61.5 ms

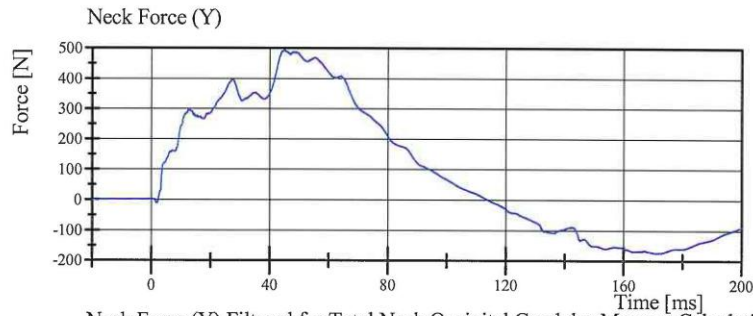
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

09.06.2016 08:32:51 745

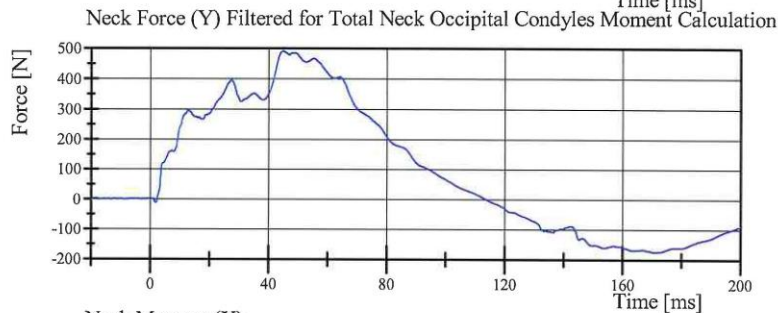


Transportation Research Center Inc.

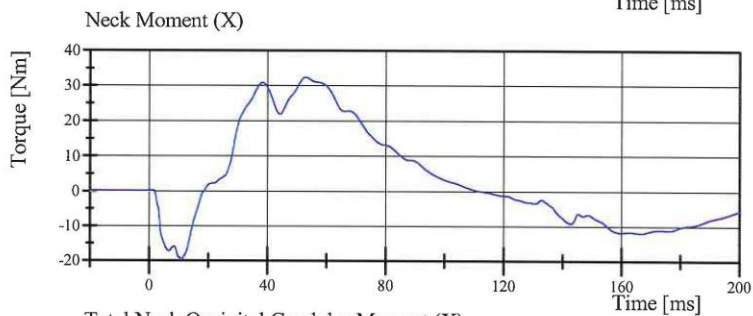
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 10-1
Test Date: 9/6/2016



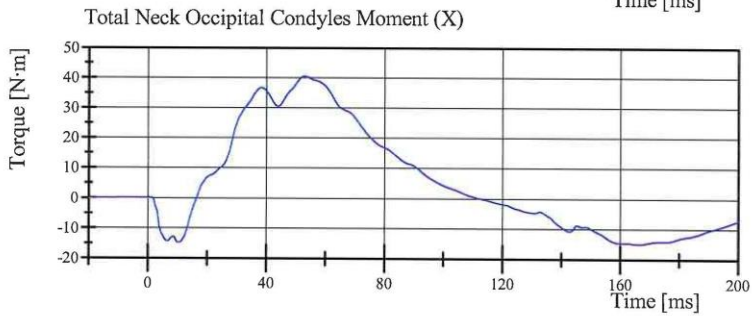
Filter Class: CFC_1000
Max: 491.6 N at 45.0 ms
Min: -174.4 N at 170.6 ms



Filter Class: CFC_600
Max: 491.0 N at 45.0 ms
Min: -174.2 N at 170.7 ms



Filter Class: CFC_600
Max: 32.3 Nm at 52.9 ms
Min: -19.7 Nm at 11.0 ms



Filter Class: Without_(Consta
Max: 40.4 N·m at 52.9 ms
Min: -14.9 N·m at 166.6 ms

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

09.06.2016 08:32:52 745



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 10-1

Test Date: 9/2/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.35 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.6 g	Yes
Shoulder Displacement	28 - 37 mm	31.0 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	20.7 g	Yes

Test meets specifications.

