REPORT NUMBER: CAL-07-10

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

TOYOTA MOTOR MANUFACTURING, TEXAS INC.
2007 TOYOTA TUNDRA
2-DOOR PICK-UP

NHTSA NUMBER: M75109

CALSPAN TEST NUMBER: 8806-NCAP-10

CALSPAN CORPORATION
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BUFFALO, NEW YORK 14225

February 23, 2007

FINAL REPORT

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U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Rulemaking
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15. Supplementary Notes

16. Abstract

A frontal load cell barrier test of a 2007 Toyota Tundra 2-door Pick-up was performed at Calspan Corporation's crash test facility in Buffalo, New York, on February 23, 2007.

The impact velocity was 55.70 kph and the temperature at the barrier face was 21.1°C. The maximum post-test vehicle crush was 466 mm. The test vehicle was equipped with 3-point restraint systems, knee bolsters, and airbags at both the driver and right outboard passenger seating positions.

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

Measurement Description	**Units**	**Threshold**	**Driver (142)**	**Passenger (150)**
Head Injury Criteria (HIC - 36 ms)	-	1000	476.0	485.7
Maximum Thorax Acceleration (3 ms Clip)	g's	60 g's	46.5	45.7
Chest Displacement	mm	-76 mm	29.3	28.3
Left Femur Force	Newtons	-10000 N	-3724.1	-2906.2
Right Femur Force	Newtons	-10000 N	-2798.7	-1712.2

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SECTION 1

PURPOSE AND SUMMARY OF TEST

1.1 PURPOSE

This 55.70 kph frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-06-D-00024. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

The 55.70 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

1.2 TEST PROCEDURE

This 55.70 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) New Car Assessment Program (NCAP) Laboratory Indicant Test Procedure, dated December 1999. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion (Partial)"; and FMVSS 301 "Fuel System Integrity" performance. Procedures for receiving, inspection testing and reporting of test results are described in the test procedures and are not repeated in this report.

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

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

Both ATDs were fully instrumented with head, chest and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 142) and the right-front passenger (position 2) ATD (Serial No.150) were used in two tests (M70502 and M70106) previous to this test where they did not exceed FMVSS 208 head, chest or 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 160 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 2007 Toyota Tundra 2-door Pick-up at a velocity of 55.70 kph. The test was performed at Calspan on February 23, 2007. 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	476.0	66.0	99.0	46.5	67.4	70.4	29.3	-3724.1	-2798.7
Passenger	485.7	71.2	104.5	45.7	67.0	70.0	28.3	-2906.2	-1712.2

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

SECTION 2
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
CRASH TEST SUMMARY

Vehicle NHTSA No.: M75109 Test Mode: 56.3 kph Frontal Barrier
Test Date: February 23, 2007 Time: 14:30 Temperature: 21.1 °C
Vehicle Make/Model/Body Style: 2007 Toyota Tundra 2-door Pick-up
Vehicle Test Weight: 2642 kg Impact Velocity: 55.70 kph (55.5 – 57.1 kph)
Vehicle/Barrier Impact Angle: 0 ° Max Static Crush: 466 mm

ATD INFORMATION AND VISIBLE CONTACT POINTS

	DRIVER	PASSENGER
ATD Type:	Part 572E	Part 572E
Restraint System:	Seatbelt, Airbag, Knee Bolster	Seatbelt, Airbag, Knee Bolster
Head Contact:	Airbag / Back of head to headrest	Airbag / Back of head to headrest
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	Locked	Locked
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	None	
Front Seat Track Shift (mm)	5	10
Front Seat Back Failure	None	None
Glazing Damage	None	

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Left Side (mm)	Center (mm)	Right Side (mm)	Average (mm)
Value	426	400	457	428

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	1180	1180
Lap belt length as measured on ATD	mm	1105	1105
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems	mm	275	275

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2007 Toyota Tundra 2-door Pick-up

NHTSA No. : M75109 ; VIN: 5TFKT52187X001286 ; Color: White

Engine Data: 8 cylinders; - CID; 4.7 Liters; - cc

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

Transmission Data: 5 speeds; - Manual; x Automatic; - Overdrive

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

AUTOMATIC DOOR LOCKS:

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

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

DEALER AND DELIVERY INFORMATION:

Date Received: 2/15/07 ; Odometer Reading 45 km

Selling Dealer: West Herr Toyota

Dealer Address: 4141 Southwestern Blvd. Orchard Park, NY 14127

TEST VEHICLE OPTIONS:

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

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

SAFETY BELT FEATURES:

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

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

AIRBAG FEATURES:

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

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Toyota Motor Manufacturing, Texas Inc.

Date of Manufacture 01/07

GVWR: 3080 kg; GAWR: 1810 kg FRONT; 1835 kg REAR

VEHICLE CAPACITY DATA:

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

Number of Occupants: 3 Front; 0 Rear; 3 Total

Vehicle Capacity Weight (VCW) = 720 kg

No. of Occupants x 68.04 kg = 204.1 kg

Rated Cargo/Luggage Weight (RCLW) = 515.9 kg 136 kg max.

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 =	723	661	58.6	1384.0
Rear =	495	481	41.4	976.0
			Total Delivered Weight (UDW) =	2360.0

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW)	=	2360.0	kg
Rated Cargo/Luggage Weight (RCLW)	=	136.0	kg
Weight of 2 p.572 Dummies @ 76 each	=	152.0	kg
TARGET TEST WEIGHT	=	2648.0	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 130.0 KG OF CARGO WEIGHT:

	Left Side (kg)	Right Side (kg)	Ratio (%)	Total (kg)
Front =	762	697	55.2	1459.0
Rear =	600	583	44.8	1183.0
			Total Vehicle Test Weight (ATW) =	2642.0

Weight of Ballast Secured in Vehicle Trunk Area[1] = 66 kg

Vehicle Components Removed for Weight Reduction: None

VEHICLE ATTITUDE (all dimension in millimeters):

	Left Front	Right Front	Left Rear	Right Rear	CG[2]
AS DELIVERED:	945	952	1040	1037	1335.8
FULLY LOADED:	940	935	1012	1013	-
AS TESTED:	942	937	1016	1016	1446.3

Vehicle's Wheel Base: 3230 mm

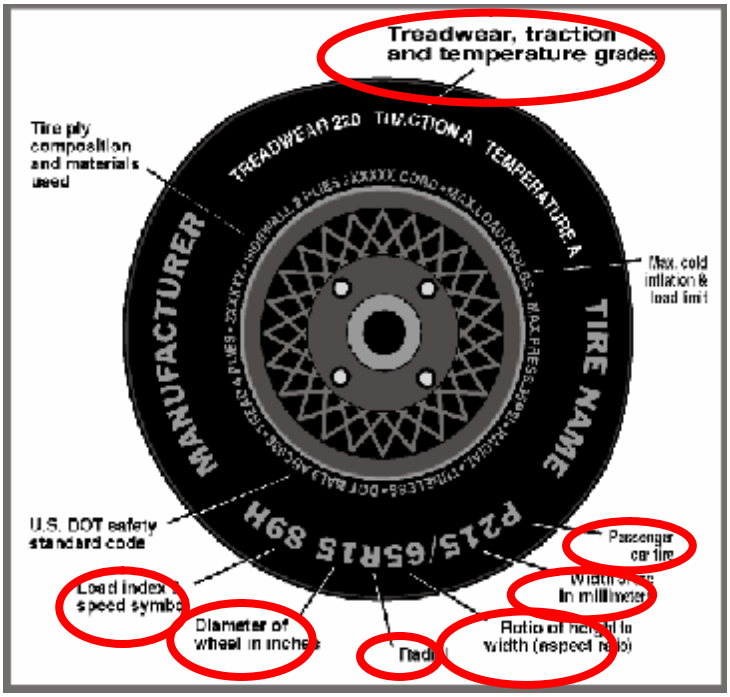
[1]Ballast weight does not include the weight of instrumentation, on-board cameras and data acquisition system

[2]Rearward of the front axle centerline.

DATA SHEET NO. 3
TEST VEHICLE TIRE INFORMATION

Vehicle Year/Make/Model/Body Style: 2007 Toyota Tundra 2-door Pick-up

NHTSA Test No.: M75109 Test Date: February 23, 2007



Measured Parameter	Front	Rear
Maximum Tire Pressure (from sidewall - kPa)	300	300
Cold Pressure (from tire placard - kPa)*	210	210
Recommended Tire Size (from tire placard)	P255/70R18	P255/70R18
Tire size on Vehicle	P255/70R18	P255/70R18
Tire Manufacturer	Michelin	Michelin
Tire Name	LTX A/S	LTX A/S
Tire Type	Passenger	Passenger
Tire Width (mm)	255	255
Ratio of Height to Width (aspect ratio)	70	70
Radial	Radial	Radial
Wheel Diameter	18	18
Load Index & Speed Symbol	112T	112T
Treadwear	420	420
Traction Grade	A	A
Temperature Grade	B	B

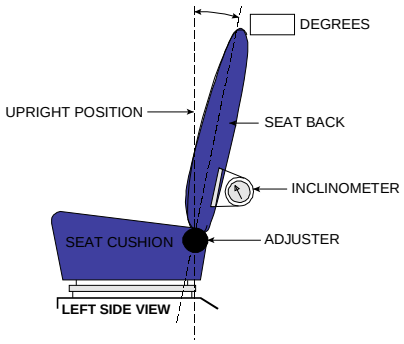
*Tire pressure used for test

DATA SHEET NO. 4
TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2007 Vehicle Model: Toyota Tundra Body Style : 2-door Pick-up

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: 87 degrees

Measurement instructions: Recline to the 7th notch rearward from the forward-most position (0).

Seat back angle for passenger's seat: 87 degrees

Measurement instructions: Recline to the 7th notch rearward from the forward-most position (0).

2. SEAT FORE AND AFT POSITIONING:

Positioning of the driver's seat: Move to the 8th notch rearward from the forward-most position (0).

0-240 mm placed at 120 mm

Positioning of the passenger's seat: Move to the 8th notch rearward from the forward-most position (0).

0-240 mm placed at 120 mm

3. FUEL TANK CAPACITY DATA:

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 99.9 liters

B. "Usable Capacity" of the optional equipment fuel tank is 0 liters

C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 = 91.9 to 93.9 liters

3.2 Actual Amount of Stoddard solvent added to vehicle for test = 92.7 liters

3.3 One-Third of Useable Capacity = 33.3 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.

With ignition turned on

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

4. STEERING COLUMN ADJUSTMENTS:

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

Operational Instructions: Tilt 3.0 degrees upward from the lowest most position. The steering column angle is 27.0 degrees to the rocker panel.

5. SEAT BELT UPPER ANCHORAGE:

Nominal design riding position: None

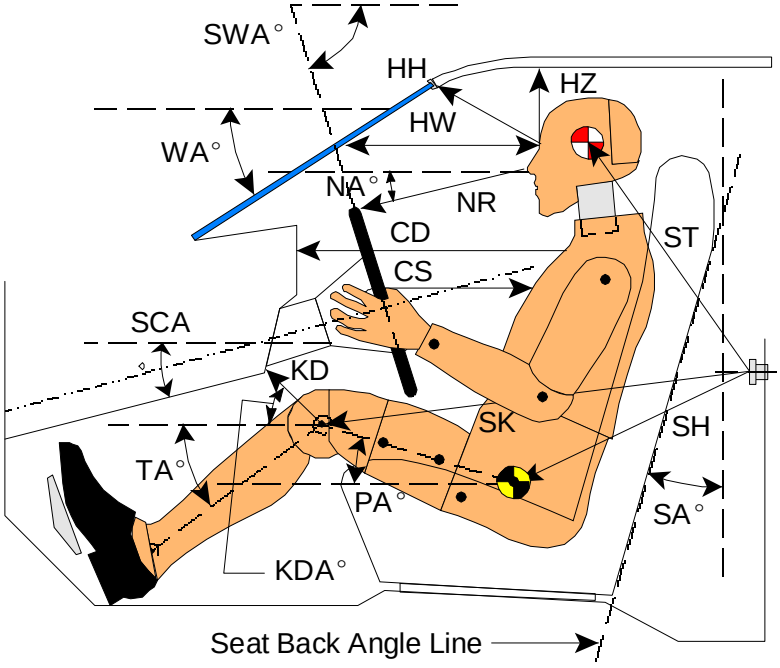
6. AUTOMATIC DOOR LOCKS: Is test vehicle equipped with ADLs? x Yes; - No;

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

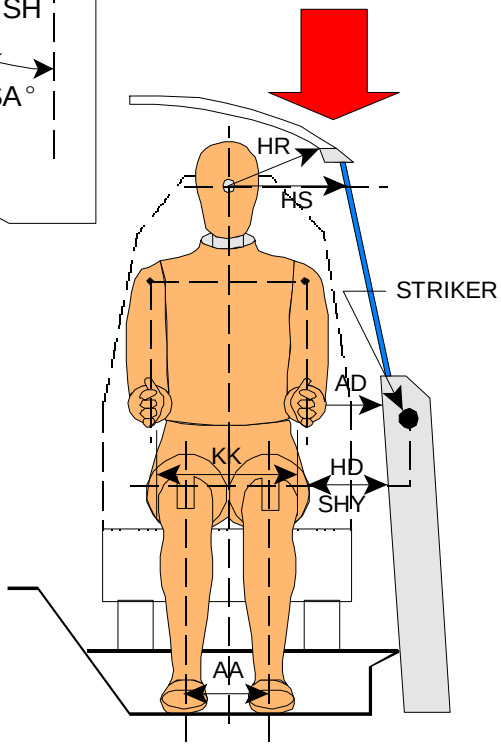
Comments:

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

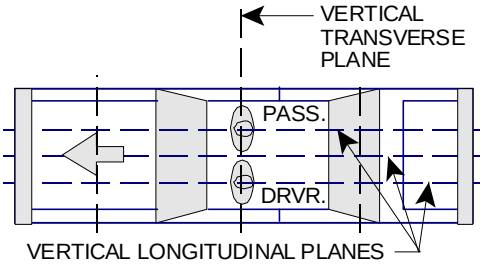
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



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



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



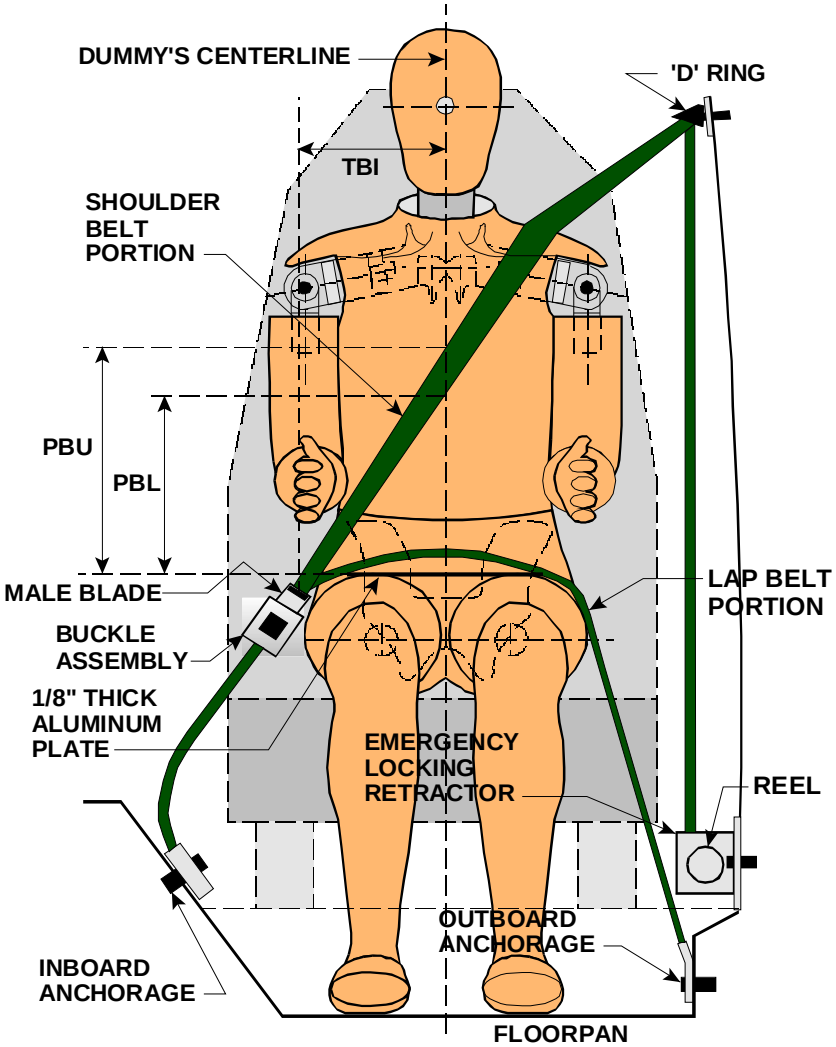
DATA SHEET NO. 5
FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #142)			PASS. (Serial #150)		
WA^O	34 deg.			N/A		
SWA^O	63 deg.			N/A		
SCA^O	27 deg.			N/A		
SA^O	25 deg.			25 deg.		
HZ	230			225		
HH	443			441		
HW	674			669		
HR	246			251		
NR	419	Angle	13 deg.	N/A		
CD	549			543		
CS	294			N/A		
RA	198			N/A		
KDL	153	Angle (KDA)	21 deg.	118		
KDR	141			127	Angle (KDA)	19 deg.
PA^O	23.6 deg.			24.2 deg.		
TA^O	61.2 deg.			59.8 deg.		
KK	359			270		
AA	355			240		
ST	643	Angle	48.3 deg.	649	Angle	48.5 deg.
SK	1010	Angle	-6.9 deg.	1013	Angle	-7.3 deg.
SH	609	Angle	-16.9 deg.	604	Angle	-16.7 deg.
SHY	273			281		
HS	339			346		
HD	149			159		
AD	136			134		

Dimensions in millimeters

DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

SEAT BELT POSITIONING DATA

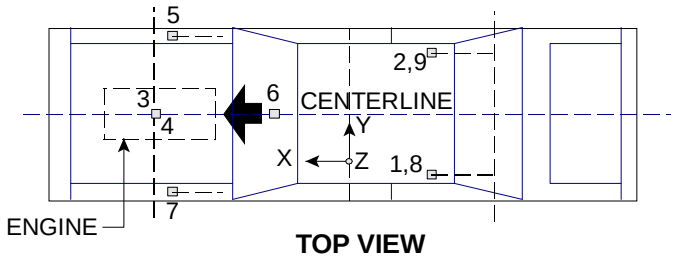


FRONT VIEW OF DUMMY

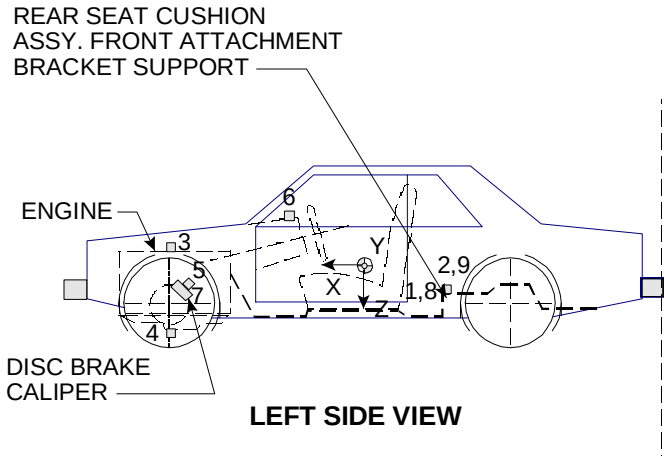
	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	360	360
PBL-- Top surface of alum. plate to belt lower edge	270	270
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

DATA SHEET NO. 7
VEHICLE ACCELEROMETER LOCATIONS

VEHICLE ACCELEROMETER LOCATIONS



TOP VIEW



LEFT SIDE VIEW

		PRE-TEST LENGTH (mm)		
No.	LOCATION	X	Y	Z
1	Left Rear Seat Cross Member X	2756	-675	638
2	Right Rear Seat Cross Member X	2761	692	639
3	Top of Engine Block	4538	-119	1126
4	Bottom of Engine	3935	12	318
5	Disc Brake Caliper @ Right Side	4398	797	582
6	Instrument Panel**	-	-	-
7	Disc Brake Caliper @Left Side	4394	-803	578
8	Left Rear Seat Cross Member Z	2756	-675	638
9	Right Rear Seat Cross Member Z	2761	692	639

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 25 mm molding.

