REPORT NUMBER: CAL-10-02

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

NISSAN MOTOR CO. LTD
2010 NISSAN ROGUE S AWD
4-DOOR

NHTSA NUMBER: MA5203

CALSPAN TEST NUMBER: TR2419

CALSPAN CORPORATION
TRANSPORTATION SCIENCES CENTER
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October 27, 2009

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Rulemaking
Office of Crashworthiness Standards
Mail Code: NVS-111
1200 New Jersey Ave SE, Room W43-410
Washington, DC 20590

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TECHNICAL REPORT STANDARD TITLE PAGE

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12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards Mail Code: NVS-111 1200 New Jersey Ave SE, Room W43-410 Washington, DC 20590		*13. Type of Report and Period Covered* Final Report October 2009 *14. Sponsoring Agency Code* NVS-111

15. Supplementary Notes

16. Abstract

A frontal load cell barrier test of a 2010 Nissan Rogue S AWD 4-door was performed at Calspan Corporation's crash test facility in Buffalo, New York, on October 27, 2009.

The impact velocity was 56.8 kph and the temperature at the barrier face was 21°C. The maximum post-test vehicle crush was 418 mm. The test vehicle was equipped with 3-point restraint systems, knee bolsters, and airbags at both the driver and right outboard passenger seating positions.

With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appeared to comply with head, chest, and femur requirements. The occupant injury criteria summary is as follows:

Measurement Description	**Units**	**Threshold**	**Driver (1046)**	**Passenger (061)**
Head Injury Criteria (HIC - 36 ms)	-	1000	350*	613.4
Maximum Thorax Acceleration (3 ms Clip)	g's	60 g's	46.4	47.6
Chest Displacement	mm	-76 mm	31.8	32.4
Left Femur Force	Newtons	-10000 N	-1308.6	-3847.5
Right Femur Force	Newtons	-10000 N	-4115.4	-1819.9

*Redundant driver head x was used to calculate HIC

17. Key Words 56 kph Frontal Barrier Impact test New Car Assessment Program (NCAP)	*18. Distribution Statement* Copies of this report are available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 1200 New Jersey Ave SE Washington, DC 20590		
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SECTION 1

PURPOSE AND SUMMARY OF TEST

1.1 PURPOSE

This 56.8 kph frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-06-D-00024. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

The 56.8 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

1.2 TEST PROCEDURE

This 56.8 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) New Car Assessment Program (NCAP) Laboratory Indicant Test Procedure, dated December 1999. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion (Partial)"; and FMVSS 301 "Fuel System Integrity" performance. Procedures for receiving, inspection testing and reporting of test results are described in the test procedures and are not repeated in this report.

One real-time camera and 16 high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in this report.

Two Part 572E, 50th percentile male anthropomorphic test devices (ATDs), were placed in the driver and right-front passenger seating positions according to dummy placement instructions specified in the Laboratory Indicant Test Procedure.

Both ATDs were fully instrumented with head, chest and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 1046) and the right-front passenger (position 2) ATD (Serial No.061) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The vehicle, occupant, camera and measurement data are presented in Section 2. Appendix A contains the still photograph prints. The channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces. Appendix C contains the dummy calibration data and Appendix D contains the transducer calibration dates.

1.3 SUMMARY OF FRONTAL BARRIER IMPACT TEST

A load cell barrier consisting of 36 load cells was impacted by a 2010 Nissan Rogue S AWD 4-door at a velocity of 56.8 kph. The test was performed at Calspan on October 27, 2009. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The occupant data is summarized below.

ATD	HIC	T_1	T_2	Clip (g)	T_1	T_2	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)
Driver	350*	59.3	95.3	46.4	71.6	74.6	31.8	-1308.6	-4115.4
Passenger	613.4	60.9	96.8	47.6	74.6	77.6	32.4	-3847.5	-1819.9

*Redundant driver head x was used to calculate HIC

The large placards were labeled with the wrong NHTSA numbers on all vehicle photos. The smaller NHTSA number placards were labeled correcty.

The test data can be found on the NHTSA website at www.nhtsa.dot.gov

TEST NOTES	
Data Channel	Anomalies
P1 Head X	Questionable data

SECTION 2
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
CRASH TEST SUMMARY

Vehicle NHTSA No.: MA5203 Test Mode: 56.3 kph Frontal Barrier
Test Date: October 27, 2009 Time: 14:00 Temperature: 21 °C
Vehicle Make/Model/Body Style: 2010 Nissan Rogue S AWD 4-door
Vehicle Test Weight: 1773 kg Impact Velocity: 56.8 kph (55.5 – 57.1 kph)
Vehicle/Barrier Impact Angle: 0 ° Max Static Crush: 418 mm

ATD INFORMATION AND VISIBLE CONTACT POINTS

	DRIVER	PASSENGER
ATD Type:	Part 572E	Part 572E
Restraint System:	Seatbelt, Airbag, Knee Bolster	Seatbelt, Airbag, Knee Bolster
Head Contact:	Airbag / Back of head to head restraint	Airbag / Back of head to head restraint
Abdomen Contact:	None	None
Chest Contact:	Airbag	Airbag
Left Knee Contact:	Knee Bolster	Knee Bolster
Right Knee Contact:	Knee Bolster	Knee Bolster

DOOR OPENING, SEAT TRACK AND GLAZING INFORMATION

Description	Driver Side	Passenger Side
Door Lock Status	Unlocked	Unlocked
Front Door Opening	Closed / Operable	Closed / Operable
Rear Door Opening	Closed / Operable	Closed / Operable
Hatch/Other Door Opening	Closed / Operable	
Front Seat Track Shift (mm)	0	0
Front Seat Back Failure	None	None
Glazing Damage	Cracking from impact – no failures	

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Left Side (mm)	Center (mm)	Right Side (mm)	Average (mm)
Value	554	421	441	472

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	871	872
Lap belt length as measured on ATD	mm	810	801
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems	mm	209	204

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2010 Nissan Rogue S AWD 4-door

NHTSA No. : MA5203 ; VIN: JN8AS5MV7AW104103 ; Color: White

Engine Data: 4 cylinders; - CID; 2.5 Liters; - cc

Placement: - Longitudinal or In-Line; x Transverse or Lateral

Transmission Data: CVT speeds; - Manual; x Automatic; - Overdrive

Final Drive: - Rear Wheel Drive; - Front Wheel Drive; x Four Wheel Drive

AUTOMATIC DOOR LOCKS:

Is test vehicle equipped with Automatic Door Locks (ADLs)? x Yes; - No;

Does vehicle owner's manual describe how to deactivate ADLs? x Yes; - No; - N/A

DEALER AND DELIVERY INFORMATION:

Date Received: 10/15/09 ; Odometer Reading 31 km

Selling Dealer: West Herr Nissan

Dealer Address: 3580 Southwestern Blvd Orchard Park, NY 14127

TEST VEHICLE OPTIONS:

x AC; x Power Steering; x Power Brakes; x Power Locks; - Power Seats

x ABS; x Tilt Wheel; x Stability Control x Traction Control x Anti-Theft

SAFETY BELT FEATURES:

Driver: x Pretensioner (Shoulder); x Load Limiter; x Adjustable Anchorage

Passenger: x Pretensioner (Shoulder); x Load Limiter; x Adjustable Anchorage

AIRBAG FEATURES:

Position	Frontal	Knee Bolster	Side Torso	Side Head/Torso Combination	Side Curtain
Driver:	x	-	x	-	x
Passenger:	x	-	x	-	x
Rear Passenger:	-	-	-	-	x

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Nissan Motor Co.LTD

Date of Manufacture 08/09

GVWR: 1992 kg; GAWR: 1076 kg FRONT; 992 kg REAR

VEHICLE CAPACITY DATA:

Type of Front Seats: - Bench; x Bucket; - Split Bench

Number of Occupants: 2 Front; 3 Rear; 5 Total

Vehicle Capacity Weight (VCW) = 408 kg

No. of Occupants x 68.04 kg = 340.2 kg

Rated Cargo/Luggage Weight (RCLW) = 67.8 kg

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with maximum fluids)= UDW:

	Left Side (kg)	Right Side (kg)	Ratio (%)	Total (kg)
Front =	466	463	59.5	929.0
Rear =	321	312	40.5	633.0
			Total Delivered Weight (UDW) =	1562.0

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW) =	1562.0	kg
Rated Cargo/Luggage Weight (RCLW) =	68	kg
Weight of 2 p.572 Dummies @ 76 each =	152	kg
TARGET TEST WEIGHT =	1782.0	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 59.0 KG OF CARGO WEIGHT:

	Left Side (kg)	Right Side (kg)	Ratio (%)	Total (kg)
Front =	498	497	56.1	995.0
Rear =	391	387	43.9	778.0
			Total Vehicle Test Weight (ATW) =	1773.0

Weight of Ballast Secured in Vehicle Trunk Area[1] = 40 kg

Vehicle Components Removed for Weight Reduction: None

VEHICLE ATTITUDE (all dimension in millimeters):

	Left Front	Right Front	Left Rear	Right Rear	CG[2]
AS DELIVERED:	808	806	822	823	1090.1
FULLY LOADED:	797	795	798	800	-
AS TESTED:	800	800	800	802	1180.4

Vehicle's Wheel Base: 2690 mm

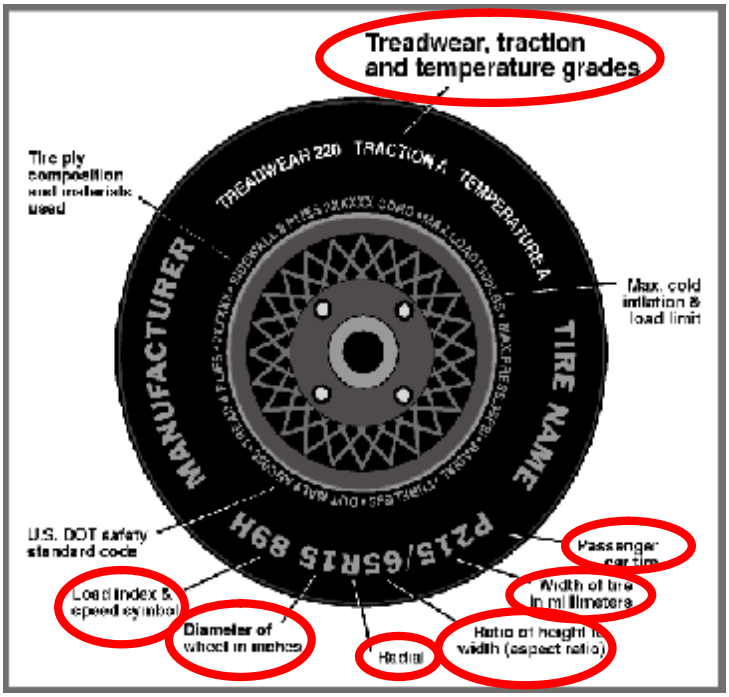
[1]Ballast weight does not include the weight of instrumentation, on-board cameras and data acquisition system

[2]Rearward of the front axle centerline.

DATA SHEET NO. 3
TEST VEHICLE TIRE INFORMATION

Vehicle Year/Make/Model/Body Style: 2010 Nissan Rogue S AWD 4-door

NHTSA Test No.: MA5203 Test Date: October 27, 2009



Measured Parameter	Front	Rear
Maximum Tire Pressure (from sidewall - kPa)	300	300
Cold Pressure (from tire placard - kPa)*	230	230
Recommended Tire Size (from tire placard)	P215/70R16	P215/70R16
Tire size on Vehicle	P215/70R16	P215/70R16
Tire Manufacturer	Continental	Continental
Tire Name	4x4 Contact	4x4 Contact
Tire Type	Passenger	Passenger
Tire Width (mm)	215	215
Ratio of Height to Width (aspect ratio)	70	70
Radial	Radial	Radial
Wheel Diameter	16	16
Load Index & Speed Symbol	99H	99H
Treadwear	360	360
Traction Grade	A	A
Temperature Grade	A	A

*Tire pressure used for test

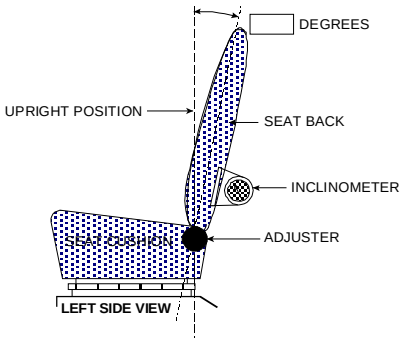
DATA SHEET NO. 4
TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2010 Vehicle Model: Nissan Rogue S AWD Body Style : 4-door

1. NOMINAL DESIGN RIDING POSITION:

For adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat: 21

Measurement instructions: From forward most locking position, rotate 11 degrees backwards (10 to 21)

Seat back angle for passenger's seat: 21

Measurement instructions: From forward most locking position, rotate 11 degrees backwards

2. SEAT FORE AND AFT POSITIONING:

Positioning of the driver's seat: Mechanical adjustment 0-24 detent locations – placed in 12th detent

Positioning of the passenger's seat: Mechanical adjustment 0-24 detent locations – placed in 12th detent

3. FUEL TANK CAPACITY DATA:

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 60 liters

B. "Usable Capacity" of the optional equipment fuel tank is - liters

C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 = 55.2 to 56.4 liters

3.2 Actual Amount of Stoddard solvent added to vehicle for test = 55.6 liters

3.3 One-Third of Useable Capacity = 20.0 liters

3.4 Is vehicle equipped with electric fuel pump? Yes- x ; No- -

If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

With ignition turned "ON"

DATA SHEET NO. 4
TEST VEHICLE INFORMATION (cont.)

4. STEERING COLUMN ADJUSTMENTS:

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions: Tilt wheel was set to geometric center of loci.

27.6 degrees on face of wheel

5. SEAT BELT UPPER ANCHORAGE:

Nominal design riding position: 4 positions available; set at 0 - uppermost

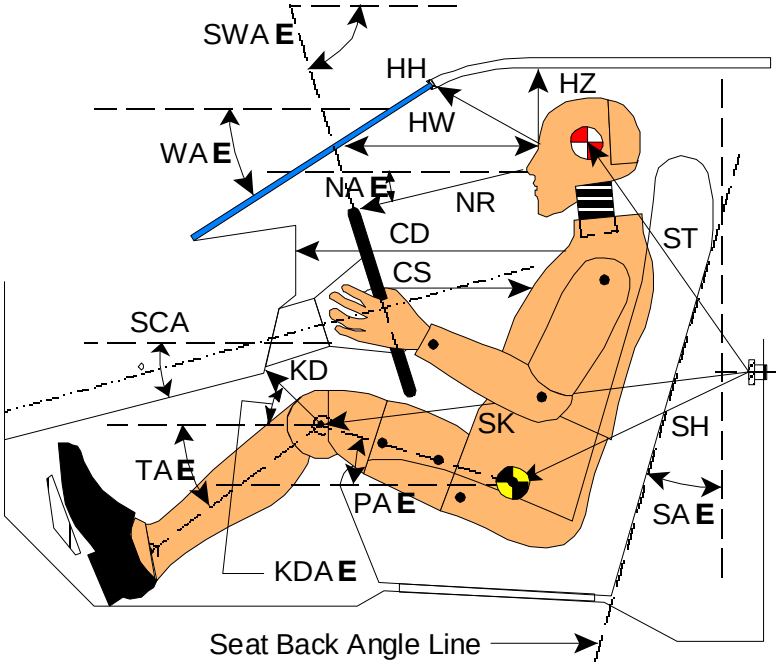
6. AUTOMATIC DOOR LOCKS: Is test vehicle equipped with ADLs? x Yes; - No;

Does vehicle owner's manual describe how to deactivate ADLs? x Yes; - No; - N/A

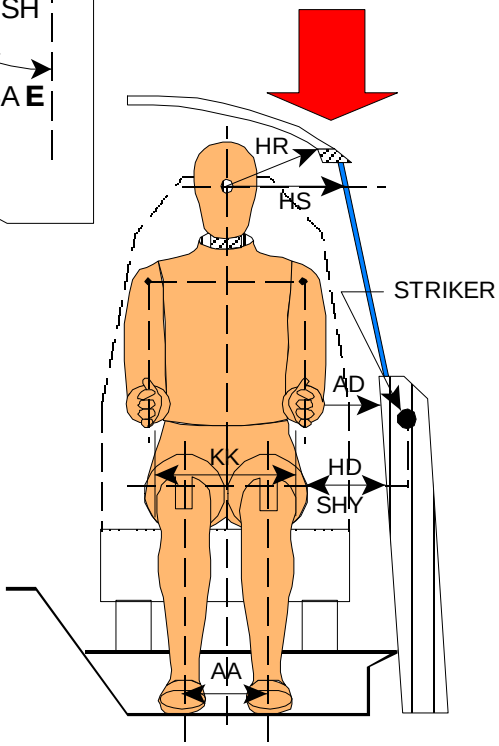
Comments: Pg 3-5 of owner's manual

DATA SHEET NO. 5
FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE

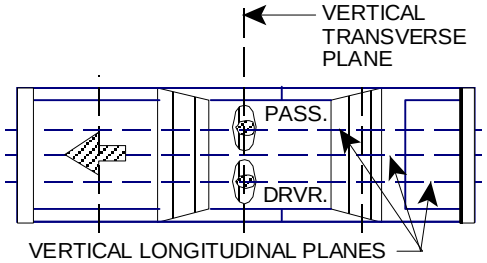
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



AD - Arm to Door
HD - H-Point to Door
HR - Head to Side Header
HS - Head to Side Window
KK - Knee to Knee
AA - Ankle to Ankle
SHY- Striker to H-Point (Y Direction)



CD - Chest to Dash
CS - Steering Wheel to Chest
HH - Head to Header
HW - Head to Windshield
HZ - Head to Roof
KDA - Knee to Dash Angle
KDL- Left Knee to Dash
KDR - Right Knee to Dash
NA - Nose to Rim Angle
NR - Nose to Rim
PA - Pelvic Angle
RA - Rim to Abdomen
SA - Seat Back Angle
SCA - Steering Column Angle
SH - Striker to H-Point
SK - Striker to Knee
ST - Striker to Head
SWA- Steering Wheel Angle
TA - Tibial Angle
WA - Windshield Angle



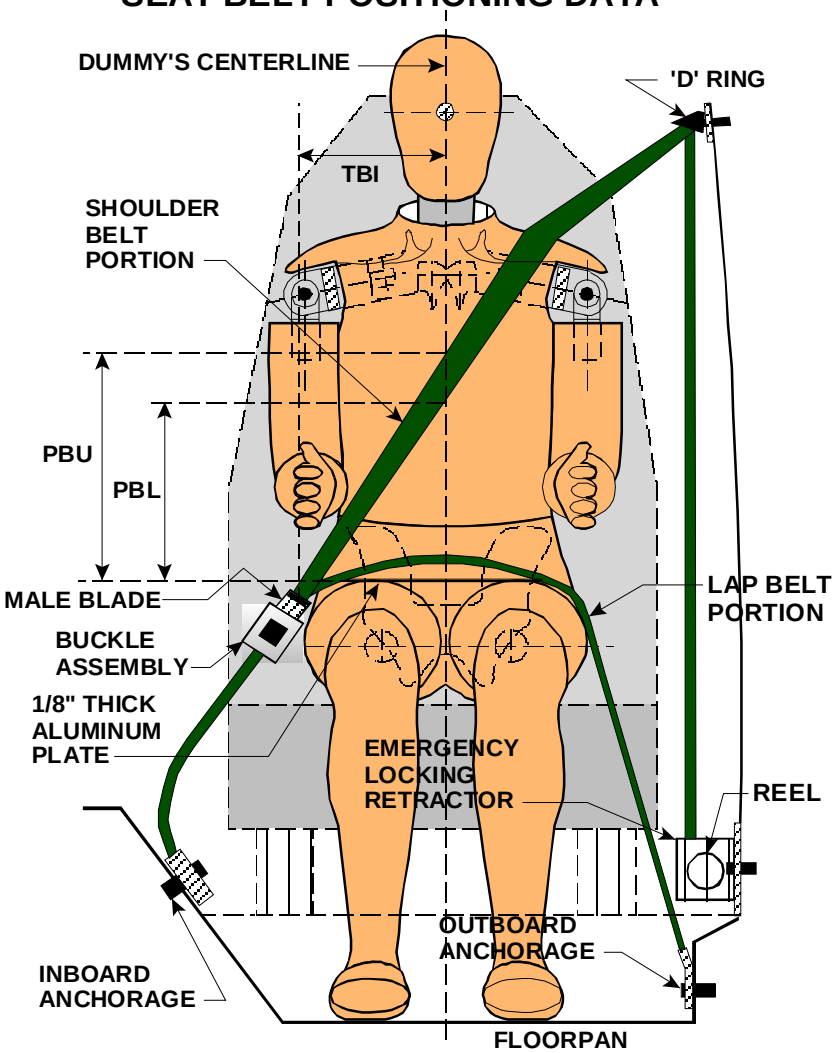
DATA SHEET NO. 5
FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #1046)			PASS. (Serial #061)		
WA^O	26.0 deg.			N/A		
SWA^O	27.6 deg.			N/A		
SCA^O	62.4 deg.			N/A		
SA^O	21 deg.			21 deg.		
HZ	201			189		
HH	331			319		
HW	595			591		
HR	235			232		
NR	408	Angle	12.9 deg.	N/A		
CD	522			543		
CS	281			N/A		
RA	190			N/A		
KDL	164	Angle (KDA)	19.0 deg.	173		
KDR	160			168	Angle (KDA)	24 deg.
PA^O	23.5 deg.			24.8 deg.		
TA^O	61.0 deg.			58.0 deg.		
KK	347			270		
AA	330			223		
ST	524	Angle	15 deg.	534	Angle	15 deg.
SK	642	Angle	92 deg.	646	Angle	92 deg.
SH	279	Angle	116 deg.	274	Angle	117 deg.
SHY	229			219		
HS	364			358		
HD	144			124		
AD	116			116		

