

REPORT NUMBER: NCAP-MGA-2006-009

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

**HONDA MOTOR CO., LTD
2007 HONDA FIT 5-DR SPORT
NHTSA NUMBER: M75300**

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



Test Date: May 9, 2006

Final Report Date: June 21, 2006

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
RULEMAKING
OFFICE OF CRASHWORTHINESS STANDARDS
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WASHINGTON, D.C. 20590**

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16. Abstract A frontal barrier impact was conducted on a 2007 Honda Fit 5-Dr Sport at MGA Research Corporation on May 9, 2006. 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 500 mm located at the centerline of the vehicle. 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 border="1" 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>393.2</td> <td>447.9</td> </tr> <tr> <td>Max. Thorax Accel. (3ms Clip)</td> <td>G's</td> <td>60</td> <td>41.1</td> <td>38.8</td> </tr> <tr> <td>Left Femur Force</td> <td>Newton</td> <td>10009</td> <td>-1343</td> <td>-4773</td> </tr> <tr> <td>Right Femur Force</td> <td>Newton</td> <td>10009</td> <td>-2145</td> <td>-3864</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	393.2	447.9	Max. Thorax Accel. (3ms Clip)	G's	60	41.1	38.8	Left Femur Force	Newton	10009	-1343	-4773	Right Femur Force	Newton	10009	-2145	-3864
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17. Key Words 56.3 km/h NCAP Frontal Barrier Impact Test New Car Assessment Program (NCAP) 2007 Honda Fit 5-Dr Sport NHTSA No: M75300		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin., Technical Ref. Division, Room 5108 (NPO-230) 400 Seventh Street, S.W. Washington, D.C. 20590																										
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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 DTNH22-01-D-12005. 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 2007 Honda Fit 5-Dr Sport at a velocity of 56.5 kph. The test was performed at MGA Research Corporation on May 9, 2006. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

One real-time camera and fourteen 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. 066) and right-front passenger (position 2) ATD (Serial No. 065) 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 82.4 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 500 mm and both the driver and passenger side doors remained closed and latched during the impact event and were operable after the impact.

The driver's head and chest contacted the airbag. The driver's head also contacted the headrest. The driver's knees contacted the bolster and steering column. The passenger's head and chest contacted the airbag. The passenger's head also contacted the headrest. 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	393.2	62.5	98.5	41.1	52.3	55.3	-25.1	-1343	-2145
Passenger	447.9	65.4	101.4	38.8	61.6	65.0	-23.7	-4773	-3864

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

TEST NOTES

No valid data was collected for the following:

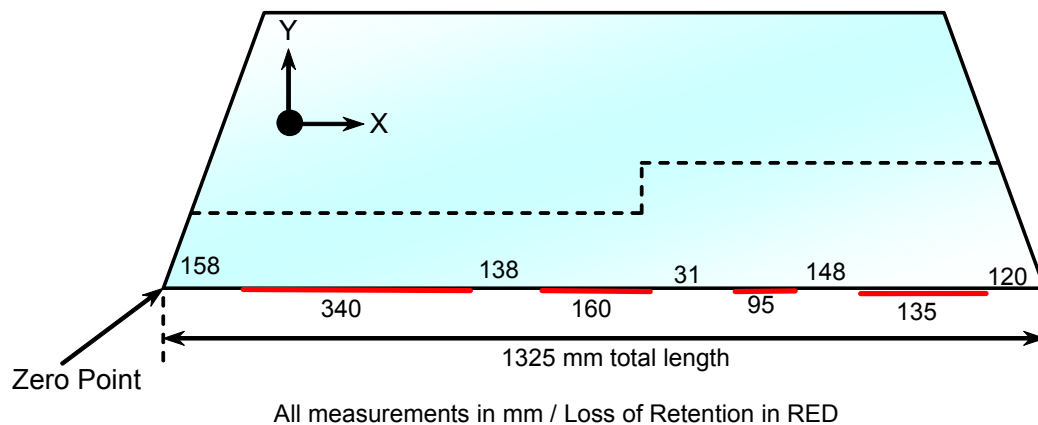
Passenger Right Upper Tibia Force Z

The side curtain airbags deployed.

FMVSS 212

There was 82.4 percent windshield retention and no intrusion into the protected zone of the windshield during the event. See Figure below and details on page 13 of this report.

FRONT VIEW OF WINDSHIELD



SECTION 2
OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

DATA SHEET NO. 1
CRASH TEST SUMMARY

Test Vehicle: 2007 Honda Fit 5-Dr Sport
Test Program: 35mph Frontal Impact

NHTSA No.: M75300
Test Date: 5/09/2006

DOOR OPENING AND SEAT TRACK INFORMATION

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

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	1020
Center	mm	990
Right Side	mm	955
Average	mm	988

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	910	894
Lap belt length as measured on ATD	mm	675	598
Remainder of belt on reel	mm	1545	1638
Total belt length for continuous webbing systems	mm	3130	3130

DATA SHEET NO. 2
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006

TEST VEHICLE INFORMATION

Manufacturer	Honda
Model	Fit
Body Style	5-Door Sport
NHTSA No.	M75300
VIN	JHMGD38687S000712
Color	Storm Silver M.
Delivery Date	4/25/06
Odometer Reading (mile)	38
Dealer	Boyland Honda
Transmission	Automatic
Final Drive	Front
Number of Cylinders	4
Engine Displacement (L)	1.5
Engine Placement	Lateral
Automatic Door Lock (ADL)	No
Owners Manual Details Instructions on Disabling ADLs	N/A
Bucket Seats	Yes

TEST VEHICLE OPTIONS

Front Airbag	Yes
Driver Side Curtain Airbag	Yes
Driver Side Torso Airbag	Yes
Rear Passenger Side Curtain Airbag	Yes
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	No

DATA FROM CERTIFICATION LABEL

Manufactured By	Honda Motor Co., Ltd.
Date of Manufacture	3/06

GVWR (kg)	1563
GAWR Front (kg)	851
GAWR Rear (kg)	720

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Split Bench		
Number of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				385
Cargo Wt. (RCLW) (kg)				44.8

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

Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	Kg	373.3	214.6		403.7	278.0	
Right	kg	365.2	205.0		402.4	266.3	
Ratio	%	63.8	36.2		59.7	40.3	
Totals	kg	738.5	419.6	1158.1	806.1	544.3	1350.4

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1158.1
Weight of 2 P572E ATDs	kg	156.0
Rated Cargo/Luggage Weight (RCLW)	kg	44.8
Calculated Vehicle Target Weight (TVTW)	kg	1358.9

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	644	649	637	645	888
As Tested	mm	631	633	601	610	988
Post Test	mm	518	520	582	584	

Vehicle Wheelbase (mm): 2452

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

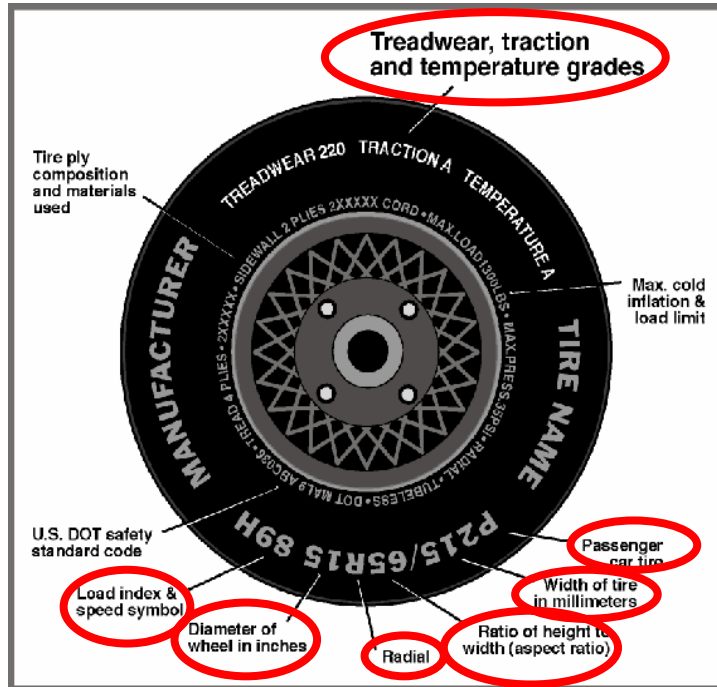
Vehicle Components Removed: Spare tire

DATA SHEET NO. 3

TEST VEHICLE TIRE INFORMATION

Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold Pressure (max)	220	220
Recommended Tire Size	P195/55R15	P195/55R15
Tire size on Vehicle	P195/55R15	P195/55R15
Tire Manufacturer	Dunlop	Dunlop
Tire Name	SP37	SP37
Tire Type	All Season	All Season
Tire Width (mm)	195	195
Ratio of Height to Width (aspect ratio)	55	55
Radial	R	R
Wheel Diameter	15	15
Load Index & Speed Symbol	84H	84H
Treadwear	320	320
Traction Grade	A	A
Temperature Grade	A	A

DATA SHEET NO. 4 **TEST VEHICLE INFORMATION**

Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006

NORMAL DESIGN RIDING POSITION

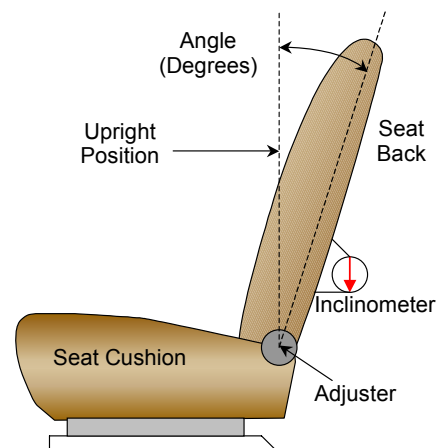
The driver and passenger seat back is positioned to the manufacturer's designated angle. The procedure is as follows: 5 detents rearward from the forward-most locking position.

Driver seat back angle: 5th detent (1st as 0)

Passenger seat back angle: 5th detent (1st as 0)

SEAT FORE/AFT POSITIONING

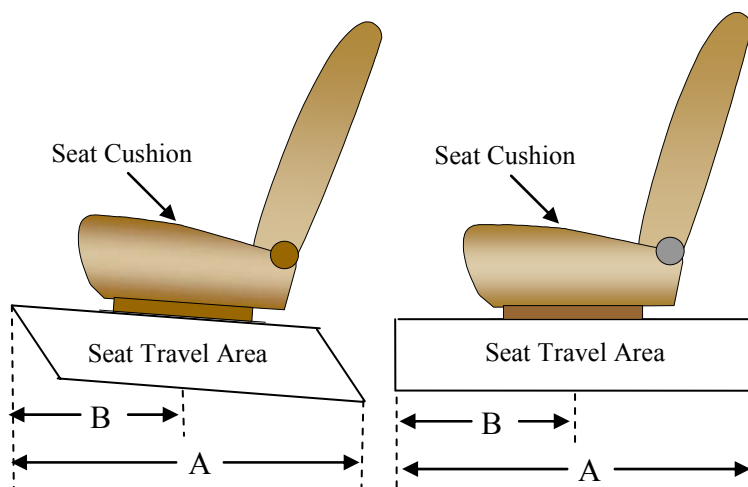
	Total Fore/Aft Travel	Placed in Position #
Driver Seat	240 mm/25 detents	120 mm/12 detents
Passenger Seat	210 mm/22 detents	110 mm/11 detents



FRONT SEAT ASSEMBLY

ADJUSTABLE D-RING POSITION

The D-Ring was placed in the uppermost position.



DATA SHEET NO. 4...(CONTINUED)

TEST VEHICLE INFORMATION

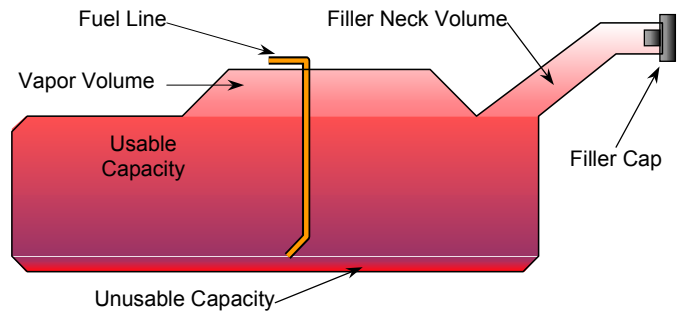
Test Vehicle: 2007 Honda Fit 5-Dr Sport
Test Program: 35mph Frontal Impact

NHTSA No.: M75300
Test Date: 5/09/2006

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	40.9
Usable Capacity of "Optional" Tank	
92-94% of Usable Capacity	37.6 to 38.4
Actual Amount of Solvent used	37.6
1/3 of Usable Capacity	13.6

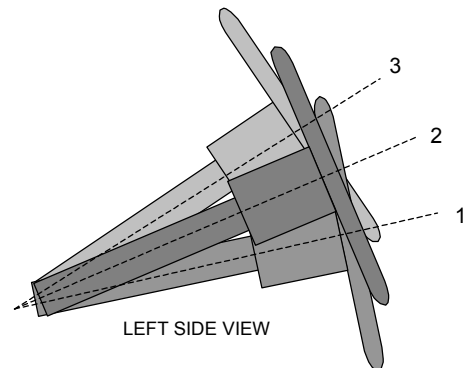
The test vehicle is equipped with an electric fuel pump. After the ignition key is turned from LOCK (0) to ON (II) position, the pump will be filled up for two seconds, and then the pressure is maintained.



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

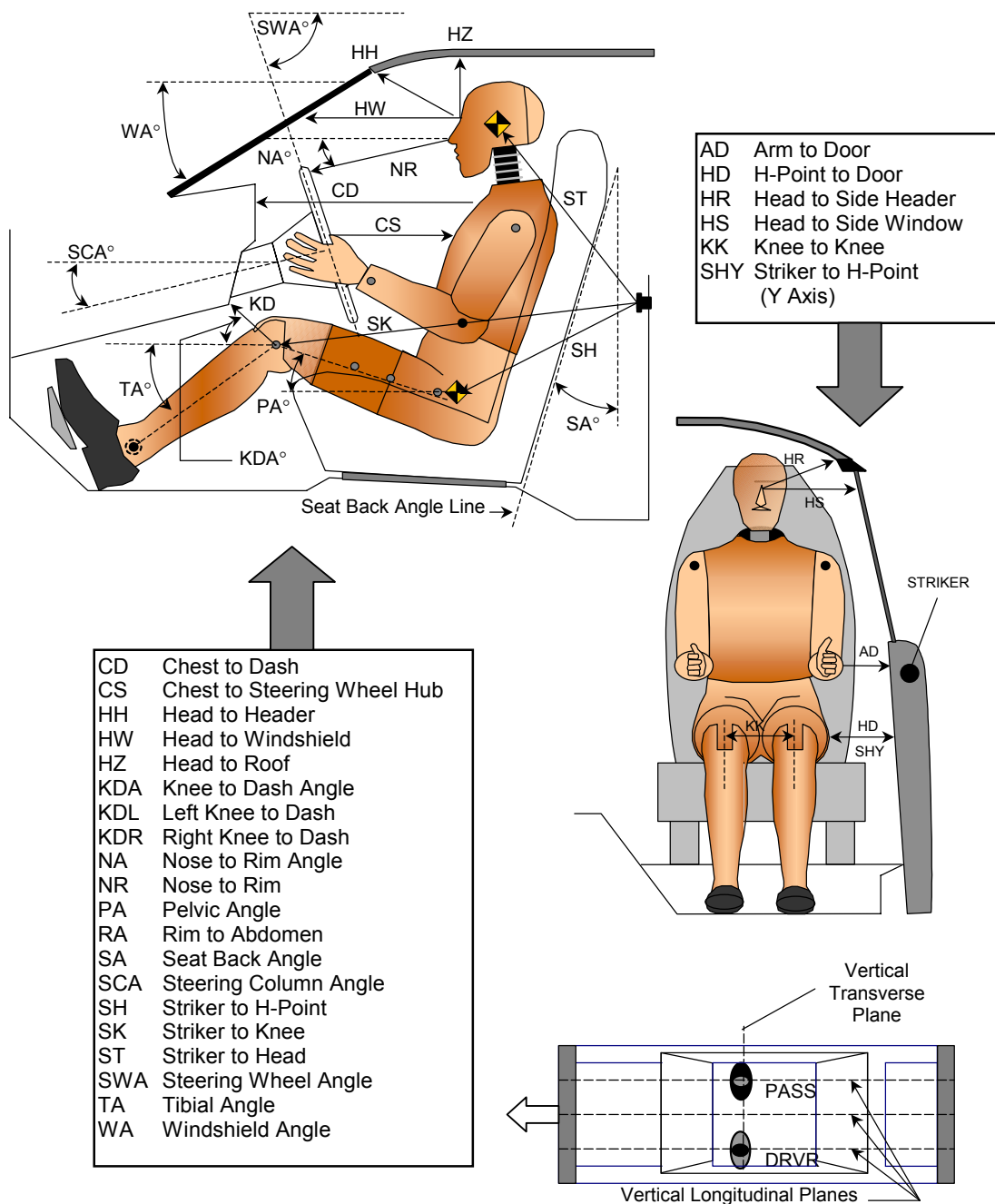
	Fore/Aft Position (mm)	Degrees
Lowermost position No. 1		18.6
Geometric center position No. 2		21.5
Uppermost position No. 3		24.4

DATA SHEET NO. 5 **DUMMY POSITIONING IN VEHICLE**

Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006

DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



DATA SHEET NO. 5... (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006

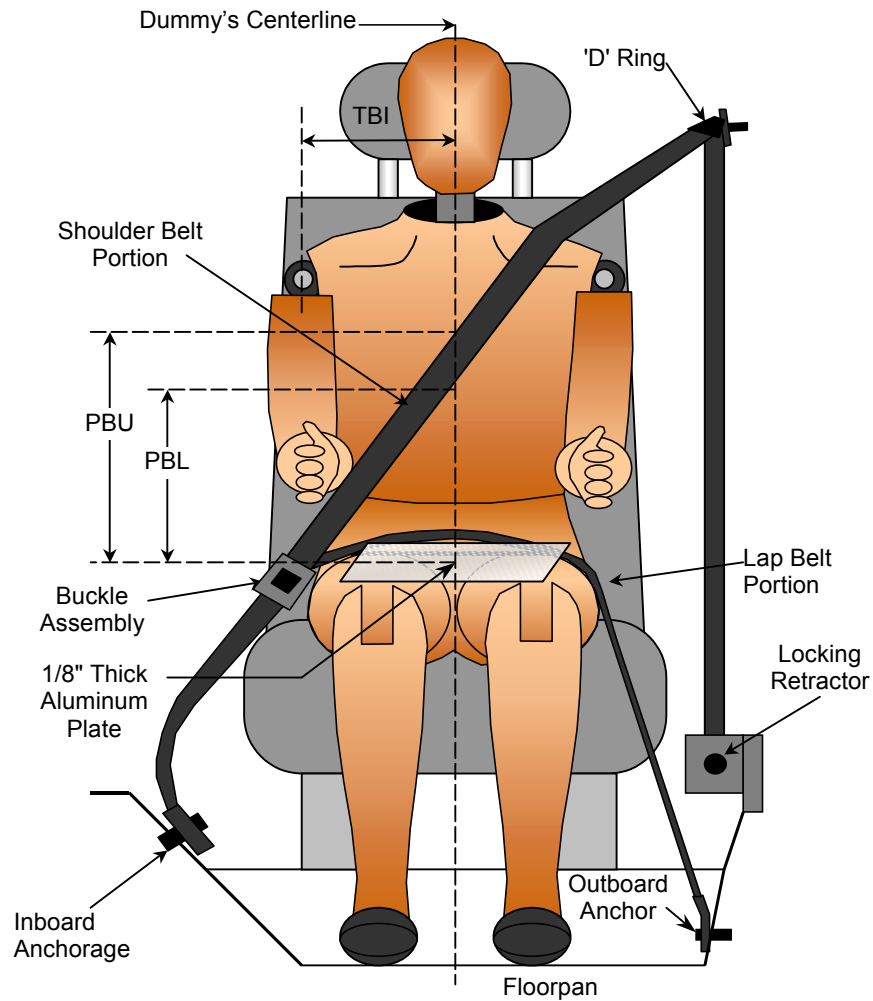
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		27.7		
SWA	Steering Wheel Angle		68.5		
SCA	Steering Column Angle		21.5		
SA	Seat Back Angle		13.3		12.2
HZ	Head to Roof (Z)	233	90.0	224	90.0
HH	Head to Header	390	26.1	390	23.1
HW	Head to Windshield	673	0.0	680	0.0
HR	Head to Side Header (Y)	226		230	
NR	Nose to Rim	396	10.5		
CD	Chest to Dash	525		541	
CS	Chest to Steering Hub	330	5.4		
RA	Rim to Abdomen	225	0.0		
KDL	Left Knee to Dash	135	24.4	128	
KDR	Right Knee to Dash	137		129	25.5
PA	Pelvic Angle		24.3		23.8
TA	Tibia Angle		47.0		47.5
KK	Knee to Knee (Y)	285		270	
SK	Striker to Knee	600	90.3	612	95.9
ST	Striker to Head	517	11.0	510	12.3
SH	Striker to H-Point	259	120.6	263	121.5
SHY	Striker to H-Point (Y)	236		227	
HS	Head to Side Window	319		319	
HD	H-Point to Door (Y)	140		126	
AD	Arm to Door (Y)	104		109	
AA	Ankle to Ankle	245		204	

DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU - Top surface of reference to belt upper edge	mm	350	347
PBL - To surface of reference to belt lower edge	mm	270	270

DATA SHEET NO. 7
VEHICLE ACCELEROMETER LOCATIONS

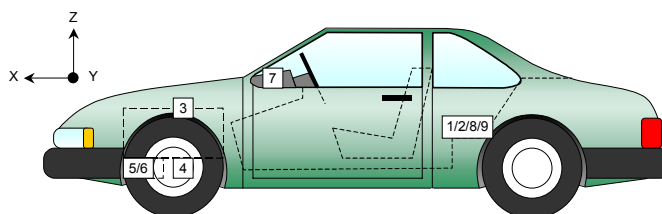
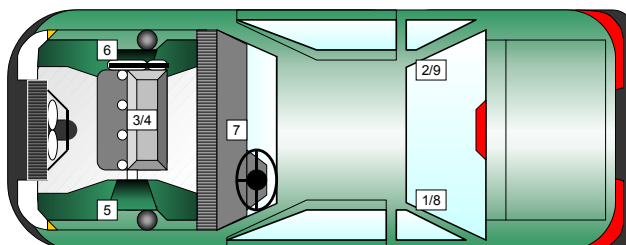
Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006

VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Left Rear X-Member X	1062	-463	444
2	Right Rear X-Member X	1062	463	444
3	Engine Top X	3338	280	785
4	Engine Bottom X	3382	205	182
5	Left Brake Caliper X	3210	-645	195
6	Right Brake Caliper X	3207	645	195
7	Instrument Panel X			
8	Left Rear X-Member Z	1062	-463	444
9	Right Rear X-Member Z	1062	463	444

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: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006

Windshield Mounting Details:

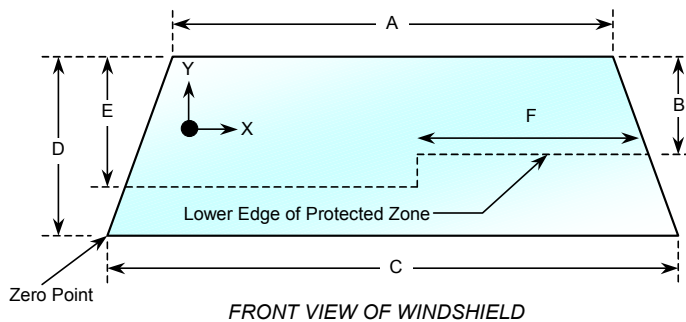
Windshield glass is secured to the vehicle frame with a rubber trim and glue.

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	2074	1707	82.3
Right Side	2074	1711	82.5
Total	4148	3418	82.4



Item	Units	Value
A	mm	1137
B	mm	520
C	mm	1325
D	mm	843
E	mm	571
F	mm	462

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: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006

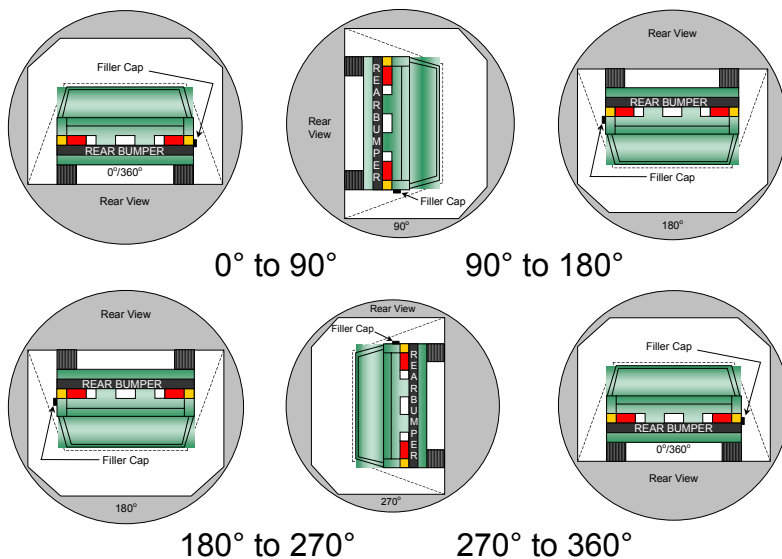
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21° C Test Time: 12:33 pm

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°	166	300	0
90° to 180°	150	300	0
180° to 270°	146	300	0
270° to 360°	170	300	0

DATA SHEET NO. 10
VEHICLE MEASUREMENTS

Test Vehicle: 2007 Honda Fit 5-Dr Sport
Test Program: 35mph Frontal Impact

NHTSA No.: M75300
Test Date: 5/09/2006

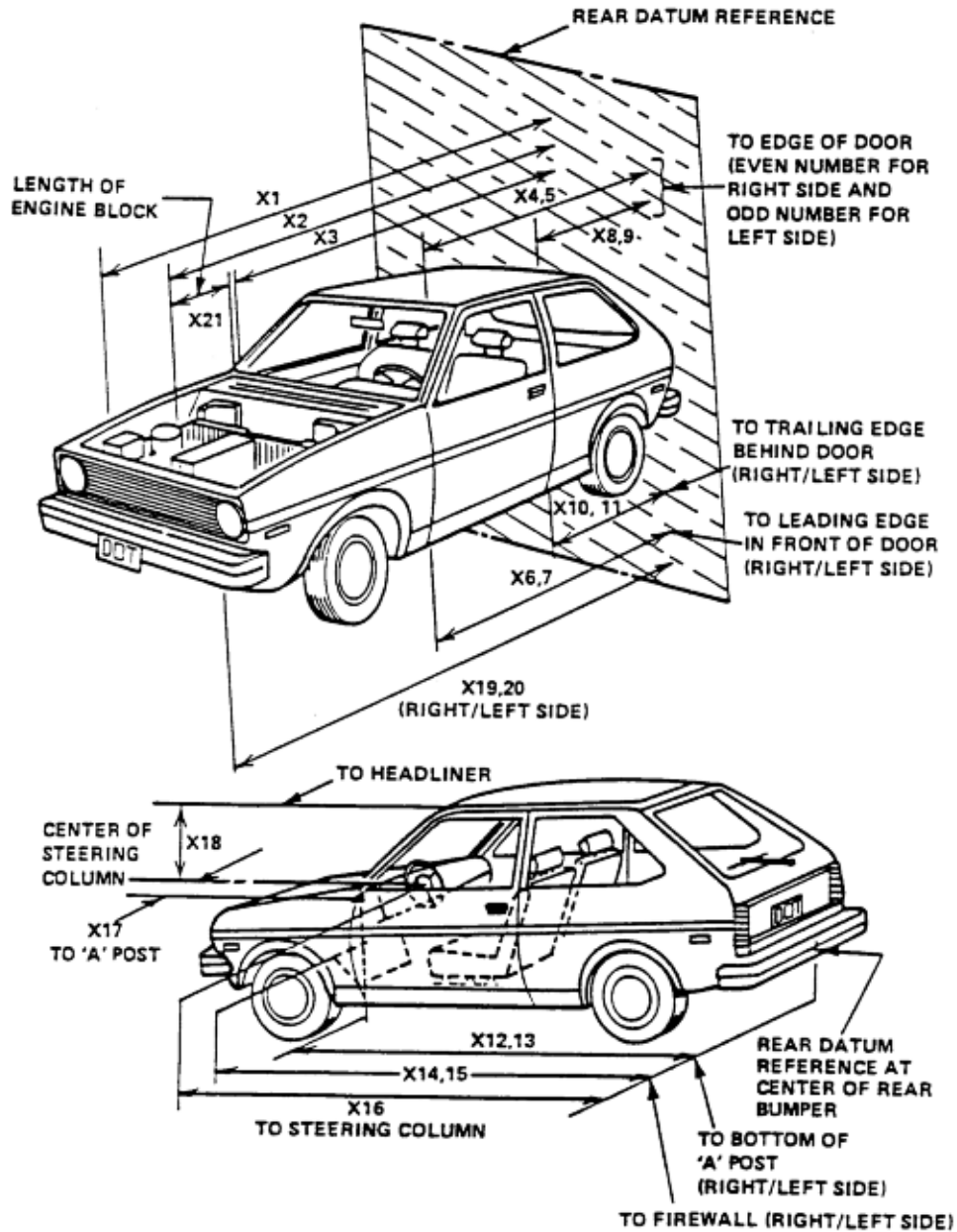
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total length of vehicle at centerline	mm	3963	3463	500
2	RSOV to front of engine	mm	3513	3291	222
3	RSOV to firewall centerline	mm	3189	3017	172
4	RSOV to leading edge of right door	mm	2695	2701	-6
5	RSOV to leading edge of left door	mm	2690	2714	-24
6	RSOV to lower leading edge of right door	mm	2674	2664	10
7	RSOV to lower leading edge of left door	mm	2676	2680	-4
8	RSOV to upper leading edge of right door	mm	1637	1649	-12
9	RSOV to upper leading edge of left door	mm	1634	1669	-35
10	RSOV to lower trailing edge of right door	mm	1647	1645	2
11	RSOV to lower trailing edge of left door	mm	1650	1652	-2
12	RSOV to bottom of right 'A' pillar	mm	2642	2637	5
13	RSOV to bottom of left 'A' pillar	mm	2634	2638	-4
14	RSOV to firewall on right side	mm	3039	3058	-19
15	RSOV to firewall on left side	mm	3044	3021	23
16	RSOV to steering column	mm	2287	2291	-4
17	Center of steering column to left 'A' pillar	mm	392	348	44
18	Center of steering column to headlining	mm	445	402	43
19	RSOV to right side of front bumper	mm	3735	3481	254
20	RSOV to left side of front bumper	mm	3735	3464	271
21	Length of engine block	mm	420	420	0
RD	RSOV to right side of dash panel	mm	2434	2442	-8
CD	RSOV to center of dash panel	mm	2492	2504	-12
LD	RSOV to left side of dash panel	mm	2432	2452	-20

