REPORT NUMBER: T8001-MGA-2008-001

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

LEFT 40% OFFSET DEFORMABLE BARRIER IMPACT
R94 BARRIER
TEST DATE: JANUARY 18, 2008
ORDER NUMBER: DTRTV-T8001

2008 FORD ESCAPE XLS (R80202)

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

FINAL REPORT SUBMITTED:
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PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION / RITA
VOLPE NATIONAL TRANSPORTATION SYSTEM CENTER
55 BROADWAY, RTV-3F
CAMBRIDGE, MA 02142-1001

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Prepared By: Jessica Gall
Jessica Gall, Project Engineer

Reviewed By: David Winkelbauer
David Winkelbauer, Director of Operations

Approval Date: January 25, 2008

Technicians: Jamie Aide
Tim Bratz
Wayne Dahlke
Jordan Haynes
Matt Jacobson
Tom Miller
Chris Novak
Daniel Sienko Jr.
David Wilcox

Engineers: Ben Fischer
Tim Novak
Dustin Underwood

Photographic: Chad Coss

Secretary: Donna Janovicz
Julie Ehlen

FINAL REPORT ACCEPTED BY:

Accepted By: ____________________
Contract Technical Manager

Acceptance Date: ____________

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Technical Report Documentation Page

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15. Supplementary Notes

16. Abstract

A 40% frontal offset barrier impact was conducted on a 2008 Ford Escape XLS, NHTSA No. R80202, at MGA Research Corporation on January 18, 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 56.0 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 468 mm located to the left of the vehicle's centerline.

The driver's 15 millisecond Head Injury Criteria (HIC) was 187. The driver's chest maximum resultant acceleration with three milliseconds minimum duration was 36.2 g. The driver's maximum chest deflection was -25 millimeters. The driver's left and right femur maximum axial compressive forces were -1968 N and -973 N, respectively.

The right front passenger's 15 millisecond Head Injury Criteria (HIC) was 98. 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 -17 millimeters. The right front passenger's left and right femur maximum axial compressive forces were -2161 N and -590 N, respectively.

The left rear passenger's 15 millisecond Head Injury Criteria (HIC) was 541. The left rear passenger's chest maximum resultant acceleration with three milliseconds minimum duration was 55.5 g.

17. Key Words 40% Frontal Offset Barrier Impact 2008 Ford Escape XLS NHTSA No: R80202	*18. Distribution Statement* Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, 1200 New Jersey Ave, SE Washington, D.C. 20590

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TABLE OF CONTENTS

SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE

This 56.0 km/h (target speed) Left 40% 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 40% frontal offset vehicle to deformable barrier crash tests. For this test, the subject vehicle was a 2008 Ford Escape XLS 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 R94 barrier.

TEST PROCEDURE

This test was conducted in accordance with VNTSC's instructions for a 40% 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 2008 Ford Escape XLS, 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 40% left offset deformable barrier. The vehicle's specified impact velocity range was 55.2 to 56.8 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 dual stage airbag. The right front passenger dummy was restrained with a 3-point seat belt and a front dual stage 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 50^{th} 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 seventeen (17) 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 40% 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 40% OFFSET DEFORMABLE BARRIER IMPACT SUMMARY

This 56.0 km/h (target speed) left 40% offset deformable barrier crash test was conducted by MGA Research Corporation on January 17, 2008.

The test vehicle, a 2008 Ford Escape XLS, NHTSA Number R80202, was equipped with a 2.3 L, 4-cylinder lateral engine, manual transmission, power steering, power brakes, and dual stage front airbags. The vehicle's test weight was 1780.8 kg. The vehicle's impact speed was 56.0 km/h. The vehicle sustained 468 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:

Bottom of Engine X; wire cut at 76 msec.
Left Brake Caliper X; wire cut at 80 msec.
Gas Pedal Z; wire cut at 80 msec.

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

SECTION 2 (CONTINUED)

LEFT 40% OFFSET DEFORMABLE BARRIER IMPACT SUMMARY

OCCUPANT INJURY ASSESSMENT VALUES

Injury Criteria		Limit	Driver	Right Front Passenger
HIC 36		1000	348	175
	T1 (msec)		101.7	106.5
	T2 (msec)		137.7	142.5
HIC 15		700	187	98
	T1 (msec)		111.0	116.1
	T2 (msec)		126.0	131.1
Upper Neck Tension (N)		4170	1323	900
Upper Neck Compression (N)		4000	-824	-36
Neck Injury (NIJ) N_{te}		1.0	0.2	0.2
Neck Injury (NIJ) N_{tf}		1.0	0.2	0.2
Neck Injury (NIJ) N_{ce}		1.0	0.4	0.0
Neck Injury (NIJ) N_{cf}		1.0	0.0	0.1
Clip (g)		60	36	26
Chest Displacement (mm)		63	25	17
Left Femur (N)		9,040	-1968	-2161
Right Femur (N)		9,040	-973	-590
Left Upper Tibia Index		0.91	0.32	0.31
Right Upper Tibia Index		0.91	0.61	0.35
Left Lower Tibia Index		0.91	0.43	0.17
Right Lower Tibia Index		0.91	0.77	0.22
Left Upper Tibia Force (N)		-5600	-1030	-639
Right Upper Tibia Force (N)		-5600	-2273	-923
Left Lower Tibia Force (N)		-5200	-2272	-953
Right Lower Tibia Force (N)		-5200	-3441	-1079
Left Inversion (degrees)		-35	-4.9	-11.6
Left Eversion (degrees)		35	30.3	19.4
Left Plantarflexion (degrees)			-20.8	-19.6
Left Dorsiflexion (degrees)		35	25.1	N/A
Left External Rotation (degrees)			-5.1	-14.2
Left Internal Rotation (degrees)			5.4	0.0
Right Inversion (degrees)		35	33.8	8.9
Right Eversion (degrees)		-35	-3.1	-29.2
Right Plantarflexion (degrees)			-16.0	-15.6
Right Dorsiflexion (degrees)		35	2.9	0.0
Right External Rotation (degrees)			9.0	0.5
Right Internal Rotation (degrees)			N/A	-8.9
Left Knee Shear (mm)		-15	0.9	-2.0
Right Knee Shear (mm)		-15	0.0	-1.3

SECTION 2 (CONTINUED)

LEFT 40% OFFSET DEFORMABLE BARRIER IMPACT SUMMARY

OCCUPANT INJURY ASSESSMENT VALUES (CONTINUED)

Injury Criteria		Left Rear Passenger
HIC 36		1130
	T1 (msec)	96.3
	T2 (msec)	132.3
HIC 15		541
	T1 (msec)	103.6
	T2 (msec)	118.6
Upper Neck Tension (N)		2521
Upper Neck Compression (N)		-623
Clip (g)		56

DATA SHEET 1

CRASH VEHICLE SUMMARY

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

Description	Value
Test Time	11:57 a.m.
Temperature	21°C
Vehicle Year/ Make / Model / Body Style	2008 Ford Escape XLS
Vehicle Test Weight	1780.8 kg
Vehicle / Barrier Impact Angle	0°
Vehicle / Barrier Impact Accuracy	20 mm up / 4 mm right
Impact Velocity	56.0 km/h
Maximum Static Crush	468 mm to the left of the vehicle's C/L
Deformable Barrier	R94
Number of Data Channels	313
Number of Real-Time Cameras	1
Number of High-Speed Cameras	17

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 Dual Front Airbag	3-Point Seatbelt Dual Front Airbag	Type II Belts Graco Highback Turbobooster

DATA SHEET 2

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2008 Ford Escape XLS — NHTSA No.: R80202

Test Program: Left 40% Offset Deformable Barrier — Test Date: 1/18/2008

TEST VEHICLE INFORMATION

Manufacturer	Ford
Model	Escape
Body Style	MPV
NHTSA No.	R80202
VIN	1FMCU02Z98KA91925
Color	Oxford White
Delivery Date	12/19/2007
Odometer Reading (mile)	249
Dealer	Boucher Fleet Group
Transmission	Manual
Final Drive	Front
Number of Cylinders	4
Engine Displacement (L)	2.3
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	No

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company
Date of Manufacture	06/07

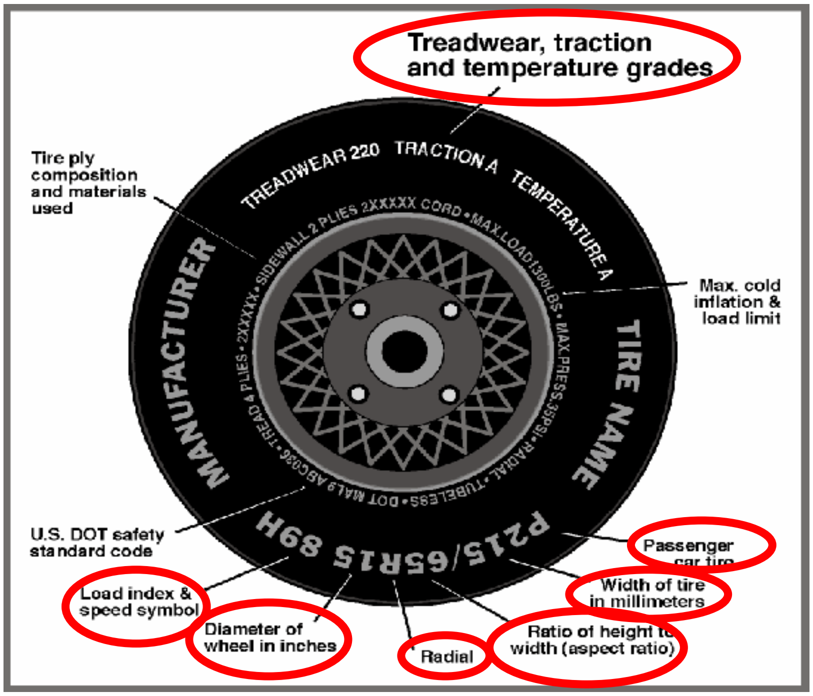
GVWR (kg)	1950
GAWR Front (kg)	1016
GAWR Rear (kg)	993

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				459
Cargo Wt. (RCLW) (kg)				119

DATA SHEET 2 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2008 Ford Escape XLS	NHTSA No.:	R80202
Test Program:	Left 40% Offset Deformable Barrier	Test Date:	1/18/2008



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	220	220
Recommended Tire Size	P235/70R16	P235/70R16
Tire Size on Vehicle	P235/70R16	P235/70R16
Tire Manufacturer	Continental	Continental
Tire Name	Contitrac	Contitrac
Tire Type	Passenger	Passenger
Tire Width (mm)	235	235
Ratio of Height to Width (aspect ratio)	70	70
Radial	R	R
Wheel Diameter	16	16
Load Index & Speed Symbol	104T	104T
Treadwear	520	520
Traction Grade	A	A
Temperature Grade	B	B

DATA SHEET 2 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2008 Ford Escape XLS — NHTSA No.: R80202

Test Program: Left 40% Offset Deformable Barrier — Test Date: 1/18/2008

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	440.9	313.4		480.0	428.6	
Right	kg	414.6	308.4		444.4	427.8	
Ratio	%	57.9	42.1		51.9	48.1	
Totals	kg	855.5	621.8	1477.3	924.4	856.4	1780.8

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1477.3
Weight of 2 P572E ATDs & 1 10-Year-Old	kg	191.4
Rated Cargo/Luggage Weight (RCLW)	kg	119
Calculated Vehicle Target Weight (TVTW)	kg	1787.7

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	810	818	851	862	1106
As Tested	mm	791	799	804	818	1263
Post Test	mm	775	776	784	814	

Vehicle Wheelbase (mm): 2627

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

Vehicle Components Removed: Spare tire, jack, trunk box, trunk carpet, two rear headrests, tail lights.

Ballast weight does not include instrumentation and data acquisition system.

DATA SHEET 2 (CONTINUED)

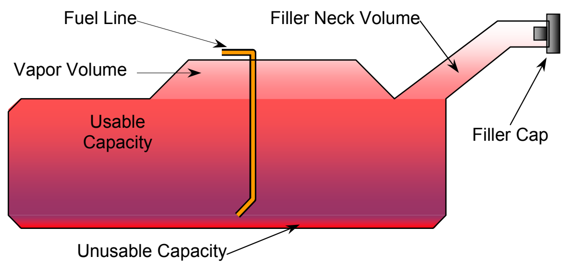
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	62.4
Usable Capacity of "Optional" Tank	
92-94% of Usable Capacity	57.4 – 58.7
Actual Amount of Solvent used	57.9
1/3 of Usable Capacity	20.8

The test vehicle is equipped with an electric fuel pump. The electric fuel pump operates for 2 seconds to pressurize the fuel system following the actuation of the ignition. If no attempt has been made to start the engine within 2 seconds following ignition actuation, the fuel pump will shut off. The fuel pump operates continuously while the engine is running. If the engine stalls, the fuel pump is deactivated. Also, a fuel pump shut-off switch is provided, designed to stop fuel flow to the engine if the vehicle sustains an impact above a certain magnitude.



VEHICLE FUEL TANK ASSEMBLY

BELT LENGTH DATA

Measurement Description	Units	Driver	Right Front Passenger
Shoulder belt length as measured on ATD	mm	775	770
Lap belt length as measured on ATD	mm	740	755
Remainder of belt on reel	mm	1559	1475
Total belt length for continuous webbing systems	mm	3074	3000

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:	2008 Ford Escape XLS	NHTSA No.:	R80202
Test Program:	Left 40% Offset Deformable Barrier	Test Date:	1/18/2008

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	B-Pillar, headrest, top header, airbag	Airbag, headrest	C-Pillar
Chest Contact	Airbag	Airbag	Chin to Chest
Abdomen Contact	None	None	None
Left Knee Contact	Knee bolster	Glovebox	Feet to seatback
Right Knee Contact	Knee bolster	Glovebox	Feet to 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: 2008 Ford Escape XLS   NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier   Test Date: 1/18/2008

NORMAL DESIGN RIDING POSITION

Driver seat back angle: 3.5° at headrest post

Right Front Passenger seat back angle: 3.7° at headrest post

Left Rear Passenger seat back angle: Fixed

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position #
Left Front Seat	24 detents	6th detent (1st as 0)
Right Front Seat	24 detents	12th detent (1st as 0)
Left Rear Seat	Fixed	Fixed

ADJUSTABLE D-RING POSITION

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

STEERING COLUMN POSITION

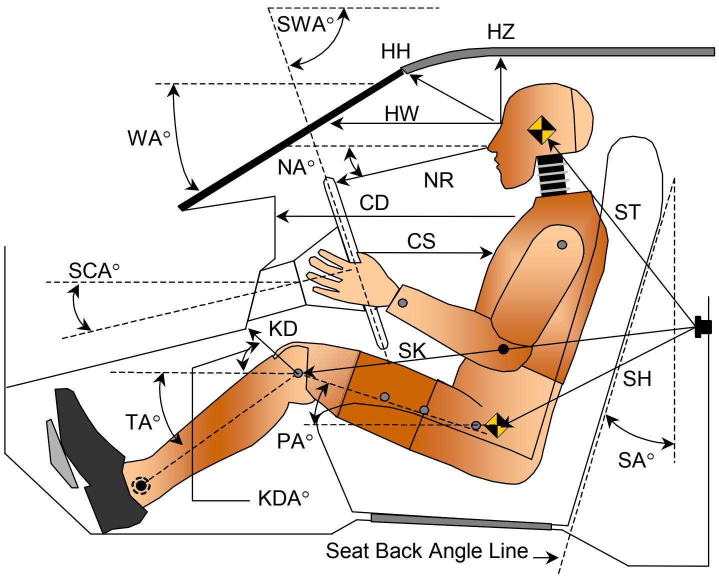
	Fore/Aft Position (mm)	Degrees
Lowermost position No. 1		21.5
Geometric center position No. 2		23.7
Uppermost position No. 3		26.0

DATA SHEET 5

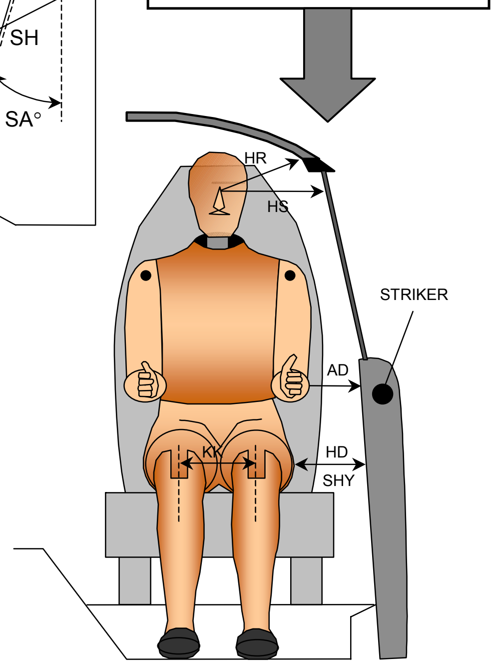
DUMMY POSITIONING IN VEHICLE

Test Vehicle:	2008 Ford Escape XLS	NHTSA No.:	R80202
Test Program:	Left 40% Offset Deformable Barrier	Test Date:	1/18/2008

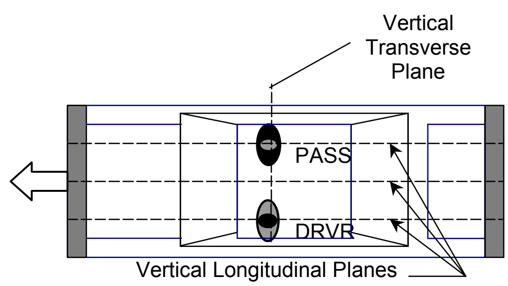
DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



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: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

TEST DUMMY POSITION MEASUREMENTS

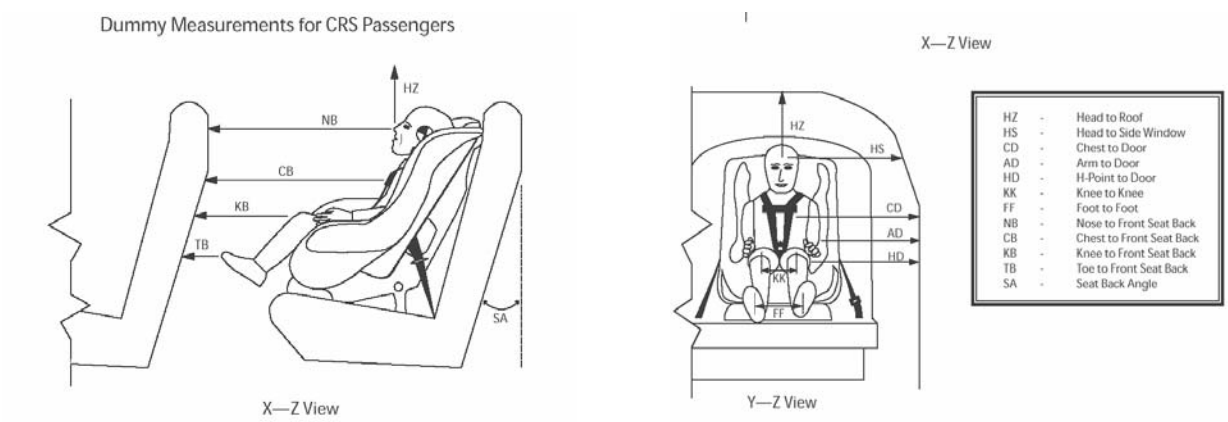
Code	Measurement Description	Driver		Right Front Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		36.0		
SWA	Steering Wheel Angle		66.3		
SCA	Steering Column Angle		24.9		
SA	Seat Back Angle (headrest post)		3.5		3.7
HZ	Head to Roof (Z)	223	90	218	90
HH	Head to Header	431	16.0	381	18.9
HW	Head to Windshield	641	0	592	0
HR	Head to Side Header (Y)	209		211	
NR	Nose to Rim	480	10.3		
CD	Chest to Dash	589		568	
CS	Chest to Steering Hub	373	4.8		
RA	Rim to Abdomen	256	0		
KDL	Left Knee to Dash	197	8.2	136	
KDR	Right Knee to Dash	176		134	18.5
PA	Pelvic Angle		22.4		24.5
TA	Tibia Angle		42.7		45.4
KK	Knee to Knee (Y)	319		264	
SAN	Striker to Ankle	869		931	
SK	Striker to Knee	533		594	
ST	Striker to Head	548		550	
SH	Striker to H-Point	167		226	
SHY	Striker to H-Point (Y)	216		210	
HS	Head to Side Window	308		316	
HD	H-Point to Door (Y)	142		135	
AD	Arm to Door (Y)	122		107	
AA	Ankle to Ankle	322		258	

DATA SHEET 5 (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2008 Ford Escape XLS | NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier | Test Date: 1/18/2008

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



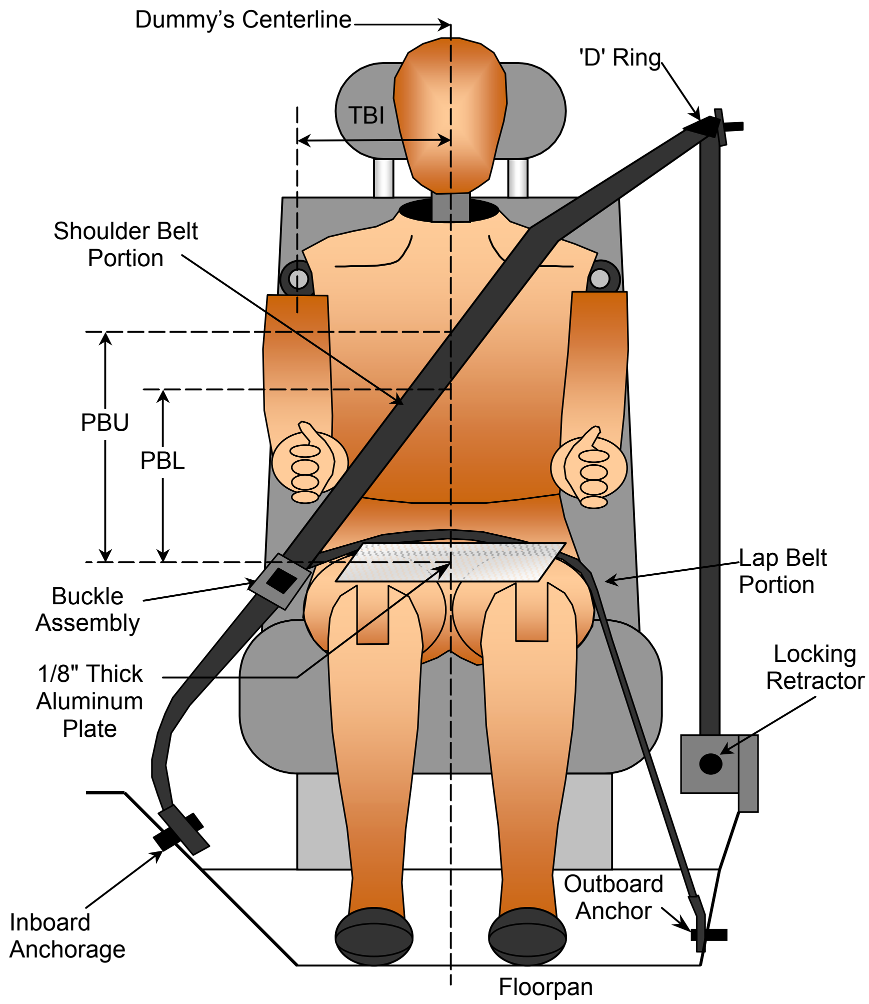
Measurement	Pre-Test (mm)	Post-Test (mm) *
	P4 CRS	P4 CRS
SA (deg)	65.8	
HS	342	
CD	376	
AD	197	
HD	170	
HZ	273	
NB	510	
CB	531	
KK	166	
FF	179	
KB - LEFT	270	
KB – RIGHT	257	
TB - LEFT	23	
TB - RIGHT	25	
Seat Top to Door	130	
Seat Bottom to Door	130	

All dimensions in mm (unless noted)
P4 – 2nd Row Left Rear Passenger (Forward Facing)
* Child dummy was removed before post-test measurements were taken.

DATA SHEET 5 (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU - Top surface of reference to belt upper edge	mm	315	315
PBL - Top surface of reference to belt lower edge	mm	235	235

DATA SHEET 5 (CONTINUED)

DUMMY POSITIONING IN VEHICLE

Test Vehicle: 2008 Ford Escape XLS — NHTSA No.: R80202

Test Program: Left 40% Offset Deformable Barrier — Test Date: 1/18/2008

	Driver			Right Front Passenger			Left Rear Passenger		
	X	Y	Z	X	Y	Z	X	Y	Z
Head CG	2087	-455	-758	2150	458	-757	1220	-402	-747
Striker	2091	-760	-210	2091	762	-210	1130	-751	-407
Left Knee	2624	-553	-193	2685	310	-203	1646	-444	-318
Right Knee	2640	-294	-218	2685	518	-211			
Tip of Nose	2198	-377	-730				1337	-333	-709
H-Point	2226	-544	-112	2296	552	-116			
Left Ankle	2950	-561	76	3013	296	60			
Right Ankle	2946	-237	65	3009	555	52			
Left Heel	2933	-551	203	2998	261	194			
Right Heel	2942	-197	192	3022	536	186			
Right Toe	3131	-200	-47				1982	-260	-62
Left Toe							1979	-439	-55
Seat Back							1854	-376	-524
Left Shoulder							1196	-429	-552
Right Shoulder							1200	-236	-553

DATA SHEET 6

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Accelerometer Location	Measurements (mm)		
	X	Y	Z
Left Rear Seat Crossmember X	1727	-380	440
Left Rear Seat Crossmember Y			
Right Rear Seat Crossmember X	1729	362	440
Right Rear Seat Crossmember Y			
Vehicle Center of Gravity X	2270	0	406
Vehicle Center of Gravity Y			
Vehicle Center of Gravity Z			
Top of Engine Block X	3775	0	843
Bottom of Engine Block X	3725	0	276
Left Disc Brake Caliper X	3661	-692	321
Right Disc Brake Caliper X	3660	692	324
Instrument Panel X	2803	0	1145
Left Side Driver Mid Seat Track X	2058	-559	605
Accelerator Pedal X (at midfoot)	3122	-204	581
Accelerator Pedal Y (at midfoot)			
Accelerator Pedal Z (at midfoot)			
Brake Pedal X (at midfoot)	3240	-381	516
Brake Pedal Y (at midfoot)			
Brake Pedal Z (at midfoot)			
Footrest X	3132	-608	488
Footrest Y			
Footrest Z			

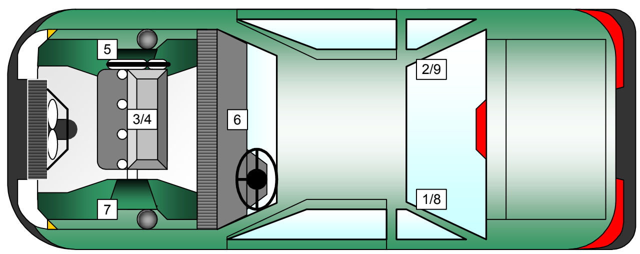
Reference is on the following page.

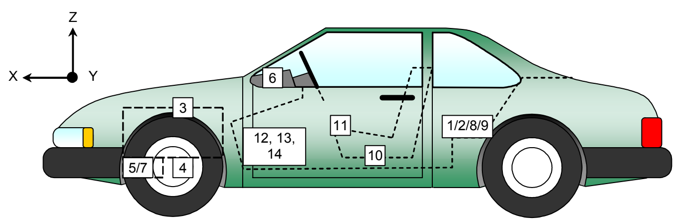
DATA SHEET 6 (CONTINUED)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle:	2008 Ford Escape XLS	NHTSA No.:	R80202
Test Program:	Left 40% Offset Deformable Barrier	Test Date:	1/18/2008

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: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

Location Number	Description	Maximum Values (g's)			
		Positive	Time, ms	Negative	Time, ms
1	Left Rear Seat Cross Member X	2.1	217.9	-30.0	88.0
2	Right Rear Seat Cross Member X	1.6	158.9	-27.9	87.8
3	Top of Engine Block X	10.2	47.1	-51.9	75.5
4	Bottom of Engine Block X	(1)	(1)	(1)	(1)
5	Disc Brake Caliper @ Right Side X	20.3	136.9	-49.7	104.5
6	Instrument Panel X	9.5	166.1	-40.7	94.1
7	Disc Brake Caliper @ Left Side X	(2)	(2)	(2)	(2)
8	Left Rear Seat Cross Member Y	10.0	73.4	-1.1	17.2
9	Right Rear Seat Cross Member Y	9.6	73.7	-2.8	16.3
10	Left Side Driver Mid Seat Track X	3.1	220.5	-35.1	91.5
11	Vehicle Center of Gravity X	1.5	159.5	-29.7	88.1
	Vehicle Center of Gravity Y	10.9	73.0	-3.4	58.5
	Vehicle Center of Gravity Z	(3)	(3)	(3)	(3)
	Vehicle Center of Gravity Resultant	(3)	(3)		
12	Accel Pedal Heel Location X	31.2	70.0	-63.4	85.9
	Accel Pedal Heel Location Y	75.2	83.3	-34.9	70.8
	Accel Pedal Heel Location Z	2004.7	214.3	-2020.8	123.2
	Accel Pedal Heel Location Resultant	2021.0	123.2		
13	Brake Pedal Heel Location X	13.2	87.2	-83.4	76.1
	Brake Pedal Heel Location Y	17.9	64.1	-12.6	12.7
	Brake Pedal Heel Location Z	30.5	87.3	-9.7	104.9
	Brake Pedal Heel Location Resultant	84.2	76.1		
14	Outside Footrest X	4.3	217.5	-60.6	72.7
	Outside Footrest Y	26.1	86.7	-9.3	56.3
	Outside Footrest Z	11.8	76.6	-19.2	72.2
	Outside Footrest Resultant	65.0	72.6		

(1) Wire cut at 76 msec.
(2) Wire cut at 80 msec.
(3) Wire cut at 80 msec.

DATA SHEET 7
DUMMY INJURY CRITERIA VALUES

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

		Maximum Value							
		Driver				Right Front Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms	Positive	Time, ms	Negative	Time, ms
Head X	G	22.2	288.3	-31.6	132.4	2.3	295.1	-26.1	124.6
Head Y	G	10.7	142.2	-2.5	259.0	6.8	136.6	-6.0	54.7
Head Z	G	34.9	116.2	-1.1	32.3	25.5	124.5	-3.0	54.2
Head Resultant	G	46.5	116.3			36.5	124.5		
Head (FT) Y	G	11.9	142.1	-3.3	264.8	8.2	135.8	-4.4	54.6
Head (FT) Z	G	34.0	116.6	-2.2	168.6	31.3	124.6	-7.1	54.2
Head (LT) X	G	25.6	288.6	-36.9	133.3	3.1	299.2	-25.1	123.8
Head (LT) Z	G	35.5	116.5	-3.0	167.9	26.3	124.7	-4.1	53.3
Head (TP) X	G	25.2	288.4	-34.6	125.3	4.4	43.8	-22.4	108.9
Head (TP) Y	G	14.8	158.2	-4.2	108.0	9.4	139.3	-1.7	44.0
Head Redundant X	G	22.3	288.6	-32.0	125.4	2.1	300.0	-26.7	124.6
Head Redundant Y	G	10.5	142.1	-2.4	259.0	6.5	136.6	-6.1	54.6
Head Redundant Z	G	35.0	116.3	-1.0	32.4	26.1	124.4	-2.9	54.2
Head Resultant Redundant	G	47.0	116.3			37.1	145.5		
Upper Neck Fx	N	166.7	258.3	-438.2	135.8	74.0	299.8	-518.4	153.7
Upper Neck Fy	N	352.5	144.5	-101.8	291.9	214.9	148.6	-8.0	0.0
Upper Neck Fz	N	1322.6	116.3	-823.6	291.5	899.8	125.0	-36.4	183.8
Upper Neck F Resultant	N	1343.1	116.3			948.4	125.0		
Upper Neck Mx	N-m	23.8	166.4	-9.1	120.7	12.6	156.9	-3.2	132.9
Upper Neck My	N-m	23.9	167.6	-54.4	298.5	34.7	168.9	-20.7	125.1
Upper Neck Mz	N-m	6.9	184.2	-9.6	136.0	4.8	119.6	-2.4	172.2
Upper Neck M Resultant	N-m	57.1	298.3			35.4	168.9		
Lower Neck Fx	N	298.6	258.8	-594.0	128.8	186.1	293.8	-691.7	121.9
Lower Neck Fy	N	700.3	126.7	-124.0	296.4	135.2	146.2	-135.5	105.1
Lower Neck Fz	N	2098.7	116.0	-482.4	291.5	1550.8	114.4	-178.2	177.6
Lower Neck F Resultant	N	2204.7	116.0			1676.3	124.4		
Lower Neck Mx	N-m	76.9	161.5	-14.8	243.0	48.2	147.7	-0.9	0.0
Lower Neck My	N-m	98.6	159.1	-65.7	252.5	137.9	177.7	-47.8	279.7
Lower Neck Mz	N-m	32.8	126.7	-5.3	296.4	5.8	228.7	-13.8	36.6
Lower Neck M Resultant	N-m	125.5	159.2			139.2	177.7		
Chest X	G	3.8	299.2	-32.9	115.5	0.7	235.8	-26.2	111.0
Chest Y	G	12.4	116.1	-4.9	36.1	6.3	122.1	-0.5	32.0
Chest Z	G	10.8	114.5	-5.4	141.8	10.7	130.8	-4.1	84.7
Chest Resultant	G	36.6	115.3			26.9	111.0		
Chest Redundant X	G	3.7	299.0	-32.9	115.2	0.6	220.9	-25.1	118.2
Chest Redundant Y	G	12.4	114.9	-5.1	36.0	6.3	123.0	-0.4	32.0
Chest Redundant Z	G	10.6	114.6	-5.4	141.9	10.7	130.6	-4.3	86.3
Chest Resultant Redundant	G	36.7	115.0			26.0	118.1		
Chest Displacement	mm			-24.7	119.1			-17.3	137.4

DATA SHEET 7 (CONTINUED)

DUMMY INJURY CRITERIA VALUES

Test Vehicle: 2008 Ford Escape XLS — NHTSA No.: R80202

Test Program: Left 40% Offset Deformable Barrier — Test Date: 1/18/2008

		Maximum Value							
		Driver				Right Front Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms	Positive	Time, ms	Negative	Time, ms
Pelvis X	G	2.9	135.0	-43.4	105.2	1.6	257.1	-34.0	95.5
Pelvis Y	G	14.5	109.2	-3.6	37.8	7.1	113.2	-2.9	130.4
Pelvis Z	G	3.2	290.7	-15.6	104.5	3.7	141.7	-19.8	105.1
Pelvis Resultant	G	47.4	105.2			38.2	99.0		
Right Femur	N	794.0	69.6	-972.8	101.9	406.7	42.4	-589.8	99.7
Left Femur	N	528.5	42.0	-1967.9	107.2	383.2	70.5	-2161.3	105.1
Right Knee Shear	mm	0.8	88.6	-0.9	129.7	0.4	130.0	-1.3	107.0
Left Knee Shear	mm	0.9	102.7	0.0	180.1	0.4	150.1	-2.0	108.0
Right Upper Tibia Fx	N	674.0	84.8	-175.6	128.6	76.3	129.7	-614.8	97.0
Right Upper Tibia Fy	N	360.7	95.9	-312.5	86.3	126.6	99.5	-205.6	140.0
Right Upper Tibia Fz	N	347.0	49.7	-2272.9	86.2	61.4	167.3	-922.8	122.8
Right Upper Tibia F Resultant	N	2381.3	84.8			1010.2	96.7		
Right Upper Tibia Mx	N-m	10.1	55.5	-96.0	87.9	24.9	87.9	-10.4	139.3
Right Upper Tibia My	N-m	49.9	129.0	-100.5	84.7	43.5	110.9	-17.6	44.2
Right Lower Tibia Fx	N	205.1	129.3	-704.1	85.1	237.5	103.6	-112.5	42.5
Right Lower Tibia Fy	N	806.4	87.5	-56.9	52.8	46.3	160.7	-248.5	88.9
Right Lower Tibia Fz	N	194.1	51.0	-3440.7	86.4	164.6	241.9	-1078.9	129.2
Right Lower Tibia F Resultant	N	3555.6	86.4			1081.5	129.2		
Right Lower Tibia Mx	N-m	52.2	93.4	-43.1	85.7	11.5	110.8	-30.0	140.9
Right Lower Tibia My	N-m	26.4	128.9	-92.2	83.9	21.3	103.4	-12.4	42.6
Right Tibia Mid Shaft X	G	15.8	128.7	-78.2	84.8	3.5	139.8	-31.7	77.0
Right Tibia Mid Shaft Y	G	50.0	87.0	-16.8	91.4	15.2	96.2	-10.4	118.3
Rt Dorsi/Plantar Flexion	Deg	2.9	103.4	-16.0	81.3	0.0	122.3	-15.6	224.8
Rt Inversion/Eversion	Deg	3.1	300.0	-33.8	92.4	29.2	143.6	-8.9	216.0
Rt Internal/External	Deg	9.0	177.6	0.4	110.0	0.5	43.2	-8.9	187.3
Right Foot X – Front	G	16.5	102.3	-102.5	80.5	7.3	122.1	-58.2	76.9
Right Foot Y – Front	G	53.9	83.2	-31.1	92.0	23.3	88.9	-5.8	113.3
Right Foot Z – Front	G	42.8	102.0	-130.0	80.9	7.3	187.3	-18.7	76.7
Right Foot - Front Resultant	G	163.1	80.8			60.1	76.9		
Left Upper Tibia Fx	N	320.1	71.7	-195.6	114.3	124.2	72.8	-341.3	92.0
Left Upper Tibia Fy	N	185.6	131.2	-144.8	108.7	213.5	115.2	-81.1	101.0
Left Upper Tibia Fz	N	102.9	39.9	-1029.8	123.2	62.4	192.8	-639.4	130.3
Left Upper Tibia F Resultant	N	1038.6	123.2			647.9	130.2		
Left Upper Tibia Mx	N-m	19.8	192.4	-8.0	135.1	39.6	156.6	-6.7	74.0
Left Upper Tibia My	N-m	30.2	129.3	-54.9	98.1	41.4	117.5	-21.9	72.9
Left Lower Tibia Fx	N	44.2	239.3	-669.0	97.1	122.9	118.0	-192.5	67.2
Left Lower Tibia Fy	N	181.6	78.6	-74.5	190.9	50.5	79.7	-159.1	149.9
Left Lower Tibia Fz	N	36.4	246.3	-2272.3	123.6	83.3	202.2	-952.9	123.8
Left Lower Tibia F Resultant	N	2279.1	123.6			961.4	123.8		

