REPORT NUMBER: T8001-MGA-2008-007

VEHICLE TO DEFORMABLE BARRIER CRASH TESTS IN SUPPORT OF NHTSA OFFSET FRONTAL PROGRAM

LEFT 50% OFFSET DEFORMABLE BARRIER IMPACT
PDB BARRIER
TEST DATE: MARCH 31, 2008
ORDER NUMBER: DTRTV-T8001

2007 FORD FIVE HUNDRED SEL 4-DOOR (R70204)

PREPARED BY:
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FINAL REPORT SUBMITTED:
AUGUST 22, 2008

PREPARED FOR:
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Technical Report Documentation Page

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16. Abstract A 50% frontal offset barrier impact was conducted on a 2007 Ford Five Hundred SEL 4-Door, NHTSA No. R70204, at MGA Research Corporation on March 31, 2008. This test was conducted in accordance with Volpe Order No. DTRTV-T8001 for the evaluation of vehicle and occupant responses. The impact velocity was 59.9 km/h. The ambient temperature at the barrier face at the time of impact was 21 degrees Celsius. The vehicle's maximum static crush was 560 mm located to the left of the vehicle's centerline. The driver's 15 millisecond Head Injury Criteria (HIC) was 303. The driver's chest maximum resultant acceleration with three milliseconds minimum duration was 34.6 g. The driver's maximum chest deflection was -22 millimeters. The driver's left and right femur maximum axial compressive forces were -4067 N and -466 N, respectively. The right front passenger's 15 millisecond Head Injury Criteria (HIC) was 132. The right front passenger's chest maximum resultant acceleration with three milliseconds minimum duration was 26.2 g. The right front passenger's maximum chest deflection was -20 millimeters. The right front passenger's left and right femur maximum axial compressive forces were -1603 N and -1139 N, respectively. The left rear passenger's 15 millisecond Head Injury Criteria (HIC) was 326. The left rear passenger's chest maximum resultant acceleration with three milliseconds minimum duration was 35.0 g.			
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SECTION 1
PURPOSE AND TEST PROCEDURE

PURPOSE

This 60.0 km/h (target speed) Left 50% Offset Deformable Barrier test was conducted for the Volpe National Transportation Systems Center (VNTSC) / RITA by MGA Research Corporation.

The purpose of this testing was to evaluate and compare vehicle and occupant responses during 50% frontal offset vehicle to deformable barrier crash tests. For this test, the subject vehicle was a 2007 Ford Five Hundred SEL 4-Door with two (2) 50th percentile dummies in the front seating positions and one 10-year-old dummy in the left rear seating position. The deformable barrier used for this test was the PDB barrier.

TEST PROCEDURE

This test was conducted in accordance with VNTSC's instructions for a 50% offset vehicle to deformable barrier crash test. Data was obtained relative to FMVSS 208, "Occupant Crash Protection" performance, FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity," performance.

The test vehicle, a 2007 Ford Five Hundred SEL 4-Door, was instrumented with twelve (12) accelerometers to measure longitudinal axis accelerations, four (4) accelerometers to measure lateral axis accelerations, and six (6) accelerometers to measure vertical axis accelerations. The driver and passenger's primary and secondary airbag signals were monitored with inductive pickups. The vehicle impacted a 50% left offset deformable barrier. The vehicle's specified impact velocity range was 59.2 to 60.8 km/h.

The test vehicle contained two (2) Part 572E 50th percentile adult male Hybrid III anthropomorphic test devices (dummies) with Thor-Lx legs in the driver and right front passenger positions. A Hybrid III 10-Year-Old dummy was placed in the left rear seating position. The 50th percentile dummies were positioned in the front outboard designated seating positions according to a procedure provided by the COTR. The seating procedure is included as Appendix D. The driver dummy was restrained with a 3-point seat belt and a front airbag. The right front passenger dummy was restrained with a 3-point seat belt and a front airbag. The left rear passenger dummy was in the Graco Highback Turbobooster child seat and restrained with the Type II seat belt.

Each Hybrid III 50th dummy was instrumented with an array of twelve (12) accelerometers in the head, and six (6) accelerometers in the chest, oriented to measure longitudinal, lateral, and vertical accelerations. Each dummy was also instrumented with 6-channel upper and lower neck moment and force load cells, left and right femur load cells to measure axial forces, a chest deflection potentiometer, and knee displacement potentiometers. Each dummy was equipped with Thor-Lx legs, which included upper and lower tibia load cells to measure forces and moments, longitudinal and lateral tibia accelerometers, three (3) foot accelerometers on each foot to measure accelerations in three (3) axes and three (3) rotary potentiometers at each ankle to measure foot rotations about three (3) axes.

TEST PROCEDURE (CONTINUED)

The Hybrid III 10-Year-Old child dummy was instrumented with tri-axial accelerometers in the head, chest, and pelvis oriented to measure longitudinal, lateral, and vertical accelerations. The dummy was also instrumented with 6-channel upper and lower neck moment and force load cells, left and right shoulder load cells, upper and lower sternum X accelerometers, upper and lower spine X accelerometers, 6-channel lumbar moment and force load cells, right/left upper and right/left lower asis load cells.

The vehicle impacted a deformable barrier instrumented with 90 load cells to measure longitudinal forces.

The 313 data channels were digitally sampled and recorded at 10,000 samples per second and processed per SAE J211 March 1995.

The crash event was recorded by one (1) real-time panning motion picture camera and eighteen (18) high-speed digital motion picture cameras. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera.

The left 50% offset deformable barrier crash test summary data and all occupant, camera, vehicle, and deformable barrier face measurements are presented in Section 2.0. Appendix A contains the still photographs. Appendix B contains the dummy, vehicle, and barrier data plots. Appendix C contains the dummy verification data. Appendix D contains customer provided seating procedure. Appendix E contains the barrier certification. Appendix F contains an INSIA report that was the basis for the Structural Measurements presented in Data Sheet 10 (page 30) of this report.

SECTION 2

LEFT 50% OFFSET DEFORMABLE BARRIER IMPACT SUMMARY

This 60.0 km/h (target speed) left 50% offset deformable barrier crash test was conducted by MGA Research Corporation on March 31, 2008.

The test vehicle, a 2007 Ford Five Hundred SEL 4-Door, NHTSA Number R70204, was equipped with a 3.0 L, 6-cylinder lateral engine, automatic transmission, power steering, power brakes, and front airbags. The vehicle's test weight was 1916.1 kg. The vehicle's impact speed was 59.9 km/h. The vehicle sustained 560 mm of static crush during the impact.

The occupant injury assessment values are summarized on the following page.

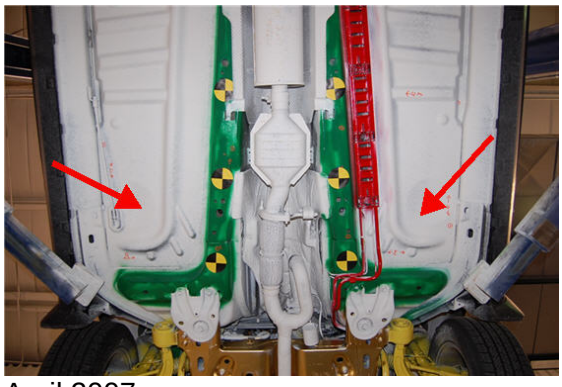
TEST NOTES

There was no valid data collected for:

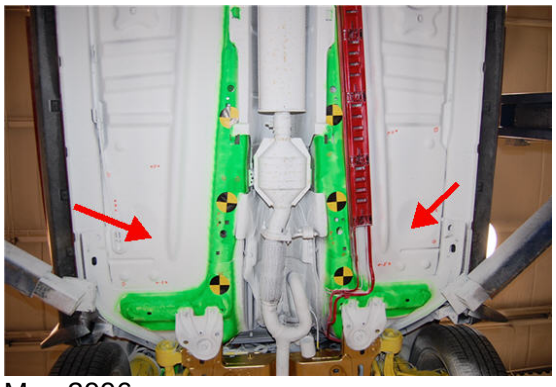
Driver Right Lower Tibia Force X (Questionable data after 126 msec.)
Driver Right Lower Tibia Force Y (Questionable data after 68 msec.)
Left Rear Pasenger Neck Moment Z (Questionable data after 12 msec.)
Top of Engine X after 40 msec.
ODB Barrier Load Cells 31 through 90

CMM Reference: Rear Bumper Top @ Center
+X Forward
+Y Left
+Z Up

The floorboard design for this vehicle (April 2007 manufacture date) was different than the 2007 Ford 500 (May 2006 manufacture date) tested under a previous contract. See photos below.



April 2007



May 2006

SECTION 2 (CONTINUED)

LEFT 50% OFFSET DEFORMABLE BARRIER IMPACT SUMMARY

OCCUPANT INJURY ASSESSMENT VALUES

Injury Criteria		Limit	Driver	Right Front Passenger
HIC 36		1000	448	261
	T1 (msec)		106.8	101.6
	T2 (msec)		142.8	137.6
HIC 15		700	303	132
	T1 (msec)		113.1	116.4
	T2 (msec)		128.1	131.4
Upper Neck Tension (N)		4170	1472	1066
Upper Neck Compression (N)		4000	-46	-52
Neck Injury (NIJ) N_{te}		1.0	0.18	0.28
Neck Injury (NIJ) N_{tf}		1.0	0.37	0.18
Neck Injury (NIJ) N_{ce}		1.0	0.0	0.05
Neck Injury (NIJ) N_{cf}		1.0	0.01	0.01
Clip (g)		60	35	26
Chest Displacement (mm)		63	-22	-20
Left Femur (N)		9,040	-4067	-1603
Right Femur (N)		9,040	-466	-1139
Left Upper Tibia Index		0.91	0.71	0.36
Right Upper Tibia Index		0.91	0.41	0.38
Left Lower Tibia Index		0.91	0.61	0.49
Right Lower Tibia Index		0.91	0.47	0.38
Left Upper Tibia Force (N)		-5600	-1160	-889
Right Upper Tibia Force (N)		-5600	-949	-1409
Left Lower Tibia Force (N)		-5200	-1565	-1176
Right Lower Tibia Force (N)		-5200	-2436	-1894
Left Inversion (degrees)		-35	-8.7	-31.6
Left Eversion (degrees)		35	26.8	1.6
Left Plantarflexion (degrees)			-16.2	-39.5
Left Dorsiflexion (degrees)		35	6.9	N/A
Left External Rotation (degrees)			-11.6	-0.6
Left Internal Rotation (degrees)			12.2	15.3
Right Inversion (degrees)		35	1.7	4.2
Right Eversion (degrees)		-35	-18.9	-22.7
Right Plantarflexion (degrees)			-12.9	-34.8
Right Dorsiflexion (degrees)		35	25.4	N/A
Right External Rotation (degrees)			18.2	9.4
Right Internal Rotation (degrees)			-0.7	-5.5
Left Knee Shear (mm)		-15	-2.2	-0.1
Right Knee Shear (mm)		-15	-0.9	-1.1

SECTION 2 (CONTINUED)

LEFT 50% OFFSET DEFORMABLE BARRIER IMPACT SUMMARY

OCCUPANT INJURY ASSESSMENT VALUES (CONTINUED)

Injury Criteria		Left Rear Passenger
HIC 36		629
	T1 (msec)	100.7
	T2 (msec)	136.7
HIC 15		326
	T1 (msec)	108.5
	T2 (msec)	123.5
Upper Neck Tension (N)		2275
Upper Neck Compression (N)		-627
Clip (g)		35

DATA SHEET 1

CRASH VEHICLE SUMMARY

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

Description	Value
Test Time	12:25 p.m.
Temperature	21°C
Vehicle Year/ Make / Model / Body Style	2007 Ford Five Hundred SEL 4-Door
Vehicle Test Weight	1916.1 kg
Vehicle / Barrier Impact Angle	0°
Vehicle / Barrier Impact Accuracy	11 mm up / 20 mm right
Impact Velocity	59.9 km/h
Maximum Static Crush	560 mm to the left of the vehicle's C/L
Deformable Barrier	PDB
Number of Data Channels	313
Number of Real-Time Cameras	1
Number of High-Speed Cameras	18

Dummies	Driver	Right Front Passenger	Left Rear Passenger
Type/Serial No.	HIII / 202	HIII / 206	HIII 10YO / D001
Type Lower Legs	Thor-Lx	Thor-Lx	
Serial Numbers of Legs	37R / 36L	45R / 46L	
Restraint System	3-Point Seatbelt Front Airbag	3-Point Seatbelt Front Airbag	Type II Belts Graco Highback Turbobooster

DATA SHEET 2

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

TEST VEHICLE INFORMATION

Manufacturer	Ford
Model	Five Hundred
Body Style	Sedan
NHTSA No.	R70204
VIN	1FAHP24187G164083
Color	Silver
Delivery Date	2/11/2008
Odometer Reading (mile)	15,566
Dealer	Gordie Boucher
Transmission	Automatic
Final Drive	Front
Number of Cylinders	6
Engine Displacement (L)	3.0
Engine Placement	Lateral
Automatic Door Lock (ADL)	Yes
Owners Manual Details Instructions on Disabling ADLs	Yes
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	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company
Date of Manufacture	04/07

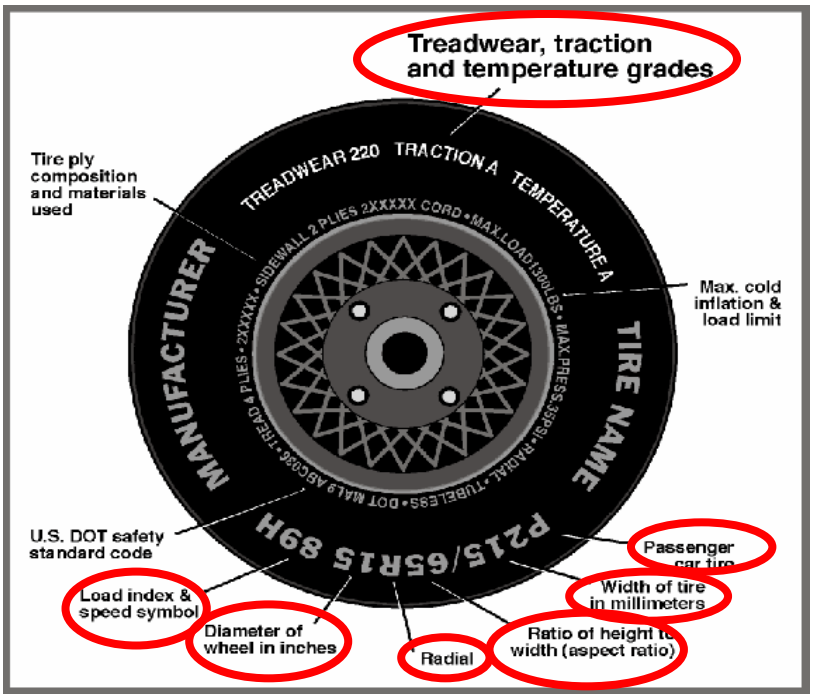
GVWR (kg)	2186
GAWR Front (kg)	1150
GAWR Rear (kg)	1066

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				430
Cargo Wt. (RCLW) (kg)				90

DATA SHEET 2 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	220	220
Recommended Tire Size	P215/60R17	P215/60R17
Tire Size on Vehicle	P215/60R17	P215/60R17
Tire Manufacturer	Continental	Continental
Tire Name	Conti Touring Contact	Conti Touring Contact
Tire Type	Passenger	Passenger
Tire Width (mm)	215	215
Ratio of Height to Width (aspect ratio)	60	60
Radial	R	R
Wheel Diameter	17	17
Load Index & Speed Symbol	95T	95T
Treadwear	360	360
Traction Grade	A	A
Temperature Grade	A	A

DATA SHEET 2 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	501.7	346.1		527.1	436.4	
Right	kg	502.6	333.4		525.3	427.3	
Ratio	%	59.6	40.4		54.9	45.1	
Totals	kg	1004.3	679.5	1683.8	1052.4	863.7	1916.1

Note: Test weight set to match a previous test.

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1683.8
Weight of 2 P572E ATDs & 1 10-Year-Old	kg	191.4
Rated Cargo/Luggage Weight (RCLW)	kg	90
Calculated Vehicle Target Weight (TVTW)	kg	1965.2

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	727	731	733	739	1156
As Tested	mm	719	726	688	704	1291
Post Test	mm	706	703	703	726	

Vehicle Wheelbase (mm): 2864

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

Vehicle Components Removed: Spare tire, jack, exhaust, interiors of right doors, and both rear tail lights.

Ballast weight does not include instrumentation and data acquisition system.

DATA SHEET 2 (CONTINUED)

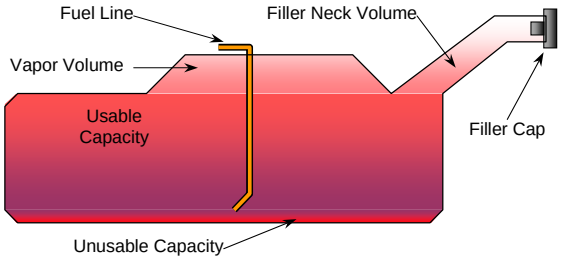
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	75.7
Usable Capacity of "Optional" Tank	
92-94% of Usable Capacity	69.6 – 71.2
Actual Amount of Solvent used	70.4
1/3 of Usable Capacity	25.2

The test vehicle is equipped with an electric fuel pump. The fuel tank is located in front of rear axle under rear seat. The fuel filler neck enters the tank of right rear corner. The fuel filler cap is located on right rear quarter panel. The fuel lines run along the right side of center tunnel.



VEHICLE FUEL TANK ASSEMBLY

BELT LENGTH DATA

Measurement Description	Units	Driver	Right Front Passenger	Left Rear Passenger
Shoulder belt length as measured on ATD	mm	810	820	1000
Lap belt length as measured on ATD	mm	635	620	700
Remainder of belt on reel	mm	875	880	700
Total belt length for continuous webbing systems	mm	2320	2320	2400

SEAT TRACK INFORMATION

Description	Driver	Right Front Passenger	Left Rear Passenger
Seat Track Shift (mm)	0	0	0
Seat Back Failure	None	None	None

DATA SHEET 3

POST IMPACT DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

DOOR OPENING AND GLAZING DAMAGE

Description	Left Side	Right Side
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
Glazing Damage	The windshield cracked.	

DUMMY CONTACT POINTS

Description	Driver	Right Front Passenger	Left Rear Passenger
Head Contact	Airbag, headrest, visor	Airbag, headrest	Child seat, C-pillar
Chest Contact	Airbag	Airbag	Chin to chest
Abdomen Contact	None	None	None
Left Knee Contact	Knee bolster	Glovebox	Feet to driver seatback
Right Knee Contact	None	Glovebox	Feet to driver seatback

LEFT REAR (P4) CRS POST-TEST INSPECTION

Location	Damage	Remarks
Cracks on CRS	None	
Fabric Tears on CRS	None	
Vehicle Seat Structure	None	
Vehicle Seat Fabric Tears	None	
Child Dummy	None	10-Year-Old

DATA SHEET 4

TEST VEHICLE INFORMATION

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

NORMAL DESIGN RIDING POSITION

Driver seat back angle: 8.0° at headrest post

Right Front Passenger seat back angle: 7.7° at headrest post

Left Rear Passenger seat back angle: Fixed

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position #
Left Front Seat	245 mm	52 mm rear of mid
Right Front Seat	242 mm	21 mm rear of mid
Left Rear Seat	Fixed	Fixed

ADJUSTABLE D-RING POSITION

The driver and passenger D-rings were set at the upper-most detent.

STEERING COLUMN POSITION

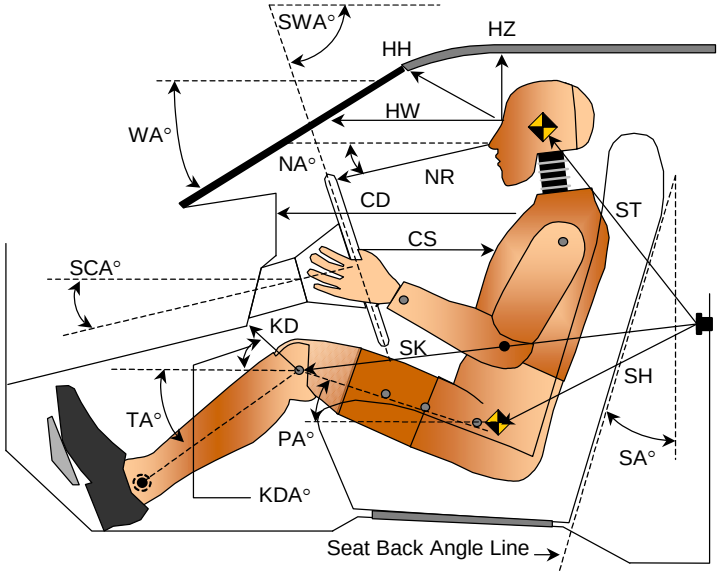
	Fore/Aft Position (mm)	Degrees
Lowermost position No. 1		63.6
Geometric center position No. 2		66.1
Uppermost position No. 3		68.6

DATA SHEET 5

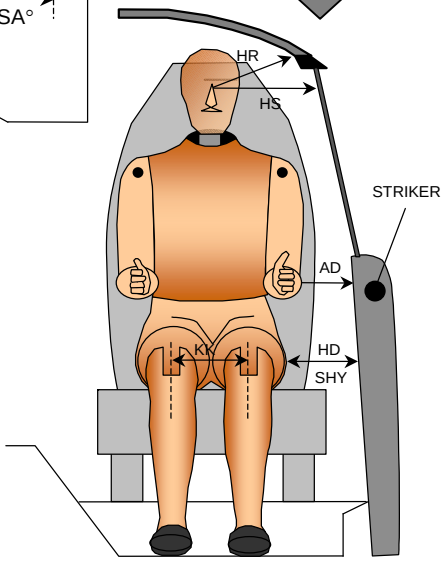
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

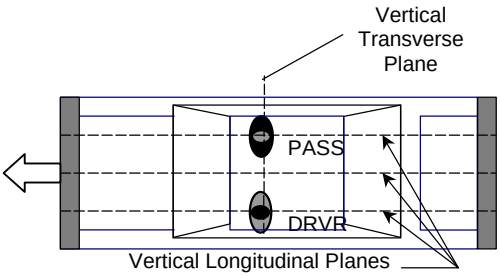
DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



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



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



DATA SHEET 5 (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

TEST DUMMY POSITION MEASUREMENTS

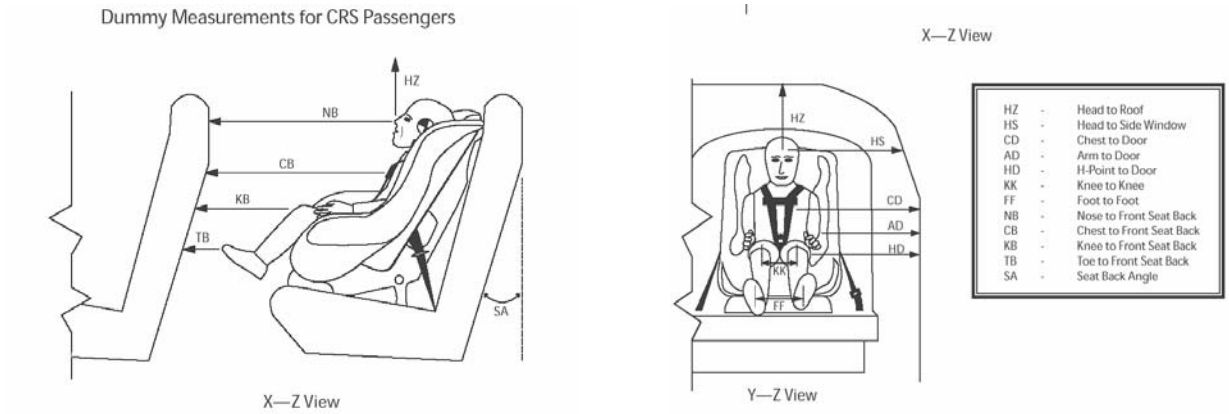
Code	Measurement Description	Driver		Right Front Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		26.1		
SWA	Steering Wheel Angle		66.1		
SCA	Steering Column Angle		25.0		
SA	Seat Back Angle (headrest post)		8.0		7.7
HZ	Head to Roof (Z)	238	90	187	90
HH	Head to Header	389	21.0	353	17.7
HW	Head to Windshield	712	0	650	0
HR	Head to Side Header (Y)	239		225	
NR	Nose to Rim	468	7.3		
CD	Chest to Dash	651		588	
CS	Chest to Steering Hub	372	0.3		
RA	Rim to Abdomen	260	0		
KDL	Left Knee to Dash	195	25.6	188	
KDR	Right Knee to Dash	199		186	28.5
PA	Pelvic Angle		24.8		24.9
TA	Tibia Angle		47.4		46.0
KK	Knee to Knee (Y)	327		270	
SAN	Striker to Ankle	875		921	
SK	Striker to Knee	556		581	
ST	Striker to Head	481		510	
SH	Striker to H-Point	230		179	
SHY	Striker to H-Point (Y)	285		258	
HS	Head to Side Window	356		364	
HD	H-Point to Door (Y)	178		389	
AD	Arm to Door (Y)	151		175	
AA	Ankle to Ankle	268		245	

DATA SHEET 5 (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

Child Restraint System (Position 4)	Graco Highback Turbobooster (Forward Facing)
Dummy Type / Serial Number	Hybrid III 10-Year-Old / D001



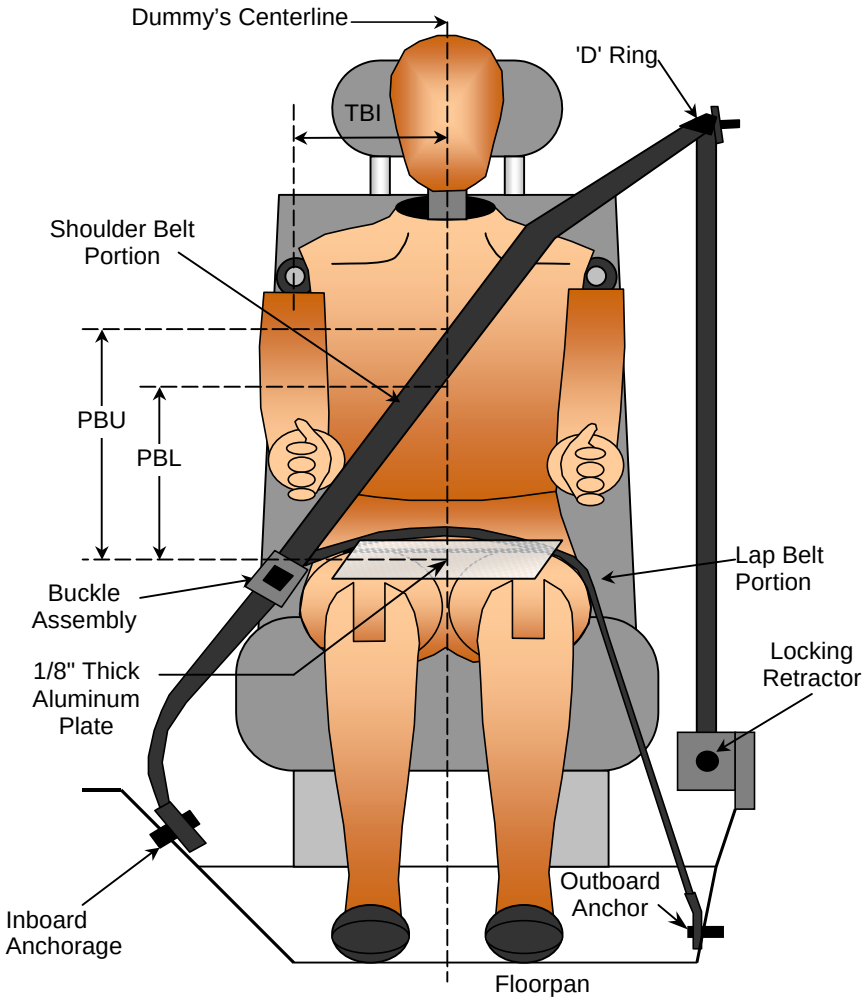
Measurement	Pre-Test (mm)	Post-Test (mm)
	P4 CRS	P4 CRS
SA (deg)		
HS	351	452
CD	355	374
AD	170	230
HD	173	172
HZ	282	308
NB	598	602
CB	594	600
KK	150	115
FF	168	62
KB - LEFT	329	314
KB – RIGHT	325	355
TB - LEFT	105	160
TB - RIGHT	108	171

All dimensions in mm (unless noted)
P4 – 2nd Row Left Rear Passenger (Forward Facing)

DATA SHEET 5 (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	RFP	LRP
PBU - Top surface of reference to belt upper edge	mm	350	350	245
PBL - Top surface of reference to belt lower edge	mm	270	270	165

DATA SHEET 5 (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

	Driver			Right Front Passenger			Left Rear Passenger		
	X	Y	Z	X	Y	Z	X	Y	Z
Head CG	2557	-447	-738	2602	448	-773	1595	-474	-696
Striker	2544	-820	-257	2541	826	-267	1521	-824	-378
Left Knee	3094	-535	-175	3130	511	-195	2038	-486	-278
Right Knee	3105	-289	-164	3116	340	-184			
Tip of Nose	2666	-372	-701	2705	371	-730	1713	-389	-670
H-Point	2697	-535	-85	2634	568	-114	1764	-509	-200
Left Ankle	3407	-528	110	3441	346	84			
Right Ankle	3443	-265	91	3444	527	84			
Left Heel	3397	-509	237	3435	314	221			
Right Heel	3454	-235	228	3441	489	222			
Right Toe	3649	-209	-34	3677	467	-4	2355	-296	-40
Left Toe	3644	-491	19				2348	-470	-29
Right Child Seat							1734	-168	-123
Left Child Seat							1730	-580	-117
Left Shoulder							1577	-480	-504
Right Shoulder							1582	-298	-507
Seat Anchor							1609	-609	-63
Seat Final Placement	2983	-640	108	3010	654	103			

DATA SHEET 6

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Accelerometer Location	Measurements (mm)		
	X	Y	Z
Left Rear Seat Crossmember X	2116	-430	381
Left Rear Seat Crossmember Y			
Right Rear Seat Crossmember X	2116	430	381
Right Rear Seat Crossmember Y			
Vehicle Center of Gravity X	2896	0	467
Vehicle Center of Gravity Y			
Vehicle Center of Gravity Z			
Top of Engine Block X	4385	0	798
Bottom of Engine Block X	4315	0	170
Left Disc Brake Caliper X	4218	-731	251
Right Disc Brake Caliper X	4218	731	251
Instrument Panel X	3237	0	910
Left Side Driver Mid Seat Track X	2548	-576	322
Accelerator Pedal X (at midfoot)	3595	-208	468
Accelerator Pedal Y (at midfoot)			
Accelerator Pedal Z (at midfoot)			
Brake Pedal X (at midfoot)	3724	-352	455
Brake Pedal Y (at midfoot)			
Brake Pedal Z (at midfoot)			
Footrest X	3559	-548	368
Footrest Y			
Footrest Z			

Reference is on the following page.

DATA SHEET 6 (CONTINUED)

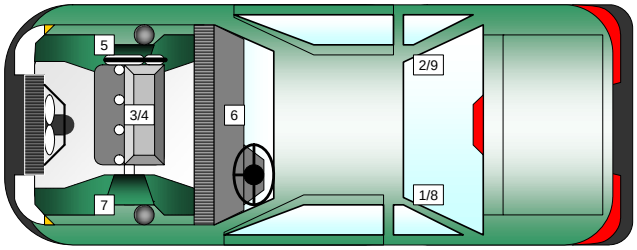
VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

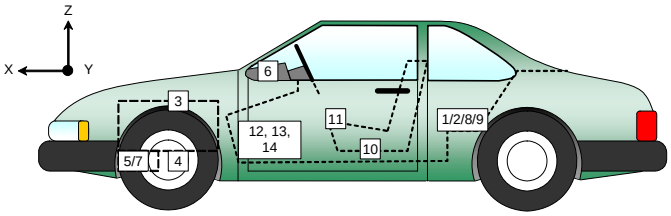
Test Vehicle:	2007 Ford Five Hundred SEL 4-Door	NHTSA No.:	R70204
Test Program:	Left 50% Offset Deformable Barrier	Test Date:	3/31/2008

Reference Points: X - Rear Surface of Vehicle (+ forward)

Y - Vehicle Centerline (+ to right)

Z - Ground Plane (+ up)





DATA SHEET 6 (CONTINUED)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

Location Number	Description	Maximum Values (g's)			
		Positive	Time, ms	Negative	Time, ms
1	Left Rear Seat Cross Member X	3.2	63.3	-25.8	56.9
2	Right Rear Seat Cross Member X	1.4	195.9	-26.3	55.8
3	Top of Engine Block X	(1)	(1)	(1)	(1)
4	Bottom of Engine Block X	6.9	56.4	-33.1	37.3
5	Disc Brake Caliper @ Right Side X	16.2	300.0	-44.7	90.7
6	Instrument Panel X	52.8	36.3	-77.6	40.3
7	Disc Brake Caliper @ Left Side X	25.3	75.6	-76.0	64.3
8	Left Rear Seat Cross Member Y	7.3	70.0	-3.7	63.8
9	Right Rear Seat Cross Member Y	7.9	54.7	-3.1	270.7
10	Left Side Driver Mid Seat Track X	64.3	66.6	-38.7	114.4
11	Vehicle Center of Gravity X	59.9	104.1	-42.3	108.0
	Vehicle Center of Gravity Y	24.7	112.0	-42.7	104.5
	Vehicle Center of Gravity Z	19.3	62.9	-26.7	123.5
	Vehicle Center of Gravity Resultant	73.4	104.1		
12	Accel Pedal Heel Location X	34.7	69.2	-57.2	59.8
	Accel Pedal Heel Location Y	47.9	60.1	-41.0	67.5
	Accel Pedal Heel Location Z	29.7	67.9	-39.2	82.1
	Accel Pedal Heel Location Resultant	78.3	60.1		
13	Brake Pedal Heel Location X	16.6	19.8	-32.1	57.2
	Brake Pedal Heel Location Y	14.7	50.9	-9.6	19.6
	Brake Pedal Heel Location Z	18.0	63.4	-19.4	68.8
	Brake Pedal Heel Location Resultant	34.8	69.1		
14	Outside Footrest X	7.6	195.9	-26.4	54.8
	Outside Footrest Y	19.0	75.8	-19.2	62.4
	Outside Footrest Z	17.7	53.0	-13.4	118.4
	Outside Footrest Resultant	31.1	54.7		

(1) No valid data after 40 msec.

DATA SHEET 7
DUMMY INJURY CRITERIA VALUES

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

		Maximum Value							
		Driver				Right Front Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms	Positive	Time, ms	Negative	Time, ms
Head X	G	7.4	291.4	-43.2	120.7	8.4	258.5	-32.5	123.5
Head Y	G	25.6	157.1	-4.1	235.0	4.5	148.0	-3.5	187.0
Head Z	G	34.8	115.4	-1.0	23.0	25.1	115.3	-0.9	32.5
Head Resultant	G	55.1	116.0			39.5	123.5		
Head (FT) Y	G	28.9	157.2	-9.9	121.0	5.1	105.4	-4.6	184.9
Head (FT) Z	G	39.3	113.9	-1.9	175.0	27.3	106.5	-6.9	183.7
Head (LT) X	G	7.1	293.0	-59.3	120.8	8.8	258.0	-33.4	126.9
Head (LT) Z	G	40.0	115.6	-6.3	158.1	27.5	113.7	-1.0	19.7
Head (TP) X	G	10.3	290.0	-58.7	125.4	17.4	257.8	-38.5	115.9
Head (TP) Y	G	44.3	155.7	-7.7	234.9	6.9	148.9	-6.3	184.9
Head Redundant X	G	7.3	291.9	-44.5	116.5	7.5	266.4	-32.6	127.0
Head Redundant Y	G	24.9	157.0	-4.0	235.5	4.1	145.8	-3.5	185.5
Head Redundant Z	G	35.1	115.4	-1.1	22.5	26.2	115.2	-1.1	32.5
Head Resultant Redundant	G	56.2	115.6			39.4	124.3		
Upper Neck Fx	N	722.9	123.7	-489.0	159.2	224.9	270.2	-669.2	165.8
Upper Neck Fy	N	774.7	157.6	-157.0	233.0	154.6	135.2	-154.6	193.3
Upper Neck Fz	N	1472.4	116.4	-45.7	22.7	1066.4	102.3	-52.0	276.2
Upper Neck F Resultant	N	1558.8	116.4			1129.0	102.4		
Upper Neck Mx	N-m	48.2	154.7	-13.7	235.0	11.9	153.7	-8.7	194.1
Upper Neck My	N-m	72.1	124.3	-16.9	263.7	38.9	182.4	-23.5	103.6
Upper Neck Mz	N-m	13.1	168.7	-12.4	121.2	4.7	109.8	-2.5	298.5
Upper Neck M Resultant	N-m	73.1	124.3			39.0	182.5		
Lower Neck Fx	N	345.0	279.5	-349.5	115.3	308.6	264.4	-739.9	131.7
Lower Neck Fy	N	977.7	128.3	-236.8	234.9	45.7	287.3	-220.8	110.6
Lower Neck Fz	N	1959.3	115.9	-337.8	24.3	1703.1	112.8	-300.4	178.9
Lower Neck F Resultant	N	2114.0	115.9			1737.8	116.5		
Lower Neck Mx	N-m	190.1	155.1	-47.9	234.4	34.9	146.9	-37.3	197.8
Lower Neck My	N-m	135.7	159.6	-69.2	277.3	161.1	179.2	-62.5	252.7
Lower Neck Mz	N-m	31.2	122.9	-9.7	104.8	2.8	247.1	-14.3	82.5
Lower Neck M Resultant	N-m	232.0	157.5			162.7	179.2		
Chest X	G	1.8	193.8	-33.6	115.0	1.3	211.4	-26.5	97.3
Chest Y	G	17.8	115.4	-3.2	159.2	5.1	94.7	-3.1	155.2
Chest Z	G	7.1	76.8	-6.7	137.3	12.3	116.7	-5.1	97.3
Chest Resultant	G	38.3	115.0			27.3	97.2		
Chest Redundant X	G	2.8	194.0	-33.5	115.0	1.2	210.4	-26.1	97.4
Chest Redundant Y	G	17.8	115.4	-3.2	159.2	5.2	94.8	-2.5	158.6
Chest Redundant Z	G	6.9	74.1	-6.9	137.5	11.8	116.8	-5.4	97.3
Chest Resultant Redundant	G	38.2	115.0			26.9	97.3		
Chest Displacement	mm			-21.8	92.7			-19.7	72.3

DATA SHEET 7 (CONTINUED)

DUMMY INJURY CRITERIA VALUES

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

		Maximum Value							
		Driver				Right Front Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms	Positive	Time, ms	Negative	Time, ms
Pelvis X	G	1.3	255.4	-45.6	81.0	3.8	160.7	-44.3	77.9
Pelvis Y	G	19.3	92.9	-6.8	137.0	9.2	86.4	-6.8	126.4
Pelvis Z	G	3.2	237.1	-19.3	97.1	2.0	260.8	-22.5	96.7
Pelvis Resultant	G	47.3	81.0			45.6	77.9		
Right Femur	N	823.5	64.9	-466.2	81.9	795.6	69.4	-1139.4	78.2
Left Femur	N	709.9	65.4	-4067.3	99.6	1006.8	67.7	-1602.8	105.3
Right Knee Shear	mm	0.9	84.7	-0.9	132.7	1.0	90.2	-1.1	158.4
Left Knee Shear	mm	0.5	244.4	-2.2	101.3	1.1	94.1	-0.1	165.9
Right Upper Tibia Fx	N	150.8	130.7	-424.4	82.8	457.1	75.4	-167.7	106.3
Right Upper Tibia Fy	N	312.6	126.0	-292.4	81.8	184.3	201.3	-266.0	80.6
Right Upper Tibia Fz	N	232.4	169.0	-949.0	120.5	353.2	88.0	-1408.5	104.9
Right Upper Tibia F Resultant	N	979.8	120.5			1411.8	104.9		
Right Upper Tibia Mx	N-m	46.8	116.6	-74.4	82.3	58.8	95.7	-16.9	201.1
Right Upper Tibia My	N-m	36.1	173.9	-67.0	117.1	30.1	144.1	-56.5	74.8
Right Lower Tibia Fx	N	(1)	(1)	(1)	(1)	132.0	110.0	-429.3	75.6
Right Lower Tibia Fy	N	(1)	(1)	(1)	(1)	130.5	196.3	-256.7	95.4
Right Lower Tibia Fz	N	275.3	215.5	-2435.6	124.4	337.8	169.6	-1894.2	101.8
Right Lower Tibia F Resultant	N	(1)	(1)			1908.2	101.8		
Right Lower Tibia Mx	N-m	36.7	117.6	-35.8	81.1	16.6	94.2	-16.9	78.8
Right Lower Tibia My	N-m	30.8	125.3	-46.8	81.2	21.3	110.1	-43.3	75.6
Right Tibia Mid Shaft X	G	10.8	124.5	-46.0	81.8	13.0	106.5	-42.2	75.4
Right Tibia Mid Shaft Y	G	67.6	81.2	-18.0	135.4	15.6	78.6	-8.9	119.6
Rt Dorsi/Plantar Flexion	Deg	25.4	129.9	-12.9	32.7	-3.4	112.7	-34.8	244.3
Rt Inversion/Eversion	Deg	1.7	162.6	-18.9	105.4	4.2	300.0	-22.7	103.8
Rt Internal/External	Deg	18.2	98.4	-0.7	0.0	9.4	259.9	-5.5	173.7
Right Foot X – Front	G	75.9	81.1	-17.9	129.4	5.4	137.3	-67.1	97.0
Right Foot Y – Front	G	17.0	124.5	-41.5	60.1	21.9	97.1	-8.8	34.1
Right Foot Z – Front	G	53.9	83.0	-27.7	89.9	5.4	67.0	-33.6	100.5
Right Foot - Front Resultant	G	76.2	81.1			72.7	97.1		
Left Upper Tibia Fx	N	223.5	99.6	-903.2	77.6	559.7	66.4	-36.8	170.5
Left Upper Tibia Fy	N	228.1	80.4	-205.3	120.7	144.6	109.7	-314.5	82.7
Left Upper Tibia Fz	N	362.8	219.0	-1159.6	84.3	305.7	49.9	-889.1	105.9
Left Upper Tibia F Resultant	N	1326.2	78.8			900.3	106.3		
Left Upper Tibia Mx	N-m	35.2	136.7	-43.7	95.9	34.2	142.3	-20.6	94.0
Left Upper Tibia My	N-m	117.1	78.7	-28.3	125.7	25.0	139.6	-81.9	66.6
Left Lower Tibia Fx	N	89.5	159.1	-890.5	77.9	97.4	138.9	-571.2	66.8
Left Lower Tibia Fy	N	277.0	85.0	-205.8	90.6	108.2	194.1	-195.7	110.2
Left Lower Tibia Fz	N	63.6	217.6	-1564.7	88.2	298.7	236.6	-1176.4	64.8
Left Lower Tibia F Resultant	N	1775.4	77.4			1253.3	64.9		

(1) Questionable Data

DATA SHEET 7 (CONTINUED)

DUMMY INJURY CRITERIA VALUES

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

		Maximum Value							
		Driver				Right Front Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms	Positive	Time, ms	Negative	Time, ms
Left Lower Tibia Mx	N-m	18.5	90.5	-13.8	148.0	17.5	123.3	-53.2	92.6
Left Lower Tibia My	N-m	13.5	126.4	-106.4	77.8	9.1	135.3	-85.4	65.3
Left Tibia Mid Shaft X	G	9.4	152.1	-90.0	77.7	5.4	125.0	-53.8	65.6
Left Tibia Mid Shaft Y	G	33.2	89.4	-37.3	88.3	19.0	83.1	-13.9	108.3
Lt Dorsi/Plantar Flexion	Deg	6.9	129.6	-16.2	0.0	-17.2	101.9	-39.5	64.7
Lt Inversion/Eversion	Deg	26.8	88.2	-8.7	287.4	1.6	300.0	-31.6	96.0
Lt Internal/External	Deg	12.2	196.6	-11.6	164.1	15.3	97.6	-0.6	45.4
Left Foot X – Front	G	40.9	75.2	-50.6	90.4	5.5	76.4	-85.4	62.3
Left Foot Y – Front	G	18.5	64.9	-99.6	74.2	29.0	87.0	-13.8	63.0
Left Foot Z – Front	G	78.8	74.5	-28.9	90.2	36.3	62.0	-20.8	67.3
Left Foot – Front Resultant	G	125.7	74.4			91.6	62.2		
Lap Belt Load	N	5030.4	77.9			5895.6	77.9		
Shoulder Belt Load	N	4797.9	72.7			4963.6	68.0		

		Maximum Value			
		Left Rear Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms
Head X	G	23.9	221.9	-44.6	133.2
Head Y	G	13.5	141.0	-7.1	241.8
Head Z	G	52.2	115.3	-3.9	286.3
Head Resultant	G	57.7	115.0		
Upper Neck Fx	N	226.9	232.1	-1129.2	133.0
Upper Neck Fy	N	78.4	195.8	-162.1	233.5
Upper Neck Fz	N	2275.4	132.5	-627.2	234.6
Upper Neck F Resultant	N	2536.4	132.5		
Upper Neck Mx	N-m	23.5	236.9	-4.4	97.6
Upper Neck My	N-m	9.5	127.9	-18.0	78.0
Upper Neck Mz	N-m	(1)	(1)	(1)	(1)
Upper Neck M Resultant	N-m	(1)	(1)		
Lower Neck Fx	N	126.8	295.8	-2422.1	132.7
Lower Neck Fy	N	103.2	199.3	-563.1	115.0
Lower Neck Fz	N	1350.3	86.1	-540.3	234.0
Lower Neck F Resultant	N	2472.4	132.7		
Lower Neck Mx	N-m	18.8	273.1	-48.2	115.5
Lower Neck My	N-m	246.8	132.4	-18.4	232.7
Lower Neck Mz	N-m	25.5	137.6	-13.9	258.2
Lower Neck M Resultant	N-m	248.9	132.4		

(1) Questionable Data

DATA SHEET 7 (CONTINUED)

DUMMY INJURY CRITERIA VALUES

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

		Maximum Value			
		Left Rear Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms
Right Shoulder Fx	N	117.1	103.7	-38.7	175.0
Right Shoulder Fz	N	188.7	121.3	-67.1	260.2
Left Shoulder Fx	N	138.5	231.5	-2520.9	108.9
Left Shoulder Fz	N	896.9	108.2	-30.6	253.9
Chest X	G	9.4	289.9	-35.0	85.6
Chest Y	G	7.1	124.2	-4.1	179.7
Chest Z	G	9.7	226.9	-8.3	118.0
Chest Resultant	G	35.3	83.9		
Chest Displacement	mm			-30.0	116.0
Upper Sternum X	G	12.5	290.4	-38.8	78.6
Lower Sternum X	G	20.9	276.1	-43.8	79.7
Upper Spine X	G	9.6	291.5	-33.0	83.7
Lower Spine X	G	8.3	291.2	-39.8	86.0
Lumbar Fx	N	2034.7	135.1	-340.5	280.5
Lumbar Fy	N	21.7	33.7	-455.4	75.2
Lumbar Fz	N	603.9	196.8	-445.7	58.0
Lumbar F Resultant	N	2051.0	135.1		
Lumbar Mx	N-m	14.7	179.2	-72.4	109.2
Lumbar My	N-m	26.5	294.5	-72.7	134.6
Lumbar Mz	N-m	23.1	105.2	-9.0	292.9
Lumbar M Resultant	N-m	87.5	114.7		
Pelvis X	G	6.8	152.5	-37.5	75.6
Pelvis Y	G	11.9	109.1	-4.5	70.4
Pelvis Z	G	7.7	222.0	-20.7	118.0
Pelvis Resultant	G	39.6	75.6		
Right Upper Asis Fx	N	446.1	86.5	-246.4	122.2
Right Lower Asis Fx	N	580.1	86.6	-12.9	256.1
Left Upper Asis Fx	N	143.1	86.0	-80.8	133.6
Left Lower Asis Fx	N	458.3	78.2	-14.0	264.9
Shoulder Belt Load	N	5563.1	108.1		
Lap Belt Load	N	3179.0	82.1		

DATA SHEET 8

SUMMARY OF FMVSS 212/ 219 (PARTIAL) DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

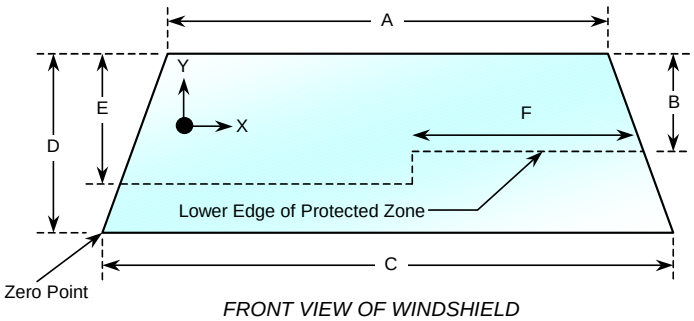
Windshield Mounting Details:
Windshield glass is secured to the vehicle frame with a rubber trim and glue.

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	2329	2329	100
Right Side	2329	2329	100
Total	4658	4658	100



FRONT VIEW OF WINDSHIELD

Item	Units	Value
A	mm	1330
B	mm	490
C	mm	1658
D	mm	835
E	mm	550
F	mm	552

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 9

FMVSS 301 FUEL SYSTEM INTEGRITY DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

Temperature at Time of Impact: 21° C Test Time: 12:25 pm

Stoddard Solvent Spillage Measurements

A. From impact until vehicle motion ceases: 0 oz.
(Maximum Allowable = 1 ounce)

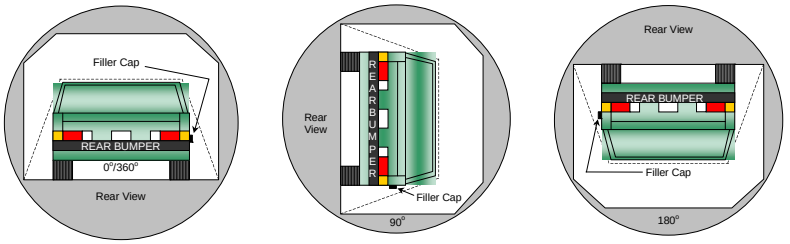
B. For the 5 minute period after motion ceases: 0 oz.
(Maximum Allowable = 5 ounces)

C. For the following 25 minutes: 0 oz.
(Maximum Allowable = 1 oz. /minute)

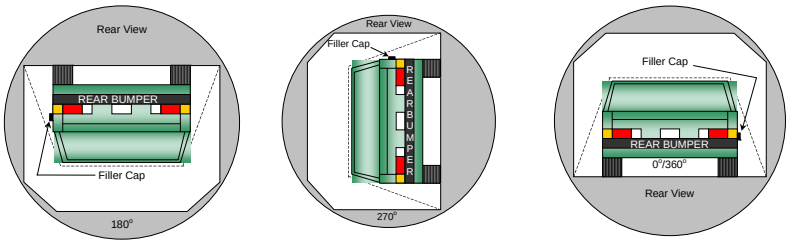
D. Spillage: None

FMVSS 301 STATIC ROLLOVER DATA

NOT PERFORMED



0° to 90° 90° to 180°



180° to 270° 270° to 360°

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).

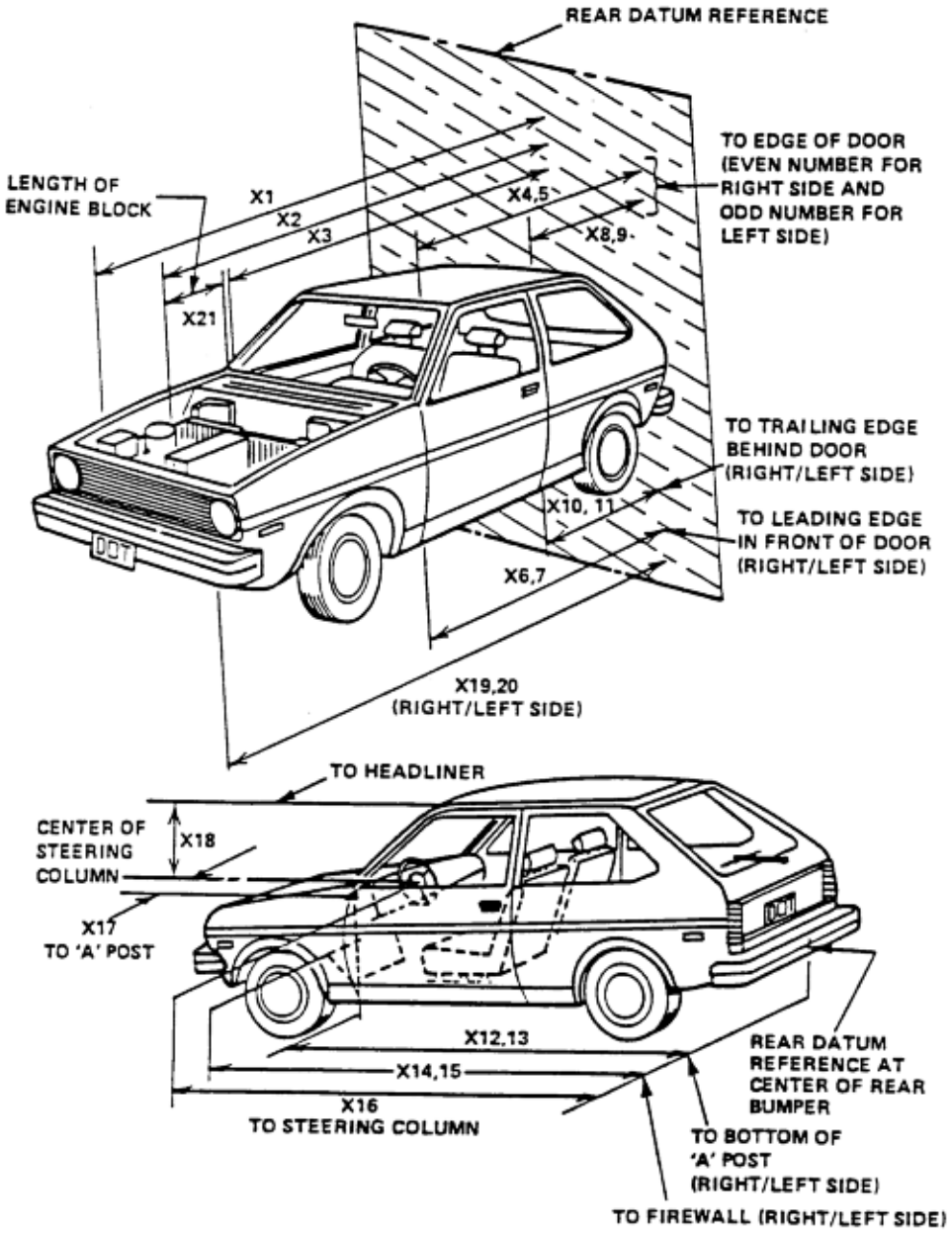
3. Details of Stoddard Solvent spillage locations:

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° to 90°	N/A		
90° to 180°	N/A		
180° to 270°	N/A		
270° to 360°	N/A		

DATA SHEET 10

TEST VEHICLE MEASUREMENTS

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door	NHTSA No.:	R70204
Test Program:	Left 50% Offset Deformable Barrier	Test Date:	3/31/2008



DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

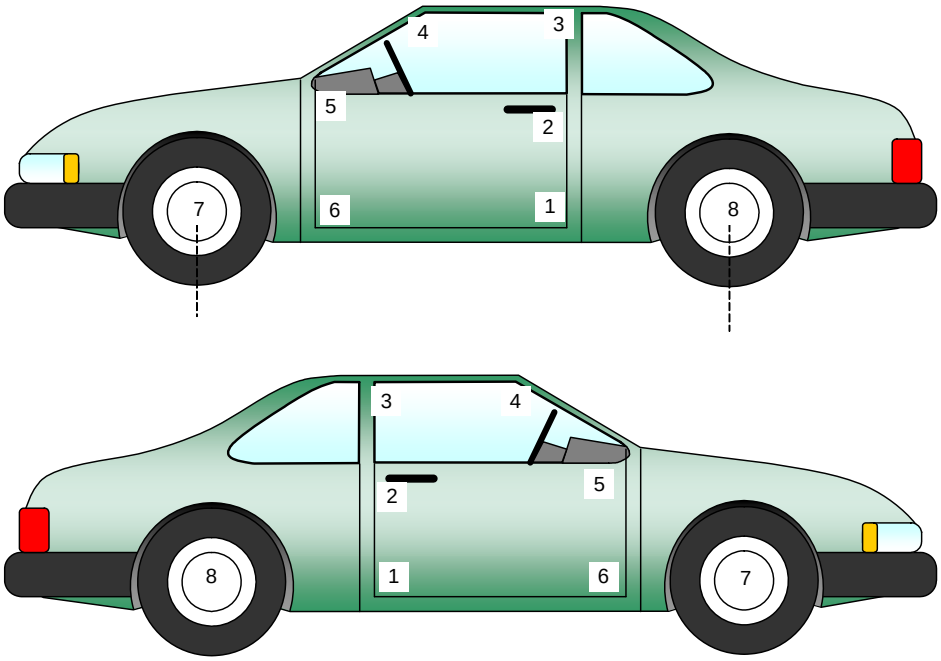
Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

No.	Measurement Description	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
1	Total length of vehicle at centerline	4992	4565	427
2	RSOV to front of engine	4572	4397	175
3	RSOV to firewall centerline	3836	3833	3
4	RSOV to leading edge of right door	3528	3534	-6
5	RSOV to leading edge of left door	3526	3508	18
6	RSOV to lower leading edge of right door	3504	3499	5
7	RSOV to lower leading edge of left door	3504	3464	40
8	RSOV to upper leading edge of right door	2421	2432	-11
9	RSOV to upper leading edge of left door	2416	2409	7
10	RSOV to lower trailing edge of right door	2450	2443	7
11	RSOV to lower trailing edge of left door	2441	2418	23
12	RSOV to bottom of right 'A' pillar	3496	3494	2
13	RSOV to bottom of left 'A' pillar	3492	3475	17
14	RSOV to firewall on right side	3924	3920	4
15	RSOV to firewall on left side	3931	3754	177
16	RSOV to steering column	3038	3068	-30
17	Center of steering column to left 'A' pillar	389	422	-33
18	Center of steering column to headlining	450	477	-27
19	RSOV to right side of front bumper	4919	4930	-11
20	RSOV to left side of front bumper	4918	4728	190
21	Length of engine block	500	500	0
RD	RSOV to right side of dash panel	3224	3224	0
CD	RSOV to center of dash panel	3229	3213	16
LD	RSOV to left side of dash panel	3227	3161	66

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008



LEFT FRONT

Point Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2610	-818	-14	2611	-819	-12	1	1	-2
2	2501	-819	-296	2503	-816	-293	2	-3	-3
3	2407	-642	-964	2407	-634	-958	0	-8	-6
4	2928	-681	-888	2928	-674	-887	0	-7	-1
5	3471	-814	-294	3448	-833	-285	-23	19	-9
6	3421	-803	111	3412	-830	122	-9	27	-11
7	4082	-882	157	3951	-899	114	-131	17	43
8	1213	-850	188	1221	-856	181	8	6	7

RIGHT FRONT

Point Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2604	818	-25	2604	818	-25	0	0	0
0	2500	818	-294	2500	818	-294	0	0	0
3	2404	638	-969	2404	638	-968	0	0	-1
4	2929	681	-888	2927	678	-887	-2	3	-1
5	3467	814	-296	3465	813	-294	-2	1	-2
6	3415	805	108	3411	803	110	-4	2	-2
7	4077	897	170	4099	839	149	22	58	21
8	1216	852	195	1220	863	189	4	-11	6

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

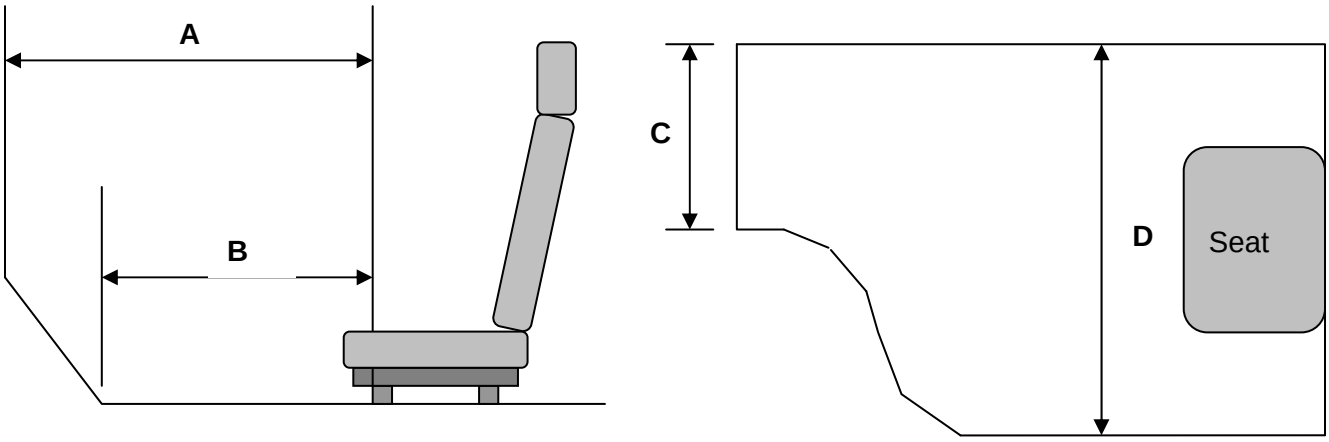
Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

	Elements	Pre-Test (mm)
1	Total Length	4992
2	Total Width	1940
3	Bumper Top Height	549
4	Bumper Bottom Height	386
5	Longitudinal Member Top Height	526
6	Distance between Longitudinal Members	1280
7	Longitudinal Member Width	120
8	Engine Top Height	918
9	Engine Bottom Height	180
10	Engine and gearbox width	850
11	Front bumper-engine distance	420
12	Front shock absorber fixing height	877
13	Bonnet leading edge height	812
14	Front shock absorber fixing width	1255
15	Front bumper – front axle distance	992
16	Front axle – a pillar distance	590
17	A-pillar – B-pillar distance	1050
18	B-Pillar – rear axle distance	1242
19	B-pillar – C-pillar distance	970
20	Roof sill bottom height	1362
21	Roof sill top height	1422
22	Floor sill bottom height	319
23	Floor sill top height	356

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008



DRIVER

Measurements	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
A	505	502	3
B	419	418	1
C	367	367	0
D	473	462	11

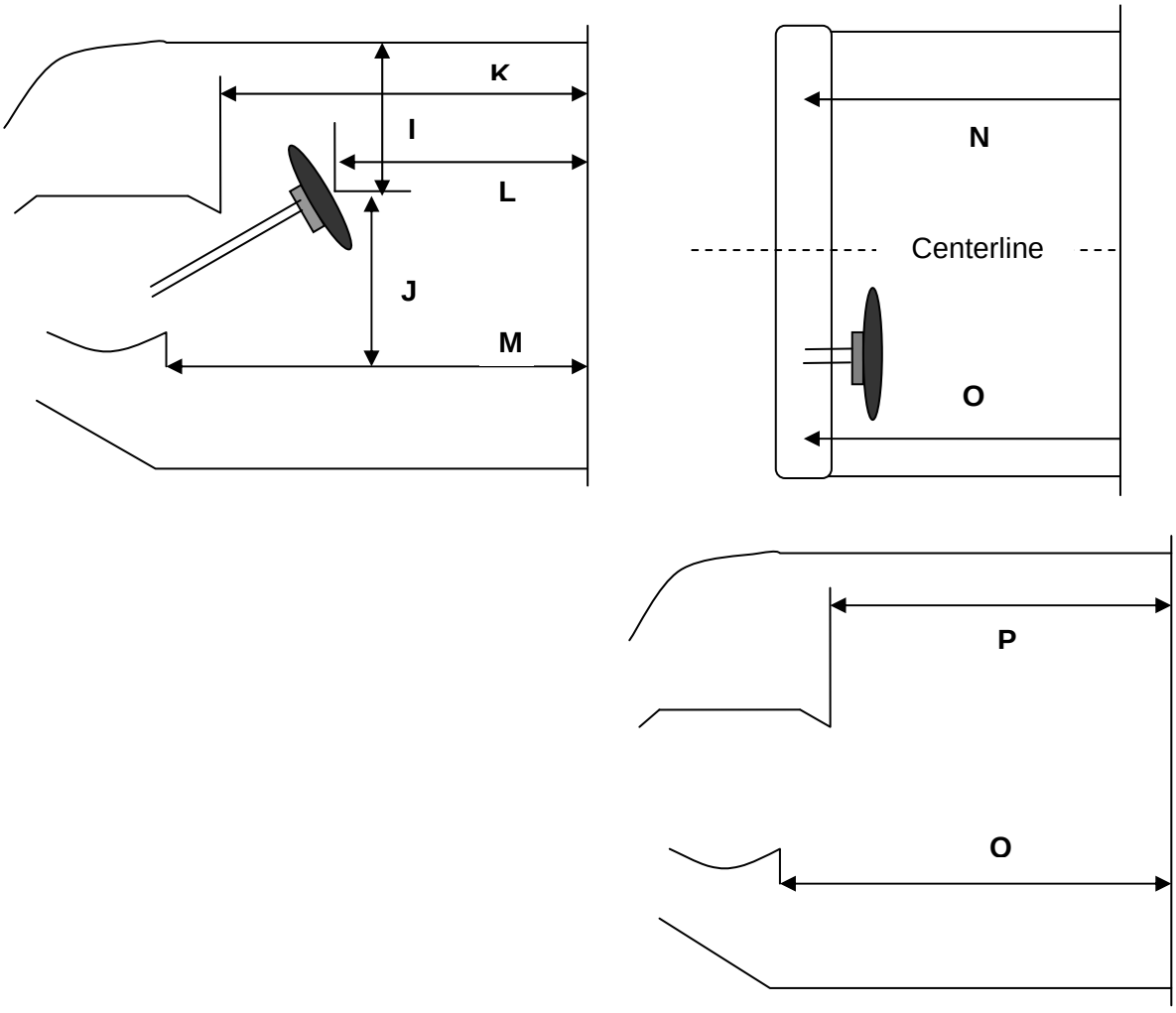
LEFT FRONT PASSENGER

Measurements	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
A	569	564	5
B	390	390	0
C	335	335	0
D	445	445	0

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008



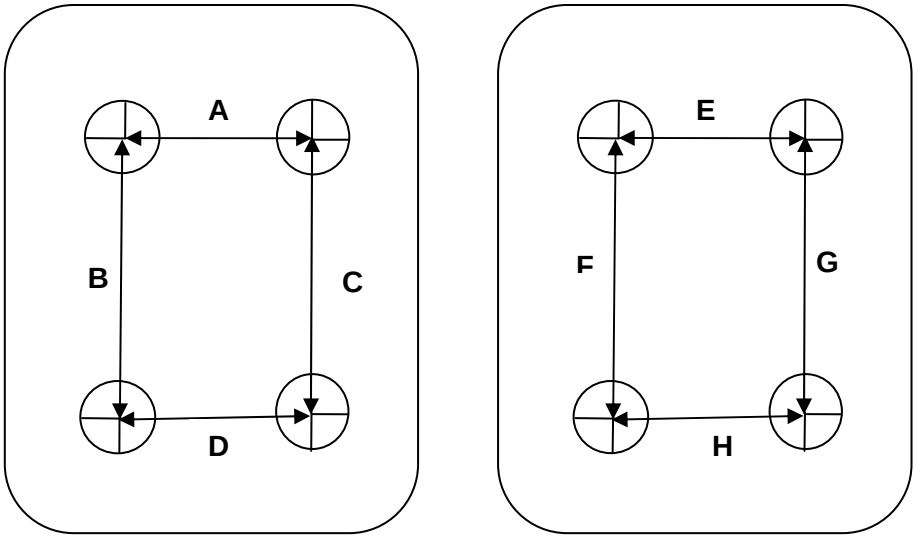
Measurements	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
I	455	477	-22
J	633	610	23
K	2060	2018	42
L	1862	1872	-10
M	2226	2170	56
N	2070	2050	20
O	2094	2035	59
P= K (PASS)	2060	2050	10
Q= M (PASS)	2236	2216	20

Measurements from C-Pillar Belt Anchorage

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008



Driver Passenger

UNDERBODY FLOORBOARD DEFORMATION

Measurement	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
A	377	377	0
B	419	417	2
C	366	366	0
D	473	473	0
E	398	398	0
F	390	390	0
G	455	455	0
H	445	445	0

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

	Points	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
		X	Y	Z	X	Y	Z	X	Y	Z
Lower Bumper Beam	1	4926	-672	33	4678	-841	5	-248	169	28
	2	4989	-403	69	4778	-595	43	-211	192	26
	3	5002	-134	69	4501	-284	-48	-501	150	117
	4	5003	131	65	4659	-85	-55	-344	216	120
	5	4989	401	64	4825	130	-57	-164	271	121
	6	4927	676	26	4943	386	-85	16	290	111
Upper Bumper Beam	1	4918	-672	-74	4727	-865	-89	-191	193	15
	2	4983	-402	-74	4309	-482	-176	-674	80	102
	3	5000	-131	-75	4472	-270	-188	-528	139	113
	4	5002	133	-75	4634	-65	-192	-368	198	117
	5	4987	403	-78	4797	152	-194	-190	251	116
	6	4921	679	-83	4923	405	-189	2	274	106
Upper Radiator Support	1	4580	-693	-362	4153	-768	-445	-427	75	83
	2	4781	-413	-348	4210	-432	-466	-571	19	118
	3	4780	-135	-351	4253	-154	-495	-527	19	144
	4	4780	143	-351	4432	54	-470	-348	89	119
	5	4783	414	-347	4616	251	-439	-167	163	92
	6	4582	701	-368	4553	591	-406	-29	110	38
Front of Hood	1	4646	-748	-377	4375	-784	-545	-271	36	168
	2	4888	-451	-314	4463	-507	-394	-425	56	80
	3	4942	-151	-335	4557	-221	-376	-385	70	41
	4	4942	155	-337	4709	43	-415	-233	112	78
	5	4891	454	-323	4778	335	-470	-113	119	147
	6	4645	753	-384	4622	664	-590	-23	89	206

Reference Photos on the Following Page

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door	NHTSA No.:	R70204
Test Program:	Left 50% Offset Deformable Barrier	Test Date:	3/31/2008

Front of Hood

Lower Bumper Beam / Upper Bumper Beam /

Center Bumper Beam / Upper Radiator Support

DATA SHEET 10 (CONTINUED)

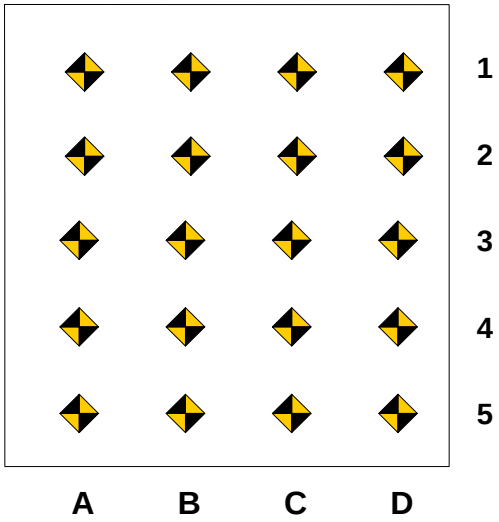
TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

Columns A through D are evenly spaced.

Rows 1 and 2 are on the toe kick portion of the floor pan. Rows 3, 4, and 5 are located on the most level portion of the floor pan.

Row 3 will be at the intersection of the toe kick and the level sections of the floor pan.



DRIVER'S SIDE TOE PAN FLOOR BOARD

Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3632	-559	83	3607	-574	79	-25	15	4
B1	3724	-436	110	3684	-440	84	-40	4	26
C1	3717	-321	111	3677	-324	90	-40	3	21
D1	3730	-193	117	3714	-198	109	-16	5	8
A2	3606	-569	160	3591	-581	158	-15	12	2
B2	3644	-454	174	3622	-460	165	-22	6	9
C2	3639	-317	166	3621	-322	167	-18	5	-1
D2	3644	-188	189	3643	-196	193	-1	8	-4
A3	3552	-572	237	3552	-578	245	0	6	-8
B3	3535	-456	237	3536	-463	248	1	7	-11
C3	3535	-325	233	3537	-330	248	2	5	-15
D3	3529	-196	237	3531	-203	242	2	7	-5
A4	3322	-581	241	3323	-586	249	1	5	-8
B4	3325	-476	236	3327	-481	242	2	5	-6
C4	3320	-333	245	3322	-339	249	2	6	-4
D4	3325	-175	236	3327	-182	240	2	7	-4
A5	3131	-648	240	3133	-652	245	2	4	-5
B5	3135	-481	236	3138	-486	241	3	5	-5
C5	3145	-334	236	3149	-340	240	4	6	-4
D5	3163	-174	237	3168	-179	241	5	5	-4
Brake Pedal	3535	-363	36	3478	-365	38	-57	2	-2
IP Left	3327	-526	-237	3280	-500	-234	-47	-26	-3
IP Right	3327	-225	-236	3292	-199	-230	-35	-26	-6
Steering Column	3057	-374	-468	3060	-350	-430	3	-24	-38
Front Outboard Bolt	3058	-578	153	3063	-583	158	5	5	-5

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

Driver's Side Toe Pan Floor Board
Additional Measurements

Points	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3666	-530	50	3630	-544	38	-36	14	12
2	3759	-415	68	3711	-419	36	-48	4	32
3	3756	-240	66	3725	-244	44	-31	4	22
4	3671	-142	161	3674	-152	166	3	10	-5
5	3585	-151	219	3590	-160	224	5	9	-5
6	3649	-537	85	3620	-550	75	-29	13	10
7	3677	-486	143	3645	-490	125	-32	4	18
8	3561	-490	234	3560	-496	246	-1	6	-12
9	3613	-584	81	3592	-603	79	-21	19	2
10	3611	-513	79	3589	-528	74	-22	15	5
11	3466	-505	225	3460	-508	231	-6	3	-6
12	3675	-375	146	3645	-380	132	-30	5	14
13	3596	-378	208	3588	-385	214	-8	7	-6
14	3594	-99	50	3597	-98	57	3	-1	-7
15	3549	-631	119	3552	-655	128	3	24	9
16	3383	-508	249	3385	-514	256	2	6	-7
17	3631	-164	10	3594	-150	12	-37	-14	-2

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

Additional Measurements (Continued)

	Points	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
		X	Y	Z	X	Y	Z	X	Y	Z
Center of Grill	1	4813	-737	-248	4180	-710	-247	-633	-27	-1
	2	4918	-447	-245	4307	-563	-282	-611	116	37
	3	4972	-143	-232	4477	-295	-293	-495	152	61
	4	4973	151	-232	4621	-41	-317	-352	192	85
	5	4920	453	-246	4763	225	-371	-157	228	125
	6	4821	736	-246	4811	540	-361	-10	196	115
Top of Bumper Cover	1	4918	-738	-109	4472	-905	-186	-446	167	77
	2	5026	-452	-104	4424	-613	-179	-602	161	75
	3	5076	-147	-102	4588	-356	-198	-488	209	96
	4	5076	155	-102	4744	-100	-224	-332	255	122
	5	5031	452	-105	4867	176	-240	-164	276	135
	6	4932	736	-108	4933	467	-232	1	269	124
Bumper Centerline	1	4924	-669	-13	4708	-858	-29	-216	189	16
	2	4974	-553	-11	4771	-748	-12	-203	195	1
	3	4989	-413	-11	4793	-615	-36	-196	202	25
	4	4998	-276	-14	4402	-391	-123	-596	115	109
	5	5004	-139	-14	4482	-281	-128	-522	142	114
	6	5007	-1	-13	4562	-178	-128	-445	177	115
	7	5006	136	-10	4650	-73	-128	-356	209	118
	8	5000	278	-12	4737	38	-129	-263	240	117
	9	4992	410	-13	4816	145	-130	-176	265	117
	10	4979	549	-11	4896	260	-128	-83	289	117
	11	4928	676	-10	4937	391	-116	9	285	106
Bottom of Bumper Cover	1	4935	-736	54	4501	-848	-51	-434	112	105
	2	5038	-450	54	4555	-628	-97	-483	178	151
	3	5083	-153	60	4649	-385	-52	-434	232	112
	4	5084	150	59	4798	-124	-76	-286	274	135
	5	5039	451	55	4925	150	-93	-114	301	148
	6	4940	735	54	5005	442	-87	65	293	141

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door	NHTSA No.:	R70204
Test Program:	Left 50% Offset Deformable Barrier	Test Date:	3/31/2008

Driver's Side Toe Pan Floor Board

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle:	2007 Ford Five Hundred SEL 4-Door	NHTSA No.:	R70204
Test Program:	Left 50% Offset Deformable Barrier	Test Date:	3/31/2008

Driver's Side Toe Pan Floor Board

DATA SHEET 10 (CONTINUED)

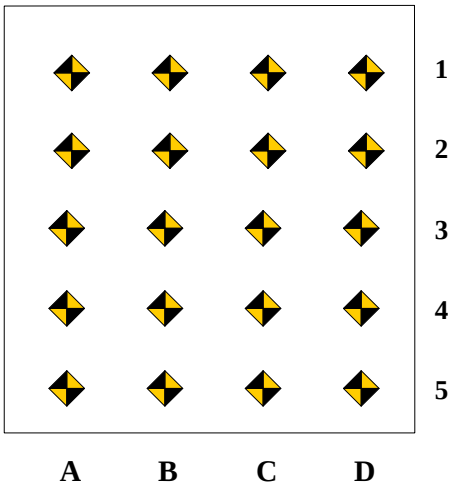
TEST VEHICLE MEASUREMENTS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

Columns A through D are evenly spaced.

Rows 1 and 2 are on the toe kick portion of the floor pan. Rows 3, 4, and 5 are located on the most level portion of the floor pan.

Row 3 will be at the intersection of the toe kick and the level sections of the floor pan.



PASSENGER'S SIDE TOE PAN FLOOR BOARD

Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3746	230	94	3733	217	105	-13	13	-11
B1	3740	321	88	3726	310	93	-14	11	-5
C1	3741	443	76	3724	430	76	-17	13	0
D1	3656	562	47	3649	555	50	-7	7	-3
A2	3674	218	163	3667	214	180	-7	4	-17
B2	3666	318	147	3654	310	156	-12	8	-9
C2	3666	468	151	3655	459	155	-11	9	-4
D2	3610	583	122	3605	578	127	-5	5	-5
A3	3570	207	232	3562	203	248	-8	4	-16
B3	3563	311	228	3556	306	243	-7	5	-15
C3	3570	486	226	3563	479	234	-7	7	-8
D3	3566	603	228	3560	597	232	-6	6	-4
A4	3363	178	240	3355	175	250	-8	3	-10
B4	3352	328	237	3345	325	246	-7	3	-9
C4	3326	460	244	3322	455	251	-4	5	-7
D4	3343	621	234	3340	616	235	-3	5	-1
A5	3180	167	240	3175	166	250	-5	1	-10
B5	3155	322	237	3150	320	244	-5	2	-7
C5	3112	467	236	3108	465	241	-4	2	-5
D5	3111	613	235	3108	611	238	-3	2	-3
Front Outboard Bolt	3324	223	-238	3313	226	-223	-11	-3	-15
IP Left	3329	528	-235	3330	529	-223	1	-1	-12
IP Right	3056	589	151	3055	586	155	-1	3	-4

DATA SHEET 11

PHOTOGRAPHIC DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

No.	Camera View	Location (mm) *			Lens (mm)	Angle (deg)	Shutter (µs)	Speed (fps)
		X	Y	Z				
1	Left Front Half	455	-5255	1155	24	4.7	400	1000
2	Left Closeup	1225	-6465	1440	35	2.6	225	1000
3	Left SWC Bottom	780	-6170	875	50	3.9	400	1000
4	Left Angle 1	3565	-5330	1655	25	4.2	250	1000
5	Left Angle 2	4530	-5240	2135	50	10.4	375	1000
6	Left Overall	1805	-7210	1340	19	6.2	600	1000
7	Right Front Half	555	5335	155	24	3.3	450	1000
8	Right Closeup	1250	5810	1445	35	2.1	250	1000
9	Right Angle 1	3615	5320	1660	25	3.4	400	1000
10	Right Angle 2	4615	5010	2100	50	9.3	275	1000
11	Windshield	-2505	0	3095	12.5	38.3	600	1000
12	Overhead Closeup	140	0	4630	50	90	275	1000
13	Overhead Overall	635	0	4630	14	90	1000	1000
14	Pit Front	5	0	-3150	24	90	1000	1000
15	Pit Rear	2165	0	-3150	24	90	1000	1000
16	Onboard Passenger				8		250	1000
17	Onboard Driver Footwell				6.5		650	1000
18	Onboard Pass. Footwell				6.5		300	1000
19	Real-Time Camera				13			24

*COORDINATES:

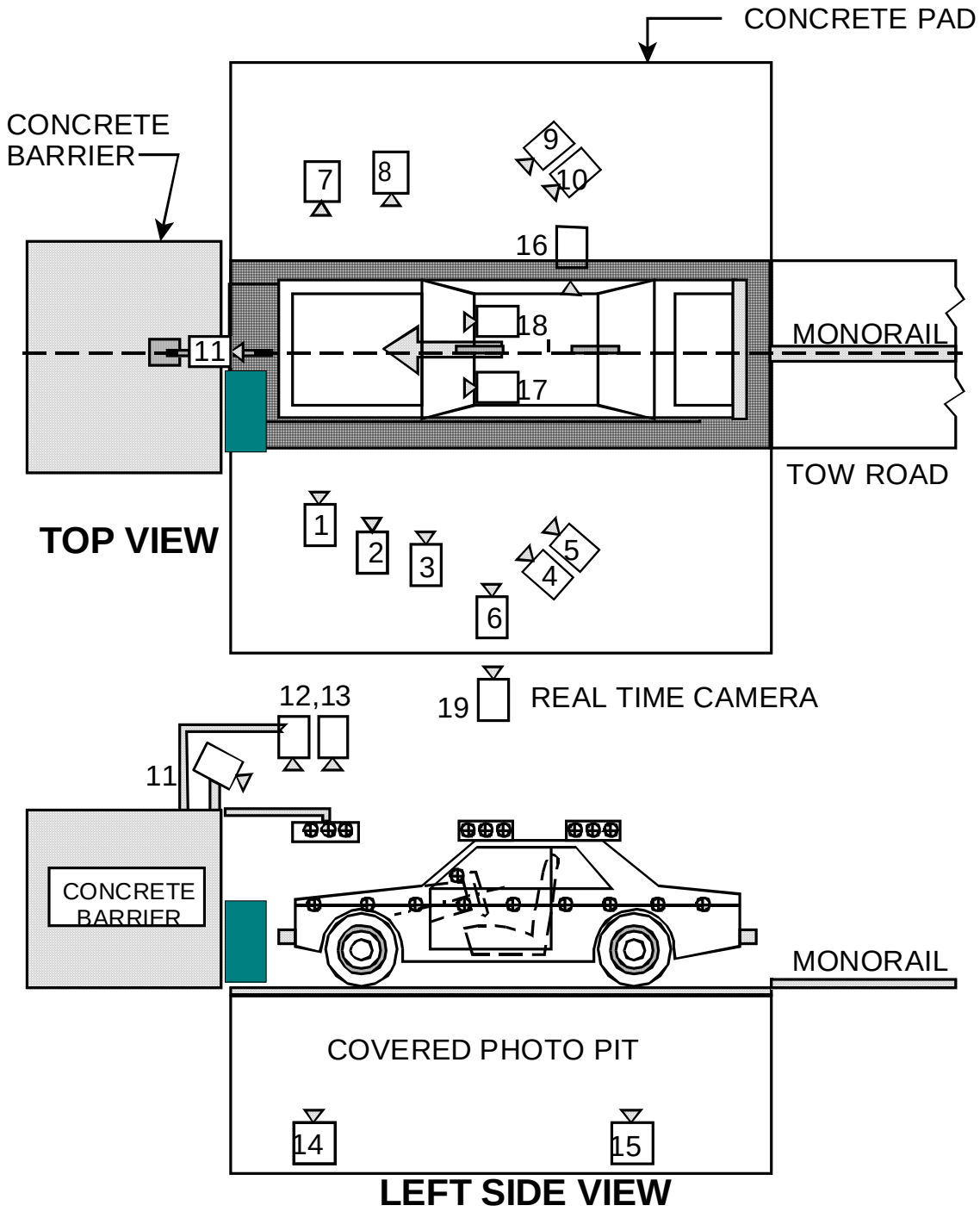
+X = forward of impact plane
+Y = right of monorail centerline
+Z = above ground level

DATA SHEET 11 (CONTINUED)

PHOTOGRAPHIC DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

CAMERA POSITIONS FOR FRONTAL IMPACTS



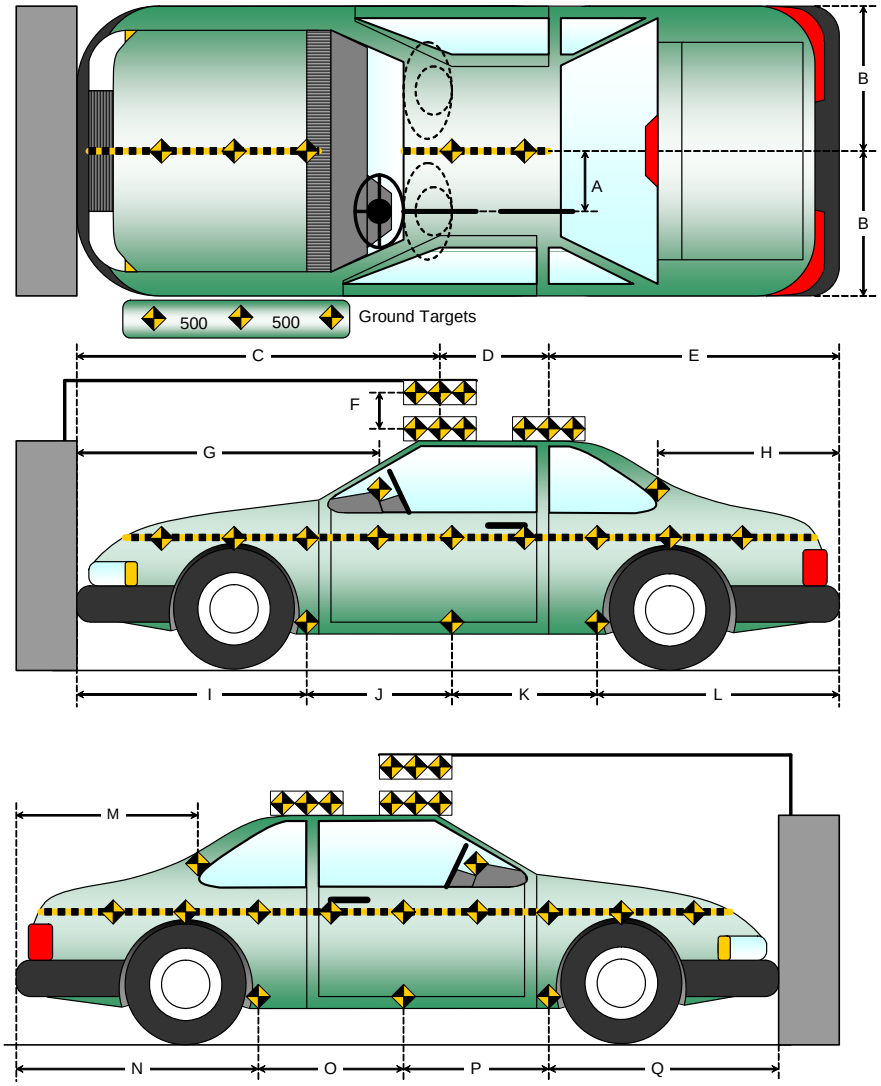
DATA SHEET 12

VEHICLE REFERENCE PHOTO TARGET LOCATIONS

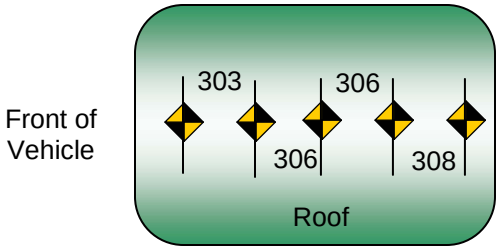
Test Vehicle: 2007 Ford Five Hundred SEL 4-Door
Test Program: Left 50% Offset Deformable Barrier
NHTSA No.: R70204
Test Date: 3/31/2008

Measurement from roof to overhead cameras: 3130 mm

Item	Value
A	380
B	970
C	2571
D	660
E	1691
F	280
G	
H	1032
I	1519
J	982
K	958
L	1463
M	1041
N	1545
O	961
P	970
Q	1516



Distance between left rear door targets: 203 mm
Overhead camera to ground: 4630 mm
Measurement of roof targets:



DATA SHEET 13

POST TEST AIR BAG DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

Air Bag Data	Driver	Right Front Passenger
Number of Vent Holes	2	2
Size of Vent Holes	30 mm diameter	60 mm diameter
Shape of Vent Holes	Round	Rectangle
Total Vent Area	1414 mm^2	5655 mm^2
Length of Deflated Airbag (if square)		670 mm
Width of Deflated Airbag (if square)		410 mm
Diameter of Deflated Airbag (if round)	520 mm	
Is Airbag Tethered?	Yes	Yes
Length of Tethers	220 mm	650 mm

Driver Airbag Part Numbers: P500696500CC04
Ford D219-258
FRF-U39-3X-D1W
Inflator: FFRU38SDAQA
H7SU3G0AACX

Passenger Airbag Part Numbers: 604254300A Rev. A00
D2585XU21ABW
Inflator: FRTU1B02AKY

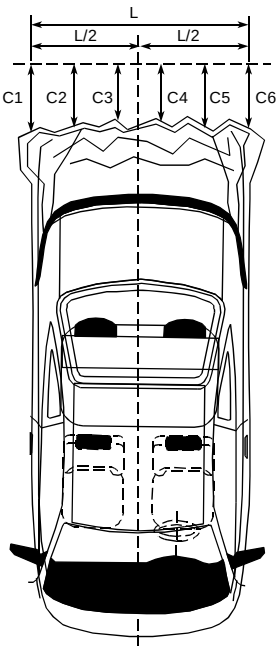
DATA SHEET 14

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

CRUSH DEPTH DIMENSIONS

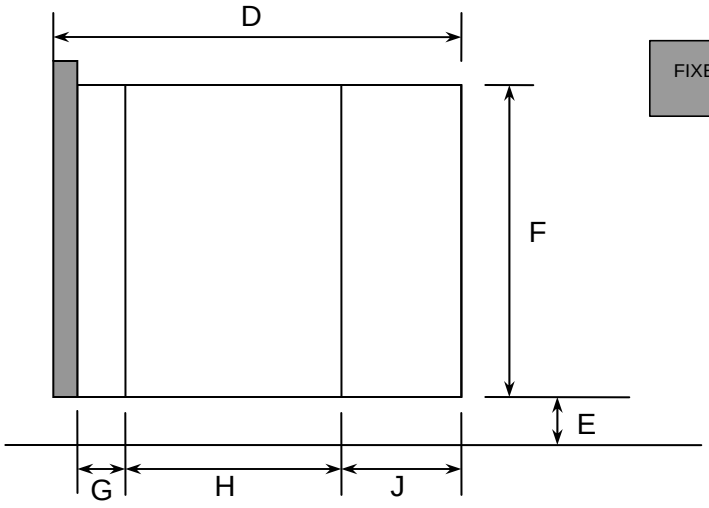
No.	Measurement Description	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
C1	Crush zone 1 at left side	4918	4728	190
C2	Crush zone 2 at left side	4970	4788	182
C3	Crush zone 3 at left side	4988	4428	560
C4	Crush zone 4 at right side	4990	4707	283
C5	Crush zone 5 at right side	4971	4830	141
C6	Crush zone 6 at right side	4919	4930	-11
L	C1 TO C6	1322	1237	85

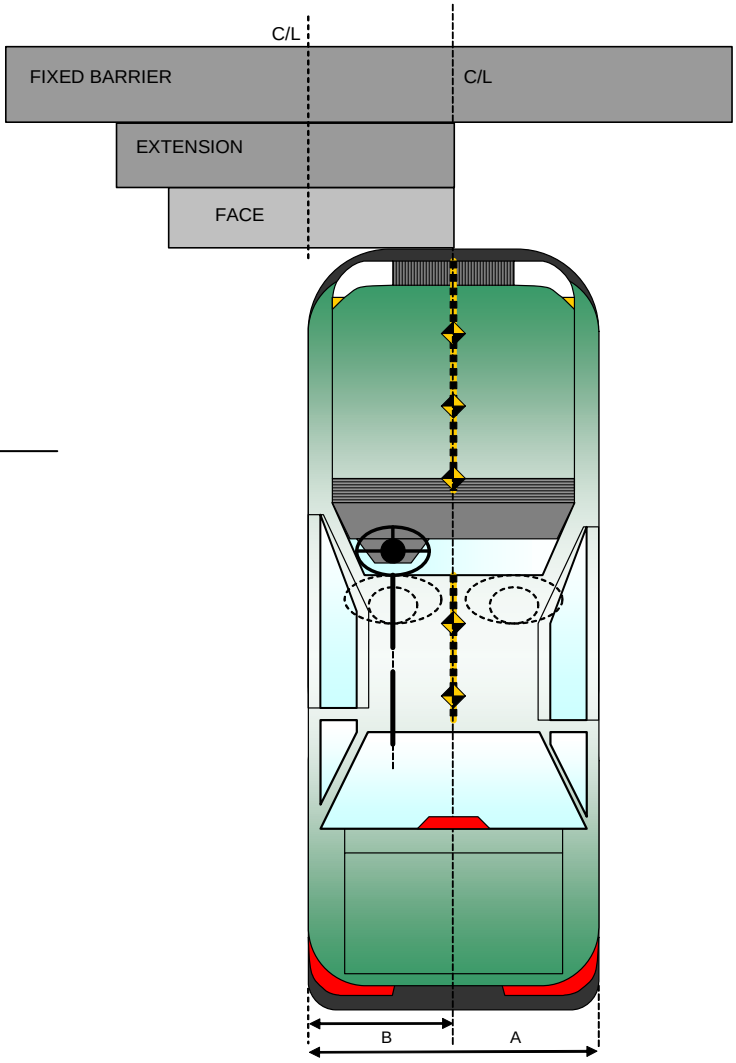


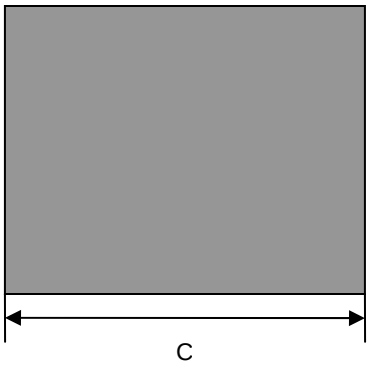
DATA SHEET 15

OFFSET BARRIER AND VEHICLE ORIENTATION

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008





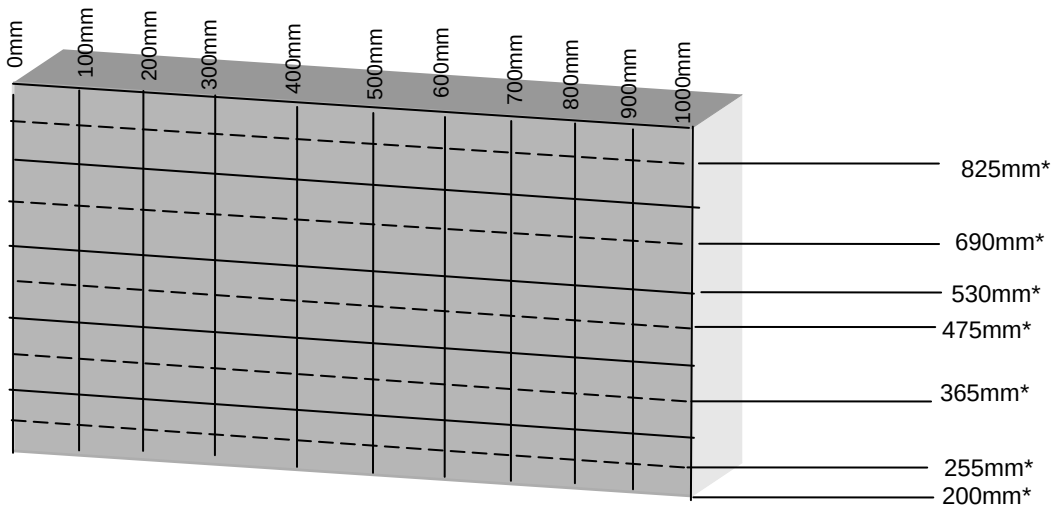


Location	Description	Measurement (mm)
A	Total Vehicle Width	1940
B	50% Overlap Distance	970
C	Deformable Face Width	1000
D	Single Stage Honeycomb Depth	800
E	Lower Edge Height From Ground	199
F	Deformable Barrier Honeycomb Height	700
G	Constant Rear Deformable Core	90
H	Progressive Rear Deformable Core	450
J	Constant Front Deformable Core	250

DATA SHEET 16

DEFORMABLE BARRIER HONEYCOMB CRUSH

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008



*Measurement to Ground

	Points (mm)	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
255 mm	0	794	726	68
	100	794	707	87
	200	794	685	109
	300	795	628	167
	400	795	541	254
	500	795	558	237
	600	795	543	252
	700	795	498	297
	800	795	449	346
	900	795	390	405
	1000	795	329	466
365 mm	0	794	746	48
	100	795	732	63
	200	795	696	99
	300	795	618	177
	400	795	523	272
	500	795	490	305
	600	795	499	296
	700	795	459	336
	800	795	398	397
	900	796	337	459
	1000	796	276	520

DATA SHEET 16 (CONTINUED)

DEFORMABLE BARRIER HONEYCOMB CRUSH

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

	Points (mm)	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
475 mm	0	795	777	18
	100	795	747	48
	200	795	680	115
	300	795	564	231
	400	795	540	255
	500	795	546	249
	600	795	558	237
	700	795	489	306
	800	796	426	370
	900	796	367	429
	1000	796	305	491
530 mm	0	795	776	19
	100	795	744	51
	200	795	679	116
	300	795	620	175
	400	795	591	204
	500	795	598	197
	600	795	583	212
	700	795	514	281
	800	796	449	347
	900	796	387	409
	1000	796	332	464
690 mm	0	795	773	22
	100	795	728	67
	200	795	681	114
	300	795	680	115
	400	795	674	121
	500	795	636	159
	600	796	631	165
	700	796	581	215
	800	796	517	279
	900	796	463	333
	1000	796	414	382
825 mm	0	795	751	44
	100	795	742	53
	200	795	695	100
	300	796	693	103
	400	796	674	122
	500	796	659	137
	600	796	643	153
	700	796	627	169
	800	796	576	220
	900	796	507	289
	1000	796	440	356

DATA SHEET 16 (CONTINUED)

DEFORMABLE BARRIER HONEYCOMB CRUSH

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

HOLE FROM FRAME RAIL (OUTER THEN INNER)

Point Location	X (mm)	Y (mm)	Z (mm)
1	499	266	487
2	461	337	565
3	460	439	536
4	470	474	469
5	481	438	411
6	477	363	358
7	511	298	390
8	494	269	440
9	181	150	392
10	164	230	417
11	151	323	410
12	191	380	368
13	217	274	314
14	223	139	322

DATA SHEET 17

DEFORMABLE BARRIER LOAD CELL LOCATIONS

Test Vehicle: 2007 Ford Five Hundred SEL 4-Door NHTSA No.: R70204
Test Program: Left 50% Offset Deformable Barrier Test Date: 3/31/2008

Row One	1	11	21	31	41	51	61	71	81
	2	12	22	32	42	52	62	72	82
	3	13	23	33	43	53	63	73	83
	4	14	24	34	44	54	64	74	84
	5	15	25	35	45	55	65	75	85
	6	16	26	36	46	56	66	76	86
	7	17	27	37	47	57	67	77	87
	8	18	28	38	48	58	68	78	88
	9	19	29	39	49	59	69	79	89
Row Ten	10	20	30	40	50	60	70	80	90

Track C/L

90 Load Cells
10 Rows
9 Columns

Front View

Load Cells measure 123 mm square and have a 1.5 mm gap.
Distance from LCB to ground measures 125 mm

APPENDIX A

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Manufacturer's Label

Tire Placard

Left Front ¾ View, As Received

Right Rear ¾ 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 ¾ View

Post-Test Right Front ¾ View

Pre-Test Left Front ¾ View

Post-Test Left Front ¾ View

Pre-Test Left Rear ¾ View

Post-Test Left Rear ¾ 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

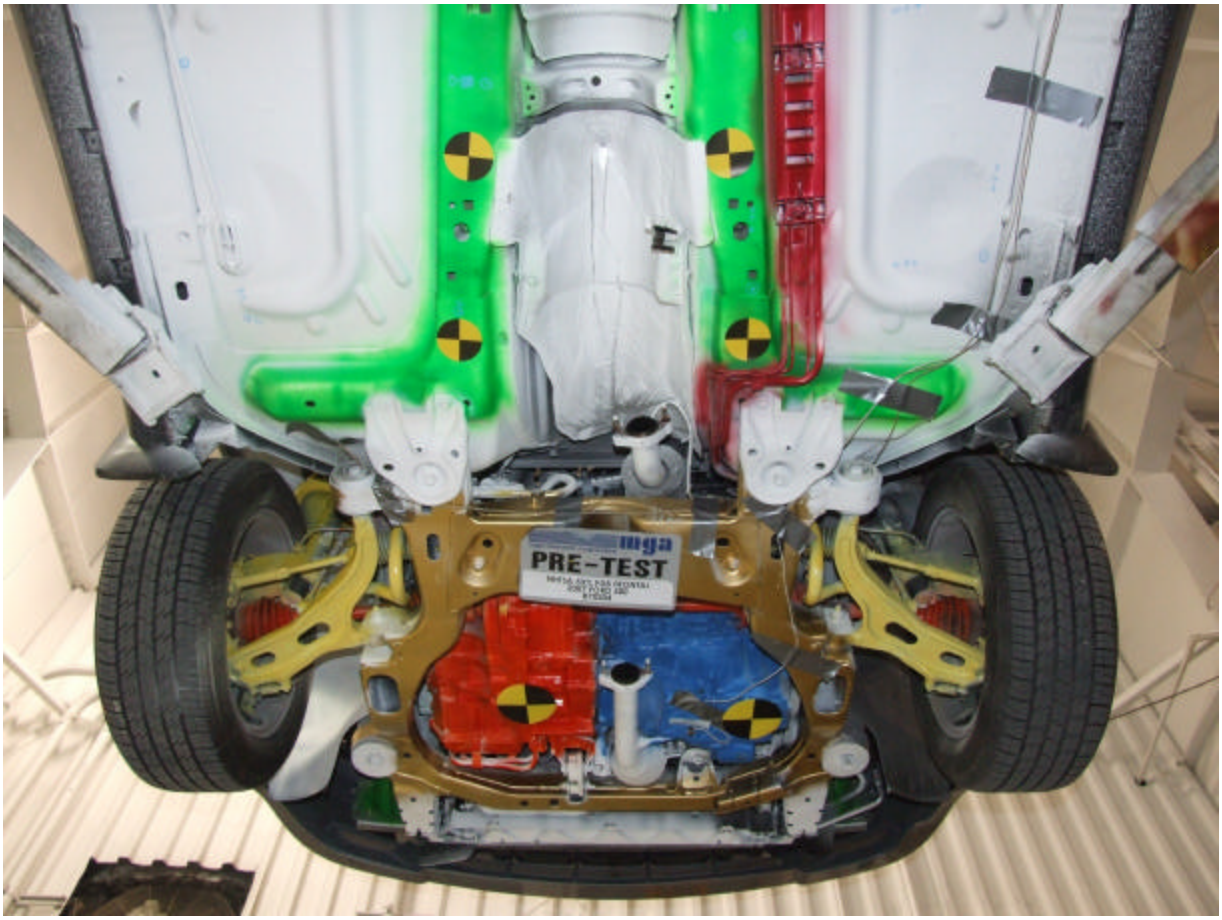
Post-Test Windshield View

Pre-Test Engine Compartment View

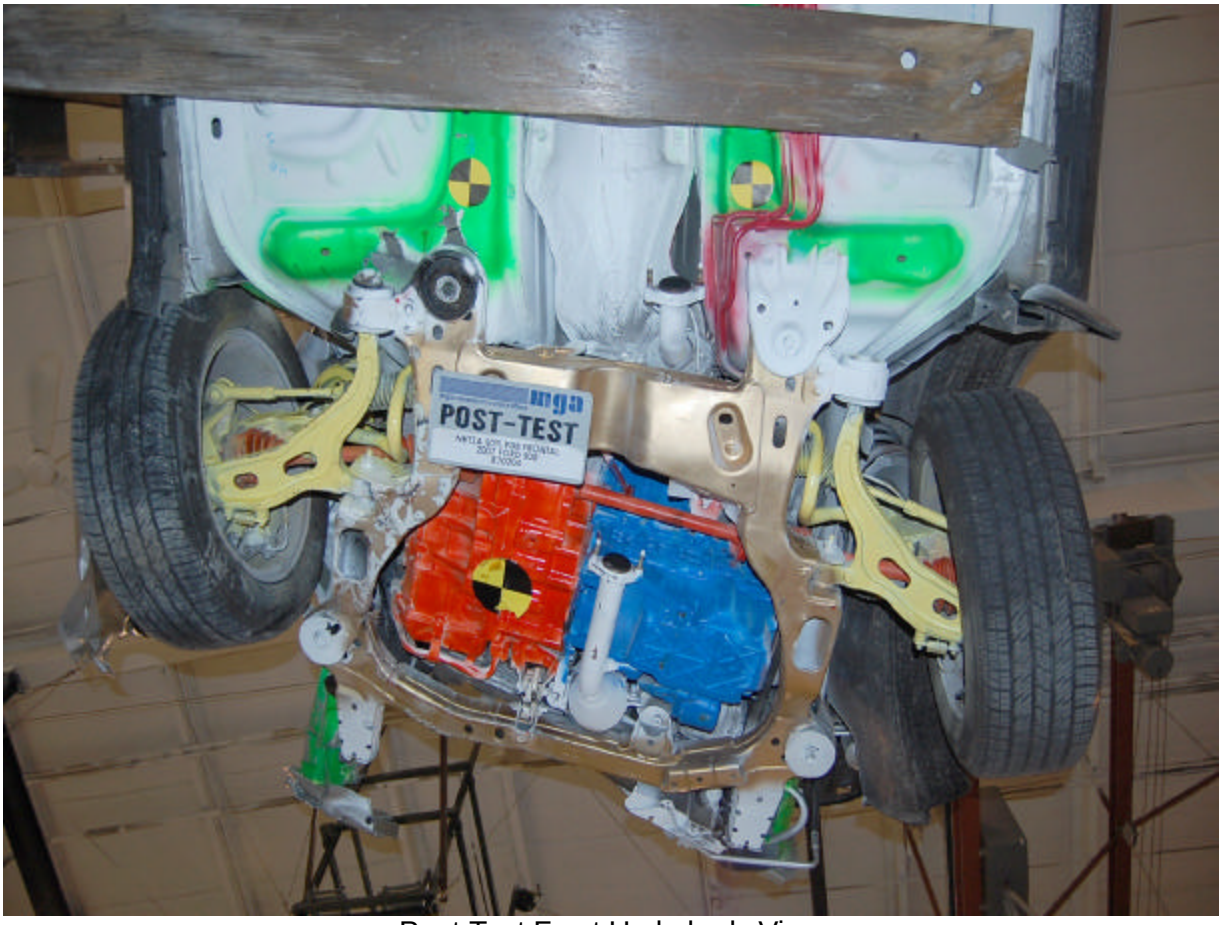
Post-Test Engine Compartment View

Pre-Test Fuel Cap View

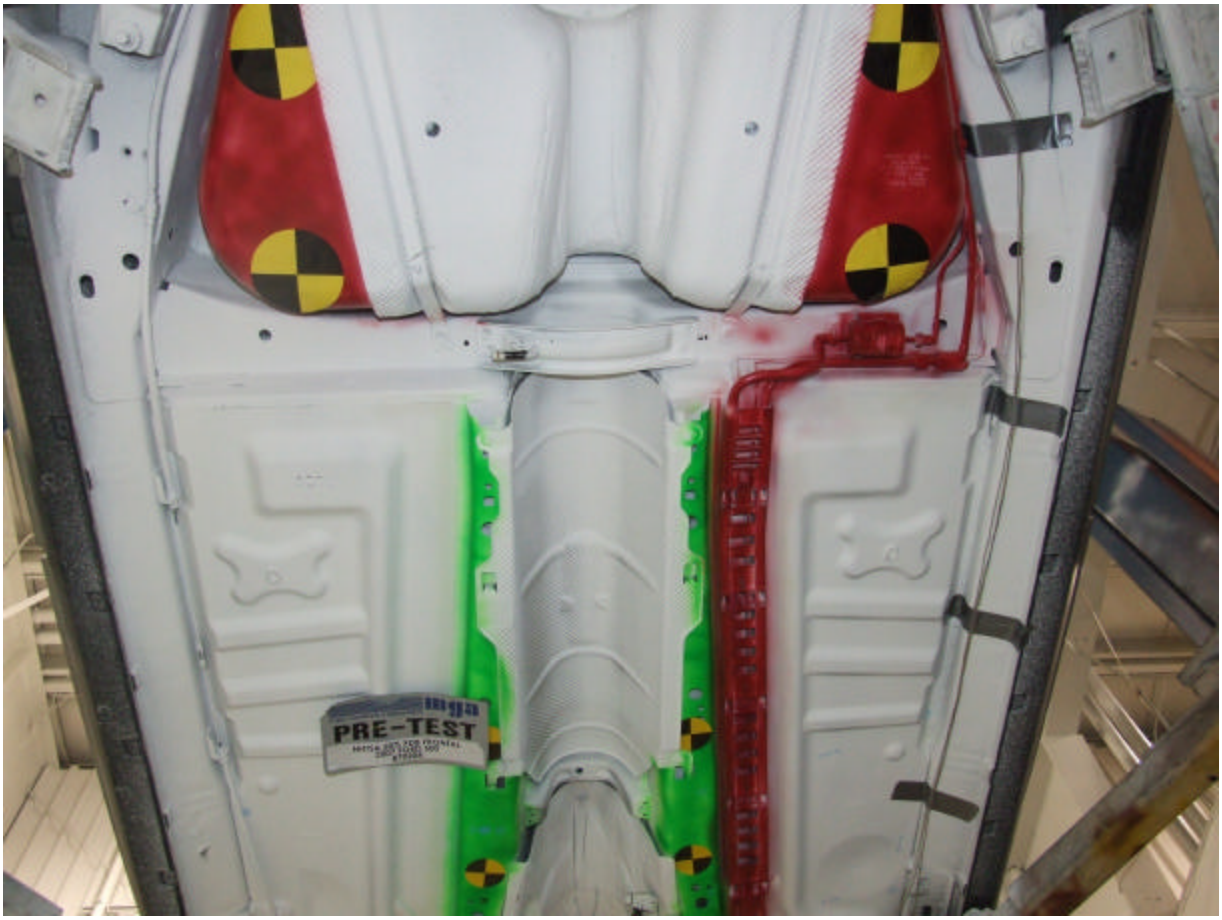
Post-Test Fuel Cap View



Pre-Test Front Underbody View

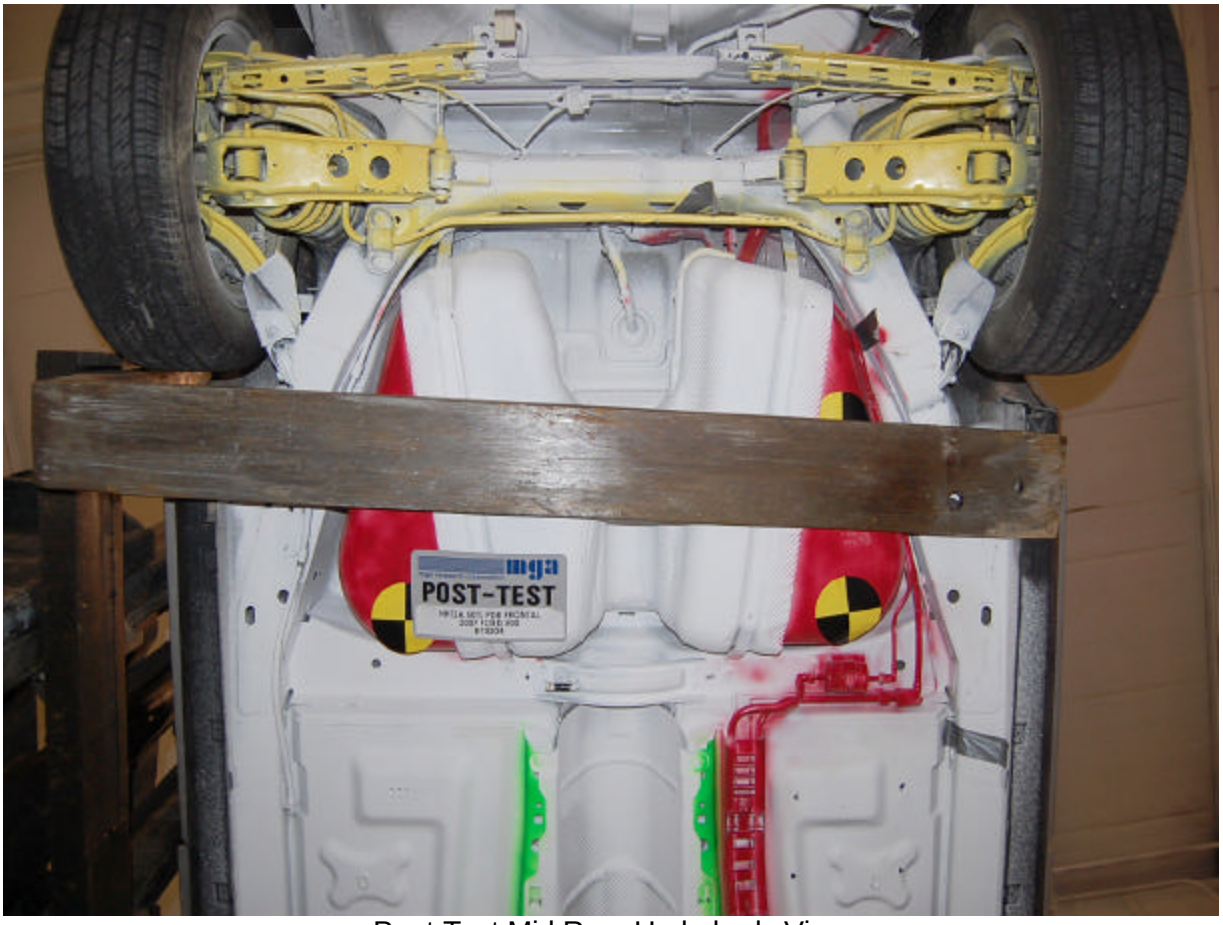


Post-Test Front Underbody View



Pre-Test Mid Underbody View

Post-Test Mid Front 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 Abdomen View Close-Up

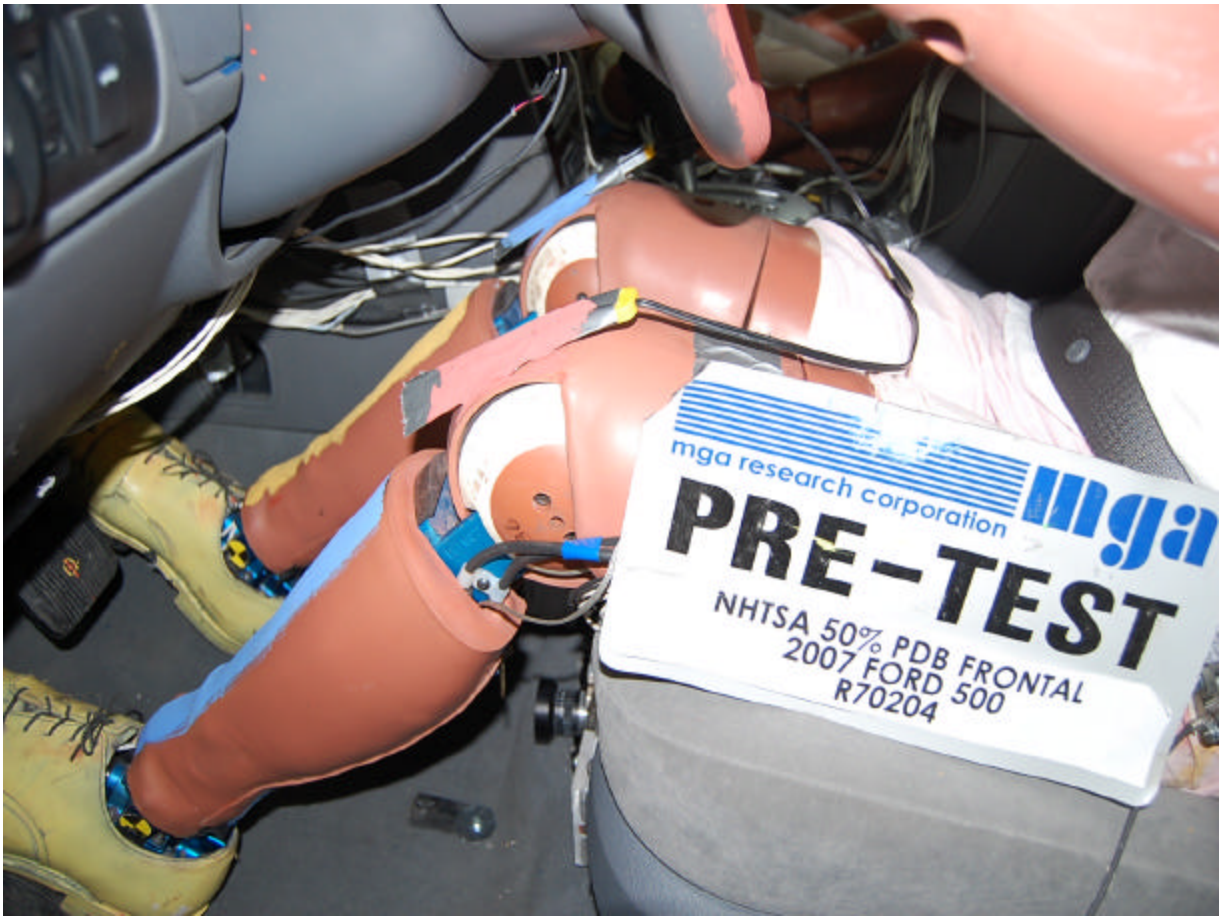
Post-Test Driver Dummy Abdomen View Close-Up

Pre-Test Driver Dummy Feet

Post-Test Driver Dummy Feet

Pre-Test Driver Dummy Foot/Leg Close-Up

Post-Test Driver Dummy Foot/Leg Close-Up



Pre-Test Driver Side Knee Bolster

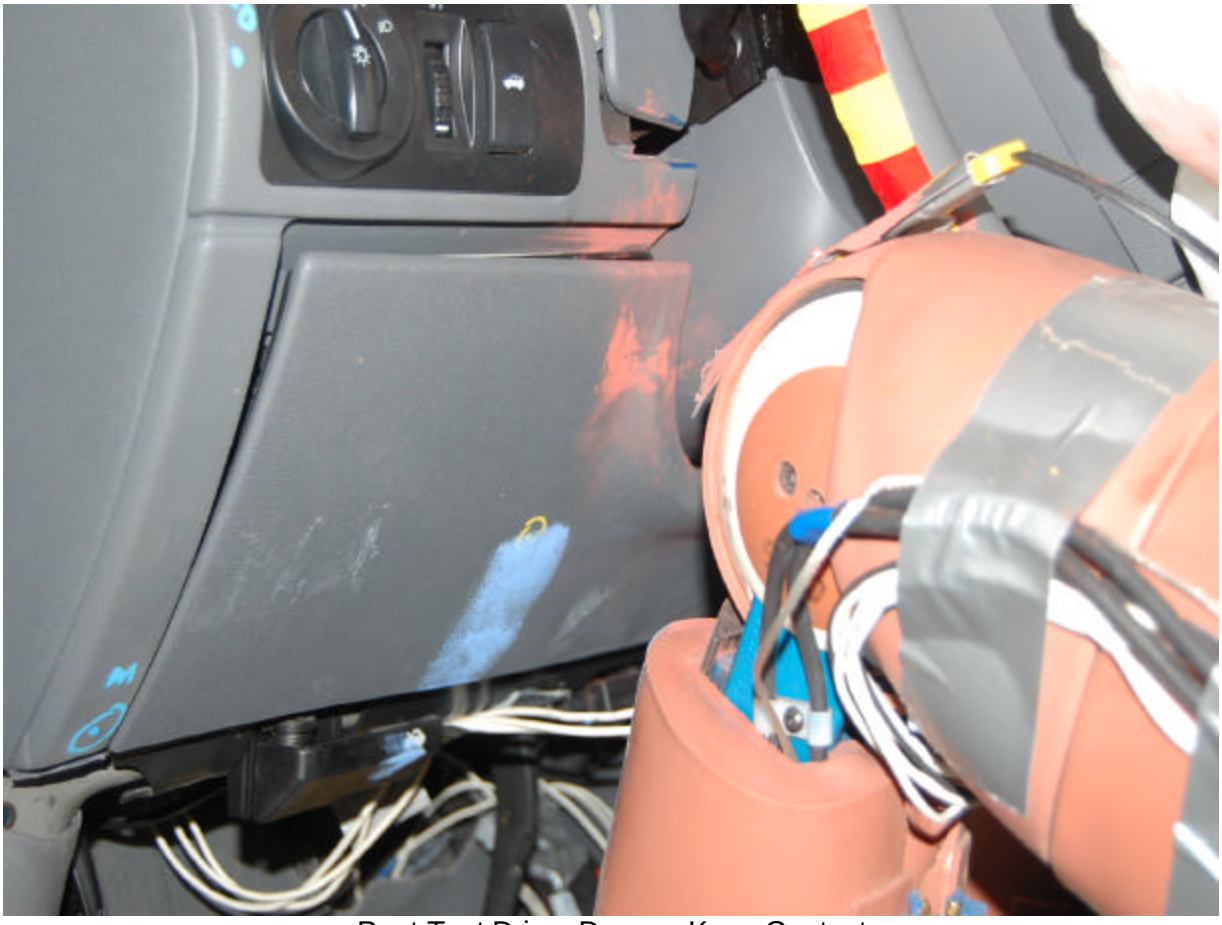
Post-Test Driver Side Knee Bolster

Pre-Test Driver Side Floor Pan

Post-Test Driver Side Floor Pan

Post-Test Driver Dummy Head Contact (visor)

Post-Test Driver Dummy Head Contact (headrest)



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)

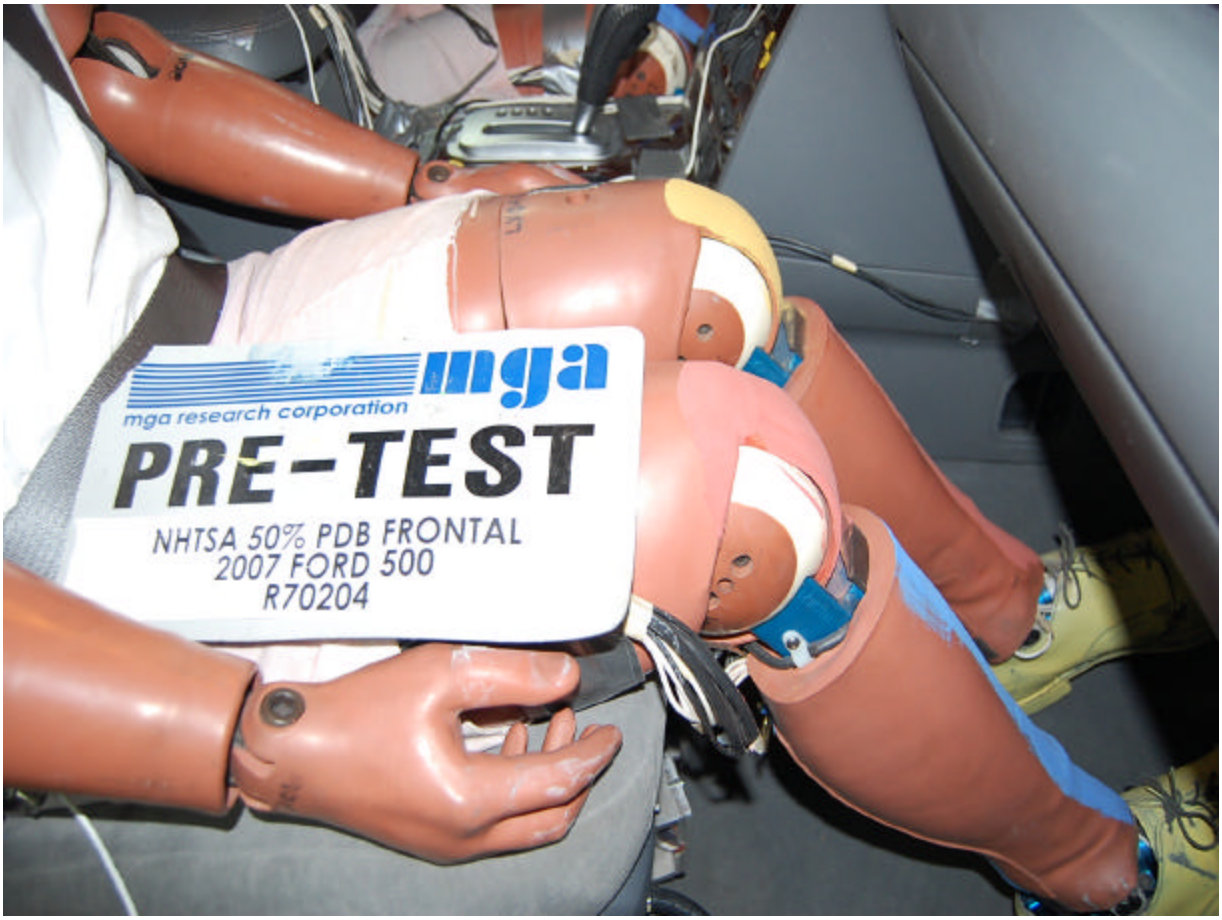
Post-Test Passenger Dummy (Through Window)

Pre-Test Passenger Dummy (Door Open)

Post-Test Passenger Dummy (Door Open)

Pre-Test Passenger Dummy Foot/Leg Close-Up

Post-Test Passenger Dummy Foot/Leg Close-Up



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 Knee Contact

Post-Test Passenger Dummy Airbag Contact

Pre-Test Left Rear Passenger Dummy (Through Window)

Post-Test Left Rear Passenger Dummy (Through Window)

Pre-Test Left Rear Passenger Dummy (Door Open)

Post-Test Left Rear Passenger Dummy (Door Open)

Pre-Test Left Rear Passenger Dummy Leg Position View

Post-Test Left Rear Passenger Dummy Leg Position View

Pre-Test Left Rear Passenger Dummy Feet Position View

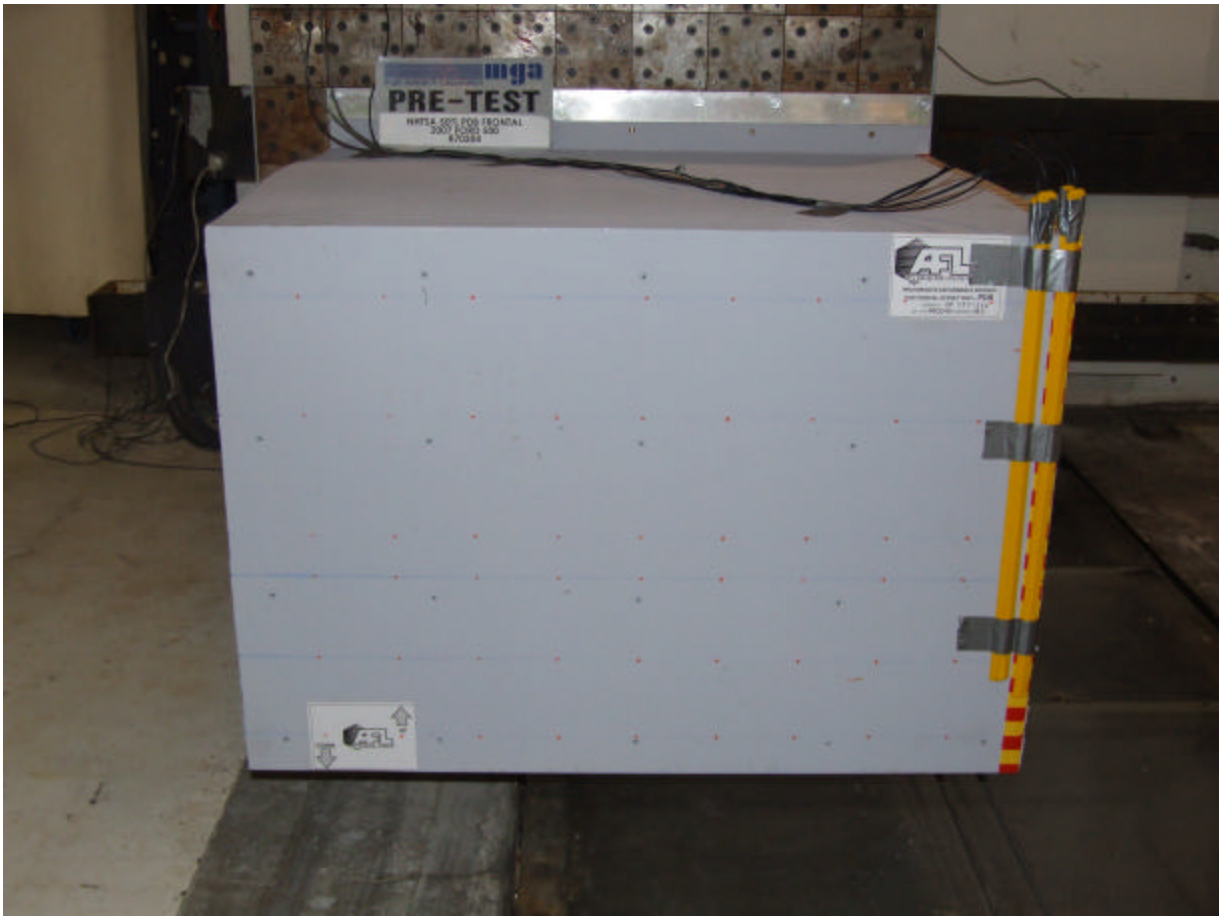
Post-Test Left Rear Passenger Dummy Feet Position View

Pre-Test Left Rear Passenger Dummy Right Side View

Post-Test Left Rear Passenger Dummy Right Side View

Post-Test Left Rear Passenger Dummy Head Contact View

Post-Test Left Rear Passenger Dummy Foot Contact View



Pre-Test Offset Deformable Barrier Front View

Post-Test Offset Deformable Barrier Front View

Pre-Test Offset Deformable Barrier Left Side View

Post-Test Offset Deformable Barrier Left Side View

Pre-Test Offset Deformable Barrier Left Side ¾ View

Post-Test Offset Deformable Barrier Left Side ¾ View

Pre-Test Offset Deformable Barrier Right Side View

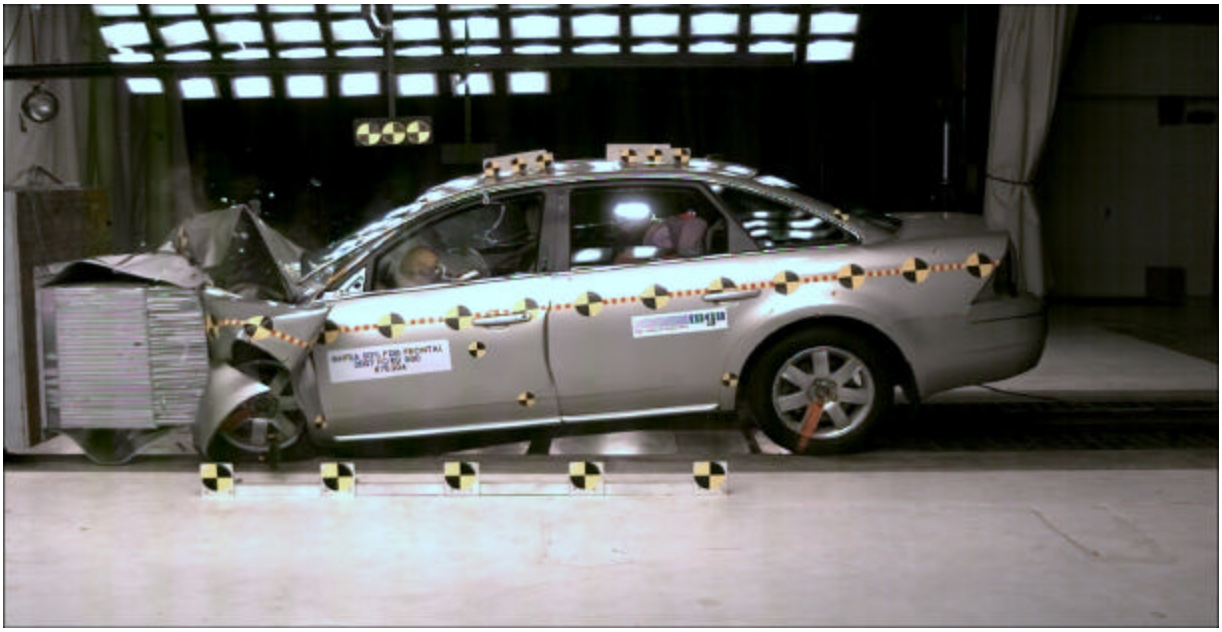
Post-Test Offset Deformable Barrier Right Side View

Pre-Test Offset Deformable Barrier Right Side ¾ View

Post-Test Offset Deformable Barrier Right Side ¾ View

Pre-Test Offset Deformable Barrier Overhead View

Post-Test Offset Deformable Barrier Overhead View



Vehicle Impact

Pre-Test Left Side A Pillar (Frontal View)

Post-Test Left Side A Pillar (Frontal View)

Pre-Test Left Side A Pillar (¾ Frontal View)

Post-Test Left Side A Pillar (¾ Frontal View)

Pre-Test Left Side A Pillar (¾ Rear View)

Post-Test Left Side A Pillar (¾ Rear View)

Pre-Test Left Side B Pillar (¾ Front View)

Post-Test Left Side B Pillar (¾ Front View)

Pre-Test Left Side B Pillar (Left Side View)

Post-Test Left Side B Pillar (Left Side View)

Pre-Test Left Side B Pillar (¾ Rear View)

Post-Test Left Side B Pillar (¾ Rear View)

Pre-Test Left Side C Pillar (Frontal View)

Post-Test Left Side C Pillar (Frontal View)

Pre-Test Left Side C Pillar (Left Side View)

Post-Test Left Side C Pillar (Left Side View)

Pre-Test Left Side C Pillar (¾ Rear View)

Post-Test Left Side C Pillar (¾ Rear View)

Pre-Test Left Side Sill Front Half View

Post-Test Left Side Sill Front Half View

Pre-Test Left Side Sill Rear Half View

Post-Test Left Side Sill Rear Half View

Pre-Test Right Side A Pillar (Frontal View)

Post-Test Right Side A Pillar (Frontal View)

Pre-Test Right Side A Pillar (¾ Front View)

Post-Test Right Side A Pillar (¾ Front View)

Pre-Test Right Side A Pillar (¾ Rear View)

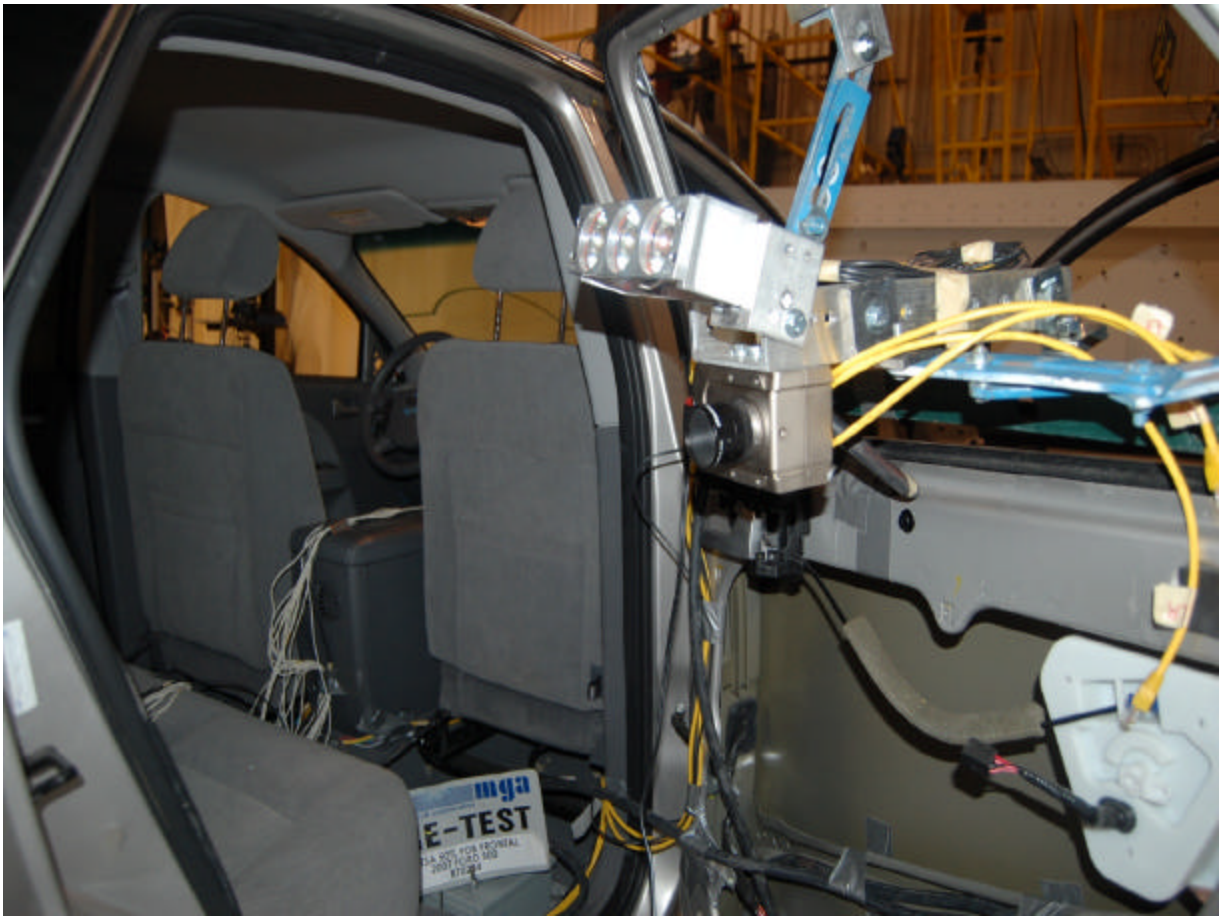
Post-Test Right Side A Pillar (¾ Rear View)

Pre-Test Right Side B Pillar (¾ Front View)

Post-Test Right Side B Pillar (¾ Front View)

Pre-Test Right Side B Pillar (Right Side View)

Post-Test Right Side B Pillar (Right Side View)



Pre-Test Right Side B Pillar (¾ Rear View)

Post-Test Right Side B Pillar (¾ Rear View)

Pre-Test Right Side C Pillar (Frontal View)

Post-Test Right Side C Pillar (Frontal View)

Pre-Test Right Side C Pillar (¾ Front View)

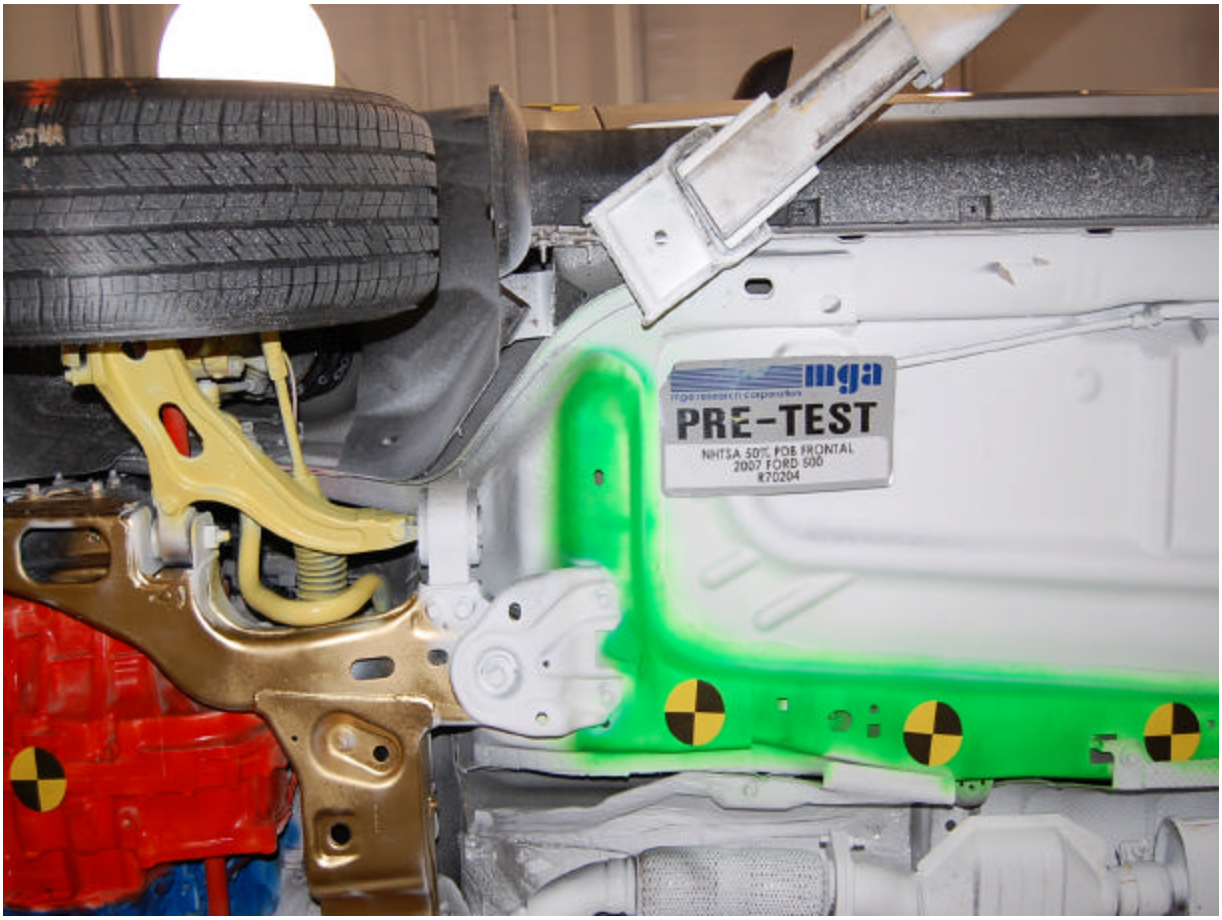
Post-Test Right Side C Pillar (¾ Front View)

Pre-Test Right Side Sill Front Half View

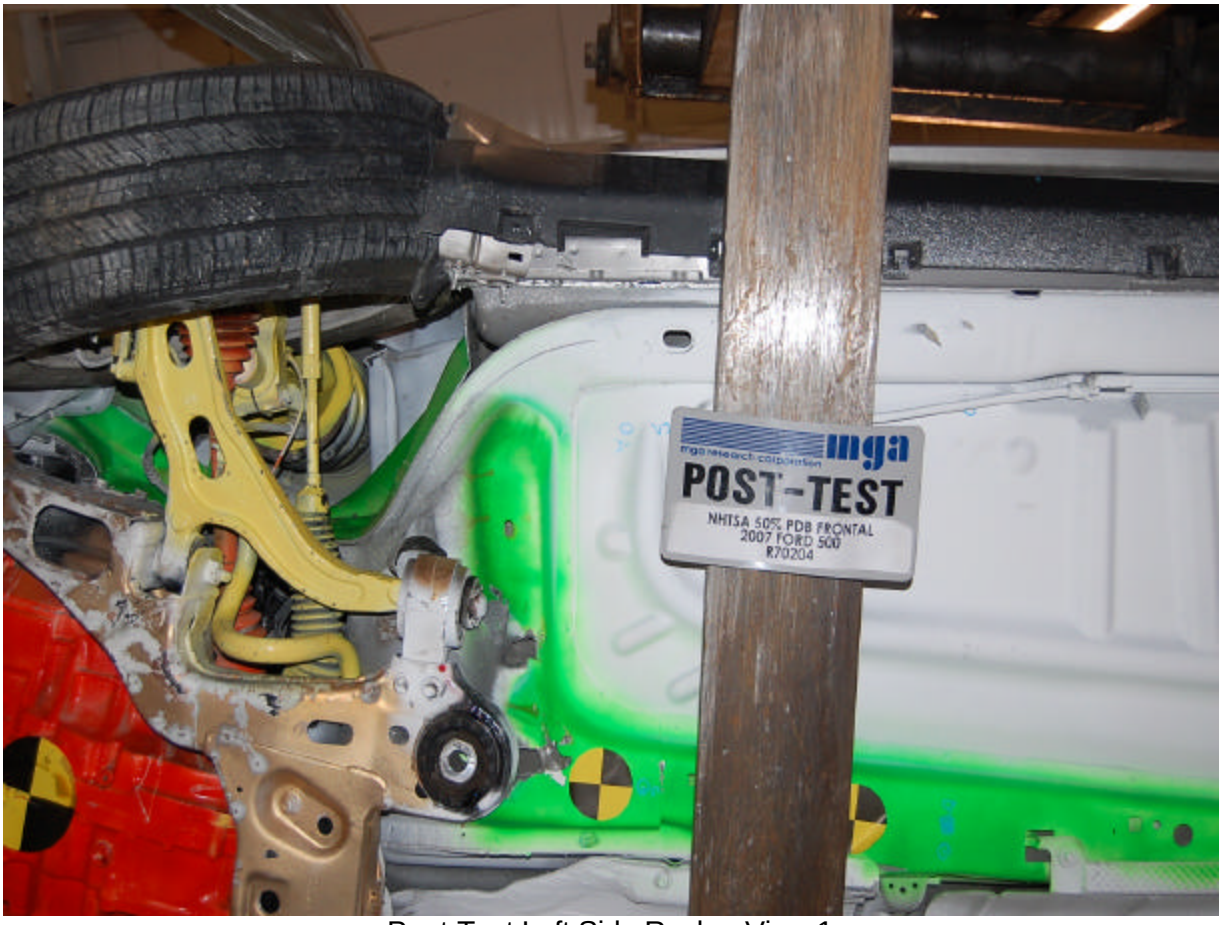
Post-Test Right Side Sill Front Half View