DATA SHEET NO. 10... (continued)

VEHICLE MEASUREMENTS

Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006



DATA SHEET NO. 10... (continued)**VEHICLE MEASUREMENTS**

Test Vehicle: 2007 Honda Fit 5-Dr Sport
Test Program: 35mph Frontal Impact

NHTSA No.: M75300
Test Date: 5/09/2006

Target Vehicle Structural Measurement

	Elements	Pre-Test (mm)
1	Total Length	3963
2	Total Width	1667
3	Bumper Top Height	525
4	Bumper Bottom Height	400
5	Longitudinal Member Top Height	370
6	Distance between Longitudinal Members	840
7	Longitudinal Member Width	35
8	Engine Top Height	885
9	Engine Bottom Height	190
10	Engine and gearbox width	420
11	Front bumper-engine distance	445
12	Front shock absorber fixing height	855
13	Bonnet leading edge height	675
14	Front shock absorber fixing width	1075
15	Front bumper – front axle distance	852
16	Front axle – a pillar distance	345
17	A-pillar – B-pillar distance	1120
18	B-Pillar – rear axle distance	984
19	B-pillar – C-pillar distance	645
20	Roof sill bottom height	1370
21	Roof sill top height	1450
22	Floor sill bottom height	180
23	Floor sill top height	345

DATA SHEET NO. 11
CAMERA LOCATIONS

Test Vehicle: 2007 Honda Fit 5-Dr Sport
Test Program: 35mph Frontal Impact

NHTSA No.: M75300
Test Date: 5/09/2006

No.	Camera View	Location (mm) *			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Side View				13	24
2	Left Front View	1030	-4770	1210	24	1000
3	Steering Column Top	870	-5135	1260	25	1000
4	Steering Column Bottom	895	-5110	810	25	1000
5	Driver Close-up	1030	-6440	1485	35	1000
6	Driver Angle	5535	-4900	2025	50	1000
7	On board Driver Side					
8	On board Passenger Side					
9	Right Overall	1600	6410	1535	24	1000
10	Right Passenger Half	995	4680	1250	24	1000
11	Right Close-up	1130	6390	1485	35	1000
12	Right Angle	5645	5295	2045	50	1000
13	Windshield	-285	0	2370	25	1000
14	Top Driver	-75	-385	2185	24	1000
15	Top Passenger	-85	460	2190	24	1000
16	Pit Front	1360	0	-3150	24	1000
17	Pit Rear	3045	0	-3160	24	1000

***COORDINATES:**

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

Note: Cameras 7 and 8 were not used for this test.

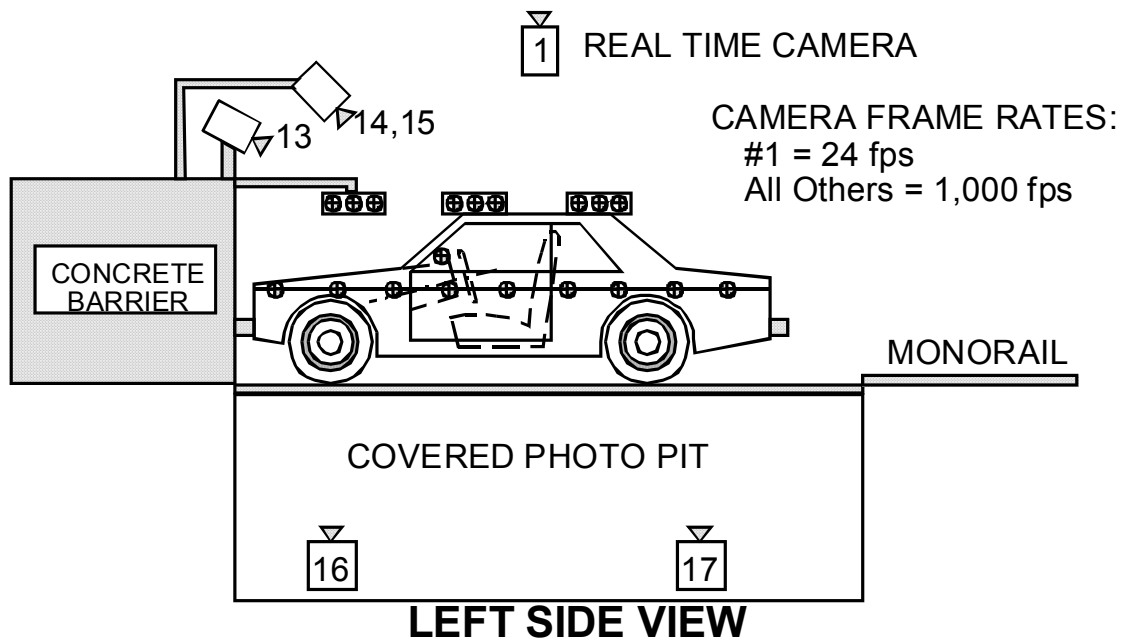
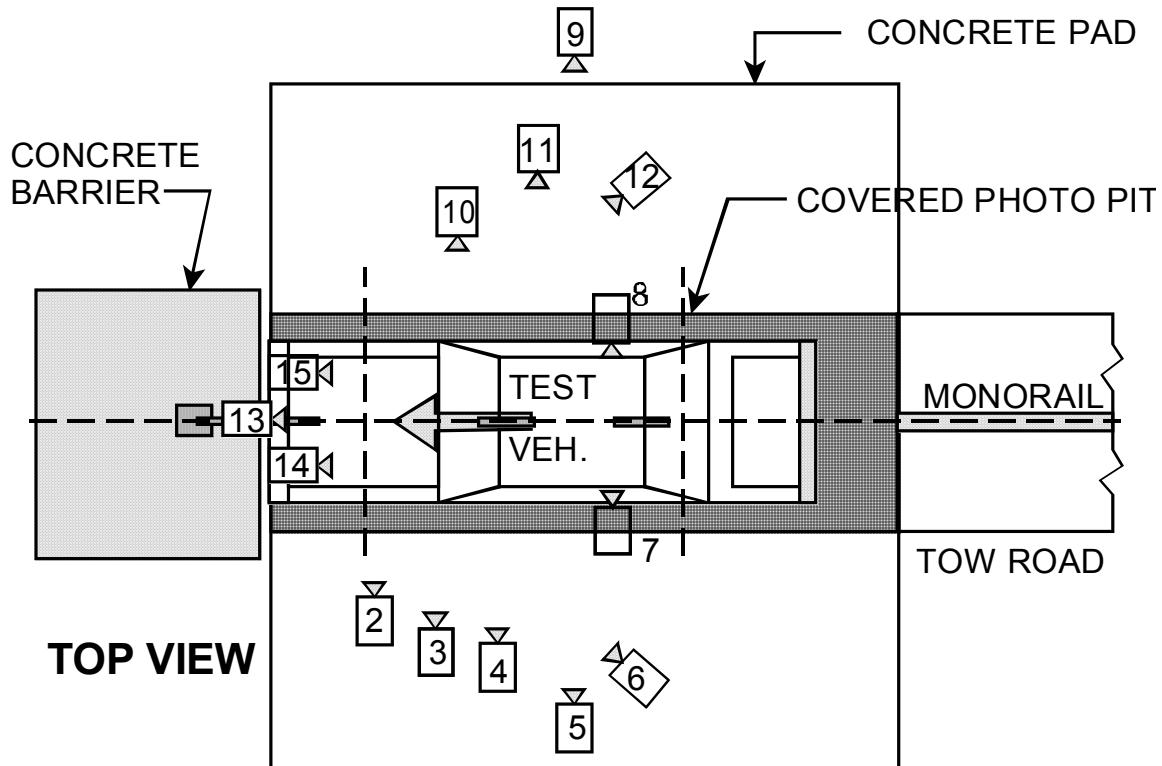
DATA SHEET NO. 11... (continued)

CAMERA LOCATIONS

Test Vehicle: 2007 Honda Fit 5-Dr Sport
Test Program: 35mph Frontal Impact

NHTSA No.: M75300
Test Date: 5/09/2006

CAMERA POSITIONS FOR FRONTAL IMPACTS

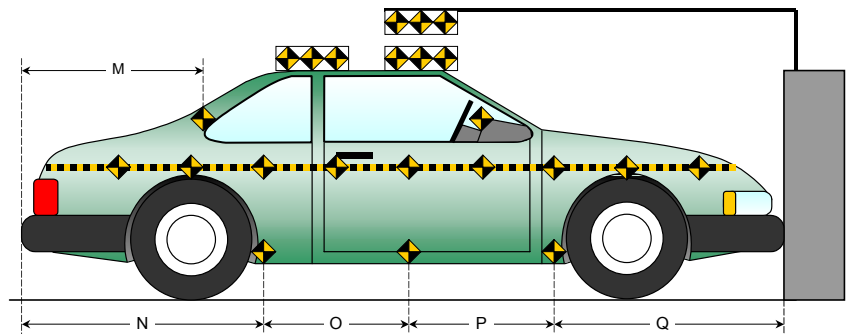
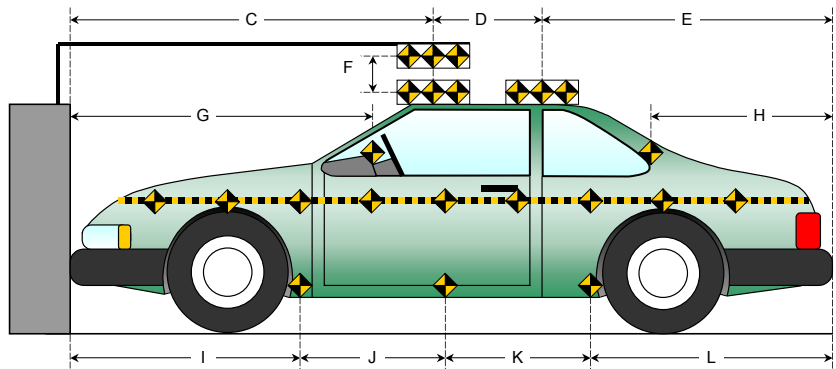
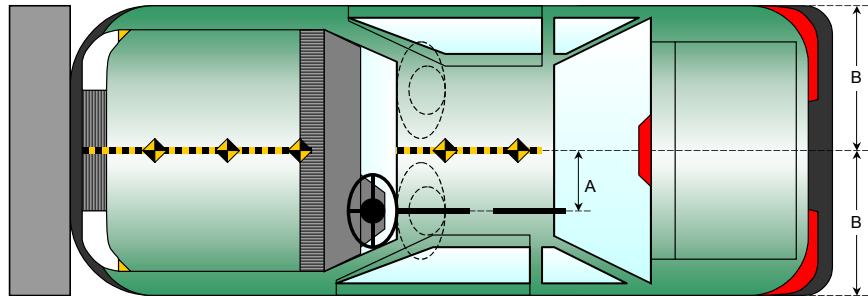


DATA SHEET NO. 12 **PHOTOGRAPHIC REFERENCE TARGET LOCATIONS**

Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006

Item	Value
A	320
B	833
C	2180
D	610
E	1173
F	
G	
H	420
I	1236
J	838
K	837
L	1052
M	432
N	1057
O	835
P	835
Q	1236



DATA SHEET NO. 13
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

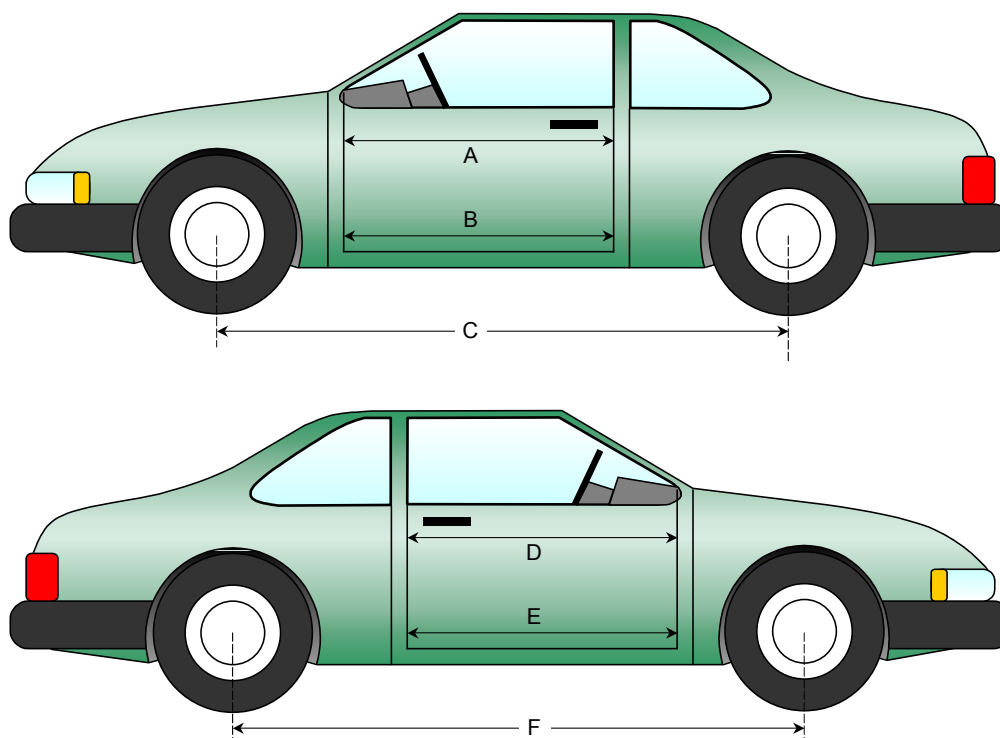
NHTSA No.: M75300
 Test Date: 5/09/2006

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	854	852	2
B	Left Side Lower	mm	828	830	-2
D	Right Side Upper	mm	855	852	3
E	Right Side Lower	mm	833	835	-2

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2452	2427	25
F	Right Side Wheelbase	mm	2452	2418	34



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

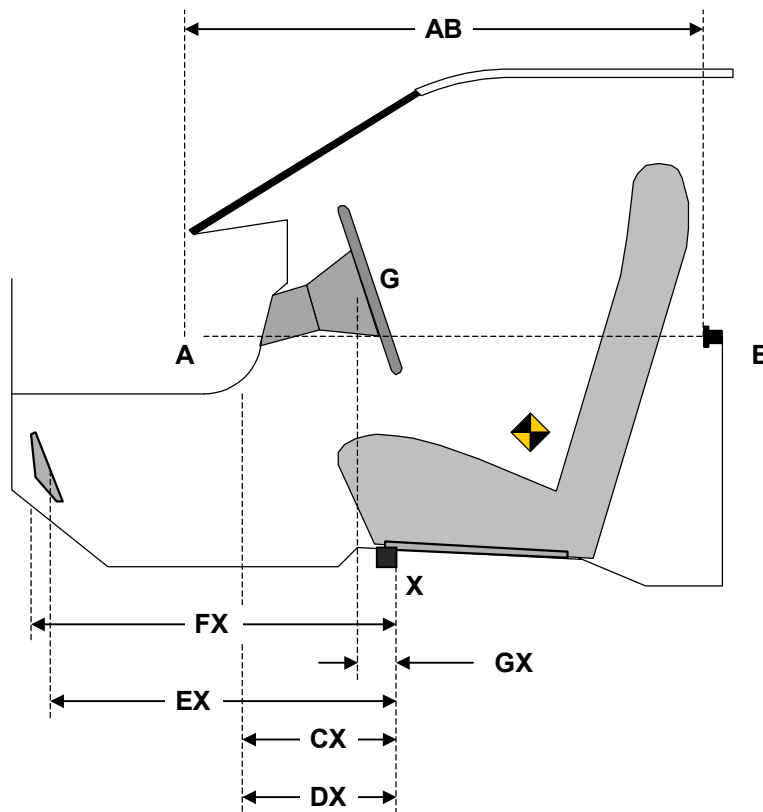
Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside window jam)	mm	854	852	2
CX	Left Knee Bolster to X	mm	232	237	-5
DX	Right Knee Bolster to X	mm	237	239	-2
EX	Brake Pedal to X	mm	500	455	45
FX	Foot Rest to X	mm	535	517	18
GX	Center of Steering Column Wheel Hub to X	mm	68	75	-7

X = Front of Seat Track (stationary)

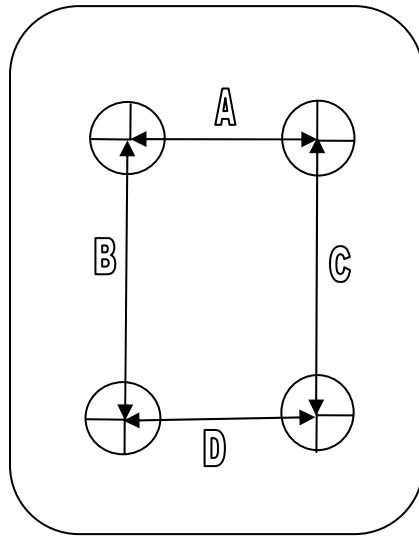


DRIVER COMPARTMENT

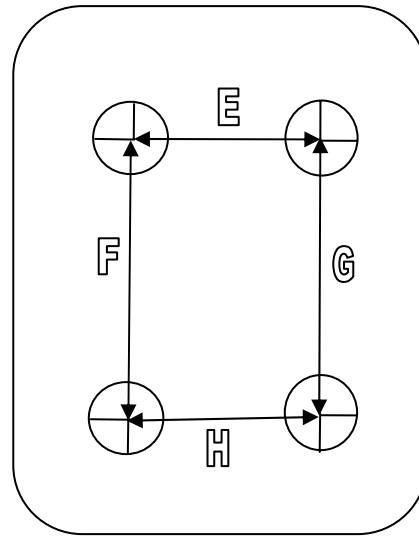
DATA SHEET NO. 13... (continued)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006



Driver



Passenger

UNDERBODY FLOORBOARD DEFORMATION

Measurement	Pre-Test	Post-Test	Difference
A	528	513	15
B	340	343	-3
C	275	258	17
D	505	484	21
E	460	463	-3
F	266	263	3
G	261	262	-1
H	460	458	2

DATA SHEET NO. 14

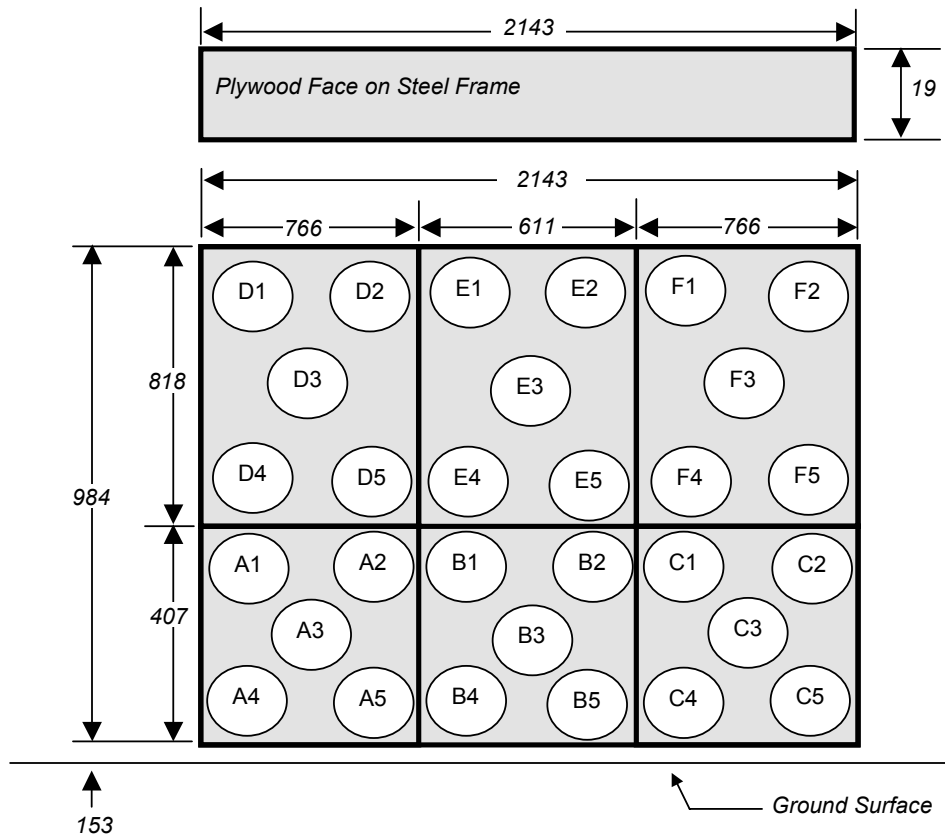
LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2007 Honda Fit 5-Dr Sport
 Test Program: 35mph Frontal Impact

NHTSA No.: M75300
 Test Date: 5/09/2006

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: 2007 Honda Fit 5-Dr Sport NHTSA No.: M75300
 Test Program: 35mph Frontal Impact Test Date: 5/09/2006

VEHICLE INFORMATION

VIN: JHMGD38687S000712 Wheelbase (mm) : 2452
 Vehicle Size Category: Passenger Car Test Weight (kg) : 1350.4

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): 61.0 Time of Separation (msec): 92

CRUSH PROFILE

Collision Deformation Classification: Frontal Midpoint of Damage: Centerline
 Damage Region Length (mm): 1690 Impact Mode: Frontal

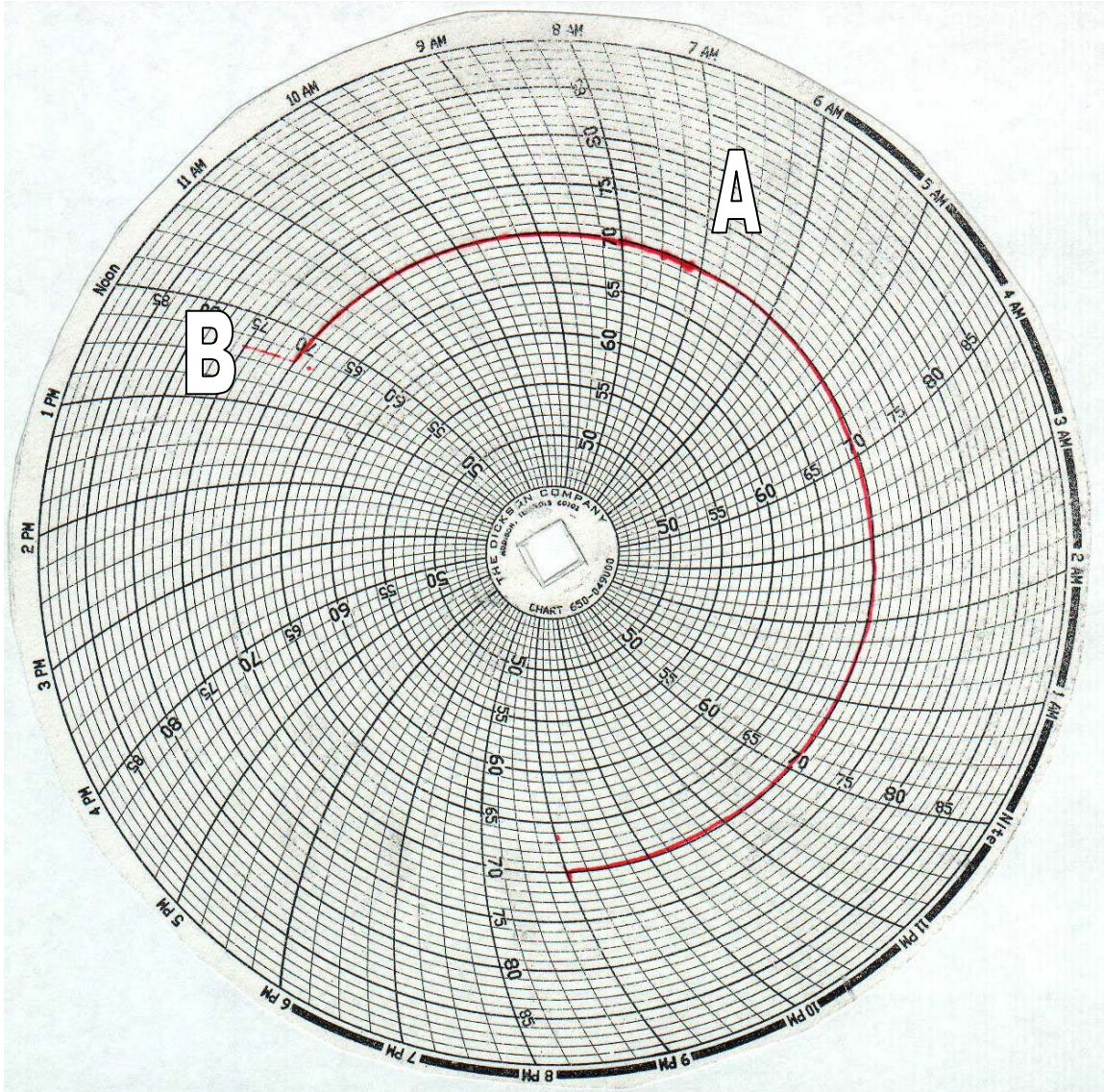
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	3735	3464	271
C2	Crush zone 2 at left side	mm	3865	3406	459
C3	Crush zone 3 at left side	mm	3930	3457	473
C4	Crush zone 4 at right side	mm	3930	3451	479
C5	Crush zone 5 at right side	mm	3864	3427	437
C6	Crush zone 6 at right side	mm	3735	3481	254
L	C1 TO C6	mm	1537	1457	78

DATA SHEET NO. 16

DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2007 Honda Fit 5-Dr Sport
Test Program: 35mph Frontal Impact

NHTSA No.: M75300
Test Date: 5/09/2006



A = Dummies installed in vehicle at 7:00 am

B = Test conducted at 12:33 pm

APPENDIX A
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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 $\frac{3}{4}$ View



