

REPORT NUMBER: SNCAP-CAL-07-11

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**FORD MOTOR COMPANY
2008 FORD FOCUS
FOUR-DOOR SEDAN**

NHTSA NUMBER: M80205

**PREPARED BY:
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Test Date: November 6, 2007

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
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Technical Report Documentation Page

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16. Abstract A 55/28 kph 90° Impact Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2008 Ford Focus 4-door Sedan in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted at the Calspan Corporation Crash Test Facility in Buffalo, New York, on November 6, 2007. The impact velocity of the Moving Deformable Barrier (MDB) was 62.6 km/h, and the ambient temperature at the struck side (driver side) of the vehicle was 21°C. The target vehicle's maximum post test static crush was 293 mm at level 2. The test vehicle's occupant performance is as follows:					
		<u>DRIVER</u>		<u>PASS.</u>	
Left Upper Rib (LUR) Accel., g		54.45		89.37	
Left Lower Rib (LLR) Accel., g		47.71		92.60	
Lower Spine (T ₁₂) Accel., g		68.73		102.74	
Thoracic Trauma Index (TTI)		62		98	
Pelvis (PEV) Accel., g		84		108	
HIC		212.5		1039.0	
The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					
17. Key Words New Car Assessment Program (NCAP) Side Impact Side Impact Hybrid III Dummy (SID/HIII) Occupant Side Impact Protection				18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, 1200 New Jersey Ave. SE Washington, D.C. 20590	
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SECTION 1
PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the FY' 2007 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-03-D-22005. The purpose of this test was to evaluate side impact protection in a 2008 Ford Focus 4-door Sedan manufactured by Ford Motor Company. The side impact test was conducted in accordance with the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated July 1997.

SECTION 2

SUMMARY OF NCAP SIDE IMPACT TEST

A model year 2008 Ford Focus 4-door Sedan was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.6 km/h. The specified impact velocity range is from 61.1 to 62.7 km/h. The test (target) vehicle was stationary and positioned 63° to the line of forward motion. The weight of the vehicle as tested was 1412 kg and the test weight of the MDB was 1362.5 kg. The test was conducted at the Calspan Corporation Transportation Sciences Center on November 6, 2007.

One (1) real-time motion picture camera and ten (10) high-speed motion picture cameras were used to document the impact event. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information are documented in the data sheets. Pre- and post-test photographs of the vehicle and Side Impact Dummies (SID/HIII's) can be found in Appendix A.

Two 50th percentile adult male SID/HIII's were placed in the driver (P1) and left rear passenger (P4) designated seating positions according to instructions specified in the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated July 1997. Each SID/HIII was instrumented in the following locations:

- Left Upper Rib (LUR) uni-axial accelerometer (Y-axis primary and redundant)
- Left Lower Rib (LLR) uni-axial accelerometer (Y-axis primary and redundant)
- Lower Thoracic Spine (T12) uni-axial accelerometer (Y-axis primary and redundant)
- Pelvic (PEV) section uni-axial accelerometer (Y-axis primary and redundant)
- Head Center of Gravity (CG) tri-axial accelerometers (X, Y and Z axes primary and redundant)
- Upper Neck load cell (Fx, Fy, Fz, Mx, My, Mz)

The test vehicle was instrumented with twenty-one (21) structural accelerometers and the MDB was instrumented with five (5) accelerometers.

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 293 mm at level 2, 1200 mm rearward of the left vertical impact point. The driver and passenger SID/HIII's, Serial Nos. 269 and 270 respectively, were calibrated just prior to this test.

Test data and observations are presented in this section of the report. Appendix A contains the still photograph prints. Appendix B contains the driver and passenger SID/HIII's, vehicle, and MDB response data traces. Appendix C contains the SID/HIII's configuration and performance verification data. Appendix D contains the test equipment information.

The occupant data is summarized below:

ATD position	HIC(36)	T ₁	T ₂	TTI (G's)	Peak Pelvis (G's)
Driver	212.5	33.1	57.6	62	84
Passenger	1039.0	51.5	57.9	98	108

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	No	NA	NA
Side Torso Airbag	Yes	Yes	NA	NA
Side Head/Torso Combination Airbag	NA	NA	NA	NA
Curtain Airbag	Yes	Yes	Yes	Yes

The test instrumentation data listed in Appendix B can be found on the NHTSA website:
www.nhtsa.dot.gov.

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2008 Ford Focus	NHTSA No.	M80205
Test Program:	NCAP Side Impact	Test Date:	November 6, 2007

TEST VEHICLE INFORMATION AND VEHICLE OPTIONS

Make	Ford Motor Company	Driver Front Airbag	Yes
Model	Focus	Driver Side Curtain Airbag	Yes
Body Style	4-door Sedan	Driver Side Torso Airbag	Yes
NHTSA No.	M80205	Driver Pretensioners	Yes
VIN	1FAHP34N78W124092	Driver Load Limiters	Yes
Color	Silver	Driver Power Seats	Yes
Engine Disp.(L)	2.0	Rear Pass. Side Curtain Airbag	Yes
Engine Cylinders	4	Rear Pass. Side Torso Airbag	No
Engine Placement	Lateral	Rear Pass. Pretensioners	No
Transmission Type	Automatic	Rear Pass. Load Limiters	No
Transmission Speeds	4	Rear Pass. Power Seats	NA
Final Drive	Front	Tilt Wheel	Yes
Air Conditioning	Yes	Anti-lock Brakes	No
Power Steering	Yes	Traction Control	No
Power Brakes	Yes	Power Windows	No
Delivery Date	10/18/07	Power Door Locks	Yes
Odometer Reading (km)	45	Automatic Door Locks (ADL)	Yes
Dealer	West Herr Ford Inc.	Owner's Manual Details Instructions on Disabling ADLs	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company	GVWR (kg)	1685
		GAWR Front (kg)	896
Date of Manufacture	10/07	GAWR Rear (kg)	796

VEHICLE CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number Of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				375
Cargo Wt. (RCLW) (kg)				34.8

DATA SHEET NO. 1 (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2008 Ford Focus NHTSA No. M80205
 Test Program: NCAP Side Impact Test Date: November 6, 2007

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			Fully Loaded (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	372.5	240.0		421.5	346.0		416	320	
Right	kg	374.0	235.0		385.0	308.0		384	292	
Ratio	%	61.1	38.9		55.2	44.8		56.7	43.3	
Totals	kg	746.5	475.0	1221.5	806.5	654.0	1460.5	800.0	612.0	1412.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1221.5
Weight of 2 P572E ATDs (81.2 kg each)	kg	162.4
Rated Cargo/Luggage Weight (RCLW)	kg	34.8
Calculated Vehicle Target Weight (TVTW)	kg	1418.7

* Actual As Tested Weight (ATW) will be TVTW -4.5/-9.1 kg

Weight of Ballast (including instrumentation package and cameras): 28.1 kg

TEST VEHICLE ATTITUDES

	Units	LF	RF	LR	RR
As Delivered	mm	677	699	680	700
Fully Loaded	mm	656	653	671	665
As Tested	mm	665	662	673	672

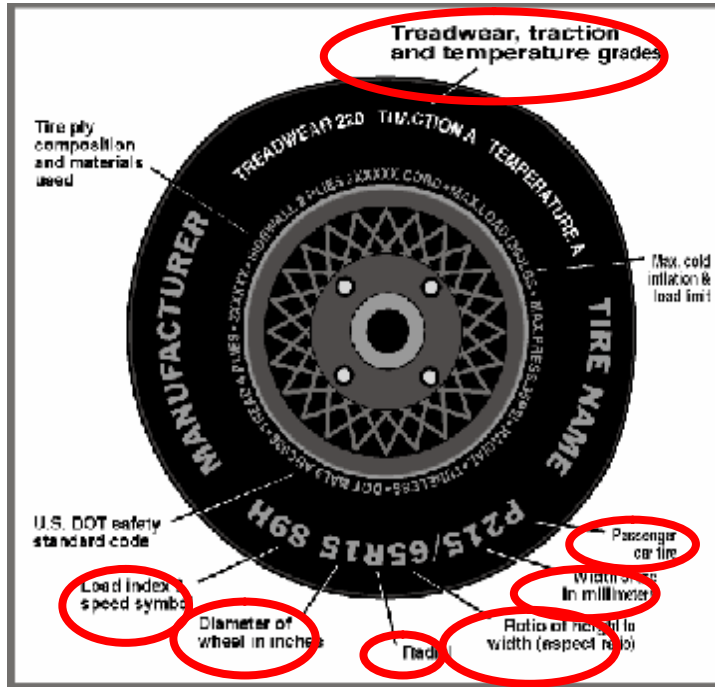
TEST VEHICLE VERTICAL IMPACT LINE AND CG

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2615
Target Impact Point Aft of Front Axle	mm	368
Actual Impact Point Aft of Front Axle	mm	392
As Tested CG (aft of front axle)	mm	1133

DATA SHEET NO. 2

TEST VEHICLE TIRE INFORMATION

Test Vehicle:	2008 Ford Focus	NHTSA No.	M80205
Test Program:	NCAP Side Impact	Test Date:	November 6, 2007



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold / Test Pressure (kPa)	220	220
Recommended Tire Size	P165/60R15	P165/60R15
Tire Size on Vehicle	P165/60R15	P165/60R15
Tire Manufacturer	Hankook	Hankook
Tire Name	Optimo H725	Optimo H725
Tire Type	Passenger	Passenger
Tire Width (mm)	195	195
Ratio of Height to Width (aspect ratio)	60	60
Radial	R	R
Wheel Diameter	15	15
Load Index & Speed Symbol	87T	87T
Treadwear	620	620
Traction Grade	B	B
Temperature Grade	B	B

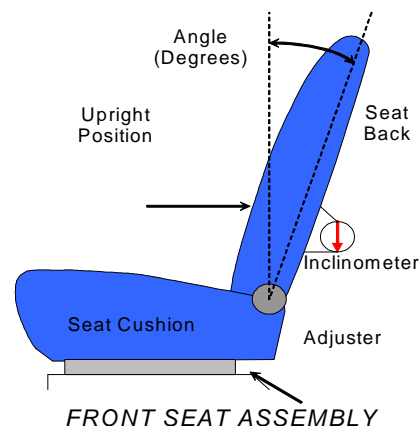
DATA SHEET NO. 3

TEST VEHICLE INFORMATION

Test Vehicle:	2008 Ford Focus	NHTSA No.	M80205
Test Program:	NCAP Side Impact	Test Date:	November 6, 2007

NORMAL DESIGN RIDING POSITION

The driver and passenger seat back is positioned to the manufacturer's designated angle.

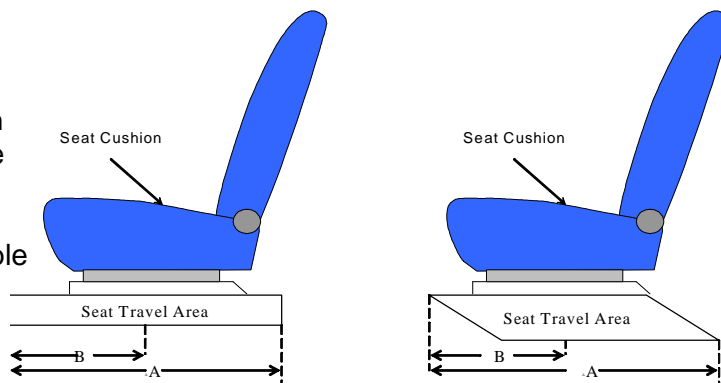


SEAT BACK POSITION

	Driver Seat	Rear Seat
Test Detent (forward-most detent defined as 0)	N/A	Fixed
Angle (deg. from forward-most locking position)	21.87	25
Alternative Measurements to Verify Test Position	18.9 FROM HEAD RESTRAINT	N/A

SEAT FORE/AFT POSITIONS

The total seat travel was measured from forward most position to rearmost position irrespective of vertical seat height in those positions. The seat was set at the longitudinal mid position with vertical adjustment at the lowest position obtainable for both the driver and passenger.



SEAT FORE/AFT POSITION

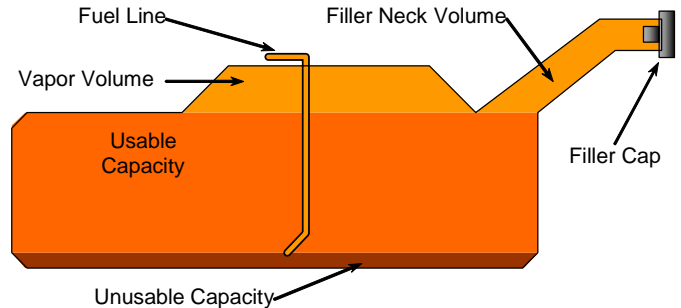
	Driver Seat	Rear Seat
Total Fore/Aft Travel (A) (mm)	220	N/A
Test Position (B) (mm)	110	N/A
Test Detent (forward-most detent defined as 0)	7	N/A
Total Number of Detents (including 0)	15	N/A

DATA SHEET NO. 3 (CONTINUED)
TEST VEHICLE INFORMATION

Test Vehicle:	<u>2008 Ford Focus</u>	NHTSA No.:	<u>M80205</u>
Test Program:	<u>NCAP Side Impact</u>	Test Date:	<u>November 6, 2007</u>

FUEL SYSTEM INFORMATION

The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies the area under the rear seat.



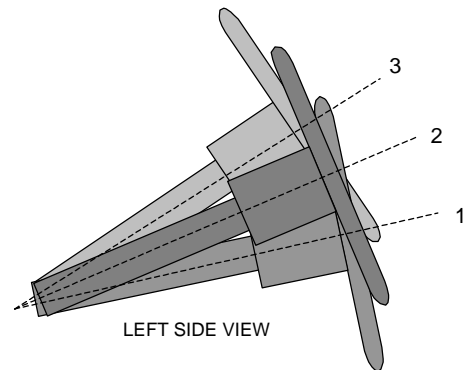
VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard" Fuel Tank	49.2
Usable Capacity of "Optional" Fuel Tank	0
Stoddard Used For Test (92%-94% of Fuel Tank Usable Capacity)	45.4

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITION

	Fore/Aft Position (mm)	Tilt (degrees)	Tilt (detent)
Lowermost Position No. 1	N/A	70.80	N/A
Geometric Center Position No. 2 *	N/A	68.05	N/A
Uppermost Position No. 3	N/A	65.30	N/A

* Test position

DATA SHEET NO. 4**MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS**

Test Vehicle:	2008 Ford Focus	NHTSA No.	M80205
Test Program:	NCAP Side Impact	Test Date:	November 6, 2007

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1250
Overall Length Including Honeycomb Face	4120
Wheel base of Framework Carriage	2590
Tread of Framework Carriage (front & rear)	1875
C.G. Location aft of Front Axle	1104

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	409.5	281.5	
Right	kg	372.5	299.0	
Ratio	%	57.4	42.6	
Totals	kg	782.0	580.5	1362.5

MDB SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.6
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.6

POST TEST OBSERVATIONS**MDB LEFT EDGE IMPACT POINT DATA**

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	24 mm rearward
Vertical Offset	mm	+/-20	2 mm above

DATA SHEET NO. 5

POST TEST OBSERVATIONS

Test Vehicle: 2008 Ford Focus NHTSA No. M80205
 Test Program: NCAP Side Impact Test Date: November 6, 2007

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID/HIII	Rear Seat SID/HIII
Dummy Type / Serial No.	SID/HIII / 269	SID/HIII / 270
Head Contact	Side Curtain	Side Curtain / Side Rail / Rear Pillar
Upper Torso Contact	Side Bag	Door Skin
Lower Torso Contact	Door Skin	Door Skin
Left Knee Contact	Door Skin	Door Skin
Right Knee Contact	Left Knee	Left Knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Locked/Unlocked Doors	Unlocked	Unlocked
Left Side Door Opening	Closed / Inoperable	Closed / Inoperable
Right Side Door Opening	Closed / Operable	Closed / Operable
Seat Movement	None	None
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	OK
Sill Separation	OK
Windshield Damage	Cracked on driver side portion of windshield
Window Damage	Both driver side front and rear windows blew out.
Other Notable Effects	None

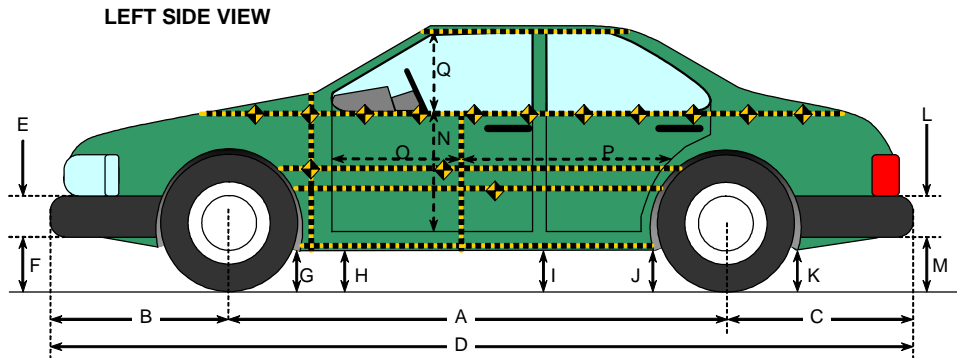
SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	No	NA	NA
Side Torso Airbag	Yes	Yes	NA	NA
Side Head/Torso Combination Airbag	NA	NA	NA	NA
Curtain Airbag	Yes	Yes	Yes	Yes

DATA SHEET NO. 6

VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle:	2008 Ford Focus	NHTSA No.	M80205
Test Program:	NCAP Side Impact	Test Date:	November 6, 2007



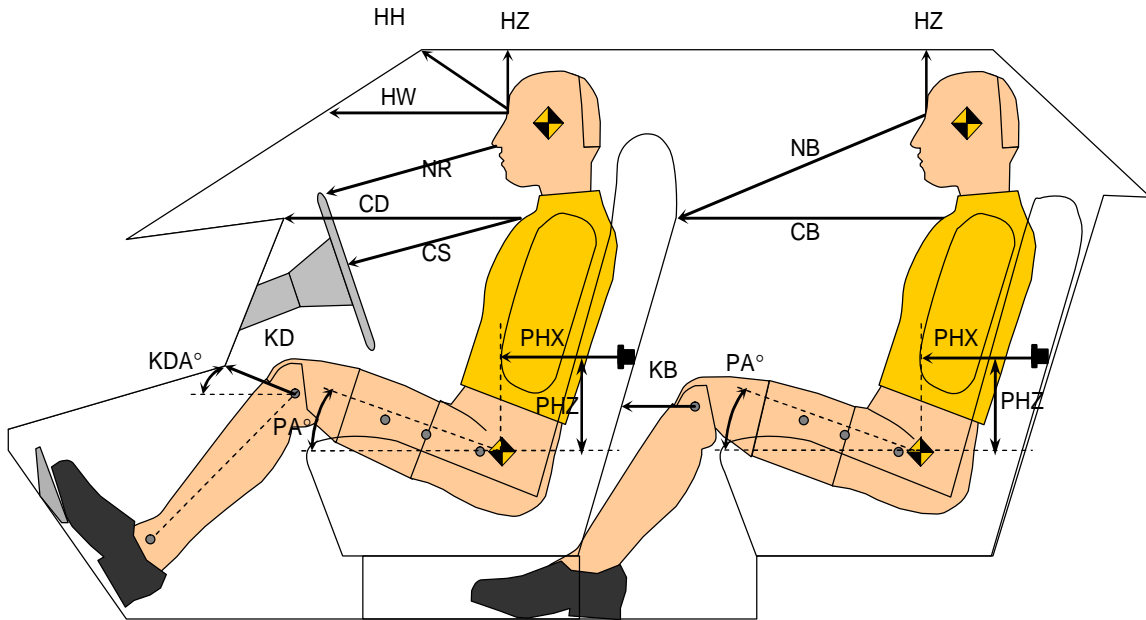
All Measurements in mm

Code	Measurement Description	Pre-Test (delivered)	Pre-Test (as tested)	Post-Test (as tested)	Difference
A	Wheelbase	2614	2615	2559	56
B	Front Axle to FSOV	890	889	906	-17
C	Rear Axle to RSOV	944	944	972	-28
D	Total Length at Centerline	4448	4448	4437	11
E	Front Bumper Thickness	133	133	133	0
F	Front Bumper Bottom to Ground	410	403	421	-18
G	Sill Height at Front Wheel Well	199	175	178	-3
H	Sill Height at Front Door Leading Edge	201	175	201	-26
I	Sill Height at "B" Pillar	205	170	214	-44
J1	Sill Height at Rear Wheel Well	194	152	185	-33
J2	Pinch Weld Height at Rear Wheel Well	217	177	210	-33
K	Sill Height Aft of Rear Wheel Well	271	222	250	-28
L	Rear Bumper Thickness	190	190	190	0
M	Rear Bumper Bottom to Ground	473	423	437	-14
N	Sill Height to Window Bottom Sill	696	696	620	76
O	Front Door Leading Edge to Impact CL	744	744	711	33
P	Rear Door Trailing Edge to Impact CL	1167	1167	1087	80
Q	Front Window Opening	430	430	409	21
R	Right Side Length	4381	4381	4377	4
S	Left Side Length	4380	4380	4336	44
T	Vehicle Width at "B" Post	1689	1689	1403	286

DATA SHEET NO. 7

SID/HIII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2008 Ford Focus	NHTSA No.	M80205
Test Program:	NCAP Side Impact	Test Date:	November 6, 2007

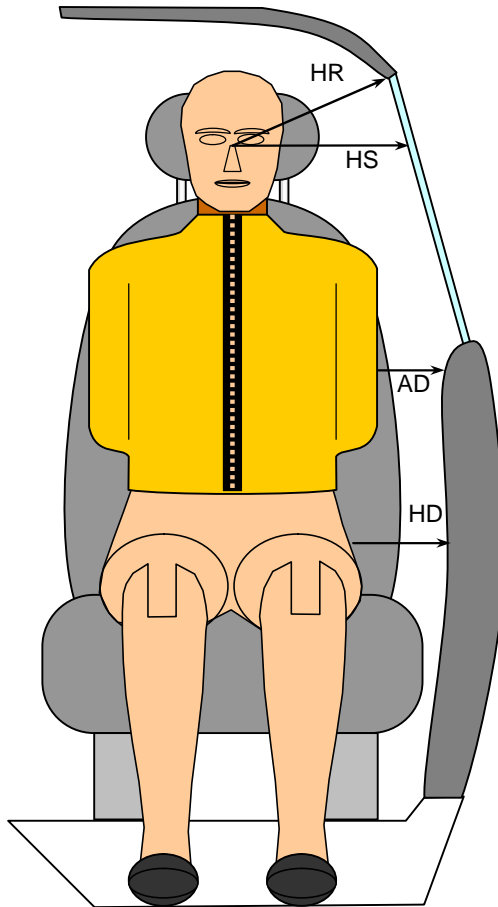


Driver Code	Pass. Code	Measurement Description	Driver S/N 269		Passenger S/N 270	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	432			
HW		Head to Windshield	614			
HZ	HZ	Head to Roof	171		162	
NR	NB	Nose to Rim/Nose to Seatback	485		562	
CD	CB	Chest to Dash or Seatback	556		497	
CS		Chest to Steering Wheel	326			
KDL	KBL	Left Knee to Dash or Seatback	161	35	147	28
KDR	KBR	Right Knee to Dash or Seatback	151	39	147	28
PA	PA	Pelvic Angle		23.9		23.4
PHX	PHX	H-Point to Striker (X-Axis)	156		233	
PHZ	PHZ	H-Point to Striker (Z-Axis)	112		284	

DATA SHEET NO. 8

SID/HIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2008 Ford Focus	NHTSA No.	M80205
Test Program:	NCAP Side Impact	Test Date:	November 6, 2007



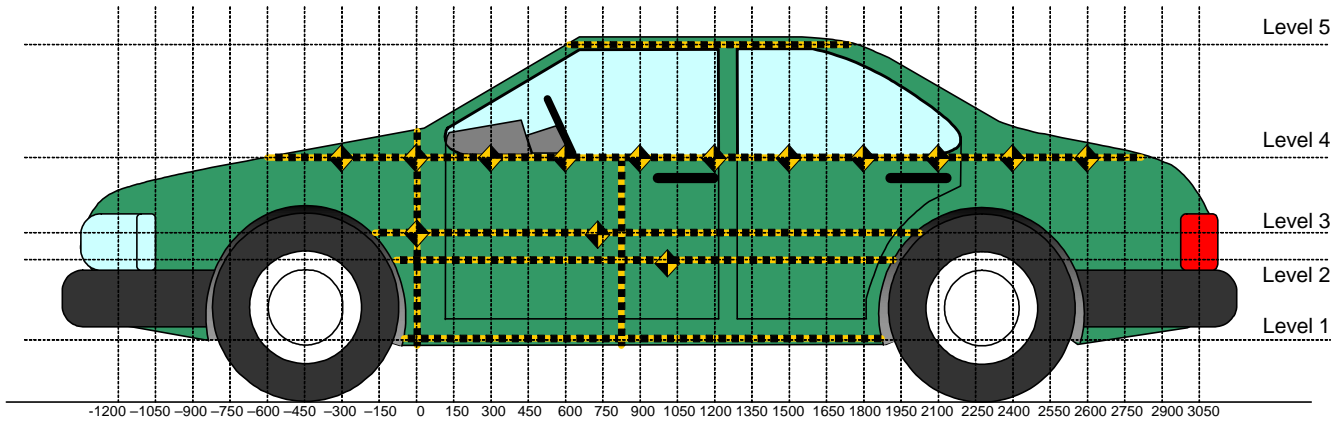
FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver S/N 269	Passenger S/N 270
HR	Head to Side Header	mm	154	181
HS	Head to Side Window	mm	271	287
AD ₁	Arm to Door (at upper rib level)	mm	114	124
AD ₂	Arm to Door (at lower rib level)	mm	113	116
HD	H-Point to Door	mm	144	144

DATA SHEET NO. 9

VEHICLE SIDE MEASUREMENTS

Test Vehicle: 2008 Ford Focus NHTSA No. M80205
 Test Program: NCAP Side Impact Test Date: November 6, 2007



All Measurements Shown in mm

LEFT SIDE VIEW

Measurements are taken with vehicle in the as tested condition.
 Measurements along the vertical 750 mm.
 All measurements below in mm.

