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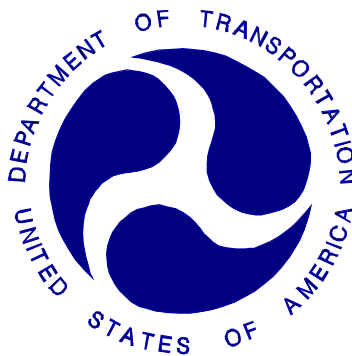
**NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
FRONTAL BARRIER 40% OFFSET IMPACT TEST**

FORD MOTOR CO
2000 NISSAN QUEST
MV

NHTSA NUMBER: RY5215

VERIDIAN TEST NUMBER: 8413-70

VERIDIAN ENGINEERING
TRANSPORTATION SCIENCES CENTER
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November 21, 2001

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Research and Development
Crashworthiness Research Division
Mail Code: NRD-11
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16. <i>Abstract</i> This test is to evaluate the use of the Denton (VRTC) instrumented lower legs in the frontal 40% offset deformable barrier tests. A frontal 40% offset barrier impact test of a 2000 Nissan Quest MV was performed at Veridian Engineering crash test facility in Buffalo, New York, on November 21, 2001. The impact velocity was 60.03 kph and the temperature at the barrier face was 21°C. The maximum post-test vehicle crush was 707 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.					
ATD Position	HIC	Clip (g's)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)
Driver (150)	427.7	29.4	27.8	2335.6	1575.3
Passenger (245)	287.8	31.2	28.5	1700.3	1288.3
17. <i>Key Words</i> Frontal 40% Offset Barrier Impact test Thor-Lx/HIIIr				18. <i>Distribution Statement</i> Copies of this report are available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, DC 20590	
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SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This 60.03 kph frontal 40% offset barrier impact test is part of the Test Procedure Development Program sponsored by the National Highway Traffic Safety Administration (NHTSA). The purpose of this test was to perform a comparative evaluation of the Thor-Lx 50th percentile adult male- Hybrid III retrofit (Thor-Lx/HIIIr) version lower legs, using the Denton (VRTC) instrumented lower legs, and obtain vehicle crashworthiness and occupant and restraint system performance data.

The frontal 40% offset barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

SUMMARY

A deformable honeycomb barrier mounted to a load cell barrier consisting of 30 load cells and a load cell plate above the barrier was impacted by a 2000 Nissan Quest MV at 40% overlap at a velocity of 60.03 kph. The test was performed at Veridian Engineering on November 21, 2001. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

One real-time camera and 16 high-speed cameras documented the offset 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 9 axis array head, head, chest, and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, knee sliders and Denton (VRTC) instrumented lower legs. The driver (position 1) ATD (Serial No. 150) and the right-front passenger (position 2) ATD (Serial No. 245) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 204 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.

The driver's HIC was 427.7. The maximum chest deceleration over 3 milliseconds was 29.4 g's and maximum chest deflection was 27.8 mm. Compressive femur loads were 2335.6 Newtons on the left and 1575.3 Newtons on the right.

The right front passenger's HIC was 287.8. Maximum chest deceleration over 3 milliseconds was 31.2 g's and maximum chest deflection was 28.5 mm. Compressive femur loads were 1700.3 Newtons on the left and 1288.3 Newtons on the right.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No.:	RY5215	Test Mode:	60 kph Offset Frontal Barrier
Test Date:	November 21, 2001	Time:	12:05
		Temperature:	21 °C
Vehicle Make/Model/Body Style:	2000 Nissan Quest MV		
Vehicle Test Weight:	2073.5	kg	
Vehicle/Barrier Impact Angle:	0	°	
Impact Velocity:	60.03	kph	
Maximum Static Crush:	707	mm	
Actual Vehicle Offset:	40.0	%	

<u>DUMMIES:</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Type:	572E	572E
Restraint System:	Seatbelts and airbag	Seatbelts and airbag
Lower Leg:	Denton VRTC	Denton VRTC

Number of Data Channels:	204	
Number of Cameras:	1	Real Time
	16	High Speed

<u>DOOR OPENING DATA:</u>	Closed \ Non Operable	- Left Front
	Closed \ Operable	- Right Front

Front Seat(s) Data:	<u>DRIVER</u>	<u>PASSENGER</u>
Seat Track Failure:(mm of shift)	0	0
Seat Back Failure:	None	None

<u>VISIBLE DUMMY CONTACT POINTS:</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Head:	Face to upper centerline of airbag, back of head to outboard half of headrest, back of head to outboard upper seat back	Face to center of airbag, top of head to outboard headrest
Abdomen:	None	None
Chest	Airbag	Airbag
Knees	Left knee to bolster left of column, Right knee to bolster right of column	Left knee to left edge of glove compartment door, Right knee to right edge of glove compartment door

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2000 Nissan Quest MV

NHTSA No. : RY5215 ; VIN: 4N2XN11T9YD831769 ; Color: White

Engine Data: 6 Cylinders; - CID; 3.3 Liters; - cc

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

Transmission Data: - Speeds; - Manual; X Automatic; X Overdrive

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

Major Options: X A/C; X Pwr.Strg.; X Pwr. Brakes

X Pwr. Windows; X Pwr. Door Locks; X Tilt Wheel

Date Received: - ; Odometer Reading 27858 km

Selling Dealer: -

& Address: -

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Ford Motor Co

Date of Manufacture May 2000

GVWR: 2469 kg; GAWR: 1231 kg FRONT; 1290 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load: 300 kpa FRONT

300 kpa REAR

Recommended Tire Size: 215/70R15

* Recommended Cold Tire Pressure: 240 kpa FRONT; 240 kpa REAR

Size of Tires on Test Vehicle: 215/70R15 ; Manufacturer: General

Vehicle Capacity Data:

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

Number of Occupants: 2 Front; 5 Rear; 7 Total

Vehicle Capacity Weight (VCW) = 585 kg

No. of Occupants x 68.04 kg = 476.28 kg

Rated Cargo/Luggage Weight (RCLW) = 108.72 kg

*Tire pressure used for test

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

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

Right Front =	<u>514.5</u>	kg	Right Rear =	<u>379</u>	kg
Left Front =	<u>532</u>	kg	Left Rear =	<u>388</u>	kg
TOTAL FRONT =	<u>1046.5</u>	kg	TOTAL REAR =	<u>767.0</u>	kg
TOTAL DELIVERED WEIGHT =	<u>1813.5</u>	kg			
% of Total Front of Vehicle Weight =	<u>57.7%</u>		% of Total Rear Weight =	<u>42.3%</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW) =	<u>1813.5</u>	kg
Rated Cargo/Luggage Weight (RCLW) =	<u>108.72</u>	kg
Weight of 2 p.572 Dummies @ 76 each =	<u>152</u>	kg
TARGET TEST WEIGHT =	<u>2074.22</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 110 KG OF CARGO WEIGHT:

Right Front =	<u>542.5</u>	kg	Right Rear =	<u>475.5</u>	kg
Left Front =	<u>574.0</u>	kg	Left Rear =	<u>481.5</u>	kg
TOTAL FRONT =	<u>1116.5</u>	kg	TOTAL REAR =	<u>957</u>	kg
TOTAL TEST WEIGHT =	<u>2073.5</u>	kg			
% of Total Front Weight =	<u>53.8%</u>	%	% of Total Rear Weight =	<u>46.2%</u>	%
Weight of Ballast Secured in Vehicle Trunk Area =	<u>45</u>	kg			
Vehicle Components Removed for Weight Reduction:	<u>None</u>				

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED:	RF	<u>772</u>	LF	<u>765</u>	RR	<u>790</u>	LR	<u>778</u>
FULLY LOADED:	RF	<u>771</u>	LF	<u>760</u>	RR	<u>754</u>	LR	<u>750</u>
AS TESTED:	RF	<u>771</u>	LF	<u>760</u>	RR	<u>755</u>	LR	<u>750</u>
Vehicle's Wheel Base:	<u>2853</u>	mm						
Location of Vehicle's C.G.:	<u>1317</u>	mm rearward of front wheel center.						

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual =	<u>75.7</u>	liters
Usable Capacity Figure Furnished by COTR =	<u>74</u>	liters
Test Volume Range (92 to 94% of Usable Capacity) =	<u>68.08</u>	to <u>69.56</u> liters
ACTUAL TEST VOLUME=	<u>70</u>	liters (with entire fuel system filled)
Test Fluid Type:	<u>Stoddard Solution</u>	; Spec. Grav. = <u>0.764</u>
Kinematic Viscosity =	<u>0.96</u>	centistokes; Color = <u>Orange</u>
Type of Fuel Pump: Electric-	<u>X</u>	; Mechanical- <u> </u>
Does Electric Pump operate with ignition switch "ON" & engine "OFF"	Yes- <u>X</u>	No- <u> </u>
Details of Fuel System: Filler is left above rear axle: Tank is left of center ahead of axle: Lines are at left frame		

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test: Offset Frontal Barrier Impact Angle: 0°
Test Date: November 21, 2001 Time: 12:05 Temperature: 21 °C
Vehicle NHTSA No.: RY5215
Required Impact Velocity Range: 59.2 to 60.8 kph

BARRIER IMPACT VELOCITY: (Speed traps within 5 feet of impact plane.)

Trap No. 1 = 60.03 kph; Trap No. 2 = 60.03 kph
Distance from vehicle to barrier: (1) entering trap = 813 mm
(2) exiting trap = 305 mm

VEHICLE STATIC CRUSH: (mm)

Vehicle Length:

Pre-Test	Left =	<u>4838</u>	; C/L =	<u>4950</u>	; Right =	<u>4856</u>
Post-Test	Left =	<u>4173</u>	; C/L =	<u>4379</u>	; Right =	<u>4865</u>
Crush	Left =	<u>665</u>	; C/L =	<u>571</u>	; Right =	<u>-9</u>
AVERAGE	=	<u>409</u>	mm			

VEHICLE OFFSET DATA: (mm)

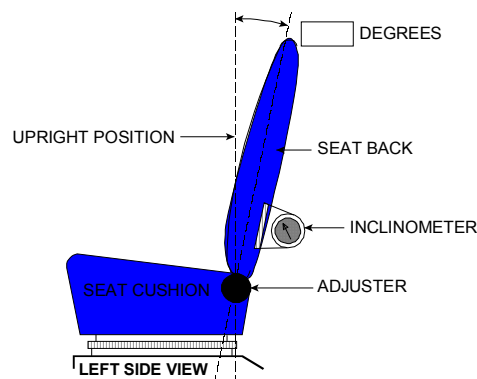
Vehicle Width	=	<u>1890</u>	mm
Desired Vehicle Offset	=	<u>756</u>	mm
Actual Vehicle Offset	=	<u>756</u>	mm (from film analysis)
Offset Difference	=	<u>0</u>	mm
Actual Percent Offset	=	<u>40.0</u>	%

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year: 2000 Vehicle Model: Nissan Quest Body Style: MV

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: 20

Measurement instructions: Place seat in twelfth detent from full upright position 0.

Seat back angle for passenger's seat: 20

Measurement instructions: Place seat in twelfth detent from full upright position 0.

2. Seat Fore and Aft Positioning

Positioning of the driver's seat: Place seat in mid-position to the 8th detent with forward most position

Labeled as detent 0.

Positioning of the passenger's seat: Place seat in mid-position to the 8th detent with forward most position

Labeled as detent 0.

3. Fuel Tank Capacity Data

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 74 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 = 75.7 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 70 liters

3.3 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.

For 5 seconds after the engine is switched on and while engine is running and for 1.5 seconds after engine is switched off.

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

4. STEERING COLUMN ADJUSTMENTS:

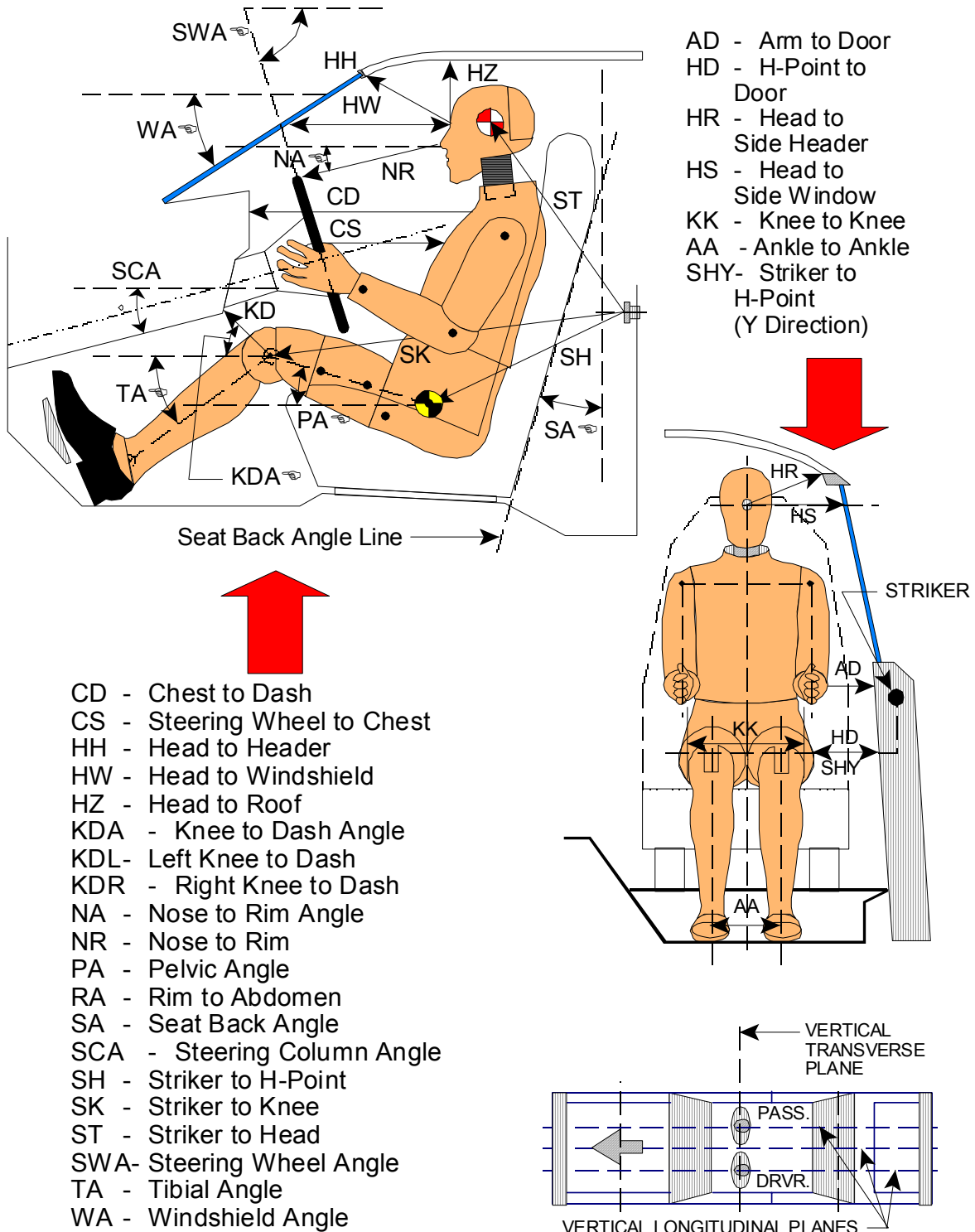
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions: Adjust to mid position (27°)