Post-Test Right Front $\frac{3}{4}$ View



Pre-Test Left Rear 3/4 View



Post-Test Left Rear 3/4 View



Pre-Test Left Side $\frac{3}{4}$ View of Doors



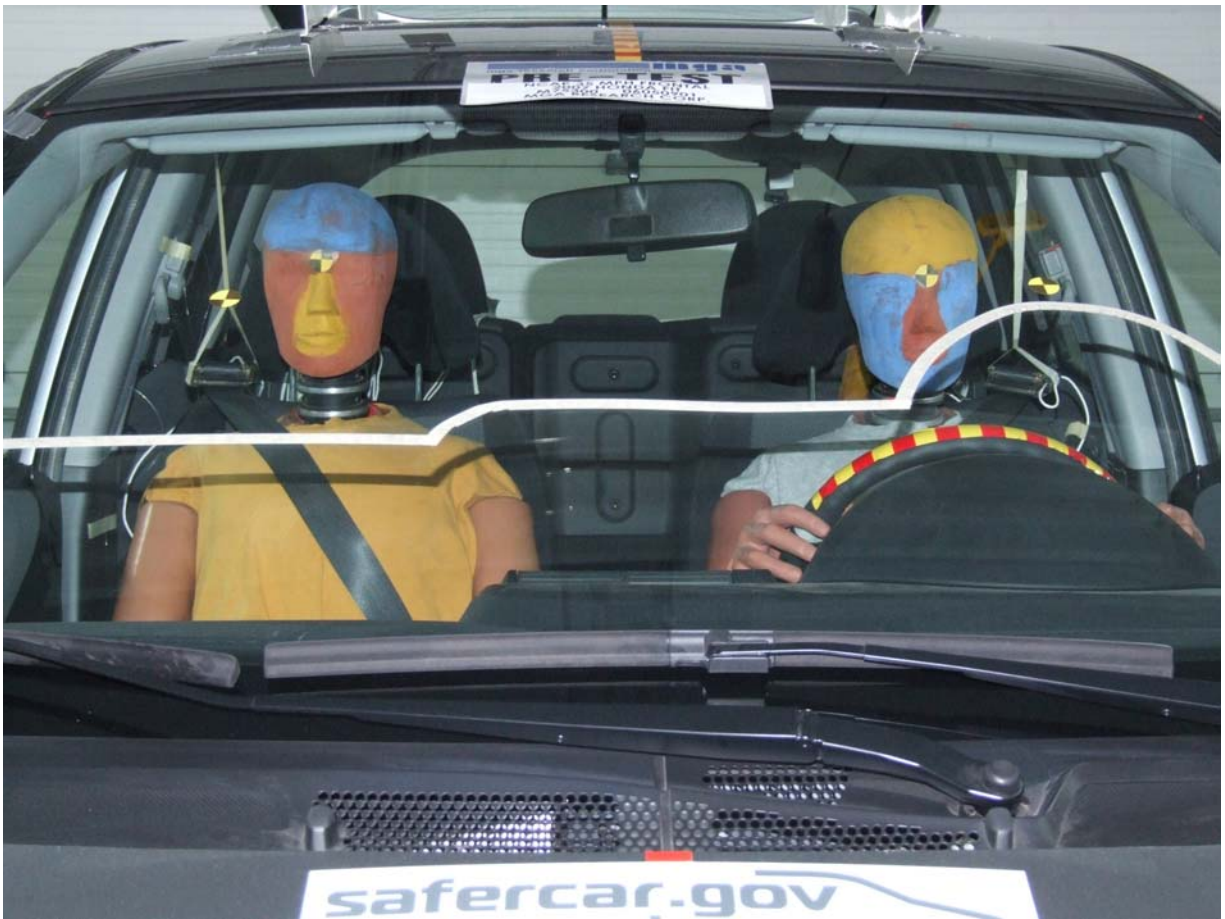
Post-Test Left Side $\frac{3}{4}$ View of Doors After Impact



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



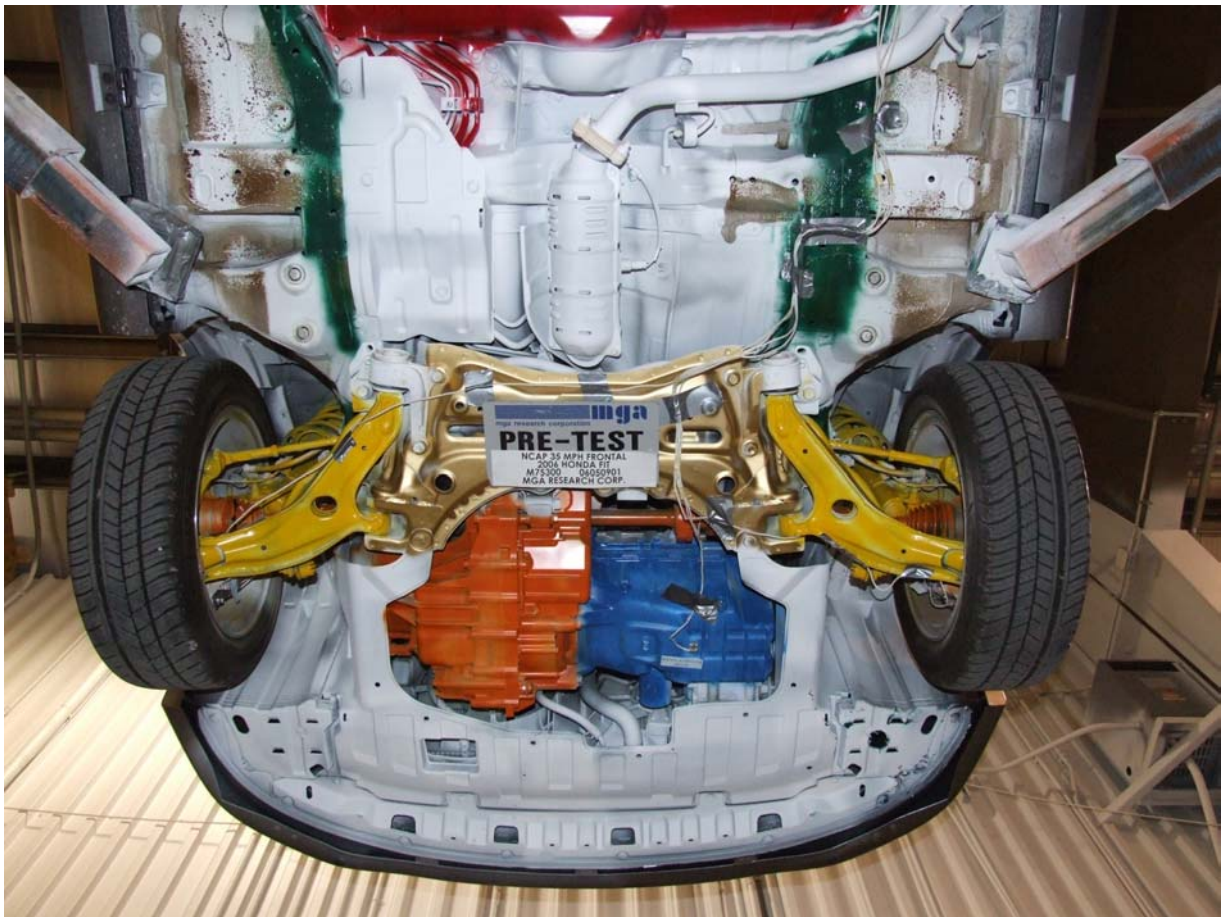
Post-Test Engine Compartment View



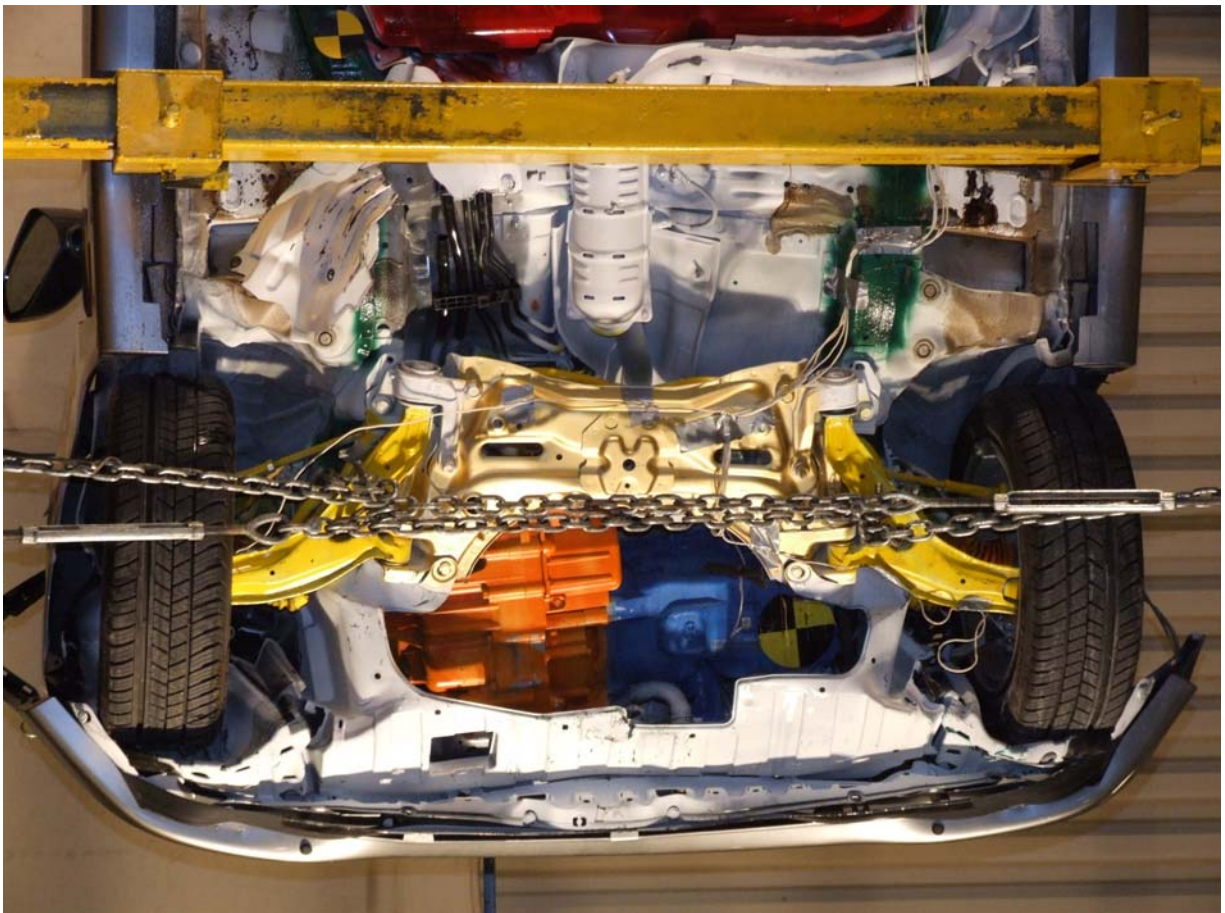
Pre-Test Fuel Cap View



Post-Test Fuel Cap View



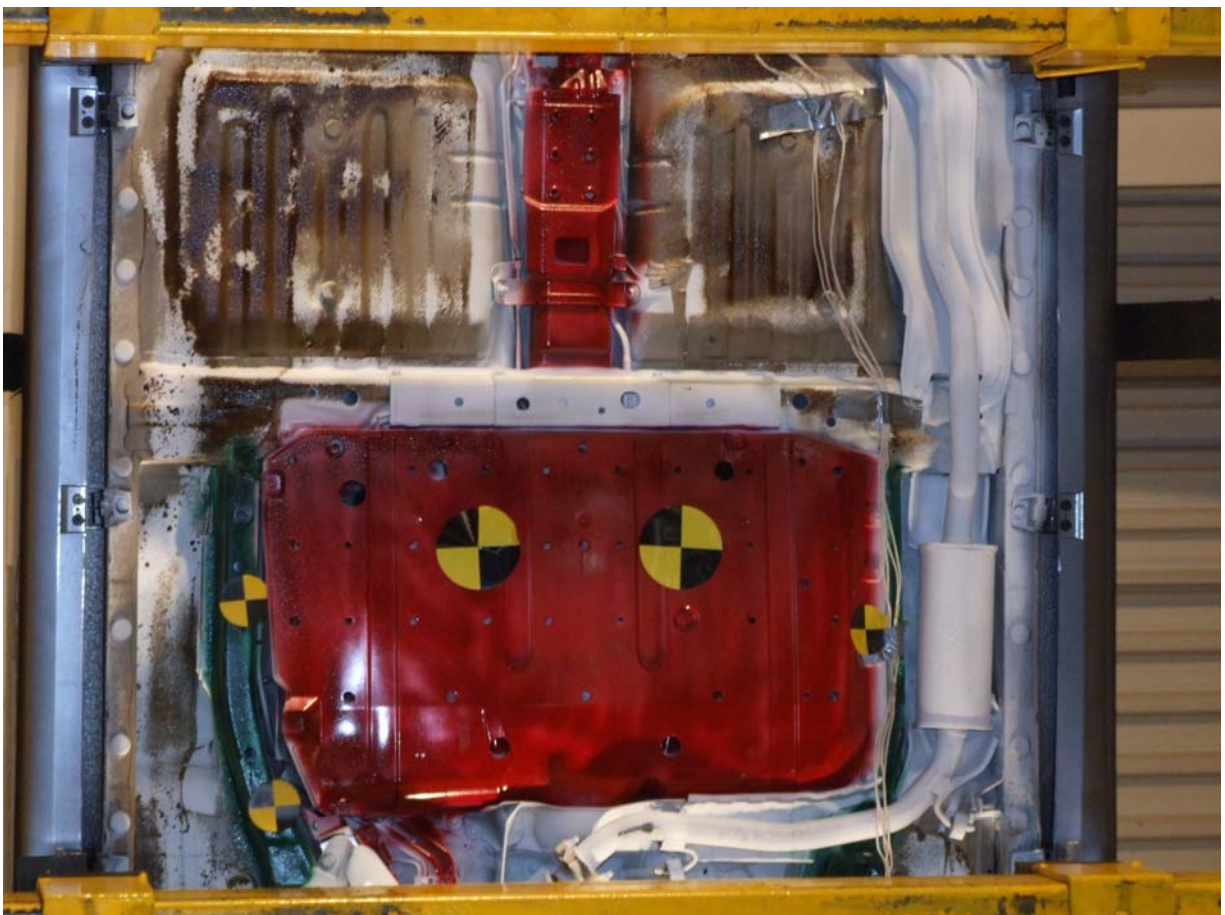
Pre-Test Front Underbody View



Post-Test Front Underbody View



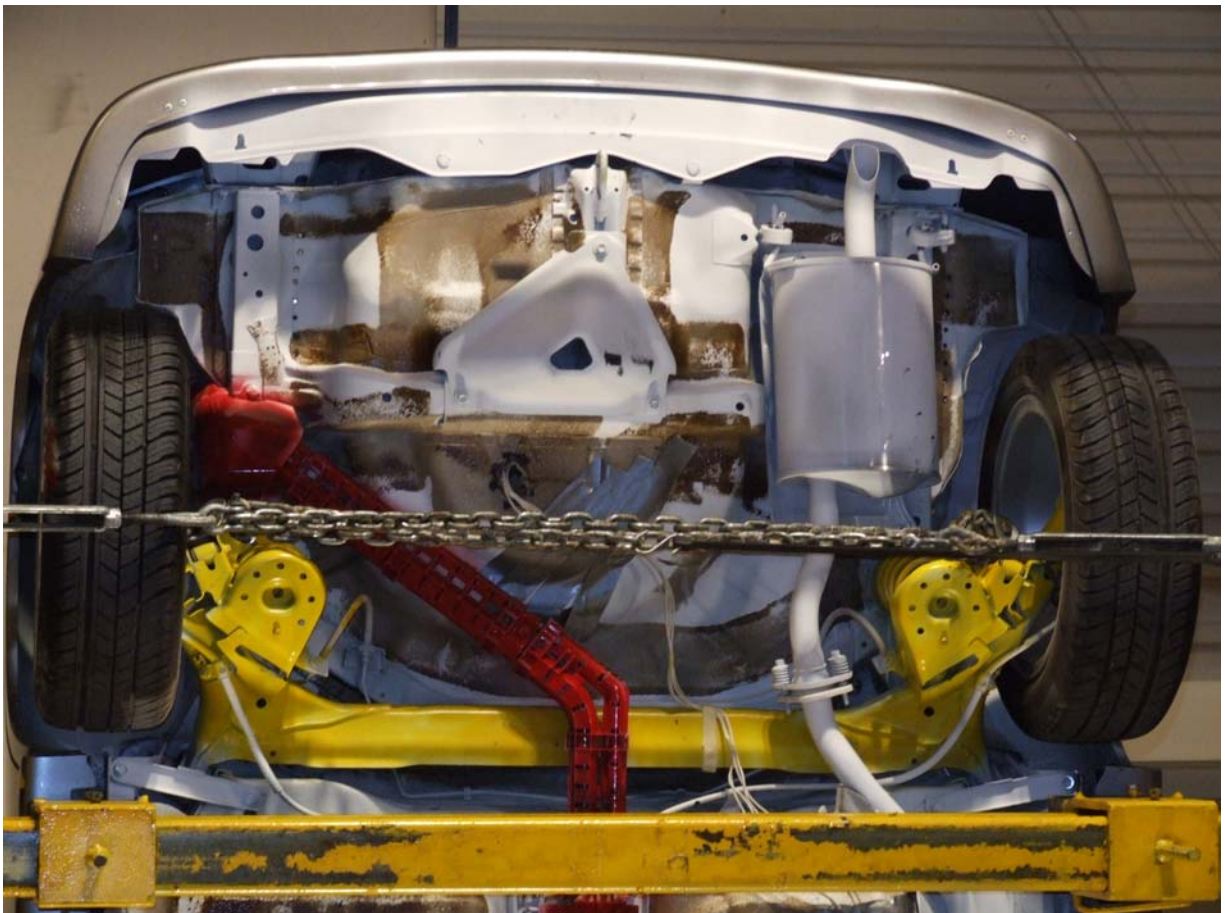
Pre-Test Mid Underbody View



Post-Test Mid 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



Post-Test Driver Dummy Knee Contact



Post-Test Driver Dummy Left Knee Contact



Post-Test Driver Dummy Right 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



Post-Test Passenger Dummy Knee Contact



Post-Test Passenger Dummy Airbag Contact



Vehicle on Rollover Device at 90 Degrees



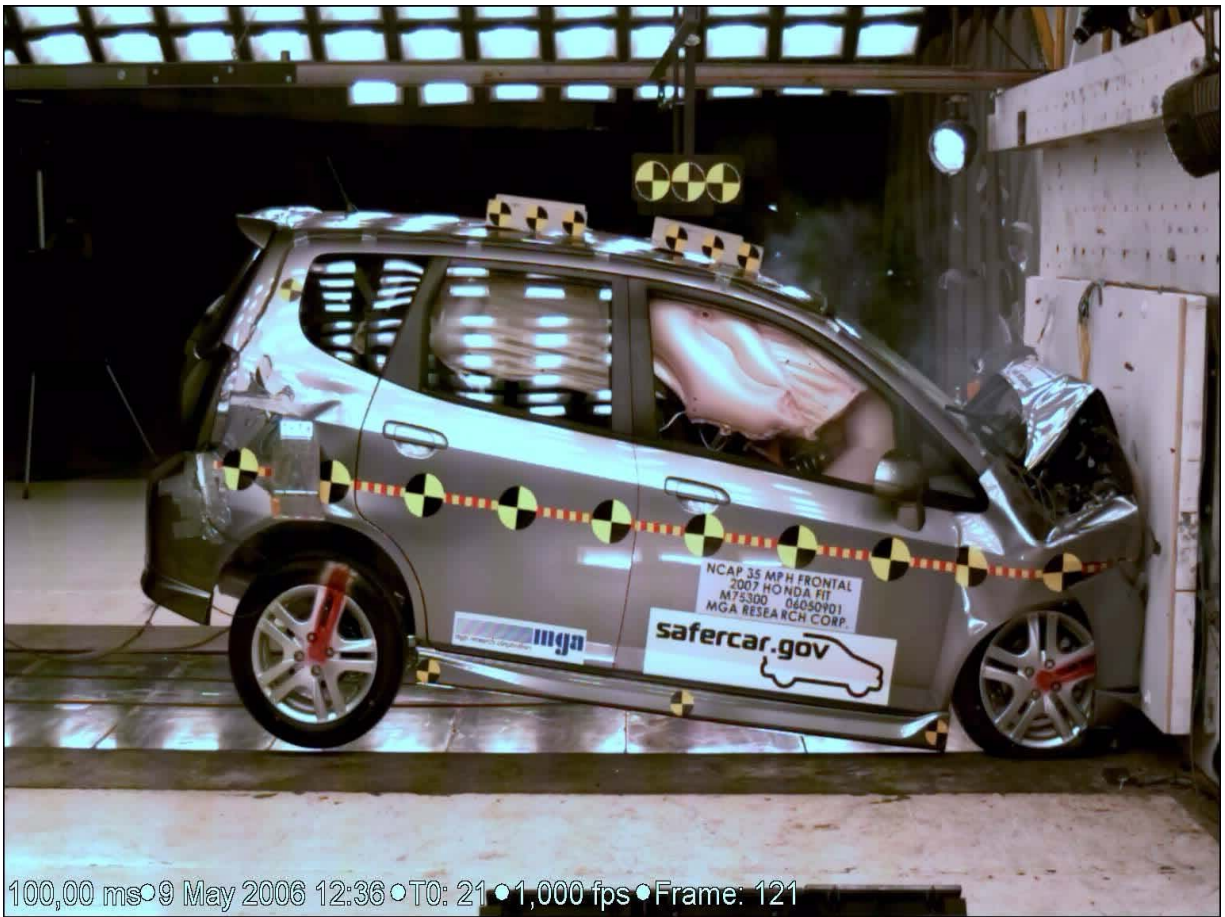
Vehicle on Rollover Device at 180 Degrees



Vehicle on Rollover Device at 270 Degrees



Vehicle on Rollover Device at 360 Degrees



Vehicle Impact

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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

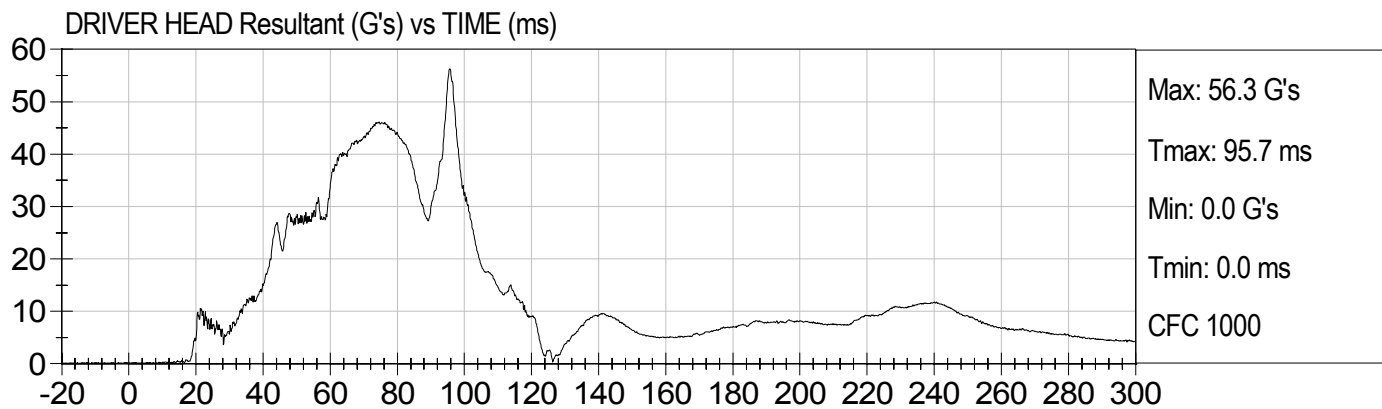
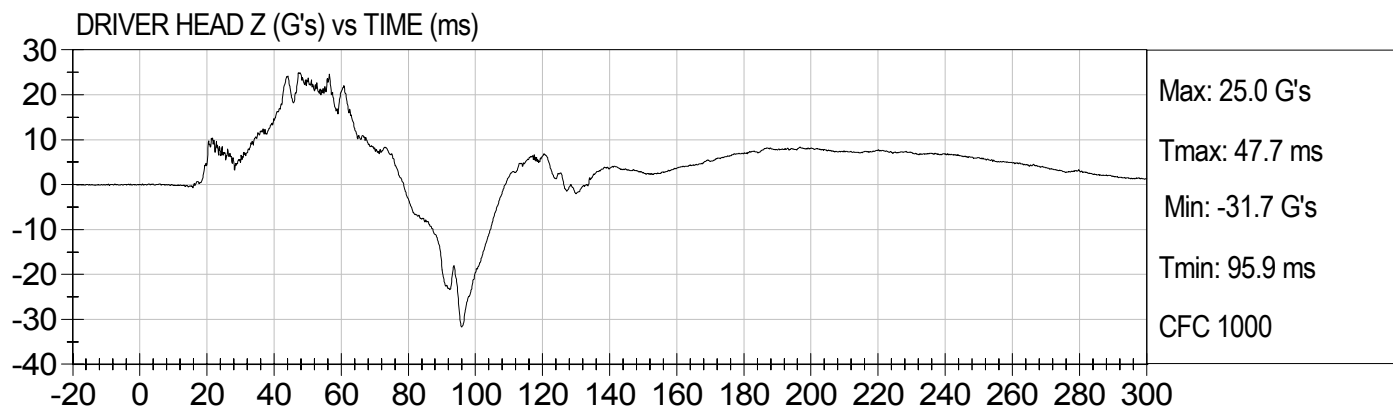
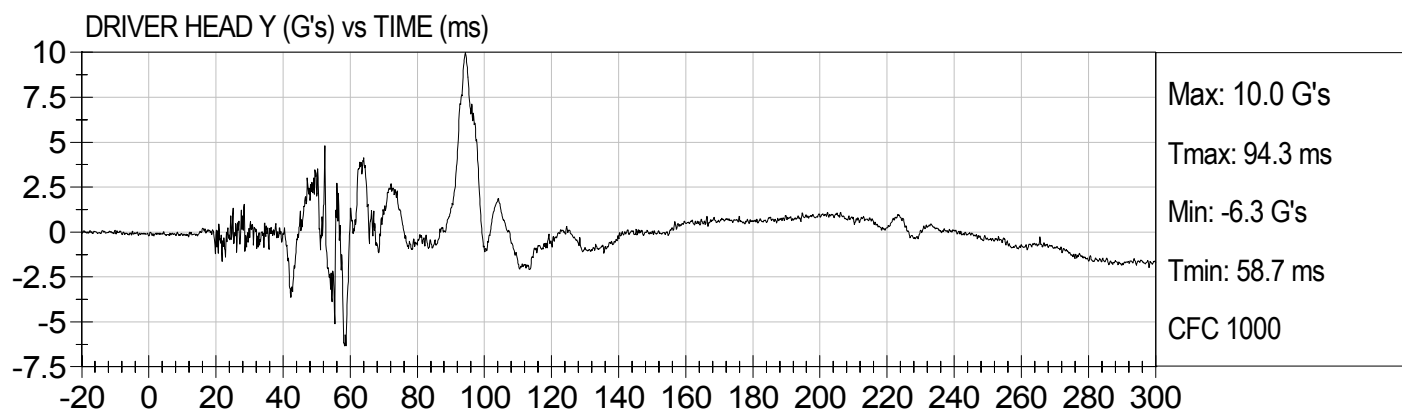
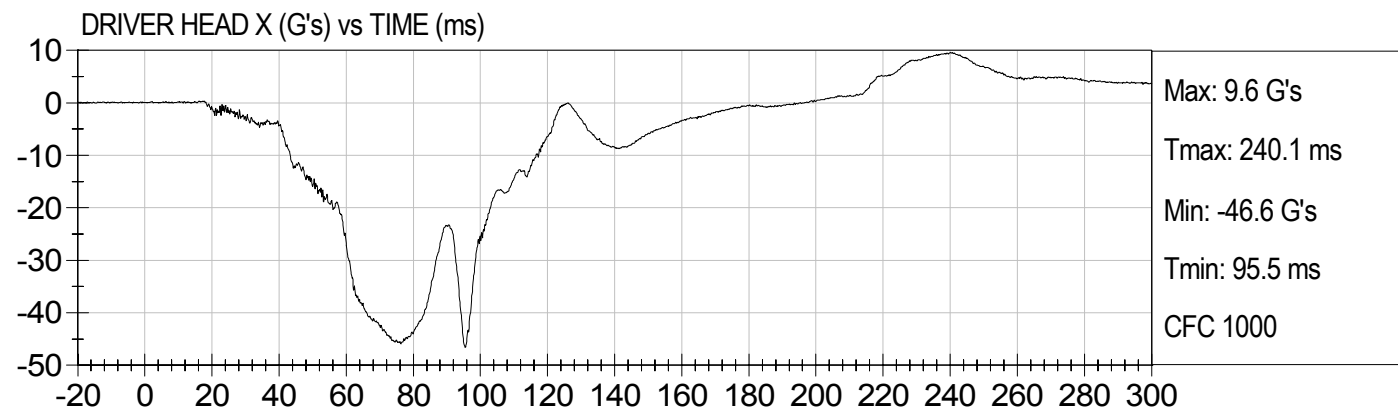
Driver Left Lower Tibia Force Z