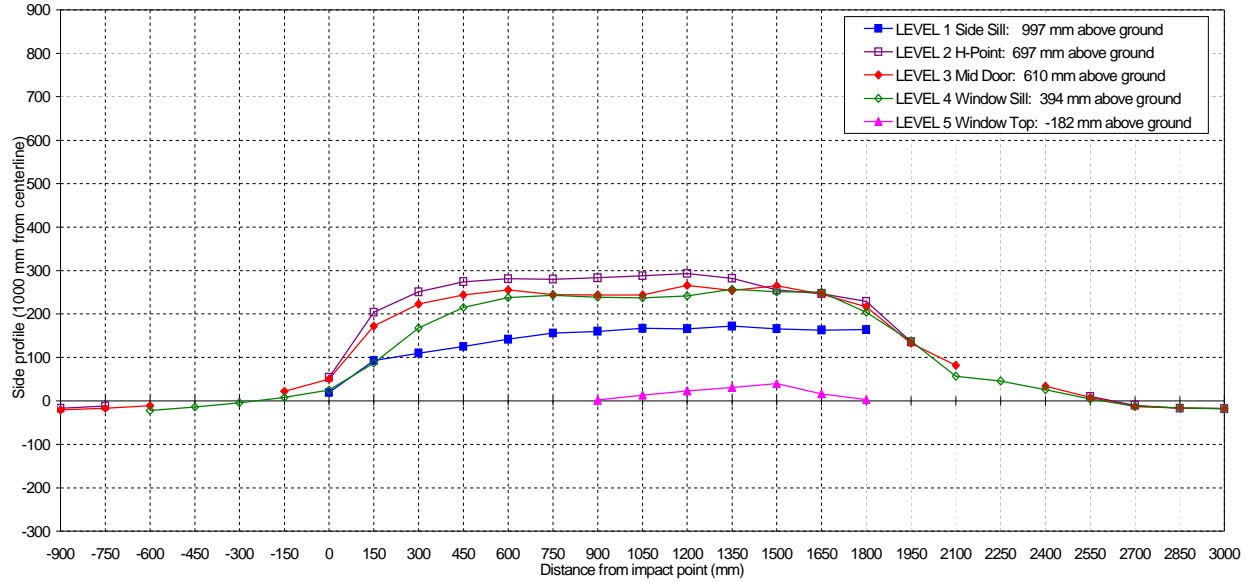
Level	Measurement Description	Maximum Exterior Static Crush	Height Above Ground	Distance From Impact
1	Sill Top	172	997	1350
2	Occupant H-Point	293	697	1200
3	Mid Door	266	610	1200
4	Window Sill	257	394	1350
5	Window	40	-182	1500
	Maximum Penetration	293		

DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2008 Ford Focus
 Test Program: NCAP Side Impact

NHTSA No. M80205
 Test Date: November 6, 2007



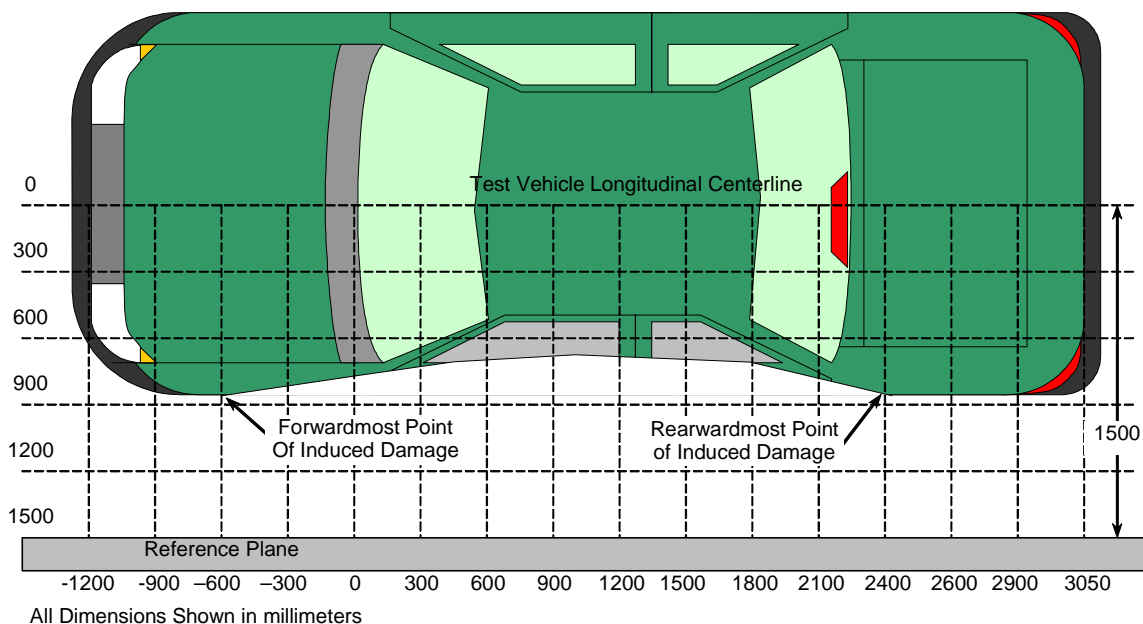
NOTE: All dimensions are in millimeters with a tolerance of ± 3 mm

LEVEL	HEIGHT (mm)		DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT																											
			-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850	3000	
LEVEL 1 SIDE SILL	997	PRE	--	--	--	--	--	--	193	194	193	194	195	196	199	202	205	209	213	214	195	--	--	--	--	--	--	--	--	
		POST	--	--	--	--	--	--	212	287	303	319	337	352	359	369	371	381	379	377	359	--	--	--	--	--	--	--	--	
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	19	93	110	125	142	156	160	167	166	172	166	163	164	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
LEVEL 2 H POINT	697	PRE	233	185	--	--	--	--	150	163	161	160	159	158	158	158	158	160	162	165	161	140	--	--	--	--	153	197	225	250
		POST	216	173	--	--	--	--	204	367	412	434	440	438	441	446	451	442	417	412	390	276	--	--	--	--	163	187	208	232
		CRUSH	-17	-12	N/A	N/A	N/A	N/A	54	204	251	274	281	280	283	288	293	282	255	247	229	136	N/A	N/A	N/A	N/A	10	-10	-17	-18
LEVEL 3 MID DOOR	610	PRE	245	200	158	--	--	144	151	163	160	159	157	156	155	155	156	157	159	161	161	145	136	--	140	160	200	221	245	
		POST	224	183	147	--	--	166	201	335	383	403	412	401	399	399	422	411	424	407	378	278	218	--	174	168	187	205	227	
		CRUSH	-21	-17	-11	N/A	N/A	22	50	172	223	244	255	245	244	244	266	254	265	246	217	133	82	N/A	34	8	-13	-16	-18	
LEVEL 4 WINDOW SILL	394	PRE	--	--	249	228	211	199	189	183	177	171	167	165	166	162	163	163	165	171	173	176	178	184	191	201	211	228	280	
		POST	--	--	227	214	207	207	214	270	345	386	405	408	405	399	405	420	416	421	377	314	235	230	217	205	199	212	262	
		CRUSH	N/A	N/A	-22	-14	-4	8	25	87	168	215	238	243	239	237	242	257	251	250	204	138	57	46	26	4	-12	-16	-18	
LEVEL 5 WINDOW TOP	-182	PRE	--	--	--	--	--	--	--	--	--	--	--	--	513	458	449	449	454	468	501	--	--	--	--	--	--	--	--	
		POST	--	--	--	--	--	--	--	--	--	--	--	--	--	515	471	472	480	494	484	504	--	--	--	--	--	--	--	--
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	13	23	31	40	16	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle:	2008 Ford Focus	NHTSA No.	M80205
Test Program:	NCAP Side Impact	Test Date:	November 6, 2007



TOP VIEW

DAMAGE PROFILE DISTANCES

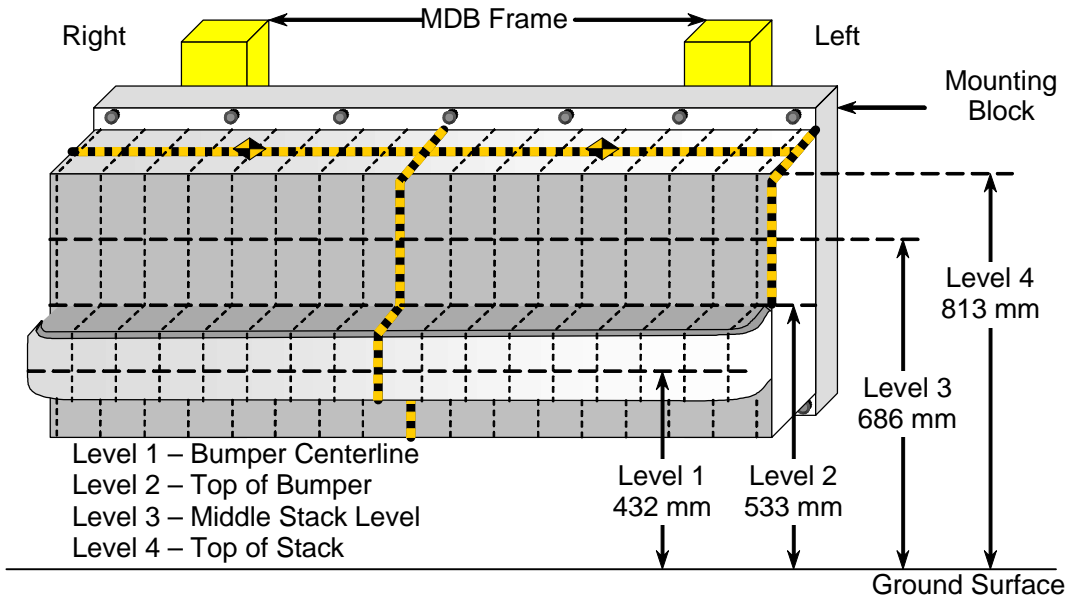
DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1 (LR)	2565	697	157	165	8
2	1994	610	142	260	118
3	1423	697	161	430	269
4	852	697	158	440	282
5	281	697	161	406	245
6 (LF)	-290	394	210	207	-3

Reference plane is parallel to test vehicle longitudinal centerline.
 Given dimensions = Reference plane to vehicle body.

DATA SHEET NO. 12

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2008 Ford Focus NHTSA No. M80205
 Test Program: NCAP Side Impact Test Date: November 6, 2007



NOTE: All dimensions are in millimeters with a tolerance of +3 mm

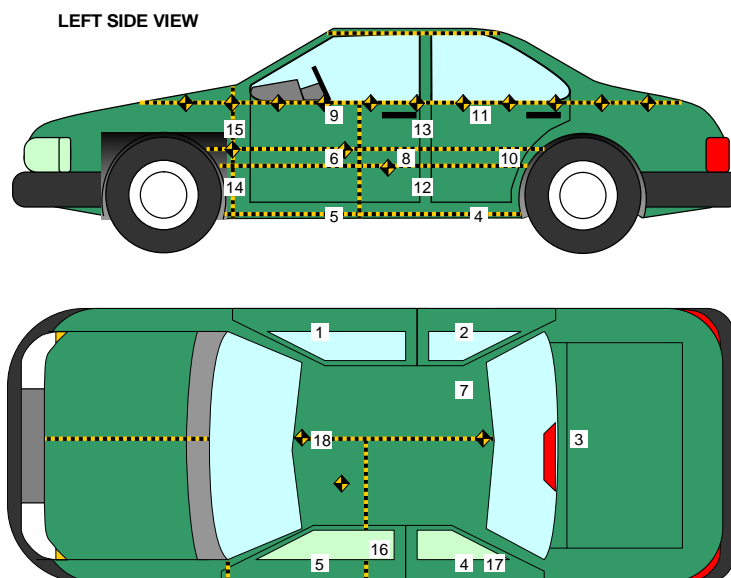
LEVEL	HEIGHT AT CL (mm)*		DISTANCE RIGHT OF CENTER (mm)								DISTANCE LEFT OF CENTER (mm)								
			-800	-700	-600	-500	-400	-300	-200	-100	0	100	200	300	400	500	600	700	800
LEVEL 4 TOP STACK	-811	PRE	411	412	412	412	412	412	413	413	413	413	413	413	413	413	413	412	
		POST	359	403	418	418	416	410	391	394	406	409	410	408	403	393	361	322	269
		CRUSH	52	9	-6	-6	-4	2	22	19	7	4	3	5	10	20	52	91	143
LEVEL 3 MID LEVEL	-682	PRE	411	411	412	412	412	412	412	413	412	412	412	412	412	412	412	412	
		POST	373	406	417	416	415	414	411	401	412	411	409	407	405	402	390	362	302
		CRUSH	38	5	-5	-4	-3	-2	1	11	1	1	3	5	7	10	22	50	110
LEVEL 2 TOP BUMPER	-542	PRE	411	412	412	412	412	412	412	413	412	412	412	412	412	412	412	412	
		POST	354	351	357	360	363	365	367	370	373	375	377	378	380	380	363	345	330
		CRUSH	57	61	55	52	49	47	45	42	40	37	35	34	32	32	49	67	82
LEVEL 1 MID BUMPER	-430	PRE	501	513	513	513	513	513	514	514	514	514	514	514	514	514	514	505	
		POST	386	423	441	446	448	448	452	454	458	460	462	464	465	466	452	424	382
		CRUSH	115	90	72	67	65	65	61	60	56	54	52	50	49	48	62	90	123

*Heights measured above ground level.

DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle:	2008 Ford Focus	NHTSA No.	M80205
Test Program:	NCAP Side Impact	Test Date:	November 6, 2007



Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	2774	668	-243
2	Right Sill at Rear Seat	1956	668	-193
3	Rear Floorpan Above Axle	1166	0	-445
4	Left Sill at Rear Door	1950	-662	-192
5	Left Sill at Front Door	2832	-665	-239
6	Left Front Door C/L**	-	-	-
7	Rear Occupant Compartment	2027	189	-200
8	Left Front Door Mid-Rear**	-	-	-
9	Left Front Door Upper C/L**	-	-	-
10	Left Rear Door Mid-Rear**	-	-	-
11	Left Rear Door Upper C/L**	-	-	-
12	Left Lower B-Post	2038	-642	-403
13	Left Middle B-Post	2012	-649	-845
14	Left Lower A-Post	3059	-618	-455
15	Left Middle A-Post	2928	-615	-1013
16	Front Seat Track	2199	-594	-280
17	Rear Seat Track or Structure	1187	-529	-458
18	Vehicle CG	2433	30	-441

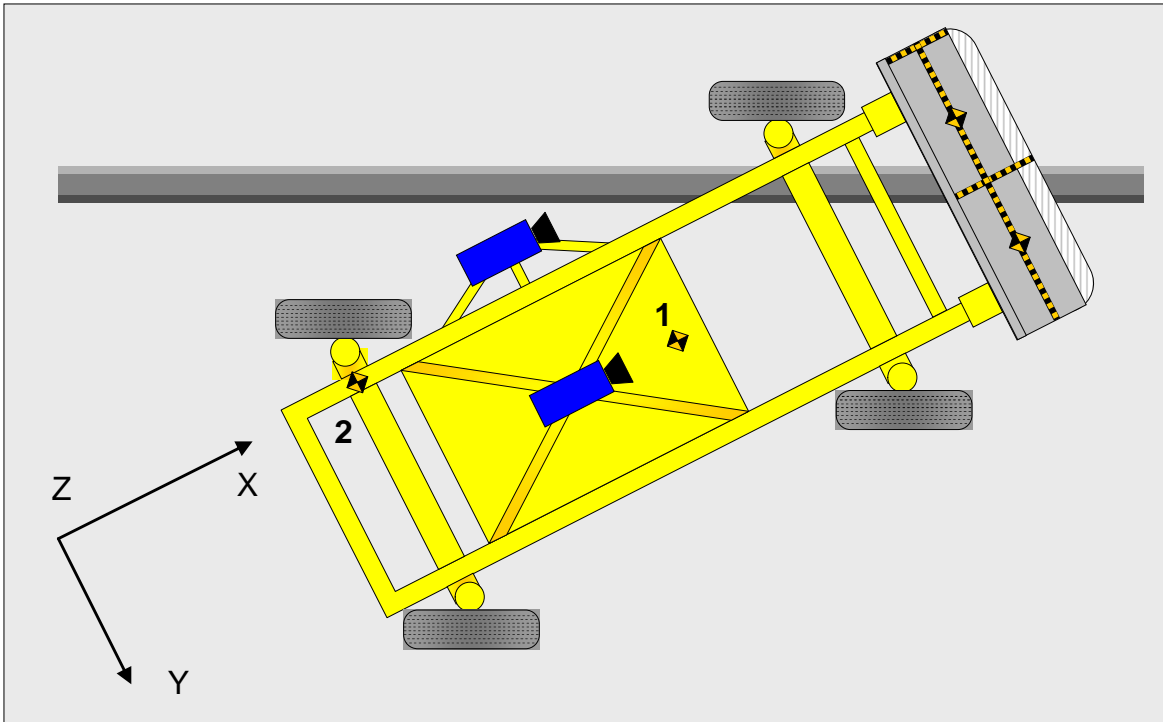
Reference Points X - Test Vehicle Rear Bumper (+ forward)
 Y - Test Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

** Accelerometer was not requested by the COTR.

DATA SHEET NO. 14

MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2008 Ford Focus NHTSA No. M80205
 Test Program: NCAP Side Impact Test Date: November 6, 2007



Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	MDB CG	1859	0	-330
2	MDB Rear	386	-660	-660

Reference Points X - MDB Rear Bumper (+ forward)
 Y - MDB Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 15**VEHICLE STRUCTURAL MEASUREMENTS**

Test Vehicle: 2008 Ford Focus NHTSA No. M80205
 Test Program: NCAP Side Impact Test Date: November 6, 2007

	Elements	Pre-Test (mm)
1	Total Length	4448
2	Total Width	1689
3	Bumper Top Height	536
4	Bumper Bottom Height	399
5	Longitudinal Member Top Height	529
6	Distance between Longitudinal Members	1082
7	Longitudinal Member Width	83
8	Engine Top Height	802
9	Engine Bottom Height	227
10	Engine and gearbox width	503
11	Front bumper-engine distance	537
12	Front shock absorber fixing height	845
13	Bonnet leading edge height	730
14	Front shock absorber fixing width	1096
15	Front bumper – front axle distance	890
16	Front axle – a pillar distance	460
17	A-pillar – B-pillar distance	1064
18	B-Pillar – rear axle distance	1090
19	B-pillar – C-pillar distance	970
20	Roof sill bottom height	1342
21	Roof sill top height	1411
22	Floor sill bottom height	206
23	Floor sill top height	321

APPENDIX A
PHOTOGRAPHS

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A-7	Pre-Test Left Front $\frac{3}{4}$ View	A-7
A-8	Post-Test Left Front $\frac{3}{4}$ View	A-7
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A-42	Post-Test Left Occupant Compartment View of Passenger	A-24
A-43	Pre-Test Left Front Interior Trim	A-25
A-44	Post-Test Left Front Interior Trim	A-25
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A-54	Rollover 360 Degrees	A-30
A-55	Impact Photo	A-31



Figure A-1: As Received Left Front $\frac{3}{4}$ View



Figure A-2: As Received Right Rear $\frac{3}{4}$ View

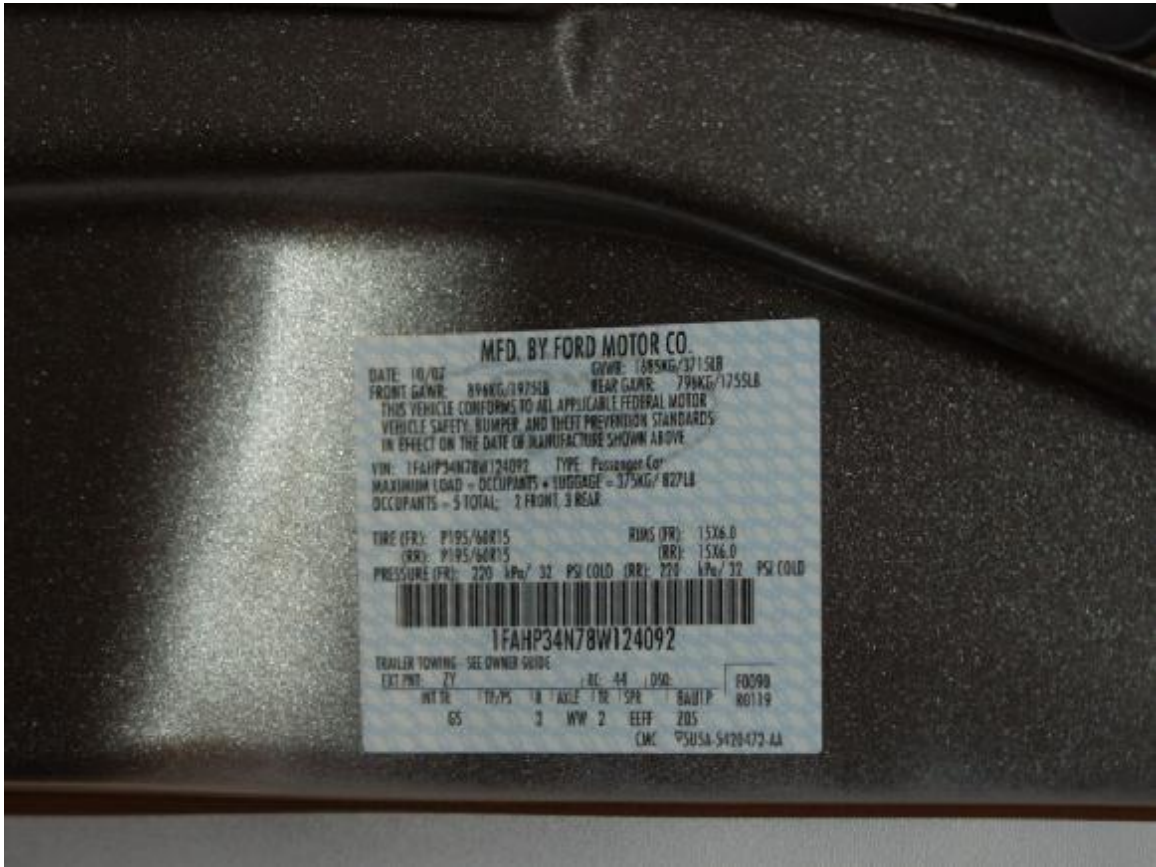


Figure A-3: Vehicle Certification Label



Figure A-4: Vehicle Tire Placard Label



Figure A-5: Pre-Test Front View



Figure A-6: Post-Test Front View



Figure A-7: Pre-Test Left Front $\frac{3}{4}$ View



Figure A-8: Post-Test Left Front $\frac{3}{4}$ View



Figure A-9: Pre-Test Left Side View



Figure A-10: Post-Test Left Side View



Figure A-11: Pre-Test Left Rear $\frac{3}{4}$ View



Figure A-12: Post-Test Left Rear $\frac{3}{4}$ View



Figure A-13: Pre-Test Rear View



Figure A-14: Post-Test Rear View



Figure A-15: Pre-Test Right Rear 3/4 View



Figure A-16: Post-Test Right Rear 3/4 View



Figure A-17: Pre-Test Right Side View



Figure A-18: Post-Test Right Side View



Figure A-19: Pre-Test Right Front $\frac{3}{4}$ View



Figure A-20: Post-Test Right Front $\frac{3}{4}$ View



Figure A-21: Pre-Test Frontal View of MDB Impactor Face



Figure A-22: Post-Test Frontal View of MDB Impactor Face



Figure A-23: Pre-Test Left Side View of MDB Impactor Face



Figure A-24: Post-Test Left Side View of MDB Impactor Face



Figure A-25: Pre-Test Right Side View of MDB Impactor Face



Figure A-26: Post-Test Right Side View of MDB Impactor Face



Figure A-27: Pre-Test Top View of MDB Impactor Face



Figure A-28: Post-Test Top View of MDB Impactor Face



Figure A-29: Pre-Test Left Side View of Aligned MDB and Vehicle



Figure A-30: Pre-Test Right Side View of Aligned MDB and Vehicle



Figure A-31: Pre-Test Overhead View of Aligned MDB and Vehicle



Figure A-32: Post-Test Overhead View of MDB and Vehicle



Figure A-33: Pre-Test Close-Up View of Impact Point Target



Figure A-34: Post-Test Close-Up View of Impact Point Target



Figure A-35: Pre-Test Right Occupant Compartment View of Driver



Figure A-36: Post-Test Right Occupant Compartment View of Driver



Figure A-37: Pre-Test Right Occupant Compartment View of Passenger



Figure A-38: Post-Test Right Occupant Compartment View of Passenger



Figure A-39: Pre-Test Left Occupant Compartment View of Driver



Figure A-40: Post-Test Left Occupant Compartment View of Driver



Figure A-41: Pre-Test Left Occupant Compartment View of Passenger



Figure A-42: Post-Test Left Occupant Compartment View of Passenger



Figure A-43: Pre-Test Left Front Interior Trim



Figure A-44: Post-Test Left Front Interior Trim



Figure A-45: Pre-Test Left Rear Interior Trim



Figure A-46: Post-Test Left Rear Interior Trim



Figure A-47: Pre-Test Left Front ¾ View of Left Side Doors



Figure A-48: Post-Test Left Front ¾ View of Left Side Doors



Figure A-49: Pre-Test Left Rear $\frac{3}{4}$ View of Left Side Doors



Figure A-50: Post-Test Left Rear $\frac{3}{4}$ View of Left Side Doors

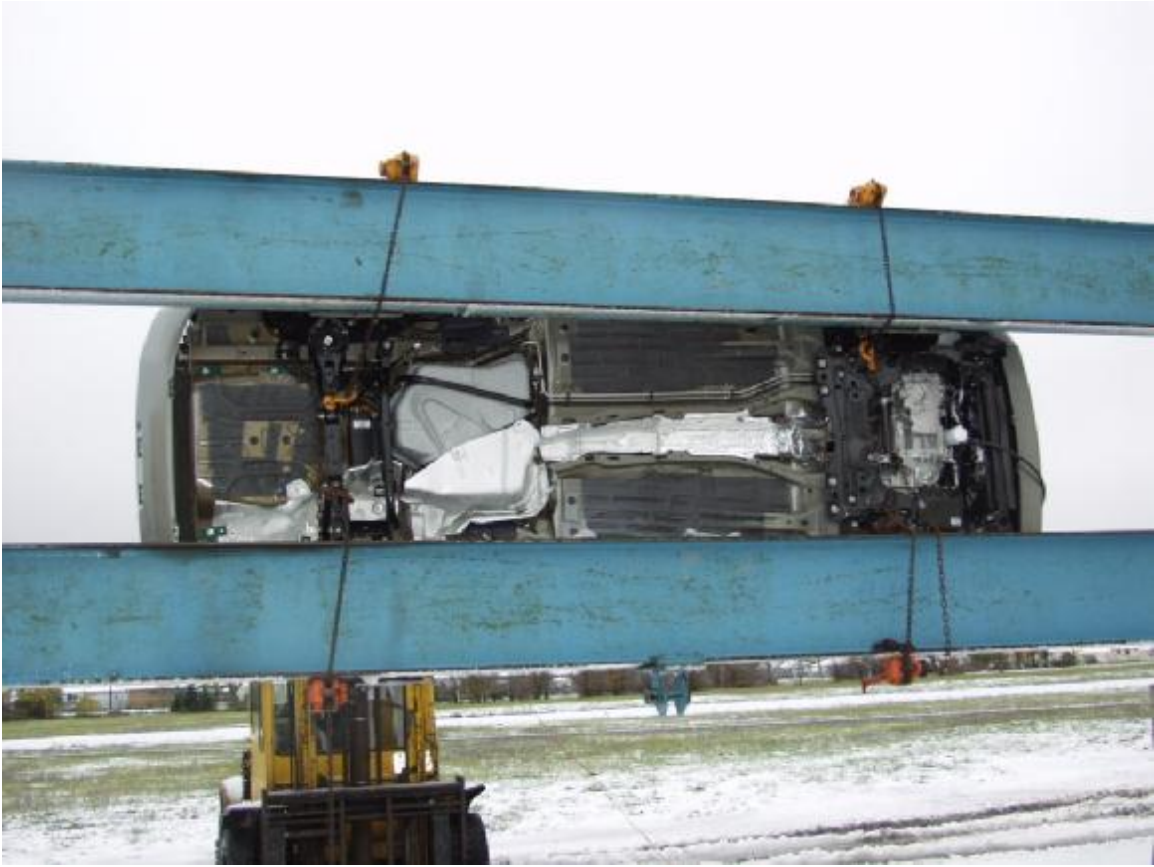


Figure A-53: Rollover 270 Degrees



Figure A-54: Rollover 360 Degrees



Figure A-55: Impact Photo

APPENDIX B
SID/HIII, VEHICLE AND MDB RESPONSE DATA
(SAE sign convention)

DATA CHANNEL FILTER CLASS SUMMARY

Data Type	SAE Filter Class
Dummy Head Accelerations	CFC 1000
Rib Accelerations	FIR 100
Spine Accelerations	FIR 100
Pelvis Accelerations	FIR 100

DATA CHANNEL TITLE KEY

Prefix	Suffix
V1 = Vehicle 1 (Moving Barrier)	Ax = Acceleration, X-direction
V2 = Vehicle 2 (Test Vehicle)	Ay = Acceleration, Y-direction
P1 = Left Front Seating Position (Driver)	Az = Acceleration, Z-direction
P4 = Left Second Row Seating Position (Passenger)	Fx = Force, X-direction
A1-A18 = Accelerometer Location Number	Fy = Force, Y-direction
	Fz = Force, Z-direction
	Mx = Moment about X
	My = Moment about Y
	Mz = Moment about Z

TABLE OF DATA PLOTS

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
1	V2P1 Head Ax [g, CFC_1000]	B-5
2	V2P1 Head Ay [g, CFC_1000]	B-5
3	V2P1 Head Az [g, CFC_1000]	B-5
4	V2P1 Head Ar [g, CFC_1000]	B-5
5	V1P1 Upper Rib Ay [g, FIR_100]	B-6
6	V1P1 Lower Rib Ay [g, FIR_100]	B-6
7	V1P1 Lower Spine Ay [g, FIR_100]	B-6
8	V1P1 Pelvic Ay [g, FIR_100]	B-6
9	V2P4 Head Ax [g, CFC_1000]	B-7
10	V2P4 Head Ay [g, CFC_1000]	B-7
11	V2P4 Head Az [g, CFC_1000]	B-7
12	V2P4 Head Ar [g, CFC_1000]	B-7
13	V1P4 Upper Rib Ay [g, FIR_100]	B-8
14	V1P4 Lower Rib Ay [g, FIR_100]	B-8
15	V1P4 Lower Spine Ay [g, FIR_100]	B-8
16	V1P4 Pelvic Ay [g, FIR_100]	B-8

