

FINAL REPORT NUMBER: SPNCAP-TRC-14-009

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

**Nissan Motor Co., LTD.
2014 Nissan Rogue SUV
NHTSA NUMBER: M20145207**

**PREPARED BY:
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Report Date: April 8, 2014

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
Mail Code: NVS-111
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Room W43-410
Washington, D.C. 20590**

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Approval Date: April 8, 2014

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

FINAL REPORT ACCEPTANCE BY OCWS:

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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 2014 Nissan Rogue SUV, 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 February 19, 2014. The impact velocity was 32.72 km/h, and the ambient temperature at the struck (left) side of the target vehicle at the time of impact was 21° C. The test vehicle's post-test maximum crush was 373 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>547</td></tr> <tr> <td>Resultant Lower Spine Acceleration:</td><td>g's</td><td>82</td><td>38.4</td></tr> <tr> <td>Total Pelvic Force: (sum of acetabular and iliac forces)</td><td>N</td><td>5525</td><td>3485.8</td></tr> <tr> <td>Maximum Thoracic Rib Deflection</td><td>mm</td><td>38</td><td>28.1</td></tr> <tr> <td>Maximum Abdomen Rib Deflection</td><td>mm</td><td>45</td><td>16.7</td></tr> </tbody> </table> The door struck by the pole 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	547	Resultant Lower Spine Acceleration:	g's	82	38.4	Total Pelvic Force: (sum of acetabular and iliac forces)	N	5525	3485.8	Maximum Thoracic Rib Deflection	mm	38	28.1	Maximum Abdomen Rib Deflection	mm	45	16.7
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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 MY14 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00125. The purpose of this test is to generate comparative side impact performance in a 2014 Nissan Rogue SUV manufactured by Nissan Motor Co., LTD. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated September 2013.

SECTION 2

SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a model year 2014 Nissan Rogue SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.72 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, OH, on February 19, 2014. 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 September 2013. Camera locations and other pertinent camera information are included in this report.

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

- 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.

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	547
Lower Spine Acceleration	G	82	38.4
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3485.8
Maximum Thoracic Rib Deflection	mm	38*	28.1
Maximum Abdominal Rib Deflection	mm	45*	16.7

* Proposed IARV

Supplemental restraint information is given below:

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

GENERAL COMMENTS

None

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20145207	Traction Control System (TCS)	Yes
Model Year	2014	Auto-Leveling System	No
Make	Nissan	Automatic Door Locks (ADL)	Yes
Model	Rogue	Power Window Auto-Reverse	Yes
Body Style	SUV	Other Optional Feature	N/A
VIN	5N1AT2MT6EC762617	Driver Front Airbag	Yes
Body Color	Silver	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	10 mi	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.5	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	No
Transmission Speeds	CVT	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	No
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	No	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	No
		Other Safety Restraint	Yes

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

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Nissan Motor Co., LTD	GVWR (kg)	2036
Date of Manufacturer	12/13	GAWR Front (kg)	1040
Vehicle Type	MPV	GAWR Rear (kg)	1027

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	N/A	5
Vehicle Capacity Weight (VCW) (kg)				408
DSC X 68.04 kg				340.2
Rated Cargo and Luggage Weight (RCLW) (kg)				67.8

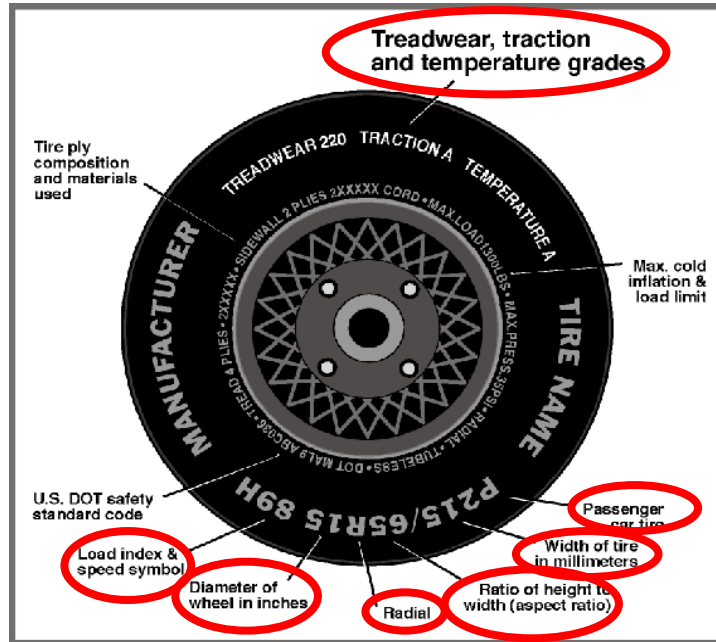
VEHICLE SEAT TYPE

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

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

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	230	230
Recommended Tire Size	225/65R17	225/65R17
Tire Size on Vehicle	225/65R17	225/65R17
Tire Manufacturer	Hankook	Hankook
Tire Model	Dynapro HT	Dynapro HT
Treadwear	380	380
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	102H	102H
Tire Material	Steel, Polyester & Nylon	Steel, Polyester & Nylon
DOT Safety Code Left	T7H1 HU H 2313	T7H1 HU H 2313
DOT Safety Code Right	T7H1 HU H 2313	T7H1 HU H 2313

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

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	248	262	269	262
Tire Placard	kPa	230	230	230	230
Owner's Manual	kPa	N/A	N/A	N/A	N/A
As Tested	kPa	230	230	230	230

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	464.0	331.6		486.6	336.4		474.6	381.0	
Right	kg	441.8	309.0		479.4	355.4		450.0	360.6	
Ratio	%	58.6	41.4		58.3	41.7		55.5	44.5	
Totals	kg	905.8	640.6	1546.4	966.0	691.8	1657.8	924.6	741.6	1666.2

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total As Delivered Weight (UVW)	kg	1546.4
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	49.0
Rated Cargo/Luggage Weight (RCLW)	kg	67.8
Calculated Vehicle Target Weight (TVTW)	kg	1663.2

(A)
 (B)
 (C)
 (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

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Ballast: None	0.0
Components removed: Wheel covers, rear fascia and right front beam, jack and tools, rear hatch trim panel, non-struck side window regulators and speakers, and tail lights.	29.6

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	Deg.	-1.1	-0.9	-0.5	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	-1.2	-1.0	-0.8	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	-0.2	-0.2	-0.5	Yes
Rear Bumper-Line Angle (left-to-right)**	Deg.	-0.0	-0.1	-0.2	Yes
Vehicle CG (Aft of Front Axle)	mm	1121	1129	1204	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	+23	-6	+22	

*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".

DATA SHEET NO. 2

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

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14

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	15.3	12.2	13.7
Front Passenger Seat	Fixed	N/A	13.5
Front Center Seat*	Fixed	N/A	N/A
Struck Side Rear Seat	Fixed	N/A	9.8
Non-Struck Side Rear Seat	Fixed	N/A	9.7
Rear Center Seat*	Fixed	N/A	10.2

* If applicable.

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCR Height (mm)	SCR Height Position	SCR Height (mm)		
				Rearmost	Mid- Fore/Aft	Forward- Most
Driver Seat	13.7	230	Max	N/A	N/A	N/A
			Mid	214	223	230
			Min	N/A	N/A	N/A
Front Passenger Seat	13.5	232	Max	N/A	N/A	N/A
			Mid	220	226	232
			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	9.8	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	9.7	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*	10.2	Fixed	Max	N/A	N/A	N/A
			Mid	N/A	N/A	N/A
			Min	N/A	N/A	N/A

* If applicable.

DATA SHEET NO. 2 (CONTINUED)

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

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14

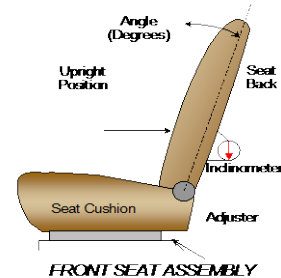
SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	240	25	0	0
Front Passenger Seat	240	25	0	0
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	225	15	225	14
Non-Struck Side Rear Seat	225	15	225	14
Rear Center Seat*	225	15	225	14

* 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	69.0	36	7.6	4
Front Passenger Seat	69.0	36	7.9	7
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	18.6	10	8.2	0
Non-Struck Side Rear Seat	18.1	10	8.5	0
Rear Center Seat*	18.6	10	12.8	0

* 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	4, numbered from 0 to 3	0, Uppermost

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	3, numbered from 0 to 2	2, Lowermost

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

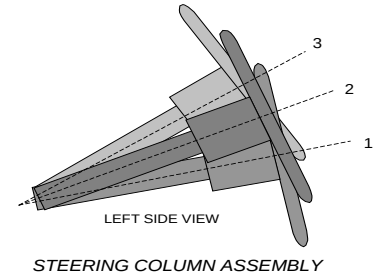
Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
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STEERING COLUMN ADJUSTMENT

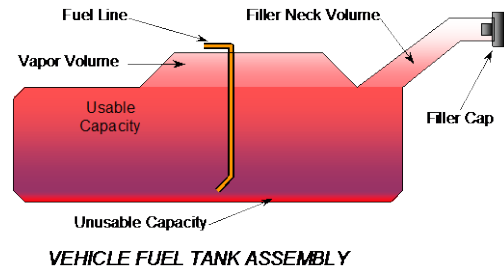
Steering wheel and column adjustments are made so that the steering wheel geometric locus it describes when moved through its full range of motion.

	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	26.3	25
Geometric Center, Position No. 2	28.5	25
Uppermost, Position No. 3	30.7	25
Telescoping Steering Wheel Travel		50
Test Position	28.5	25

**FUEL PUMP**

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

Fuel tank is located in front of the rear axle. Filler neck enters the right side of the tank. Cap is on right rear quarter panel. Fuel pump will run when engine is running. Also, it will run briefly when ignition key is turned to the "ON" position without starting the engine.

**FUEL TANK CAPACITY**

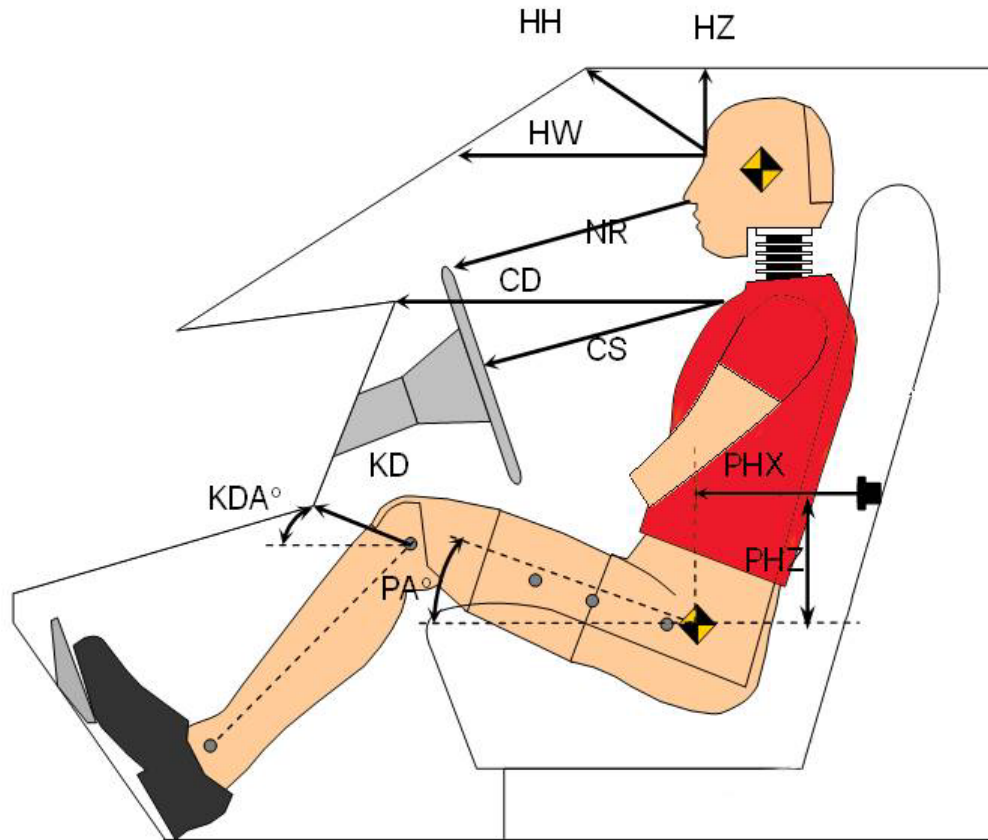
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	54.9
Usable Capacity of "Optional" Tank (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	55.0
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	51.0
Actual Amount of Solvent Used in Test	51.0
1/3 of Usable Capacity	17.0

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

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14

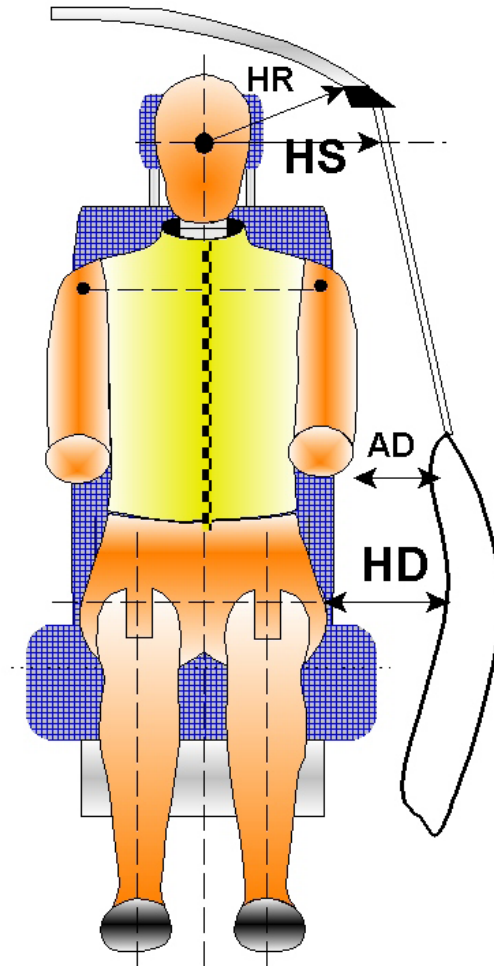


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	257	
HW	Head to Windshield	539	
HZ	Head to Visor	192	
NR	Nose to Rim	228	
CD	Chest to Dashboard	389	
CS	Chest to Steering Wheel	147	
KDL/KDLA°	Left Knee to Dash	84	39.0
KDR/KDRA°	Right Knee to Dash	70	15.0
PAX°	Pelvic Tilt Angle (X-axis)		0.5
PAY°	Pelvic Tilt Angle (Y-axis)		21.4
PHX	Hip Point to Striker (X-Axis)	411	
PHZ	Hip Point to Striker (Z-Axis)	83	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14

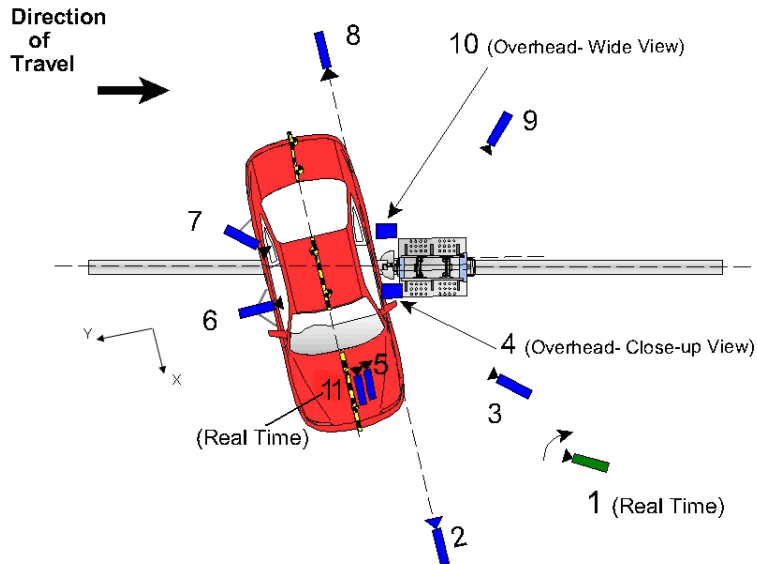


Code	Measurement Description	Length (mm)
HR	Head to Side Header	249
HS	Head to Side Window	367
AD	Arm to Door	133
HD	Hip Point to Door	199

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14



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

Camera No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Real time (24-30 fps) pan view of impact				Zoom	30
2	Front ground level – impact view	6128	-145	-1322	Zoom	1000
3	Impact side 45° – forward pole view	3497	-930	-1122	Zoom	1000
4	Overhead Close-up view of impact	0	0	-5681	50	1000
5	Onboard – dummy front view				12.5	1000
6	Onboard – dummy side view				8.5	1000
7	Onboard – dummy rear oblique view				6	1000
8	Rear ground level – impact view	-6792	88	-1349	Zoom	1000
9	Impact side 45° – rearward pole view	-3099	-3165	-1318	Zoom	1000
10	Overhead wide view of impact	-150	305	-5681	20	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

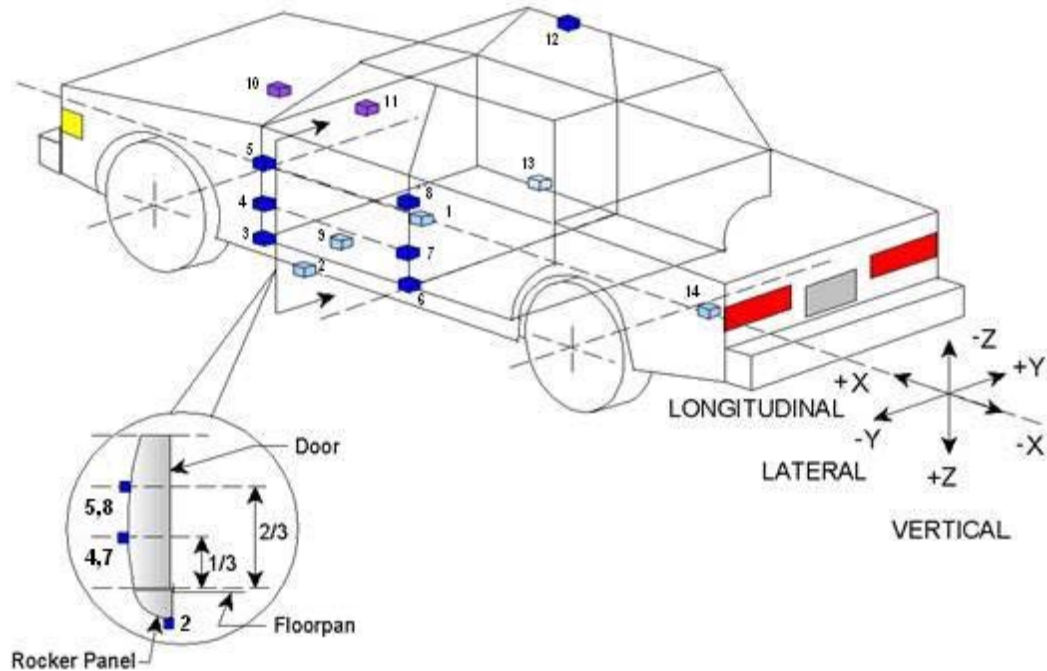
INSTRUMENTATION

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

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14



	Accelerometer/Sensor Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2955	110	-396
2	Left Floor Sill	2897	-690	-380
3	A-Pillar Sill	3160	-690	-390
4	A-Pillar Low	3215	-800	-617
5	A-Pillar Mid	3215	-780	-945
6	B-Pillar Sill	2015	-690	-422
7	B-Pillar Low	2122	-830	-683
8	B-Pillar Mid	2090	-805	-1027
9	Driver Seat Track	2535	-560	-407
10	Engine Top	3890	60	-833
11	Firewall	3640	40	-960
12	Right Roof	2015	600	-1628
13	Right Floor Sill	2897	690	-384
14	Rear Floorpan	1140	20	-660

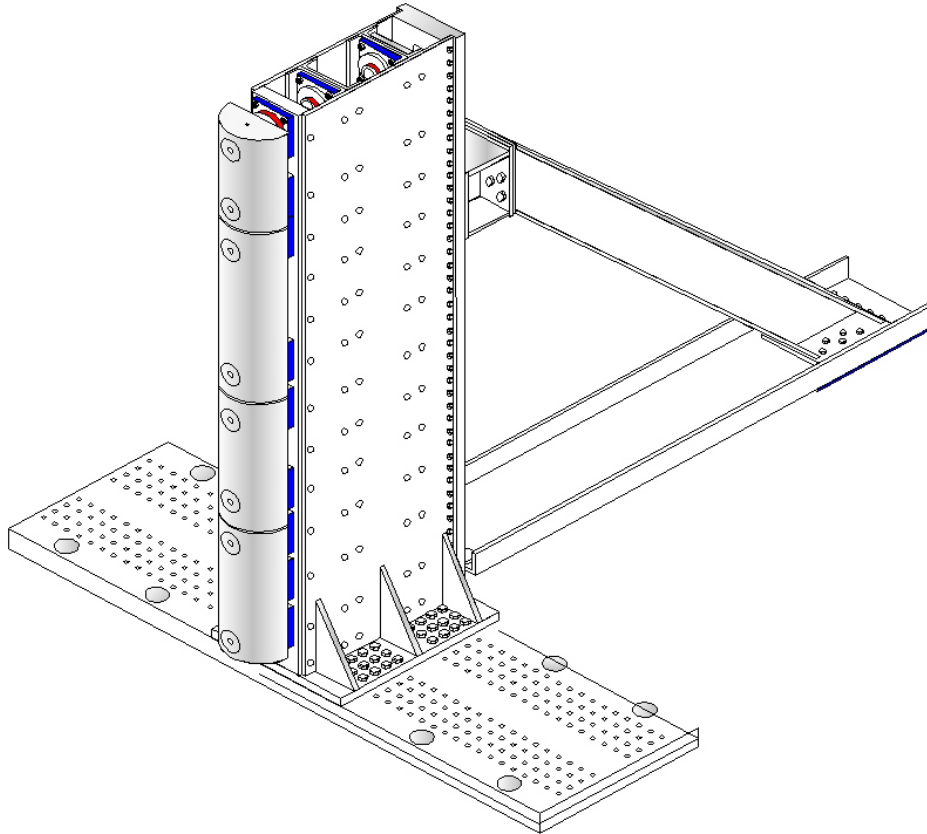
Reference: X - Test Vehicle Rear Bumper (+ forward)
 Y - Test Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2014 Nissan Rogue SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
Test Date: 2/19/14

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: 2014 Nissan Rogue SUV
Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
Test Date: 2/19/14

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	Seat Bolster; Torso/Pelvis Bag
Lower Torso	Seat Bolster
Left Hip	Torso/Pelvis Bag
Left Knee	N/A

POST TEST DOOR PERFORMANCE

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

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

POST-TEST SEAT PERFORMANCE

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

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

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Major Deformation
Sill Separation	None Visible
Windshield Damage	Broken
Side Window Damage	Shattered
Other Notable Effects	Right front passenger SCAB and right torso/pelvis bag deployed

DATA SHEET NO. 8 (CONTINUED)
POST TEST OBSERVATIONS

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

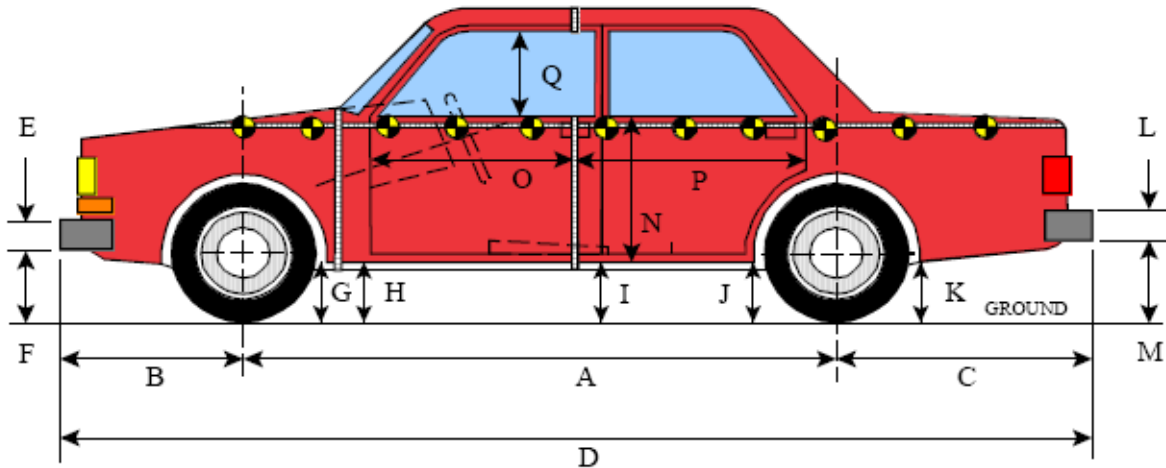
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1053
Actual Impact Point (Aft of Front Axle)	mm		1054
Horizontal Offset (+ forward / - rearward)	mm	+/- 38 of Intended Impact point	+1
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	32.72
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.74

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14



LEFT SIDE VIEW

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

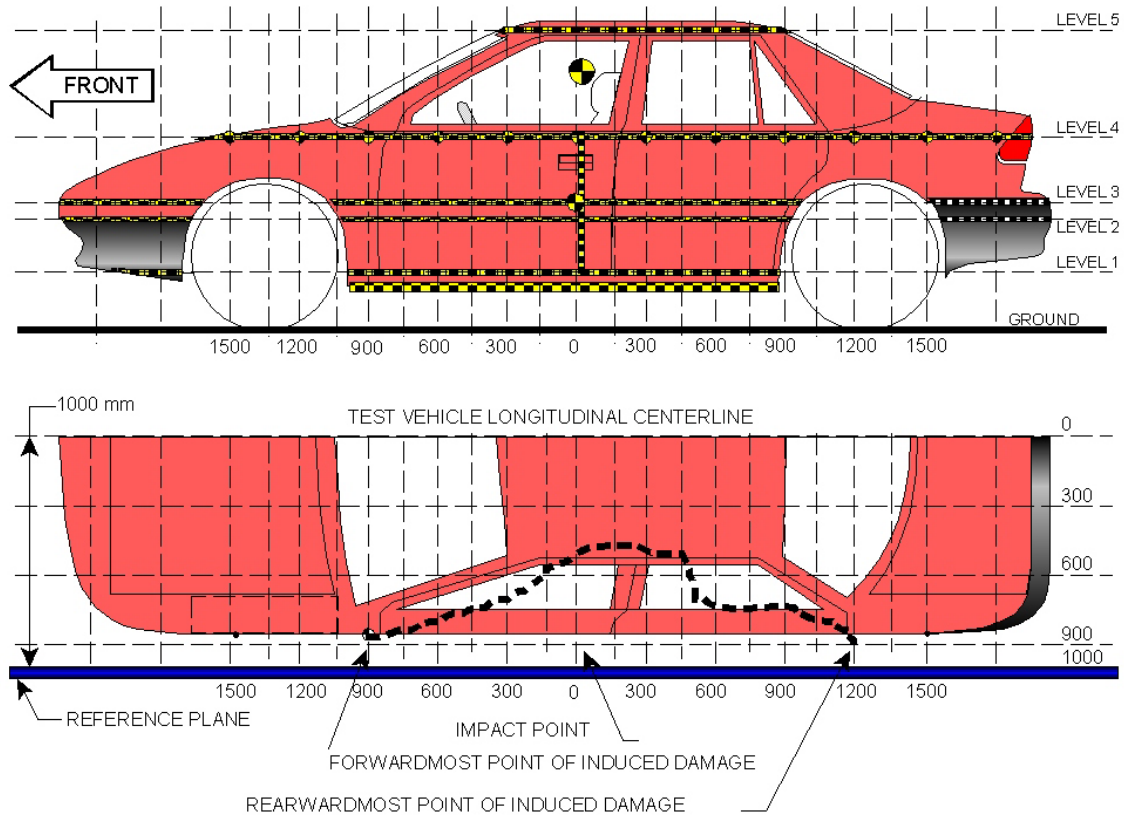
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2706	2632	74
B	Front Axle to Front Surface of Vehicle	929	905	24
C	Rear Axle to Rear Surface of Vehicle	1005	995	10
D	Total Length at Centerline	4640	4594	46
E	Front Bumper Thickness	110	110	0
F	Front Bumper Bottom to Ground	522	535	-13
G	Sill Height at Front Wheel Well	393	386	7
H	Sill Height at Front Door Leading Edge	389	380	9
I	Sill Height at B-Pillar	413	438	-25
J1	Sill Height at Rear Wheel Well	428	464	-36
J2	Pinch Weld Height at Rear Wheel Well	277	308	-31
K	Sill Height Aft of Rear Wheel Well	468	498	-30
L	Rear Bumper Thickness	85	85	0
M	Rear Bumper Bottom to Ground	548	564	-16
N	Sill Height to Bottom of Front Window Sill	780	790	-10
O	Front Door Leading Edge to Impact CL	589	588	1
P	Rear Door Trailing Edge to Impact CL	1577	1233	344
Q	Front Window Opening	418	390	28
R	Right Side Length	4600	4525	75
S	Left Side Length	4600	4590	10
T	Vehicle Width at "B" Pillars	1830	1690	140