Pre-Test Right Side Sill Rear Half View

Post-Test Right Side Sill Rear Half View



Pre-Test Left Side Rocker View 1

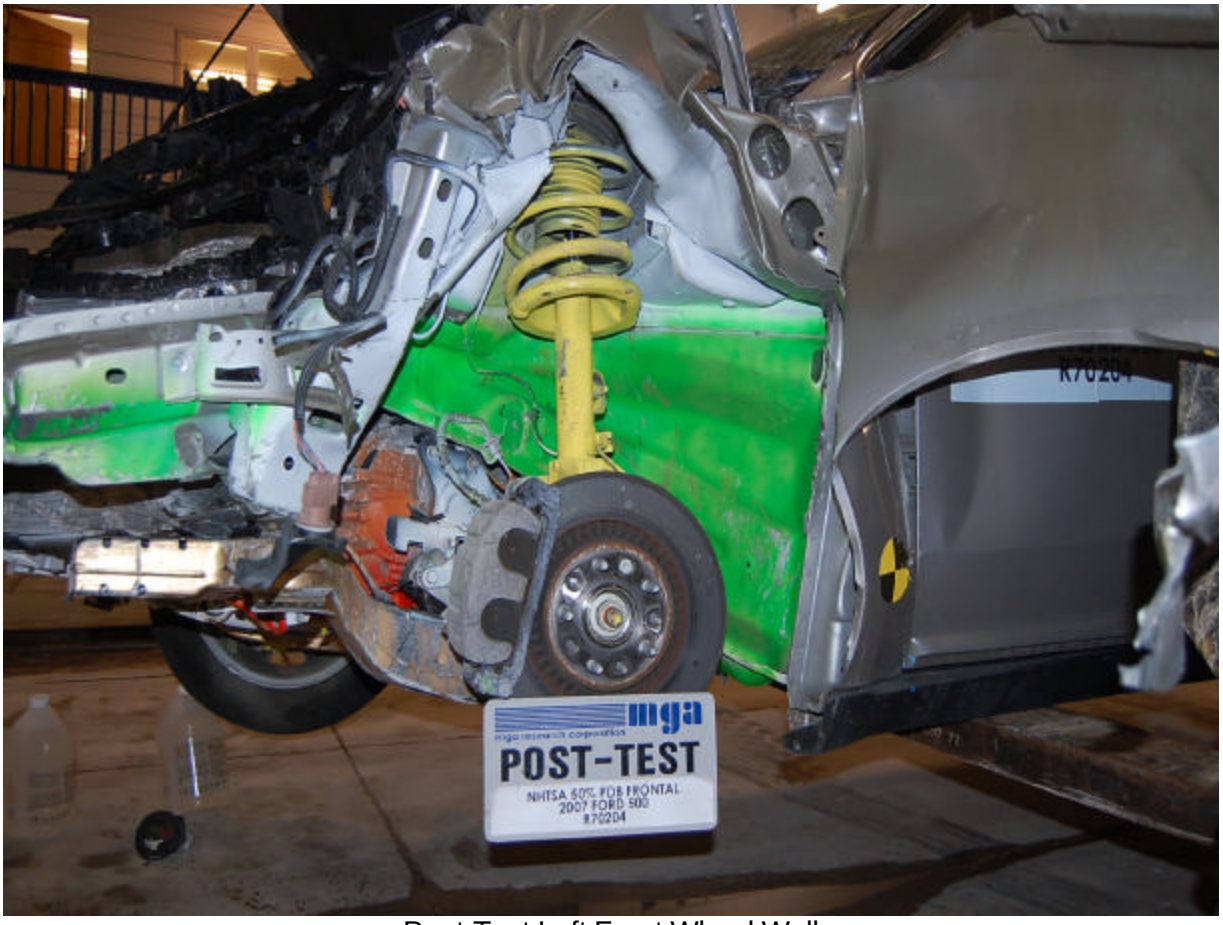


Post-Test Left Side Rocker View 1

Pre-Test Left Side Rocker View 2

Post-Test Left Side Rocker View 2

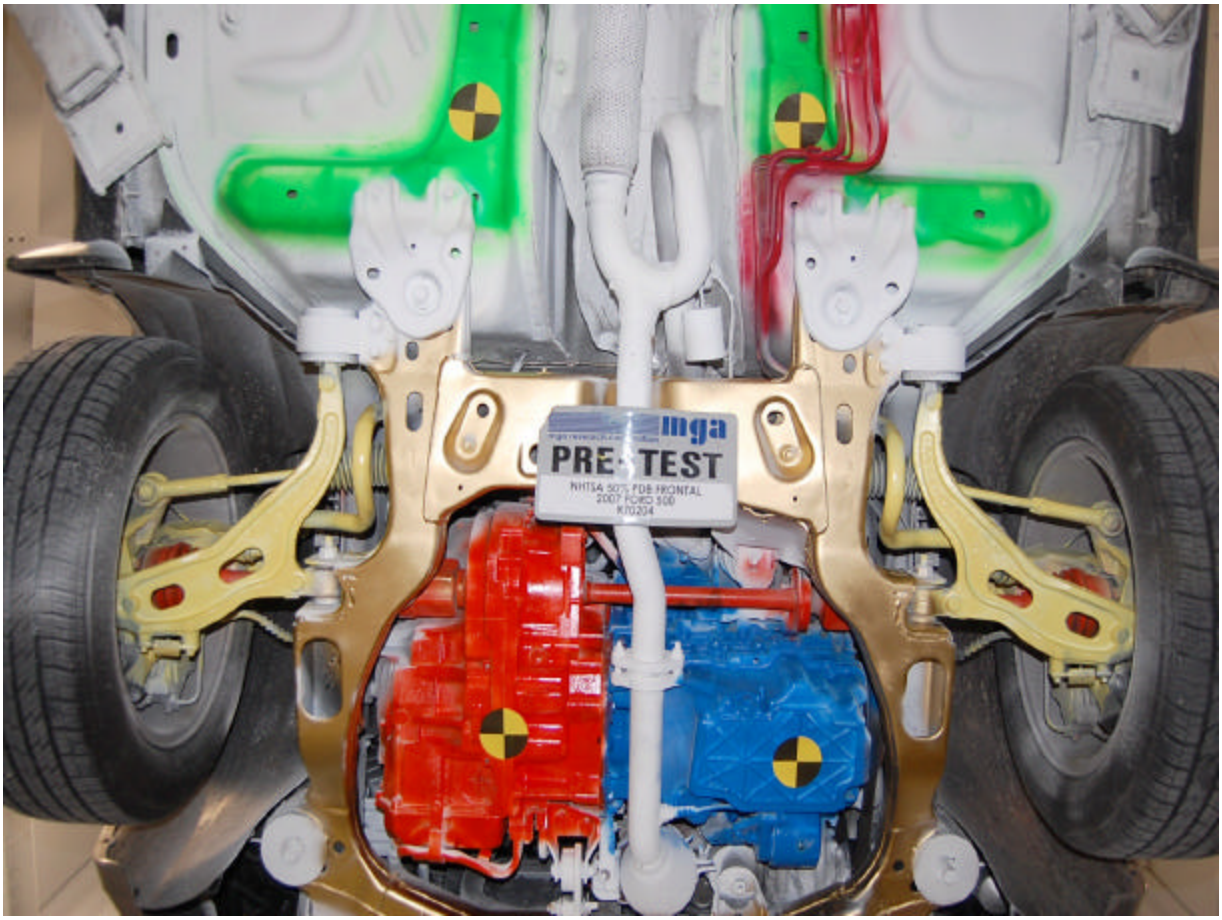
Pre-Test Left Front Wheel Well



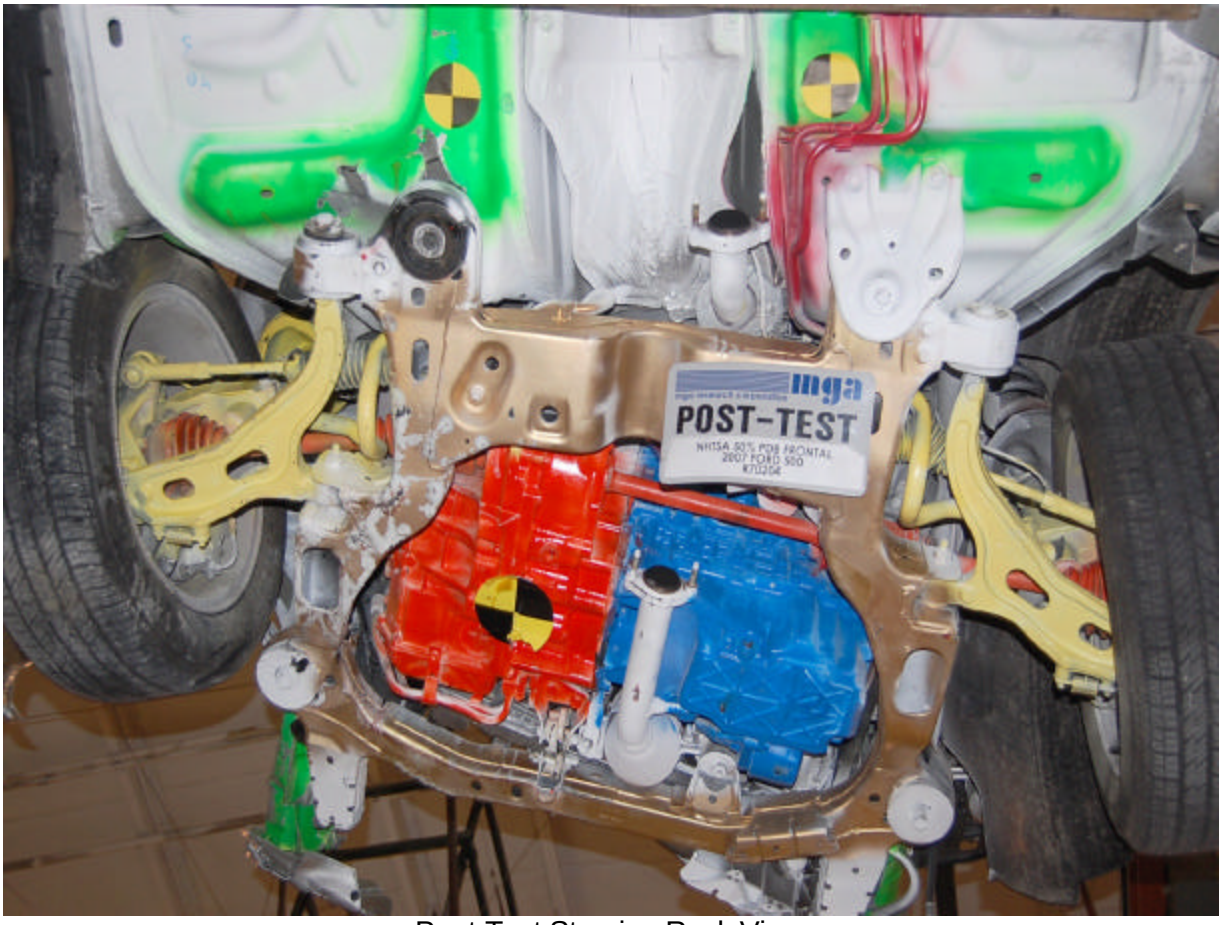
Post-Test Left Front Wheel Well

Pre-Test Left Front Shotgun

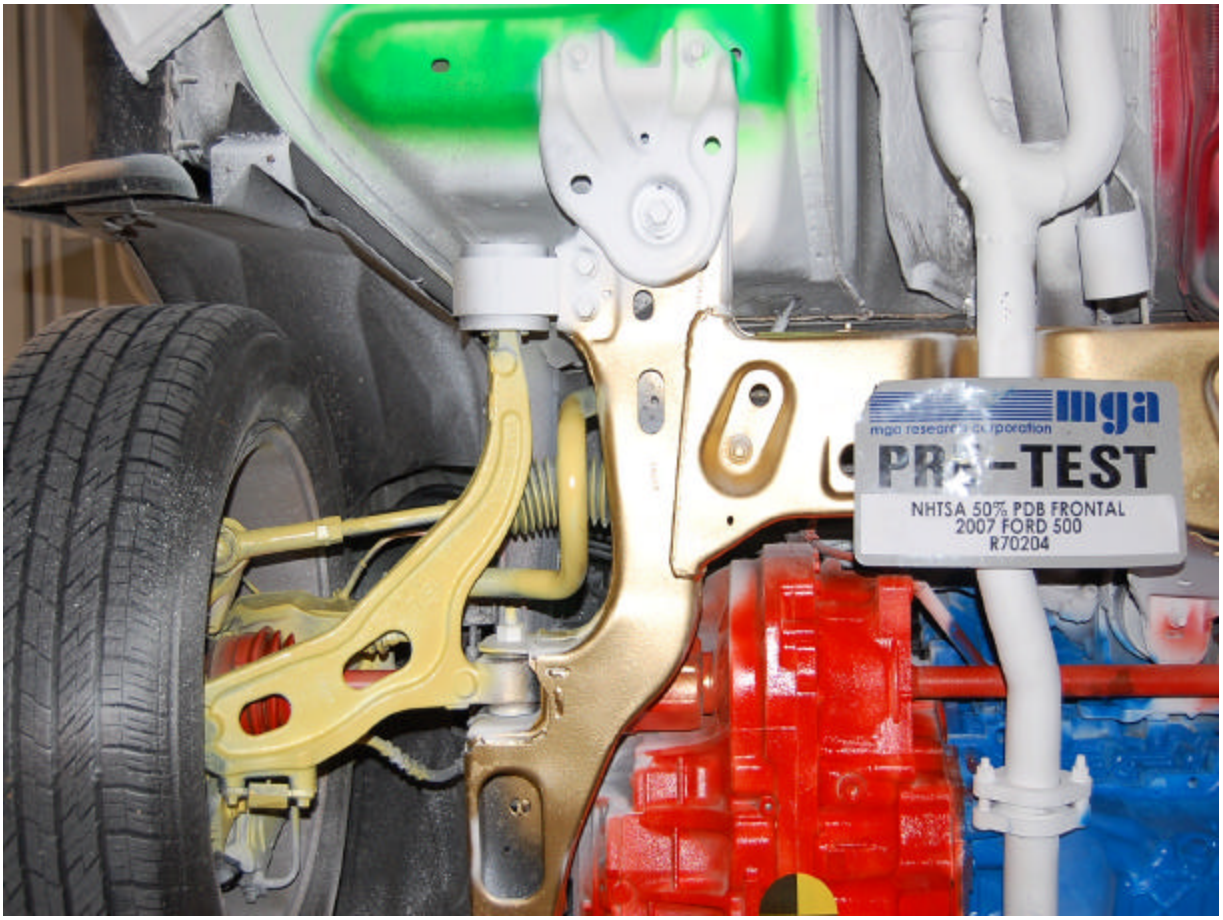
Post-Test Left Front Shotgun



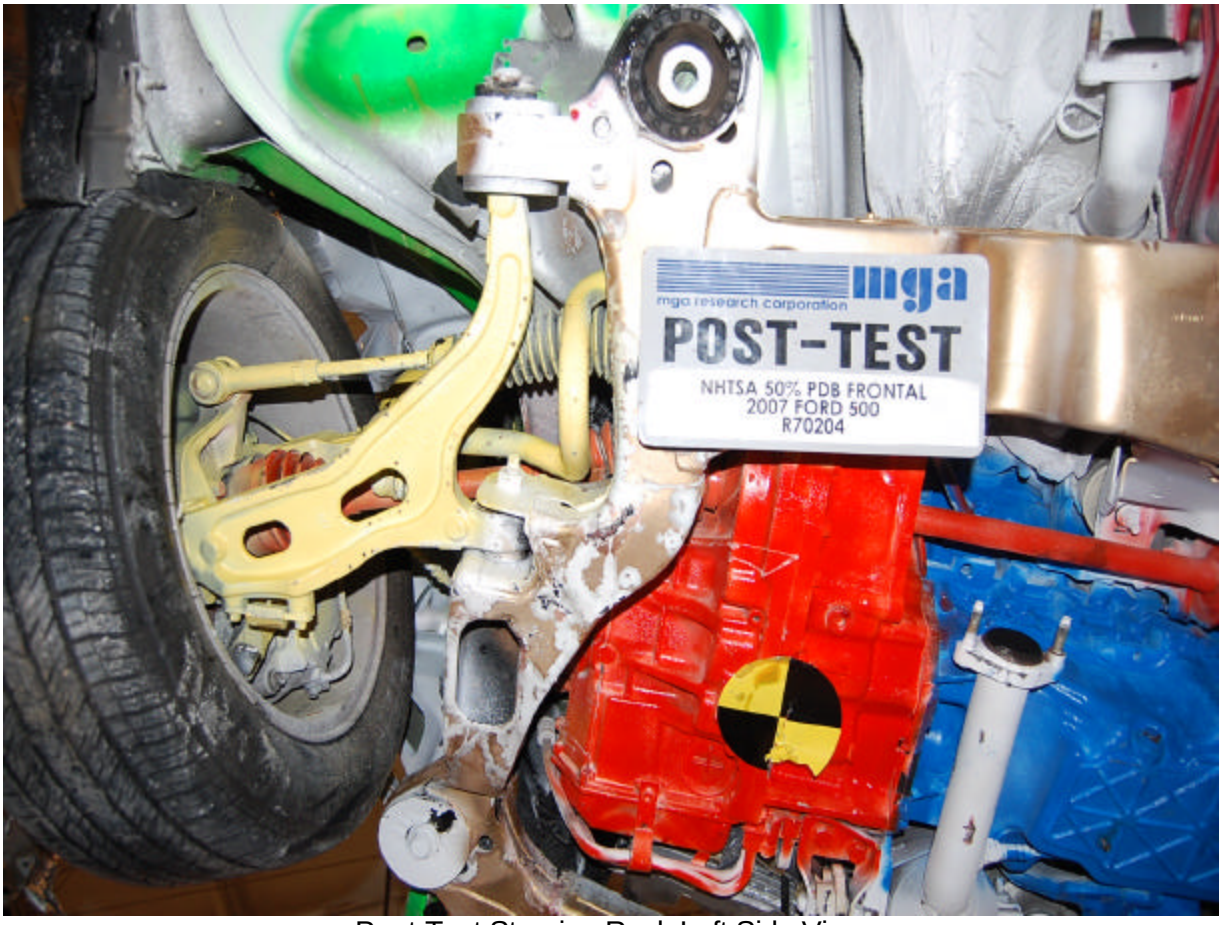
Pre-Test Steering Rack View



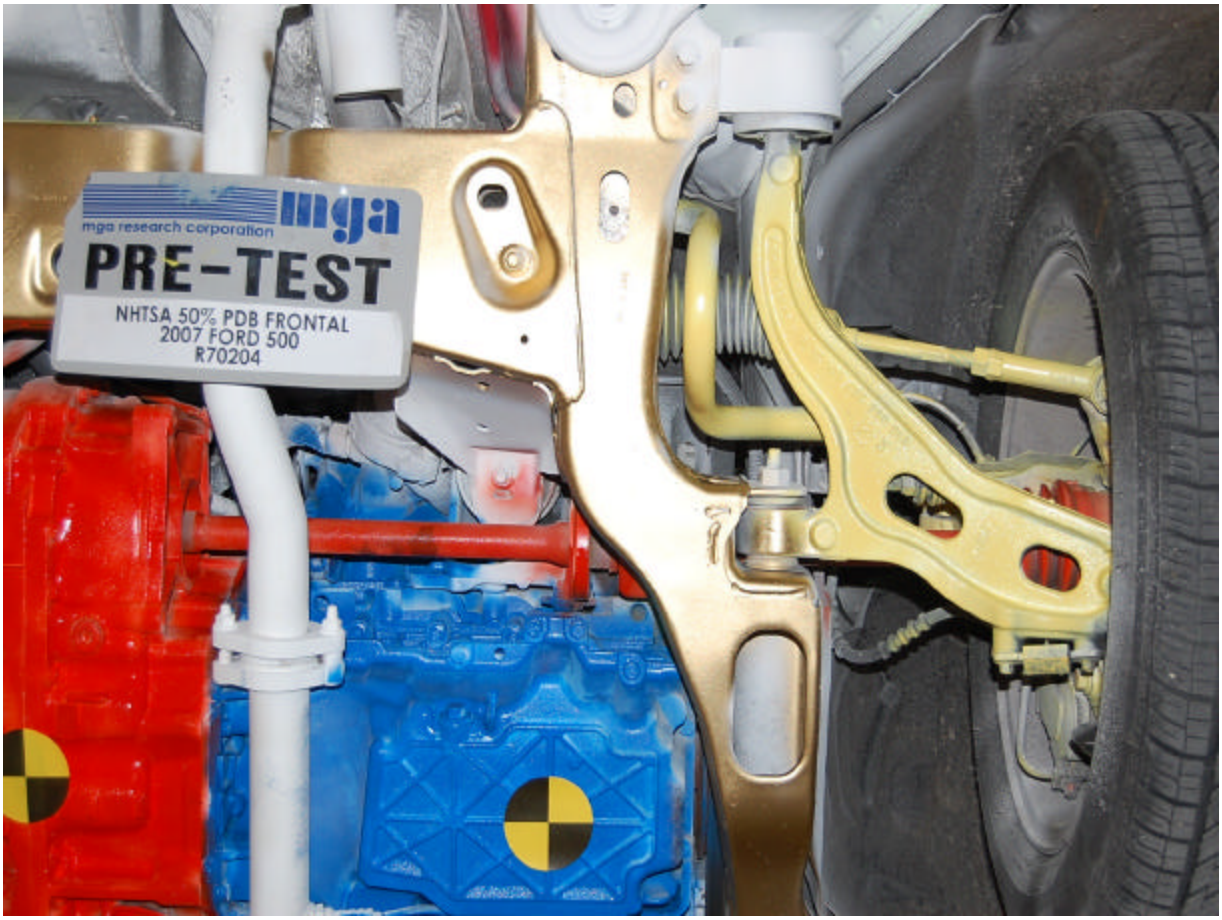
Post-Test Steering Rack View



Pre-Test Steering Rack Left Side View

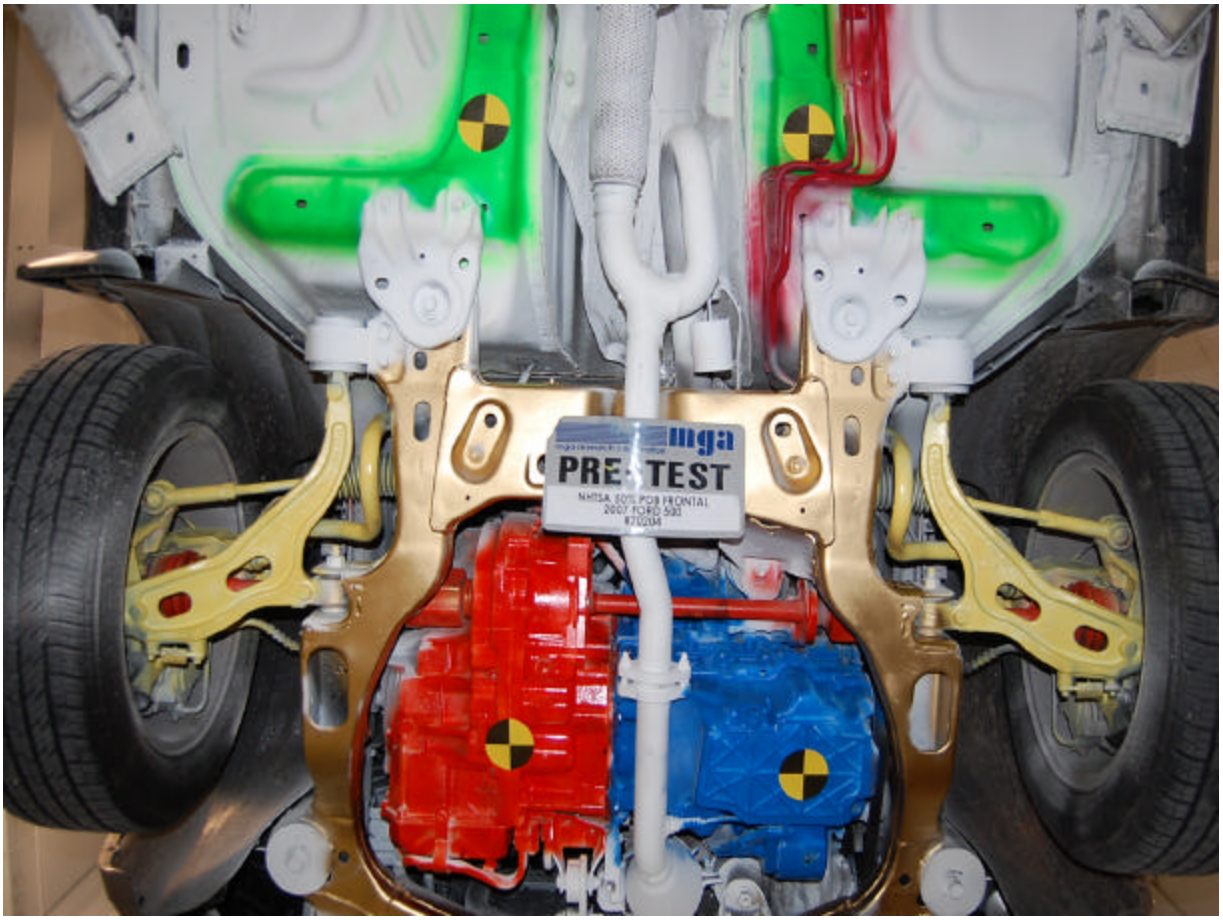


Post-Test Steering Rack Left Side View



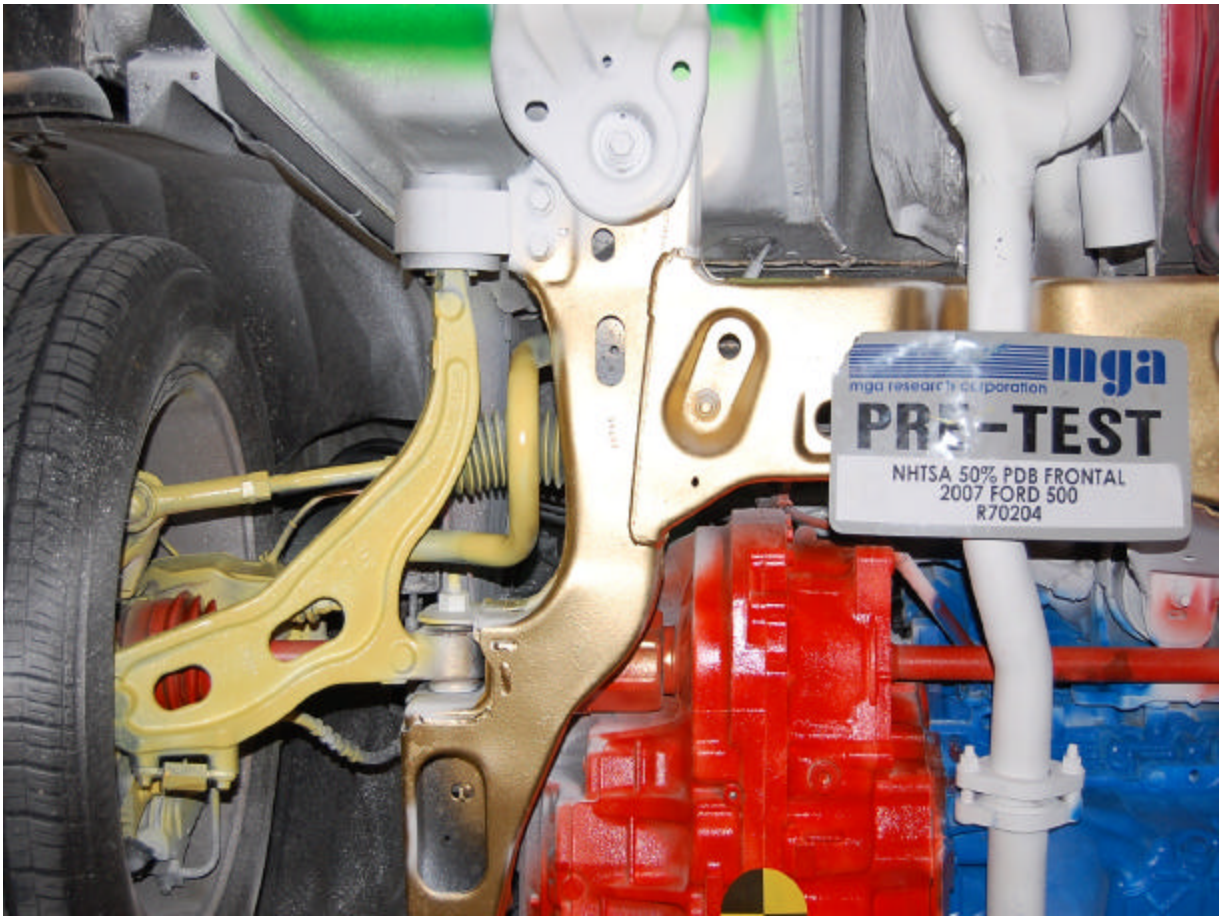
Pre-Test Steering Rack Right Side View

Post-Test Steering Rack Right Side View

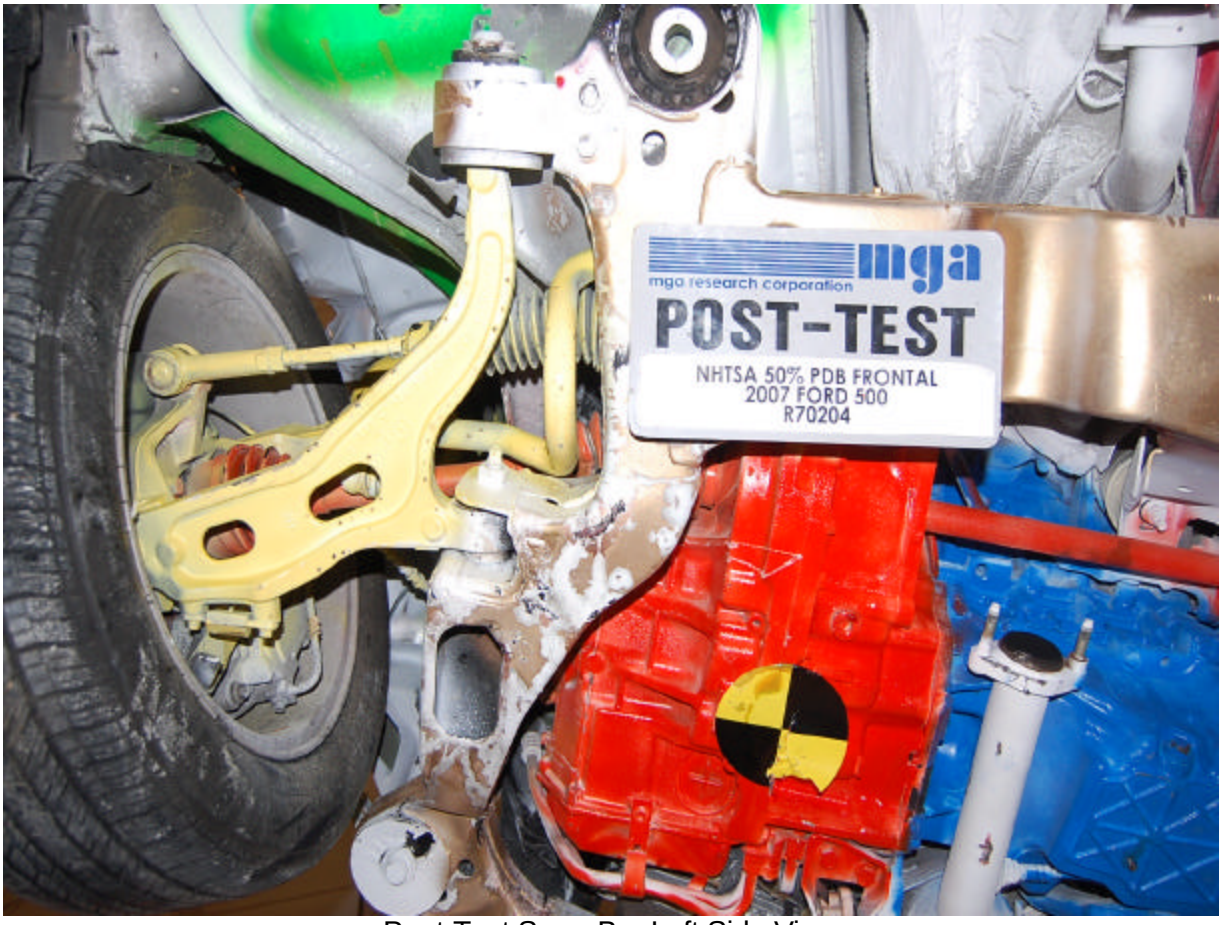


Pre-Test Sway Bar View

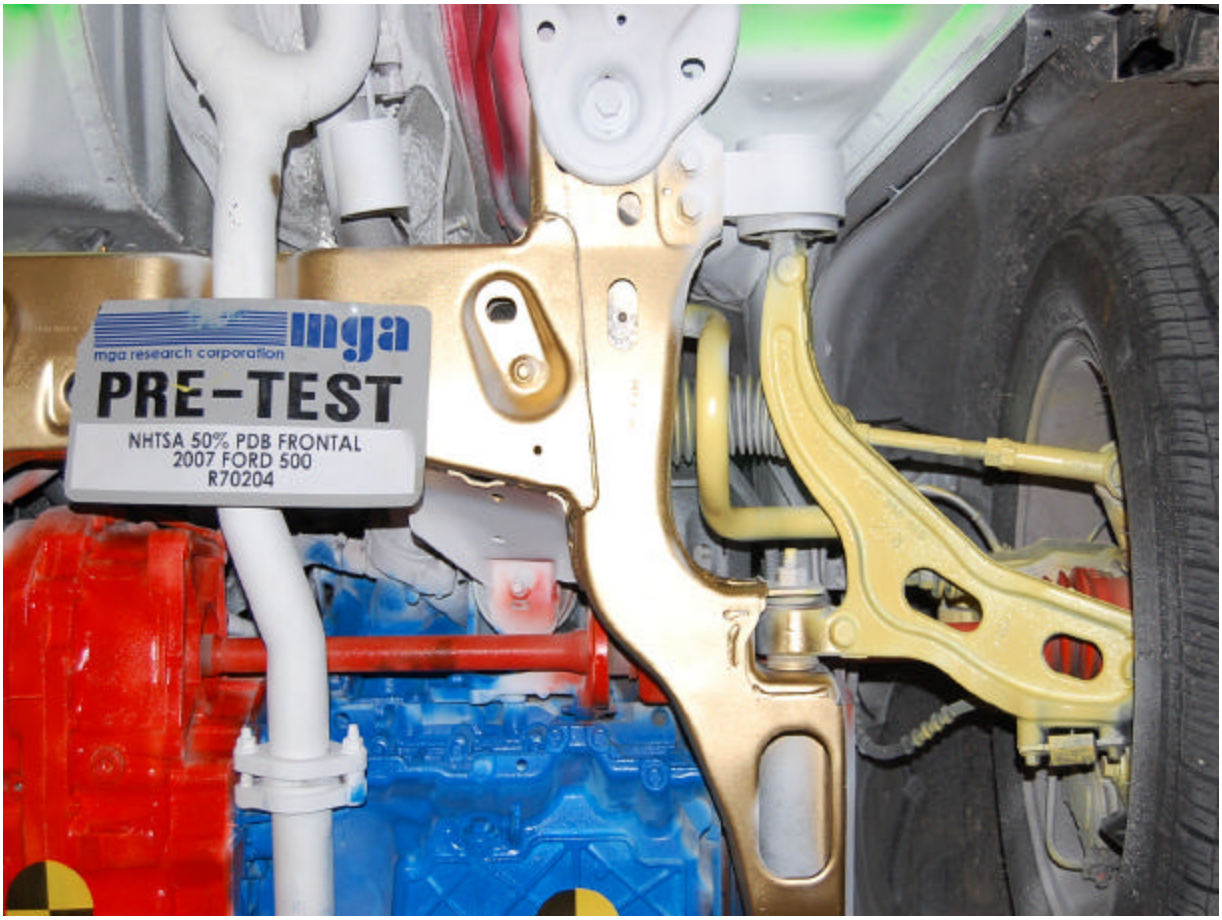
Post-Test Sway Bar View



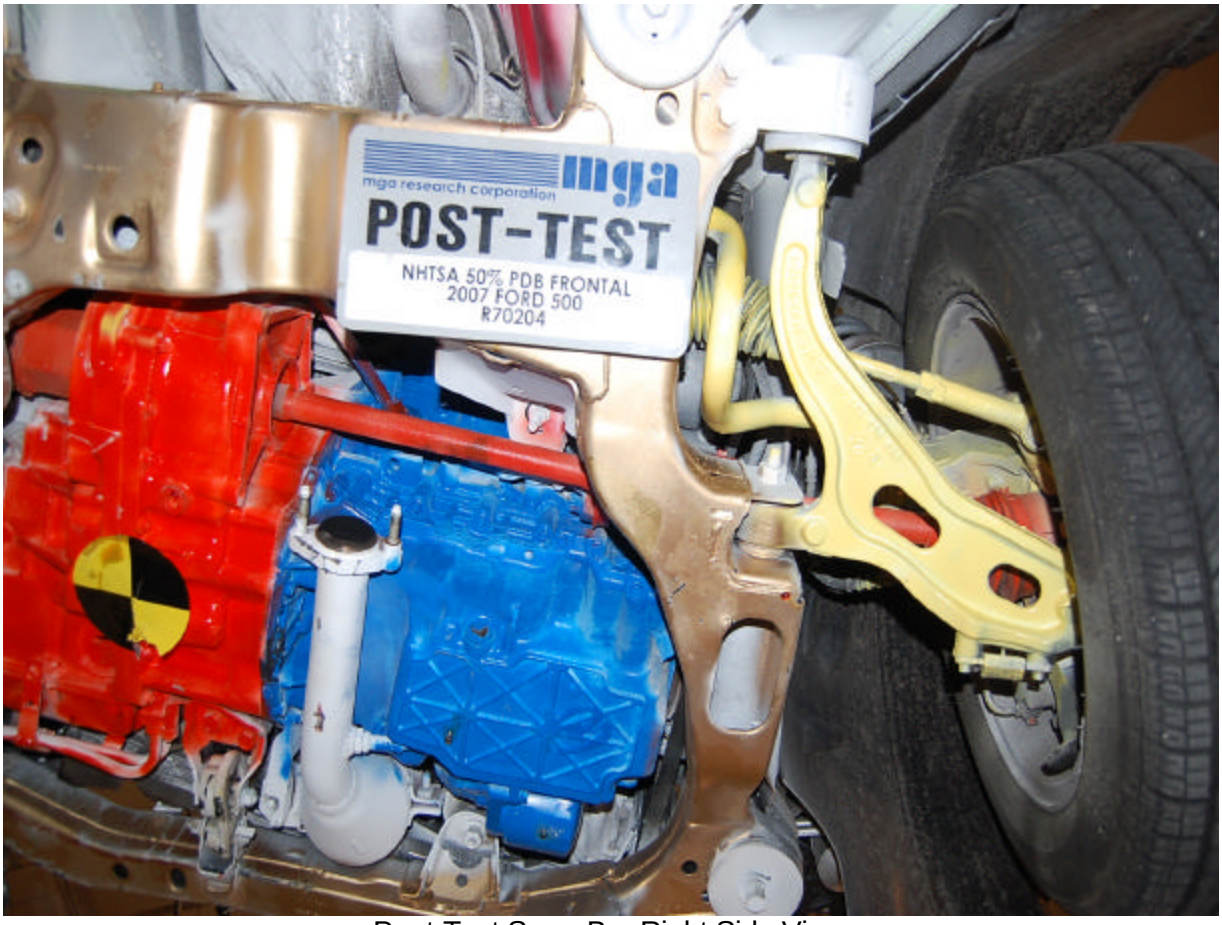
Pre-Test Sway Bar Left Side View



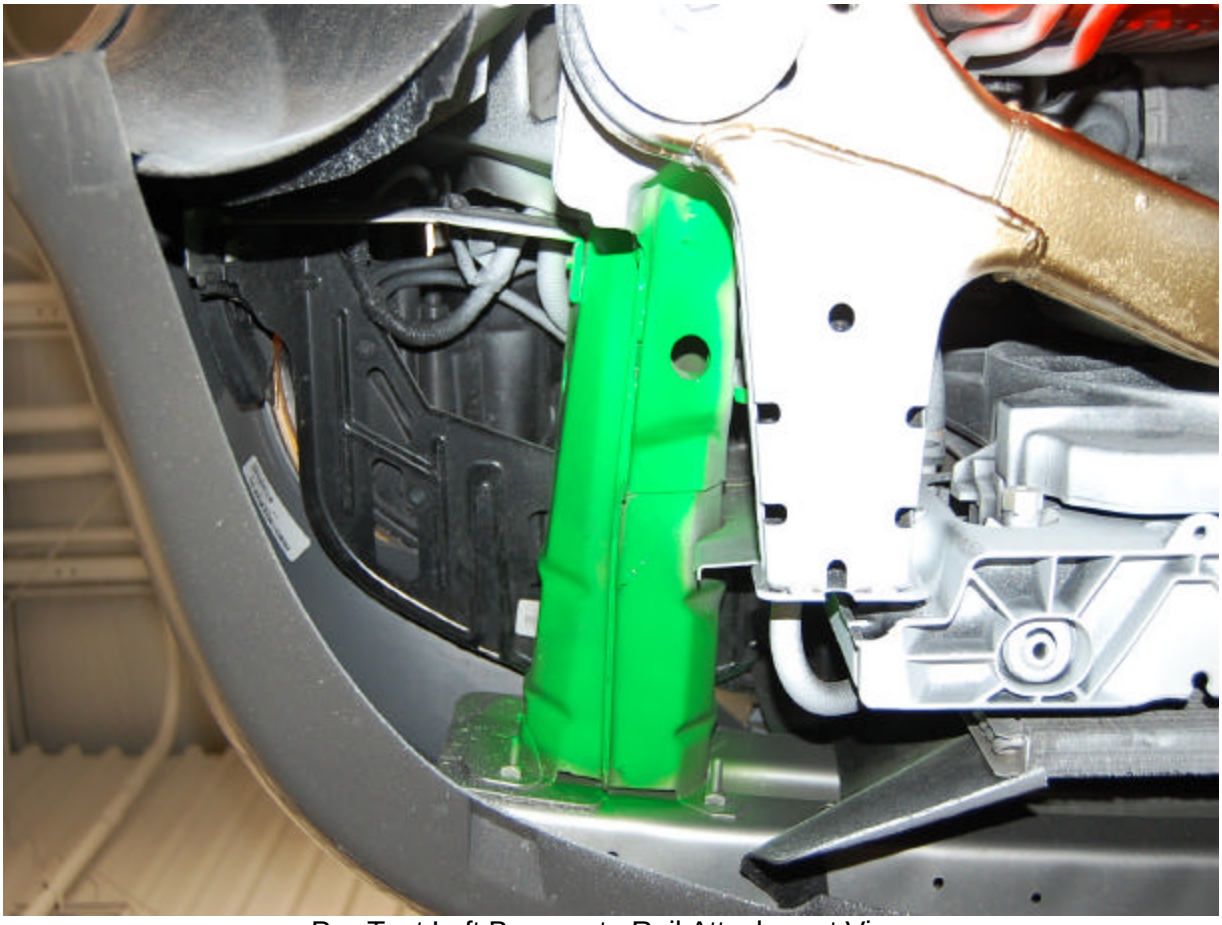
Post-Test Sway Bar Left Side View



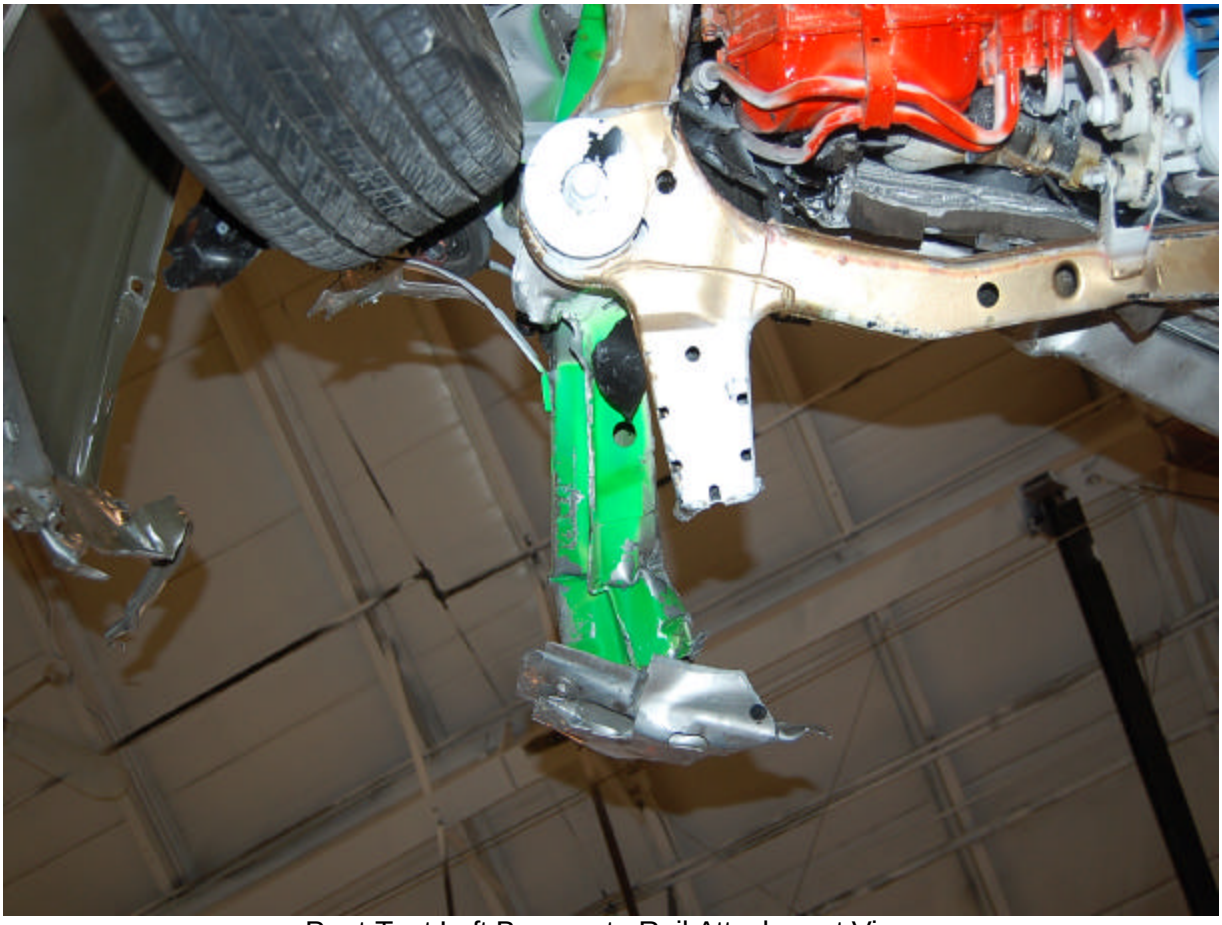
Pre-Test Sway Bar Right Side View



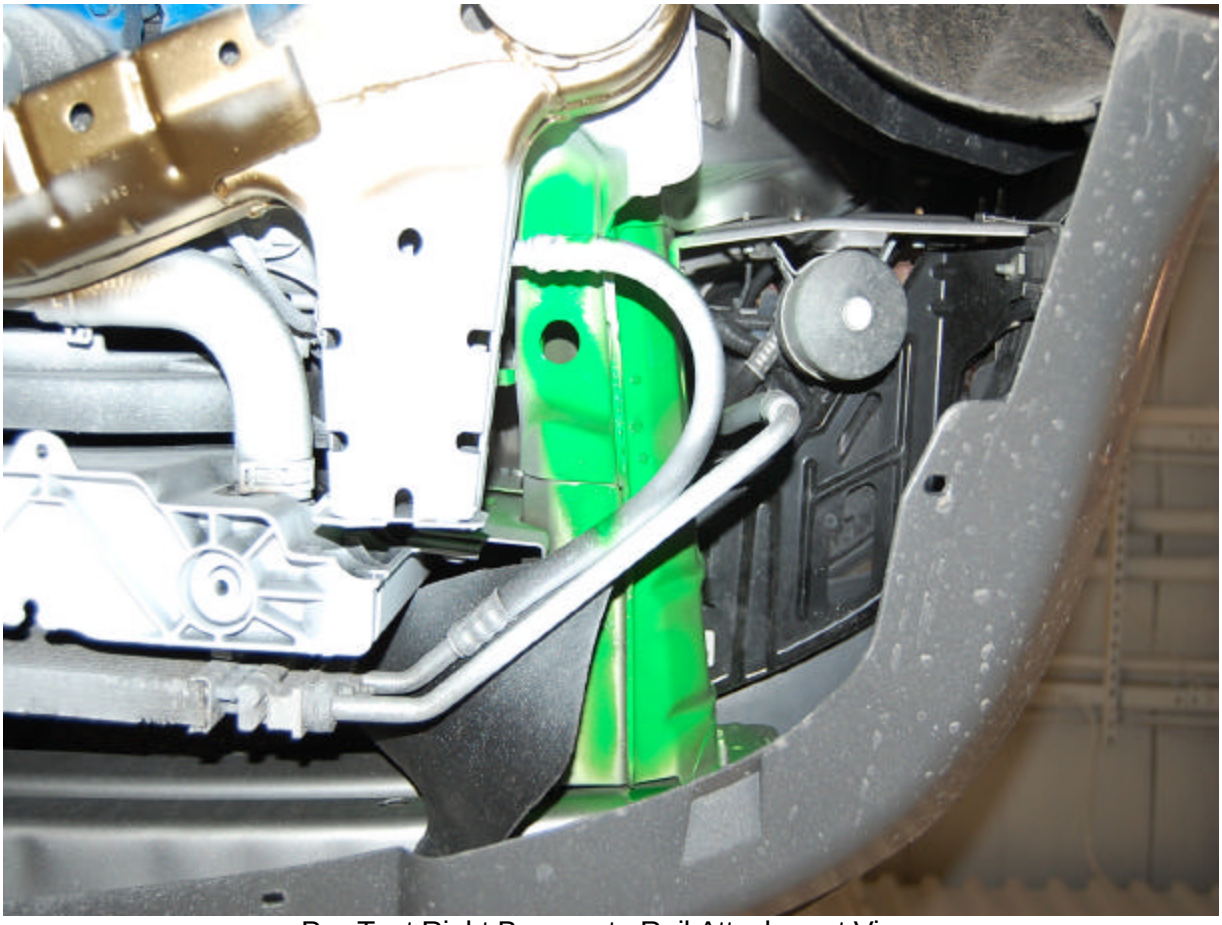
Post-Test Sway Bar Right Side View



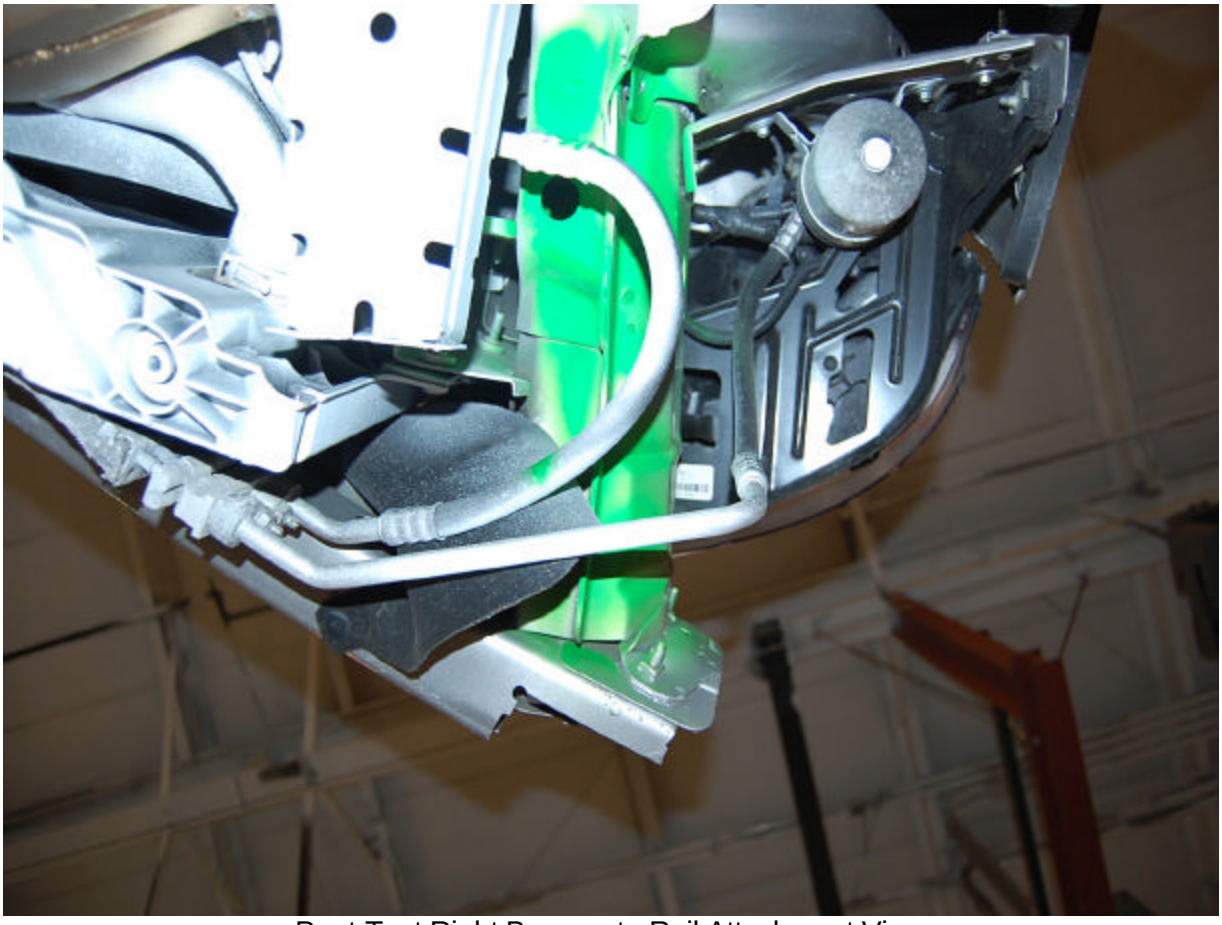
Pre-Test Left Bumper to Rail Attachment View



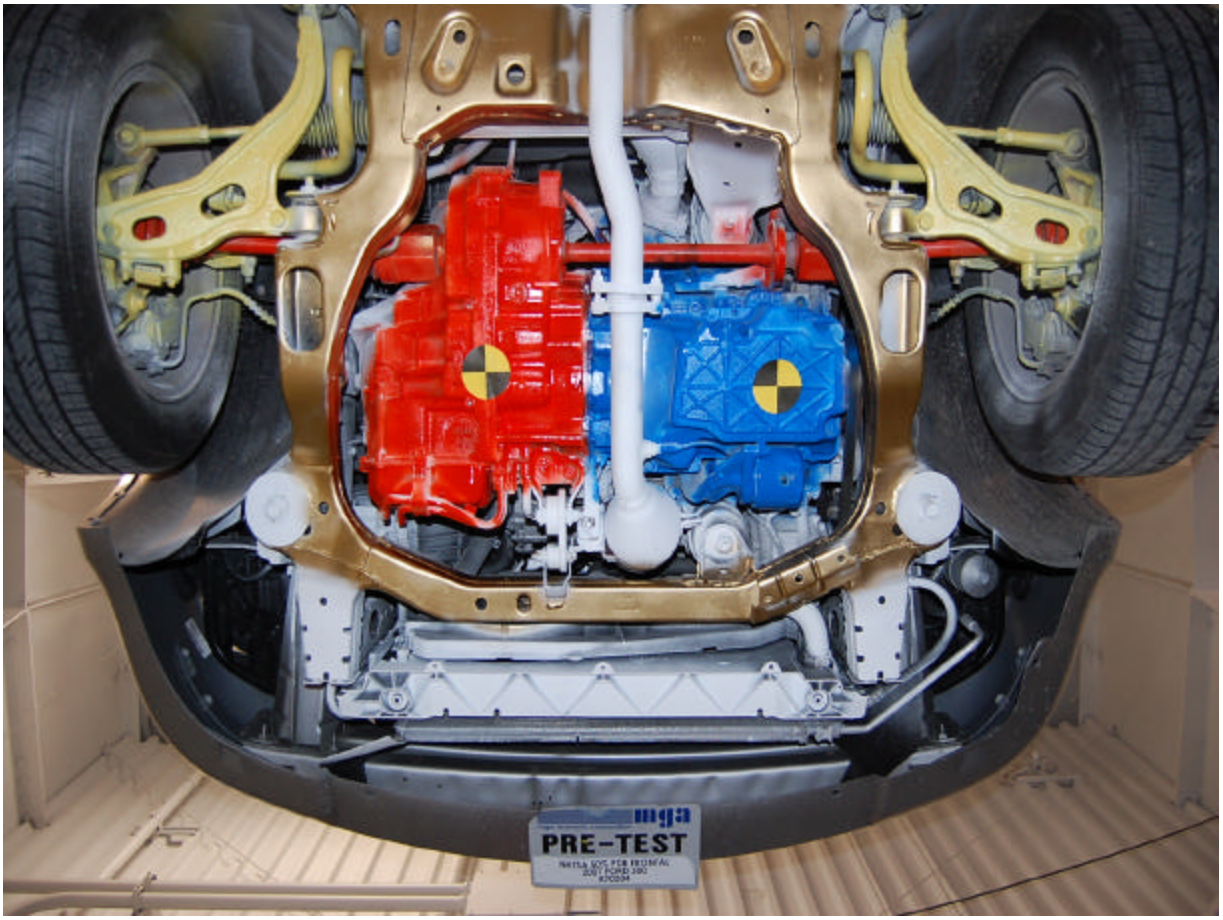
Post-Test Left Bumper to Rail Attachment View



Pre-Test Right Bumper to Rail Attachment View

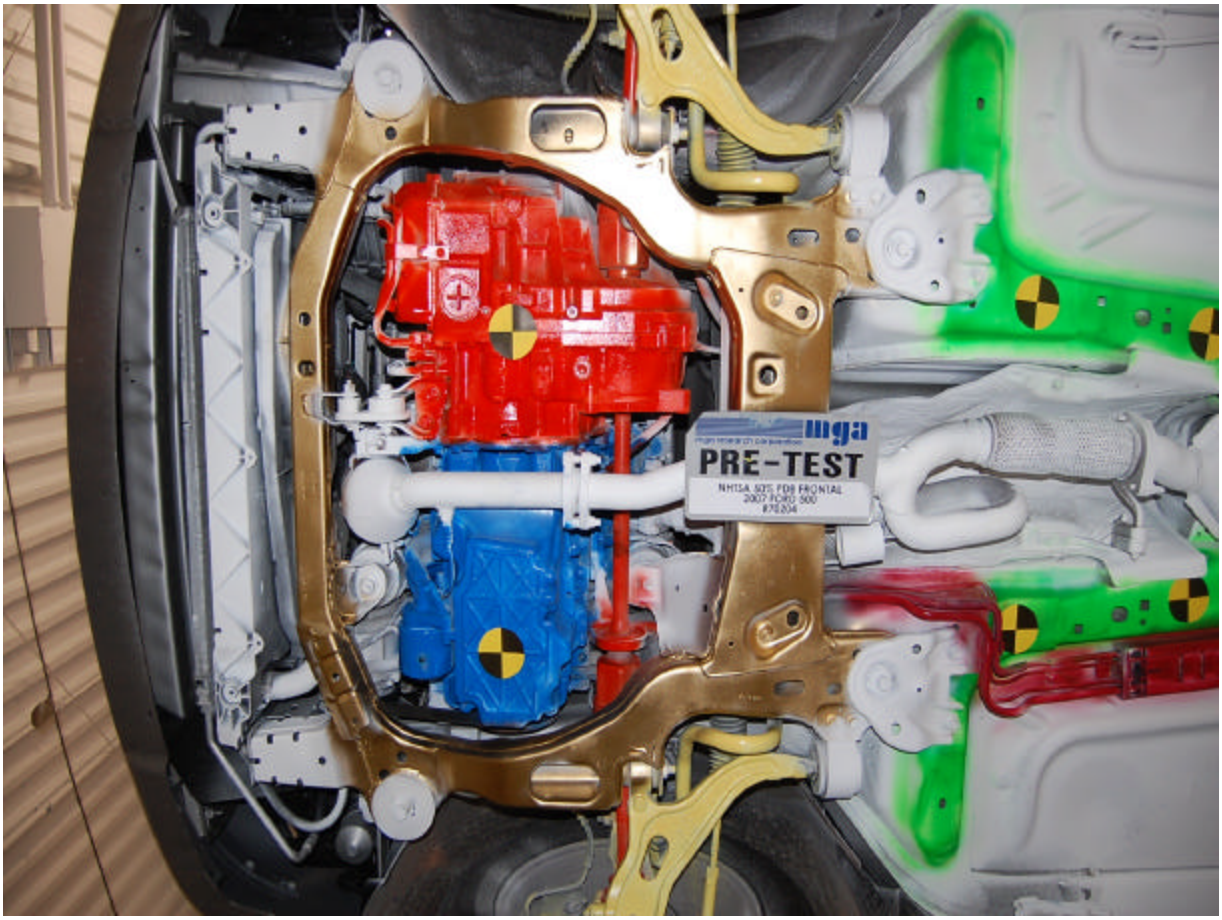


Post-Test Right Bumper to Rail Attachment View



Pre-Test Front Underbody

Post-Test Front Underbody



Pre-Test Front Underbody Perpendicular View

Post-Test Front Underbody Perpendicular View

Pre-Test Left Front Wheel Contact View

Post-Test Left Front Wheel Contact View

Pre-Test Left Front Wheel Contact Close Up View

Post-Test Left Front Wheel Contact Close Up View

Pre-Test Over Toepan/Floorpan Left of Seat, Seat Cushion Height

Post-Test Over Toepan/Floorpan Left of Seat, Seat Cushion Height

Pre-Test Over Toepan/Floorpan Left of Seat, Sill Height

Post-Test Over Toepan/Floorpan Left of Seat, Sill Height

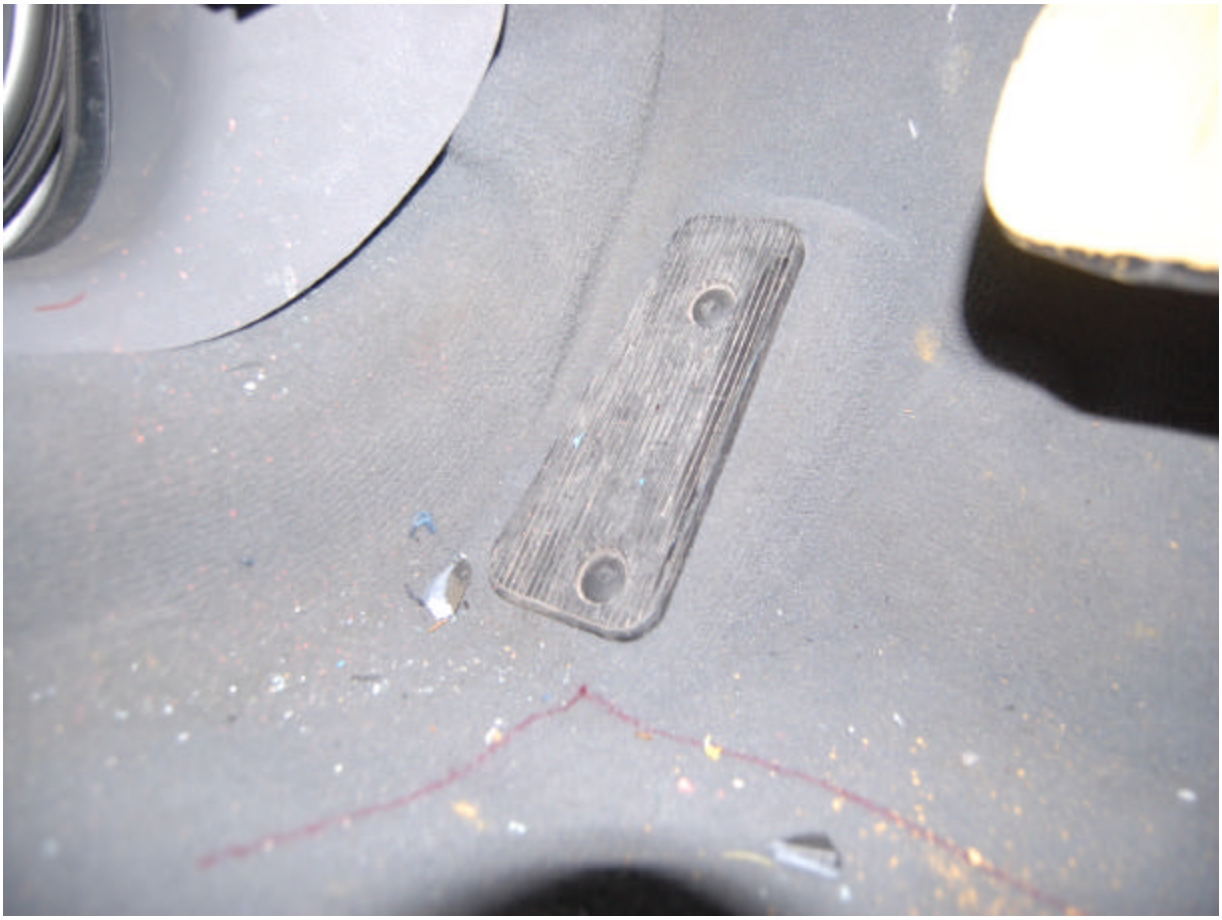
Pre-Test Over Toepan/Floorpan Center of Seat, Seat Cushion Height

Post-Test Over Toepan/Floorpan Center of Seat, Seat Cushion Height

Pre-Test Over Toepan/Floorpan Right of Seat, Seat Cushion Height

Post-Test Over Toepan/Floorpan Right of Seat, Seat Cushion Height

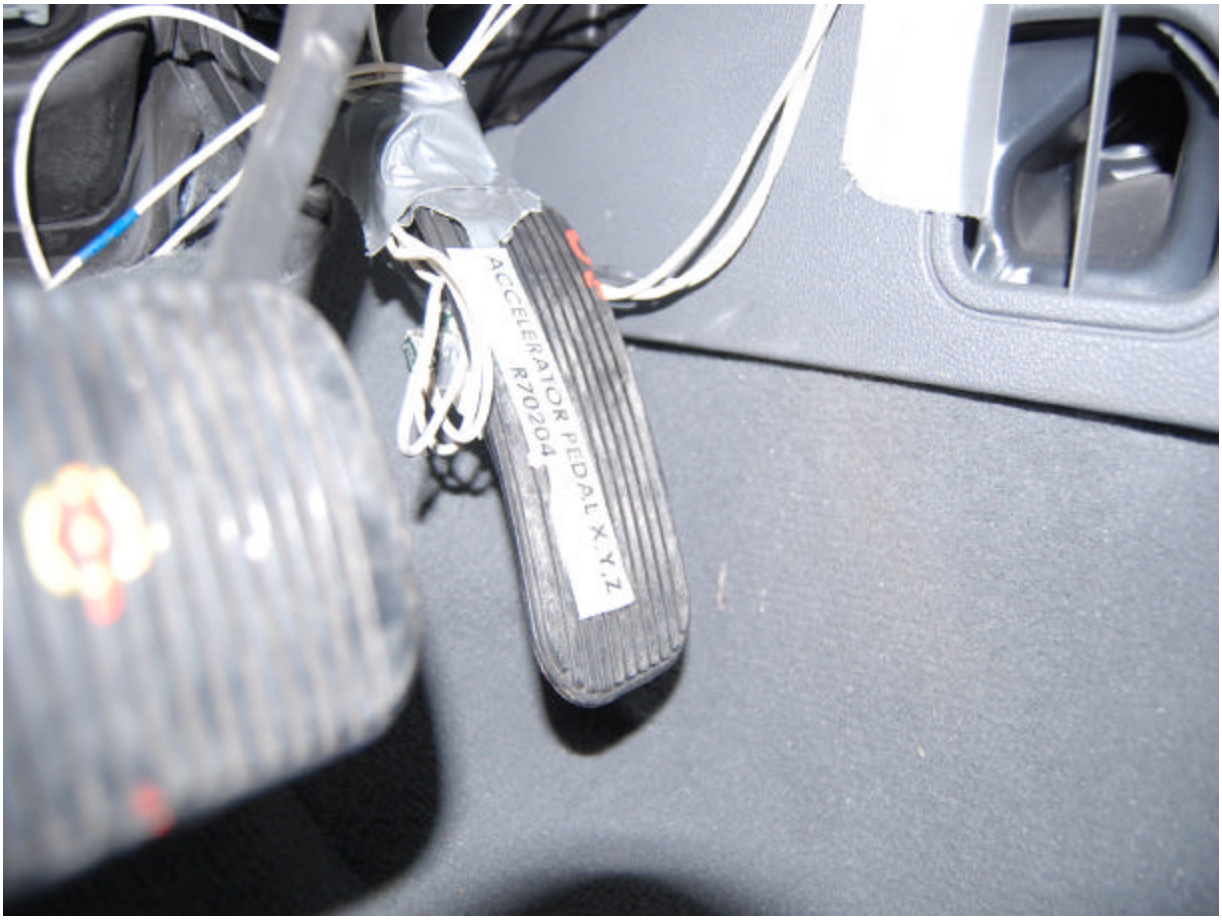
Pre-Test Footrest Seat Cushion Height



Post-Test Footrest Seat Cushion Height

Pre-Test Footrest Seat Sill Height

Post-Test Footrest Seat Sill Height



Pre-Test Accelerometer Pedal Close Up

Post-Test Accelerometer Pedal Close Up

Pre-Test Accelerometer Pedal Left Side View

Post-Test Accelerometer Pedal Left Side View

Pre-Test Right Side Floorpan, Right of Seat, Seat Cushion Height

Post-Test Right Side Floorpan, Right of Seat, Seat Cushion Height

Pre-Test Right Side Floorpan, Right of Seat, Sill Cushion Height

Post-Test Right Side Floorpan, Right of Seat, Sill Cushion Height

Pre-Test Right Side Floorpan, Center of Seat, Seat Cushion Height

Post-Test Right Side Floorpan, Center of Seat, Seat Cushion Height

Pre-Test Right Side Floorpan, Left of Seat

Post-Test Right Side Floorpan, Left of Seat

Pre-Test Front View of CRS

Post-Test Front View of CRS

Pre-Test Rear View of CRS

Post-Test Rear View of CRS

Pre-Test Left Side View of CRS

Post-Test Left Side View of CRS

Pre-Test Right Side View of CRS

Post-Test Right Side View of CRS

APPENDIX B

DUMMY, VEHICLE AND BARRIER DATA PLOTS

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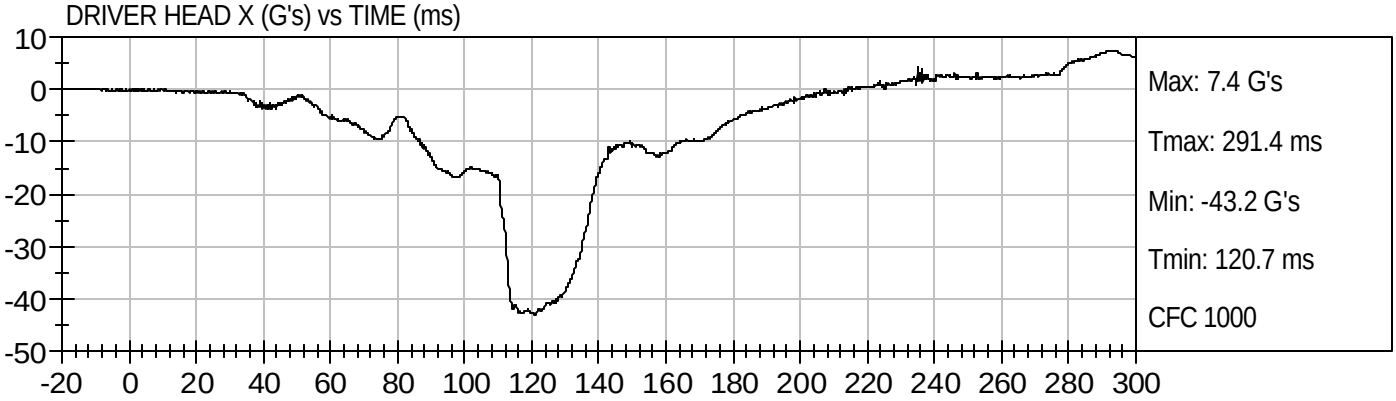
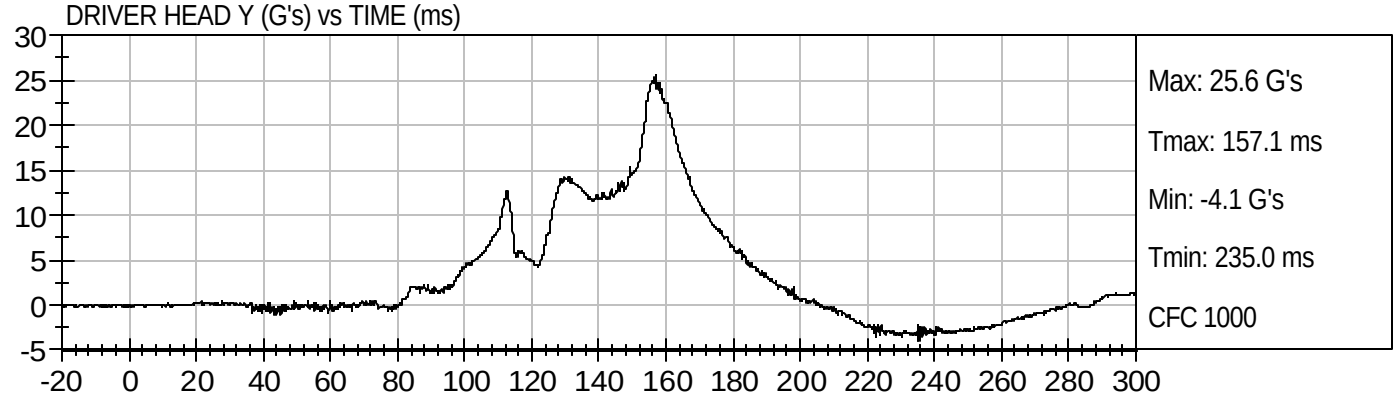
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

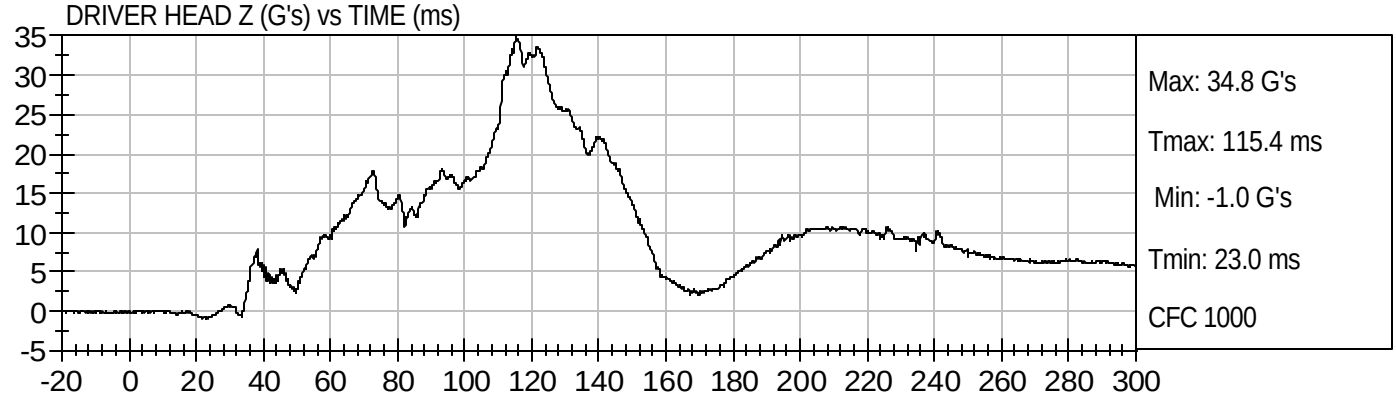
DRIVER HEAD X (G's) vs TIME (ms)



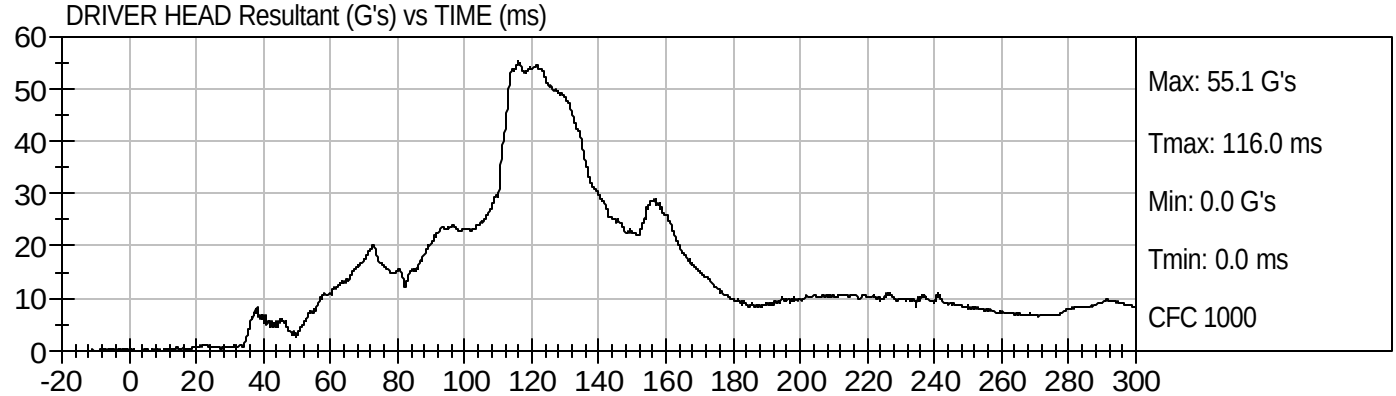
DRIVER HEAD Y (G's) vs TIME (ms)



DRIVER HEAD Z (G's) vs TIME (ms)

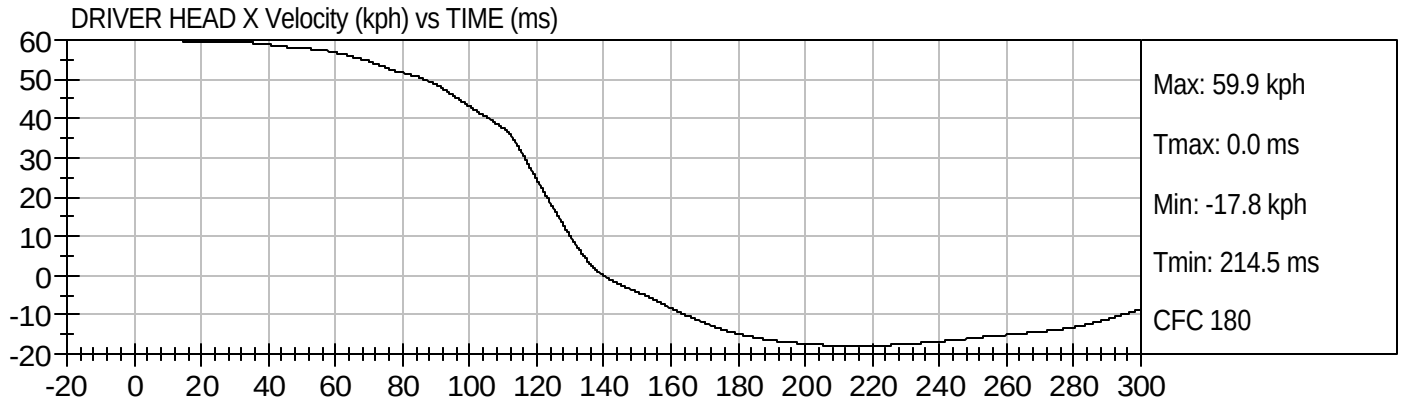


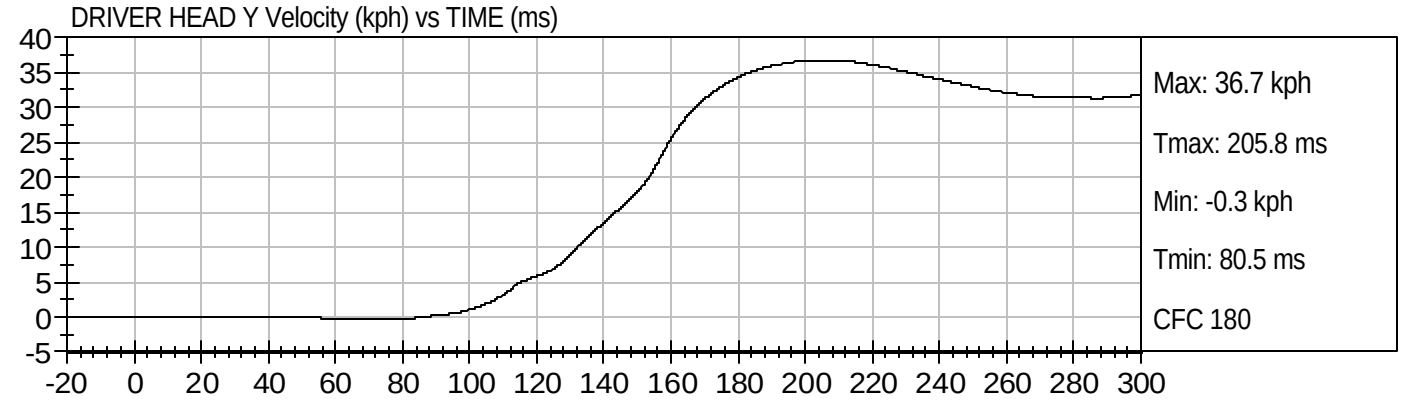
DRIVER HEAD Resultant (G's) vs TIME (ms)

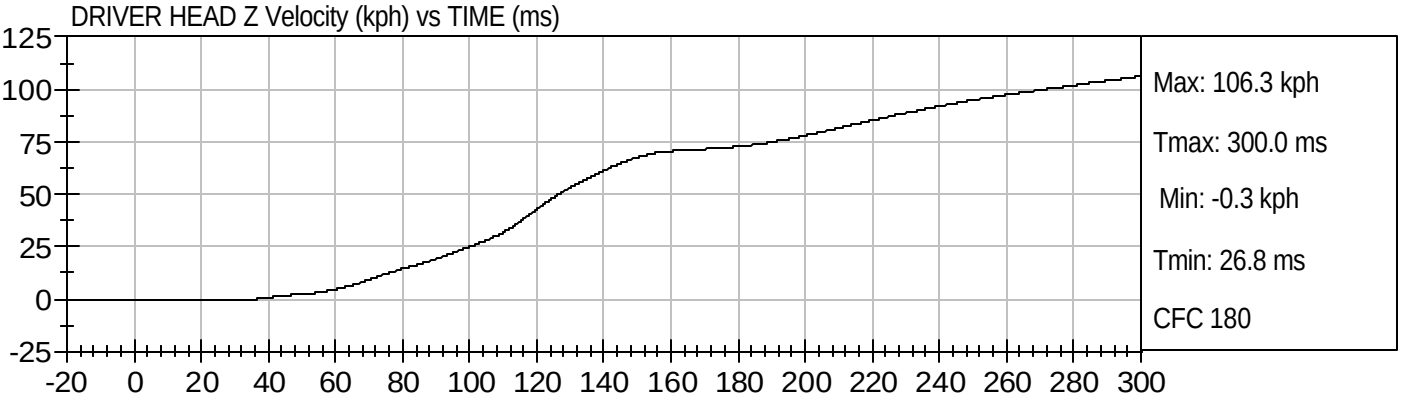


NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



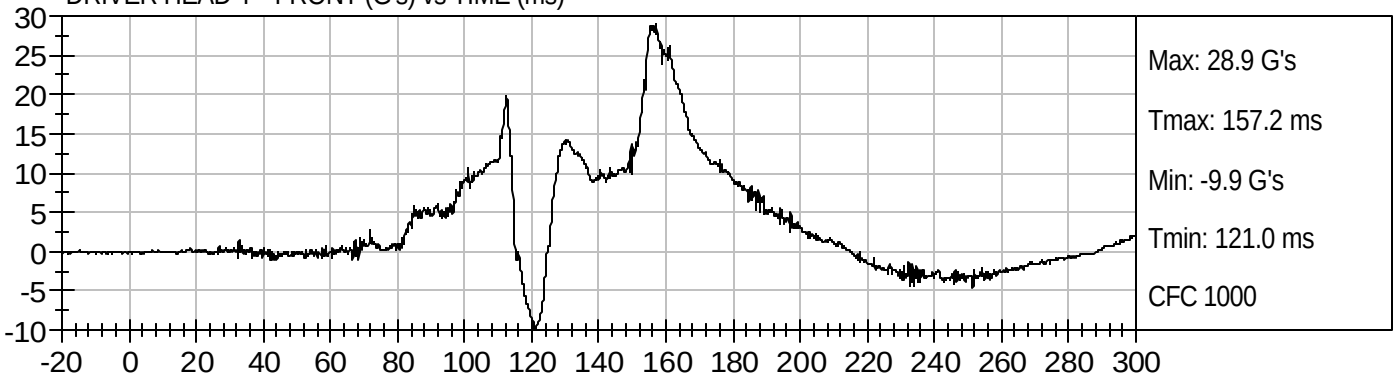




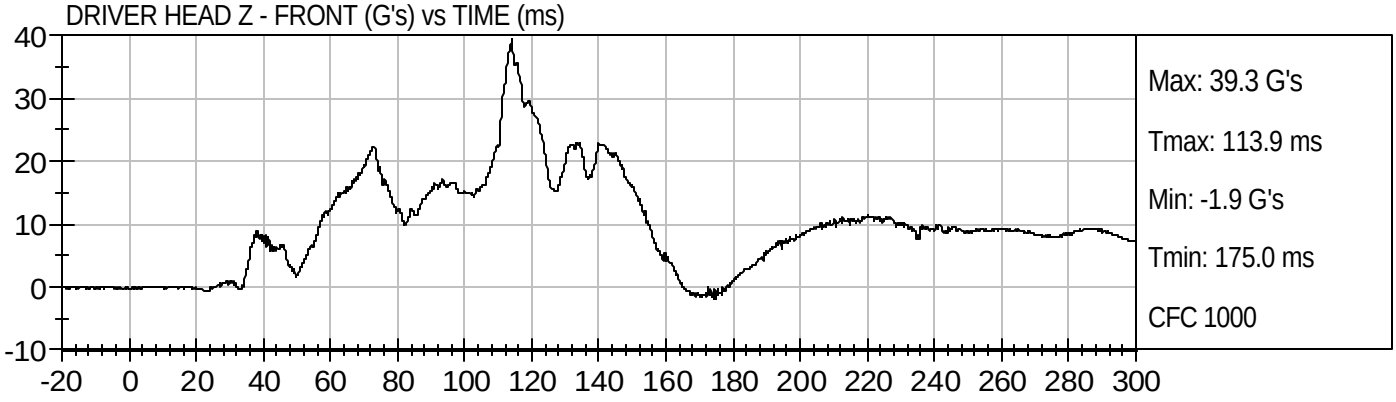
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

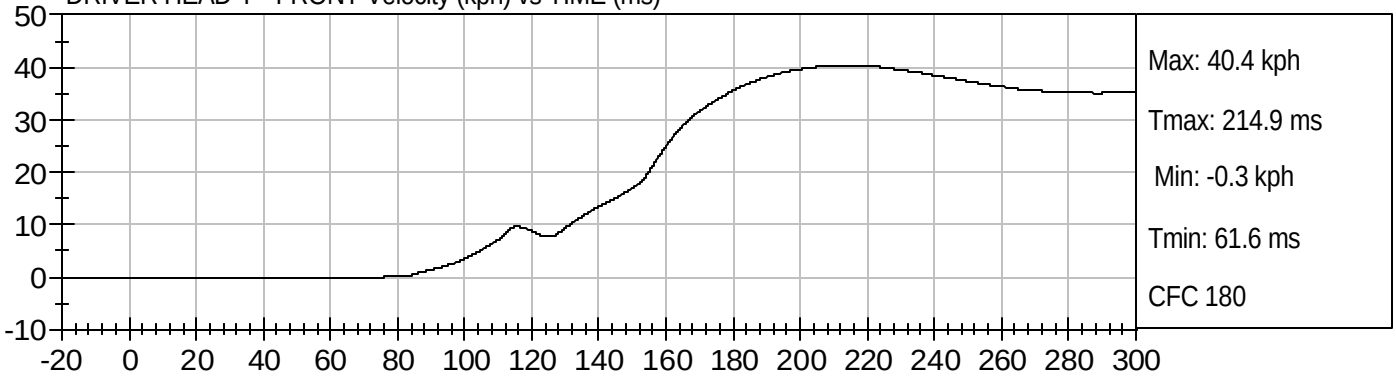
DRIVER HEAD Y - FRONT (G's) vs TIME (ms)



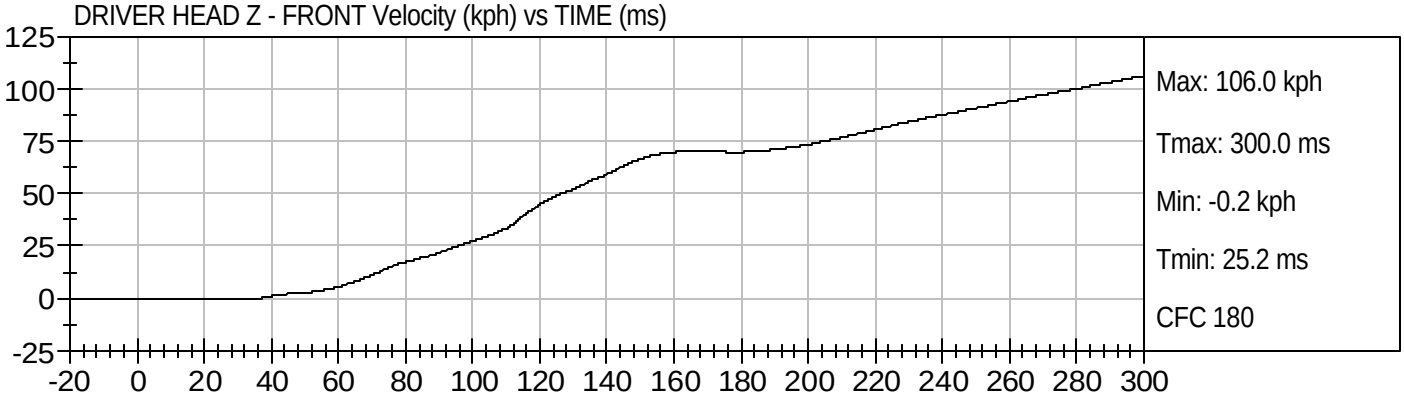
DRIVER HEAD Z - FRONT (G's) vs TIME (ms)



DRIVER HEAD Y - FRONT Velocity (kph) vs TIME (ms)



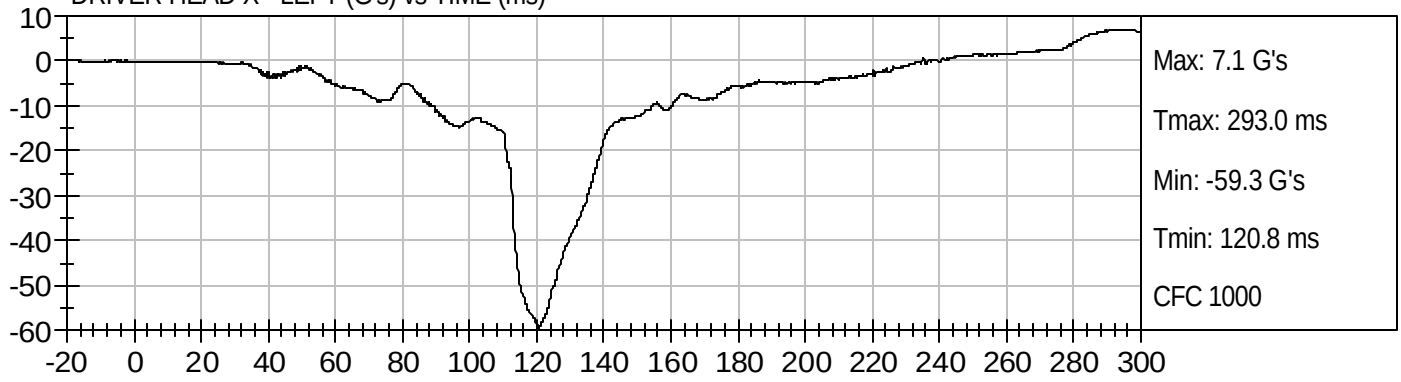
DRIVER HEAD Z - FRONT Velocity (kph) vs TIME (ms)



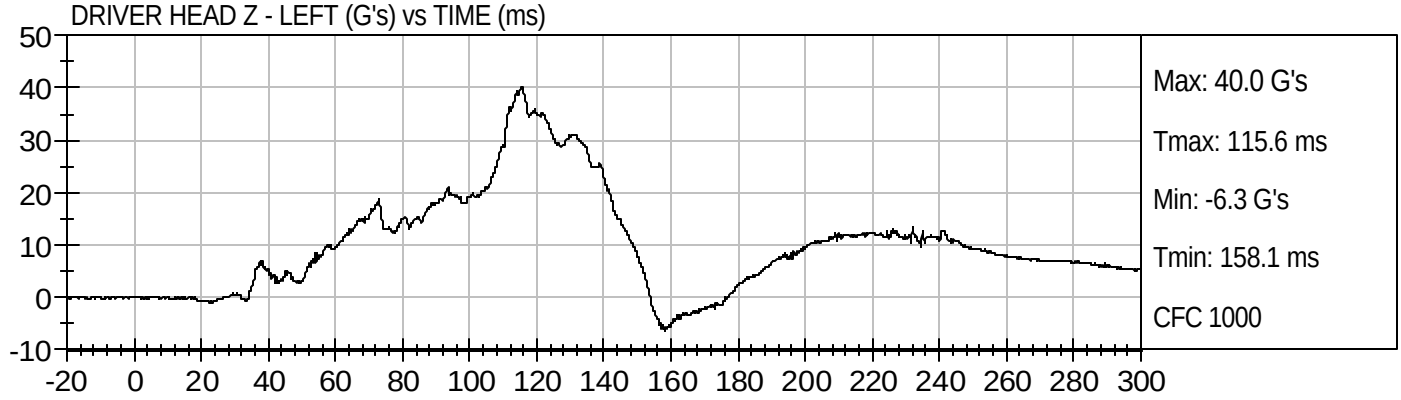
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

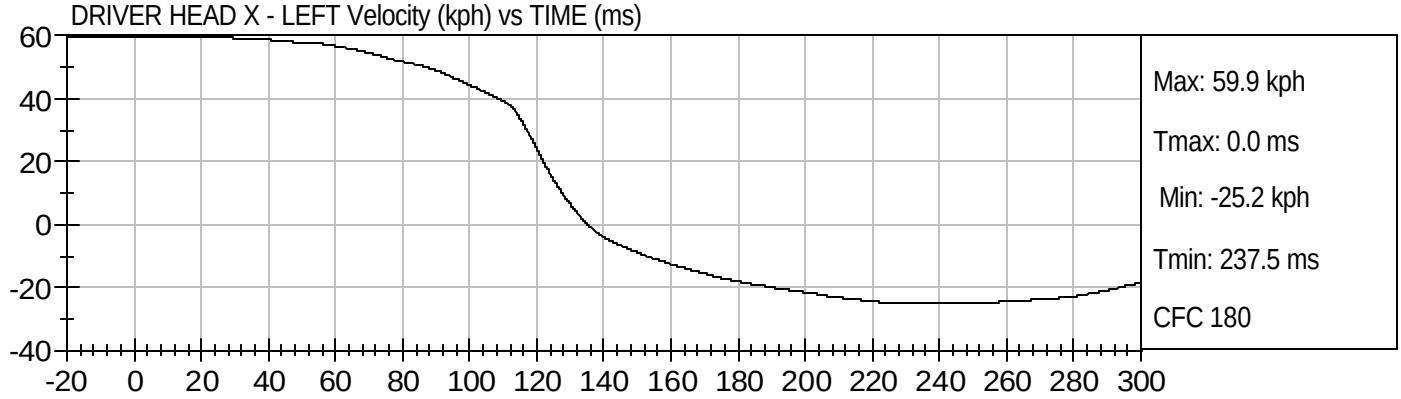
DRIVER HEAD X - LEFT (G's) vs TIME (ms)



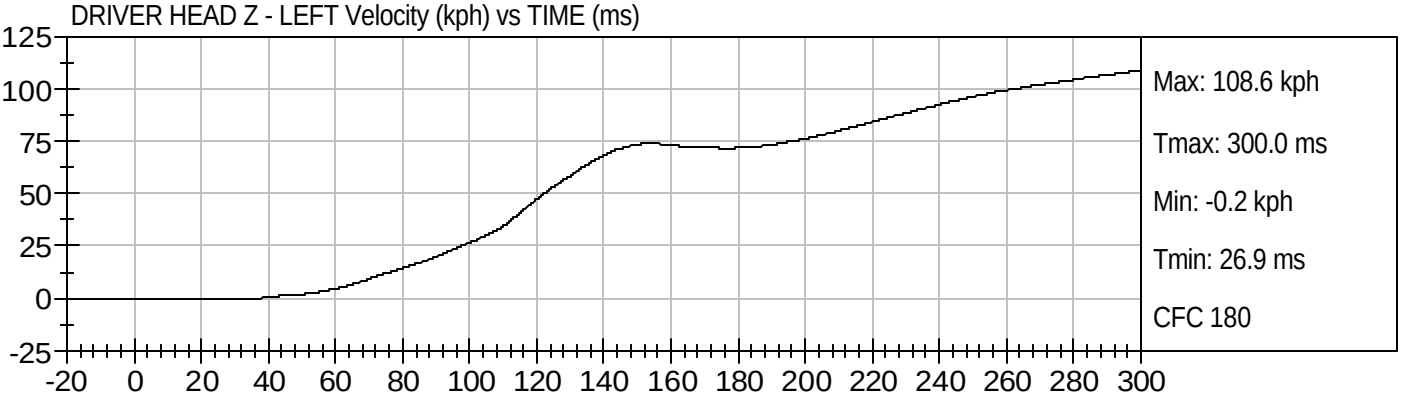
DRIVER HEAD Z - LEFT (G's) vs TIME (ms)



DRIVER HEAD X - LEFT Velocity (kph) vs TIME (ms)



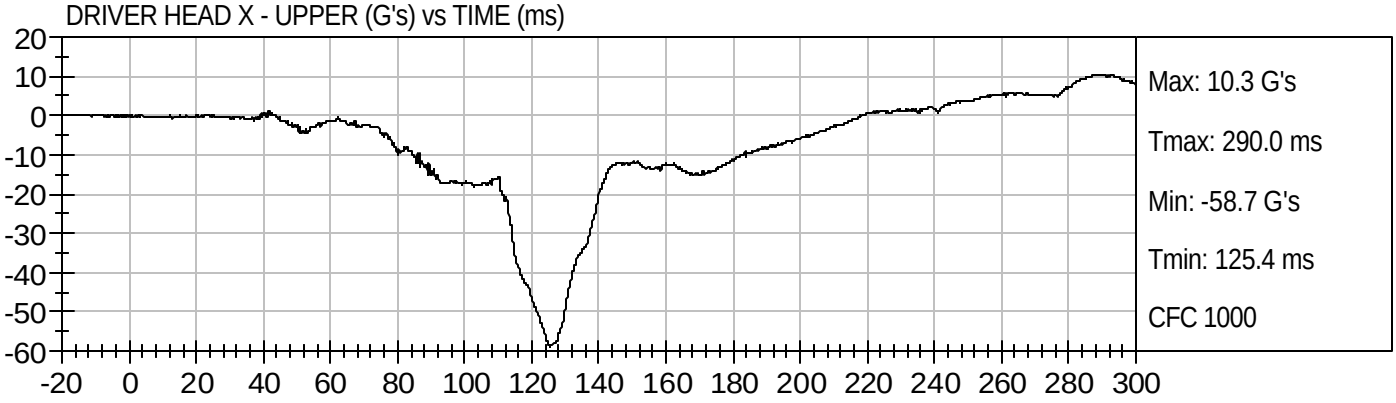
DRIVER HEAD Z - LEFT Velocity (kph) vs TIME (ms)



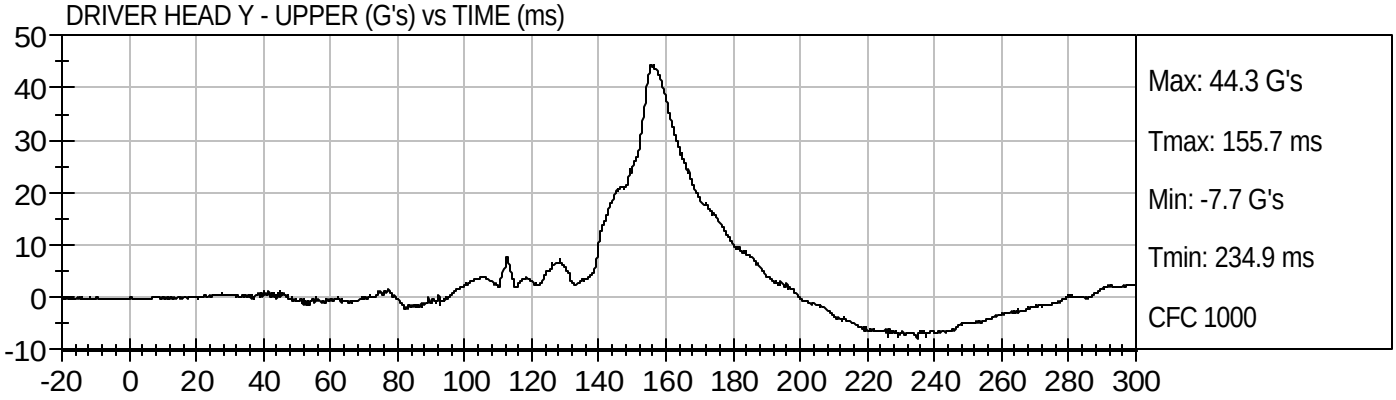
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

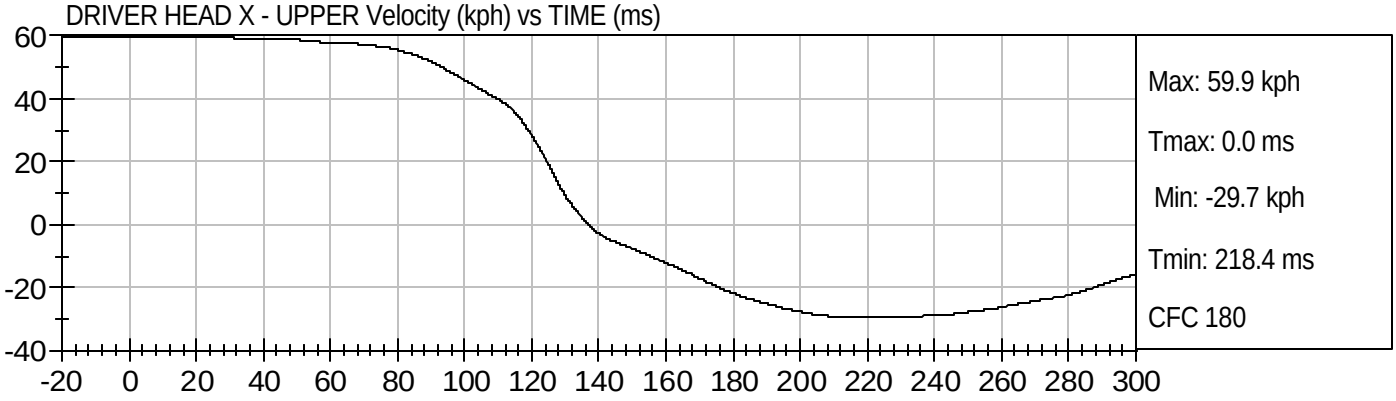
DRIVER HEAD X - UPPER (G's) vs TIME (ms)



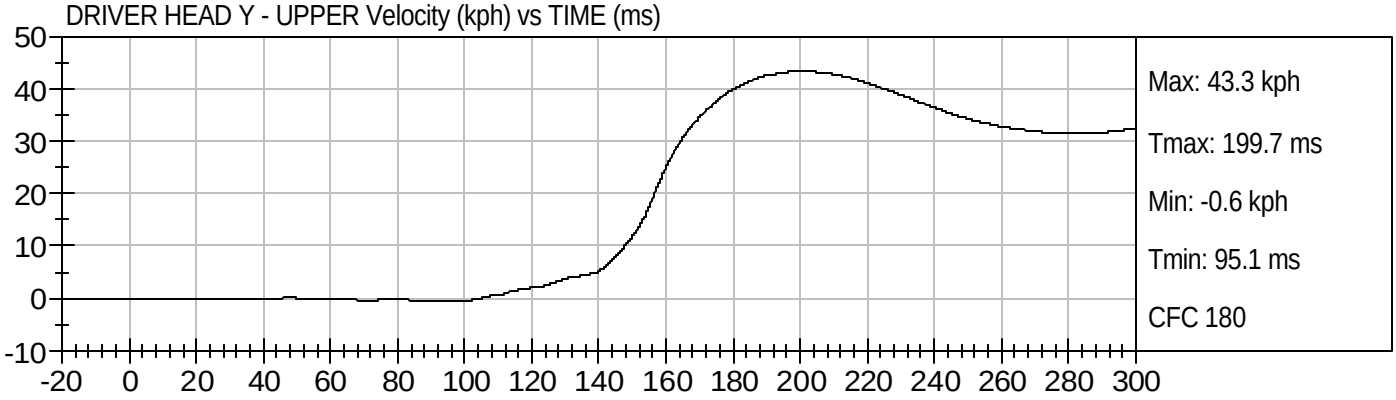
DRIVER HEAD Y - UPPER (G's) vs TIME (ms)



DRIVER HEAD X - UPPER Velocity (kph) vs TIME (ms)



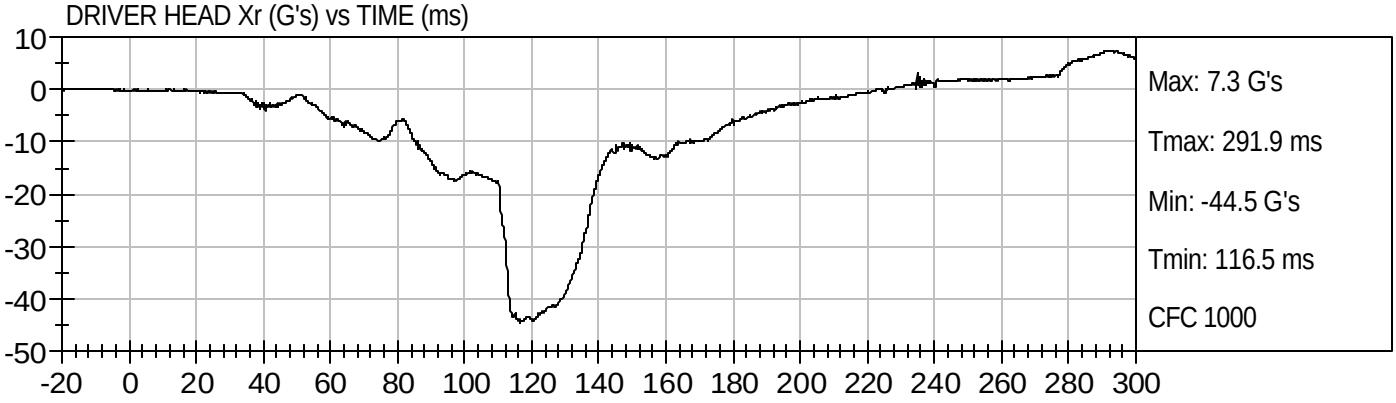
DRIVER HEAD Y - UPPER Velocity (kph) vs TIME (ms)



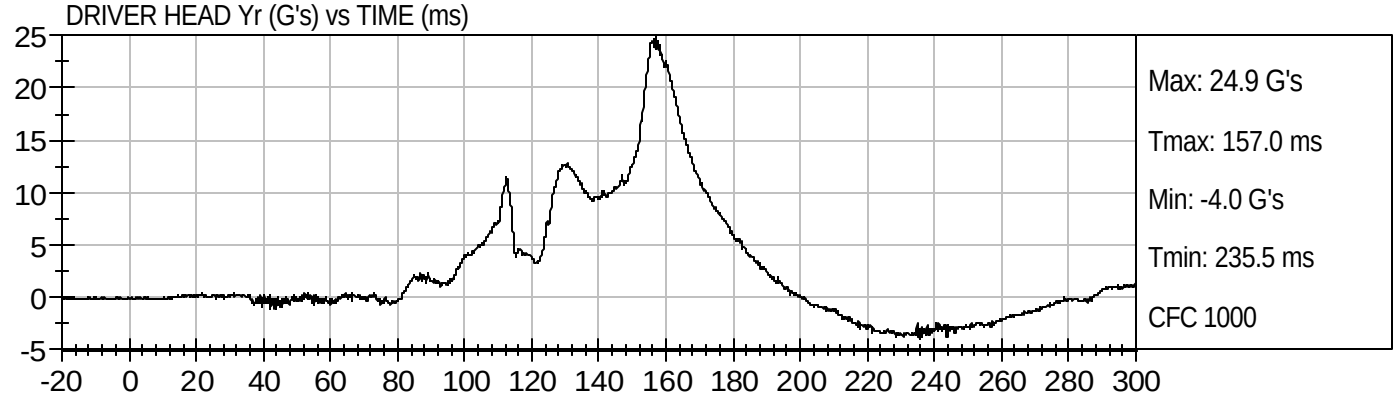
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

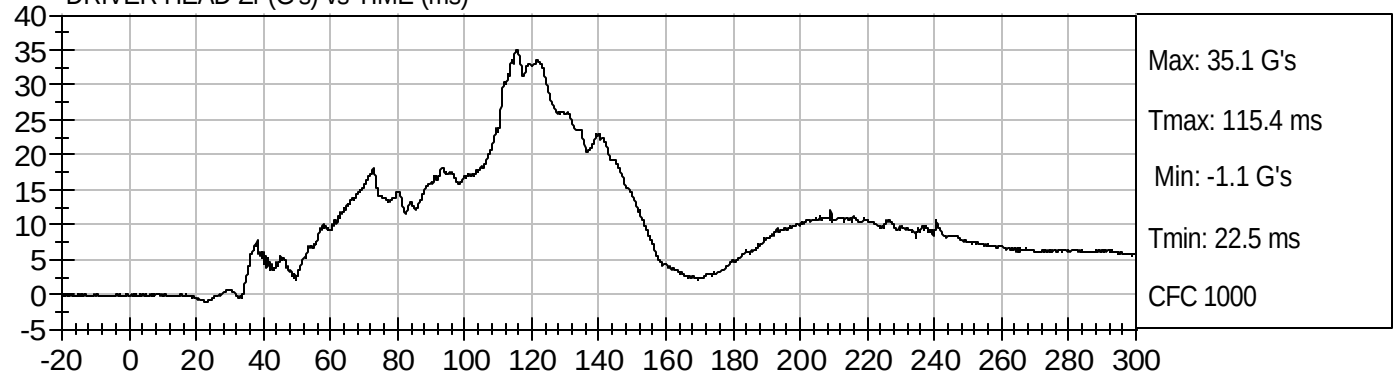
DRIVER HEAD Xr (G's) vs TIME (ms)



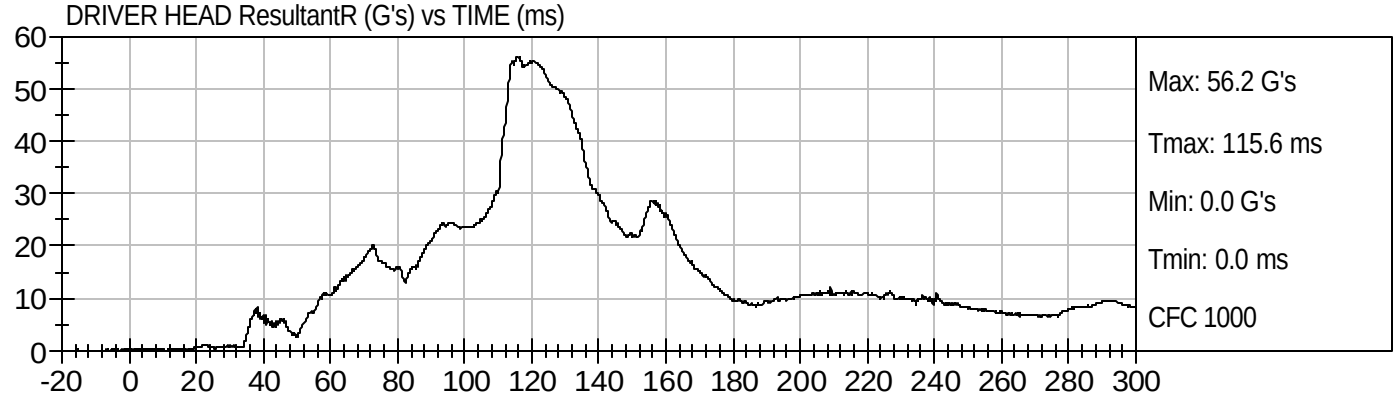
DRIVER HEAD Yr (G's) vs TIME (ms)



DRIVER HEAD Zr (G's) vs TIME (ms)

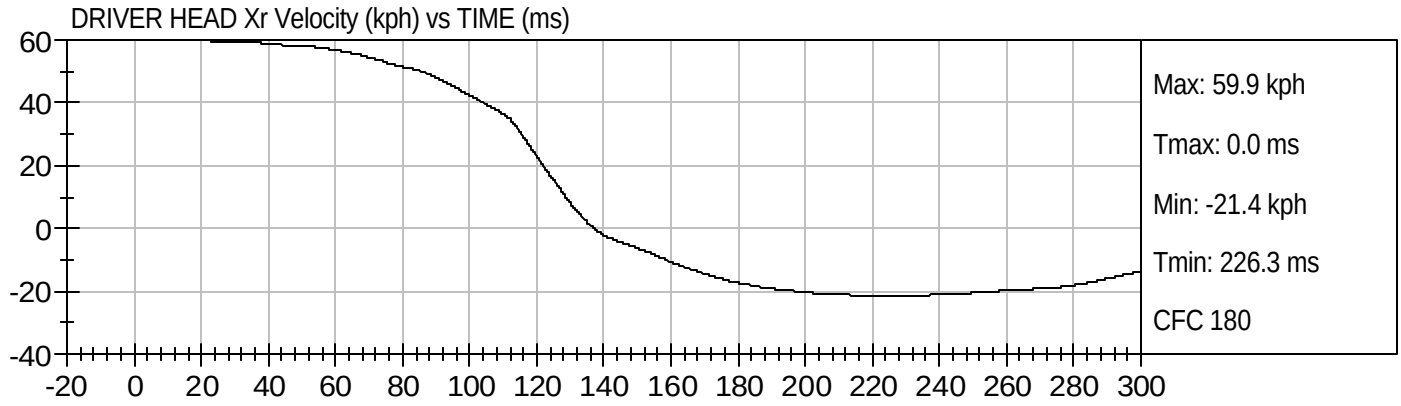


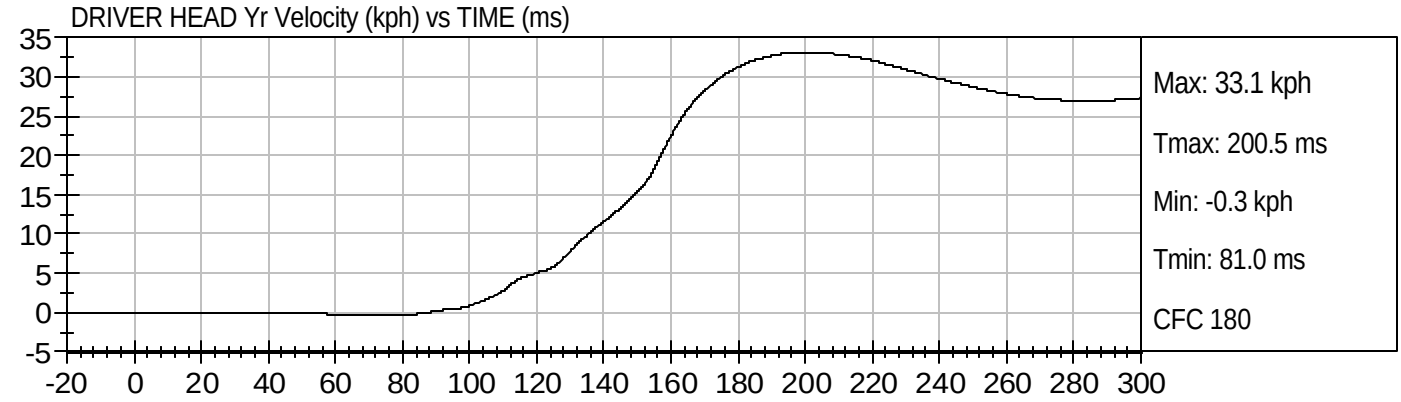
DRIVER HEAD ResultantR (G's) vs TIME (ms)

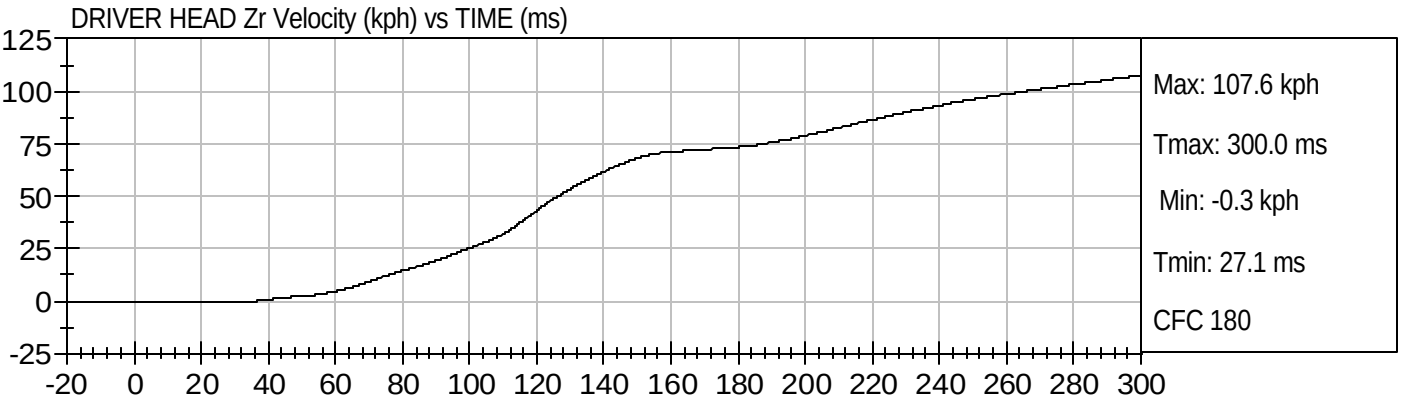


NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



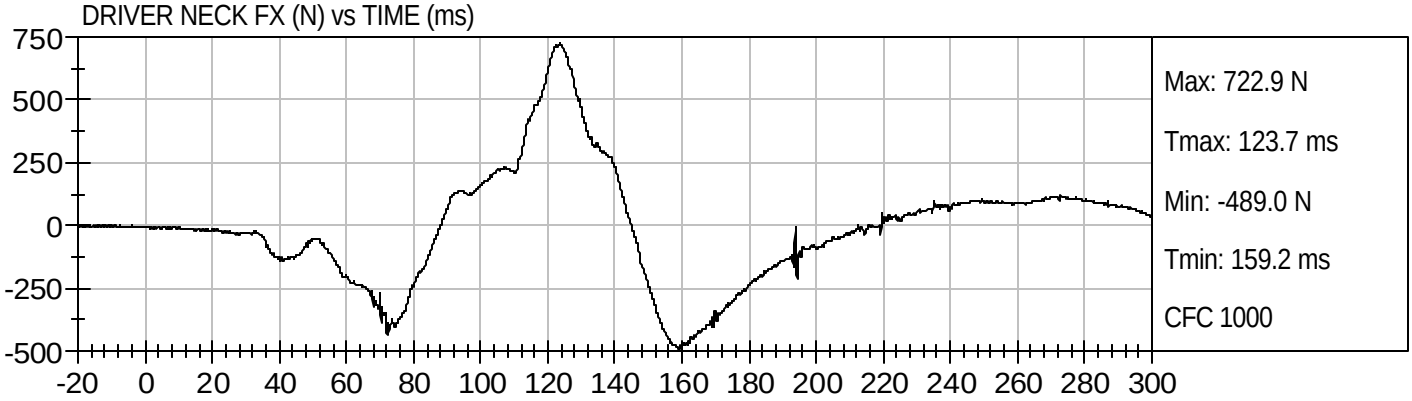




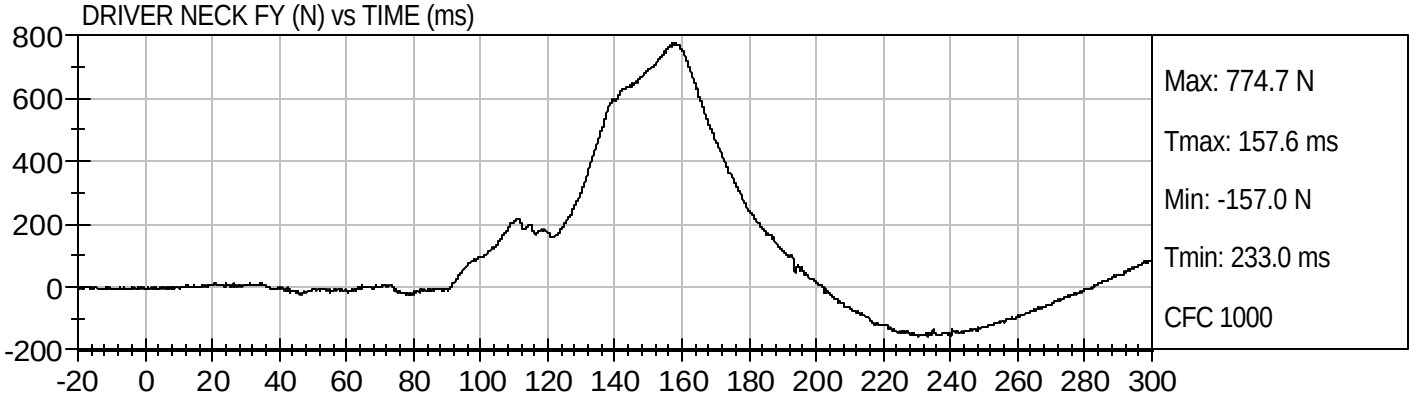
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

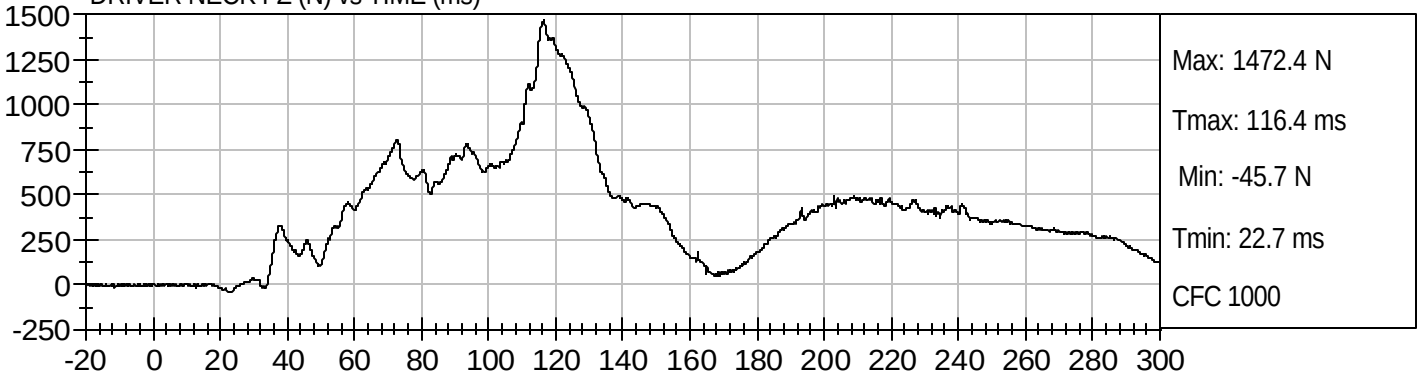
DRIVER NECK FX (N) vs TIME (ms)



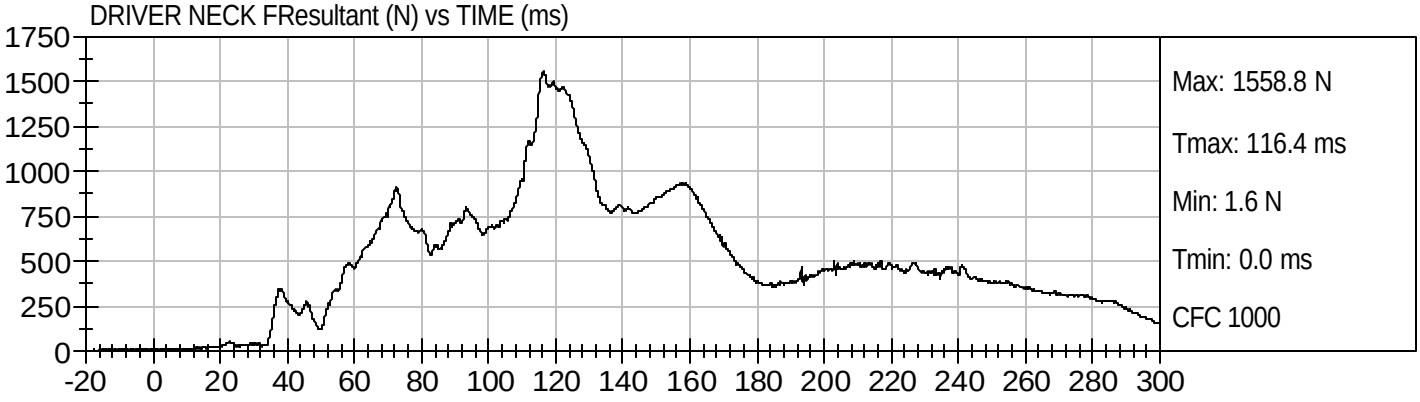
DRIVER NECK FY (N) vs TIME (ms)



DRIVER NECK FZ (N) vs TIME (ms)



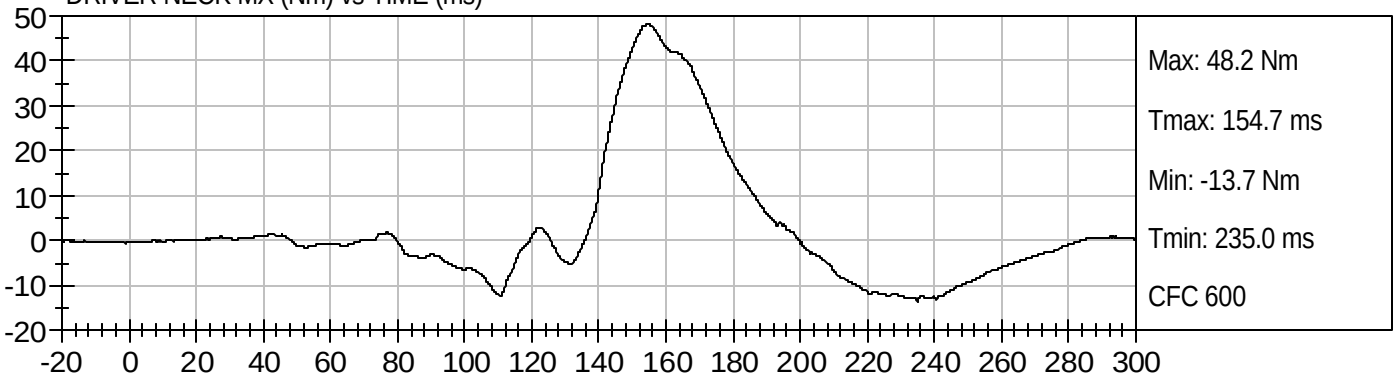
DRIVER NECK FResultant (N) vs TIME (ms)



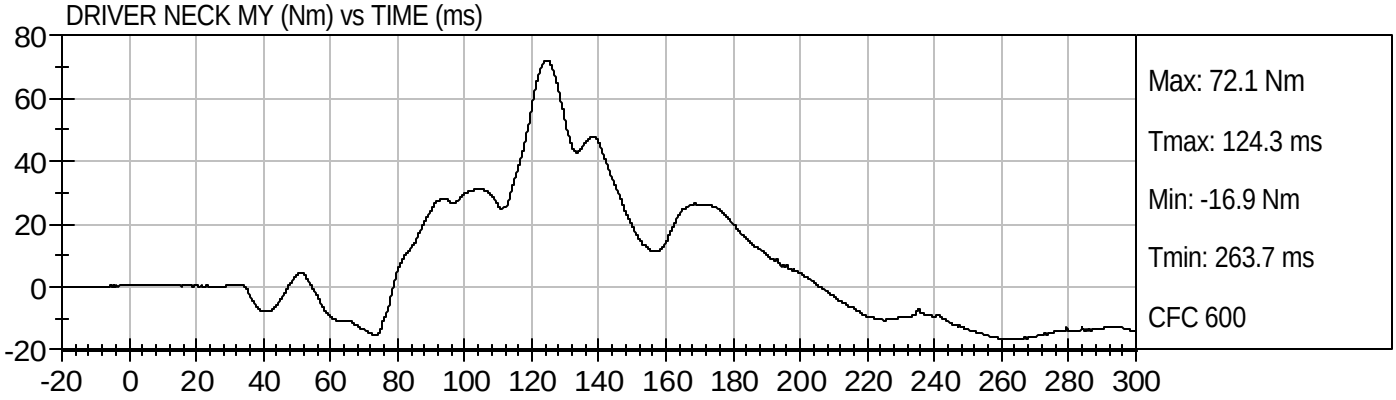
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

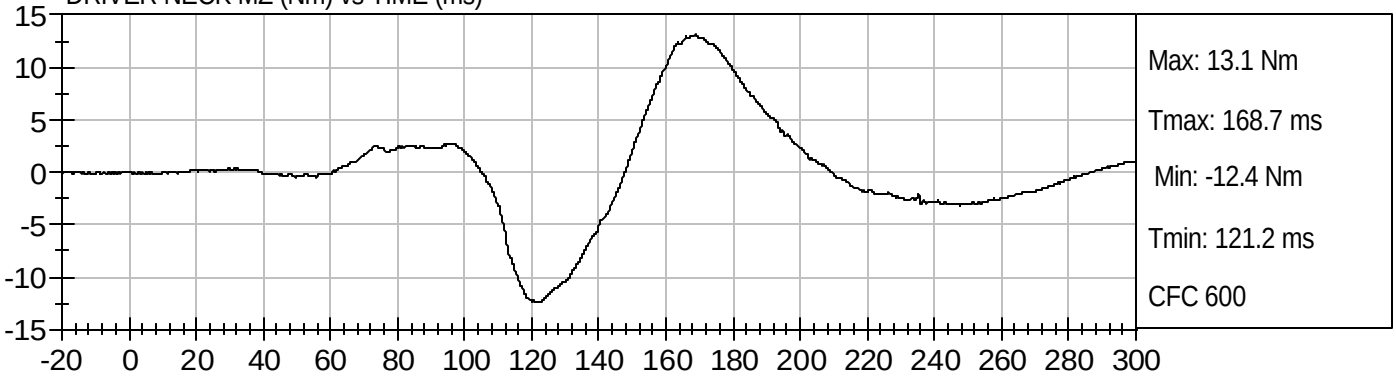
DRIVER NECK MX (Nm) vs TIME (ms)



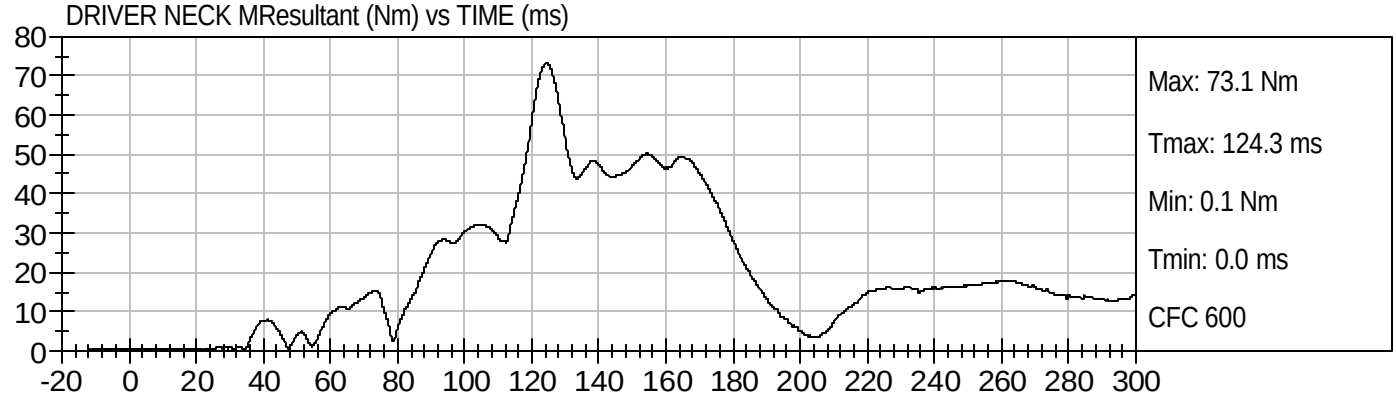
DRIVER NECK MY (Nm) vs TIME (ms)



DRIVER NECK MZ (Nm) vs TIME (ms)



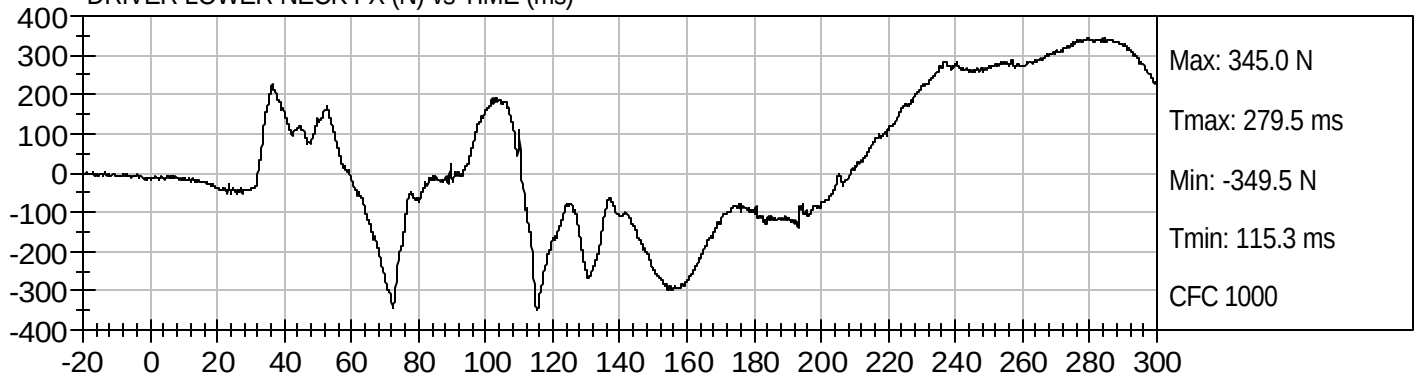
DRIVER NECK MResultant (Nm) vs TIME (ms)



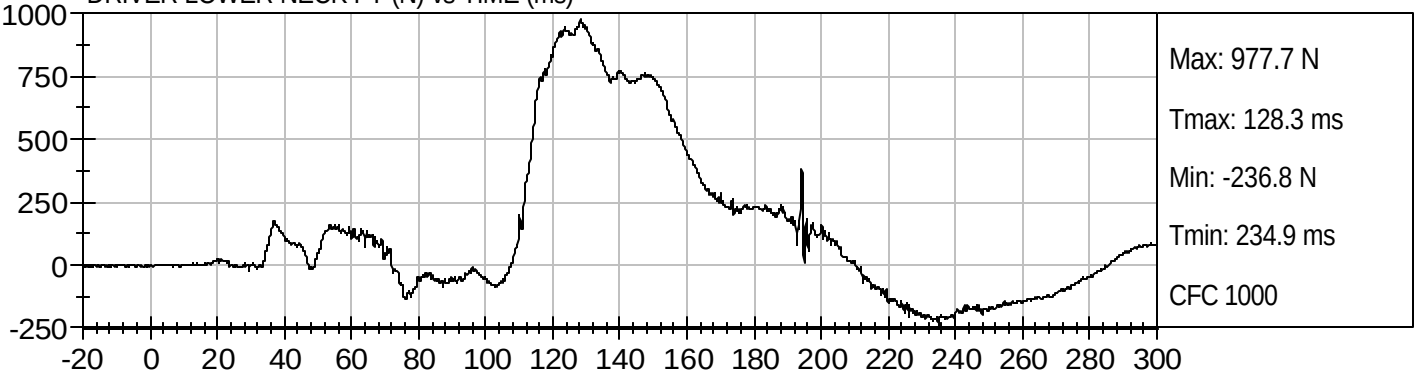
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

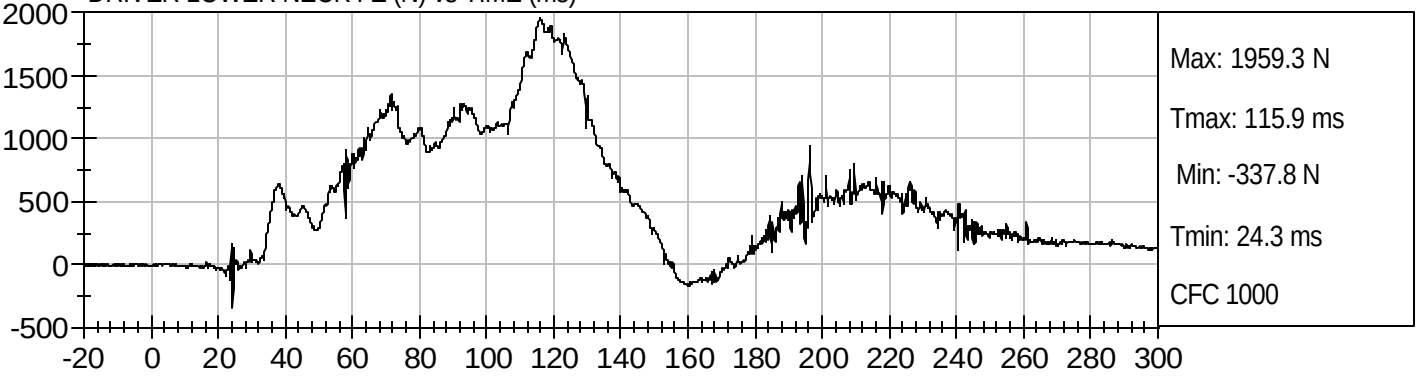
DRIVER LOWER NECK FX (N) vs TIME (ms)



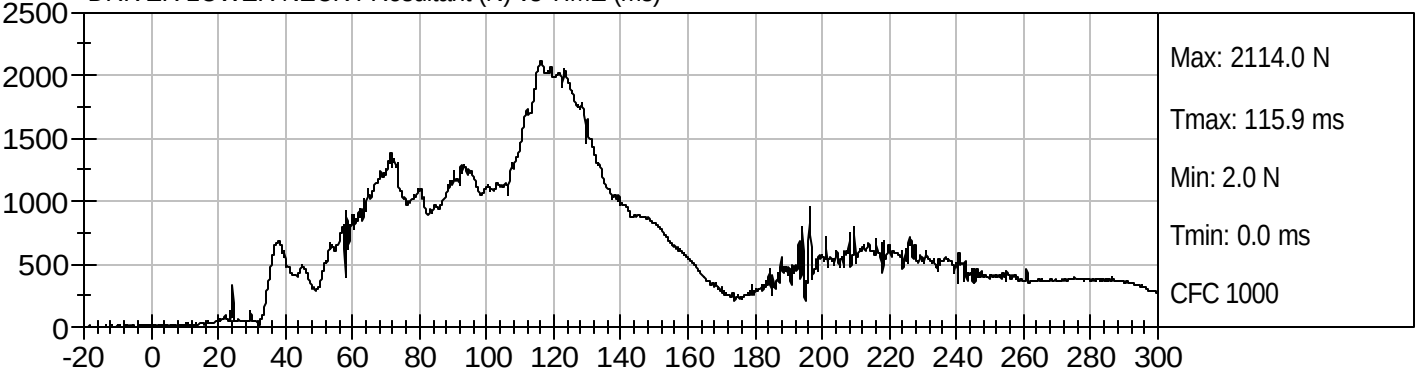
DRIVER LOWER NECK FY (N) vs TIME (ms)



DRIVER LOWER NECK FZ (N) vs TIME (ms)



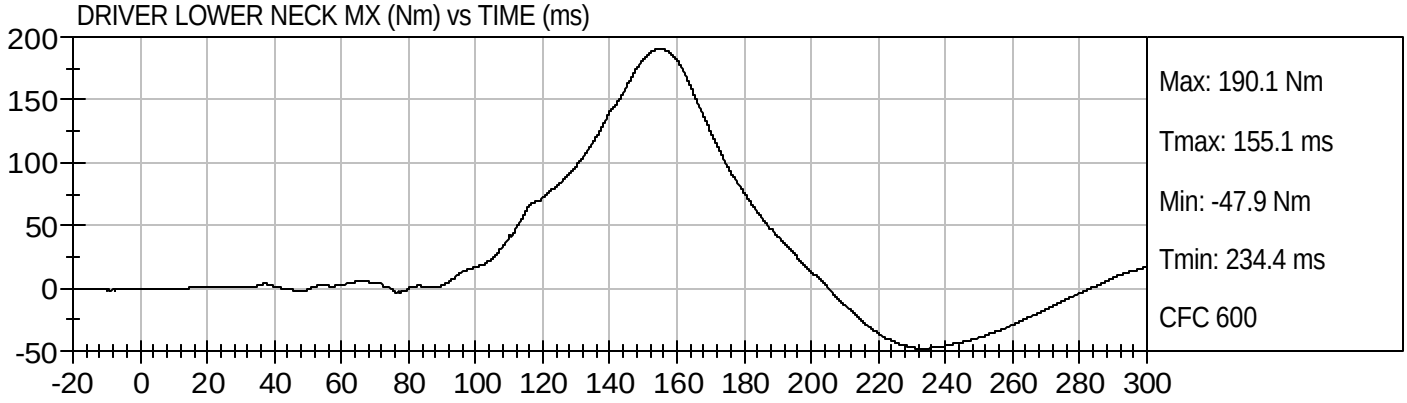
DRIVER LOWER NECK FResultant (N) vs TIME (ms)



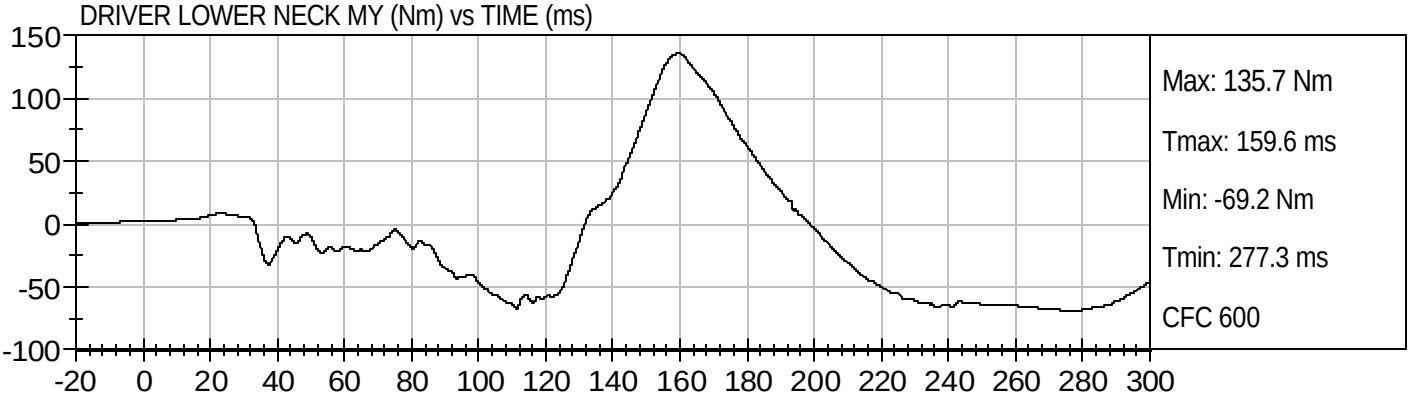
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

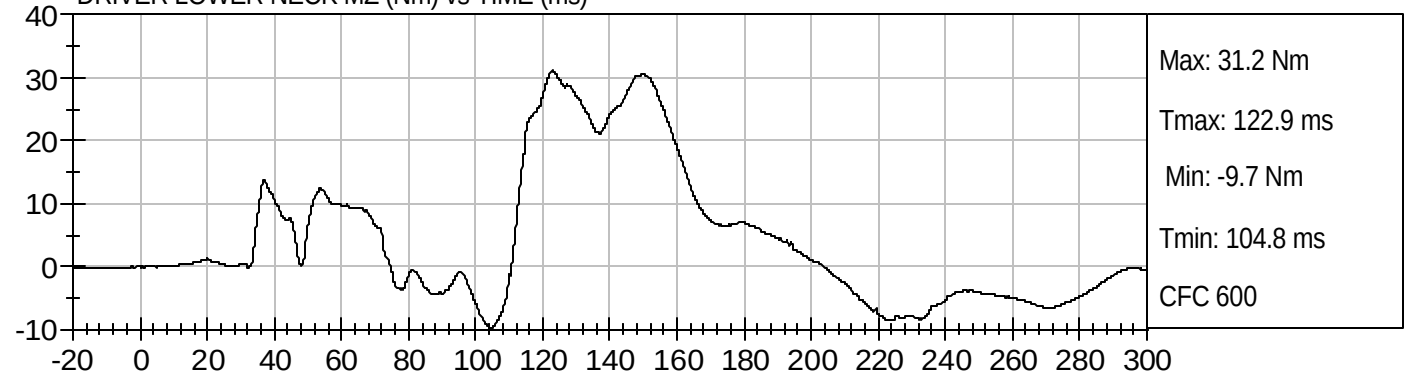
DRIVER LOWER NECK MX (Nm) vs TIME (ms)



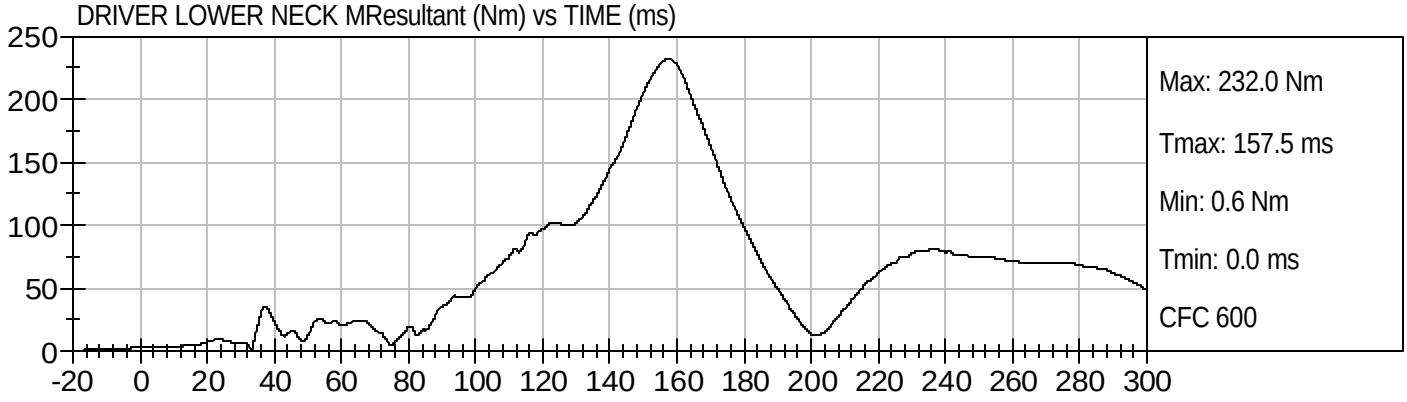
DRIVER LOWER NECK MY (Nm) vs TIME (ms)



DRIVER LOWER NECK MZ (Nm) vs TIME (ms)

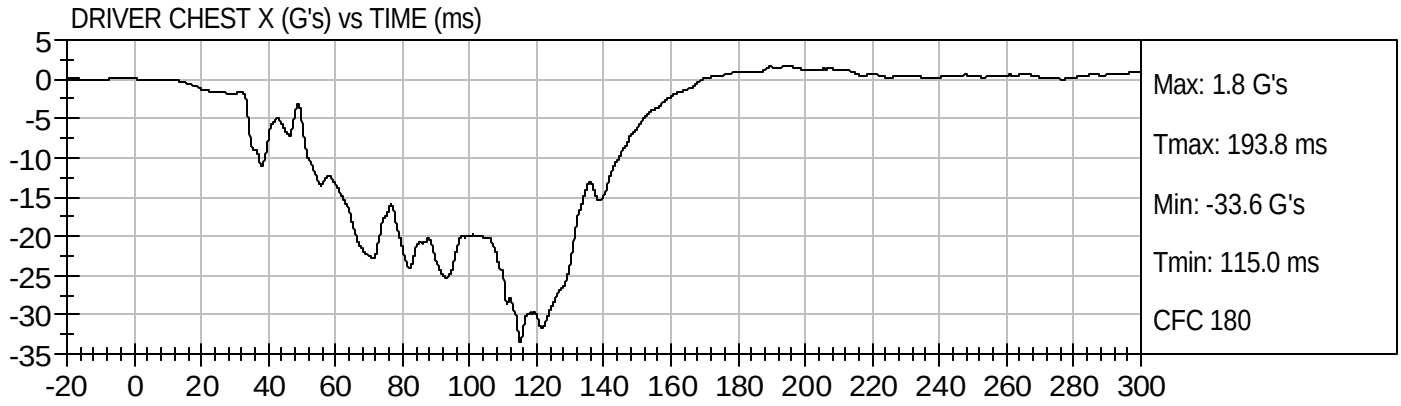


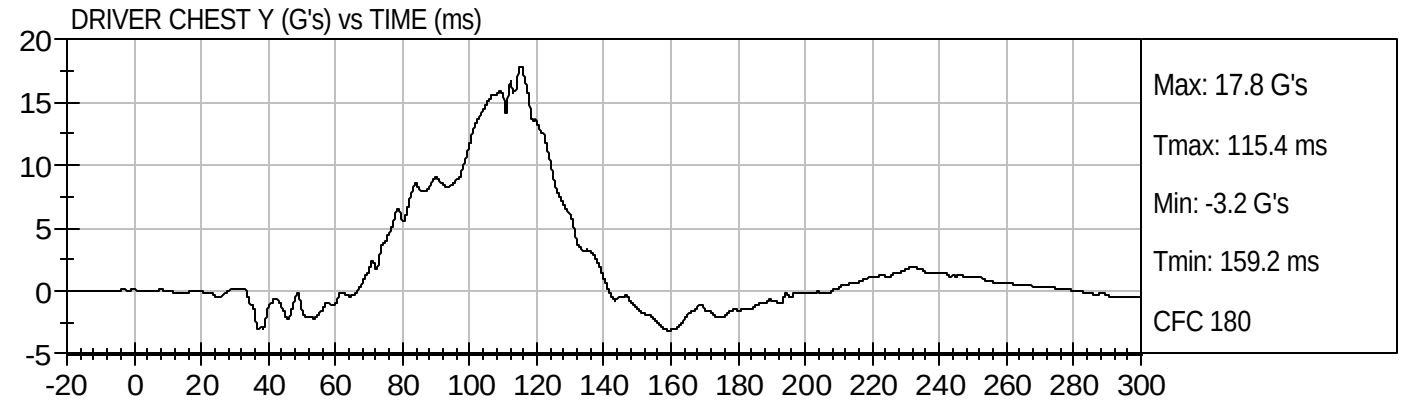
DRIVER LOWER NECK MResultant (Nm) vs TIME (ms)

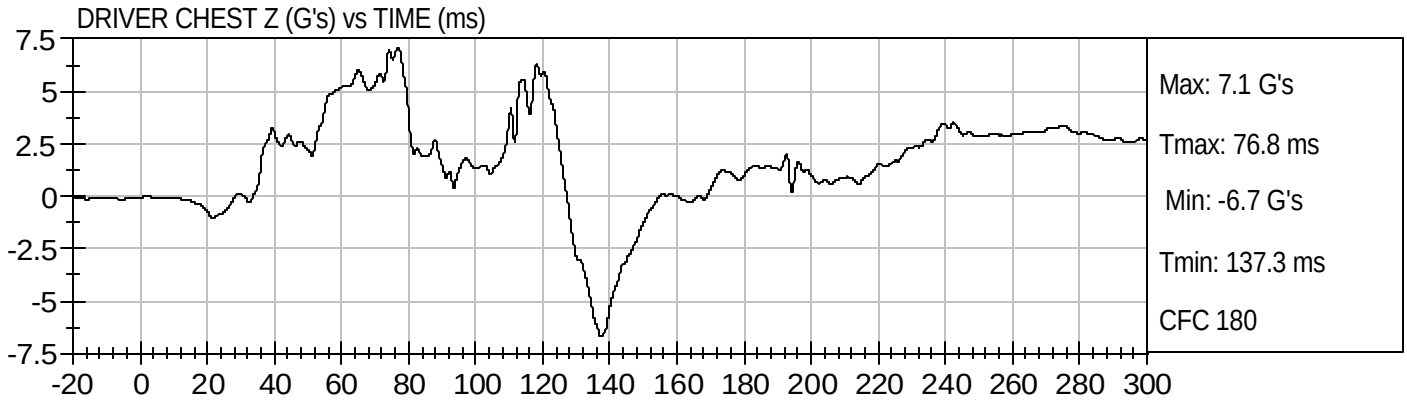


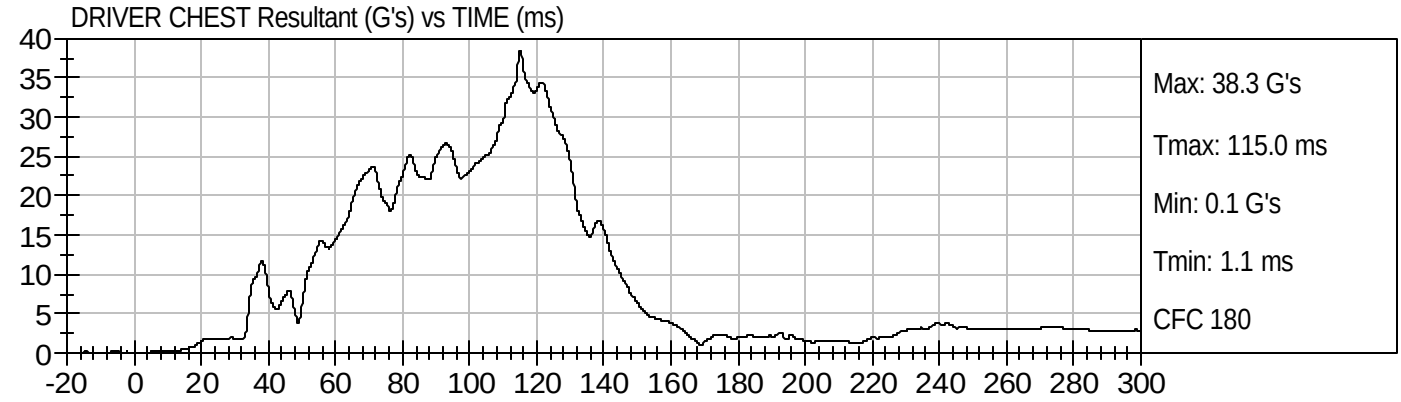
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



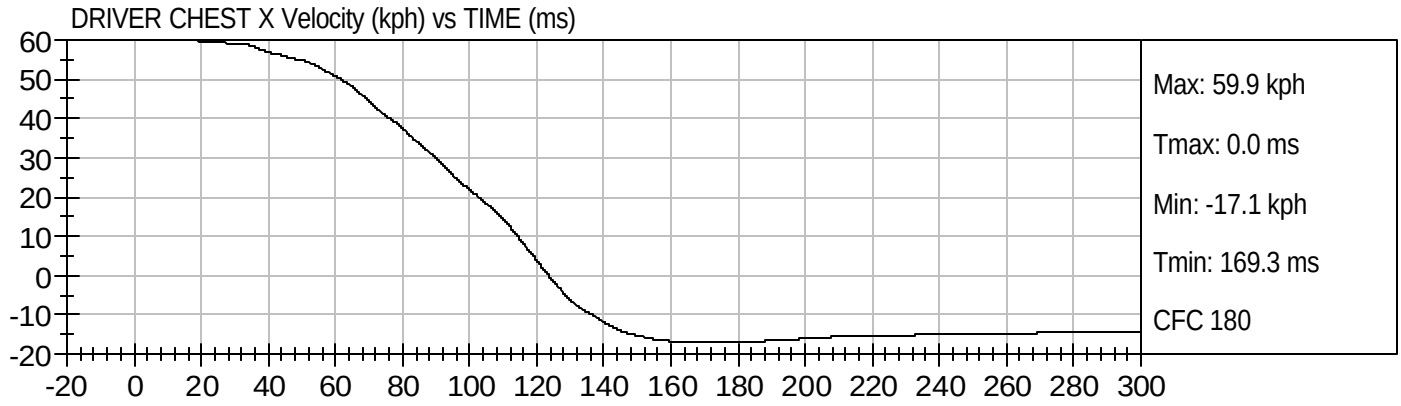


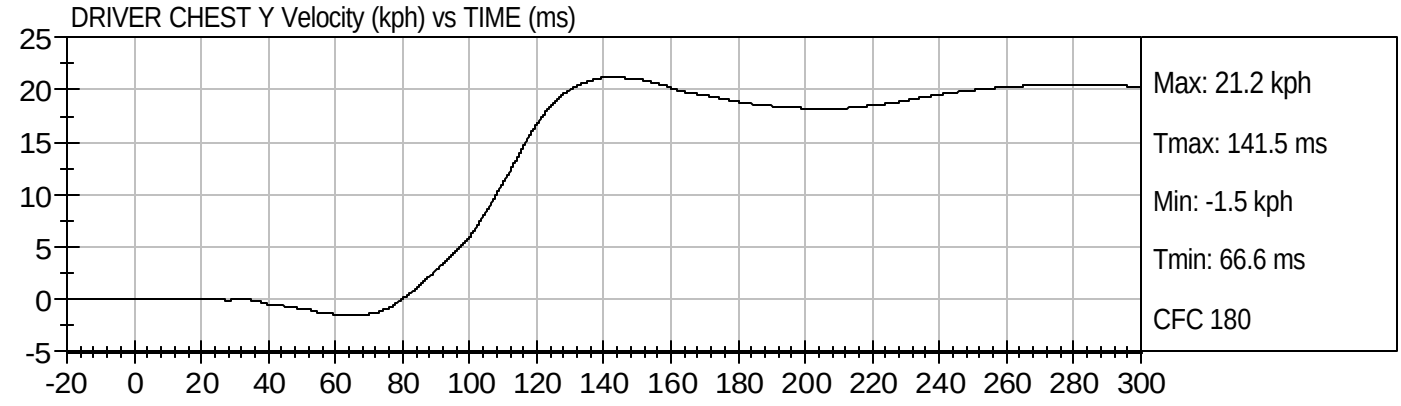


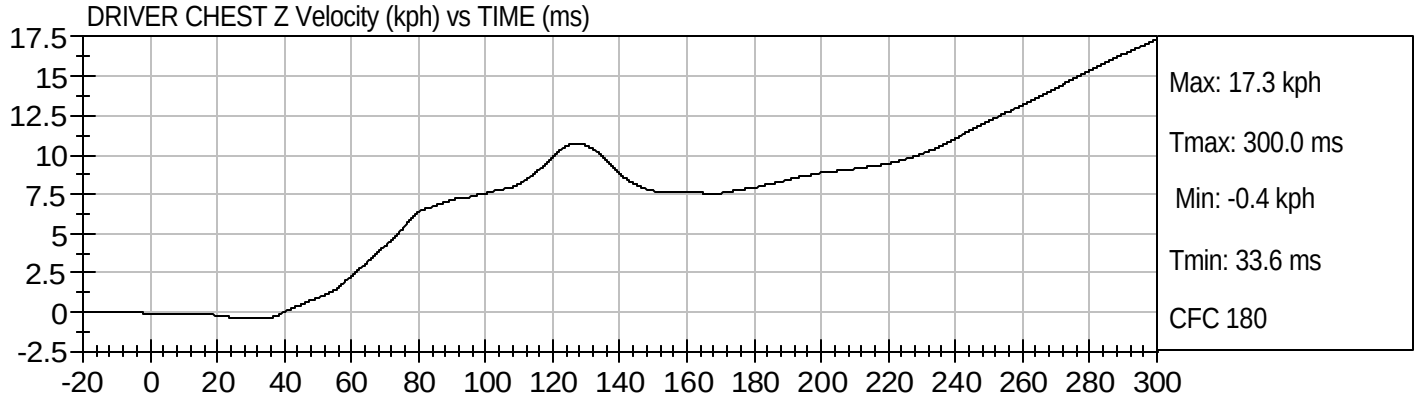


NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



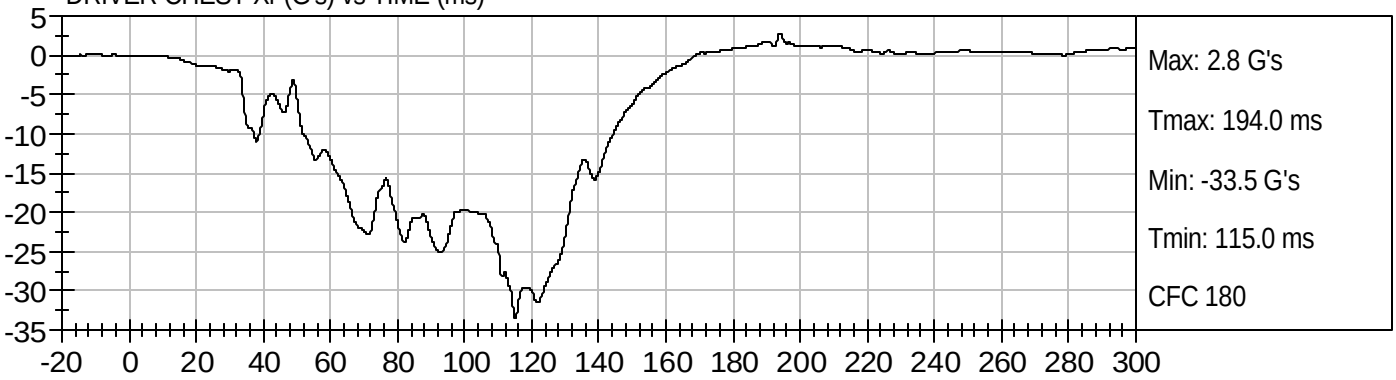




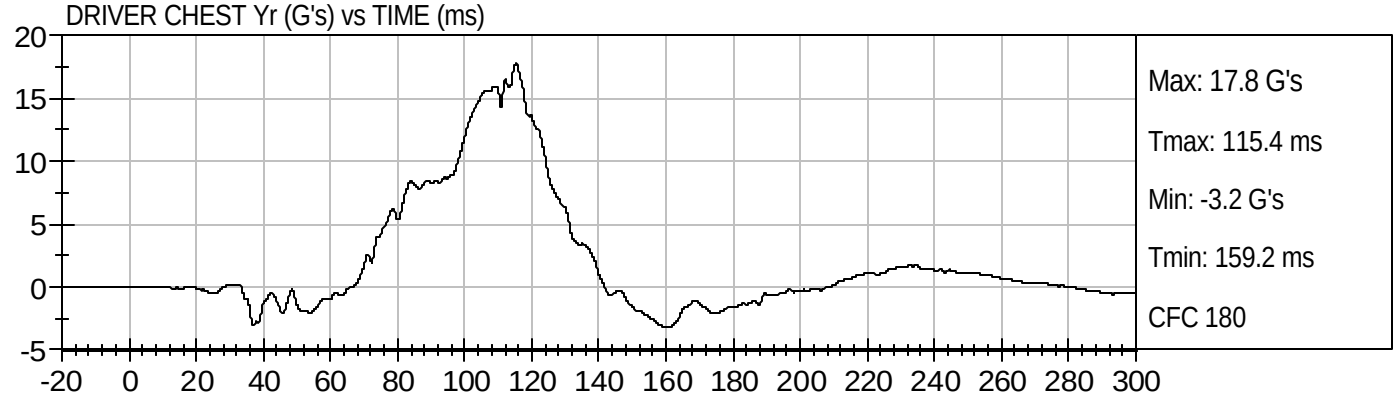
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

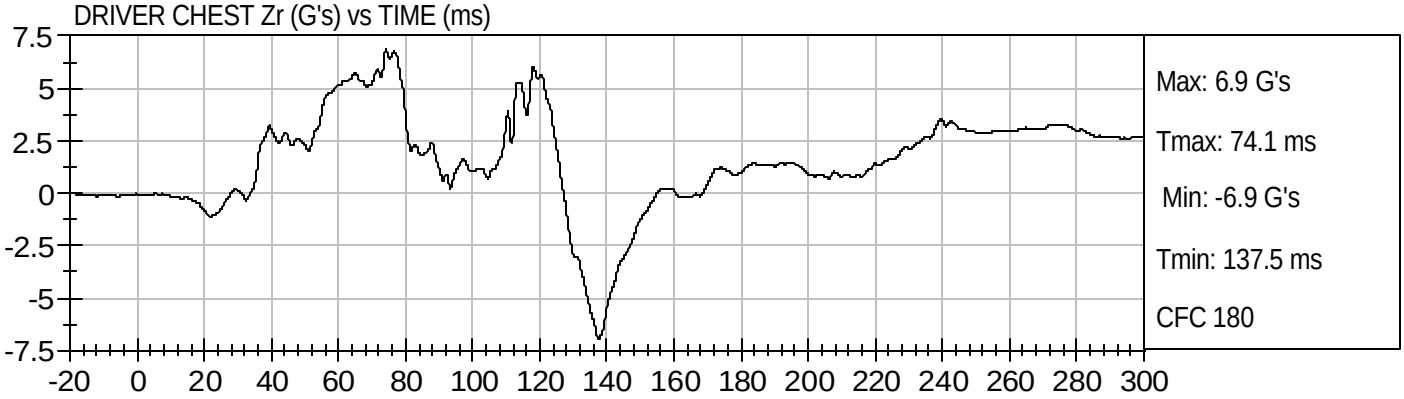
DRIVER CHEST Xr (G's) vs TIME (ms)



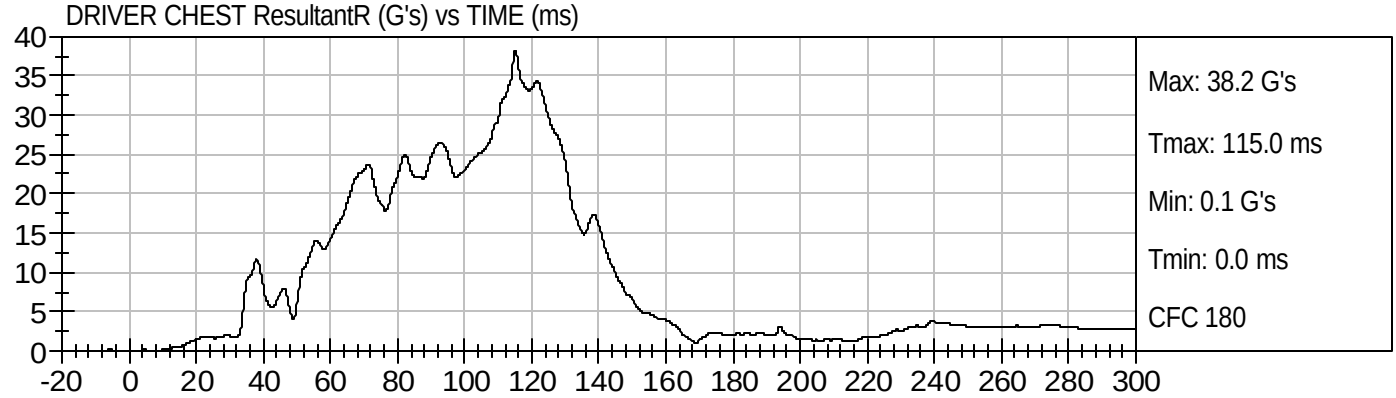
DRIVER CHEST Yr (G's) vs TIME (ms)



DRIVER CHEST Zr (G's) vs TIME (ms)



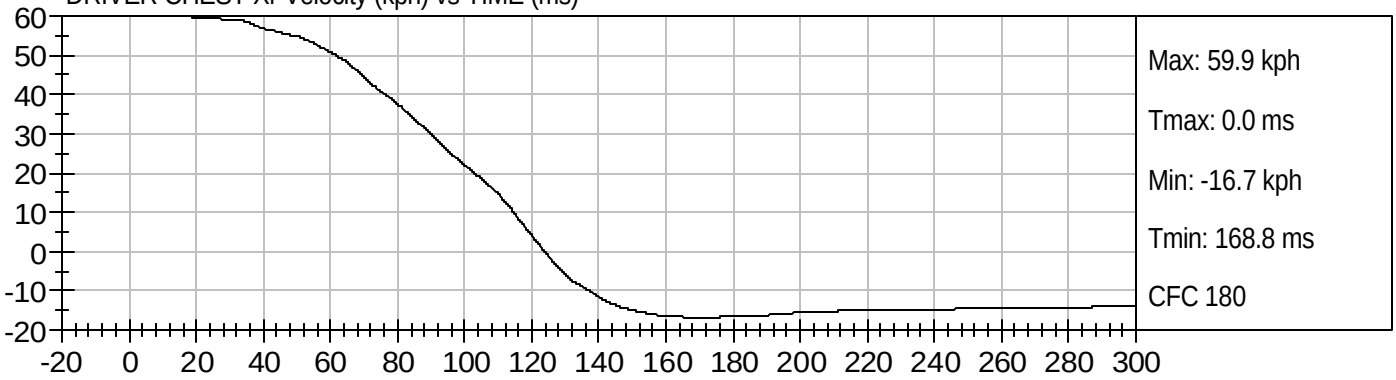
DRIVER CHEST ResultantR (G's) vs TIME (ms)



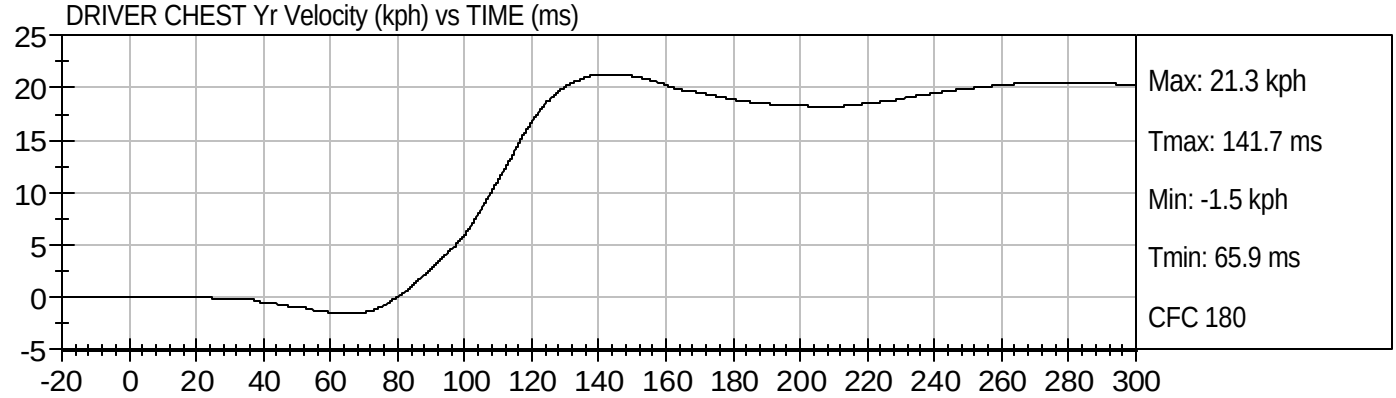
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

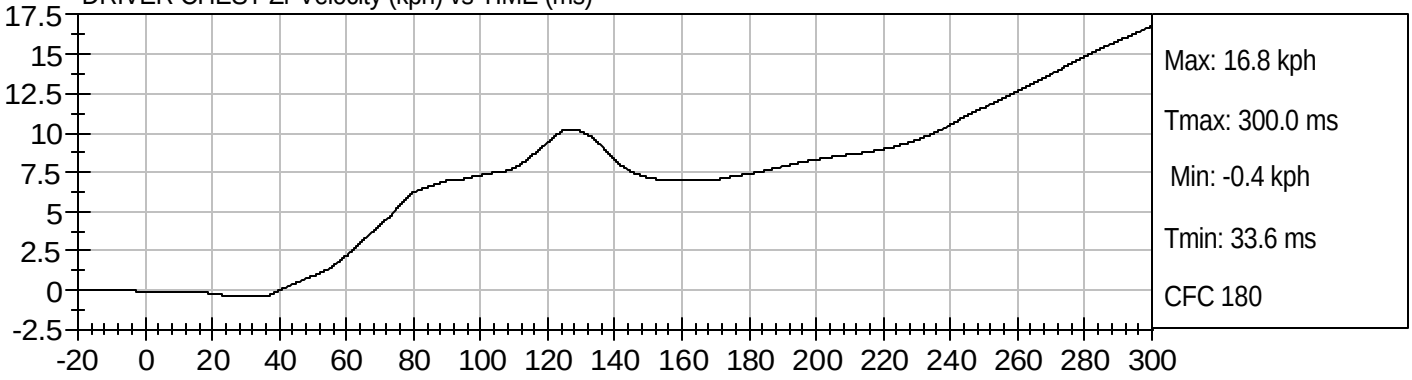
DRIVER CHEST Xr Velocity (kph) vs TIME (ms)



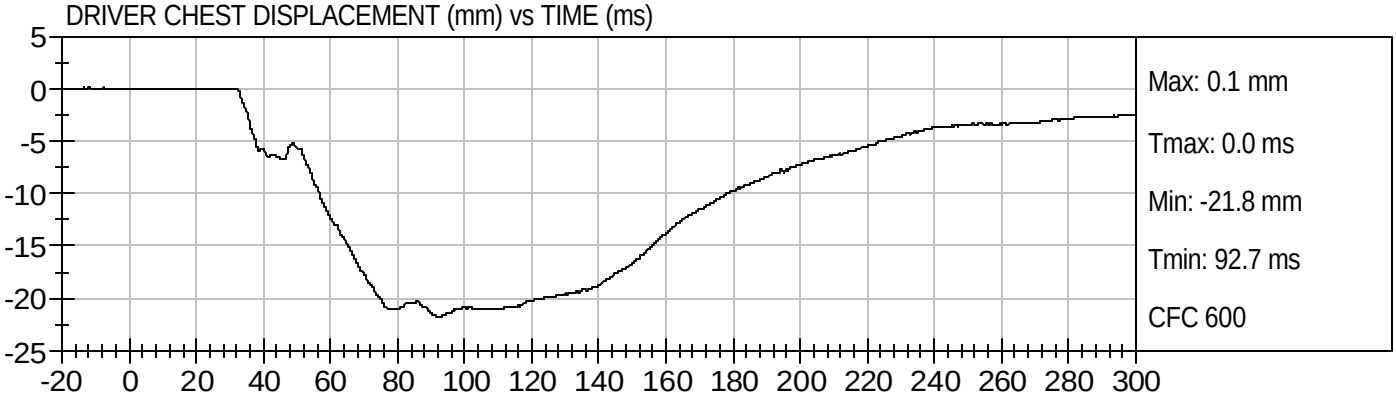
DRIVER CHEST Yr Velocity (kph) vs TIME (ms)



DRIVER CHEST Zr Velocity (kph) vs TIME (ms)



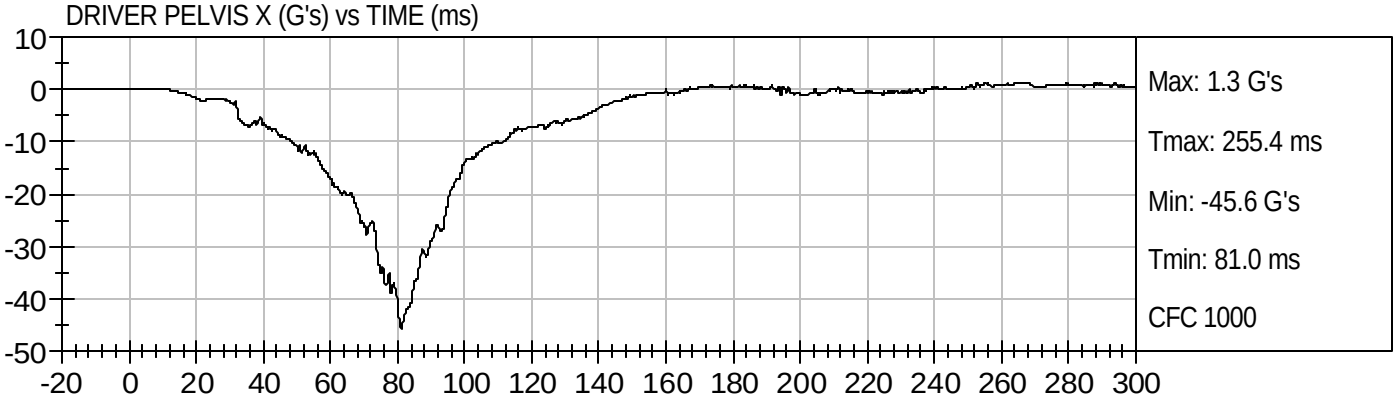
DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)



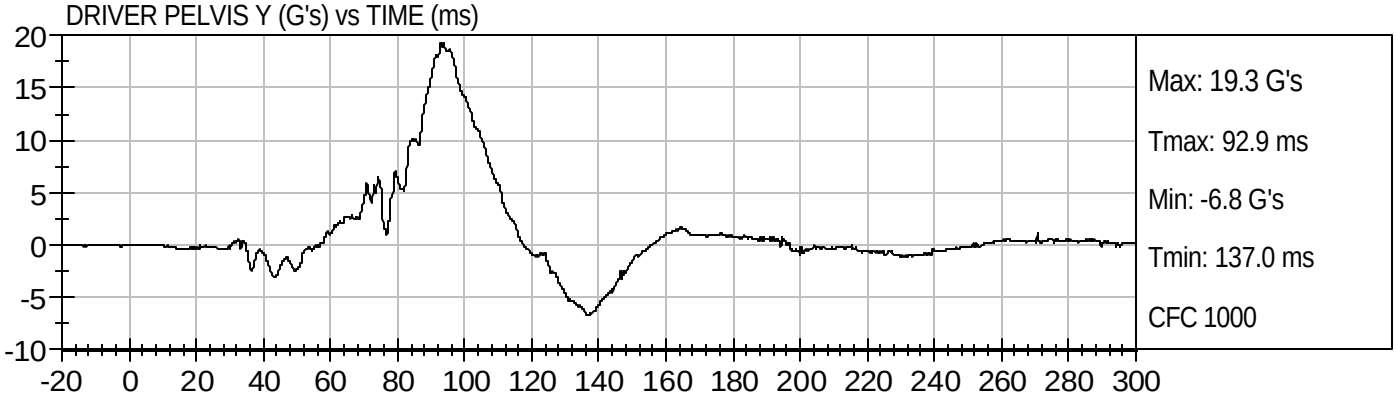
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

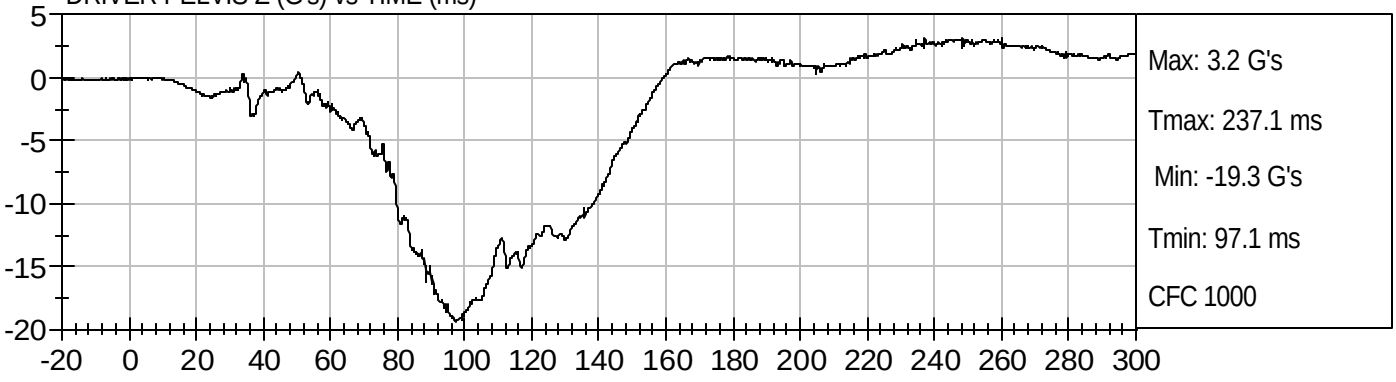
DRIVER PELVIS X (G's) vs TIME (ms)



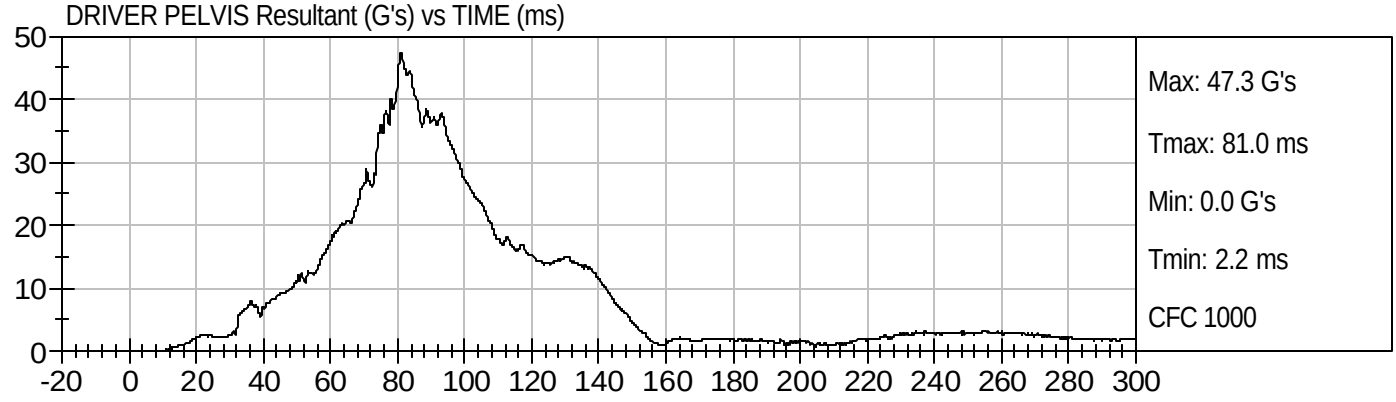
DRIVER PELVIS Y (G's) vs TIME (ms)

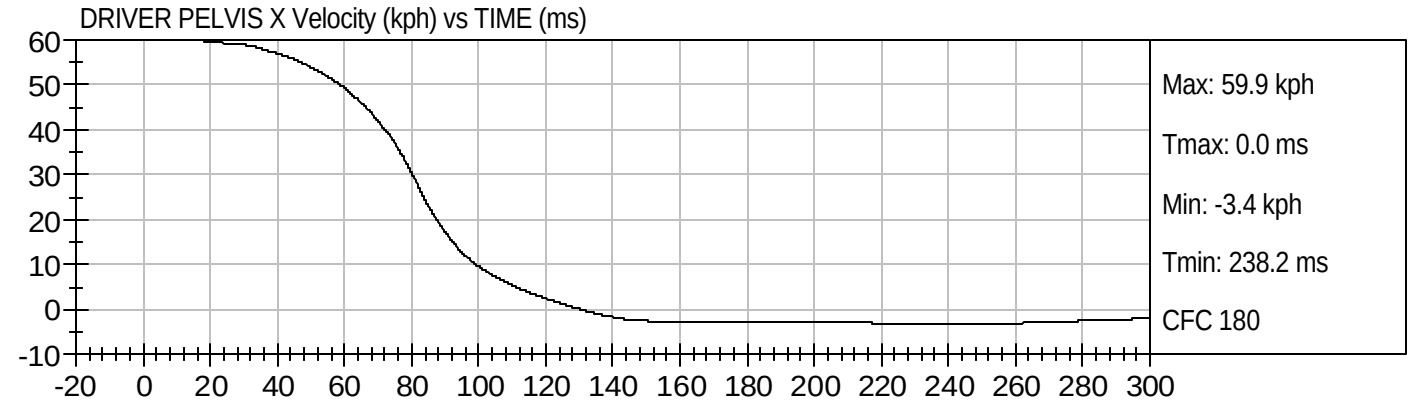


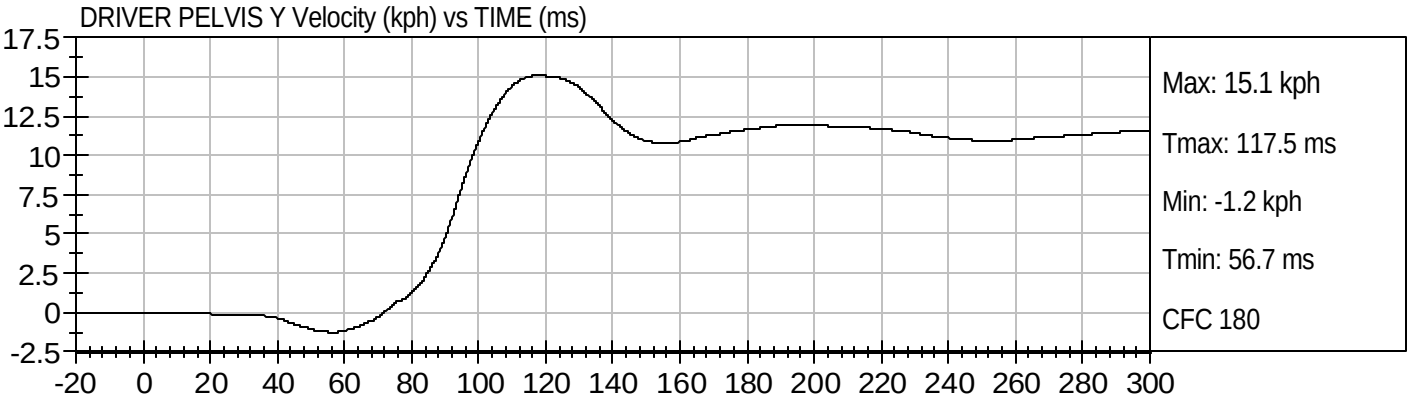
DRIVER PELVIS Z (G's) vs TIME (ms)

