

FINAL REPORT NUMBER: SPNCAP-TRC-16-007

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

**General Motors LLC
2016 Chevrolet Cruze
NHTSA NUMBER: M20160104**

**PREPARED BY:
Transportation Research Center Inc.
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P. O. Box B-67
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Report Date: September 9, 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 9, 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

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16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject vehicle, a 2016 Chevrolet Cruze, 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 June 16, 2016. The impact velocity was 32.06 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 320 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>331</td></tr> <tr> <td>Resultant Lower Spine Acceleration:</td><td>g's</td><td>82</td><td>32.5</td></tr> <tr> <td>Total Pelvic Force:</td><td>N</td><td>5525</td><td>2,126.2</td></tr> <tr> <td>(sum of acetabular and iliac forces)</td><td></td><td></td><td></td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>38*</td><td>16.84</td></tr> <tr> <td>Maximum Abdomen Rib Deflection</td><td>mm</td><td>45*</td><td>16.83</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	331	Resultant Lower Spine Acceleration:	g's	82	32.5	Total Pelvic Force:	N	5525	2,126.2	(sum of acetabular and iliac forces)				Maximum Thoracic Rib Deflection	mm	38*	16.84	Maximum Abdomen Rib Deflection	mm	45*	16.83
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17. Key Words New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833																													
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SECTION 1
TEST PURPOSE AND PROCEDURE

TEST PURPOSE AND PROCEDURE

This side impact test was conducted as part of the MY 16 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 2016 Chevrolet Cruze 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 2016 Chevrolet Cruze. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.06 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, OH, on June 16, 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	331
Lower Spine Acceleration Resultant	G	82	32.5
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2126.2
Maximum Thoracic Rib Deflection	mm	38*	16.8
Maximum Abdominal Rib Deflection	mm	45*	16.8

* 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	Yes	Yes
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	No	N/A	No	N/A

GENERAL COMMENTS

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20160104	Traction Control System (TCS)	Yes
Model Year	2016	Auto-Leveling System	No
Make	Chevrolet	Automatic Door Locks (ADL)	Yes
Model	Cruze	Power Window Auto-Reverse	No
Body Style	Passenger Car	Other Optional Feature	No
VIN	1G1BE5SM4G7248821	Driver Front Airbag	Yes
Body Color	Tungsten Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	8	Driver Head/Torso Airbag	No
Engine Displacement (L)	1.4	Driver Torso Airbag	No
Type/No. Cylinders	Gas/4	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Front/Transverse	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	Yes
Transmission Speeds	6	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	FWD	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	Yes
Sunroof/T-Top	No	Rear Pass. Pelvis Airbag	No
Running Boards	No	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	No
Power Seats	Driver only	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	No
		Other Safety Restraint	No

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

No

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors LLC	GVWR (kg)	1743
Date of Manufacturer	3/16	GAWR Front (kg)	917
Vehicle Type	Passenger Car	GAWR Rear (kg)	826

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	N/A	5
Vehicle Capacity Weight (VCW) (kg)				395
DSC X 68.04 kg				340.2
Rated Cargo and Luggage Weight (RCLW) (kg) ¹				54.8

VEHICLE SEAT TYPE

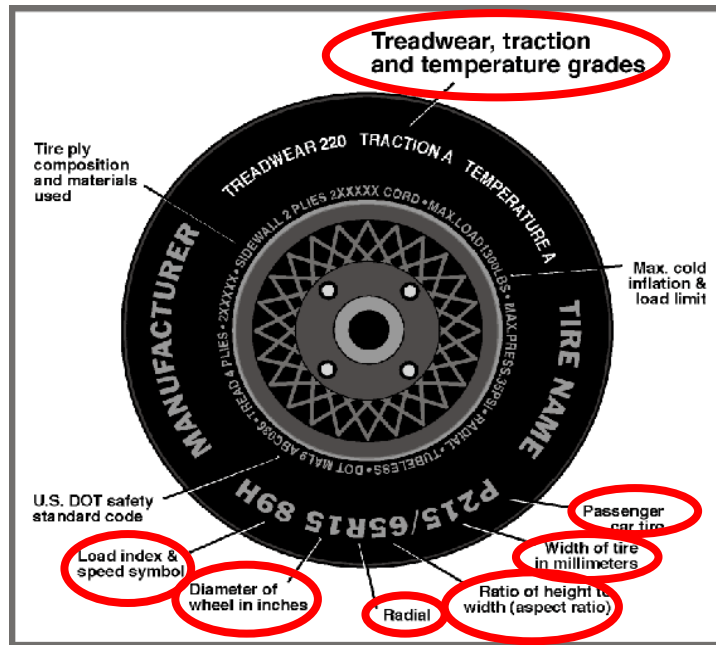
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	Yes	N/A	N/A		N/A	Yes	N/A
Rear or Second Row Seat	N/A	N/A	Yes	Yes	Yes	N/A	N/A
Third row seat	N/A	N/A	N/A	N/A	N/A	N/A	N/A

¹ Rated cargo and luggage weight limited to 54.8 kg or 120.8 lbs.

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

Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	240	240
Recommended Tire Size	205/55R16	205/55R16
Tire Size on Vehicle	205/55R16	205/55R16
Tire Manufacturer	Goodyear	Goodyear
Tire Model	Assurance	Assurance
Treadwear	580	580
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2	2
Tire Plies Body	4	4
Load Index/Speed Symbol	91H	91H
Tire Material	Polyester, steel & polyamide	Polyester, steel & polyamide
DOT Safety Code Left	M60F VH1R 0816	M60F VH1R 0816
DOT Safety Code Right	M60F VH1R 0816	M60F VH1R 0816

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

Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	240	240	240	240
Tire Placard	kPa	240	240	240	240
Owner's Manual	kPa	N/A	N/A	N/A	N/A
As Tested	kPa	240	240	240	240

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	407.8	263.8		431.4	290.0		433.0	307.0	
Right	kg	397.2	251.0		409.8	286.2		398.6	284.6	
Ratio	%	61.0	39.0		59.3	40.7		58.4	41.6	
Totals	kg	805.0	514.8	1319.8	841.2	576.2	1417.4	831.6	591.6	1423.2

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1319.8	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	49.0	(B)
Rated Cargo/Luggage Weight (RCLW) ¹	kg	54.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1423.6	(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.	+ .4	0.4	+ .6	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	- .1	0.0	+ .2	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	- .0	-0.3	- .9	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg.	- .1	-0.1	0	Yes
Vehicle CG (Aft of Front Axle)	mm	1055	1100	1124	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	+14	+14	+31	

*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: None	0.0
Components removed: Right-hand Mirror, Tail Lights, Front Fascia, Door Speaker, Window Regulator	13.0

Test height adjustable suspension setting, if applicable:

N/A

¹ Rated cargo and luggage weight limited to 54.8 kg or 120.8 lbs.

DATA SHEET NO. 2

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

Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16

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	19.6	9.2	14.4
Front Passenger Seat	N/A	N/A	15.3
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	N/A	N/A	15.7
Non-Struck Side Rear Seat	N/A	N/A	16.0
Rear Center Seat*	N/A	N/A	10.6

* 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	14.4	165	Max	179	188	198
			Mid	146	156	165
			Min	114	123	132
Front Passenger Seat	15.3	149	Max	N/A	N/A	N/A
			Mid	130	140	149
			Min	N/A	N/A	N/A
Front Center Seat*	N/A	N/A	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A
Struck Side Rear Seat	15.7	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	16.0	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*	10.6	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A

* If applicable.

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16

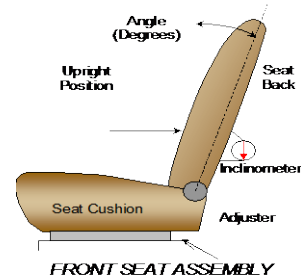
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	240	N/A	0	N/A
Front Passenger Seat	220	22	0	1
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	N/A	Fixed	N/A
Non-Struck Side Rear Seat	Fixed	N/A	Fixed	N/A
Rear Center Seat*	Fixed	N/A	Fixed	N/A

* If applicable.

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned 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	66.2	N/A	24.8 Forward	N/A
Front Passenger Seat	65.6	24	25.6	N/A
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	N/A	Fixed	N/A
Non-Struck Side Rear Seat	Fixed	N/A	Fixed	N/A
Rear Center Seat*	Fixed	N/A	Fixed	N/A

* If applicable.

SEAT 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	5, numbered from 0 to 4	0, Lowermost

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

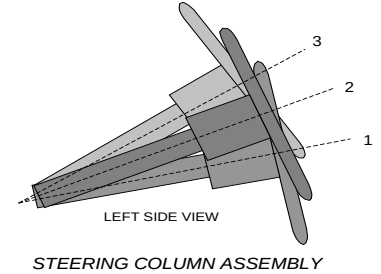
Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16

STEERING COLUMN ADJUSTMENT

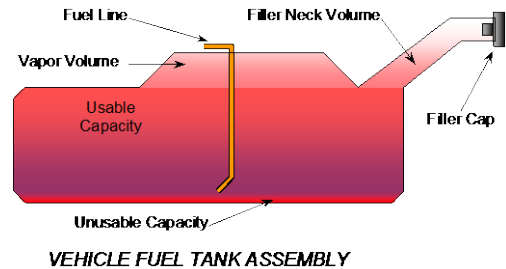
Steering wheel and column adjustments are made so that the steering wheel geometric locus it describes when moved through its full range of motion.

	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	25.0	N/A
Geometric Center, Position No. 2	23.0	N/A
Uppermost, Position No. 3	21.0	N/A
Telescoping Steering Wheel Travel		60
Test Position	23.0	30

**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.

**FUEL TANK CAPACITY**

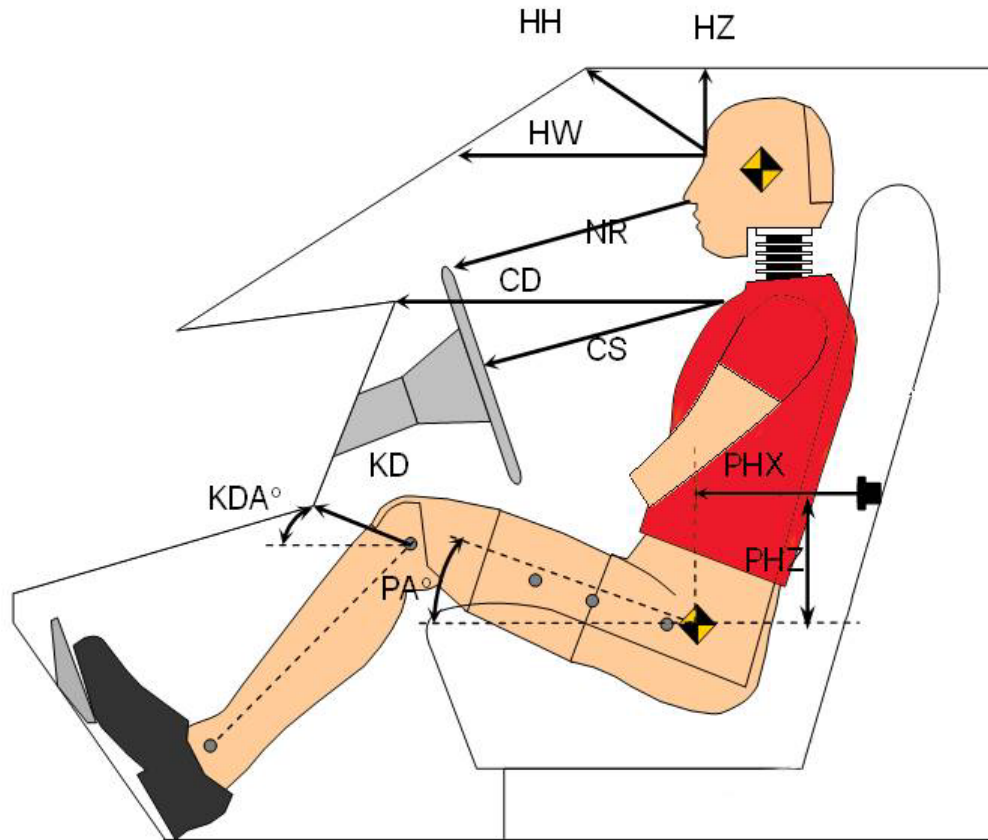
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	50.3
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	N/A
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	46.8
Actual Amount of Solvent Used in Test	46.8
1/3 of Usable Capacity	16.8

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: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16

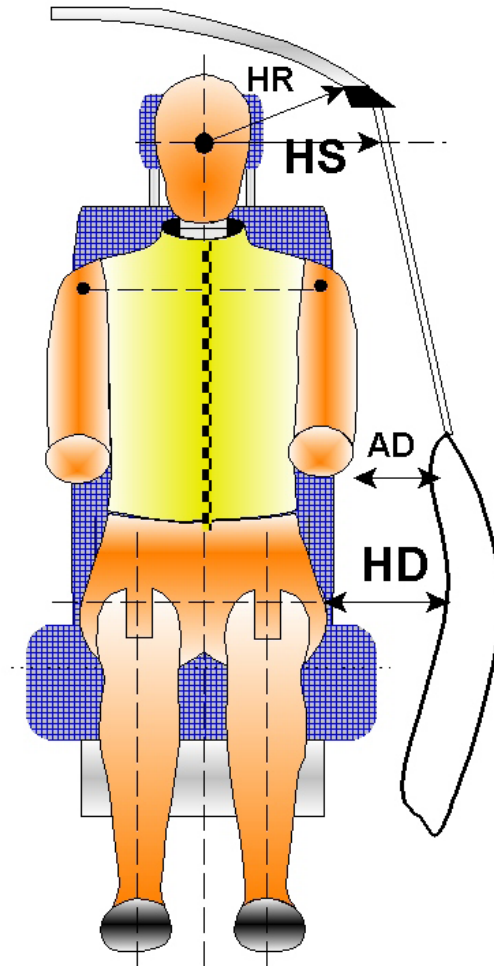


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	293	
HW	Head to Windshield	668	
HZ	Head to Visor	188	
NR	Nose to Rim	264	
CD	Chest to Dashboard	431	
CS	Chest to Steering Wheel	210	
KDL/KDLA°	Left Knee to Dash	165	40
KDR/KDRA°	Right Knee to Dash	164	40
PAX°	Pelvic Tilt Angle (X-axis)		0.7
PAY°	Pelvic Tilt Angle (Y-axis)		21.4
PHX	Hip Point to Striker (X-Axis)	256	
PHZ	Hip Point to Striker (Z-Axis)	125	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2016 Chevrolet Cruze
Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
Test Date: 6/16/16

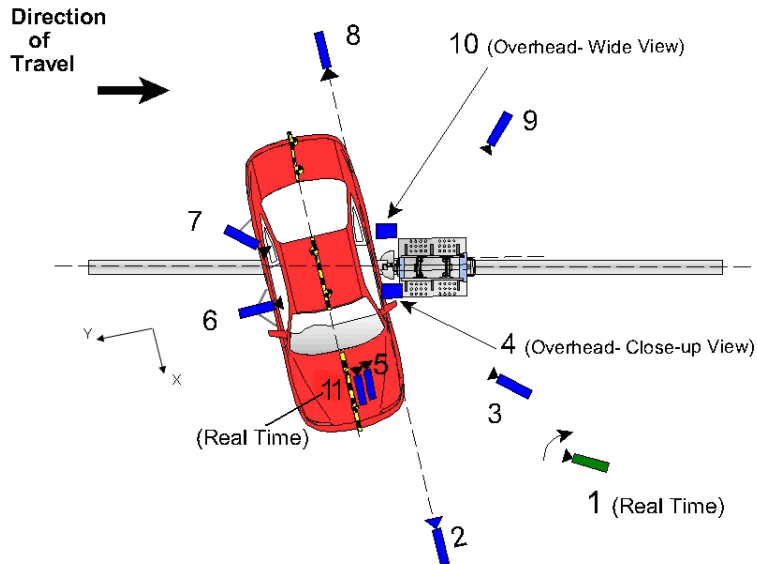


Code	Measurement Description	Length (mm)
HR	Head to Side Header	236
HS	Head to Side Window	382
AD	Arm to Door	163
HD	Hip Point to Door	168

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16



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	1000
2	Front ground level – impact view	5065	-105	-1180	20	1000
3	Impact side 45° – forward pole view	3170	-919	-1216	20	1000
4	Overhead Close-up view of impact	0	0	-5339	28	1000
5	Onboard – dummy front view				25	1000
6	Onboard – dummy side view				12.5	1000
7	Onboard – dummy rear oblique view				8.5	1000
8	Rear ground level – impact view	-5981	0	-1255	25	1000
9	Impact side 45° – rearward pole view	-3748	-2734	-1286	28	1000
10	Overhead wide view of impact	-115	410	-5339	8.5	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

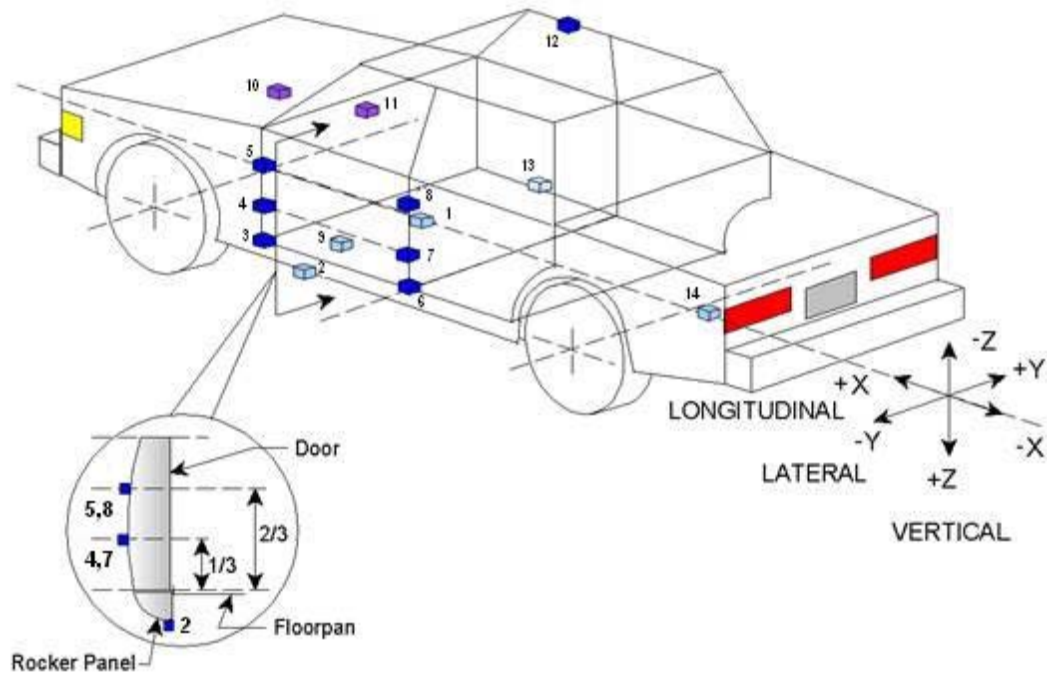
INSTRUMENTATION

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

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16



Accelerometer/Sensor Location				
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2854	115	-302
2	Left Floor Sill	2757	-710	-344
3	A-Pillar Sill	3121	-705	-363
4	A-Pillar Low	3216	-810	-465
5	A-Pillar Mid	3212	-810	-825
6	B-Pillar Sill	2084	-710	-335
7	B-Pillar Low	2168	-800	-563
8	B-Pillar Mid	2137	-790	-865
9	Driver Seat Track	2418	-400	-399
10	Engine Top	4013	85	-762
11	Firewall	3603	120	-743
12	Right Roof	2021	550	-1439
13	Right Floor Sill	2767	710	-305
14	Rear Floorpan	930	0	-447

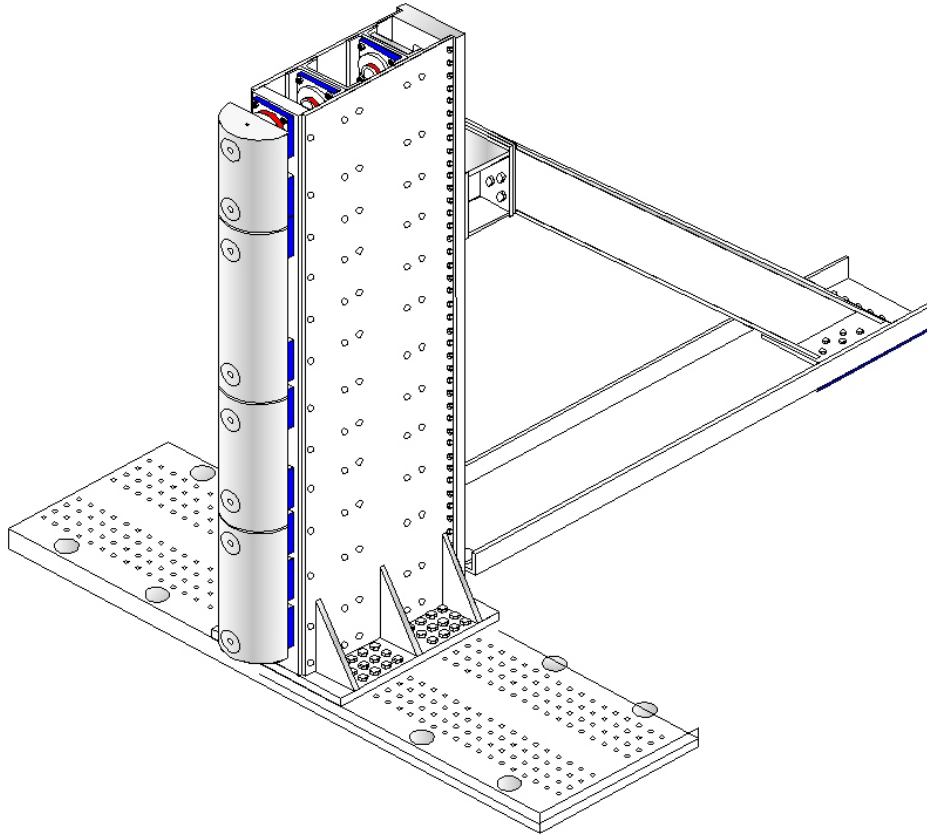
Reference: X - Test Vehicle Rear Bumper (+ forward)
 Y - Test Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2016 Chevrolet Cruze
Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
Test Date: 6/16/16

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: 2016 Chevrolet Cruze
Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
Test Date: 6/16/16

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	SCAB
Top of Head	SCAB
Left Side of Head	SCAB
Back of Head	SCAB
Left Shoulder	Torso/Pelvis Bag
Upper Torso	Torso/Pelvis Bag
Lower Torso	Torso/Pelvis Bag
Left Hip	Seat Cushion Bight
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	Moderate Deformation
Sill Separation	None Visible
Windshield Damage	Broken
Side Window Damage	Front shattered; Rear undamaged
Other Notable Effects	None

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

Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16

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	Yes	Yes
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	No	N/A	No	N/A