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: Full up position

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

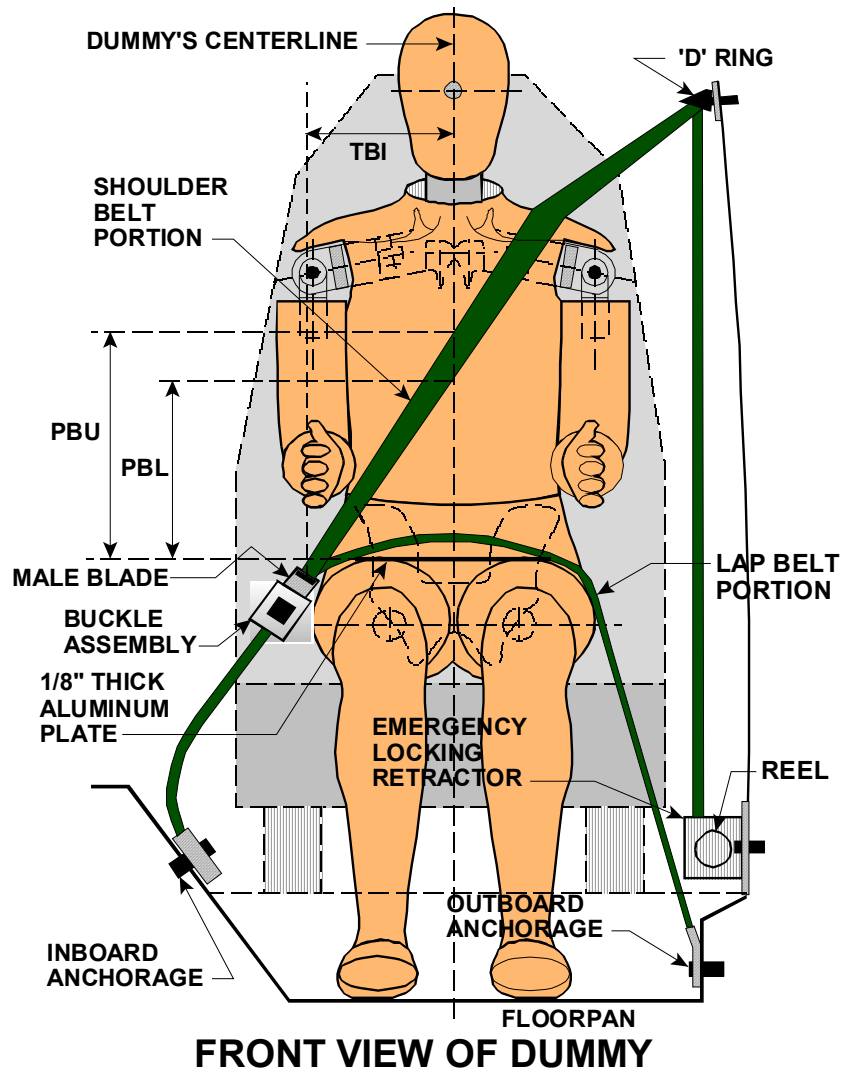


DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #150)			PASS. (Serial #245)		
WA ^o	31.5 deg.			N/A		
SWA ^o	64.5 deg.			N/A		
SCA ^o	25.5 deg.			N/A		
SA ^o	12.9 deg. On post			12.5 deg. On post		
HZ	217			218		
HH	425 forward most trim			427 forward most trim		
HW	660			671		
HR	198			208		
NR	410	Angle	12 deg.	N/A		
CD	567			561		
CS	295			N/A		
RA	180			N/A		
KDL	142	Angle (KDA)	50 deg.	186		
KDR	137			173	Angle (KDA)	26 deg.
PA ^o	23.9 deg.			24.7 deg.		
TA ^o	48.2 deg.			deg.		
KK	378			305		
AA	302			204		
ST	609	Angle	11 deg.	596	Angle	11 deg.
SK	672	Angle	88 deg.	675	Angle	88 deg.
SH	272	Angle	100 deg.	273	Angle	101 deg.
SHY	280			270		
HS	335			340		
HD	165			162		
AD	132			133		

Dimensions in millimeters

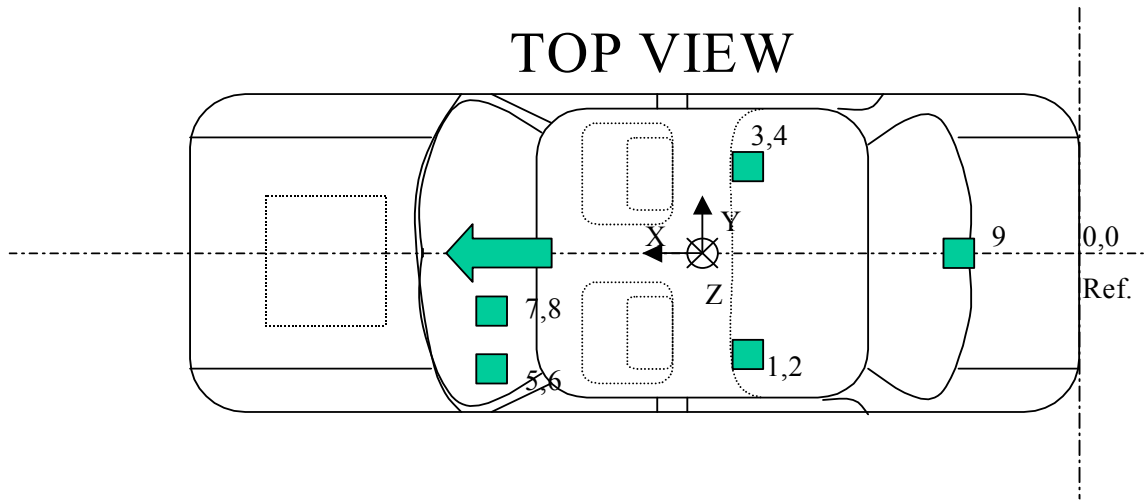
SEAT BELT POSITIONING DATA



FRONT VIEW OF DUMMY

	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	375	360
PBL-- Top surface of alum. plate to belt lower edge	295	275
<u>LAP BELT TENSION</u>	10 N	10 N
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

DATA SHEET NO. 7 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY



Accelerometer	X-Direction (mm)	Y-Direction (mm)	Z-Direction (mm)
Left Rear Seat Crossmember	1706	-611	-444
Right Rear Seat Crossmember	1688	618	-447
Driver Left Side Toe pan	3631	-438	-444
Driver Right Side Toe pan	3617	-307	-429
Trunk	1060	10	-480

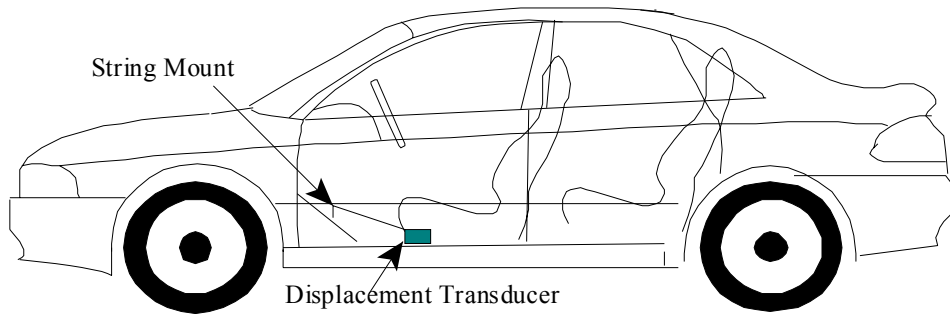
X-Direction is referenced from vehicle rear bumper (positive forward)

Y-Direction is referenced from vehicle centerline (positive to right)

Z-Direction is referenced from ground plane (positive down)

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side X	1.8	235.6	-21.8	110.8
2	Rear Seat X-Member @ Left Side Y	10.0	79.8	-4.4	104.3
3	Rear Seat X-Member @ Right Side X	1.2	189.4	-20.9	95.3
4	Rear Seat X-Member @ Right Side Y	9.2	81.4	-3.1	131.8
5	Driver Toe Pan @ Left Side X	28.1	93.3	-56.1	76.8
6	Driver Toe Pan @ Left Side Z	33.3	52.4	-171.7	77.9
7	Driver Toe Pan @ Right Side X	8.4	94.0	-71.4	77.0
8	Driver Toe Pan @ Right Side Z	12.8	93.7	-83.4	76.9
9	Trunk Z	4.3	163.2	-7.1	95.5

SIDE VIEW



Driver Toe Pan Displacement

P1 Toe Pan Spoolout**	X-Direction (mm)	Y-Direction (mm)	Z-Direction (mm)	Vertical Angle* (Deg)
Pre-Test	722	243	-57	4.5
Post-Test	497	253	-257	27.4

** Measurements taken from string pot mounting base.

*Referenced from horizontal (0 degrees)

SENSOR NAME	MAXIMUM VALUE (mm)			
	Pos.	msec.	Neg.	msec.
P1 Toe Pan Movement	0	4.9	-141.7	95

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2000 Nissan Quest MV

NHTSA Test No.: RY5215 Test Date: November 21, 2001

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head 9 Array X Arm Y	g	10.4	195.1	-5.2	264.0	11.9	100.8	-10.8	244.9
Head 9 Array X Arm Z	g	29.8	79.5	-4.2	179.1	37.3	93.8	-1.7	154.4
Head 9 Array Y Arm X	g	8.5	174.4	-43.7	87.7	9.5	244.7	-42.6	109.6
Head 9 Array Y Arm Z	g	25.2	91.0	-6.9	179.2	29.2	93.9	-1.4	151.4
Head 9 Array Z Arm X	g	11.9	173.1	-60.3	98.5	21.3	244.8	-59.6	104.0
Head 9 Array Z Arm Y	g	12.0	104.0	-8.6	267.1	7.7	108.4	-15.6	244.7
Head X	g	10.4	172.6	-44.5	98.0	12.4	244.8	-42.1	109.1
Head Y	g	9.8	109.2	-5.1	266.5	7.1	100.8	-8.8	244.8
Head Z	g	21.8	90.5	-5.3	179.2	28.8	93.7	-0.9	157.0
Head Resultant	g	48.6	97.1	-	-	46.5	108.6	-	-
Redundant Head X	g	10.2	173.0	-45.4	93.1	12.0	244.8	-42.3	108.0
Redundant Head Y	g	10.2	110.0	-5.1	266.9	7.4	100.8	-9.0	244.8
Redundant Head Z	g	22.0	90.6	-5.4	179	28.8	93.7	-1.0	157.2
Redundant Head Resultant	g	49.6	93.1	-	-	46.5	108.0	-	-
Upper Neck Fx	N	225.2	178.8	-298.6	74.7	64.8	316.5	-651.2	106.8
Upper Neck Fy	N	307.0	193.6	-157.0	267.8	187.6	97.6	-109.2	277.8
Upper Neck Fz	N	1446.2	90.0	-141.1	202.0	1151.8	102.2	-44.5	158.6
Upper Neck F Resultant	N	1448.2	90.0	-	-	1286.6	104.2	-	-
Upper Neck Mx	N-m	22.5	173.8	-22.8	115.7	8.4	109.7	-10.1	262.4
Upper Neck My	N-m	38.9	99.2	-23.5	142.8	32.5	99.8	-16.7	280.4
Upper Neck Mz	N-m	10.9	197	-12.8	118.0	4.8	209.1	-6.4	146.9
Upper Neck M Resultant	N-m	41.6	99.9	-	-	32.6	99.8	-	-
Chest X	g	1.4	200.6	-29.7	89.4	2.1	202.8	-30.7	98.0
Chest Y	g	13.8	127.5	-3.9	201.8	7.6	100.4	-3.8	123.8
Chest Z	g	7.0	101.5	-8.9	166.4	4.0	85.2	-8.8	123.6
Chest Resultant	g	29.9	89.5	-	-	31.5	98.3	-	-

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)

Vehicle Year/Make/Model/Body Style: 2000 Nissan Quest MV

NHTSA Test No.: RY5215 Test Date: November 21, 2001

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Redundant Chest X	g	1.3	200.8	-29.5	89.5	2.0	203.6	-31.0	98.2
Redundant Chest Y	g	14.2	127.5	-3.9	201.3	8.5	100.4	-3.9	123.8
Redundant Chest Z	g	7.1	101.5	-9.0	166.4	3.7	84.1	-9.0	123.6
Redundant Chest Resultant	g	29.8	90.6	-	-	31.9	98.5	-	-
Chest Displacement	mm	0.0	-12.4	-27.8	93.1	0.1	21.6	-28.5	111.2
Pelvic X	g	5.1	170.7	-27.3	78.3	2.1	181.9	-32.0	99.7
Pelvic Y	g	8.6	104.5	-3.4	178.0	13.9	109.3	-8.0	161.2
Pelvic Z	g	3.2	287.1	-12.5	136.4	2.0	278.5	-21.1	100.5
Pelvic Resultant	g	28.5	78.3	-	-	38.8	100.1	-	-
Left Femur Fx	N	1407.6	140.3	-11.7	68.1	552.4	107.0	-191.9	193.3
Left Femur Fy	N	523.7	131.6	-243.9	182.5	191.4	193.8	-547.4	94.6
Left Femur Fz	N	215.3	60.8	-2335.6	124.3	982.0	90.0	-1700.3	106.3
Left Femur Force Resultant	N	2672.7	124.3	-	-	1779.3	106.3	-	-
Left Femur Mx	N-m	67.7	186.5	-100.9	95.5	51.8	93.8	-25.4	181.8
Left Femur My	N-m	119.7	84.6	-70.2	132.0	52.8	55.2	-10.8	101.4
Left Femur Mz	N-m	16.5	86.6	-28.8	128.2	17.5	284.5	-26.7	158.5
Left Femur Moment Res.	N-m	133.5	94.7	-	-	58.6	93.6	-	-
Right Femur Fx	N	1410.7	83.5	-34.8	67.5	468.8	110.5	-153.1	183.6
Right Femur Fy	N	421.2	121.6	-289.7	83.0	165.7	111.3	-161.1	187.4
Right Femur Fz	N	238.6	106.0	-1575.3	82.5	617.8	84.2	-1288.3	103.7
Right Femur Force Resultant	N	2005.3	82.7	-	-	1343.0	103.8	-	-
Right Femur Mx	N-m	15.2	146.8	-94.8	121.2	46.6	148.4	-66.6	101.8
Right Femur My	N-m	80.1	83.3	-45.9	124.3	47.1	131.6	-11.9	97.6
Right Femur Mz	N-m	14.9	81.2	-46.5	111.8	44.1	146.5	-36.0	191.9
Right Femur Moment Res.	N-m	109.5	121.2	-	-	67.9	101.8	-	-

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)

Vehicle Year/Make/Model/Body Style: 2000 Nissan Quest MV

NHTSA Test No.: RY5215 Test Date: November 21, 2001

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Left Knee Shear Dx	mm	1.6	195.3	-3.8	99.6	0.2	163.8	0.0	54.5
Right Knee Shear Dx	mm	0.2	100.6	0.0	-92.5	0.6	88.1	-3.2	104.6
Left Upper Tibia Fx	N	88.4	74.1	-2073.2	98.1	59.6	159.9	-213.1	55.3
Left Upper Tibia Fy	N	142.2	51.0	-410.9	91.5	-	-	-	-
Left Upper Tibia Fz	N	302.0	194.0	-3534.3	98.9	101.1	199.7	-1541.6	107.0
Left Upper Tibia F Resultant	N	4079.7	98.9	-	-	-	-	-	-
Left Upper Tibia Mx	N-m	15.5	245.0	-32.7	91.9	11.2	278.8	-45.7	97.9
Left Upper Tibia My *	N-m	21.5	100.3	-143.7	137.9	22.4	202.1	-41.4*	61.1
Left Lower Tibia Fx	N	61.8	199.3	-2199.3	98.7	77.8	214.2	-511.5	101.9
Left Lower Tibia Fy	N	310.1	91.6	-133.9	101.4	-	-	-	-
Left Lower Tibia Fz	N	217.5	190.0	-3221.8	98.9	62.8	225.9	-1687.9	107.0
Left Lower Tibia FR	N	3898.6	98.8	0.7	-64.8	-	-	-	-
Left Lower Tibia Mx	N-m	33.5	50.7	-55.3	91.4	9.5	155.7	-42.9	98.5
Left Lower Tibia My ⊥	N-m	400.8⊥	101.5	-19.3⊥	127.0	5.6	180.3	-26.8	93.3
Right Upper Tibia Fx	N	113.9	125.3	-947.3	84.4	98.6	266.1	-1091.2	102.3
Right Upper Tibia Fy	N	133.7	144.3	-914.4	82.1	-	-	-	-
Right Upper Tibia Fz	N	33.6	250.6	-4934.3	82.7	101.1	182.1	-961.3	55.3
Right Upper Tibia F Resultant	N	5087.9	82.7	-	-				
Right Upper Tibia Mx	N-m	14.2	270.5	-91.6	83.6	18.5	49.8	-32.4	192.2
Right Upper Tibia My	N-m	30.2	273.4	-214.8	82.7	54.9	98.8	-35.6	83.3
Right Lower Tibia Fx	N	92.5	273.6	-1708.4	83.1	344.8	101.9	-239.6	85.0
Right Lower Tibia Fy	N	166.5	84.8	-302.3	80.0	-	-	-	-
Right Lower Tibia Fz ⊥⊥	N	5028.4⊥ ⊥	228.4	-5754.4	82.6	52.7	182.1	-1196.2	55.4
Right Lower Tibia FR	N	6001.4	82.6	0.2	-24.9	-	-	-	-
Right Lower Tibia Mx	N-m	8.6	154.3	-172.5	83.0	8.1	40.8	-35.0	86.6
Right Lower Tibia My	N-m	130.3	89.5	-47.3	78.4	31.8	102.1	-15.5	87.4

⊥ Data is questionable.