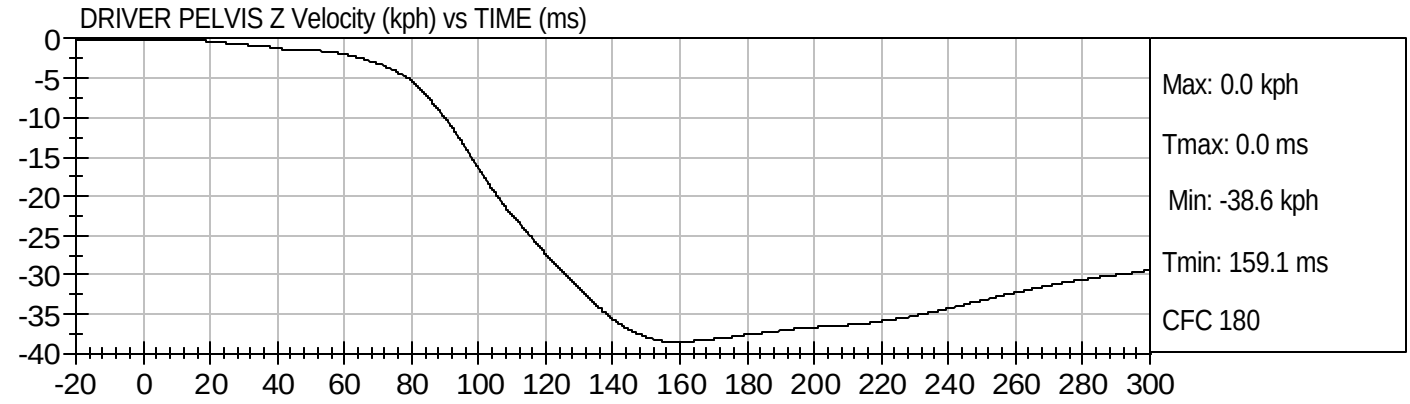


DRIVER PELVIS Resultant (G's) vs TIME (ms)



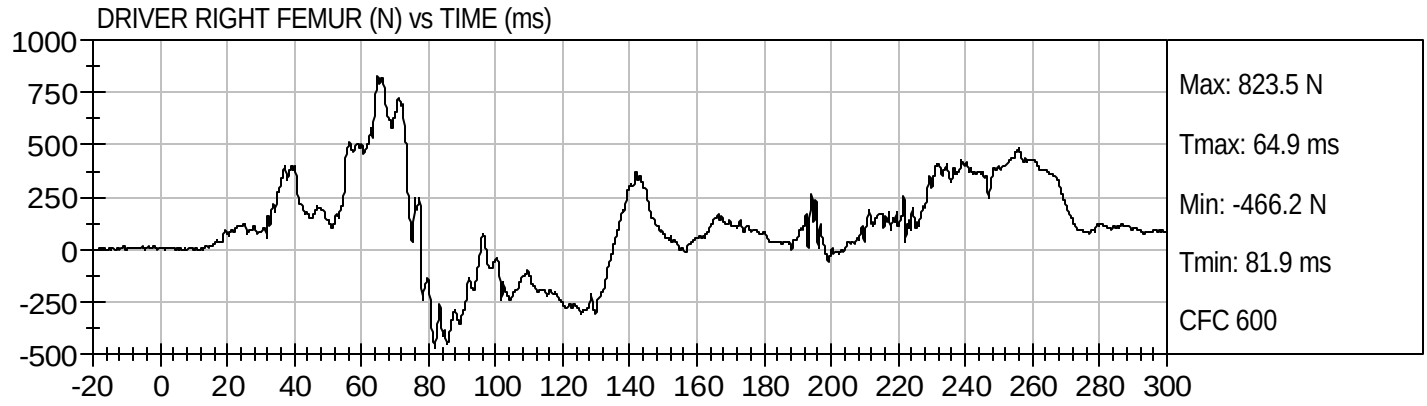

DRIVER PELVIS X Velocity (kph) vs TIME (ms)
60
50
40
30
20
10
0
-10
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 59.9 kph
Tmax: 0.0 ms
Min: -3.4 kph
Tmin: 238.2 ms
CFC 180

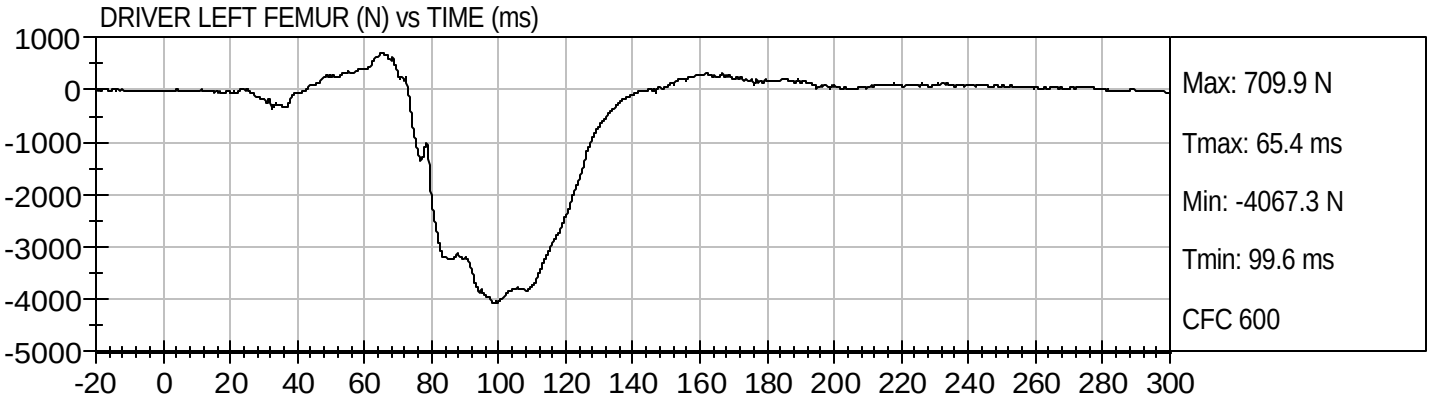

DRIVER PELVIS Y Velocity (kph) vs TIME (ms)
17.5
15
12.5
10
7.5
5
2.5
0
-2.5
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 15.1 kph
Tmax: 117.5 ms
Min: -1.2 kph
Tmin: 56.7 ms
CFC 180

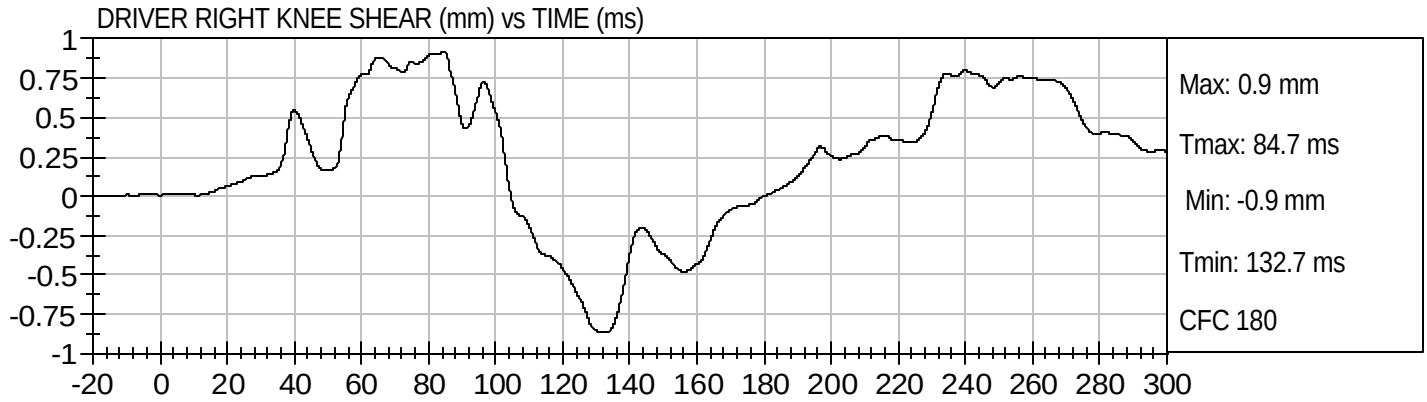

DRIVER PELVIS Z Velocity (kph) vs TIME (ms)
0
-5
-10
-15
-20
-25
-30
-35
-40
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.0 kph
Tmax: 0.0 ms
Min: -38.6 kph
Tmin: 159.1 ms
CFC 180

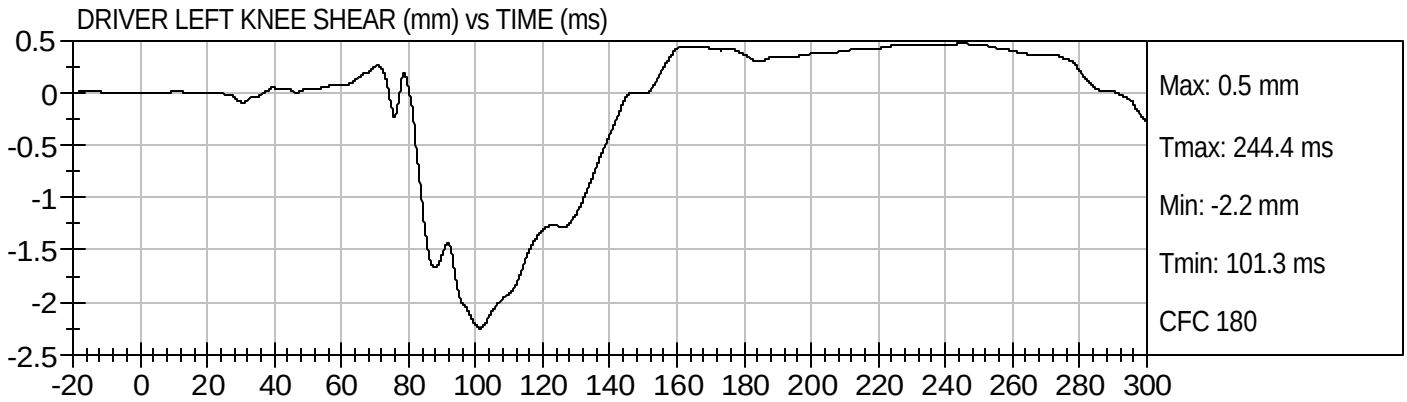
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)





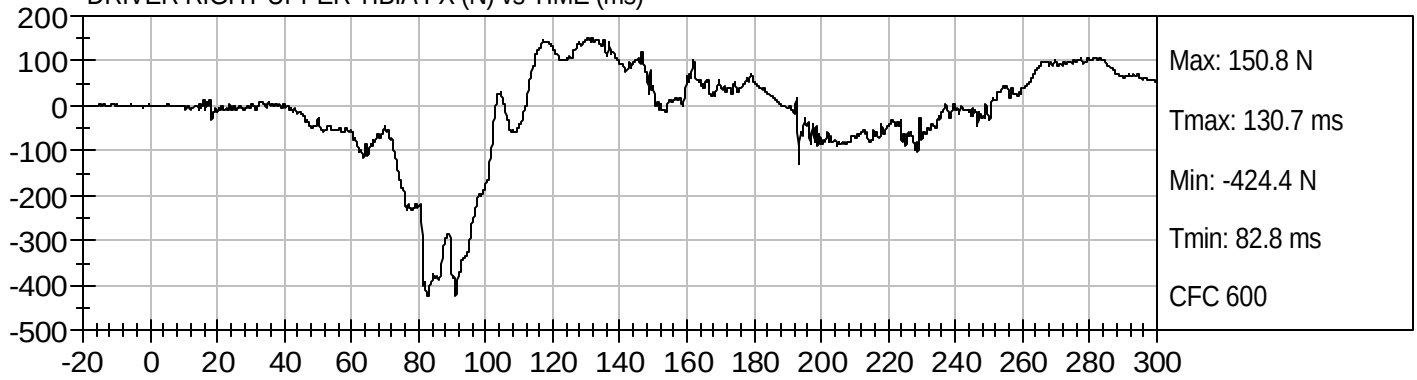




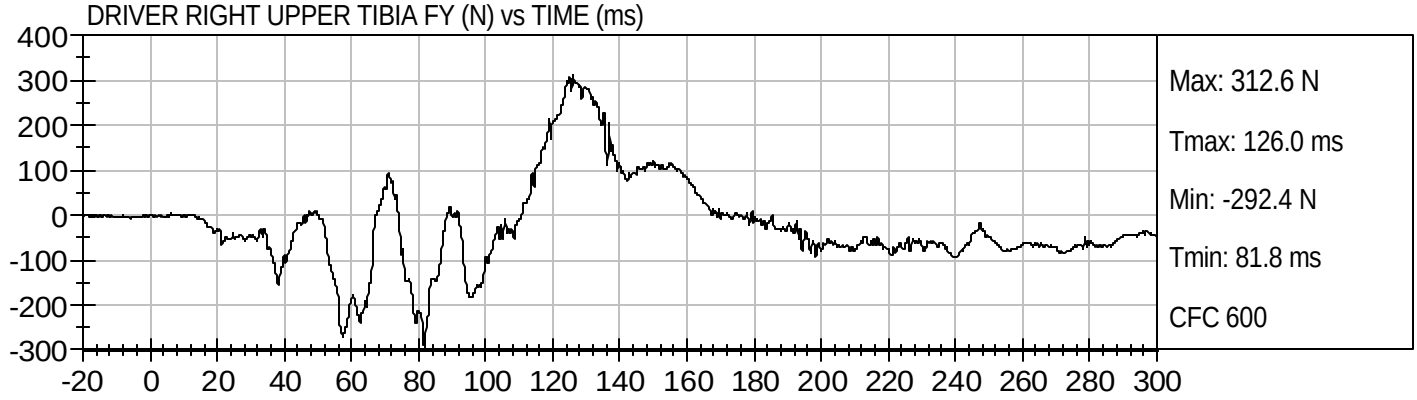
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

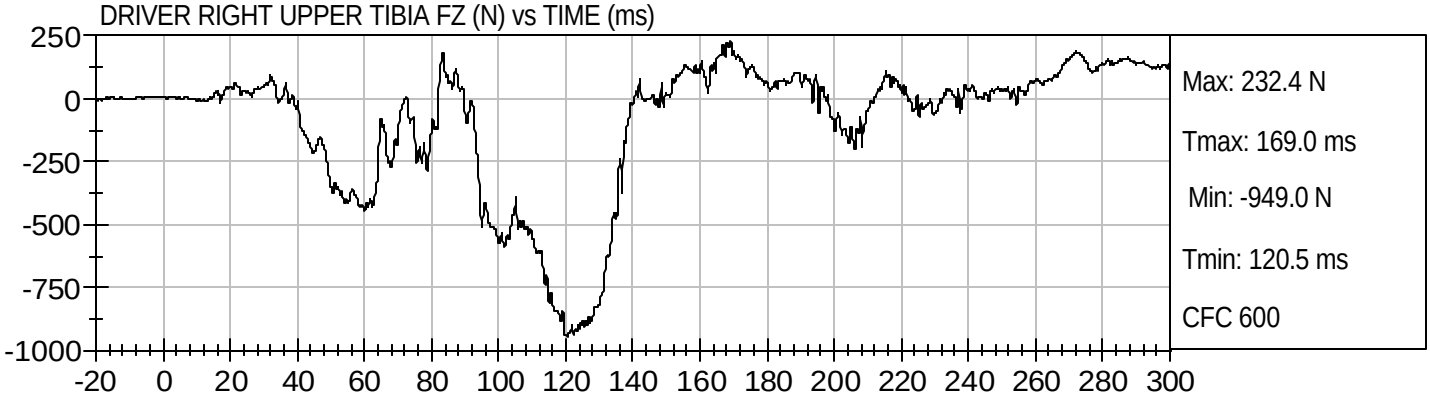
DRIVER RIGHT UPPER TIBIA FX (N) vs TIME (ms)



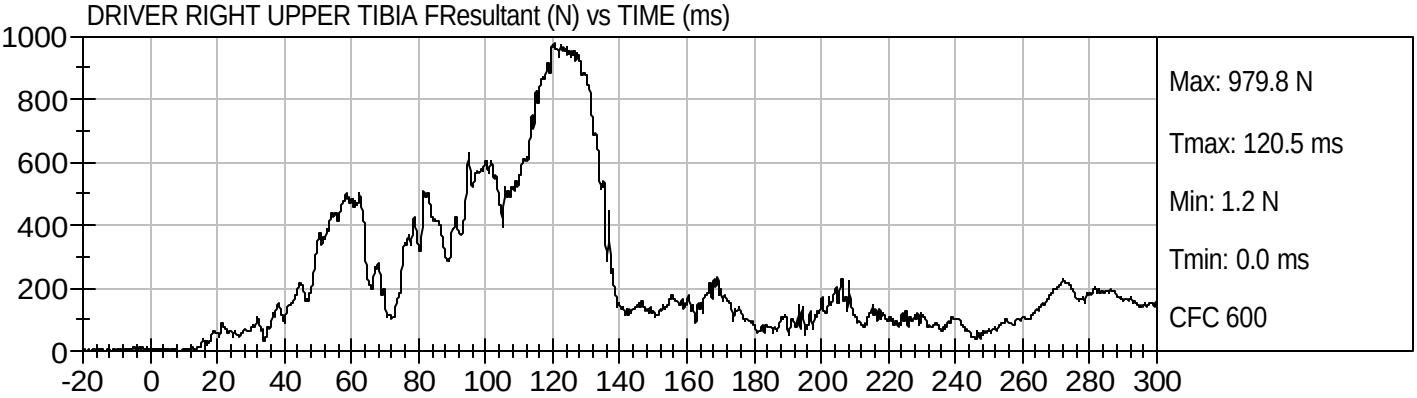
DRIVER RIGHT UPPER TIBIA FY (N) vs TIME (ms)



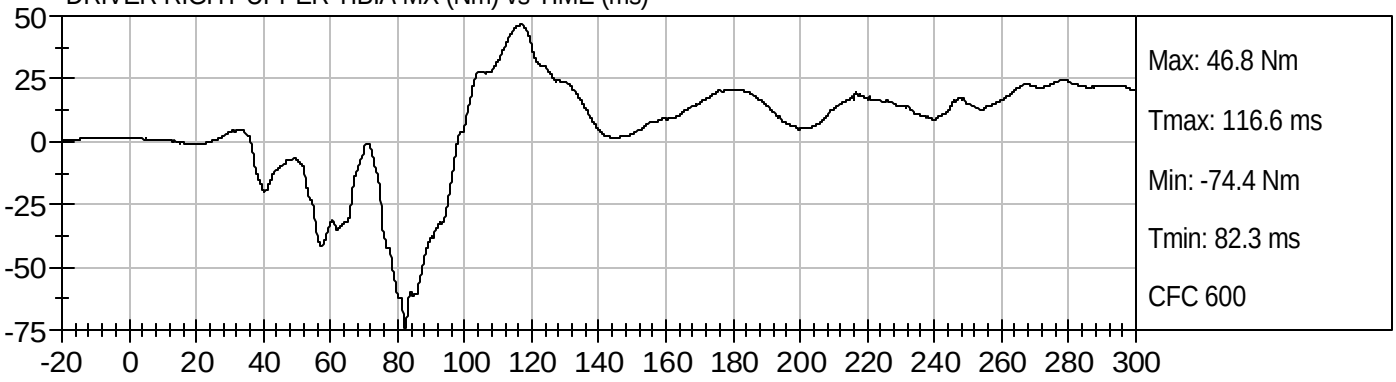
DRIVER RIGHT UPPER TIBIA FZ (N) vs TIME (ms)



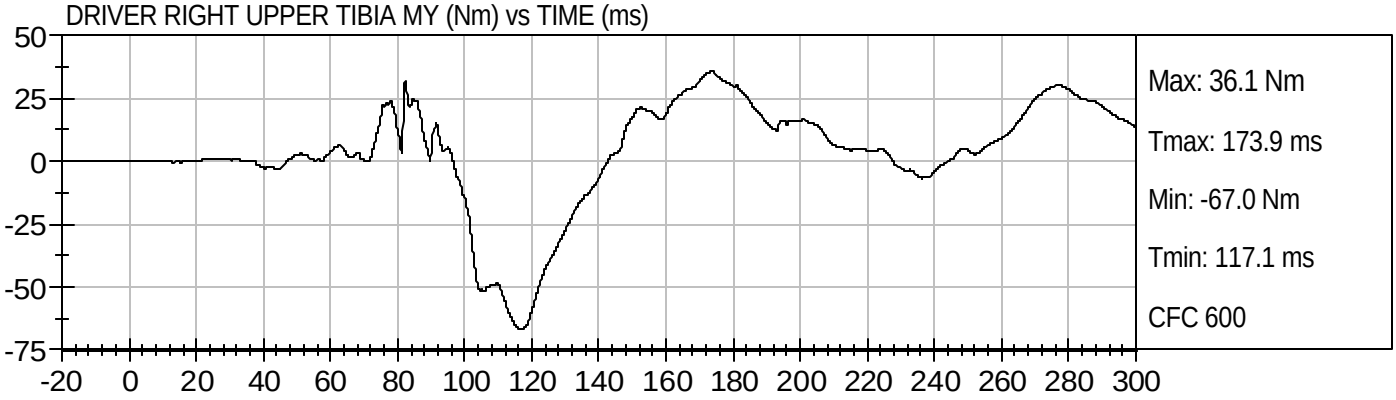
DRIVER RIGHT UPPER TIBIA FResultant (N) vs TIME (ms)



DRIVER RIGHT UPPER TIBIA MX (Nm) vs TIME (ms)



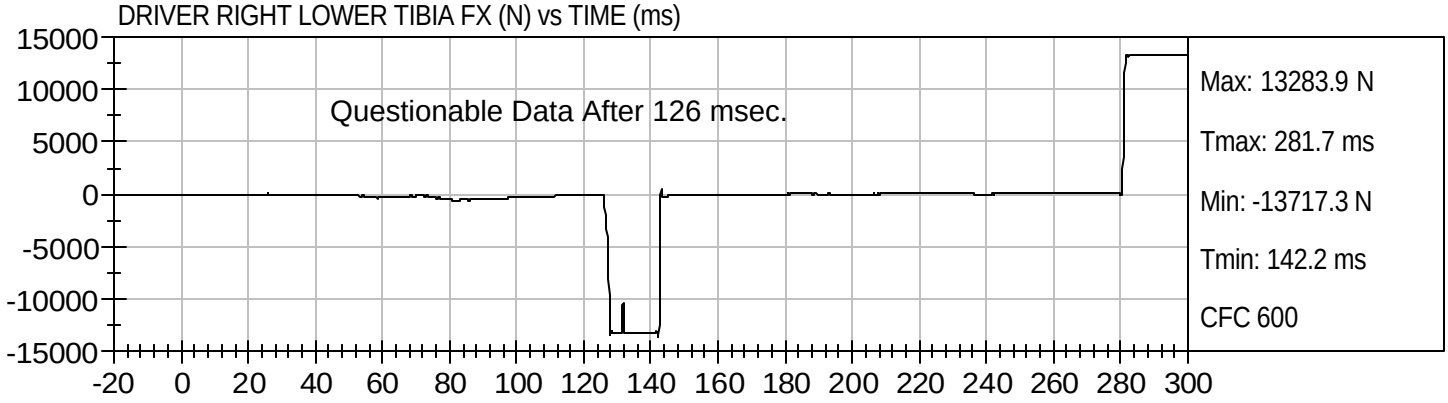
DRIVER RIGHT UPPER TIBIA MY (Nm) vs TIME (ms)



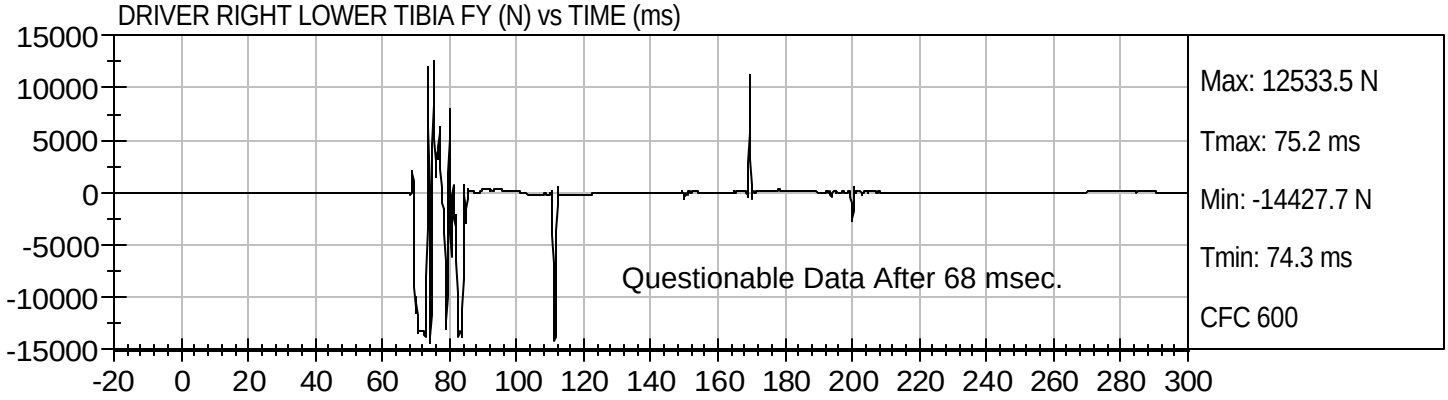
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

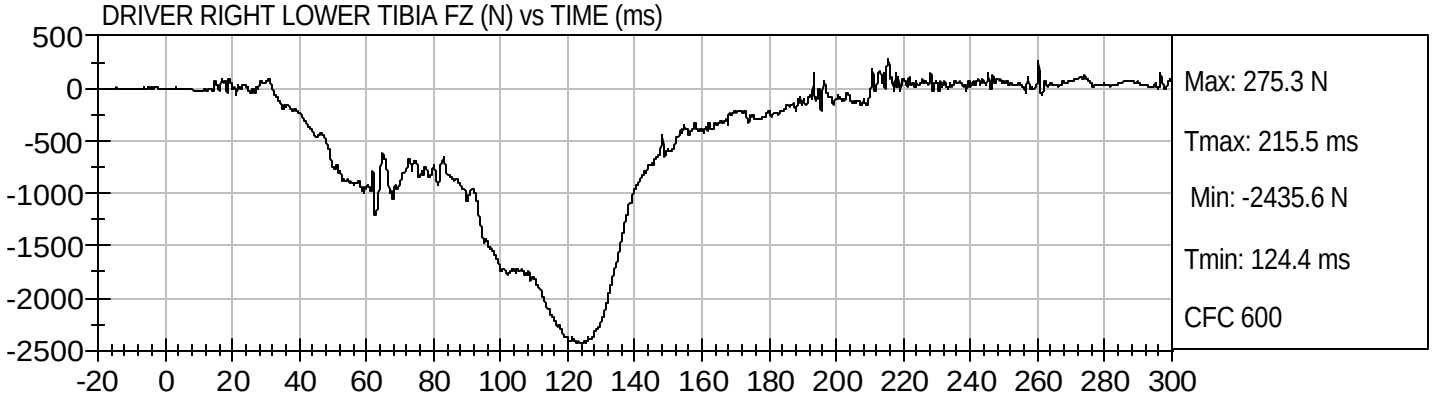
DRIVER RIGHT LOWER TIBIA FX (N) vs TIME (ms)



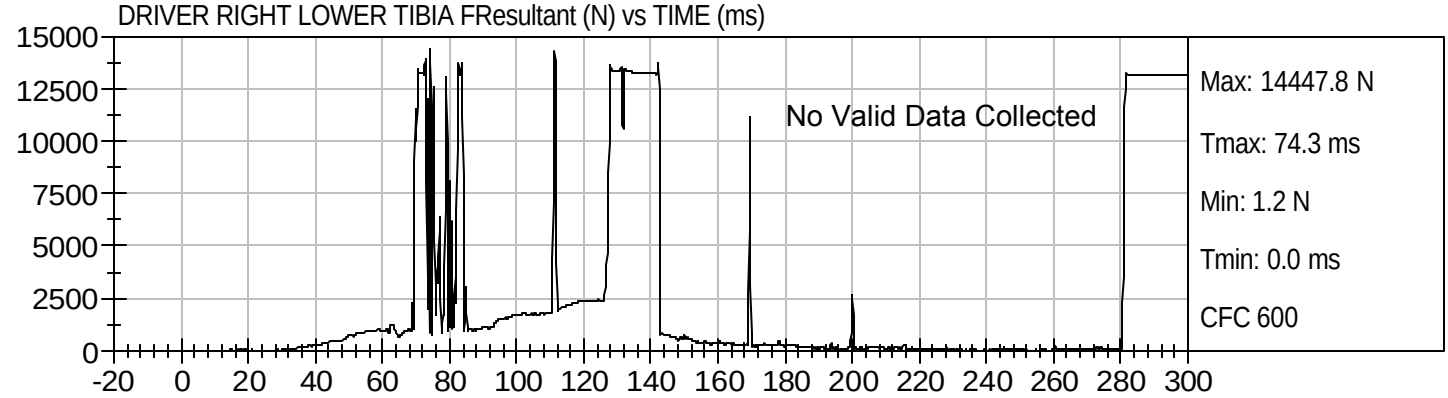
DRIVER RIGHT LOWER TIBIA FY (N) vs TIME (ms)



DRIVER RIGHT LOWER TIBIA FZ (N) vs TIME (ms)



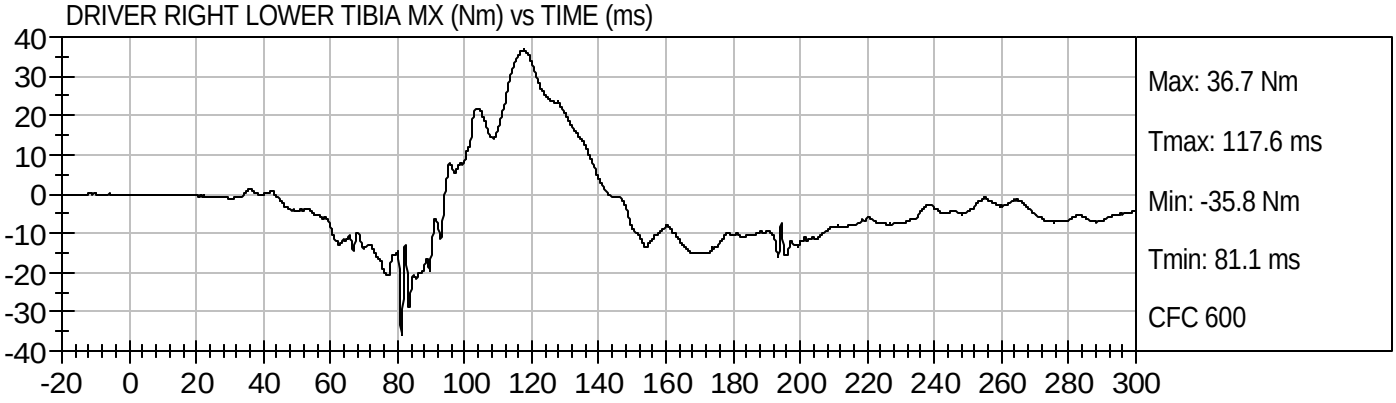
DRIVER RIGHT LOWER TIBIA FResultant (N) vs TIME (ms)



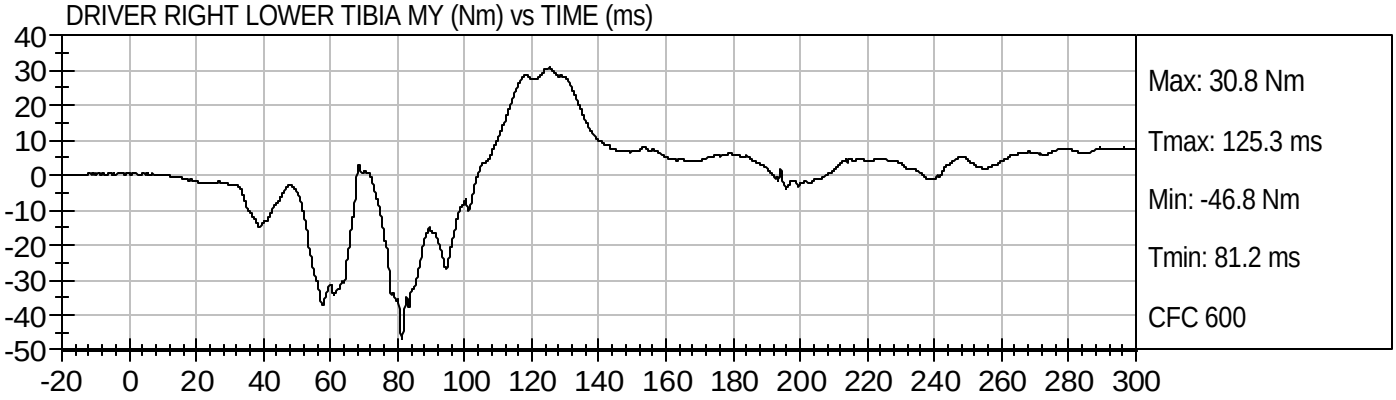
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

DRIVER RIGHT LOWER TIBIA MX (Nm) vs TIME (ms)



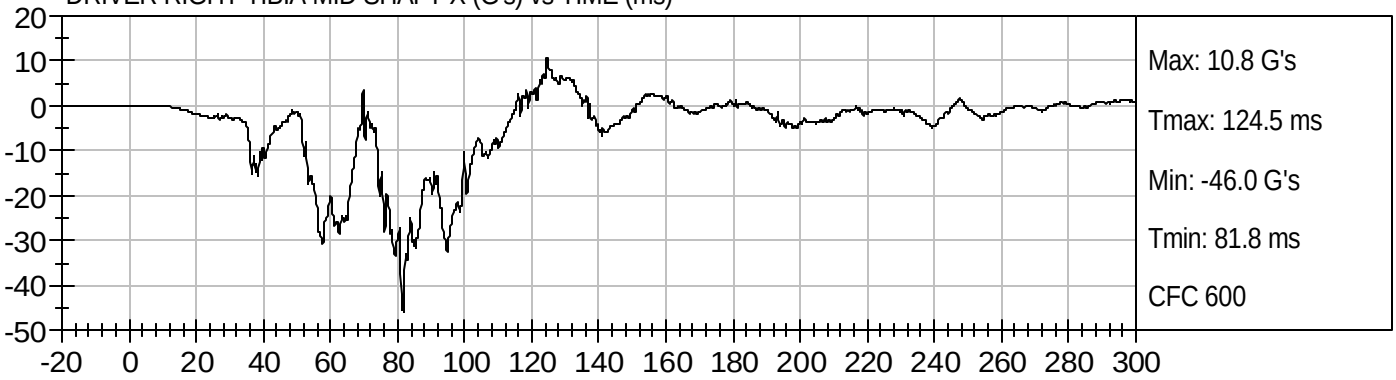
DRIVER RIGHT LOWER TIBIA MY (Nm) vs TIME (ms)



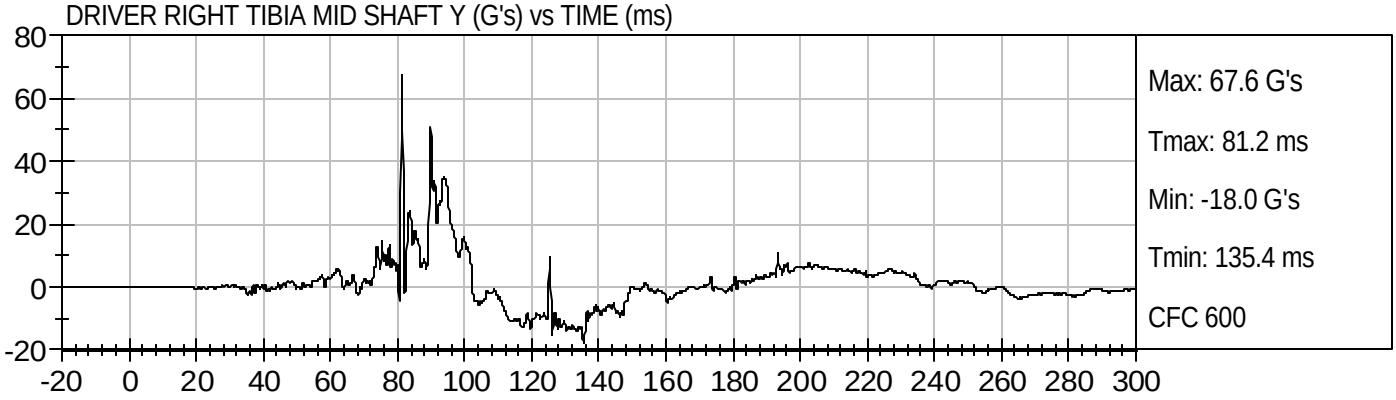
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

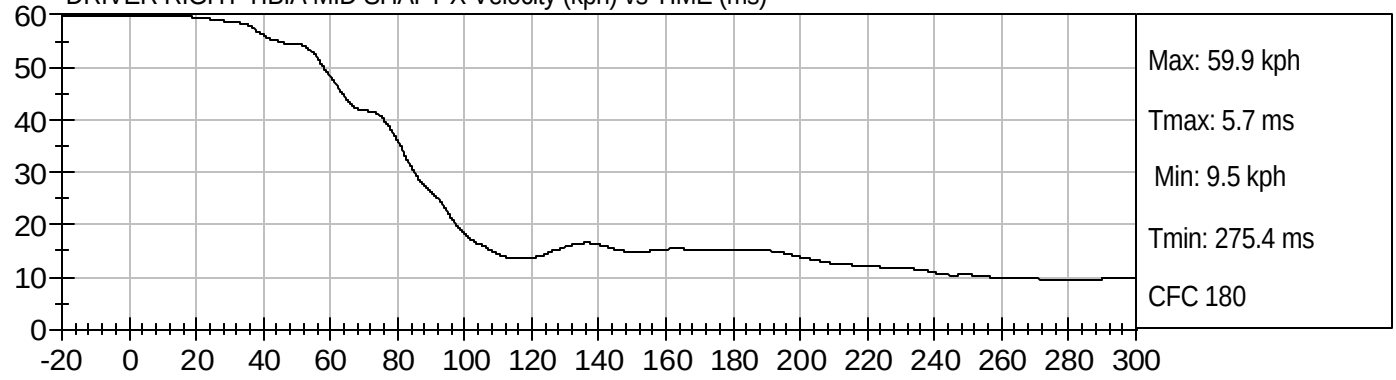
DRIVER RIGHT TIBIA MID SHAFT X (G's) vs TIME (ms)



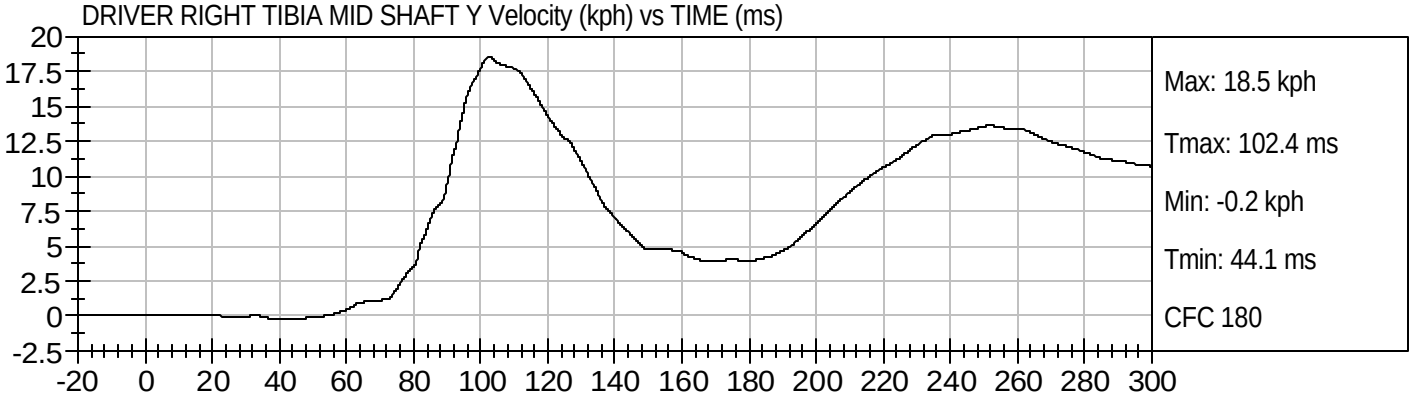
DRIVER RIGHT TIBIA MID SHAFT Y (G's) vs TIME (ms)



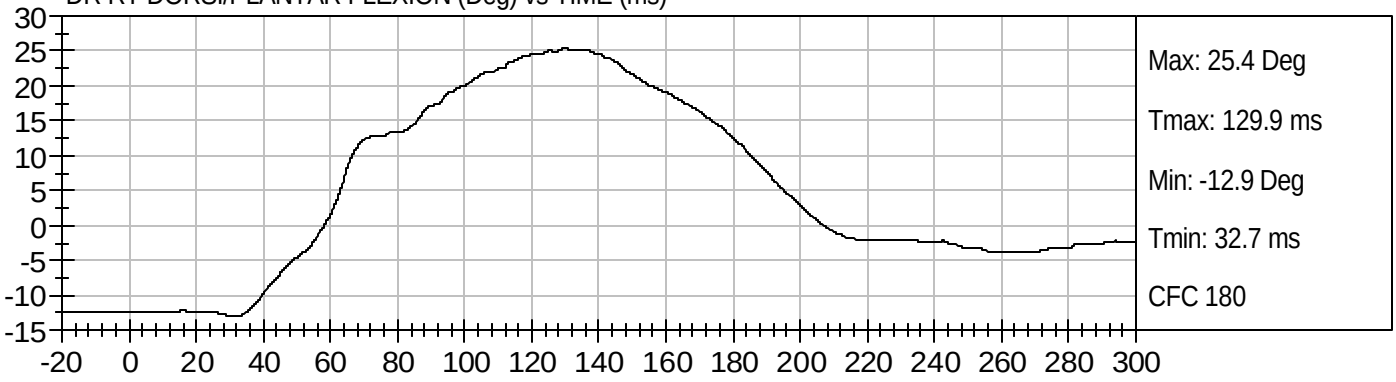
DRIVER RIGHT TIBIA MID SHAFT X Velocity (kph) vs TIME (ms)



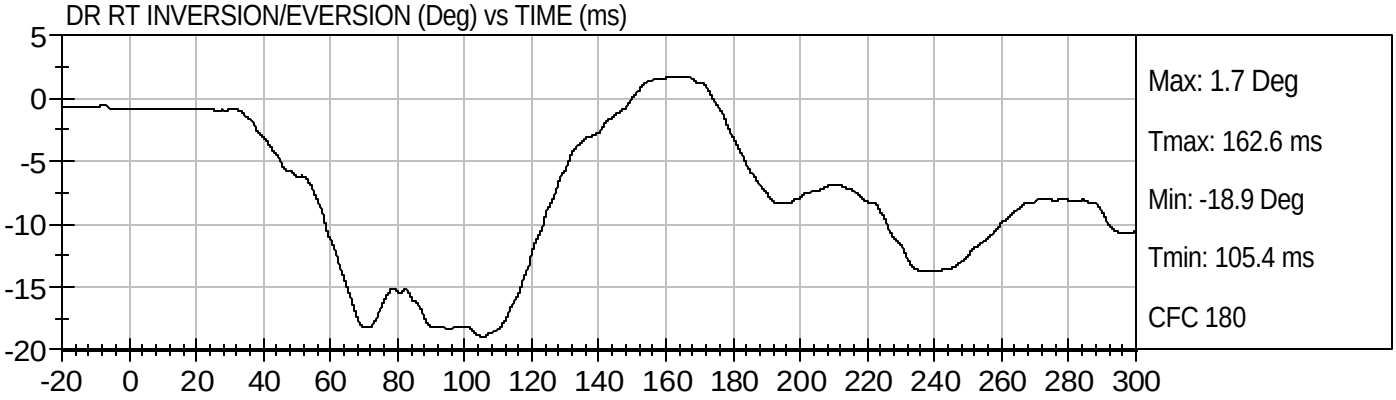
DRIVER RIGHT TIBIA MID SHAFT Y Velocity (kph) vs TIME (ms)



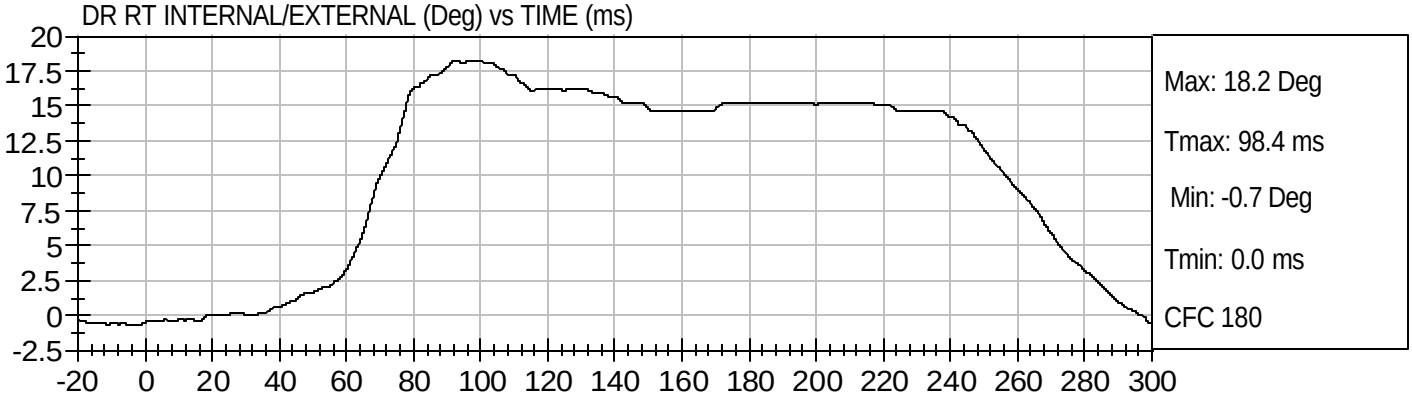
DR RT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)



DR RT INVERSION/EVERSION (Deg) vs TIME (ms)



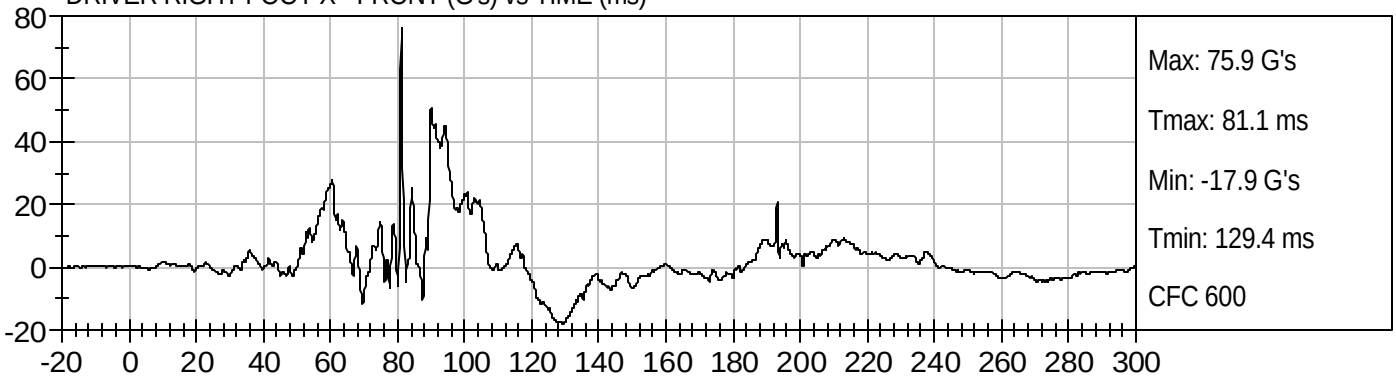
DR RT INTERNAL/EXTERNAL (Deg) vs TIME (ms)



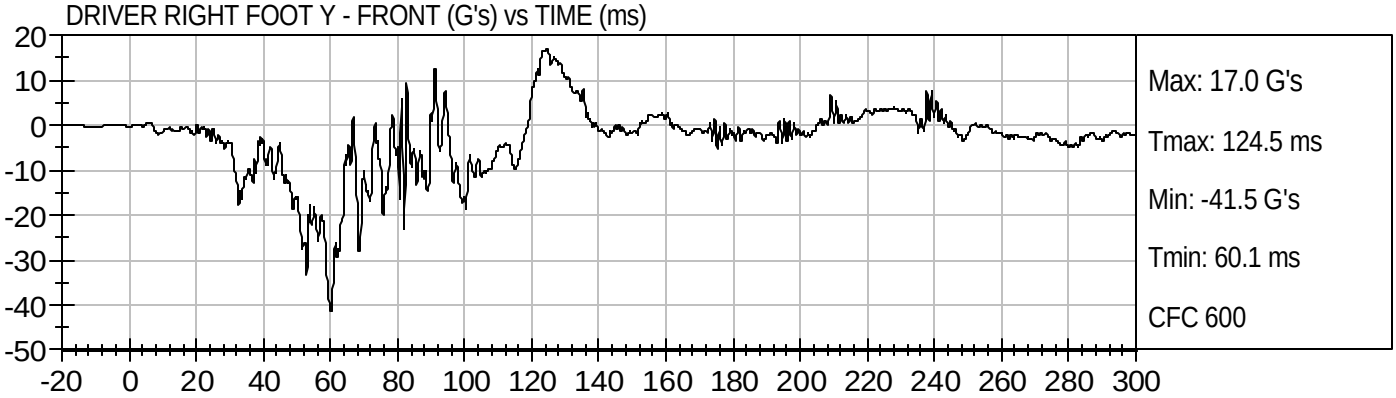
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

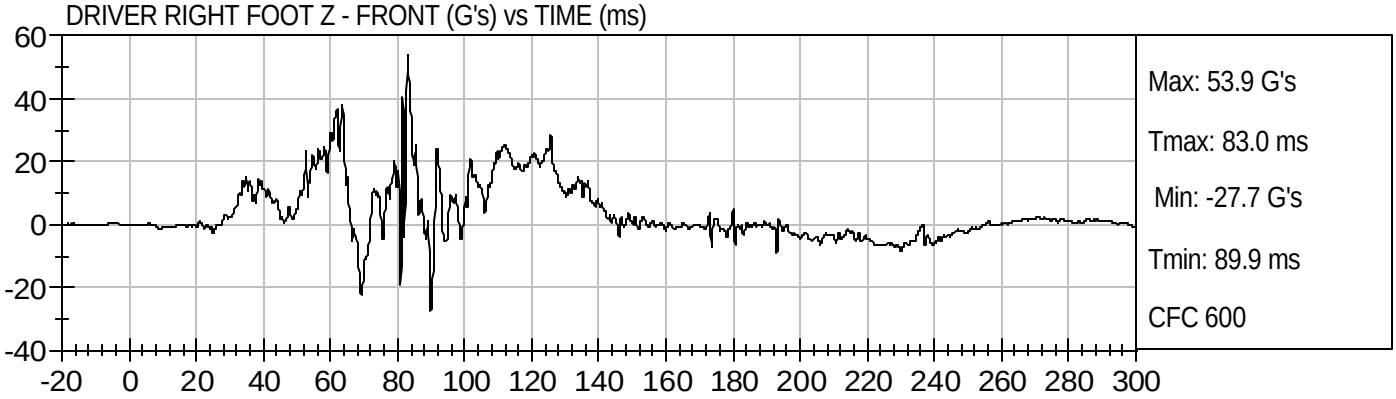
DRIVER RIGHT FOOT X - FRONT (G's) vs TIME (ms)



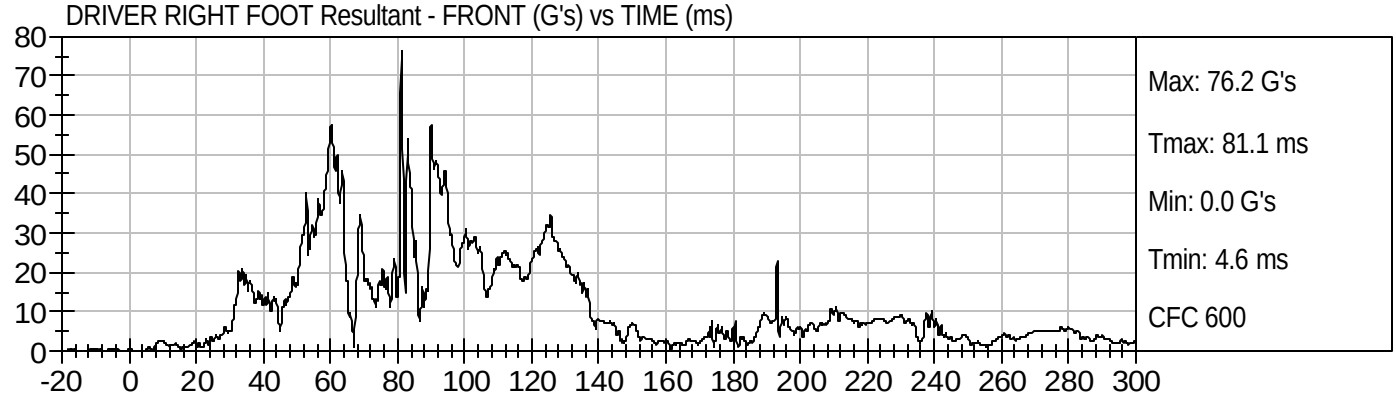
DRIVER RIGHT FOOT Y - FRONT (G's) vs TIME (ms)

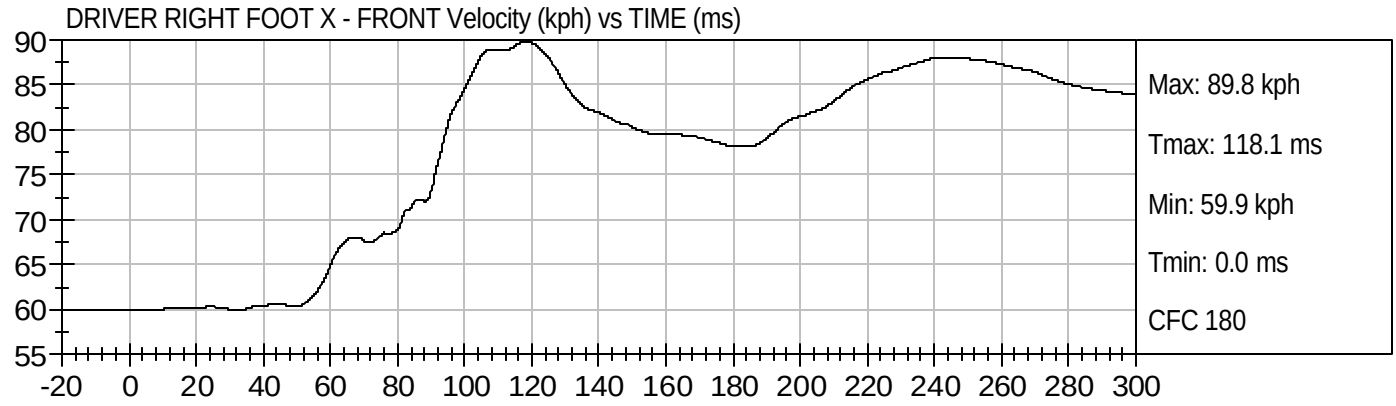


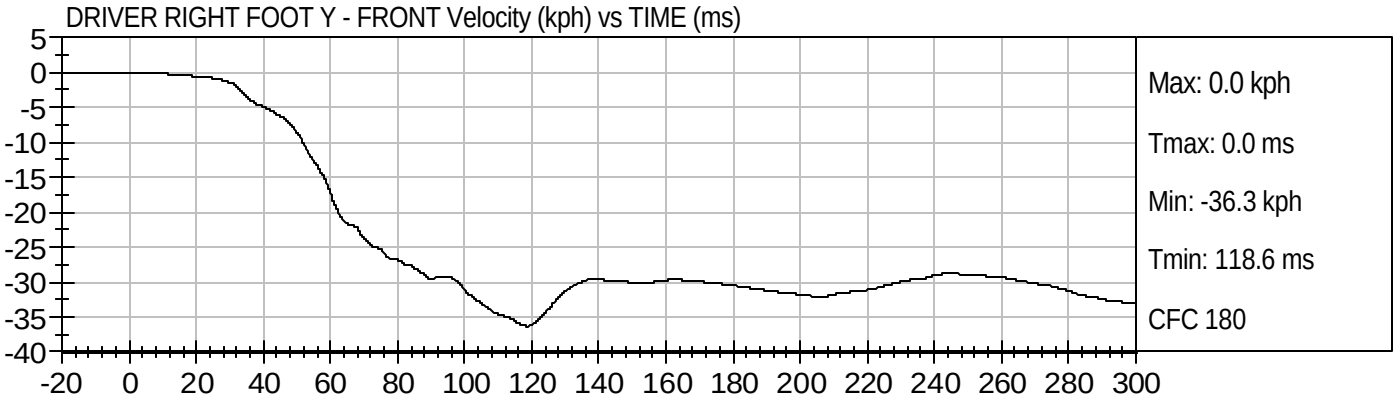
DRIVER RIGHT FOOT Z - FRONT (G's) vs TIME (ms)

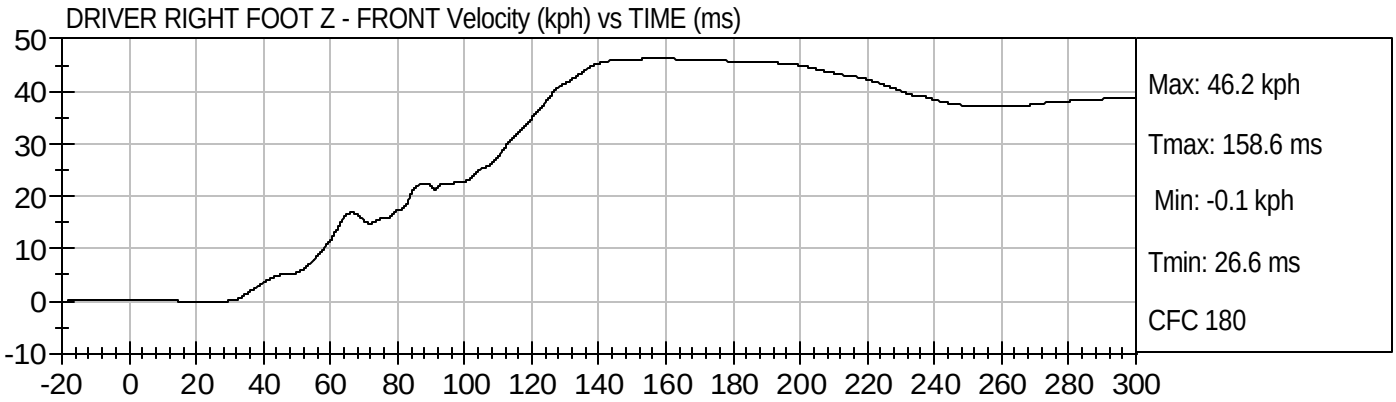


DRIVER RIGHT FOOT Resultant - FRONT (G's) vs TIME (ms)



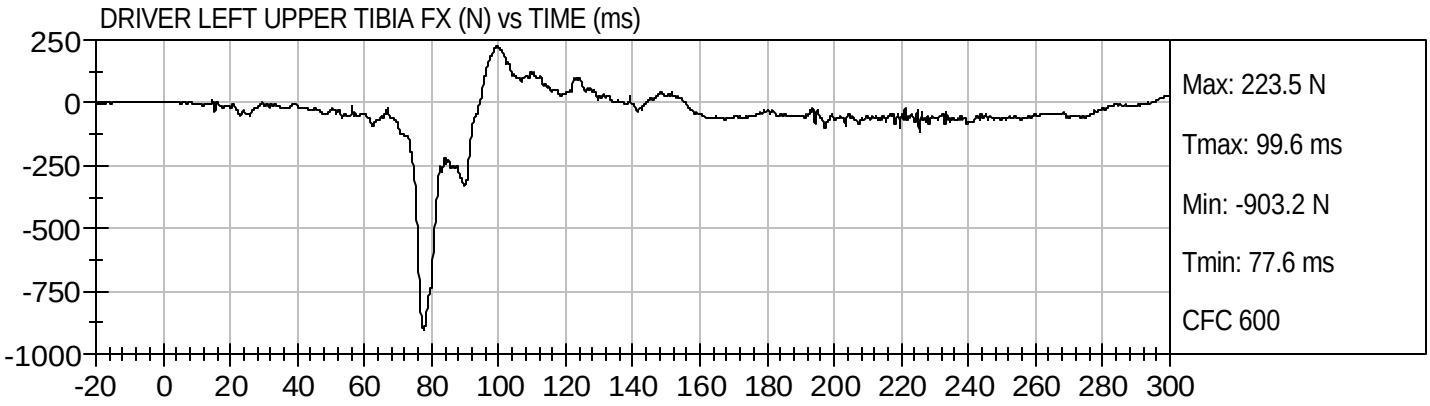

DRIVER RIGHT FOOT X - FRONT Velocity (kph) vs TIME (ms)
90
85
80
75
70
65
60
55
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 89.8 kph
Tmax: 118.1 ms
Min: 59.9 kph
Tmin: 0.0 ms
CFC 180

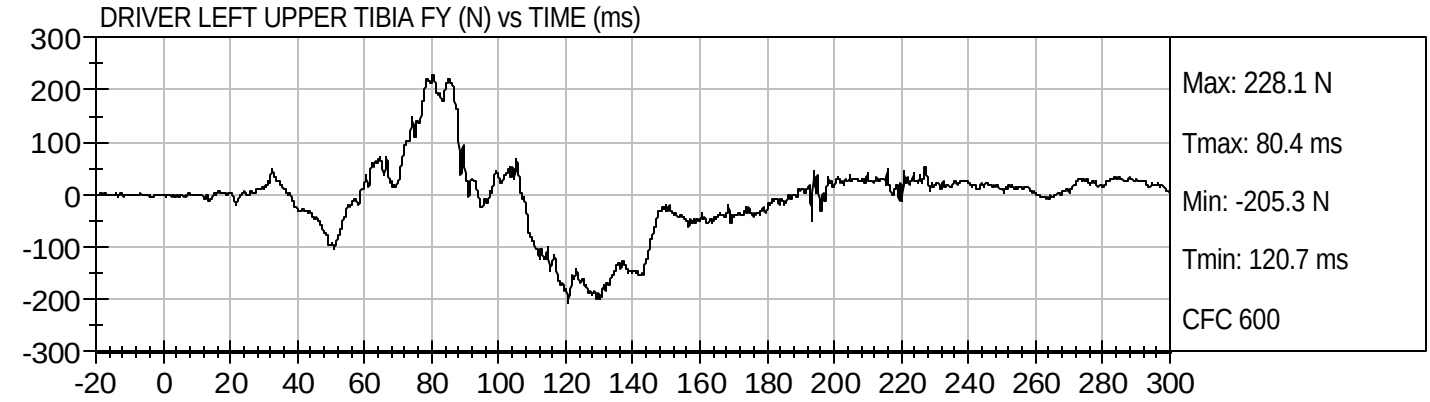

DRIVER RIGHT FOOT Y - FRONT Velocity (kph) vs TIME (ms)
5
0
-5
-10
-15
-20
-25
-30
-35
-40
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.0 kph
Tmax: 0.0 ms
Min: -36.3 kph
Tmin: 118.6 ms
CFC 180

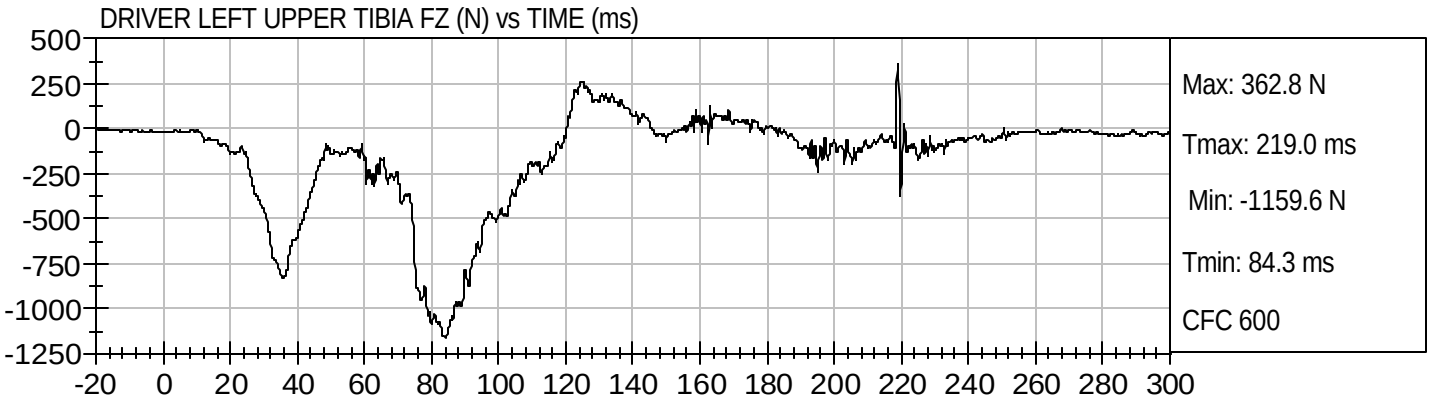

DRIVER RIGHT FOOT Z - FRONT Velocity (kph) vs TIME (ms)
50
40
30
20
10
0
-10
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 46.2 kph
Tmax: 158.6 ms
Min: -0.1 kph
Tmin: 26.6 ms
CFC 180

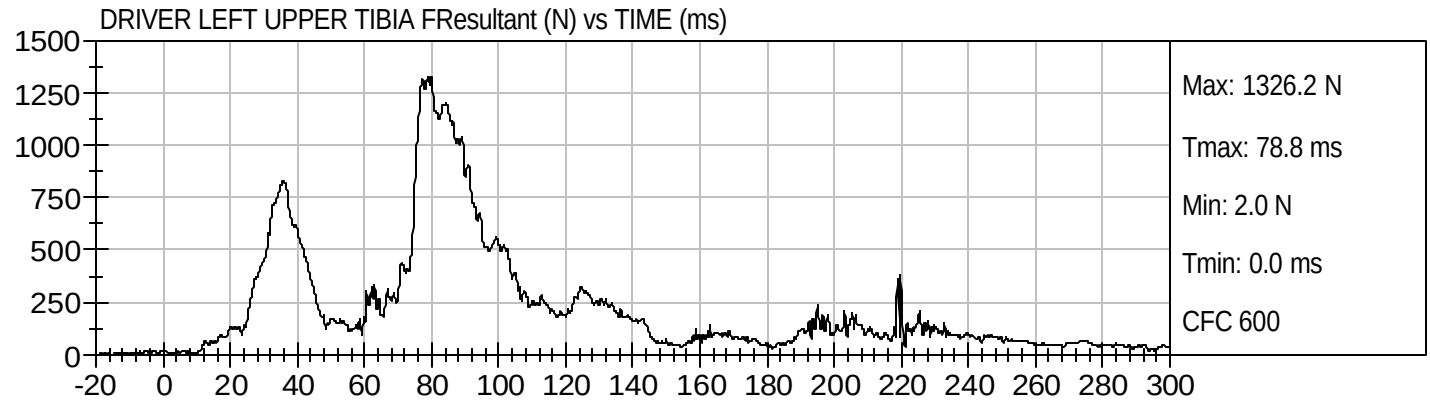
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)





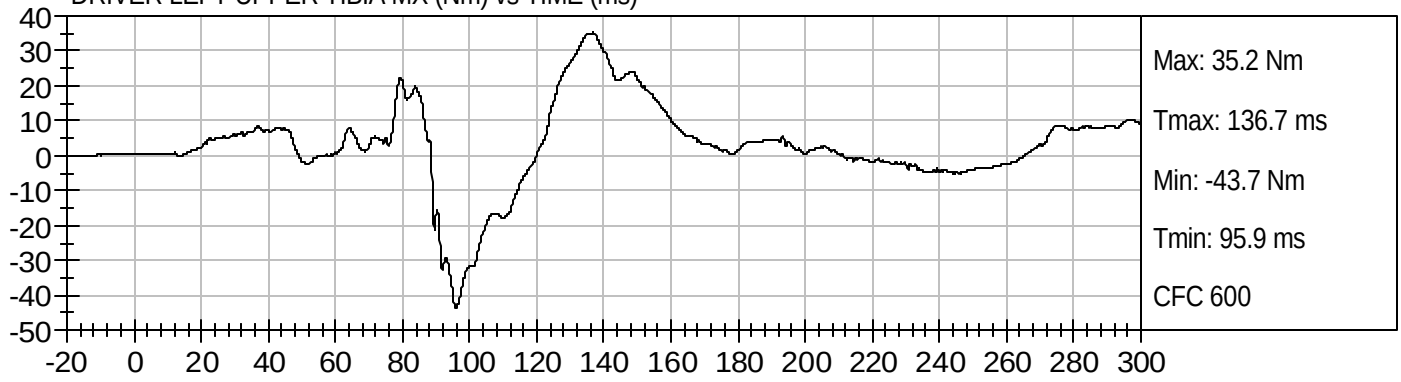




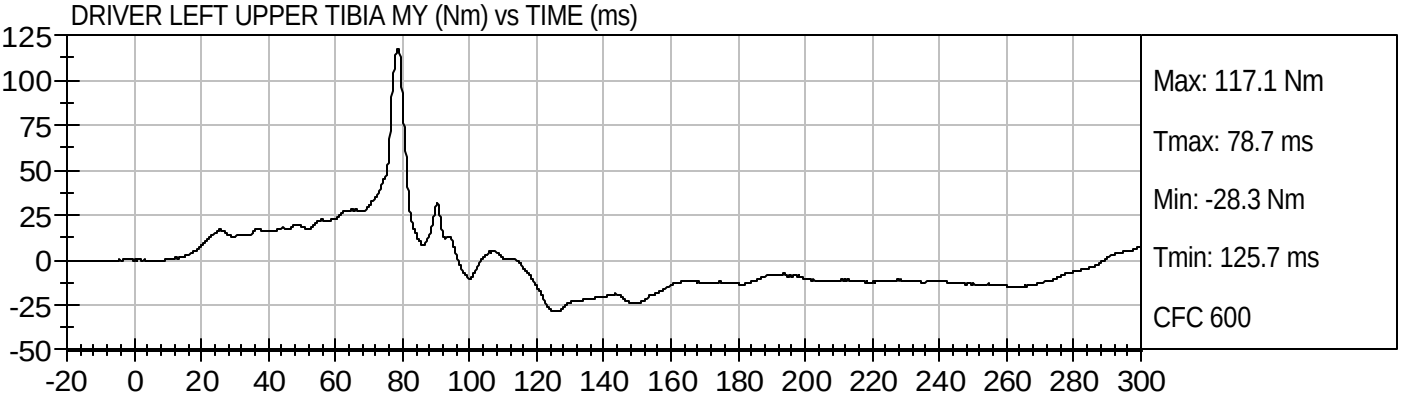
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

DRIVER LEFT UPPER TIBIA MX (Nm) vs TIME (ms)

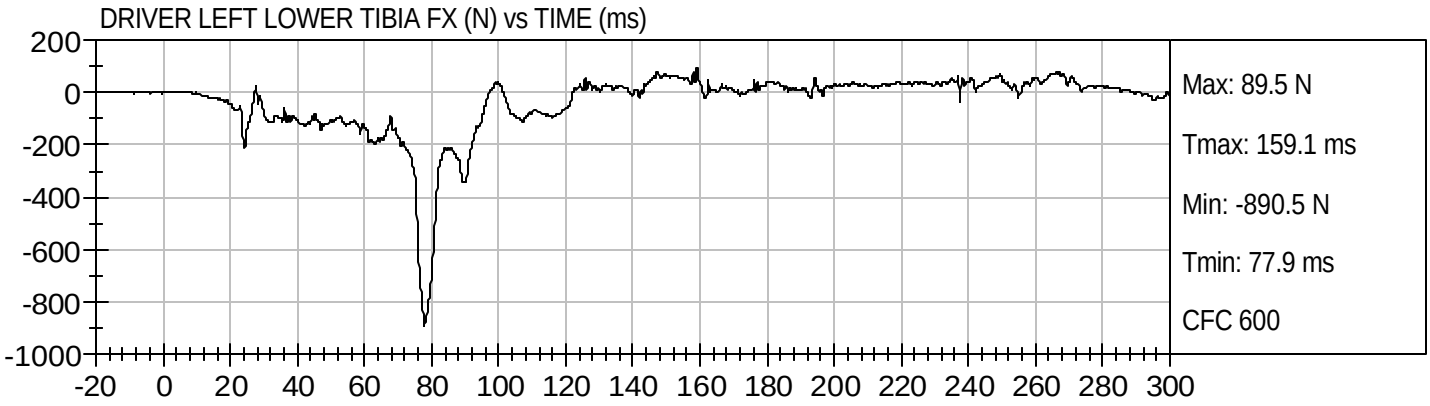


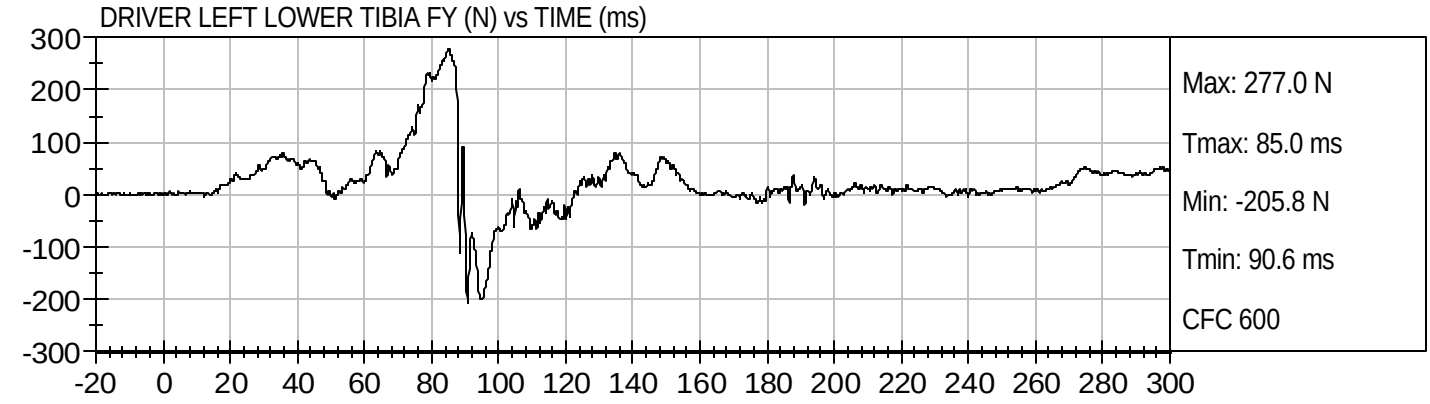
DRIVER LEFT UPPER TIBIA MY (Nm) vs TIME (ms)

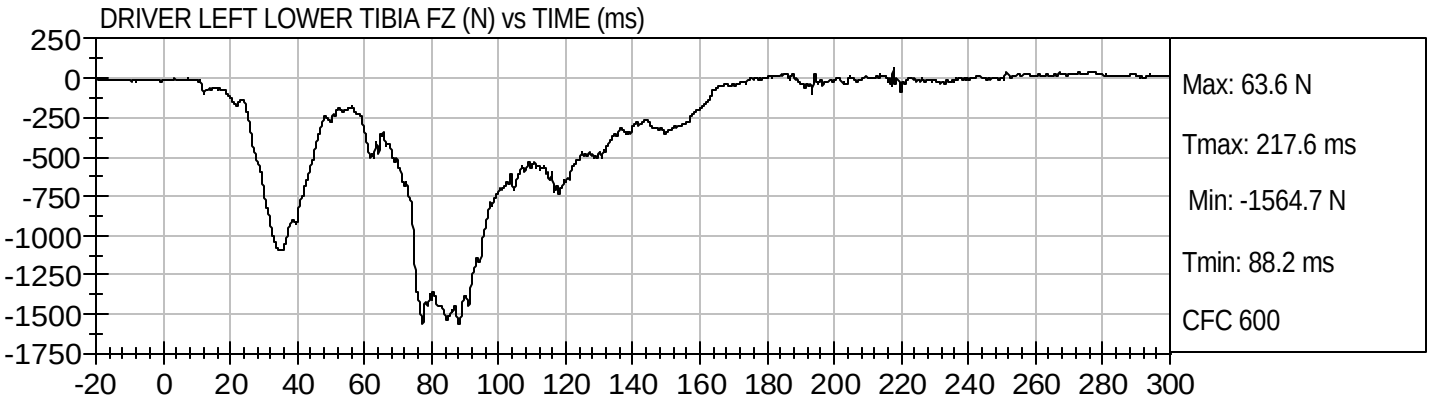


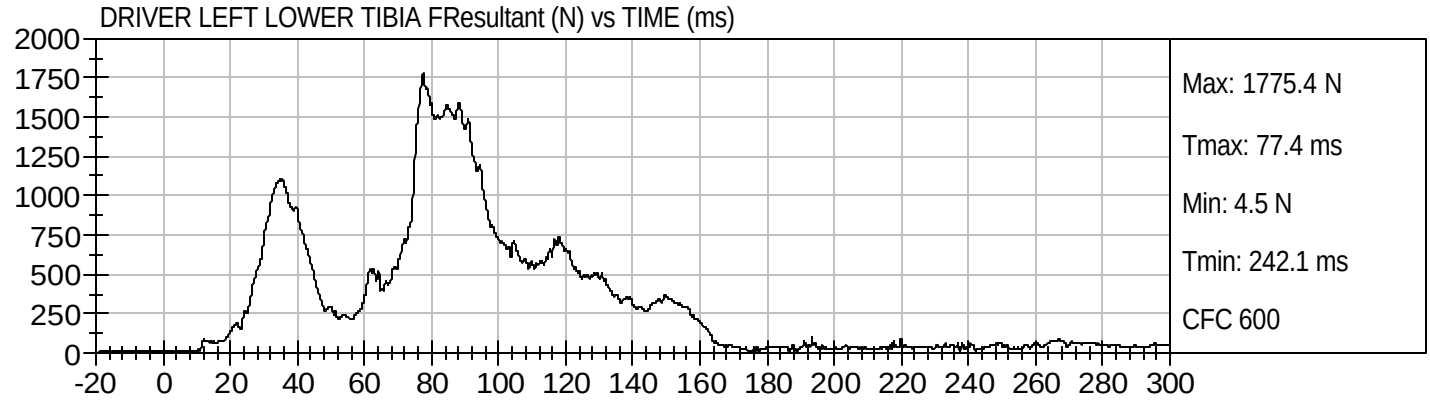
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)





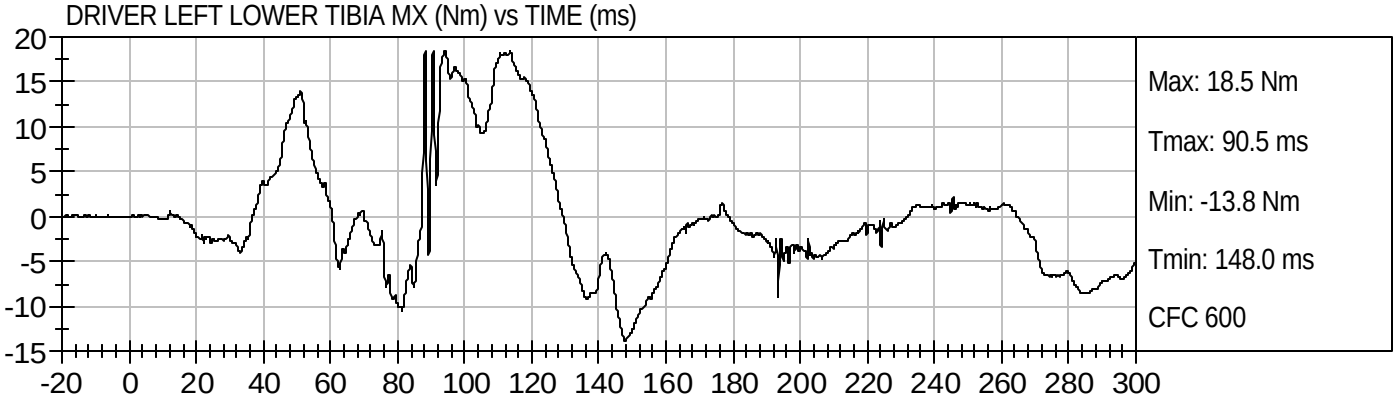




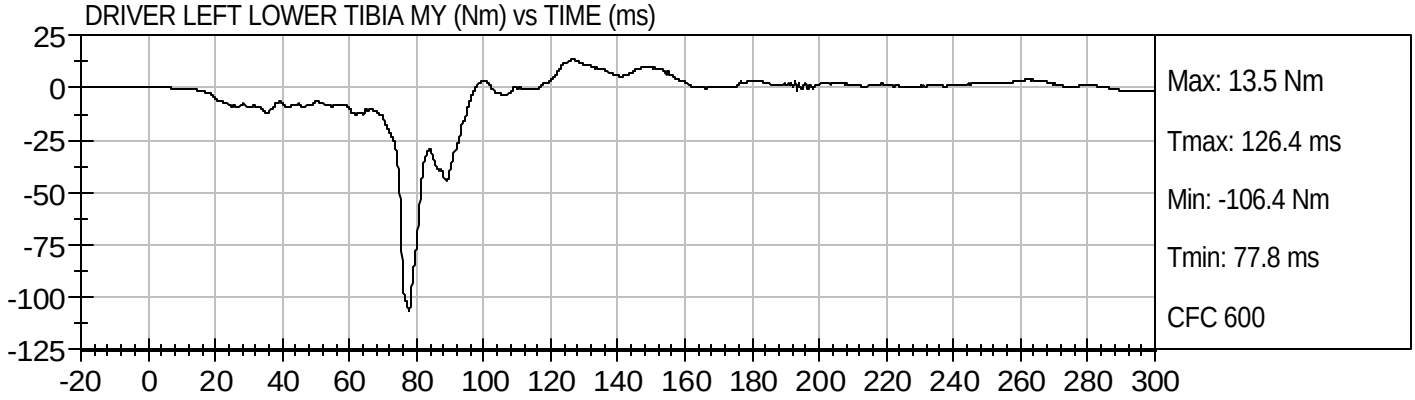
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

DRIVER LEFT LOWER TIBIA MX (Nm) vs TIME (ms)



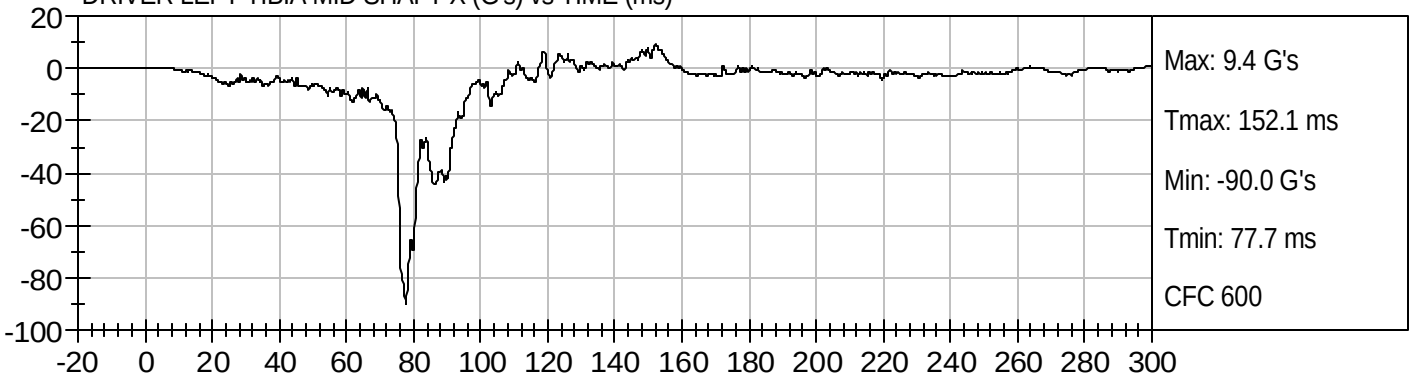
DRIVER LEFT LOWER TIBIA MY (Nm) vs TIME (ms)



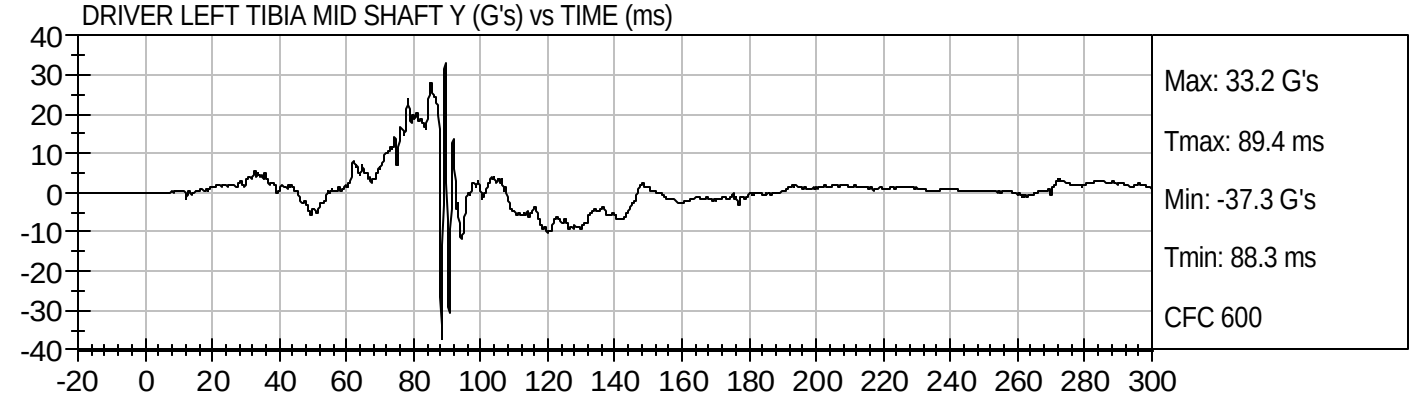
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

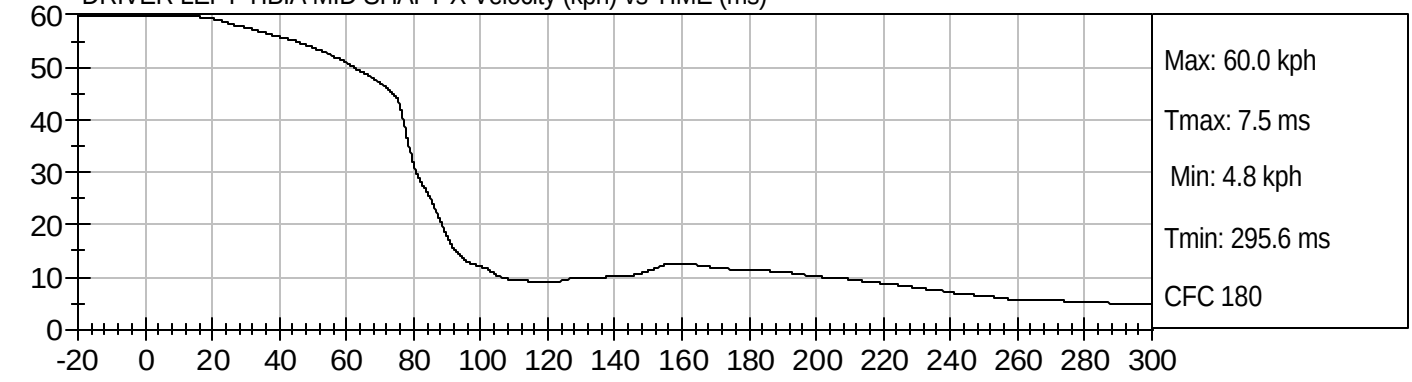
DRIVER LEFT TIBIA MID SHAFT X (G's) vs TIME (ms)



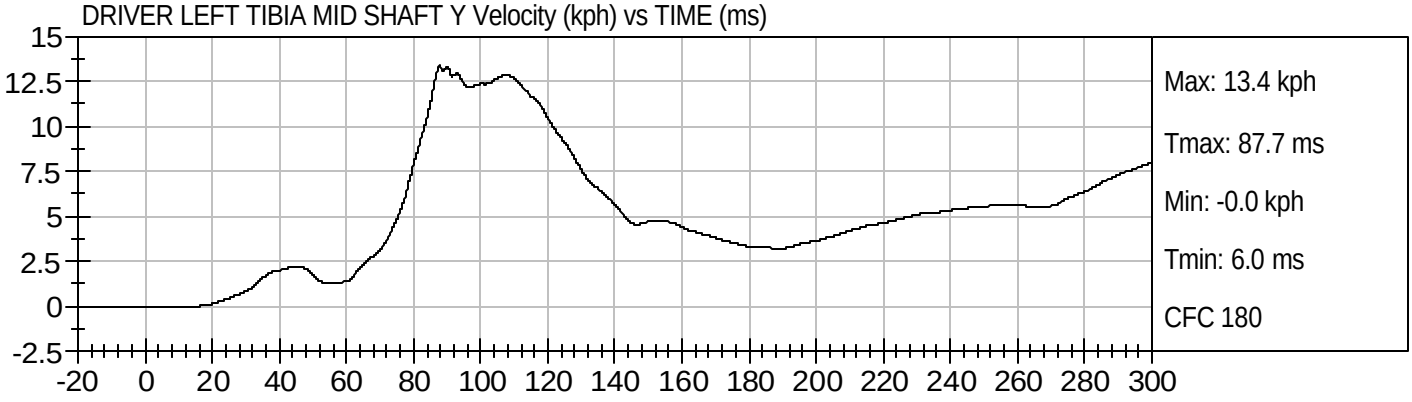
DRIVER LEFT TIBIA MID SHAFT Y (G's) vs TIME (ms)



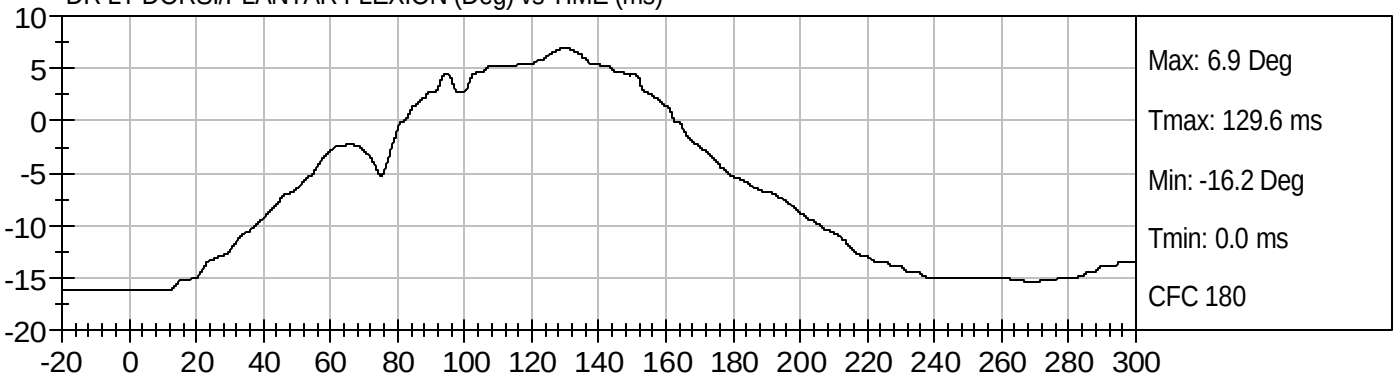
DRIVER LEFT TIBIA MID SHAFT X Velocity (kph) vs TIME (ms)



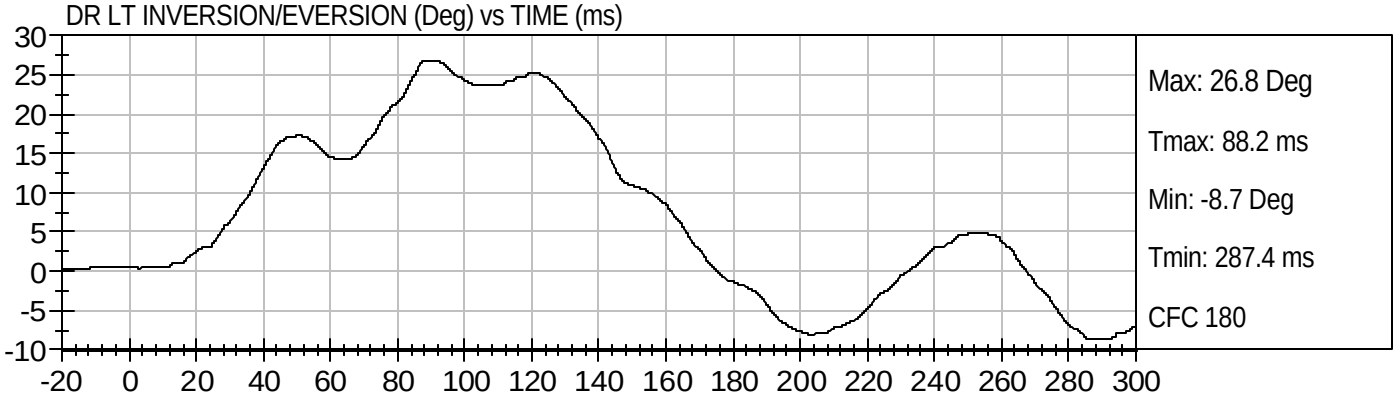
DRIVER LEFT TIBIA MID SHAFT Y Velocity (kph) vs TIME (ms)



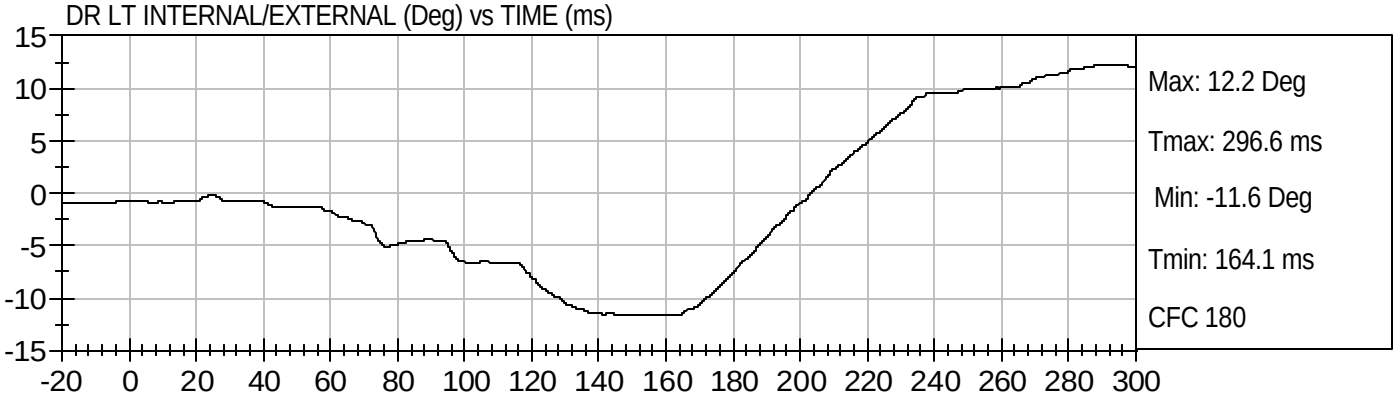
DR LT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)



DR LT INVERSION/EVERSION (Deg) vs TIME (ms)



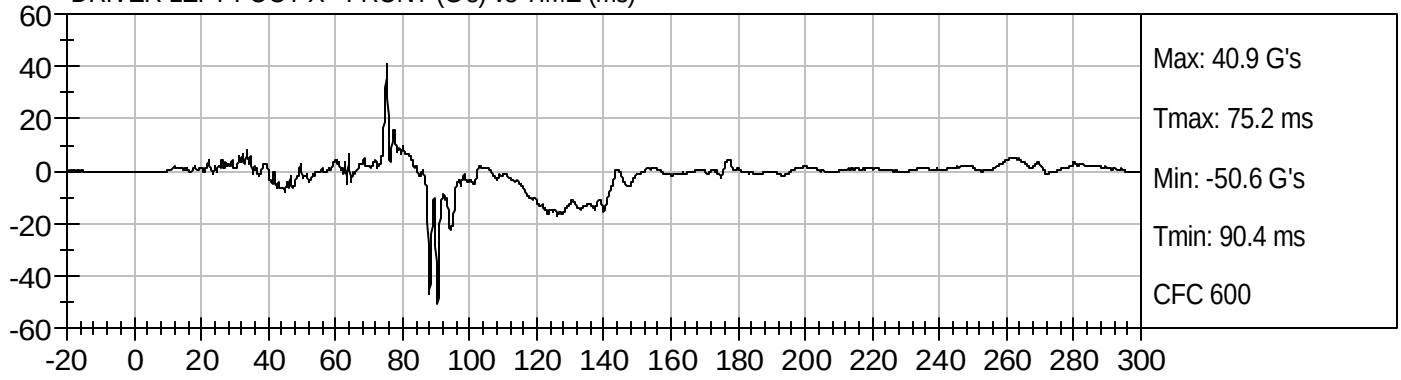
DR LT INTERNAL/EXTERNAL (Deg) vs TIME (ms)



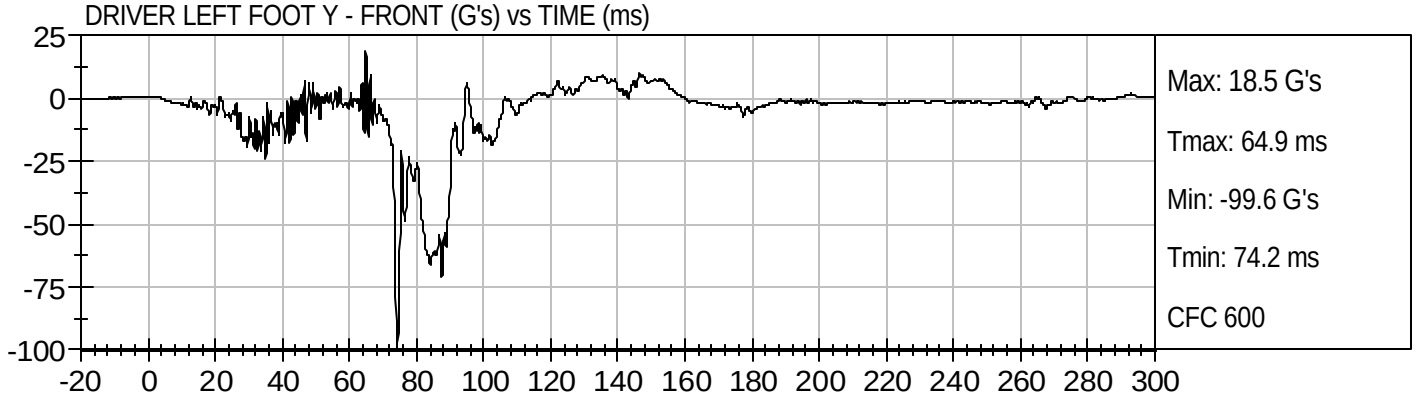
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

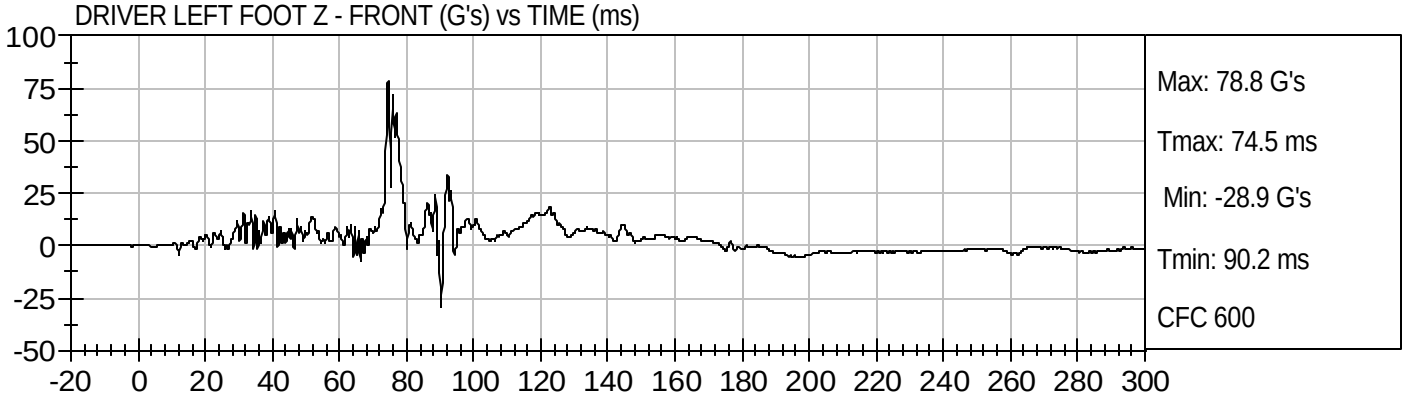
DRIVER LEFT FOOT X - FRONT (G's) vs TIME (ms)



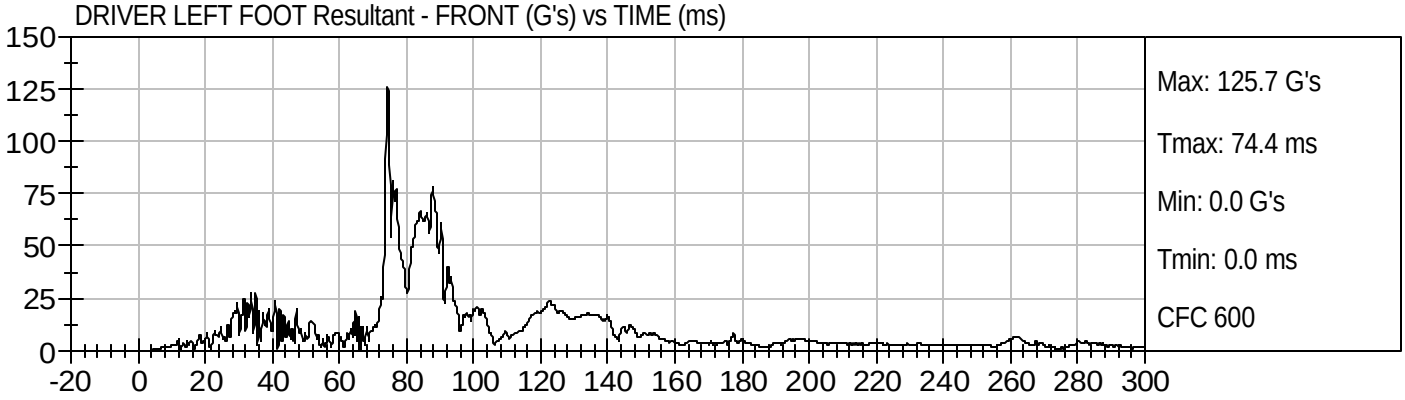
DRIVER LEFT FOOT Y - FRONT (G's) vs TIME (ms)

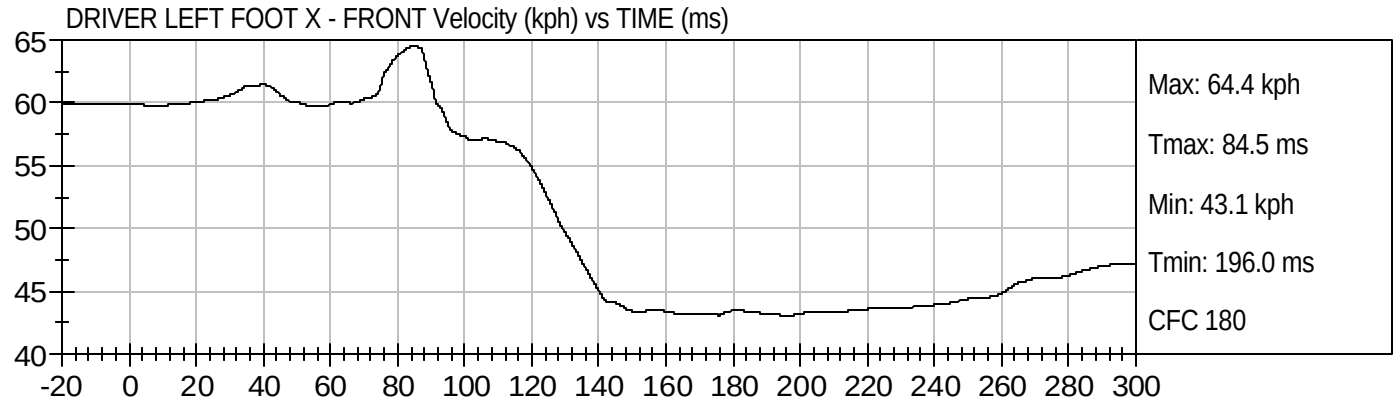


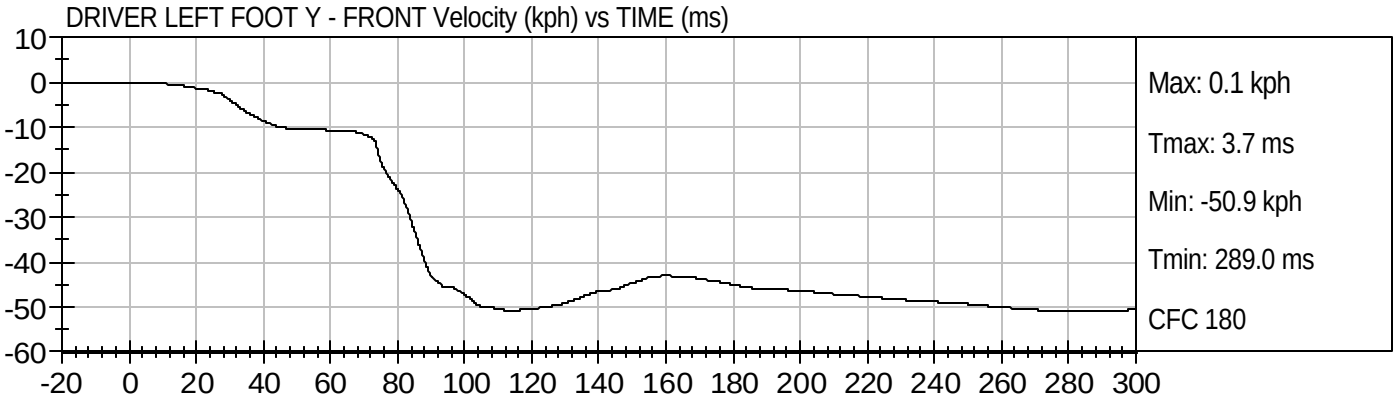
DRIVER LEFT FOOT Z - FRONT (G's) vs TIME (ms)

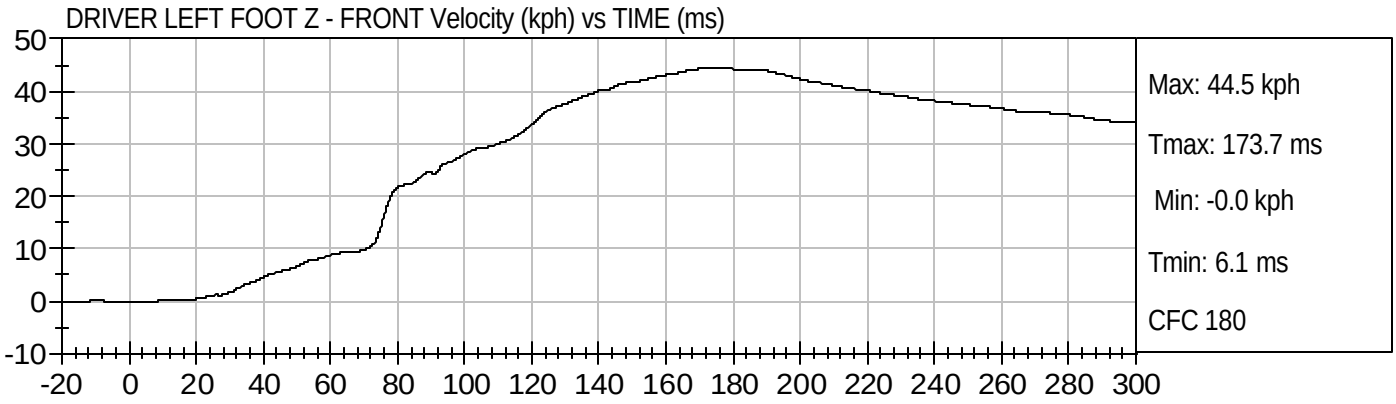


DRIVER LEFT FOOT Resultant - FRONT (G's) vs TIME (ms)



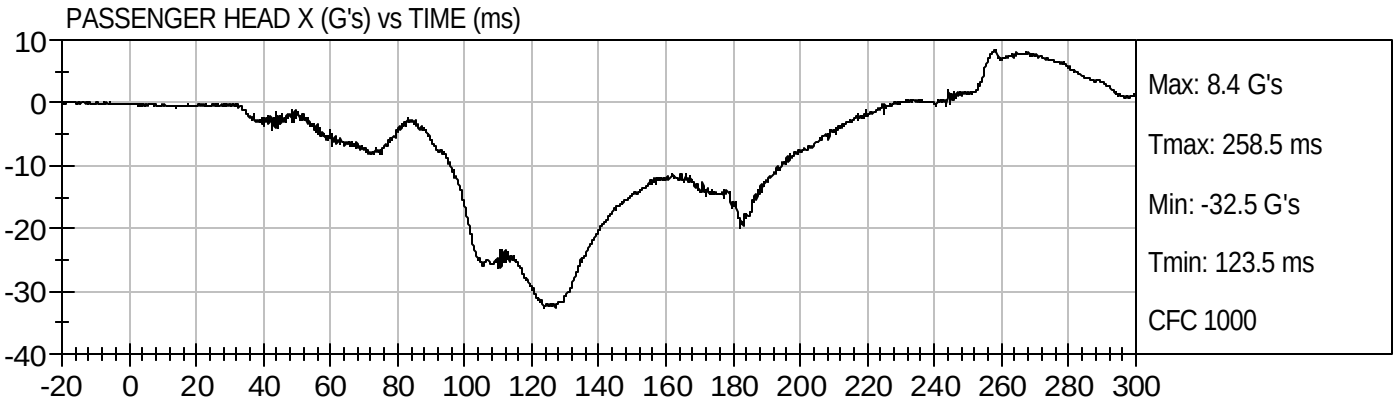

DRIVER LEFT FOOT X - FRONT Velocity (kph) vs TIME (ms)
65
60
55
50
45
40
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 64.4 kph
Tmax: 84.5 ms
Min: 43.1 kph
Tmin: 196.0 ms
CFC 180

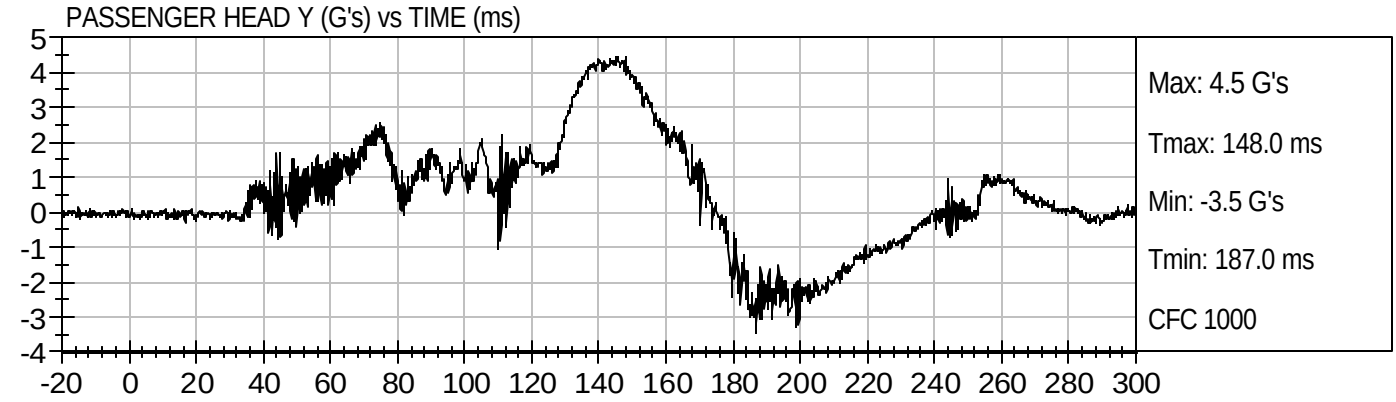

DRIVER LEFT FOOT Y - FRONT Velocity (kph) vs TIME (ms)
10
0
-10
-20
-30
-40
-50
-60
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.1 kph
Tmax: 3.7 ms
Min: -50.9 kph
Tmin: 289.0 ms
CFC 180

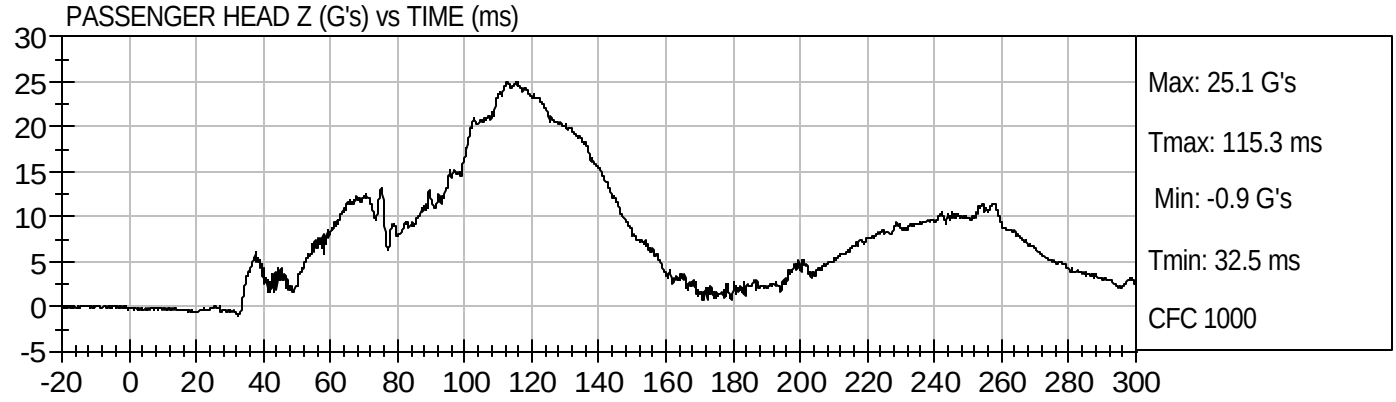

DRIVER LEFT FOOT Z - FRONT Velocity (kph) vs TIME (ms)
50
40
30
20
10
0
-10
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 44.5 kph
Tmax: 173.7 ms
Min: -0.0 kph
Tmin: 6.1 ms
CFC 180

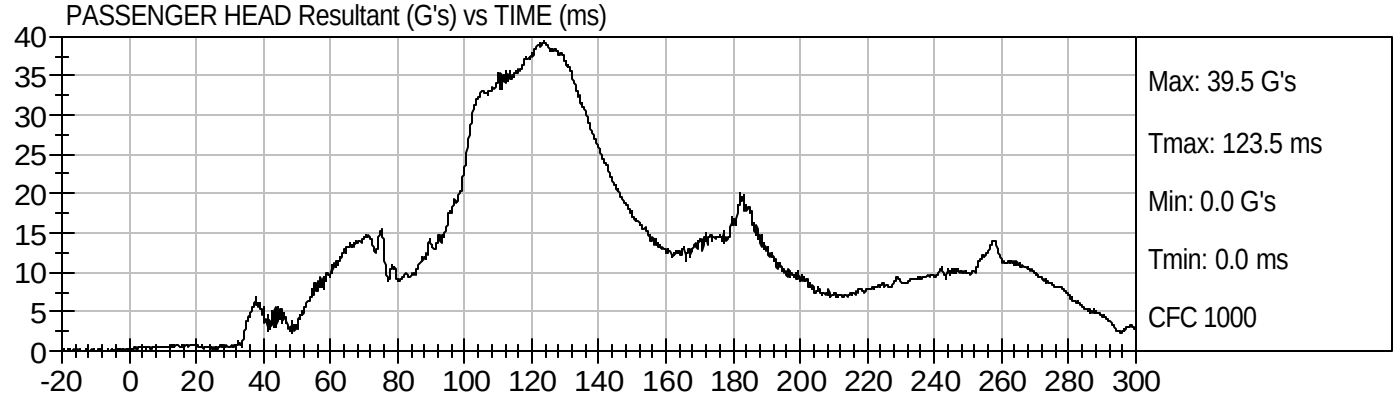
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

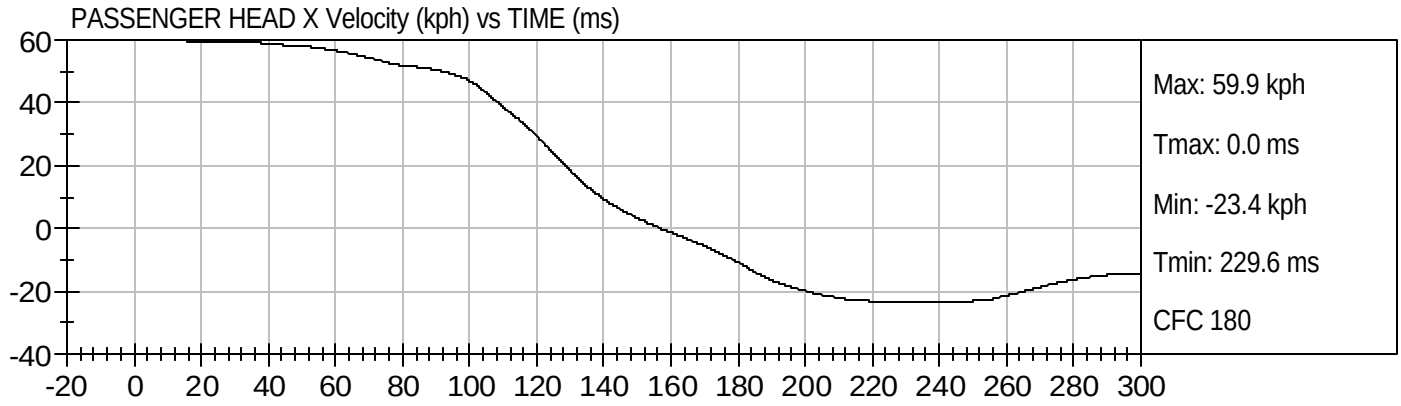
Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

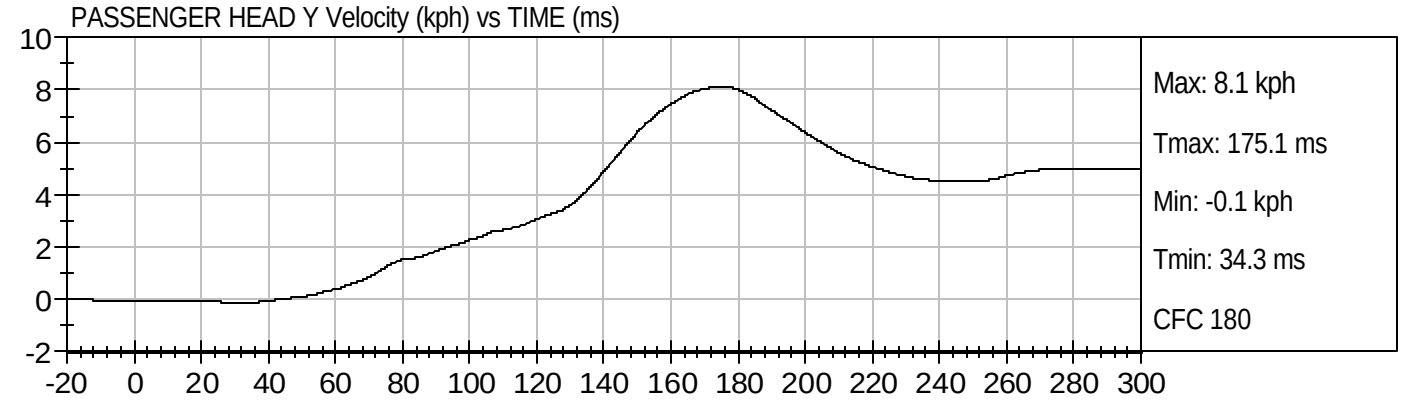


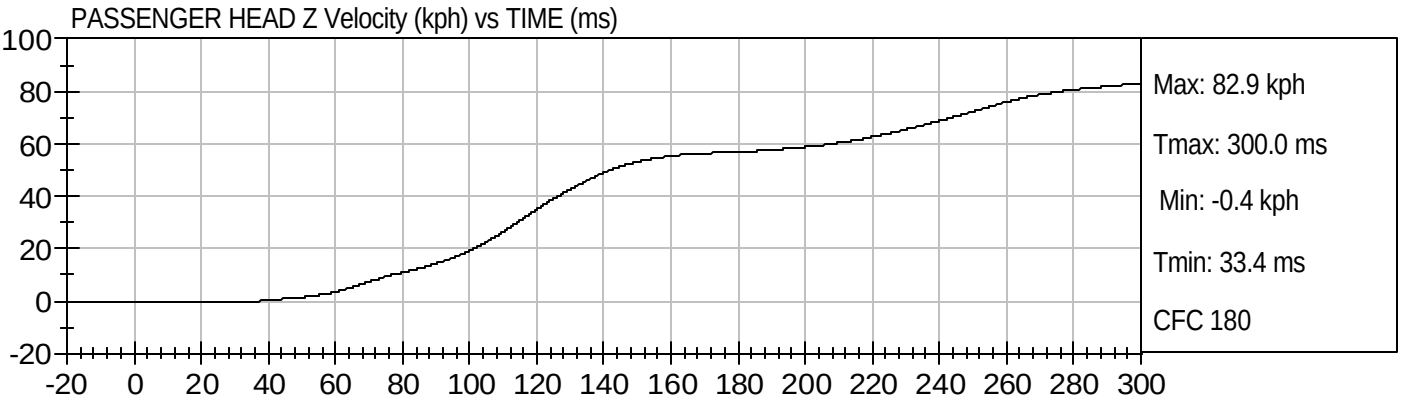







PASSENGER HEAD X Velocity (kph) vs TIME (ms)
60
40
20
0
-20
-40
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 59.9 kph
Tmax: 0.0 ms
Min: -23.4 kph
Tmin: 229.6 ms
CFC 180

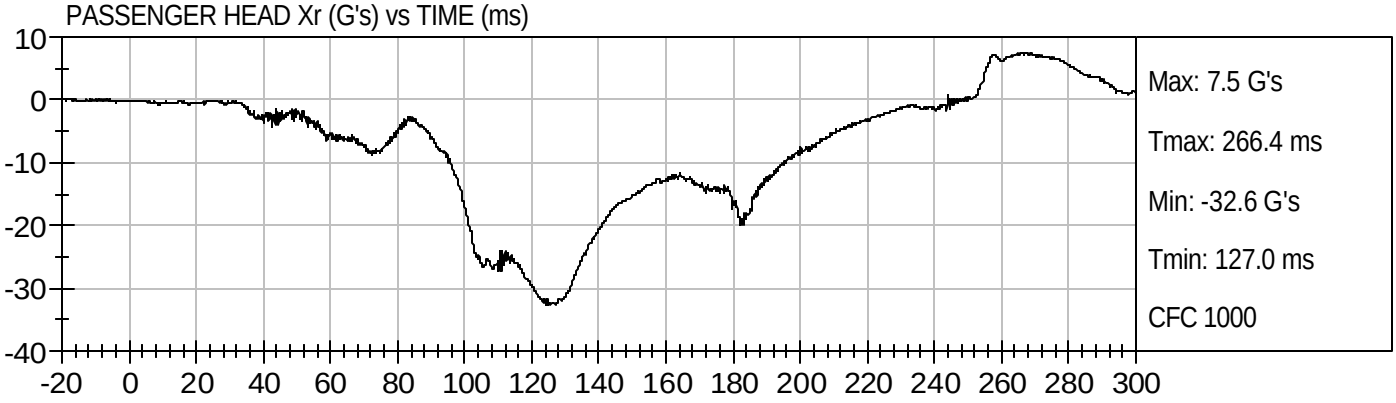

PASSENGER HEAD Y Velocity (kph) vs TIME (ms)
10
8
6
4
2
0
-2
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 8.1 kph
Tmax: 175.1 ms
Min: -0.1 kph
Tmin: 34.3 ms
CFC 180


PASSENGER HEAD Z Velocity (kph) vs TIME (ms)
100
80
60
40
20
0
-20
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 82.9 kph
Tmax: 300.0 ms
Min: -0.4 kph
Tmin: 33.4 ms
CFC 180

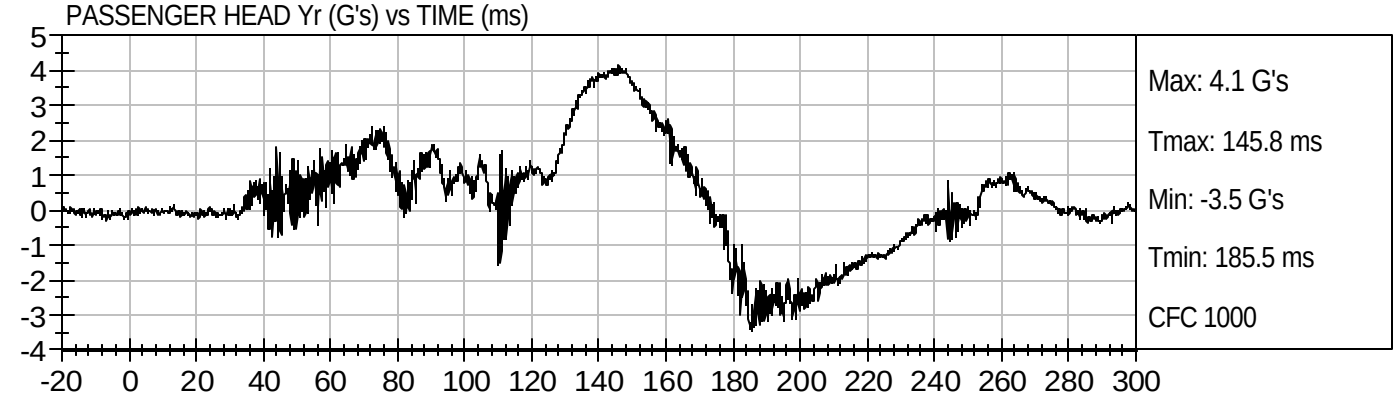
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

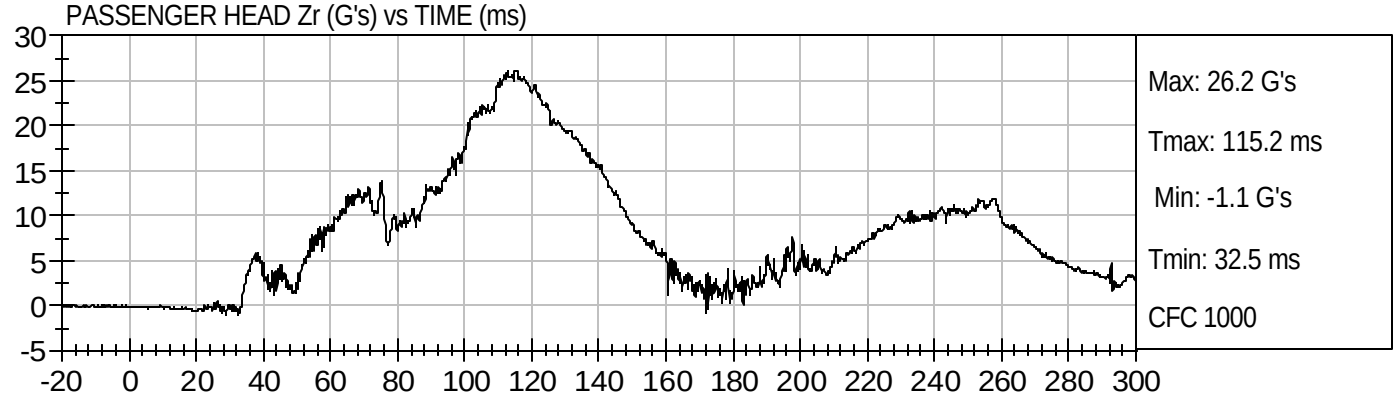
PASSENGER HEAD Xr (G's) vs TIME (ms)



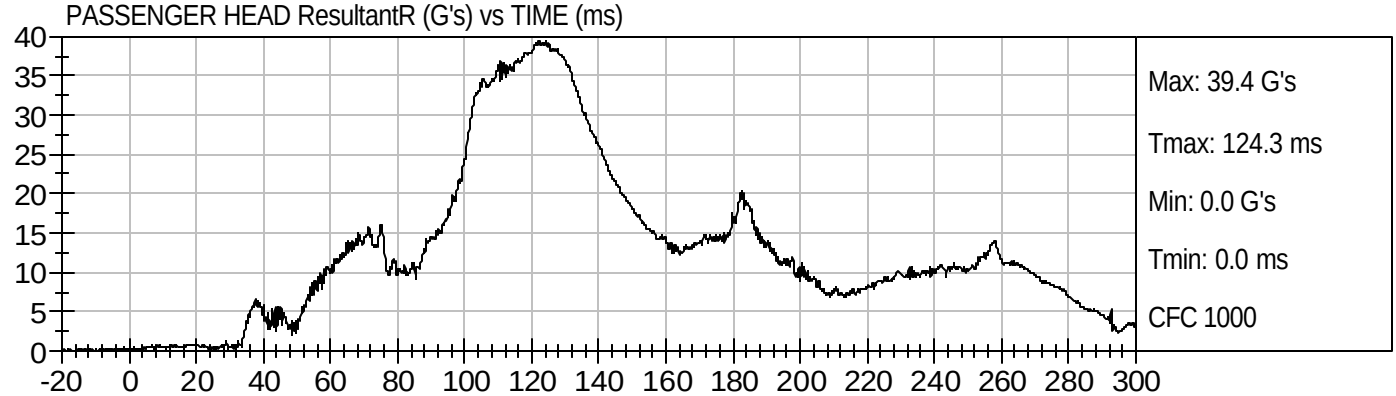
PASSENGER HEAD Yr (G's) vs TIME (ms)

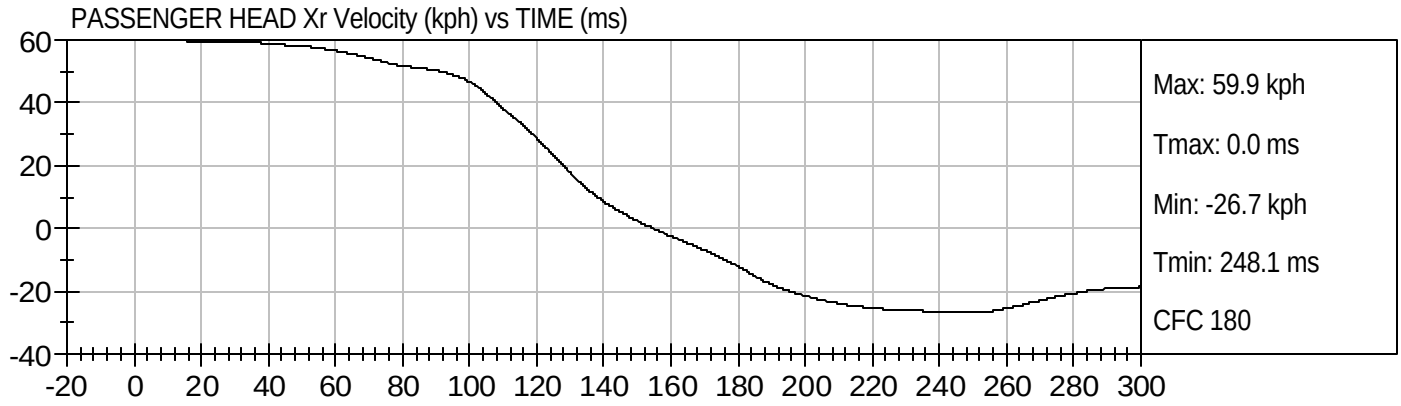


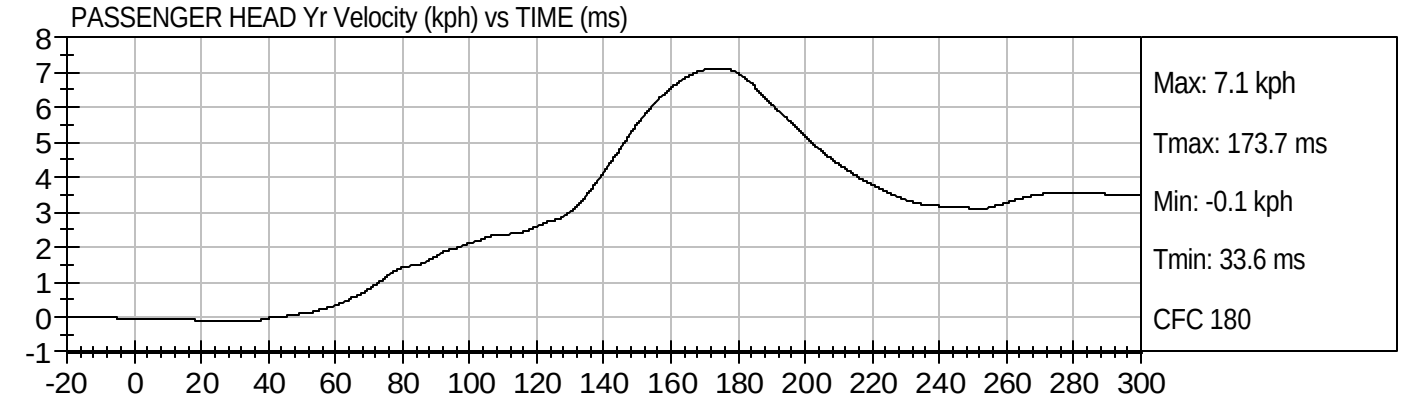
PASSENGER HEAD Zr (G's) vs TIME (ms)

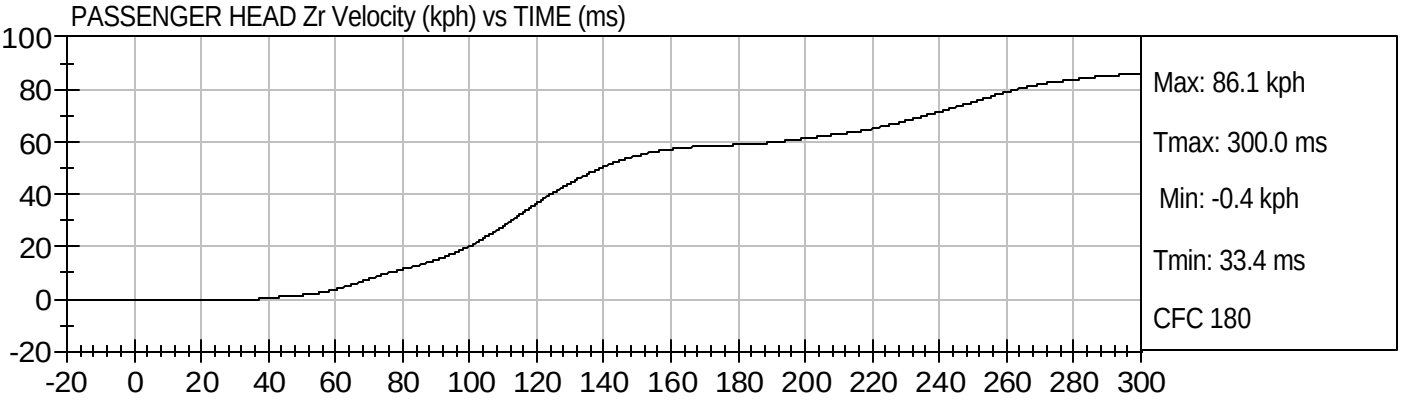


PASSENGER HEAD ResultantR (G's) vs TIME (ms)



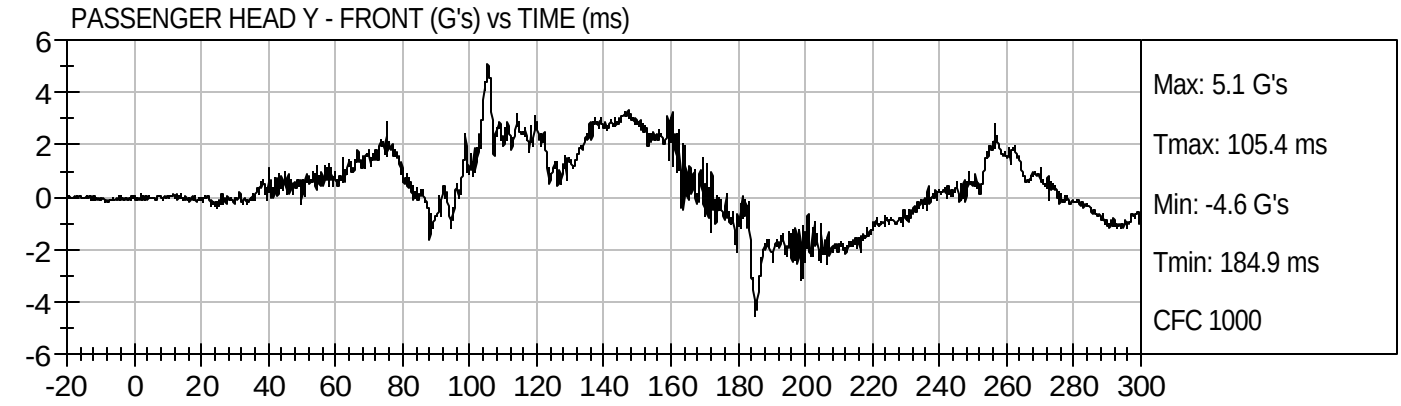

PASSENGER HEAD Xr Velocity (kph) vs TIME (ms)
60
40
20
0
-20
-40
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 59.9 kph
Tmax: 0.0 ms
Min: -26.7 kph
Tmin: 248.1 ms
CFC 180

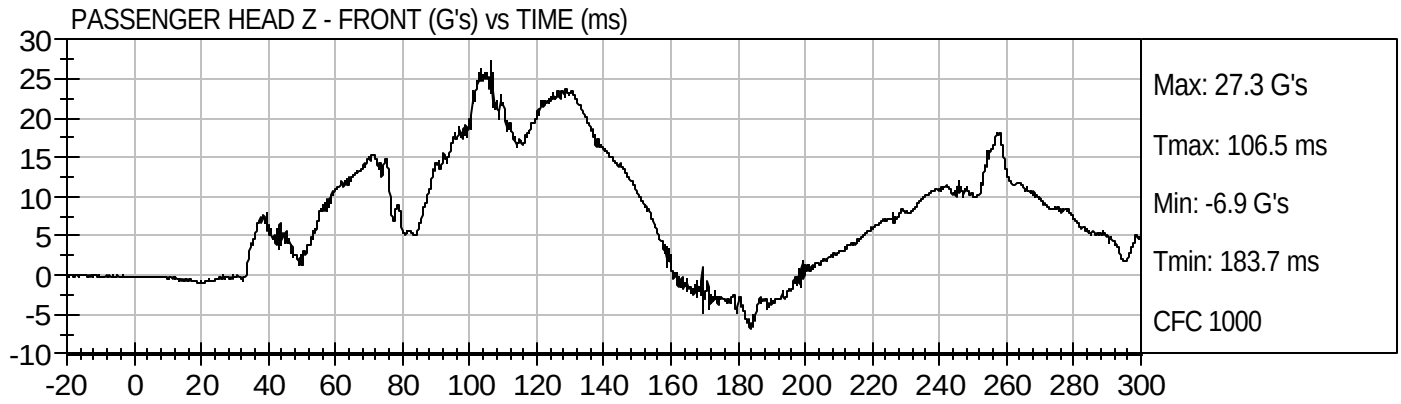

PASSENGER HEAD Yr Velocity (kph) vs TIME (ms)
8
7
6
5
4
3
2
1
0
-1
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 7.1 kph
Tmax: 173.7 ms
Min: -0.1 kph
Tmin: 33.6 ms
CFC 180

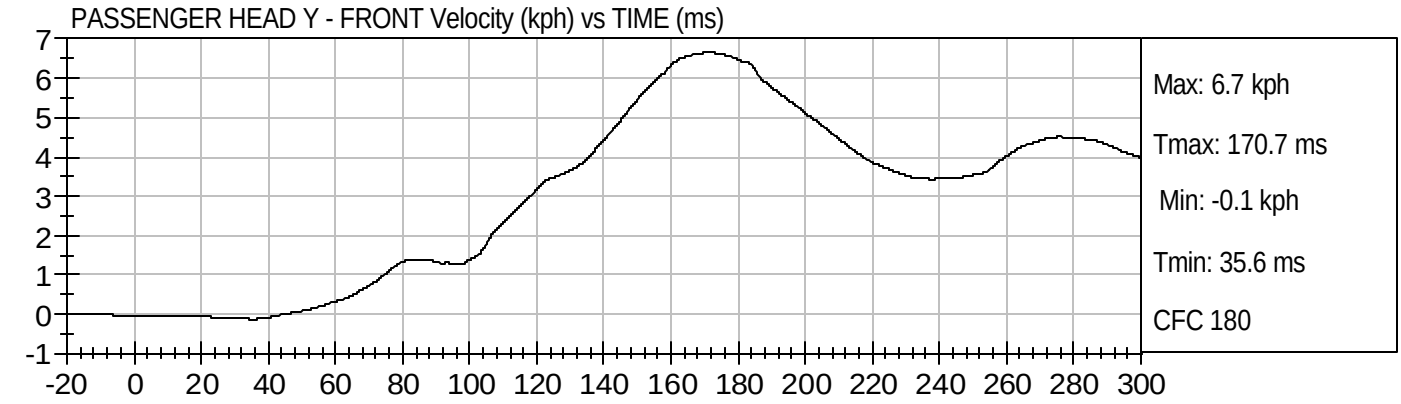

PASSENGER HEAD Zr Velocity (kph) vs TIME (ms)
100
80
60
40
20
0
-20
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 86.1 kph
Tmax: 300.0 ms
Min: -0.4 kph
Tmin: 33.4 ms
CFC 180

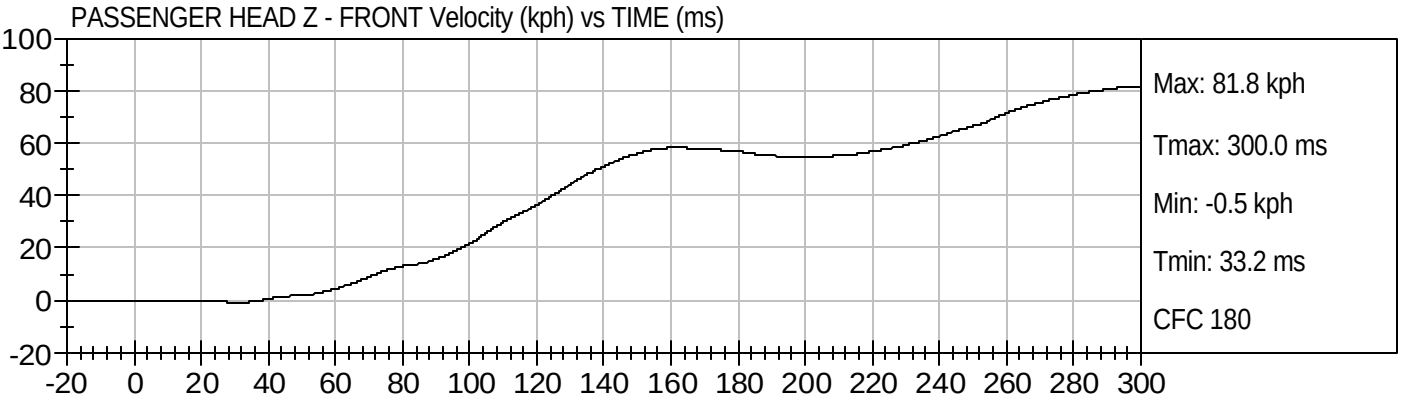
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)





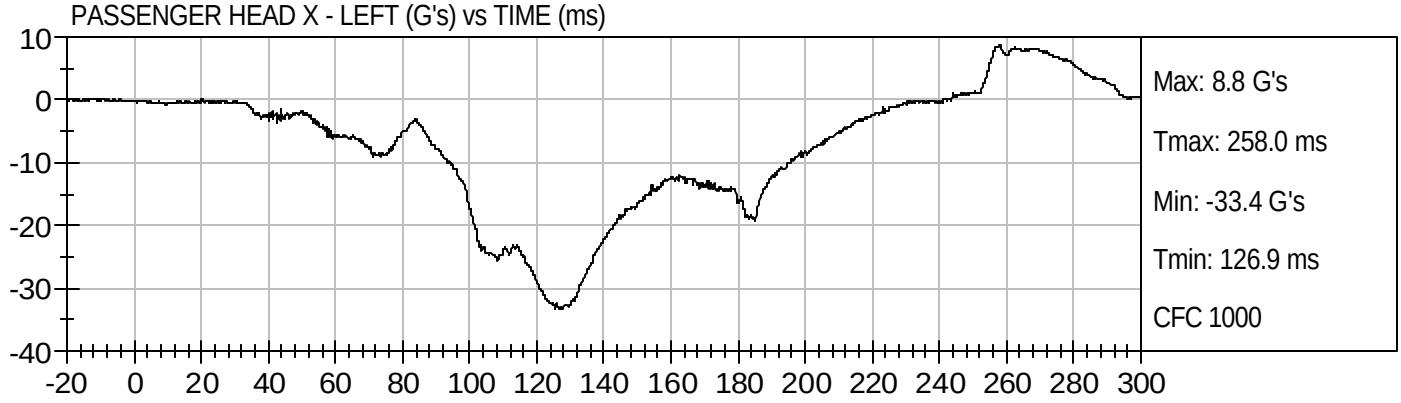




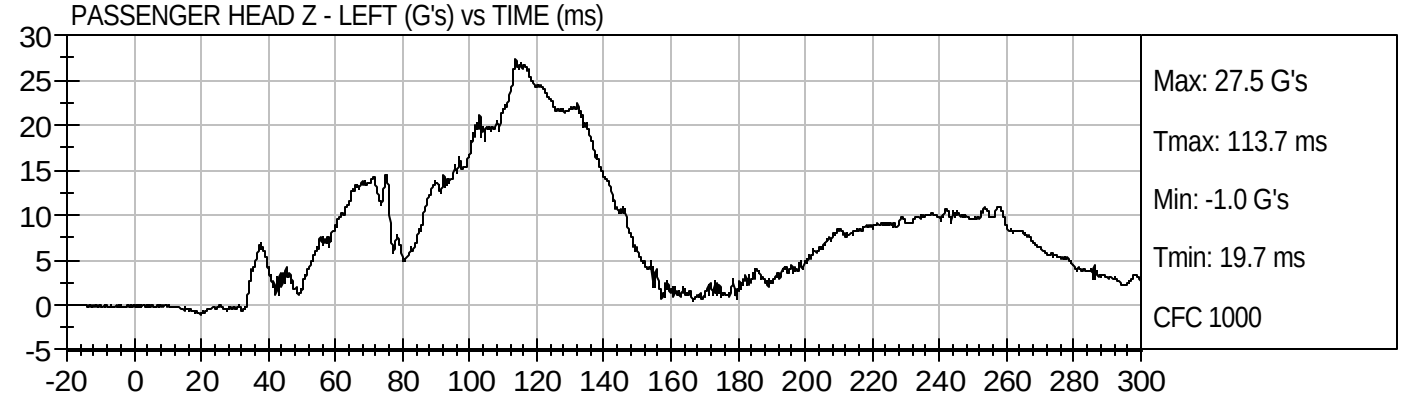
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

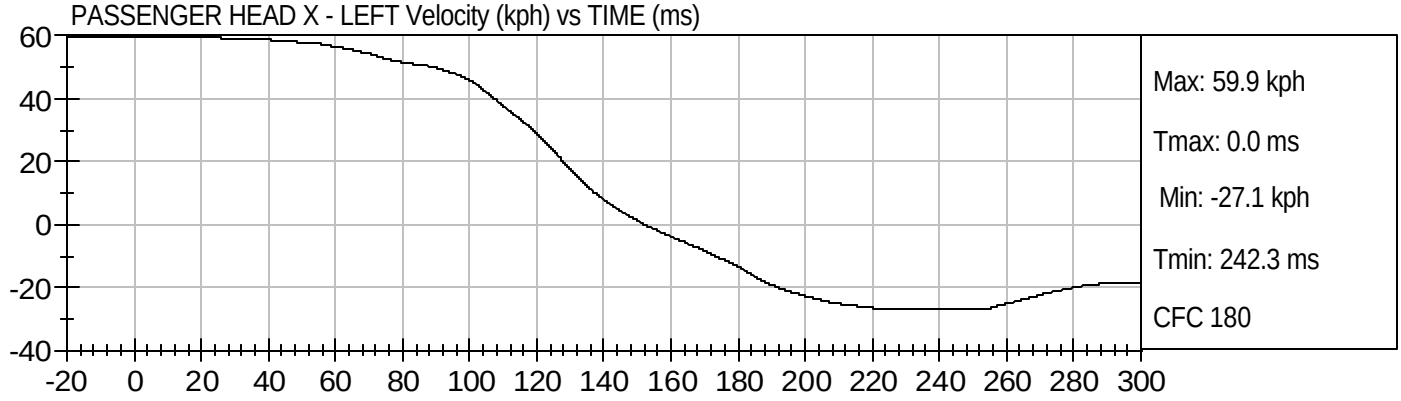
PASSENGER HEAD X - LEFT (G's) vs TIME (ms)



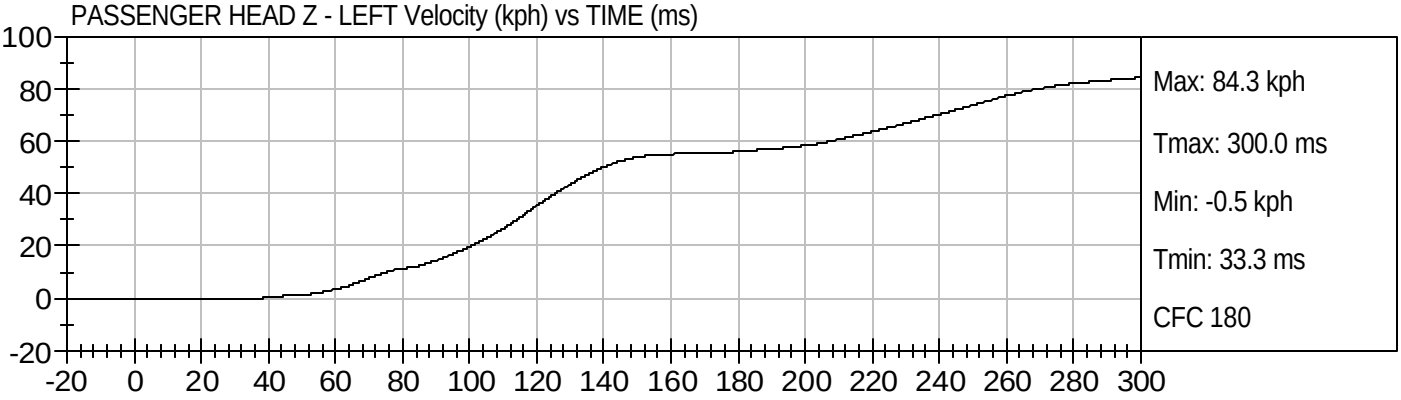
PASSENGER HEAD Z - LEFT (G's) vs TIME (ms)



PASSENGER HEAD X - LEFT Velocity (kph) vs TIME (ms)



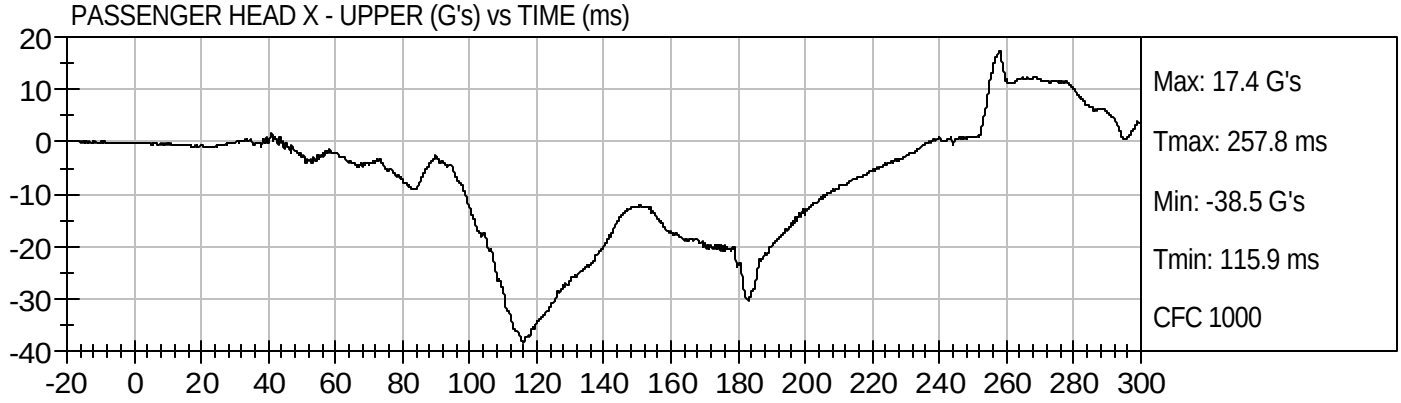
PASSENGER HEAD Z - LEFT Velocity (kph) vs TIME (ms)



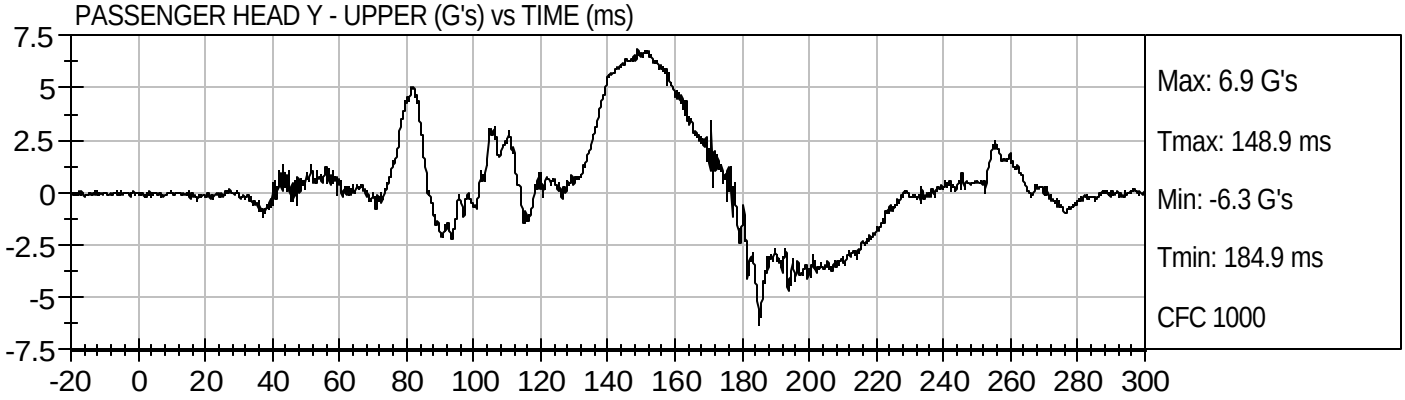
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

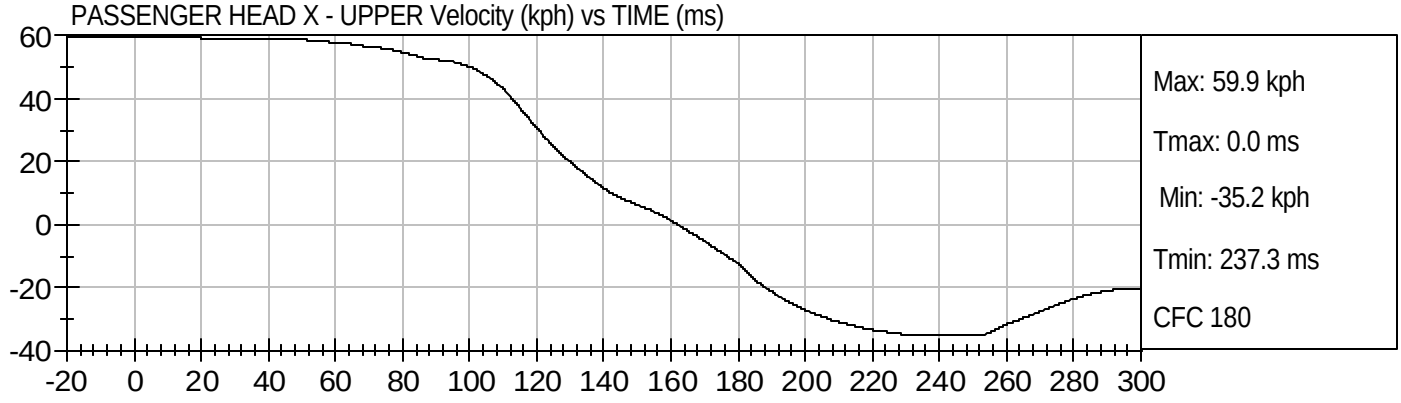
PASSENGER HEAD X - UPPER (G's) vs TIME (ms)



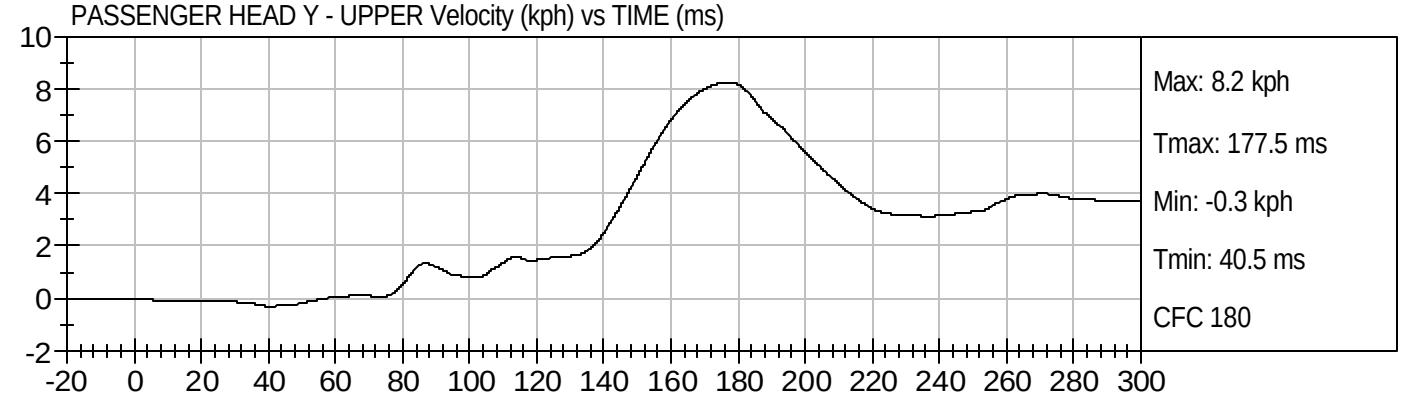
PASSENGER HEAD Y - UPPER (G's) vs TIME (ms)



PASSENGER HEAD X - UPPER Velocity (kph) vs TIME (ms)



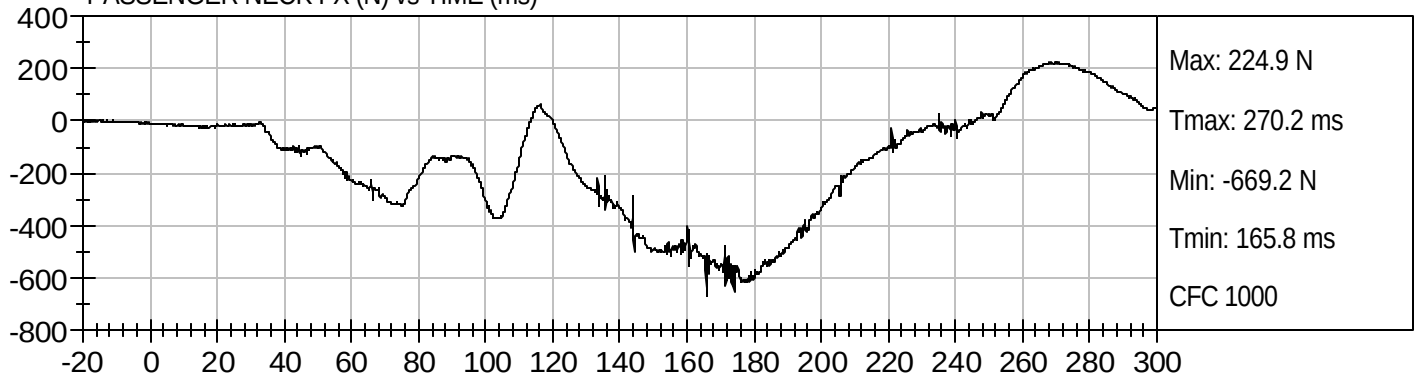
PASSENGER HEAD Y - UPPER Velocity (kph) vs TIME (ms)



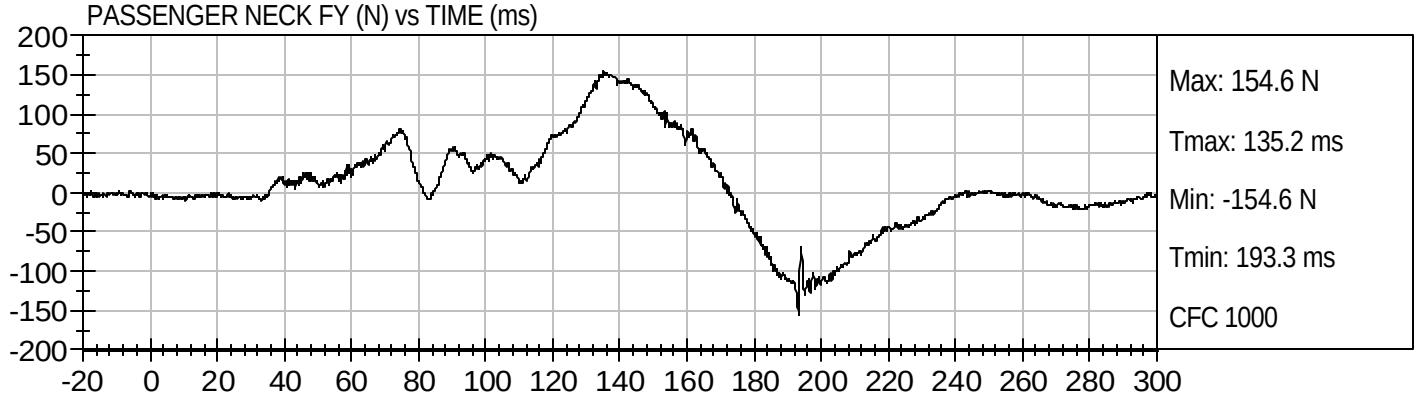
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

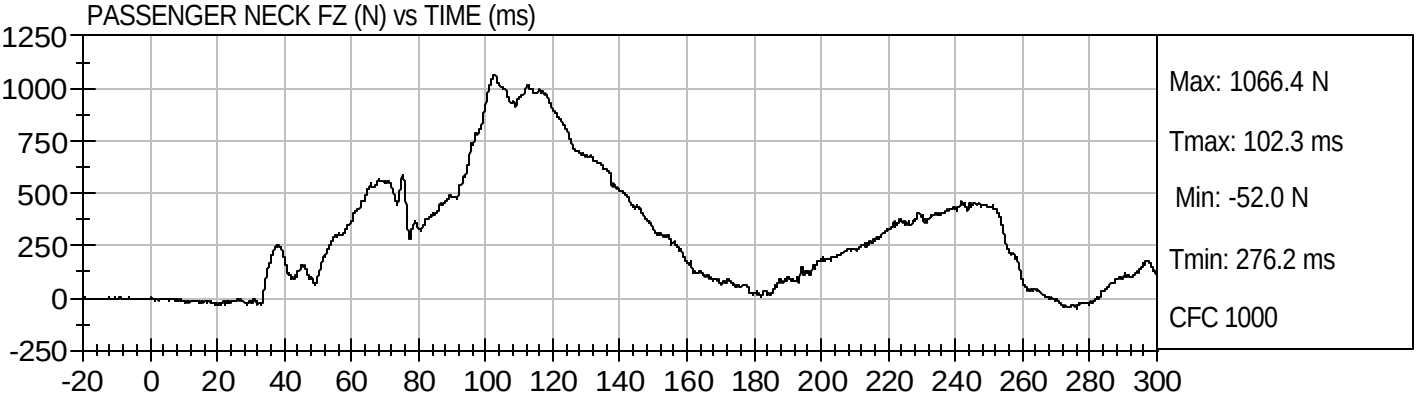
PASSENGER NECK FX (N) vs TIME (ms)



