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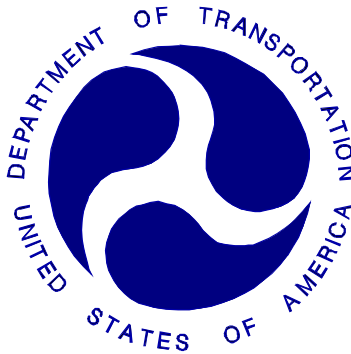
**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

NISSAN MOTOR COMPANY, LTD.
2006 NISSAN MURANO
MPV

NHTSA NUMBER: M65201

CALSPAN TEST NUMBER: 8642-NCAP-74

CALSPAN CORPORATION
TRANSPORTATION SCIENCES CENTER
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BUFFALO, NEW YORK 14225



February 21, 2006

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Rulemaking
Office of Crashworthiness Standards
Mail Code: NVS-111
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Washington, DC 20590

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16. Abstract A frontal load cell barrier test of a 2006 Nissan Murano MPV was performed at Calspan Corporation's crash test facility in Buffalo, New York, on February 21, 2006. The impact velocity was 56.65 kph and the temperature at the barrier face was 21°C. The maximum post-test vehicle crush was 501 mm. The test vehicle was equipped with 3-point restraint systems with torso belt pretensioners and force limiters, knee bolsters, active head restraints 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 (061)	Passenger (064)
Head Injury Criteria (HIC - 36 ms)		-	1000	399.7	404.5
Maximum Thorax Acceleration (3 ms Clip)		g's	60 g's	42.8	42.7
Chest Displacement		mm	-76 mm	-28.6	-32.8
Left Femur Force		Newtons	-10000 N	-3776.0	-2000.6
Right Femur Force		Newtons	-10000 N	-2937.9	-1205.9
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SECTION 1

PURPOSE AND SUMMARY OF TEST

1.1 PURPOSE

This 56.65 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. DTNH22-01-D-32005. 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 56.65 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

1.2 TEST PROCEDURE

This 56.65 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 nine accelerometer array heads, 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. 061) and the right-front passenger (position 2) ATD (Serial No.064) were used in two tests previous to this test (M65104 and M65107) where they did not exceed FMVSS 208 head, chest and femur requirements. 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 141 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 2006 Nissan Murano MPV at a velocity of 56.65 kph. The test was performed at Calspan on February 21, 2006. 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	399.7	59.8	95.8	42.8	62.0	65.0	-28.6	-3776.0	-2937.9
Passenger	404.5	62.6	98.6	42.7	59.7	62.7	-32.8	-2000.6	-1205.9

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

TEST NOTES	
Data Channel	Anomalies
V1 Engine Top #3x	Channel Opened

SECTION 2
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
CRASH TEST SUMMARY

Vehicle NHTSA No.: M65201 Test Mode: 56.3 kph Frontal Barrier
 Test Date: February 21, 2006 Time: 11:43 Temperature: 21 °C
 Vehicle Make/Model/Body Style: 2006 Nissan Murano MPV
 Vehicle Test Weight: 2014.0 kg Impact Velocity: 56.65 kph (55.5 – 57.1 kph)
 Vehicle/Barrier Impact Angle: 0 ° Max Static Crush: 501 mm

ATD INFORMATION AND VISIBLE CONTACT POINTS

	DRIVER	PASSENGER
ATD Type:	Part 572E	Part 572E
Restraint System:	Three-point safety belt with torso belt pretensioner and force limiter, Airbag, Knee Bolster, and Active head restraint.	Three-point safety belt with torso belt pretensioner and force limiter, Airbag, Knee Bolster, and Active head restraint.
Head Contact:	The face to the center of the airbag and the back of the head to the left of the center of the head restraint and side curtain airbag.	The face to the center of the airbag and the back of the head to the right of the center of the head restraint
Abdomen Contact:	-	-
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, latched and operable without tools	Closed, latched and operable without tools
Rear Door Opening	Closed, latched and operable without tools	Closed, latched and operable without tools
Hatch/Other Door Opening	-	Closed, latched and operable without tools
Front Seat Track Shift (mm)	0	-
Front Seat Back Failure	None	None
Glazing Damage	The windshield cracked along its lower flange during the event.	

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Left Side (mm)	Center (mm)	Right Side (mm)	Average (mm)
Value	633	589	622	615

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	1140	1140
Lap belt length as measured on ATD	mm	880	880
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems	mm	2020	2020

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2006 Nissan Murano MPV

NHTSA No. : M65201 ; VIN: JN8AZ08W26W508466 ; Color: Red

Engine Data: 6 cylinders; - CID; 3.5 Liters; - cc

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

Transmission Data: - 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)? - Yes; X No;

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

DEALER AND DELIVERY INFORMATION:

Date Received: 01-30-2006 ; Odometer Reading 45 km

Selling Dealer: Mike Barney Nissan

Dealer Address: 3876 Sheridan Drive Amherst, NY 14226

TEST VEHICLE OPTIONS:

X AC; X Power Steering; X Power Brakes; X Power Locks; X Power Seats

X ABS; X Tilt Wheel; - Stability Control - 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:	Yes	No	Yes	No	Yes
Passenger:	Yes	No	Yes	No	Yes
Rear Passenger:	No	No	No	No	Yes

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Nissan Motor Company, Ltd.

Date of Manufacture 10/05

GVWR: 2291 kg; GAWR: 1217 kg FRONT; 1160 kg REAR

VEHICLE CAPACITY DATA:

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

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

Vehicle Capacity Weight (VCW) = 390 kg

No. of Occupants x 68.04 kg = 340.2 kg

Rated Cargo/Luggage Weight (RCLW) = 49.8 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 =	545.0	533.0	59.3	1078.0
Rear =	368.0	371.0	40.7	739.0
Total Delivered Weight (UDW) =				1817.0

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW)	=	1817.0	kg
Rated Cargo/Luggage Weight (RCLW)	=	49.8	kg
Weight of 2 p.572 Dummies @ 76 each	=	152	kg
TARGET TEST WEIGHT	=	2018.8	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 45.0 KG OF CARGO WEIGHT:

	Left Side (kg)	Right Side (kg)	Ratio (%)	Total (kg)
Front =	581.0	568.0	57.1	1149.0
Rear =	432.0	433.0	42.9	865.0
Total Vehicle Test Weight (ATW) =				2014.0

Weight of Ballast Secured in Vehicle Trunk Area¹ = 0 kg

Vehicle Components Removed for Weight Reduction: Spare tire and jack.

VEHICLE ATTITUDE (all dimension in millimeters):

	Left Front	Right Front	Left Rear	Right Rear	CG ²
AS DELIVERED:	846	843	877	871	1150.6
FULLY LOADED:	835	833	857	852	-
AS TESTED:	837	834	857	853	1215.0

Vehicle's Wheel Base: 2829 mm

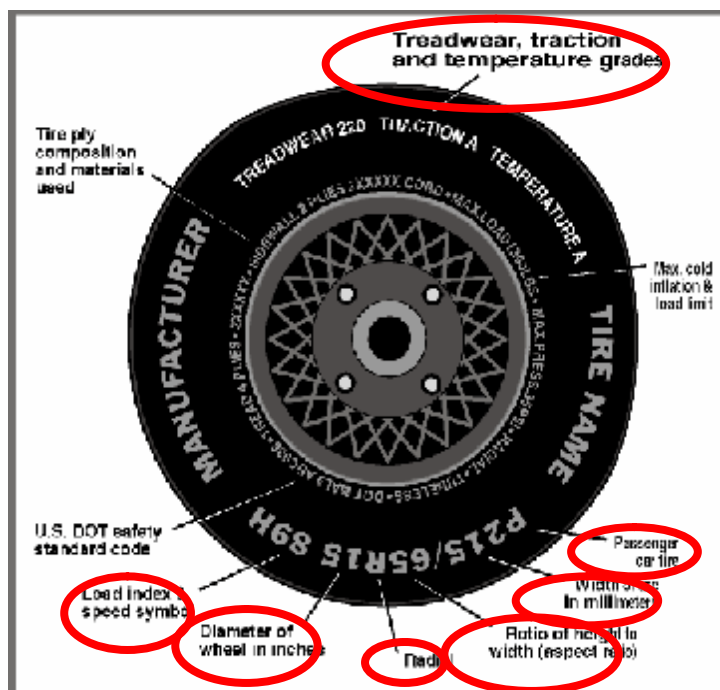
¹Ballast weight does not include the weight of instrumentation, on-board cameras and data acquisition system

²Rearward of the front axle centerline.

DATA SHEET NO. 3
TEST VEHICLE TIRE INFORMATION

Vehicle Year/Make/Model/Body Style: 2006 Nissan Murano MPV

NHTSA Test No.: M65201 Test Date: February 21, 2006



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)	P235/65R18 104T	P235/65R18 104T
Tire size on Vehicle	P235/65R18	P235/65R18
Tire Manufacturer	Goodyear	Goodyear
Tire Name	Eagle LS	Eagle LS
Tire Type	P	P
Tire Width (mm)	235	235
Ratio of Height to Width (aspect ratio)	65	65
Radial	Yes	Yes
Wheel Diameter	18	18
Load Index & Speed Symbol	108T	108T
Treadwear	360	360
Traction Grade	A	A
Temperature Grade	A	A

*Tire pressure used for test

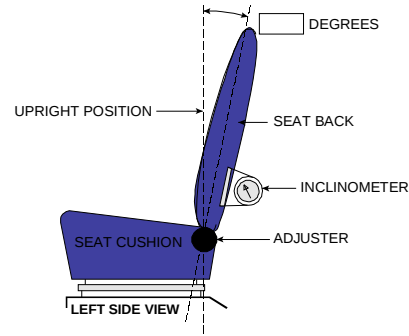
DATA SHEET NO. 4
TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2006 Vehicle Model: Nissan Murano Body Style : MPV

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: Electronic adjuster reclined 27.3 degrees from forward-most position.

Seat back angle for passenger's seat: 21

Measurement instructions: The seat was reclined to the 9th detent from the forward-most position 0.

2. SEAT FORE AND AFT POSITIONING:

Positioning of the driver's seat: The electronic seat adjuster had 240 mm total travel. The seat was adjusted to mid-position (120 mm).

Positioning of the passenger's seat: There are 21 detents numbered 0 to 20 with 0 being the forward-most locking position. The test position is detent 10 or 120 mm of 240 mm total travel.

3. FUEL TANK CAPACITY DATA:

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 82 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 = 75.4 to 77.1 liters

3.2 Actual Amount of Stoddard solvent added to vehicle for test = 76.5 liters

3.3 One-Third of Useable Capacity = 27.3 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.

When the ignition key is in the 'ON' position.

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: There are 6 total detents numbered 0 – 5 with 0 being the uppermost
position, the test detent is detent 3.

5. SEAT BELT UPPER ANCHORAGE:

Nominal design riding position: There are five total detents numbered 0 to 4 with 0 being the uppermost
position. The test detent is detent 0.

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

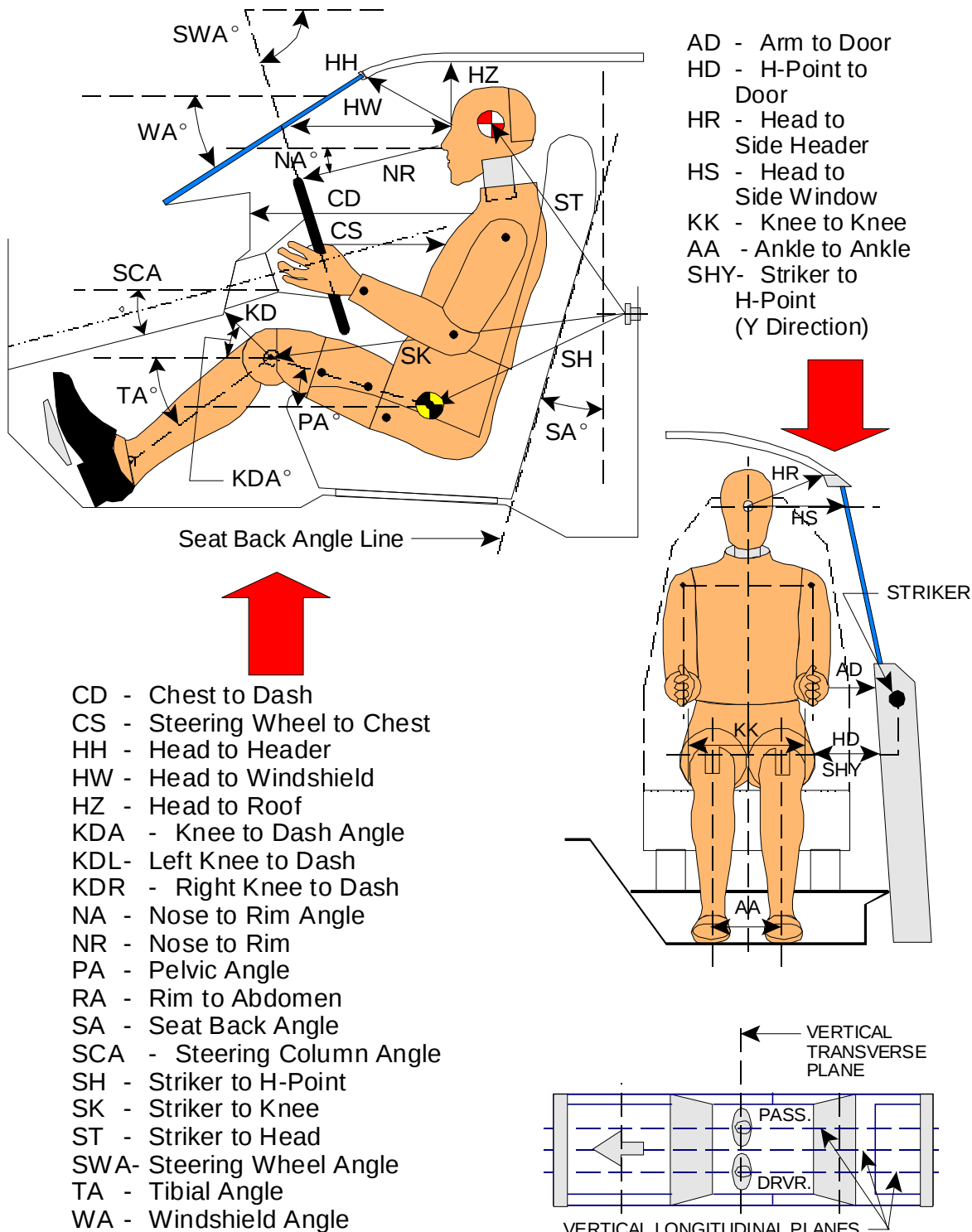
Does vehicle owner's manual describe how to deactivate ADLs? - Yes; - No; X N/A

Comments: This vehicle is not equipped with automatic door locks.