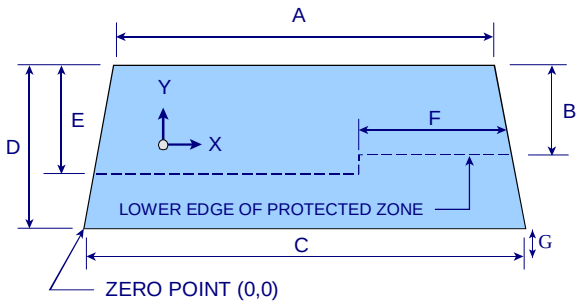
FMVSS 212 REQUIREMENTS:

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: 21.1ºC.

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST (mm)	
RIGHT SIDE	2300.0	2300.0	100.0%
LEFT SIDE	2300.0	2300.0	100.0%
TOTAL	4600	4600	100.0%



FRONT VIEW OF WINDSHIELD

DIMENSIONS (mm)	
A	1395
B	423
C	1675
D	765
E	496
F	591
G	25

FAILURE DETAILS: None

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

	COORDINATES	
	X	Y
1.		
2.		
3.		
4.		

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

NHTSA TEST No.: M75109 TEST DATE: February 23, 2007

VEHICLE MAKE/MODEL: 2007 Toyota Tundra 2-door Pick-up

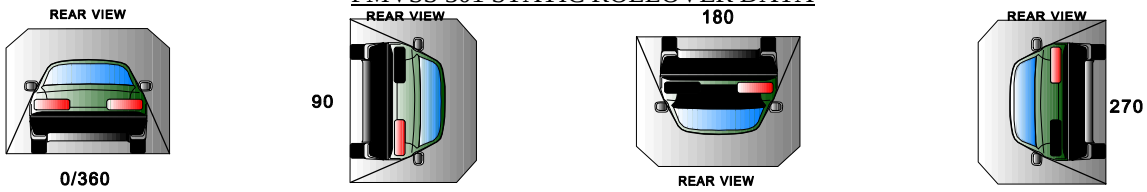
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

FUEL SPILLAGE MEASUREMENT:

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

SOLVENT SPILLAGE DETAILS: None

FMVSS 301 STATIC ROLLOVER DATA



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0º - 90º	1	minutes	13	seconds	5	minutes	6	minutes	13	seconds	7	minutes
90º - 180º	1	minutes	16	seconds	5	minutes	6	minutes	16	seconds	7	minutes
180º-270º	1	minutes	12	seconds	5	minutes	6	minutes	12	seconds	7	minutes
270º-360º	1	minutes	09	seconds	5	minutes	6	minutes	9	seconds	7	minutes

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

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

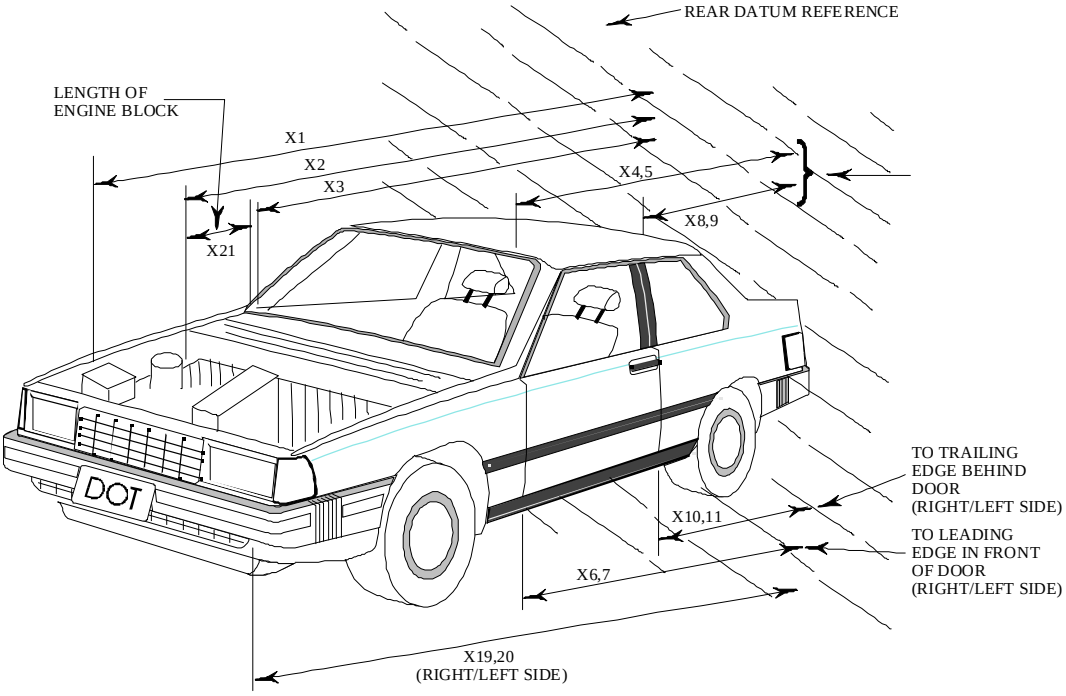
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0º - 90º	0	0	0	N/A
90º - 180º	0	0	0	N/A
180º-270º	0	0	0	N/A
270º-360º	0	0	0	N/A

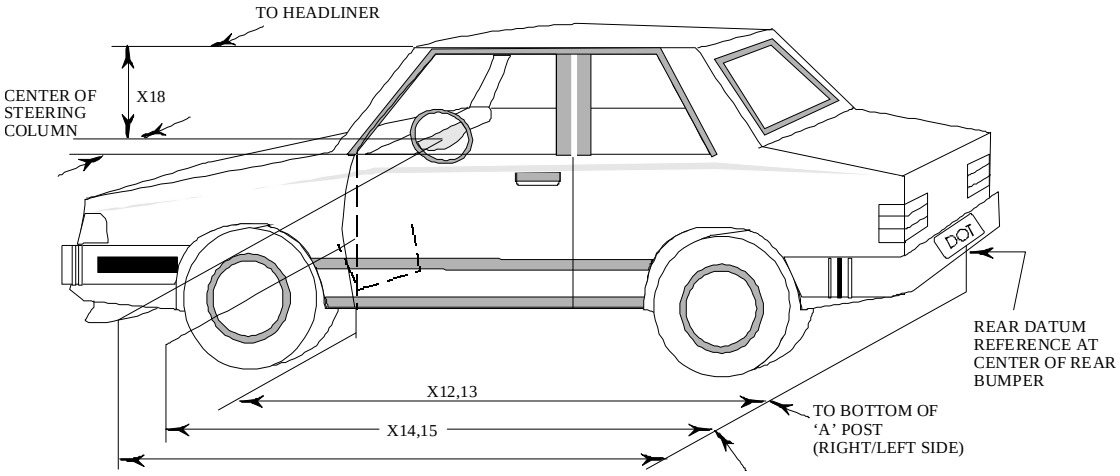
Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

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

DATA SHEET NO. 10
TEST VEHICLE MEASUREMENTS





DATA SHEET NO.10
VEHICLE MEASUREMENTS (cont.)

NHTSA TEST No.: M75109 TEST DATE: February 23, 2007

VEHICLE MAKE/MODEL: 2007 Toyota Tundra 2-door Pick-up

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	5335	4869	466
X2	Rear Surface of Vehicle to Front of Engine	4703	4608	95
X3	Rear Surface of Vehicle to Firewall	4322	4315	7
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3908	3900	8
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3903	3897	6
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3792	3780	12
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3787	3777	10
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2430	2423	7
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2426	2420	6
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2474	2462	12
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2470	2460	10
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3939	3935	4
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3944	3939	5
X14	Rear Surface of Vehicle to Firewall, Right Side	4247	4234	13
X15	Rear Surface of Vehicle to Firewall, Left Side	4253	4244	9
X16	Rear Surface of Vehicle to Steering Column	3405	3357	48
X17	Center of Steering Column to "A" Post	285	279	6
X18	Center of Steering Column to Headliner	457	508	-51
X19	Rear Surface of Vehicle to Right Side of Front Bumper	5310	4858	452
X20	Rear Surface of Vehicle to Left Side of Front Bumper	5308	4853	455
X21	Length of Engine Block	519	519	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3613	3612	1
CD	Rear Surface of Vehicle to Center of Dash Panel	3677	3681	-4
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3594	3585	9

All Dimensions in mm

DATA SHEET NO.10
VEHICLE MEASUREMENTS (cont.)

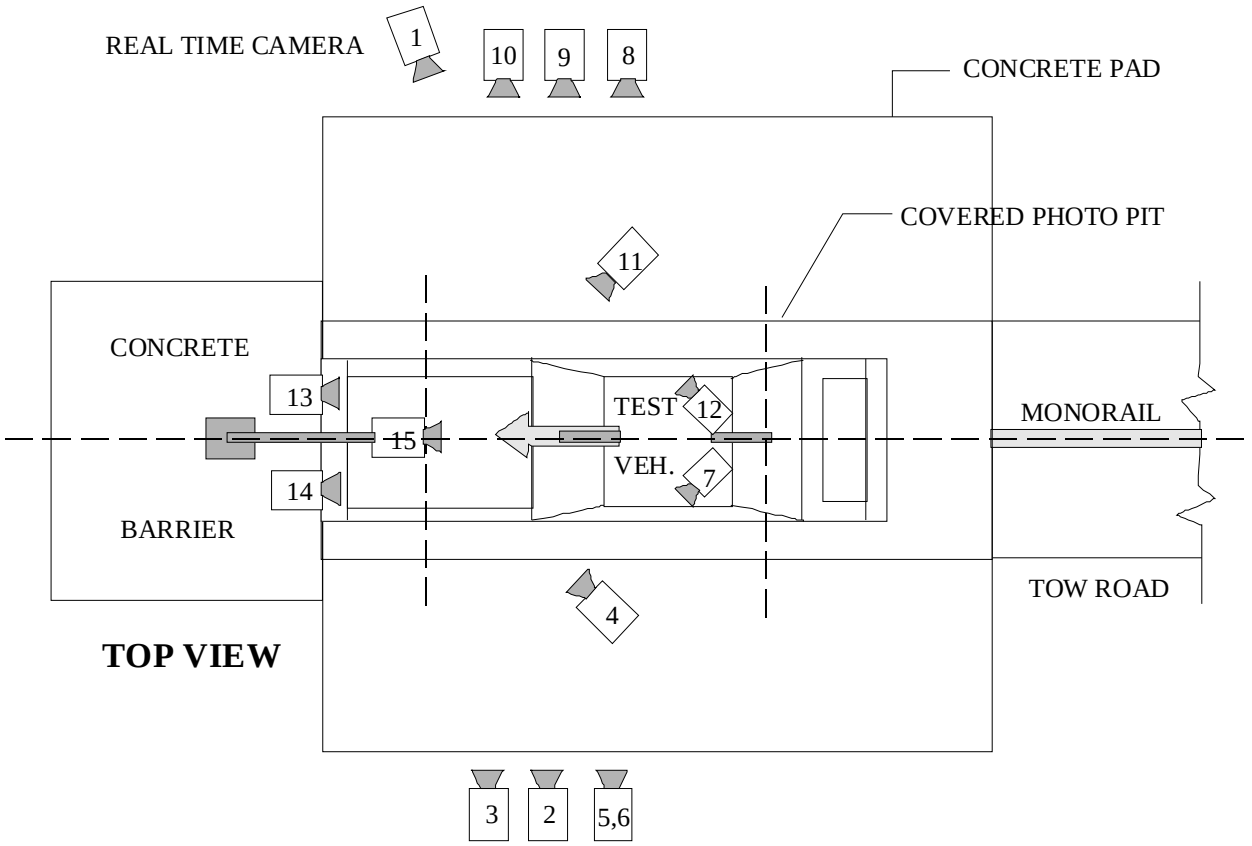
NHTSA TEST No.: M75109 TEST DATE: February 23, 2007

VEHICLE MAKE/MODEL: 2007 Toyota Tundra 2-door Pick-up

TARGET VEHICLE STRUCTURAL MEASUREMENTS

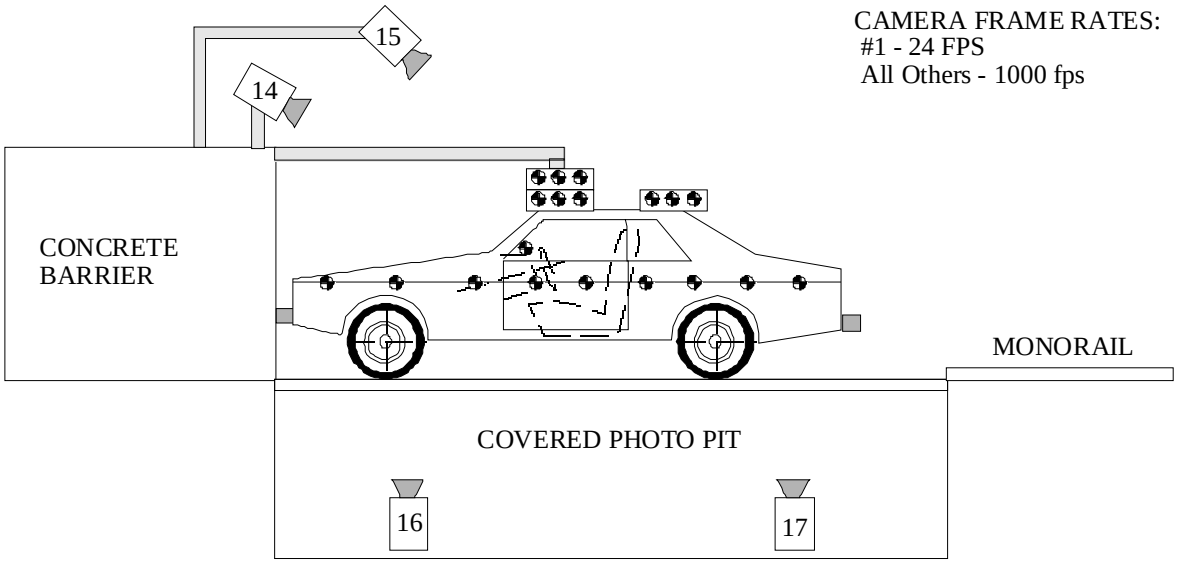
	Elements	Pre-Test (mm)
1	Total length	5335
2	Total Width	2002
3	Bumper Top Height	763
4	Bumper Bottom Height	348
5	Longitudinal Member Top Height	714
6	Distance Between Longitudinal Members	988
7	Longitudinal Member Width	133
8	Engine top height	1138
9	Engine bottom height	250
10	Engine and gearbox width	658
11	Front bumper-engine distance	632
12	Front shock absorber fixing height	818
13	Bonnet leading edge height	1216
14	Front shock absorber fixing width	1006
15	Front bumper – front axle distance	899
16	Front axle – A pillar distance	1112
17	A-pillar – B pillar distance	892
18	B-pillar – rear axle distance	1227
19	B-pillar – C Pillar distance	-
20	Roof sill bottom height	1789
21	Roof sill top height	1897
22	Floor sill bottom height	432
23	Floor sill top height	551