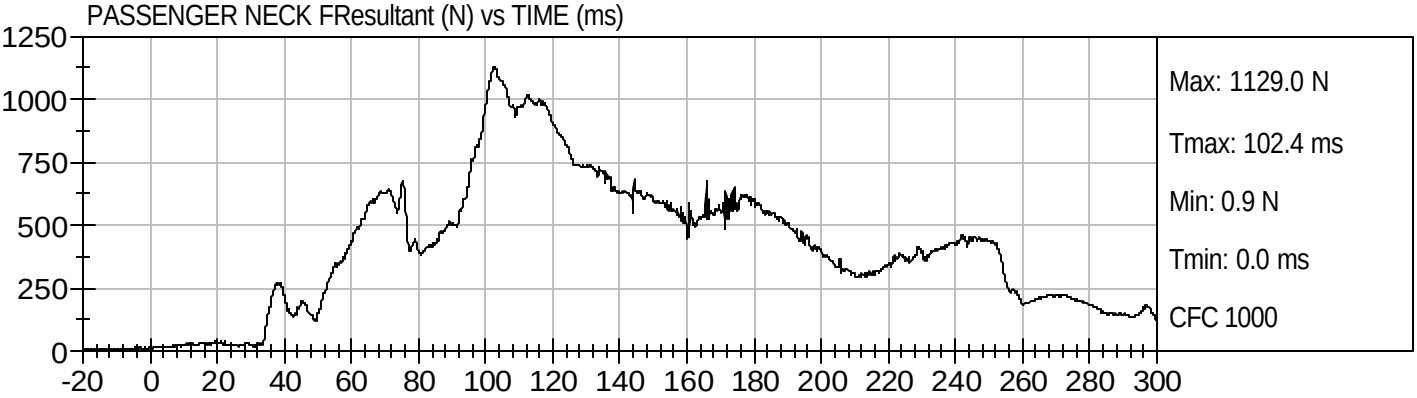
PASSENGER NECK FY (N) vs TIME (ms)



PASSENGER NECK FZ (N) vs TIME (ms)



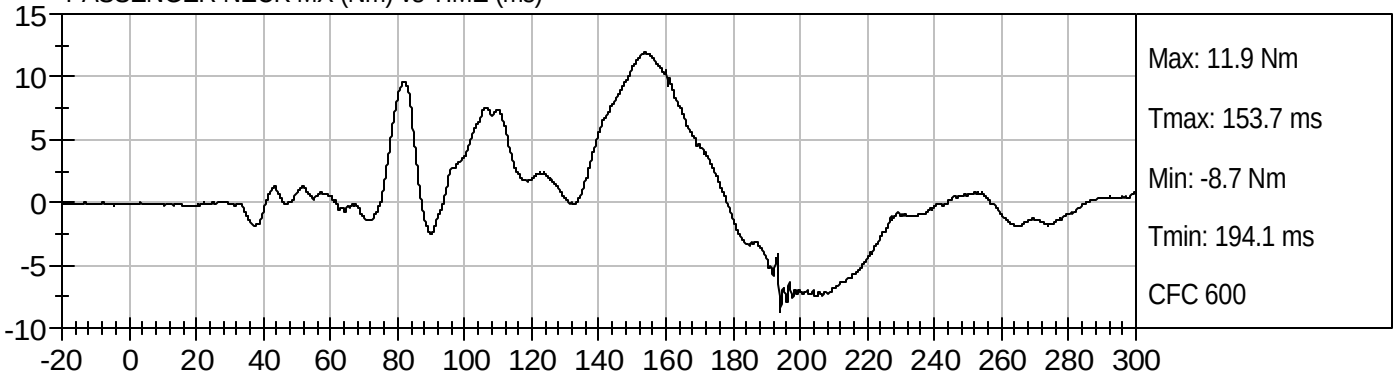
PASSENGER NECK FResultant (N) vs TIME (ms)



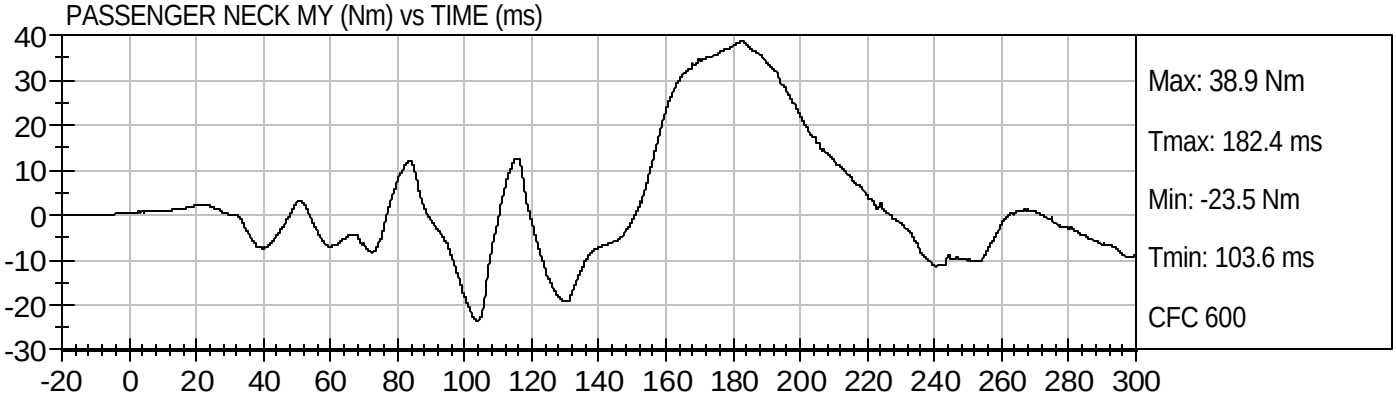
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

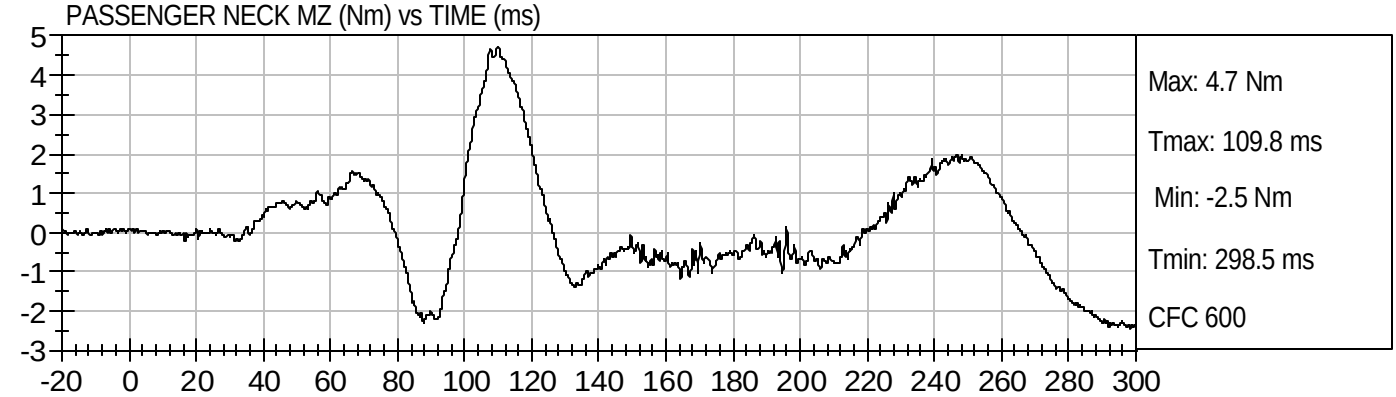
PASSENGER NECK MX (Nm) vs TIME (ms)



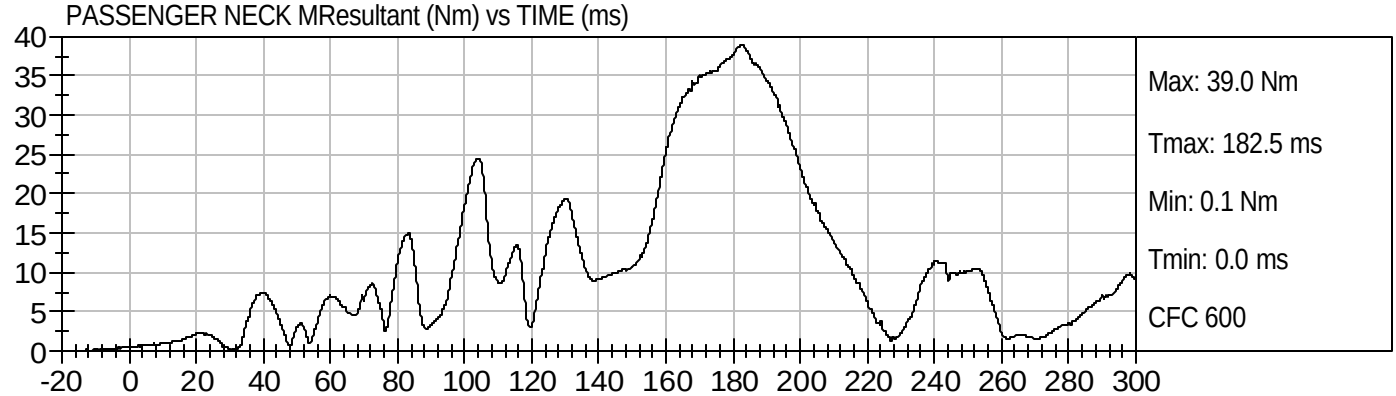
PASSENGER NECK MY (Nm) vs TIME (ms)



PASSENGER NECK MZ (Nm) vs TIME (ms)



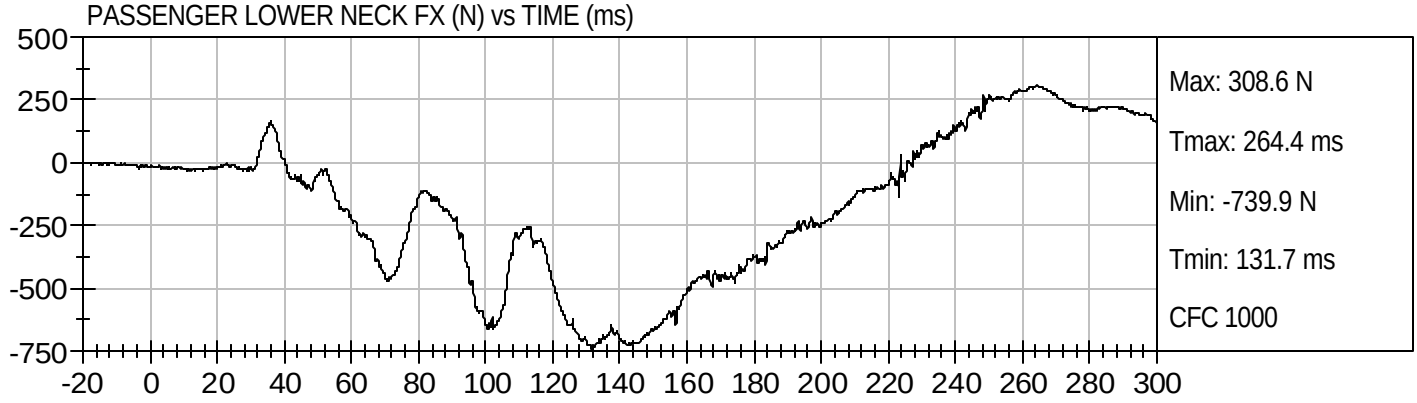
PASSENGER NECK MResultant (Nm) vs TIME (ms)



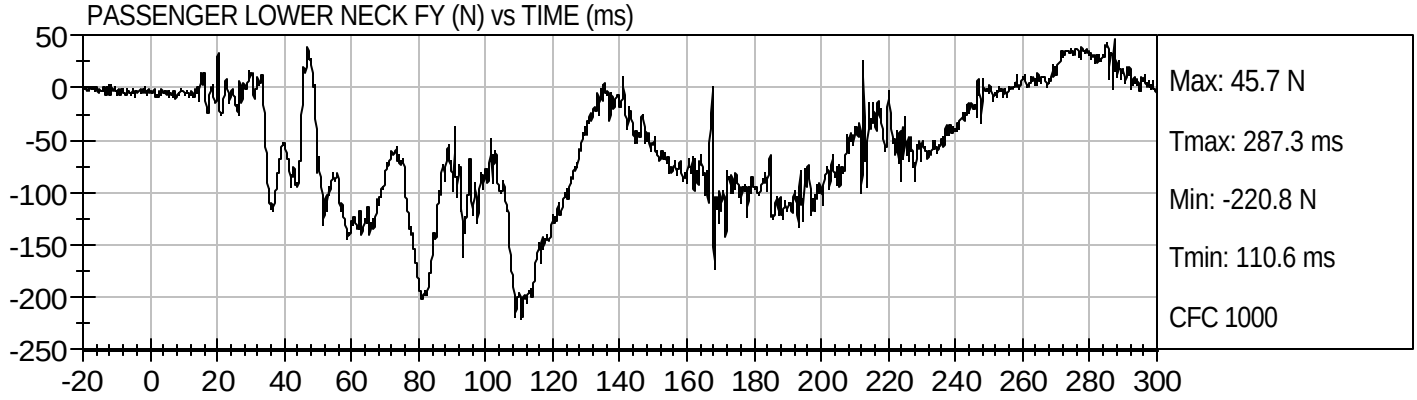
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

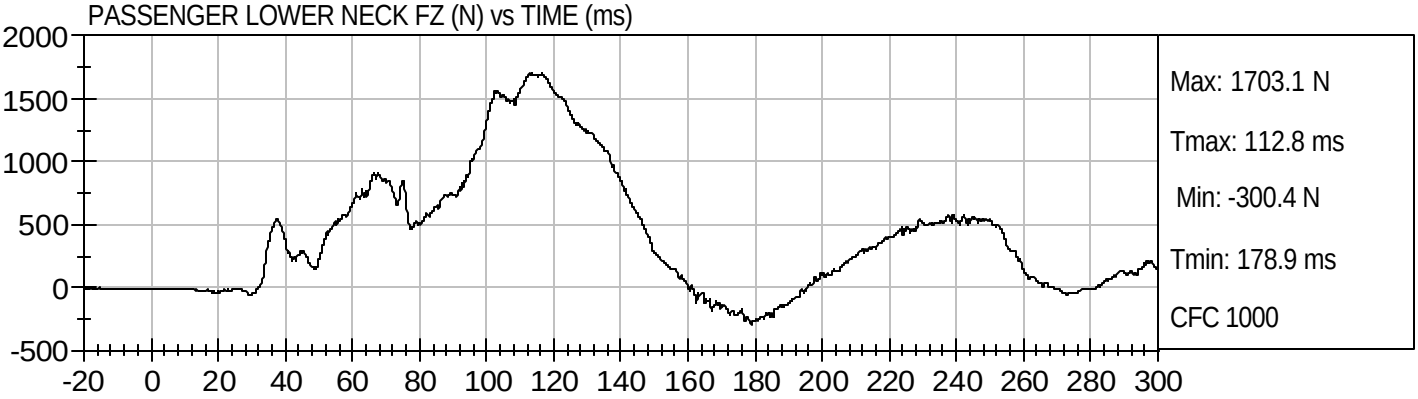
PASSENGER LOWER NECK FX (N) vs TIME (ms)



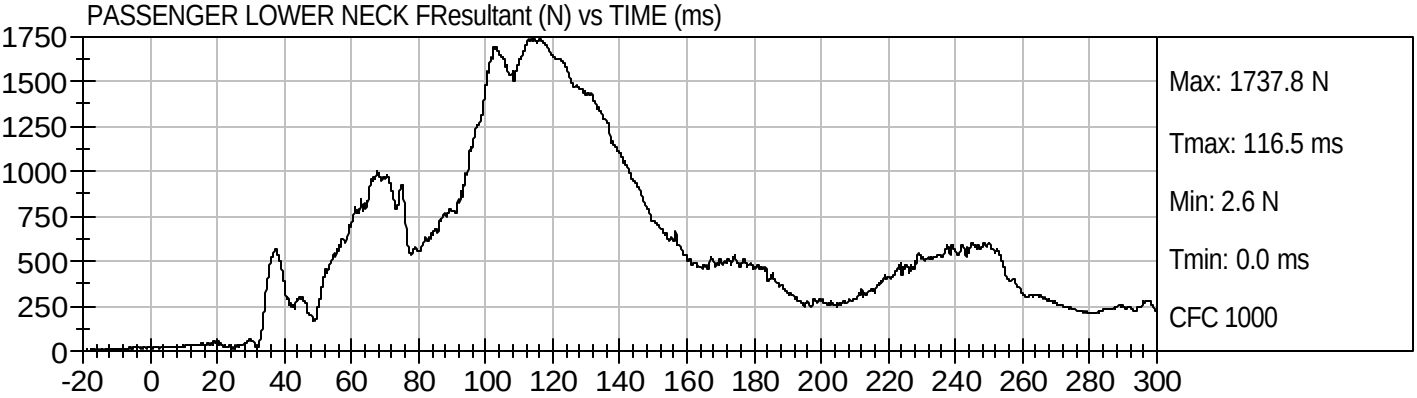
PASSENGER LOWER NECK FY (N) vs TIME (ms)



PASSENGER LOWER NECK FZ (N) vs TIME (ms)



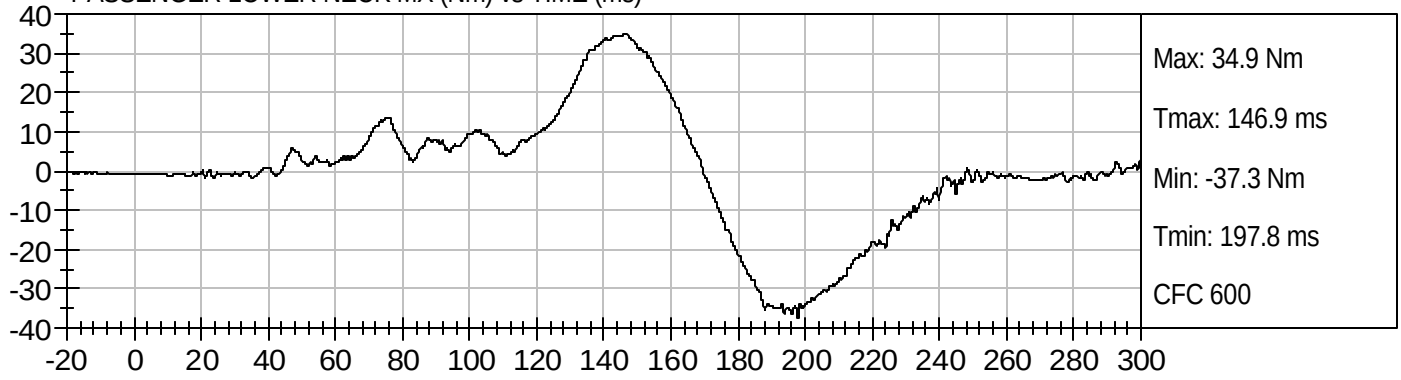
PASSENGER LOWER NECK FResultant (N) vs TIME (ms)



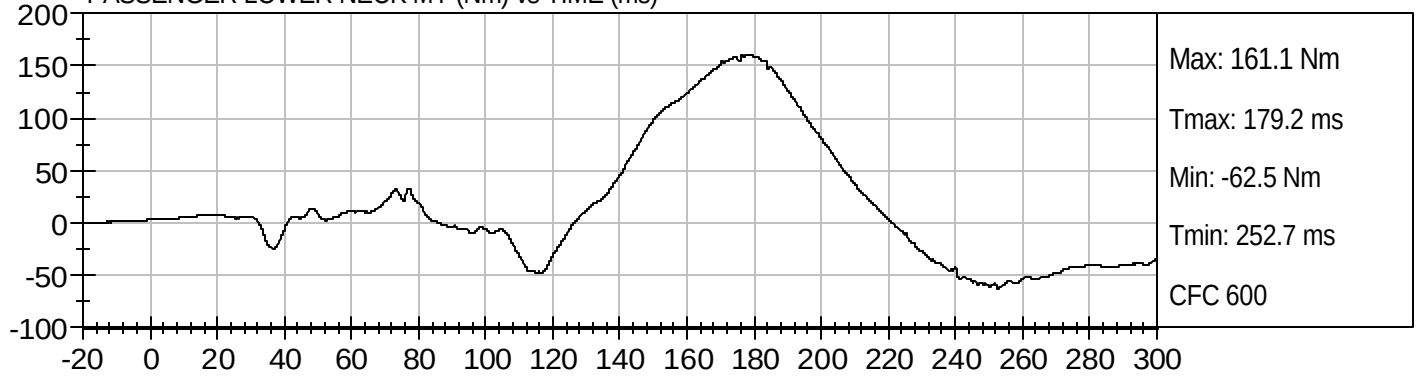
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

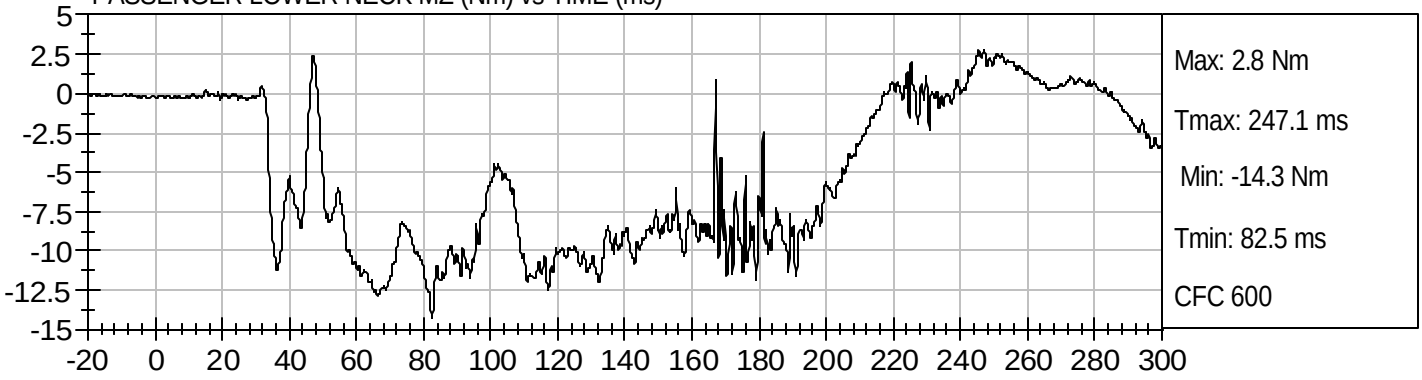
PASSENGER LOWER NECK MX (Nm) vs TIME (ms)



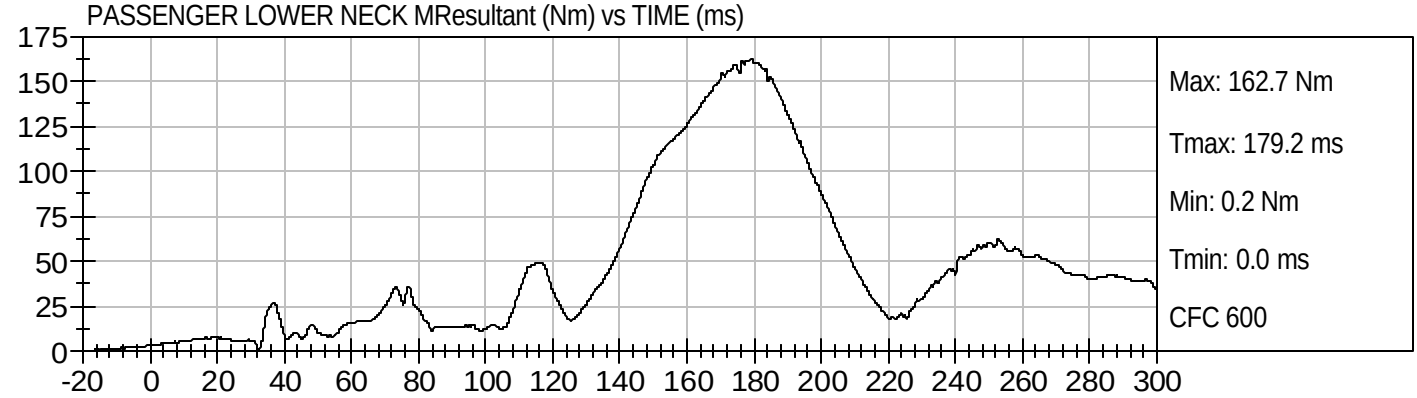
PASSENGER LOWER NECK MY (Nm) vs TIME (ms)



PASSENGER LOWER NECK MZ (Nm) vs TIME (ms)



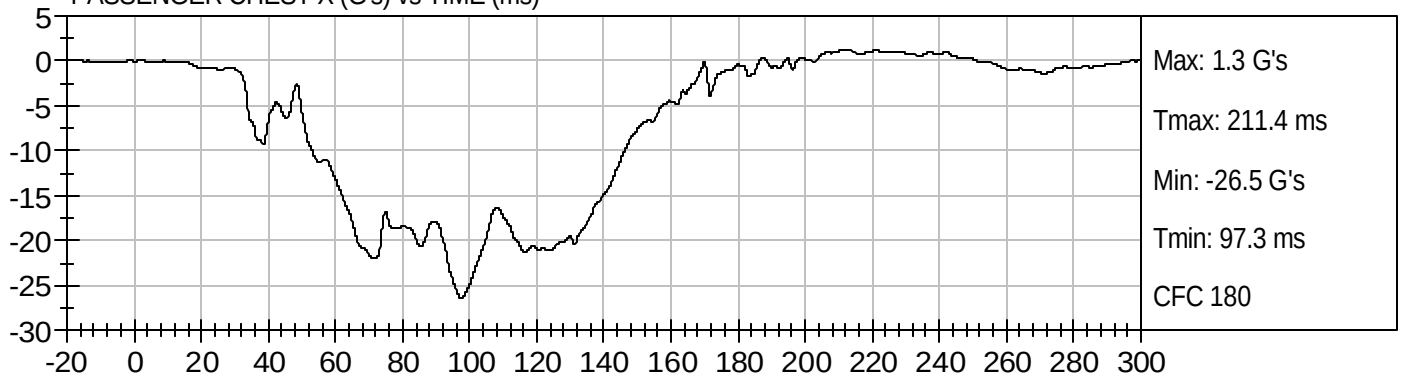
PASSENGER LOWER NECK MResultant (Nm) vs TIME (ms)



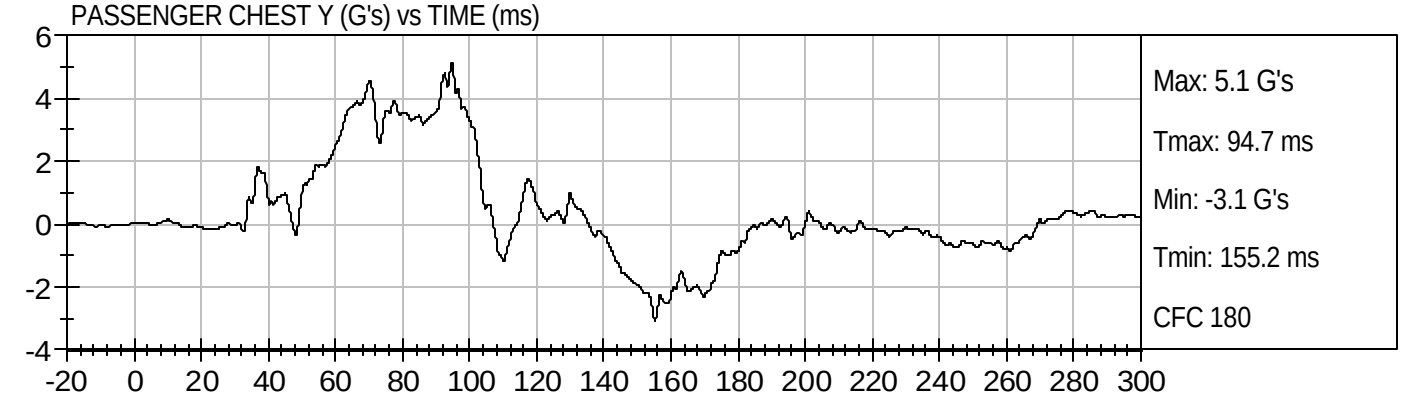
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

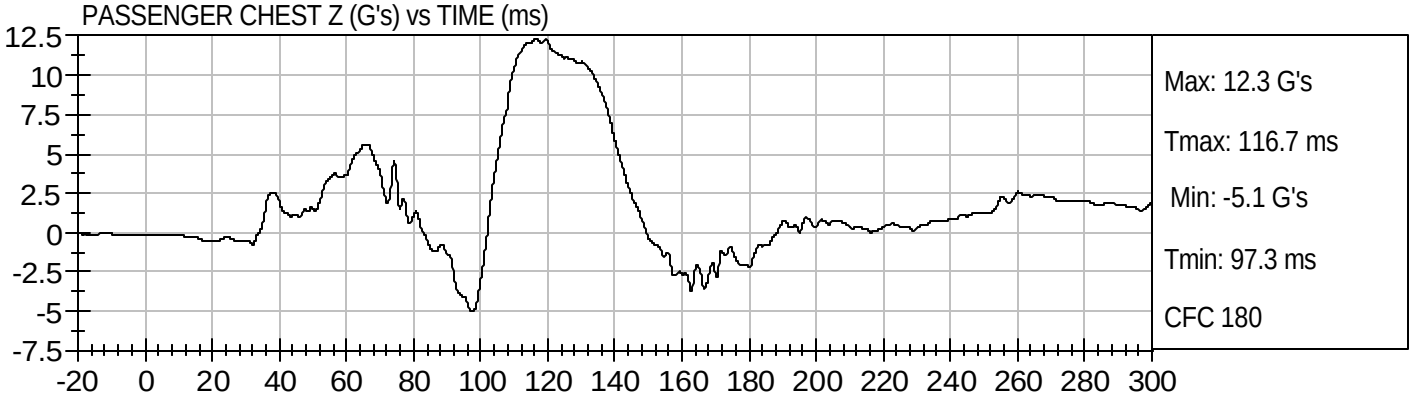
PASSENGER CHEST X (G's) vs TIME (ms)



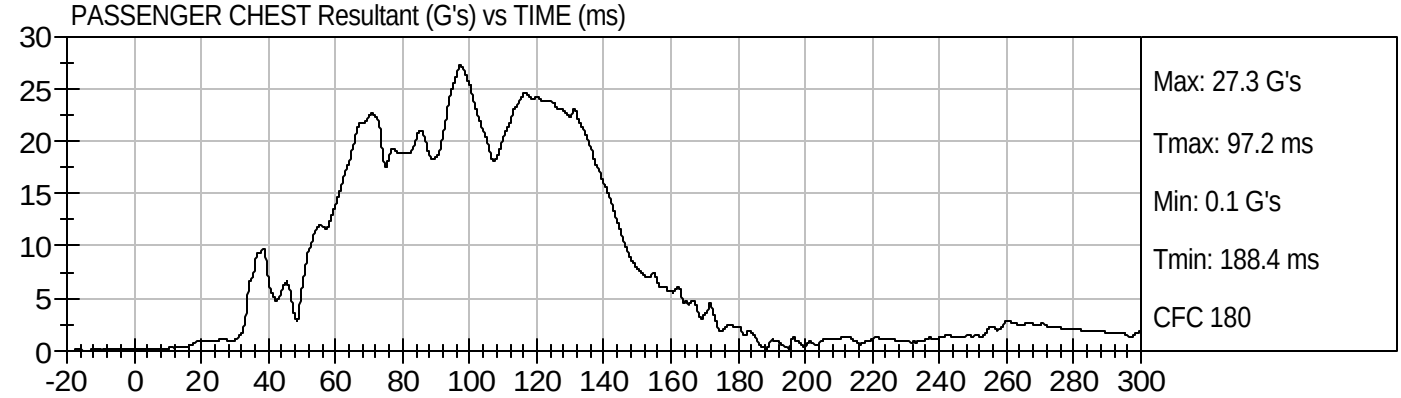
PASSENGER CHEST Y (G's) vs TIME (ms)



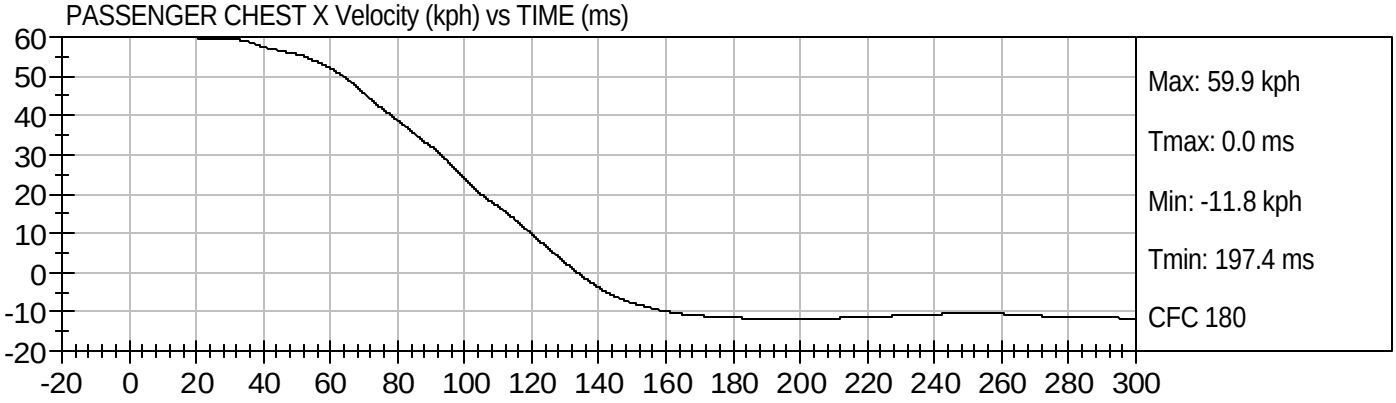
PASSENGER CHEST Z (G's) vs TIME (ms)



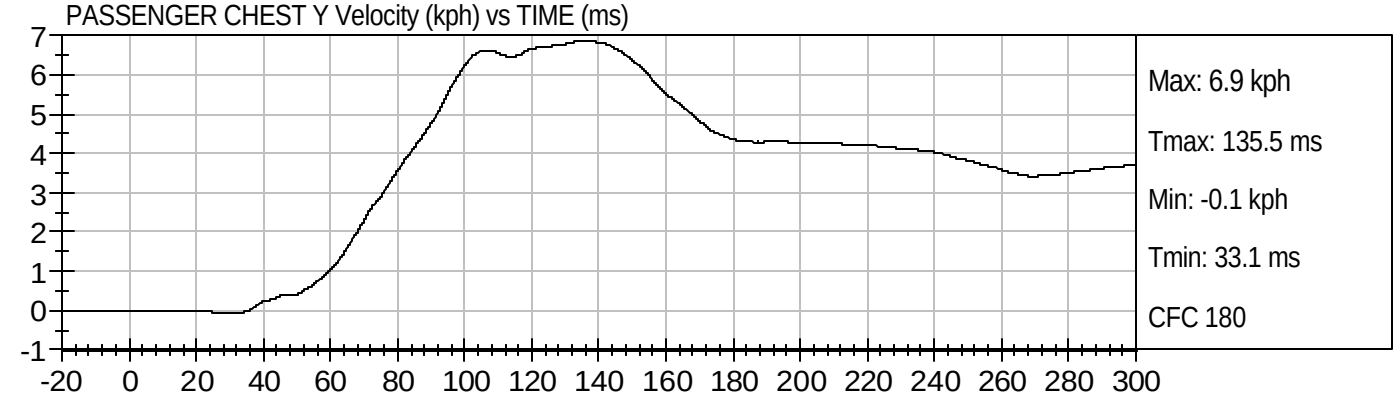
PASSENGER CHEST Resultant (G's) vs TIME (ms)



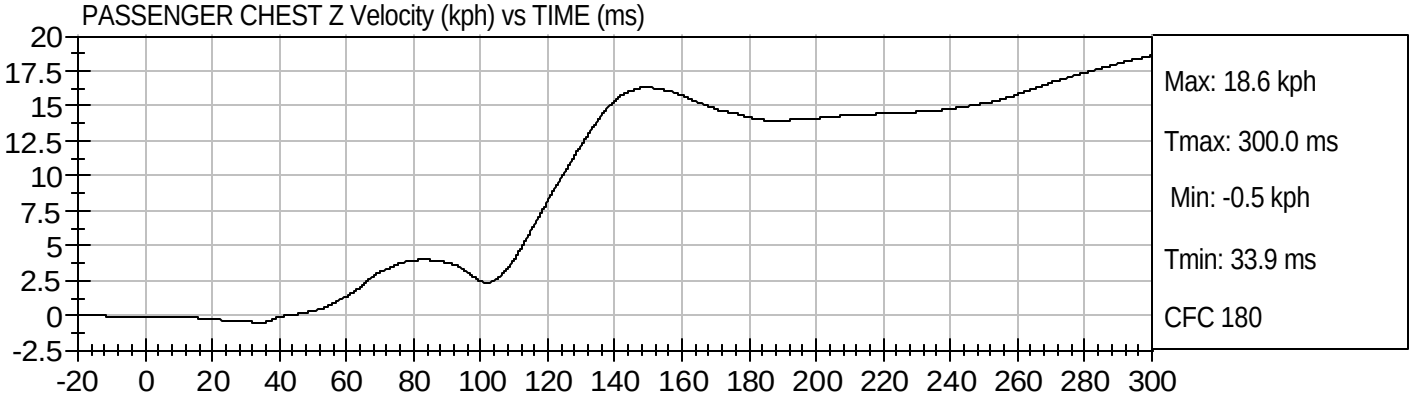
PASSENGER CHEST X Velocity (kph) vs TIME (ms)



PASSENGER CHEST Y Velocity (kph) vs TIME (ms)



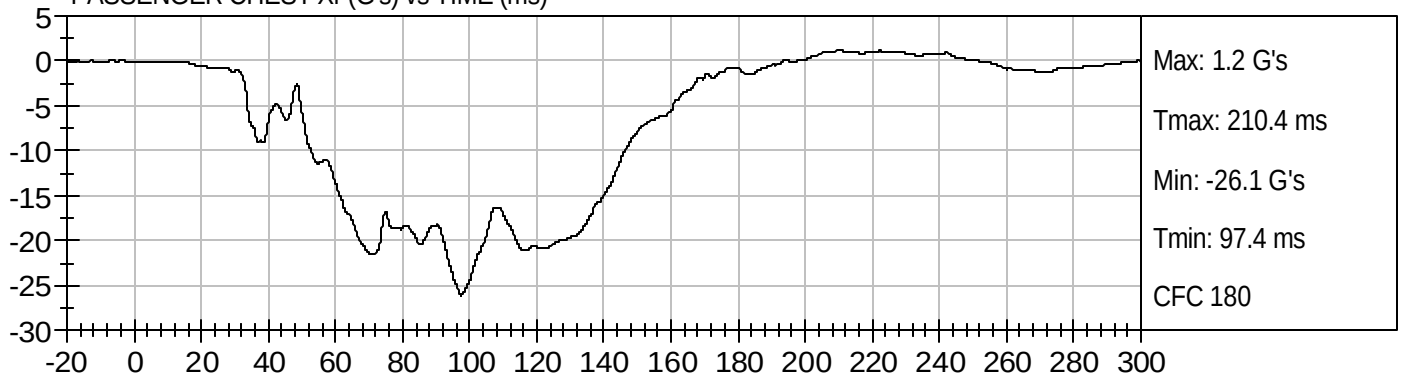
PASSENGER CHEST Z Velocity (kph) vs TIME (ms)



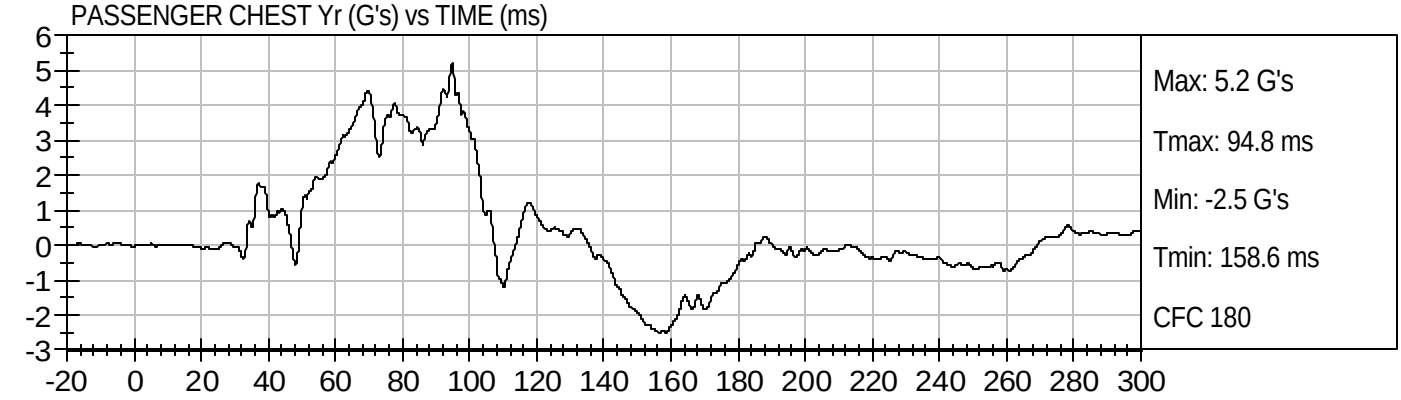
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

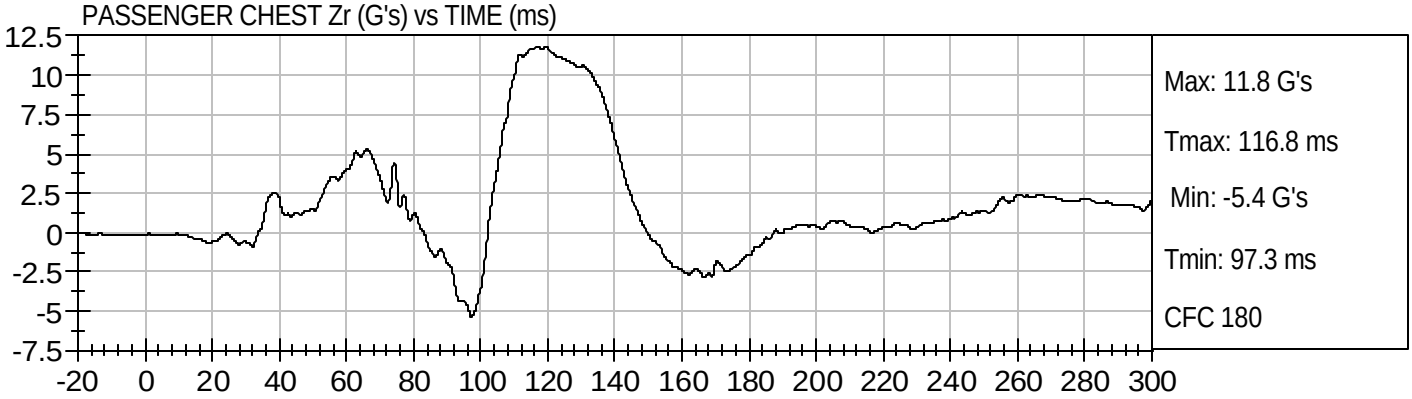
PASSENGER CHEST Xr (G's) vs TIME (ms)



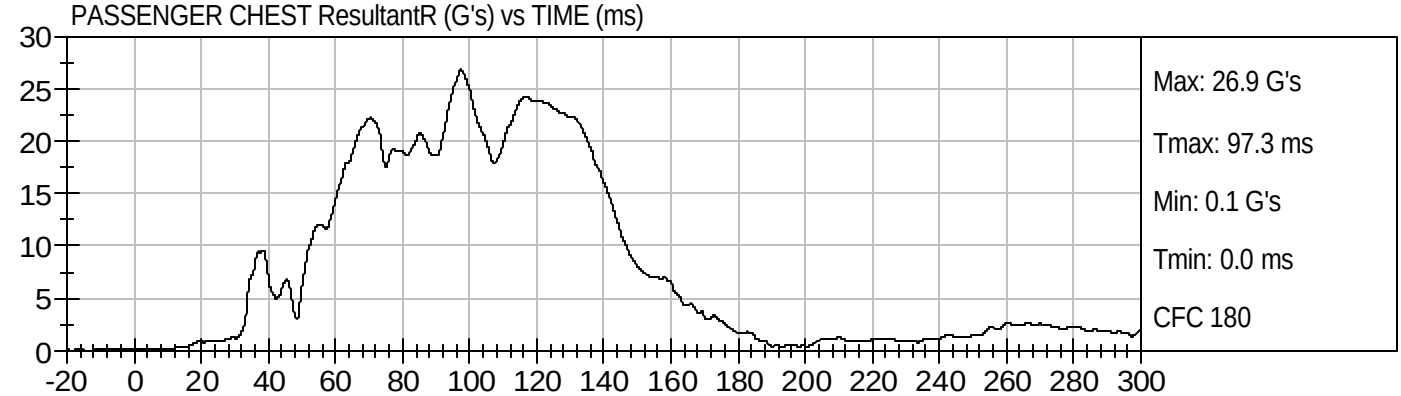
PASSENGER CHEST Yr (G's) vs TIME (ms)



PASSENGER CHEST Zr (G's) vs TIME (ms)



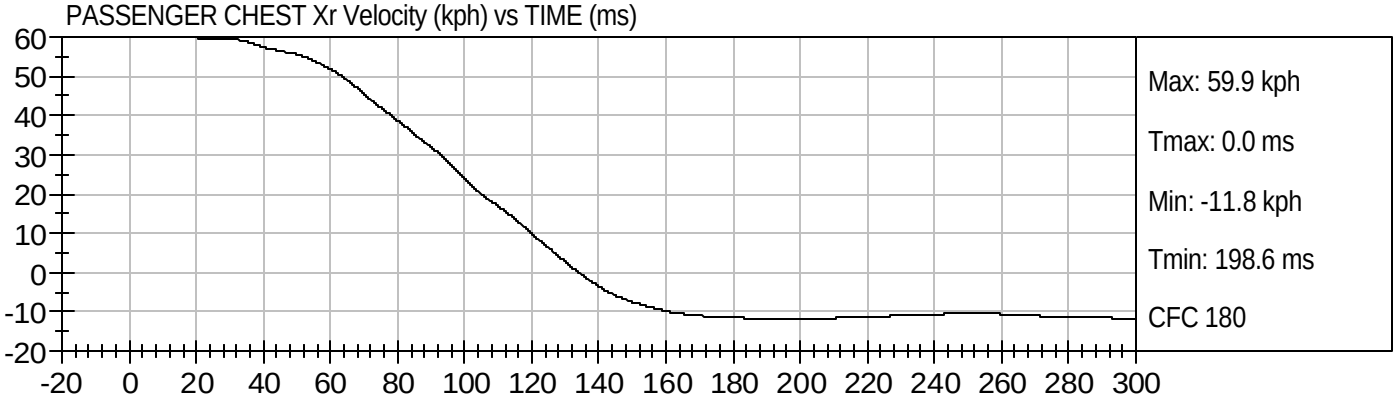
PASSENGER CHEST ResultantR (G's) vs TIME (ms)



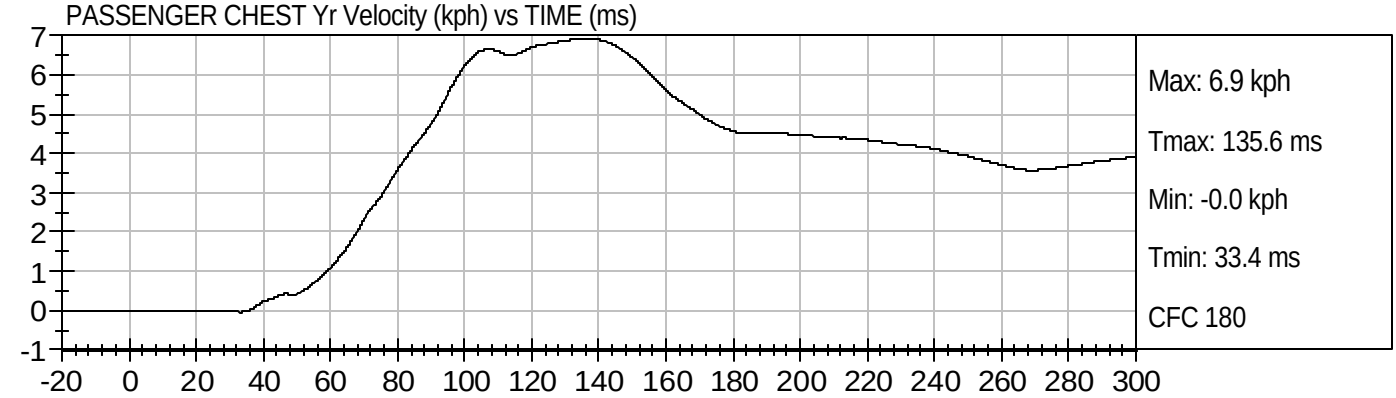
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

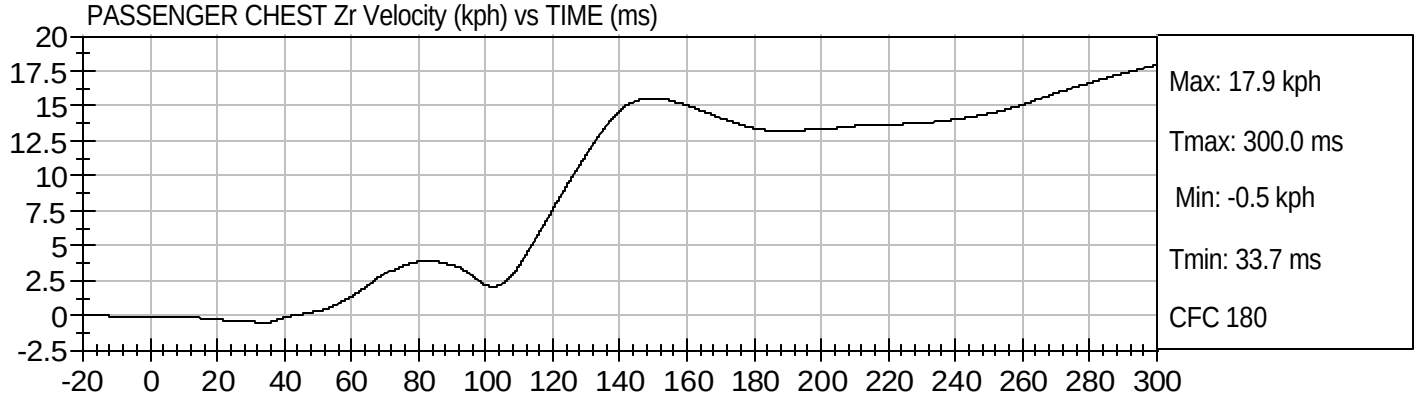
PASSENGER CHEST Xr Velocity (kph) vs TIME (ms)



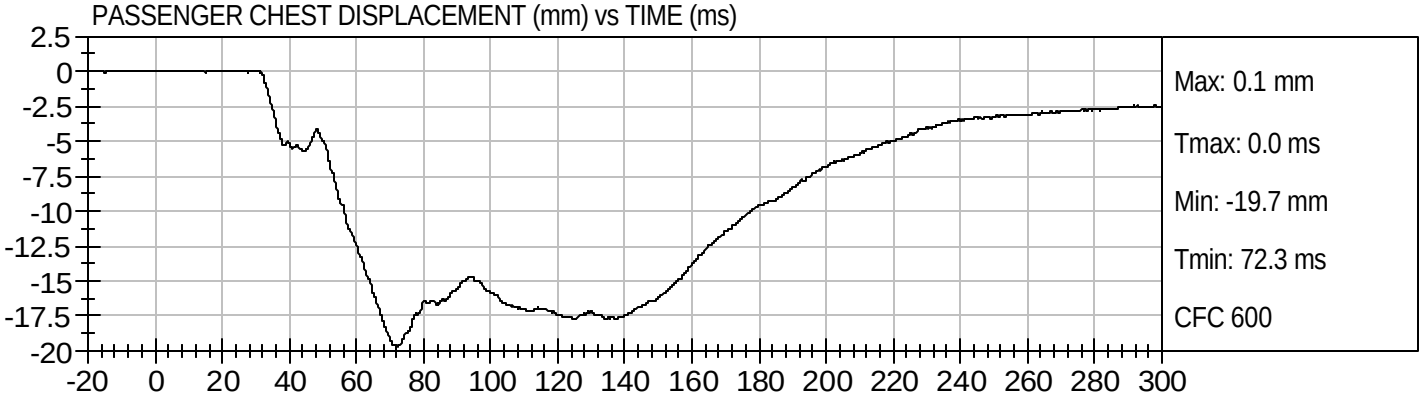
PASSENGER CHEST Yr Velocity (kph) vs TIME (ms)



PASSENGER CHEST Zr Velocity (kph) vs TIME (ms)



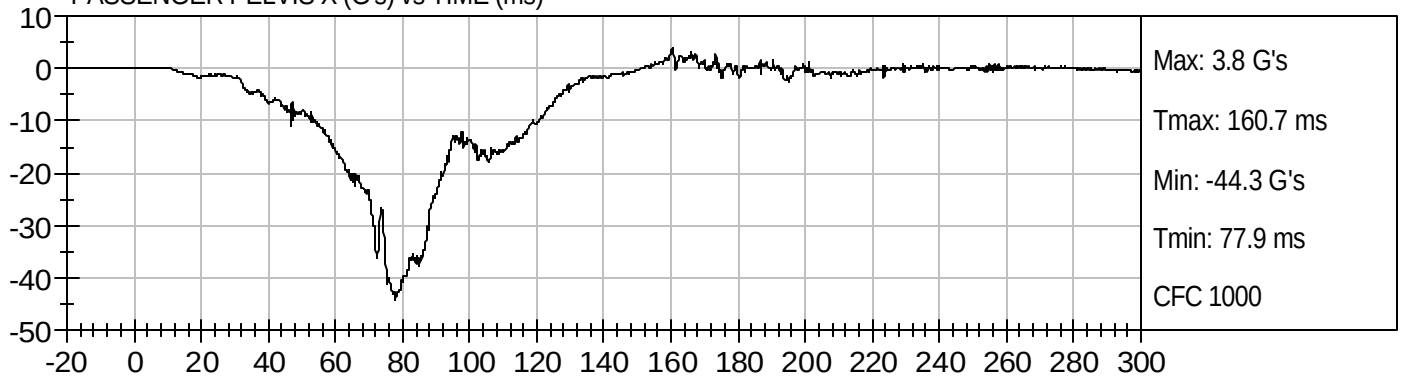
PASSENGER CHEST DISPLACEMENT (mm) vs TIME (ms)



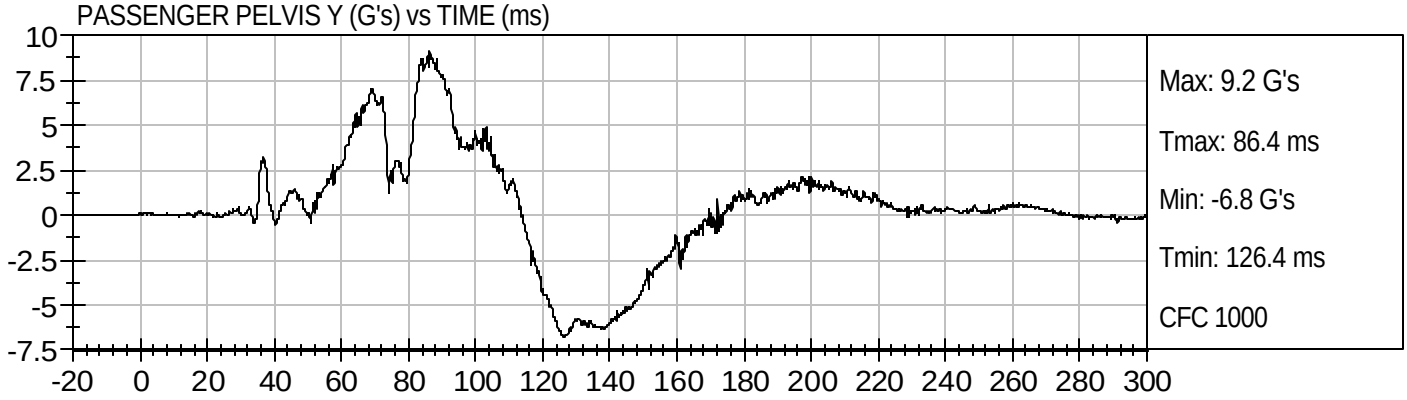
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

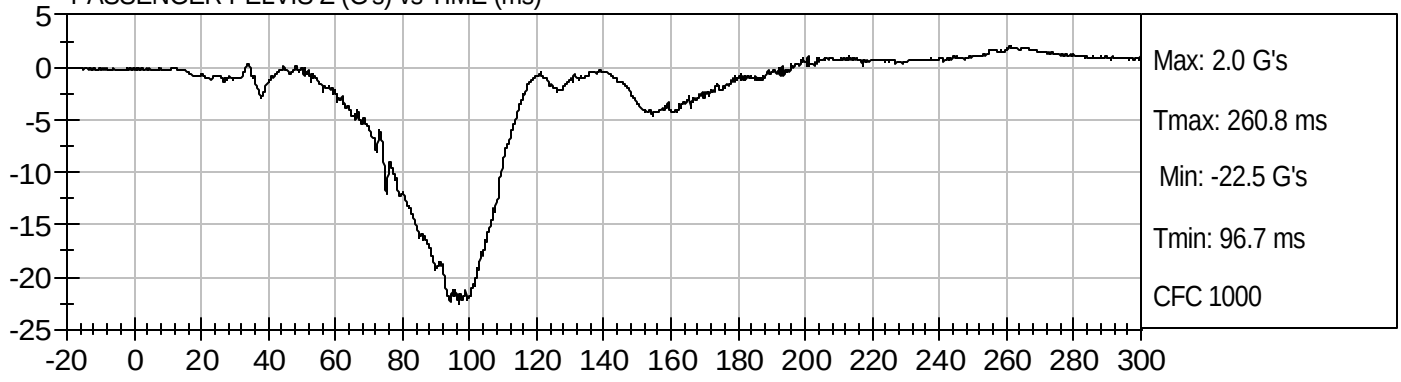
PASSENGER PELVIS X (G's) vs TIME (ms)



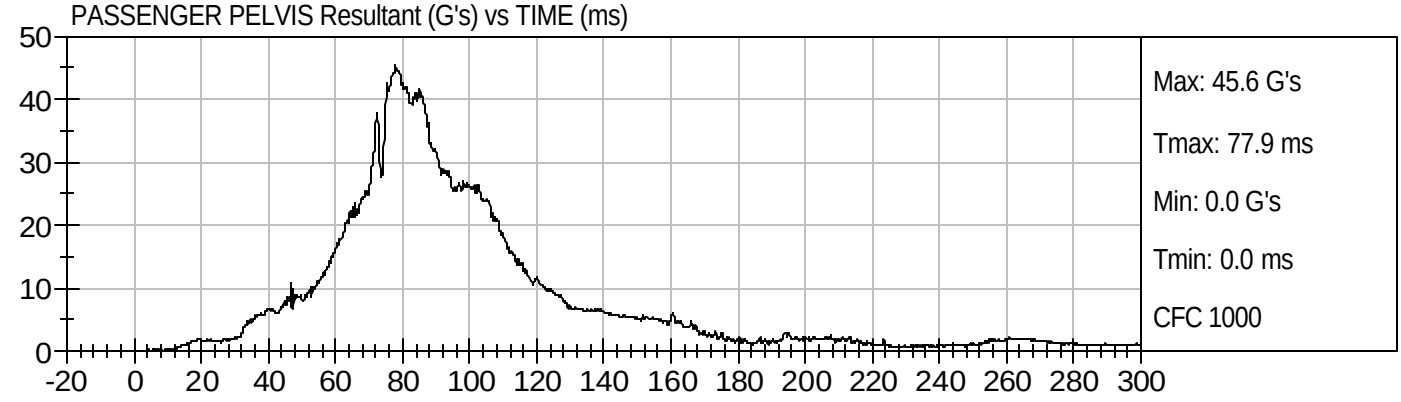
PASSENGER PELVIS Y (G's) vs TIME (ms)



PASSENGER PELVIS Z (G's) vs TIME (ms)



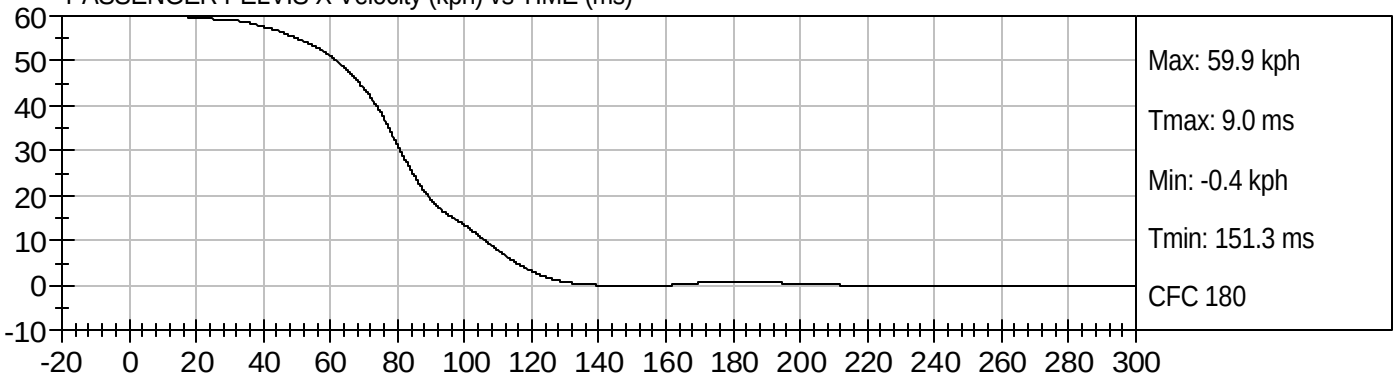
PASSENGER PELVIS Resultant (G's) vs TIME (ms)



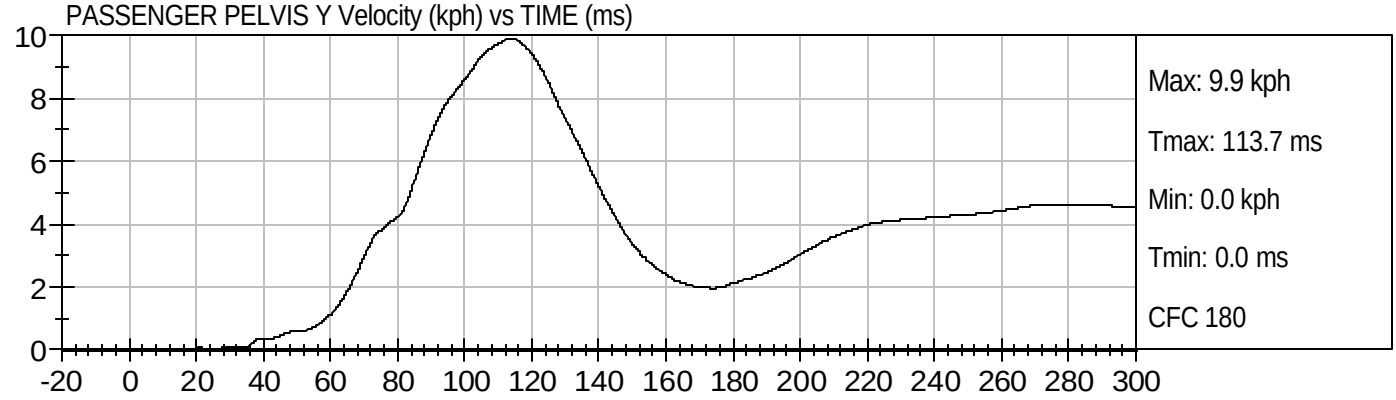
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

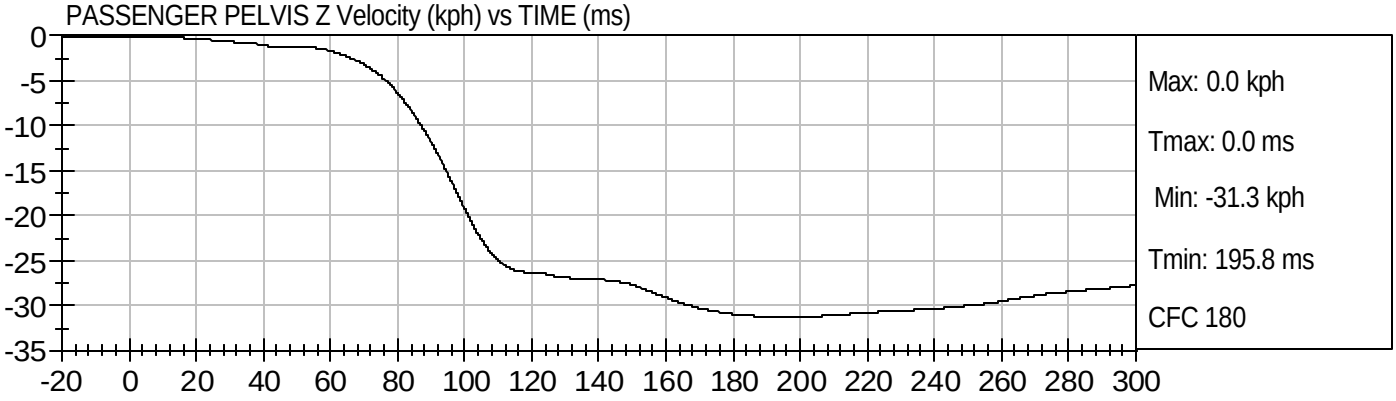
PASSENGER PELVIS X Velocity (kph) vs TIME (ms)



PASSENGER PELVIS Y Velocity (kph) vs TIME (ms)



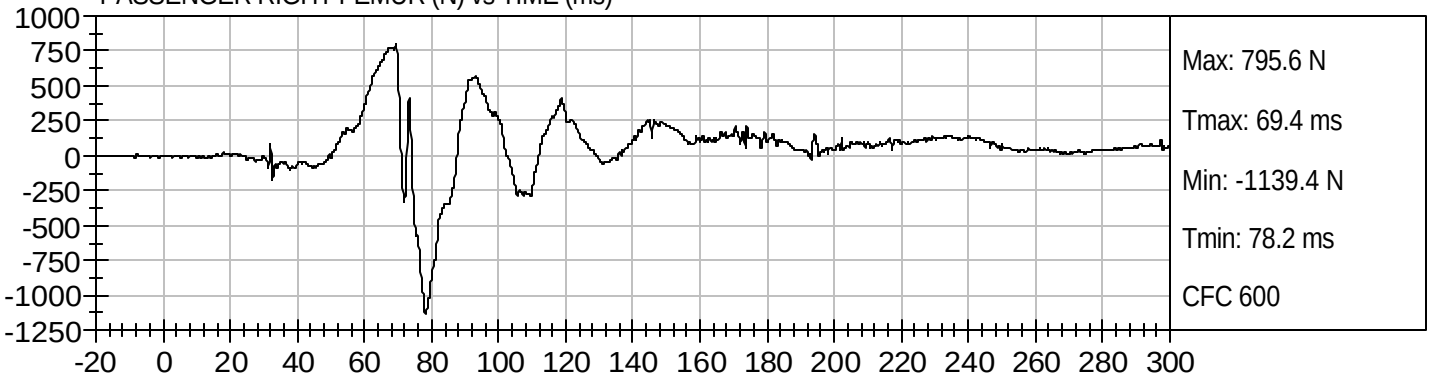
PASSENGER PELVIS Z Velocity (kph) vs TIME (ms)



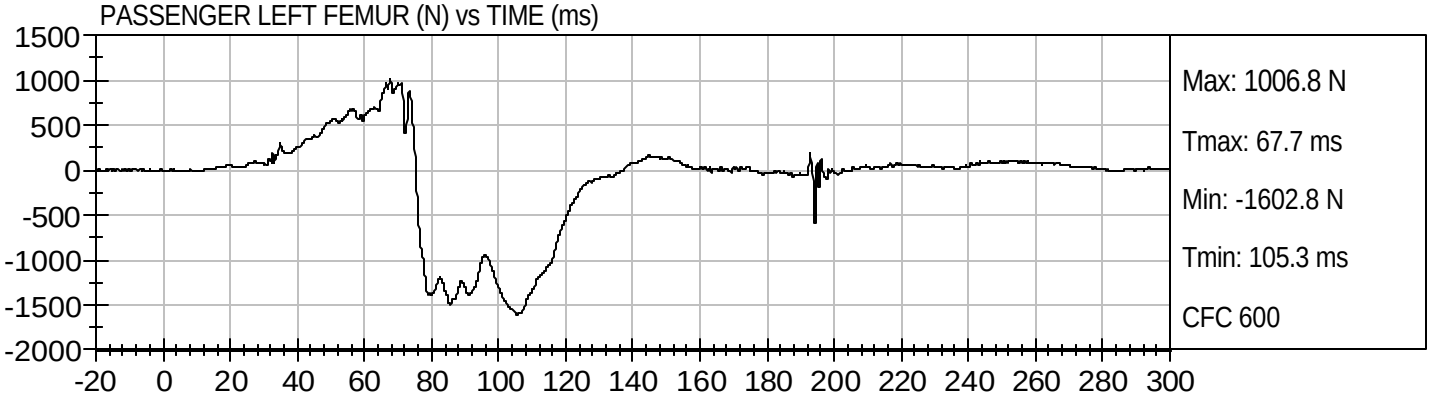
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

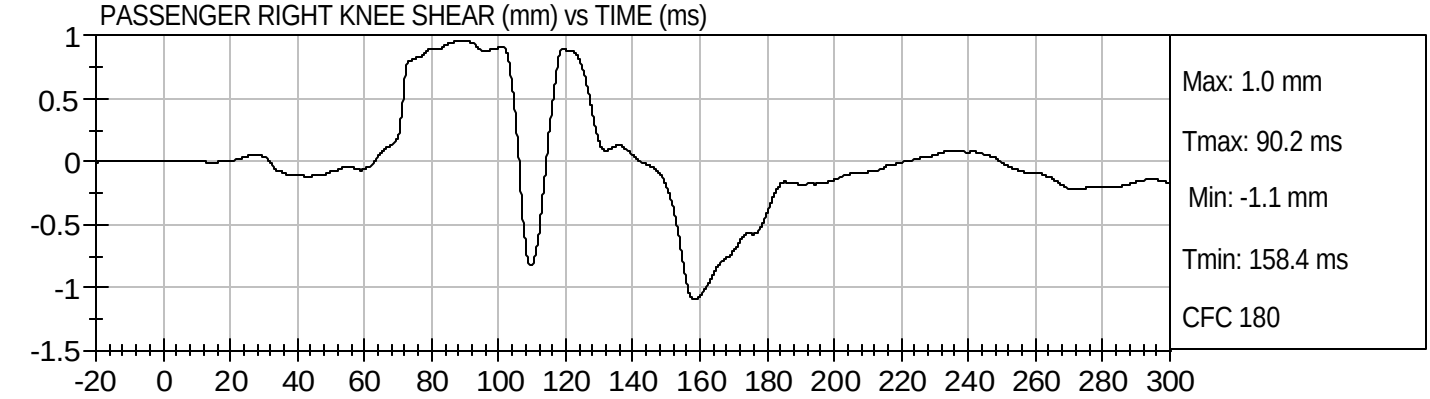
PASSENGER RIGHT FEMUR (N) vs TIME (ms)



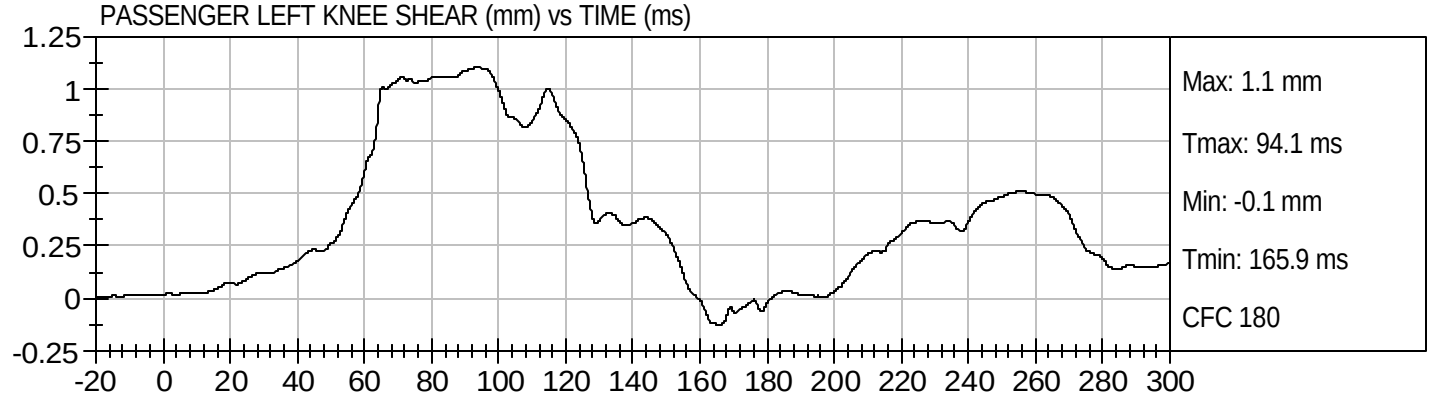
PASSENGER LEFT FEMUR (N) vs TIME (ms)



PASSENGER RIGHT KNEE SHEAR (mm) vs TIME (ms)



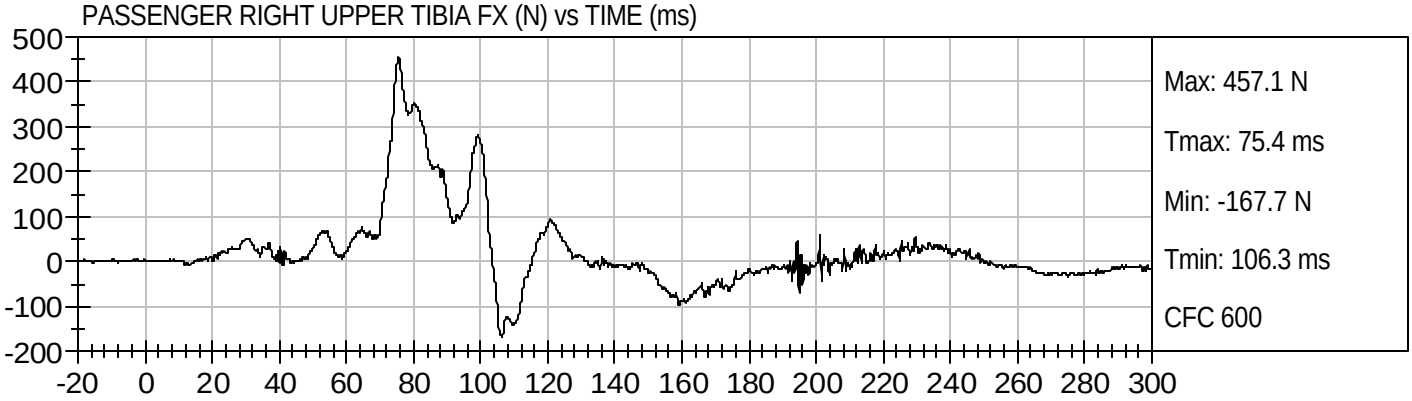
PASSENGER LEFT KNEE SHEAR (mm) vs TIME (ms)



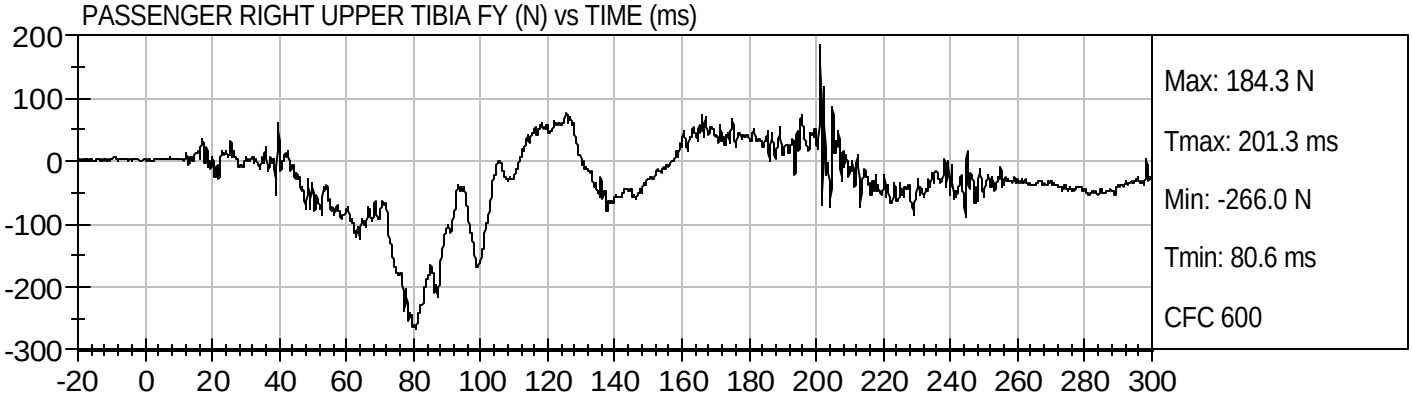
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

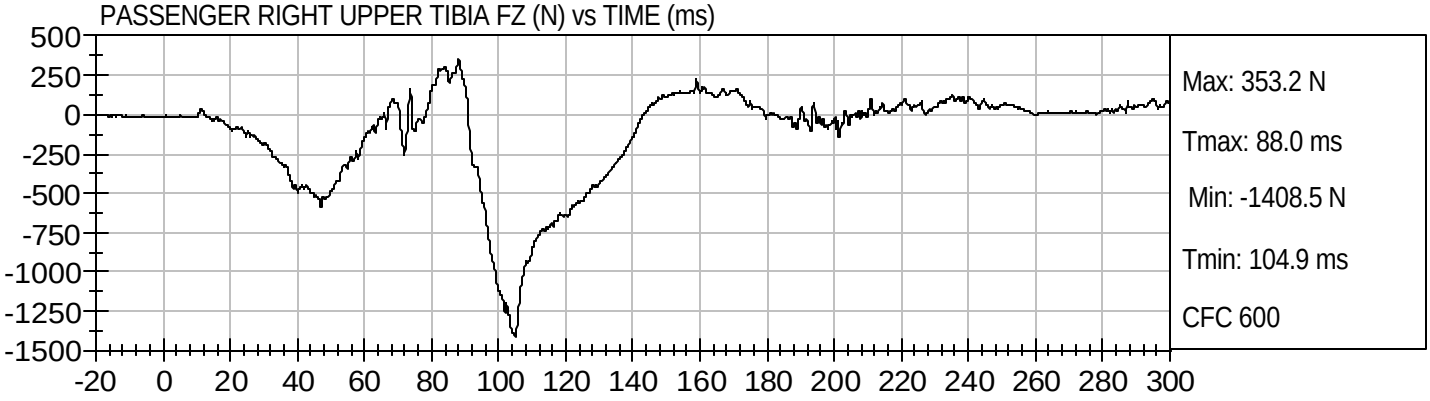
PASSENGER RIGHT UPPER TIBIA FX (N) vs TIME (ms)



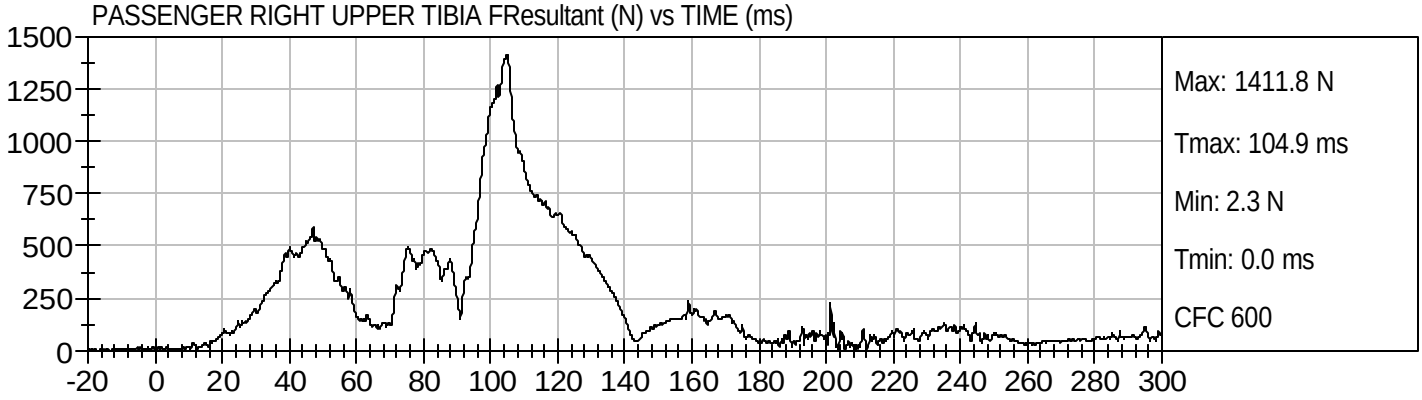
PASSENGER RIGHT UPPER TIBIA FY (N) vs TIME (ms)



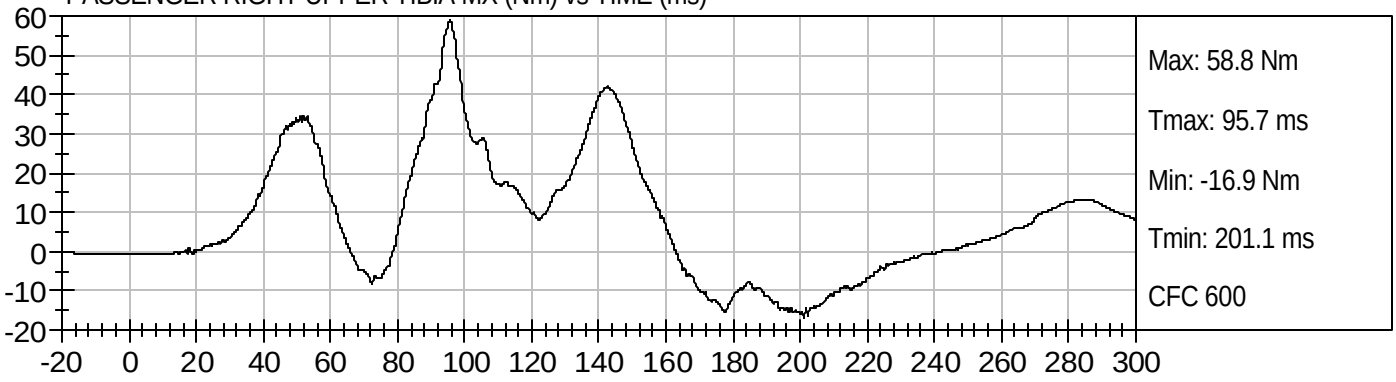
PASSENGER RIGHT UPPER TIBIA FZ (N) vs TIME (ms)



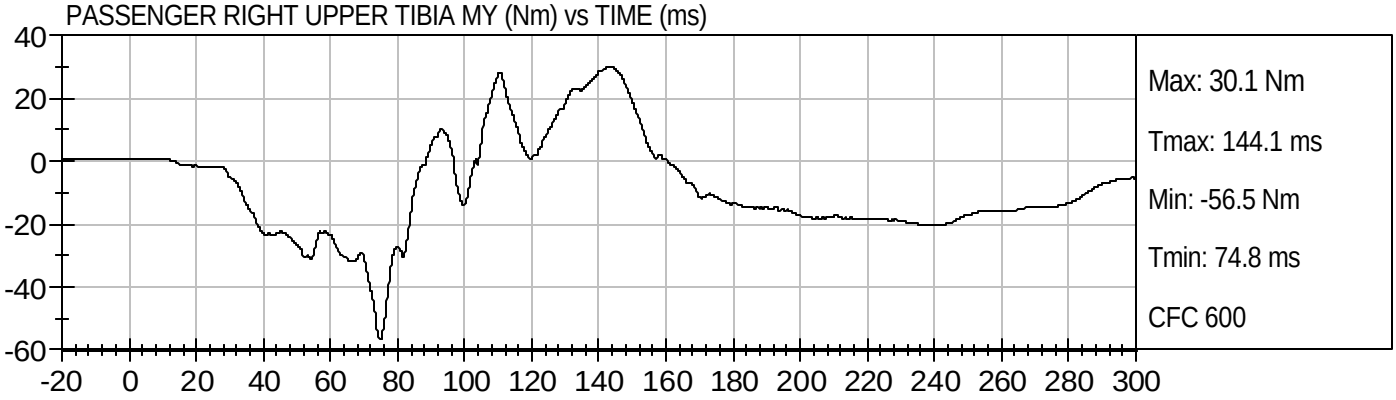
PASSENGER RIGHT UPPER TIBIA FResultant (N) vs TIME (ms)



PASSENGER RIGHT UPPER TIBIA MX (Nm) vs TIME (ms)



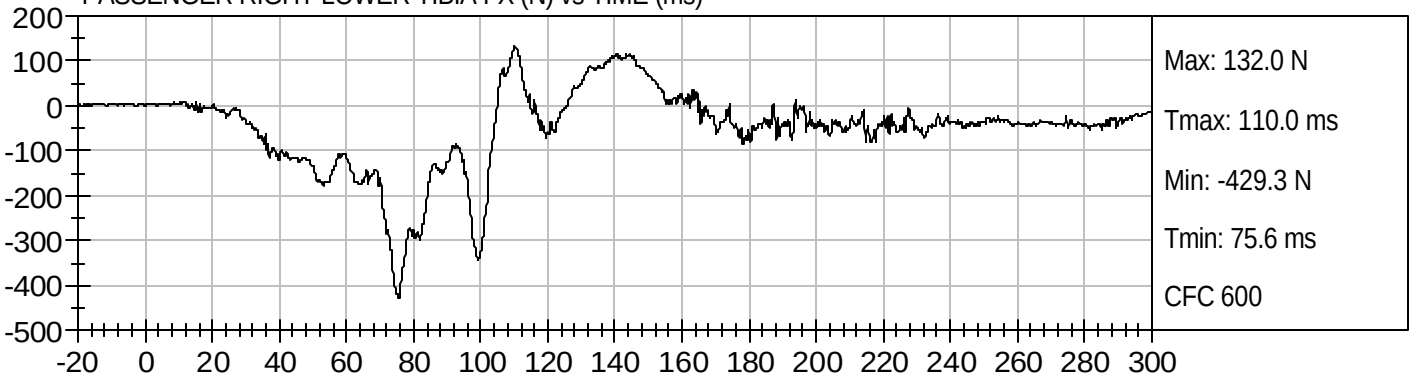
PASSENGER RIGHT UPPER TIBIA MY (Nm) vs TIME (ms)



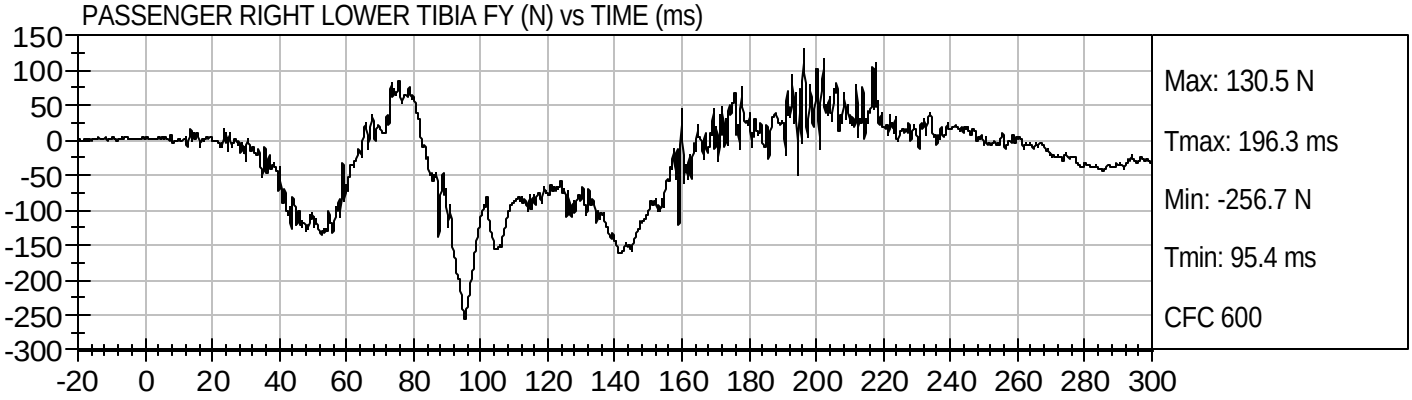
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

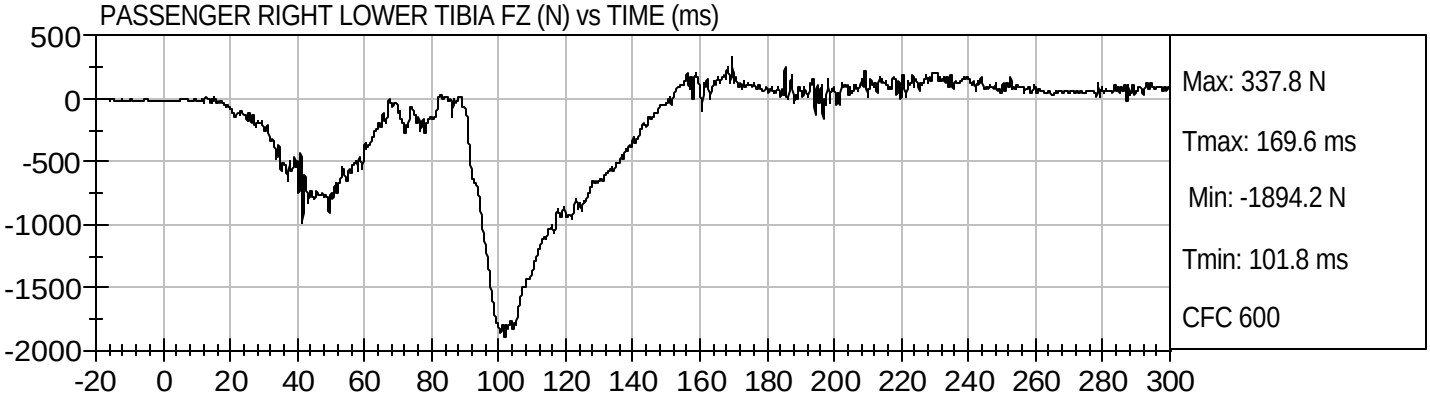
PASSENGER RIGHT LOWER TIBIA FX (N) vs TIME (ms)



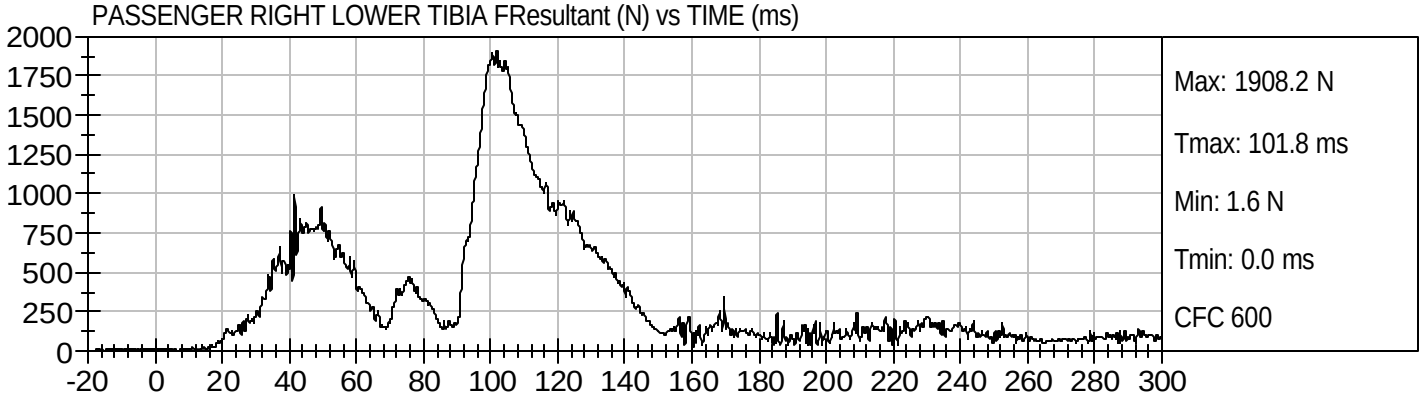
PASSENGER RIGHT LOWER TIBIA FY (N) vs TIME (ms)



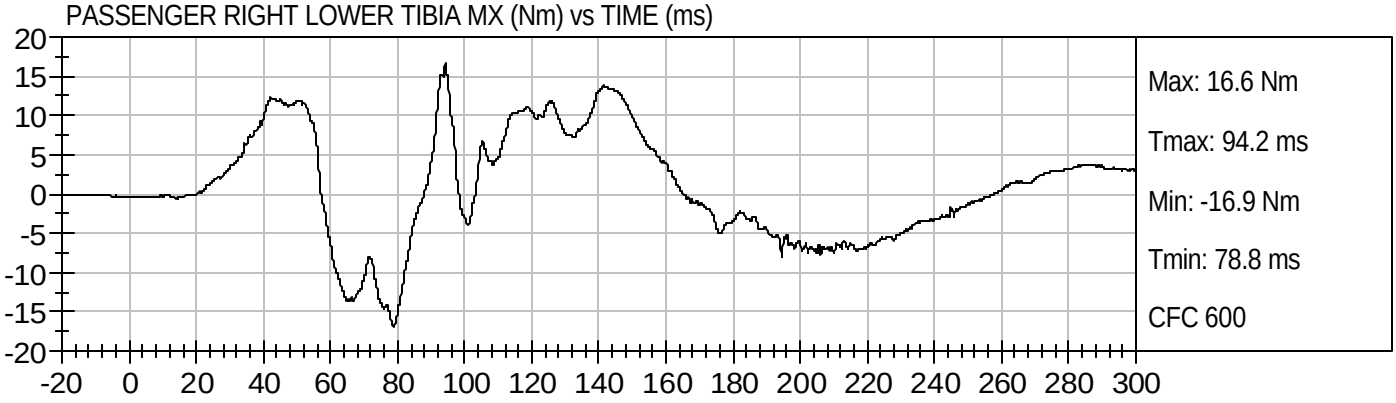
PASSENGER RIGHT LOWER TIBIA FZ (N) vs TIME (ms)



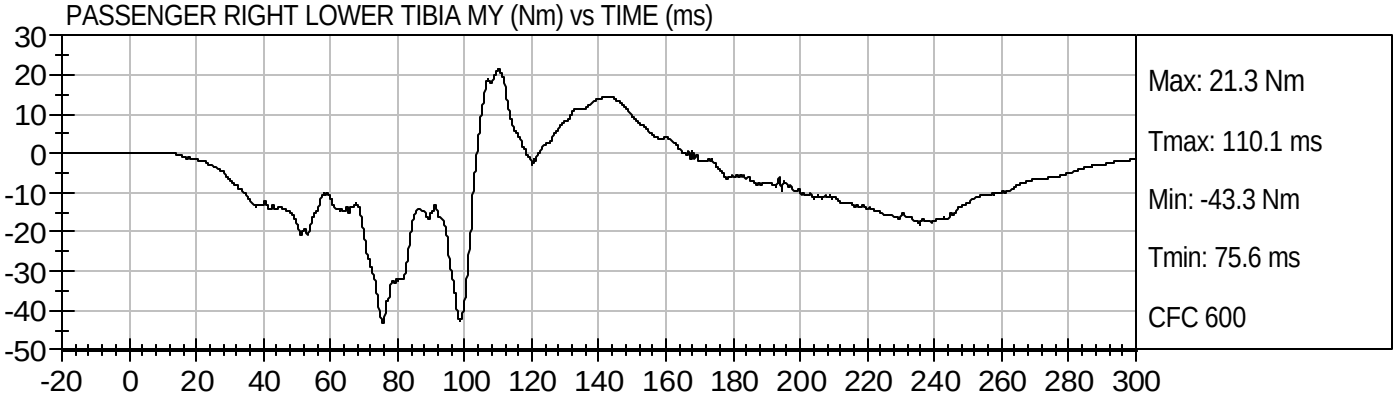
PASSENGER RIGHT LOWER TIBIA FResultant (N) vs TIME (ms)



PASSENGER RIGHT LOWER TIBIA MX (Nm) vs TIME (ms)



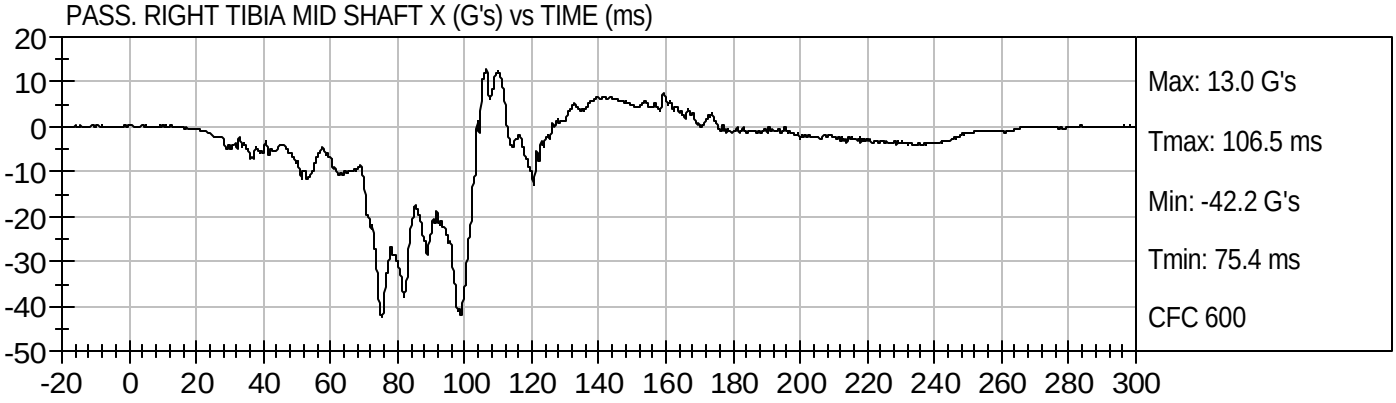
PASSENGER RIGHT LOWER TIBIA MY (Nm) vs TIME (ms)



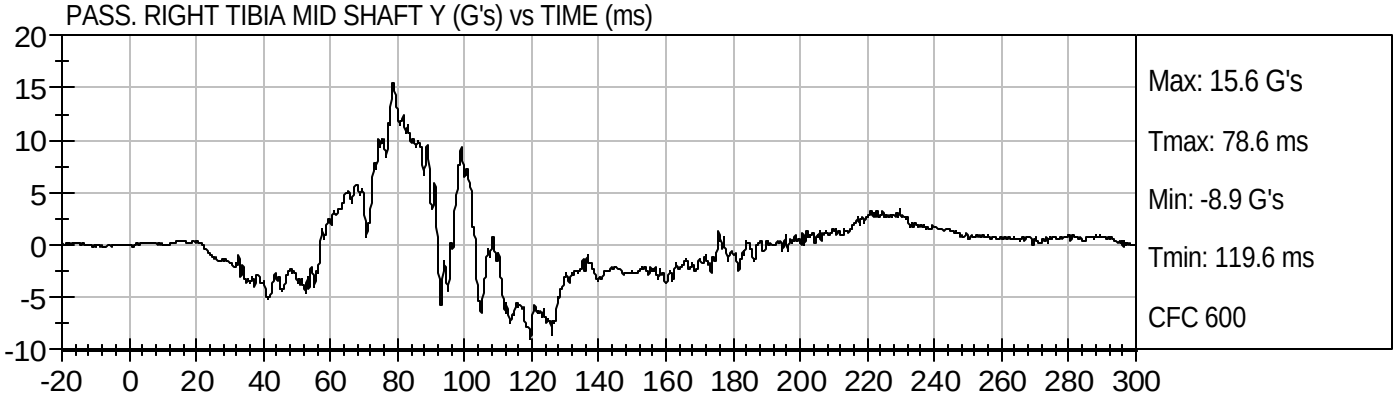
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

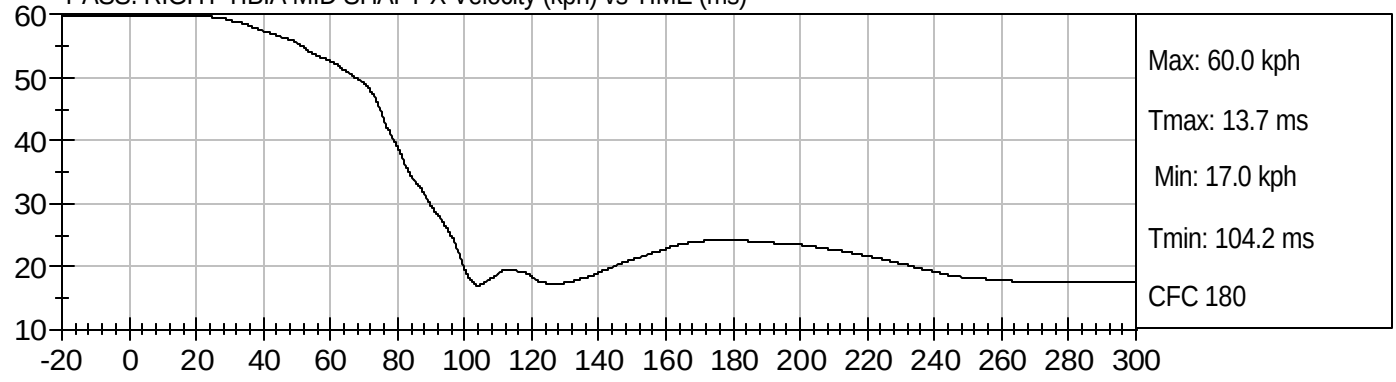
PASS. RIGHT TIBIA MID SHAFT X (G's) vs TIME (ms)



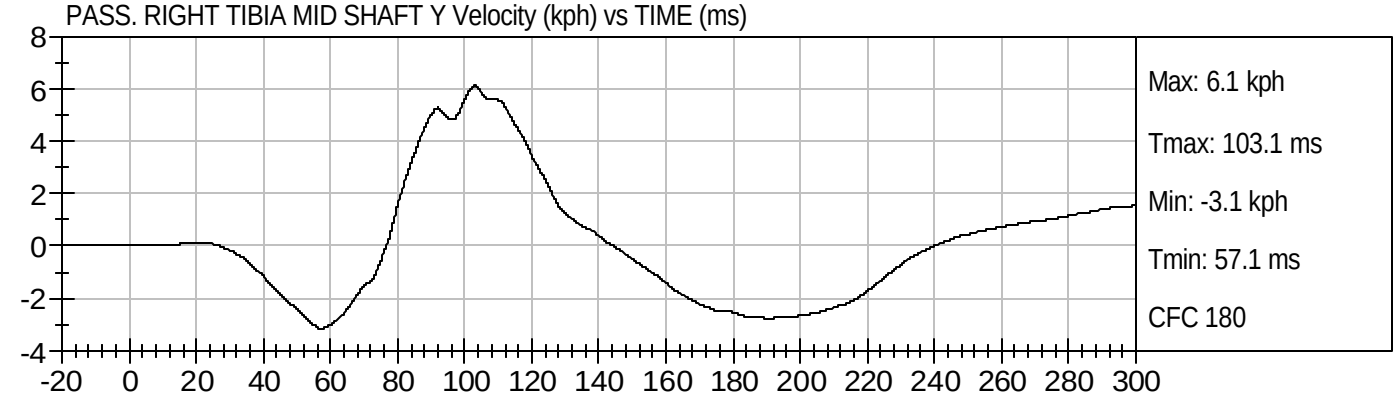
PASS. RIGHT TIBIA MID SHAFT Y (G's) vs TIME (ms)



PASS. RIGHT TIBIA MID SHAFT X Velocity (kph) vs TIME (ms)



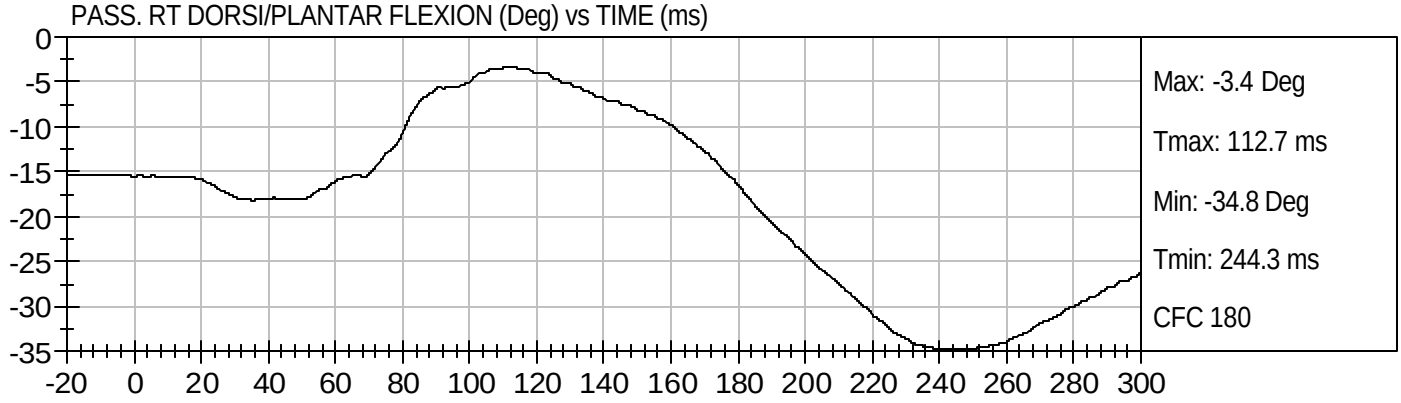
PASS. RIGHT TIBIA MID SHAFT Y Velocity (kph) vs TIME (ms)



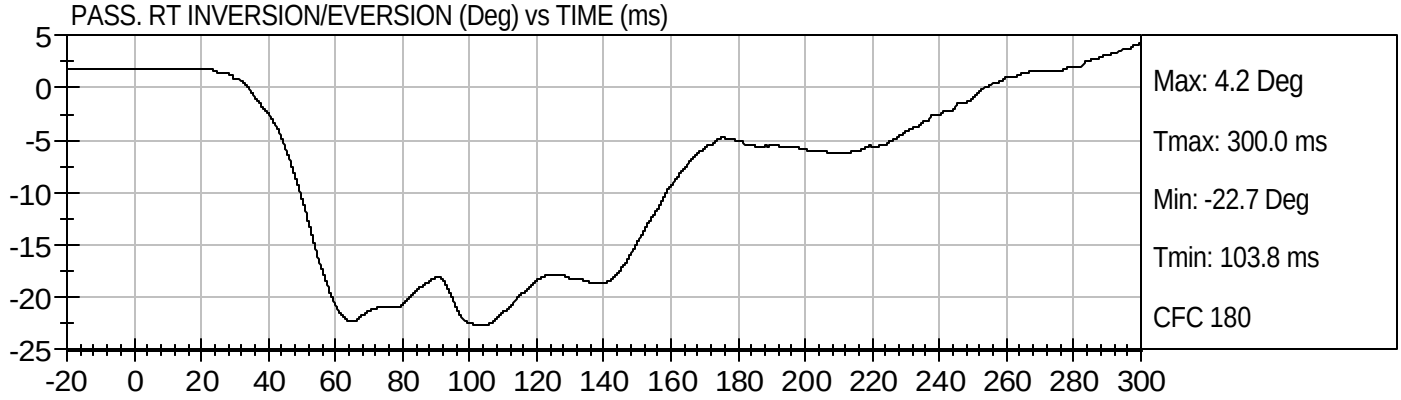
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

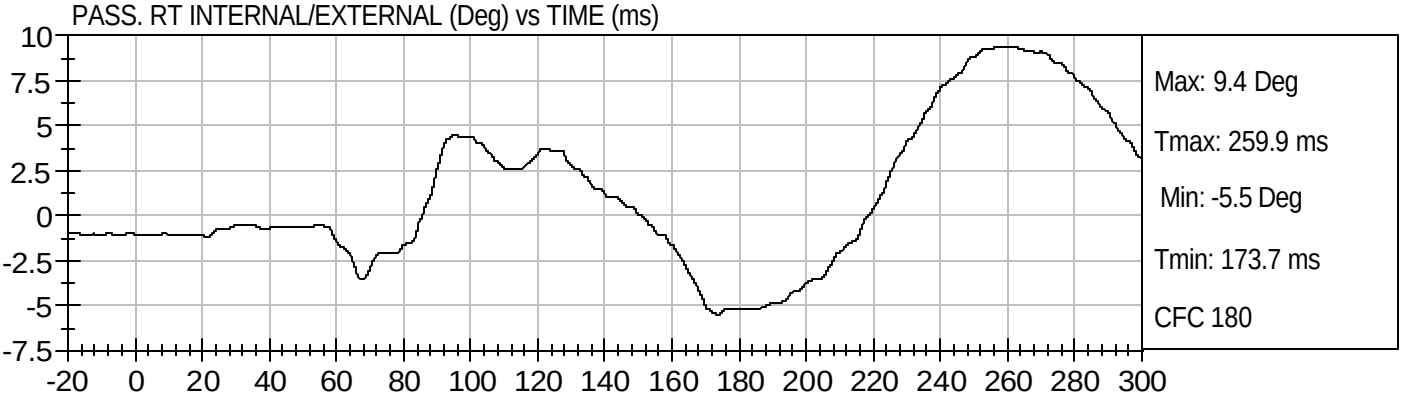
PASS. RT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)



PASS. RT INVERSION/EVERSION (Deg) vs TIME (ms)



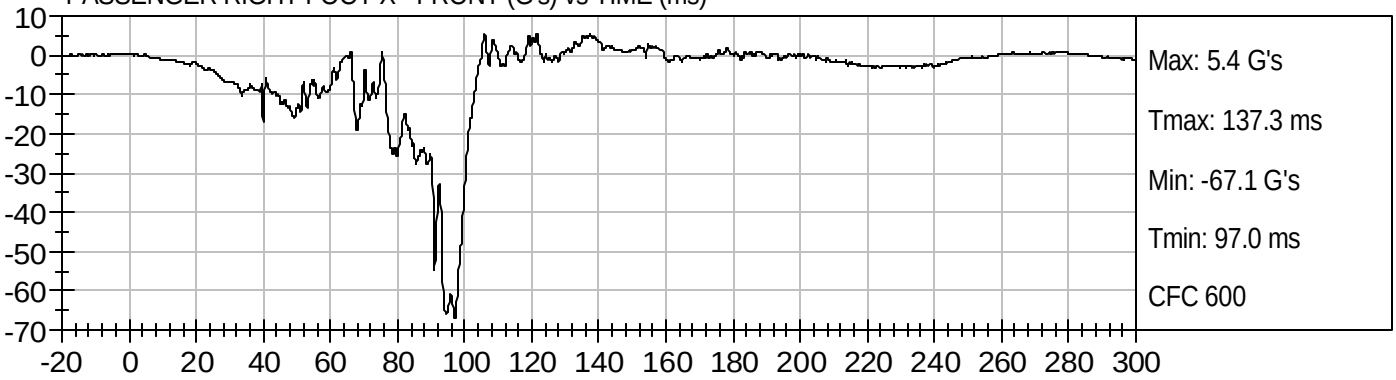
PASS. RT INTERNAL/EXTERNAL (Deg) vs TIME (ms)



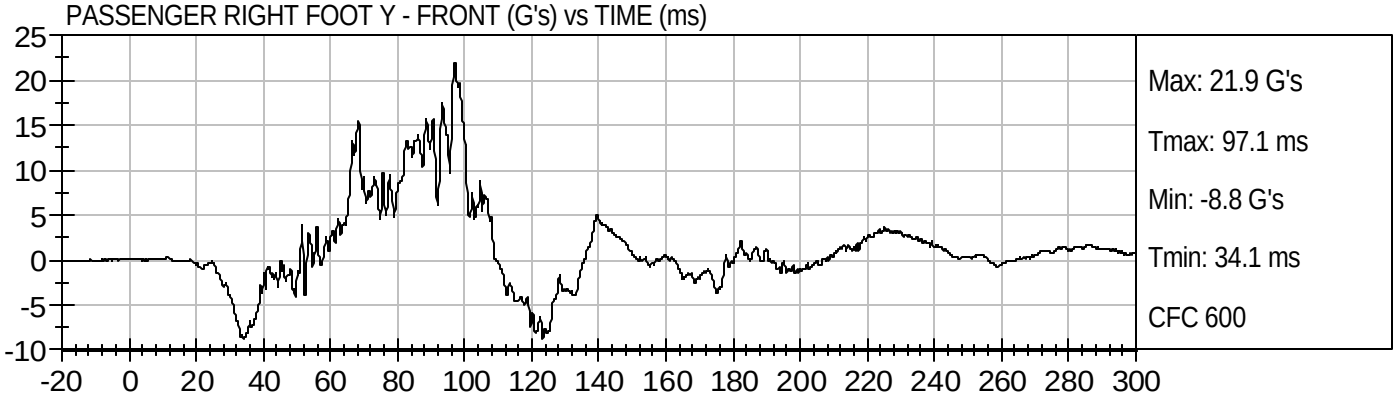
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

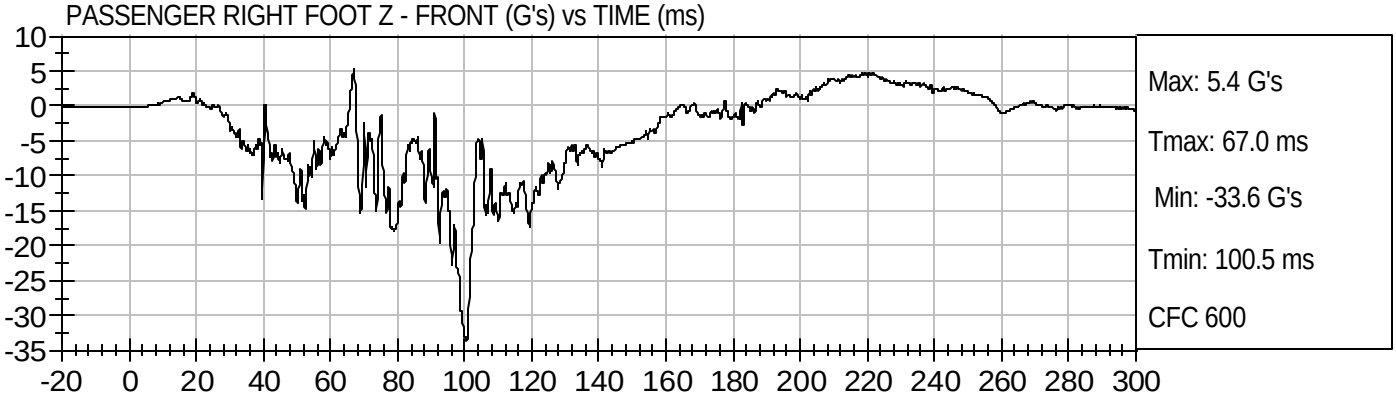
PASSENGER RIGHT FOOT X - FRONT (G's) vs TIME (ms)



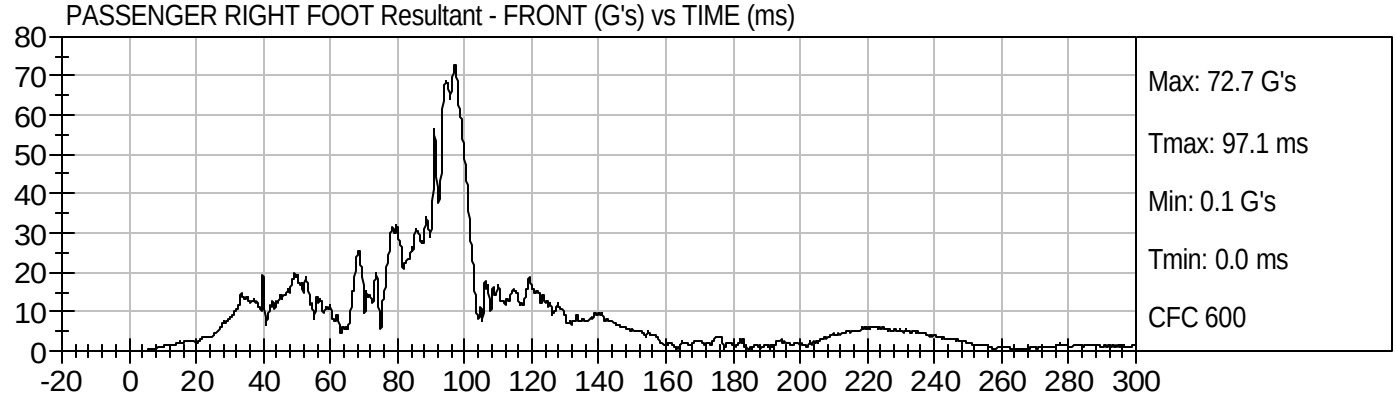
PASSENGER RIGHT FOOT Y - FRONT (G's) vs TIME (ms)

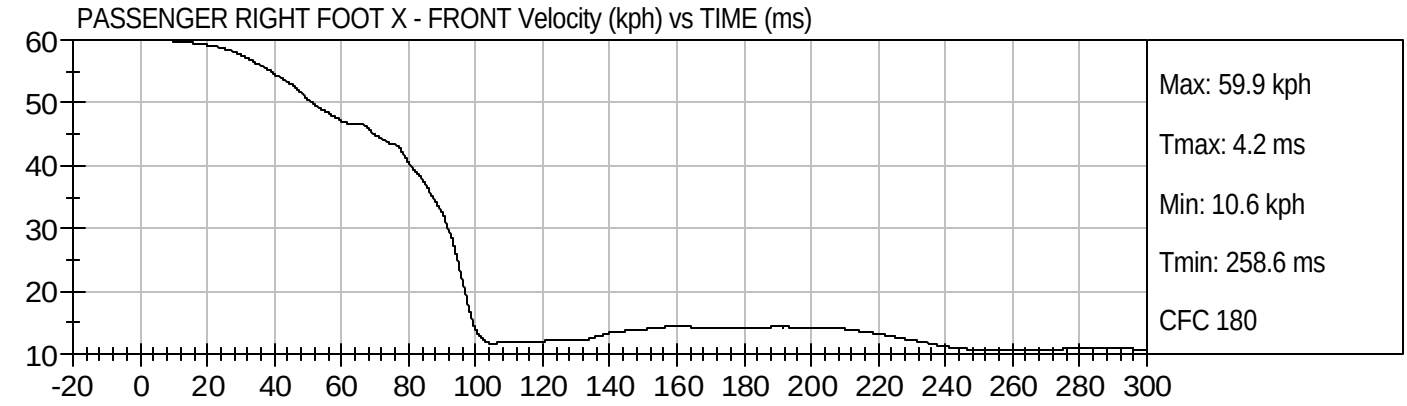


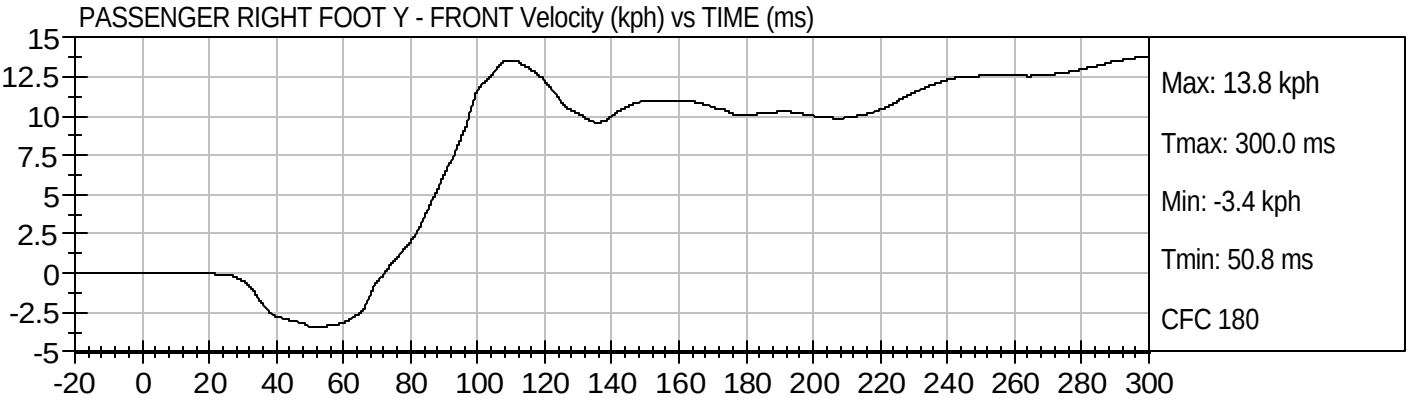
PASSENGER RIGHT FOOT Z - FRONT (G's) vs TIME (ms)

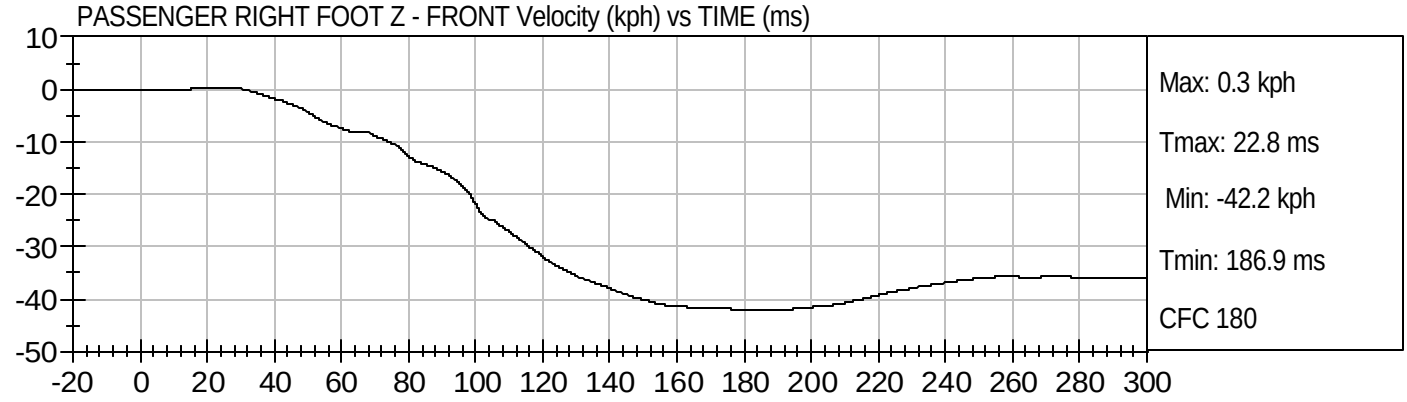


PASSENGER RIGHT FOOT Resultant - FRONT (G's) vs TIME (ms)




PASSENGER RIGHT FOOT X - FRONT Velocity (kph) vs TIME (ms)
60
50
40
30
20
10
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 59.9 kph
Tmax: 4.2 ms
Min: 10.6 kph
Tmin: 258.6 ms
CFC 180

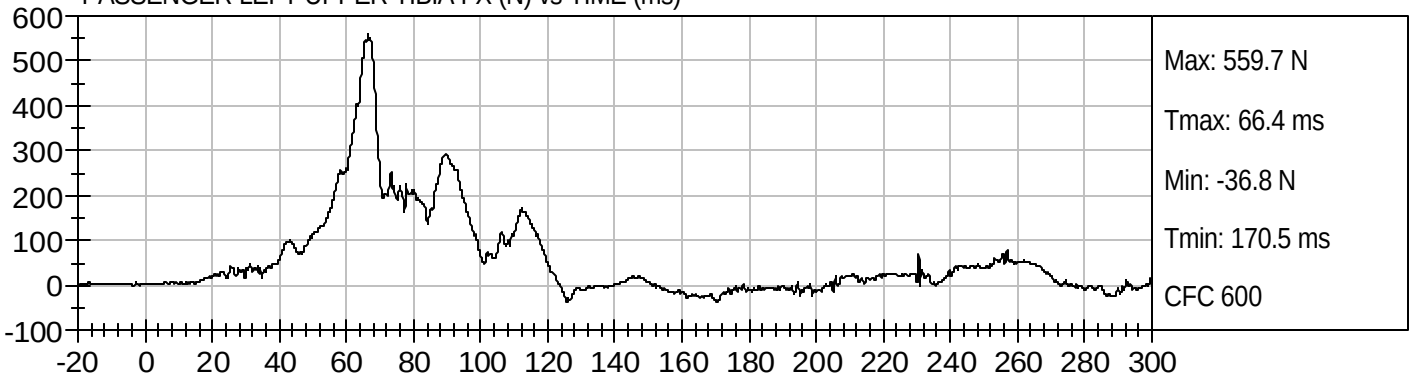

PASSENGER RIGHT FOOT Y - FRONT Velocity (kph) vs TIME (ms)
15
12.5
10
7.5
5
2.5
0
-2.5
-5
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 13.8 kph
Tmax: 300.0 ms
Min: -3.4 kph
Tmin: 50.8 ms
CFC 180


PASSENGER RIGHT FOOT Z - FRONT Velocity (kph) vs TIME (ms)
10
0
-10
-20
-30
-40
-50
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.3 kph
Tmax: 22.8 ms
Min: -42.2 kph
Tmin: 186.9 ms
CFC 180

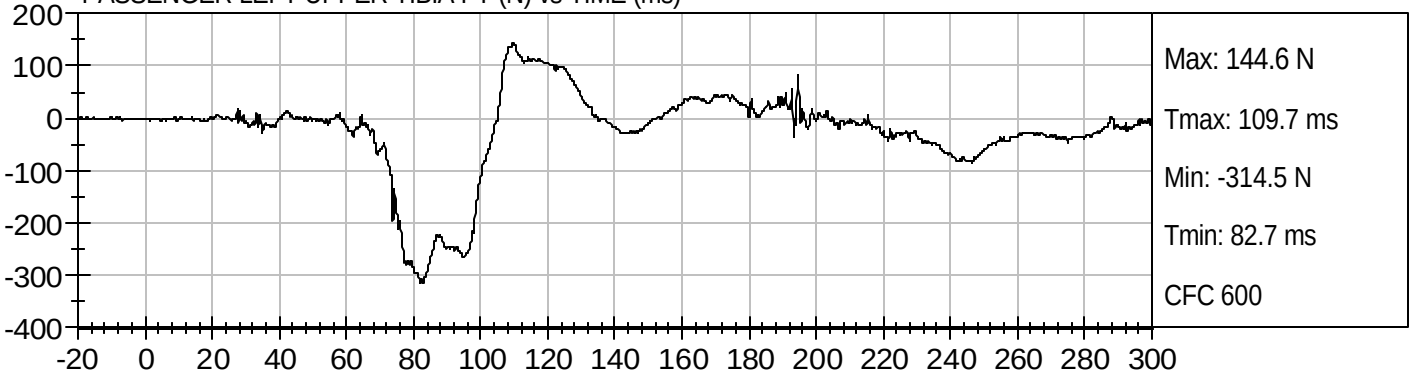
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

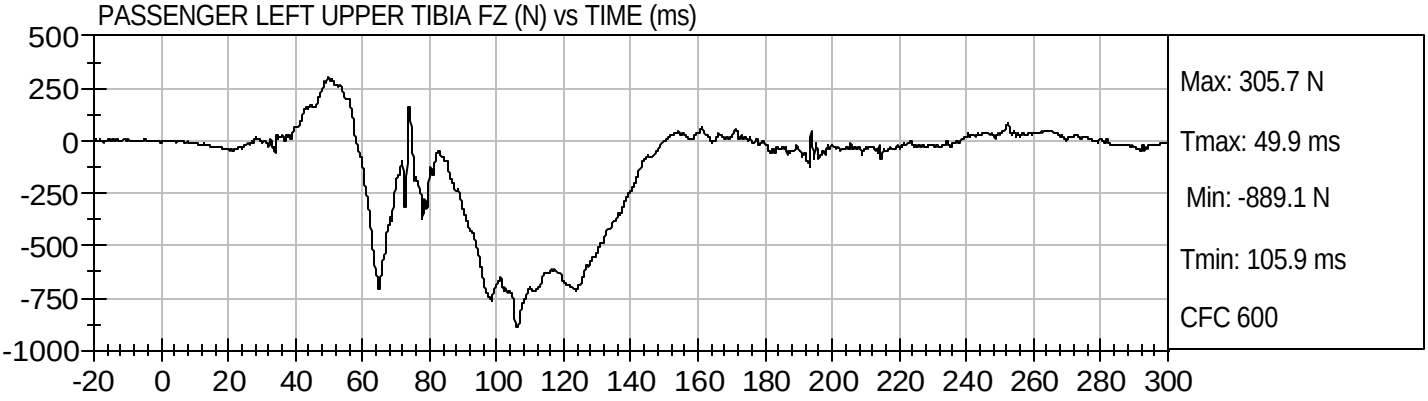
PASSENGER LEFT UPPER TIBIA FX (N) vs TIME (ms)



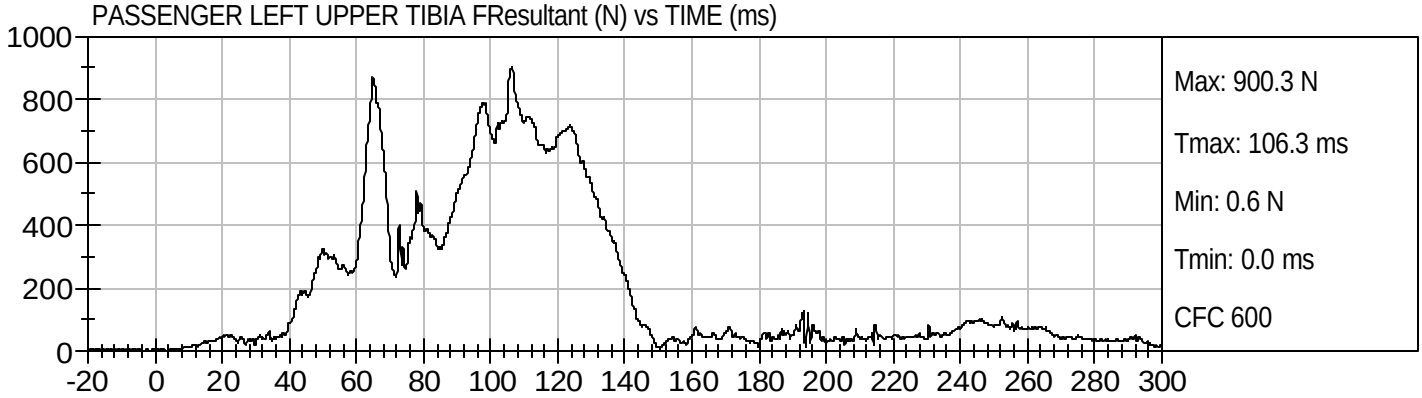
PASSENGER LEFT UPPER TIBIA FY (N) vs TIME (ms)



PASSENGER LEFT UPPER TIBIA FZ (N) vs TIME (ms)



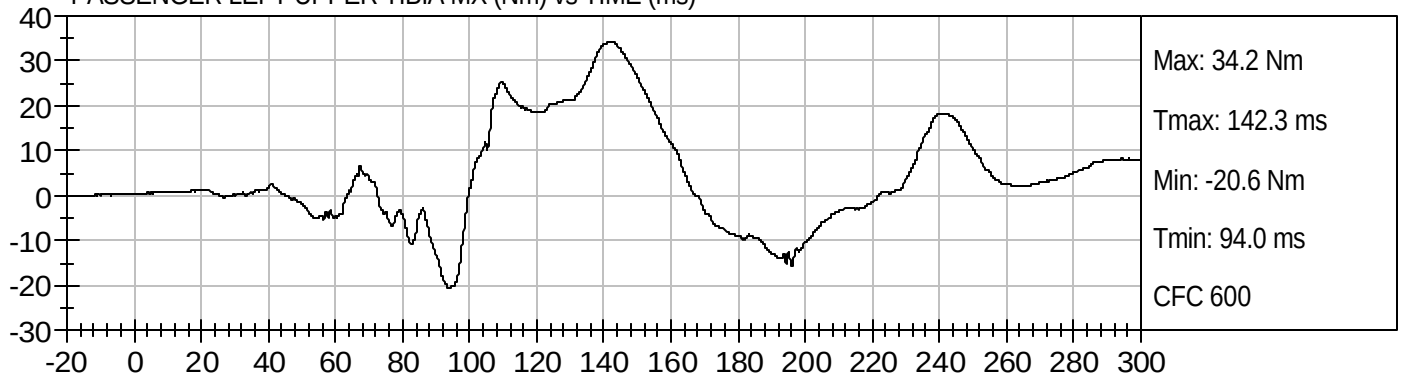
PASSENGER LEFT UPPER TIBIA FResultant (N) vs TIME (ms)



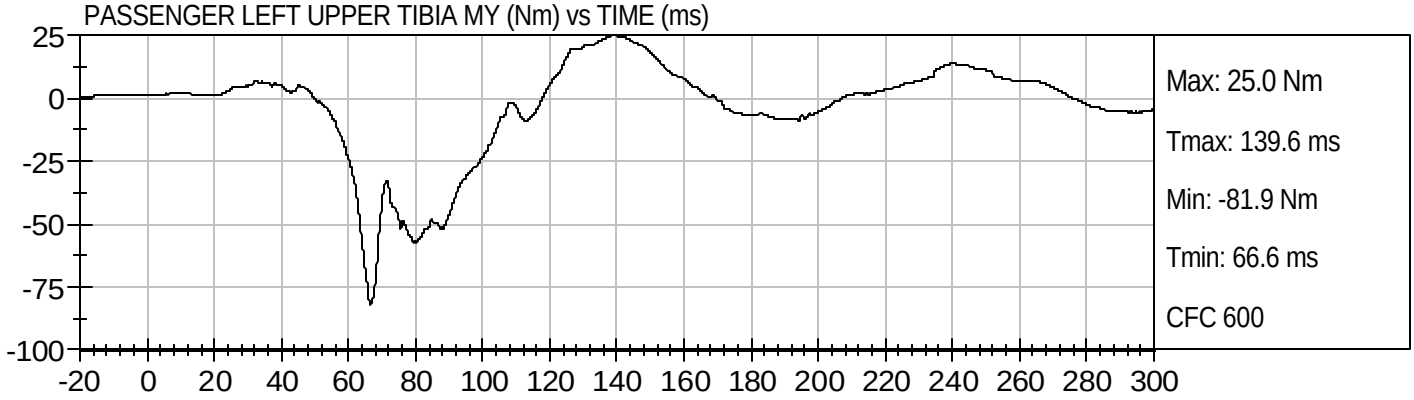
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

PASSENGER LEFT UPPER TIBIA MX (Nm) vs TIME (ms)



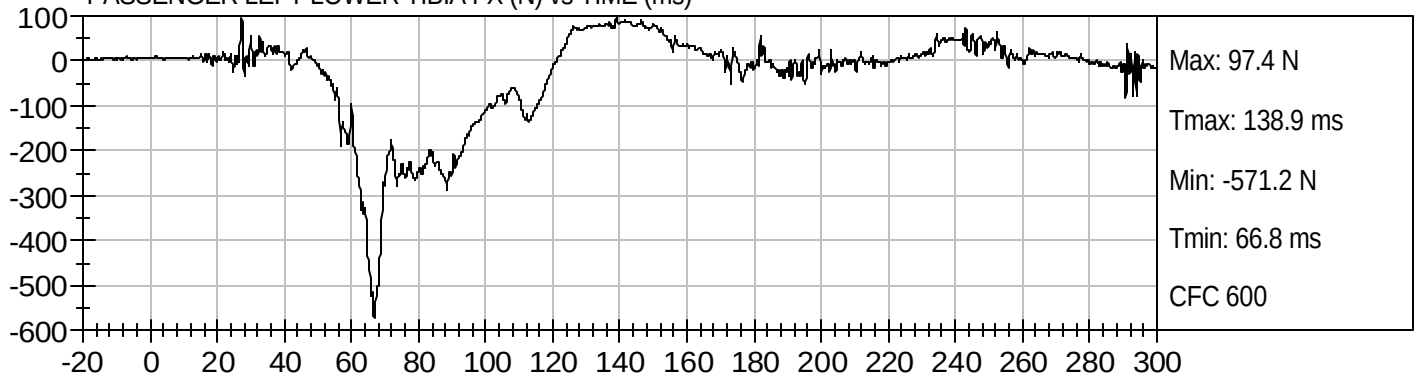
PASSENGER LEFT UPPER TIBIA MY (Nm) vs TIME (ms)



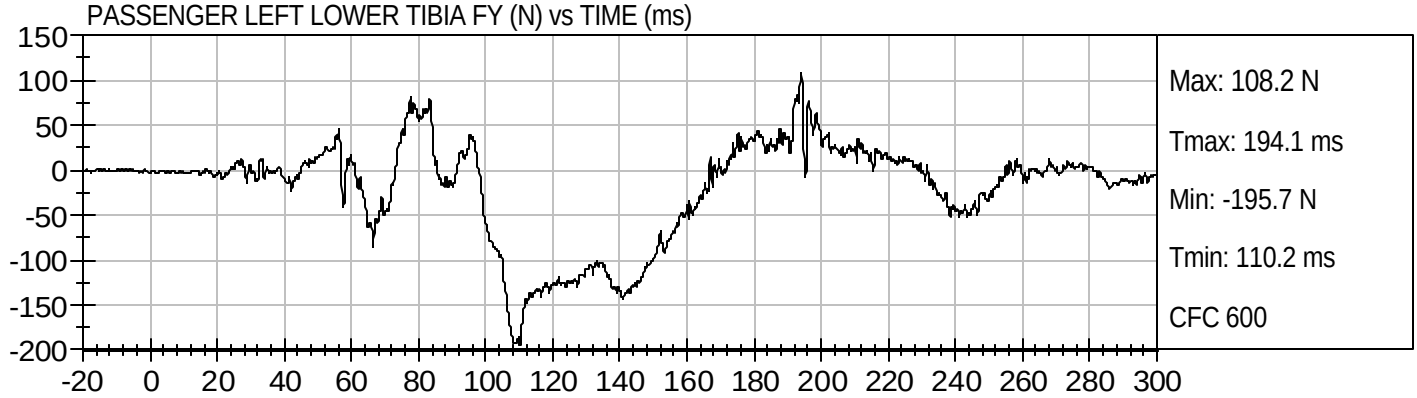
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

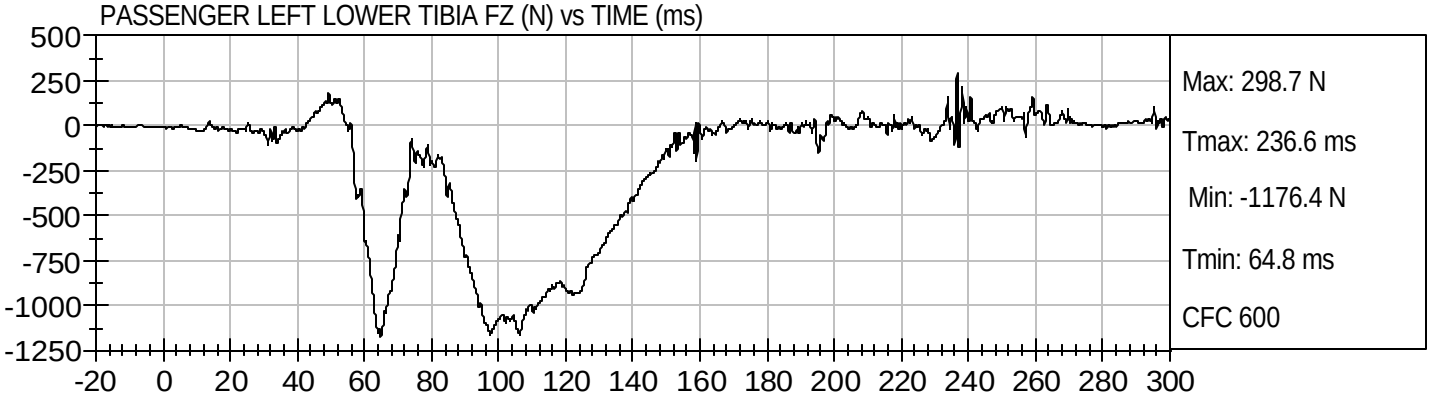
PASSENGER LEFT LOWER TIBIA FX (N) vs TIME (ms)



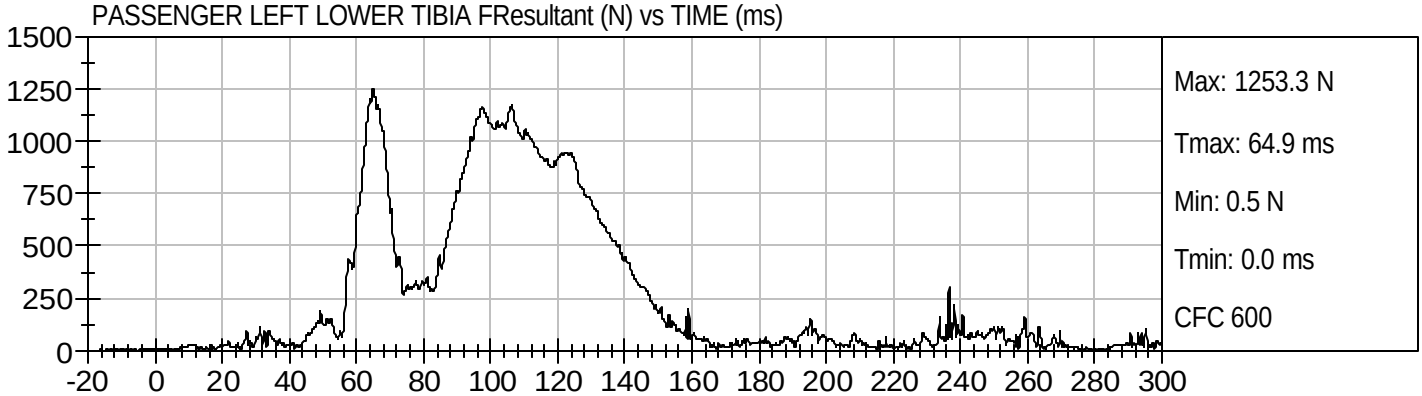
PASSENGER LEFT LOWER TIBIA FY (N) vs TIME (ms)



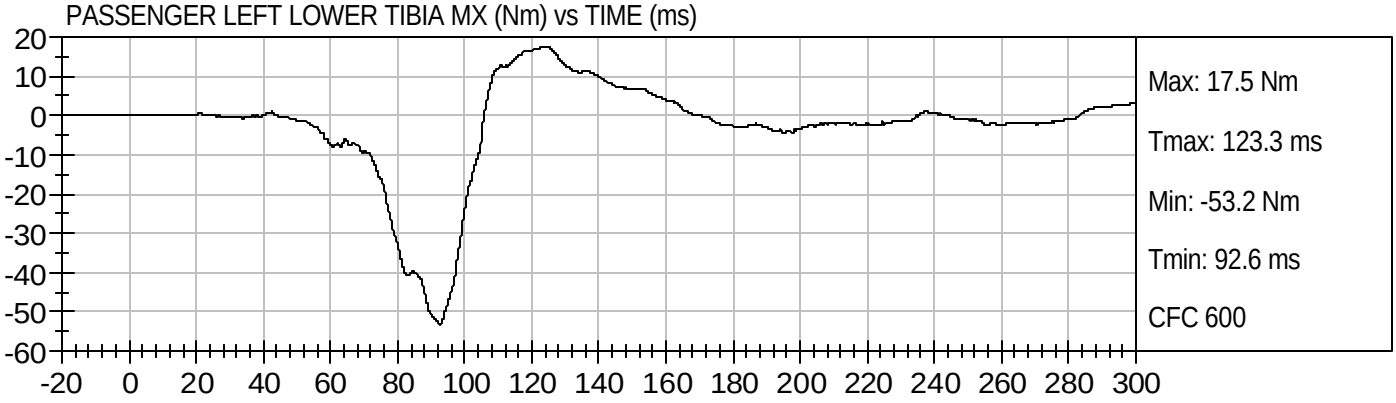
PASSENGER LEFT LOWER TIBIA FZ (N) vs TIME (ms)



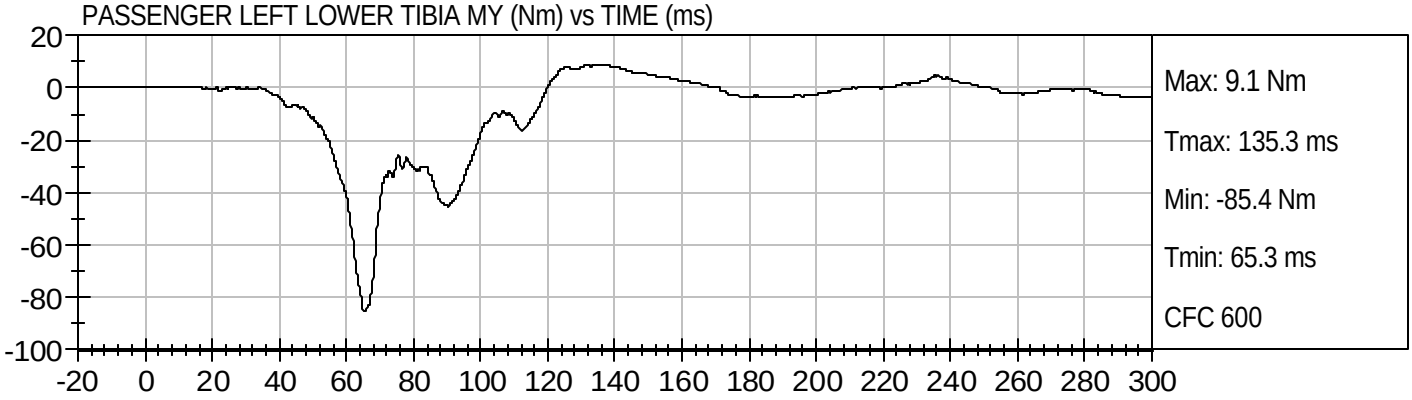
PASSENGER LEFT LOWER TIBIA FResultant (N) vs TIME (ms)



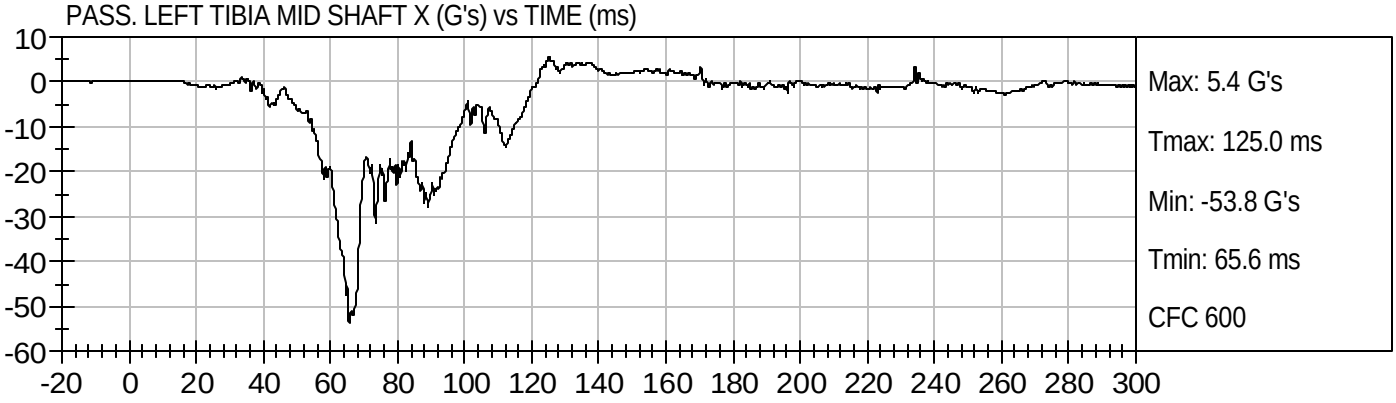
PASSENGER LEFT LOWER TIBIA MX (Nm) vs TIME (ms)



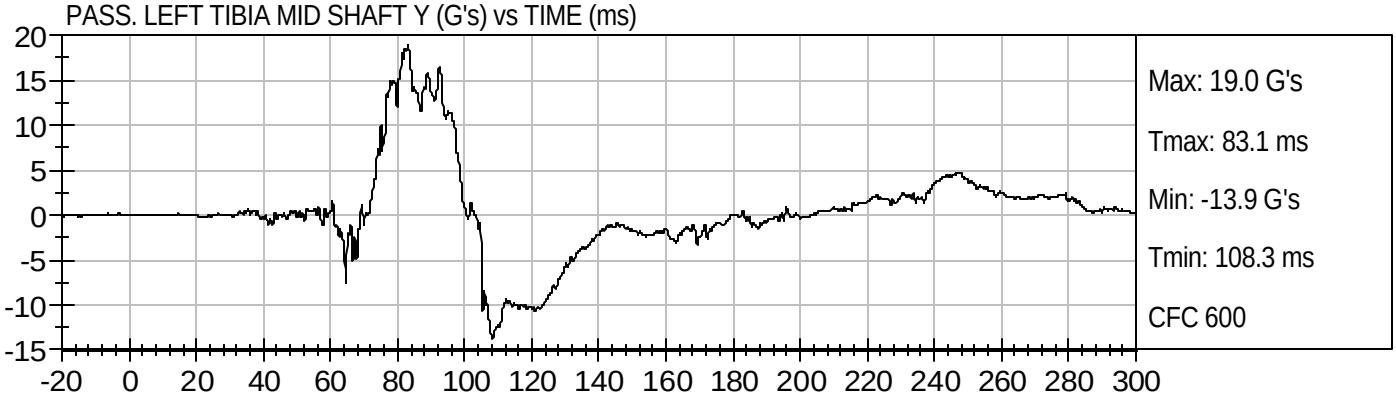
PASSENGER LEFT LOWER TIBIA MY (Nm) vs TIME (ms)



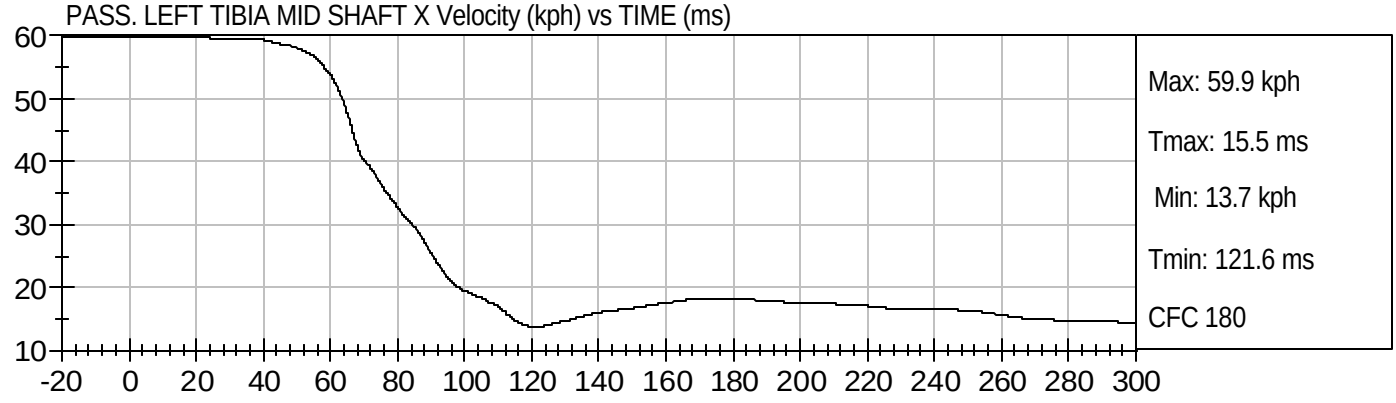
PASS. LEFT TIBIA MID SHAFT X (G's) vs TIME (ms)



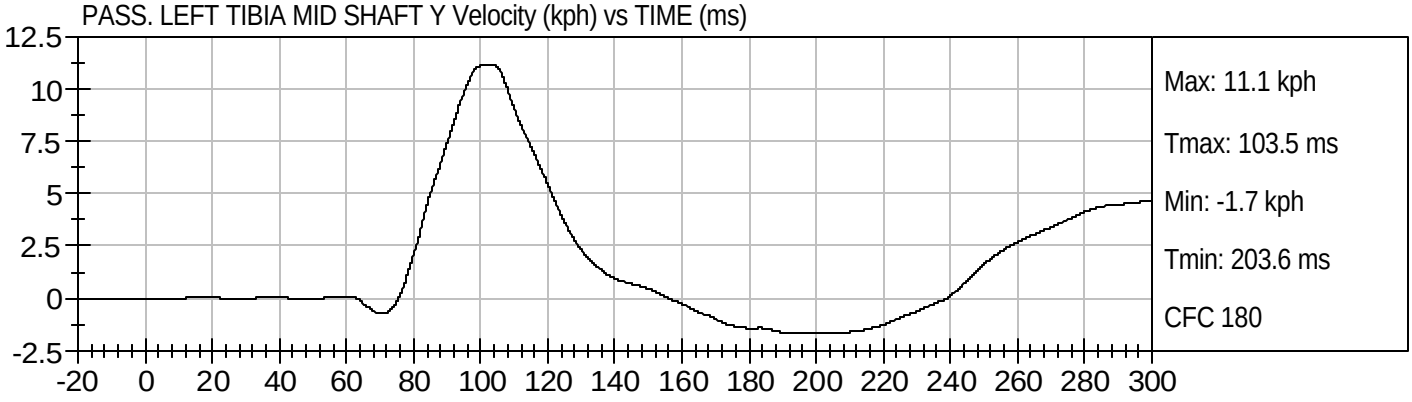
PASS. LEFT TIBIA MID SHAFT Y (G's) vs TIME (ms)



PASS. LEFT TIBIA MID SHAFT X Velocity (kph) vs TIME (ms)



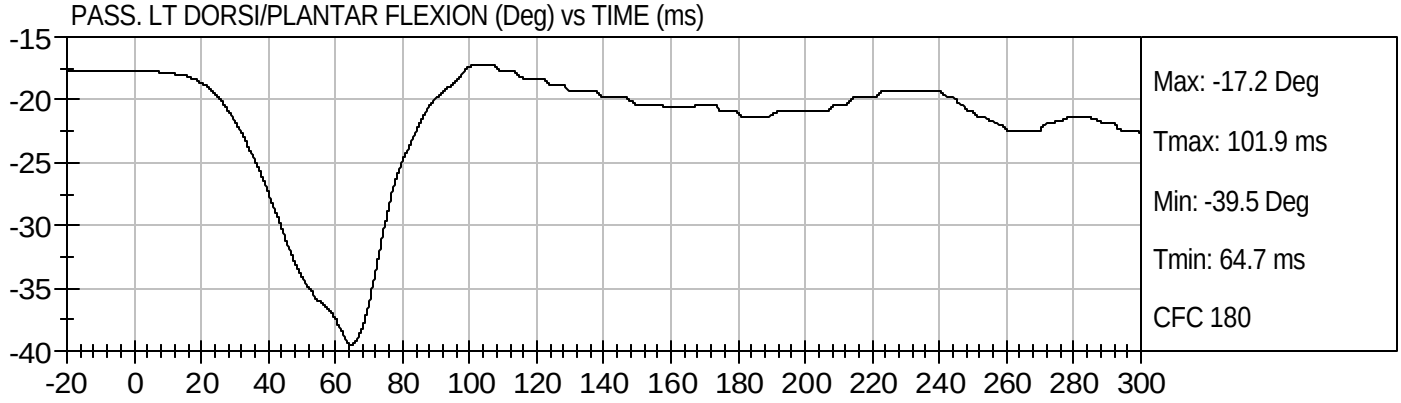
PASS. LEFT TIBIA MID SHAFT Y Velocity (kph) vs TIME (ms)



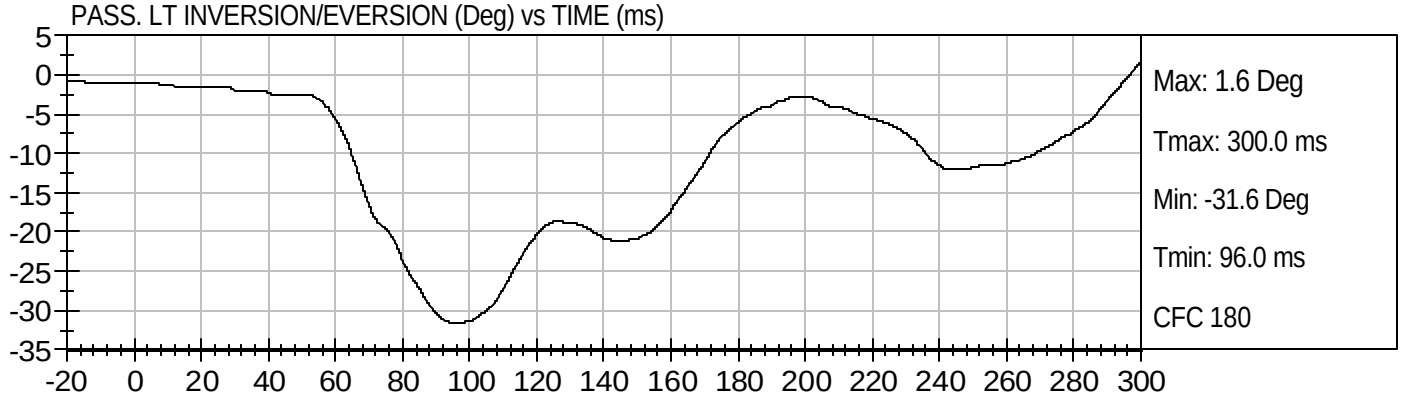
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

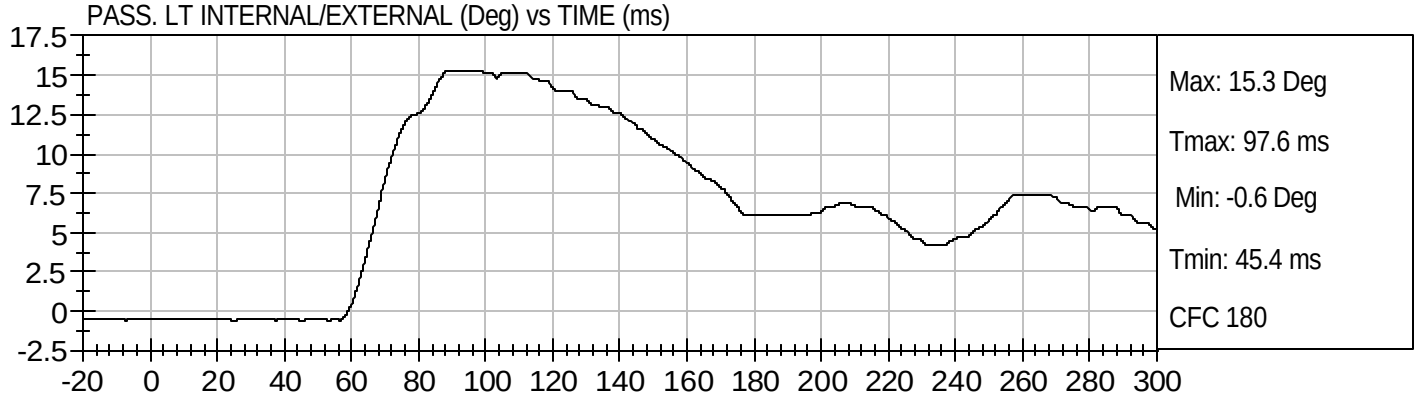
PASS. LT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)



PASS. LT INVERSION/EVERSION (Deg) vs TIME (ms)



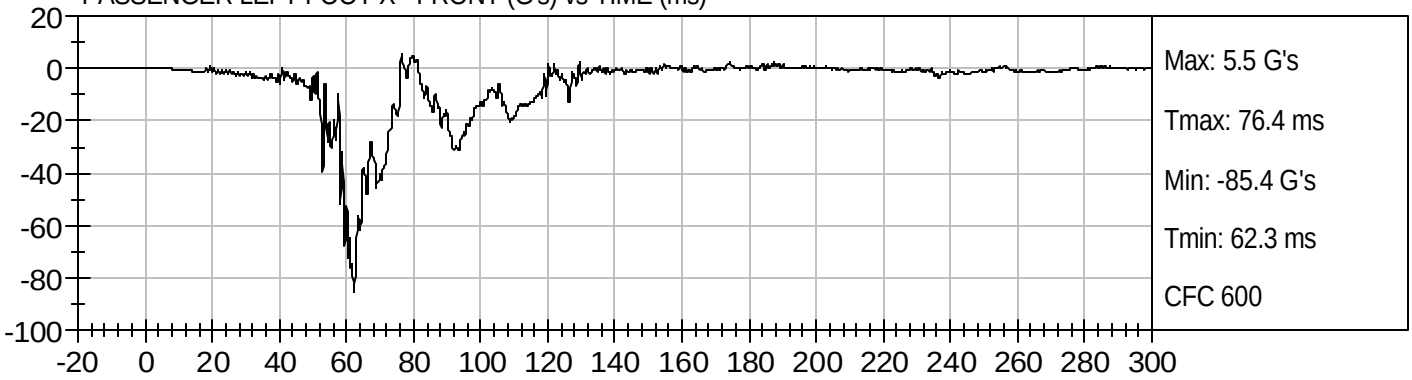
PASS. LT INTERNAL/EXTERNAL (Deg) vs TIME (ms)



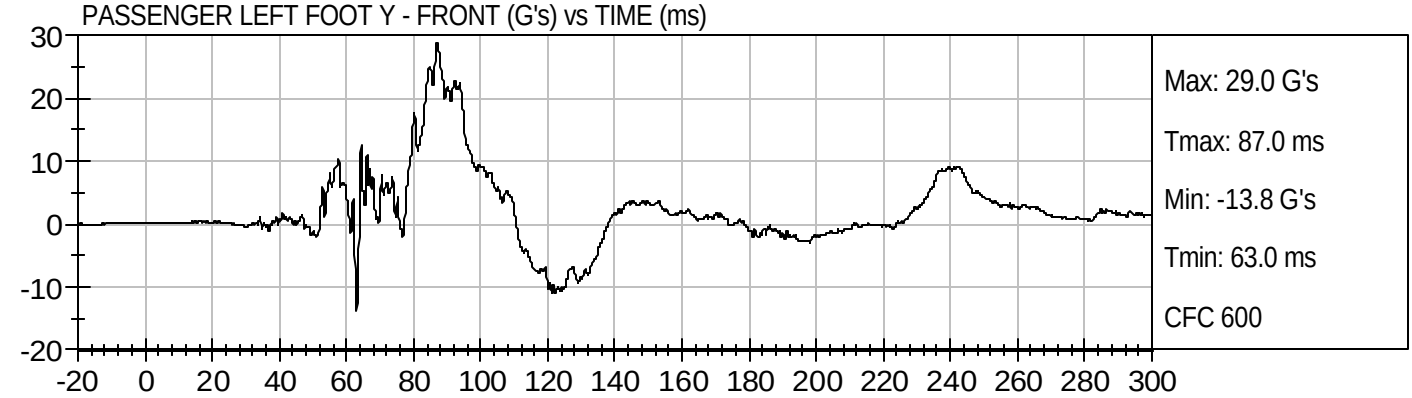
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

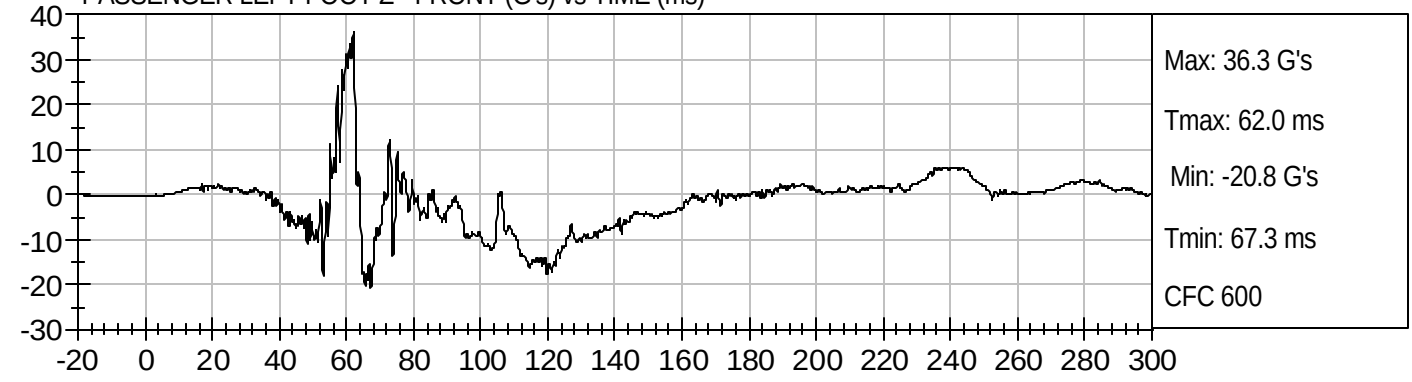
PASSENGER LEFT FOOT X - FRONT (G's) vs TIME (ms)



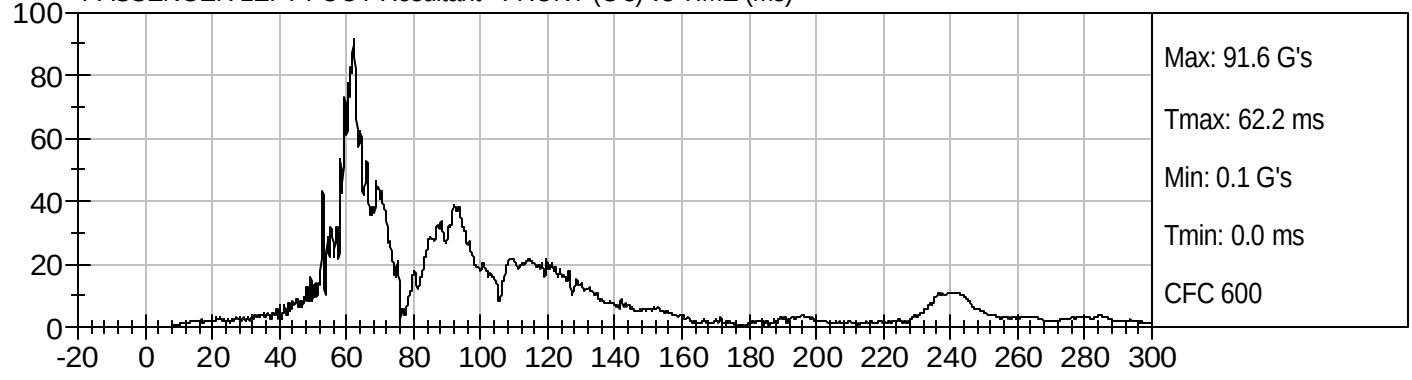
PASSENGER LEFT FOOT Y - FRONT (G's) vs TIME (ms)