DATA SHEET NO. 5

FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



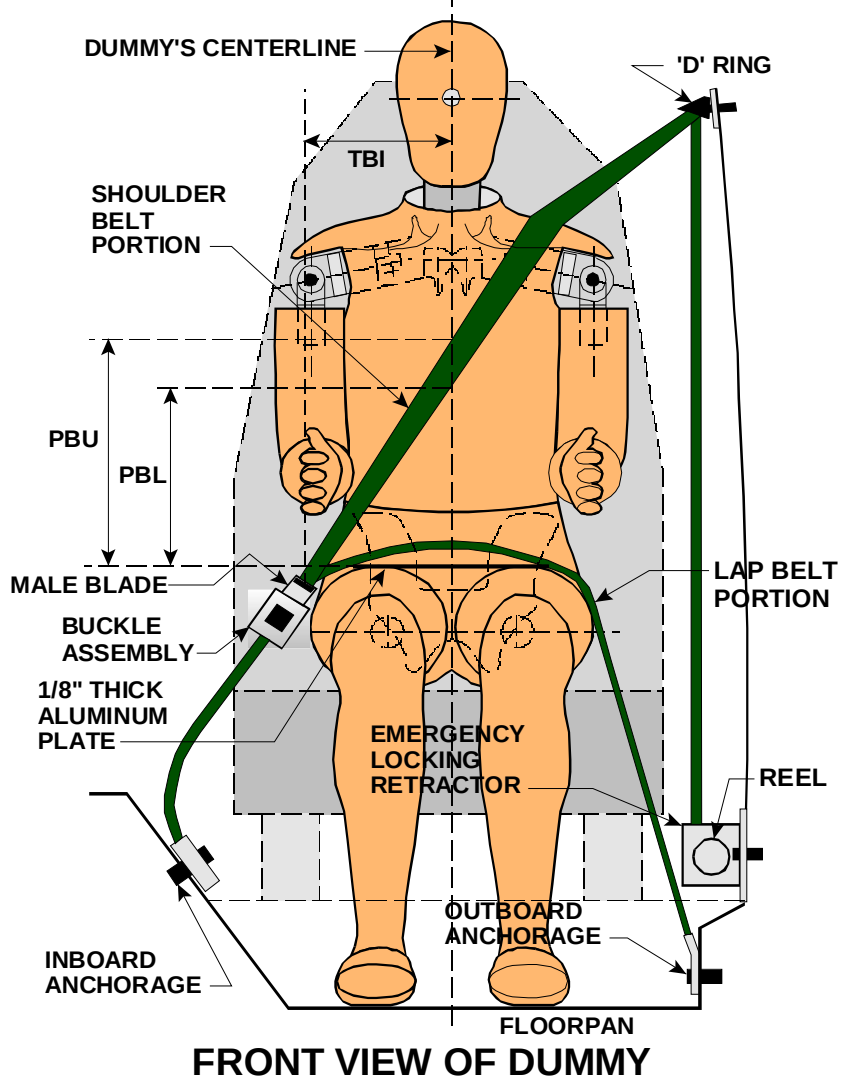
DATA SHEET NO. 5
FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #061)			PASS. (Serial #064)		
WA ^o	24 deg.			N/A		
SWA ^o	67 deg.			N/A		
SCA ^o	23 deg.			N/A		
SA ^o	21 deg.			21 deg.		
HZ	188			186		
HH	410			406		
HW	730			725		
HR	206			208		
NR	420	Angle	-14 deg.	N/A		
CD	557			531		
CS	303			N/A		
RA	221			N/A		
KDL	210	Angle (KDA)	34 deg.	148		
KDR	169			175	Angle (KDA)	39 deg.
PA ^o	22.7 deg.			23.6 deg.		
TA ^o	45.7 deg.			45.8 deg.		
KK	330			272		
AA	325			268		
ST	558	Angle	11 deg.	568	Angle	13 deg.
SK	635	Angle	95 deg.	660	Angle	96 deg.
SH	260	Angle	124 deg.	266	Angle	119 deg.
SHY	245			245		
HS	313			325		
HD	141			155		
AD	119			122		

Dimensions in millimeters

DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

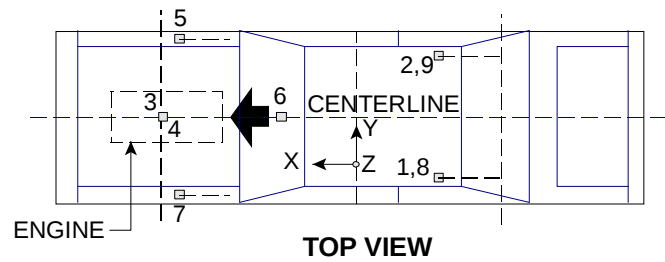
SEAT BELT POSITIONING DATA



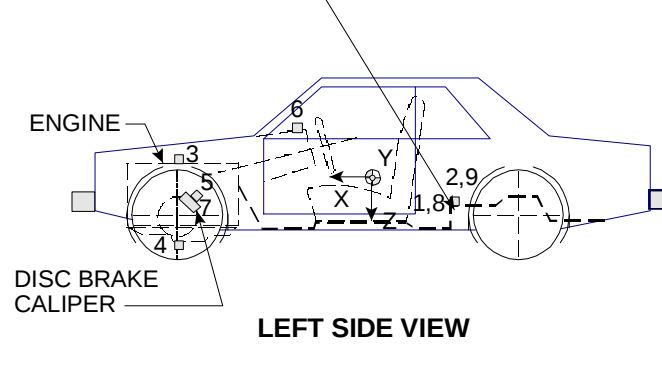
	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	340	320
PBL-- Top surface of alum. plate to belt lower edge	260	240
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

DATA SHEET NO. 7
VEHICLE ACCELEROMETER LOCATIONS

VEHICLE ACCELEROMETER LOCATIONS



REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



No.	LOCATION	PRE-TEST LENGTH (mm)		
		X	Y	Z
1	Left Rear Seat Cross Member X	1168	-507	-765
2	Right Rear Seat Cross Member X	1134	502	-767
3	Top of Engine Block	3908	113	-950
4	Bottom of Engine	3893	287	-302
5	Disc Brake Caliper @ Right Side	3766	669	-420
6	Instrument Panel**	-	-	-
7	Disc Brake Caliper @Left Side	3767	-673	-421
8	Left Rear Seat Cross Member Z	1168	-507	-765
9	Right Rear Seat Cross Member Z	1134	502	-767

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 15 mm molding.

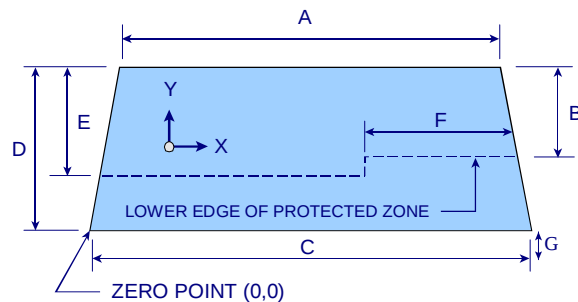
FMVSS 212 REQUIREMENTS:

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: 21°C.

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST (mm)	
RIGHT SIDE	2355.0	2355.0	100.0%
LEFT SIDE	2355.0	2355.0	100.0%
TOTAL	4710	4710	100.0%



DIMENSIONS (mm)	
A	1290
B	550
C	1600
D	910
E	545
F	600
G	15

FRONT VIEW OF WINDSHIELD

FAILURE DETAILS: None

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm:

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

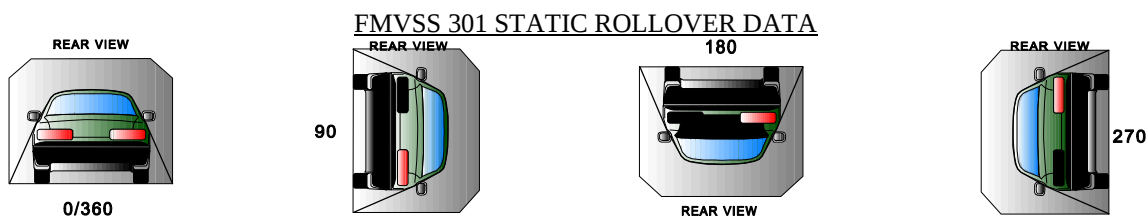
DATA SHEET NO. 9
SUMMARY OF FMVSS NO. 301 DATA

NHTSA TEST No.: _____ M65201 _____ TEST DATE: _____ February 21, 2006
VEHICLE MAKE/MODEL: _____ 2006 Nissan Murano MPV _____
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



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	
0° - 90°	1	minutes	11	seconds	5	minutes	6	minutes	11	seconds	7	minutes
90° - 180°	1	minutes	04	seconds	5	minutes	6	minutes	4	seconds	7	minutes
180°-270°	1	minutes	01	seconds	5	minutes	6	minutes	1	seconds	7	minutes
270°-360°	1	minutes	10	seconds	5	minutes	6	minutes	10	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:

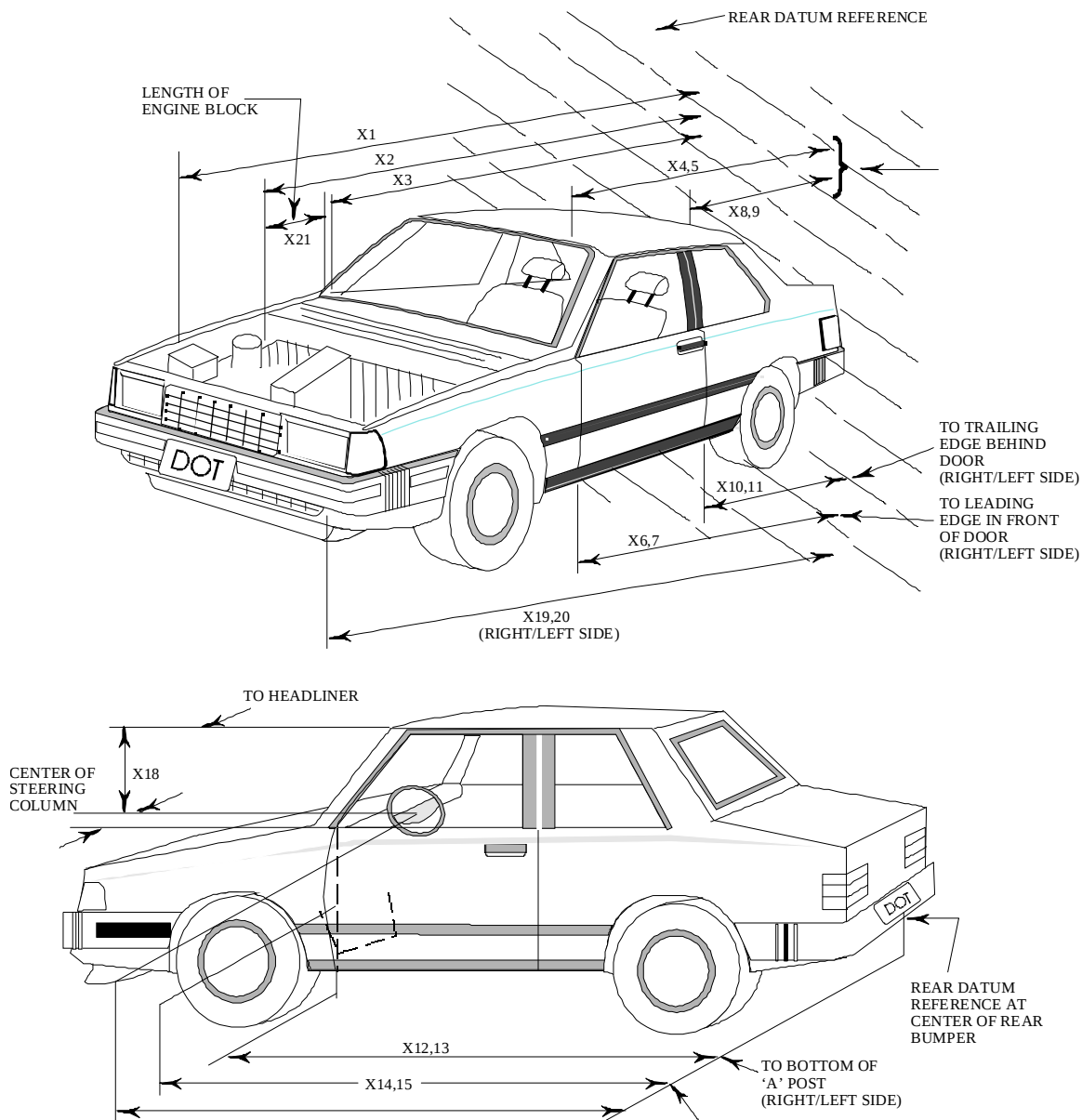
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°	0	0	0	N/A
90° - 180°	0	0	0	N/A
180°-270°	0	0	0	N/A
270°-360°	0	0	0	N/A

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

IV. SOLVENT SPILLAGE LOCATION(S):

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

DATA SHEET NO. 10
TEST VEHICLE MEASUREMENTS



DATA SHEET NO.10
VEHICLE MEASUREMENTS (cont.)

NHTSA TEST No.: M65201 TEST DATE: February 21, 2006
VEHICLE MAKE/MODEL: 2006 Nissan Murano MPV

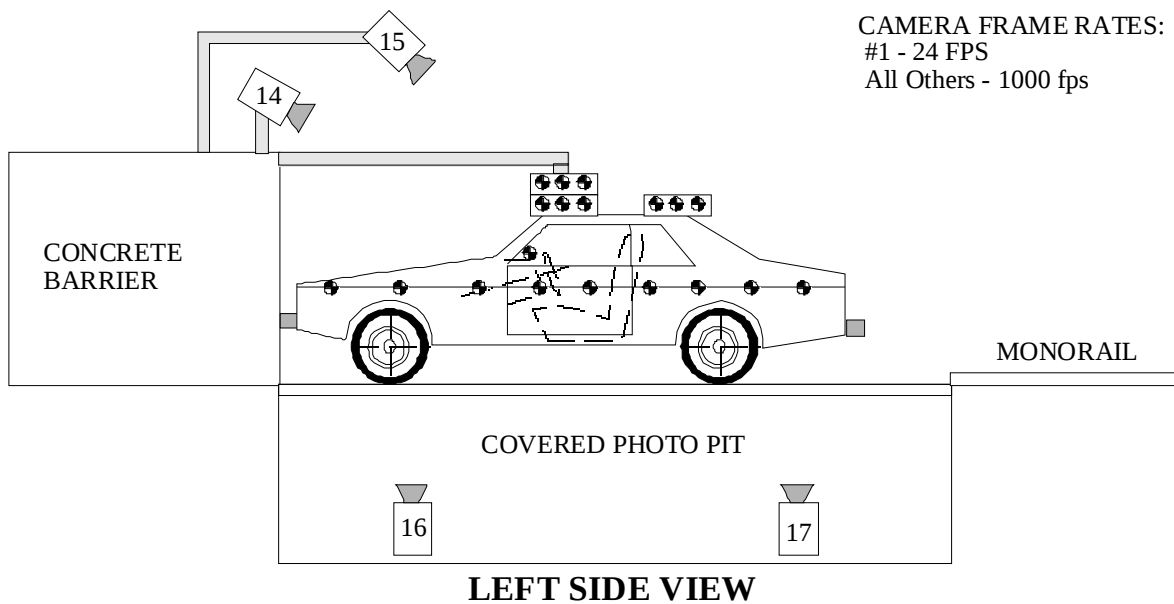
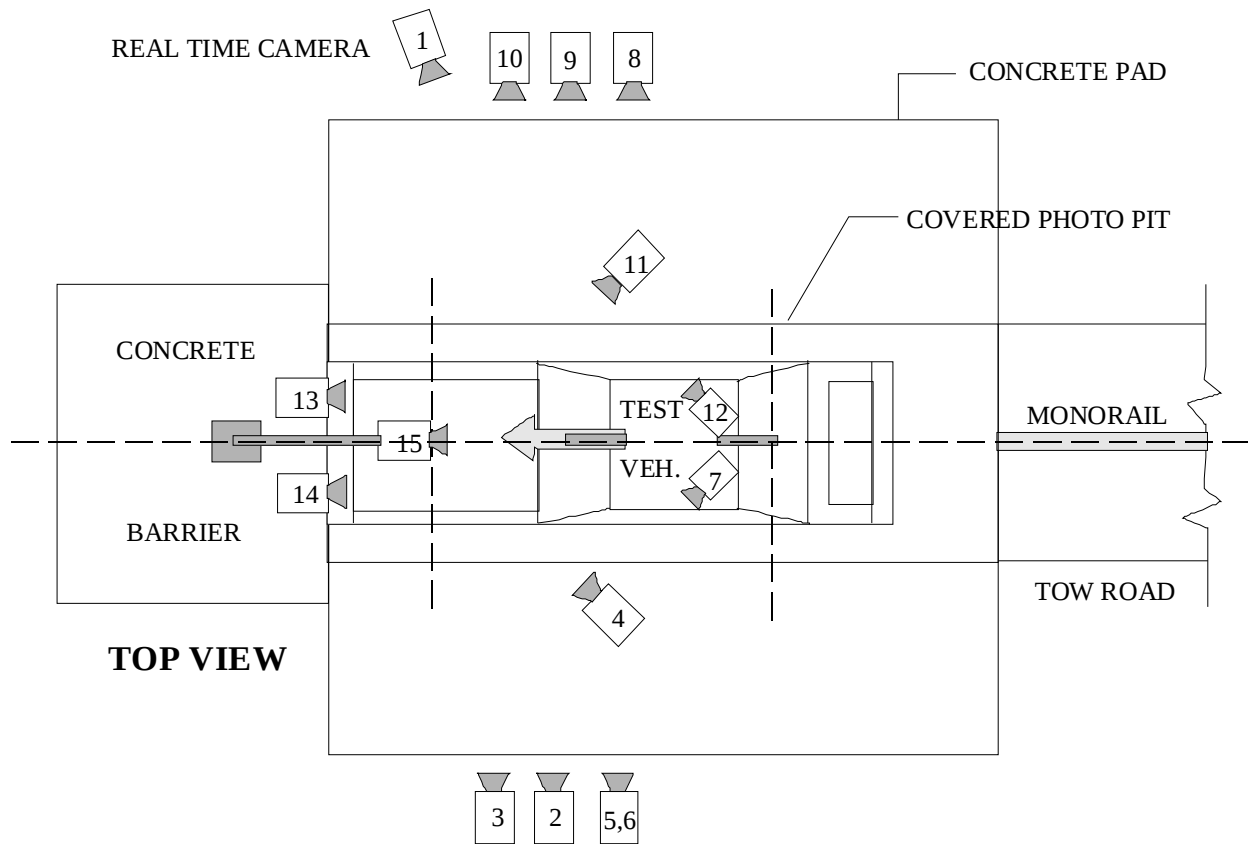
No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4768	4267	501
X2	Rear Surface of Vehicle to Front of Engine	4278	4037	241
X3	Rear Surface of Vehicle to Firewall	3875	3785	90
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3276	3271	5
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3278	3276	2
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3236	3232	4
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3239	3237	2
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2164	2159	5
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2164	2161	3
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2167	2163	4
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2168	2166	2
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3411	3408	3
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3414	3414	0
X14	Rear Surface of Vehicle to Firewall, Right Side	3883	3784	99
X15	Rear Surface of Vehicle to Firewall, Left Side	3884	3809	75
X16	Rear Surface of Vehicle to Steering Column	2790	2814	-24
X17	Center of Steering Column to "A" Post	305	300	5
X18	Center of Steering Column to Headliner	437	420	17
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4668	4208	460
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4668	4225	443
X21	Length of Engine Block	503	503	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3059	3049	10
CD	Rear Surface of Vehicle to Center of Dash Panel	3156	3153	3
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3058	3059	-1