DATA SHEET NO.11
HIGH-SPEED CAMERA LOCATIONS



TOP VIEW

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



LEFT SIDE VIEW

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

NHTSA Test No.: M75109 Vehicle: 2007 Toyota Tundra 2-door Pick-up

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)* X	Y	Z	ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Real-Time Camera	-	-	-	-	-	-	30
2	Overall Left Side	8921	2107	997	-0.5	8425	28	1000
3	Left Side View	10056	1167	1058	-1.1	9560	50	1000
4	Driver and Interior View	8440	3320	2060	-5.9	-	35	500
5	Steering Column (Bottom)	7818	1721	1213	-1.9	7322	25	1000
6	Steering Column (Top)	7818	1721	1816	-6.2	7322	28-70	1000
7	Left CRS Lateral View	-	-	-	-	-	-	-
8	Overall Right Side	8360	2220	1010	-2.1	7864	28	500
9	Right Side View	9774	1380	1070	-0.8	9278	50	1000
10	Right Passenger View	9200	2080	1280	-2.8	8704	35	1000
11	Passenger and Interior View	8600	3180	2020	-5.6	-	35	500
12	Right CRS Lateral View	-	-	-	-	-	-	-
13	Passenger Front View	620	-92	1987	-27.8	-	13	500
14	Driver Front View	620	-92	1987	-25.7	-	13	500
15	Windshield View	0	-530	3374	-56.3	-	20	500
16	Pit View of Engine	0	615	-3048	90	-	13	500
17	Pit View of Fuel Tank	0	3280	-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

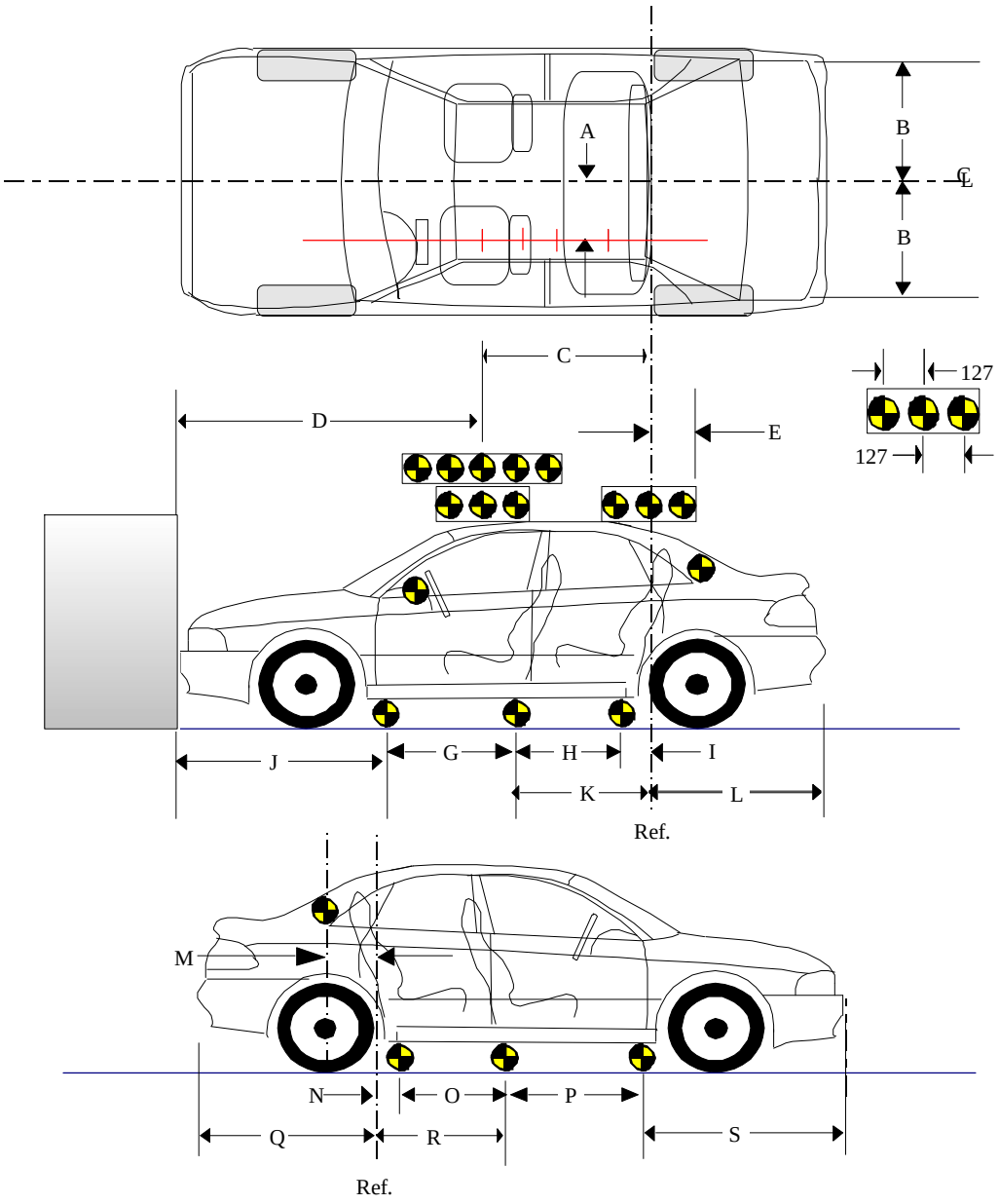
Z = film plane to ground

DATA SHEET NO. 12
VEHICLE REFERENCE PHOTO TARGET LOCATIONS

NHTSA Test No.: M75109 Vehicle: 2007 Toyota Tundra 2-door Pick-up

(Dimensions in millimeters)

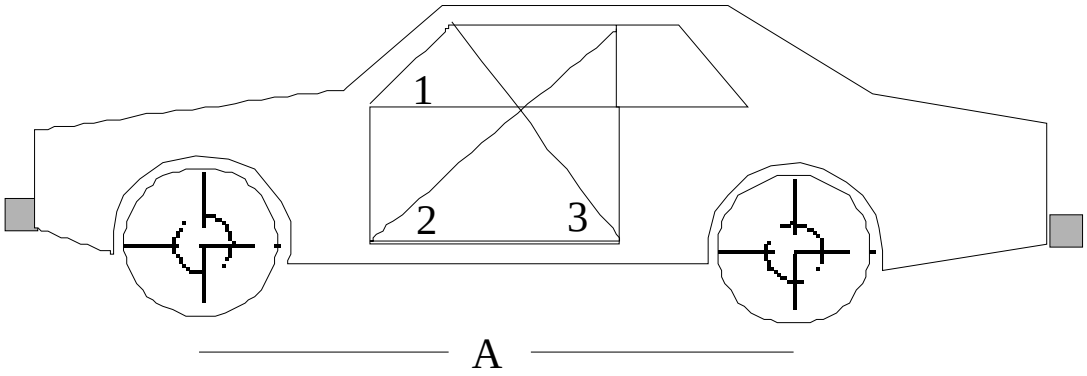
A	420
B	815
C	910
D	2019
E	-42
F	1170
G	759
H	749
I	754
J	1456
K	1503
L	1616
M	-53
N	754
O	752
P	752
Q	1624
R	1506
S	1453



DATA SHEET NO. 13
VEHICLE INTRUSION MEASUREMENTS

NHTSA Test No.: M75109 Vehicle: 2007 Toyota Tundra 2-door Pick-up

DOOR OPENING WIDTH AND WHEELBASE MEASUREMENTS



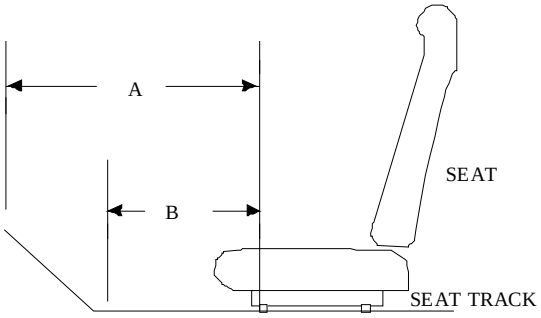
UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1369	1701	1372	1369	1707	1372
AFTER TEST	1370	1689	1383	1370	1696	1381
DIFFERENCE	-1	12	-11	-1	11	-9

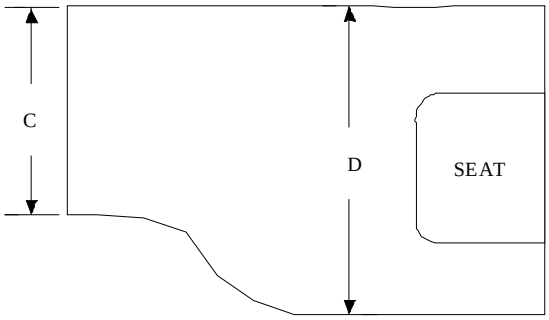
UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	3231	3227
AFTER TEST	3177	3168
DIFFERENCE	54	59

DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont)

NHTSA Test No.: M75109 Vehicle: 2007 Toyota Tundra 2-door Pick-up

STATIC FOOTWELL DEFORMATION





DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	743	739	4
B	508	507	1
C	455	448	7
D	509	508	1

PASSENGER

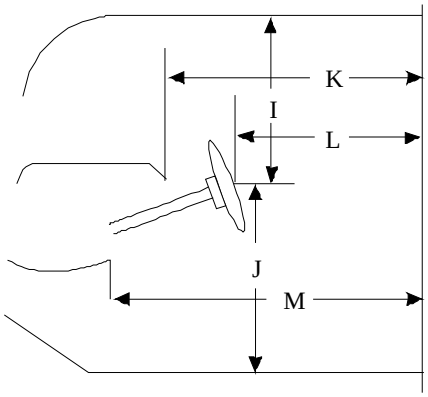
Measurement	Pre-Test	Post-Test	Difference
A	708	712	-4
B	496	507	-11
C	451	451	0
D	515	515	0

Units = mm

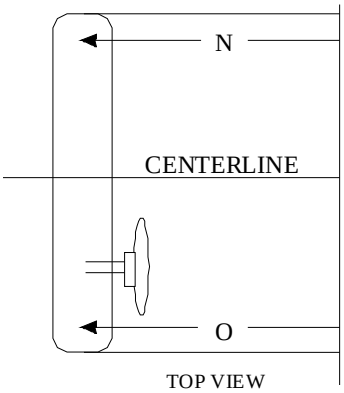
DATA SHEET NO.13
VEHICLE INTRUSION MEASUREMENTS (cont.)

NHTSA Test No.: M75109 Vehicle: 2007 Toyota Tundra 2-door Pick-up

STATIC PASSENGER COMPARTMENT INTRUSION

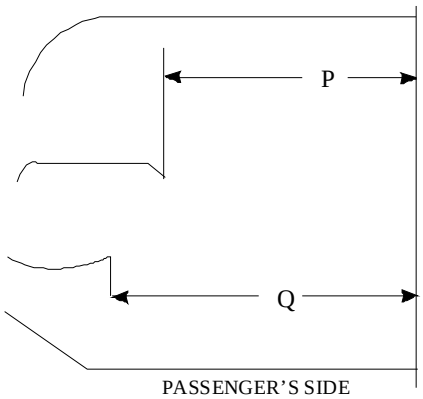


DRIVER'S SIDE



TOP VIEW

MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



PASSENGER'S SIDE

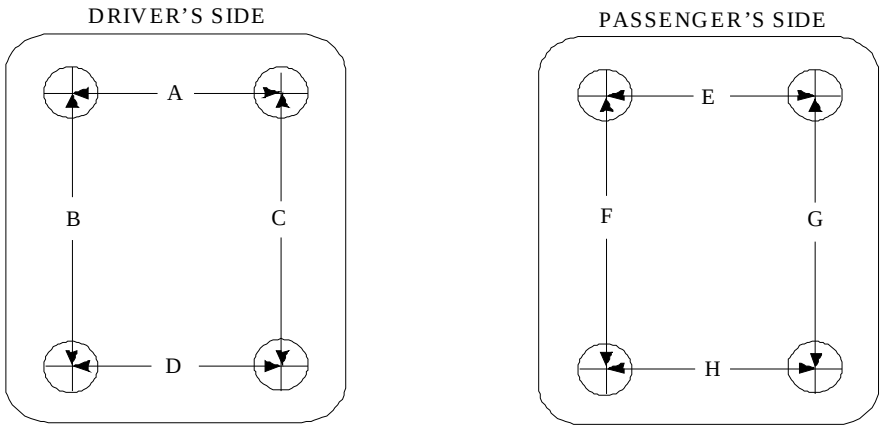
Measurement	Pre-Test	Post-Test	Difference
I	457	508	-51
J	738	690	48
K	1139	1153	-14
L	920	879	41
M	1180	1189	-9
N	1125	1132	-7
O	1108	1107	1
P = K (PASS.)	1257	1266	-9
Q = M (PASS.)	1146	1163	-17

Units = mm

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

NHTSA Test No.: M75109 Vehicle: 2007 Toyota Tundra 2-door Pick-up

FLOORBOARD DEFORMATION



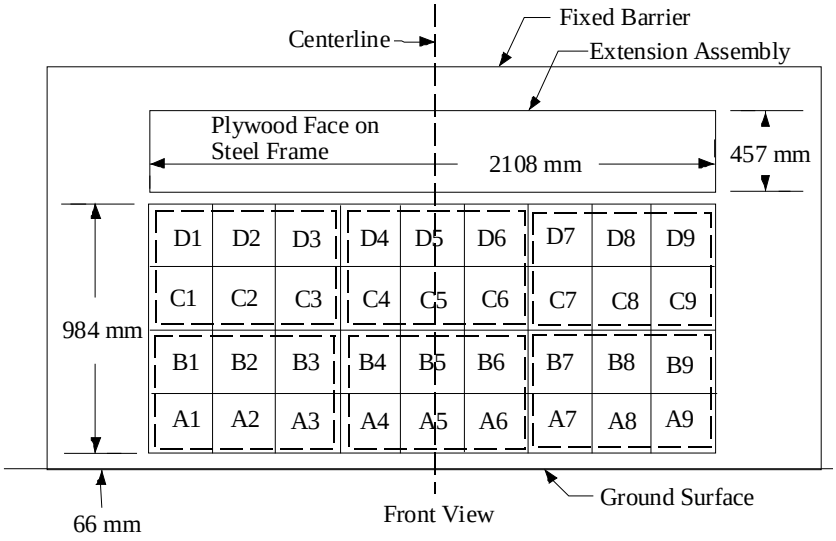
TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	455	448	8
B	390	395	-6
C	452	445	7
D	509	508	1
E	451	451	0
F	433	440	-6
G	425	423	2
H	515	515	0

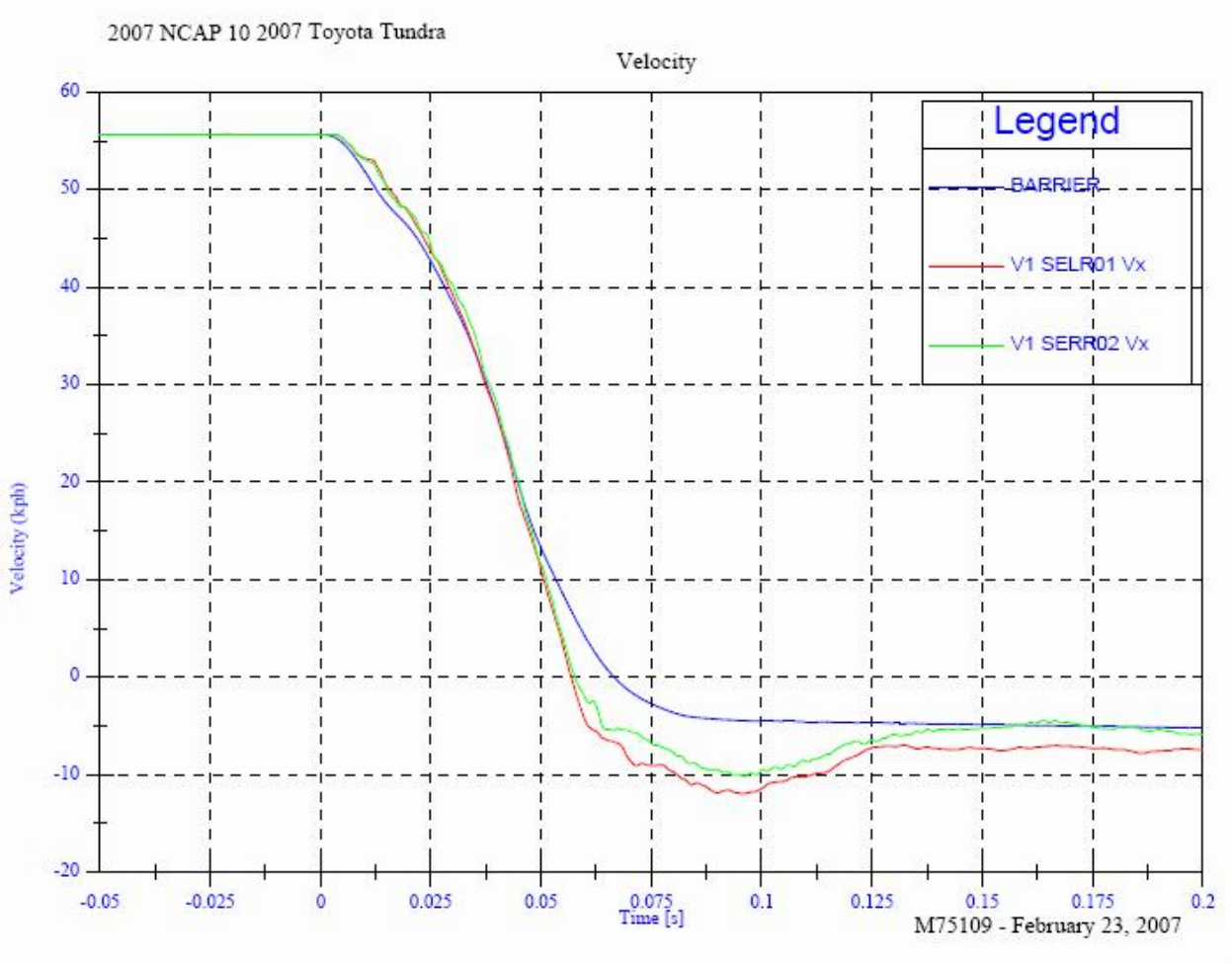
Units = mm

DATA SHEET NO.14
LOAD CELL LOCATIONS ON FIXED BARRIER

36 Load Cells
4 Rows
9 Columns



Momentum Plot



DATA SHEET NO. 15
ACCIDENT INVESTIGATION DIVISION DATA

FOR FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Toyota Tundra 2-door Pick-up