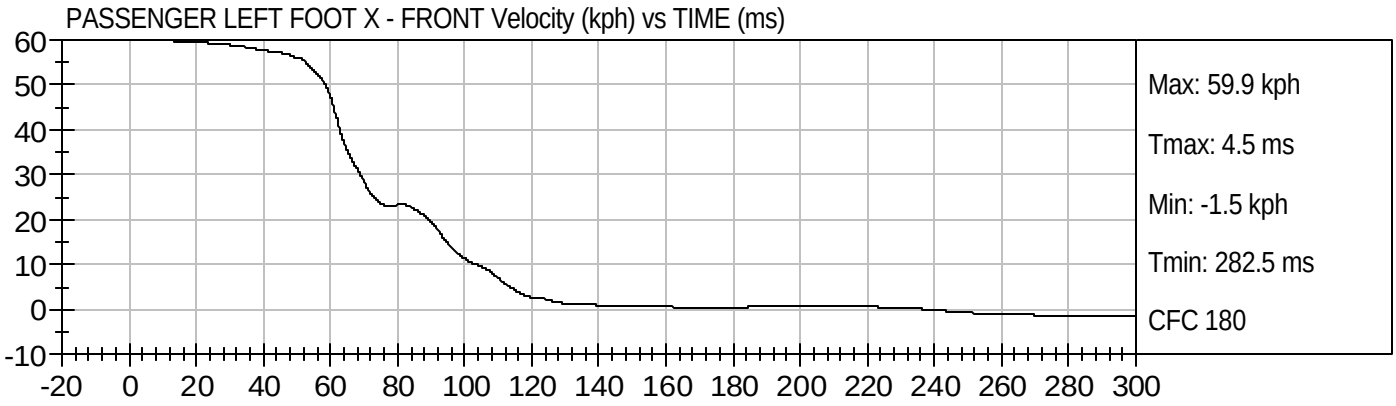


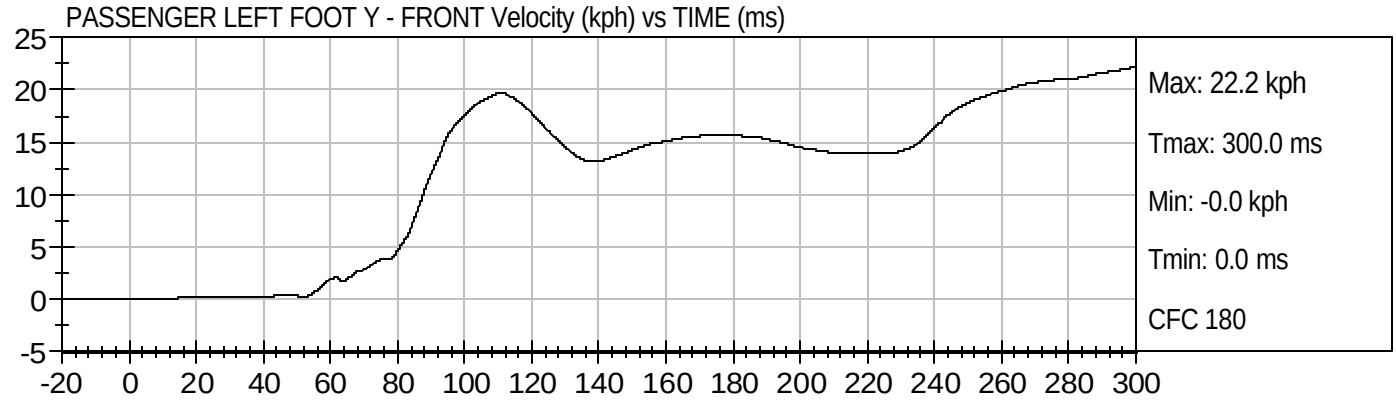
PASSENGER LEFT FOOT Z - FRONT (G's) vs TIME (ms)

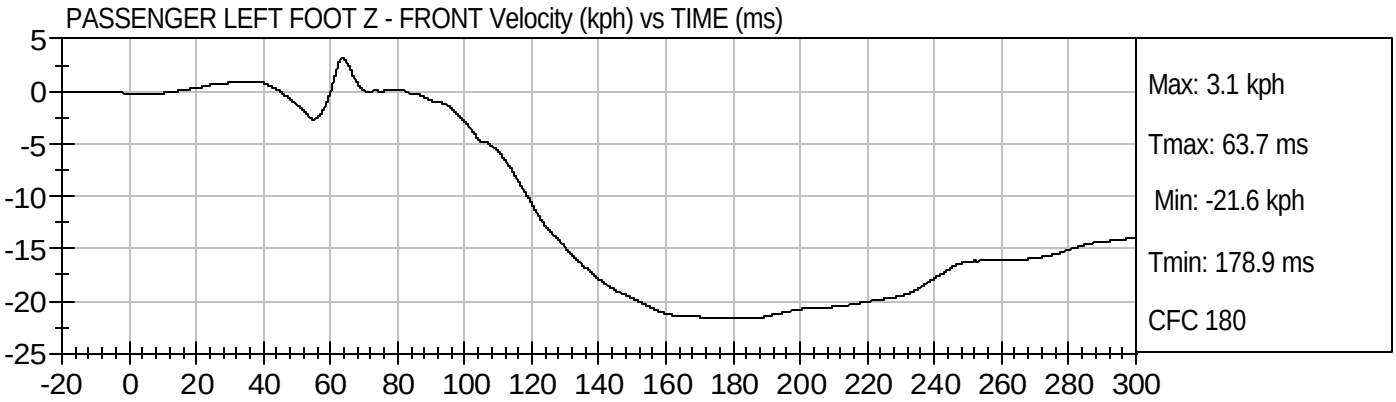


PASSENGER LEFT FOOT Resultant - FRONT (G's) vs TIME (ms)




PASSENGER LEFT FOOT X - FRONT Velocity (kph) vs TIME (ms)
60
50
40
30
20
10
0
-10
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 59.9 kph
Tmax: 4.5 ms
Min: -1.5 kph
Tmin: 282.5 ms
CFC 180

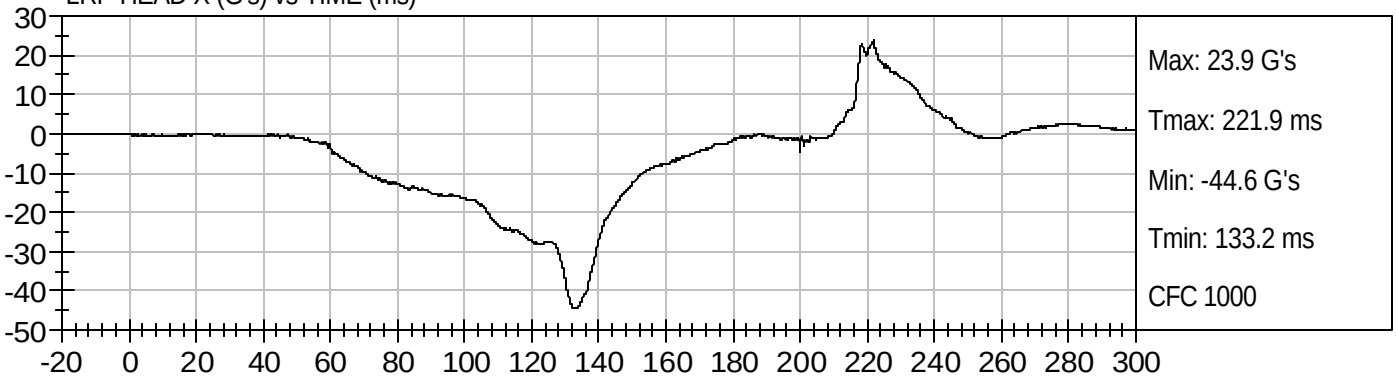

PASSENGER LEFT FOOT Y - FRONT Velocity (kph) vs TIME (ms)
25
20
15
10
5
0
-5
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 22.2 kph
Tmax: 300.0 ms
Min: -0.0 kph
Tmin: 0.0 ms
CFC 180


PASSENGER LEFT FOOT Z - FRONT Velocity (kph) vs TIME (ms)
5
0
-5
-10
-15
-20
-25
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 3.1 kph
Tmax: 63.7 ms
Min: -21.6 kph
Tmin: 178.9 ms
CFC 180

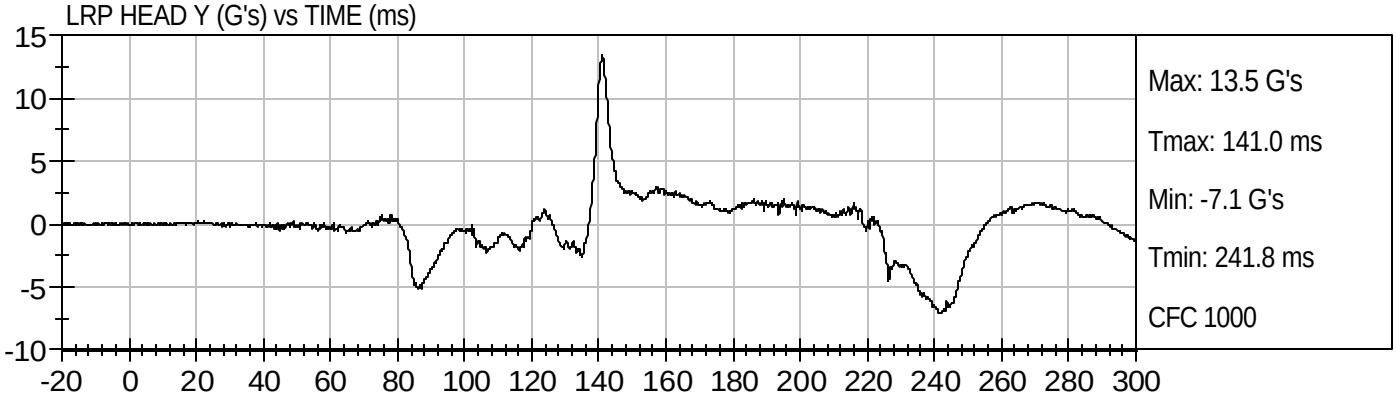
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

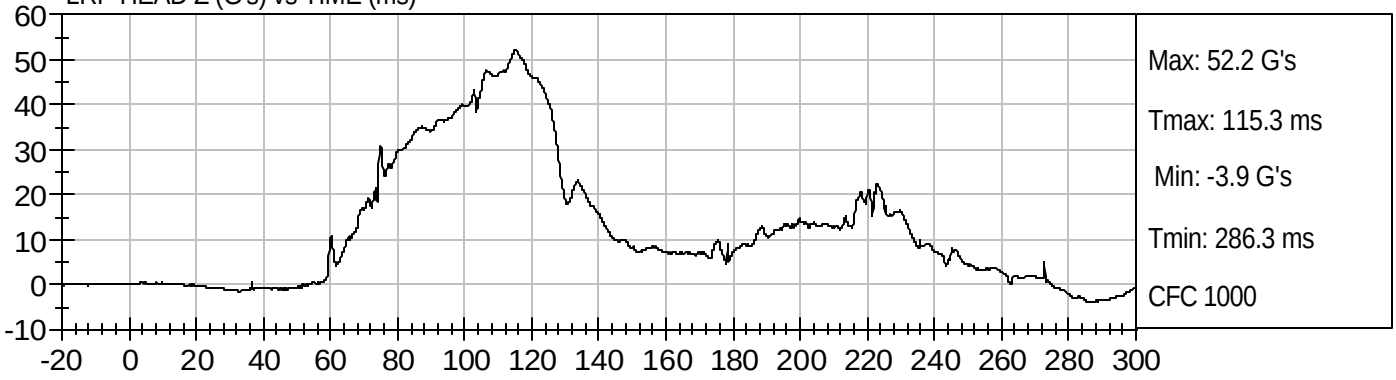
LRP HEAD X (G's) vs TIME (ms)



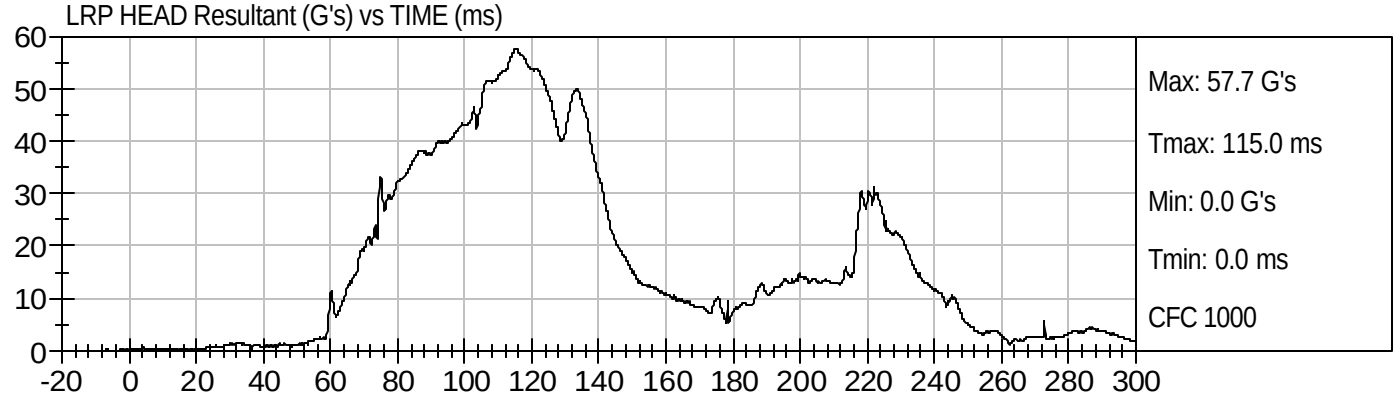
LRP HEAD Y (G's) vs TIME (ms)

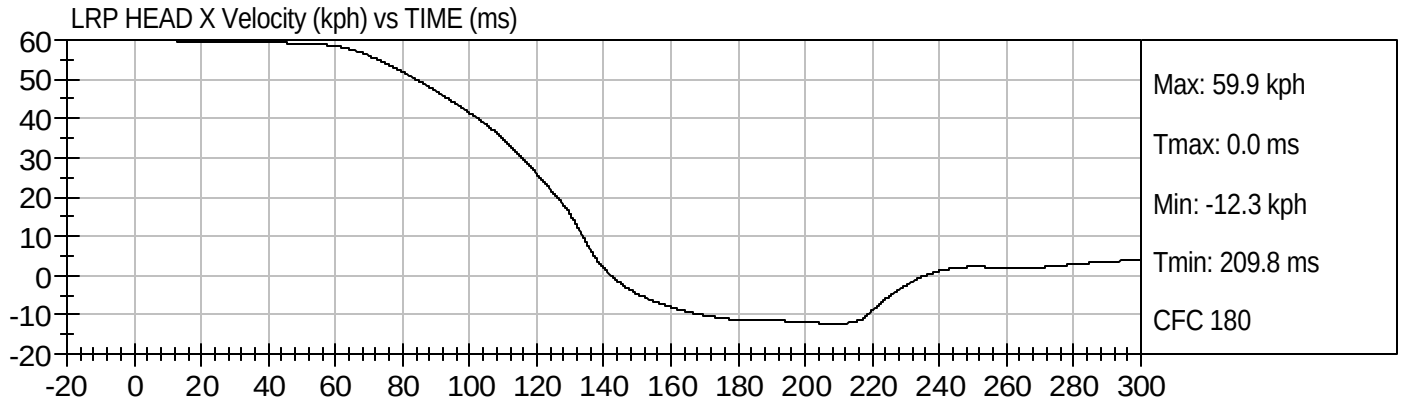


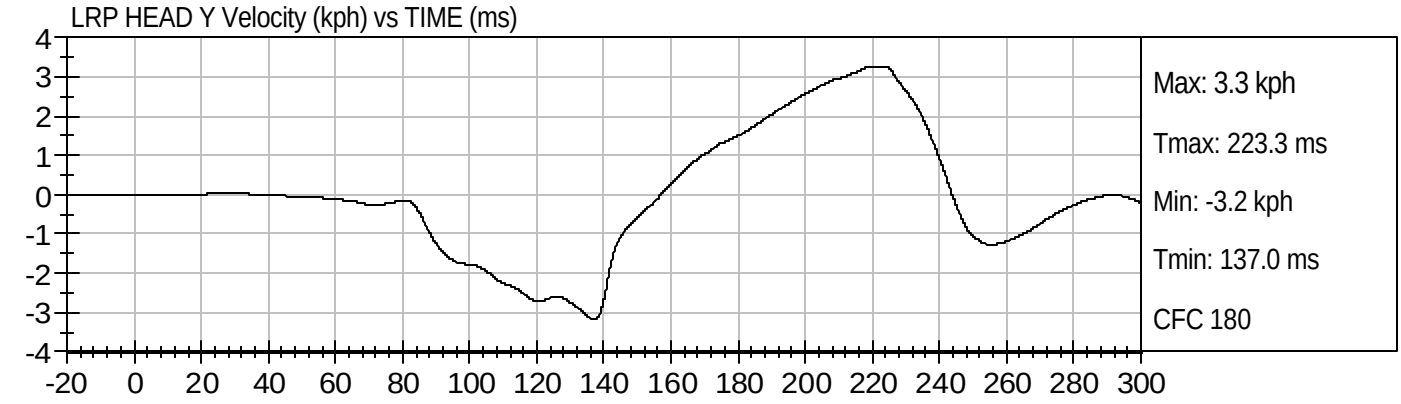
LRP HEAD Z (G's) vs TIME (ms)

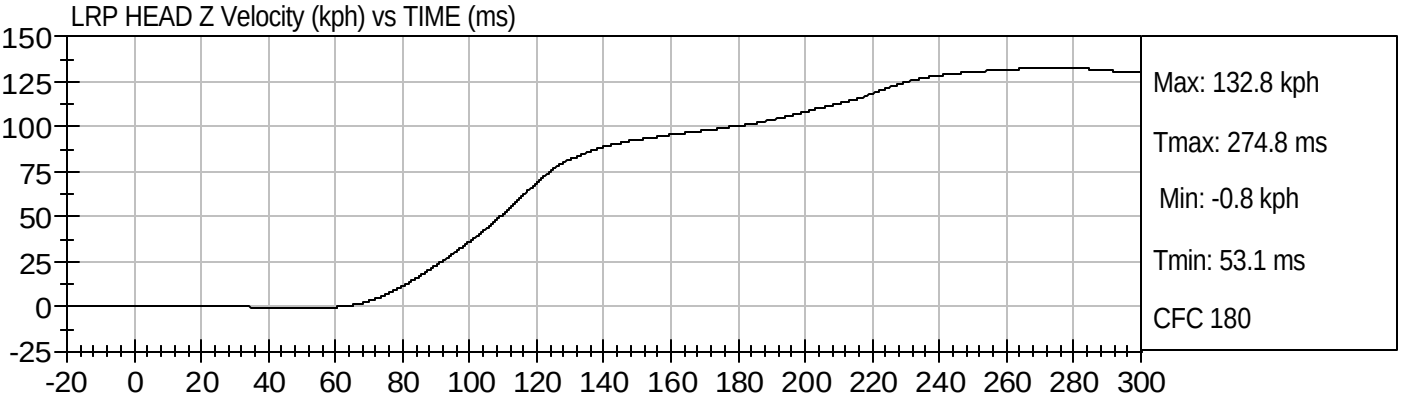


LRP HEAD Resultant (G's) vs TIME (ms)



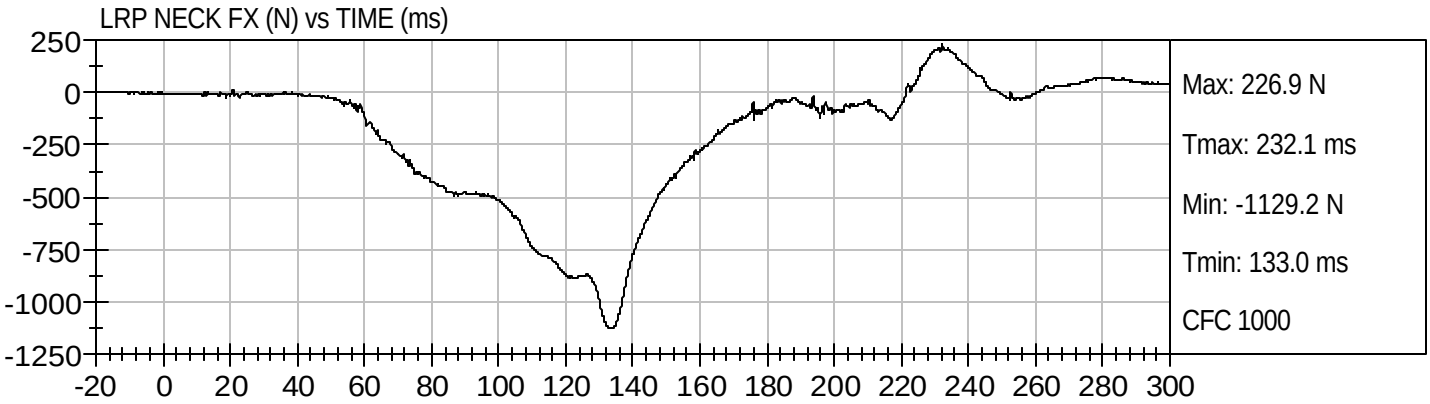

LRP HEAD X Velocity (kph) vs TIME (ms)
Max: 59.9 kph
Tmax: 0.0 ms
Min: -12.3 kph
Tmin: 209.8 ms
CFC 180

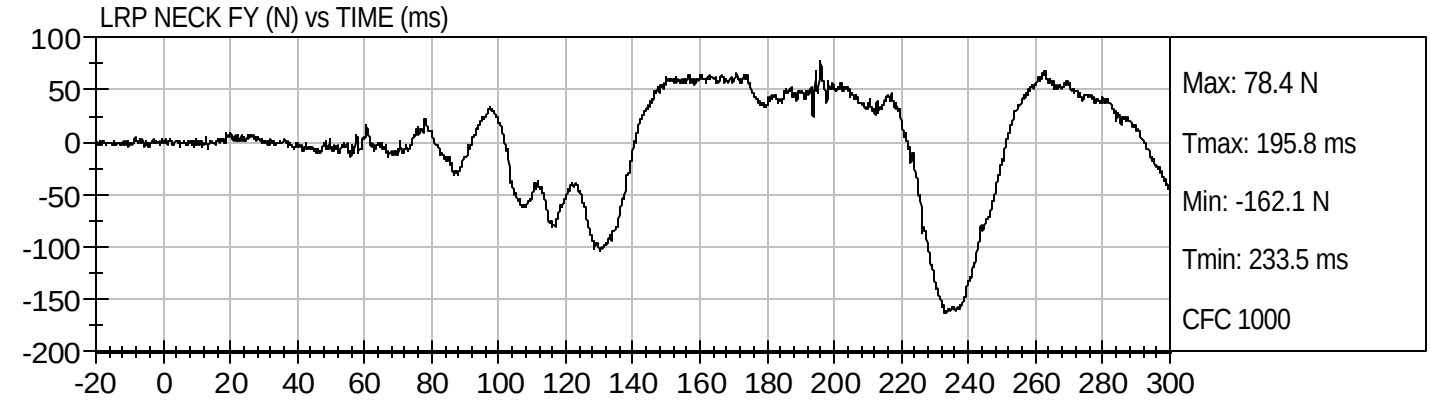

LRP HEAD Y Velocity (kph) vs TIME (ms)
Max: 3.3 kph
Tmax: 223.3 ms
Min: -3.2 kph
Tmin: 137.0 ms
CFC 180

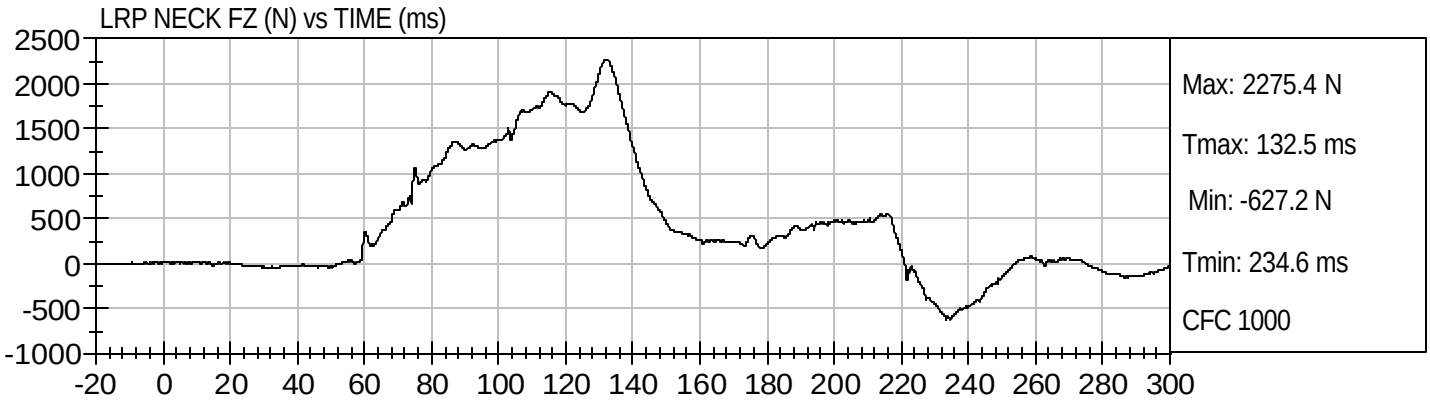

LRP HEAD Z Velocity (kph) vs TIME (ms)
Max: 132.8 kph
Tmax: 274.8 ms
Min: -0.8 kph
Tmin: 53.1 ms
CFC 180

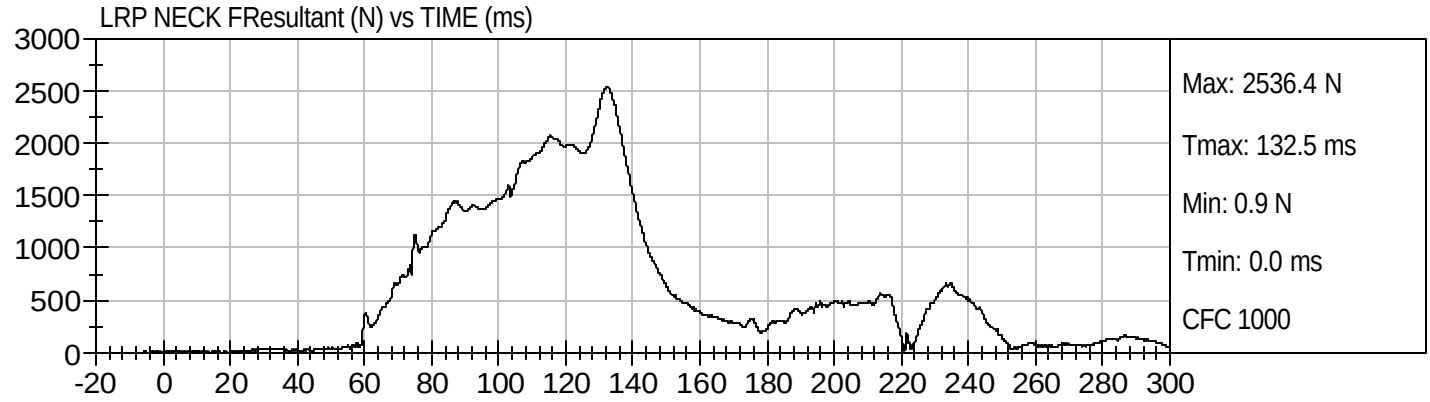
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



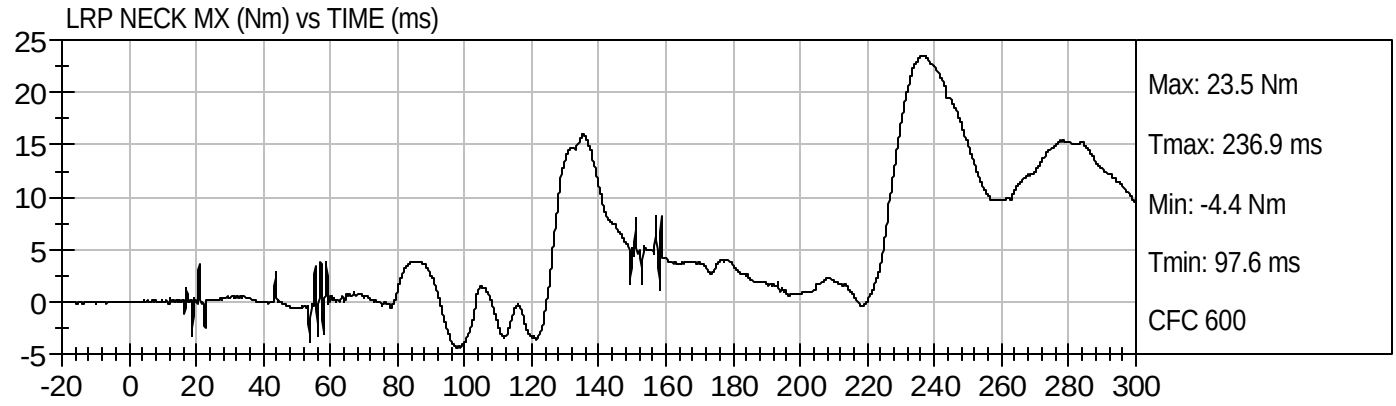


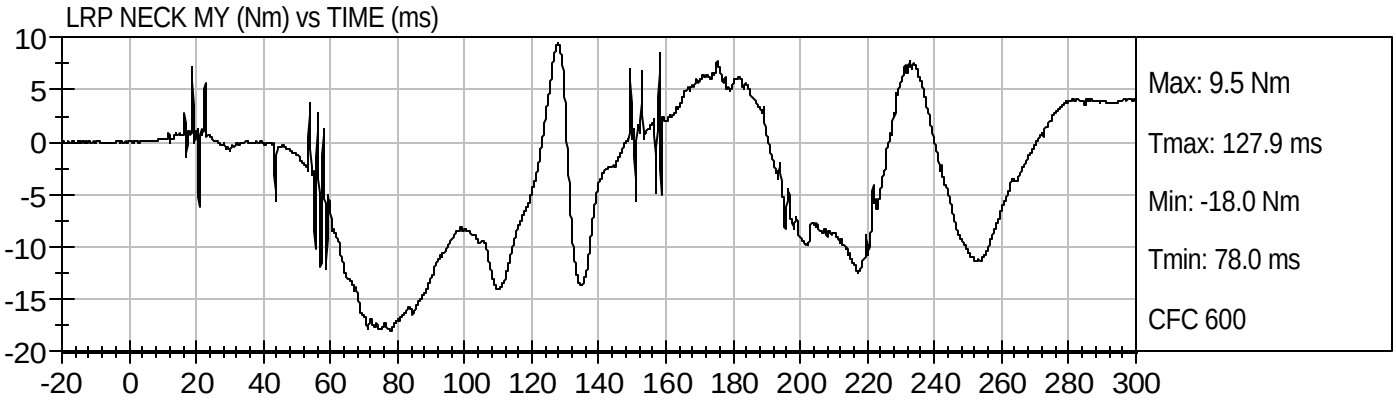


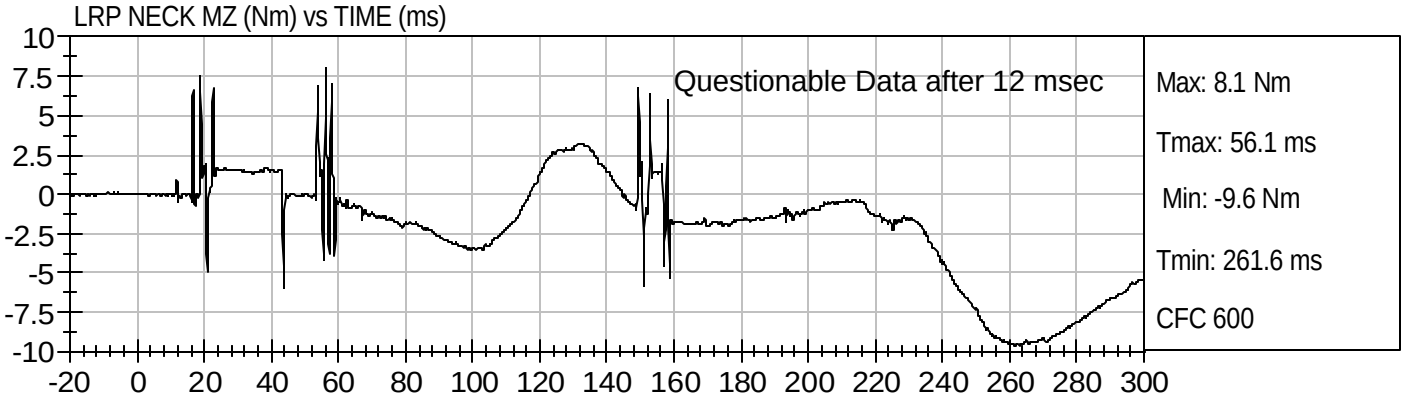


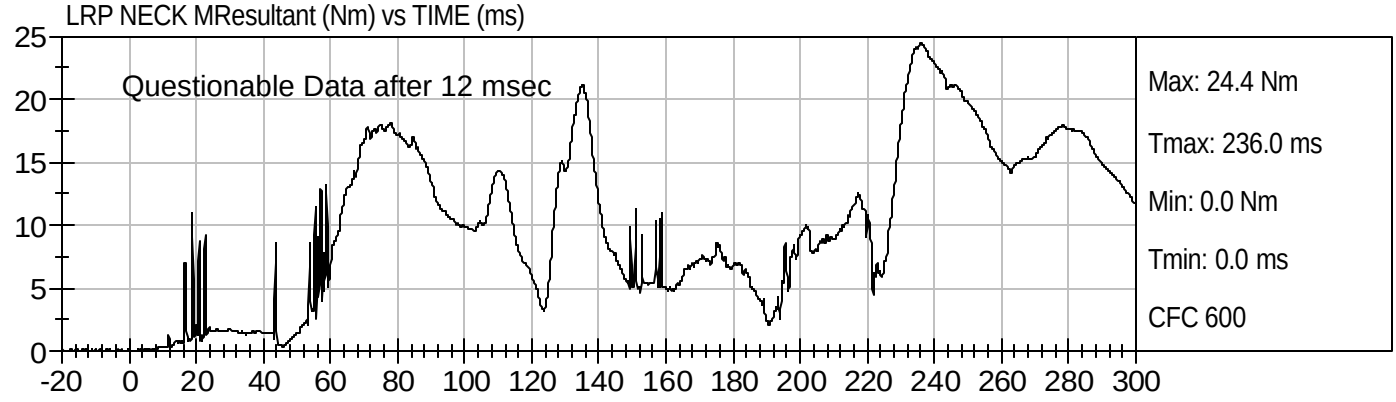
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



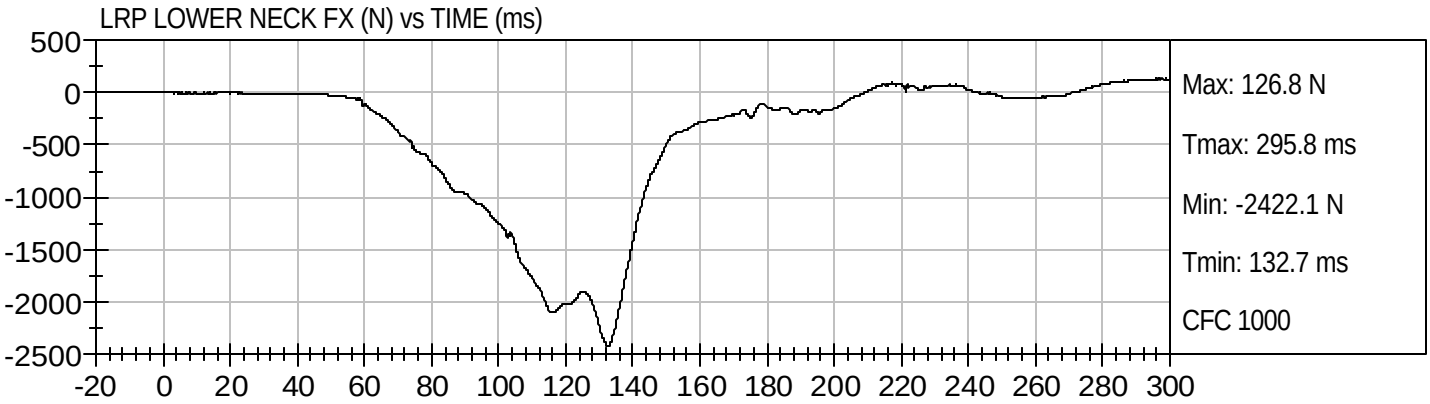


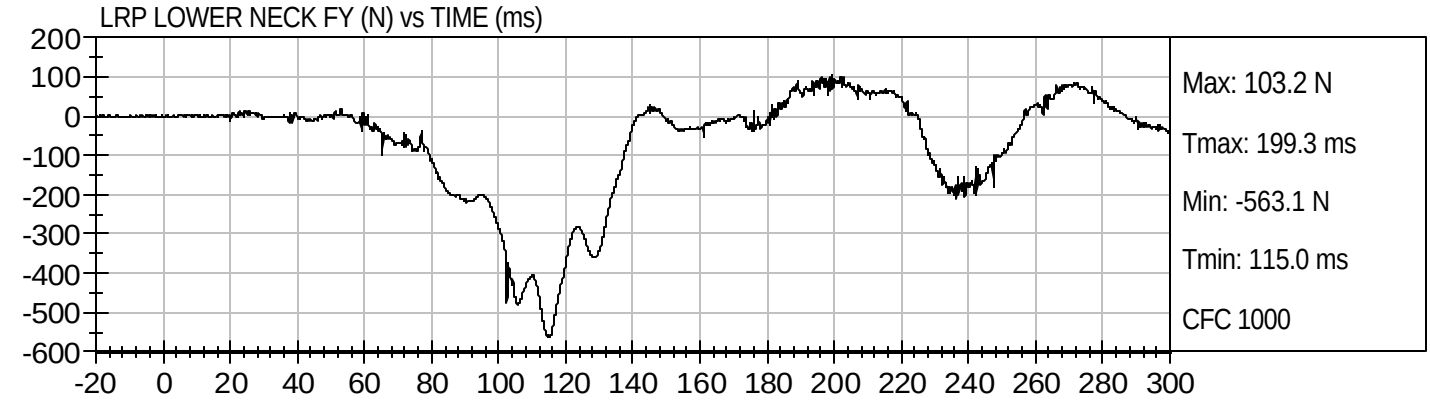


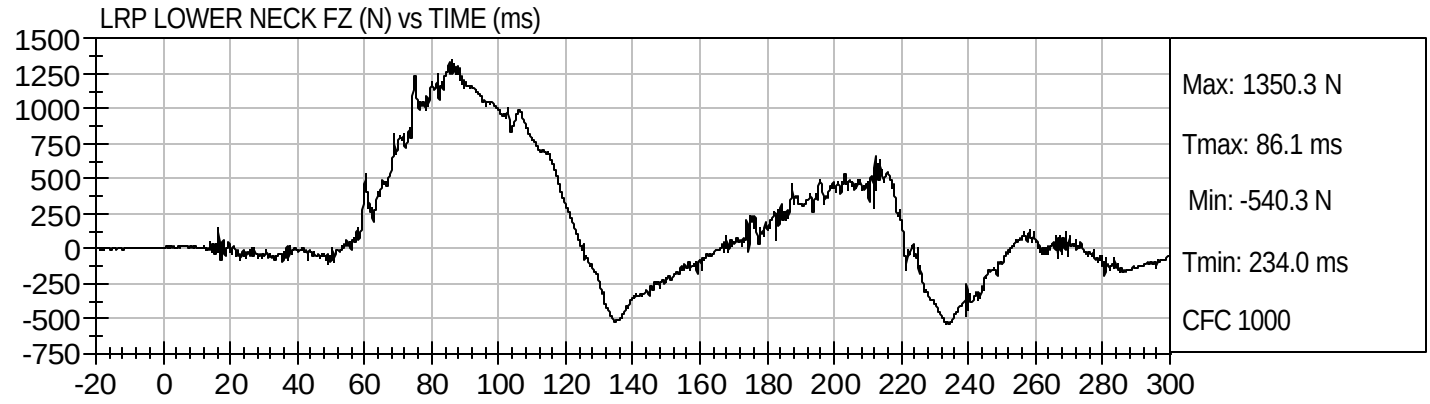


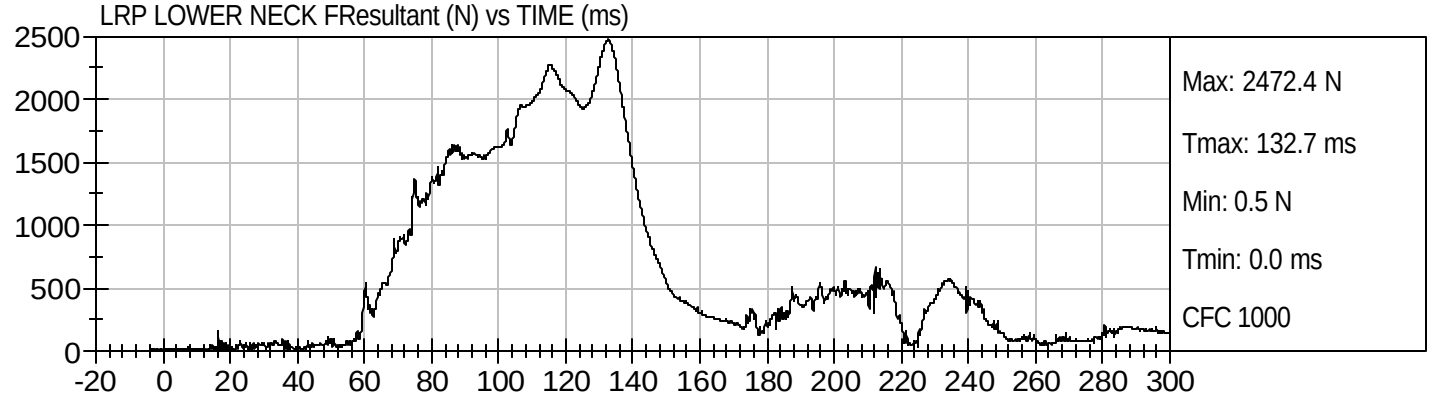
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)





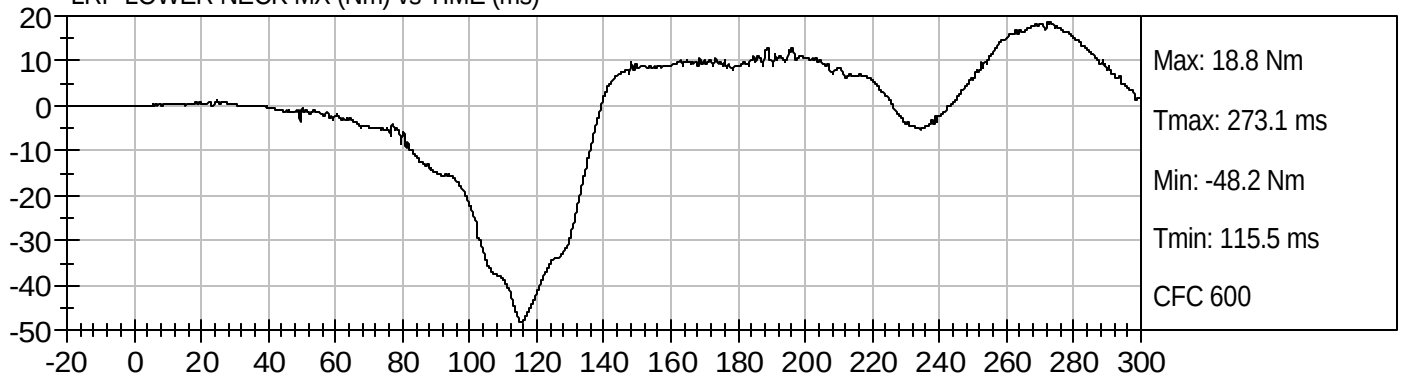




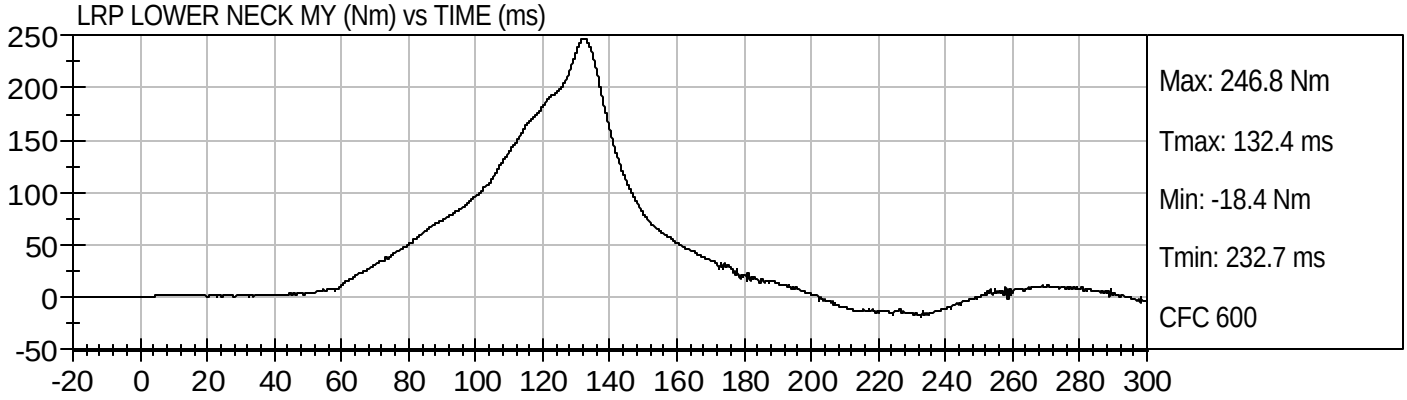
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

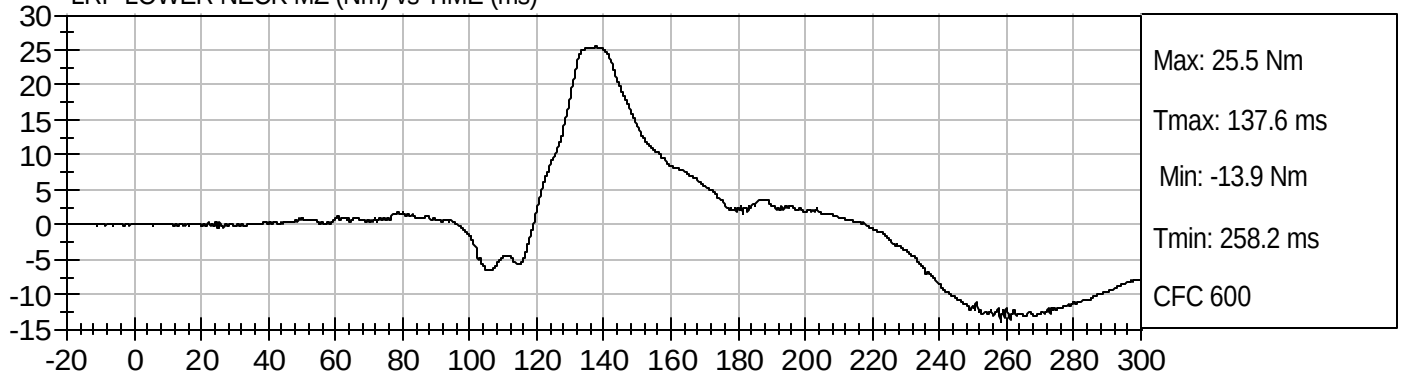
LRP LOWER NECK MX (Nm) vs TIME (ms)



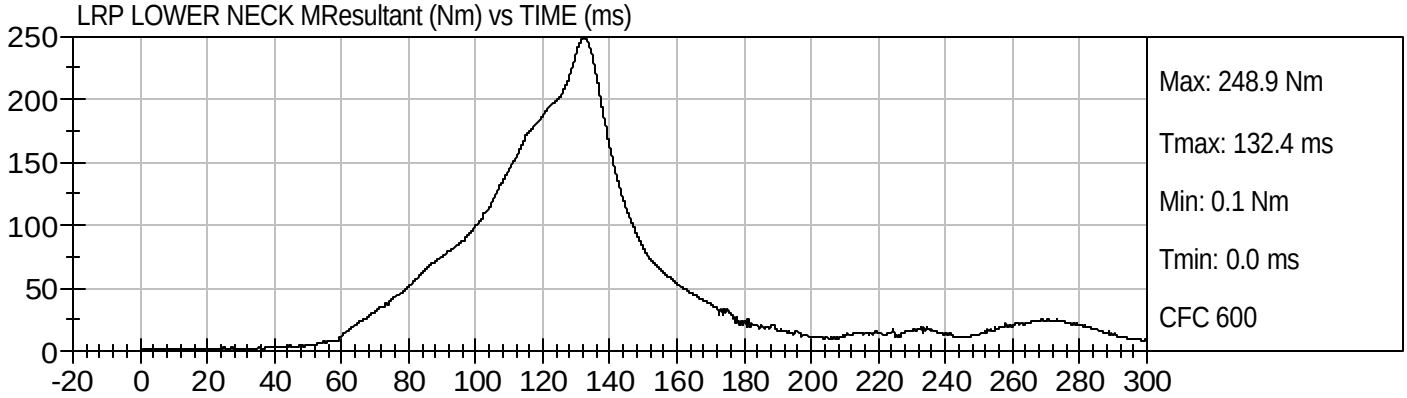
LRP LOWER NECK MY (Nm) vs TIME (ms)



LRP LOWER NECK MZ (Nm) vs TIME (ms)



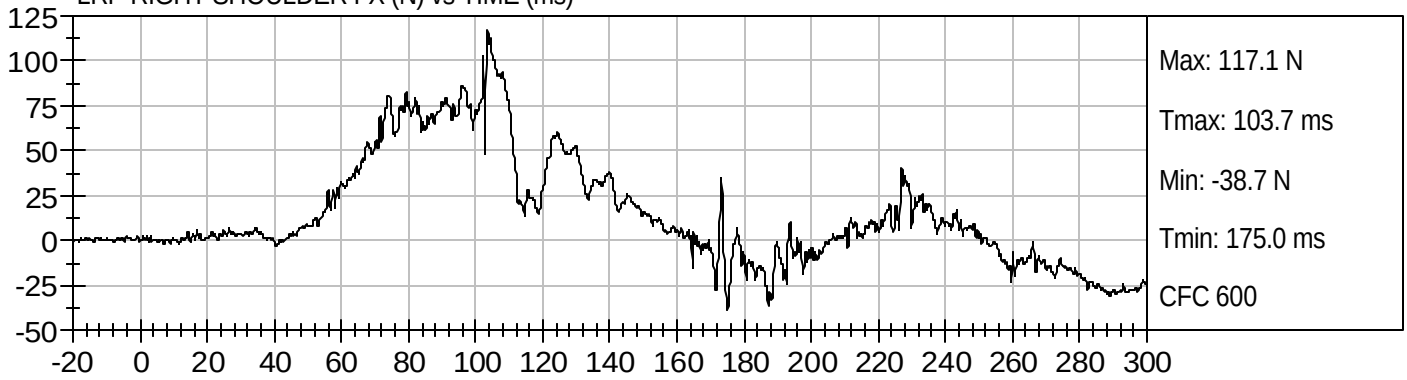
LRP LOWER NECK MResultant (Nm) vs TIME (ms)



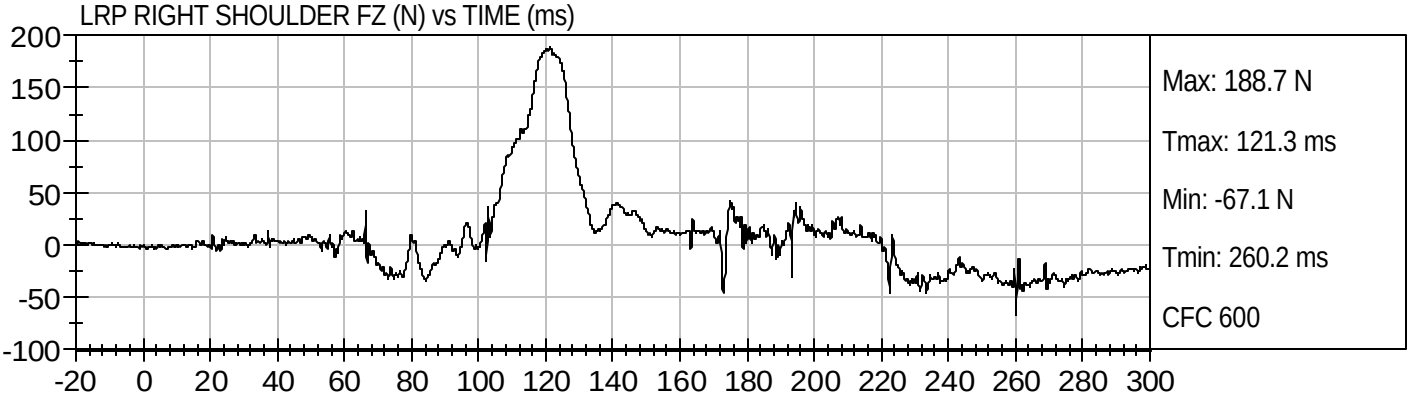
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

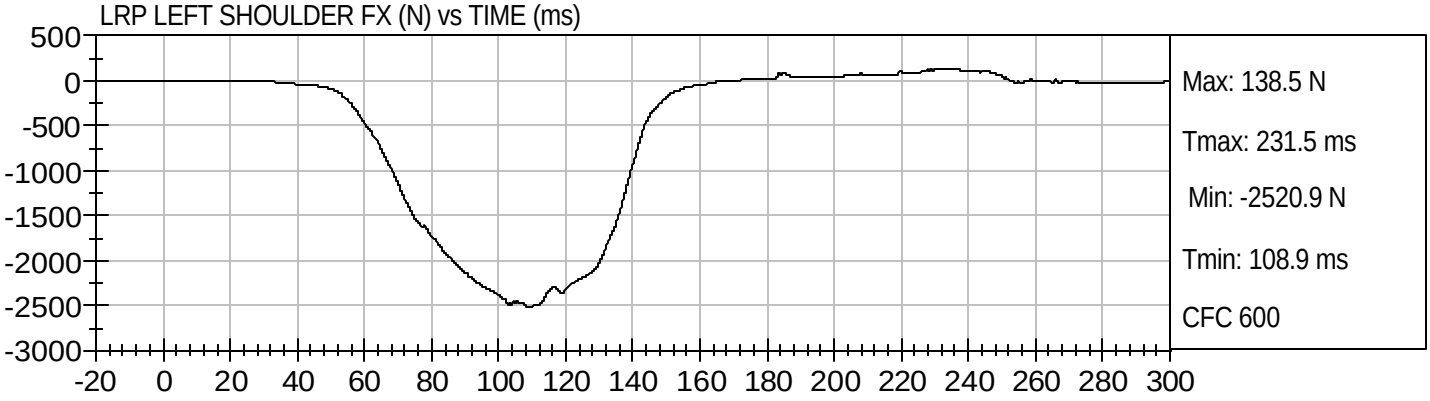
LRP RIGHT SHOULDER FX (N) vs TIME (ms)



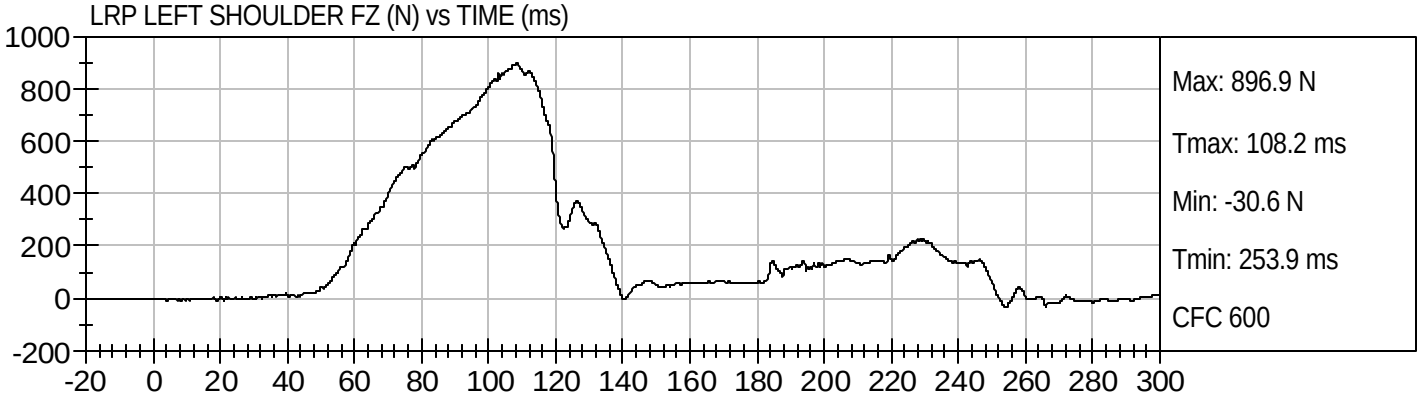
LRP RIGHT SHOULDER FZ (N) vs TIME (ms)



LRP LEFT SHOULDER FX (N) vs TIME (ms)

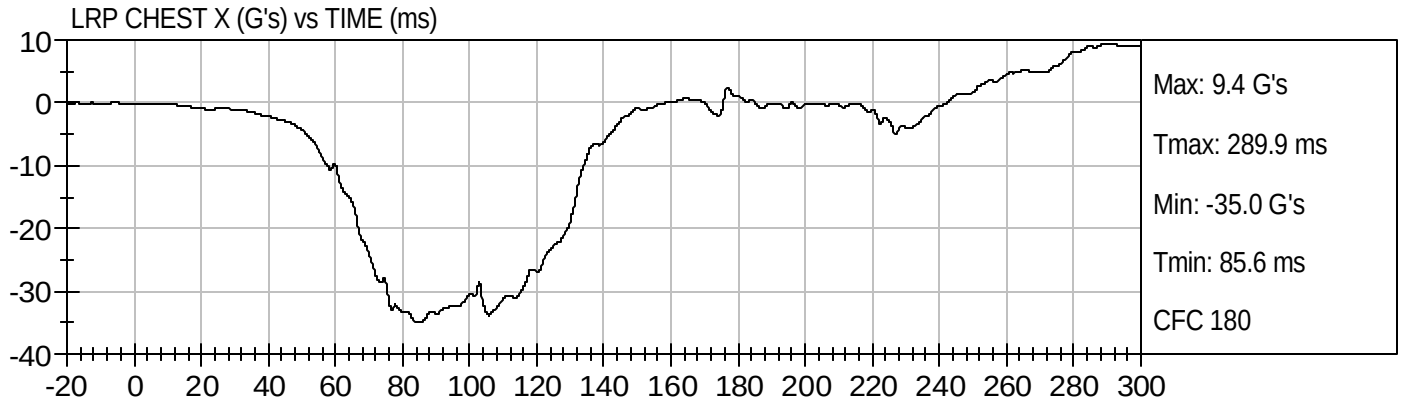


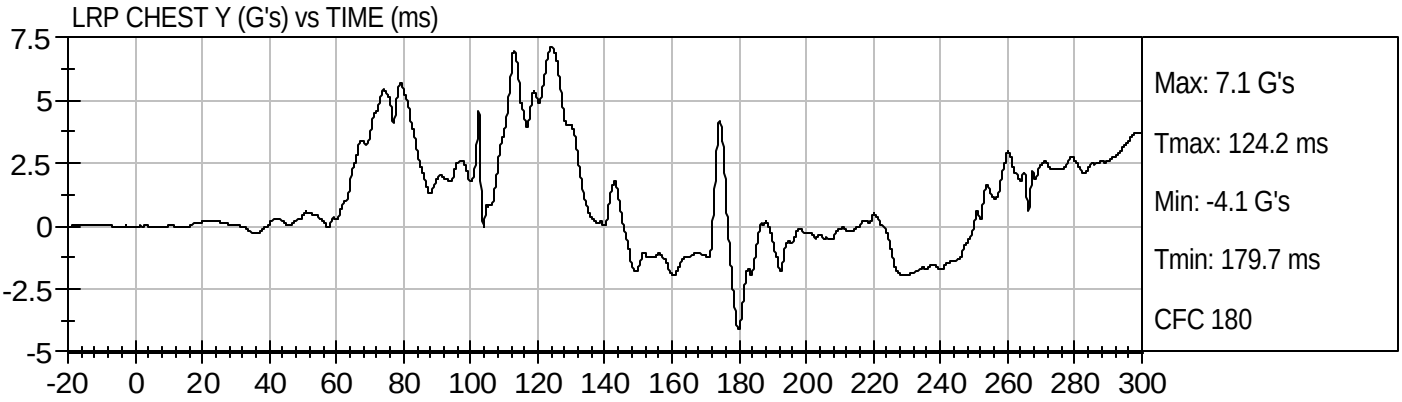
LRP LEFT SHOULDER FZ (N) vs TIME (ms)

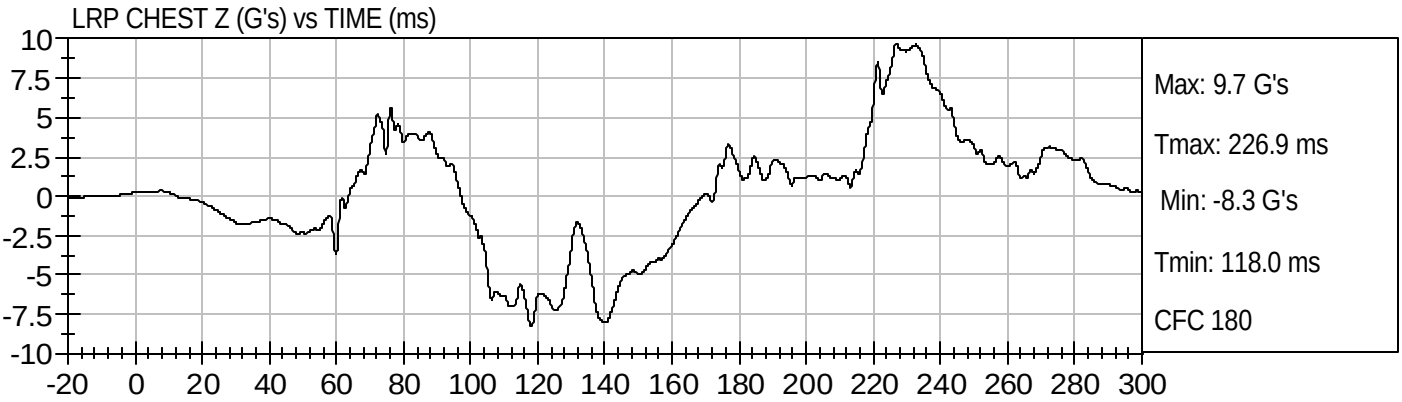


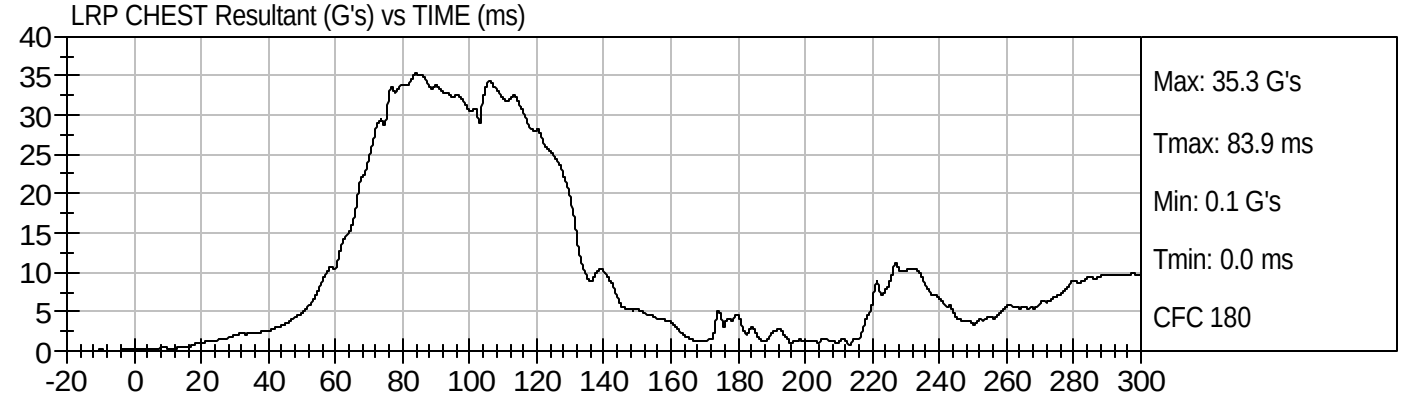
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



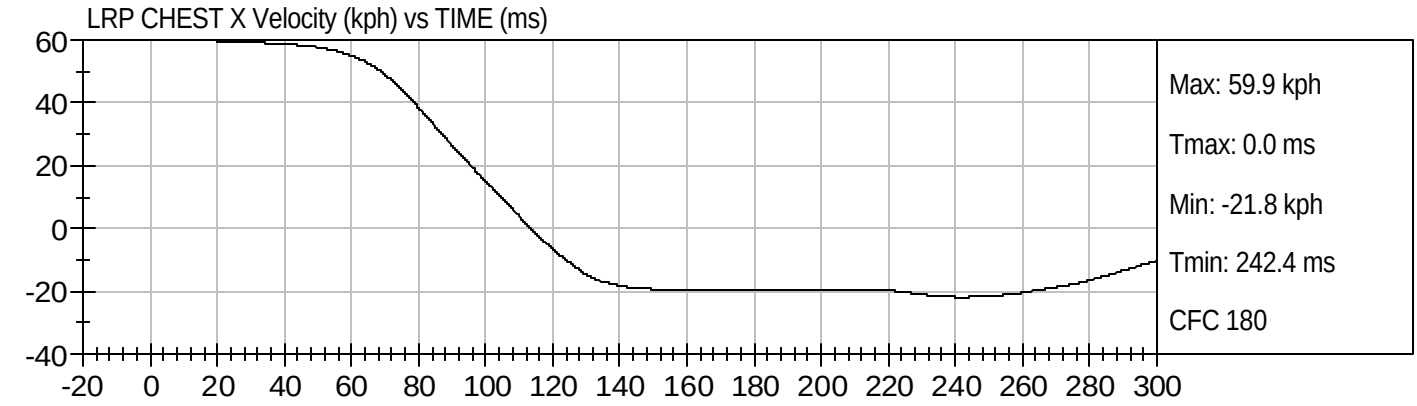


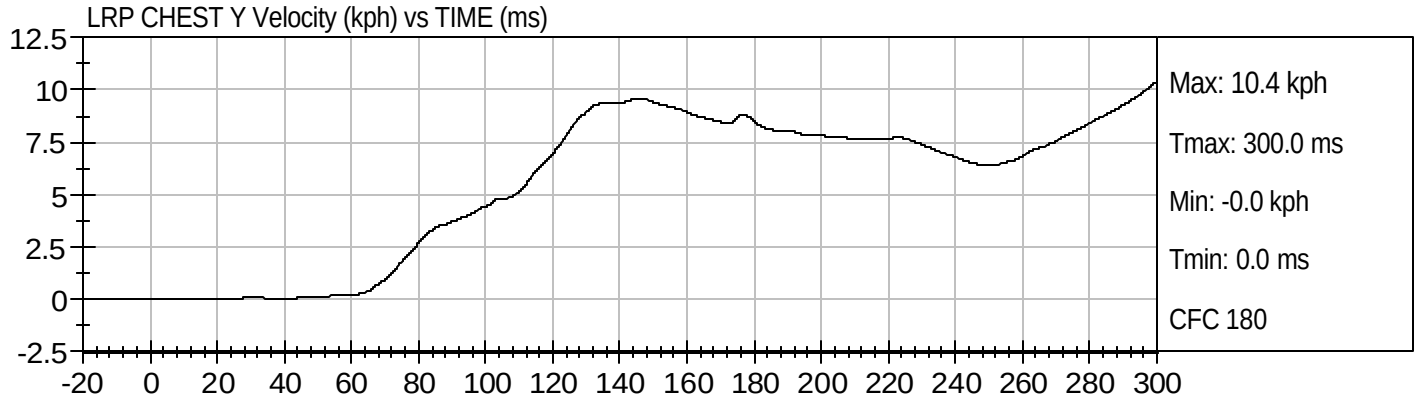


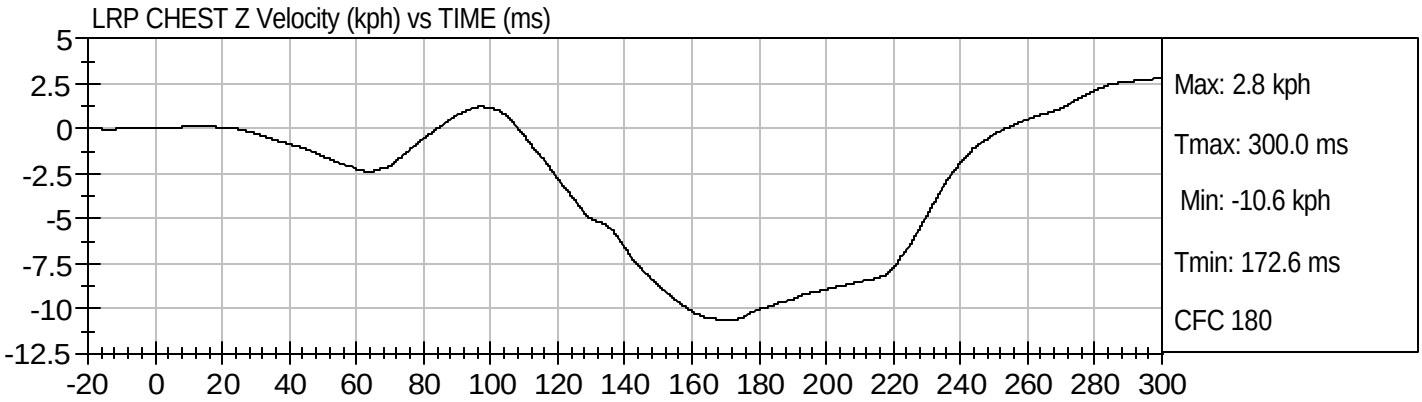


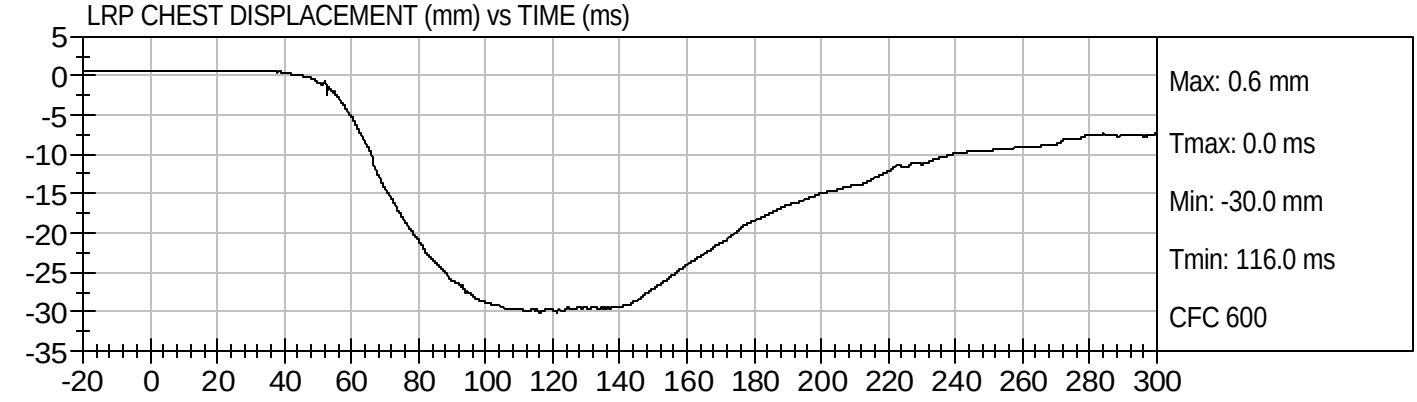
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)





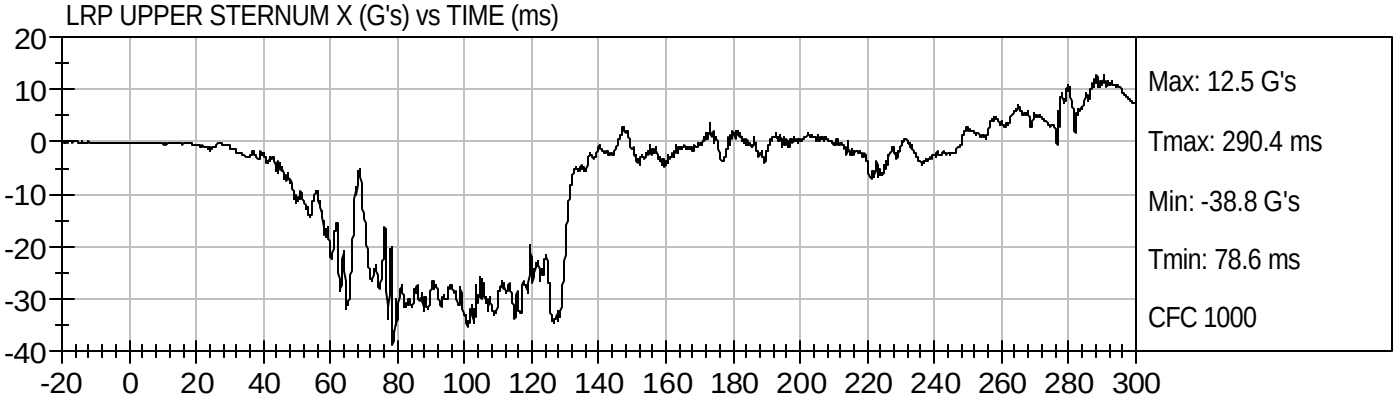




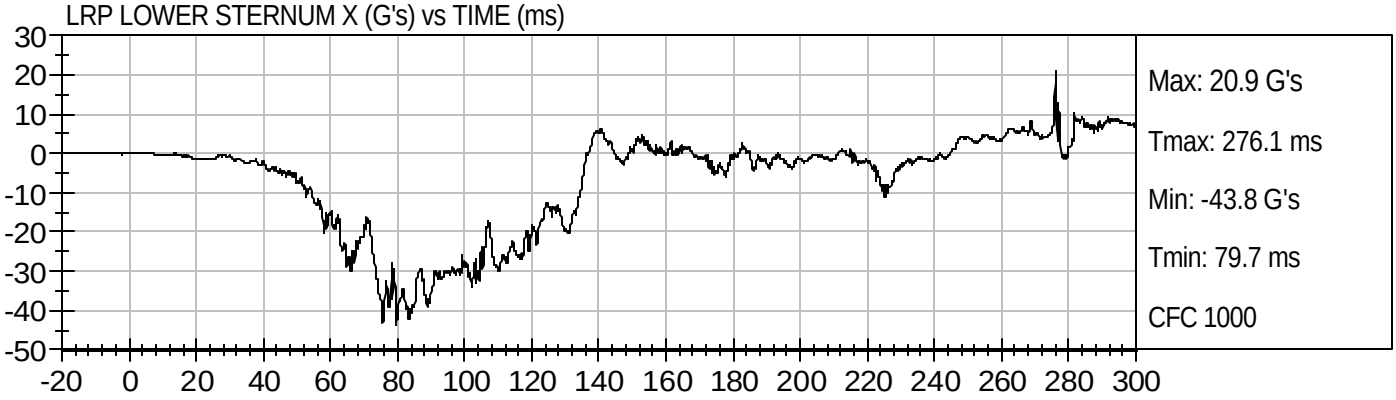
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

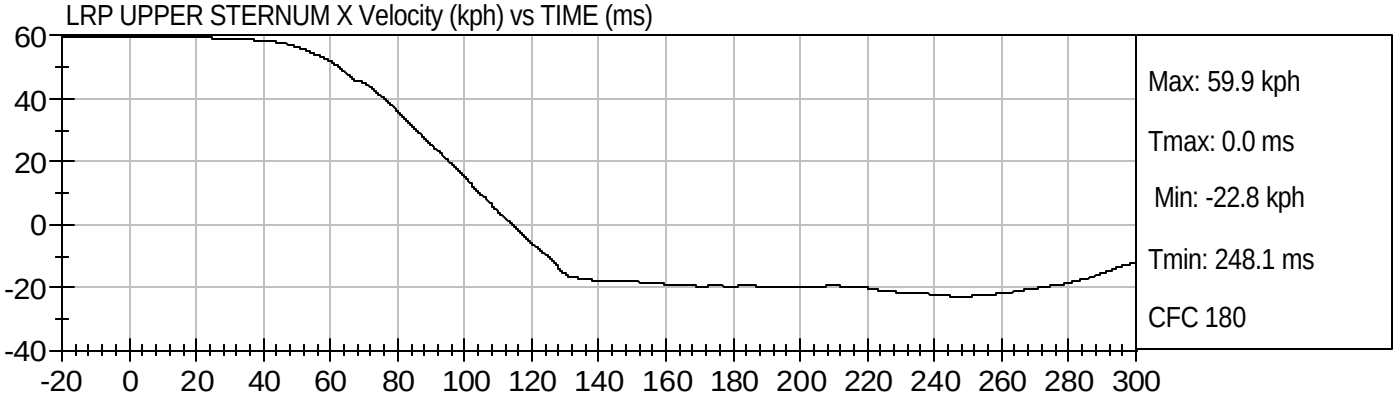
LRP UPPER STERNUM X (G's) vs TIME (ms)



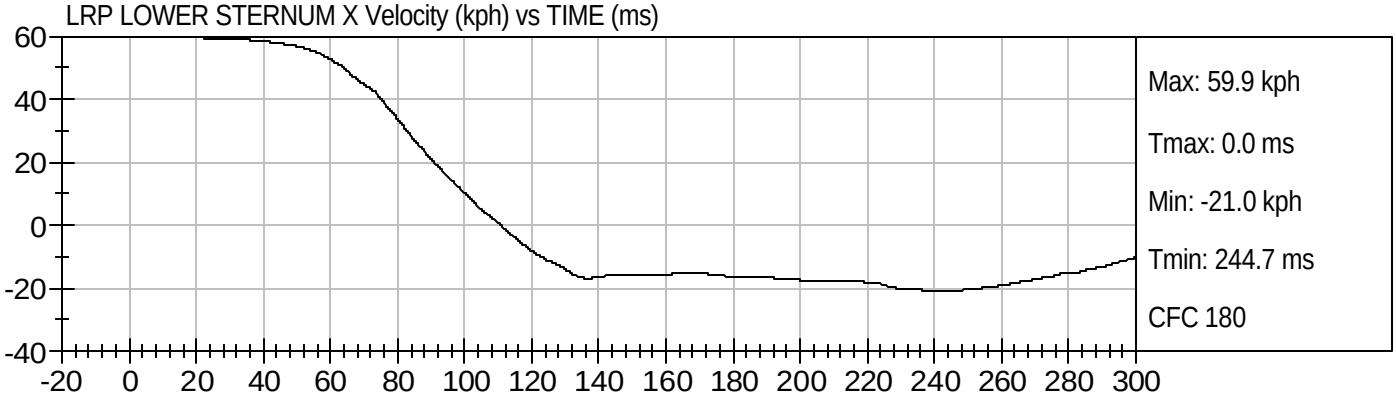
LRP LOWER STERNUM X (G's) vs TIME (ms)



LRP UPPER STERNUM X Velocity (kph) vs TIME (ms)



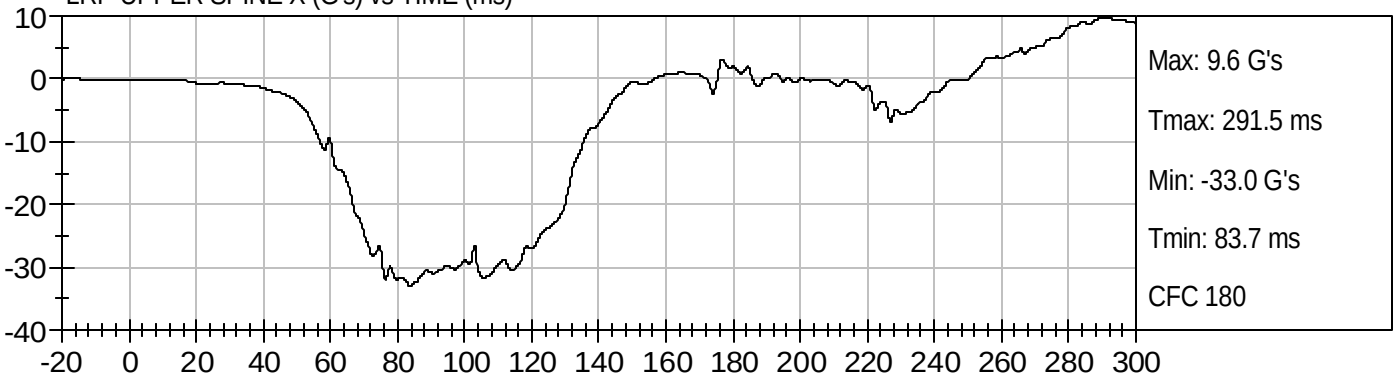
LRP LOWER STERNUM X Velocity (kph) vs TIME (ms)



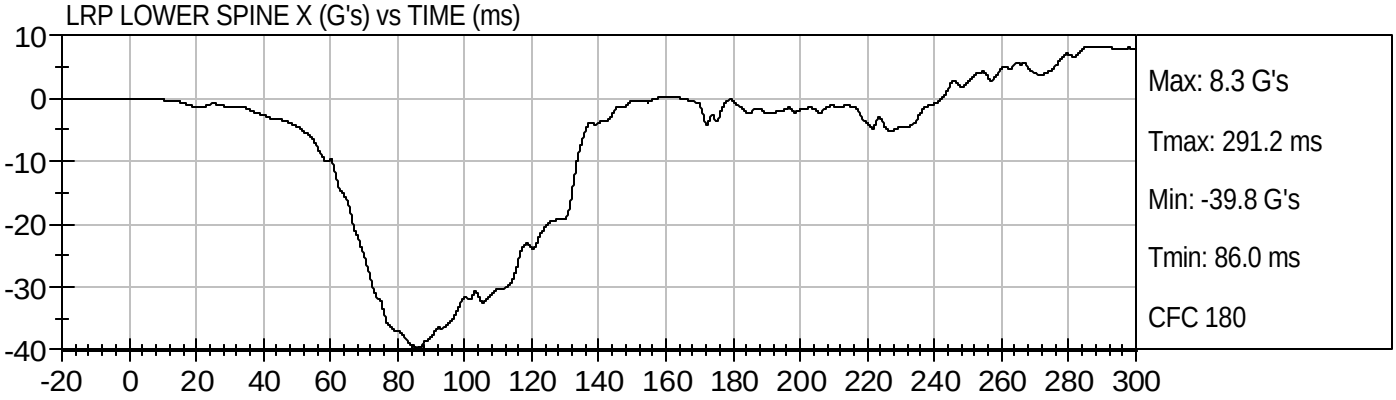
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

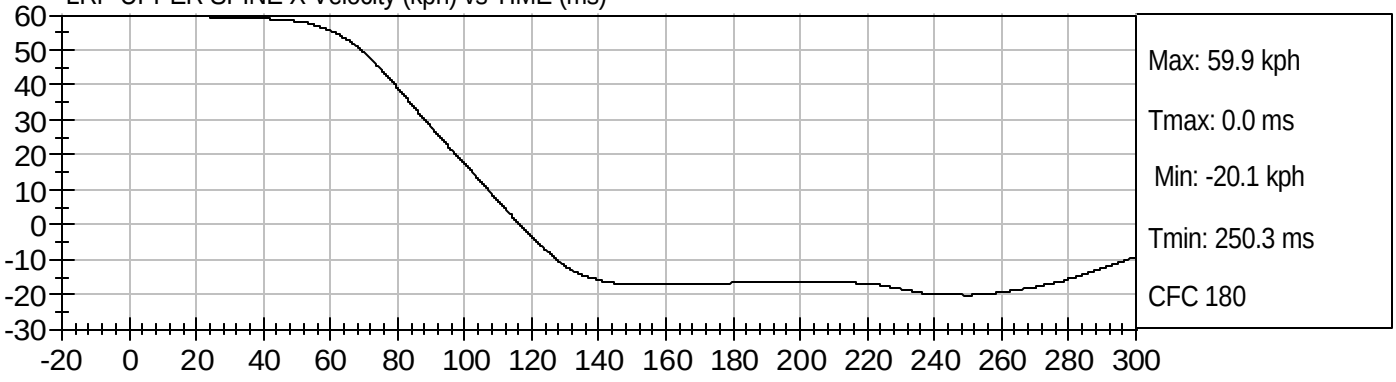
LRP UPPER SPINE X (G's) vs TIME (ms)



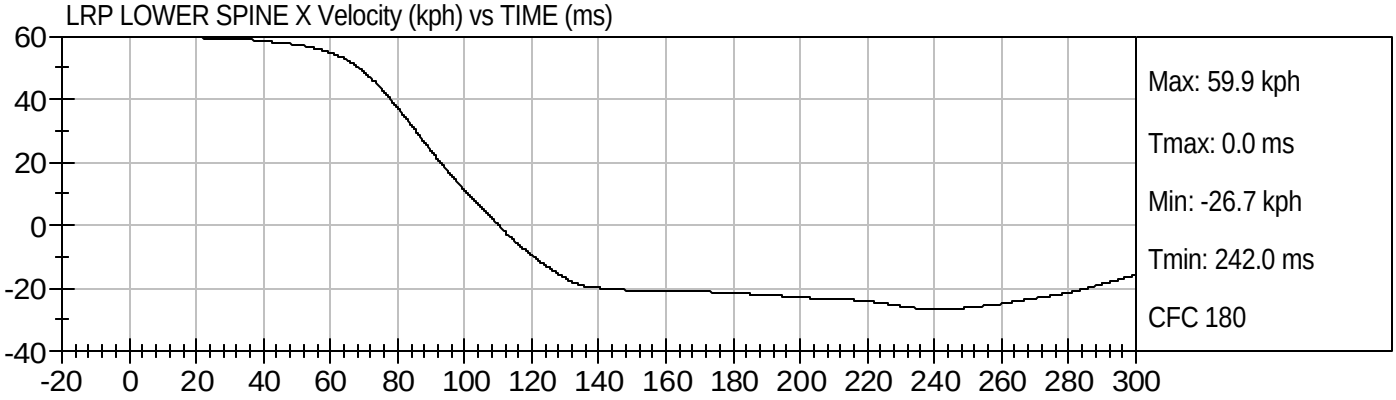
LRP LOWER SPINE X (G's) vs TIME (ms)



LRP UPPER SPINE X Velocity (kph) vs TIME (ms)

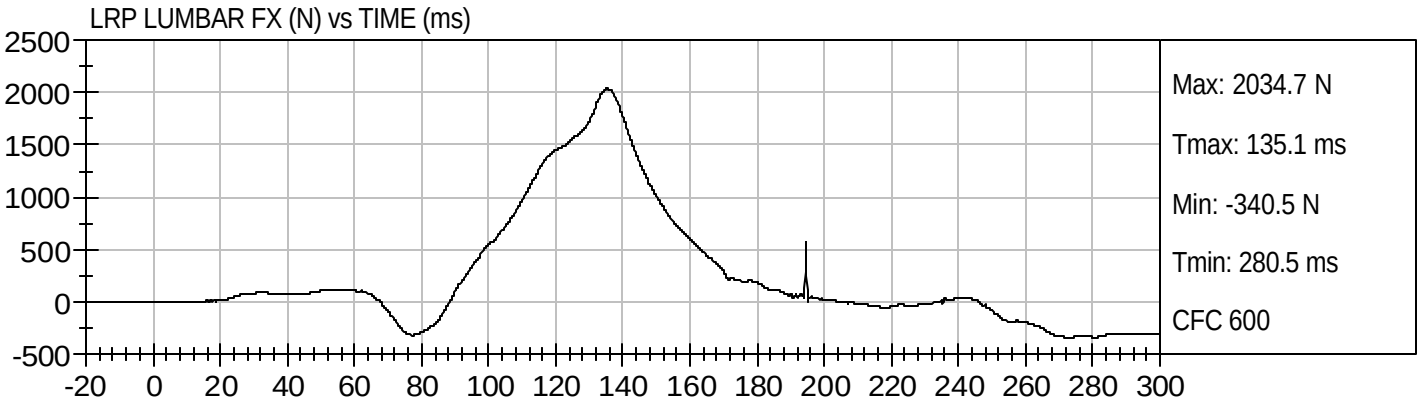


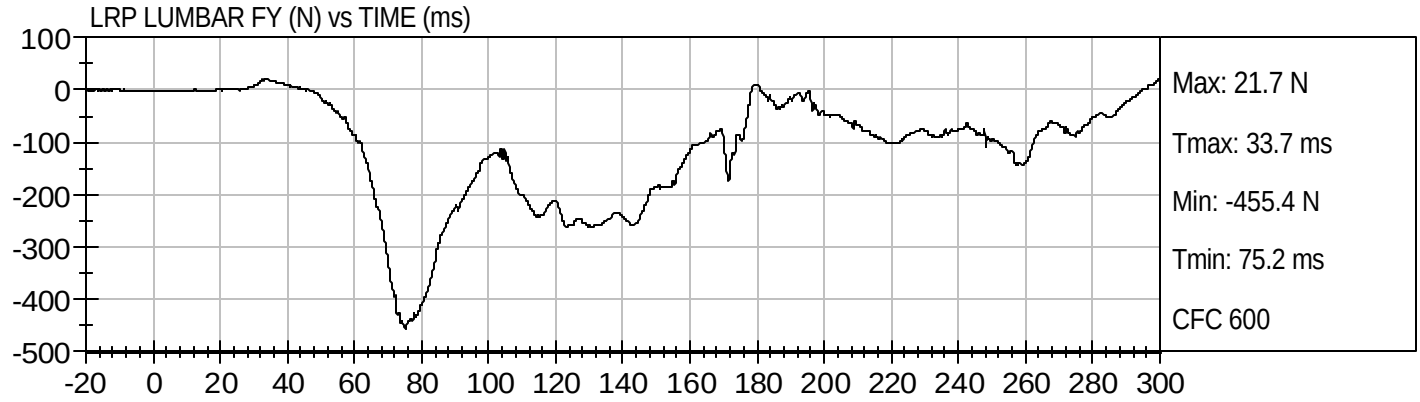
LRP LOWER SPINE X Velocity (kph) vs TIME (ms)

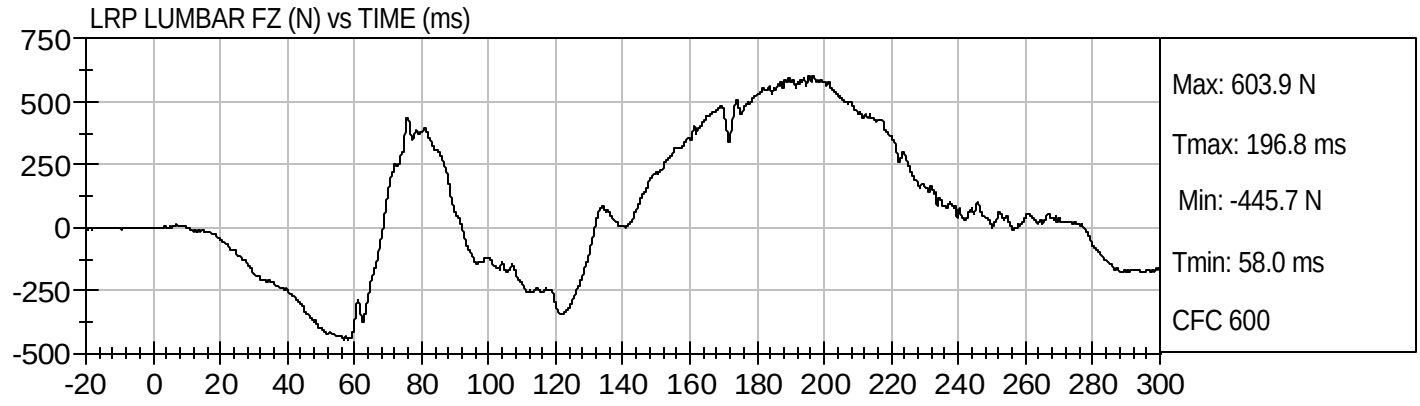


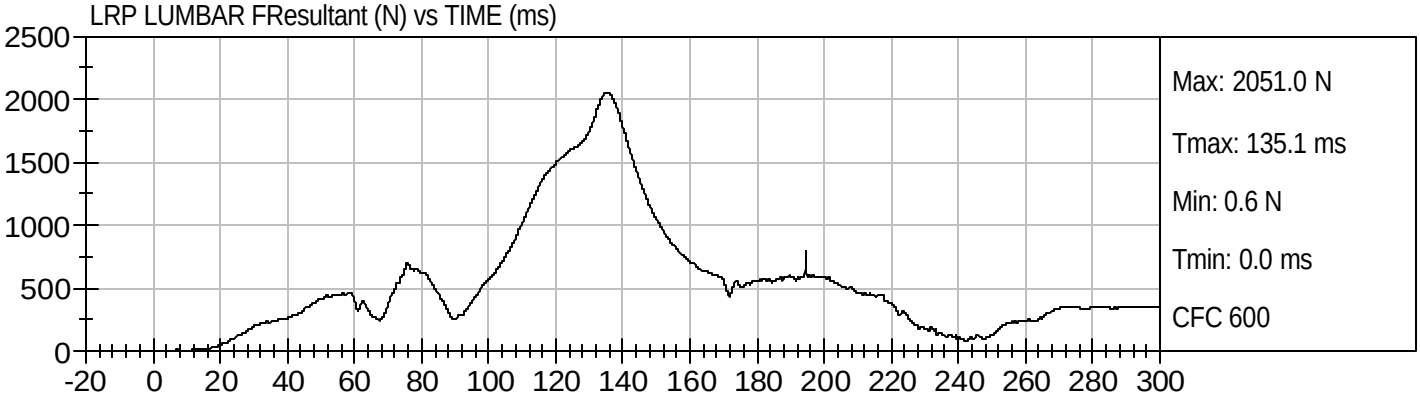
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



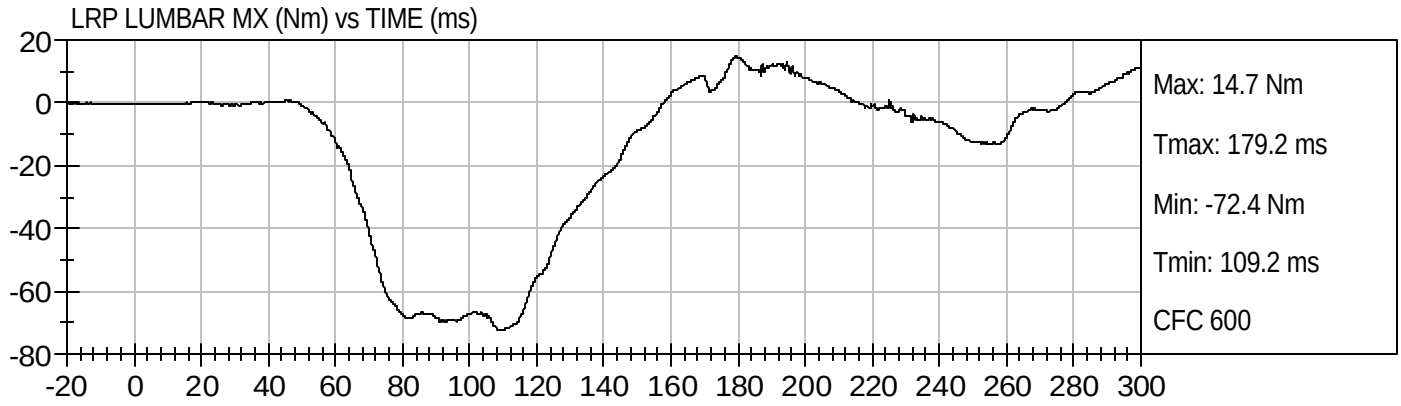


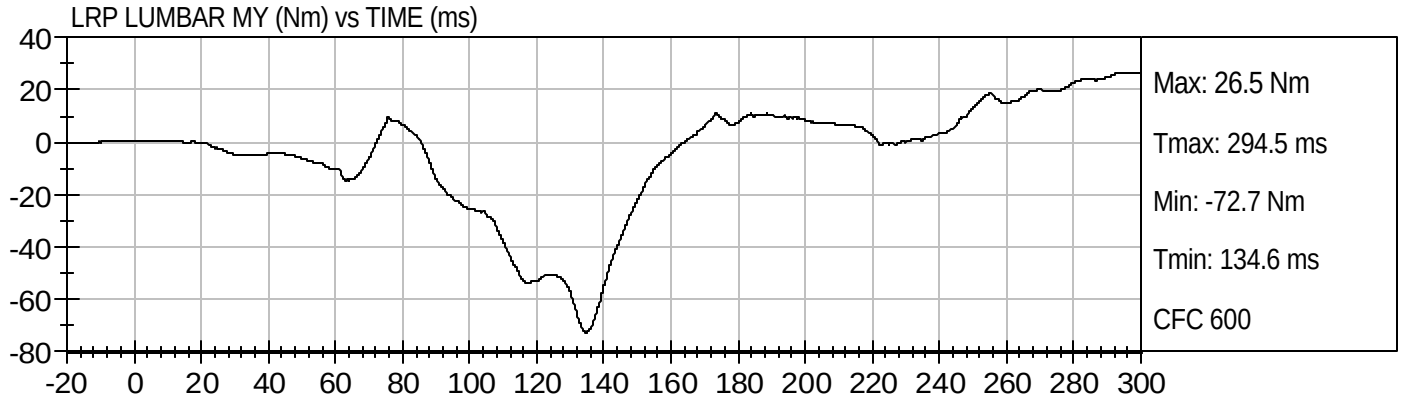


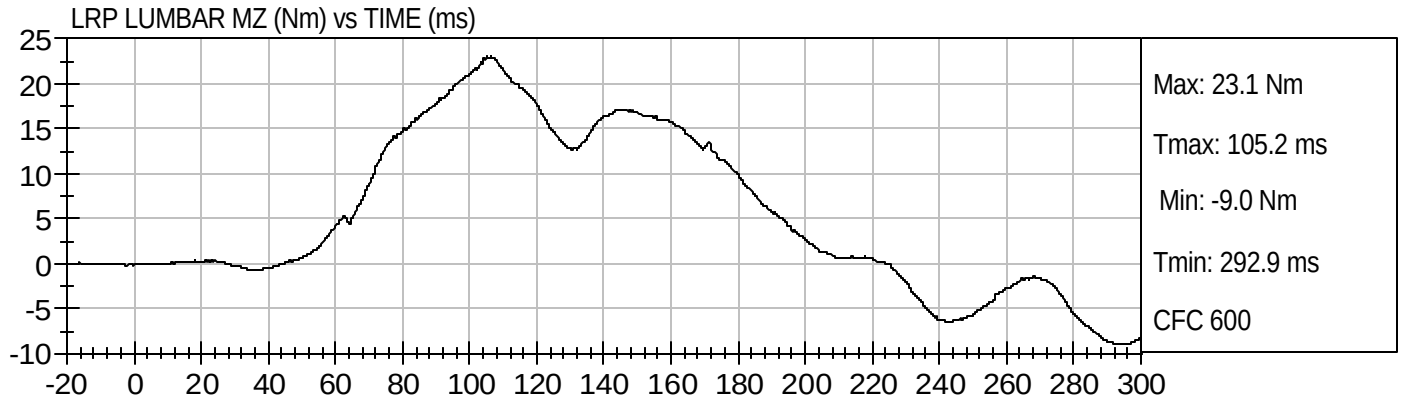


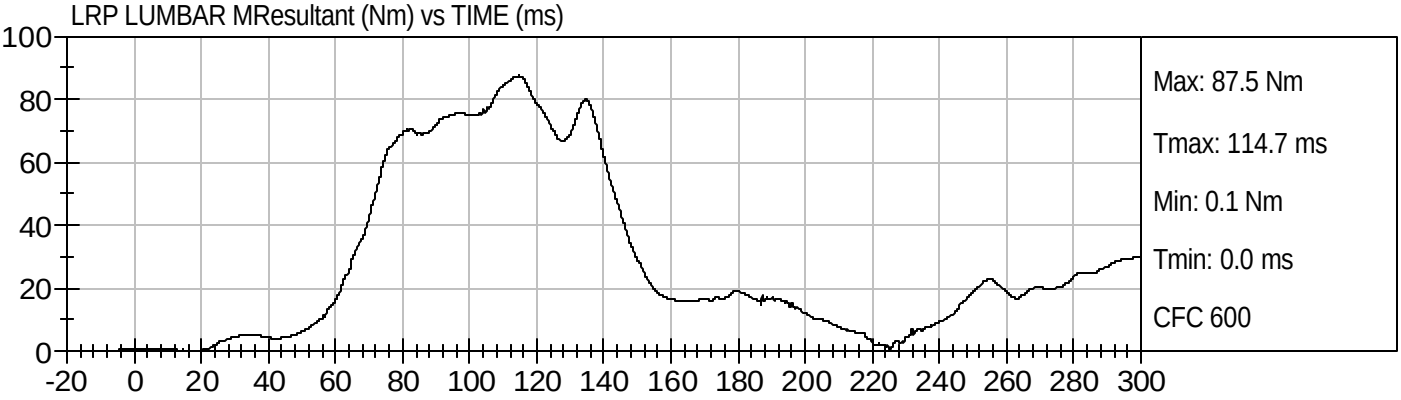
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



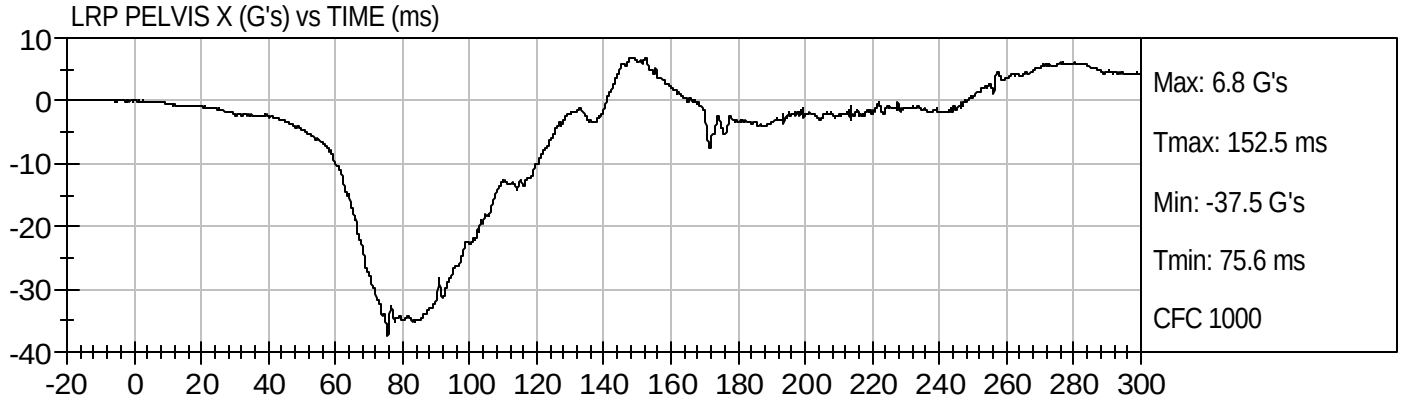


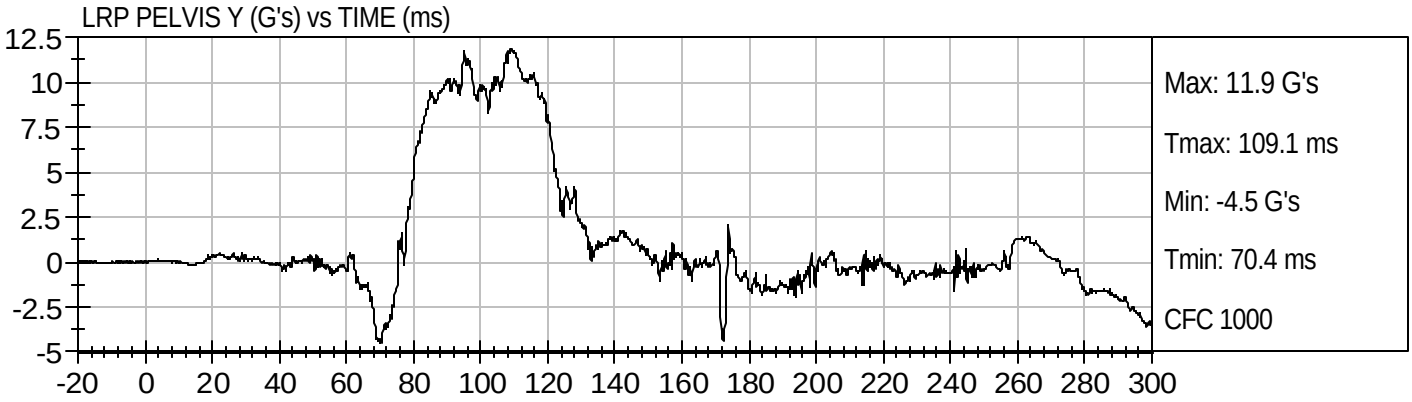


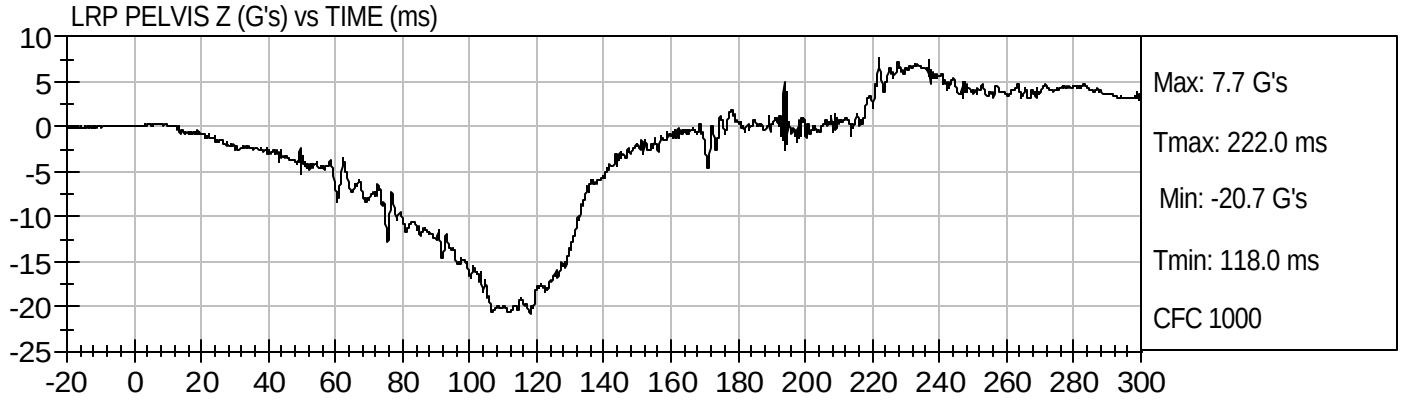


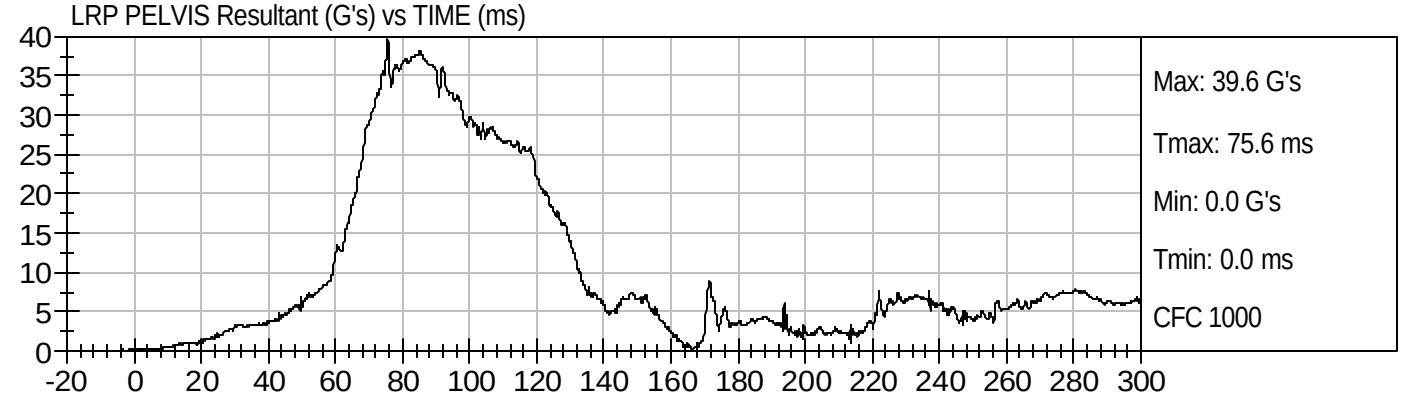
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

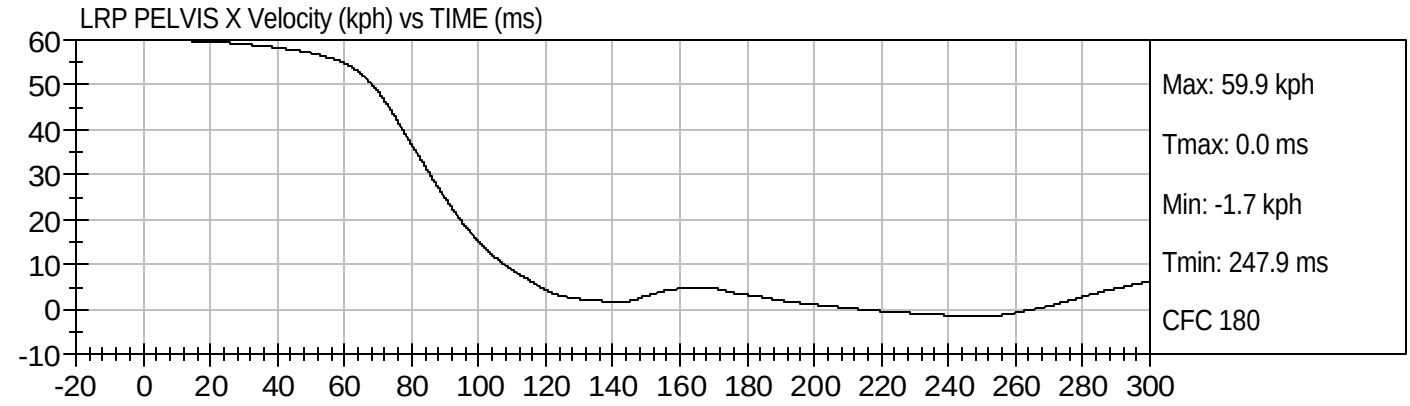
Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

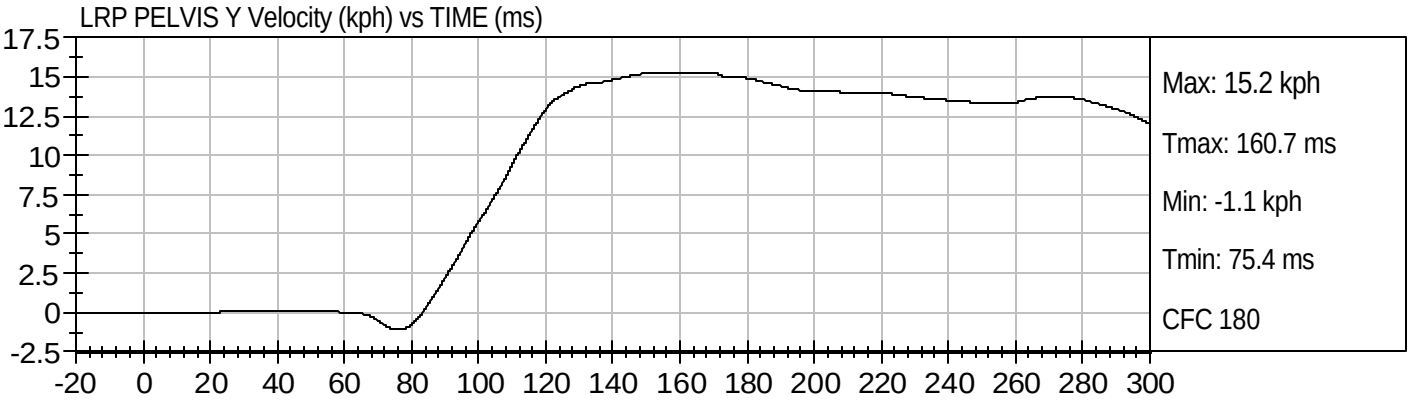


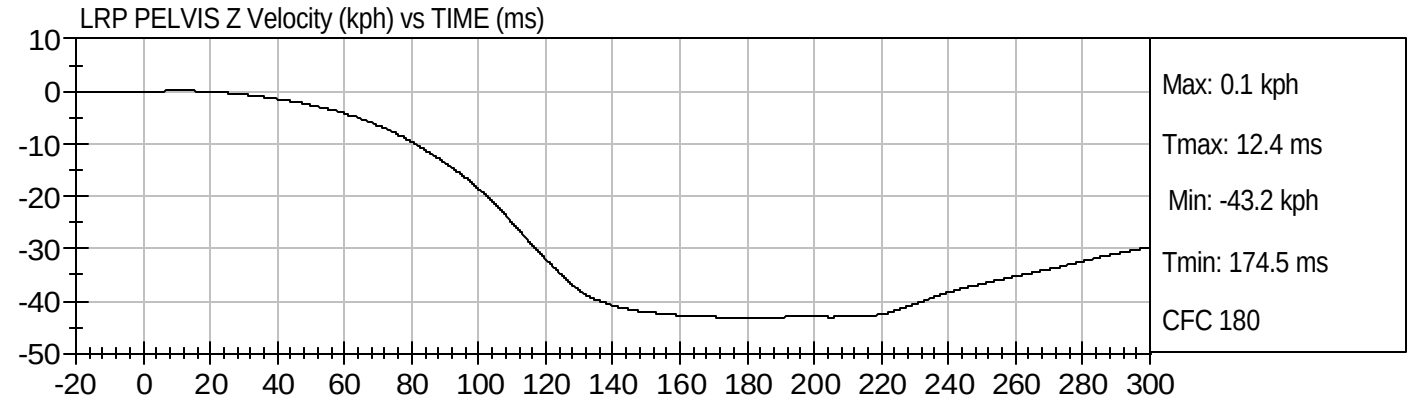







LRP PELVIS X Velocity (kph) vs TIME (ms)
60
50
40
30
20
10
0
-10
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 59.9 kph
Tmax: 0.0 ms
Min: -1.7 kph
Tmin: 247.9 ms
CFC 180

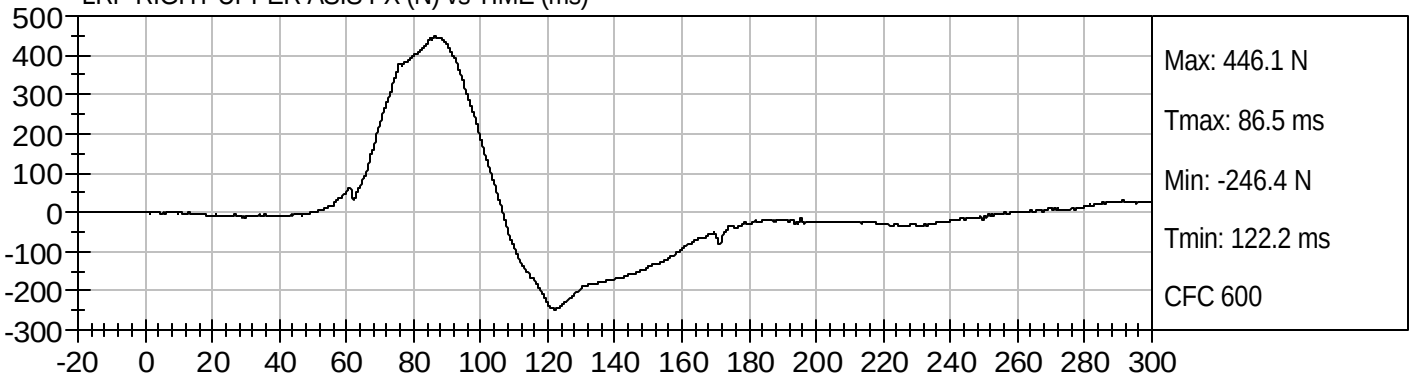

LRP PELVIS Y Velocity (kph) vs TIME (ms)
17.5
15
12.5
10
7.5
5
2.5
0
-2.5
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 15.2 kph
Tmax: 160.7 ms
Min: -1.1 kph
Tmin: 75.4 ms
CFC 180


LRP PELVIS Z Velocity (kph) vs TIME (ms)
10
0
-10
-20
-30
-40
-50
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.1 kph
Tmax: 12.4 ms
Min: -43.2 kph
Tmin: 174.5 ms
CFC 180

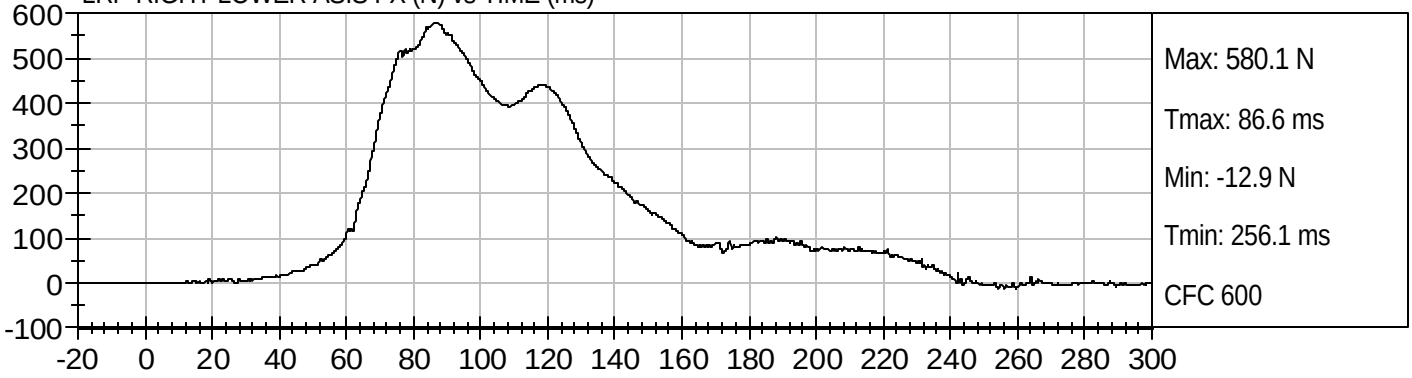
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

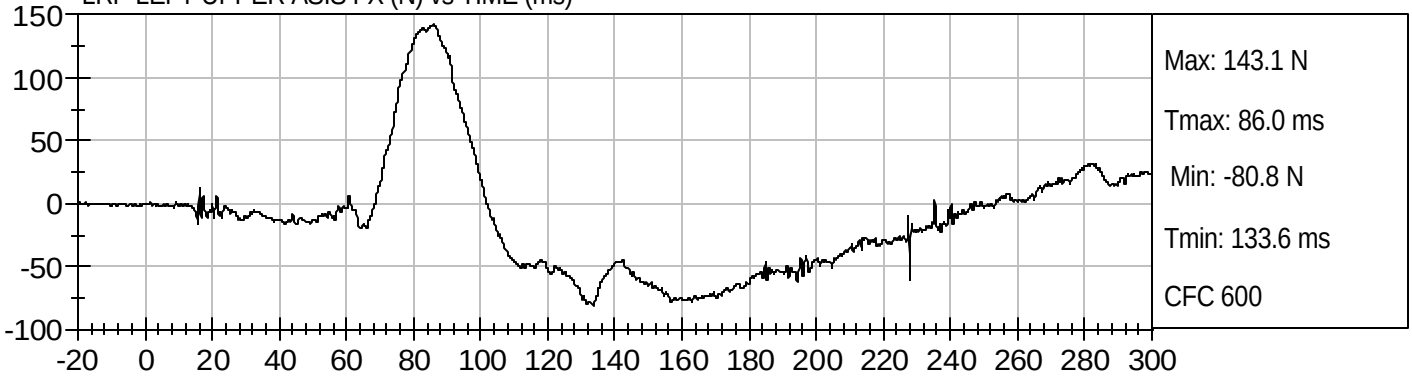
LRP RIGHT UPPER ASIS FX (N) vs TIME (ms)



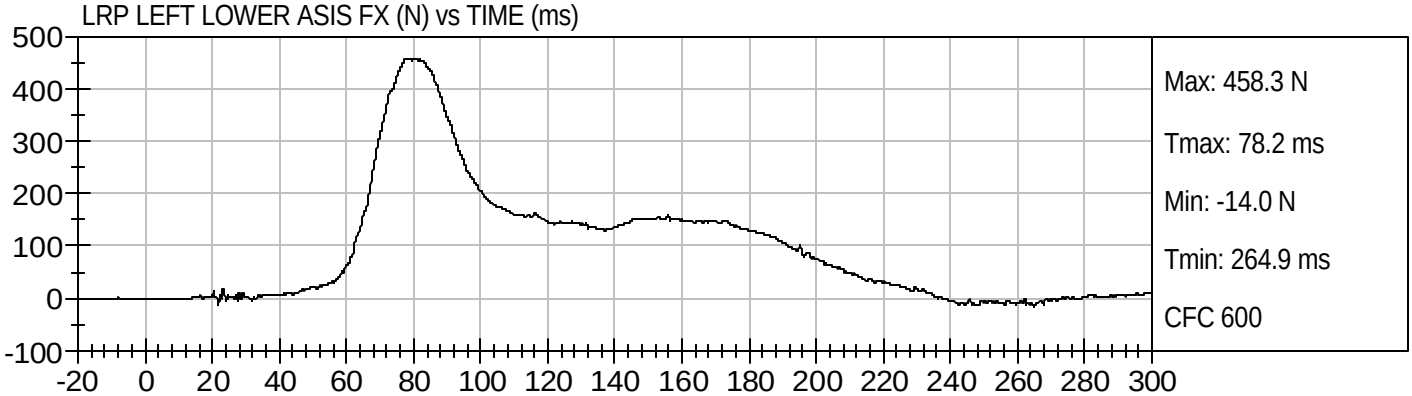
LRP RIGHT LOWER ASIS FX (N) vs TIME (ms)



LRP LEFT UPPER ASIS FX (N) vs TIME (ms)



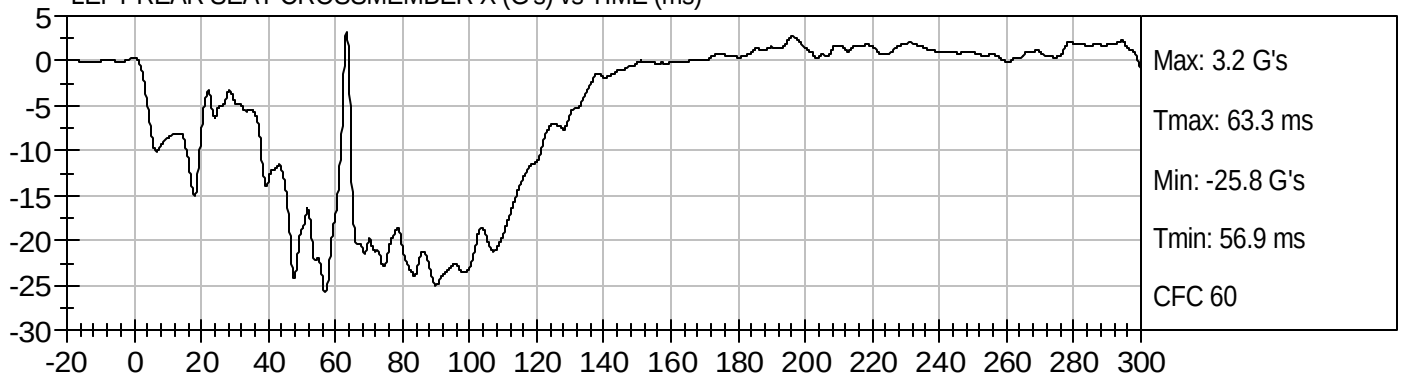
LRP LEFT LOWER ASIS FX (N) vs TIME (ms)



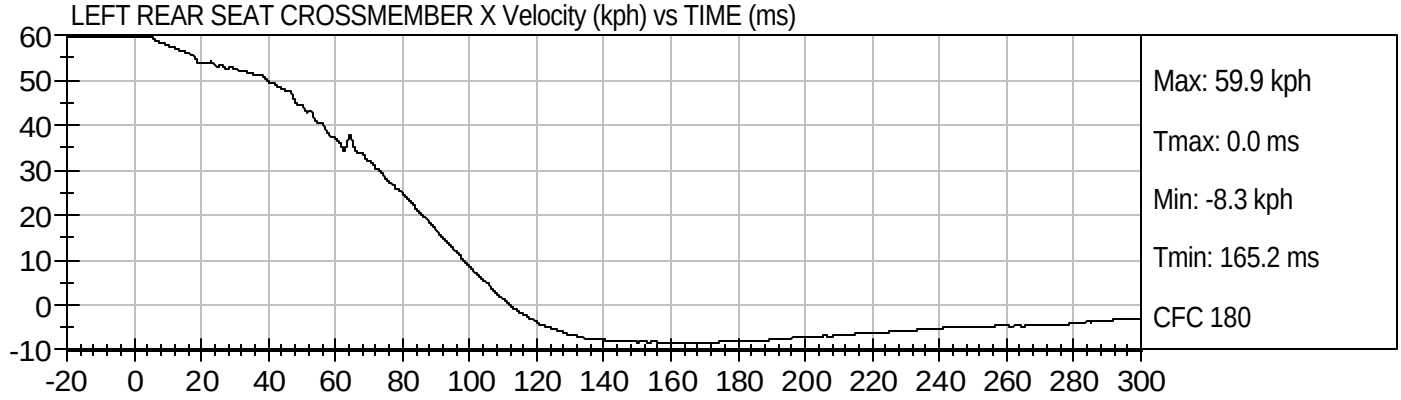
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

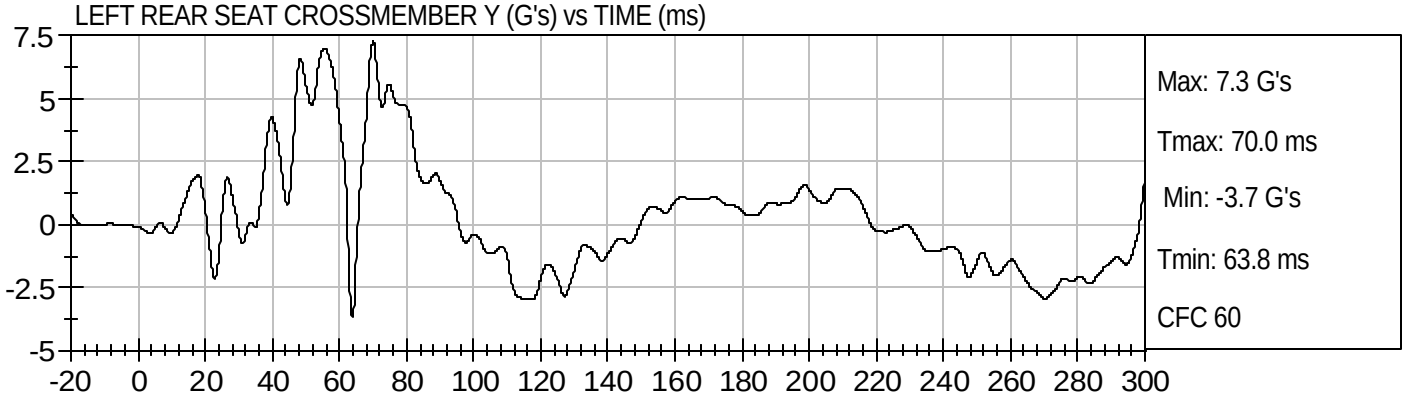
LEFT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)



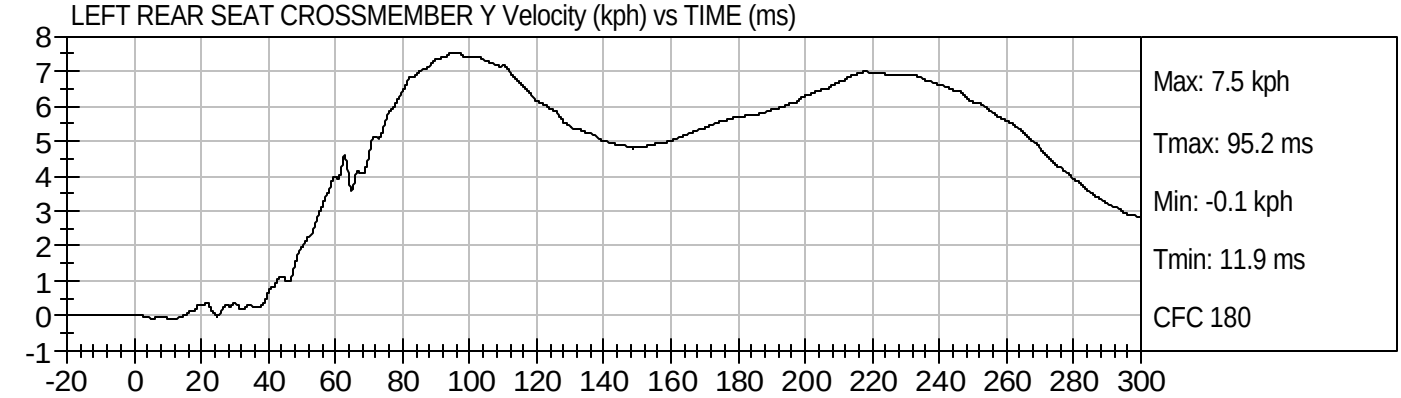
LEFT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)



LEFT REAR SEAT CROSSMEMBER Y (G's) vs TIME (ms)



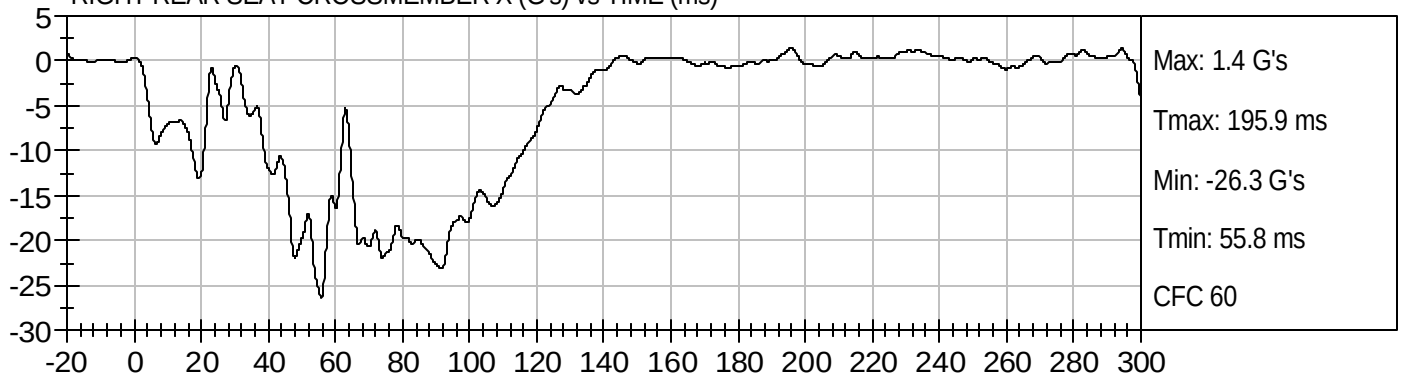
LEFT REAR SEAT CROSSMEMBER Y Velocity (kph) vs TIME (ms)



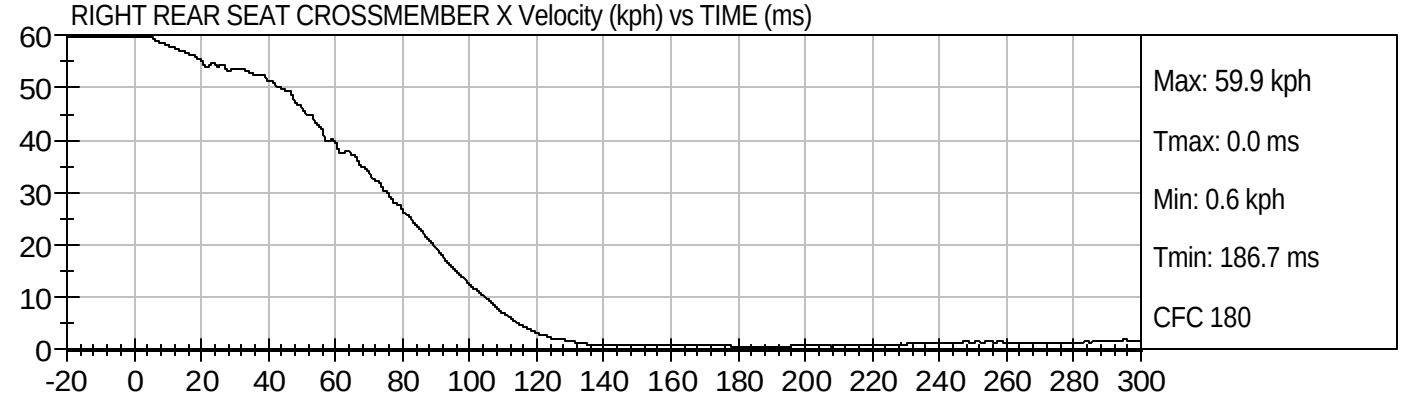
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

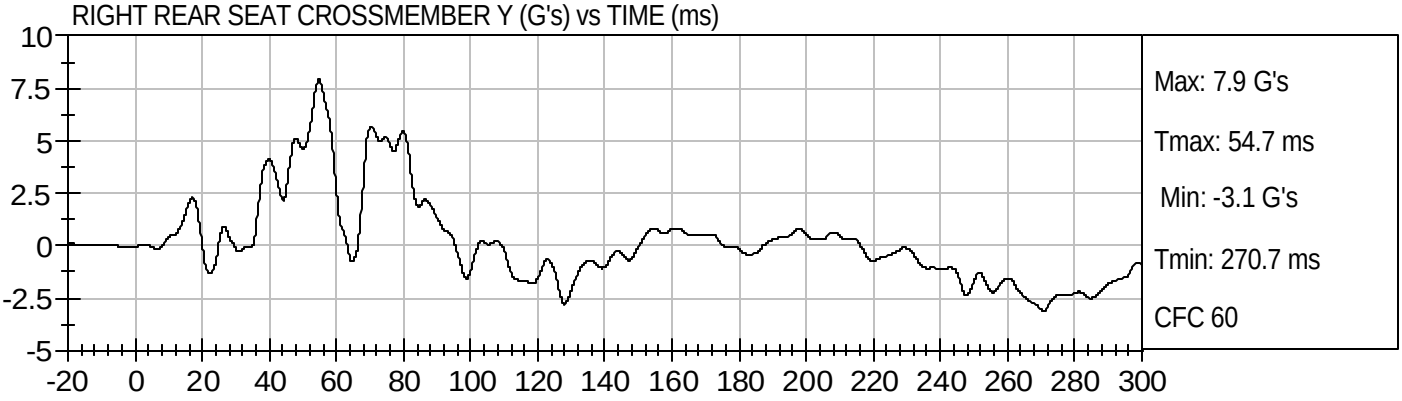
RIGHT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)



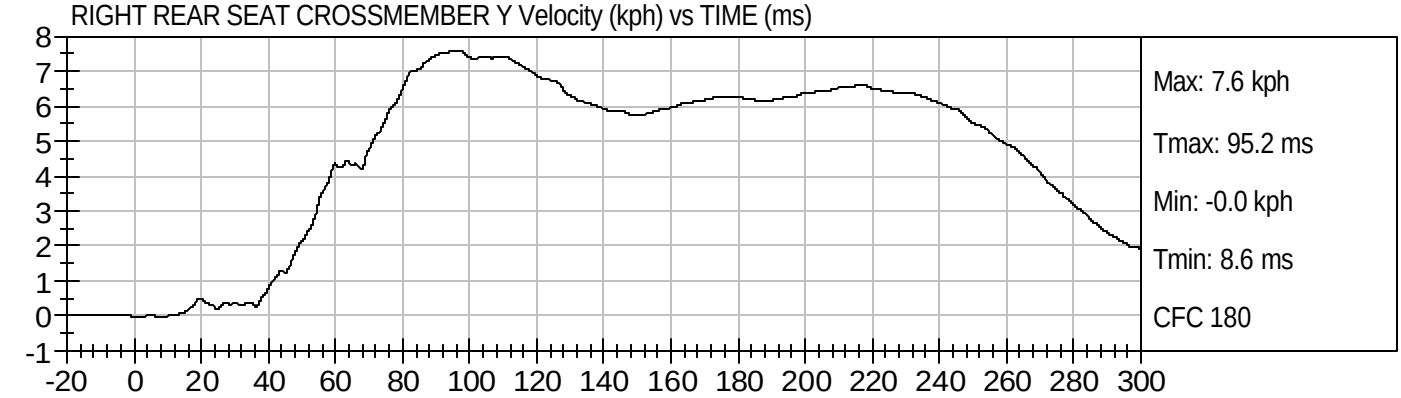
RIGHT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)



RIGHT REAR SEAT CROSSMEMBER Y (G's) vs TIME (ms)



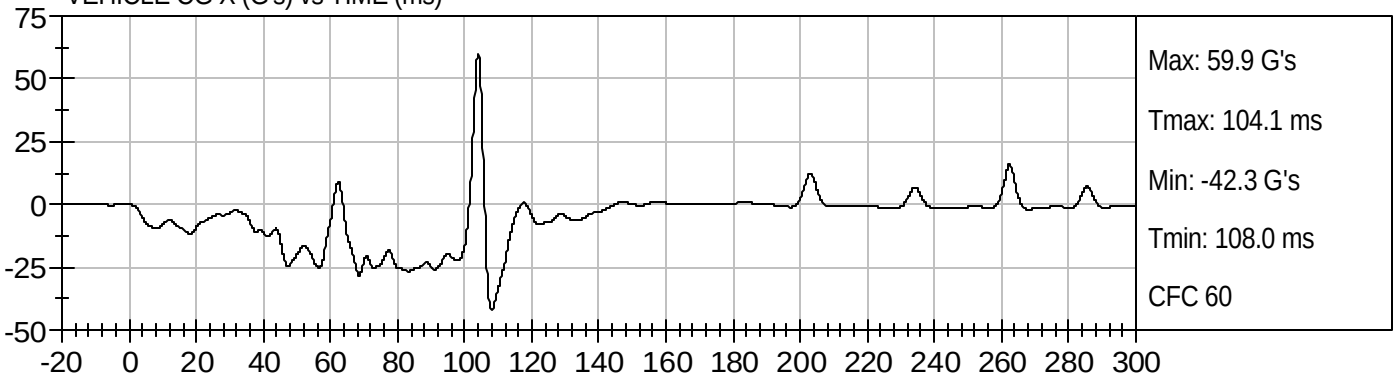
RIGHT REAR SEAT CROSSMEMBER Y Velocity (kph) vs TIME (ms)



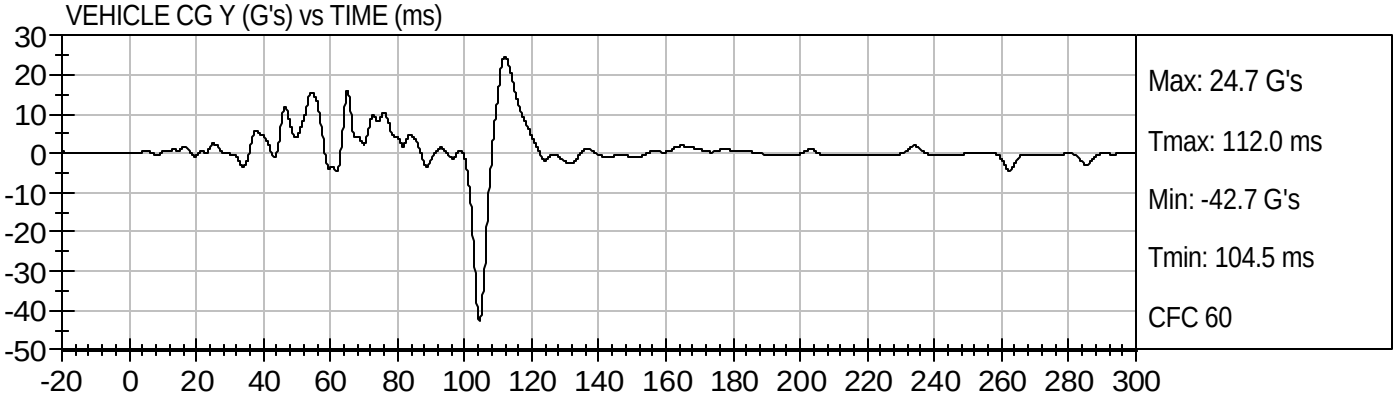
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

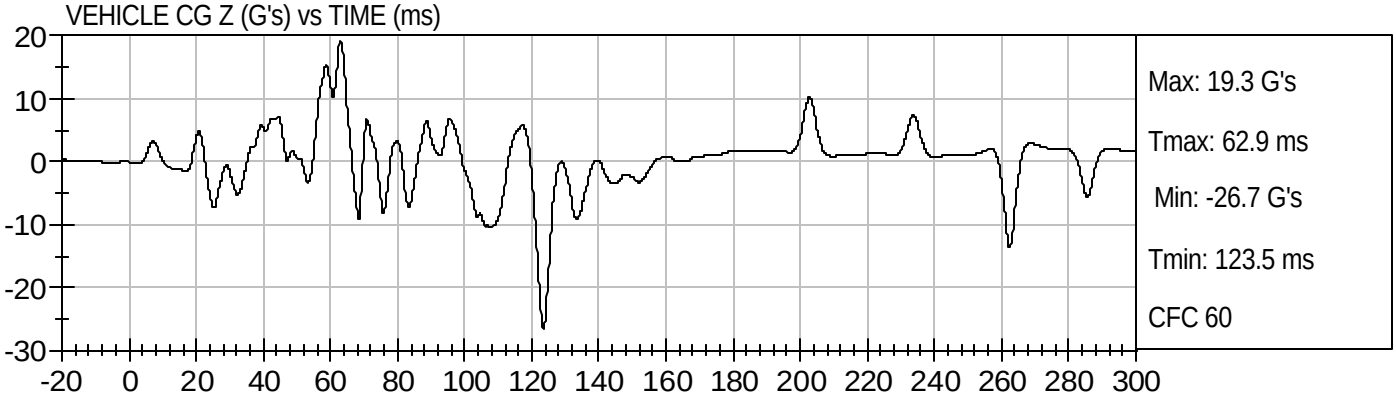
VEHICLE CG X (G's) vs TIME (ms)



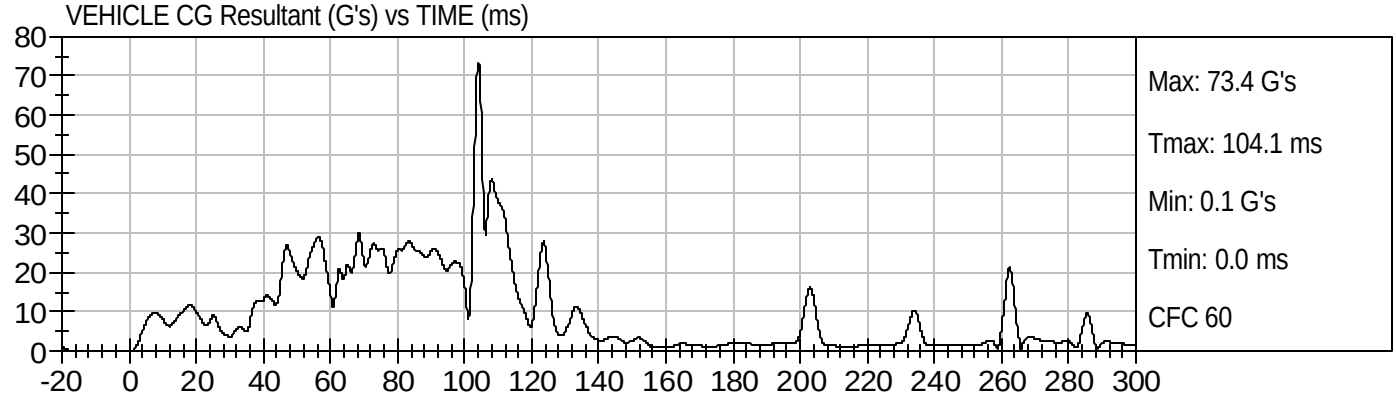
VEHICLE CG Y (G's) vs TIME (ms)



VEHICLE CG Z (G's) vs TIME (ms)

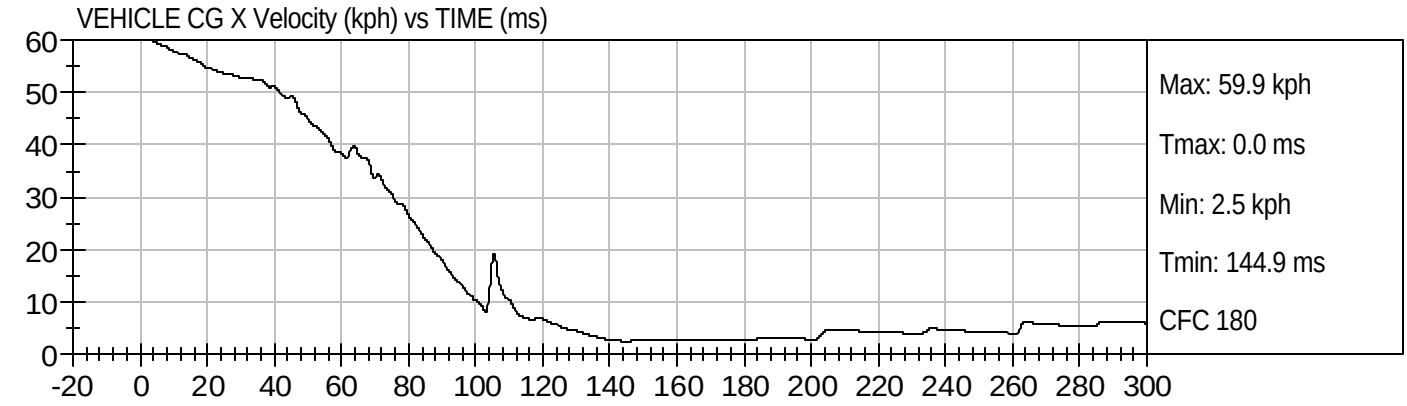


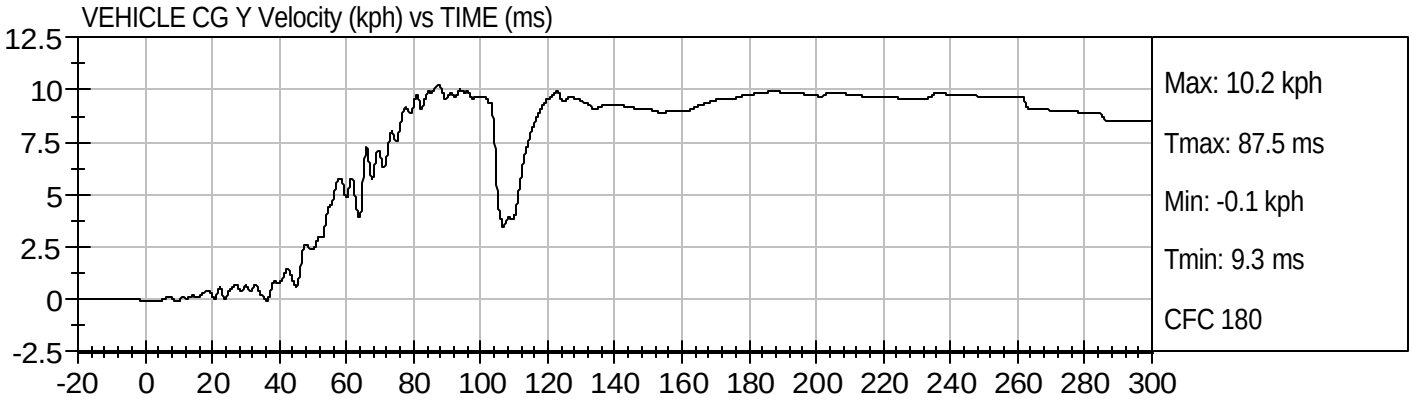
VEHICLE CG Resultant (G's) vs TIME (ms)

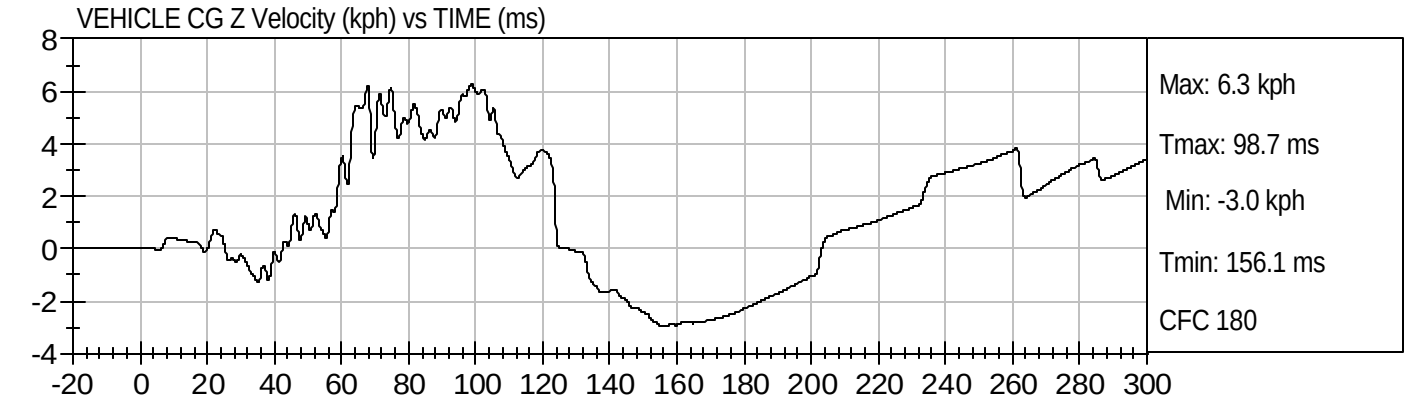


NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



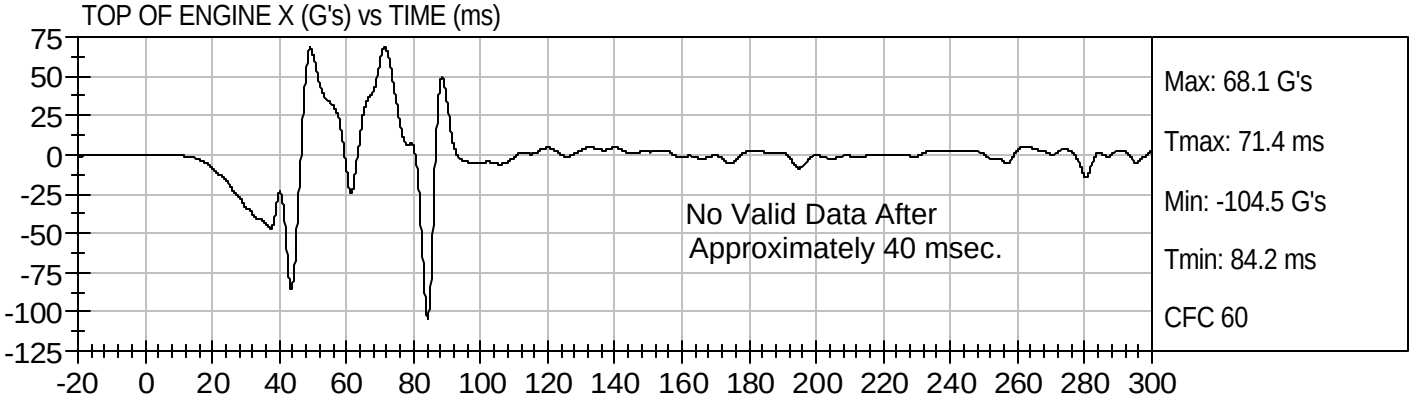




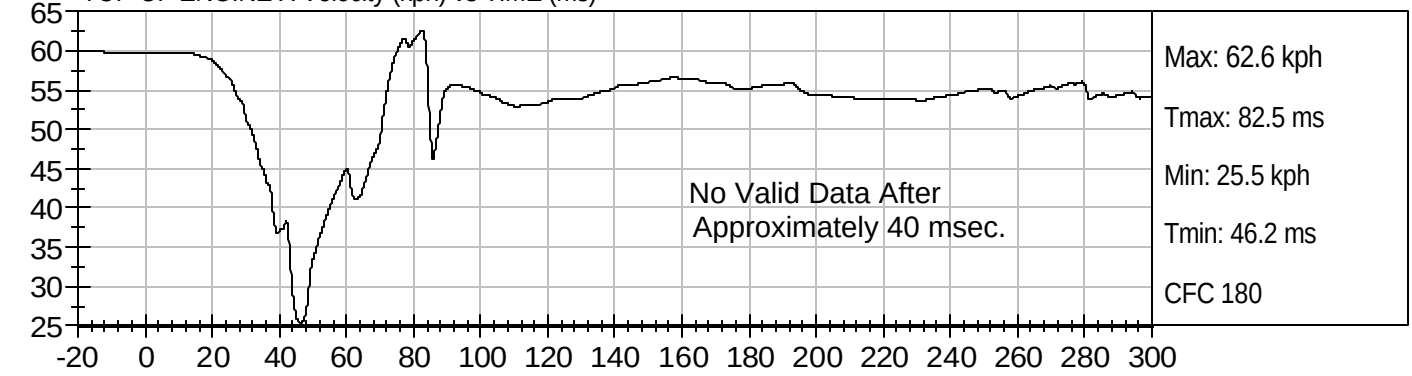
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

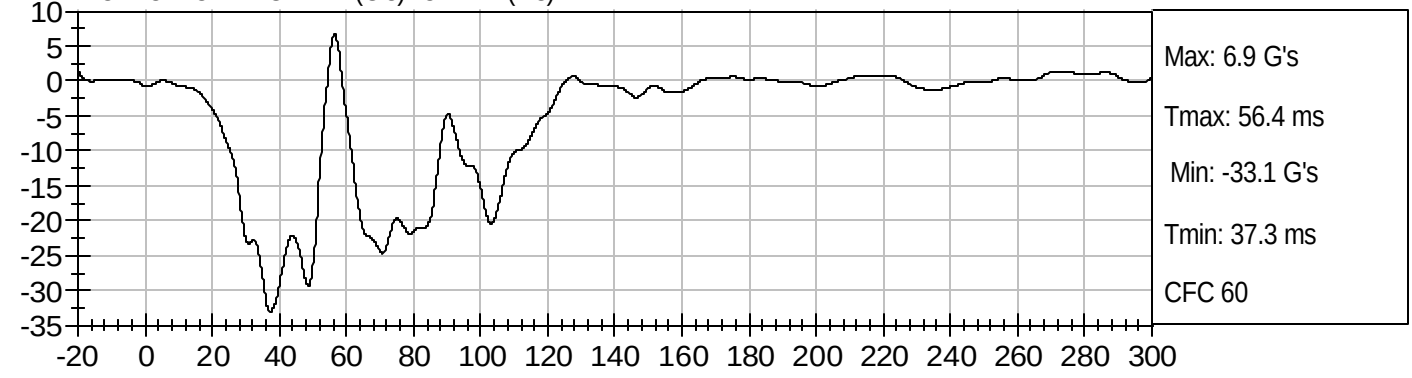
TOP OF ENGINE X (G's) vs TIME (ms)



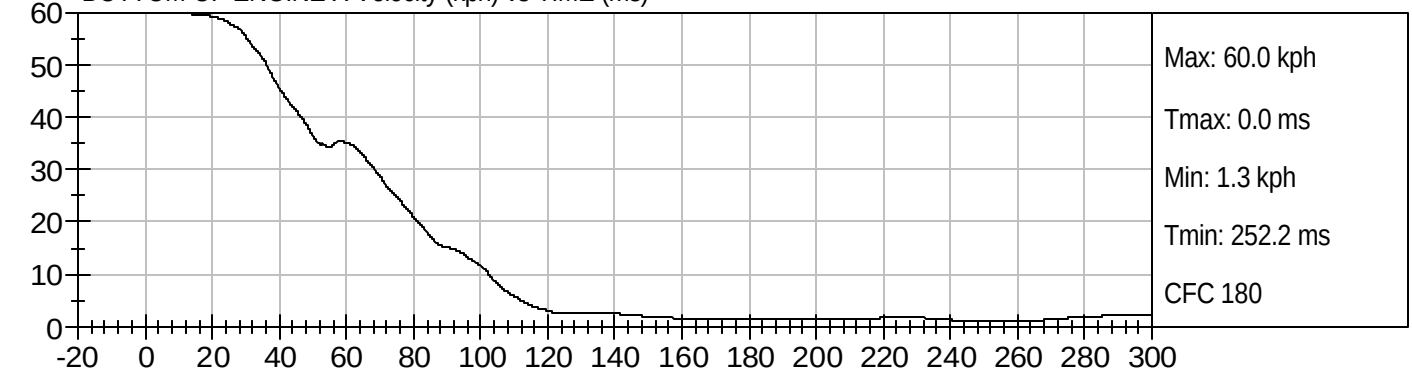
TOP OF ENGINE X Velocity (kph) vs TIME (ms)



BOTTOM OF ENGINE X (G's) vs TIME (ms)



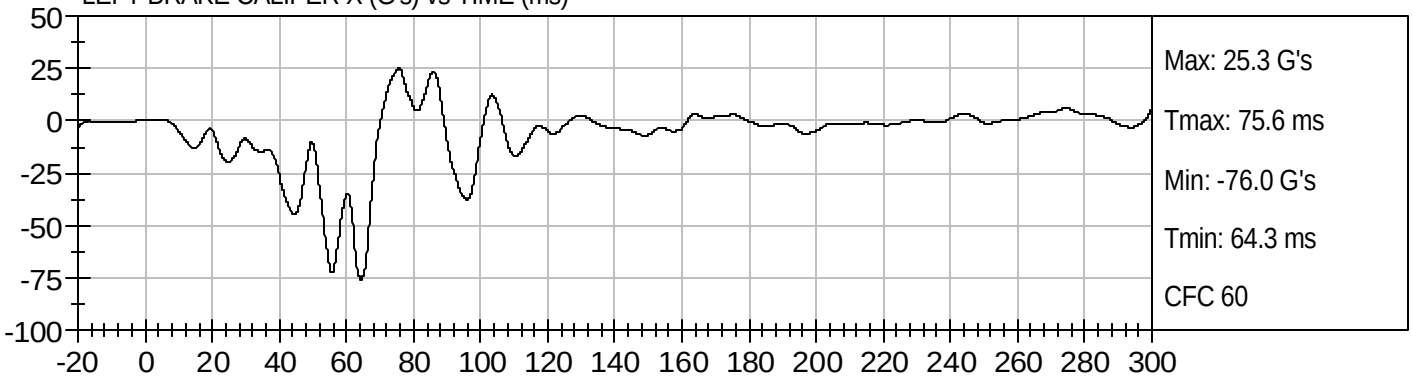
BOTTOM OF ENGINE X Velocity (kph) vs TIME (ms)



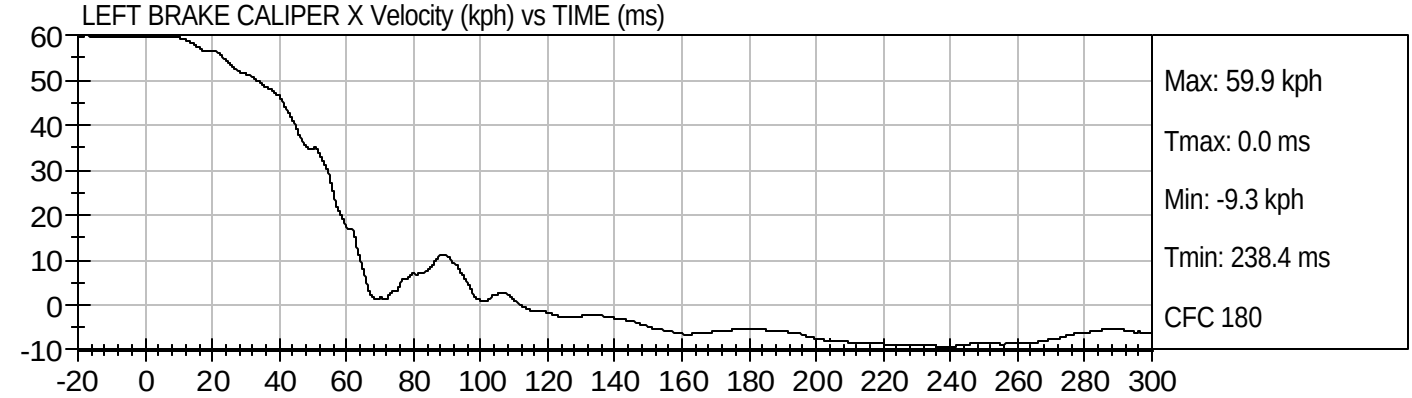
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

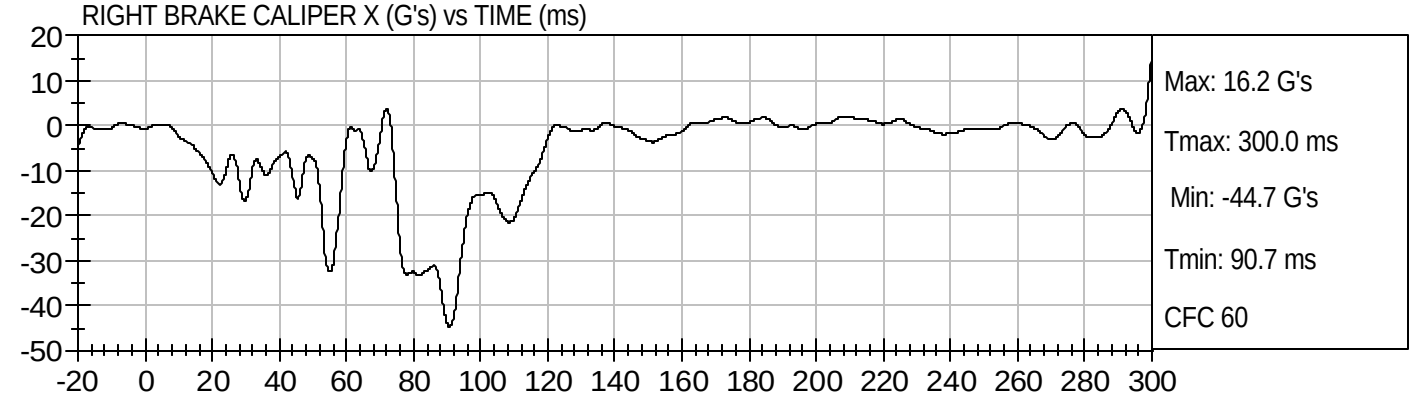
LEFT BRAKE CALIPER X (G's) vs TIME (ms)



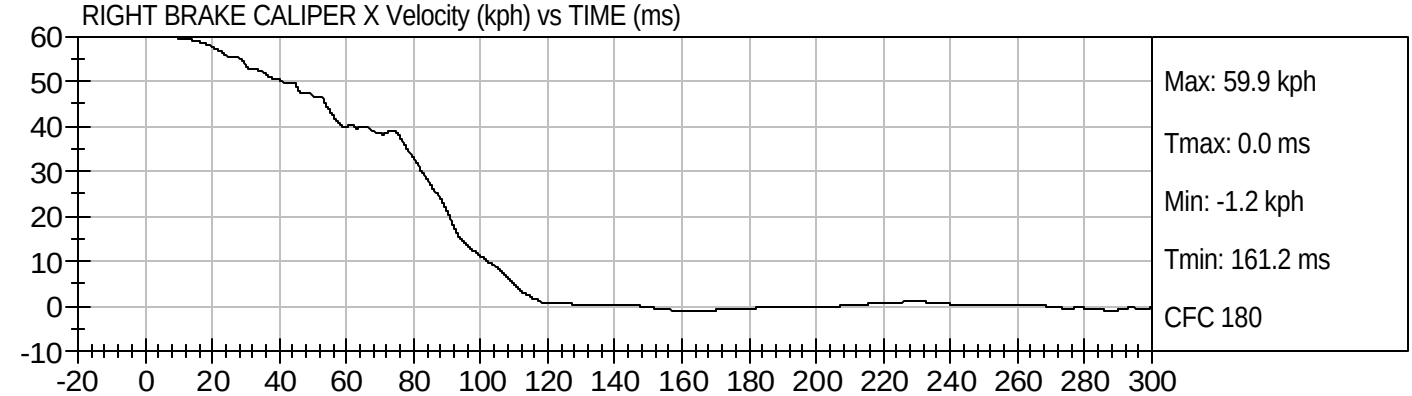
LEFT BRAKE CALIPER X Velocity (kph) vs TIME (ms)



RIGHT BRAKE CALIPER X (G's) vs TIME (ms)



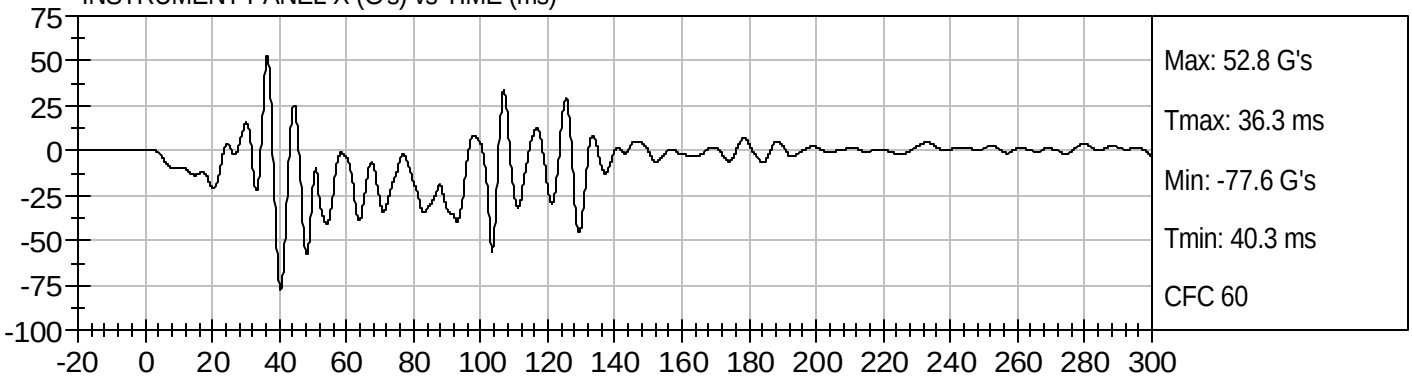
RIGHT BRAKE CALIPER X Velocity (kph) vs TIME (ms)