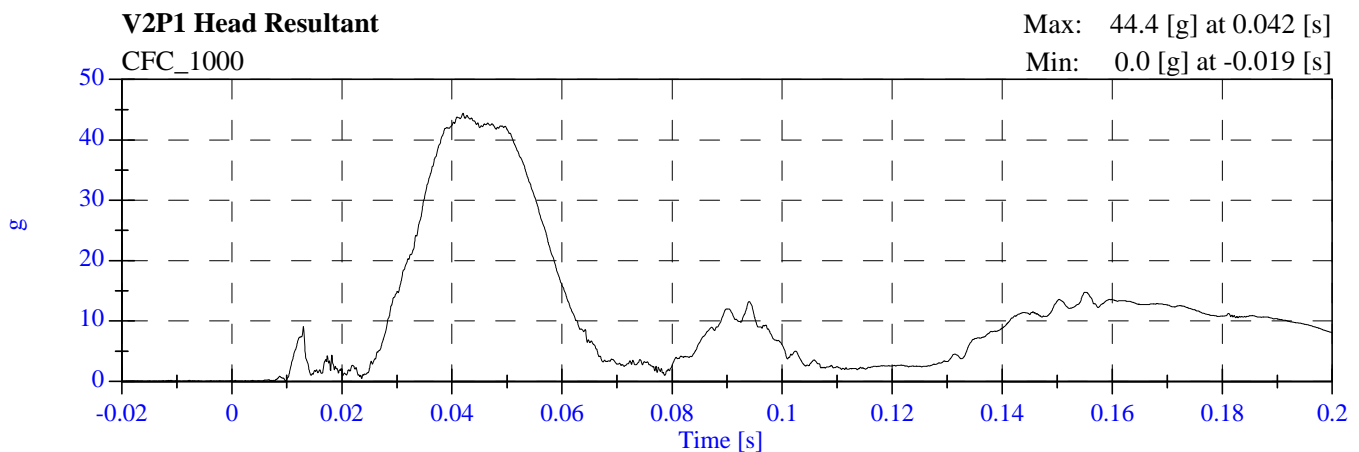
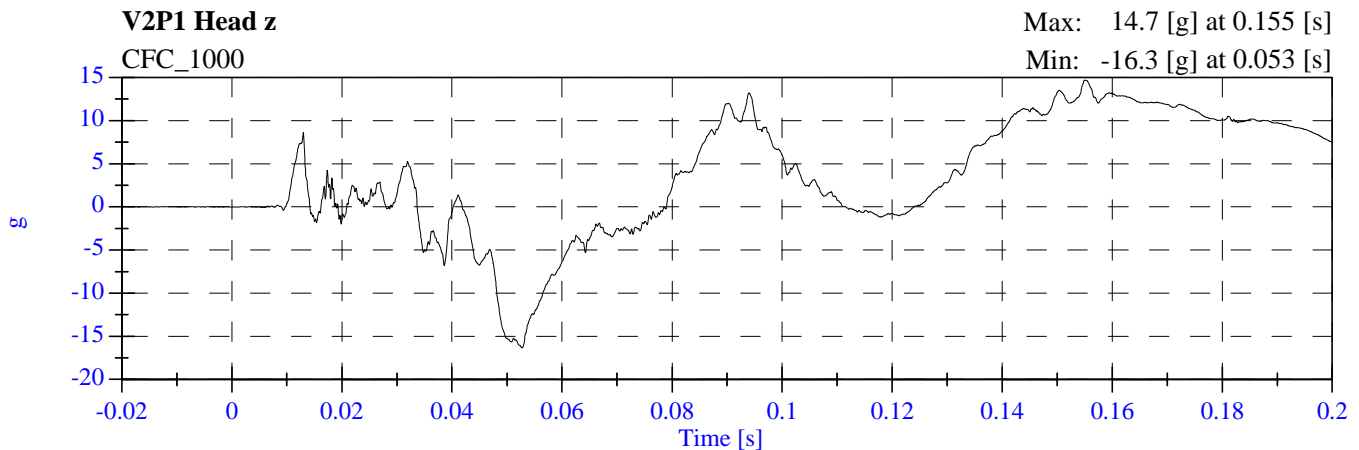
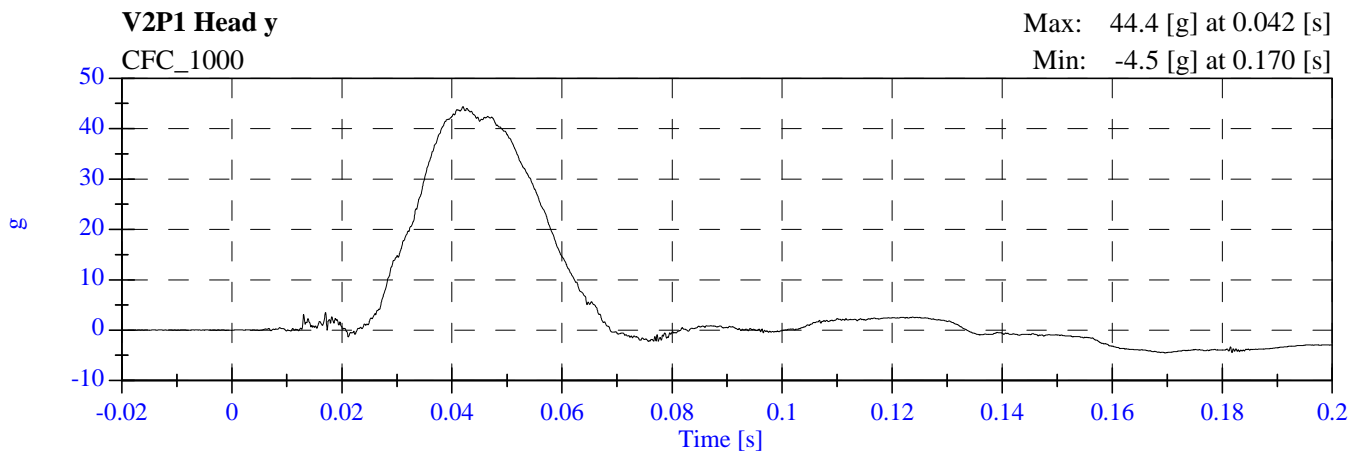
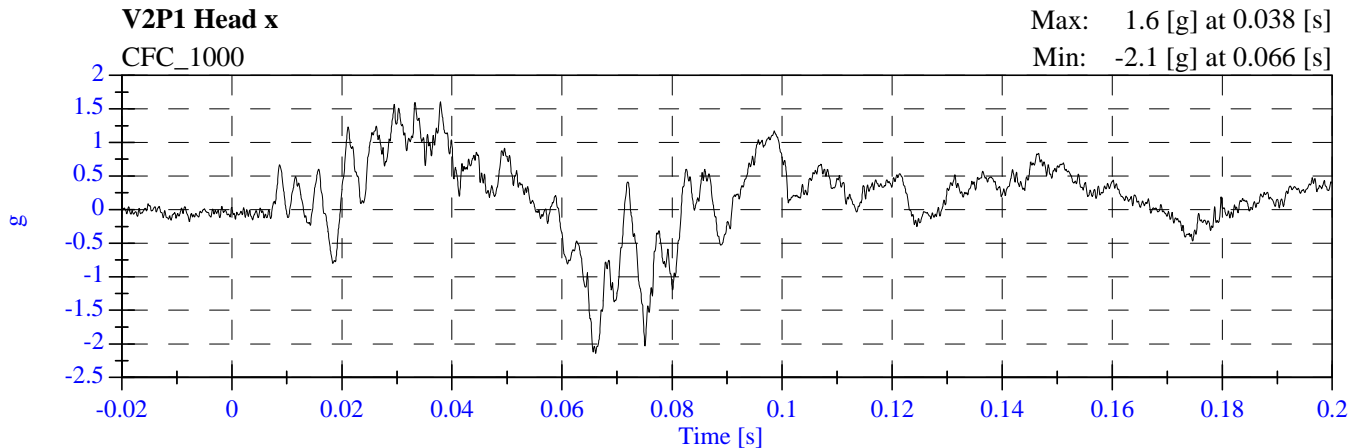
The following dummy, vehicle and load cell response data can be found in the research and development section of the NHTSA website at: www.nhtsa.dot.gov

V2P1 Head Ax	V2A1 Right Front Sill Ax
V2P1 Head Ay	V2A1 Right Front Sill Ay
V2P1 Head Az	V2A1 Right Front Sill Az
V2P1 Upper Neck Fx	V2A2 Right Rear Sill Ax
V2P1 Upper Neck Fy	V2A2 Right Rear Sill Ay
V2P1 Upper Neck Fz	V2A2 Right Rear Sill Az
V2P1 Upper Neck Mx	V2A3 Rear Floorpan Ax
V2P1 Upper Neck My	V2A3 Rear Floorpan Ay
V2P1 Upper Neck Mz	V2A3 Rear Floorpan Az
V2P1 Upper Rib Ay	V2A4 Left Rear Sill Ay
V2P1 Upper Rib Redundant Ay	V2A5 Left Front Sill Ay
V2P1 Lower Rib Ay	V2A6 Left Front Door C/L Ay
V2P1 Lower Rib Redundant Ay	V2A7 Right Rear Compartment Ay
V2P1 Lower Spine Ay	V2A8 Left Front Door Midrear Ay
V2P1 Lower Spine Redundant Ay	V2A9 Left Front Door Upper C/L Ay
V2P1 Pelvic Ay	V2A10 Left Rear Door Midrear Ay
V2P1 Pelvic Redundant Ay	V2A11 Left Rear Door Upper C/L Ay
V2P4 Head Ax	V2A12 Left Lower B Post Ay
V2P4 Head Ay	V2A13 Left Mid B Post Ay
V2P4 Head Az	V2A14 Left Lower A Post Ay
V2P4 Upper Neck Fx	V2A15 Left Mid A Post Ay
V2P4 Upper Neck Fy	V2A16 Front Seat Track Ay
V2P4 Upper Neck Fz	V2A17 Rear Seat Track Ay
V2P4 Upper Neck Mx	V2A18 Target CG Ax
V2P4 Upper Neck My	V2A18 Target CG Ay
V2P4 Upper Neck Mz	V2A18 Target CG Az
V2P4 Upper Rib Ay	V1 Moving Barrier CG Ax
V2P4 Upper Rib Redundant Ay	V1 Moving Barrier CG Ay
V2P4 Lower Rib Ay	V1 Moving Barrier CG Az
V2P4 Lower Rib Redundant Ay	V1 Moving Barrier Left Rail Ax
V2P4 Lower Spine Ay	V1 Moving Barrier Left Rail Ay
V2P4 Lower Spine Redundant Ay	
V2P4 Pelvic Ay	
V2P4 Pelvic Redundant Ay	

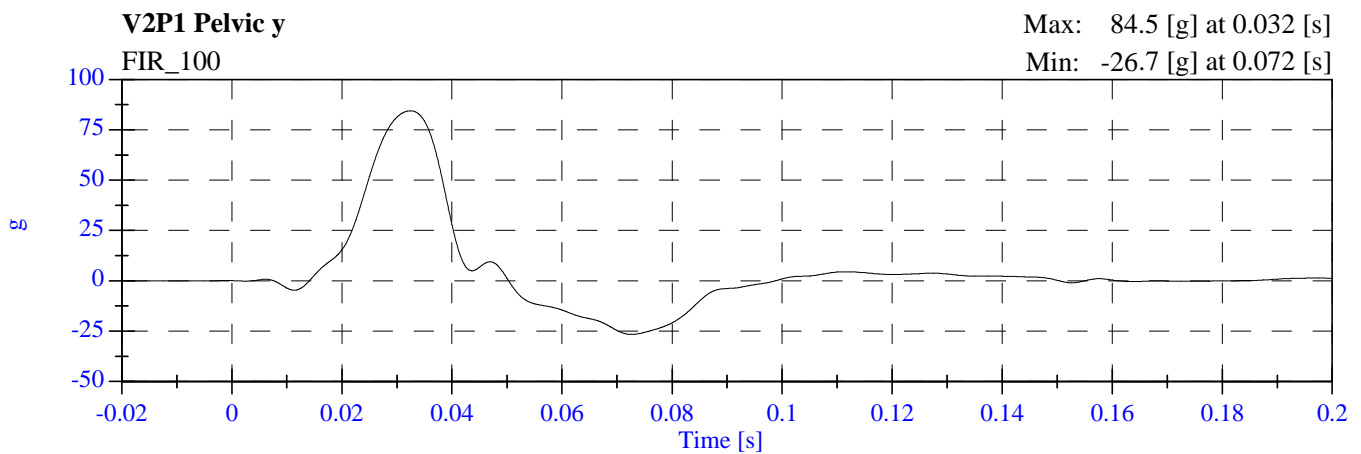
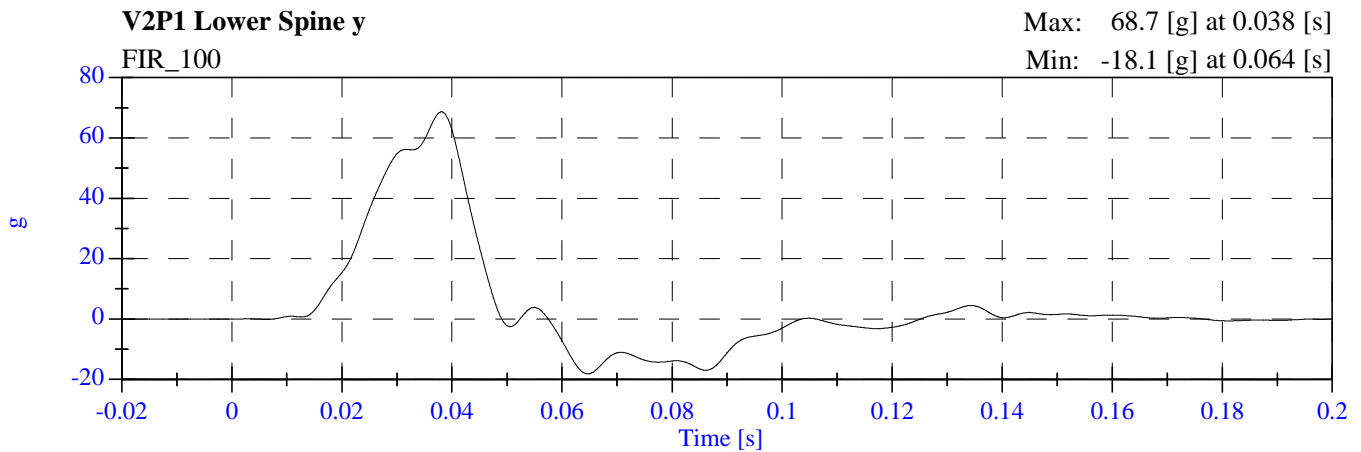
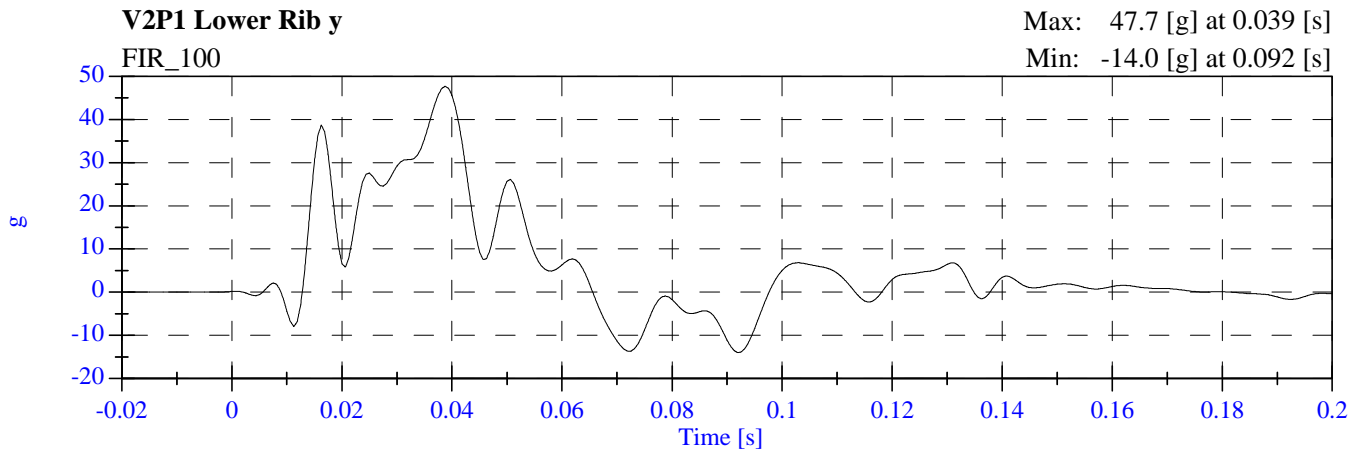
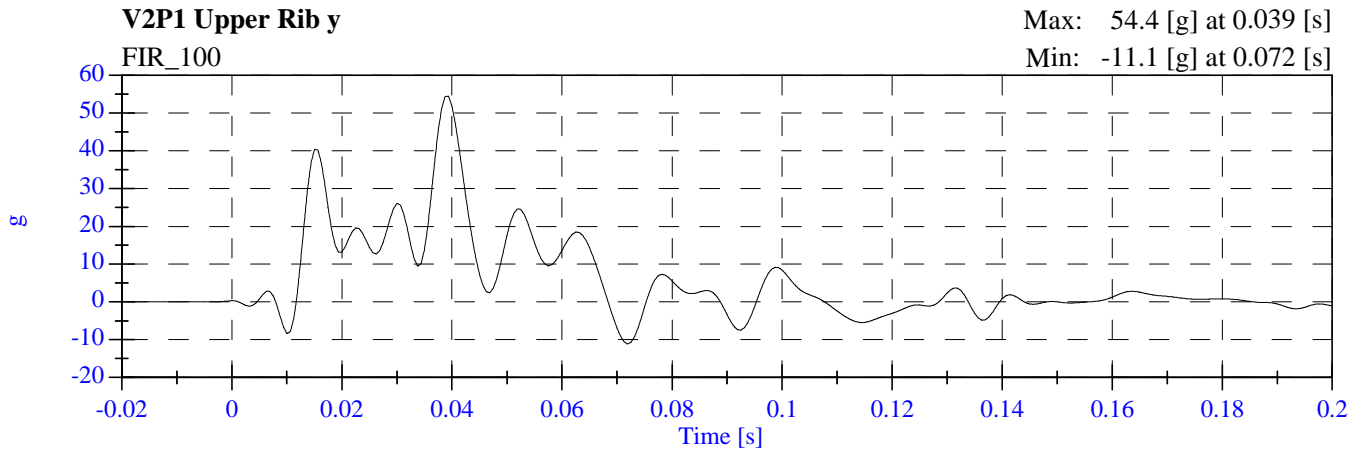
TEST NOTES

The following data anomalies occurred:
Right Rear Sill Ax, Ay, and Az data is questionable after 50 ms

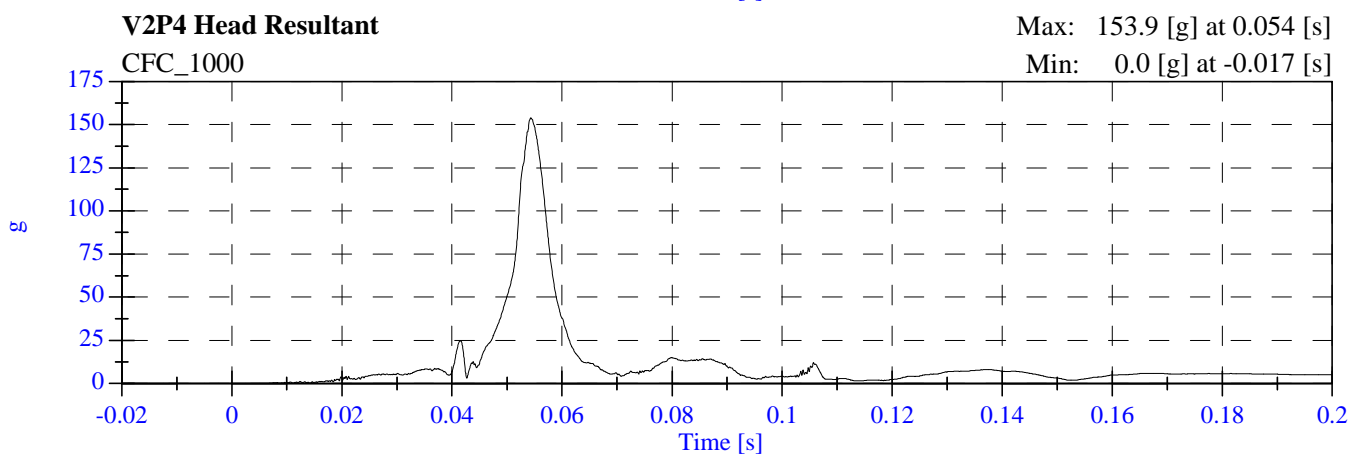
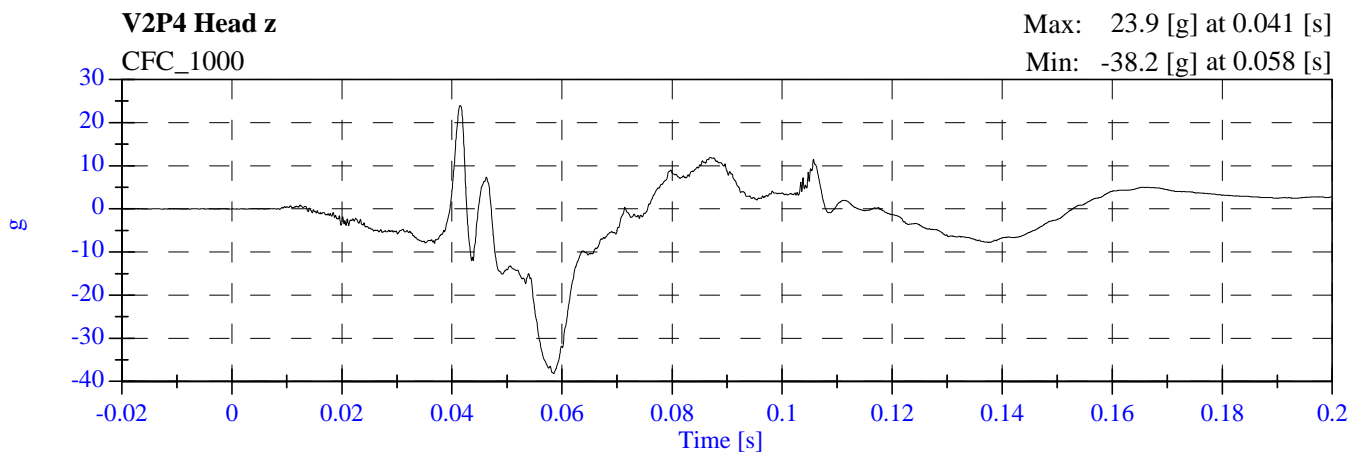
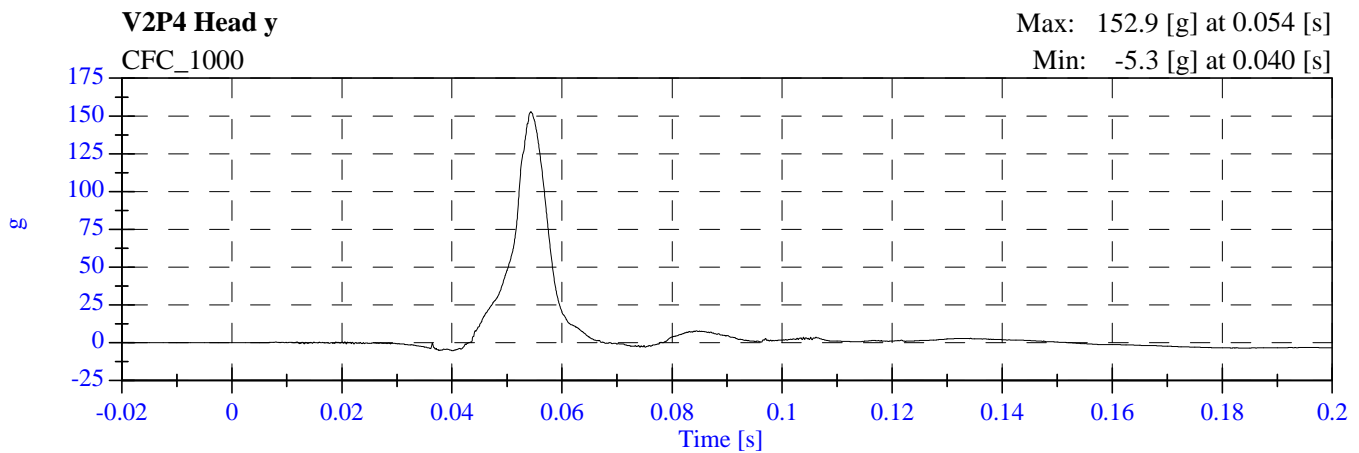
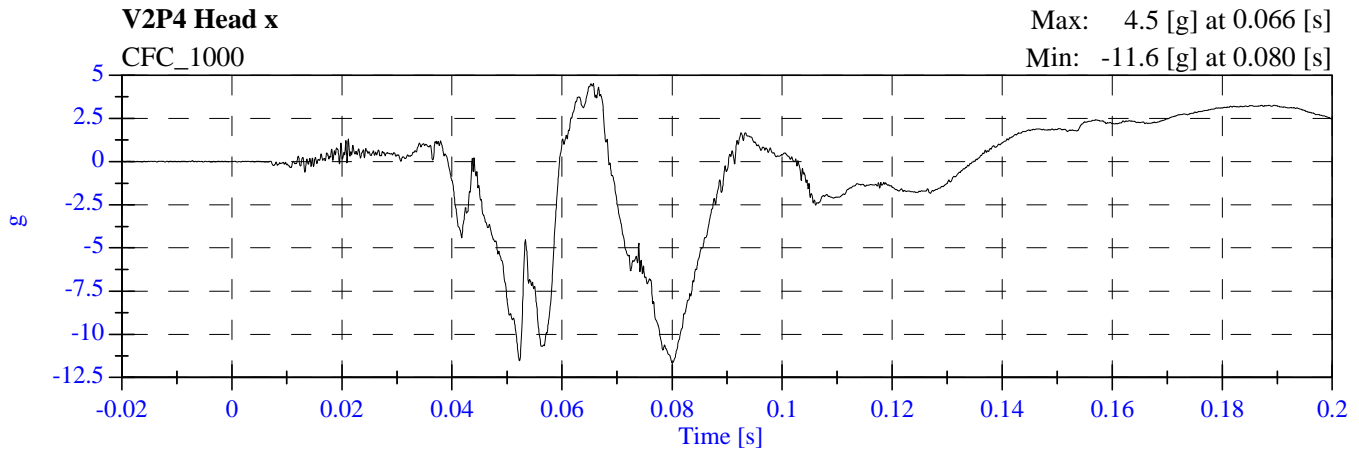
2008 SNCAP Test 11 2008 Ford Focus M80205 - November 06, 2007



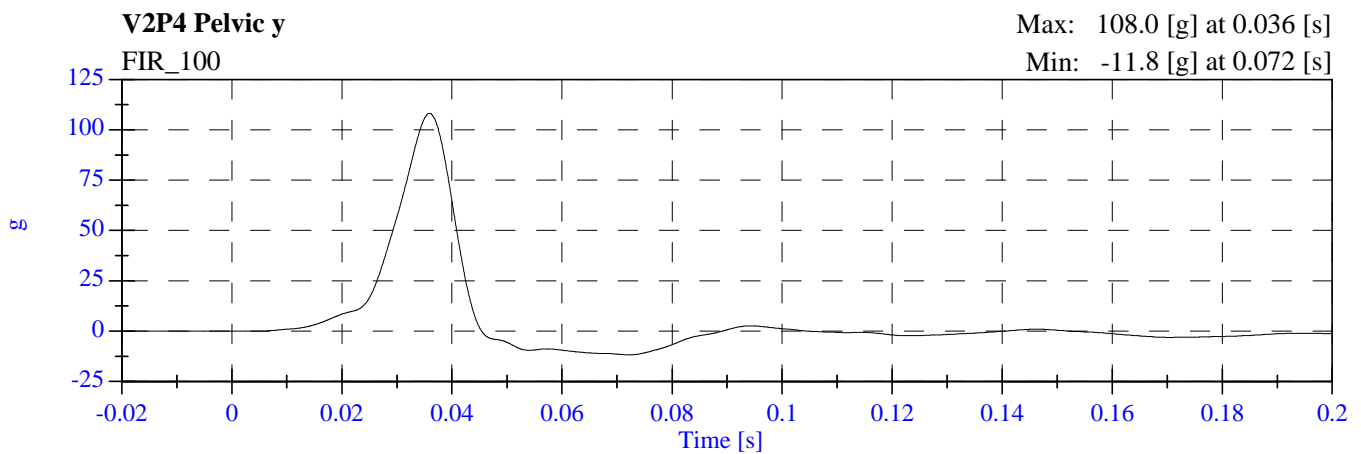
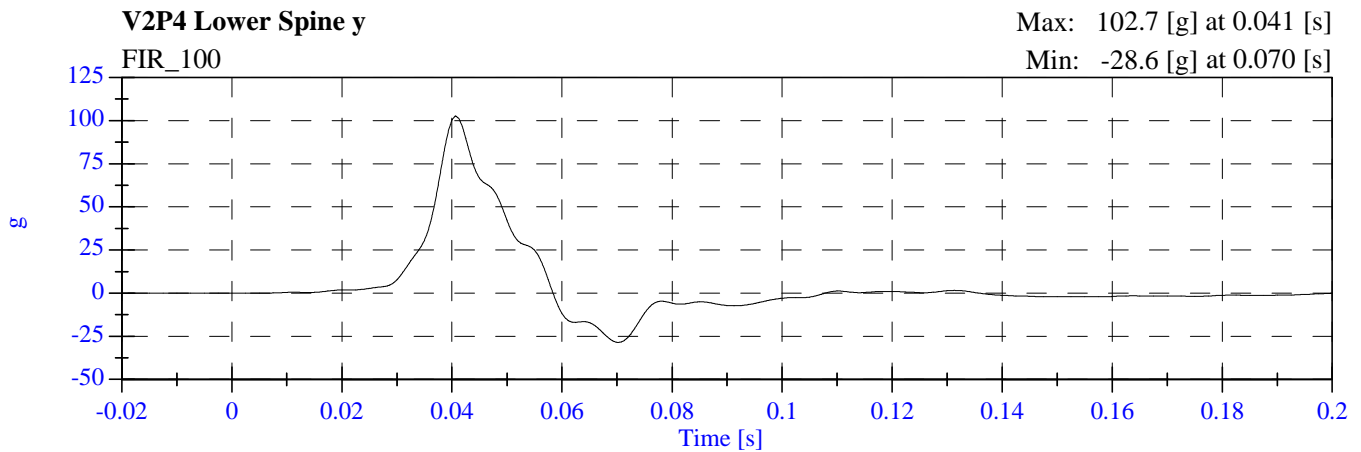
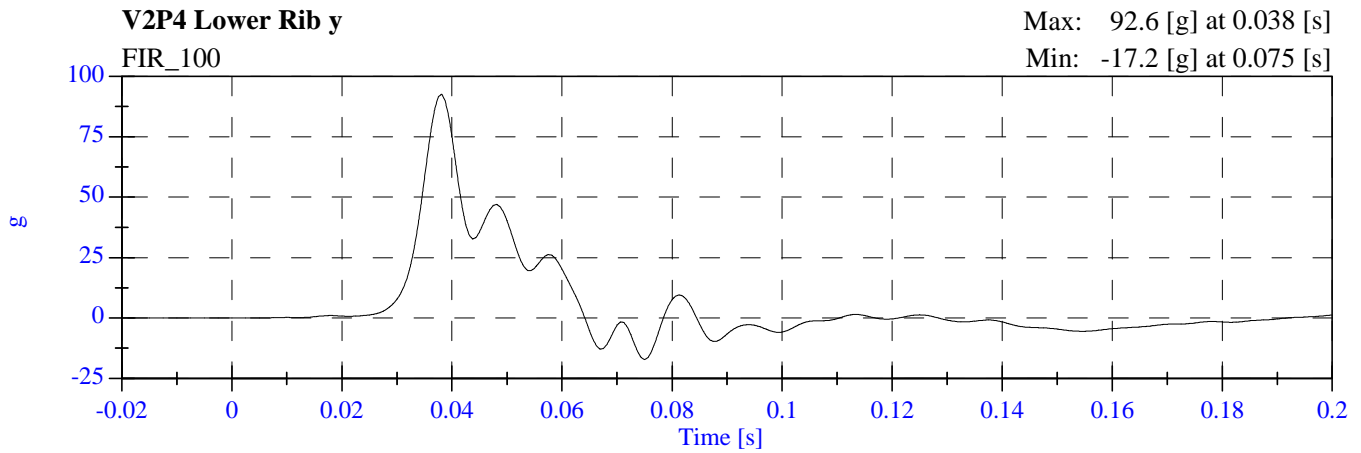
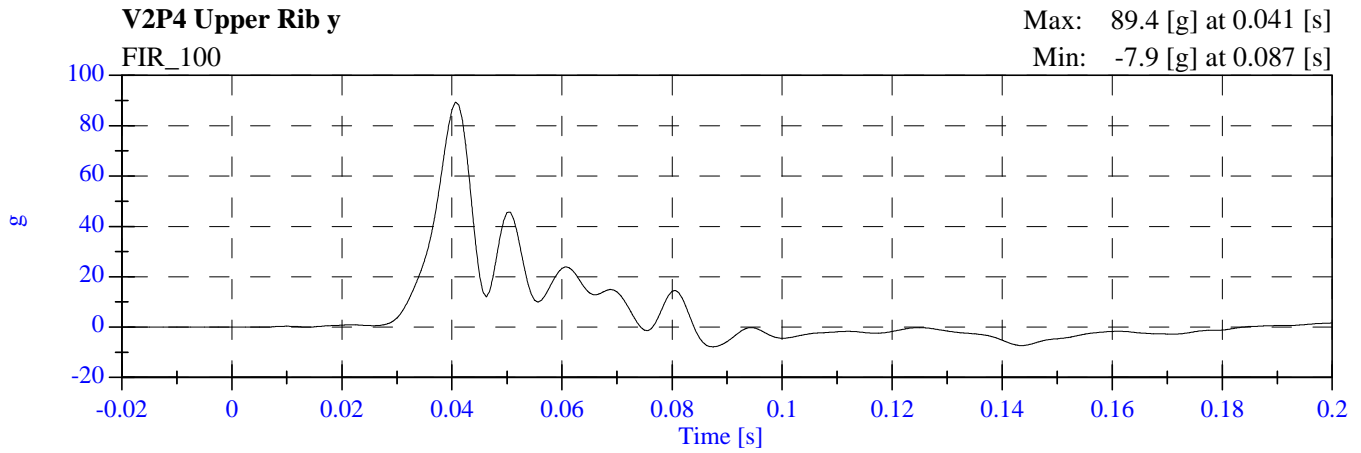
2008 SNCAP Test 11 2008 Ford Focus M80205 - November 06, 2007