NHTSA Test No.: M75109 VIN: 5TFKT52187X001286

Model Year: 2007 Build Date: 01/07 Test Date: February 23, 2007

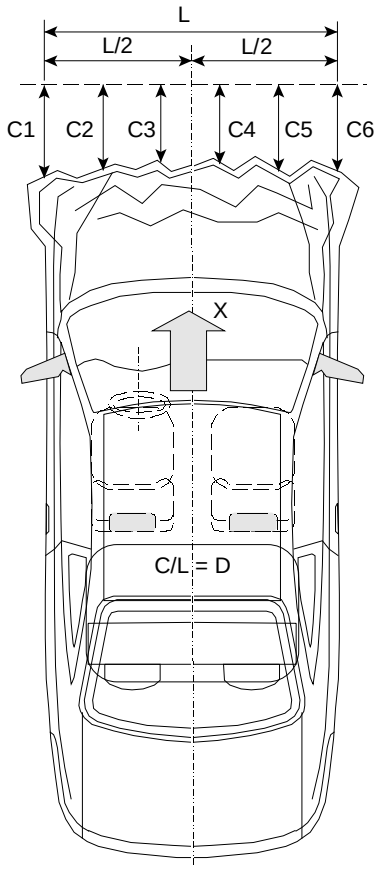
Vehicle Size Category: Full Size Pickup Test Weight: 2642 kg

Vehicle Wheelbase: 3230 mm; Front Overhang: 899 mm; Overall Width: 2002 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions

	PRE (mm)	POST (mm)	DIFF (mm)
C1 =	5095	4748	347
C2 =	5285	4803	482
C3 =	5323	4818	505
C4 =	5324	4820	504
C5 =	5287	4812	475
C6 =	5101	4765	336



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

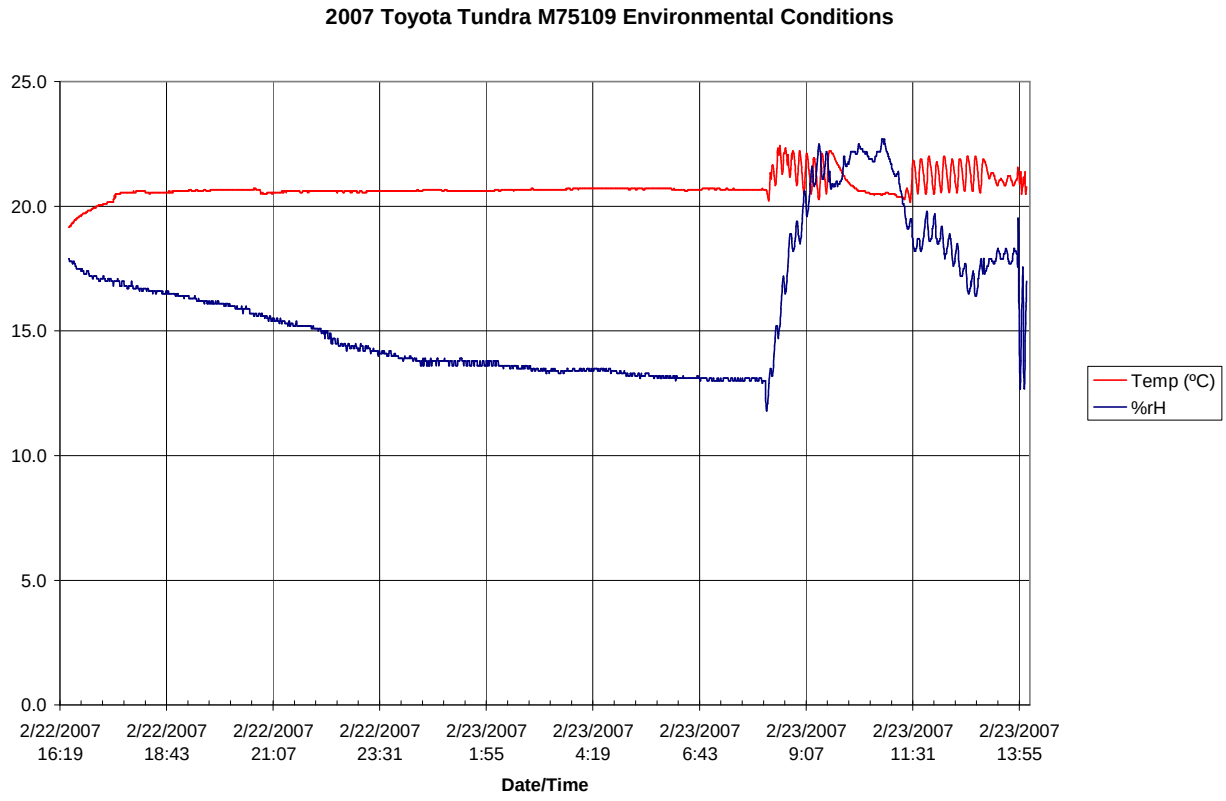
Length of Damaged Region: L1= 1940 mm

L2= 970.0 mm

L5= 388 mm

DATA SHEET NO.16
VEHICLE AND DUMMY TEMPERATURE STABILIZATION CHART

NHTSA Test No.: M75109 Vehicle: 2007 Toyota Tundra 2-door Pick-up



APPENDIX A

PHOTOGRAPHS

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A-42	Post-Test Driver Head View	A-25
A-43	Post-Test Driver Contact To Airbag	A-25

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A-50	Pre-Test Passenger Feet View	A-29
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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