Dimensions in millimeters

DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

SEAT BELT POSITIONING DATA

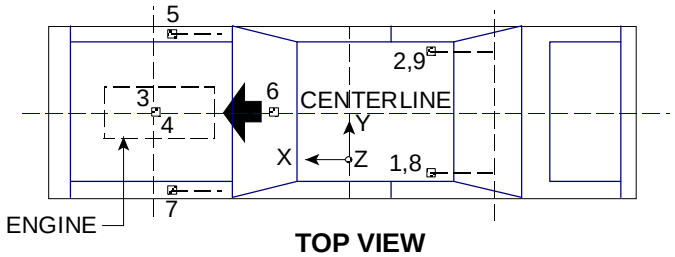


FRONT VIEW OF DUMMY

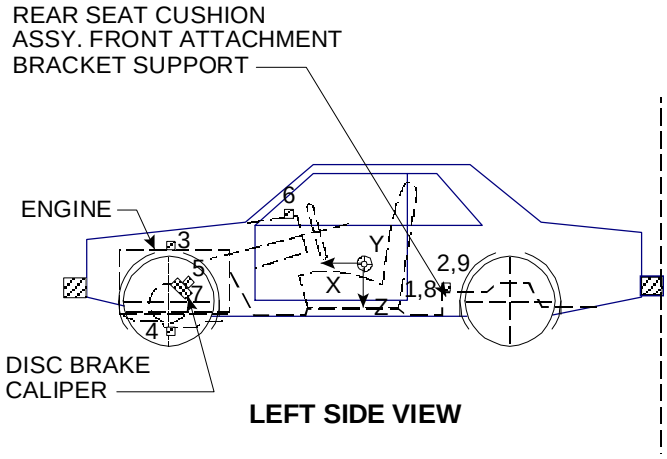
	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	310	297
PBL-- Top surface of alum. plate to belt lower edge	230	220
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

DATA SHEET NO. 7
VEHICLE ACCELEROMETER LOCATIONS

VEHICLE ACCELEROMETER LOCATIONS



TOP VIEW



LEFT SIDE VIEW

		PRE-TEST LENGTH (mm)		
No.	LOCATION	X	Y	Z
1	Left Rear Seat Cross Member X	1788	-590	483
2	Right Rear Seat Cross Member X	1781	606	475
3	Top of Engine Block	3998	195	858
4	Bottom of Engine	4301	122	252
5	Disc Brake Caliper @ Right Side	3626	600	665
6	Instrument Panel**	-	-	-
7	Disc Brake Caliper @Left Side	3621	-597	664
8	Left Rear Seat Cross Member Z	1788	-590	483
9	Right Rear Seat Cross Member Z	1781	606	475

X – From rear surface of vehicle (+ forward)
Y – From vehicle centerline (+ right)
Z – From ground plane (+ up)
** Accelerometer was not requested by the COTR

DATA SHEET NO.8
SUMMARY OF FMVSS 212 and FMVSS 219 (Partial) DATA

DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:

Windshield is bonded in place and covered with a 14 mm molding.

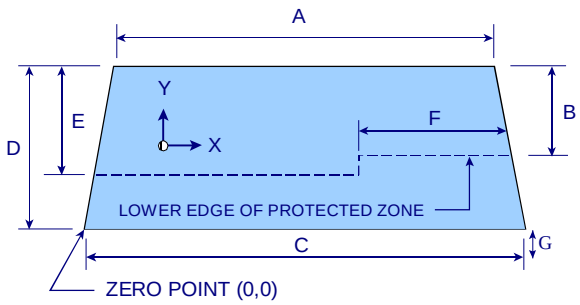
FMVSS 212 REQUIREMENTS:

The Post-Test periphery retention amount must be at least 75% of the Pre-Test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of the windshield for vehicles equipped with automatic restraint systems for front occupants,

Temperature of windshield molding during test: 21ºC.

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST (mm)	
RIGHT SIDE	2047.5	2047.5	100.0%
LEFT SIDE	2047.5	2047.5	100.0%
TOTAL	4095	4095	100.0%



FRONT VIEW OF WINDSHIELD

DIMENSIONS (mm)	
A	1190
B	480
C	1405
D	750
E	508
F	490
G	14

FAILURE DETAILS:

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

	COORDINATES	
	X	Y
1.	-	-
2.	-	-
3.	-	-
4.	-	-

DATA SHEET NO. 9
SUMMARY OF FMVSS NO. 301 DATA

NHTSA TEST No.: MA5203 TEST DATE: October 27, 2009

VEHICLE MAKE/MODEL: 2010 Nissan Rogue S AWD 4-door

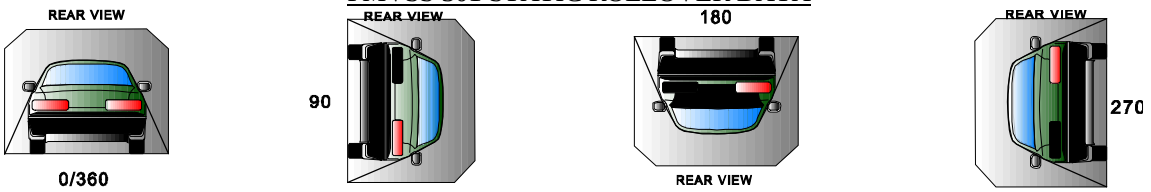
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

FUEL SPILLAGE MEASUREMENT:

Time Interval	Amount	Maximum Allowable Spillage
Impact Until Motion Ceases	0	**28 g**
First Five Minutes Following Impact	0	**142 g**
Next 25 Minutes	0	**28 g / 1 minute**

SOLVENT SPILLAGE DETAILS: None

FMVSS 301 STATIC ROLLOVER DATA



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0º - 90º	1	minutes	14	seconds	5	minutes	6	minutes	14	seconds	7	minutes
90º - 180º	1	minutes	17	seconds	5	minutes	6	minutes	17	seconds	7	minutes
180º-270º	1	minutes	09	seconds	5	minutes	6	minutes	9	seconds	7	minutes
270º-360º	1	minutes	03	seconds	5	minutes	6	minutes	3	seconds	7	minutes

II. FMVSS 301 REQUIREMENTS: (Maximum allowable solvent spillage):

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
142 g	28 g	28 g	28 g

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

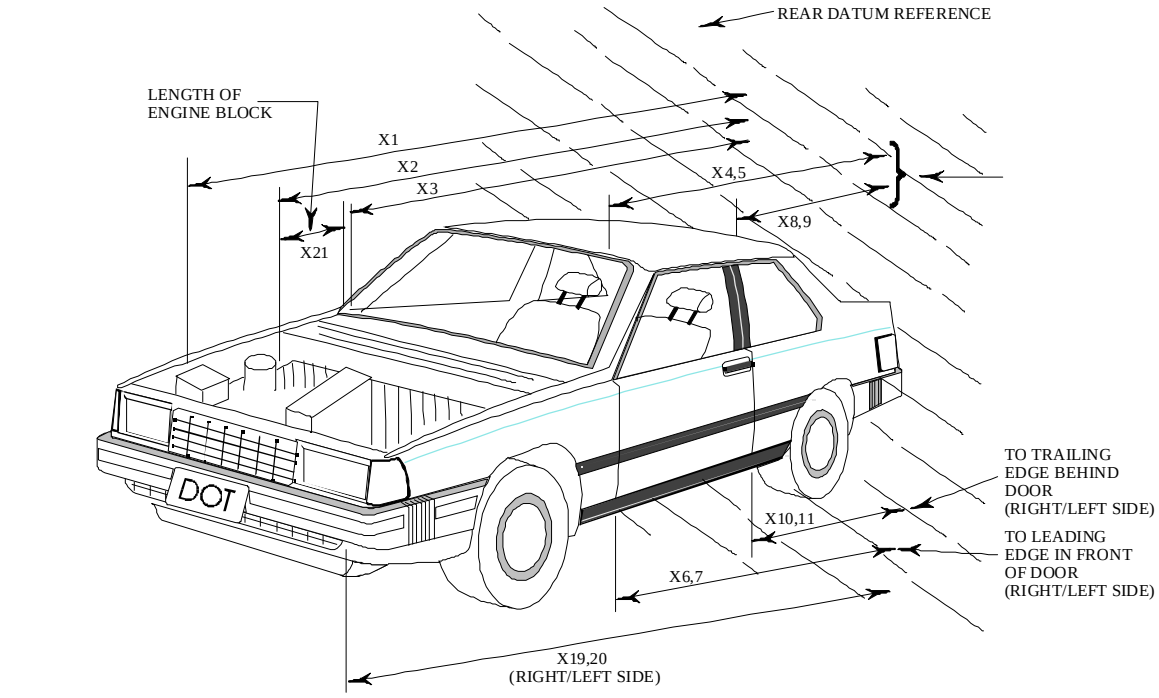
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0º - 90º	0	0	0	N/A
90º - 180º	0	0	0	N/A
180º-270º	0	0	0	N/A
270º-360º	0	0	0	N/A

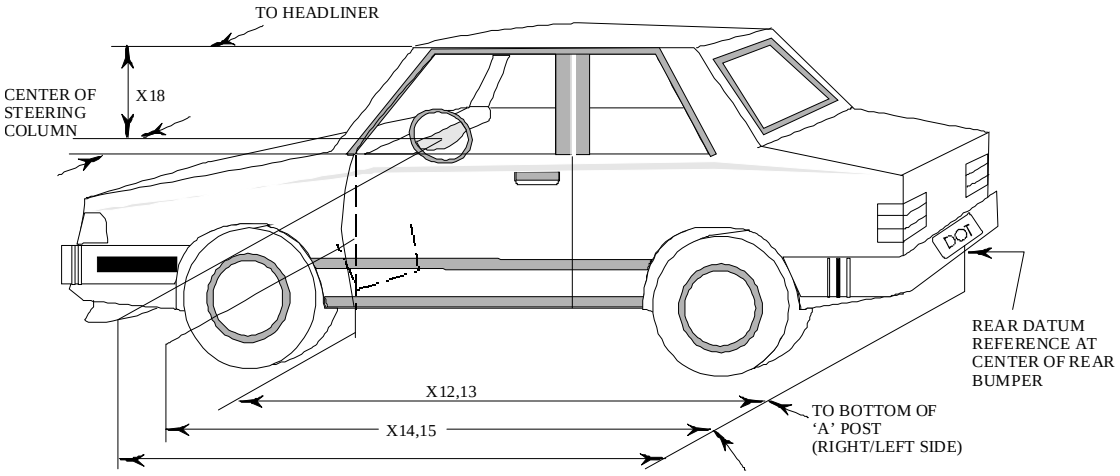
Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

Rollover Stage	Spillage Location
0º - 90º	None
90º - 180º	None
180º-270º	None
270º-360º	None

DATA SHEET NO. 10
TEST VEHICLE MEASUREMENTS





DATA SHEET NO.10
VEHICLE MEASUREMENTS (cont.)

NHTSA TEST No.: MA5203 TEST DATE: October 27, 2009

VEHICLE MAKE/MODEL: 2010 Nissan Rogue S AWD 4-door

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4650	4279	371
X2	Rear Surface of Vehicle to Front of Engine	4042	3821	221
X3	Rear Surface of Vehicle to Firewall	3686	3643	43
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3196	3191	5
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3194	3187	7
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3185	3180	5
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3180	3175	5
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2082	2078	4
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2081	2075	6
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2084	2079	5
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2082	2075	7
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3231	3228	3
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3230	3228	2
X14	Rear Surface of Vehicle to Firewall, Right Side	3575	3514	61
X15	Rear Surface of Vehicle to Firewall, Left Side	3582	3558	24
X16	Rear Surface of Vehicle to Steering Column	2734	2758	-24
X17	Center of Steering Column to "A" Post	290	294	-4
X18	Center of Steering Column to Headliner	416	439	-23
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4577	4233	344
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4576	4158	418
X21	Length of Engine Block	333	333	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2910	2905	5
CD	Rear Surface of Vehicle to Center of Dash Panel	2936	2932	4
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2906	2902	4

All Dimensions in mm

DATA SHEET NO.10
VEHICLE MEASUREMENTS (cont.)

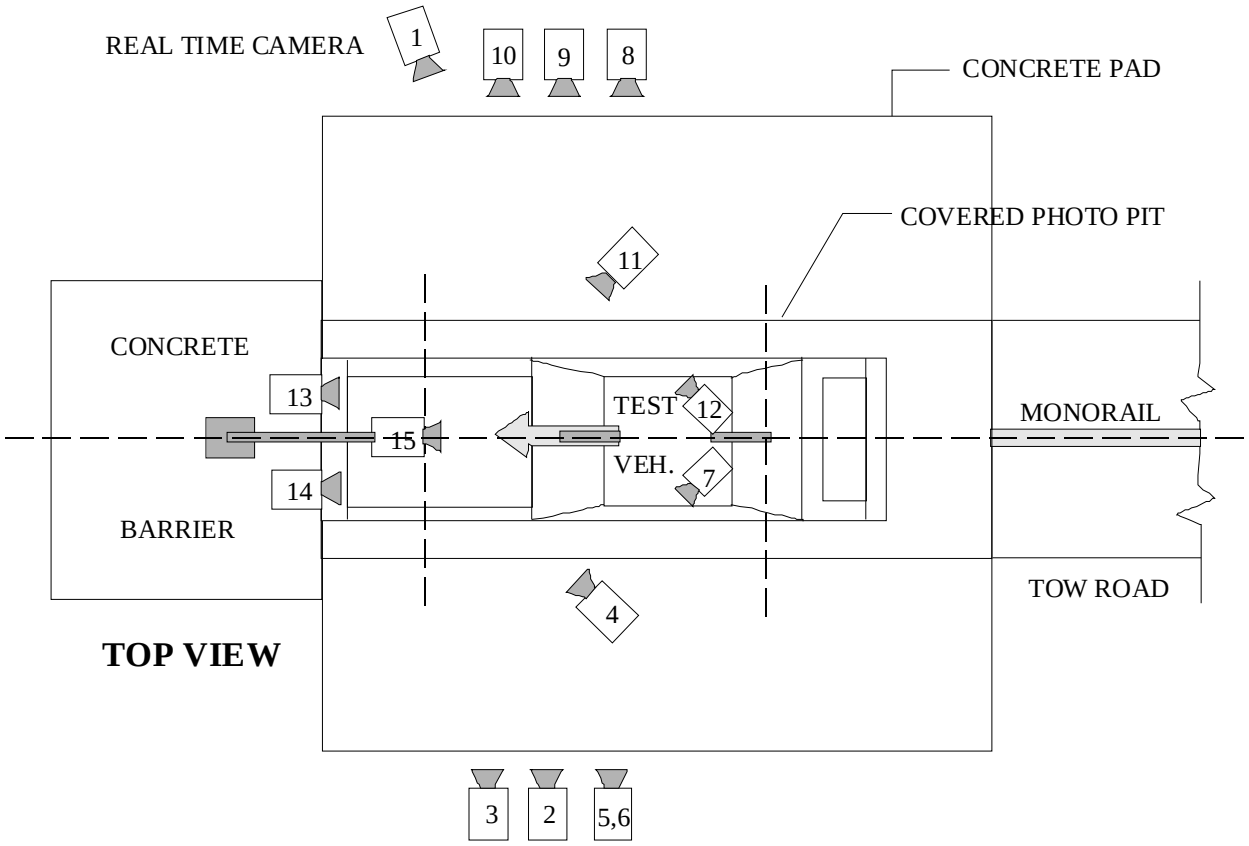
NHTSA TEST No.: MA5203 TEST DATE: October 27, 2009

VEHICLE MAKE/MODEL: 2010 Nissan Rogue S AWD 4-door

TARGET VEHICLE STRUCTURAL MEASUREMENTS

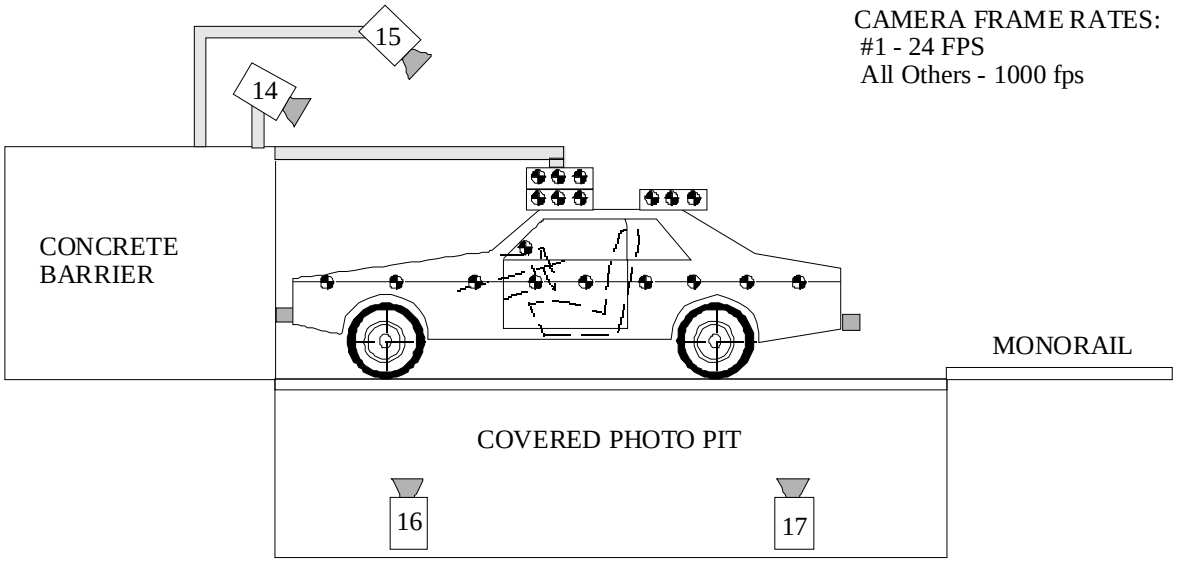
	Elements	Pre-Test (mm)
1	Total length	4650
2	Total Width	1800
3	Bumper Top Height	669
4	Bumper Bottom Height	573
5	Longitudinal Member Top Height	643
6	Distance Between Longitudinal Members	954
7	Longitudinal Member Width	54
8	Engine top height	1016
9	Engine bottom height	252
10	Engine and gearbox width	546
11	Front bumper-engine distance	609
12	Front shock absorber fixing height	967
13	Bonnet leading edge height	869
14	Front shock absorber fixing width	1182
15	Front bumper – front axle distance	967
16	Front axle – A pillar distance	436
17	A-pillar – B pillar distance	1130
18	B-pillar – rear axle distance	1123
19	B-pillar – C Pillar distance	1025
20	Roof sill bottom height	1508
21	Roof sill top height	1610
22	Floor sill bottom height	366
23	Floor sill top height	452

DATA SHEET NO.11
HIGH-SPEED CAMERA LOCATIONS



TOP VIEW

CAMERA FRAME RATES:
#1 - 24 FPS
All Others - 1000 fps



LEFT SIDE VIEW

DATA SHEET NO.11
HIGH-SPEED CAMERA LOCATIONS (cont.)