2008 SNCAP Test 11 2008 Ford Focus M80205 - November 06, 2007



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APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID H3 PRE & POST TEST CALIBRATION
CONFIGURED FOR LEFT SIDE IMPACT

Date: 11/16/07

Sequential Test Number:

4,4

Laboratory Technician:

B. Swiecicki

TEST PARAMETER	SPECIFICATION	SID H3 NO.: 269		SID H3 NO.: 270	
		PRE TEST	POST TEST	PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909	904	903	905	904
RH- Rib Height (mm)	501 - 521	511	512	510	512
HP- Hip Pivot Height (mm)	99 ref.	99	99	99	99
RD- Rib from Back Line (mm)	229 - 241	235	237	235	236
KV- Knee Pivot from Back Line (mm)	511 - 526	519	519	518	517
SW- Knee Pivot to Floor (mm)	490 - 505	499	499	499	498
HW- Hip Width (mm)	356 - 391	376	372	377	375
THORAX IMPACTS					
TEMPERATURE (• C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	37	35	39	35
PROBE SPEED (m/s)	4.27 - 4.33	4.30	4.27	4.30	4.27
UPPER RIB (g's)	37 - 46	40.72	42.66	37.01	40.85
LOWER RIB (g's)	37 - 46	39.57	41.97	38.90	38.50
LOWER SPINE (g's)	15 - 22	17.46	18.66	19.62	20.78
PELVIS IMPACT					
TEMPERATURE (• C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	38	35	38	35
PROBE SPEED (m/s)	4.27 - 4.33	4.30	4.27	4.30	4.27
PELVIS (g's)	40 - 60	40.34	53.27	48.16	48.53

REMARKS: None

CALIBRATION TEST RESULTS

PRE-TEST

SID H3 NO.: 269

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 3
Date: 10/19/07 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
THORACIC SHOCK ABSORBER TEST	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 3
Date: 10/19/07 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 – 909	904
RH- Rib Height (mm)	502 – 520	511
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 – 241	235
KH- Knee Pivot from Back Line (mm)	511 – 526	519
KV- Knee Pivot to Floor (mm)	490 – 505	499
HW- Hip Width (mm)	356 - 391	376

REMARKS: None

Shock Low (3.05 m/s)

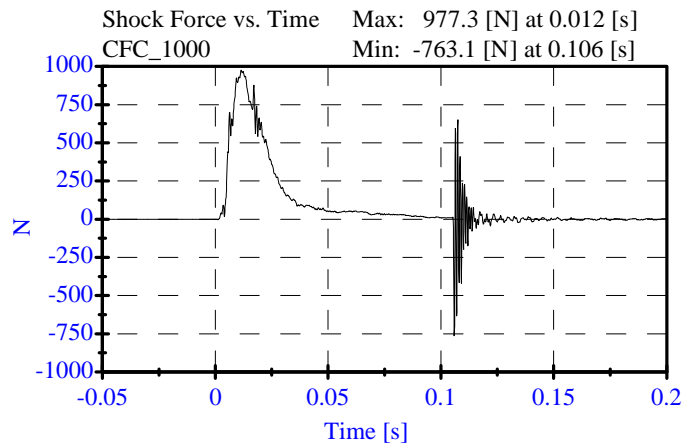
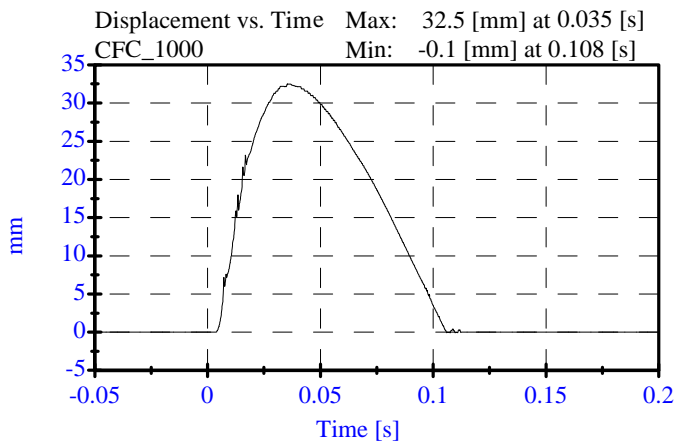
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 07-19-07

Sequential Test Number: 1 File: 269-10 07-19-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Displacement:	30.00-35.00 mm	32.51 mm	Passed
Maximum Force:	836.00-1125.00 N	977.33 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	269		
Damper Setting:	5		



Shock Med (4.27 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269

Date: 07-19-07

Sequential Test Number: 1 File: 269-14 07-19-07

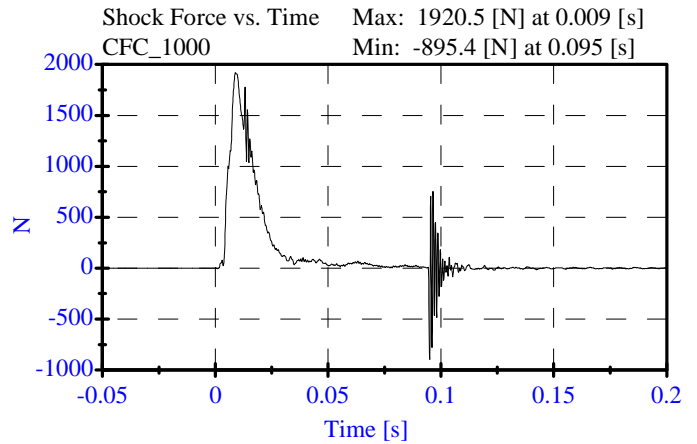
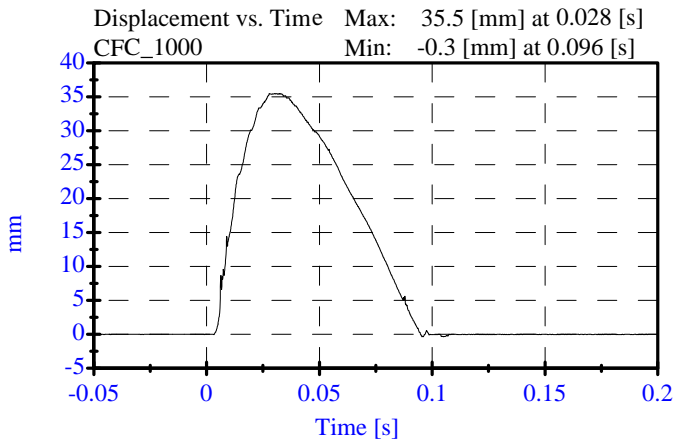
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Displacement:	32.00-37.00 mm	35.46 mm	Passed
Maximum Force:	1730.00-2099.00 N	1920.51 N	Passed

Impact Test Velocity: 4.27 m/s

Damper Identification: 269

Damper Setting: 5



Shock High (6.10 m/s)

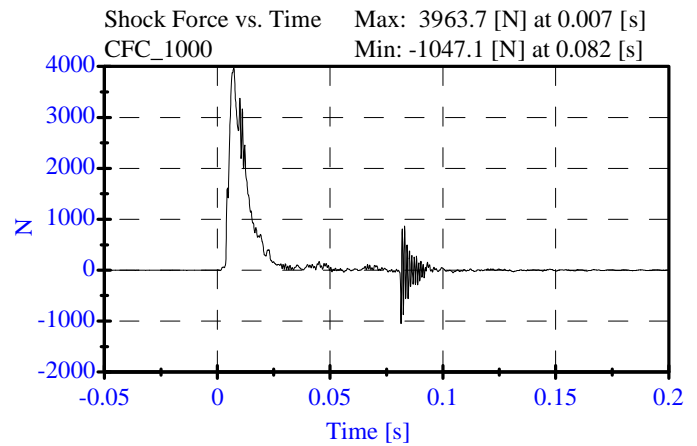
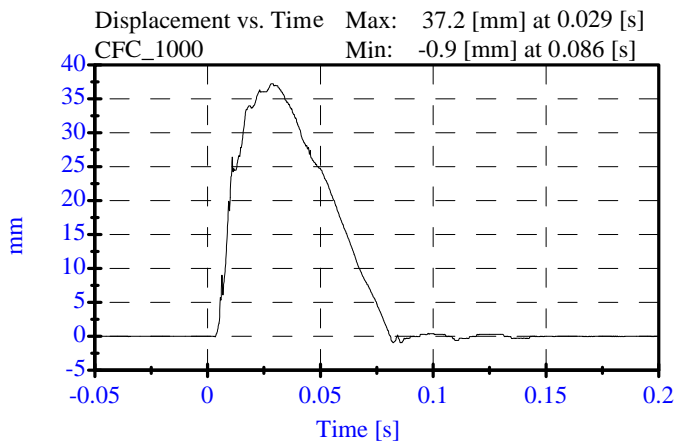
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 07-19-07

Sequential Test Number: 1 File: 269-20 07-19-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Displacement:	33.00-40.00 mm	37.23 mm	Passed
Maximum Force:	3741.00-4448.00 N	3963.68 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	269		
Damper Setting:	5		

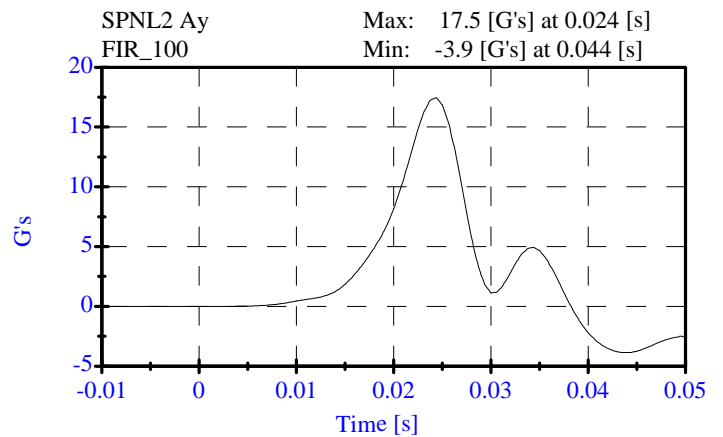
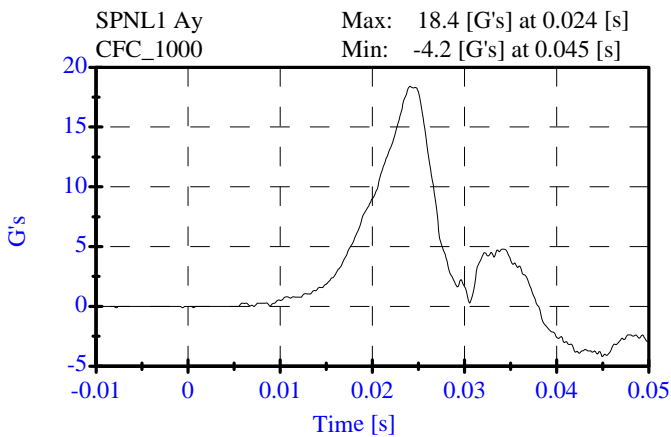
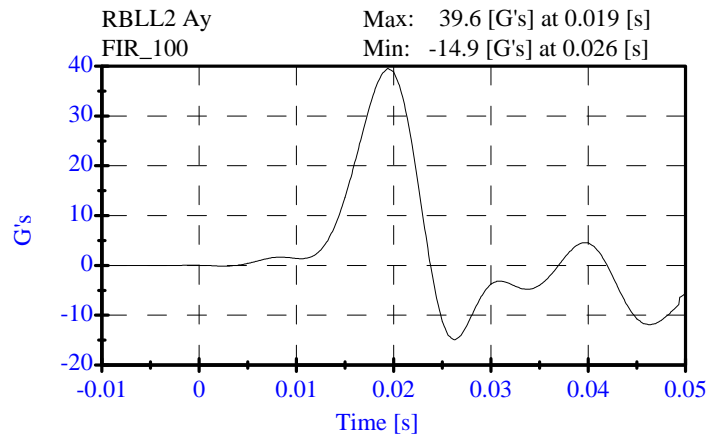
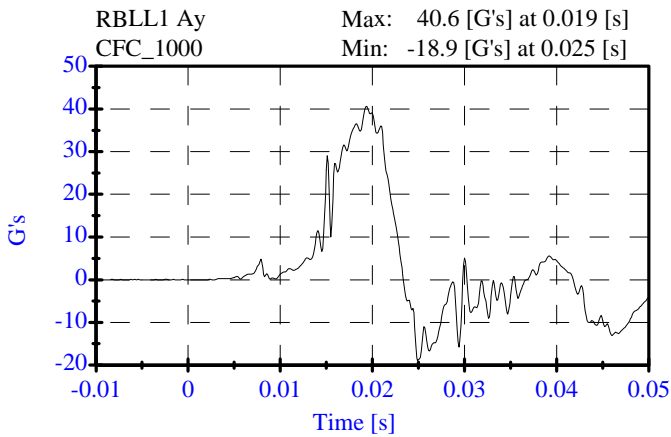
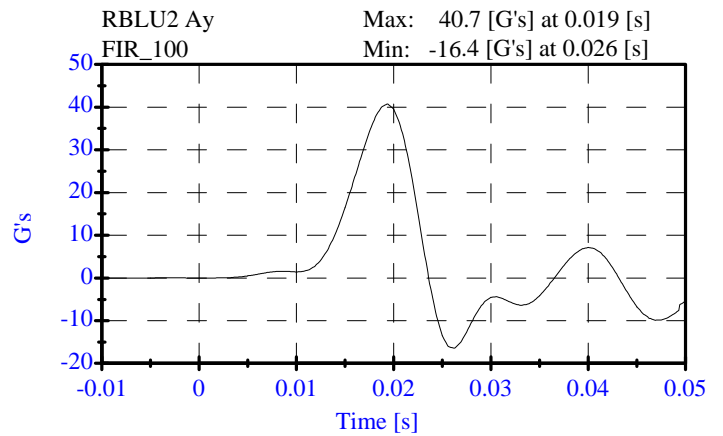
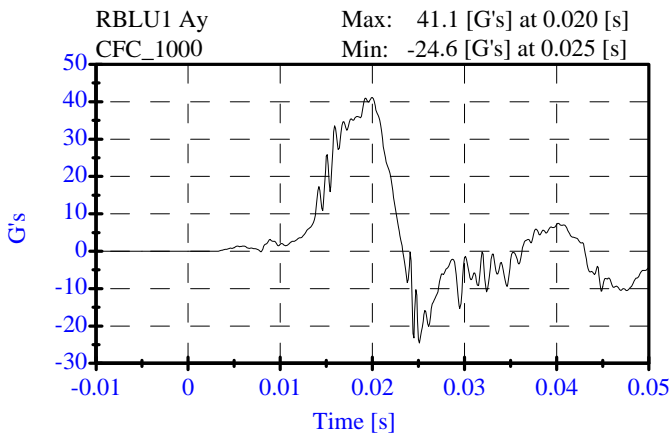


**Thorax Impact
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 269
Date: 10-16-07

Sequential Test Number: 1 File: 269T 10-16-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.30 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	40.72 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	39.57 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	17.46 G's	Passed



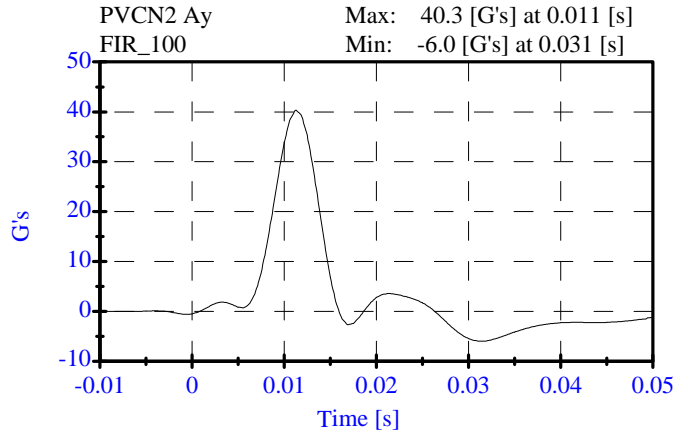
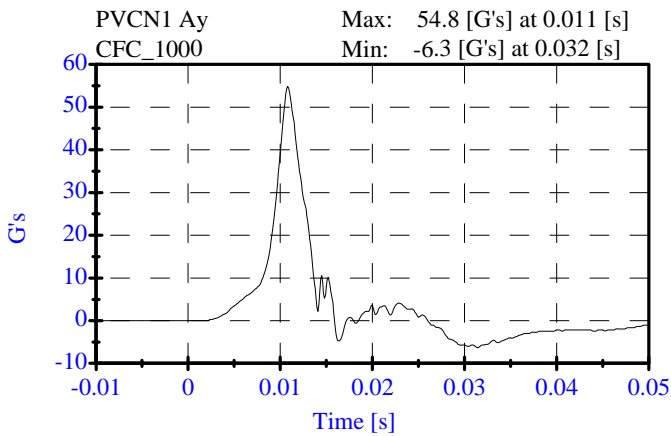
**Pelvic Impact
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 10-17-07

Sequential Test Number: 1 File: 269P3 10-17-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.30 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	40.34 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.1 ms	Passed



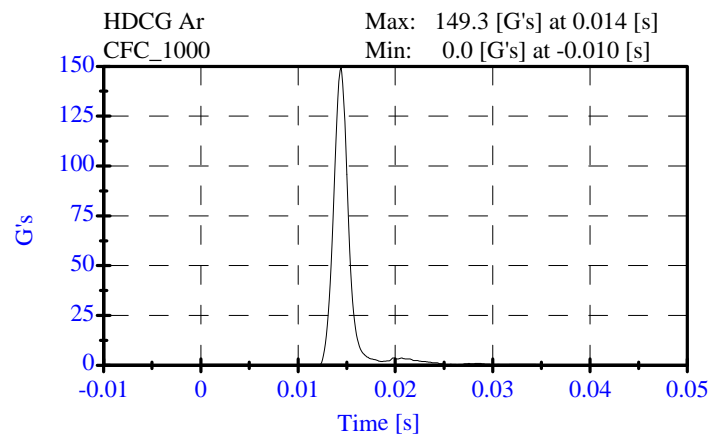
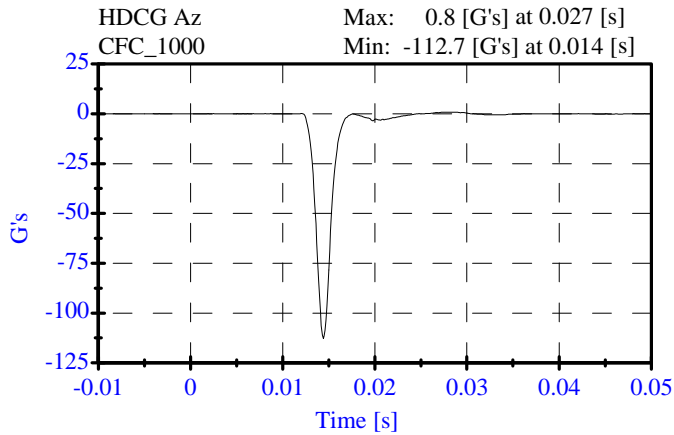
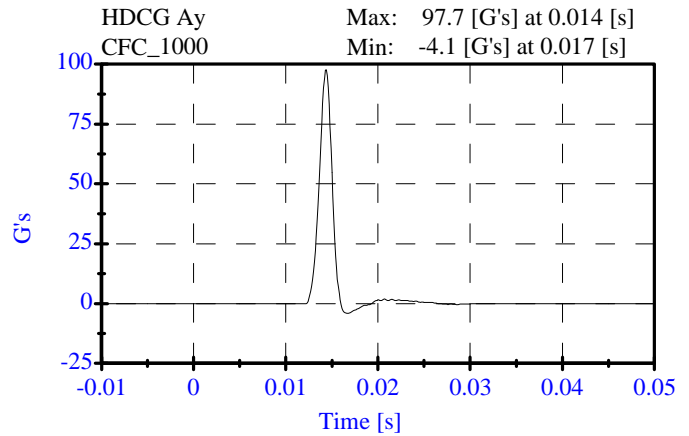
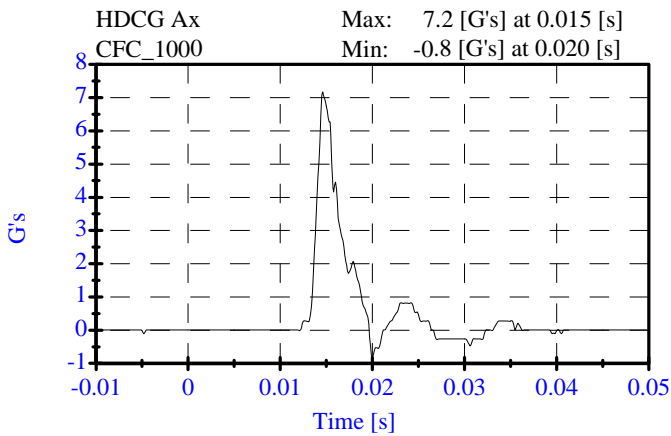
**Head Drop
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 10-05-07

Sequential Test Number: 1 File: 269HD 10-05-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	149.30 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	7.17 Gs	Passed
Curve PerCent NonModal:	< 15%	2.54 %	Passed



**Neck Test
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 10-16-07

Sequential Test Number: 1 File: 269N 10-16-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.00 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.04 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.26 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.25 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.52 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	67.97 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.70 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	83.66 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	56.40 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	9.80 ms	Passed

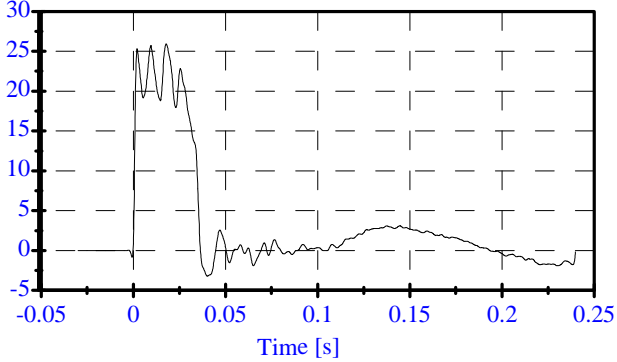
Neck Test
Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

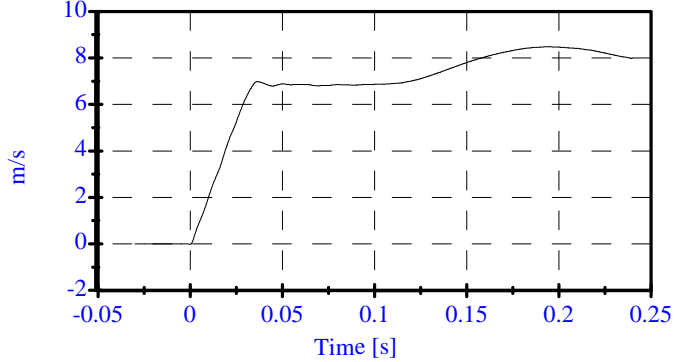
ATD Serial No: 269
Date: 10-16-07

Sequential Test Number: 1 File: 269N 10-16-07
Laboratory Technician: B. Swiecicki

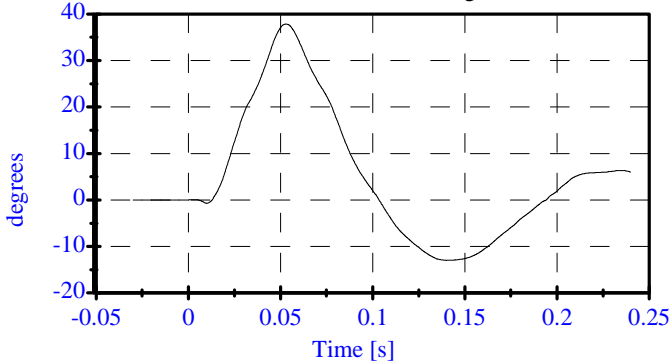
Pend Ax
CFC_180 Max: 25.9 [] at 0.018 [s]
Min: -3.2 [] at 0.040 [s]



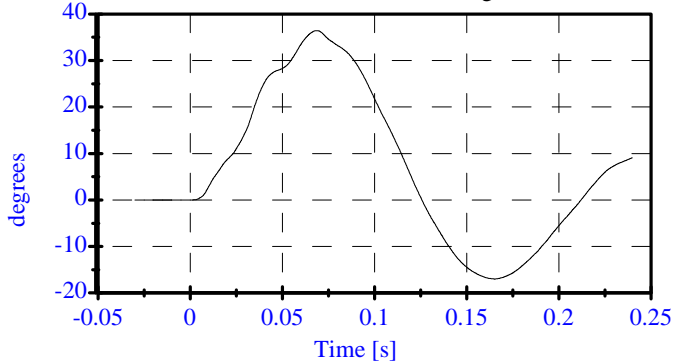
Pend Vx
CFC_180 Max: 8.5 [m/s] at 0.194 [s]
Min: -0.0 [m/s] at -0.000 [s]



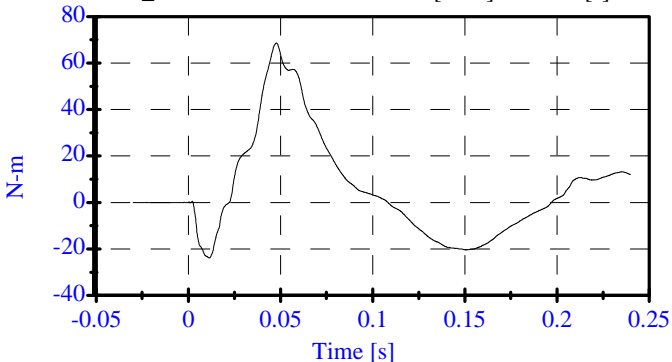
Head Rot
CFC_180 Max: 37.8 [degrees] at 0.053 [s]
Min: -13.0 [degrees] at 0.140 [s]