⊥⊥ Data cable damaged after 183 ms.

* Data is clipped: 52-62 ms, 80-126 ms.

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)

Vehicle Year/Make/Model/Body Style: 2000 Nissan Quest MV

NHTSA Test No.: RY5215 Test Date: November 21, 2001

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Left Foot Aft x	g	19.5	96.1	-32.5	36.5	2.7	475.4	-28.8	99.6
Left Foot Aft z	g	17.0	111.2	-72.4	89.5	5.9	99.3	-17.5	54.0
Left Foot Fore z	g	46.9 [⊥]	138.4	-58.9 [⊥]	77.2	6.1	104.1	-21.5	57.3
Right Foot Aft x	g	62.5	89.8	-64.6	80.5	19.5	125.7	-49.1	92.1
Right Foot Aft z	g	18.0	105.6	-110.3	79.0	4.2	29.0	-22.0	91.6
Right Foot Fore z	g	92.5	91.0	-157.3	78.0	25.5	123.8	-38.0	89.8
Lap Belt Force	N	2793.6	126.7	-12.3	332.2	6090.7	95.3	-3.5	-25.3
Torso Belt Force	N	2972.8	89.2	-17.4	214.8	5902	96.2	-15.3	295.7
Toepan Left Displacement	mm	0.0	4.9	-141.7	95.0	-	-	-	-

[⊥] Data is questionable.

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)

Vehicle Year/Make/Model/Body Style: 2000 Nissan Quest MV

NHTSA Test No.: RY5215 Test Date: November 21, 2001

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	427.7	78.9	114.9	42.7
Position #2 - Passenger	287.8	89.3	125.3	36.4

** HIC is as defined in FMVSS 208. The maximum time interval from t₁ to t₂ is 36 milliseconds.

CLIP SUMMARY*				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	29.4	88.5	91.5	215.2
Position #2 - Passenger	31.2	97.2	100.2	183.1

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration.

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)
REDUNDANT DATA

Vehicle Year/Make/Model/Body Style: 2000 Nissan Quest MV

NHTSA Test No.: RY5215 Test Date: November 21, 2001

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	454.3	78.9	114.9	43.7
Position #2 - Passenger	293.7	89.2	125.2	36.7

** HIC is as defined in FMVSS 208. The maximum time interval from t₁ to t₂ is 36 milliseconds.

CLIP SUMMARY* REDUNDANT				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	29.3	88.7	91.7	212.7
Position #2 - Passenger	31.7	97.7	100.7	187.3

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration.

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

	<u>Driver</u>	<u>Passenger</u>
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	<u>2160</u>	<u>2155</u>
Shoulder belt length as measured on Part 572 Dummy.	<u>970</u>	<u>965</u>
Lap belt length as measured on Part 572 Dummy.	<u>950</u>	<u>950</u>

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.	<u>-</u>	<u>-</u>
As determined mechanically.	<u>22</u>	<u>22</u>
As determined electronically.	<u>-</u>	<u>-</u>

BELT STRETCH DATA:

Measured electronically between shoulder belt load cell and the "D" ring.	<u>-</u>	<u>-</u>
Measured mechanically.	<u>0 mm/M</u>	<u>8 mm/M</u>

Dimensions in millimeters

DATA SHEET NO.10 SUMMARY OF FMVSS 212 DATA

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

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

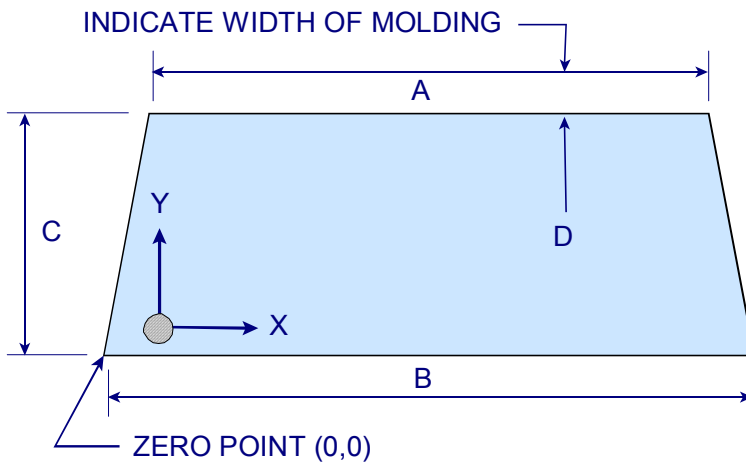
Windshield is bonded in place and covered with a 15 mm molding.

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,

<u>FMVSS 212 TEST DATA</u>			
WINDSHIELD PERIPHERY			
	PRE-TEST (mm)	POST-TEST (mm)	% OF RETENTION
RIGHT SIDE	2252.5	2252.5	100.0%
LEFT SIDE	2252.5	2252.5	100.0%
TOTAL	4505	4505	100.0%

AREA OF RETENTION FAILURE:



DIMENSIONS (mm)	
A	1305
B	1700
C	750
D	15

FRONT VIEW OF WINDSHIELD

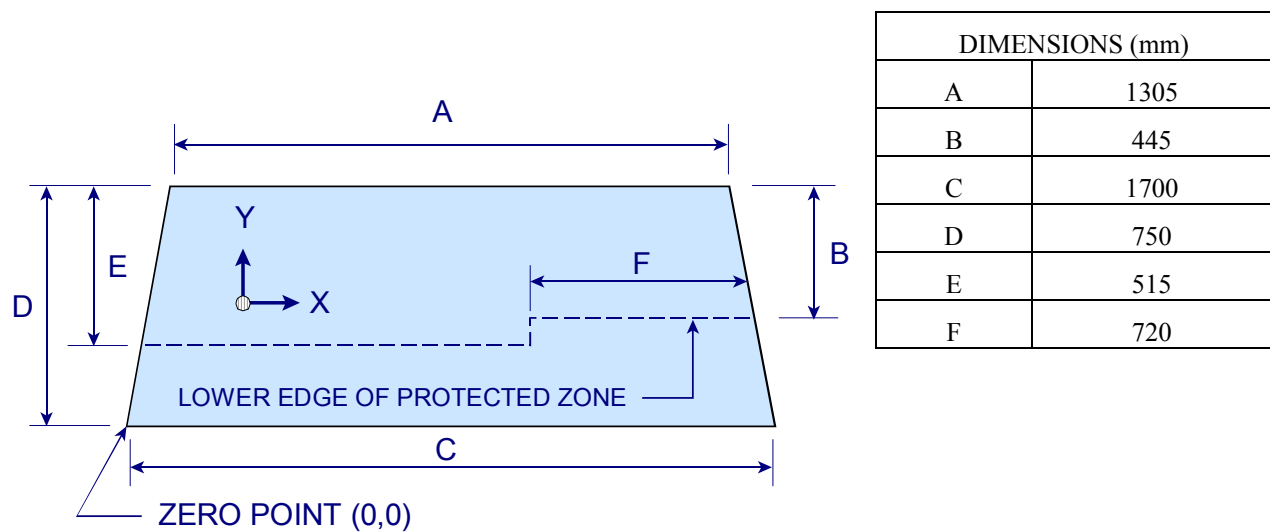
FAILURE DETAILS:

DATA SHEET NO. 11 FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 165 mm diameter rigid sphere weighing 6.8 kg in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. The locus of points is drawn on the inner surface of the windshield contacted by the sphere across the width of the instrument panel. From the outermost contactable points extend the locus line horizontally to the edges of the windshield, then draw a line on the inner surface of the windshield below and 13 mm distant from the locus line. The LOWER EDGE OF THE PROTECTED ZONE is the longitudinal projection of this line onto the outer surface of the windshield.

FMVSS 219 TEST DATA:



FRONT VIEW OF WINDSHIELD

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm:

(Show location of penetration on the above sketch)

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

DATA SHEET NO. 12 FMVSS NO. 301-75 "FUEL SYSTEM INTEGRITY" POST IMPACT TEST DATA

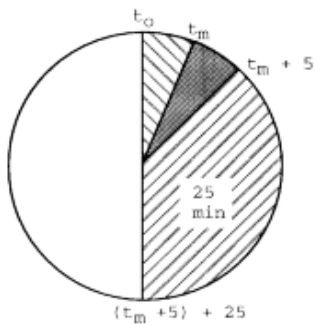
NHTSA TEST No.: RY5215 TEST DATE: November 21, 2001

VEHICLE MAKE/MODEL: 2000 Nissan Quest MV

The test vehicle was filled from 92% to 94% of the manufacture's "usable" capacity. The electric fuel pump was operating if it will operate without engine operation. Two Part 572 anthropomorphic test devices were located at each of the front designated seating positions.

TEST VEHICLE IMPACT TYPE:	
X	Offset Frontal (60 kph)
	Oblique (48 kph) with _____ deg. barrier face first contacting _____
-	(driver/passenger) side
-	Rear Moving Barrier (48 kph)
-	Lateral Moving Barrier (32 kph)

FUEL SPILLAGE MEASUREMENT:



1. From impact until vehicle motion ceases
2. For 5 minute period after vehicle motion ceases
3. For next 25 minutes

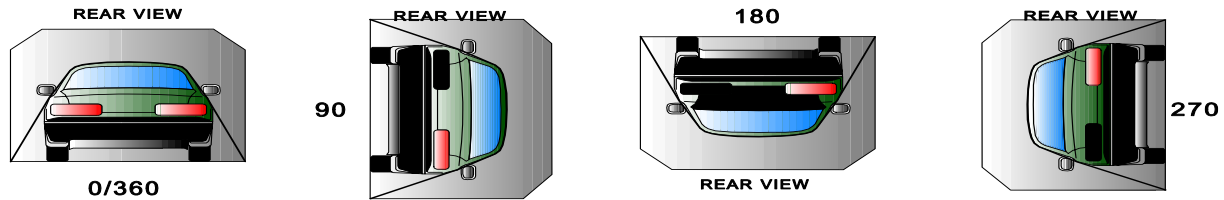
ACTUAL	MAX ALLOWED
0	28 g
0	141 g
0	28 g/min.

SOLVENT SPILLAGE DETAILS: None

DATA SHEET NO. 13 - ROLLOVER DATA

Vehicle: 2000 Nissan Quest MV

NHTSA No.: RY5215



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	21	seconds	5	minutes	6	minutes	23	seconds	7	minutes
90° - 180°	1	minutes	19	seconds	5	minutes	6	minutes	21	seconds	7	minutes
180°-270°	1	minutes	20	seconds	5	minutes	6	minutes	22	seconds	7	minutes
270°-360°	1	minutes	19	seconds	5	minutes	6	minutes	25	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:

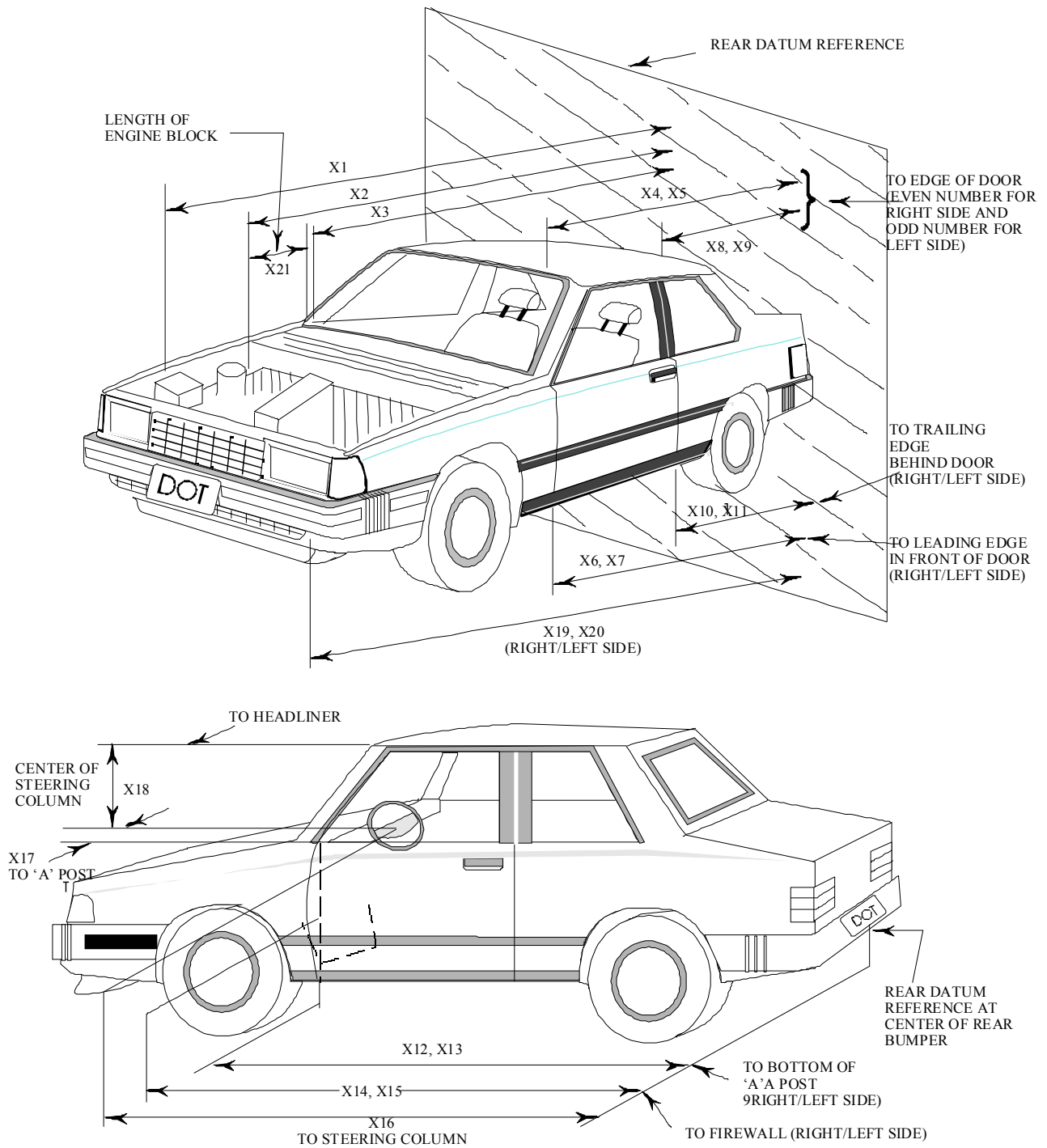
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°	0	0	0	N/A
90° - 180°	0	0	0	N/A
180°-270°	0	0	0	N/A
270°-360°	0	0	0	N/A