All Dimensions in mm

NHTSA TEST No.: M65201 TEST DATE: February 21, 2006
VEHICLE MAKE/MODEL: 2006 Nissan Murano MPV

	Elements	Pre-Test (mm)
1	Total length	4768
2	Total Width	1850
3	Bumper Top Height	696
4	Bumper Bottom Height	594
5	Longitudinal Member Top Height	618
6	Distance Between Longitudinal Members	942
7	Longitudinal Member Width	76
8	Engine top height	977
9	Engine bottom height	233
10	Engine and gearbox width	821
11	Front bumper-engine distance	490
12	Front shock absorber fixing height	1022
13	Bonnet leading edge height	906
14	Front shock absorber fixing width	1140
15	Front bumper – front axle distance	958
16	Front axle – a pillar distance	1107
17	A-pillar – B pillar distance	1026
18	B-pillar – rear axle distance	1245
19	B-pillar – C Pillar distance	988
20	Roof sill bottom height	1564
21	Roof sill top height	1640
22	Floor sill bottom height	318
23	Floor sill top height	436

DATA SHEET NO.11
HIGH-SPEED CAMERA LOCATIONS



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

NHTSA Test No.: M65201 Vehicle: 2006 Nissan Murano MPV

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)*			ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	30
2	Overall Left Side	8048	1829	1092	-2	7581	28	1000
3	Left Side View	9963	1094	1085	-2	9496	50	1000
4	Driver and Interior View	7188	2078	2050	-8	-	28-70	500
5	Steering Column (Bottom)	7620	1518	1177	-4	7153	25	1000
6	Steering Column (Top)	7620	1518	1790	-7	7153	25	1000
7	Left CRS Lateral View	-	-	-	-	-	-	-
8	Overall Right Side	8101	2127	1237	-3	8425	28	500
9	Right Side View	8576	1307	1220	-2	8900	50	1000
10	Right Passenger View	8721	2127	1410	-3	9045	35	1000
11	Passenger and Interior View	7620	3007	2025	-7	-	35	500
12	Right CRS Lateral View	-	-	-	-	-	-	-
13	Passenger Front View	620	-92	1987	-36	-	13	500
14	Driver Front View	620	-92	1987	-32	-	13	500
15	Windshield View	0	-530	3374	-47	-	24	500
16	Pit View of Engine	0	615	-3048	90	-	13	500
17	Pit View of Fuel Tank	0	3124	-3048	90	-	13	500

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

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

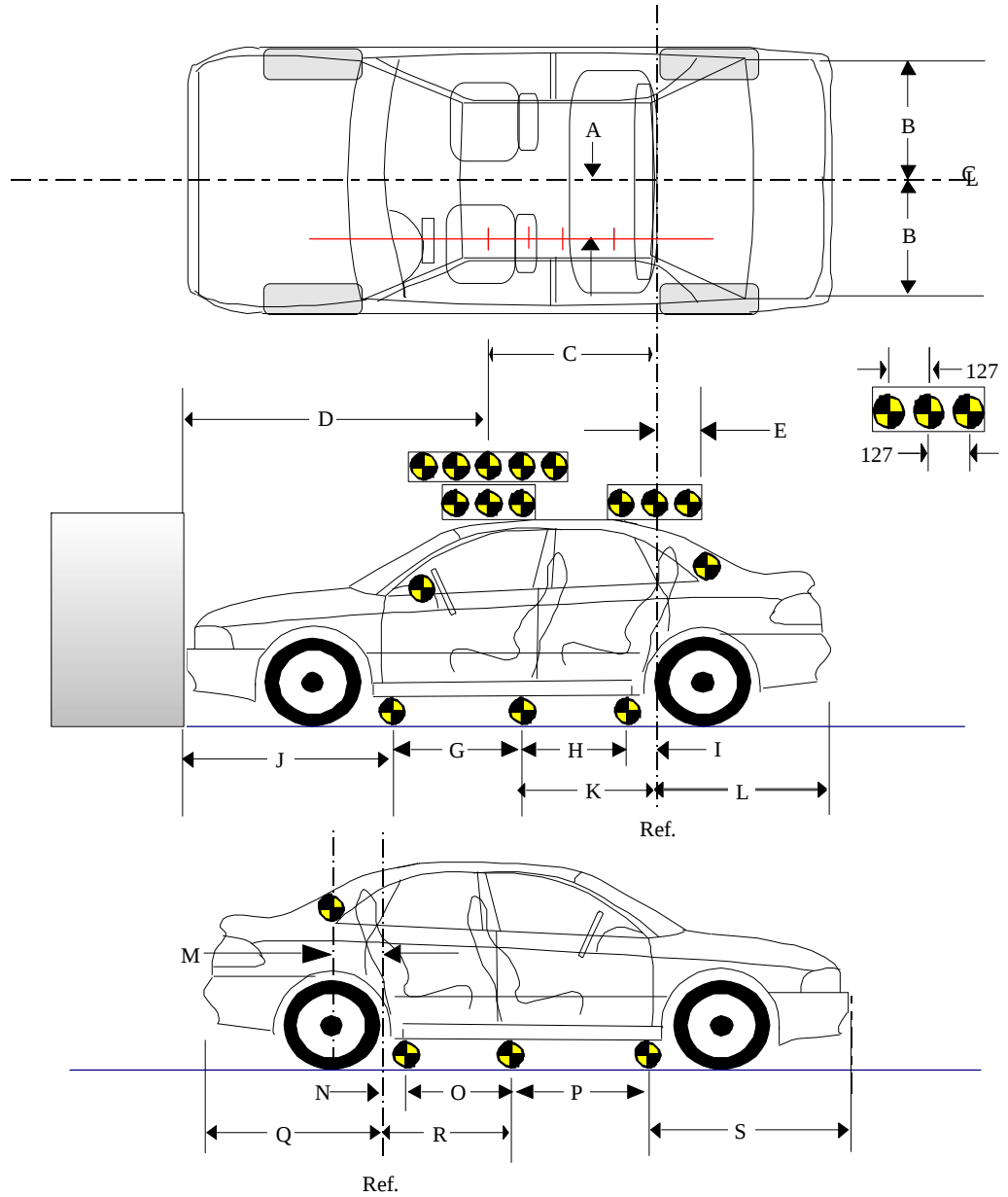
Z = film plane to ground

DATA SHEET NO. 12
VEHICLE REFERENCE PHOTO TARGET LOCATIONS

NHTSA Test No.: M65201 Vehicle: 2006 Nissan Murano MPV

(Dimensions in millimeters)

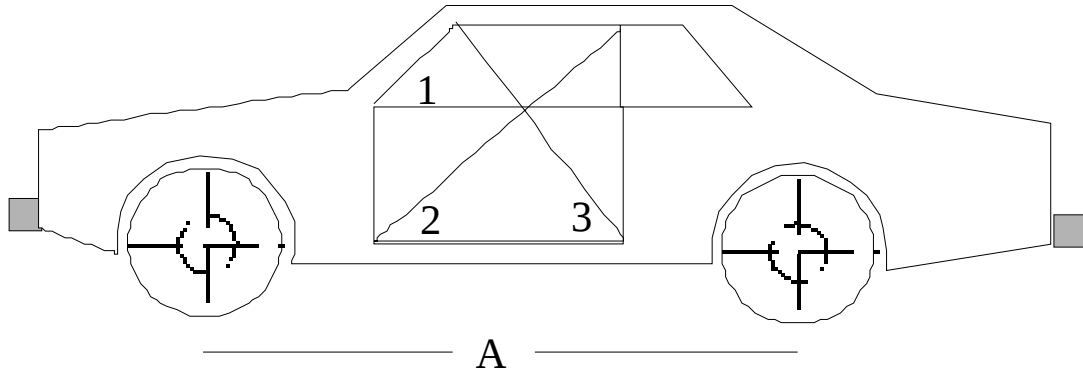
A	400
B	791
C	1224
D	2179
E	346
F	1621
G	878
H	887
I	133
J	1499
K	1020
L	1370
M	385
N	135
O	886
P	876
Q	1368
R	1021
S	1503



DATA SHEET NO. 13
VEHICLE INTRUSION MEASUREMENTS

NHTSA Test No.: M65201 Vehicle: 2006 Nissan Murano MPV

DOOR OPENING WIDTH AND WHEELBASE MEASUREMENTS



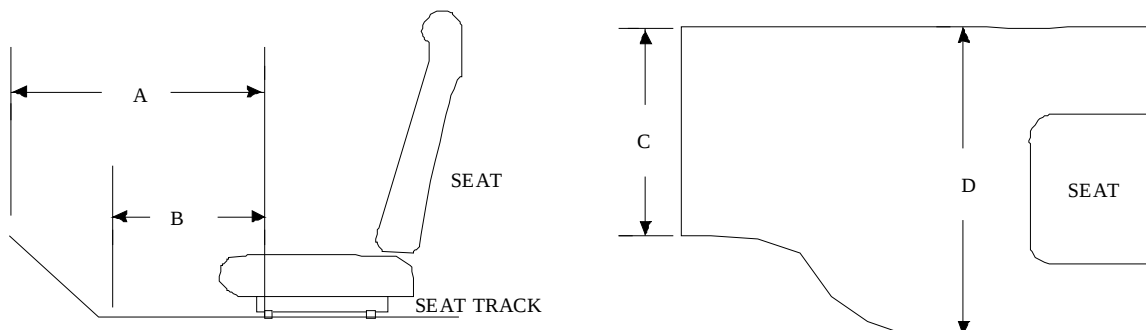
UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1028	1562	1101	1027	1560	1095
AFTER TEST	1027	1559	1104	1026	1557	1098
DIFFERENCE	1	3	-3	1	3	-3

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2829	2829
AFTER TEST	2779	2774
DIFFERENCE	50	55

DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont)

NHTSA Test No.: M65201 Vehicle: 2006 Nissan Murano MPV

STATIC FOOTWELL DEFORMATION



DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	738	676	62
B	596	597	-1
C	544	543	1
D	540	536	4

PASSENGER

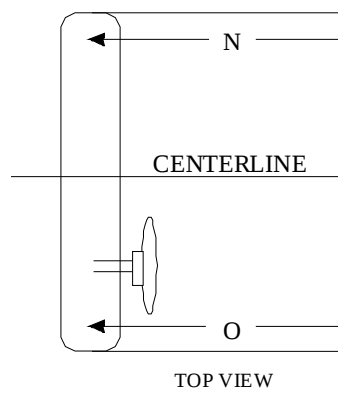
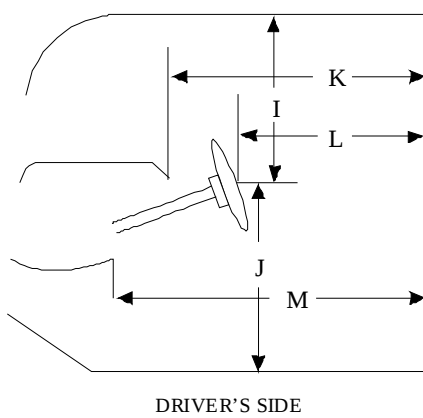
Measurement	Pre-Test	Post-Test	Difference
A	729	681	48
B	593	585	8
C	504	493	11
D	553	552	1

Units = mm

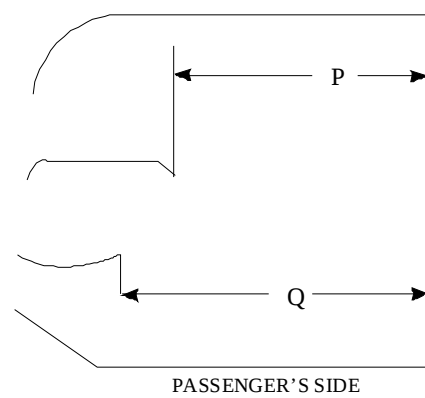
DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont.)

NHTSA Test No.: M65201 Vehicle: 2006 Nissan Murano MPV

STATIC PASSENGER COMPARTMENT INTRUSION



MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



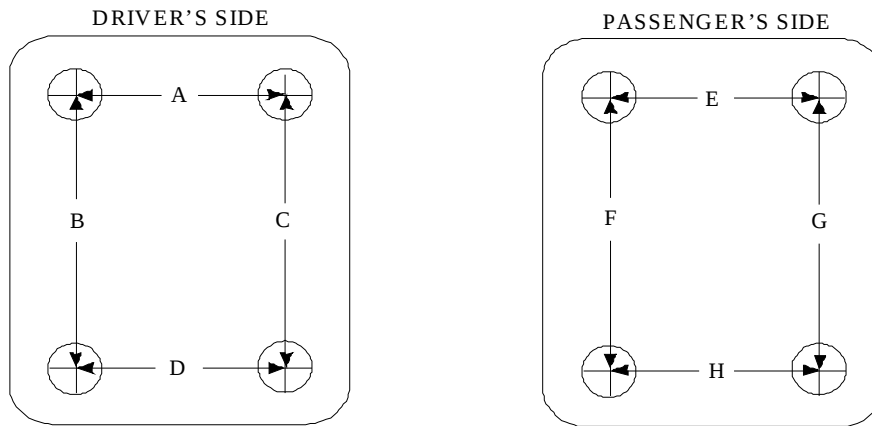
Measurement	Pre-Test	Post-Test	Difference
I	437	420	17
J	680	694	-14
K	800	815	-15
L	561	588	-27
M	795	792	3
N	832	825	7
O	829	832	-3
P = K (PASS.)	814	808	6
Q = M (PASS.)	829	815	14

Units = mm

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

NHTSA Test No.: M65201 Vehicle: 2006 Nissan Murano MPV

FLOORBOARD DEFORMATION



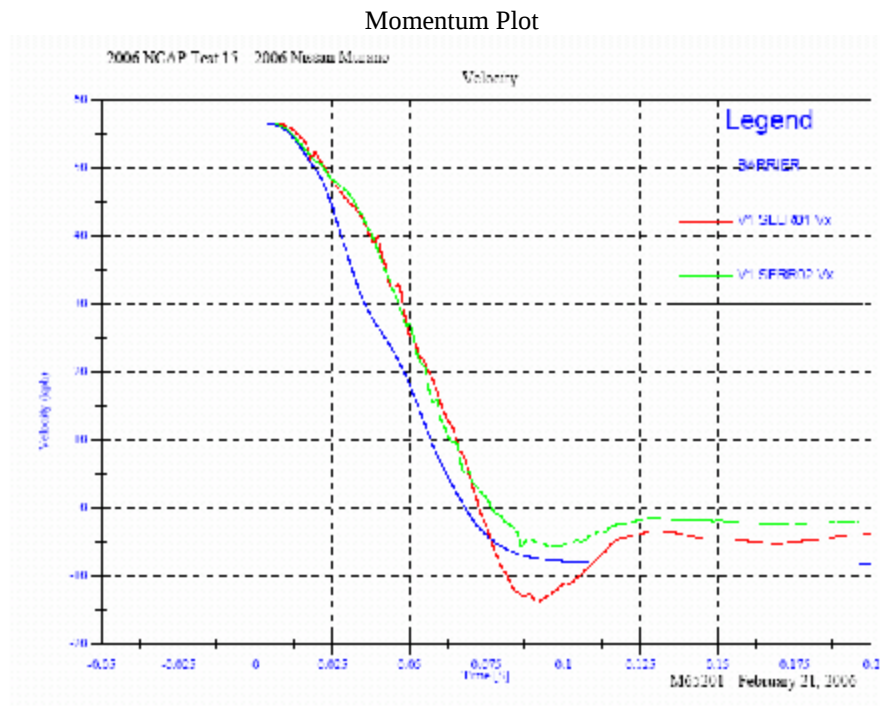
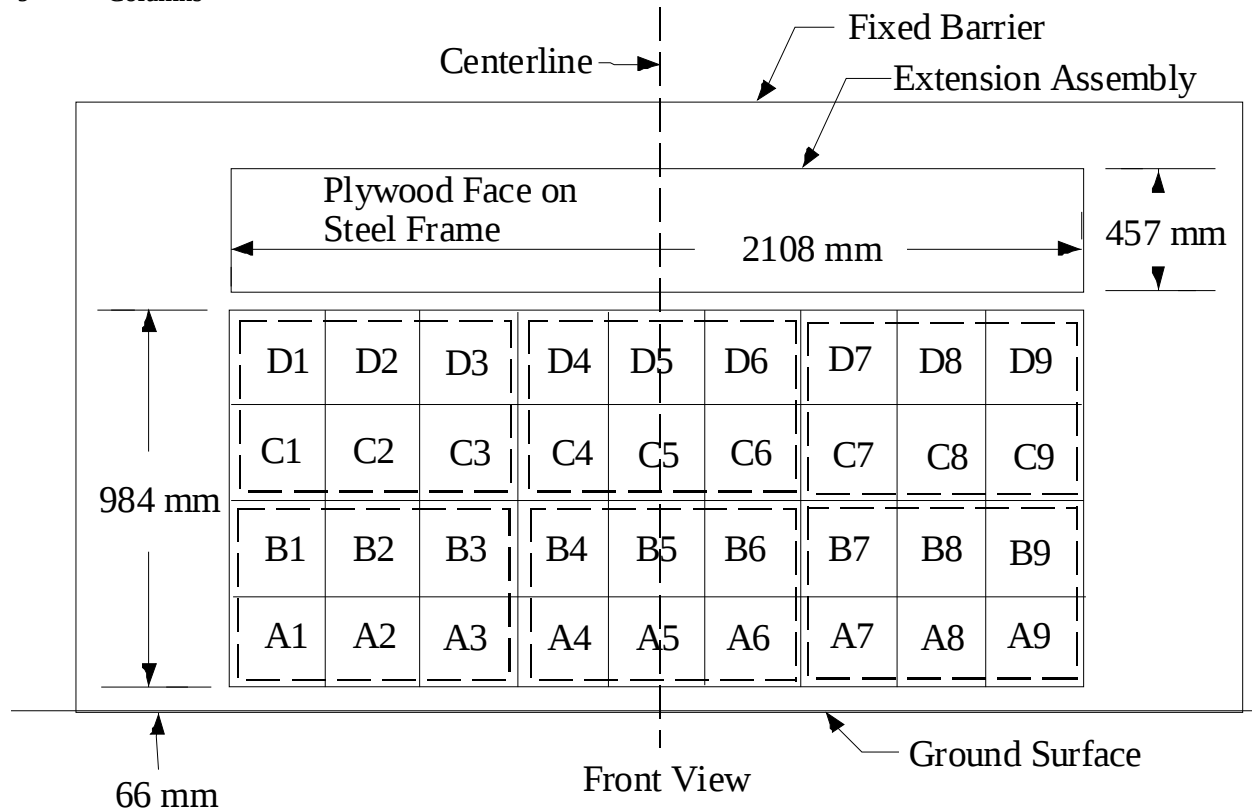
TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	544	543	2
B	496	487	9
C	429	433	-4
D	540	536	4
E	504	493	11
F	502	502	1
G	483	483	0
H	553	552	1