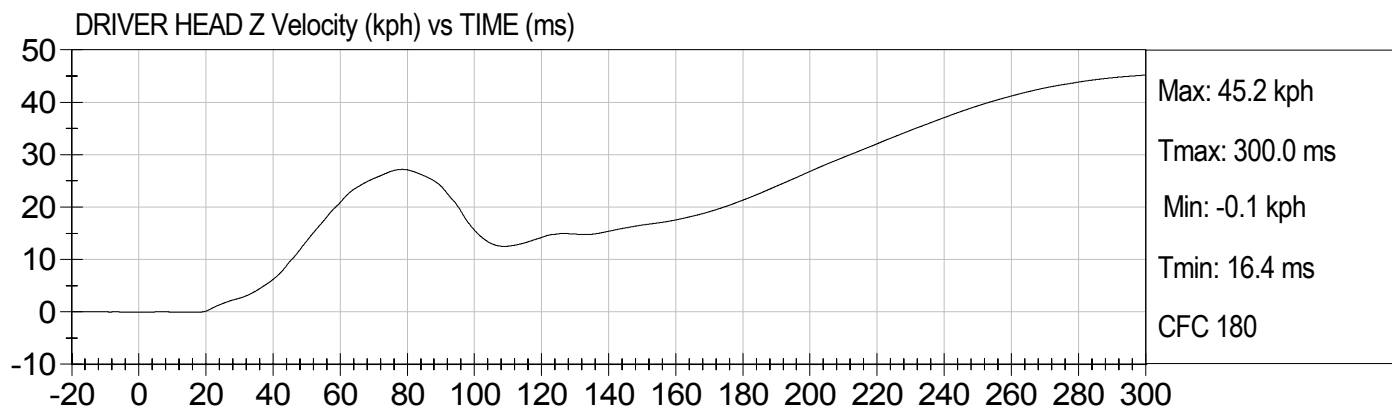
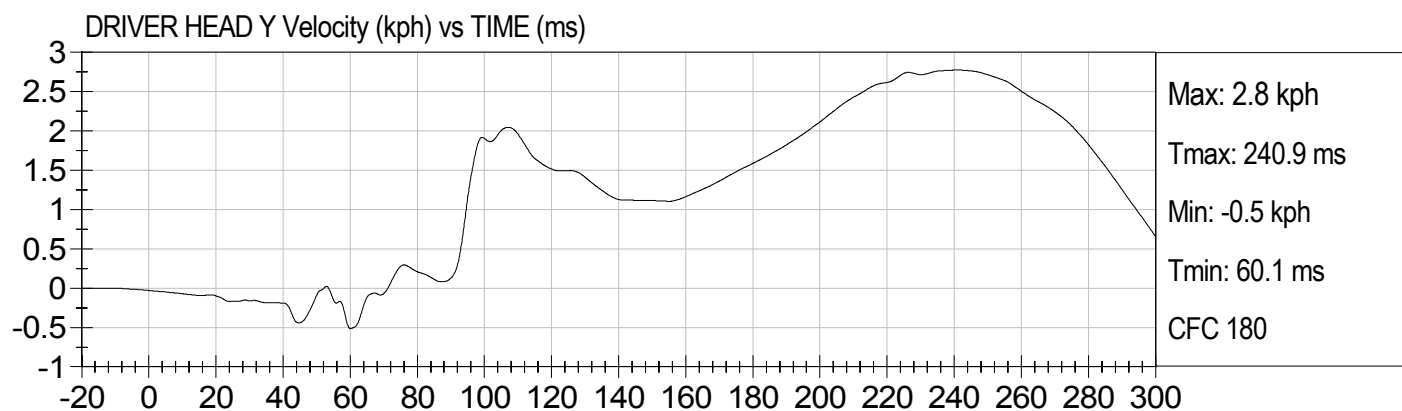
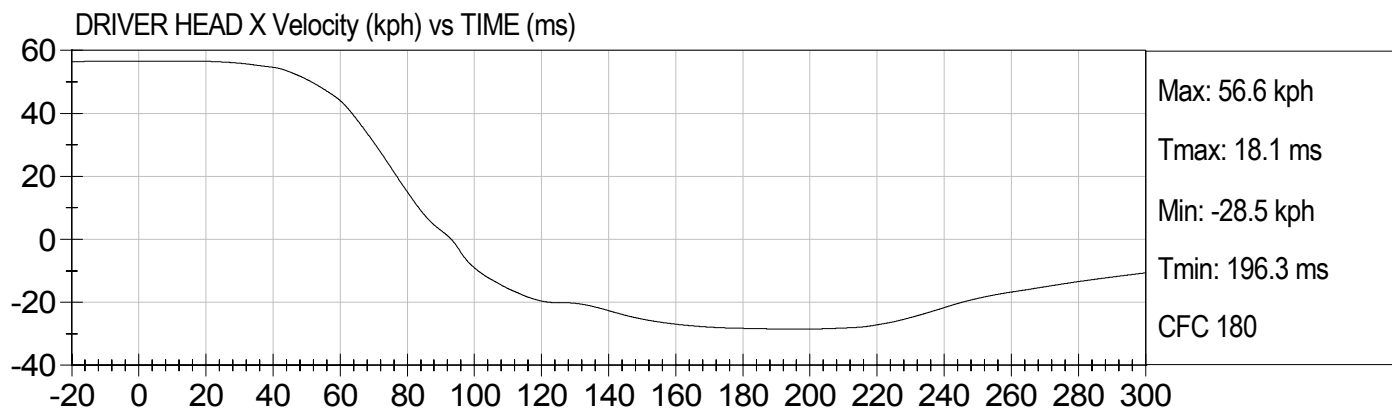
Driver Right Upper Tibia Moment X

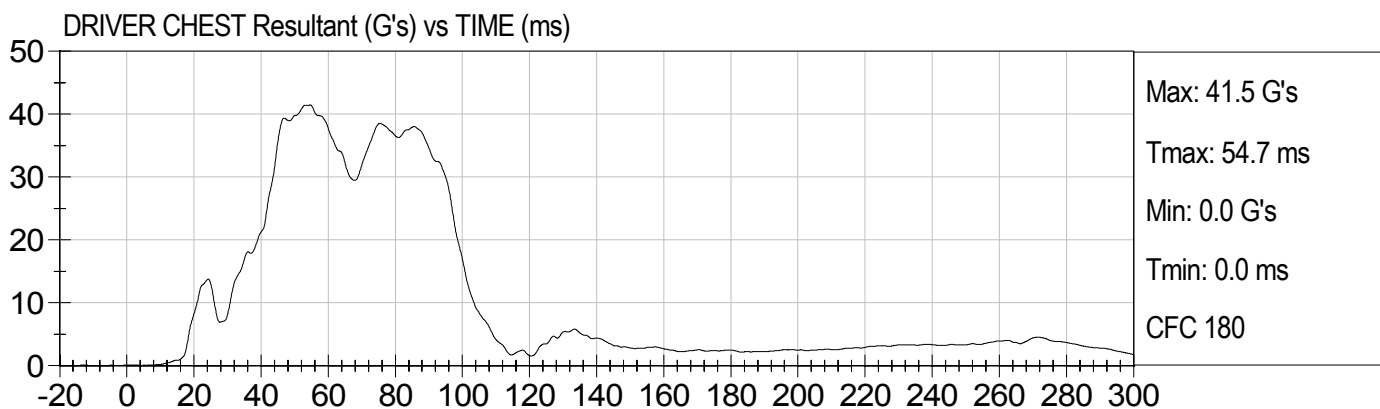
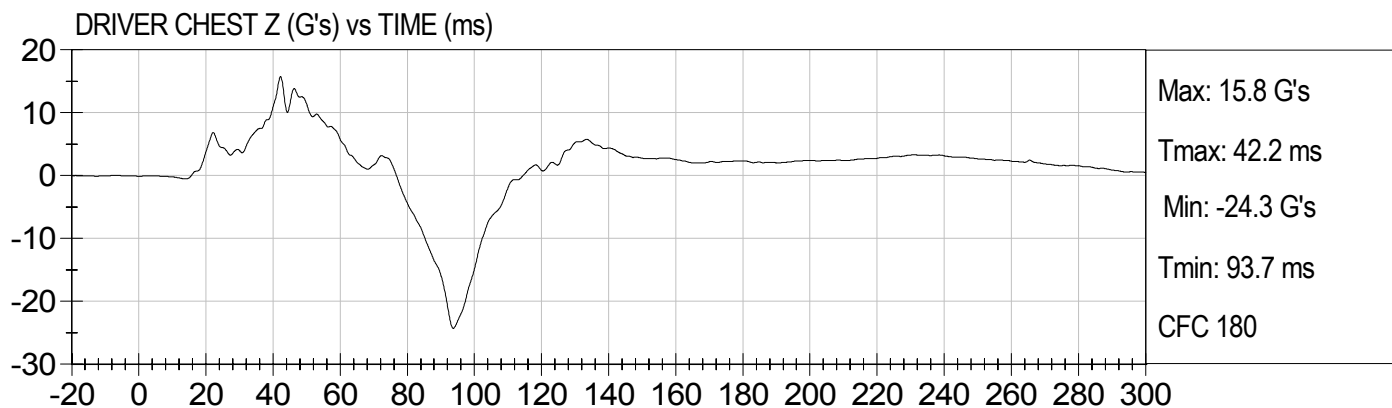
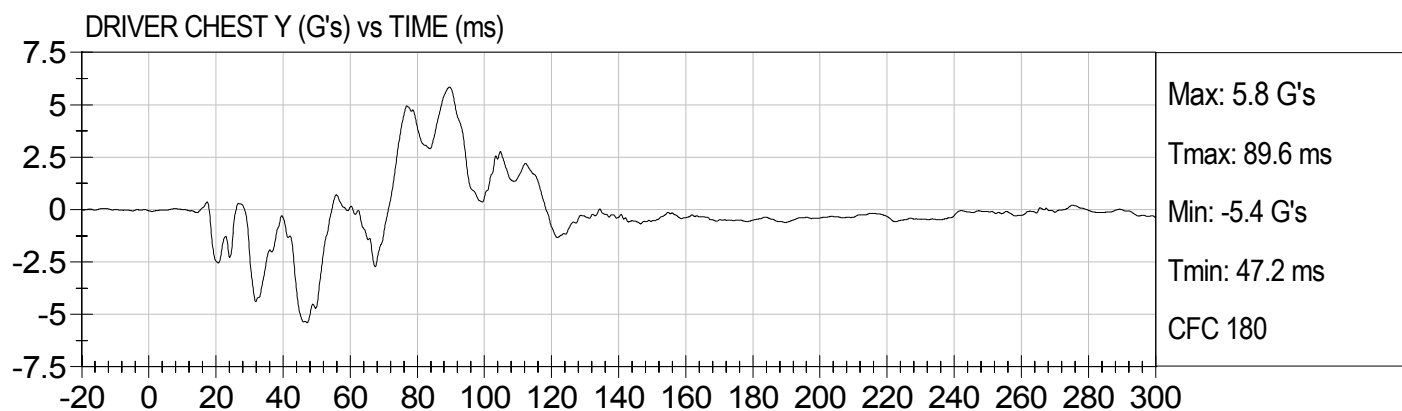
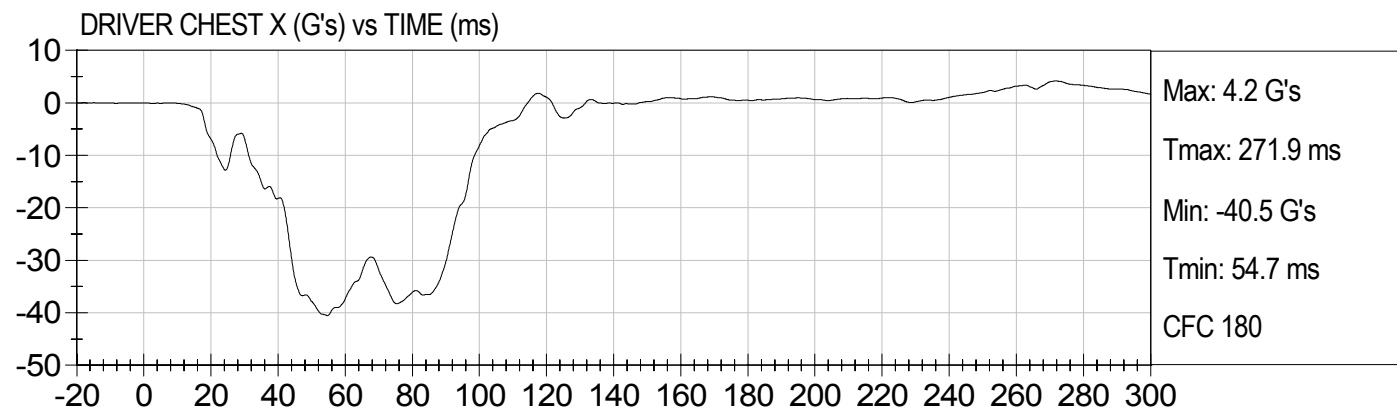
Driver Right Upper Tibia Moment Y

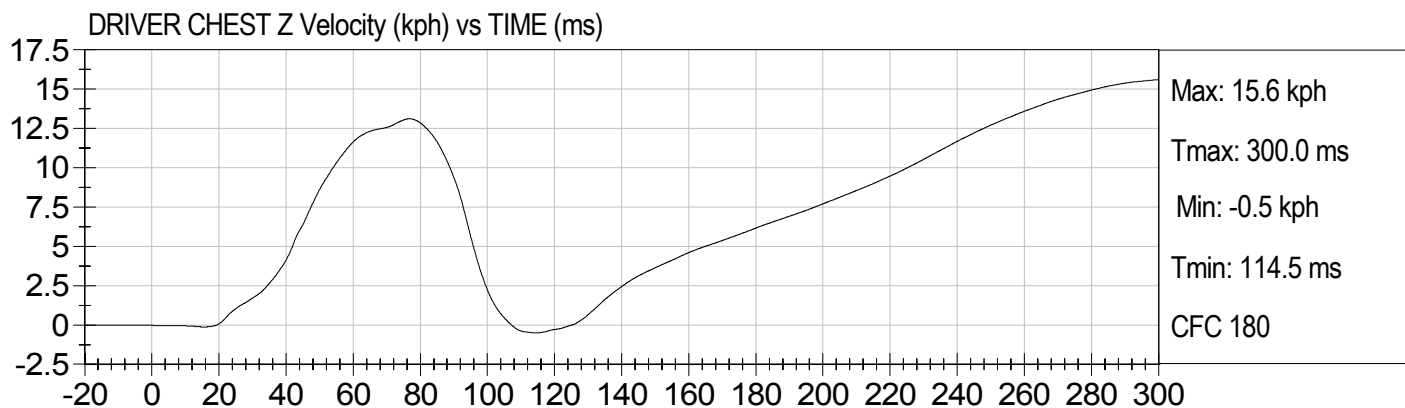
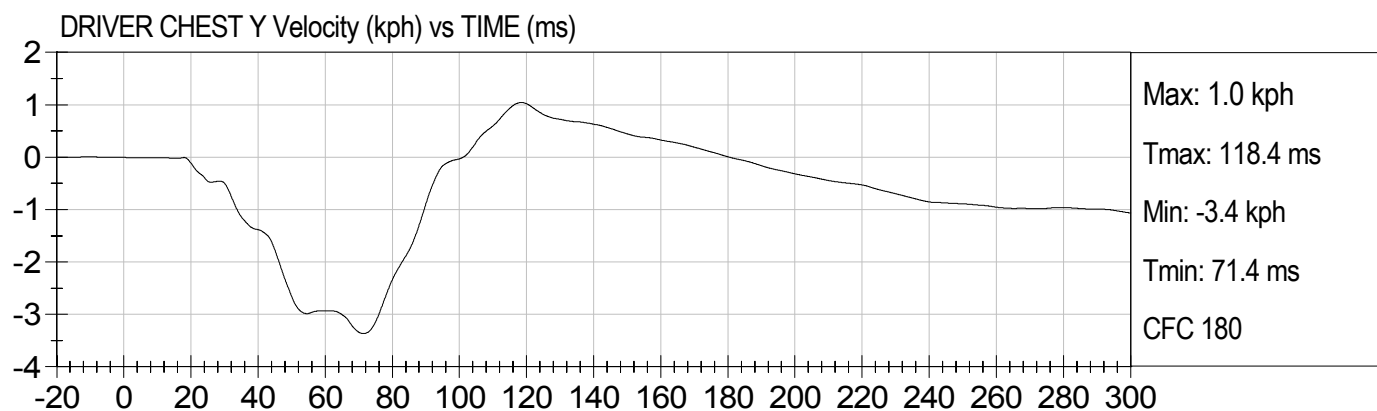
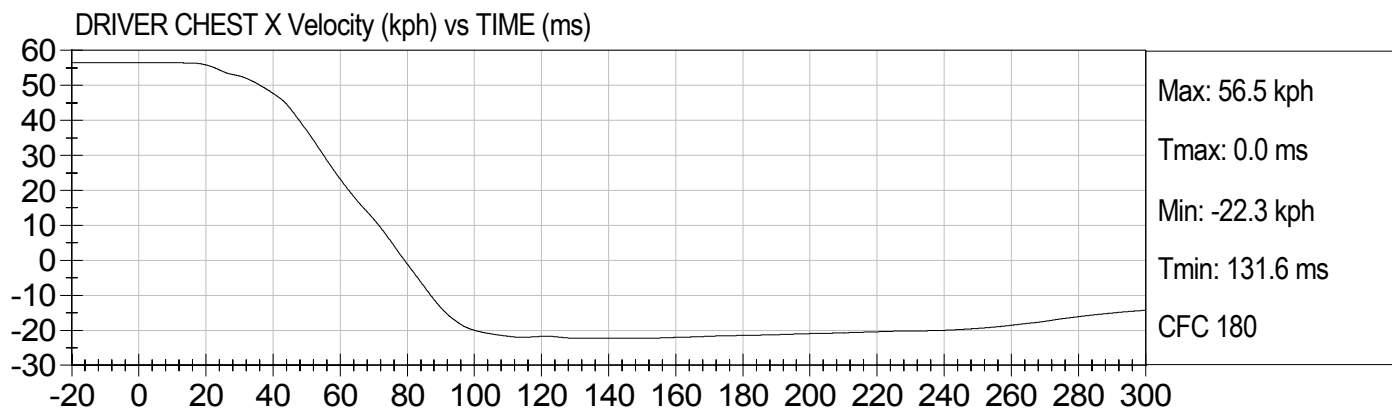
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver Right Lower Tibia Force Z
Driver Left Foot Fore Z
Driver Left Foot Aft X
Driver Left Foot Aft Z
Driver Right Foot Fore Z
Driver Right Foot Aft X
Driver Right Foot Aft Z
Passenger Head X Redundant
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

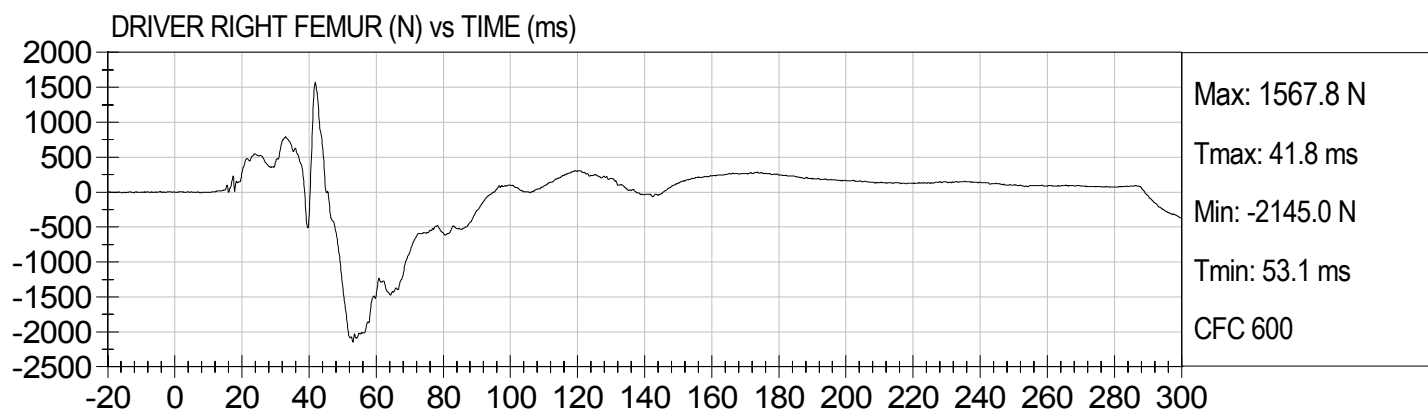
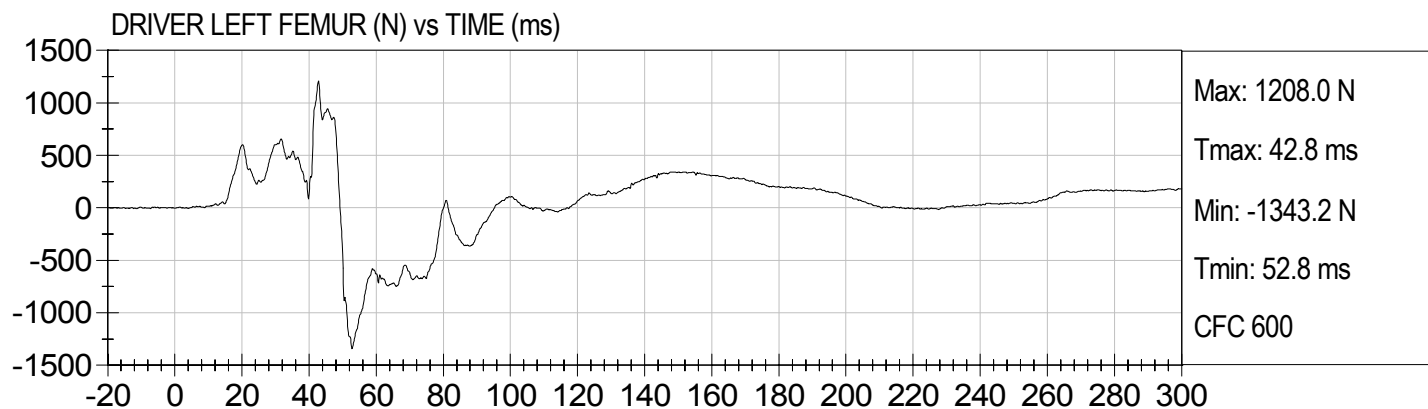
Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Upper Tibia Moment X
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger 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

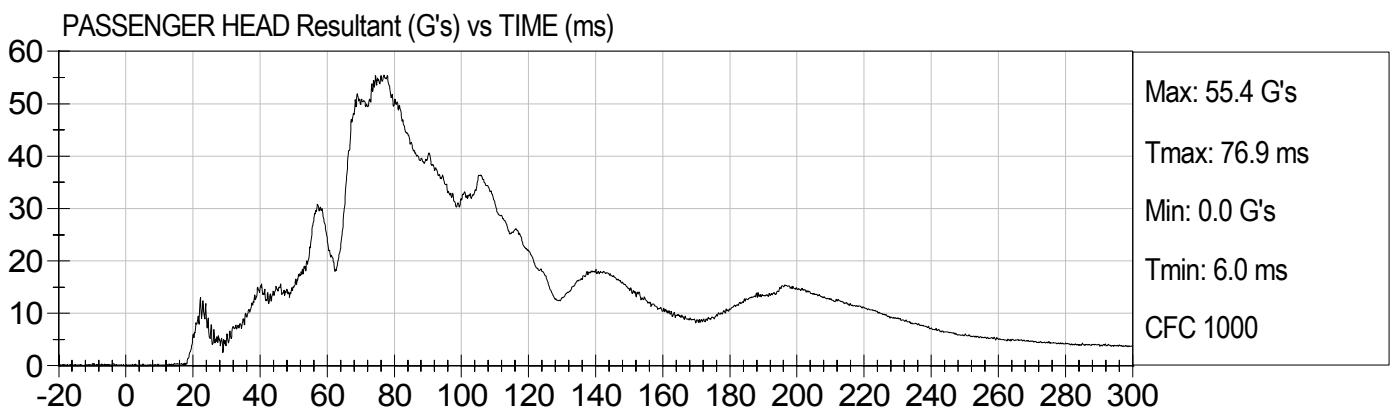
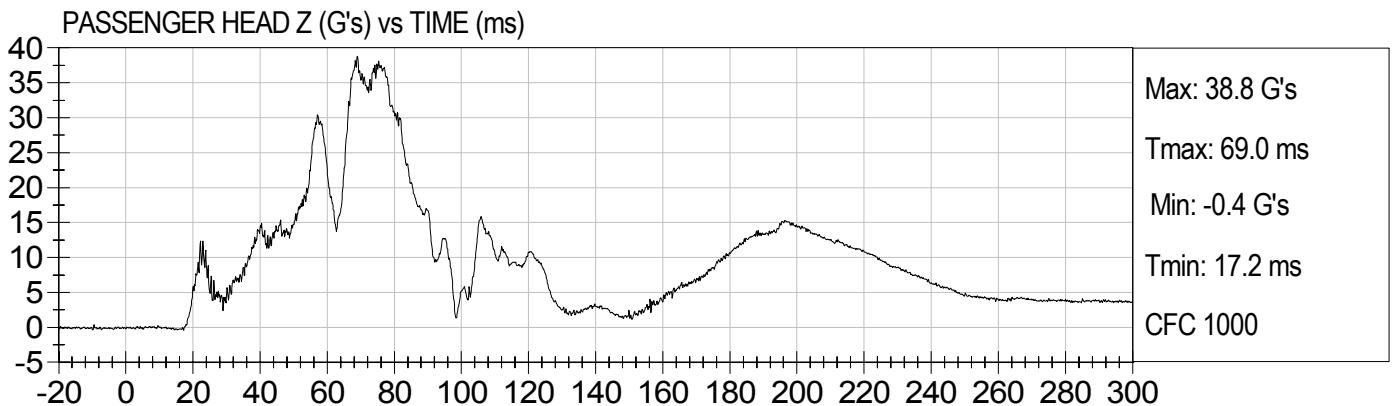
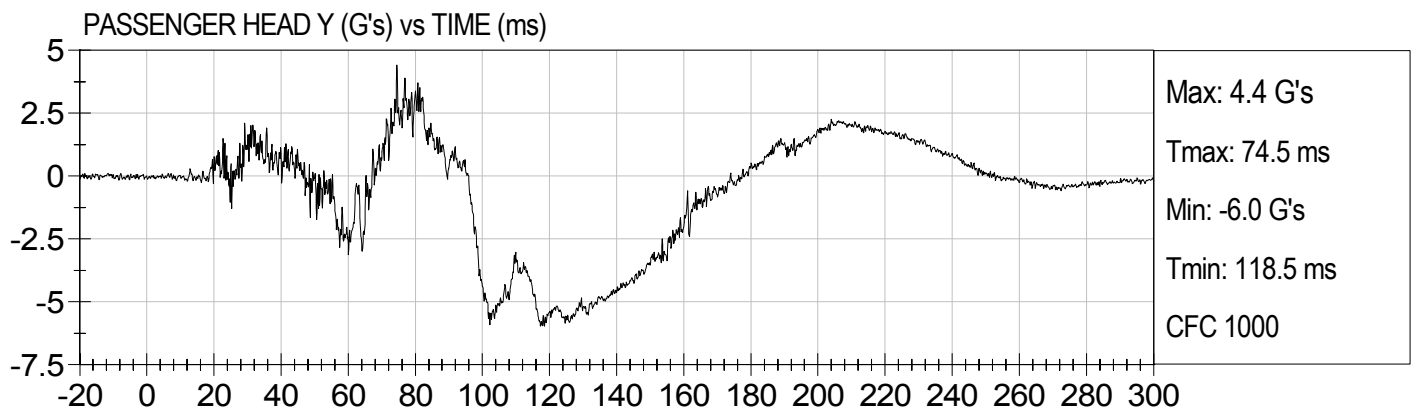
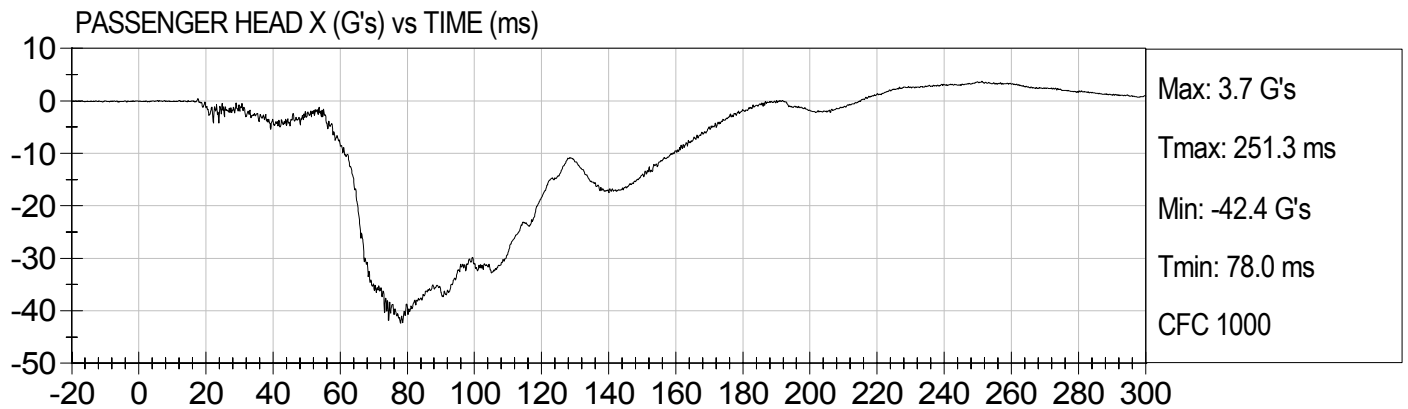