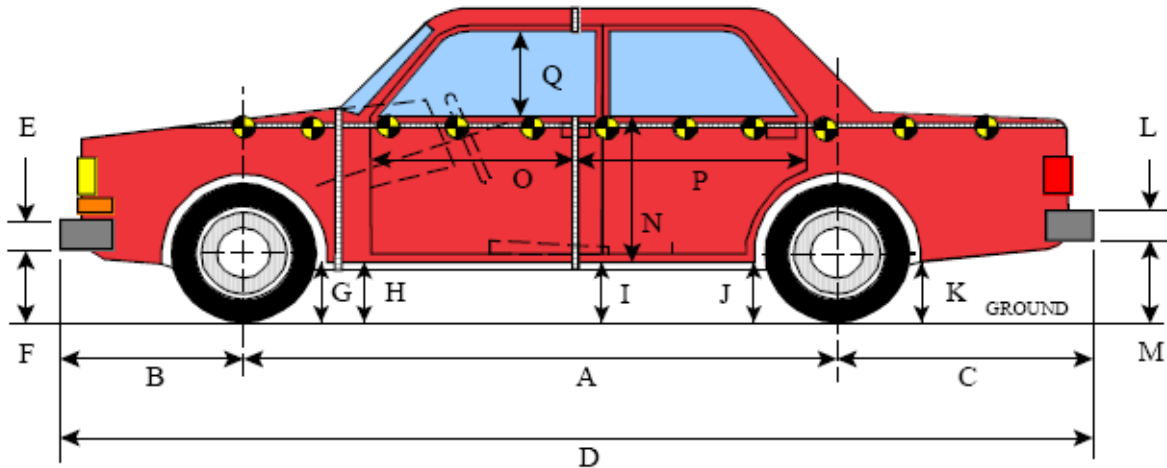
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1093
Actual Impact Point (Aft of Front Axle)	mm		1095
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 of Intended Impact point	-2
Angle Between Vehicle's Longitudinal Centerline and Line of Motion	degrees	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.06
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.06

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16



LEFT SIDE VIEW

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

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

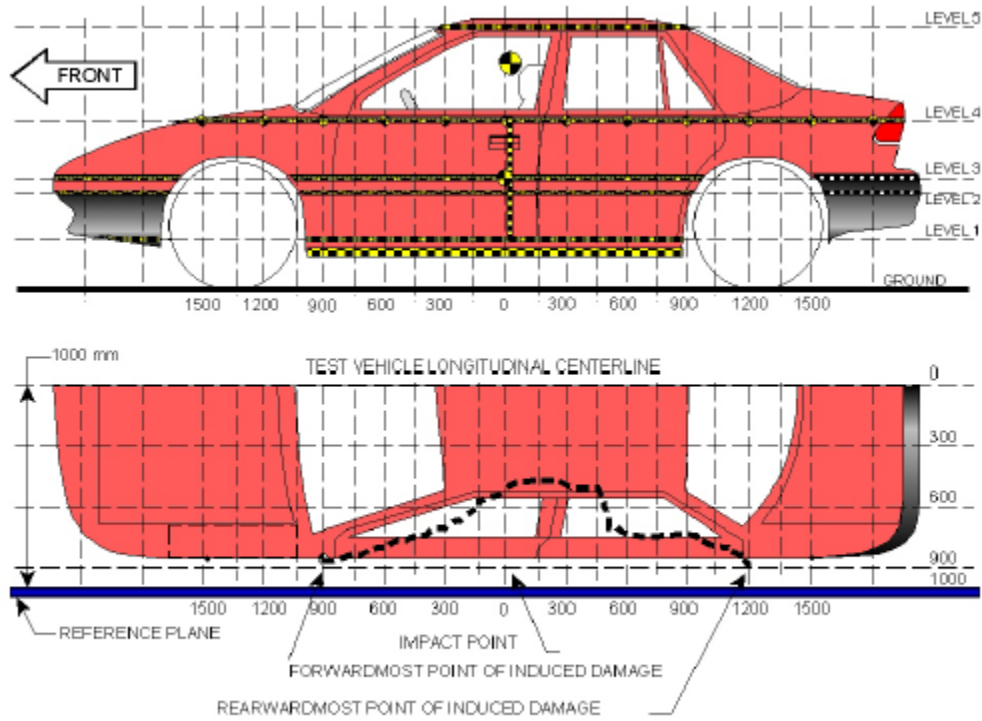
Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2705	2658	47
B	Front Axle to Front Surface of Vehicle	982	976	6
C	Rear Axle to Rear Surface of Vehicle	976	976	0
D	Total Length at Centerline	4663	4610	53
E	Front Bumper Thickness	110	110	0
F	Front Bumper Bottom to Ground	438	457	-19
G	Sill Height at Front Wheel Well	245	259	-14
H	Sill Height at Front Door Leading Edge	248	274	-26
I	Sill Height at B-Pillar	253	272	-19
J1	Sill Height at Rear Wheel Well	221	251	-30
J2	Pinch Weld Height at Rear Wheel Well	186	211	-25
K	Sill Height Aft of Rear Wheel Well	258	284	-26
L	Rear Bumper Thickness	173	173	0
M	Rear Bumper Bottom to Ground	426	436	-10
N	Sill Height to Bottom of Front Window Sill	735	735	0
O	Front Door Leading Edge to Impact CL	653	556	97
P	Rear Door Trailing Edge to Impact CL	1479	1441	38
Q	Front Window Opening	432	408	24
R	Right Side Length	4281	4278	3
S	Left Side Length	4281	4235	46
T	Vehicle Width at B-Pillars	1781 ¹	1670	111

¹ Max width of vehicle is 1787 mm.

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16



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	Sill Top	350	282	0
2	Occupant H-Point	493	298	0
3	Mid-Door	624	320	0
4	Window Sill	892	291	0
5	Window Top	1383	121	0

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

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

Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16

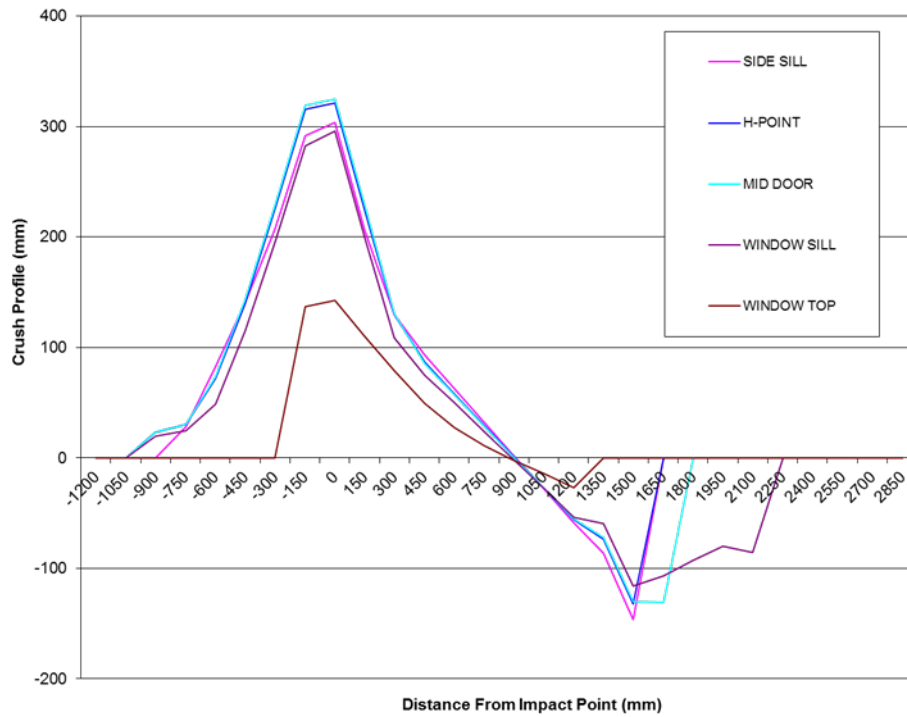
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1200	0	0	0	782	0	0	0	0	804	0	0	0	0	-22	0
-1050	0	0	0	806	0	0	0	0	818	0	0	0	0	-12	0
-900	0	0	885	807	0	0	0	874	804	0	0	0	11	3	0
-750	868	880	881	805	0	869	864	869	801	0	-1	16	12	4	0
-600	861	879	882	847	0	785	802	804	801	0	76	77	78	46	0
-450	863	878	884	822	0	733	743	740	714	0	130	135	144	108	0
-300	868	879	886	829	0	682	680	674	649	0	186	199	212	180	0
-150	873	880	887	834	0	607	596	587	573	0	266	284	300	261	0
0	877	880	888	838	586	595	582	568	547	465	282	298	320	291	121
150	881	880	890	843	574	696	684	669	636	478	185	196	221	207	96
300	886	879	889	849	576	777	767	779	742	499	109	112	110	107	77
450	890	877	887	859	575	805	788	800	771	516	85	89	87	88	59
600	885	875	886	864	573	823	810	821	795	531	62	65	65	69	42
750	878	875	884	863	571	839	833	840	813	543	39	42	44	50	28
900	874	879	884	860	562	858	858	859	829	546	16	21	25	31	16
1050	878	890	888	857	565	876	892	882	846	557	2	-2	6	11	8
1200	0	0	894	853	0	0	0	892	861	0	0	0	2	-8	0
1350	0	0	0	848	0	0	0	0	850	0	0	0	0	-2	0
1500	0	0	0	842	0	0	0	0	844	0	0	0	0	-2	0
1650	0	0	0	834	0	0	0	0	819	0	0	0	0	15	0
1800	0	0	0	822	0	0	0	0	803	0	0	0	0	19	0
1950	0	0	0	803	0	0	0	0	791	0	0	0	0	12	0
2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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.

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

Test Vehicle: 2016 Chevrolet Cruze
Test Program: SPNCAP Side Impact

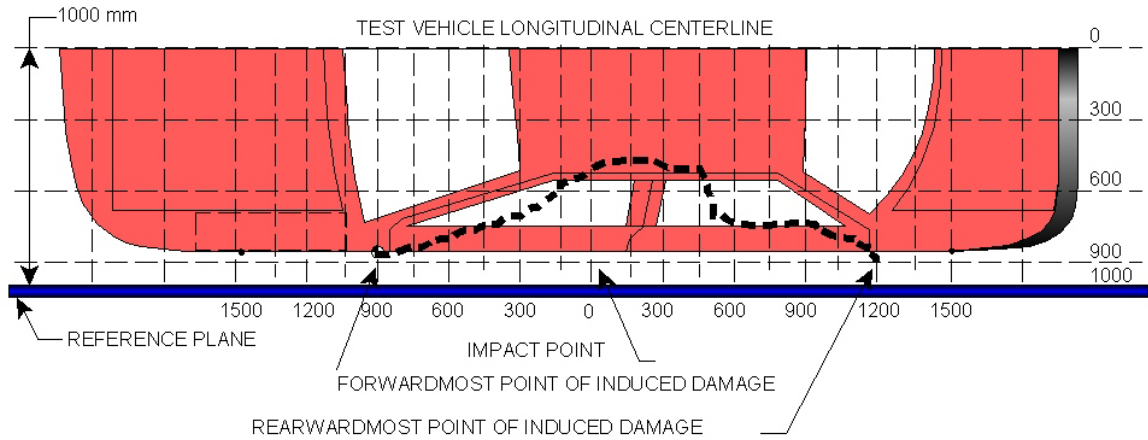
NHTSA No.: M20160104
Test Date: 6/16/16



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2016 Chevrolet Cruze
 Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
 Test Date: 6/16/16



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	1950	4	791	803	12
2	1350	3	850	848	-2
3	750	3	813	863	50
4	0	4	568	888	320
5	-600	4	804	882	78
6	-1200	4	804	782	-22

DATA SHEET NO. 12

FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2016 Chevrolet Cruze

NHTSA No.: M20160104

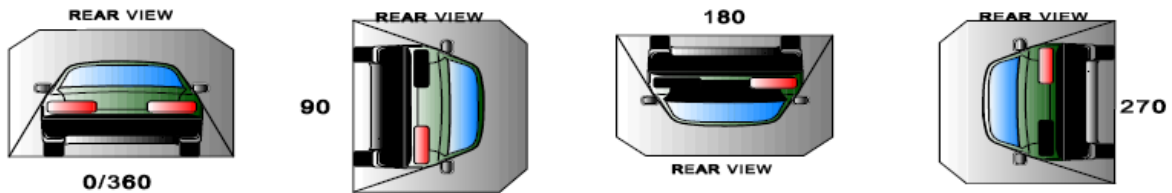
Test Program: SPNCAP Side Impact

Test Date: 6/16/16

Test Time: 14:15 Temperature: 21.8°C

- A. From impact until vehicle motion ceases: 0 oz.
(Maximum allowable is 1 ounce)
- B. For the 5 minute period after motion ceases: 0
(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

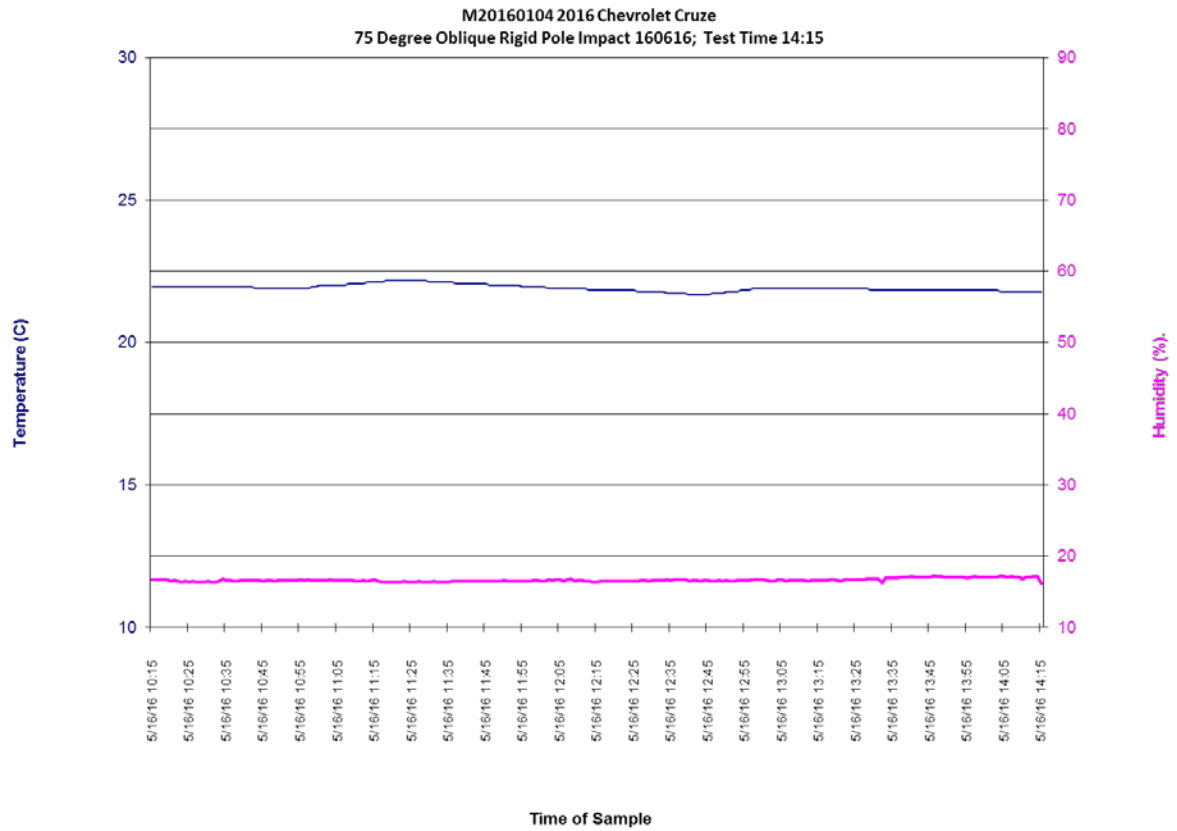
Test Phase	Spillage Location
0 to 90	None
90 to 180	None
180 to 270	None
270 to 360	None

DATA SHEET NO. 13

DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2016 Chevrolet Cruze
Test Program: SPNCAP Side Impact

NHTSA No.: M20160104
Test Date: 6/16/16



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

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1	As Delivered Left Front $\frac{3}{4}$ View of Test Vehicle	A-4
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
5	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-6
6	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-6
7	Pre-Test Left Side View of Test Vehicle	A-7
8	Post-Test Left Side View of Test Vehicle	A-7
9	Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-8
10	Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-8
11	Pre-Test Rear View of Test Vehicle	A-9
12	Post-Test Rear View of Test Vehicle	A-9
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15	Pre-Test Overhead View of Test Area	A-11
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18	Pre-Test Right Side View of Pole Positioned Against Side of Vehicle	A-12
19	Pre-Test Close-Up View of Impact Point Target	A-13
20	Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-13
21	Pre-Test Front Close-Up View of Dummy Head and Chest	A-14
22	Post-Test Front Close-Up View of Dummy	A-14
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
30	Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-19
31	Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level	A-19
32	Pre-Test Placement of Dummy's Feet	A-20
33	Pre-Test View of Belt Anchorage for Dummy	A-20
34	Pre-Test Left Side View of Steering Wheel	A-21

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No.	Description	Page
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36	Pre-Test View of Parking Brake	A-22
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
46	Post-Test Dummy Close-Up Head Contact with Vehicle Interior View	A-27
47	Post-Test Dummy Close-Up Head Contact with Side Airbag View	A-27
48	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-28
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
55	Close-Up View of Vehicle's Certification Label	A-32
56	Close-Up View of Vehicle's Tire Information Placard or Label	A-32
57	Pre-Test Pole Barrier Front View	A-33
58	Post-Test Pole Barrier Front View	A-33
59	Pre-Test Pole Barrier Side View	A-34
60	Post-Test Pole Barrier Side View	A-34
61	Pre-Test Ballast View	A-35
62	Post-Test Primary and Redundant Speed Trap Read-Out	A-35
63	FMVSS No. 301 Static Rollover 0 Degrees	A-36
64	FMVSS No. 301 Static Rollover 90 Degrees	A-36
65	FMVSS No. 301 Static Rollover 180 Degrees	A-37
66	FMVSS No. 301 Static Rollover 270 Degrees	A-37
67	FMVSS No. 301 Static Rollover 360 Degrees	A-38
68	Impact Event	A-38
69	Monroney Label	A-39
70	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-39



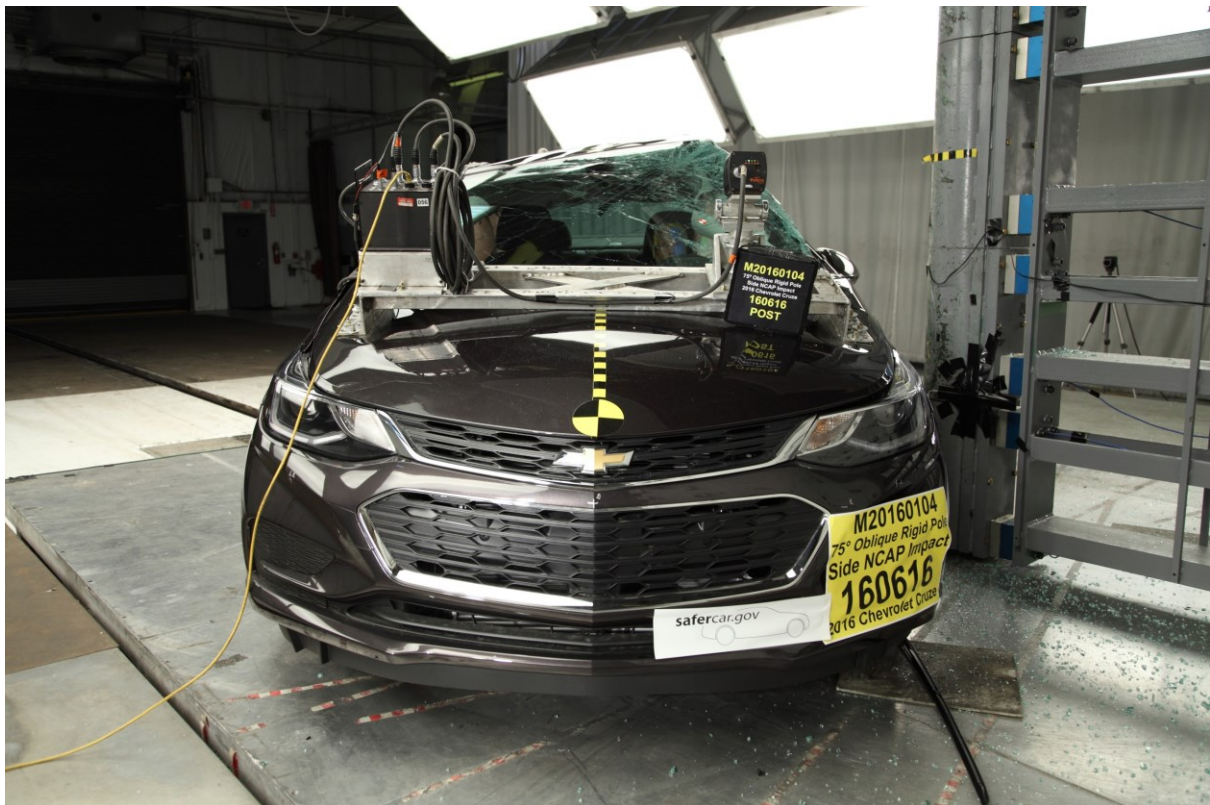
No. 001 As Delivered Left Front $\frac{3}{4}$ View of Test Vehicle



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



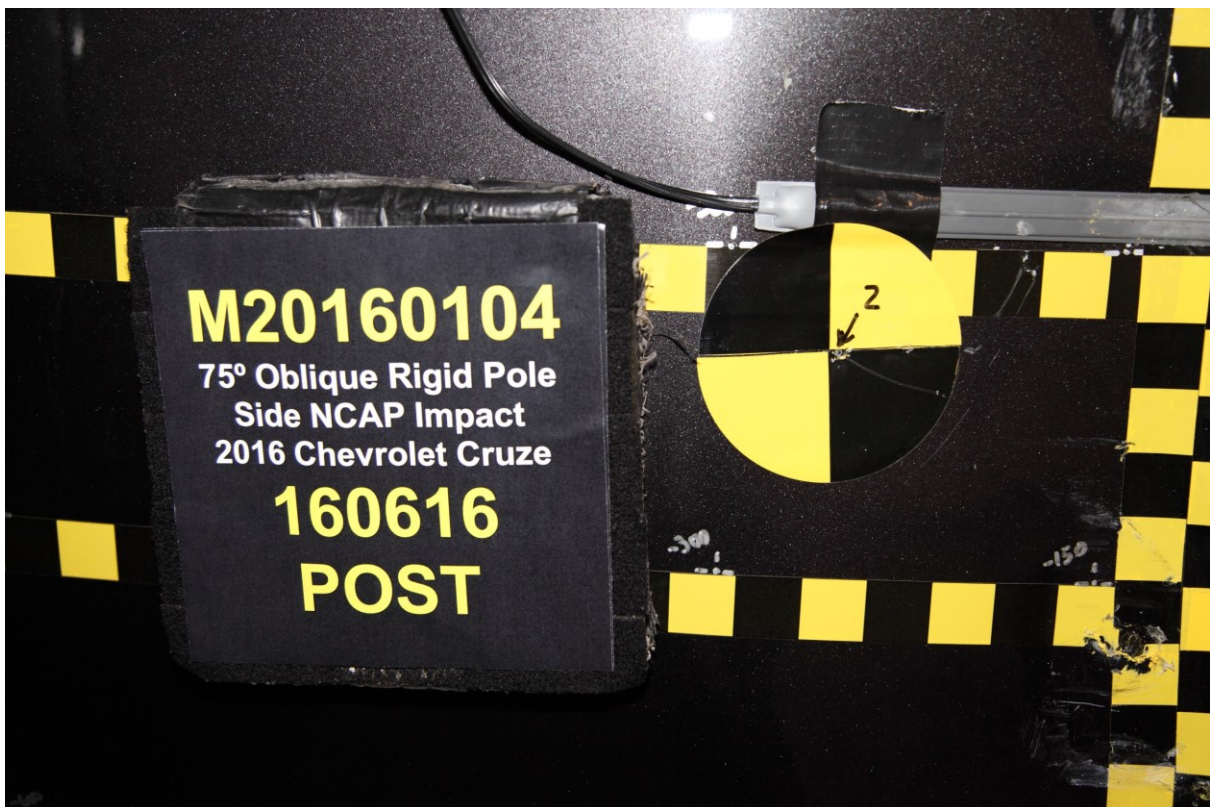
No. 017 Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