NHTSA Test No.: MA5203 Vehicle: 2010 Nissan Rogue S AWD 4-door

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)* X	Y	Z	ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Real-Time Camera	-	-	-	-	-	-	30
2	Overall Left Side	6990	1694	972	0.7	6555	24	1000
3	Left Side View	9404	1101	920	1.5	8969	50	1000
4	Driver and Interior View	7087	2784	2059	8.8	-	50	1000
5	Steering Column (Bottom)	7620	2081	1212	3.2	7185	24	1000
6	Steering Column (Top)	7620	2081	1804	7.9	7185	28	1000
7	Left CRS Lateral View	-	-	-	-	-	-	-
8	Overall Right Side	7620	1830	886	1.3	7185	28	1000
9	Right Side View	9041	1041	920	1.3	8606	50	1000
10	Right Passenger View	8469	1620	1121	0.6	8034	50	1000
11	Passenger and Interior View	7071	2710	1883	6.3	-	50	1000
12	Right CRS Lateral View	-	-	-	-	-	-	-
13	Passenger Front View	620	-92	1987	33.1	-	24	500
14	Driver Front View	620	-92	1987	33.4	-	24	500
15	Windshield View	0	-530	3374	56.1	-	24	500
16	Pit View of Engine	0	615	-3048	90	-	12.5	500
17	Pit View of Fuel Tank	0	3424	-3048	90	-	12.5	500

*X = film plane to monorail centerline ** = referenced to horizontal plane

Y = film plane to impact location N.T. indicates No Timing

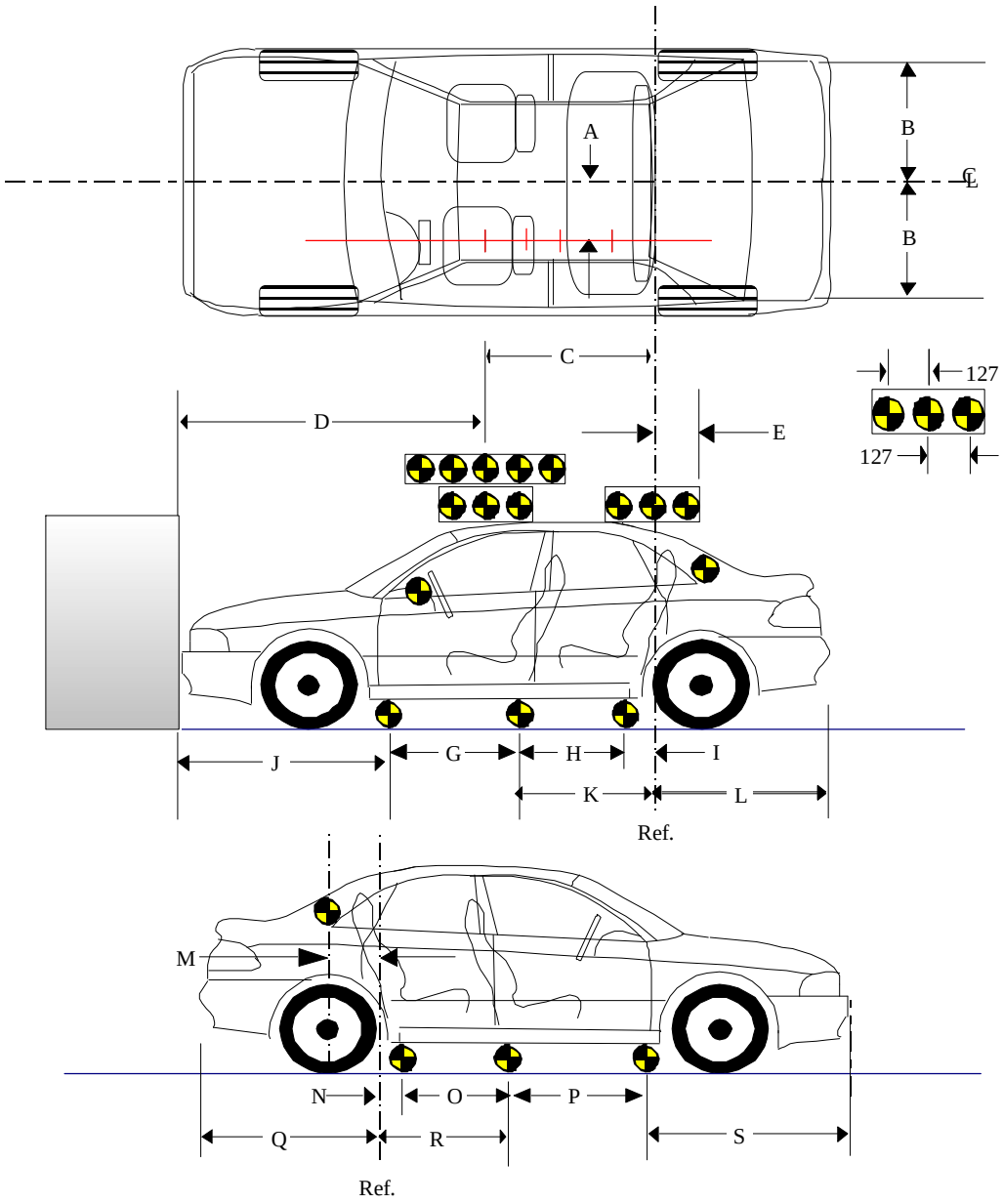
Z = film plane to ground

DATA SHEET NO. 12
VEHICLE REFERENCE PHOTO TARGET LOCATIONS

NHTSA Test No.: MA5203 Vehicle: 2010 Nissan Rogue S AWD 4-door

(Dimensions in millimeters)

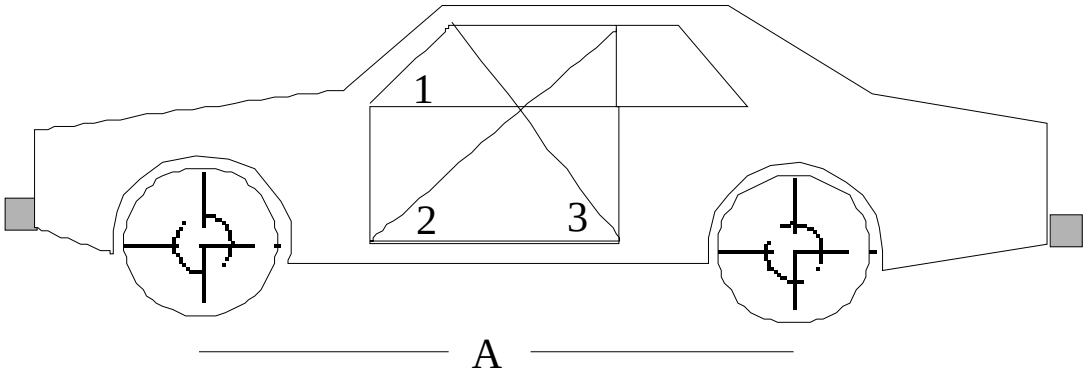
A	359
B	627
C	1219
D	2097
E	269
F	1574
G	873
H	870
I	107
J	1456
K	977
L	1345
M	264
N	105
O	870
P	872
Q	1348
R	975
S	1454



DATA SHEET NO. 13
VEHICLE INTRUSION MEASUREMENTS

NHTSA Test No.: MA5203 Vehicle: 2010 Nissan Rogue S AWD 4-door

DOOR OPENING WIDTH AND WHEELBASE MEASUREMENTS



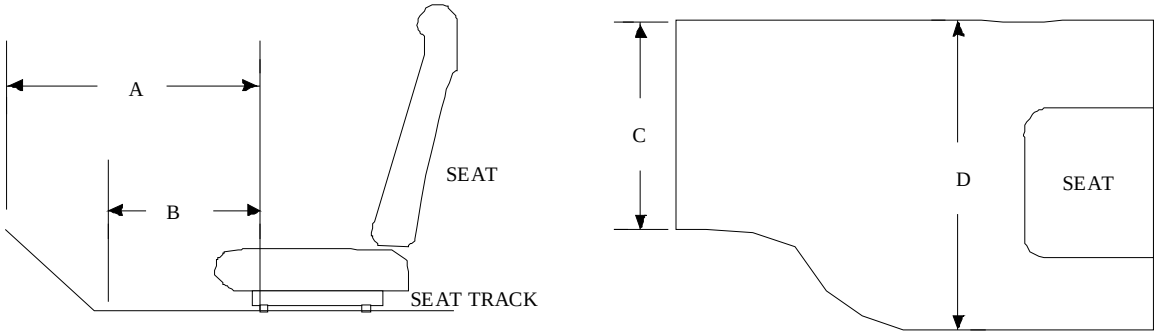
UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1024	1528	1030	1023	1524	1030
AFTER TEST	1022	1527	1032	1020	1525	1032
DIFFERENCE	2	1	-2	3	-1	-2

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2689	2694
AFTER TEST	2655	2632
DIFFERENCE	34	62

DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont)

NHTSA Test No.: MA5203 Vehicle: 2010 Nissan Rogue S AWD 4-door

STATIC FOOTWELL DEFORMATION



DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	730	689	41
B	575	573	2
C	473	452	21
D	483	486	-3

PASSENGER

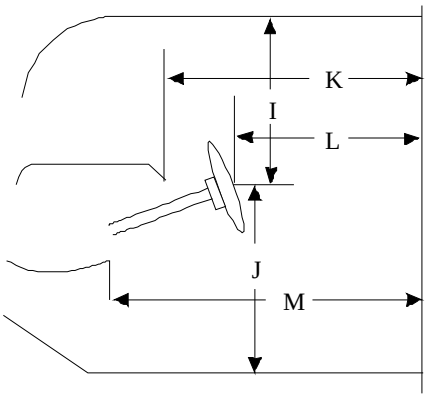
Measurement	Pre-Test	Post-Test	Difference
A	687	653	34
B	550	546	4
C	486	479	7
D	494	491	3

Units = mm

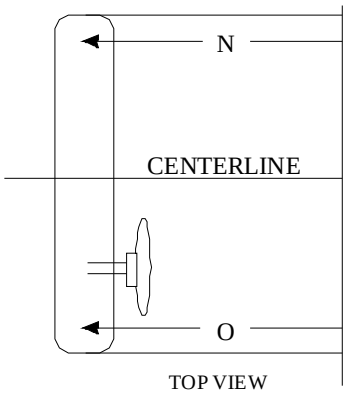
DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont.)

NHTSA Test No.: MA5203 Vehicle: 2010 Nissan Rogue S AWD 4-door

STATIC PASSENGER COMPARTMENT INTRUSION

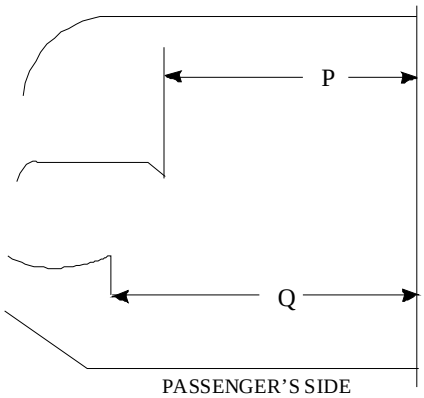


DRIVER'S SIDE



TOP VIEW

MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



PASSENGER'S SIDE

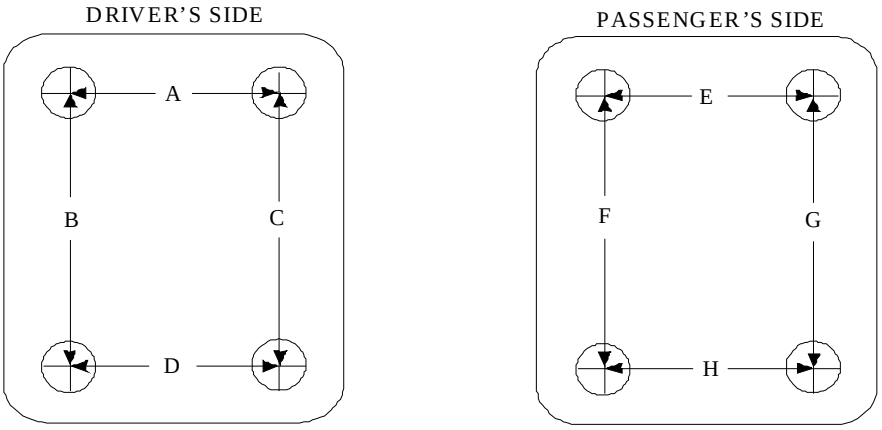
Measurement	Pre-Test	Post-Test	Difference
I	416	439	-23
J	696	690	6
K	754	772	-18
L	580	606	-26
M	833	842	-9
N	756	753	3
O	753	750	3
P = K (PASS.)	897	894	3
Q = M (PASS.)	870	821	49

Units = mm

DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont.)

NHTSA Test No.: MA5203 Vehicle: 2010 Nissan Rogue S AWD 4-door

FLOORBOARD DEFORMATION



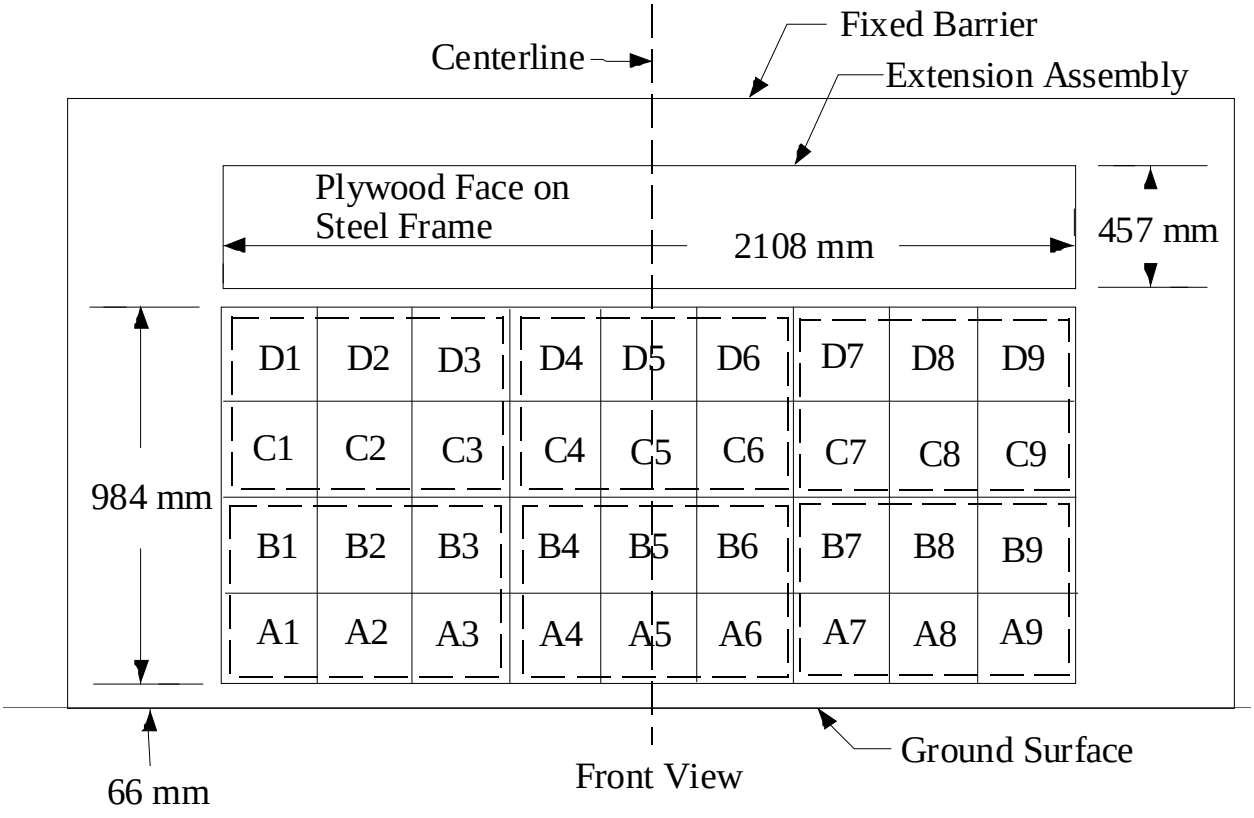
TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	473	452	21
B	363	362	1
C	416	396	20
D	483	486	-3
E	486	479	7
F	338	333	5
G	302	300	2
H	494	491	3

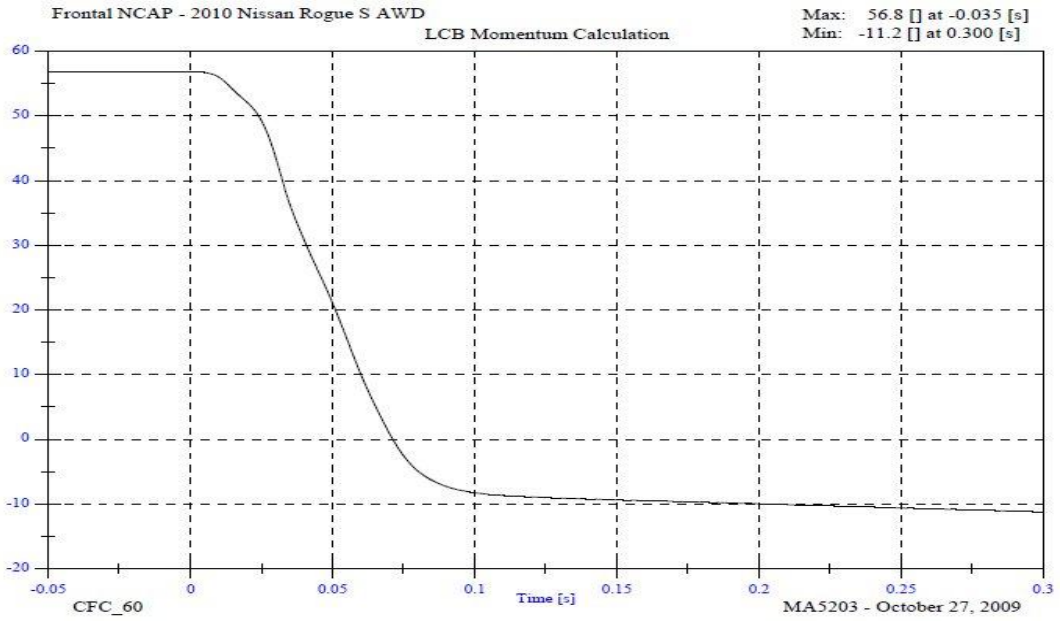
Units = mm

DATA SHEET NO.14
LOAD CELL LOCATIONS ON FIXED BARRIER

36 Load Cells
4 Rows
9 Columns



Momentum Plot



DATA SHEET NO. 15
ACCIDENT INVESTIGATION DIVISION DATA

FOR FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Nissan Rogue S AWD 4-door

NHTSA Test No.: MA5203 VIN: JN8AS5MV7AW104103

Model Year: 2010 Build Date: 08/09 Test Date: October 27, 2009

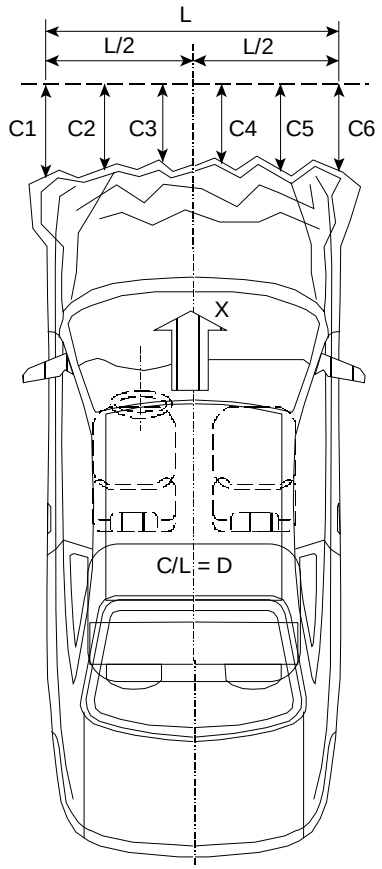
Vehicle Size Category: SUV Test Weight: 1773 kg

Vehicle Wheelbase: 2690 mm; Front Overhang: 971 mm; Overall Width: 1800 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions

	PRE (mm)	POST (mm)	DIFF (mm)
C1 =	4448	4097	351
C2 =	4589	4184	405
C3 =	4641	4256	385
C4 =	4640	4273	367
C5 =	4586	4239	347
C6 =	4443	4163	280



