

REPORT NUMBER: NCAP-MGA-2008-001

**NEW CAR ASSESSMENT PROGRAM
FRONTAL BARRIER IMPACT TEST**

**DAIMLERCHRYSLER CORPORATION
2008 CHRYSLER SEBRING CONVERTIBLE
NHTSA NUMBER: M80301**

**PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105**



Test Date: August 28, 2007


Final Report Date: September 26, 2007

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
RULEMAKING
OFFICE OF CRASHWORTHINESS STANDARDS
1200 NEW JERSEY AVENUE, SE, ROOM W43-410
WASHINGTON, D.C. 20590**

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16. Abstract A frontal barrier impact was conducted on a 2008 Chrysler Sebring Convertible at MGA Research Corporation on August 28, 2007. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and foot well intrusion performance. The impact velocity was 56.5 km/h. The ambient temperature at the barrier face at the time of impact was 21 degrees Celsius. The vehicle's maximum post test static crush is 541 mm located at the vehicle's centerline. The test vehicle is equipped with a 3-point continuous belt system and an airbag in both front outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection", the occupant injury criteria summary is as follows: <table style="width: 100%; margin-top: 10px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Measurement Description</u></th> <th style="text-align: left;"><u>Units</u></th> <th style="text-align: left;"><u>Threshold</u></th> <th style="text-align: left;"><u>Driver ATD</u></th> <th style="text-align: left;"><u>Pass. ATD</u></th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC)</td> <td>N/A</td> <td>1000</td> <td>498</td> <td>434</td> </tr> <tr> <td>Max. Thorax Accel. (3ms Clip)</td> <td>G's</td> <td>60</td> <td>46</td> <td>40</td> </tr> <tr> <td>Left Femur Force</td> <td>Newton</td> <td>10009</td> <td>-551</td> <td>-804</td> </tr> <tr> <td>Right Femur Force</td> <td>Newton</td> <td>10009</td> <td>-2557</td> <td>-2380</td> </tr> </tbody> </table>				<u>Measurement Description</u>	<u>Units</u>	<u>Threshold</u>	<u>Driver ATD</u>	<u>Pass. ATD</u>	Head Injury Criteria (HIC)	N/A	1000	498	434	Max. Thorax Accel. (3ms Clip)	G's	60	46	40	Left Femur Force	Newton	10009	-551	-804	Right Femur Force	Newton	10009	-2557	-2380
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SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under contract number DTNH22-06-D-00028. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact in excess of the current 48.3 kph requirements.

SUMMARY

A load cell barrier was impacted by a 2008 Chrysler Sebring Convertible at a velocity of 56.5 kph. The test was performed at MGA Research Corporation on August 28, 2007. Pre-and post-test photographs of the vehicle and dummies can be found in Appendix A.

One real-time camera and sixteen 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 tri-axial accelerometers, chest displacement potentiometer, upper neck transducers, right/left femur load cells, and lower leg instrumentation. The driver (position 1) ATD (Serial No. 065) and right-front passenger (position 2) ATD (Serial No. 066) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 102 channels of data were recorded on an on-board data acquisition system. Appendix B contains the dummy head, chest, and femur response data traces.

There was 100 percent windshield retention and no intrusion into the protected zone of the windshield during the event. There was no Stoddard Solvent leakage after the event or during any phase of the static rollover.

The maximum static crush of the vehicle was 541 mm and both the driver and passenger side doors remained closed and latched during the impact event and were operable after the impact. The trunk opened during impact.

The driver's head and chest contacted the airbag. The driver's head also contacted the headrest and visor. The driver's knees contacted the knee bolster. The passenger's head and chest contacted the airbag. The passenger's head also contacted the headrest and visor. The passenger's knees contacted the glove box.

The occupant data is summarized below:

ATD position	HIC	T ¹	T ²	Clip (g)	T ¹	T ²	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)
Driver	498	59.1	95.1	46	55.3	58.3	-28	-551	-2557
Passenger	434	67.4	103.4	40	59.8	62.8	-24	-804	-2380

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

TEST NOTES

There was no valid data collected for:
Driver Left Upper Tibia MX after 40 msec.

SECTION 2
OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

DATA SHEET NO. 1
CRASH TEST SUMMARY

Test Vehicle: 2008 Chrysler Sebring Convertible
Test Program: 35mph Frontal Impact

NHTSA No.: M80301
Test Date: 8/28/2007

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked/Unlocked Doors	Doors were locked	Doors were locked
Front Door Opening	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Rear Door Opening		
Trunk Opening	The trunk opened during impact.	
Seat Track Shift (mm)	0	0
Seat Back Failure	None	None
Glazing Damage	The windshield cracked.	

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	697
Center	mm	604
Right Side	mm	651
Average	mm	651

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	825	822
Lap belt length as measured on ATD	mm	589	547
Remainder of belt on reel	mm	686	971
Total belt length for continuous webbing systems	mm	2100	2340

DATA SHEET NO. 2

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

TEST VEHICLE INFORMATION

Manufacturer	Chrysler
Model	Sebring
Body Style	Convertible
NHTSA No.	M80301
VIN	1C3LC45K58N572951
Color	Stone White
Delivery Date	8/16/2007
Odometer Reading (mile)	522
Dealer	Frank Boucher
Transmission	Automatic Overdrive
Final Drive	Front
Number of Cylinders	4
Engine Displacement (L)	2.4
Engine Placement	Lateral
Automatic Door Lock (ADL)	Yes
Owners Manual Details Instructions on Disabling ADLs	No
Bucket Seats	Yes

TEST VEHICLE OPTIONS

Front Airbag	Yes
Driver Side Curtain Airbag	No
Driver Side Torso Airbag	Yes
Rear Passenger Side Curtain Airbag	No
Rear Passenger Side Torso Airbag	No
Force Limiter	Yes
Pretensioner	Yes
Power Steering	Yes
Power Door Locks	Yes
Tilt Wheel	Yes
Air Conditioning	Yes
Anti-lock Brakes	Yes
Traction Control	No
All Wheel Drive	No
Power Seats	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	DaimlerChrysler Corporation
Date of Manufacture	4-07

GVWR (kg)	2178
GAWR Front (kg)	1180
GAWR Rear (kg)	1007

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number of Occupants	2	2		4
Capacity Wt. (VCW) (kg)				324
Cargo Wt. (RCLW) (kg)				52

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

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	485.8	385.1		545.7	427.3	
Right	kg	457.7	383.3		526.2	415.9	
Ratio	%	55.1	44.9		56.0	44.0	
Totals	kg	943.5	768.4	1711.9	1071.9	843.2	1915.1

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1711.9
Weight of 2 P572E ATDs	kg	156.0
Rated Cargo/Luggage Weight (RCLW)	kg	52
Calculated Vehicle Target Weight (TVTW)	kg	1919.9

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	741	748	743	746	1242
As Tested	mm	723	730	716	715	1219
Post Test	mm	798	786	719	708	

Vehicle Wheelbase (mm): 2768

Weight of Ballast secured in cargo area (kg): 0

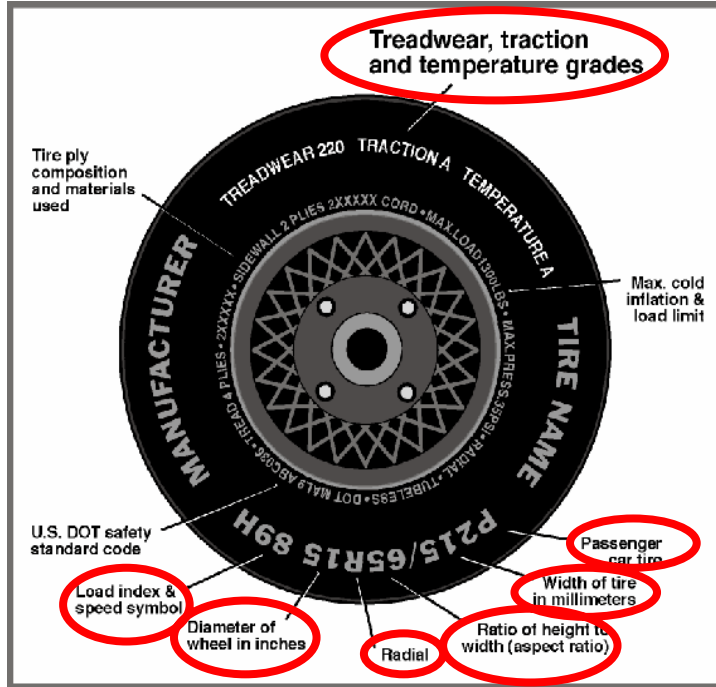
Vehicle Components Removed: Trunk internals, spare, jack, taillights, bumper and cover, exhaust, mirrors

Ballast weight does not include instrumentation and data acquisition system.

DATA SHEET NO. 3
TEST VEHICLE TIRE INFORMATION

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	220	220
Recommended Tire Size	P215/65R16	P215/65R16
Tire Size on Vehicle	P215/65R16	P215/65R16
Tire Manufacturer	Firestone	Firestone
Tire Name	FR690	FR690
Tire Type	Passenger	Passenger
Tire Width (mm)	215	215
Ratio of Height to Width (aspect ratio)	65	65
Radial	R	R
Wheel Diameter	16	16
Load Index & Speed Symbol	96T	96T
Treadwear	440	440
Traction Grade	A	A
Temperature Grade	B	B

DATA SHEET NO. 4
TEST VEHICLE INFORMATION

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

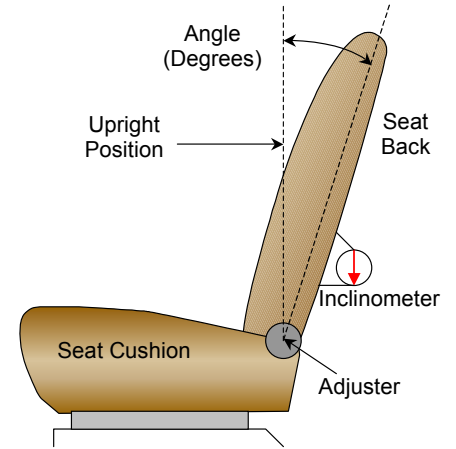
NORMAL DESIGN RIDING POSITION

The driver and passenger seat back is positioned to the manufacturer's designated angle. The procedure is as follows: Set back angle to 22 degrees. This is 12.7 degrees from vertical as measure on the headrest posts.

Driver seat back angle: 10.9 degrees on headrest post
 Passenger seat back angle: 11.5 degrees on headrest post

SEAT FORE/AFT POSITIONING

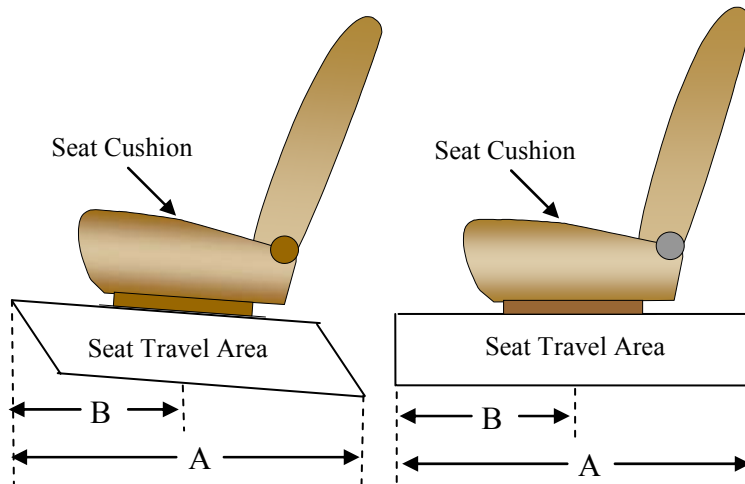
	Total Fore/Aft Travel	Placed in Position #
Driver Seat	230 mm	115 mm
Passenger Seat	230 mm	115 mm



FRONT SEAT ASSEMBLY

ADJUSTABLE D-RING POSITION

The driver and passenger D-rings are non-adjustable.



DATA SHEET NO. 4...(CONTINUED)

TEST VEHICLE INFORMATION

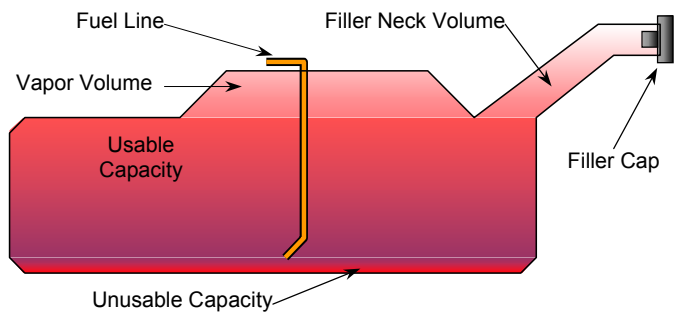
Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	64.0
Usable Capacity of "Optional" Tank	
92-94% of Usable Capacity	58.8 – 60.1
Actual Amount of Solvent used	58.8
1/3 of Usable Capacity	21.3

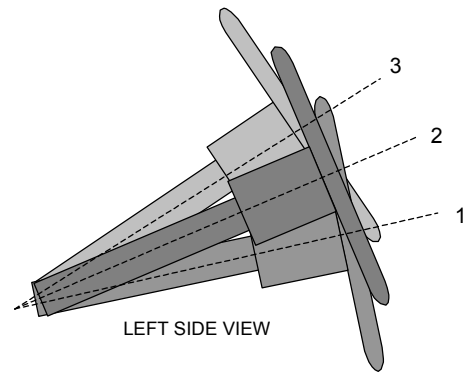
The test vehicle is equipped with an electric fuel pump. Key on (1st click) will prime the pump and pressurize the system. TIPM (control module) will shut off pump upon receiving an air bag deployment signal.



VEHICLE FUEL TANK ASSEMBLY

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 POSITIONS

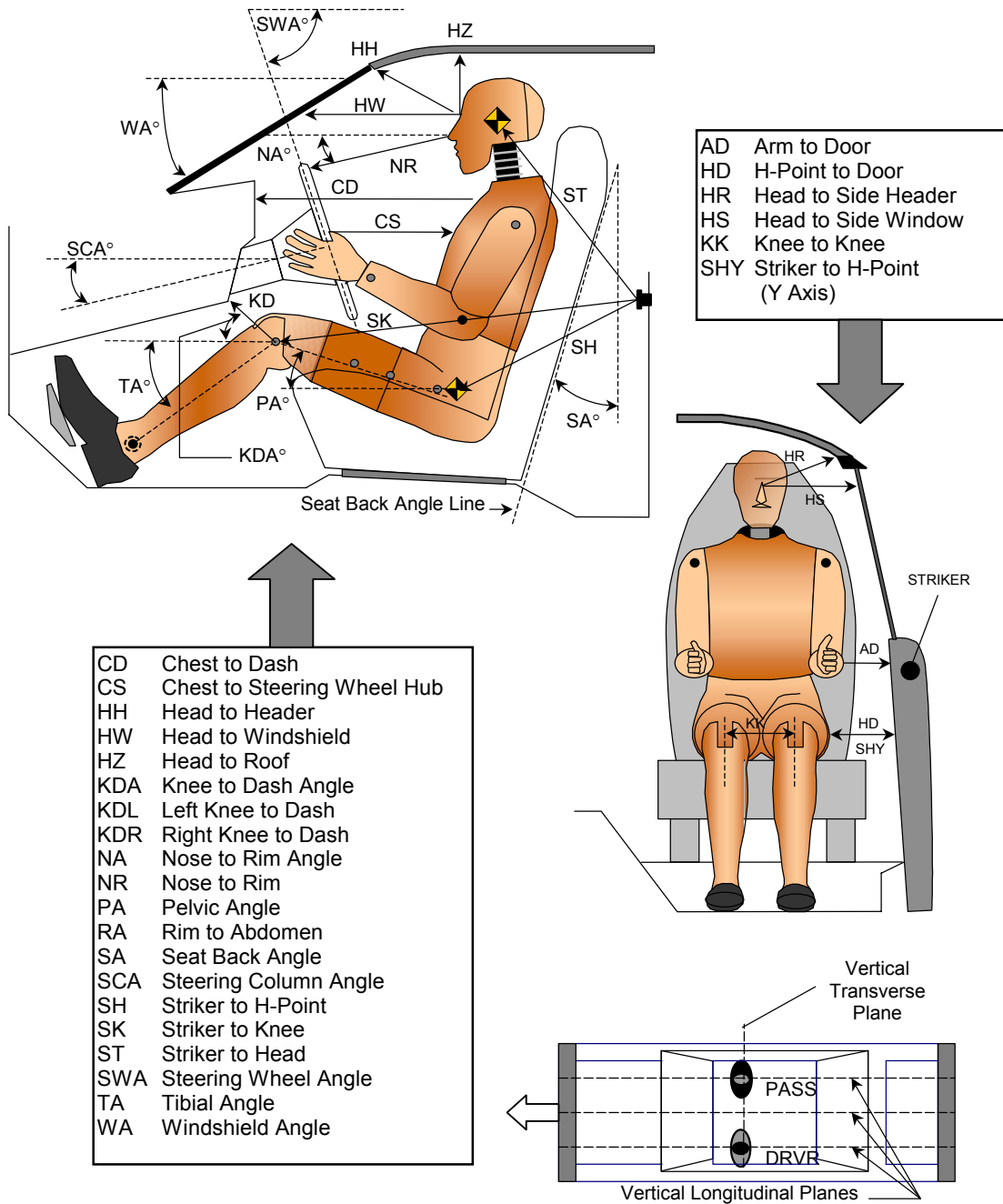
	Fore/Aft Position (mm)	Degrees
Lowermost position No. 1	40	67.0
Geometric center position No. 2	20	69.7
Uppermost position No. 3	0	72.4

DATA SHEET NO. 5
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



DATA SHEET NO. 5... (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

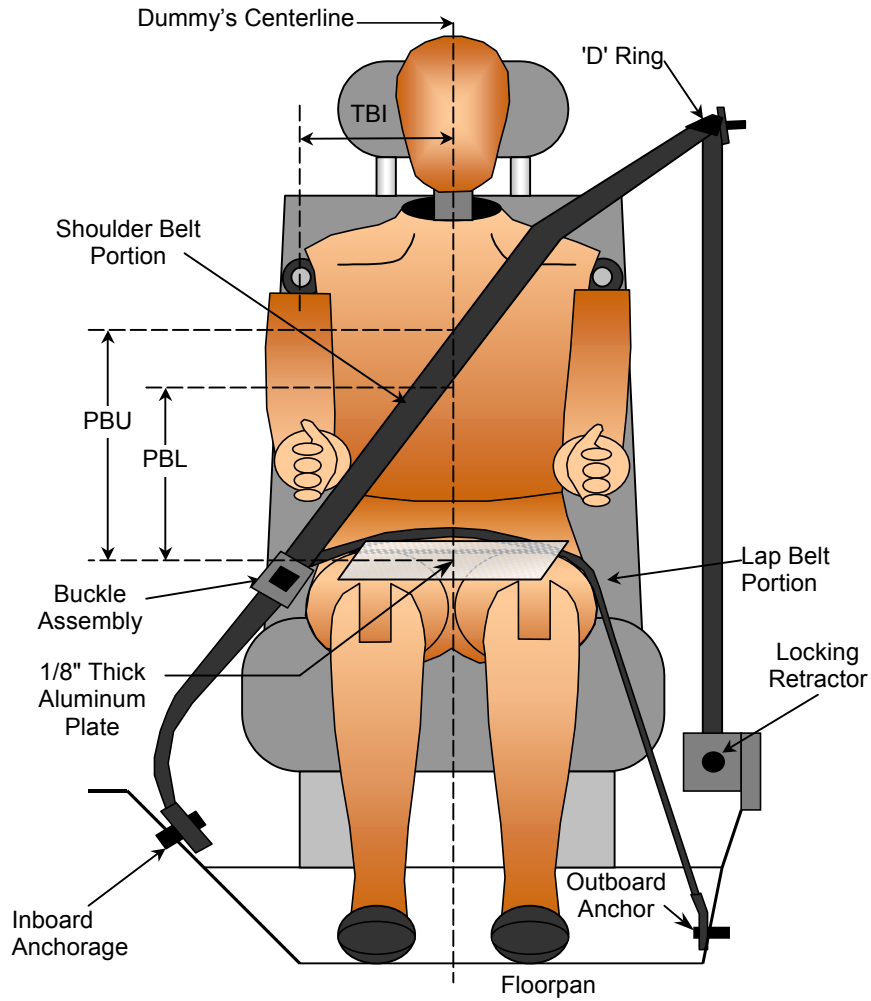
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		25.9		
SWA	Steering Wheel Angle		69.7		
SCA	Steering Column Angle		22.0		
SA	Seat Back Angle (on headrest post)		10.9		11.5
HZ	Head to Roof (Z)	192	90	182	90
HH	Head to Header	399	12.9	397	12.5
HW	Head to Windshield	719	0	713	0
HR	Head to Side Header (Y)	188		179	
NR	Nose to Rim	372	7.6		
CD	Chest to Dash	543		520	
CS	Chest to Steering Hub	307	3.2		
RA	Rim to Abdomen	202	0		
KDL	Left Knee to Dash	163	31.3	178	
KDR	Right Knee to Dash	145		179	29.8
PA	Pelvic Angle		22.9		21.6
TA	Tibia Angle		46.1		36.1
KK	Knee to Knee (Y)	296		270	
SK	Striker to Knee	809	97.8	840	98.3
ST	Striker to Head	619	28.1	624	30.7
SH	Striker to H-Point	432	99.3	439	105.2
SHY	Striker to H-Point (Y)	291		284	
HS	Head to Side Window	336		318	
HD	H-Point to Door (Y)	130		131	
AD	Arm to Door (Y)	123		112	
AA	Ankle to Ankle	328		251	

DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

Test Vehicle: 2008 Chrysler Sebring Convertible
Test Program: 35mph Frontal Impact

NHTSA No.: M80301
Test Date: 8/28/2007



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU - Top surface of reference to belt upper edge	mm	331	337
PBL - To surface of reference to belt lower edge	mm	265	265

DATA SHEET NO. 7
VEHICLE ACCELEROMETER LOCATIONS

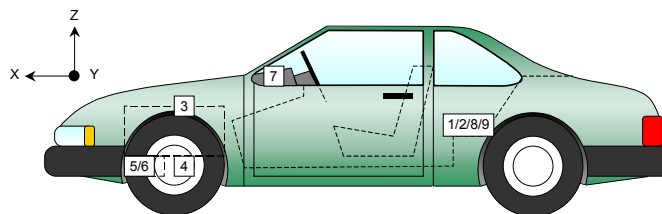
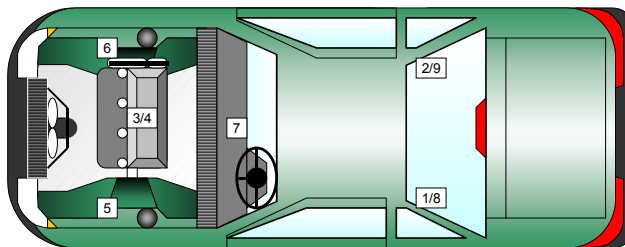
Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Left Rear X-Member X	2001	-359	457
2	Right Rear X-Member X	2001	359	457
3	Engine Top X	4062	-44	834
4	Engine Bottom X	4098	0	304
5	Left Brake Caliper X	3976	-702	238
6	Right Brake Caliper X	3977	702	238
7	Instrument Panel X			
8	Left Rear X-Member Z	2001	-359	457
9	Right Rear X-Member Z	2001	359	457

Reference Points: X - Rear Surface of Vehicle (+ forward)
 Y - Vehicle Centerline (+ to right)
 Z - Ground Plane (+ up)



DATA SHEET NO. 8

SUMMARY OF FMVSS 212 AND FMVSS 219 (Partial) DATA

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

Windshield Mounting Details:

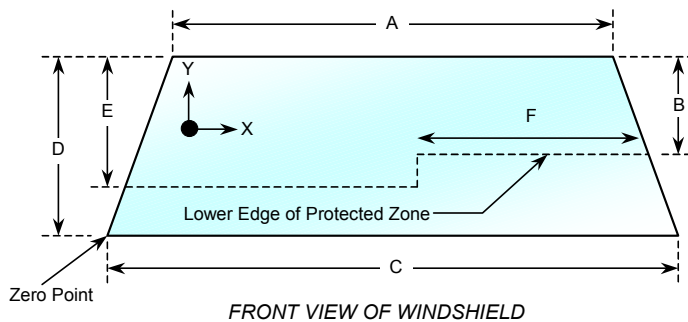
Windshield glass is secured to the vehicle frame with a rubber trim and glue.

The standard requires that the post-test retention measurement be a minimum of 75 percent of the pretest total periphery measurement for vehicles not equipped with occupant passive restraints and 50 percent for each side of the windshield for vehicles, which are equipped with occupant passive restraints.

Temperature of windshield molding during test: 21°C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% of Retention
Left Side	2056	2056	100
Right Side	2056	2056	100
Total	4112	4112	100



Item	Units	Value
A	mm	1178
B	mm	396
C	mm	1554
D	mm	690
E	mm	406
F	mm	482

AREA OF PROTECTED ZONE FAILURES - NONE

A. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one that is normally in contact with the windshield. **None**

X	Y

B. Provide coordinates of the area beneath the protected zone that the inner surface of the windshield was penetrated by a vehicle component. **None**

X	Y

DATA SHEET NO. 9
SUMMARY OF FMVSS 301 DATA

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

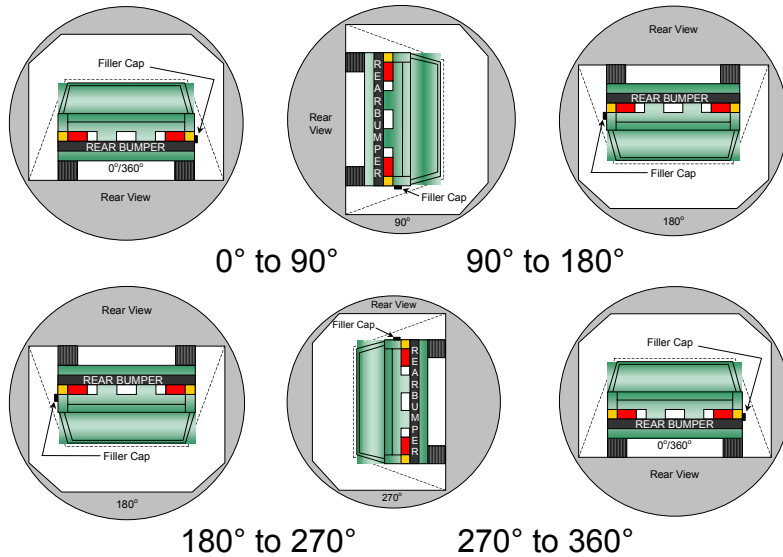
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21° C Test Time: 11:35 am

Stoddard Solvent Spillage Measurements

- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum Allowable = 1 ounce)
- B. For the 5 minute period after motion ceases: 0 oz.
 (Maximum Allowable = 5 ounces)
- C. For the following 25 minutes: 0 oz.
 (Maximum Allowable = 1 oz. /minute)
- D. Spillage: None

FMVSS 301 STATIC ROLLOVER DATA



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.

2. The position hold time at each position is 300 seconds (minimum).

3. Details of Stoddard Solvent spillage locations:

None

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° to 90°	124	300	0
90° to 180°	120	300	0
180° to 270°	115	300	0
270° to 360°	116	300	0

DATA SHEET NO. 10
VEHICLE MEASUREMENTS

Test Vehicle: 2008 Chrysler Sebring Convertible
Test Program: 35mph Frontal Impact

NHTSA No.: M80301
Test Date: 8/28/2007

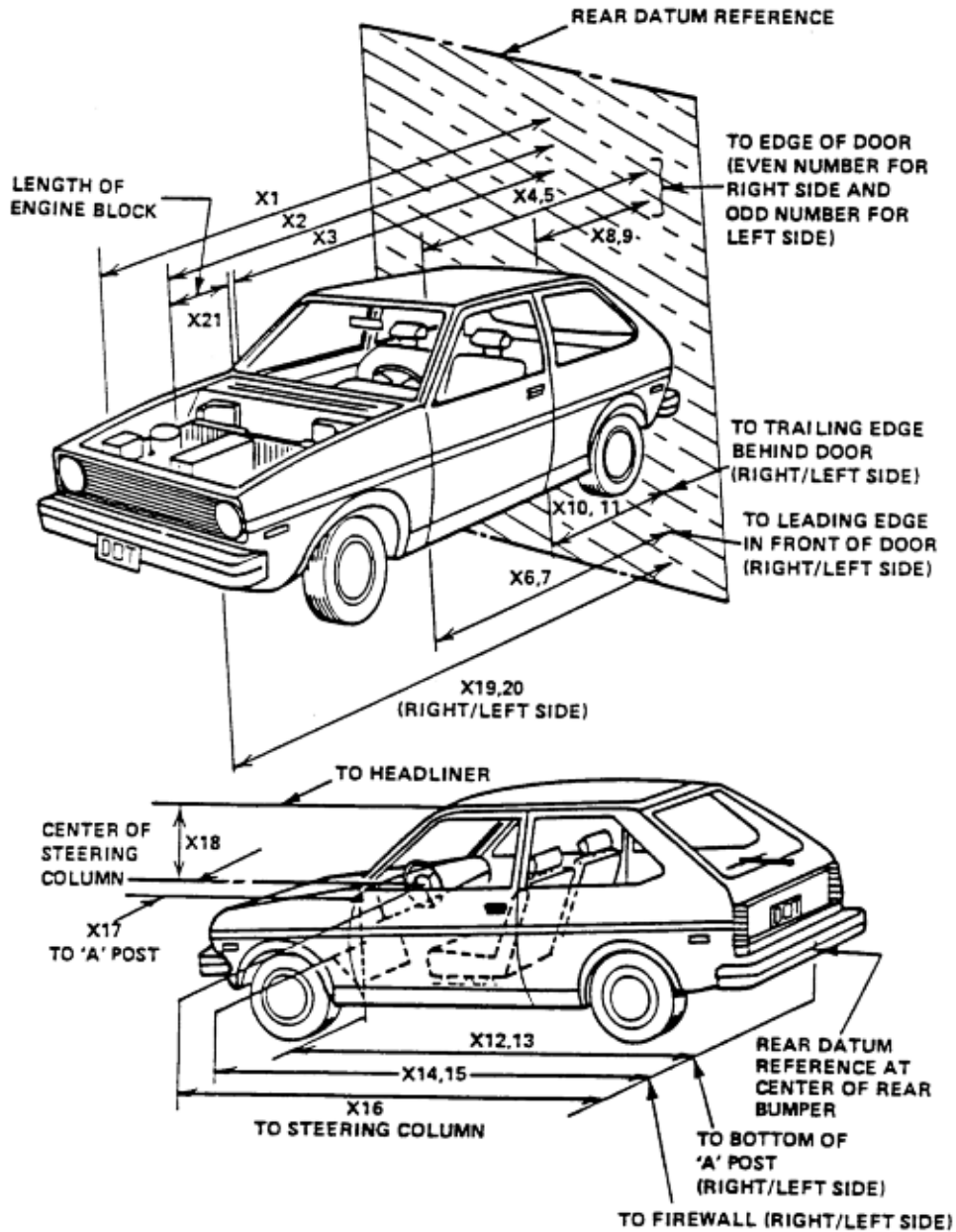
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total length of vehicle at centerline	mm	4875	4334	541
2	RSOV to front of engine	mm	4331	4072	259
3	RSOV to firewall centerline	mm	3786	3771	15
4	RSOV to leading edge of right door	mm	3371	3355	16
5	RSOV to leading edge of left door	mm	3370	3360	10
6	RSOV to lower leading edge of right door	mm	3340	3312	28
7	RSOV to lower leading edge of left door	mm	3341	3317	24
8	RSOV to upper leading edge of right door	mm	2065	2048	17
9	RSOV to upper leading edge of left door	mm	2064	2060	4
10	RSOV to lower trailing edge of right door	mm	2079	2051	28
11	RSOV to lower trailing edge of left door	mm	2079	2064	15
12	RSOV to bottom of right 'A' pillar	mm	3340	3310	30
13	RSOV to bottom of left 'A' pillar	mm	3341	3312	29
14	RSOV to firewall on right side	mm	3730	3683	47
15	RSOV to firewall on left side	mm	3731	3679	52
16	RSOV to steering column	mm	2834	2867	-33
17	Center of steering column to left 'A' pillar	mm	380	401	-21
18	Center of steering column to headlining	mm	403	434	-31
19	RSOV to right side of front bumper	mm	4759	4302	457
20	RSOV to left side of front bumper	mm	4761	4256	505
21	Length of engine block	mm	502	502	0
RD	RSOV to right side of dash panel	mm	3064	3044	20
CD	RSOV to center of dash panel	mm	3103	3095	8
LD	RSOV to left side of dash panel	mm	3075	3052	23

DATA SHEET NO. 10... (continued)

VEHICLE MEASUREMENTS

Test Vehicle: 2008 Chrysler Sebring Convertible
Test Program: 35mph Frontal Impact

NHTSA No.: M80301
Test Date: 8/28/2007



DATA SHEET NO. 10... (continued)

VEHICLE MEASUREMENTS

Test Vehicle: 2008 Chrysler Sebring Convertible

NHTSA No.: M80301

Test Program: 35mph Frontal Impact

Test Date: 8/28/2007

Target Vehicle Structural Measurement

	Elements	Pre-Test (mm)
1	Total Length	4875
2	Total Width	1814
3	Bumper Top Height	507
4	Bumper Bottom Height	402
5	Longitudinal Member Top Height	574
6	Distance between Longitudinal Members	913
7	Longitudinal Member Width	84
8	Engine Top Height	825
9	Engine Bottom Height	207
10	Engine and gearbox width	873
11	Front bumper-engine distance	534
12	Front shock absorber fixing height	912
13	Bonnet leading edge height	805
14	Front shock absorber fixing width	1121
15	Front bumper – front axle distance	1006
16	Front axle – a pillar distance	548
17	A-pillar – B-pillar distance	1246
18	B-Pillar – rear axle distance	976
19	B-pillar – C-pillar distance	510
20	Roof sill bottom height	1337
21	Roof sill top height	1391
22	Floor sill bottom height	179
23	Floor sill top height	292

DATA SHEET NO. 11
CAMERA LOCATIONS

Test Vehicle: 2008 Chrysler Sebring Convertible
Test Program: 35mph Frontal Impact

NHTSA No.: M80301
Test Date: 8/28/2007

No.	Camera View	Location (mm) *			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Side View				13	24
2	Left Front View	1420	-4895	1115	25	1000
3	Steering Column Top	1165	-5130	1265	25	1000
4	Steering Column Bottom	1165	-5130	885	25	1000
5	Driver Close-up	1415	-5930	1140	35	1000
6	Driver Angle	7115	-5375	2105	50	1000
7	On board Driver Side				8	1000
8	On board Passenger Side				8	1000
9	Right Overall	2140	7130	1250	24	1000
10	Right Passenger Half	1320	5245	1070	24	1000
11	Right Close-up	1555	6090	1400	35	1000
12	Right Angle	7125	5155	2170	50	1000
13	Windshield	-285	0	2860	12.5	1000
14	Top Driver	-135	-470	2240	24	1000
15	Top Passenger	-110	420	2240	24	1000
16	Pit Front	1105	0	-3150	24	1000
17	Pit Rear	3275	0	-3150	24	1000

*COORDINATES:

- +X = forward of impact plane
- +Y = right of monorail centerline
- +Z = above ground level

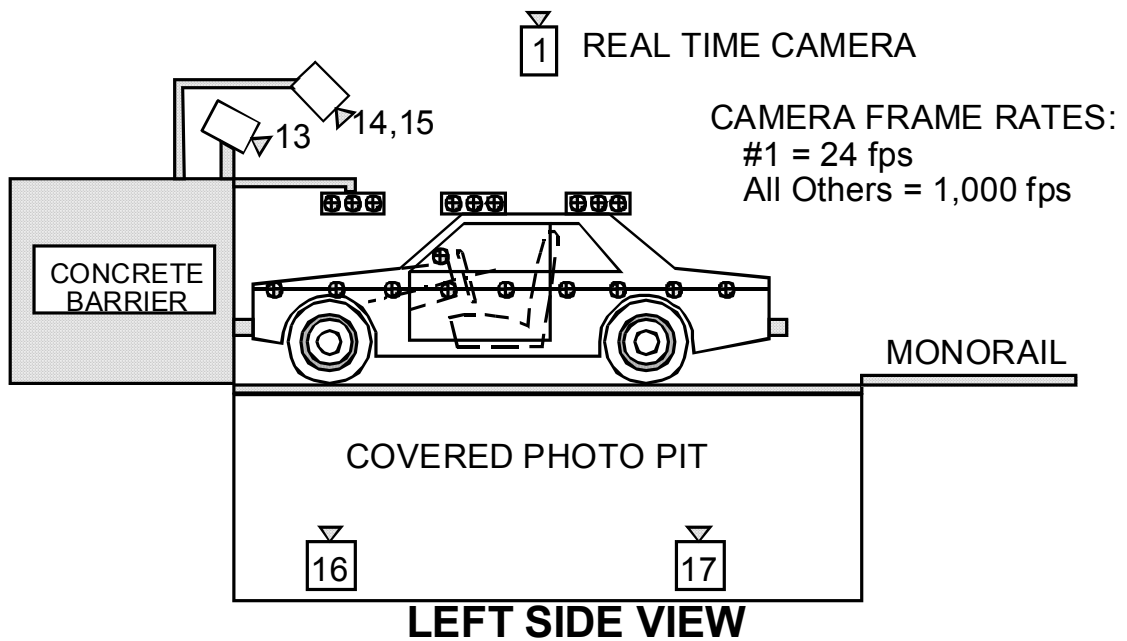
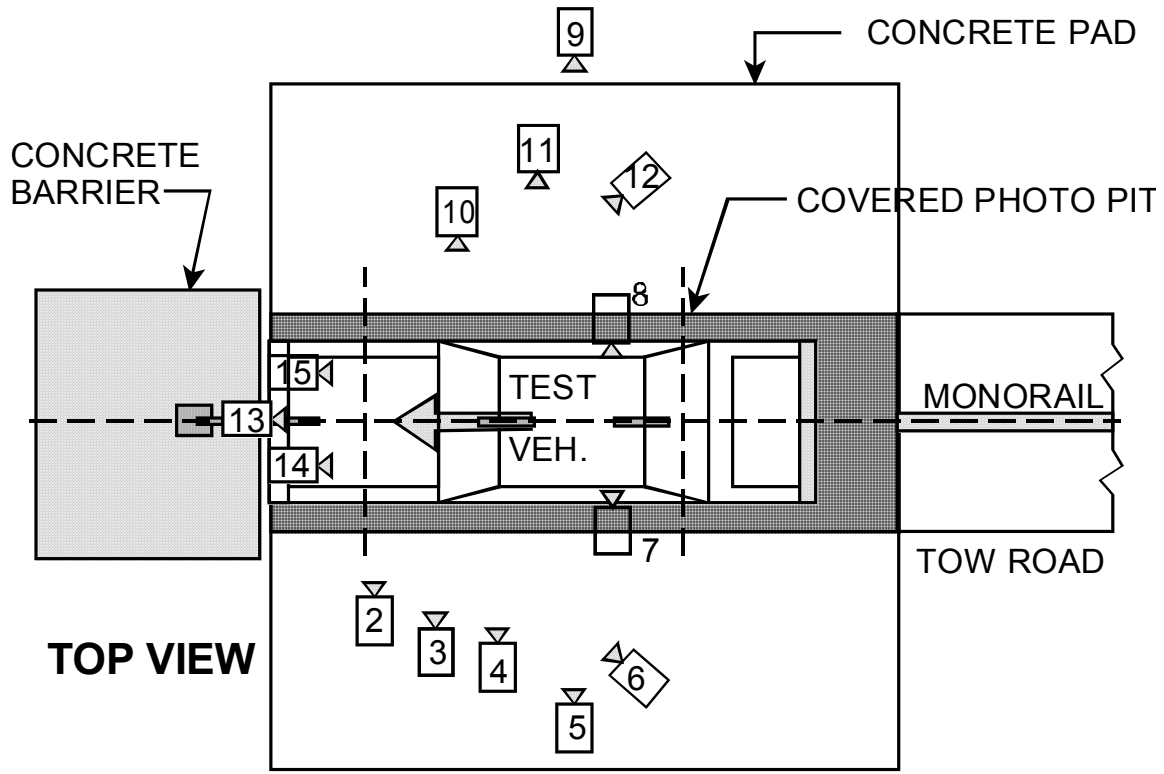
DATA SHEET NO. 11... (continued)

CAMERA LOCATIONS

Test Vehicle: 2008 Chrysler Sebring Convertible
Test Program: 35mph Frontal Impact

NHTSA No.: M80301
Test Date: 8/28/2007

CAMERA POSITIONS FOR FRONTAL IMPACTS

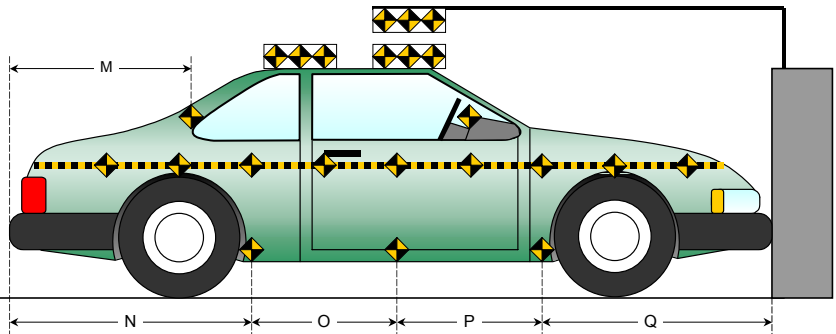
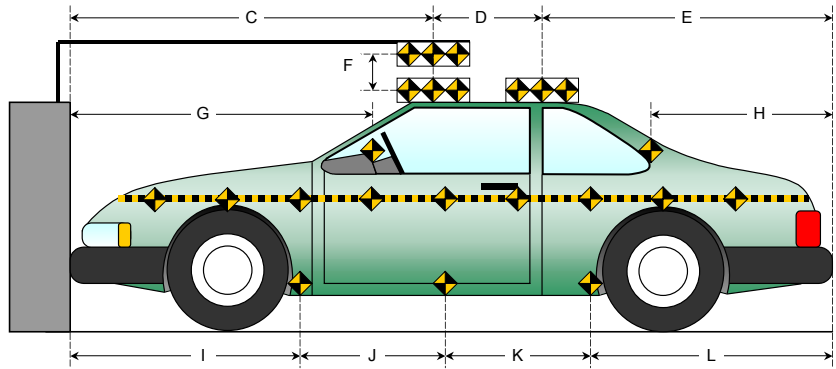
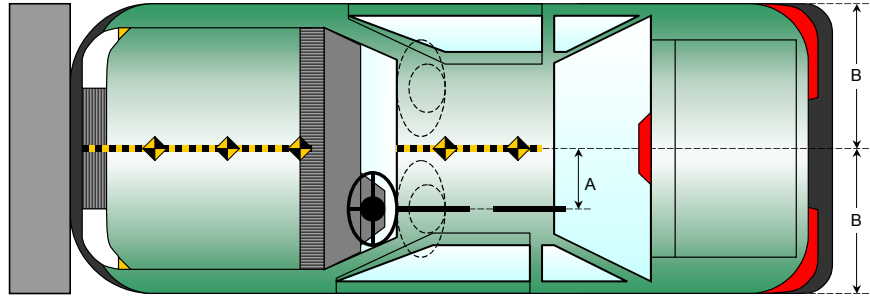


DATA SHEET NO. 12
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

Item	Value
A	
B	907
C	
D	
E	
F	
G	
H	1412
I	1549
J	876
K	876
L	1574
M	1410
N	1570
O	881
P	878
Q	1546



DATA SHEET NO. 13
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

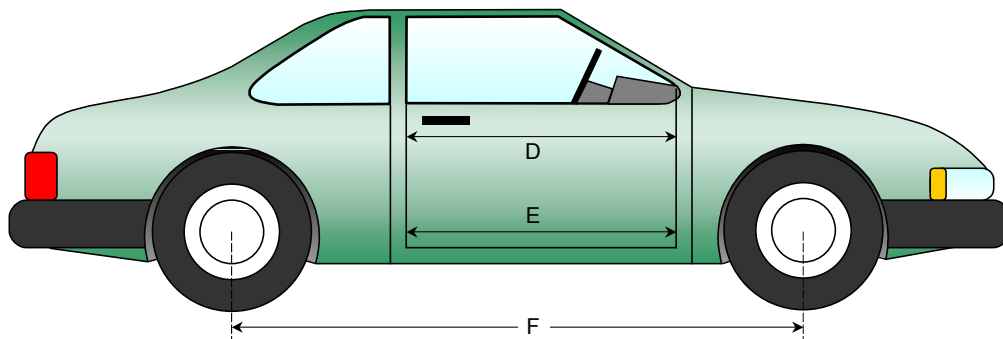
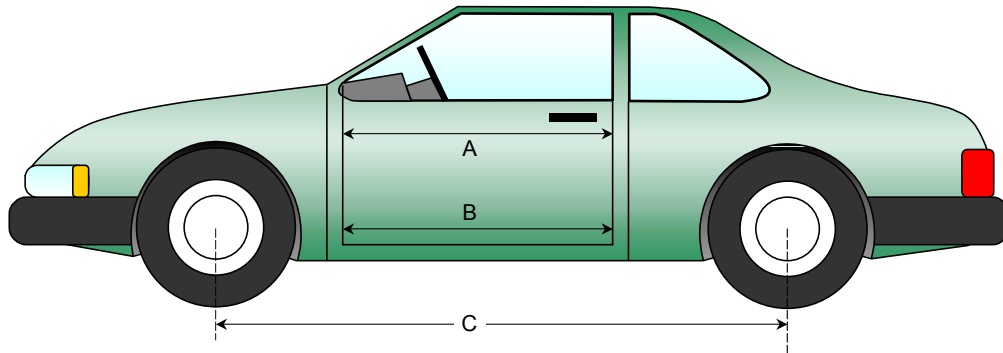
NHTSA No.: M80301
 Test Date: 8/28/2007

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	1243	1241	2
B	Left Side Lower	mm	1214	1211	3
D	Right Side Upper	mm	1242	1238	4
E	Right Side Lower	mm	1214	1213	1

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2768	2624	144
F	Right Side Wheelbase	mm	2768	2681	87