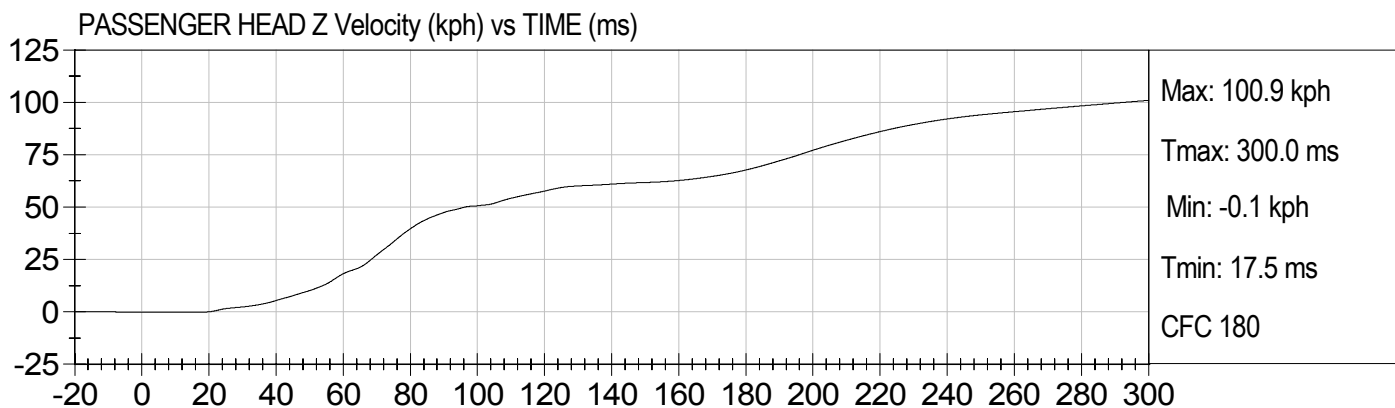
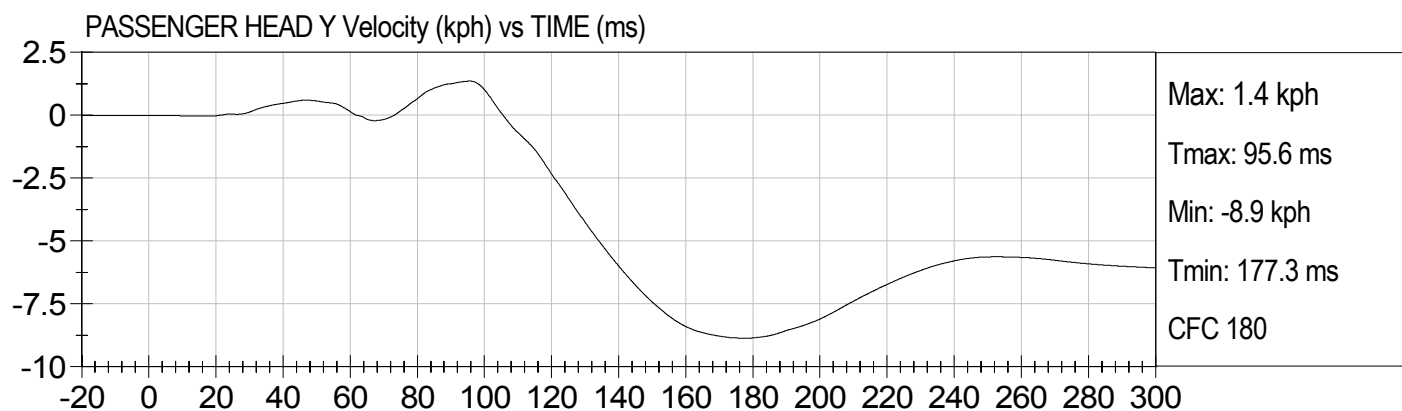
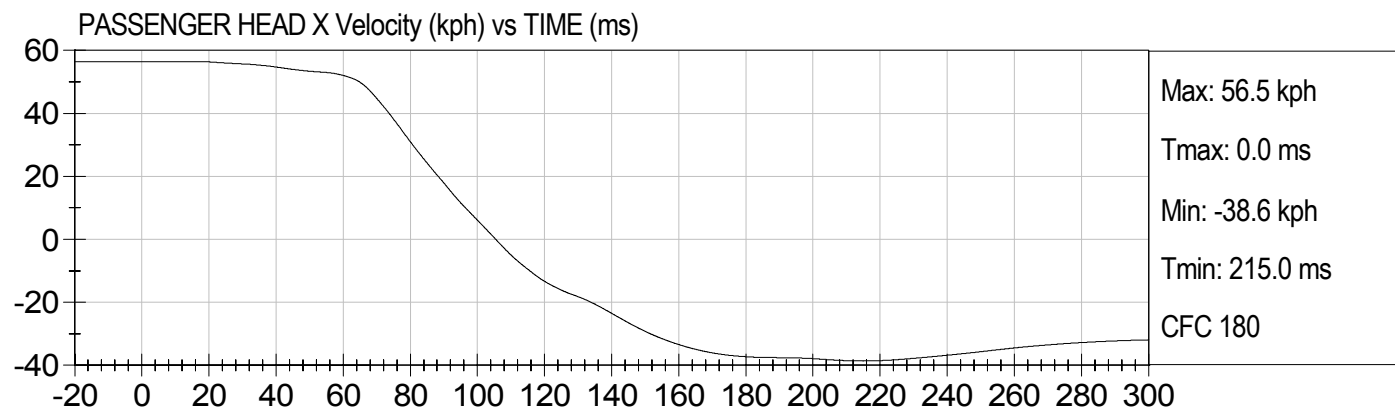


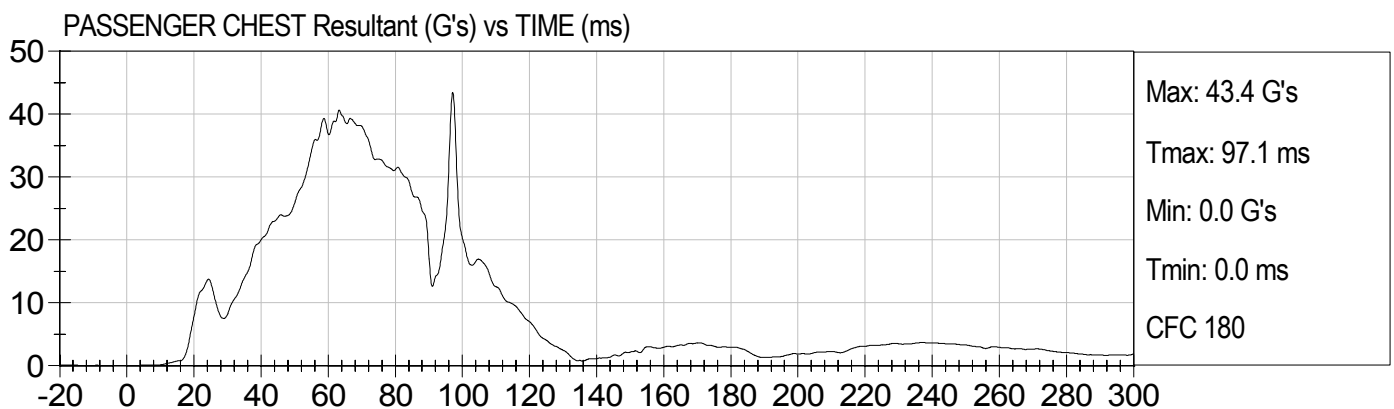
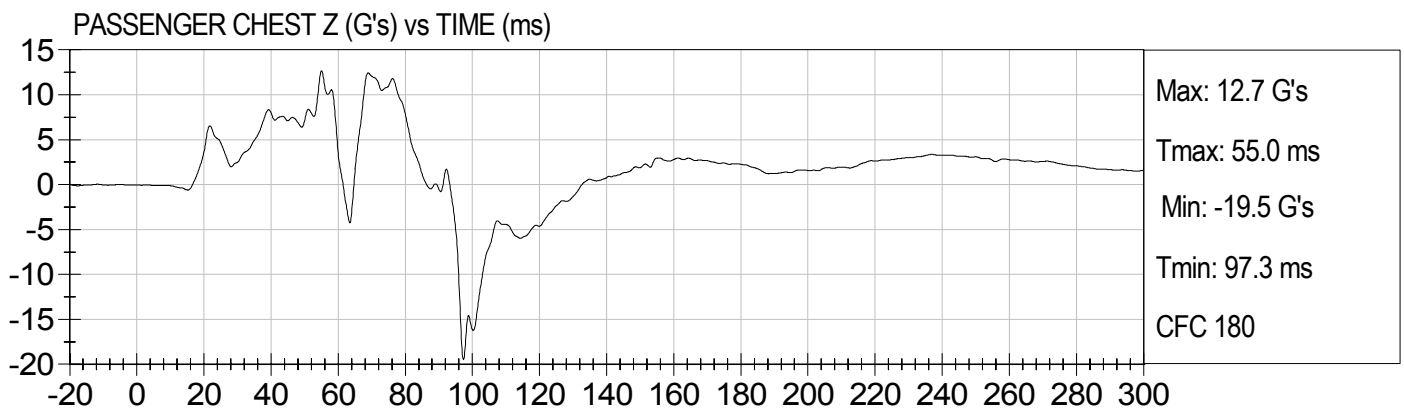
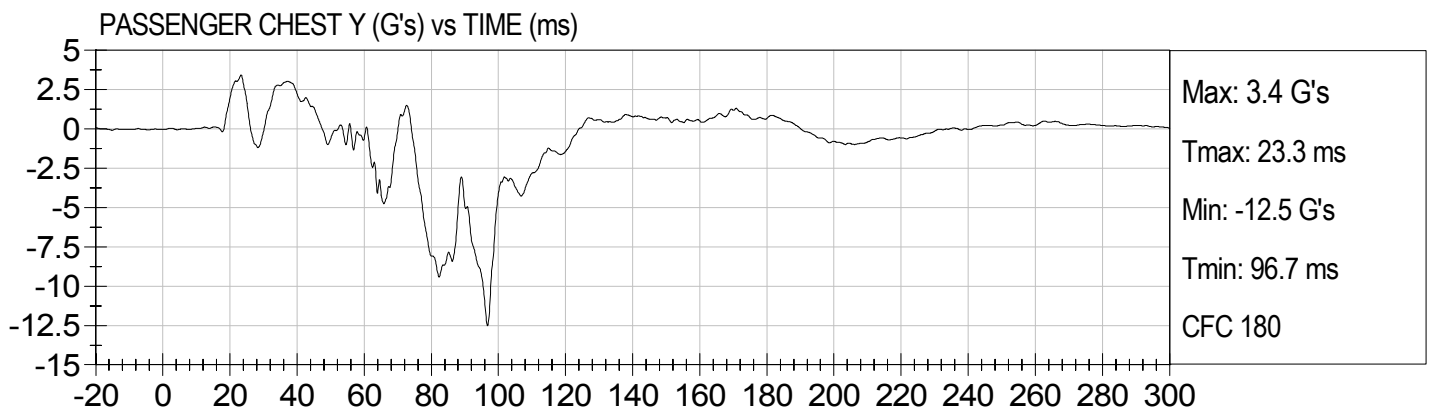
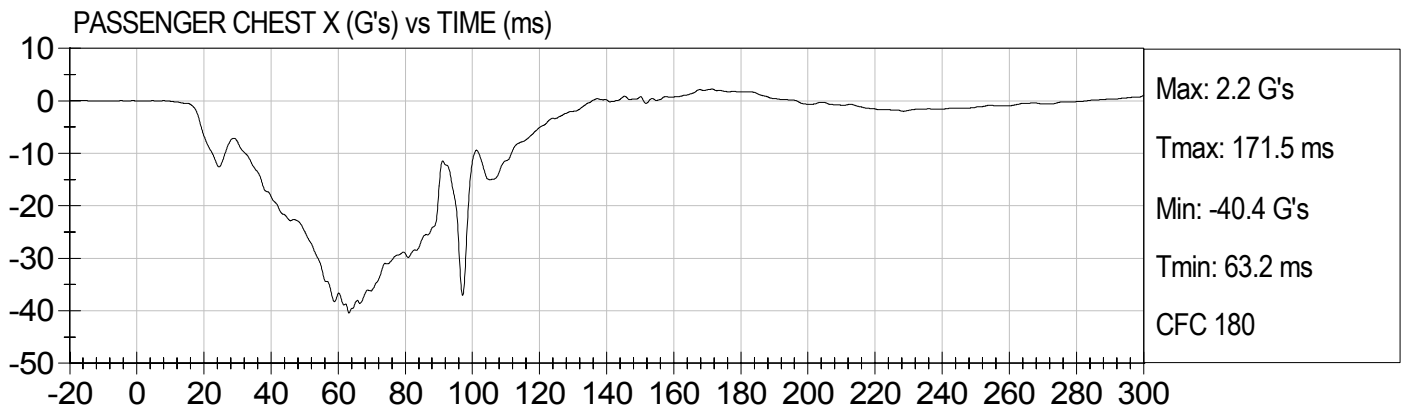


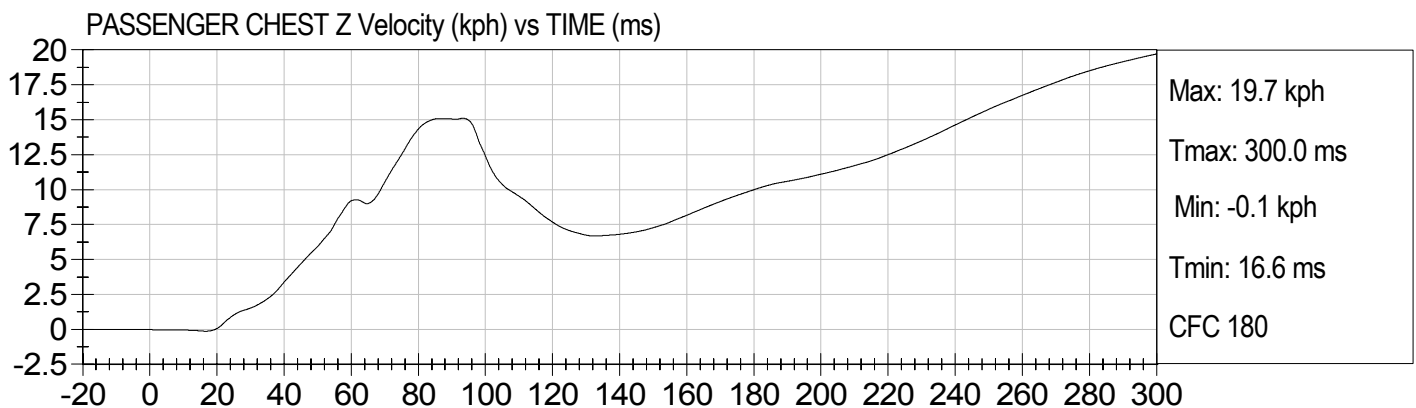
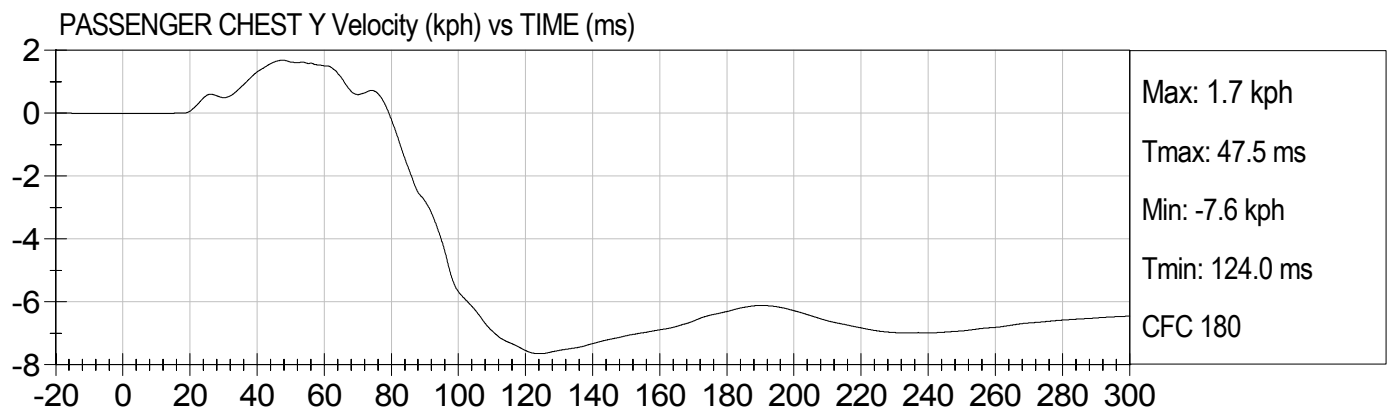
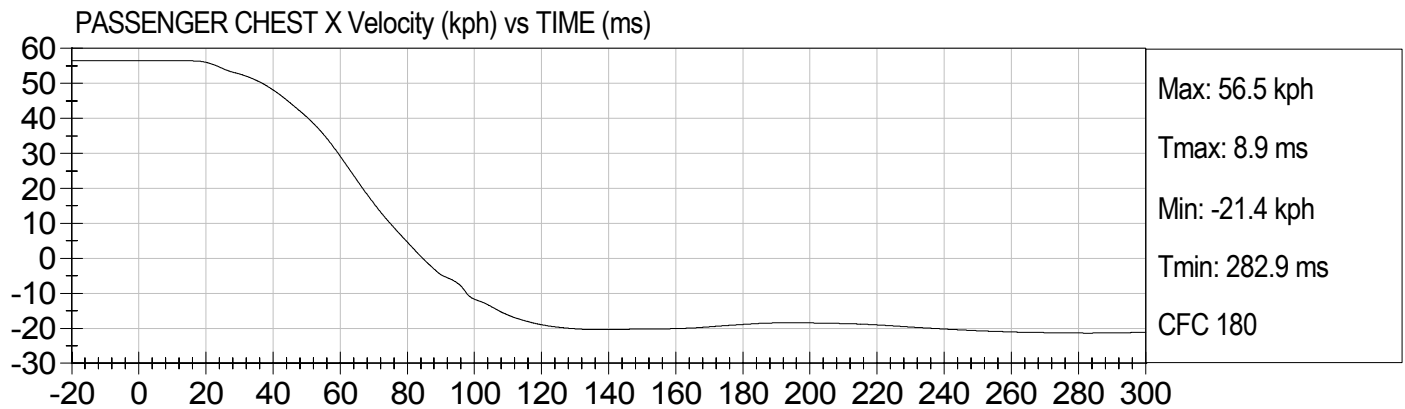


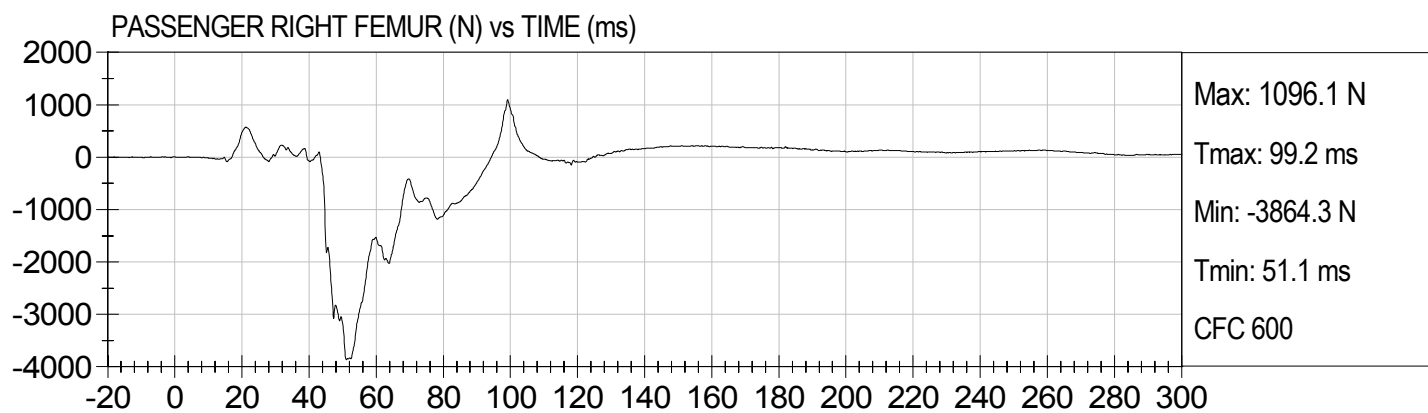
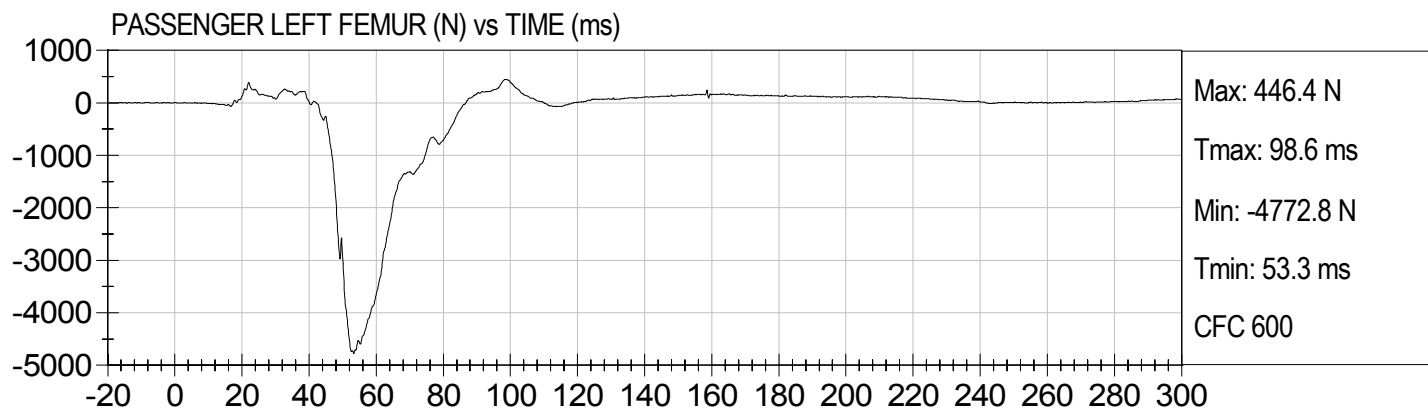












APPENDIX C
DUMMY CALIBRATION DATA

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

ATD Serial No: 066

Test ID: D061191

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.6	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	25	Pass
Peak Resultant Acceleration	G's	225 - 275	257	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	-14.0	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
Overall Test Results				Pass


Laboratory Technician


Approved By

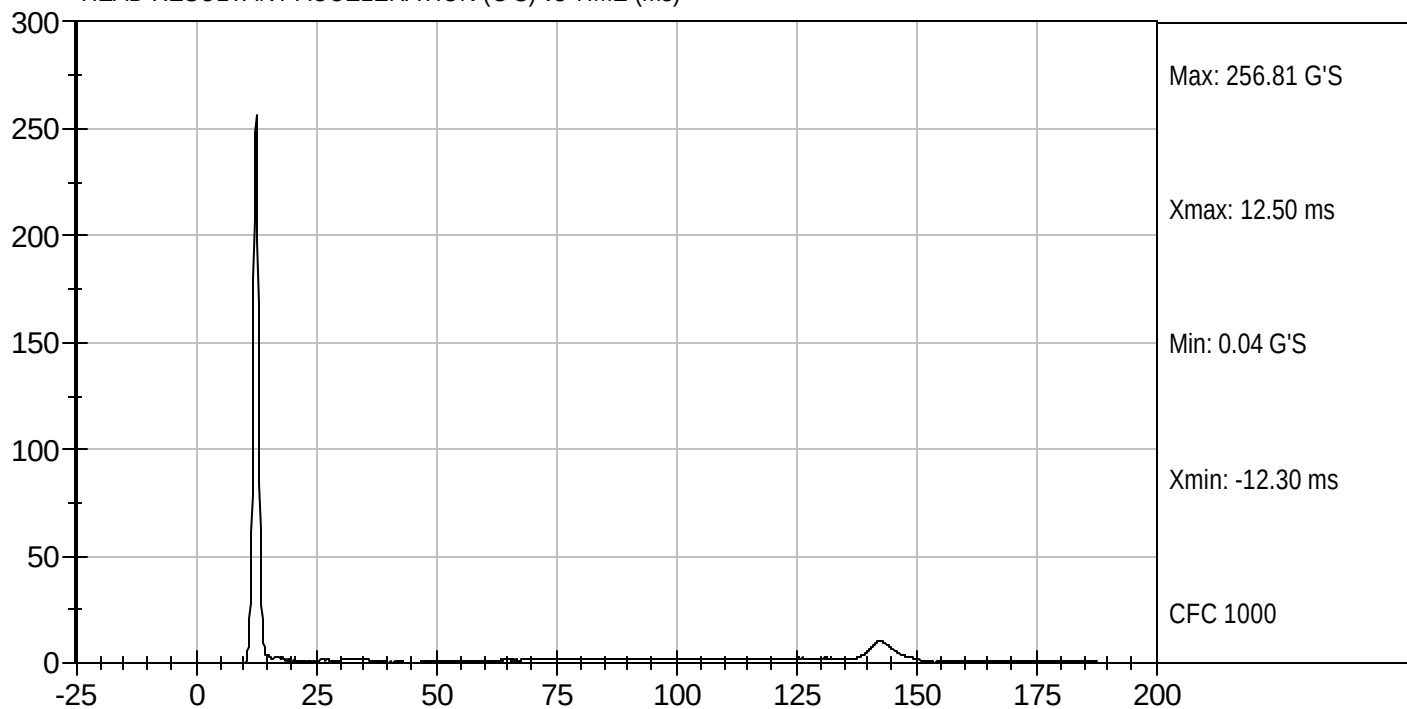
04/28/2006
Test Date



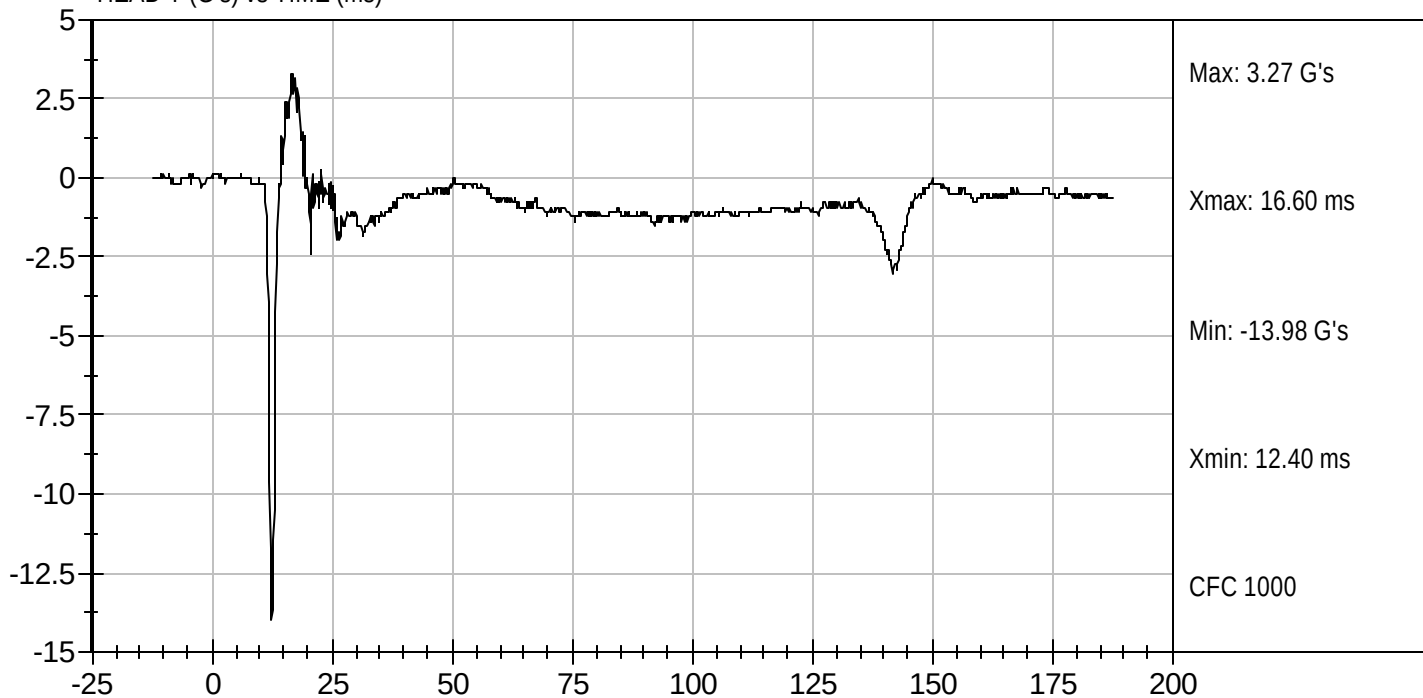
Test Desc: Head Drop
Componet ID: D061191