Comments:

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

09.02.2016 17:10:27 877

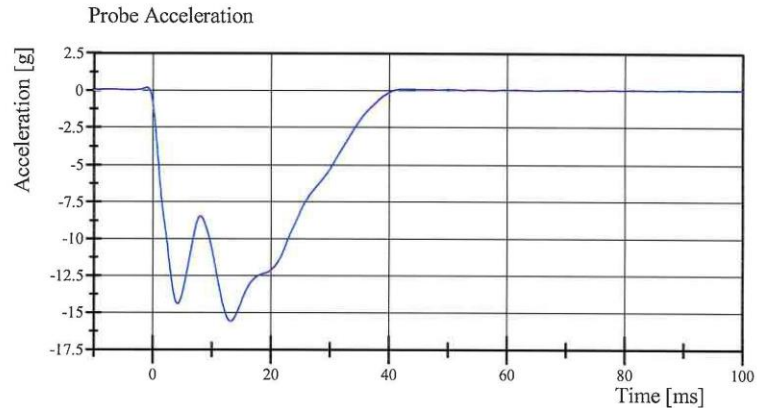


Transportation Research Center Inc.

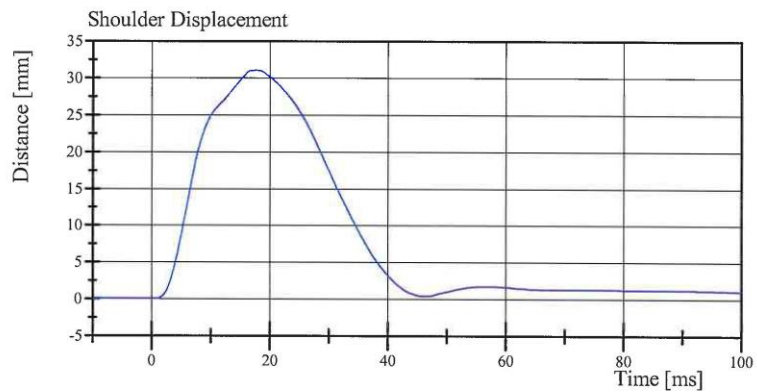
Left Lateral Shoulder

SID IIs Serial No. 297 Certification No. 10-1

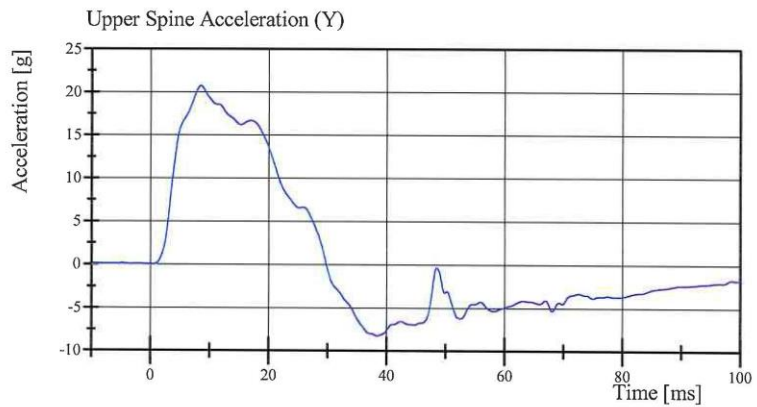
Test Date: 9/2/2016



Filter Class: CFC_180
Max: 0.1 g at -1.0 ms
Min: -15.6 g at 13.2 ms



Filter Class: CFC_600
Max: 31.0 mm at 17.6 ms
Min: -0.0 mm at 0.8 ms



Filter Class: CFC_180
Max: 20.7 g at 8.5 ms
Min: -8.3 g at 38.4 ms

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

09.02.2016 17:10:37 877



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 10-1
Test Date: 9/2/2016

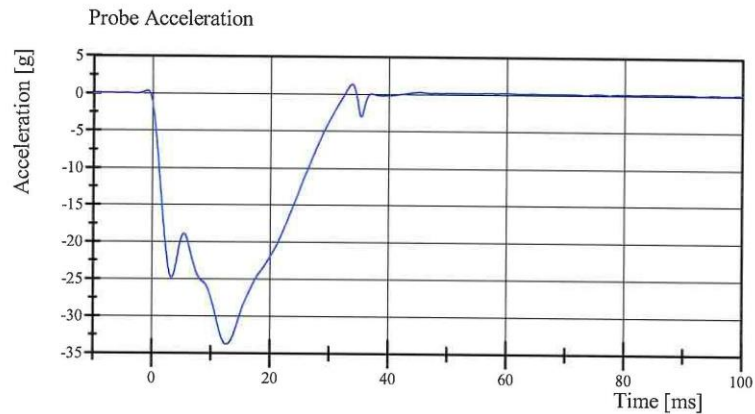
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.714 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.9 g	Yes
Shoulder Displacement	31 - 40 mm	33.2 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	26.4 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.3 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	34.5 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	37.2 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.2 g	Yes

Test meets specifications.