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. 14 TEST VEHICLE MEASUREMENTS



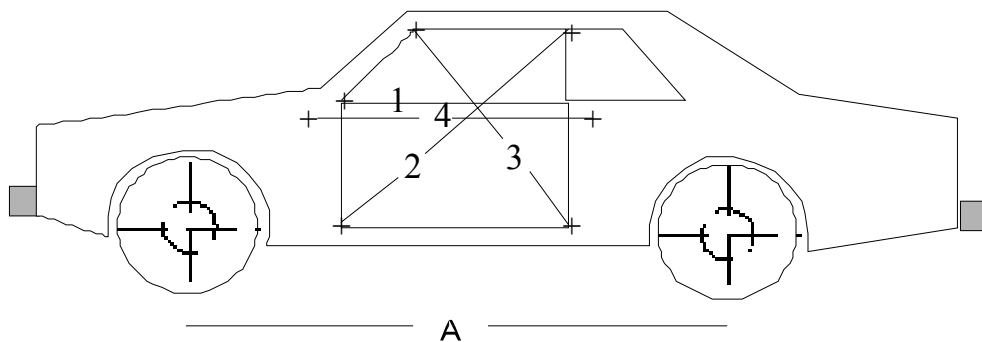
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4950	4379	571
X2	Rear Surface of Vehicle to Front of Engine	4441	4260	181
X3	Rear Surface of Vehicle to Firewall	4001	3883	118
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3516	3518	-2
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3513	3372	141
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3422	3433	-11
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3422	3322	100
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2353	2366	-13
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2358	2320	38
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2375	2392	-17
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2384	2287	97
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3511	3520	-9
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3512	3323	189
X14	Rear Surface of Vehicle to Firewall, Right Side	3900	3878	22
X15	Rear Surface of Vehicle to Firewall, Left Side	3895	3716	179
X16	Rear Surface of Vehicle to Steering Column	3030	2941	89
X17	Center of Steering Column to "A" Post	327	303	24
X18	Center of Steering Column to Headliner	436	447	-11
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4856	4865	-9
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4838	4173	665
X21	Length of Engine Block	493	493	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3230	3238	-8
CD	Rear Surface of Vehicle to Center of Dash Panel	3186	3125	61
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3199	3071	128

All Dimensions in mm

All measurements taken forward from a lateral plane located at the rearmost point of the vehicle.

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 DOOR OPENING WIDTH

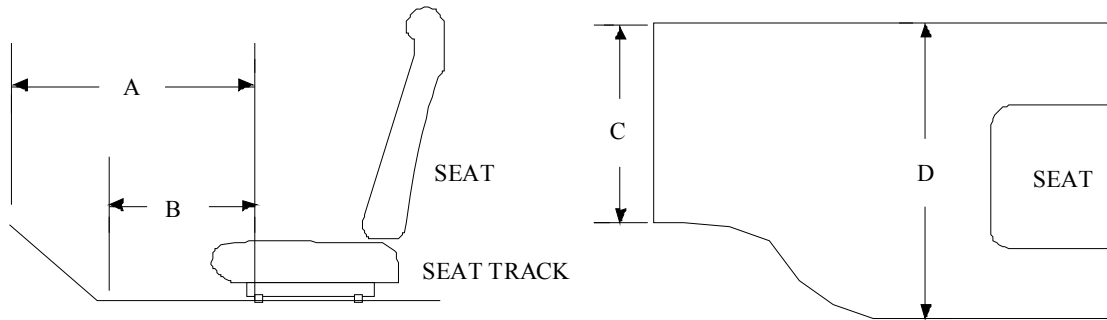


UNITS (mm)	LEFT				RIGHT		
MEASUREMENT	1	2	3	4*	1	2	3
BEFORE TEST	1076	1549	1156	1078	1080	1553	1157
AFTER TEST	947	1427	1278	966	1036	1540	1166
DIFFERENCE	129	122	-122	112	44	13	-9

* Insurance Institute for Highway Safety (IIHS) measurement for driver's side only

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2853	2853
AFTER TEST	2563	2929
DIFFERENCE	290	-76

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 STATIC FOOTWELL DEFORMATION



DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	785	501	284
B	567	408	159
C	472	565	-93
D	489	416	73

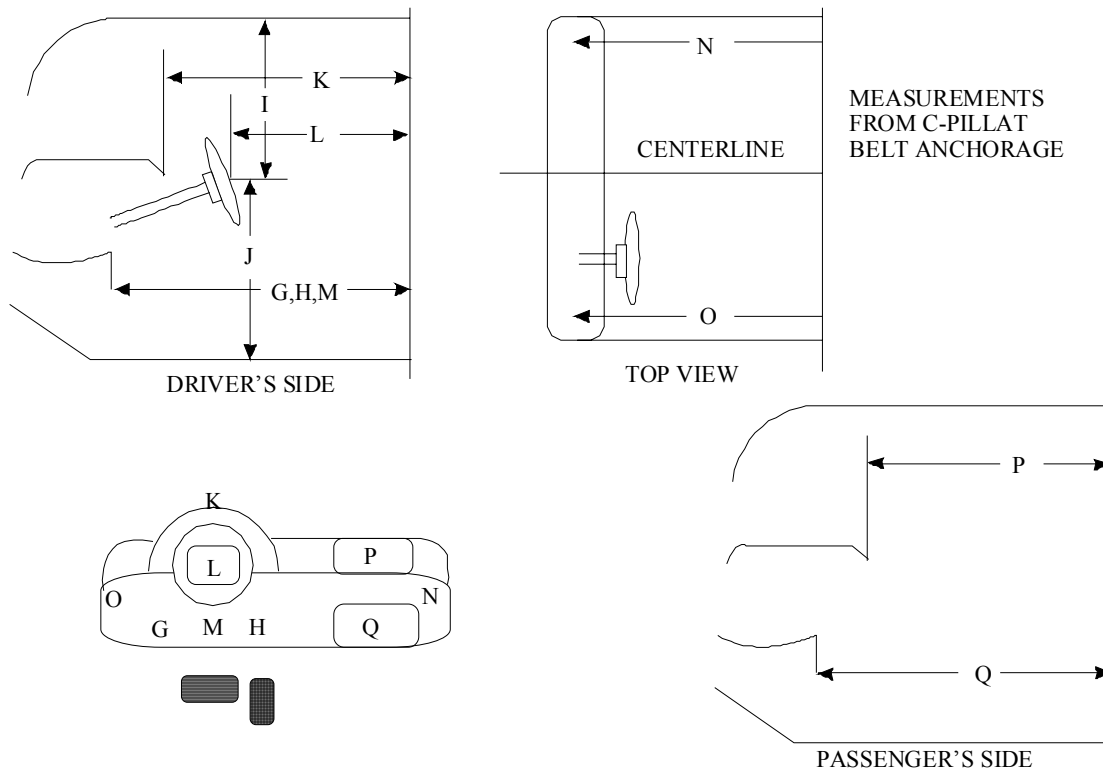
PASSENGER

Measurement	Pre-Test	Post-Test	Difference
A	790	750	40
B	569	541	28
C	448	431	17
D	430	429	1

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS
STATIC PASSENGER COMPARTMENT INTRUSION

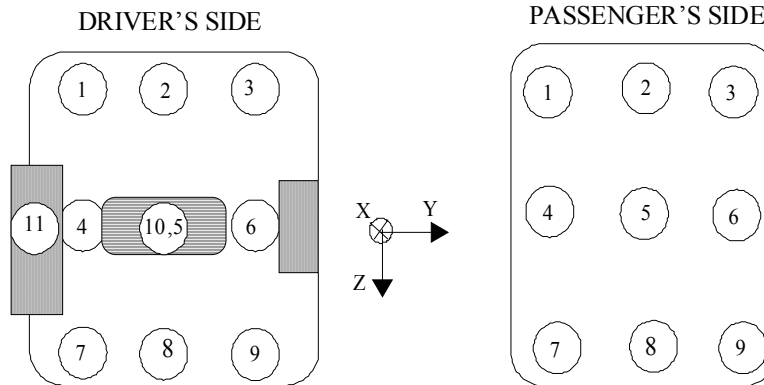


Measurement	Pre-Test	Post-Test	Difference
G*	2187	2071	116
H*	2188	2105	83
I	436	447	-11
J	730	665	65
K	2196	2119	77
L	1950	1865	85
M	2157	2055	102
N	2155	2160	-5
O	2118	1996	122
P = K (PASS.)	2179	2162	17
Q = M (PASS.)	2234	2207	27

* IIHS measurement locations; 15 cm left and right of steering wheel center 45 cm from floor.

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
TOE-PAN INTRUSION



Driver Side Toe-pan Measurements

Toe-pan Location	X Deformation (mm)			Y Deformation (mm)			Z Deformation (mm)		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
1	3690	3398	292	-514	-520	6	-548	-711	163
2	3703	3431	272	-376	-403	27	-544	-689	145
3	3700	3508	192	-225	-279	54	-549	-647	98
4*	3567	3351	216	-526	-567	41	-445	-577	132
5* ^A	3620	3395	225	-374	-417	43	-439	-574	135
6*	3577	3381	196	-239	-256	17	-444	-555	111
7	3489	3337	152	-527	-557	30	-370	-498	128
8	3485	3338	147	-372	-404	32	-371	-494	123
9	3480	3336	144	-219	-260	41	-371	-465	94
10	3476	3255	221	-382	-414	32	-540	-724	184
11*	3559	3377	182	-622	-673	51	-502	-617	115

Passenger Side Toe-pan Measurements

Toe-pan Location	X Deformation (mm)			Y Deformation (mm)			Z Deformation (mm)		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
1	3676	3620	56	288	262	26	-580	-592	12
2	3704	3669	35	443	403	40	-559	-577	18
3	3585	3575	10	589	552	37	-561	-582	21
4	3618	3564	54	304	279	25	-420	-443	23
5	3619	3606	13	444	415	29	-434	-449	15
6	3543	3535	8	604	570	34	-448	-460	12
7	3481	3432	49	294	295	-1	-367	-385	18
8	3482	3460	22	444	434	10	-365	-402	37
9	3485	3484	1	608	575	33	-359	-374	15

Reference: (SAE) X = Rear Bumper (pos: forward); Y = Vehicle Centerline (pos: right); Z = Ground (pos: down)

* IIHS measurement locations

*^A IIHS measurement located directly behind 10 (brake pedal center) on the vehicle floorpan in same vertical plane.

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
INSURANCE INSTITUTE MEASUREMENT LOCATION AND FLOOR PAN DEFORMATION DATA

IHS Measurement Location Data

Meas. Loc*	X Measurement (mm)			Y Measurement (mm)			Z Measurement (mm)		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
1	3030	2941	89	-402	-431	29	-1088	-1217	129
2	3267	3147	120	-537	-578	41	-822	-950	128
3	3268	3180	88	-233	-281	48	-820	-934	114
4	3476	3255	221	-382	-414	32	-540	-724	184
5	3567	3351	216	-526	-567	41	-445	-577	132
6	3620	3395	225	-374	-417	43	-439	-574	135
7	3577	3381	196	-239	-256	17	-444	-555	111
8	3559	3377	182	-622	-673	51	-502	-617	115
17	3476	3350	126	-815	-881	66	-1056	-1144	88
18	2399	2388	11	-856	-858	2	-1050	-1062	12

Floor Pan Deformation Measurement Data

Meas. Loc**	X Measurement (mm)			Y Measurement (mm)			Z Measurement (mm)		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
1	3459	3321	138	-530	-553	23	-360	-487	127
2	3454	3319	135	-374	-397	23	-361	-504	143
3	3455	3330	125	-225	-239	14	-361	-481	120
4	3304	3173	131	-523	-535	12	-361	-448	87
5	3302	3183	119	-369	-408	39	-363	-456	93
6	3302	3187	115	-228	-262	34	-363	-474	111
7	3152	3044	108	-528	-545	17	-365	-363	-2
8	3145	3057	88	-377	-407	30	-363	-380	17
9	3153	3097	56	-225	-255	30	-372	-355	-17

Reference: (SAE) X = Rear Bumper (pos: forward); Y = Vehicle Centerline (pos: right); Z = Ground (pos: down)

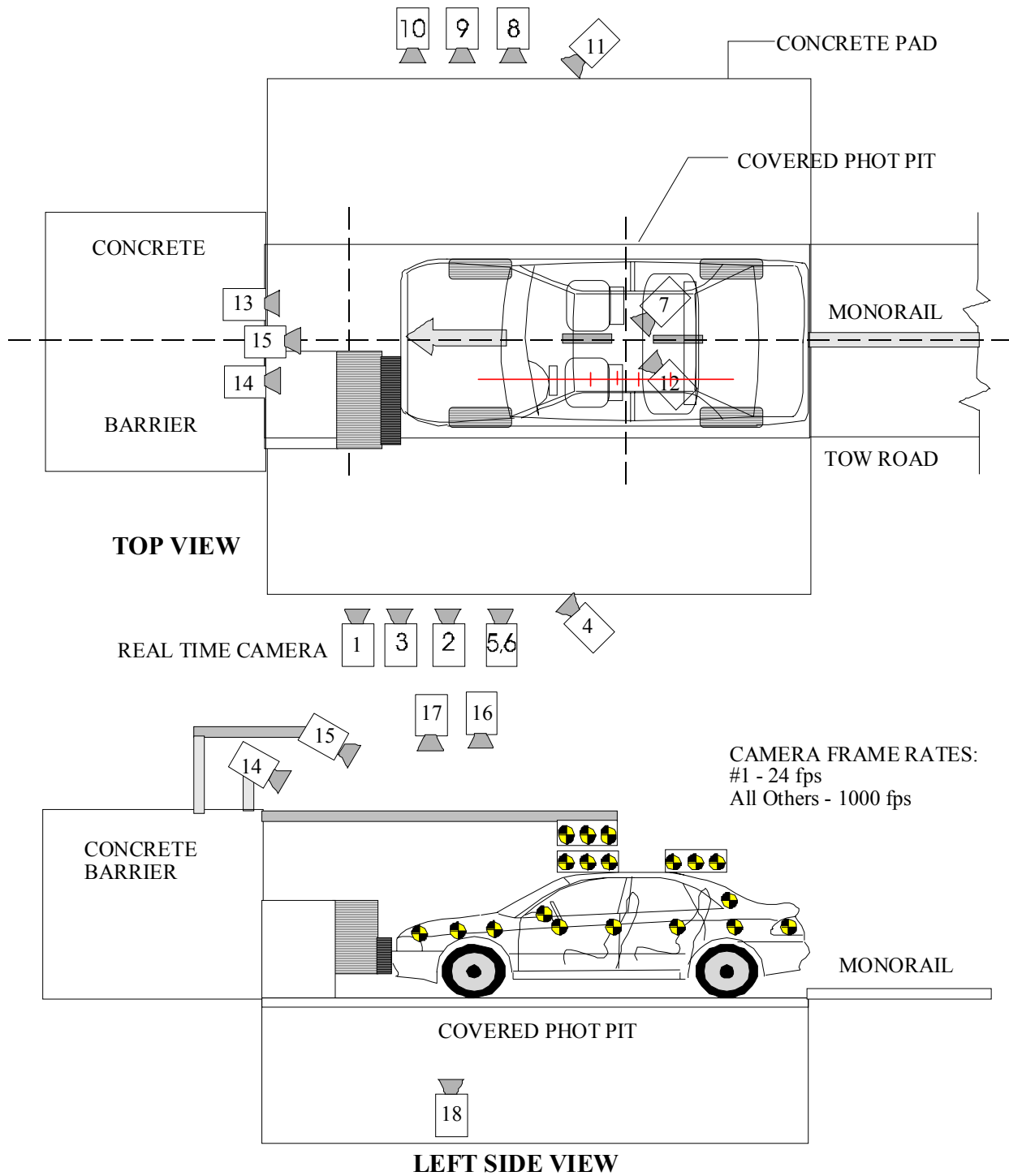
Measurement Location Descriptions*

1. Steering Column - Geometric center of the steering wheel on airbag door.
2. Lower Instrument Panel Left - Taken 45 cm above floorpan and 15 cm to the left of the steering wheel center.
3. Lower Instrument Panel Right - Taken 45 cm above floorpan and 15 cm to the right of the steering wheel center.
4. Brake Pedal - Geometric center of the brake pedal.
5. Toepan Left - Taken 15 cm to the left of the brake pedal center on the same vertical plane on the vehicle toepan.
6. Toepan Center - Taken directly behind the brake pedal center on the same vertical plane on the vehicle toepan.
7. Toepan Right - Taken 15 cm to the right of the brake pedal center on the same vertical plane on the vehicle toepan.
8. Left Footrest - Taken 25 cm to the left of the brake pedal center on the same vertical plane on the vehicle toepan.
17. A-pillar - Taken on the vehicle exterior at the same vertical coordinate as the base on the left front window.
18. B-pillar - Taken on the vehicle exterior at the same vertical coordinate as the lower A-pillar mark.