DATA SHEET 7 (CONTINUED)
DUMMY INJURY CRITERIA VALUES

Test Vehicle: 2008 Ford Escape XLS — NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier — Test Date: 1/18/2008

		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	33.7	69.4	-5.8	108.2	9.6	171.1	-4.9	79.6
Left Lower Tibia My	N-m	16.2	120.0	-41.5	74.7	15.6	118.4	-18.6	74.2
Left Tibia Mid Shaft X	G	6.9	114.0	-46.6	95.3	6.6	118.9	-35.7	94.1
Left Tibia Mid Shaft Y	G	14.9	77.6	-10.7	85.9	14.0	96.7	-7.7	119.1
Lt Dorsi/Plantar Flexion	Deg	25.1	110.3	-20.8	40.7	-4.0	110.4	-19.6	52.9
Lt Inversion/Eversion	Deg	4.9	285.4	-30.3	83.9	11.6	96.9	-19.4	176.1
Lt Internal/External	Deg	5.4	223.7	-5.1	127.2	0.0	0.0	-14.2	235.0
Left Foot X – Front	G	10.0	109.5	-52.5	73.5	4.2	113.3	-51.2	72.7
Left Foot Y – Front	G	6.3	52.7	-21.5	78.6	25.7	88.7	-15.8	71.8
Left Foot Z – Front	G	7.5	91.9	-53.6	76.0	22.0	72.3	-32.9	94.1
Left Foot – Front Resultant	G	71.6	75.8			53.8	92.9		
Lap Belt Load	N	5450.9	104.8			4200.9	97.5		
Shoulder Belt Load	N	4477.7	124.5			3610.7	130.9		

		Maximum Value			
		Left Rear Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms
Head X	G	66.4	240.4	-49.0	143.0
Head Y	G	35.4	155.5	-50.4	240.5
Head Z	G	69.0	122.2	-3.7	58.6
Head Resultant	G	93.1	240.4		
Upper Neck Fx	N	38.2	273.3	-1173.7	143.1
Upper Neck Fy	N	191.9	254.3	-404.6	139.0
Upper Neck Fz	N	2520.5	142.2	-622.6	247.6
Upper Neck F Resultant	N	2790.4	142.2		
Upper Neck Mx	N-m	15.6	122.4	-15.7	112.7
Upper Neck My	N-m	31.2	137.7	-35.4	104.2
Upper Neck Mz	N-m	6.7	141.9	-6.0	111.0
Upper Neck M Resultant	N-m	36.0	104.2		
Lower Neck Fx	N	66.4	274.3	-2461.0	142.9
Lower Neck Fy	N	112.0	275.6	-1393.8	122.5
Lower Neck Fz	N	2446.9	103.3	-452.4	247.6
Lower Neck F Resultant	N	3149.0	122.4		
Lower Neck Mx	N-m	21.3	274.6	-80.6	122.8
Lower Neck My	N-m	258.7	142.4	-10.5	239.2
Lower Neck Mz	N-m	16.0	146.0	-13.9	109.0
Lower Neck M Resultant	N-m	268.1	142.2		

DATA SHEET 7 (CONTINUED)

DUMMY INJURY CRITERIA VALUES

Test Vehicle: 2008 Ford Escape XLS — NHTSA No.: R80202

Test Program: Left 40% Offset Deformable Barrier — Test Date: 1/18/2008

		Maximum Value			
		Left Rear Passenger			
Description	Unit	Positive	Time, ms	Negative	Time, ms
Right Shoulder Fx	N	213.5	109.8	-64.6	222.2
Right Shoulder Fz	N	510.0	127.8	-87.9	99.8
Left Shoulder Fx	N	177.1	197.4	-4032.9	108.9
Left Shoulder Fz	N	1584.6	104.7	-38.2	169.8
Chest X	G	4.7	251.1	-53.1	99.9
Chest Y	G	17.1	120.1	-3.8	243.7
Chest Z	G	19.3	104.7	-7.7	121.9
Chest Resultant	G	57.2	99.8		
Chest Displacement	mm			-32.4	113.6
Upper Sternum X	G	7.1	254.8	-58.2	101.8
Lower Sternum X	G	7.1	292.4	-75.3	97.3
Upper Spine X	G	4.6	251.0	-50.3	100.1
Lower Spine X	G	4.3	257.5	-59.8	98.5
Lumbar Fx	N	1772.1	145.3	-910.2	97.8
Lumbar Fy	N	44.5	59.5	-1051.0	101.1
Lumbar Fz	N	1259.6	143.3	-687.3	68.3
Lumbar F Resultant	N	2206.3	144.0		
Lumbar Mx	N-m	20.7	209.8	-140.1	117.5
Lumbar My	N-m	62.3	101.1	-16.1	144.1
Lumbar Mz	N-m	41.2	107.4	-4.1	217.1
Lumbar M Resultant	N-m	148.4	101.9		
Pelvis X	G	4.1	278.4	-54.5	95.1
Pelvis Y	G	20.9	130.0	-6.6	87.8
Pelvis Z	G	9.0	241.6	-18.5	114.1
Pelvis Resultant	G	57.5	95.0		
Right Upper Asis Fx	N	617.1	95.5	-840.7	125.1
Right Lower Asis Fx	N	1244.6	123.8	-4.5	13.2
Left Upper Asis Fx	N	171.7	97.5	-95.0	172.3
Left Lower Asis Fx	N	693.0	99.3	-3.3	13.6
Shoulder Belt Load	N	6799.5	108.8		
Lap Belt Load	N	4995.9	98.5		

DATA SHEET 8

SUMMARY OF FMVSS 212/ 219 (PARTIAL) DATA

Test Vehicle: 2008 Ford Escape XLS	NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier	Test Date: 1/18/2008

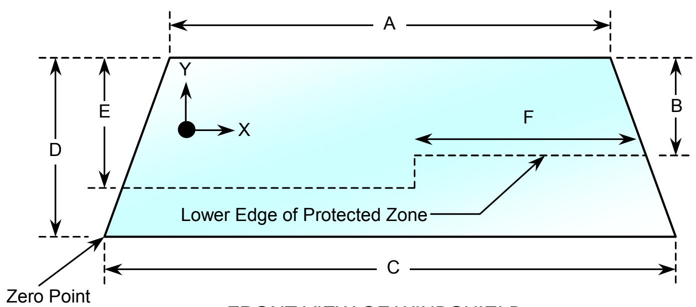
Windshield Mounting Details:
Windshield glass is secured to the vehicle frame with a rubber trim and glue.

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	2030	2030	100
Right Side	2030	2030	100
Total	4060	4060	100



FRONT VIEW OF WINDSHIELD

Item	Units	Value
A	mm	1174
B	mm	469
C	mm	1490
D	mm	698
E	mm	488
F	mm	483

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: <u>2008 Ford Escape XLS</u> NHTSA No.: <u>R80202</u>
Test Program: <u>Left 40% Offset Deformable Barrier</u> Test Date: <u>1/18/2008</u>

Temperature at Time of Impact: ____21° C____ Test Time: _11:57 am

Stoddard Solvent Spillage Measurements

A. From impact until vehicle motion ceases: ____0__oz.
(Maximum Allowable = 1 ounce)

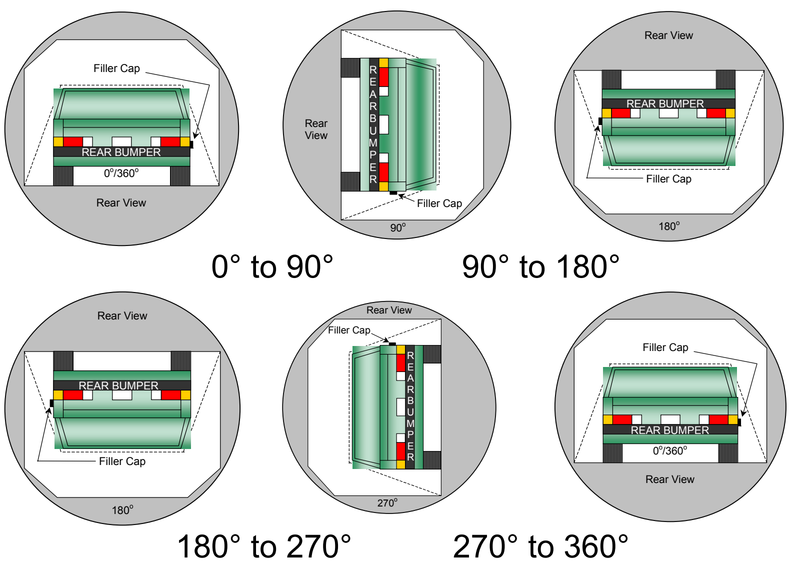
B. For the 5 minute period after motion ceases: ____0__oz.
(Maximum Allowable = 5 ounces)

C. For the following 25 minutes: ____0__oz.
(Maximum Allowable = 1 oz. /minute)

D. Spillage: ____None____

FMVSS 301 STATIC ROLLOVER DATA

NOT PERFORMED



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).

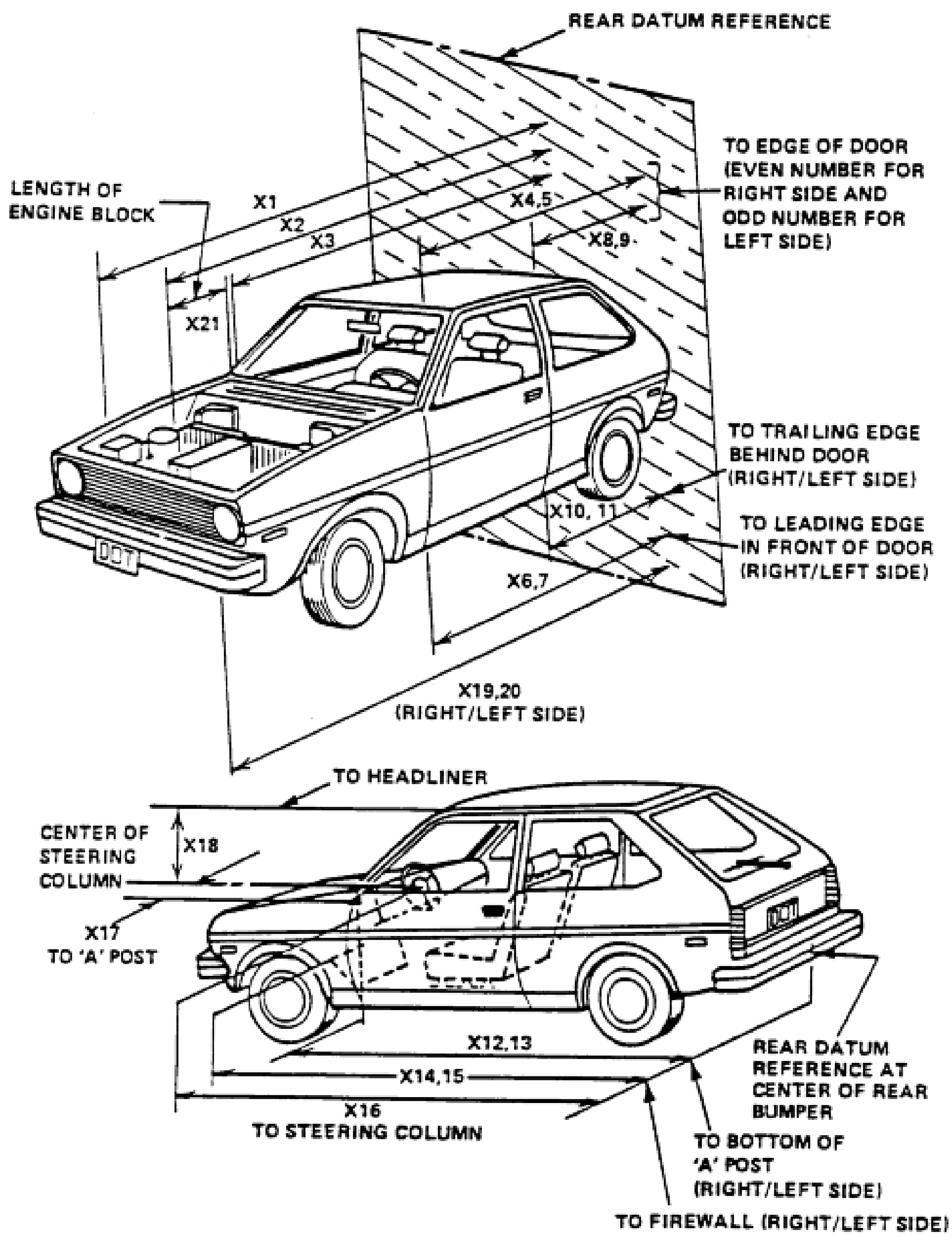
3. Details of Stoddard Solvent spillage locations:

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:	2008 Ford Escape XLS	NHTSA No.:	R80202
Test Program:	Left 40% Offset Deformable Barrier	Test Date:	1/18/2008



DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS   NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier   Test Date: 1/18/2008

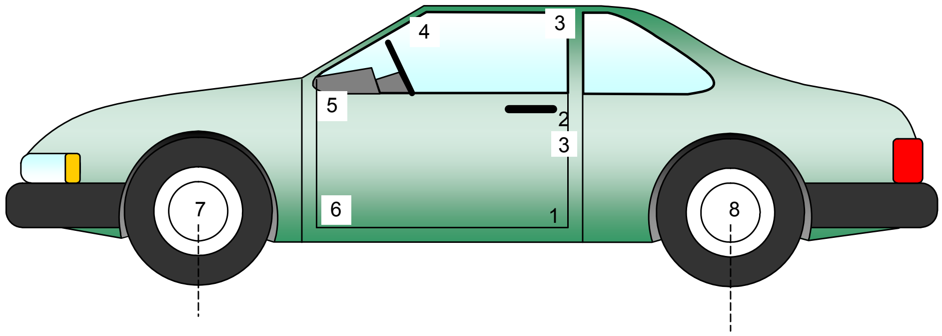
No.	Measurement Description	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
1	Total length of vehicle at centerline	4375	4012	363
2	RSOV to front of engine	3955	3990	-35
3	RSOV to firewall centerline	3415	3392	23
4	RSOV to leading edge of right door	3014	3028	-14
5	RSOV to leading edge of left door	3011	3013	-2
6	RSOV to lower leading edge of right door	2997	2992	5
7	RSOV to lower leading edge of left door	2992	2969	23
8	RSOV to upper leading edge of right door	1978	1986	-8
9	RSOV to upper leading edge of left door	1976	1980	-4
10	RSOV to lower trailing edge of right door	2005	1995	10
11	RSOV to lower trailing edge of left door	2002	1985	17
12	RSOV to bottom of right 'A' pillar	3011	3004	7
13	RSOV to bottom of left 'A' pillar	2996	2992	4
14	RSOV to firewall on right side	3464	3467	-3
15	RSOV to firewall on left side	3451	3380	71
16	RSOV to steering column	2580	2571	9
17	Center of steering column to left 'A' pillar	406	420	-14
18	Center of steering column to headlining	486	500	-14
19	RSOV to right side of front bumper	4315	4345	-30
20	RSOV to left side of front bumper	4310	3880	430
21	Length of engine block	180	180	0
RD	RSOV to right side of dash panel	2882	2885	-3
CD	RSOV to center of dash panel	2825	2825	0
LD	RSOV to left side of dash panel	2846	2844	2

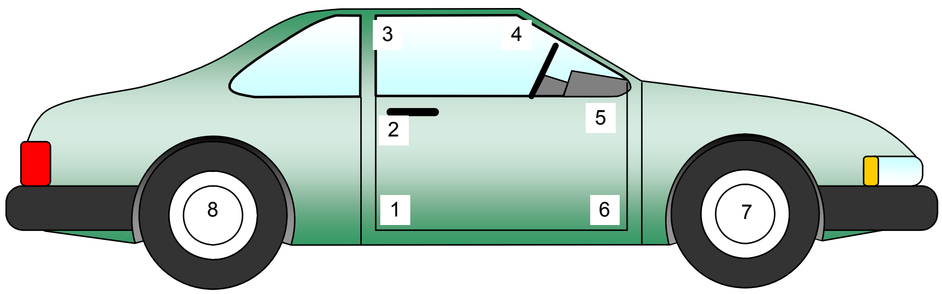
DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS — NHTSA No.: R80202

Test Program: Left 40% Offset Deformable Barrier — Test Date: 1/18/2008





LEFT FRONT

Point Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2174	-724	88	2175	-721	89	1	-3	-1
2	2041	-737	-513	2043	-732	-514	2	-5	1
3	1993	-610	-924	1994	-607	-924	1	-3	0
4	2530	-622	-877	2533	-623	-891	3	1	14
5	2932	-726	-550	2921	-731	-553	-11	5	3
6	2954	-725	100	2953	-710	105	-1	-15	-5
7	3582	-818	273	3447	-803	253	-135	-15	20
8	961	-789	322	960	-789	328	-1	0	-6

RIGHT FRONT

Point Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2174	727	87	2172	732	88	-2	-5	-1
2	2042	741	-502	2040	744	-503	-2	-3	1
3	1993	614	-924	1992	616	-924	-1	-2	0
4	2528	625	-881	2527	628	-880	-1	-3	-1
5	2932	729	-546	2930	734	-546	-2	-5	0
6	2952	726	92	2951	735	94	-1	-9	-2
7	3579	822	273	3602	793	254	23	29	19
8	958	793	315	959	793	327	1	0	-12

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

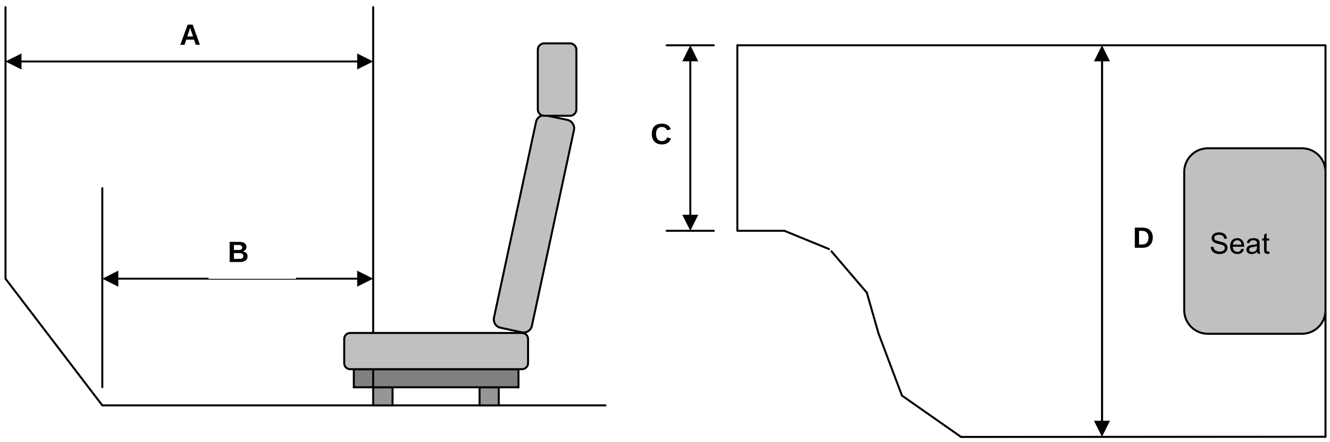
Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

	Elements	Pre-Test (mm)
1	Total Length	4375
2	Total Width	1800
3	Bumper Top Height	623
4	Bumper Bottom Height	558
5	Longitudinal Member Top Height	639
6	Distance between Longitudinal Members	1130
7	Longitudinal Member Width	95
8	Engine Top Height	885
9	Engine Bottom Height	263
10	Engine and gearbox width	843
11	Front bumper-engine distance	330
12	Front shock absorber fixing height	1013
13	Bonnet leading edge height	943
14	Front shock absorber fixing width	1166
15	Front bumper – front axle distance	835
16	Front axle – a pillar distance	499
17	A-pillar – B-pillar distance	1030
18	B-Pillar – rear axle distance	1079
19	B-pillar – C-pillar distance	970
20	Roof sill bottom height	1544
21	Roof sill top height	1620
22	Floor sill bottom height	349
23	Floor sill top height	492

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008



DRIVER

Measurements	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
A	673	548	125
B	440	365	75
C	405	393	12
D	564	552	12

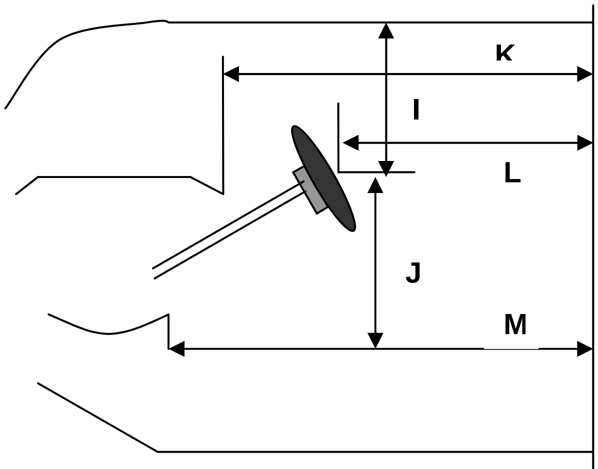
LEFT FRONT PASSENGER

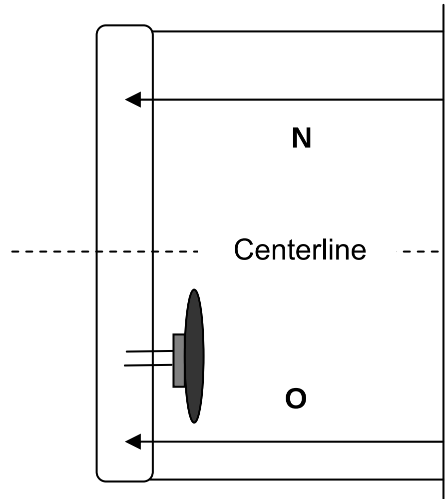
Measurements	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
A	681	680	1
B	475	475	0
C	348	342	6
D	528	528	0

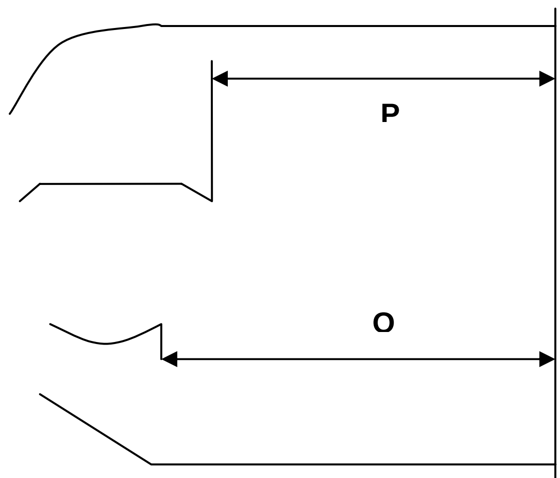
DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008







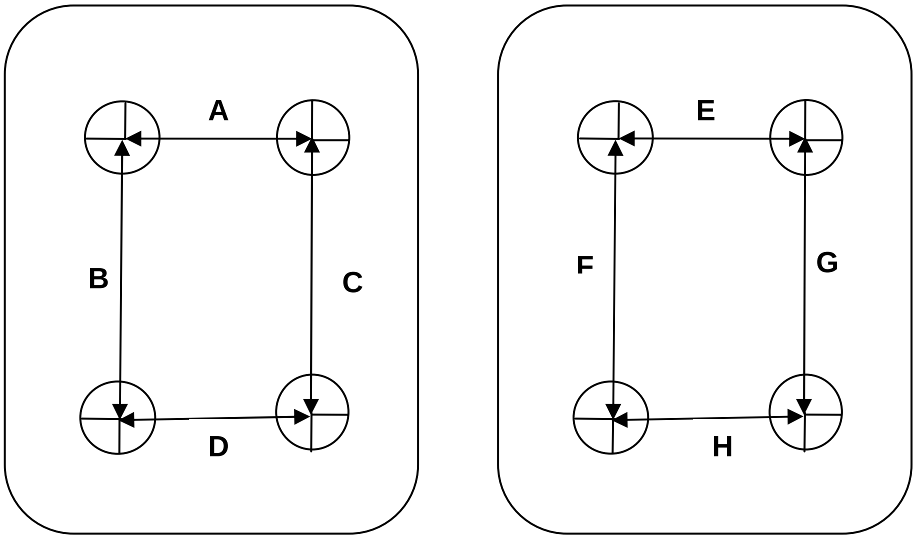
Measurements	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
I	485	482	3
J	611	705	-94
K	1710	1684	26
L	1512	1486	26
M	1865	1827	38
N	2065	2036	29
O	2064	2015	49
P= K (PASS)	1704	1699	5
Q= M (PASS)	1848	1846	2

Measurements from C-Pillar Belt Anchorage

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle:	2008 Ford Escape XLS	NHTSA No.:	R80202
Test Program:	Left 40% Offset Deformable Barrier	Test Date:	1/18/2008



Driver   Passenger

UNDERBODY FLOORBOARD DEFORMATION

Measurement	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
A	237	242	-5
B	320	320	0
C	344	338	6
D	216	225	-9
E	278	294	-16
F	382	382	0
G	355	358	-3
H	211	219	-8

DATA SHEET 10 (CONTINUED)
TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

	Points	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
		X	Y	Z	X	Y	Z	X	Y	Z
Lower Bumper Beam	1	4339	-570	51	3892	-547	27	-447	-23	24
	2	4384	-340	53	3918	-314	31	-466	-26	22
	3	4400	-113	53	3955	-125	13	-445	12	40
	4	4399	113	53	4106	42	3	-293	71	50
	5	4382	341	54	4248	219	-11	-134	122	65
	6	4336	571	56	4369	421	-22	33	150	78
Upper Bumper Beam	1	4338	-569	-8	3925	-549	-9	-413	-20	1
	2	4383	-341	-9	3945	-322	-21	-438	-19	13
	3	4398	-112	-8	3963	-136	-49	-435	24	41
	4	4398	112	-7	4109	34	-57	-289	78	51
	5	4381	341	-6	4246	217	-70	-135	124	64
	6	4337	571	-3	4364	420	-82	27	151	78
Upper Radiator Support	1	4074	-662	-341	3780	-609	-345	-294	-53	4
	2	4147	-363	-329	3780	-343	-399	-367	-20	70
	3	4120	-134	-330	3861	-127	-421	-259	-7	91
	4	4129	133	-329	3968	116	-419	-161	17	90
	5	4138	364	-328	4050	331	-390	-88	33	62
	6	4070	665	-338	4065	639	-363	-5	26	25
Front of Hood	1	4145	-704	-355	3882	-700	-492	-263	-4	137
	2	4294	-427	-356	3963	-416	-406	-331	-11	50
	3	4323	-144	-357	3954	-132	-401	-369	-11	44
	4	4322	145	-356	4125	75	-434	-197	70	78
	5	4291	425	-355	4185	349	-453	-106	76	98
	6	4139	707	-353	4114	655	-505	-25	52	152

Reference Photos on the Following Page

Lower Bumper Beam / Upper Bumper Beam

Front of Hood

Upper Radiator Support

DATA SHEET 10 (CONTINUED)

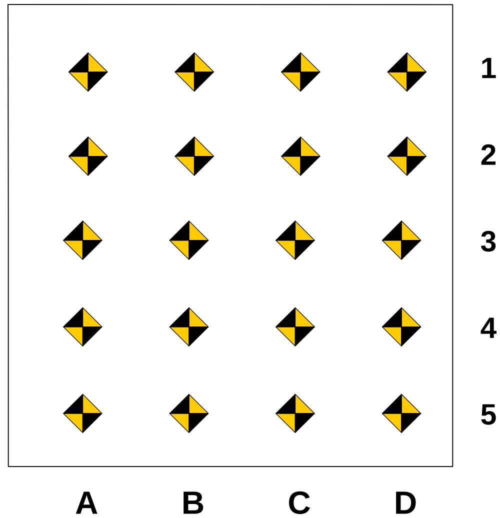
TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

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	3185	-582	119	3137	-568	106	-48	-14	13
B1	3238	-452	120	3115	-426	87	-123	-26	33
C1	3245	-324	120	3128	-301	111	-117	-23	9
D1	3283	-191	121	3186	-191	100	-97	0	21
A2	3144	-580	167	3109	-567	164	-35	-13	3
B2	3201	-452	173	3138	-434	158	-63	-18	15
C2	3203	-322	167	3117	-292	167	-86	-30	0
D2	3203	-196	166	3127	-189	158	-76	-7	8
A3	3117	-582	212	3103	-572	216	-15	-10	-4
B3	3117	-450	212	3109	-449	242	-8	-1	-30
C3	3133	-322	211	3115	-313	238	-18	-9	-27
D3	3124	-193	211	3115	-191	229	-9	-2	-18
A4	3009	-583	220	3006	-573	230	-3	-10	-10
B4	3011	-451	216	3005	-441	232	-6	-10	-16
C4	3011	-325	216	3003	-317	240	-8	-8	-24
D4	3010	-188	218	3003	-183	236	-7	-5	-18
A5	2895	-580	218	2891	-573	228	-4	-7	-10
B5	2895	-453	220	2890	-446	235	-5	-7	-15
C5	2897	-324	217	2890	-317	241	-7	-7	-24
D5	2900	-190	218	2895	-188	221	-5	-2	-3
Brake Pedal	3070	-319	24	2990	-324	-5	-80	5	29
IP Left	2806	-517	-310	2790	-519	-312	-16	2	2
IP Right	2796	-216	-310	2784	-218	-310	-12	2	0
Steering Column	2610	-368	-467	2603	-366	-457	-7	-3	-10
Front Outboard Bolt	2536	-562	191	2535	-566	206	-1	4	-15

DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle:	2008 Ford Escape XLS	NHTSA No.:	R80202
Test Program:	Left 40% Offset Deformable Barrier	Test Date:	1/18/2008

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	3205	-581	49	3145	-567	34	-60	-14	15
2	3236	-518	65	3131	-499	42	-105	-19	23
3	3268	-483	60	3139	-473	41	-129	-10	19
4	3303	-448	48	3153	-423	17	-150	-25	31
5	3305	-389	53	3159	-366	25	-146	-23	28
6	3301	-333	63	3154	-310	36	-147	-23	26
7	3305	-299	91	3178	-286	66	-127	-13	25
8	3313	-258	111	3203	-257	88	-110	-1	23
9	3313	-215	114	3213	-216	96	-100	1	18
10	3306	-167	93	3216	-165	79	-90	-2	14
11	3290	-131	77	3203	-130	57	-87	-1	20
12	3200	-523	157	3141	-502	137	-59	-20	20
13	3227	-376	141	3116	-354	133	-111	-22	8
14	3230	-267	147	3133	-261	140	-97	-6	7
15	3150	-538	203	3126	-524	200	-24	-14	3
16	3168	-377	197	3116	-367	199	-52	-10	-2
17	3163	-256	197	3111	-243	206	-52	-13	-9
18	3060	-518	217	3056	-508	223	-4	-10	-6
19	3065	-390	215	3060	-383	246	-5	-7	-31
20	3070	-250	216	3064	-243	241	-6	-7	-25
21	2951	-518	216	2947	-508	229	-4	-10	-13
22	2952	-389	217	2946	-379	242	-6	-10	-25
23	2954	-252	215	2948	-246	241	-6	-6	-26
24	2783	-582	213	2780	-576	222	-3	-6	-9
25	2781	-455	215	2776	-447	230	-5	-8	-15
26	2782	-322	215	2776	-317	238	-6	-5	-23
27	2783	-193	217	2791	-191	232	8	-2	-15
28	2670	-582	217	2665	-578	225	-5	-4	-8
29	2669	-452	215	2664	-448	230	-5	-4	-15
30	2667	-322	214	2666	-321	237	-1	-1	-23
31	2669	-193	216	2673	-199	232	4	6	-16
32	2555	-580	237	2550	-579	252	-5	-1	-15
33	2554	-453	237	2549	-453	251	-5	0	-14
34	2551	-323	233	2546	-325	242	-5	2	-9
35	2552	-196	234	2554	-199	252	2	3	-18
36	3115	-99	190	3107	-98	193	-8	-1	-3
37	3008	-106	194	3001	-105	195	-7	-1	-1
38	2906	-112	201	2899	-109	203	-7	-3	-2
39	2795	-121	201	2798	-118	227	3	-3	-26
40	2671	-123	196	2675	-127	213	4	4	-17

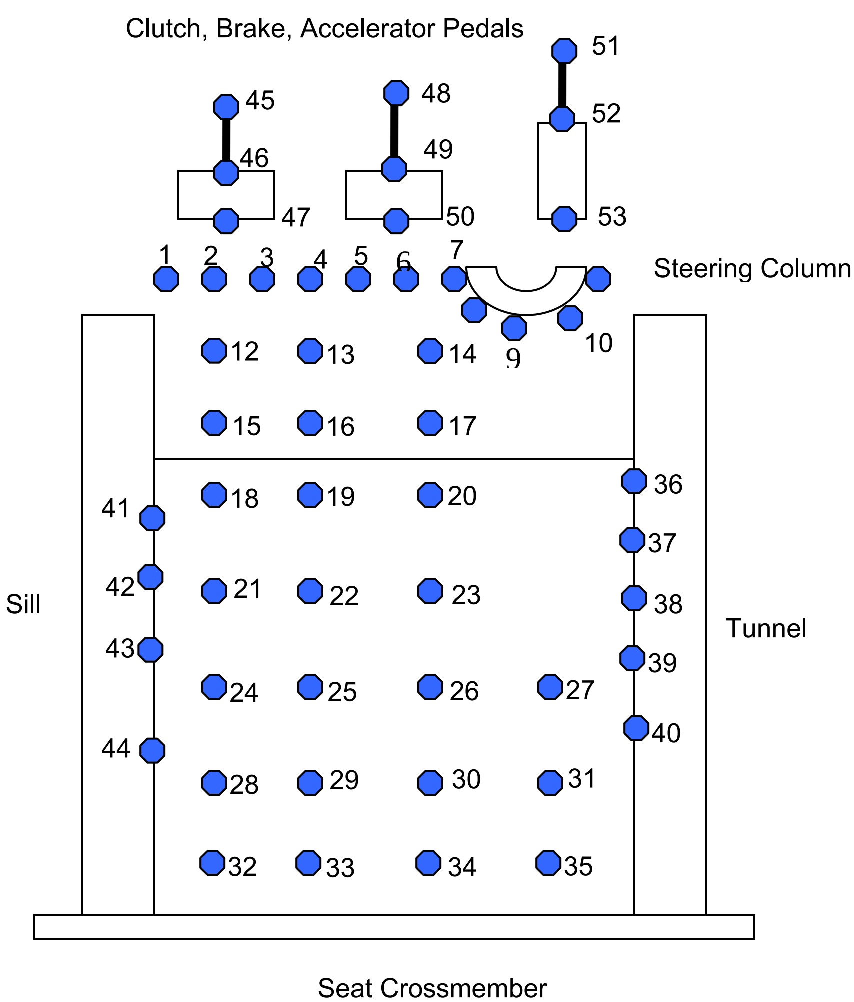
DATA SHEET 10 (CONTINUED)

TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

Driver's Side Toe Pan Floor Board
Additional Measurements (Continued)

Points	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
41	3012	-669	157	3009	-652	160	-3	-17	-3
42	2898	-669	159	2896	-656	162	-2	-13	-3
43	2782	-668	168	2780	-659	173	-2	-9	-5
44	2687	-668	167	2684	-661	170	-3	-7	-3
45	3135	-455	-58	3056	-454	-73	-79	-1	15
46	3083	-452	-4	3005	-452	-34	-78	0	30
47	3046	-453	52	2964	-452	18	-82	-1	34
48	3136	-368	-64	3060	-370	-79	-76	2	15
49	3096	-317	1	3018	-321	-24	-78	4	25
50	3055	-319	54	2972	-321	24	-83	2	30
51	3259	-142	-36	3199	-141	-44	-60	-1	8
52	3160	-192	11	3097	-193	2	-63	1	9
53	3089	-191	86	3028	-191	78	-61	0	8



DATA SHEET 10 (CONTINUED)

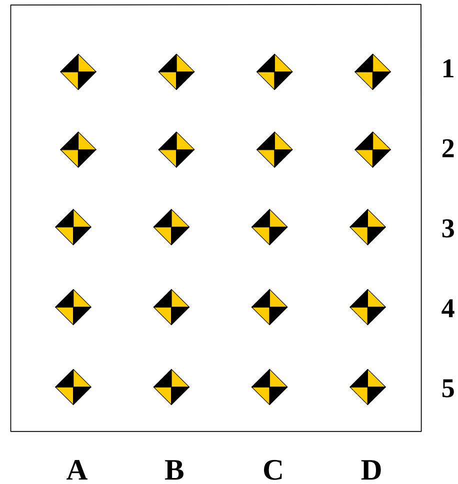
TEST VEHICLE MEASUREMENTS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

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	3276	190	119	3254	191	122	-22	-1	-3
B1	3244	321	121	3236	329	126	-8	-8	-5
C1	3232	451	120	3226	457	124	-6	-6	-4
D1	3185	583	118	3182	590	120	-3	-7	-2
A2	3210	196	166	3202	204	176	-8	-8	-10
B2	3210	324	165	3208	331	176	-2	-7	-11
C2	3198	453	174	3197	460	180	-1	-7	-6
D2	3167	581	166	3166	588	168	-1	-7	-2
A3	3141	193	211	3142	202	221	1	-9	-10
B3	3136	327	212	3137	335	225	1	-8	-13
C3	3135	450	212	3135	458	221	0	-8	-9
D3	3114	584	213	3113	594	215	-1	-10	-2
A4	3009	188	223	3011	196	239	2	-8	-16
B4	3009	324	221	3011	335	231	2	-11	-10
C4	3012	452	216	3013	460	224	1	-8	-8
D4	3009	584	215	3009	592	218	0	-8	-3
A5	2896	189	218	2897	197	241	1	-8	-23
B5	2899	324	220	2900	332	233	1	-8	-13
C5	2899	455	220	2900	462	228	1	-7	-8
D5	2895	580	219	2896	587	223	1	-7	-4
Front Outboard Bolt	2534	570	194	2534	574	199	0	-4	-5
IP Left	2795	218	-309	2789	225	-307	-6	-7	-2
IP Right	2804	518	-311	2801	525	-309	-3	-7	-2