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14



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	403	287	0
2	Occupant H-Point	678	356	0
3	Mid-Door	743	373	0
4	Window Sill	1070	335	0
5	Window Top	1600	152	150

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

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

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14

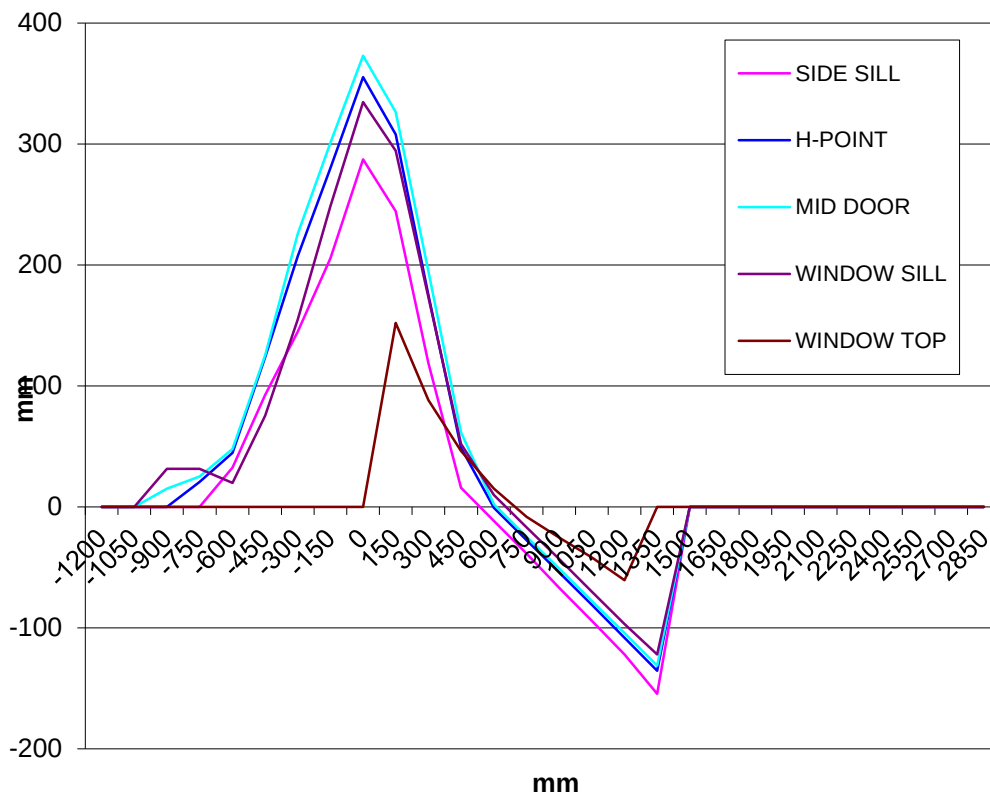
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900	0	0	1015	891	0	0	0	1000	859	0	0	0	15	32	0
-750	0	1016	1013	908	0	0	996	988	877	0	0	20	25	31	0
-600	987	1011	1007	920	0	954	967	960	900	0	33	44	47	20	0
-450	967	1001	1006	928	0	874	877	881	853	0	93	124	125	75	0
-300	967	999	1008	935	0	823	792	782	780	0	144	207	226	155	0
-150	969	1000	1009	942	0	763	720	708	693	0	206	280	301	249	0
0	969	1001	1011	947	0	682	645	638	612	0	287	356	373	335	0
150	969	1001	1012	952	662	724	693	686	658	510	245	308	326	294	152
300	968	1002	1013	957	683	849	827	818	784	594	119	175	195	173	89
450	968	1002	1013	961	692	952	953	952	909	646	16	49	61	52	46
600	967	1002	1013	964	697	979	1003	1011	954	682	-12	-1	2	10	15
750	966	1001	1013	967	698	1004	1029	1037	984	706	-38	-28	-24	-17	-8
900	964	1000	1012	969	697	1031	1054	1063	1012	723	-67	-54	-51	-43	-26
1050	962	998	1010	970	695	1056	1079	1088	1040	737	-94	-81	-78	-70	-42
1200	959	997	1009	971	685	1081	1105	1113	1067	746	-122	-108	-104	-96	-61
1350	954	995	1007	975	0	1109	1130	1138	1097	0	-155	-135	-131	-122	0
1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1650	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

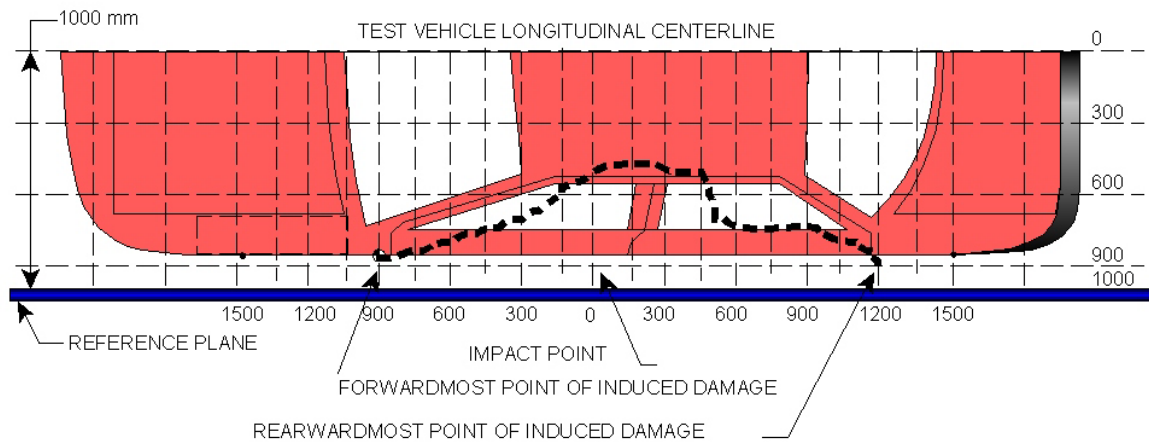
NHTSA No.: M20145207
 Test Date: 2/19/14



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2014 Nissan Rogue SUV
 Test Program: SPNCAP Side Impact

NHTSA No.: M20145207
 Test Date: 2/19/14



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance From Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Crush (mm)
1	600	3	1011	1013	0
2	300	3	818	1013	195
3	0	3	638	1011	373
4	-300	3	782	1008	226
5	-600	3	960	1007	47
6	-900	3	1000	1015	0

¹ DPD 1 and 6 defined as zero crush since the crush doesn't extend to the end of the vehicle.

DATA SHEET NO. 12

FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2014 Nissan Rogue SUV

NHTSA No.: M20145207

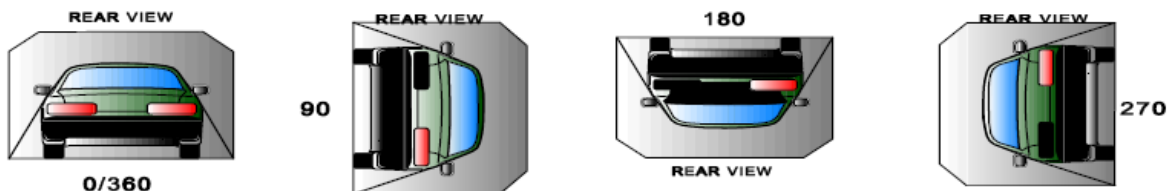
Test Program: SPNCAP Side Impact

Test Date: 2/19/14

Test Time: 13:41 Temperature: 21.3°C

- A. From impact until vehicle motion ceases: 0 oz.
(Maximum allowable is 1 ounce)
- B. For the 5 minute period after motion ceases: 0
(Maximum allowable is 5 ounces)
- C. For the following 25 minutes: 0
(Maximum allowable is 1 ounce/minute)
- D. Spillage Deta1LS: 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

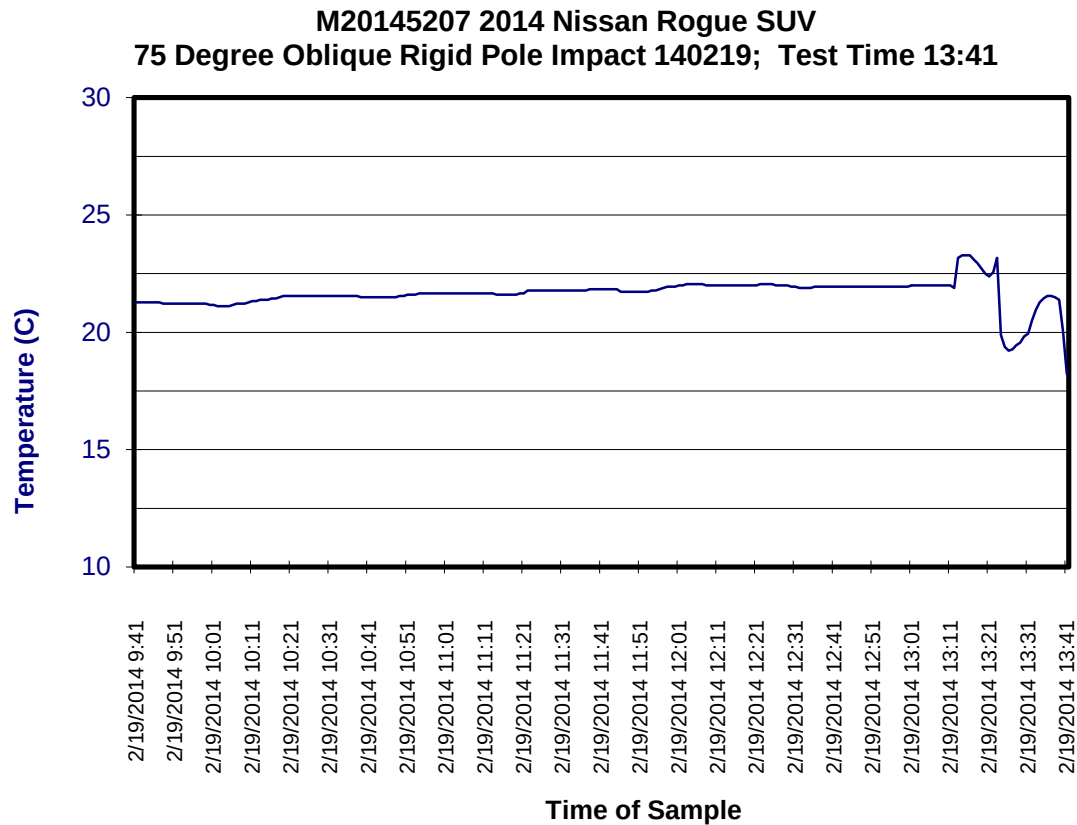
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	0	N/A
90 to 180	0	0	0	N/A
180 to 270	0	0	0	N/A
270 to 360	0	0	0	N/A

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 DATA¹

Test Vehicle: <u>2014 Nissan Rogue SUV</u>	NHTSA No.: <u>M20145207</u>
Test Program: <u>SPNCAP Side Impact</u>	Test Date: <u>2/19/14</u>



¹Temperature logger did not record humidity.

APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

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2	As Delivered Left Rear 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 3-4 View of Test Vehicle	A-6
6	Post-Test Left Front 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 3-4 View of Test Vehicle	A-8
10	Post-Test Left Rear 3-4 View of Test Vehicle	A-8
11	Pre-Test Rear View of Test Vehicle	A-9
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15	Pre-Test Overhead View of Test Area	A-11
16	Post-Test Overhead View of Test Area	A-11
17	Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	A-12
18	Pre-Test Right Side View of Pole Positioned Against Side of Vehicle	A-12
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25	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-16
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28	Pre-Test Front View of Seat Pan Prior to Dummy Positioning	A-17
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-18
31	Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level	A-19
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34	Pre-Test Left Side View of Steering Wheel	A-20

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37	Pre-Test Close-Up Left Side View of Driver Seat Track	A-22
38	Pre-Test Close-Up Left Side View of Driver Seat Back	A-22
39	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-23
40	Pre-Test Dummy and Door Clearance View	A-23
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-24
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46	Post-Test Dummy Close-Up Head Contact with Vehicle View	A-26
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48	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-27
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50	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-28
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-29
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57	Pre-Test Pole Barrier Front View	A-32
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61	Pre-Test Ballast View	A-34
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64	FMVSS No. 301 Static Rollover 90 Degrees	A-35
65	FMVSS No. 301 Static Rollover 180 Degrees	A-36
66	FMVSS No. 301 Static Rollover 270 Degrees	A-36
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68	Impact Event	A-37
69	Monroney Label	A-38
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71	Post-Test View of Shattered Vehicle Inner Door Panel	A-39



001 As Delivered Right Front 3-4 View of Test Vehicle



002 As Delivered Left Rear 3-4 View of Test Vehicle



003 Pre-Test Frontal View of Test Vehicle



004 Post-Test Frontal View of Test Vehicle



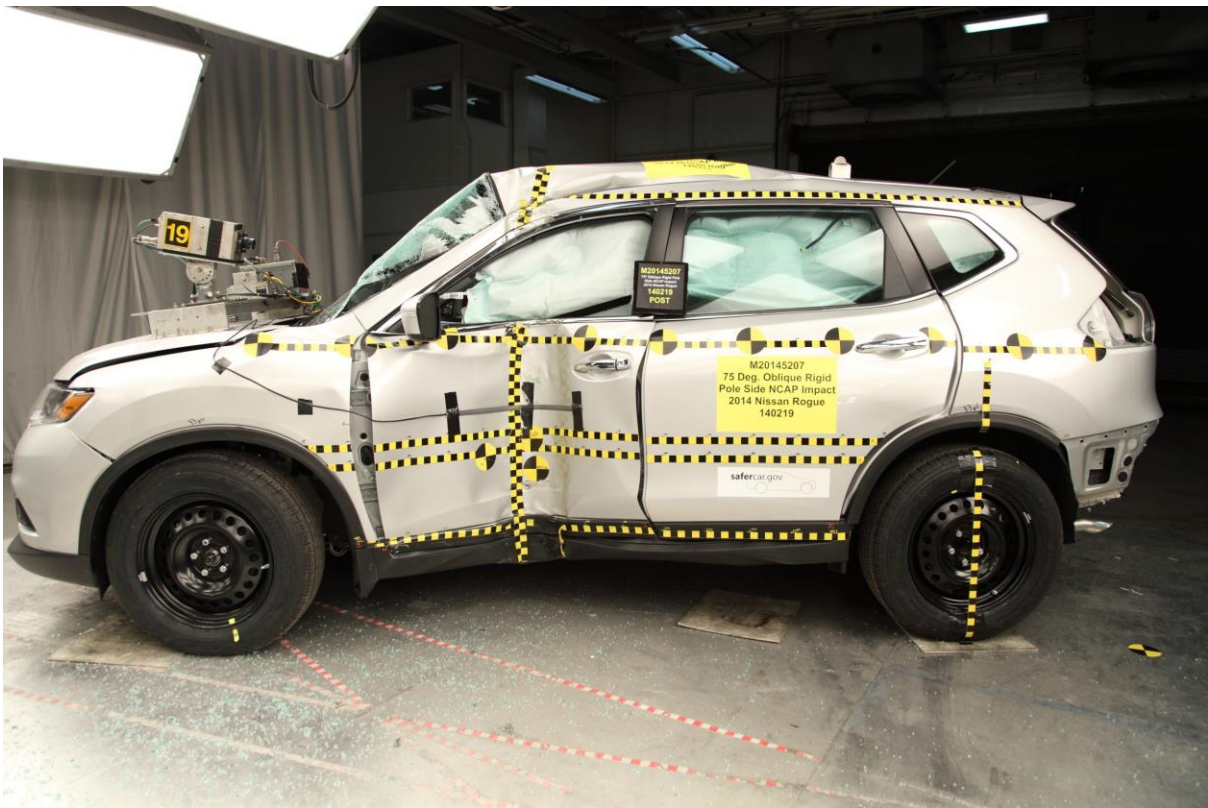
005 Pre-Test Left Front 3-4 View of Test Vehicle



006 Post-Test Left Front 3-4 View of Test Vehicle



007 Pre-Test Left Side View of Test Vehicle



008 Post-Test Left Side View of Test Vehicle



009 Pre-Test Left Rear 3-4 View of Test Vehicle



010 Post-Test Left Rear 3-4 View of Test Vehicle



011 Pre-Test Rear View of Test Vehicle



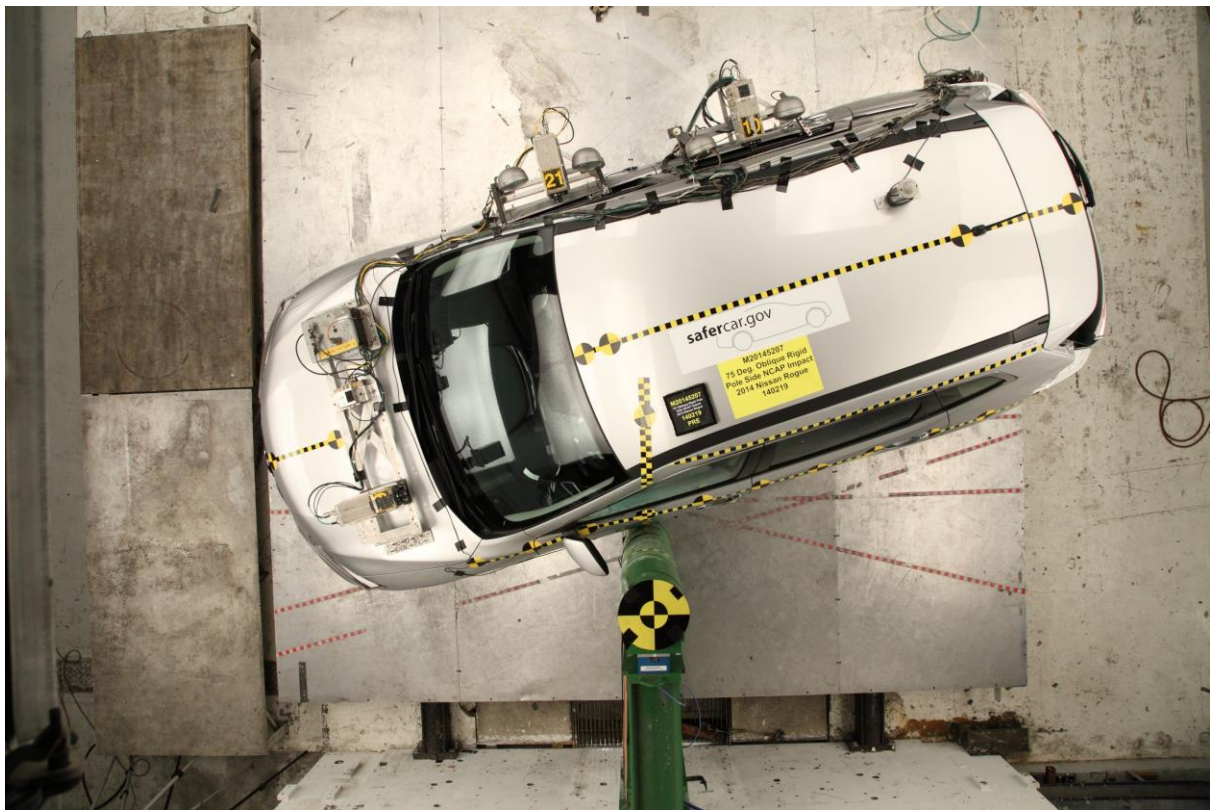
012 Post-Test Rear View of Test Vehicle



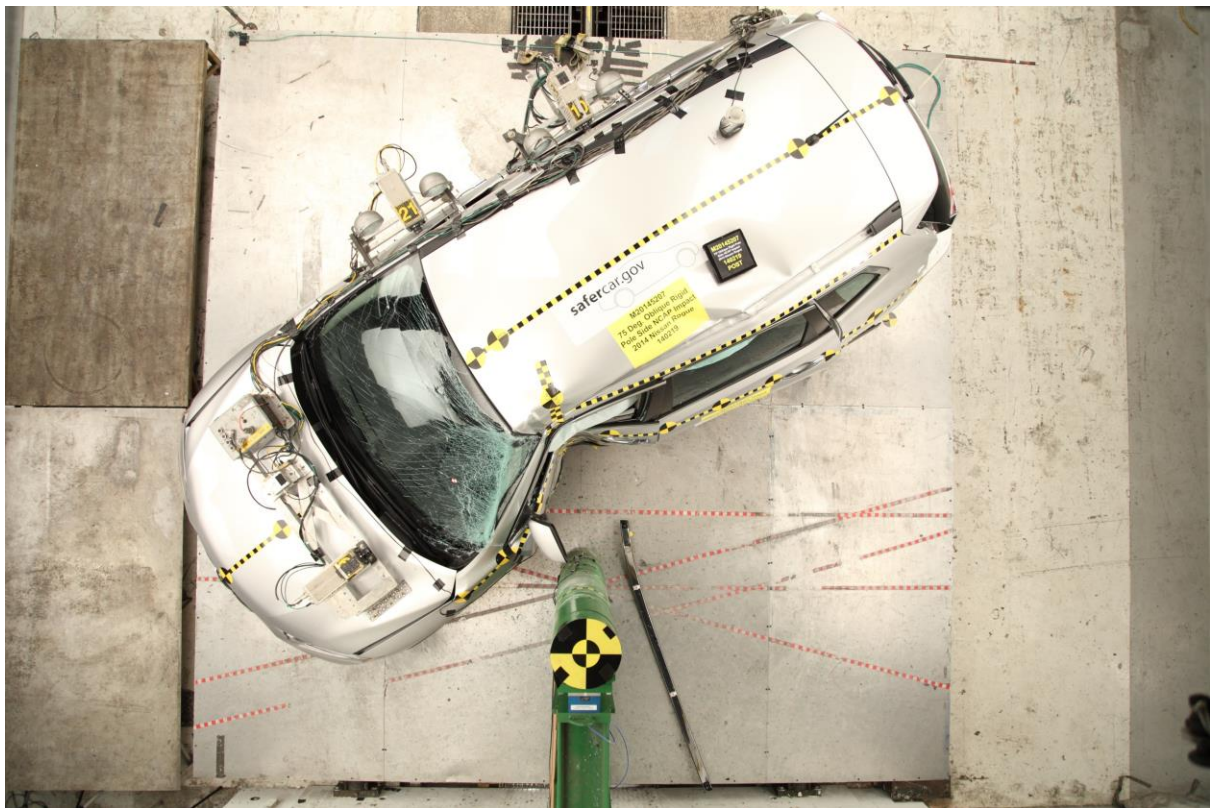
013 Pre-Test Right Side View of Test Vehicle



014 Post-Test Right Side View of Test Vehicle



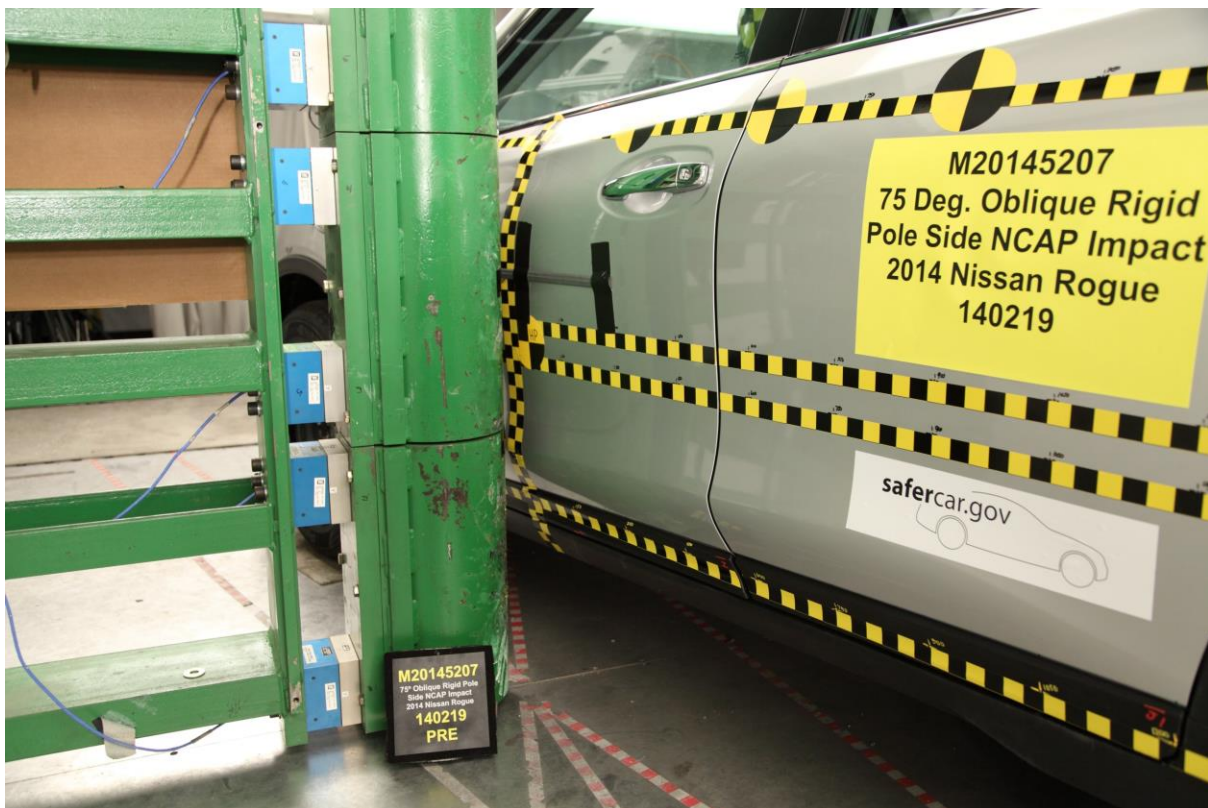
015 Pre-Test Overhead View of Test Area



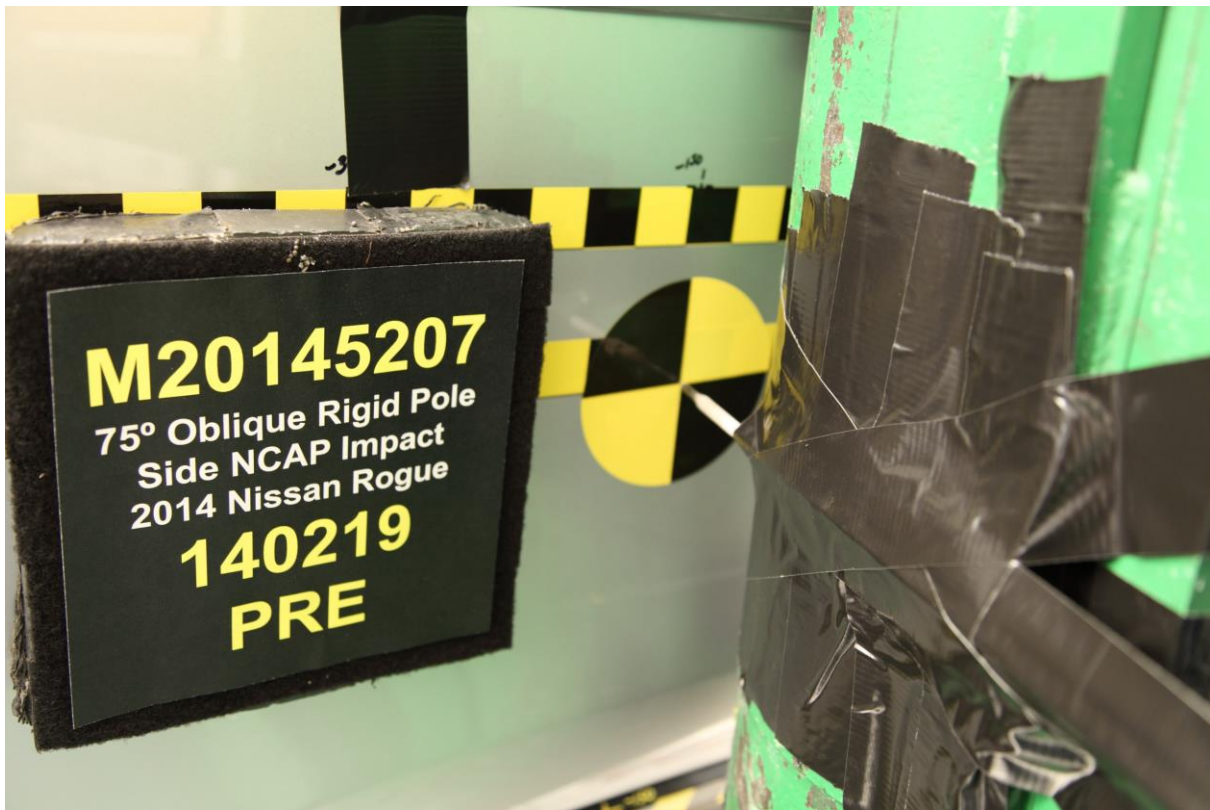
016 Post-Test Overhead View of Test Area