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

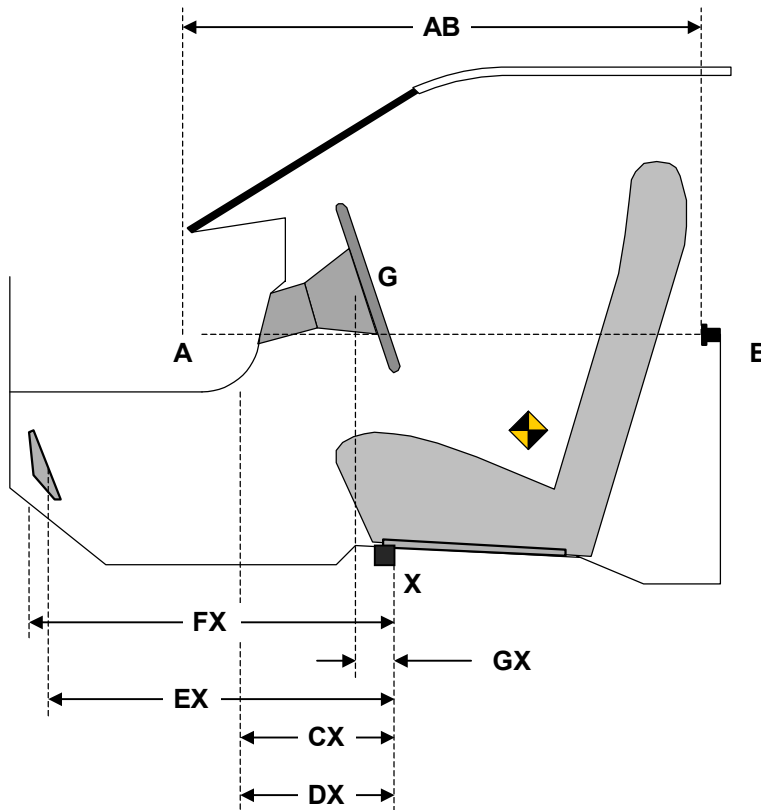
Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside window jam)	mm	1085	1086	-1
CX	Left Knee Bolster to X	mm	237	229	8
DX	Right Knee Bolster to X	mm	214	206	8
EX	Brake Pedal to X	mm	515	454	61
FX	Foot Rest to X	mm	518	479	39
GX	Center of Steering Column Wheel Hub to X	mm	-6	46	-52

X = Front of Seat Track (stationary)

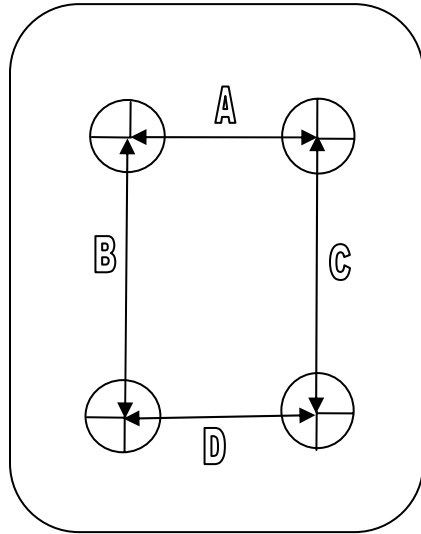


DRIVER COMPARTMENT

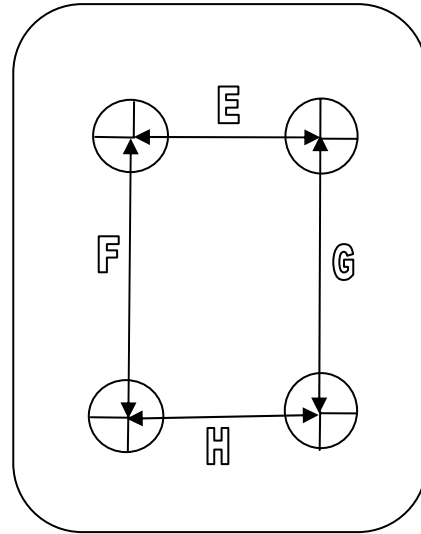
DATA SHEET NO. 13... (continued)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007



Driver



Passenger

UNDERBODY FLOORBOARD DEFORMATION

Measurement	Pre-Test	Post-Test	Difference
A	148	147	1
B	240	240	0
C	255	254	1
D	135	135	0
E	103	103	0
F	238	227	11
G	235	228	7
H	74	74	0

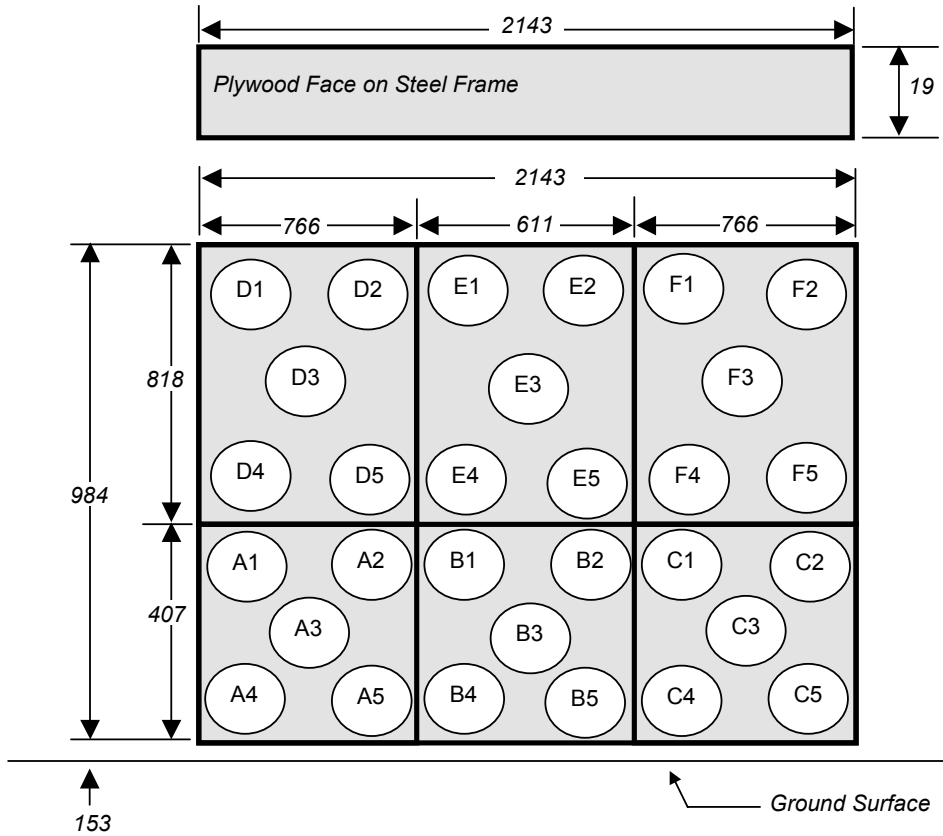
DATA SHEET NO. 14

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

30 Load Cell Rigid Barrier
Load Cell Locations on Fixed Barrier



Group 4 D1-D5	Group 5 E1-E5	Group 6 F1-F5
Group 1 A1-A5	Group 2 B1-B5	Group 3 C1-C5

6 Groups of 5 Load Cells Each

DATA SHEET NO. 15
ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2008 Chrysler Sebring Convertible
 Test Program: 35mph Frontal Impact

NHTSA No.: M80301
 Test Date: 8/28/2007

VEHICLE INFORMATION

VIN: 1C3LC45K58N572951 Wheelbase (mm) : 2768
 Vehicle Size Category: Coupe Test Weight (kg) : 1915.1

ACCELEROMETER DATA

Accelerometer Locations: As per measurements on Page 12
 Cal. Procedure/Interval: MGA procedure / 6 month
 Integration Algorithm: Trapezoidal Linearity: > 99%
 Impact Velocity (km/h): 56.5
 Velocity Change (km/h): 62.8 Time of Separation (msec): 109

CRUSH PROFILE

Collision Deformation Classification: Frontal Midpoint of Damage: Centerline
 Damage Region Length (mm): 1217 Impact Mode: Frontal

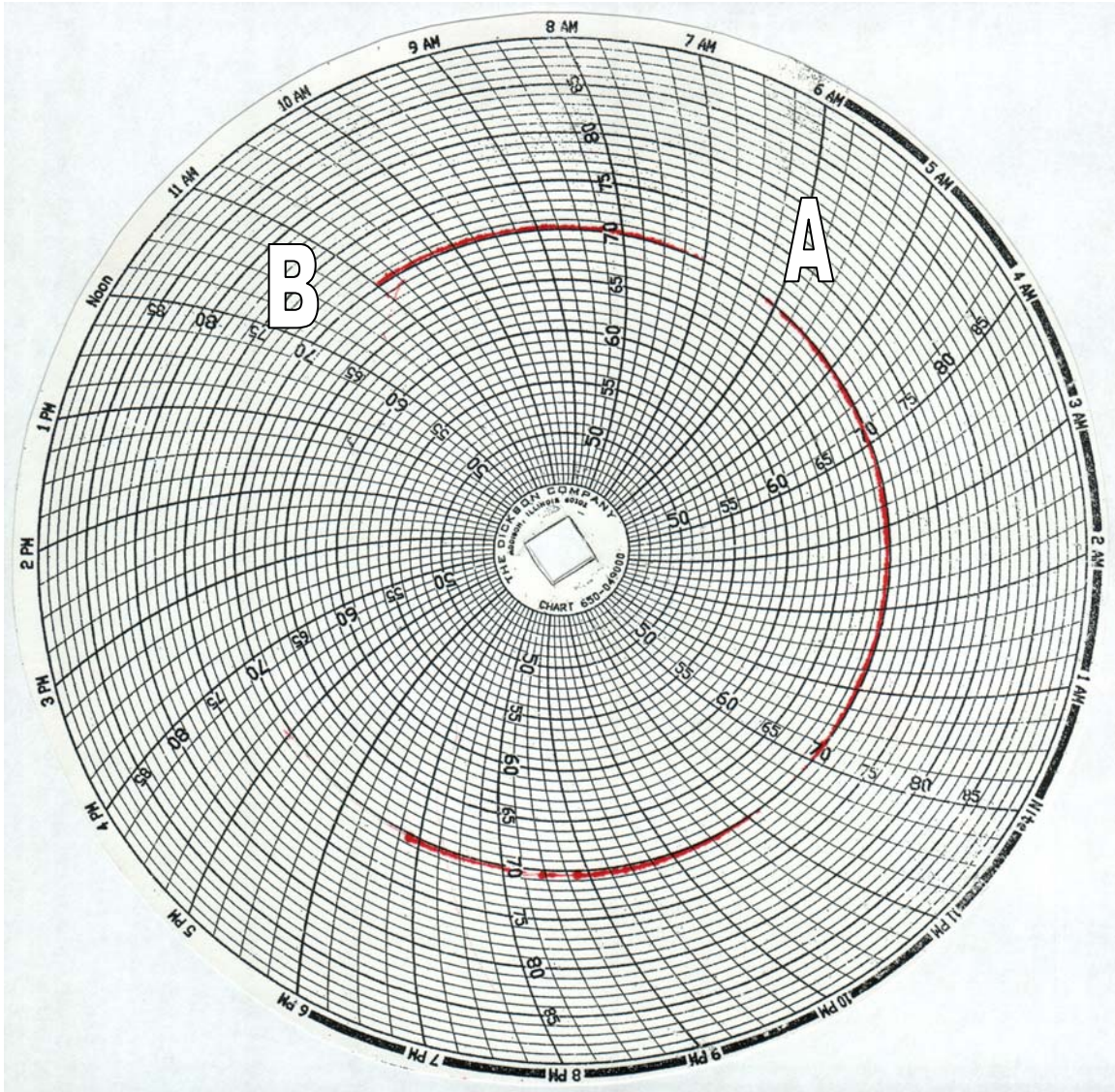
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4759	4256	503
C2	Crush zone 2 at left side	mm	4821	4305	516
C3	Crush zone 3 at left side	mm	4863	4334	529
C4	Crush zone 4 at right side	mm	4864	4331	533
C5	Crush zone 5 at right side	mm	4823	4303	520
C6	Crush zone 6 at right side	mm	4761	4302	459
L	C1 TO C6	mm	1217	1217	0

DATA SHEET NO. 16

DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2008 Chrysler Sebring Convertible
Test Program: 35mph Frontal Impact

NHTSA No.: M80301
Test Date: 8/28/2007



A = Dummies installed in vehicle at 6:00 am

B = Test conducted at 11:35 am

APPENDIX A
PHOTOGRAPHS

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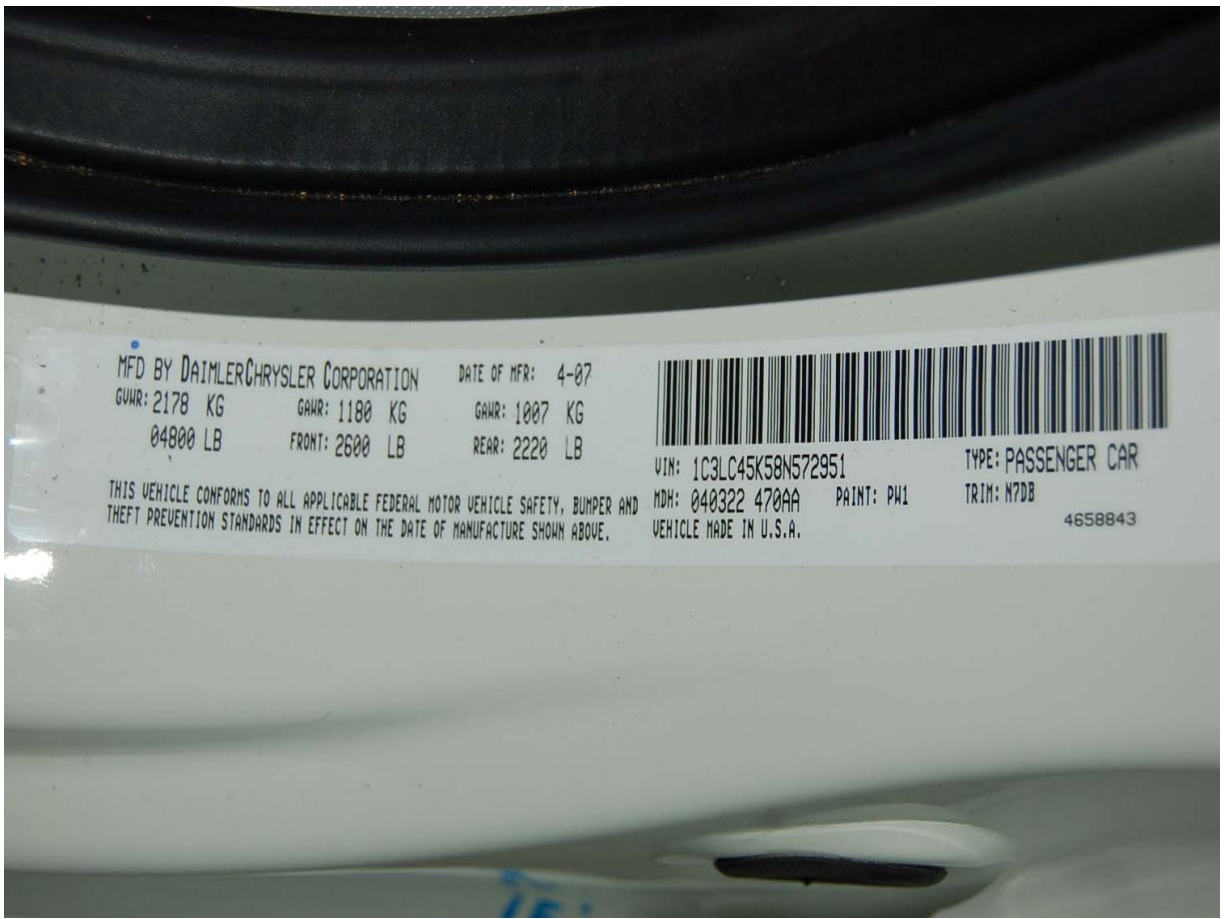
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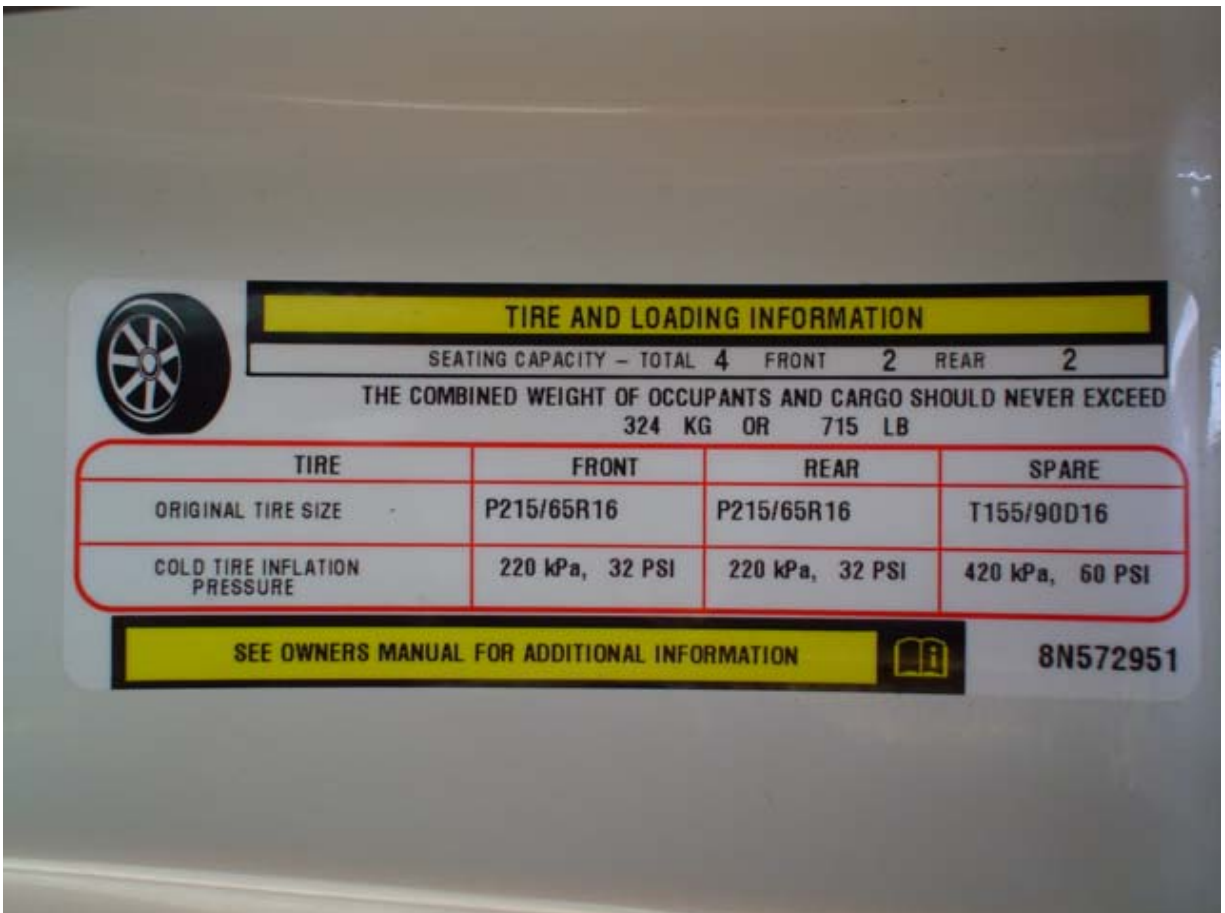
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Load Cell Location



Manufacturer's Label



Tire Placard



Left Front $\frac{3}{4}$ View, As Received



Right Rear $\frac{3}{4}$ View, As Received



Pre-Test Front View



Post-Test Front View



Pre-Test Left Side View



Post-Test Left Side View



Pre-Test Right Side View



Post-Test Right Side View



Pre-Test Right Front 3/4 View



Post-Test Right Front 3/4 View



Pre-Test Left Rear 3/4 View



Post-Test Left Rear 3/4 View



Pre-Test Left Side ¾ View of Doors



Post-Test Left Side ¾ View of Doors After Impact



Pre-Test Right Side ¾ View of Doors



Post-Test Right Side ¾ View of Doors After Impact



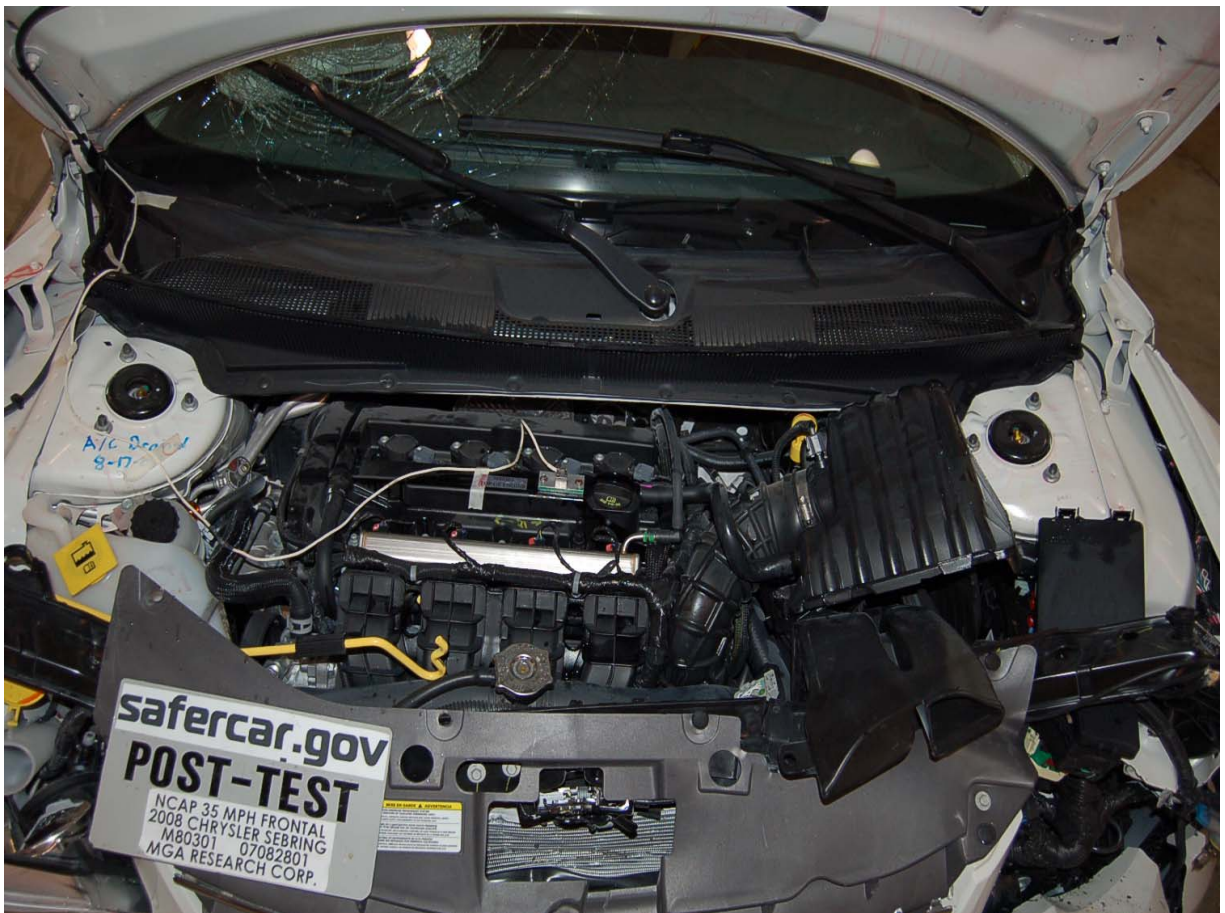
Pre-Test Windshield View



Post-Test Windshield View



Pre-Test Engine Compartment View



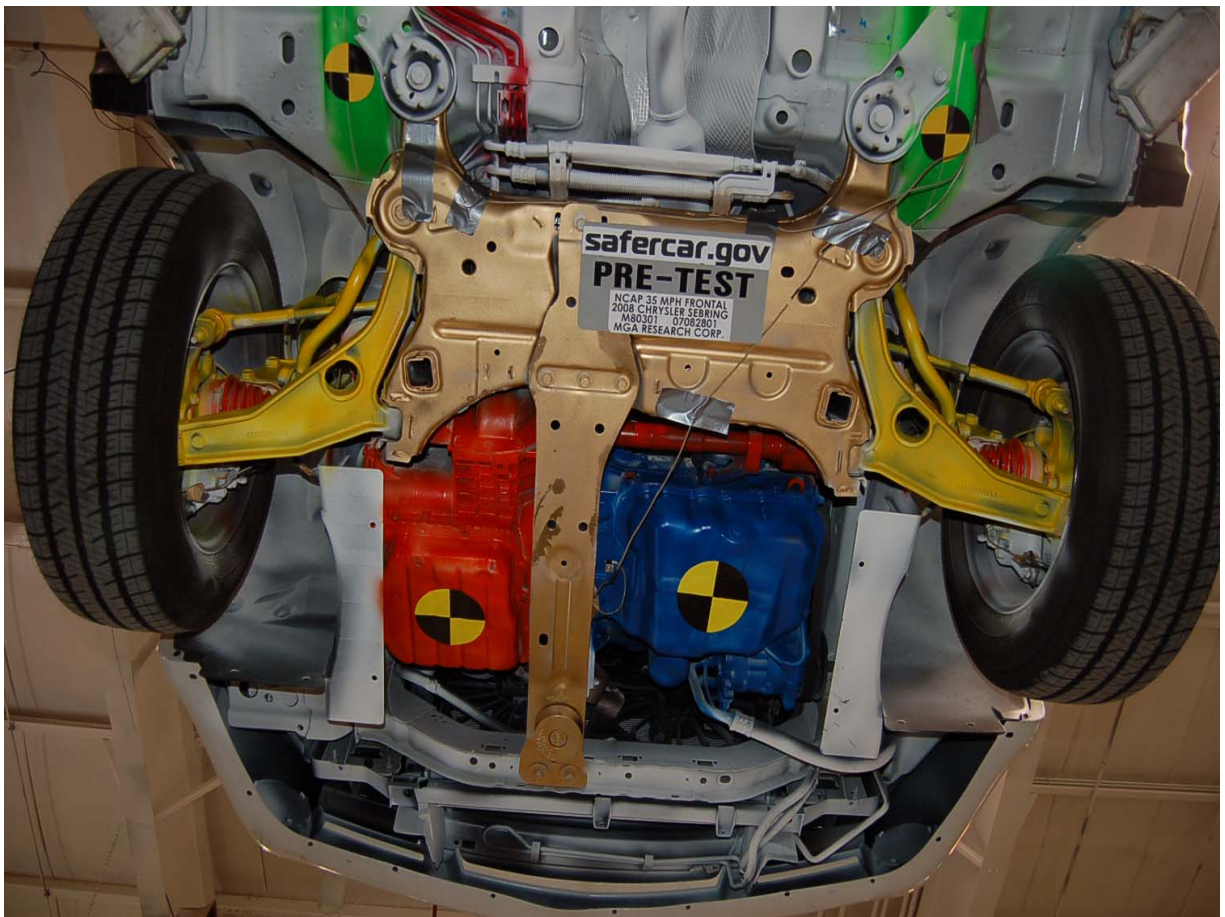
Post-Test Engine Compartment View



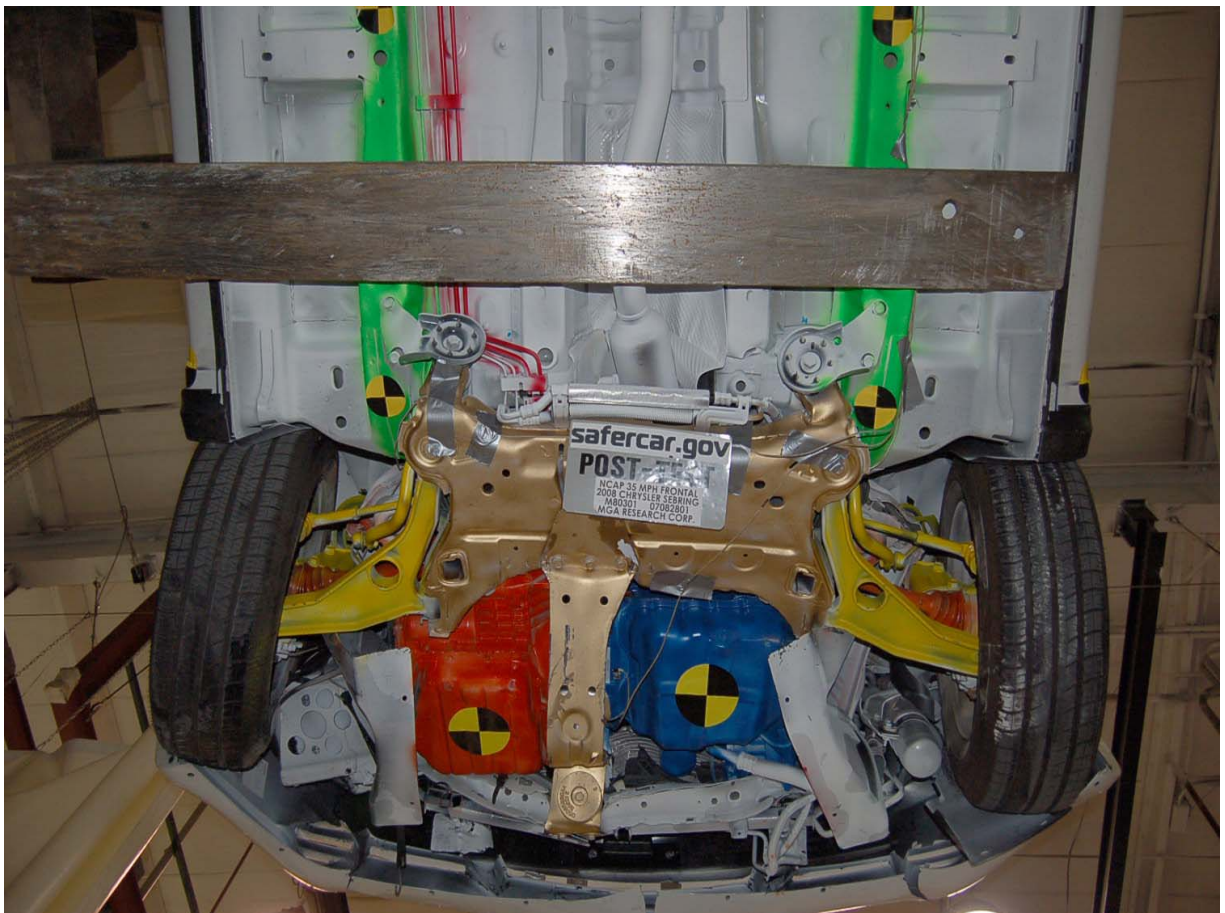
Pre-Test Fuel Cap View



Post-Test Fuel Cap View



Pre-Test Front Underbody View



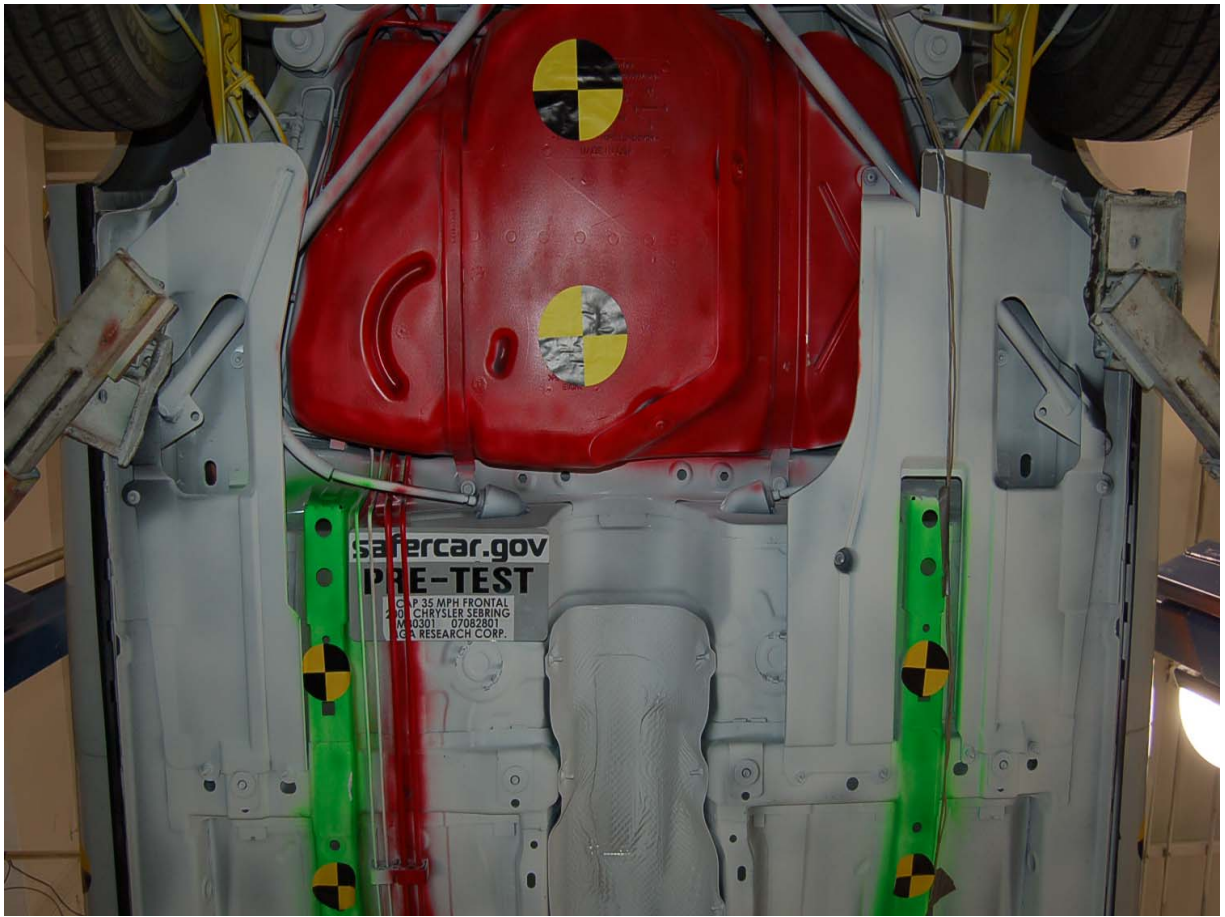
Post-Test Front Underbody View



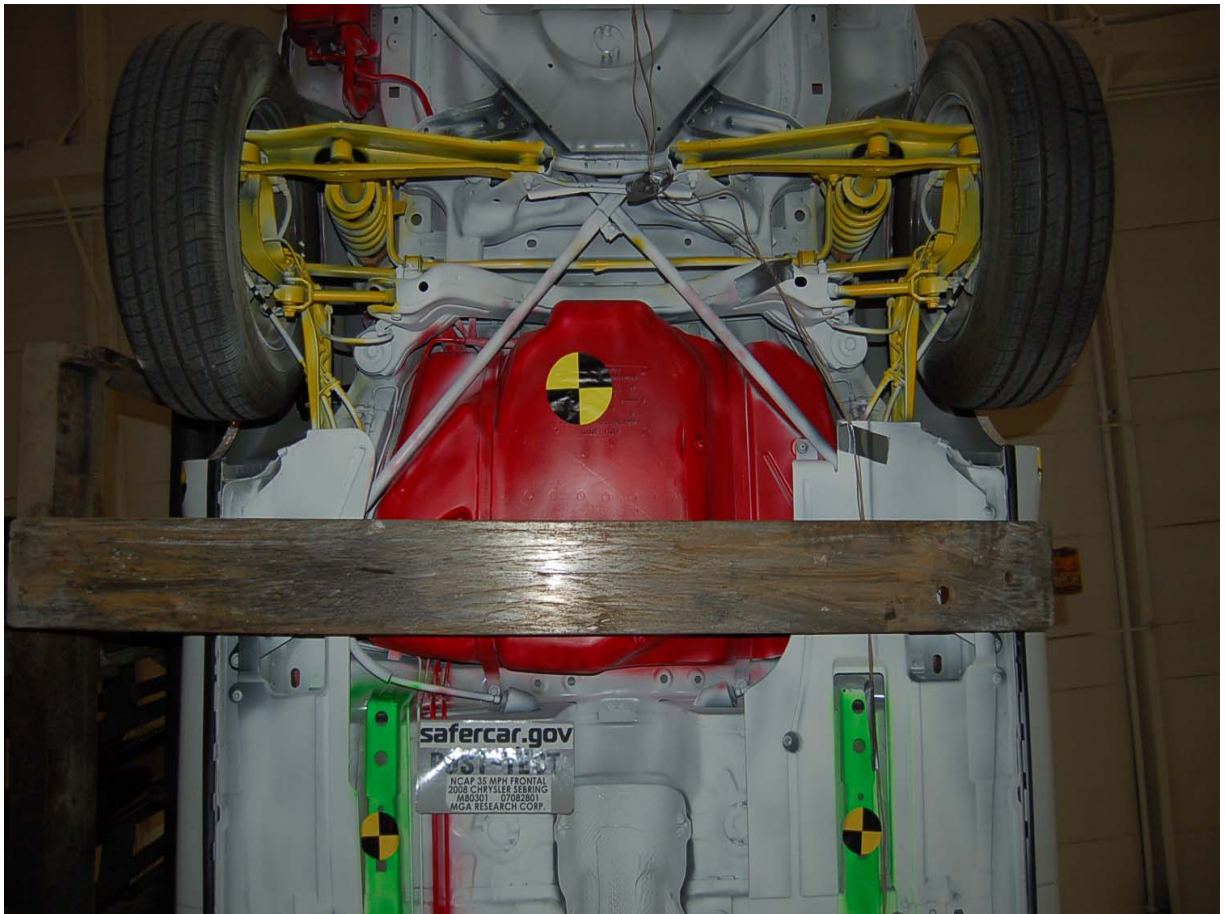
Pre-Test Mid Front Underbody View



Post-Test Mid Front Underbody View



Pre-Test Mid Rear Underbody View



Post-Test Mid Rear Underbody View



Pre-Test Rear Underbody View



Post-Test Rear Underbody View



Pre-Test Driver Dummy Front View (Head Position)



Post-Test Driver Dummy Front View (Head Position)



Pre-Test Driver Dummy (Through Window)



Post-Test Driver Dummy (Through Window)



Pre-Test Driver Dummy (Door Open)



Post-Test Driver Dummy (Door Open)



Pre-Test Driver Dummy Feet



Post-Test Driver Dummy Feet



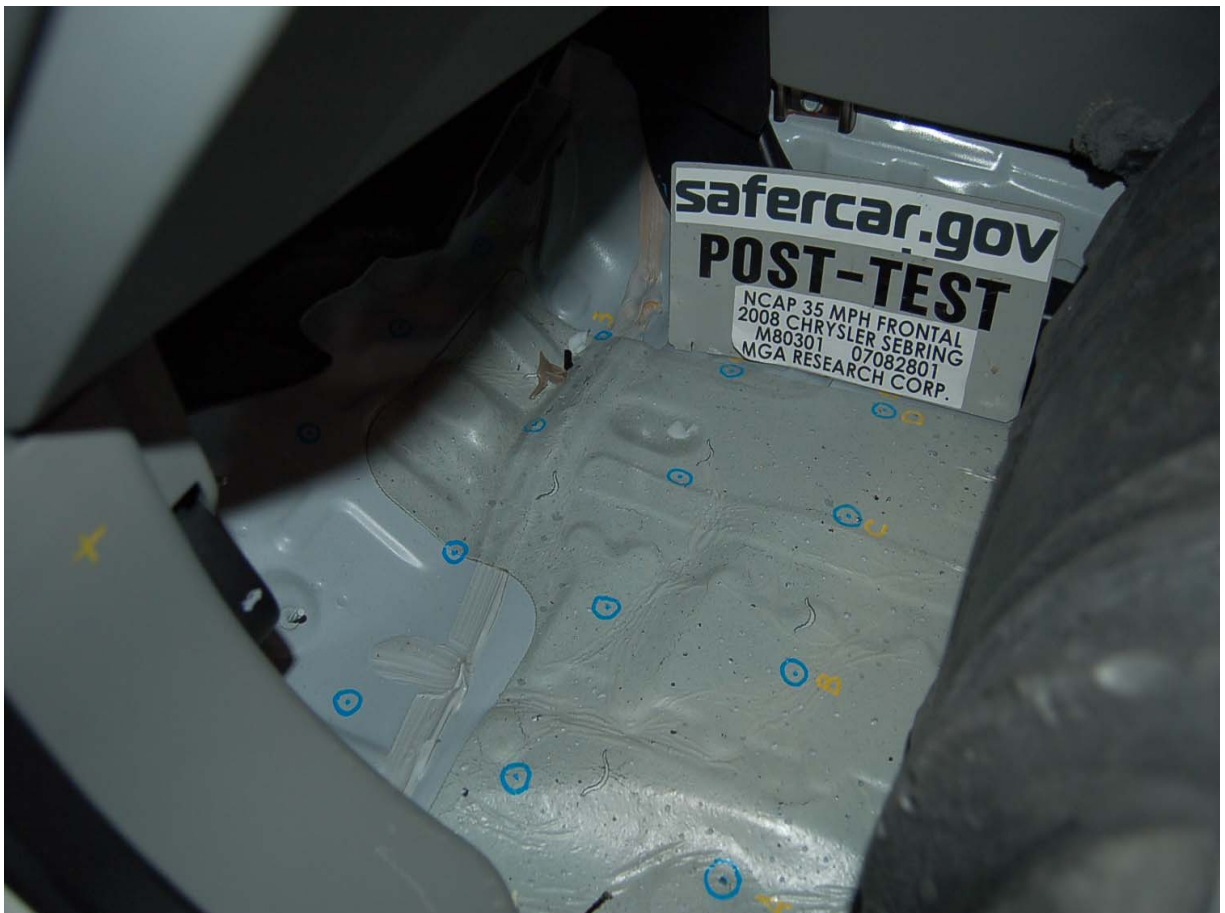
Pre-Test Driver Side Knee Bolster



Post-Test Driver Side Knee Bolster



Pre-Test Driver Side Floor Pan



Post-Test Driver Side Floor Pan



Post-Test Driver Dummy Head Contact (headrest)



Post-Test Driver Dummy Head Contact (visor)



Post-Test Driver Dummy Knee Contact



Post-Test Driver Dummy Airbag Contact



Pre-Test Passenger Dummy Front View (Head Position)



Post-Test Passenger Dummy Front View (Head Position)



Pre-Test Passenger Dummy (Through Window)



Post-Test Passenger Dummy (Through Window)



Pre-Test Passenger Dummy (Door Open)



Post-Test Passenger Dummy (Door Open)



Pre-Test Passenger Dummy Feet



Post-Test Passenger Dummy Feet



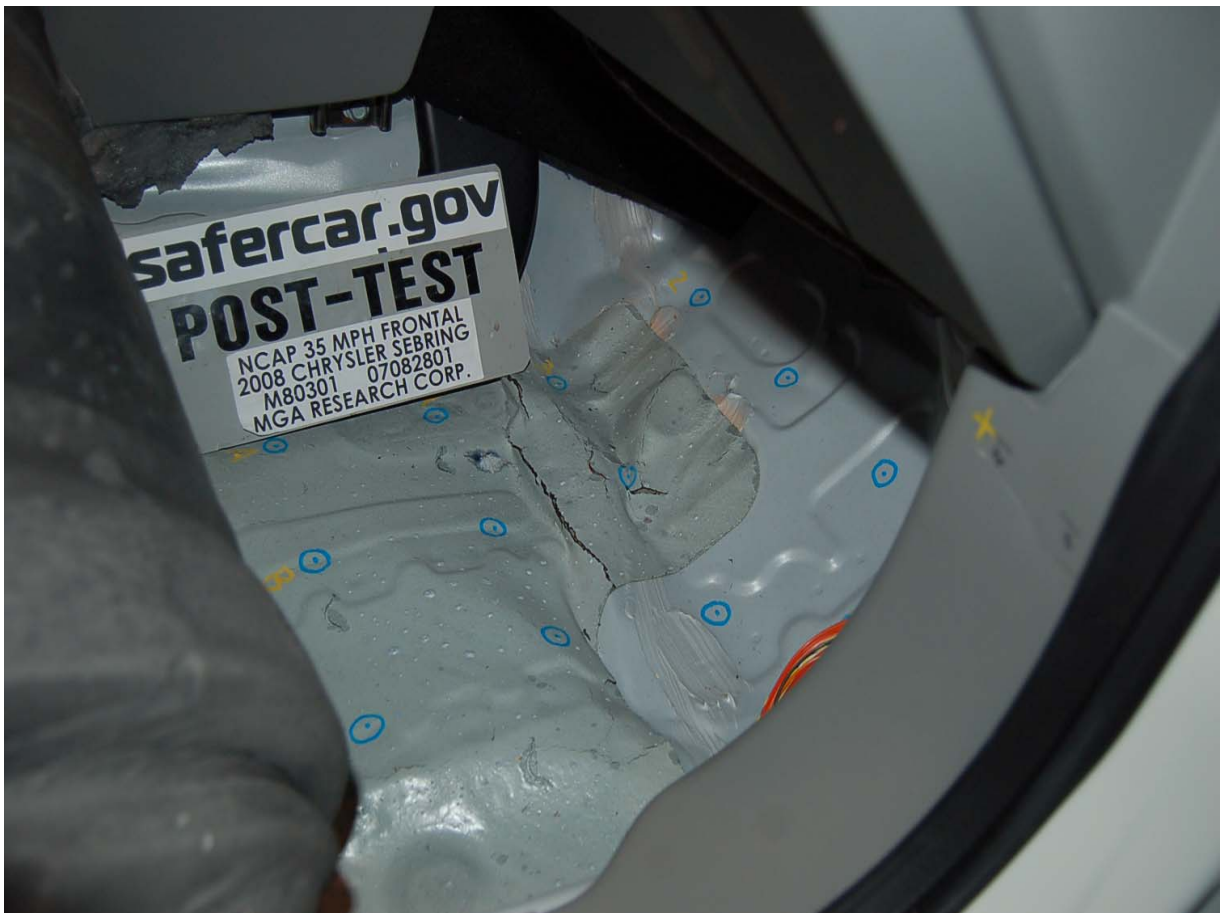
Pre-Test Passenger Side Glove Box



Post-Test Passenger Side Glove Box



Pre-Test Passenger Side Floor Pan



Post-Test Passenger Side Floor Pan



Post-Test Passenger Dummy Head Contact (headrest)



Post-Test Passenger Dummy Head Contact (visor)