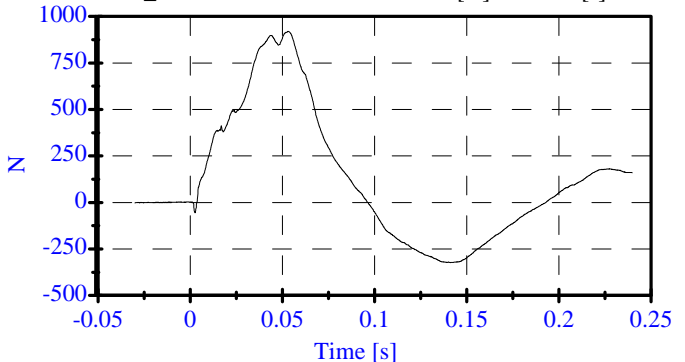
Arm Rot
CFC_180 Max: 36.4 [degrees] at 0.069 [s]
Min: -17.0 [degrees] at 0.165 [s]



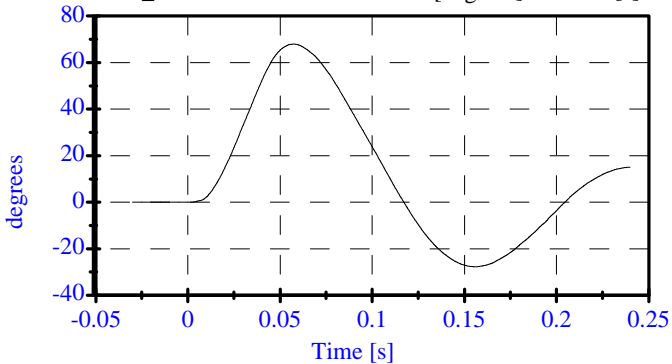
Neck Mx
CFC_600 Max: 68.6 [N-m] at 0.048 [s]
Min: -23.9 [N-m] at 0.012 [s]



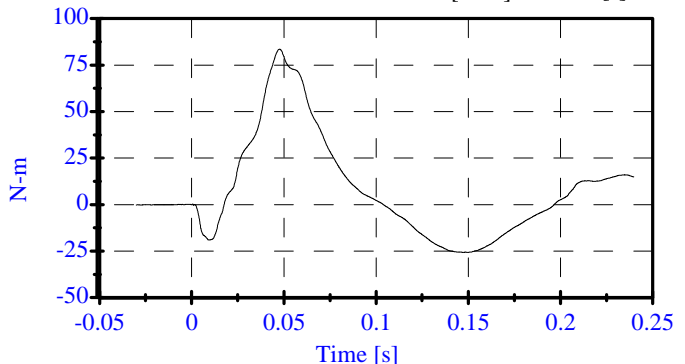
Neck Fy
CFC_1000 Max: 919.5 [N] at 0.053 [s]
Min: -323.3 [N] at 0.141 [s]



Tot Rot
CFC_180 Max: 68.0 [degrees] at 0.057 [s]
Min: -27.7 [degrees] at 0.156 [s]



MOCX
Max: 83.7 [N-m] at 0.048 [s]
Min: -25.7 [N-m] at 0.150 [s]



Abdomen Test

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269

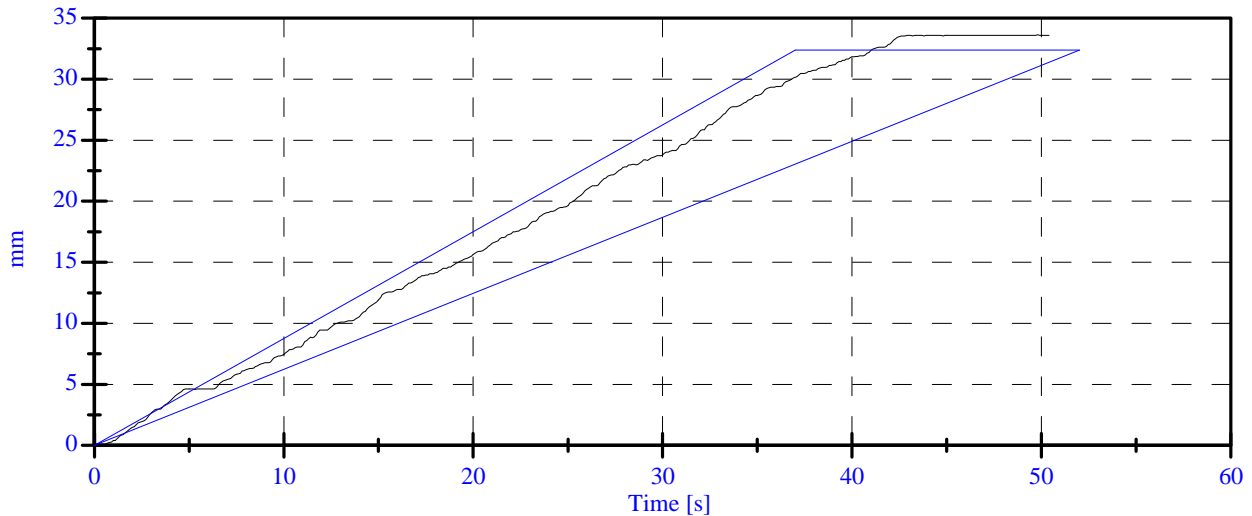
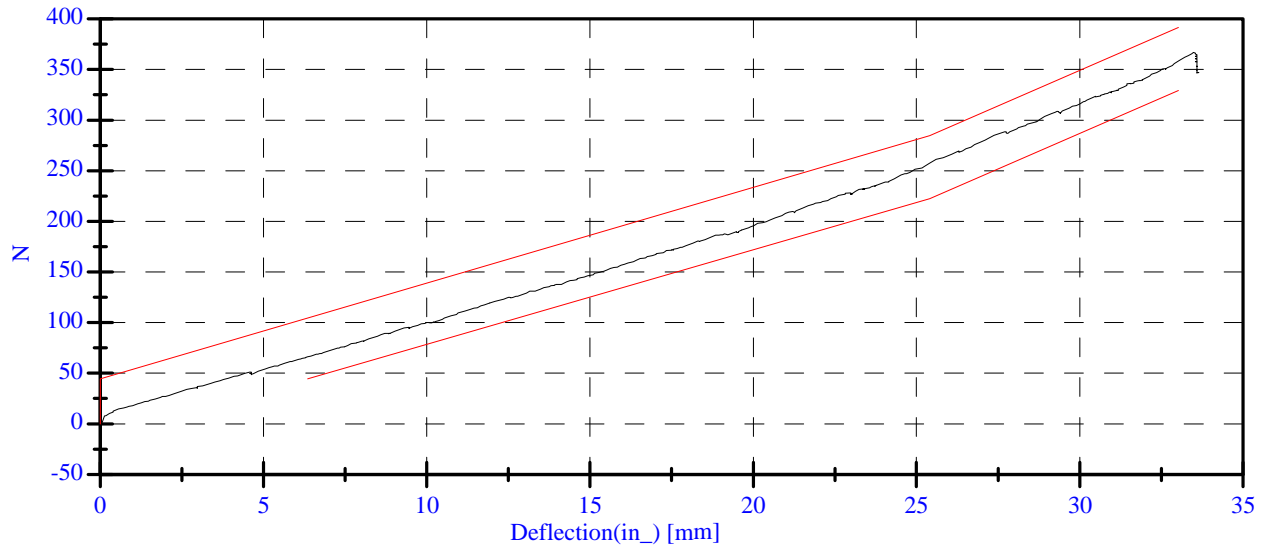
Date: 10-19-07

Sequential Test Number: 1 File: 269Ab 10-19-07

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	127.40 N	Passed
Force at 19.05 mm :	162.98-220.99 N	186.84 N	Passed
Force at 25.40 mm :	221.97-280.02 N	257.16 N	Passed
Force at 33.02 mm :	324.99-391.00 N	359.02 N	Passed

ABDOMINAL COMPRESSION TEST



Lumbar Spine

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269

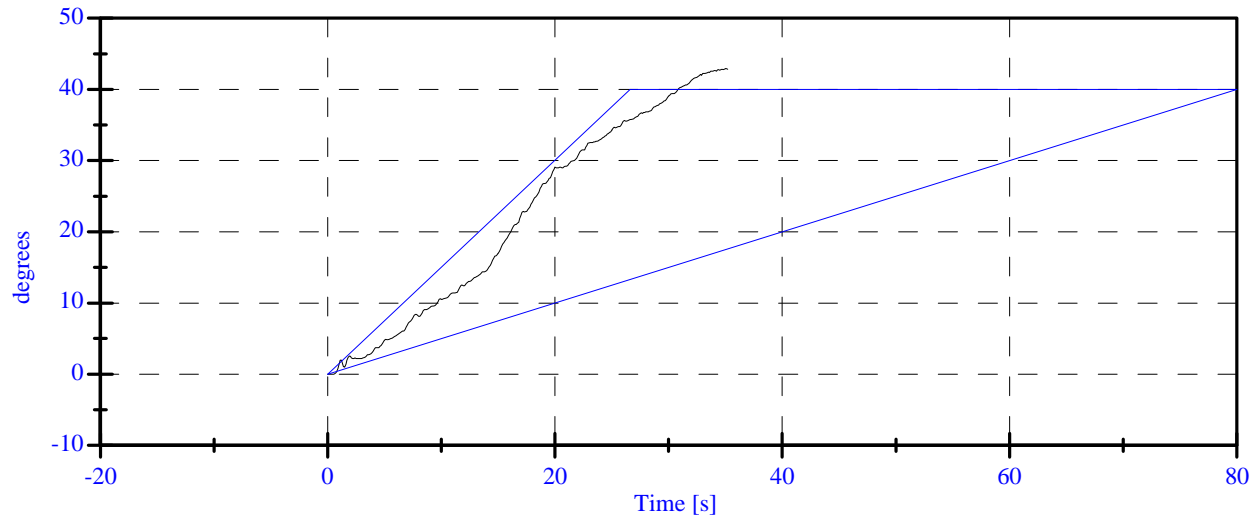
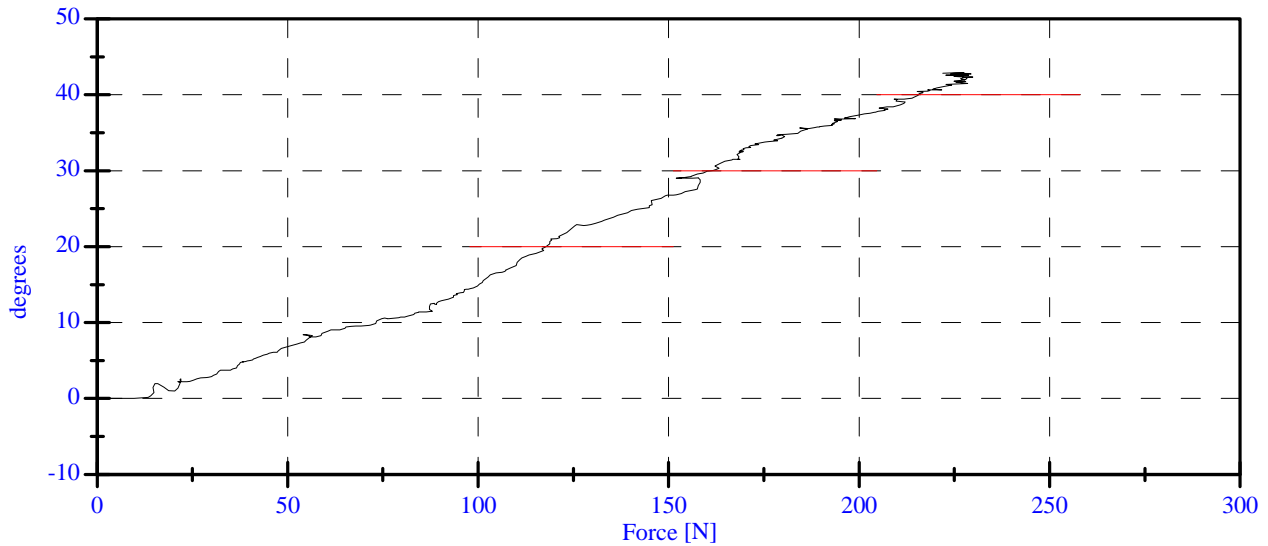
Date: 10-19-07

Sequential Test Number: 1 File: 269SP 10-19-07

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	1.30 N	Passed
Force at 20 Deg:	97.86-151.24 N	117.78 N	Passed
Force at 30 Deg:	151.24-204.62 N	160.87 N	Passed
Force at 40 Deg:	204.62-258.00 N	215.45 N	Passed
Return Angle	12 Deg Max	4.44 deg	Passed

LUMBAR SPINE FLEXION TEST



PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 3
 Date: 10/19/07 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

PRE-TEST

SID H3 NO.: 270

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 3
Date: 10/19/07 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
THORACIC SHOCK ABSORBER TEST	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 3
Date: 10/19/07 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	905
RH- Rib Height (mm)	502 - 520	510
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	235
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	499
HW- Hip Width (mm)	356 - 391	377

REMARKS: None

Shock Low (3.05 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

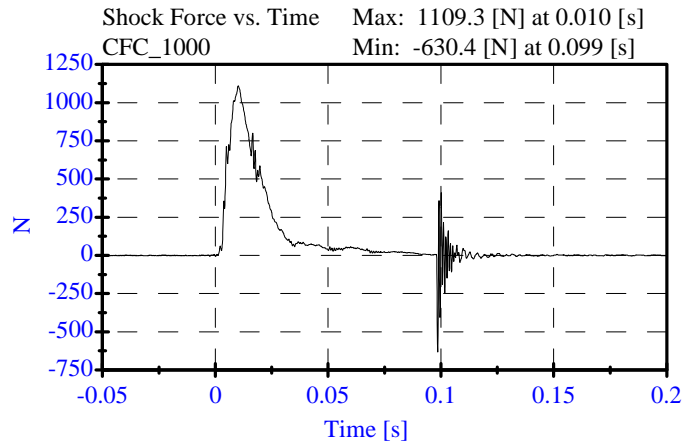
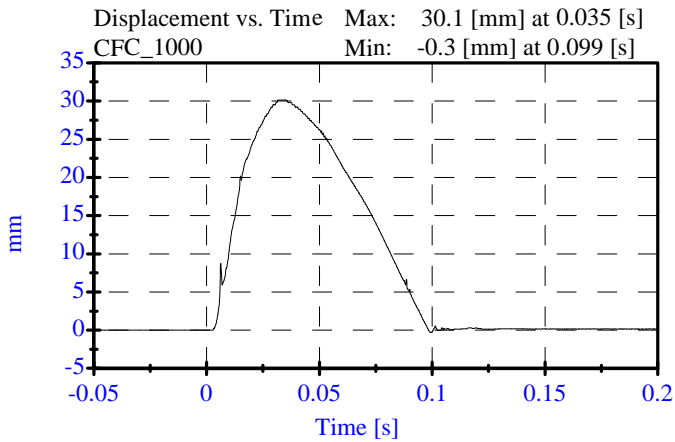
ATD Serial No: 270

Date: 07-18-07

Sequential Test Number: 1 File: 270-10 07-18-07

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Displacement:	30.00-35.00 mm	30.14 mm	Passed
Maximum Force:	836.00-1125.00 N	1109.32 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	270		
Damper Setting:	5		



Shock Med (4.27 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270

Date: 07-18-07

Sequential Test Number: 1 File: 270-14a 07-18-07

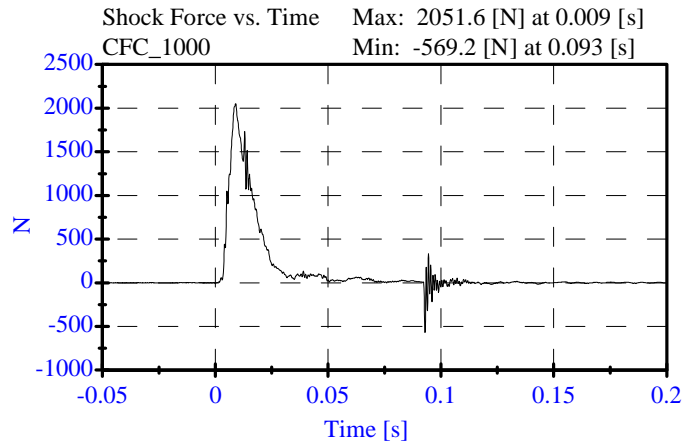
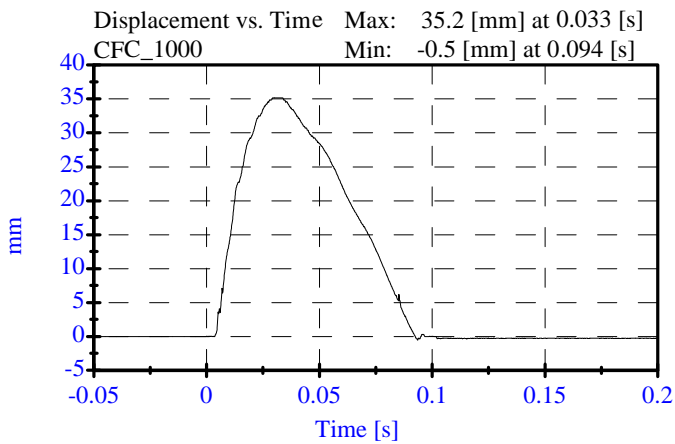
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Displacement:	32.00-37.00 mm	35.15 mm	Passed
Maximum Force:	1730.00-2099.00 N	2051.64 N	Passed

Impact Test Velocity: 4.27 m/s

Damper Identification: 270

Damper Setting: 5



Shock High (6.10 m/s)

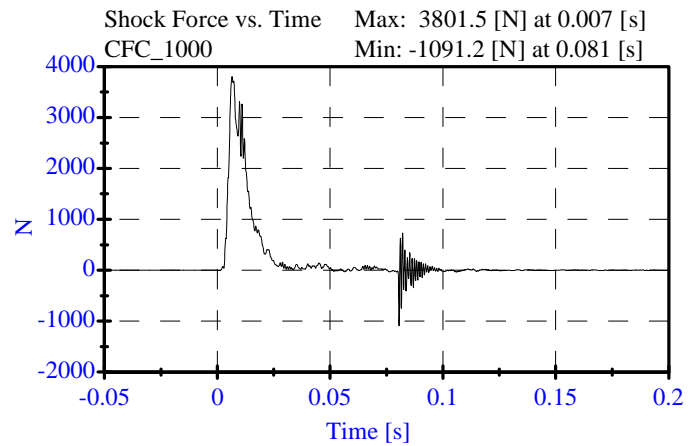
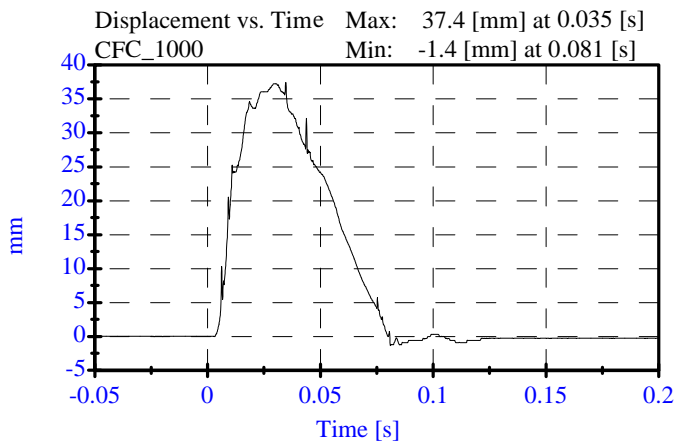
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 07-19-07

Sequential Test Number: 1 File: 270-20a 07-19-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Displacement:	33.00-40.00 mm	37.41 mm	Passed
Maximum Force:	3741.00-4448.00 N	3801.46 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	270		
Damper Setting:	5		

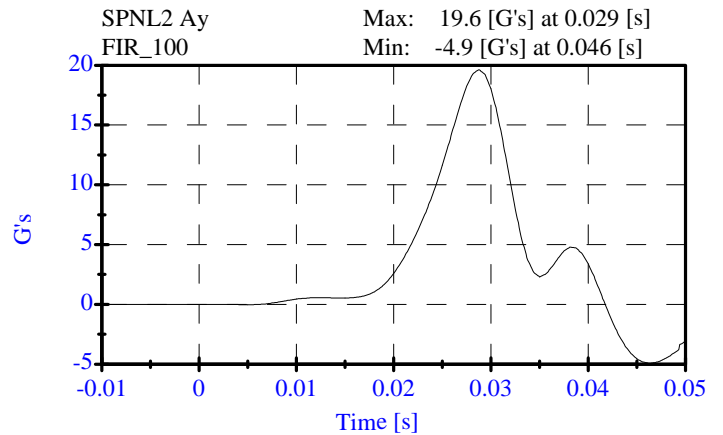
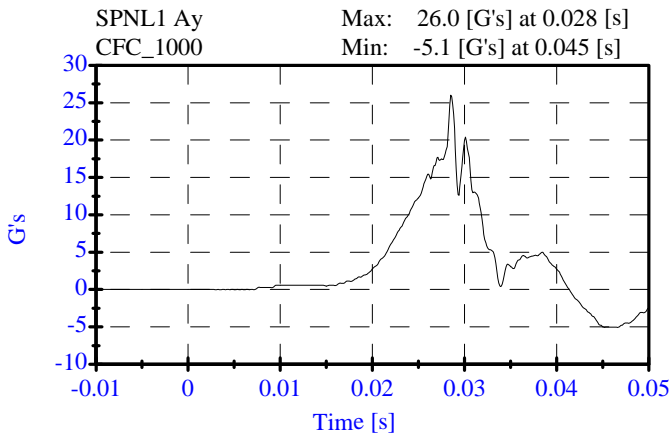
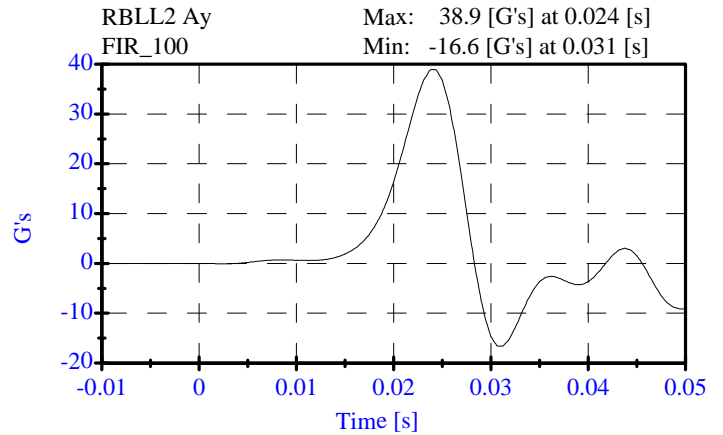
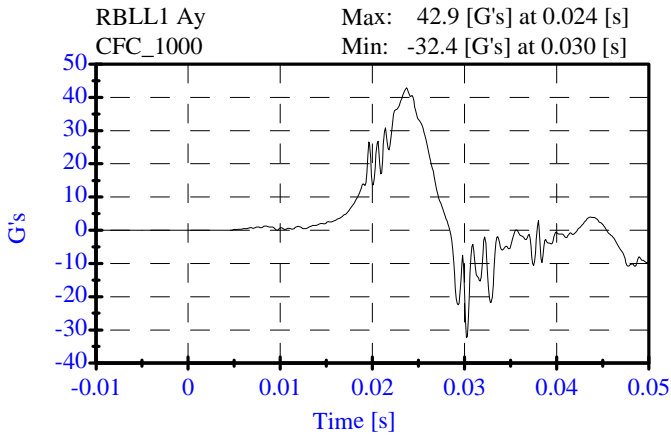
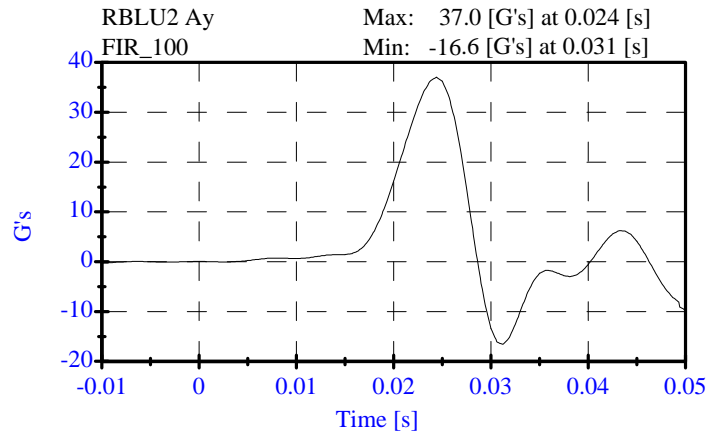
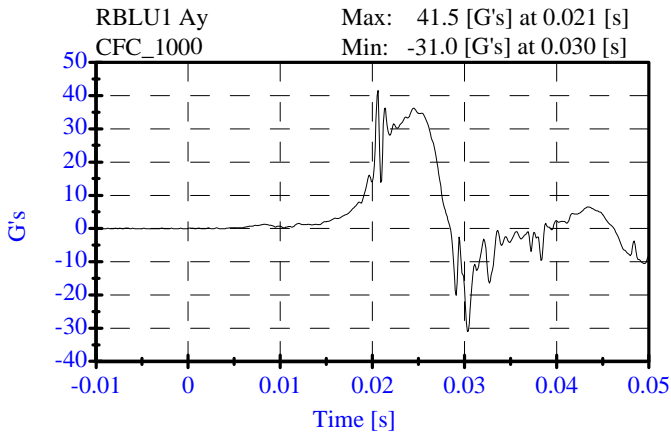


**Thorax Impact
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 270
Date: 10-17-07

Sequential Test Number: 1 File: 270T 10-17-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	39.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.30 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	37.01 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	38.90 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	19.62 G's	Passed



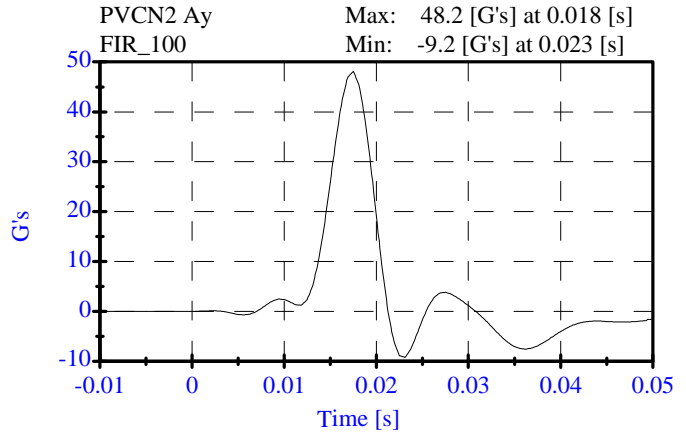
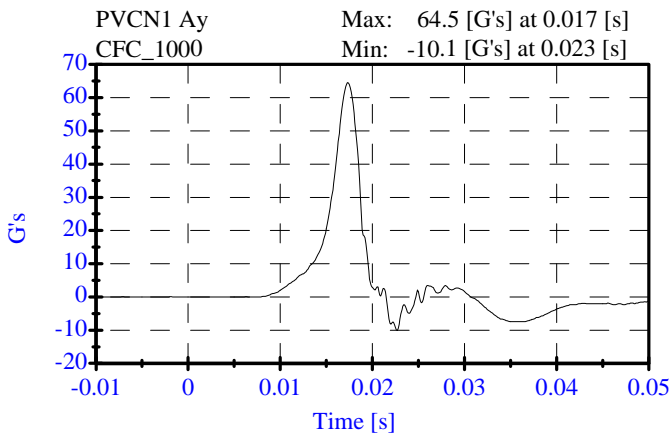
**Pelvic Test
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 10-17-07

Sequential Test Number: 1 File: 270P1 10-17-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.30 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	48.16 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.4 ms	Passed



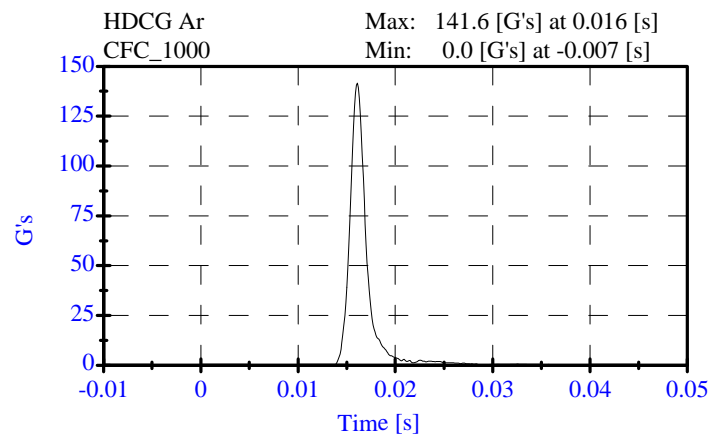
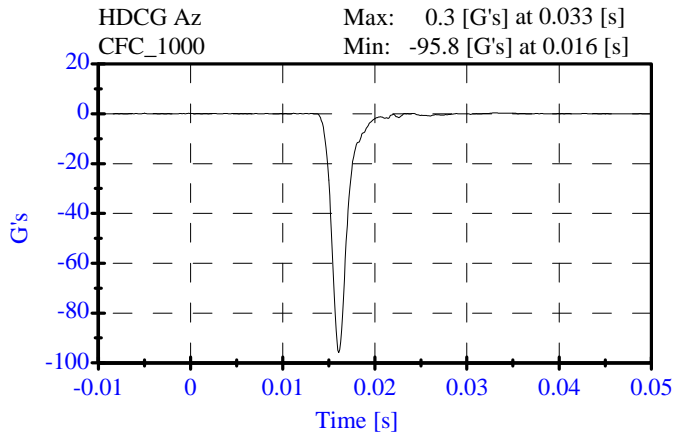
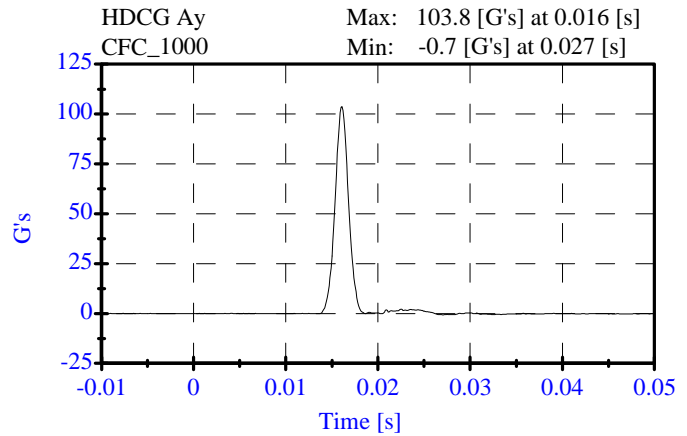
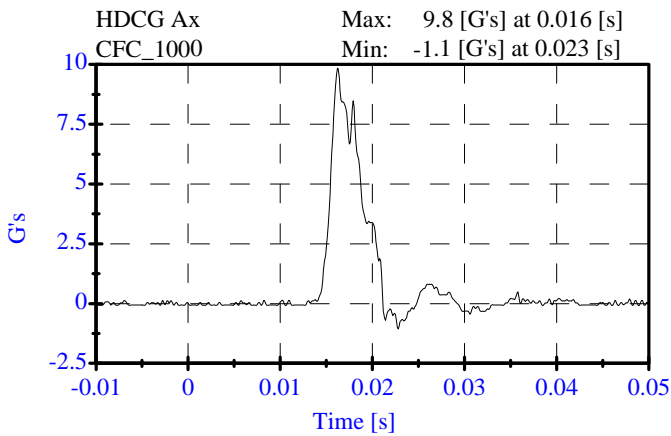
**Head Drop
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 10-05-07