DATA SHEET 11

PHOTOGRAPHIC DATA

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

No.	Camera View	Location (mm) *			Lens (mm)	Angle (deg)	Shutter (μs)	Speed (fps)
		X	Y	Z				
1	Left Front Half	515	-4900	1180	24	6.0	300	1000
2	Left Closeup	1015	-5810	1555	35	3.7	100	1000
3	Left SWC Bottom	765	-5260	940	50	2.1	220	1000
4	Left Angle 1	3750	-6340	1665	25	3.5	220	1000
5	Left Angle 2	5665	-5000	2015	50	6.9	100	1000
6	Left Overall	1480	-6390	1165	19	6.4	700	1000
7	Right Front Half	515	5225	1180	24	4.8	300	1000
8	Right Closeup	820	6615	1625	35	3.5	210	1000
9	Right Angle 1	3600	5485	1595	25	3.9	190	1000
10	Right Angle 2	6090	4890	2005	50	5.5	170	1000
11	Windshield	-2355	0	2815	12.5	33.2	300	1000
12	Overhead Closeup	790	0	4440	50	90.0	200	1000
13	Overhead Overall	-145	-245	4630	14	90.0	400	1000
14	Pit Front	5	0	-3150	24	90.0	1000	1000
15	Pit Rear	2165	0	-3150	24	90.0	1000	1000
16	Onboard Passenger				8	18.5	1000	1000
17	Onboard Driver Footwell				6.5	8.8	1000	1000
18	Real-Time Camera				13			24

*COORDINATES:

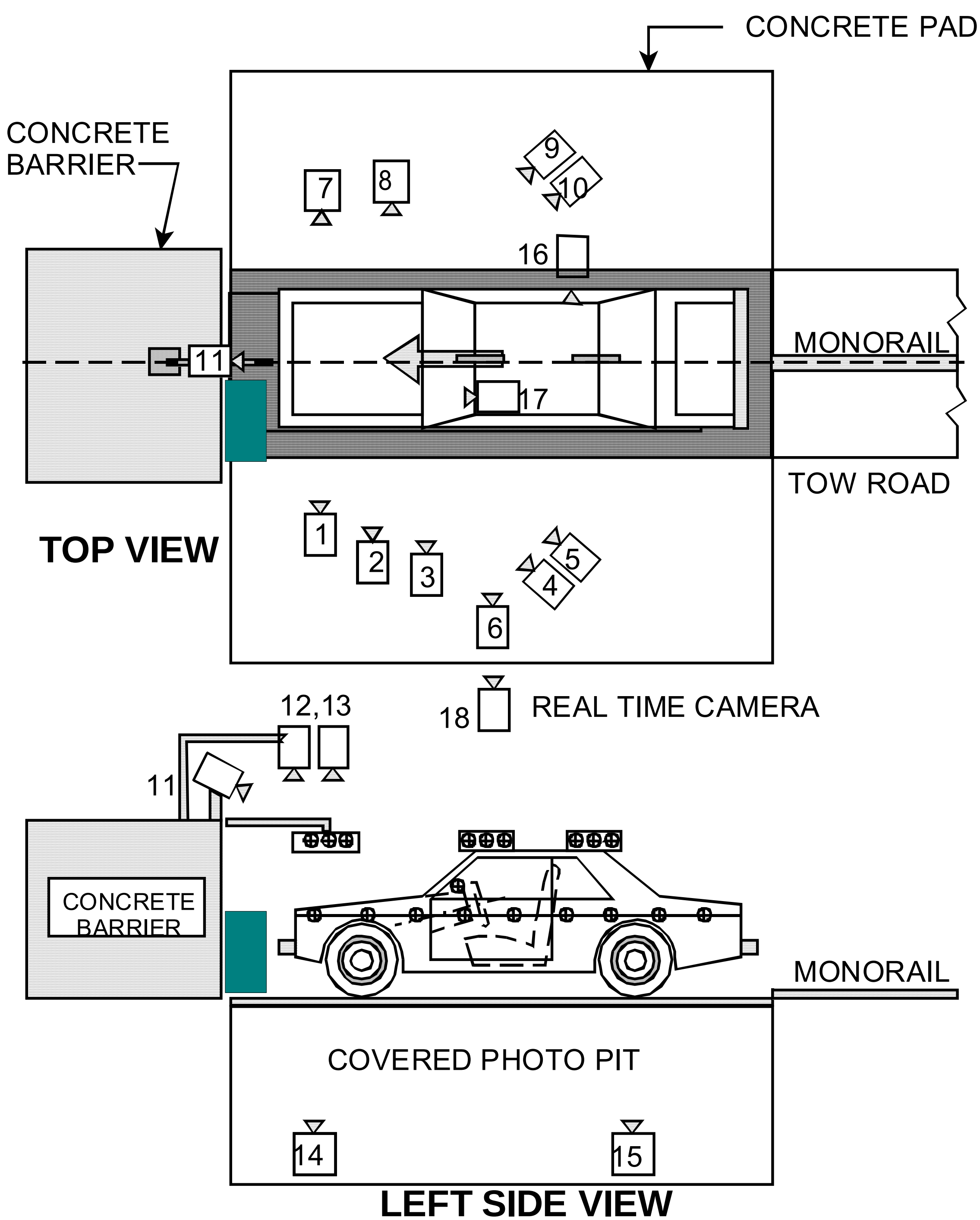
+X = forward of impact plane
+Y = right of monorail centerline
+Z = above ground level

DATA SHEET 11 (CONTINUED)

PHOTOGRAPHIC DATA

Test Vehicle:	2008 Ford Escape XLS	NHTSA No.:	R80202
Test Program:	Left 40% Offset Deformable Barrier	Test Date:	1/18/2008

CAMERA POSITIONS FOR FRONTAL IMPACTS



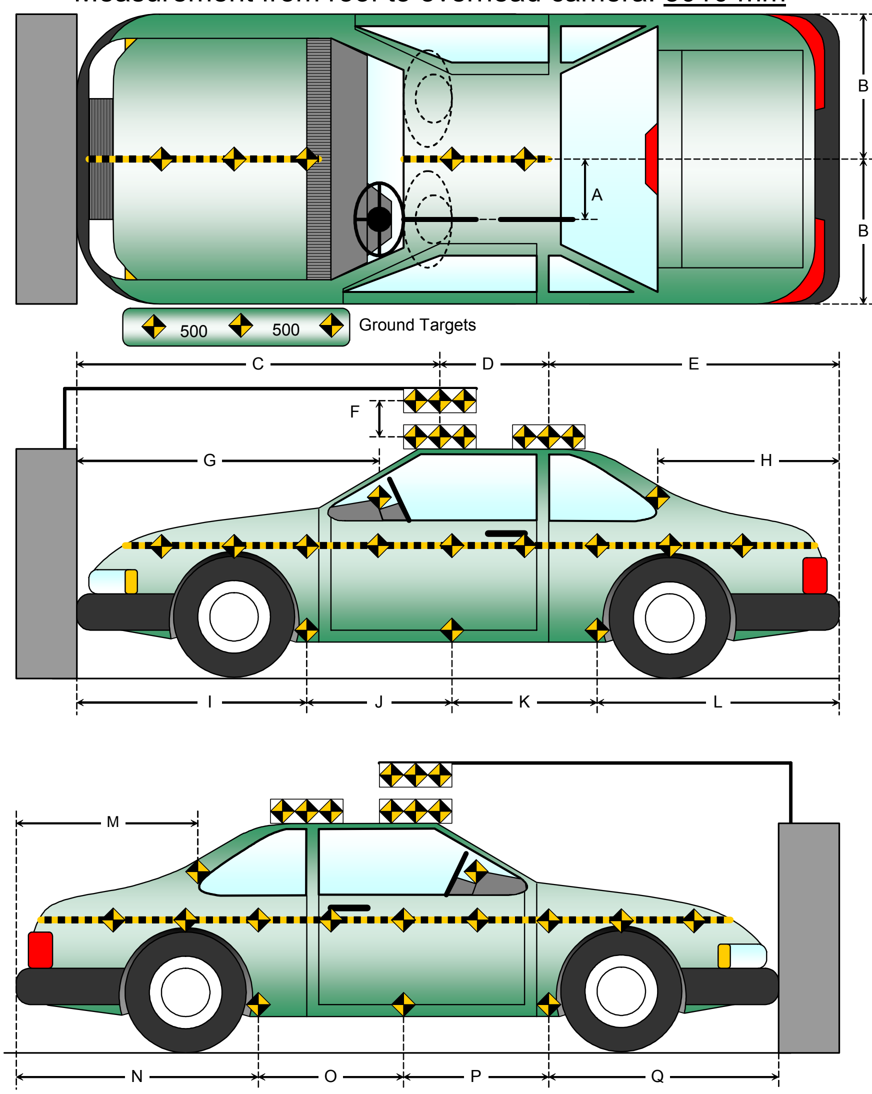
DATA SHEET 12

VEHICLE REFERENCE PHOTO TARGET LOCATIONS

Test Vehicle: 2008 Ford Escape XLS
Test Program: Left 40% Offset Deformable Barrier
NHTSA No.: R80202
Test Date: 1/18/2008

Item	Value
A	387
B	900
C	2354
D	915
E	1106
F	105
G	
H	1081
I	1316
J	832
K	831
L	1396
M	1062
N	1399
O	833
P	833
Q	1310

Measurement from roof to overhead camera: 3010 mm



Measurement between roof targets: 305 mm

DATA SHEET 13

POST TEST AIR BAG DATA

Test Vehicle:	2008 Ford Escape XLS	NHTSA No.:	R80202
Test Program:	Left 40% Offset Deformable Barrier	Test Date:	1/18/2008

Air Bag Data	Driver	Right Front Passenger
Number of Vent Holes	2	2
Size of Vent Holes	25 mm diameter	60 mm diameter
Shape of Vent Holes	Round	Rectangle
Total Vent Area	981 mm^2	5652 mm^2
Length of Deflated Airbag (if square)		580 mm
Width of Deflated Airbag (if square)		380 mm
Diameter of Deflated Airbag (if round)	480 mm	
Is Airbag Tethered?	Yes	No
Length of Tether	200 mm	

Driver Airbag Part Numbers: 607930300CC02
Ford U377
FWPU4TOHGSO

Passenger Airbag Part Numbers: 8L84-78044A74-AS36T7
Filter Code: F9C9E
FA3U5S4KANA
No gas generator

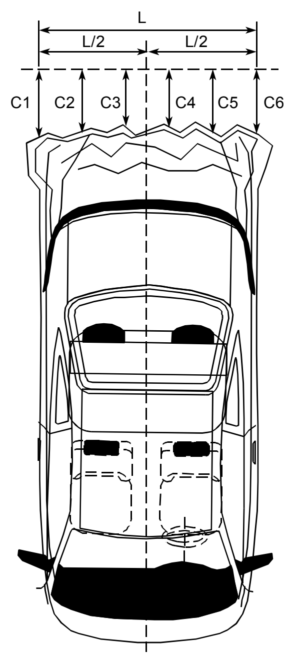
DATA SHEET 14

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2008 Ford Escape XLS
Test Program: Left 40% Offset Deformable Barrier
NHTSA No.: R80202
Test Date: 1/18/2008

CRUSH DEPTH DIMENSIONS

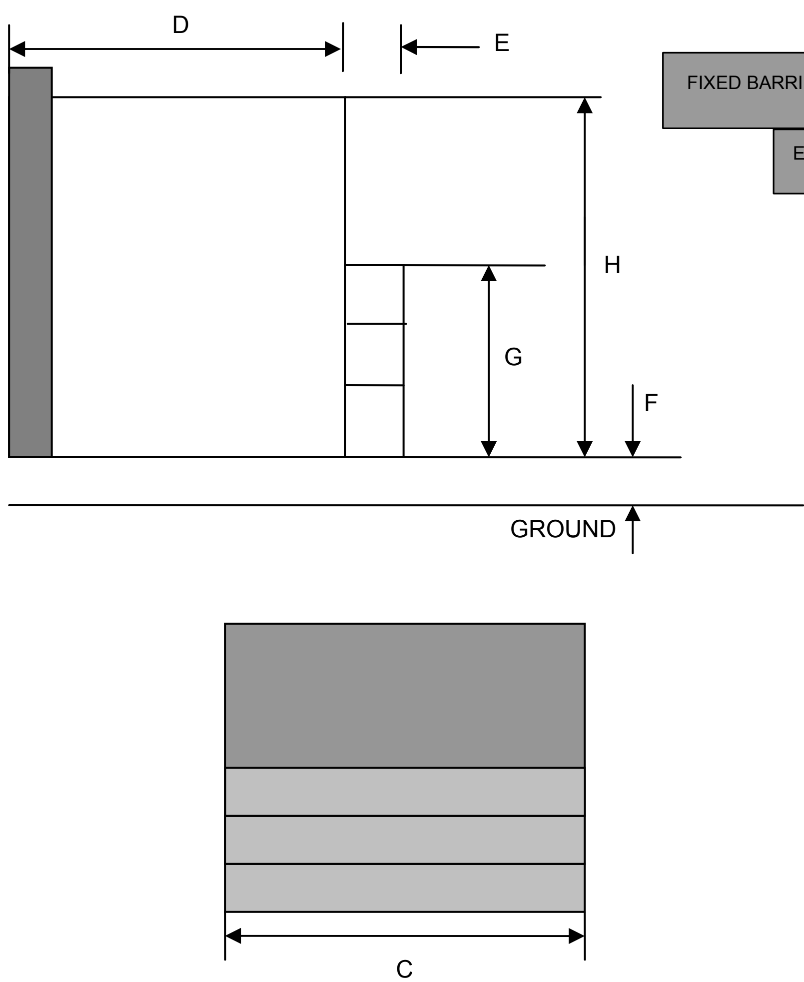
No.	Measurement Description	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
C1	Crush zone 1 at left side	4310	3880	430
C2	Crush zone 2 at left side	4351	3904	447
C3	Crush zone 3 at left side	4372	3904	468
C4	Crush zone 4 at right side	4370	4135	235
C5	Crush zone 5 at right side	4353	4252	101
C6	Crush zone 6 at right side	4315	4345	-30
L	C1 TO C6	1160	1075	85

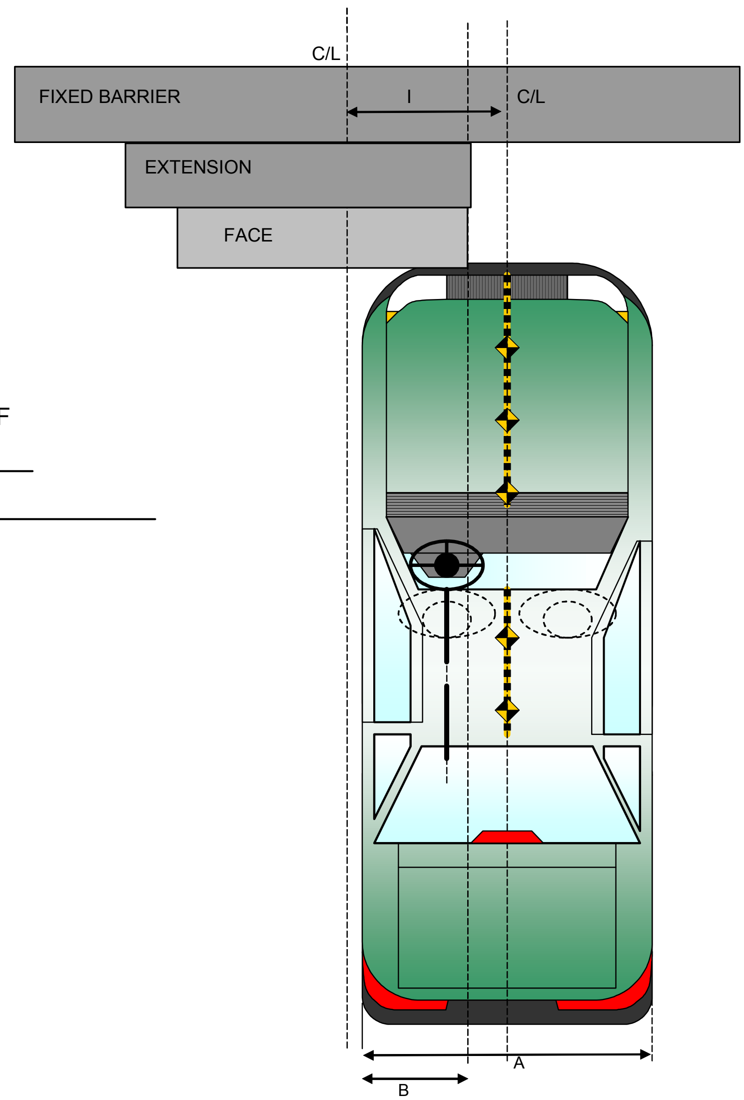


DATA SHEET 15

OFFSET BARRIER AND VEHICLE ORIENTATION

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008





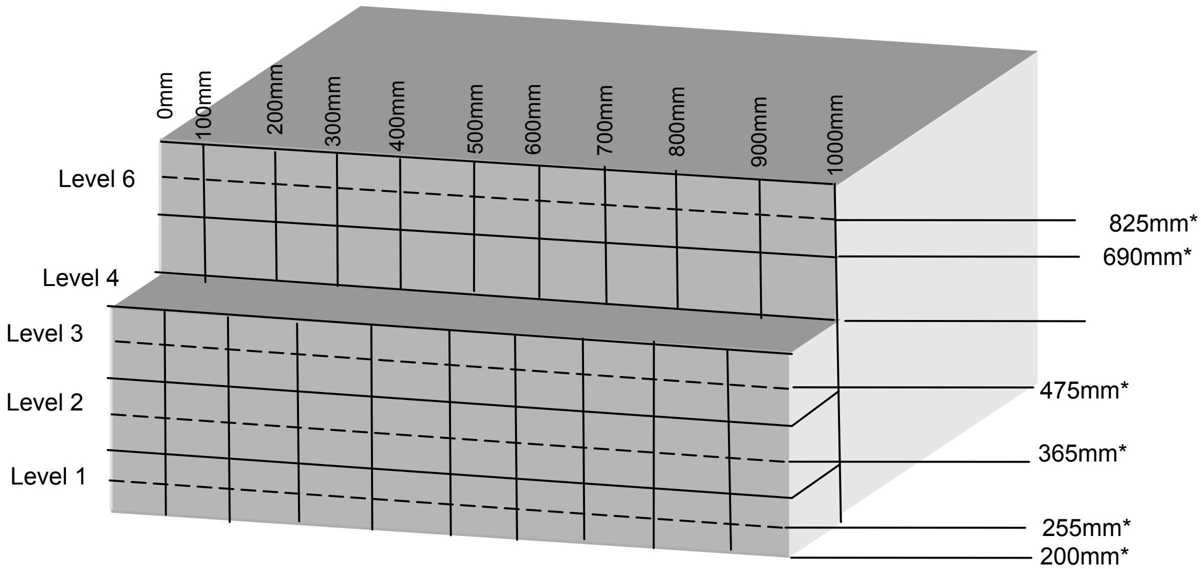
Location	Description	Measurement (mm)
A	Total Vehicle Width	1800
B	40% Overlap Distance	180
C	Deformable Face Width	1000
D	Single Stage Honeycomb Depth	450
E	Bumper Element Depth	90
F	Lower Edge Height From Ground	199
G	Bumper Element Height	330
H	Deformable Barrier Honeycomb Height	650
I	Offset Distance	680

DATA SHEET 16

DEFORMABLE BARRIER HONEYCOMB CRUSH

Test Vehicle: 2008 Ford Escape XLS | NHTSA No.: R80202

Test Program: Left 40% Offset Deformable Barrier | Test Date: 1/18/2008



*Measurement to Ground

	Points	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
255 mm	0	543	476	67
	100	543	456	87
	200	543	435	108
	300	543	417	126
	400	543	402	141
	500	543	396	147
	600	543	402	141
	700	543	397	146
	800	543	370	173
	900	543	332	211
	1000	544	270	274
365 mm	0	543	497	46
	100	543	468	75
	200	543	433	110
	300	543	415	128
	400	543	388	155
	500	543	383	160
	600	543	363	180
	700	544	311	233
	800	544	265	279
	900	544	218	326
	1000	544	151	393

DATA SHEET 16 (CONTINUED)

DEFORMABLE BARRIER HONEYCOMB CRUSH

Test Vehicle: 2008 Ford Escape XLS   NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier   Test Date: 1/18/2008

	Points (mm)	Pre-Test (mm)	Post-Test (mm)	Difference (mm)
475 mm	0	543	527	16
	100	543	482	61
	200	543	426	117
	300	543	413	130
	400	544	369	175
	500	544	363	181
	600	544	305	239
	700	544	227	317
	800	544	214	330
	900	544	166	378
	1000	545	110	435
530 mm	0	453	433	20
	100	453	414	39
	200	453	371	82
	300	453	340	113
	400	453	309	144
	500	453	280	173
	600	453	243	210
	700	453	128	325
	800	453	92	361
	900	453	63	390
	1000	454	30	424
690 mm	0	453	455	-2
	100	453	446	7
	200	453	433	20
	300	453	376	77
	400	453	363	90
	500	453	341	112
	600	453	246	207
	700	454	127	327
	800	454	14	440
	900	454	21	433
	1000	454	30	424
825 mm	0	454	436	18
	100	453	429	24
	200	453	417	36
	300	453	407	46
	400	453	293	160
	500	454	286	168
	600	454	263	191
	700	454	237	217
	800	454	227	227
	900	454	209	245
	1000	454	147	307

DATA SHEET 17

DEFORMABLE BARRIER LOAD CELL LOCATIONS

Test Vehicle: 2008 Ford Escape XLS NHTSA No.: R80202
Test Program: Left 40% Offset Deformable Barrier Test Date: 1/18/2008

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

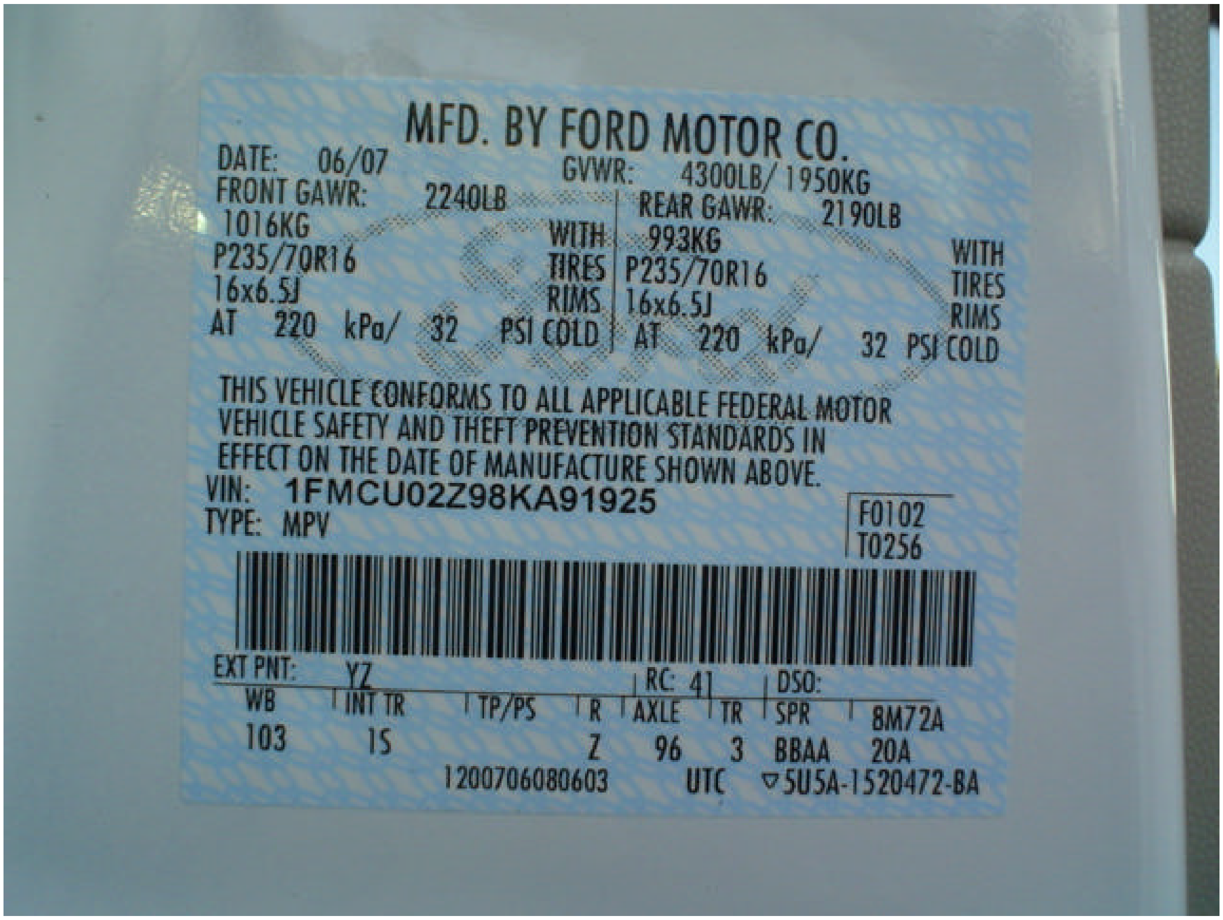
Front View

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

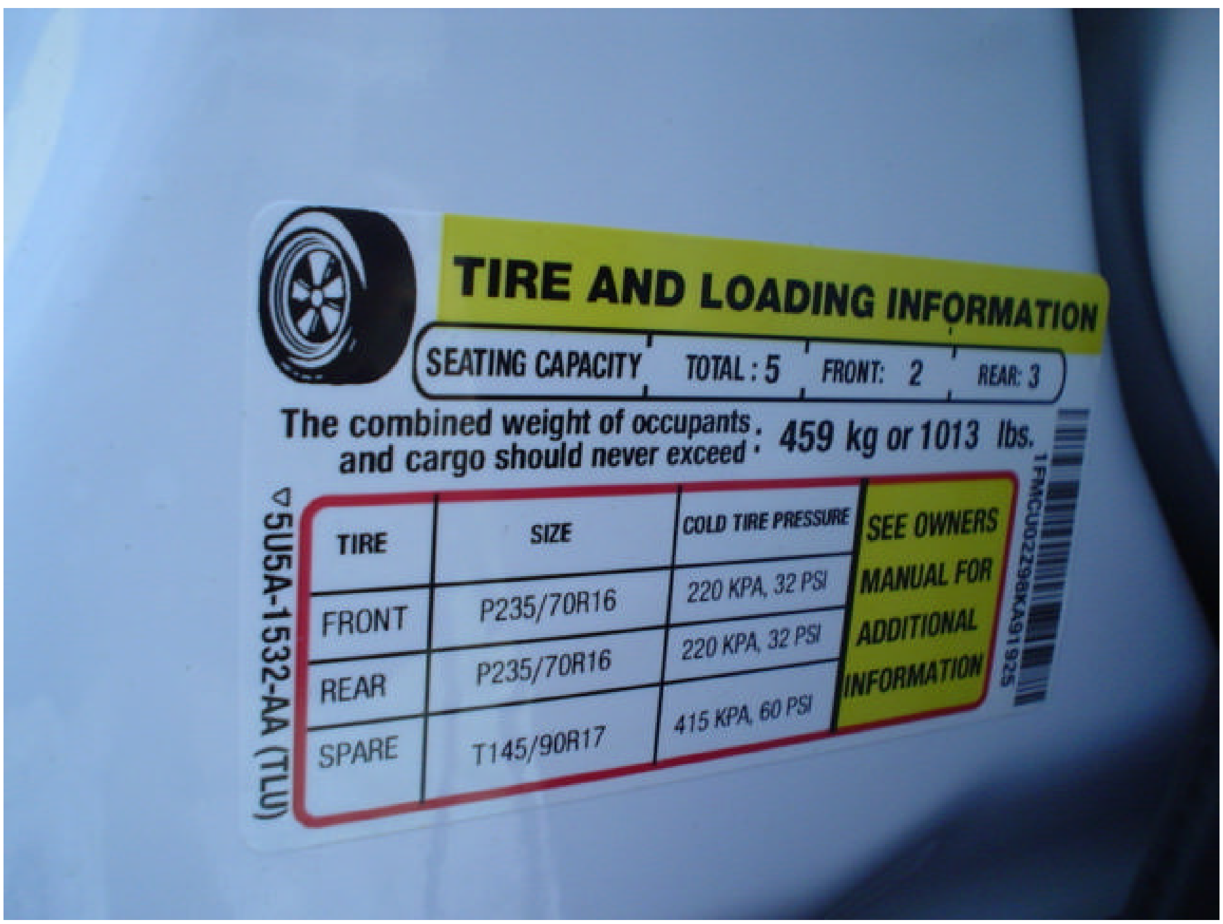
APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS



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

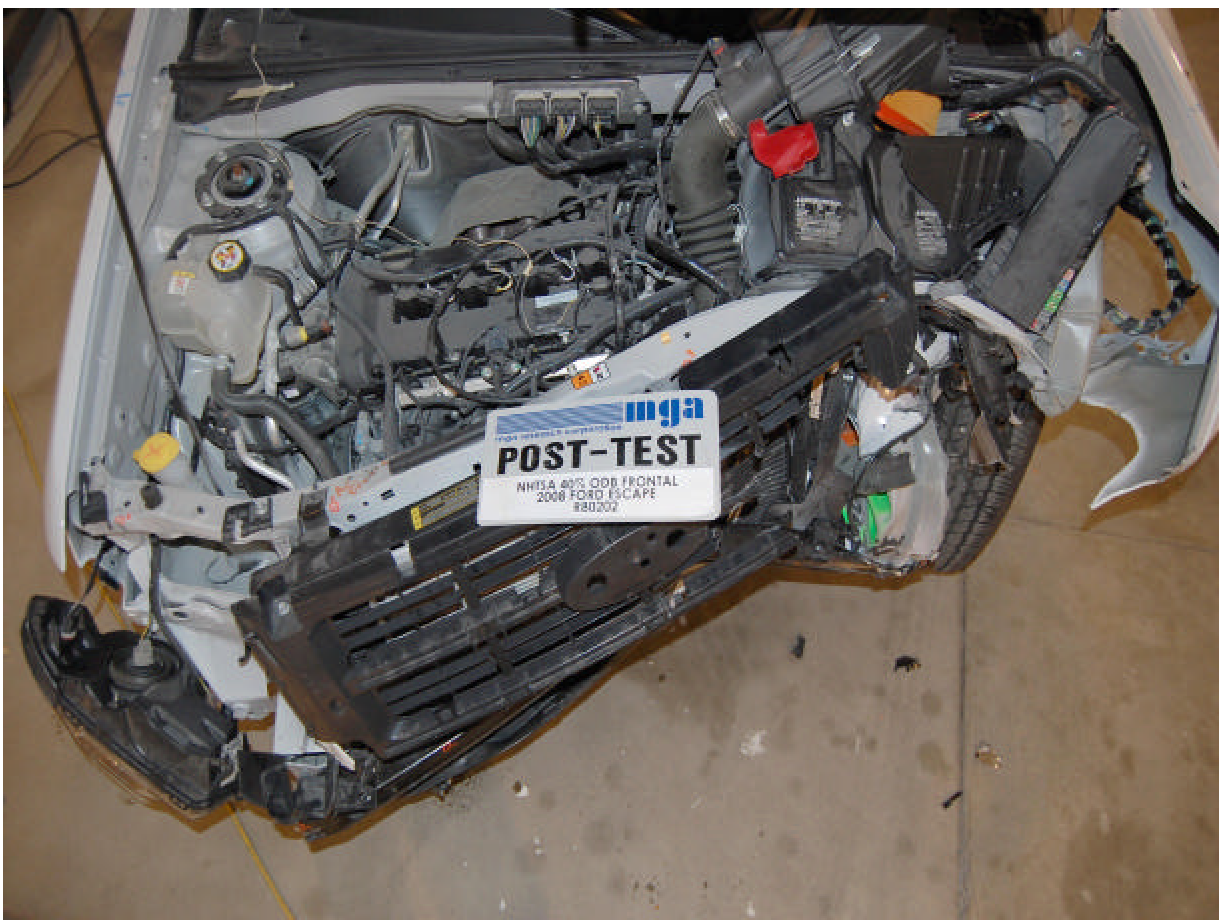
Pre-Test Right Side ¾ View of Doors

Post-Test Right Side ¾ View of Doors After Impact

Pre-Test Windshield View

Post-Test Windshield View

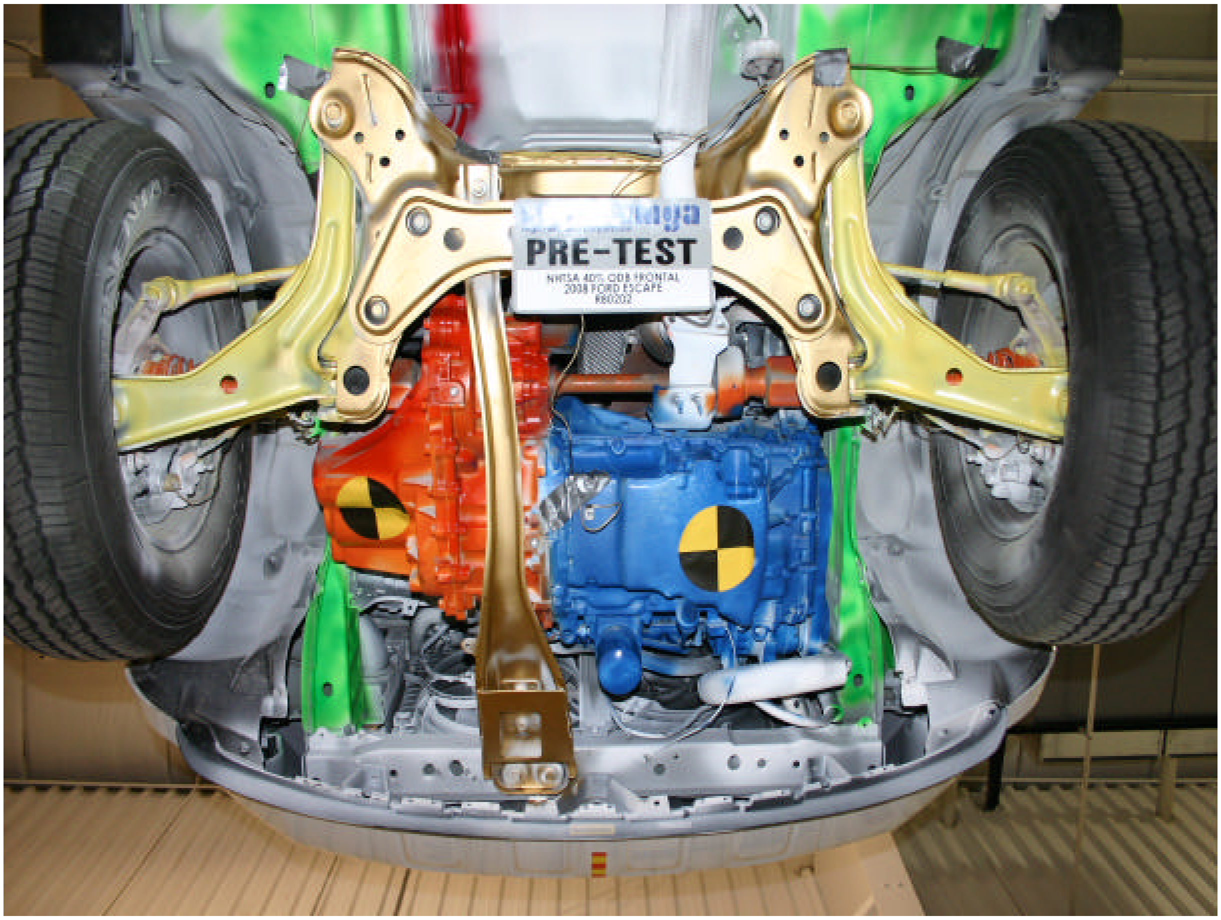
Pre-Test Engine Compartment View



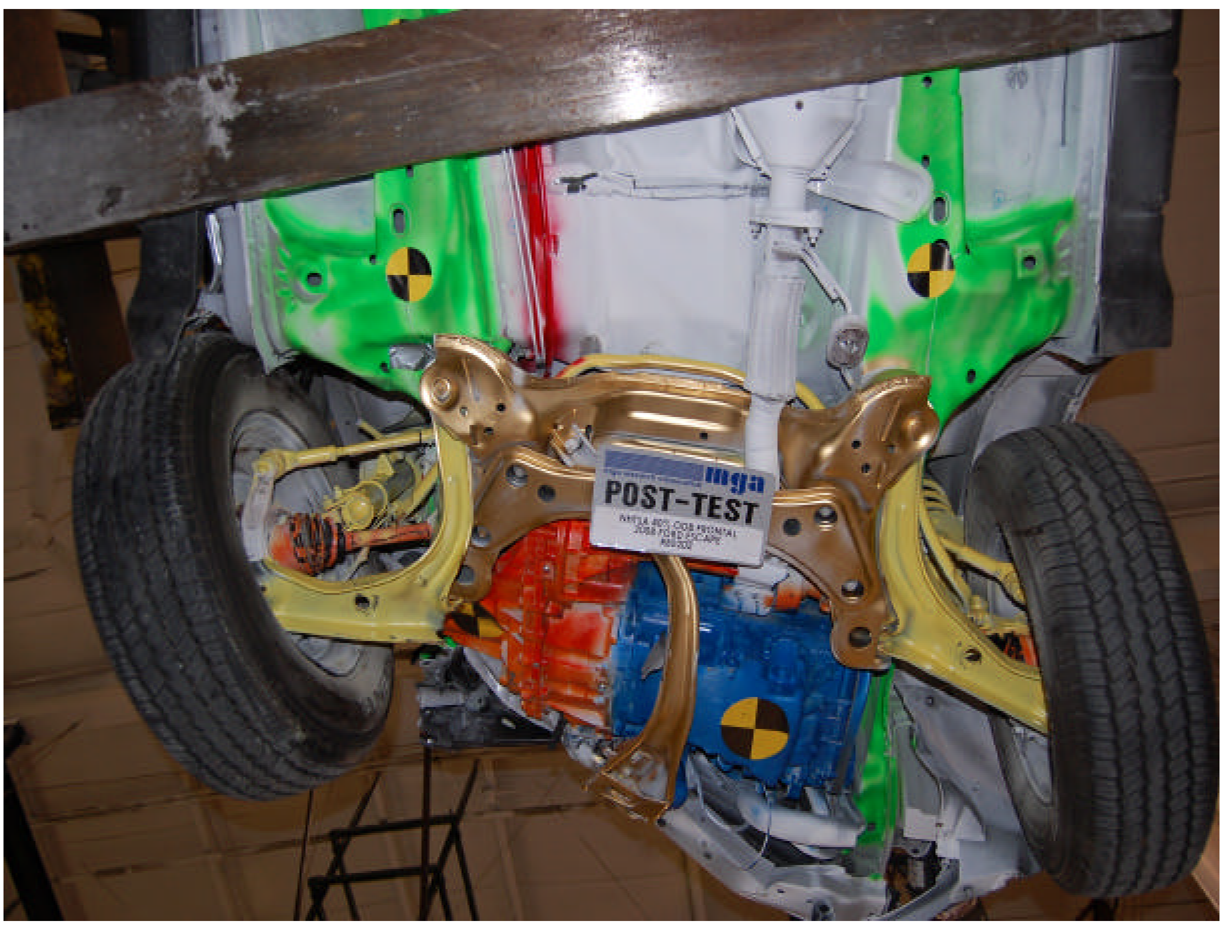
Post-Test Engine Compartment View

Pre-Test Fuel Cap View

Post-Test Fuel Cap View



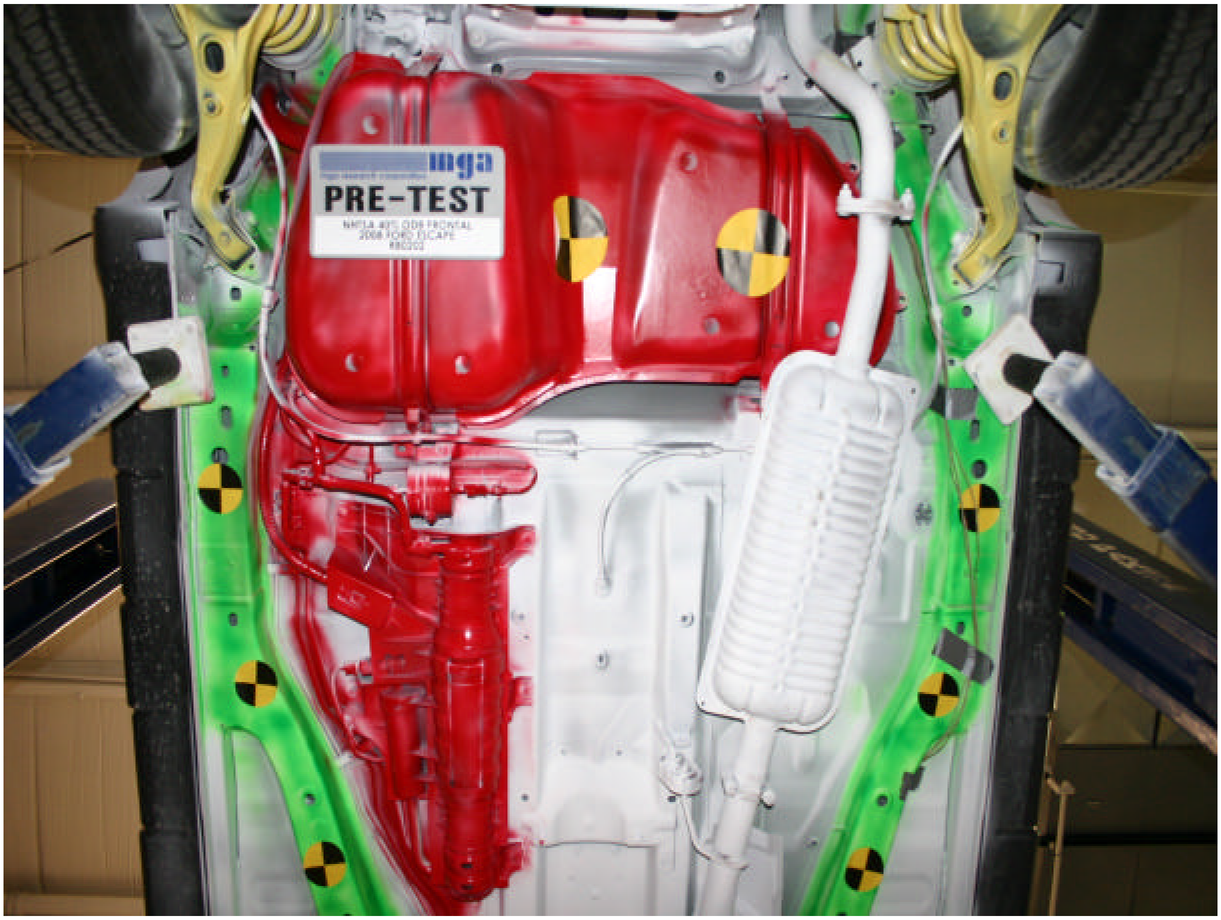
Pre-Test Front Underbody View



Post-Test Front Underbody View

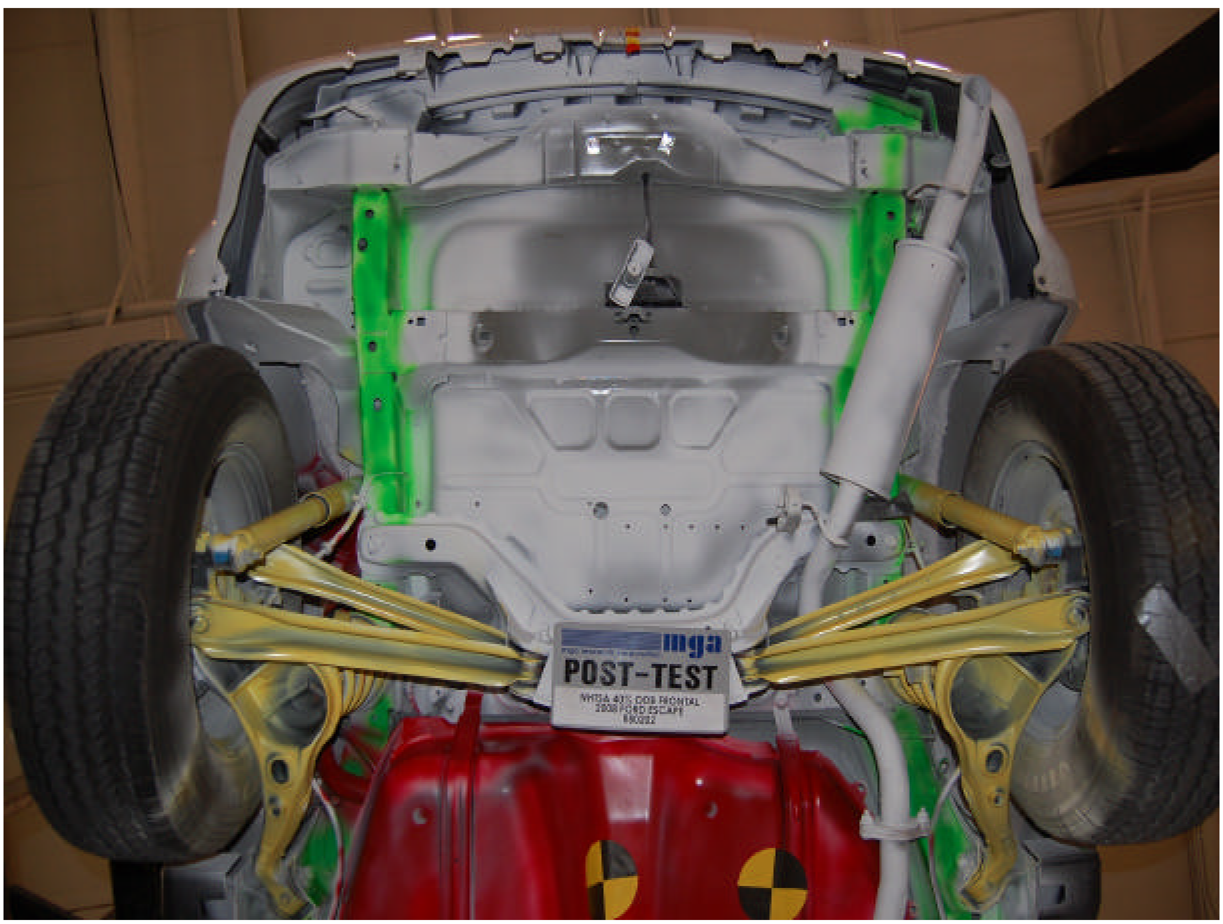
Pre-Test Front Mid Underbody View

Post-Test Front Mid Underbody View



Pre-Test Rear Mid Underbody View

Pre-Test Rear Underbody View



Post-Test Rear Underbody View

Pre-Test Driver Dummy Front View (Head Position)

Post-Test Driver Dummy Front View (Head Position)

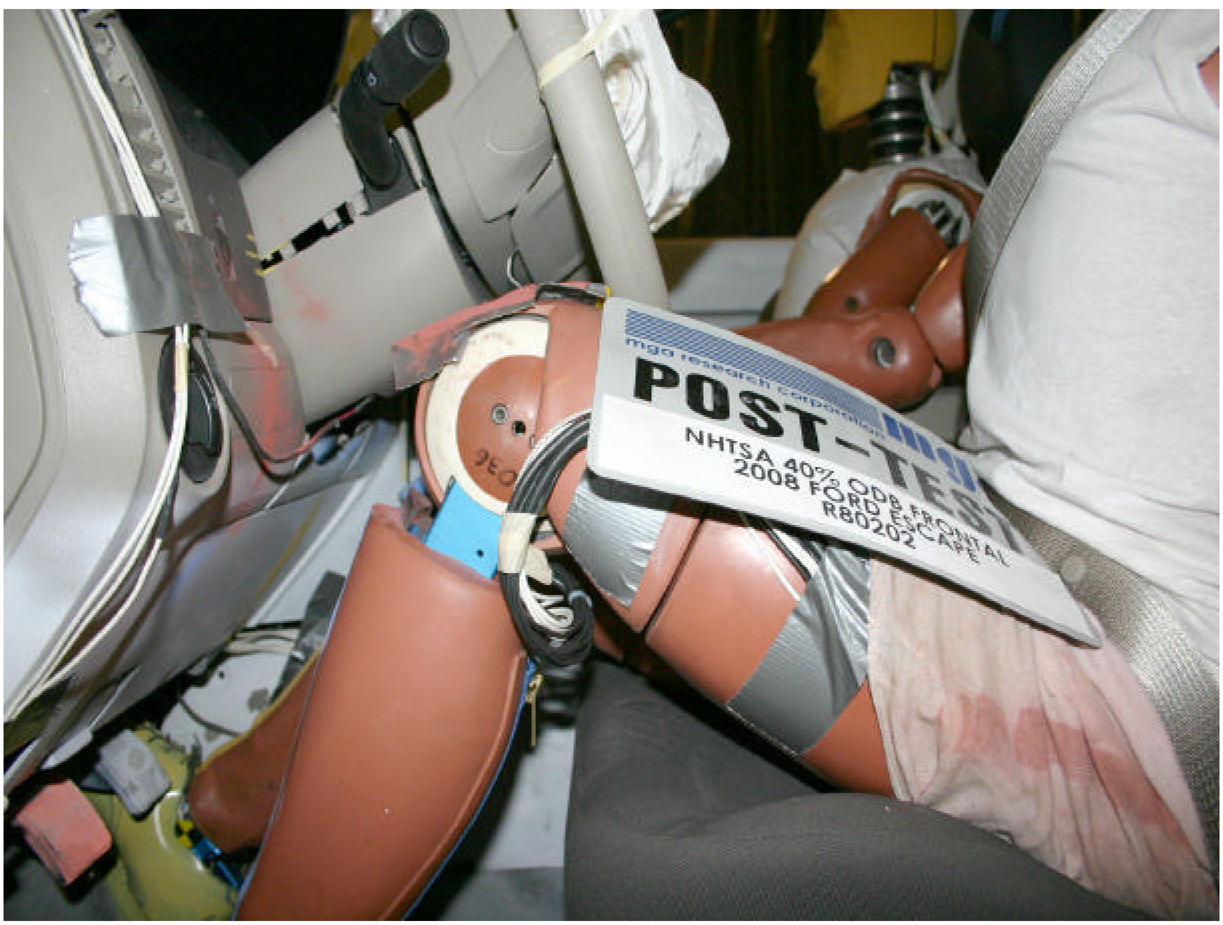
Pre-Test Driver Dummy (Through Window)

Post-Test Driver Dummy (Through Window)

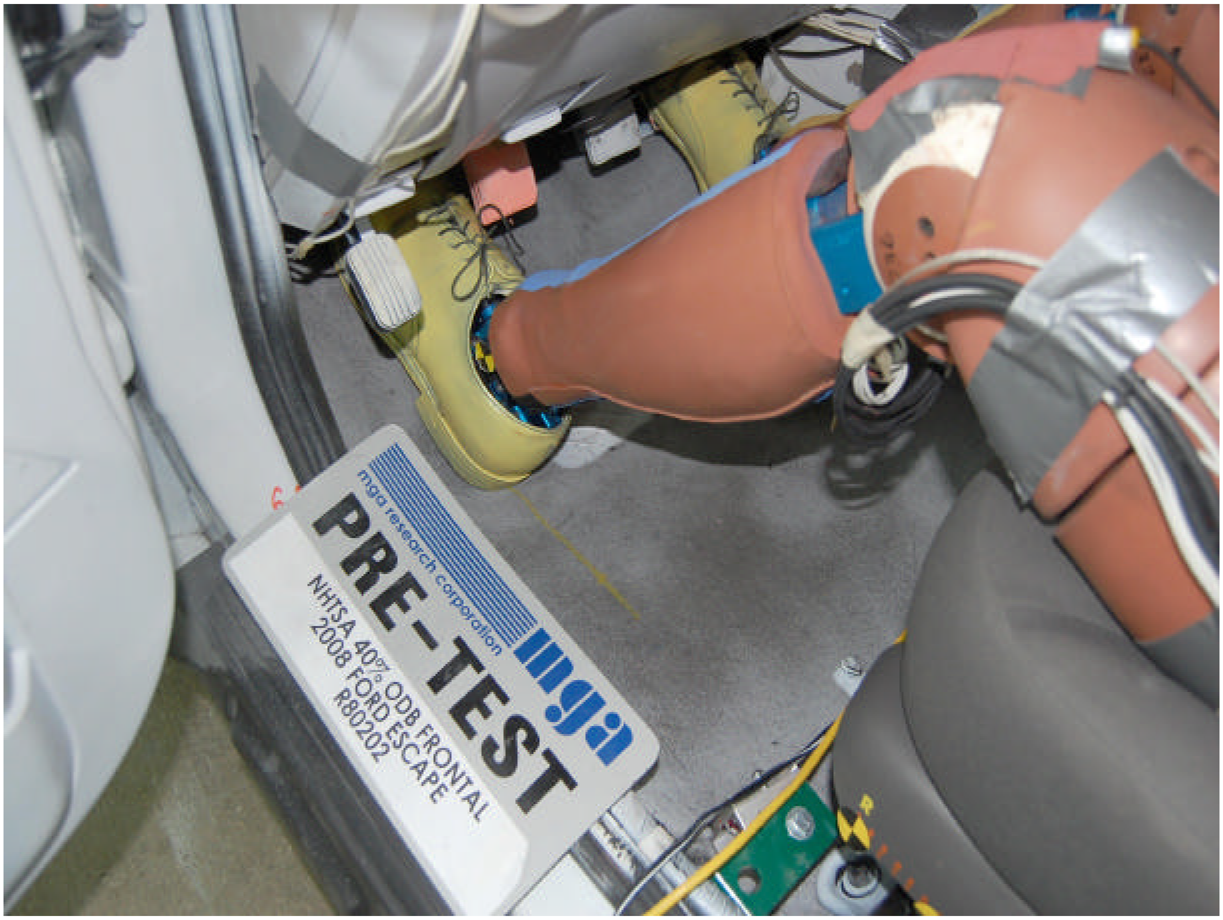
Pre-Test Driver Dummy (Door Open)

Post-Test Driver Dummy (Door Open)

Pre-Test Driver Dummy Abdomen View Close-Up



Post-Test Driver Dummy Abdomen View Close-Up



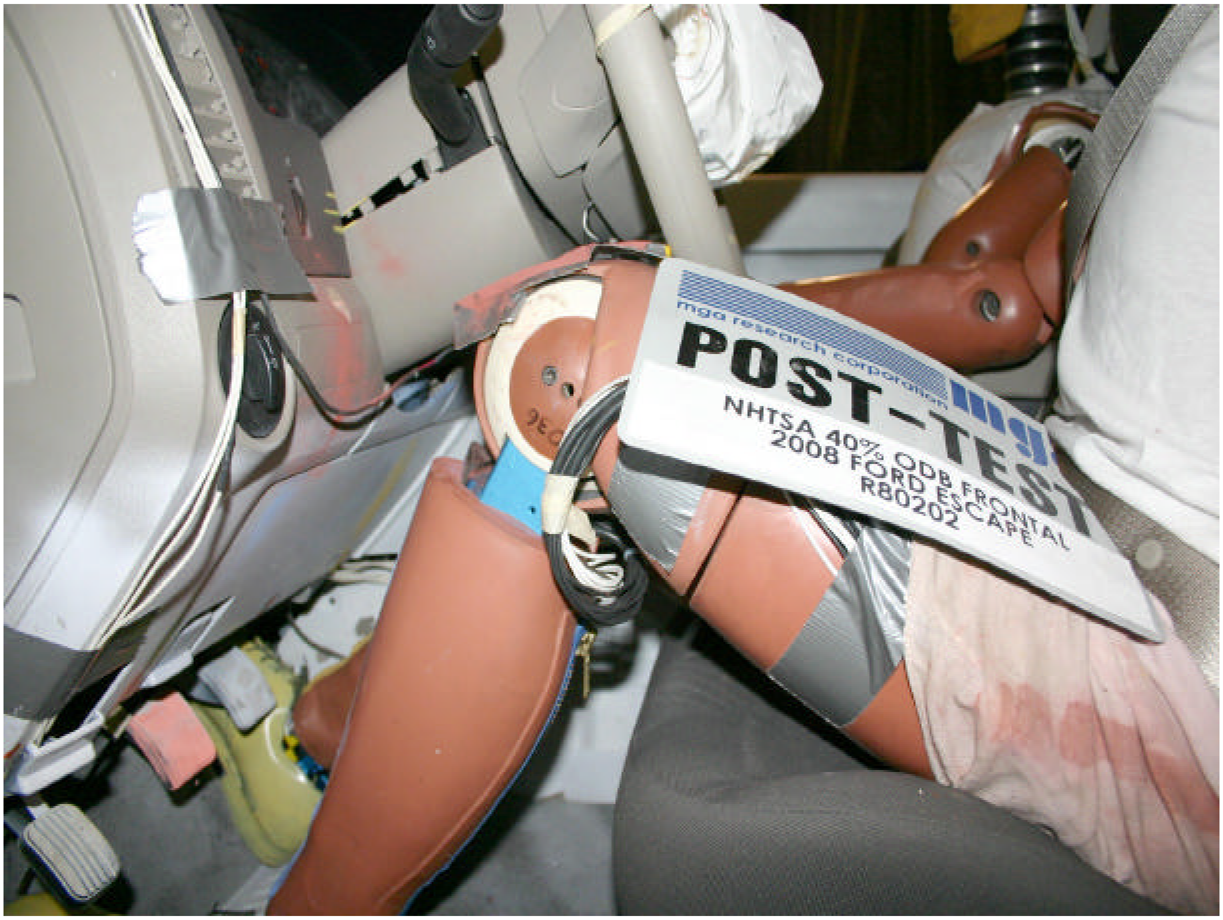
Pre-Test Driver Dummy Feet

Post-Test Driver Dummy Feet

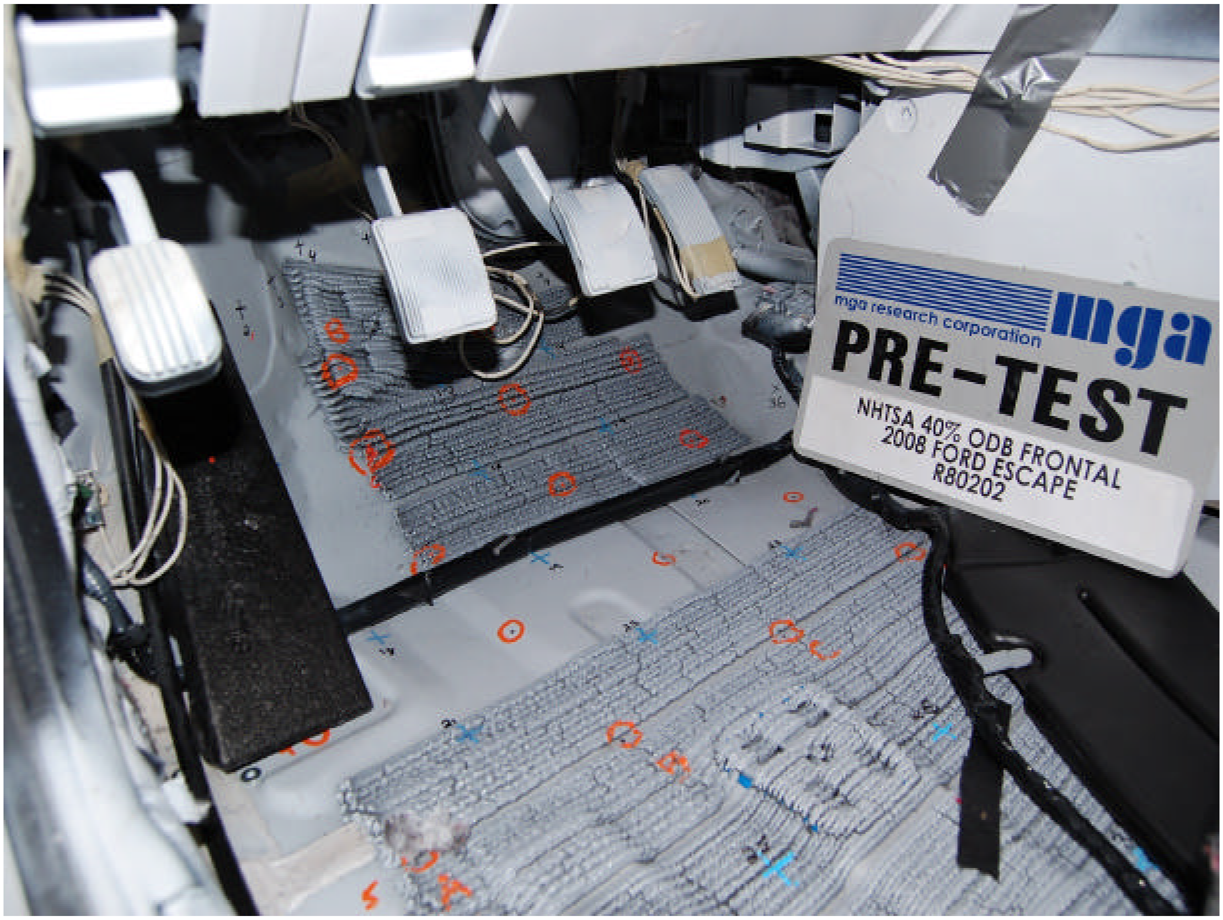
Pre-Test Driver Dummy Foot/Leg Close-Up


Post-Test Driver Dummy Foot/Leg Close-Up

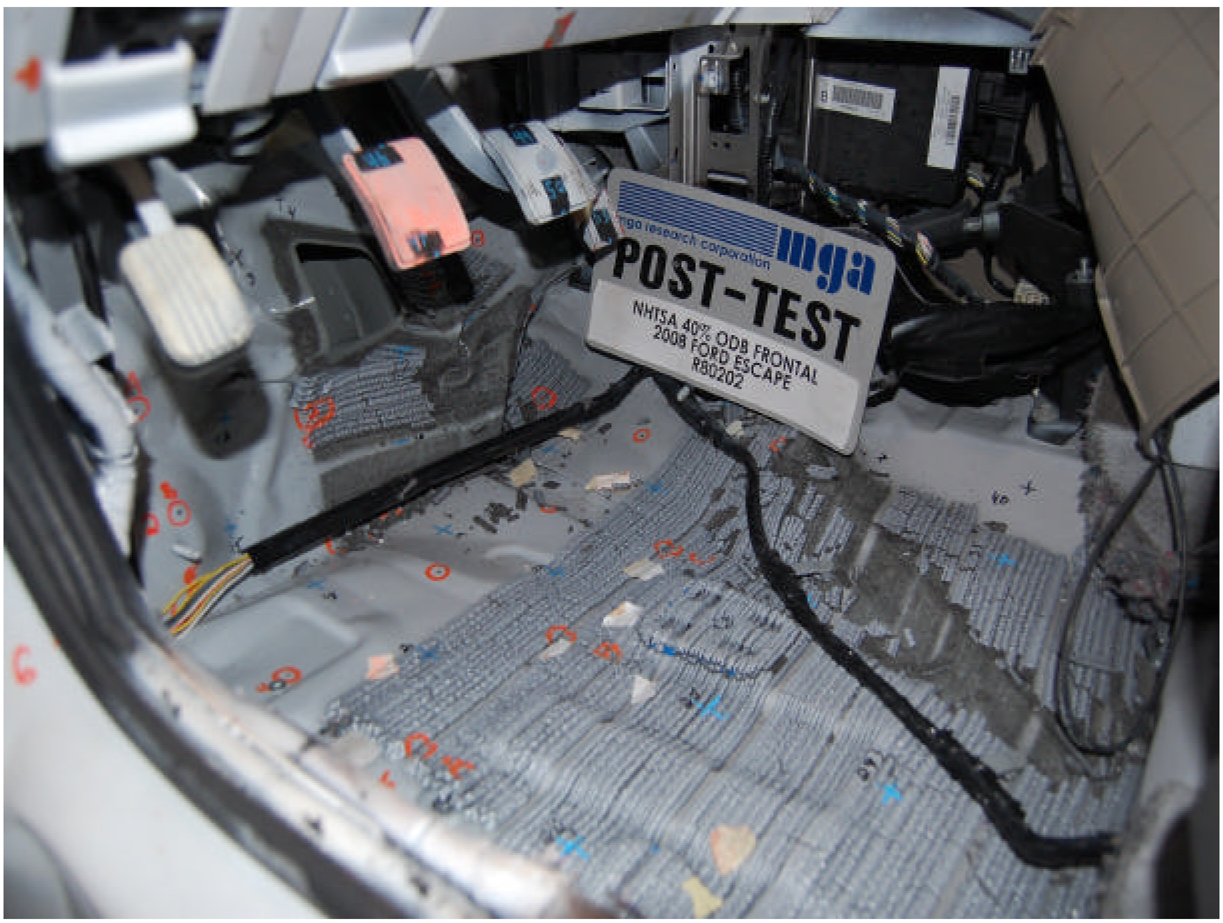
Pre-Test Driver Side Knee Bolster



Post-Test Driver Side Knee Bolster



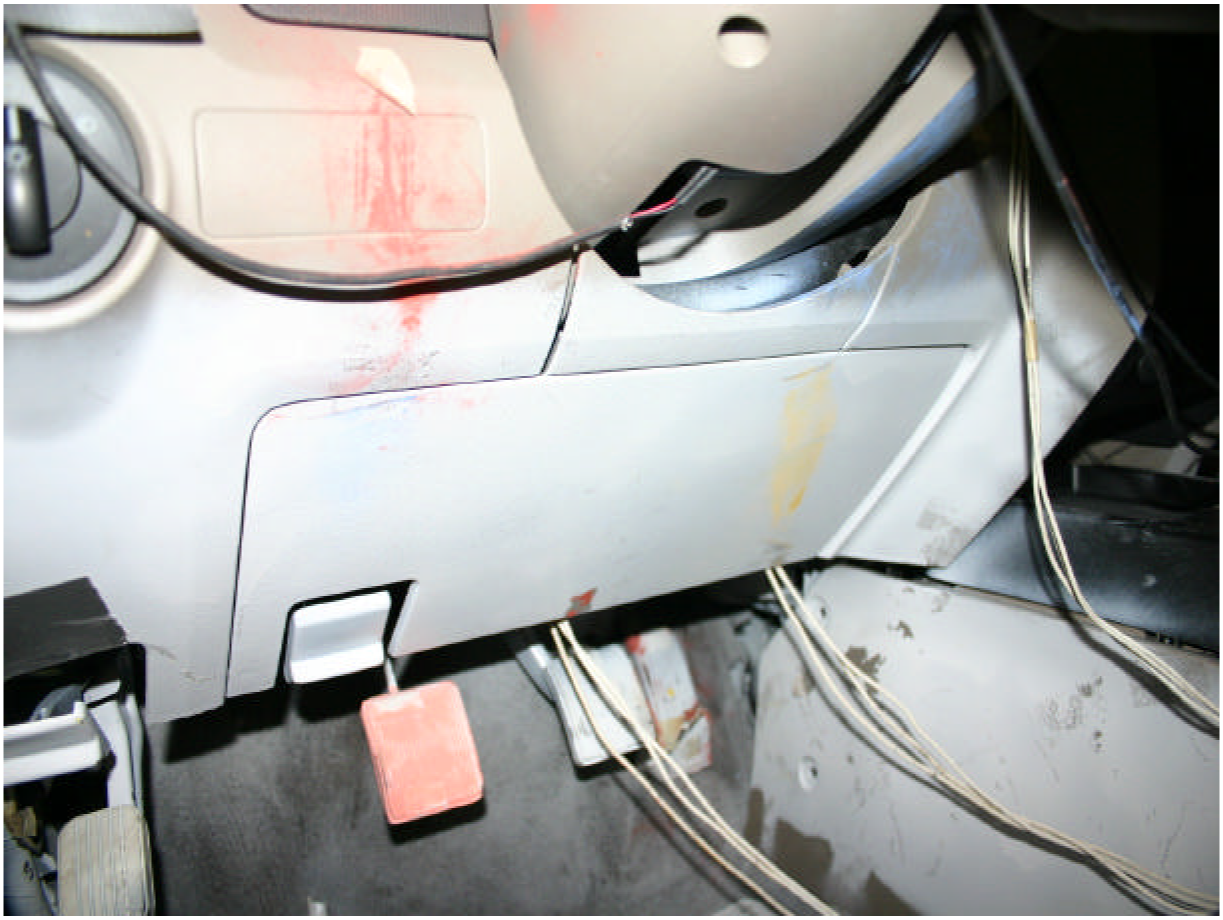
Pre-Test Driver Side Floor Pan



Post-Test Driver Side Floor Pan


Post-Test Driver Dummy Head Contact (headrest)


Post-Test Driver Dummy Head Contact (B-pillar, top header)


Post-Test Driver Dummy Knee Contact


Post-Test Driver Dummy Airbag Contact

Pre-Test Passenger Dummy Front View (Head Position)

Pre-Test Passenger Dummy (Through Window)

Post-Test Passenger Dummy (Through Window)

Pre-Test Passenger Dummy (Door Open)

Post-Test Passenger Dummy (Door Open)

Pre-Test Passenger Dummy Feet

Post-Test Passenger Dummy Feet

Pre-Test Passenger 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 Head Contact (headrest)


Post-Test Passenger Dummy Knee Contact


Post-Test Passenger Dummy Airbag Contact

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 1


Post-Test Left Rear Passenger Dummy Foot Contact View 2

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

Post-Test Left Side A Pillar

Pre-Test Left Side B Pillar

Post-Test Left Side B Pillar

Pre-Test Left Side C Pillar

Post-Test Left Side C Pillar

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

Post-Test Right Side A Pillar

Pre-Test Right Side B Pillar

Post-Test Right Side B Pillar

Pre-Test Right Side C Pillar

Post-Test Right Side C Pillar

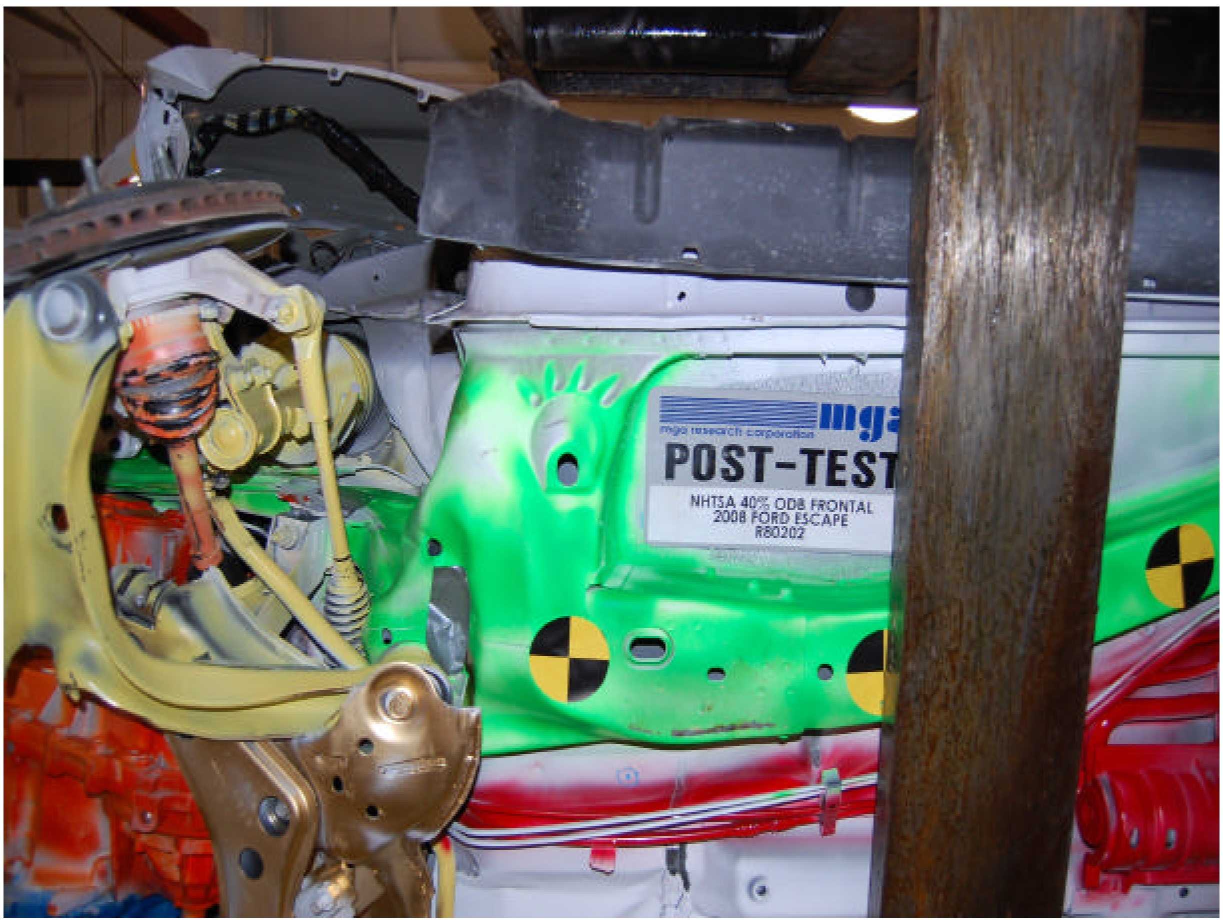
Pre-Test Right Side Sill Front Half View