Post-Test Passenger Dummy Knee Contact



Post-Test Passenger Dummy Airbag Contact



Rollover 90 Degrees



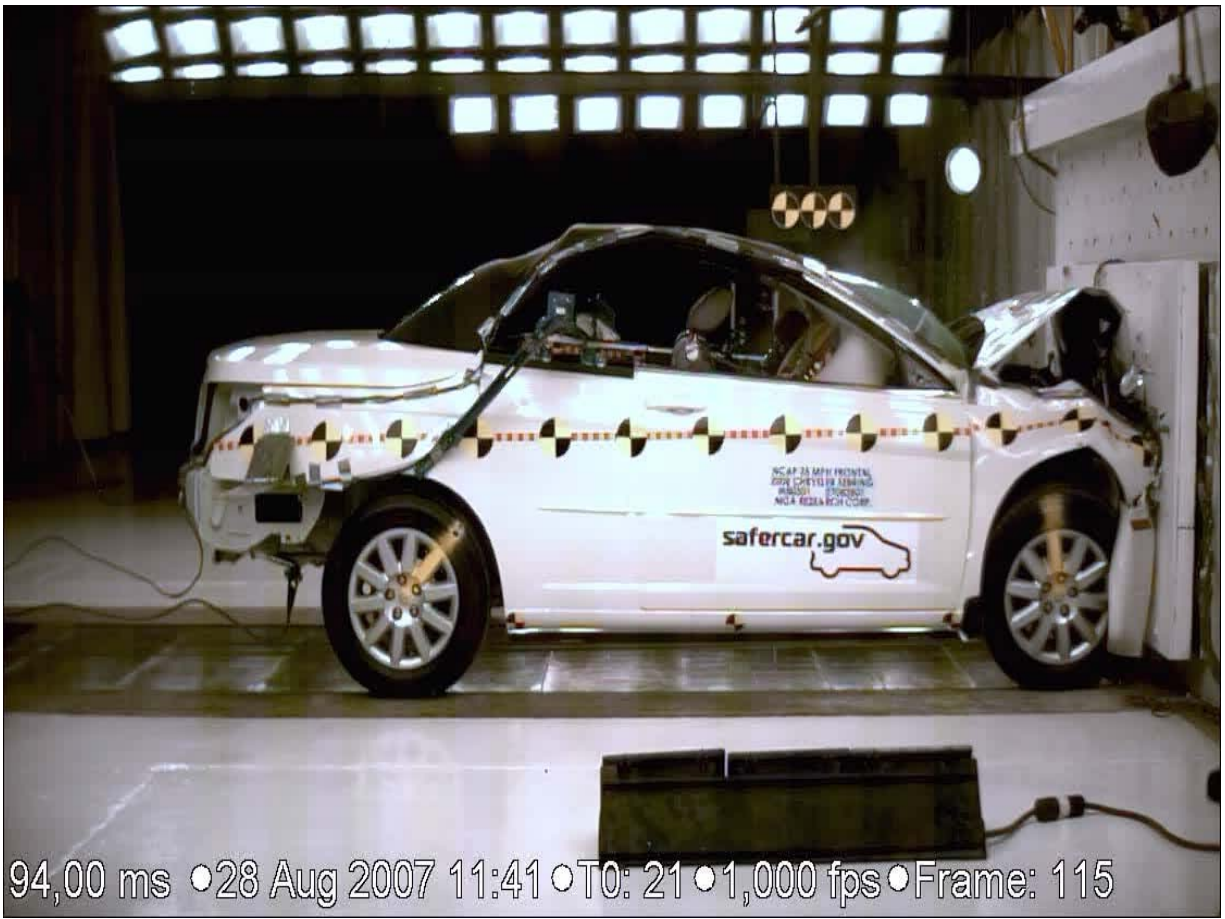
Rollover 180 Degrees



Rollover 270 Degrees



Rollover 360 Degrees



94,00 ms • 28 Aug 2007 11:41 • T0: 21 • 1,000 fps • Frame: 115

Vehicle Impact

APPENDIX B
DUMMY RESPONSE DATA TRACES

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The following dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.nhtsa.dot.gov

Driver Head X Redundant

Driver Head Y Redundant

Driver Head Z Redundant

Driver Upper Neck Force X

Driver Upper Neck Force Y

Driver Upper Neck Force Z

Driver Upper Neck Moment X

Driver Upper Neck Moment Y

Driver Upper Neck Moment Z

Driver Chest X Redundant

Driver Chest Y Redundant

Driver Chest Z Redundant

Driver Chest Displacement

Driver Pelvis X

Driver Pelvis Y

Driver Pelvis Z

Driver Shoulder Belt Force

Driver Lap Belt Force

Driver Left Upper Tibia Moment X

Driver Left Upper Tibia Moment Y

Driver Left Upper Tibia Force Z

Driver Left Lower Tibia Moment X

Driver Left Lower Tibia Moment Y

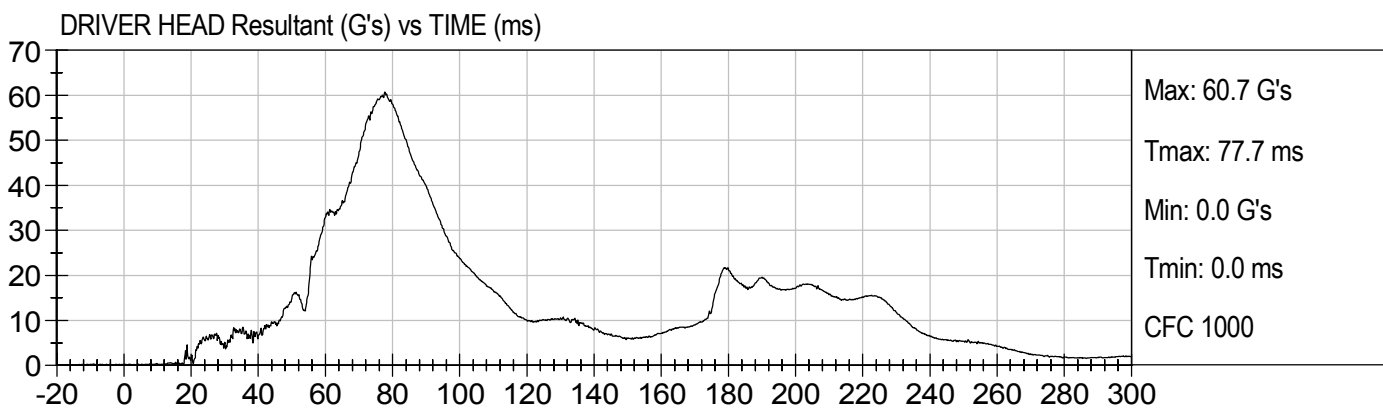
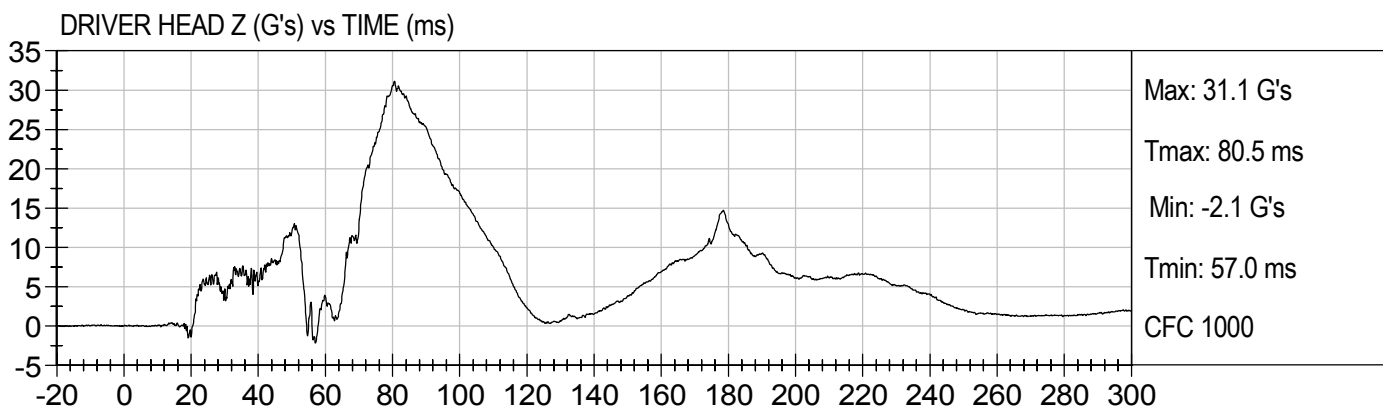
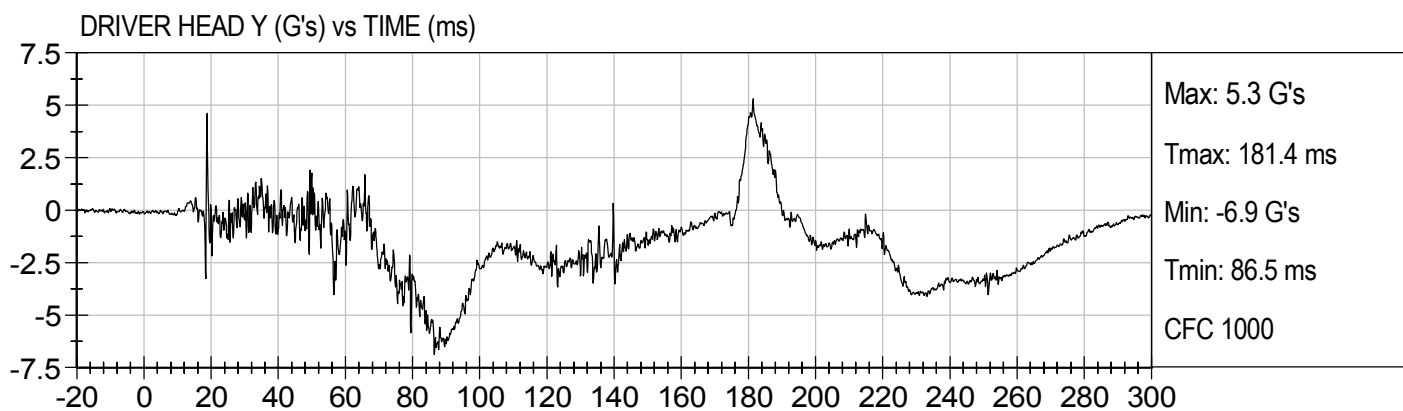
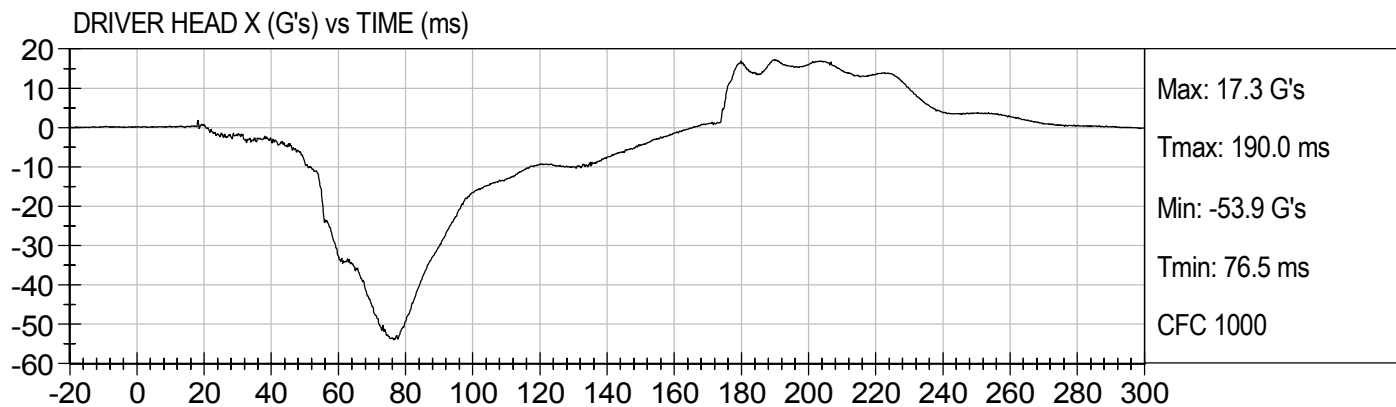
Driver Left Lower Tibia Force Z

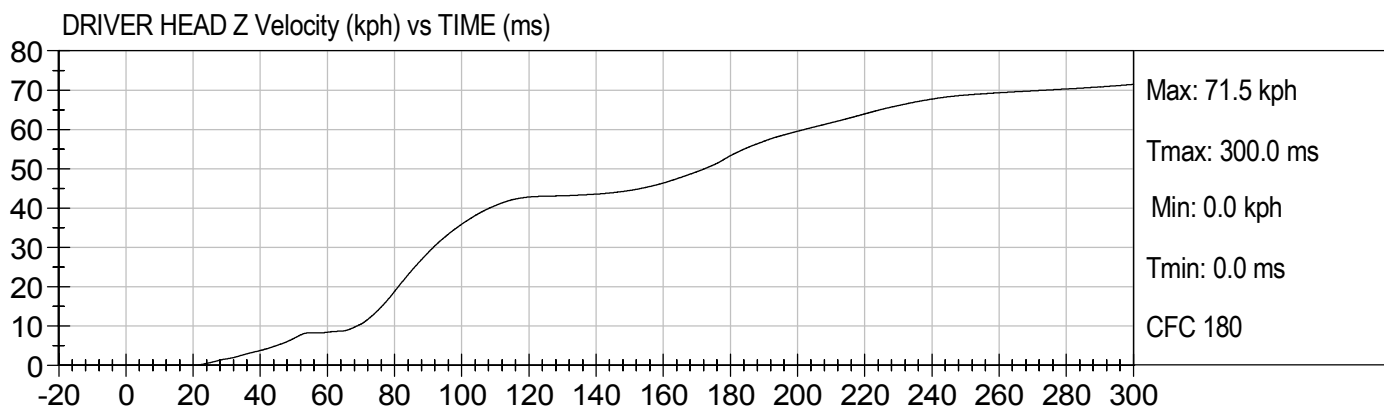
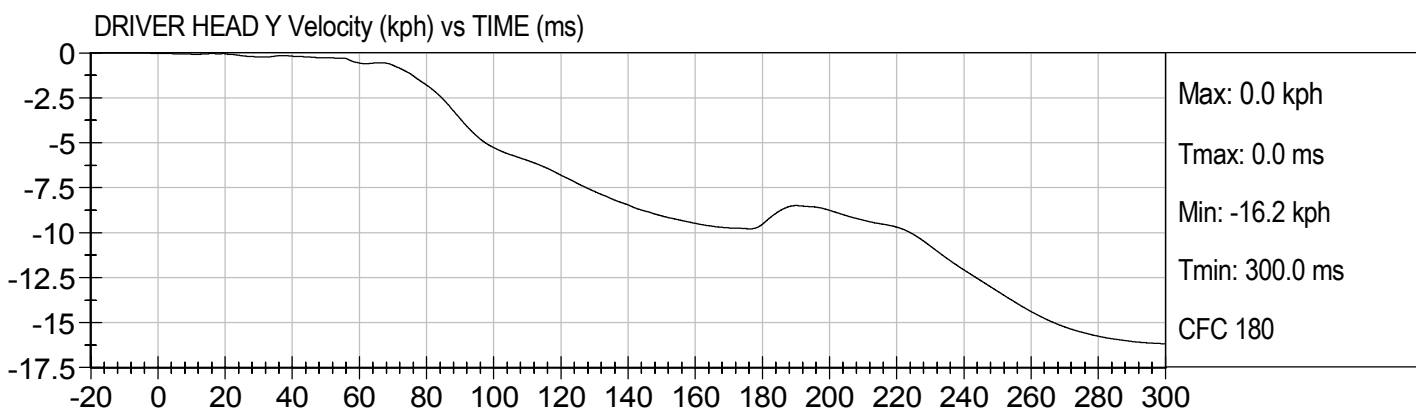
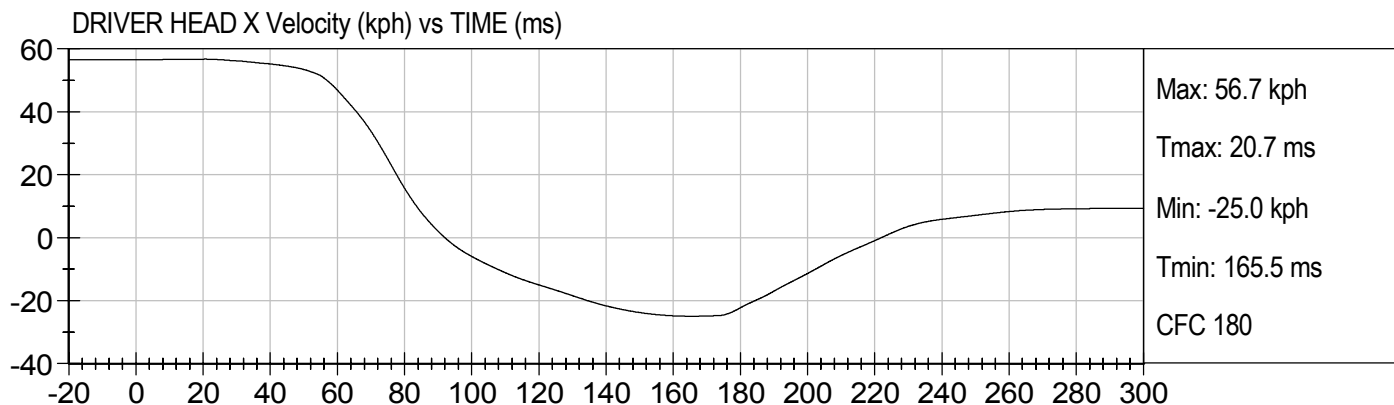
Driver Right Upper Tibia Moment X

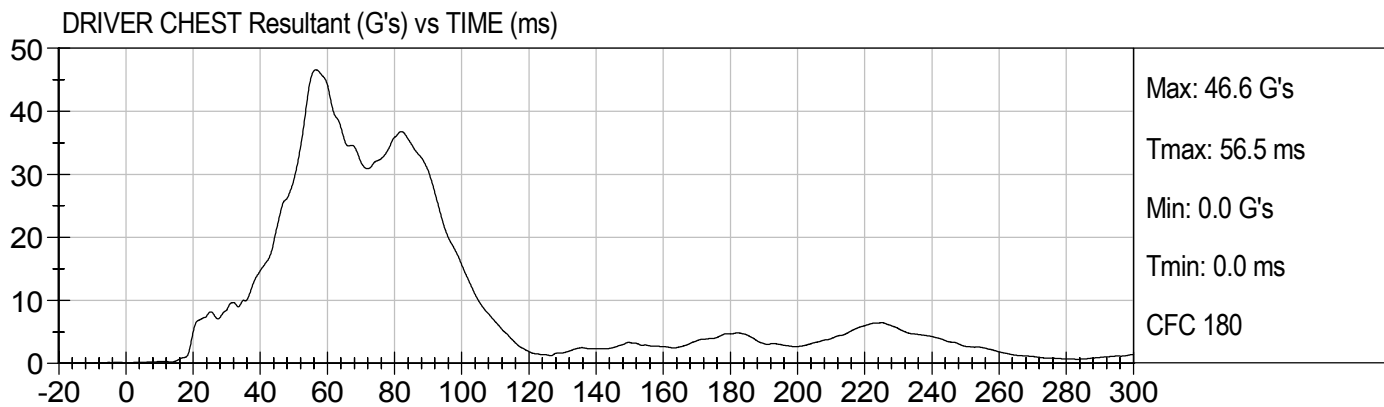
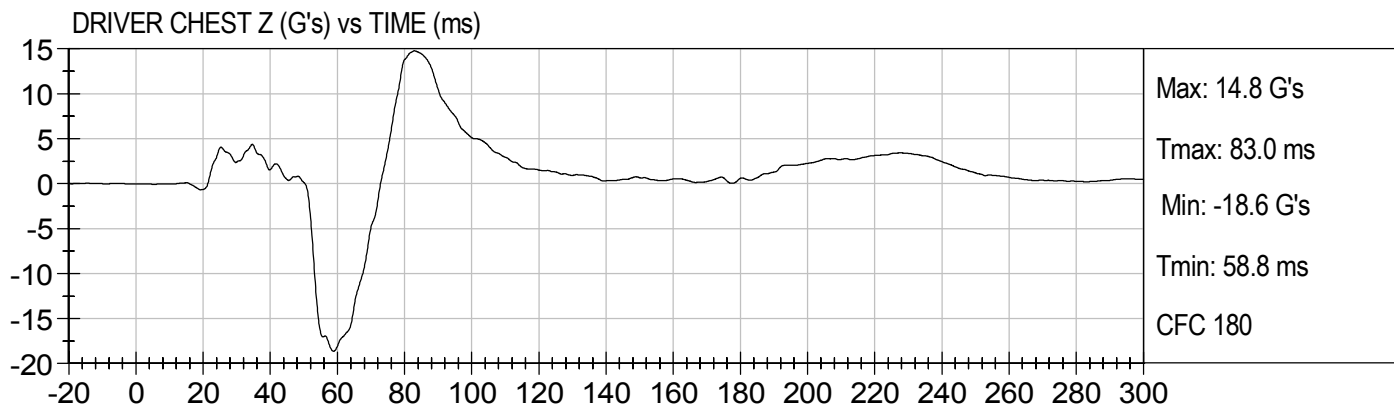
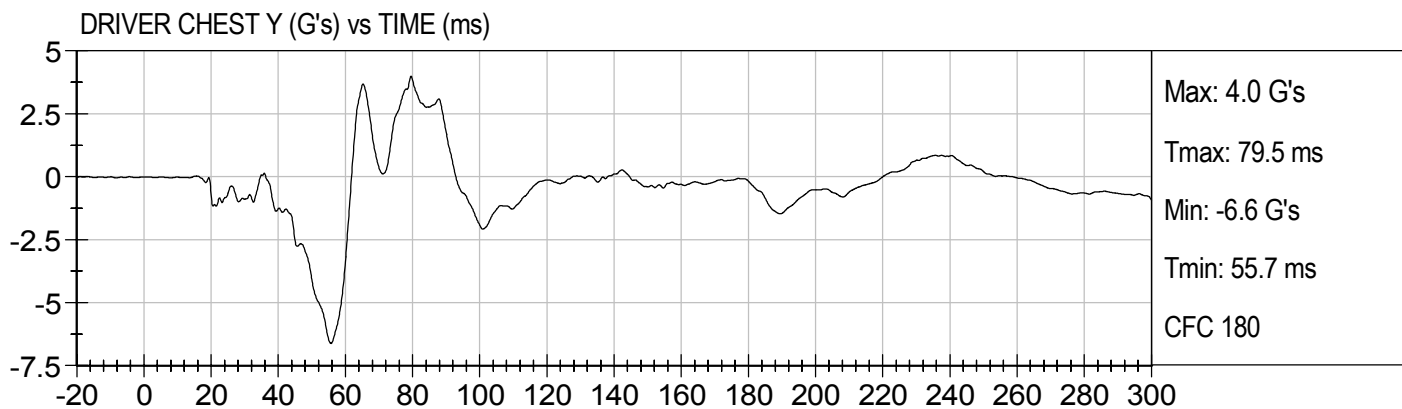
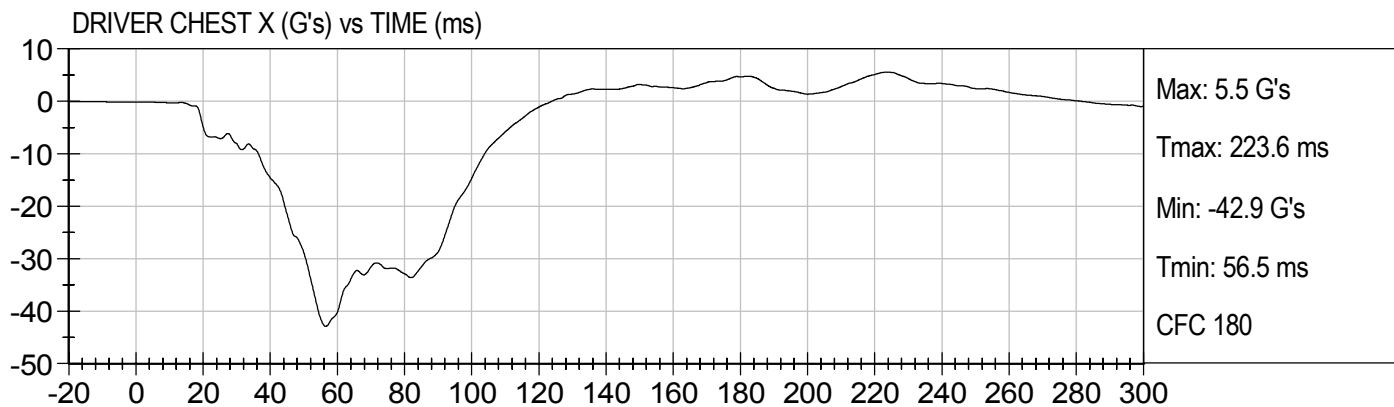
Driver Right Upper Tibia Moment Y

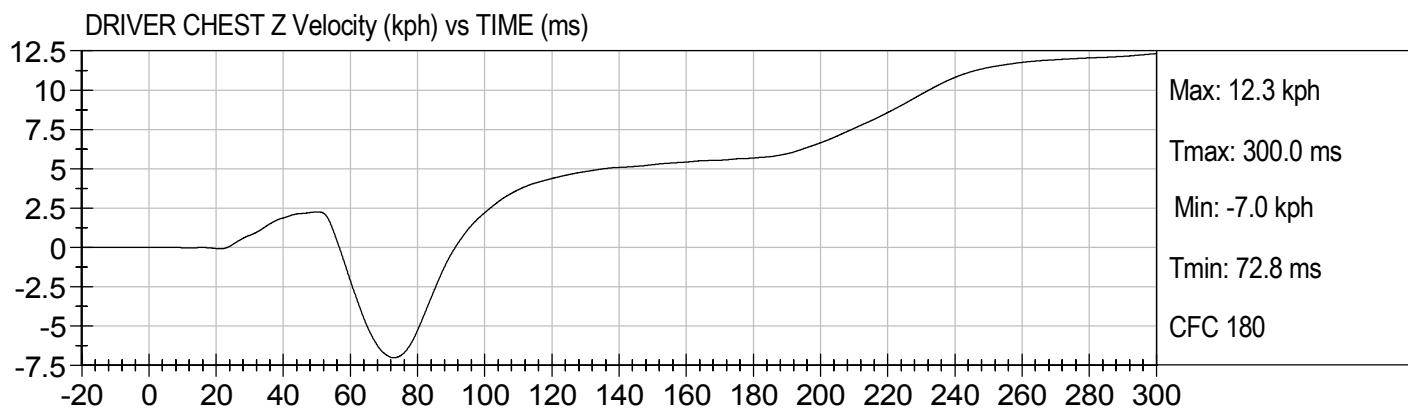
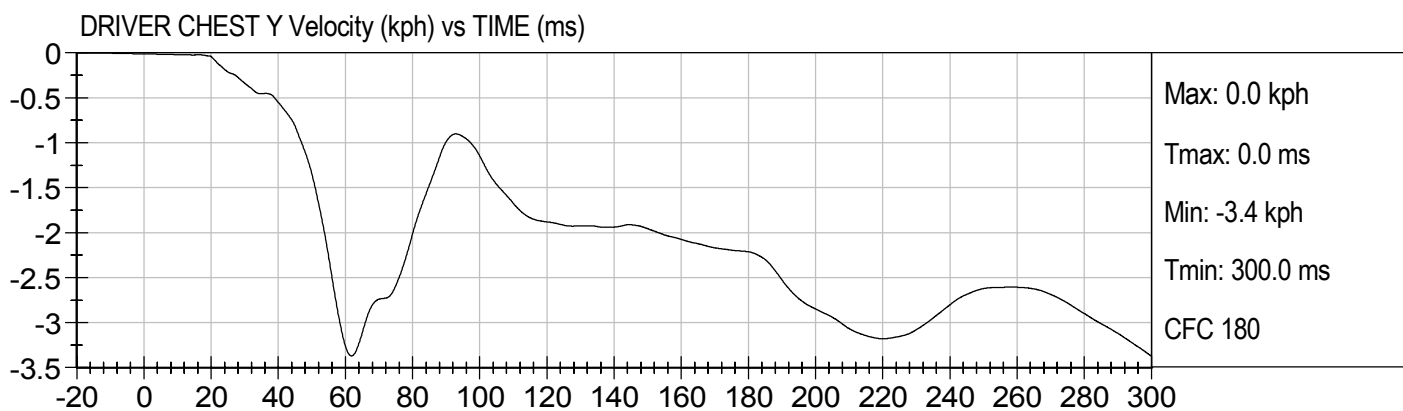
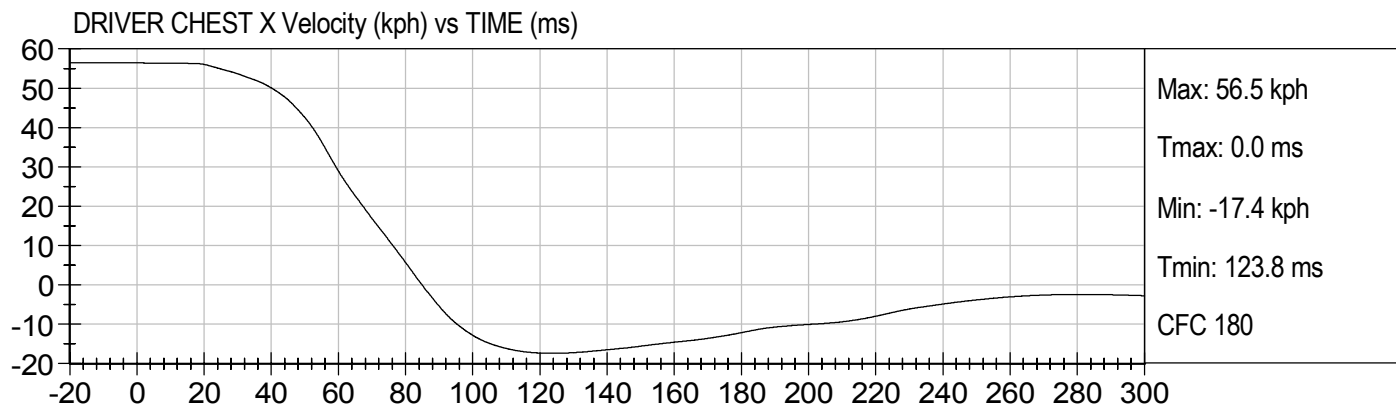
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver Right Lower Tibia Force Z
Driver Left Foot Fore Z
Driver Left Foot Aft X
Driver Left Foot Aft Z
Driver Right Foot Fore Z
Driver Right Foot Aft X
Driver Right Foot Aft Z
Passenger Head X Redundant
Passenger Head Y Redundant
Passenger Head Z Redundant
Passenger Upper Neck Force X
Passenger Upper Neck Force Y
Passenger Upper Neck Force Z
Passenger Upper Neck Moment X
Passenger Upper Neck Moment Y
Passenger Upper Neck Moment Z
Passenger Chest X Redundant
Passenger Chest Y Redundant
Passenger Chest Z Redundant
Passenger Chest Displacement
Passenger Pelvis X
Passenger Pelvis Y
Passenger Pelvis Z
Passenger Shoulder Belt Force
Passenger Lap Belt Force
Passenger Left Upper Tibia Moment X
Passenger Left Upper Tibia Moment Y
Passenger Left Upper Tibia Force Z
Passenger Left Lower Tibia Moment X

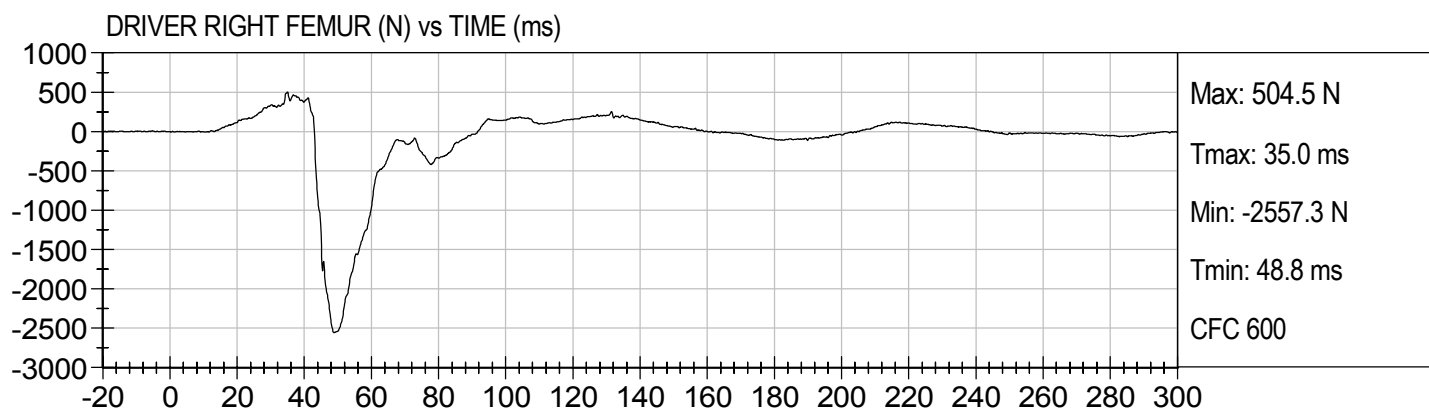
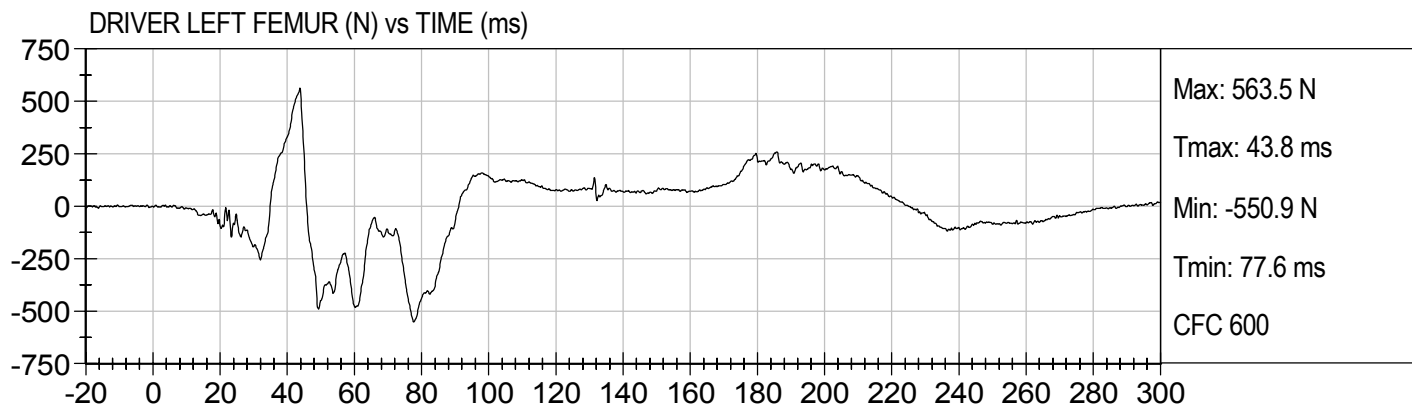
Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Upper Tibia Moment X
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger Left Foot Fore Z
Passenger Left Foot Aft X
Passenger Left Foot Aft Z
Passenger Right Foot Fore Z
Passenger Right Foot Aft X
Passenger Right Foot Aft Z
Left Rear Seat Crossmember X
Left Rear Seat Crossmember Z
Right Rear Seat Crossmember X
Right Rear Seat Crossmember Z
Vehicle Engine Top X
Vehicle Engine Bottom X
Vehicle Left Brake Caliper X
Vehicle Right Brake Caliper X
Barrier Force – Upper Left
Barrier Force – Upper Center
Barrier Force – Upper Right
Barrier Force – Lower Left
Barrier Force – Lower Center
Barrier Force – Lower Right

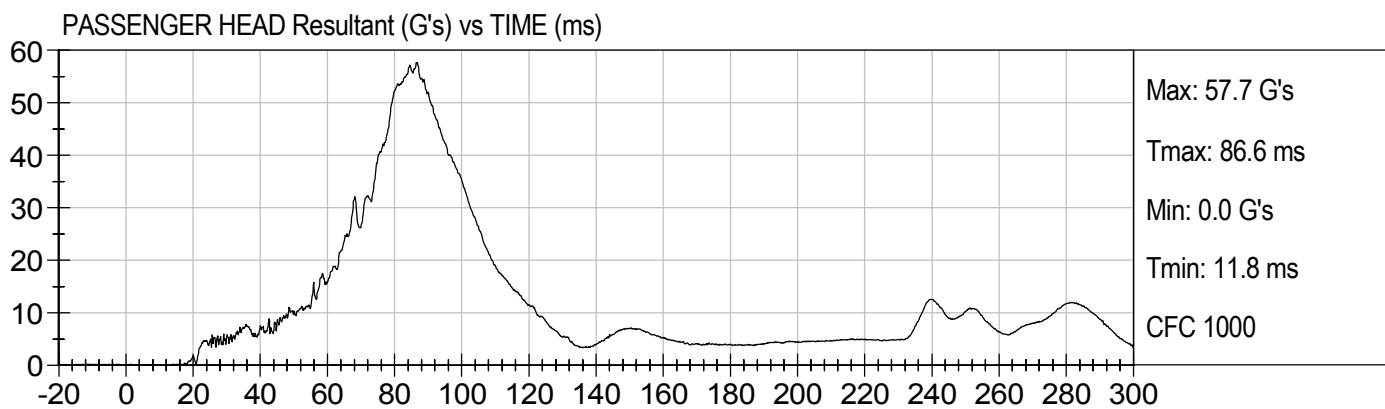
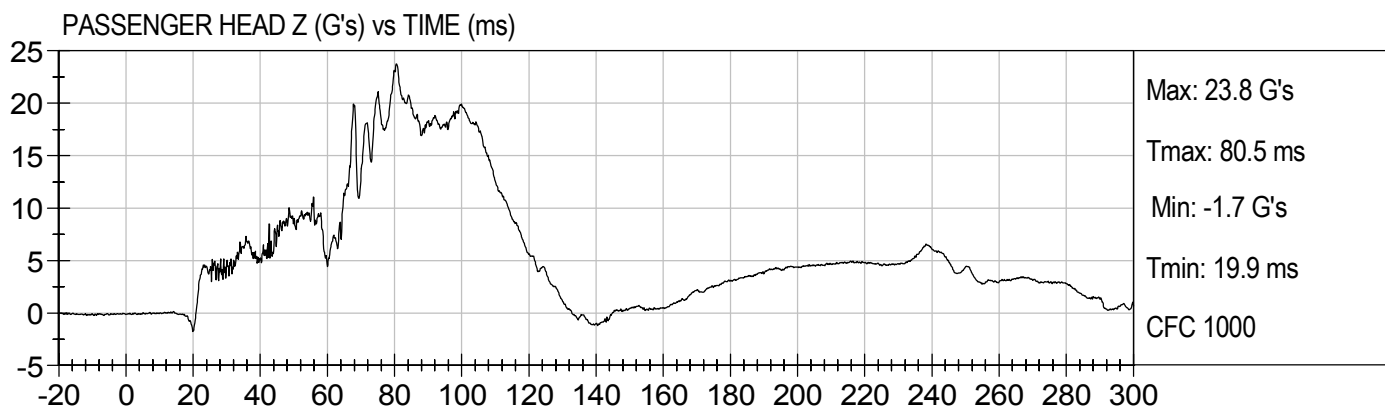
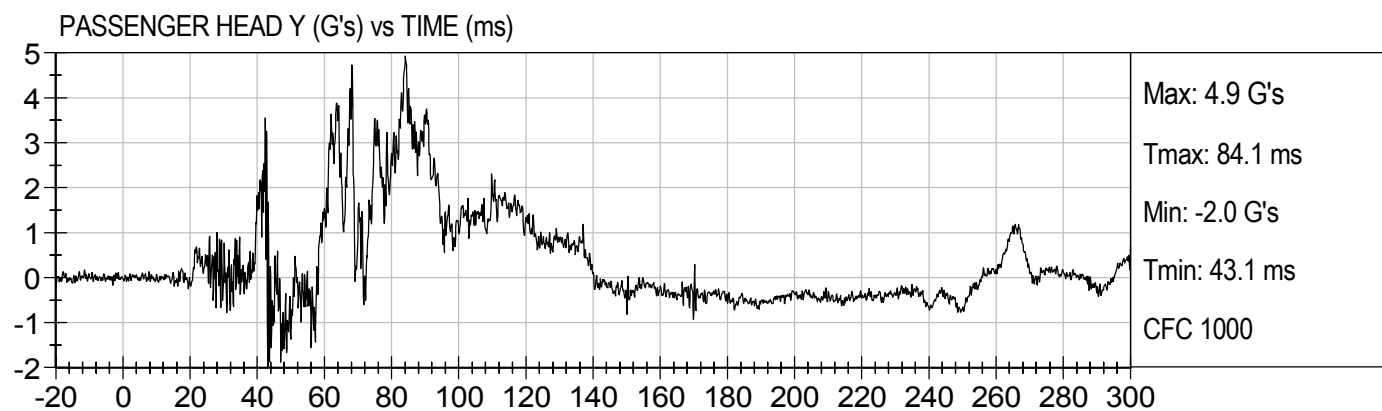
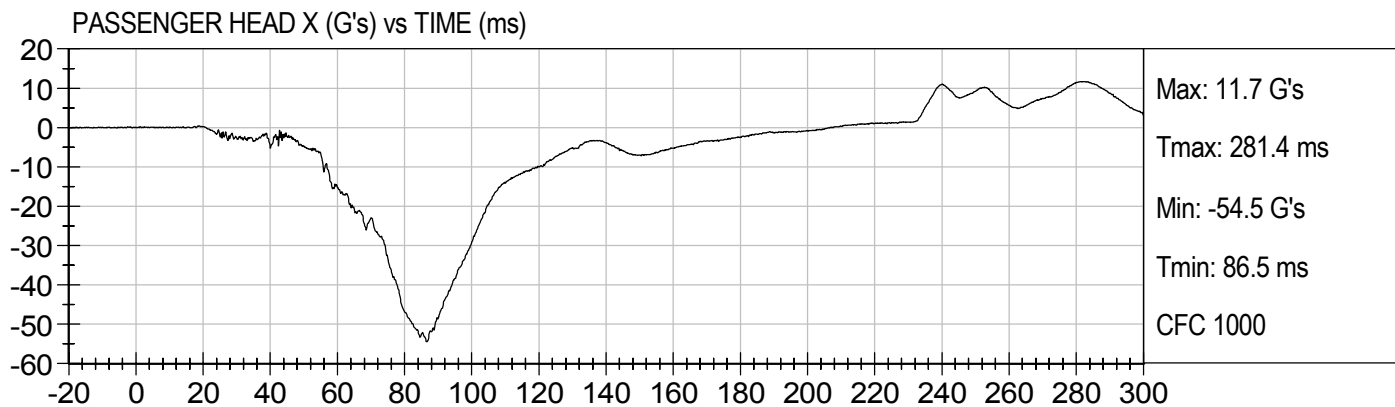


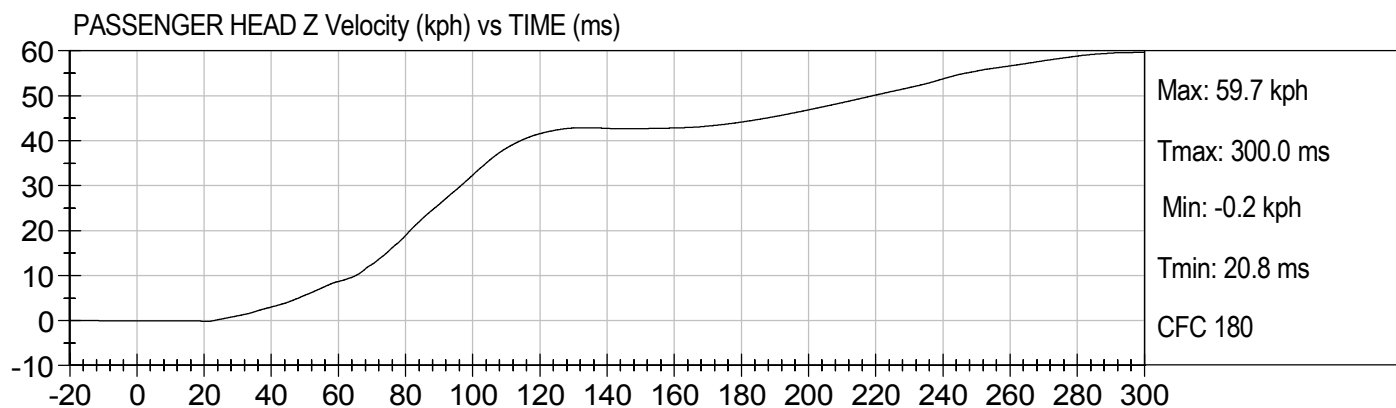
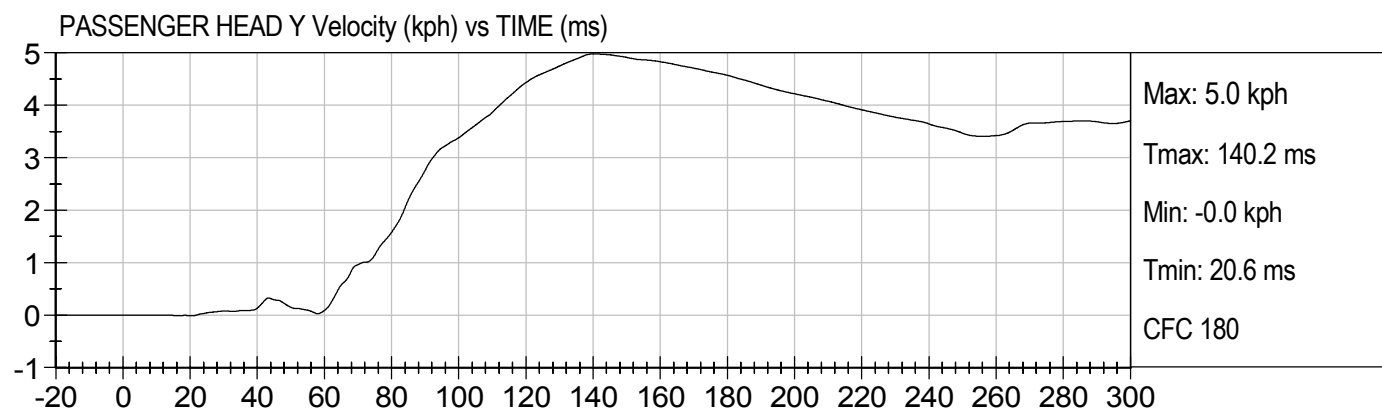
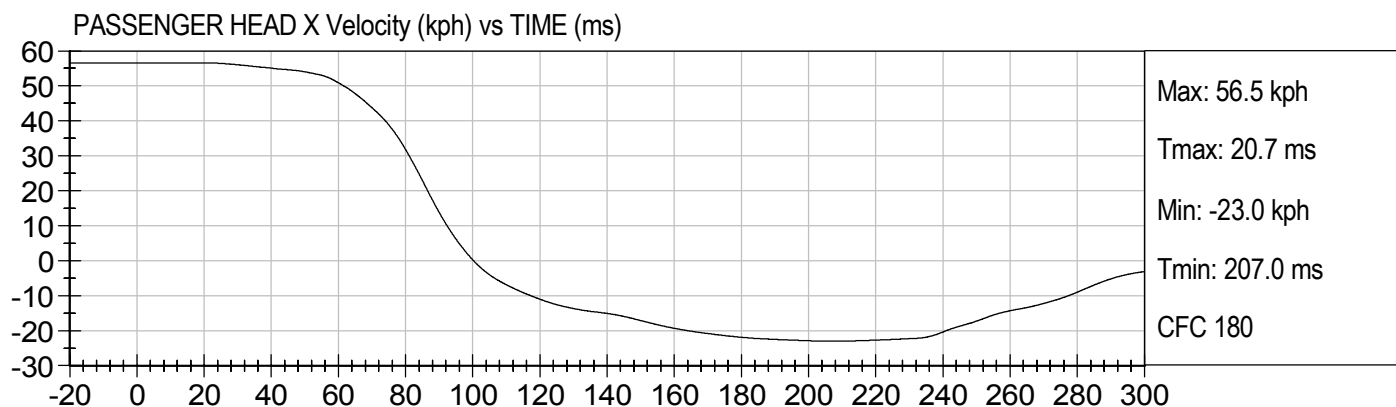