Units = mm

DATA SHEET NO.14
LOAD CELL LOCATIONS ON FIXED BARRIER

36 Load Cells
4 Rows
9 Columns



DATA SHEET NO. 15
ACCIDENT INVESTIGATION DIVISION DATA

FOR FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Nissan Murano MPV

NHTSA Test No.: M65201 VIN: JN8AZ08W26W508466

Model Year: 2006 Build Date: 10/05 Test Date: February 21, 2006

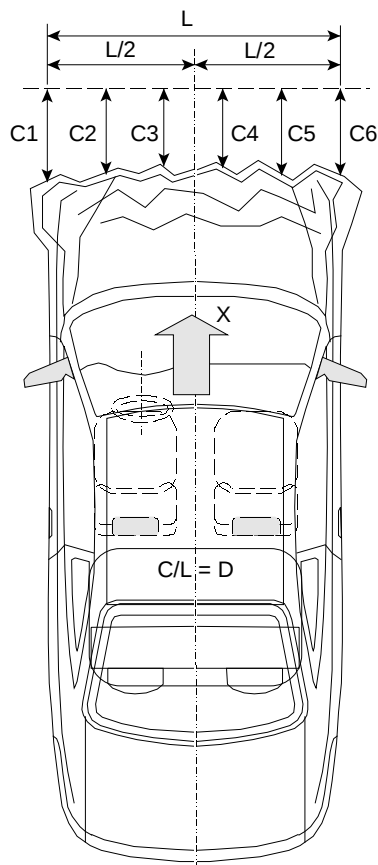
Vehicle Size Category: MPV Test Weight: 2014.0 kg

Vehicle Wheelbase: 2829 mm; Front Overhang: 959 mm; Overall Width: 1850 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions

	PRE (mm)	POST (mm)	DIFF (mm)
C1 =	4441	4280	161
C2 =	4650	4233	417
C3 =	4749	4260	489
C4 =	4748	4259	489
C5 =	4648	4229	419
C6 =	4443	4318	125



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

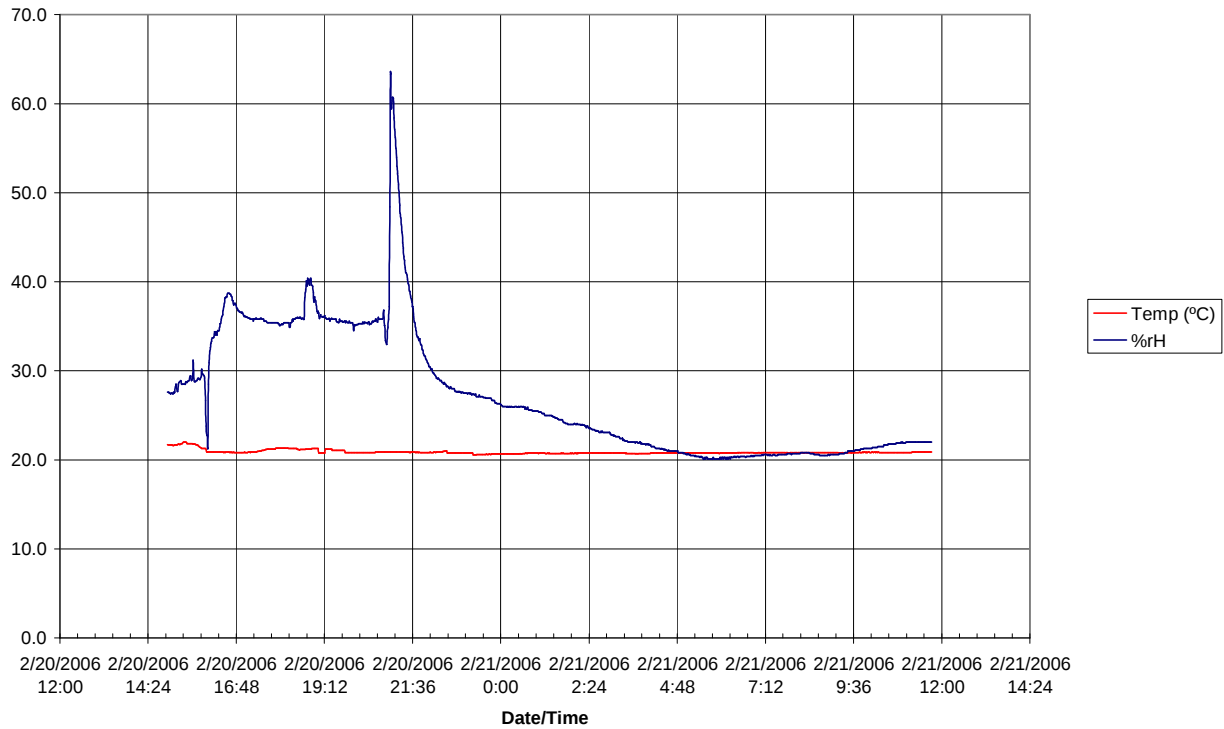
Length of Damaged Region:

L1=	<u>1626</u>	mm
L2=	<u>813.0</u>	mm
L5=	<u>325.2</u>	mm

DATA SHEET NO.16
VEHICLE AND DUMMY TEMPERATURE STABILIZATION CHART

NHTSA Test No.: M65201 Vehicle: 2006 Nissan Murano MPV

Nissan Murano M65201 Environmental Conditions



APPENDIX A
PHOTOGRAPHS

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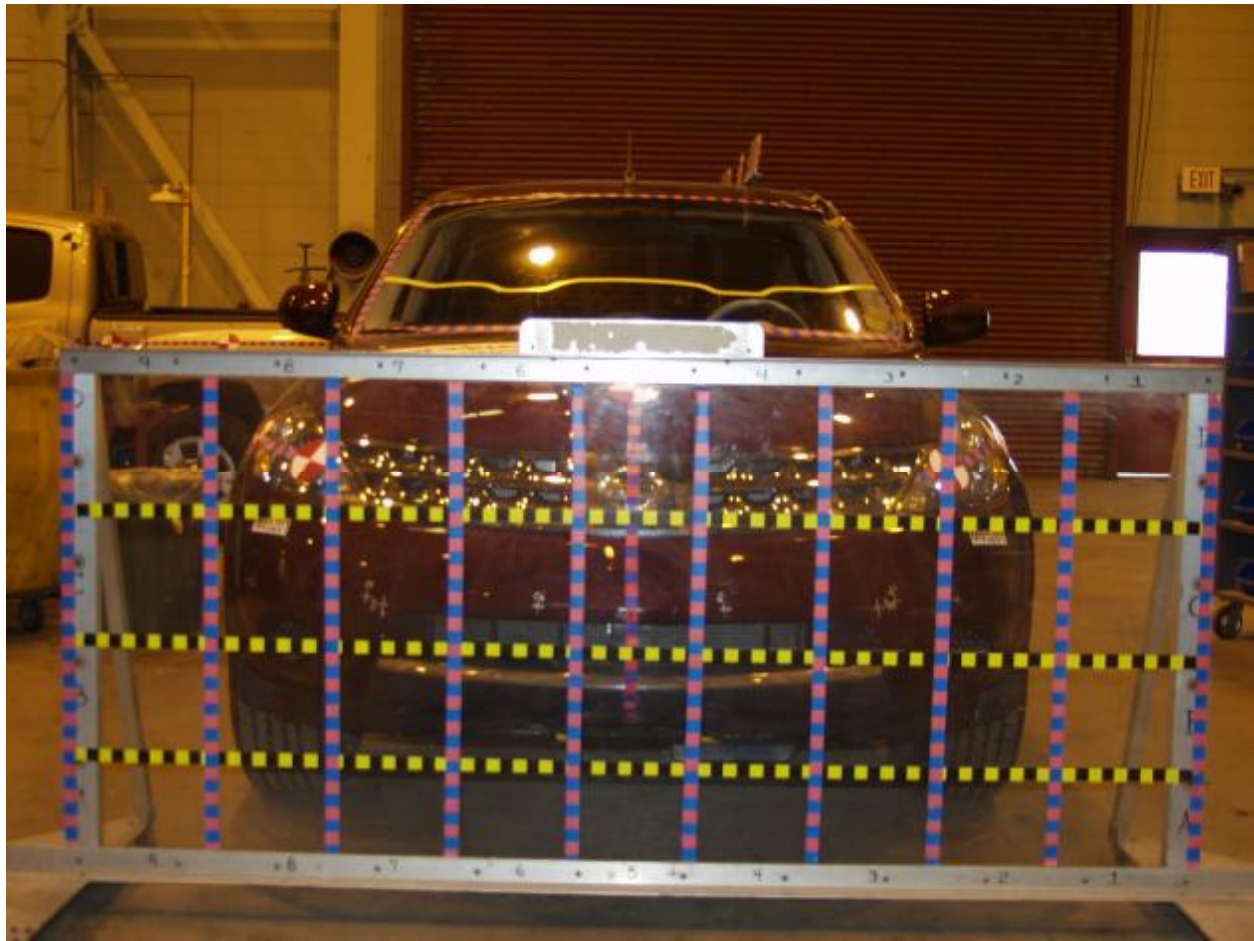


Figure A-1: Load Cell Locations



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

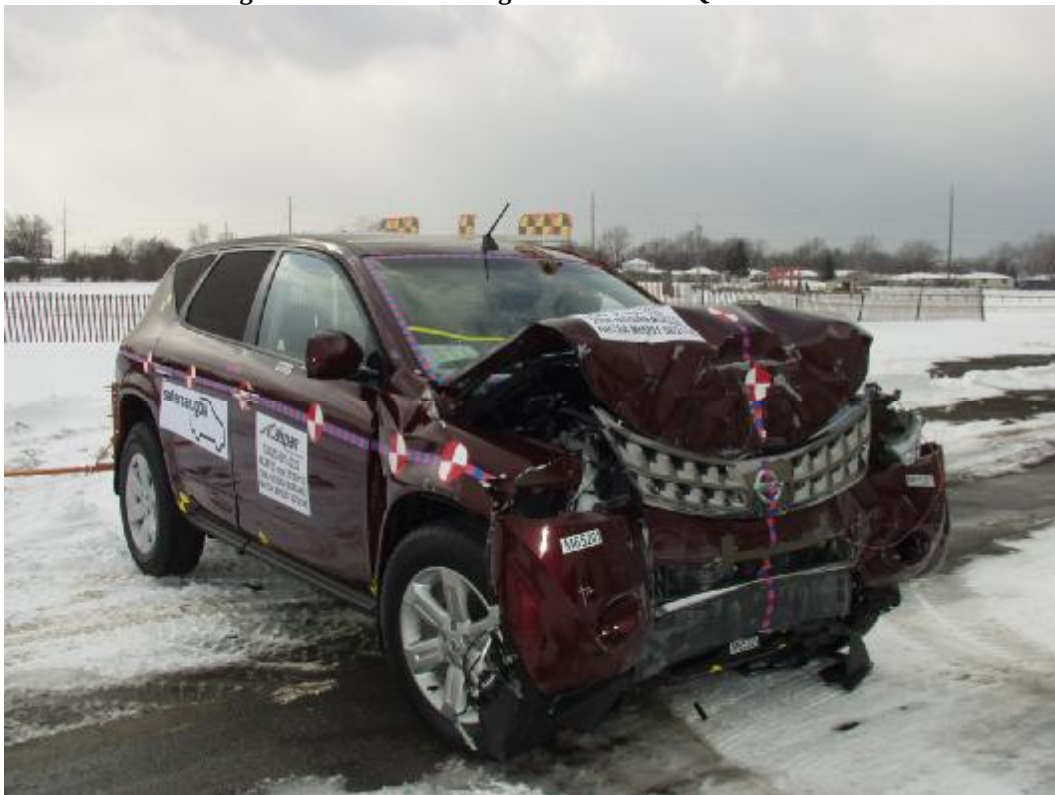


Figure A-13: Post-Test Right Front Three-Quarter View



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°



Figure A-59: Rollover View - 180°



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.: M65201

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

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
1	V1P1 Head CG x [g, CFC_1000]	B-8
2	V1P1 Head CG y [g, CFC_1000]	B-8
3	V1P1 Head CG z [g, CFC_1000]	B-8
4	V1P1 Head CG Resultant [g, CFC_1000]	B-8
5	V1P1 Chest x [g, CFC_180]	B-9
6	V1P1 Chest y [g, CFC_180]	B-9
7	V1P1 Chest z [g, CFC_180]	B-9
8	V1P1 Chest Resultant [g, CFC_180]	B-9
9	V1P1 Chest Compression x [mm, CFC_600]	B-10
10	V1P1 Left Femur z [N, CFC_600]	B-11
11	V1P1 Right Femur z [N, CFC_600]	B-11
12	V1P2 Head CG x [g, CFC_1000]	B-12
13	V1P2 Head CG y [g, CFC_1000]	B-12
14	V1P2 Head CG z [g, CFC_1000]	B-12
15	V1P2 Head CG Resultant [g, CFC_1000]	B-12
16	V1P2 Chest x [g, CFC_180]	B-13
17	V1P2 Chest y [g, CFC_180]	B-13
18	V1P2 Chest z [g, CFC_180]	B-13
19	V1P2 Chest Resultant [g, CFC_180]	B-13
20	V1P2 Chest Compression x [mm, CFC_600]	B-14
21	V1P2 Left Femur z [N, CFC_600]	B-15
22	V1P2 Right Femur z [N, CFC_600]	B-15