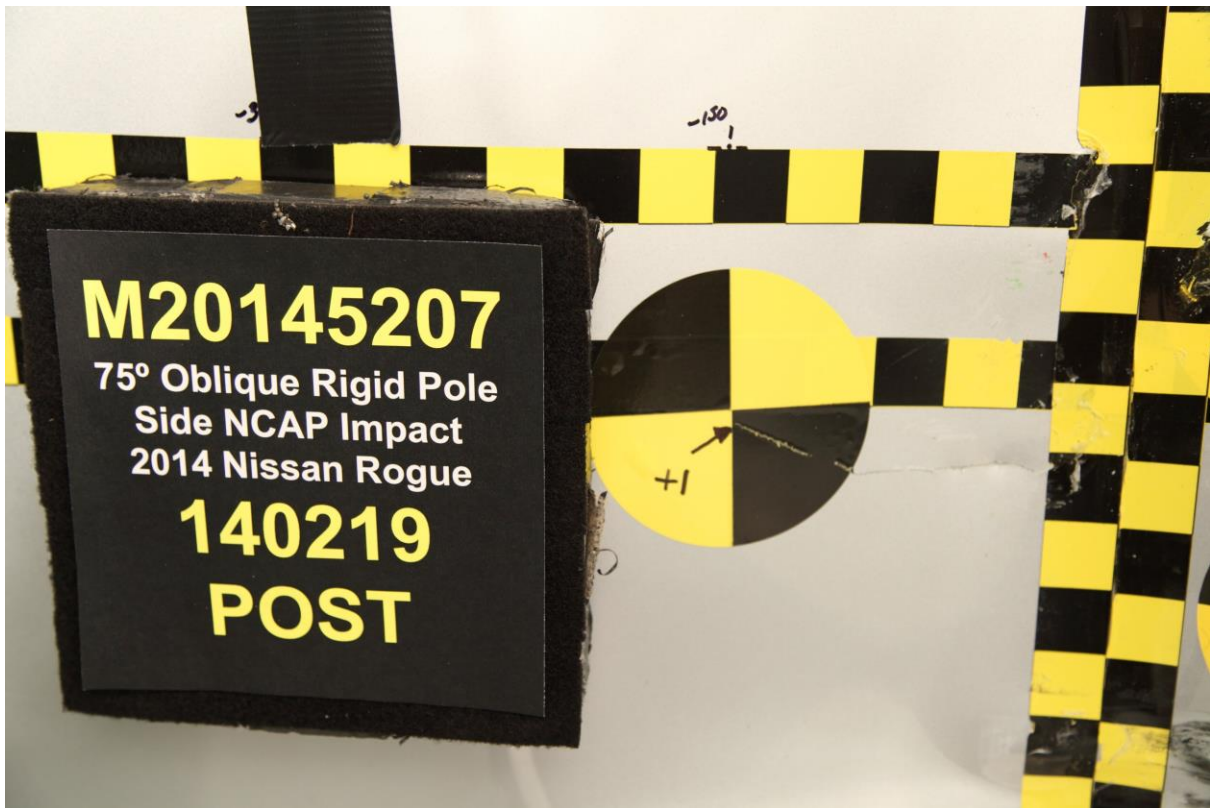
017 Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



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



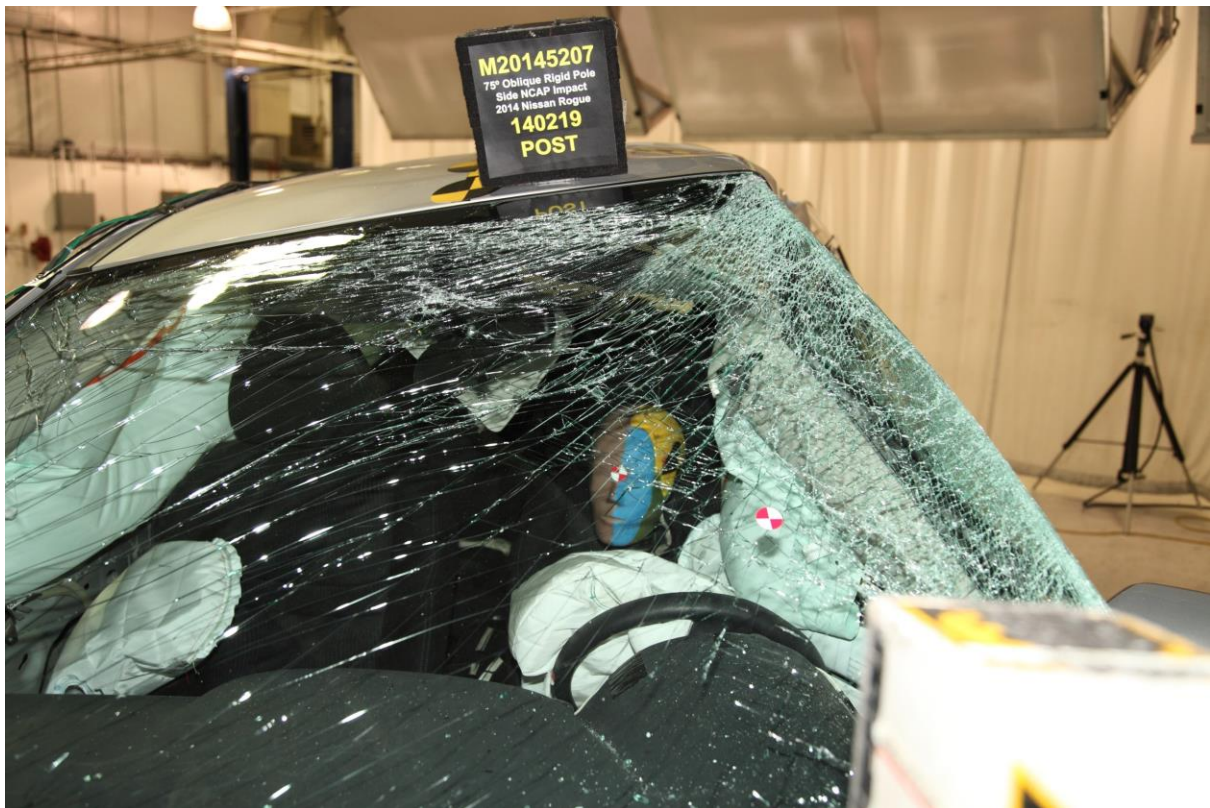
019 Pre-Test Close-Up View of Impact Point Target



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



021 Pre-Test Front Close-Up View of Dummy Head and Chest



022 Post-Test Front Close-Up View of Dummy



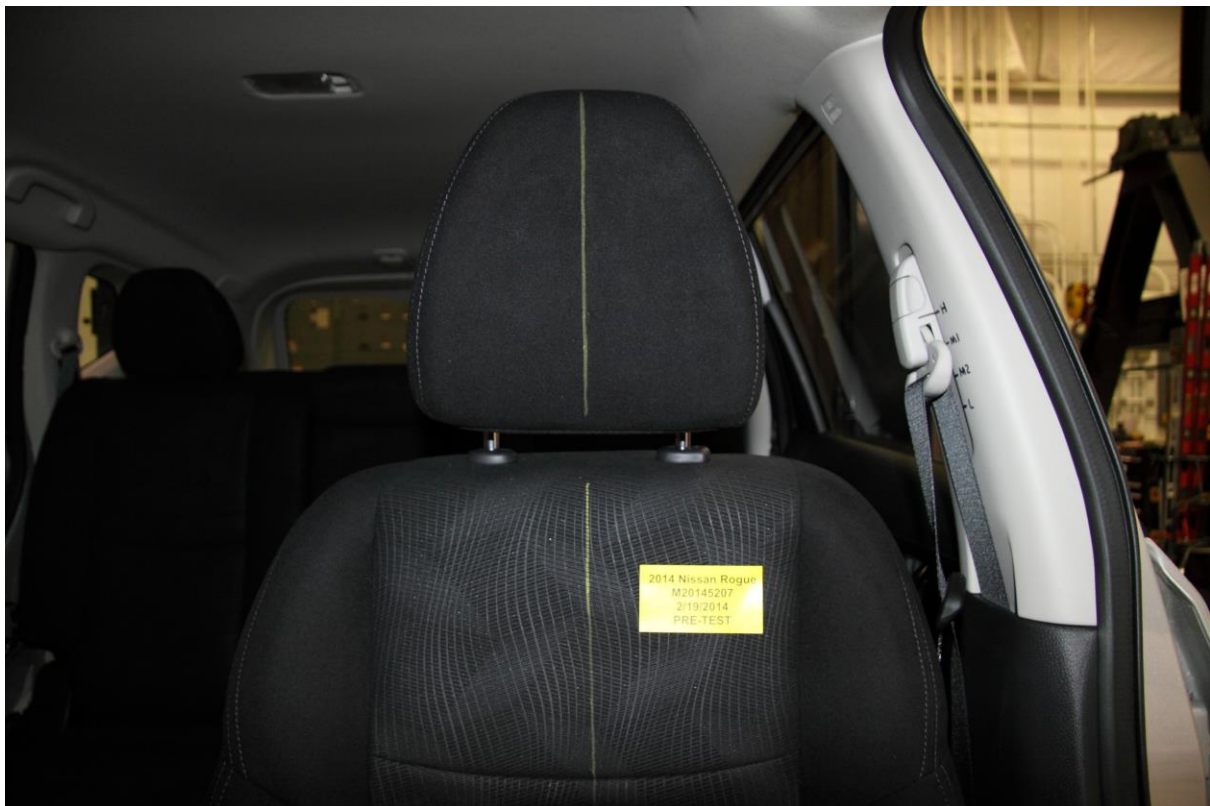
023 Pre-Test Left Side View of Dummy Showing Belt and Chalking



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



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



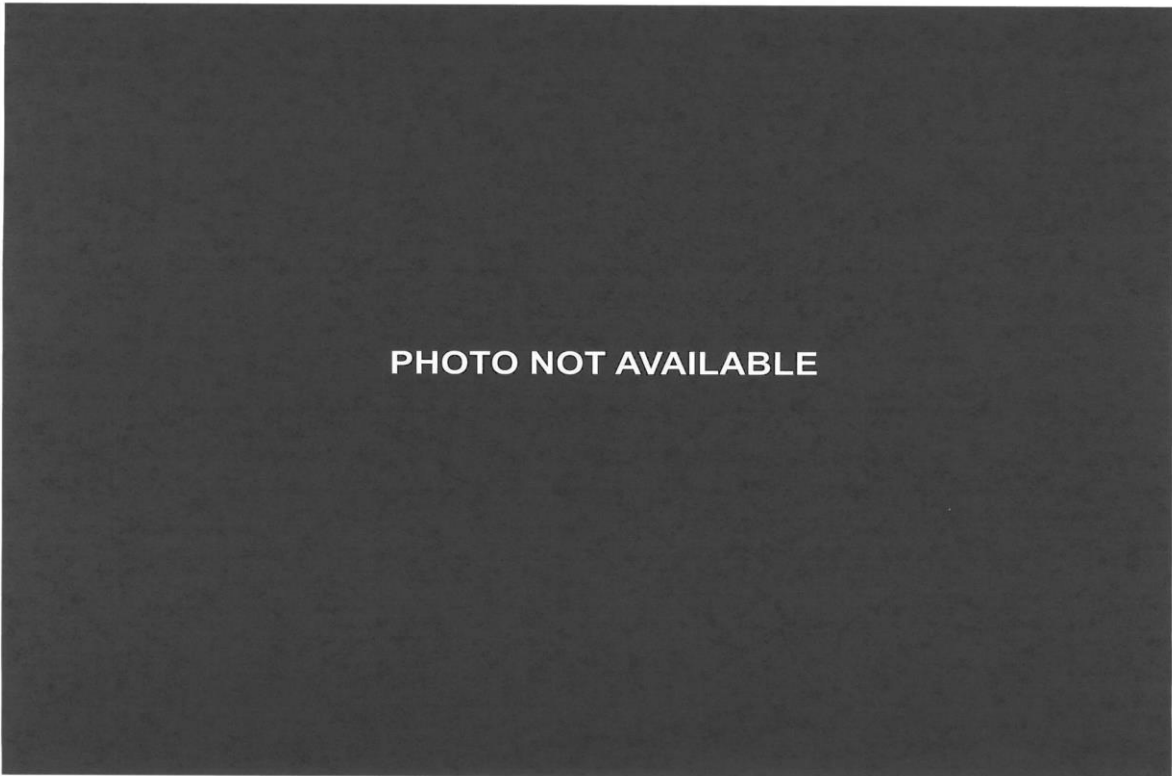
026 Pre-Test Front View of Seat Back Prior to Dummy Positioning



027 Pre-Test Front View of Dummy Head and Shoulders in Relation to Head Restraint



028 Pre-Test Front View of Seat Pan Prior to Dummy Positioning



029 Pre-Test Overhead View of Dummy Thighs on Seat Pan



030 Pre-Test Left Side View of Dummy Neck Showing Position of Adjustable Neck Bracket



031 Pre-Test Left Side View of Dummy Head Showing Dummy Head is Level



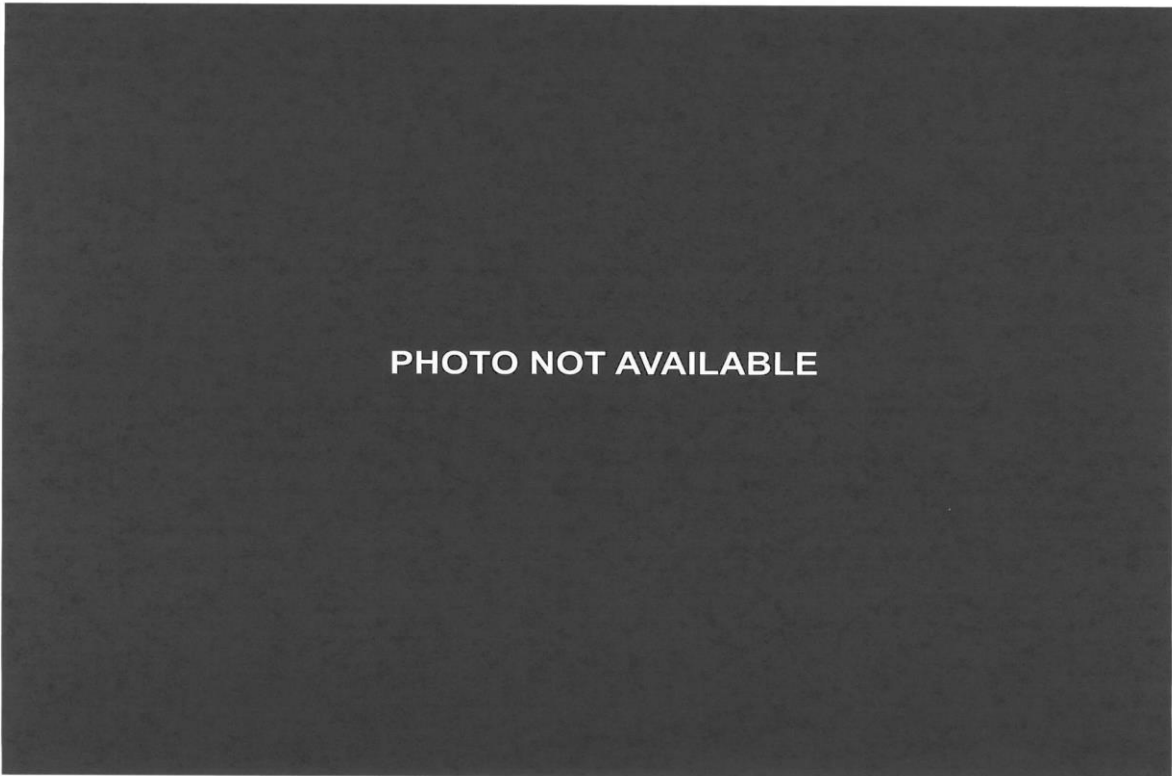
032 Pre-Test Placement of Dummy Feet



033 Pre-Test View of Belt Anchorage for Dummy



034 Pre-Test Left Side View of Steering Wheel



035 Pre-Test View of Disengaged Parking Brake



036 Pre-Test View of Parking Brake



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



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



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



040 Pre-Test Dummy and Door Clearance View



041 Post-Test Dummy and Door Clearance View



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



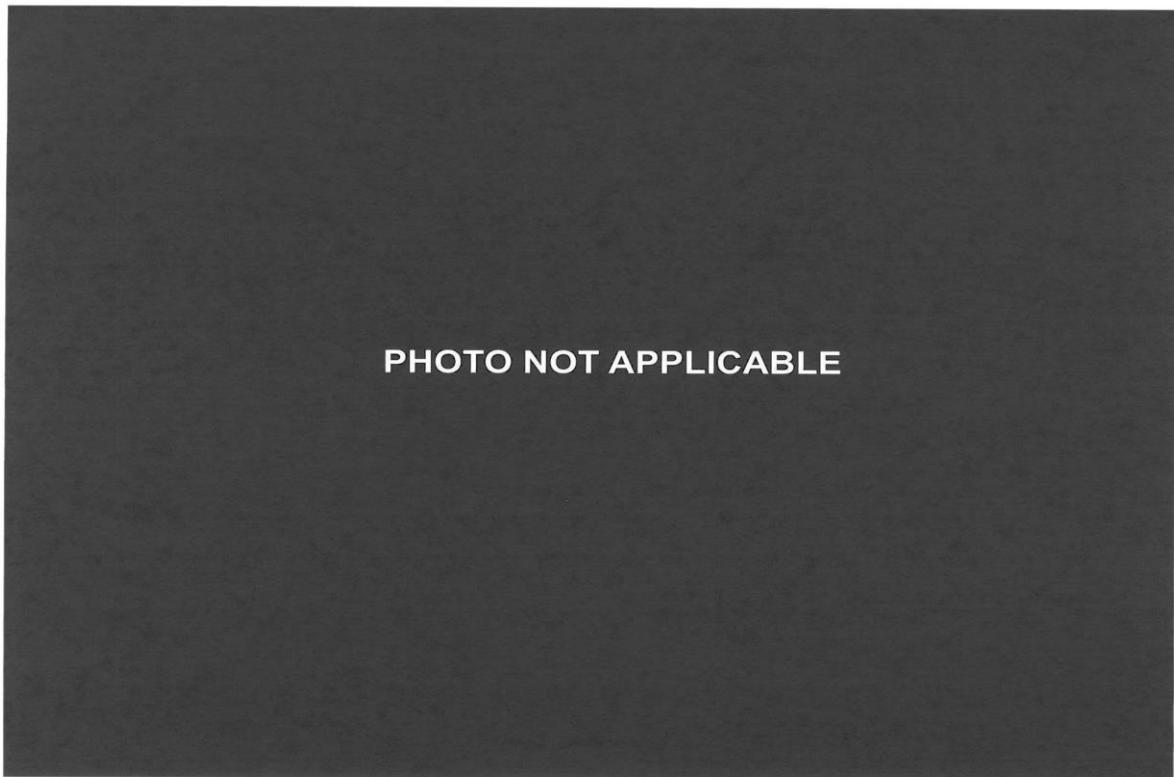
043 Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment



044 Pre-Test Inner Driver Door Panel View



045 Post-Test Inner Driver Door Panel View Showing Dummy Contact Location



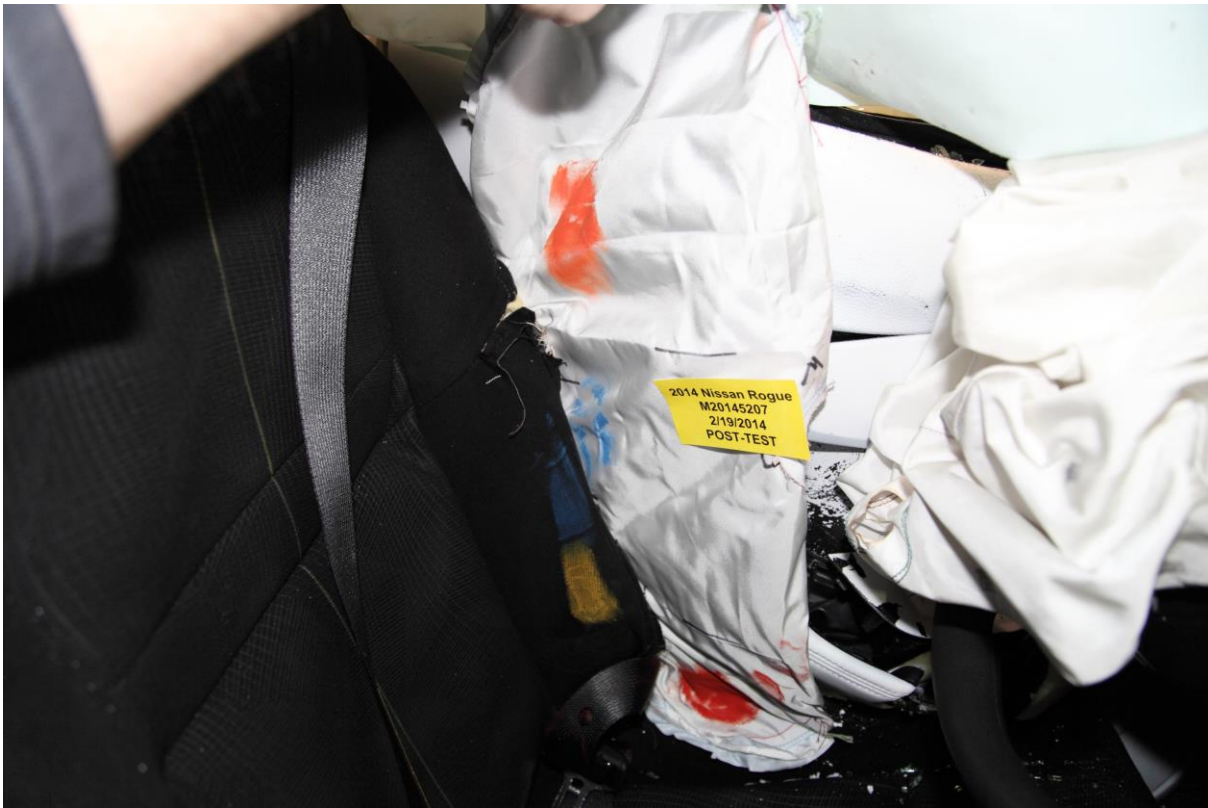
046 Post-Test Dummy Close-Up Head Contact with Vehicle View



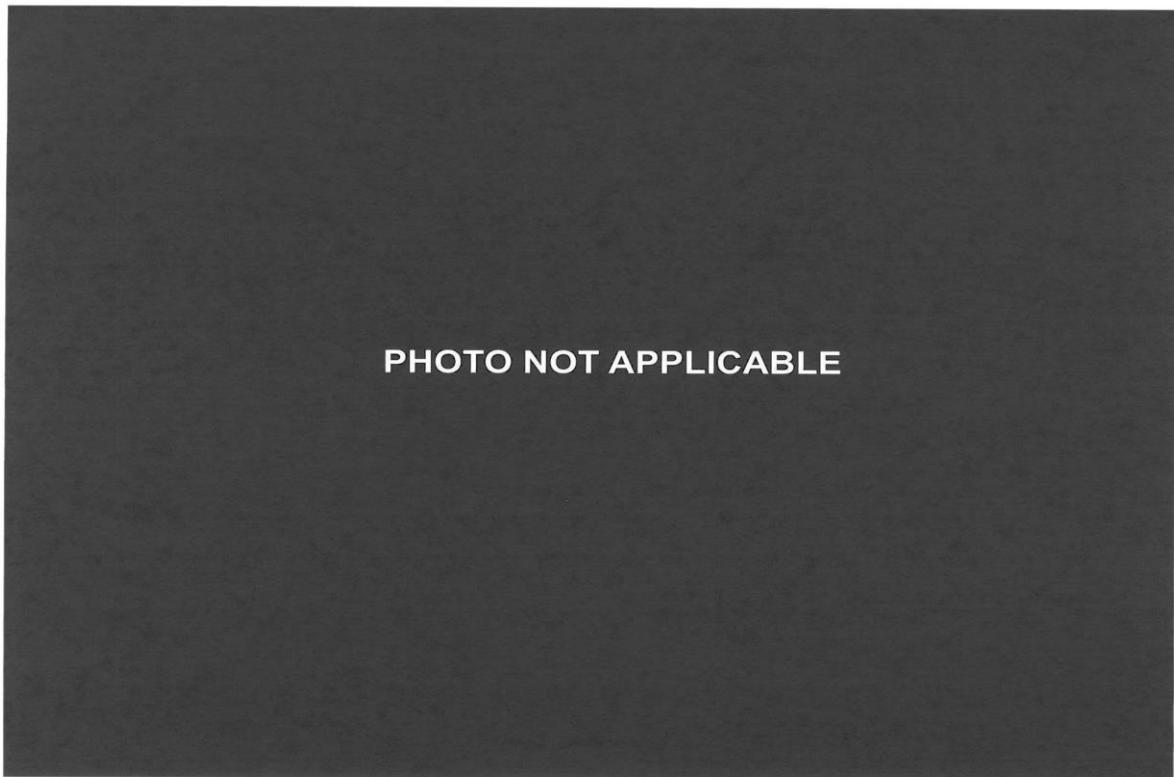
047 Post-Test Dummy Close-Up Head Contact with Side Airbag View