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

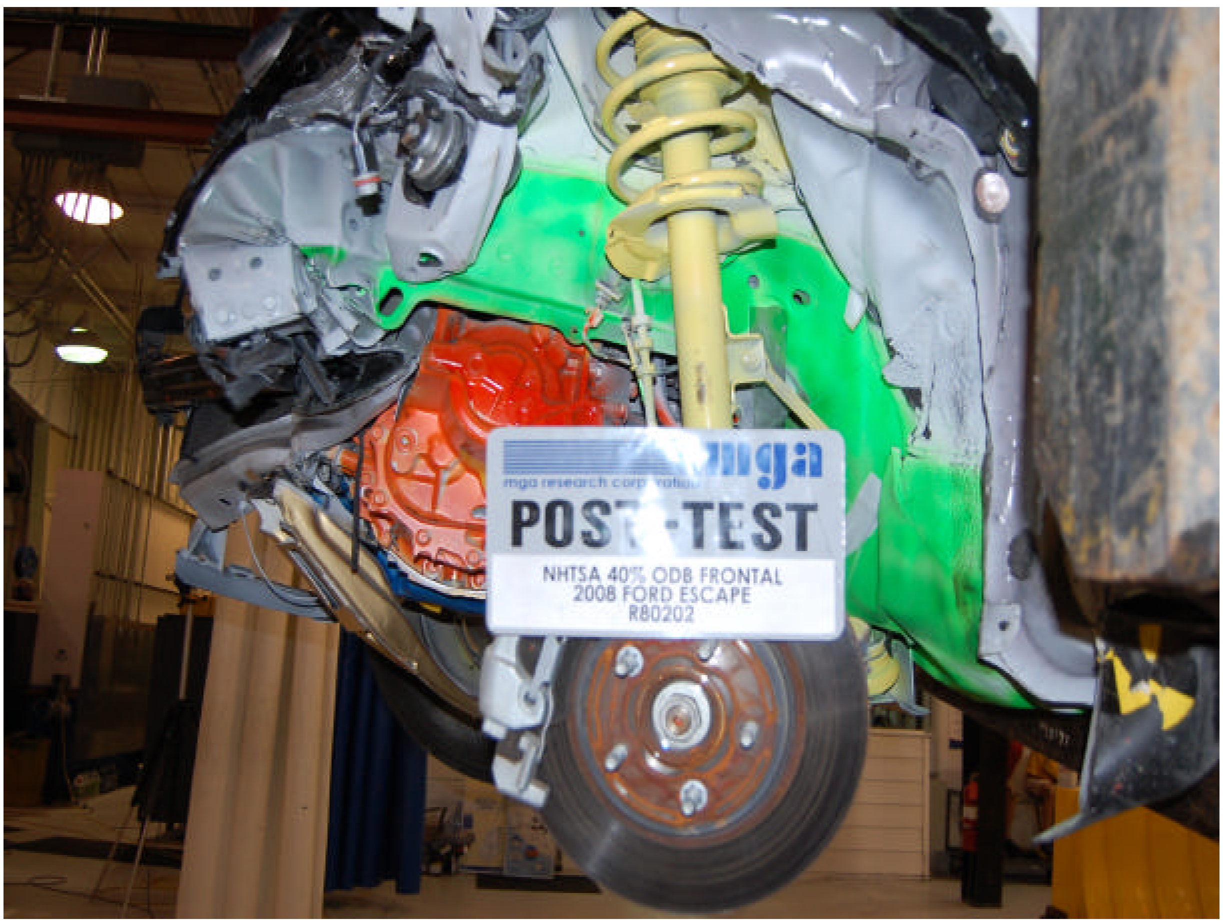


Post-Test Left Side Rocker View 1

Pre-Test Left Side Rocker View 2

Post-Test Left Side Rocker View 2

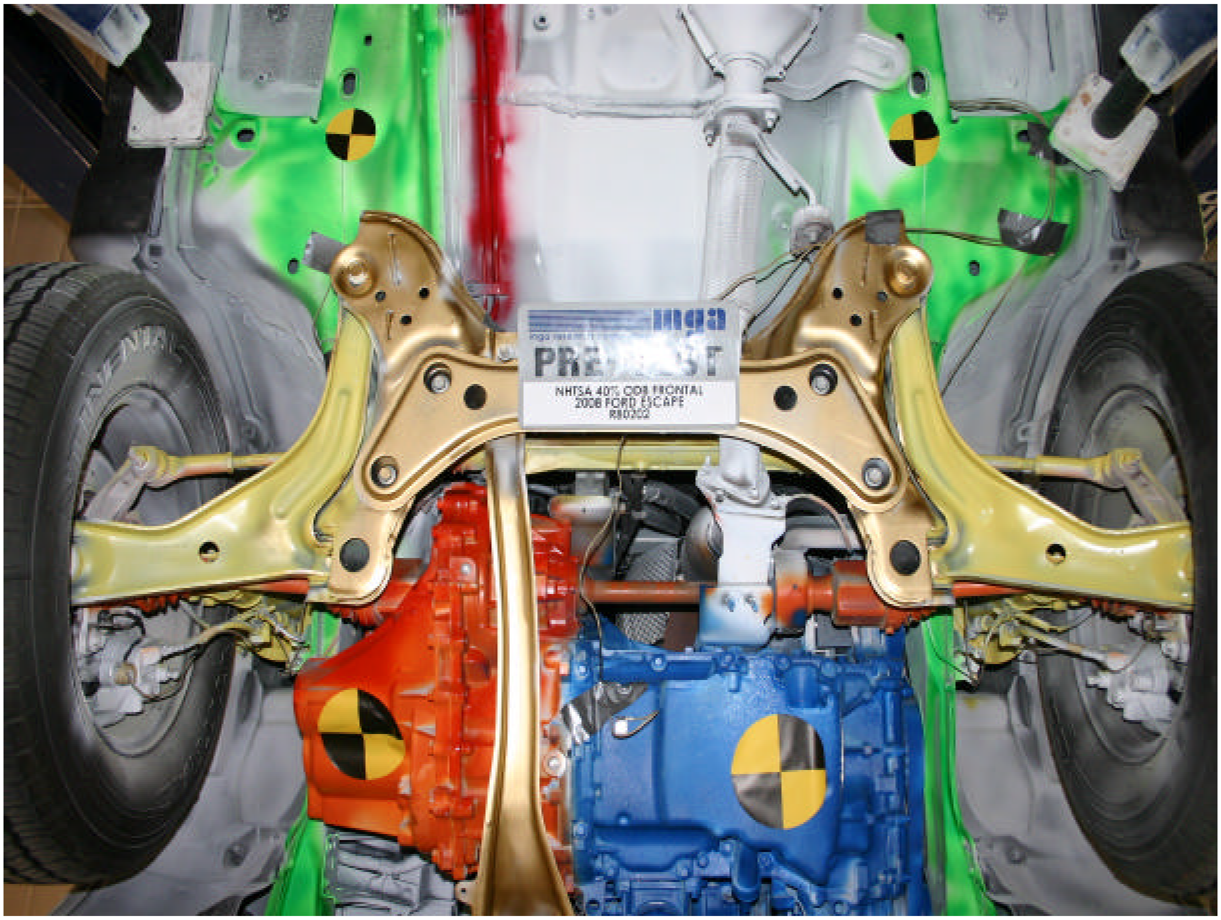
Pre-Test Left Front Wheel Well



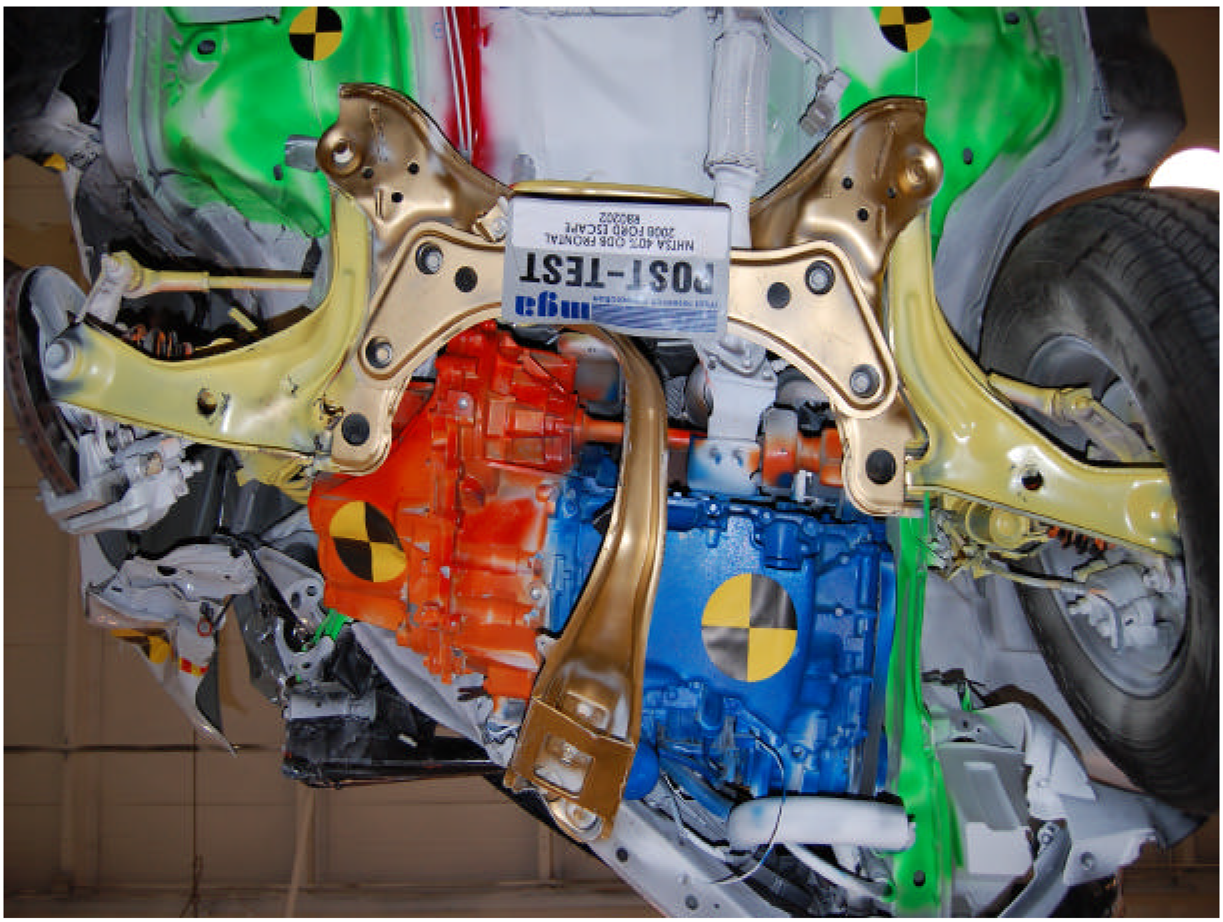
Post-Test Left Front Wheel Well

Pre-Test Left Front Shotgun

Post-Test Left Front Shotgun

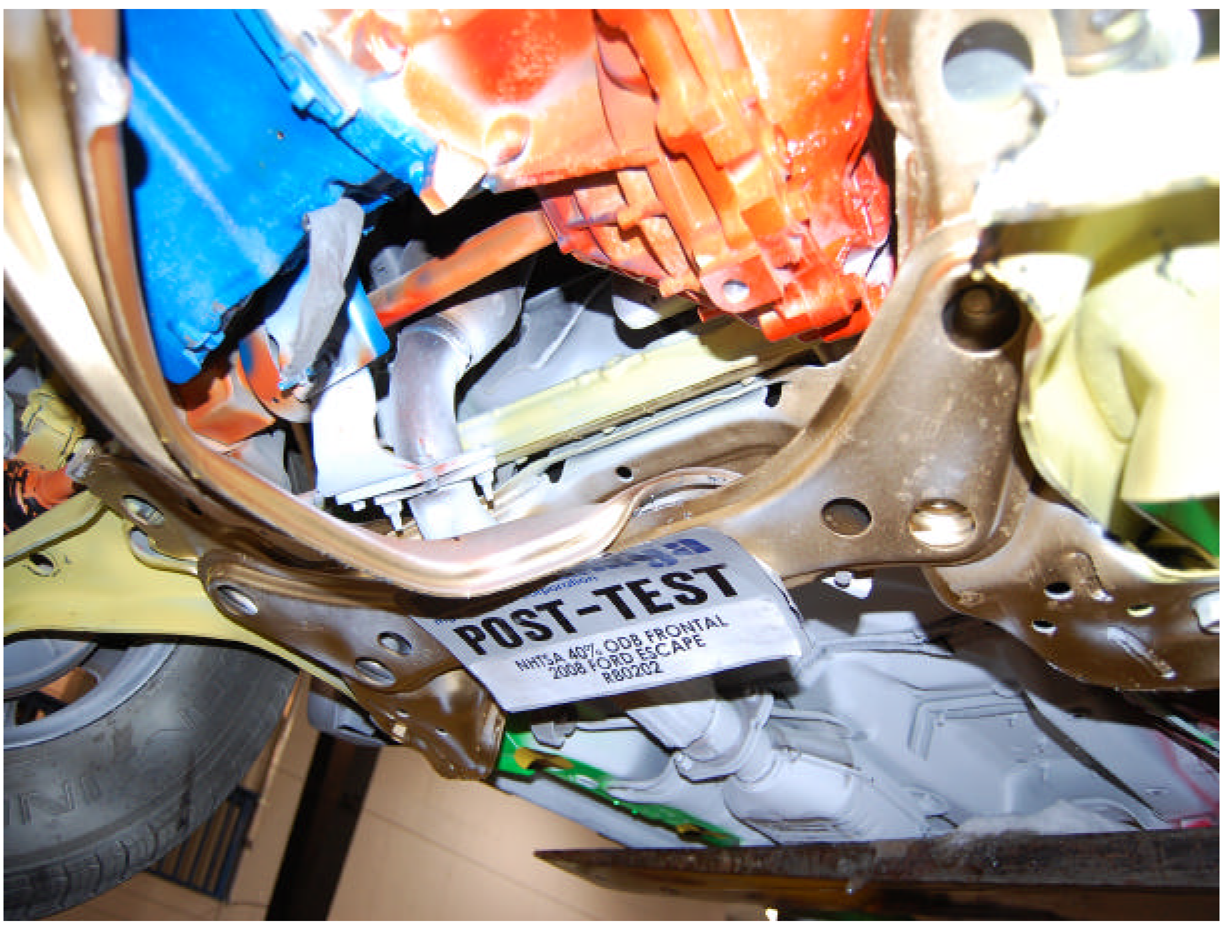


Pre-Test Steering Rack View



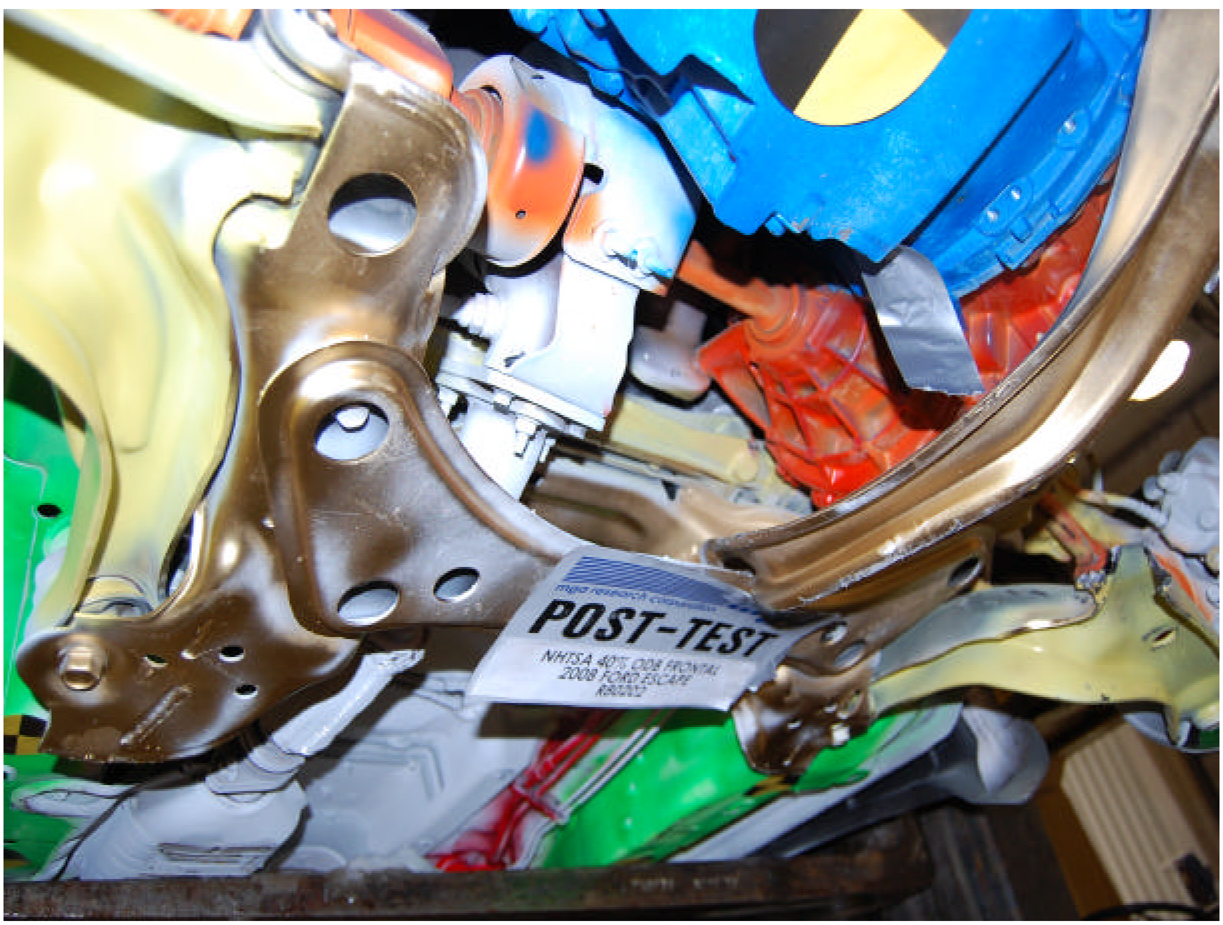
Post-Test Steering Rack View

Pre-Test Steering Rack ¾ Left Side View

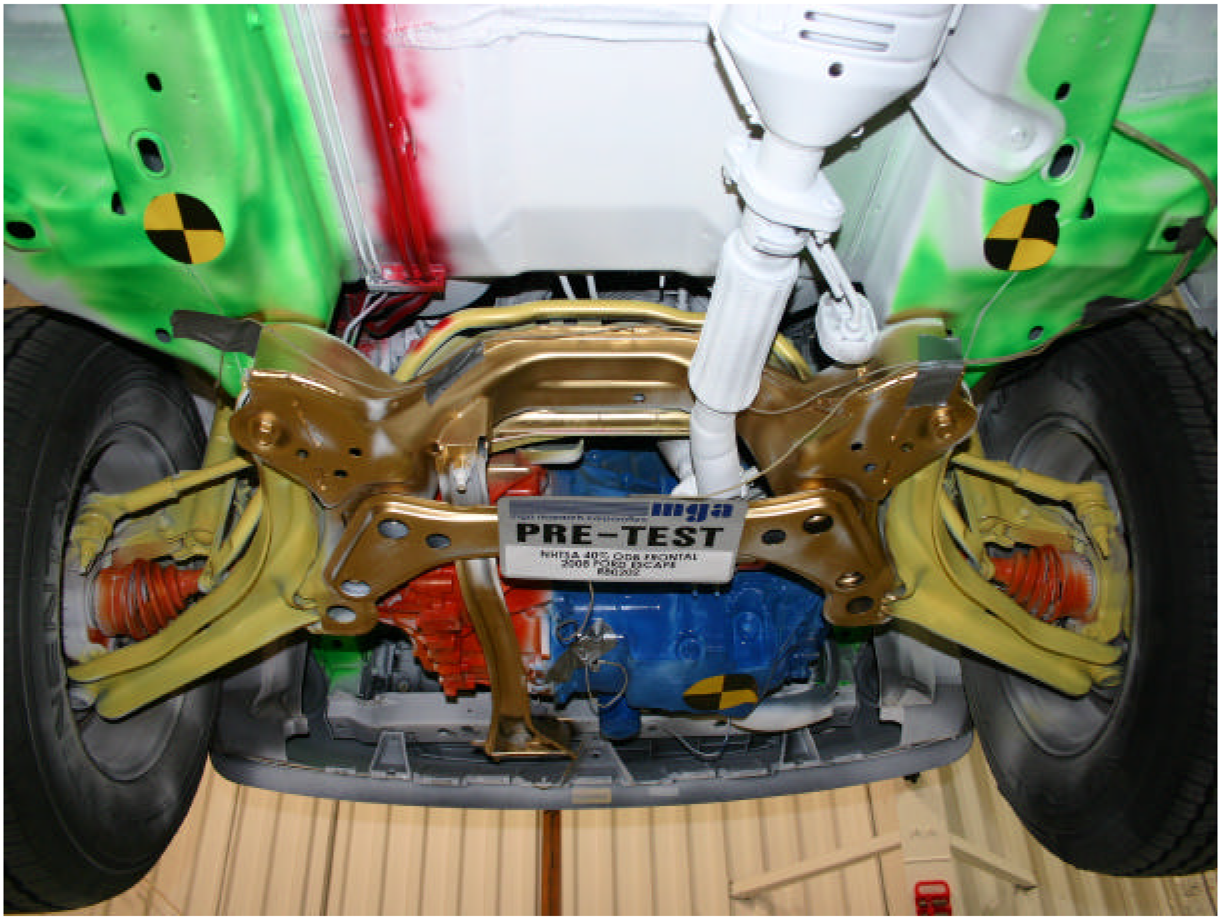


Post-Test Steering Rack ¾ Left Side View

Pre-Test Steering Rack ¾ Right Side View



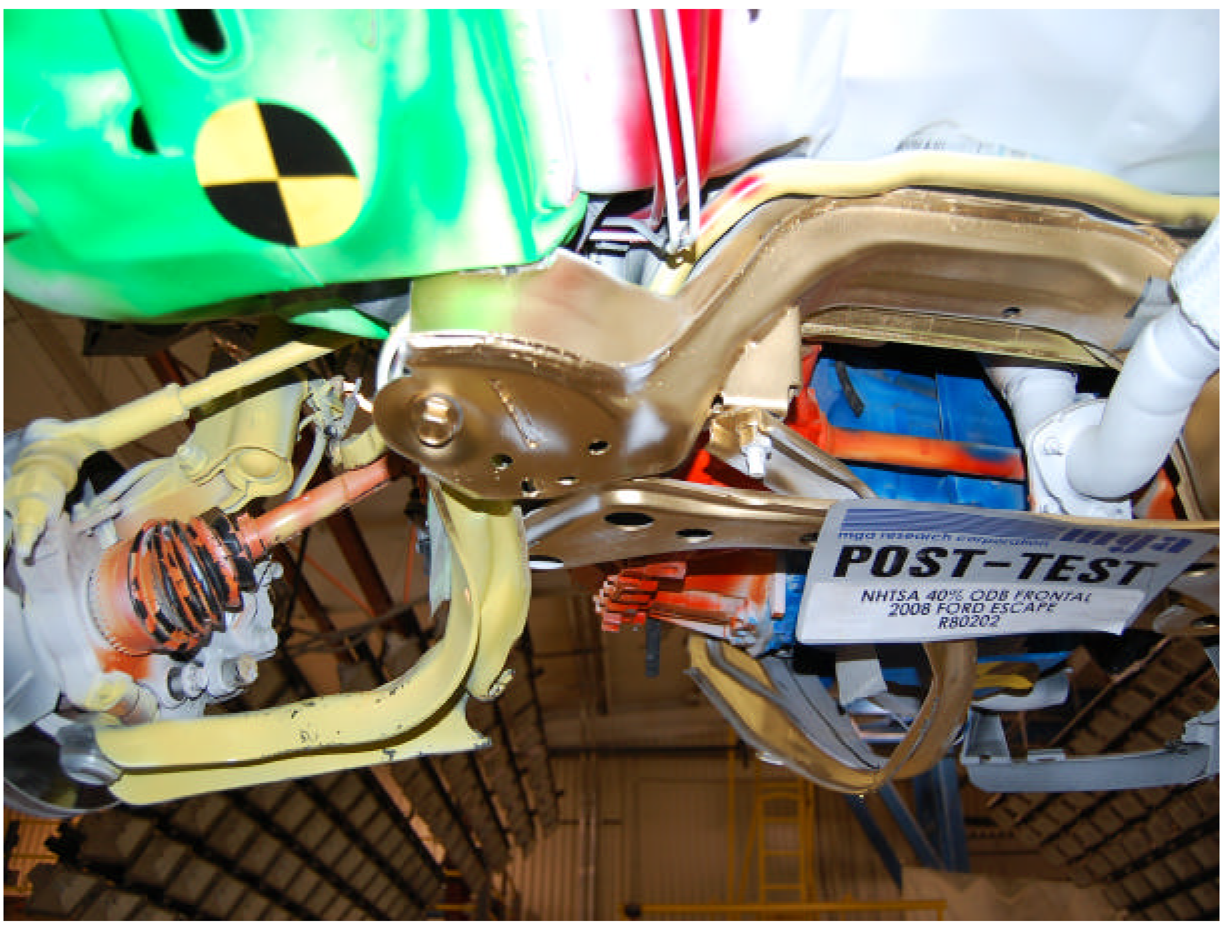
Post-Test Steering Rack ¾ Right Side View



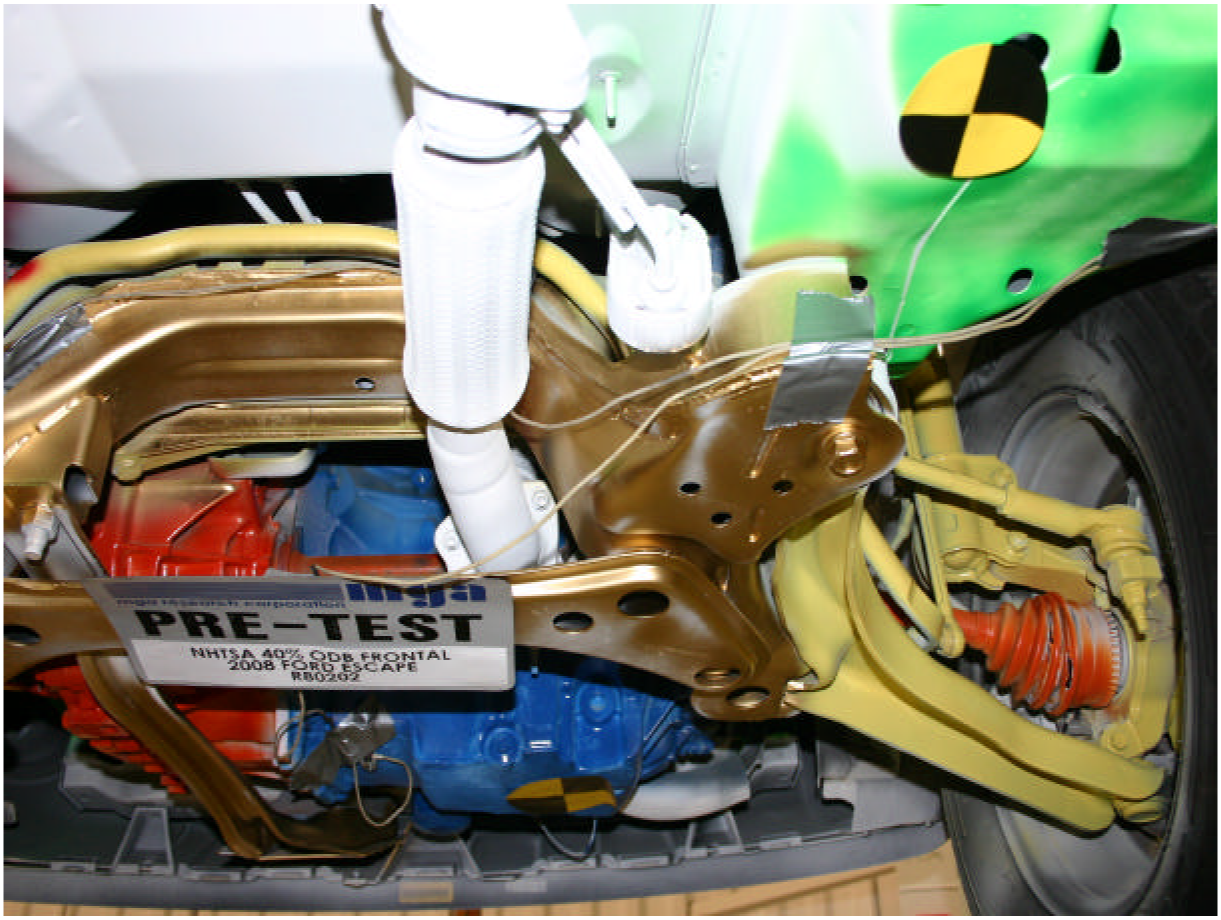
Pre-Test Sway Bar View

Post-Test Sway Bar View

Pre-Test Sway Bar Left Side View



Post-Test Sway Bar Left Side View



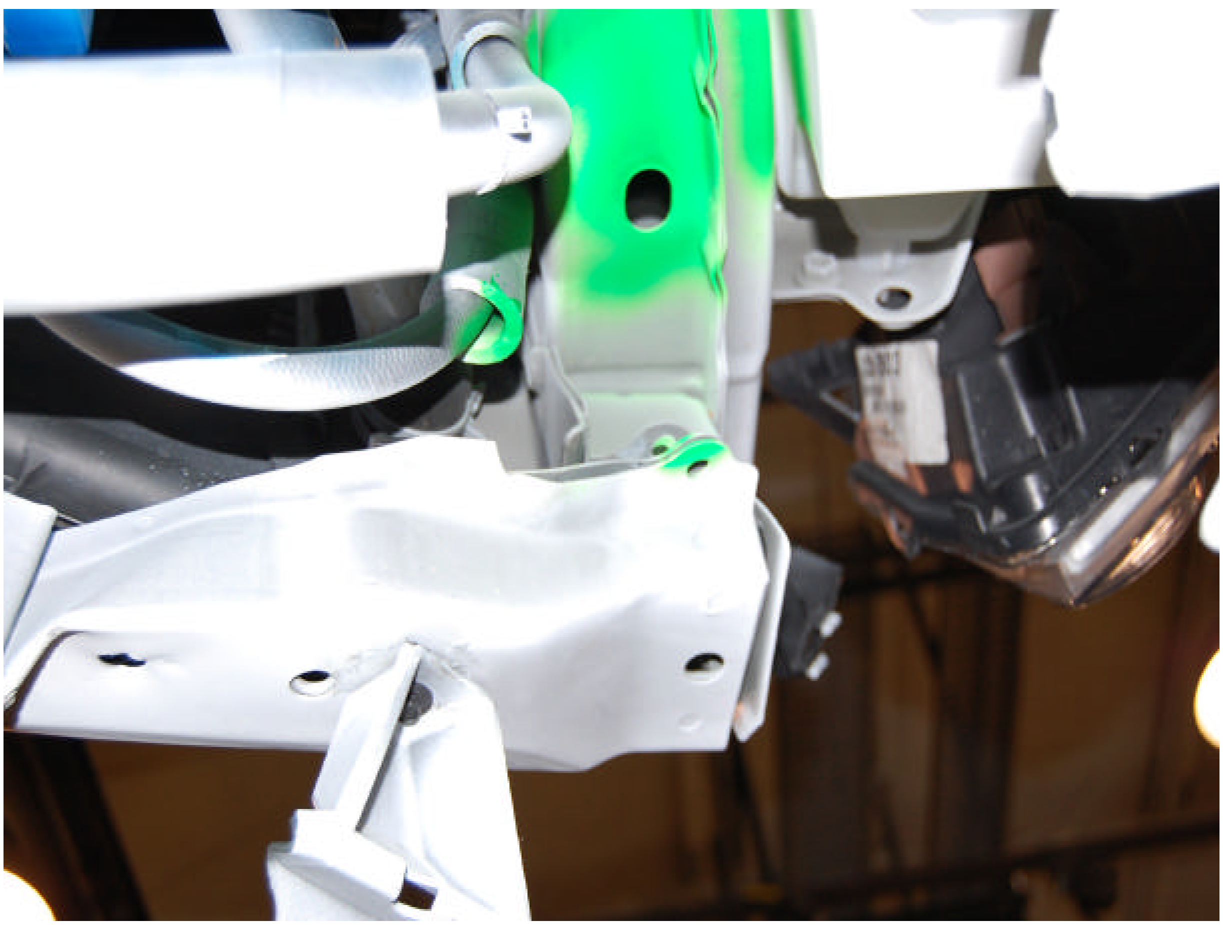
Pre-Test Sway Bar Right Side View

Post-Test Sway Bar Right Side View

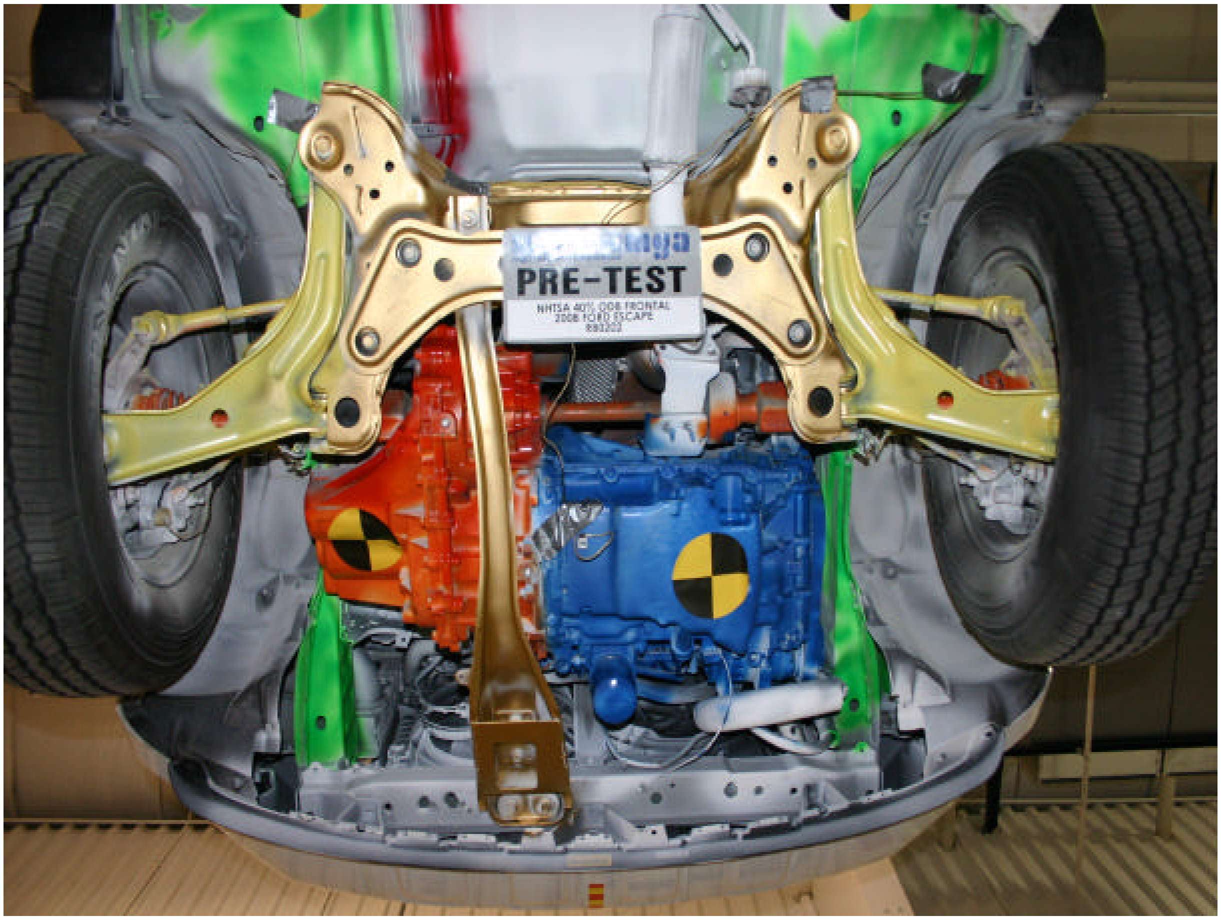

Pre-Test Bumper to Rail Attachment View


Post-Test Bumper to Rail Attachment View

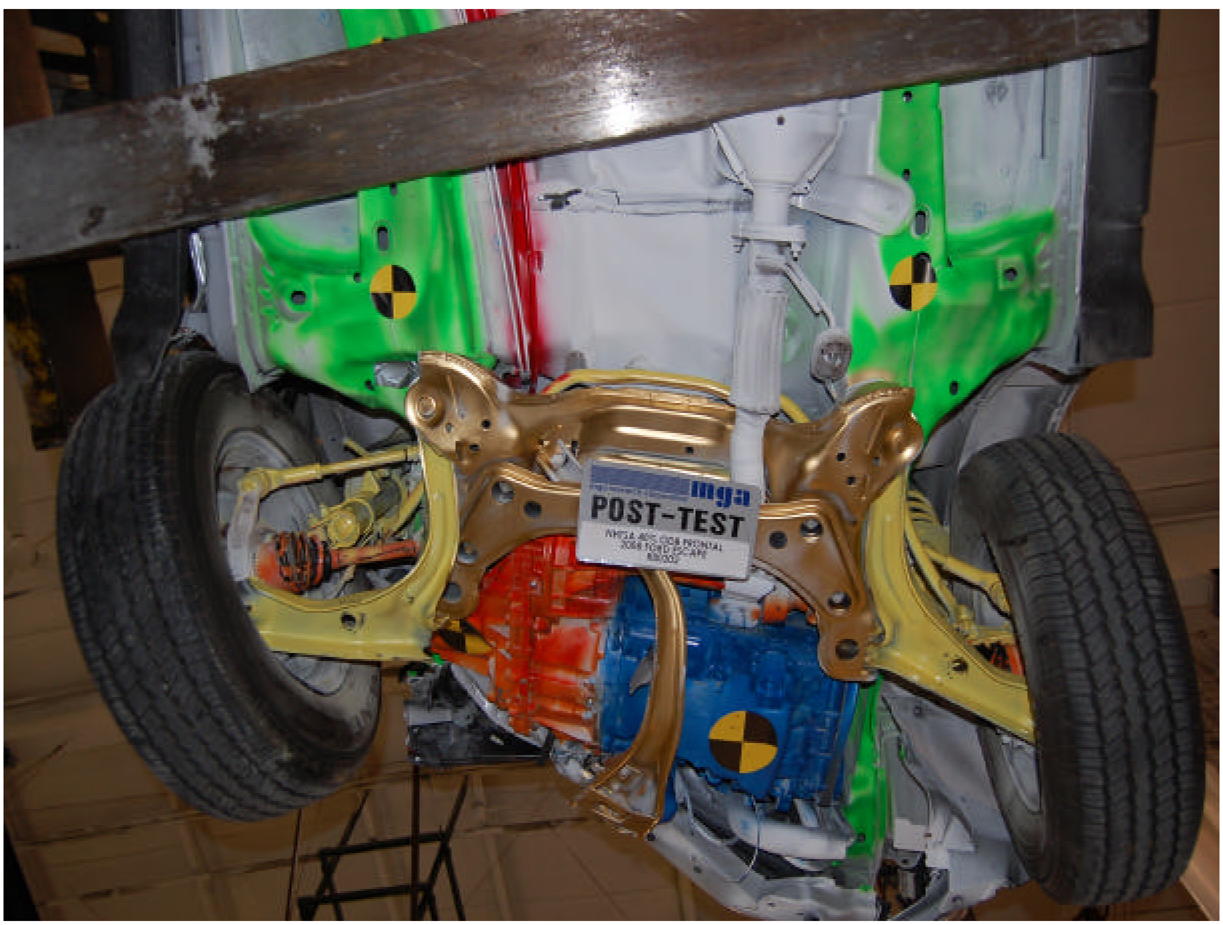
Pre-Test Bumper to Rail Attachment ¾ View



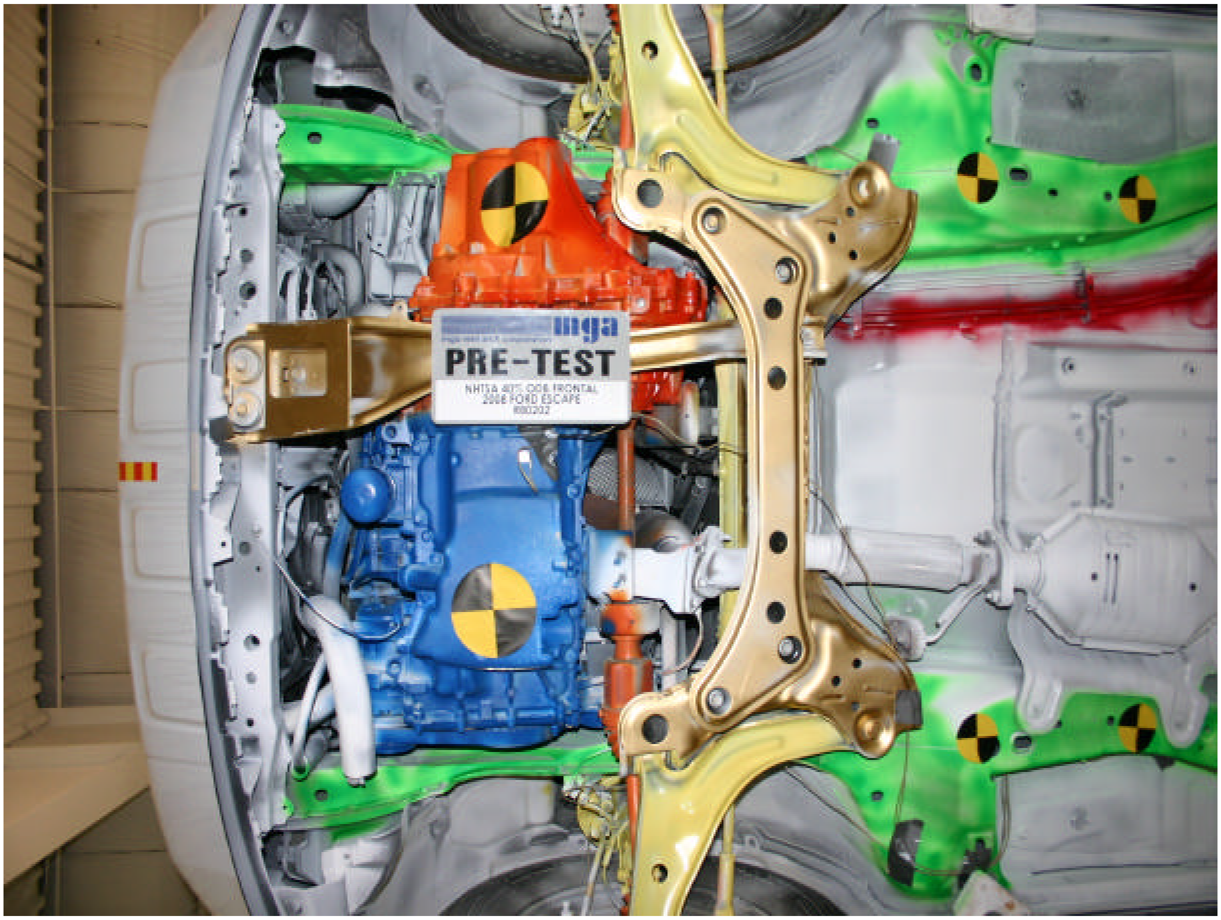
Post-Test Bumper to Rail Attachment ¾ View