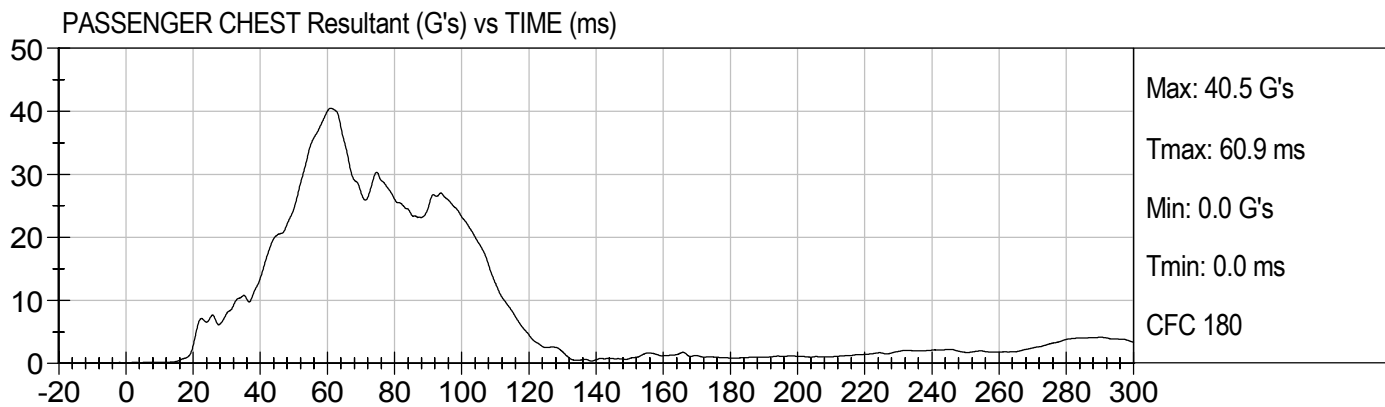
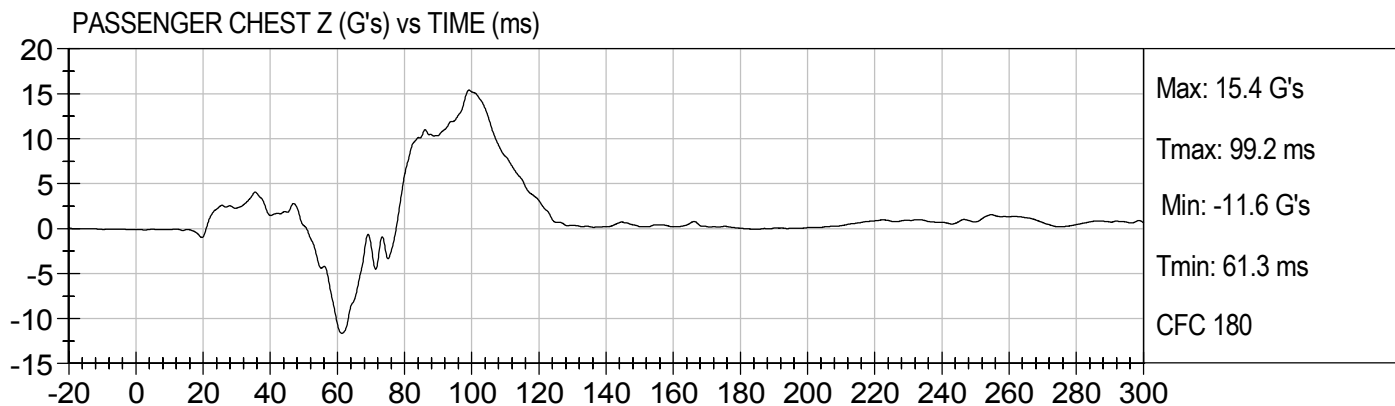
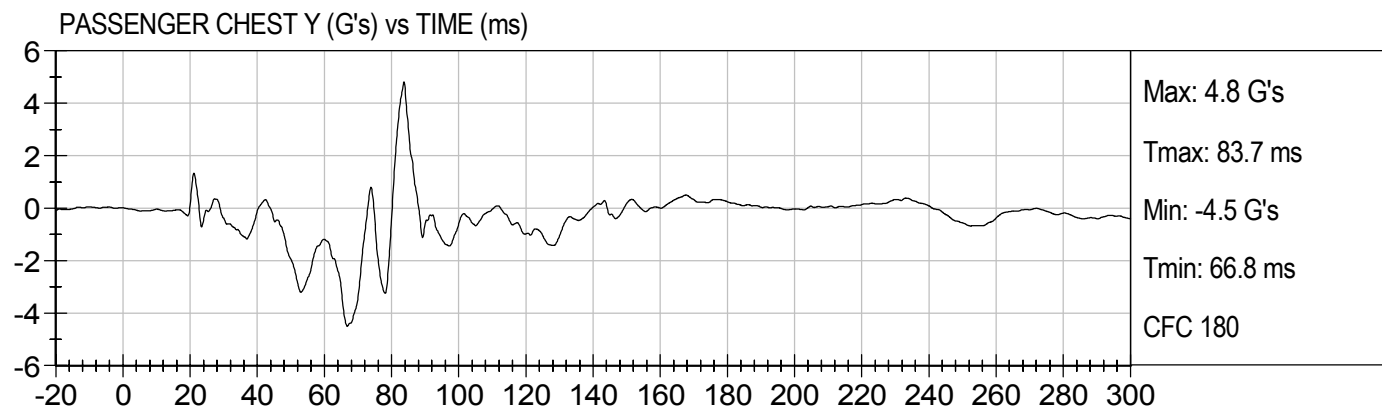
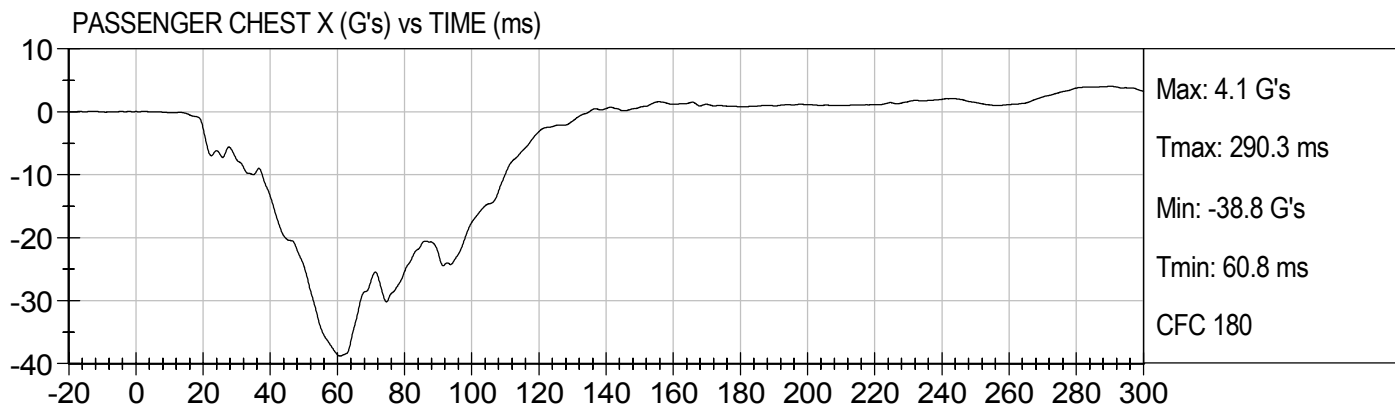


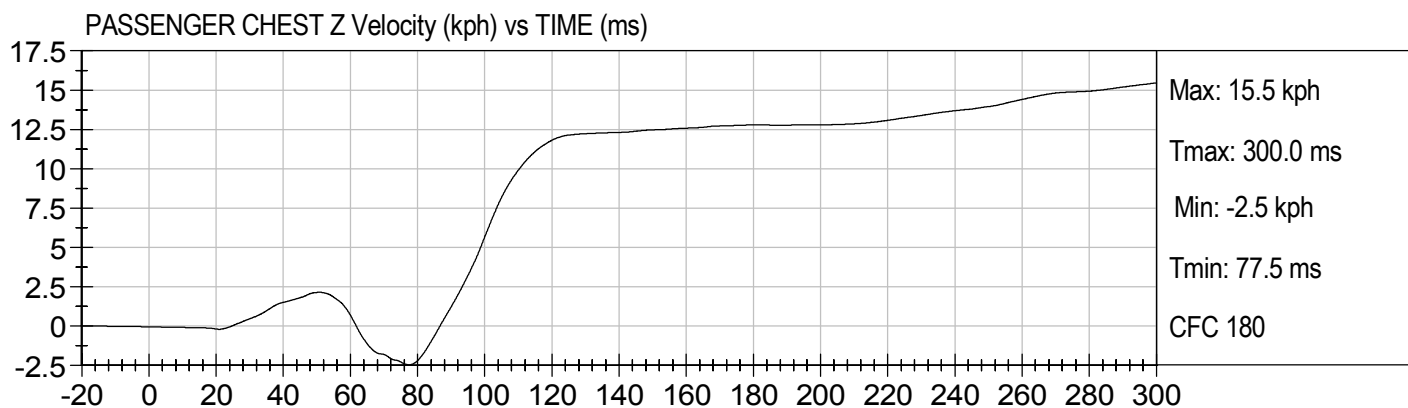
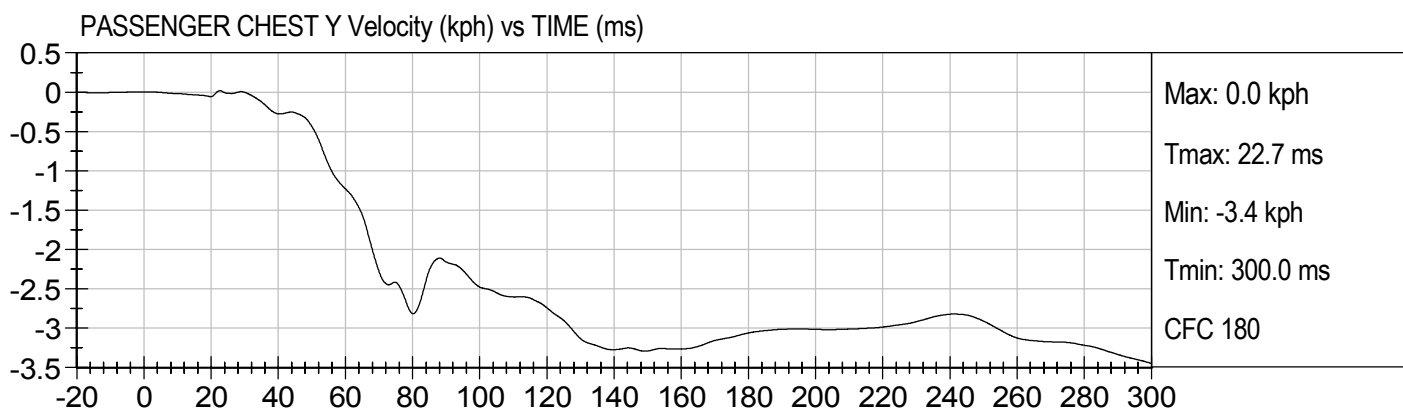
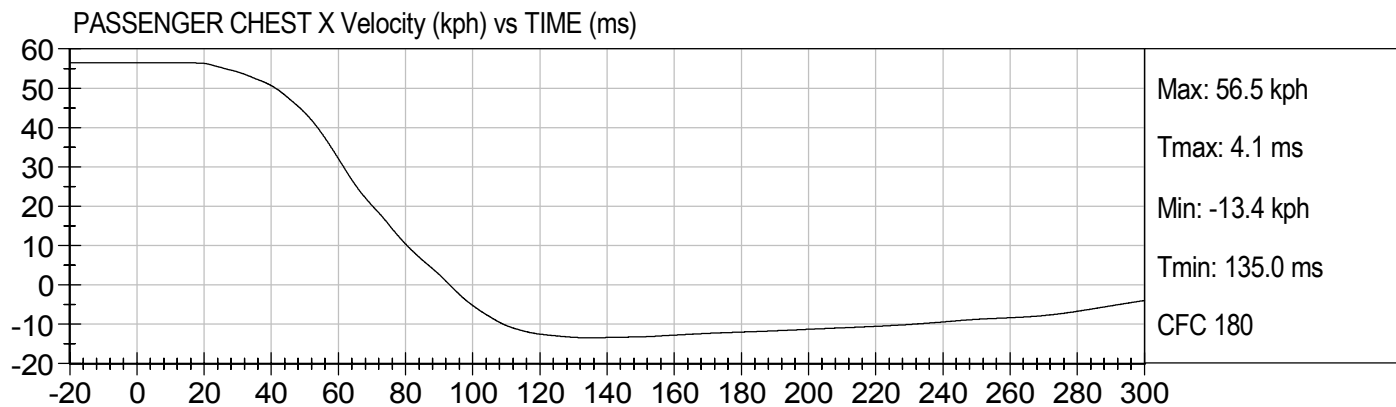


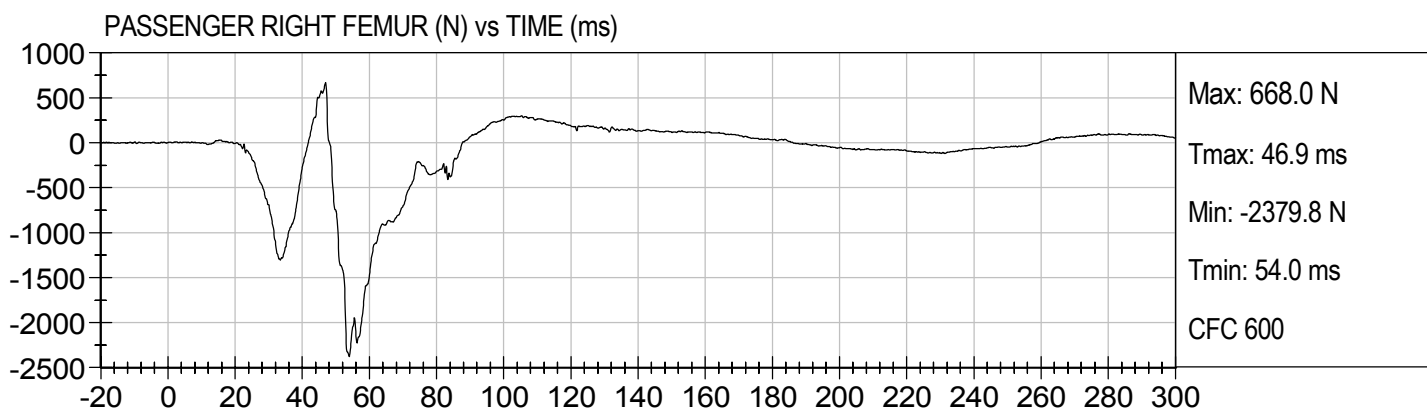
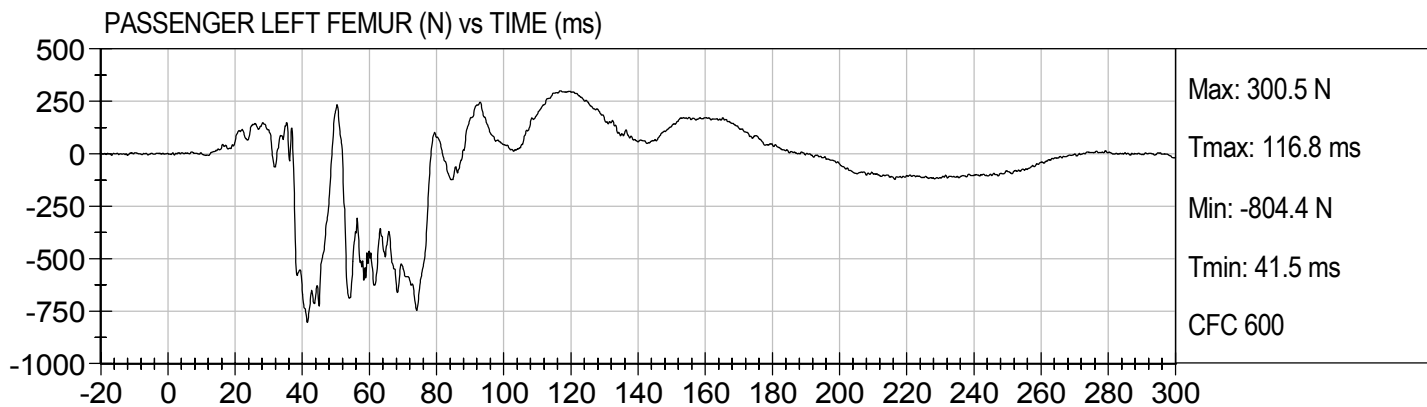












APPENDIX C
DUMMY CALIBRATION DATA

**MGA RESEARCH CORPORATION
HEAD DROP TEST
HYBRID III 50TH PERCENTILE MALE**

ATD Serial No: 065

Test ID: D071341

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.6	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Peak Resultant Acceleration	G's	225 - 275	235	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	4.4	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

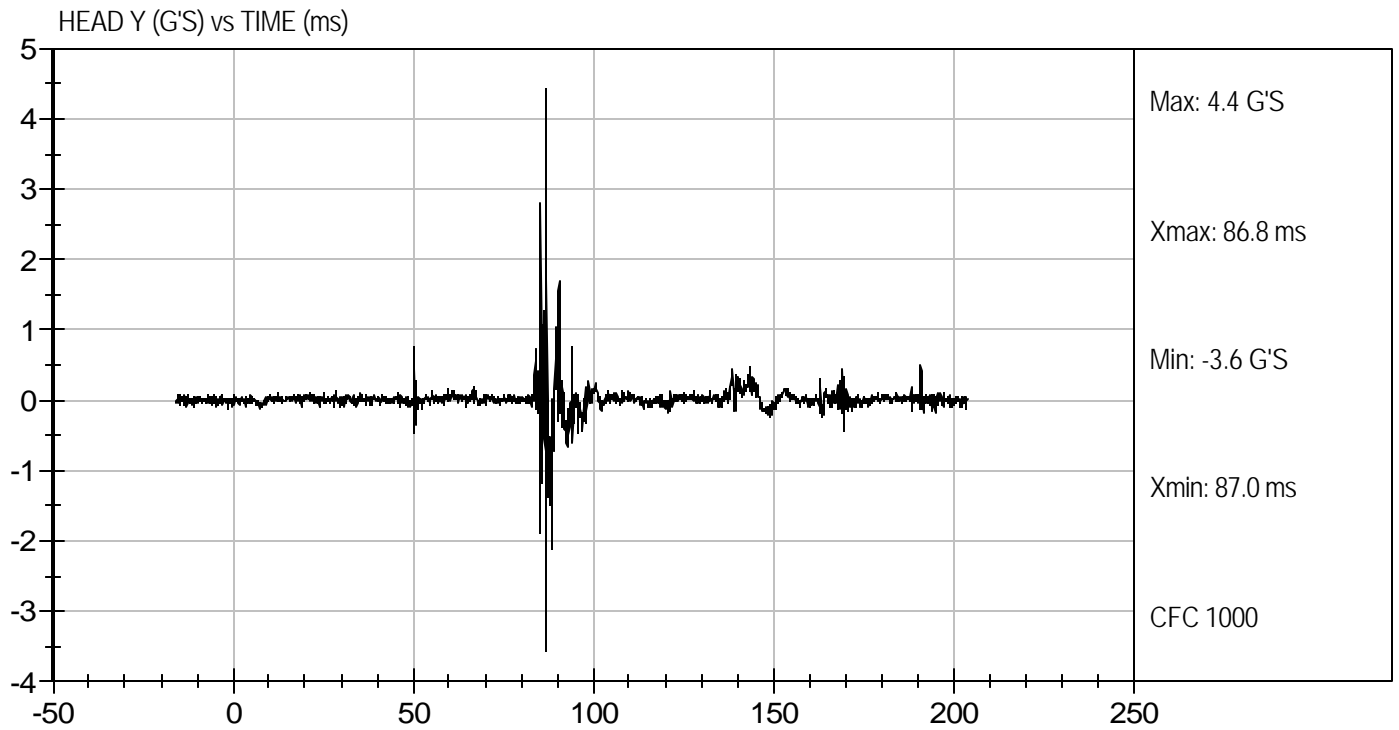
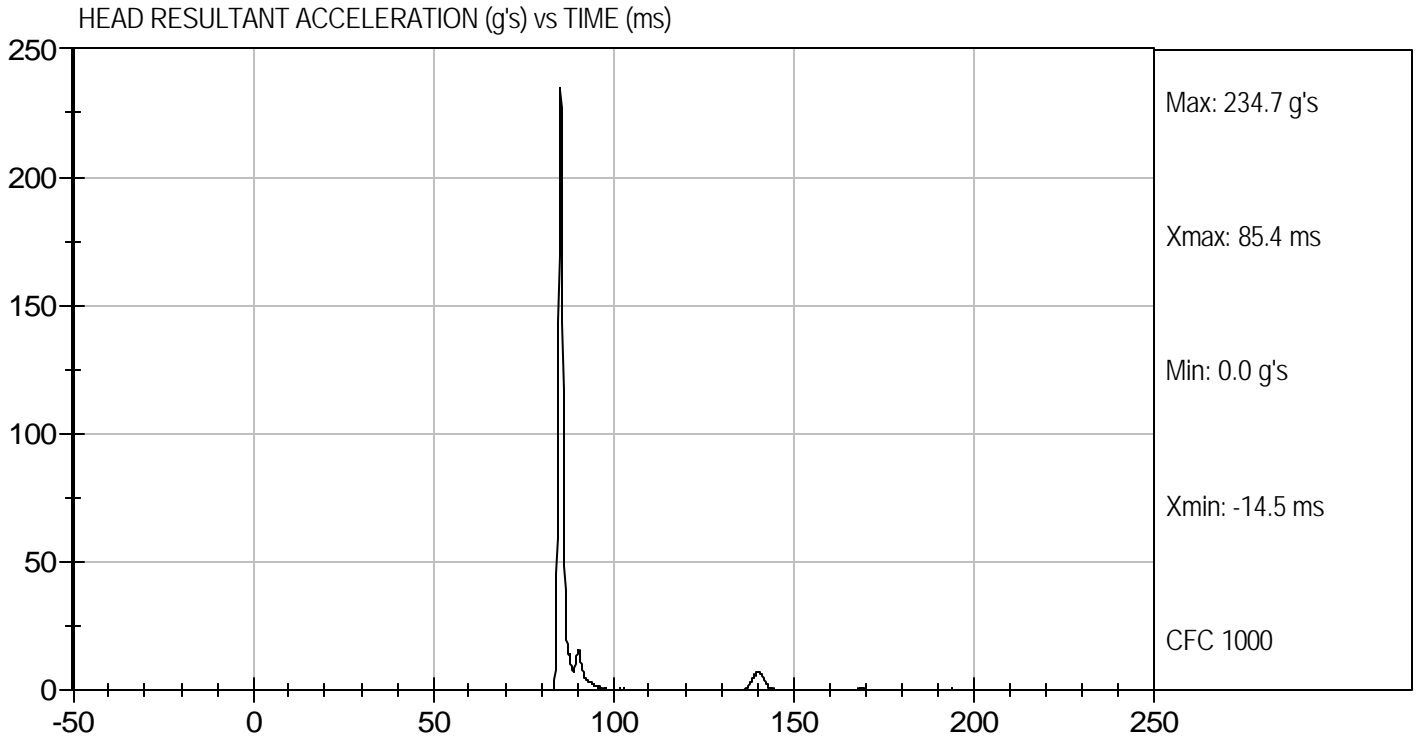
5/14/07
Test Date

David Winkelbauer
Approved By



Test Desc: Head Drop
Component ID: D071341

Test Date: 5/14/07
Velocity: 0 ft/s, 0.00 m/s



**MGA RESEARCH CORPORATION
NECK FLEXION TEST
HYBRID III 50TH PERCENTILE MALE**

ATD Serial No: 065

Test I.D.: D071342

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	20.6	Pass
Laboratory Relative Humidity		%	10 to 70	43	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.05	Pass
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	22.94	Pass
	20 msec	G's	17.60 to 22.60	17.69	Pass
	30 msec	G's	12.50 to 18.50	13.31	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 29.0	13.42	Pass
Deceleration Decay Time to Cross 5 G's		msec	34.0 to 42.0	37.4	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	73.6	Pass
	Time	msec	57.0 to 64.0	59.1	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	113.0 to 128.0	113.5	Pass
Moment About Occipital Condyle	Maximum	N m	88.1 to 108.5	93.1	Pass
	Time	msec	47.0 to 58.0	51.3	Pass
Positive Moment Decay Time To Zero Crossing		msec	97.0 to 107.0	103.4	Pass
Overall Test Results					Pass

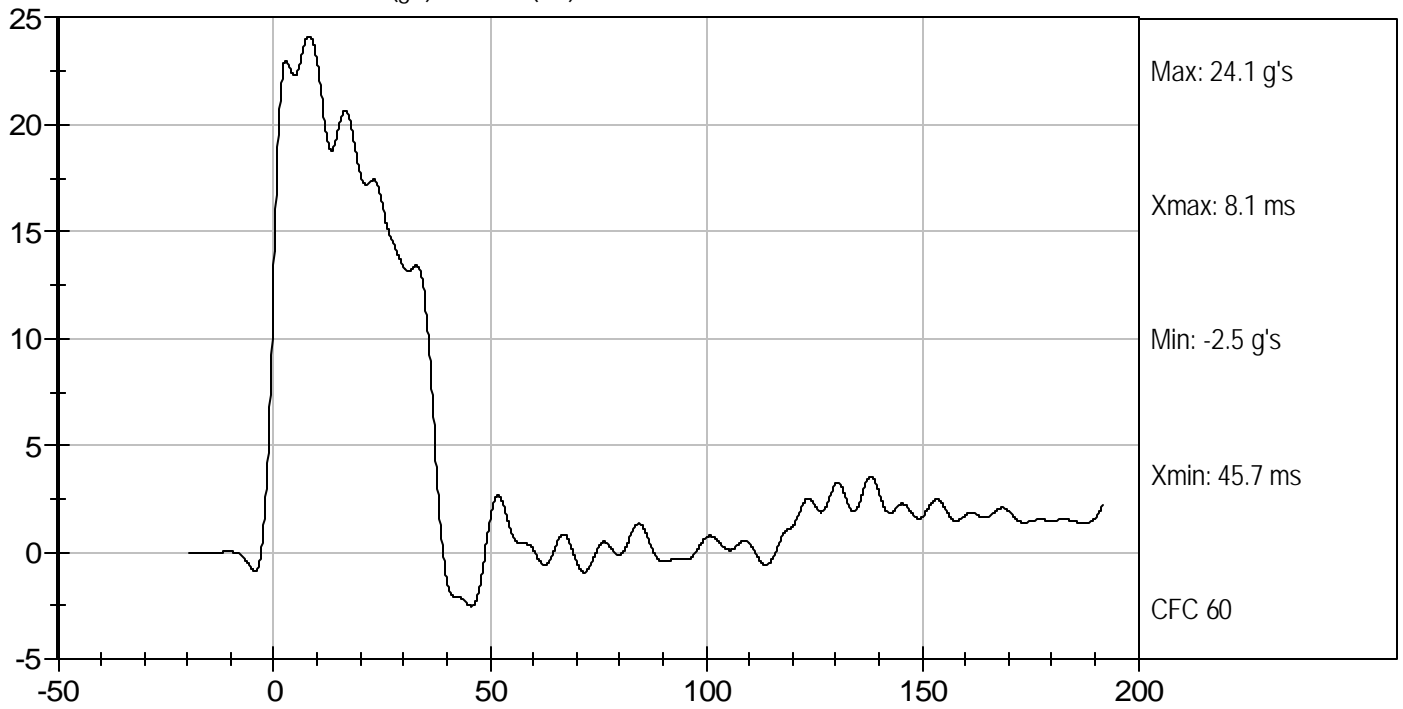

Laboratory Technician

5/15/07
Test Date

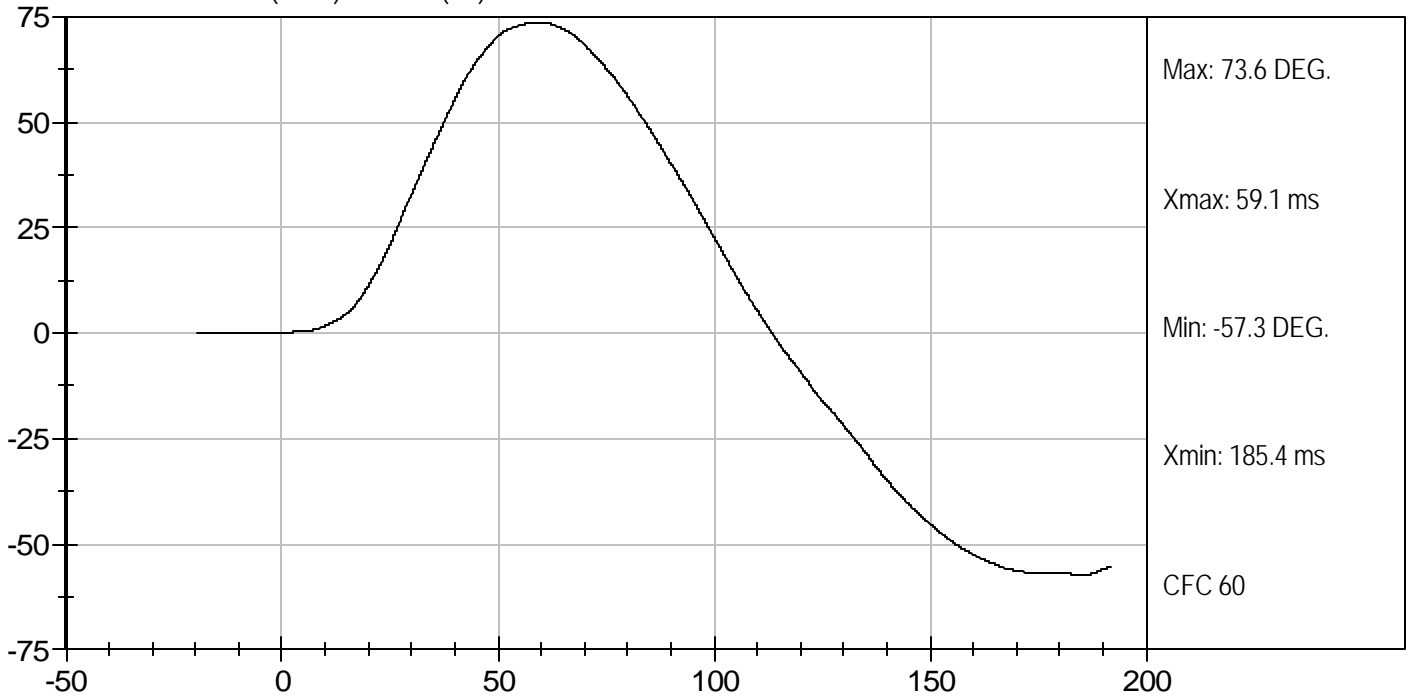

Approved By



PENDULUM DECELERATION (g's) vs TIME (ms)



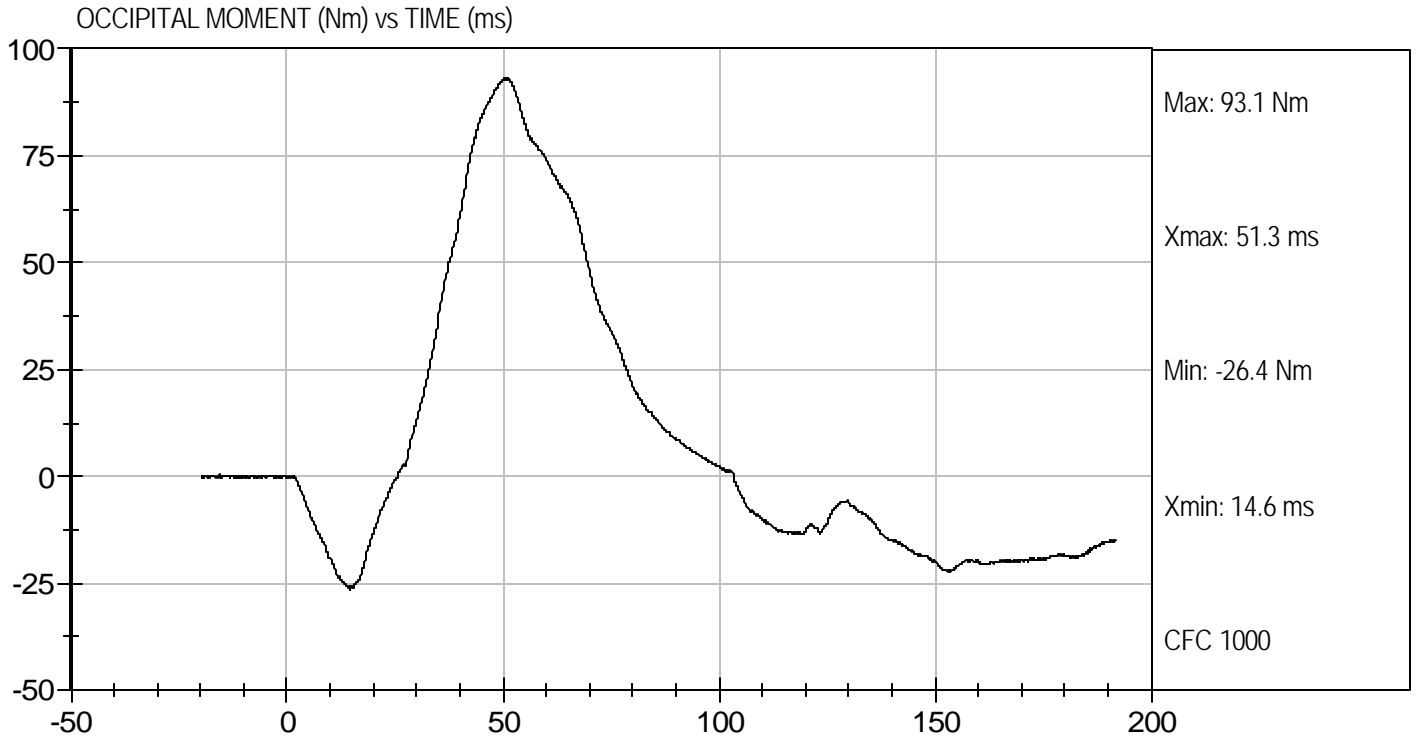
NECK ROTATION (DEG.) vs TIME (ms)





Test Desc: Neck Flexion
Component ID: D071342

Test Date: 5/15/07
Velocity: 23.14 ft/s, 7.05 m/s



**MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 50TH PERCENTILE MALE**

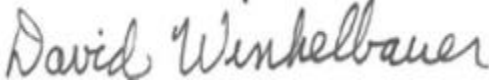
ATD Serial No: 065

Test I.D.: D071343

Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	deg C	20.6 to 22.2	20.6	Pass	
Laboratory Relative Humidity	%	10 to 70	42	Pass	
Pendulum Velocity	m/s	5.95 to 6.19	6.05	Pass	
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	18.15	Pass
	20 msec	G's	14.00 to 19.00	14.33	Pass
	30 msec	G's	11.00 to 16.00	12.70	Pass
Peak Pendulum Deceleration After 30 msec	G's	<= 22.0	13.26	Pass	
Deceleration Decay Time to Cross 5 G's	msec	38.0 to 46.0	39.0	Pass	
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	98.4	Pass
	Time	msec	72.0 to 82.0	78.3	Pass
"D" Plane Rotation Decay Time To Zero Crossing	msec	147.0 to 174.0	159.3	Pass	
Moment About Occipital Condyle	Maximum	N m	-52.9 to -79.9	-60.1	Pass
	Time	msec	65.0 to 79.0	72.5	Pass
Negative Moment Decay Time To Zero Crossing	msec	120.0 to 148.0	147.600	Pass	
Overall Test Results				Pass	

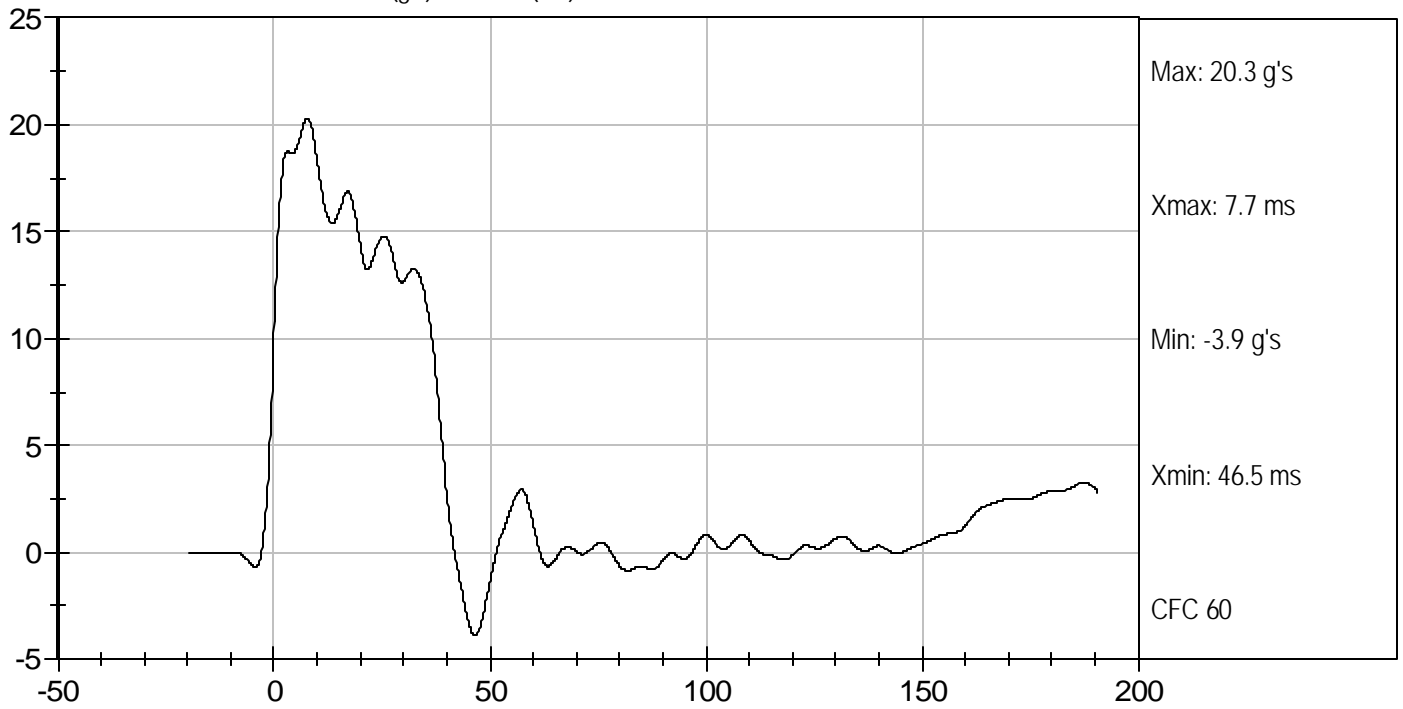

Laboratory Technician

5/15/07
Test Date

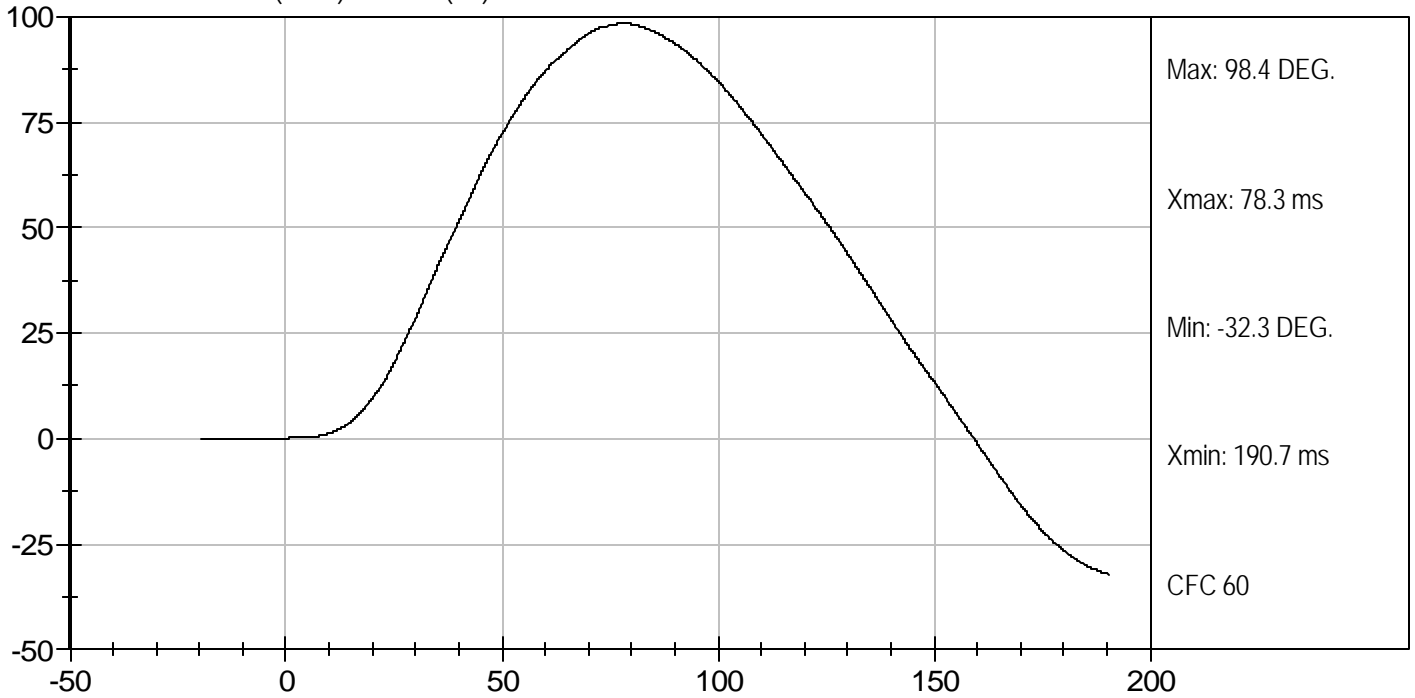

Approved By



PENDULUM DECELERATION (g's) vs TIME (ms)



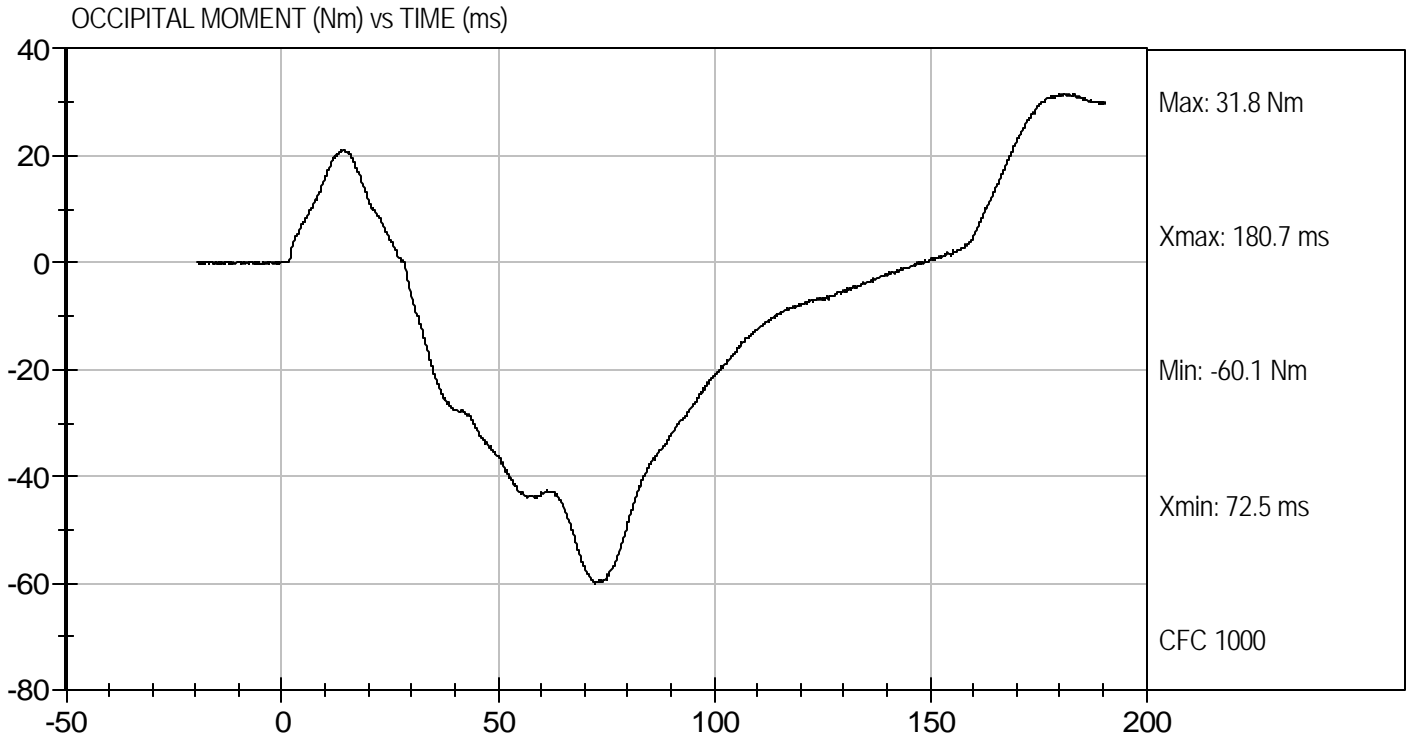
NECK ROTATION (DEG.) vs TIME (ms)