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



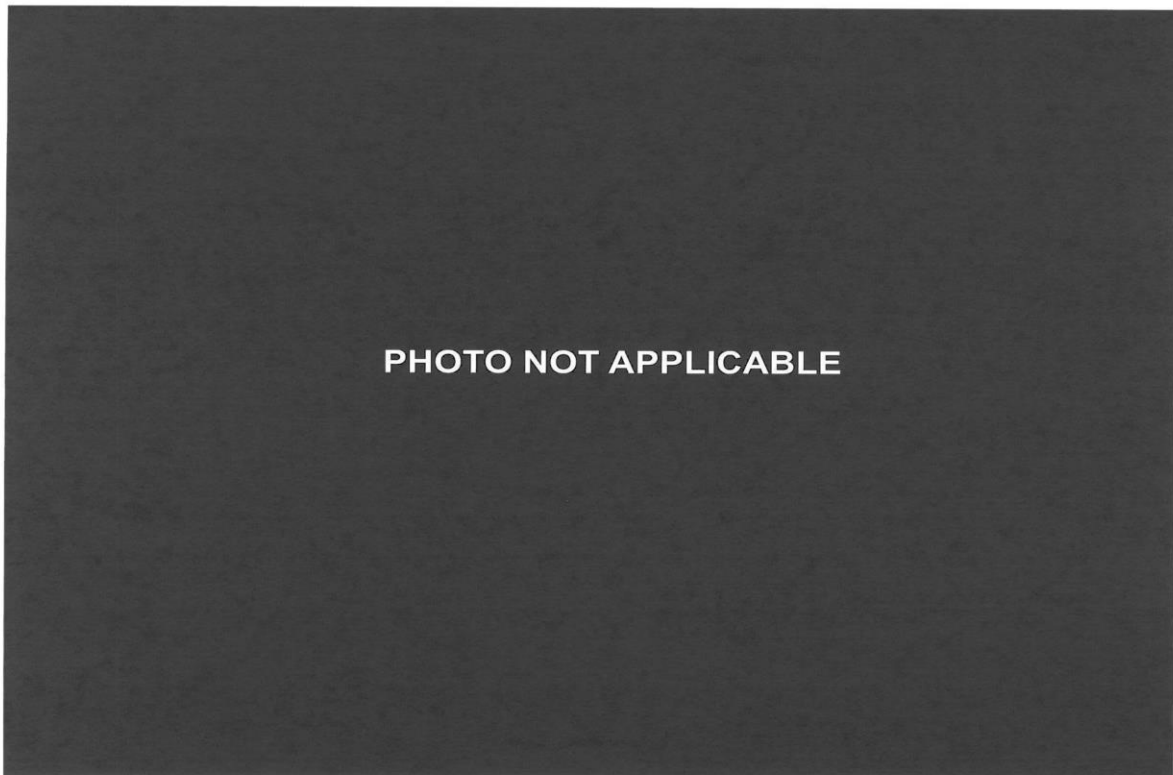
049 Post-Test Dummy Close-Up Torso Contact with Side Airbag View



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



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



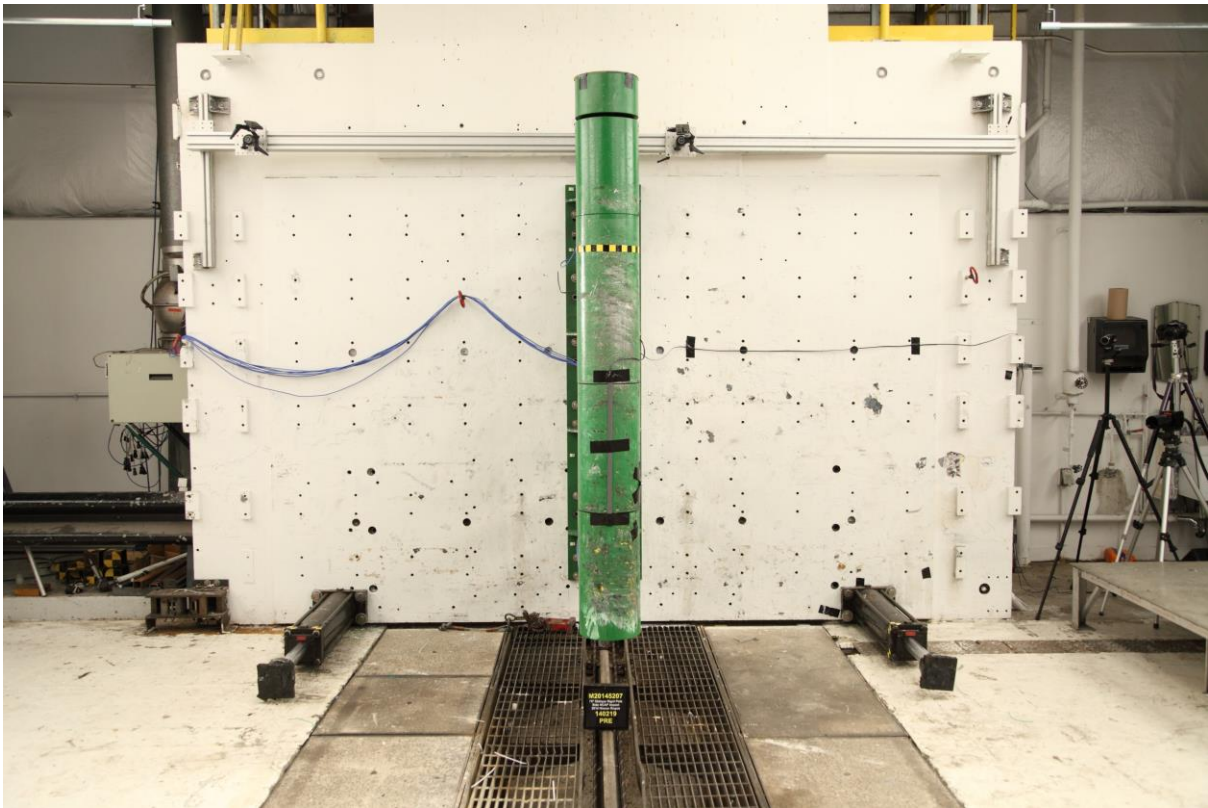
052 Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



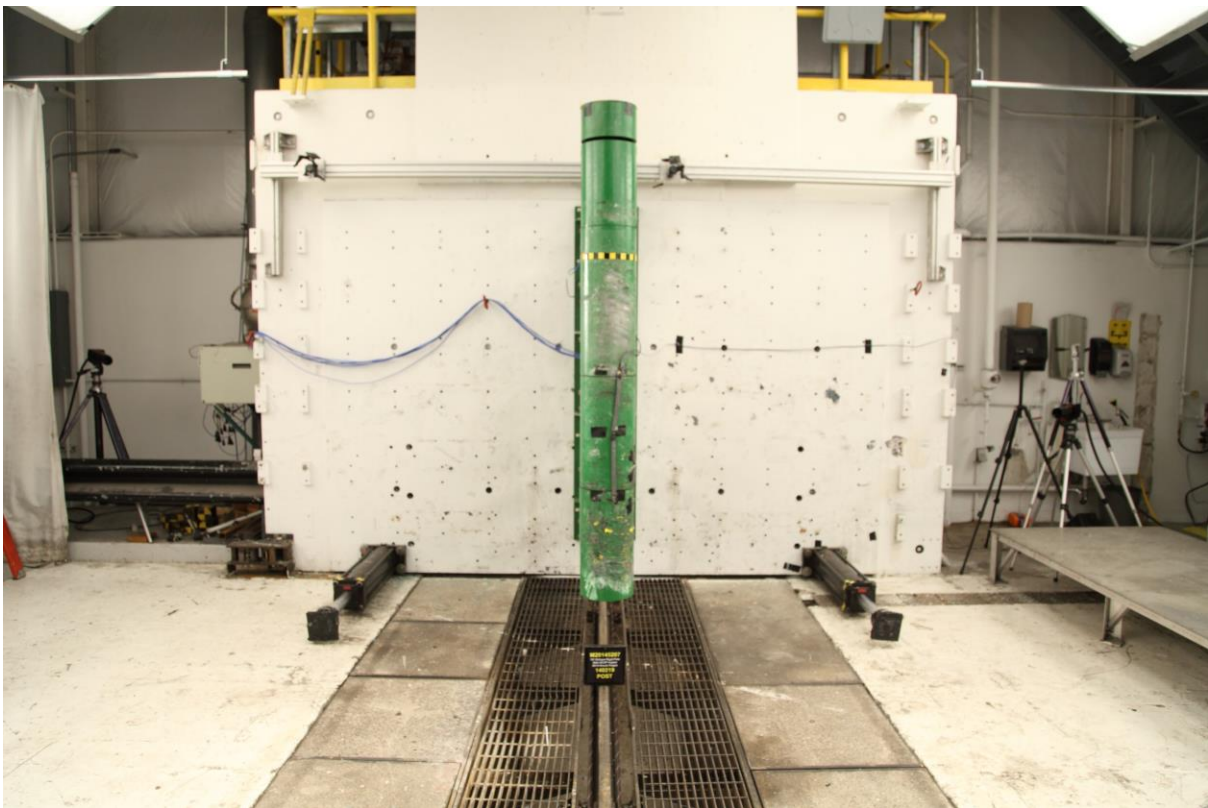
053 Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



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



057 Pre-Test Pole Barrier Front View



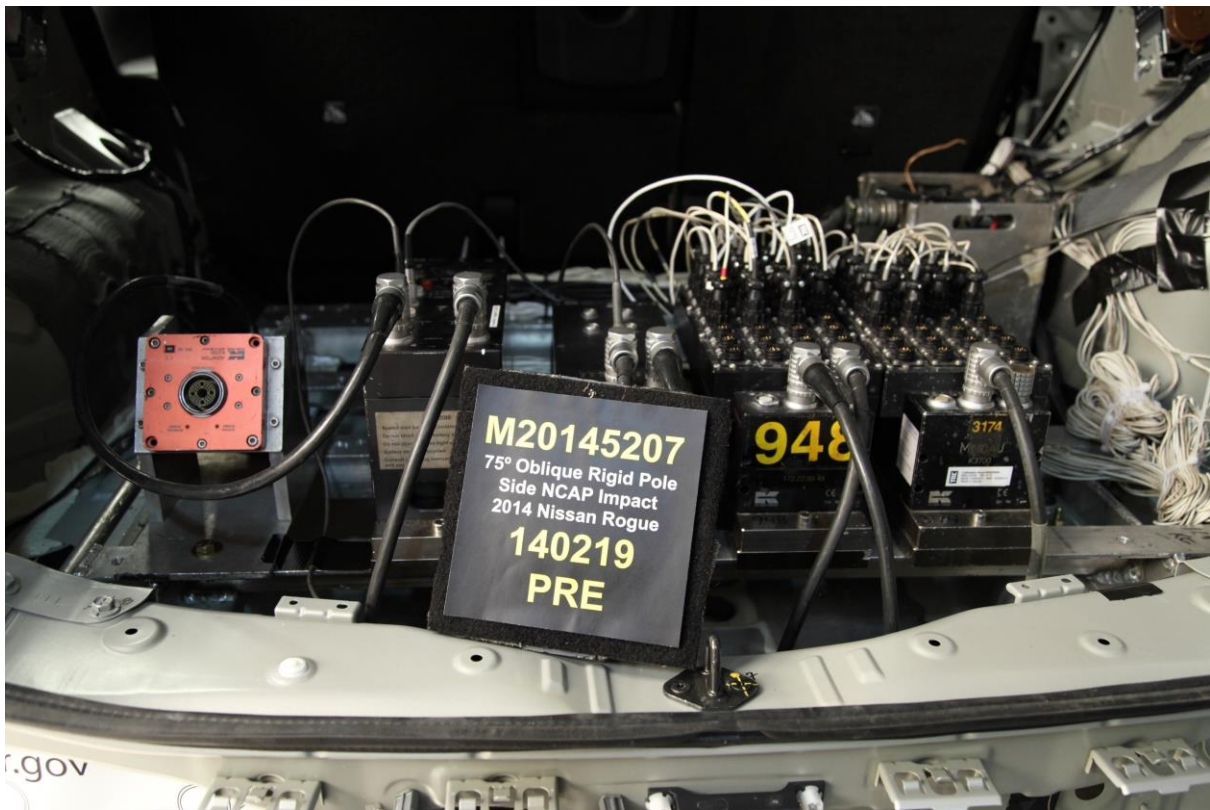
058 Post-Test Pole Barrier Front View



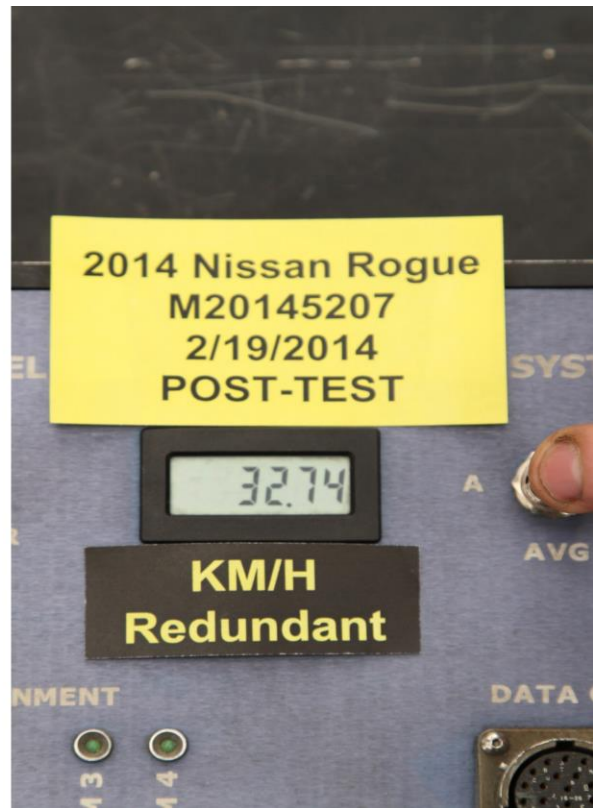
059 Pre-Test Pole Barrier Side View



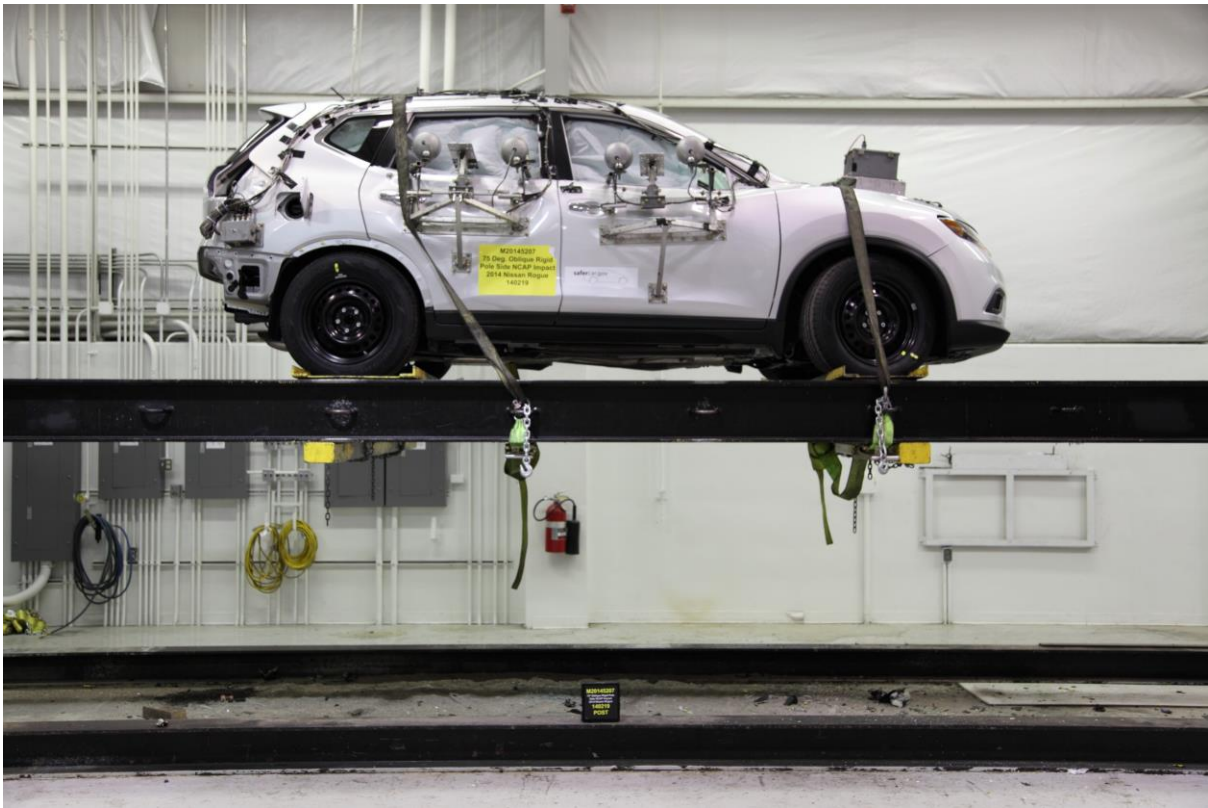
060 Post-Test Pole Barrier Side View



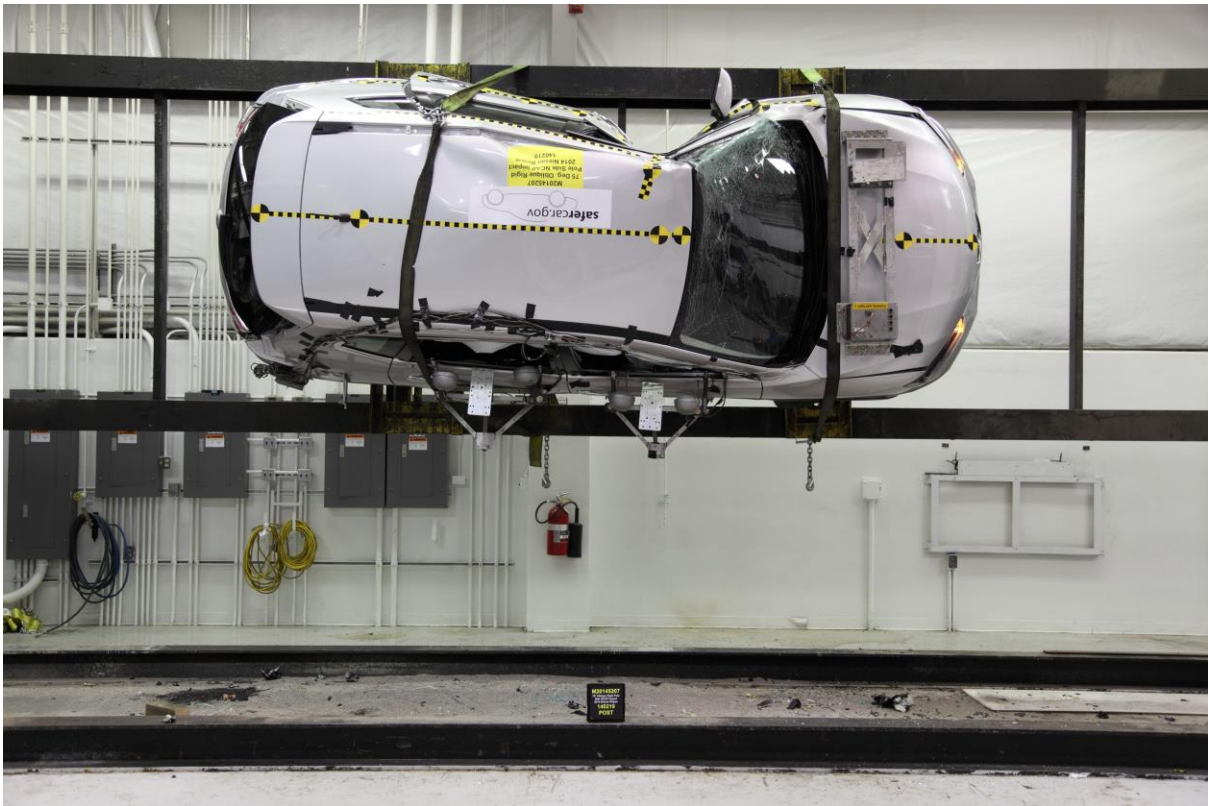
061 Pre-Test Ballast View



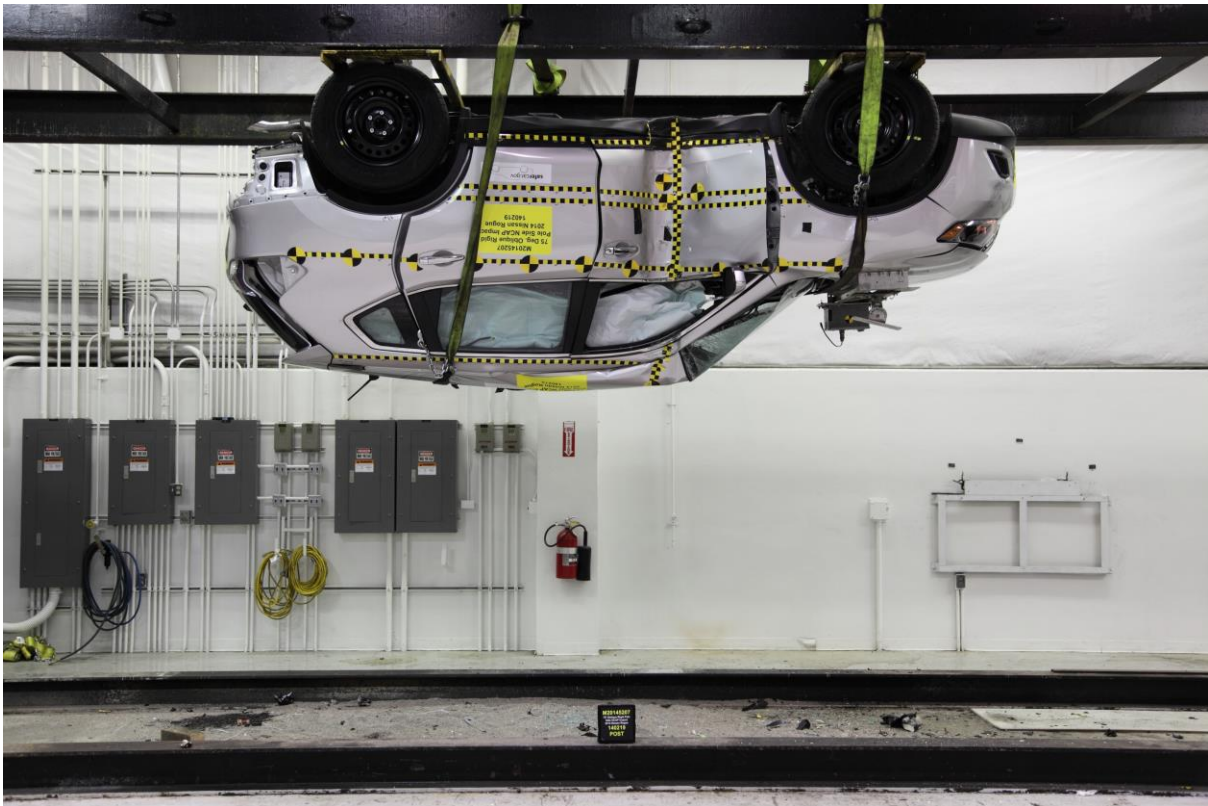
062 Post-Test Primary and Redundant Speed Trap Read-Out



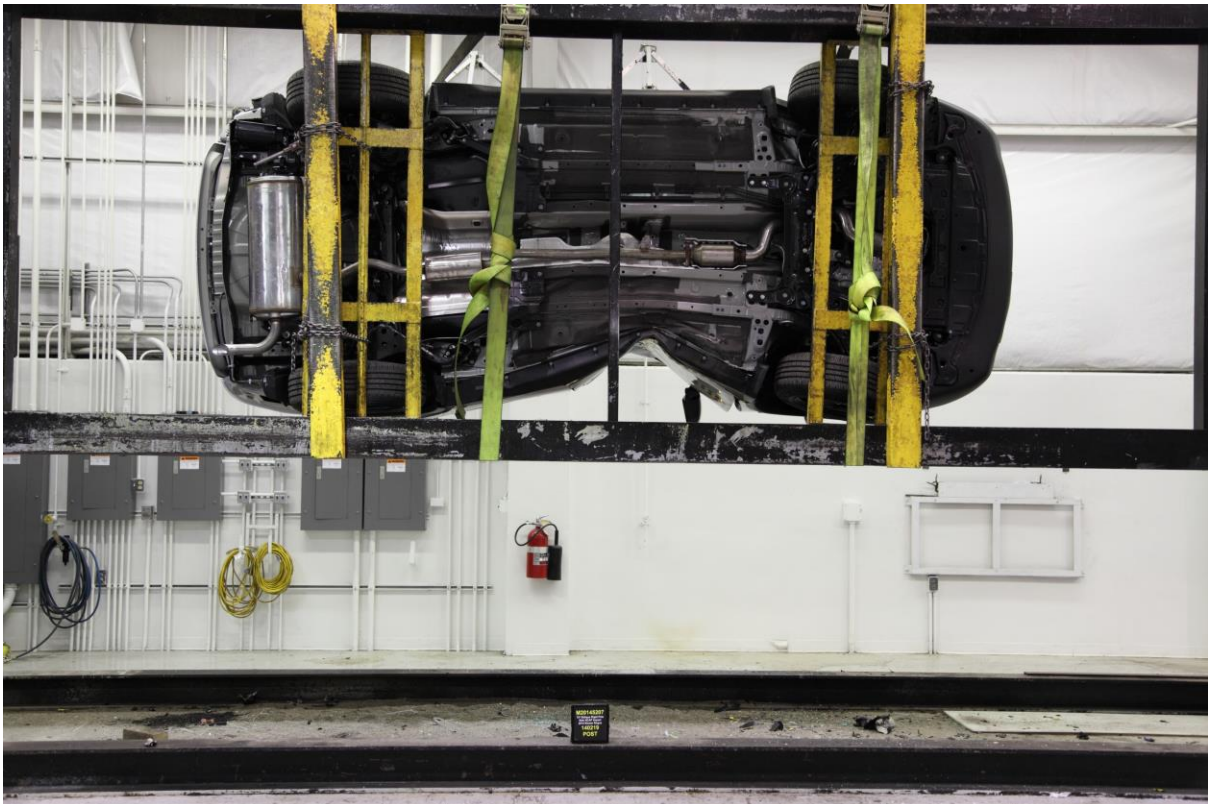
063 FMVSS No. 301 Static Rollover 0 Degrees



064 FMVSS No. 301 Static Rollover 90 Degrees



065 FMVSS No. 301 Static Rollover 180 Degrees



066 FMVSS No. 301 Static Rollover 270 Degrees



067 FMVSS No. 301 Static Rollover 360 Degrees



068 Impact Event



2014 ROGUE S FWD



Scan QR code for general model information & options

THE ALL-NEW ROGUE

Standard Equipment Included at No Extra Charge

MECHANICAL & PERFORMANCE

2.5-liter DOHC I-4 Engine
170 Horsepower and 175 lb-ft of Torque
Xtronic CVT® (Continuously Variable Transmission) with Sport Mode Switch
Front-wheel Drive
4-Wheel Front and Rear Disc Brakes
17" Steel Wheels with Full Wheel Covers
All Season Tires/Temporary Spare Tire
Hill Start Assist

SAFETY & SECURITY

Driver & Front Passenger, Side-Impact, Curtain Air Bags
Lower Anchors and Tethers for Children (LATCH)
4-Wheel Anti-Lock Braking System
Vehicle Dynamic Control (VDC) with Traction Control System (TCS)
Electronic Brake Force Distribution (EBD) and Brake Assist (BA)
Nissan Vehicle Immobilizer System
Vehicle Security System
Tire Pressure Monitoring System (TPMS) with position monitoring
TPMS with Easy Fill Tire Alert

COMFORT & CONVENIENCE

6-Way Manual Driver Seat
4-Way Manual Front Passenger Seat
EZ Flex® Seating System
40/20/40 Folding and Reclining
60/40 Sliding 2nd Row
4-Speaker AM/FM/CD Audio System
Auxiliary Audio Input Jack
NissanConnect™
5" Color Audio Display
USB connection port for iPod®
Interface and other compatible devices
Bluetooth® Hands-free Phone System
Streaming Audio via Bluetooth®
Hands-free text messaging assistant
Advanced Drive-Assist® Display
3 12-volt power points
RearView Monitor

COMFORT & CONVENIENCE CONT.