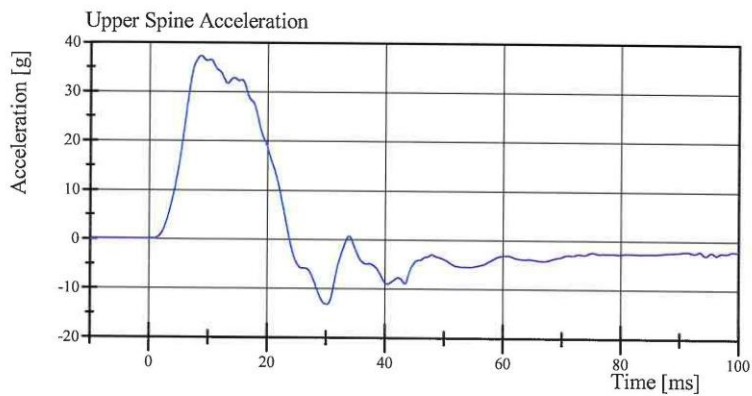
Comments:

Transportation Research Center Inc.

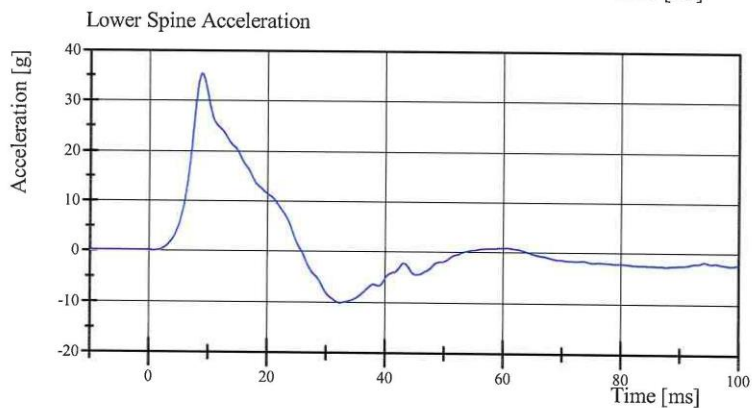
Left Lateral Thorax with Arm
SID IIa Serial No. 297 Certification No. 10-1
Test Date: 9/2/2016



Filter Class: CFC_180
Max: 1.3 g at 33.8 ms
Min: -33.9 g at 12.6 ms



Filter Class: CFC_180
Max: 37.2 g at 8.6 ms
Min: -13.2 g at 30.2 ms



Filter Class: CFC_180
Max: 35.2 g at 8.9 ms
Min: -10.1 g at 32.3 ms

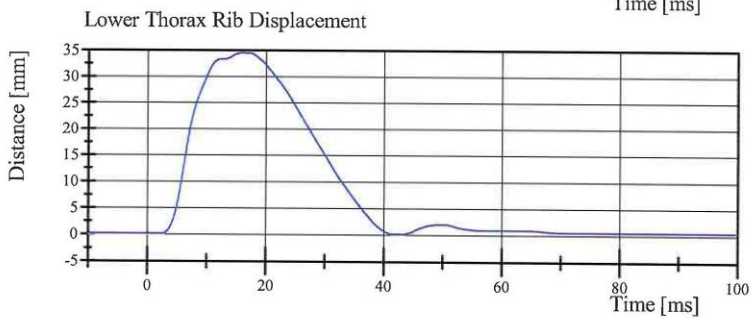
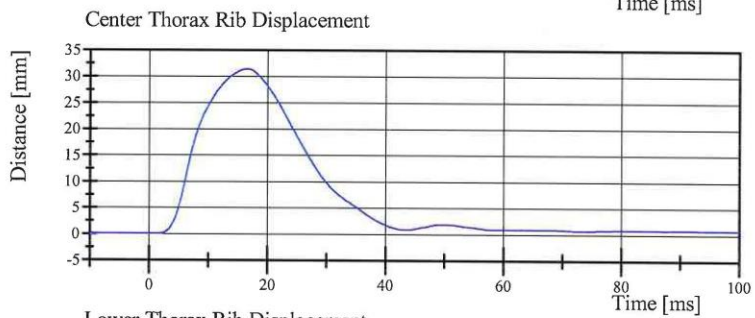
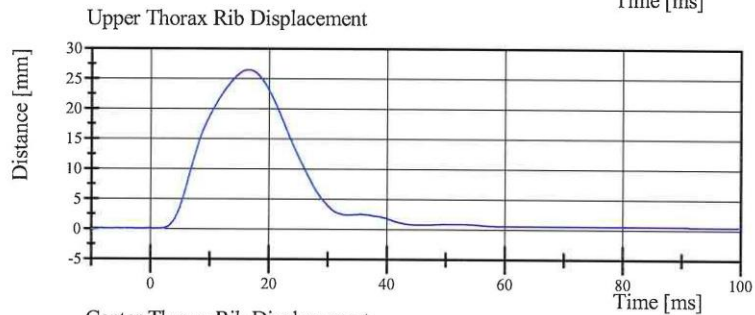
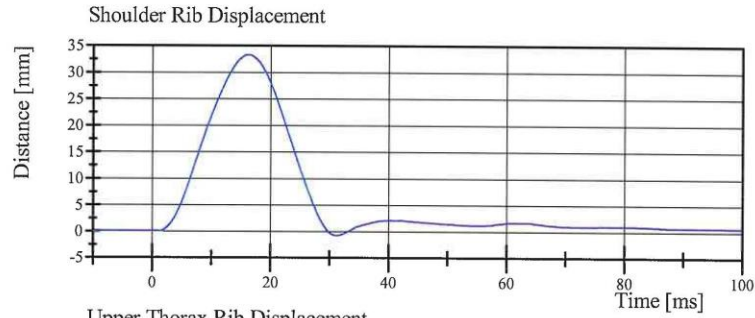
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