Test Desc: Neck Extension
Component ID: D071343

Test Date: 5/15/07
Velocity: 19.84 ft/s, 6.05 m/s



**MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 50TH PERCENTILE MALE**

ATD Serial No: 065

Test I.D: D071344


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	43	Pass
Probe Velocity	m/s	6.58 to 6.82	6.68	Pass
Peak Probe Force	N	5159 to 5893	5,557	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.73	Pass
Internal Hysteresis	%	69 to 85	71	Pass
			Overall Test Results	Pass



 Laboratory Technician

5/15/07

 Test Date



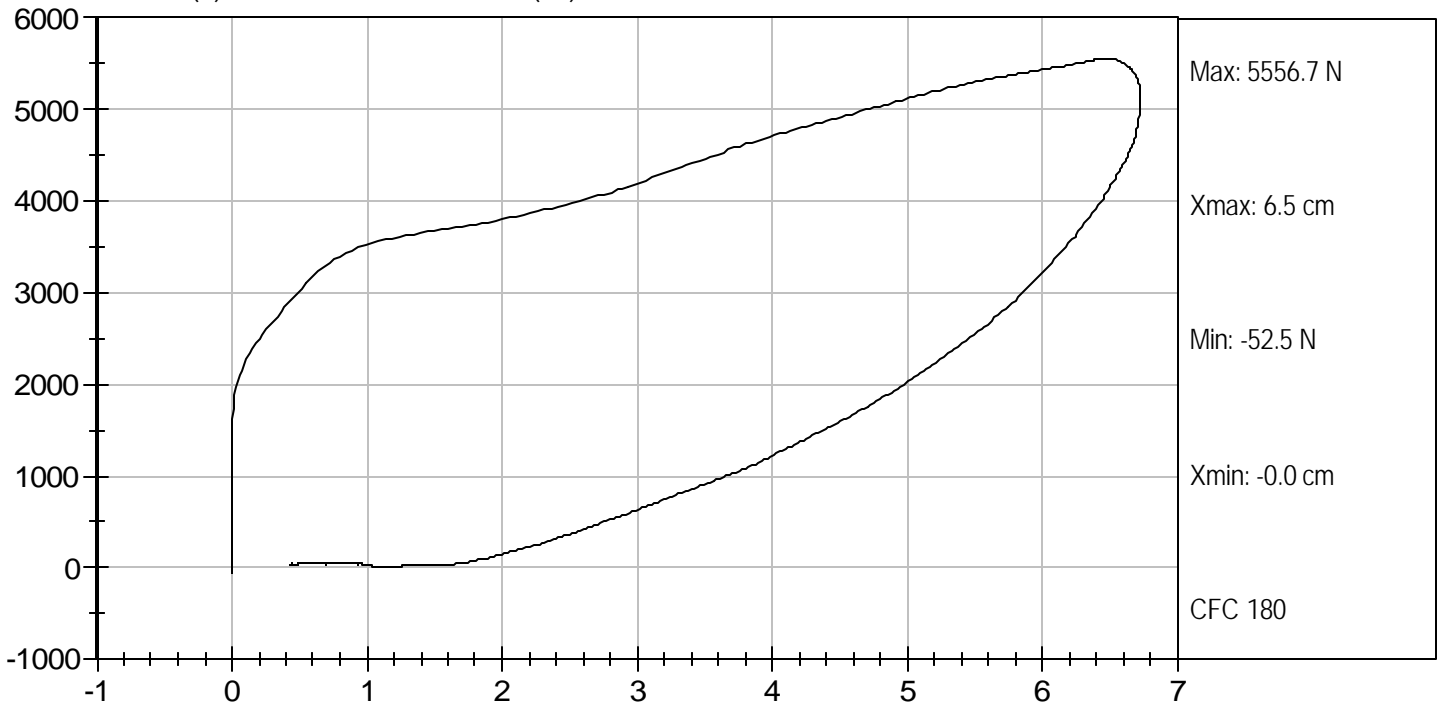
 Approved By



Test Desc: Thorax Impact
Component ID: D071344

Test Date: 5/15/07
Velocity: 21.92 ft/s, 6.68 m/s

FORCE (N) vs CHEST DISPLACEMENT (cm)



MGA RESEARCH CORPORATION
RIGHT KNEE IMPACT TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 065

Test I.D: D071345

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	41	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	4715 to 5782	5,444	Pass
Overall Test Results				Pass


 Laboratory Technician

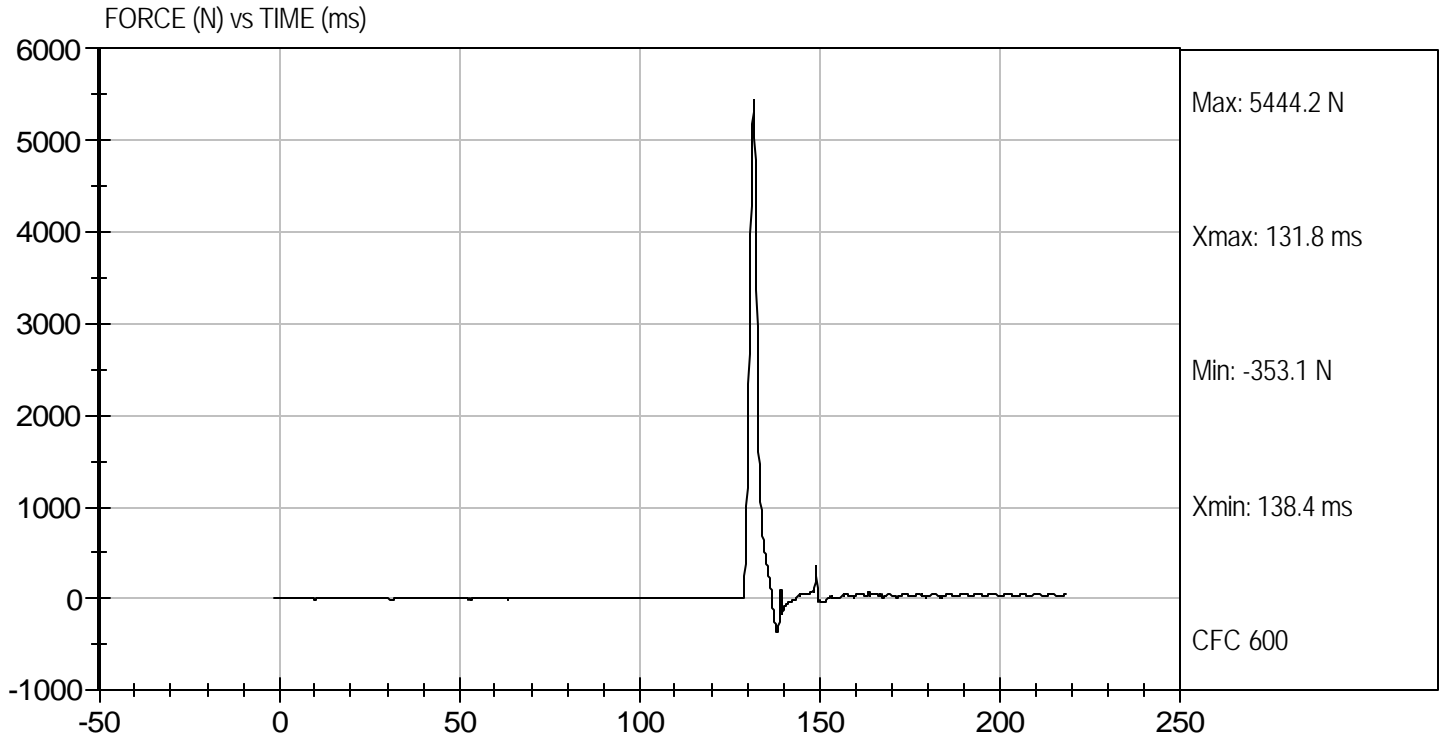
5/15/07
 Test Date


 Approved By



Test Desc: Right Knee
Component ID: D071345

Test Date: 5/15/07
Velocity: 6.91 ft/s, 2.11 m/s



MGA RESEARCH CORPORATION
LEFT KNEE IMPACT TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 065


Test I.D: D071346

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.0	Pass
Laboratory Relative Humidity	%	10 to 70	41	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.07	Pass
Peak Probe Force	Newtons	4715 to 5782	5,164	Pass
Overall Test Results				Pass


 Laboratory Technician

5/15/07

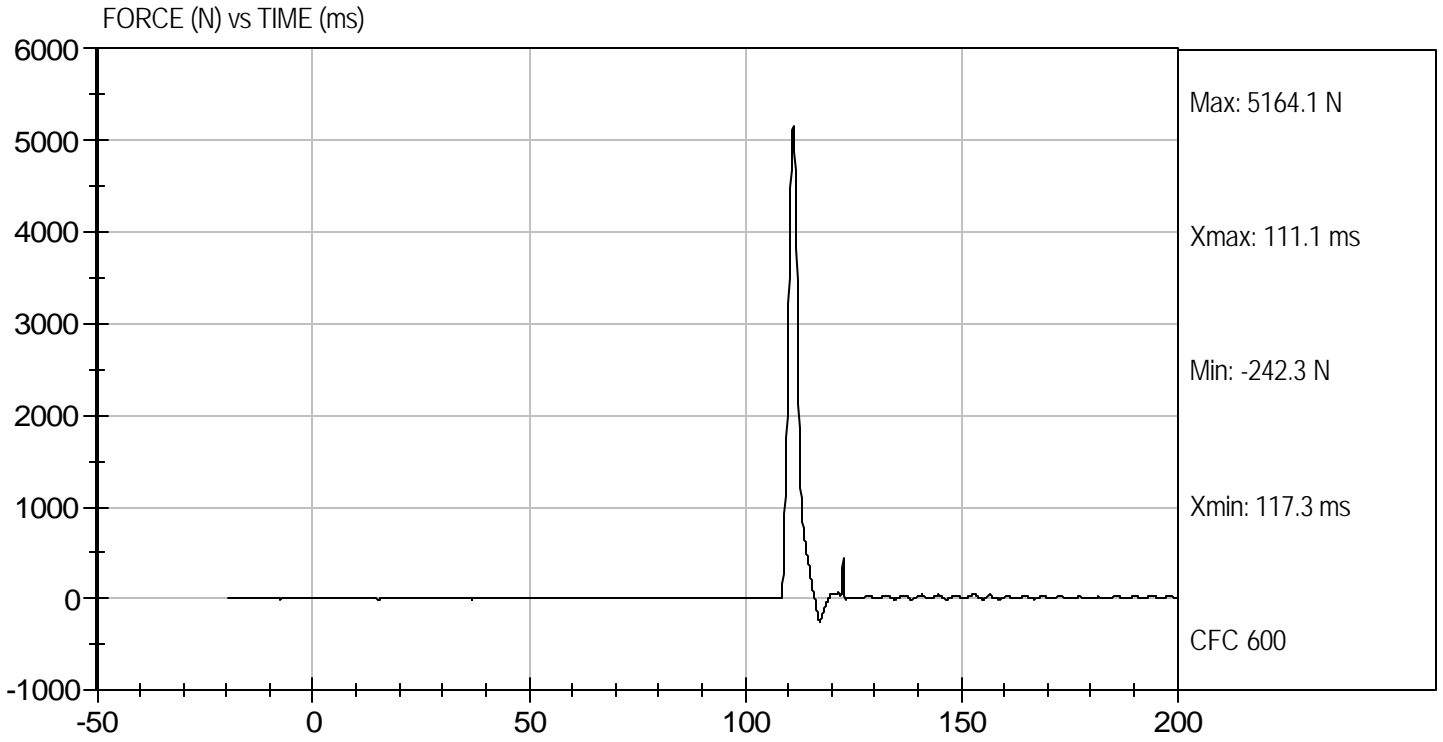
Test Date


 Approved By



Test Desc: Left Knee
Component ID: D071346

Test Date: 5/15/07
Velocity: 6.803 ft/s, 2.07 m/s



MGA RESEARCH CORPORATION
HIP-FEMUR FLEXION TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 065


Test I.D: D071340

Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.6	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	39	39	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	62.0	63.0	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	43	41	Pass
Overall Test Results					Pass


 Laboratory Technician

5/14/07

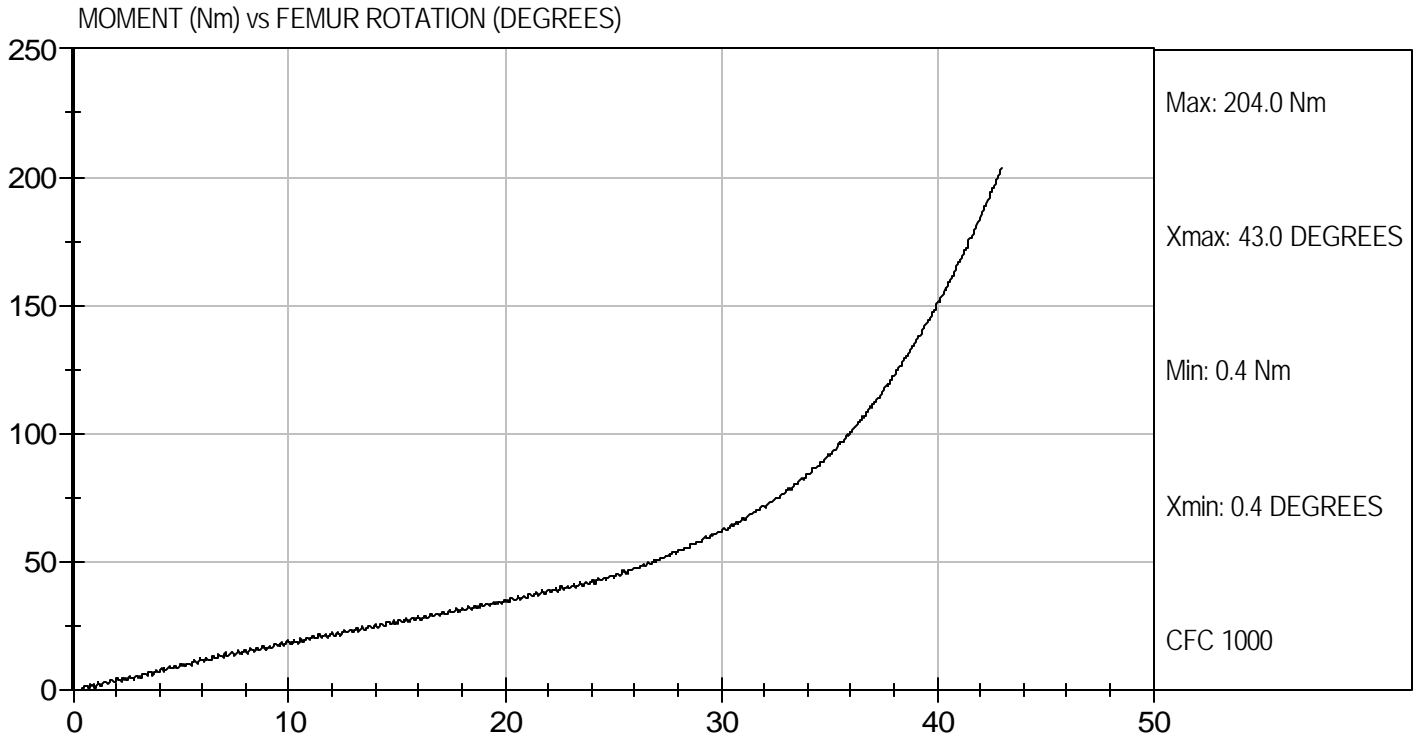
Test Date


 Approved By



Test Desc: Hip Femur Flexion
Component ID: D071349

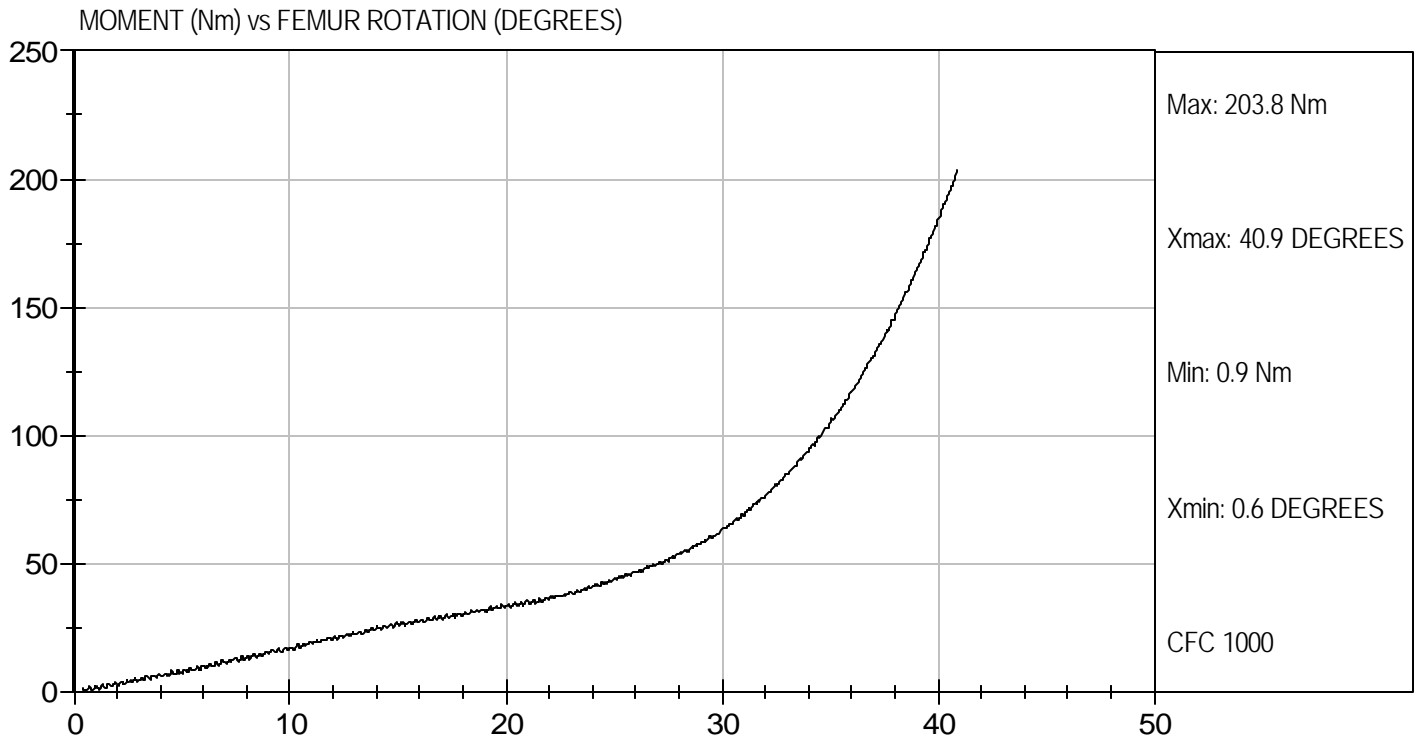
Test Date: 5/14/07
Velocity: 0 ft/s, 0.00 m/s





Test Desc: Hip Femur Flexion
Component ID: D071340

Test Date: 5/14/07
Velocity: 0 ft/s, 0.00 m/s



**MGA RESEARCH CORPORATION
HEAD DROP TEST
HYBRID III 50TH PERCENTILE MALE**

ATD Serial No: 066

Test ID: D071351

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.6	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Peak Resultant Acceleration	G's	225 - 275	261	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	-7.4	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

5/14/07
Test Date

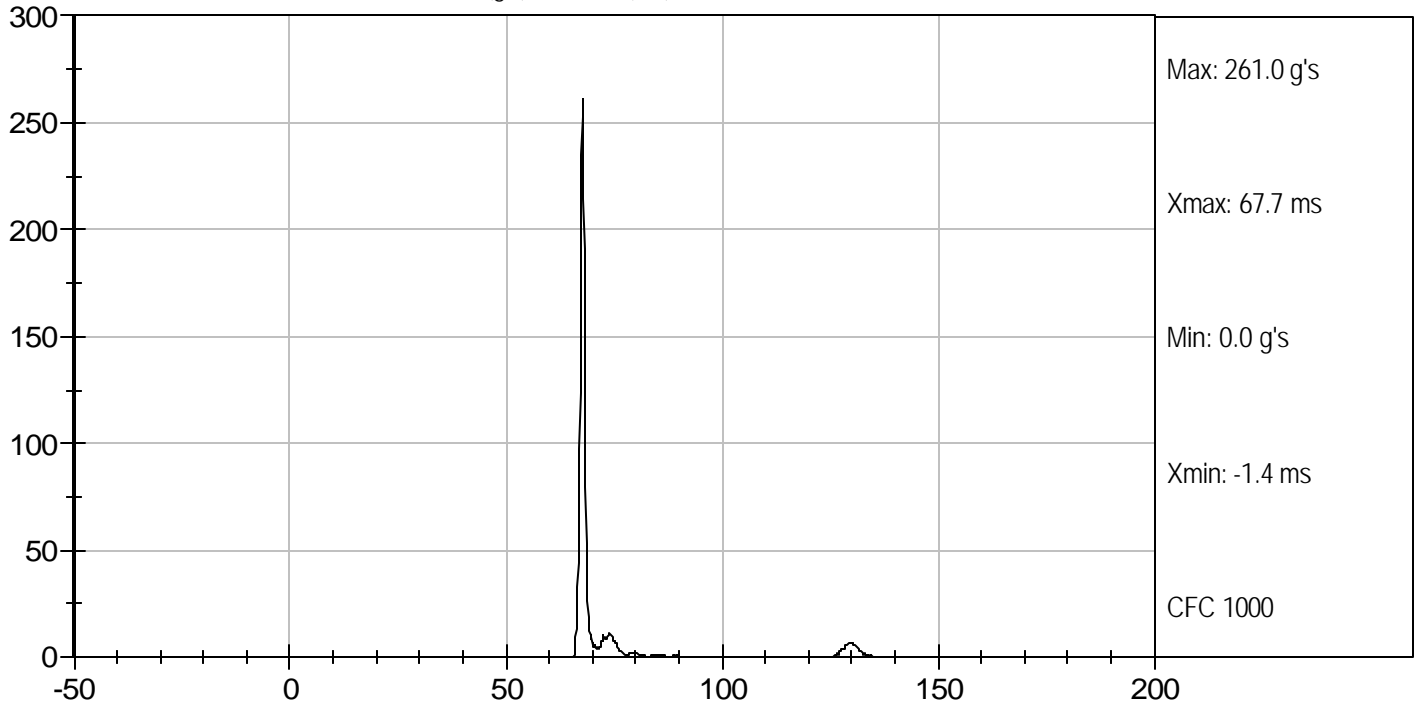
David Winkelbauer
Approved By



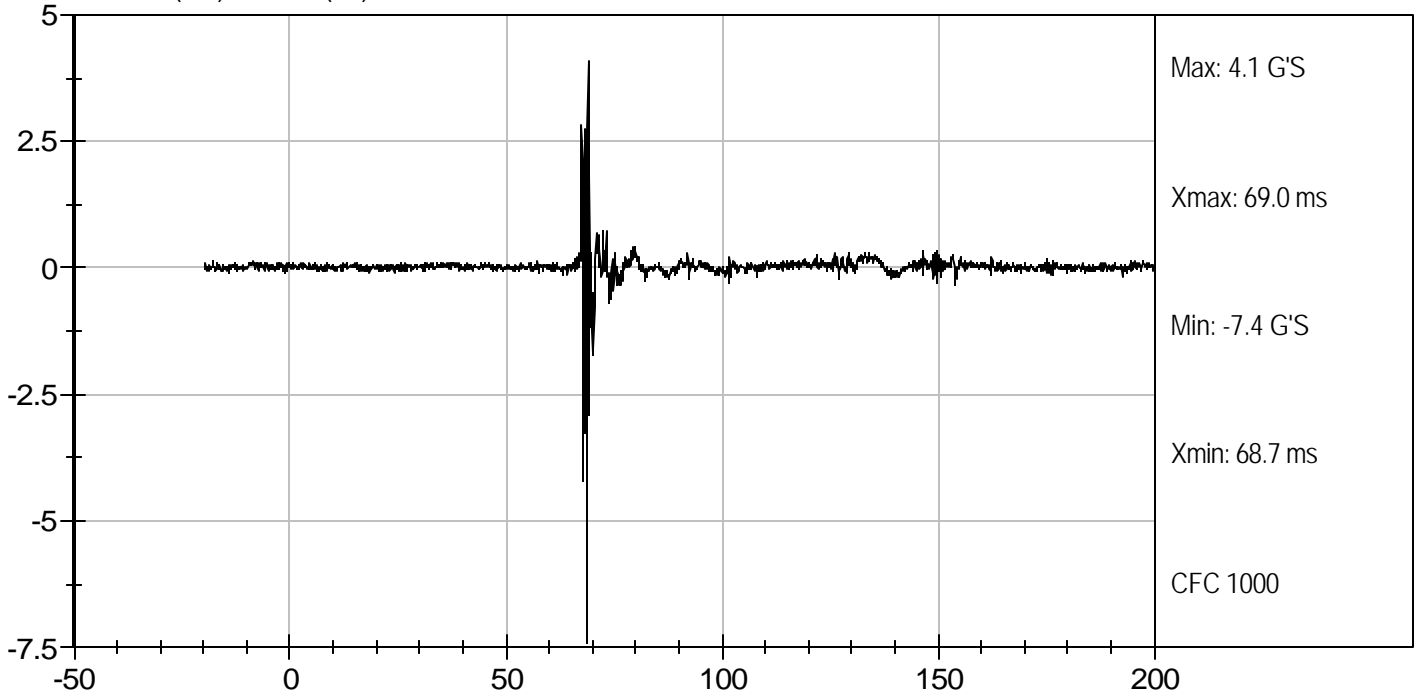
Test Desc: Head Drop
Component ID: D071351

Test Date: 5/14/07
Velocity: 0 ft/s, 0.00 m/s

HEAD RESULTANT ACCELERATION (g's) vs TIME (ms)



HEAD Y (G'S) vs TIME (ms)



**MGA RESEARCH CORPORATION
NECK FLEXION TEST
HYBRID III 50TH PERCENTILE MALE**

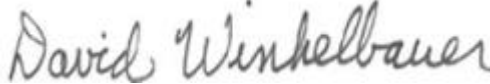
ATD Serial No: 066

Test I.D.: D071352

Tested Parameter	Units	Specification	Result	Pass/Fail	
Laboratory Temperature	deg C	20.6 to 22.2	21.1	Pass	
Laboratory Relative Humidity	%	10 to 70	42	Pass	
Pendulum Velocity	m/s	6.89 to 7.13	6.96	Pass	
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	22.73	Pass
	20 msec	G's	17.60 to 22.60	18.05	Pass
	30 msec	G's	12.50 to 18.50	13.59	Pass
Peak Pendulum Deceleration After 30 msec	G's	<= 29.0	13.65	Pass	
Deceleration Decay Time to Cross 5 G's	msec	34.0 to 42.0	41.3	Pass	
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	74.3	Pass
	Time	msec	57.0 to 64.0	59.3	Pass
"D" Plane Rotation Decay Time To Zero Crossing	msec	113.0 to 128.0	114.2	Pass	
Moment About Occipital Condyle	Maximum	N m	88.1 to 108.5	93.9	Pass
	Time	msec	47.0 to 58.0	52.3	Pass
Positive Moment Decay Time To Zero Crossing	msec	97.0 to 107.0	100.3	Pass	
Overall Test Results				Pass	

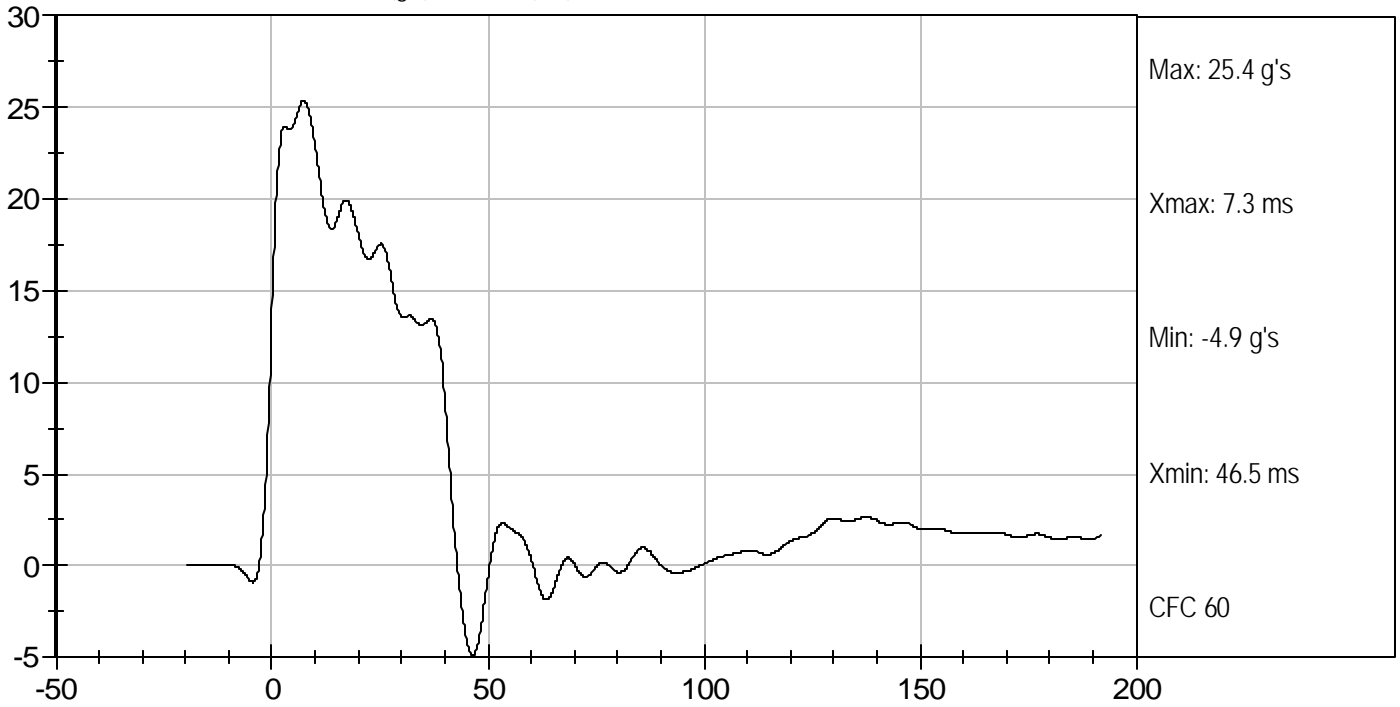

Laboratory Technician

5/15/07
Test Date

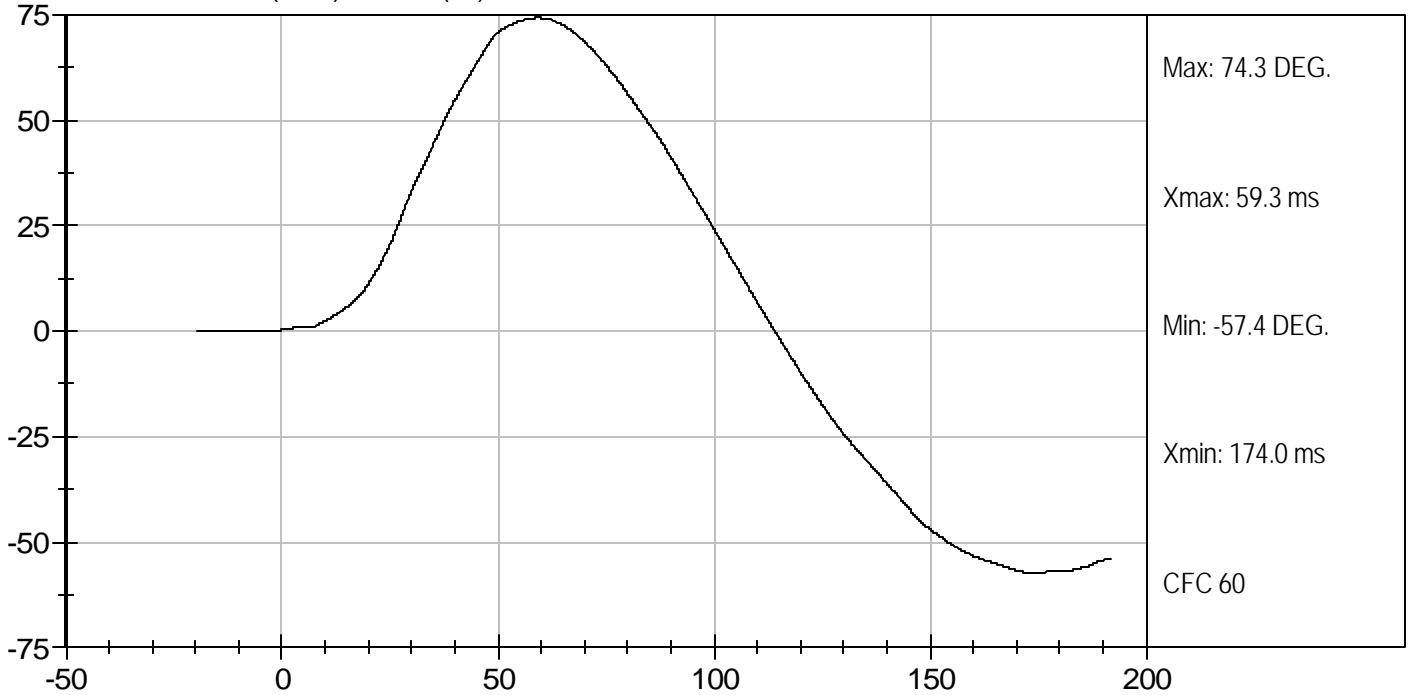

Approved By



PENDULUM DECELERATION (g's) vs TIME (ms)



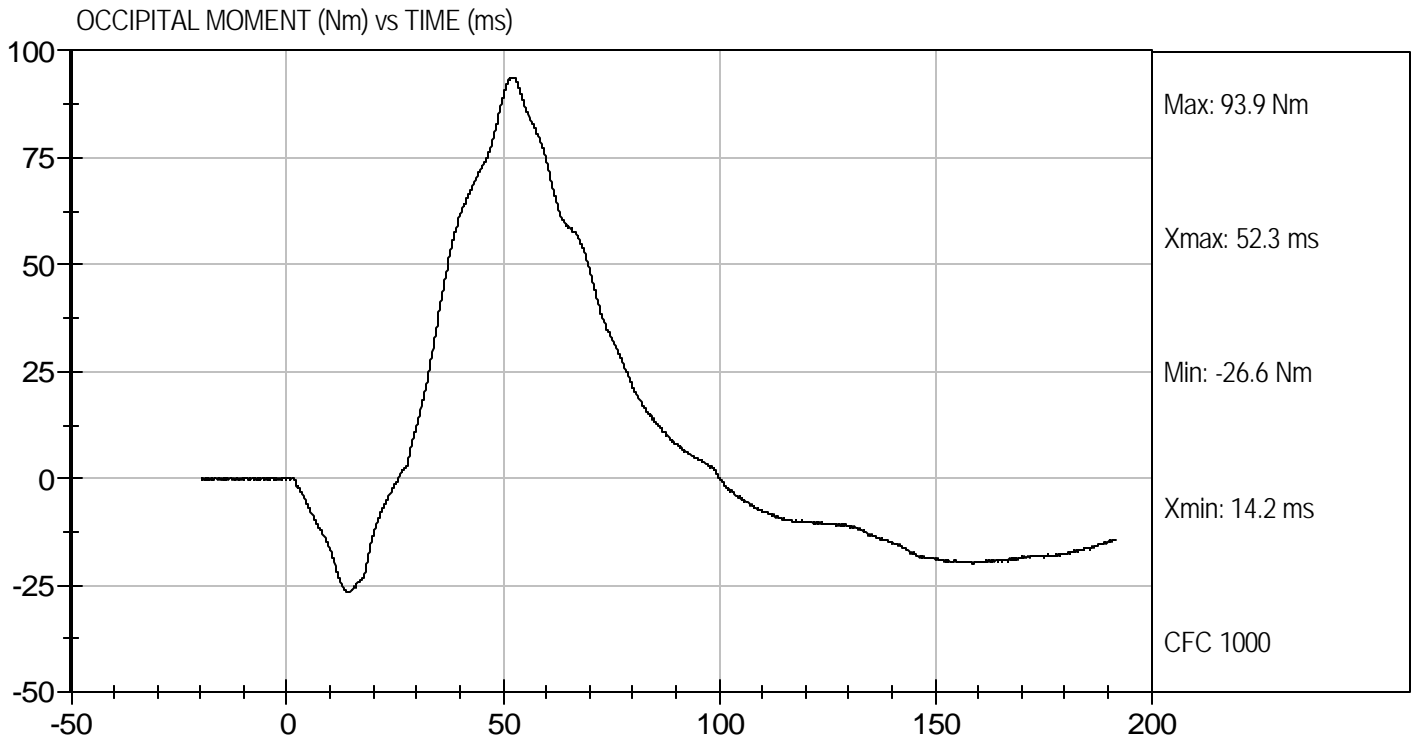
NECK ROTATION (DEG.) vs TIME (ms)





Test Desc: Neck Flexion
Component ID: D071352

Test Date: 5/15/07
Velocity: 22.83 ft/s, 6.96 m/s



**MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 50TH PERCENTILE MALE**


ATD Serial No: 066

Test I.D.: D071353

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	43	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.05	Pass
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	19.12	Pass
	20 msec	G's	14.00 to 19.00	16.06	Pass
	30 msec	G's	11.00 to 16.00	12.73	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 22.0	12.69	Pass
Deceleration Decay Time to Cross 5 G's		msec	38.0 to 46.0	38.2	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	98.9	Pass
	Time	msec	72.0 to 82.0	75.2	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	147.0 to 174.0	155.4	Pass
Moment About Occipital Condyle	Maximum	N m	-52.9 to -79.9	-61.1	Pass
	Time	msec	65.0 to 79.0	71.9	Pass
Negative Moment Decay Time To Zero Crossing		msec	120.0 to 148.0	147.0	Pass
Overall Test Results					Pass

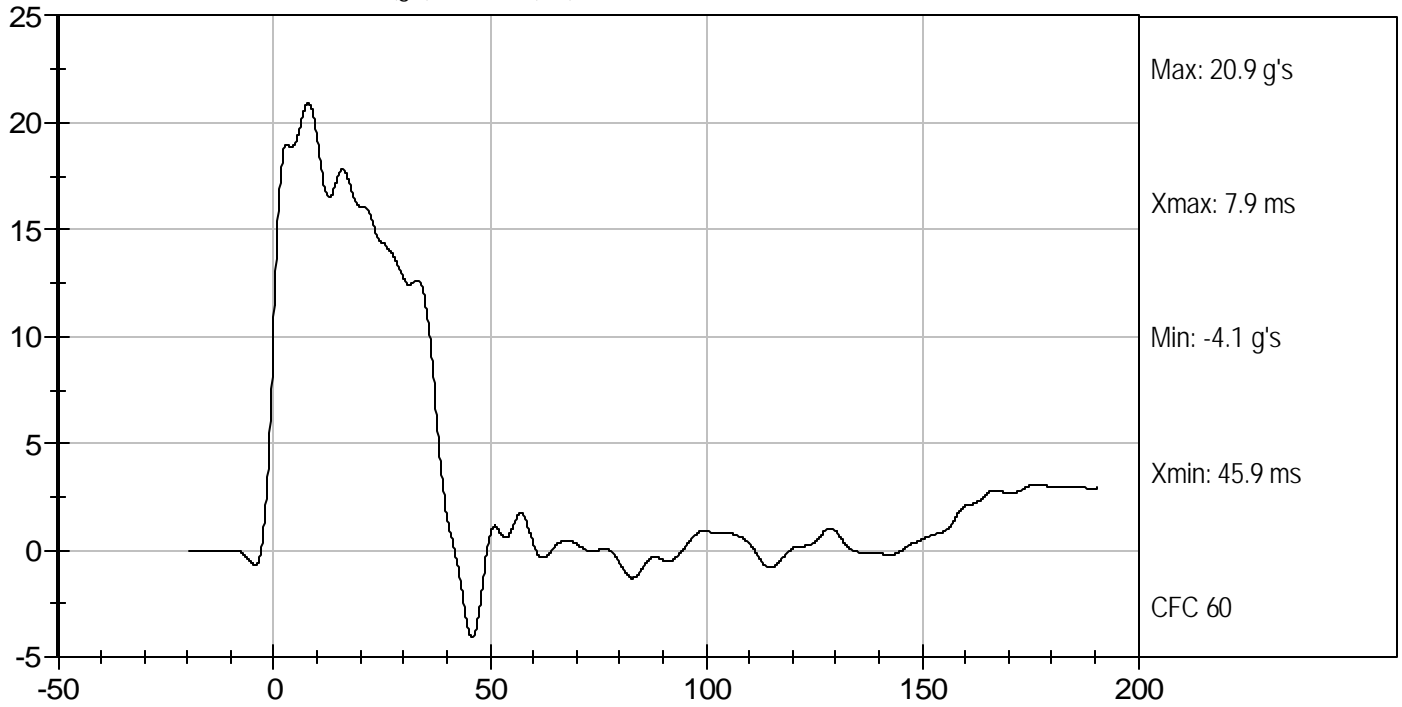

Laboratory Technician

5/15/07
Test Date

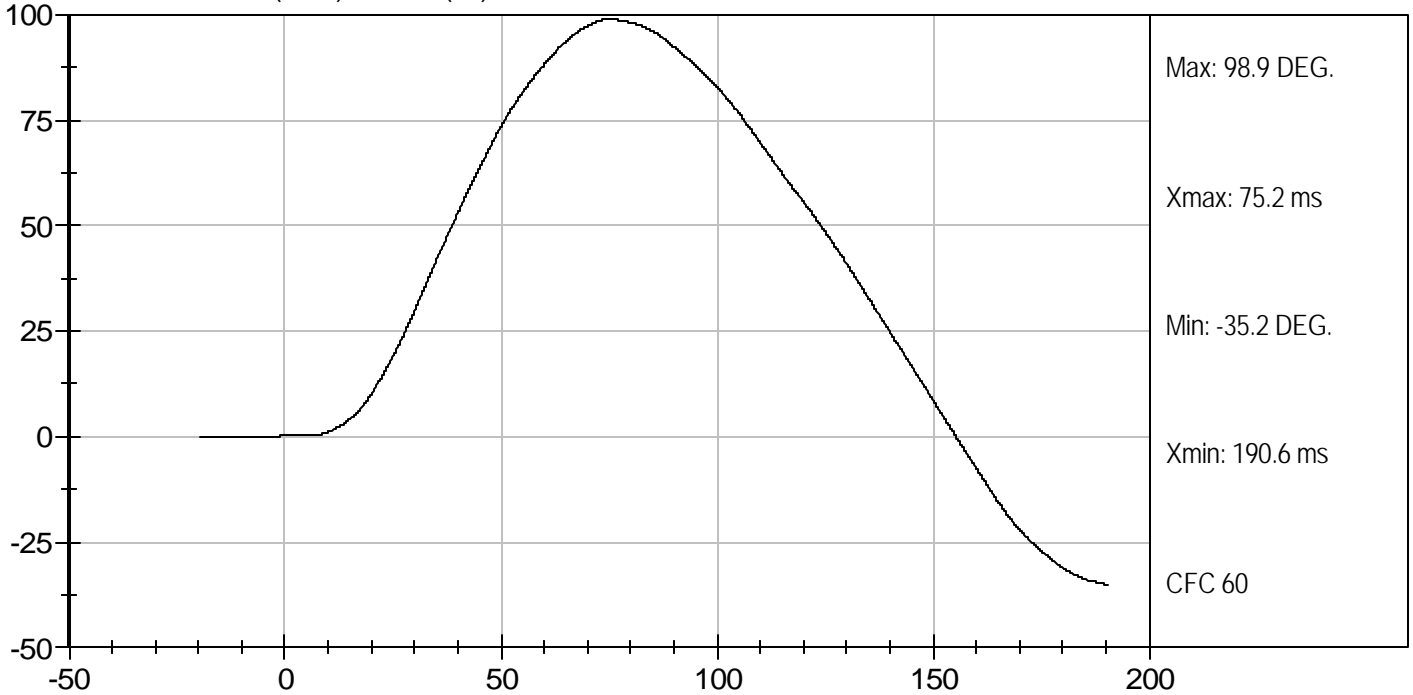

Approved By



PENDULUM DECELERATION (g's) vs TIME (ms)



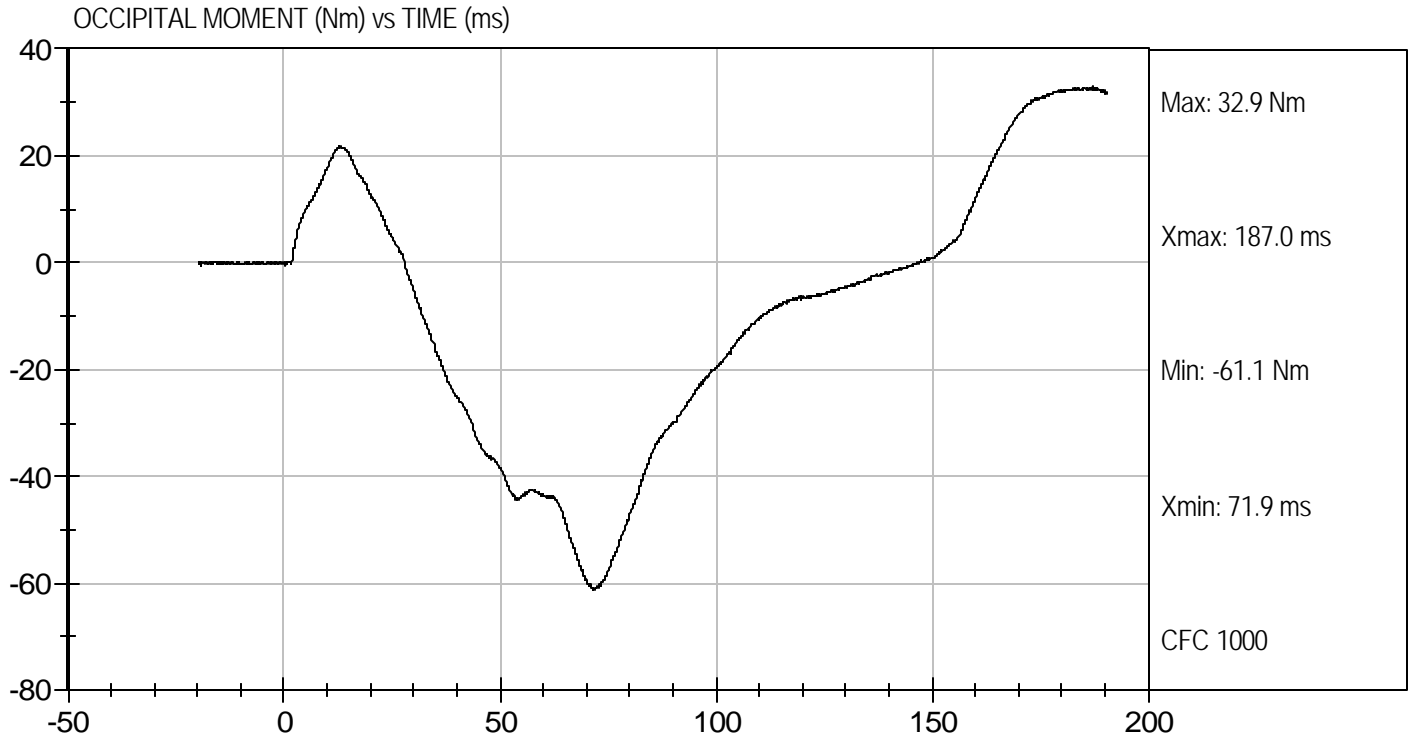
NECK ROTATION (DEG.) vs TIME (ms)