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

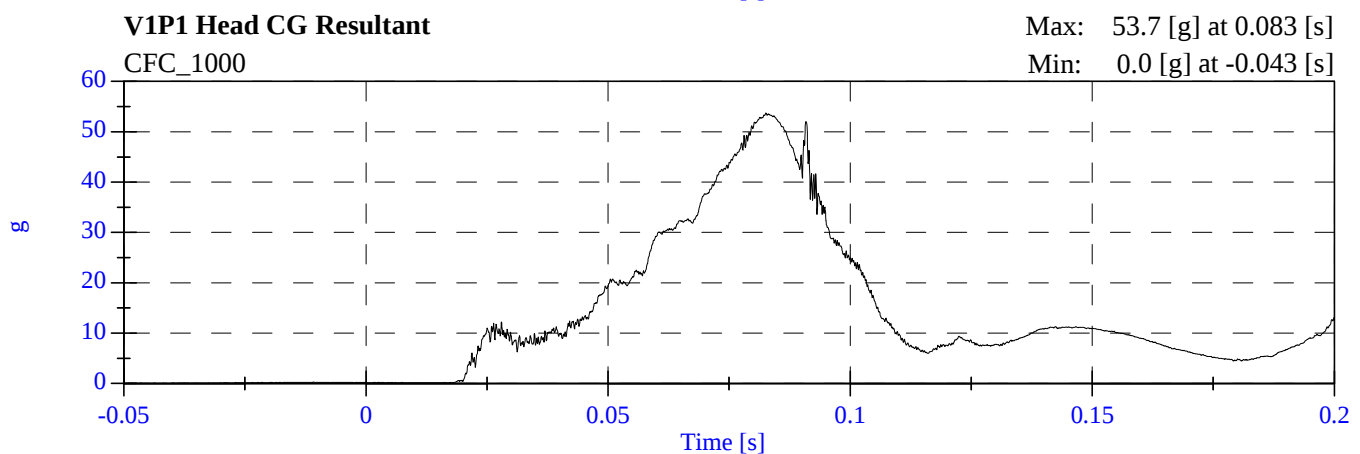
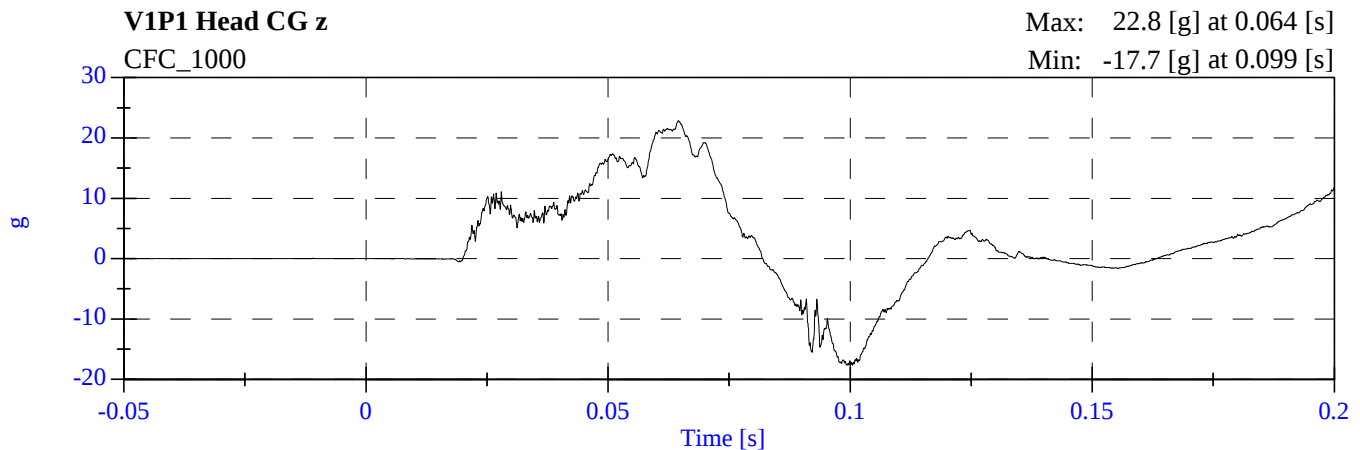
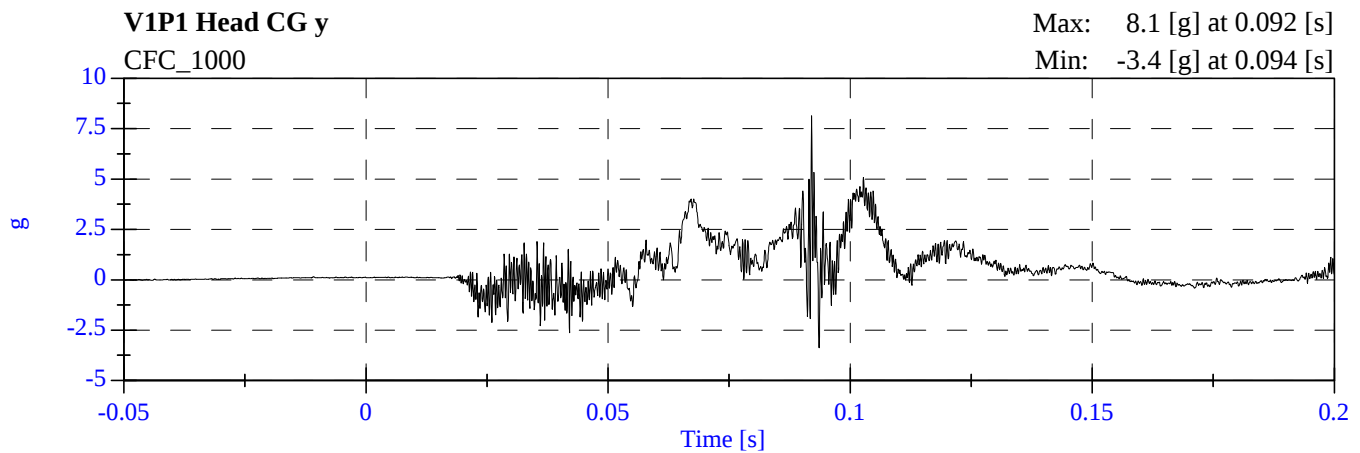
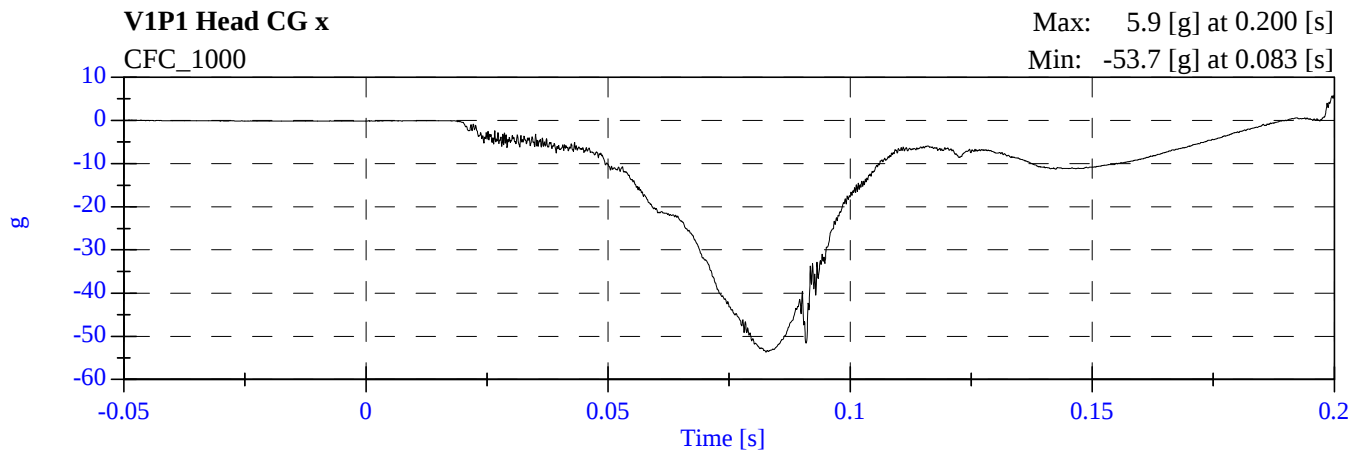
V1P1 Head 9 Array X Arm Ay	V1P1 Lap Belt Load
V1P1 Head 9 Array X Arm Az	V1P1 Shoulder Belt Load
V1P1 Head 9 Array Y Arm Ax	V1P2 Lap Belt Load
V1P1 Head 9 Array Y Arm Az	V1P2 Shoulder Belt Load
V1P1 Head 9 Array Z Arm Ax	V1 Left Rear #1x
V1P1 Head 9 Array Z Arm Ay	V1 Right Rear #2x
V1P1 Head CG Ax	V1 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 Ax	
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	
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Barrier Load Cell A2 Fx	
Barrier Load Cell A3 Fx	
Barrier Load Cell A4 Fx	

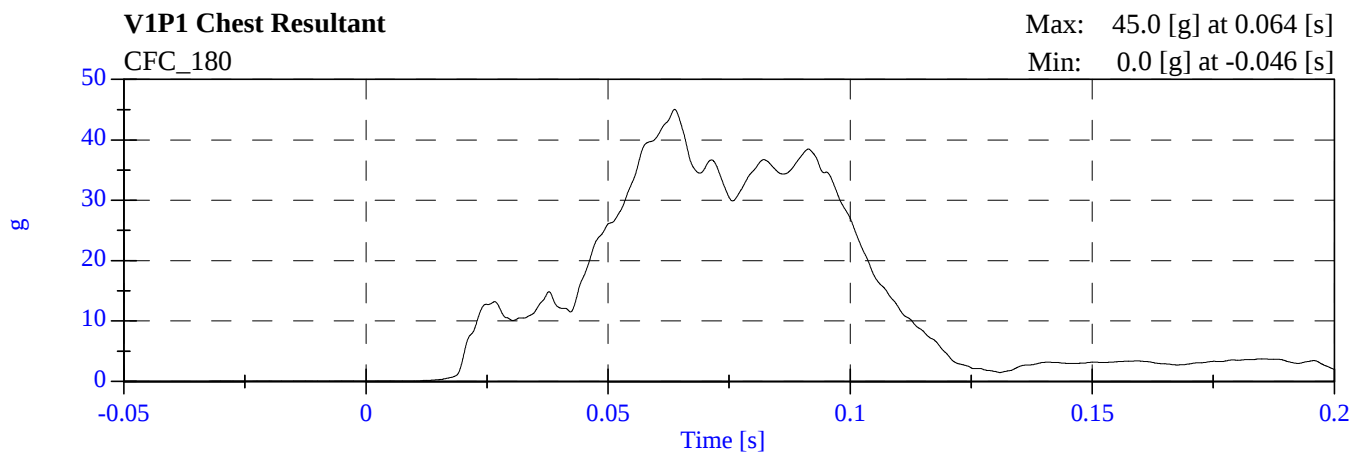
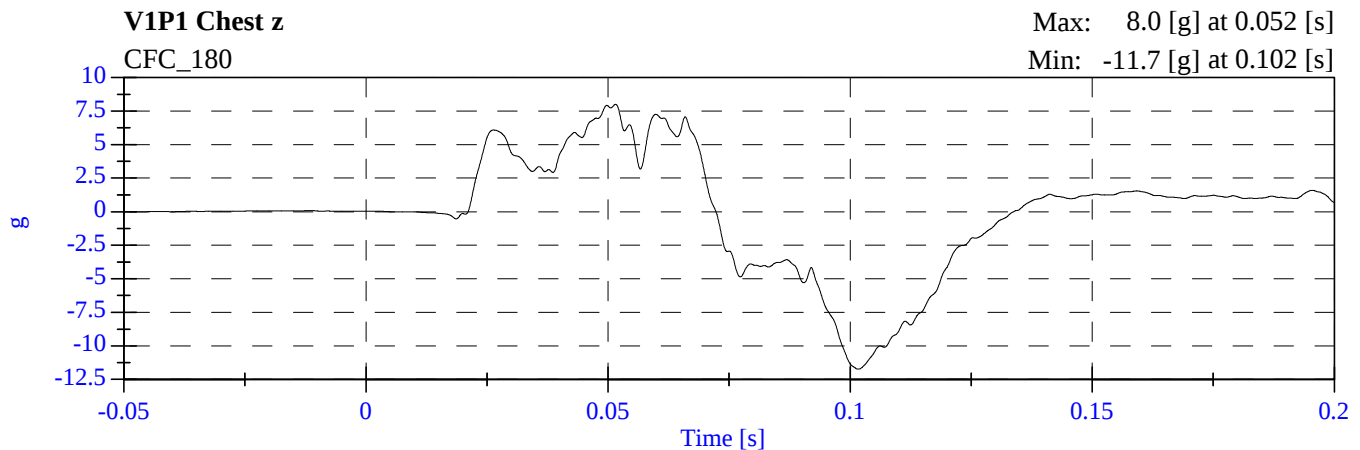
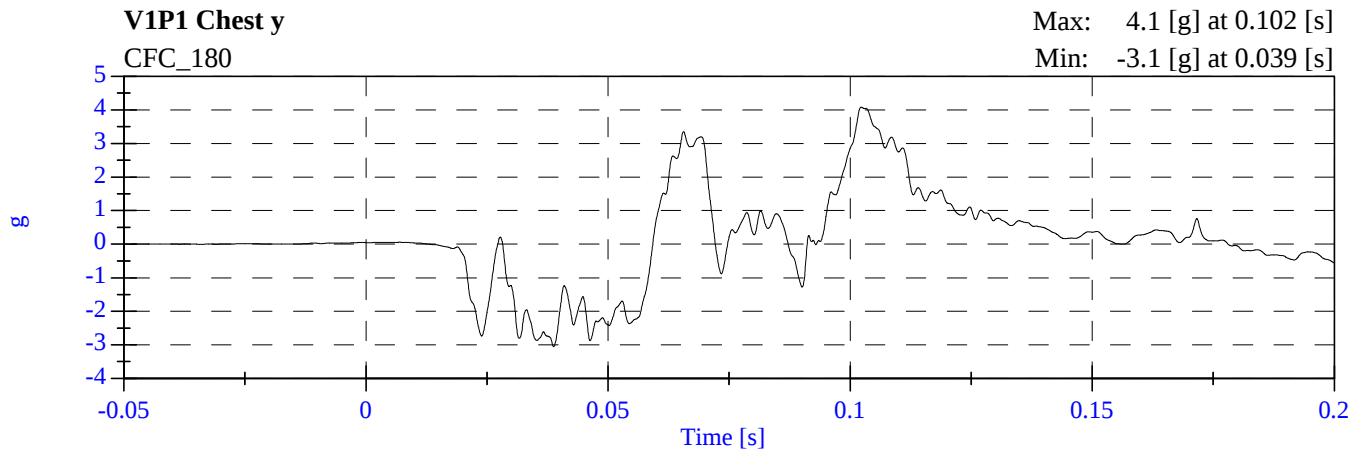
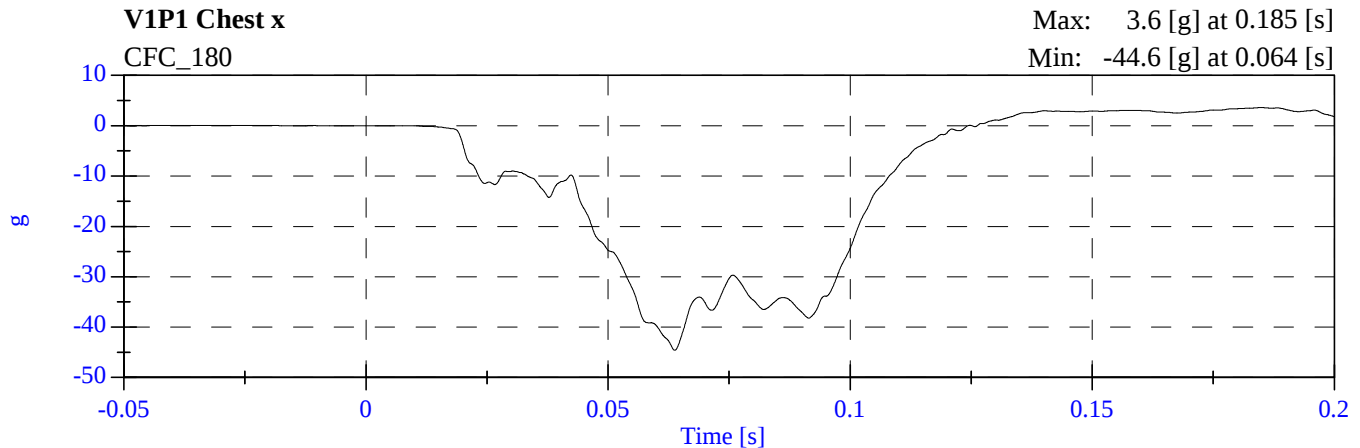
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Barrier Load Cell A7 Fx	
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Barrier Load Cell A9 Fx	
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Barrier Load Cell B2 Fx	
Barrier Load Cell B3 Fx	
Barrier Load Cell B4 Fx	
Barrier Load Cell 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
V1 Engine Top #3x	Channel Opened

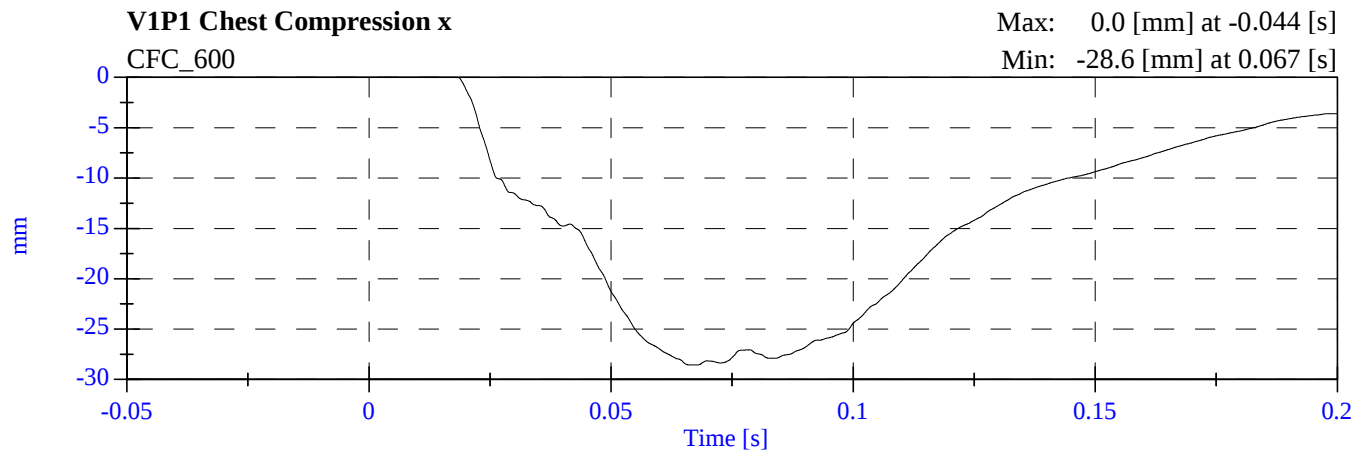
**2006 NCAP Test 15 2006 Nissan Murano
M65201 - February 21, 2006**