2nd row seat A/C vents
Illuminated Visor Vanity Mirrors with visor extenders
Divide-N-Hide® Cargo System
Power Door Locks w/ Auto Locking Feature
Power Windows w/ DR Auto Up/Down
Active Trace Control
Active Engine Braking
Active Ride Control

EXTERIOR

LED Daytime Running Lights
Halogen Headlights w/ Auto Off Function
Body Color Outside Mirrors w/ Integrated LED Turn Signals
Rear Window Wiper w/ Reverse Wiper Link

NissanConnect™

Certain remote functions require compatible phone, not included with vehicle. Cellular network and vehicle services provided by independent companies not within Nissan's control. Cellular network not available in all areas. Certain connected vehicle services, including but not limited to Points of Interest and Send-to-Car, may require subscription and owner consent to activate. Should service provider terminate/restrict service, service may be suspended or terminated without notice or liability to Nissan and/or its agents. Nissan not responsible for any equipment replacement or upgrades, or associated costs, that may be required for continued operation due to service changes. Standard text rates, voice minutes, roaming charges and/or data usage may apply.

Manufacturer's Suggested Retail Base Price:	\$22,490.00
Options Included by Manufacturer	
SPLASH GUARDS	135.00
REAR BUMPER PROTECTOR	85.00
FLOOR MATS (2-PC FRONT & 2-PC 2ND ROW)	125.00
DESTINATION CHARGES	860.00
Total*	\$23,695.00

Fuel Economy and Environment

Fuel Economy

28 MPG
combined city/hwy

26 33
city highway

3.6 gallons per 100 miles

You Save \$2,000
in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$1,900

Fuel Economy & Greenhouse Gas Rating (tailpipe only) Smog Rating (tailpipe only)

1 7 10 Best 1 5 10 Best

This vehicle emits 313 grams CO₂ per mile. The best emits 8 grams per mile (tailpipe only). Producing and distributing fuel also create emissions; learn more at fuelconomy.gov.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 23 MPG and costs \$11,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.50 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov
Calculate personalized estimates and compare vehicles

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score
Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash	Driver Passenger	To Be Rated
Side Crash	Front seat Rear seat	To Be Rated
Rollover		To Be Rated

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

This Vehicle qualifies for Nissan's
Security+Plus Vehicle Protection Plan
The only service agreement backed by Nissan!
Ask your dealer for details, or call 1-800-NISSAN-1 for more information

DELIVERY

VEHICLE COLORS:
EXT: BRILLIANT SILVER
INT: CHARCOAL

FINAL ASSEMBLY POINT:
SMYRNA

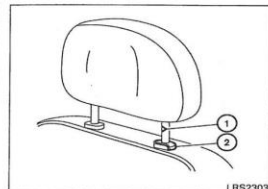
TRANSPORT METHOD:
TRUCK

DEALER:
FOX NISSAN / GRAND RAPIDS
4430 28TH ST SE
KENTWOOD MI 49512

VIN: 5N1AT2MT6C762817
EMS: 50 STATE EMISSIONS
MDL: 22114762817 K23-G
OPT: F-89299303L8R

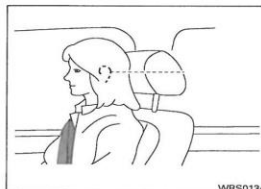
20131126005815RF3889

069 Monroney Label



Install

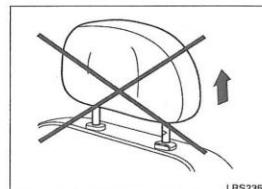
1. Align the head restraint/headrest stalks with the holes in the seat. Make sure the head restraint/headrest is facing the correct direction. The stalk with the notch (notches) ① must be installed in the hole with the lock knob ②.
2. Push and hold the lock knob and push the head restraint/headrest down.
3. Properly adjust the head restraint/headrest before an occupant uses the seating position.



Adjust

For adjustable head restraint/headrest

Adjust the head restraint/headrest so the center is level with the center of your ears. If your ear position is still higher than the recommended alignment, place the head restraint/headrest at the highest position.



For non-adjustable head restraint/headrest

Make sure the head restraint/headrest is positioned so the lock knob is engaged in the notch before riding in that designated seating position.

Safety—Seats, seat belts and supplemental restraint system 1-9

070 Head Restraint Use and Adjustment Information from Vehicle Owner Manual



071 Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

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

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

www.nhtsa.dot.gov.

Additional Driver Dummy Instrumentation Data

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

Vehicle Instrumentation Data

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

Pole Instrumentation Data

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

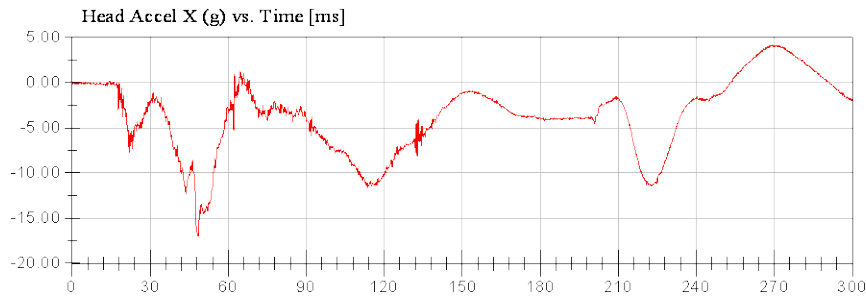
NHTSA

Test Lab: CTF

Test Number: 140219 (M20145207)

Position #1 SID IIs Dummy (D18818)

Test Date: 02/19/2014

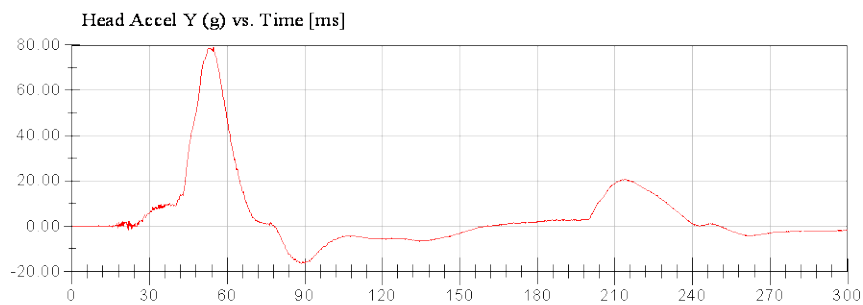


<Max>

4.16 g at 269.04 ms

<Min>

-16.97 g at 48.24 ms

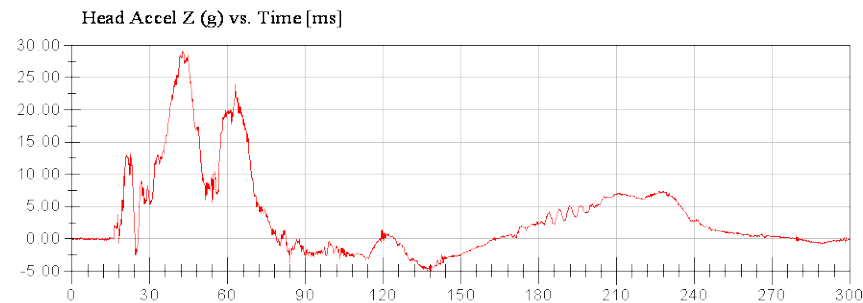


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78.95 g at 54.72 ms

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-16.42 g at 88.80 ms

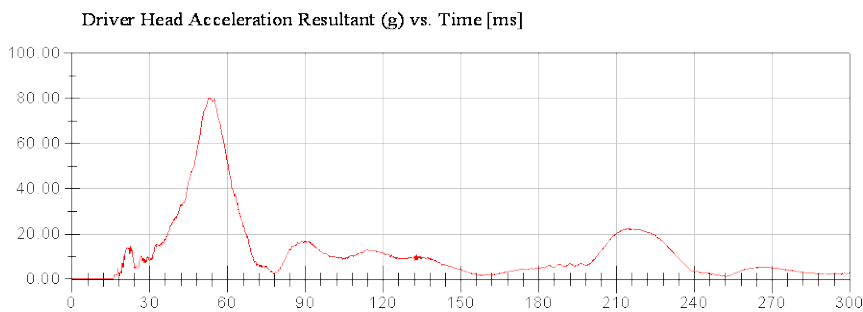


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29.13 g at 42.64 ms

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-4.98 g at 138.24 ms



<Max>

80.15 g at 52.56 ms

<Min>

0.05 g at 3.04 ms



NHTSA

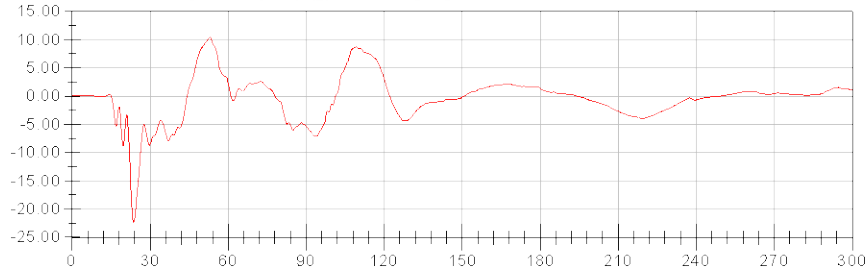
Position #1 SID IIs Dummy (DI8818)

Test Date: 02/19/2014

Test Lab: CTF

Test Number: 140219 (M20145207)

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



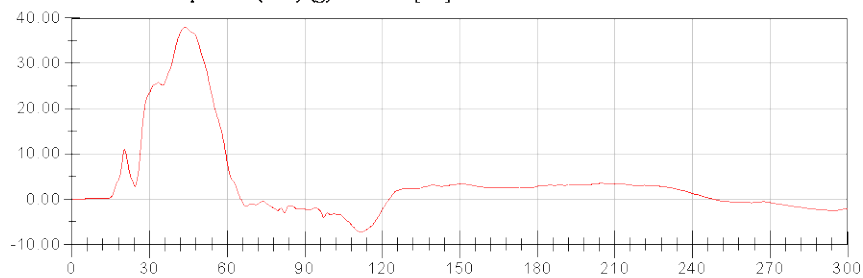
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10.46 g at 53.04 ms

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-22.39 g at 23.68 ms

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



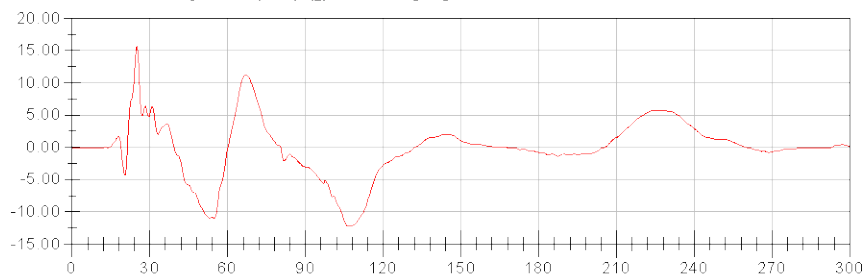
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38.03 g at 43.68 ms

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-7.29 g at 111.92 ms

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



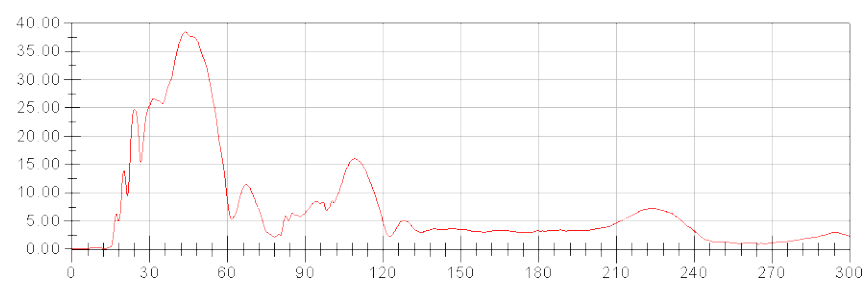
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15.66 g at 24.96 ms

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-12.23 g at 106.32 ms

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



<Max>

38.44 g at 43.68 ms

<Min>

0.08 g at 1.04 ms



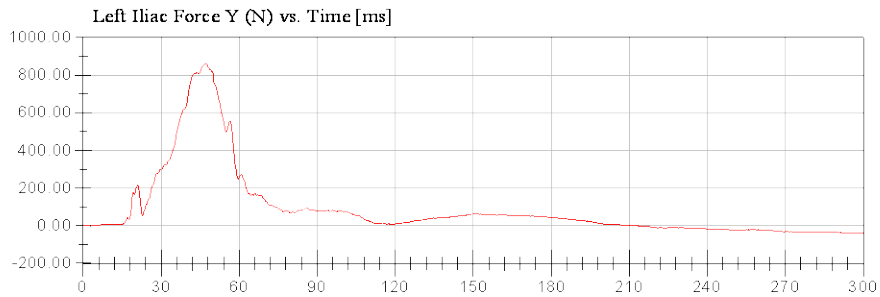
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Test Lab: CTF

Test Number: 140219 (M20145207)

Position #1 SID IIs Dummy (D18818)

Test Date: 02/19/2014

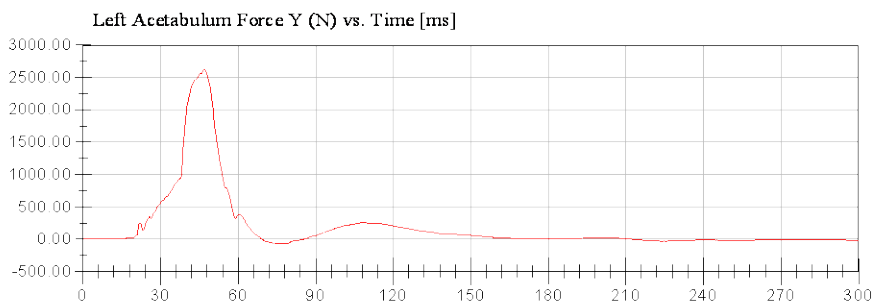


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859.95 N at 47.04 ms

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-39.30 N at 295.60 ms

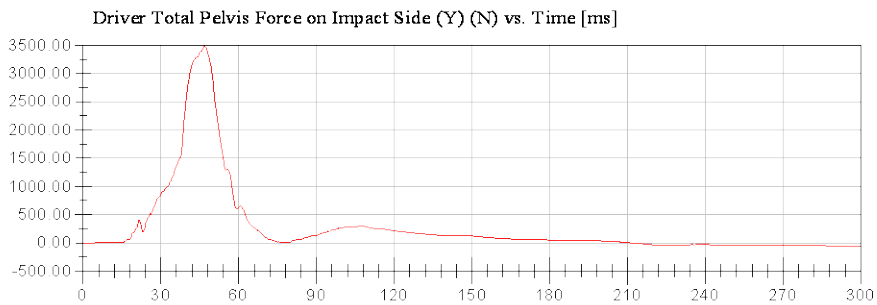


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2,626.84 N at 46.80 ms

<Min>

-73.40 N at 74.96 ms



<Max>

3,485.79 N at 46.80 ms

<Min>

-56.82 N at 296.72 ms



APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

Table 1. External Measurements

Table 2. Head Drop Test

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

Table 3. Lateral Neck Pendulum Test

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

Table 4. Shoulder Impact Test

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

Table 5. Thorax (With Arm) Impact Test

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

Table 6. Thorax (Without Arm) Impact Test

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

Table 7. Abdomen Impact Test

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

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

Table 9. Pelvis Acetabulum Impact Test

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

Table 10. Pelvis Iliac Impact Test

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

Pre-Test Calibration Sheets
Driver S/N DI8818

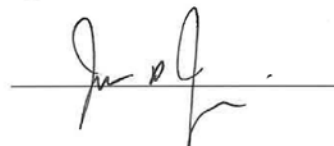
Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. DI8818 Calibration No.12

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	781	Yes
B	Shoulder Pivot Height	437.0 - 453.0	441	Yes
C	H-Point Height	79.0 - 89.0	82	Yes
D	H-Point from Seat Back	141.0 - 151.0	142	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	100	Yes
F	Thigh Clearance	119.0 - 135.0	129	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	182	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	535	Yes
L	Popliteal Height	343.0 - 369.0	352	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	398	Yes
N	Buttock Popliteal Length	416.0 - 442.0	427	Yes
O	Chest Depth without Jacket	195.0 - 211.0	203	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	313	Yes
R	Arm Length	249.0 - 259.0	255	Yes
S	Knee Joint to seat Back	478.0 - 493.0	484	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	350	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	867	Yes
Z	Waist Circumference	761.0 - 791.0	773	Yes

Technician



Approved




Revised 9/29/2005

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. DI8818 Certification No. 12-2

Test Date: 2/6/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	127.5 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	3.2 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician



Approved



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

02.06.2014 12:22:50 232

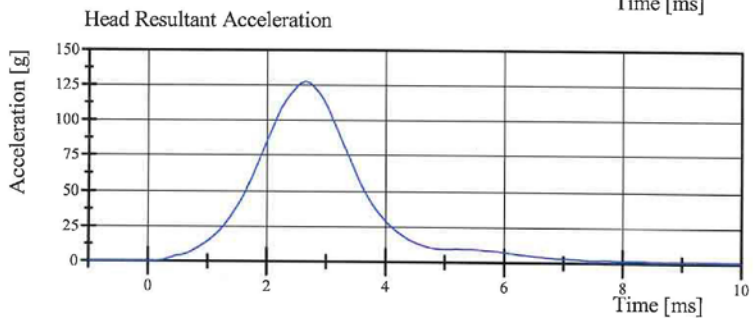
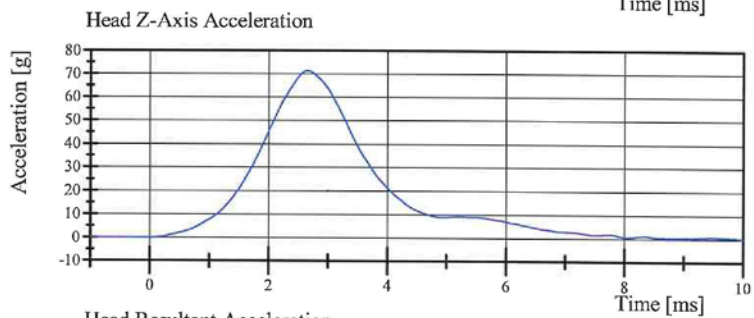
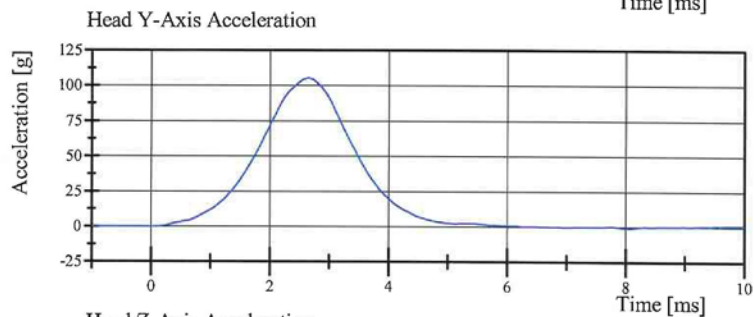
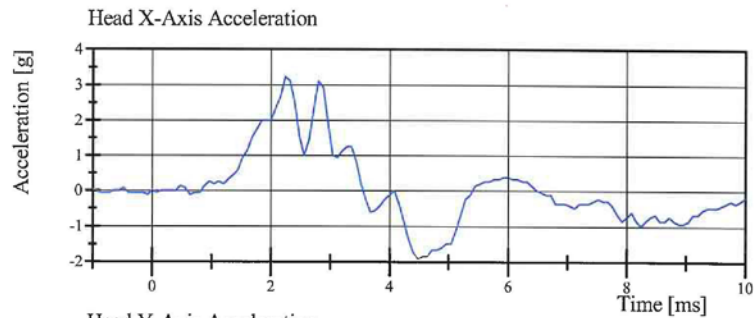


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. DI8818 Certification No. 12-2

Test Date: 2/6/2014



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

02.06.2014 12:22:56 232



Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. DI8818 Certification No. 12-2

Test Date: 2/6/2014

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	-5.585 m/s	Yes
Pendulum Integrated Velocity Change at 10 ms	2.20 - 2.80 m/s	2.337 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.430 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.639 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.623 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.779 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	68.7 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	38.2 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	120.4 ms	Yes

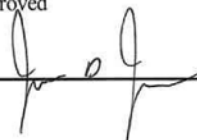
Test meets specifications.

Comments:

Technician



Approved



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

02.06.2014 10:55:07 640

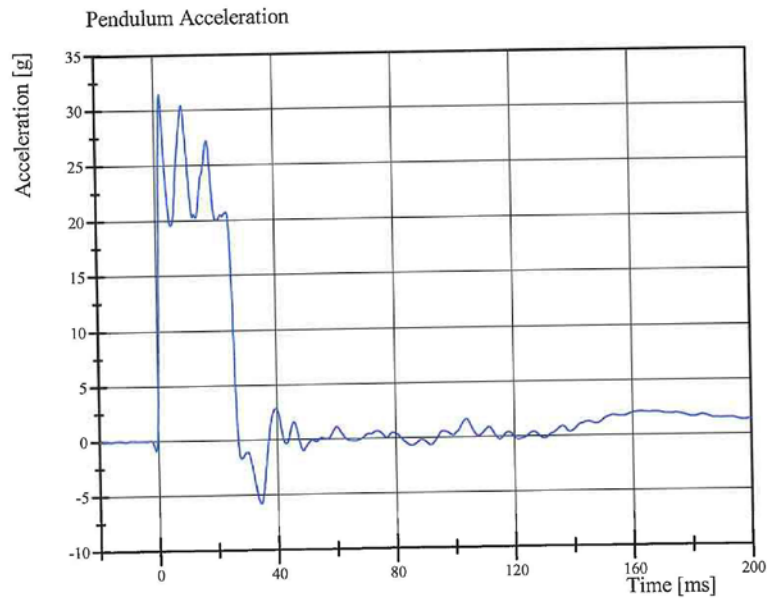


Transportation Research Center Inc.

Left Lateral Neck

SID II_s Serial No. DI8818 Certification No. 12-2

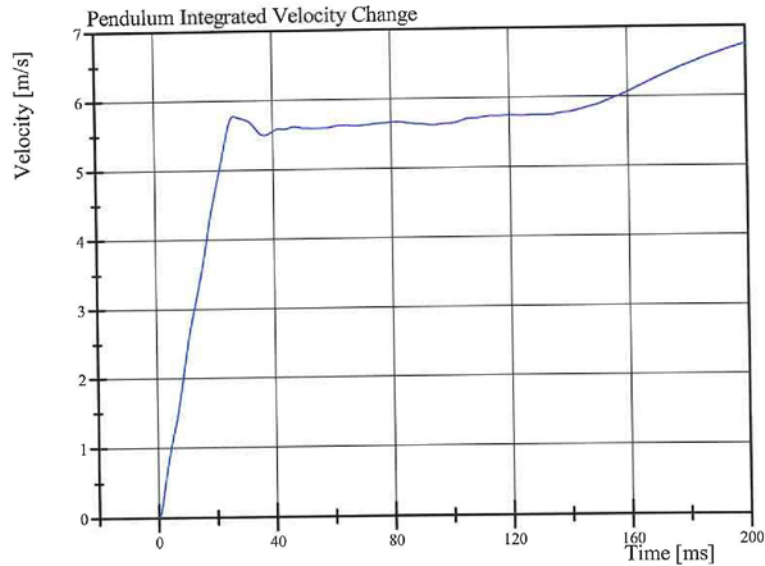
Test Date: 2/6/2014



Filter Class: CFC_180

Max: 31.4 g at 2.0 ms

Min: -5.8 g at 34.3 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.

02.06.2014 10:55:14 640

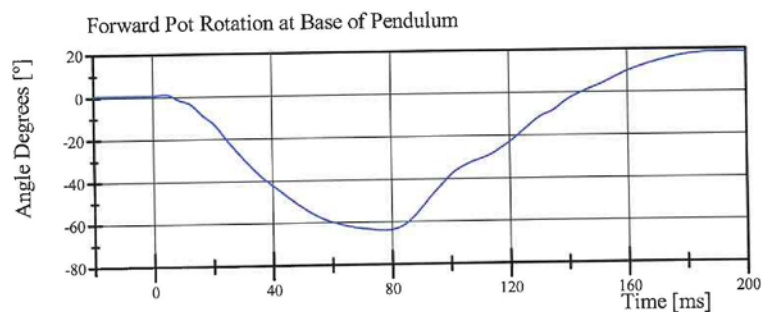


Transportation Research Center Inc.

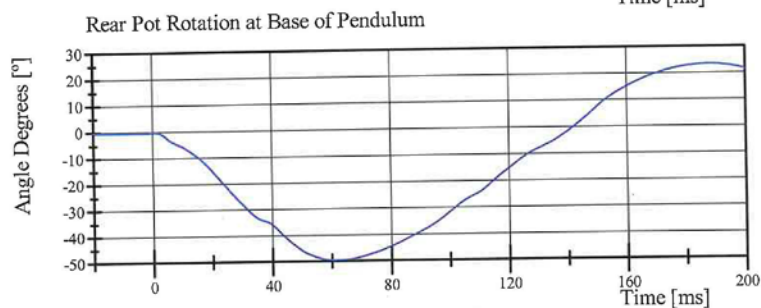
Left Lateral Neck

SID II_s Serial No. DI8818 Certification No. 12-2

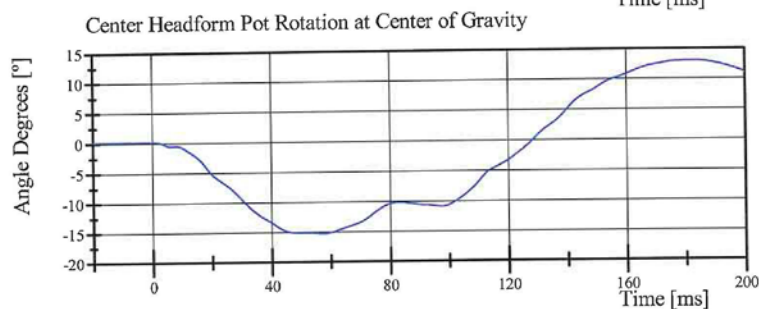
Test Date: 2/6/2014



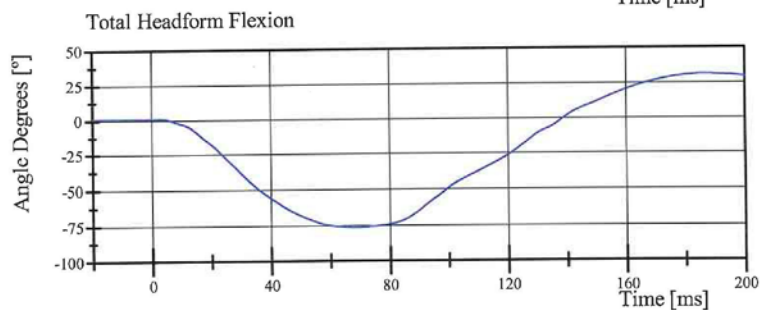
Filter Class: CFC_60
Max: 18.5 ° at 196.0 ms
Min: -63.9 ° at 77.8 ms



Filter Class: CFC_60
Max: 23.3 ° at 188.1 ms
Min: -49.6 ° at 62.3 ms



Filter Class: CFC_60
Max: 12.9 ° at 183.7 ms
Min: -15.2 ° at 57.5 ms



Filter Class: CFC_60
Max: 31.1 ° at 186.3 ms
Min: -76.3 ° at 68.7 ms

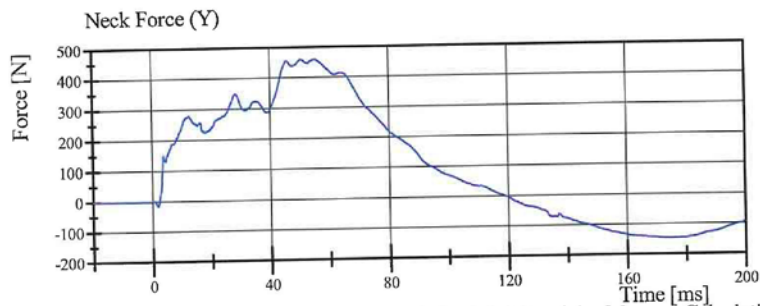
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J2111.