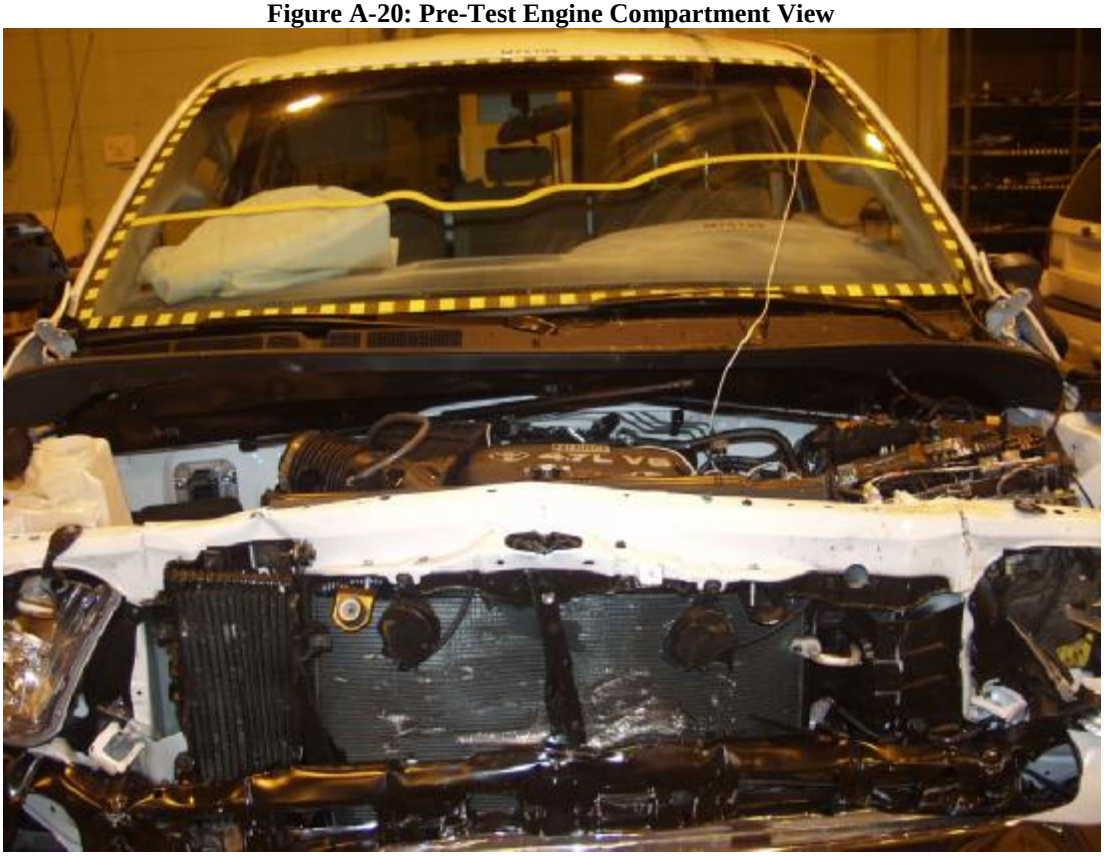

Figure A-21: Post-Test Engine Compartment View

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

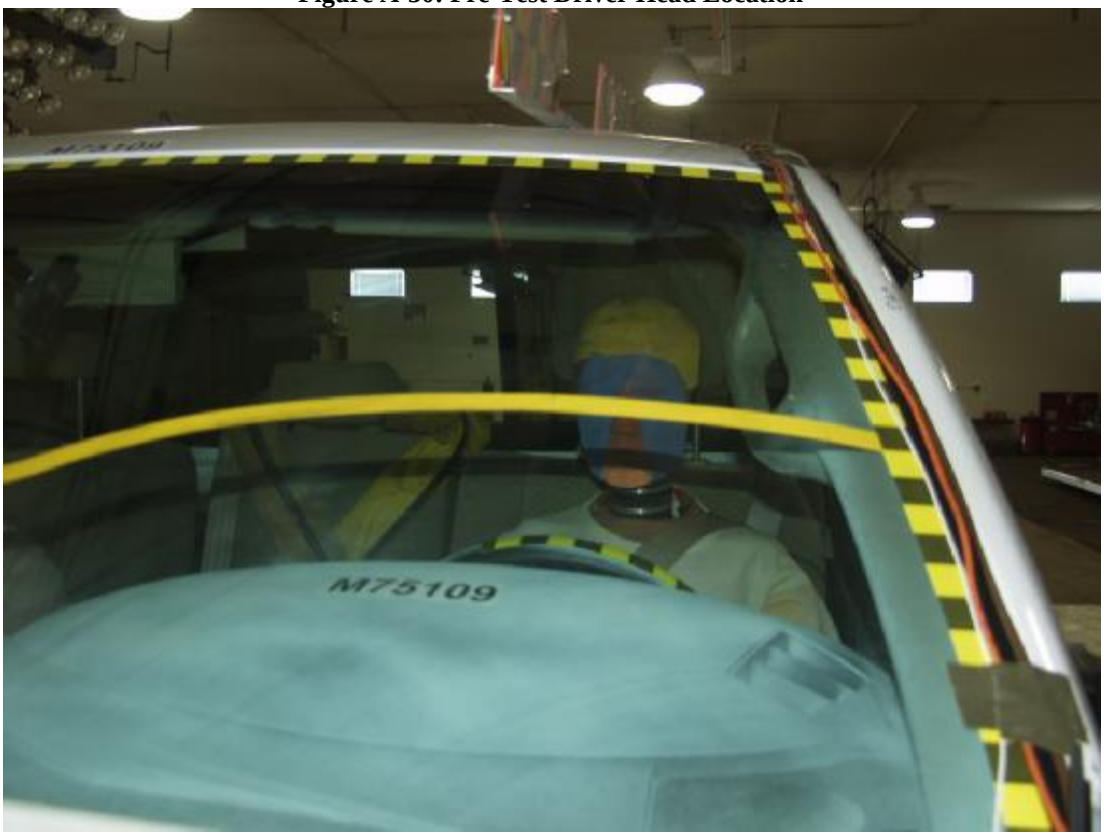

Figure A-31: Post-Test Driver Head Location

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

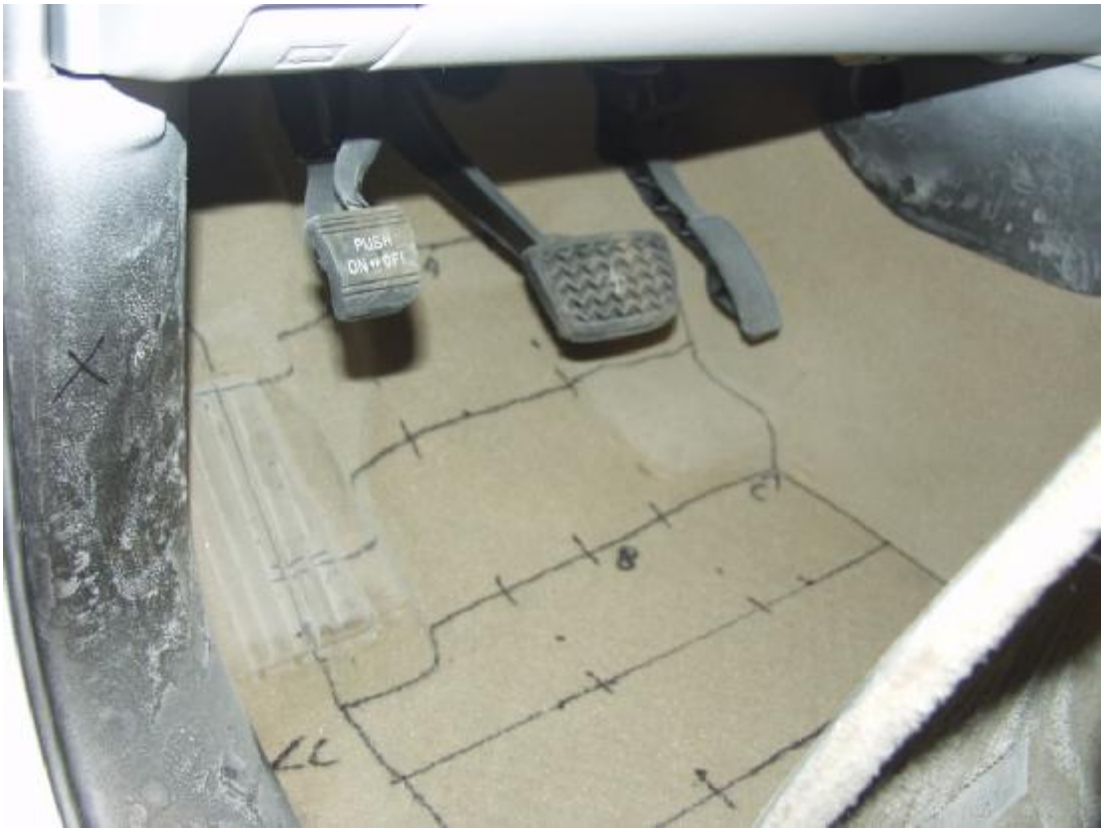

Figure A-40: Pre-Test Driver Floor Pan View

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

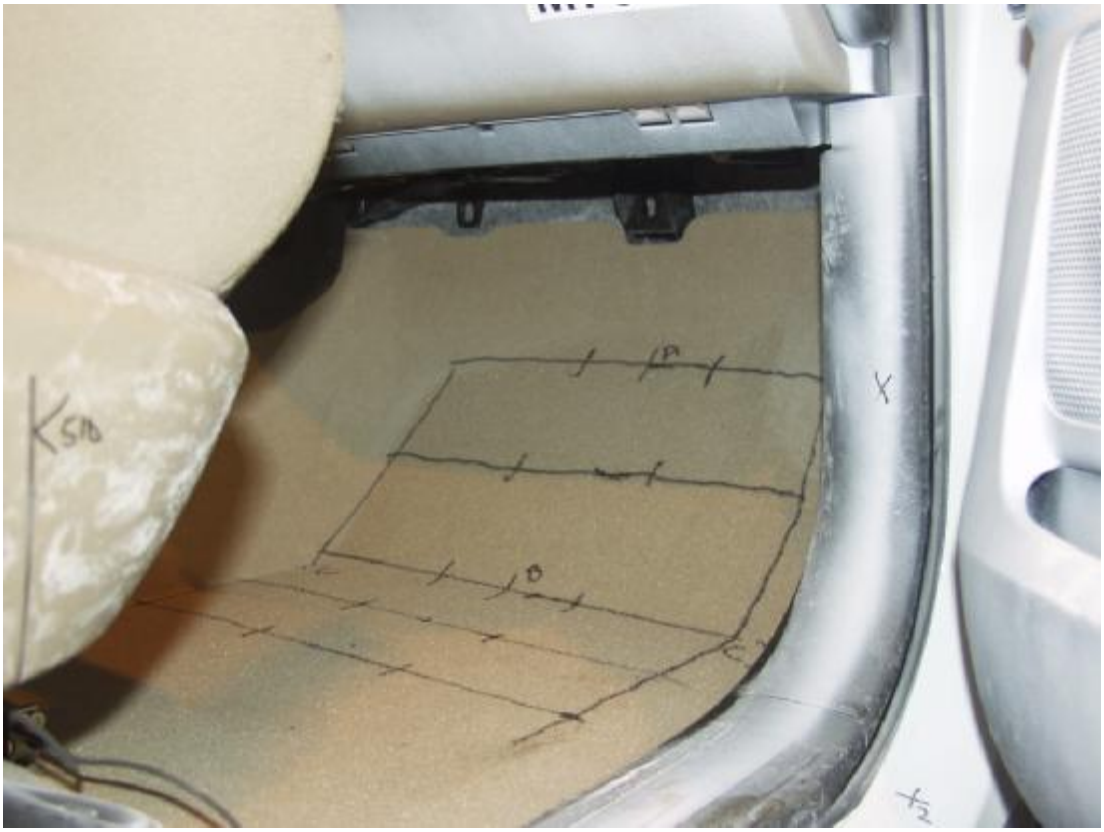

Figure A-54: Pre-Test Passenger Floor Pan View

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°

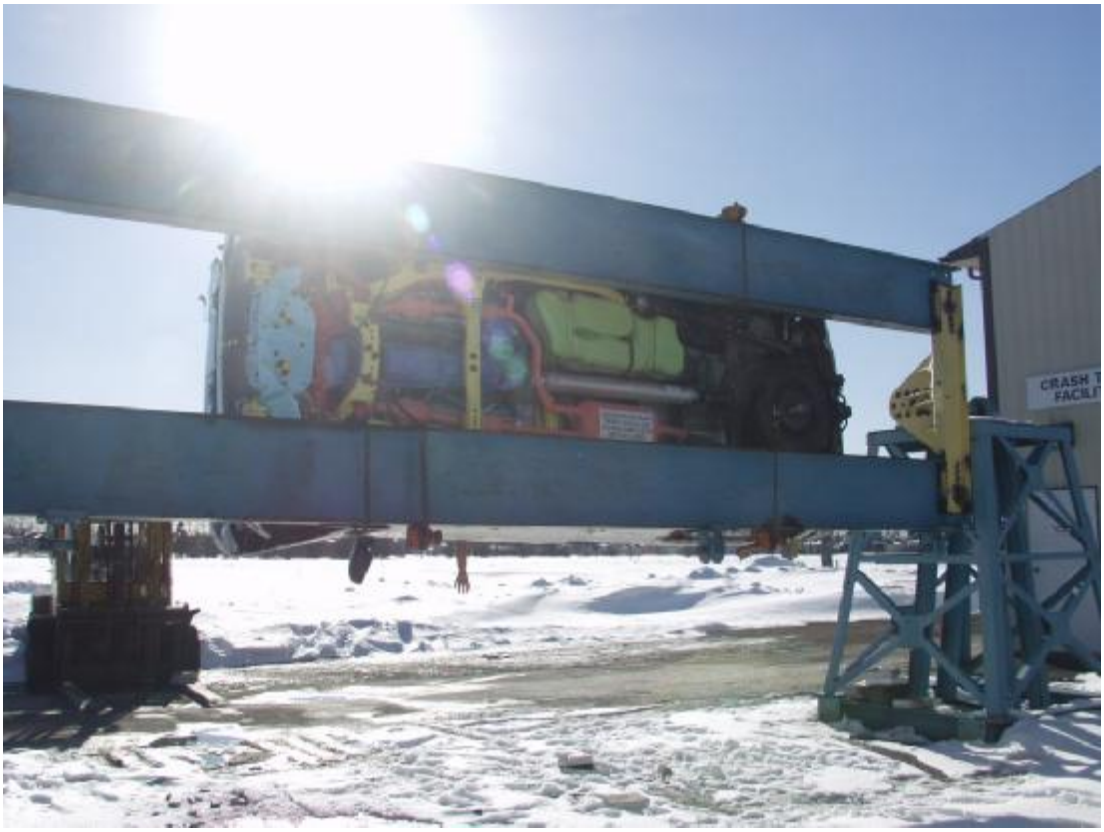

Figure A-60: Rollover View - 270°

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.: M75109

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

V1P2 Upper Neck Fx	
V1P2 Upper Neck Fy	
V1P2 Upper Neck Fz	
V1P2 Upper Neck Mx	
V1P2 Upper Neck My	
V1P2 Upper Neck Mz	
V1P2 Chest Ax	
V1P2 Chest Ay	
V1P2 Chest Az	
V1P2 Chest Red Ax	
V1P2 Chest Red Ay	
V1P2 Chest Red Az	
V1P2 Chest Compression	
V1P2 Pelvic Ax	
V1P2 Pelvic Ay	
V1P2 Pelvic Az	
V1P2 Left Femur Fz	
V1P2 Right Femur Fz	
V1P2 Left Upper Tibia Fz	
V1P2 Left Upper Tibia Mx	
V1P2 Left Upper Tibia My	
V1P2 Left Lower Tibia Mx	
V1P2 Left Lower Tibia My	
V1P2 Right Upper Tibia Mx	
V1P2 Right Upper Tibia My	
V1P2 Right Lower Tibia Fz	
V1P2 Right Lower Tibia Mx	
V1P2 Right Lower Tibia My	
V1P2 Left Foot Aft Ax	
V1P2 Left Foot Aft Az	
V1P2 Left Foot Fore Az	
V1P2 Right Foot Aft Ax	
V1P2 Right Foot Aft Az	
V1P2 Right Foot Fore Az	
Barrier Load Cell A1 Fx	
Barrier Load Cell A2 Fx	
Barrier Load Cell A3 Fx	
Barrier Load Cell A4 Fx	
Barrier Load Cell A5 Fx	
Barrier Load Cell A6 Fx	
Barrier Load Cell A7 Fx	
Barrier Load Cell A8 Fx	
Barrier Load Cell A9 Fx	
Barrier Load Cell B1 Fx	
Barrier Load Cell B2 Fx	
Barrier Load Cell B3 Fx	
Barrier Load Cell B4 Fx	
Barrier Load Cell B5 Fx	

Barrier Load Cell B6 Fx	
Barrier Load Cell B7 Fx	
Barrier Load Cell B8 Fx	
Barrier Load Cell B9 Fx	
Barrier Load Cell C1 Fx	
Barrier Load Cell C2 Fx	
Barrier Load Cell C3 Fx	
Barrier Load Cell C4 Fx	
Barrier Load Cell C5 Fx	
Barrier Load Cell C6 Fx	
Barrier Load Cell C7 Fx	
Barrier Load Cell C8 Fx	
Barrier Load Cell C9 Fx	
Barrier Load Cell D1 Fx	
Barrier Load Cell D2 Fx	
Barrier Load Cell D3 Fx	
Barrier Load Cell D4 Fx	
Barrier Load Cell D5 Fx	
Barrier Load Cell D6 Fx	
Barrier Load Cell D7 Fx	
Barrier Load Cell D8 Fx	
Barrier Load Cell D9 Fx	

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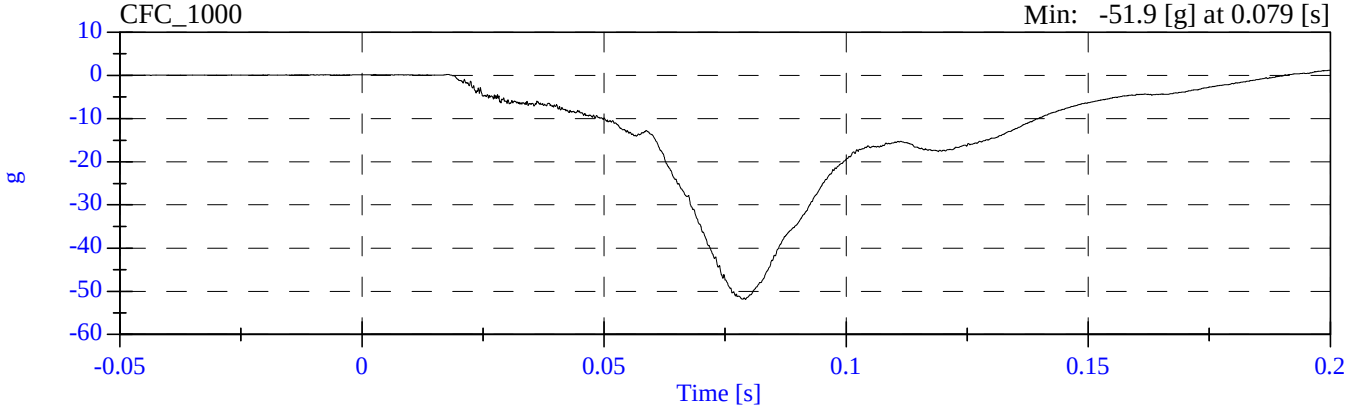
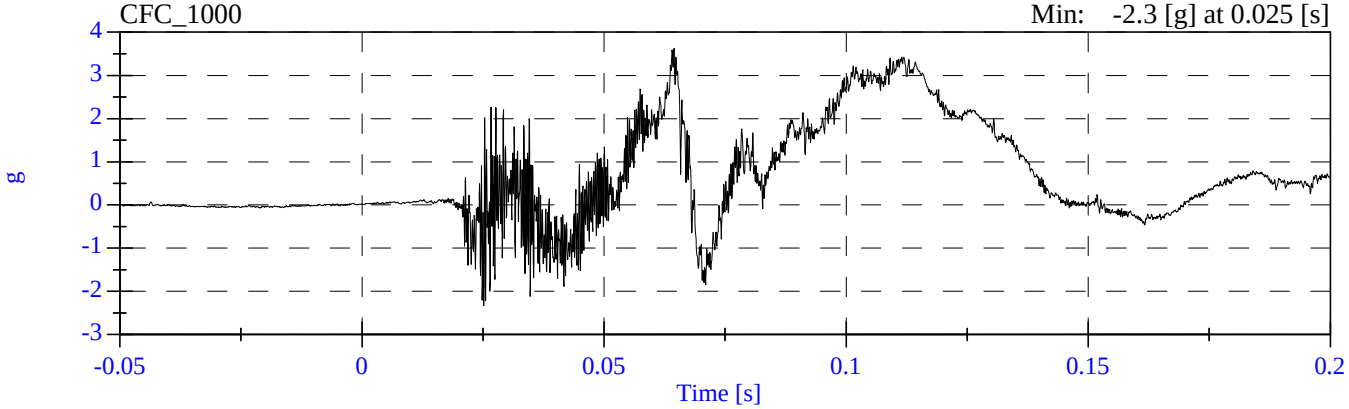
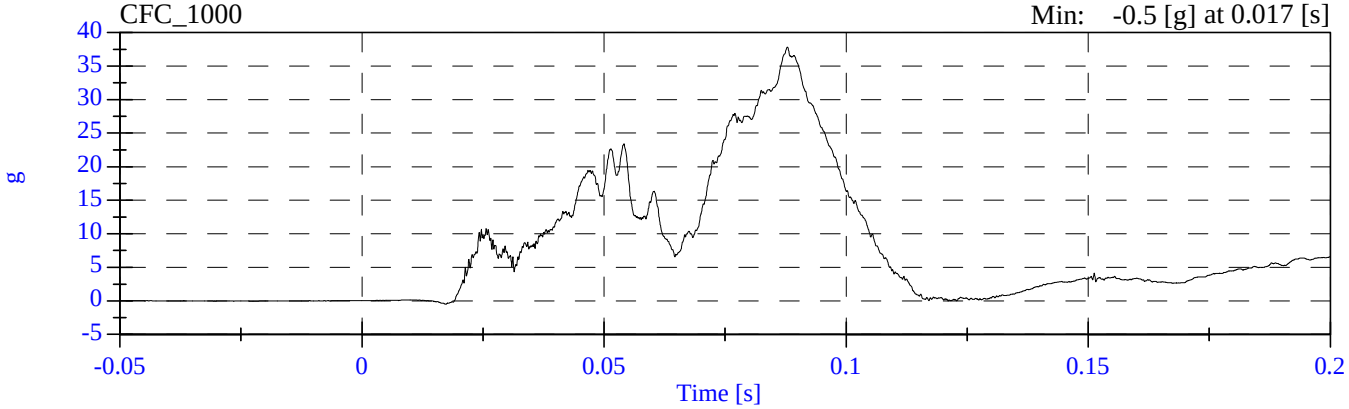
V1P1 Head CG x
CFC_1000
Max: 1.2 [g] at 0.200 [s]
Min: -51.9 [g] at 0.079 [s]



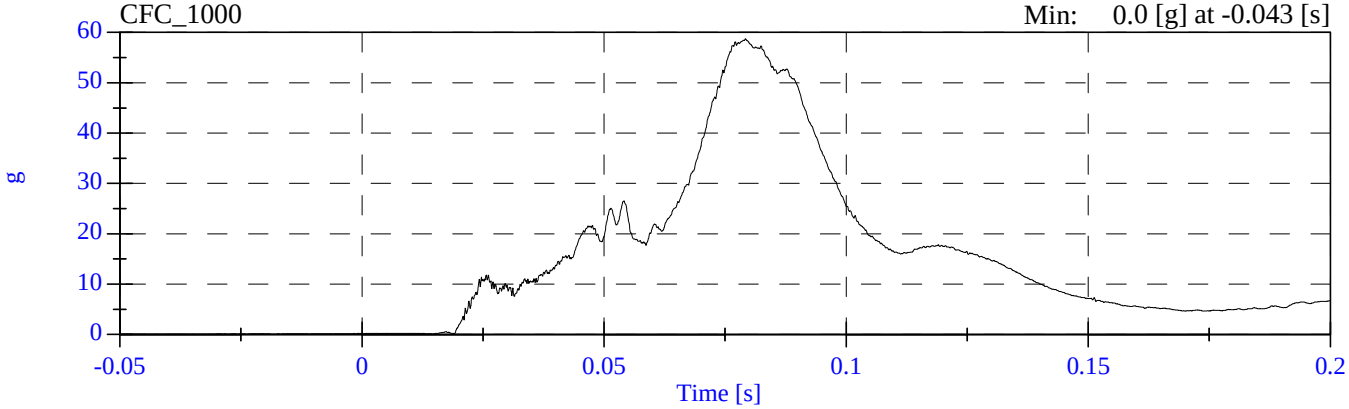
V1P1 Head CG y
CFC_1000
Max: 3.6 [g] at 0.064 [s]
Min: -2.3 [g] at 0.025 [s]



V1P1 Head CG z
CFC_1000
Max: 37.8 [g] at 0.088 [s]
Min: -0.5 [g] at 0.017 [s]



V1P1 Head CG Resultant
CFC_1000
Max: 58.7 [g] at 0.079 [s]
Min: 0.0 [g] at -0.043 [s]



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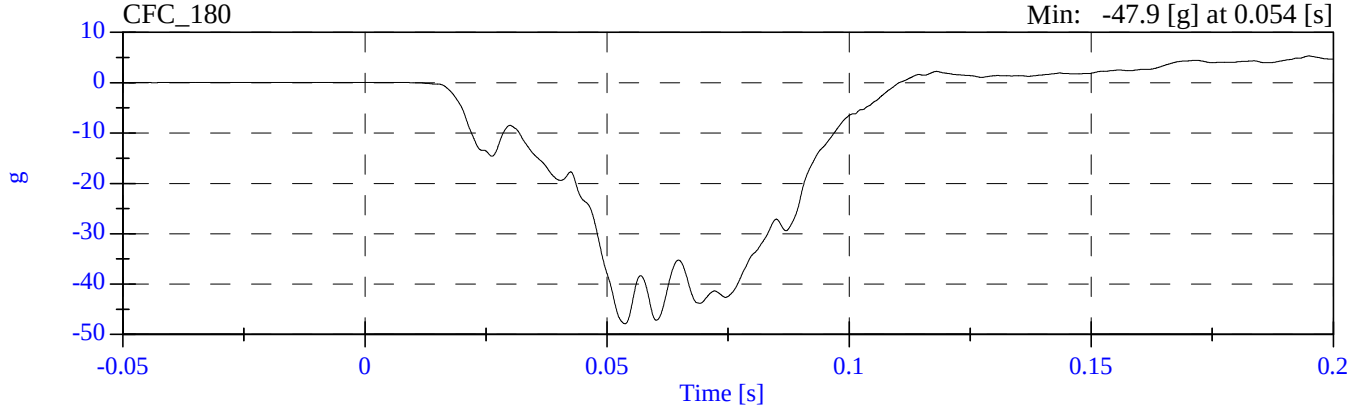
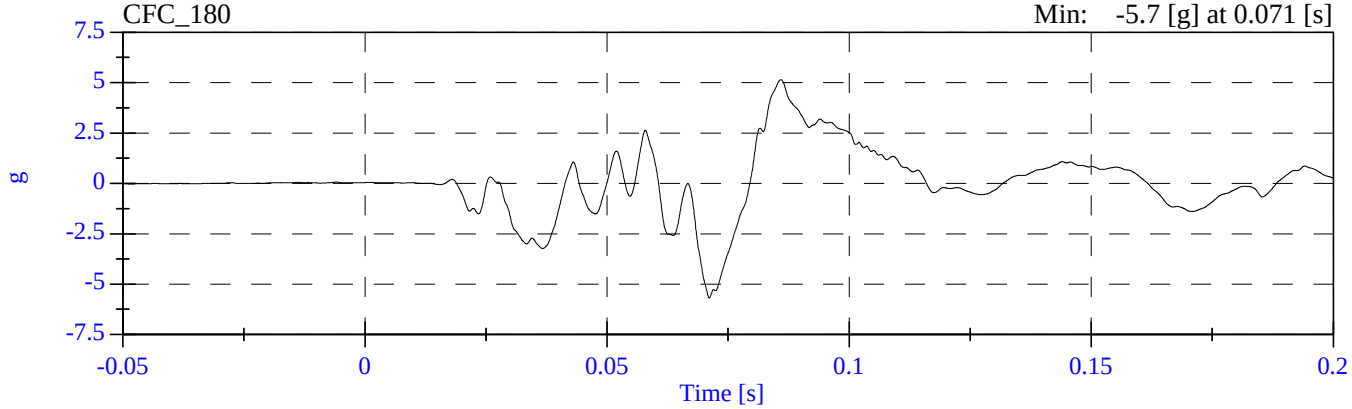
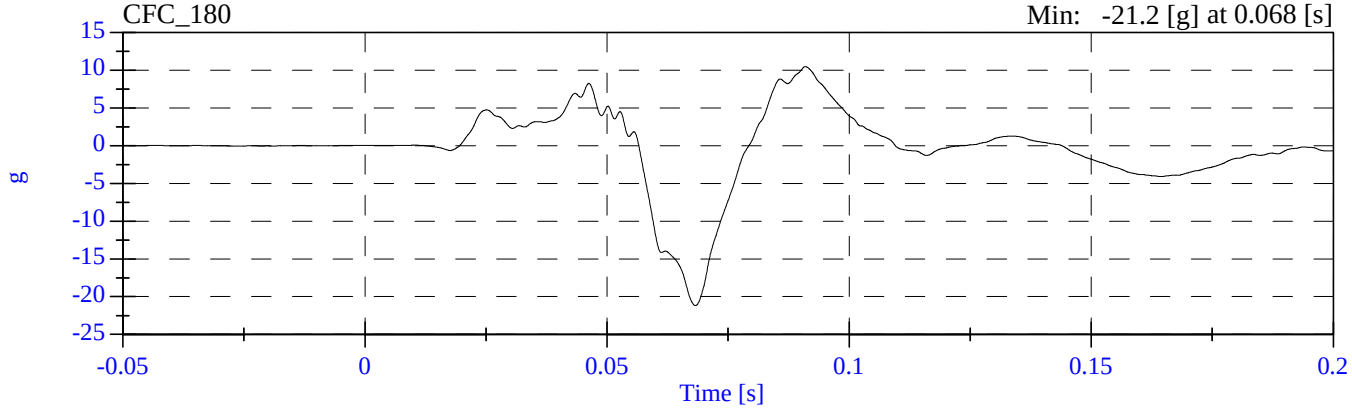
V1P1 Chest x
CFC_180
Max: 5.3 [g] at 0.195 [s]
Min: -47.9 [g] at 0.054 [s]