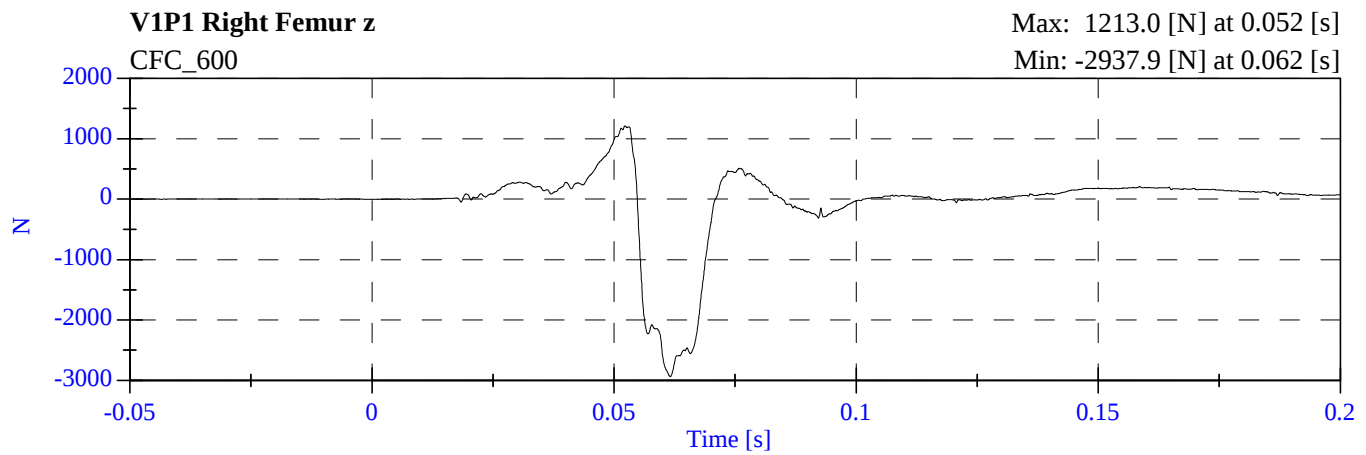
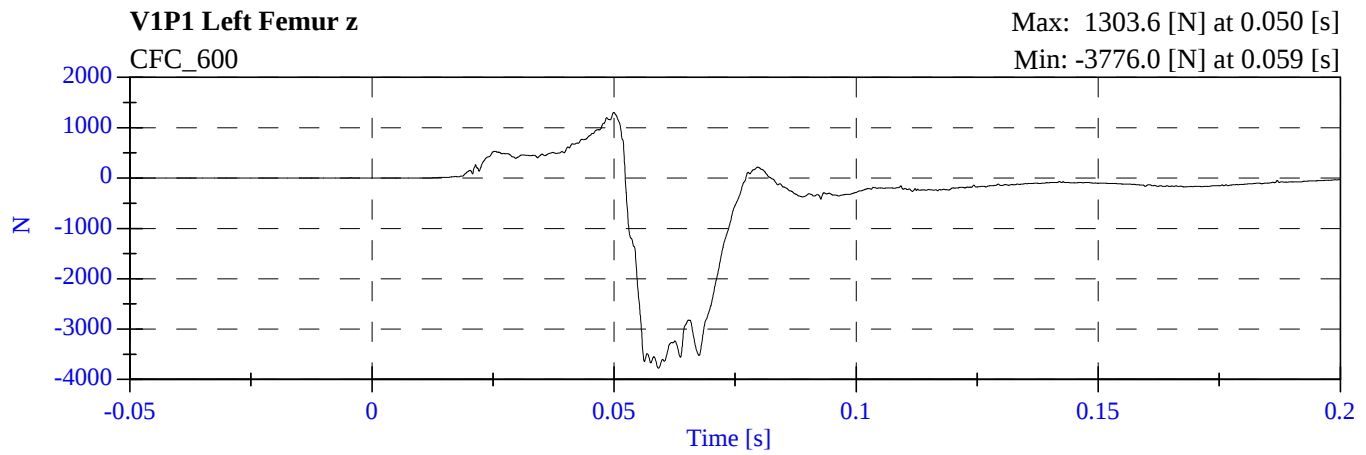
2006 NCAP Test 15 2006 Nissan Murano M65201 - February 21, 2006



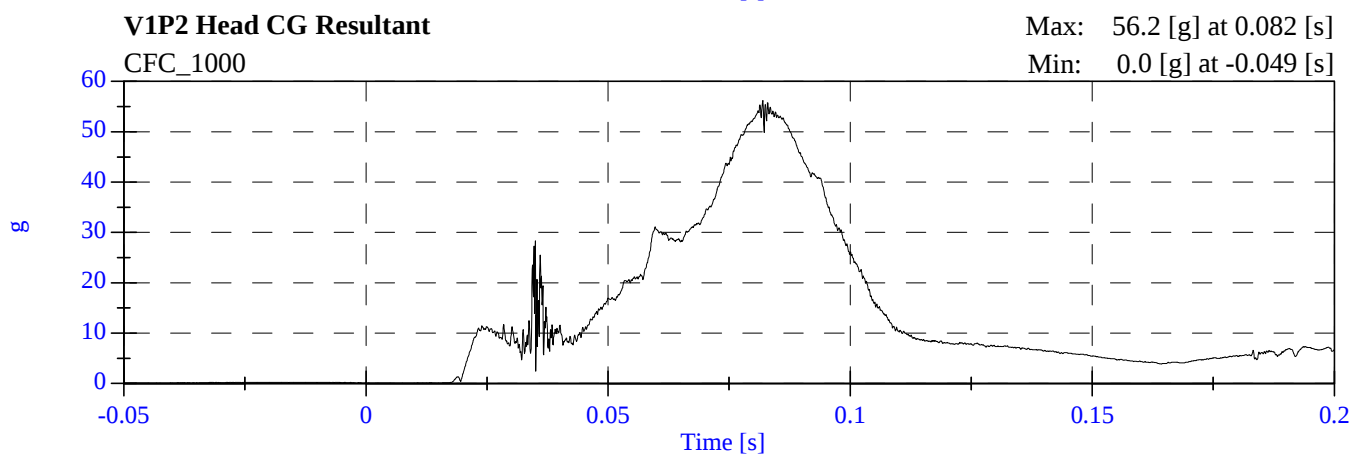
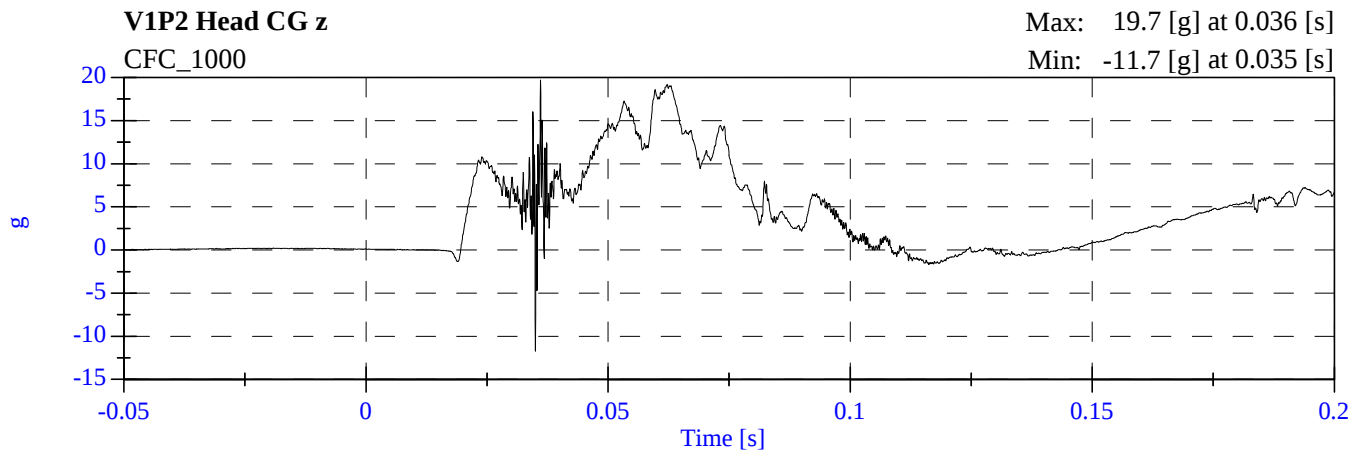
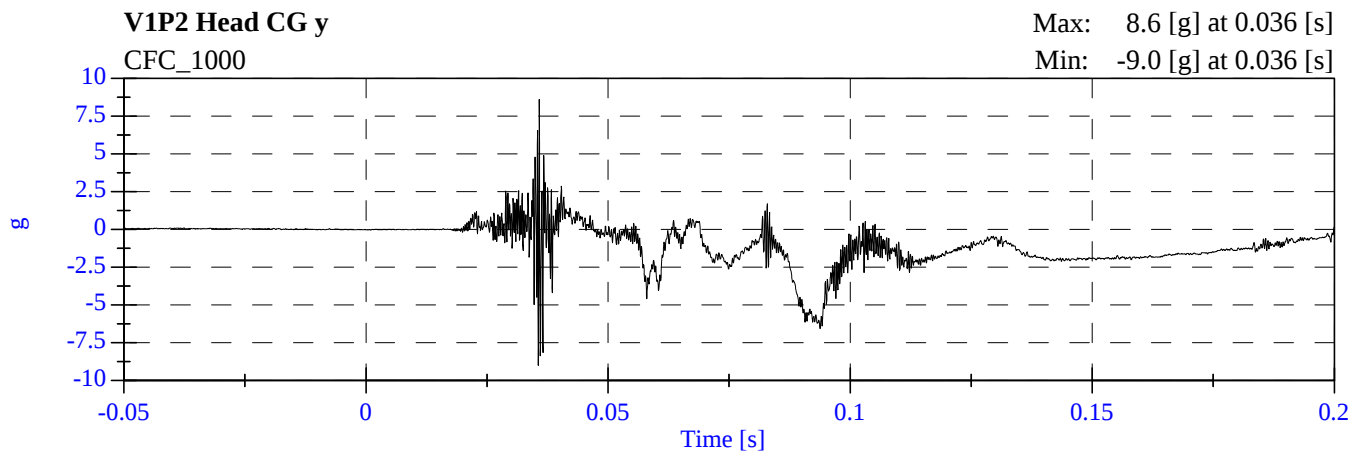
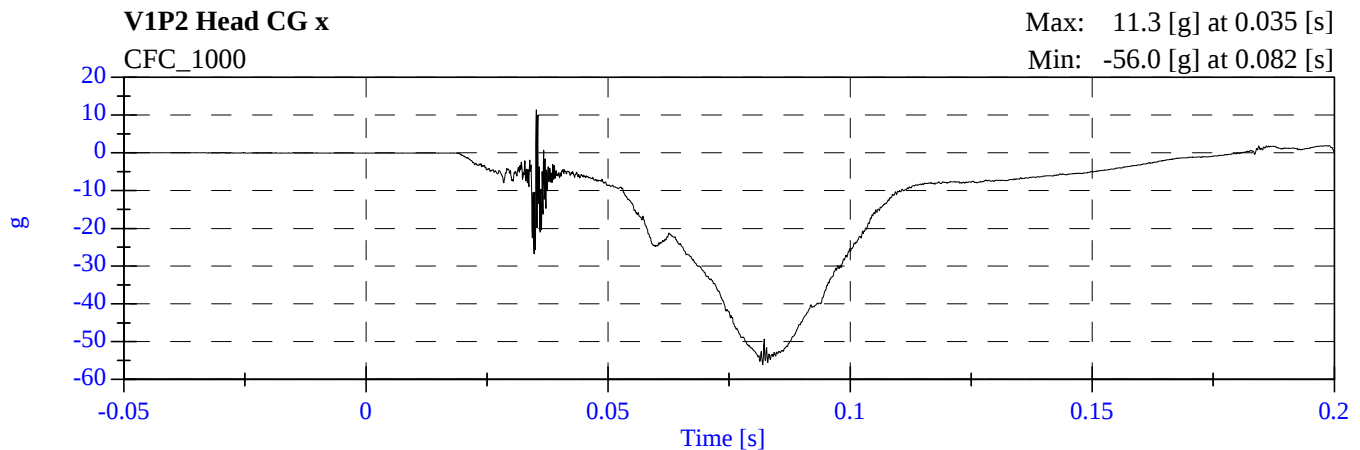
2006 NCAP Test 15 2006 Nissan Murano
M65201 - February 21, 2006



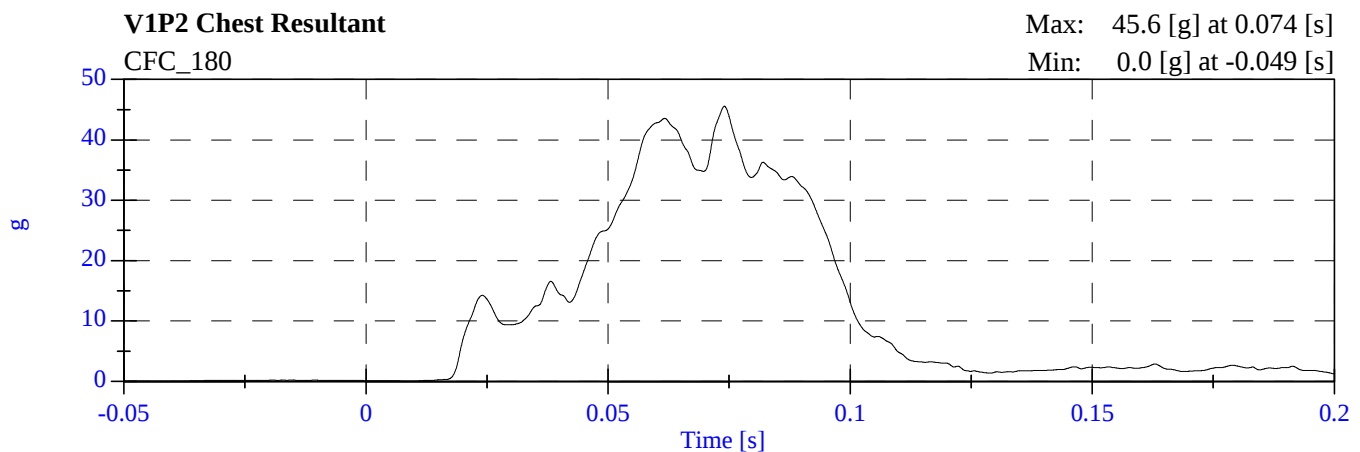
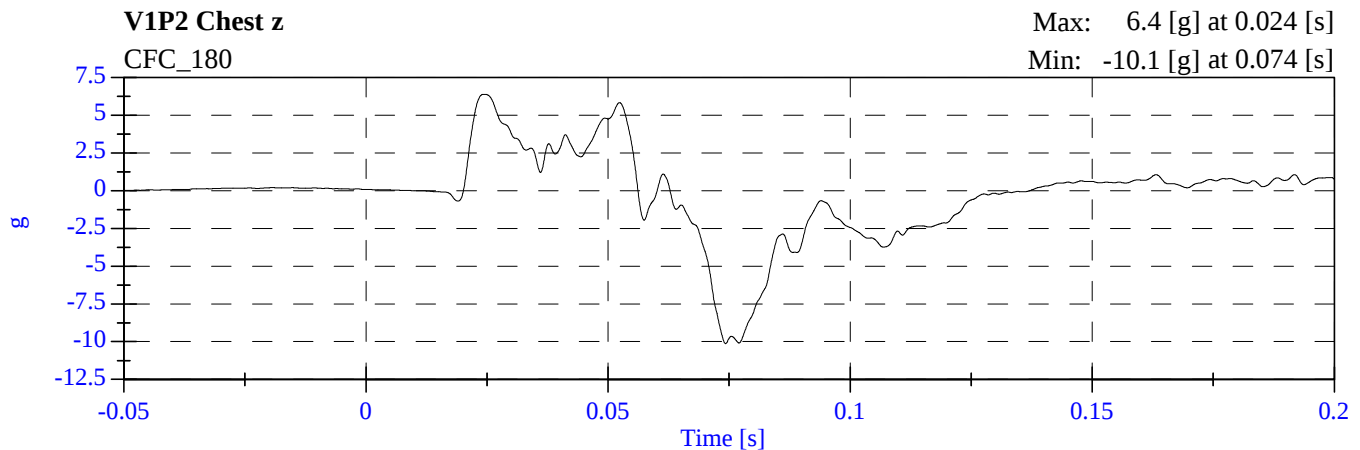
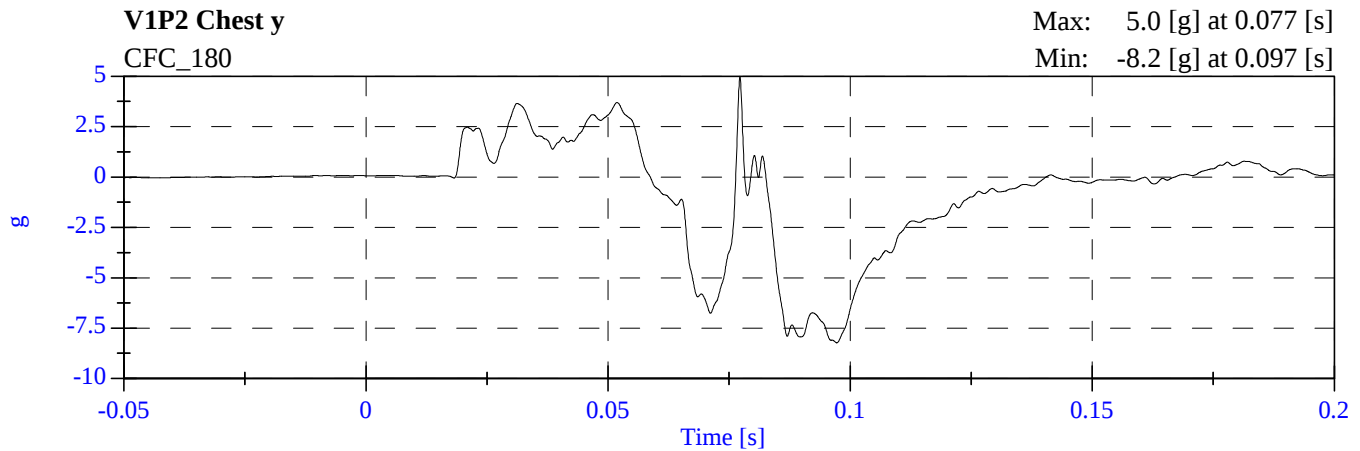
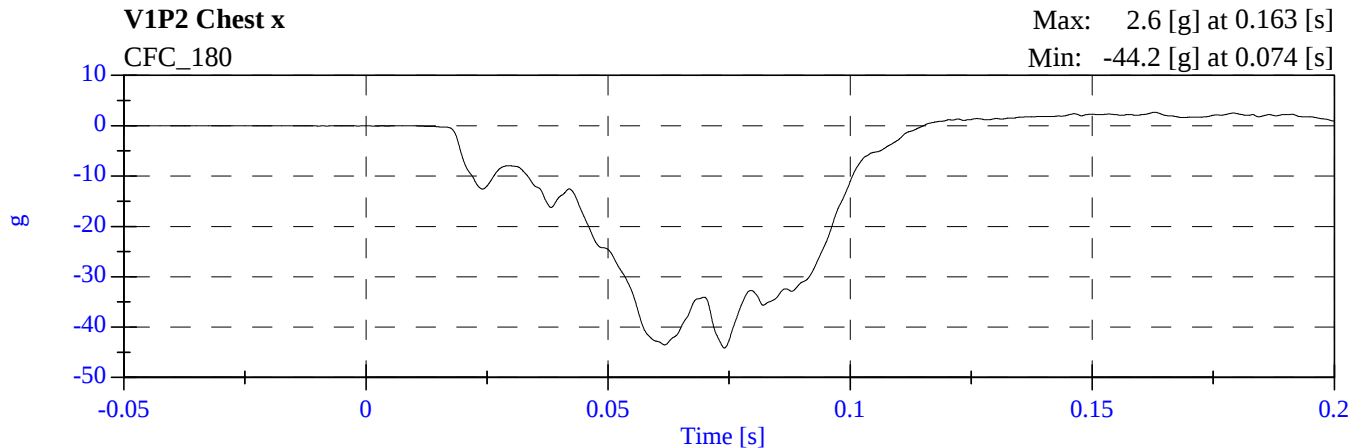
**2006 NCAP Test 15 2006 Nissan Murano
M65201 - February 21, 2006**