Sequential Test Number: 1 File: 270H 10-05-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.6 C	21.7 C	Passed
Lab Humidity:	10-70 %	34.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	141.56 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	9.84 Gs	Passed
Curve PerCent NonModal:	< 15%	2.16 %	Passed



**Neck Test
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 10-16-07

Sequential Test Number: 1 File: 270N4 10-16-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.00 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	1.99 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.12 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.02 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.52 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	67.72 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.40 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	86.92 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	51.40 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	7.90 ms	Passed

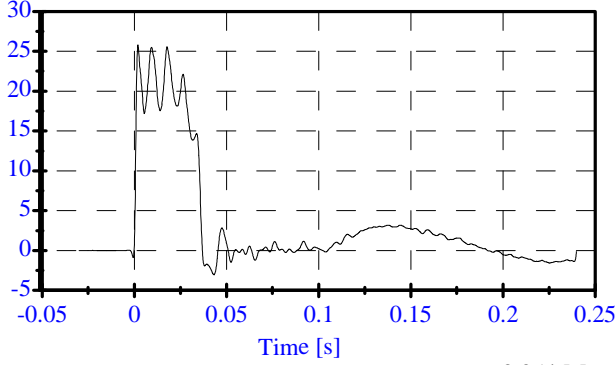
Neck Test
Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

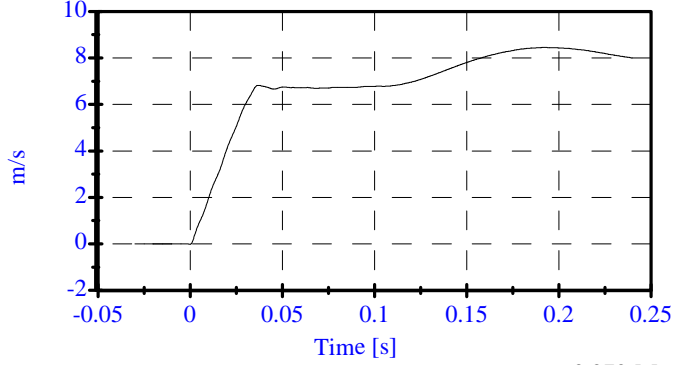
ATD Serial No: 270
Date: 10-16-07

Sequential Test Number: 1 File: 270N4 10-16-07
Laboratory Technician: B. Swiecicki

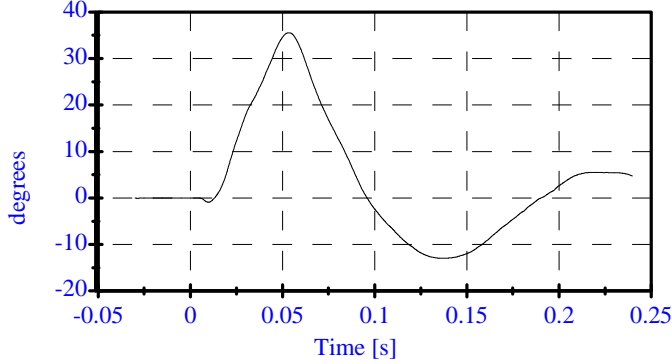
Pend Ax
CFC_180 Max: 25.8 [] at 0.002 [s]
Min: -3.0 [] at 0.043 [s]



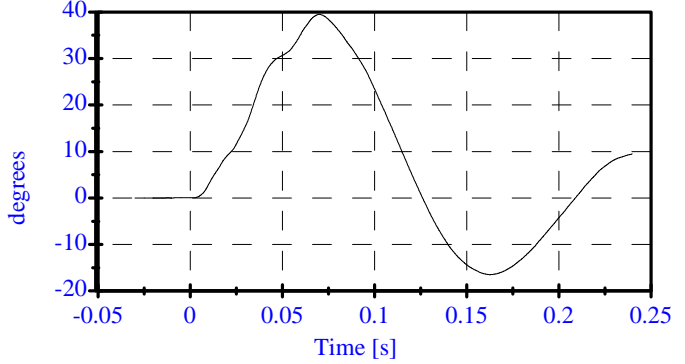
Pend Vx
CFC_180 Max: 8.4 [m/s] at 0.192 [s]
Min: -0.0 [m/s] at -0.000 [s]



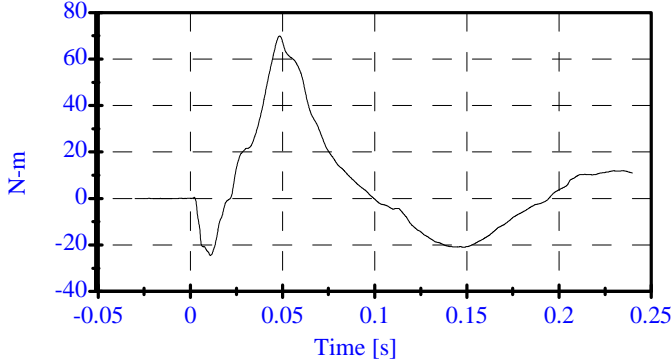
Head Rot
CFC_180 Max: 35.5 [degrees] at 0.054 [s]
Min: -13.0 [degrees] at 0.136 [s]



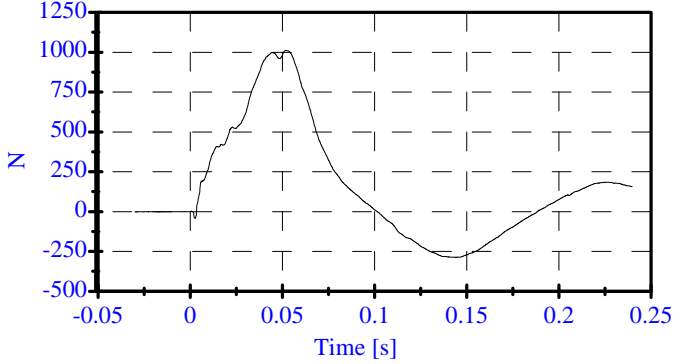
Arm Rot
CFC_180 Max: 39.5 [degrees] at 0.070 [s]
Min: -16.5 [degrees] at 0.163 [s]



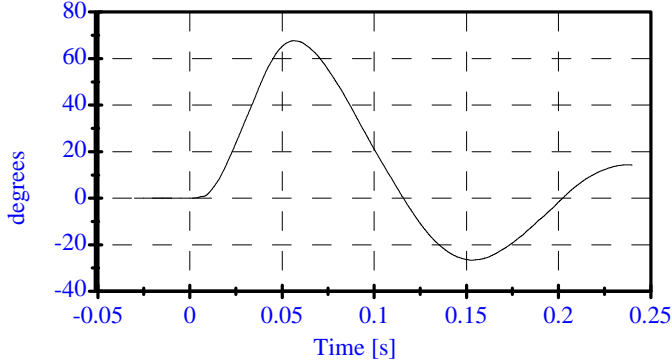
Neck Mx
CFC_600 Max: 69.8 [N-m] at 0.049 [s]
Min: -24.5 [N-m] at 0.011 [s]



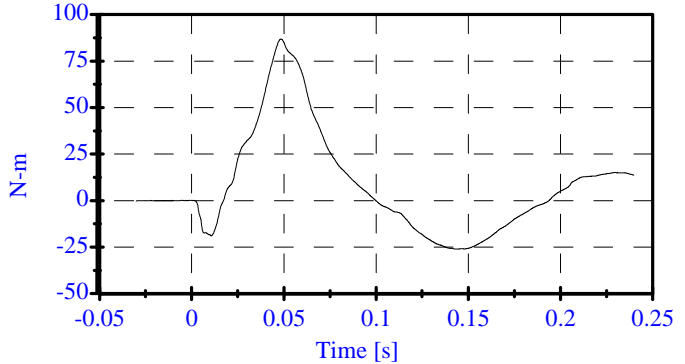
Neck Fy
CFC_1000 Max: 1012.1 [N] at 0.052 [s]
Min: -286.9 [N] at 0.144 [s]



Tot Rot
CFC_180 Max: 67.7 [degrees] at 0.056 [s]
Min: -26.6 [degrees] at 0.153 [s]



MOCX
Max: 86.9 [N-m] at 0.049 [s]
Min: -25.9 [N-m] at 0.144 [s]



Abdomen Test

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270

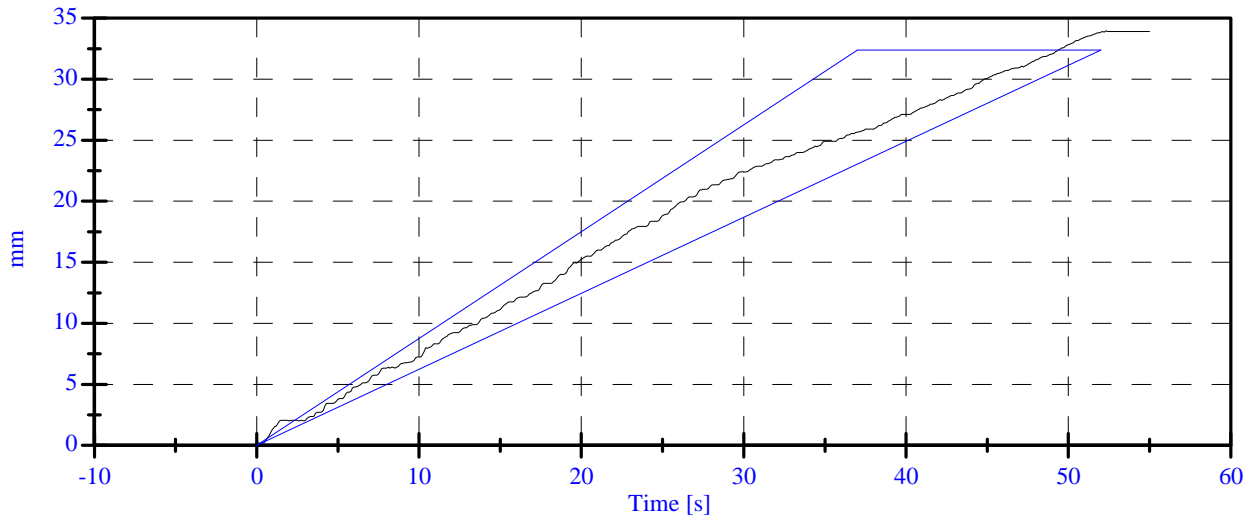
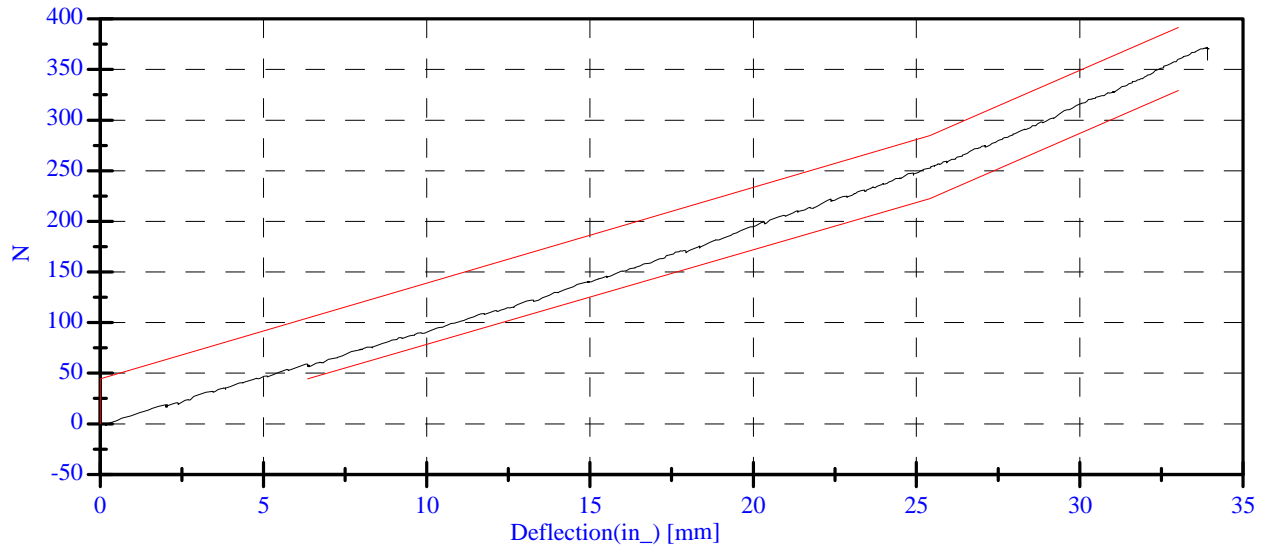
Date: 10-19-07

Sequential Test Number: 1 File: 270Ab 10-19-07

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	121.23 N	Passed
Force at 19.05 mm :	162.98-220.99 N	183.94 N	Passed
Force at 25.40 mm :	221.97-280.02 N	252.45 N	Passed
Force at 33.02 mm :	324.99-391.00 N	359.75 N	Passed

ABDOMINAL COMPRESSION TEST



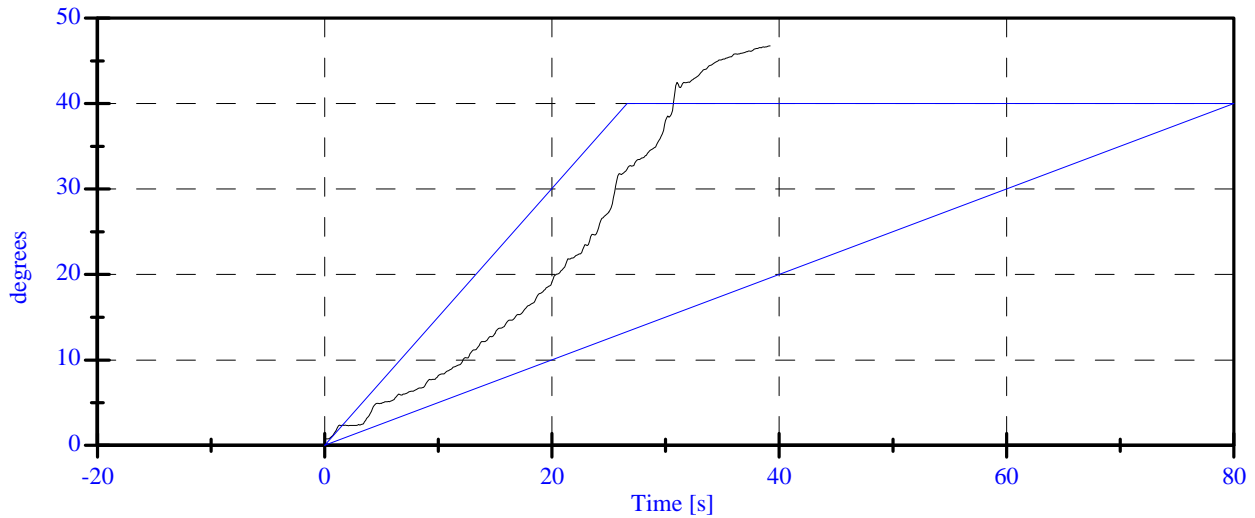
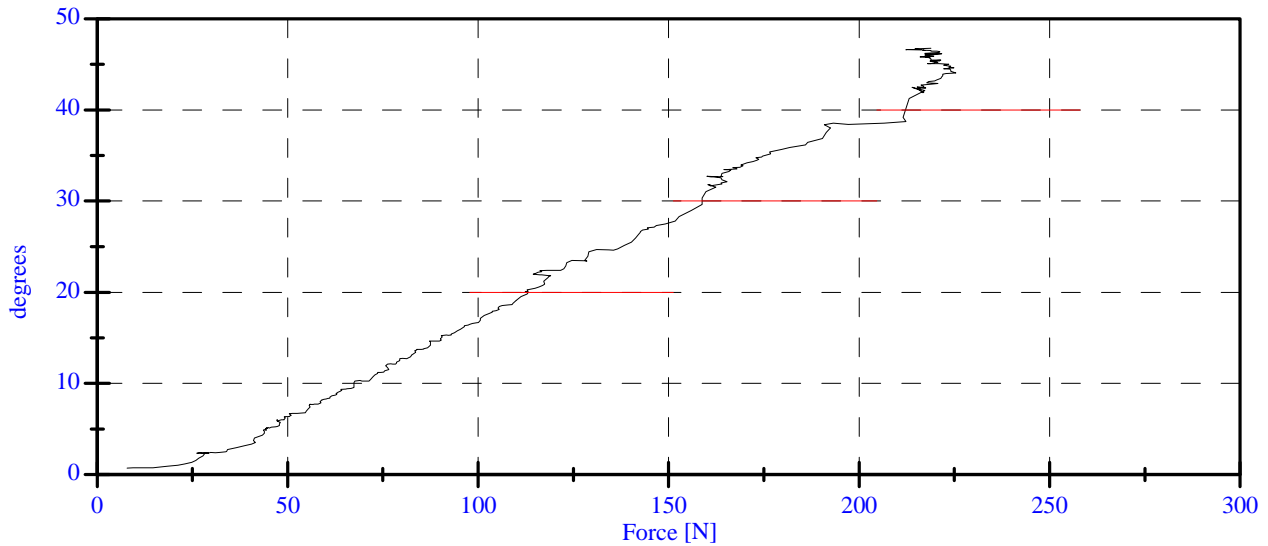
**Lumbar Spine
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 270
Date: 10-19-07

Sequential Test Number: 1 File: 270SP 10-19-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	7.83 N	Passed
Force at 20 Deg:	97.86-151.24 N	113.08 N	Passed
Force at 30 Deg:	151.24-204.62 N	158.78 N	Passed
Force at 40 Deg:	204.62-258.00 N	212.32 N	Passed
Return Angle	12 Deg Max	1.11 deg	Passed

LUMBAR SPINE FLEXION TEST



PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 3
 Date: 10/19/07 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

POST TEST

SID H3 NO.: 269

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 4
Date: 11/16/07 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 4
Date: 11/16/07 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	903
RH- Rib Height (mm)	502 - 520	512
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	237
KH- Knee Pivot from Back Line (mm)	511 - 526	519
KV- Knee Pivot to Floor (mm)	490 - 505	499
HW- Hip Width (mm)	356 - 391	372

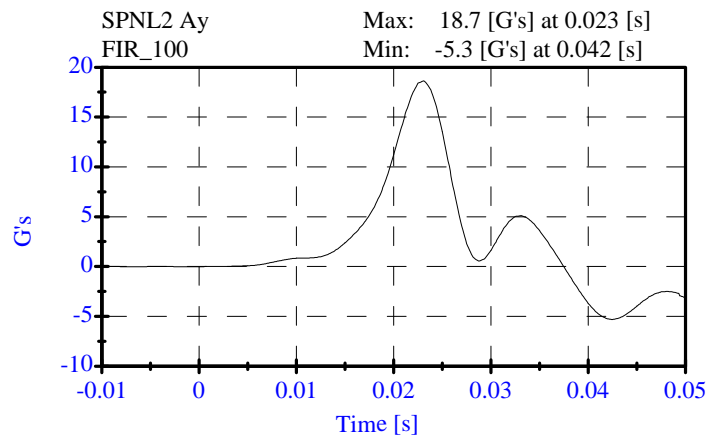
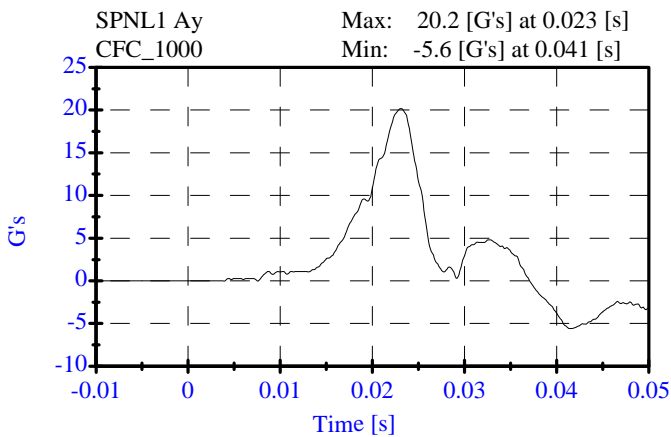
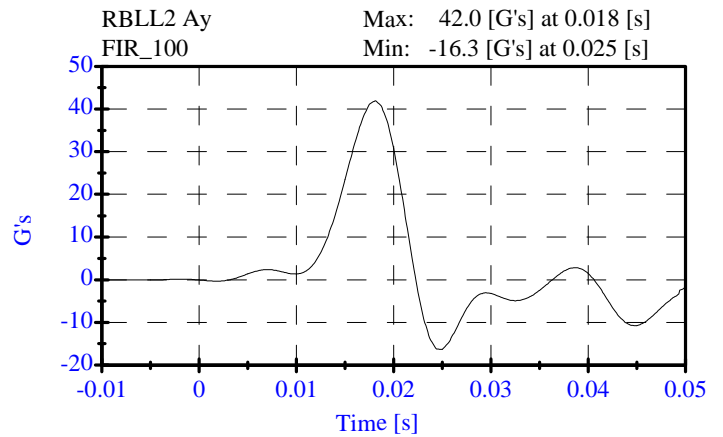
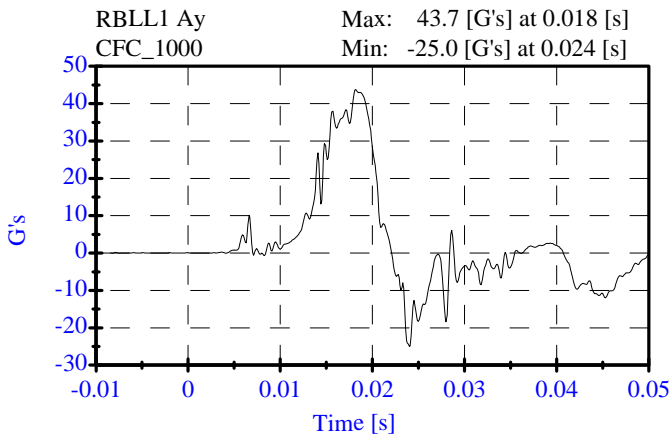
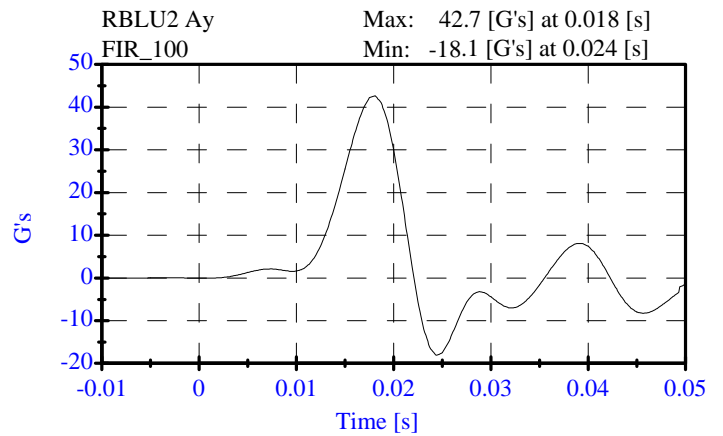
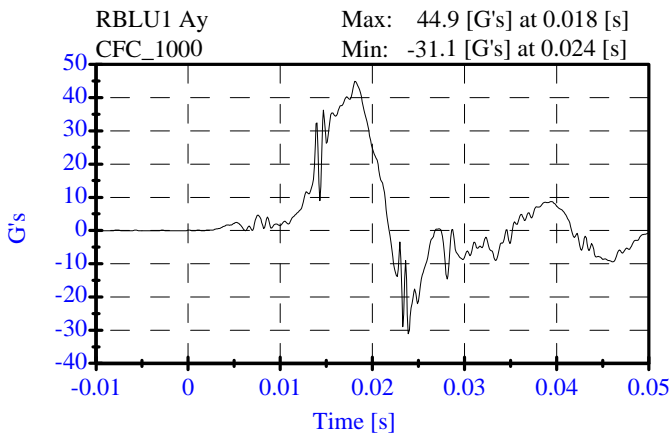
REMARKS: None

**Thorax Impact
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 269
Date: 11-12-07

Sequential Test Number: 1 File: 269T 11-12-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.27 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	42.66 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	41.97 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	18.66 G's	Passed



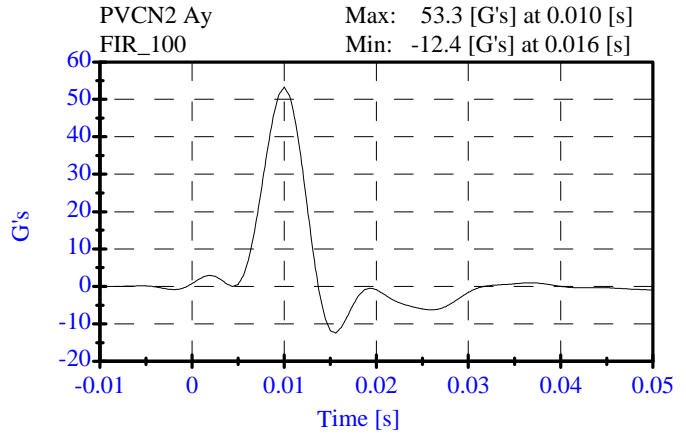
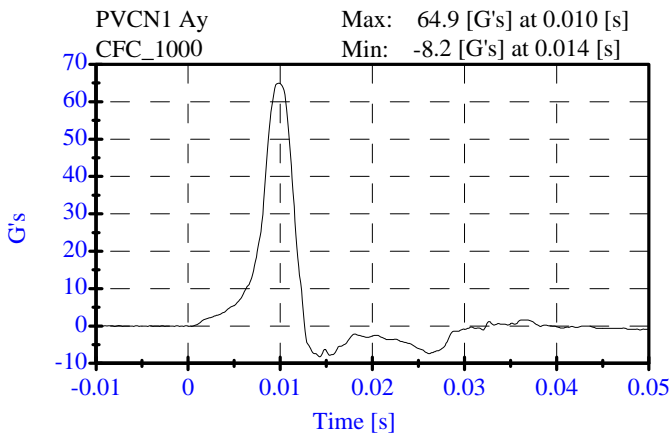
**Pelvic Impact
Post-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 11-12-07

Sequential Test Number: 1 File: 269P 11-12-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.27 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	53.27 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.4 ms	Passed