Test Date: 04/28/2006
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: D061192

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.8	Pass
Laboratory Relative Humidity		%	10 to 70	46	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.12	Pass
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	24.03	Pass
	20 msec	G's	17.60 to 22.60	20.45	Pass
	30 msec	G's	12.50 to 18.50	16.23	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 29.0	16.17	Pass
Deceleration Decay Time to Cross 5 G's		msec	34.0 to 42.0	38.3	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	69.0	Pass
	Time	msec	57.0 to 64.0	62.5	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	113.0 to 128.0	113.3	Pass
Moment About Occipital Condyle	Maximum	N m	88.1 to 108.5	88.4	Pass
	Time	msec	47.0 to 58.0	50.5	Pass
Positive Moment Decay Time To Zero Crossing		msec	97.0 to 107.0	100.2	Pass
Overall Test Results					Pass


 Laboratory Technician

05/01/2006
 Test Date

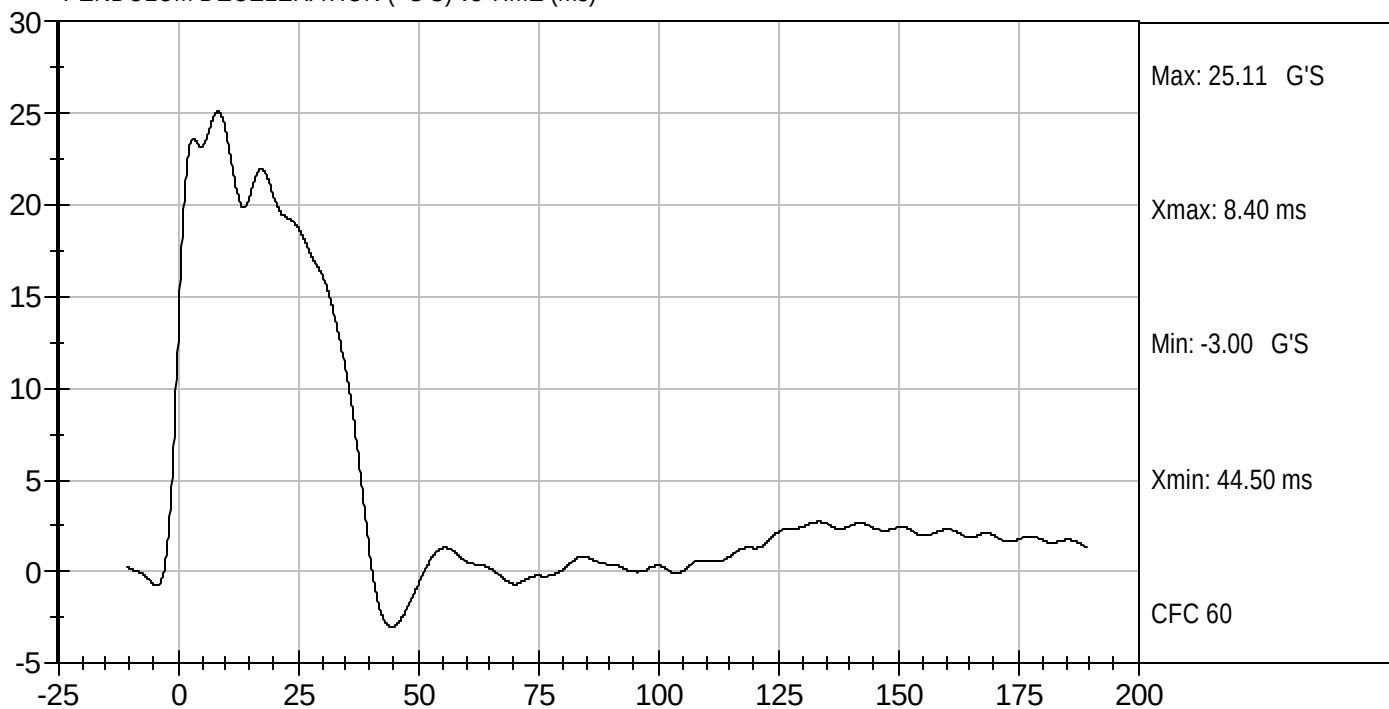

 Approved By



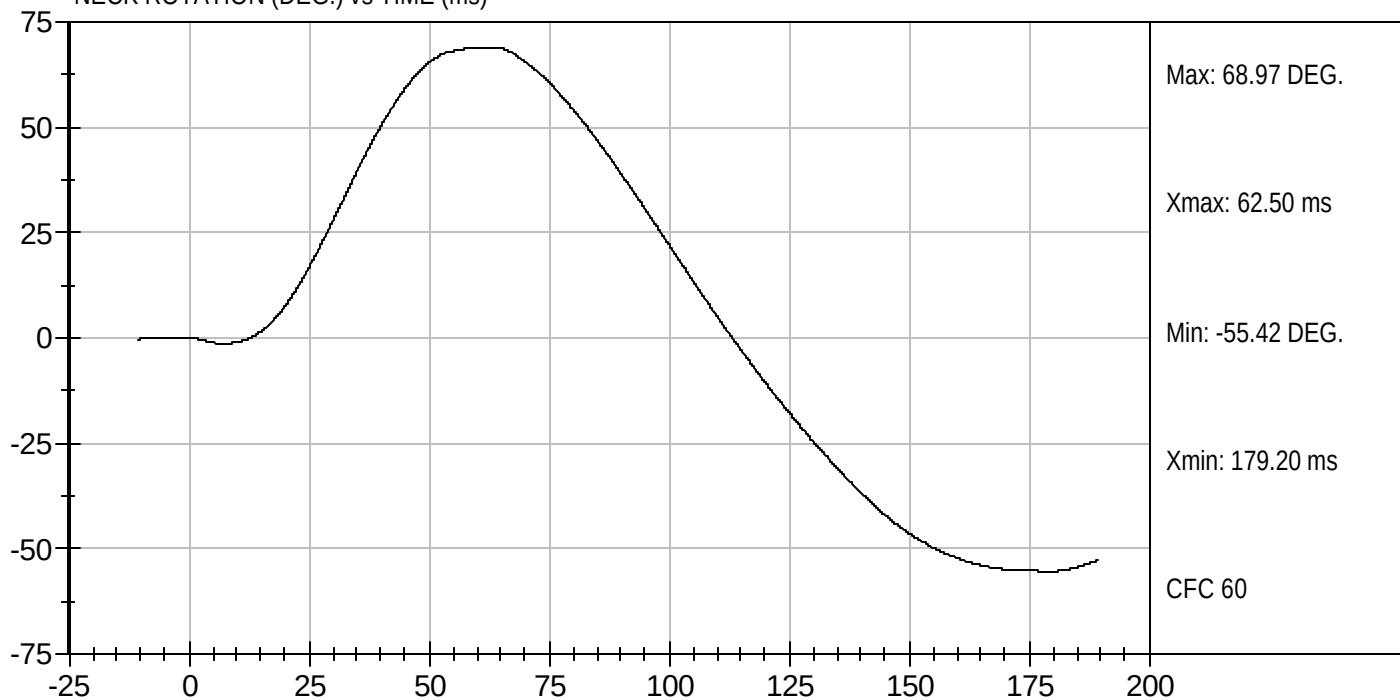
Test Desc: Neck Flexion
Componet ID: D061192

Test Date: 05/01/2006
Velocity: 23.35 ft/s, 7.12 m/s

PENDULUM DECELERATION (G'S) vs TIME (ms)



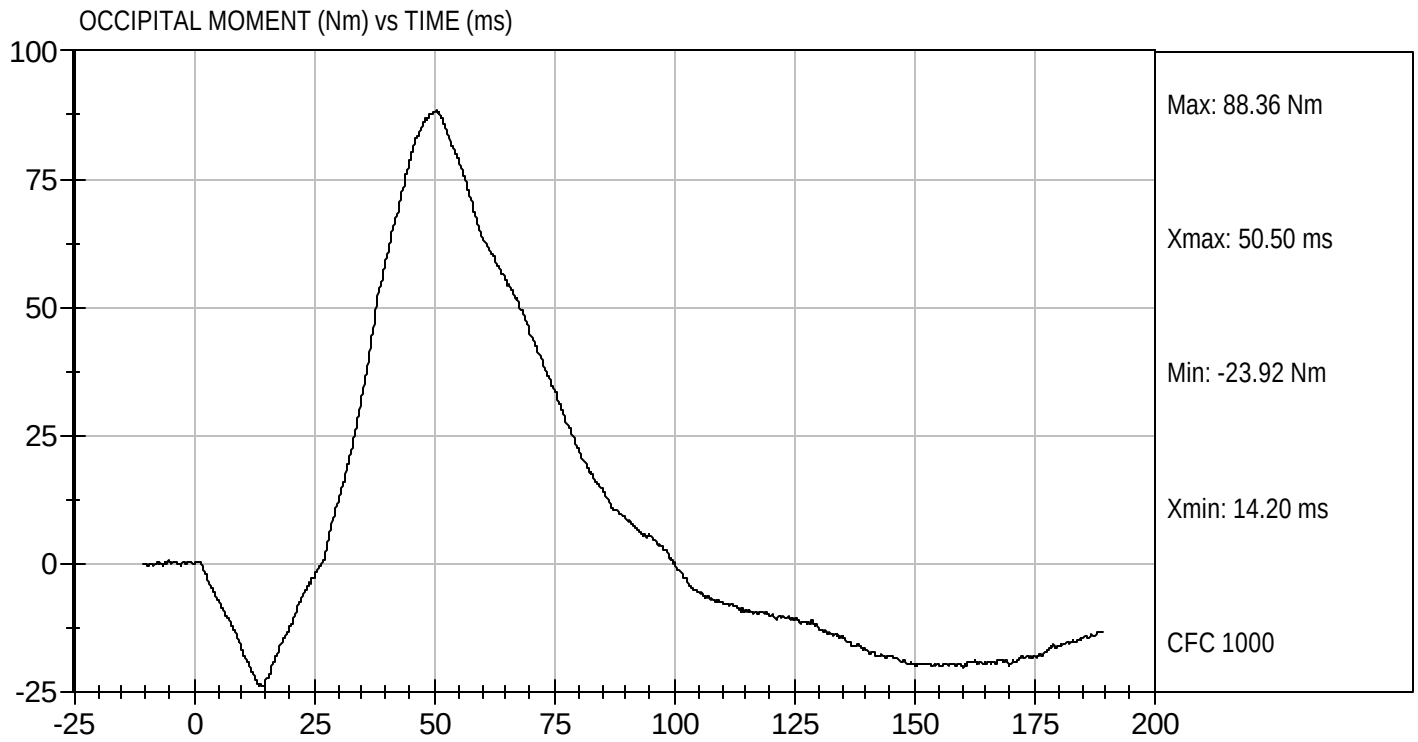
NECK ROTATION (DEG.) vs TIME (ms)





Test Desc: Neck Flexion
Componet ID: D061192

Test Date: 05/01/2006
Velocity: 23.35 ft/s, 7.12 m/s



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

ATD Serial No: 066

Test I.D: D061193

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity		%	10 to 70	47	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.16	Pass
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	18.83	Pass
	20 msec	G's	14.00 to 19.00	16.16	Pass
	30 msec	G's	11.00 to 16.00	13.18	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 22.0	13.13	Pass
Deceleration Decay Time to Cross 5 G's		msec	38.0 to 46.0	43.1	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	100.0	Pass
	Time	msec	72.0 to 82.0	78.6	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	147.0 to 174.0	157.1	Pass
Moment About Occipital Condyle	Maximum	N m	-52.9 to -79.9	-61.6	Pass
	Time	msec	65.0 to 79.0	74.3	Pass
Negative Moment Decay Time To Zero Crossing		msec	120.0 to 148.0	143.2	Pass
Overall Test Results				Pass	


 Laboratory Technician

05/01/2006
 Test Date

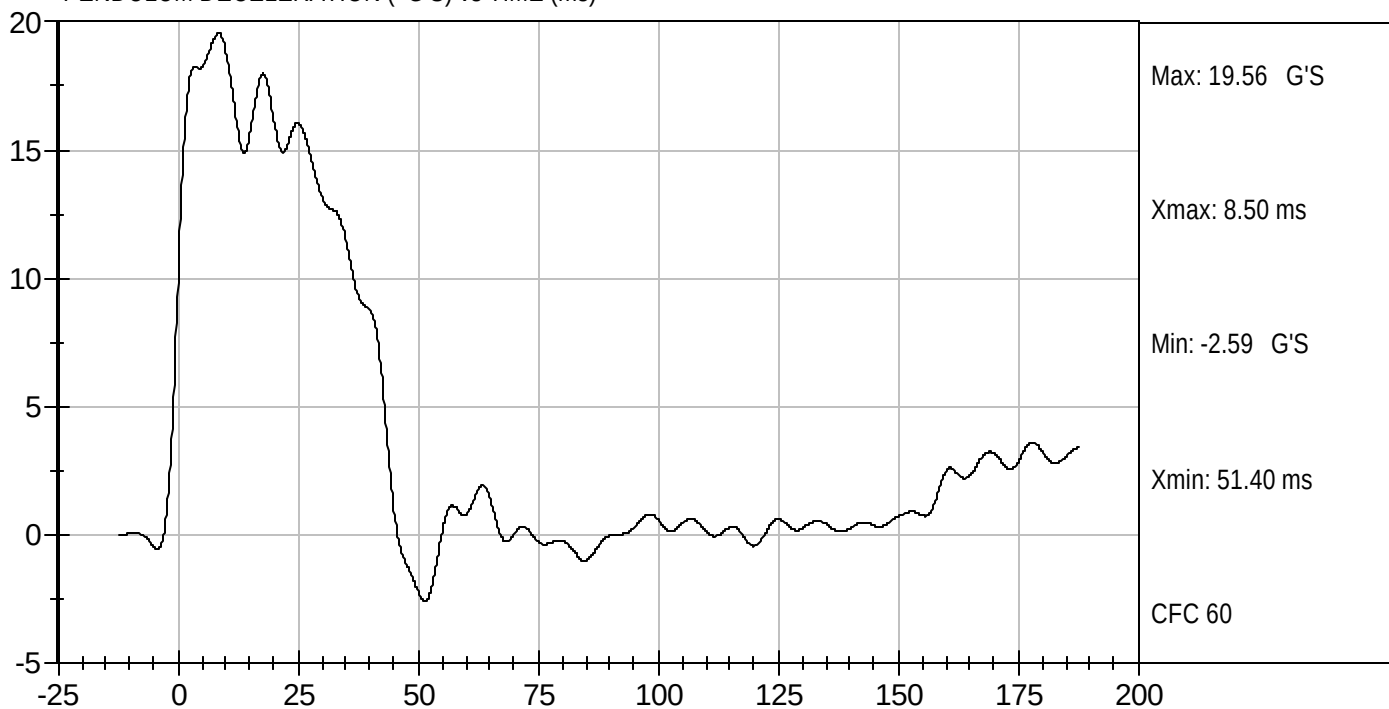

 Approved By



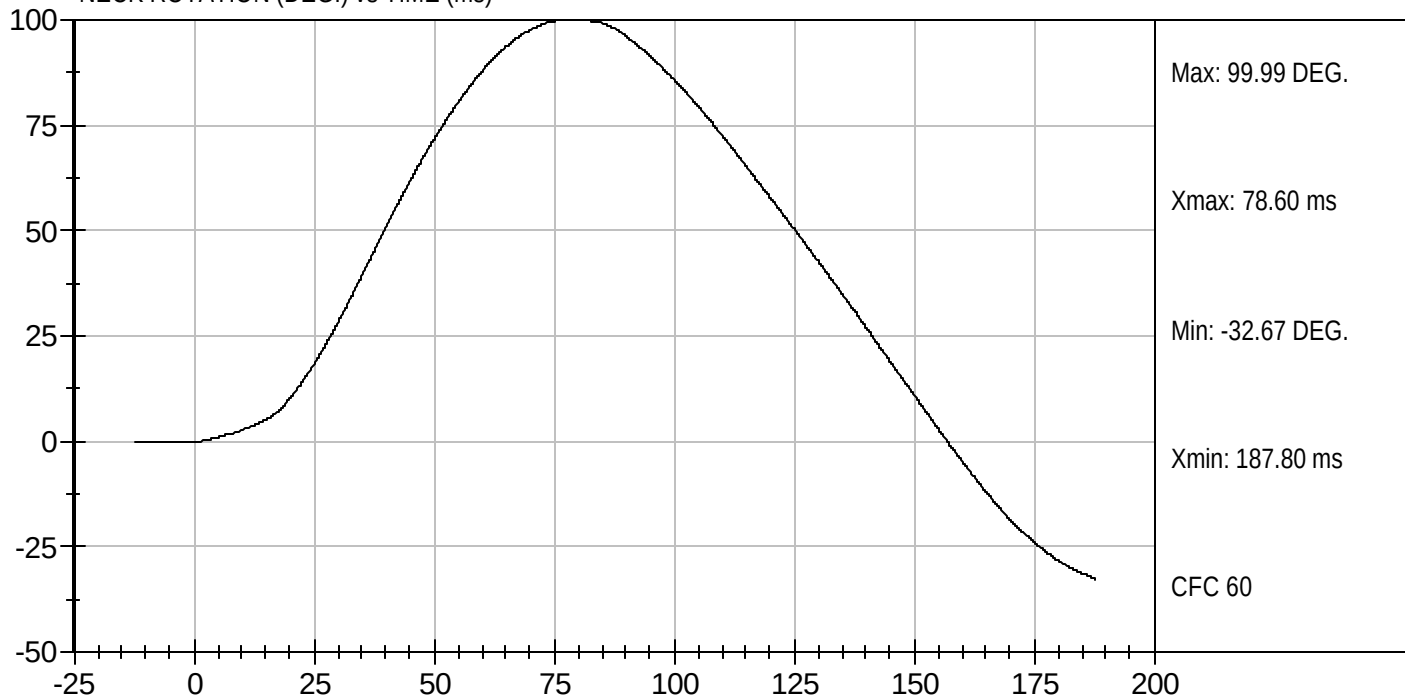
Test Desc: Neck Extension
Componet ID: D061193

Test Date: 05/01/2006
Velocity: 20.22 ft/s, 6.16 m/s

PENDULUM DECELERATION (G'S) vs TIME (ms)



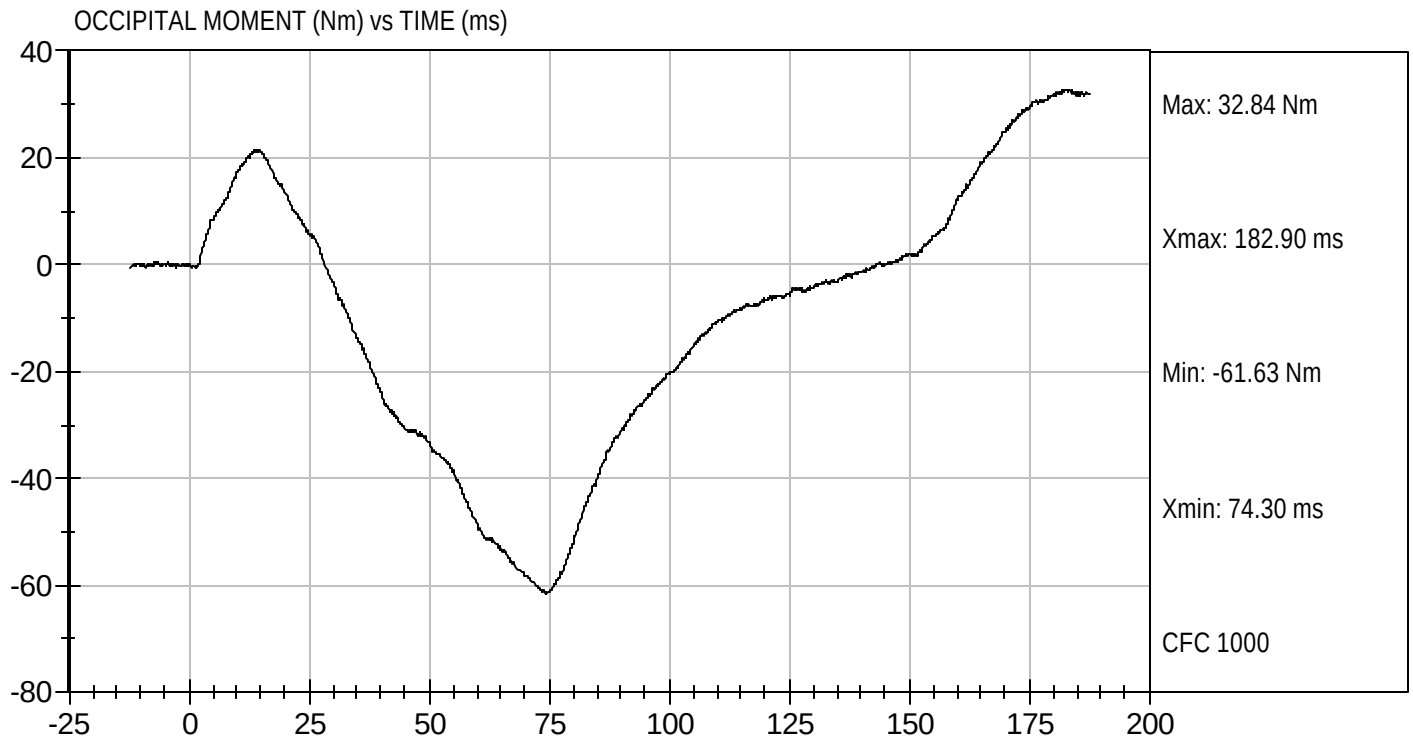
NECK ROTATION (DEG.) vs TIME (ms)





Test Desc: Neck Extension
Componet ID: D061193

Test Date: 05/01/2006
Velocity: 20.22 ft/s, 6.16 m/s



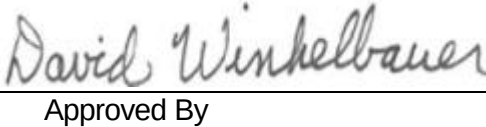
MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 066

Test I.D: D061194

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	44	Pass
Probe Velocity	m/s	6.58 to 6.82	6.62	Pass
Peak Probe Force	N	5159 to 5893	5,332	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	7.03	Pass
Internal Hysteresis	%	69 to 85	69	Pass
Overall Test Results			Pass	


Laboratory Technician

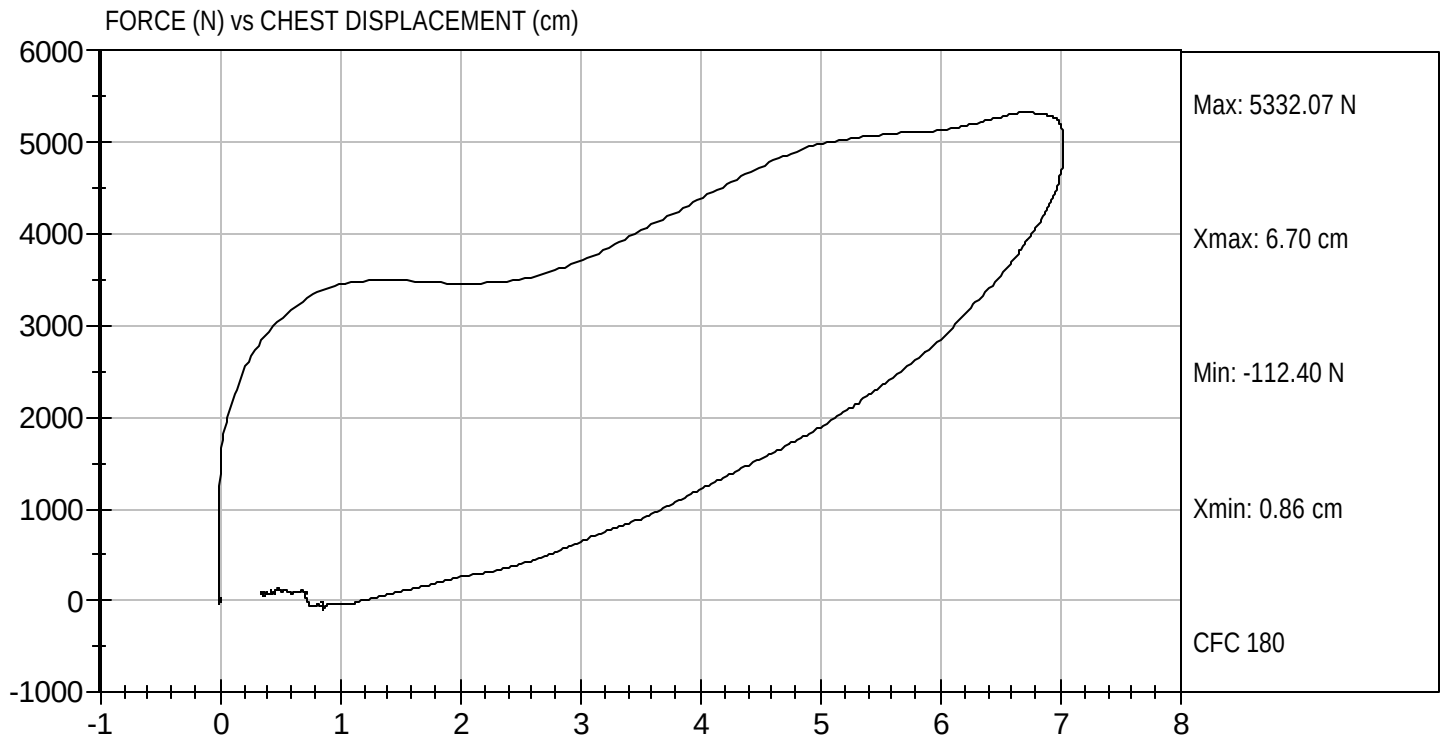

Approved By

05/01/2006
Test Date



Test Desc: Thorax Impact
Componet ID: D061194

Test Date: 05/01/2006
Velocity: 21.72 ft/s, 6.62 m/s



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

ATD Serial No: 066

Test I.D: D061195

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	4,929	Pass
Overall Test Results				Pass