** There is an equal spaced 3 x 3 floor pan matrix. Position 1 if floor pan left side forwardmost position; Position 9 is located on the right side rearmost position of the 3 x 3 grid.

DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

NOTE: Camera information shown in DATA SHEET NO. 15.



DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS (cont.)

NHTSA Test No.:

RY5215

Vehicle:

2000 Nissan Quest MV

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)*			ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	7350	1378	1060	-1.4	6867	12.5	1005
3	Left Side View	9032	690	1215	-1.9	8549	25	1000
4	Driver and Interior View	8349	2086	2005	-7.0	-	35	1005
5	Steering Column (Bottom)	8608	1544	1165	-2.9	8125	25	1005
6	Steering Column (Top)	8608	1544	1788	-7.3	8125	25	1005
7	Interior Driver View	-	-	-	-	-	-	-
8	Overall Right Side View	7785	1390	1143	-1.3	8109	13	1000
9	Right Side View	9809	543	1240	-3.7	10133	25	1045
10	Right Passenger View	9469	1343	1428	-3.4	9793	35	1005
11	Passenger and Interior View	8839	2276	1980	-6.7	-	35	1010
12	Interior Passenger View	-	-	-	-	-	-	-
13	Passenger Front View	-520	-2050	1987	-36.6	-	25	1005
14	Driver Front View	-520	-2050	3488	-25.6	-	13	1005
15	Windshield View	0	-2050	3048	-41.0	-	13	1000
16	Overhead Overall View	0	156	4880	-90	-	13	1000
17	Overhead Close-Up View	0	323	4880	-90	-	13	1015
18	Pit View of Engine	0	1325	-3048	-90	-	13	1005

*X = film plane to monorail centerline

** = referenced to horizontal plane

Y = film plane to impact location

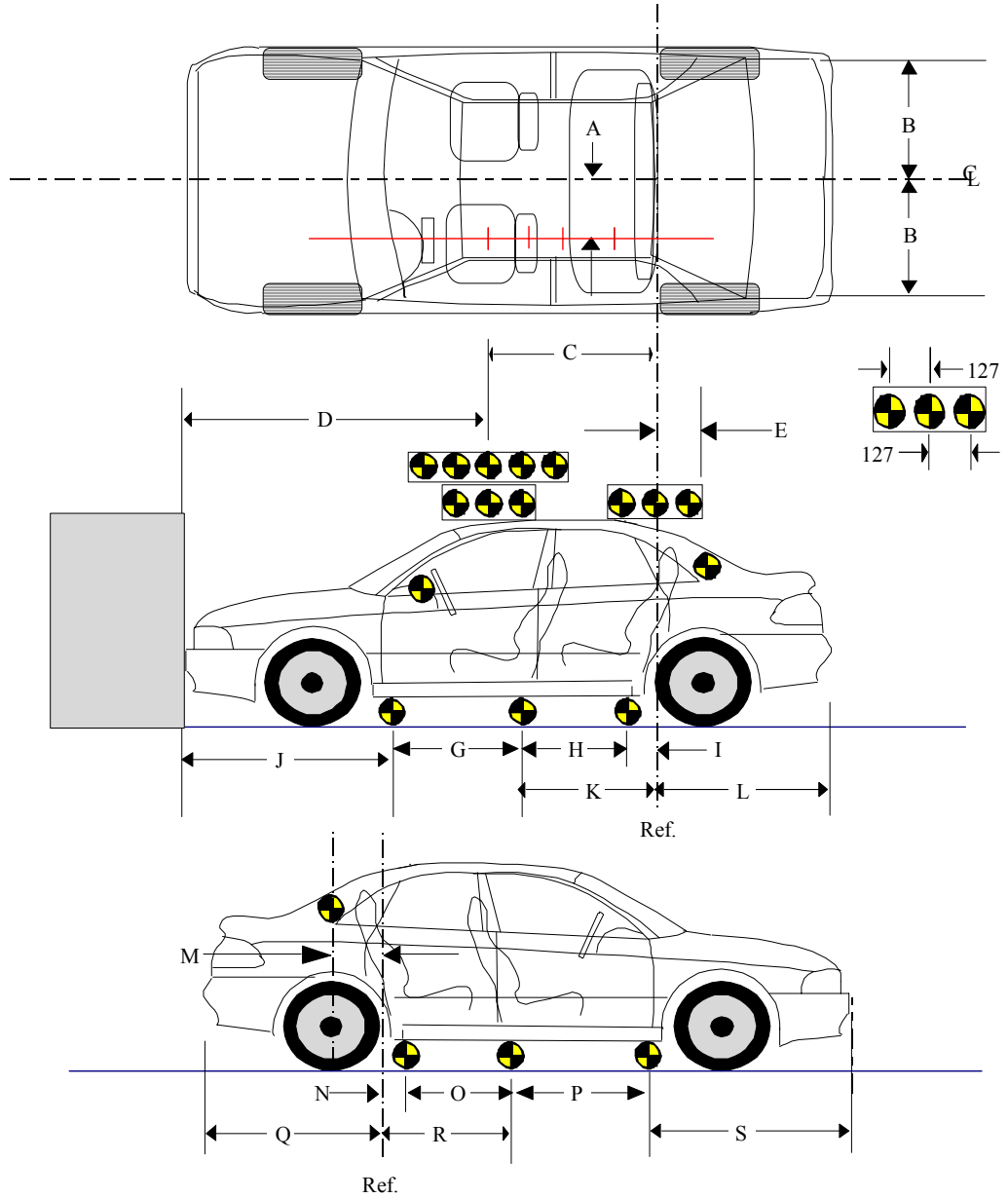
N.T. indicates No Timing

Z = film plane to ground

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

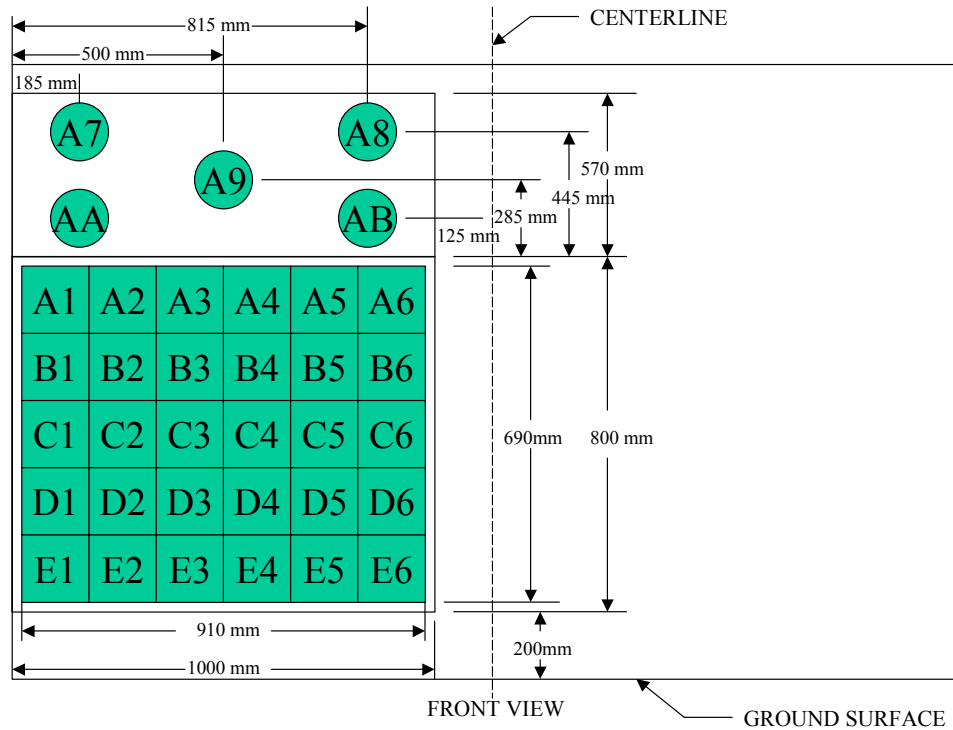
(Dimensions in millimeters)

A	400
B	807
C	1226
D	2319
E	328
F	1798
G	897
H	1005
I	137
J	1488
K	1142
L	1423
M	333
N	133
O	998
P	914
Q	1422
R	1131
S	1391



DATA SHEET NO. 17 LOAD CELL LOCATIONS RELATIVE TO FIXED BARRIER AND
DEFORMABLE BARRIER FACE

35 Load Cells



Load cell width	146 mm
Load cell height	133 mm
Vertical gap between load cells	6 mm
Horizontal gap between load cells	6 mm
Vertical filler block width	55 mm

The following data is presented in Appendix B:

- (1)X Direction Data from load cells A1 through A6
- (2)X and Y Direction Data from load cells B1 through E6

DATA SHEET NO. 18 POST TEST AIR BAG DATA

NHTSA No.: RY5215; Test Date: November 21, 2001; Technician: Lawrence Q. Valvo

Vehicle Model Year/Make/Model: 2000 Nissan Quest MV

A. No. of vent holes: 2 -Driver 2 -Passenger

B. Size of vent holes: (mm²) 491 -Driver 1257 -Passenger

C. Total vent area: (mm²) 982 -Driver 2514 -Passenger

D. Deflated air bag length and width dimensions or, if round, diameter. (mm)

Driver: 490 -Height; 570 -Width; 260 -Depth

Passenger: 700 -Height; 580 -Width; 670 -Depth

E. Is the air bag tethered?

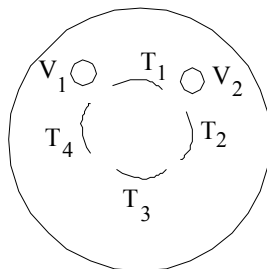
Driver: X -Yes; -No; If yes, record length of tether- 250

Passenger: -Yes; X -No; If yes, record length of tether- -

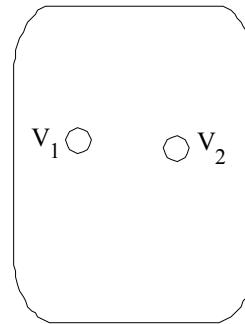
Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.

(Note: Not to scale; V_n = Vent hole_n, T_n = Tether_n).

Driver



Passenger



F. Record part numbers and manufacturer name of the air bag and gas generator.

Driver: Air bag: P117972-02G TML0828D0063

Generator: NR6L441HCNE

Passenger: Air bag: P122459-01A TML094850332

Generator: AP992004120300

DATA SHEET NO. 19 ACCIDENT INVESTIGATION DIVISION DATA

FOR 56.3 KPH OFFSET FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Nissan Quest MV

NHTSA Test No.: RY5215 VIN: 4N2XN11T9YD831769

Model Year: 2000 Build Date: May 2000 Test Date: November 21, 2001

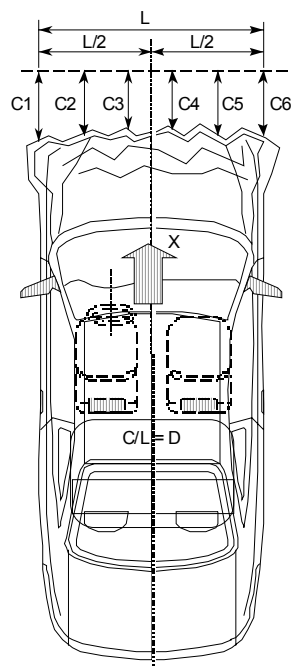
Vehicle Size Category: Minivan Test Weight: 2073.5 kg

Vehicle Wheelbase: 2853 mm; Front Overhang: 1008 mm; Overall Width: 1890 mm

Collision Deformation Classification (CDC) Code: 12FDEW4

Crush Depth Dimensions

	PRE	POST	DIFF	
C1 =	4760	4083	677	mm
C2 =	4891	4216	675	mm
C3 =	4936	4229	707	mm
C4 =	4943	4509	434	mm
C5 =	4899	4754	145	mm
C6 =	4764	4962	-198	mm



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region:

L1=	<u>1505</u>	mm
L2=	<u>752.5</u>	mm
L5=	<u>301</u>	mm

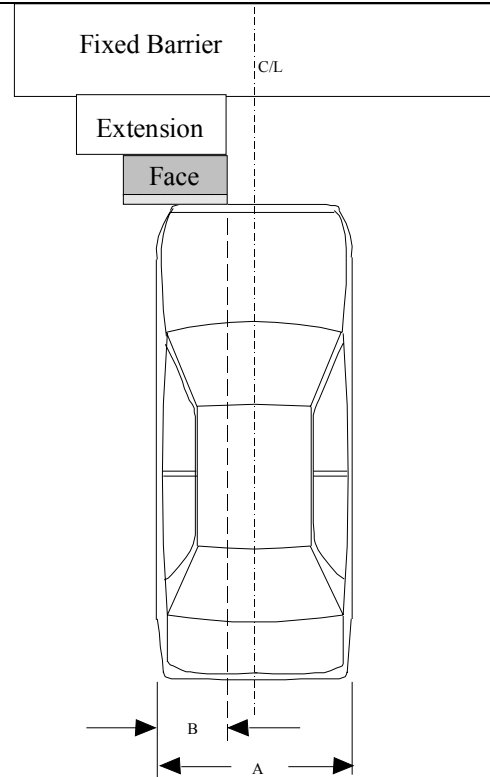
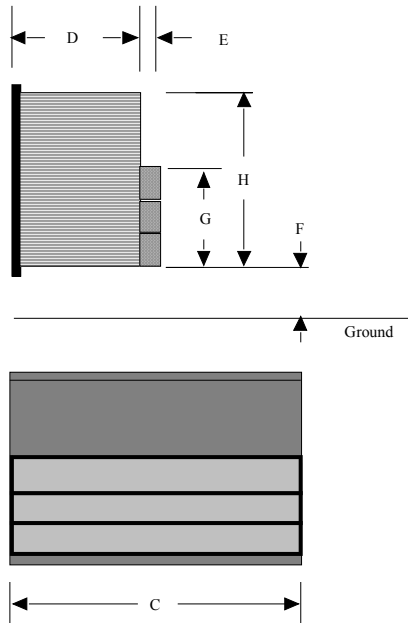
DATA SHEET NO. 20 OFFSET BARRIER AND VEHICLE ORIENTATION