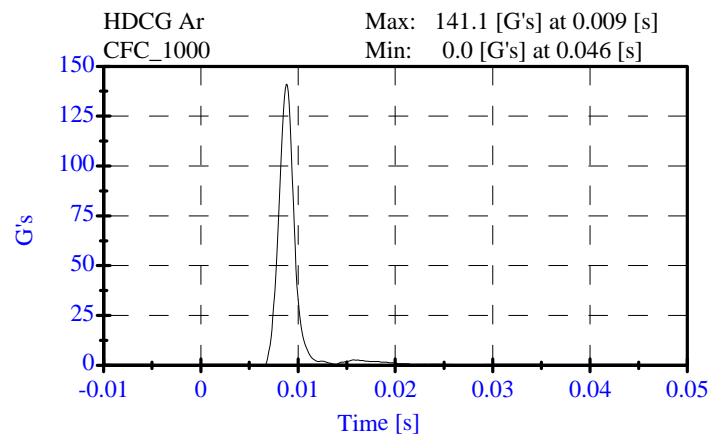
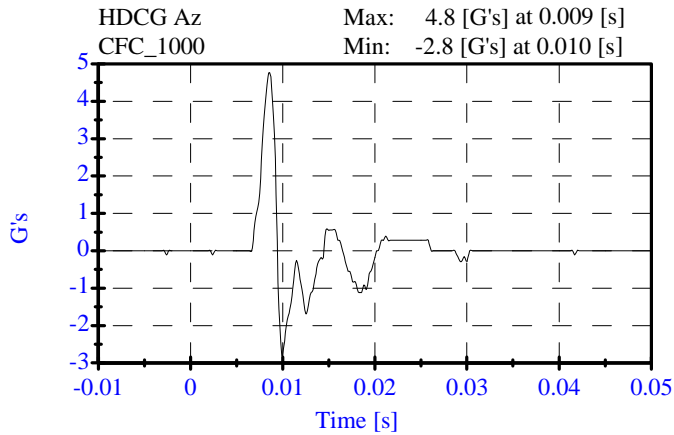
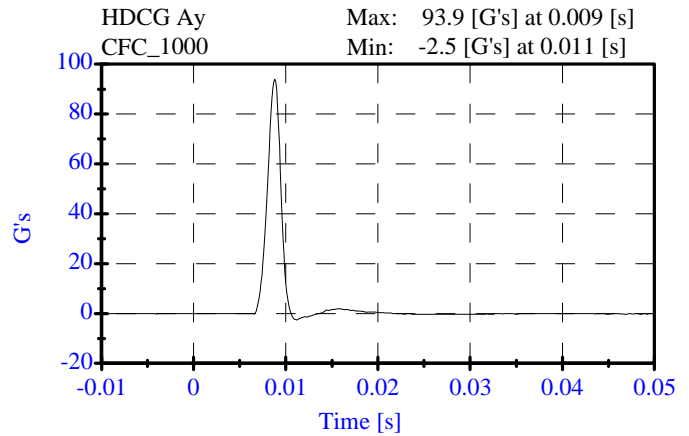
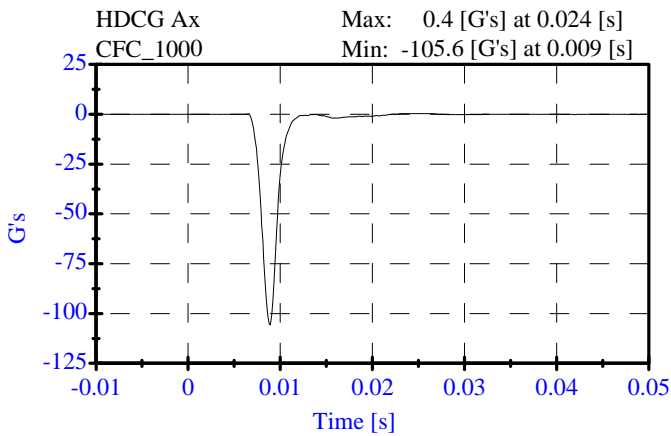
**Head Drop
Post-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 11-08-07

Sequential Test Number: 1 File: 269hd2 11-08-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	141.08 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	0.38 Gs	Passed
Curve PerCent NonModal:	< 15%	1.95 %	Passed



**Neck Test
Post-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 11-09-07

Sequential Test Number: 1 File: 269N 11-09-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.00 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.11 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.44 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.42 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	6.96 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	69.98 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	60.00 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	87.52 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	56.40 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	9.30 ms	Passed

Neck Test
Post-Test

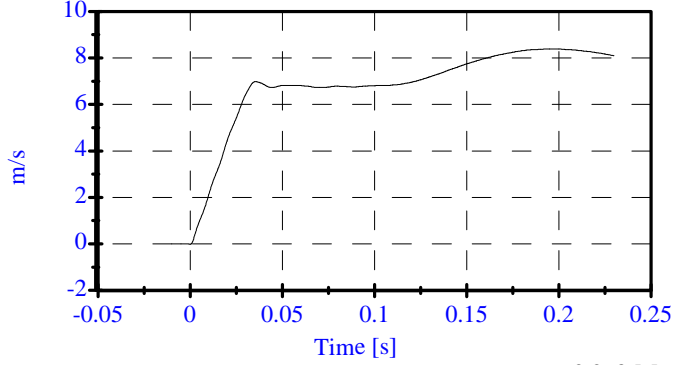
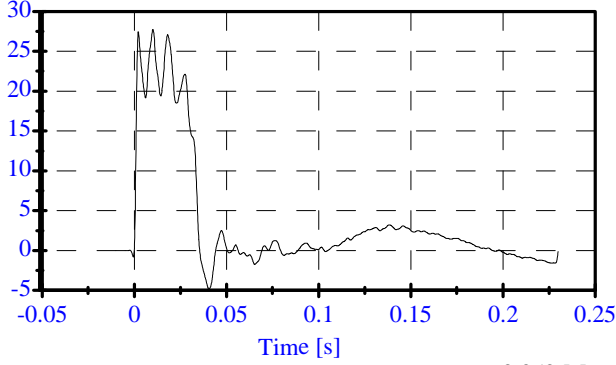
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 11-09-07

Sequential Test Number: 1 File: 269N 11-09-07
Laboratory Technician: B. Swiecicki

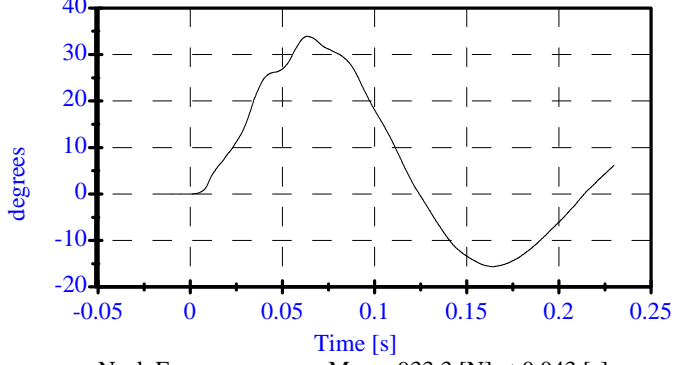
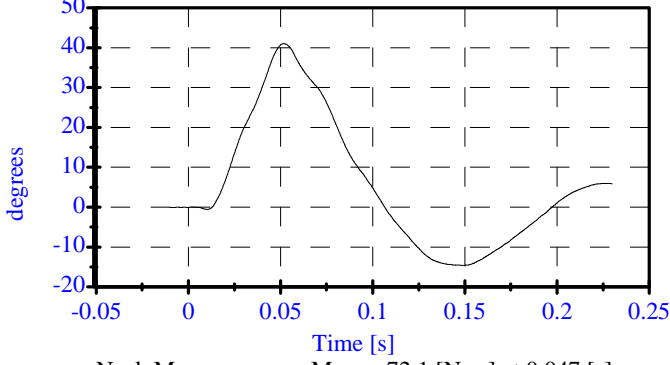
Pend Ax CFC_180 Max: 27.7 [] at 0.010 [s]
Min: -4.9 [] at 0.041 [s]

Pend Vx CFC_180 Max: 8.4 [m/s] at 0.195 [s]
Min: -0.0 [m/s] at -0.000 [s]



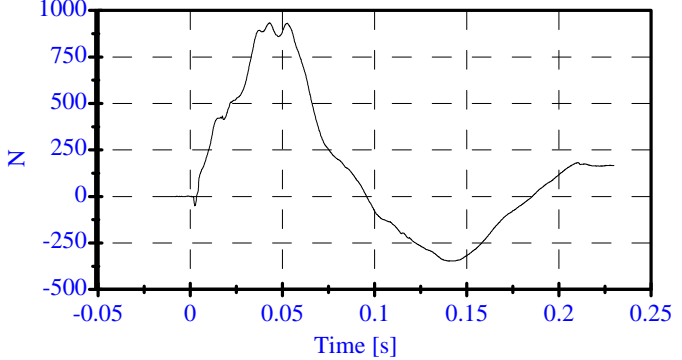
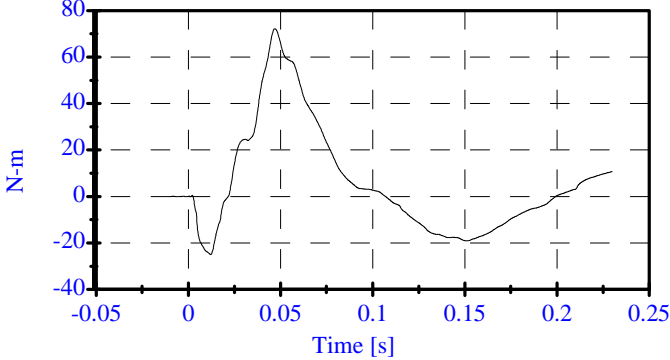
Head Rot CFC_180 Max: 41.0 [degrees] at 0.052 [s]
Min: -14.6 [degrees] at 0.149 [s]

Arm Rot CFC_180 Max: 33.9 [degrees] at 0.063 [s]
Min: -15.6 [degrees] at 0.164 [s]



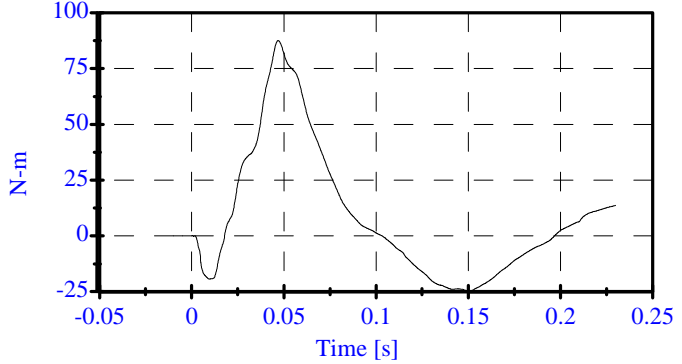
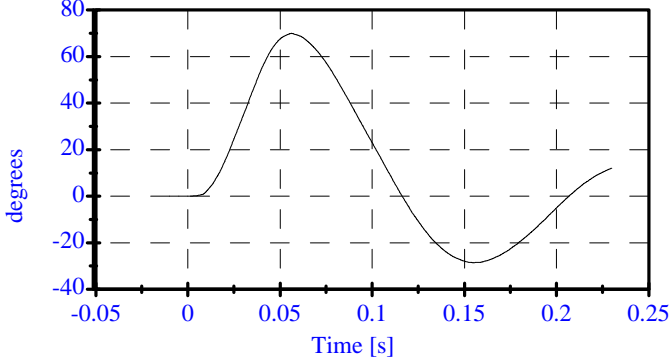
Neck Mx CFC_600 Max: 72.1 [N-m] at 0.047 [s]
Min: -25.0 [N-m] at 0.012 [s]

Neck Fy CFC_1000 Max: 933.3 [N] at 0.043 [s]
Min: -347.9 [N] at 0.140 [s]



Tot Rot CFC_180 Max: 70.0 [degrees] at 0.056 [s]
Min: -28.5 [degrees] at 0.155 [s]

MOCX Max: 87.5 [N-m] at 0.047 [s]
Min: -24.7 [N-m] at 0.150 [s]



Abdomen Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269

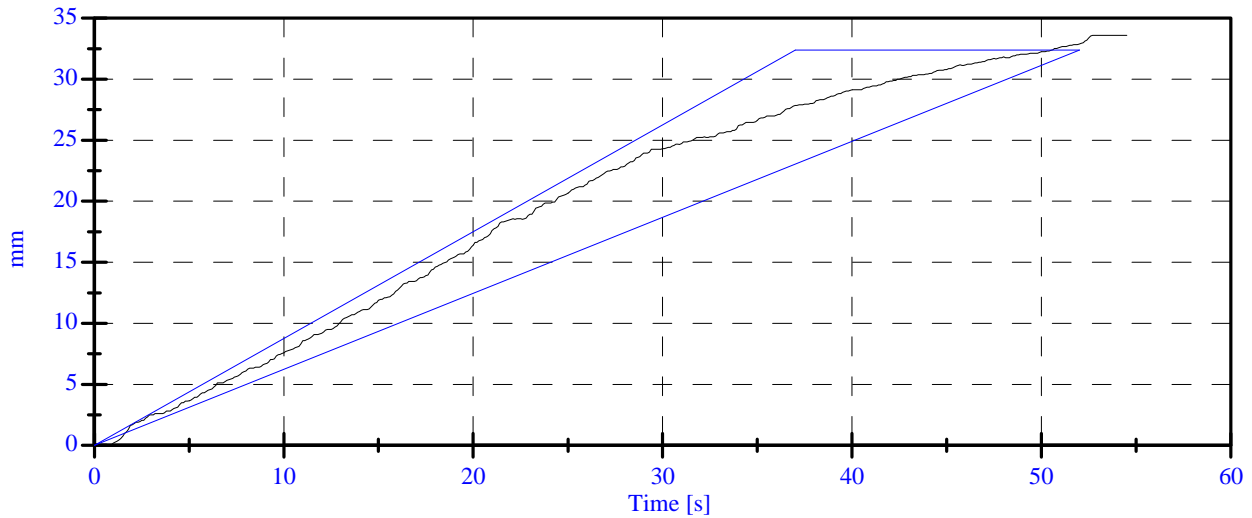
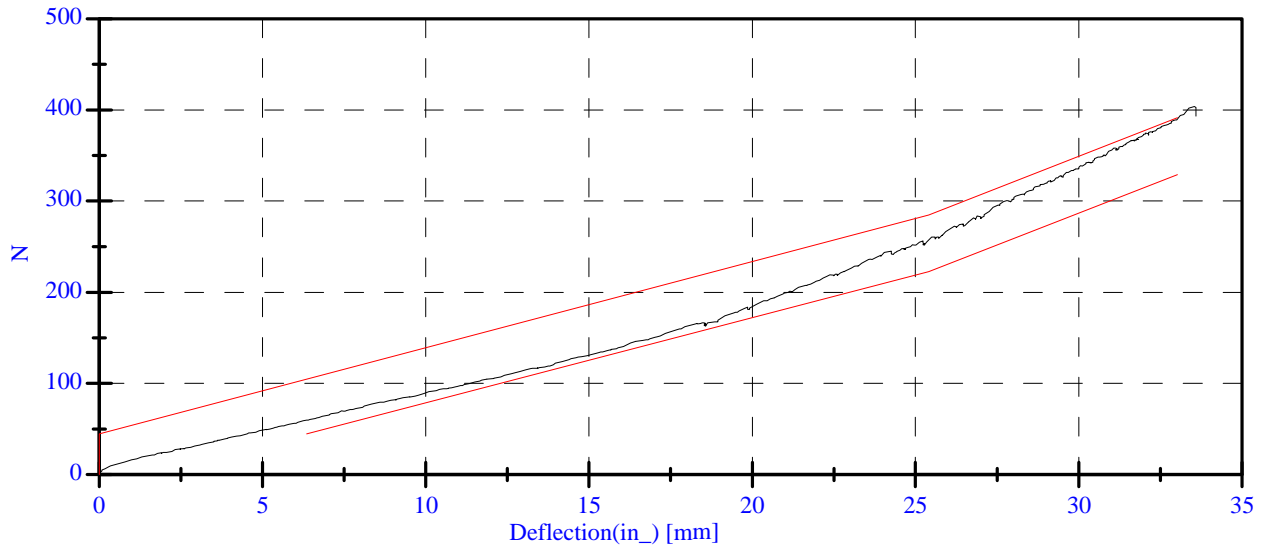
Date: 11-16-07

Sequential Test Number: 1 File: 269ab 11-16-07

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	112.90 N	Passed
Force at 19.05 mm :	162.98-220.99 N	167.63 N	Passed
Force at 25.40 mm :	221.97-280.02 N	254.99 N	Passed
Force at 33.02 mm :	324.99-391.00 N	389.11 N	Passed

ABDOMINAL COMPRESSION TEST



Lumbar Spine Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269

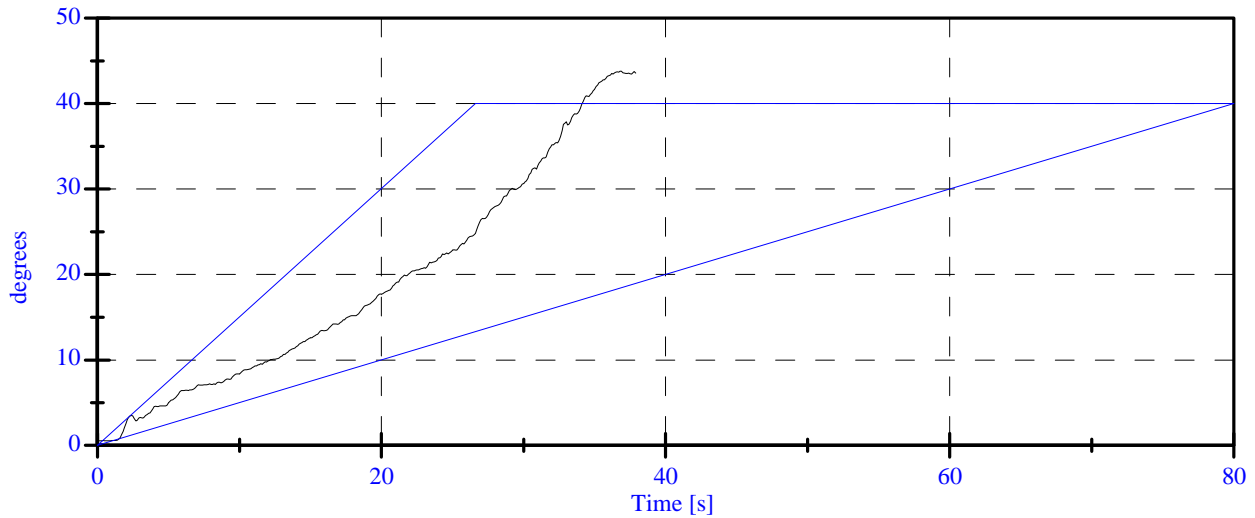
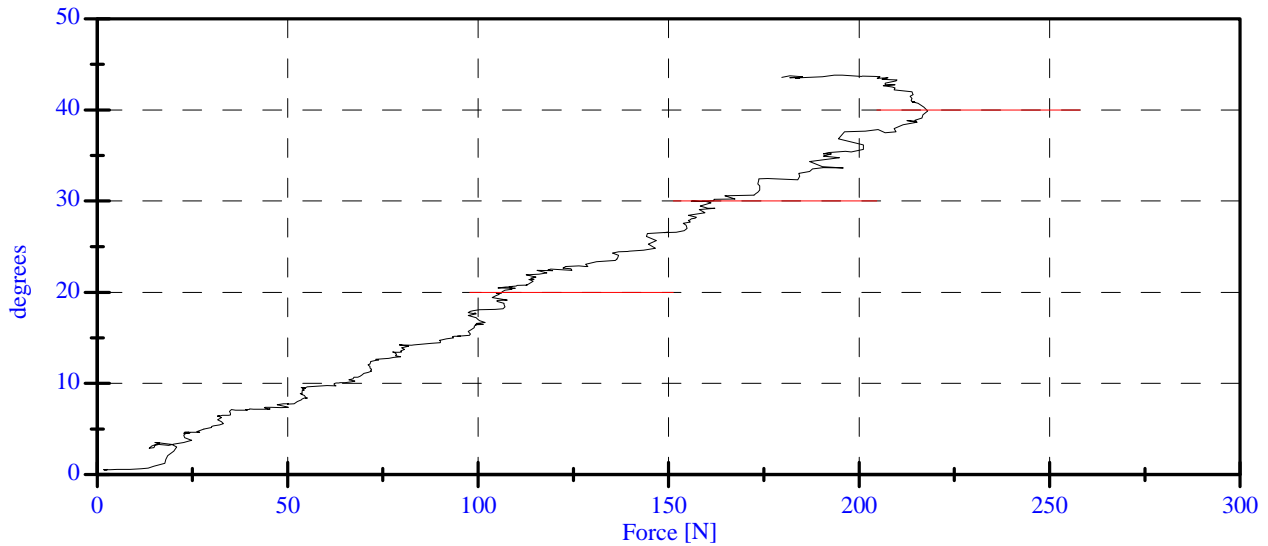
Date: 11-16-07

Sequential Test Number: 1 File: 269SP 11-16-07

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	2.61 N	Passed
Force at 20 Deg:	97.86-151.24 N	106.29 N	Passed
Force at 30 Deg:	151.24-204.62 N	159.56 N	Passed
Force at 40 Deg:	204.62-258.00 N	218.06 N	Passed
Return Angle	12 Deg Max	6.17 deg	Passed

LUMBAR SPINE FLEXION TEST



POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 4
 Date: 11/16/07 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

POST TEST

SID H3 NO.: 270

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 4
Date: 11/16/07 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 4
Date: 11/16/07 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	904
RH- Rib Height (mm)	502 - 520	512
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	236
KH- Knee Pivot from Back Line (mm)	511 - 526	517
KV- Knee Pivot to Floor (mm)	490 - 505	498
HW- Hip Width (mm)	356 - 391	375

REMARKS: None

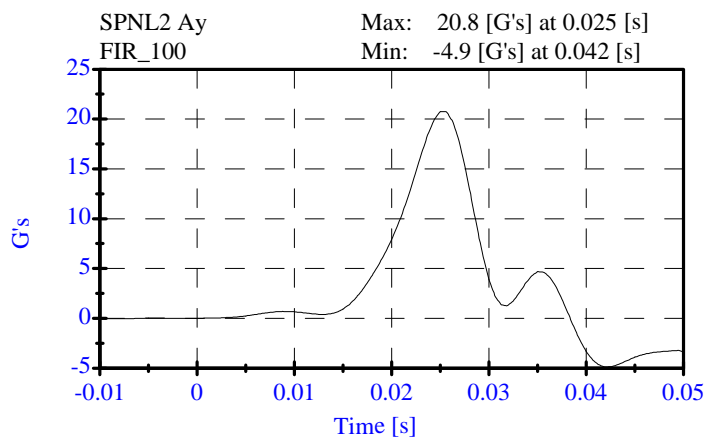
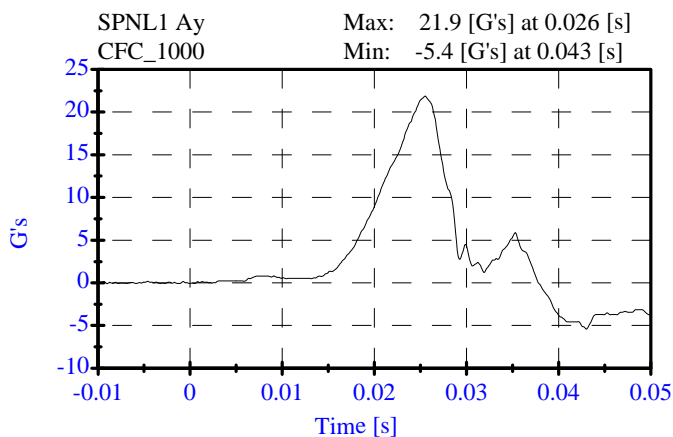
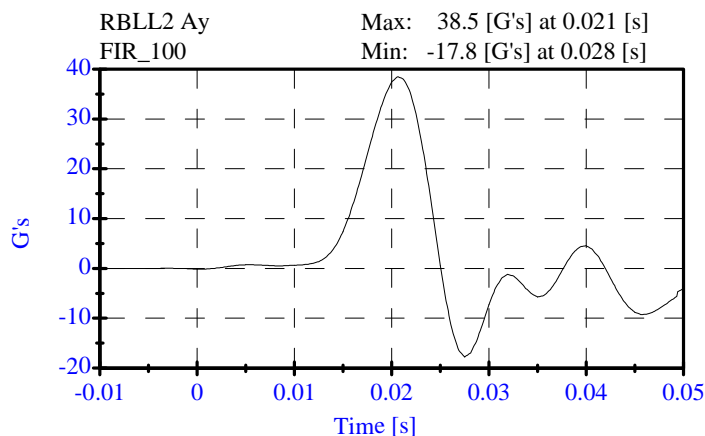
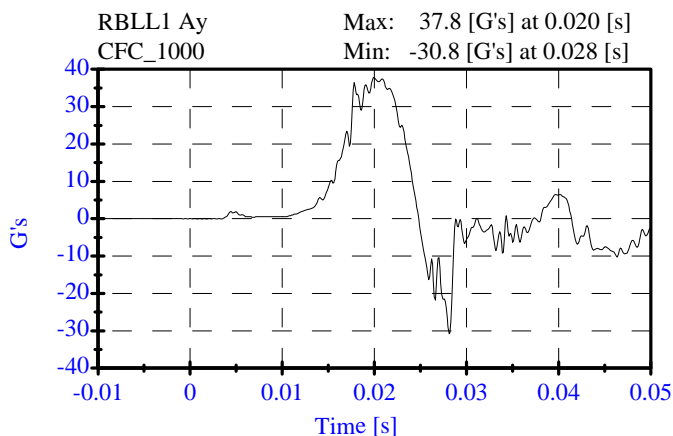
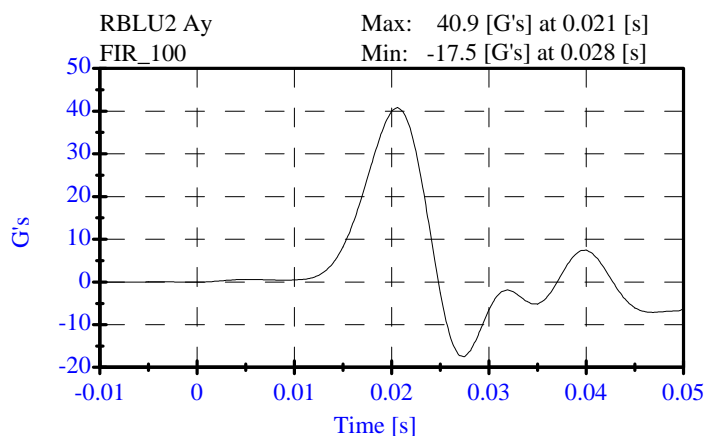
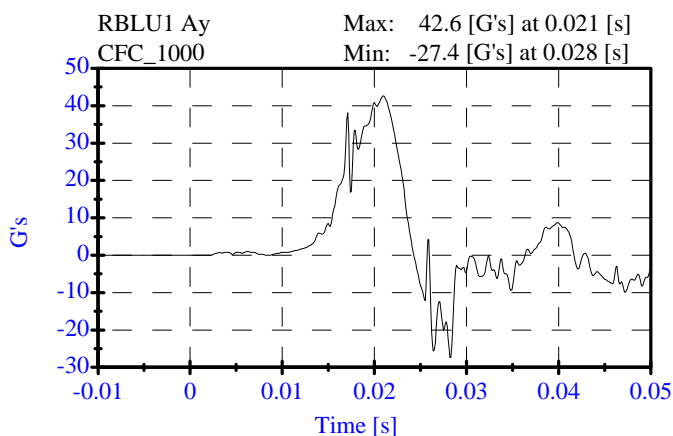
Thorax Impact Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 11-12-07

Sequential Test Number: 1 File: 270T 11-12-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.27 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	40.85 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	38.50 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	20.78 G's	Passed



Pelvis Impact test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

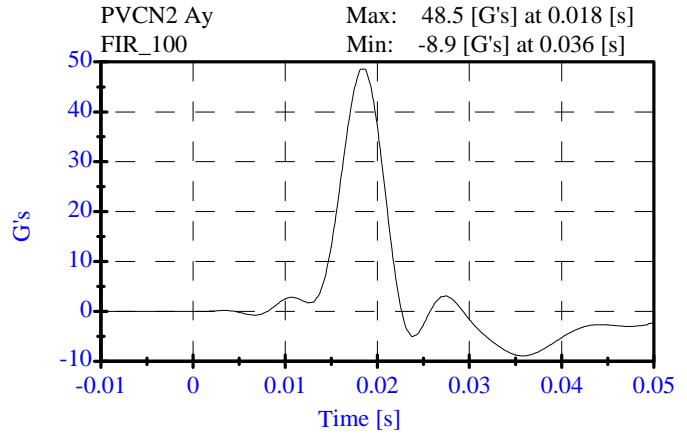
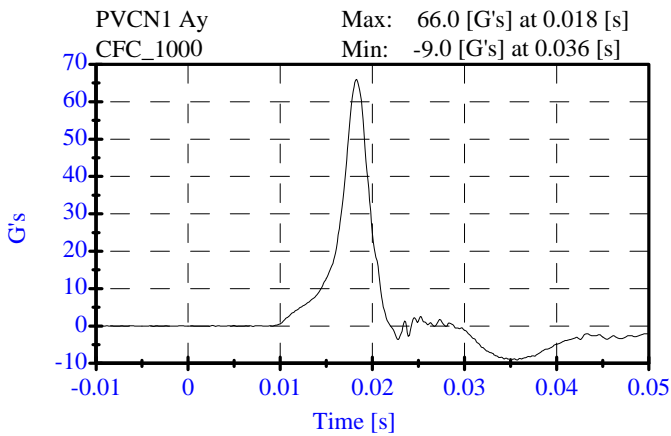
ATD Serial No: 270

Date: 11-16-07

Sequential Test Number: 1 File: 270P 11-16-07

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.27 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	48.53 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.5 ms	Passed