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

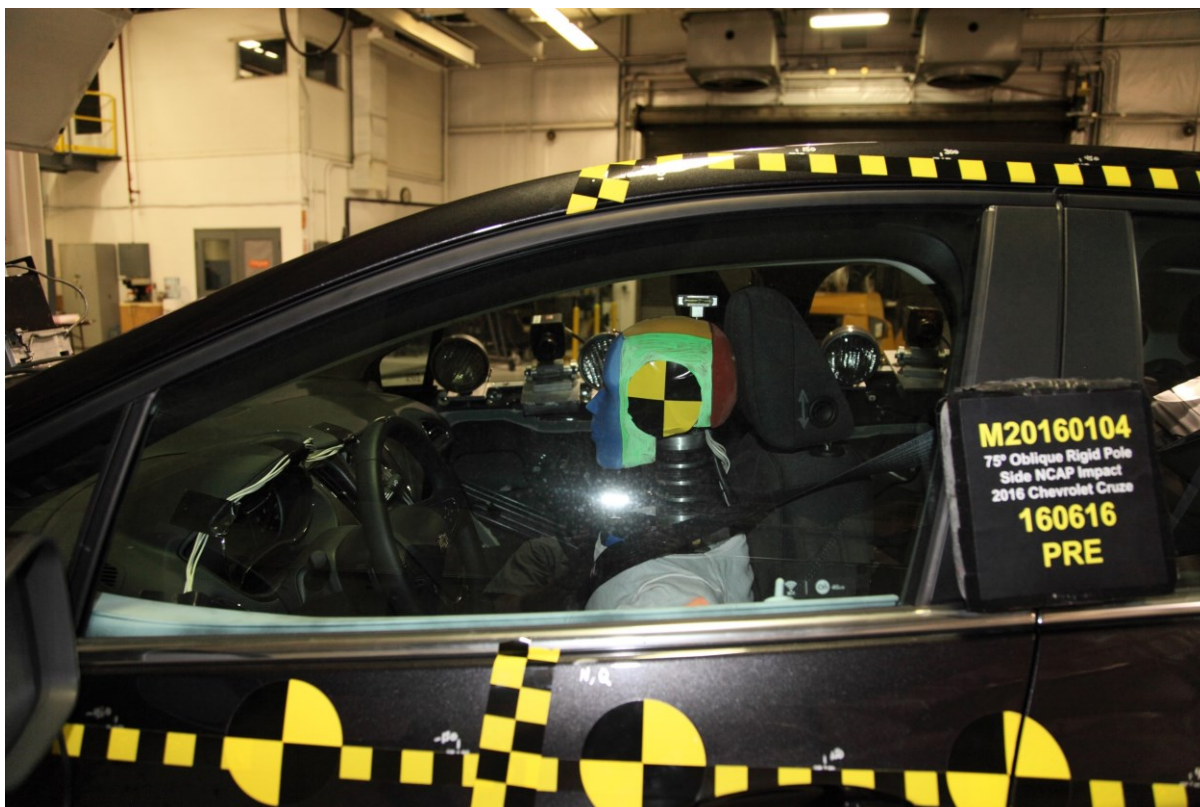


No. 022 Post-Test Front Close-Up View of Dummy



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

Intentionally Left Blank



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



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



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



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



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



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



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



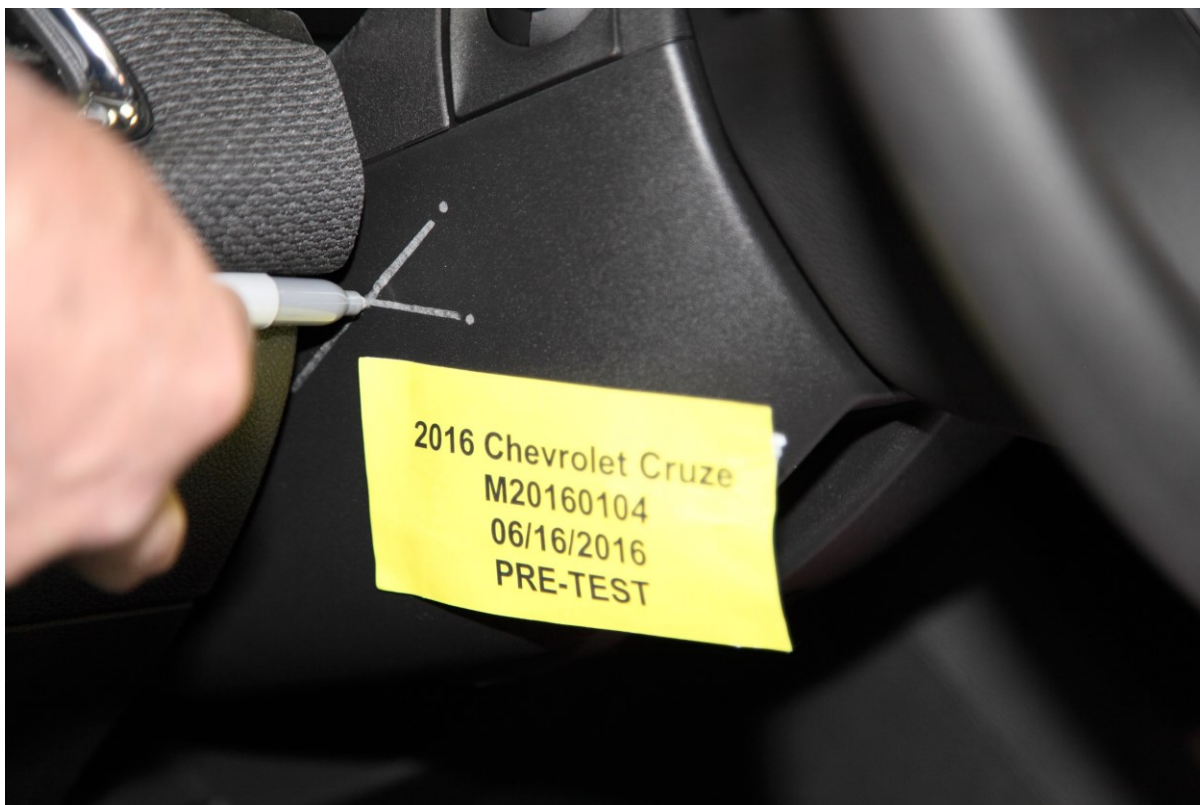
No. 031 Pre-Test Left Side View of Dummy Head Showing Dummy Head is Level



No. 032 Pre-Test Placement of Dummy Feet



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



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



No. 035 Pre-Test View of Disengaged Parking Brake



No. 036 Pre-Test View of Parking Brake



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



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



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



No. 040 Pre-Test Dummy and Door Clearance View



No. 041 Post-Test Dummy and Door Clearance View



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



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



No. 044 Pre-Test Inner Door Panel View



No. 045 Post-Test Inner Door Panel View



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

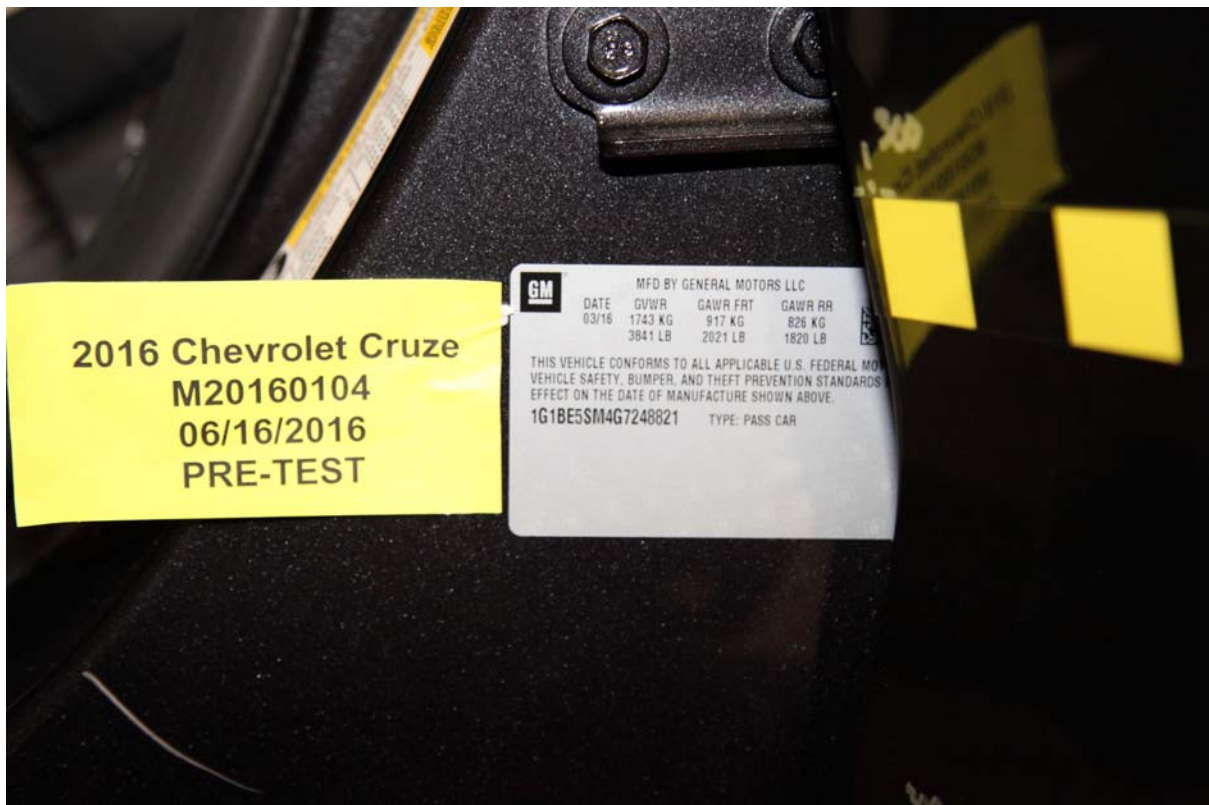
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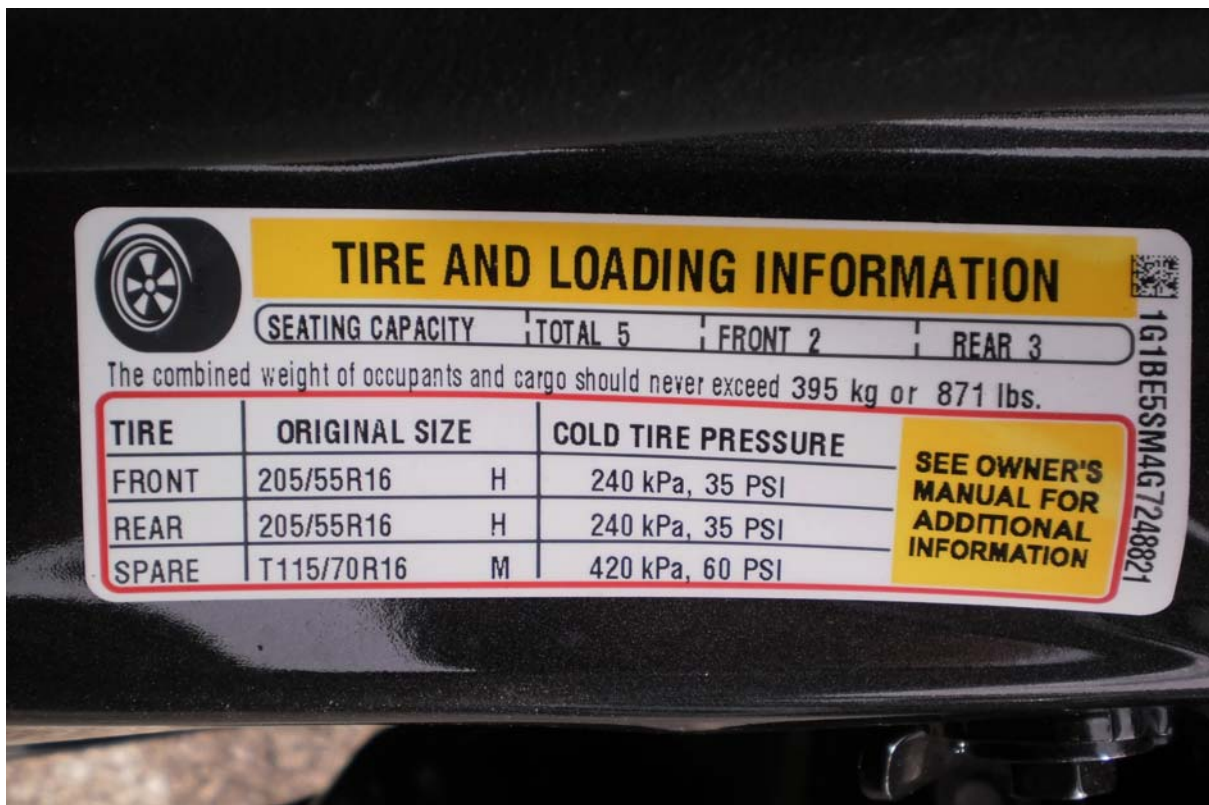
No. 053 Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



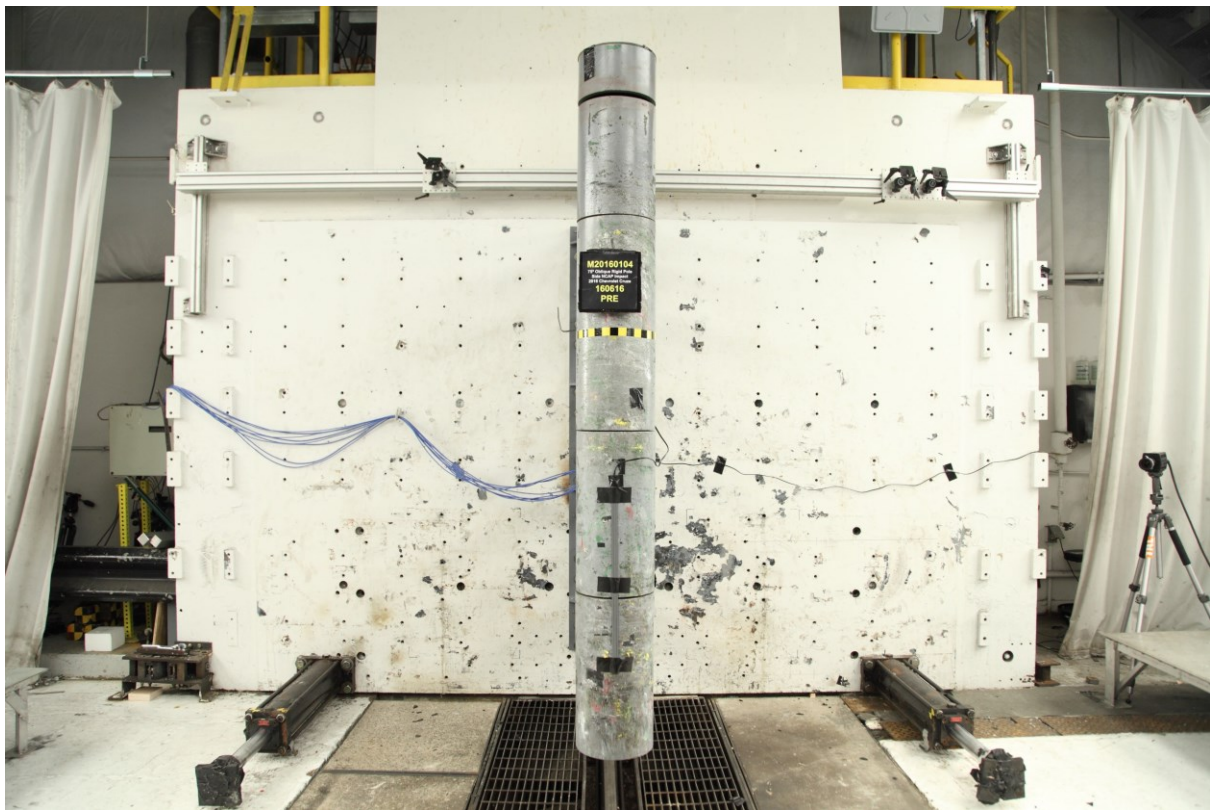
No. 054 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



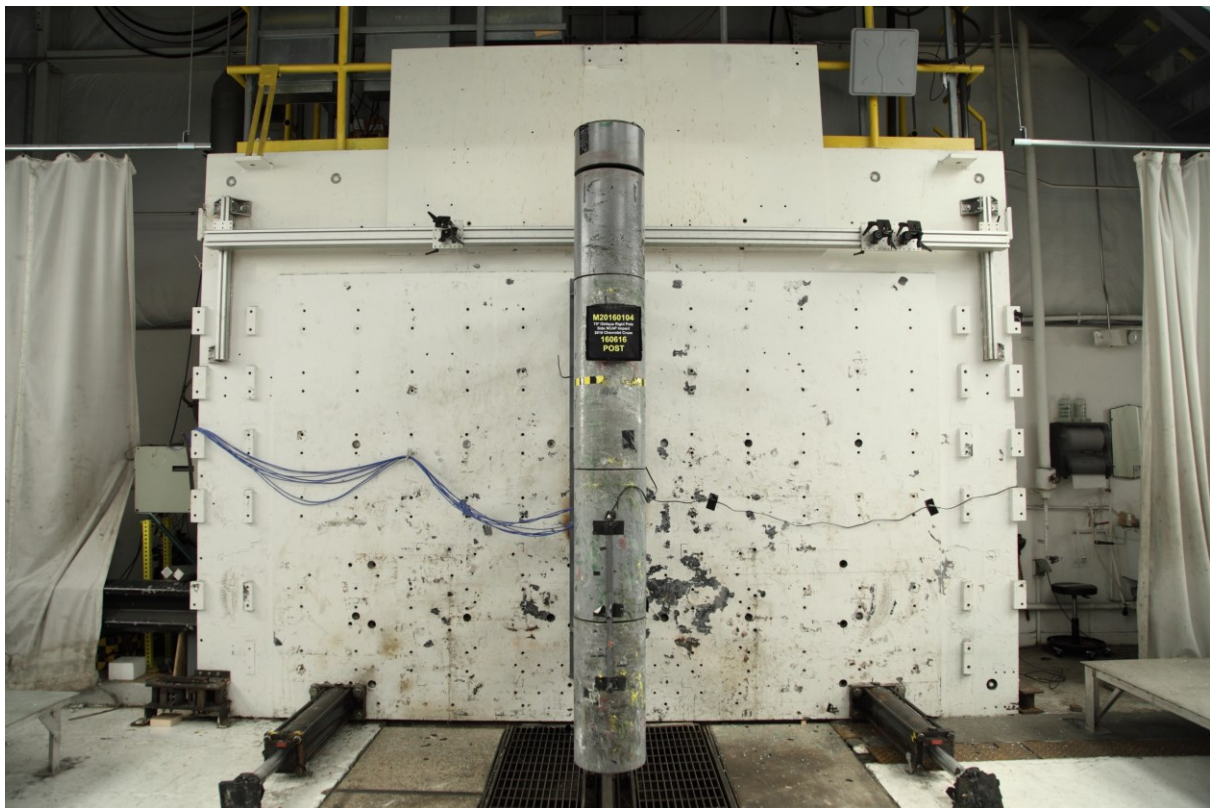
No. 055 Close-Up View of Vehicle Certification Label



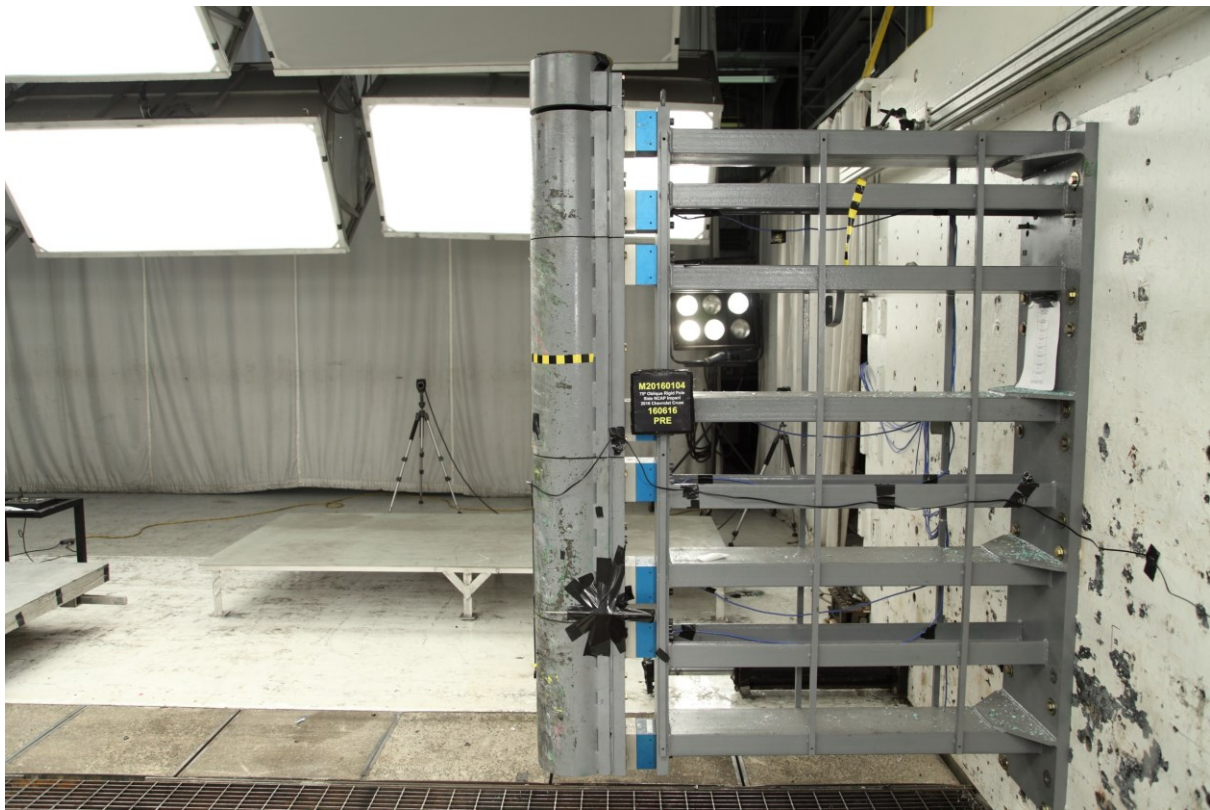
No. 056 Close-Up View of Vehicle Tire Information Placard or Label