NHTSA Test No.: RY5215

Vehicle: 2000 Nissan Quest MV

Barrier Manufacturer and Serial Number:

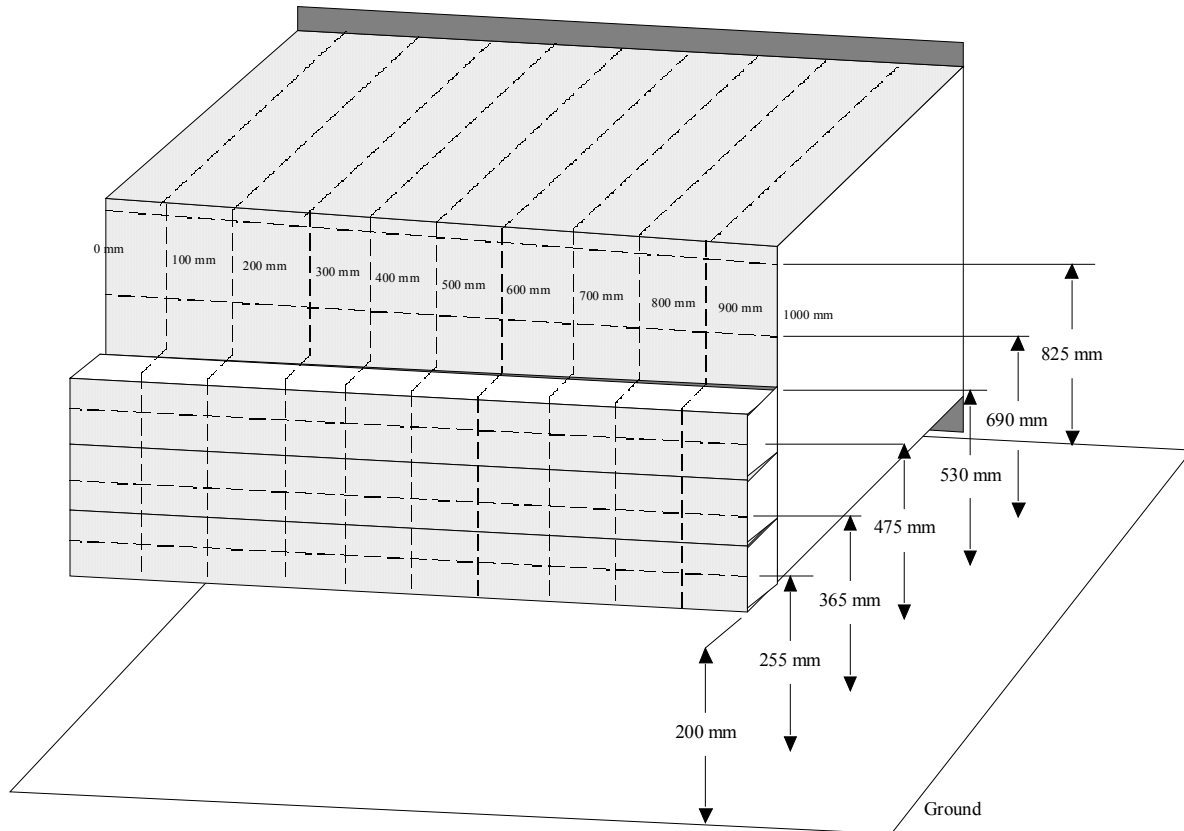
Cellbond



A	Total Vehicle Width	1890	mm
B	40% Overlap Distance	756.0	mm
C	Deformable Face Width	1000	mm
D	Single Stage Honeycomb Depth	450	mm
E	Bumper Element Depth	90	mm
F	Lower Edge Height From Ground	200	mm
G*	Bumper Element Height	330	mm
H	Deformable Barrier Honeycomb Height	650	mm

* The bumper element consists of three 110 mm height blocks of 1.723 MPa honeycomb

Offset Barrier Measurement Locations



DATA SHEET NO. 21 OFFSET BARRIER DEFORMATION (continued)

EXTERIOR STATIC CRUSH FOR BARRIER FACE
(Grid as looking at barrier from front)

Vehicle: _ 2000 Nissan Quest MV

NHTSA No. RY5215

LEVEL	HEIGHT AT CL (mm)*		DISTANCE RIGHT OF CENTER (mm)					0	DISTANCE LEFT OF CENTER (mm)				
			500	400	300	200	100		100	200	300	400	500
LEVEL 6 TOP STACK	825	PRE	546	546	546	546	546	546	546	546	546	546	546
		POST	513	563	614	684	736	765	748	805	804	850	914
		CRUSH	-33	17	68	138	190	219	202	259	258	304	368
LEVEL 5 MID STACK	687	PRE	546	546	546	546	546	546	546	546	546	546	546
		POST	479	539	596	684	732	816	818	866	885	917	940
		CRUSH	-67	-7	50	138	186	270	272	320	339	371	394
LEVEL 4 TOP BUMPER	530	PRE	546	546	546	546	546	546	546	546	546	546	546
		POST	505	576	650	714	789	840	921	936	944	941	957
		CRUSH	-41	30	104	168	243	294	375	390	398	395	411
LEVEL 3 BUMPER TOP	475	PRE	456	456	456	456	456	456	456	456	456	456	456
		POST	456	530	618	669	749	831	901	931	935	944	964
		CRUSH	0	74	162	213	293	375	445	475	479	488	508
LEVEL 2 BUMPER MID	365	PRE	456	456	456	456	456	456	456	456	456	456	456
		POST	462	527	610	649	721	796	869	915	939	951	968
		CRUSH	6	71	154	193	265	340	413	459	483	495	512
LEVEL 1 BUMPER LOW	255	PRE	456	456	456	456	456	456	456	456	456	456	456
		POST	478	524	578	624	676	731	791	829	848	886	920
		CRUSH	22	68	122	168	220	275	335	373	392	430	464

*Heights measured above ground level.

APPENDIX A
PHOTOGRAPHS

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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, Chest Froward Fy Head leftward, Chest rightward Fz Head Upward, Chest Downward Mx Left ear toward left shoulder My Chin toward sternum (flexion) Mz Chin toward 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 (right and left leg)	Fx Knee Upward, Upper Femur Downward Fy Knee Rightward, Upper Femur Leftward Fz Knee Forward, Pelvis Rearward Mx Knee Leftward, Hold Upper Femur in Place My Knee Upward, Hold Upper Femur in Place Mz Tibia Leftward, Hold Pelvis in Place
Upper Tibia Load Cell (right and left leg)	Fx Ankle Forward, Knee Rearward Fy Ankle Rightward, Knee Leftward Fz Tibia Downward, Femur Upward Mx Ankle Leftward, Hold Knee in Place My Ankle Forward, Bottom of Knee Clevis Rearward
Lower Tibia Load Cell (right and left leg)	Fx Ankle Forward, Knee Rearward Fy Ankle Rightward, Knee Leftward Fz Tibia Downward, Femur Upward Mx Ankle Leftward, Hold Knee in Place My Ankle Forward, Bottom of Knee Clevis Rearward
Knee Shear Displacement	X Hold Femur Move Tibia Forward
Tibia Mid-Shaft Accelerometer	X Forward Y To the Right
Foot Rotations (left foot)	X Eversion Y Dorsi Flexion Z Internal Rotation
Foot Rotations (right foot)	X Inversion Y Dorsi Flexion Z External Rotation
Foot Accelerometer (right and left foot)	X Forward Y To the Right Z Down

DATA CHANNEL FILTER CLASS SUMMARY

NHTSA TEST NO. RY5215

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

PLOT	PLOT NAME [UNITS, CHANNEL FILTER CLASS]	PAGE
1	P1 Head 9 Array X Arm Ay [g, CFC_1000]	B-9
2	P1 Head 9 Array X Arm Az [g, CFC_1000]	B-10
3	P1 Head 9 Array Y Arm Ax [g, CFC_1000]	B-11
4	P1 Head 9 Array Y Arm Az [g, CFC_1000]	B-12
5	P1 Head 9 Array Z Arm Ax [g, CFC_1000]	B-13
6	P1 Head 9 Array Z Arm Ay [g, CFC_1000]	B-14
7	P1 Head CG Ax [g, CFC_1000]	B-15
8	P1 Head CG Ay [g, CFC_1000]	B-16
9	P1 Head CG Az [g, CFC_1000]	B-17
10	P1 Head CG A Resultant [g, CFC_1000]	B-18
11	P1 Head CG Red Ax [g, CFC_1000]	B-19
12	P1 Head CG Red Ay [g, CFC_1000]	B-20
13	P1 Head CG Red Az [g, CFC_1000]	B-21
14	P1 Head CG Red A Resultant [g, CFC_1000]	B-22
15	P1 Upper Neck Fx [N, CFC_1000]	B-23
16	P1 Upper Neck Fy [N, CFC_1000]	B-24
17	P1 Upper Neck Fz [N, CFC_1000]	B-25
18	P1 Upper Neck F Resultant [N, CFC_1000]	B-26
19	P1 Upper Neck Mx [N-m, CFC_600]	B-27
20	P1 Upper Neck My [N-m, CFC_600]	B-28
21	P1 Upper Neck Mz [N-m, CFC_600]	B-29
22	P1 Upper Neck M Resultant [N-m, CFC_600]	B-30
23	P1 Chest x [g, CFC_180]	B-31
24	P1 Chest y [g, CFC_180]	B-32
25	P1 Chest z [g, CFC_180]	B-33
26	P1 Chest Resultant [g, CFC_180]	B-34
27	P1 Chest Red x [g, CFC_180]	B-35
28	P1 Chest Red y [g, CFC_180]	B-36
29	P1 Chest Red z [g, CFC_180]	B-37
30	P1 Chest Red Resultant [g, CFC_180]	B-38
31	P1 Chest Compression [mm, CFC_600]	B-39
32	P1 Pelvic x [g, CFC_1000]	B-40
33	P1 Pelvic y [g, CFC_1000]	B-41
34	P1 Pelvic z [g, CFC_1000]	B-42
35	P1 Pelvic Resultant [g, CFC_1000]	B-43
36	P1 Left Femur Fx [N, CFC_600]	B-44
37	P1 Left Femur Fy [N, CFC_600]	B-45
38	P1 Left Femur Fz [N, CFC_600]	B-46
39	P1 Left Femur F Resultant [N, CFC_600]	B-47
40	P1 Left Femur Mx [N-m, CFC_600]	B-48
41	P1 Left Femur My [N-m, CFC_600]	B-49
42	P1 Left Femur Mz [N-m, CFC_600]	B-50
43	P1 Left Femur M Resultant [N-m, CFC_600]	B-51
44	P1 Right Femur Fx [N, CFC_600]	B-52
45	P1 Right Femur Fy [N, CFC_600]	B-53
46	P1 Right Femur Fz [N, CFC_600]	B-54
47	P1 Right Femur F Resultant [N, CFC_600]	B-55
48	P1 Right Femur Mx [N-m, CFC_600]	B-56
49	P1 Right Femur My [N-m, CFC_600]	B-57
50	P1 Right Femur Mz [N-m, CFC_600]	B-58

51	P1 Right Femur M Resultant [N-m, CFC_600]	B-59
52	P1 Left Knee Shear [mm, CFC_180]	B-60
53	P1 Right Knee Shear [mm, CFC_180]	B-61
54	P1 Left Upper Tibia Fx [N, CFC_600]	B-62
55	P1 Left Upper Tibia Fy [N, CFC_600]	B-63
56	P1 Left Upper Tibia Fz [N, CFC_600]	B-64
57	P1 Left Upper Tibia F Resultant [N, CFC_600]	B-65
58	P1 Left Upper Tibia Mx [N-m, CFC_600]	B-66
59	P1 Left Upper Tibia My [N-m, CFC_600]	B-67
60	P1 Left Lower Tibia Fx [N, CFC_600]	B-68
61	P1 Left Lower Tibia Fy [N, CFC_600]	B-69
62	P1 Left Lower Tibia Fz [N, CFC_600]	B-70
63	P1 Left Lower Tibia F Resultant [N, CFC_600]	B-71
64	P1 Left Lower Tibia Mx [N-m, CFC_600]	B-72
65	P1 Left Lower Tibia My [N-m, CFC_600]	B-73
66	P1 Right Upper Tibia Fx [N, CFC_600]	B-74
67	P1 Right Upper Tibia Fy [N, CFC_600]	B-75
68	P1 Right Upper Tibia Fz [N, CFC_600]	B-76
69	P1 Right Upper Tibia F Resultant [N, CFC_600]	B-77
70	P1 Right Upper Tibia Mx [N-m, CFC_600]	B-78
71	P1 Right Upper Tibia My [N-m, CFC_600]	B-79
72	P1 Right Lower Tibia Fx [N, CFC_600]	B-80
73	P1 Right Lower Tibia Fy [N, CFC_600]	B-81
74	P1 Right Lower Tibia Fz [N, CFC_600]	B-82
75	P1 Right Lower Tibia F Resultant [N, CFC_600]	B-83
76	P1 Right Lower Tibia Mx [N-m, CFC_600]	B-84
77	P1 Right Lower Tibia My [N-m, CFC_600]	B-85
78	P1 Left Foot Aft x [g, CFC_600]	B-86
79	P1 Left Foot Aft z [g, CFC_600]	B-87
80	P1 Left Foot Fore z [g, CFC_600]	B-88
81	P1 Right Foot Aft x [g, CFC_600]	B-89
82	P1 Right Foot Aft z [g, CFC_600]	B-90
83	P1 Right Foot Fore z [g, CFC_600]	B-91
84	P1 Lap Belt Force [N, CFC_60]	B-92
85	P1 Torso Belt Force [N, CFC_60]	B-93
86	P1 Torso Belt Spoolout [mm, CFC_180]	B-94
87	P1 Torso Belt Stretch [mm, CFC_180]	B-95
88	P1 Toepan Left Displacement [mm, CFC_1000]	B-96
89	P2 Head 9 Array X Arm Ay [g, CFC_1000]	B-97
90	P2 Head 9 Array X Arm Az [g, CFC_1000]	B-98
91	P2 Head 9 Array Y Arm Ax [g, CFC_1000]	B-99
92	P2 Head 9 Array Y Arm Az [g, CFC_1000]	B-100
93	P2 Head 9 Array Z Arm Ax [g, CFC_1000]	B-101
94	P2 Head 9 Array Z Arm Ay [g, CFC_1000]	B-102
95	P2 Head CG Ax [g, CFC_1000]	B-103
96	P2 Head CG Ay [g, CFC_1000]	B-104
97	P2 Head CG Az [g, CFC_1000]	B-105
98	P2 Head CG A Resultant [g, CFC_1000]	B-106
99	P2 Head CG Red Ax [g, CFC_1000]	B-107
100	P2 Head CG Red Ay [g, CFC_1000]	B-108
101	P2 Head CG Red Az [g, CFC_1000]	B-109
102	P2 Head CG Red A Resultant [g, CFC_1000]	B-110
103	P2 Upper Neck Fx [N, CFC_1000]	B-111