Pre-Test Front Underbody

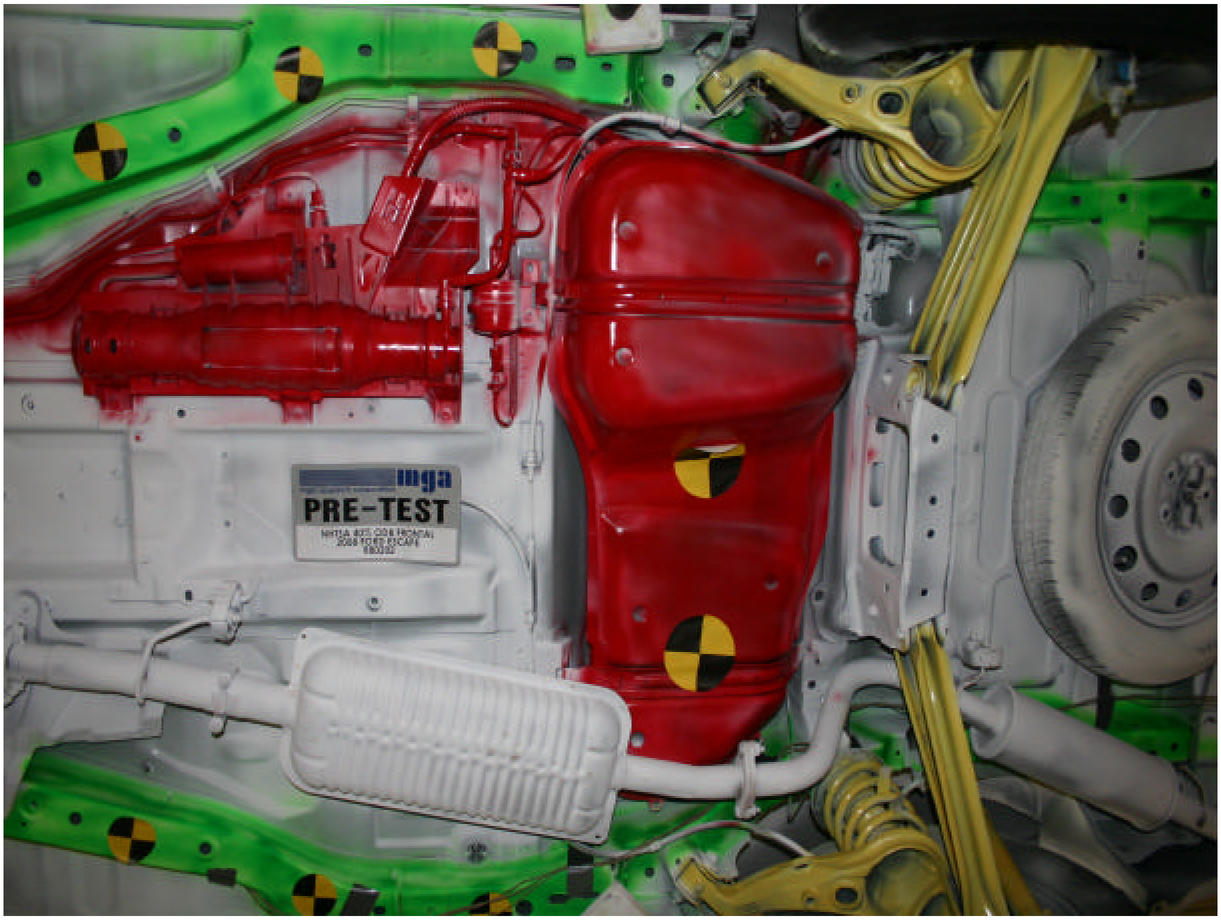


Post-Test Front Underbody



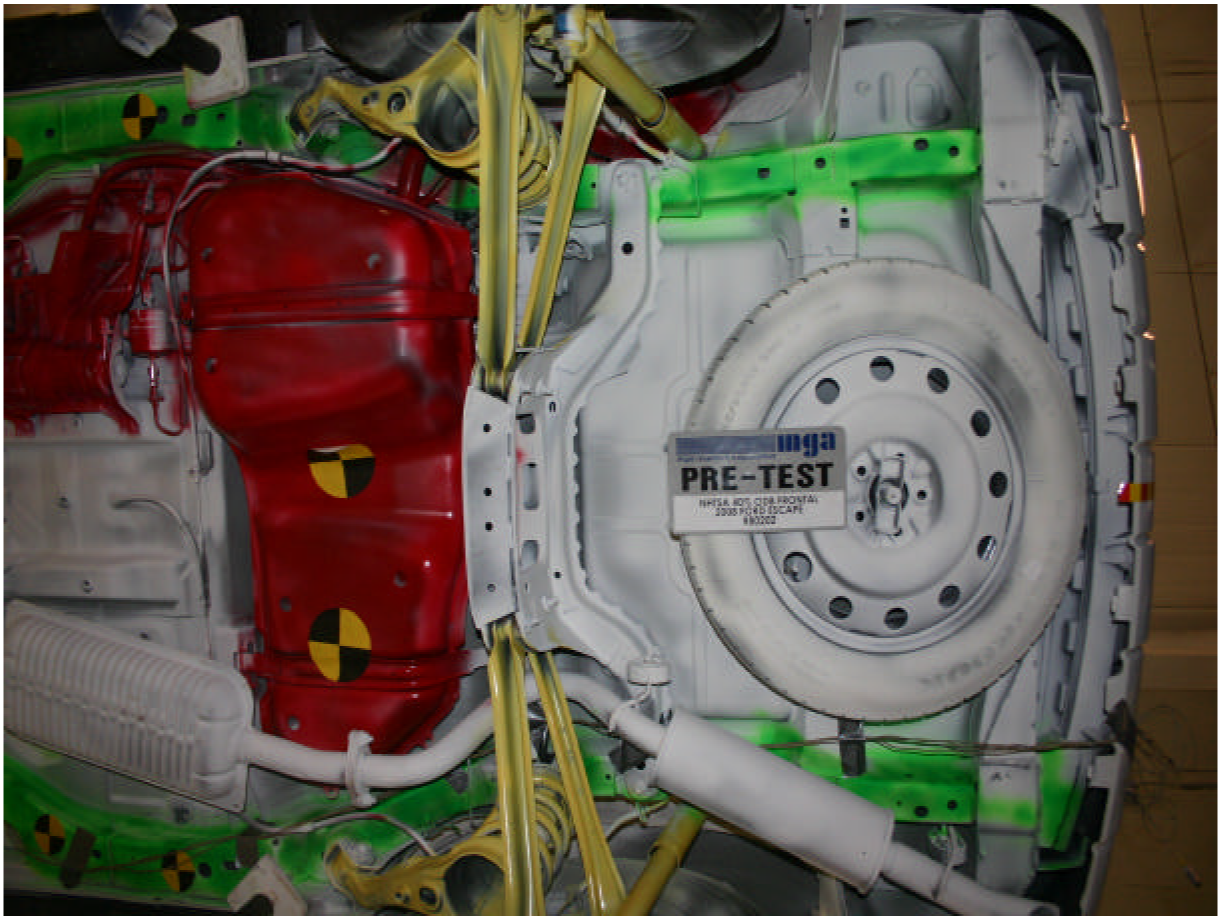
Pre-Test Front Underbody Perpendicular View

Post-Test Front Underbody Perpendicular View

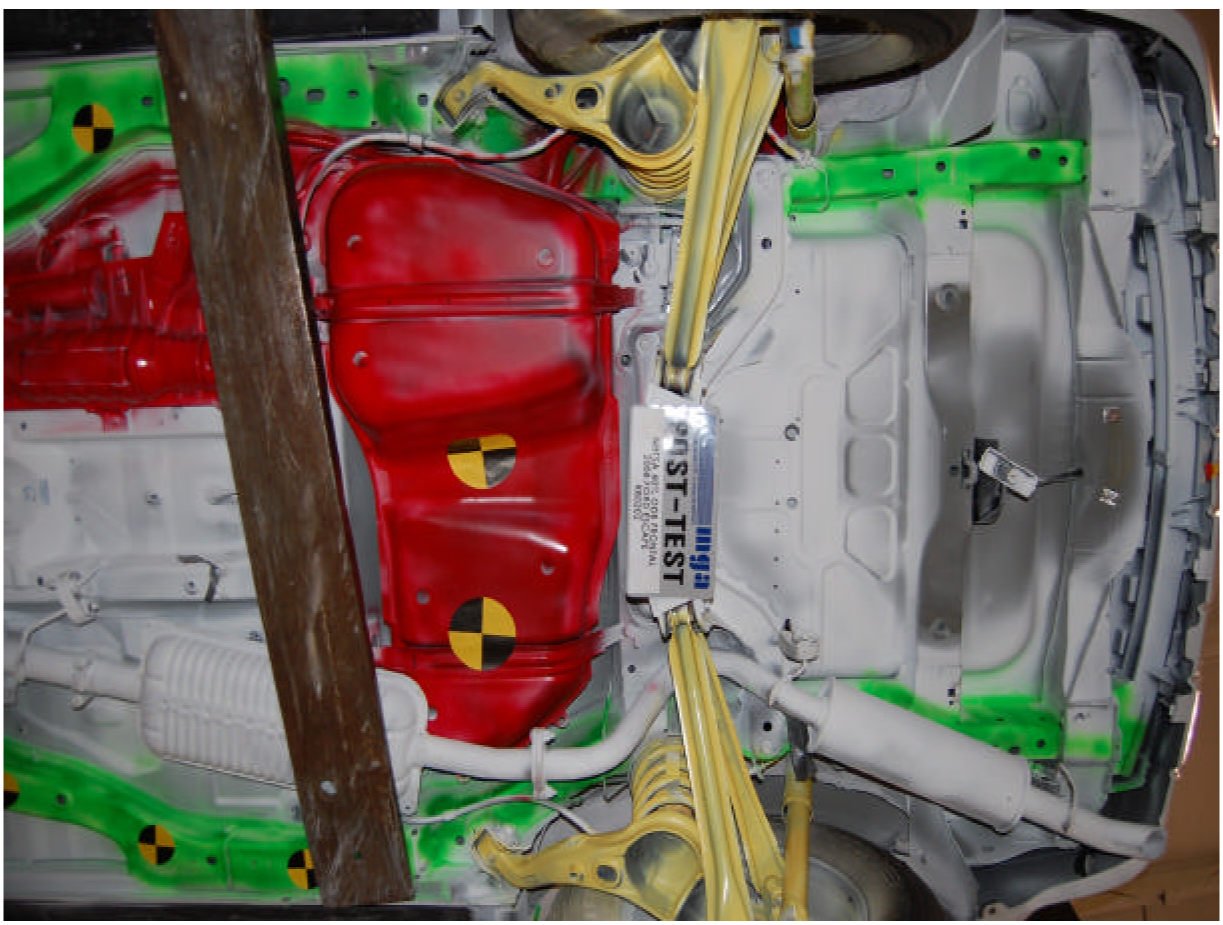


Pre-Test Mid Underbody Perpendicular View

Post-Test Mid Underbody Perpendicular View

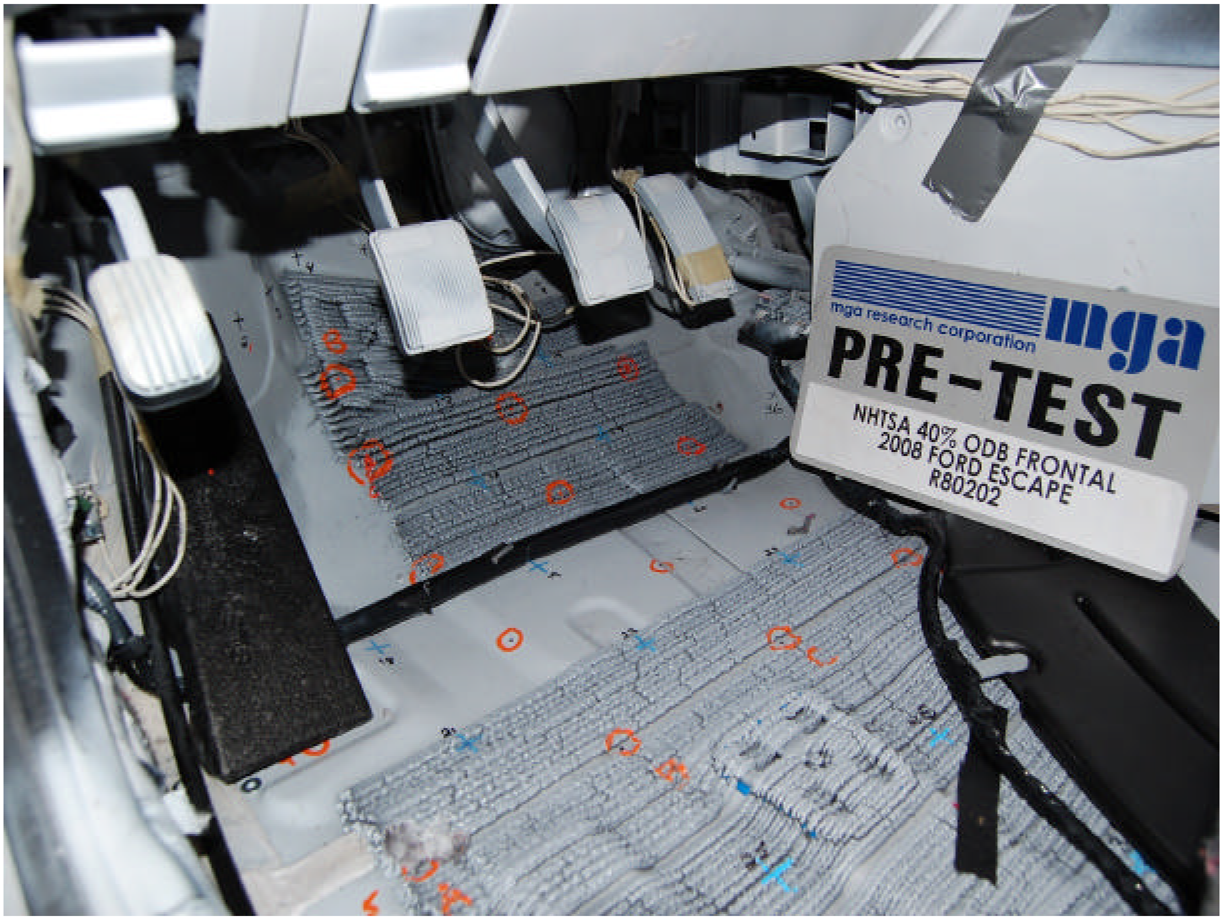


Pre-Test Rear Underbody Perpendicular View

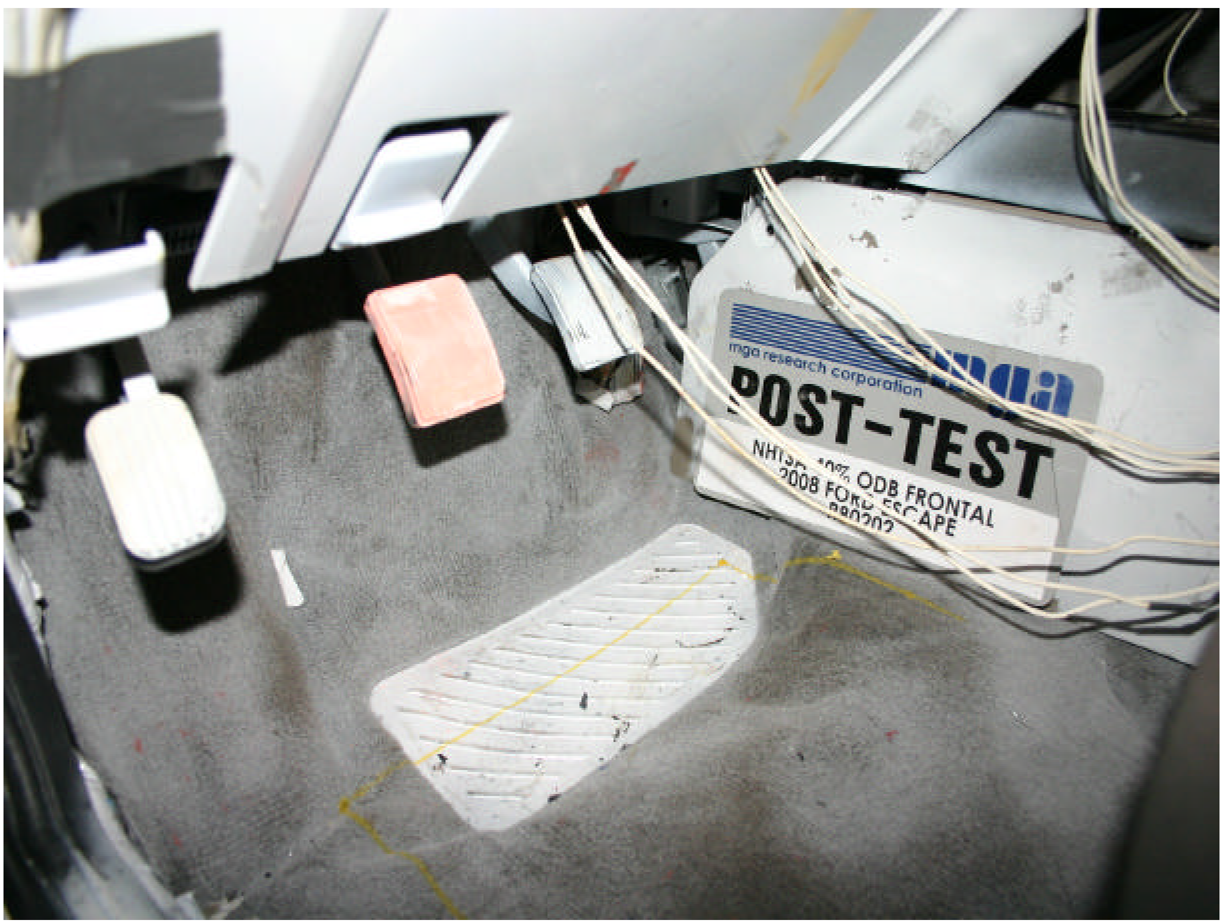

Post-Test Rear Underbody Perpendicular View

Post-Test Left Front Wheel Contact View 1

Post-Test Left Front Wheel Contact View 2

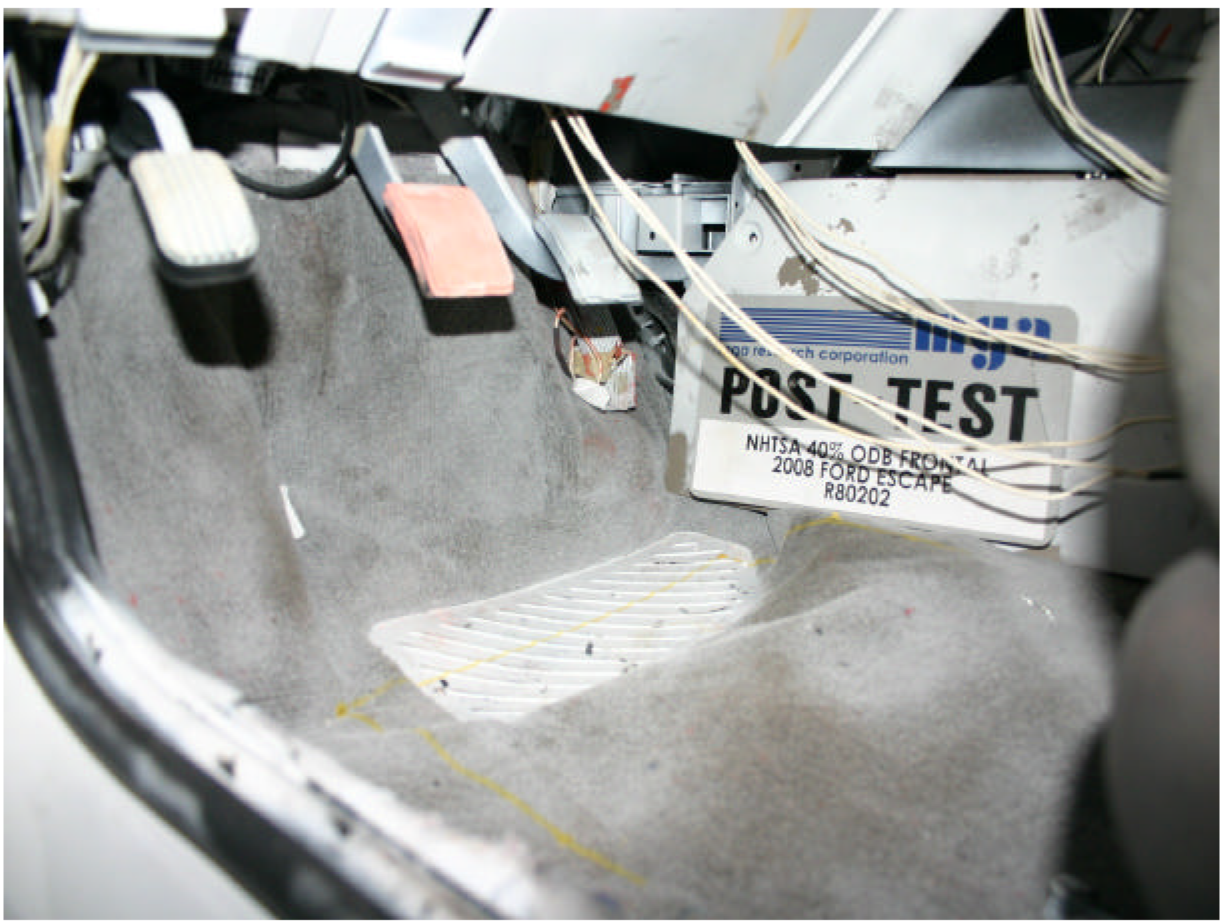


Pre-Test Over Toepan/ Floorpan Left of Seat, Seat Cushion Height



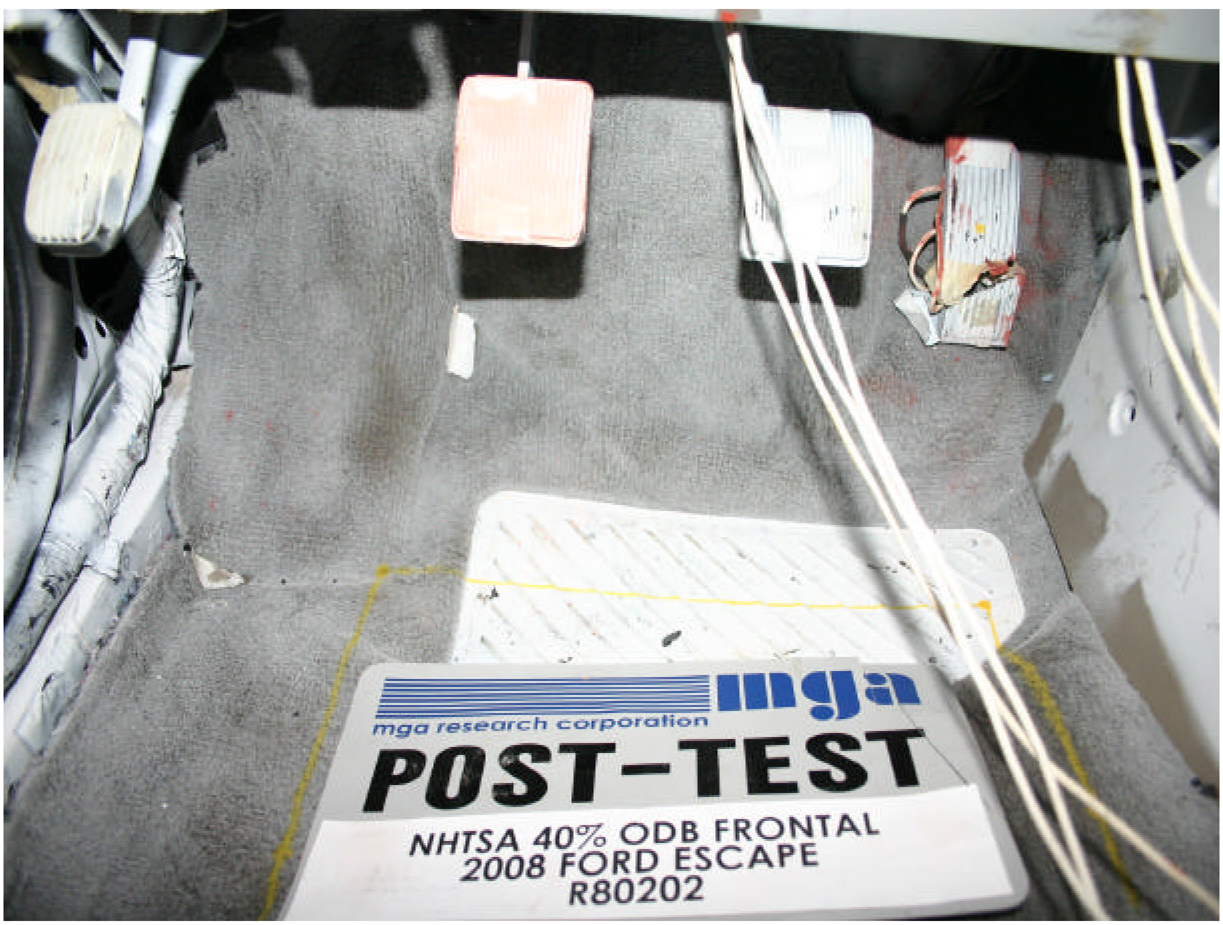
Post-Test Over Toepan/ Floorpan Left of Seat, Seat Cushion Height

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

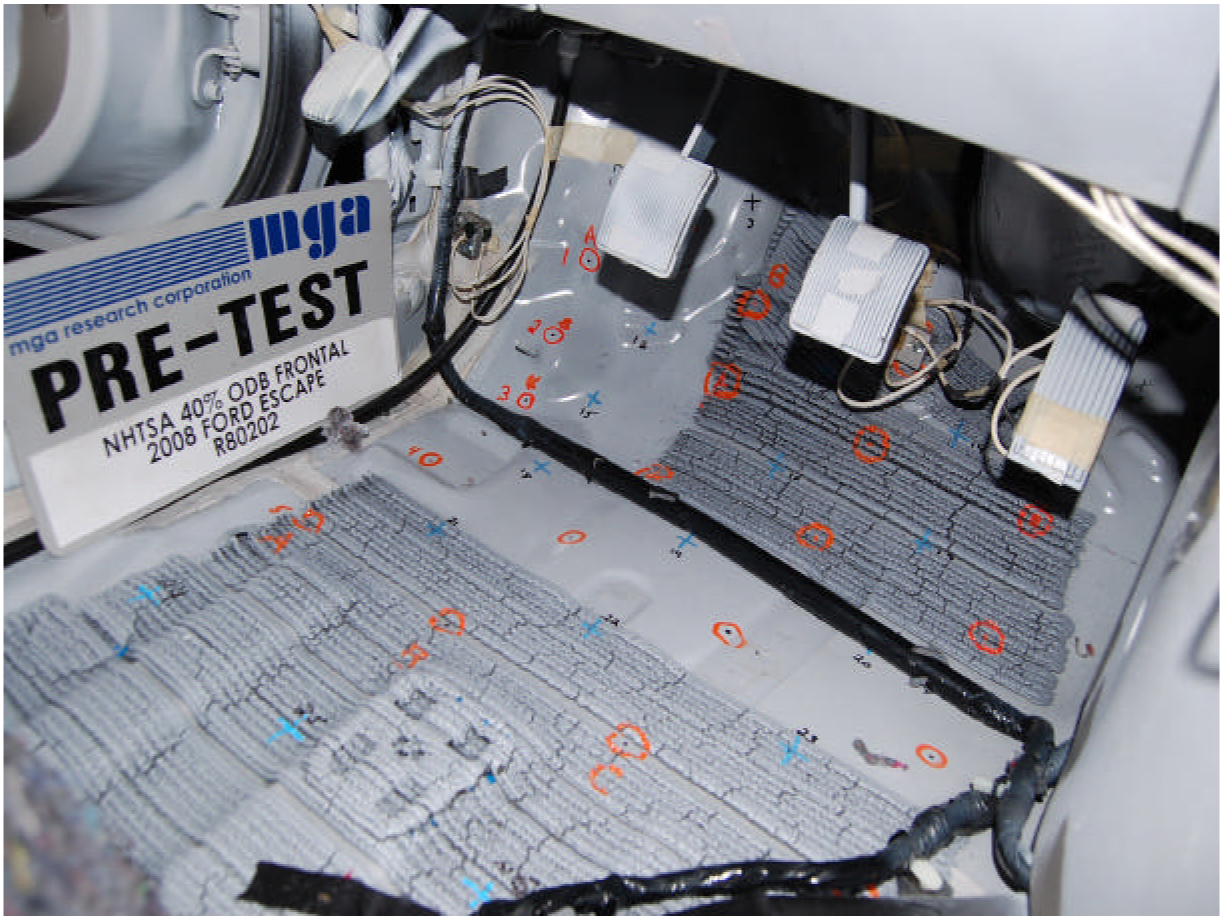


Post-Test Over Toepan/ Floorpan Left of Seat, Sill Height

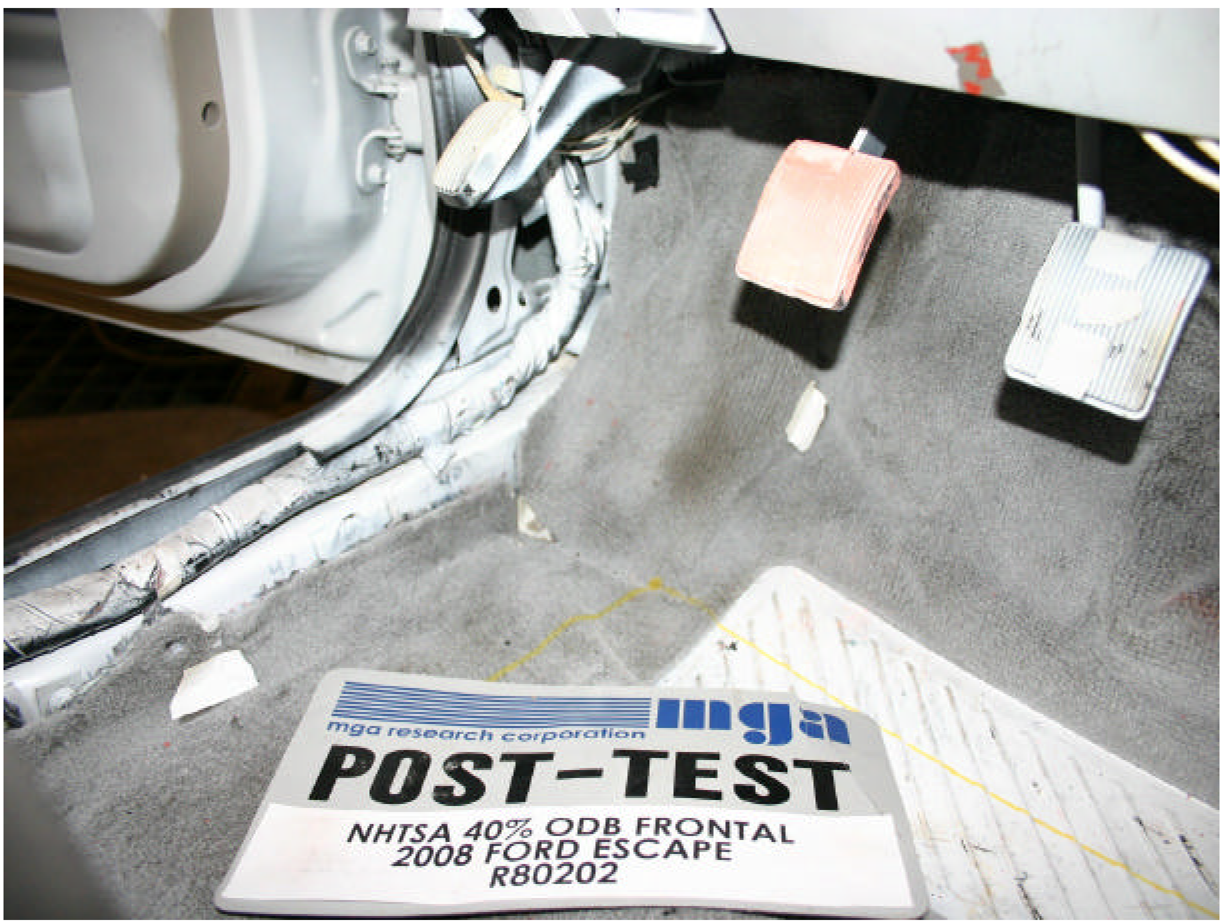
Pre-Test Over Toepan/ Floorpan Center of Seat, Seat Cushion Height