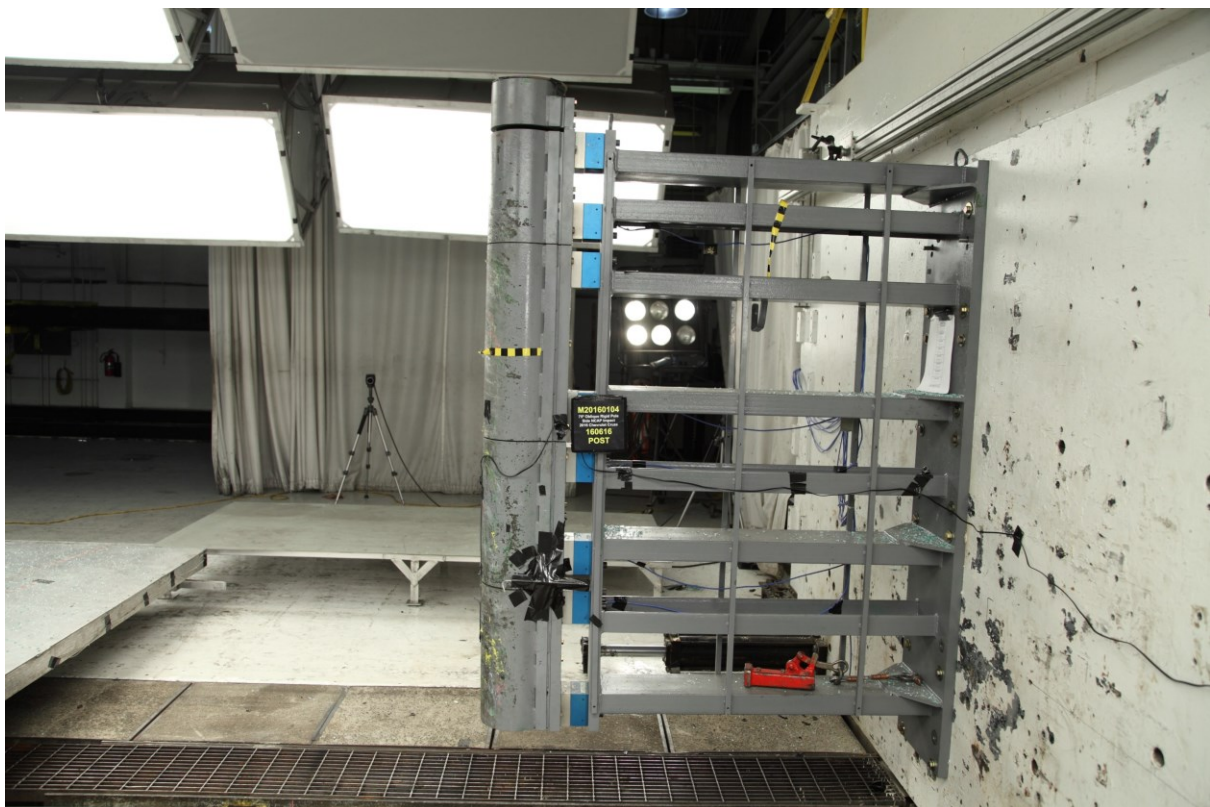
No. 057 Pre-Test Pole Barrier Front View



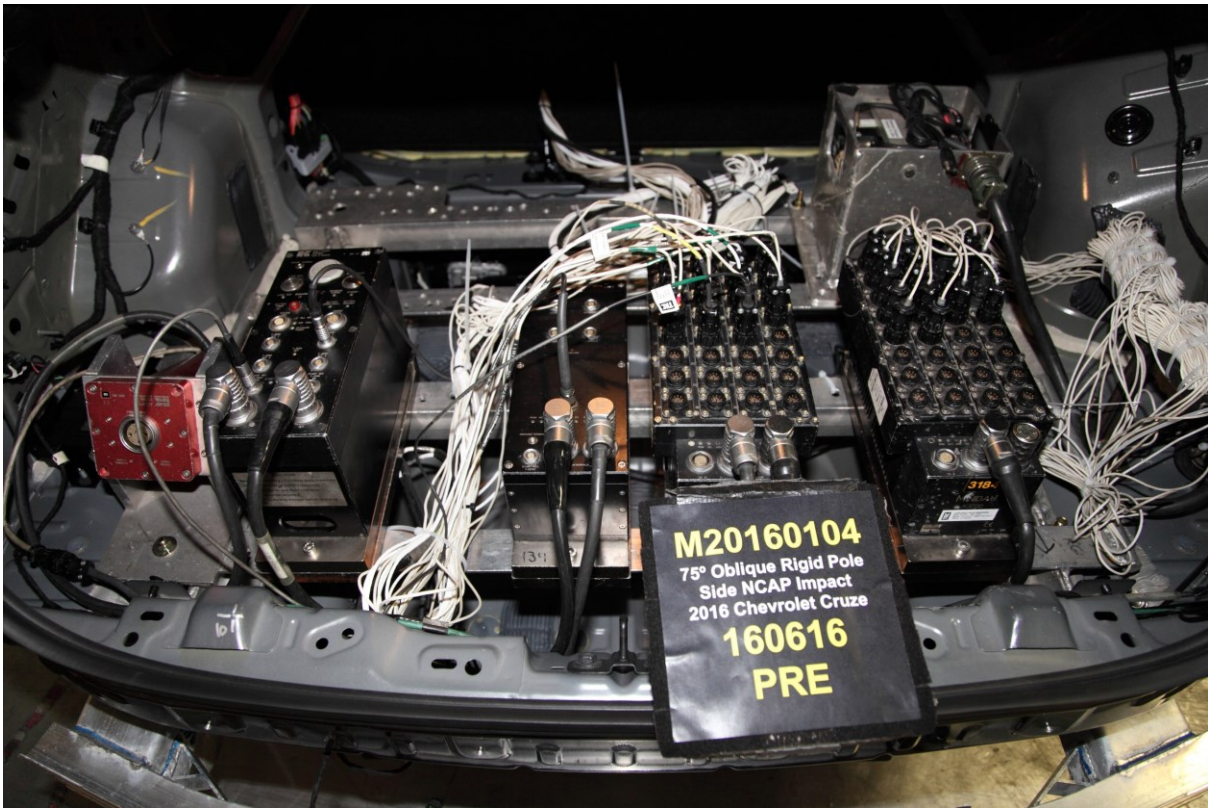
No. 058 Post-Test Pole Barrier Front View



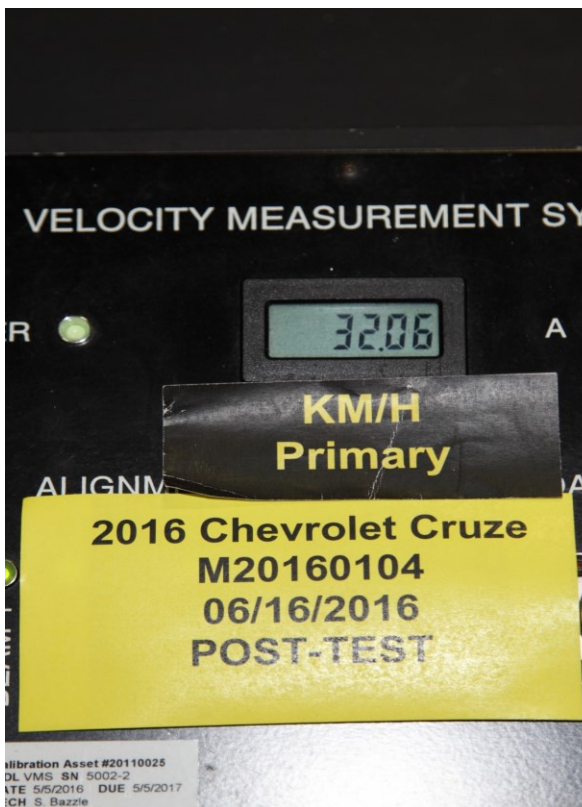
No. 059 Pre-Test Pole Barrier Side View



No. 060 Post-Test Pole Barrier Side View



No. 061 Pre-Test Ballast View



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



No. 063 FMVSS No. 301 Static Rollover 0 Degrees



No. 064 FMVSS No. 301 Static Rollover 90 Degrees



No. 065 FMVSS No. 301 Static Rollover 180 Degrees



No. 066 FMVSS No. 301 Static Rollover 270 Degrees



No. 067 FMVSS No. 301 Static Rollover 360 Degrees



No. 068 Impact Event

CHEVROLET

**2016 CRUZE 4-DOOR SEDAN
LT AUTOMATIC**

**EXTERIOR: TUNGSTEN METALLIC
INTERIOR: JET BLACK**

**ENGINE, TURBO 1.4L VARIABLE
TRANSMISSION, 6-SPD AUTOMATIC**

Visit us at www.chevy.com

STANDARD EQUIPMENT

EXTRA FEATURES BELOW ARE INCLUDED AT NO EXTRA CHARGE IN THE STANDARD VEHICLE PRICE SHOWN.

- CHEVROLET COMPLETE CARE
- SEE WWW.CHEVY.COM OR DEALER FOR TERMS, DETAILS & LIMITS
- TWO MAINTENANCE VISITS
- OIL & FILTER CHANGE
- 4-WHEEL TIRE ROTATION
- 27 POINT INSPECTION
- 3 YEAR/50,000 MILES BUMPER-TO-BUMPER WARRANTY
- 5 YEAR/60,000 MILES POWERTRAIN LIMITED WARRANTY
- ROADSIDE ASSISTANCE
- COURTESY TRANSPORTATION

MECHANICAL

- BRAKES, 4 WHL DISC (DURALIFE)
- ENG CONTROL STOP/START SYS
- ENGINE, TURBO 1.4L VARIABLE
- VALVE TIMING DOHC 4-CYLINDER
- TRANSMISSION, 6-SPD AUTOMATIC

SAFETY & SECURITY

- AIRBAGS, DRIVER & FRONT PASSENGER
- IMPACT & HEAD CURTAIN, REAR
- OUTBOARD PASSENGERS SIDE IMPACT & HEAD CURTAIN (10)
- REMOTE PANIC ALARM
- STABILITRAK-STABILITY CONTROL SYSTEM W/ TRACTION CONTROL
- TIRE PRESSURE MONITOR (EXCL. SPARE TIRE)
- REAR VISION CAMERA

EXTERIOR

- POWER DOOR LOCKS
- POWER DUAL OUTSIDE MIRRORS, HEATED
- MOLDINGS, BRIGHT BELTLINE
- WHEELS, 16" ALUMINUM
- WHEEL, 16" STEEL SPARE
- HEADLAMPS, AUTOMATIC
- DUAL PROJECTION LED SIGNATURE

INTERIOR

- FRONT BUCKET SEATS
- SEAT, REAR 60-40 SPLIT-FOLD
- POWER WINDOWS, FRONT & REAR EXPRESS DOWN
- SEAT ADJUSTER, DRIVER, 6-WAY MANUAL
- FLOOR MATS
- AIR CONDITIONING
- CONSOLE, FLOOR, WITH ARMREST
- VISORS, DRIVER/FRONT PASSENGER
- W/ VANTY MIRRORS
- CRUISE CONTROL
- STEERING COLUMN, TILT & TELESCOPIC
- STEERING WHEEL CONTROLS
- USB PORT W/ AUX JACK
- AUDIO SYSTEM, 6 SPEAKER
- TRUNK RELEASE, POWER

CONNECTIVITY FEATURES

- CONNECTED MYLINK AUDIO SYSTEM
- 7" DIAGONAL COLOR TOUCHSCREEN

SELECT BLUETOOTH STREAMING, APPLE CARPLAY CAPABILITY AND ANDROID AUTO CAPABILITY PROVIDED BY APPLE AND GOOGLE AVAILABLE WITH COMPATIBLE SMARTPHONES

- ONSTAR REMOTELINK APP
- XM RADIO + SERVICE SUBSCRIPTION SOLD SEPARATELY BY SIRIUSXM AFTER 3 MTHS
- ONSTAR INCLUDES 5 YR BASIC PLAN PLUS 6 MTH SERVICE W/ AUTOMATIC CRASH RESPONSE, NAVIGATION & MORE (SUBJECT TO TERMS SEE ONSTAR.COM)
- 4G LTE W/ 4X4 HOTSPOT WITH LIMITED DATA TRIAL AND MORE (SUBJECT TO TERMS SEE ONSTAR.COM)

OPTIONS & PRICING

MANUFACTURER'S SUGGESTED RETAIL PRICE

STANDARD VEHICLE PRICE \$21,120.00

Options Installed by the Manufacturer (May Replace Standard Equipment Below)

CONVENIENCE PACKAGE 1,150.00

- POWER SEAT ADJUSTER, DRIVER 6-WAY
- KEYLESS START
- REMOTE VEHICLE START
- DRIVER & FRONT PASSENGER HEATED SEATS

TOTAL OPTIONS \$1,150.00

TOTAL VEHICLE & OPTIONS \$22,270.00

DESTINATION CHARGE 875.00

TOTAL VEHICLE PRICE* \$23,145.00

EPA DOT Fuel Economy and Environment

Fuel Economy

35 MPG

compact cars range from 14 to 116 MPG. The best vehicle rates 119 MPG.

You Save \$2,500

in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$1,300

2.9 gallons per 100 miles

Fuel Economy & Greenhouse Gas Rating

8

Smog Rating

6

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

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 25 MPG and costs \$8,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.00 per gallon. MPG is miles per gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuel economy.gov

Calculate personalized estimates and compare vehicles.

GOVERNMENT 5-STAR SAFETY RATINGS

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

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

Equipped with the safety and connectivity of OnStar:

4G LTE

Wi-Fi

Visit onstar.com for details.

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE: U.S./CANADIAN PARTS CONTENT: 60% MAJOR SOURCES OF FOREIGN PARTS CONTENT: MEXICO 26%

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

FOR THIS VEHICLE: FINAL ASSEMBLY POINT: LORDSTOWN, OH U.S.A. COUNTRY OF ORIGIN: ENGINE: UNITED STATES TRANSMISSION: UNITED STATES

ORDER NO. 1000000000 SALES CODE: SALES CODE: 0000000000 DEALER NO. 0000000000 VIN: 1G11BES8407240821

BERGER CHEVROLET, INC. PO BOX 8707 GRAND RAPIDS, MI 49518-8707

No. 069 Monroney Label

Head Restraints

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

Warning

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

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

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

The height of the head restraint can be adjusted.

Pull the head restraint up to raise it. Try to move the head restraint to make sure it is locked in place.

To lower the head restraint, press the button located on the top of the seatback and push the head restraint down. Try to move the head restraint after the button is released to make sure it is locked in place.

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

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

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

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)

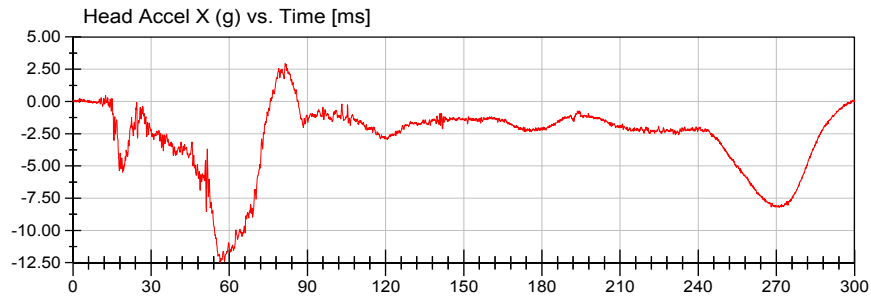
NHTSA

Position #1 SID IIs Dummy (297)

Test Date: 06/16/2016

Test Lab: Transportation Research Center, Inc.

Test Number: 160616 (M20160104)



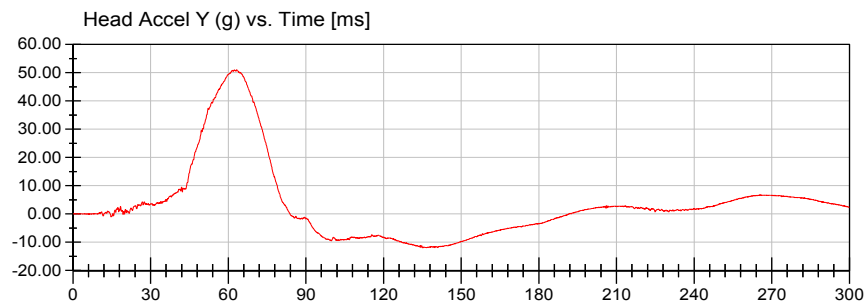
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2.93 g at 81.44 ms

<Min>

-12.48 g at 56.48 ms

CFC_1000



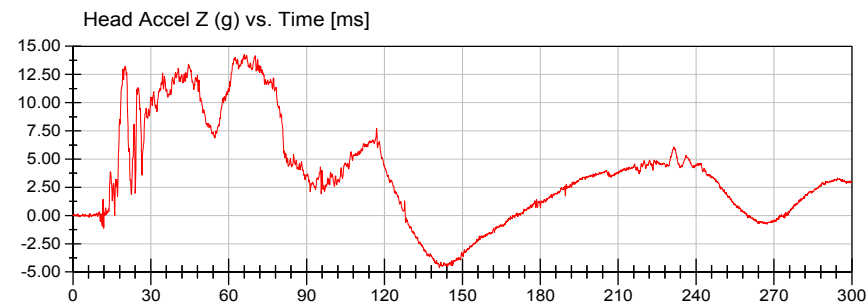
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51.07 g at 62.32 ms

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-11.99 g at 135.20 ms

CFC_1000



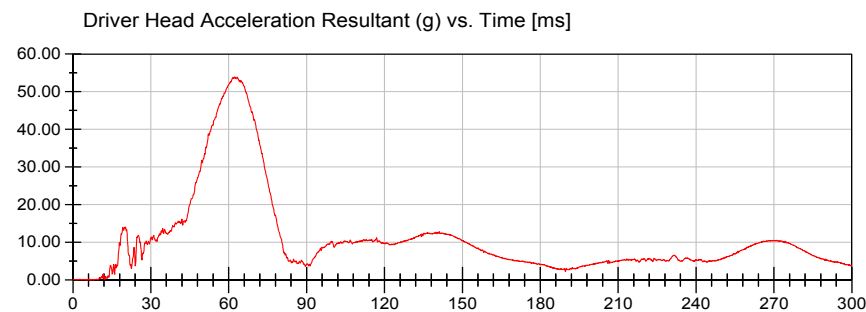
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-4.62 g at 141.12 ms

CFC_1000



<Max>

53.97 g at 62.32 ms

<Min>

0.03 g at 0.16 ms

CFC_1000



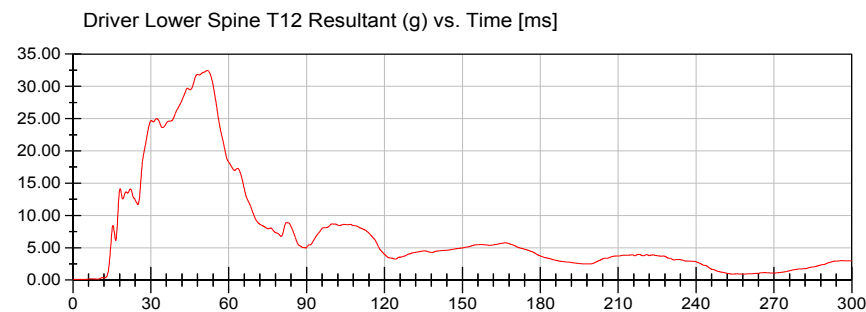
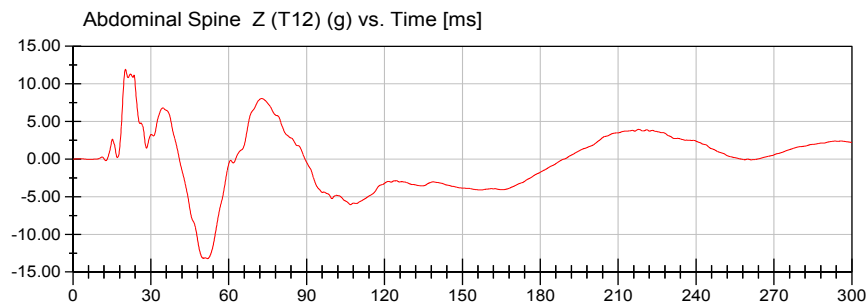
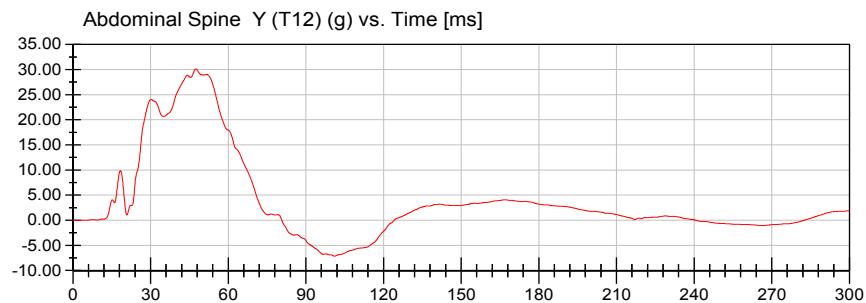
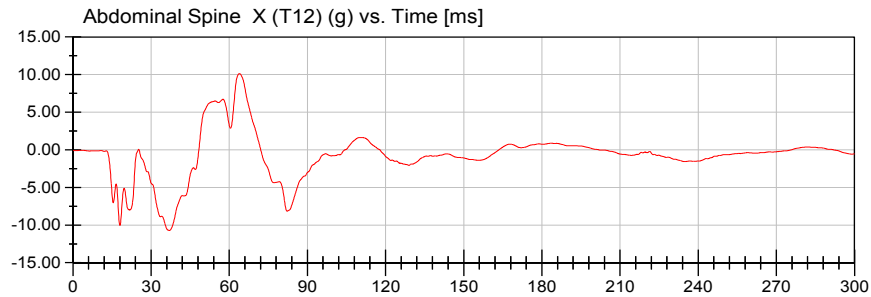
NHTSA

Position #1 SID IIs Dummy (297)

Test Date: 06/16/2016

Test Lab: Transportation Research Center, Inc.

Test Number: 160616 (M20160104)



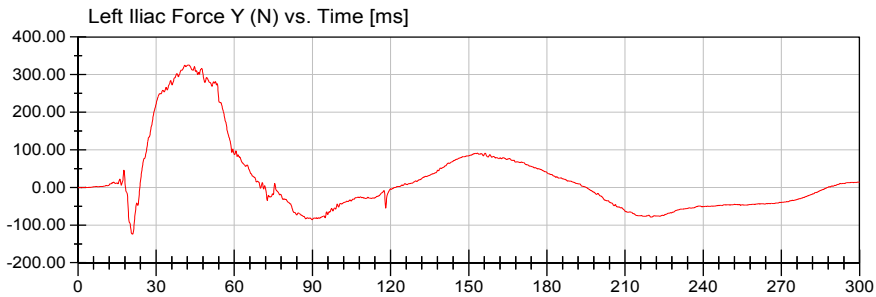
NHTSA

Position #1 SID IIs Dummy (297)

Test Date: 06/16/2016

Test Lab: Transportation Research Center, Inc.