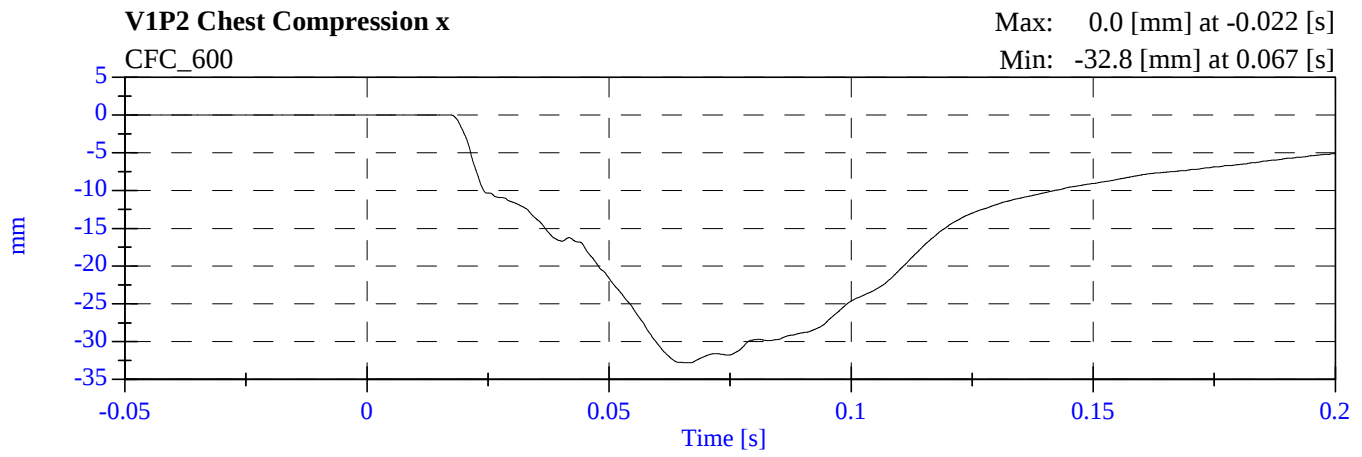
**2006 NCAP Test 15 2006 Nissan Murano
M65201 - February 21, 2006**



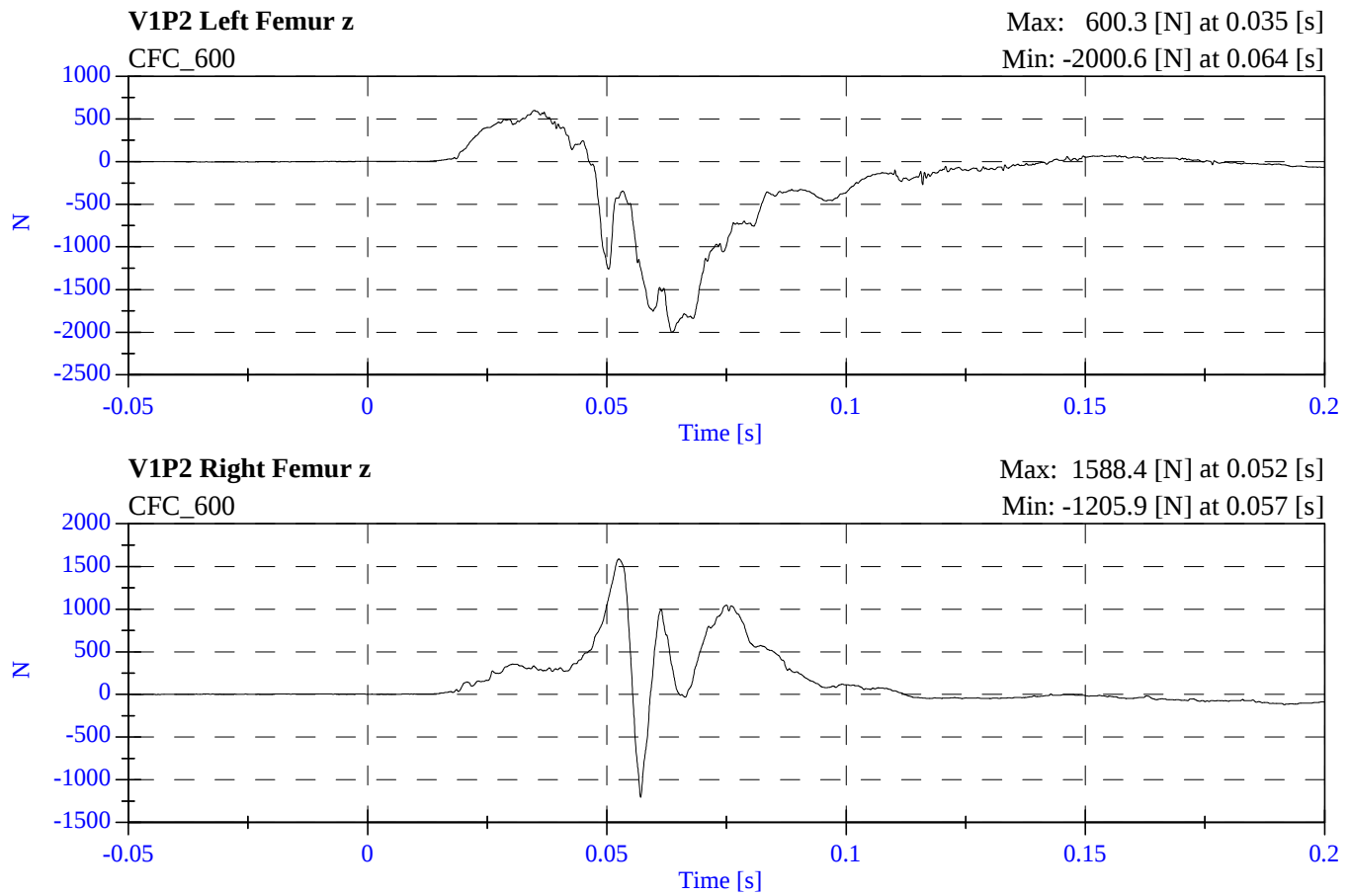
2006 NCAP Test 15 2006 Nissan Murano M65201 - February 21, 2006



2006 NCAP Test 15 2006 Nissan Murano
M65201 - February 21, 2006



2006 NCAP Test 15 2006 Nissan Murano
M65201 - February 21, 2006



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.

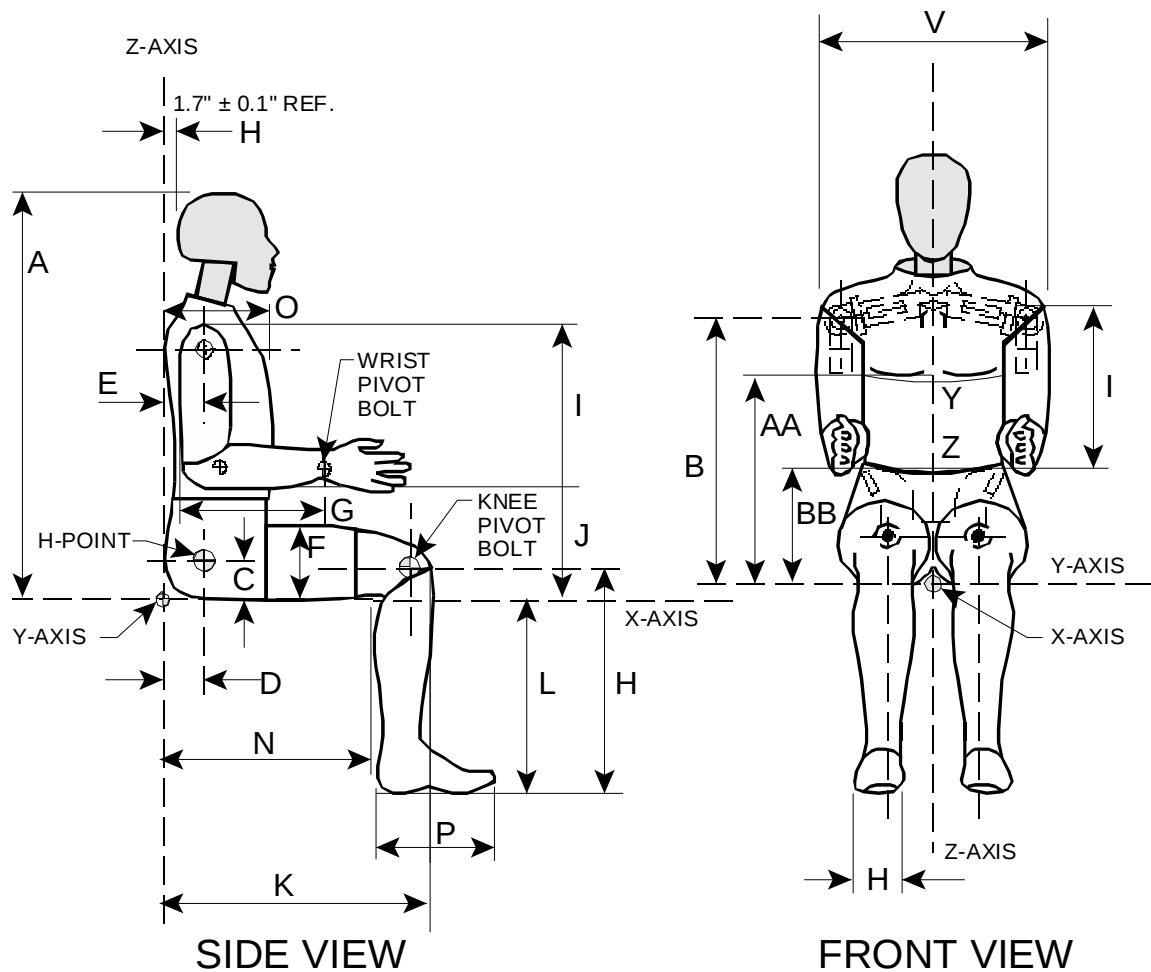
Dummy serial numbers and certification dates are:

<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	061	02/09/2006
#2/Right Front Passenger	064	02/09/2006

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 Inducant 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 061
Sequential Test Number 1
Date 02/03/06
Workfile 061H 02-03-06

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	33.0
Peak Resultant Acceleration	225-275 G's	230.74
Peak Lateral Acceleration	15 G's Max	3.46
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	061	
Sequential Test Number	1	
Date	02/07/06	6 Axis Neck Transducer
Workfile	061NF1 02-07-06	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	33.0
Impact Velocity		6.89 – 7.13 m/s	6.99
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.85
	20 ms	17.60 - 22.60 G's	22.30
	30 ms	12.50 - 18.50 G's	15.37
Max Pendulum G's Above 30 ms		29 G's Max	15.37
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.00
D Plane Rotation	Max	64 - 78 Deg	67.29
	Time	57 - 64 ms	57.20
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	96.51
	Time	47 - 58 ms	52.40
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	114.70
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.00

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	061	
Sequential Test Number	1	
Date	02/07/06	6 Axis Neck Transducer
Workfile	061NE1 02-07-06	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	33.0
Impact Velocity		5.94 – 6.19 m/s	6.07
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	17.43
	20 ms	14.00 - 19.00 G's	17.33
	30 ms	11.00 - 16.00 G's	14.07
Max Pendulum G's Above 30 ms		22 G's Max	14.07
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	46.0
D Plane Rotation	Max	81 - 106 Deg	91.82
	Time	72 - 82 ms	76.60
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-67.49
	Time	65 - 79 ms	71.90
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	155.10
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	136.20

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 061
Sequential Test Number 1
Date 02/08/06
Workfile 061T 02-08-06

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	20.6 – 22.2 Deg C	21.1
Relative Humidity	10% - 70%	39.0
Pendulum Velocity	6.58 – 6.83 m/s	6.74
Maximum Deflection	63.52 – 72.64 mm	65.02
Maximum Resistive Force	5159.9 – 5893.9 N	5763.0
Internal Hysteresis	69 - 85 %	76.20

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 061
Sequential Test Number 1
Date 02/09/06
Workfile 061LF 02-09-06 / 061RF 02-09-06

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	35.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	4744.1
RIGHT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	35.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5114.0

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 061
Sequential Test Number 1
Date 02/09/06

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70.00
Relative Humidity			37.00
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	6.0
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6
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	7.8
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Popliteal Height	L	16.9 - 17.9 in	17.7
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Chest Depth	O	8.4 - 9.0 in	8.4
Foot Length	P	9.9 - 10.5 in	10.1
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Foot Breadth	W	3.6 - 4.2 in	3.8
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	33.6

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 064
Sequential Test Number 1
Date 02/03/06
Workfile 064H 02-03-06

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	33.0
Peak Resultant Acceleration	225-275 G's	256.30
Peak Lateral Acceleration	15 G's Max	9.79
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	064	
Sequential Test Number	1	
Date	02/08/06	6 Axis Neck Transducer
Workfile	064NF 02-08-06	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	39.0
Impact Velocity		6.89 – 7.13 m/s	6.91
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.48
	20 ms	17.60 - 22.60 G's	21.18
	30 ms	12.50 - 18.50 G's	16.16
Max Pendulum G's Above 30 ms		29 G's Max	16.16
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.70
D Plane Rotation	Max	64 - 78 Deg	68.01
	Time	57 - 64 ms	58.80
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	103.05
	Time	47 - 58 ms	54.0
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	115.80
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	99.10