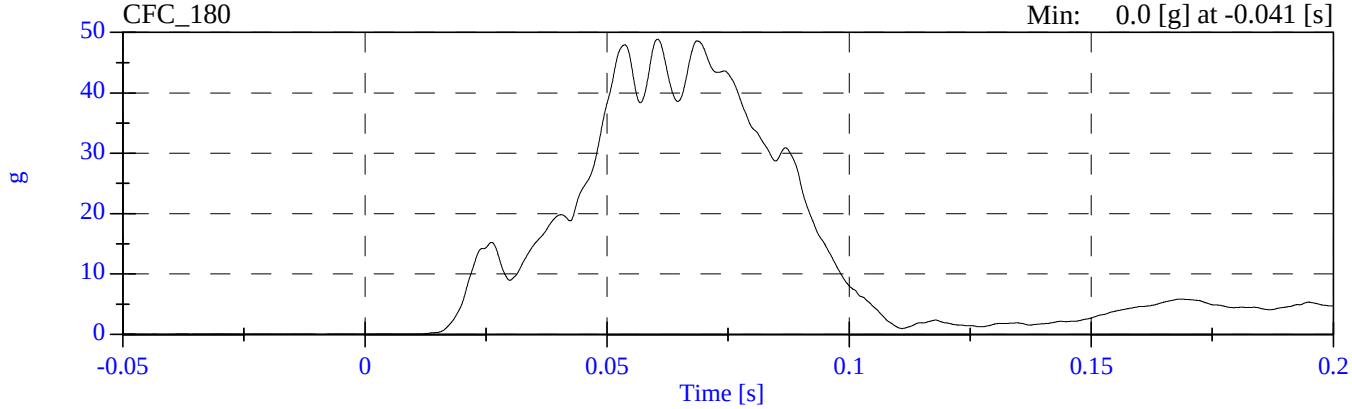
V1P1 Chest y
CFC_180
Max: 5.1 [g] at 0.086 [s]
Min: -5.7 [g] at 0.071 [s]



V1P1 Chest z
CFC_180
Max: 10.5 [g] at 0.091 [s]
Min: -21.2 [g] at 0.068 [s]



V1P1 Chest Resultant
CFC_180
Max: 48.9 [g] at 0.060 [s]
Min: 0.0 [g] at -0.041 [s]



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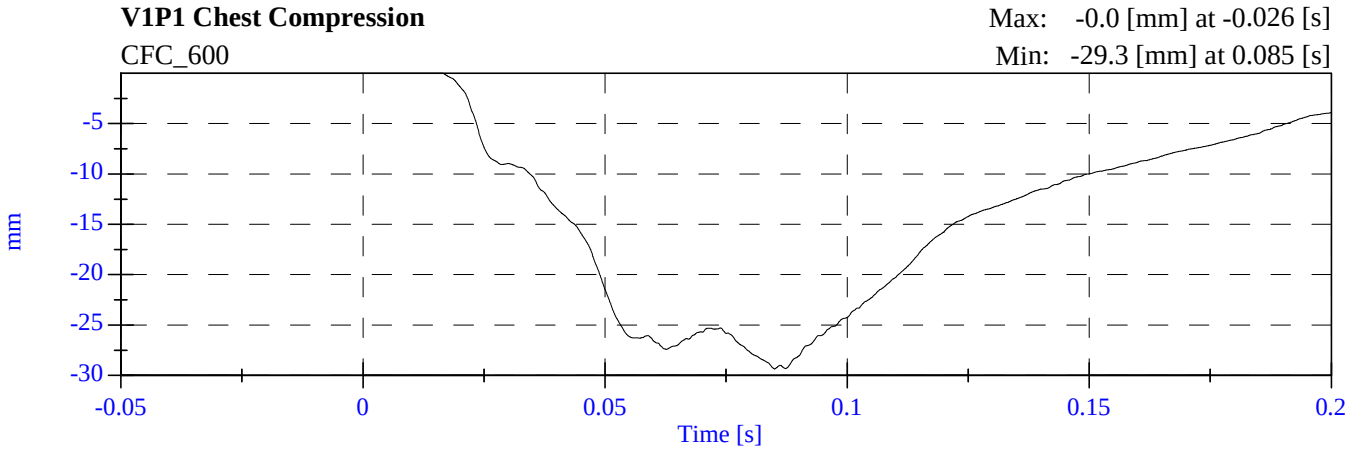

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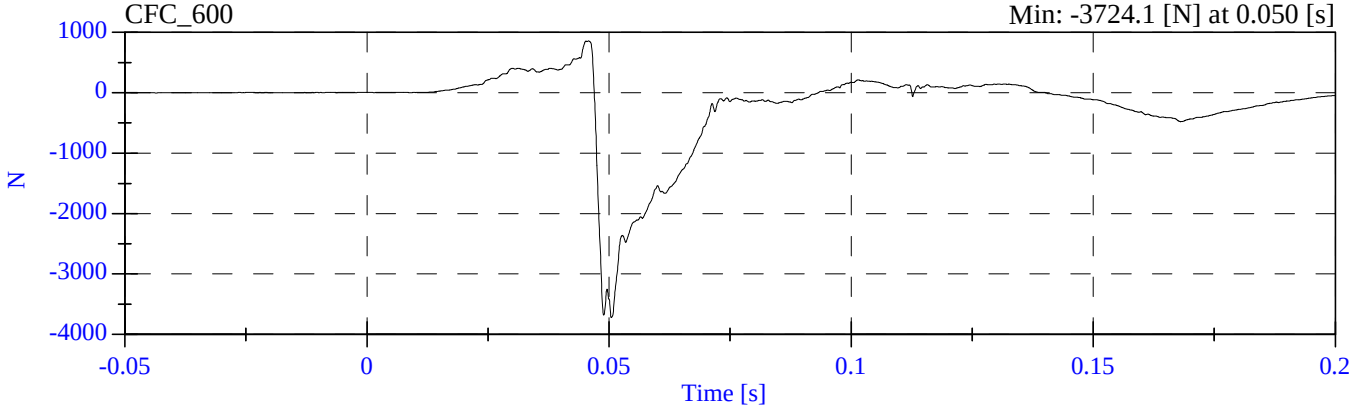
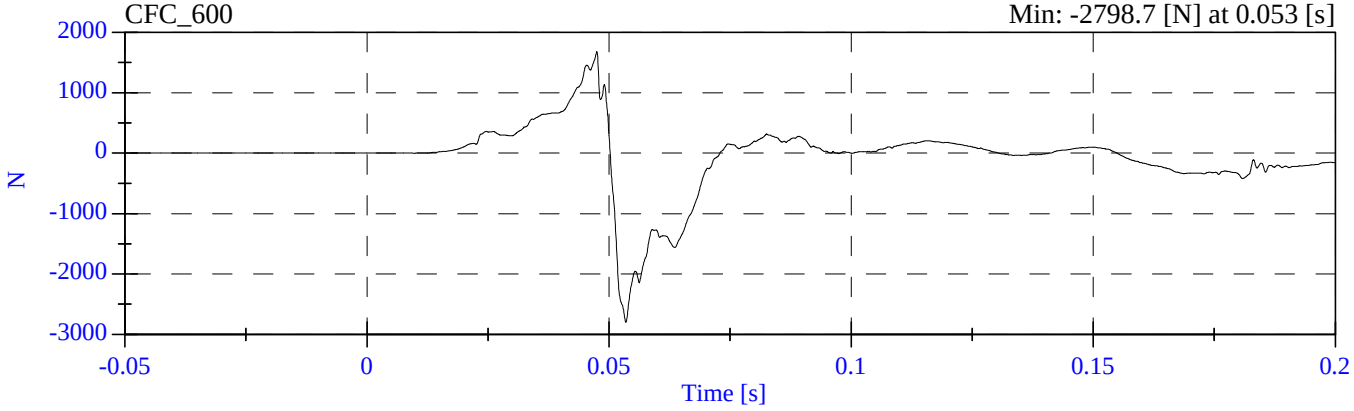
V1P1 Left Femur
CFC_600
Max: 856.9 [N] at 0.046 [s]
Min: -3724.1 [N] at 0.050 [s]



V1P1 Right Femur
CFC_600
Max: 1680.2 [N] at 0.047 [s]
Min: -2798.7 [N] at 0.053 [s]



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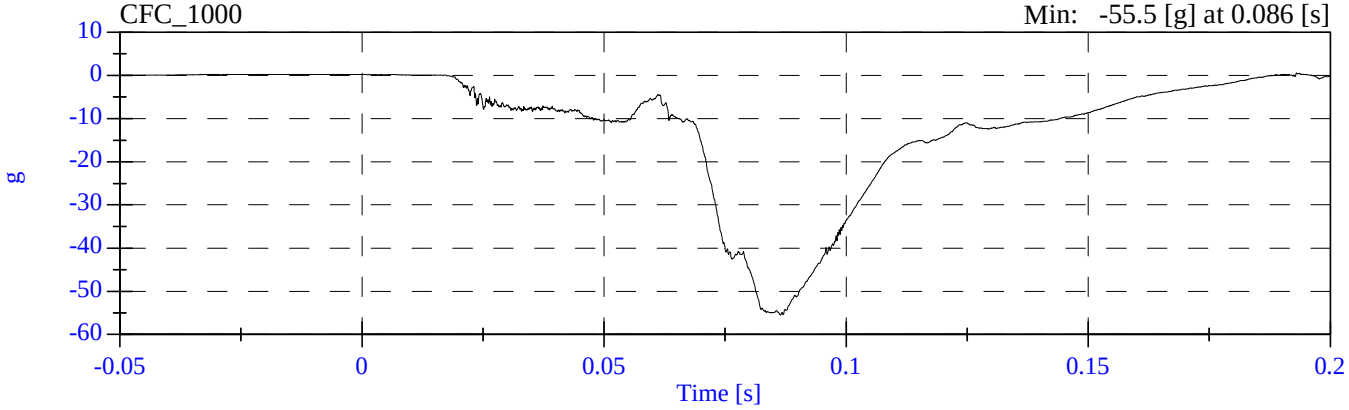
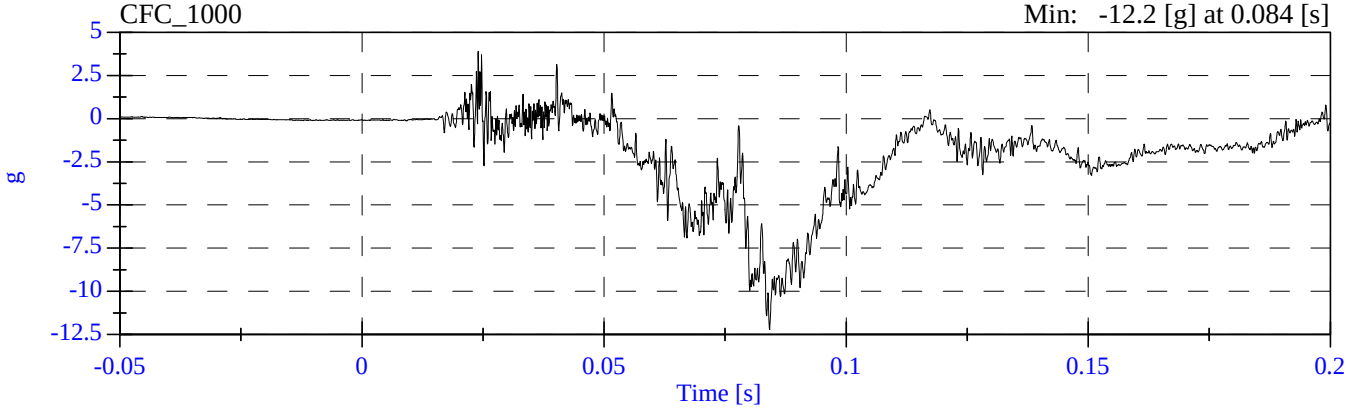
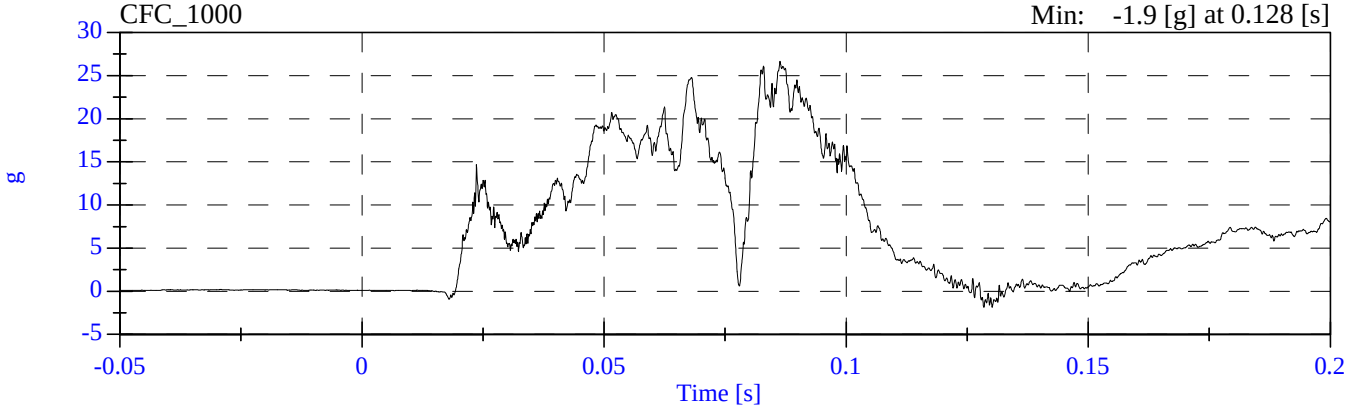
V1P2 Head CG x
CFC_1000
Max: 0.6 [g] at 0.193 [s]
Min: -55.5 [g] at 0.086 [s]



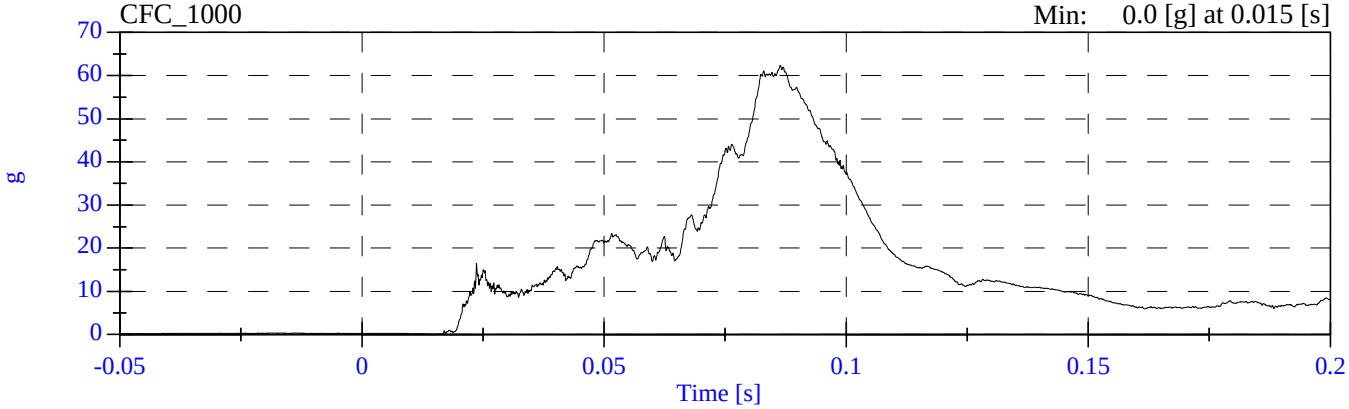
V1P2 Head CG y
CFC_1000
Max: 3.9 [g] at 0.024 [s]
Min: -12.2 [g] at 0.084 [s]



V1P2 Head CG z
CFC_1000
Max: 26.7 [g] at 0.086 [s]
Min: -1.9 [g] at 0.128 [s]



V1P2 Head CG Resultant
CFC_1000
Max: 62.4 [g] at 0.086 [s]
Min: 0.0 [g] at 0.015 [s]