Test Number: 160616 (M20160104)



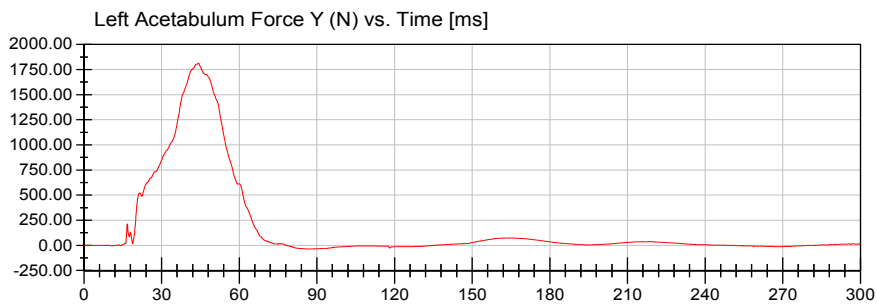
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325.57 N at 42.40 ms

<Min>

-123.98 N at 20.96 ms

CFC_600



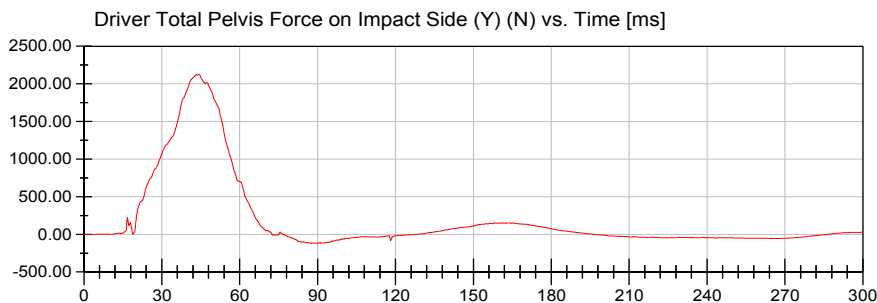
<Max>

1,814.38 N at 44.24 ms

<Min>

-36.44 N at 86.16 ms

CFC_600



<Max>

2,126.23 N at 44.24 ms

<Min>

-119.28 N at 89.92 ms

CFC_600



APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

Table 1. External Measurements

Table 2. Head Drop Test

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

Table 3. Lateral Neck Pendulum Test

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

Table 4. Shoulder Impact Test

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

Table 5. Thorax (With Arm) Impact Test

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

Table 6. Thorax (Without Arm) Impact Test

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

Table 7. Abdomen Impact Test

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

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

Table 9. Pelvis Acetabulum Impact Test

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

Table 10. Pelvis Iliac Impact Test

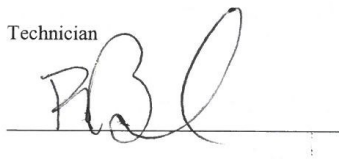
Impactor Acceleration (G's) vs. Time (ms)
Pelvis (Y) Acceleration (G's) vs. Time (ms)
Iliac Force (N) vs. Time (ms)

Pre-Test Calibration Sheets
Driver S/N 297

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No.07

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	780	Yes
B	Shoulder Pivot Height	437.0 - 453.0	444	Yes
C	H-Point Height	79.0 - 89.0	85	Yes
D	H-Point from Seat Back	141.0 - 151.0	145	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	101	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	525	Yes
L	Popliteal Height	343.0 - 369.0	355	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	401	Yes
N	Buttock Popliteal Length	416.0 - 442.0	428	Yes
O	Chest Depth without Jacket	195.0 - 211.0	201	Yes
P	Foot Length (right)	216.0 - 232.0	220	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	318	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to seat Back	478.0 - 493.0	484	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	871	Yes
Z	Waist Circumference	761.0 - 791.0	781	Yes

Technician



Approved



Revised 9/29/2005



Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 7-1

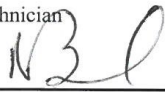
Test Date: 6/9/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	124.8 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	2.0 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.09.2016 08:33:45 233

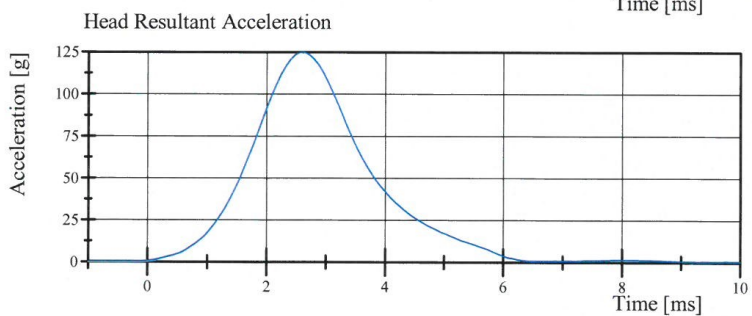
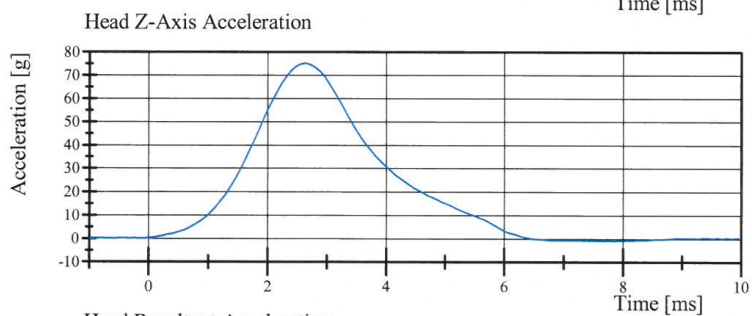
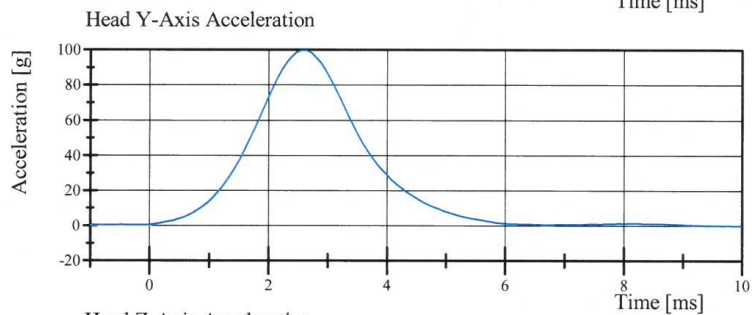
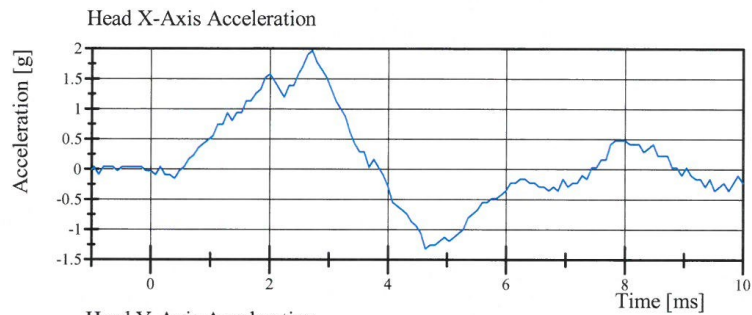


Transportation Research Center Inc.

Left Lateral Head Drop

SID II_s Serial No. 297 Certification No. 7-1

Test Date: 6/9/2016



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.09.2016 08:33:51 233



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 7-2

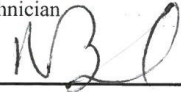
Test Date: 6/9/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.613 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.402 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.509 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.756 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.696 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.808 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-76.3 deg	Yes
Time of Peak	50 - 70 ms	58.0 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	38.8 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	112.3 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.09.2016 14:49:34 750

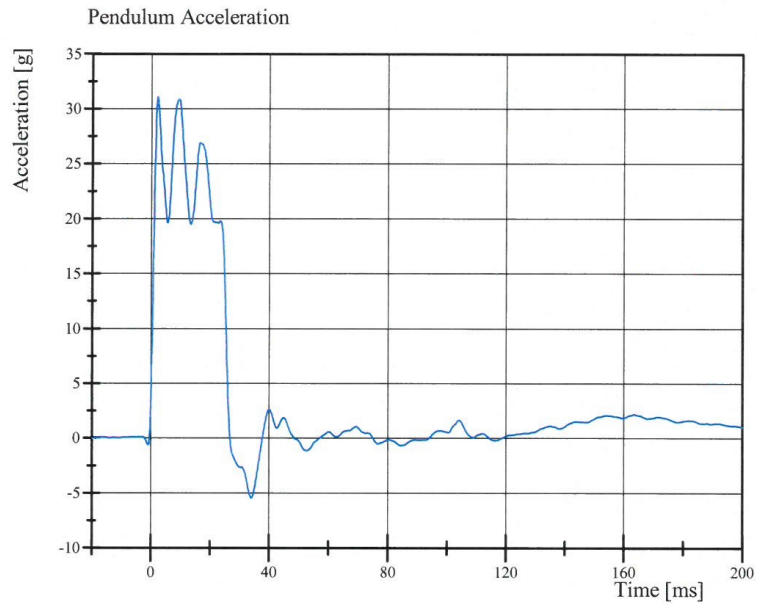


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 7-2

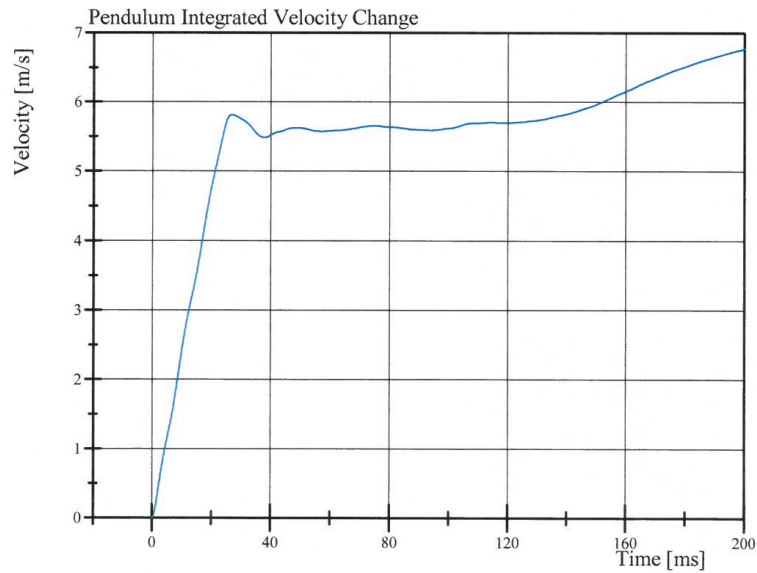
Test Date: 6/9/2016



Filter Class: CFC_180

Max: 31.0 g at 2.2 ms

Min: -5.5 g at 34.2 ms



Filter Class: CFC_180

Max: 6.8 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.09.2016 14:49:40 750

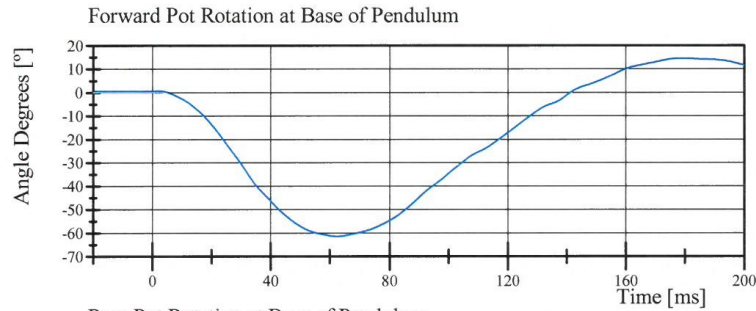


Transportation Research Center Inc.

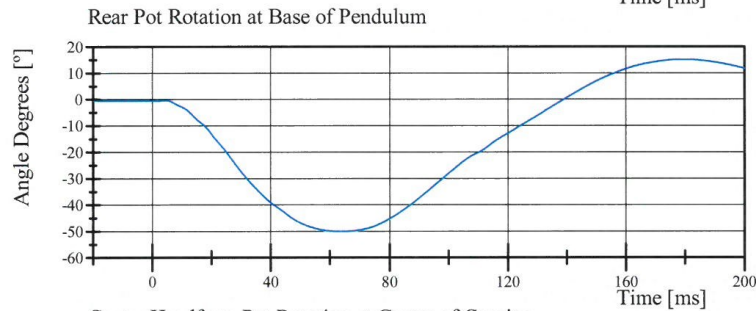
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 7-2

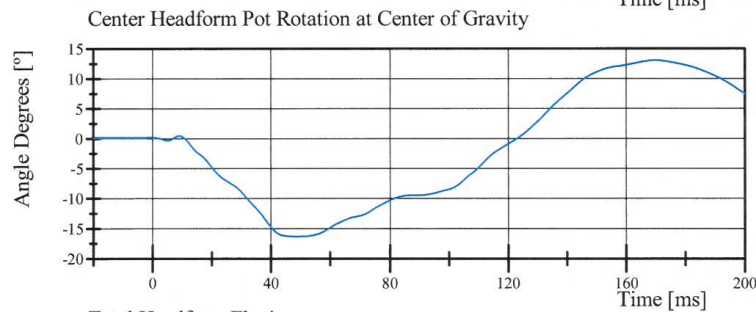
Test Date: 6/9/2016



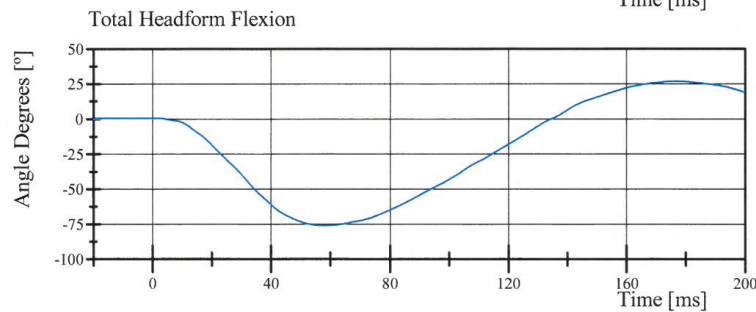
Filter Class: CFC_60
Max: 14.4 ° at 179.0 ms
Min: -61.5 ° at 62.4 ms



Filter Class: CFC_60
Max: 15.2 ° at 179.4 ms
Min: -50.3 ° at 63.6 ms



Filter Class: CFC_60
Max: 13.0 ° at 170.1 ms
Min: -16.4 ° at 48.6 ms



Filter Class: CFC_60
Max: 26.9 ° at 176.8 ms
Min: -76.3 ° at 58.0 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.09.2016 14:49:40 750

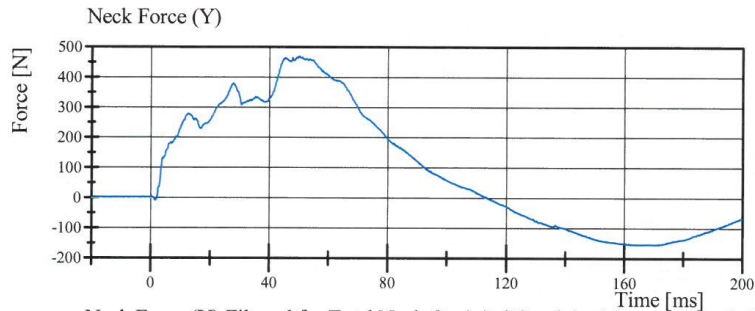


Transportation Research Center Inc.

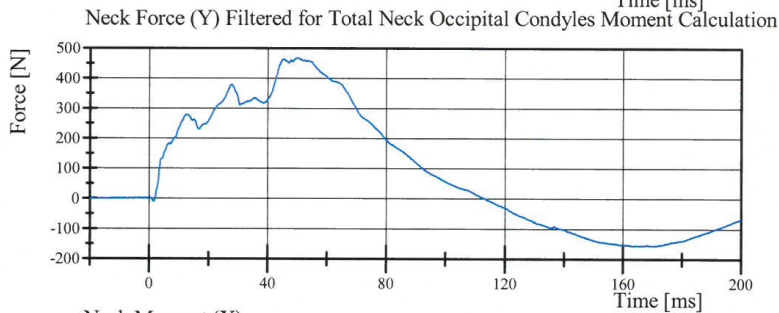
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 7-2

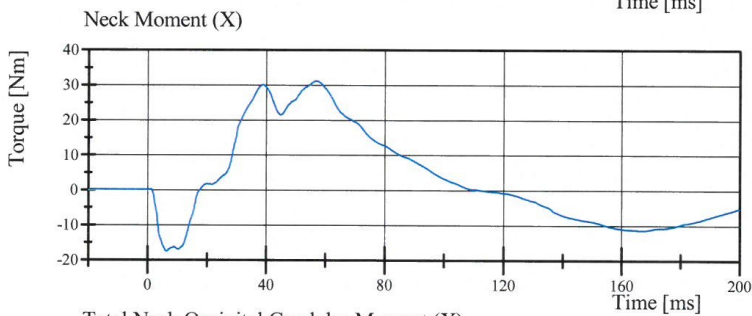
Test Date: 6/9/2016



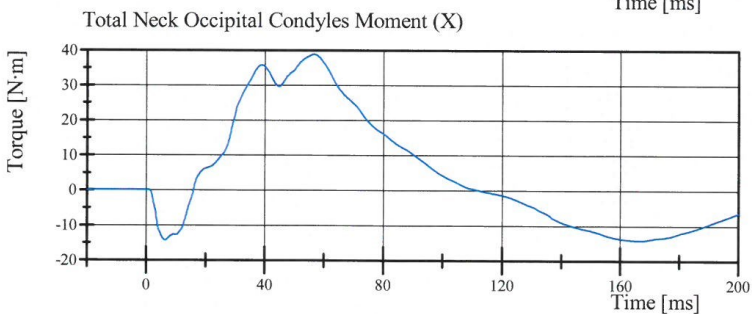
Filter Class: CFC_1000
Max: 468.2 N at 50.1 ms
Min: -155.7 N at 170.5 ms



Filter Class: CFC_600
Max: 467.7 N at 50.1 ms
Min: -155.4 N at 170.5 ms



Filter Class: CFC_600
Max: 31.1 Nm at 56.7 ms
Min: -17.6 Nm at 6.5 ms



Filter Class: Without_(Consta
Max: 38.8 N·m at 56.6 ms
Min: -14.4 N·m at 6.4 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.09.2016 14:49:41 750



Transportation Research Center Inc.

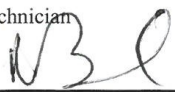
Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 7-1
Test Date: 6/10/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	51 %	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	31.4 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.1 g	Yes

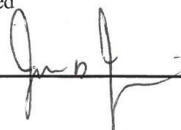
Test meets specifications.

Comments:

Technician



Approved



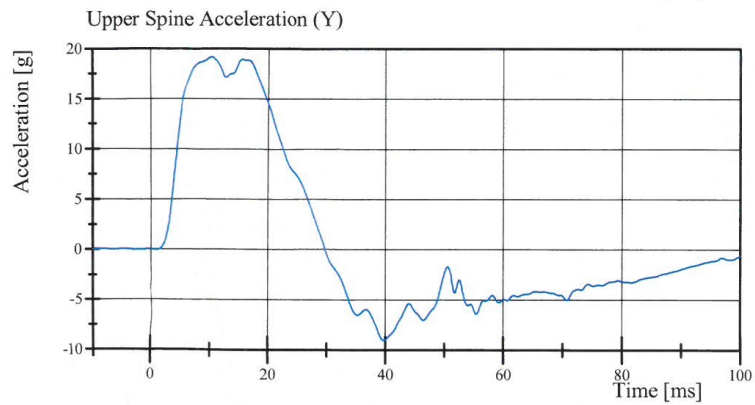
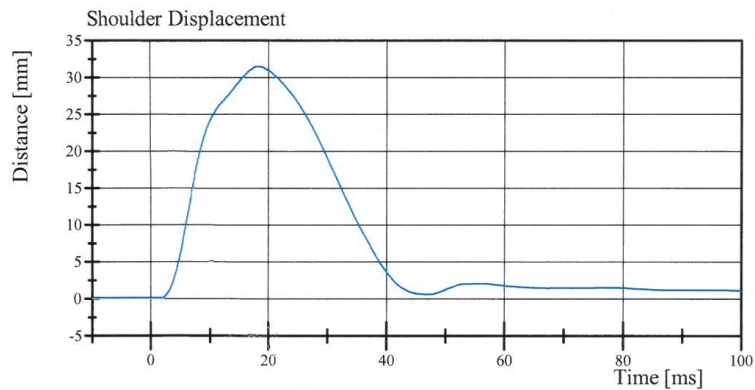
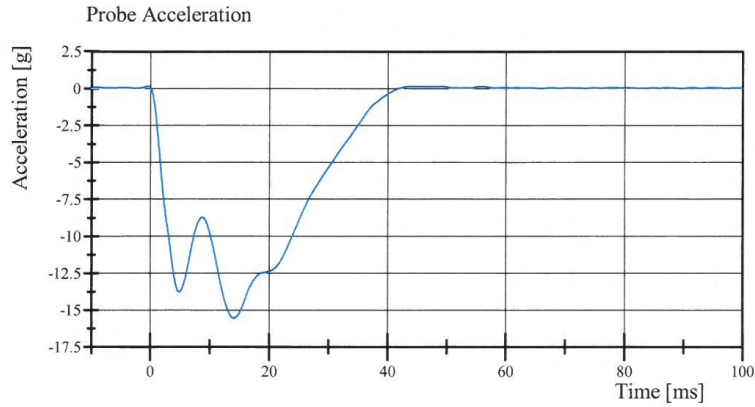
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.10.2016 10:26:09 870



Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 7-1
Test Date: 6/10/2016



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.10.2016 10:26:14 870



Transportation Research Center Inc.

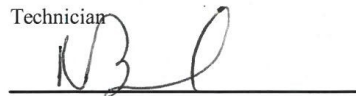
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 7-2
Test Date: 6/10/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.701 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.2 g	Yes
Shoulder Displacement	31 - 40 mm	34.8 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.4 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.3 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	33.8 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	36.1 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	36.0 g	Yes

Test meets specifications.

Comments:

Technician



Approved



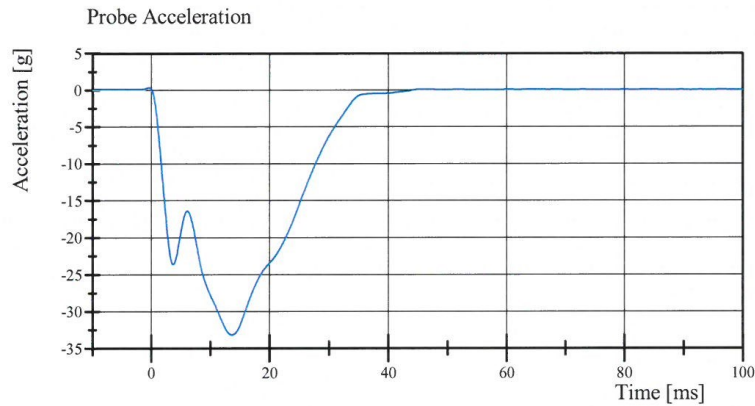
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J2111.

06.10.2016 13:08:35 634

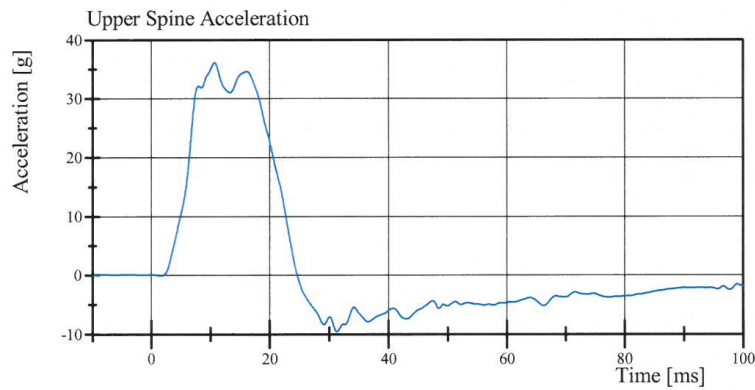


Transportation Research Center Inc.