02.06.2014 10:55:15 640

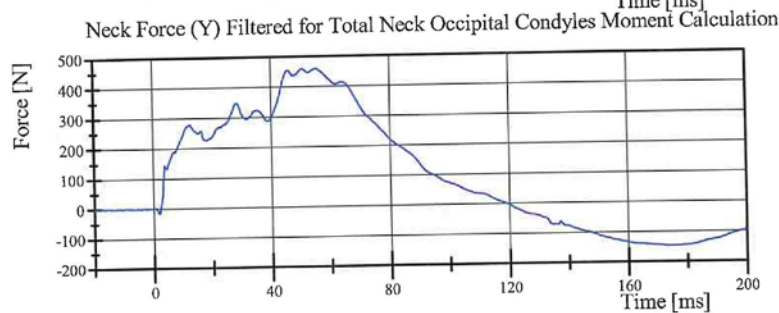


Transportation Research Center Inc.

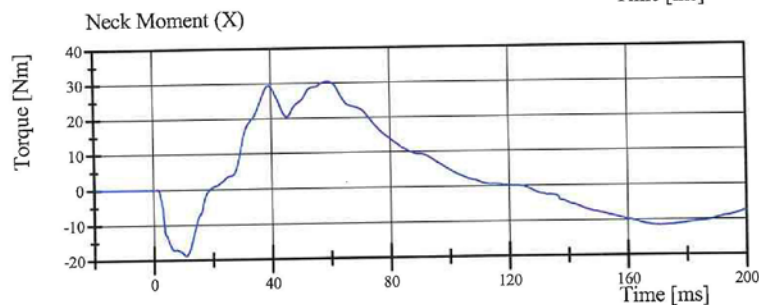
Left Lateral Neck
SID IIs Serial No. DI8818 Certification No. 12-2
Test Date: 2/6/2014



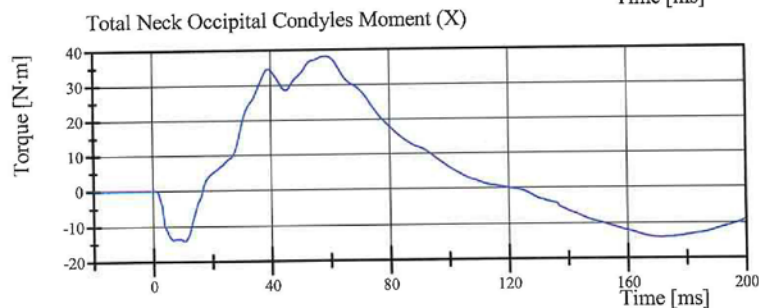
Filter Class: CFC_1000
Max: 460.8 N at 55.4 ms
Min: -148.0 N at 172.8 ms



Filter Class: CFC_600
Max: 460.1 N at 55.4 ms
Min: -147.7 N at 175.0 ms



Filter Class: CFC_600
Max: 30.5 Nm at 59.2 ms
Min: -18.8 Nm at 10.9 ms



Filter Class: Without_(Consta
Max: 38.2 N·m at 58.5 ms
Min: -14.2 N·m at 171.1 ms

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

02.06.2014 10:55:16 640



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. DI8818 Certification No. 12-1

Test Date: 2/6/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-14.8 g	Yes
Shoulder Displacement	28 - 37 mm	32.7 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	19.9 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.

02.06.2014 09:30:25 817

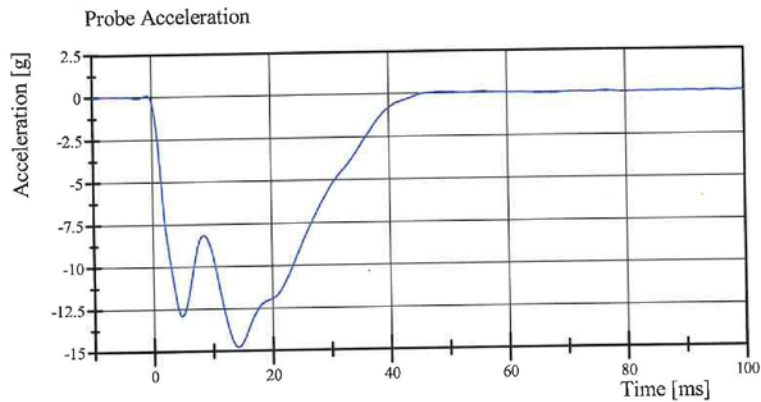


Transportation Research Center Inc.

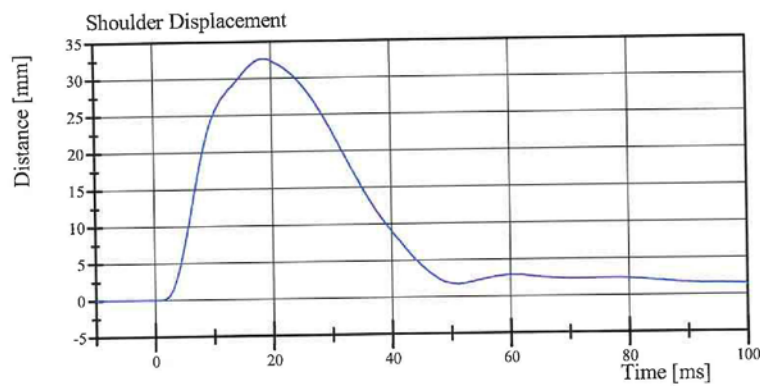
Left Lateral Shoulder

SID IIs Serial No. DI8818 Certification No. 12-1

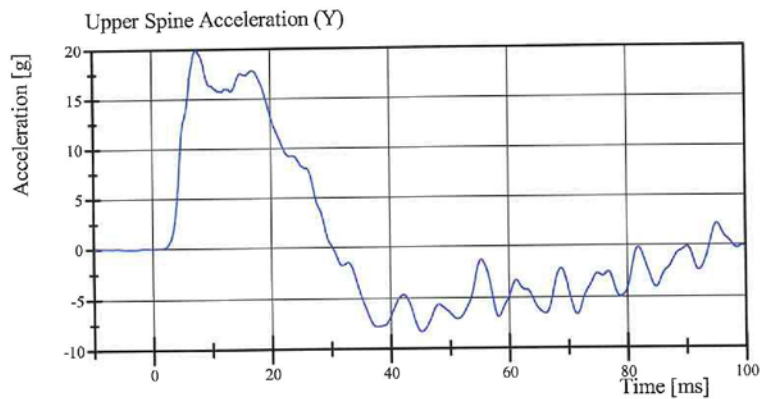
Test Date: 2/6/2014



Filter Class: CFC_180
Max: 0.1 g at 48.4 ms
Min: -14.8 g at 14.2 ms



Filter Class: CFC_600
Max: 32.7 mm at 18.6 ms
Min: -0.0 mm at -2.9 ms



Filter Class: CFC_180
Max: 19.9 g at 7.6 ms
Min: -8.3 g at 45.2 ms

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

02.06.2014 09:30:32 817



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID II_s Serial No. DI8818 Certification No. 12-1
Test Date: 2/6/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.752 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.5 g	Yes
Shoulder Displacement	31 - 40 mm	36.8 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	29.1 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	32.1 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	33.7 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	37.3 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	34.5 g	Yes

Test meets specifications.

Comments:

Technician



Approved



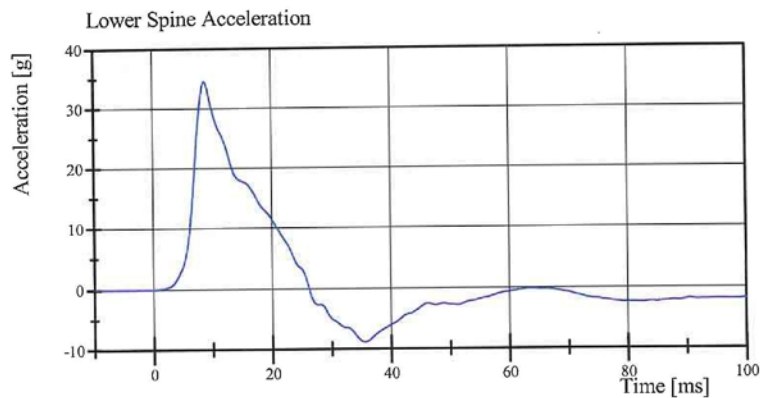
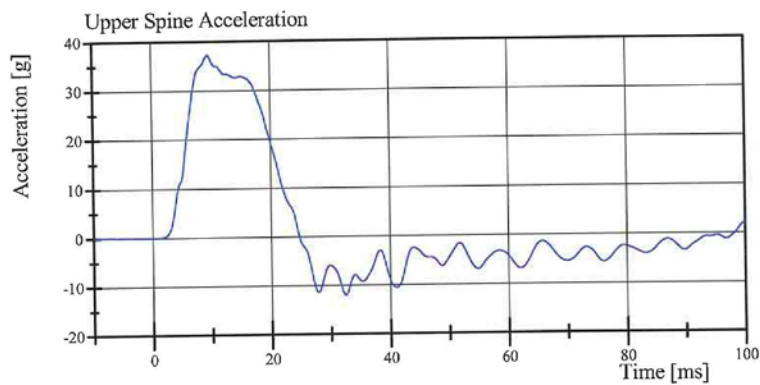
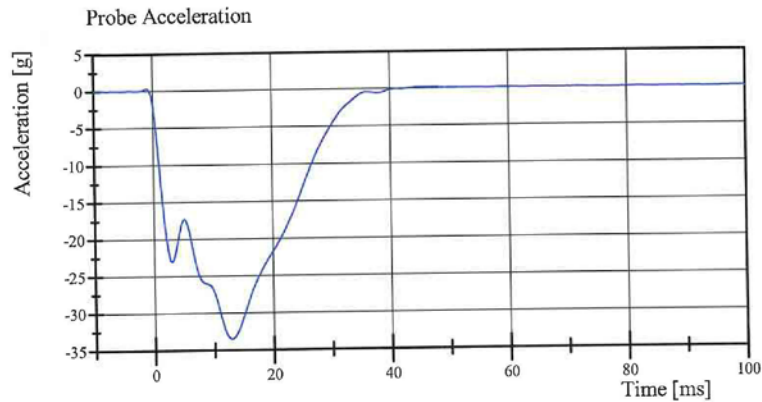
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.06.2014 10:40:05 605



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID II_s Serial No. DI8818 Certification No. 12-1
Test Date: 2/6/2014



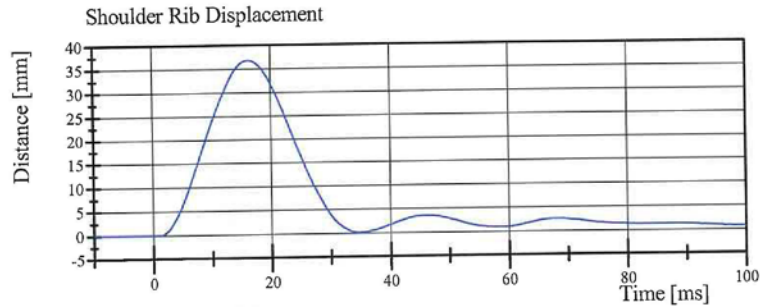
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.06.2014 10:40:14 605

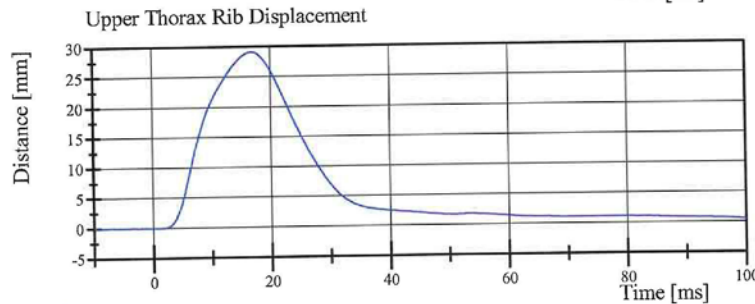


Transportation Research Center Inc.

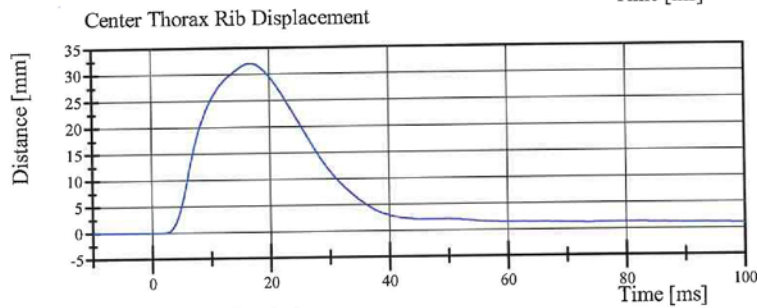
Left Lateral Thorax with Arm
SID IIs Serial No. DI8818 Certification No. 12-1
Test Date: 2/6/2014



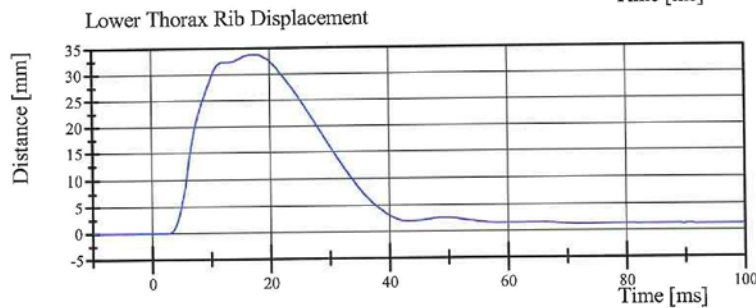
Filter Class: CFC_600
Max: 36.8 mm at 16.2 ms
Min: -0.0 mm at 1.2 ms



Filter Class: CFC_600
Max: 29.1 mm at 16.9 ms
Min: -0.0 mm at -0.5 ms



Filter Class: CFC_600
Max: 32.1 mm at 16.8 ms
Min: -0.0 mm at -0.3 ms



Filter Class: CFC_600
Max: 33.7 mm at 17.6 ms
Min: -0.0 mm at -0.8 ms

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

02.06.2014 10:40:15 605



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID IIs Serial No. DI8818 Certification No. 12-1
Test Date: 2/6/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.241 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.6 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	36.6 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.9 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	38.2 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	15.4 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.1 g	Yes

Test meets specifications.

Comments:

Technician



Approved



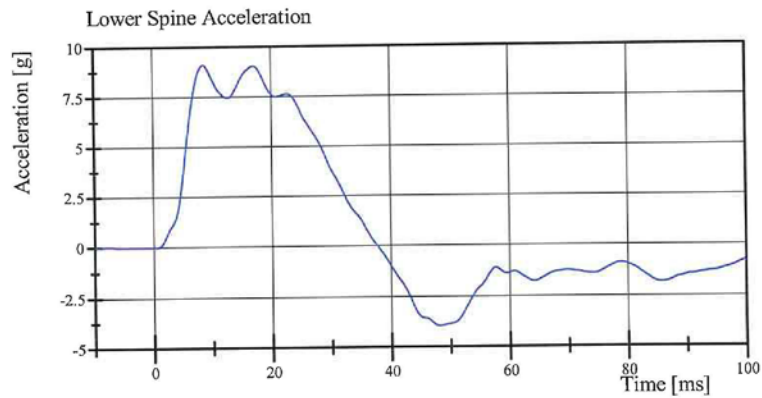
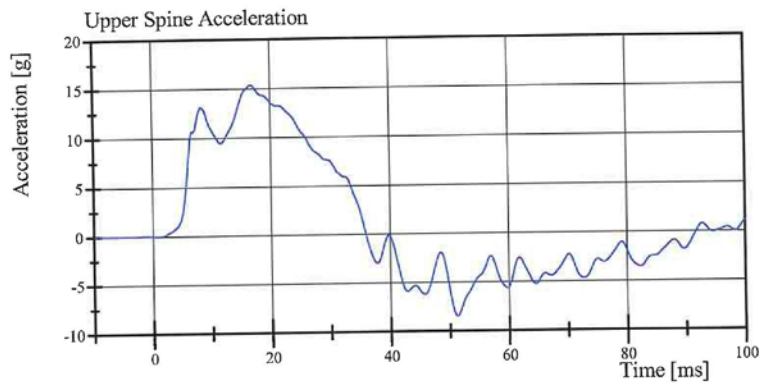
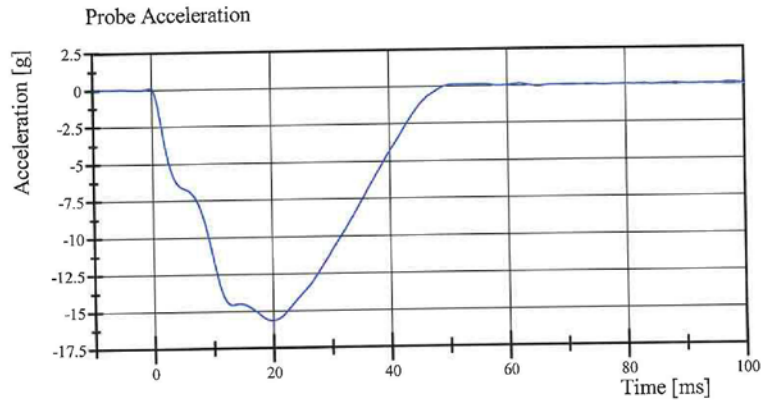
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.06.2014 10:18:53 813



Transportation Research Center Inc.

Left Lateral Thorax without Arm
SID II_s Serial No. DI8818 Certification No. 12-1
Test Date: 2/6/2014



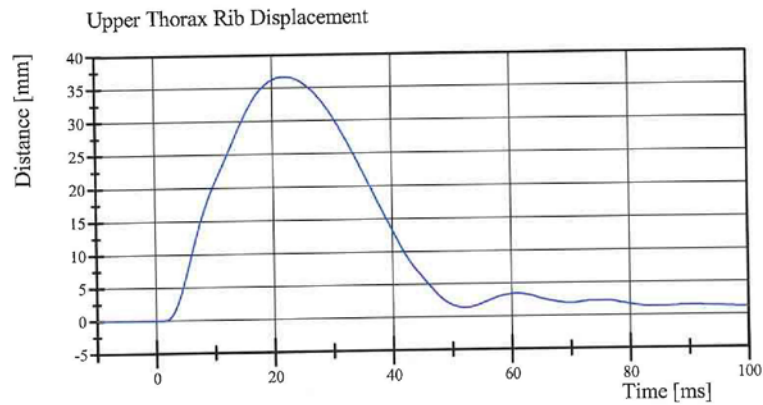
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.06.2014 10:19:02 813

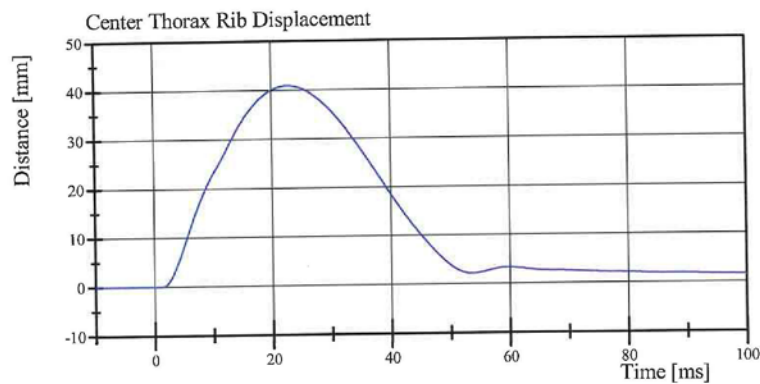


Transportation Research Center Inc.

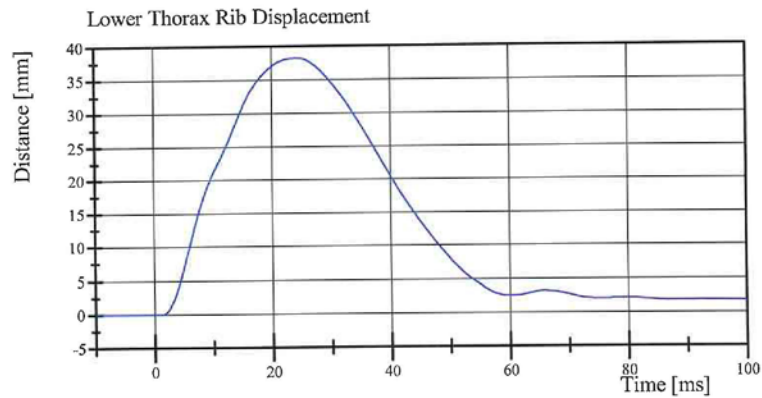
Left Lateral Thorax without Arm
SID II_s Serial No. DI8818 Certification No. 12-1
Test Date: 2/6/2014



Filter Class: CFC_600
Max: 36.6 mm at 22.0 ms
Min: -0.0 mm at -2.7 ms



Filter Class: CFC_600
Max: 40.9 mm at 22.7 ms
Min: -0.0 mm at 1.0 ms



Filter Class: CFC_600
Max: 38.2 mm at 24.1 ms
Min: -0.0 mm at -6.2 ms

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

02.06.2014 10:19:03 813



Transportation Research Center Inc.

Left Lateral Abdomen

SID II_s Serial No. DI8818 Certification No. 12-1

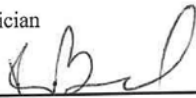
Test Date: 2/6/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.5 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	38.4 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	37.7 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	10.80 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.

02.06.2014 10:28:39 643

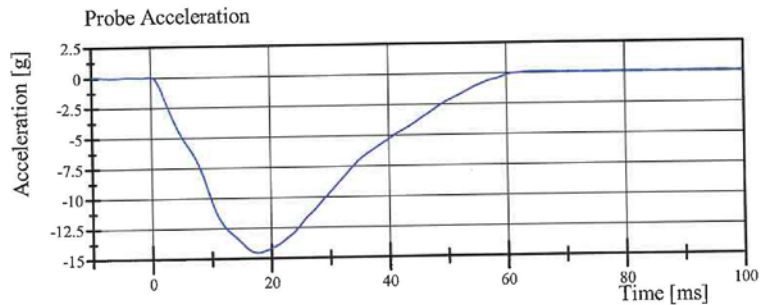


Transportation Research Center Inc.

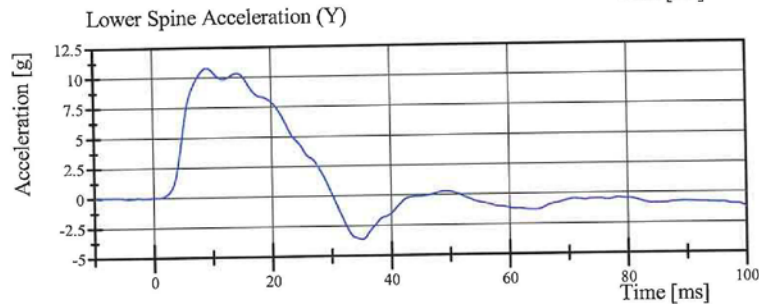
Left Lateral Abdomen

SID II_s Serial No. DI8818 Certification No. 12-1

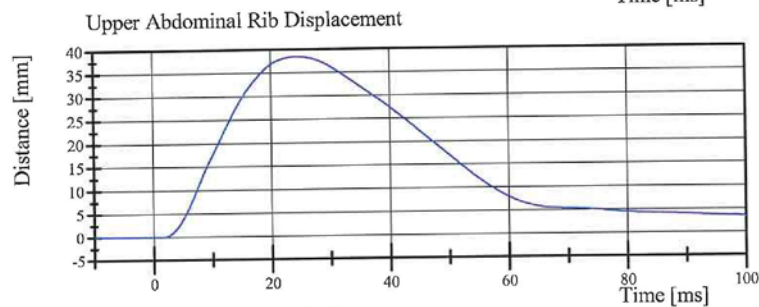
Test Date: 2/6/2014



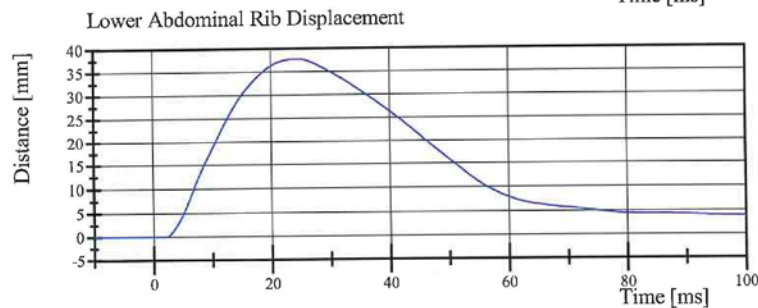
Filter Class: CFC_180
Max: 0.1 g at 93.6 ms
Min: -14.5 g at 17.8 ms



Filter Class: CFC_180
Max: 10.8 g at 9.2 ms
Min: -3.6 g at 35.1 ms



Filter Class: CFC_600
Max: 38.4 mm at 24.2 ms
Min: -0.0 mm at 1.7 ms



Filter Class: CFC_600
Max: 37.7 mm at 23.8 ms
Min: -0.0 mm at 2.2 ms

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

02.06.2014 10:28:47 643



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. DI8818 Certification No. 12-2

Test Date: 2/7/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.67 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-43.44 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	39.8 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,154.8 N	Yes

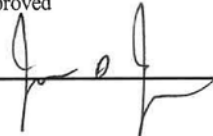
Test meets specifications.