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	064	
Sequential Test Number	1	
Date	02/07/06	6 Axis Neck Transducer
Workfile	064NE 02-07-06	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.1
Relative Humidity		10% - 70%	33.0
Impact Velocity		5.94 – 6.19 m/s	6.00
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	17.27
	20 ms	14.00 - 19.00 G's	17.77
	30 ms	11.00 - 16.00 G's	15.53
Max Pendulum G's Above 30 ms		22 G's Max	15.53
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	45.10
D Plane Rotation	Max	81 - 106 Deg	94.92
	Time	72 - 82 ms	79.00
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-63.66
	Time	65 - 79 ms	74.00
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	160.90
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	143.80

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 064
Sequential Test Number 1
Date 02/08/06
Workfile 064T 02-08-06

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	20.6 – 22.2 Deg C	21.1
Relative Humidity	10% - 70%	37.0
Pendulum Velocity	6.58 – 6.83 m/s	6.73
Maximum Deflection	63.52 – 72.64 mm	64.77
Maximum Resistive Force	5159.9 – 5893.9 N	5796.9
Internal Hysteresis	69 - 85 %	75.67

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 064
Sequential Test Number 1
Date 02/09/06
Workfile 064 LF RF 02-09-06

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	35.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5173.7
RIGHT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	35.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	4869.7

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 064
Sequential Test Number 1
Date 02/09/06

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70.00
Relative Humidity			37.00
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	20.4
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	3.6
Thigh Clearance	F	5.5 - 6.1 in	6.0
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6
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	8.0
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Popliteal Height	L	16.9 - 17.9 in	17.3
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Chest Depth	O	8.4 - 9.0 in	8.6
Foot Length	P	9.9 - 10.5 in	10.2
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Foot Breadth	W	3.6 - 4.2 in	3.8
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	34.0

Remarks:

Laboratory Technician:

B. Swiecicki

APPENDIX D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Head 9 Array	X Arm Y	ENDEVCO	AC-P16832	04-Jan-06	04-Jul-06
	X Arm Z	ENDEVCO	AC-P16286	04-Jan-06	04-Jul-06
	Y Arm X	ENDEVCO	AC-P16591	04-Jan-06	04-Jul-06
	Y Arm Z	ENDEVCO	AC-P17141	04-Jan-06	04-Jul-06
	Z Arm X	ENDEVCO	AC-P17242	04-Jan-06	04-Jul-06
	Z Arm Y	ENDEVCO	AC-P35789	20-Dec-05	19-Jun-06
Head	X	ENDEVCO	AC-P39575	04-Jan-06	04-Jul-06
	Y	ENDEVCO	AC-P35758	04-Jan-06	04-Jul-06
	Z	ENDEVCO	AC-P39743	04-Jan-06	04-Jul-06
Head	X (R)	ENDEVCO	AC-P35803	04-Jan-06	04-Jul-06
	Y (R)	ENDEVCO	AC-P35804	04-Jan-06	04-Jul-06
	Z (R)	ENDEVCO	AC-P35818	04-Jan-06	04-Jul-06
Neck Load Cell	X	DENTON	LC-280Fx	14-Jul-05	11-Jan-06
	Y	DENTON	LC-280Fy	14-Jul-05	11-Jan-06
	Z	DENTON	LC-280Fz	14-Jul-05	11-Jan-06
Neck Moment	X	DENTON	LC-280Mx	14-Jul-05	11-Jan-06
	Y	DENTON	LC-280My	14-Jul-05	11-Jan-06
	Z	DENTON	LC-280Mz	14-Jul-05	11-Jan-06
Chest	X	ENDEVCO	AC-P23303	04-Jan-06	04-Jul-06
	Y	ENDEVCO	AC-P15526	04-Jan-06	04-Jul-06
	Z	ENDEVCO	AC-P19255	04-Jan-06	04-Jul-06
Chest	X (R)	ENDEVCO	AC-P16576	04-Jan-06	04-Jul-06
	Y (R)	ENDEVCO	AC-P15534	04-Jan-06	04-Jul-06
	Z (R)	ENDEVCO	AC-P19216	04-Jan-06	04-Jul-06
Chest Deflection	X	SERVO	DS-061	30-Jun-05	28-Dec-05
Pelvic	X	ENDEVCO	AC-P23993	04-Jan-06	04-Jul-06
	Y	ENDEVCO	AC-P23939	04-Jan-06	04-Jul-06
	Z	ENDEVCO	AC-P23999	04-Jan-06	04-Jul-06

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	GSE	LC-558	09-Aug-05	06-Feb-06
Right Femur Load Cell	Fz	DENTON	LC-560	09-Aug-05	06-Feb-06
Left Upper Tibia	Mx	DENTON	LC-274Mx	28-Jun-05	26-Dec-05
	My	DENTON	LC-274My	28-Jun-05	26-Dec-05
Left Lower Tibia	Fz	DENTON	LC-185Fz	28-Jun-05	26-Dec-05
	Mx	DENTON	LC-185Mx	28-Jun-05	26-Dec-05
	My	DENTON	LC-185My	28-Jun-05	26-Dec-05
Right Upper Tibia	Mx	DENTON	LC-200Mx	28-Jun-05	26-Dec-05
	My	DENTON	LC-200My	28-Jun-05	26-Dec-05
Right Lower Tibia	Fz	DENTON	LC-128Fz	29-Jun-05	27-Dec-05
	Mx	DENTON	LC-128Mx	29-Jun-05	27-Dec-05
	My	DENTON	LC-128My	29-Jun-05	27-Dec-05
Left Foot Rear	X	ENDEVCO	AC-P16225	04-Jan-06	04-Jul-06
	Z	ENDEVCO	AC-P15638	04-Jan-06	04-Jul-06
Left Foot Front	Z	ENDEVCO	AC-P16517	04-Jan-06	04-Jul-06
Right Foot Rear	X	ENTRAN	AC-03E03E21-M20	05-Jan-06	05-Jul-06
	Z	ENDEVCO	AC-AGAC4	04-Jan-06	04-Jul-06
Right Foot Front	Z	ENDEVCO	AC-J23946	04-Jan-06	04-Jul-06
Lap Belt Load Cell		First Technology	LC-159	01-Oct-05	31-Mar-06
Shoulder Belt Load Cell		First Technology	LC-168	01-Oct-05	31-Mar-06

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Head 9 Array	X Arm Y	ENDEVCO	AC-P18785	22-Dec-05	21-Jun-06
	X Arm Z	ENDEVCO	AC-P32218	22-Dec-05	21-Jun-06
	Y Arm X	ENDEVCO	AC-P23926	22-Dec-05	21-Jun-06
	Y Arm Z	ENDEVCO	AC-P17563	22-Dec-05	21-Jun-06
	Z Arm X	ENDEVCO	AC-P18948	22-Dec-05	21-Jun-06
	Z Arm Y	ENDEVCO	AC-P14965	22-Dec-05	21-Jun-06
Head	X	ENDEVCO	AC-P39736	22-Dec-05	21-Jun-06
	Y	ENDEVCO	AC-P35811	22-Dec-05	21-Jun-06
	Z	ENDEVCO	AC-P39729	22-Dec-05	21-Jun-06
Head	X (R)	ENDEVCO	AC-P35788	22-Dec-05	21-Jun-06
	Y (R)	ENDEVCO	AC-P35761	22-Dec-05	21-Jun-06
	Z (R)	ENDEVCO	AC-P35764	22-Dec-05	21-Jun-06
Neck Load Cell	X	DENTON	LC-441Fx	27-Jun-05	25-Dec-05
	Y	DENTON	LC-441Fy	27-Jun-05	25-Dec-05
	Z	DENTON	LC-441Fz	27-Jun-05	25-Dec-05
Neck Moment	X	DENTON	LC-441Mx	27-Jun-05	25-Dec-05
	Y	DENTON	LC-441My	27-Jun-05	25-Dec-05
	Z	DENTON	LC-441Mz	27-Jun-05	25-Dec-05
Chest	X	ENDEVCO	AC-P16863	23-Dec-05	22-Jun-06
	Y	ENDEVCO	AC-P17285	23-Dec-05	22-Jun-06
	Z	ENDEVCO	AC-P14393	03-Jan-06	03-Jul-06
Chest	X (R)	ENDEVCO	AC-P23640	23-Dec-05	22-Jun-06
	Y (R)	ENDEVCO	AC-P17283	23-Dec-05	22-Jun-06
	Z (R)	ENDEVCO	AC-P17235	03-Jan-06	03-Jul-06
Chest Deflection	X	SERVO	DS-064	29-Jun-05	27-Dec-05
Pelvic	X	ENDEVCO	AC-P35790	23-Dec-05	22-Jun-06
	Y	ENDEVCO	AC-P35817	23-Dec-05	22-Jun-06
	Z	ENDEVCO	AC-P39574	23-Dec-05	22-Jun-06

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	DENTON	LC-255	09-Aug-05	06-Feb-06
Right Femur Load Cell	Fz	GSE	LC-756	09-Aug-05	06-Feb-06
Left Upper Tibia	Mx	DENTON	LC-108Mx	20-Jun-05	18-Dec-05
	My	DENTON	LC-108My	20-Jun-05	18-Dec-05
Left Lower Tibia	Fz	DENTON	LC-113Fz	20-Jun-05	18-Dec-05
	Mx	DENTON	LC-113Mx	20-Jun-05	18-Dec-05
	My	DENTON	LC-113My	20-Jun-05	18-Dec-05
Right Upper Tibia	Mx	DENTON	LC-103Mx	22-Jun-05	20-Dec-05
	My	DENTON	LC-103My	22-Jun-05	20-Dec-05
Right Lower Tibia	Fz	DENTON	LC-133Fz	22-Jun-05	20-Dec-05
	Mx	DENTON	LC-133Mx	22-Jun-05	20-Dec-05
	My	DENTON	LC-133My	22-Jun-05	20-Dec-05
Left Foot Rear	X	ENDEVCO	AC-J31412	03-Jan-06	03-Jul-06
	Z	ENDEVCO	AC-P15951	03-Jan-06	03-Jul-06
Left Foot Front	Z	ENDEVCO	AC-P12566	03-Jan-06	03-Jul-06
Right Foot Rear	X	ENDEVCO	AC-FG97J	03-Jan-06	03-Jul-06
	Z	ENDEVCO	AC-J23941	03-Jan-06	03-Jul-06
Right Foot Front	Z	ENDEVCO	AC-J28727	03-Jan-06	03-Jul-06
Lap Belt Load Cell		First Technology	LC-173	01-Oct-05	31-Mar-06
Shoulder Belt Load Cell		First Technology	LC-178	01-Oct-05	31-Mar-06

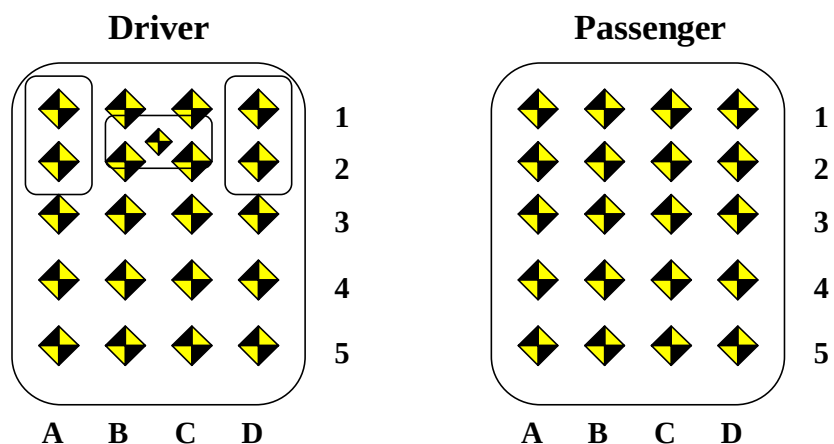
INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(Six Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	ICS	AC-FGP19	17-Oct-05	16-Apr-06
Right Rear Seat Crossmember X	GS SENSORS	AC-9440-046	17-Oct-05	16-Apr-06
Top of Engine	ICS	AC-8062-003	17-Oct-05	16-Apr-06
Bottom of Engine	GS SENSORS	AC-9440-032	13-Oct-05	12-Apr-06
Right Disc Brake Caliper	GS SENSORS	AC-9440-006	12-Oct-05	11-Apr-06
Left Disc Brake Caliper	GS SENSORS	AC-9440-039	17-Oct-05	16-Apr-06
Left Seat Rear Crossmember Z	ICS	AC-FGP29	17-Oct-05	16-Apr-06
Right Seat Rear Crossmember Z	GS SENSORS	AC-9440-023	17-Oct-05	16-Apr-06

APPENDIX E

VEHICLE INTERIOR INTRUSION MEASUREMENTS

DRIVER SIDE INTRUSION MEASUREMENTS



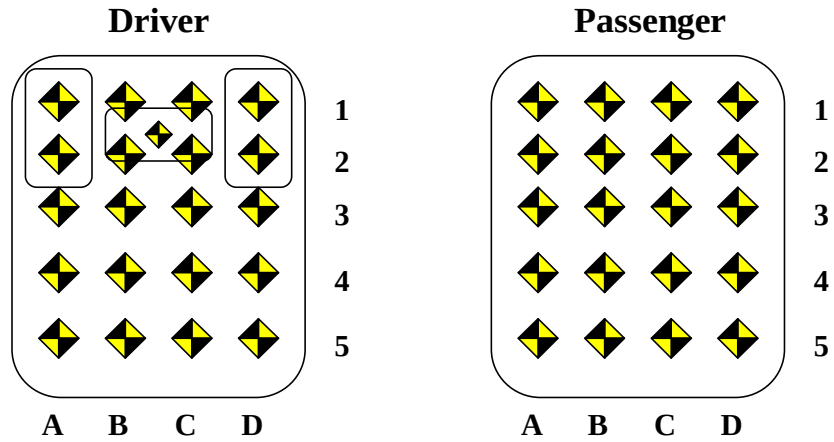
Driver Side Intrusion Measurements

Intrusion Location	PRE-TEST (mm)			POST-TEST (mm)			CHANGE (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3331	-601	-524	3313	-606	-540	18	5	16
B1	3442	-462	-517	3387	-459	-570	55	-3	53
C1	3479	-332	-517	3413	-329	-590	66	-3	73
D1	3461	-185	-521	3412	-189	-583	49	4	62
A2	3283	-599	-463	3274	-601	-477	9	2	14
B2	3405	-462	-470	3380	-463	-509	25	1	39
C2	3429	-331	-467	3402	-327	-514	27	-4	47
D2	3418	-186	-468	3376	-186	-525	42	0	57
A3	3267	-596	-404	3264	-592	-412	3	-4	8
B3	3338	-463	-412	3334	-464	-438	4	1	26
C3	3336	-328	-410	3334	-326	-435	2	-2	25
D3	3326	-189	-406	3319	-186	-430	7	-3	24
A4	3219	-597	-405	3219	-594	-409	0	-3	4
B4	3217	-463	-406	3216	-460	-415	1	-3	9
C4	3213	-325	-404	3218	-322	-419	-5	-3	15
D4	3212	-184	-408	3213	-179	-414	-1	-5	6
A5	3105	-603	-406	3103	-598	-410	2	-5	4
B5	3102	-461	-405	3102	-458	-413	0	-3	8
C5	3479	-332	-517	3480	-333	-511	-1	1	-6
D5	3098	-324	-402	3097	-187	-409	1	-137	7
BP	3102	-187	-406	3216	-346	-633	-114	159	227
G	3059	-547	-866	3058	-552	-876	1	5	10
H	3028	-247	-852	3018	-252	-864	10	5	12
L	2790	-385	-1092	2814	-395	-1111	-24	10	19
AB	2740	-611	-424	2737	-608	-424	3	-3	0

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	3482	189	-516	3432	188	-560	50	1	44
B1	3470	323	-523	3417	313	-559	53	10	36
C1	3427	468	-523	3362	447	-556	65	21	33
D1	3353	607	-523	3330	608	-539	23	-1	16
A2	3430	188	-472	3416	186	-495	14	2	23
B2	3431	333	-470	3418	322	-503	13	11	33
C2	3410	474	-471	3381	455	-504	29	19	33
D2	3331	612	-467	3319	601	-483	12	11	16
A3	3330	189	-404	3331	187	-420	-1	2	16
B3	3334	334	-410	3321	322	-451	13	12	41
C3	3334	470	-412	3329	458	-433	5	12	21
D3	3316	604	-405	3315	591	-421	1	13	16
A4	3220	193	-403	3221	183	-412	-1	10	9
B4	3223	329	-401	3221	319	-423	2	10	22
C4	3225	464	-403	3222	459	-419	3	5	16
D4	3228	603	-403	3226	593	-413	2	10	10
A5	3111	189	-404	3106	180	-415	5	9	11
B5	3104	326	-402	3105	315	-424	-1	11	22
C5	3110	464	-403	3105	455	-418	5	9	15
D5	3112	598	-404	3106	589	-412	6	9	8
R	3045	256	-876	3026	253	-890	19	3	14
S	3071	526	-876	3055	522	-890	16	4	14
AB	2741	607	-422	2736	597	-425	5	10	3

R=Left side of bolster, S=Right side of bolster, L=Steering wheel center;

AB = Front outboard seat anchor bolt