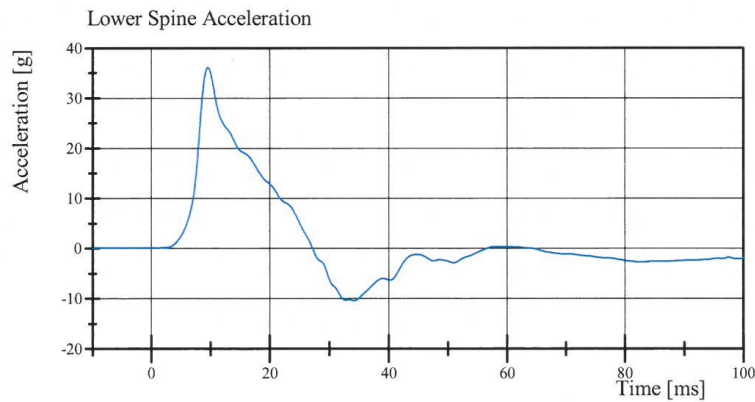
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 7-2
Test Date: 6/10/2016



Filter Class: CFC_180
Max: 0.2 g at -0.4 ms
Min: -33.2 g at 13.6 ms



Filter Class: CFC_180
Max: 36.1 g at 10.7 ms
Min: -9.6 g at 31.4 ms



Filter Class: CFC_180
Max: 36.0 g at 9.6 ms
Min: -10.5 g at 34.2 ms

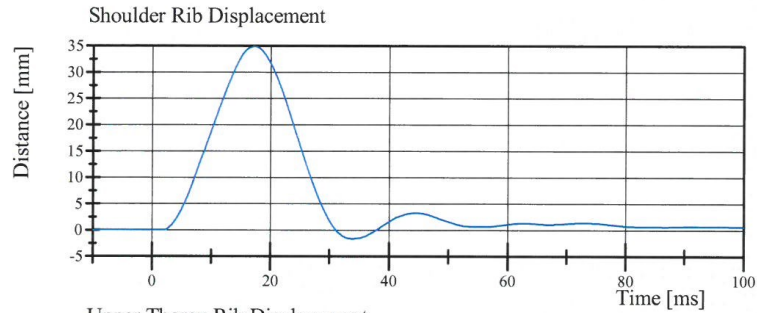
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.10.2016 13:08:44 634

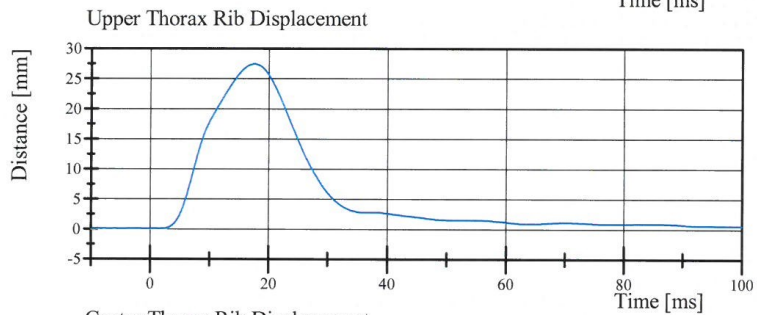


Transportation Research Center Inc.

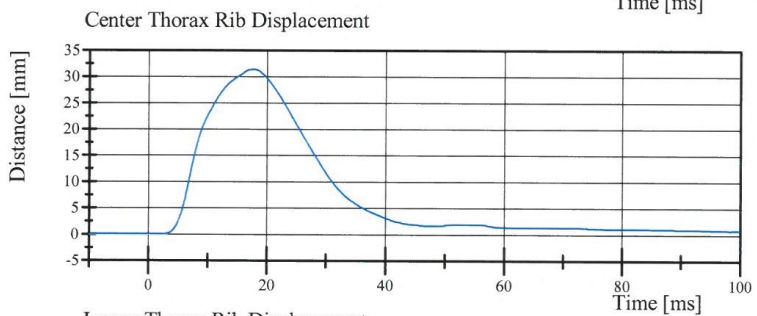
Left Lateral Thorax with Arm
SID II_s Serial No. 297 Certification No. 7-2
Test Date: 6/10/2016



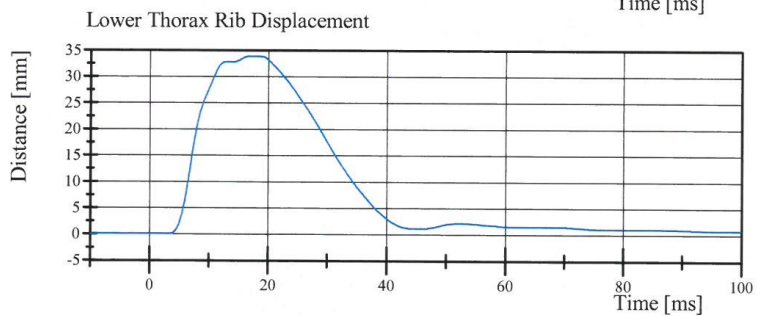
Filter Class: CFC_600
Max: 34.8 mm at 17.2 ms
Min: -1.6 mm at 33.9 ms



Filter Class: CFC_600
Max: 27.4 mm at 17.5 ms
Min: -0.0 mm at -0.2 ms



Filter Class: CFC_600
Max: 31.3 mm at 17.7 ms
Min: -0.0 mm at -5.4 ms



Filter Class: CFC_600
Max: 33.8 mm at 16.8 ms
Min: -0.0 mm at 3.4 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.10.2016 13:08:45 634



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 7-1
Test Date: 6/10/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.347 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.1 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	37.3 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.0 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	37.3 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	15.8 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.4 g	Yes

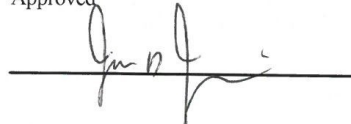
Test meets specifications.

Comments:

Technician



Approved



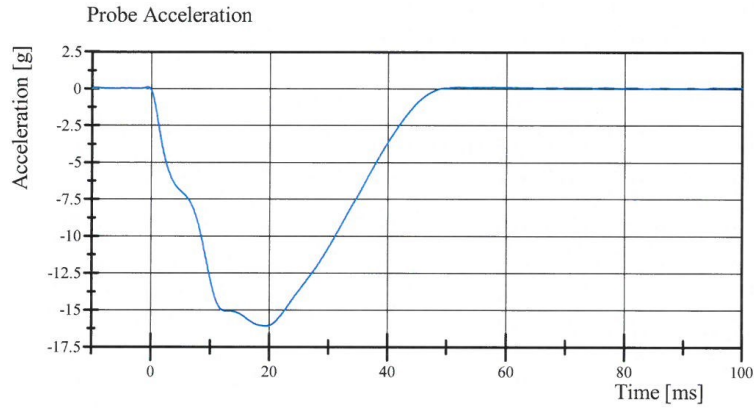
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.10.2016 11:18:57 873

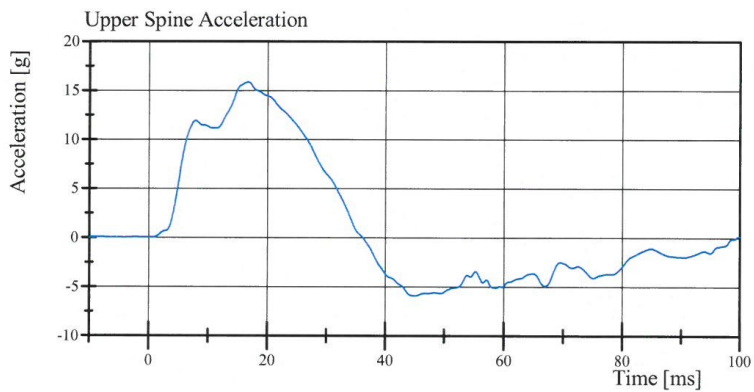


Transportation Research Center Inc.

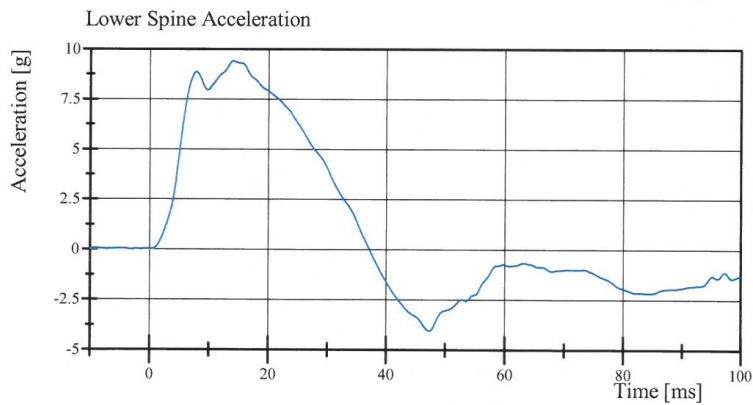
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 7-1
Test Date: 6/10/2016



Filter Class: CFC_180
Max: 0.1 g at 57.8 ms
Min: -16.1 g at 19.4 ms



Filter Class: CFC_180
Max: 15.8 g at 16.6 ms
Min: -5.9 g at 45.0 ms



Filter Class: CFC_180
Max: 9.4 g at 14.1 ms
Min: -4.1 g at 47.4 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

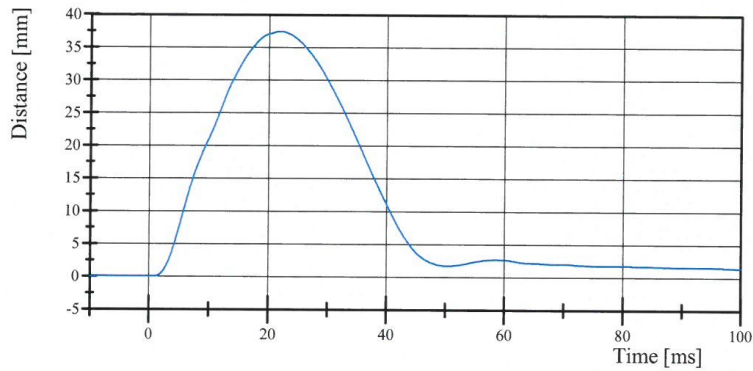
06.10.2016 11:19:05 873



Transportation Research Center Inc.

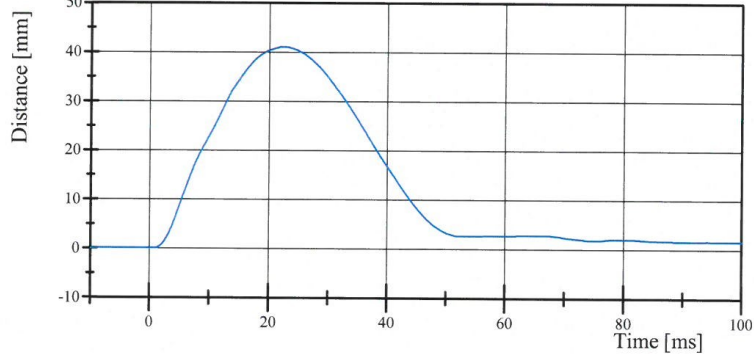
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 7-1
Test Date: 6/10/2016

Upper Thorax Rib Displacement



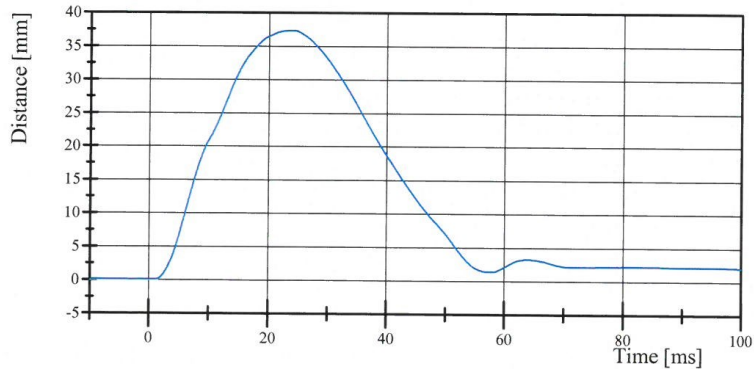
Filter Class: CFC_600
Max: 37.3 mm at 22.1 ms
Min: -0.0 mm at -8.5 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 41.0 mm at 22.4 ms
Min: -0.0 mm at 0.7 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 37.3 mm at 24.2 ms
Min: -0.0 mm at -8.1 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.10.2016 11:19:06 873



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 7-1

Test Date: 6/10/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.40 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.5 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	40.7 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	39.9 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.71 g	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.10.2016 10:38:12 642

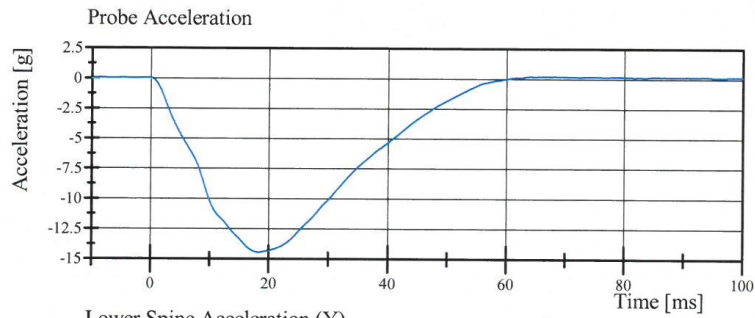


Transportation Research Center Inc.

Left Lateral Abdomen

SID IIa Serial No. 297 Certification No. 7-1

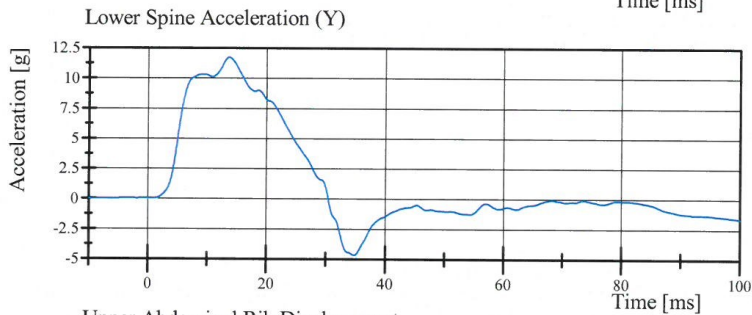
Test Date: 6/10/2016



Filter Class: CFC_180

Max: 0.2 g at 68.2 ms

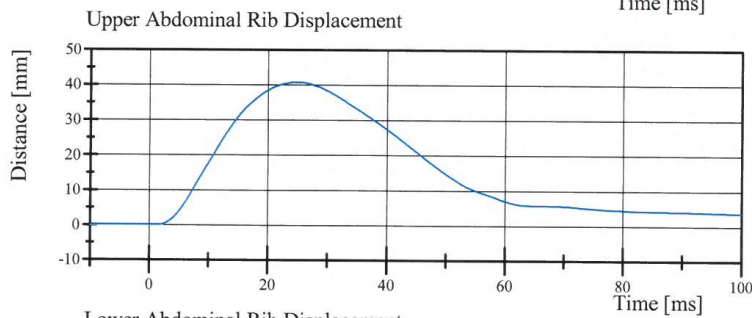
Min: -14.5 g at 18.3 ms



Filter Class: CFC_180

Max: 11.7 g at 13.6 ms

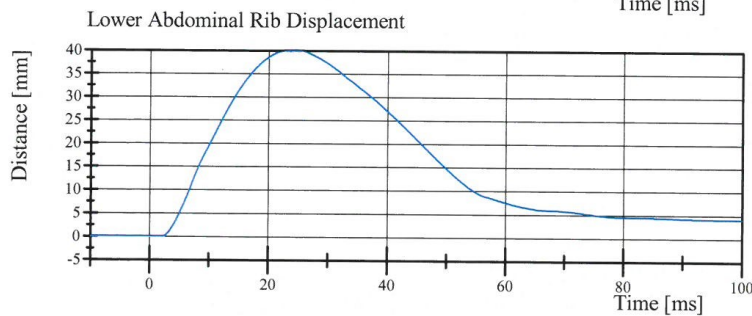
Min: -4.7 g at 34.9 ms



Filter Class: CFC_600

Max: 40.7 mm at 24.9 ms

Min: -0.0 mm at -1.7 ms



Filter Class: CFC_600

Max: 39.9 mm at 23.6 ms

Min: -0.0 mm at 2.3 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.10.2016 10:38:17 642



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 7-1

Test Date: 6/10/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.62 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-44.42 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	39.5 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,132.2 N	Yes

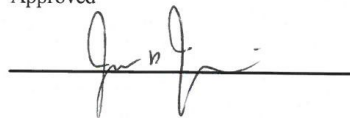
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.10.2016 13:29:47 461

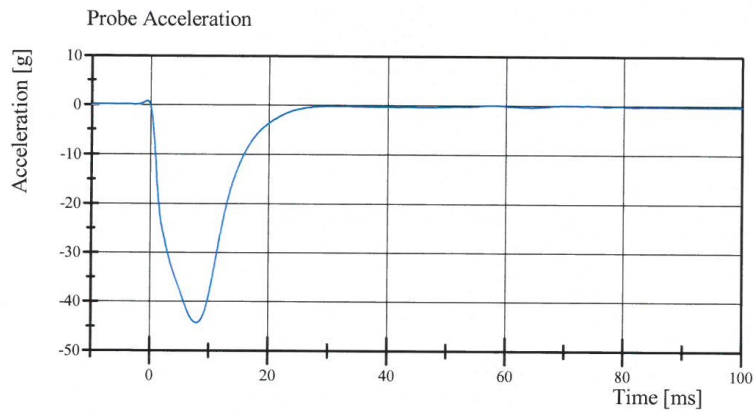


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 7-1

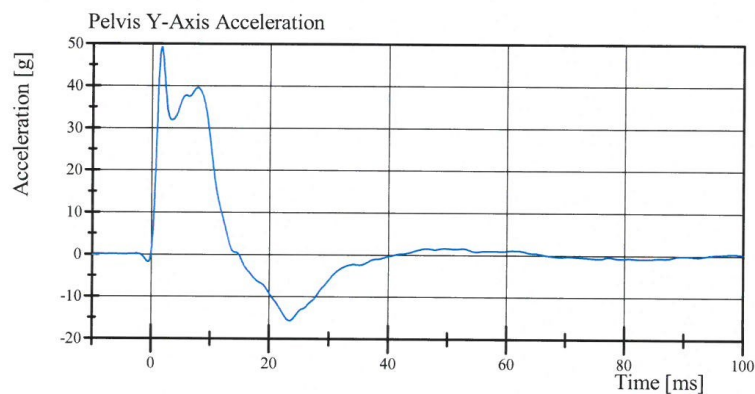
Test Date: 6/10/2016



Filter Class: CFC_180

Max: 0.6 g at -0.6 ms

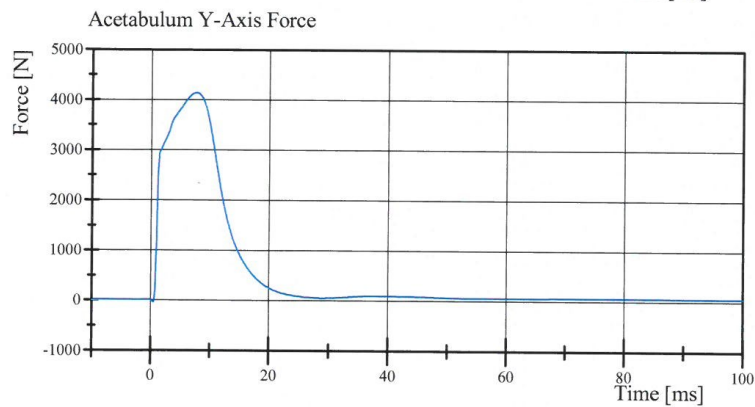
Min: -44.4 g at 7.9 ms



Filter Class: CFC_180

Max: 49.1 g at 1.7 ms

Min: -15.8 g at 23.4 ms



Filter Class: CFC_600

Max: 4,132.2 N at 7.6 ms

Min: -43.7 N at 0.5 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.10.2016 13:29:52 461



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 7-1

Test Date: 6/10/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.35 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-39.7 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	30.3 g	Yes
Iliac Force	4,100 - 5,100 N	4,602.8 N	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.10.2016 10:08:00 650

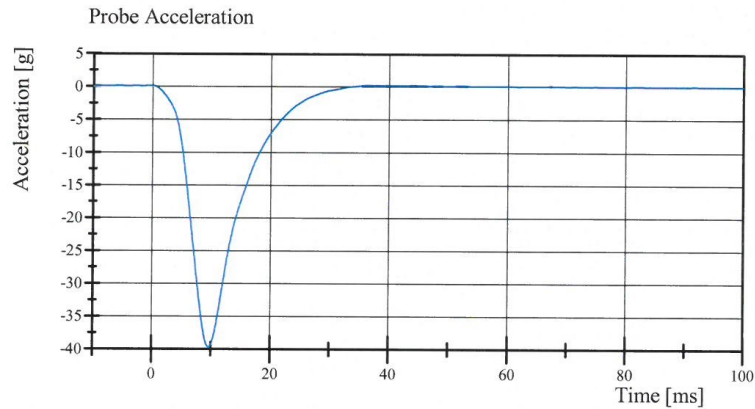


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 7-1

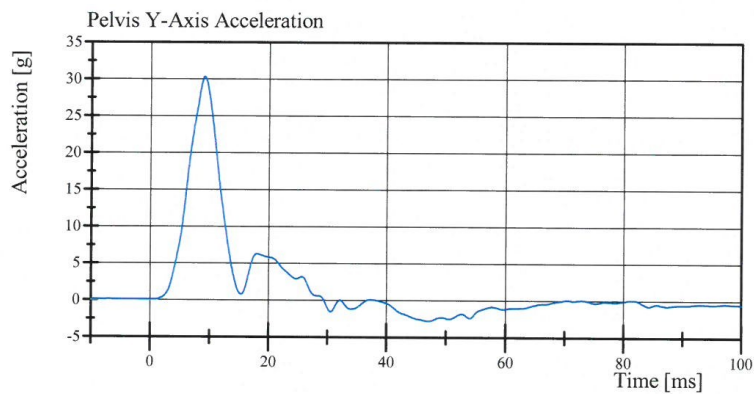
Test Date: 6/10/2016



Filter Class: CFC_180

Max: 0.1 g at 44.1 ms

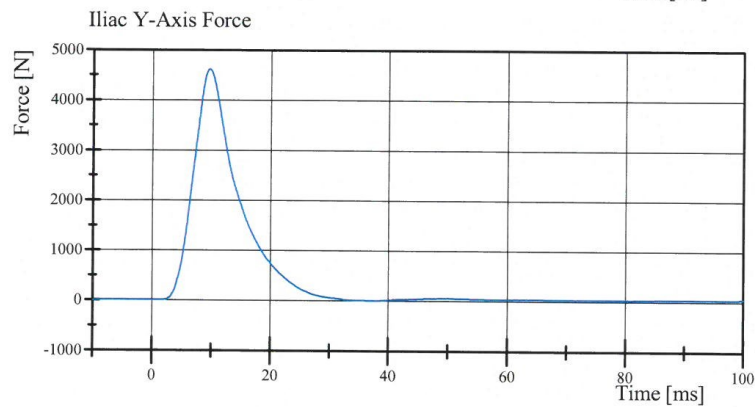
Min: -39.7 g at 9.6 ms



Filter Class: CFC_180

Max: 30.3 g at 9.0 ms

Min: -2.8 g at 47.0 ms



Filter Class: CFC_600

Max: 4,602.8 N at 9.6 ms

Min: -0.8 N at 0.6 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.10.2016 10:08:10 650

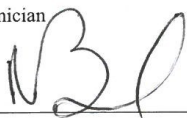


Post-Test Calibration Sheets
Driver S/N 297

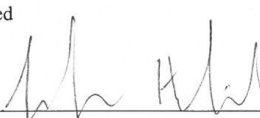
Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 297 Calibration No.08

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	780	Yes
B	Shoulder Pivot Height	437.0 - 453.0	444	Yes
C	H-Point Height	79.0 - 89.0	85	Yes
D	H-Point from Seat Back	141.0 - 151.0	145	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	101	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	525	Yes
L	Popliteal Height	343.0 - 369.0	355	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	401	Yes
N	Buttock Popliteal Length	416.0 - 442.0	428	Yes
O	Chest Depth without Jacket	195.0 - 211.0	201	Yes
P	Foot Length (right)	216.0 - 232.0	220	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	318	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to seat Back	478.0 - 493.0	484	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	871	Yes
Z	Waist Circumference	761.0 - 791.0	781	Yes

Technician



Approved



Revised 9/29/2005



Transportation Research Center Inc.