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

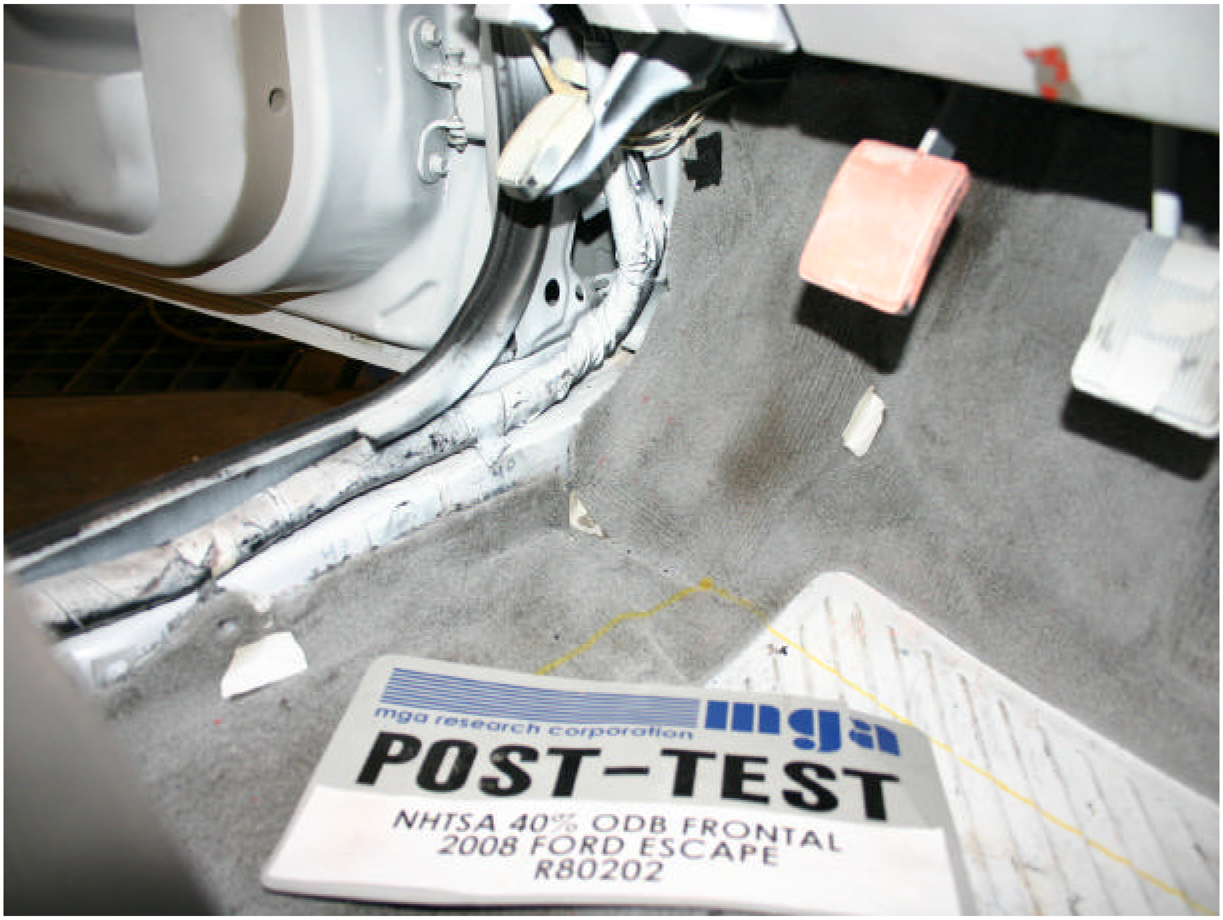


Pre-Test Over Toepan/ Floorpan Right of Seat, Seat Cushion Height

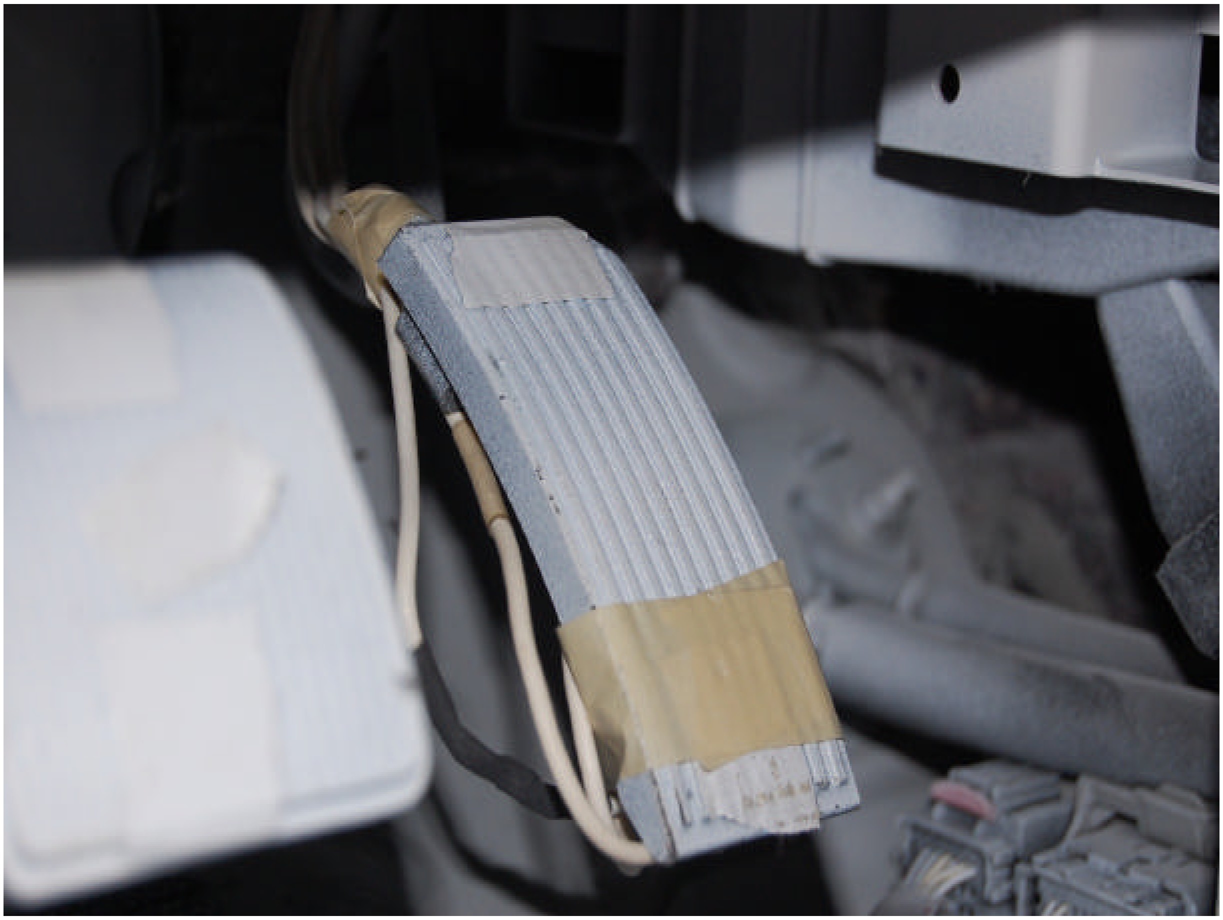


Post-Test Over Toepan/ Floorpan Right of Seat, Seat Cushion Height

Pre-Test Footrest Seat Cushion Height



Post-Test Footrest Seat Cushion Height


Pre-Test Accelerometer Pedal Close Up


Post-Test Accelerometer Pedal Close Up

Pre-Test Accelerometer Pedal View 1

Pre-Test Accelerometer Pedal View 2


Post-Test Accelerometer Pedal

APPENDIX B

DUMMY, VEHICLE AND BARRIER DATA PLOTS

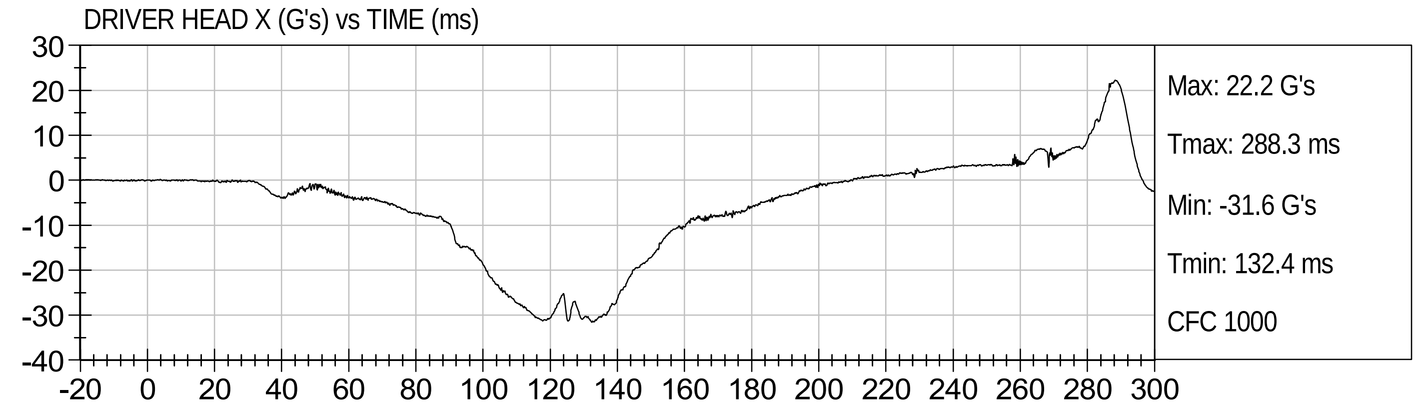
TABLE OF DATA PLOTS

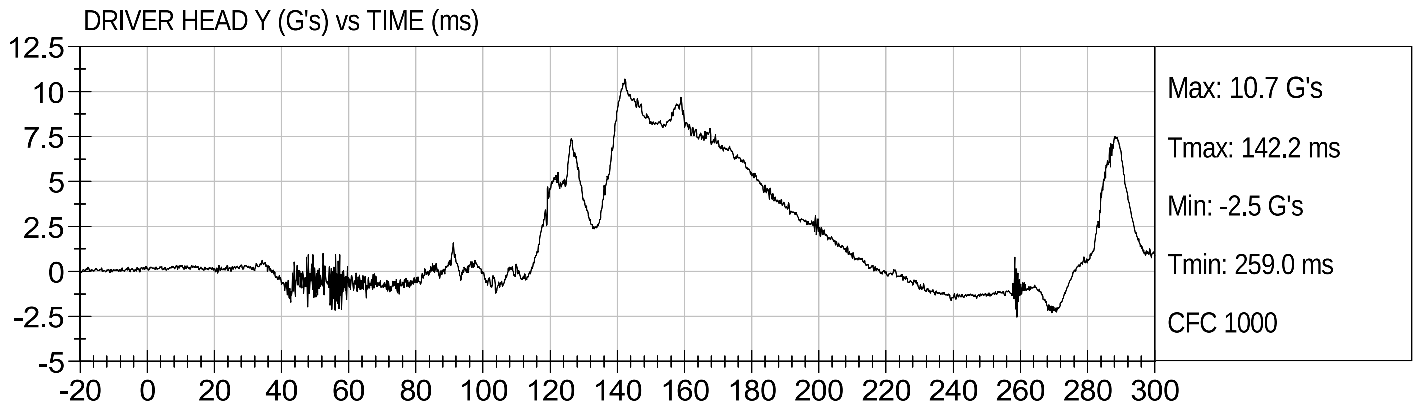
Page No.

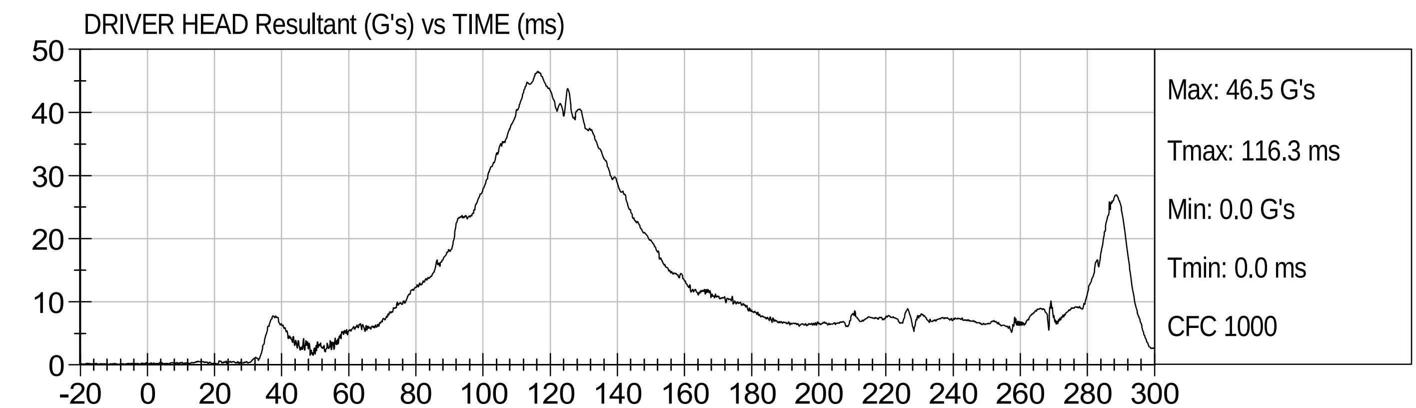
Page No.

NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)



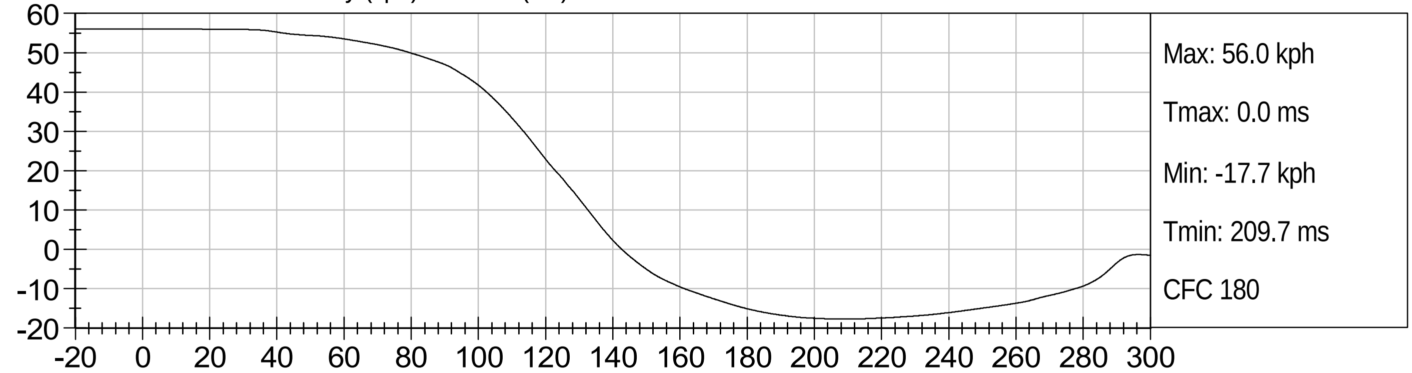




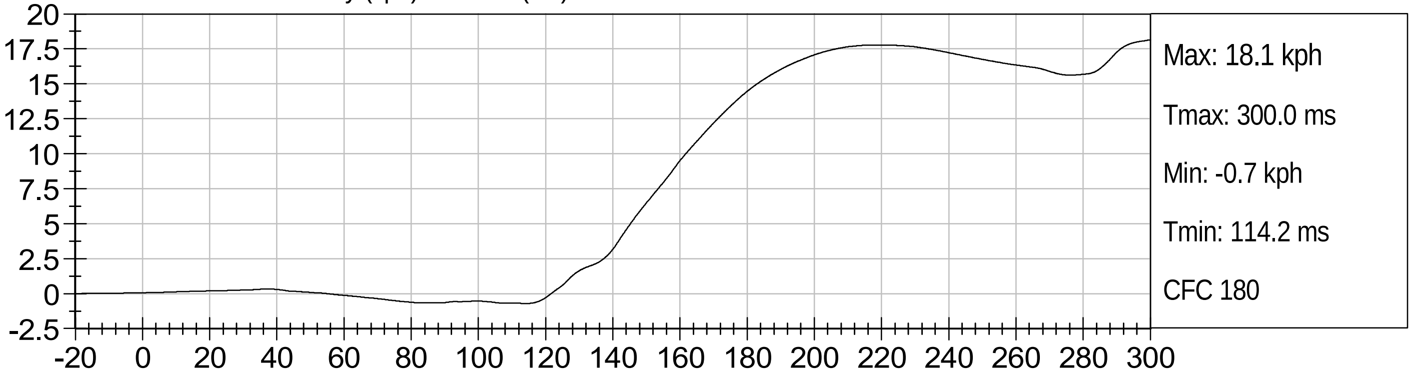
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

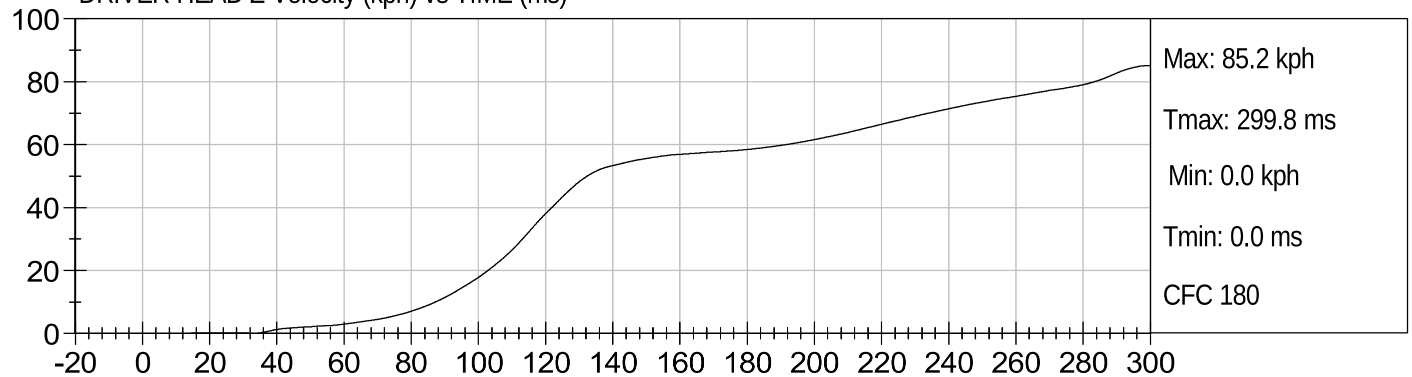
DRIVER HEAD X Velocity (kph) vs TIME (ms)



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



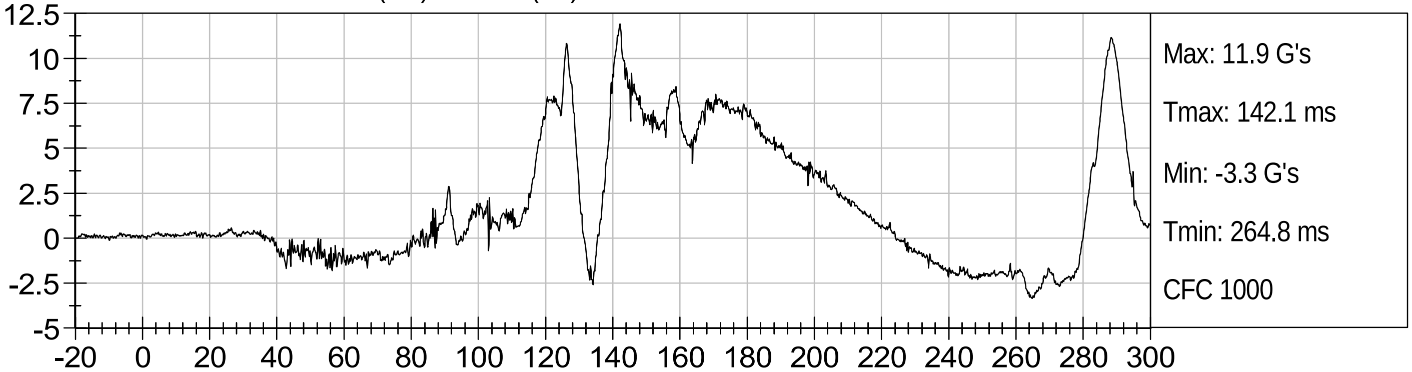
DRIVER HEAD Z Velocity (kph) vs TIME (ms)



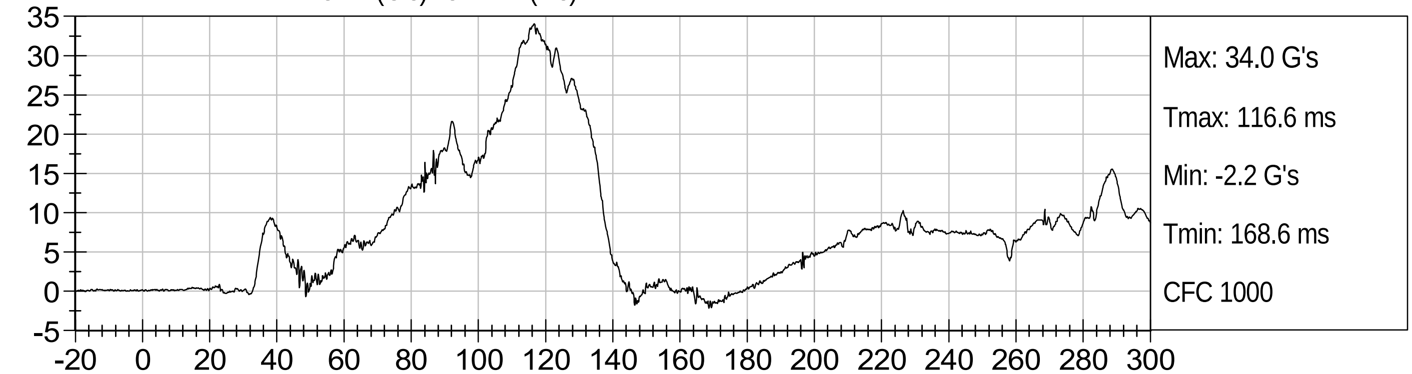
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

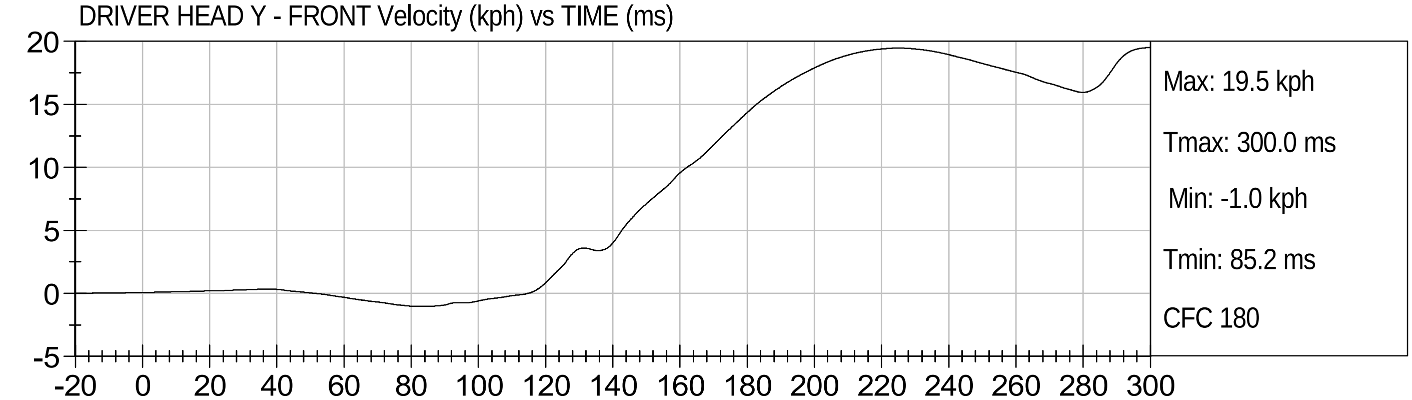
DRIVER HEAD Y - FRONT (G's) vs TIME (ms)



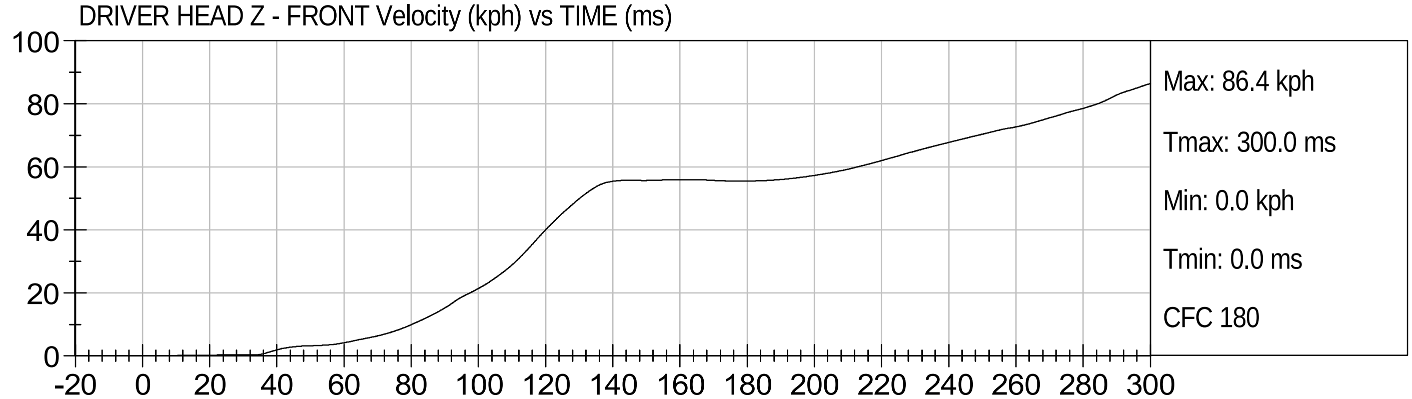
DRIVER HEAD Z - FRONT (G's) vs TIME (ms)



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



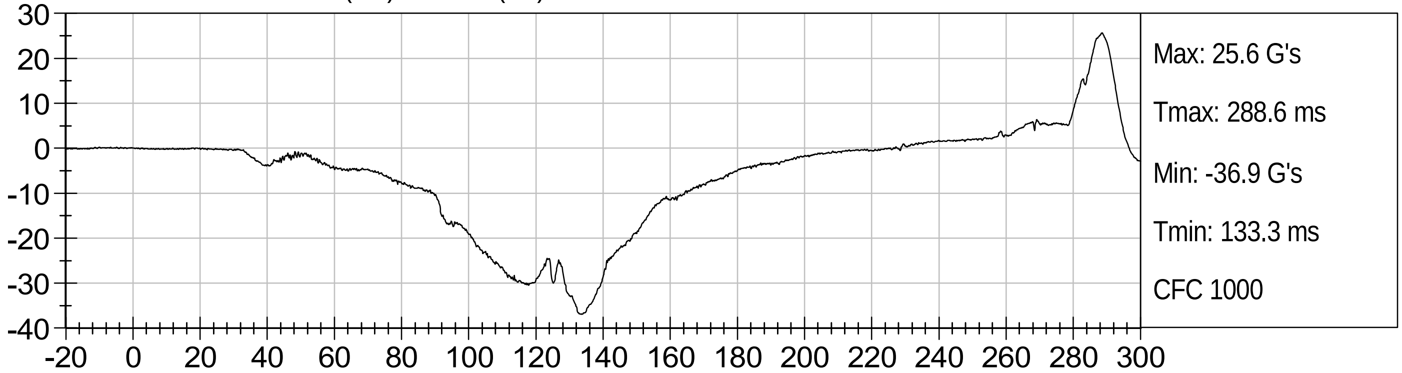
DRIVER HEAD Z - FRONT Velocity (kph) vs TIME (ms)



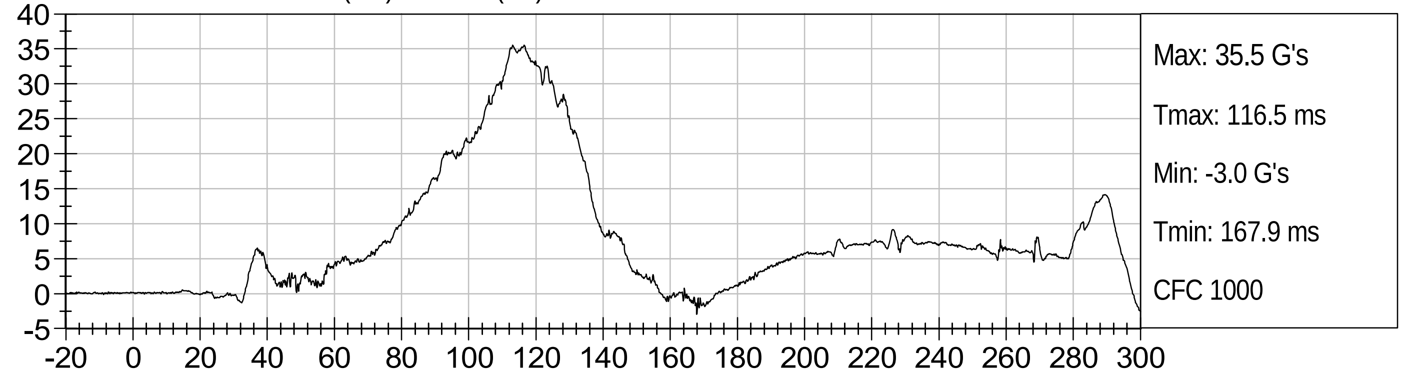
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

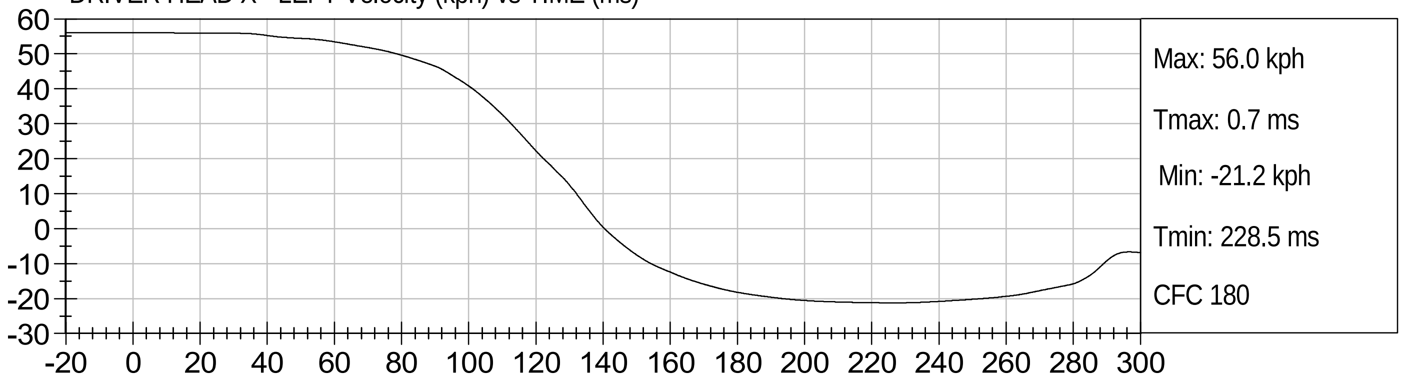
DRIVER HEAD X - LEFT (G's) vs TIME (ms)



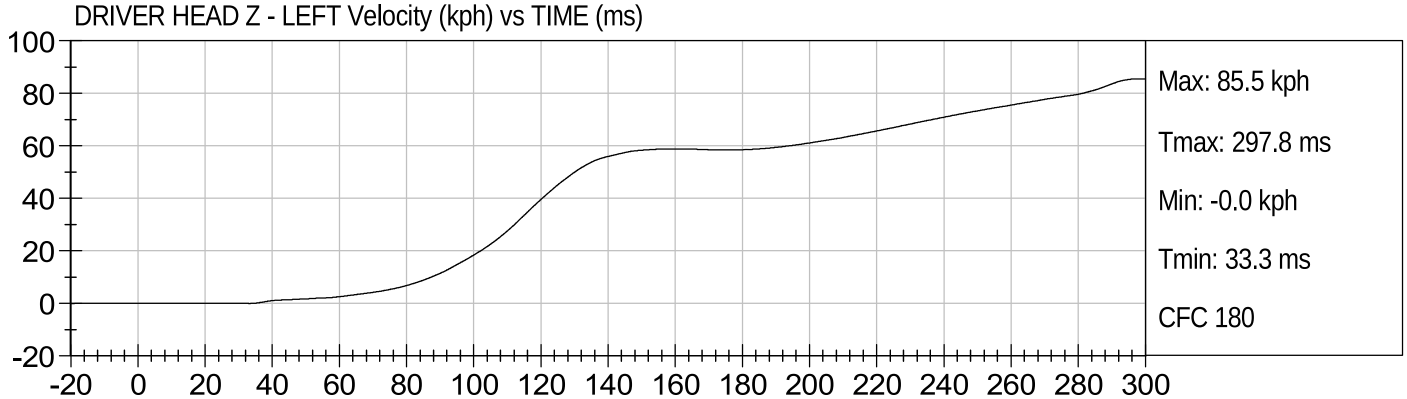
DRIVER HEAD Z - LEFT (G's) vs TIME (ms)



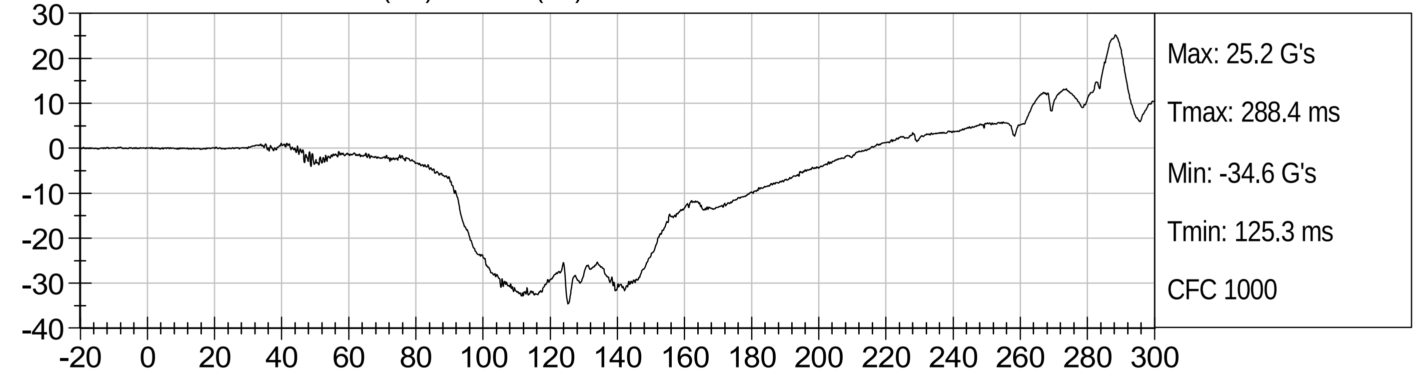
DRIVER HEAD X - LEFT Velocity (kph) vs TIME (ms)



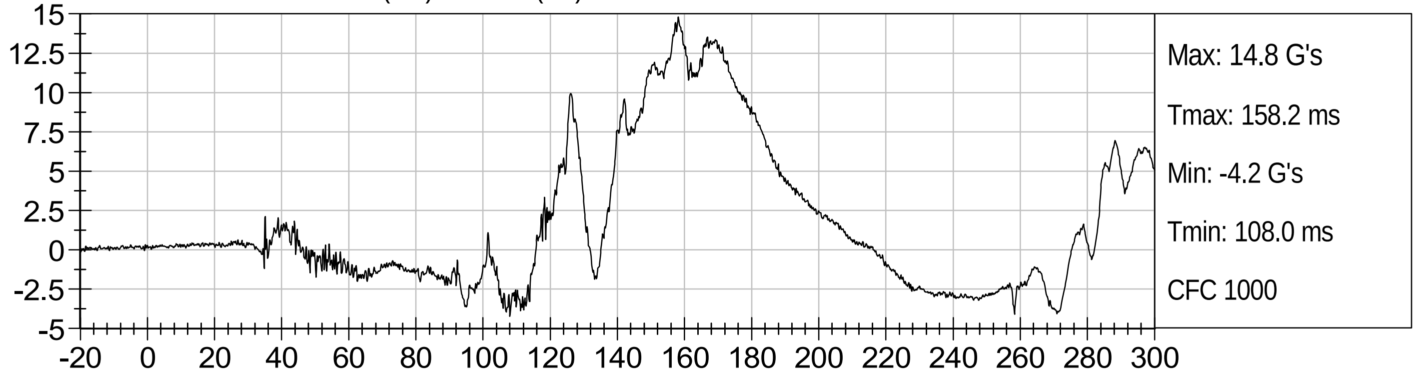
DRIVER HEAD Z - LEFT Velocity (kph) vs TIME (ms)



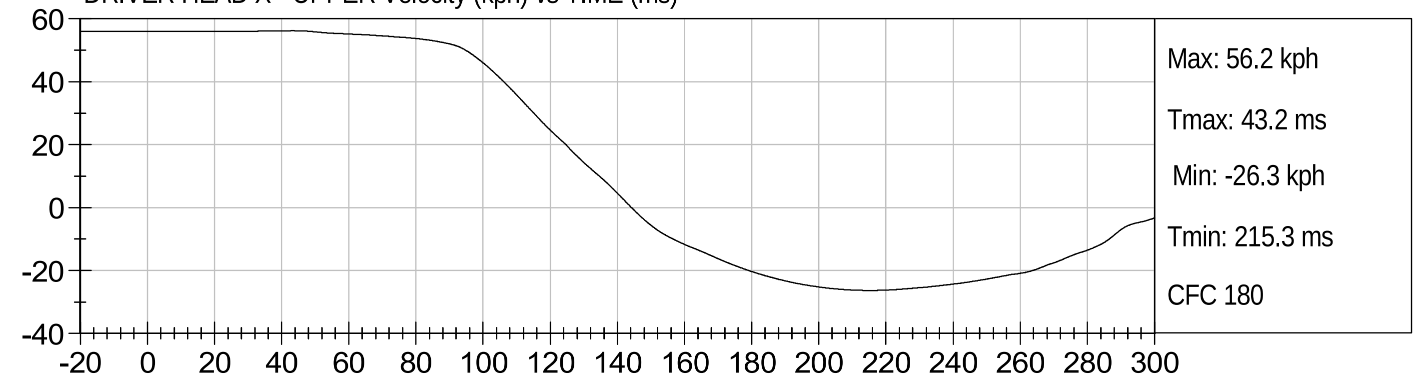
DRIVER HEAD X - UPPER (G's) vs TIME (ms)



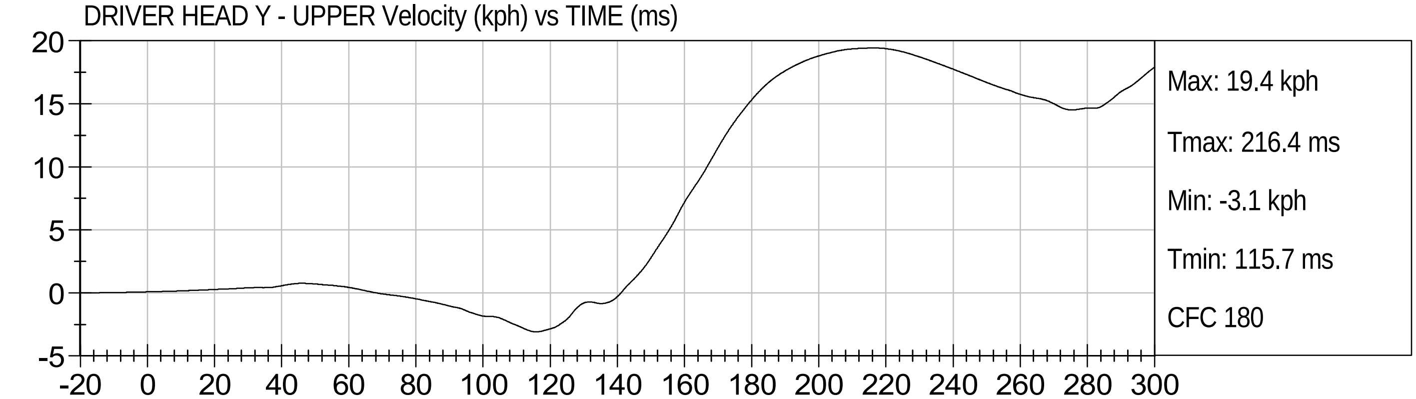
DRIVER HEAD Y - UPPER (G's) vs TIME (ms)



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



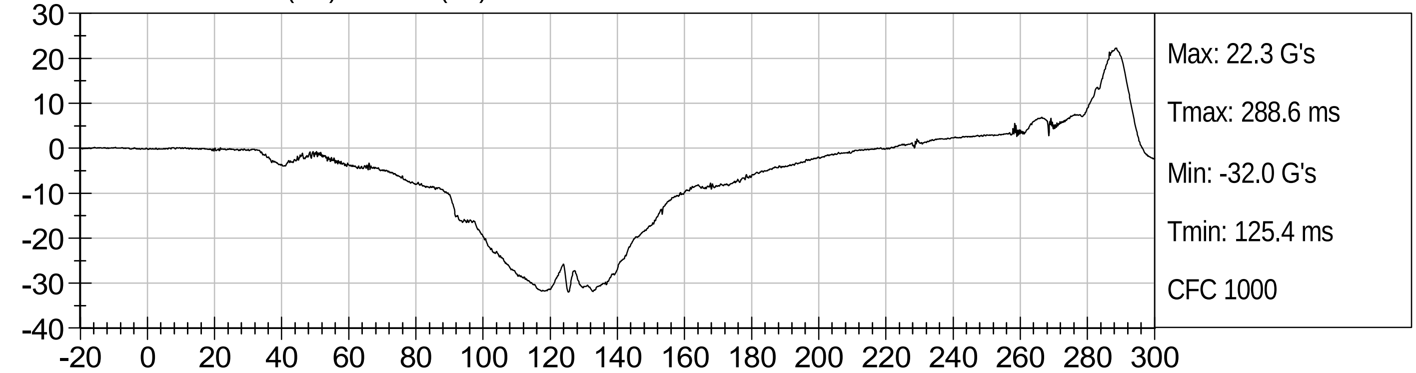
DRIVER HEAD Y - UPPER Velocity (kph) vs TIME (ms)



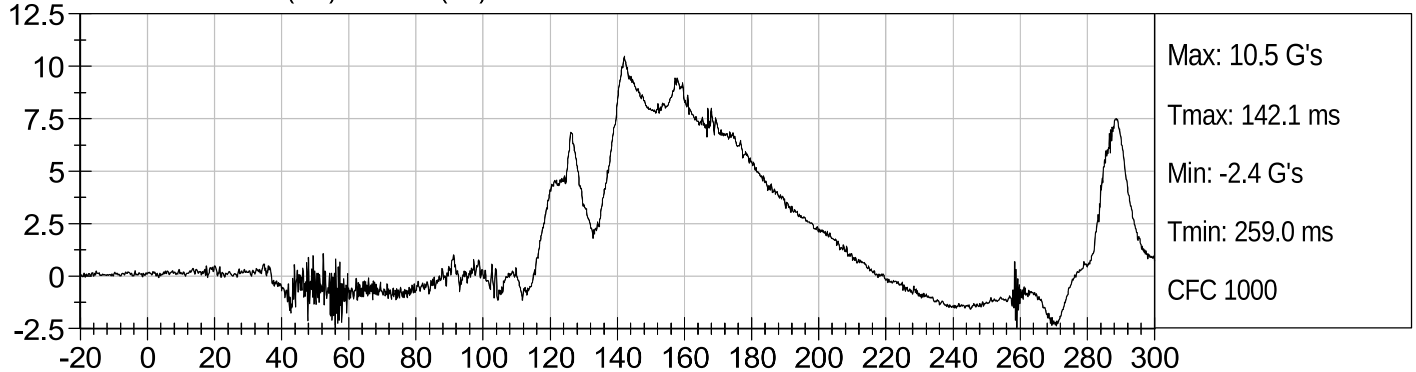
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