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

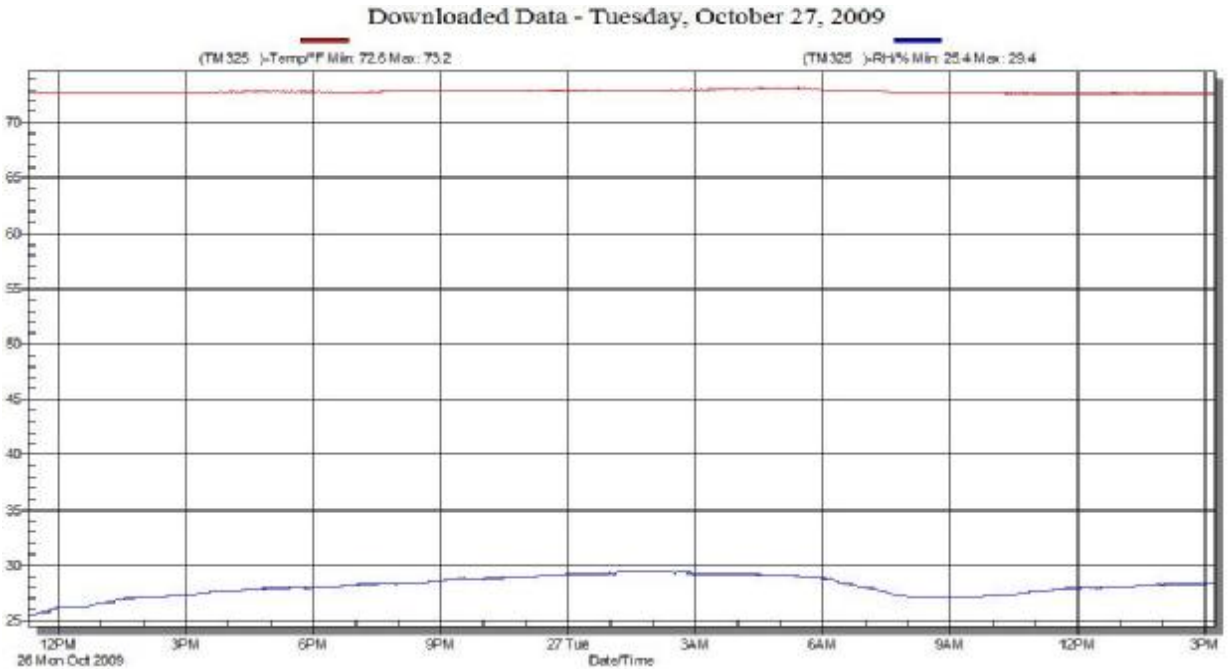
Length of Damaged Region: L1= 1401 mm

L2= 700.5 mm

L5= 280.2 mm

DATA SHEET NO.16
VEHICLE AND DUMMY TEMPERATURE STABILIZATION CHART

NHTSA Test No.: MA5203 Vehicle: 2010 Nissan Rogue S AWD 4-door



APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS (CONTINUED)