Left Lateral Head Drop
SID IIs Serial No. 297 Certification No. 8-1
Test Date: 6/17/2016

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	128.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-1.6 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

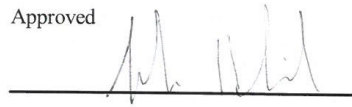
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 09:45:18 228

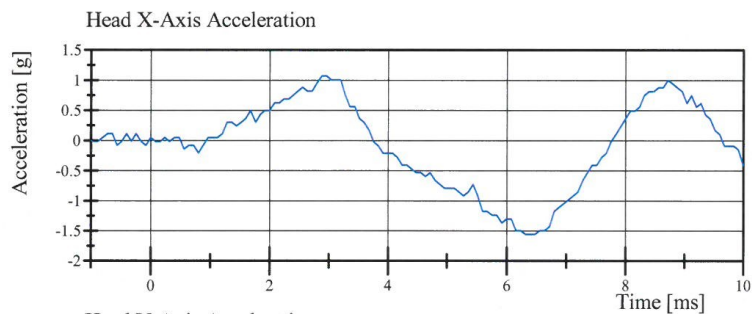


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. 297 Certification No. 8-1

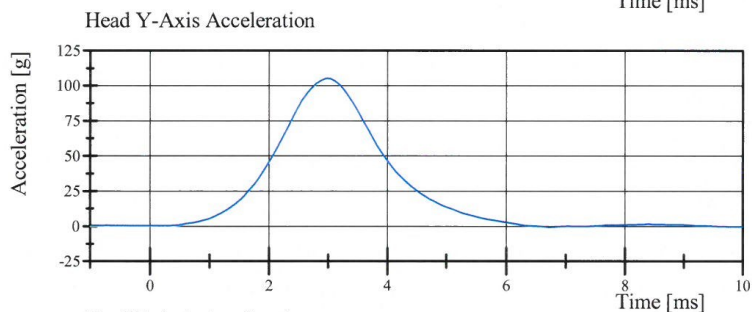
Test Date: 6/17/2016



Filter Class: CFC_1000

Max: 1.1 g at 2.9 ms

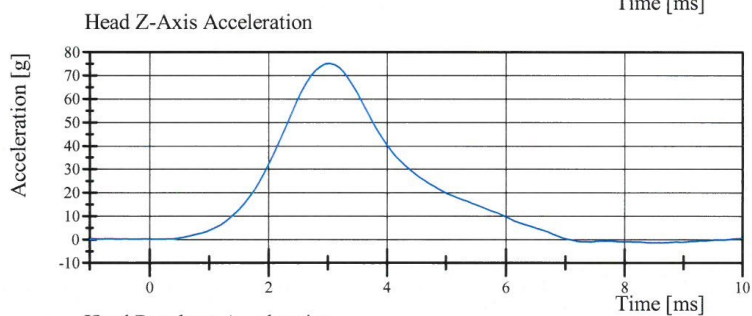
Min: -1.6 g at 6.3 ms



Filter Class: CFC_1000

Max: 104.9 g at 3.0 ms

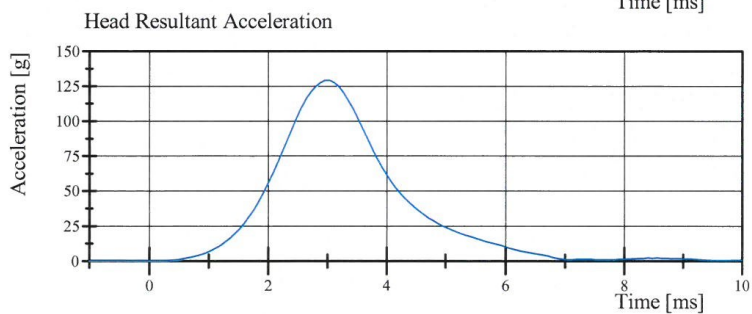
Min: -0.8 g at 6.7 ms



Filter Class: CFC_1000

Max: 75.1 g at 3.0 ms

Min: -1.5 g at 8.6 ms



Filter Class: CFC_1000

Max: 128.9 g at 3.0 ms

Min: 0.0 g at -0.5 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 09:45:26 228



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 8-2

Test Date: 6/20/2016

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	-5.613 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.674 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.906 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.240 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.777 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.781 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-74.7 deg	Yes
Time of Peak	50 - 70 ms	60.2 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	39.1 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	114.6 ms	Yes

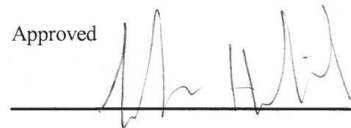
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.20.2016 07:04:26 750

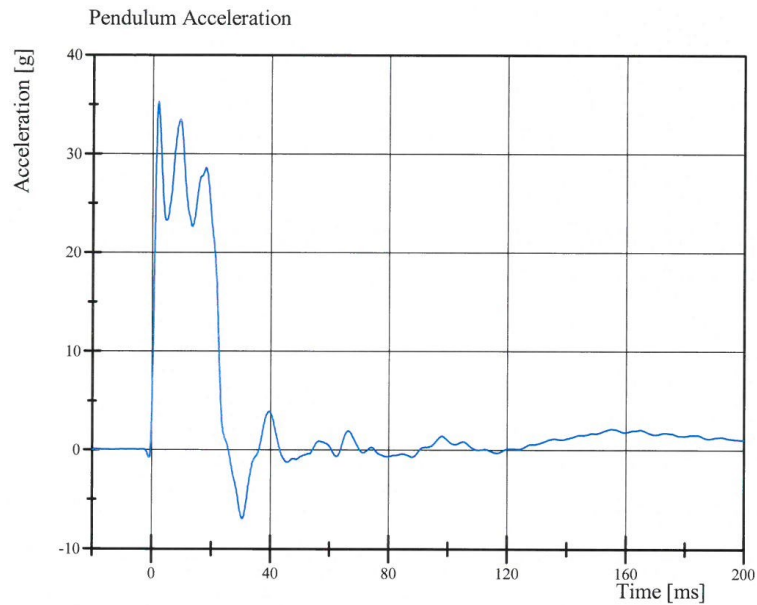


Transportation Research Center Inc.

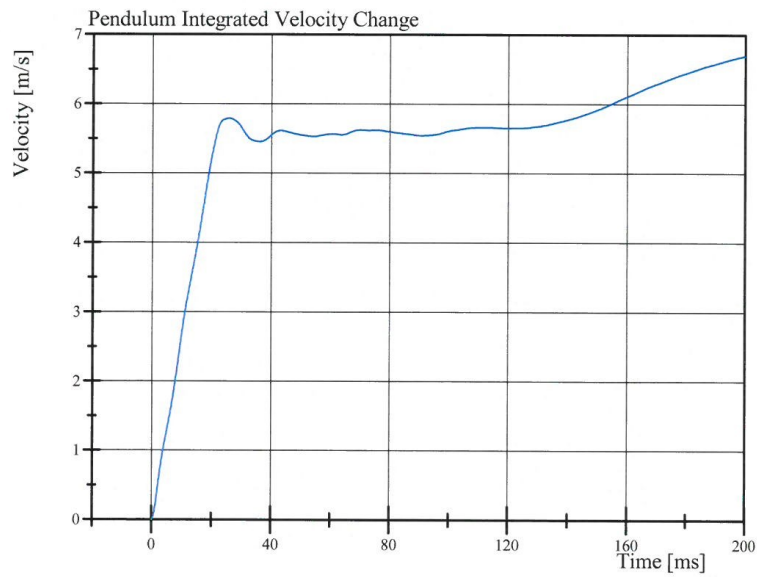
Left Lateral Neck

SID IIs Serial No. 297 Certification No. 8-2

Test Date: 6/20/2016



Filter Class: CFC_180
Max: 35.2 g at 2.0 ms
Min: -7.0 g at 30.6 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: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.20.2016 07:04:31 750

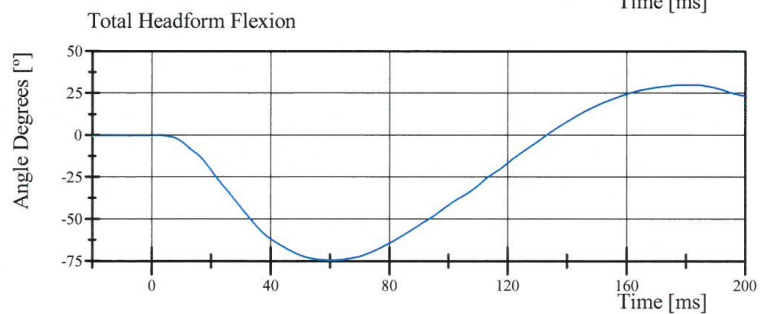
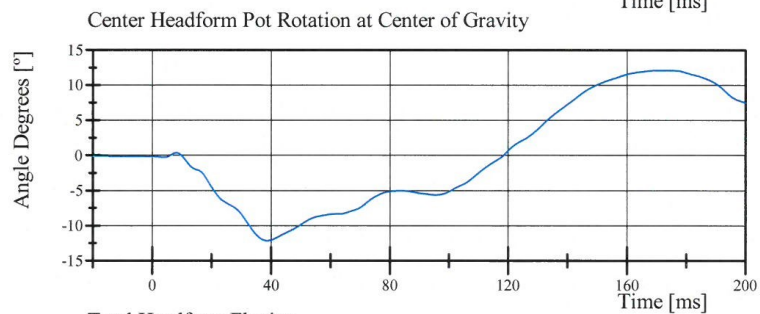
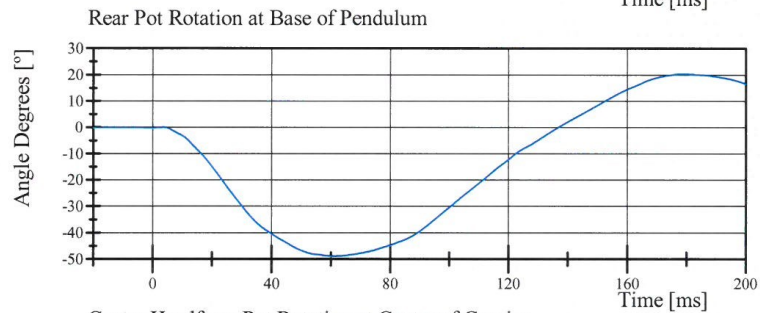
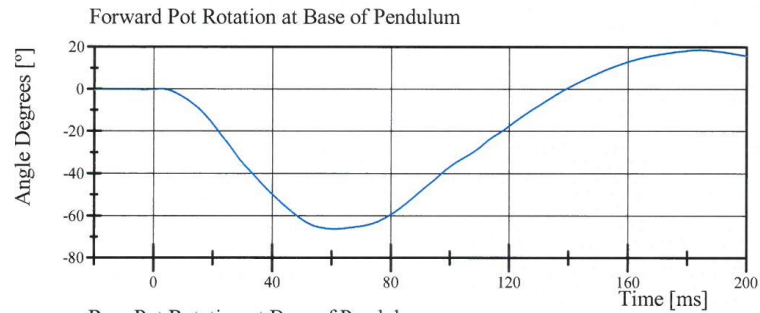


Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 297 Certification No. 8-2

Test Date: 6/20/2016



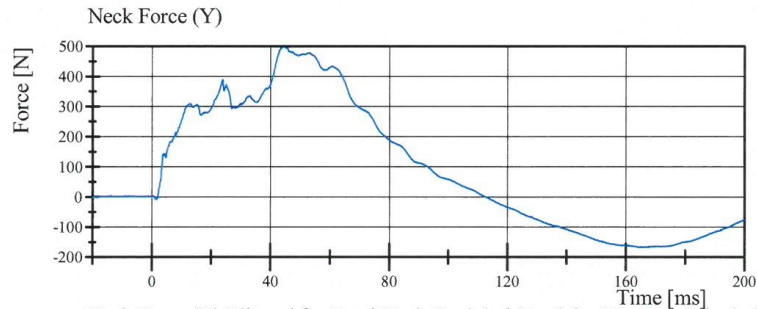
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.20.2016 07:04:32 750

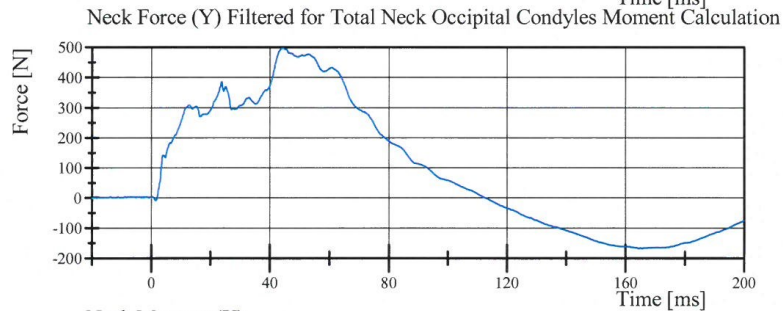


Transportation Research Center Inc.

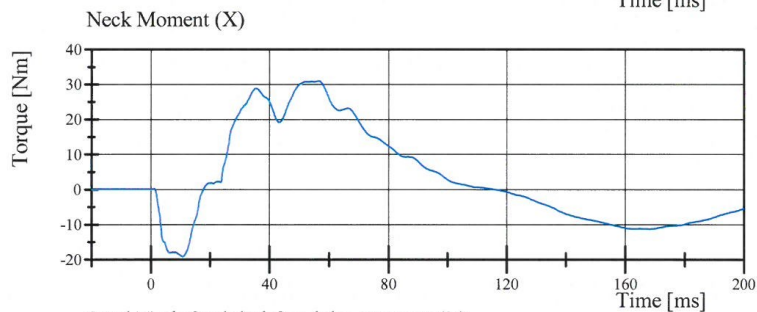
Left Lateral Neck
SID IIs Serial No. 297 Certification No. 8-2
Test Date: 6/20/2016



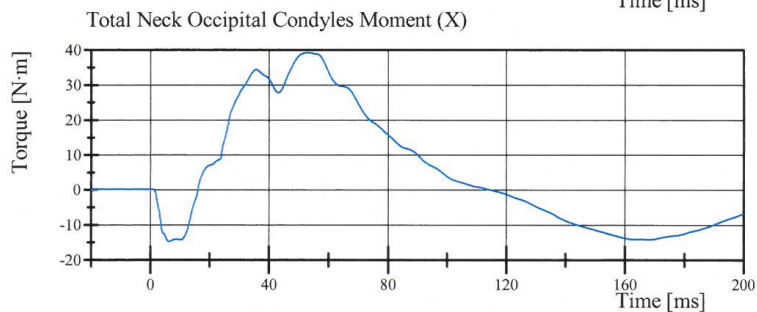
Filter Class: CFC_1000
Max: 496.8 N at 44.6 ms
Min: -168.0 N at 165.8 ms



Filter Class: CFC_600
Max: 496.4 N at 44.3 ms
Min: -167.4 N at 164.6 ms



Filter Class: CFC_600
Max: 30.9 Nm at 56.6 ms
Min: -19.2 Nm at 10.8 ms



Filter Class: Without_(Consta
Max: 39.1 N·m at 52.8 ms
Min: -14.9 N·m at 6.4 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.20.2016 07:04:33 750



Transportation Research Center Inc.

Left Lateral Shoulder
SID IIs Serial No. 297 Certification No. 8-1
Test Date: 6/17/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.34 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.3 g	Yes
Shoulder Displacement	28 - 37 mm	30.5 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.0 g	Yes

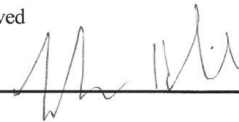
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 11:14:59 826

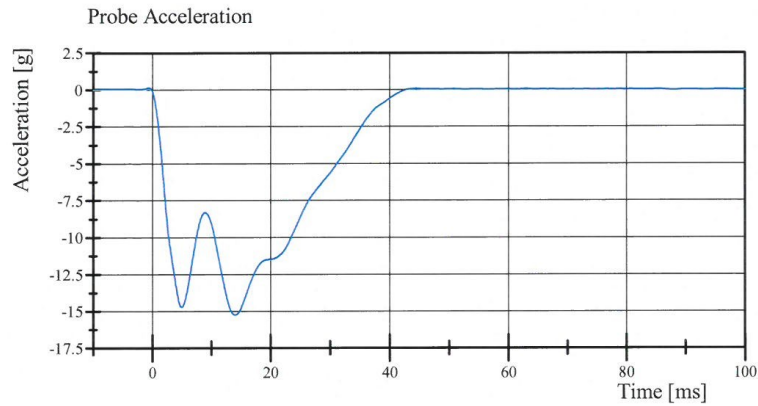


Transportation Research Center Inc.

Left Lateral Shoulder

SID IIS Serial No. 297 Certification No. 8-1

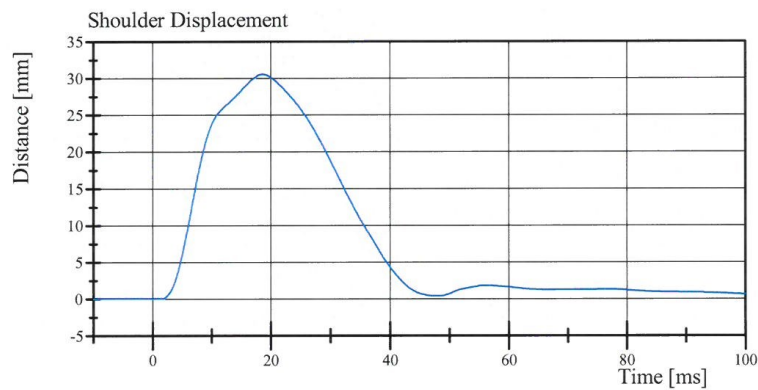
Test Date: 6/17/2016



Filter Class: CFC_180

Max: 0.1 g at -0.6 ms

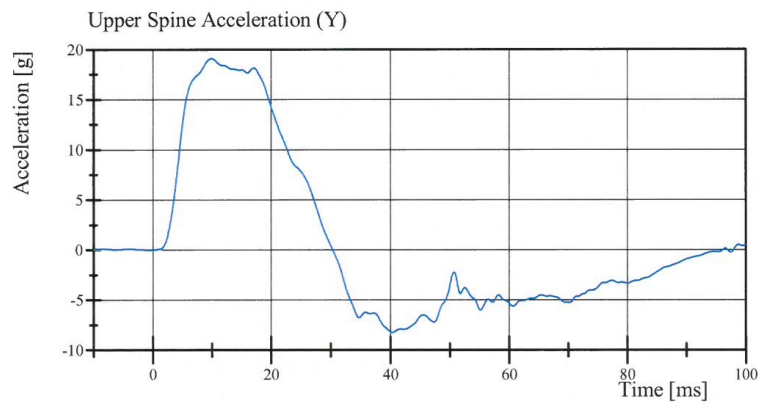
Min: -15.3 g at 14.1 ms



Filter Class: CFC_600

Max: 30.5 mm at 18.6 ms

Min: -0.0 mm at 1.7 ms



Filter Class: CFC_180

Max: 19.0 g at 9.9 ms

Min: -8.3 g at 40.3 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 11:15:09 826



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 8-1
Test Date: 6/17/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.711 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.3 g	Yes
Shoulder Displacement	31 - 40 mm	33.4 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	26.4 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.7 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	34.6 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	36.2 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.0 g	Yes

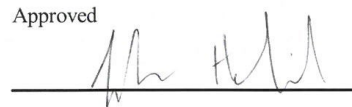
Test meets specifications.

Comments:

Technician



Approved



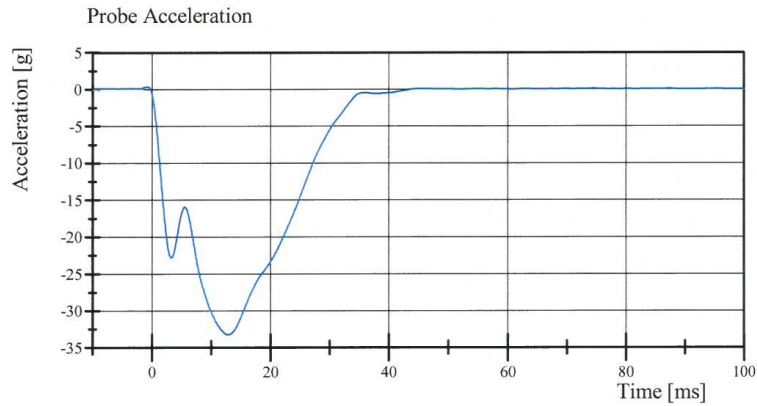
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 13:18:56 612

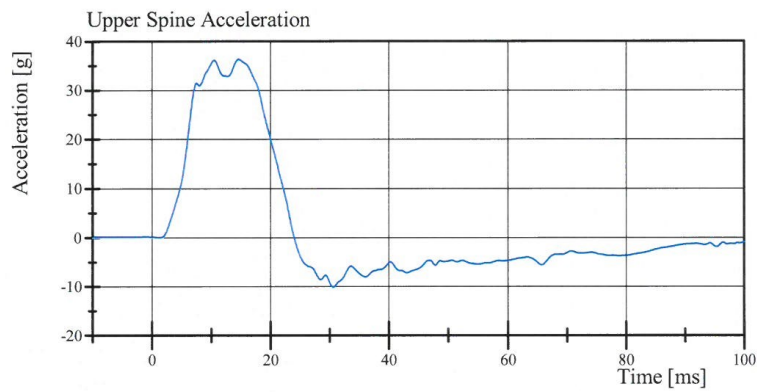


Transportation Research Center Inc.

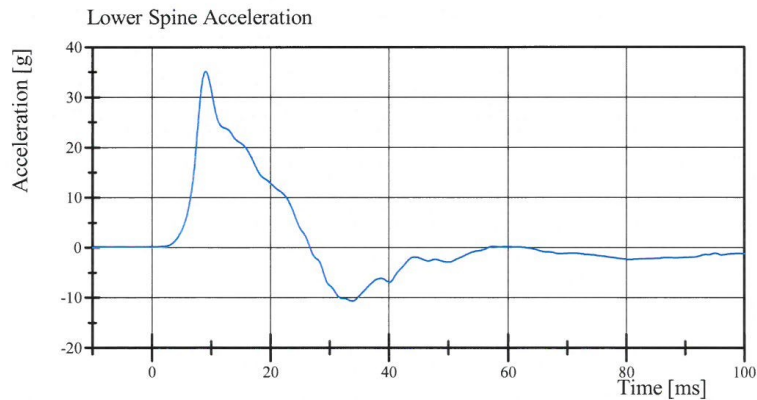
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 8-1
Test Date: 6/17/2016



Filter Class: CFC_180
Max: 0.3 g at -0.8 ms
Min: -33.3 g at 12.9 ms



Filter Class: CFC_180
Max: 36.2 g at 14.6 ms
Min: -10.2 g at 30.6 ms



Filter Class: CFC_180
Max: 35.0 g at 9.0 ms
Min: -10.8 g at 33.8 ms

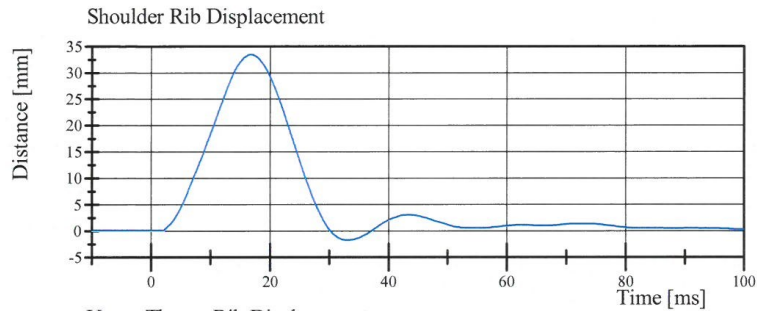
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 13:19:10 612

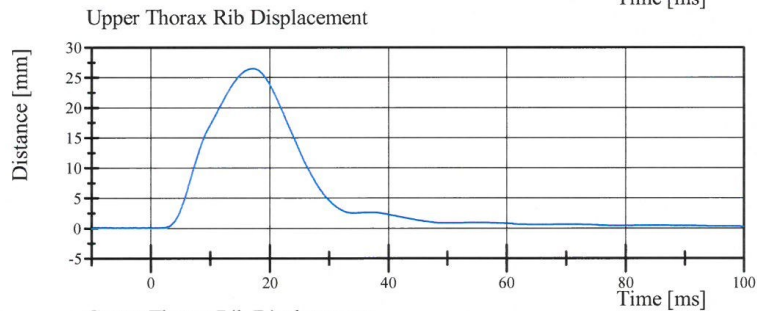


Transportation Research Center Inc.