Comments:

Technician



Approved



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

02.07.2014 07:05:09 451

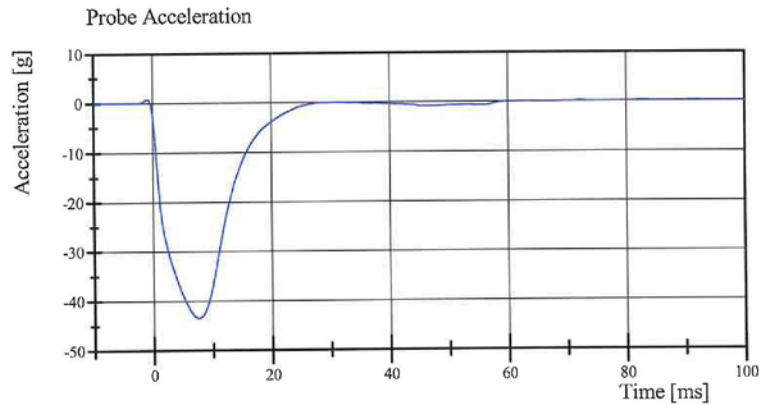


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIIs Serial No. DI8818 Certification No. 12-2

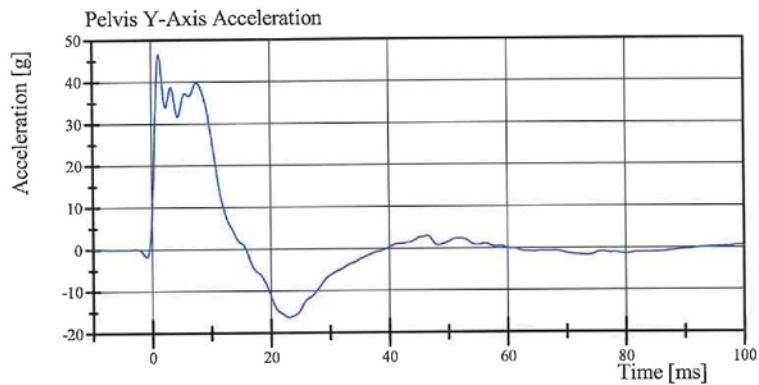
Test Date: 2/7/2014



Filter Class: CFC_180

Max: 0.7 g at -0.9 ms

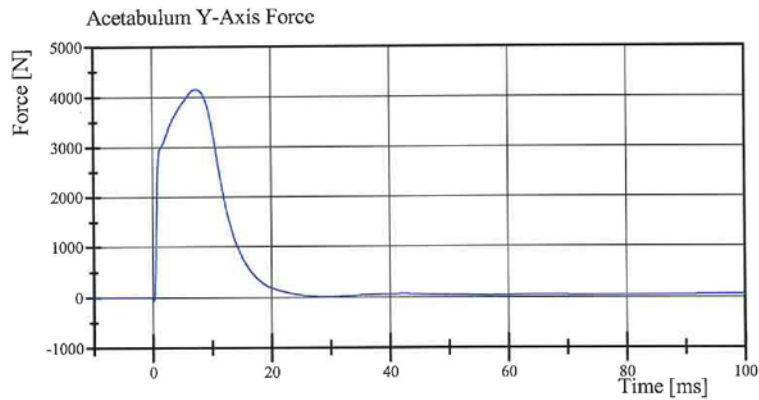
Min: -43.4 g at 7.6 ms



Filter Class: CFC_180

Max: 46.5 g at 1.3 ms

Min: -16.3 g at 23.0 ms



Filter Class: CFC_600

Max: 4,154.8 N at 7.4 ms

Min: -65.3 N at 0.2 ms

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

02.07.2014 07:05:17 451



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. DI8818 Certification No. 12-1

Test Date: 2/6/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.24 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-39.8 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	28.1 g	Yes
Iliac Force	4,100 - 5,100 N	4,698.0 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.

02.06.2014 12:31:36 687

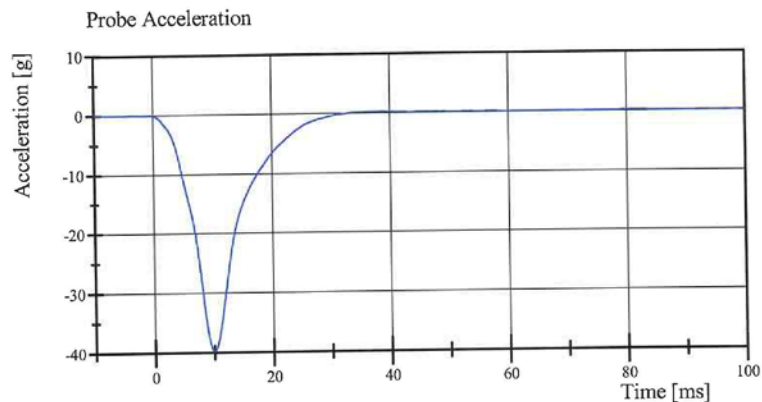


Transportation Research Center Inc.

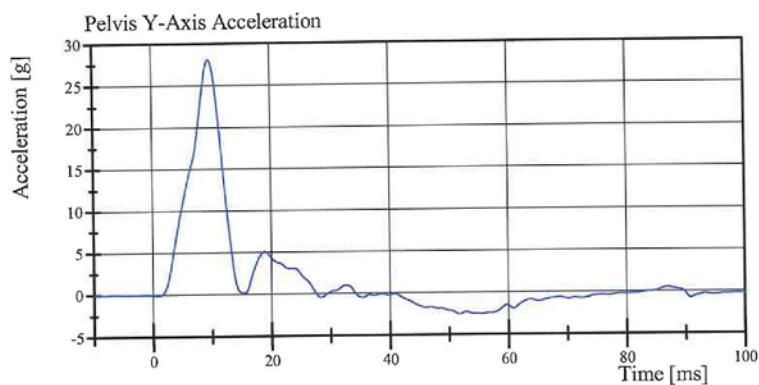
Left Lateral Iliac

SID IIa Serial No. DI8818 Certification No. 12-1

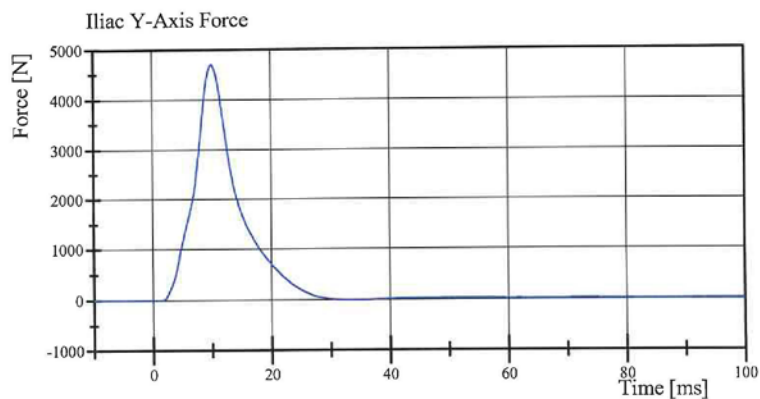
Test Date: 2/6/2014



Filter Class: CFC_180
Max: 0.3 g at 38.7 ms
Min: -39.8 g at 10.0 ms



Filter Class: CFC_180
Max: 28.1 g at 9.7 ms
Min: -2.6 g at 51.7 ms



Filter Class: CFC_600
Max: 4,698.0 N at 10.0 ms
Min: -4.7 N at 35.0 ms

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

02.06.2014 12:31:44 687



Driver S/N DI8818

Post-Test Calibration Sheets

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. DI8818 Calibration No.13

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	782	Yes
B	Shoulder Pivot Height	437.0 - 453.0	442	Yes
C	H-Point Height	79.0 - 89.0	82	Yes
D	H-Point from Seat Back	141.0 - 151.0	142	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	100	Yes
F	Thigh Clearance	119.0 - 135.0	130	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	182	Yes
J	Head Circumference	541.0 - 551.0	544	Yes
K	Buttock to Knee Length	514.0 - 540.0	534	Yes
L	Popliteal Height	343.0 - 369.0	352	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	399	Yes
N	Buttock Popliteal Length	416.0 - 442.0	427	Yes
O	Chest Depth without Jacket	195.0 - 211.0	203	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	313	Yes
R	Arm Length	249.0 - 259.0	255	Yes
S	Knee Joint to seat Back	478.0 - 493.0	484	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	350	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	867	Yes
Z	Waist Circumference	761.0 - 791.0	775	Yes

Technician



Approved



Revised 9/29/2005



Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs Serial No. DI8818 Certification No. 13-1

Test Date: 2/20/2014

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	128.1 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-3.1 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.

02.20.2014 10:31:44 232

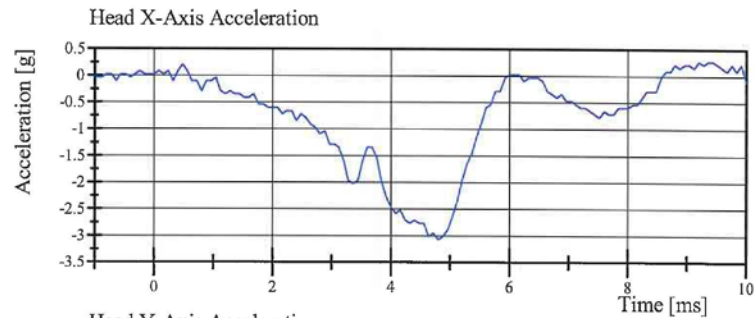


Transportation Research Center Inc.

Left Lateral Head Drop

SID II_s Serial No. DI8818 Certification No. 13-1

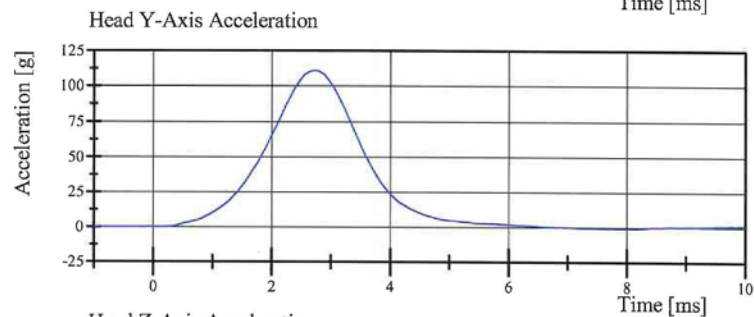
Test Date: 2/20/2014



Filter Class: CFC_1000

Max: 0.3 g at 9.2 ms

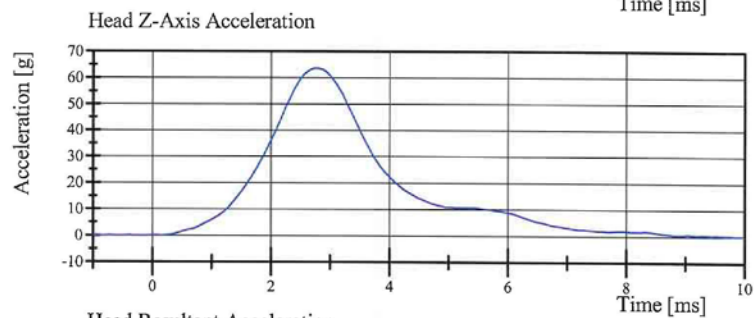
Min: -3.1 g at 4.8 ms



Filter Class: CFC_1000

Max: 111.1 g at 2.7 ms

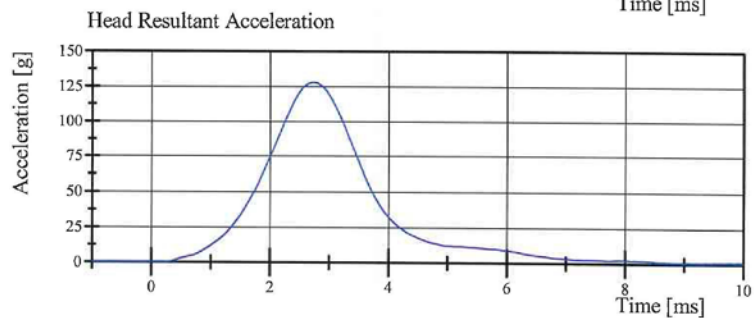
Min: -1.1 g at 8.1 ms



Filter Class: CFC_1000

Max: 63.6 g at 2.7 ms

Min: -0.0 g at -1.0 ms



Filter Class: CFC_1000

Max: 128.1 g at 2.7 ms

Min: 0.0 g at -1.0 ms

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

02.20.2014 10:31:54 232



Transportation Research Center Inc.

Left Lateral Neck

SID II's Serial No. DI8818 Certification No. 13-3

Test Date: 2/20/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.590 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.478 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.601 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.812 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.743 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.774 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	67.2 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	41.9 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	116.5 ms	Yes

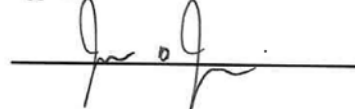
Test meets specifications.

Comments:

Technician



Approved



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

02.20.2014 13:09:33 640

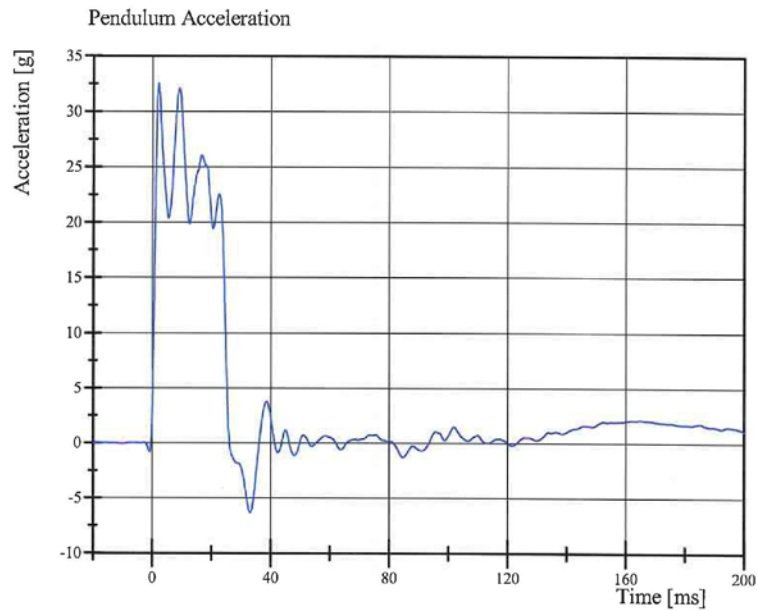


Transportation Research Center Inc.

Left Lateral Neck

SID II_s Serial No. DI8818 Certification No. 13-3

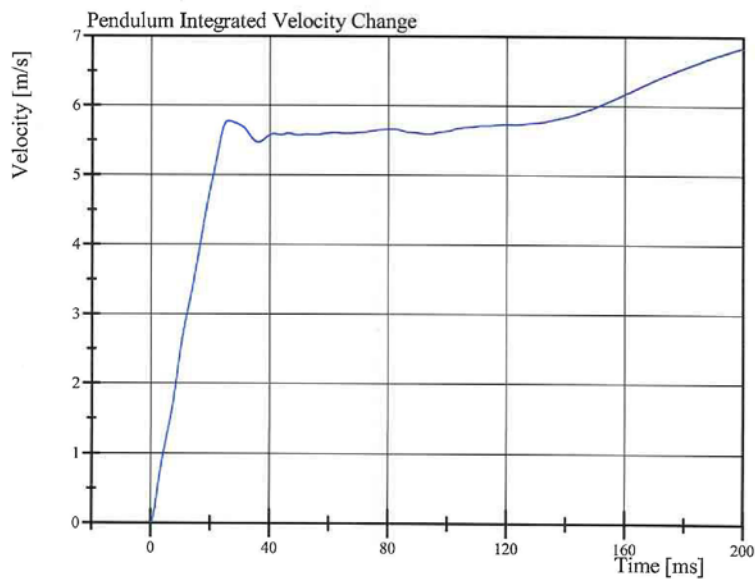
Test Date: 2/20/2014



Filter Class: CFC_180

Max: 32.5 g at 2.1 ms

Min: -6.3 g at 33.1 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.

02.20.2014 13:09:40 640

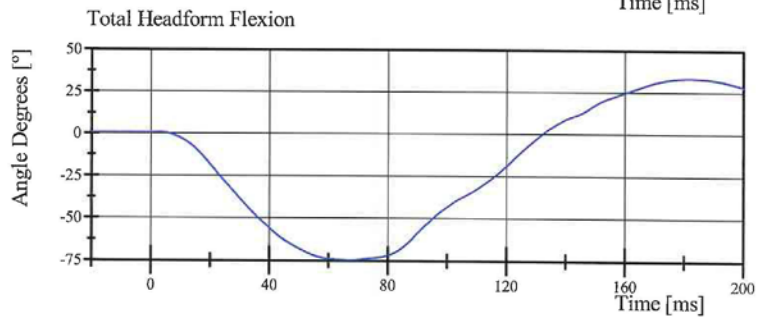
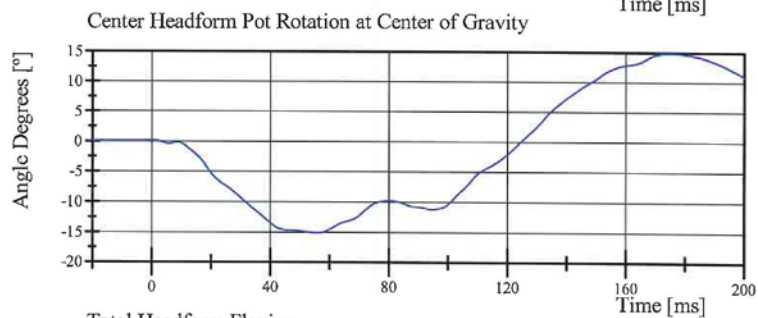
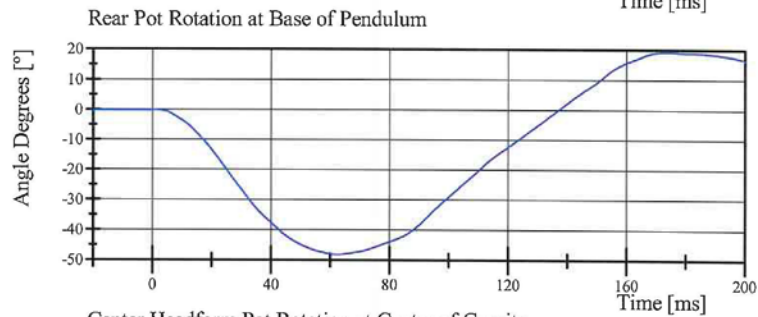
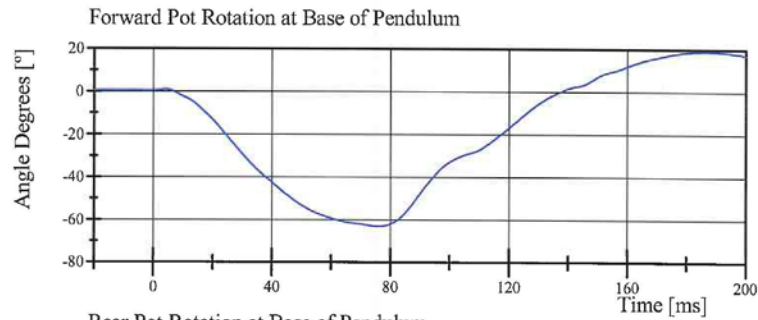


Transportation Research Center Inc.

Left Lateral Neck

SID II_s Serial No. DI8818 Certification No. 13-3

Test Date: 2/20/2014



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

02.20.2014 13:09:41 640

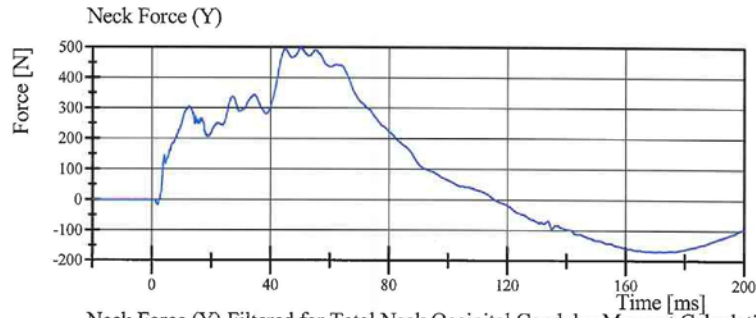


Transportation Research Center Inc.

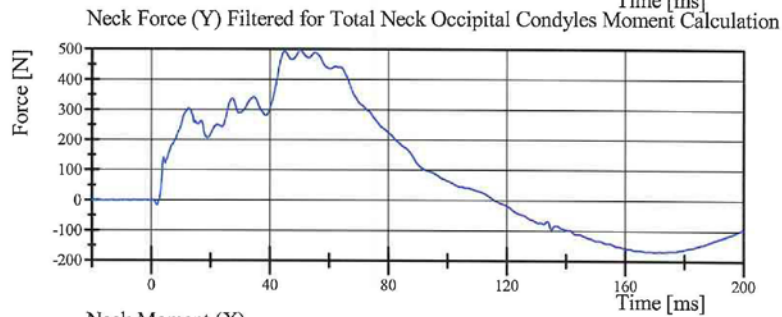
Left Lateral Neck

SID II_s Serial No. DI8818 Certification No. 13-3

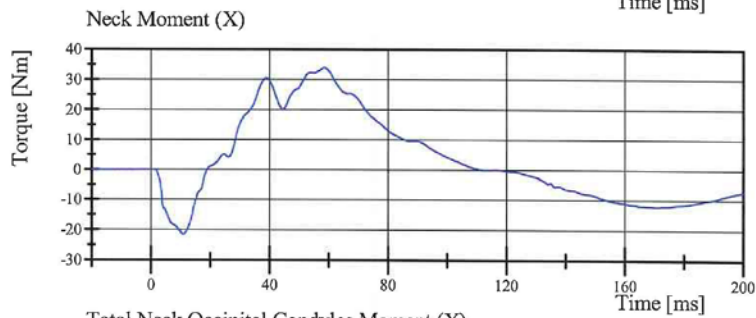
Test Date: 2/20/2014



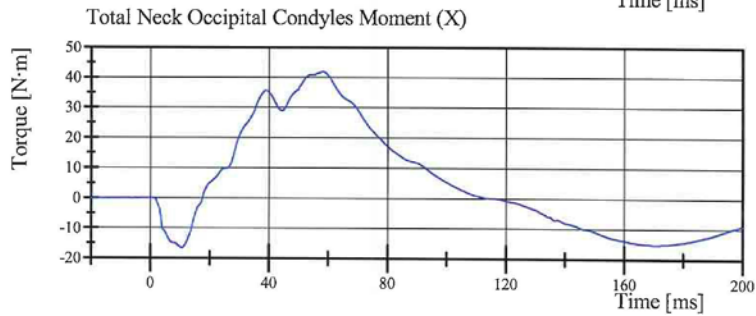
Filter Class: CFC_1000
Max: 499.6 N at 50.4 ms
Min: -170.6 N at 169.3 ms



Filter Class: CFC_600
Max: 497.1 N at 50.3 ms
Min: -170.2 N at 170.2 ms



Filter Class: CFC_600
Max: 34.0 Nm at 58.5 ms
Min: -21.5 Nm at 10.9 ms



Filter Class: Without_(Consta
Max: 41.9 N·m at 58.2 ms
Min: -16.6 N·m at 10.5 ms

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

02.20.2014 13:09:42 640



Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs Serial No. DI8818 Certification No. 13-1

Test Date: 2/20/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.32 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-14.4 g	Yes
Shoulder Displacement	28 - 37 mm	32.3 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.

02.20.2014 10:37:14 818

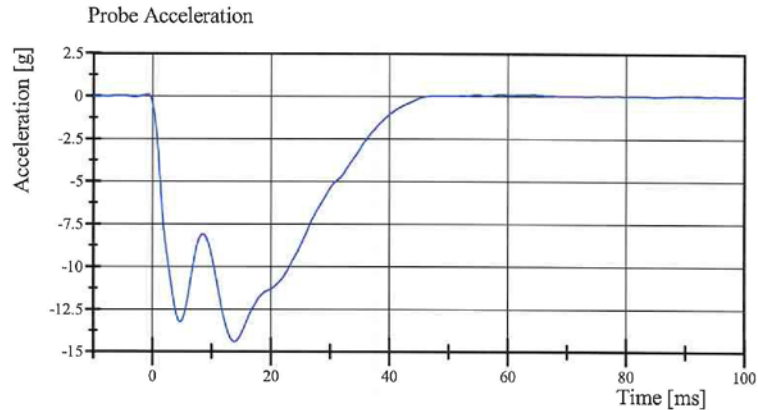


Transportation Research Center Inc.

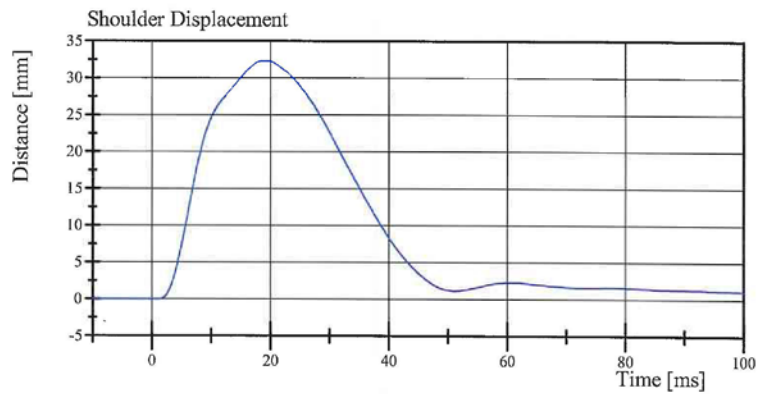
Left Lateral Shoulder

SID IIs Serial No. DI8818 Certification No. 13-1

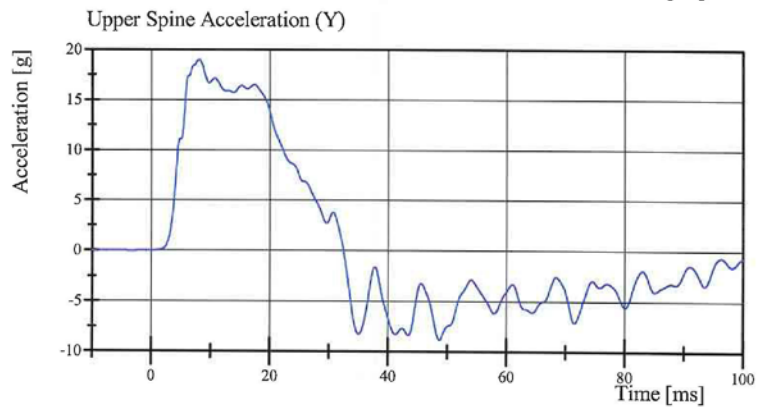
Test Date: 2/20/2014



Filter Class: CFC_180
Max: 0.1 g at 58.6 ms
Min: -14.4 g at 13.8 ms



Filter Class: CFC_600
Max: 32.3 mm at 19.1 ms
Min: -0.0 mm at 1.2 ms



Filter Class: CFC_180
Max: 19.0 g at 8.1 ms
Min: -8.8 g at 48.7 ms

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

02.20.2014 10:37:23 818



Transportation Research Center Inc.

Left Lateral Thorax with Arm
SID IIs Serial No. DI8818 Certification No. 13-1
Test Date: 2/20/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.739 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.5 g	Yes
Shoulder Displacement	31 - 40 mm	38.3 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	29.8 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.9 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	32.9 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	36.8 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	35.3 g	Yes

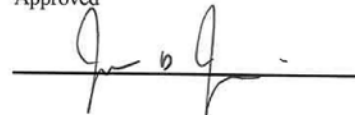
Test meets specifications.

Comments:

Technician



Approved



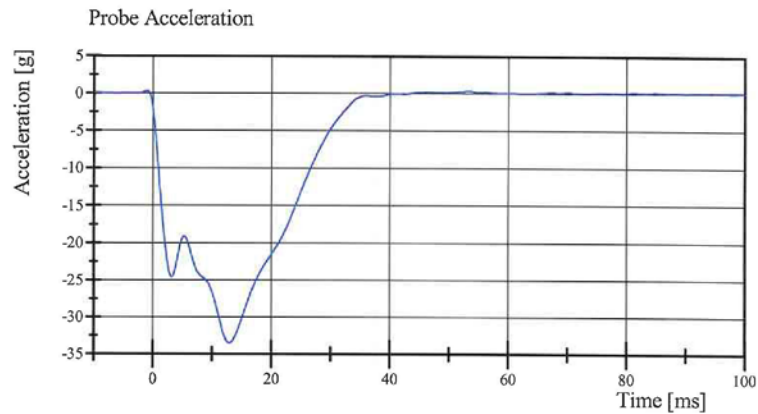
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.20.2014 11:39:14 614

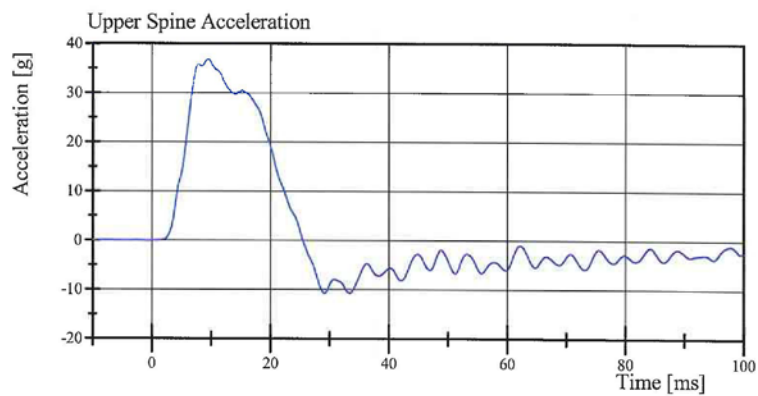


Transportation Research Center Inc.