Figure A-1: Load Cell Locations

Figure A-2: Vehicle Certification Placard

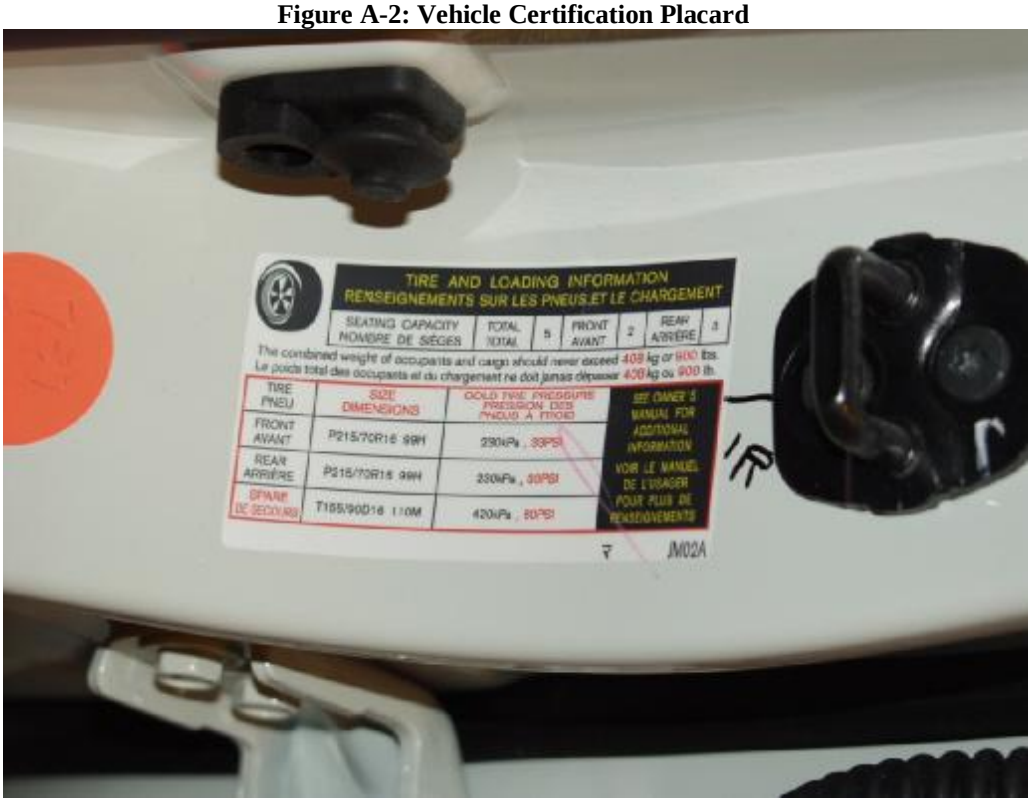


Figure A-3: Vehicle Tire Placard

Figure A-4: Right Front, As Received

Figure A-5: Left Rear, As Received

Figure A-6: Pre-Test Front View

Figure A-7: Post-Test Front View

Figure A-8: Pre-Test Left Side View

Figure A-9: Post-Test Left Side View

Figure A-10: Pre-Test Right Side View

Figure A-11: Post-Test Right Side View

Figure A-12: Pre-Test Right Front Three-Quarter View

Figure A-13: Post-Test Right Front Three-Quarter View

Figure A-14: Pre-Test Left Rear Three-Quarter View

Figure A-15: Post-Test Left Rear Three-Quarter View

Figure A-16: Left Rear Three-Quarter View of Doors After Impact

Figure A-17: Right Rear Three-Quarter View of Doors After Impact

Figure A-18: Pre-Test Windshield View

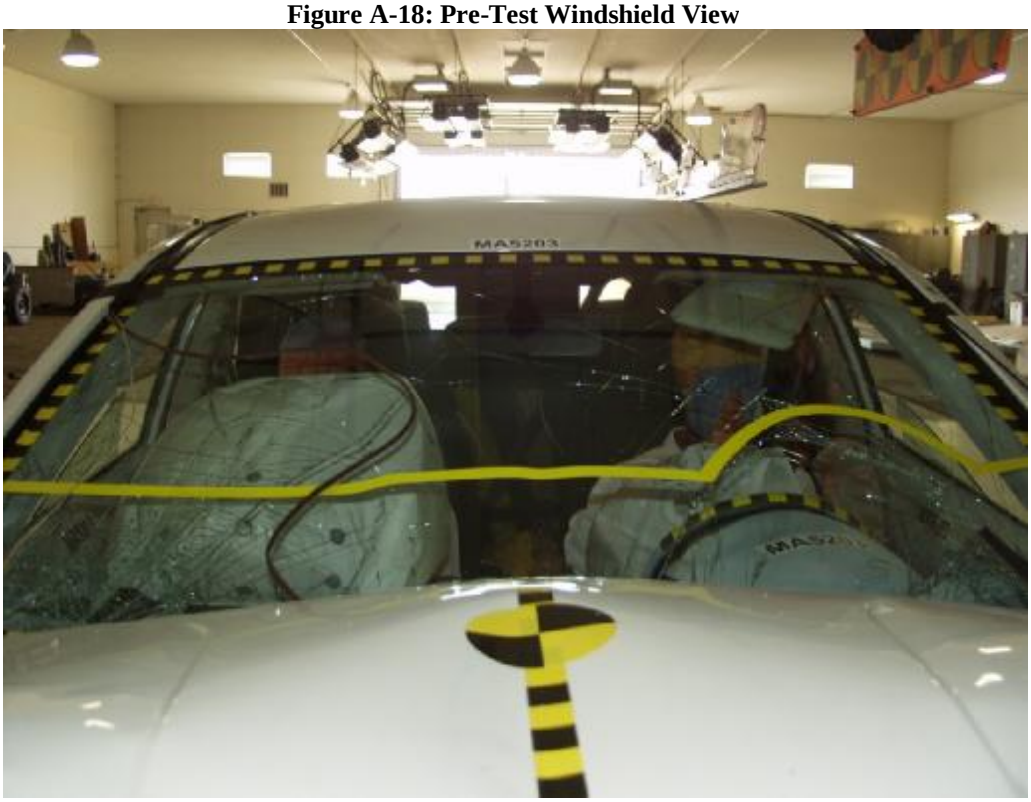


Figure A-19: Post-Test Windshield View

Figure A-20: Pre-Test Engine Compartment View

Figure A-21: Post-Test Engine Compartment View

Figure A-22: Pre-Test Fuel Cap View

Figure A-23: Post-Test Fuel Cap View

Figure A-24: Pre-Test Front Underbody View

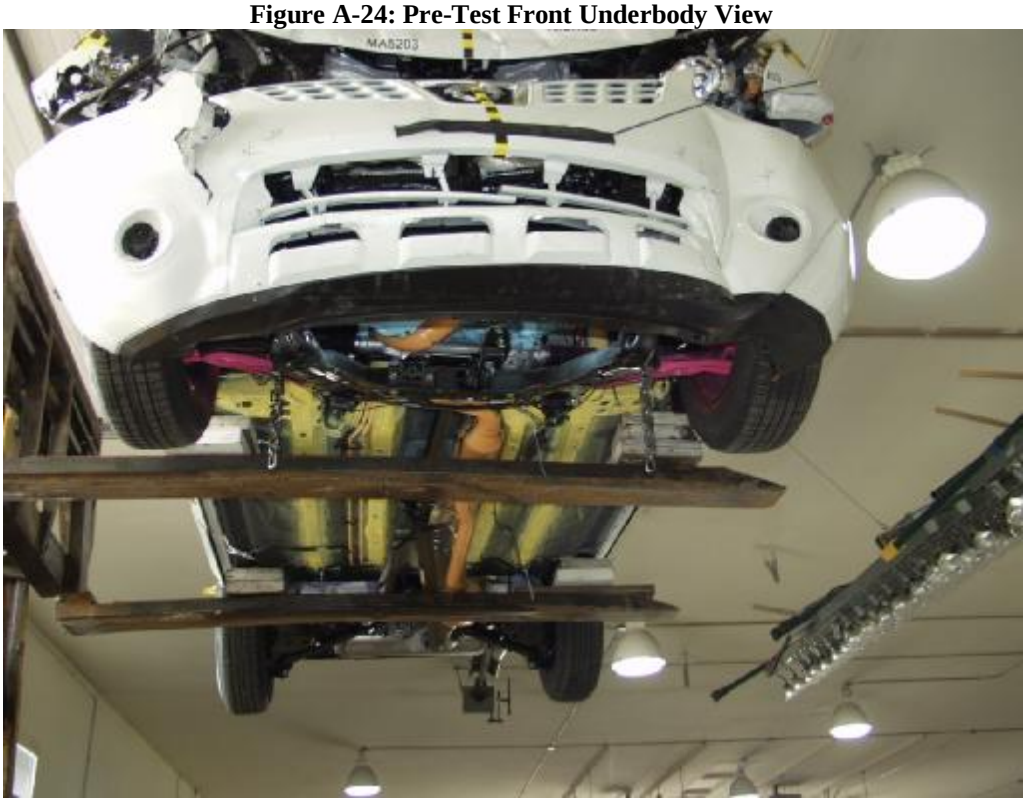


Figure A-25: Post-Test Front Underbody View

Figure A-26: Pre-Test Mid Underbody View

Figure A-27: Post-Test Mid Underbody View

Figure A-28: Pre-Test Rear Underbody View

Figure A-29: Post-Test Rear Underbody View

Figure A-30: Pre-Test Driver Head Location

Figure A-31: Post-Test Driver Head Location

Figure A-32: Pre-Test Driver Position View

Figure A-33: Post-Test Driver Position View

Figure A-34: Pre-Test Driver and Interior View

Figure A-35: Post-Test Driver and Interior View

Figure A-36: Pre-Test Driver Feet View

Figure A-37: Post-Test Driver Feet View

Figure A-38: Pre-Test Driver Knee Bolster View

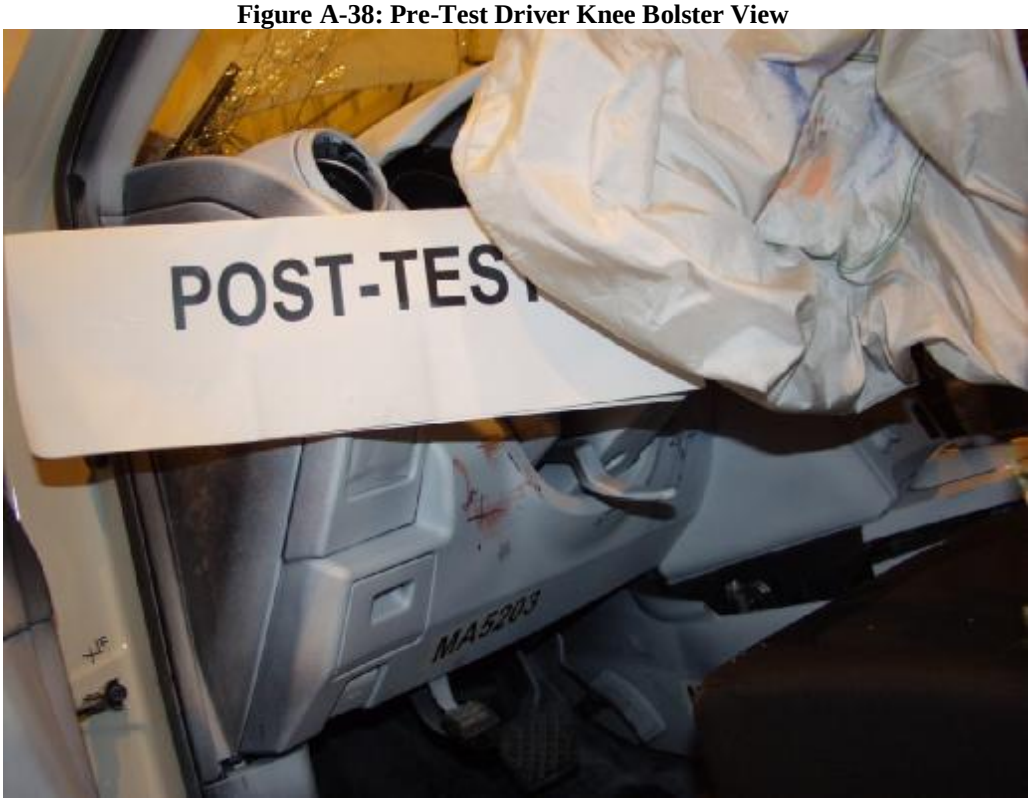


Figure A-39: Post-Test Driver Knee Bolster View

Figure A-40: Pre-Test Driver Floor Pan View

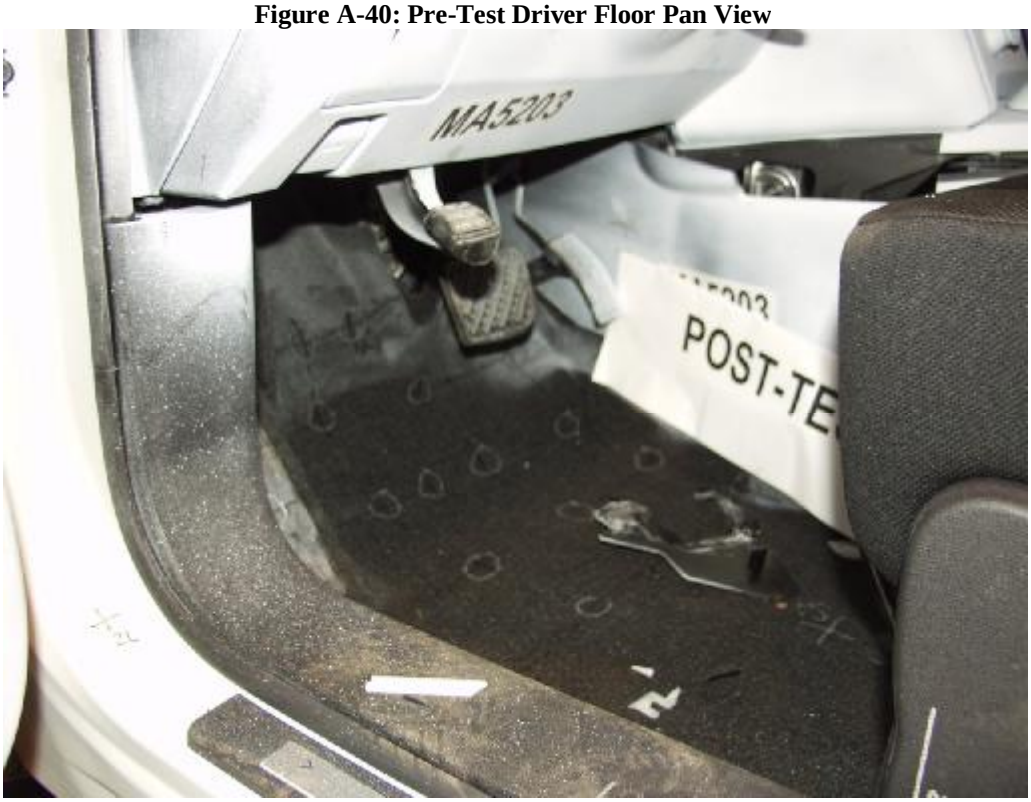


Figure A-41: Post-Test Driver Floor Pan View

Figure A-42: Post-Test Driver Head View

Figure A-43: Post-Test Driver Contact to Airbag

Figure A-44: Pre-Test Passenger Head Location

Figure A-45: Post-Test Passenger Head Location

Figure A-46: Pre-Test Passenger Position View

Figure A-47: Post-Test Passenger Position View

Figure A-48: Pre-Test Passenger and Interior View

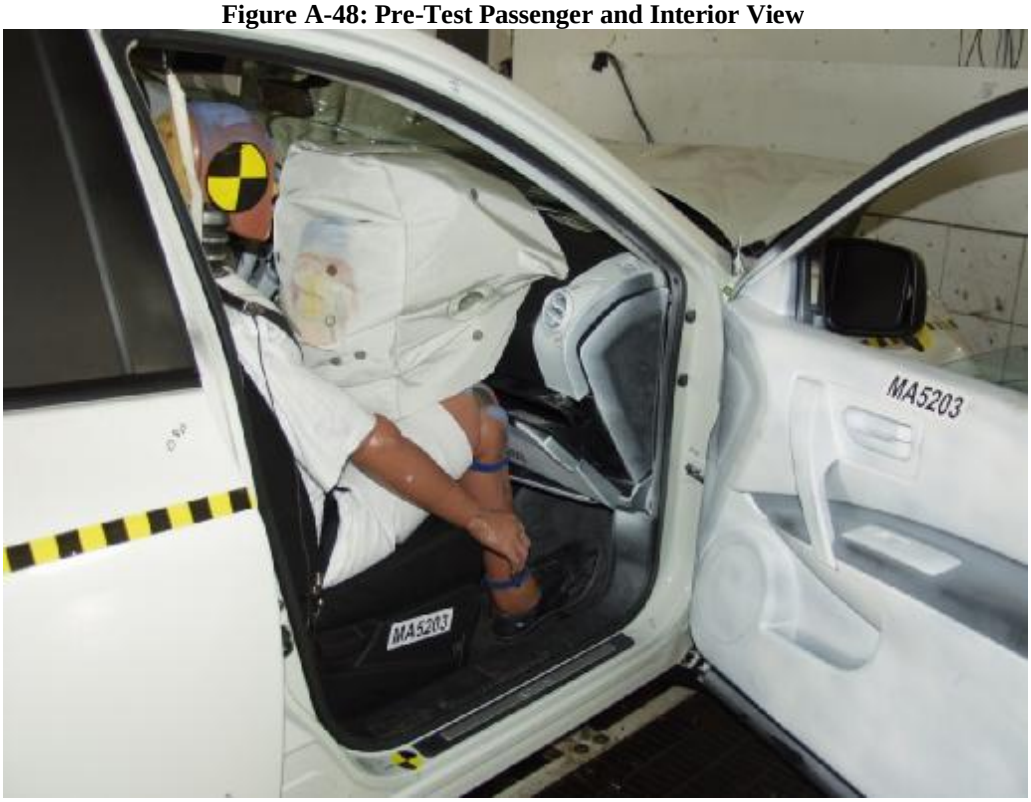


Figure A-49: Post-Test Passenger and Interior View

Figure A-50: Pre-Test Passenger Feet View

Figure A-51: Post-Test Passenger Feet View

Figure A-52: Pre-Test Passenger Knee Bolster View

Figure A-53: Post-Test Passenger Knee Bolster View

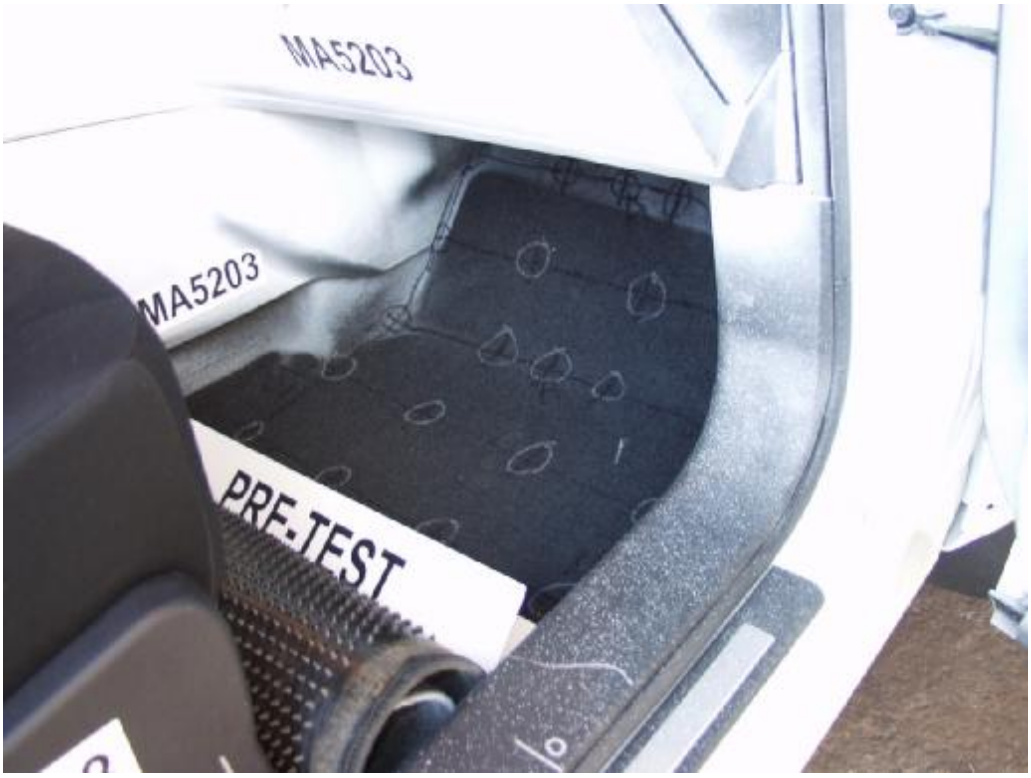


Figure A-54: Pre-Test Passenger Floor Pan View

Figure A-55: Post-Test Passenger Floor Pan View

Figure A-56: Post-Test Passenger Head View

Figure A-57: Post-Test Passenger Contact to Airbag

Figure A-58: Rollover View - 90°

Photo Not Available

Figure A-59: Rollover View - 180°

Photo Not Available

Figure A-60: Rollover View - 270°

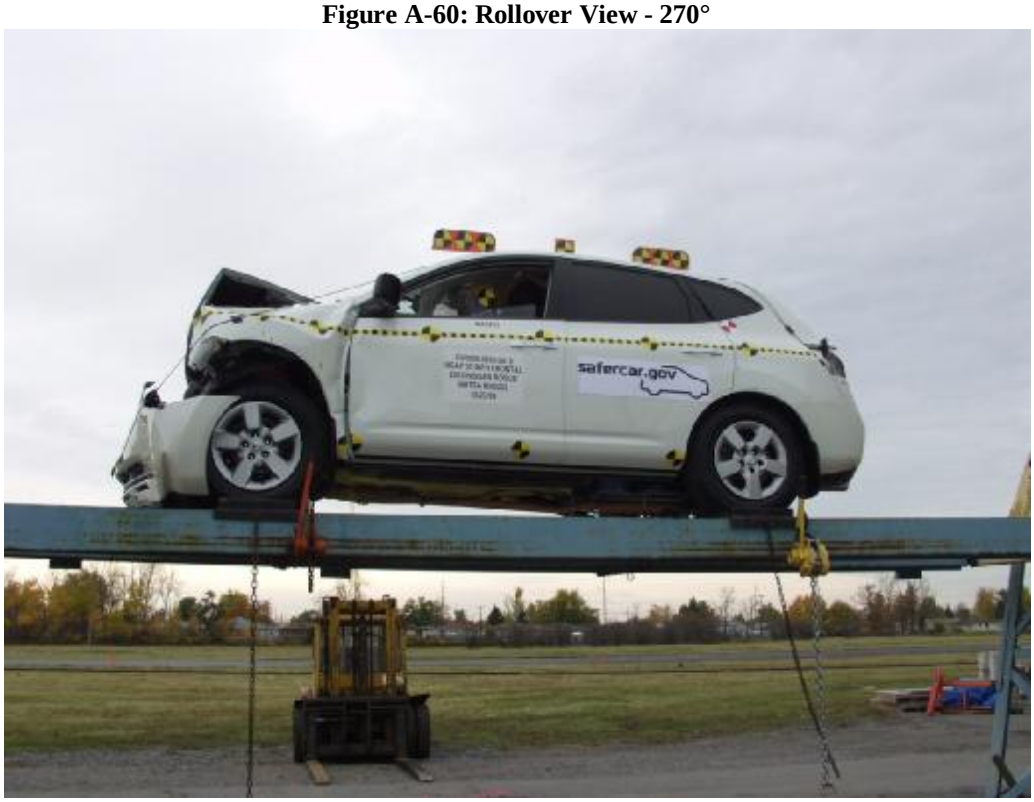


Figure A-61: Rollover View - 360°

Figure A-62: Impact View

APPENDIX B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

Hybrid III Dummy Sign Conventions
Load Cells and Special Transducers

Transducer	**SAE Sign Convention (positive unless noted)**
Upper Neck Load Cell	Fx Head rearward Fy Head left Fz Neck in tension Mx Left ear to left shoulder My Chin to chest (flexion) Mz Chin to left shoulder (look left)
Chest Displacement Potentiometer	Compression is negative
Pelvic Load Cell (Lower Lumbar)	Fx Chest rearward Fy Chest left Fz Spine in tension
Femur Load Cell	Compression is negative
Upper Tibia Load Cell (right and left leg)	Mx Support tibia at ends, load left side center My Support tibia at ends, load front (shin) center
Lower Tibia Load Cell (right and left leg)	Fz Tibia in tension Mx Support tibia at ends, load left side center My Support tibia at ends, load front (shin) center

DATA CHANNEL FILTER CLASS SUMMARY

NHTSA TEST NO.: MA5203

DATA TYPE	**SAE FILTER CLASS (Hz)**
Dummy Head Accelerations	1000
Dummy Chest Accelerations	180
Dummy Chest Displacements	600
Dummy Femur Forces	600
Dummy Belt Loads	60
Dummy Belt Displacements	180
Dummy Neck Forces	1000
Dummy Neck Moments	600
Vehicle Accelerations	60
Vehicle Velocity Integrations	180
Vehicle Displacement Integrations	180
Load Cell Barrier Forces	60

Table of Data Plots

The following dummy, vehicle and load cell response data can be found in the research and development section of the NHTSA website at: www.nhtsa.dot.gov

V1P1 Head 9 Array X Arm Ay	V1P1 Lap Belt Load
V1P1 Head 9 Array X Arm Az	V1P1 Shoulder Belt Load
V1P1 Head 9 Array Y Arm Ax	V1P2 Lap Belt Load
V1P1 Head 9 Array Y Arm Az	V1P2 Shoulder Belt Load
V1P1 Head 9 Array Z Arm Ax	V1 Left Rear #1x
V1P1 Head 9 Array Z Arm Ay	V1 Right Rear #2x
V1P1 Head CG Ax	V1 Engine Top #3x
V1P1 Head CG Ay	V1 Engine Bottom #4x
V1P1 Head CG Az	V1 Right Caliper #5x
V1P1 Head CG Red Ax	V1 Left Caliper #7x
V1P1 Head CG Red Ay	V1 Left Rear #8z
V1P1 Head CG Red Az	V1 Right Rear #9z
V1P1 Upper Neck Fx	
V1P1 Upper Neck Fy	
V1P1 Upper Neck Fz	
V1P1 Upper Neck Mx	
V1P1 Upper Neck My	
V1P1 Upper Neck Mz	
V1P1 Chest Ax	
V1P1 Chest Ay	
V1P1 Chest Az	
V1P1 Chest Red Ax	
V1P1 Chest Red Ay	
V1P1 Chest Red Az	
V1P1 Chest Compression	
V1P1 Pelvic Ax	
V1P1 Pelvic Ay	
V1P1 Pelvic Az	
V1P1 Left Femur Fz	
V1P1 Right Femur Fz	
V1P1 Left Upper Tibia Mx	
V1P1 Left Upper Tibia My	
V1P1 Left Lower Tibia Fz	
V1P1 Left Lower Tibia Mx	
V1P1 Left Lower Tibia My	
V1P1 Right Upper Tibia Fz	
V1P1 Right Upper Tibia Mx	
V1P1 Right Upper Tibia My	
V1P1 Right Lower Tibia Mx	
V1P1 Right Lower Tibia My	
V1P1 Left Foot Aft Ax	
V1P1 Left Foot Aft Az	
V1P1 Left Foot Fore Az	
V1P1 Right Foot Aft Ax	
V1P1 Right Foot Aft Az	
V1P1 Right Foot Fore z	
V1P2 Head 9 Array X Arm Ay	

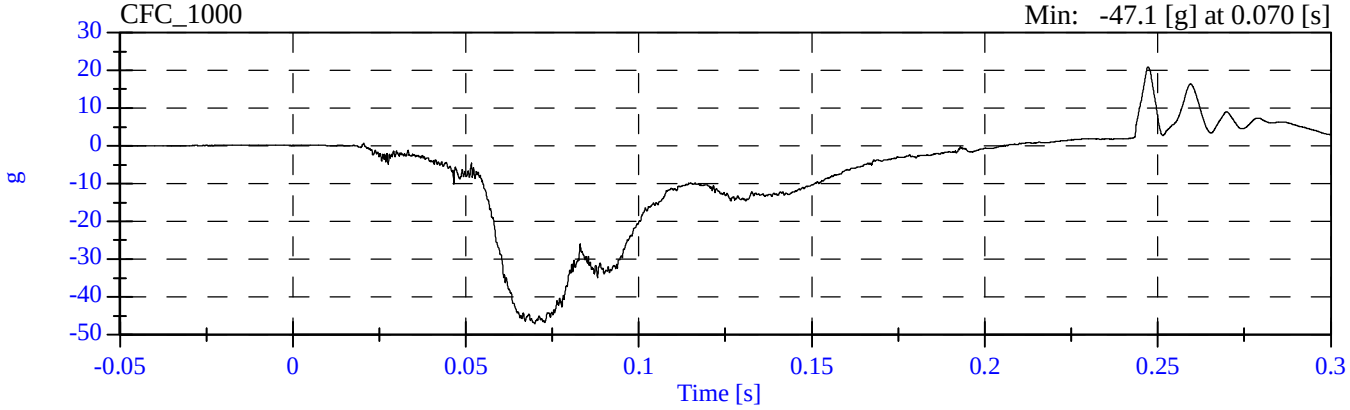
V1P2 Head 9 Array X Arm Az	
V1P2 Head 9 Array Y Arm Ax	
V1P2 Head 9 Array Y Arm Az	
V1P2 Head 9 Array Z Arm Ax	
V1P2 Head 9 Array Z Arm Ay	
V1P2 Head CG Ax	
V1P2 Head CG Ay	
V1P2 Head CG Az	
V1P2 Head CG Red Ax	
V1P2 Head CG Red Ay	
V1P2 Head CG Red Az	
V1P2 Upper Neck Fx	
V1P2 Upper Neck Fy	
V1P2 Upper Neck Fz	
V1P2 Upper Neck Mx	
V1P2 Upper Neck My	
V1P2 Upper Neck Mz	
V1P2 Chest Ax	
V1P2 Chest Ay	
V1P2 Chest Az	
V1P2 Chest Red Ax	
V1P2 Chest Red Ay	
V1P2 Chest Red Az	
V1P2 Chest Compression	
V1P2 Pelvic Ax	
V1P2 Pelvic Ay	
V1P2 Pelvic Az	
V1P2 Left Femur Fz	
V1P2 Right Femur Fz	
V1P2 Left Upper Tibia Fz	
V1P2 Left Upper Tibia Mx	
V1P2 Left Upper Tibia My	
V1P2 Left Lower Tibia Mx	
V1P2 Left Lower Tibia My	
V1P2 Right Upper Tibia Mx	
V1P2 Right Upper Tibia My	
V1P2 Right Lower Tibia Fz	
V1P2 Right Lower Tibia Mx	
V1P2 Right Lower Tibia My	
V1P2 Left Foot Aft Ax	
V1P2 Left Foot Aft Az	
V1P2 Left Foot Fore Az	
V1P2 Right Foot Aft Ax	
V1P2 Right Foot Aft Az	
V1P2 Right Foot Fore Az	
Barrier Load Cell A1 Fx	
Barrier Load Cell A2 Fx	
Barrier Load Cell A3 Fx	
Barrier Load Cell A4 Fx	

Barrier Load Cell A5 Fx	
Barrier Load Cell A6 Fx	
Barrier Load Cell A7 Fx	
Barrier Load Cell A8 Fx	
Barrier Load Cell A9 Fx	
Barrier Load Cell B1 Fx	
Barrier Load Cell B2 Fx	
Barrier Load Cell B3 Fx	
Barrier Load Cell B4 Fx	
Barrier Load Cell B5 Fx	
Barrier Load Cell B6 Fx	
Barrier Load Cell B7 Fx	
Barrier Load Cell B8 Fx	
Barrier Load Cell B9 Fx	
Barrier Load Cell C1 Fx	
Barrier Load Cell C2 Fx	
Barrier Load Cell C3 Fx	
Barrier Load Cell C4 Fx	
Barrier Load Cell C5 Fx	
Barrier Load Cell C6 Fx	
Barrier Load Cell C7 Fx	
Barrier Load Cell C8 Fx	
Barrier Load Cell C9 Fx	
Barrier Load Cell D1 Fx	
Barrier Load Cell D2 Fx	
Barrier Load Cell D3 Fx	
Barrier Load Cell D4 Fx	
Barrier Load Cell D5 Fx	
Barrier Load Cell D6 Fx	
Barrier Load Cell D7 Fx	
Barrier Load Cell D8 Fx	
Barrier Load Cell D9 Fx	

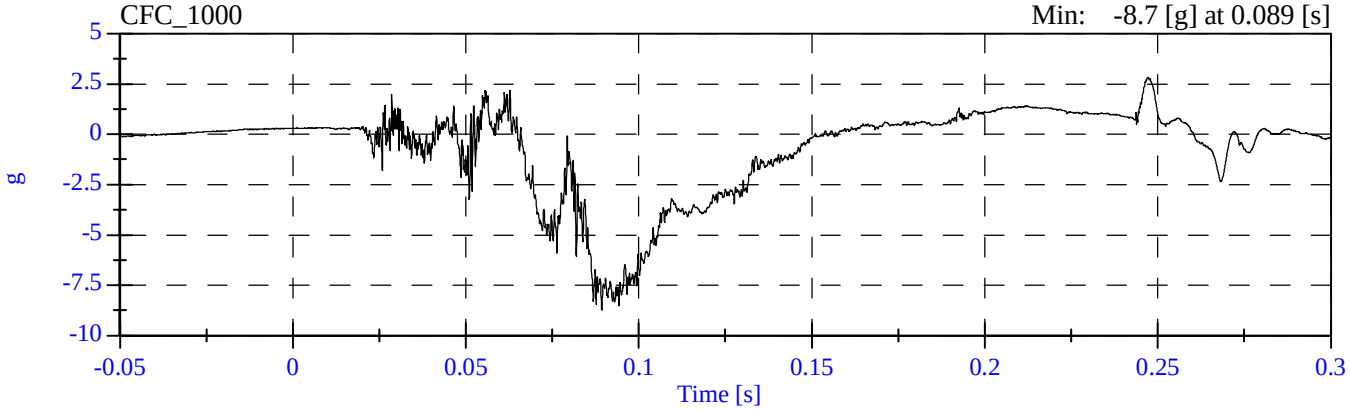
TEST NOTES	
Data Channel	Anomalies

Frontal NCAP - 2010 Nissan Rogue S AWD
MA5203 - October 27, 2009

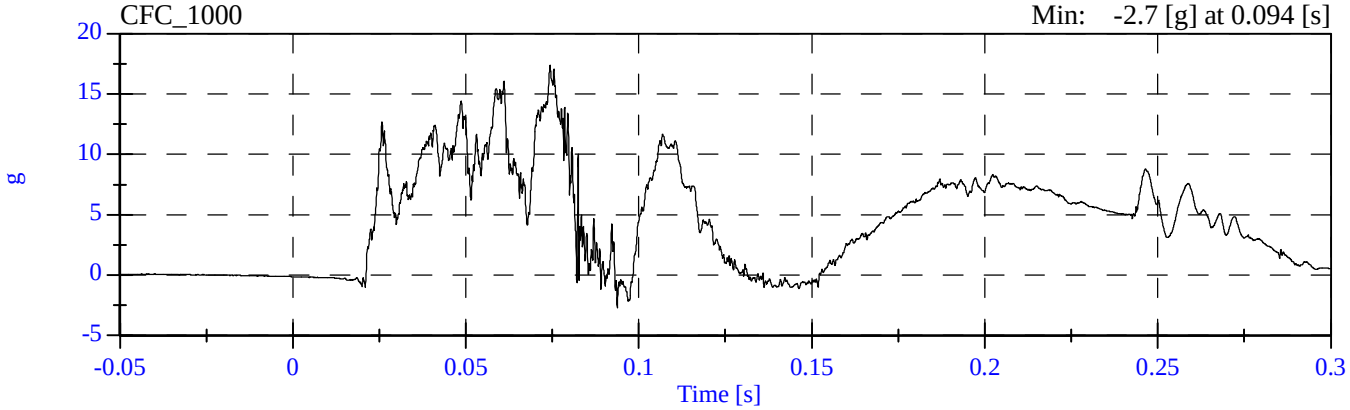
V1P1 Head x
CFC_1000
Max: 20.9 [g] at 0.247 [s]
Min: -47.1 [g] at 0.070 [s]



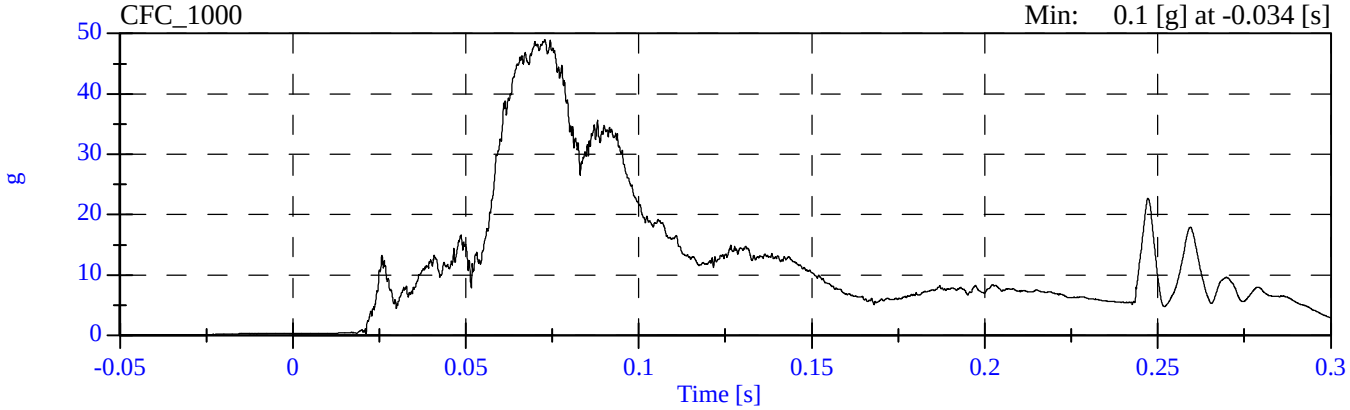
V1P1 Head y
CFC_1000
Max: 2.8 [g] at 0.247 [s]
Min: -8.7 [g] at 0.089 [s]