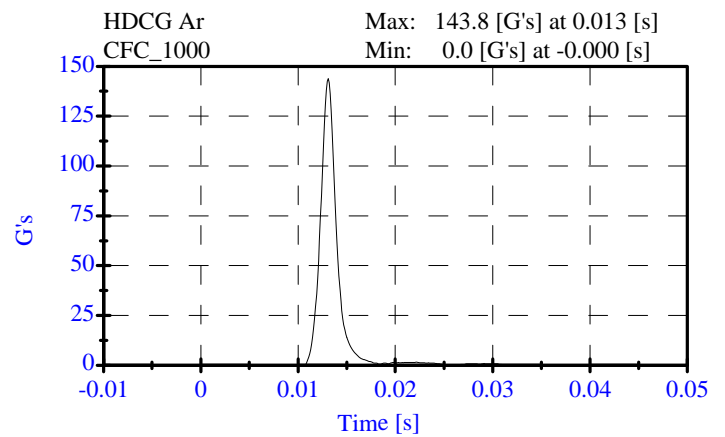
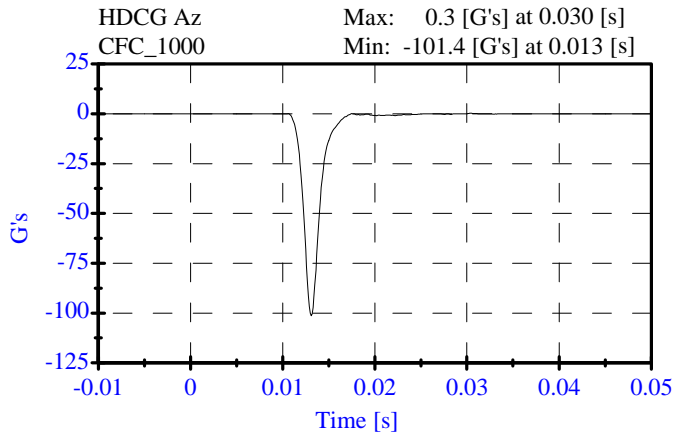
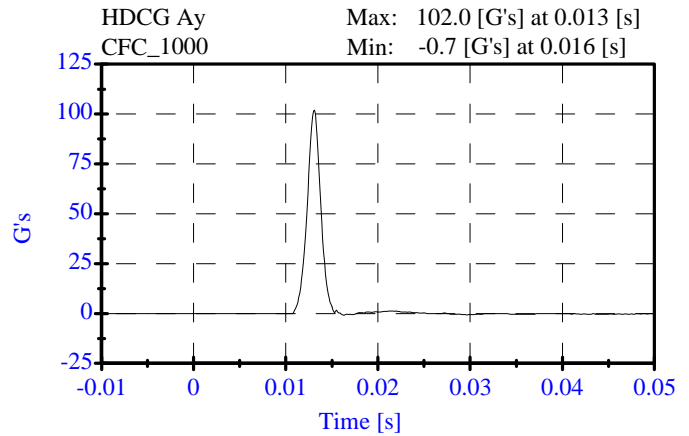
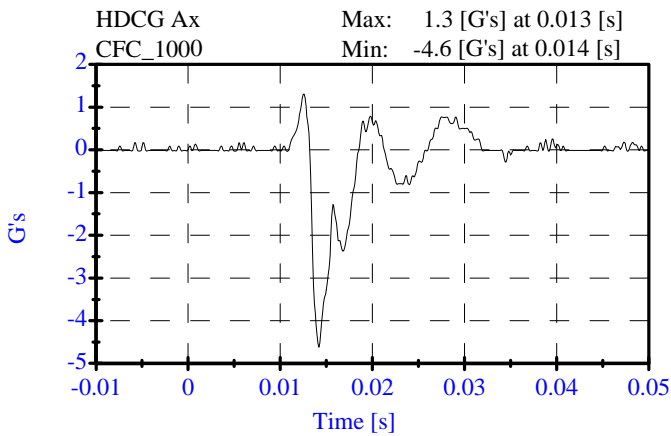
**Head Drop
Post-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 11-8-07

Sequential Test Number: 1 File: 270HD1 11-08-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	143.83 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	1.30 Gs	Passed
Curve PerCent NonModal:	< 15%	1.07 %	Passed



**Neck Test
Post-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 11-09-07

Sequential Test Number: 1 File: 270N 11-09-07
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.00 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.01 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.23 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.26 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.15 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	67.92 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.60 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	87.83 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	53.20 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	8.10 ms	Passed

**Neck Test
Post-Test**

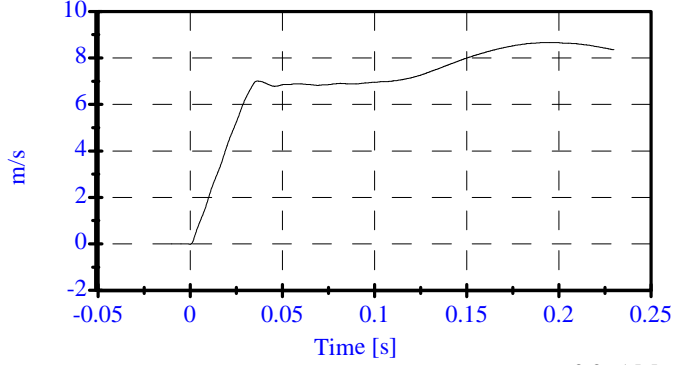
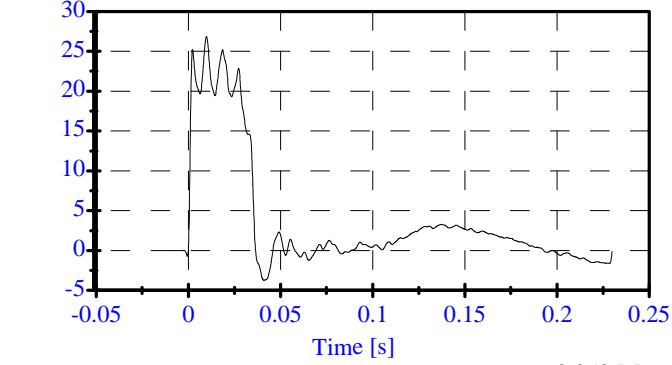
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 11-09-07

Sequential Test Number: 1 File: 270N 11-09-07
Laboratory Technician: B. Swiecicki

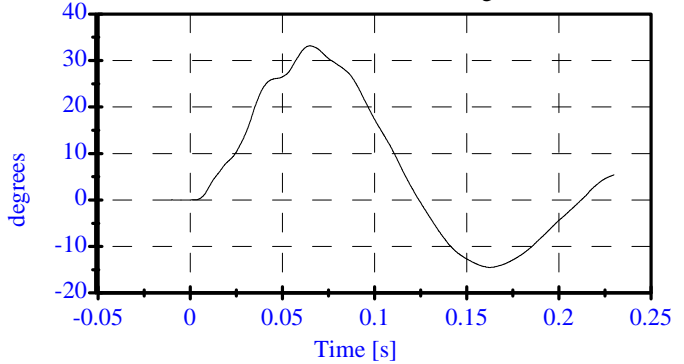
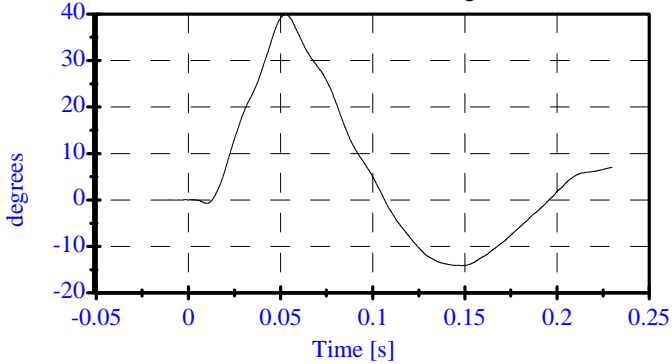
Pend Ax CFC_180 Max: 26.9 [] at 0.010 [s]
Min: -3.7 [] at 0.041 [s]

Pend Vx CFC_180 Max: 8.7 [m/s] at 0.193 [s]
Min: -0.0 [m/s] at 0.000 [s]



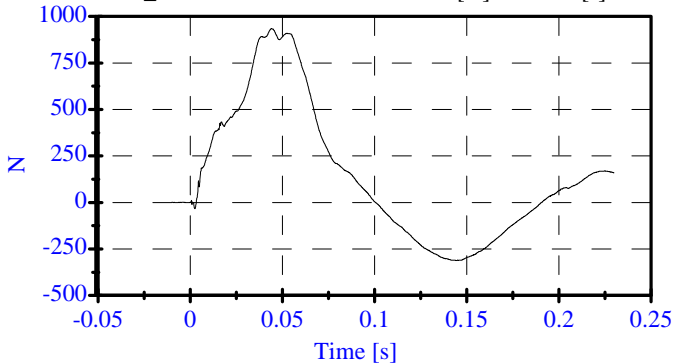
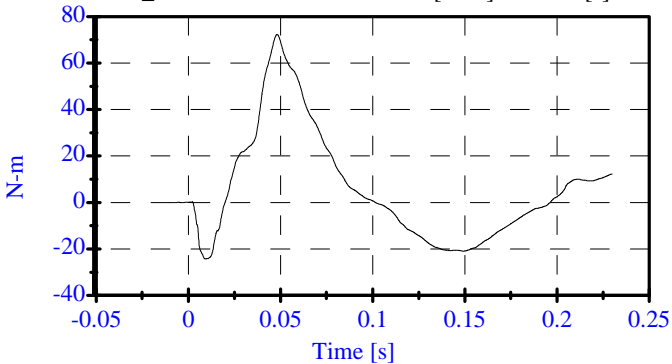
Head Rot CFC_180 Max: 39.9 [degrees] at 0.053 [s]
Min: -14.1 [degrees] at 0.148 [s]

Arm Rot CFC_180 Max: 33.2 [degrees] at 0.065 [s]
Min: -14.5 [degrees] at 0.162 [s]



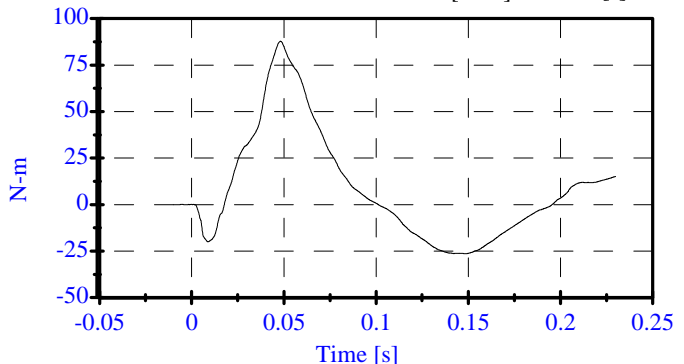
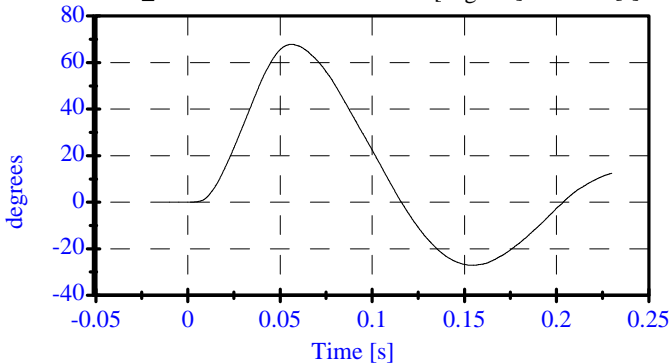
Neck Mx CFC_600 Max: 72.3 [N-m] at 0.048 [s]
Min: -24.3 [N-m] at 0.009 [s]

Neck Fy CFC_1000 Max: 934.7 [N] at 0.044 [s]
Min: -312.5 [N] at 0.144 [s]



Tot Rot CFC_180 Max: 67.9 [degrees] at 0.056 [s]
Min: -27.2 [degrees] at 0.154 [s]

MOCX Max: 87.8 [N-m] at 0.048 [s]
Min: -26.3 [N-m] at 0.149 [s]



Abdomen Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270

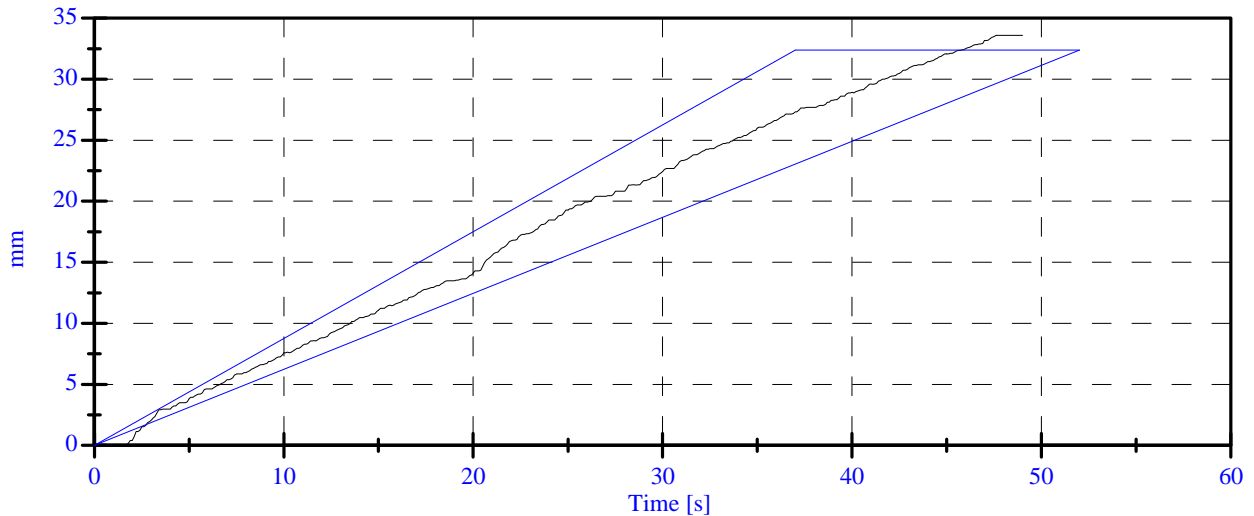
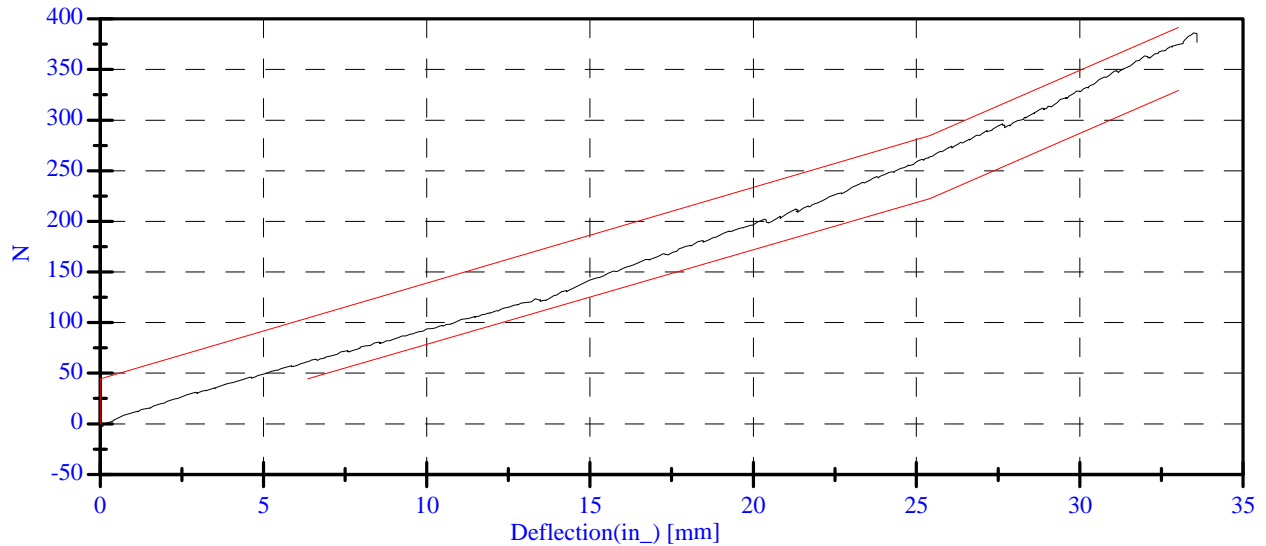
Date: 11-16-07

Sequential Test Number: 1 File: 270ab 11-16-07

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	119.42 N	Passed
Force at 19.05 mm :	162.98-220.99 N	188.66 N	Passed
Force at 25.40 mm :	221.97-280.02 N	262.96 N	Passed
Force at 33.02 mm :	324.99-391.00 N	373.88 N	Passed

ABDOMINAL COMPRESSION TEST



Lumbar Spine Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270

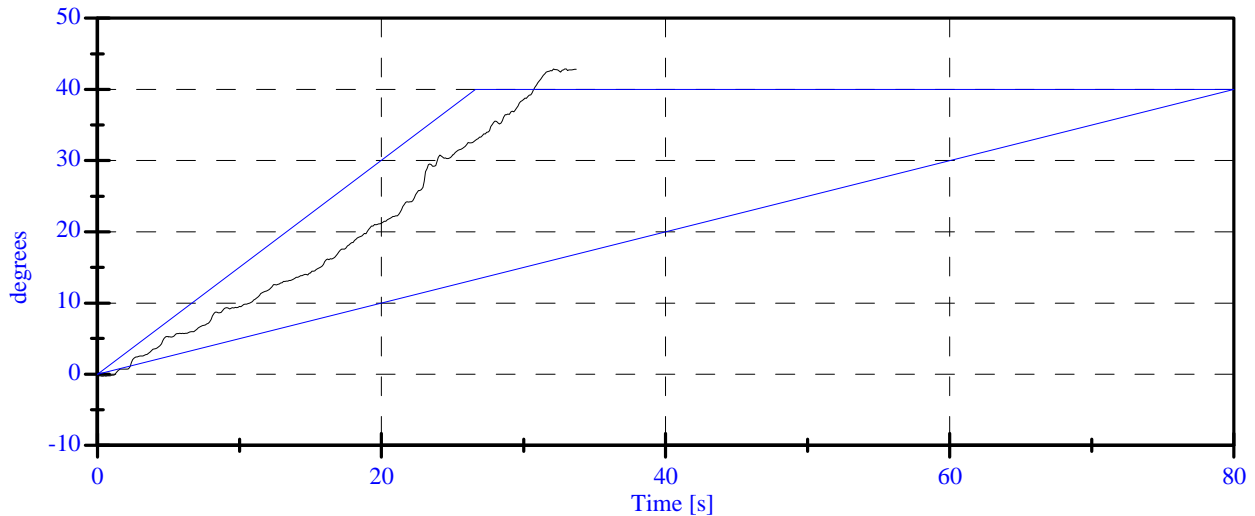
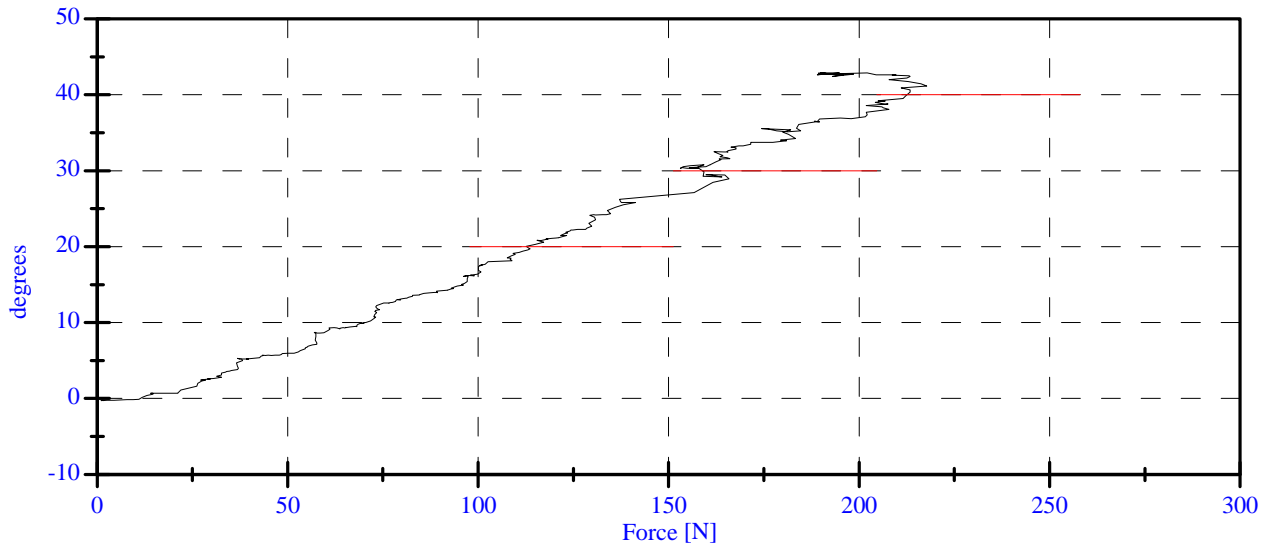
Date: 11-16-07

Sequential Test Number: 1 File: 270SP 11-16-07

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	10.97 N	Passed
Force at 20 Deg:	97.86-151.24 N	112.56 N	Passed
Force at 30 Deg:	151.24-204.62 N	159.30 N	Passed
Force at 40 Deg:	204.62-258.00 N	212.32 N	Passed
Return Angle	12 Deg Max	9.55 deg	Passed

LUMBAR SPINE FLEXION TEST



POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 4
 Date: 11/16/07 Laboratory Technician: B. Swiecicki

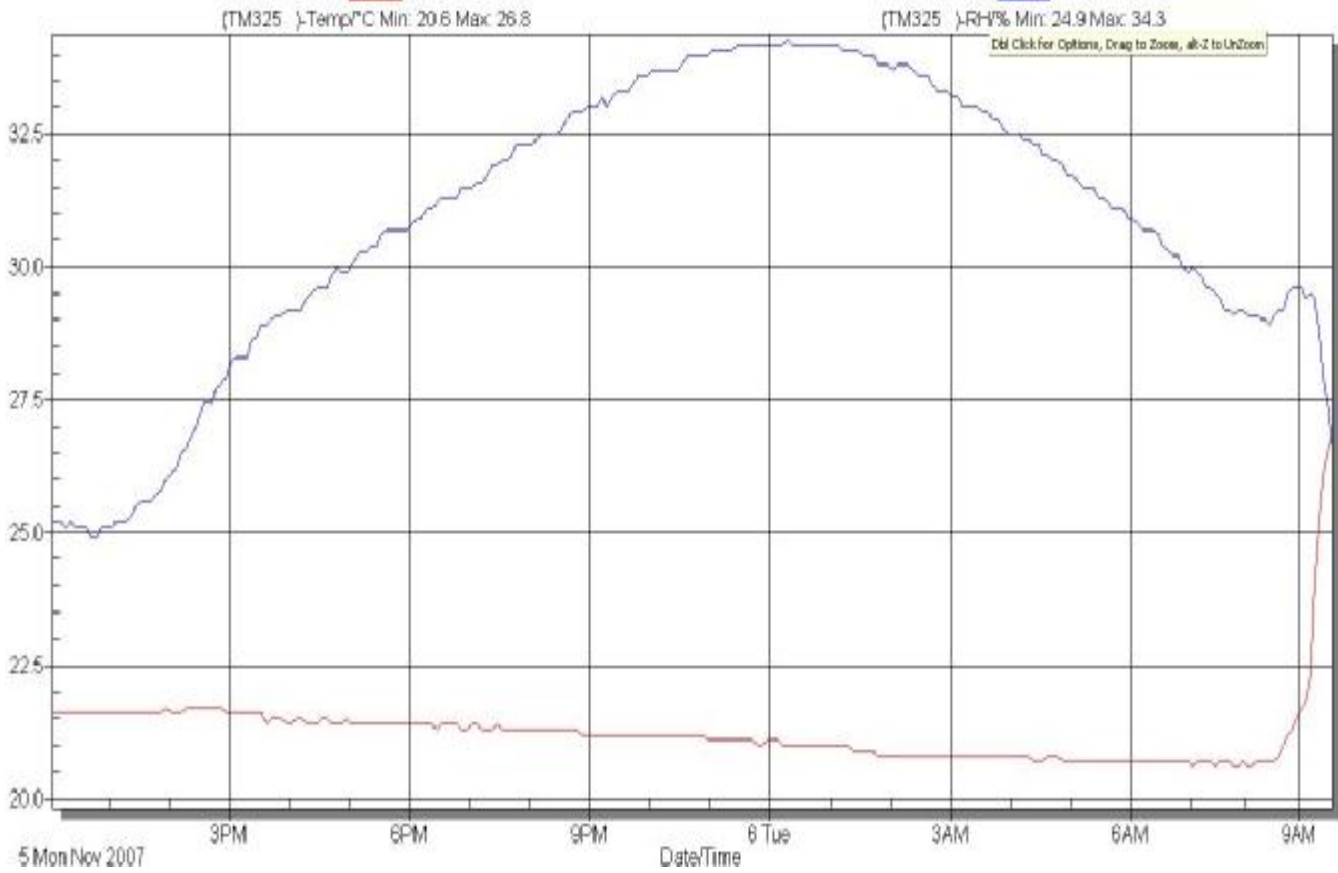
PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

TEMPERATURE TRACE

11/06/2007 2:05:34.4

Downloaded Data - Tuesday, November 06, 2007



APPENDIX D
TEST EQUIPMENT AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

SID/HIII INSTRUMENTATION

FRONT SID/HIII NO.: 269			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	ENDEVCO	P22943	7/11/2007
HEAD AY	ENDEVCO	P35789	7/11/2007
HEAD AZ	ENDEVCO	P35803	8/9/2007
UPPER NECK FX	DENTON	442Fx	11/8/2006
UPPER NECK FY	DENTON	442Fy	11/8/2006
UPPER NECK FZ	DENTON	442Fz	11/8/2006
UPPER NECK MX	DENTON	442Mx	11/8/2006
UPPER NECK MY	DENTON	442My	11/8/2006
UPPER NECK MZ	DENTON	442Mz	11/8/2006
UPPER RIB	ENDEVCO	P39731	7/11/2007
LOWER RIB	ENDEVCO	P38896	7/11/2007
LOWER SPINE	ENDEVCO	P38188	7/11/2007
PELVIS	ENDEVCO	P38132	7/11/2007
UPPER RIB REDUNDANT	ENDEVCO	P39740	7/11/2007
LOWER RIB REDUNDANT	ENDEVCO	P35786	7/11/2007
LOWER SPINE REDUNDANT	ENDEVCO	P38216	7/11/2007
PELVIS REDUNDANT	ENDEVCO	P35757	7/11/2007

REAR SID/HIII NO.: 270			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	ENDEVCO	P35812	7/11/2007
HEAD AY	ENDEVCO	P35761	8/9/2007
HEAD AZ	ENDEVCO	P19212	7/11/2007
UPPER NECK FX	DENTON	1629Fx	11/8/2006
UPPER NECK FY	DENTON	1629Fy	11/8/2006
UPPER NECK FZ	DENTON	1629Fz	11/8/2006
UPPER NECK MX	DENTON	1629Mx	11/8/2006
UPPER NECK MY	DENTON	1629My	11/8/2006
UPPER NECK MZ	DENTON	1629Mz	11/8/2006
UPPER RIB	ENDEVCO	P18558	7/11/2007
LOWER RIB	ENDEVCO	P18537	7/12/2007
LOWER SPINE	ENDEVCO	P18639	7/11/2007
PELVIS	ENDEVCO	P21171	7/11/2007
UPPER RIB REDUNDANT	ENDEVCO	P35818	7/11/2007
LOWER RIB REDUNDANT	ENDEVCO	P19222	7/12/2007
LOWER SPINE REDUNDANT	ENDEVCO	P16576	7/11/2007
PELVIS REDUNDANT	ENDEVCO	P22639	7/12/2007

REMARKS: None

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

VEHICLE AND MDB INSTRUMENTATION

	VEHICLE AND MDB INSTRUMENTS		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
RIGHT FRONT SILL (X)	ENDEVCO	P23939	8/9/2007
RIGHT FRONT SILL (Y)	ENDEVCO	P23999	8/9/2007
RIGHT FRONT SILL (Z)	ENDEVCO	P23993	8/9/2007
RIGHT REAR SILL (X)	ENDEVCO	P16625	8/9/2007
RIGHT REAR SILL (Y)	ENDEVCO	J32838	8/9/2007
RIGHT REAR SILL (Z)	ENDEVCO	P19216	8/10/2007
REAR FLOORPAN ABOVE AXLE (X)	ENDEVCO	P32455	8/7/2007
REAR FLOORPAN ABOVE AXLE (Y)	ENDEVCO	P32464	8/6/2007
REAR FLOORPAN ABOVE AXLE (Z)	ENDEVCO	P32139	8/7/2007
LEFT REAR SILL (Y)	ENDEVCO	J37854	8/10/2007
LEFT FRONT SILL (Y)	ICS	FGP19	7/12/2007
LEFT FRONT DOOR CENTERLINE (Y)	-	-	-
RIGHT REAR SEAT OCCUPANT COMP. (Y)	ICS	FA2486	7/9/2007
MID REAR OF LEFT FRONT DOOR (Y)	-	-	-
LEFT FRONT DOOR UPPER C/L (Y)	-	-	-
MID REAR OF LEFT REAR DOOR (Y)	-	-	-
LEFT REAR DOOR UPPER C/L (Y)	-	-	-
LOWER LEFT B- PILLAR (Y)	ENDEVCO	P17563	8/9/2007
MIDDLE LEFT B-PILLAR (Y)	ENDEVCO	P23164	7/11/2007
LOWER LEFT A-PILLAR (Y)	ENDEVCO	P18785	8/9/2007
UPPER LEFT A-PILLAR (Y)	ENDEVCO	P32197	8/6/2007
FRONT SEAT TRACK (Y)	ENDEVCO	J33071	8/10/2007
REAR SEAT TRACK (Y)	ENDEVCO	P23926	8/9/2007
VEHICLE CG (X)	ENDEVCO	P18524	8/7/2007
VEHICLE CG (Y)	ENDEVCO	P18518	8/7/2007
VEHICLE CG (Z)	ENDEVCO	P32295	8/7/2007
MDB CG (X)	ENDEVCO	C15007	9/12/2007
MDB CG (Y)	ENDEVCO	C16416	9/12/2007
MDB CG (Z)	ENDEVCO	C16499	9/12/2007
MDB REAR FRAME MEMBER (X)	ENDEVCO	C14948	9/12/2007
MDB REAR FRAME MEMBER (Y)	ENDEVCO	C16680	9/12/2007

REMARKS: None