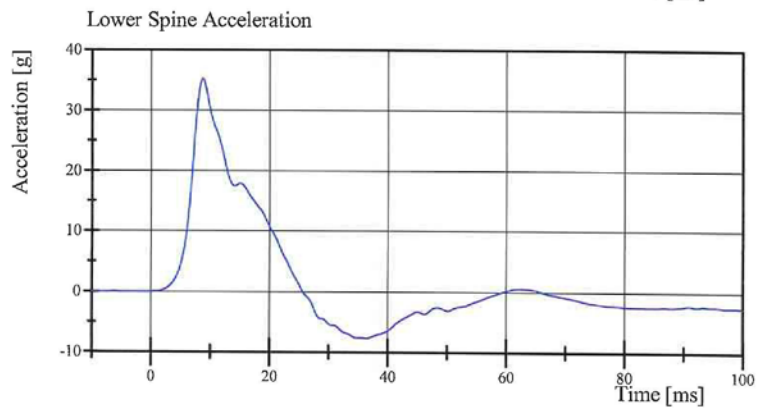
Left Lateral Thorax with Arm
SID II_s Serial No. DI8818 Certification No. 13-1
Test Date: 2/20/2014



Filter Class: CFC_180
Max: 0.3 g at -1.0 ms
Min: -33.5 g at 13.0 ms



Filter Class: CFC_180
Max: 36.8 g at 9.6 ms
Min: -10.8 g at 29.1 ms



Filter Class: CFC_180
Max: 35.3 g at 8.7 ms
Min: -7.7 g at 36.3 ms

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

02.20.2014 11:39:23 614

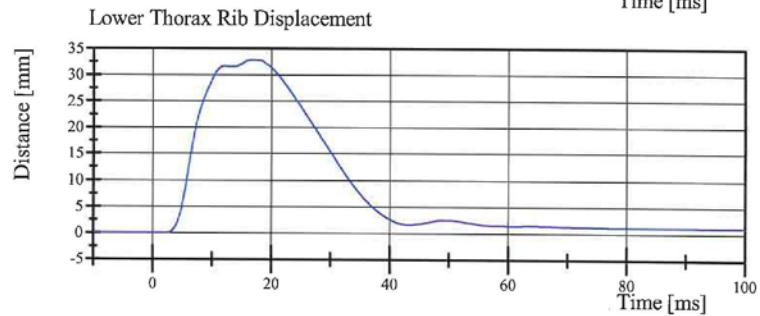
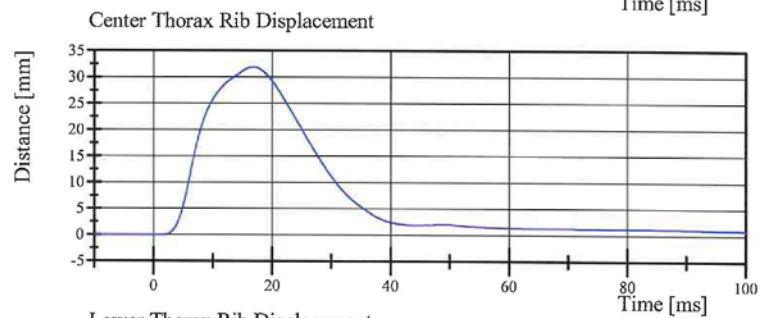
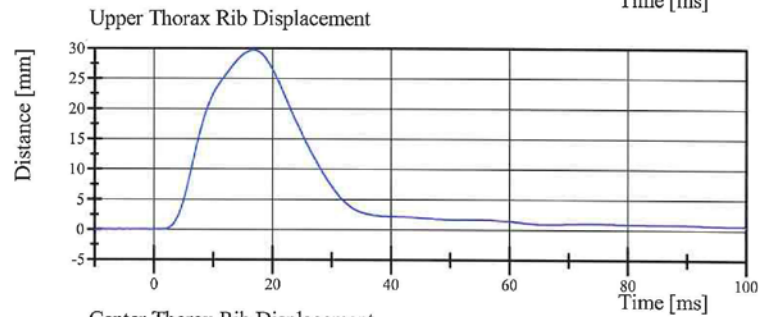
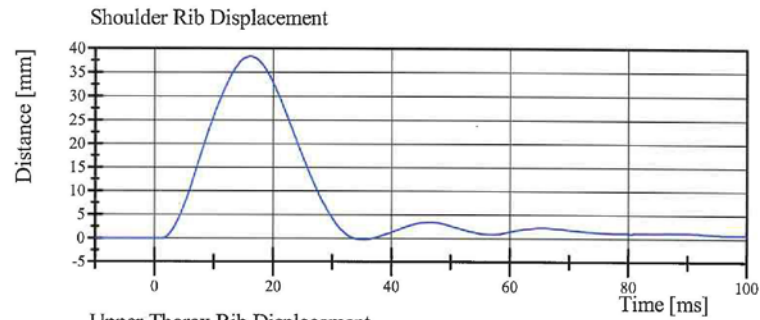


Transportation Research Center Inc.

Left Lateral Thorax with Arm

SID II_s Serial No. DI8818 Certification No. 13-1

Test Date: 2/20/2014



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

02.20.2014 11:39:24 614



Transportation Research Center Inc.

Left Lateral Thorax without Arm

SID IIs Serial No. DI8818 Certification No. 13-1

Test Date: 2/20/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	40 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.239 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.7 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	36.7 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.1 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	38.0 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	14.1 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	9.2 g	Yes

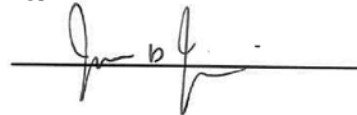
Test meets specifications.

Comments:

Technician



Approved



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

02.20.2014 11:14:02 849

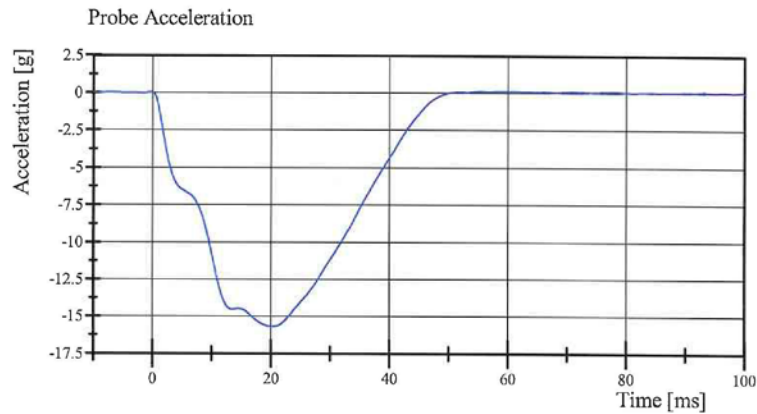


Transportation Research Center Inc.

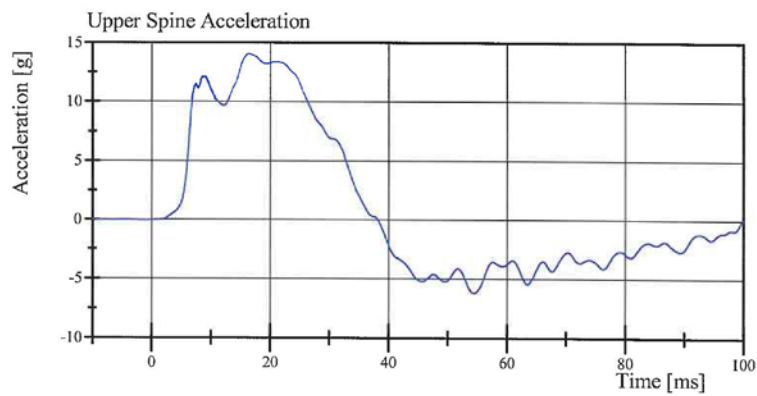
Left Lateral Thorax without Arm

SID II_s Serial No. DI8818 Certification No. 13-1

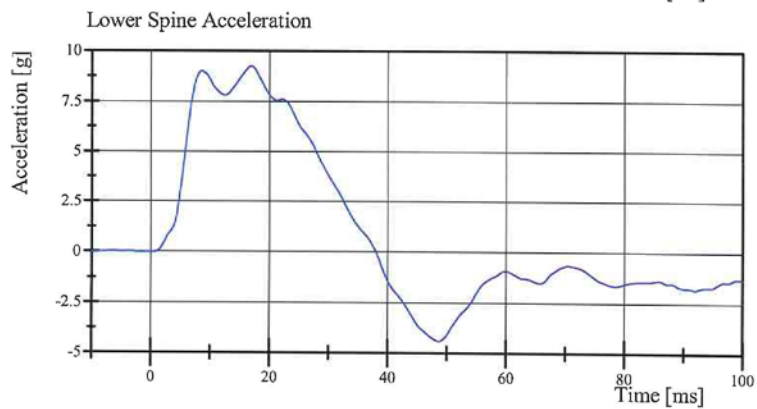
Test Date: 2/20/2014



Filter Class: CFC_180
Max: 0.1 g at 55.4 ms
Min: -15.7 g at 20.2 ms



Filter Class: CFC_180
Max: 14.1 g at 16.3 ms
Min: -6.2 g at 54.5 ms



Filter Class: CFC_180
Max: 9.2 g at 17.0 ms
Min: -4.4 g at 48.6 ms

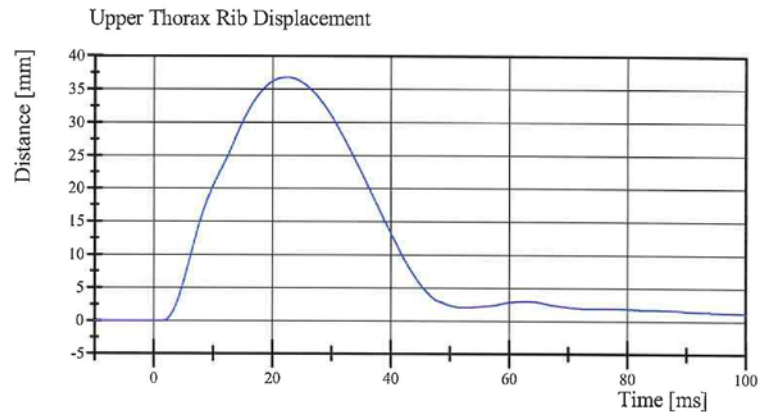
Specification Source: Procedures based on Final Rule effective 8/24/2009
Polarity in accordance with SAE J211.

02.20.2014 11:14:10 849

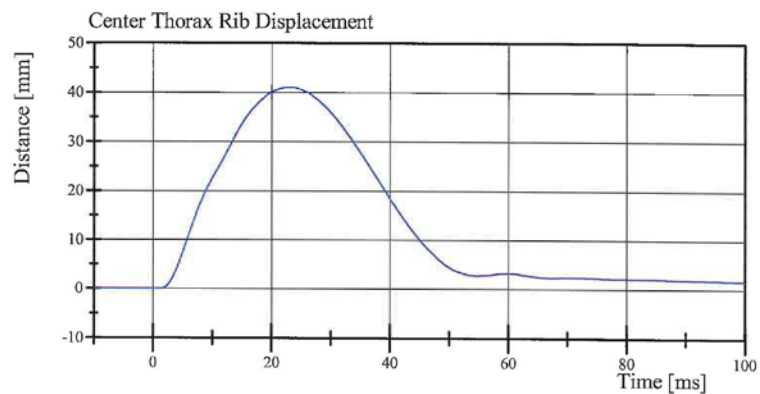


Transportation Research Center Inc.

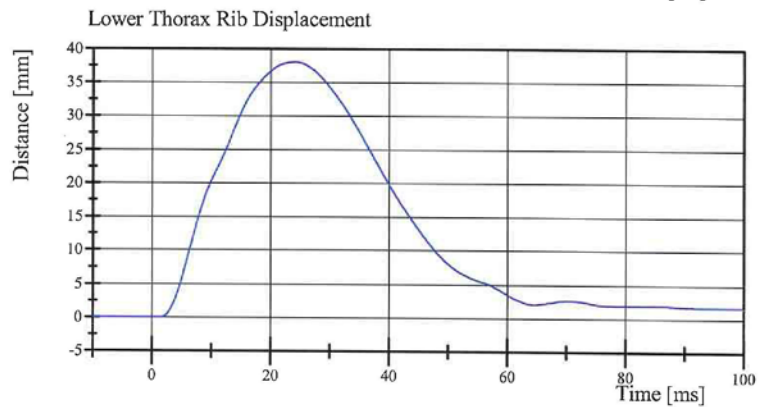
Left Lateral Thorax without Arm
SID II Serial No. DI8818 Certification No. 13-1
Test Date: 2/20/2014



Filter Class: CFC_600
Max: 36.7 mm at 22.4 ms
Min: -0.0 mm at -1.9 ms



Filter Class: CFC_600
Max: 41.1 mm at 23.0 ms
Min: -0.0 mm at -9.8 ms



Filter Class: CFC_600
Max: 38.0 mm at 24.0 ms
Min: -0.0 mm at -1.7 ms

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

02.20.2014 11:14:11 849



Transportation Research Center Inc.

Left Lateral Abdomen

SID II's Serial No. DI8818 Certification No. 13-1

Test Date: 2/20/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.4 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	39.3 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	35.8 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.35 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.

02.20.2014 10:49:12 649

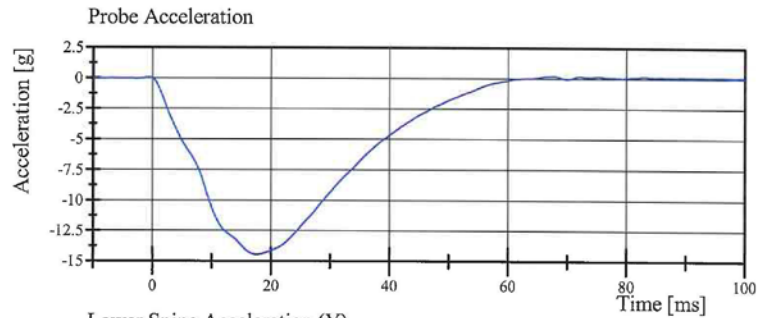


Transportation Research Center Inc.

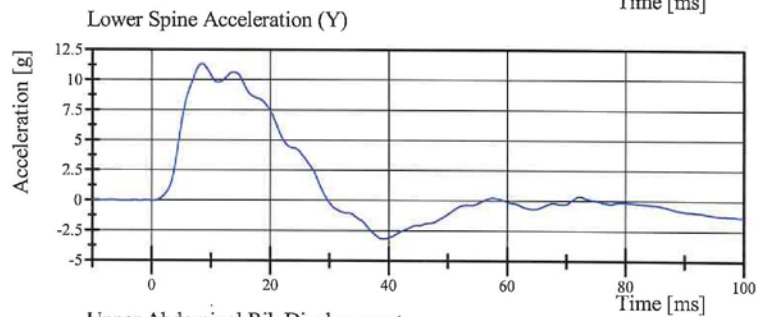
Left Lateral Abdomen

SID II_s Serial No. DI8818 Certification No. 13-1

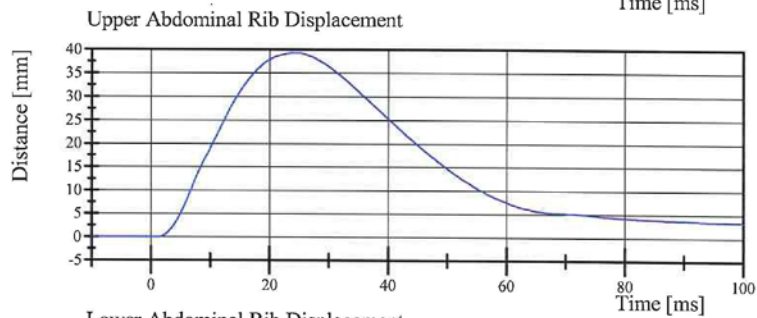
Test Date: 2/20/2014



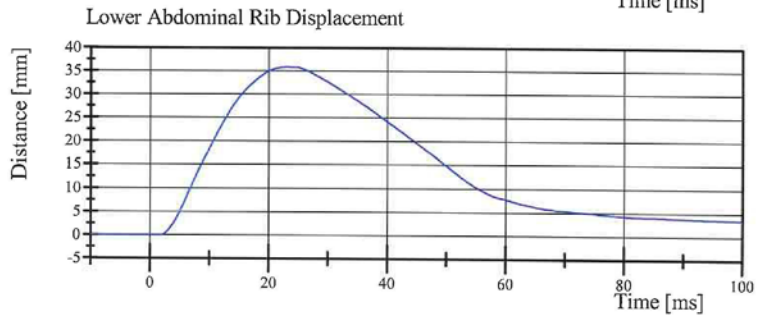
Filter Class: CFC_180
Max: 0.2 g at 67.6 ms
Min: -14.4 g at 17.6 ms



Filter Class: CFC_180
Max: 11.3 g at 8.5 ms
Min: -3.2 g at 39.0 ms



Filter Class: CFC_600
Max: 39.3 mm at 24.3 ms
Min: -0.0 mm at 1.4 ms



Filter Class: CFC_600
Max: 35.8 mm at 23.0 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.

02.20.2014 10:49:20 649



Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. DI8818 Certification No. 13-1

Test Date: 2/20/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.67 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-42.60 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	39.1 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,910.0 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.

02.20.2014 12:43:36 433

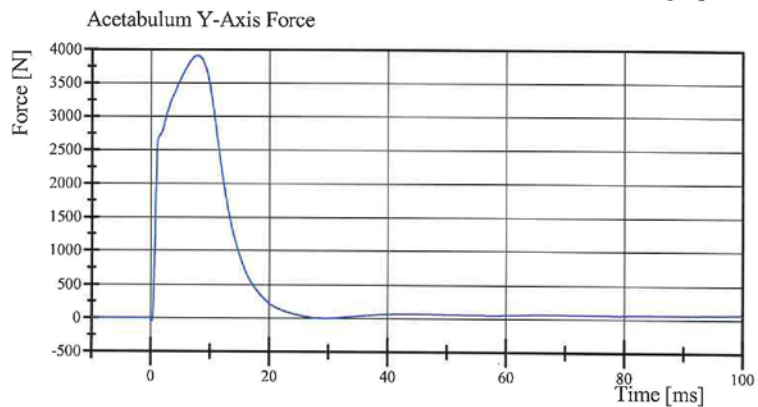
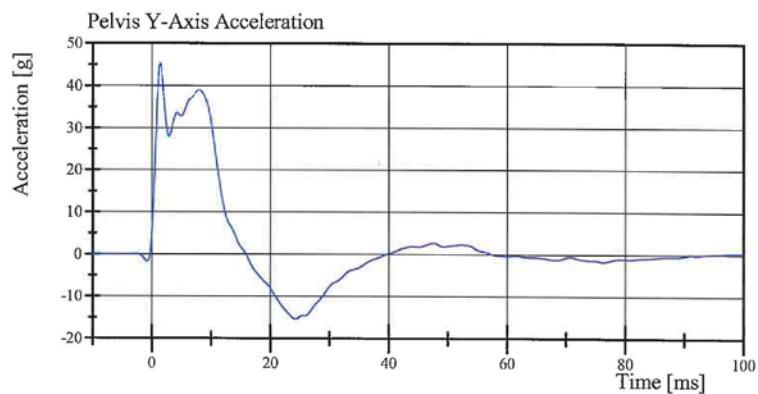
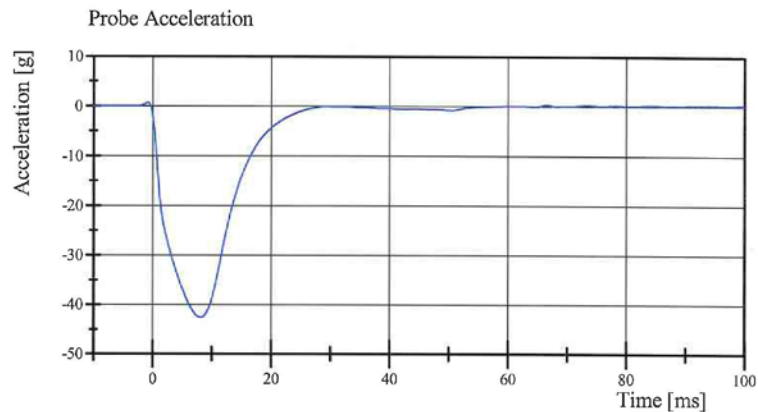


Transportation Research Center Inc.

Left Lateral Pelvis

SID II_s Serial No. DI8818 Certification No. 13-1

Test Date: 2/20/2014



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

02.20.2014 12:43:45 433



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. DI8818 Certification No. 13-1

Test Date: 2/20/2014

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.27 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-42.5 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	33.4 g	Yes
Iliac Force	4,100 - 5,100 N	4,966.6 N	Yes

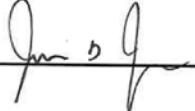
Test meets specifications.

Comments:

Technician



Approved



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

02.20.2014 09:33:43 667

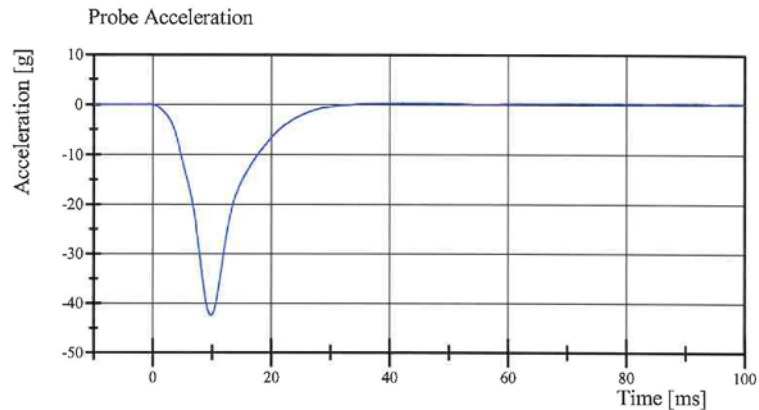


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs Serial No. DI8818 Certification No. 13-1

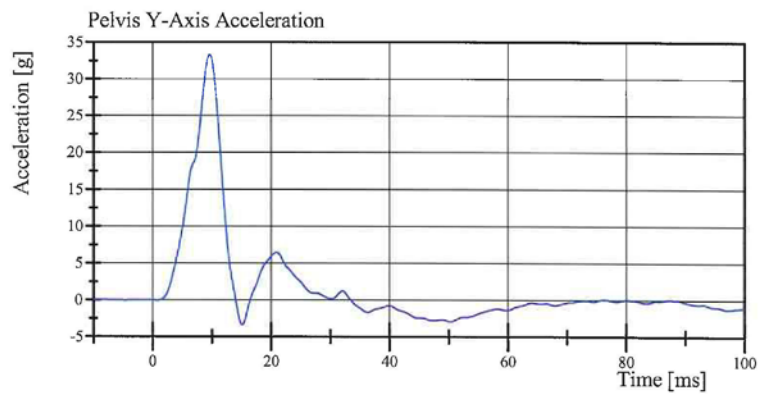
Test Date: 2/20/2014



Filter Class: CFC_180

Max: 0.3 g at 42.2 ms

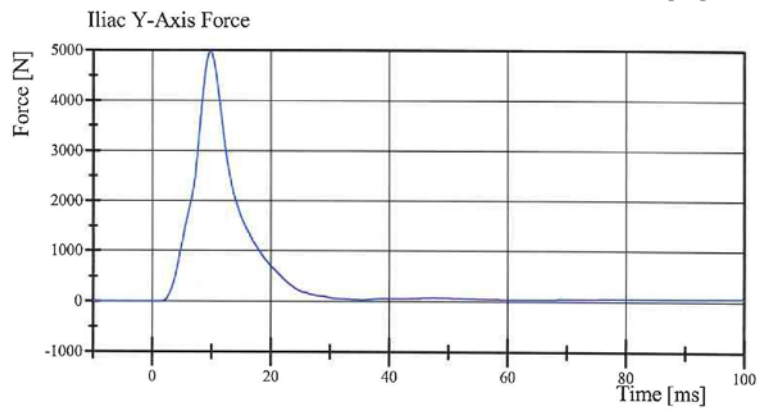
Min: -42.5 g at 9.8 ms



Filter Class: CFC_180

Max: 33.4 g at 9.6 ms

Min: -3.4 g at 15.1 ms



Filter Class: CFC_600

Max: 4,966.6 N at 9.8 ms

Min: -0.6 N at -6.8 ms

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

02.20.2014 09:33:51 667



APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N DI8818			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	J32214	Endevco	9-Dec-2013
				Y	J27040	Endevco	9-Dec-2013
				Z	AGAC4	Endevco	9-Dec-2013
Displacement Potentiometers	Shoulder			Y	N/A	N/A	N/A
	Thoracic Rib	Upper	Y	3787-047	Servo	10-Dec-2013	
		Middle	Y	3745-01815	Servo	10-Dec-2013	
		Lower	Y	03745-01803	Servo	10-Dec-2013	
	Abdominal Rib	Upper	Y	3745-01811	Servo	10-Dec-2013	
		Lower	Y	3787-051	Servo	18-Dec-2013	
Lower Spine Accelerometers (T12)				X	P64150	Endevco	9-Dec-2013
				Y	P64142	Endevco	4-Dec-2013
				Z	P64100	Endevco	7-Feb-2014
Acetabulum Load Cell				Y	235-FY	FTSS	6-Nov-2013
Iliac Wing Load Cell				Y	113-FY	FTSS	6-Nov-2013
Pelvis Plug (struck side)					63426	FTSS	28-Jan-2013
Pelvis Plug (non-struck side)					63609	FTSS	15-Feb-2013

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P82051	Endevco	5-Nov-2013
Vehicle Center of Gravity	Y	P81021	Endevco	17-Sep-2013
Vehicle Center of Gravity	Z	P81534	Endevco	5-Nov-2013
Left Floor Sill	Y	P80206	Endevco	4-Feb-2014
A-Pillar Sill	Y	P80482	Endevco	4-Feb-2014
A-Pillar Low	Y	P82004	Endevco	5-Nov-2013
A-Pillar Mid	Y	P81093	Endevco	5-Nov-2013
B-Pillar Sill	Y	P81608	Endevco	14-Nov-2013
B-Pillar Low	Y	P81596	Endevco	13-Nov-2013
B-Pillar Mid	Y	P80472	Endevco	15-Oct-2013
Driver Seat	Y	P81651	Endevco	14-Nov-2013
Engine Top	X	P81023	Endevco	10-Sep-2013
Engine Top	Y	P81535	Endevco	5-Nov-2013
Firewall	Y	P81991	Endevco	5-Nov-2013
Right Roof	Y	P80466	Endevco	9-Dec-2013
Right Floor Sill	Y	P81052	Endevco	10-Sep-2013
Rear Floor Pan	X	P78143	Endevco	15-Jan-2014
Rear Floor Pan	Y	P82031	Endevco	5-Nov-2013

TABLE 3 – Pole Instrumentation

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	5763-87-FX	Denton	9-Dec-2013
Load Cell 2	5763-97-FX	Denton	9-Dec-2013
Load Cell 3	5763-84-FX	Denton	9-Dec-2013
Load Cell 4	5764-81-FX	Denton	9-Dec-2013
Load Cell 5	5763-89-FX	Denton	9-Dec-2013
Load Cell 6	5763-77-FX	Denton	9-Dec-2013
Load Cell 7	5764-89-FX	Denton	9-Dec-2013
Load Cell 8	5764-77-FX	Denton	9-Dec-2013