09.02.2016 18:06:57 640



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 10-1
Test Date: 9/2/2016



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

09.02.2016 18:06:57 640



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 10-1
Test Date: 9/2/2016

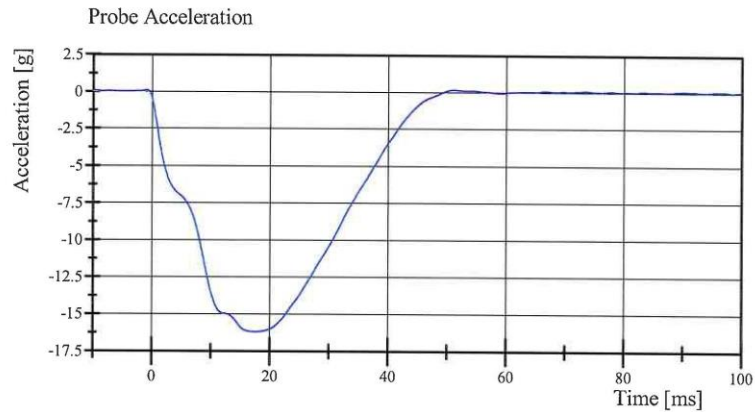
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.359 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.2 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	33.7 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.0 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	38.9 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.6 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	10.3 g	Yes

Test meets specifications.

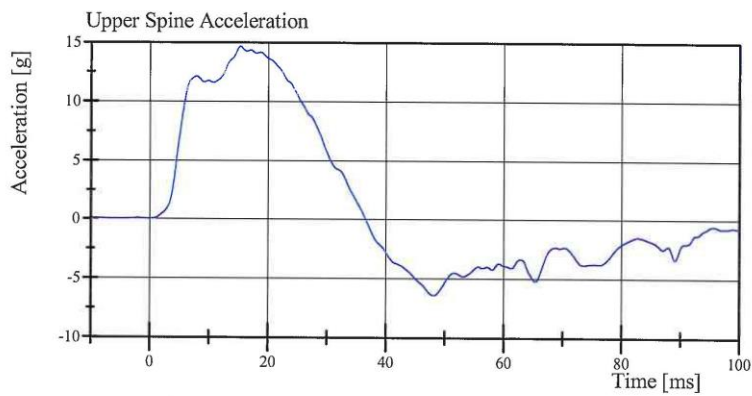
Comments:

Transportation Research Center Inc.

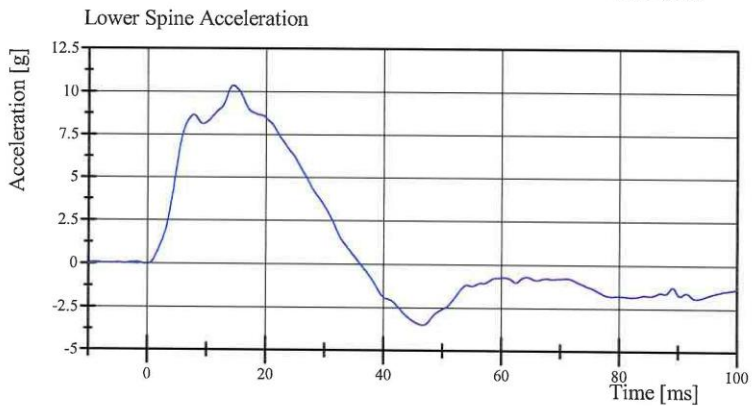
Left Lateral Thorax without Arm
SID II's Serial No. 297 Certification No. 10-1
Test Date: 9/2/2016