Test Desc: Neck Extension
Component ID: D071353

Test Date: 5/15/07
Velocity: 19.84 ft/s, 6.05 m/s



**MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 50TH PERCENTILE MALE**


ATD Serial No: 066

Test I.D.: D071354

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Probe Velocity	m/s	6.58 to 6.82	6.68	Pass
Peak Probe Force	N	5159 to 5893	5,450	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.49	Pass
Internal Hysteresis	%	69 to 85	69	Pass
Overall Test Results				Pass


Laboratory Technician

5/16/07
Test Date

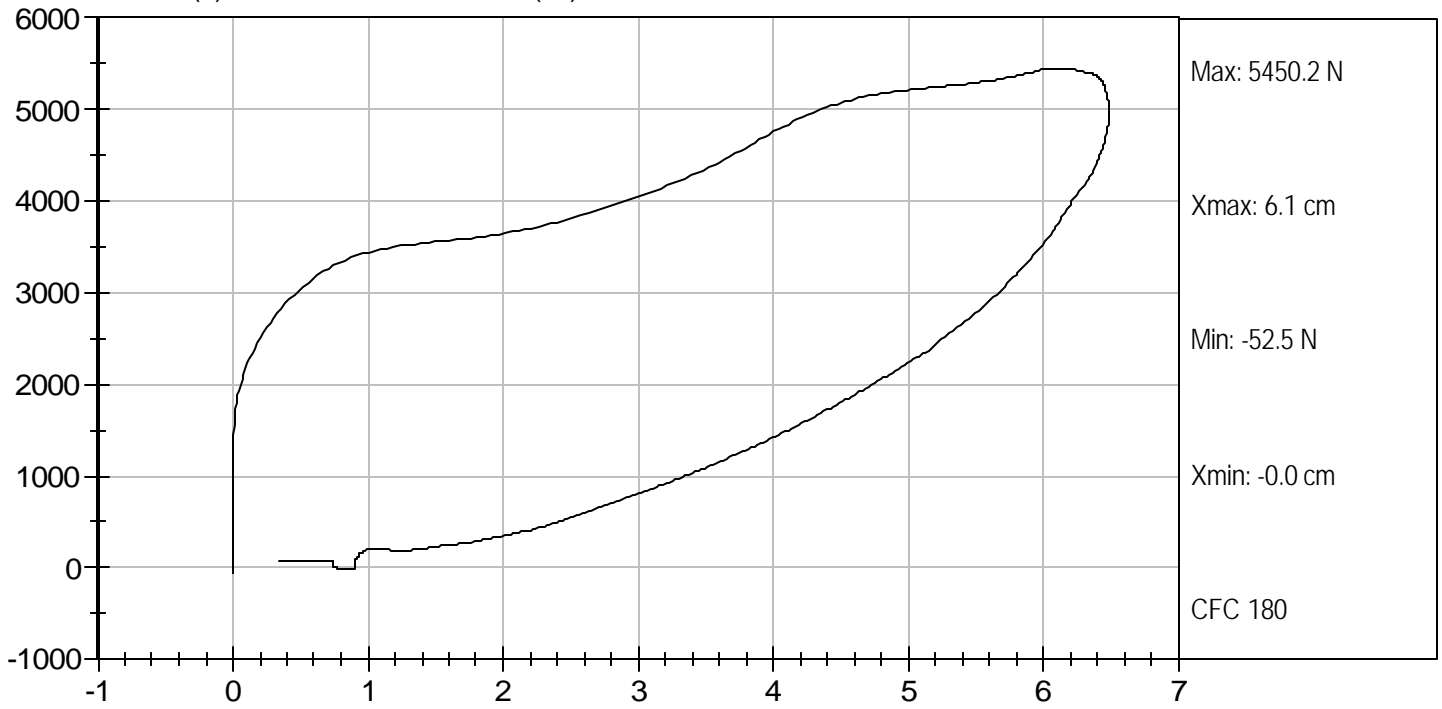

Approved By



Test Desc: Thorax Impact
Component ID: D071354

Test Date: 5/16/07
Velocity: 21.92 ft/s, 6.68 m/s

FORCE (N) vs CHEST DISPLACEMENT (cm)



MGA RESEARCH CORPORATION
RIGHT KNEE IMPACT TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 066

Test I.D.: D071355

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.0	Pass
Laboratory Relative Humidity	%	10 to 70	41	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	4,926	Pass
Overall Test Results				Pass


 Laboratory Technician

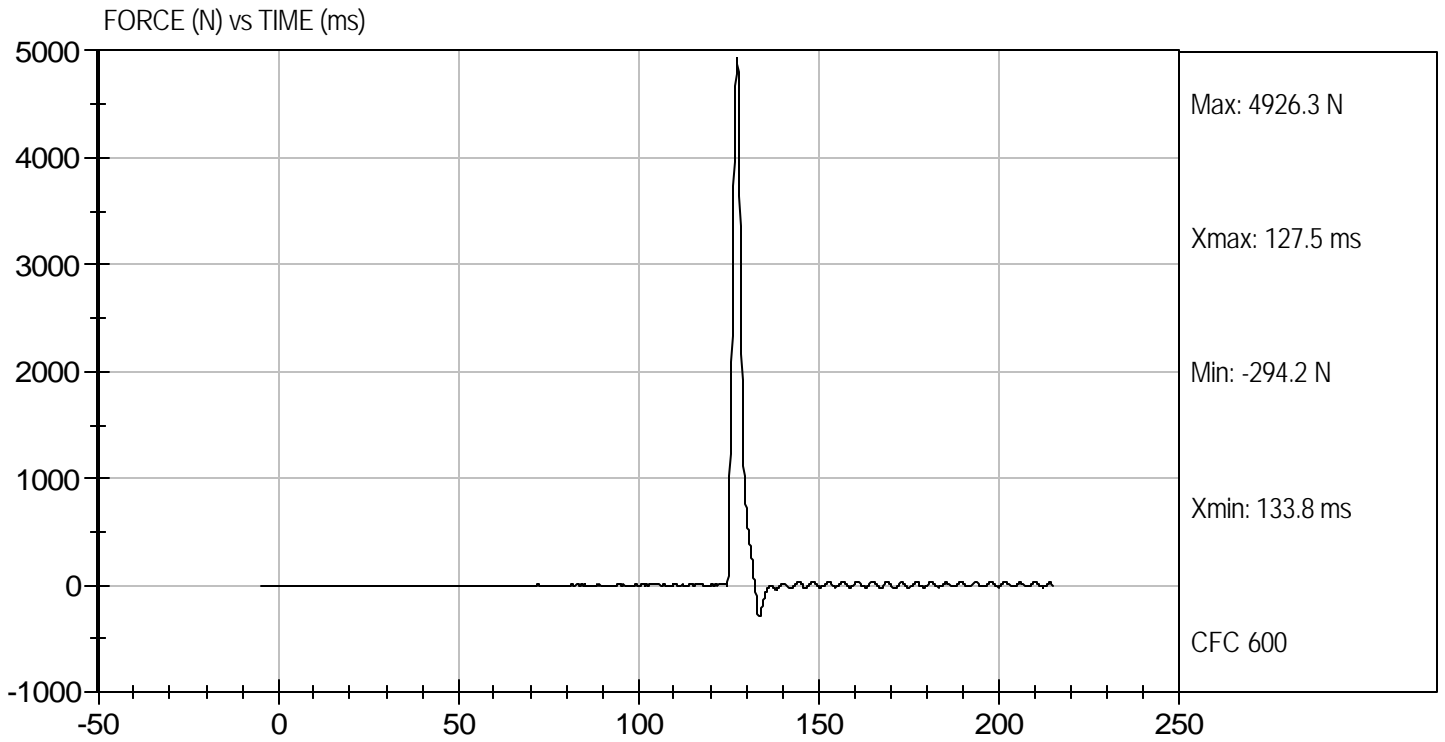
5/15/07
 Test Date


 Approved By



Test Desc: Right Knee
Component ID: D071355

Test Date: 5/15/07
Velocity: 6.83 ft/s, 2.08 m/s



MGA RESEARCH CORPORATION
LEFT KNEE IMPACT TEST
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 066

Test I.D: D071356

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	4,838	Pass
Overall Test Results				Pass


 Laboratory Technician

5/15/07

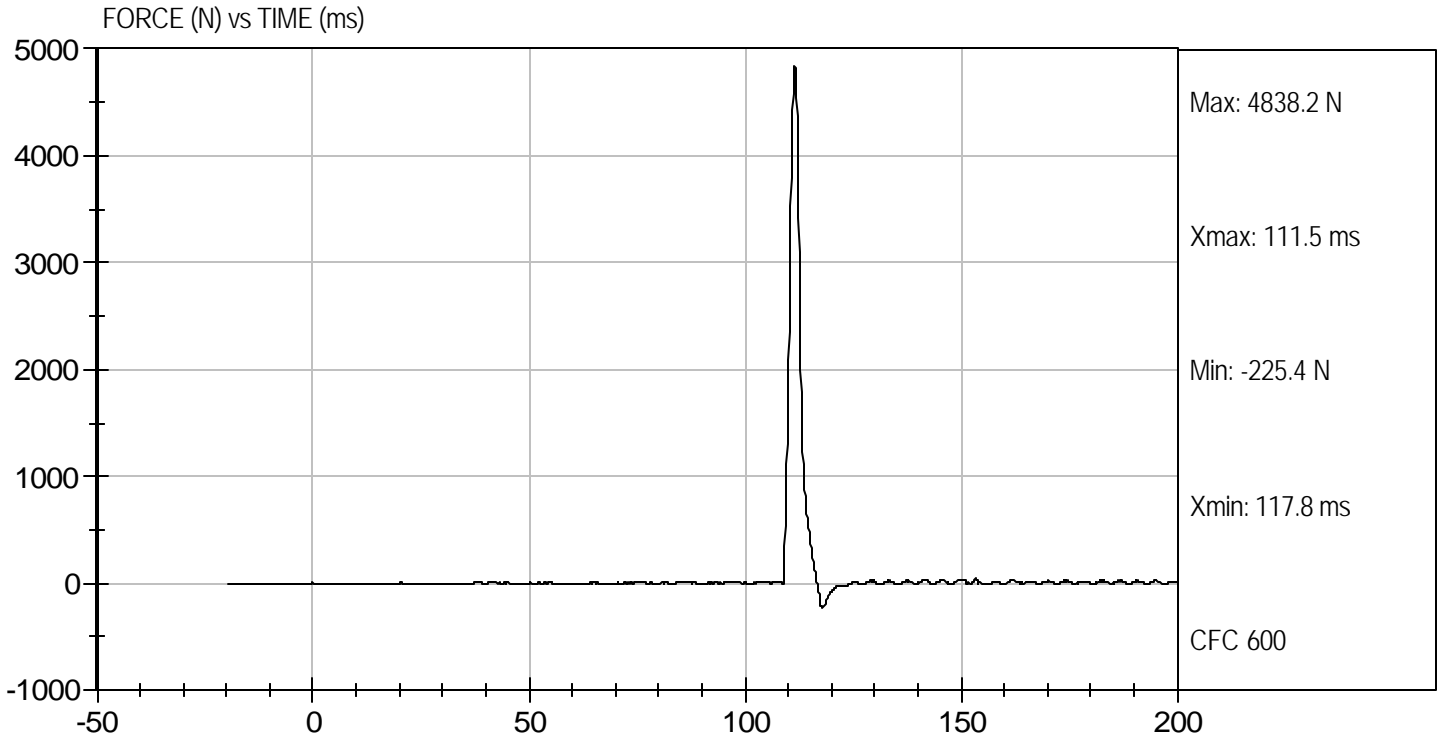
Test Date


 Approved By



Test Desc: Left Knee
Component ID: D071356

Test Date: 5/15/07
Velocity: 6.83 ft/s, 2.08 m/s



MGA RESEARCH CORPORATION
HIP-FEMUR FLEXION TEST
HYBRID III 50TH PERCENTILE MALE

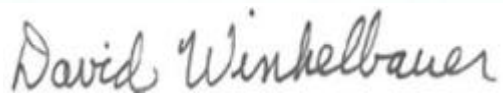
ATD Serial No: 066

Test I.D: D071350

Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.9	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	37	37	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	62.4	56.1	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	42	42	Pass
Overall Test Results					Pass


 Laboratory Technician

5/14/07
 Test Date

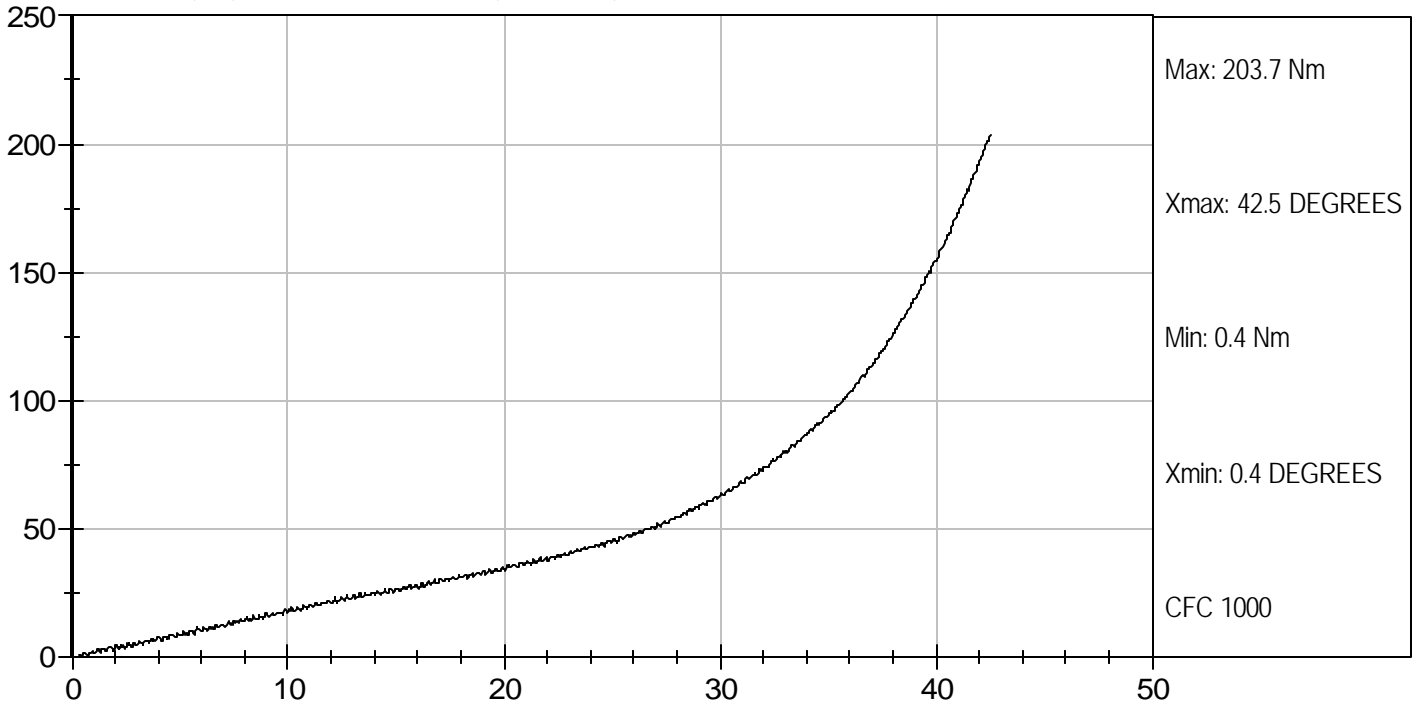

 Approved By



Test Desc: Hip Femur Flexion
Component ID: D071359

Test Date: 5/14/07
Velocity: 0 ft/s, 0.00 m/s

MOMENT (Nm) vs FEMUR ROTATION (DEGREES)

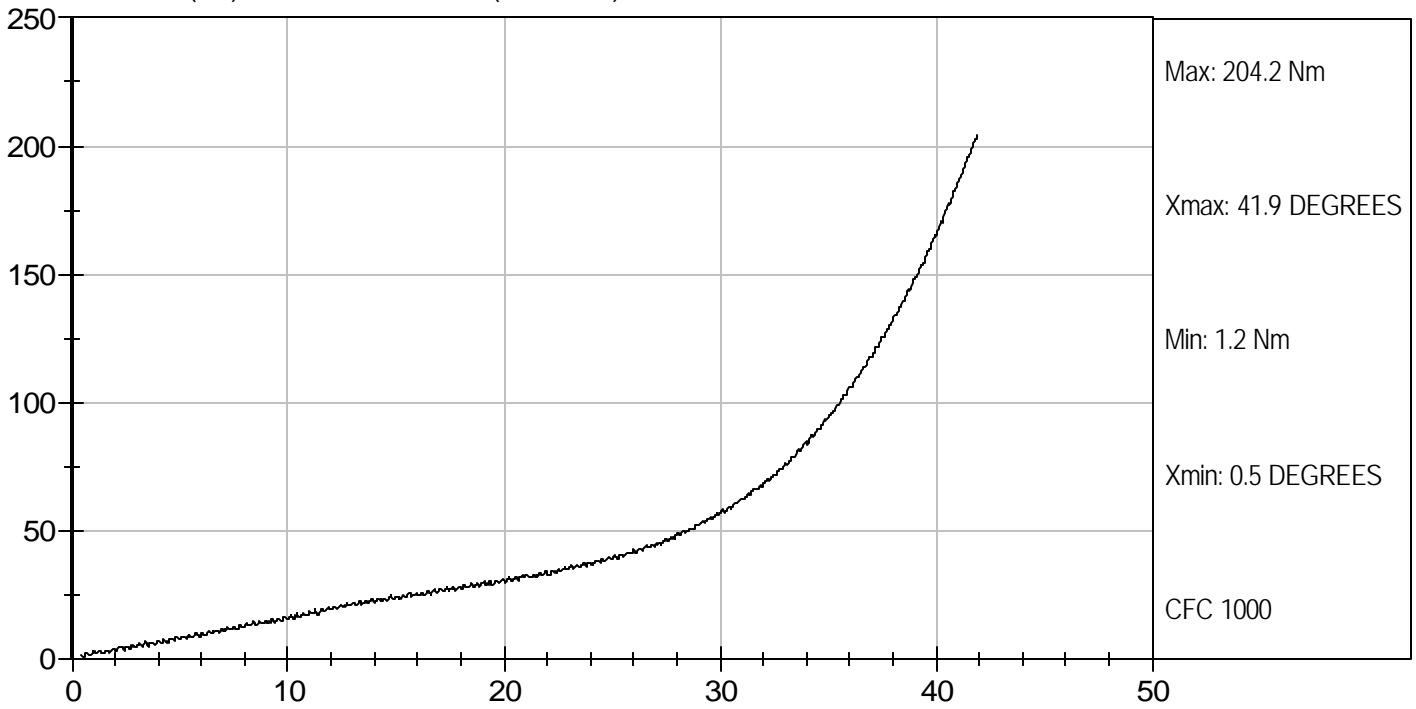




Test Desc: Hip Femur Flexion
Component ID: D071350

Test Date: 5/14/07
Velocity: 0 ft/s, 0.00 m/s

MOMENT (Nm) vs FEMUR ROTATION (DEGREES)



APPENDIX D
CHILD DUMMY DATA

SUMMARY OF TEST

Measurement Description	Units	Threshold	P3 ATD	P4 ATD
Head Injury Criteria (HIC36)	N/A	N/A	788	991
Head Injury Criteria (HIC15)	N/A	390	595	594
Max. Thorax Accel. (3msec Clip)	G's	50	52	57

Both child dummies were instrumented with head, chest, and upper six axial neck force and moment sensors.

The right rear (Position 3) child dummy (S/N 093) and left rear (Position 4) child dummy (S/N 090) were calibrated previous to this test. Child dummy certification information can be found in this Appendix.

Positions 3 and 4 were rear facing and used the vehicle LATCH attachment.

TEST VEHICLE WEIGHTS

	Units	As Tested (ATW) (Axle)		
		Front	Rear	Total
Left	kg	545.7	427.3	
Right	kg	526.2	415.9	
Ratio	%	56.0	44.0	
Totals	kg	1071.9	843.2	1915.1

As tested weight of vehicle includes two ATDs, two CRABIs with CRS, cargo, equipment and instrumentation.

TEST NOTES

There was no valid data collected for:
LRP Child Seat Y after 100 msec.

TEST DUMMY INFORMATION

Description	Position 3 CRS	Position 4 CRS
Dummy Type / Serial No.	12 month old CRABI / 093	12 month old CRABI / 090
Number of Data Channels	12	12
Restraint System	Graco Snugride (Rear Facing)	Compass I-410 (Rear Facing)

POST TEST SEAT DATA

Location	Seat Movement (mm)	Seat Back Failure
P1 (Left Front)	0	None
P2 (Right Front)	0	None
P3 (Right Rear)	0	None
P4 (Left Rear)	0	None

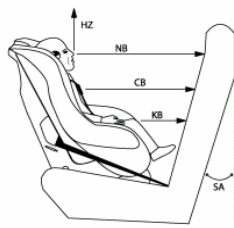
VISIBLE DUMMY CONTACT POINTS

Description	Position 3 CRS	Position 4 CRS
Head Contact	Back of head to seatback	Back of head to seatback
Upper Torso Contact	None	None
Lower Torso Contact	None	None
Left Foot Contact	Foot to vehicle rear seat	Foot to vehicle rear seat
Right Foot Contact	Foot to vehicle rear seat	Foot to vehicle rear seat

CHILD DUMMY POSITIONING IN VEHICLE

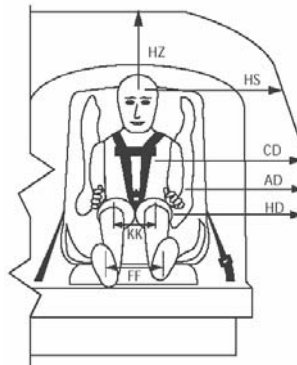
Child Restraint System (Position 3)	Graco Snugride (Rear Facing)
NHTSA No.	M80301

Dummy Measurements for Rear-facing CRS Passengers



X—Z View

HZ	-	Head to Roof
NB	-	Nose to Front of Back Seat
CB	-	Chest to Front of Back Seat
KB	-	Knee to Front of Back Seat
SA	-	Seat Back Angle



Y—Z View

X—Z View

HZ	-	Head to Roof
HS	-	Head to Side Window
CD	-	Chest to Door
AD	-	Arm to Door
HD	-	H-Point to Door
KK	-	Knee to Knee
FF	-	Foot to Foot
NB	-	Nose to Front Seat Back
CB	-	Chest to Front Seat Back
KB	-	Knee to Front Seat Back
TB	-	Toe to Front Seat Back
SA	-	Seat Back Angle

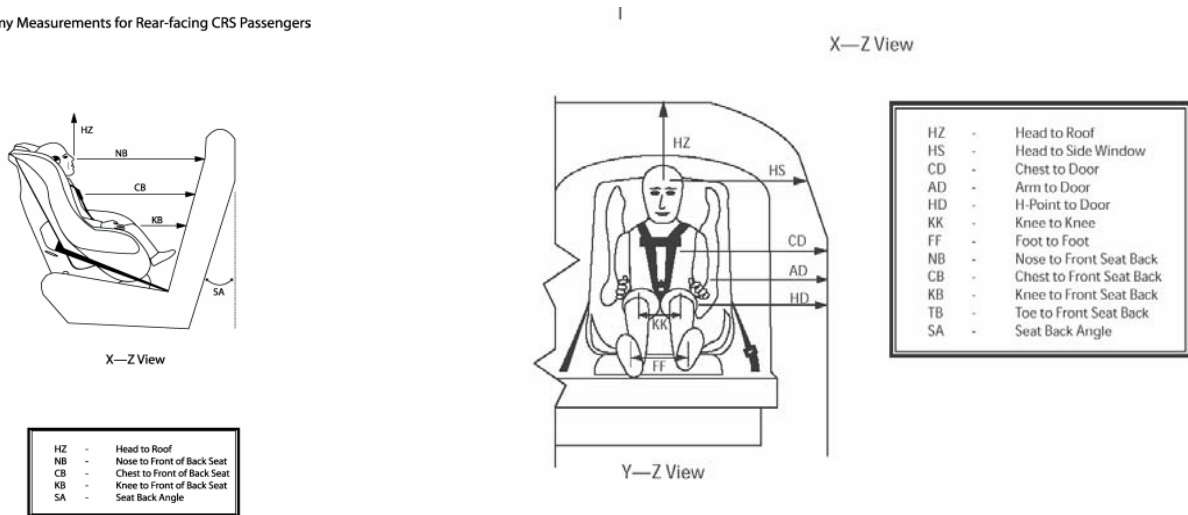
Measurement	Pre-Test (mm)	Post-Test (mm)
	P3 CRS (093)	P3 CRS (093)
SA (deg)	7.0	
HS	485	460
CD	353	357
AD	248	245
HD	276	290
HZ	417	410
NB	509	542
CB	415	451
KK	103	118
FF	105	130
KB - LEFT	195	250
KB - RIGHT	195	245
TB - LEFT	40	111
TB - RIGHT	41	143

All dimensions in mm (unless noted)
P3 – Right Rear Passenger (Rear Facing)

CHILD DUMMY POSITIONING IN VEHICLE

Child Restraint System (Position 4)	Compass I-410 (Rear Facing)
NHTSA No.	M80301

Dummy Measurements for Rear-facing CRS Passengers



Measurement	Pre-Test (mm)	Post-Test (mm)
	P4 CRS (090)	P4 CRS (090)
SA (deg)	7.0	
HS	487	510
CD	374	413
AD	255	243
HD	283	281
HZ	365	369
NB	467	506
CB	388	415
KK	95	101
FF	100	113
KB - LEFT	191	220
KB - RIGHT	191	230
TB - LEFT	26	50
TB - RIGHT	27	89

All dimensions in mm (unless noted)
 P4 – Left Rear Passenger (Rear facing)

CRS PERFORMANCE DATA

Child Restraint System (Position 3)	Graco Snugride (Rear Facing)
Child Restraint System (Position 4)	Compass I-410 (Rear Facing)
NHTSA No.	M80301

POSITION 3 CRS POST-TEST INSPECTION

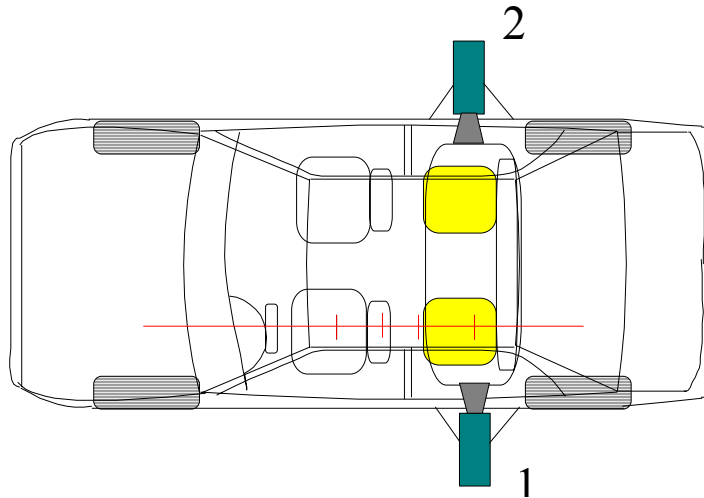
Location	Damage	Remarks
Upper Tether Strap		
Upper Tether Buckle		
Upper Tether Hook		
Vehicle Upper Tether Anchor	None	
Lower Anchor Strap	None	
Lower Anchor Buckle		
Lower Anchor Hooks	None	
Vehicle Lower CRS Anchors	None	
Five Point Harness Connections	None	
Cracks on CRS	None	
Fabric Tears on CRS	None	
Vehicle Seat Structure	None	
Vehicle Seat Fabric Tears	None	
Child Dummy	None	CRABI 12 Month Old

POSITION 4 CRS POST-TEST INSPECTION

Location	Damage	Remarks
Upper Tether Strap		
Upper Tether Buckle		
Upper Tether Hook		
Vehicle Upper Tether Anchor	None	
Lower Anchor Strap	None	
Lower Anchor Buckle	None	
Lower Anchor Hooks		
Vehicle Lower CRS Anchors	None	
Five Point Harness Connections	None	
Cracks on CRS	None	
Fabric Tears on CRS	None	
Vehicle Seat Structure	None	
Vehicle Seat Fabric Tears	None	
Child Dummy	None	CRABI 12 Month Old

CRS CAMERA DATA

Child Restraint System (Position 3)	Graco Snugride (Rear Facing)
Child Restraint System (Position 4)	Compass I-410 (Rear Facing)
NHTSA No.	M80301



No.	Camera View	Location (mm) *			Angle (deg)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Left Side CRS Lateral View					8	1000
2	Right Side CRS Lateral View					8	1000

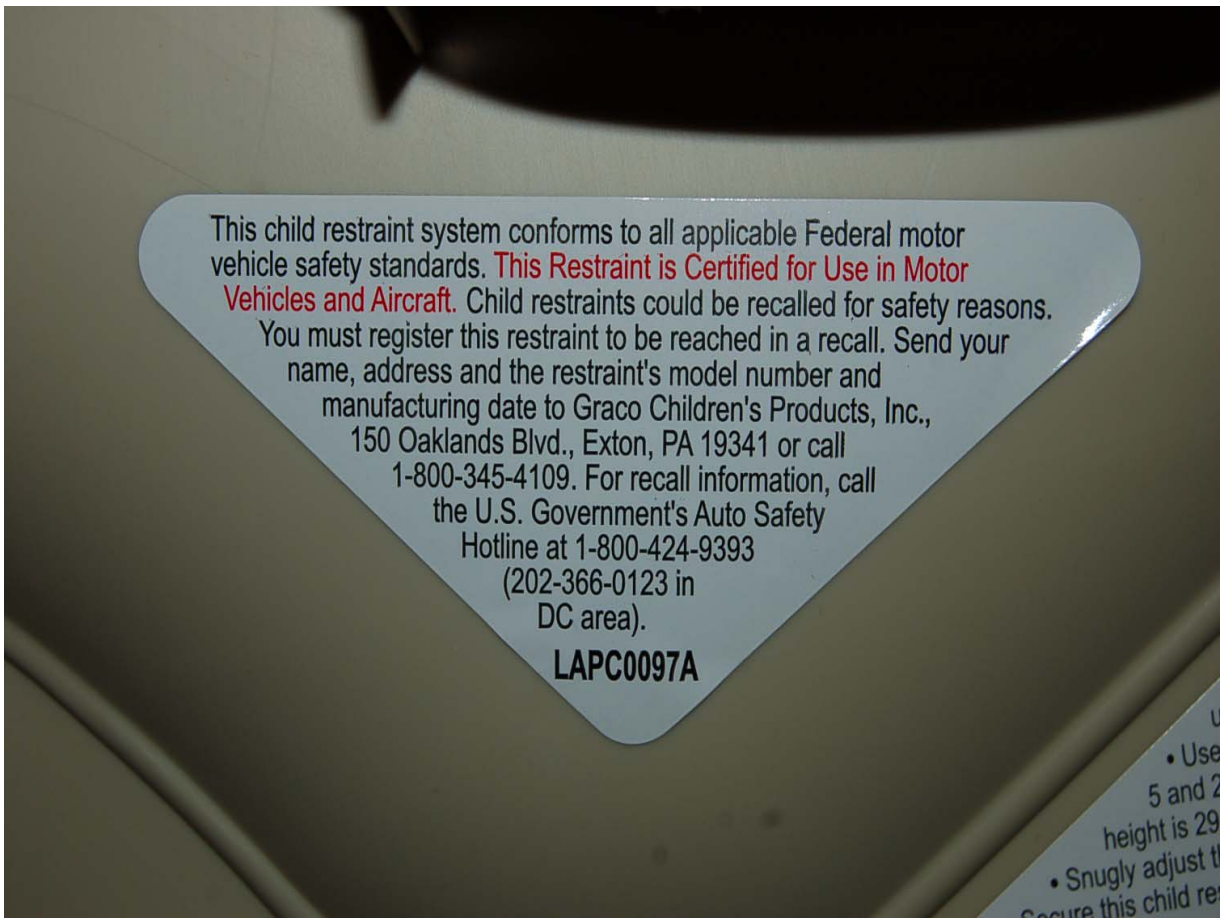
*COORDINATES:

- +X = film plane rearward of barrier
- +Y = film plane to right of monorail centerline
- +Z = film plane above ground level

PHOTOGRAPHS

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Close-up View of Position 3 CRS Label



Pre-Test Front View of Position 3 CRS



Post-Test Front View of Position 3 CRS



Pre-Test Rear View of Position 3 CRS



Post-Test Rear View of Position 3 CRS



Pre-Test Left Side View of Position 3 CRS



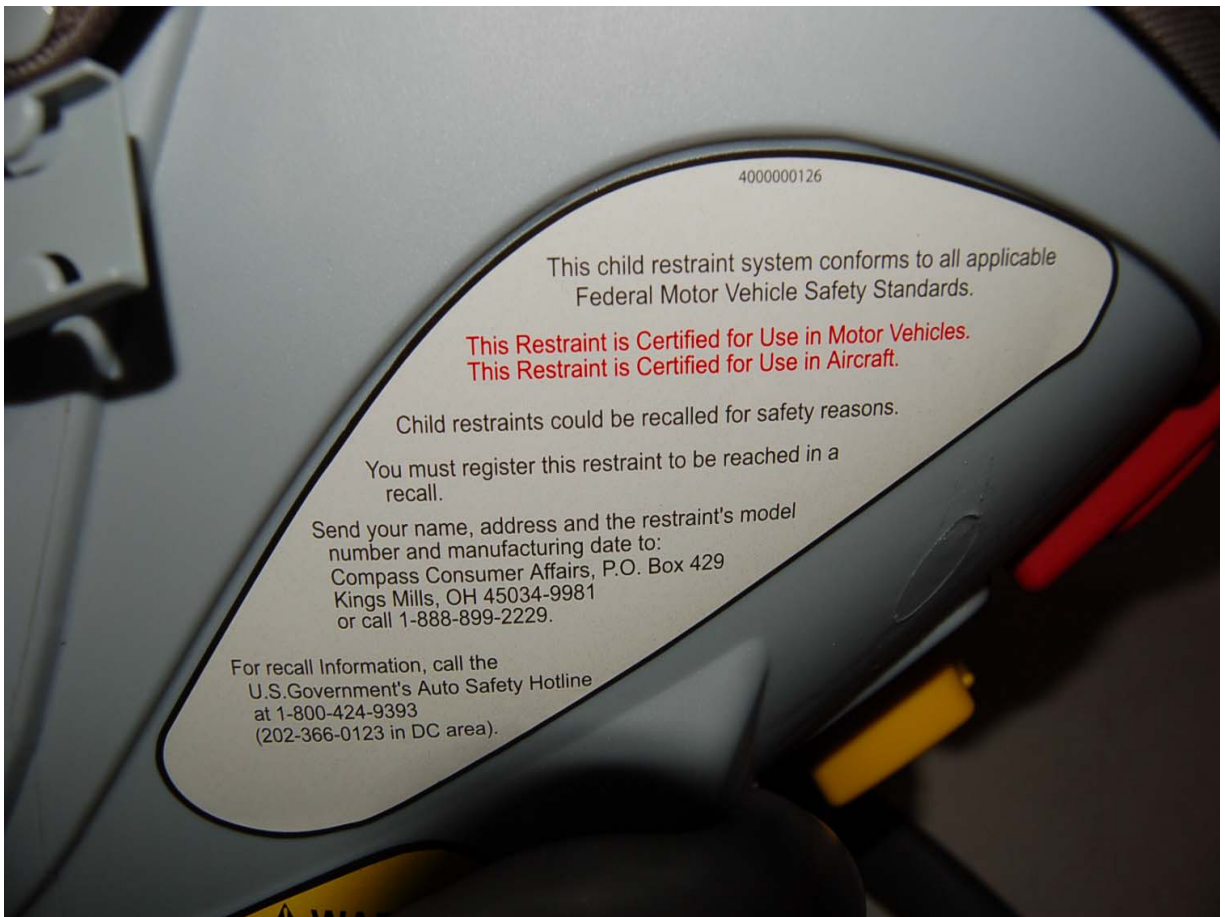
Post-Test Left Side View of Position 3 CRS



Pre-Test Right Side View of Position 3 CRS



Post-Test Right Side View of Position 3 CRS



Close-up View of Position 4 CRS Label



Pre-Test Front View of Position 4 CRS



Post-Test Front View of Position 4 CRS



Pre-Test Rear View of Position 4 CRS



Post-Test Rear View of Position 4 CRS



Pre-Test Left Side View of Position 4 CRS



Post-Test Left Side View of Position 4 CRS



Pre-Test Right Side View of Position 4 CRS



Post-Test Right Side View of Position 4 CRS



Pre-Test Position 3 Left Side View



Post-Test Position 3 Left Side View



Pre-Test Position 4 Left Side View



Post-Test Position 4 Left Side View



Pre-Test Position 3 Right Side View



Post-Test Position 3 Right Side View



Pre-Test Position 4 Right Side View



Post-Test Position 4 Right Side View



Post-Test Position 3 & 4 Feet Contact



Post-Test Position 4 Head Contact

CHILD DUMMY RESPONSE DATA TRACES

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The following dummy response data can be found in the R&D section of the NHTSA website at www.nhtsa.dot.gov

LRP Child Upper Neck Force X vs. Time

LRP Child Upper Neck Force Y vs. Time

LRP Child Upper Neck Force Z vs. Time

LRP Child Upper Neck Force Resultant vs. Time

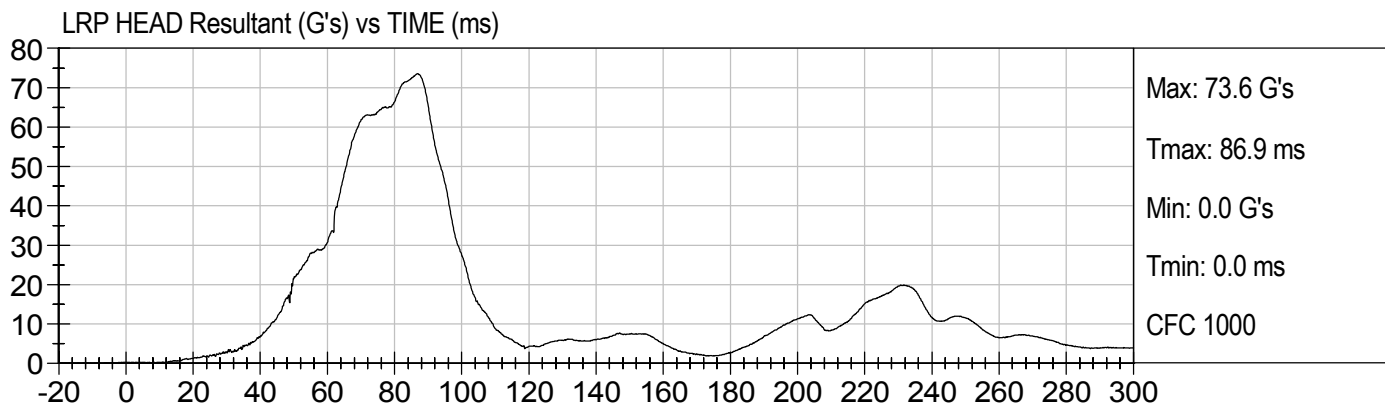
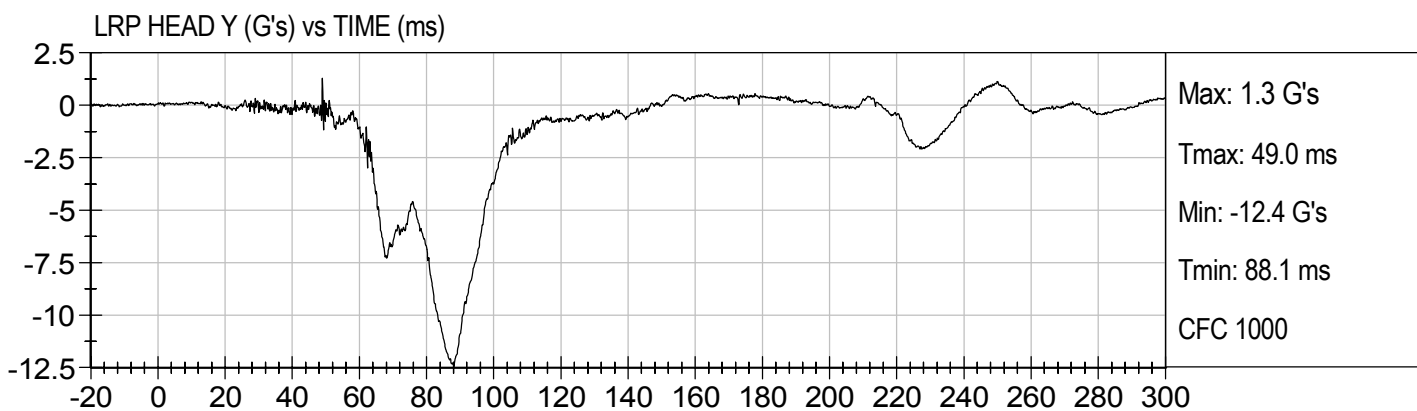
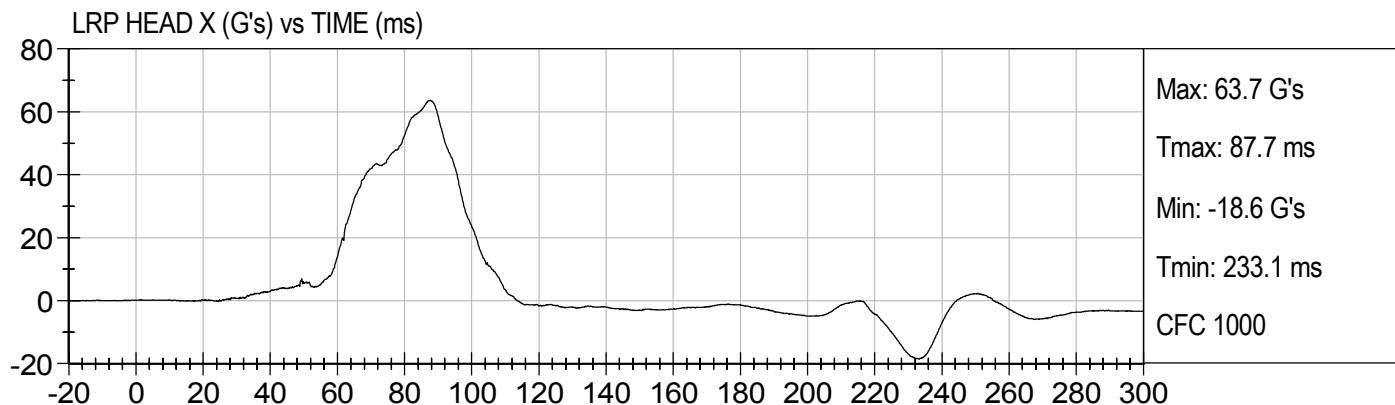
LRP Child Upper Neck Moment X vs. Time