V1P1 Head z
CFC_1000
Max: 17.4 [g] at 0.074 [s]
Min: -2.7 [g] at 0.094 [s]

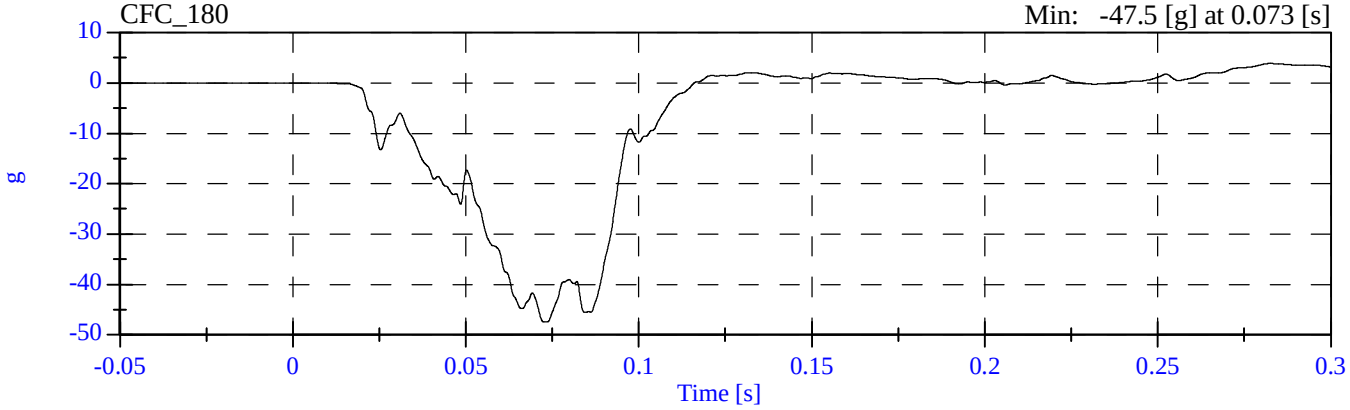


V1P1 Head Resultant
CFC_1000
Max: 49.0 [g] at 0.073 [s]
Min: 0.1 [g] at -0.034 [s]

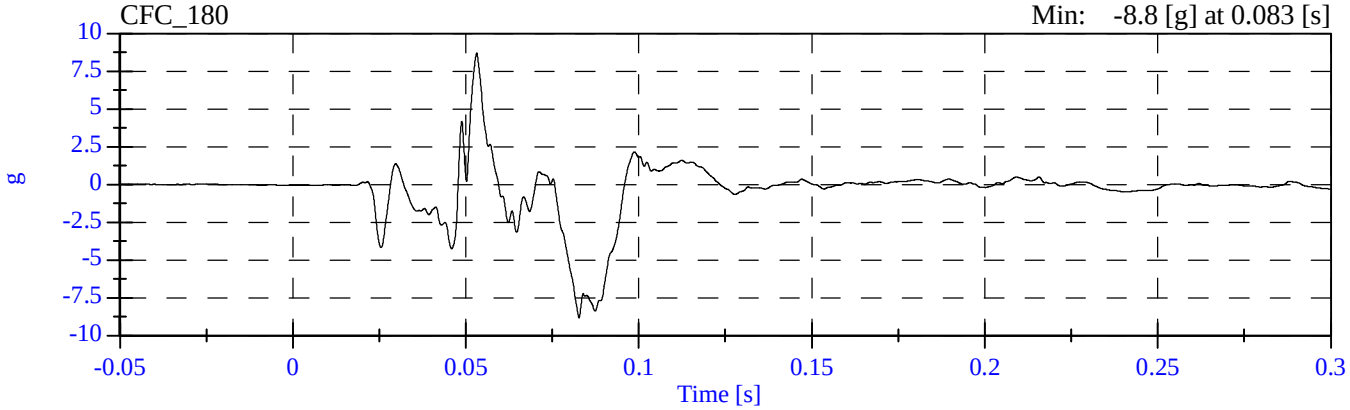


Frontal NCAP - 2010 Nissan Rogue S AWD
MA5203 - October 27, 2009

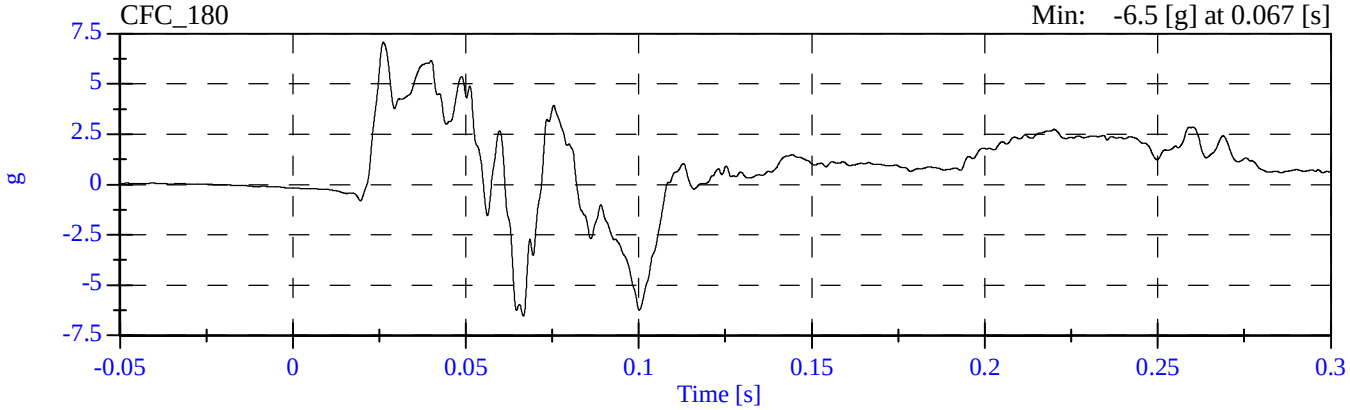
V1P1 Chest x
CFC_180
Max: 3.9 [g] at 0.283 [s]
Min: -47.5 [g] at 0.073 [s]



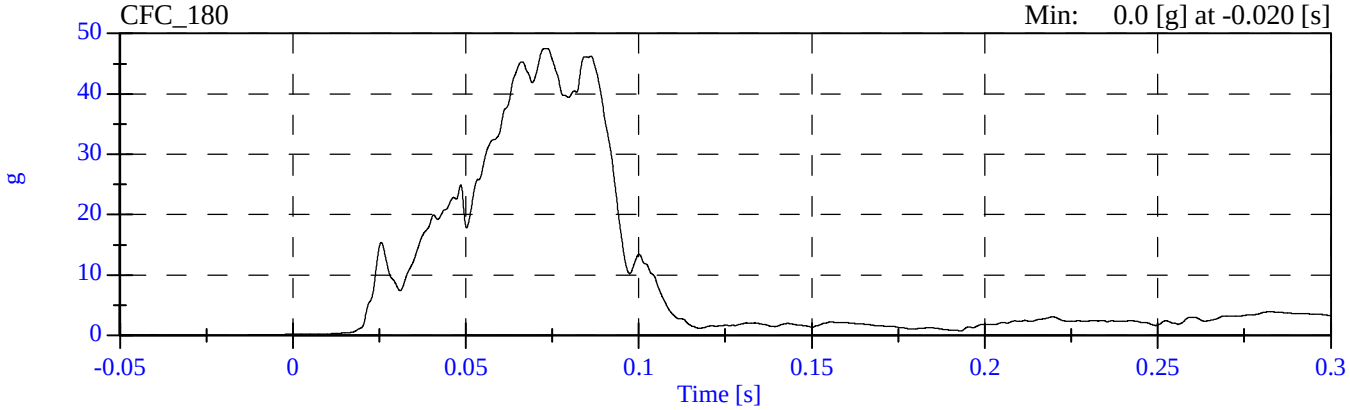
V1P1 Chest y
CFC_180
Max: 8.7 [g] at 0.053 [s]
Min: -8.8 [g] at 0.083 [s]



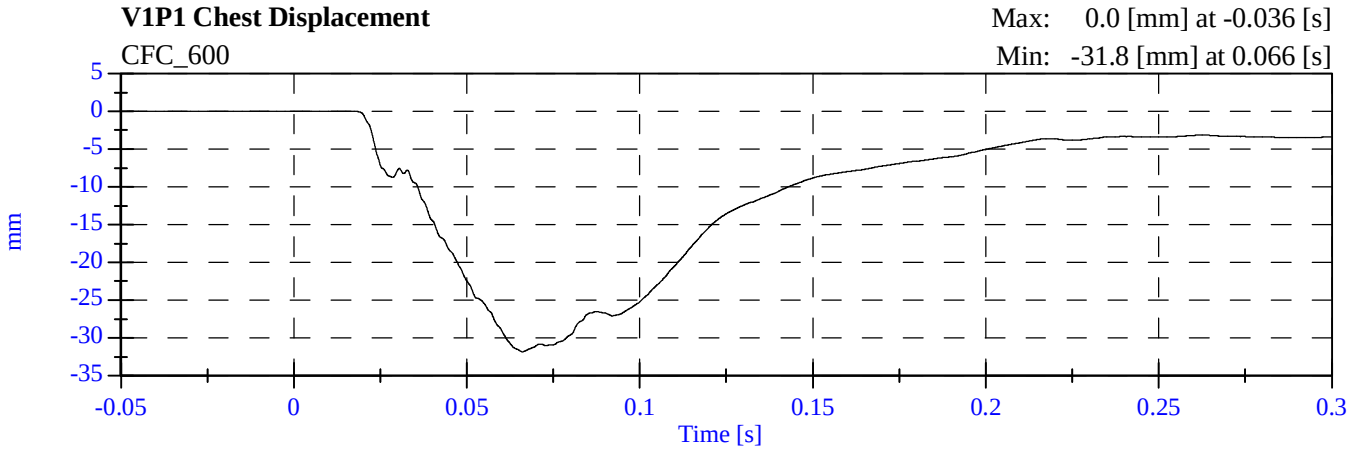
V1P1 Chest z
CFC_180
Max: 7.1 [g] at 0.026 [s]
Min: -6.5 [g] at 0.067 [s]



V1P1 Chest Resultant
CFC_180
Max: 47.6 [g] at 0.073 [s]
Min: 0.0 [g] at -0.020 [s]



Frontal NCAP - 2010 Nissan Rogue S AWD
MA5203 - October 27, 2009



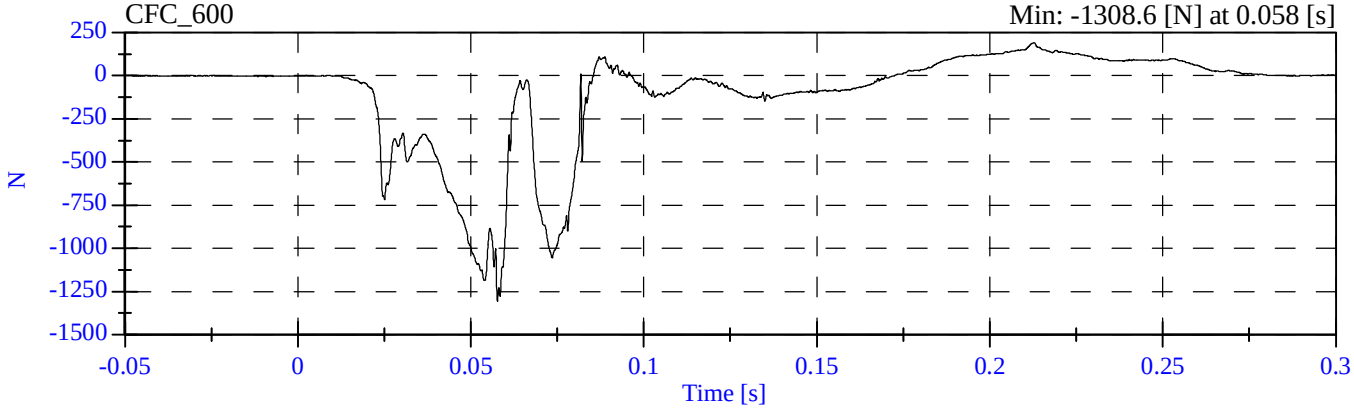
Frontal NCAP - 2010 Nissan Rogue S AWD
MA5203 - October 27, 2009

V1P1 Left Femur

Max: 190.0 [N] at 0.213 [s]

CFC_600

Min: -1308.6 [N] at 0.058 [s]

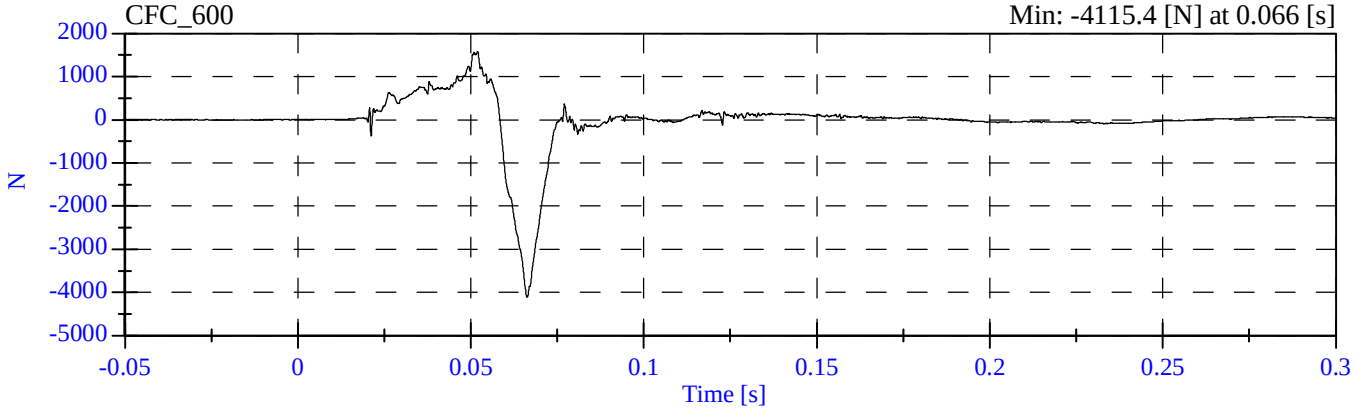


V1P1 Right Femur

Max: 1584.6 [N] at 0.052 [s]

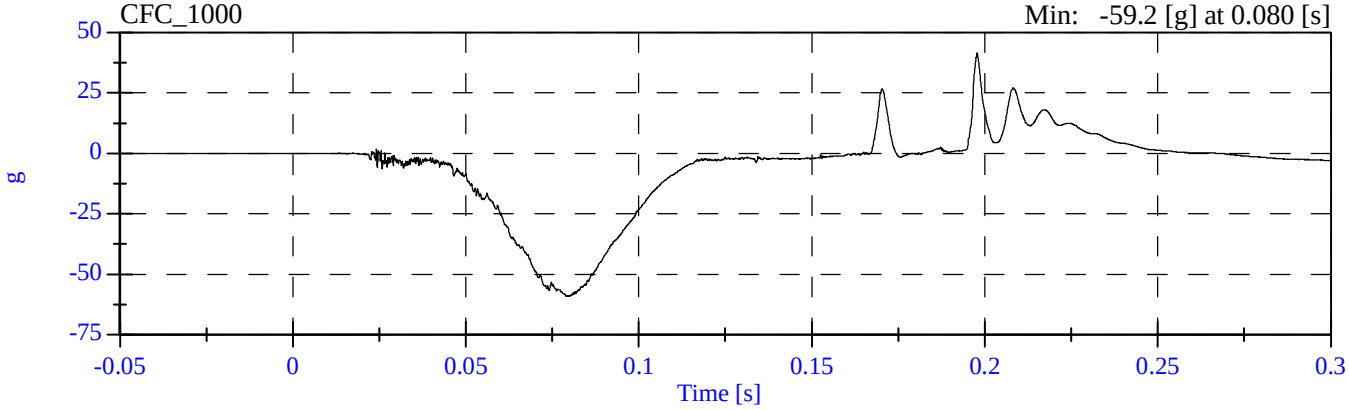
CFC_600

Min: -4115.4 [N] at 0.066 [s]

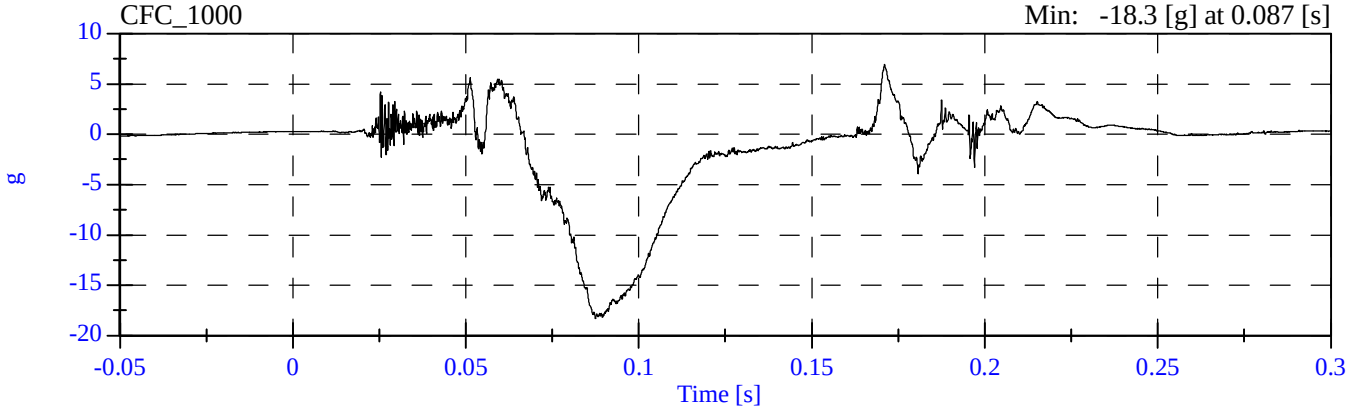


Frontal NCAP - 2010 Nissan Rogue S AWD
MA5203 - October 27, 2009

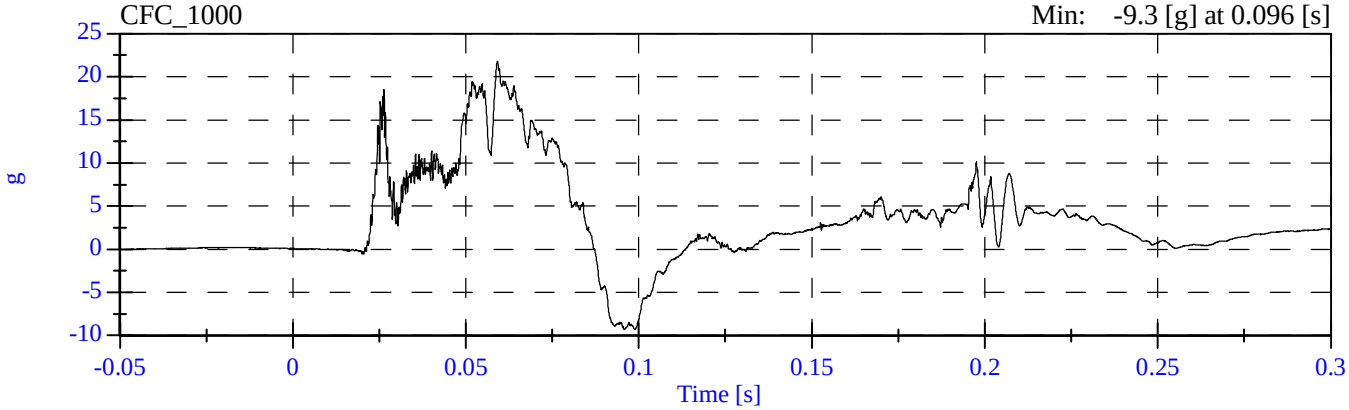
V1P2 Head CG x
CFC_1000
Max: 41.4 [g] at 0.198 [s]
Min: -59.2 [g] at 0.080 [s]