Filter Class: CFC_180
Max: 0.1 g at 51.0 ms
Min: -16.2 g at 17.5 ms



Filter Class: CFC_180
Max: 14.6 g at 15.3 ms
Min: -6.4 g at 48.2 ms



Filter Class: CFC_180
Max: 10.3 g at 14.5 ms
Min: -3.5 g at 46.7 ms

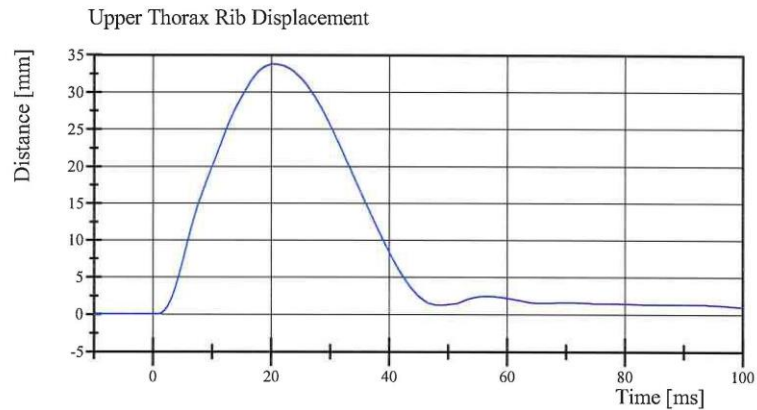
Specification Source: CFR49 Part 572 Subpart V
with Polarity in accordance with J211

09.02.2016 17:31:59 873

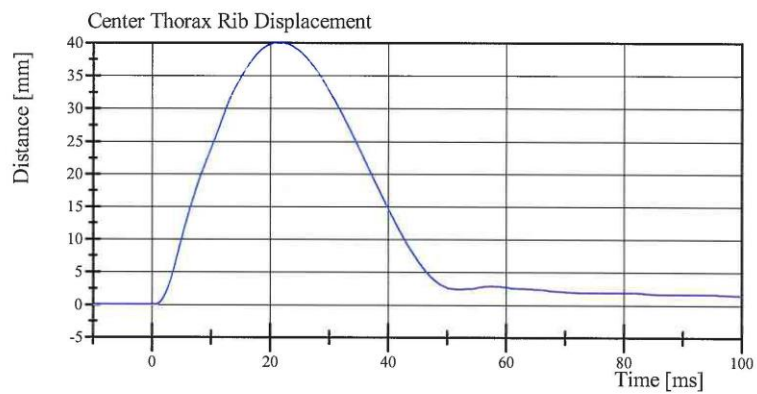


Transportation Research Center Inc.

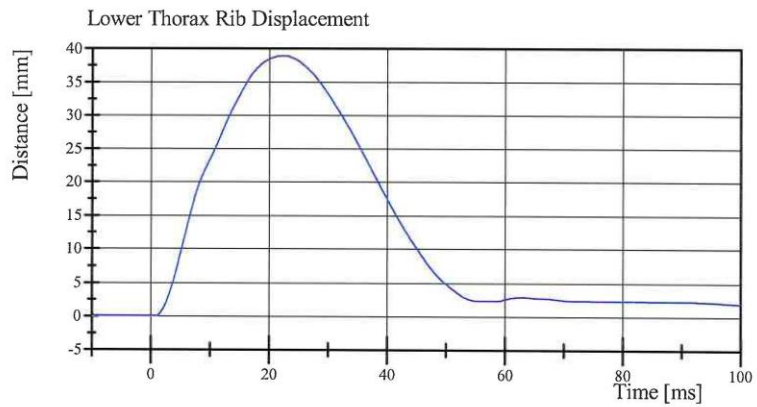
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 10-1
Test Date: 9/2/2016



Filter Class: CFC_600
Max: 33.7 mm at 20.5 ms
Min: -0.0 mm at 0.9 ms



Filter Class: CFC_600
Max: 40.0 mm at 21.5 ms
Min: -0.0 mm at 0.6 ms



Filter Class: CFC_600
Max: 38.9 mm at 22.7 ms
Min: -0.0 mm at 0.6 ms

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

09.02.2016 17:32:00 873



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 10-1

Test Date: 9/2/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.38 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.6 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	42.2 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	39.2 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.74 g	Yes

Test meets specifications.