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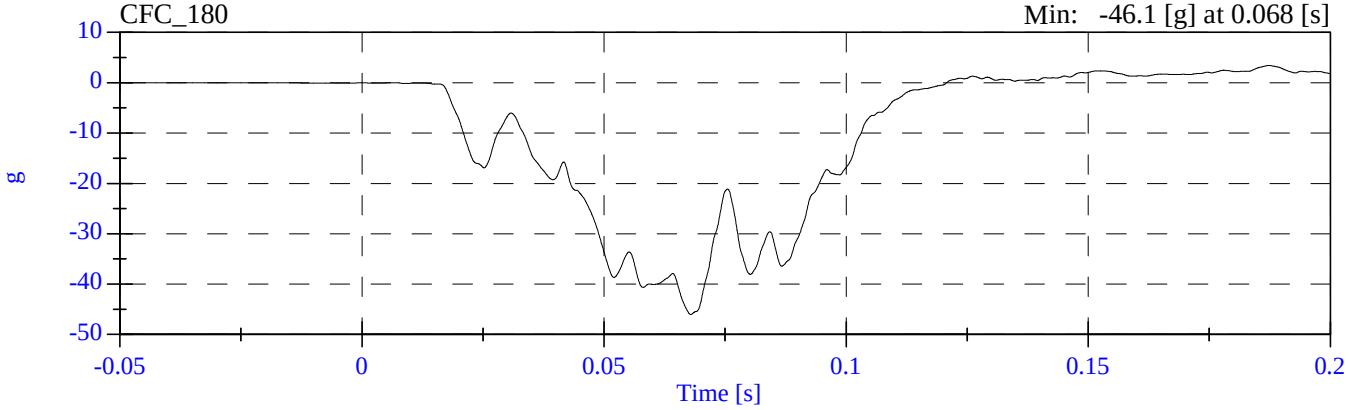
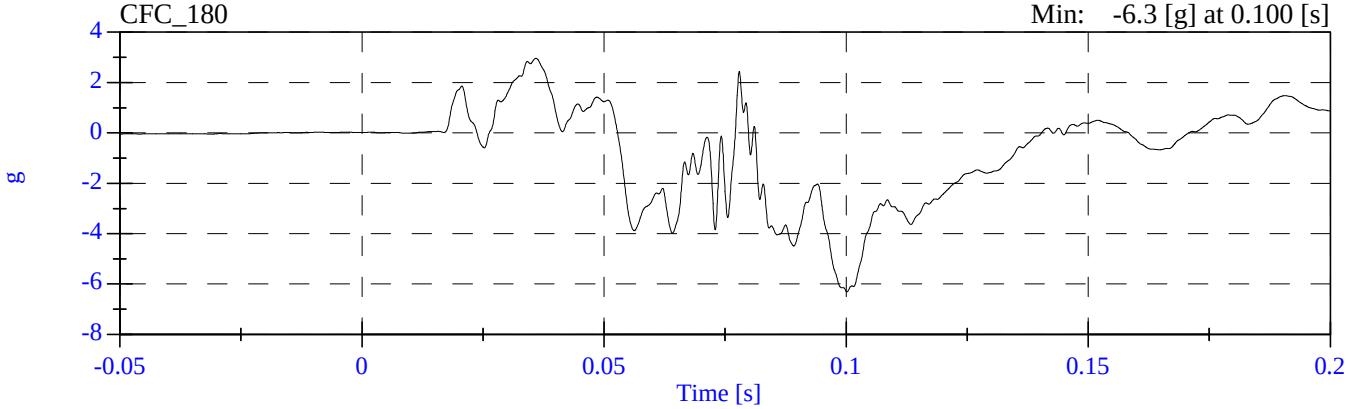
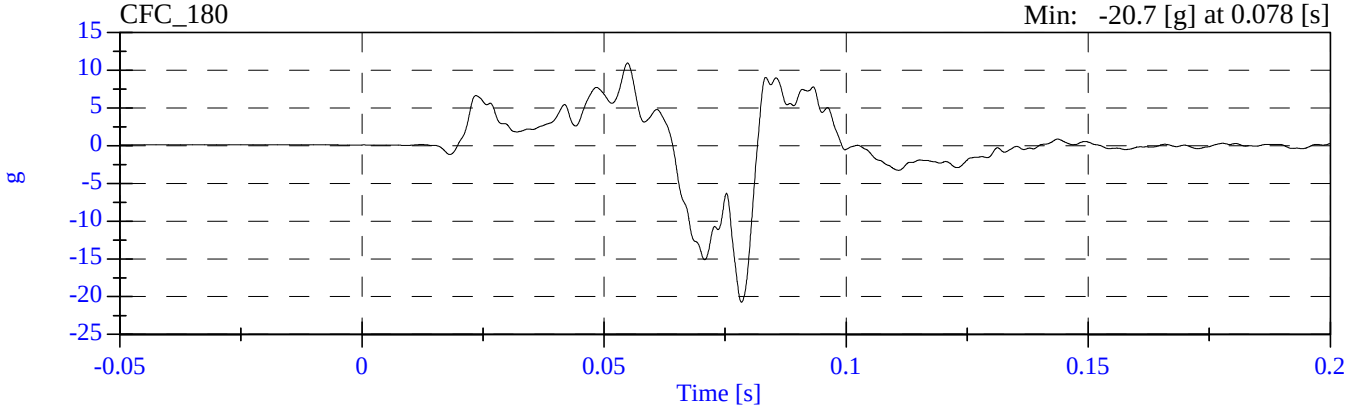
V1P2 Chest x
CFC_180
Max: 3.4 [g] at 0.187 [s]
Min: -46.1 [g] at 0.068 [s]



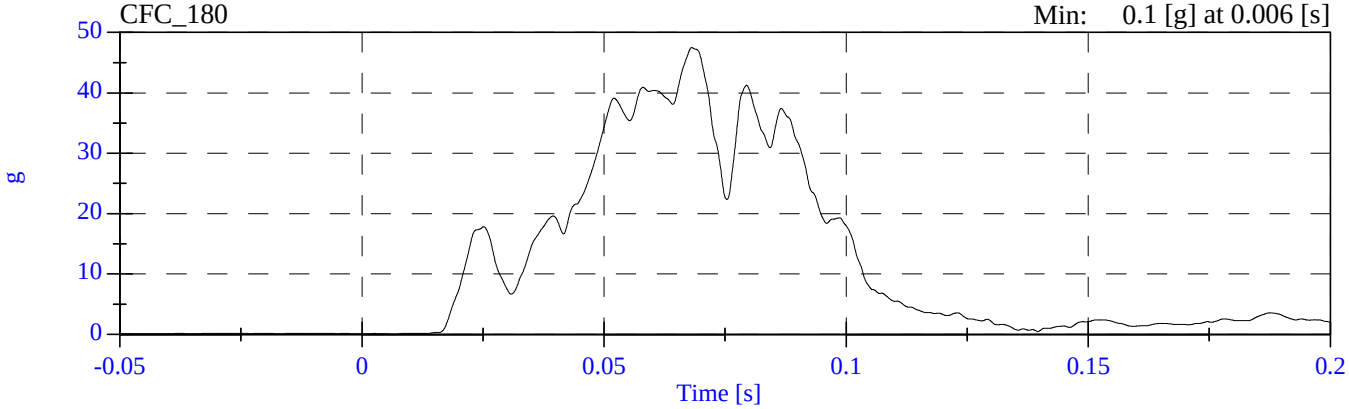
V1P2 Chest y
CFC_180
Max: 3.0 [g] at 0.036 [s]
Min: -6.3 [g] at 0.100 [s]



V1P2 Chest z
CFC_180
Max: 11.0 [g] at 0.055 [s]
Min: -20.7 [g] at 0.078 [s]



V1P2 Chest Resultant
CFC_180
Max: 47.5 [g] at 0.068 [s]
Min: 0.1 [g] at 0.006 [s]



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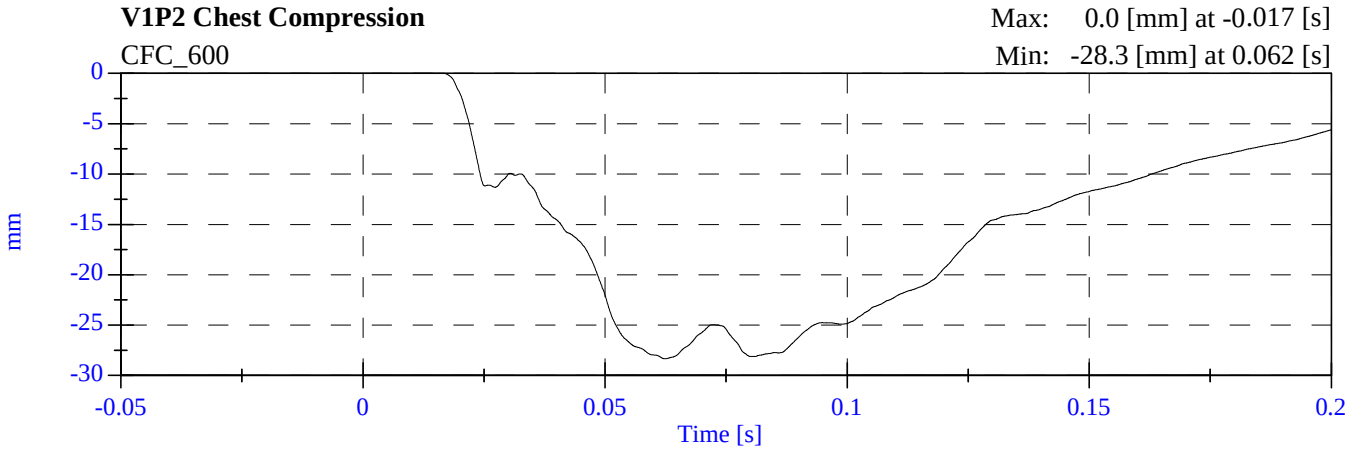

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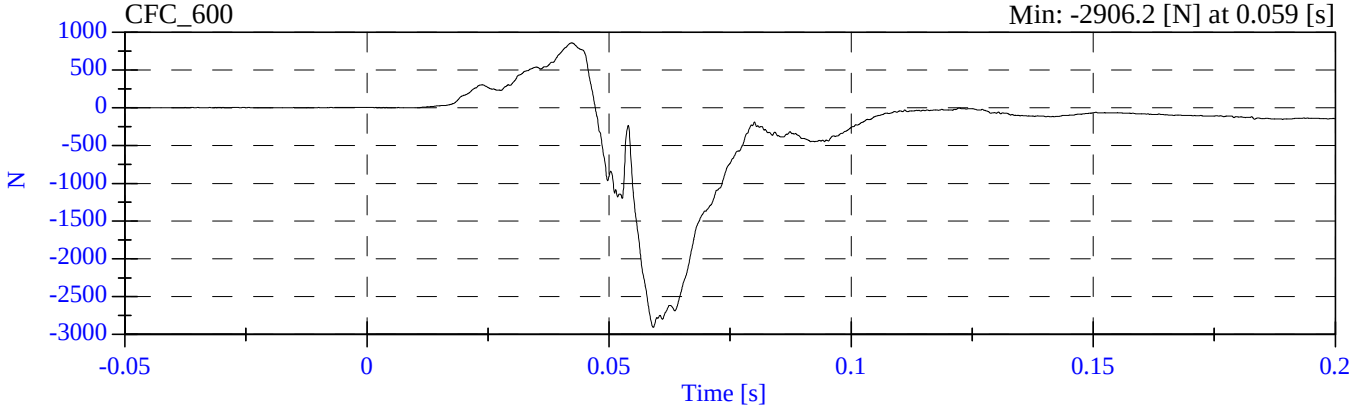
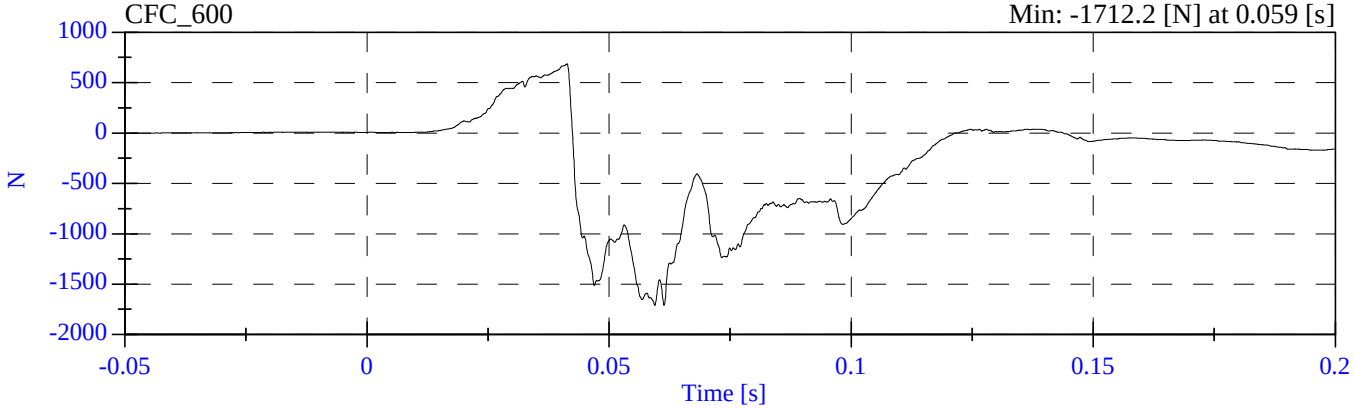
V1P2 Left Femur
CFC_600
Max: 860.3 [N] at 0.042 [s]
Min: -2906.2 [N] at 0.059 [s]



V1P2 Right Femur
CFC_600
Max: 686.8 [N] at 0.041 [s]
Min: -1712.2 [N] at 0.059 [s]



APPENDIX C

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

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

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

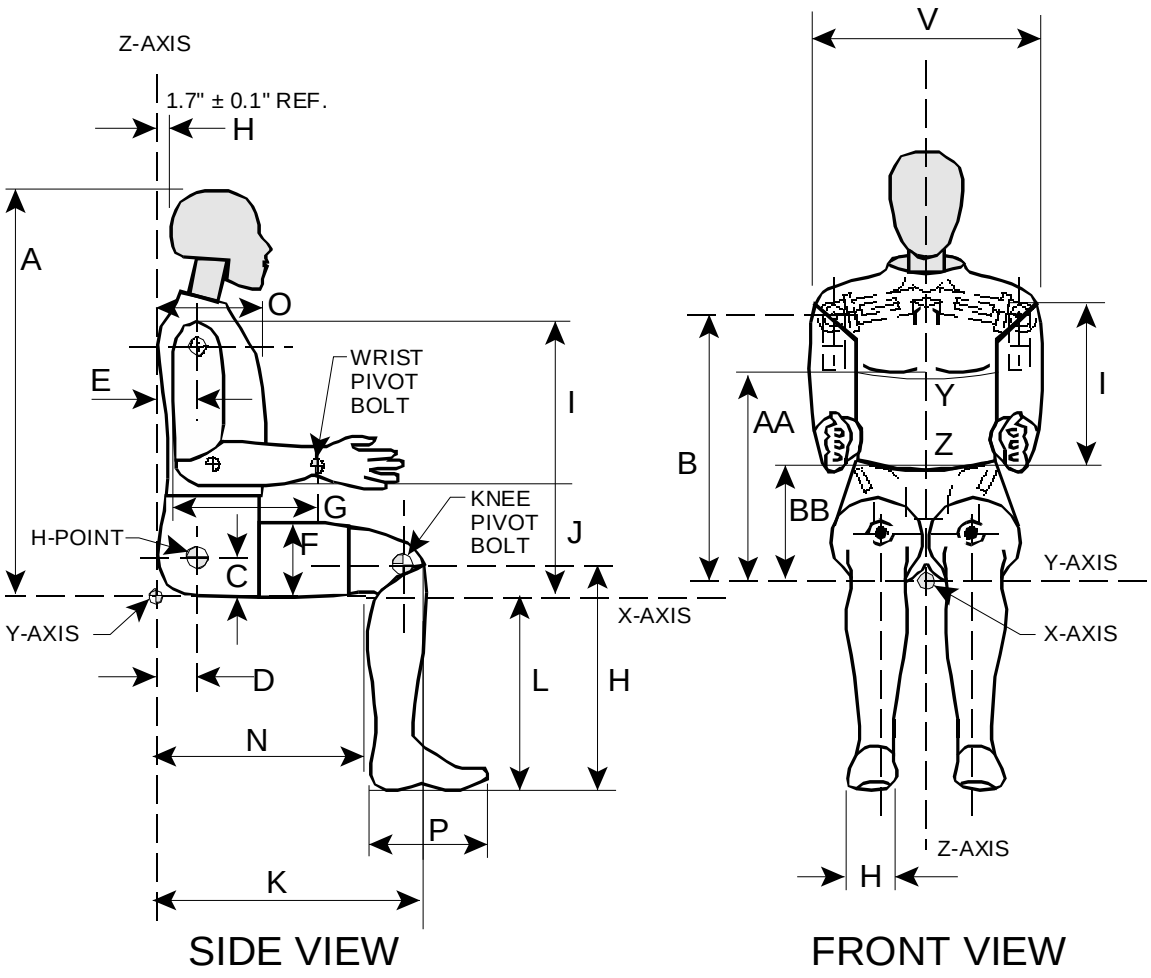
Dummy serial numbers and certification dates are:

Position No./Location	Serial No.	Completion Date
#1/Driver	142	11/13/2006
#2/Right Front Passenger	150	11/13/2006

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 Indicant Testing Final Report No. 6525-V-1.