104	P2 Upper Neck Fy [N, CFC_1000]	B-112
105	P2 Upper Neck Fz [N, CFC_1000]	B-113
106	P2 Upper Neck F Resultant [N, CFC_1000]	B-114
107	P2 Upper Neck Mx [N-m, CFC_600]	B-115
108	P2 Upper Neck My [N-m, CFC_600]	B-116
109	P2 Upper Neck Mz [N-m, CFC_600]	B-117
110	P2 Upper Neck M Resultant [N-m, CFC_600]	B-118
111	P2 Chest x [g, CFC_180]	B-119
112	P2 Chest y [g, CFC_180]	B-120
113	P2 Chest z [g, CFC_180]	B-121
114	P2 Chest Resultant [g, CFC_180]	B-122
115	P2 Chest Red x [g, CFC_180]	B-123
116	P2 Chest Red y [g, CFC_180]	B-124
117	P2 Chest Red z [g, CFC_180]	B-125
118	P2 Chest Red Resultant [g, CFC_180]	B-126
119	P2 Chest Compression [mm, CFC_600]	B-127
120	P2 Pelvic x [g, CFC_1000]	B-128
121	P2 Pelvic y [g, CFC_1000]	B-129
122	P2 Pelvic z [g, CFC_1000]	B-130
123	P2 Pelvic Resultant [g, CFC_1000]	B-131
124	P2 Left Femur Fx [N, CFC_600]	B-132
125	P2 Left Femur Fy [N, CFC_600]	B-133
126	P2 Left Femur Fz [N, CFC_600]	B-134
127	P2 Left Femur F Resultant [N, CFC_600]	B-135
128	P2 Left Femur Mx [N-m, CFC_600]	B-136
129	P2 Left Femur My [N-m, CFC_600]	B-137
130	P2 Left Femur Mz [N-m, CFC_600]	B-138
131	P2 Left Femur M Resultant [N-m, CFC_600]	B-139
132	P2 Right Femur Fx [N, CFC_600]	B-140
133	P2 Right Femur Fy [N, CFC_600]	B-141
134	P2 Right Femur Fz [N, CFC_600]	B-142
135	P2 Right Femur F Resultant [N, CFC_600]	B-143
136	P2 Right Femur Mx [N-m, CFC_600]	B-144
137	P2 Right Femur My [N-m, CFC_600]	B-145
138	P2 Right Femur Mz [N-m, CFC_600]	B-146
139	P2 Right Femur M Resultant [N-m, CFC_600]	B-147
140	P2 Left Knee Shear [mm, CFC_180]	B-148
141	P2 Right Knee Shear [mm, CFC_180]	B-149
142	P2 Left Upper Tibia Fx [N, CFC_600]	B-150
143	P2 Left Upper Tibia Fz [N-m, CFC_600]	B-151
144	P2 Left Upper Tibia Mx [N-m, CFC_600]	B-152
145	P2 Left Upper Tibia My [N-m, CFC_600]	B-153
146	P2 Left Lower Tibia Fx [N, CFC_600]	B-154
147	P2 Left Lower Tibia Fz [N, CFC_600]	B-155
148	P2 Left Lower Tibia Mx [N-m, CFC_600]	B-156
149	P2 Left Lower Tibia My [N-m, CFC_600]	B-157
150	P2 Right Upper Tibia Fx [N-m, CFC_600]	B-158
151	P2 Right Upper Tibia Fz [N, CFC_600]	B-159
152	P2 Right Upper Tibia Mx [N-m, CFC_600]	B-160
153	P2 Right Upper Tibia My [N-m, CFC_600]	B-161
154	P2 Right Upper Tibia Fx [N, CFC_600]	B-162
155	P2 Right Upper Tibia Fz [N-m, CFC_600]	B-163
156	P2 Right Lower Tibia Mx [N-m, CFC_600]	B-164

157	P2 Right Lower Tibia My [N-m, CFC_600]	B-165
158	P2 Left Foot Aft x [g, CFC_600]	B-166
159	P2 Left Foot Aft z [g, CFC_600]	B-167
160	P2 Left Foot Fore z [g, CFC_600]	B-168
161	P2 Right Foot Aft x [g, CFC_600]	B-169
162	P2 Right Foot Aft z [g, CFC_600]	B-170
163	P2 Right Foot Fore z [g, CFC_600]	B-171
164	P2 Lap Belt Force [N, CFC_60]	B-172
165	P2 Torso Belt Force [N, CFC_60]	B-173
166	P2 Torso Belt Spoolout [mm, CFC_180]	B-174
167	P2 Torso Belt Stretch [mm, CFC_180]	B-175
168	Acc 1 Rear XMBR Left X [g, CFC_60]	B-176
169	Acc 1 Rear XMBR Left X Velocity [kph, CFC_180]	B-177
170	Acc 1 Rear XMBR Left X Displacement [mm, CFC_180]	B-178
171	Acc 2 Rear XMBR Left Y [g, CFC_60]	B-179
172	Acc 2 Rear XMBR Left Y Velocity [kph, CFC_180]	B-180
173	Acc 2 Rear XMBR Left Y Displacement [mm, CFC_180]	B-181
174	Acc 3 Rear XMBR Right X [g, CFC_60]	B-182
175	Acc 3 Rear XMBR Right X Velocity [kph, CFC_180]	B-183
176	Acc 3 Rear XMBR Right X Displacement [mm, CFC_180]	B-184
177	Acc 4 Rear XMBR Right Y [g, CFC_60]	B-185
178	Acc 4 Rear XMBR Right Y Velocity [kph, CFC_180]	B-186
179	Acc 4 Rear XMBR Right Y Displacement [mm, CFC_180]	B-187
180	Acc 5 P1 Toeapan Left X [g, CFC_60]	B-188
181	Acc 5 P1 Toeapan Left X Velocity [kph, CFC_180]	B-189
182	Acc 5 P1 Toeapan Left X Displacement [mm, CFC_180]	B-190
183	Acc 6 P1 Toeapan Left Z [g, CFC_60]	B-191
184	Acc 6 P1 Toeapan Left Z Velocity [kph, CFC_180]	B-192
185	Acc 6 P1 Toeapan Left Z Displacement [mm, CFC_180]	B-193
186	Acc 7 P1 Toeapan Right X [g, CFC_60]	B-194
187	Acc 7 P1 Toeapan Right X Velocity [kph, CFC_180]	B-195
188	Acc 7 P1 Toeapan Right X Displacement [mm, CFC_180]	B-196
189	Acc 8 P1 Toeapan Right Z [g, CFC_60]	B-197
190	Acc 8 P1 Toeapan Right Z Velocity [kph, CFC_180]	B-198
191	Acc 8 P1 Toeapan Right Z Displacement [mm, CFC_180]	B-199
192	Acc 9 Trunk Z [g, CFC_60]	B-200
193	Acc 9 Trunk Z Velocity [kph, CFC_180]	B-201
194	Acc 9 Trunk Z Displacement [mm, CFC_180]	B-202
195	Barrier Load Cell E2 FY [N, CFC_60]	B-203
196	Barrier Load Cell E3 FY [N, CFC_60]	B-204
197	Barrier Load Cell E4 FY [N, CFC_60]	B-205
198	Barrier Load Cell E5 FY [N, CFC_60]	B-206
199	Barrier Load Cell E6 FY [N, CFC_60]	B-207
200	Barrier Load Cell E1 FX [N, CFC_60]	B-208
201	Barrier Load Cell E2 FX [N, CFC_60]	B-209
202	Barrier Load Cell E3 FX [N, CFC_60]	B-210
203	Barrier Load Cell E4 FX [N, CFC_60]	B-211
204	Barrier Load Cell E5 FX [N, CFC_60]	B-212
205	Barrier Load Cell E6 FX [N, CFC_60]	B-213
206	Barrier Load Cell D2 FY [N, CFC_60]	B-214
207	Barrier Load Cell D3 FY [N, CFC_60]	B-215
208	Barrier Load Cell D4 FY [N, CFC_60]	B-216
209	Barrier Load Cell D5 FY [N, CFC_60]	B-217

210	Barrier Load Cell D6 FY [N, CFC_60]	B-218
211	Barrier Load Cell D1 FX [N, CFC_60]	B-219
212	Barrier Load Cell D2 FX [N, CFC_60]	B-220
213	Barrier Load Cell D3 FX [N, CFC_60]	B-221
214	Barrier Load Cell D4 FX [N, CFC_60]	B-222
215	Barrier Load Cell D5 FX [N, CFC_60]	B-223
216	Barrier Load Cell D6 FX [N, CFC_60]	B-224
217	Barrier Load Cell C2 FY [N, CFC_60]	B-225
218	Barrier Load Cell C3 FY [N, CFC_60]	B-226
219	Barrier Load Cell C4 FY [N, CFC_60]	B-227
220	Barrier Load Cell C5 FY [N, CFC_60]	B-228
221	Barrier Load Cell C6 FY [N, CFC_60]	B-229
222	Barrier Load Cell C1 FX [N, CFC_60]	B-230
223	Barrier Load Cell C2 FX [N, CFC_60]	B-231
224	Barrier Load Cell C3 FX [N, CFC_60]	B-232
225	Barrier Load Cell C4 FX [N, CFC_60]	B-233
226	Barrier Load Cell C5 FX [N, CFC_60]	B-234
227	Barrier Load Cell C6 FX [N, CFC_60]	B-235
228	Barrier Load Cell B3 FY [N, CFC_60]	B-236
229	Barrier Load Cell B4 FY [N, CFC_60]	B-237
230	Barrier Load Cell B5 FY [N, CFC_60]	B-238
231	Barrier Load Cell B6 FY [N, CFC_60]	B-239
232	Barrier Load Cell B1 FX [N, CFC_60]	B-240
233	Barrier Load Cell B2 FX [N, CFC_60]	B-241
234	Barrier Load Cell B3 FX [N, CFC_60]	B-242
235	Barrier Load Cell B4 FX [N, CFC_60]	B-243
236	Barrier Load Cell B5 FX [N, CFC_60]	B-244
237	Barrier Load Cell B6 FX [N, CFC_60]	B-245
238	Barrier Load Cell A1 FX [N, CFC_60]	B-246
239	Barrier Load Cell A2 FX [N, CFC_60]	B-247
240	Barrier Load Cell A3 FX [N, CFC_60]	B-248
241	Barrier Load Cell A4 FX [N, CFC_60]	B-249
242	Barrier Load Cell A5 FX [N, CFC_60]	B-250
243	Barrier Load Cell A6 FX [N, CFC_60]	B-251
244	Barrier Load Cell UH1 TL FX [N, CFC_60]	B-252
245	Barrier Load Cell UH2 TR FX [N, CFC_60]	B-253
246	Barrier Load Cell UH3 CL FX [N, CFC_60]	B-254
247	Barrier Load Cell UH4 BL FX [N, CFC_60]	B-255
248	Barrier Load Cell UH5 BR FX [N, CFC_60]	B-256

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 Veridian Engineering. A summary of the test results, and Part 572 specifications are included in this Appendix.

Dummy serial numbers and certification dates are:

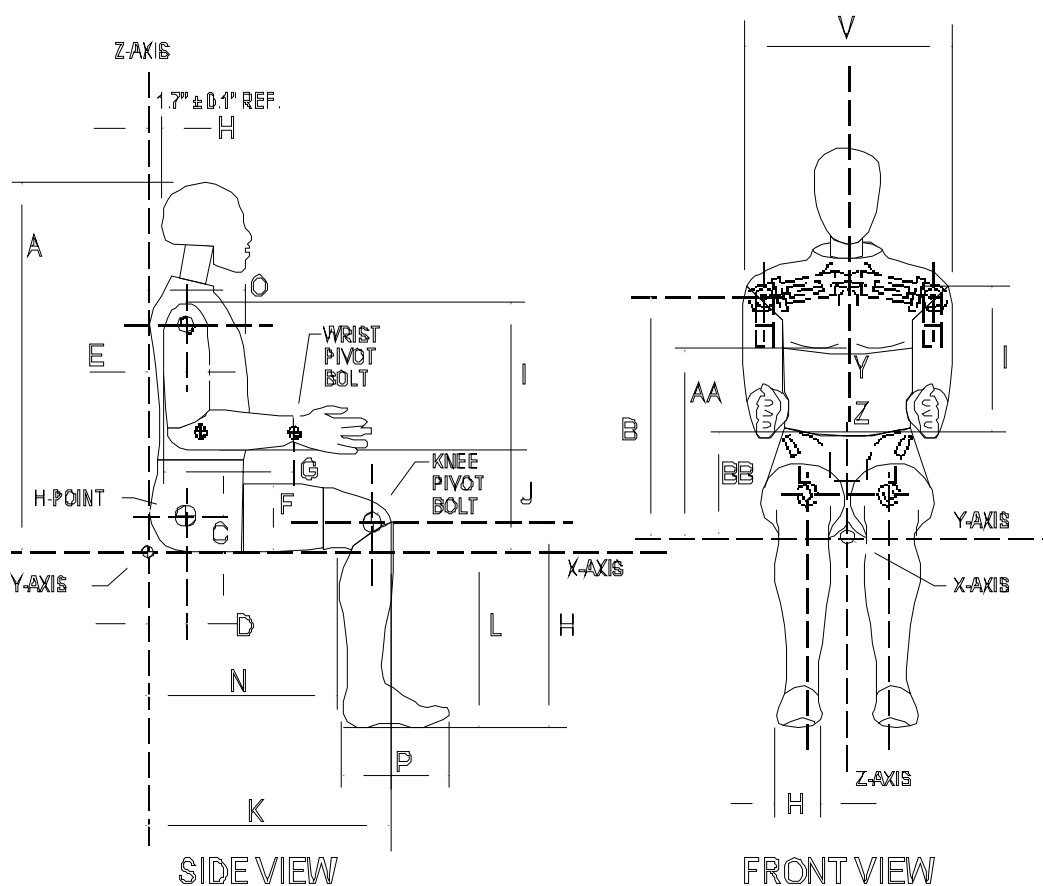
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	150	
#2/Right Front Passenger	245	

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.