Comments:

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

09.02.2016 17:18:55 703

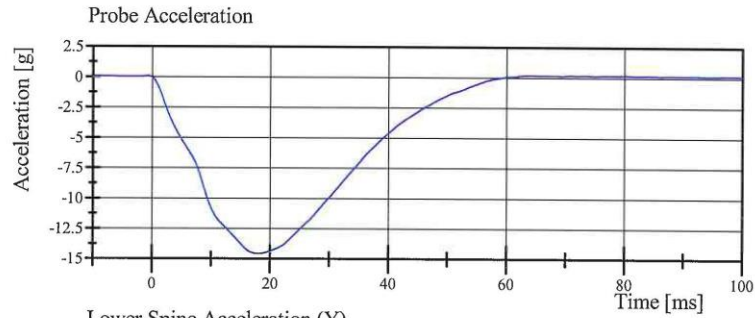


Transportation Research Center Inc.

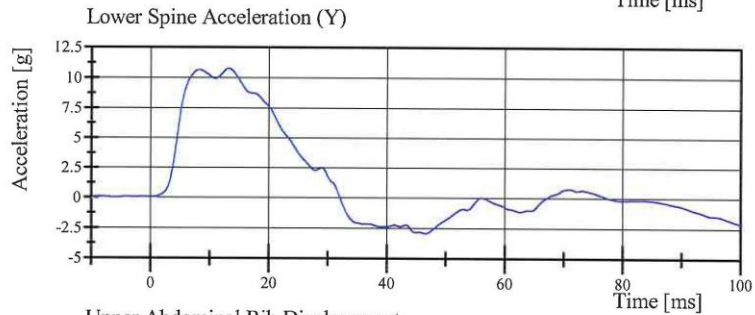
Left Lateral Abdomen

SID II_s Serial No. 297 Certification No. 10-1

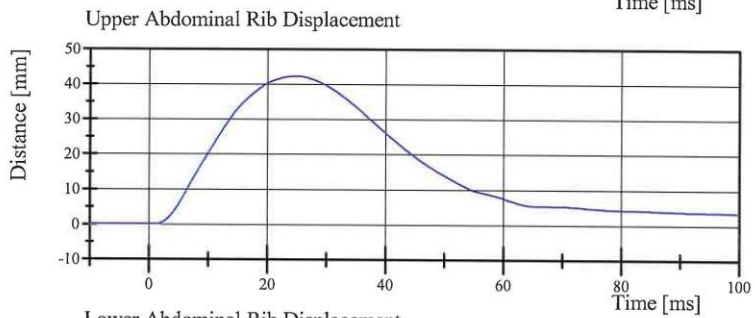
Test Date: 9/2/2016



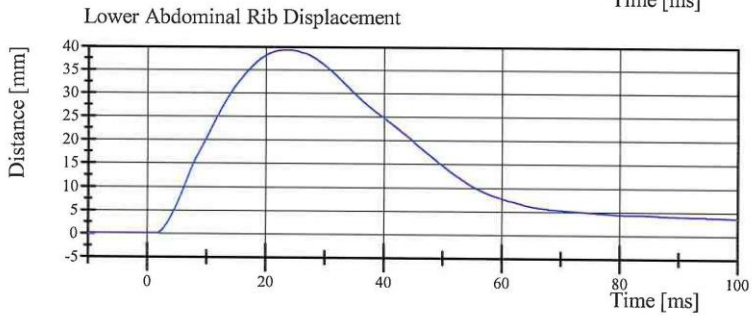
Filter Class: CFC_180
Max: 0.2 g at 80.2 ms
Min: -14.6 g at 18.0 ms



Filter Class: CFC_180
Max: 10.7 g at 13.2 ms
Min: -2.9 g at 46.6 ms



Filter Class: CFC_600
Max: 42.2 mm at 25.0 ms
Min: -0.0 mm at 1.2 ms



Filter Class: CFC_600
Max: 39.2 mm at 23.4 ms
Min: -0.0 mm at 1.5 ms

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

09.02.2016 17:19:04 703



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 10-1

Test Date: 9/6/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.65 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-46.25 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	41.1 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,839.8 N	Yes

Test meets specifications.

Comments:

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

09.06.2016 08:01:36 474

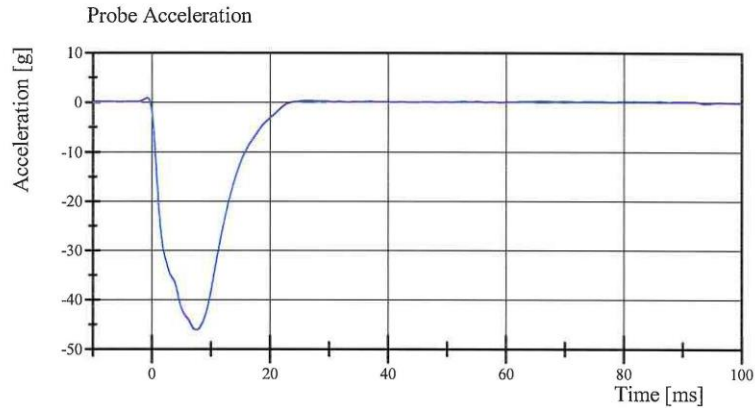


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 10-1

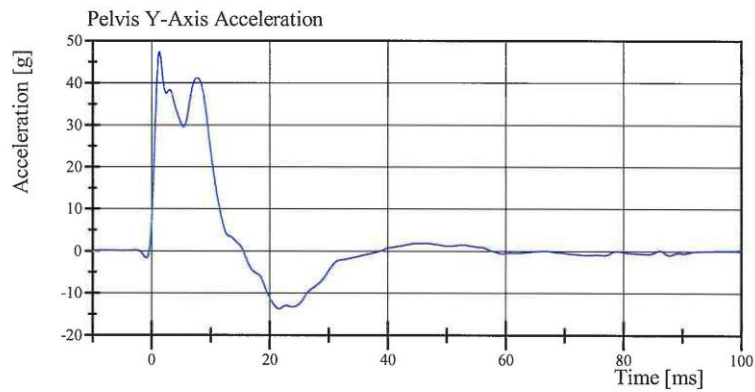
Test Date: 9/6/2016



Filter Class: CFC_180

Max: 0.7 g at -0.8 ms

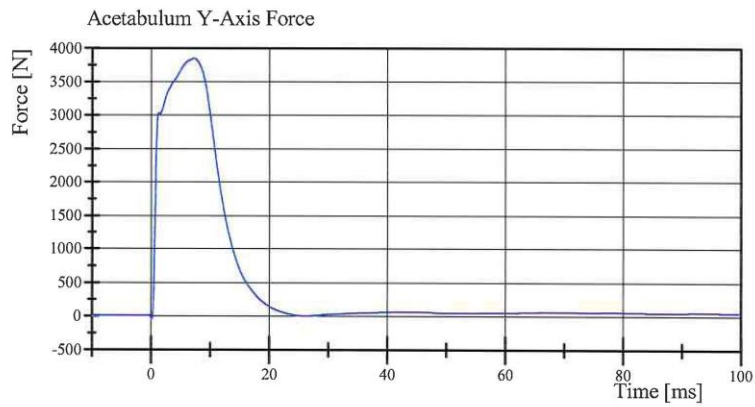
Min: -46.2 g at 7.5 ms



Filter Class: CFC_180

Max: 47.3 g at 1.3 ms

Min: -13.8 g at 21.6 ms



Filter Class: CFC_600

Max: 3,839.8 N at 7.2 ms

Min: -58.5 N at 0.2 ms

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

09.06.2016 08:01:48 474



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 10-1

Test Date: 9/2/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.38 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-43.6 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	29.7 g	Yes
Iliac Force	4,100 - 5,100 N	4,937.0 N	Yes

Test meets specifications.

Comments:

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

09.02.2016 16:57:30 670

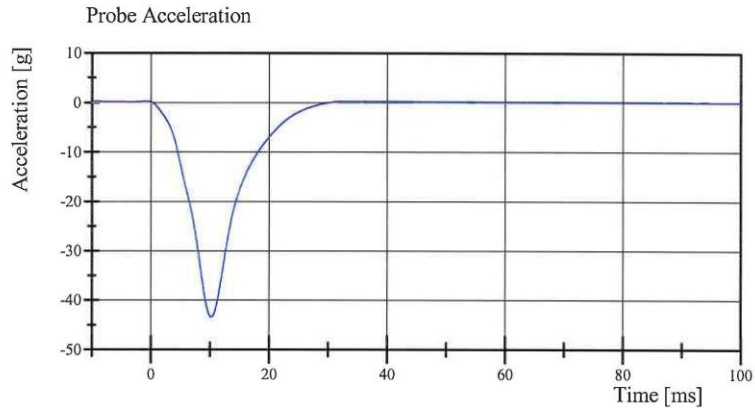


Transportation Research Center Inc.

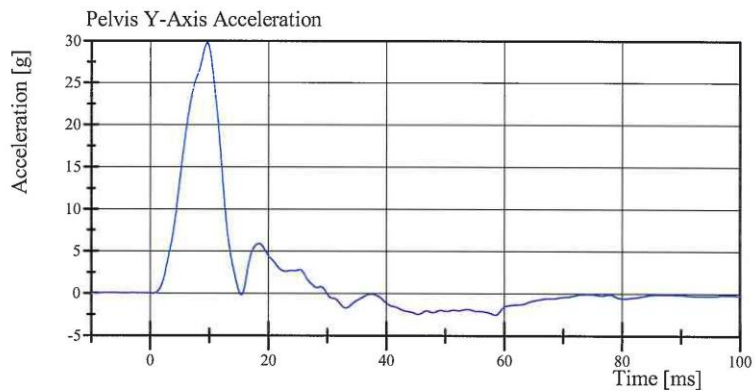
Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 10-1