Laboratory Technician

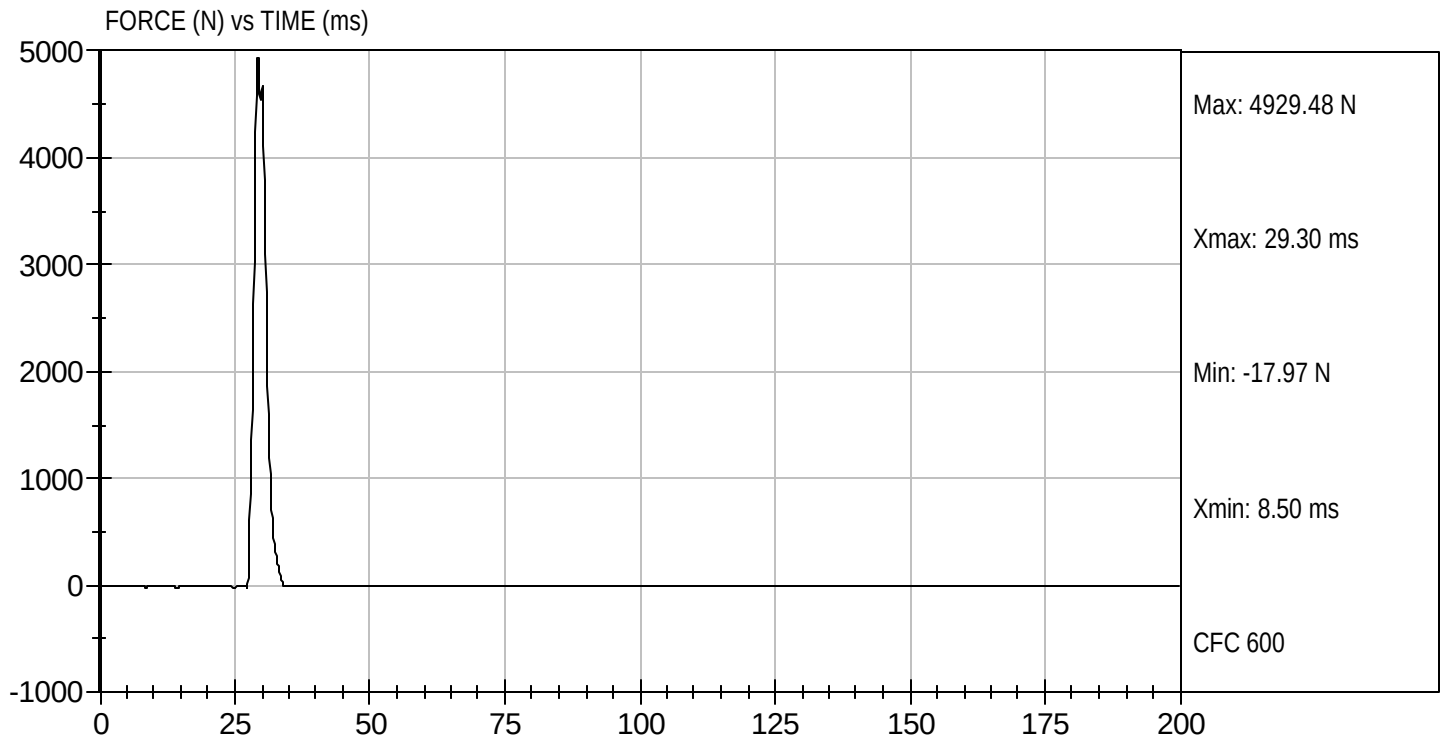

Approved By

05/01/2006
Test Date



Test Desc: Right Knee
Componet ID: D061195

Test Date: 05/01/2006
Velocity: 6.88 ft/s, 2.10 m/s



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

ATD Serial No: 066

Test I.D: D061196

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	4,859	Pass
Overall Test Results				Pass


Laboratory Technician

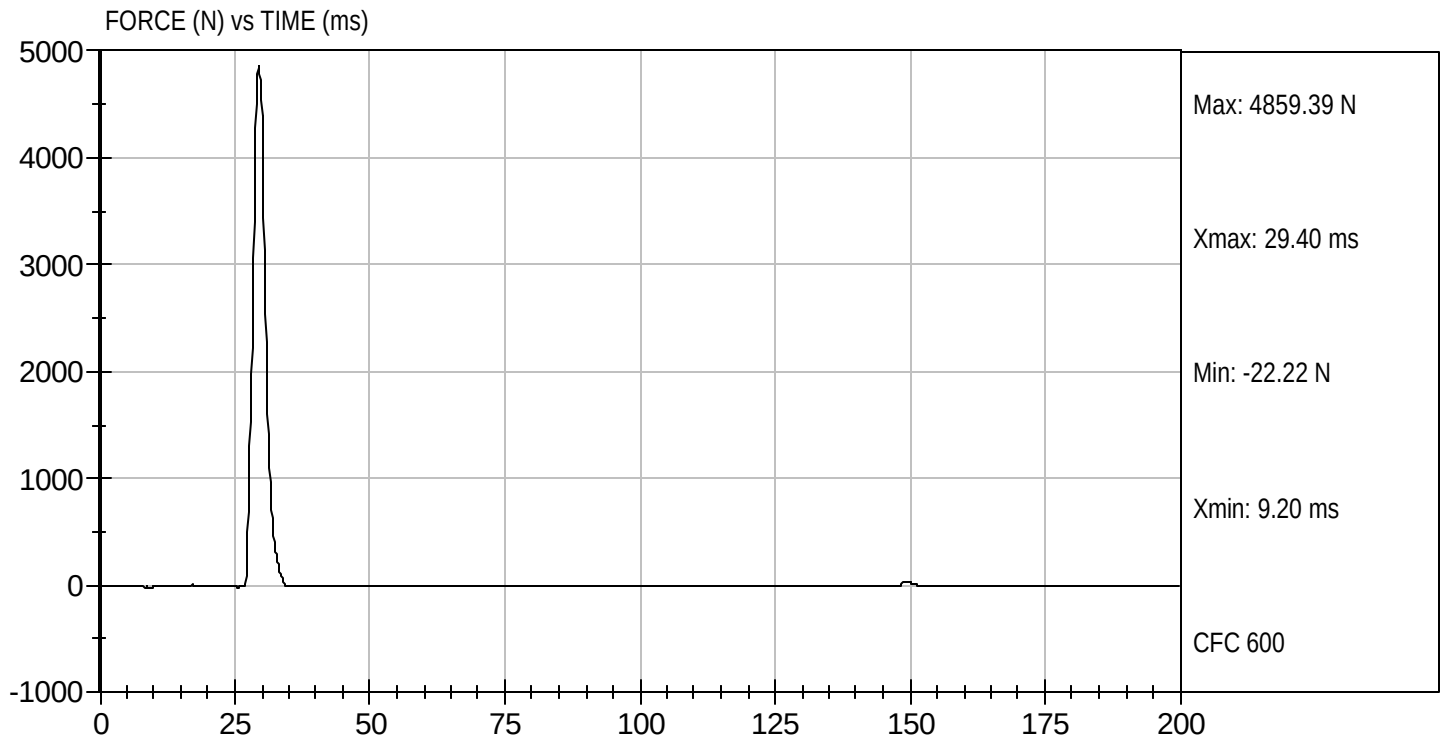
05/01/2006
Test Date


Approved By



Test Desc: Left Knee
Componet ID: D061196

Test Date: 05/01/2006
Velocity: 6.86 ft/s, 2.09 m/s



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

ATD Serial No: 066

Test I.D: D061190

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	48	48	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	88.7	88.7	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	42	40	Pass
Overall Test Results				Pass	


 Laboratory Technician

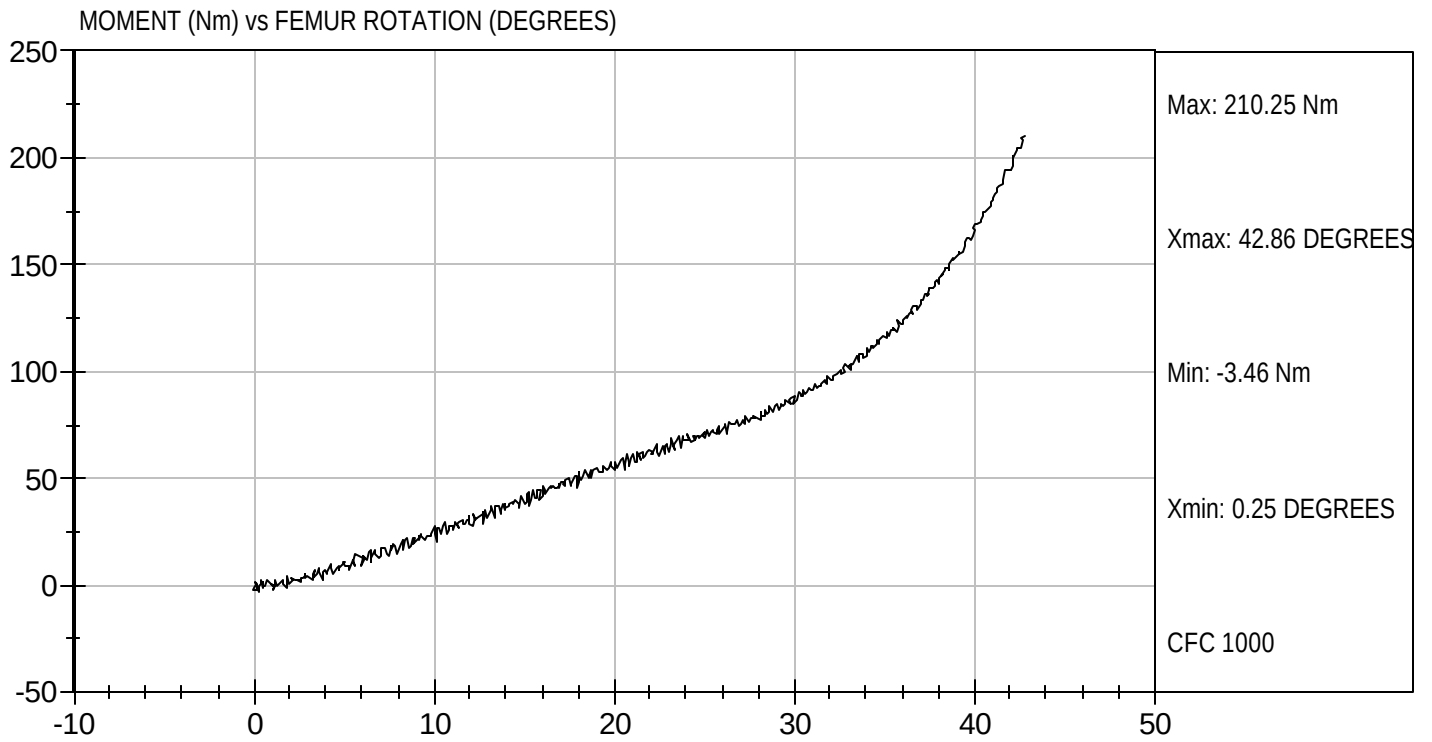
05/01/2006
 Test Date


 Approved By



Test Desc: Hip Femur Flexion
Componet ID: D061199

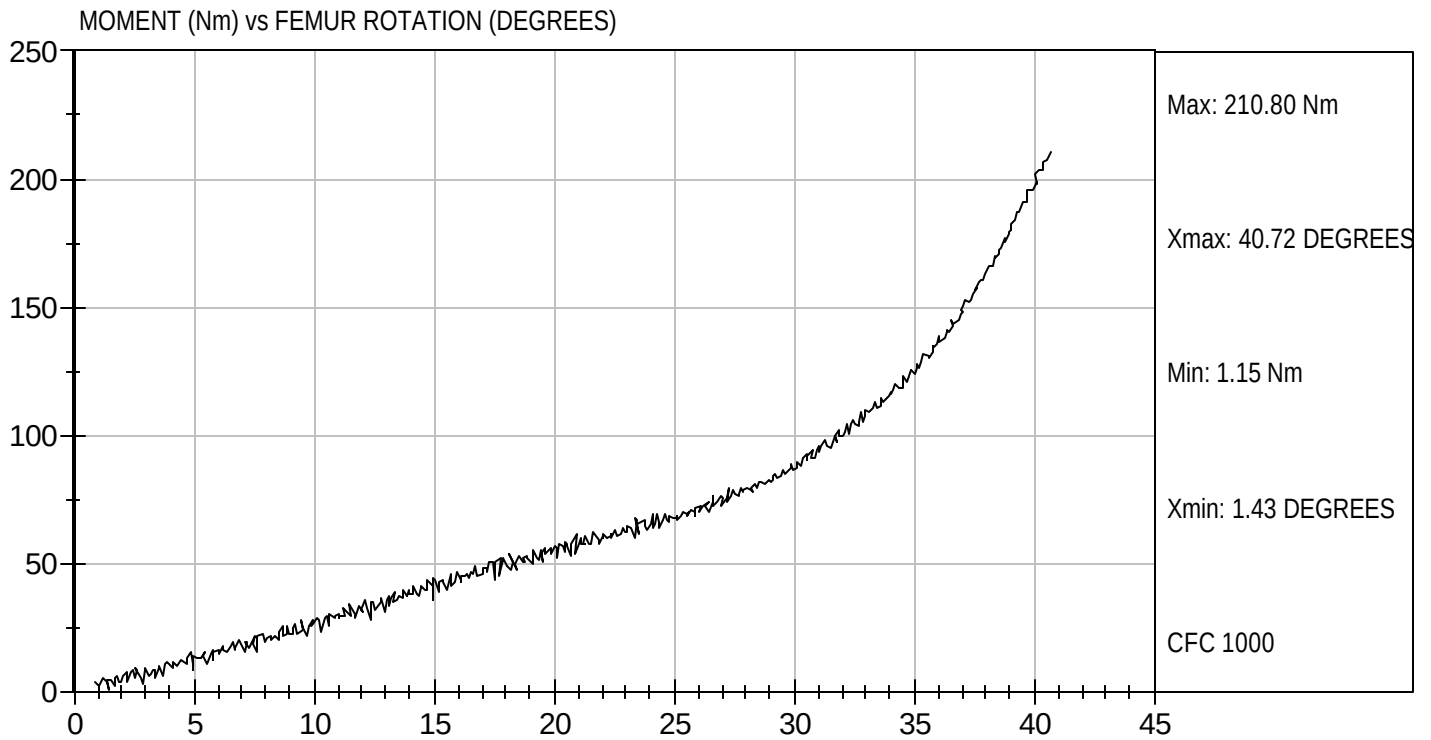
Test Date: 05/01/2006
Velocity: 0 ft/s, 0.00 m/s





Test Desc: Hip Femur Flexion
Componet ID: D061190

Test Date: 05/01/2006
Velocity: 0 ft/s, 0.00 m/s



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

ATD Serial No: 065

Test ID: D061181

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.6	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	25	Pass
Peak Resultant Acceleration	G's	225 - 275	241	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	1.4	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
			Overall Test Results	Pass


 Laboratory Technician

04/28/2006
 Test Date

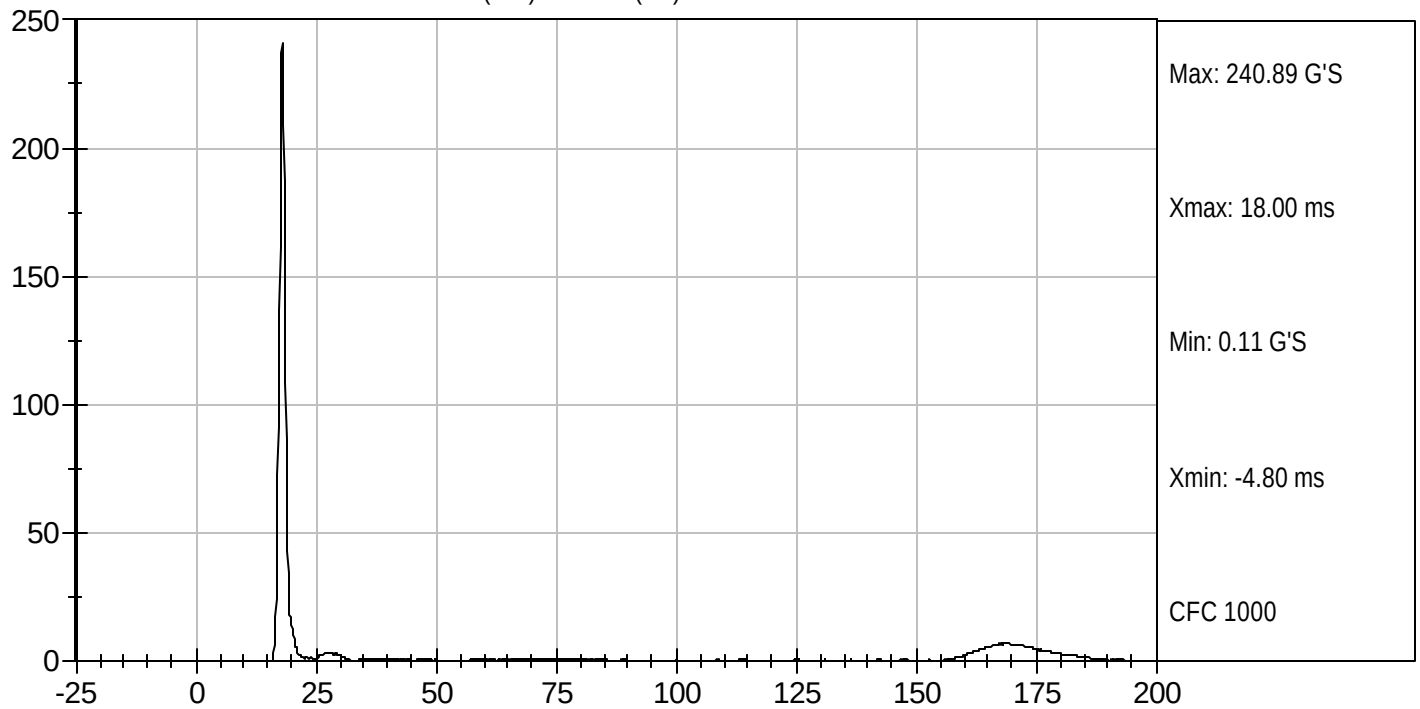

 Approved By



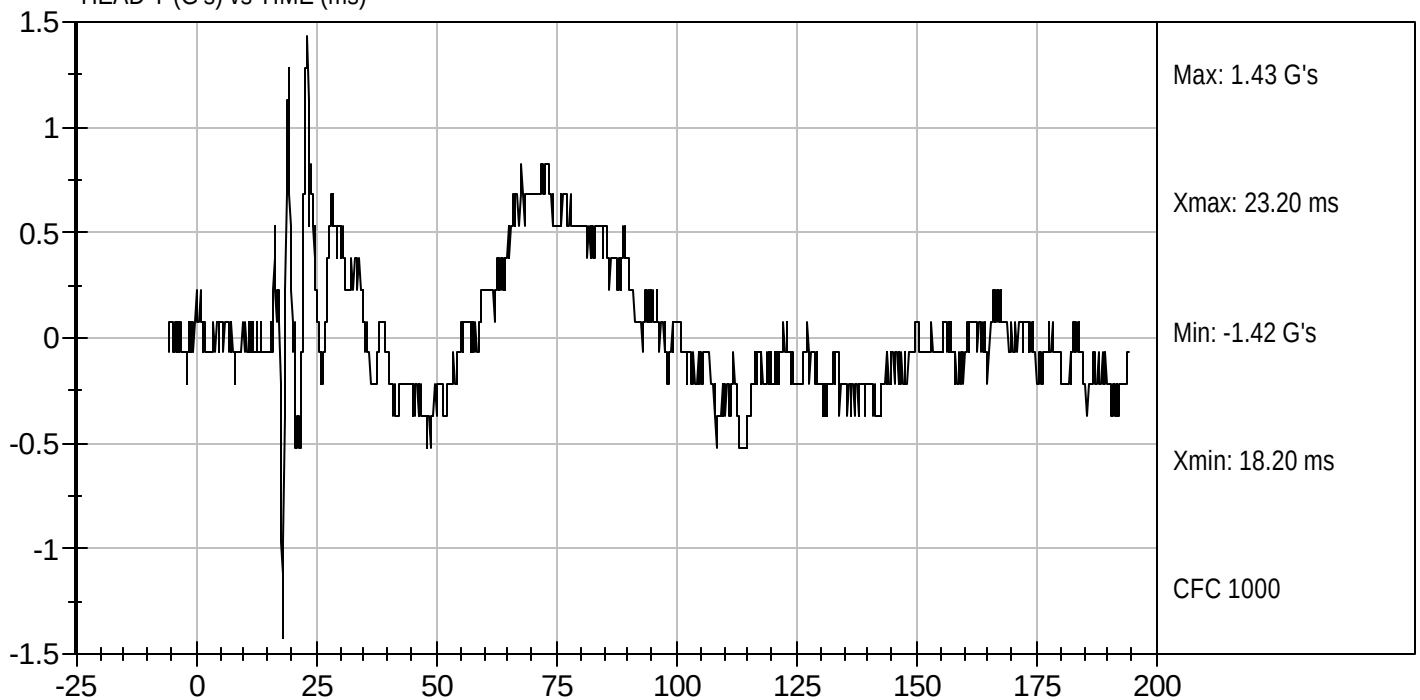
Test Desc: Head Drop
Componet ID: D061181

Test Date: 04/28/2006
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

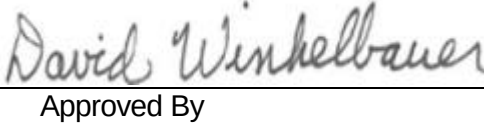
ATD Serial No: 065

Test I.D: D061182

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.8	Pass
Laboratory Relative Humidity		%	10 to 70	48	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.11	Pass
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	25.56	Pass
	20 msec	G's	17.60 to 22.60	22.04	Pass
	30 msec	G's	12.50 to 18.50	16.27	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 29.0	16.19	Pass
Deceleration Decay Time to Cross 5 G's		msec	34.0 to 42.0	35.2	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	73.9	Pass
	Time	msec	57.0 to 64.0	59.2	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	113.0 to 128.0	113.1	Pass
Moment About Occipital Condyle	Maximum	N m	88.1 to 108.5	93.0	Pass
	Time	msec	47.0 to 58.0	47.8	Pass
Positive Moment Decay Time To Zero Crossing		msec	97.0 to 107.0	101.5	Pass
Overall Test Results					Pass


 Laboratory Technician

05/01/2006
 Test Date

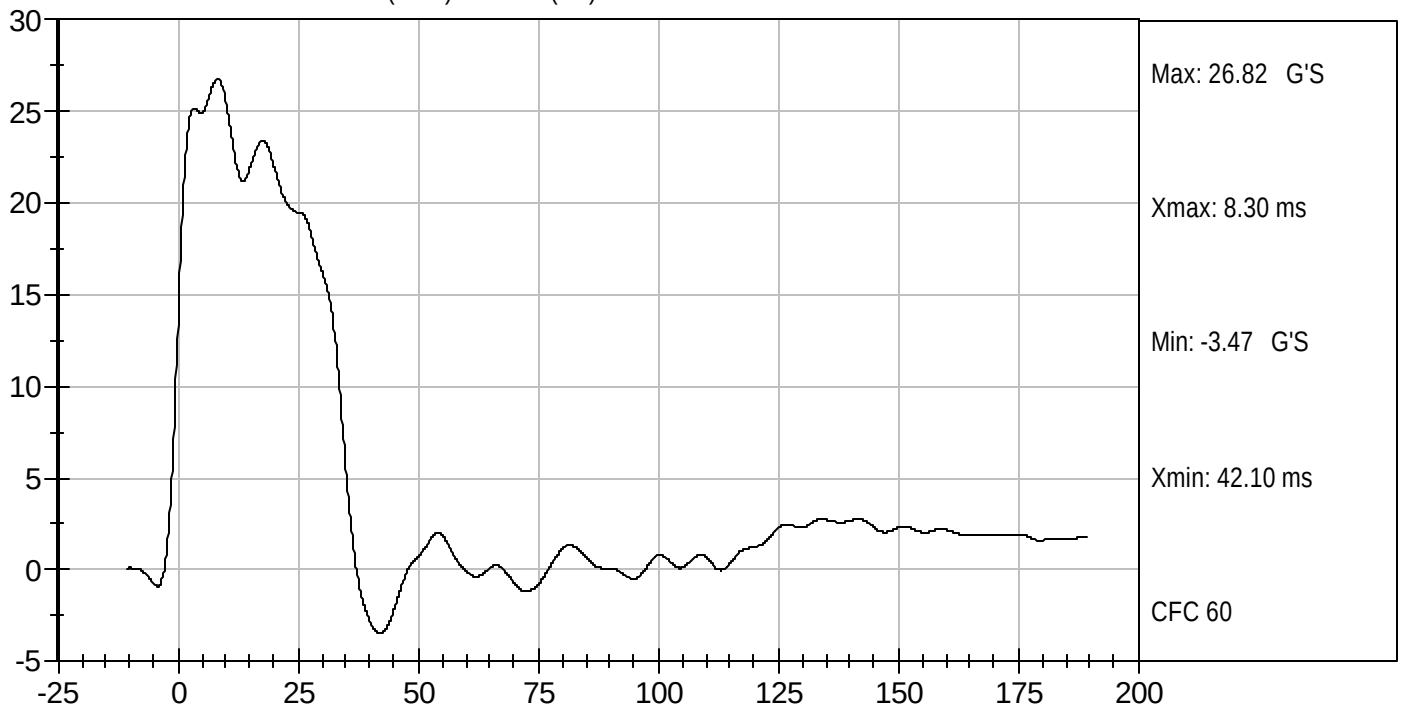

 Approved By



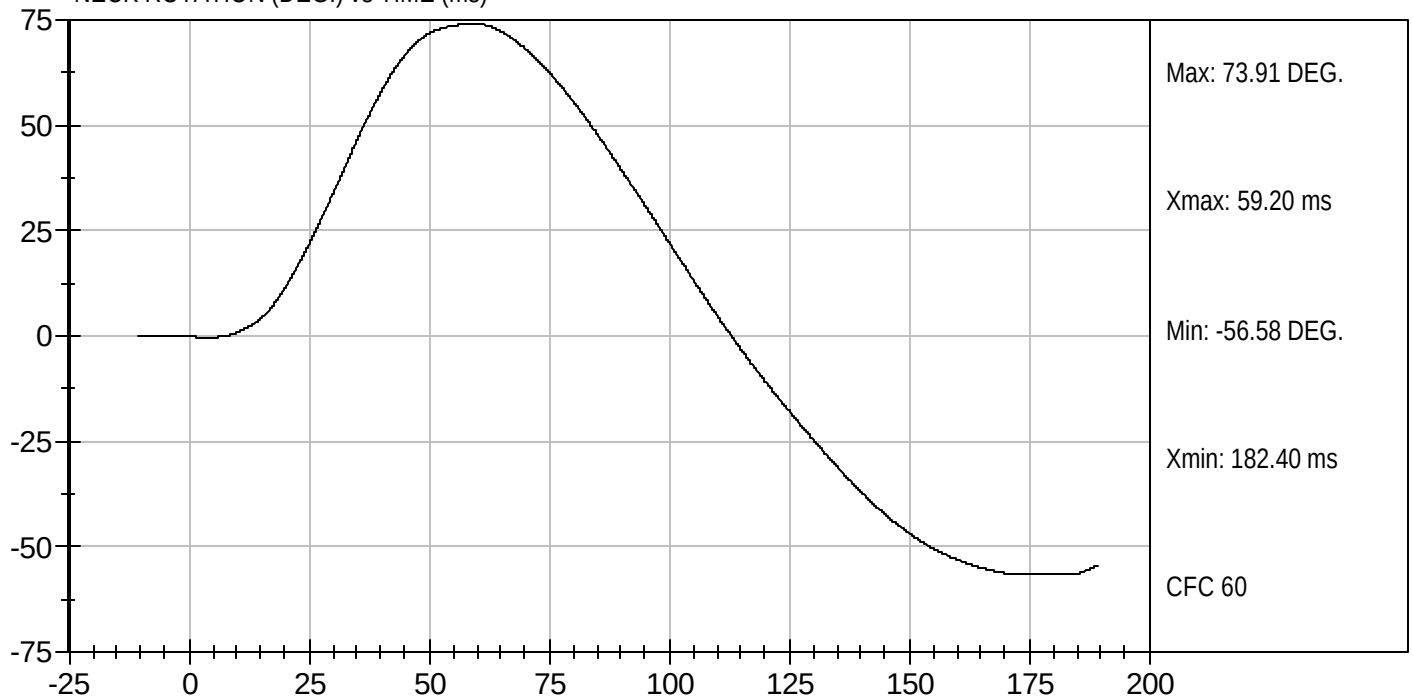
Test Desc: Neck Flexion
Componet ID: D061182

Test Date: 05/01/2006
Velocity: 23.33 ft/s, 7.11 m/s

PENDULUM DECELERATION (G'S) vs TIME (ms)