EXTERNAL DIMENSIONS SPECIFICATIONS



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

PART 572E
HEAD DROP TEST

Dummy Serial Number	142
Sequential Test Number	1
Date	11/07/2006
Workfile	142HD 11-07-06

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	37.00
Peak Resultant Acceleration	225-275 G's	244.51
Peak Lateral Acceleration	15 G's Max	5.51
Is Acceleration Curve Unimodal?	YES	Yes

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	142	
Sequential Test Number	1	
Date	11/08/2006	6 Axis Neck Transducer
Workfile	142NF1 11-08-06	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	33.00
Impact Velocity		6.89 – 7.13 m/s	7.00
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	25.17
	20 ms	17.60 - 22.60 G's	21.42
	30 ms	12.50 - 18.50 G's	17.10
Max Pendulum G's Above 30 ms		29 G's Max	17.10
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	38.10
D Plane Rotation	Max	64 - 78 Deg	66.13
	Time	57 - 64 ms	59.50
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	93.58
	Time	47 - 58 ms	50.00
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	118.60
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	142	
Sequential Test Number	1	
Date	11/08/2006	6 Axis Neck Transducer
Workfile	142NE 11-08-06	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	33.00
Impact Velocity		5.94 – 6.19 m/s	6.08
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.93
	20 ms	14.00 - 19.00 G's	18.73
	30 ms	11.00 - 16.00 G's	14.60
Max Pendulum G's Above 30 ms		22 G's Max	14.60
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	40.30
D Plane Rotation	Max	81 - 106 Deg	87.73
	Time	72 - 82 ms	74.80
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-68.95
	Time	65 - 79 ms	70.00
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	154.20
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	134.00

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	142
Sequential Test Number	1
Date	11/13/2006
Workfile	142T 11-13-06

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	20.6 – 22.2 Deg C	21.1
Relative Humidity	10% - 70%	37.00
Pendulum Velocity	6.58 – 6.83 m/s	6.65
Maximum Deflection	63.50 – 72.64 mm	66.3
Maximum Resistive Force	5159.9 – 5893.9 N	5315.63
Internal Hysteresis	69 - 85 %	75.21

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	142
Sequential Test Number	1
Date	11/13/2006
Workfile	142LF 11-13-06/142RF 11-13-06

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	36.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5267.10
RIGHT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	36.0
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5364.4

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 142
Sequential Test Number 1
Date 11/13/2006

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			34
Location for Chest Circumference	AA	16.9 -17.1 in	17.1
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Total Sitting Height	A	34.6 - 35.0 in	35.0
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
H-Point Height	C	3.3 - 3.5 in	3.5
H-Point from Backline	D	5.3 - 5.5 in	5.3
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Thigh Clearance	F	5.5 - 6.1 in	6.0
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.5
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.5
Elbow Rest Height	J	7.5 - 8.3 in	8.2
Buttock Knee Length	K	22.8 - 23.8 in	23.5
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.2
Buttock Popliteal Length	N	17.8 - 18.8 in	18.6
Chest Depth	O	8.4 - 9.0 in	9.0
Foot Length	P	9.9 - 10.5 in	10.3
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Foot Breadth	W	3.6 - 4.2 in	4.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.0
Waist Circumference	Z	32.9 - 34.1 in	33.2

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number	150
Sequential Test Number	1
Date	11/07/2006
Workfile	150HD 11-07-06

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	37.00
Peak Resultant Acceleration	225-275 G's	261.94
Peak Lateral Acceleration	15 G's Max	2.86
Is Acceleration Curve Unimodal?	YES	Yes

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	150	
Sequential Test Number	1	
Date	11/08/2006	6 Axis Neck Transducer
Workfile	150NF 11-08-06	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	33.00
Impact Velocity		6.89 – 7.13 m/s	7.00
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.87
	20 ms	17.60 - 22.60 G's	22.02
	30 ms	12.50 - 18.50 G's	18.02
Max Pendulum G's Above 30 ms		29 G's Max	18.02
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	36.60
D Plane Rotation	Max	64 - 78 Deg	66.17
	Time	57 - 64 ms	57.50
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	91.71
	Time	47 - 58 ms	47.70
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	115.10
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	150	
Sequential Test Number	2	
Date	11/08/2006	6 Axis Neck Transducer
Workfile	150NE2 11-08-06	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	33.00
Impact Velocity		5.94 – 6.19 m/s	6.08
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.57
	20 ms	14.00 - 19.00 G's	17.83
	30 ms	11.00 - 16.00 G's	13.94
Max Pendulum G's Above 30 ms		22 G's Max	13.94
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	41.10
D Plane Rotation	Max	81 - 106 Deg	91.70
	Time	72 - 82 ms	73.90
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-68.97
	Time	65 - 79 ms	69.60
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	153.30
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	132.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	150
Sequential Test Number	1
Date	11/13/2006
Workfile	150T 11-13-2006

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	6.67
Maximum Deflection	63.50 – 72.64 mm	64.0
Maximum Resistive Force	5159.9 – 5893.9 N	5399.4
Internal Hysteresis	69 - 85 %	75.29

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	150
Sequential Test Number	1
Date	11/13/2006
Workfile	150LF 11-13-2006/150RF 11-13-2006

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	36.00
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5400.4
RIGHT KNEE		
Temperature	18.9 – 25.6 Deg C	21.1
Relative Humidity	10% - 70%	36.00
Probe Velocity	2.07 – 2.13 m/s	2.13
Peak Knee Impact Force	4715.1 – 5782.7 N	5609.5

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 150
Sequential Test Number 1
Date 11/13/2006

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			34
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	34.9
Shoulder Pivot Height	B	19.9 - 20.5 in	20.0
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.5
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	11.5
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Elbow Rest Height	J	7.5 - 8.3 in	8.2
Buttock Knee Length	K	22.8 - 23.8 in	23.5
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.5
Buttock Popliteal Length	N	17.8 - 18.8 in	18.5
Chest Depth	O	8.4 - 9.0 in	9.0
Foot Length	P	9.9 - 10.5 in	10.2
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Foot Breadth	W	3.6 - 4.2 in	4.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.1
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 142)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENTRAN	AC-02A16-A09	08-Jan-07	08-Jul-07
	Y	ENTRAN	AC-02I0210-N20	08-Jan-07	08-Jul-07
	Z	ENDEVCO	AC-J19244	08-Jan-07	08-Jul-07
Head	X (R)	ENDEVCO	AC-P16591	08-Jan-07	08-Jul-07
	Y (R)	ENDEVCO	AC-P16286	08-Jan-07	08-Jul-07
	Z (R)	ENDEVCO	AC-J23996	08-Jan-07	08-Jul-07
Neck Load Cell	X	DENTON	LC-280Fx	21-Apr-06	21-Oct-06
	Y	DENTON	LC-280Fy	21-Apr-06	21-Oct-06
	Z	DENTON	LC-280Fz	21-Apr-06	21-Oct-06
Neck Moment	X	DENTON	LC-280Mx	21-Apr-06	21-Oct-06
	Y	DENTON	LC-280My	21-Apr-06	21-Oct-06
	Z	DENTON	LC-280Mz	21-Apr-06	21-Oct-06
Chest	X	ENTRAN	AC-03E03D16-F16	08-Jan-07	08-Jul-07
	Y	ENTRAN	AC-05H31-Z04	08-Jan-07	08-Jul-07
	Z	ENTRAN	AC-04J04I20-Z04	08-Jan-07	08-Jul-07
Chest	X (R)	ENTRAN	AC-03E03E21-M02	08-Jan-07	08-Jul-07
	Y (R)	ENTRAN	AC-01G18-F08	08-Jan-07	08-Jul-07
	Z (R)	ENTRAN	AC-03F03E29-N04	08-Jan-07	08-Jul-07
Chest Deflection	X	SERVO	DS-142	05-Apr-06	05-Oct-06
Pelvic	X	ENTRAN	AC-00L13-F10	08-Jan-07	08-Jul-07
	Y	ENTRAN	AC-03F03F09-N06	08-Jan-07	08-Jul-07
	Z	ENTRAN	AC-03E03E21-M06	08-Jan-07	08-Jul-07

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 142)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	DENTON	LC-1523	21-Apr-06	21-Oct-06
Right Femur Load Cell	Fz	DENTON	LC-1524	21-Apr-06	21-Oct-06
Left Upper Tibia	Mx	DENTON	LC-265Mx	24-Apr-06	24-Oct-06
	My	DENTON	LC-265My	24-Apr-06	24-Oct-06
Left Lower Tibia	Fz	DENTON	LC-178Fz	24-Apr-06	24-Oct-06
	Mx	DENTON	LC-178Mx	24-Apr-06	24-Oct-06
	My	DENTON	LC-178My	24-Apr-06	24-Oct-06
Right Upper Tibia	Mx	DENTON	LC-200Mx	24-Apr-06	24-Oct-06
	My	DENTON	LC-200My	24-Apr-06	24-Oct-06
Right Lower Tibia	Fz	DENTON	LC-128Fz	24-Apr-06	24-Oct-06
	Mx	DENTON	LC-128Mx	24-Apr-06	24-Oct-06
	My	DENTON	LC-128My	24-Apr-06	24-Oct-06
Left Foot Rear	X	ENDEVCO	AC-AJ7G1	08-Jan-07	08-Jul-07
	Z	ENDEVCO	AC-J20084	08-Jan-07	08-Jul-07
Left Foot Front	Z	ENDEVCO	AC-J20004	08-Jan-07	08-Jul-07
Right Foot Rear	X	ENDEVCO	AC-J27079	09-Jan-07	09-Jul-07
	Z	ENDEVCO	AC-ACCE6	09-Jan-07	09-Jul-07
Right Foot Front	Z	ENDEVCO	AC-J20580	09-Jan-07	09-Jul-07
Lap Belt Load Cell		First Technology	LC-156	11-Jul-06	11-Jan-07
Shoulder Belt Load Cell		First Technology	LC-159	11-Jul-06	11-Jan-07

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 150)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-J19996	05-Dec-06	05-Jun-07
	Y	ENDEVCO	AC-J14381	05-Dec-06	05-Jun-07
	Z	ENDEVCO	AC-J19547	05-Dec-06	05-Jun-07
Head	X (R)	ENDEVCO	AC-AJ4P7	05-Dec-06	05-Jun-07
	Y (R)	ENDEVCO	AC-J27366	05-Dec-06	05-Jun-07
	Z (R)	ENDEVCO	AC-P16676	05-Dec-06	05-Jun-07
Neck Load Cell	X	DENTON	LC-157Fx	21-Apr-06	21-Oct-06
	Y	DENTON	LC-157Fy	21-Apr-06	21-Oct-06
	Z	DENTON	LC-157Fz	21-Apr-06	21-Oct-06
Neck Moment	X	DENTON	LC-157Mx	21-Apr-06	21-Oct-06
	Y	DENTON	LC-157My	21-Apr-06	21-Oct-06
	Z	DENTON	LC-157Mz	21-Apr-06	21-Oct-06
Chest	X	ENDEVCO	AC-J20083	05-Dec-06	05-Jun-07
	Y	ENDEVCO	AC-P17848	19-Oct-06	19-Apr-07
	Z	ENDEVCO	AC-J19223	05-Dec-06	05-Jun-07
Chest	X (R)	ENDEVCO	AC-P35817	05-Dec-06	05-Jun-07
	Y (R)	ENDEVCO	AC-P35790	05-Dec-06	05-Jun-07
	Z (R)	ENDEVCO	AC-P39574	05-Dec-06	05-Jun-07
Chest Deflection	X	SERVO	DS-150	13-Apr-06	13-Oct-06
Pelvic	X	ENDEVCO	AC-J21985	05-Dec-06	05-Jun-07
	Y	ENDEVCO	AC-AAMW5	05-Dec-06	05-Jun-07
	Z	ENDEVCO	AC-AJ5P9	05-Dec-06	05-Jun-07

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

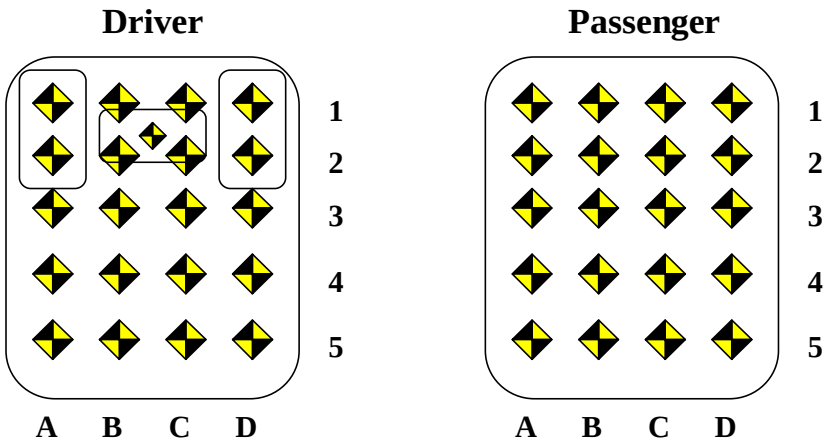
PASSENGER DUMMY (S/N 150)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	DENTON	LC-1527	21-Apr-06	21-Oct-06
Right Femur Load Cell	Fz	DENTON	LC-1528	21-Apr-06	21-Oct-06
Left Upper Tibia	Mx	DENTON	LC-263Mx	24-Apr-06	24-Oct-06
	My	DENTON	LC-263My	24-Apr-06	24-Oct-06
Left Lower Tibia	Fz	DENTON	LC-174Fz	24-Apr-06	24-Oct-06
	Mx	DENTON	LC-174Mx	24-Apr-06	24-Oct-06
	My	DENTON	LC-174My	24-Apr-06	24-Oct-06
Right Upper Tibia	Mx	DENTON	LC-274Mx	24-Apr-06	24-Oct-06
	My	DENTON	LC-274My	24-Apr-06	24-Oct-06
Right Lower Tibia	Fz	DENTON	LC-185Fz	24-Apr-06	24-Oct-06
	Mx	DENTON	LC-185Mx	24-Apr-06	24-Oct-06
	My	DENTON	LC-185My	24-Apr-06	24-Oct-06
Left Foot Rear	X	ENDEVCO	AC-P14914	06-Dec-06	06-Jun-07
	Z	ENDEVCO	AC-AGRP4	06-Dec-06	06-Jun-07
Left Foot Front	Z	ENDEVCO	AC-AJ4G1	06-Dec-06	06-Jun-07
Right Foot Rear	X	ENDEVCO	AC-J36723	06-Dec-06	06-Jun-07
	Z	ENDEVCO	AC-J27496	06-Dec-06	06-Jun-07
Right Foot Front	Z	ENDEVCO	AC-J35747	06-Dec-06	06-Jun-07
Lap Belt Load Cell		First Technology	LC-173	11-Jul-06	11-Jan-07
Shoulder Belt Load Cell		First Technology	LC-178	11-Jul-06	11-Jan-07

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(Six Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	GS SENSORS	AC-9440-046	12-Jan-07	12-Jul-07
Right Rear Seat Crossmember X	ICS	AC-FGP19	12-Jan-07	12-Jul-07
Top of Engine	ICS	AC-FA2478	21-Feb-07	21-Aug-07
Bottom of Engine	ICS	AC-FA2489	21-Feb-07	21-Aug-07
Right Disc Brake Caliper	ICS	AC-FA2487	21-Feb-07	21-Aug-07
Left Disc Brake Caliper	ICS	AC-FA2481	21-Feb-07	21-Aug-07
Left Seat Rear Crossmember Z	GS SENSORS	AC-9440-023	12-Jan-07	12-Jul-07
Right Seat Rear Crossmember Z	ICS	AC-FGP29	12-Jan-07	12-Jul-07

APPENDIX E

VEHICLE INTERIOR INTRUSION MEASUREMENTS

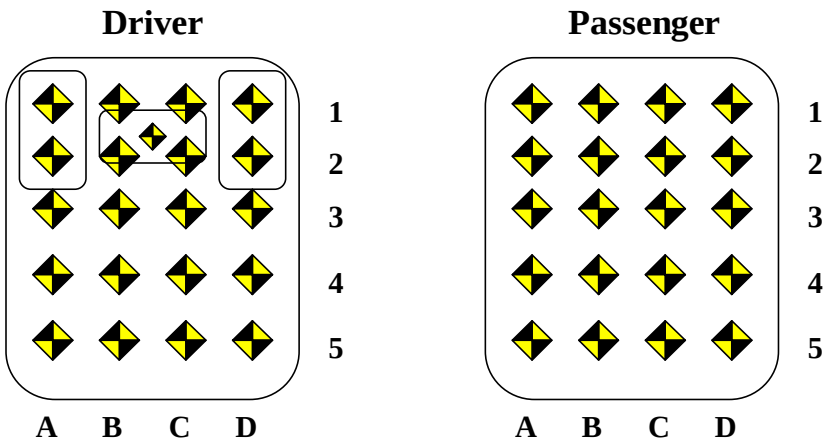


Driver Side Intrusion Measurements

Intrusion Location	PRE-TEST (mm)			POST-TEST (mm)			CHANGE (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3935	-686	708	3920	-690	703	15	4	5
B1	4038	-544	703	4021	-545	702	17	1	1
C1	4066	-402	711	4037	-403	713	29	1	-2
D1	4008	-276	705	3977	-278	712	31	2	-7
A2	3851	-684	631	3836	-687	627	15	3	4
B2	3945	-543	628	3930	-545	627	15	2	1
C2	3953	-400	635	3930	-405	633	23	5	2
D2	3956	-269	638	3934	-274	635	22	5	3
A3	3791	-678	582	3778	-686	583	13	8	-1
B3	3830	-542	583	3814	-548	580	16	6	3
C3	3841	-404	590	3818	-408	580	23	4	10
D3	3847	-272	586	3829	-277	576	18	5	10
A4	3735	-678	580	3717	-685	580	18	7	0
B4	3736	-543	581	3719	-548	578	17	5	3
C4	3736	-404	582	3720	-413	575	16	9	7
D4	3735	-269	585	3720	-275	573	15	6	12
A5	3640	-675	581	3624	-687	580	16	12	1
B5	3639	-543	581	3624	-550	579	15	7	2
C5	3637	-403	585	3623	-411	579	14	8	6
D5	3637	-268	584	3622	-276	574	15	8	10
BP	3889	-432	751	3902	-438	715	-13	6	36
G	3656	-614	1040	3650	-612	1040	6	-2	0
H	3651	-314	1041	3649	-315	1046	2	1	-5
L	3405	-463	1324	3357	-472	1272	48	9	52
AB	3322	-675	637	3308	-685	631	14	10	6

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	4010	283	736	3984	290	742	26	-7	-6
B1	4034	427	745	4013	429	746	21	-2	-1
C1	4033	568	745	4024	565	741	9	3	4
D1	3975	696	744	3966	696	742	9	0	2
A2	3924	286	657	3896	290	679	28	-4	-22
B2	3927	428	658	3907	434	668	20	-6	-10
C2	3932	561	662	3925	563	660	7	-2	2
D2	3926	693	663	3921	694	662	5	-1	1
A3	3826	285	583	3816	289	586	10	-4	-3
B3	3826	424	583	3815	427	582	11	-3	1
C3	3827	561	582	3816	563	581	11	-2	1
D3	3823	693	578	3817	701	578	6	-8	0
A4	3736	285	575	3733	285	576	3	0	-1
B4	3734	427	578	3725	424	578	9	3	0
C4	3736	558	578	3727	561	580	9	-3	-2
D4	3731	694	578	3725	694	580	6	0	-2
A5	3638	281	577	3628	282	576	10	-1	1
B5	3638	420	581	3632	421	579	6	-1	2
C5	3641	557	581	3629	561	580	12	-4	1
D5	3641	691	579	3631	690	579	10	1	0
R	3626	324	1033	3637	328	1042	-11	-4	-9
S	3637	633	1039	3640	631	1040	-3	2	-1
AB	3327	688	636	3309	692	631	18	-4	5

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