DUMMY CONFIGURATION DIMENSIONS

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 150
Sequential Test Number 3
Date August 30, 2001
Workfile 150301.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	71.0
Relative Humidity	10% - 70%	30.0
Peak Resultant Acceleration	225-275 G's	263.99
Peak Lateral Acceleration	15 G's Max	12.34
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	150	
Sequential Test Number	3	
Date	September 4, 2001	6 Axis Neck Transducer
Workfile	150301.nfl	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71.0
Relative Humidity		10% - 70%	31.0
Impact Velocity		22.60 - 23.40 Ft/s	23.24
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.45
	20 ms	17.60 - 22.60 G's	21.15
	30 ms	12.50 - 18.50 G's	15.05
Max Pendulum G's Above 30 ms		29 G's Max	15.05
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.25
D Plane Rotation	Max	64 - 78 Deg	77.38
	Time	57 - 64 ms	59.25
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	78.92
	Time	47 - 58 ms	52.12
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	117.75
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	99.50

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	150	
Sequential Test Number	3	
Date	September 1, 2001	6 Axis Neck Transducer
Workfile	150301.nex	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71.0
Relative Humidity		10% - 70%	30.0
Impact Velocity		19.50 - 20.30 Ft/s	19.75
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.25
	20 ms	14.00 - 19.00 G's	16.48
	30 ms	11.00 - 16.00 G's	13.04
Max Pendulum G's Above 30 ms		22 G's Max	13.04
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	44.75
D Plane Rotation	Max	81 - 106 Deg	101.40
	Time	72 - 82 ms	78.00
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-52.13
	Time	65 - 79 ms	74.12
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	159.38
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	137.12

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 150
Sequential Test Number 3
Date September 5, 2001
Workfile 150301.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0
Relative Humidity	10% - 70%	32.0
Pendulum Velocity	21.6 - 22.4 Ft/s	21.9
Maximum Deflection	2.50 - 2.86 in	2.52
Maximum Resistive Force	1160 - 1325 Lbs	1191.24
Internal Hysteresis	69 - 85 %	71.95

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 150
Sequential Test Number 3
Date September 5, 2001
Workfile 150301.lf/150301.rf

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	71.0
Relative Humidity	10% - 70%	32.0
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1091.95
RIGHT KNEE		
Temperature	66 - 78 Deg F	71.0
Relative Humidity	10% - 70%	32.0
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1065.72

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 150
Sequential Test Number 3
Date September 20, 2001

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			31
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.1
Waist Circumference	Z	32.9 - 34.1 in	34.0
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	5.7
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.1
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.5

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 245
Sequential Test Number 3
Date August 30, 2001
Workfile 245301.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	71.0
Relative Humidity	10% - 70%	30.0
Peak Resultant Acceleration	225-275 G's	230.24
Peak Lateral Acceleration	15 G's Max	5.17
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	245	
Sequential Test Number	3	
Date	August 31, 2001	6 Axis Neck Transducer
Workfile	245301.nfl	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71.0
Relative Humidity		10% - 70%	30.0
Impact Velocity		22.60 - 23.40 Ft/s	23.23
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.72
	20 ms	17.60 - 22.60 G's	20.14
	30 ms	12.50 - 18.50 G's	15.64
Max Pendulum G's Above 30 ms		29 G's Max	15.99
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.25
D Plane Rotation	Max	64 - 78 Deg	73.17
	Time	57 - 64 ms	62.50
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	75.27
	Time	47 - 58 ms	53.50
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	116.75
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	101.50

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	245	
Sequential Test Number	3	
Date	September 1, 2001	6 Axis Neck Transducer
Workfile	245301.nex	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71.0
Relative Humidity		10% - 70%	30.0
Impact Velocity		19.50 - 20.30 Ft/s	19.52
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.13
	20 ms	14.00 - 19.00 G's	16.28
	30 ms	11.00 - 16.00 G's	12.69
Max Pendulum G's Above 30 ms		22 G's Max	12.69
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	44.88
D Plane Rotation	Max	81 - 106 Deg	96.21
	Time	72 - 82 ms	77.75
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-49.68
	Time	65 - 79 ms	74.38
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	157.50
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	144.75

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 245
Sequential Test Number 3
Date September 4, 2001
Workfile 245301.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	71.0
Relative Humidity	10% - 70%	31.0
Pendulum Velocity	21.6 - 22.4 Ft/s	22.0
Maximum Deflection	2.50 - 2.86 in	2.70
Maximum Resistive Force	1160 - 1325 Lbs	1202.54
Internal Hysteresis	69 - 85 %	69.36

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 245
Sequential Test Number 3
Date September 5, 2001
Workfile 245301.lf/245301.rf

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	71.0
Relative Humidity	10% - 70%	32.0
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1065.62
RIGHT KNEE		
Temperature	66 - 78 Deg F	71.0
Relative Humidity	10% - 70%	32.0
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1069.31

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 245
Sequential Test Number 3
Date September 20, 2001

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			31
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.1
Waist Circumference	Z	32.9 - 34.1 in	33.7
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.3
Popliteal Height	L	16.9 - 17.9 in	17.5
Knee Pivot Height	M	19.1 - 19.7 in	19.2
Foot Length	P	9.9 - 10.5 in	10.2
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician:

B. Swiecicki

APPENDIX D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 150)		Manufacturer	Serial #	Calibration	
				Last	Next
Head X Arm	Y	ENDEVCO	AC-P17531	29-Aug-01	01-Mar-02
	Z	ENDEVCO	AC-P14965	29-Aug-01	01-Mar-02
Head Y Arm	X	ENDEVCO	AC-P17563	29-Aug-01	01-Mar-02
	Z	ENDEVCO	AC-P18551	29-Aug-01	01-Mar-02
Head Z Arm	X	ENDEVCO	AC-P17539	29-Aug-01	01-Mar-02
	Y	ENDEVCO	AC-P18718	29-Aug-01	01-Mar-02
Head CG	X	ENDEVCO	AC-P16832	23-Aug-01	23-Feb-02
	Y	ENDEVCO	AC-P16591	23-Aug-01	23-Feb-02
	Z	ENDEVCO	AC-P16286	04-Sep-01	04-Mar-02
Head CG	X (R)	ENDEVCO	AC-P17141	23-Aug-01	23-Feb-02
	Y (R)	ENDEVCO	AC-P17242	23-Aug-01	23-Feb-02
	Z (R)	ENDEVCO	AC-P17265	23-Aug-01	23-Feb-02
Neck Load Cell	X	DENTON	LC-269Fx	12-Jul-01	12-Jan-02
	Y	DENTON	LC-269Fy	12-Jul-01	12-Jan-02
	Z	DENTON	LC-269Fz	12-Jul-01	12-Jan-02
Neck Moment	X	DENTON	LC-269Mx	12-Jul-01	12-Jan-02
	Y	DENTON	LC-269My	12-Jul-01	12-Jan-02
	Z	DENTON	LC-269Mz	12-Jul-01	12-Jan-02
Chest	X	ENDEVCO	AC-P17285	23-Aug-01	23-Feb-02
	Y	ENDEVCO	AC-P14393	23-Aug-01	23-Feb-02
	Z	ENDEVCO	AC-P17235	23-Aug-01	23-Feb-02
Chest	X (R)	ENDEVCO	AC-P16863	23-Aug-01	23-Feb-02
	Y (R)	ENDEVCO	AC-P17248	23-Aug-01	23-Feb-02
	Z (R)	ENDEVCO	AC-P17283	23-Aug-01	23-Feb-02
Chest Deflection Gauge		SERVO	DS-150	23-Aug-01	23-Feb-02
Pelvic	X	ENDEVCO	AC-J30041	23-Aug-01	23-Feb-02
	Y	ENDEVCO	AC-P13355	23-Aug-01	23-Feb-02
	Z	ENDEVCO	AC-P13329	23-Aug-01	23-Feb-02

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 150)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load	X	DENTON	LC-260Fx	12-Oct-01	12-Jun-02
	Y	DENTON	LC-260Fy	12-Oct-01	12-Jun-02
	Z	DENTON	LC-260Fz	12-Oct-01	12-Jun-02
Left Femur Moment	X	DENTON	LC-260Mx	12-Oct-01	12-Jun-02
	Y	DENTON	LC-260My	12-Oct-01	12-Jun-02
	Z	DENTON	LC-260Mz	12-Oct-01	12-Jun-02
Right Femur Load	X	DENTON	LC-261Fx	12-Oct-01	12-Jun-02
	Y	DENTON	LC-261Fy	12-Oct-01	12-Jun-02
	Z	DENTON	LC-261Fz	12-Oct-01	12-Jun-02
Right Femur Moment	X	DENTON	LC-261Mx	12-Oct-01	12-Jun-02
	Y	DENTON	LC-261My	12-Oct-01	12-Jun-02
	Z	DENTON	LC-261Mz	12-Oct-01	12-Jun-02
Left Knee Shear Dx		SpaceAge Control	DS-819	02-Feb-01	02-Aug-01
Right Knee Shear Dx		SpaceAge Control	DS-815	02-Feb-01	02-Aug-01
Left Upper Tibia	Fx	DENTON	LC-094FX	16-Oct-01	16-Mar-02
	Fy	DENTON	LC-094FY	16-Oct-01	16-Mar-02
	Fz	DENTON	LC-094FZ	16-Oct-01	16-Mar-02
	Mx	DENTON	LC-094MX	16-Oct-01	16-Mar-02
	My	DENTON	LC-094MY	16-Oct-01	16-Mar-02
Left Lower Tibia	Fx	DENTON	LC-94FX	16-Oct-01	16-Mar-02
	Fy	DENTON	LC-94FY	16-Oct-01	16-Mar-02
	Fz	DENTON	LC-94FX	16-Oct-01	16-Mar-02
	Mx	DENTON	LC-94MX	16-Oct-01	16-Mar-02
	My	DENTON	LC-94MY	16-Oct-01	16-Mar-02
Right Upper Tibia	Fx	DENTON	LC-092FX	16-Oct-01	16-Mar-02
	Fy	DENTON	LC-092FY	16-Oct-01	16-Mar-02
	Fz	DENTON	LC-092FZ	16-Oct-01	16-Mar-02
	Mx	DENTON	LC-092MX	16-Oct-01	16-Mar-02
	My	DENTON	LC-092MY	16-Oct-01	16-Mar-02

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 150)		Manufacturer	Serial #	Calibration	
				Last	Next
Right Lower Tibia	Fx	DENTON	LC-92FX	16-Oct-01	16-Mar-02
	Fy	DENTON	LC-92FY	16-Oct-01	16-Mar-02
	Fz	DENTON	LC-92FZ	16-Oct-01	16-Mar-02
	Mx	DENTON	LC-92MX	16-Oct-01	16-Mar-02
	My	DENTON	LC-92MY	16-Oct-01	16-Mar-02
Left Foot	Ax	ENDEVCO	AC-P19343	27-Aug-01	27-Feb-02
	Ay	ENDEVCO	AC-P16583	27-Aug-01	27-Feb-02
	Az	ENDEVCO	AC-P18728	27-Aug-01	27-Feb-02
Right Foot	Ax	ENDEVCO	AC-P18628	27-Aug-01	27-Feb-02
	Ay	ENDEVCO	AC-P18741	27-Aug-01	27-Feb-02
	Az	ENDEVCO	AC-P16587	27-Aug-01	27-Feb-02

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 245)		Manufacturer	Serial #	Calibration	
				Last	Next
Head X Arm	Y	ENDEVCO	AC-P18558	28-Aug-01	28-Feb-02
	Z	ENDEVCO	AC-P19212	28-Aug-01	28-Feb-02
Head Y Arm	X	ENDEVCO	AC-P19197	28-Aug-01	28-Feb-02
	Z	ENDEVCO	AC-P18738	29-Aug-01	01-Mar-02
Head Z Arm	X	ENDEVCO	AC-P19217	28-Aug-01	28-Feb-02
	Y	ENDEVCO	AC-P18739	29-Aug-01	01-Mar-02
Head CG	X	ENDEVCO	AC-J32184	22-Aug-01	22-Feb-02
	Y	ENDEVCO	AC-J32185	22-Aug-01	22-Feb-02
	Z	ENDEVCO	AC-J31011	22-Aug-01	22-Feb-02
Head CG	X (R)	ENDEVCO	AC-J31020	24-Aug-01	24-Feb-02
	Y (R)	ENDEVCO	AC-J31101	22-Aug-01	22-Feb-02
	Z (R)	ENDEVCO	AC-J31059	22-Aug-01	22-Feb-02
Neck Load Cell	X	DENTON	LC-076Fx	12-Jul-01	12-Jan-02
	Y	DENTON	LC-076Fy	12-Jul-01	12-Jan-02
	Z	DENTON	LC-076Fz	12-Jul-01	12-Jan-02
Neck Moment	X	DENTON	LC-076Mx	12-Jul-01	12-Jan-02
	Y	DENTON	LC-076My	12-Jul-01	12-Jan-02
	Z	DENTON	LC-076Mz	12-Jul-01	12-Jan-02
Chest	X	ENDEVCO	AC-J34019	22-Aug-01	22-Feb-02
	Y	ENDEVCO	AC-J33018	22-Aug-01	22-Feb-02
	Z	ENDEVCO	AC-J32783	22-Aug-01	22-Feb-02
Chest	X (R)	ENDEVCO	AC-J31066	22-Aug-01	22-Feb-02
	Y (R)	ENDEVCO	AC-P16979	22-Aug-01	22-Feb-02
	Z (R)	ENDEVCO	AC-J31022	22-Aug-01	22-Feb-02
Chest Deflection Gauge		SERVO	DS-245	22-Aug-01	22-Feb-02
Pelvic	X	ENDEVCO	AC-J31034	22-Aug-01	22-Feb-02
	Y	ENDEVCO	AC-P17258	22-Aug-01	22-Feb-02
	Z	ENDEVCO	AC-J31010	22-Aug-01	22-Feb-02

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 245)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load	X	DENTON	LC-362FX	01-Sep-00	01-Mar-01
	Y	DENTON	LC-362FY	01-Sep-00	01-Mar-01
	Z	DENTON	LC-362FZ	01-Sep-00	01-Mar-01
L. Femur Moment	X	DENTON	LC-362MX	01-Sep-00	01-Mar-01
	Y	DENTON	LC-362MY	01-Sep-00	01-Mar-01
	Z	DENTON	LC-362MZ	01-Sep-00	01-Mar-01
Right Femur Load	X	DENTON	LC-363FX	01-Sep-00	01-Mar-01
	Y	DENTON	LC-363FY	01-Sep-00	01-Mar-01
	Z	DENTON	LC-363FZ	01-Sep-00	01-Mar-01
R. Femur Moment	X	DENTON	LC-363Mx	12-Oct-01	12-Jun-02
	Y	DENTON	LC-363My	12-Oct-01	12-Jun-02
	Z	DENTON	LC-363Mz	12-Oct-01	12-Jun-02
Left Knee Shear Dx		SpaceAge Control	DS-821	02-Feb-01	02-Aug-02
Right Knee Shear Dx		SpaceAge Control	DS-817	02-Feb-01	02-Aug-02
Left Upper Tibia	Fx	DENTON	LC-274FX	16-Oct-01	16-Apr-02
	Fz	DENTON	LC-274FZ	16-Oct-01	16-Apr-02
	Mx	DENTON	LC-274MX	16-Oct-01	16-Apr-02
	My	DENTON	LC-274MY	16-Oct-01	16-Apr-02
Left Lower Tibia	Fx	DENTON	LC-185FX	16-Oct-01	16-Apr-02
	Fz	DENTON	LC-185FZ	16-Oct-01	16-Apr-02
	Mx	DENTON	LC-185X	16-Oct-01	16-Apr-02
	My	DENTON	LC-185MY	16-Oct-01	16-Apr-02
Right Upper Tibia	Fx	DENTON	LC-268FX	16-Oct-01	16-Apr-02
	Fz	DENTON	LC-268FZ	16-Oct-01	16-Apr-02
	Mx	DENTON	LC-268MX	16-Oct-01	16-Apr-02
	My	DENTON	LC-268MY	16-Oct-01	16-Apr-02

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 245)		Manufacturer	Serial #	Calibration	
				Last	Next
Right Lower Tibia	Fx	DENTON	LC-196FX	16-Oct-01	16-Apr-02
	Fz	DENTON	LC-196FZ	16-Oct-01	16-Apr-02
	Mx	DENTON	LC-196MX	16-Oct-01	16-Apr-02
	My	DENTON	LC-196MY	16-Oct-01	16-Apr-02
Left Foot	Ax	ENDEVCO	AC-J31010	28-Aug-01	28-Feb-02
	Ay	ENDEVCO	AC-J30491	28-Aug-01	28-Feb-02
	Az	ENDEVCO	AC-J31026	28-Aug-01	28-Feb-02
Right Foot	Ax	ENDEVCO	AC-J33376	28-Aug-01	28-Feb-02
	Ay	ENDEVCO	AC-J32832	28-Aug-01	28-Feb-02
	Az	ENDEVCO	AC-J31095	28-Aug-01	28-Feb-02

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	ICS	AC-X92	25-Sep-01	25-Mar-02
Left Seat Rear Crossmember Y	ICS	AC-D36	30-Oct-01	30-Apr-02
Right Seat Rear Crossmember X	ICS	AC-D61	30-Oct-01	30-Apr-02
Right Rear Seat Crossmember Y	ICS	AC-D86	30-Oct-01	30-Apr-02
Driver Left Side Toeapan X	ENDEVCO	AC-A14433	25-Sep-01	25-Mar-02
Driver Left Side Toeapan Z	ENDEVCO	AC-B10481	25-Sep-01	25-Mar-02
Driver Right Side Toeapan X	ENDEVCO	AC-P31042	21-Sep-01	21-Mar-02
Driver Right Side Toeapan Z	ENDEVCO	AC-J31009	21-Sep-01	21-Mar-02
Driver Trunk Z	ENDEVCO	AC-J31058	29-Aug-01	29-Feb-02
Driver Toeapan X	PATRIOT	DS-M97	22-Jun-01	22-Dec-01