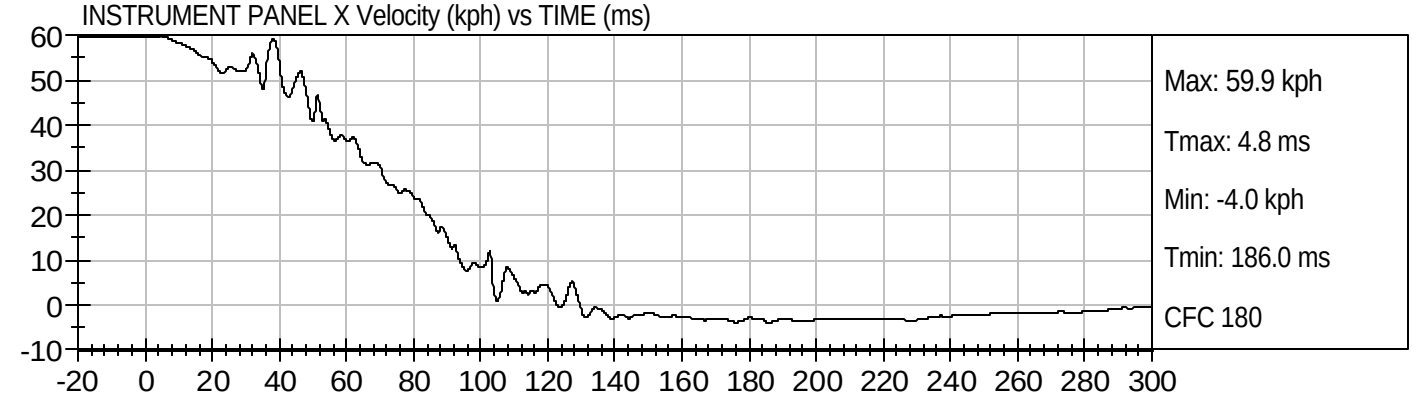
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

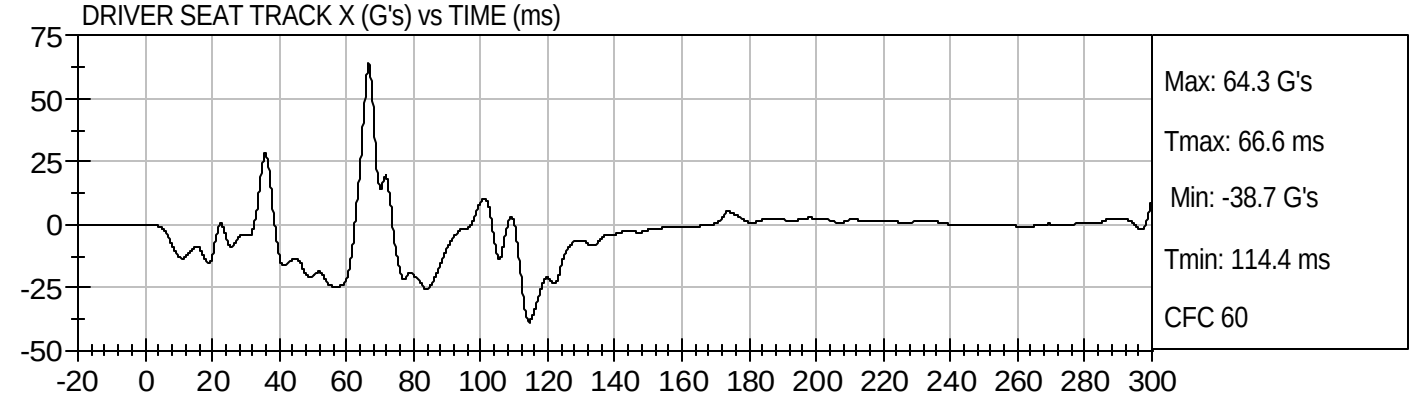
INSTRUMENT PANEL X (G's) vs TIME (ms)



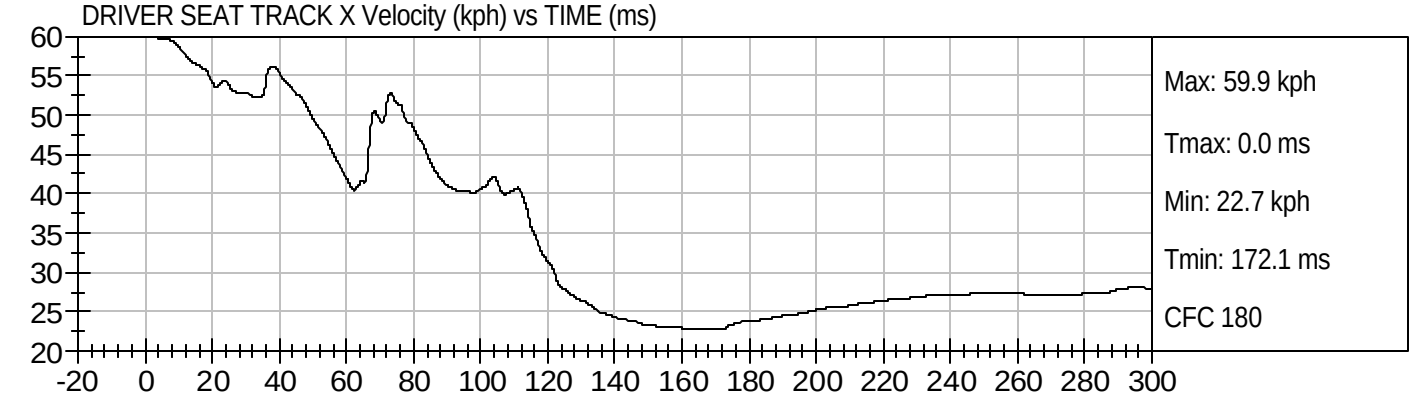
INSTRUMENT PANEL X Velocity (kph) vs TIME (ms)



DRIVER SEAT TRACK X (G's) vs TIME (ms)

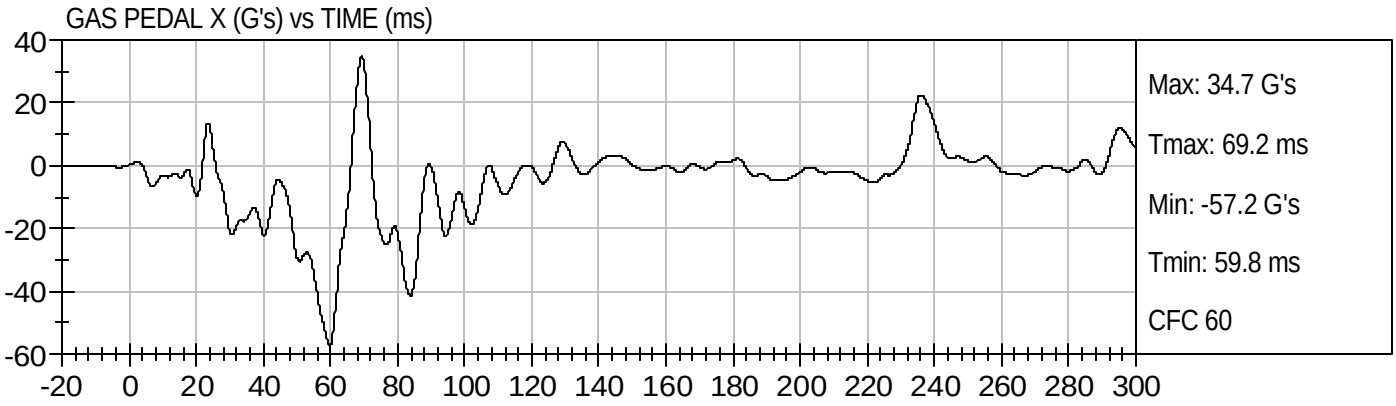


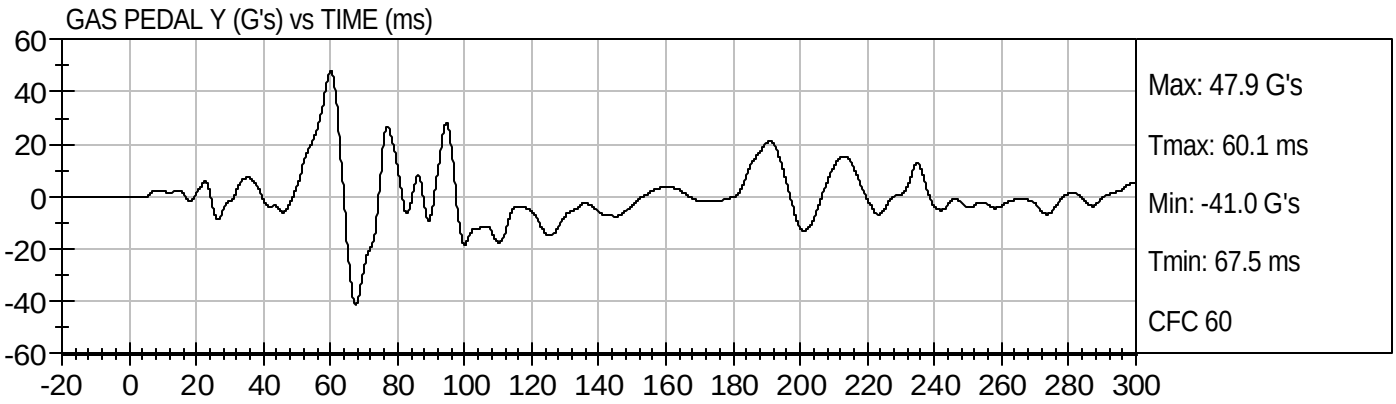
DRIVER SEAT TRACK X Velocity (kph) vs TIME (ms)

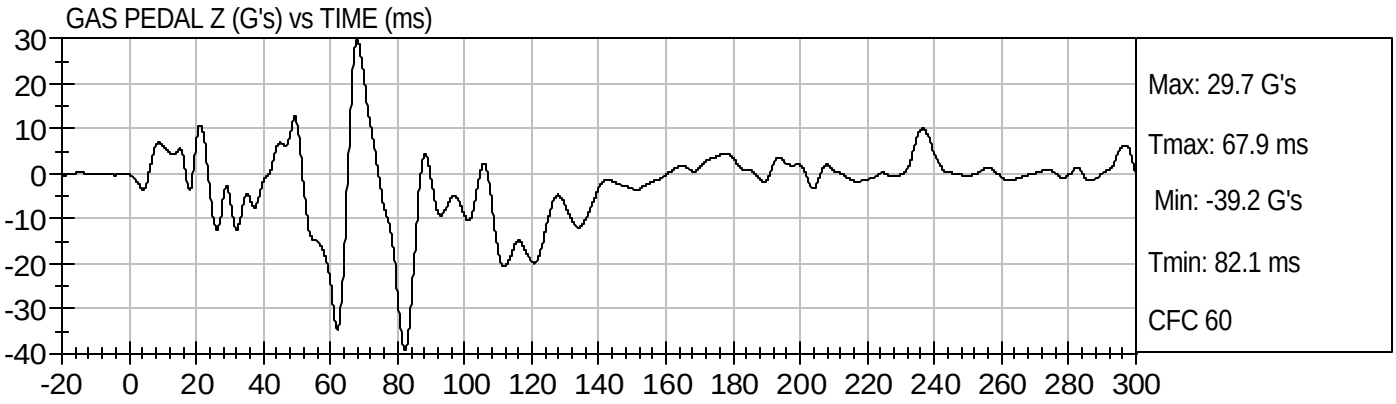


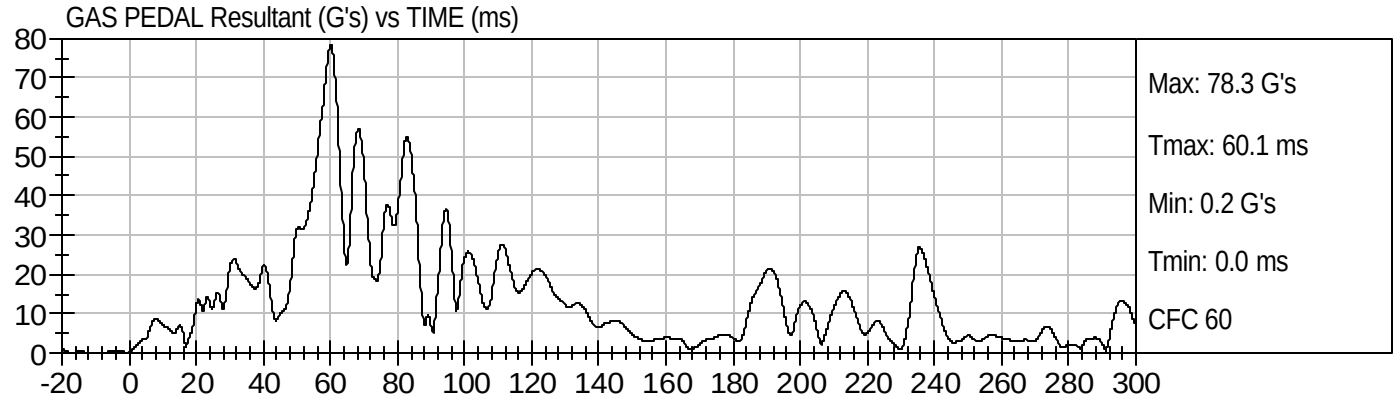
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



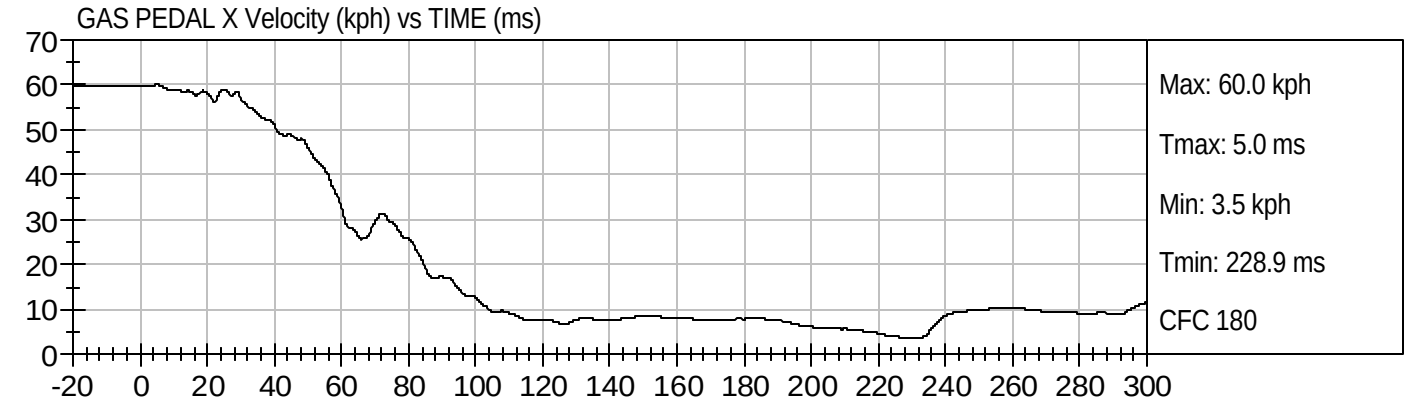


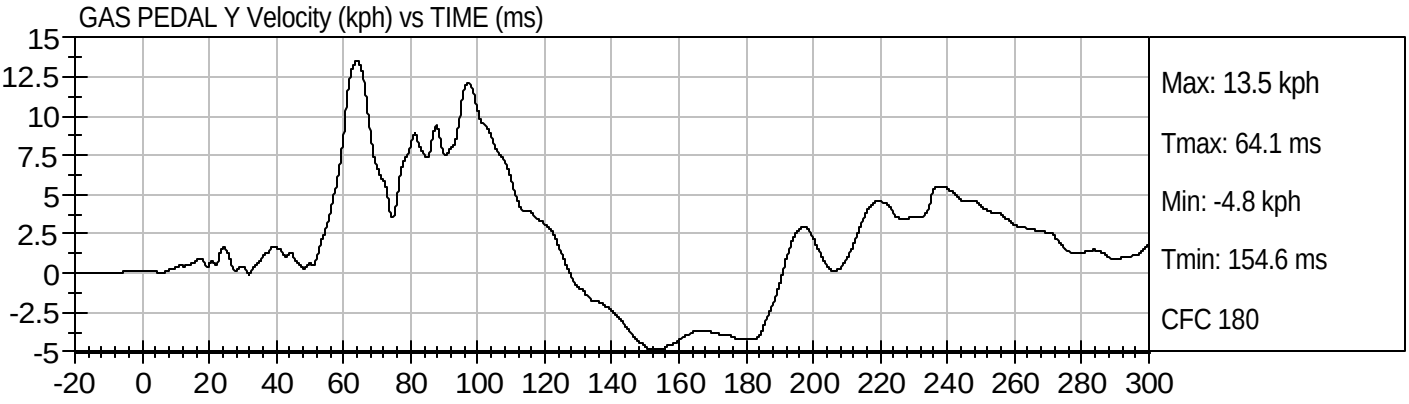


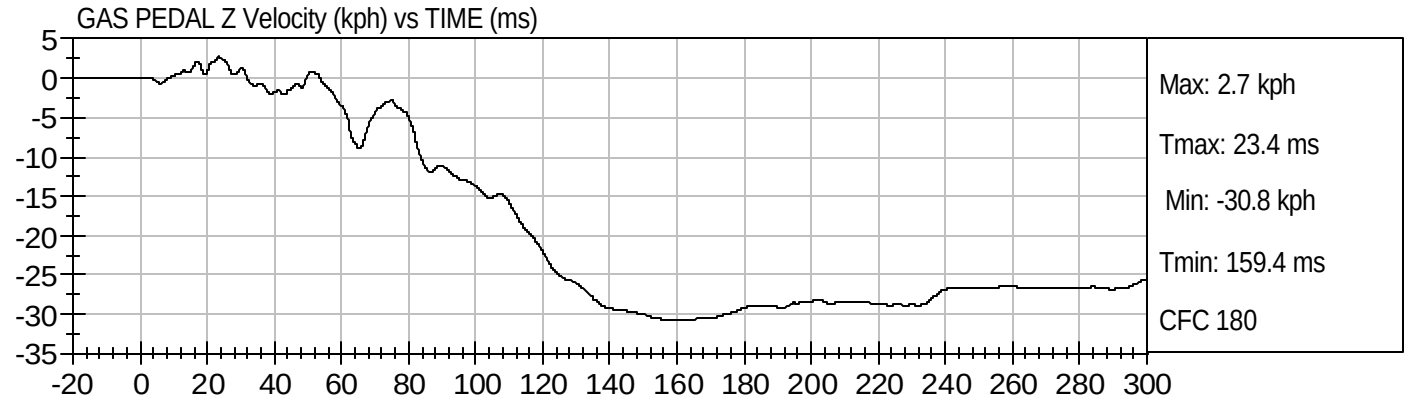


NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



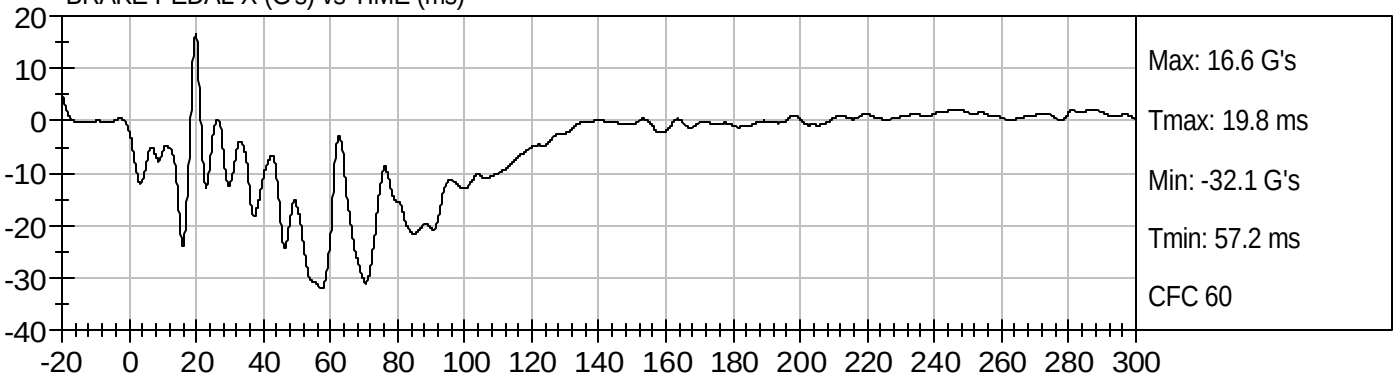




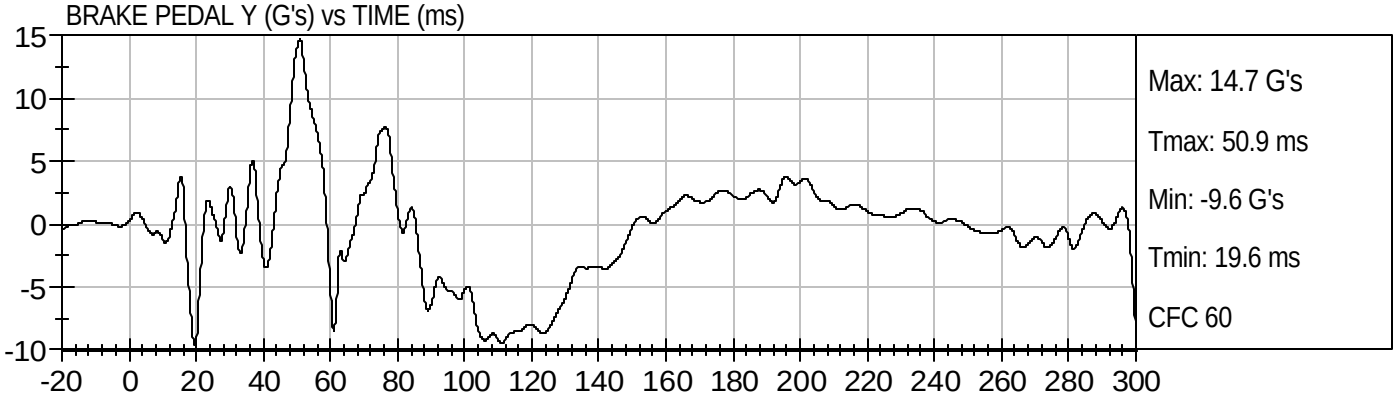
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

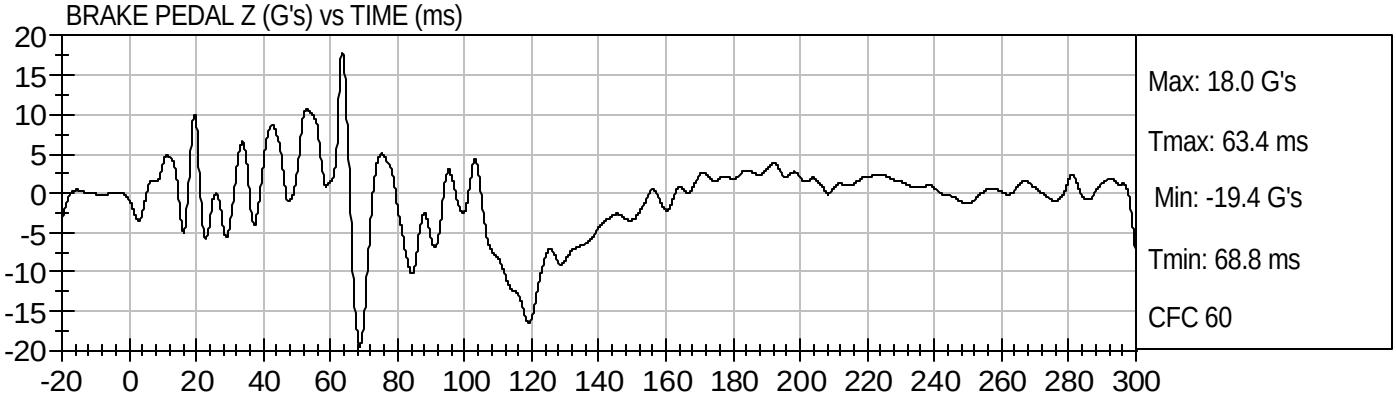
BRAKE PEDAL X (G's) vs TIME (ms)



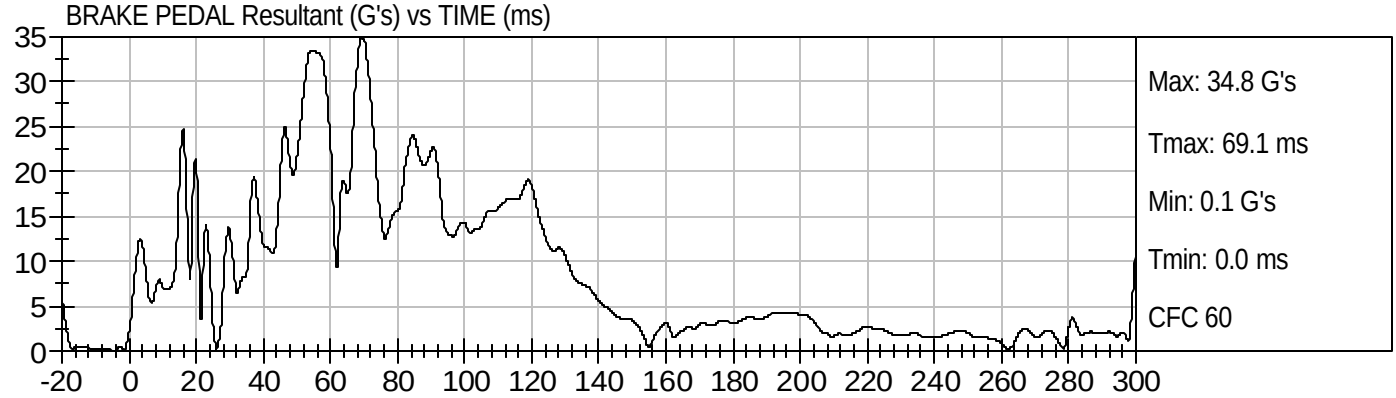
BRAKE PEDAL Y (G's) vs TIME (ms)



BRAKE PEDAL Z (G's) vs TIME (ms)

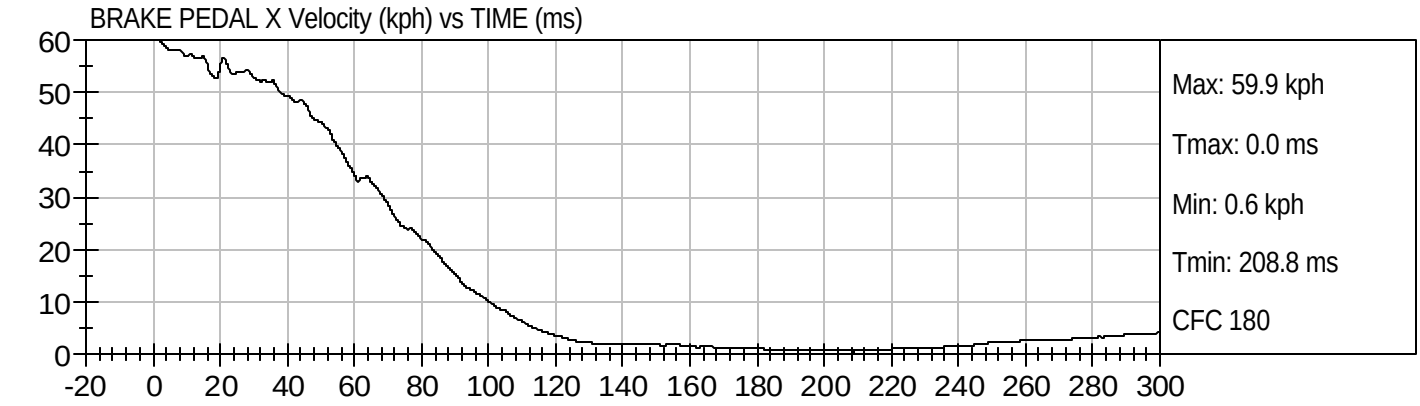


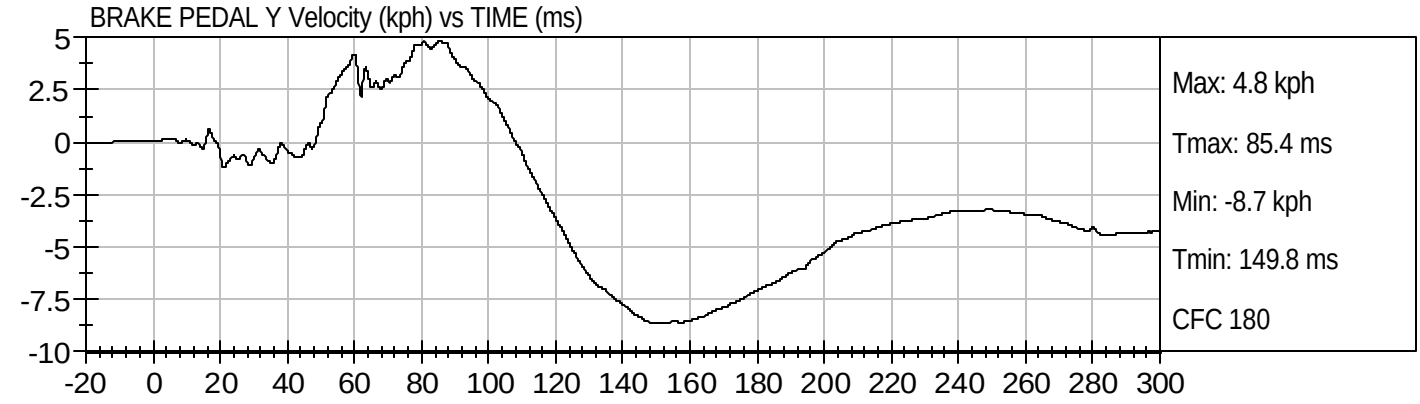
BRAKE PEDAL Resultant (G's) vs TIME (ms)

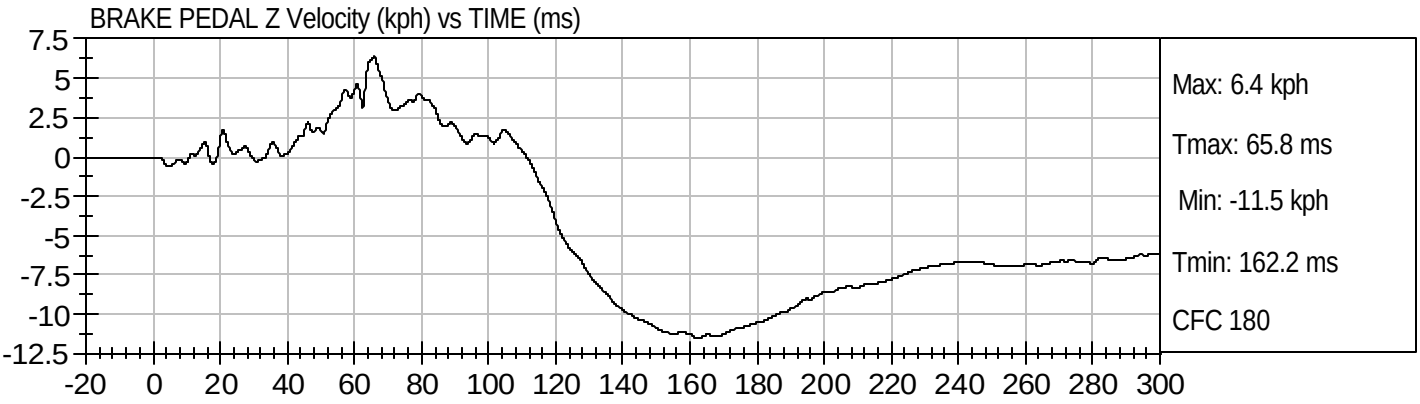


NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



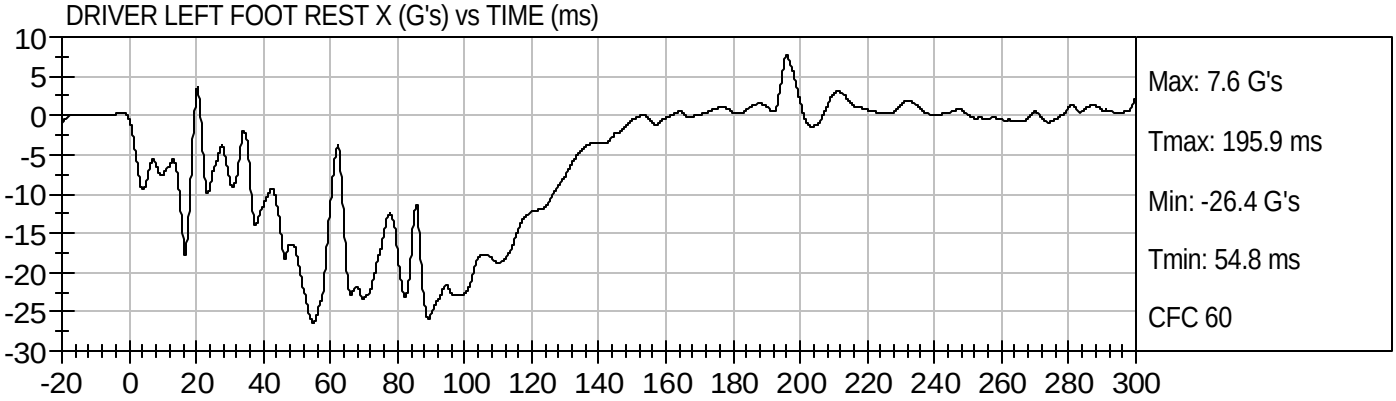




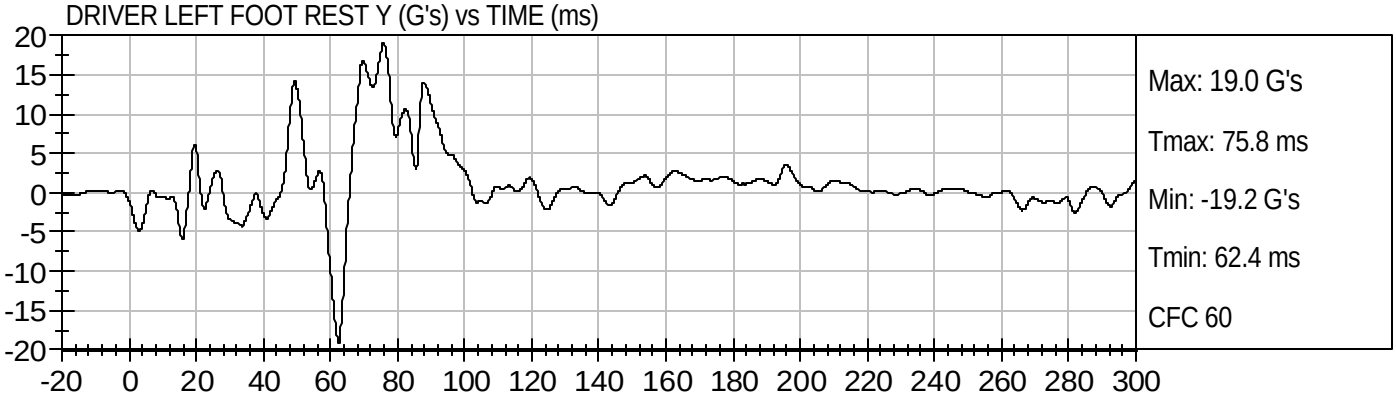
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

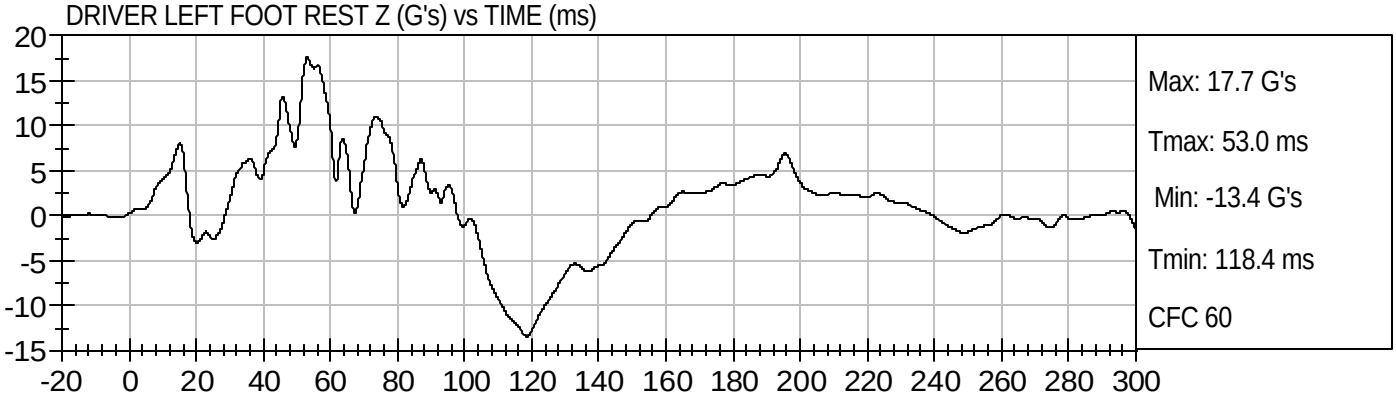
DRIVER LEFT FOOT REST X (G's) vs TIME (ms)



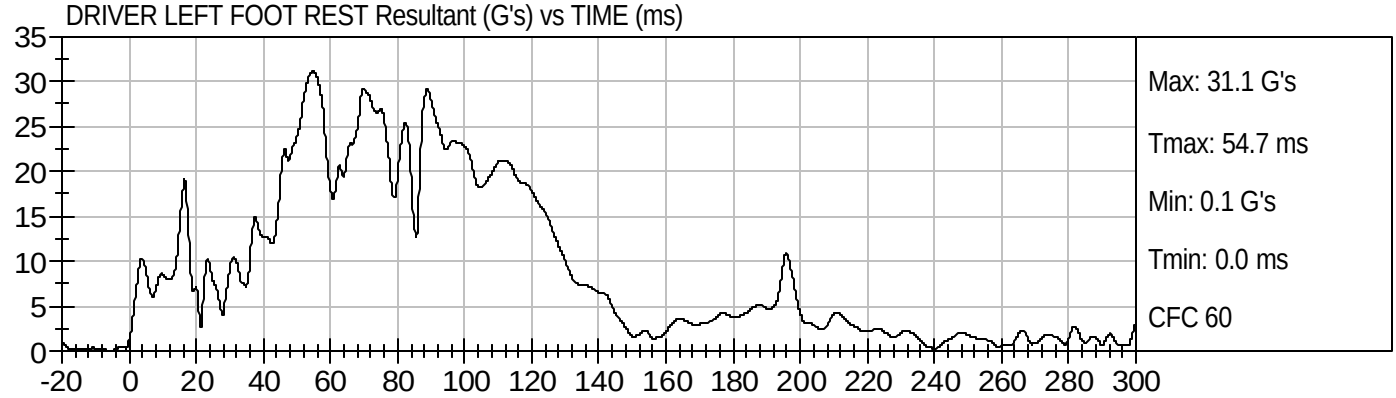
DRIVER LEFT FOOT REST Y (G's) vs TIME (ms)



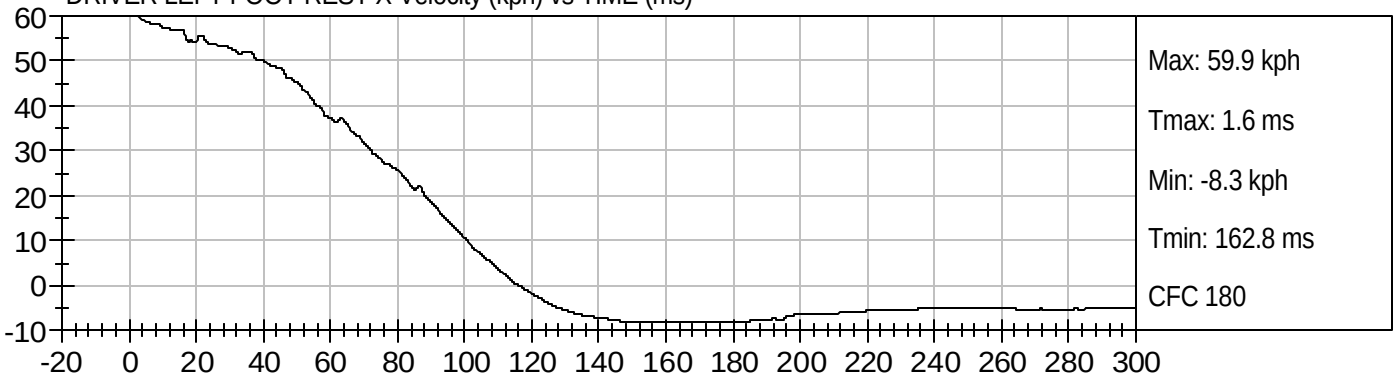
DRIVER LEFT FOOT REST Z (G's) vs TIME (ms)



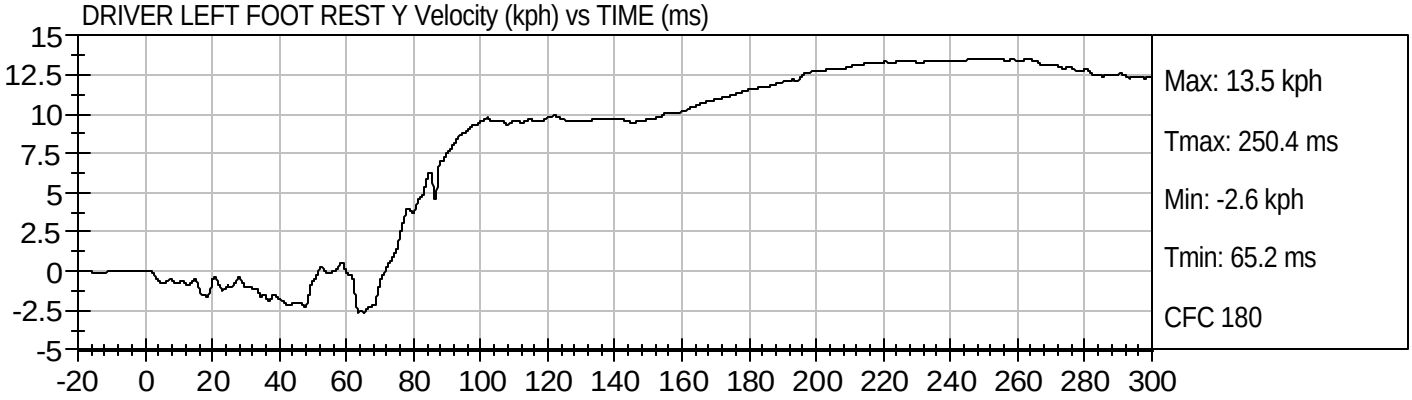
DRIVER LEFT FOOT REST Resultant (G's) vs TIME (ms)



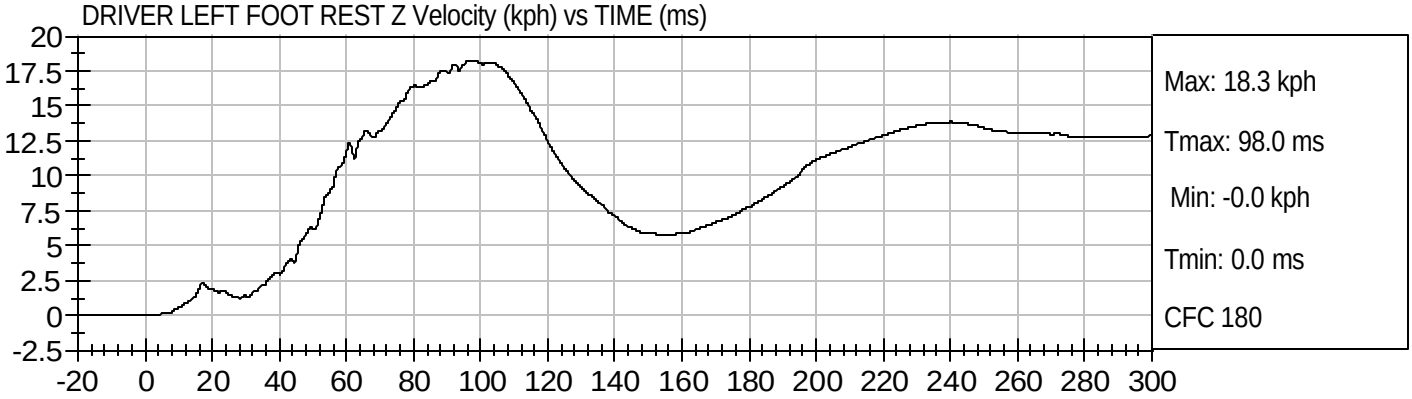
DRIVER LEFT FOOT REST X Velocity (kph) vs TIME (ms)



DRIVER LEFT FOOT REST Y Velocity (kph) vs TIME (ms)



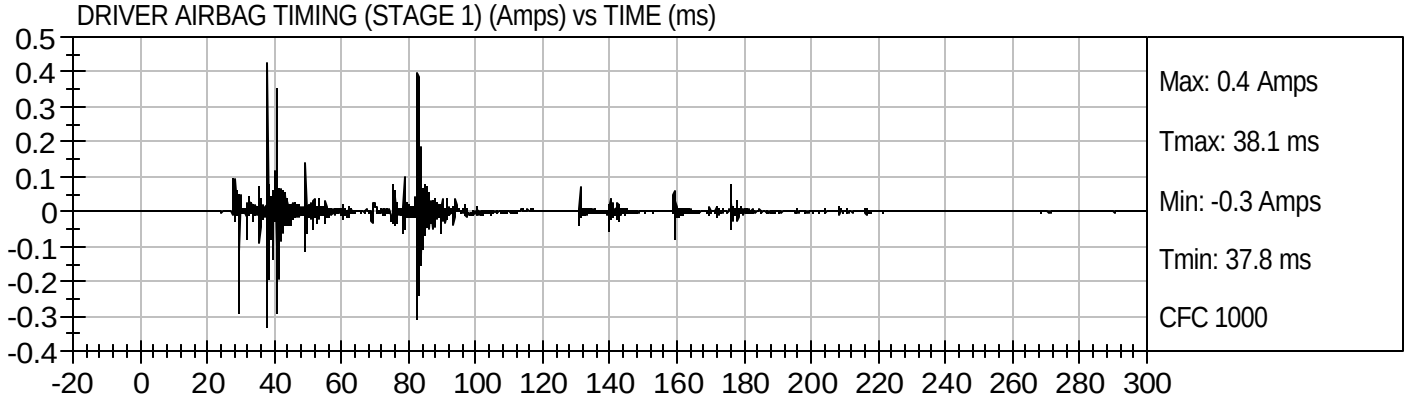
DRIVER LEFT FOOT REST Z Velocity (kph) vs TIME (ms)



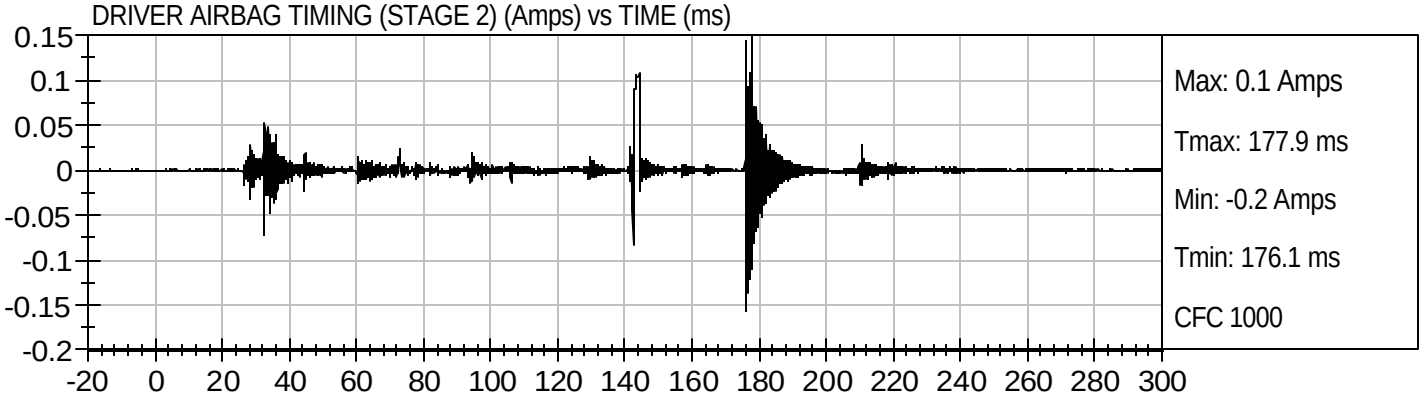
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

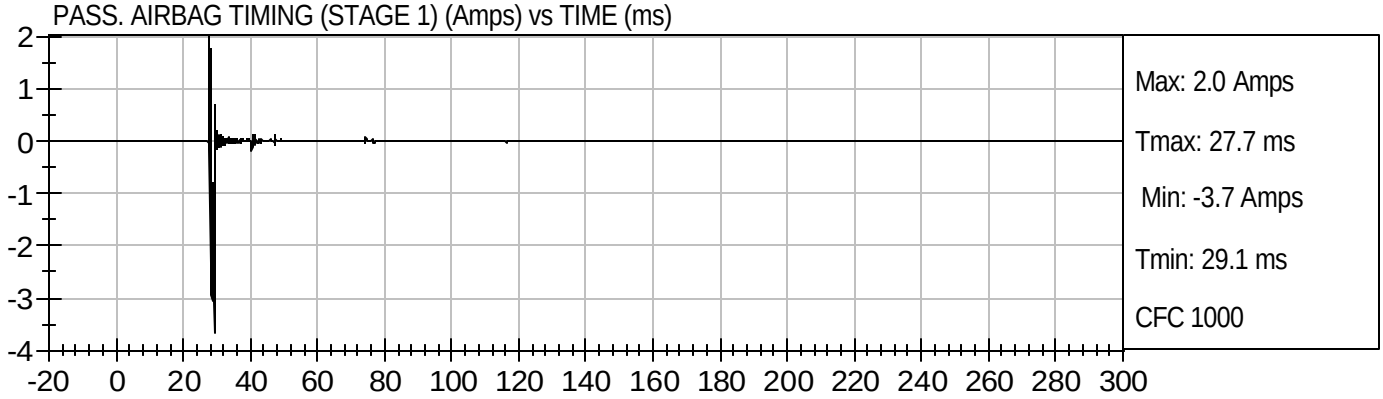
DRIVER AIRBAG TIMING (STAGE 1) (Amps) vs TIME (ms)



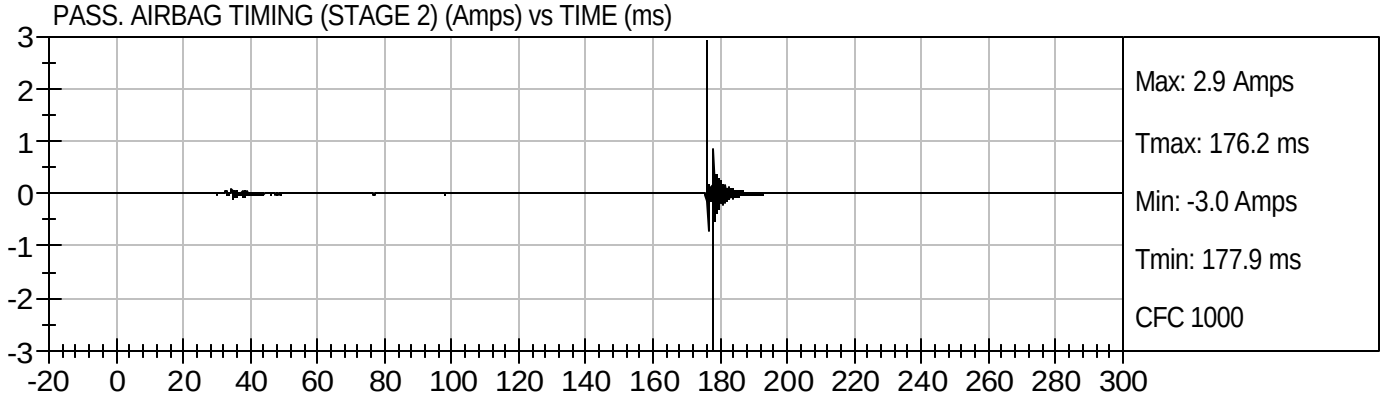
DRIVER AIRBAG TIMING (STAGE 2) (Amps) vs TIME (ms)



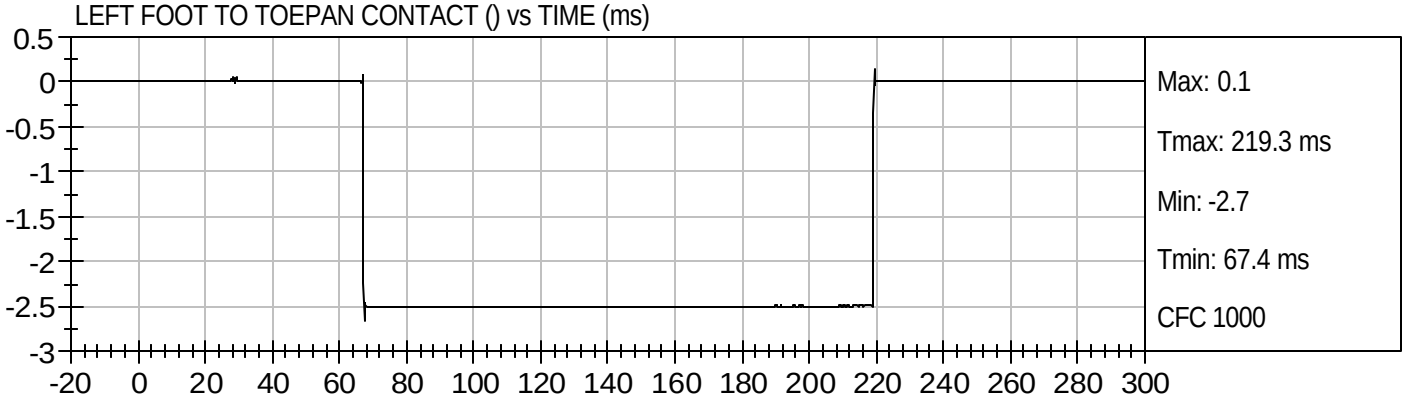
PASS. AIRBAG TIMING (STAGE 1) (Amps) vs TIME (ms)



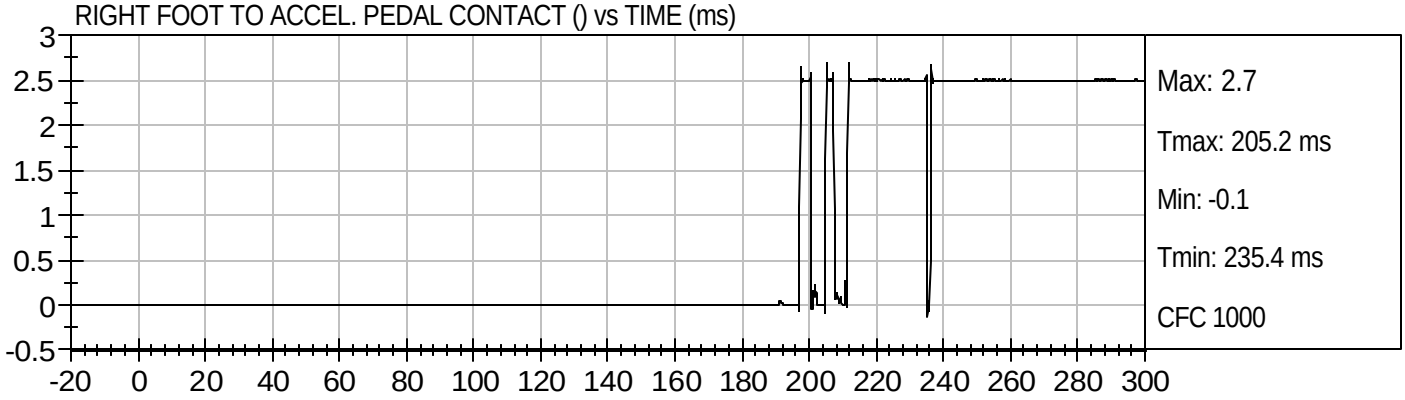
PASS. AIRBAG TIMING (STAGE 2) (Amps) vs TIME (ms)



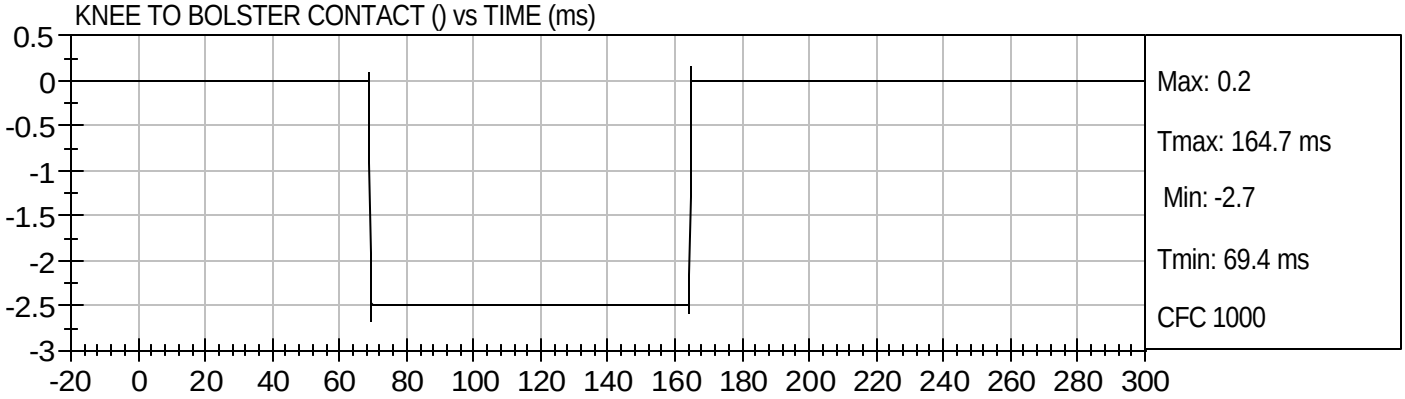
LEFT FOOT TO TOEPAN CONTACT () vs TIME (ms)



RIGHT FOOT TO ACCEL. PEDAL CONTACT () vs TIME (ms)



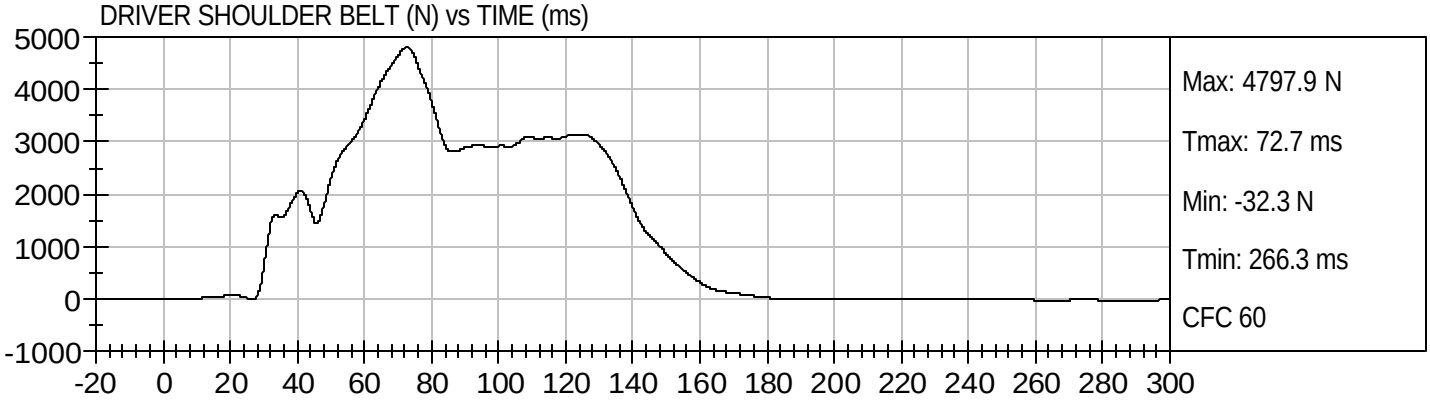
KNEE TO BOLSTER CONTACT () vs TIME (ms)



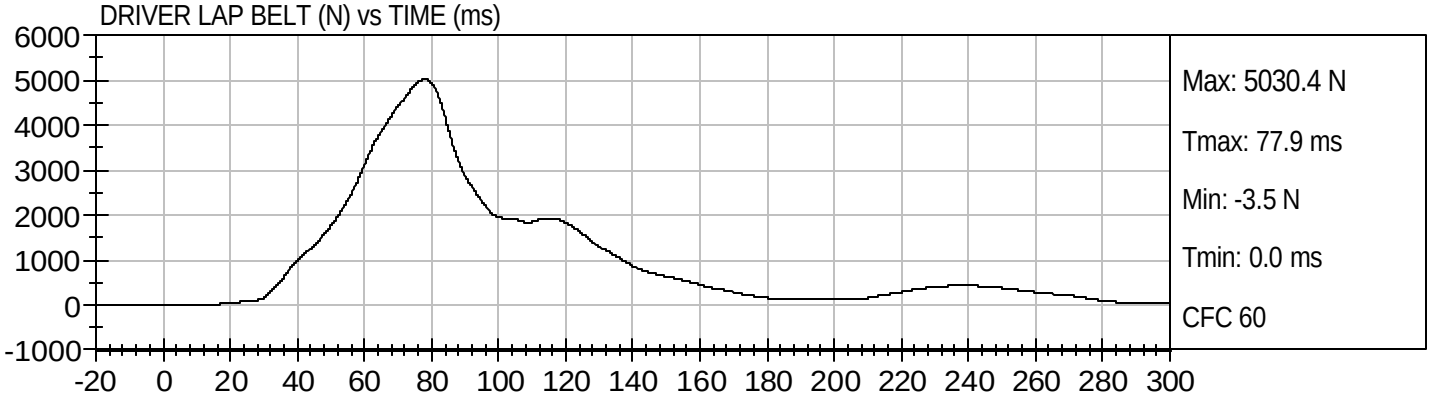
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

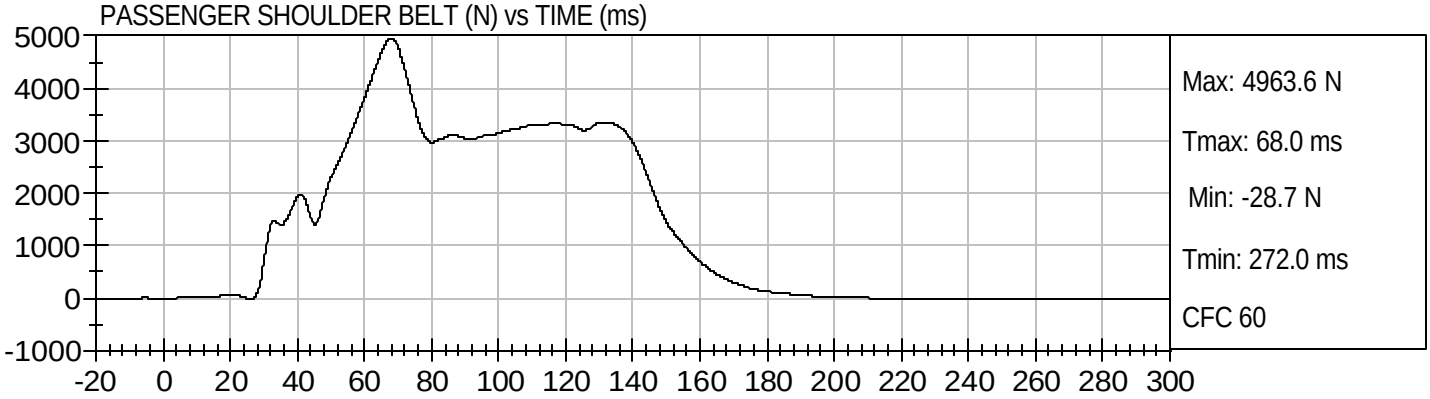
DRIVER SHOULDER BELT (N) vs TIME (ms)



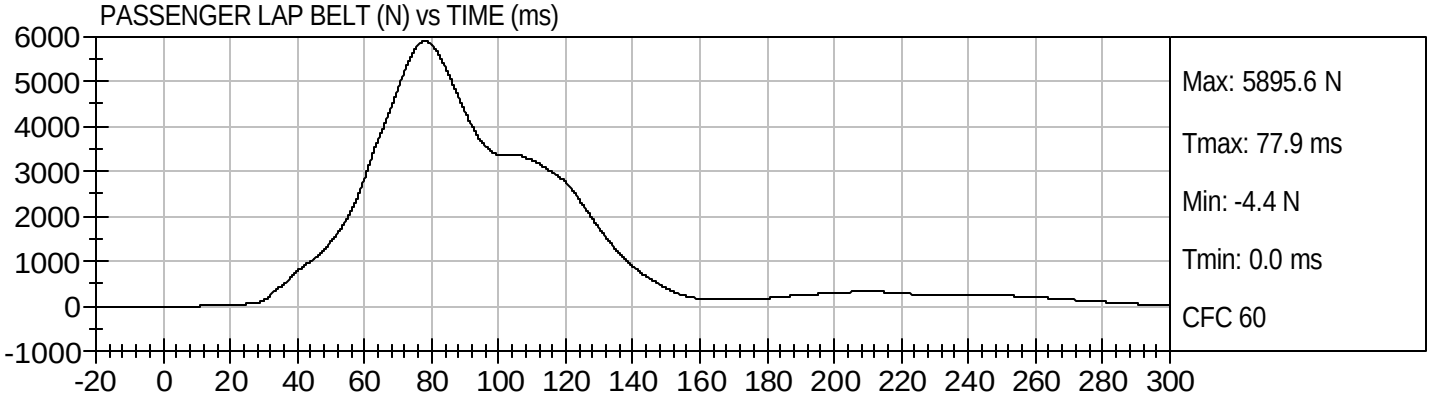
DRIVER LAP BELT (N) vs TIME (ms)



PASSENGER SHOULDER BELT (N) vs TIME (ms)

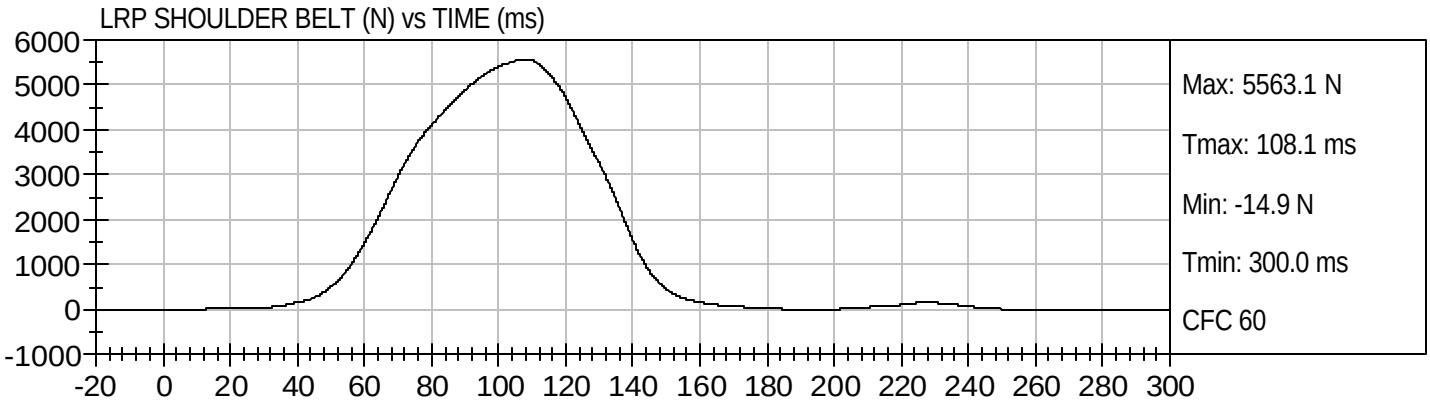


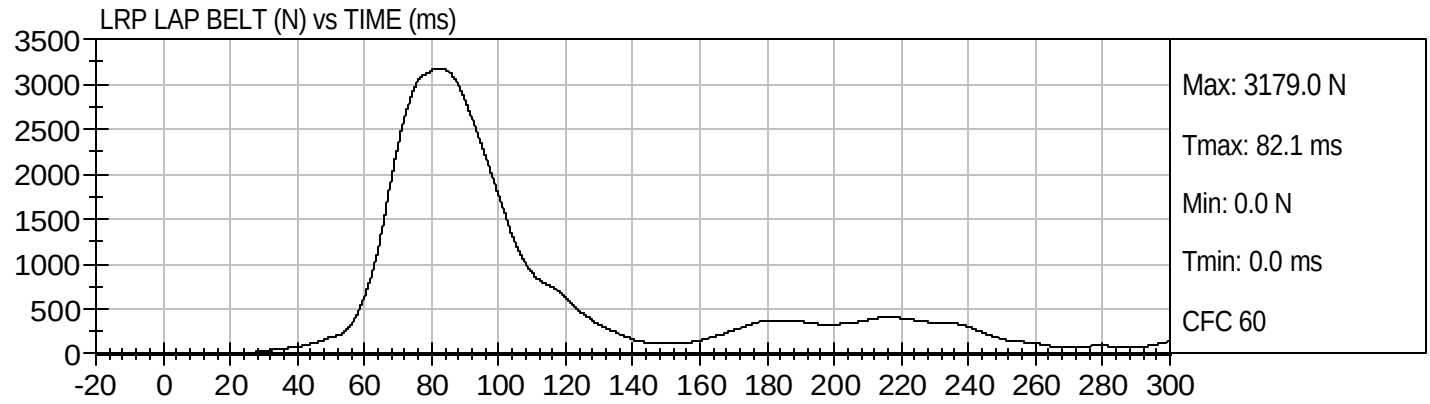
PASSENGER LAP BELT (N) vs TIME (ms)



NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

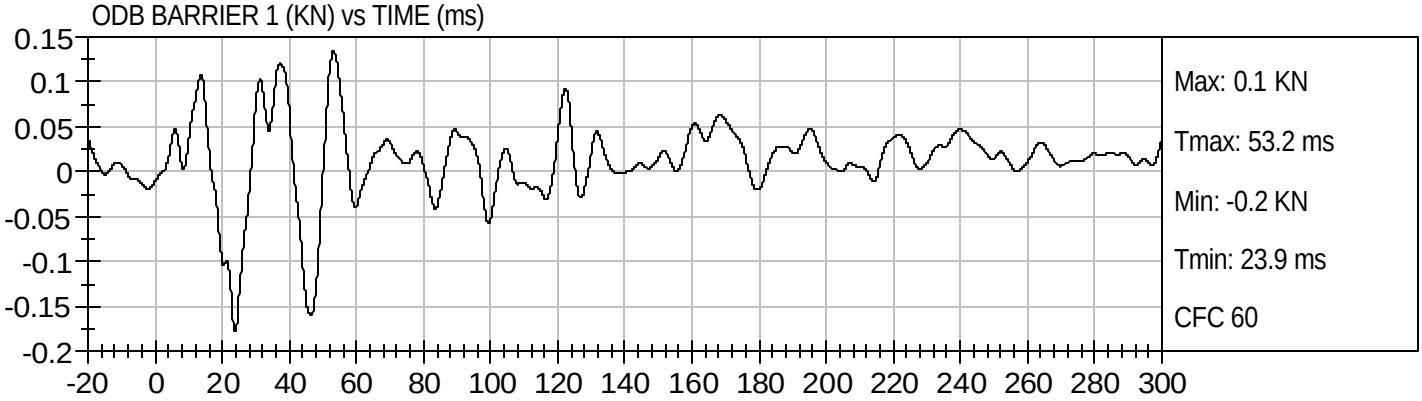




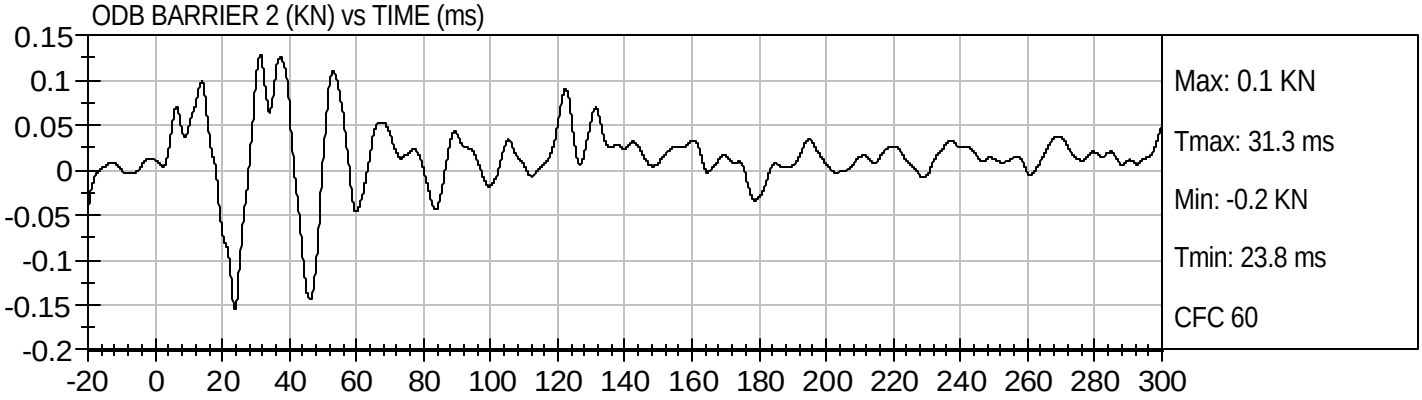
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

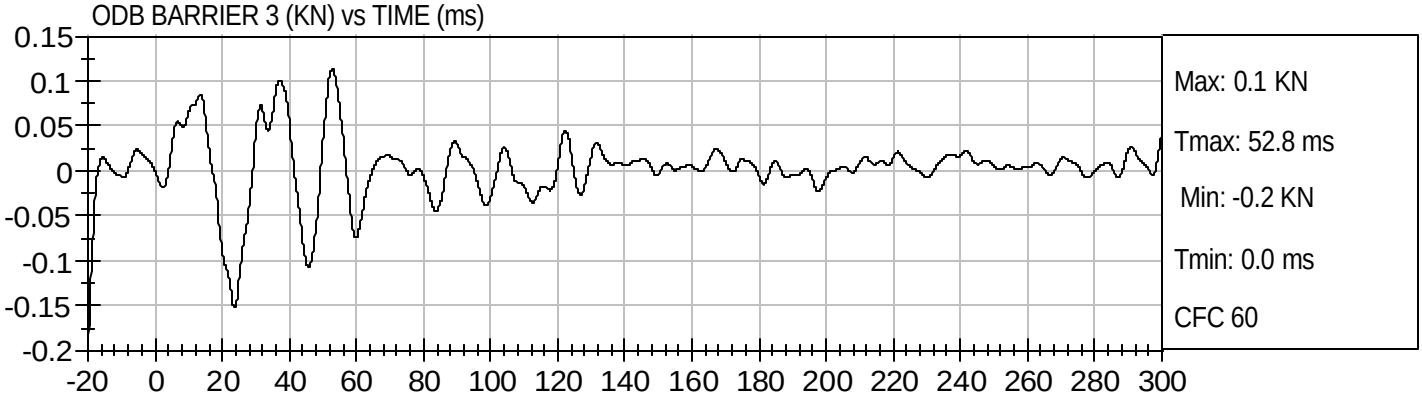
ODB BARRIER 1 (KN) vs TIME (ms)



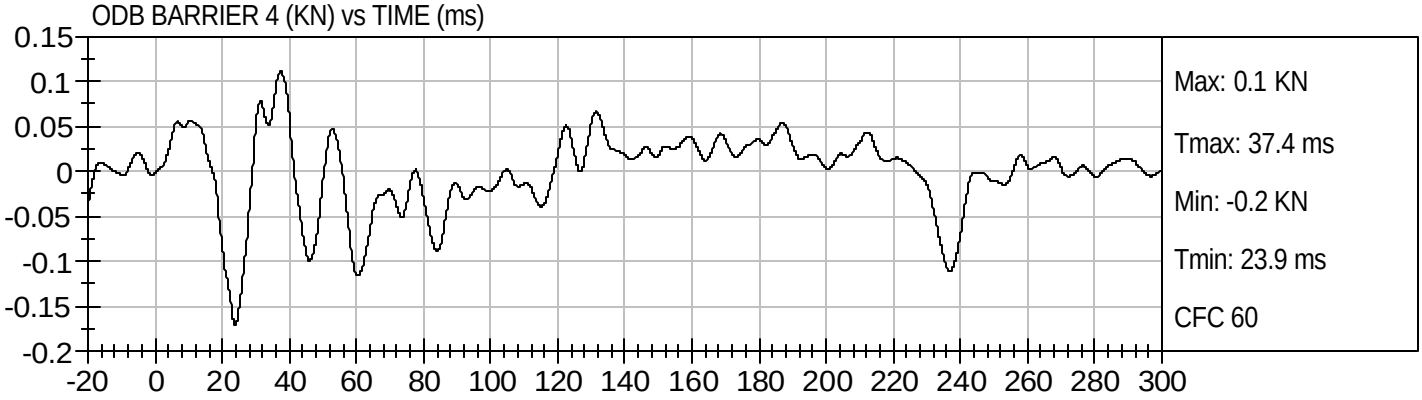
ODB BARRIER 2 (KN) vs TIME (ms)



ODB BARRIER 3 (KN) vs TIME (ms)



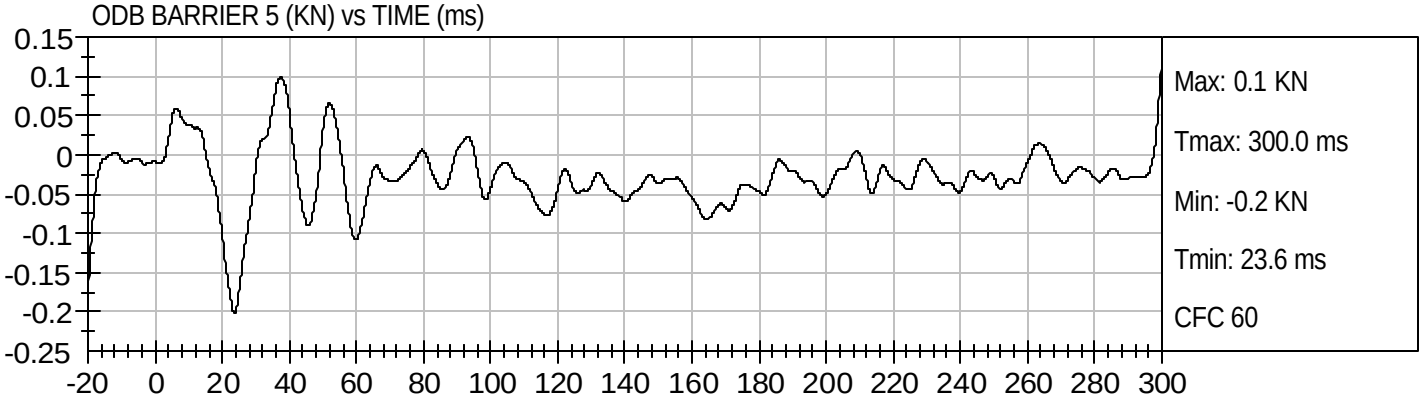
ODB BARRIER 4 (KN) vs TIME (ms)



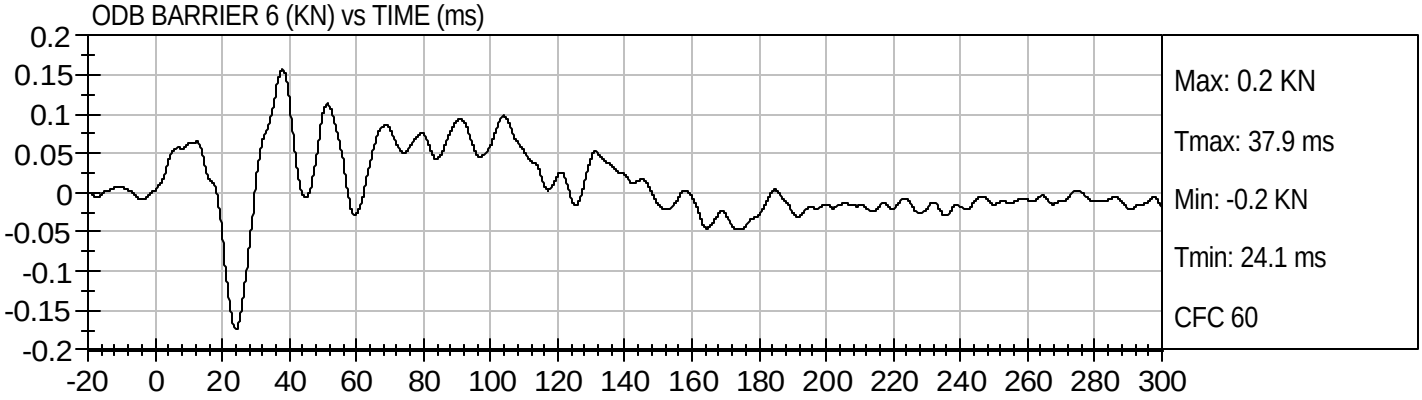
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

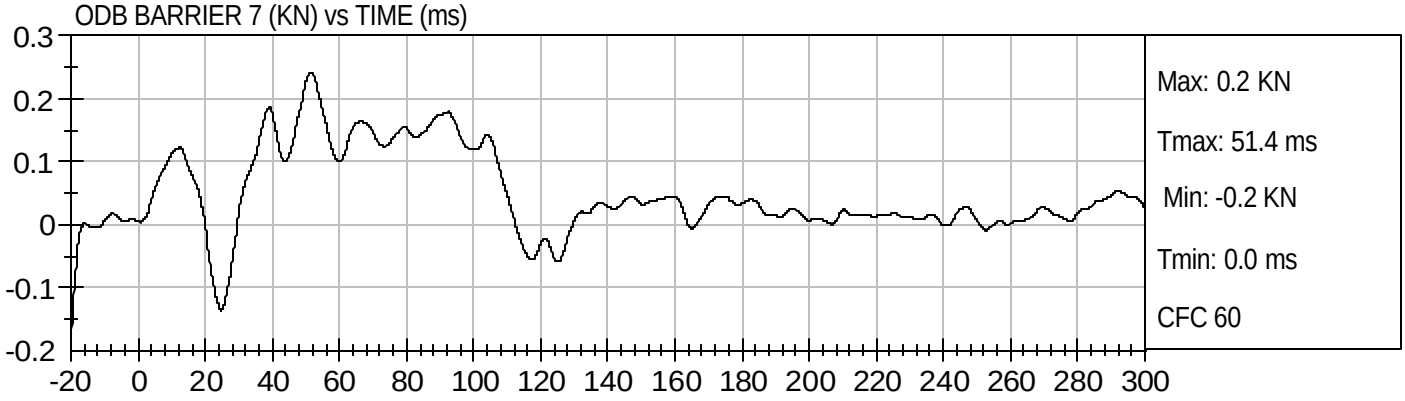
ODB BARRIER 5 (KN) vs TIME (ms)



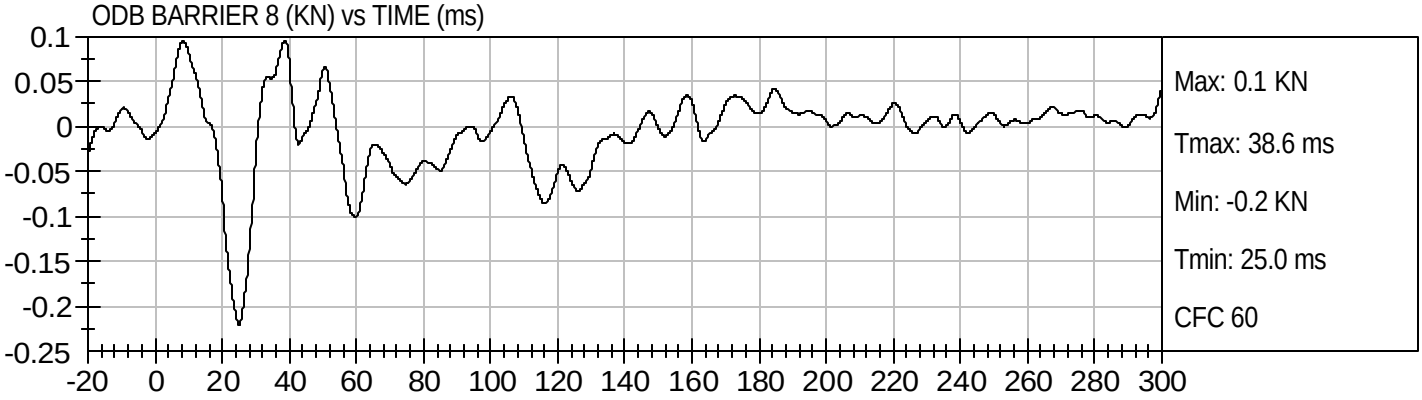
ODB BARRIER 6 (KN) vs TIME (ms)



ODB BARRIER 7 (KN) vs TIME (ms)



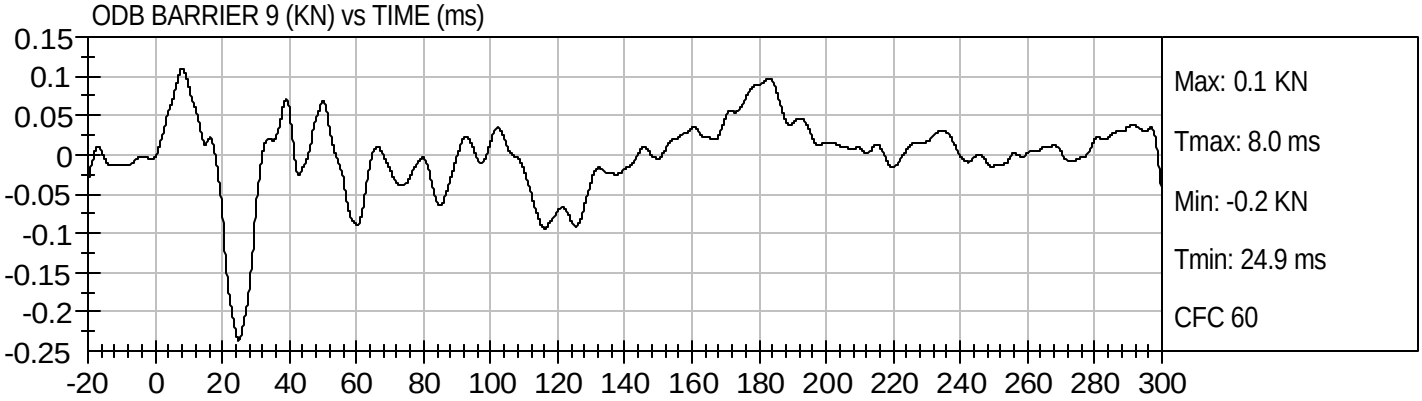
ODB BARRIER 8 (KN) vs TIME (ms)



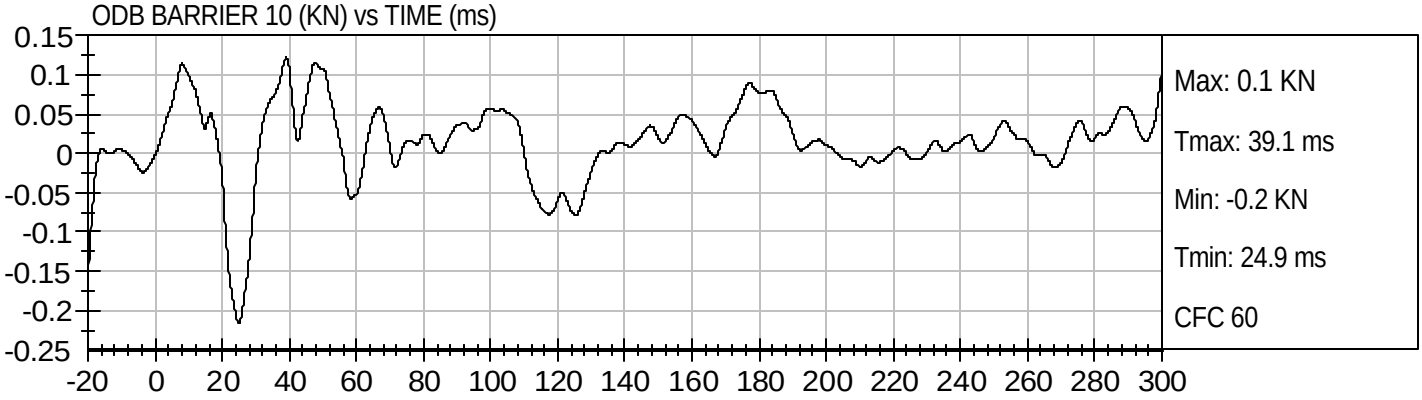
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

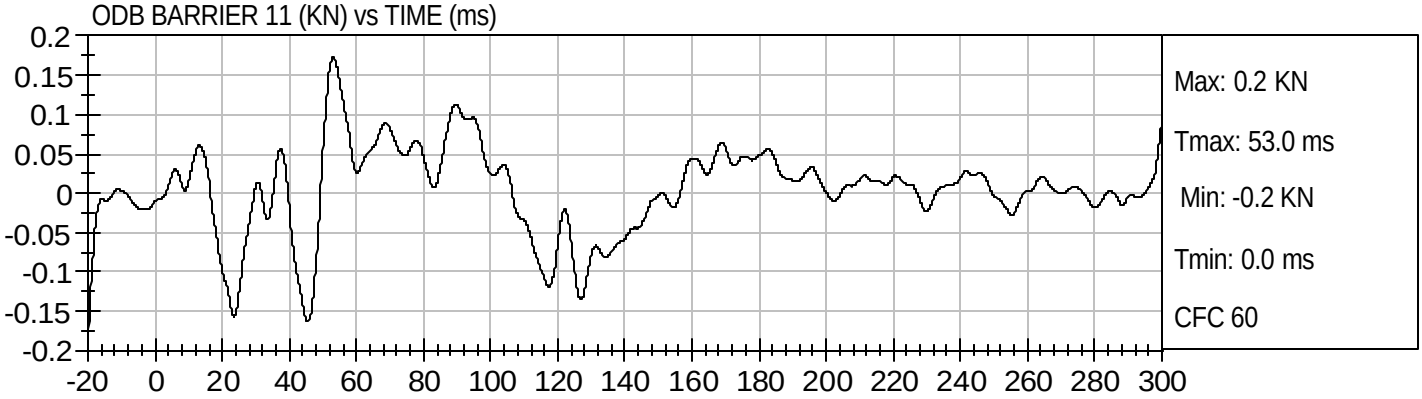
ODB BARRIER 9 (KN) vs TIME (ms)



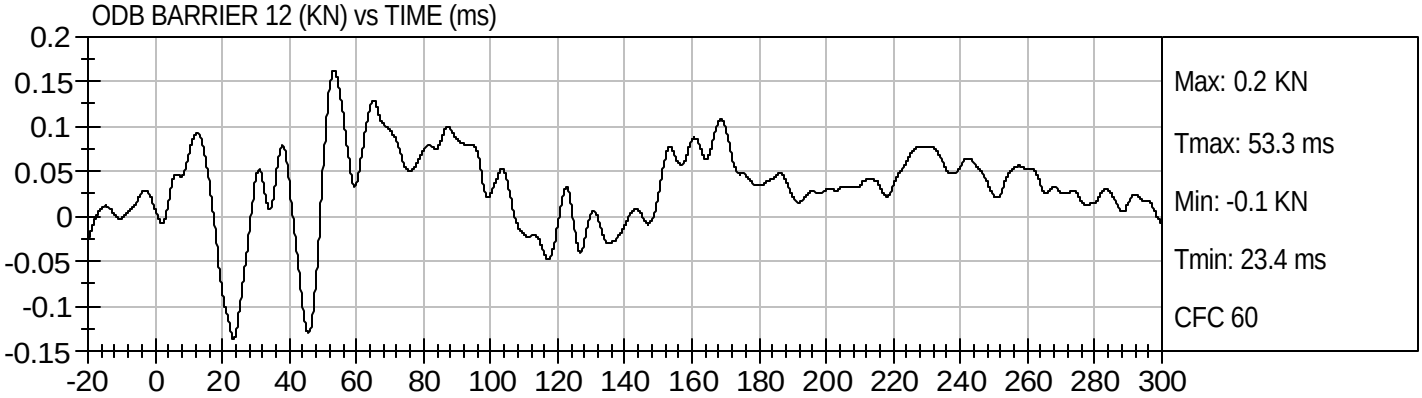
ODB BARRIER 10 (KN) vs TIME (ms)



ODB BARRIER 11 (KN) vs TIME (ms)

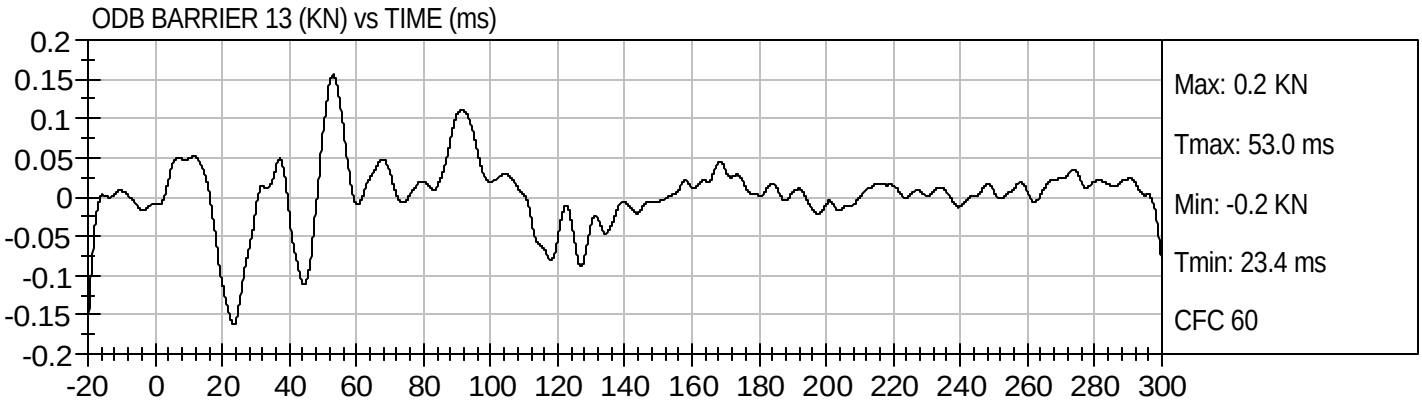


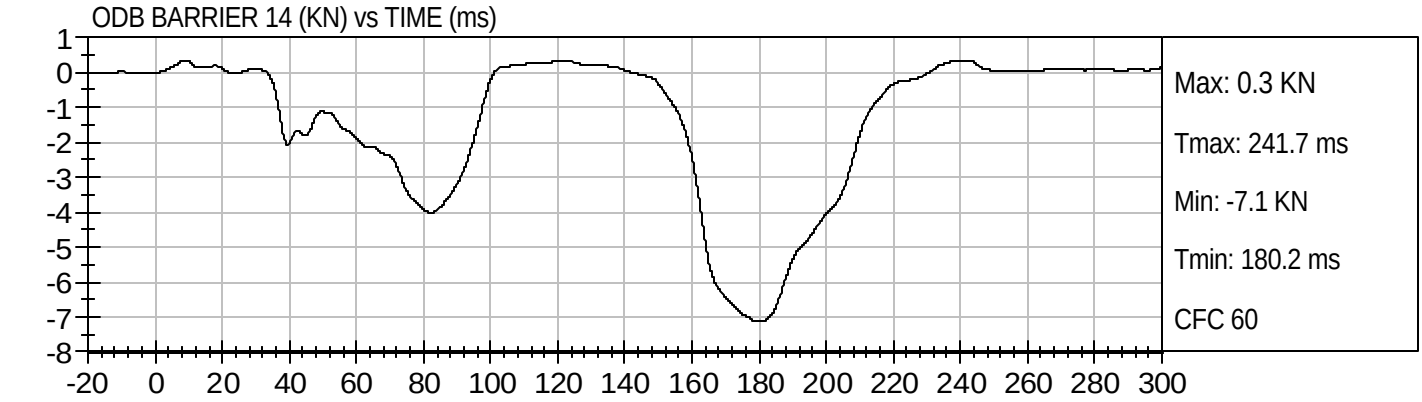
ODB BARRIER 12 (KN) vs TIME (ms)

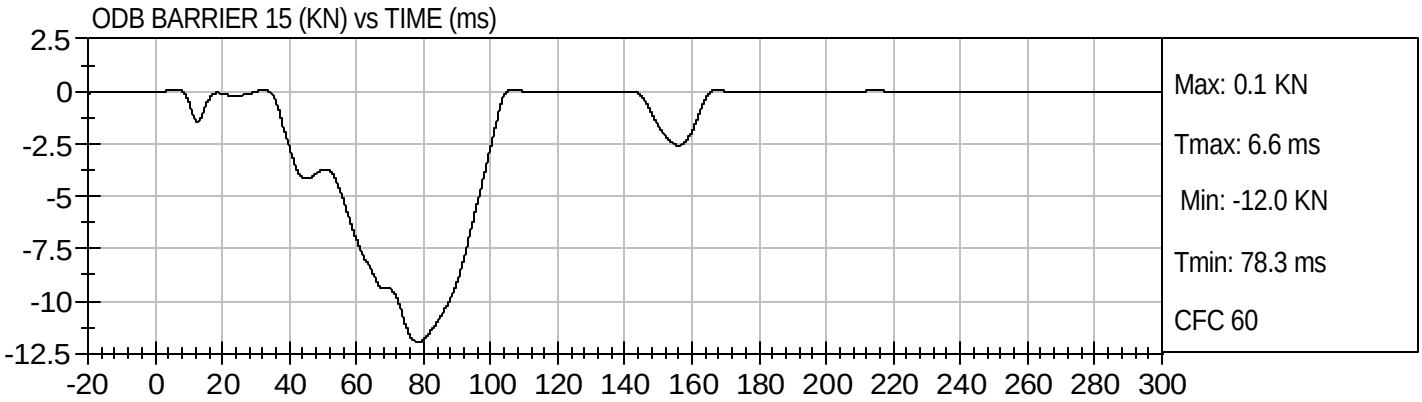


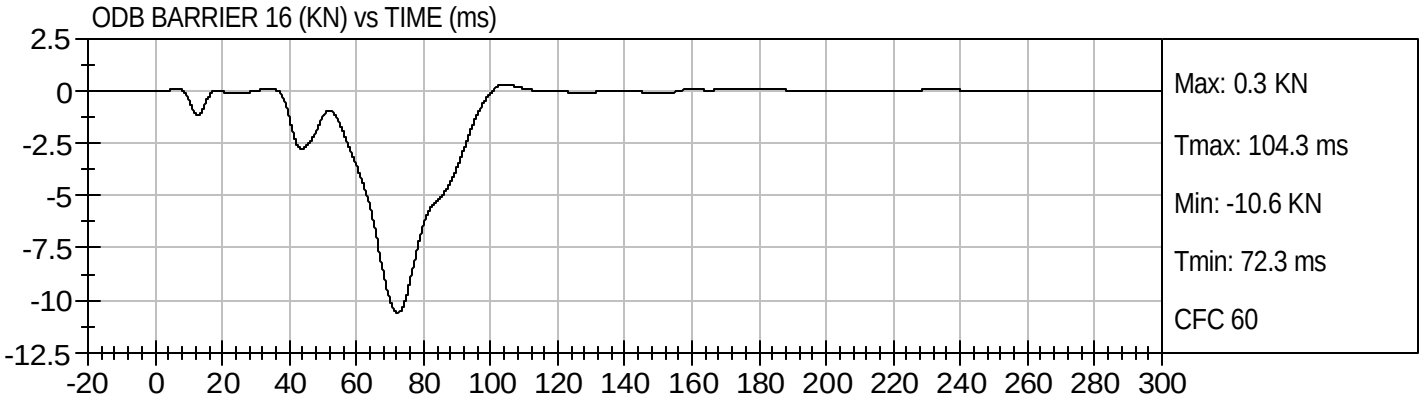
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



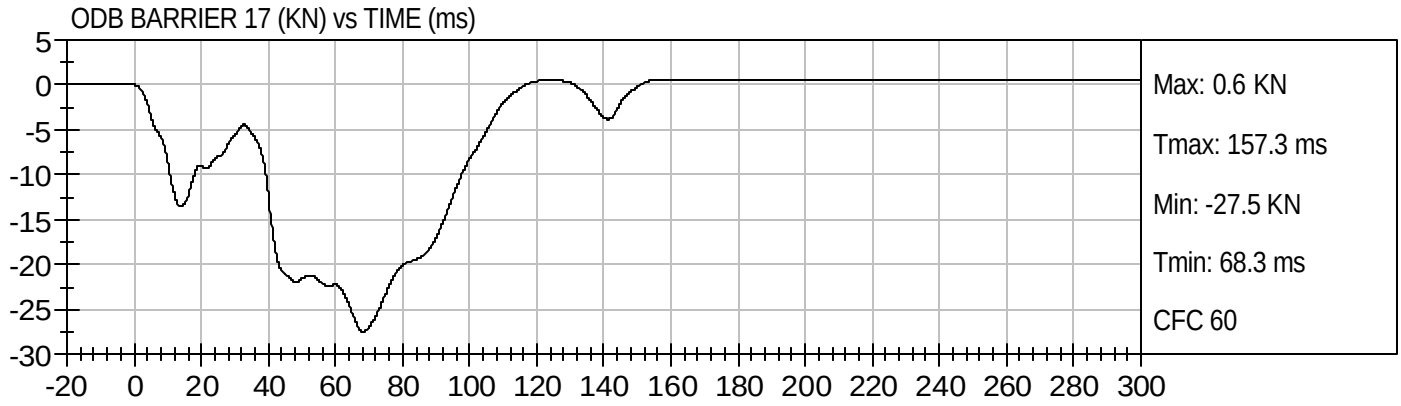


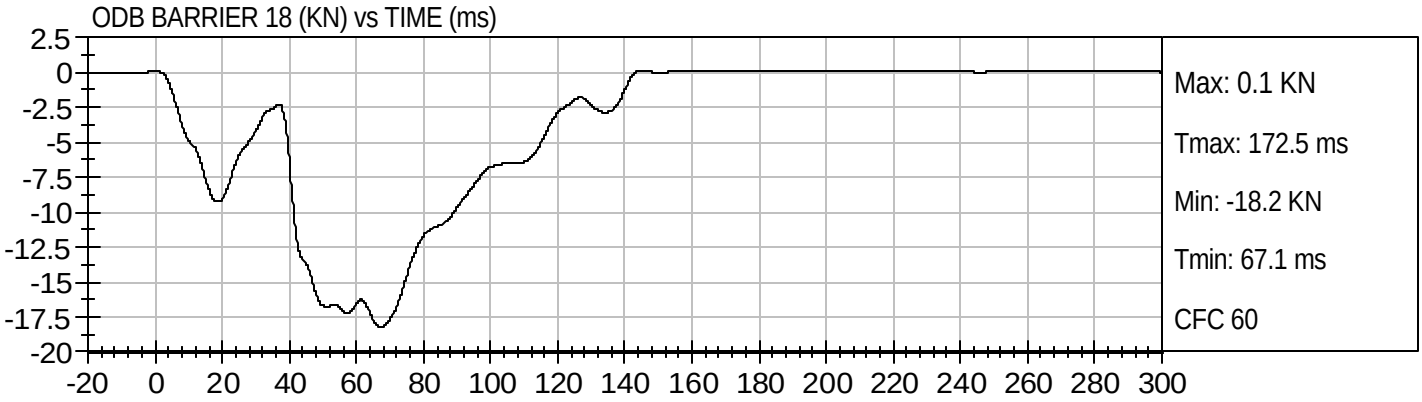


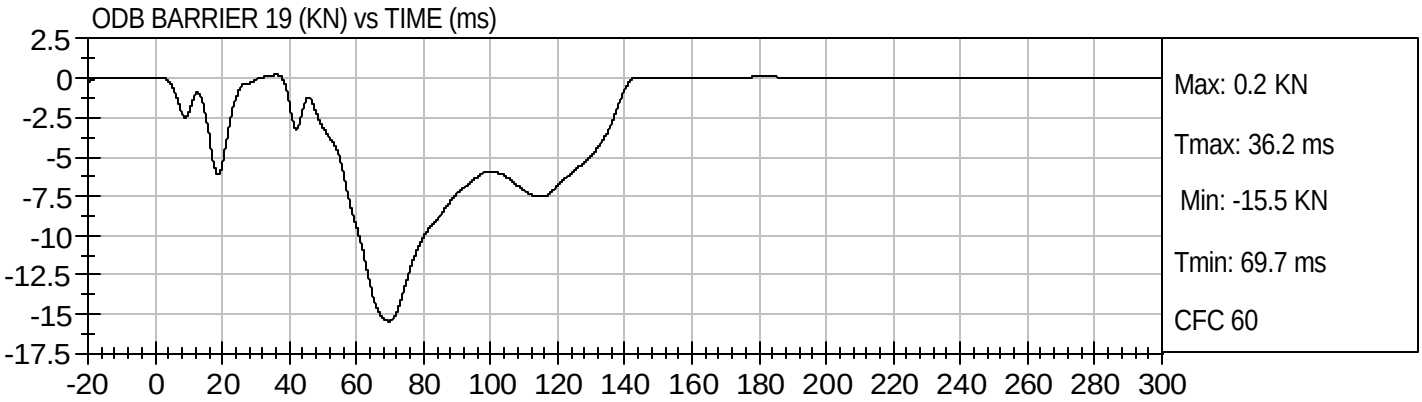


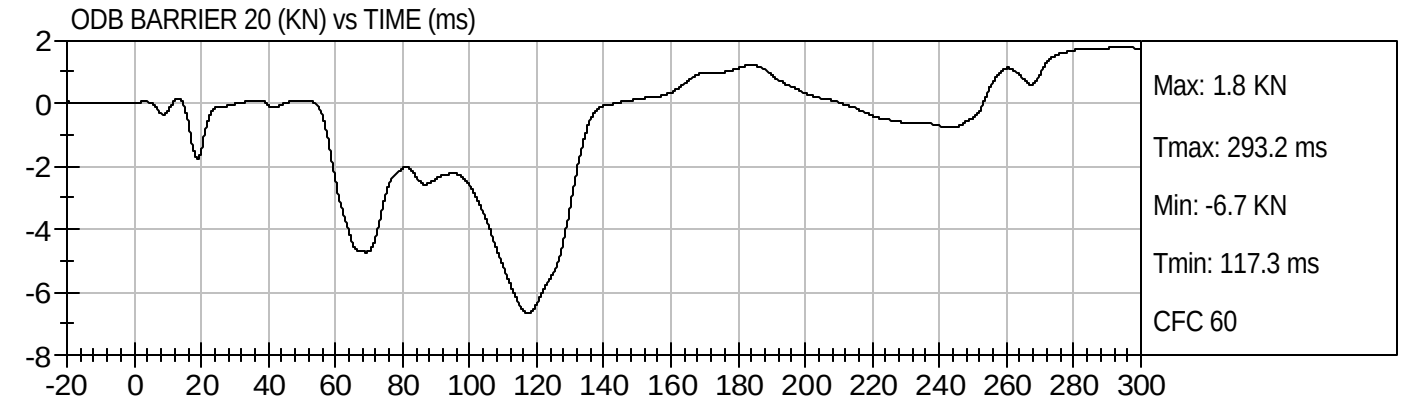
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)





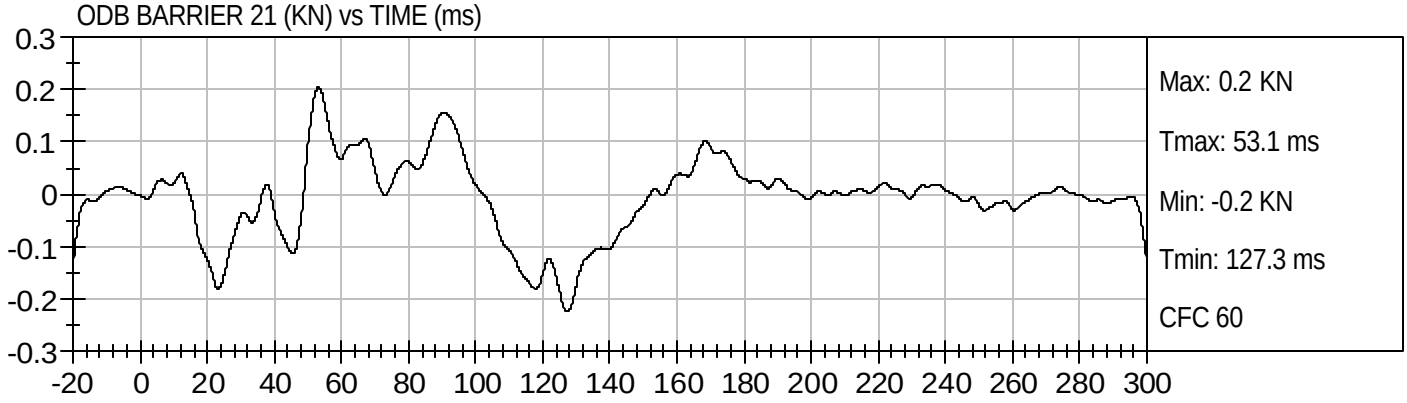




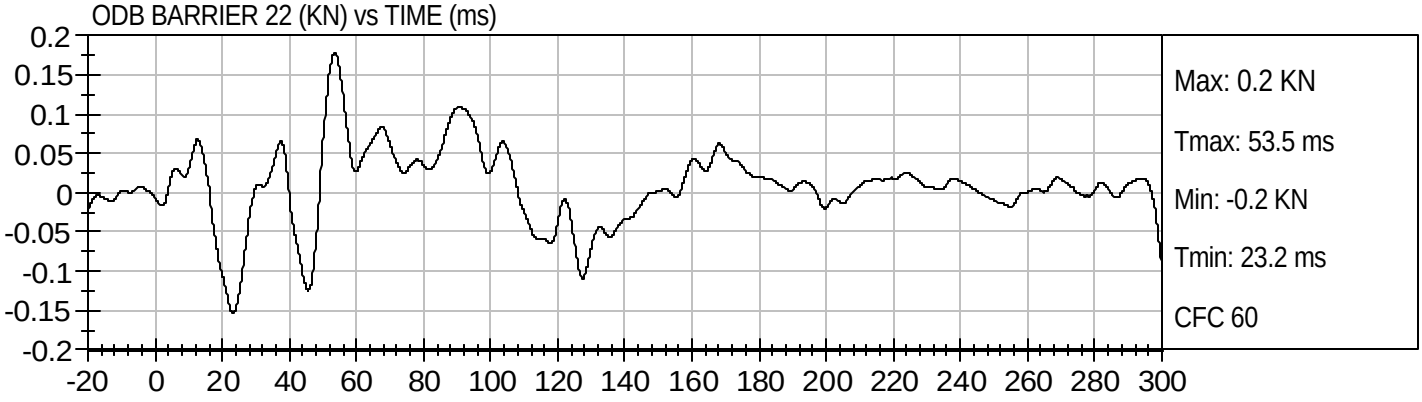
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

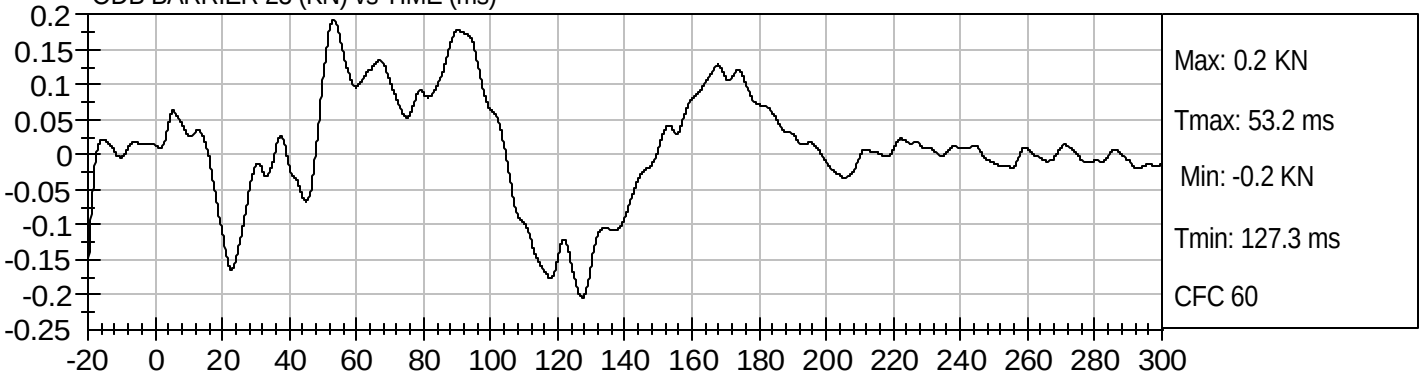
ODB BARRIER 21 (KN) vs TIME (ms)



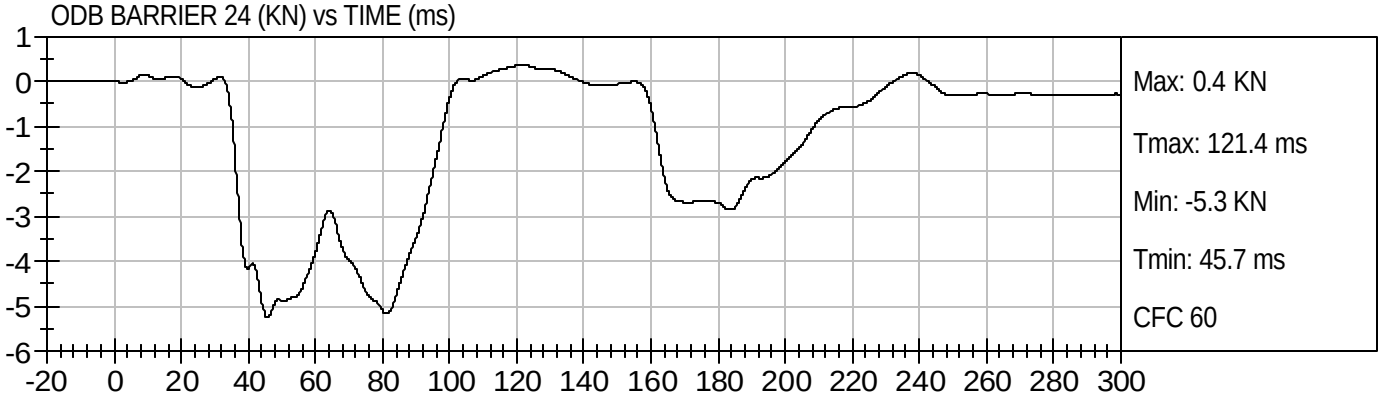
ODB BARRIER 22 (KN) vs TIME (ms)



ODB BARRIER 23 (KN) vs TIME (ms)



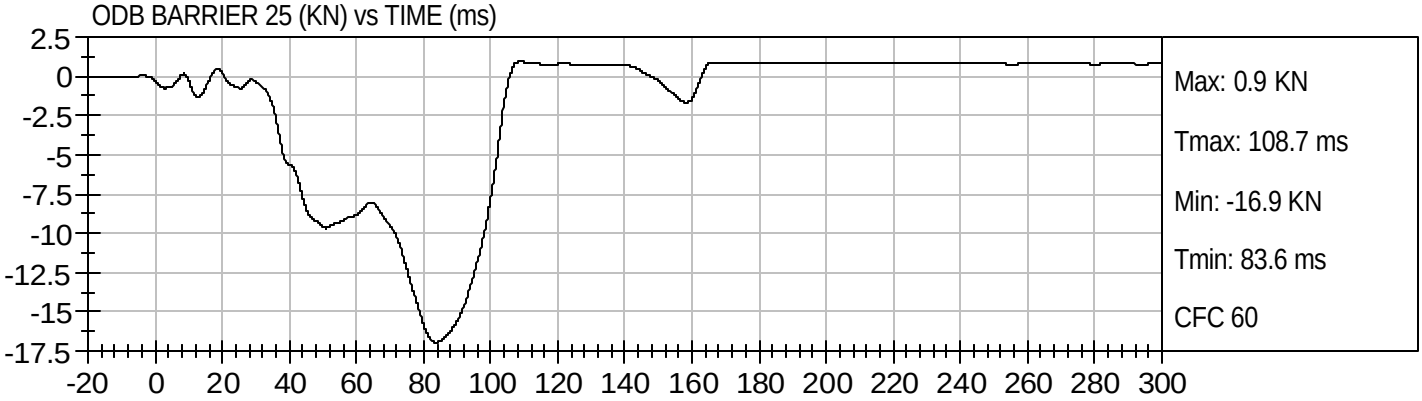
ODB BARRIER 24 (KN) vs TIME (ms)



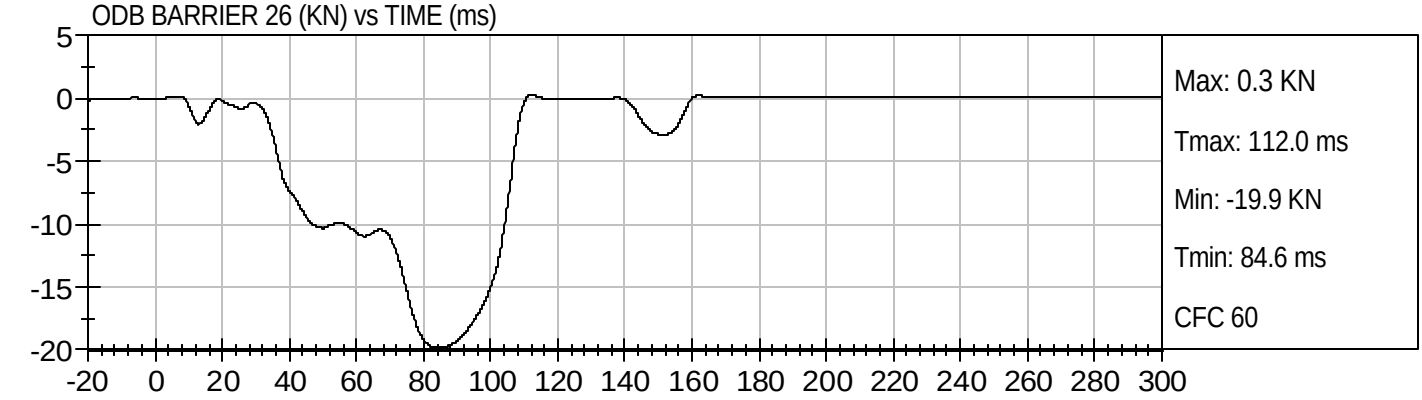
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

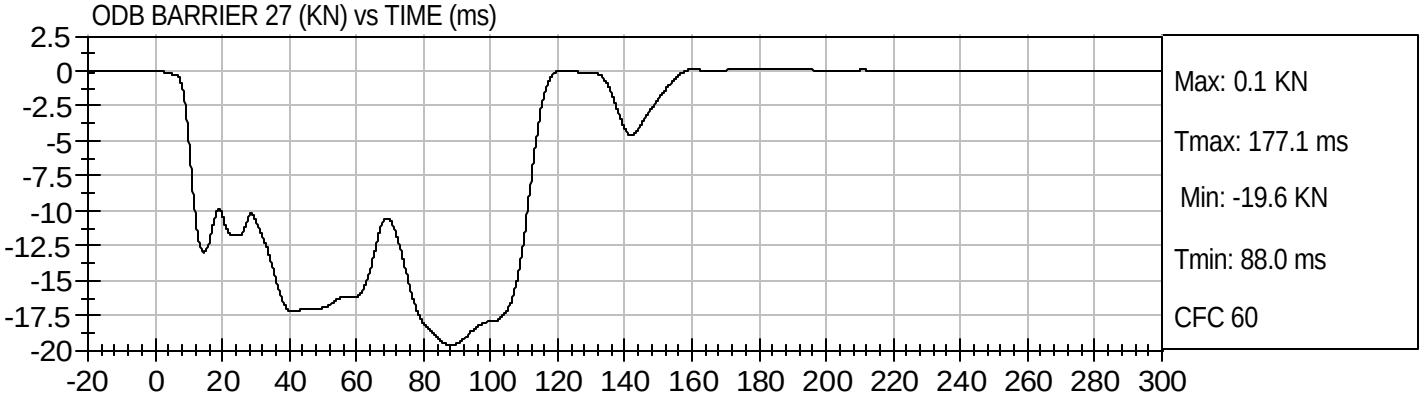
ODB BARRIER 25 (KN) vs TIME (ms)



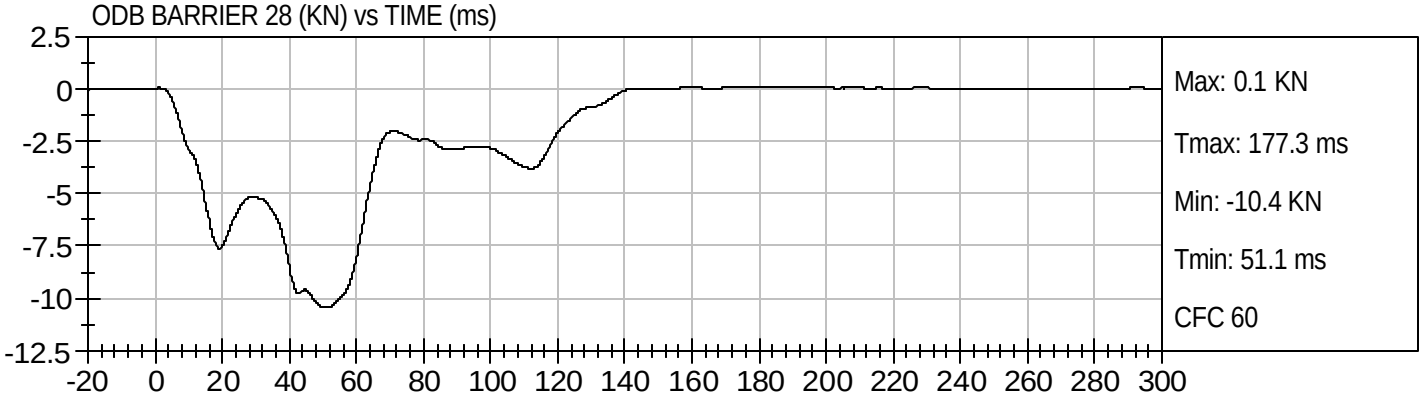
ODB BARRIER 26 (KN) vs TIME (ms)



ODB BARRIER 27 (KN) vs TIME (ms)



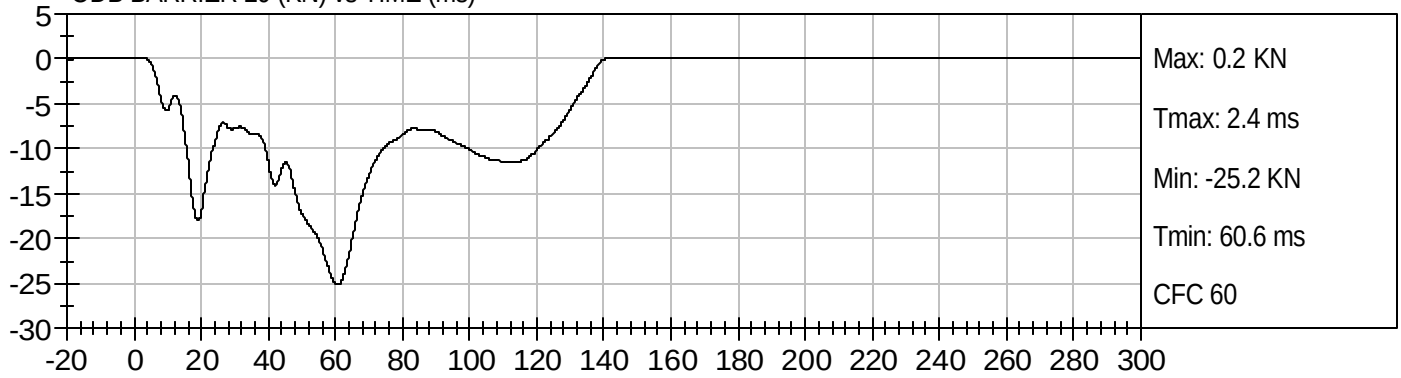
ODB BARRIER 28 (KN) vs TIME (ms)



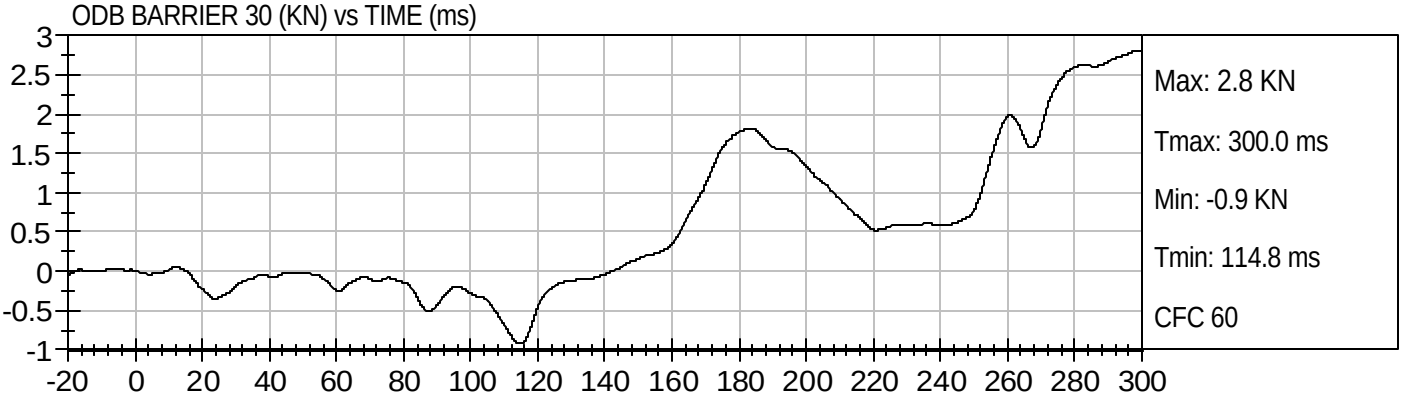
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)

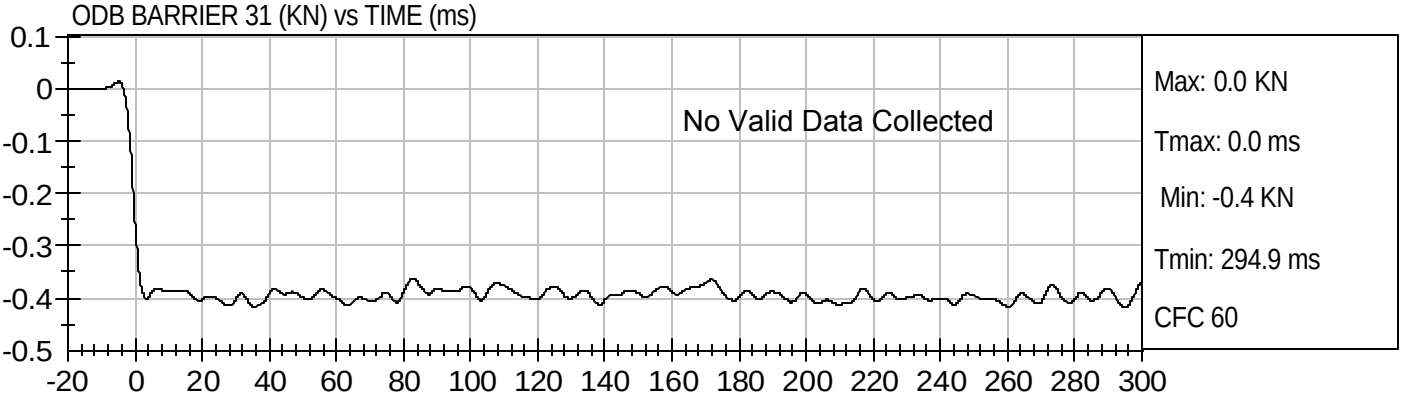
ODB BARRIER 29 (KN) vs TIME (ms)



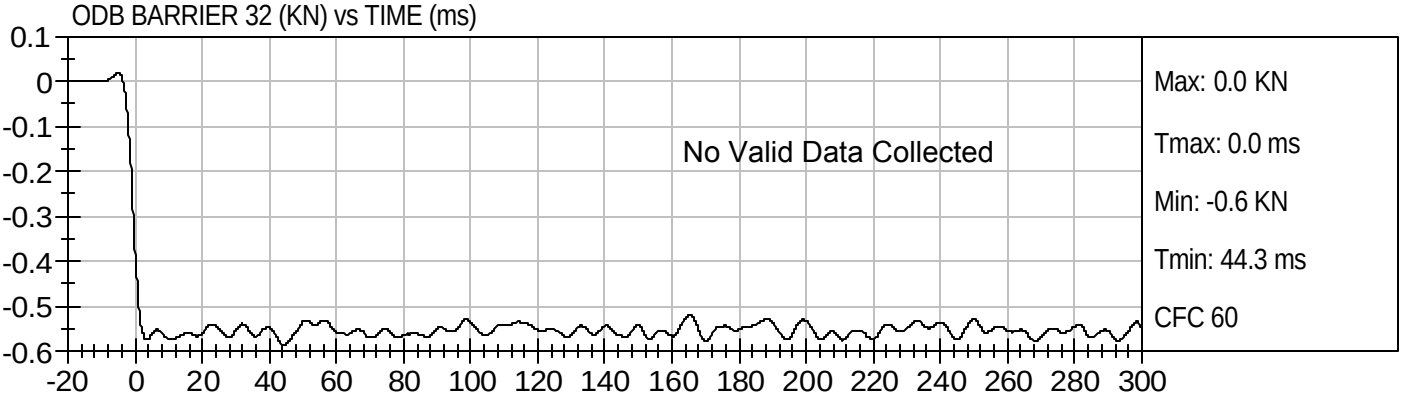
ODB BARRIER 30 (KN) vs TIME (ms)



ODB BARRIER 31 (KN) vs TIME (ms)

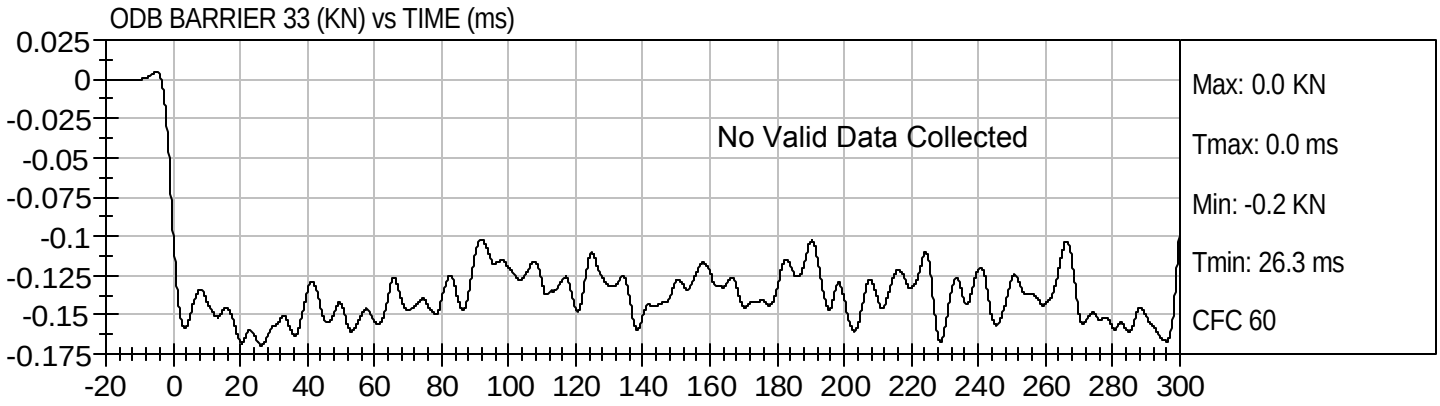


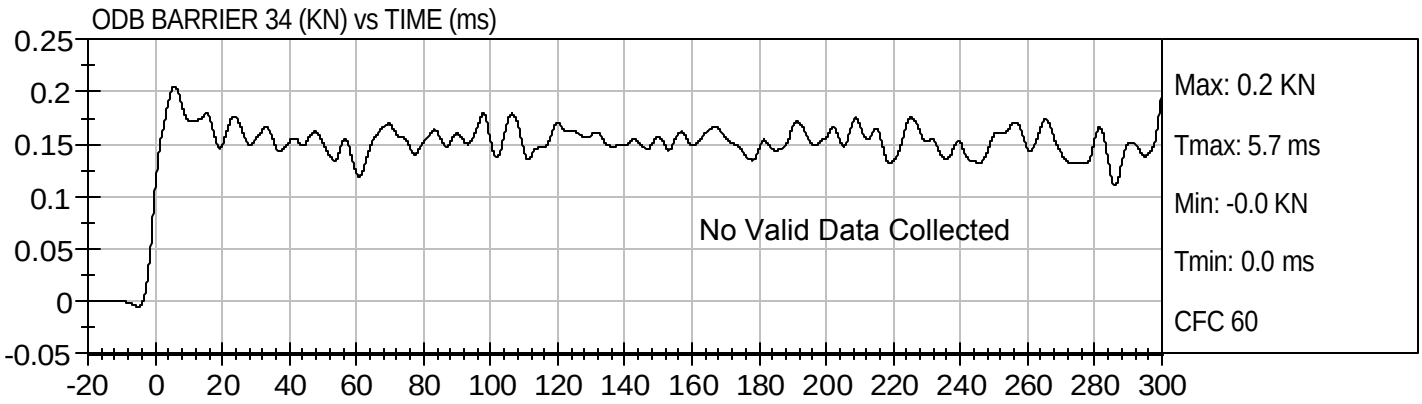
ODB BARRIER 32 (KN) vs TIME (ms)

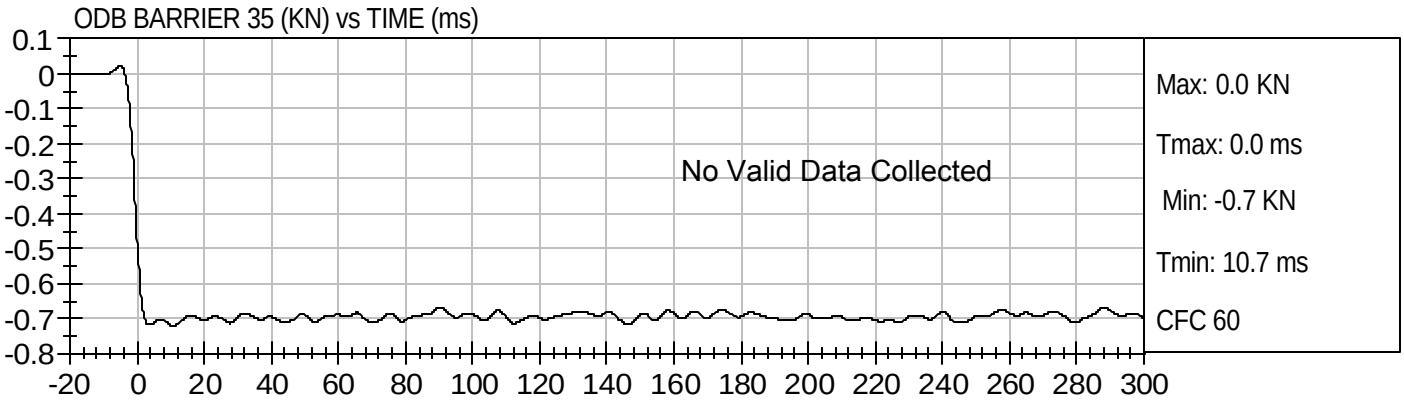


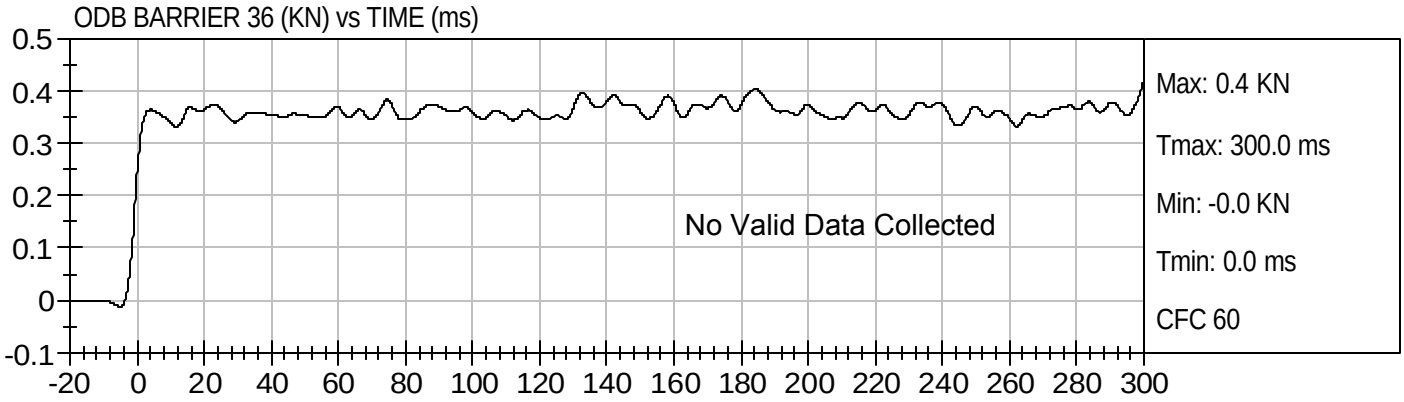
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



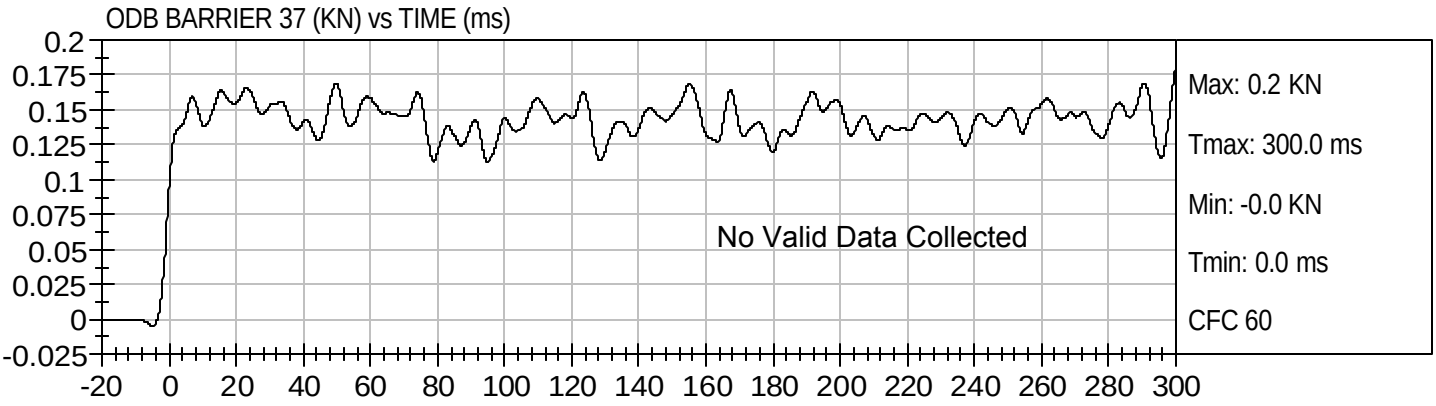


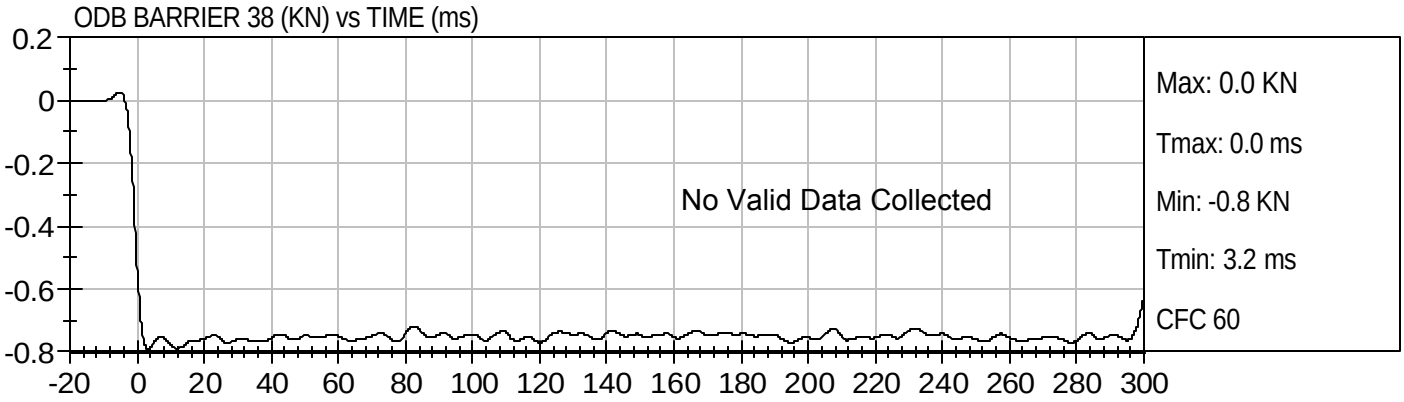


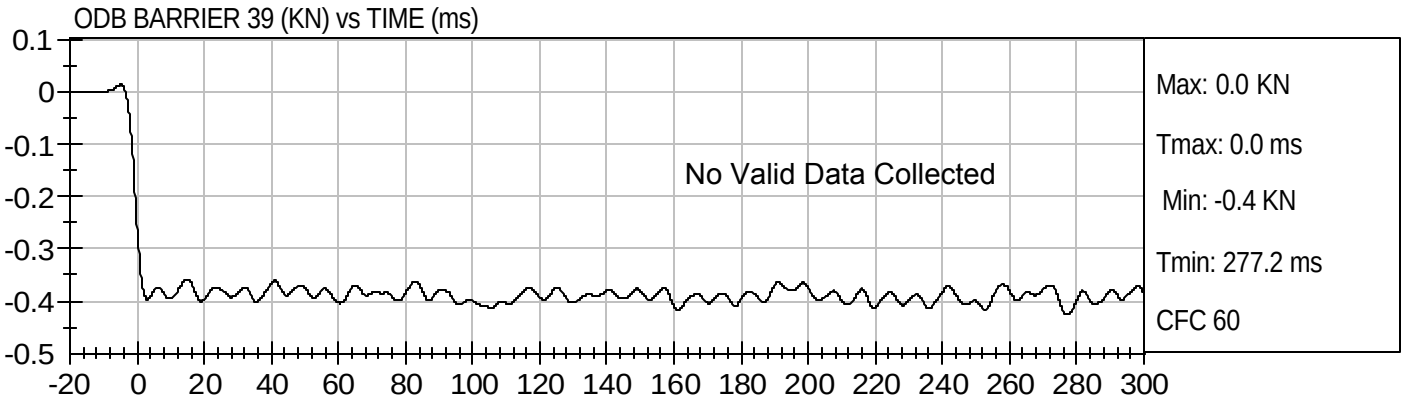


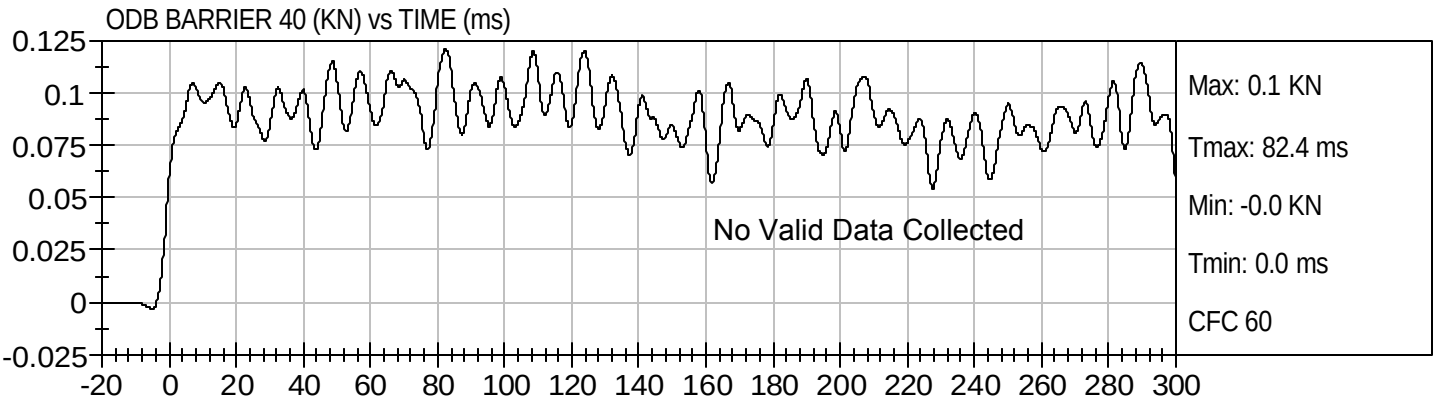
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



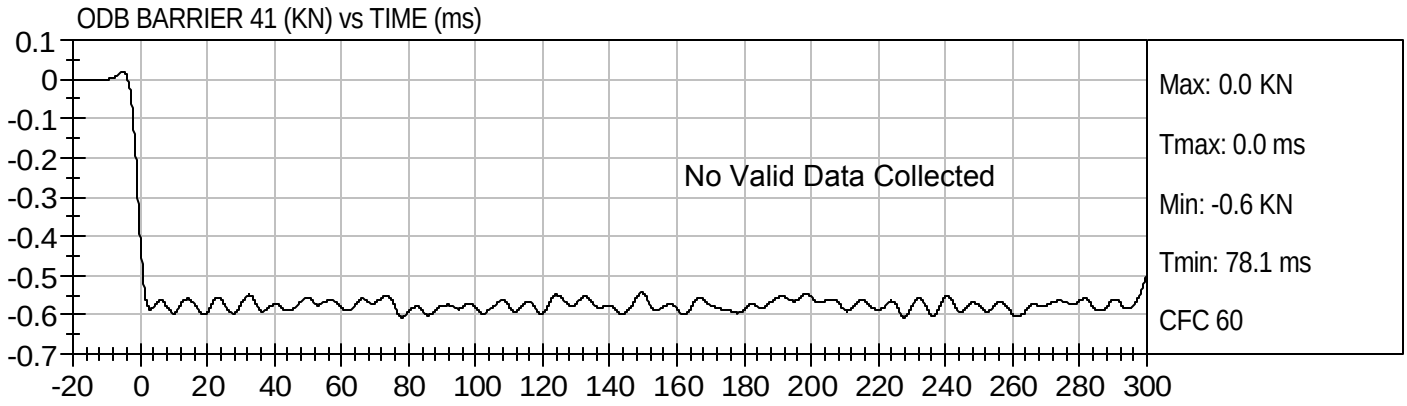


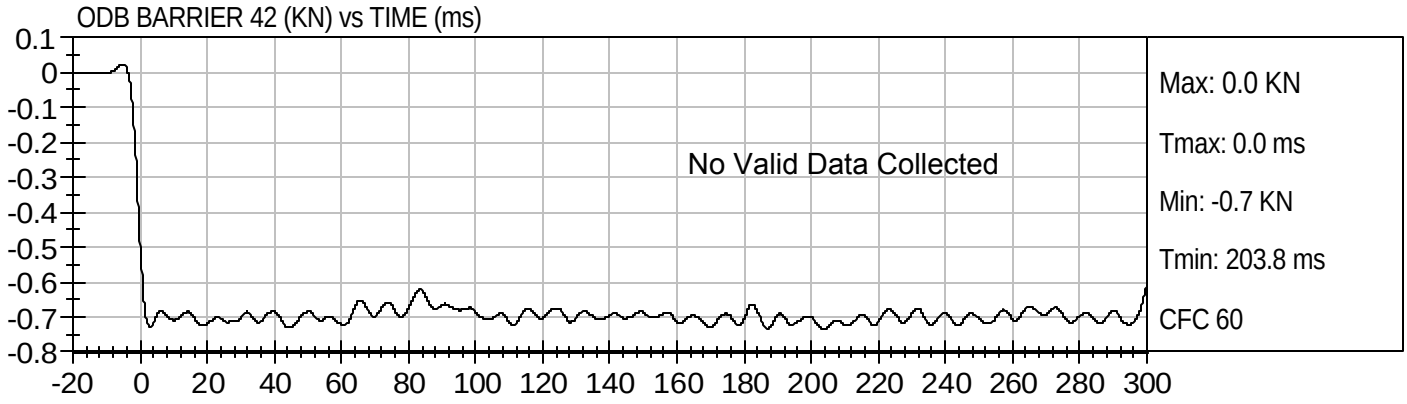


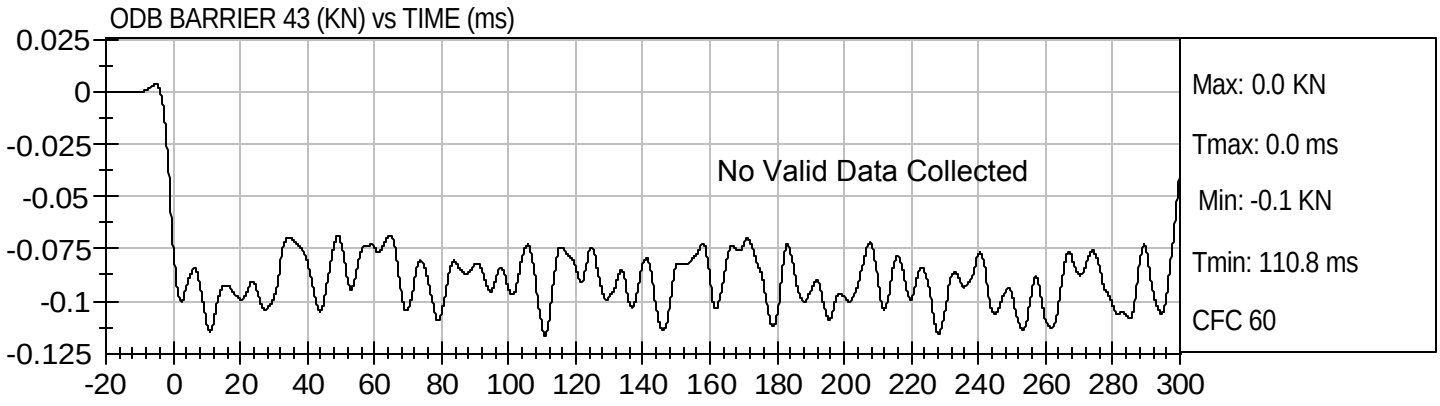


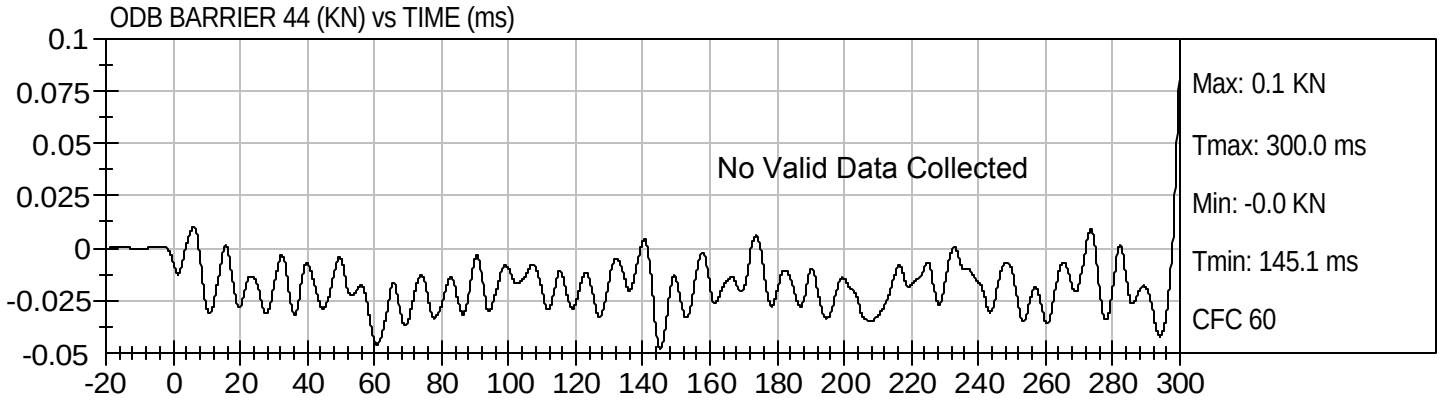
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



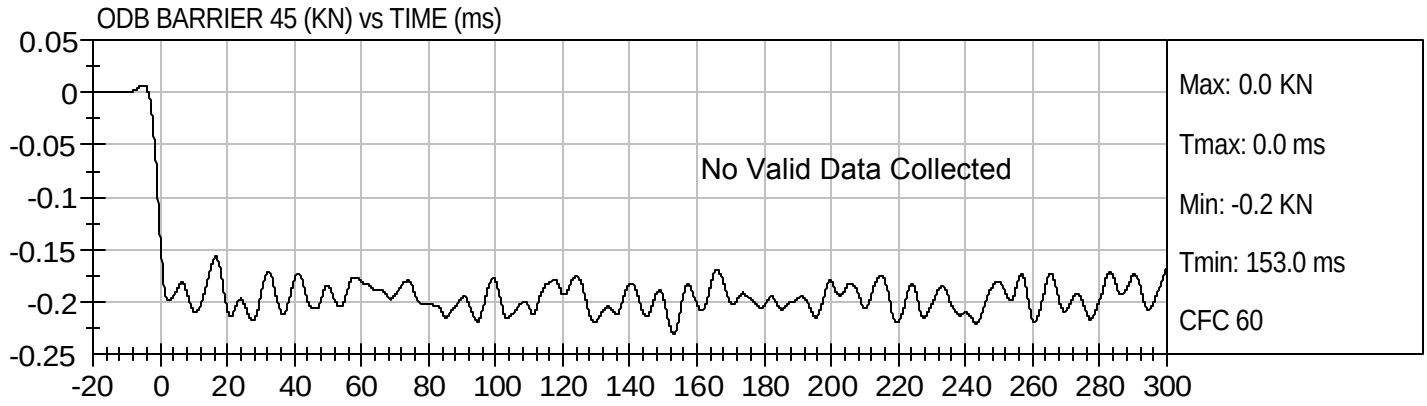


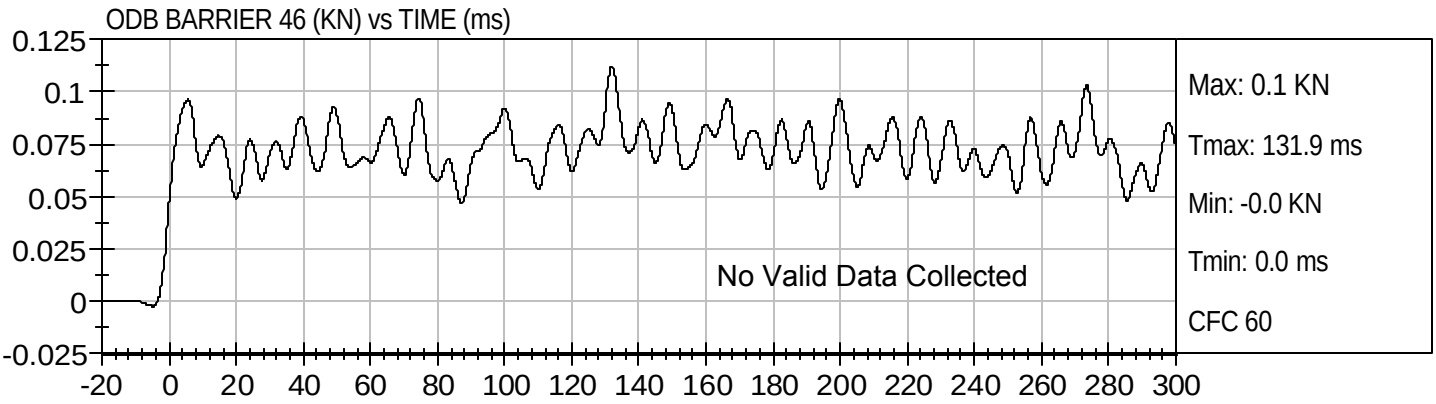


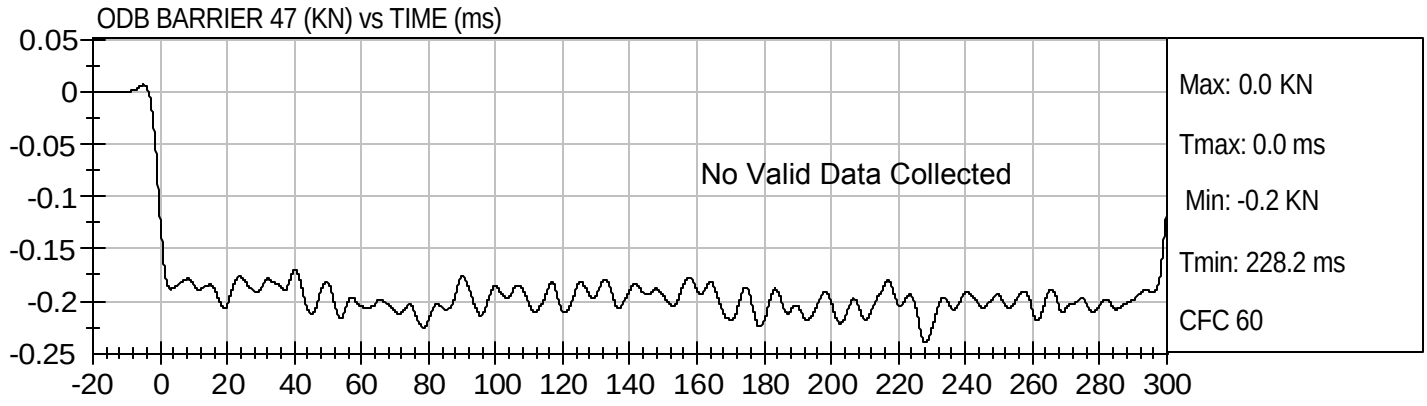


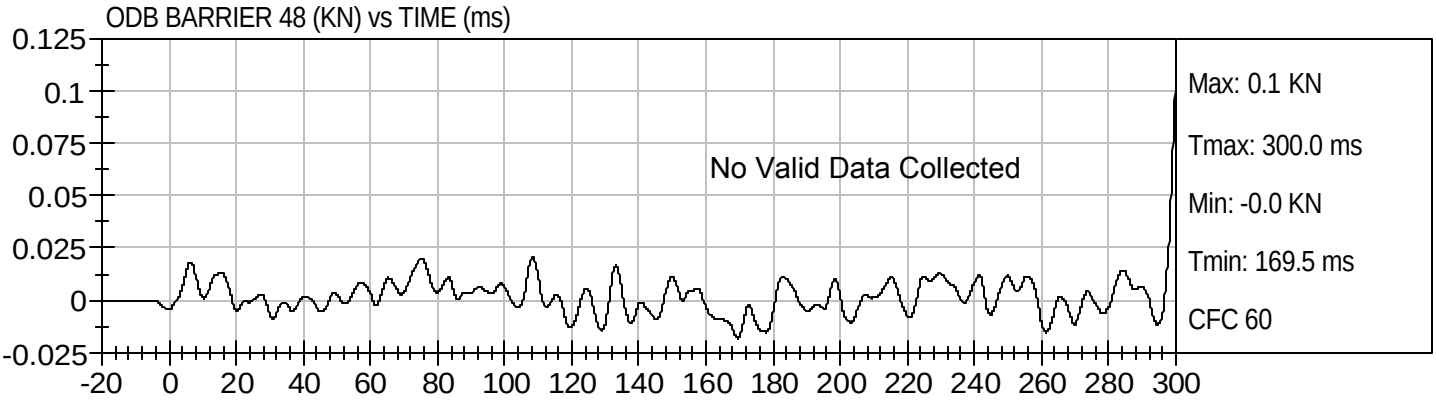
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



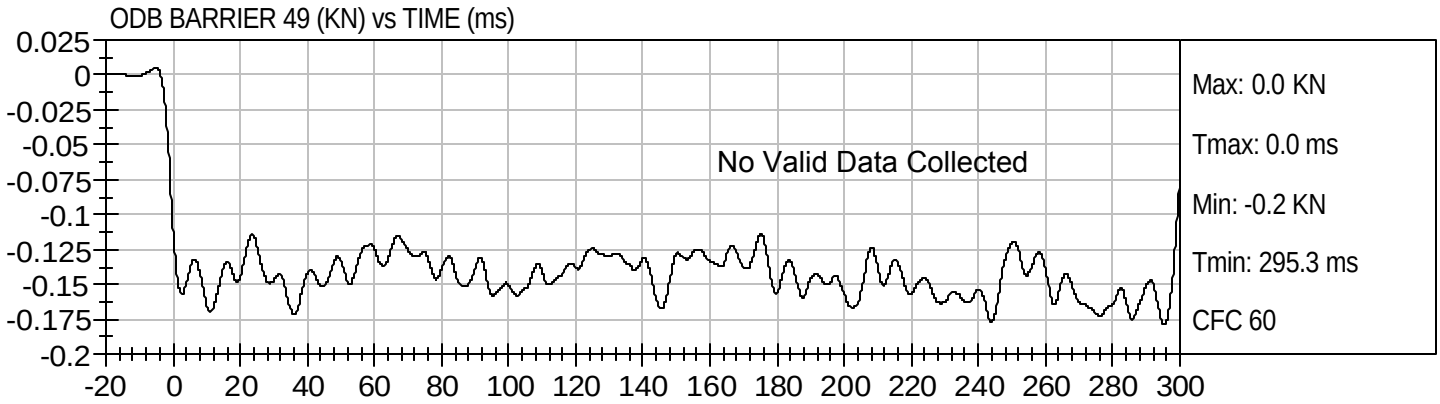


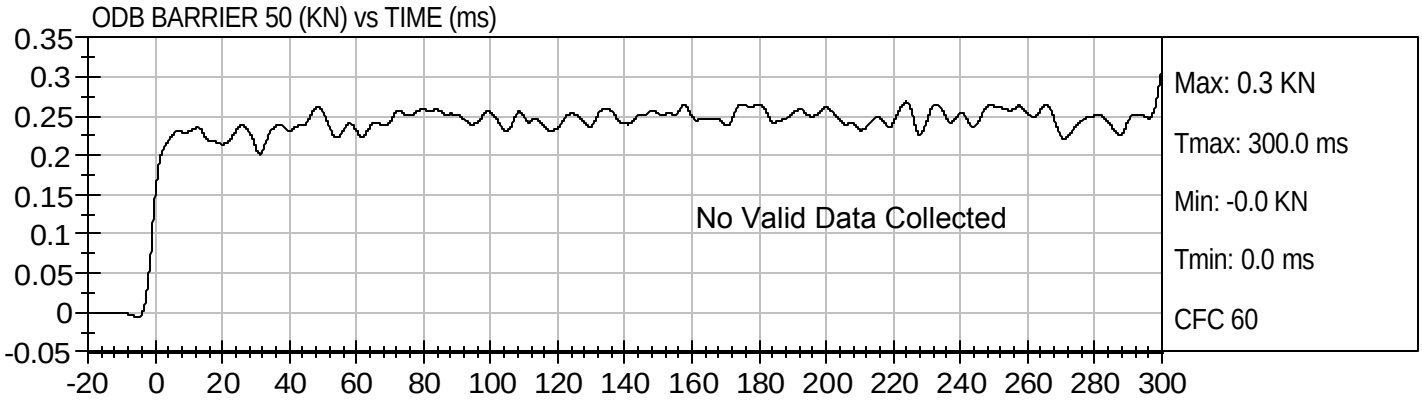


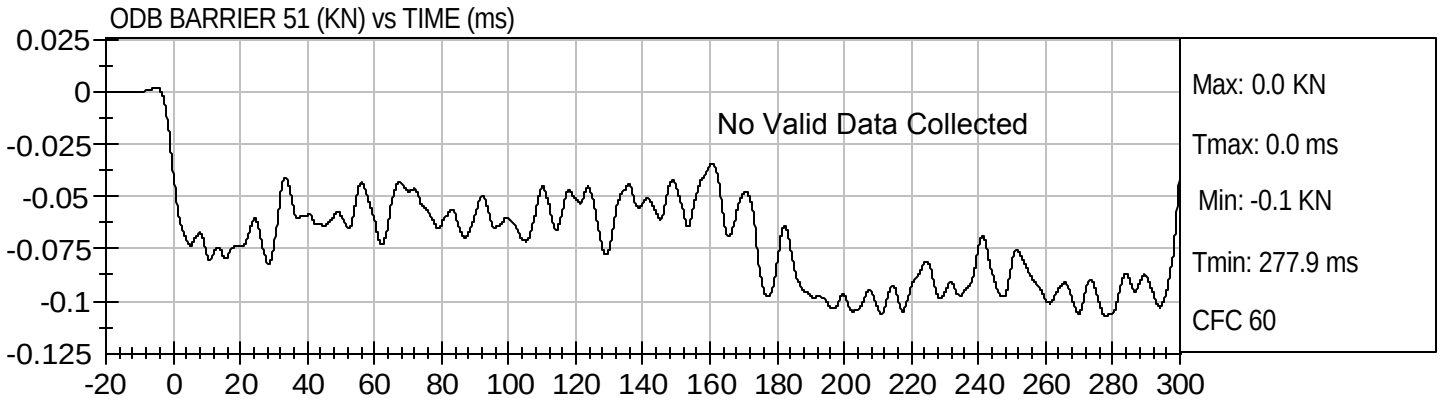


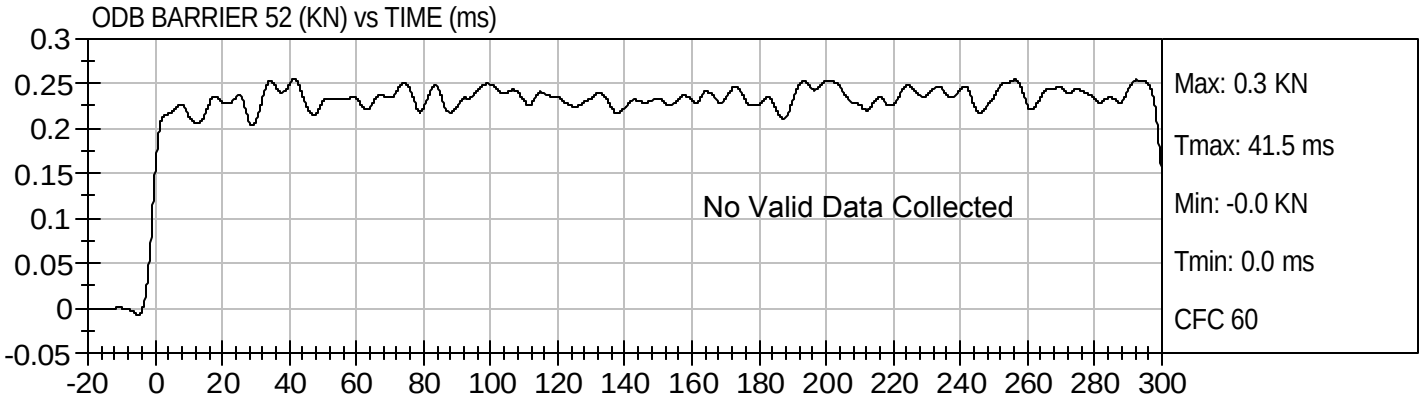
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