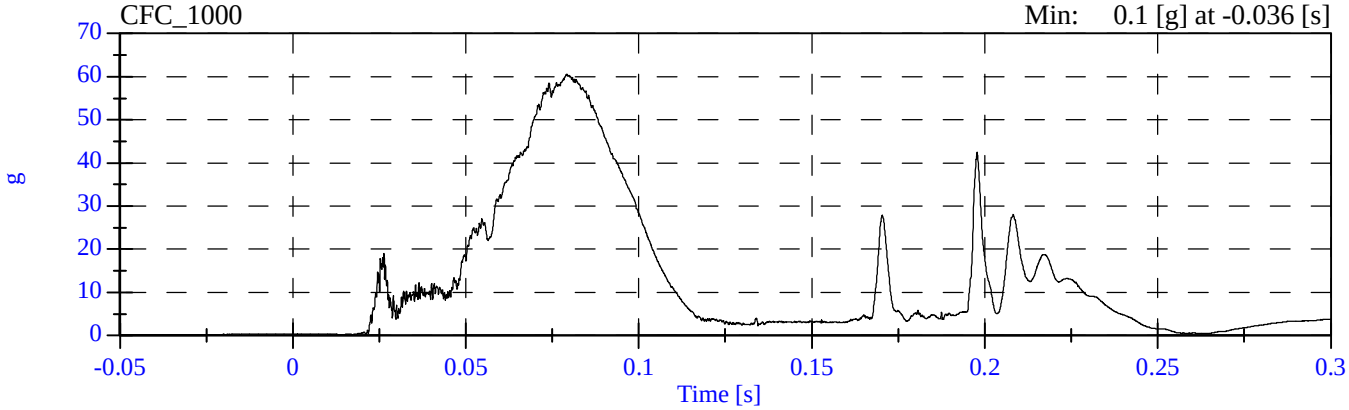
V1P2 Head CG y
CFC_1000
Max: 6.9 [g] at 0.171 [s]
Min: -18.3 [g] at 0.087 [s]



V1P2 Head CG z
CFC_1000
Max: 21.8 [g] at 0.059 [s]
Min: -9.3 [g] at 0.096 [s]

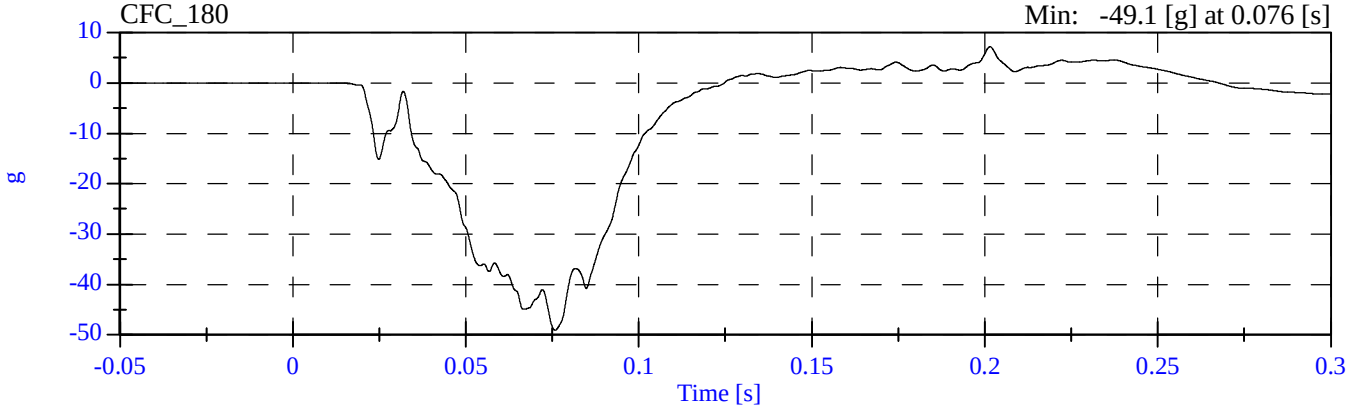


V1P2 Head CG Resultant
CFC_1000
Max: 60.5 [g] at 0.079 [s]
Min: 0.1 [g] at -0.036 [s]

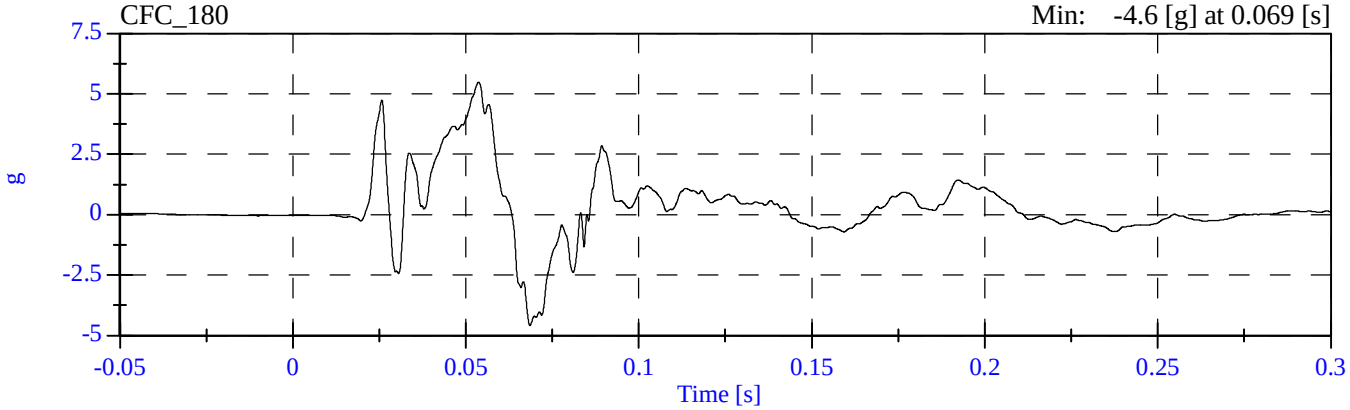


Frontal NCAP - 2010 Nissan Rogue S AWD
MA5203 - October 27, 2009

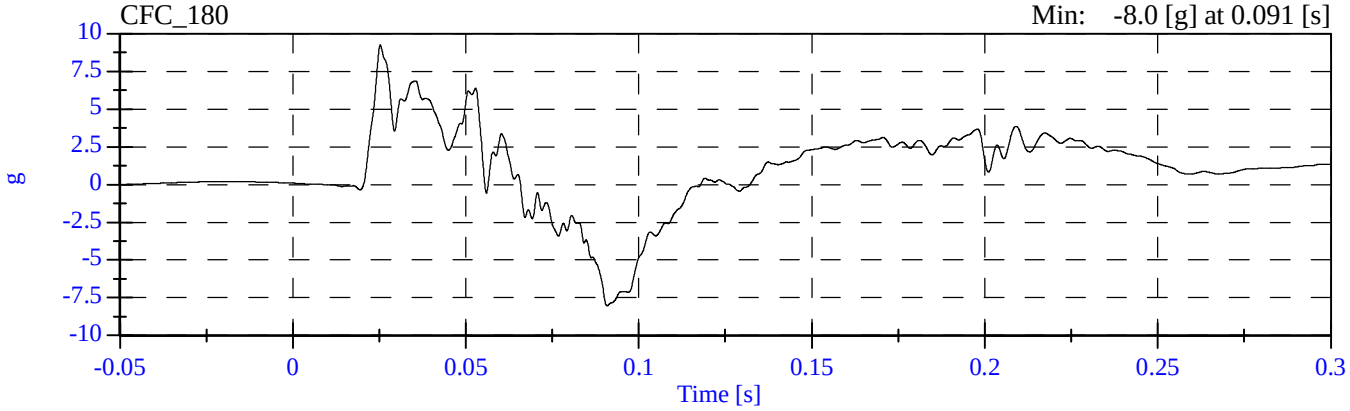
V1P2 Chest x
CFC_180
Max: 7.2 [g] at 0.202 [s]
Min: -49.1 [g] at 0.076 [s]



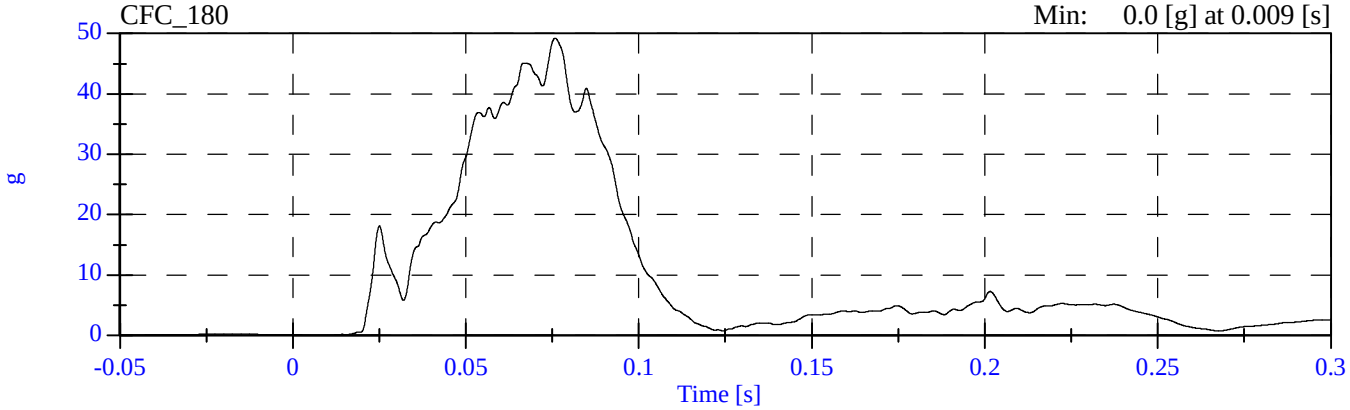
V1P2 Chest y
CFC_180
Max: 5.5 [g] at 0.054 [s]
Min: -4.6 [g] at 0.069 [s]



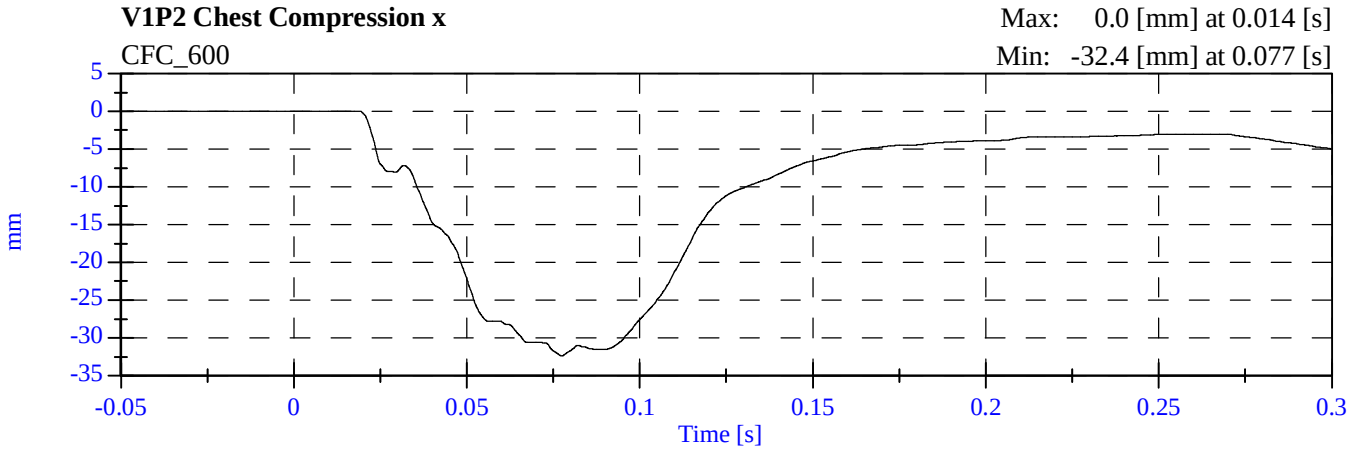
V1P2 Chest z
CFC_180
Max: 9.3 [g] at 0.025 [s]
Min: -8.0 [g] at 0.091 [s]



V1P2 Chest Resultant
CFC_180
Max: 49.2 [g] at 0.076 [s]
Min: 0.0 [g] at 0.009 [s]



Frontal NCAP - 2010 Nissan Rogue S AWD
MA5203 - October 27, 2009



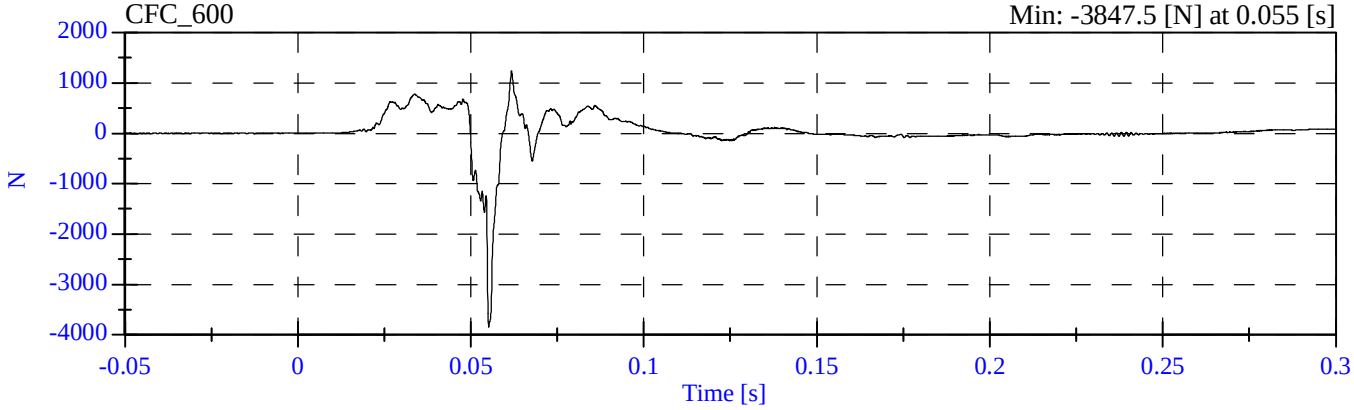
Frontal NCAP - 2010 Nissan Rogue S AWD
MA5203 - October 27, 2009

V1P2 Left Femur z

Max: 1239.6 [N] at 0.062 [s]

CFC_600

Min: -3847.5 [N] at 0.055 [s]

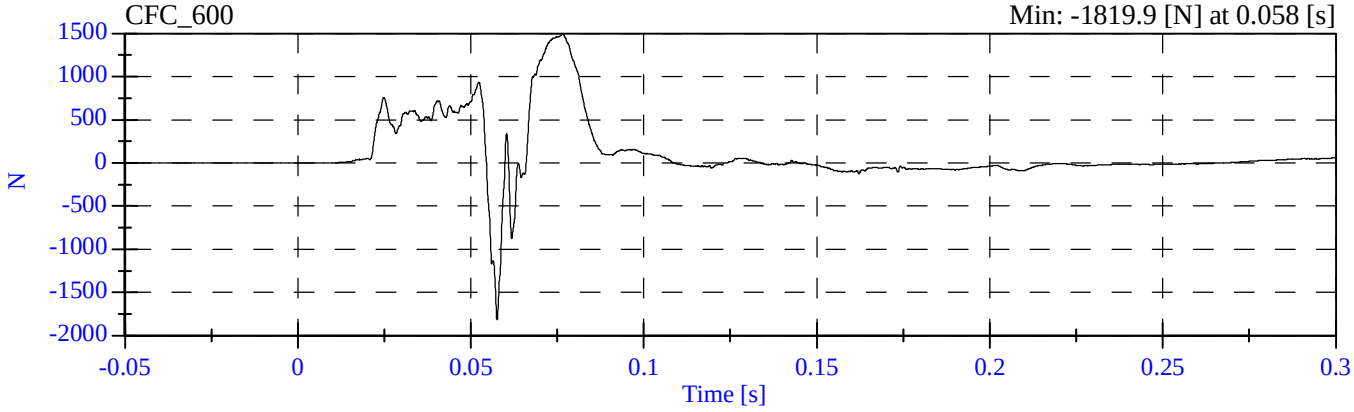


V1P2 Right Femur z

Max: 1494.8 [N] at 0.077 [s]

CFC_600

Min: -1819.9 [N] at 0.058 [s]



APPENDIX C

PART 572B/E DUMMY CONFIGURATION
AND PERFORMANCE VERIFICATION DATA SHEETS

Appendix C contains the results from certification tests performed on the 50th percentile male anthropomorphic test devices utilized for this crash test. The results indicate that the dummies meet all of the performance requirements of the six standard tests as specified in 49 CFR Part 572, Federal Register, Volume 42, No. 25, dated February 7, 1977.

The tests were conducted at the Dummy Certification Test Facility of Calspan. A summary of the test results, and Part 572 specifications are included in this Appendix.

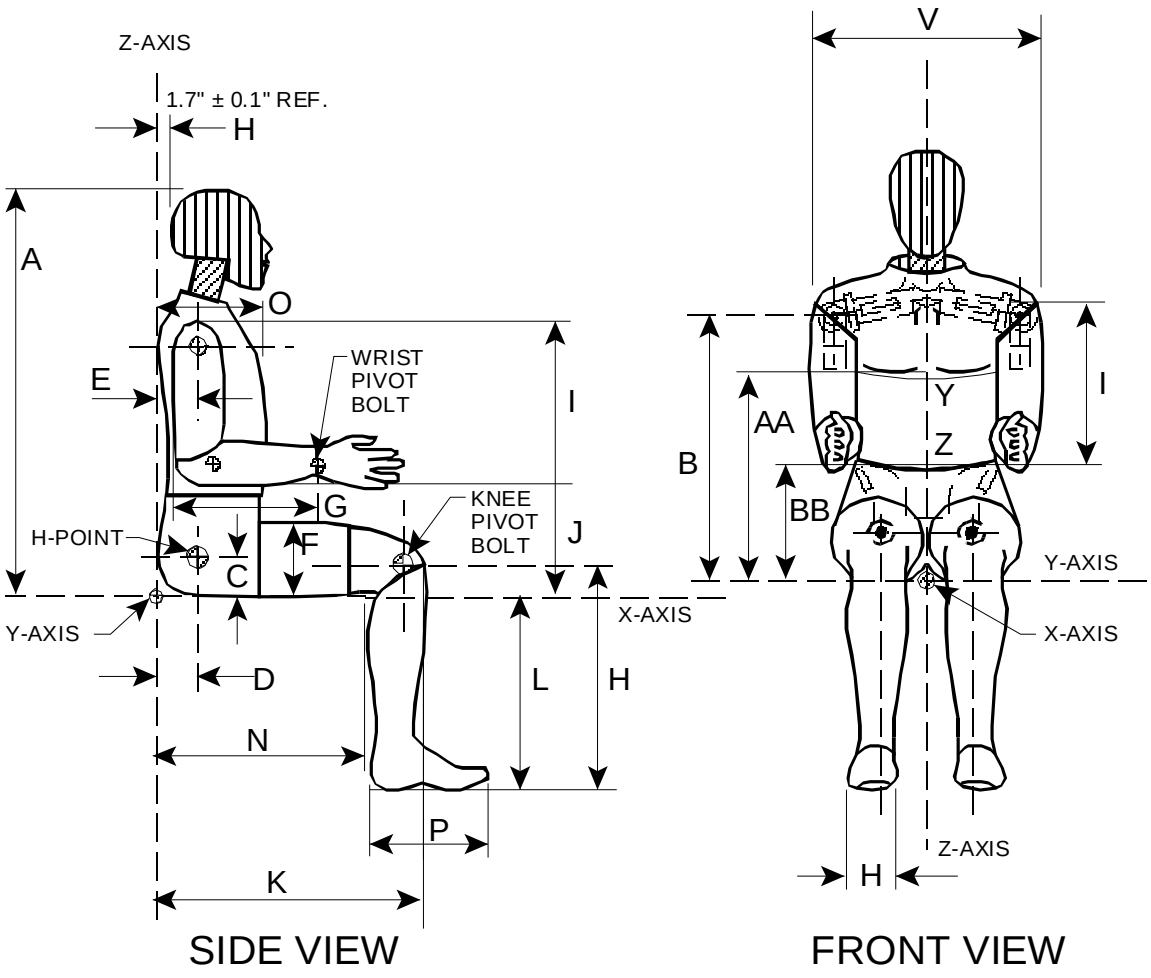
Dummy serial numbers and certification dates are:

Position No./Location	Serial No.	Completion Date
#1/Driver	1046	9-18-09
#2/Right Front Passenger	061	10-20-09

Electronic Test Equipment

The complement of signal conditioning, recording and display equipment, in conjunction with dummy certification testing, can be found in New Car Assessment and Standards Indicant Testing Final Report No. 6525-V-1.