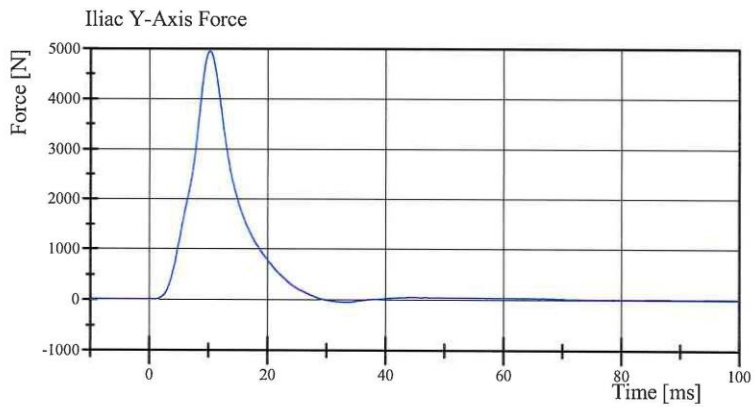
Test Date: 9/2/2016



Filter Class: CFC_180
Max: 0.1 g at 32.7 ms
Min: -43.6 g at 10.2 ms



Filter Class: CFC_180
Max: 29.7 g at 9.6 ms
Min: -2.6 g at 58.4 ms



Filter Class: CFC_600
Max: 4,937.0 N at 10.2 ms
Min: -52.6 N at 33.3 ms

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

09.02.2016 16:57:40 670



APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 297			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	P93539	Endevco	22-Aug-2016
				Y	P93549	Endevco	22-Aug-2016
				Z	P93776	Endevco	22-Aug-2016
Displacement Potentiometers	Shoulder			Y	N/A	N/A	N/A
	Thoracic Rib	Upper	Y	047	Servo	26-Mar-2016	
		Middle	Y	01815	Servo	26-Mar-2016	
		Lower	Y	043	Servo	26-Mar-2016	
	Abdominal Rib	Upper	Y	01811	Servo	26-Mar-2016	
		Lower	Y	051	Servo	26-Mar-2016	
Lower Spine Accelerometers (T12)				X	P94425	Endevco	23-Aug-2016
				Y	P91522	Endevco	22-Aug-2016
				Z	P64100	Endevco	26-Mar-2016
Acetabulum Load Cell				Y	235-FY	FTSS	17-Nov-2015
Iliac Wing Load Cell				Y	113-FY	FTSS	17-Nov-2015
Pelvis Plug (struck side)					88011	Humanetics	22-Jul-2015
Pelvis Plug (non-struck side)					36505	FTSS	24-Sep-2010

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P91179	Endevco	10-May-2016
Vehicle Center of Gravity	Y	P93770	Endevco	25-Jul-2016
Vehicle Center of Gravity	Z	P93467	Endevco	25-Jul-2016
Left Floor Sill	Y	P93765	Endevco	27-Jul-2016
A-Pillar Sill	Y	P93452	Endevco	13-Jun-2016
A-Pillar Low	Y	P91608	Endevco	3-May-2016
A-Pillar Mid	Y	P91966	Endevco	30-Mar-2016
B-Pillar Sill	Y	P91671	Endevco	13-Jun-2016
B-Pillar Low	Y	P81616	Endevco	16-May-2016
B-Pillar Mid	Y	P91991	Endevco	15-Aug-2016
Driver Seat	Y	P91200	Endevco	11-Apr-2016
Engine Top	X	P94540	Endevco	27-Jul-2016
Engine Top	Y	P93523	Endevco	25-Jul-2016
Firewall	Y	P92000	Endevco	16-May-2016
Right Roof	Y	P94544	Endevco	26-Jul-2016
Right Floor Sill	Y	P94545	Endevco	26-Jul-2016
Rear Floor Pan	X	P91474	Endevco	3-May-2016
Rear Floor Pan	Y	P93536	Endevco	13-Jun-2016

TABLE 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	92-FX	Denton	29-Apr-2016
Load Cell 2	84-FX	Denton	29-Apr-2016
Load Cell 3	103-FX	Denton	28-Apr-2016
Load Cell 4	101-FX	Denton	28-Apr-2016
Load Cell 5	87-FX	Denton	29-Apr-2016
Load Cell 6	83-FX	Denton	5-Aug-2016
Load Cell 7	97-FX	Denton	29-Apr-2016
Load Cell 8	95-FX	Denton	26-Jul-2016