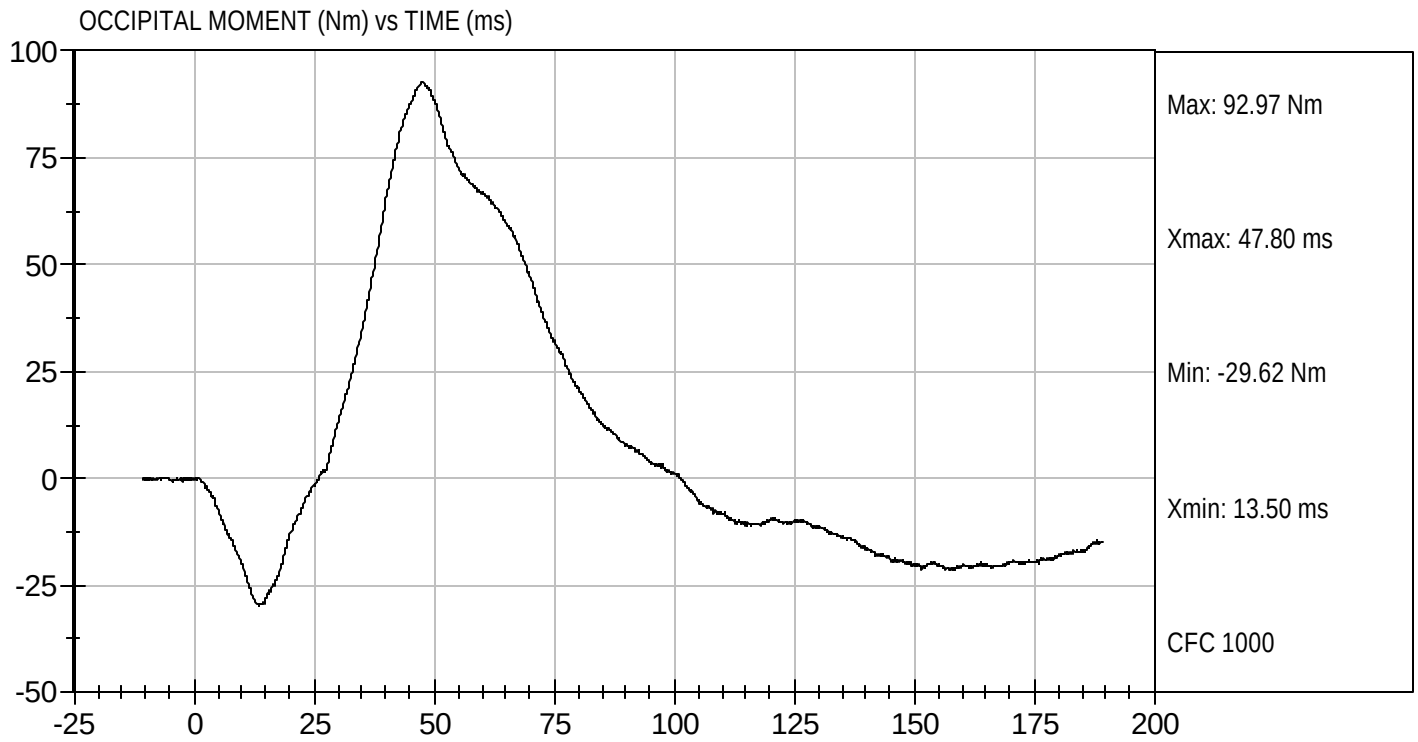
NECK ROTATION (DEG.) vs TIME (ms)





Test Desc: Neck Flexion
Componet ID: D061182

Test Date: 05/01/2006
Velocity: 23.33 ft/s, 7.11 m/s



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

ATD Serial No: 065

Test I.D: D061183

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity		%	10 to 70	48	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.15	Pass
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	19.86	Pass
	20 msec	G's	14.00 to 19.00	17.43	Pass
	30 msec	G's	11.00 to 16.00	14.43	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 22.0	14.77	Pass
Deceleration Decay Time to Cross 5 G's		msec	38.0 to 46.0	38.9	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	102.3	Pass
	Time	msec	72.0 to 82.0	81.1	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	147.0 to 174.0	158.8	Pass
Moment About Occipital Condyle	Maximum	N m	-52.9 to -79.9	-69.7	Pass
	Time	msec	65.0 to 79.0	73.3	Pass
Negative Moment Decay Time To Zero Crossing		msec	120.0 to 148.0	143.3	Pass
Overall Test Results				Pass	


 Laboratory Technician

05/01/2006
 Test Date

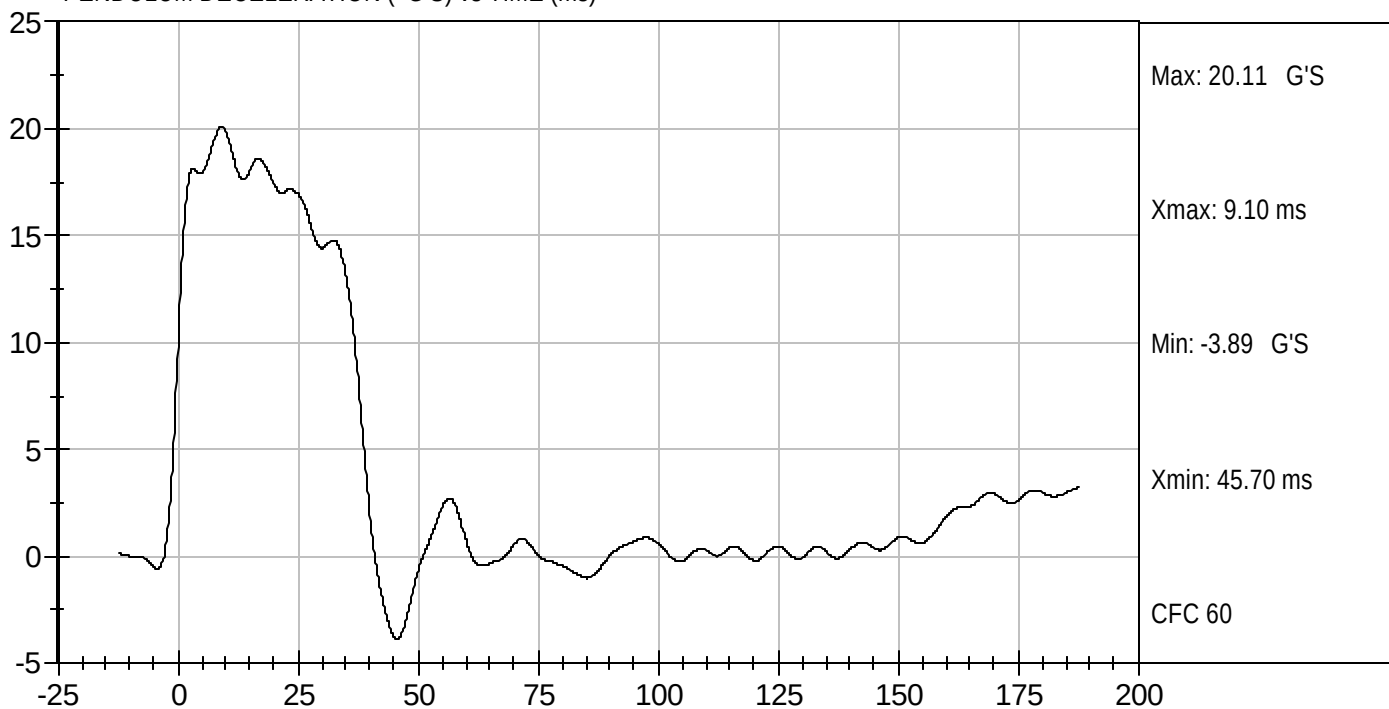

 Approved By



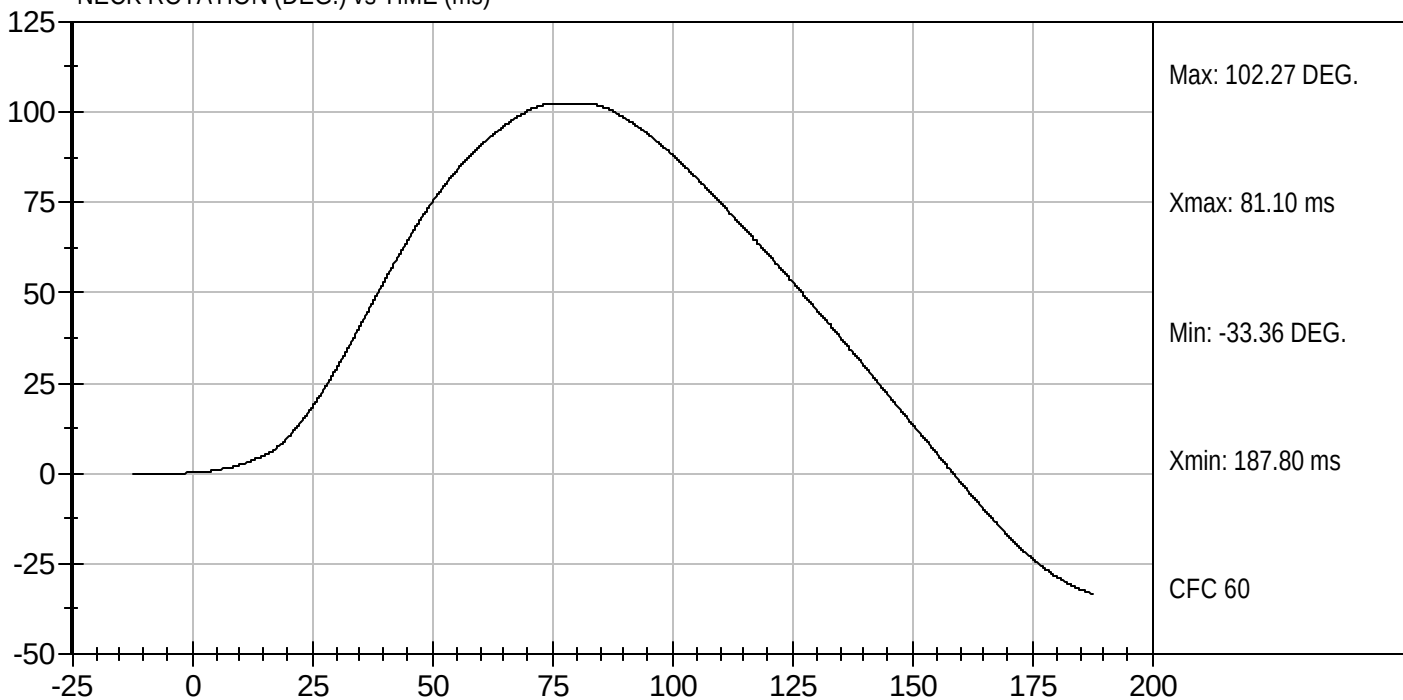
Test Desc: Neck Extension
Componet ID: D061183

Test Date: 05/01/2006
Velocity: 20.19 ft/s, 6.15 m/s

PENDULUM DECELERATION (G'S) vs TIME (ms)



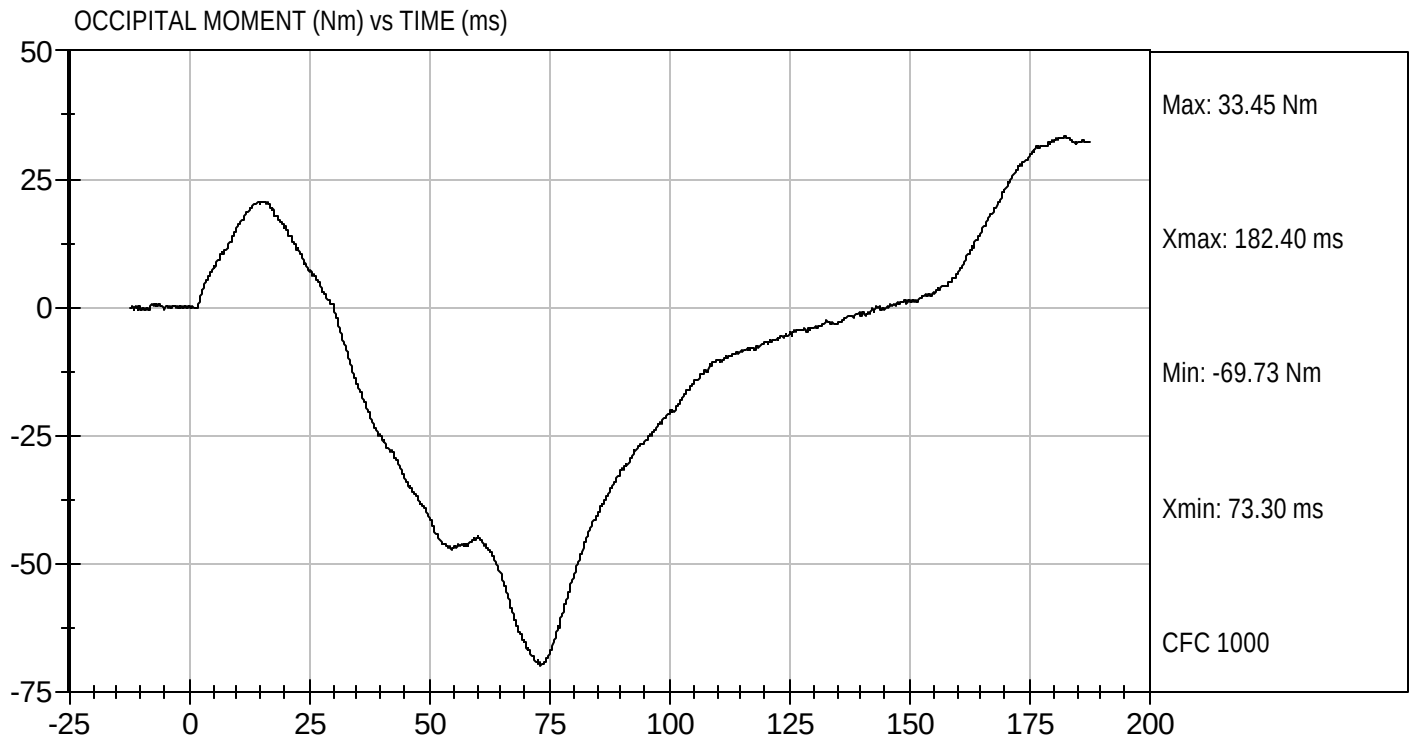
NECK ROTATION (DEG.) vs TIME (ms)





Test Desc: Neck Extension
Componet ID: D061183

Test Date: 05/01/2006
Velocity: 20.19 ft/s, 6.15 m/s



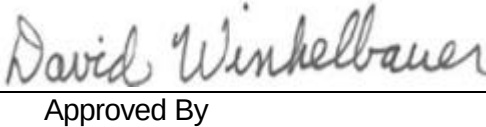
**MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 50TH PERCENTILE MALE**

ATD Serial No: 065

Test I.D: D061184

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Probe Velocity	m/s	6.58 to 6.82	6.71	Pass
Peak Probe Force	N	5159 to 5893	5,471	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	7.10	Pass
Internal Hysteresis	%	69 to 85	71	Pass
Overall Test Results			Pass	


Laboratory Technician

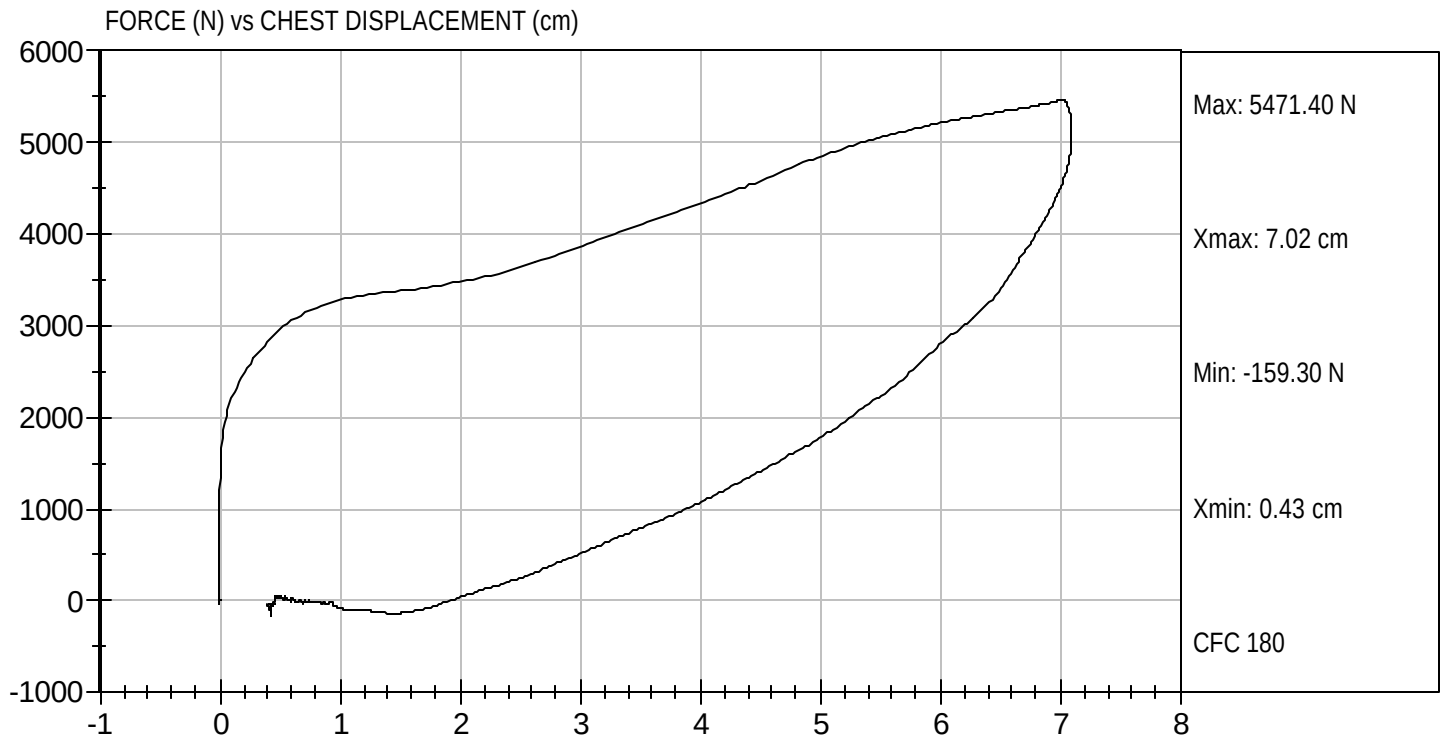

Approved By

05/01/2006
Test Date



Test Desc: Thorax Impact
Componet ID: D061184

Test Date: 05/01/2006
Velocity: 22.03 ft/s, 6.71 m/s



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

ATD Serial No: 065

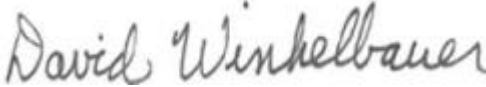
Test I.D: D061185

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5,048	Pass
Overall Test Results				Pass


Laboratory Technician

05/01/2006

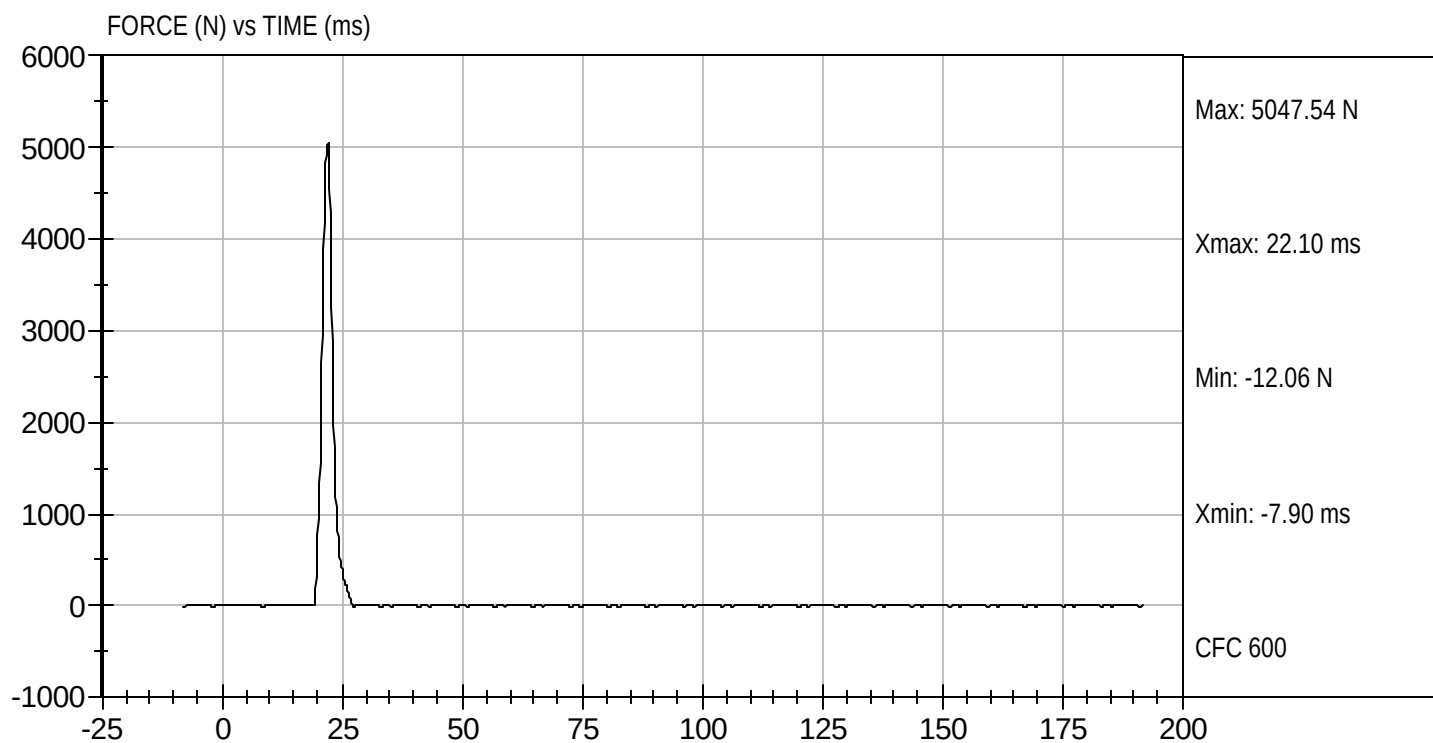
Test Date


Approved By



Test Desc: Right Knee
Componet ID: D061185

Test Date: 05/01/2006
Velocity: 6.88 ft/s, 2.10 m/s



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

ATD Serial No: 065

Test I.D: D061186

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	44	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5,624	Pass
Overall Test Results				Pass


Laboratory Technician

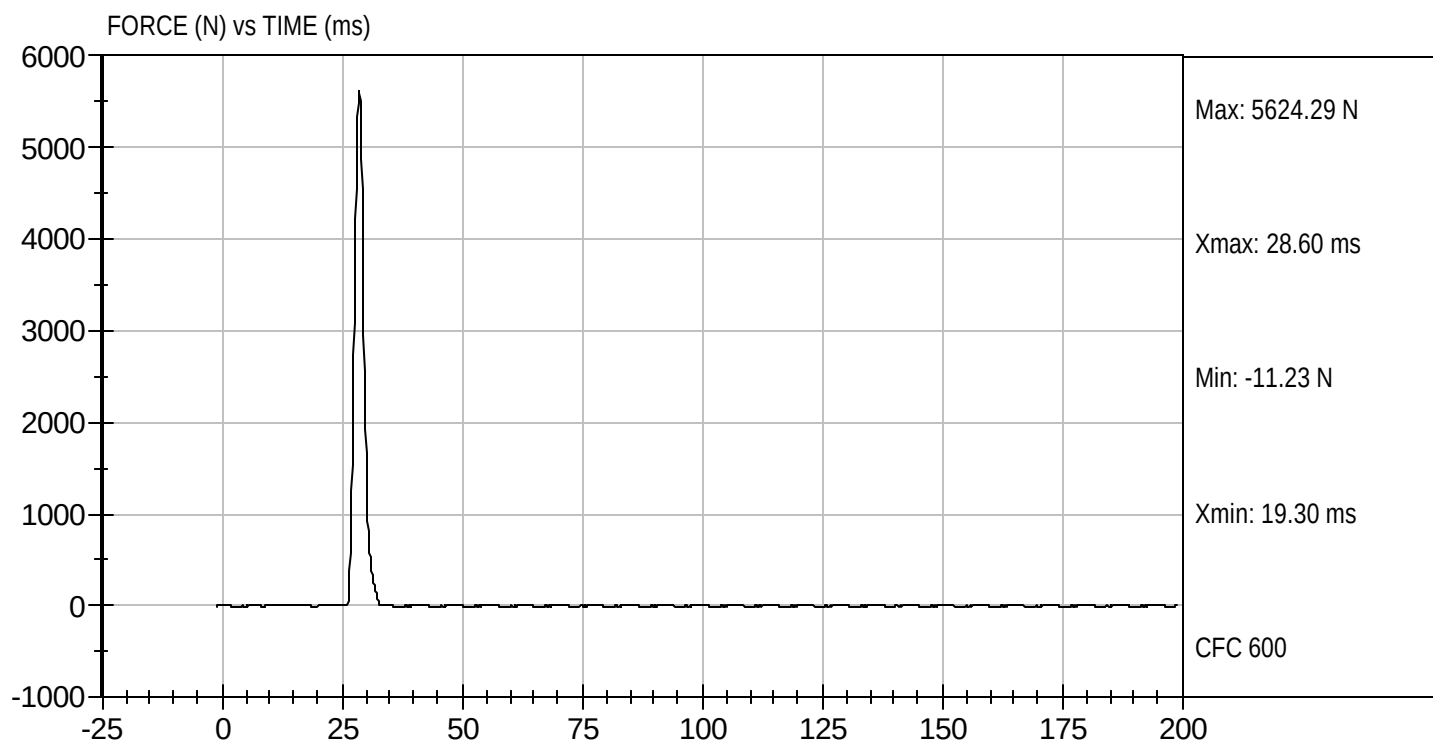

Approved By

05/01/2006
Test Date



Test Desc: Left Knee
Componet ID: D061186

Test Date: 05/01/2006
Velocity: 6.87 ft/s, 2.09 m/s



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

ATD Serial No: 065

Test I.D: D061180

Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.8	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	48	48	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	90.1	87.8	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	43	43	Pass
Overall Test Results				Pass	


 Laboratory Technician

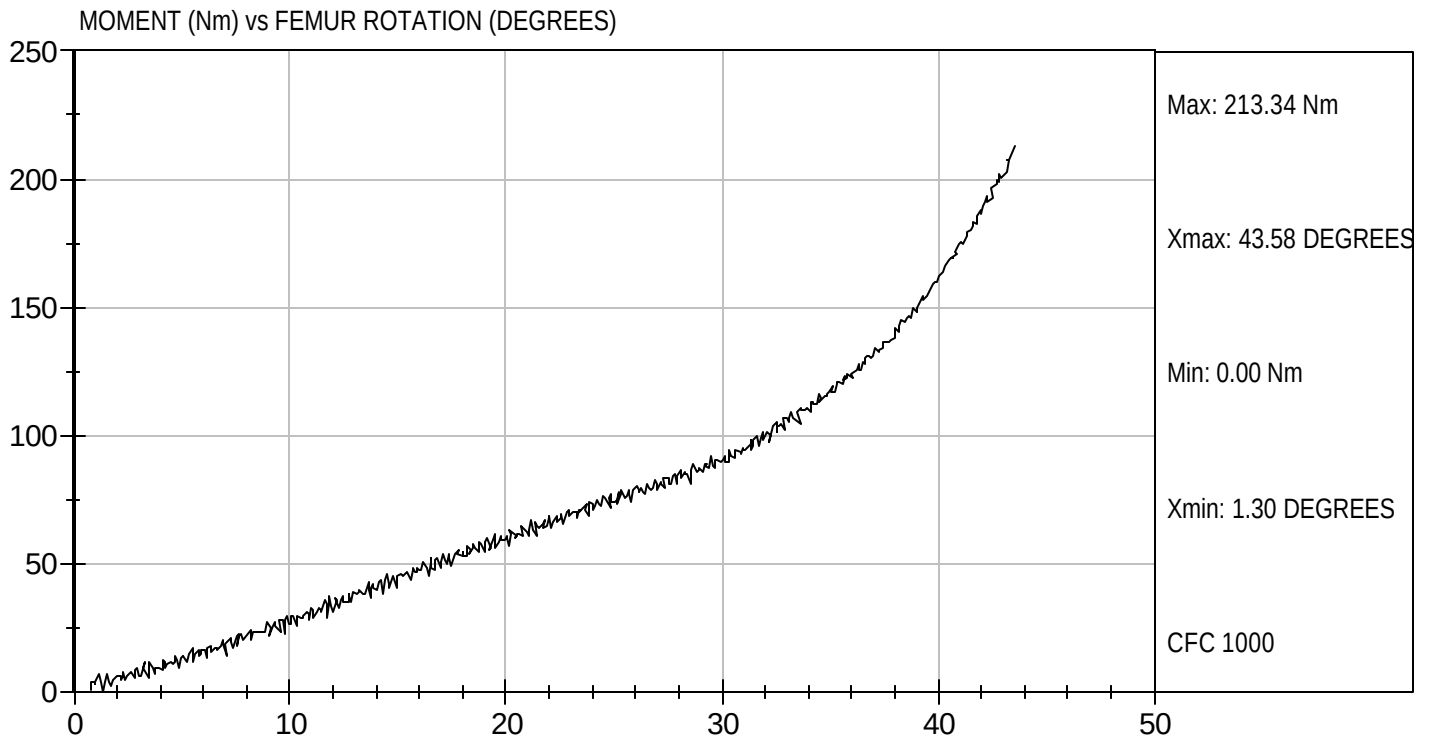
05/01/2006
 Test Date


 Approved By



Test Desc: Hip Femur Flexion
Componet ID: D061189

Test Date: 05/01/2006
Velocity: 0 ft/s, 0.00 m/s





Test Desc: Hip Femur Flexion
Componet ID: D061180

Test Date: 05/01/2006
Velocity: 0 ft/s, 0.00 m/s