EXTERNAL DIMENSIONS SPECIFICATIONS



NOTE: Figure is referenced to the erect seated position. The curved lumbar does not allow the Hybrid III to be positioned in a perfect erect attitude. (REF: S572.31(A)(6))

PART 572E
HEAD DROP TEST

Dummy Serial Number	1046
Sequential Test Number	1
Date	9-16-09
Workfile	1046H2 09-16-09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 – 25.6 Deg C	21.7
Relative Humidity	10% - 70%	48
Peak Resultant Acceleration	225-275 G's	258.14
Peak Lateral Acceleration	15 G's Max	4.49
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: Alex Rudniski

PART 572E
NECK FLEXION TEST

Dummy Serial Number	1046	
Sequential Test Number	1	
Date	9-17-09	6 Axis Neck Transducer
Workfile	1046NF1 09-17-09	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.67
Relative Humidity		10% - 70%	51
Impact Velocity		6.89 – 7.13 m/s	7.00
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	25.09
	20 ms	17.60 - 22.60 G's	21.33
	30 ms	12.50 - 18.50 G's	15.07
Max Pendulum G's Above 30 ms		29 G's Max	15.07
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	38.40
D Plane Rotation	Max	64 - 78 Deg	68.86
	Time	57 - 64 ms	59.10
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	92.51
	Time	47 - 58 ms	52.20
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	115.50
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.20

Remarks:

Laboratory Technician: Alex Rudniski

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	1046	
Sequential Test Number	1	
Date	09-17-09	6 Axis Neck Transducer
Workfile	1046NE 09-17-09	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.67
Relative Humidity		10% - 70%	51
Impact Velocity		5.94 – 6.19 m/s	6.07
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.71
	20 ms	14.00 - 19.00 G's	18.30
	30 ms	11.00 - 16.00 G's	15.08
Max Pendulum G's Above 30 ms		22 G's Max	15.08
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	40.30
D Plane Rotation	Max	81 - 106 Deg	94.38
	Time	72 - 82 ms	75.60
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-69.43
	Time	65 - 79 ms	72.20
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	154.80
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	138.40

Remarks:

Laboratory Technician: Alex Rudniski

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	1046
Sequential Test Number	1
Date	9-17-09
Workfile	1046T 09-17-09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	20.6 – 22.2 Deg C	21.67
Relative Humidity	10% - 70%	51
Pendulum Velocity	6.58 – 6.83 m/s	6.65
Maximum Deflection	63.50 – 72.64 mm	66.04
Maximum Resistive Force	5159.9 – 5893.9 N	5469.5
Internal Hysteresis	69 - 85 %	73.16

Remarks:

Laboratory Technician: Alex Rudniski

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	1046
Sequential Test Number	1
Date	9-17-09/9-18-09
Workfile	1046LK/RK

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	18.9 – 25.6 Deg C	21.7
Relative Humidity	10% - 70%	51
Probe Velocity	2.07 – 2.13 m/s	2.09
Peak Knee Impact Force	4715.1 – 5782.7 N	5060.85
RIGHT KNEE		
Temperature	18.9 – 25.6 Deg C	20.6
Relative Humidity	10% - 70%	52
Probe Velocity	2.07 – 2.13 m/s	2.09
Peak Knee Impact Force	4715.1 – 5782.7 N	5014.46

Remarks:

Laboratory Technician: Alex Rudniski

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 1046
Sequential Test Number 1
Date 9-18-09

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			20.6
Relative Humidity			52
Location for Chest Circumference	AA	16.9 -17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Total Sitting Height	A	34.6 - 35.0 in	34.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.0
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.4
Thigh Clearance	F	5.5 - 6.1 in	5.7
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.8
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.3
Elbow Rest Height	J	7.5 - 8.3 in	7.8
Buttock Knee Length	K	22.8 - 23.8 in	23.0
Popliteal Height	L	16.9 - 17.9 in	17.5
Knee Pivot Height	M	19.1 - 19.7 in	19.5
Buttock Popliteal Length	N	17.8 - 18.8 in	17.9
Chest Depth	O	8.4 - 9.0 in	8.9
Foot Length	P	9.9 - 10.5 in	10.0
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Foot Breadth	W	3.6 - 4.2 in	3.9
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.7
Waist Circumference	Z	32.9 - 34.1 in	33.6

Remarks:

Laboratory Technician: Alex Rudniski

PART 572E
HEAD DROP TEST

Dummy Serial Number	061
Sequential Test Number	1
Date	10-19-09
Workfile	061H4 10-19-09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	32
Peak Resultant Acceleration	225-275 G's	240.8
Peak Lateral Acceleration	15 G's Max	13.44
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: Alex Rudniski

PART 572E
NECK FLEXION TEST

Dummy Serial Number	061	
Sequential Test Number	1	
Date	10-19-09	6 Axis Neck Transducer
Workfile	061NF2 10-19-09	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	28
Impact Velocity		6.89 – 7.13 m/s	7.00
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	25.50
	20 ms	17.60 - 22.60 G's	20.27
	30 ms	12.50 - 18.50 G's	16.39
Max Pendulum G's Above 30 ms		29 G's Max	16.39
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	37.70
D Plane Rotation	Max	64 - 78 Deg	69.33
	Time	57 - 64 ms	58.70
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	90.09
	Time	47 - 58 ms	48.70
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	117.50
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	98.20

Remarks:

Laboratory Technician: Alex Rudniski

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	061	
Sequential Test Number	1	
Date	10-19-09	6 Axis Neck Transducer
Workfile	061NE1 10-19-09	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	29
Impact Velocity		5.94 – 6.19 m/s	6.09
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	20.18
	20 ms	14.00 - 19.00 G's	17.62
	30 ms	11.00 - 16.00 G's	14.27
Max Pendulum G's Above 30 ms		22 G's Max	14.27
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	41.30
D Plane Rotation	Max	81 - 106 Deg	96.96
	Time	72 - 82 ms	75.50
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-69.95
	Time	65 - 79 ms	72.10
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	157.70
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	141.50

Remarks:

Laboratory Technician: Alex Rudniski

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	061
Sequential Test Number	1
Date	10-21-09
Workfile	061T2 10-21-09

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	20.6 – 22.2 Deg C	21.1
Relative Humidity	10% - 70%	44
Pendulum Velocity	6.58 – 6.83 m/s	6.67
Maximum Deflection	63.50 – 72.64 mm	70.40
Maximum Resistive Force	5159.9 – 5893.9 N	5412.36
Internal Hysteresis	69 - 85 %	71.7

Remarks:

Laboratory Technician: Alex Rudniski

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	061
Sequential Test Number	1
Date	10-20-09
Workfile	061LK/RK

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	18.9 – 25.6 Deg C	20.6
Relative Humidity	10% - 70%	36
Probe Velocity	2.07 – 2.13 m/s	2.10
Peak Knee Impact Force	4715.1 – 5782.7 N	5064.97
RIGHT KNEE		
Temperature	18.9 – 25.6 Deg C	20.6
Relative Humidity	10% - 70%	36
Probe Velocity	2.07 – 2.13 m/s	2.11
Peak Knee Impact Force	4715.1 – 5782.7 N	5295.45

Remarks:

Laboratory Technician: Alex Rudniski

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 061
Sequential Test Number 1
Date 10-20-09

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			20.6
Relative Humidity			36
Location for Chest Circumference	AA	16.9 -17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Total Sitting Height	A	34.6 - 35.0 in	34.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.1
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.5
Thigh Clearance	F	5.5 - 6.1 in	5.9
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.7
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.4
Elbow Rest Height	J	7.5 - 8.3 in	7.7
Buttock Knee Length	K	22.8 - 23.8 in	22.9
Popliteal Height	L	16.9 - 17.9 in	17.2
Knee Pivot Height	M	19.1 - 19.7 in	19.3
Buttock Popliteal Length	N	17.8 - 18.8 in	17.9
Chest Depth	O	8.4 - 9.0 in	8.8
Foot Length	P	9.9 - 10.5 in	10.1
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Foot Breadth	W	3.6 - 4.2 in	3.7
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.0
Waist Circumference	Z	32.9 - 34.1 in	33.5

Remarks:

Laboratory Technician: Alex Rudniski

APPENDIX D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 1046)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AAKB4	6/30/2009	12/27/2009
	Y	ENDEVCO	ACCY2	6/30/2009	12/27/2009
	Z	ENDEVCO	CC92H	1/23/2008	7/21/2008
Head	X (R)	ENDEVCO	BD15J	6/30/2009	12/27/2009
	Y (R)	ENDEVCO	J20165	6/30/2009	12/27/2009
	Z (R)	ENDEVCO	J19611	6/29/2009	12/26/2009
Neck Load Cell	X	DENTON	1629Fx	4/15/2009	10/12/2009
	Y	DENTON	1629Fy	4/15/2009	10/12/2009
	Z	DENTON	1629Fz	4/15/2009	10/12/2009
Neck Moment	X	DENTON	1629Mx	4/15/2009	10/12/2009
	Y	DENTON	1629My	4/15/2009	10/12/2009
	Z	DENTON	1629Mz	4/15/2009	10/12/2009
Chest	X	ENDEVCO	J19547	6/8/2009	12/5/2009
	Y	ENDEVCO	J14669	6/8/2009	12/5/2009
	Z	ENDEVCO	J21963	6/8/2009	12/5/2009
Chest	X (R)	ENDEVCO	J31819	6/29/2009	12/26/2009
	Y (R)	ENDEVCO	J27490	6/29/2009	12/26/2009
	Z (R)	ENDEVCO	J14688	6/9/2009	12/6/2009
Chest Deflection	X	SERVO	1046	7/2/2009	12/29/2009
Pelvic	X	ENDEVCO	J20125	6/30/2009	12/27/2009
	Y	ENDEVCO	AJ452	6/30/2009	12/27/2009
	Z	ENDEVCO	J32156	6/30/2009	12/27/2009

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 1046)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	DENTON	744	5/29/2009	11/25/2009
Right Femur Load Cell	Fz	DENTON	723	9/21/2009	3/20/2010
Left Upper Tibia	Mx	DENTON	368Mx	5/28/2009	11/24/2009
	My	DENTON	368My	5/28/2009	11/24/2009
Left Lower Tibia	Fz	DENTON	364Fz	5/28/2009	11/24/2009
	Mx	DENTON	364Mx	5/28/2009	11/24/2009
	My	DENTON	364My	5/28/2009	11/24/2009
Right Upper Tibia	Mx	DENTON	370Mx	5/28/2009	11/24/2009
	My	DENTON	370MY	5/28/2009	11/24/2009
Right Lower Tibia	Fz	DENTON	368LFz	5/28/2009	11/24/2009
	Mx	DENTON	368LMx	5/28/2009	11/24/2009
	My	DENTON	368LMy	5/28/2009	11/24/2009
Left Foot Rear	X	ENDEVCO	J32011	6/29/2009	12/26/2009
	Z	ENDEVCO	J19934	6/29/2009	12/26/2009
Left Foot Front	Z	ENDEVCO	P15321	6/29/2009	12/26/2009
Right Foot Rear	X	ENDEVCO	ACC14	6/30/2009	12/27/2009
	Z	ENDEVCO	J36743	6/30/2009	12/27/2009
Right Foot Front	Z	ENDEVCO	P15856	6/30/2009	12/27/2009
Lap Belt Load Cell		First Technology	156	4/2/2009	9/29/2009
Shoulder Belt Load Cell		First Technology	159	4/2/2009	9/29/2009

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	P58871	6/12/2009	12/9/2009
	Y	ENDEVCO	P51281	6/12/2009	12/9/2009
	Z	ENDEVCO	P51209	6/12/2009	12/9/2009
Head	X (R)	ENDEVCO	P52155	6/12/2009	12/9/2009
	Y (R)	ENDEVCO	P51274	6/12/2009	12/9/2009
	Z (R)	ENDEVCO	P52133	6/12/2009	12/9/2009
Neck Load Cell	X	DENTON	1916Fx	7/13/2009	1/9/2010
	Y	DENTON	1916Fy	7/13/2009	1/9/2010
	Z	DENTON	1916Fz	7/13/2009	1/9/2010
Neck Moment	X	DENTON	1916Mx	7/13/2009	1/9/2010
	Y	DENTON	1916My	7/13/2009	1/9/2010
	Z	DENTON	1916Mz	7/13/2009	1/9/2010
Chest	X	ENDEVCO	P52157	6/12/2009	12/9/2009
	Y	ENDEVCO	P52018	6/12/2009	12/9/2009
	Z	ENDEVCO	P52398	5/27/2009	11/23/2009
Chest	X (R)	ENDEVCO	P52156	6/12/2009	12/9/2009
	Y (R)	ENDEVCO	P49179	6/12/2009	12/9/2009
	Z (R)	ENDEVCO	P52405	5/27/2009	11/23/2009
Chest Deflection	X	SERVO	61	7/14/2009	1/10/2010
Pelvic	X	ENDEVCO	P58743	6/12/2009	12/9/2009
	Y	ENDEVCO	P58766	6/12/2009	12/9/2009
	Z	ENDEVCO	P58767	6/12/2009	12/9/2009

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

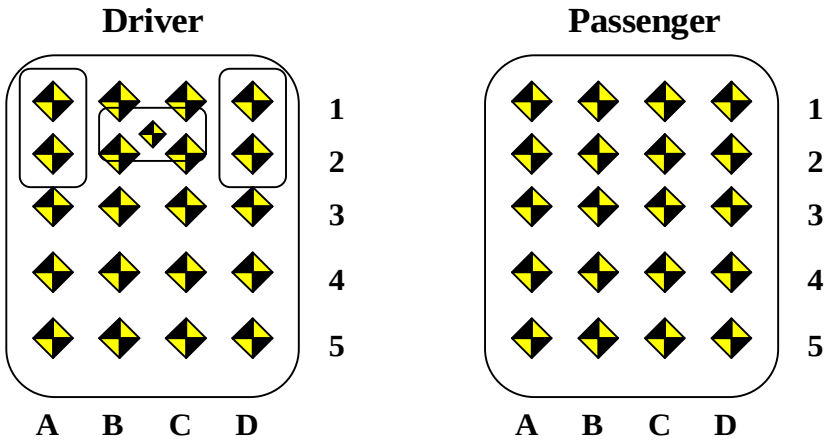
PASSENGER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	DENTON	1532	6/15/2009	12/12/2009
Right Femur Load Cell	Fz	DENTON	1526	6/15/2009	12/12/2009
Left Upper Tibia	Mx	DENTON	91UMx	7/14/2009	1/10/2010
	My	DENTON	91UMy	7/14/2009	1/10/2010
Left Lower Tibia	Fz	DENTON	91LFz	7/14/2009	1/10/2010
	Mx	DENTON	91LMx	7/14/2009	1/10/2010
	My	DENTON	91LMy	7/14/2009	1/10/2010
Right Upper Tibia	Mx	DENTON	200Mx	7/14/2009	1/10/2010
	My	DENTON	200My	7/14/2009	1/10/2010
Right Lower Tibia	Fz	DENTON	128Fz	7/14/2009	1/10/2010
	Mx	DENTON	128Mx	7/14/2009	1/10/2010
	My	DENTON	128My	7/14/2009	1/10/2010
Left Foot Rear	X	ENTRAN	02I02I16-A05	6/12/2009	12/9/2009
	Z	ENTRAN	00L20-A30	6/12/2009	12/9/2009
Left Foot Front	Z	ENTRAN	00L20-A22	6/12/2009	12/9/2009
Right Foot Rear	X	ENDEVCO	J29805	6/12/2009	12/9/2009
	Z	ENTRAN	00L20-A29	6/12/2009	12/9/2009
Right Foot Front	Z	ENTRAN	03E03E20-N12	6/12/2009	12/9/2009
Lap Belt Load Cell		First Technology	173	4/2/2009	9/29/2009
Shoulder Belt Load Cell		First Technology	178	4/2/2009	9/29/2009

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(Six Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	ENDEVCO	P32288	9/25/2009	3/24/2010
Right Rear Seat Crossmember X	ENDEVCO	P35789	9/25/2009	3/24/2010
Top of Engine	ICS	8084-010	9/17/2009	3/16/2010
Bottom of Engine	GS SENSORS	9440-011	9/16/2009	3/15/2010
Right Disc Brake Caliper	ICS	FGP49	9/21/2009	3/20/2010
Left Disc Brake Caliper	ICS	FGP50	9/21/2009	3/20/2010
Left Seat Rear Crossmember Z	ENDEVCO	P23885	10/2/2009	3/31/2010
Right Seat Rear Crossmember Z	ENDEVCO	P35803	9/25/2009	3/24/2010

APPENDIX E

VEHICLE INTERIOR INTRUSION MEASUREMENTS

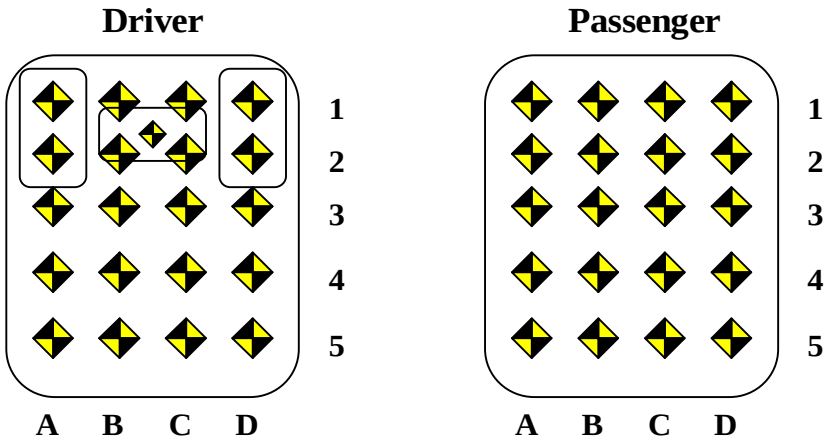


Driver Side Intrusion Measurements

Intrusion Location	PRE-TEST (mm)			POST-TEST (mm)			CHANGE (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3213	-588	456	3199	-590	457	14	2	-1
B1	3347	-436	452	3310	-436	485	37	0	-33
C1	3369	-303	456	3305	-310	501	64	7	-45
D1	3371	-173	454	3321	-177	486	50	4	-32
A2	3177	-587	420	3167	-591	420	10	4	0
B2	3295	-437	411	3284	-439	422	11	2	-11
C2	3295	-304	409	3285	-308	410	10	4	-1
D2	3286	-175	415	3272	-180	421	14	5	-6
A3	3134	-586	377	3128	-589	374	6	3	3
B3	3203	-439	365	3201	-440	362	2	1	3
C3	3203	-304	366	3201	-307	355	2	3	11
D3	3196	-176	372	3196	-179	360	0	3	12
A4	3095	-582	353	3093	-588	343	2	6	10
B4	3090	-441	360	3092	-444	346	-2	3	14
C4	3092	-307	363	3092	-310	343	0	3	20
D4	3091	-178	373	3092	-186	354	-1	8	19
A5	2991	-580	353	2989	-581	346	2	1	7
B5	2985	-441	360	2986	-444	346	-1	3	14
C5	2983	-310	365	2986	-315	343	-3	5	22
D5	2990	-180	375	2991	-184	353	-1	4	22
BP	3217	-311	547	3199	-315	519	18	4	28
G	2996	-499	800	3000	-499	799	-4	0	1
H	2994	-194	812	3001	-194	809	-7	0	3
L	2734	-359	1064	2758	-357	1039	-24	-2	25
AB	2628	-584	382	2628	-585	374	0	1	8

BP=Brake Pedal, G=Left side of bolster, H=Right side of bolster, L=Steering wheel center;
AB = Front outboard seat anchor bolt

PASSENGER SIDE INTRUSION MEASUREMENTS



Passenger Side Intrusion Measurements

Intrusion Location	PRE-TEST (mm)			POST-TEST (mm)			CHANGE (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3318	224	501	3304	230	499	14	-6	2
B1	3315	354	502	3283	358	514	32	-4	-12
C1	3314	484	502	3281	489	519	33	-5	-17
D1	3260	617	497	3235	621	501	25	-4	-4
A2	3248	223	433	3241	232	429	7	-9	4
B2	3248	351	434	3229	359	436	19	-8	-2
C2	3247	484	432	3223	492	438	24	-8	-6
D2	3244	612	433	3226	610	436	18	2	-3
A3	3167	217	377	3164	223	366	3	-6	11
B3	3178	349	367	3174	357	355	4	-8	12
C3	3178	481	369	3173	490	359	5	-9	10
D3	3168	610	367	3168	620	360	0	-10	7
A4	3082	213	366	3082	221	345	0	-8	21
B4	3075	346	364	3072	353	339	3	-7	25
C4	3068	477	364	3066	485	342	2	-8	22
D4	3064	605	363	3063	615	352	1	-10	11
A5	2966	209	363	2966	217	333	0	-8	30
B5	2964	341	366	2961	348	332	3	-7	34
C5	2957	470	367	2958	478	339	-1	-8	28
D5	2953	604	358	2954	604	351	-1	0	7
R	3008	204	814	2956	212	772	52	-8	42
S	3004	505	816	2936	514	780	68	-9	36
AB	2628	589	382	2628	597	370	0	-8	12

R=Left side of bolster, S=Right side of bolster, L=Steering wheel center;
AB = Front outboard seat anchor bolt