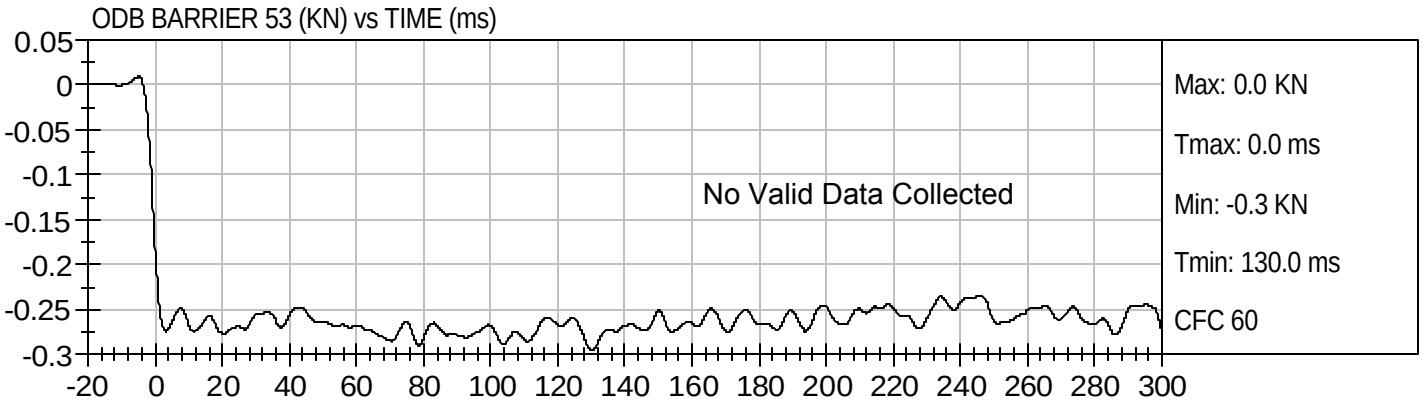


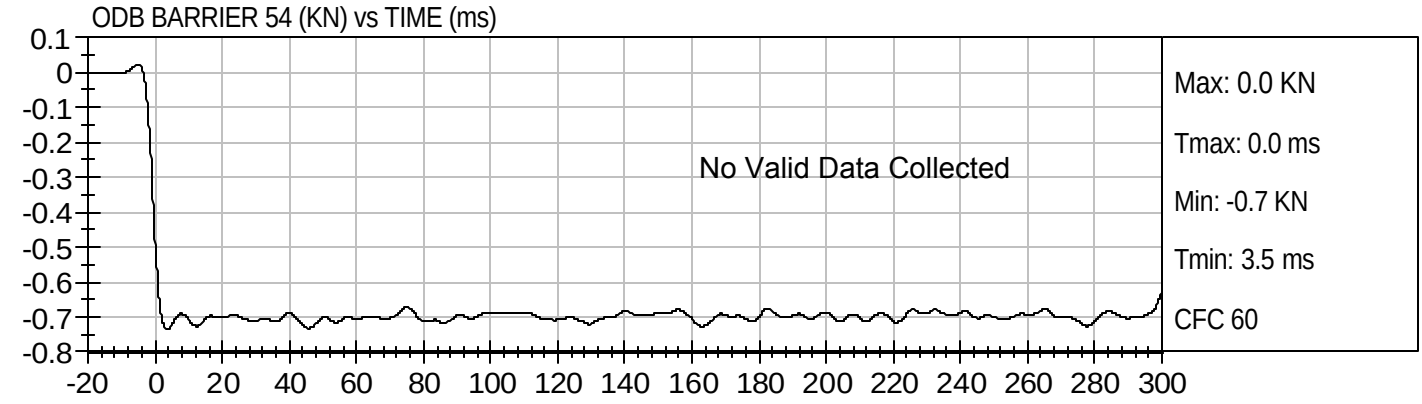


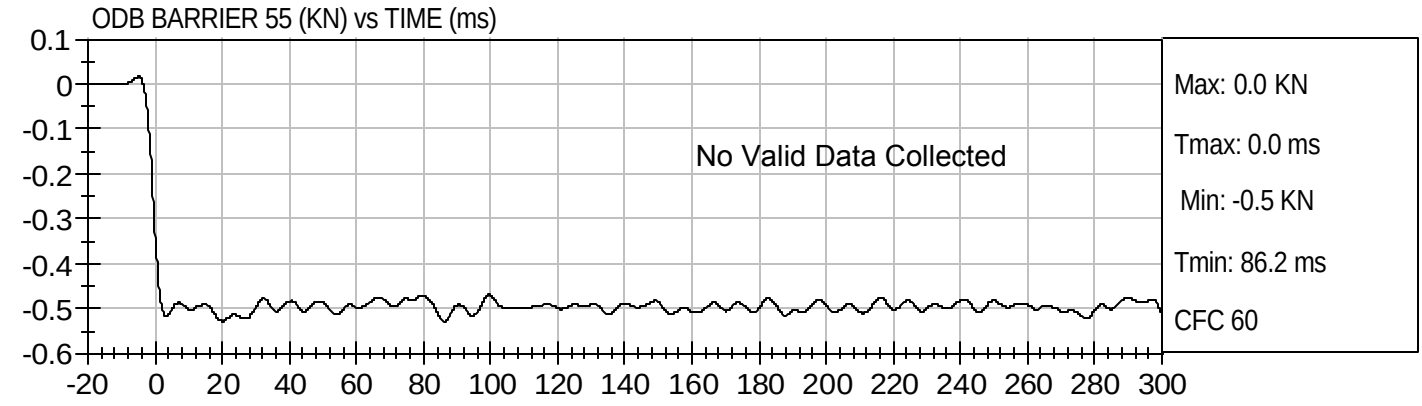


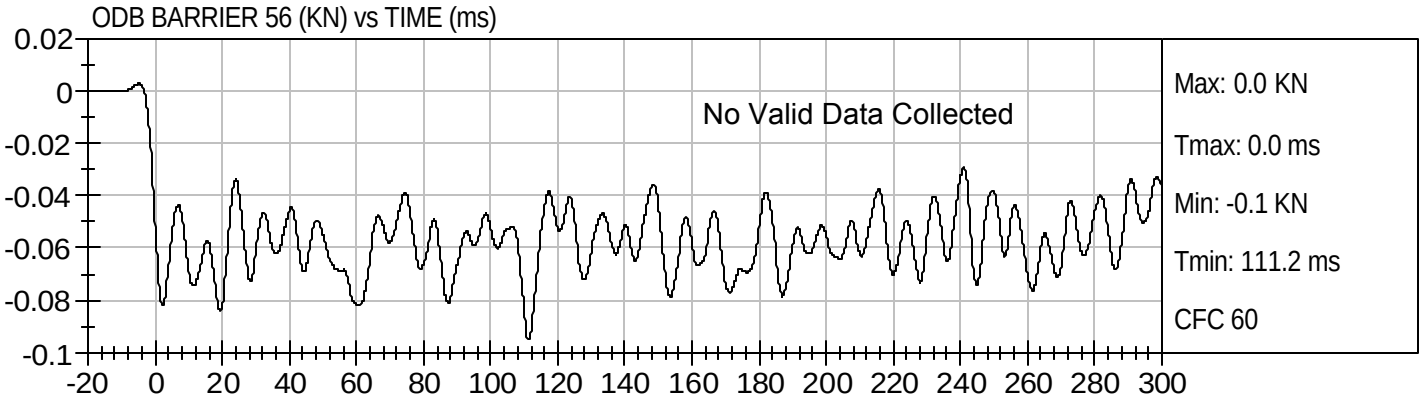
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



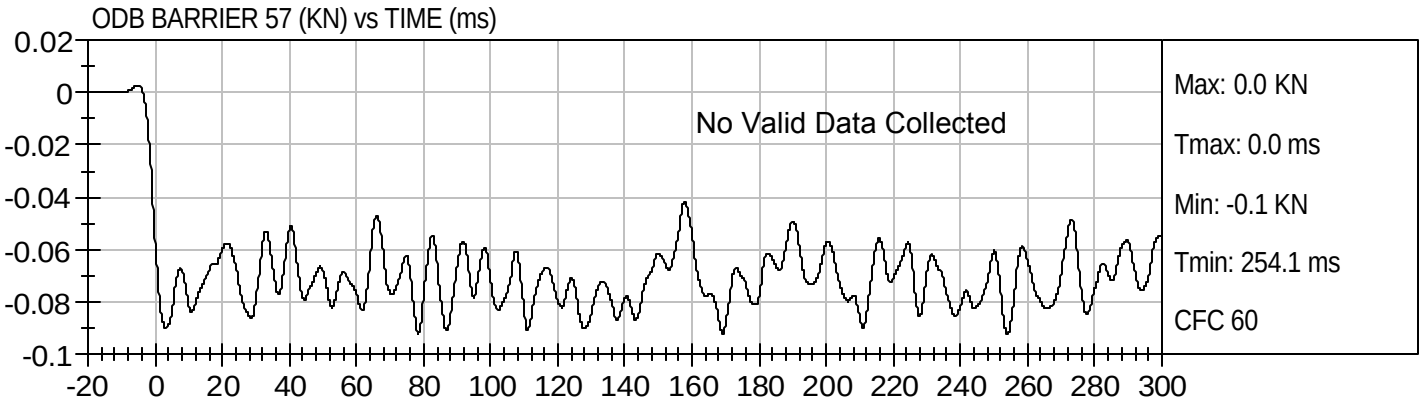


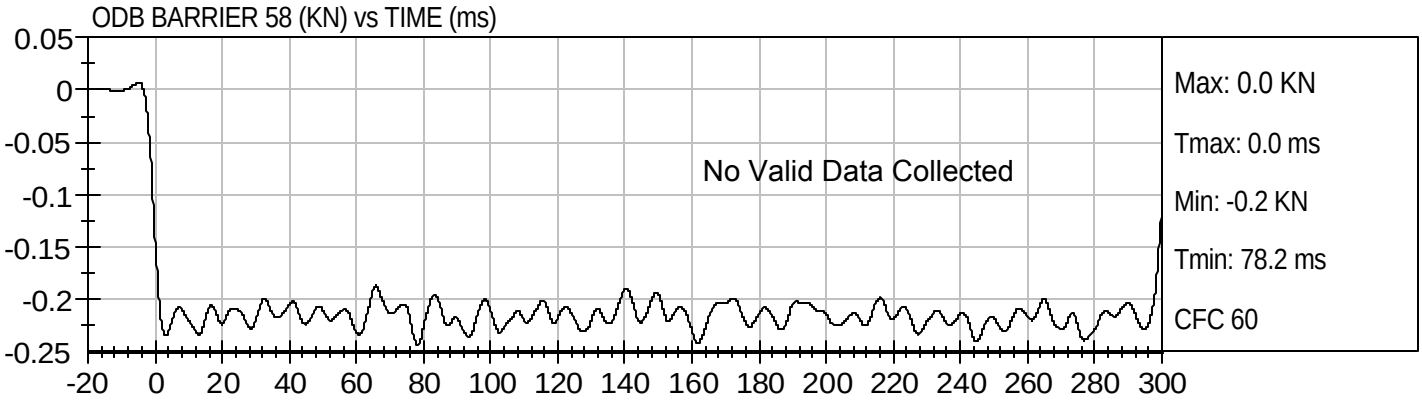


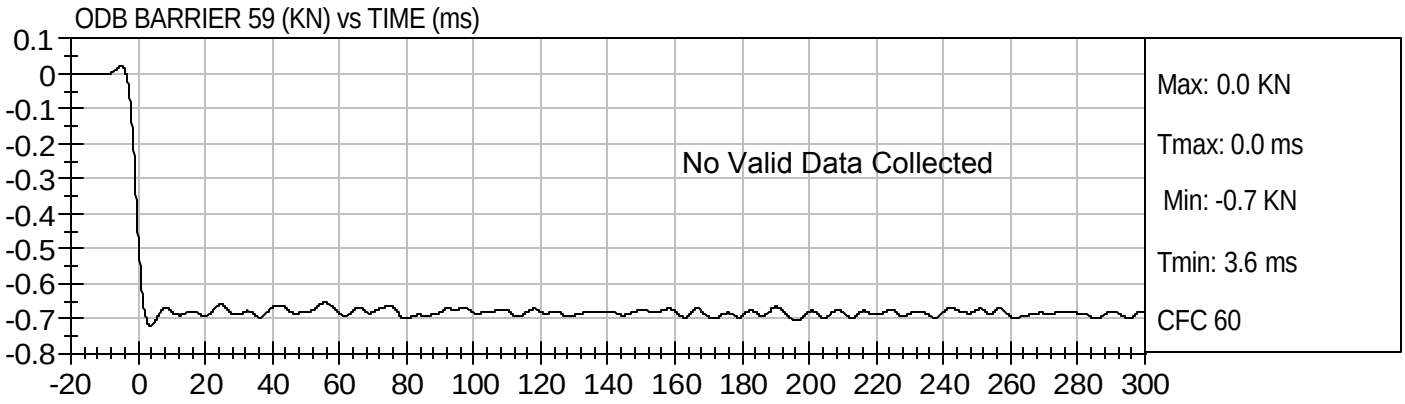


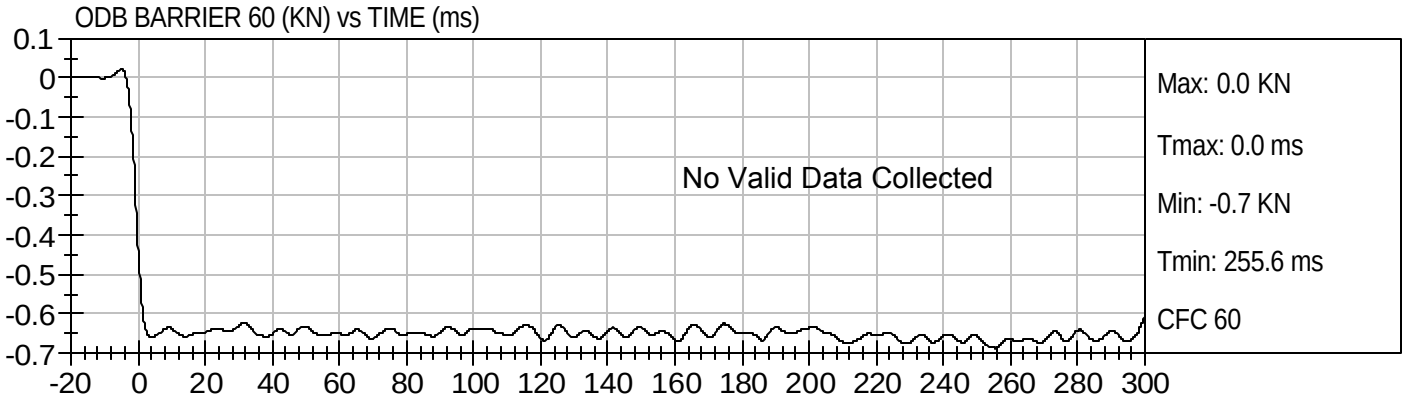
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



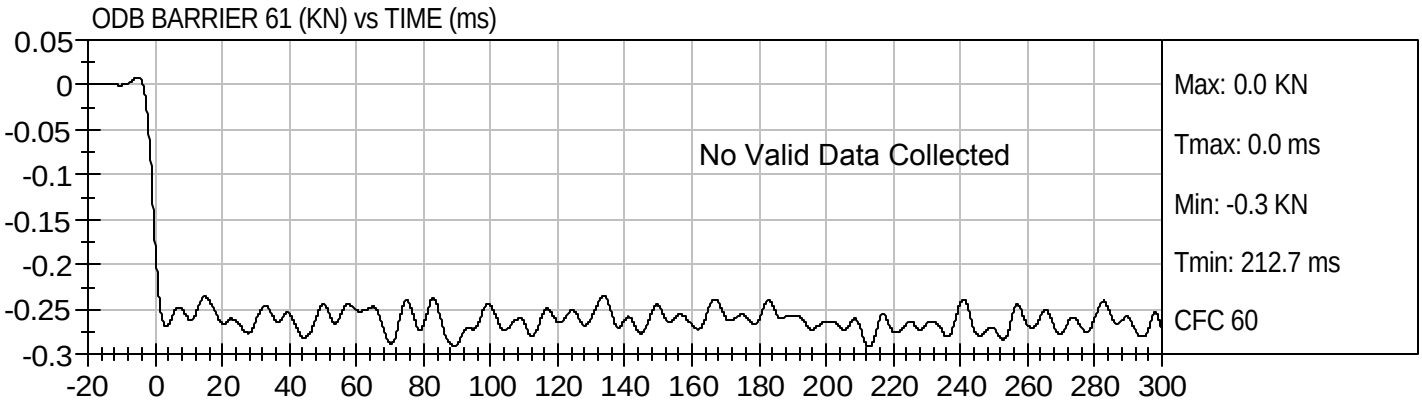


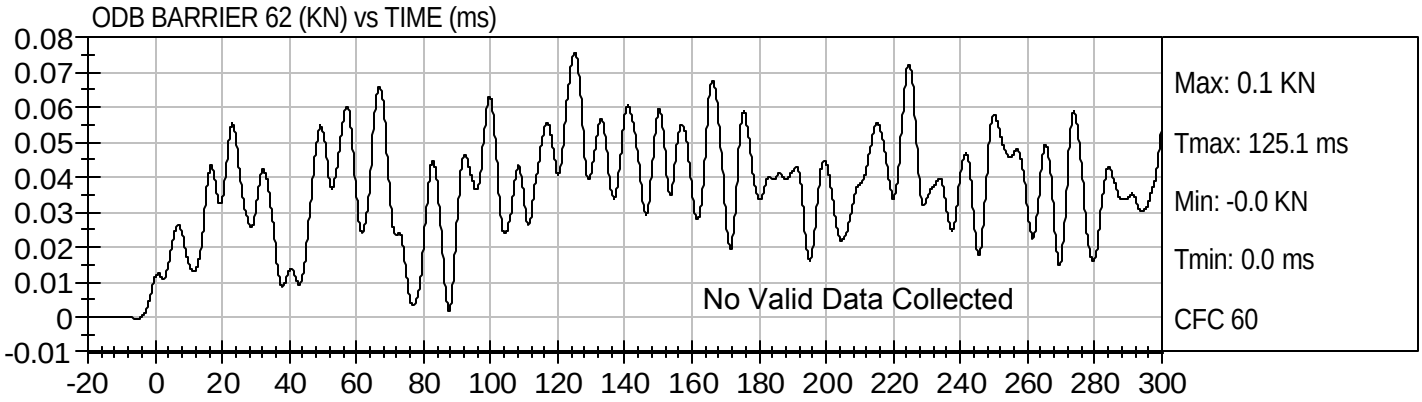


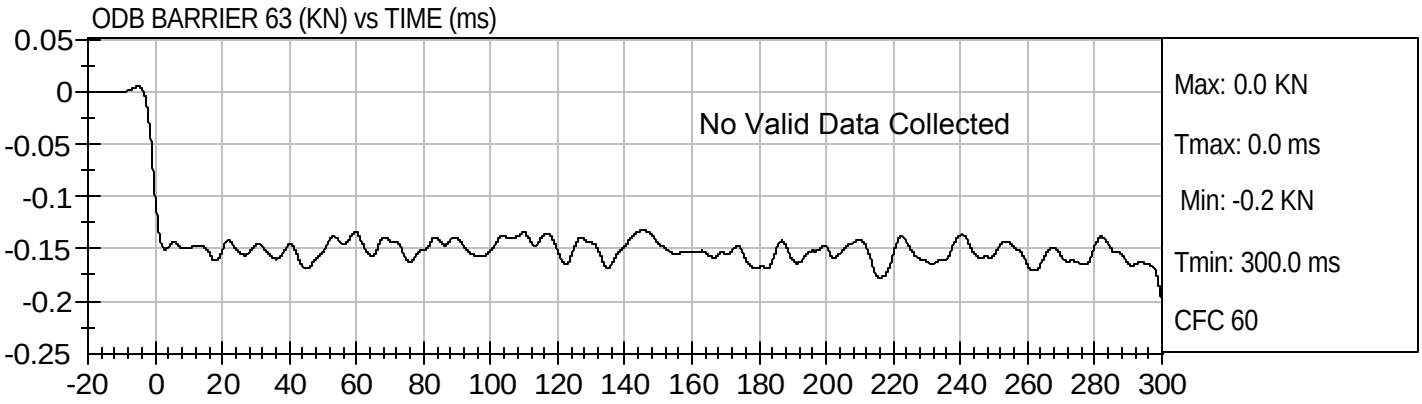


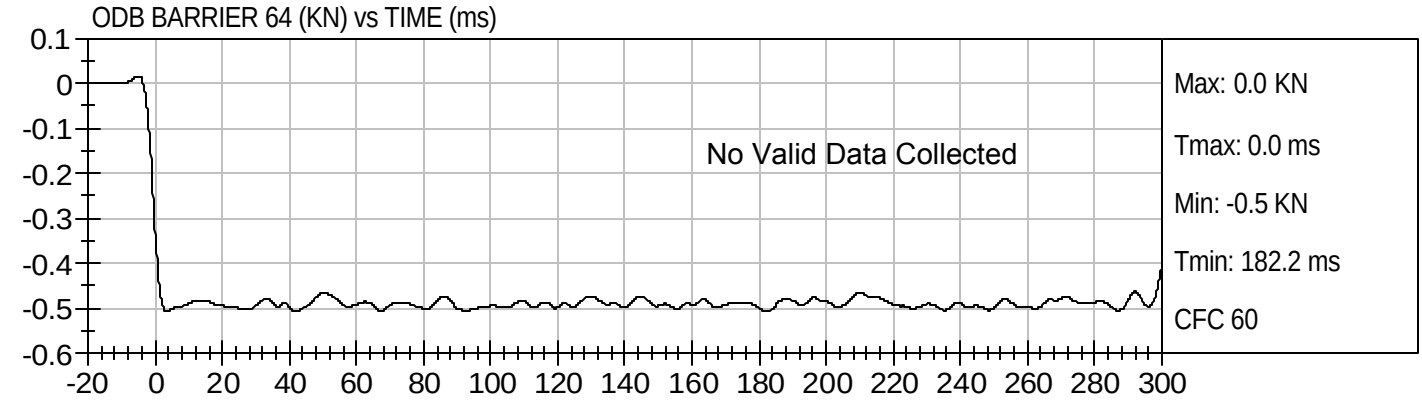
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



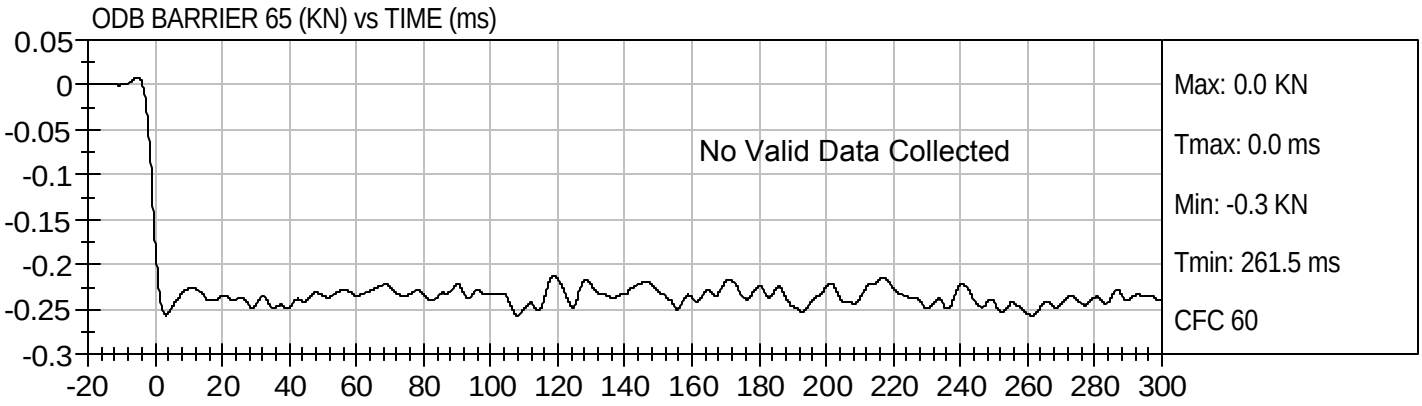


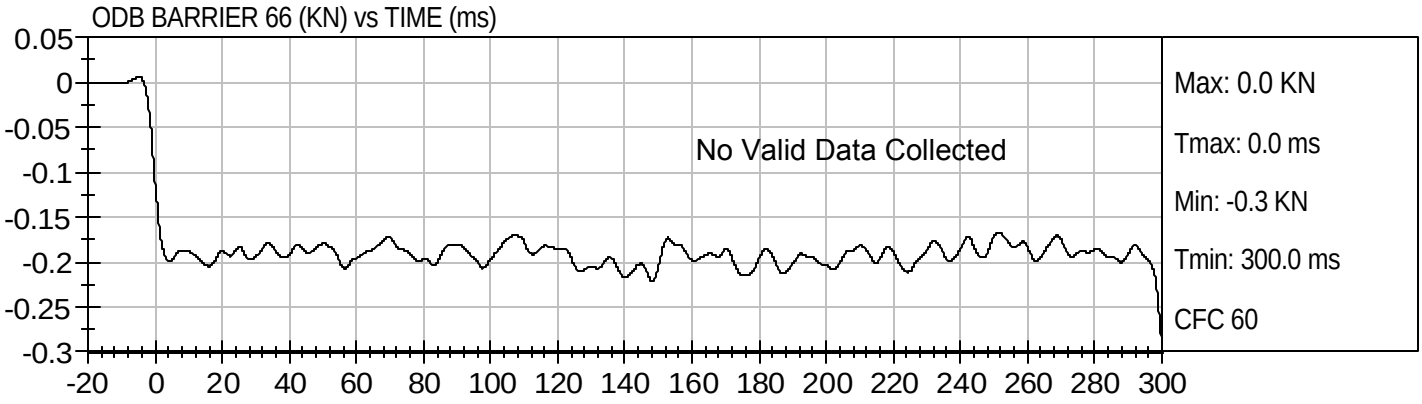


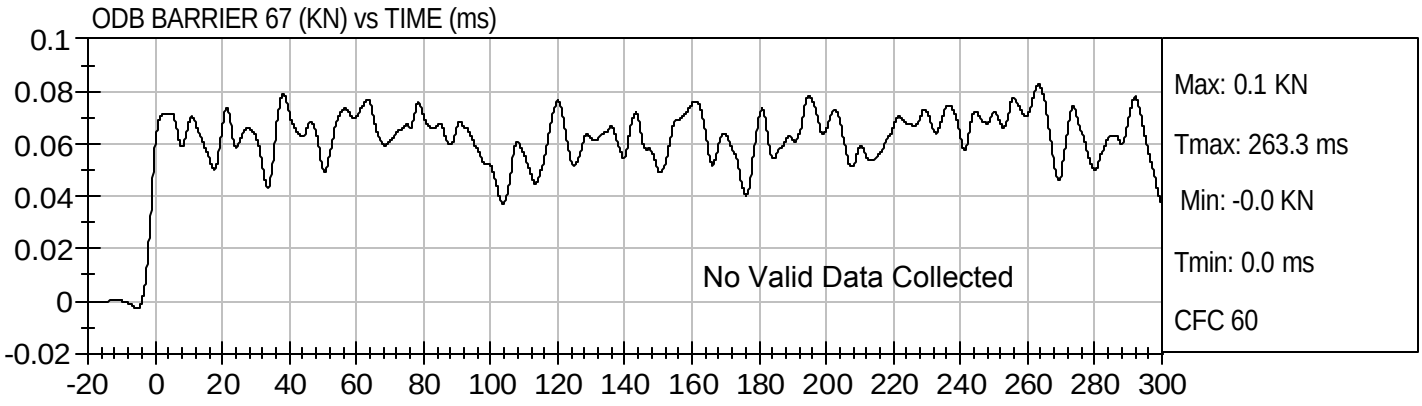


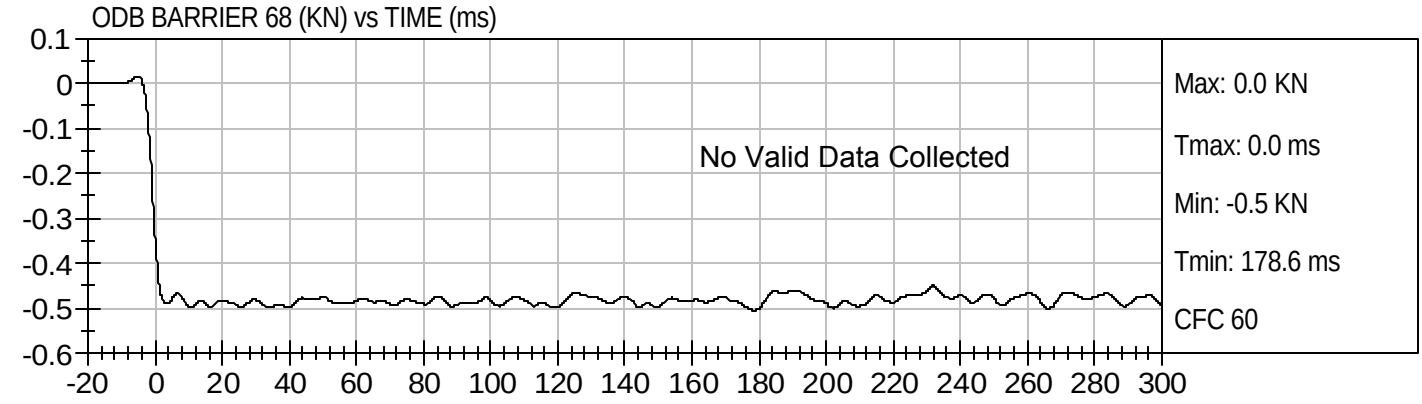
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



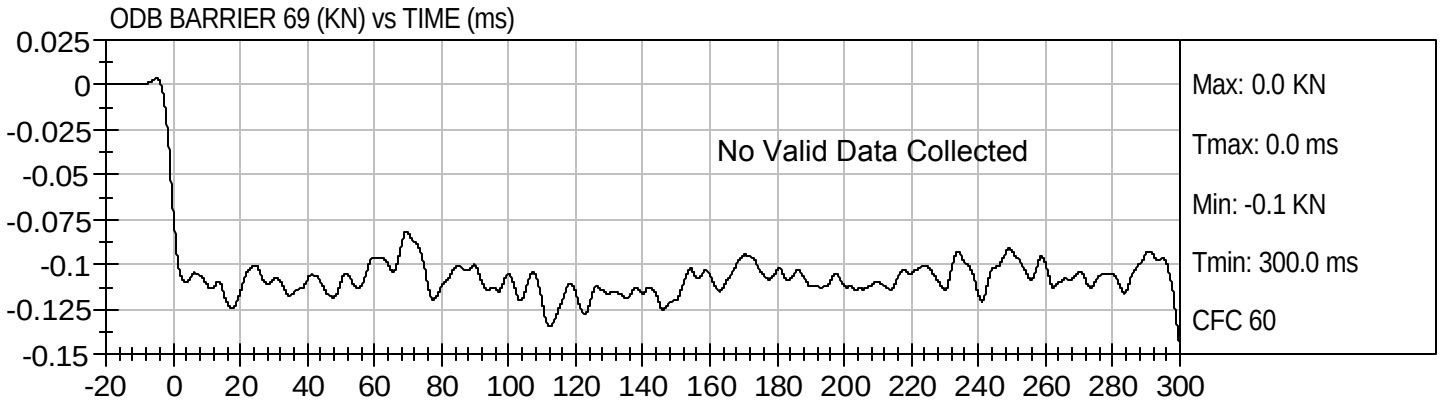


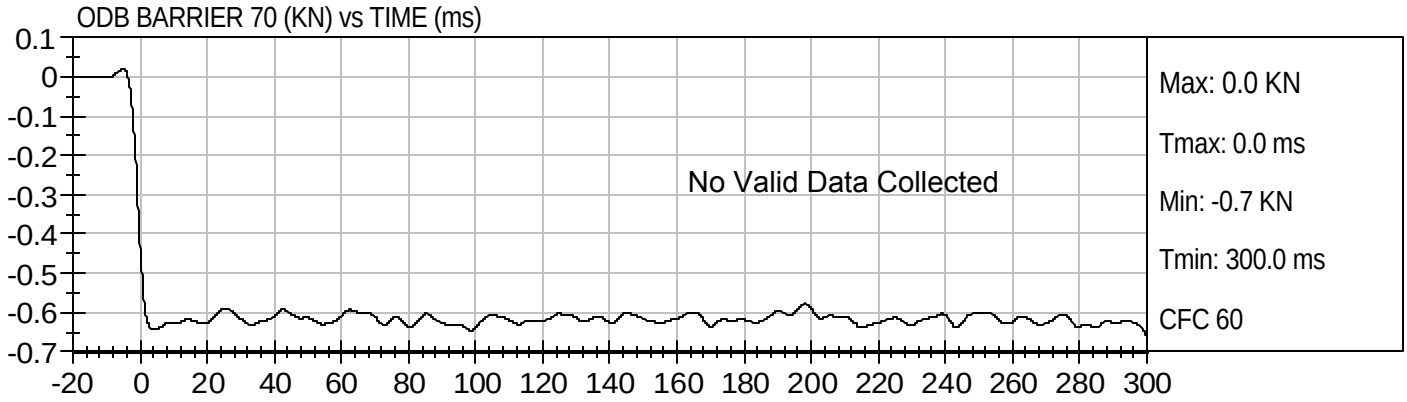


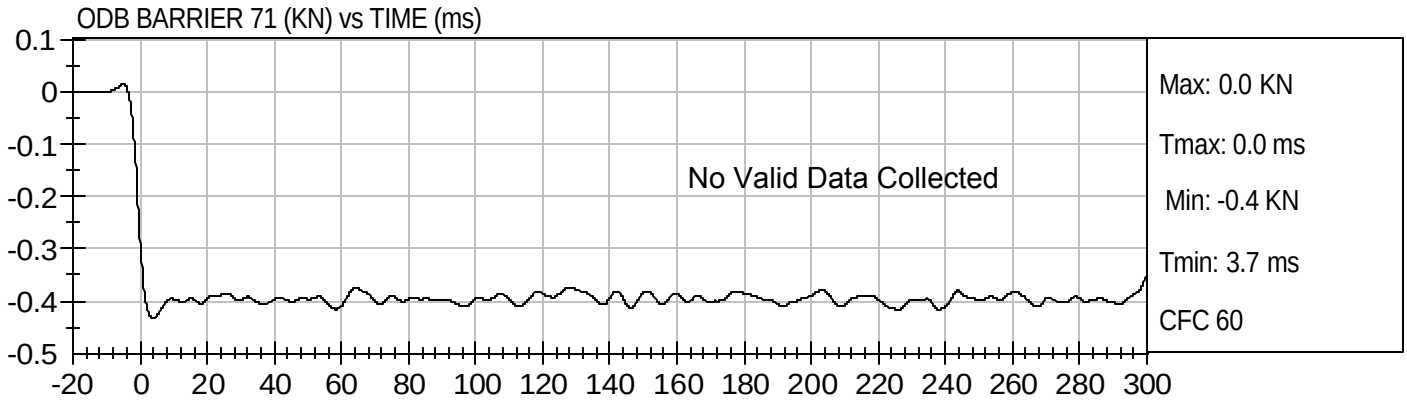


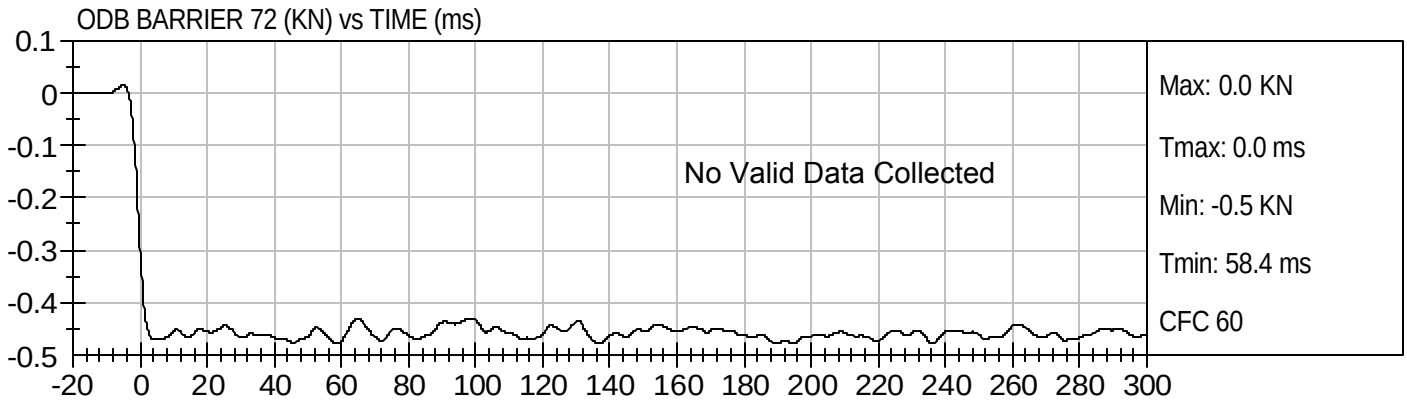
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



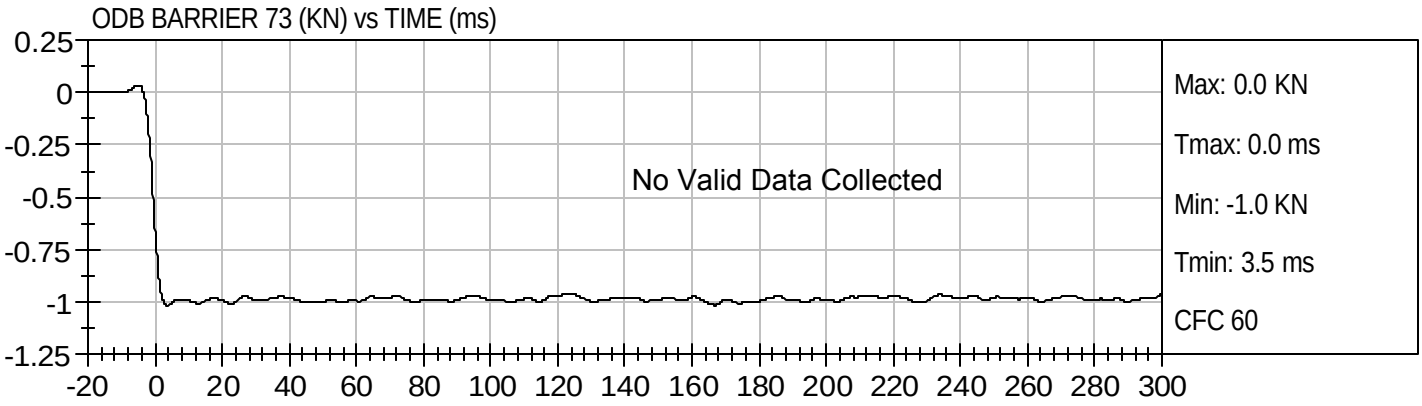


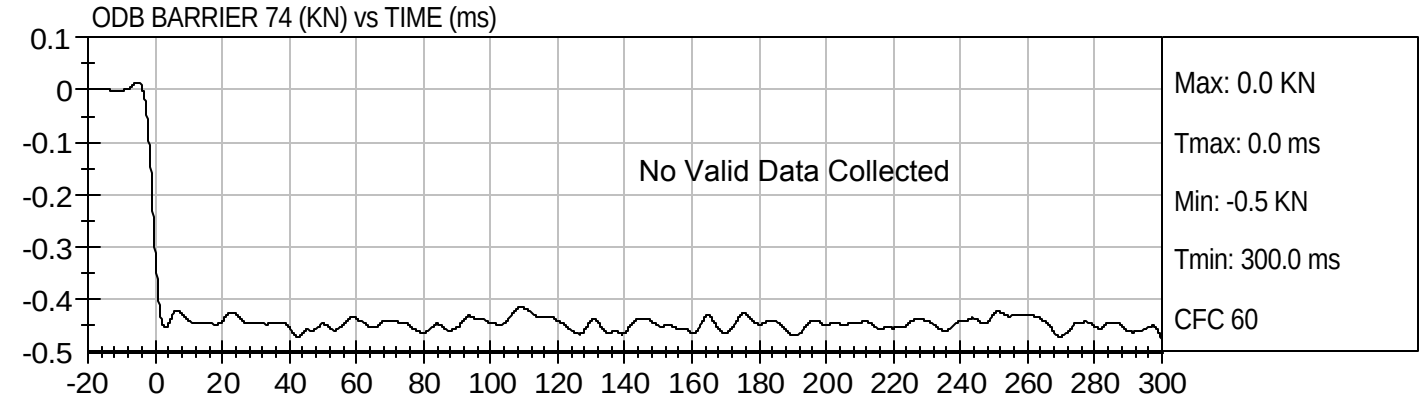


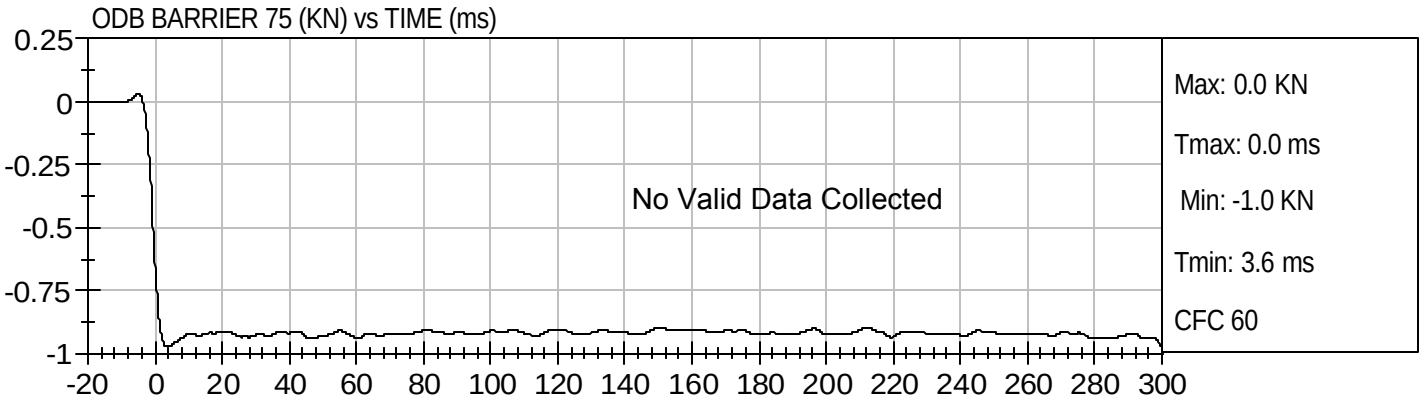


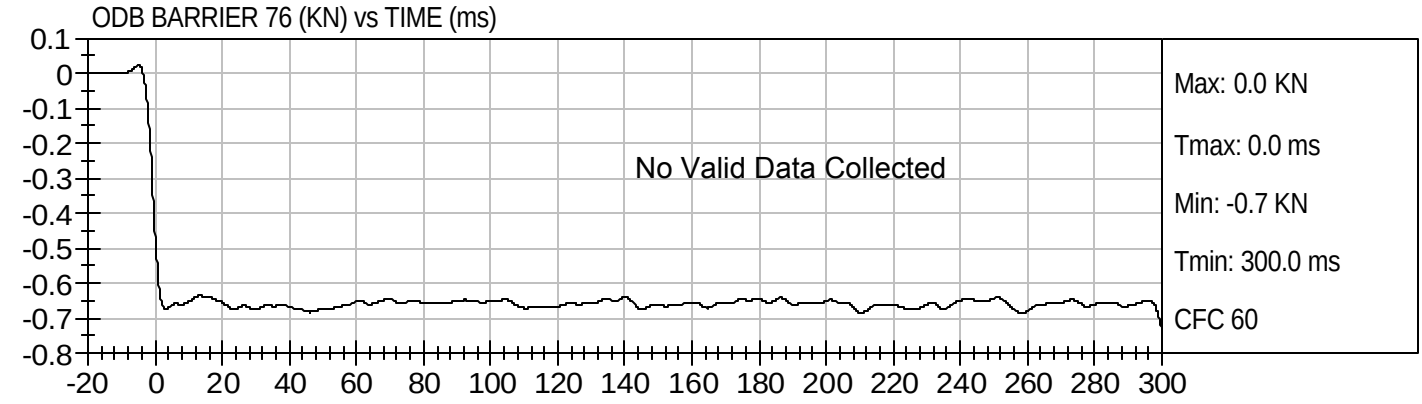
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



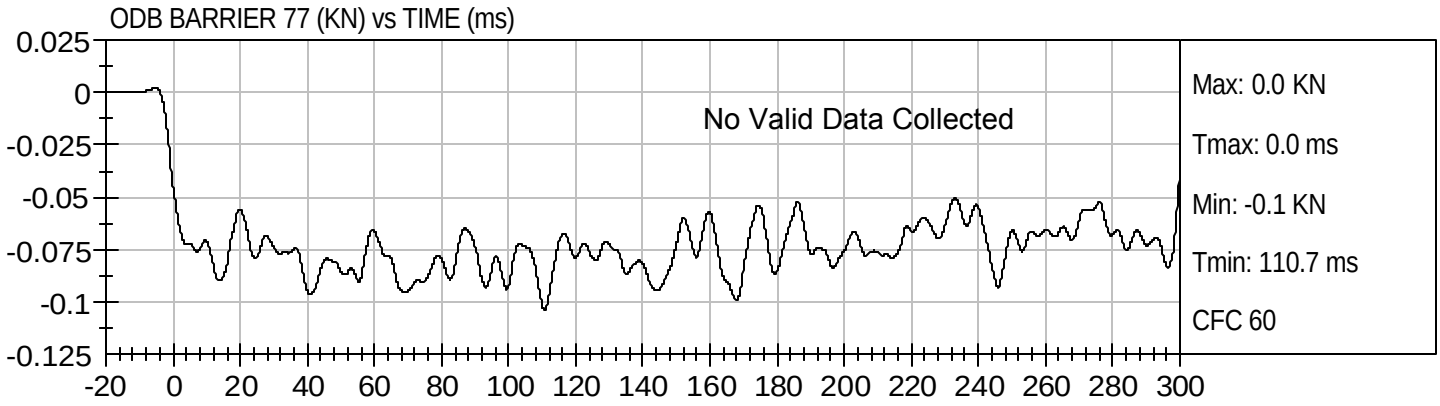


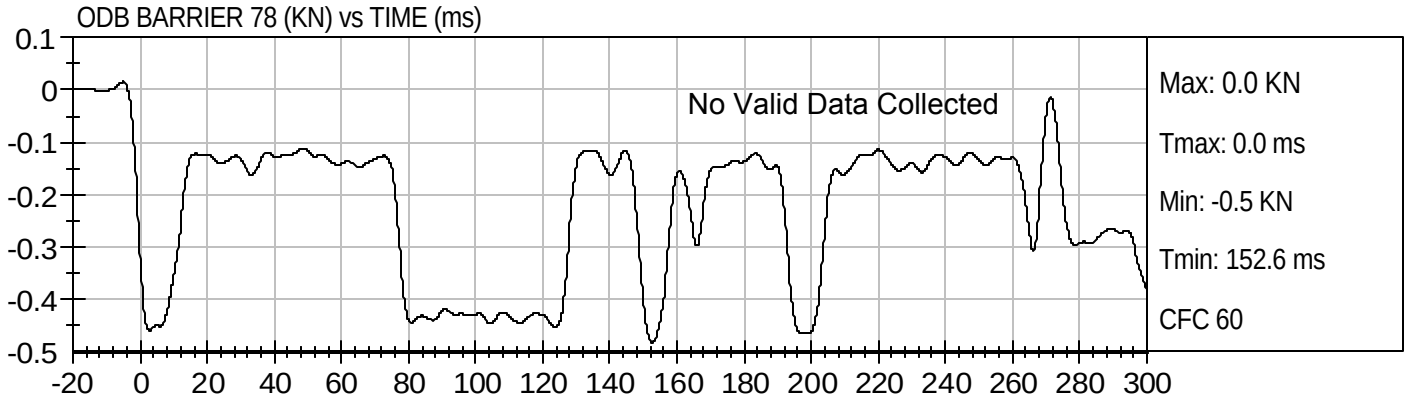


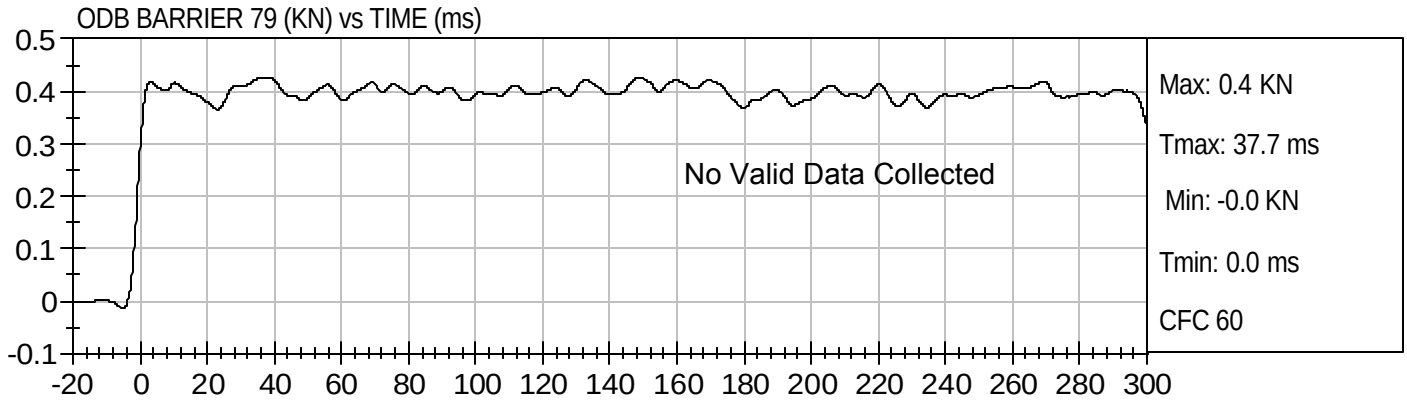


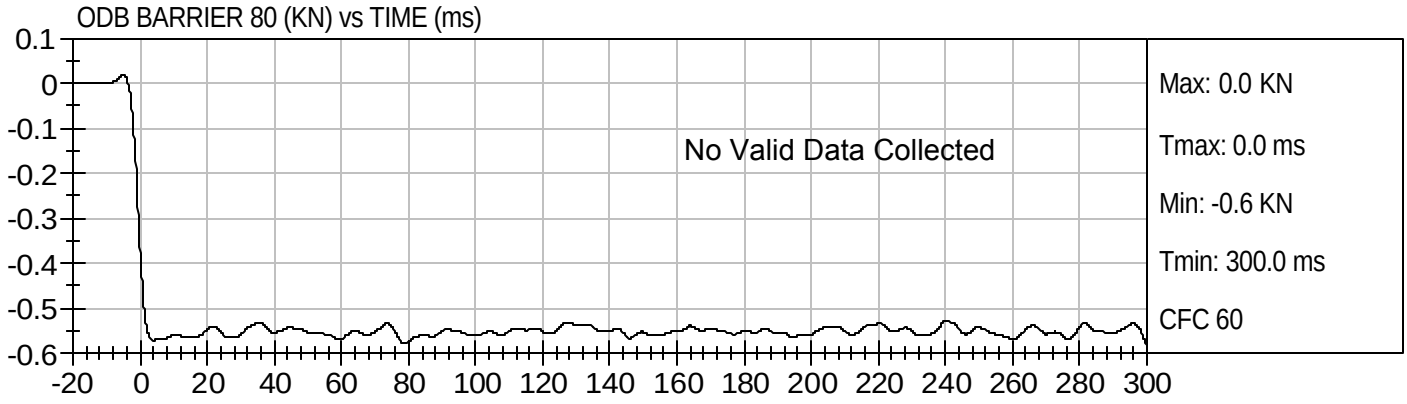
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



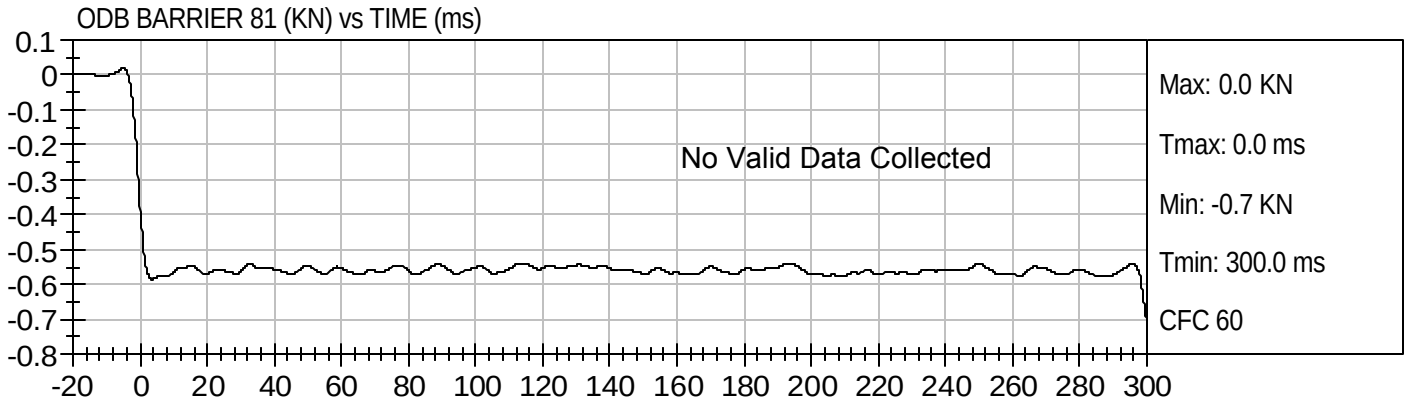


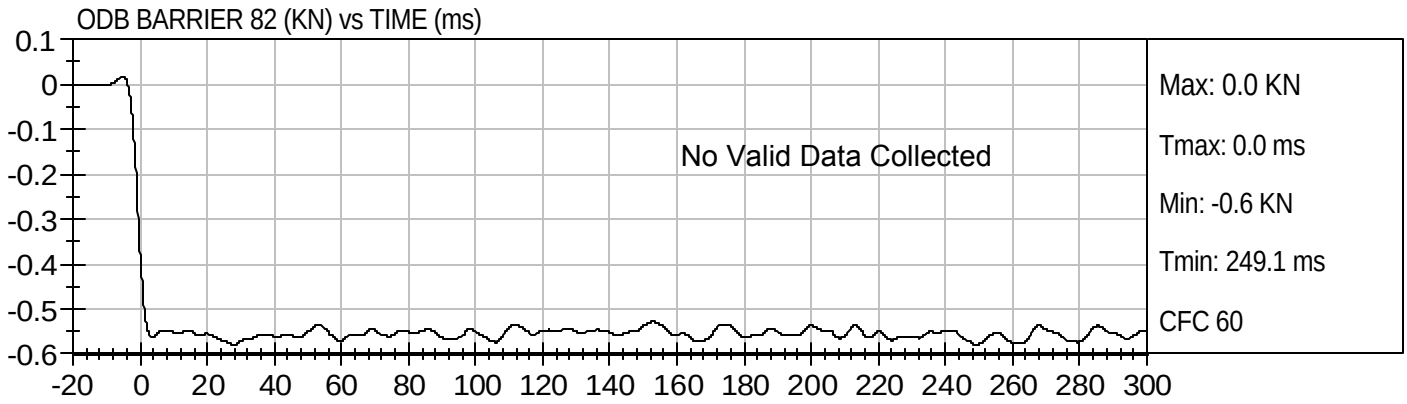


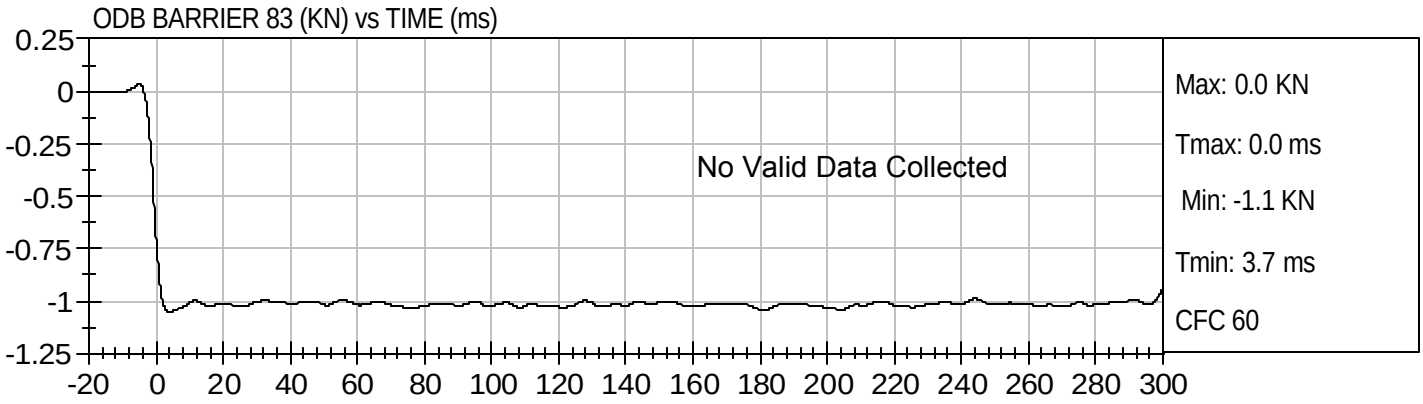


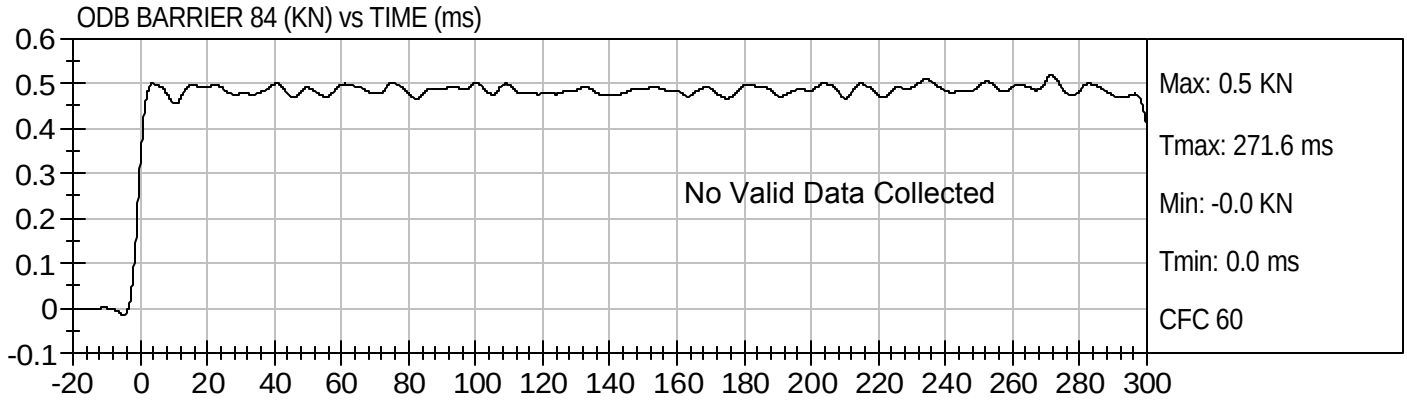
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



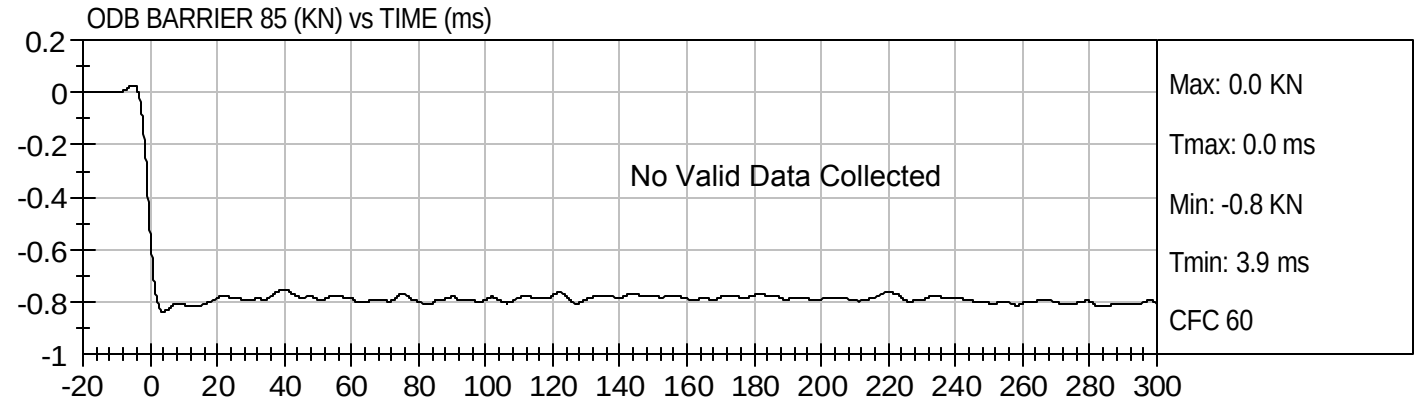


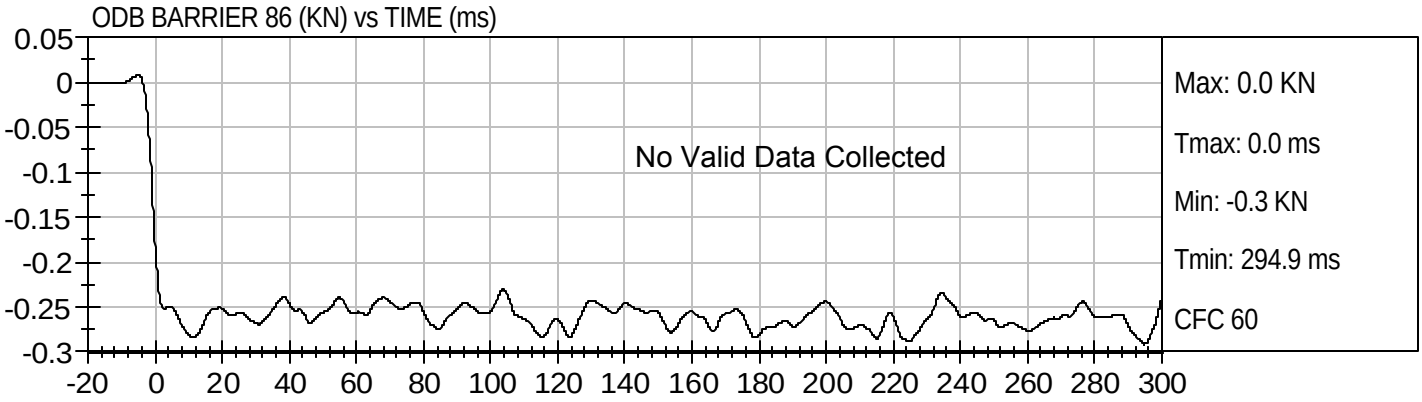


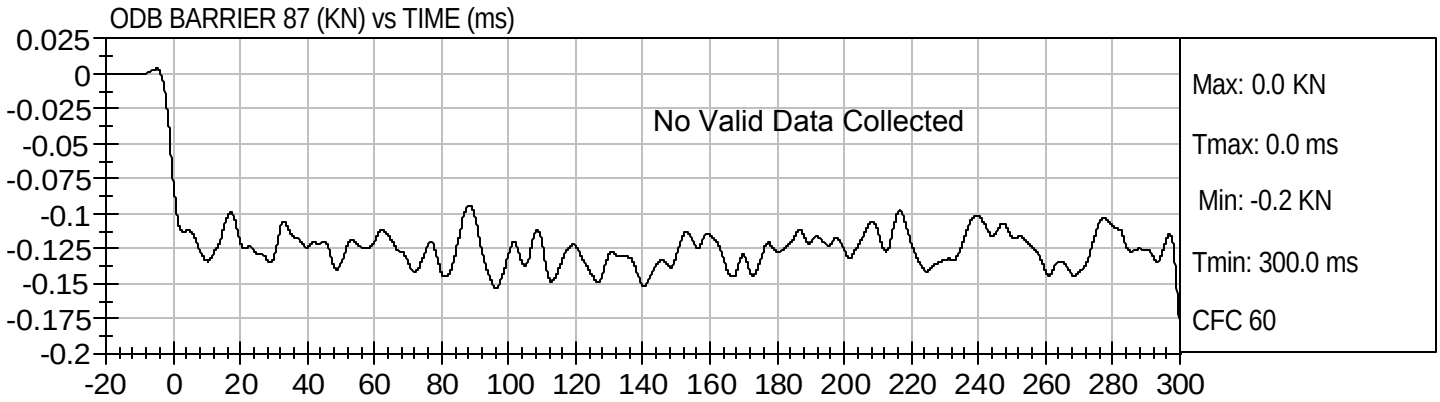


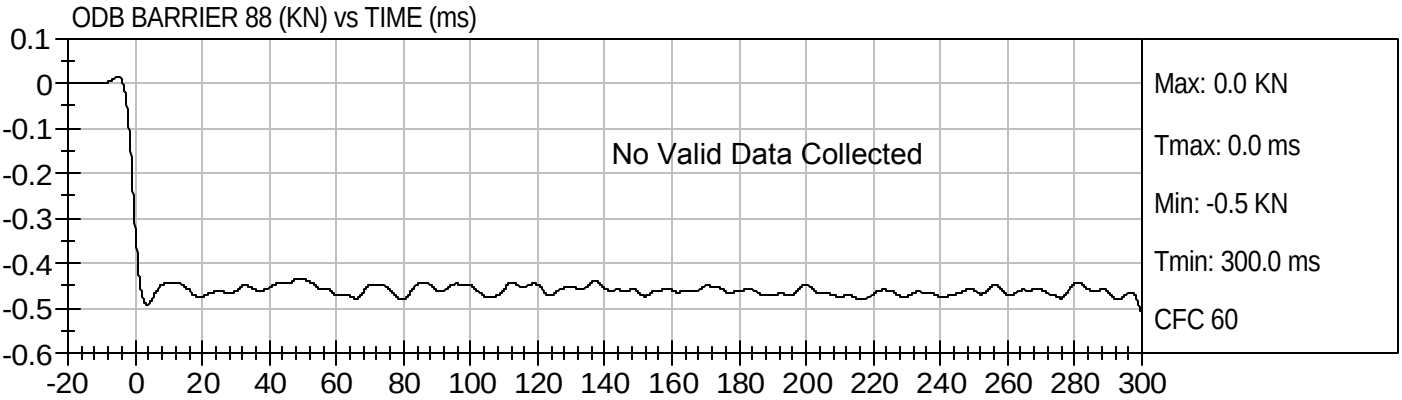
NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)



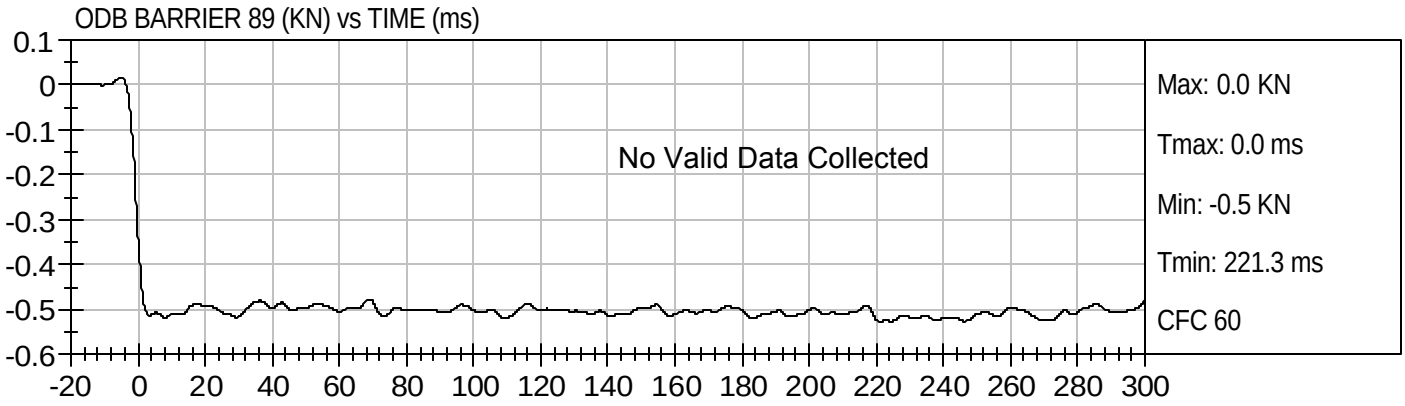


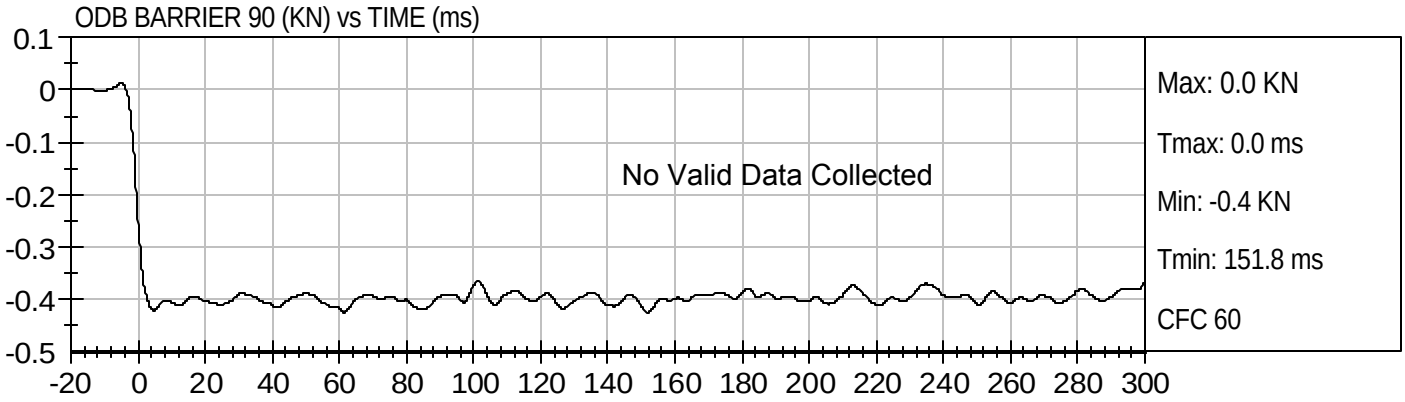




NHTSA 50% OFFSET PDB FRONTAL
2007 FORD 500 R70204

Test Date: 03/31/2008
Speed: 37.2 mph (59.9 km/h)





APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

MGA RESEARCH CORPORATION

HEAD DROP TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test ID:** D08481

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	17	Pass
Peak Resultant Acceleration	G's	225 - 275	256	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	2.8	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

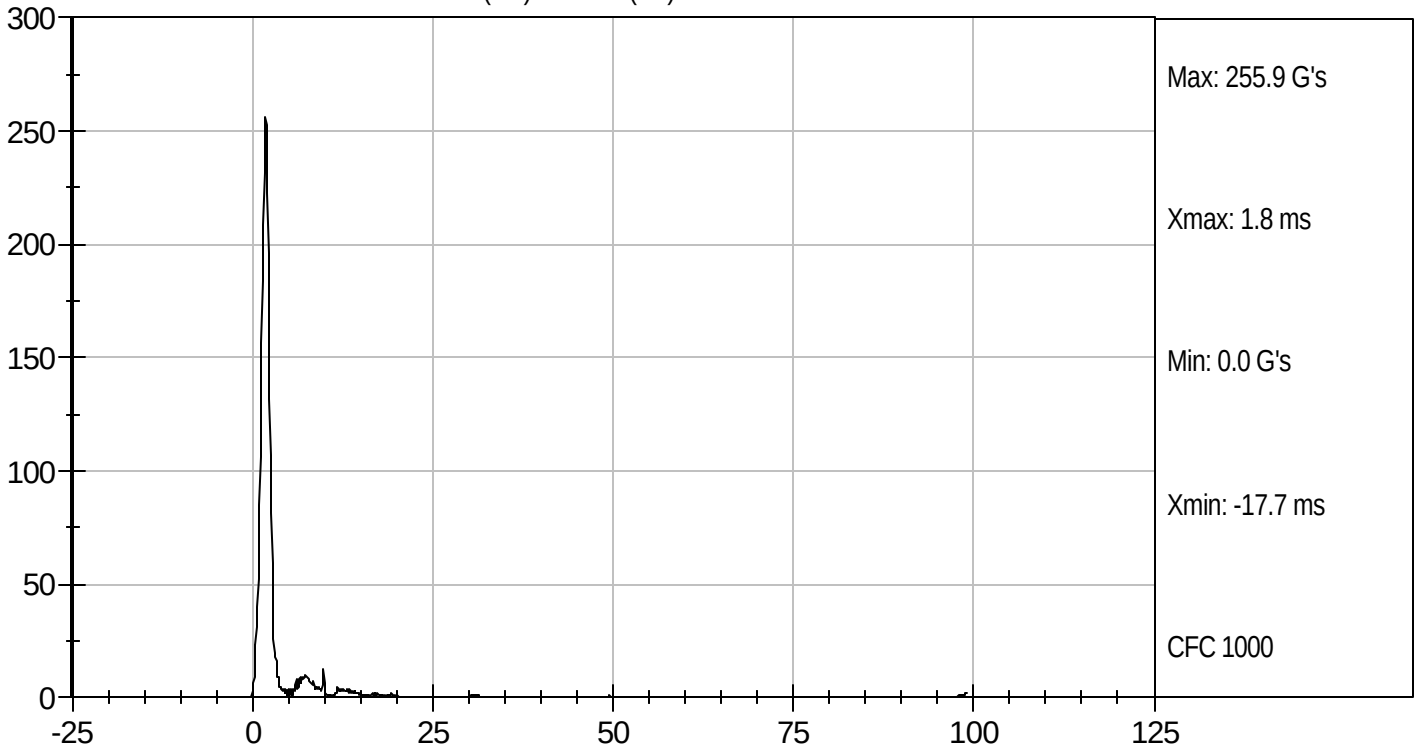
2/27/08
Test Date

David Winkelbauer
Approved By

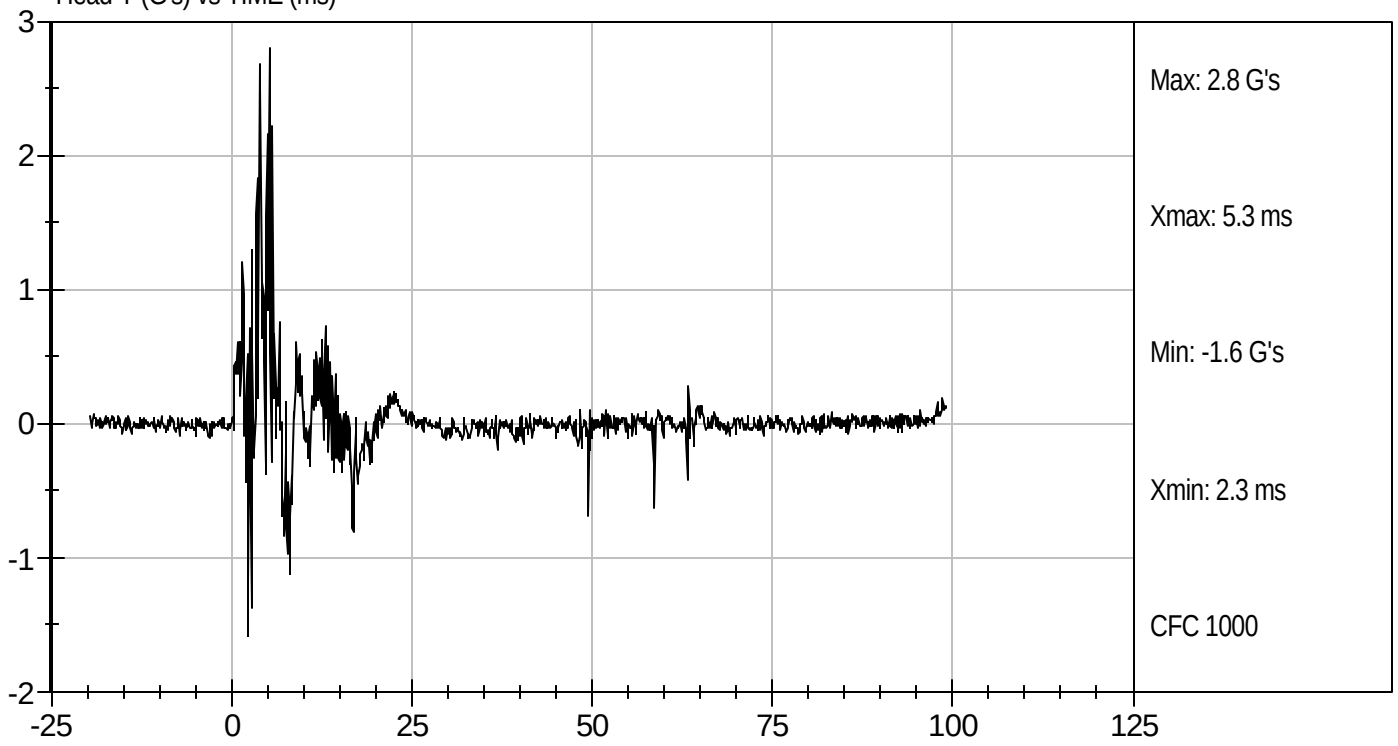
Test Desc: Head Drop
Component ID: D08481

Test Date: 2/27/08
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: 202 **Test I.D:** D08482

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	13	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.05	Pass
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	26.22	Pass
	20 msec	G's	17.60 to 22.60	20.16	Pass
	30 msec	G's	12.50 to 18.50	13.66	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 29.0	14.11	Pass
Deceleration Decay Time to Cross 5 G's		msec	34.0 to 42.0	37.0	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	72.4	Pass
	Time	msec	57.0 to 64.0	57.6	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	113.0 to 128.0	114.8	Pass
Moment About Occipital Condyle	Maximum	N m	88.1 to 108.5	96.0	Pass
	Time	msec	47.0 to 58.0	50.4	Pass
Positive Moment Decay Time To Zero Crossing		msec	97.0 to 107.0	97.6	Pass
			Overall Test Results		Pass

Laboratory Technician

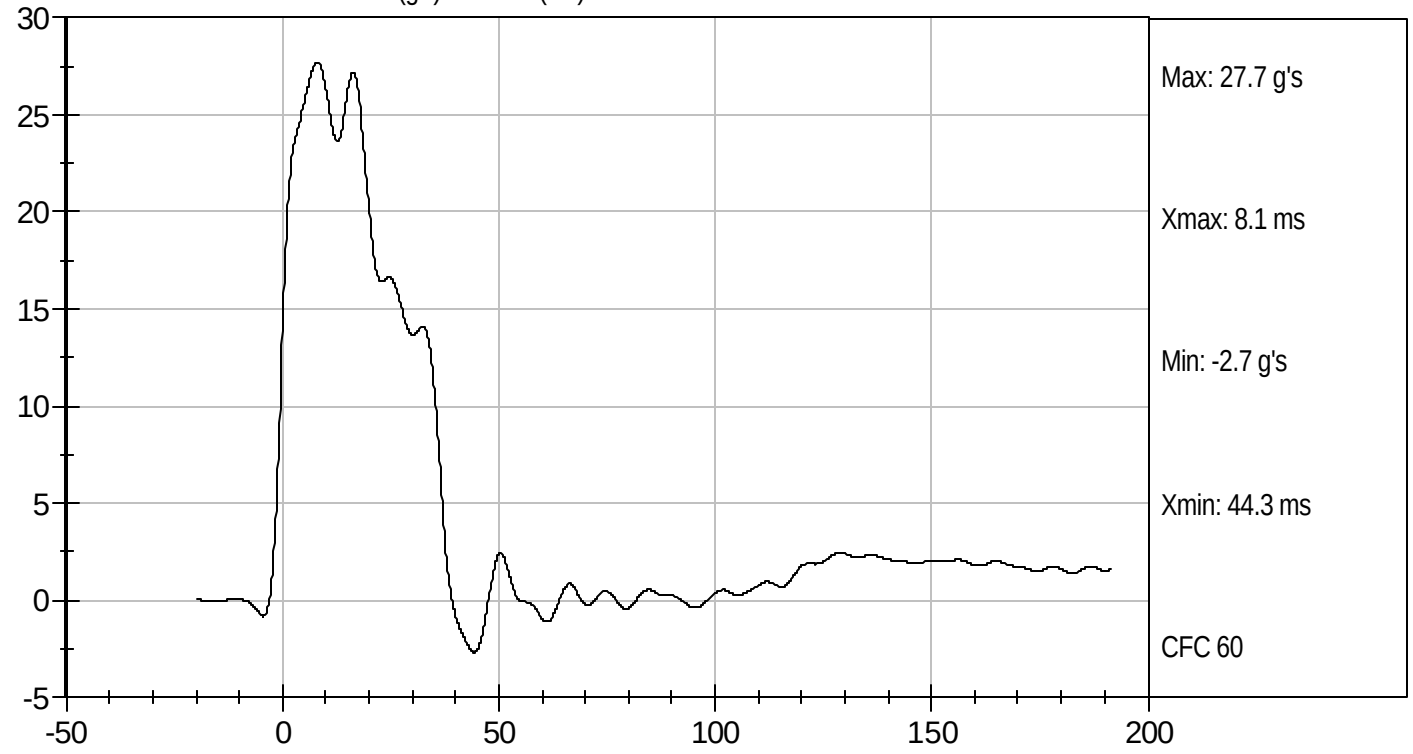
2/28/08
Test Date

Approved By

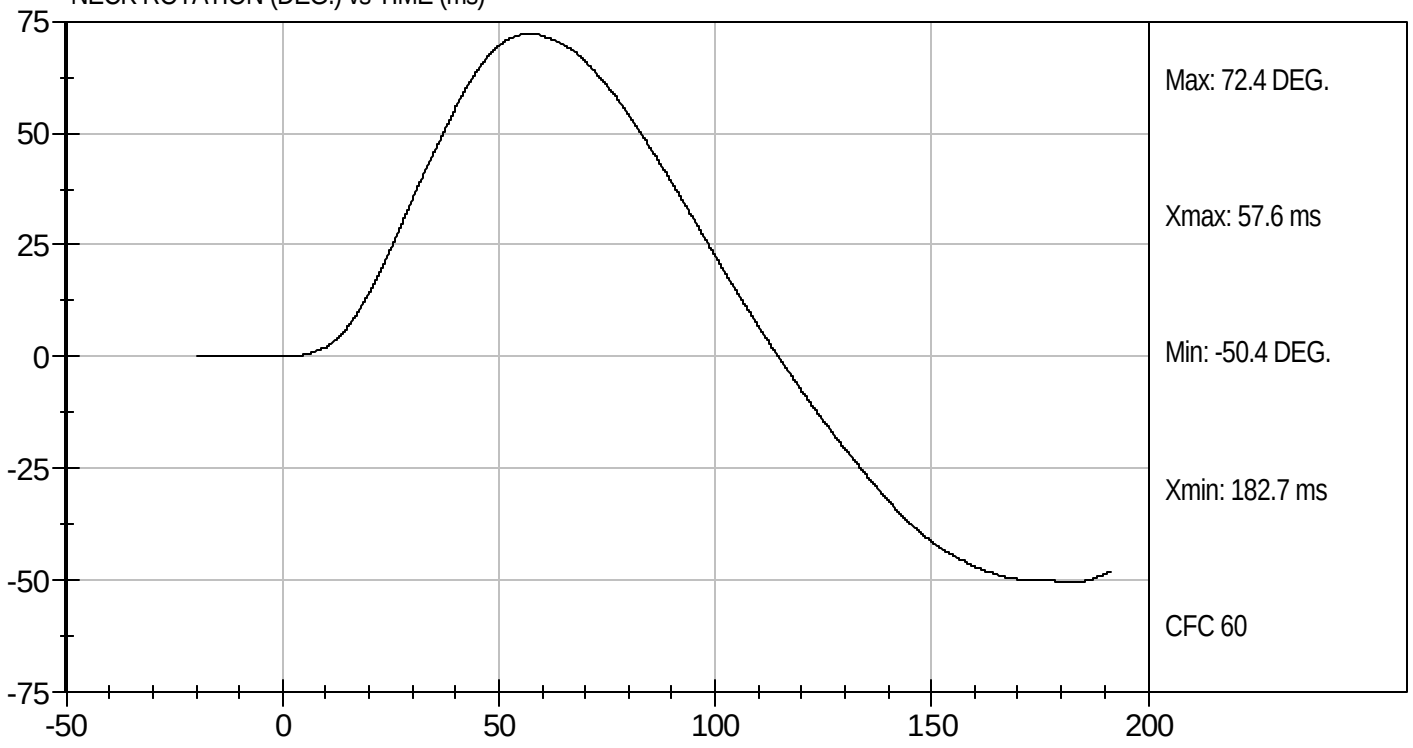
Test Desc: Neck Flexion
Component ID: D08482

Test Date: 2/28/08
Velocity: 23.14 ft/s, 7.05 m/s

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

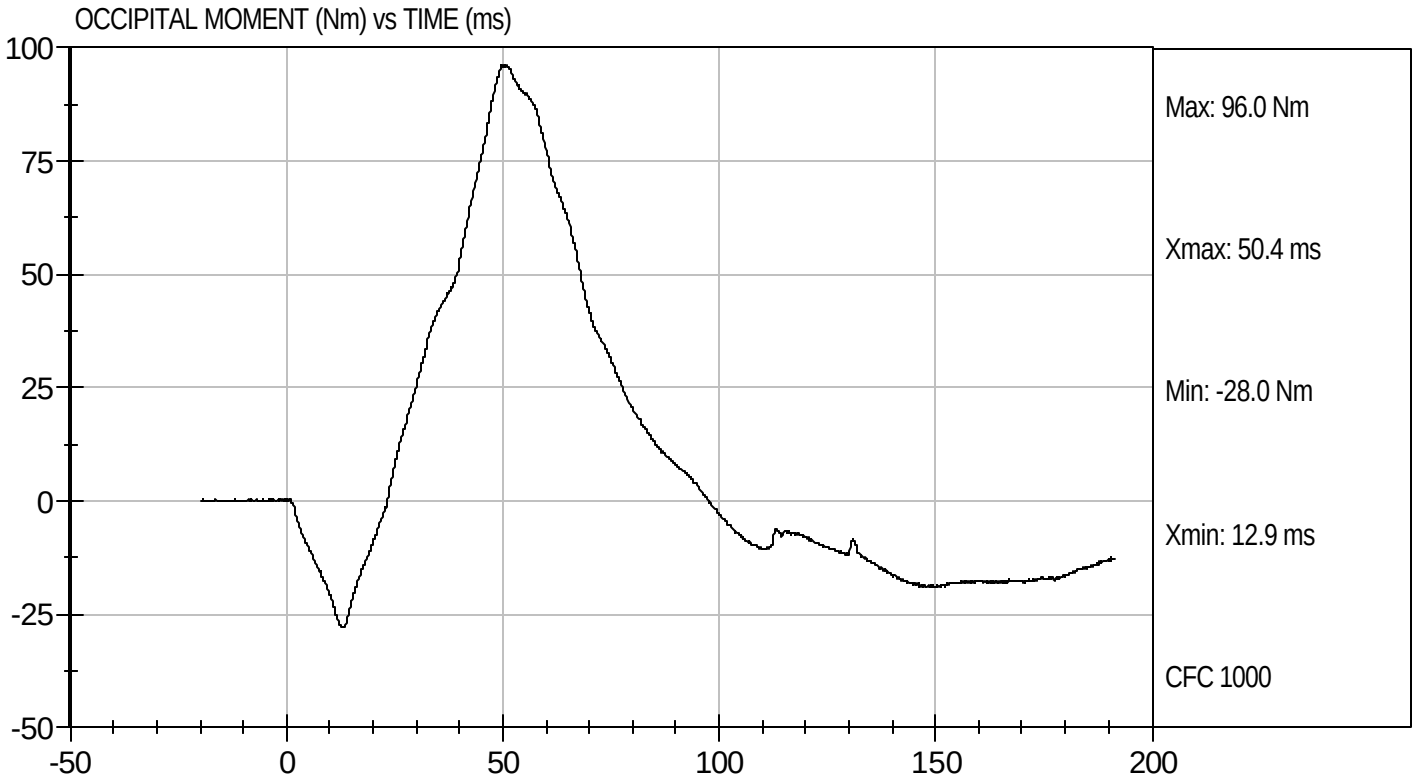


NECK ROTATION (DEG.) vs TIME (ms)



Test Desc: Neck Flexion
Component ID: D08482

Test Date: 2/28/08
Velocity: 23.14 ft/s, 7.05 m/s



MGA RESEARCH CORPORATION

NECK EXTENSION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08483

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	14	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.12	Pass
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	20.43	Pass
	20 msec	G's	14.00 to 19.00	15.21	Pass
	30 msec	G's	11.00 to 16.00	11.67	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 22.0	11.65	Pass
Deceleration Decay Time to Cross 5 G's		msec	38.0 to 46.0	40.2	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	94.9	Pass
	Time	msec	72.0 to 82.0	79.3	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	147.0 to 174.0	156.7	Pass
Moment About Occipital Condyle	Maximum	N m	-52.9 to -79.9	-63.0	Pass
	Time	msec	65.0 to 79.0	71.2	Pass
Negative Moment Decay Time To Zero Crossing		msec	120.0 to 148.0	140.7	Pass
			Overall Test Results		Pass

Laboratory Technician

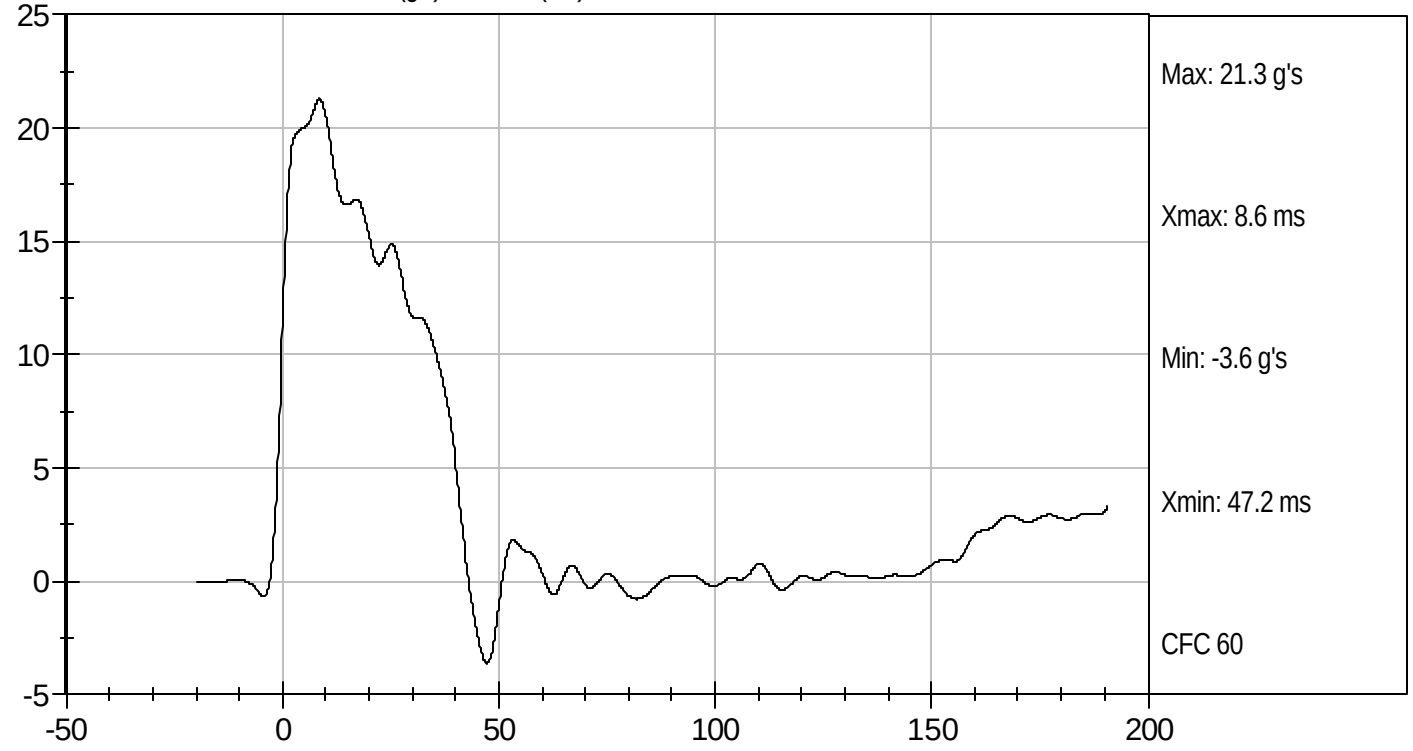
2/28/08
Test Date

Approved By

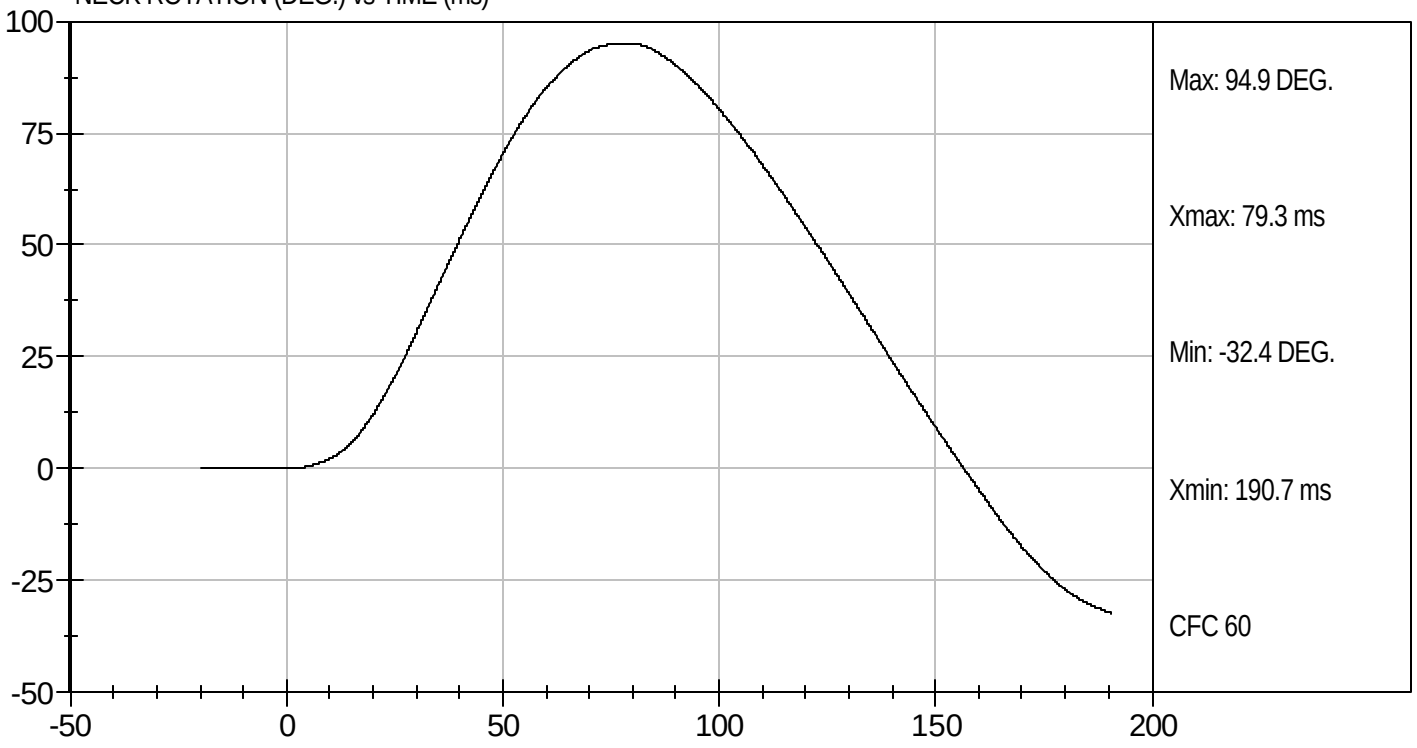
Test Desc: Neck Extension
Component ID: D08483

Test Date: 2/28/08
Velocity: 20.08 ft/s, 6.12 m/s

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

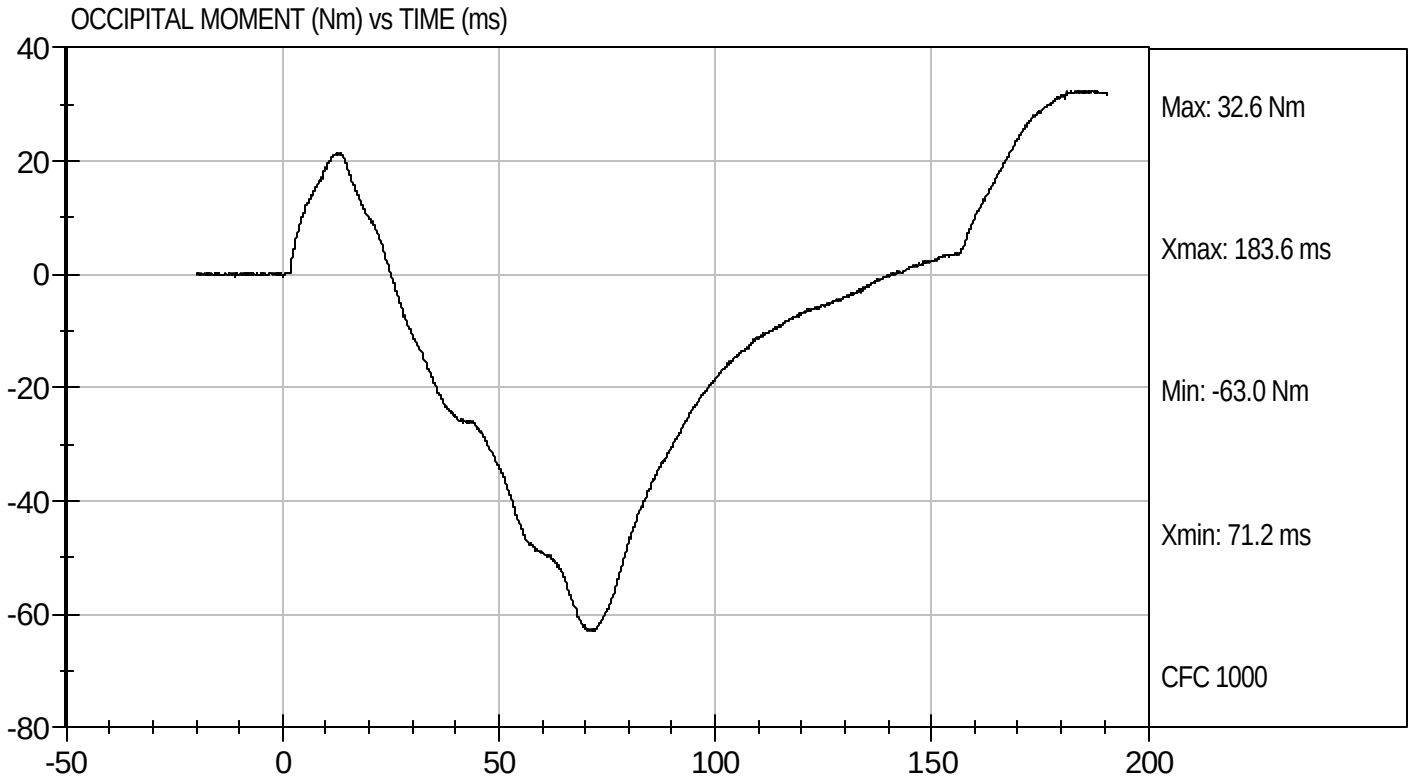


NECK ROTATION (DEG.) vs TIME (ms)



Test Desc: Neck Extension
Component ID: D08483

Test Date: 2/28/08
Velocity: 20.08 ft/s, 6.12 m/s



MGA RESEARCH CORPORATION

THORAX IMPACT

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08484

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	17	Pass
Probe Velocity	m/s	6.58 to 6.82	6.77	Pass
Peak Probe Force	N	5159 to 5893	5,715	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.48	Pass
Internal Hysteresis	%	69 to 85	71	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

2/27/08
Test Date

David Winkelbauer
Approved By

Test Desc: Thorax Impact
Component ID: D08484

Test Date: 2/27/08
Velocity: 22.22 ft/s, 6.77 m/s

MGA RESEARCH CORPORATION

RIGHT KNEE IMPACT TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08485

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.1	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5,346	Pass
		Overall Test Results		Pass

Laboratory Technician

3/4/08

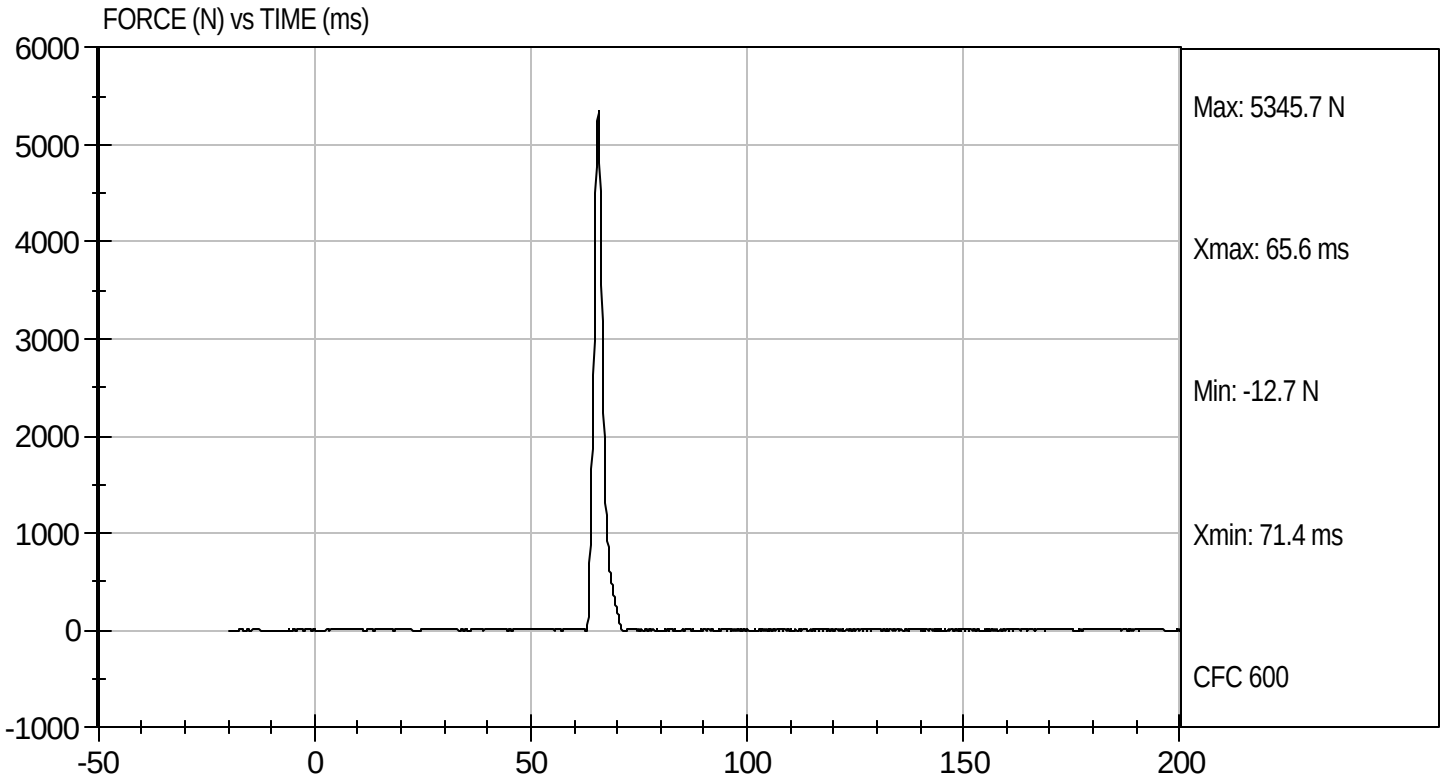
Test Date

David Winkelbauer

Approved By

Test Desc: Right Knee
Component ID: D08485

Test Date: 3/4/08
Velocity: 6.89 ft/s, 2.10 m/s



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LEFT KNEE IMPACT TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08486

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.1	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5,223	Pass
		Overall Test Results		Pass

Laboratory Technician

3/4/08

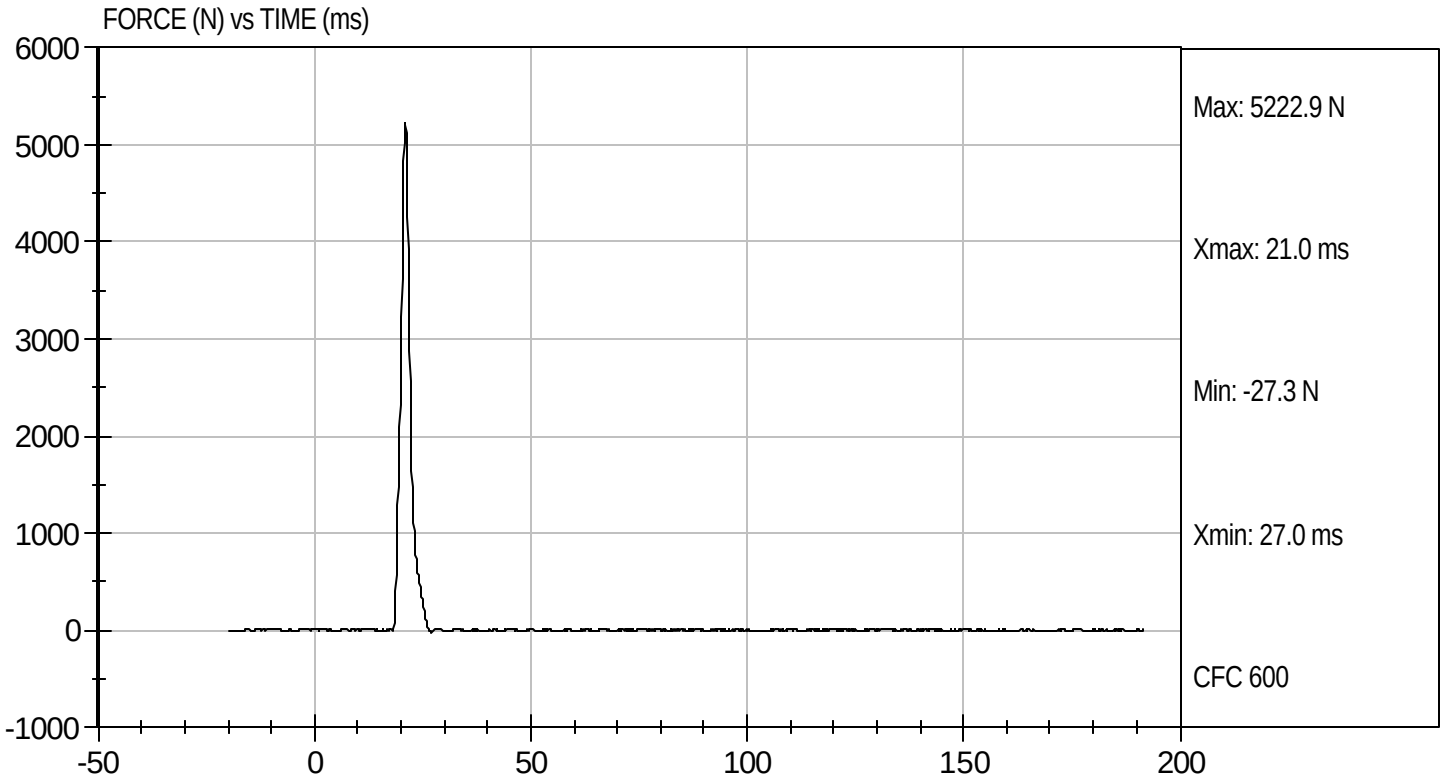
Test Date

David Winkelbauer

Approved By

Test Desc: Left Knee
Component ID: D08486

Test Date: 3/4/08
Velocity: 6.89 ft/s, 2.10 m/s



MGA RESEARCH CORPORATION

HIP-FEMUR FLEXION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08480

Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.3	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	17	17	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	86.5	83.6	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	41	43	Pass
		Overall Test Results			Pass

Laboratory Technician

2/27/08

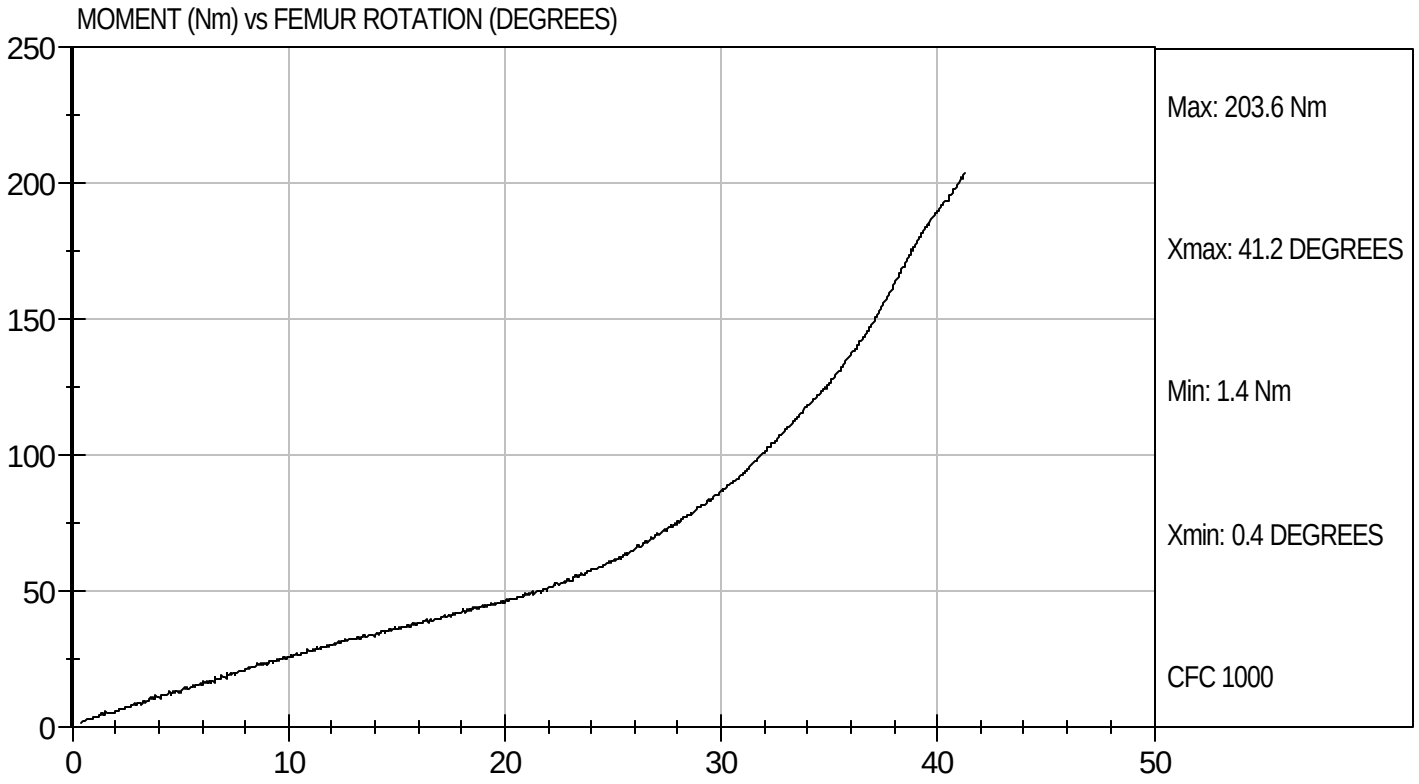
Test Date

David Winkelbauer

Approved By

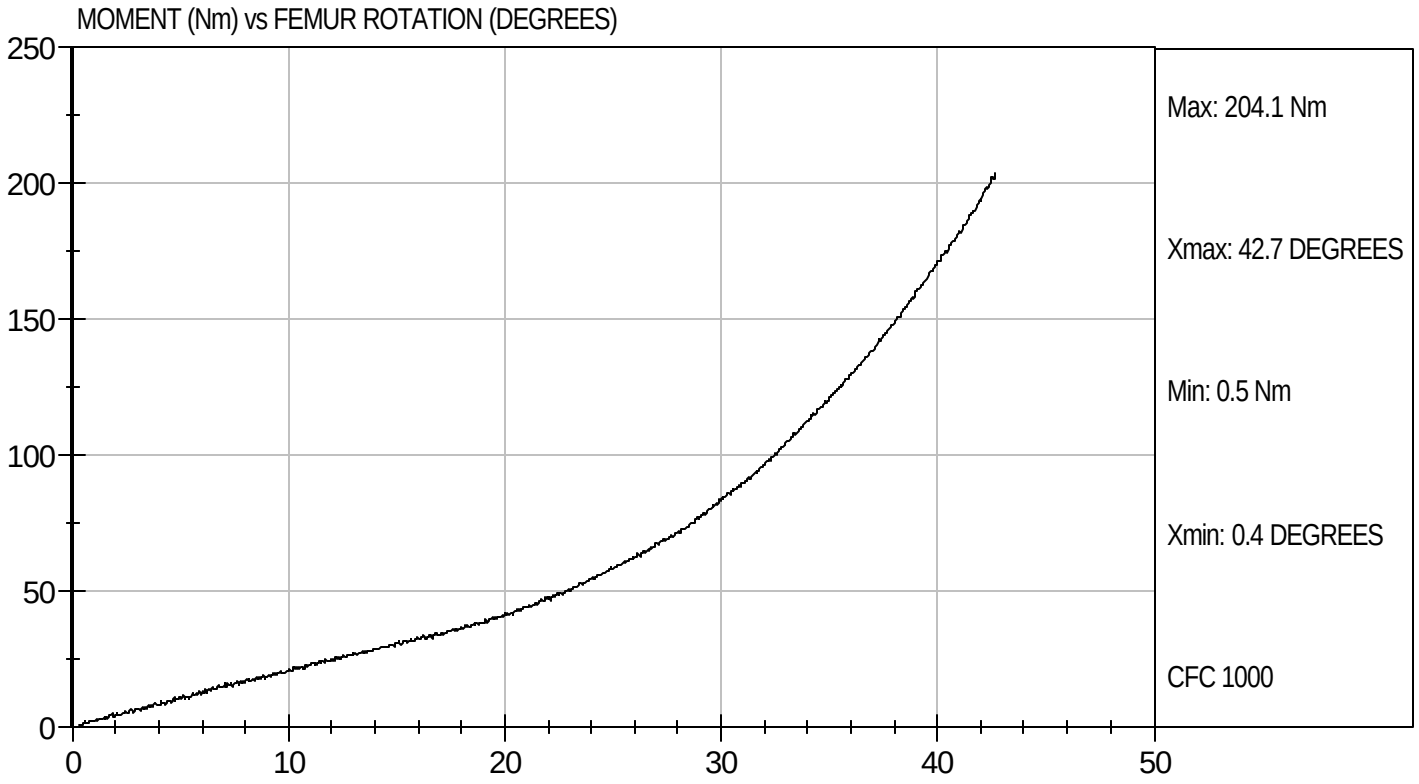
Test Desc: Hip Femur Flexion
Component ID: D08489

Test Date: 2/27/08
Velocity: 0 ft/s, 0.00 m/s



Test Desc: Hip Femur Flexion
Component ID: D08480

Test Date: 2/27/08
Velocity: 0 ft/s, 0.00 m/s



CERTIFICATION DATA

THOR Lx Legs #036 & #037

Installed in Hybrid III 50th Percentile Male Dummy #202

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Thor-LX Test Report

Dynamic Ball of Foot Impact Test (page 1)

Engineer	S.Kamalakkannan	**Test Date**	February 27, 2008
		Temp (C)/Hum.(%)	21.7/23
Customer	MGA	**Serial No.**	LX037
Description	Right Lower Extremities		

Testing Summary

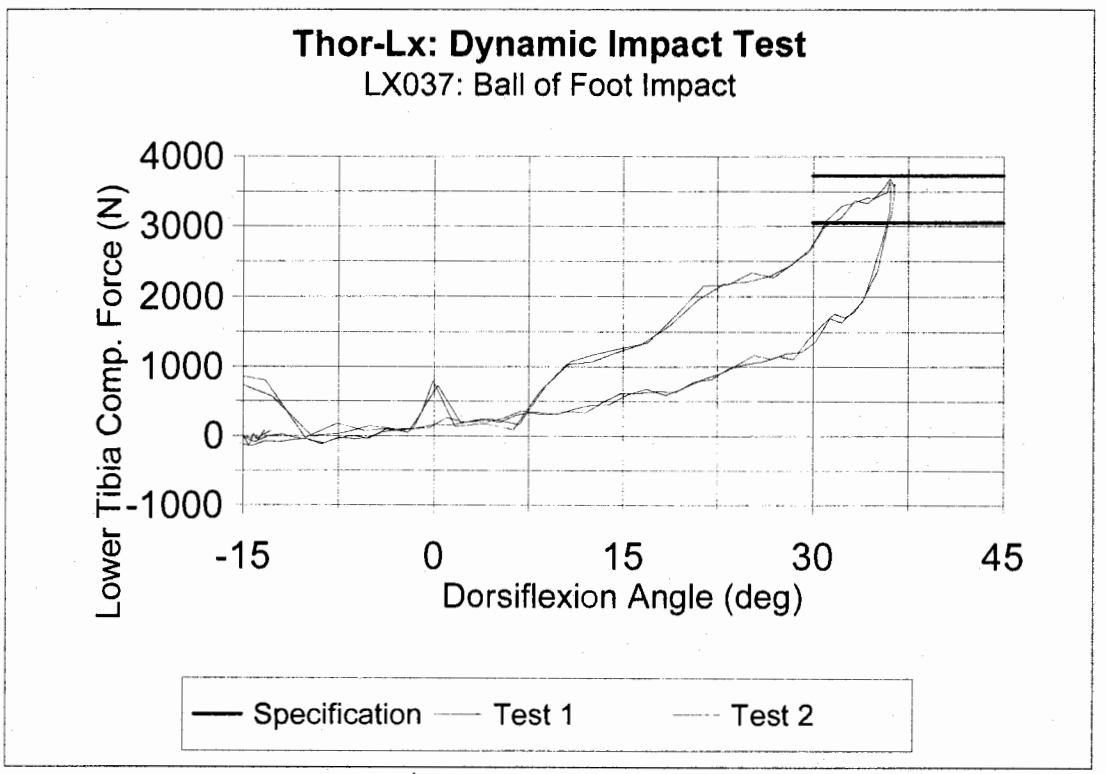
Impact Speed	5.0 m/s	**Scan Rate**	10000 scans/sec
Impact Effective Mass	5.0 kg	**Filter**	CFC 600
Impactor	NHTSA Dynamic Impactor (TLX-9000-013)		

Response

Peak Lower Tibia Compressive Force* (N)	Specification (N)	Within Reference
3667	**3058 - 3738**	Yes

*Average Value

Test Plot



Tested by: K. Sulh Bal. Date: 2/27/08

Analyzed by: K. Sulh Bal. Date: 2/27/08

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Thor-LX Test Report

Dynamic Ball of Foot Impact Test (page 2)

Engineer	S.Kamalakkannan	**Test Date**	February 27, 2008
		Temp (C)/Hum.(%)	21.7/23
Customer	MGA	**Serial No.**	LX037
Description	Right Lower Extremities		

Testing Summary

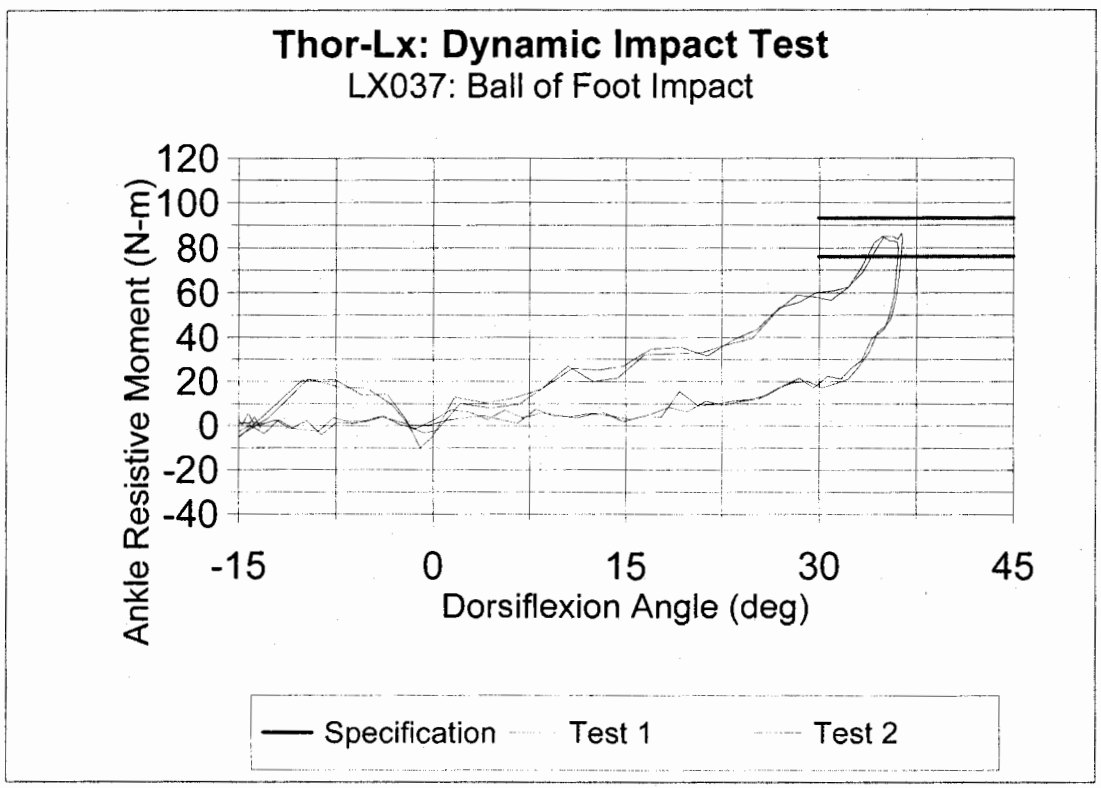
Impact Speed	5.0 m/s	**Scan Rate**	10000 scans/sec
Impact Effective Mass	5.0 kg	**Filter**	CFC 600
Impactor	NHTSA Dynamic Impactor (TLX-9000-013)		

Response

Peak Ankle Resistive Moment* (N-m)	Specification (N-m)	Within Reference
85.8	76.2 - 93.2	Yes

*Average Value

Test Plot



Tested by: K. Sulh Bal. Date: 2/27/08

Analyzed by: K. Sulh Bal. Date: 2/27/08

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Thor-LX Test Report

Dynamic Heel of Foot Impact Test

Engineer	S.Kamalakkannan	**Test Date**	February 27, 2008
		Temp (C)/Hum.(%)	20.7/23
Customer	MGA	**Serial No.**	LX037
Description	Right Lower Extremities		

Testing Summary

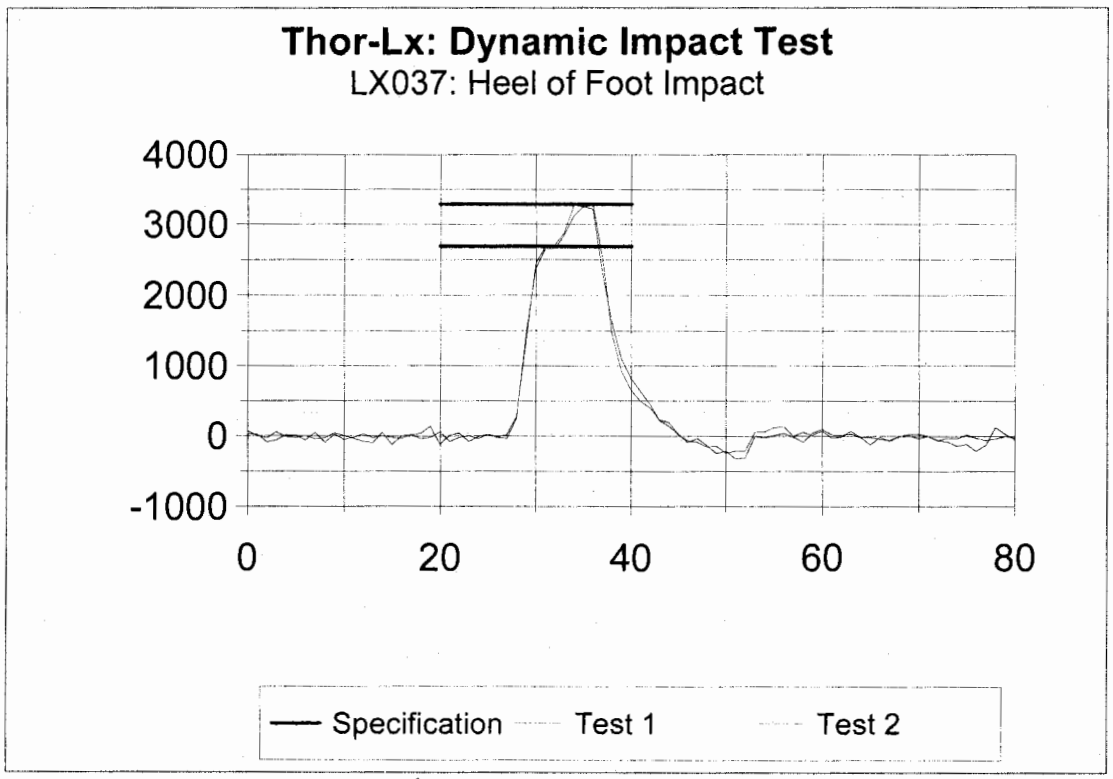
Impact Speed	4.0 m/s	**Scan Rate**	10000 scans/sec
Impact Effective Mass	5.0 kg	**Filter**	CFC 600
Impactor	NHTSA Dynamic Impactor (TLX-9000-013)		

Response

Peak Lower Tibia Compressive Force* (N)	Specification (N)	Within Reference
3272	**2694 - 3292**	Yes

*Average Value

Test Plot



Tested by: K·Sulh Rd Date: 2/27/08

Analyzed by: K·Sulh Rd Date: 2/27/08

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Thor-Lx Test Report

Inversion Quasi-Static Test

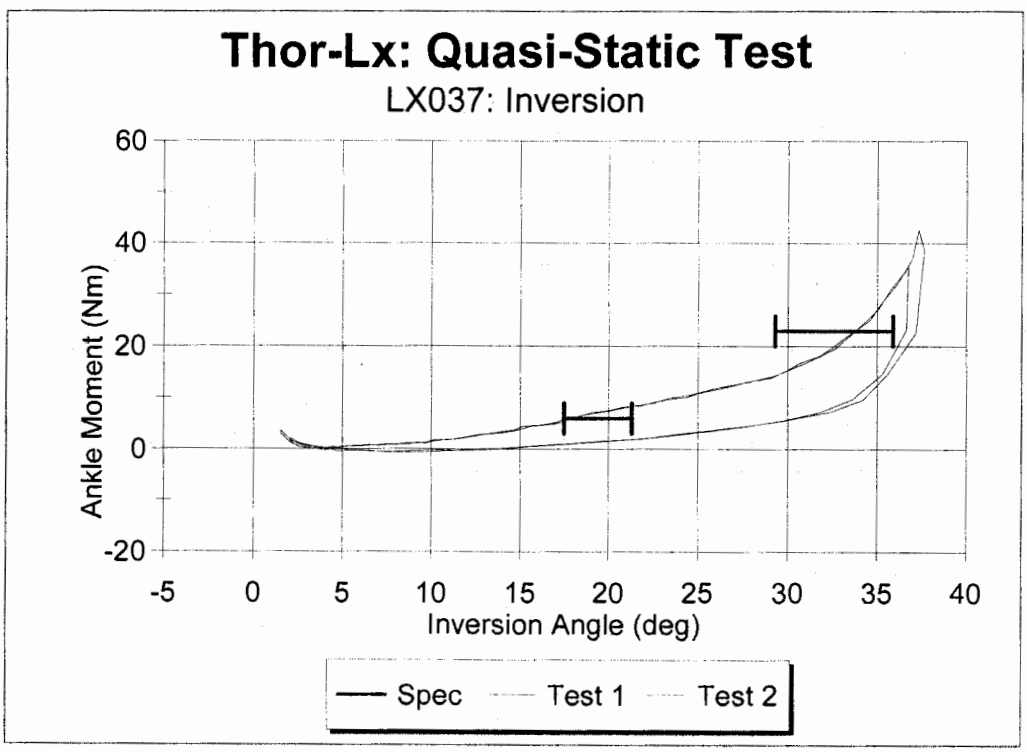
Engineer	S.Kamalakkannan	**Test Date**	February 28, 2008
		Temp. (C)/Hum.(%)	20.7/20
Customer	MGA	**Serial No.**	LX037
Description	Right Lower Extremity		

Testing Summary (Design Reference)

Ankle Moment (Nm)	Inversion Angle (Degree)	Reference Specification (Degree)	Within Reference?
6	17.8	**17.5 - 21.3**	Yes
23	33.8	**29.3 - 35.9**	Yes

*Average Value

Result Plot



Tested by: K. Sulh Bal Date: 2/28/08

Analyzed by: K. Sulh Bal Date: 2/28/08

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Thor-Lx Test Report

Eversion Quasi-Static Test

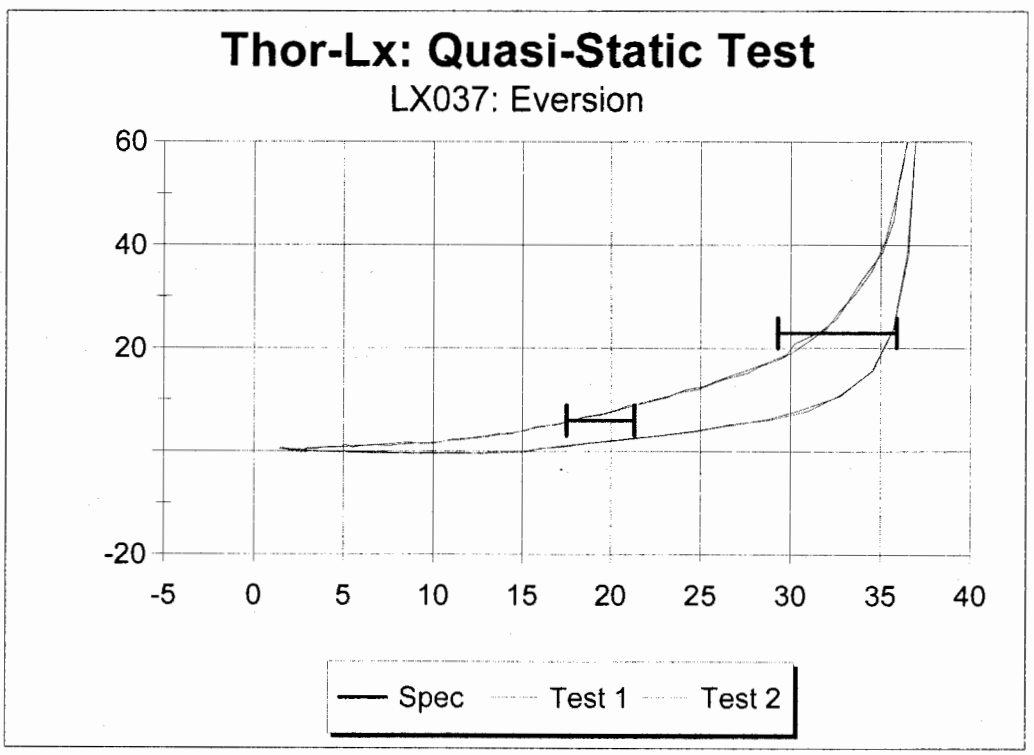
Engineer	S.Kamalakkannan	**Test Date**	February 28, 2008
		Temp. (C)/Hum.(%)	20.7/23
Customer	MGA	**Serial No.**	LX037
Description	Right Lower Extremity		

Testing Summary (Design Reference)

Ankle Moment (Nm)	Eversion Angle (Degree)	Reference Specification (Degree)	Within Reference?
6	17.8	**17.5 - 21.3**	Yes
23	31.6	**29.3 - 35.9**	Yes

*Average Value

Result Plot



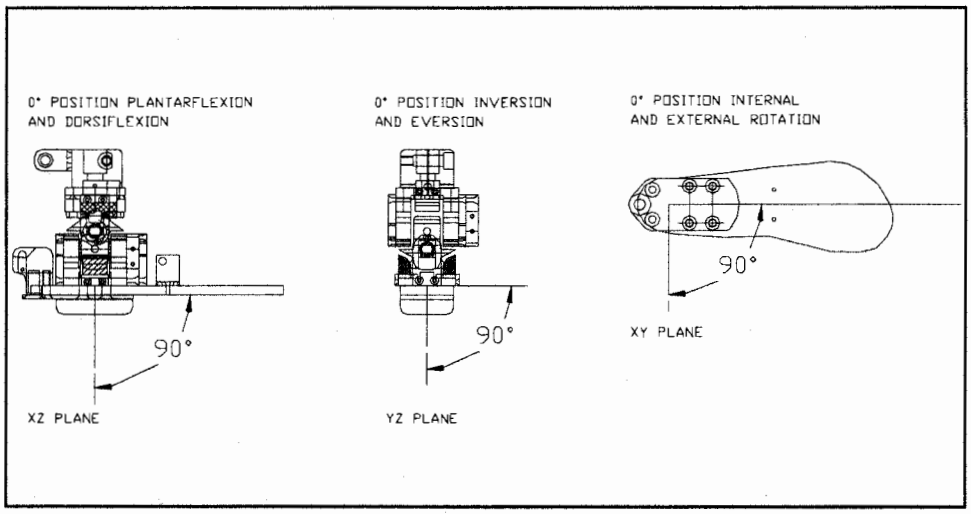
Tested by: K. Sulh Bl Date: 2/28/08

Analyzed by: K. Sulh Bl Date: 2/28/08

THOR - LX Rotary Potentiometer Calibration

The figure below shows the three primary calibration positions for the THOR-LX Rotary Potentiometer Units.

The following table provides the expected potentiometer outputs at 10V excitation for each of the positions shown in the Figure below. The X potentiometer measures inversion / eversion rotation; the Y potentiometer measures dorsiflexion / plantarflexion rotation, and the Z potentiometer measures internal and external rotation. The voltage for each potentiometer should be verified at the zero position prior to testing.



Rotary Potentiometer Calibrations for Right Leg - Serial # LX-037

Pot	Rotary Pot Serial #	Sensitivity at 10 V Excitation	Units	Volts @ 0 Position	Units
X	PD210-4B 7921-0368	31.71	Volts/Degree	5.01	Volts
Y	PD210-4B 7921-0369	32.10	Volts/Degree	4.92	Volts
Z	PD210-4B 7921-0370	31.88	Volts/Degree	4.90	Volts

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Thor-LX Test Report

Dynamic Ball of Foot Impact Test (page 1)

Engineer	S.Kamalakkannan	**Test Date**	February 26, 2008
		Temp (C)/Hum.(%)	21.7/21
Customer	MGA	**Serial No.**	LX036
Description	Left Lower Extremities		

Testing Summary

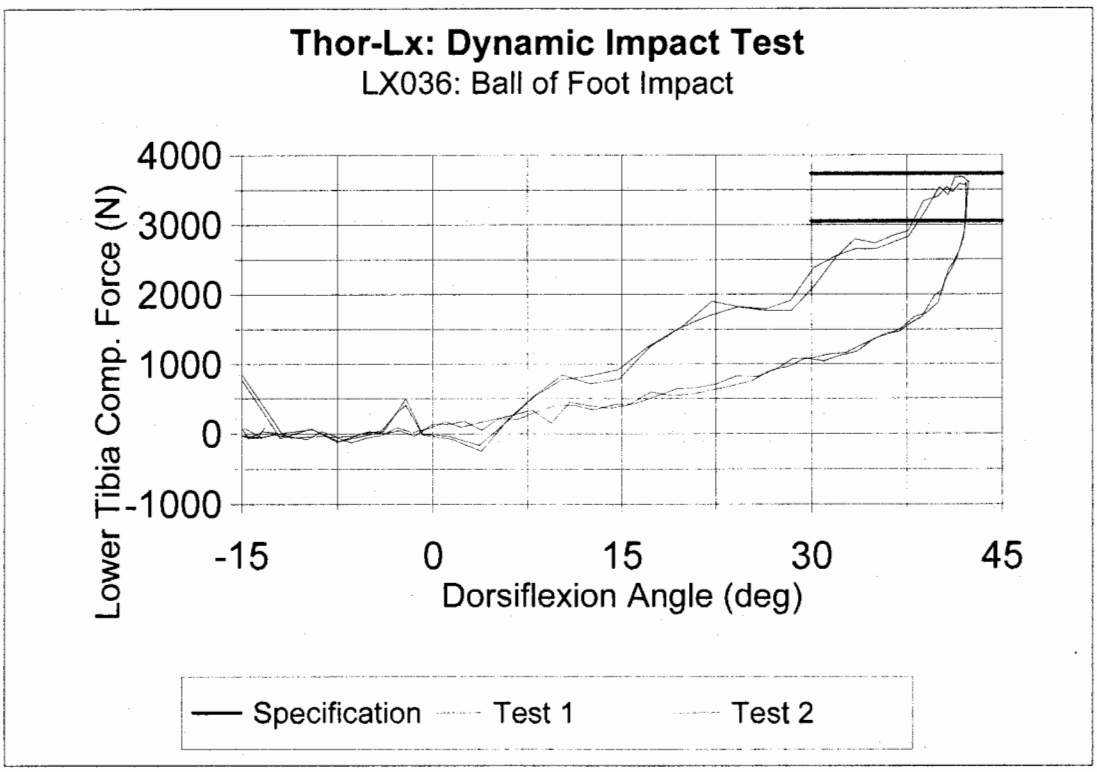
Impact Speed	5.0 m/s	**Scan Rate**	10000 scans/sec
Impact Effective Mass	5.0 kg	**Filter**	CFC 600
Impactor	NHTSA Dynamic Impactor (TLX-9000-013)		

Response

Peak Lower Tibia Compressive Force* (N)	Specification (N)	Within Reference
3645	**3058 - 3738**	Yes

*Average Value

Test Plot



Tested by: K. Sulh Bl Date: 2/26/08

Analyzed by: K. Sulh Bl Date: 2/26/08

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Thor-LX Test Report

Dynamic Ball of Foot Impact Test (page 2)

Engineer	S.Kamalakkannan	**Test Date**	February 26, 2008
		Temp (C)/Hum.(%)	21.7/21
Customer	MGA	**Serial No.**	LX036
Description	Left Lower Extremities		

Testing Summary

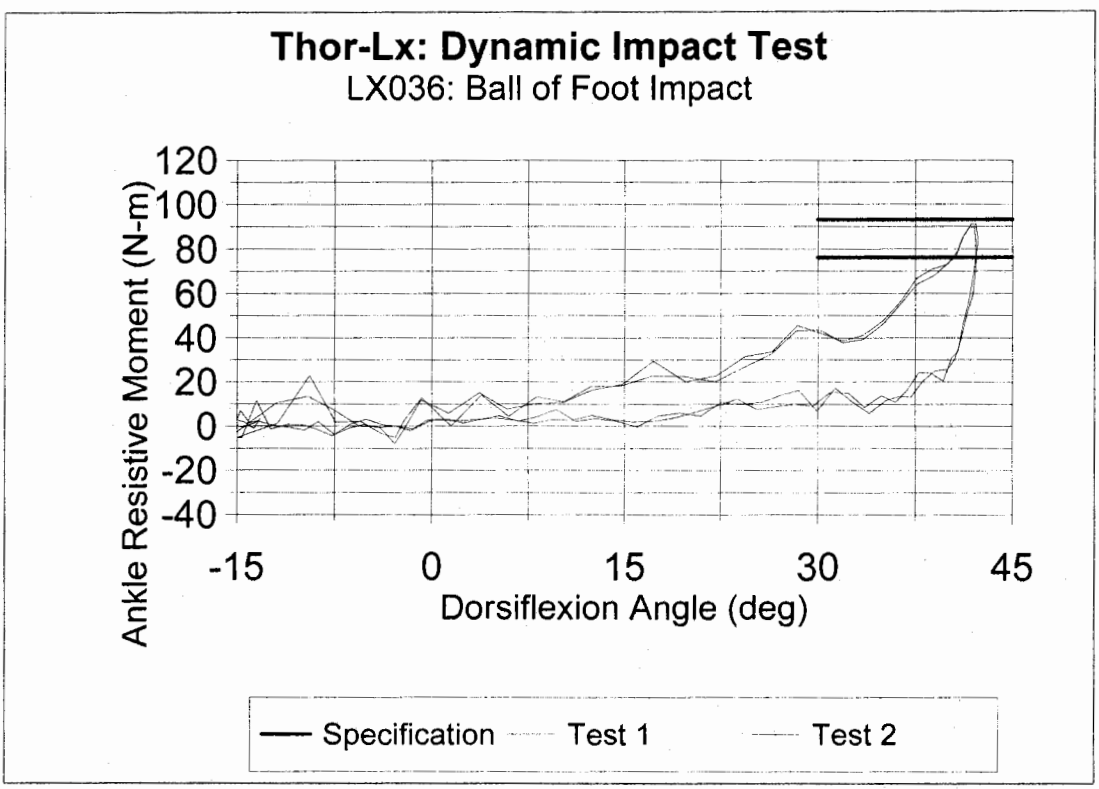
Impact Speed	5.0 m/s	**Scan Rate**	10000 scans/sec
Impact Effective Mass	5.0 kg	**Filter**	CFC 600
Impactor	NHTSA Dynamic Impactor (TLX-9000-013)		

Response

Peak Ankle Resistive Moment* (N-m)	Specification (N-m)	Within Reference
90.8	76.2 - 93.2	Yes

*Average Value

Test Plot



Tested by: K. Sulh B.L. Date: 2/26/08

Analyzed by: K. Sulh B.L. Date: 2/26/08

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Thor-LX Test Report

Dynamic Heel of Foot Impact Test

Engineer	S.Kamalakkannan	**Test Date**	February 22, 2008
		Temp (C)/Hum.(%)	20.7/20
Customer	MGA	**Serial No.**	LX036
Description	Left Lower Extremities		

Testing Summary

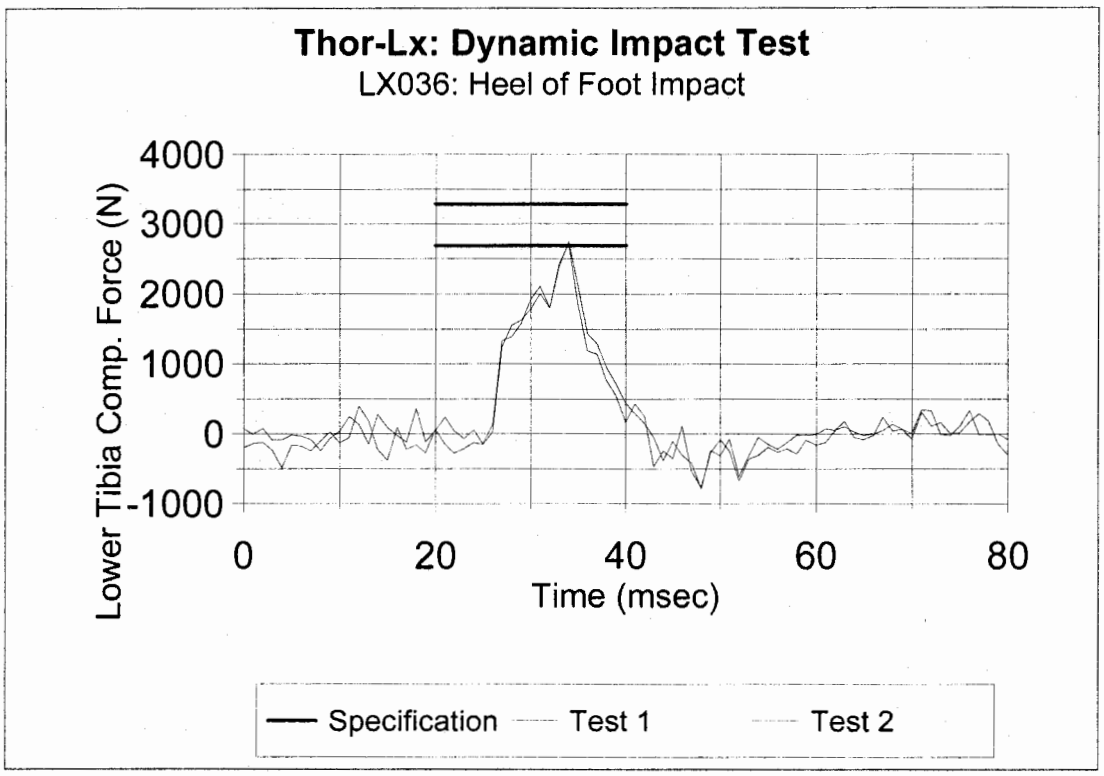
Impact Speed	4.0 m/s	**Scan Rate**	10000 scans/sec
Impact Effective Mass	5.0 kg	**Filter**	CFC 600
Impactor	NHTSA Dynamic Impactor (TLX-9000-013)		

Response

Peak Lower Tibia Compressive Force* (N	Specification (N)	Within Reference
2740	**2694 - 3292**	Yes

*Average Value

Test Plot



Tested by: K.Sulh Bal Date: 2/22/08

Analyzed by: K.Sulh Bal. Date: 2/22/08

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Thor-Lx Test Report

Inversion Quasi-Static Test

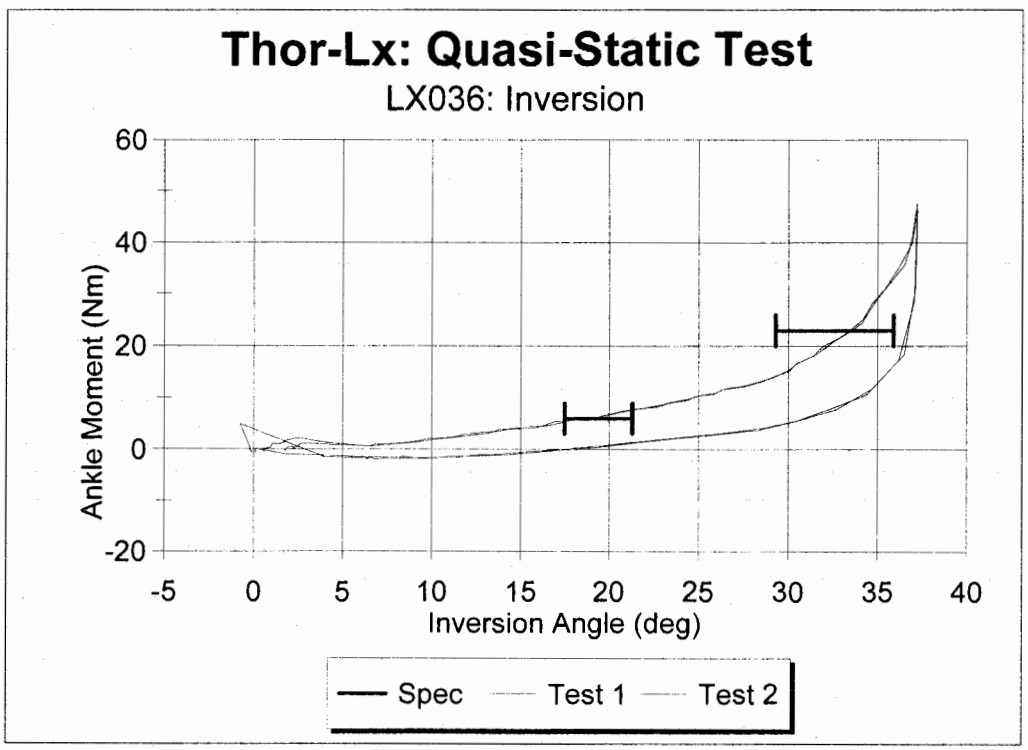
Engineer	S.Kamalakkannan	**Test Date**	February 26, 2008
		Temp. (C)/Hum.(%)	20.7/20
Customer	MGA	**Serial No.**	LX036
Description	Left Lower Extremity		

Testing Summary (Design Reference)

Ankle Moment (Nm)	Inversion Angle (Degree)	Reference Specification (Degree)	Within Reference?
6	18.5	**17.5 - 21.3**	Yes
23	33.5	**29.3 - 35.9**	Yes

*Average Value

Result Plot



Tested by: K. Sulh Bl Date: 2/26/08

Analyzed by: K. Sulh Bl Date: 2/26/08

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Thor-Lx Test Report

Eversion Quasi-Static Test

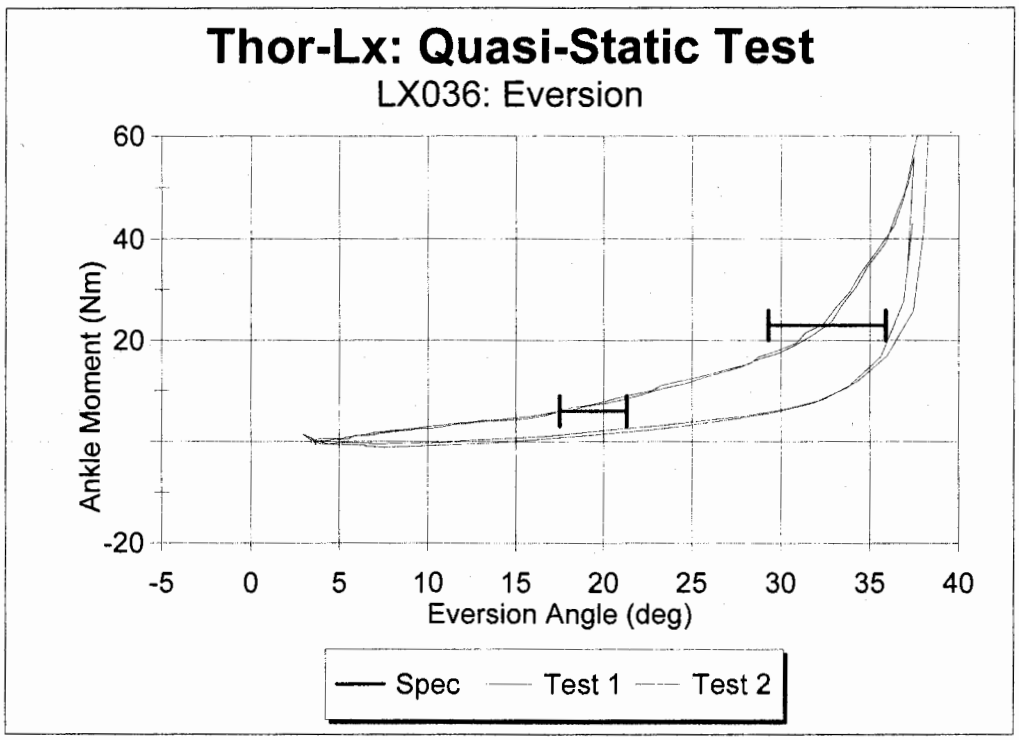
Engineer	S.Kamalakkannan	**Test Date**	February 27, 2008
		Temp. (C)/Hum.(%)	20.7/23
Customer	MGA	**Serial No.**	LX036
Description	Left Lower Extremity		

Testing Summary (Design Reference)

Ankle Moment (Nm)	Eversion Angle (Degree)	Reference Specification (Degree)	Within Reference?
6	17.6	**17.5 - 21.3**	Yes
23	32.4	**29.3 - 35.9**	Yes

*Average Value

Result Plot



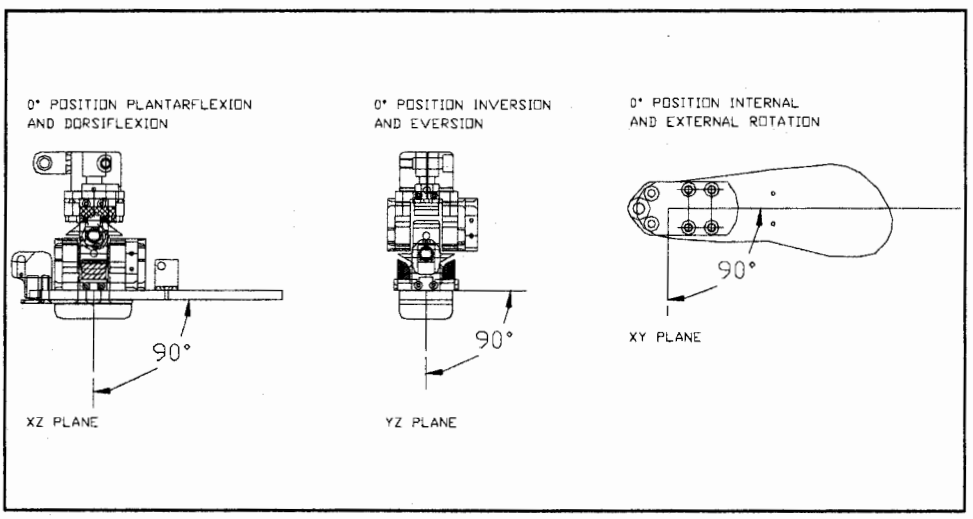
Tested by: K. Sulh B.L. Date: 2/27/08

Analyzed by: K. Sulh B.L. Date: 2/27/08

THOR - LX Rotary Potentiometer Calibration

The figure below shows the three primary calibration positions for the THOR-LX Rotary Potentiometer Units.

The following table provides the expected potentiometer outputs at 10V excitation for each of the positions shown in the Figure below. The X potentiometer measures inversion / eversion rotation; the Y potentiometer measures dorsiflexion / plantarflexion rotation, and the Z potentiometer measures internal and external rotation. The voltage for each potentiometer should be verified at the zero position prior to testing.