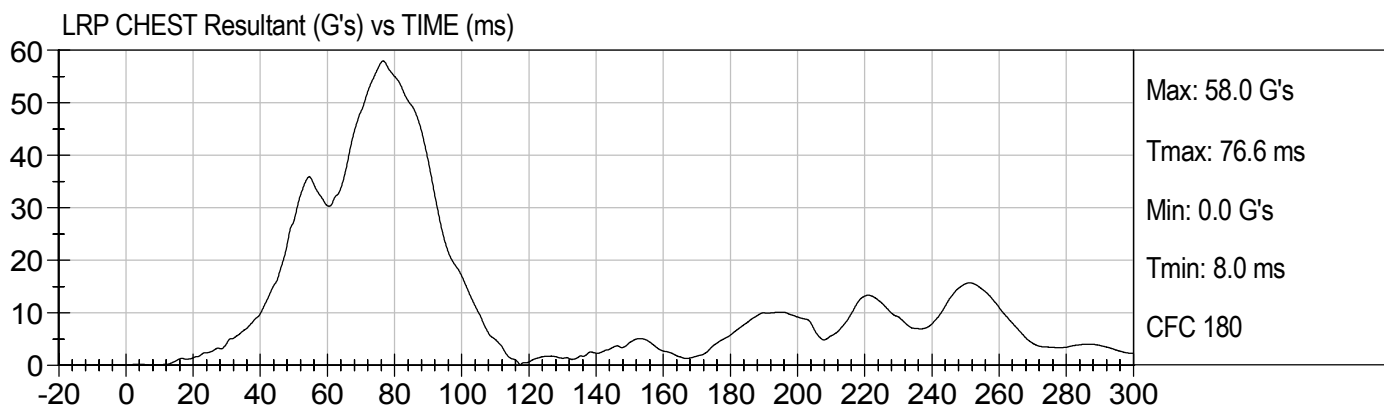
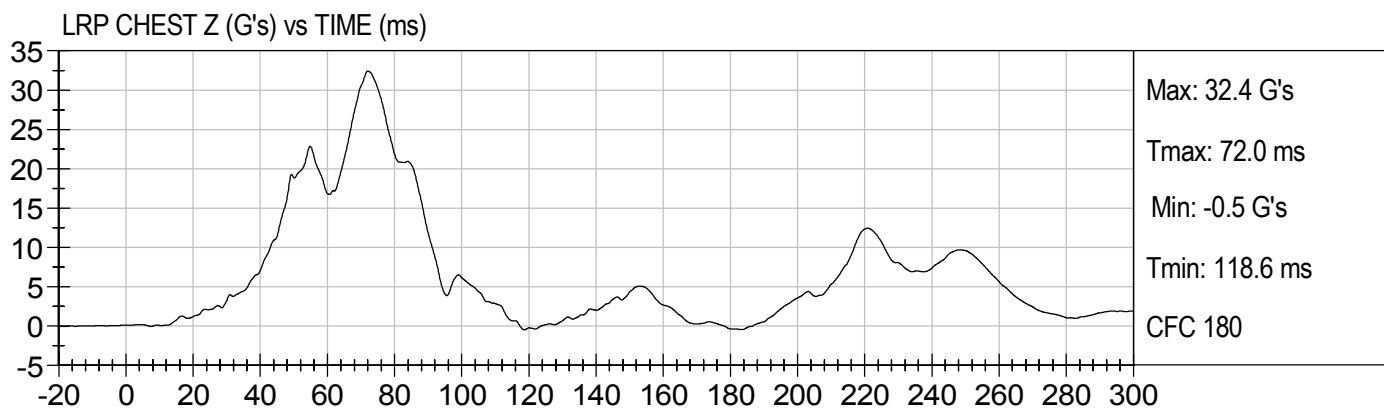
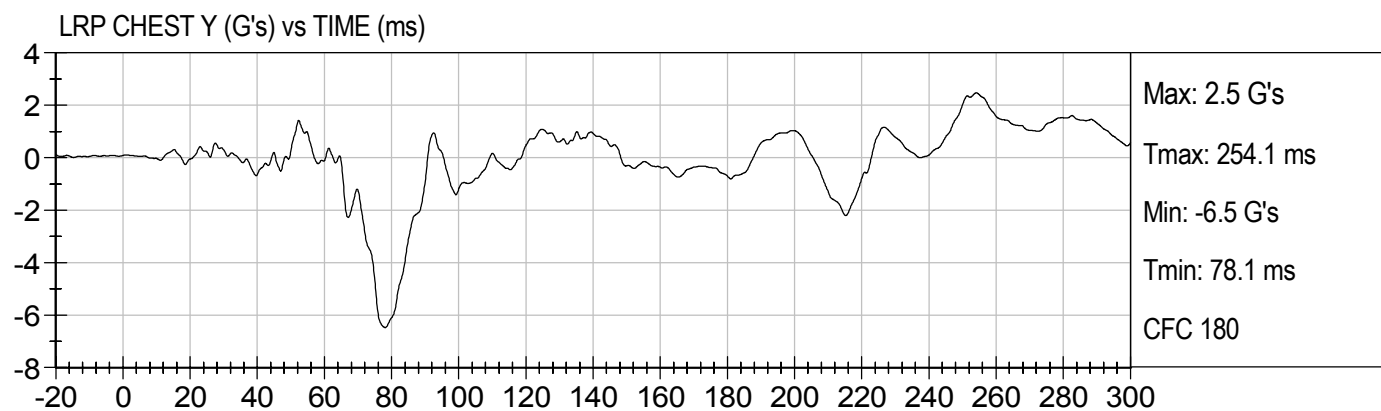
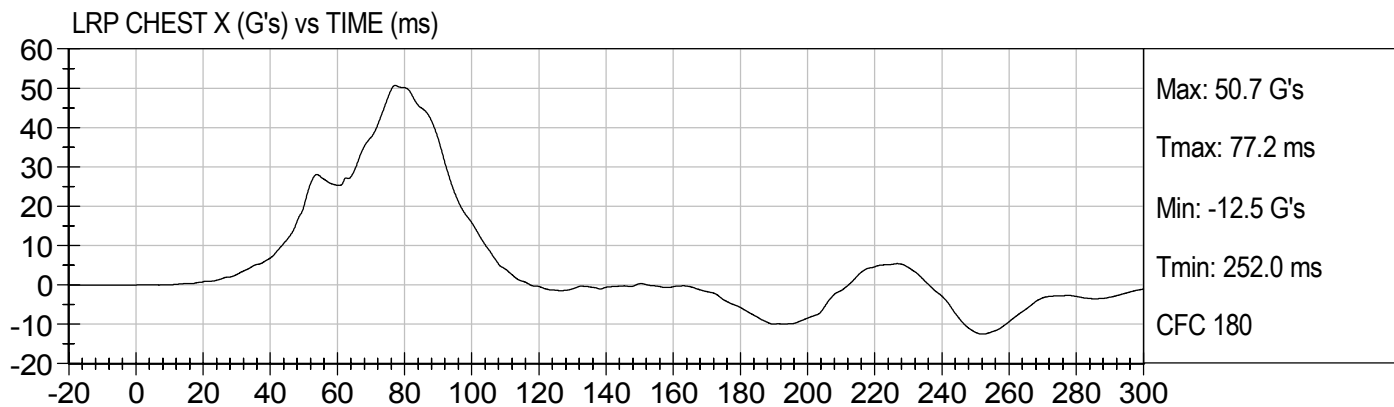
LRP Child Upper Neck Moment Y vs. Time

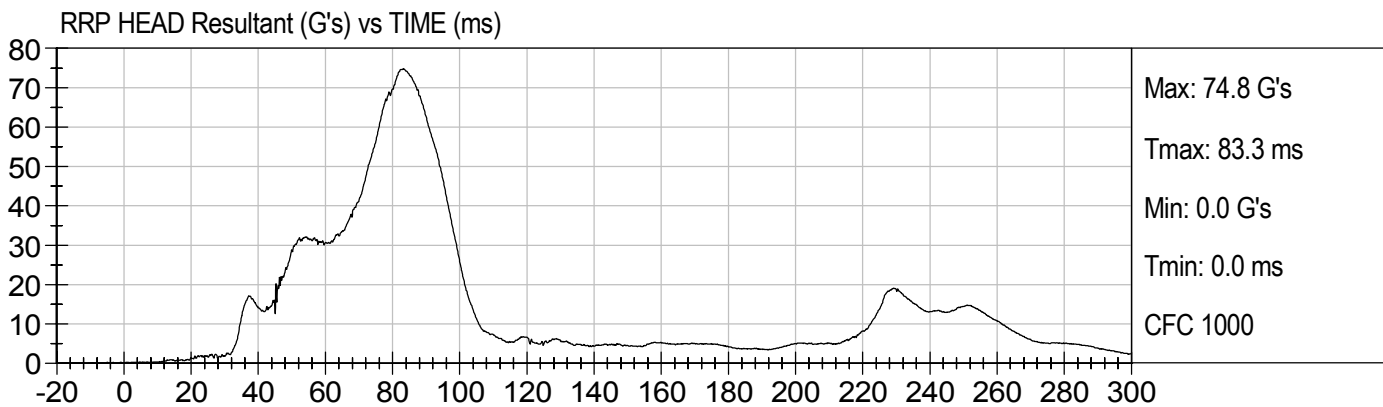
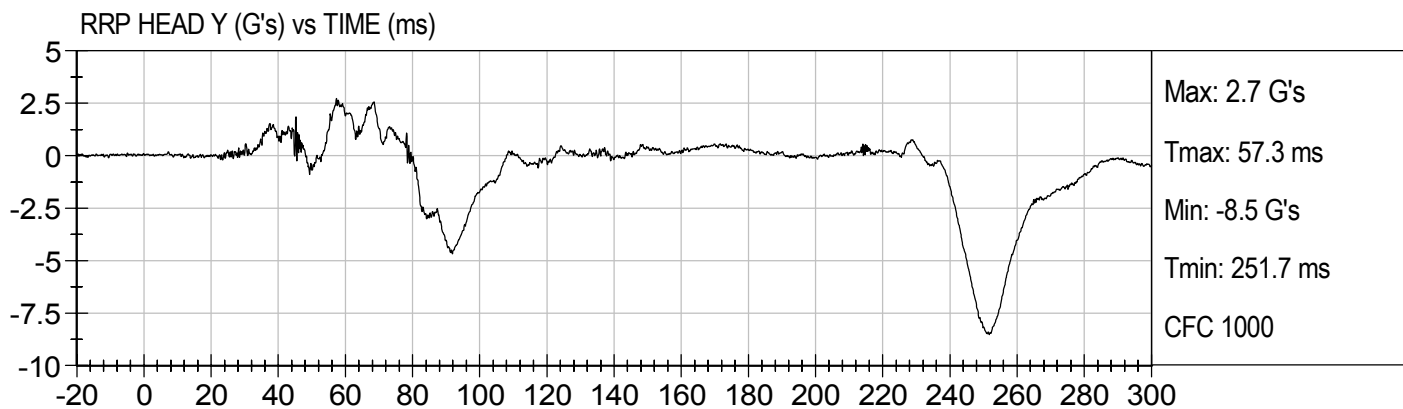
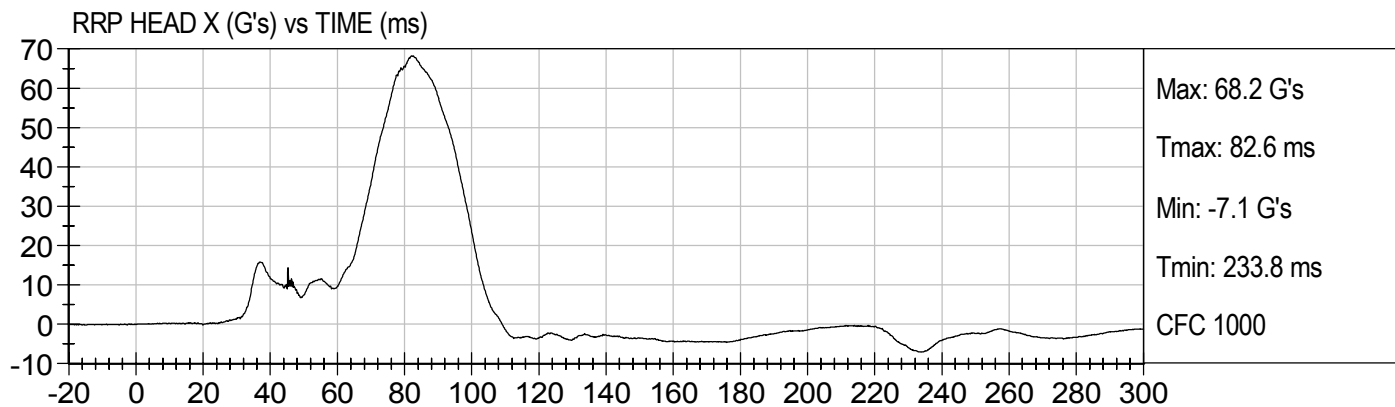
LRP Child Upper Neck Moment Z vs. Time

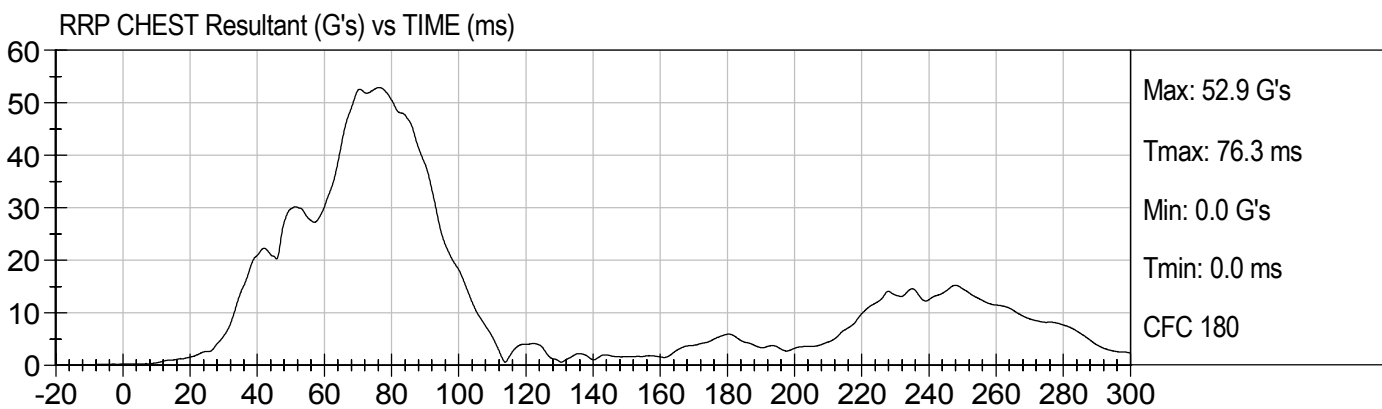
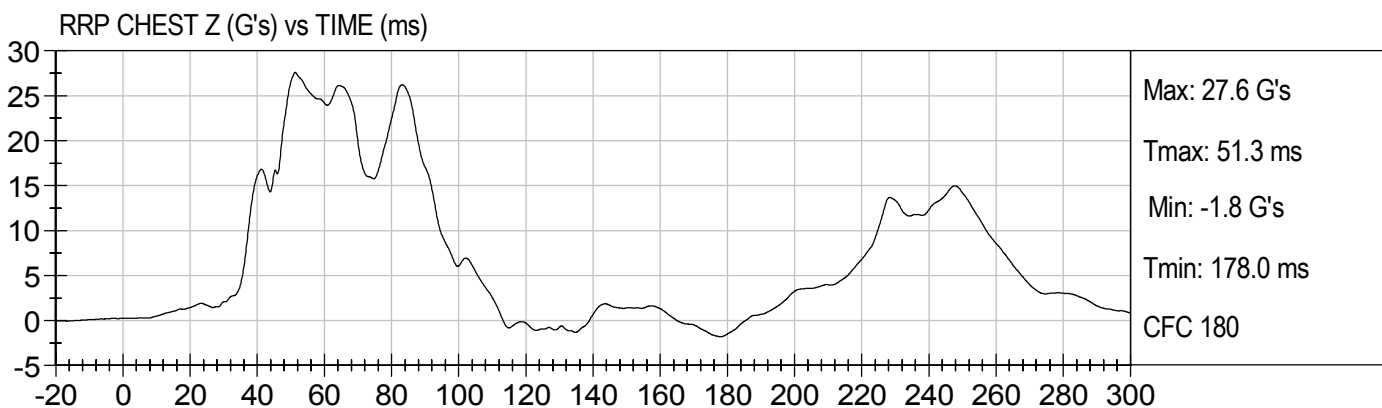
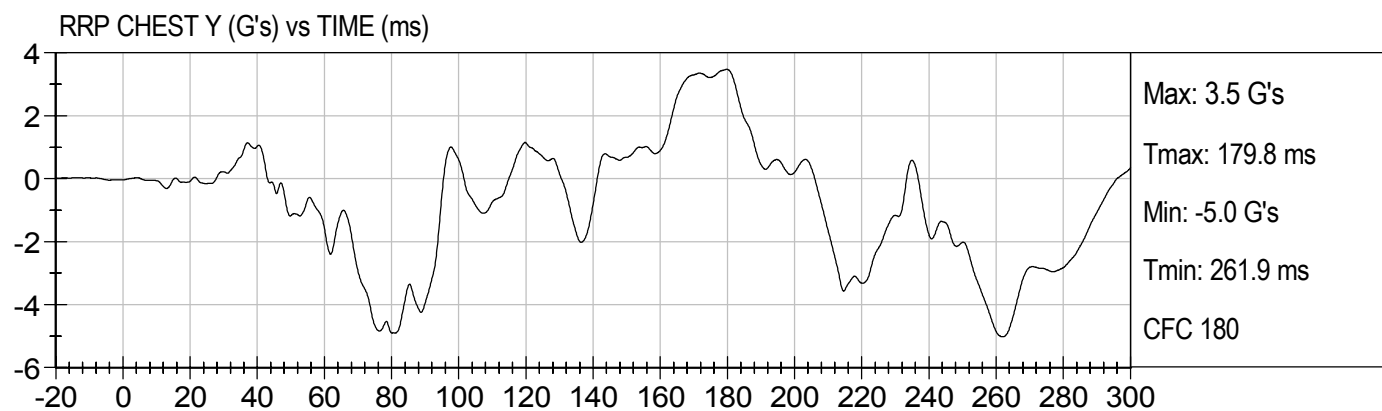
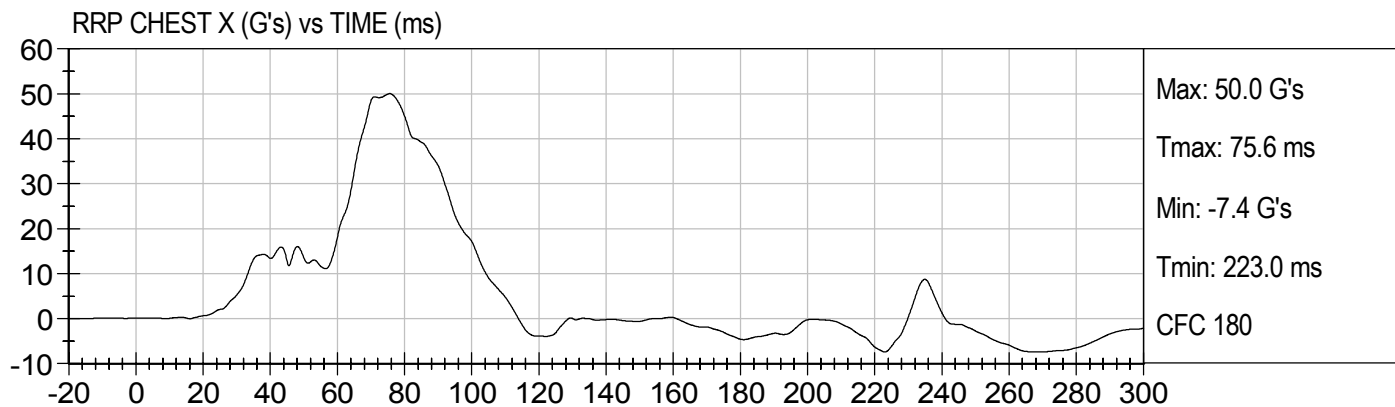
LRP Child Upper Neck Moment Resultant vs. Time

RRP Child Upper Neck Force X vs. Time
RRP Child Upper Neck Force Y vs. Time
RRP Child Upper Neck Force Z vs. Time
RRP Child Upper Neck Force Resultant vs. Time
RRP Child Upper Neck Moment X vs. Time
RRP Child Upper Neck Moment Y vs. Time
RRP Child Upper Neck Moment Z vs. Time
RRP Child Upper Neck Moment Resultant vs. Time
LRP Child Seat X Acceleration vs. Time
LRP Child Seat Y Acceleration vs. Time
LRP Child Seat Z Acceleration vs. Time
LRP Child Seat Resultant Acceleration vs. Time
RRP Child Seat X Acceleration vs. Time
RRP Child Seat Y Acceleration vs. Time
RRP Child Seat Z Acceleration vs. Time
RRP Child Seat Resultant Acceleration vs. Time









CHILD DUMMY CALIBRATION INFORMATION

MGA RESEARCH CORPORATION
FRONT HEAD DROP TEST
CRABI 12 MONTH

ATD Serial No: 093

Test ID: D072541


Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	20.8	Pass
Laboratory Relative Humidity	%	10 to 70	47	Pass
Peak Resultant Acceleration	G's	100 to 120	110	Pass
Peak Lateral Acceleration	G's	+/- 15	-3	Pass
Unimodal	N/A	within 17% of peak	Yes	Pass
Overall Test Results				Pass



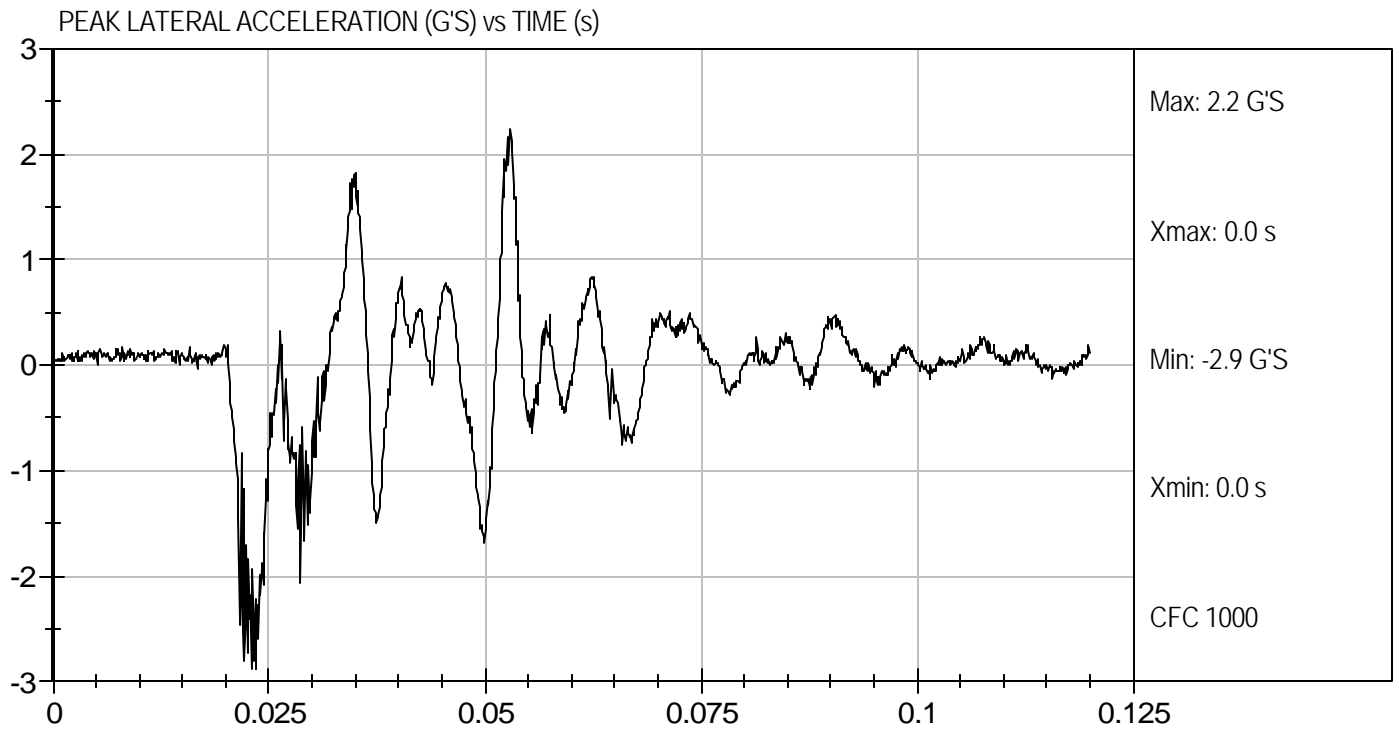
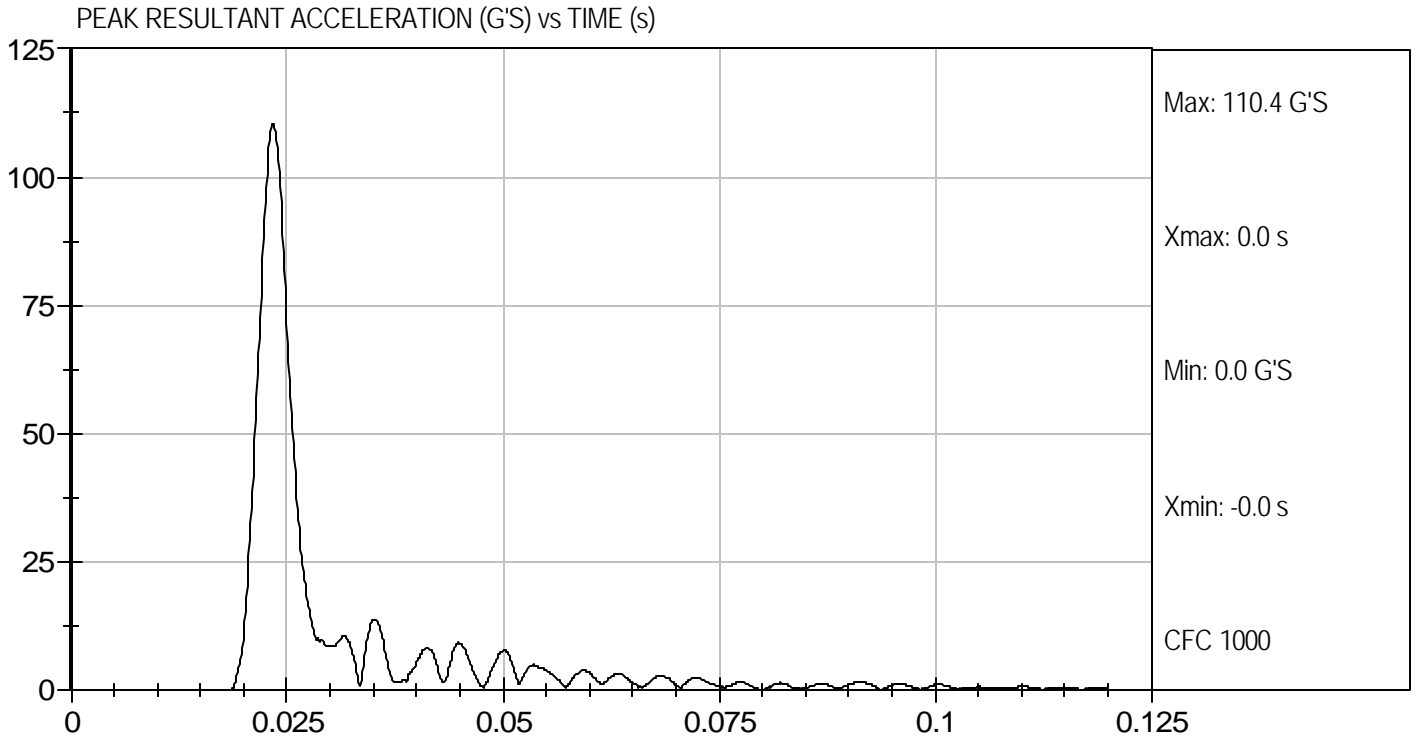
 Laboratory Technician

8/23/07

 Test Date



 Approved By



**MGA RESEARCH CORPORATION
NECK FLEXION TEST
CRABI 12 MONTH**

ATD Serial No: 093

Test I.D.: D072542

Tested Parameter	Units	Specification	Result	Pass/Fail	
Temperature	deg C	20.6 to 22.2	20.8	Pass	
Humidity	%	10 to 70	46	Pass	
Impact Velocity	m/s	5.1 to 5.3	5.2	Pass	
Pendulum Deceleration	10 msec	m/s	1.6 to 2.3	1.9	Pass
	20 msec	m/s	3.4 to 4.2	3.6	Pass
	25 msec	m/s	4.3 to 5.2	4.4	Pass
D Plane Rotation	deg	75.0 to 86.0	83.1	Pass	
Moment About Occipital Condyle	Nm	36.0 to 45.0	40.2	Pass	
Positive Moment - Time Curve Decay to 5 Nm	msec	60 to 80	74	Pass	
Overall Test Results				Pass	



Laboratory Technician

8/23/07

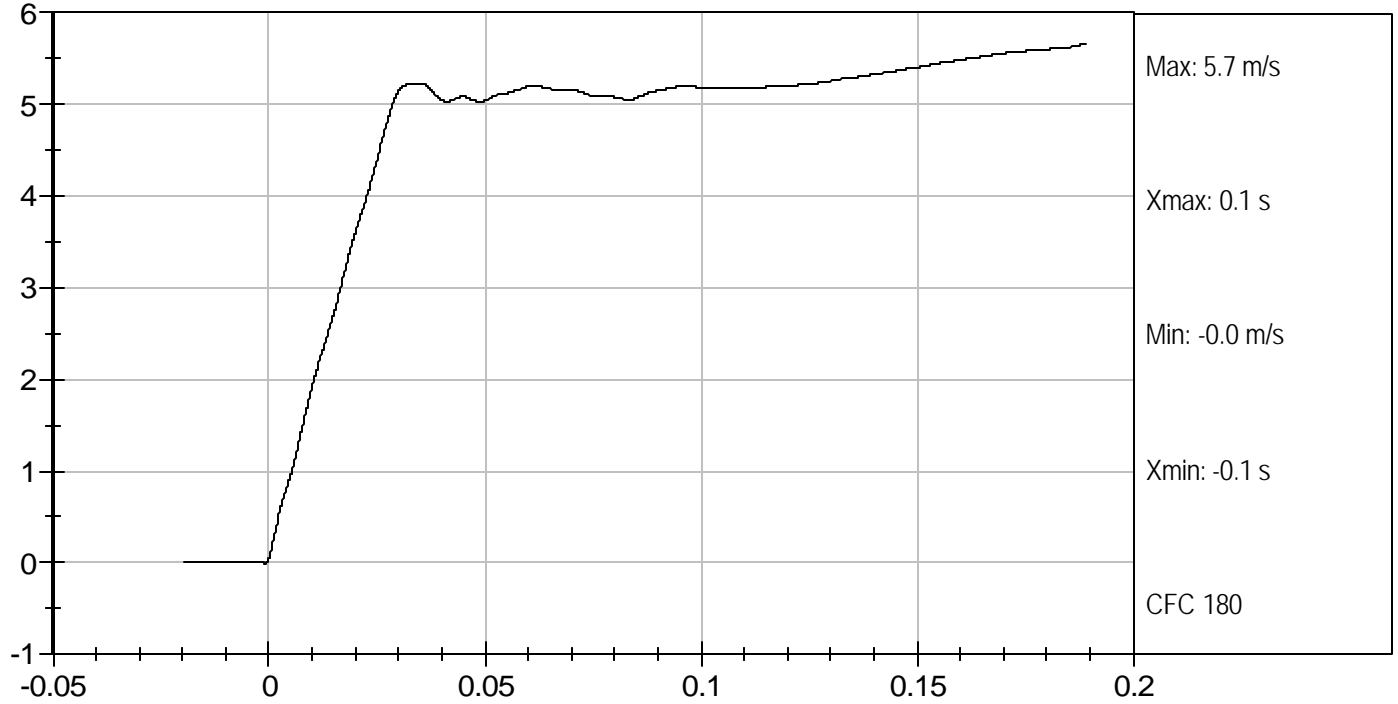
Test Date



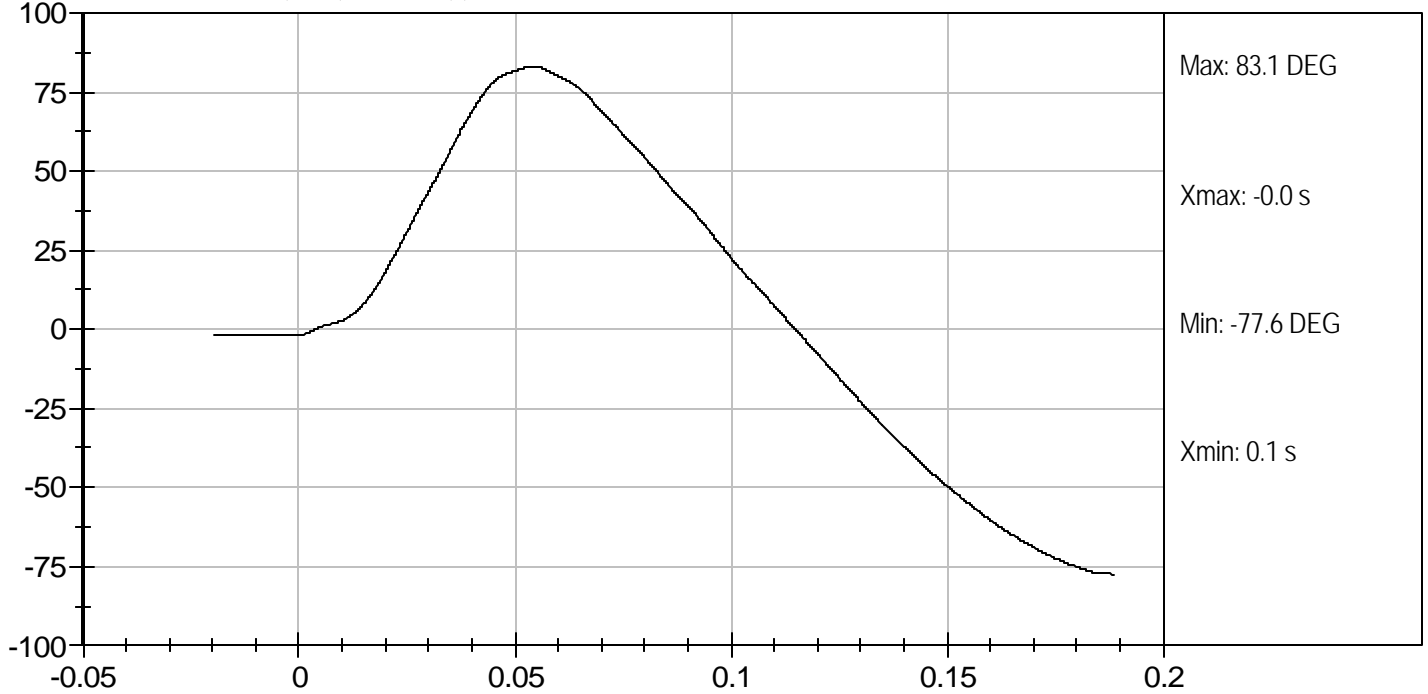
Approved By



PENDULUM DECELERATION (m/s) vs TIME (s)



FLEXION ANGLE (DEG) vs TIME (s)

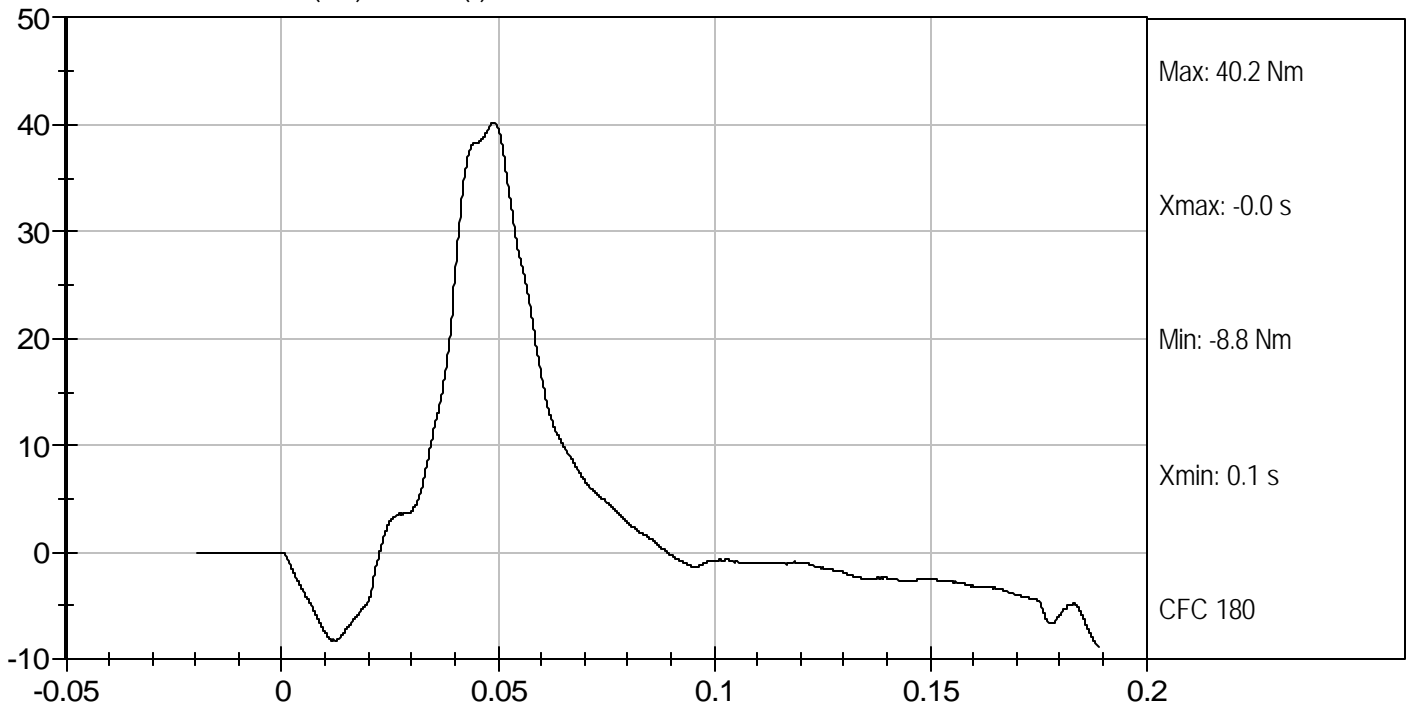




Test Desc: Neck Flexion
Component ID: D072542

Test Date: 8/23/07
Velocity: 17.006 ft/s, 5.2 m/s

OCCIPITAL MOMENT (Nm) vs TIME (s)



MGA RESEARCH CORPORATION
NECK EXTENSION TEST
CRABI 12 MONTH

ATD Serial No: 093

Test I.D.: D072543

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	20.8	Pass
Humidity		%	10 to 70	46	Pass
Pendulum Speed		m/s	2.4 to 2.6	2.5	Pass
Pendulum Deceleration	6 msec	m/s	0.8 to 1.2	1.0	Pass
	10 msec	m/s	1.5 to 2.1	2.0	Pass
	14 msec	m/s	2.2 to 2.9	2.3	Pass
D Plane Rotation		deg	80.0 to 92.0	80.3	Pass
Moment About Occipital Condyle		Nm	-23.0 to -12.0	-19.1	Pass
Negative Moment - Time Curve Decay to -5 Nm		msec	76 to 90	77	Pass
Overall Test Results					Pass



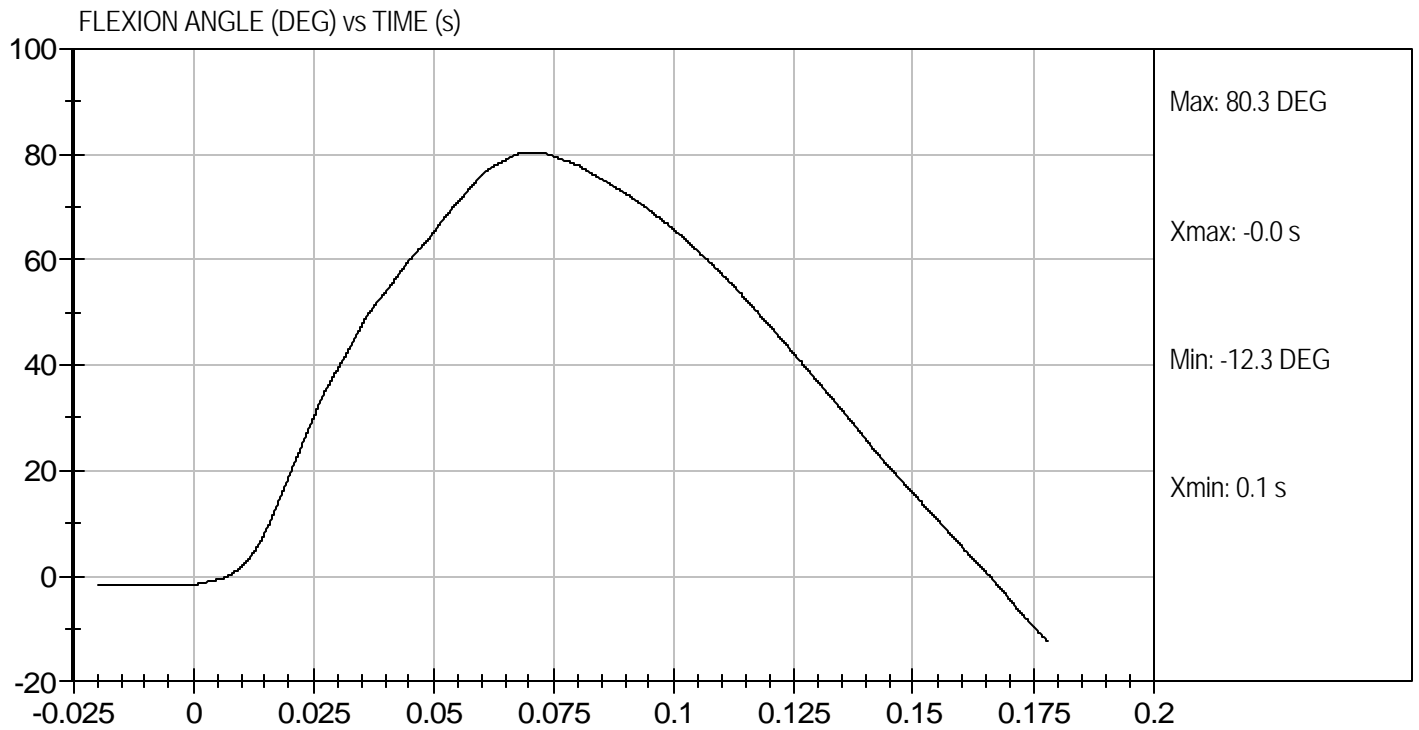
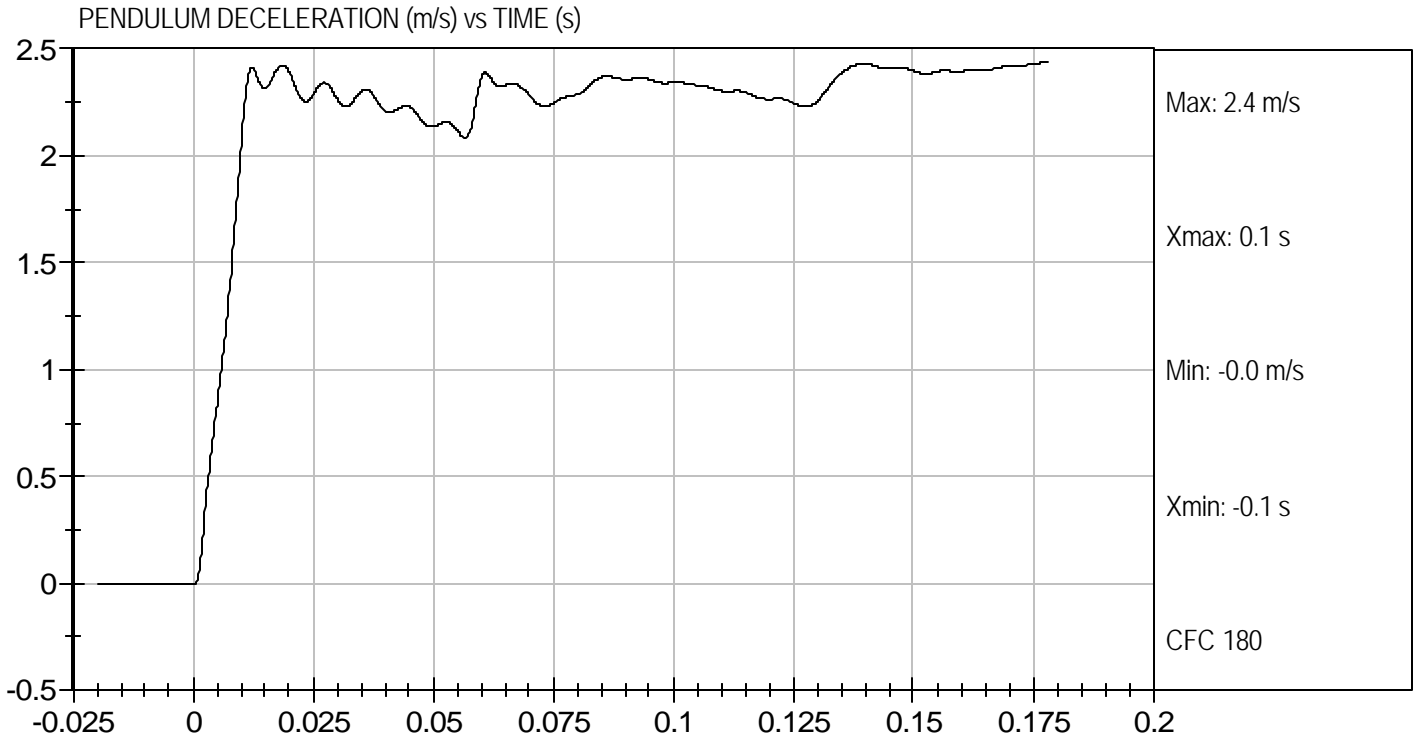
Laboratory Technician

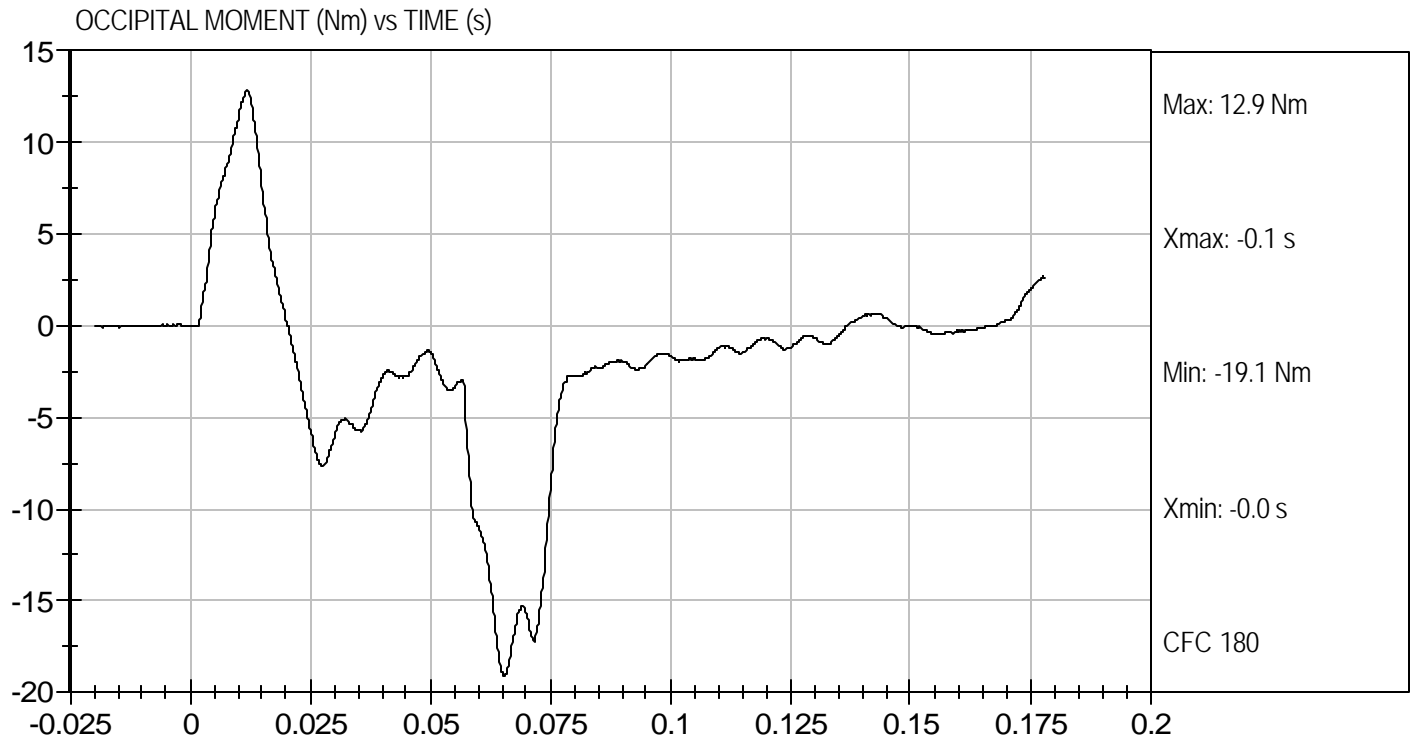
8/23/07

Test Date



Approved By





MGA RESEARCH CORPORATION
THORAX IMPACT TEST
CRABI 12 MONTH

ATD Serial No: 093

Test I.D: D072544

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	43	Pass
Probe Speed	m/sec	4.9 to 5.1	5.03	Pass
Probe Force	kN	1.51 to 1.80	1.55	Pass
Overall Test Results				Pass