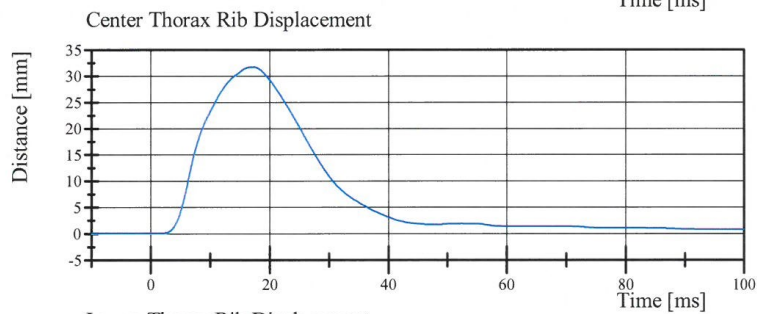
Left Lateral Thorax with Arm
SID IIs Serial No. 297 Certification No. 8-1
Test Date: 6/17/2016



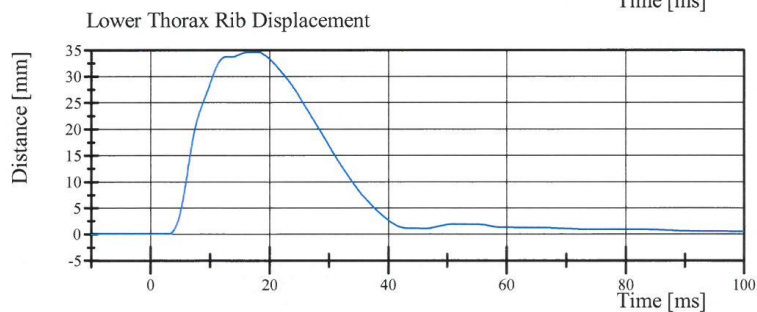
Filter Class: CFC_600
Max: 33.4 mm at 16.7 ms
Min: -1.8 mm at 33.0 ms



Filter Class: CFC_600
Max: 26.4 mm at 17.2 ms
Min: -0.0 mm at -5.1 ms



Filter Class: CFC_600
Max: 31.7 mm at 17.1 ms
Min: -0.0 mm at -9.4 ms



Filter Class: CFC_600
Max: 34.6 mm at 16.5 ms
Min: -0.0 mm at 3.1 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 13:19:12 612



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 8-1
Test Date: 6/17/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.350 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.3 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	34.7 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.9 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	39.3 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	15.6 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	10.2 g	Yes

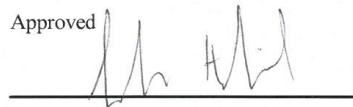
Test meets specifications.

Comments:

Technician



Approved



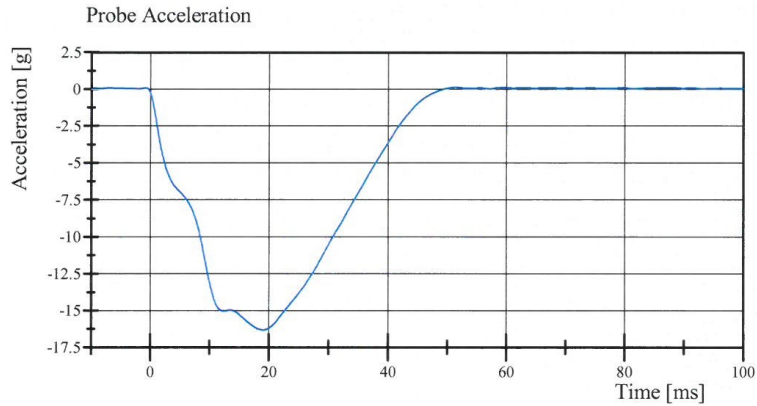
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 11:51:05 839

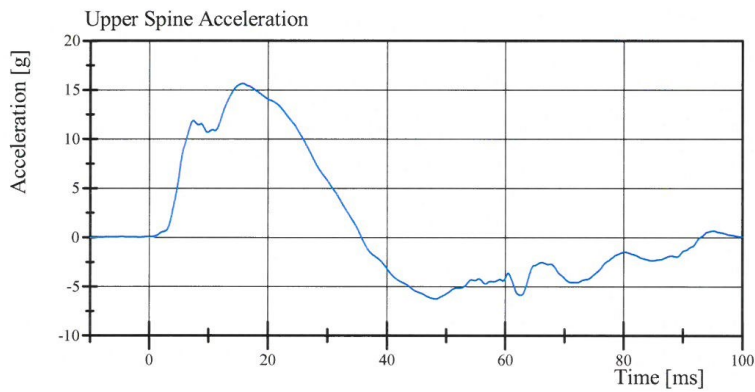


Transportation Research Center Inc.

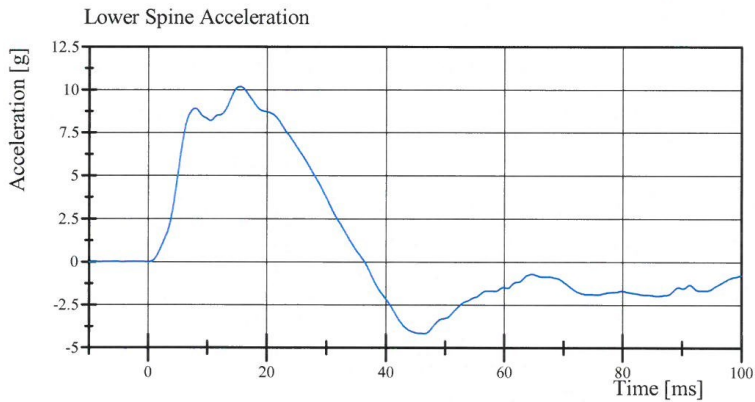
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 8-1
Test Date: 6/17/2016



Filter Class: CFC_180
Max: 0.1 g at 51.4 ms
Min: -16.3 g at 19.1 ms



Filter Class: CFC_180
Max: 15.6 g at 15.8 ms
Min: -6.3 g at 48.2 ms



Filter Class: CFC_180
Max: 10.2 g at 15.5 ms
Min: -4.2 g at 46.6 ms

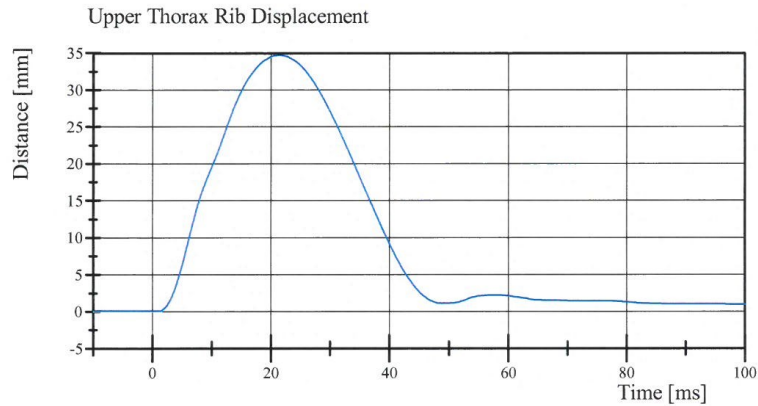
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 11:51:14 839

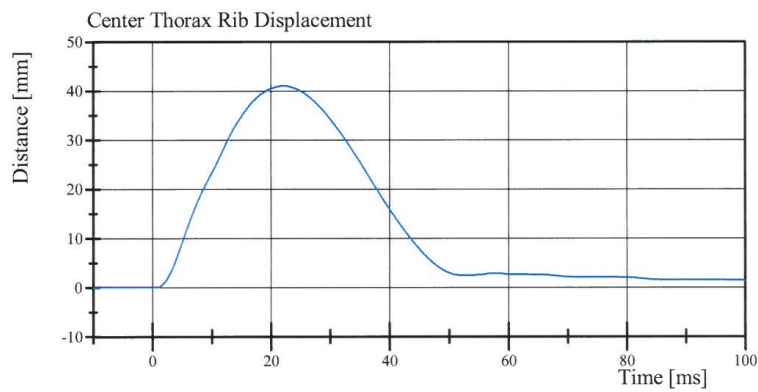


Transportation Research Center Inc.

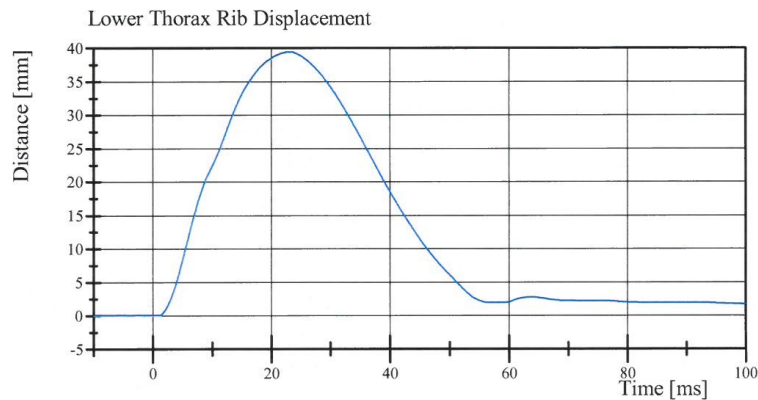
Left Lateral Thorax without Arm
SID IIs Serial No. 297 Certification No. 8-1
Test Date: 6/17/2016



Filter Class: CFC_600
Max: 34.7 mm at 21.4 ms
Min: -0.0 mm at -10.0 ms



Filter Class: CFC_600
Max: 40.9 mm at 22.2 ms
Min: -0.0 mm at -2.2 ms



Filter Class: CFC_600
Max: 39.3 mm at 23.4 ms
Min: -0.0 mm at 1.0 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 11:51:16 839



Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 8-1

Test Date: 6/17/2016

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	4.40 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.4 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	42.6 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	37.2 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.40 g	Yes

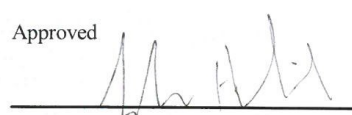
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 11:33:10 616

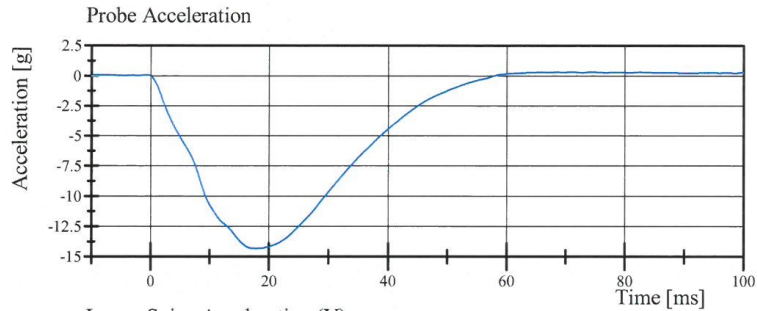


Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 297 Certification No. 8-1

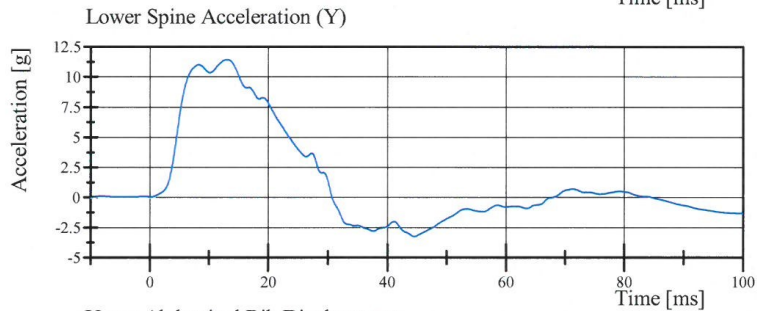
Test Date: 6/17/2016



Filter Class: CFC_180

Max: 0.3 g at 71.0 ms

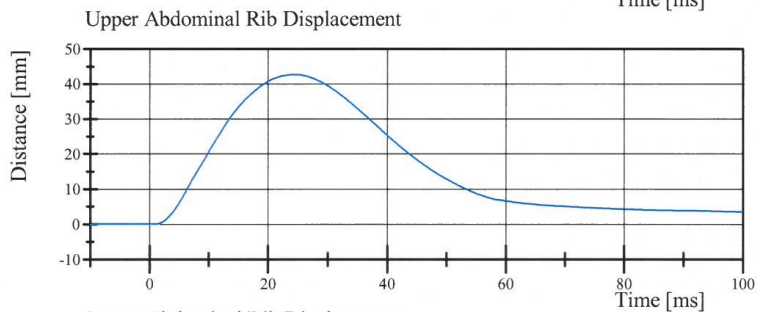
Min: -14.4 g at 17.8 ms



Filter Class: CFC_180

Max: 11.4 g at 13.0 ms

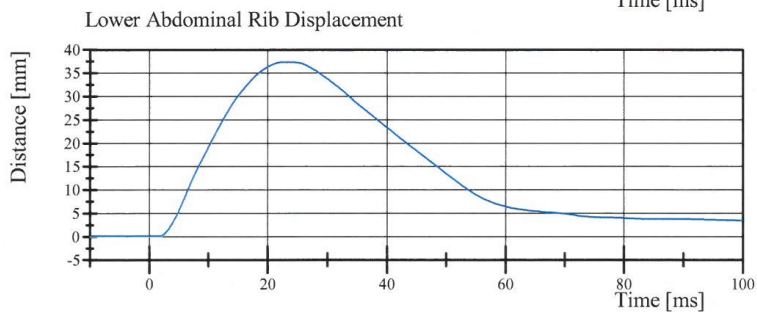
Min: -3.3 g at 44.6 ms



Filter Class: CFC_600

Max: 42.6 mm at 24.5 ms

Min: -0.0 mm at -2.6 ms



Filter Class: CFC_600

Max: 37.2 mm at 22.7 ms

Min: -0.0 mm at 1.8 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 11:33:20 616



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 8-1

Test Date: 6/17/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.66 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-45.03 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	39.1 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,147.9 N	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 13:45:55 435

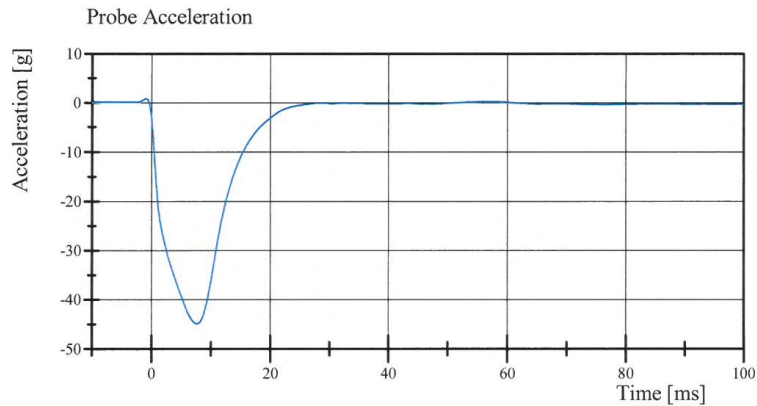


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 297 Certification No. 8-1

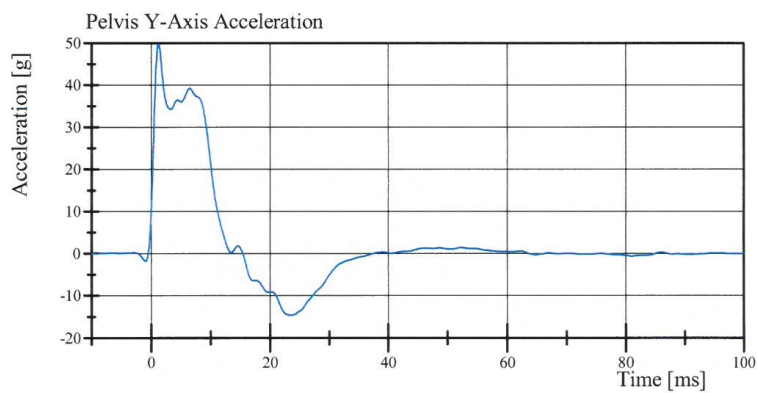
Test Date: 6/17/2016



Filter Class: CFC_180

Max: 0.6 g at -0.9 ms

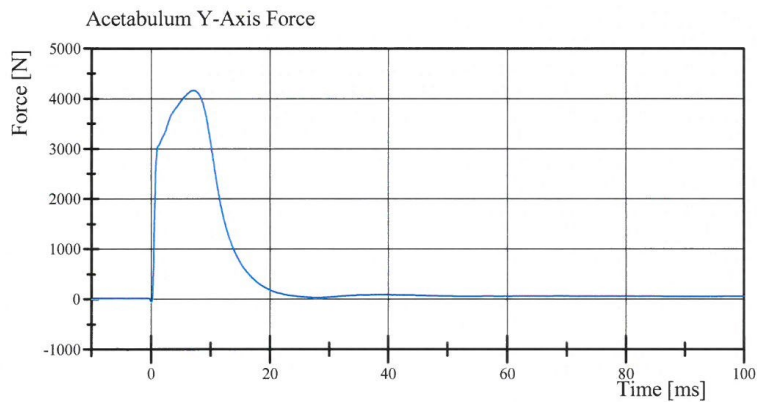
Min: -45.0 g at 7.7 ms



Filter Class: CFC_180

Max: 49.8 g at 1.3 ms

Min: -14.7 g at 23.6 ms



Filter Class: CFC_600

Max: 4,147.9 N at 7.2 ms

Min: -66.8 N at 0.1 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 13:46:05 435



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 8-3

Test Date: 6/17/2016

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.38 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-39.5 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	30.6 g	Yes
Iliac Force	4,100 - 5,100 N	4,617.3 N	Yes

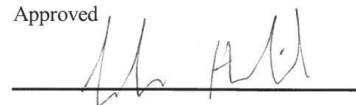
Test meets specifications.

Comments:

Technician



Approved



Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 17:57:35 638

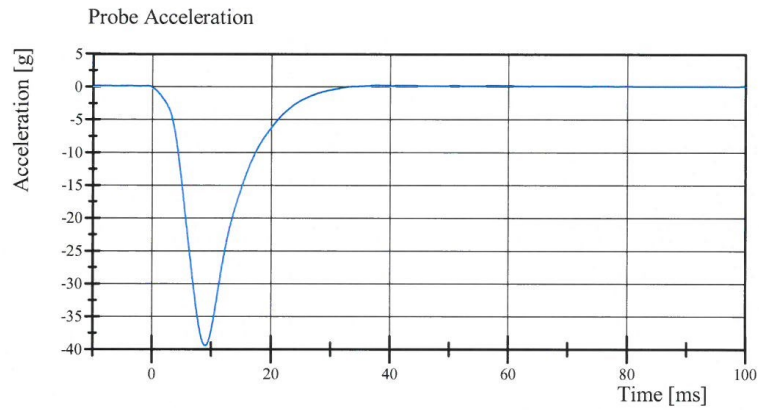


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. 297 Certification No. 8-3

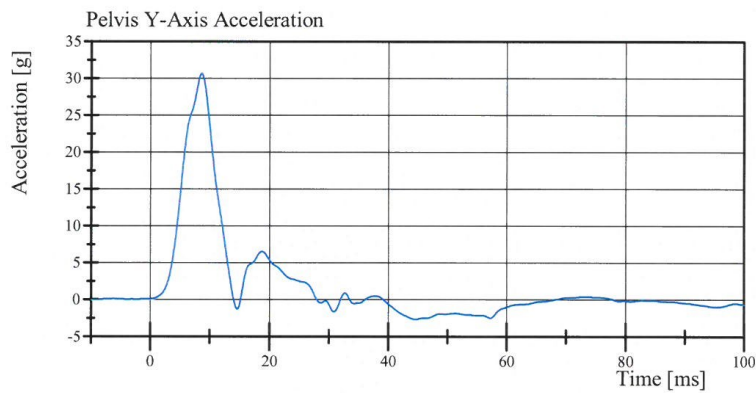
Test Date: 6/17/2016



Filter Class: CFC_180

Max: 0.1 g at 37.8 ms

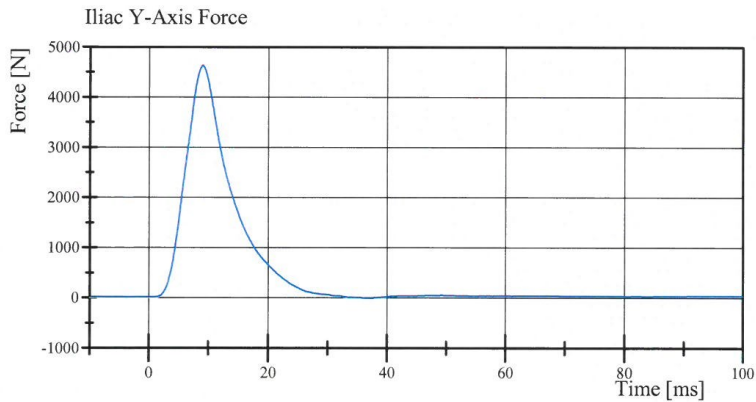
Min: -39.5 g at 9.0 ms



Filter Class: CFC_180

Max: 30.6 g at 8.6 ms

Min: -2.7 g at 44.6 ms



Filter Class: CFC_600

Max: 4,617.3 N at 9.0 ms

Min: -11.8 N at 36.8 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

06.17.2016 17:57:43 638



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	J32214	Endevco	26-Mar-2016
			Y	J27040	Endevco	26-Mar-2016
			Z	AGAC4	Endevco	26-Mar-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	151	Servo	26-Mar-2016
Lower Spine Accelerometers (T12)			X	P64150	Endevco	26-Mar-2016
			Y	P64142	Endevco	26-Mar-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)				12777	FTSS	16-Jul-2007
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	P91184	Endevco	30-Mar-2016
Vehicle Center of Gravity	Y	P91185	Endevco	30-Mar-2016
Vehicle Center of Gravity	Z	P91966	Endevco	30-Mar-2016
Left Floor Sill	Y	P91171	Endevco	10-May-2016
A-Pillar Sill	Y	P79651	Endevco	10-May-2016
A-Pillar Low	Y	P76405	Endevco	9-Jun-2016
A-Pillar Mid	Y	P54286	Endevco	30-Mar-2016
B-Pillar Sill	Y	P91181	Endevco	10-May-2016
B-Pillar Low	Y	P91480	Endevco	10-May-2016
B-Pillar Mid	Y	P91949	Endevco	10-May-2016
Driver Seat	Y	P89124	Endevco	24-Mar-2016
Engine Top	X	P91200	Endevco	11-Apr-2016
Engine Top	Y	P87164	Endevco	28-Mar-2016
Firewall	Y	P88004	Endevco	14-Jan-2016
Right Roof	Y	P91473	Endevco	3-May-2016
Right Floor Sill	Y	P92001	Endevco	10-May-2016
Rear Floor Pan	X	P41055	Endevco	23-May-2016
Rear Floor Pan	Y	P34087	Endevco	10-May-2016

TABLE 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	88-FX	Denton	29-Apr-2016
Load Cell 2	77-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	92-FX	Denton	29-Apr-2016
Load Cell 6	84-FX	Denton	29-Apr-2016
Load Cell 7	97-FX	Denton	29-Apr-2016
Load Cell 8	87-FX	Denton	29-Apr-2016