Rotary Potentiometer Calibrations for Left Leg - Serial # LX -036

Pot	Rotary Pot Serial #	Sensitivity at 10 V Excitation	Units	Volts @ 0 Position	Units
X	PD210-4B 7921-0371	32.06	Volts/Degree	4.97	Volts
Y	PD210-4B 7921-0367	31.74	Volts/Degree	5.43	Volts
Z	PD210-4B 7921-0365	31.78	Volts/Degree	3.50	Volts

MGA RESEARCH CORPORATION

HEAD DROP TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test ID:** D08491

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	17	Pass
Peak Resultant Acceleration	G's	225 - 275	267	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	12.5	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
		Overall Test Results		Pass

Jessica Gall
Laboratory Technician

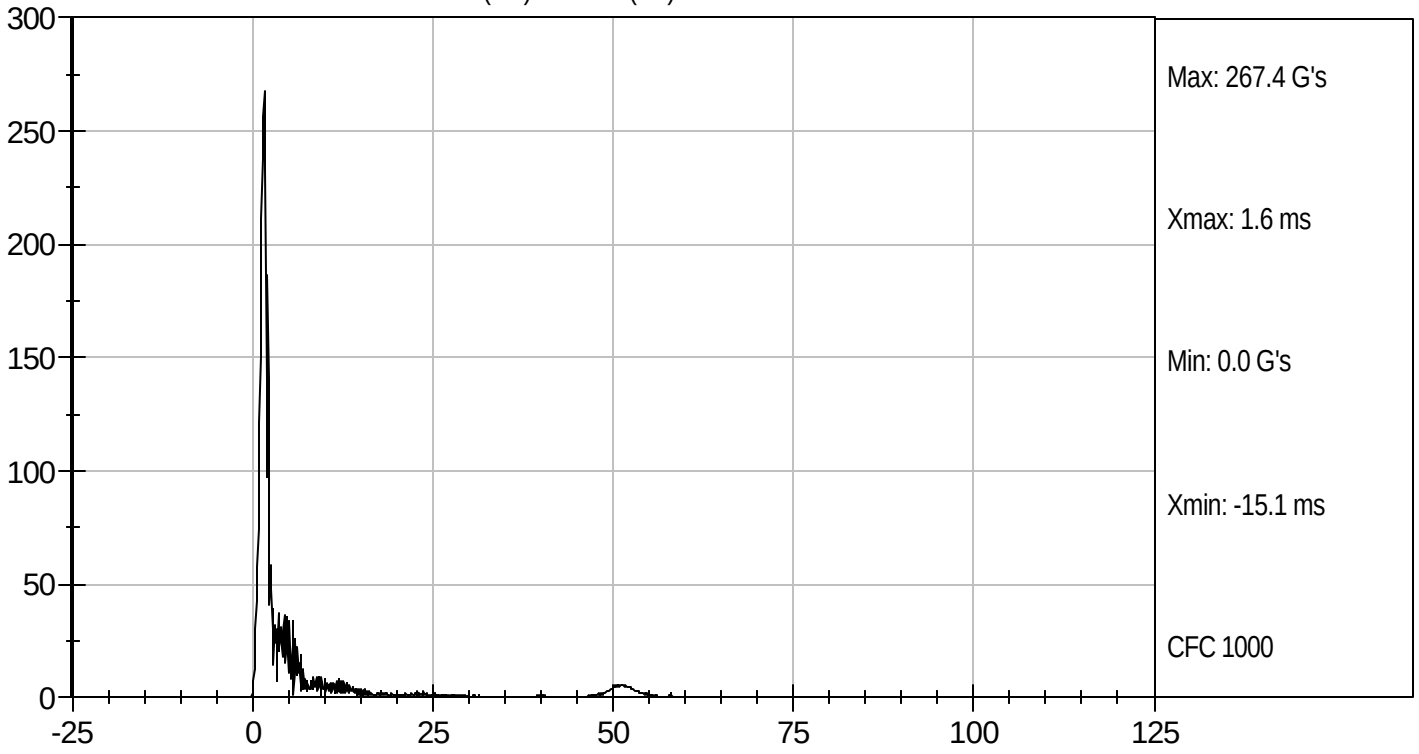
2/27/08
Test Date

David Winkelbauer
Approved By

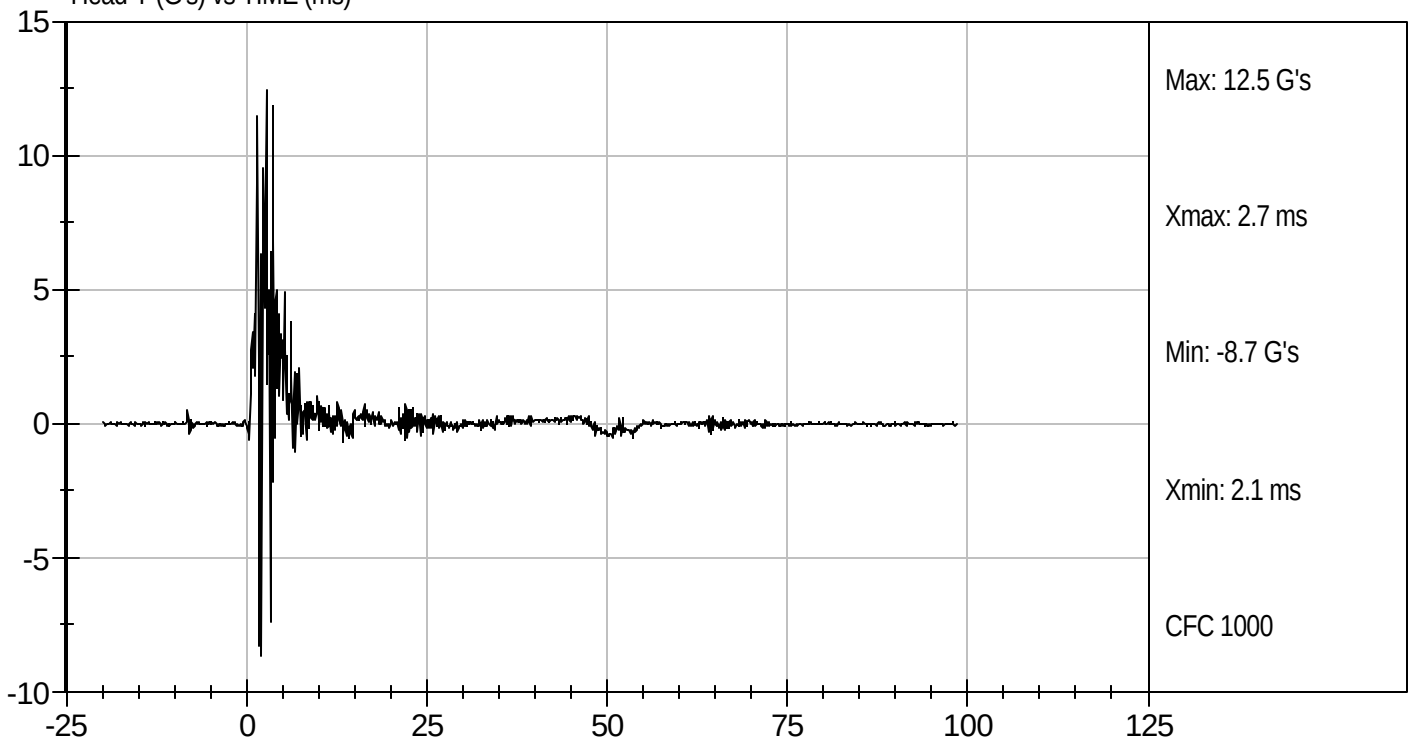
Test Desc: Head Drop
Component ID: D08491

Test Date: 2/27/08
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: 206 **Test I.D:** D08492

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity		%	10 to 70	17	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.06	Pass
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	23.50	Pass
	20 msec	G's	17.60 to 22.60	20.06	Pass
	30 msec	G's	12.50 to 18.50	16.07	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 29.0	16.01	Pass
Deceleration Decay Time to Cross 5 G's		msec	34.0 to 42.0	34.5	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	72.4	Pass
	Time	msec	57.0 to 64.0	57.5	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	113.0 to 128.0	113.8	Pass
Moment About Occipital Condyle	Maximum	N m	88.1 to 108.5	91.4	Pass
	Time	msec	47.0 to 58.0	47.8	Pass
Positive Moment Decay Time To Zero Crossing		msec	97.0 to 107.0	100.7	Pass
			Overall Test Results		Pass

Jessica Hall
Laboratory Technician

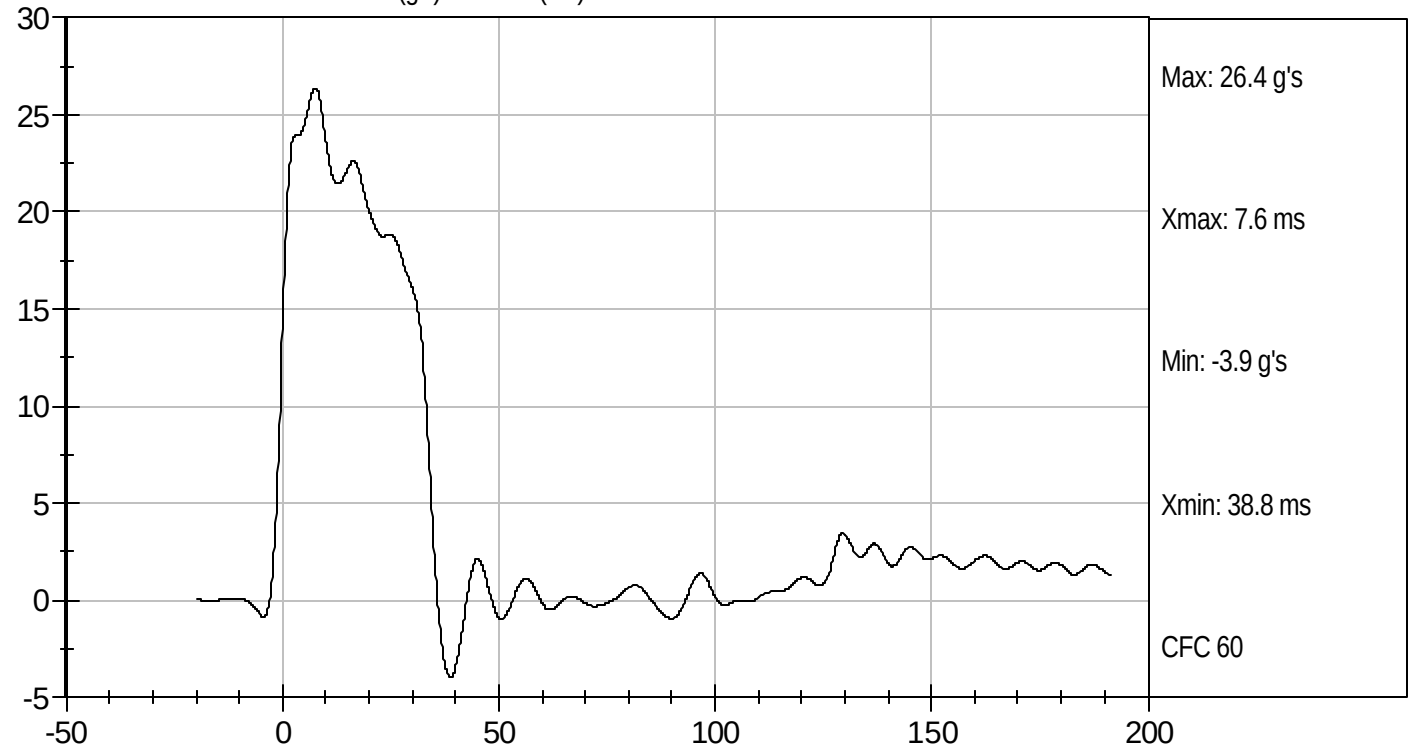
2/27/08
Test Date

David Winkelbauer
Approved By

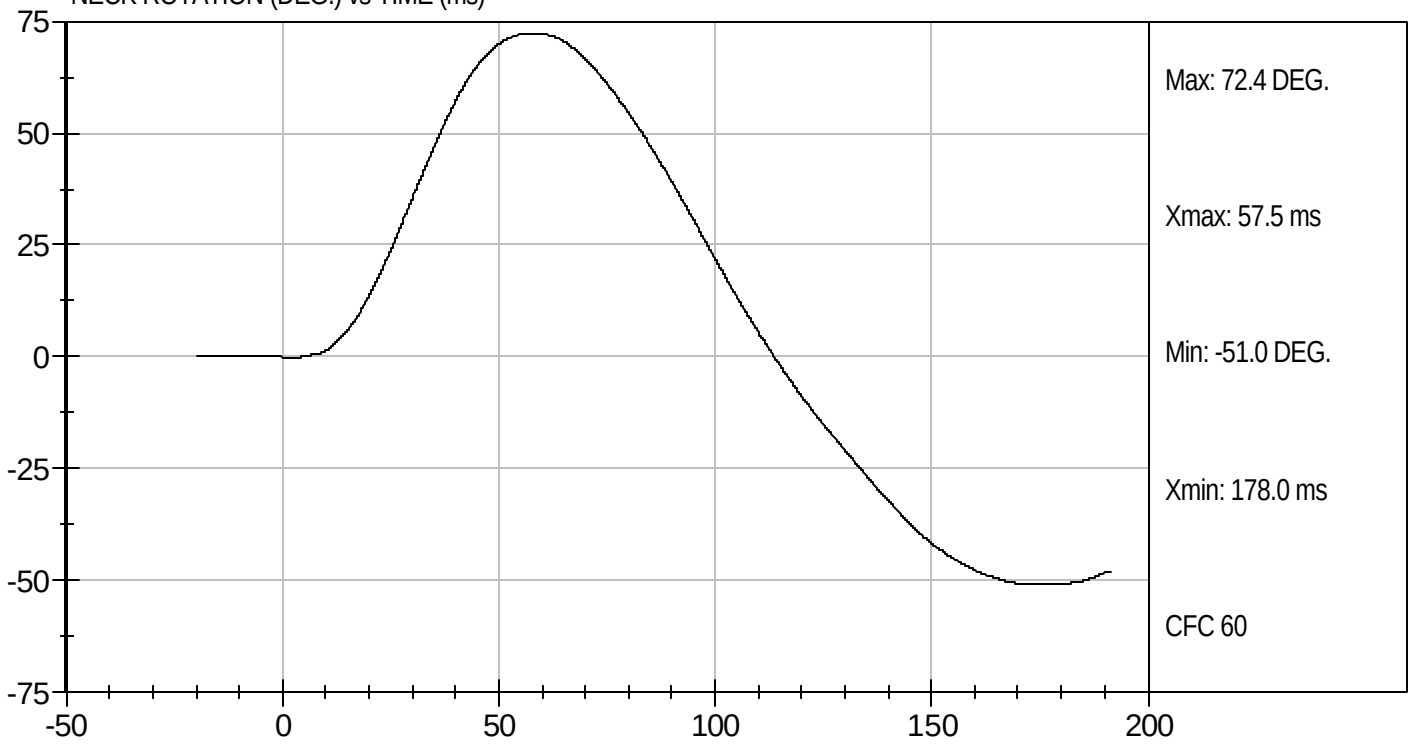
Test Desc: Neck Flexion
Component ID: D08492

Test Date: 2/27/08
Velocity: 23.15 ft/s, 7.06 m/s

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

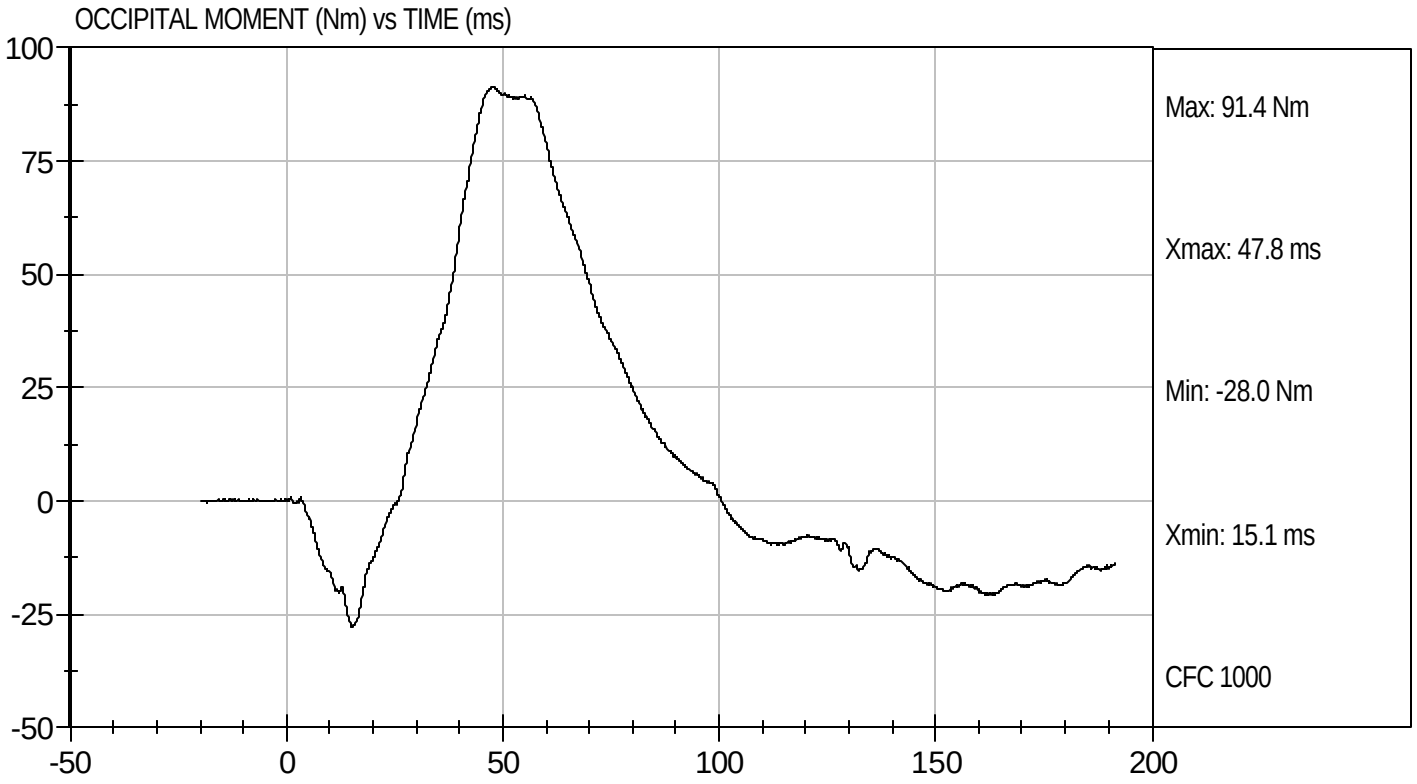


NECK ROTATION (DEG.) vs TIME (ms)



Test Desc: Neck Flexion
Component ID: D08492

Test Date: 2/27/08
Velocity: 23.15 ft/s, 7.06 m/s



MGA RESEARCH CORPORATION

NECK EXTENSION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08493

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity		%	10 to 70	17	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.12	Pass
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	20.98	Pass
	20 msec	G's	14.00 to 19.00	16.36	Pass
	30 msec	G's	11.00 to 16.00	13.99	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 22.0	13.91	Pass
Deceleration Decay Time to Cross 5 G's		msec	38.0 to 46.0	38.1	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	97.0	Pass
	Time	msec	72.0 to 82.0	76.7	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	147.0 to 174.0	153.5	Pass
Moment About Occipital Condyle	Maximum	N m	-52.9 to -79.9	-70.5	Pass
	Time	msec	65.0 to 79.0	67.7	Pass
Negative Moment Decay Time To Zero Crossing		msec	120.0 to 148.0	139.2	Pass
			Overall Test Results		Pass

Jessica Hall
Laboratory Technician

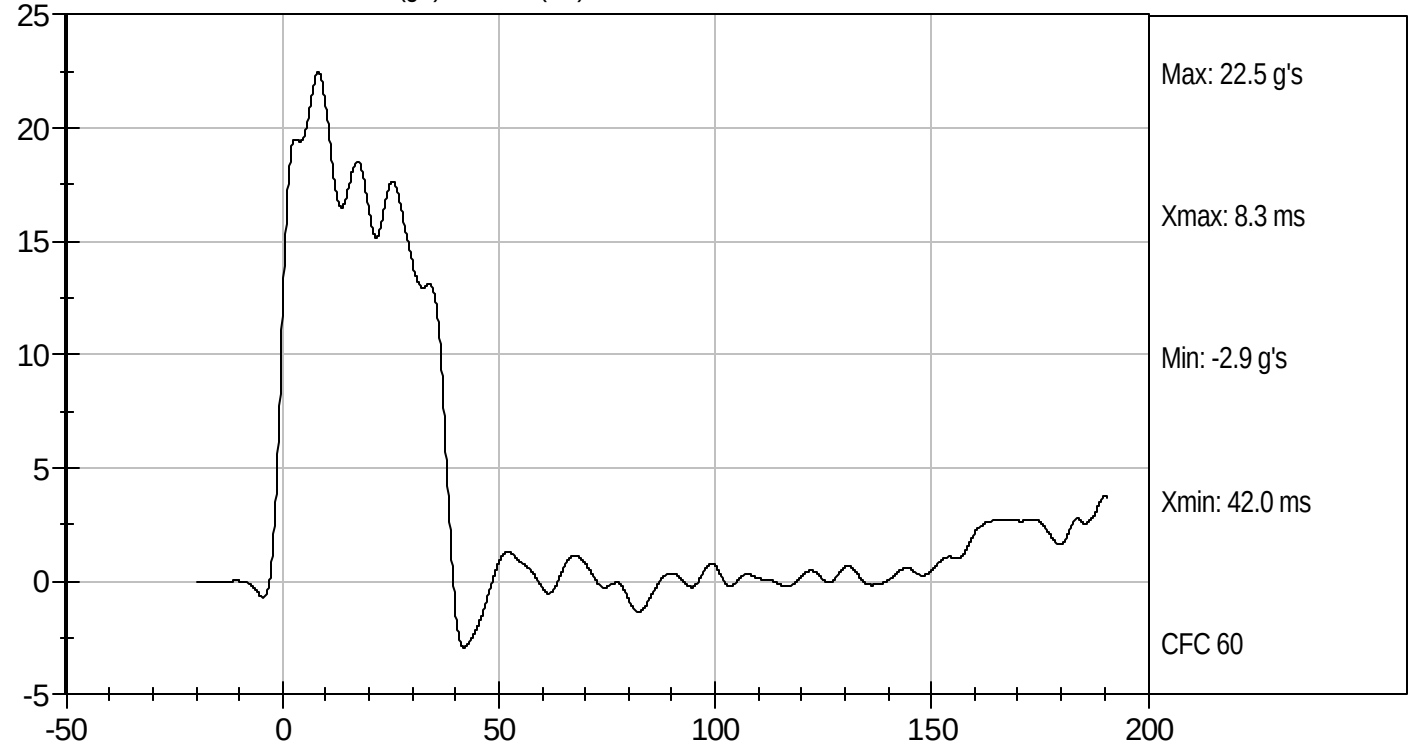
2/27/08
Test Date

David Winkelbauer
Approved By

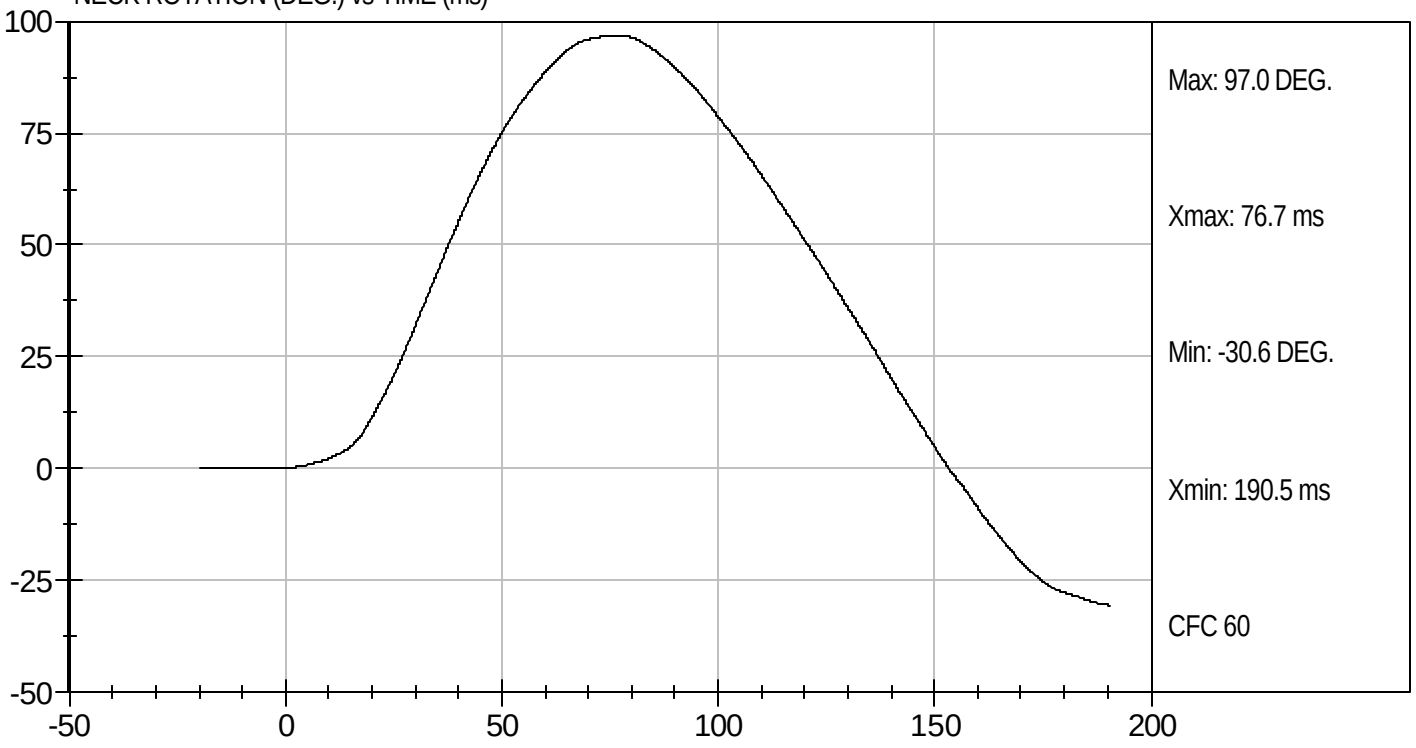
Test Desc: Neck Extension
Component ID: D08493

Test Date: 2/27/08
Velocity: 20.08 ft/s, 6.12 m/s

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

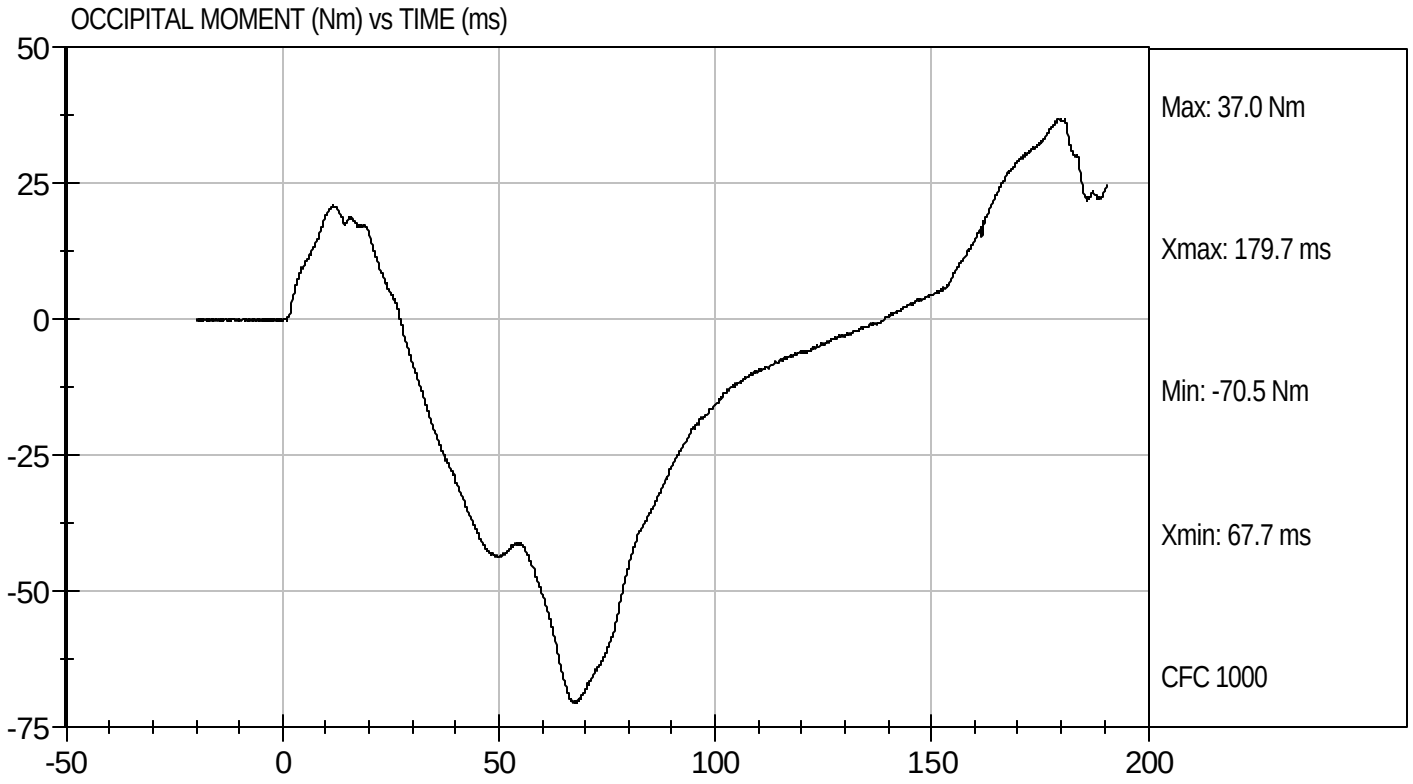


NECK ROTATION (DEG.) vs TIME (ms)



Test Desc: Neck Extension
Component ID: D08493

Test Date: 2/27/08
Velocity: 20.08 ft/s, 6.12 m/s



MGA RESEARCH CORPORATION

THORAX IMPACT

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08494

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	17	Pass
Probe Velocity	m/s	6.58 to 6.82	6.68	Pass
Peak Probe Force	N	5159 to 5893	5,649	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.49	Pass
Internal Hysteresis	%	69 to 85	70	Pass
		Overall Test Results		Pass

Laboratory Technician

2/27/08

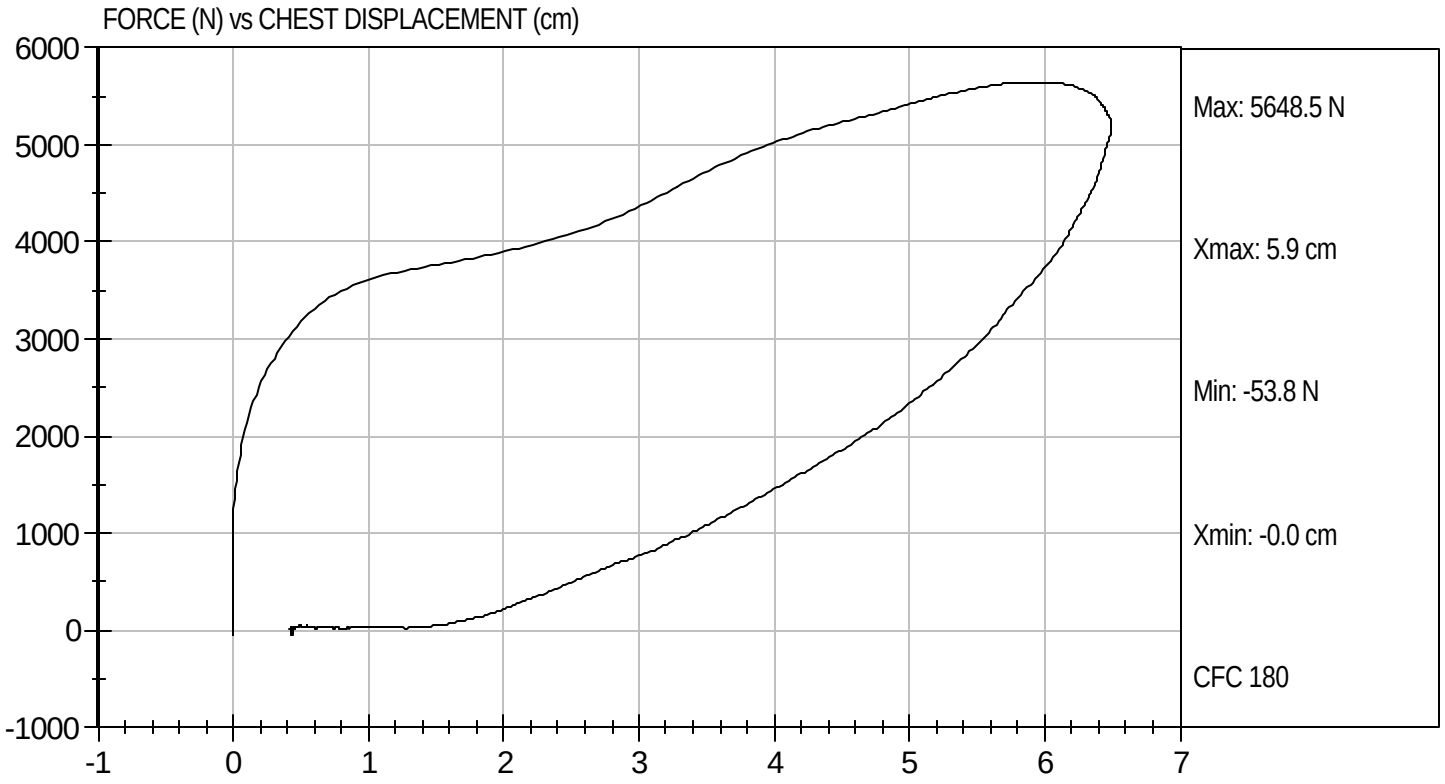
Test Date

David Winkelbauer

Approved By

Test Desc: Thorax Impact
Component ID: D08494

Test Date: 2/27/08
Velocity: 21.93 ft/s, 6.68 m/s



MGA RESEARCH CORPORATION

RIGHT KNEE IMPACT TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08495

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	15	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	4,796	Pass
		Overall Test Results		Pass

Laboratory Technician

2/28/08

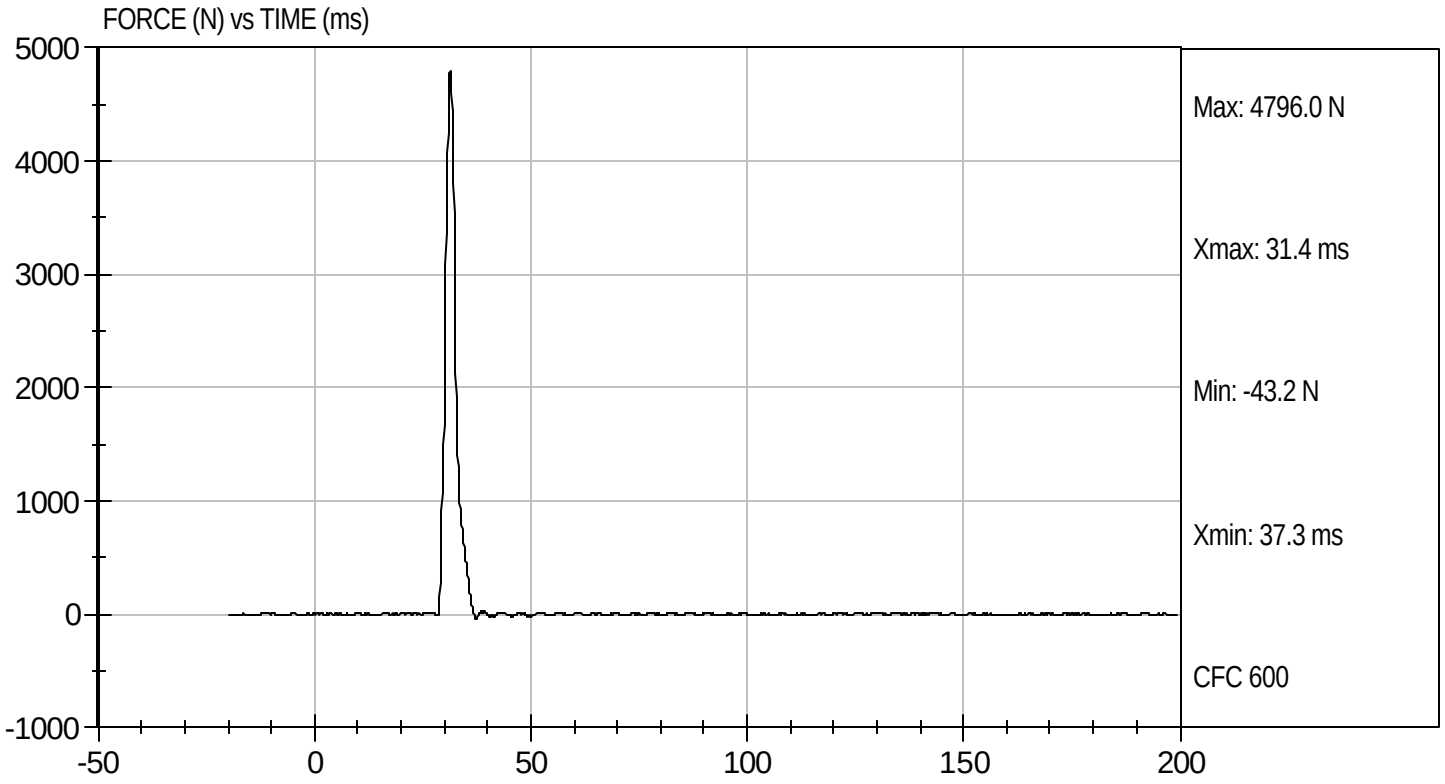
Test Date

David Winkelbauer

Approved By

Test Desc: Right Knee
Component ID: D08495

Test Date: 2/28/08
Velocity: 6.86 ft/s, 2.09 m/s



MGA RESEARCH CORPORATION

LEFT KNEE IMPACT TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08496

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	15	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	4715 to 5782	5,042	Pass
		Overall Test Results		Pass

Laboratory Technician

2/28/08

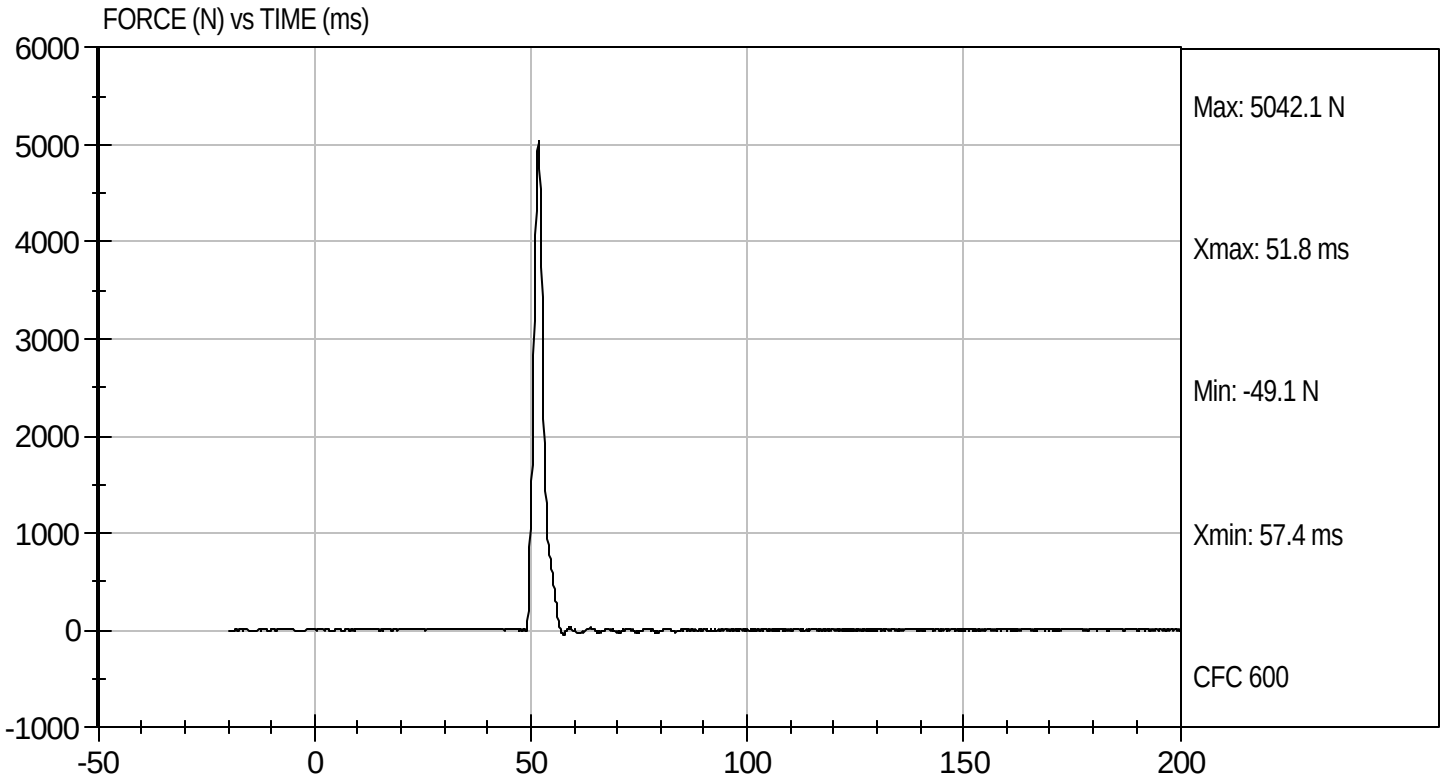
Test Date

David Winkelbauer

Approved By

Test Desc: Left Knee
Component ID: D08496

Test Date: 2/28/08
Velocity: 6.92 ft/s, 2.11 m/s



MGA RESEARCH CORPORATION

HIP-FEMUR FLEXION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08490

Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.3	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	17	17	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	65.8	66.6	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	43	43	Pass
		Overall Test Results			Pass

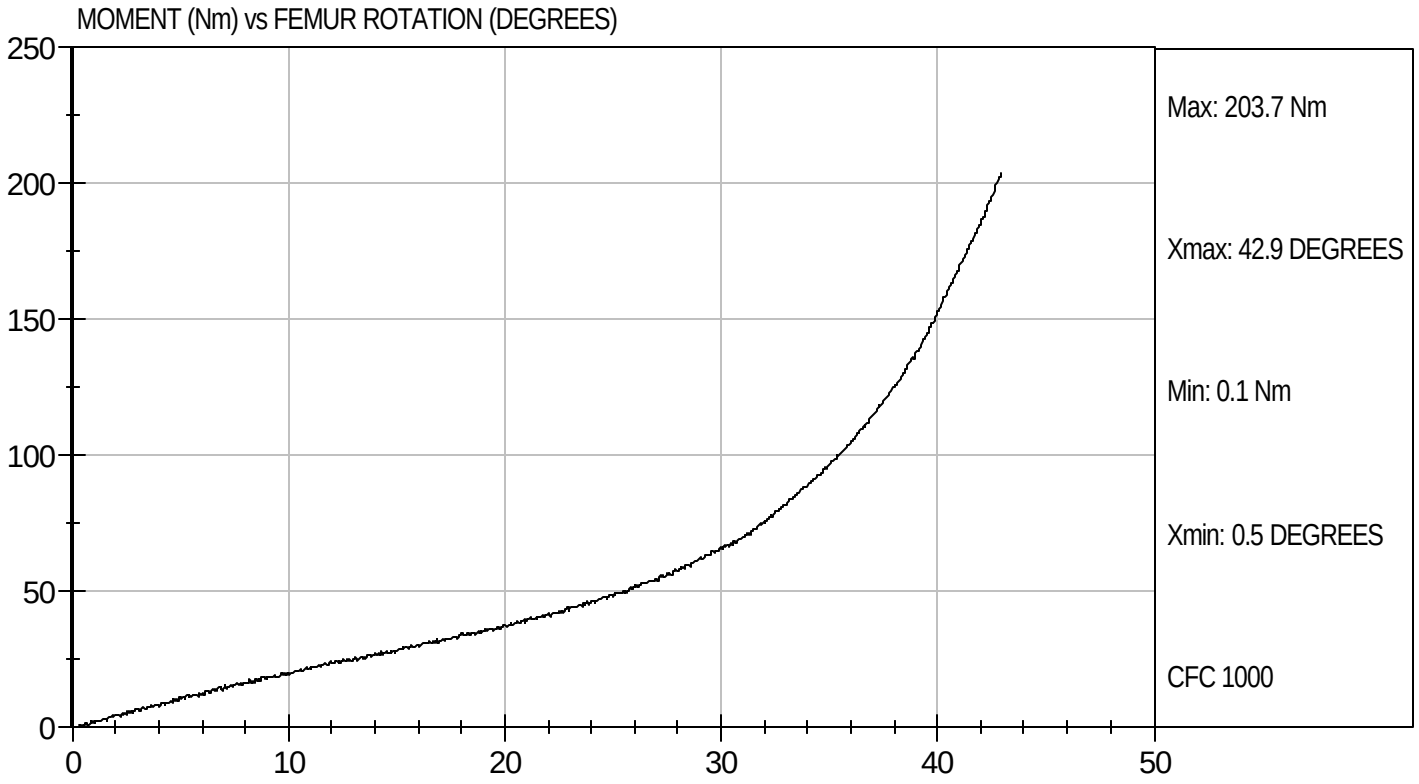
Laboratory Technician

2/27/08
Test Date

David Winkelbauer
Approved By

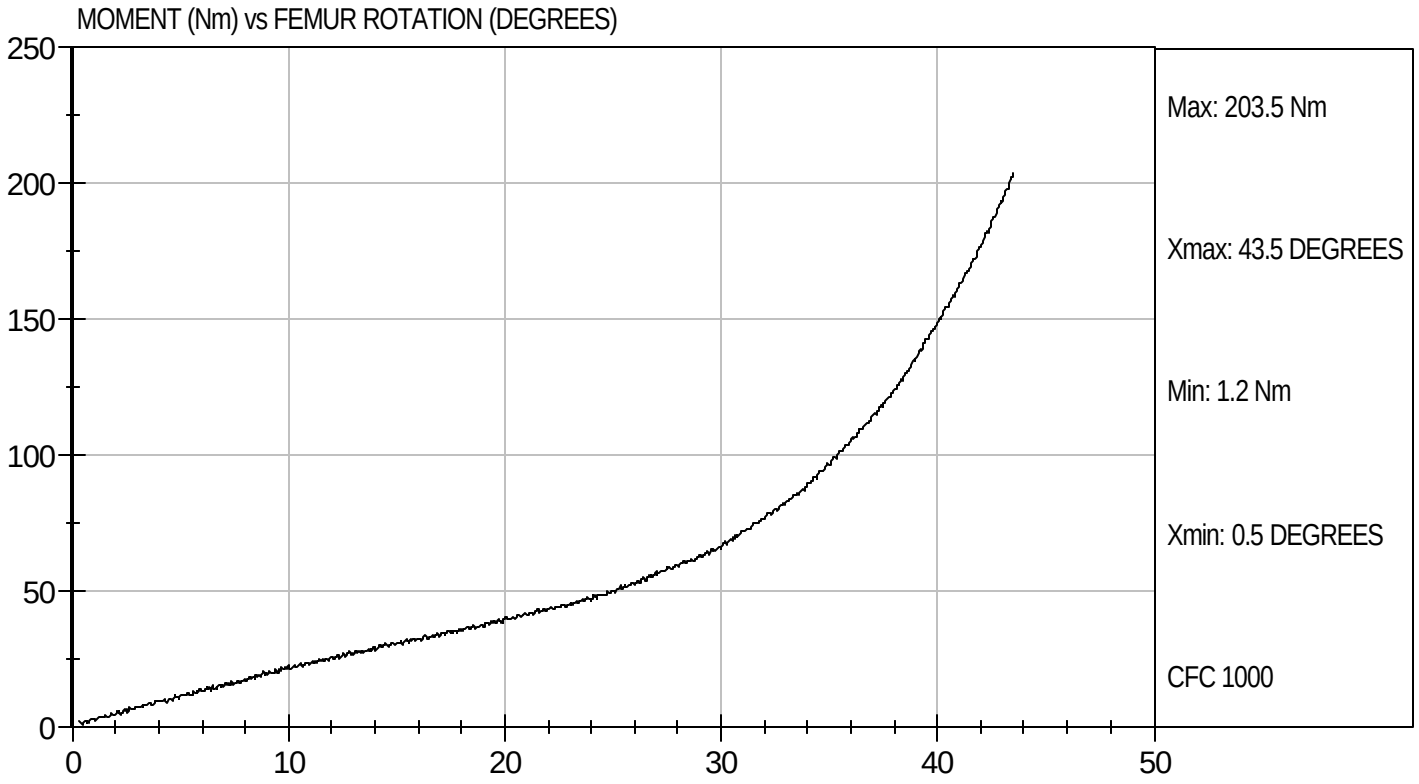
Test Desc: Hip Femur Flexion
Component ID: D08499

Test Date: 2/27/08
Velocity: 0 ft/s, 0.00 m/s



Test Desc: Hip Femur Flexion
Component ID: D08490

Test Date: 2/27/08
Velocity: 0 ft/s, 0.00 m/s



CERTIFICATION DATA

THOR Lx Legs #045 & #046

Installed in Hybrid III 50th Percentile Male Dummy #206

Test Performer: Vehicle Research and Test Center
Test Type: Dorsiflexion/Ball of Foot
Test Name: LX0045_20DEC07_DORSI_02
Test Date: 12/20/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(4.9 - 5.1)	4.95	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	32	Pass	
Peak Tibia Compressive Load (N)	(2956 - 3613)	3405.064	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(77.1 - 94.2)	76.161	Fail	Channel ANKLE MOMENT
Peak Ankle Y-axis Rotation (º)	(32.7 - 39.9)	33.762	Pass	Channel ANKRY

Test Performer: Vehicle Research and Test Center
Test Type: Heel of Foot
Test Name: LX0045_21DEC07_HEEL_01
Test Date: 12/21/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(3.9 - 4.1)	3.99	Pass	
Temperature (ºC)	(20.6 - 22.2)	21.7	Pass	
Relative Humidity (%)	(N/A)	43	Pass	
Peak Tibia Compressive Load (N)	(2738 - 3346)	2981.474	Pass	Channel LTIBFZ

Test Performer: Vehicle Research and Test Center
Test Type: Eversion
Test Name: LX0045_20DEC07_EVER_01
Test Date: 12/20/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	1.98	Pass	
Temperature (ºC)	(20.6 - 22.2)	21.9	Pass	
Relative Humidity (%)	(N/A)	42	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	653.499	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(-36.3 - -44.4)	-42.979	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(30.3 - 37.0)	34.157	Pass	Channel ANKRX

Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX0045_20DEC07_INVER_01
Test Date: 12/20/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	2.00	Pass	
Temperature (ºC)	(20.6 - 22.2)	21.9	Pass	
Relative Humidity (%)	(N/A)	39	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	565.271	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(36.3 - 44.4)	39.346	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(-30.3 - -37.0)	-34.633	Pass	Channel ANKRX

Test Performer: Vehicle Research and Test Center
Test Type: Dorsiflexion/Ball of Foot
Test Name: LX0046_26DEC2007 DORSI 01
Test Date: 12/26/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(4.9 - 5.1)	4.99	Pass	
Temperature (ºC)	(20.6 - 22.2)	21.9	Pass	
Relative Humidity (%)	(N/A)	40	Pass	
Peak Tibia Compressive Load (N)	(2956 - 3613)	3167.941	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(77.1 - 94.2)	81.155	Pass	Channel ANKLE MOMENT
Peak Ankle Y-axis Rotation (º)	(32.7 - 39.9)	33.645	Pass	Channel ANKRY

Test Performer: Vehicle Research and Test Center
Test Type: Heel of Foot
Test Name: LX0046_26DEC2007 HEEL 01
Test Date: 12/26/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(3.9 - 4.1)	3.97	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	38	Pass	
Peak Tibia Compressive Load (N)	(2738 - 3346)	2922.693	Pass	Channel LTIBFZ

Test Performer: Vehicle Research and Test Center
Test Type: Eversion
Test Name: LX0046_26DEC2007 EVER 01
Test Date: 12/26/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	1.97	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.1	Pass	
Relative Humidity (%)	(N/A)	40	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	647.880	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(36.3 - 44.4)	42.929	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(-30.3 - -37.0)	-34.110	Pass	Channel ANKRX

Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX0046_26DEC2007 INVER 01
Test Date: 12/26/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	1.98	Pass	
Temperature (ºC)	(20.6 - 22.2)	21.9	Pass	
Relative Humidity (%)	(N/A)	40	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	636.513	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(-36.3 - -44.4)	-41.810	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(30.3 - 37.0)	34.081	Pass	Channel ANKRX

Transportation Research Center Inc.

Front Head Drop
HIII 10YO Serial No. D001 Certification No. 14-1
Test Date: 6/12/2007

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 ºC	21.2 ºC	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Peak Head Resultant Acceleration	250 - 300 g	270.3 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	9.1 g	Yes
Is Acceleration Curve Unimodal	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Approved

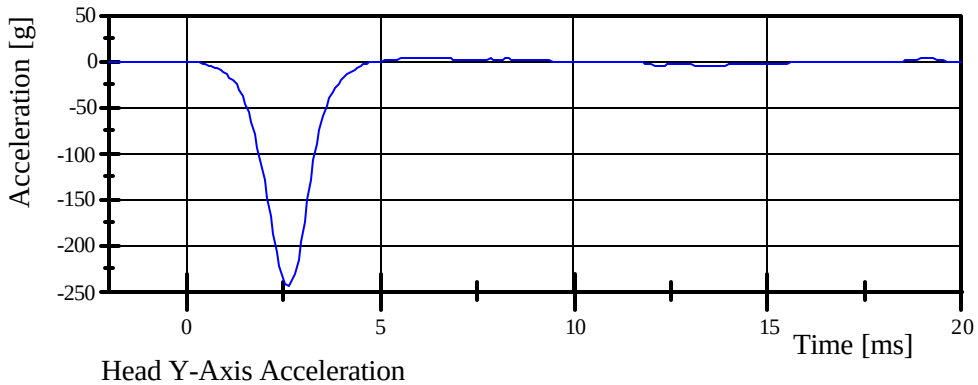
Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.12.2007 12:52:36 732

Transportation Research Center Inc.

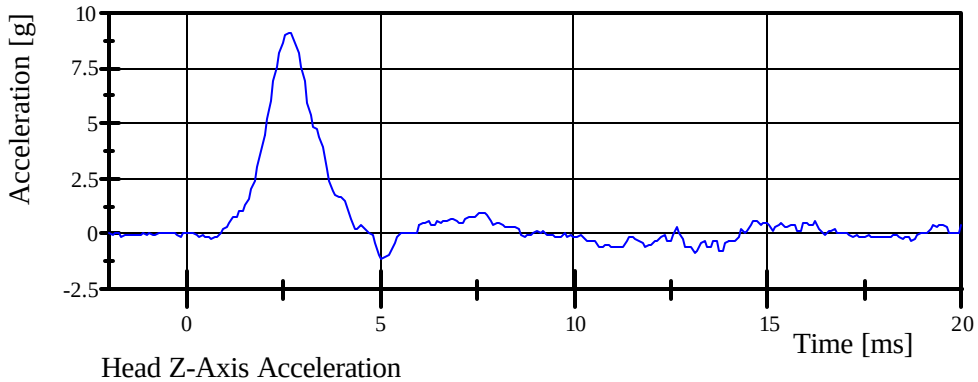
Front Head Drop
HIII 10YO Serial No. D001 Certification No. 14-1
Test Date: 6/12/2007

Head X-Axis Acceleration



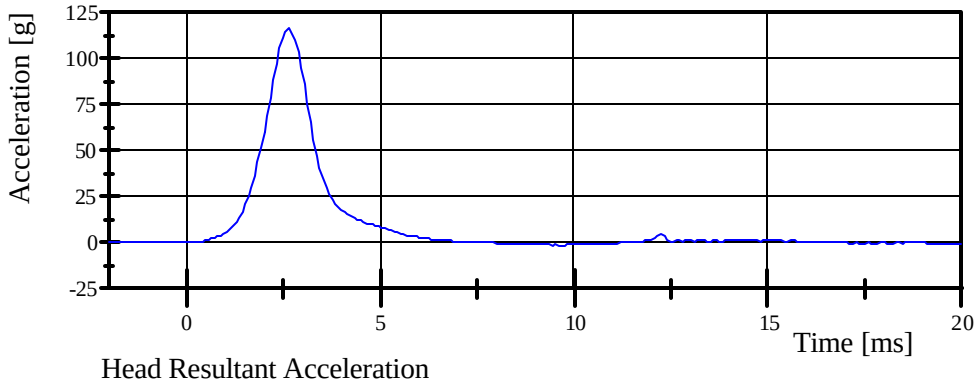
Filter Class: CFC_1000
Max: 4.4 g at 5.9 ms
Min: -243.9 g at 2.6 ms

Head Y-Axis Acceleration



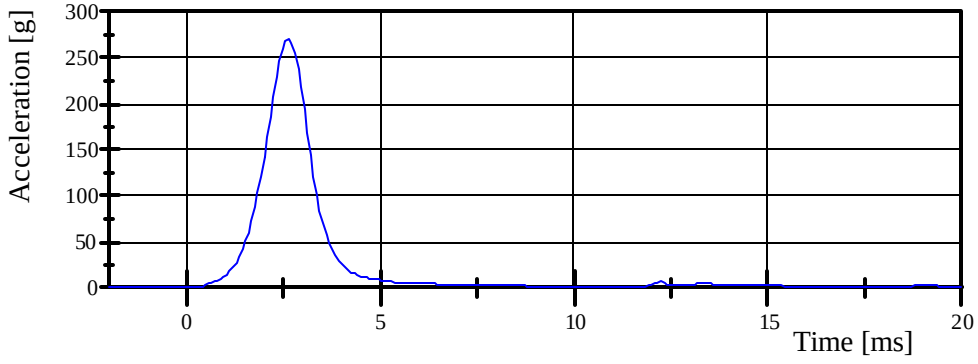
Filter Class: CFC_1000
Max: 9.1 g at 2.6 ms
Min: -1.1 g at 5.0 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 116.1 g at 2.6 ms
Min: -1.3 g at 9.6 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 270.3 g at 2.6 ms
Min: 0.0 g at -1.6 ms

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.12.2007 12:52:49 732

Transportation Research Center Inc.

Neck Flexion
HIII 10YO Serial No. D001 Certification No. 14-2
Test Date: 6/13/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 ºC	21.1 ºC	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Impact Velocity	5.98 - 6.22 m/s	6.073 m/s	Yes
Pendulum Integrated Velocity at 10ms	(-1.64) - (-2.04) m/s	-1.648 m/s	Yes
Pendulum Integrated Velocity at 20ms	(-3.04) - (-4.04) m/s	-3.189 m/s	Yes
Pendulum Integrated Velocity at 30ms	(-4.45) - (-5.65) m/s	-4.692 m/s	Yes
Total Head D-Plane Rotation	(-76.0) - (-90.0) º	-82.31 º	Yes
Total Neck Occipital Condyles Moment Between -74º and -88º Rotation	50.0 - 62.0 Nm	52.09 Nm	Yes
Neck Occipital Condyles Moment Decay to 10 Nm	86.0 - 105.0 ms	100.64 ms	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 14:49:16 1176

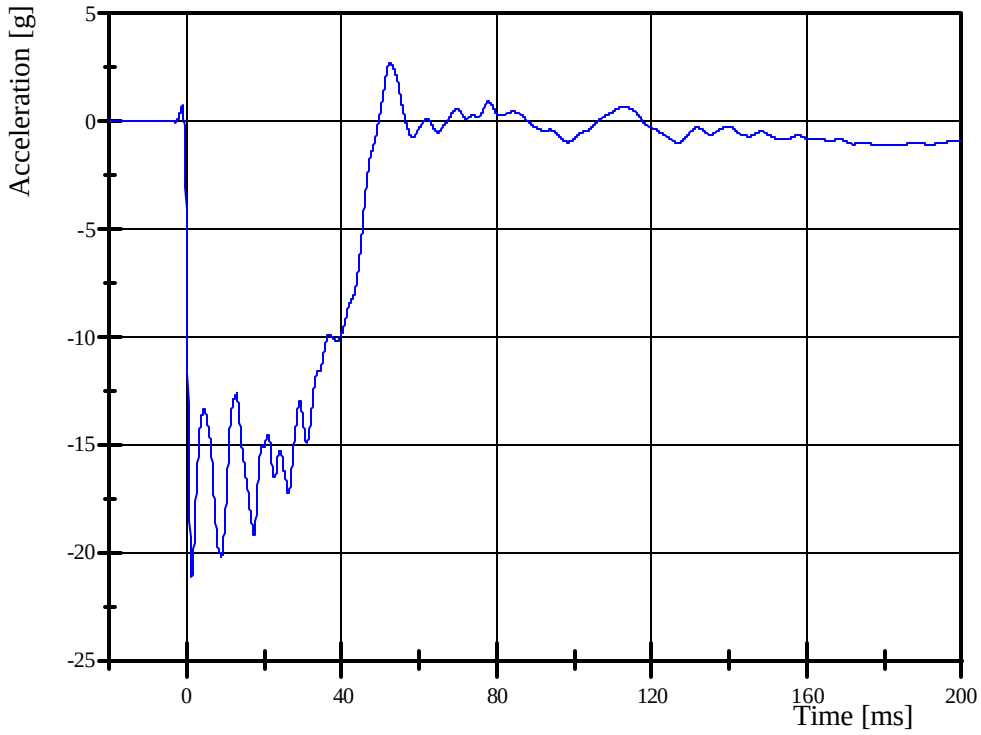
Transportation Research Center Inc.

Neck Flexion

HIII 10YO Serial No. D001 Certification No. 14-2

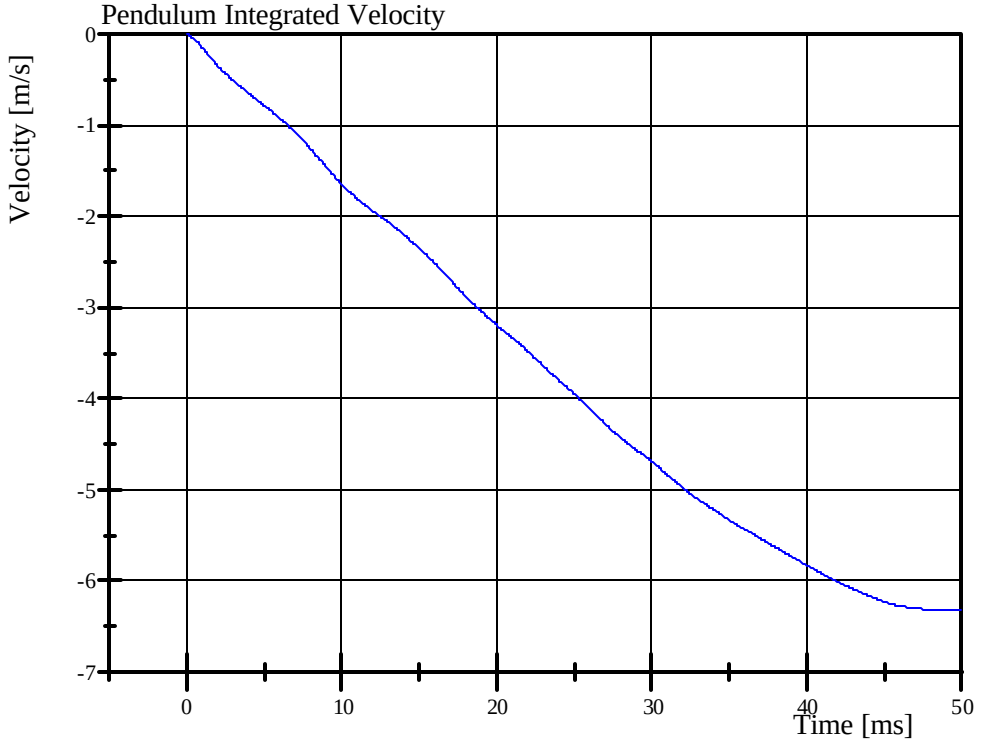
Test Date: 6/13/2007

Pendulum Acceleration



Filter Class: CFC_180
Max: 2.7 g at 52.6 ms
Min: -21.2 g at 1.3 ms

Pendulum Integrated Velocity



Filter Class: CFC_180
Max: 0.0 m/s at 0.0 ms
Min: -6.3 m/s at 49.5 ms

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 14:49:30 1176

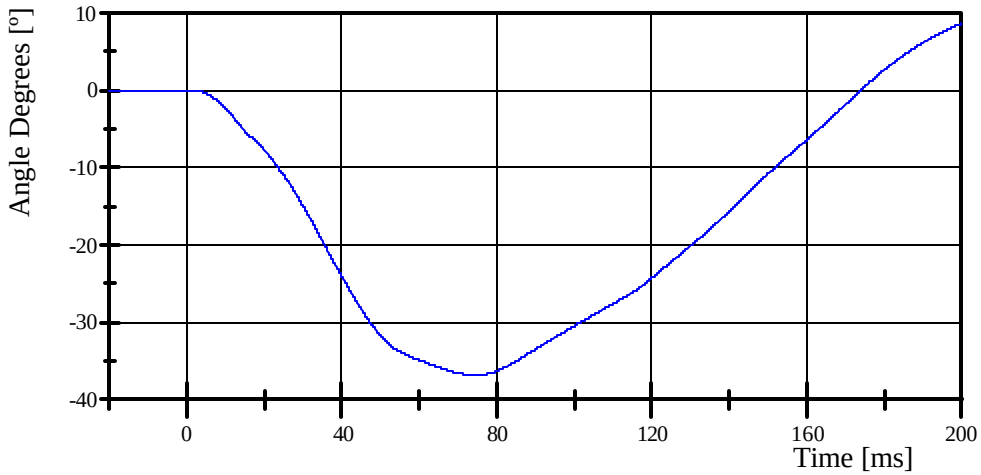
Transportation Research Center Inc.

Neck Flexion

HIII 10YO Serial No. D001 Certification No. 14-2

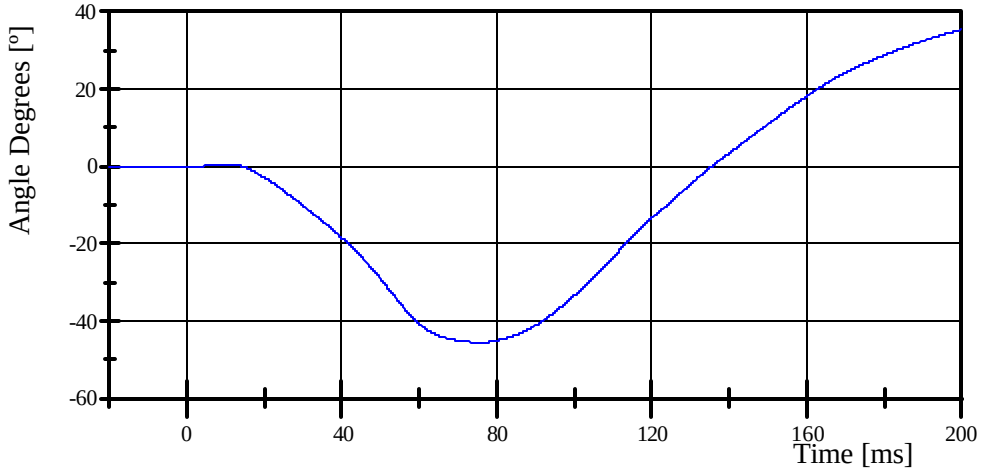
Test Date: 6/13/2007

Pot Rotation at the Base of Neck



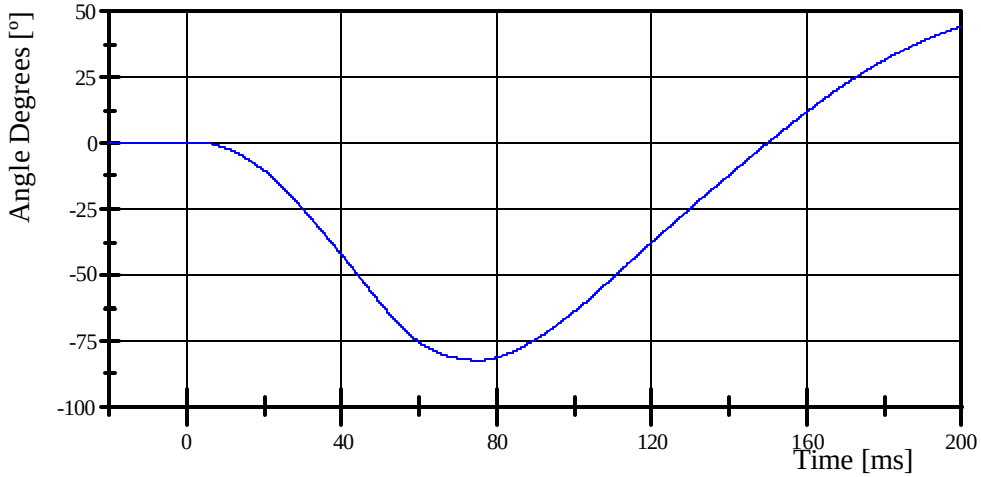
Filter Class: CFC_60
Max: 8.7 ° at 200.0 ms
Min: -36.8 ° at 74.3 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 35.4 ° at 200.0 ms
Min: -45.6 ° at 75.7 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 44.1 ° at 200.0 ms
Min: -82.3 ° at 75.3 ms

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 14:49:31 1176

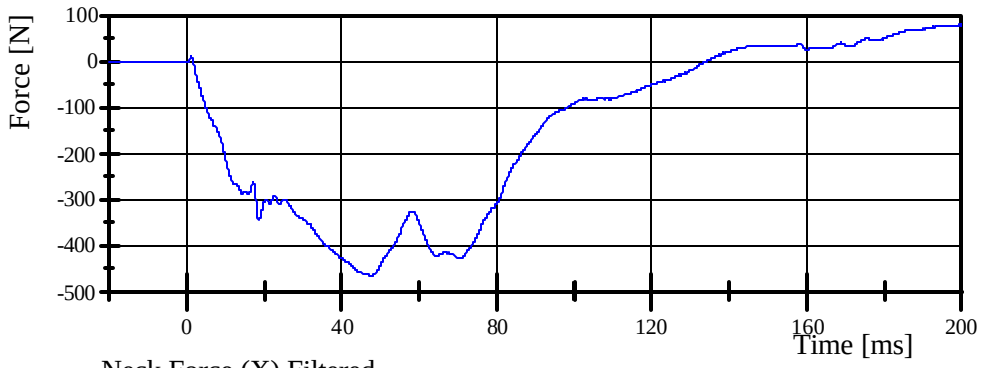
Transportation Research Center Inc.

Neck Flexion

HIII 10YO Serial No. D001 Certification No. 14-2

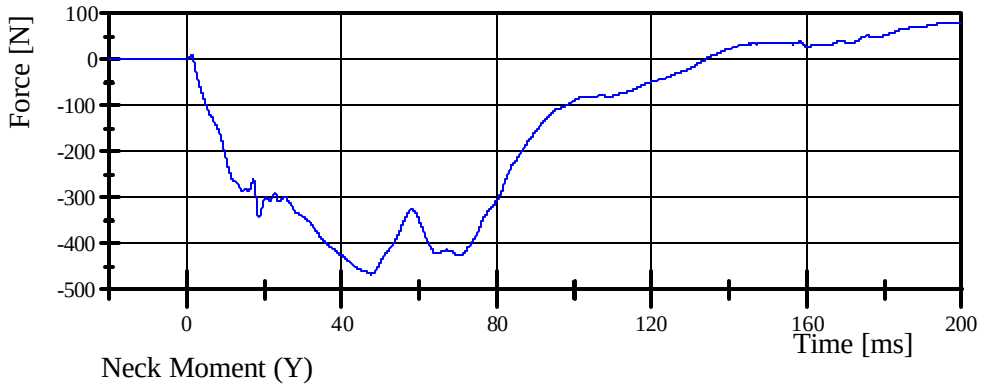
Test Date: 6/13/2007

Neck Force (X)



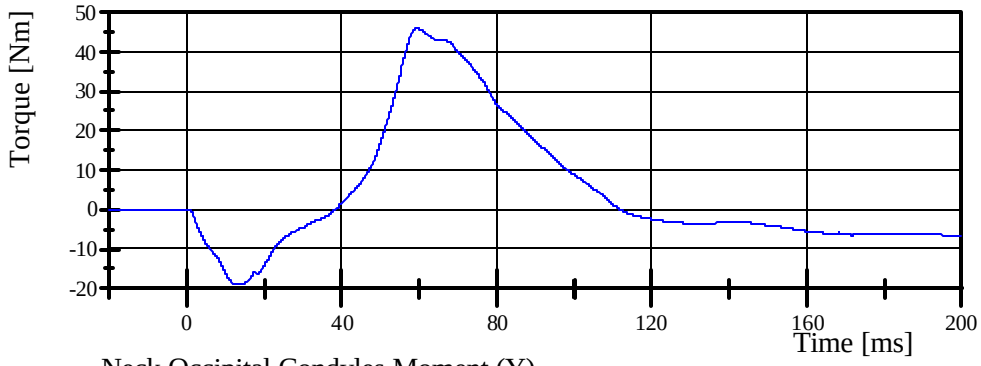
Filter Class: CFC_1000
Max: 80.1 N at 199.8 ms
Min: -467.0 N at 47.6 ms

Neck Force (X) Filtered



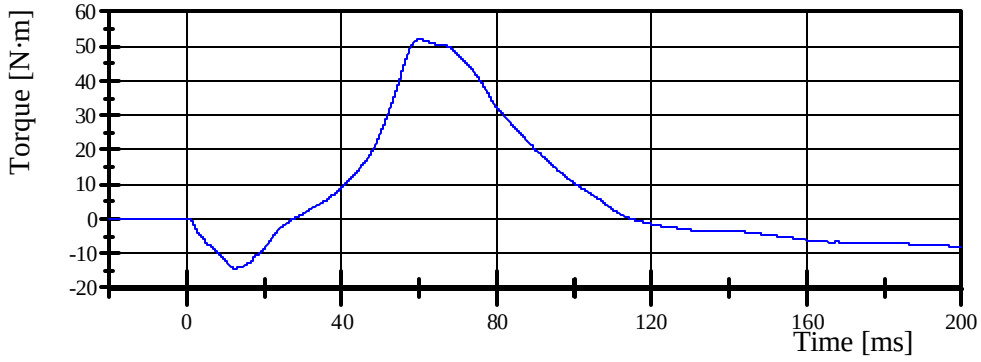
Filter Class: CFC_600
Max: 79.9 N at 200.0 ms
Min: -466.7 N at 47.5 ms

Neck Moment (Y)



Filter Class: CFC_600
Max: 45.9 Nm at 59.6 ms
Min: -19.1 Nm at 14.1 ms

Neck Occipital Condyles Moment (Y)



Filter Class: CFC_600
Max: 52.1 N·m at 60.2 ms
Min: -14.3 N·m at 12.8 ms

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 14:49:31 1176

Transportation Research Center Inc.

Neck Extension
HIII 10YO Serial No. D001 Certification No. 14-1
Test Date: 6/13/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 ºC	21.3 ºC	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Pendulum Impact Velocity	4.91 - 5.15 m/s	5.018 m/s	Yes
Pendulum Integrated Velocity at 10ms	1.49 - 1.89 m/s	1.789 m/s	Yes
Pendulum Integrated Velocity at 20ms	2.88 - 3.68 m/s	3.403 m/s	Yes
Pendulum Integrated Velocity at 30ms	4.20 - 5.20 m/s	4.899 m/s	Yes
Total Head D-Plane Rotation	96.0 - 115.0 º	103.19 º	Yes
Total Neck Occipital Condyles Moment Between 99º and 114º Rotation	(-37.0) - (-46.0) Nm	-43.33 Nm	Yes
Neck Occipital Condyles Moment Decay to -10 Nm	100.0 - 116.0 ms	107.36 ms	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 15:23:13 1295

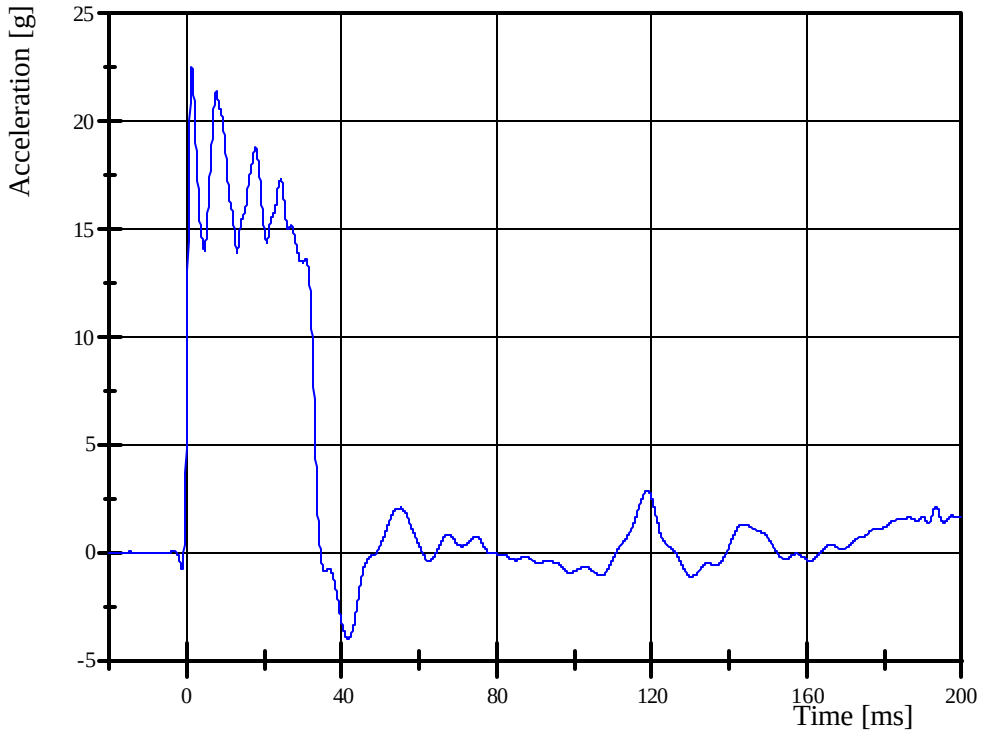
Transportation Research Center Inc.

Neck Extension

HIII 10YO Serial No. D001 Certification No. 14-1

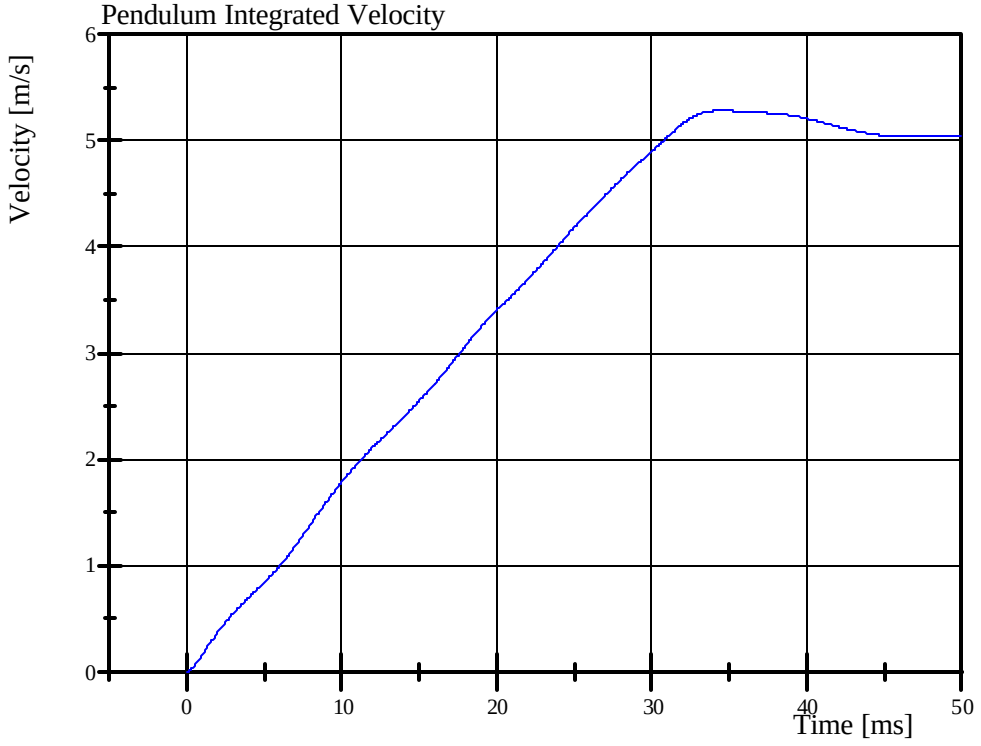
Test Date: 6/13/2007

Pendulum Acceleration



Filter Class: CFC_180
Max: 22.5 g at 1.2 ms
Min: -4.0 g at 41.5 ms

Pendulum Integrated Velocity



Filter Class: CFC_180
Max: 5.3 m/s at 34.5 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 15:23:28 1295

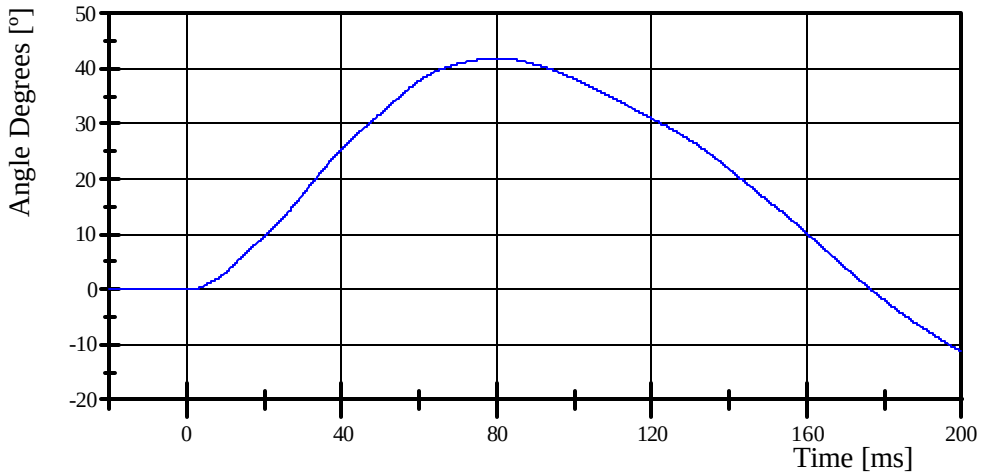
Transportation Research Center Inc.

Neck Extension

HIII 10YO Serial No. D001 Certification No. 14-1

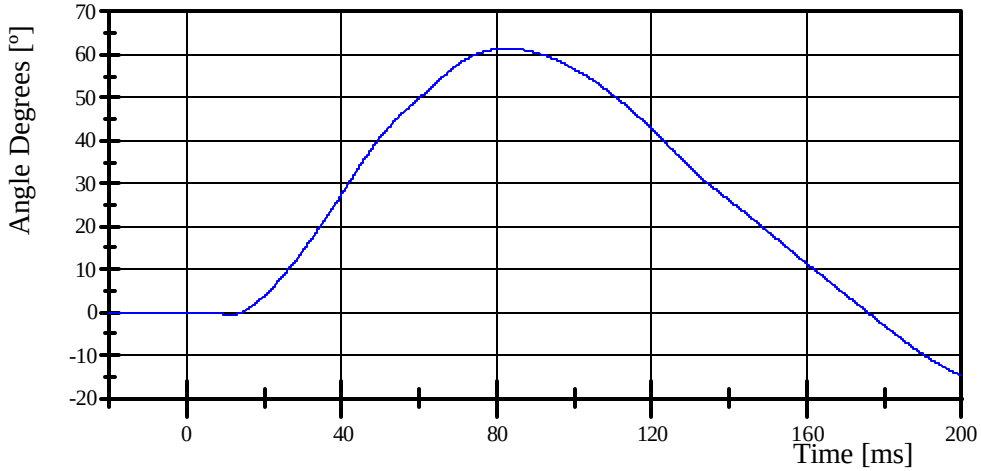
Test Date: 6/13/2007

Pot Rotation at the Base of Neck



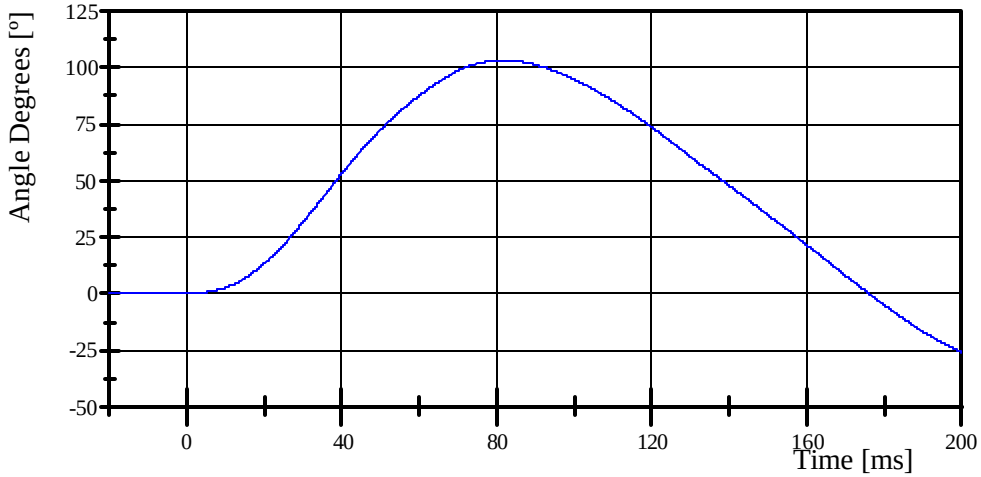
Filter Class: CFC_60
Max: 41.8 ° at 80.1 ms
Min: -11.2 ° at 200.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 61.4 ° at 83.0 ms
Min: -14.7 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 103.2 ° at 81.8 ms
Min: -25.9 ° at 200.0 ms

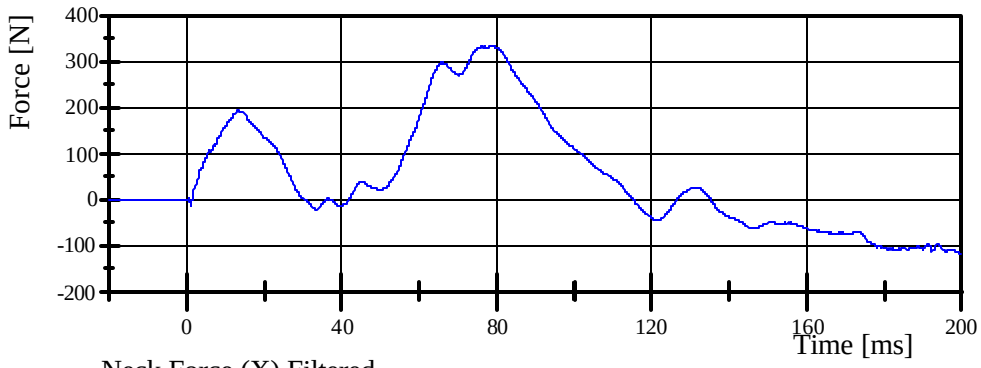
Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 15:23:28 1295

Transportation Research Center Inc.

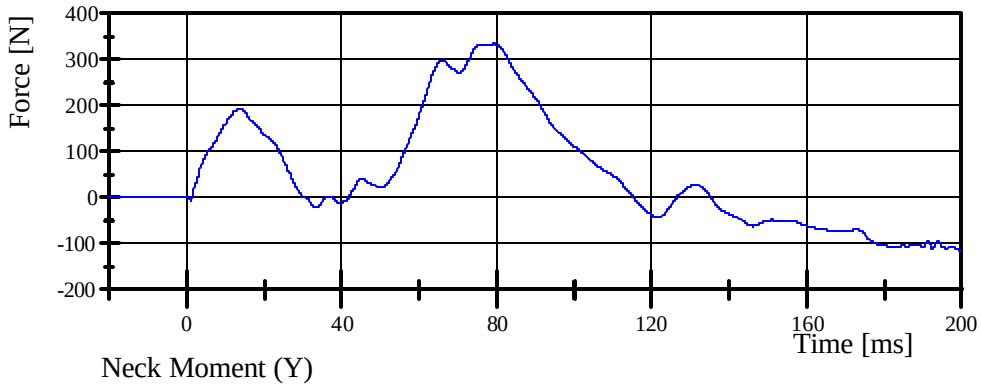
Neck Extension
HIII 10YO Serial No. D001 Certification No. 14-1
Test Date: 6/13/2007

Neck Force (X)



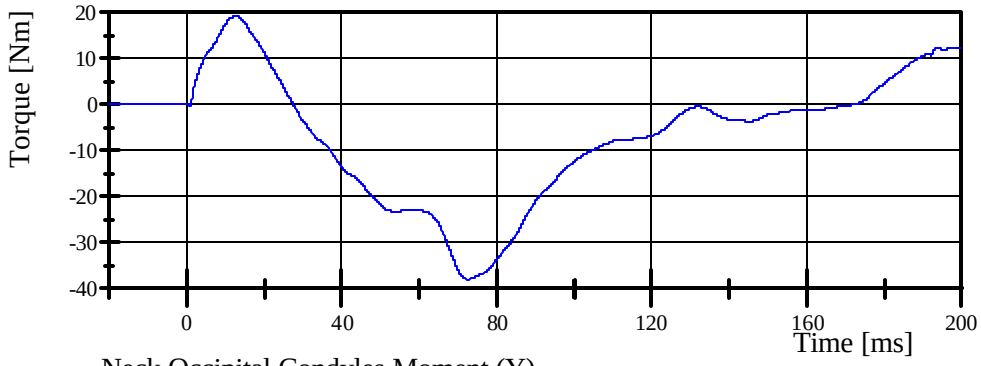
Filter Class: CFC_1000
Max: 333.9 N at 79.3 ms
Min: -118.3 N at 200.0 ms

Neck Force (X) Filtered



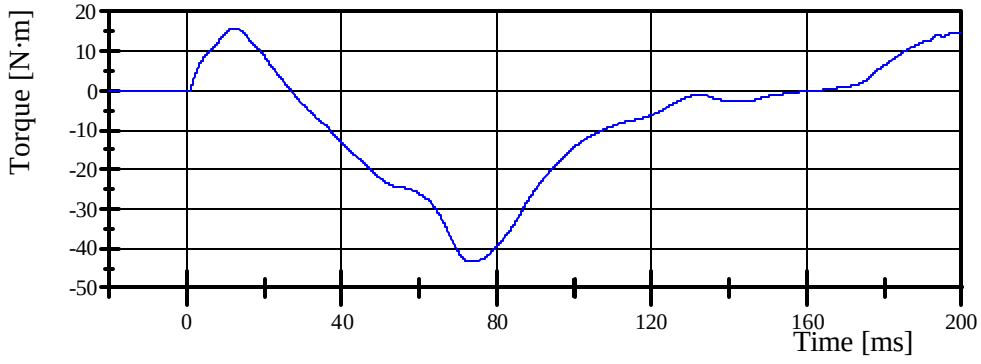
Filter Class: CFC_600
Max: 333.5 N at 79.3 ms
Min: -118.2 N at 200.0 ms

Neck Moment (Y)



Filter Class: CFC_600
Max: 19.3 Nm at 13.0 ms
Min: -38.0 Nm at 72.6 ms

Neck Occipital Condyles Moment (Y)



Filter Class: CFC_600
Max: 15.9 N·m at 12.3 ms
Min: -43.3 N·m at 73.4 ms

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 15:23:29 1295

Transportation Research Center Inc.

Front Thorax
HIII 10YO Serial No. D001 Certification No. 14-2
Test Date: 6/13/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 ºC	21.0 ºC	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Probe Velocity	5.88 - 6.12 m/s	5.946 m/s	Yes
Probe Force Peak Between 37.0 mm and 46.0 mm Chest Deflection	(-2,000) - (-2,450) N	-2,255.5 N	Yes
Probe Force Peak Between 20.0 mm and 40.5 mm Chest Deflection	>= (-2,450) N	-2,218.4 N	Yes
Maximum Chest Compression	(-37) - (-46) mm	-45.6 mm	Yes
Internal Hysteresis	69 - 85 %	79.2 %	Yes

Test meets specifications.

Comments:

Technician

Approved

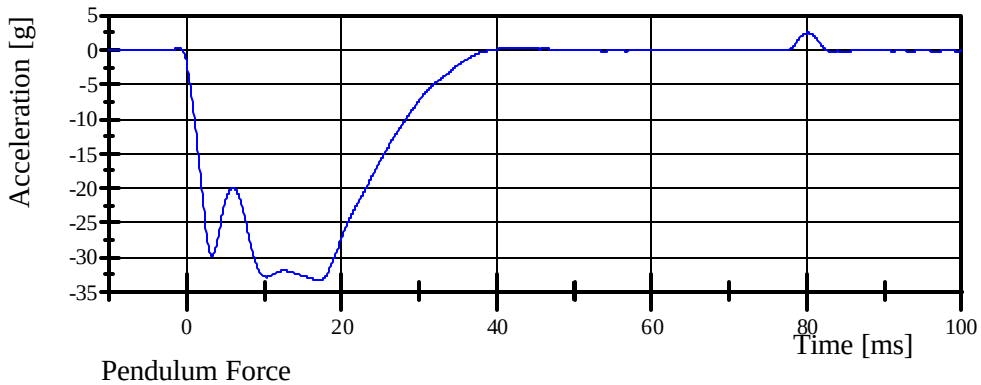
Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 13:36:57 1588

Transportation Research Center Inc.

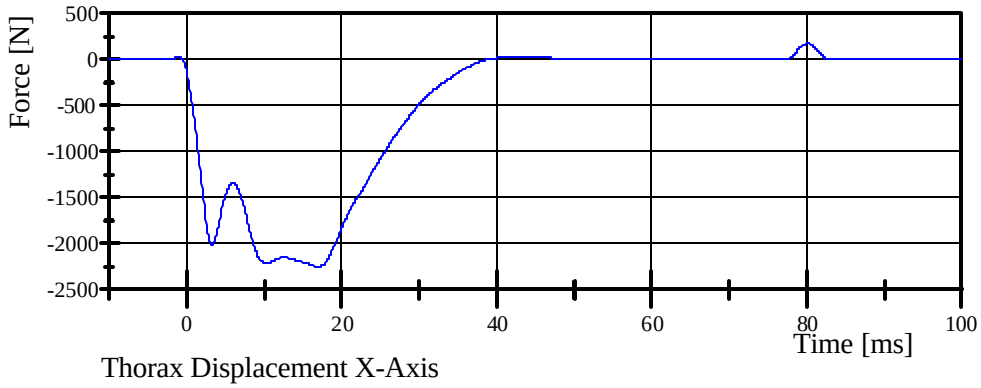
Front Thorax
HIII 10YO Serial No. D001 Certification No. 14-2
Test Date: 6/13/2007

Pendulum Acceleration



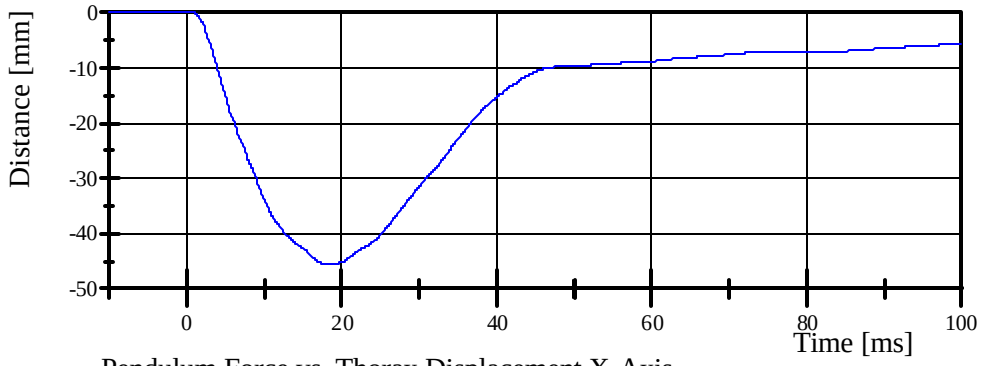
Filter Class: CFC_180
Max: 2.5 g at 80.2 ms
Min: -33.4 g at 17.0 ms

Pendulum Force



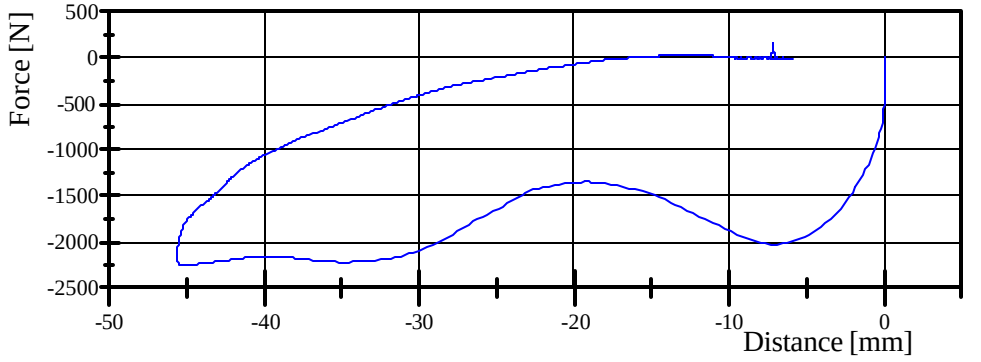
Filter Class: CFC_180
Max: 169.5 N at 80.2 ms
Min: -2,255.5 N at 17.0 ms

Thorax Displacement X-Axis



Filter Class: CFC_600
Max: 0.0 mm at -5.9 ms
Min: -45.6 mm at 18.5 ms

Pendulum Force vs. Thorax Displacement X-Axis



Filter Class: CFC_180
Max: 169.5 N at -7.2 mm
Min: -2,255.5 N at -45.1 mm

Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 13:37:11 1588

POST-TEST DUMMY INSPECTION

Position:	Driver
Dummy:	Hybrid III 50th Percentile Male with Thor-Lx Legs
Serial Number:	#202 (Right Leg #037; Left Leg #036)
Inspected By:	Jessica Gall
Date:	March 31, 2008
Comments:	No Damage.

Position:	Passenger
Dummy:	Hybrid III 50th Percentile Male with Thor-Lx Legs
Serial Number:	#206 (Right Leg #045; Left Leg #046)
Inspected By:	Jessica Gall
Date:	March 31, 2008
Comments:	No Damage.

Position:	Left Rear Passenger
Dummy:	Hybrid III 10 year old
Serial Number:	#D001
Inspected By:	Jessica Gall
Date:	March 31, 2008
Comments:	No Damage.

APPENDIX D

CUSTOMER PROVIDED SEATING PROCEDURE

CONTROL LOG

50th Percentile Male Dummy - Driver side

Rev. No.	Date	Description
00	1/16/2008	Original release by VRTC
01	1/22/2008	Modified left foot placement to avoid pedals (modified step 30 and 35)

A.2 50th Percentile Male Dummy - Driver side

__1. Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions.
__ N/A – No lumbar adjustment

__2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position.
__ N/A – No additional support adjustment

__3. Position an adjustable leg support system in its rearmost position
__N/A – No adjustable leg support system

__4. Mark a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion.

__5. Draw a line (seat cushion reference line) through the seat cushion reference point.

__6. Use only the controls that primarily move the seat in the fore-aft direction to move the seat cushion reference point to the rearmost position.

__7. If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position.
__ N/A – No independent fore-aft seat cushion adjustment

__8. Use any part of any control, other than the parts just used for fore-aft positioning, to determine the range of angles of the seat cushion reference line and to set the seat cushion reference line at the mid-angle.
Maximum angle _____
Minimum angle _____
Mid-angle _____

__9. If the seat and/or seat cushion height is adjustable, use any part of any control other than the parts which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 8.
__N/A – No seat height adjustment

__10. Use only the controls that primarily move the seat in the fore-aft direction to verify the seat is in the rearmost position.

__11. Place seat back at angle specified by the manufacturer. If angle is not provided, place seat back at 25 degrees from vertical.
__ N/A – No seat back angle adjustment
Manufacturer's design seat back angle _____

__12. Is the seat a bucket seat?
__Yes, go to 13 and skip 14
__No, go to 14 and skip 13

__13. Bucket seats:
Locate and mark for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion.

__14. Bench seats
Locate and mark for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface.

__15. Head Restraint Position
__N/A Vehicle contains automatic head restraints.
__N/A, there is no head restraint adjustment
__Adjust the head restraint to its highest position.

__16. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant
__N/A – No adjustable upper seat belt anchorage
Manufacturer's specified anchorage position. _____
Tested anchorage position _____

__17. Place adjustable pedals in the full forward position (towards the front of the vehicle.)
__N/A – the pedals are not adjustable.

__18 Locate and mark the right heel point (RHP) on the carpet.
Flat accelerator pedals: Extend a line through the axis of symmetry (that is closest to the vertical plane) of the accelerator pedal. The RHP is the intersection of that line with the floorpan.
Curved accelerator pedals: Construct a line in the side view tangent to the accelerator pedal such that the distance from the contact point on the pedal to the floorpan, along the tangent line, is 200 mm. The RHP is at the intersection of this tangent line and the floorpan

__19 Locate a longitudinal line L1 and a transverse line T1 on the floorpan through the RHP. Locate a Left Heel Point (LHP) point on the line T1 that is to the left of the seat centerline at the same distance from the seat centerline as the RHP. Locate a longitudinal line L2 through the LHP.

__20. Set the steering wheel hub at the geometric center of the full range of driving positions including any telescoping positions as determined in data sheet 14.3.

__21. Verify that the seat is in the rearmost seat track position and full down height adjustment with the seat cushion at the mid-angle with the seat back at the manufacturer's nominal seat back angle or as determined in step 11

__22 With the seat in the rearmost, full down, mid-angle position, determine the H-point using SAE J826 and the FMVSS 208 leg and thigh dimensions. Record the measurements.

__23. Place the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings and the upper torso resting against the seat back.

__24. Rest the thighs on the seat cushion.

__25. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches.
__measured distance (10.6 inches)

__26. Set the heels of the feet on the floor pan.

__27. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined in step 22
Measure the pelvic angle with respect to the horizontal using the pelvic angle gage.
Adjust the dummy position until these three measurements are within the specifications.
____horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.)
____vertical inches from the point 0.25 below the determined H-point (0.5 inch max.)
____pelvic angle (20^{o} to 25^{o})
The H-point and pelvic angle are not adjusted after this step.

__28. Set the left and right feet in the neutral position (longitudinal centerline of foot in the same plane as the lower leg/thigh, foot Y angle at -15 degrees +/- 2 degrees to lower leg), as determined by the output of the potentiometers at the ankle.

__29. Without moving the seat, and while keeping the right thigh and leg in the same vertical plane, set the right foot heel on Line L1. If the vehicle interior prevents the heel from reaching L1, place the heel as close to L1 as possible, while maintaining a clearance of 0.25" from the vehicle interior.

__30 Without moving the seat, and while keeping the left thigh and leg in the same vertical plane, move the left foot laterally to the left **until any of the following occurs first**:
- The right edge of the foot is clear of the brake or clutch pedal by 0.25" laterally or
- The left edge of the shoe contacts the vehicle interior

__31. Place a 100 N +0, -5N weight (e.g. 100 N shot bag), no larger than 4" x 4", on each knee-thigh area. The weight should be centered on the assembly-hole on the top of the knee.

__32. Raise the heels off the floor pan so that the seat can be moved forward.

__33. Using only the control that primarily moves the seat in the fore-aft direction, move the seat forward and rest the rearmost point of the right foot heel on the floor pan such that:
- the heel is on the line L1
- the foot is in the same plane as the lower leg/thigh, foot at -15 degrees +/- 2 degrees (about the Y- axis) to lower leg,

- foot is contacting the accelerator pedal
- the thighs are resting on the seat cushion
- the thigh, leg and foot are in the same vertical plane

__33.1 If the heel is unable to reach line L1 because the foot contacts the vehicle interior, place the foot as close to the line L1 as possible while maintaining a gap of no more than 5 mm between the shoe and the vehicle interior.

__33.2 If the left foot contacts the brake or clutch pedals or the vehicle interior, then stop the forward movement of the left foot, raising the left knee off the seat cushion if needed. The pedals should not be depressed.

__34. If the right foot does not reach the accelerator pedal, move the adjustable pedal until it contacts the foot. Locate a new heel point. Repeat steps 18 – 33 to re-position the seat. If the pedals are not adjustable, place the heel at the point closest to the pedal, in the same longitudinal vertical plane as the line L1.

__N/A – the accelerator pedal is not adjustable
__N/A – the accelerator pedal did not need to be moved.

__35. Verify that the left thigh and leg are in a vertical longitudinal plane, the foot in the neutral position (longitudinal centerline of foot in the same plane as the lower leg/thigh, foot at -15 degrees +/- 2 degrees (Y-axis) to lower leg), the heel on the floor pan. Place the heel on the line L2, unless the left edge of the shoe contacts the vehicle, preventing the heel from reaching Line L2. If there is overlap with the pedal, move the leg to the left until a lateral clearance of 0.25” from the pedal is attained, unless the left edge of the shoe contacts the vehicle. If the left edge of the shoe contacts the vehicle interior, maintain a clearance of 0.25” from the vehicle interior.

__36. Remove the leg weights.

__37. Verify that the right foot is in the neutral position, at the lateral location determined in step 30, and is contacting the accelerator pedal. If the foot is not contacting the accelerator pedal, move the seat forward to rest the right foot on the accelerator pedal, keeping the foot in the neutral position

__38. While holding the thighs in place, push with a 50 lb force on a 3 inch diameter area of the chest that is centered 5" (127mm) vertically below the chin on the midsaggital plane of the dummy.

__39.1 Fasten the seat belt around the dummy.

__39.2 Remove all slack from the lap belt portion.

__39.3 Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times.

__39.4 Apply a 2 to 4 pound tension load to the lap belt.
____pound load applied

__39.5 Is the belt system equipped with a tension-relieving device?
__Yes, continue
__No, go to 40

__39.6 Introduce the maximum amount of slack into the upper torso belt that is recommended by the vehicle manufacturer in the vehicle owner’s manual..

__40. Place the upper arms adjacent to the torso with the centerline as close to a vertical plane as possible.

__41. Adjust the head level within ± 0.5 degrees using the seat back adjustment. Check the head angle after pushing on the chest with a 50 lb force on a 3 inch diameter area of the chest that is centered 5" (127mm) vertically below the chin on the midsaggital plane of the dummy, while holding the thighs in place, and releasing.

__42 No seat back adjustment. Adjust the neck bracket to achieve head level within ± 0.5 degrees Record neck bracket setting. _____

__43. Maintaining the head alignment as determined above, place the right hand with the palm in contact with the steering wheel at the rim’s horizontal centerline and with the thumb over the steering wheel.

__44. Maintaining the head alignment as determined above place the left hand with the palm in contact with the steering wheel at the rim’s horizontal centerline and with the thumb over the steering wheel.

__45. If the hands don't reach the steering wheel at the horizontal centerline, maintaining the head alignment place them at symmetric location on the wheel, below the horizontal centerline.

__46. Tape the thumb of each hand to the steering wheel by using masking tape with a width of 0.25 inch. The length of the tape shall only be enough to go around the thumb and steering wheel one time.

__47 Verify that the feet are in the neutral position (+/- 2 deg), and at lateral locations determined in step 30 (right foot) and step 35 (left foot), and the head is level (+/- 0.5 deg). Adjust and repeat until the feet position and angles and head angles are within their ranges.

A.4 50th Percentile Male Dummy - Passenger Side

__1. The seat is a bench seat for which the adjustments have already been made for the driver and there are no independent adjustments that can be made for the passenger. Go to 15.
__N/A- the passenger seat adjusts independently of the driver seat.

__2. Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions.
__ N/A – No lumbar adjustment

__3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position.
__ N/A – No additional support adjustment

__4. Position an adjustable leg support system in its rearmost position.
__N/A – No adjustable leg support system

__5. Mark a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion.

__6. Draw a line (seat cushion reference line) through the seat cushion reference point.

__7. Use only the controls that primarily move the seat in the fore-aft direction to move the seat cushion reference point to the rearmost position.

__8. If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position.
__ N/A – No independent fore-aft seat cushion adjustment

__9. Use any part of any control, other than the parts just used for fore-aft positioning, to determine the range of angles of the seat cushion reference line and to set the seat cushion reference line at the mid-angle.
Maximum angle _____
Minimum angle _____
Mid-angle _____

__10. If the seat and/or seat cushion height is adjustable, use any part of any control other than the parts which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 9.
__N/A – No seat height adjustment

__11. Use only the controls that primarily move the seat in the fore-aft direction to verify the seat is in the rearmost position.

__12. Place seat back at angle specified by the manufacturer. If angle is not provided, place seat back at 25 degrees from vertical.
__ N/A – No seat back angle adjustment
Manufacturer's design seat back angle _____

__13. Is the seat a bucket seat?
__Yes, go to 14 and skip 15
__No, go to 15 and skip 14

__14. Bucket seats:
Locate and mark for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion.

__15. Bench seats:
Locate and mark for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel.
Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _____

Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _____

__16. Head Restraint Position
__N/A Vehicle contains automatic head restraints.
__N/A, there is no head restraint adjustment
__Adjust the head restraint to its highest position.

__17. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant
__N/A – No adjustable upper seat belt anchorage
Manufacturer's specified anchorage position. _____
Tested anchorage position _____

__18. Verify that the seat is in the rearmost seat track position and full down height adjustment with the seat cushion at the mid-angle, the seat back is at the manufacturer's nominal design position for the 50th male.

__19 With the seat in the rearmost, full down, mid-angle position, seat back at the manufacturer's nominal design position for the 50th male, determine the H-point using SAE J826 and the FMVSS 208 leg and thigh dimensions.

__20. Place the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings and the upper torso resting against the seat back.

__21. Rest the thighs on the seat cushion.

__22. Set the distance between the outboard knee clevis flange surfaces at 9 ¼ (+/- ¼) inches, with the leg-knee-thigh in the same vertical plane.
__ Record knee separation

__23. Set the heels of the feet on the floor pan.

__24. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined in Step 19. Measure the pelvic angle with respect to the horizontal using the pelvic angle gage. Adjust the dummy position until these three measurements are within the specifications.
____horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.)
____vertical inches from the point 0.25 below the determined H-point (0.5 inch max.)
____pelvic angle (20^{o} to 25^{o})
The H-point and pelvic angle are not adjusted again after this step.

__25. Place a 100 N +0, -5N weight (e.g. 100 N shot bag), no larger than 4" x 4", on each knee-thigh area. The weight should be centered on the assembly-hole on the top of the knee.

__26. Set the left and right feet such that the following conditions are met after the feet are placed:
__ The foot is in neutral position.
__ The leg and thigh are in the same plane.
__ The thighs are resting on the seat cushion.
__ The heel is in contact with the floor pan.

__27 Lift the feet off the floor and set the toe towards the floorpan (Y angle = -25 +/- 2 deg). Using controls that move the seat fore-aft, move the seat forward until either foot contacts vehicle interior or the seat reaches the full-forward position, whichever happens first. Position the feet at that seat location with the heels on the floor and the feet in neutral position (Y angle = -15 +/- 2 deg). If the vehicle interior prevents the feet from reaching the neutral position, place the feet as close as possible to the neutral position while maintaining a distance of 5 mm from the vehicle interior.

__28 Move the seat forward while maintaining the foot orientations (+/-2 deg) until either foot contacts the vehicle interior or the seat reaches full-forward position, whichever happens first.

__29 Keeping the thigh-leg in the same vertical plane, move the feet apart symmetrically about the dummy midsaggital plane until the either foot contacts the vehicle interior or the knee spacing of 10.6 inches between the outboard knee clevis flange surfaces is attained, whichever comes first. Place the feet in neutral position unless contact with the vehicle interior prevents the feet from reaching the neutral position.

Check all that applies:
__ The right foot contacted a flat part of the toe board.
__ The right foot contacted the right side of vehicle interior.
__ The right foot contacted is at neutral position
__ The left foot contacted a flat part of the toe board.
__ The left foot contacted the left side if the vehicle interior.
__ The left foot contacted is at neutral position

__30. Remove the leg weights.

__31. While holding the thighs in place, push with a 50 lb force on a 3 inch diameter area of the chest that is centered 5" (127mm) vertically below the chin on the midsaggital plane of the dummy.

__32. Seat belt

__32.1 Fasten the seat belt around the dummy.

__32.2 Remove all slack from the lap belt portion.

__32.3 Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times.

__32.4 Apply a 2 to 4 pound tension load to the lap belt.
____pound load applied

__32.5 Is the belt system equipped with a tension-relieving device?
__Yes, continue
__No, go to 33

__32.6 Introduce the maximum amount of slack into the upper torso bet that is recommended by the vehicle manufacturer in the vehicle owner's manual.

__33. Place the upper arms adjacent to the torso with the centerline as close to a vertical plane as possible.

__34. Place the right upper arm in contact with the seat back and side of the torso.

__35. Place the left hand palm in contact with the outside of the left thigh and the little finger in contact with the seat cushion.

__36. Place the right hand palm in contact with the outside of the right thigh and the little finger in contact with the seat cushion.

__37. Adjust the head level within ± 0.5 degrees using the seat back adjustment. Check the head angle after pushing on the chest with a 50 lb force on a 3 inch diameter area of the chest that is centered 5" (127mm) vertically below the chin on the midsaggital plane of the dummy, while holding the thighs in place, and releasing.

__37.1 No seat back adjustment. Adjust the neck bracket to achieve head level within ± 0.5 degrees Record neck bracket setting. _____

U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

Memorandum

Vehicle Research and Test Center **P.O. Box B37
East Liberty, Ohio 43319
(937) 666-4511**

Subject: VRTC Seating Procedure for FMVSS 213-Type Booster Seat Testing with the Hybrid III 6 Year Old & 10 Year Old Child Dummies

OCT 24 2007

From: Joseph N. Kanianthra, Ph.D.
Associate Administrator for
Vehicle Safety Research

To: Docket NHTSA-2005-21245

Thru: Anthony M. Cooke
Chief Counsel

VRTC Seating Procedure for Hybrid III 6 Year Old Child Dummy for Testing Belt Positioning Booster Seats

VRTC Use the following procedure to position the dummy in the belt positioning booster seat:

a) Place the booster seat on the FMVSS 213 bench seat such that it is centered between the lap belt anchor positions and the booster is pushed rearward until the intersection of the booster's back and bottom contacts the intersection of the FMVSS 213 bench seat's back and base cushions.
b) Place the dummy in the booster seat so that the mid-sagittal line of the dummy is coincident with the centerline of the booster.
c) Measure the X and Z locations of the left and right shoulder pivots. Position the dummy so that the difference between the X and Z values for these two points is less than or equal to 1 cm (see Figure 1).
d) As illustrated in Figure 2 of this section, calculate the H-point location of the dummy relative to the FMVSS 213 seat Z point (see Figure 1B in FMVSS 213) by
    a. Measuring the X and Z coordinates of the knee pivot (X_{KP} and Z_{KP}) and head center of gravity (X_{CG} and Z_{CG}).
    b. Mathematically locating the intersection point of two circles using the knee pivot and head center of gravity as the centers and the known dummy anthropometric lengths as radii. The equations for calculating the H-point are as follows:

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$$X_{HP} = X_{CG} + \frac{A(X_{KP} - X_{CG})}{B} + \frac{\sqrt{473^2 - A^2}(Z_{KP} - Z_{CG})}{B}$$

$$Z_{HP} = Z_{CG} + \frac{A(Z_{KP} - Z_{CG})}{B} - \frac{\sqrt{473^2 - A^2}(X_{KP} - X_{CG})}{B}$$

Where:

$$A = \frac{(473^2 - 238^2 + B^2)}{2B}$$

$$B = \sqrt{(X_{KP} - X_{CG})^2 + (Z_{KP} - Z_{CG})^2}$$

e) Use the H-point location and head center of gravity location to determine the torso angle relative to vertical. This angle is calculated using

$$\text{Torso Angle} = \arctan\left(\frac{X_{HP} - X_{CG}}{Z_{CG} - Z_{HP}}\right)\left(\frac{180}{\pi}\right)$$

f) Adjust the dummy until the torso angle is 14 ± 0.5 degrees from vertical.

g) Secure the dummy and booster with belt restraint, following booster manufacturer's instructions for routing the shoulder and lap belts. Apply standard FMVSS 213 belt tensions.

h) Locate the shoulder belt such that its outboard edge is inside of the outer edge of the chest jacket (see Figure 3). If it is not feasible to get the outboard edge of the belt inside the outer edge of the chest jacket, document the closest distance from the belt to the chest jacket that is obtainable.

i) The straight line distance from the bottom of the dummy's chin to the center of the shoulder belt/middle of the sternum along the dummy's mid-sagittal line should be 15.5 ± 0.5 cm (see Figure 4). Measure and document the intersection of the dummy's mid-sagittal line and vertical center of shoulder belt's width.

j) Measure and document the angle of the shoulder belt relative to horizontal. The shoulder belt angle should be $50^{\circ} \pm 10^{\circ}$. If it is not feasible to achieve the specified shoulder belt angle while following the manufacturer's instructions for belt routing, document angle that is obtainable.

k) Locate the lap belt such that the top of the belt is 2.54 cm or more below the top rim of the pelvis molded skin at the dummy's mid-sagittal line (Figure 4). If it is not feasible to locate the lap belt at least 2.54 cm below the top of the pelvis while following the manufacturer's instructions for belt routing, position belt as low as possible on pelvis.

l) Measure and document the intersection of the dummy's mid-sagittal line and center of lap belt width.

m) Put upper arms as close as possible to, and in alignment with, the upper torso on sides and bend at elbows such that the hands are resting on the booster seat cushion if possible; otherwise bend lower arm perpendicular to upper arm and have hands pointed forward.

n) Level the top of the dummy's head ± 1° off of horizontal.
o) Document final H-point, Head CG, and Knee Pivot coordinates in addition to the torso angle.

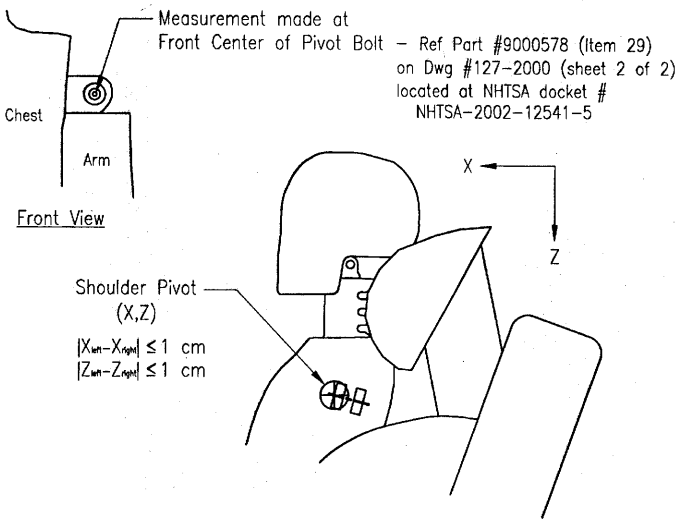

Figure 1. Shoulder Pivot Bolt Alignment

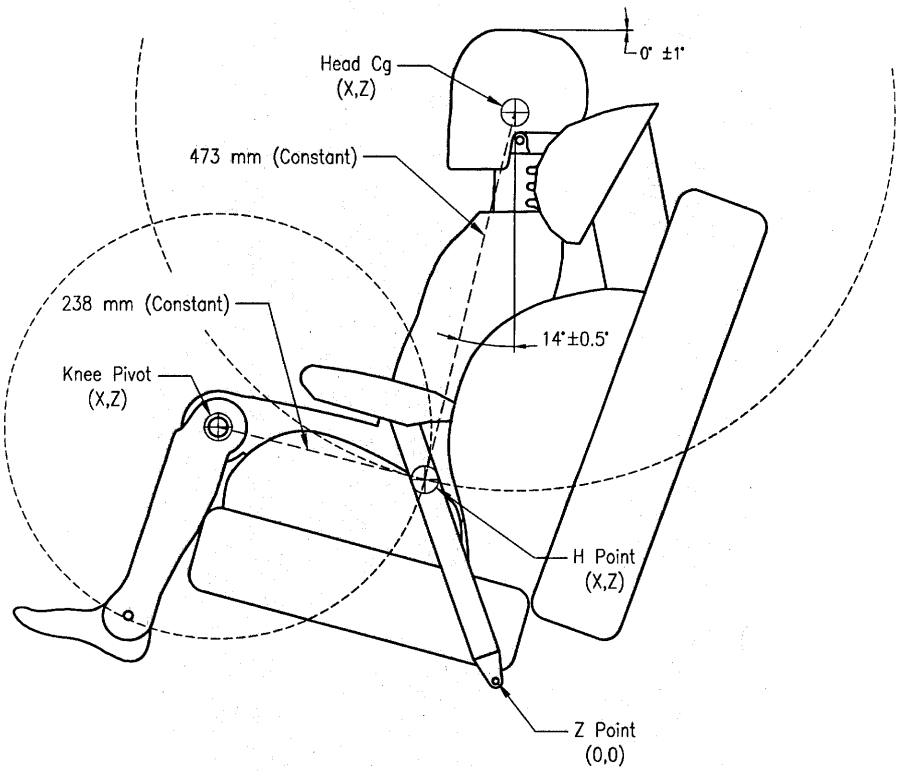

Figure 2. Locating the H-Point so that HIII-6C Torso Angle is 14 ± 0.5 Degrees from Vertical

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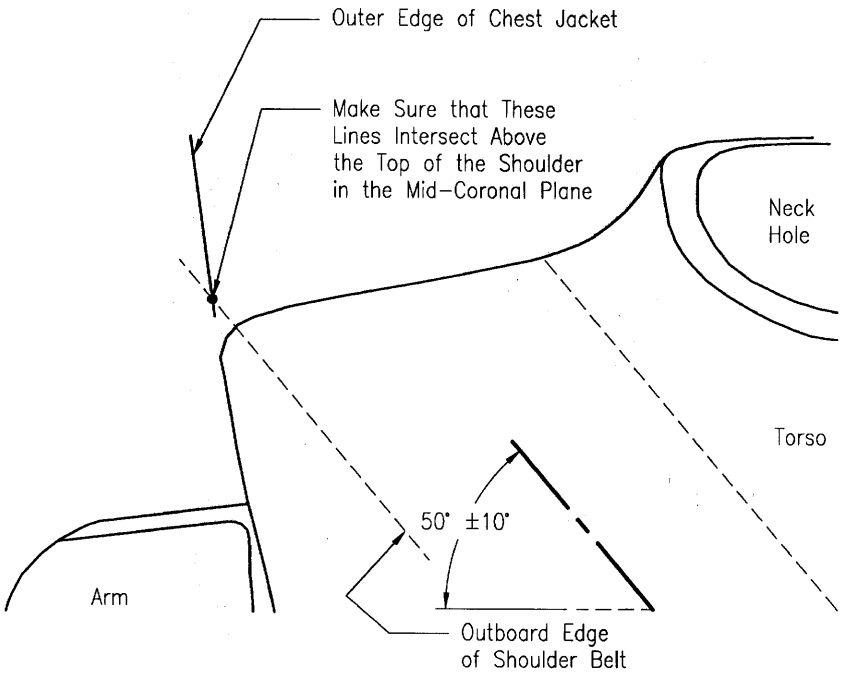

Figure 3. Shoulder Belt Placement

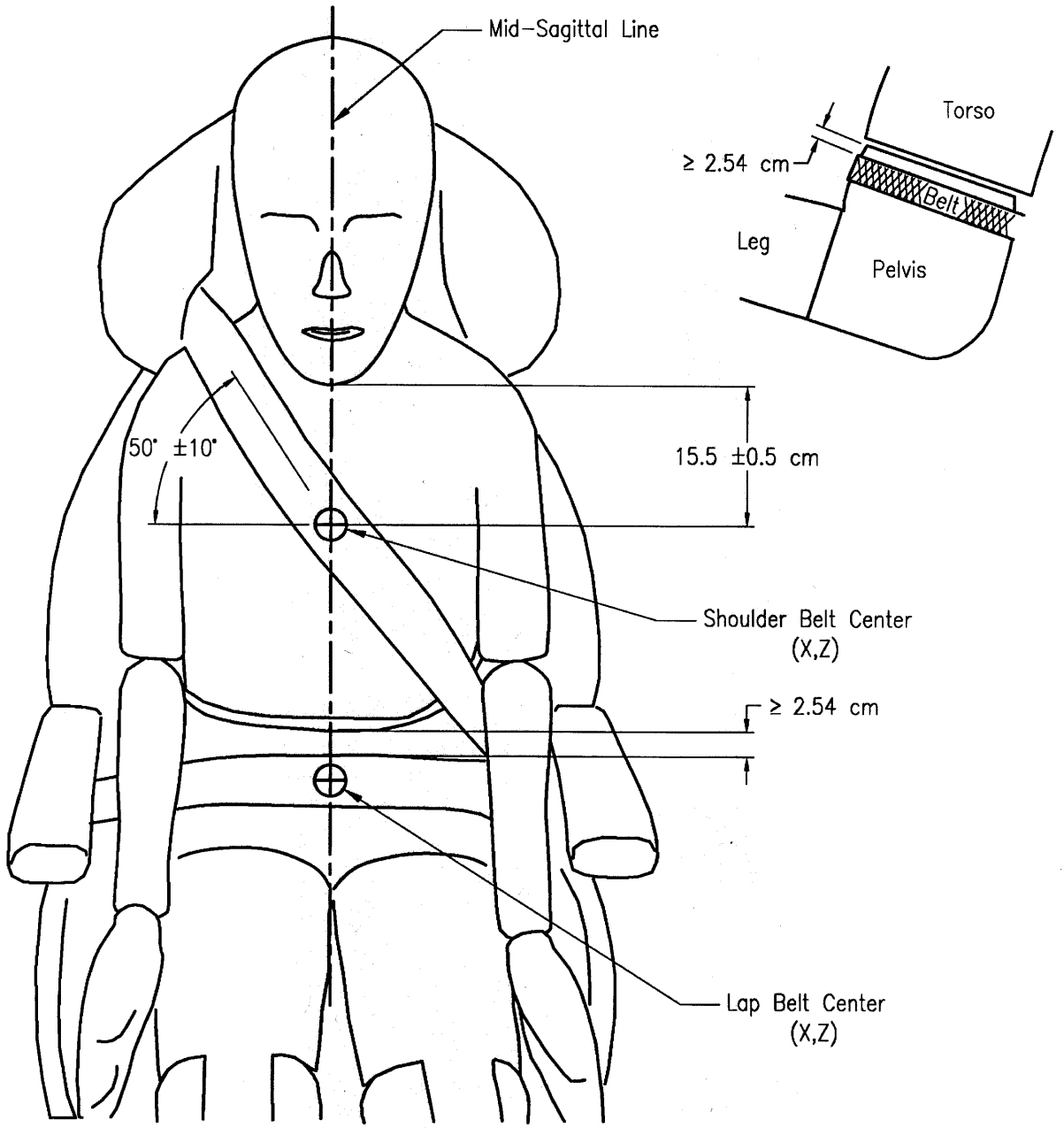

Figure 4. Overall Belt Placement for HIII-6C Dummy

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VRTC Seating Procedure for Hybrid III 10 Year Old Child Dummy for Testing Belt Positioning Booster Seats

Use the following procedure to position the dummy in the belt positioning booster seat:

a) Set the dummy's neck angle at the SP-16 setting (Figure 5a). See also Figure 20 of PADI (NHTSA-2005-21247-8) for more detail.
b) Set the dummy's lumbar angle at the SP-12 setting ("SP" means standard posture), see Figure 5b. This is done by aligning the notch on the lumbar adjustment bracket with the SP-12 notch on the lumbar attachment. See also Figure 45 of PADI for more detail.
c) Place the booster seat on the FMVSS 213 bench seat such that it is centered between the lap belt anchor positions and the booster is pushed rearward until the intersection of the booster's back and bottom contacts the intersection of the FMVSS 213 bench seat's back and base cushions.
d) Place the dummy in the booster seat so that the mid-sagittal line of the dummy is coincident with the centerline of the booster.
e) Measure the X and Z locations of the left and right shoulder pivots. Position the dummy so that the difference between the X and Z values for these two points is less than or equal to 1 cm (see Figure 6).
f) As illustrated in Figure 7 of this section, calculate the H-point location of the dummy relative to the FMVSS 213 seat Z point (see Figure 1B in FMVSS 213) by
    1. Measuring the X and Z coordinates of the knee pivot (X_{KP} and Z_{KP}) and head center of gravity (X_{CG} and Z_{CG}).
    2. Mathematically locating the intersection point of two circles using the knee pivot and head center of gravity as the centers and the known dummy anthropometric lengths as radii. The equations for calculating the H-point are as follows:

$$X_{HP} = X_{CG} + \frac{A(X_{KP} - X_{CG})}{B} + \frac{\sqrt{527^2 - A^2}(Z_{KP} - Z_{CG})}{B}$$

$$Z_{HP} = Z_{CG} + \frac{A(Z_{KP} - Z_{CG})}{B} - \frac{\sqrt{527^2 - A^2}(X_{KP} - X_{CG})}{B}$$

Where:

$$A = \frac{(527^2 - 288^2 + B^2)}{2B}$$

$$B = \sqrt{(X_{KP} - X_{CG})^2 + (Z_{KP} - Z_{CG})^2}$$

g) Use the H-point location and head center of gravity location to determine the torso angle relative to vertical. This angle is calculated using

$$\text{Torso Angle} = \arctan\left(\frac{X_{HP} - X_{CG}}{Z_{CG} - Z_{HP}}\right)\left(\frac{180}{\pi}\right)$$

h) Adjust the dummy until the torso angle is 14 ± 0.5 degrees from vertical.
i) Secure the dummy and booster with belt restraint, following booster manufacturer's instructions for routing the shoulder and lap belts. Apply standard FMVSS 213 belt tensions.
j) Locate the shoulder belt such that its outboard edge is inside of the outer edge of the chest jacket (see Figure 8). If it is not feasible to get the outboard edge of the belt inside the outer edge of the chest jacket, document the closest distance from the belt to the chest jacket that is obtainable.
k) The straight line distance from the bottom of the dummy's chin to the center of the shoulder belt/middle of the sternum along the dummy's mid-sagittal line should be 16 ± 0.5 cm (see Figure 9). Measure and document the intersection of the dummy's mid-sagittal line and vertical center of shoulder belt's width.
l) Measure and document the angle of the shoulder belt relative to horizontal. The shoulder belt angle should be $50^{\circ} \pm 10^{\circ}$. If it is not feasible to achieve the specified shoulder belt angle while following the manufacturer's instructions for belt routing, document angle that is obtainable.
m) Locate the lap belt such that the top of the belt is 2.54 cm or more below the top rim of the pelvis molded skin at the dummy's mid-sagittal line (Figure 9). If it is not feasible to locate the lap belt at least 2.54 cm below the top of the pelvis while following the manufacturer's instructions for belt routing, position belt as low as possible on pelvis.
n) Measure and document the intersection of the dummy's mid-sagittal line and center of lap belt width.
o) Put upper arms as close as possible to, and in alignment with, the upper torso on sides and bend at elbows such that the hands are resting on the booster seat cushion if possible; otherwise bend lower arm perpendicular to upper arm and have hands pointed forward.
p) Level dummy's head $\pm 1^{\circ}$ off of horizontal.
q) Document final H-point, Head CG, and Knee Pivot coordinates in addition to the torso angle.

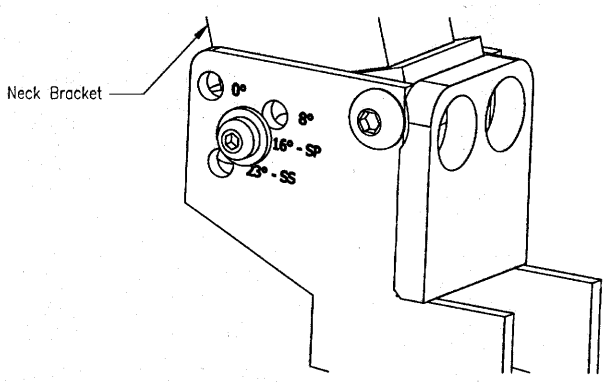

Figure 5a. Neck Angle Setting is SP-16 Degrees

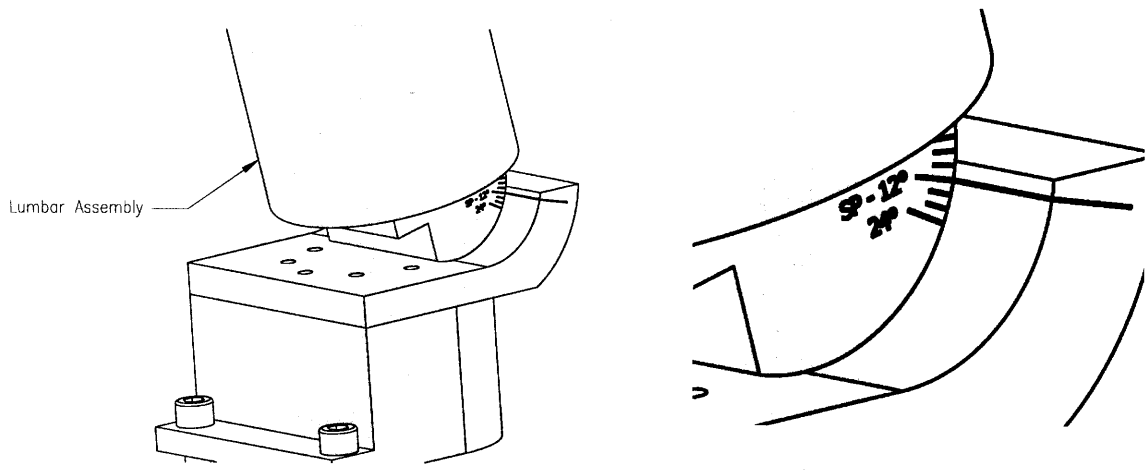

Figure 5b. Lumbar Angle Setting is SP-12 Degrees

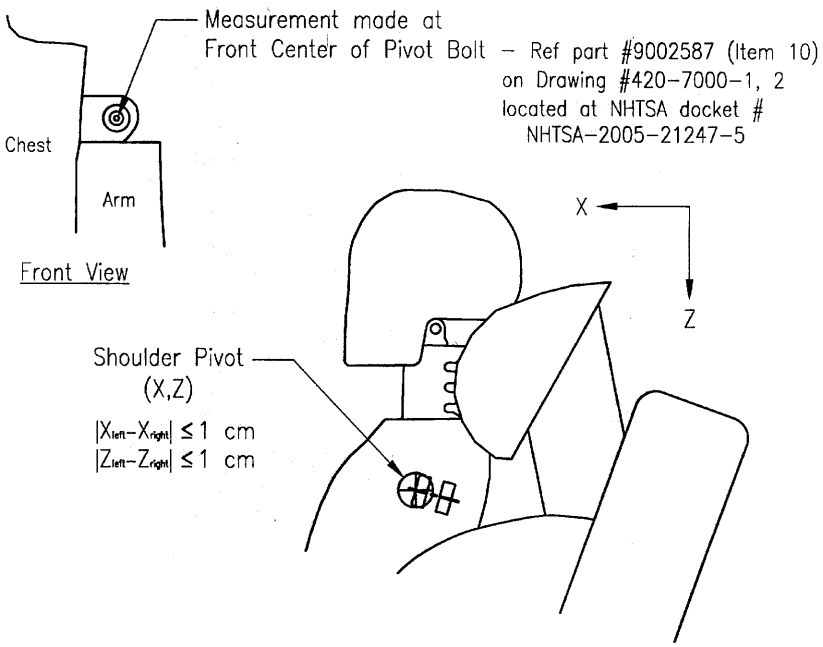

Figure 6. Shoulder Pivot Bolt Alignment

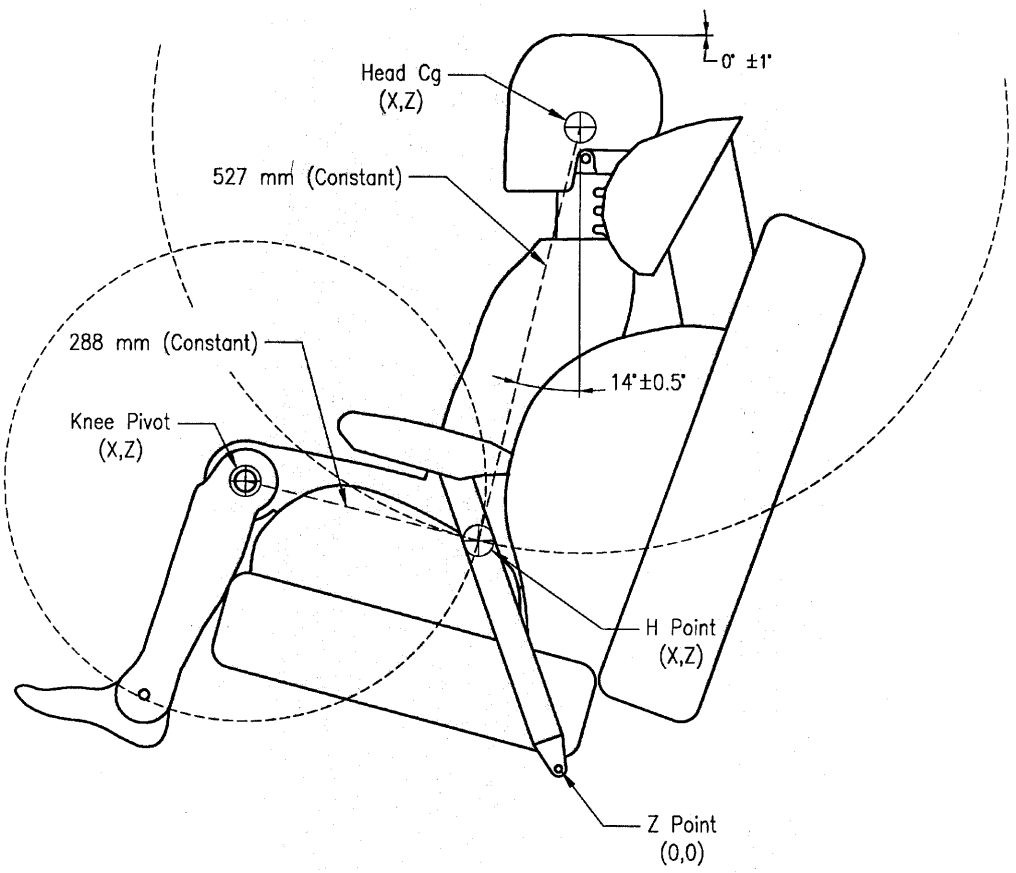

Figure 7. Locating the H-Point so that HIII-10C Torso Angle is 14 ± 0.5 Degrees from Vertical

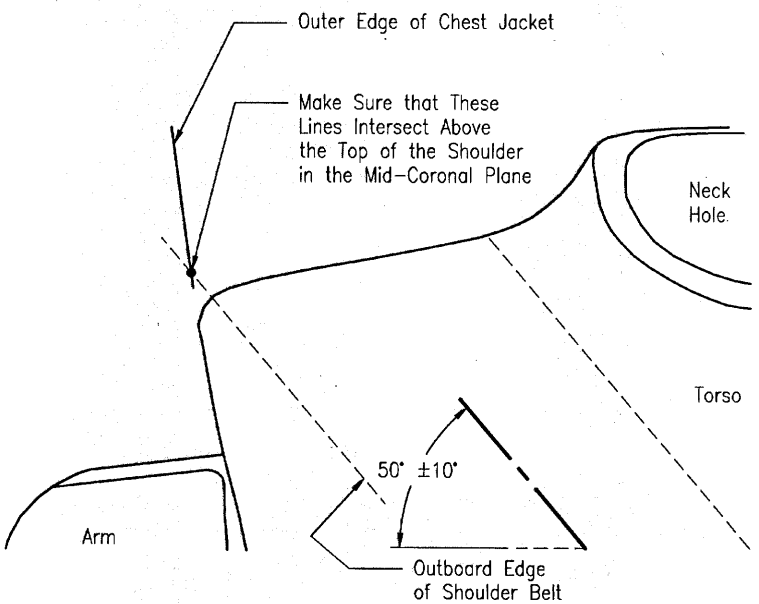

Figure 8. Shoulder Belt Placement

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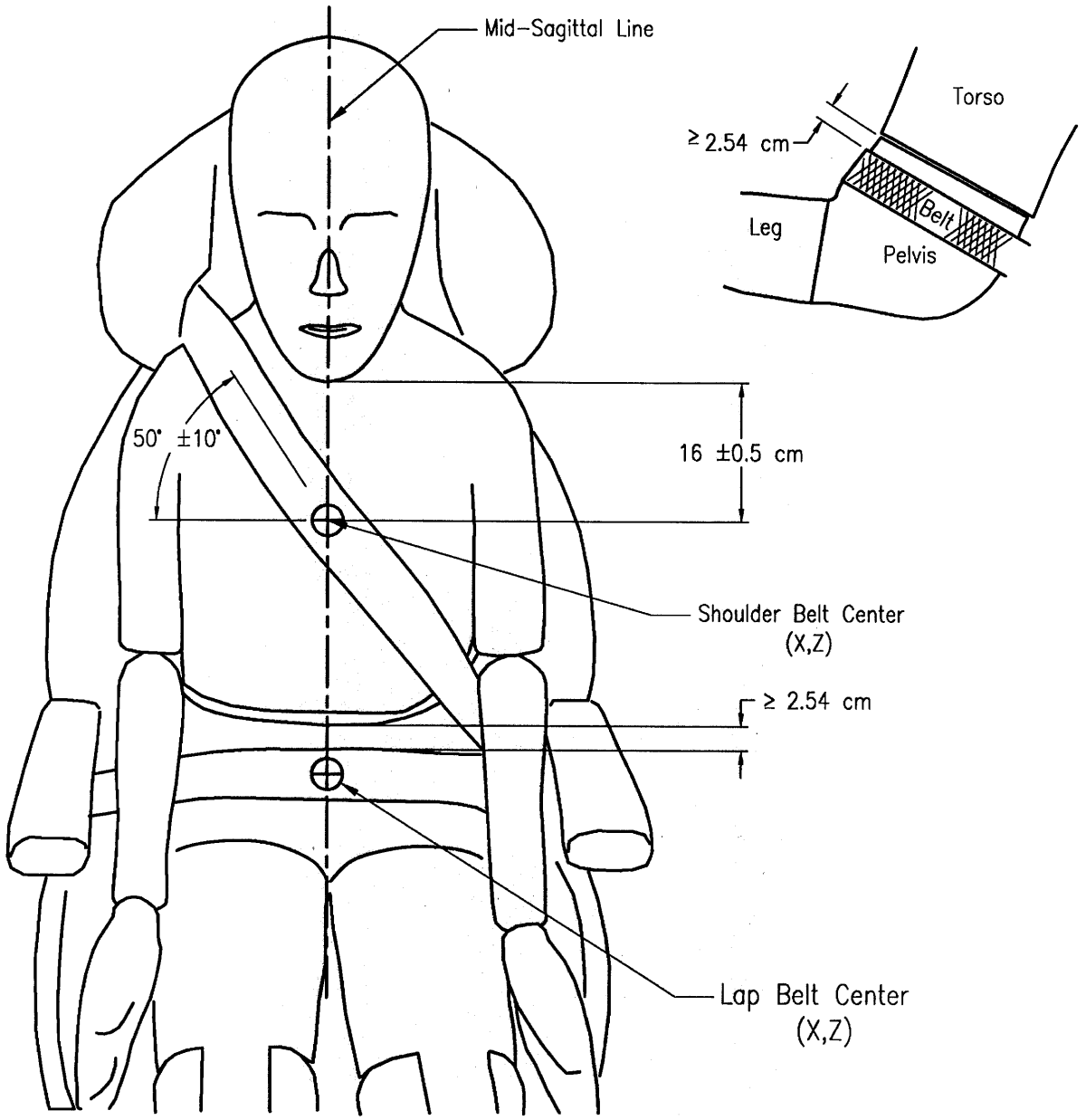

Figure 9. Overall Belt Placement for HIII-10C Dummy

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VRTC DUMMY SETUP SHEET

Dummy S/N _____ Test Date _____ Test No. _____

DUMMY CONFIGURATION

Lumbar Angle Setting (10YO only) ____ Neck Angle Setting (10YO only) ____

DUMMY ALIGNMENT

Dummy/Booster Centerline Coincident (check when confirmed) □

Left Shoulder Pivot Bolt: X _____ Z _____
Right Shoulder Pivot Bolt: X _____ Z _____

BELT PLACEMENT

Belt routed per manufacturer instructions (check when confirmed) □

Shoulder Belt Tension _____ lbs
Lap Belt Tension _____ lbs

Outside edge of shoulder belt inside outer edge of chest jacket (circle one)? Yes / No
If "No", what is distance from outside edge of belt to outer edge of chest jacket (along top of shoulder)? _____ mm

Intersection of mid-sagittal plane and center of shoulder belt: X____ Y____ Z____
Shoulder belt angle relative to horizontal (50 ± 10 degrees): _____ deg

Top edge of lap belt ≥ 2.54 cm from pelvis rim (circle one)? Yes / No
If "No", is belt positioned as low as possible (check when confirmed) □

Intersection of mid-sagittal plane and center of lap belt: X____ Y____ Z____

DUMMY POSTURE

Arms positioned correctly (check when confirmed) □

Head is level (0 ± 1 degree): _____ deg

Head Center of Gravity (outboard side): X_____ Y_____ Z_____
H-Point (outboard side): X_____ Y_____ Z_____
Knee Pivot (outboard side): X_____ Y_____ Z_____

Torso Angle (14 ± 0.5 degrees): _____ deg

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APPENDIX E

BARRIER CERTIFICATION

DECLARATION DE CONFORMITE / STATEMENT OF CONFORMITY

(NF L 00-015C)

Client / Customer :

MGA RESEARCH Corp
5000, Warren road
WI
53105 BURLINGTON
USA

Contact : M. David WINKELBAUER

N° Déclaration **DC 2007-11-199**
Statement N°

N° Contrat : Your Purchase order N°: 03-08-0119
Order N°

N°	Code	Désignation	Qté
1	PROD101XT	Progressive Deformable Barrier for frontal offset test PDB-XT	7.000
2		**Informations Tracabilité / Qualité**	
	QUAL1	N° de lot / Batch Number: CP0801003	
	QUAL1	N° de lot / Batch Number: CP0801004	
	QUAL1	N° de lot / Batch Number: CP0801006	
	QUAL1	N° de lot / Batch Number: CP0801007	
	QUAL1	N° de lot / Batch Number: CP0801009	
	QUAL1	N° de lot / Batch Number: CP0801012	
	QUAL1	N° de lot / Batch Number: CP0801011	
3		**Informations d'expédition**	
	BL	Bon de livraison N° / Delivery Note N° : BL 2007-11-199	

Nous déclarons que la fourniture citée est conforme aux exigences du contrat et que, après vérifications et essais, elle répond en tout point, aux exigences et règlements applicables, sauf exceptions, réserves ou dérogations énumérées dans la présente déclaration de conformité.

We hereby declare, barring exceptions, reservations, or exemptions listed in this statement of conformity, that the listed supplies comply with the contract requirements and that, after completion of testing and verification, they completely satisfy all specified requirements, and applicable standards and regulations.

Responsable Qualité Fournisseur / Supplier Quality Manager **Date : 17 janvier 2008**

Nom et fonction / Name and title : Karine LAIGNEL **Signature :**

1419, Route de Viroy
BP 60120 - 45201 MONTARGIS - FRANCE
Tél : 02 38 89 14 00
Fax : 02 38 89 12 30
Email : contact@afl-honeycomb.com

Sarl au capital de 240 000 euros - Siret 417 624 947 00012 TVA Intracommunautaire FR 58 417 624 947 - Naf 2022

Barrier: Progressive Deformable Barrier for Frontal Offset Test PDB-XT
Batch Number: CP0801009

APPENDIX F

INSIA REPORT ON STRUCTURAL MEASUREMENTS

STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY

APARICIO IZQUIERDO, FRANCISCO
PÁEZ AYUSO, FRANCISCO JAVIER

INSIA
Carretera de Valencia, km. 7
Campus Sur de la Universidad Politécnica de Madrid
28031 – MADRID – (SPAIN)

March, 1999

REPORT DOCUMENTATION PAGE
Title: *STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY*
Author(s): Aparicio Izquierdo, Francisco Páez Ayuso, Francisco Javier
Performing Organisation name and address: INSIA – University Institute for Automobile Research Carretera de Valencia, Km. 7 – Campus Sur de la Universidad Politécnica de Madrid 28031 – Madrid – Spain
Suplementary notes: Under contract to: THE EUROPEAN COMMUNITY Project: "Improvement of Crash Compatibility between Cars" Contract Nº: RO – 97 – SC.1064
Abstract: The main aim of this working package -*Structural Survey of Cars*- is the reduction of incompatibilities, both structural and geometric, between passenger vehicles and their potential collision partners. The understanding of these incompatibilities needs a previous step for the knowledge of the existing car fleet. Firstly, it is necessary to select the main resistant elements in the car body. These elements have to be chosen from the point of view of the sort of collision that we want to study, that is to say, frontal and side impacts. Detailed measurements have been taken from exterior and interior elements, spread to a total number of 74 models selected from the main vehicle manufacturers at Spain. All of them are being sold this year. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars will be defined. This report shows the methodology followed to get these measurements.
Subject terms: Crash compatibility, geometric compatibility, resistant elements, measure methodology
Date: March, 1999

1.- METHODOLOGY.

Detailed measurements have been taken from exterior and interior elements. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars have been defined. These elements are presented in the following figures, and have been divided in two main groups according to the vehicle zones studied in this project.

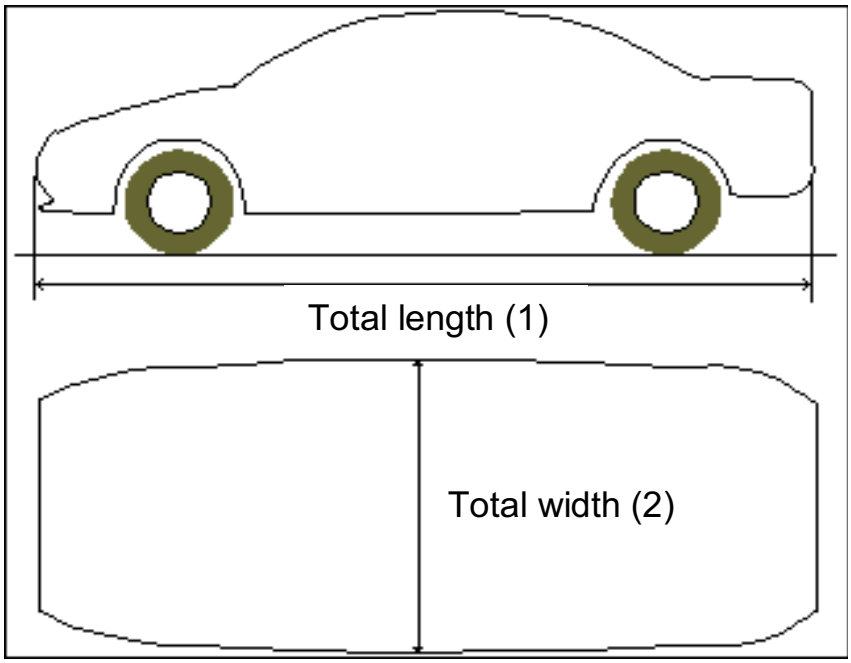

Figure 1.- Definition of the main resistant elements. General dimensions.

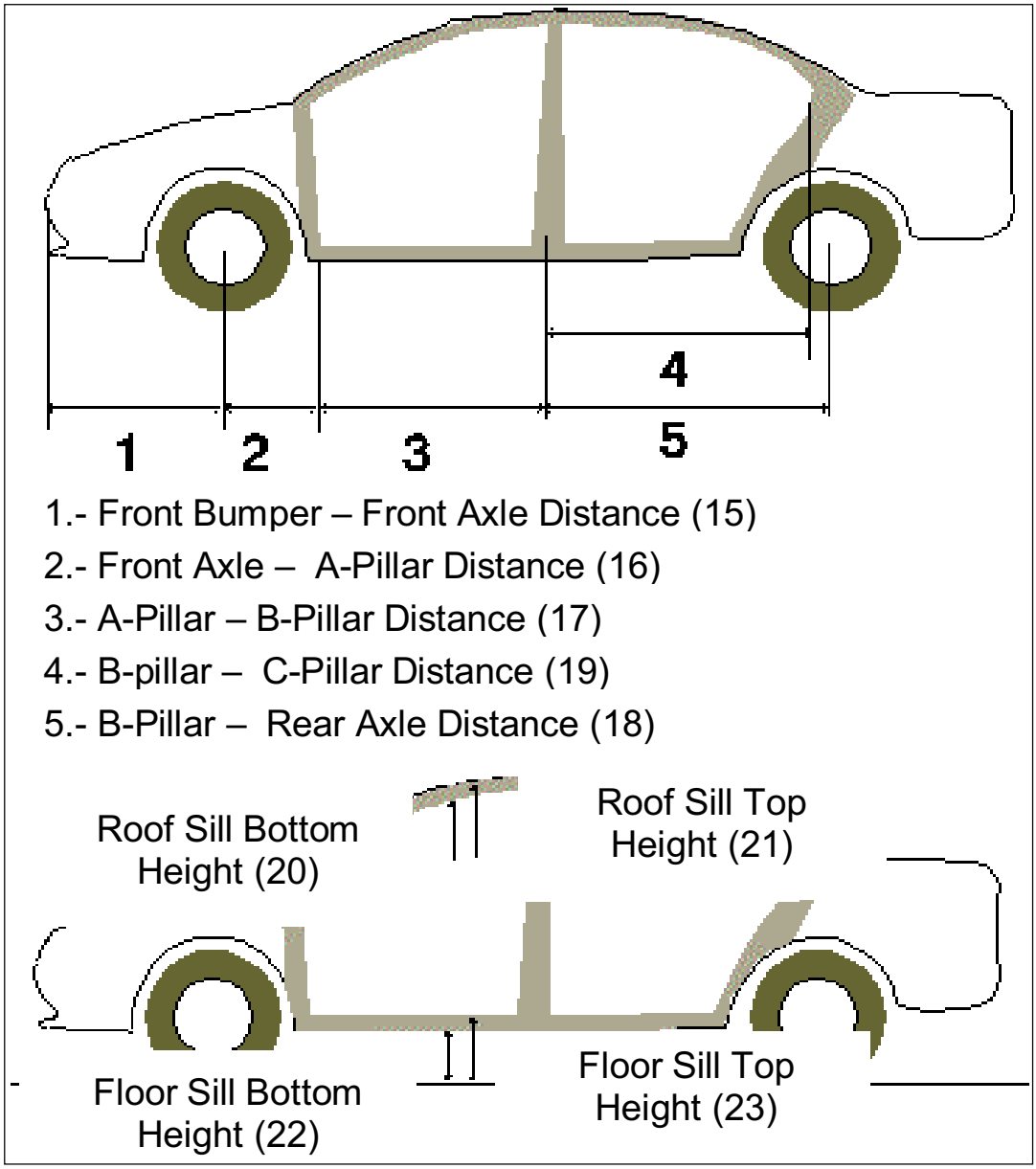

Figure 2.- Definition of the main resistant elements. Side elements.

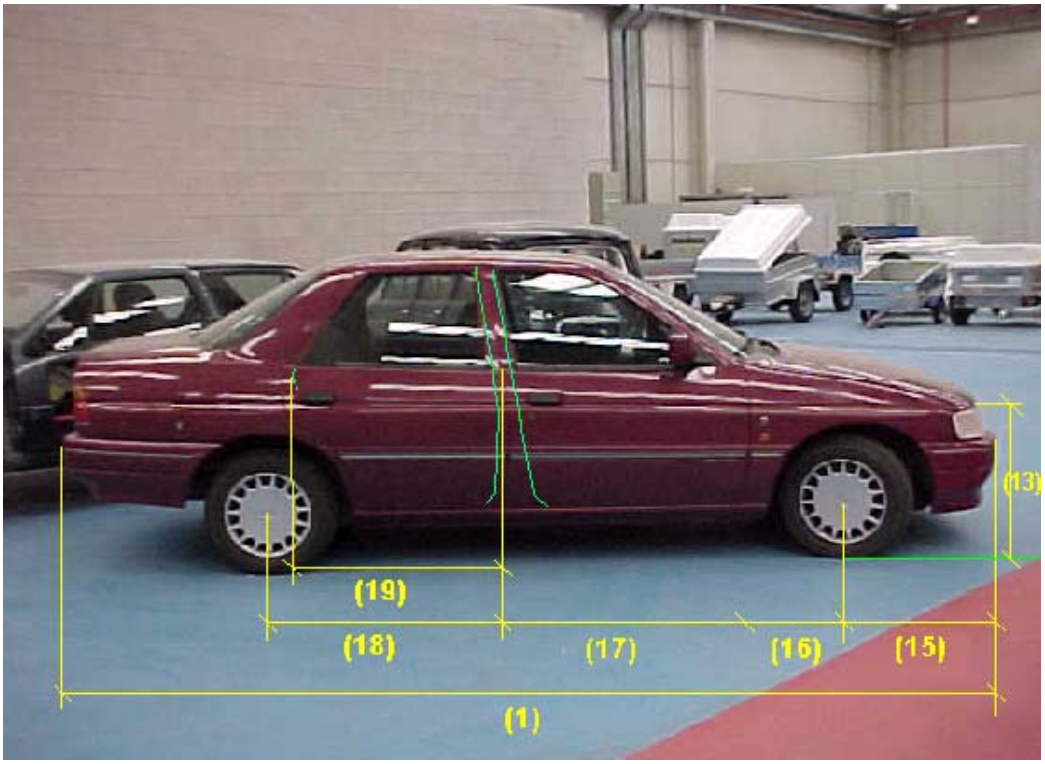

Figure 3.- Measurements of the side resistant elements (outer).

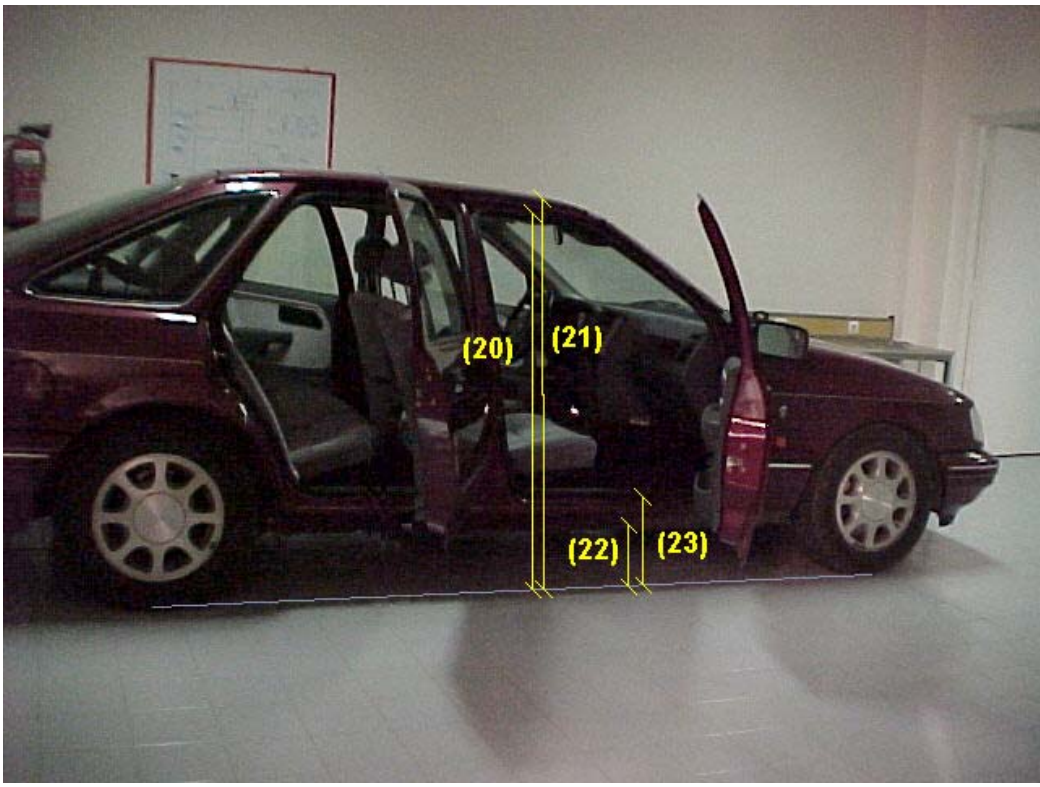

Figure 4.- Measurements of the side resistant elements (inner).

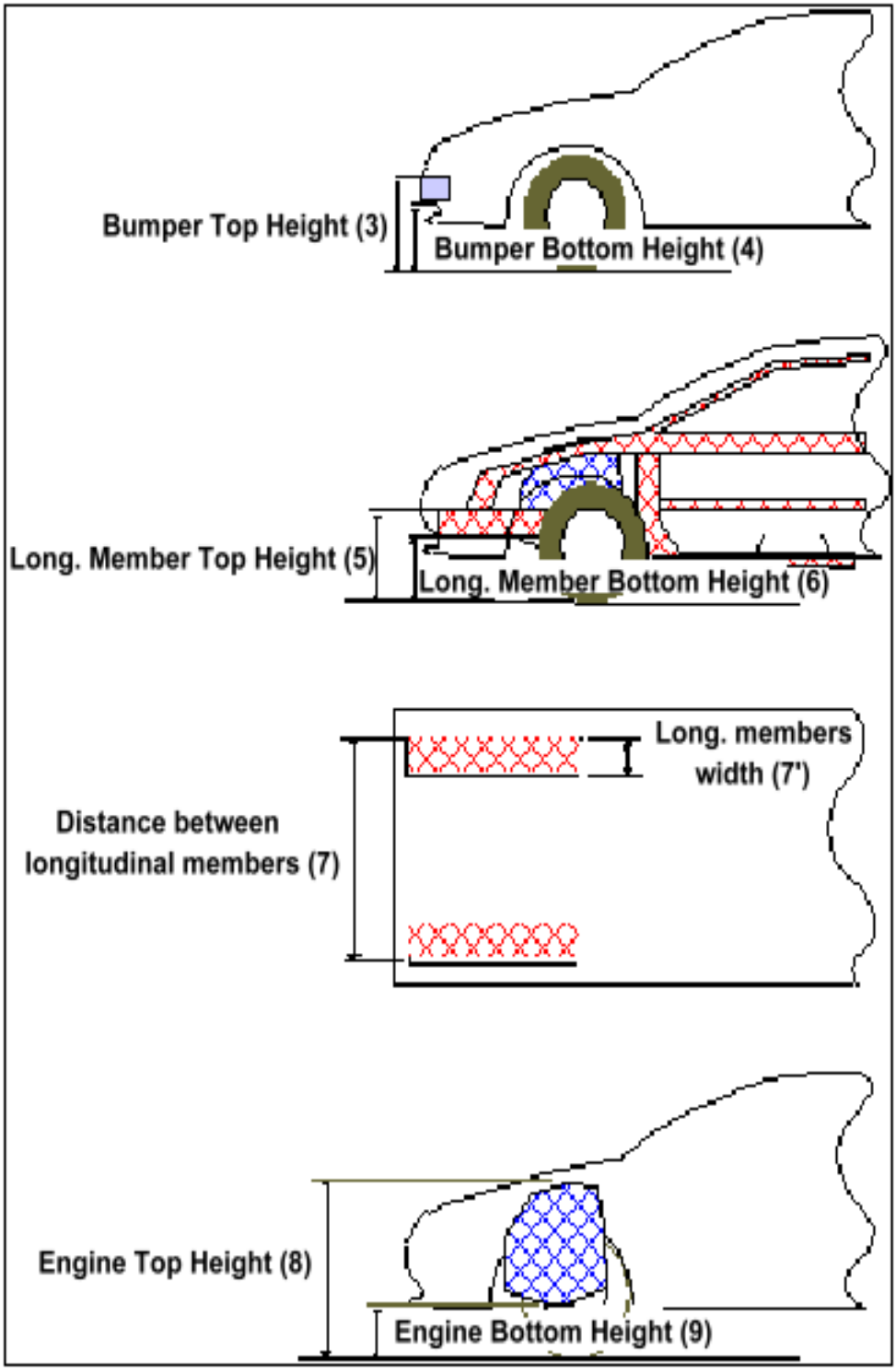

Figure 5.- Definition of the main resistant elements. Front elements.

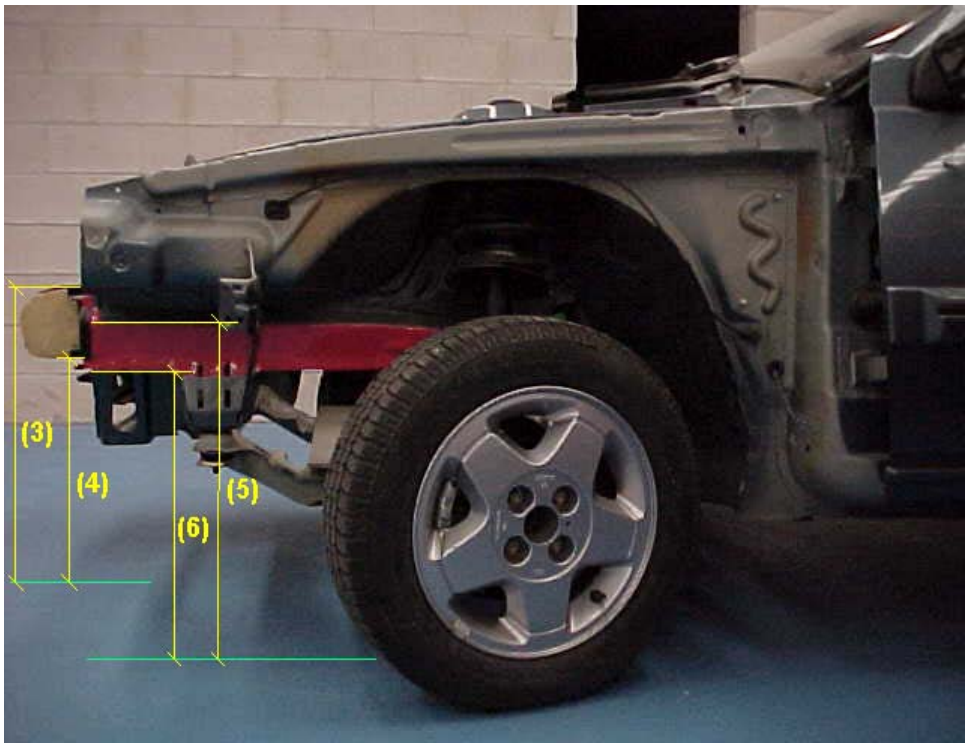

Figure 6.- Measurements of the main resistant elements. Front elements 1.

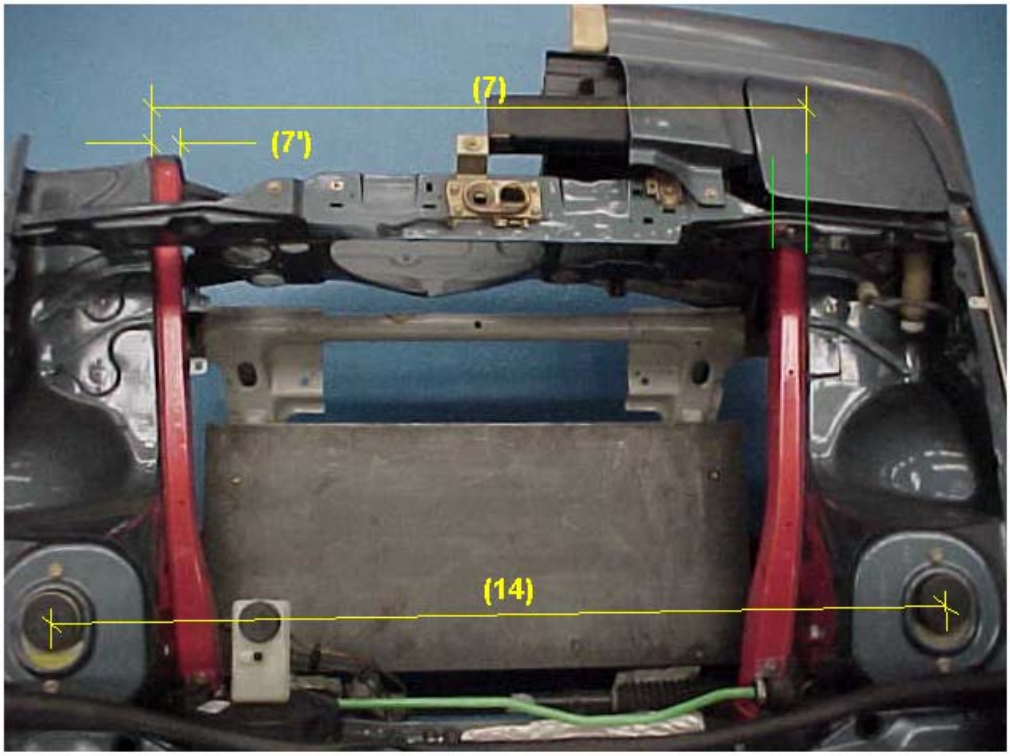

Figure 7.- Measurements of the main resistant elements. Front elements 2.

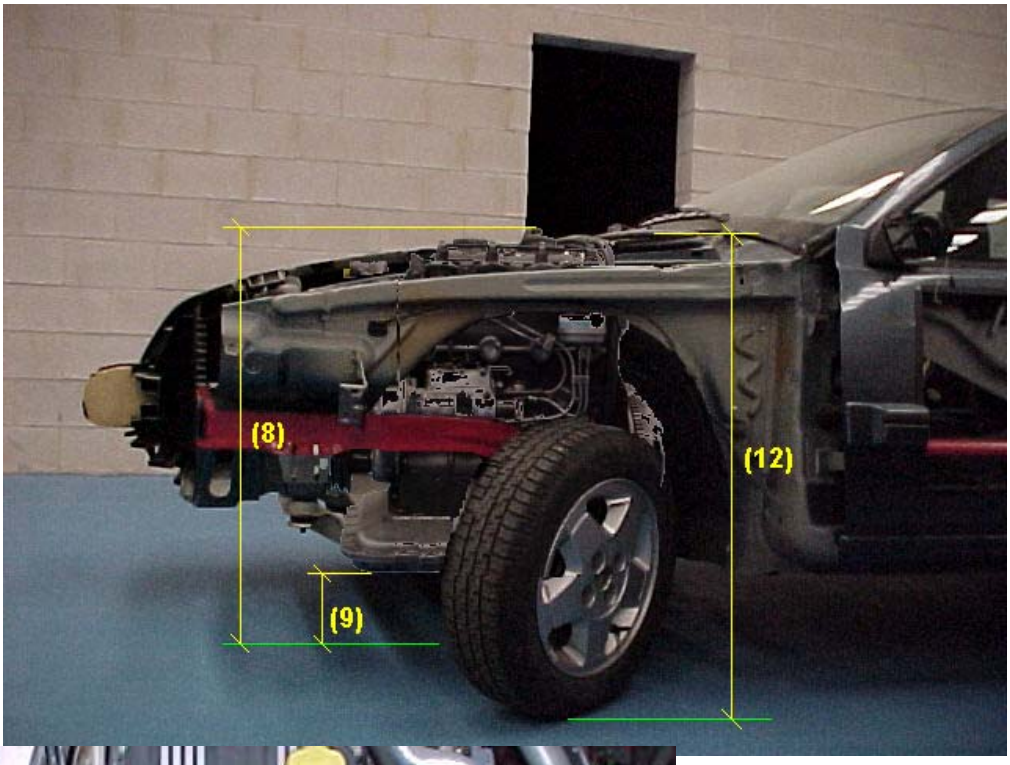

Figure 8.- Measurements of the main resistant elements. Front elements 3.

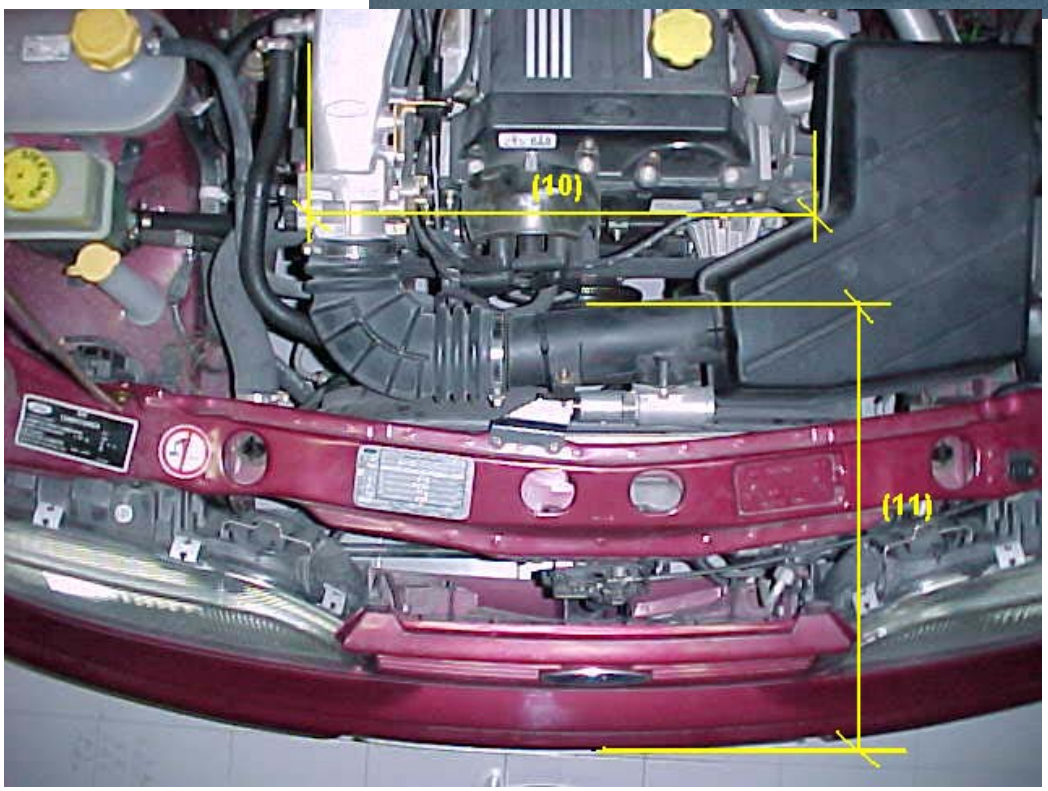

Figure 9.- Definition of the main resistant elements. Front elements (Longitudinal engine).

The procedure considered to measure these elements is described as follows, where it is indicated the location of these ones in the Excel Sheet (SURVEY.XLS) into brackets:

FRONT ELEMENTS

• **Total Length –(1)- (Side & Front Sheets - C column)**: distance between the point in the front bumper further on and the point in the rear bumper further back.

• **Weight (Side & Front Sheets - D column)**: mass, including an average driver weight (70 kg), and the fuel tank mass (at half-capacity).

• **Total Width –(2)- (Side & Front Sheets - E column)**: distance between the outer side points in a transverse plane of the vehicle (middle plane between the front and rear axles).

• **Bumper bottom height –(4)- (Front Sheet G column)**: distance between the ground and the lowest point on the front bumper, being a resistant member (aerodynamic elements under the front bumper are not considered).

• **Bumper top height –(3)- (Front Sheet H column)**: distance between the ground and the highest point on the front bumper, being a resistant member (aerodynamic elements are not considered).

• **Longitudinal member top height –(5)- (Front Sheet I column)**: distance between the ground and the highest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint (when accessible).

• **Longitudinal member bottom height –(6)- (Front Sheet J column)**: distance between the ground and the lowest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint.

• **Distance between longitudinal members (Front Sheet K column)**: transverse distance between extreme points in longitudinal members, measured approximately in the front bumper-longitudinal member joint.

Depending on the accessibility of these members, the extreme points are the inner points (I) or the outer points (O).

• **Longitudinal member width -7'- (Front Sheet L column)**: width of one of the longitudinal members, measured approximately in the front bumper-longitudinal member joint.

• **Engine top height (8) (Front Sheet N column)**: distance between the ground and the highest point on the engine that can be a resistant member in case of accident (usually, the highest point on the head, or the highest point of the inlet or exhaust manifolds).

• **Engine bottom height (9) (Front Sheet M column)**: distance between the ground and the lowest point on the engine (usually, the lowest point on the crankcase).

• **Engine and Gearbox width (10) (Front Sheet O & P columns)**:

- Transverse *configuration engine*: distance between extreme points in the gearbox-cylinder block unit or others resistant members attached to the cylinder block unit, i.e. fan belts (from a front point of view).

- *Longitudinal configuration engine*: distance between extreme points in the cylinder block unit (from a front point of view).

• **Front bumper - Engine distance (11) (Front Sheet Q column)**: distance between the point in the front bumper further on and the point in the engine further on that is a resistant element, i.e. the further on point of the exhaust manifold placed in the front of the engine.

• **Front shock absorber fixing width (14) (Front Sheet R column)**: transverse distance between the front shock absorber - body car joints.

• **Front shock absorber fixing height (12) (Front Sheet S column)**: distance between the ground and the front shock absorber-body car joint.

• **Bonnet leading edge height (Front Sheet T column)**: distance between the ground and the bonnet edge further on.

SIDE ELEMENTS

• **Front bumper - Front axle distance (15) (Side Sheet G column)**: distance between the point in the front bumper further on and the middle point in the front tyre-road contact patch.

• **Front axle - A Pillar distance (16) (Side Sheet H column)**: distance between the middle point in the front tyre-road contact patch and the point in the A-pillar further back.

• **A Pillar - B Pillar distance (17) (Side Sheet I column)**: distance between the point in the A-pillar further back and the middle point in the B-pillar.

• **B Pillar - C Pillar distance (19) (Side Sheet J column)**: distance between the middle point in the B-pillar and the point in the C-pillar further back (only 4/5-door vehicles).

• **B Pillar - Rear axle distance (18) (Side Sheet K column)**: distance between the middle point in the B-pillar and the middle point in the rear tyre-road contact patch.

• **Roof sill bottom height (20) (Side Sheet L column)**: distance between the ground and the lowest point on the roof sill, measured in the front door middle point.

• **Roof sill top height (21) (Side Sheet M column)**: distance between the ground and the highest point on the roof sill (usually located in the sill-roof joint), measured in the front door middle point.

• **Floor sill bottom height (22) (Side Sheet N column)**: distance between the ground and the lowest point on the floor sill, measured in the front door middle point.

• **Floor sill top height (23) (Side Sheet O column)**: distance between the ground and the highest point on the floor sill, measured in the front door middle point.

NOTE

- N/A: dimension not available.