 Laboratory Technician

8/23/07

Test Date

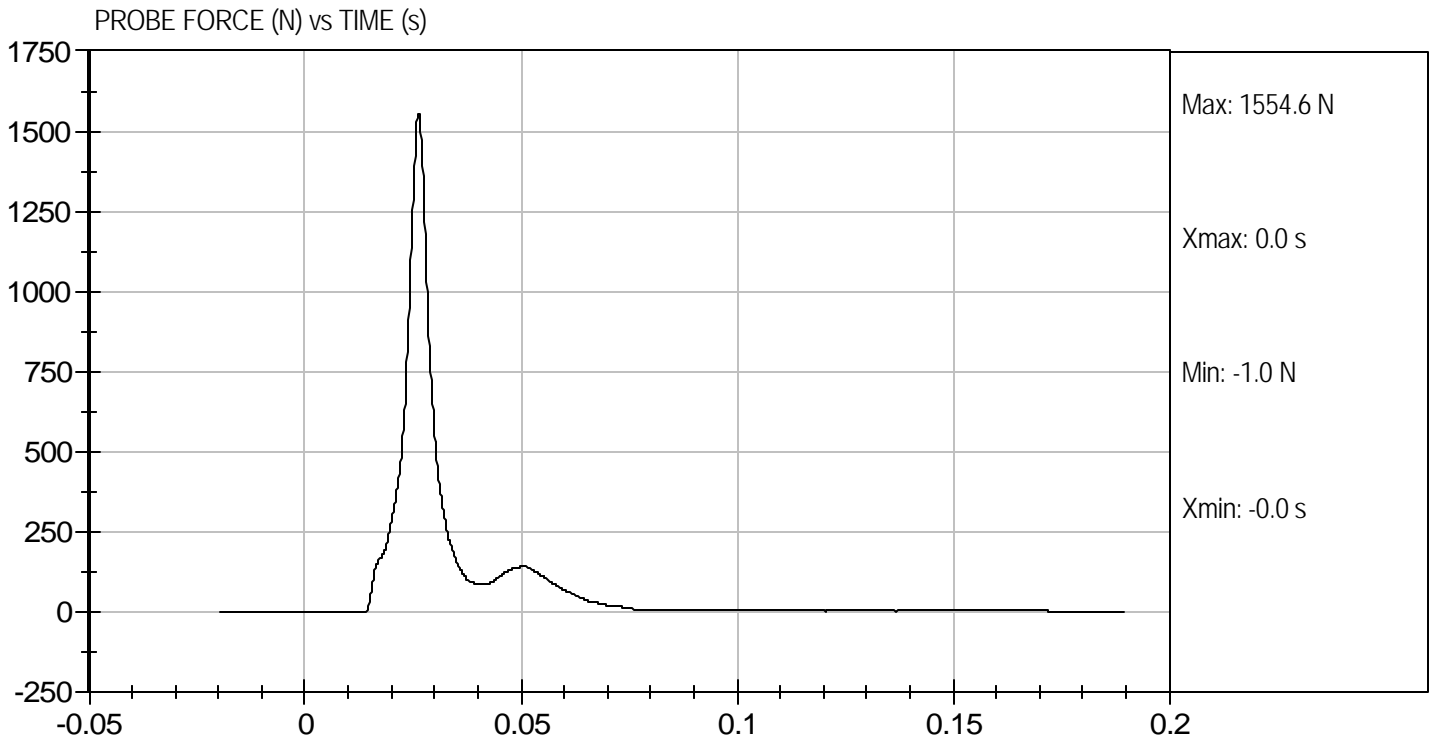


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Test Desc: Thorax Impact
Component ID: D072544

Test Date: 8/23/07
Velocity: 16.5 ft/s, 5.03 m/s



MGA RESEARCH CORPORATION
REAR HEAD DROP TEST
CRABI 12 MONTH


ATD Serial No: 093

Test ID: D072545

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	20.8	Pass
Laboratory Relative Humidity	%	10 to 70	47	Pass
Peak Resultant Acceleration	G's	55 to 71	69	Pass
Peak Lateral Acceleration	G's	+/- 15	3	Pass
Unimodal	N/A	within 17% of peak	Yes	Pass
Overall Test Results				Pass

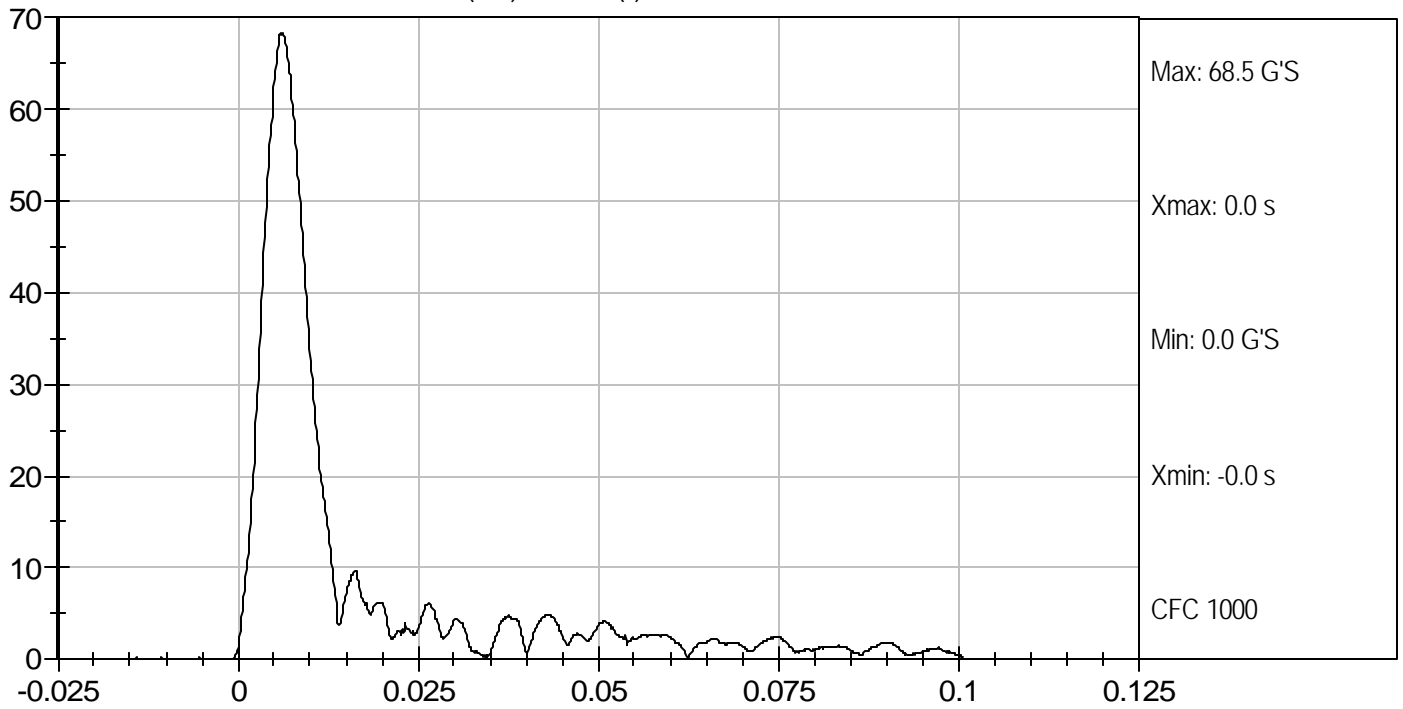

 Laboratory Technician

8/23/07
 Test Date

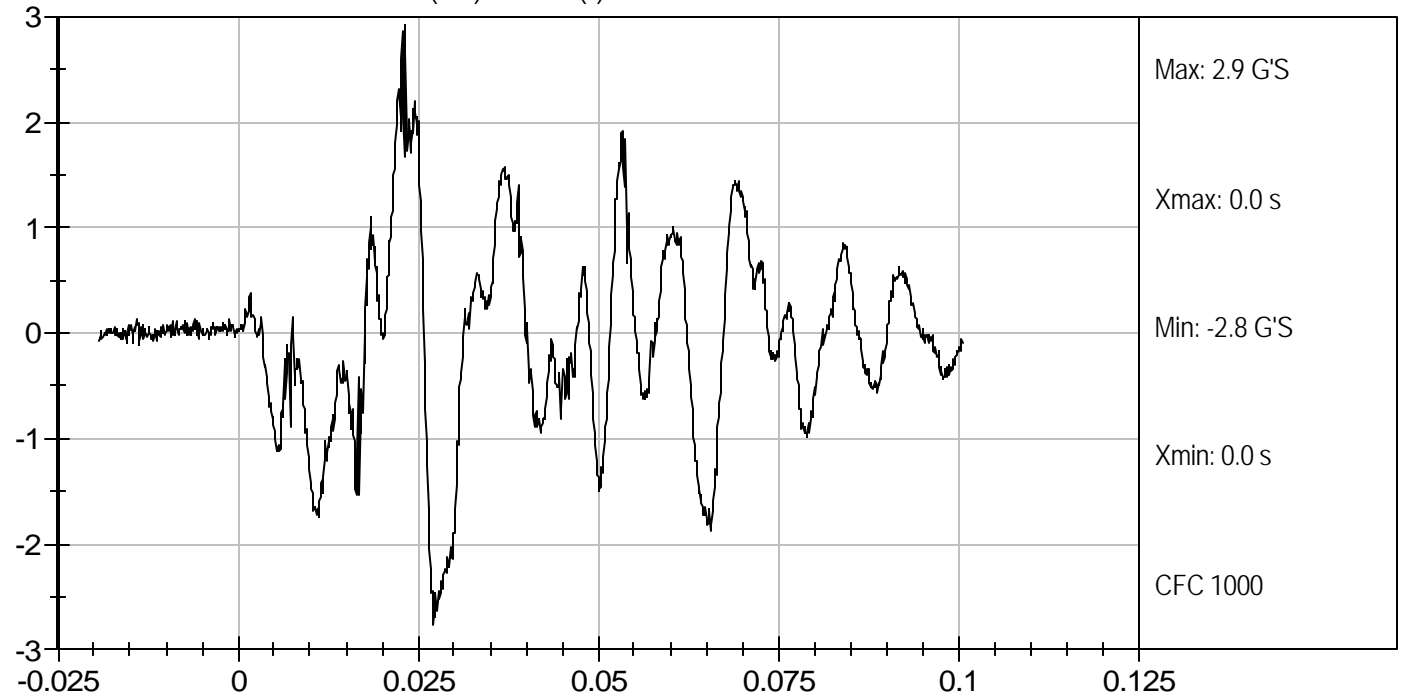

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PEAK RESULTANT ACCELERATION (G'S) vs TIME (s)



PEAK LATERAL ACCELERATION (G'S) vs TIME (s)



MGA RESEARCH CORPORATION
FRONT HEAD DROP TEST
CRABI 12 MONTH


ATD Serial No: 090

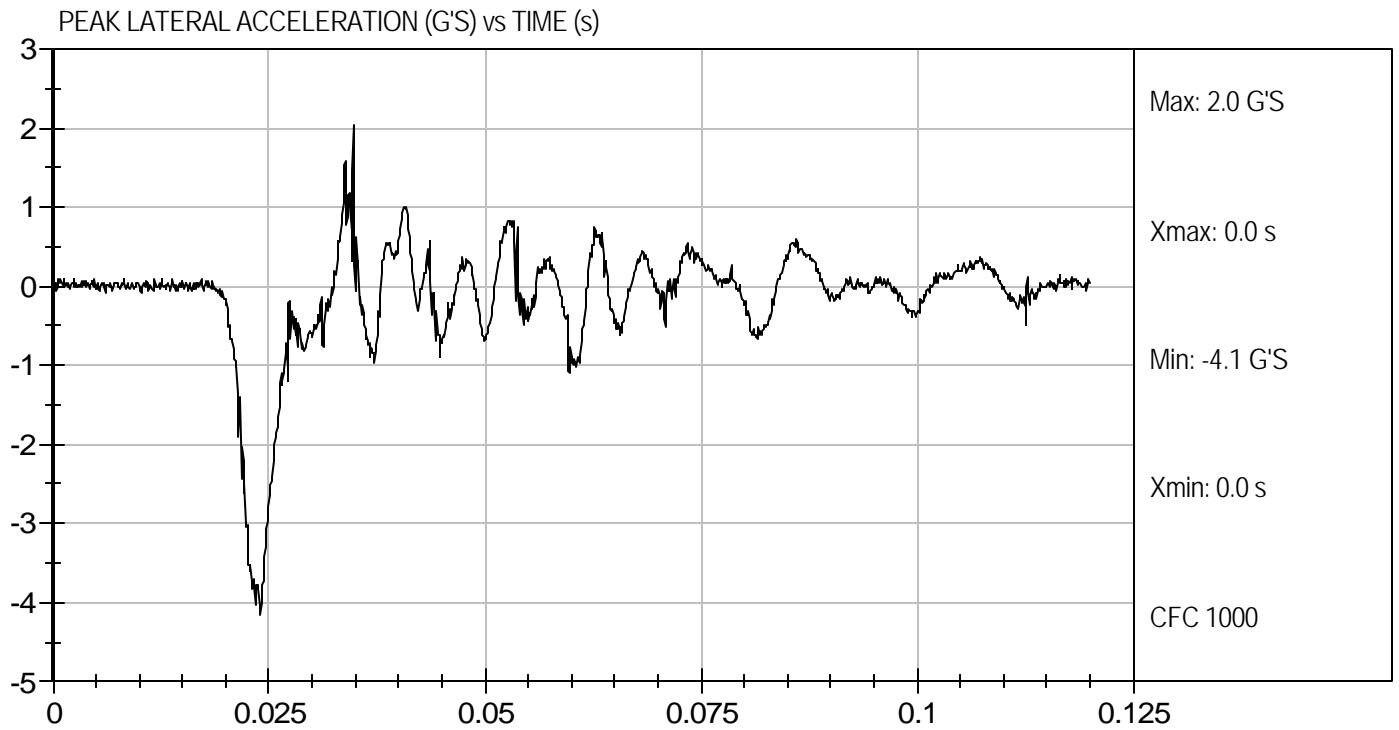
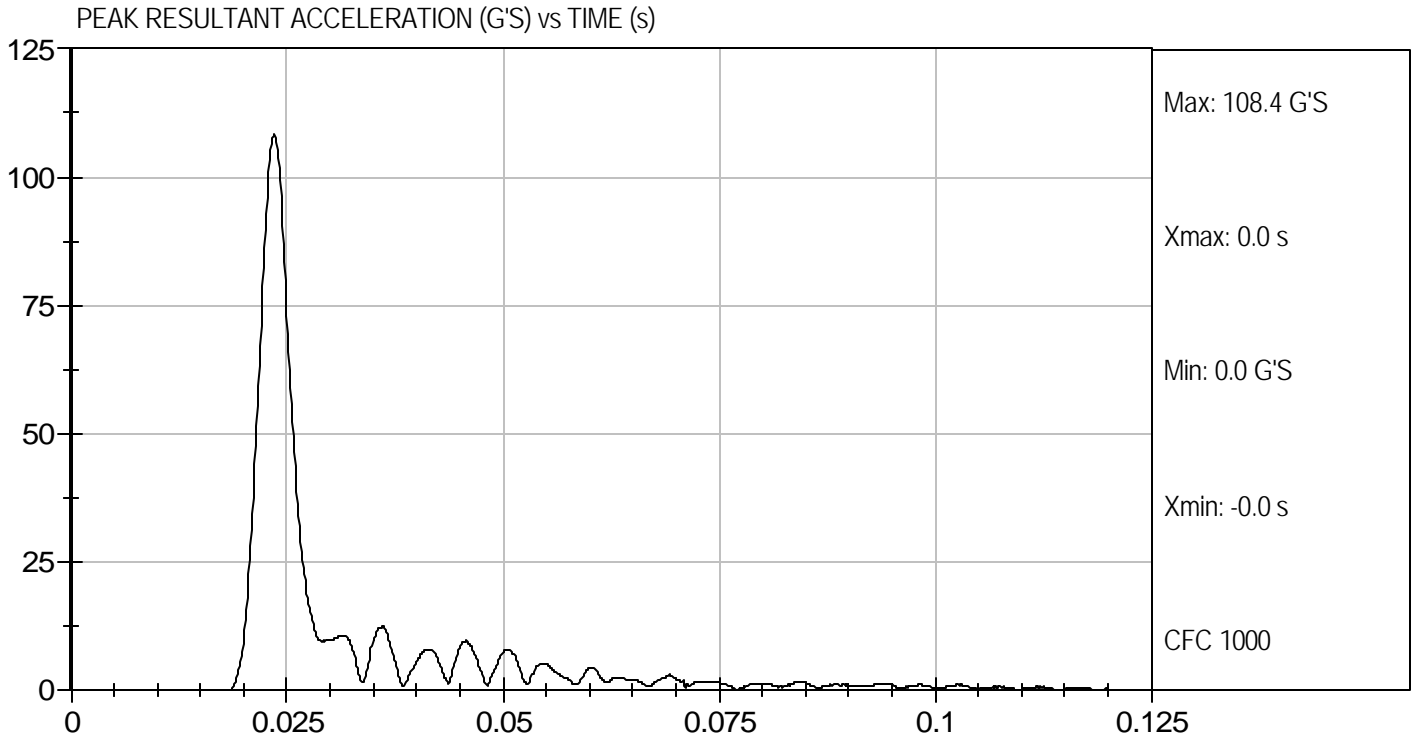
Test ID: D072531

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Peak Resultant Acceleration	G's	100 to 120	108	Pass
Peak Lateral Acceleration	G's	+/- 15	-4	Pass
Unimodal	N/A	within 17% of peak	Yes	Pass
Overall Test Results				Pass


 Laboratory Technician

8/23/07
 Test Date


 Approved By



MGA RESEARCH CORPORATION
NECK FLEXION TEST
CRABI 12 MONTH

ATD Serial No: 090

Test I.D.: D072532

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	20.7	Pass
Humidity		%	10 to 70	46	Pass
Impact Velocity		m/s	5.1 to 5.3	5.2	Pass
Pendulum Deceleration	10 msec	m/s	1.6 to 2.3	2.0	Pass
	20 msec	m/s	3.4 to 4.2	3.6	Pass
	25 msec	m/s	4.3 to 5.2	4.3	Pass
D Plane Rotation		deg	75.0 to 86.0	79.7	Pass
Moment About Occipital Condyle		Nm	36.0 to 45.0	37.0	Pass
Positive Moment - Time Curve Decay to 5 Nm		msec	60 to 80	75	Pass
Overall Test Results					Pass



 Laboratory Technician

8/23/07

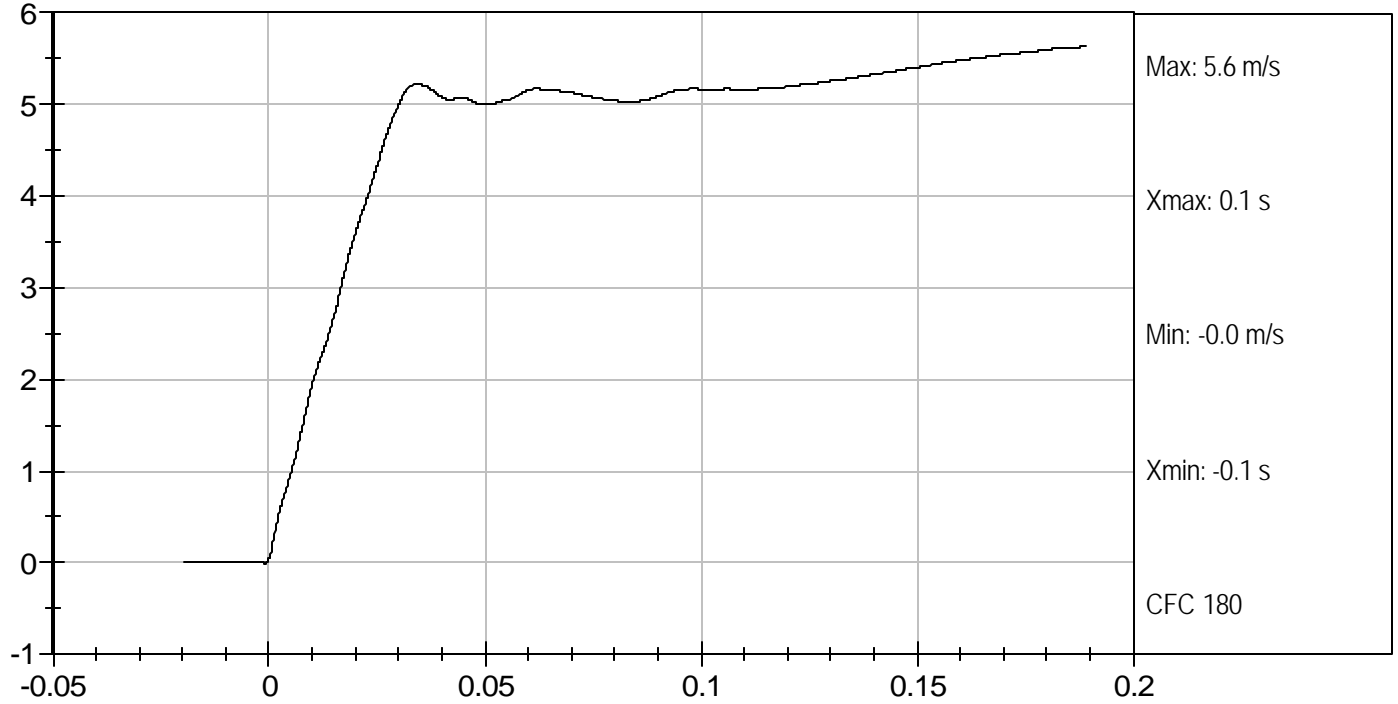
 Test Date



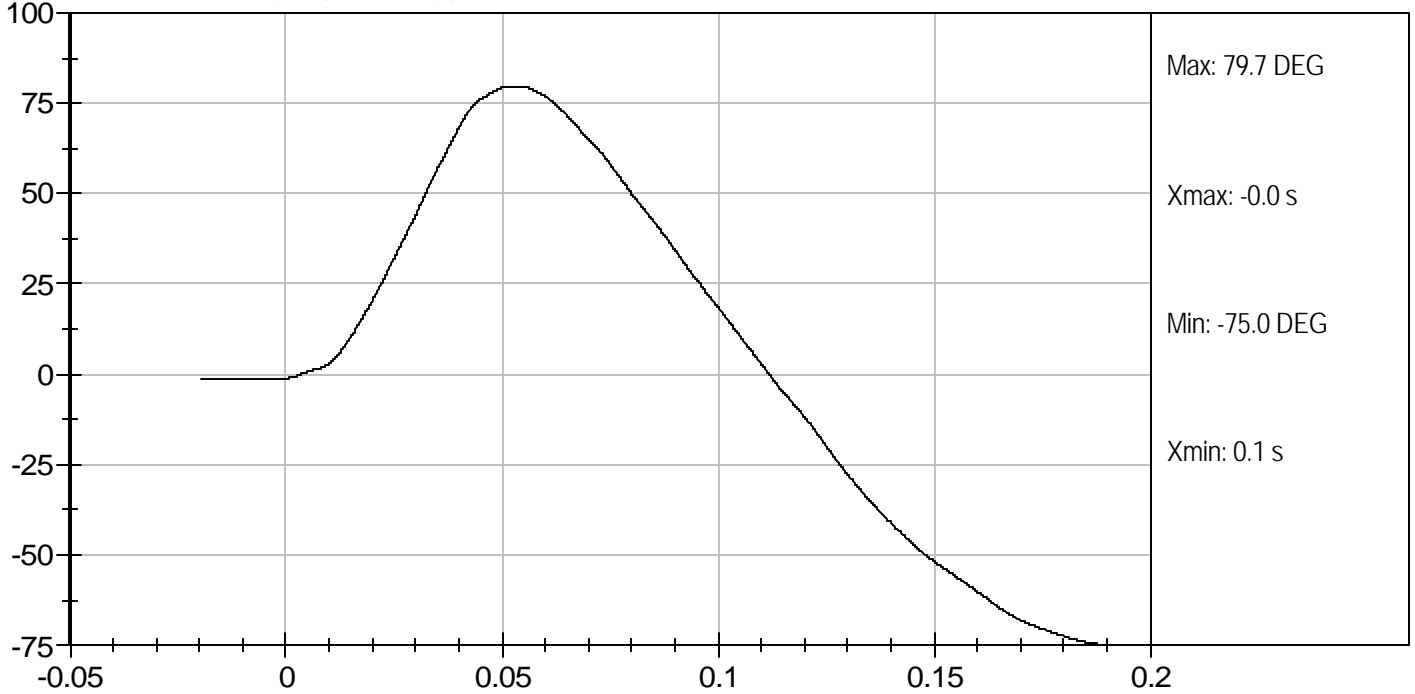
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PENDULUM DECELERATION (m/s) vs TIME (s)



FLEXION ANGLE (DEG) vs TIME (s)

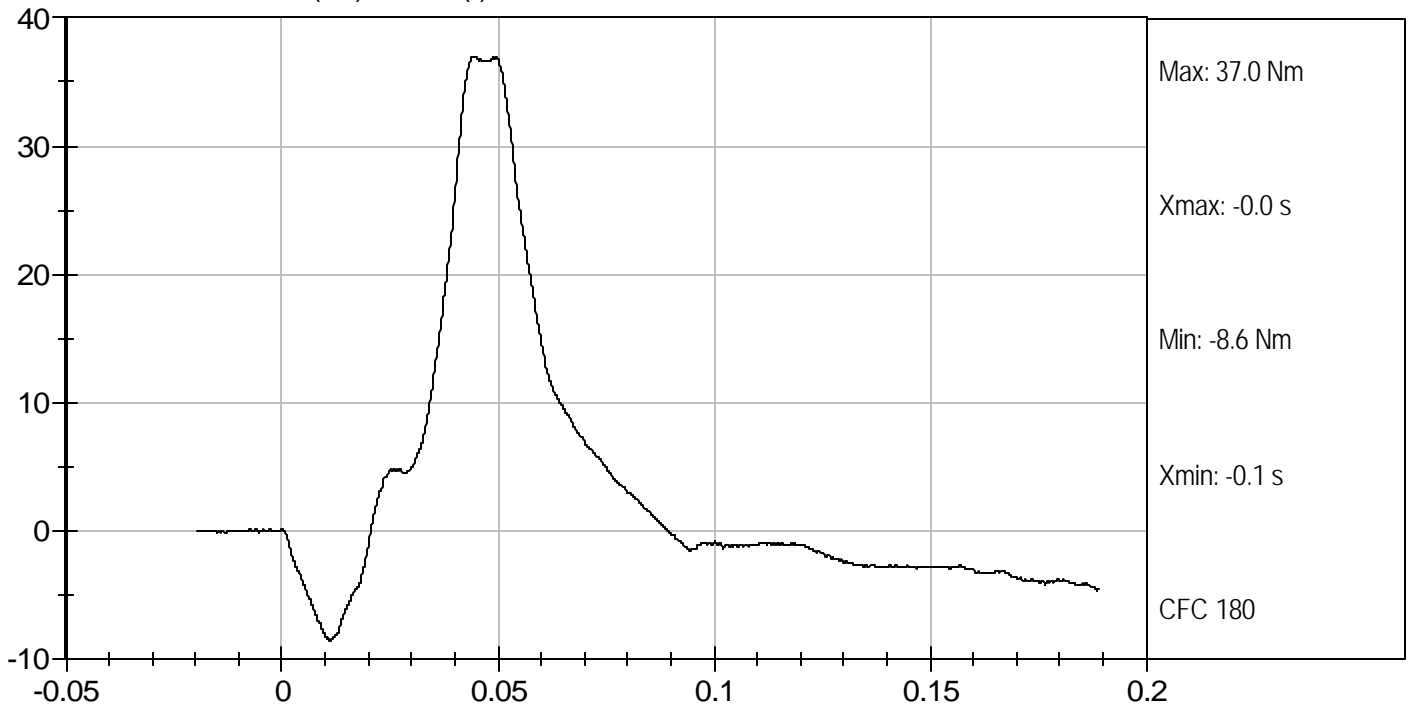




Test Desc: Neck Flexion
Component ID: D072532

Test Date: 8/23/07
Velocity: 17.182 ft/s, 5.2 m/s

OCCIPITAL MOMENT (Nm) vs TIME (s)



MGA RESEARCH CORPORATION
NECK EXTENSION TEST
CRABI 12 MONTH

ATD Serial No: 090

Test I.D.: D072533

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	20.7	Pass
Humidity		%	10 to 70	46	Pass
Pendulum Speed		m/s	2.4 to 2.6	2.5	Pass
Pendulum Deceleration	6 msec	m/s	0.8 to 1.2	0.9	Pass
	10 msec	m/s	1.5 to 2.1	1.7	Pass
	14 msec	m/s	2.2 to 2.9	2.3	Pass
D Plane Rotation		deg	80.0 to 92.0	80.2	Pass
Moment About Occipital Condyle		Nm	-23.0 to -12.0	-14.8	Pass
Negative Moment - Time Curve Decay to -5 Nm		msec	76 to 90	84	Pass
Overall Test Results					Pass



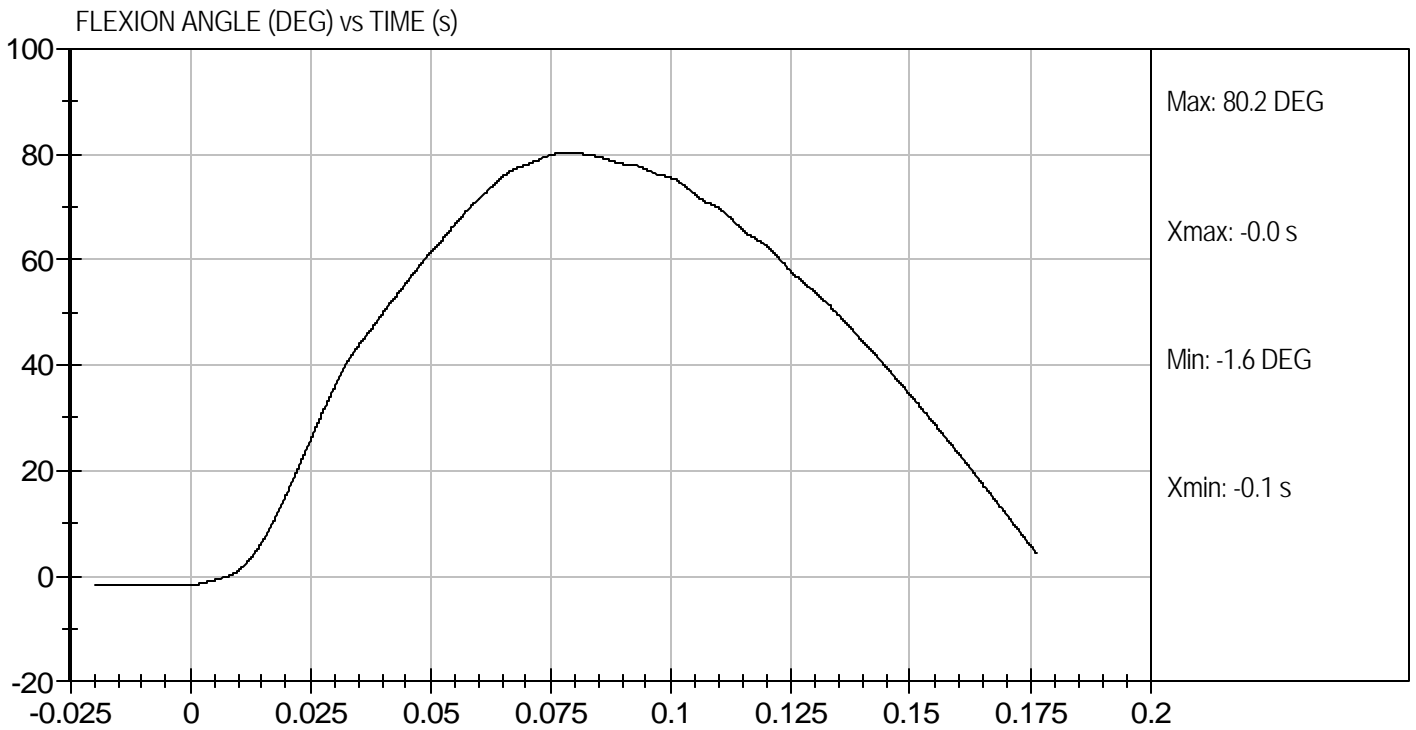
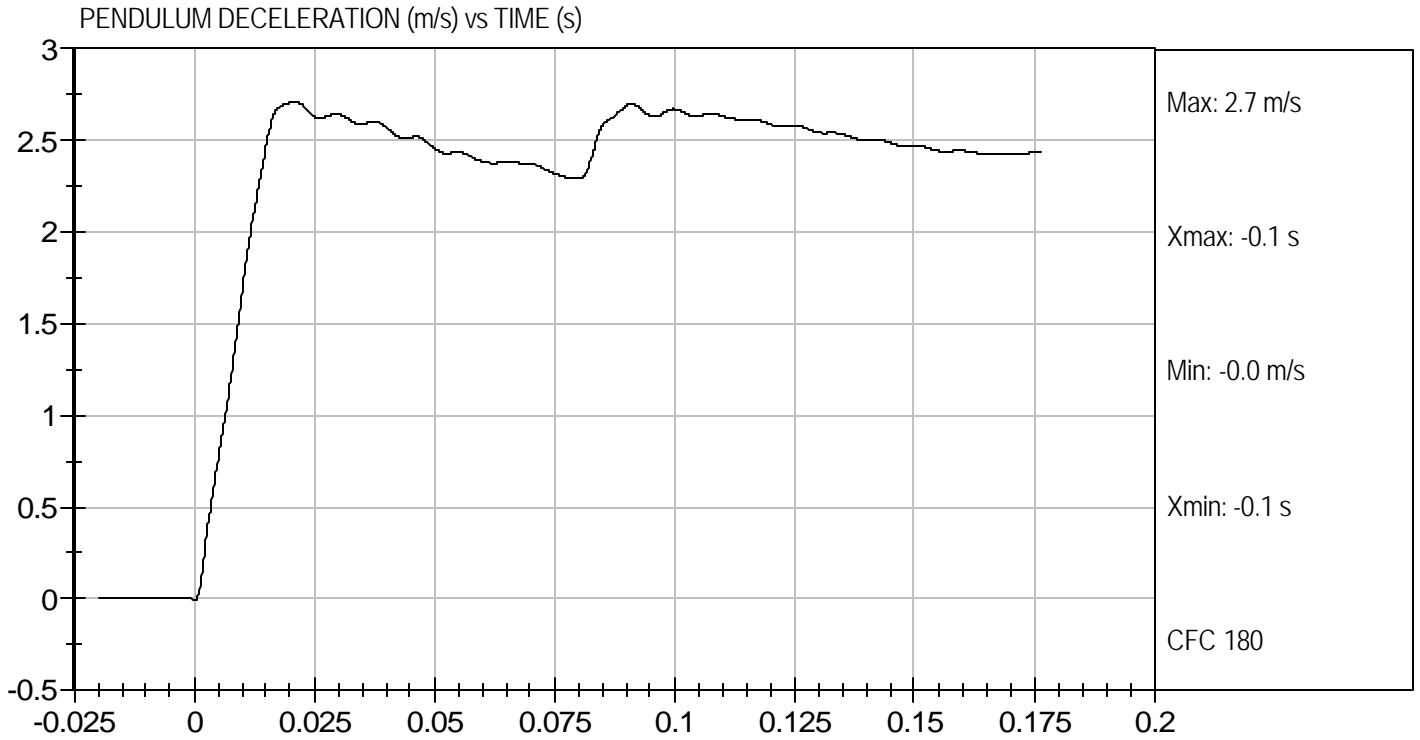
Laboratory Technician

8/23/07

Test Date

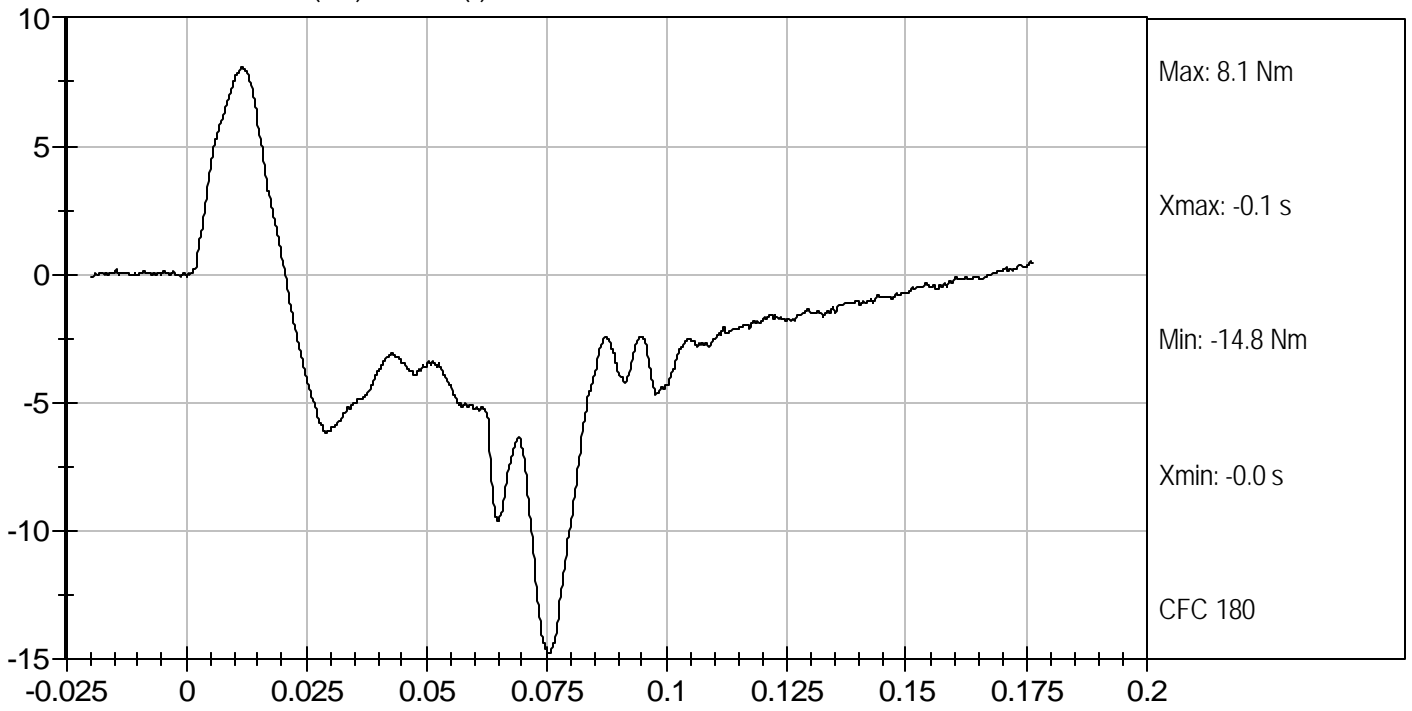


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OCCIPITAL MOMENT (Nm) vs TIME (s)



MGA RESEARCH CORPORATION
THORAX IMPACT TEST
CRABI 12 MONTH

ATD Serial No: 090

Test I.D: D072534

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	43	Pass
Probe Speed	m/sec	4.9 to 5.1	5.03	Pass
Probe Force	kN	1.51 to 1.80	1.55	Pass
Overall Test Results				Pass



Laboratory Technician

8/23/07

Test Date

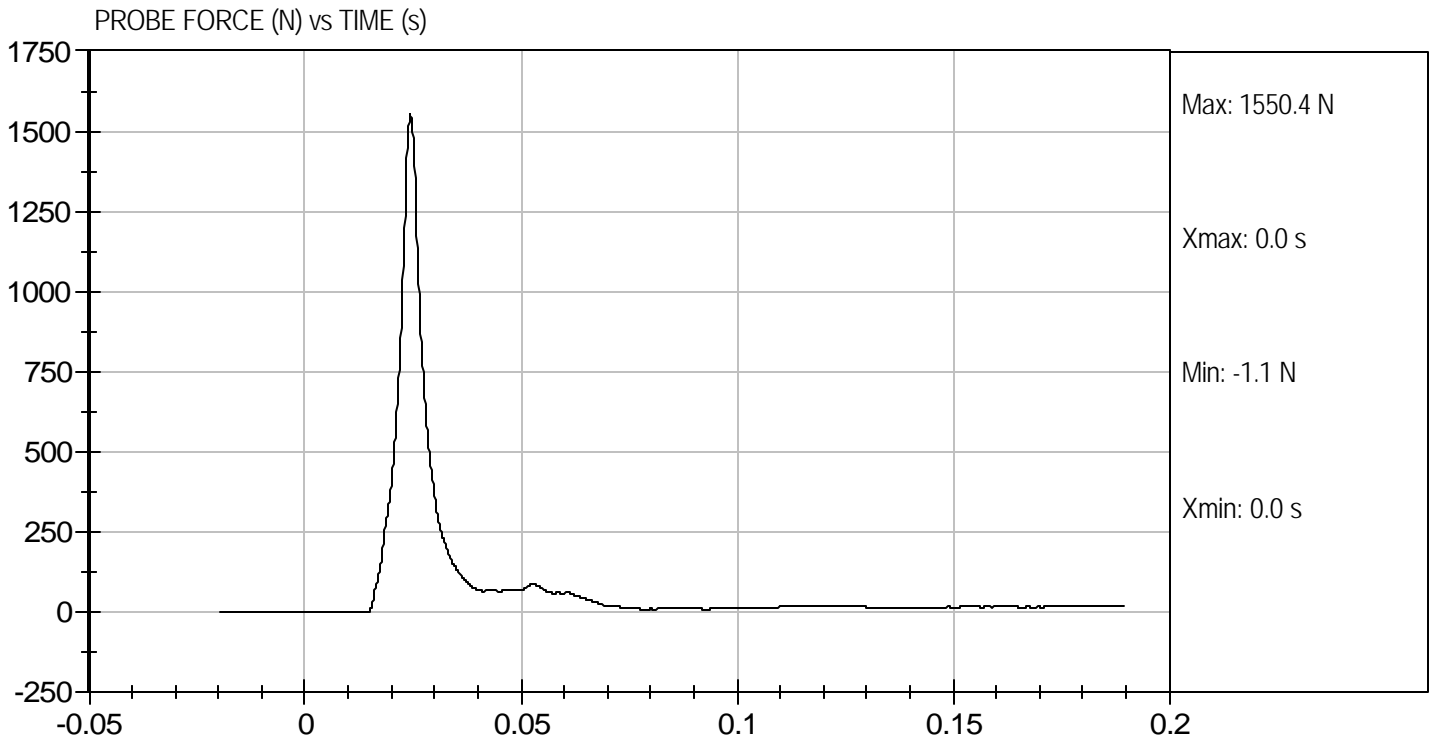


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Test Desc: Thorax Impact
Component ID: D072534

Test Date: 8/23/07
Velocity: 16.501 ft/s, 5.03 m/s



MGA RESEARCH CORPORATION
REAR HEAD DROP TEST
CRABI 12 MONTH


ATD Serial No: 090

Test ID: D072535

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Peak Resultant Acceleration	G's	55 to 71	67	Pass
Peak Lateral Acceleration	G's	+/- 15	-3	Pass
Unimodal	N/A	within 17% of peak	Yes	Pass
Overall Test Results				Pass

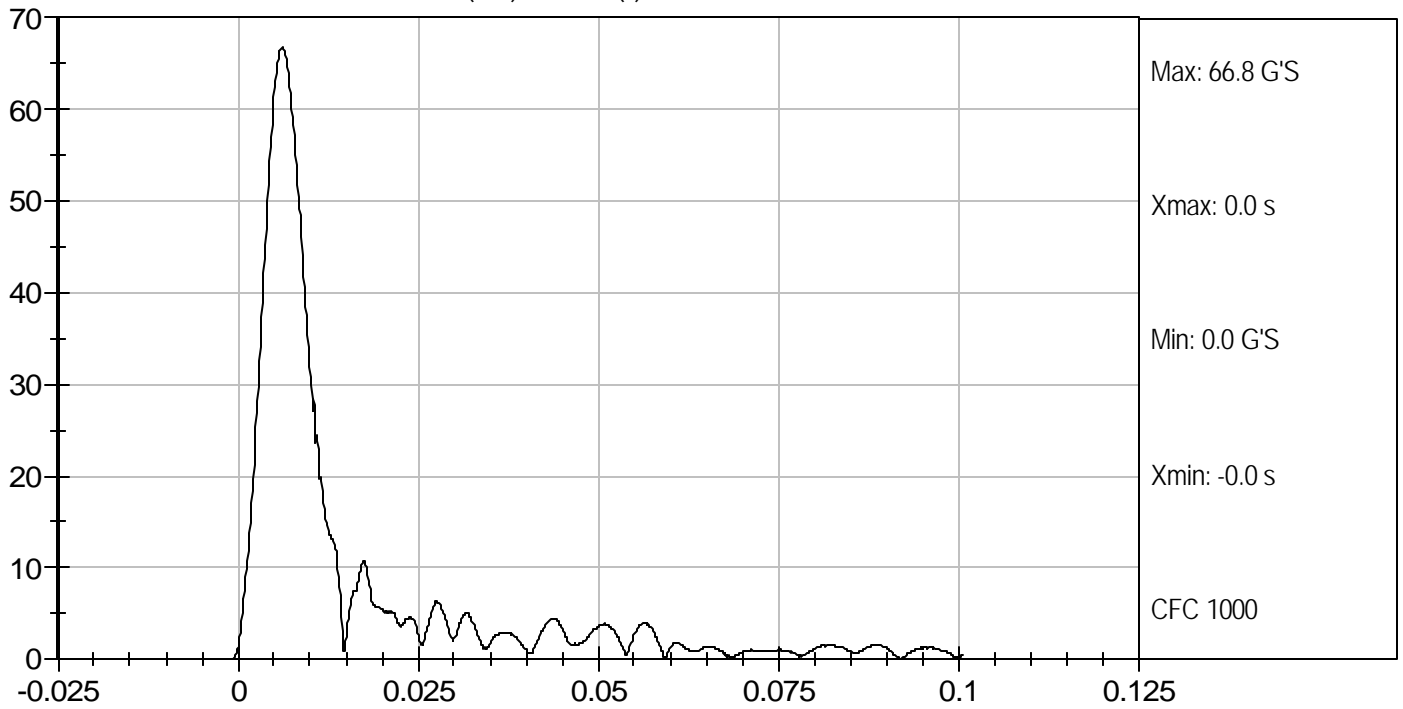

 Laboratory Technician

8/23/07
 Test Date


 Approved By



PEAK RESULTANT ACCELERATION (G'S) vs TIME (s)



PEAK LATERAL ACCELERATION (G'S) vs TIME (s)