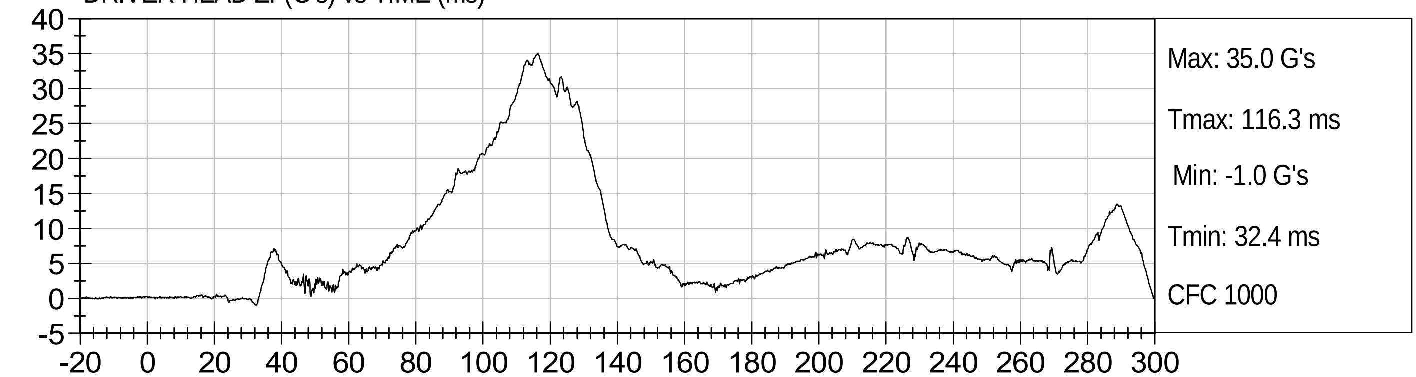
DRIVER HEAD Xr (G's) vs TIME (ms)



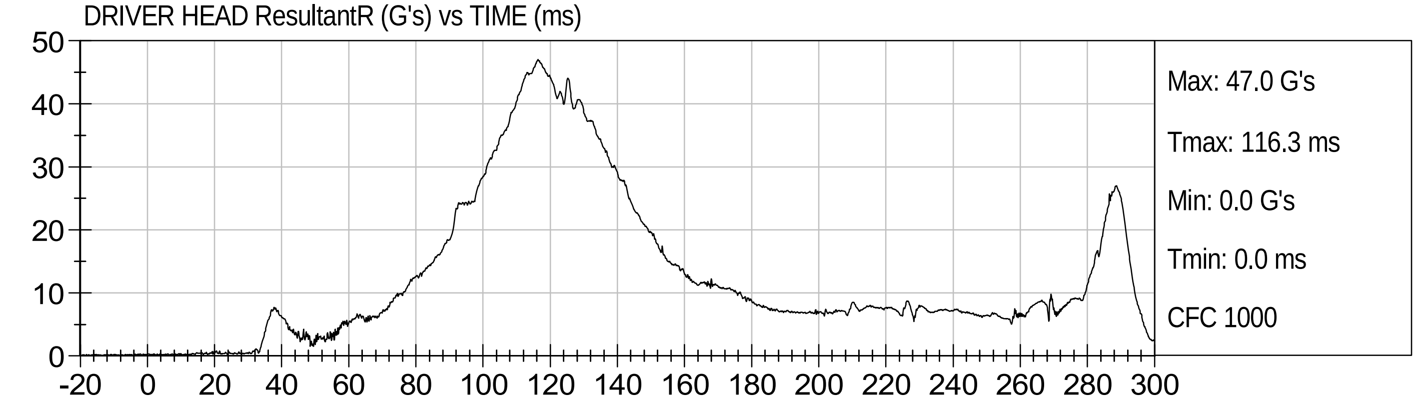
DRIVER HEAD Yr (G's) vs TIME (ms)



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

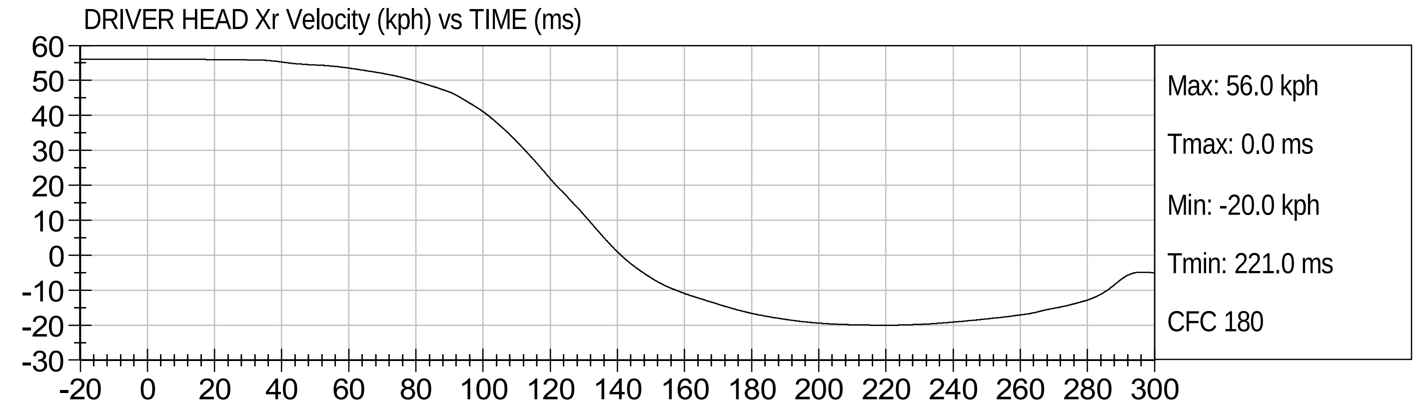


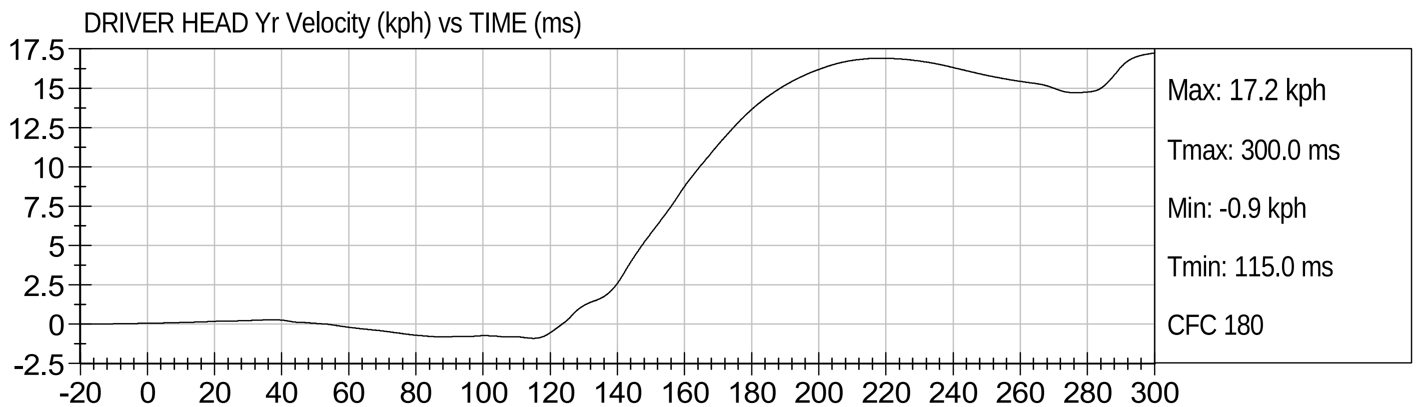
DRIVER HEAD ResultantR (G's) vs TIME (ms)

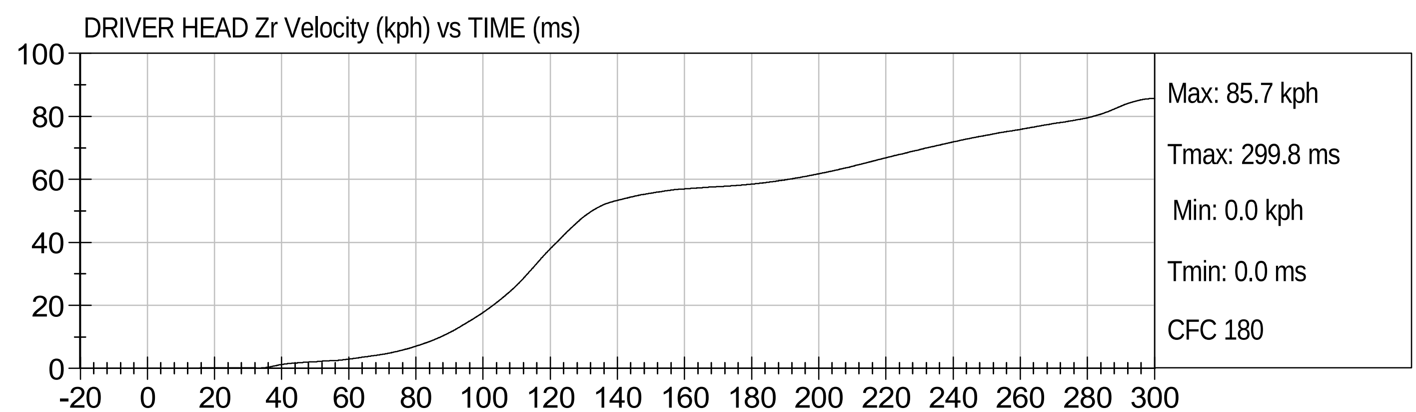


NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)



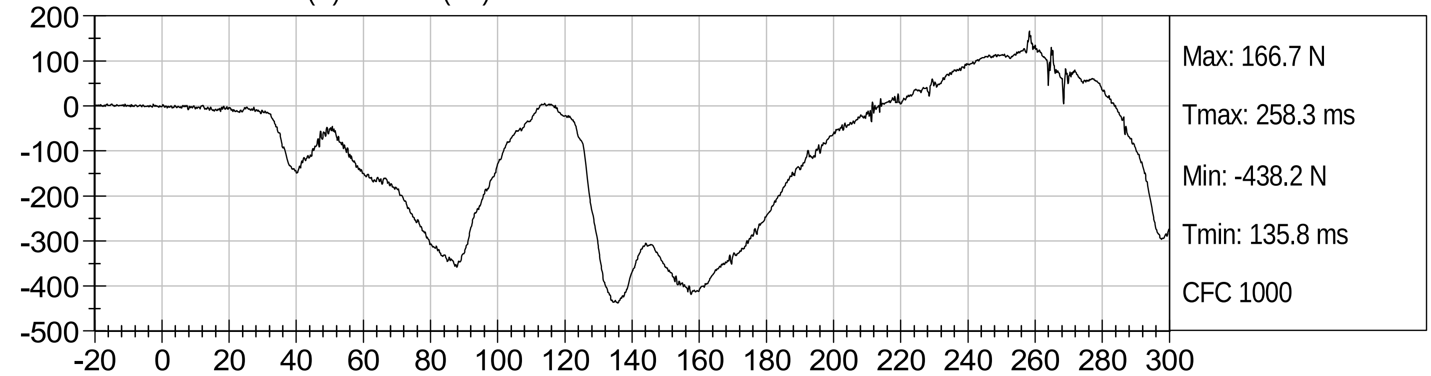




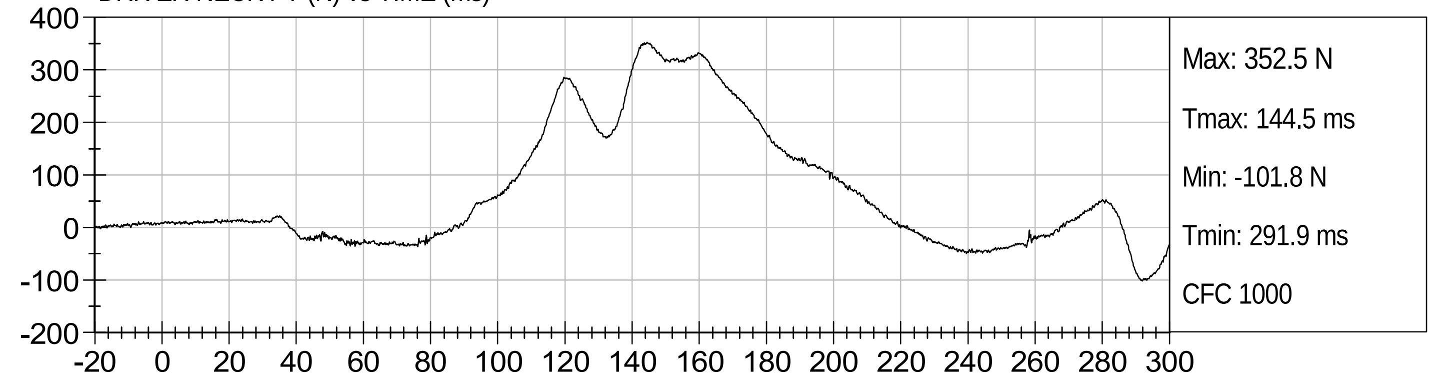
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

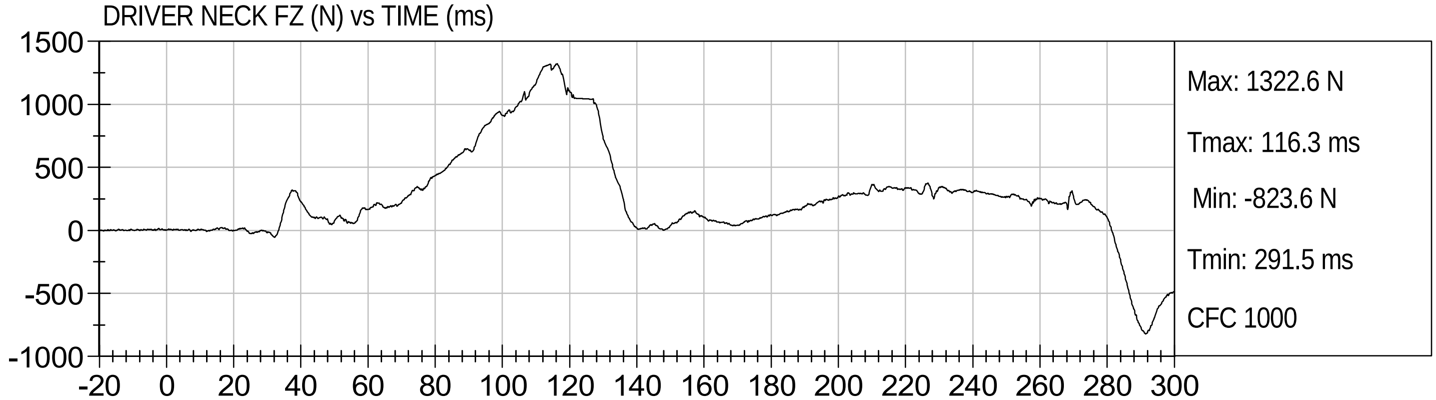
DRIVER NECK FX (N) vs TIME (ms)



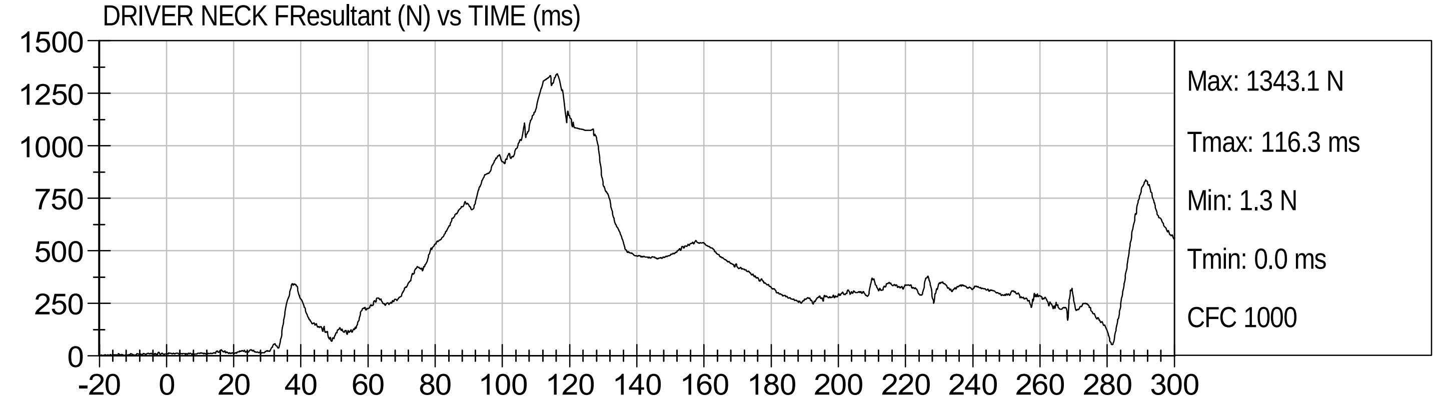
DRIVER NECK FY (N) vs TIME (ms)

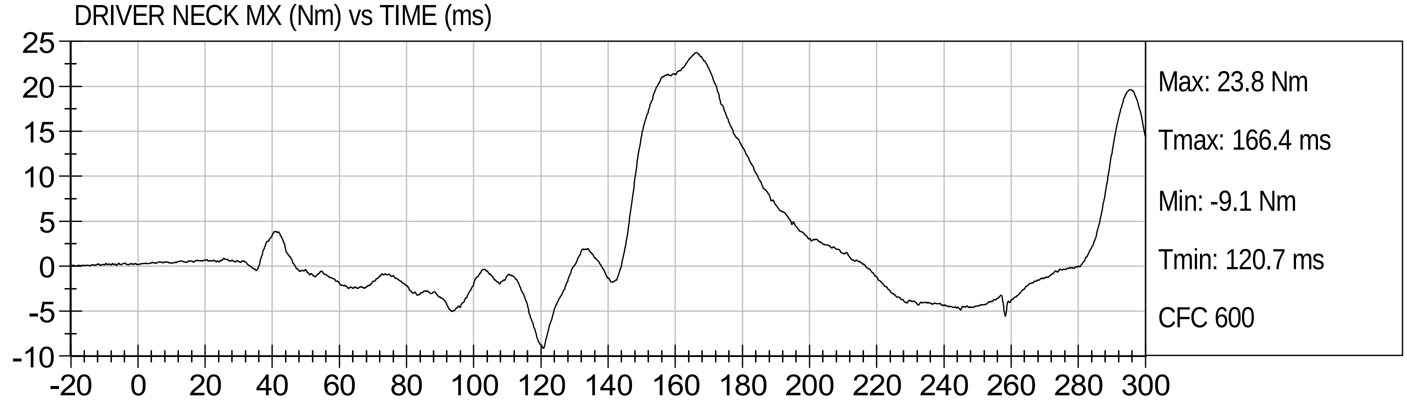


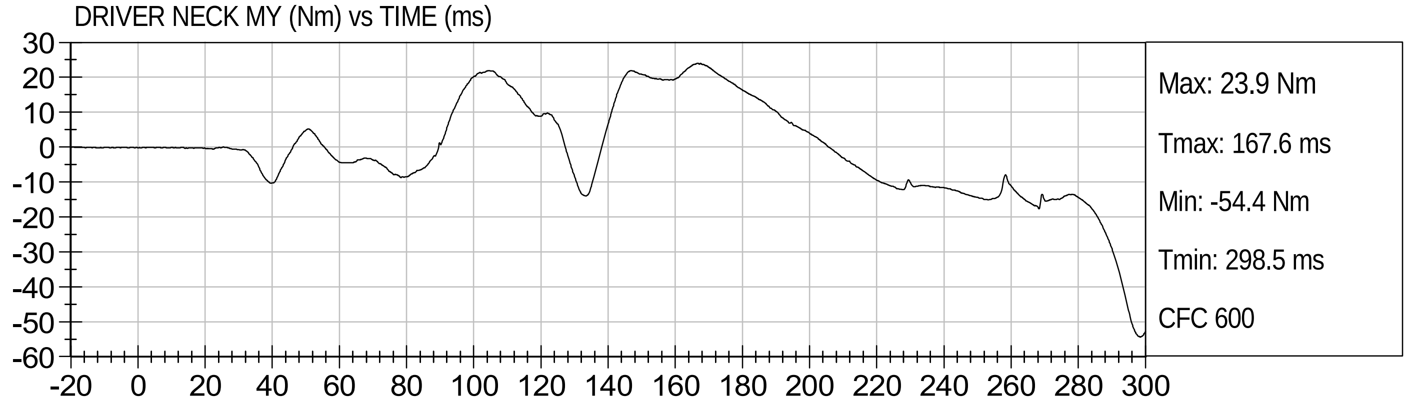
DRIVER NECK FZ (N) vs TIME (ms)

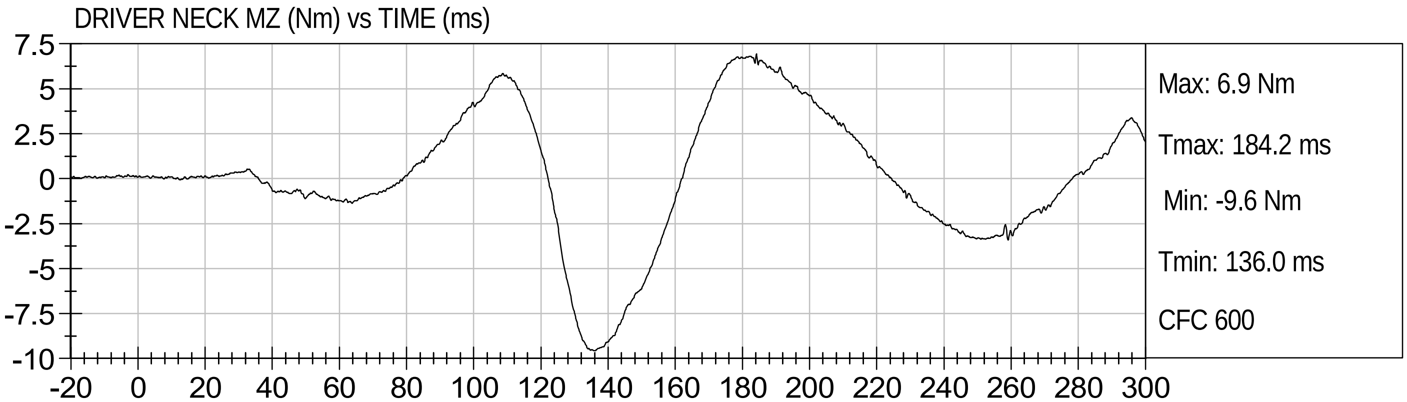


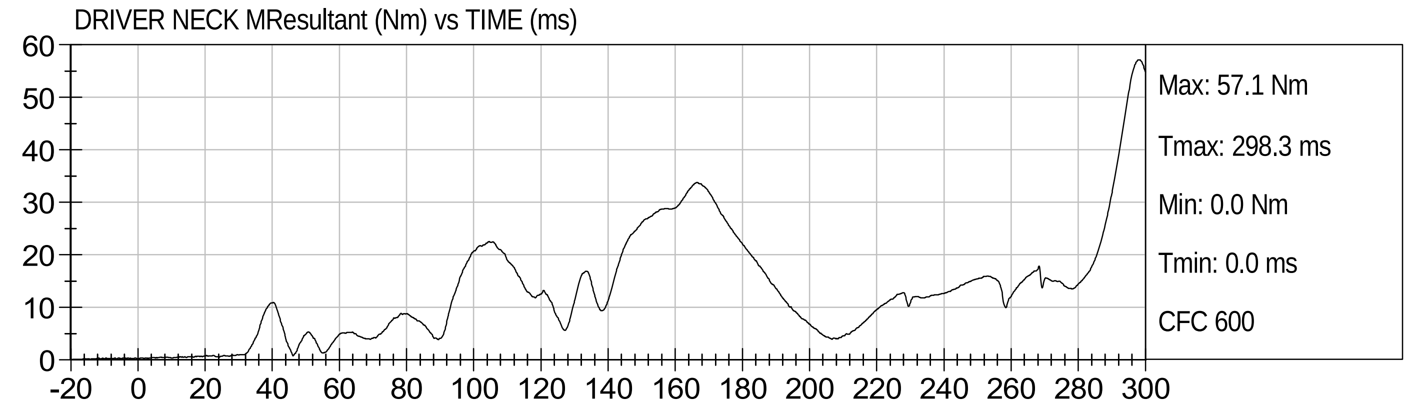
DRIVER NECK FResultant (N) vs TIME (ms)



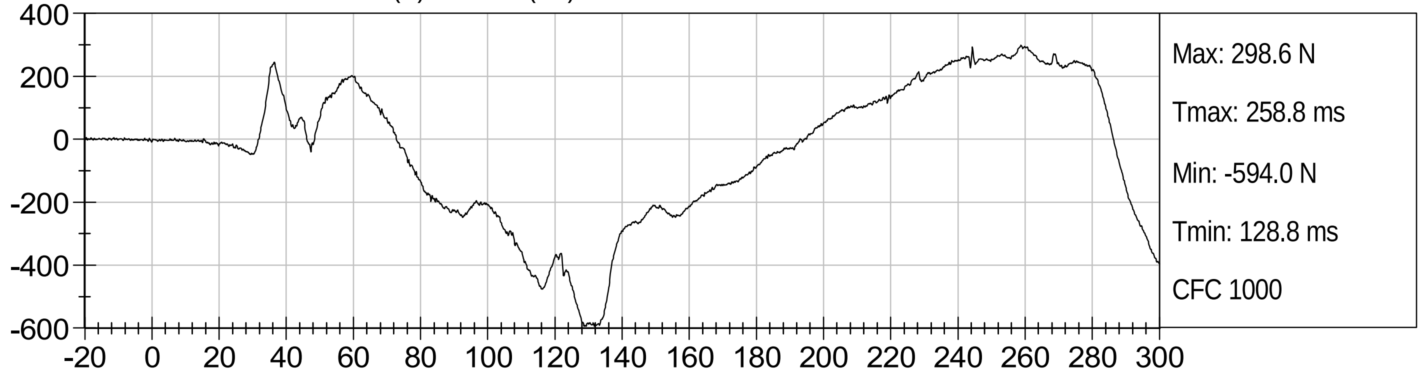

DRIVER NECK MX (Nm) vs TIME (ms)
Max: 23.8 Nm
Tmax: 166.4 ms
Min: -9.1 Nm
Tmin: 120.7 ms
CFC 600


DRIVER NECK MY (Nm) vs TIME (ms)
Max: 23.9 Nm
Tmax: 167.6 ms
Min: -54.4 Nm
Tmin: 298.5 ms
CFC 600

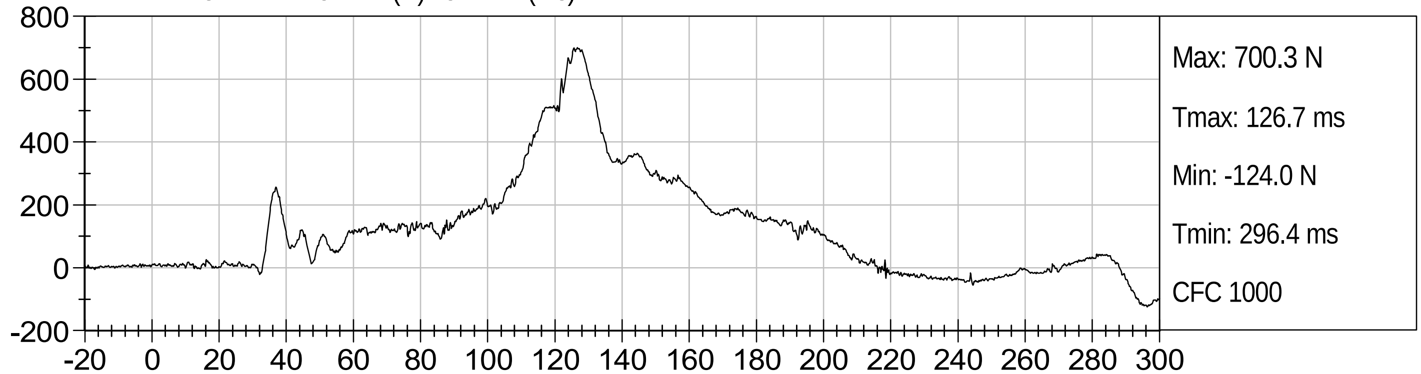

DRIVER NECK MZ (Nm) vs TIME (ms)
Max: 6.9 Nm
Tmax: 184.2 ms
Min: -9.6 Nm
Tmin: 136.0 ms
CFC 600


DRIVER NECK MResultant (Nm) vs TIME (ms)
Max: 57.1 Nm
Tmax: 298.3 ms
Min: 0.0 Nm
Tmin: 0.0 ms
CFC 600

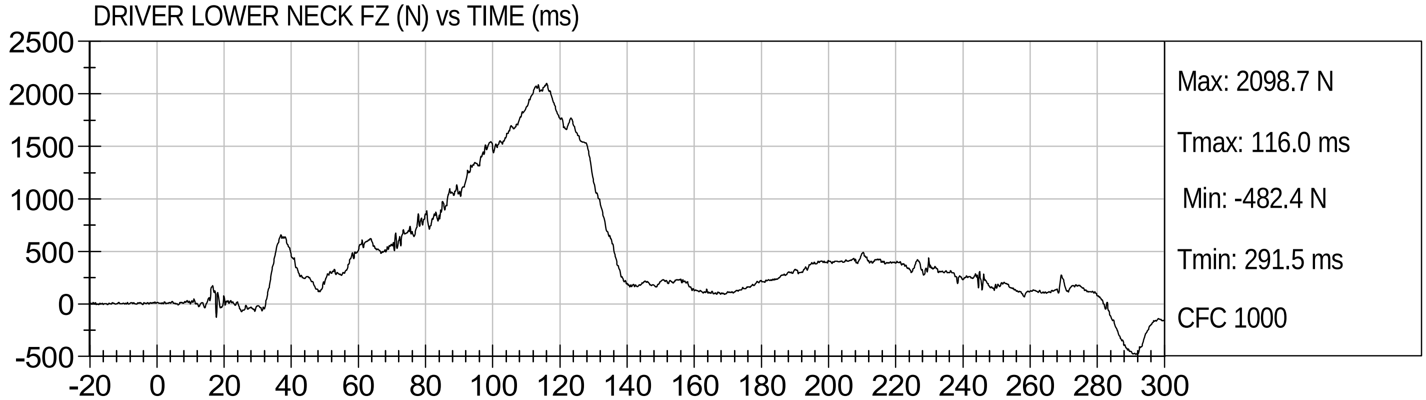
DRIVER LOWER NECK FX (N) vs TIME (ms)



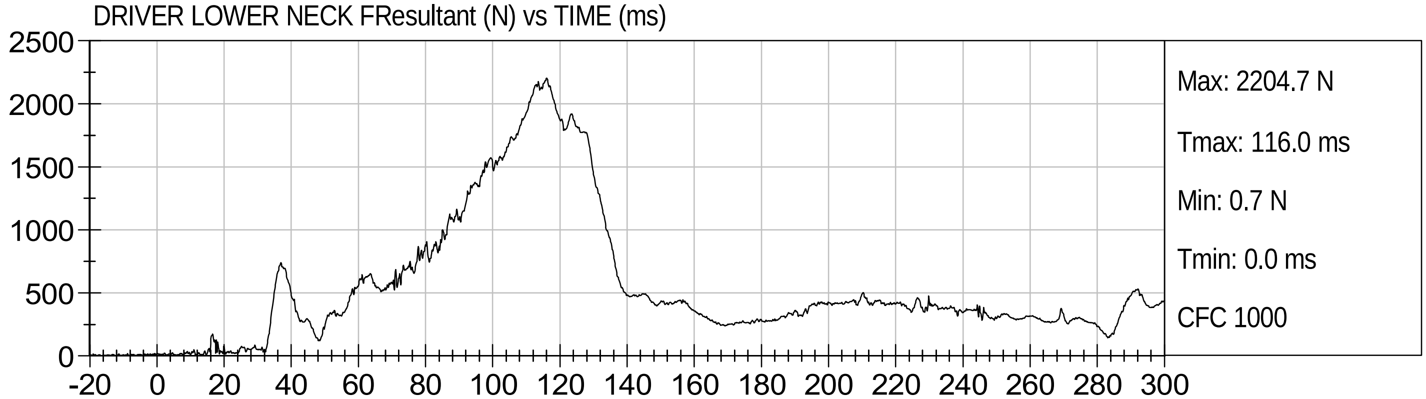
DRIVER LOWER NECK FY (N) vs TIME (ms)



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



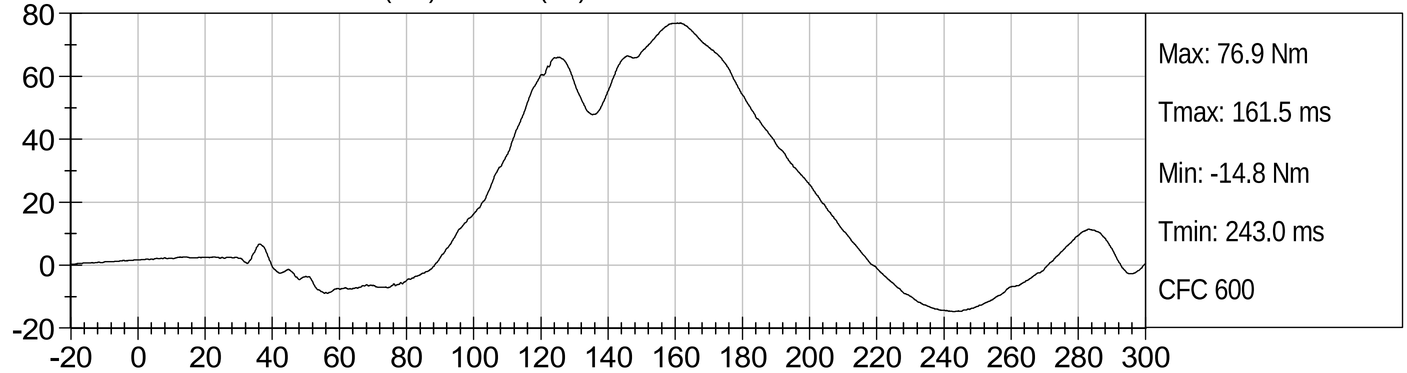
DRIVER LOWER NECK FResultant (N) vs TIME (ms)



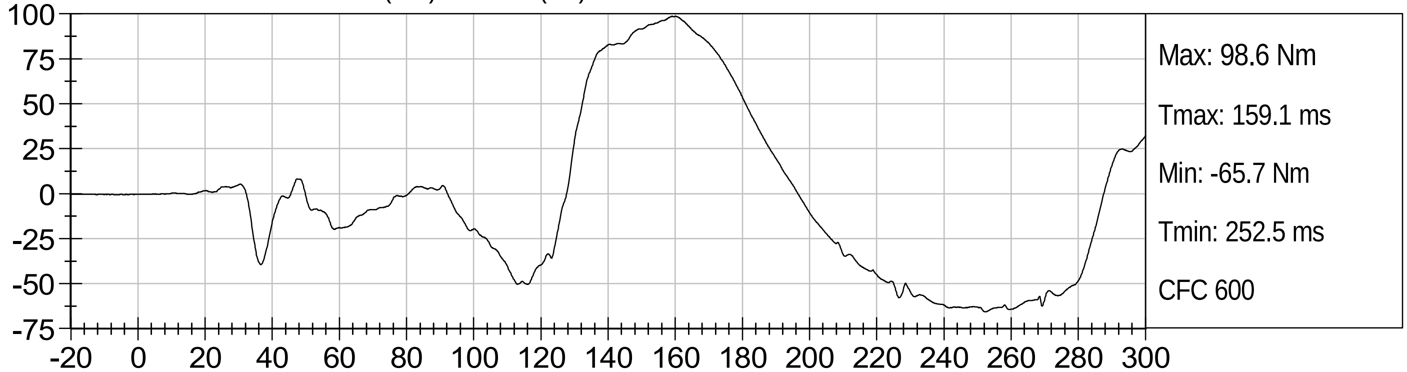
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

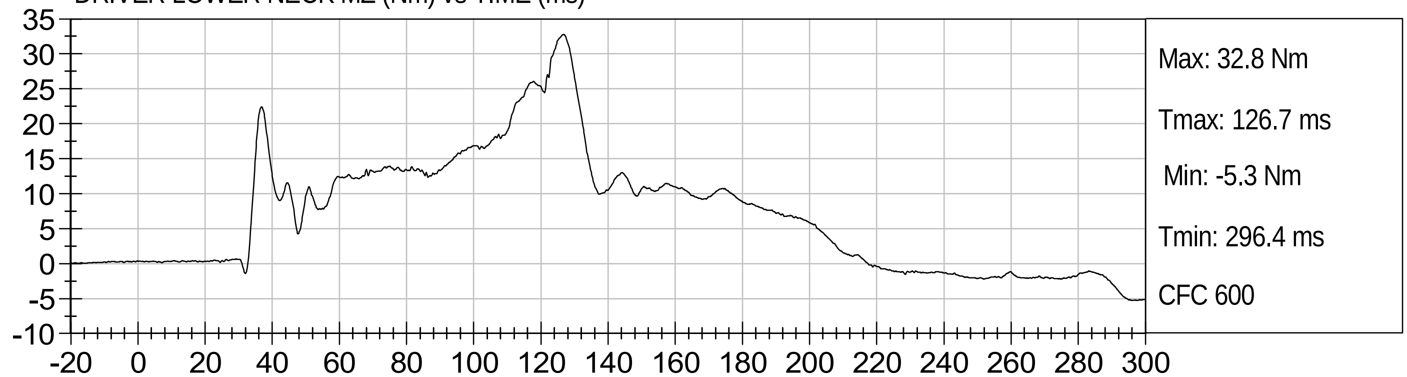
DRIVER LOWER NECK MX (Nm) vs TIME (ms)



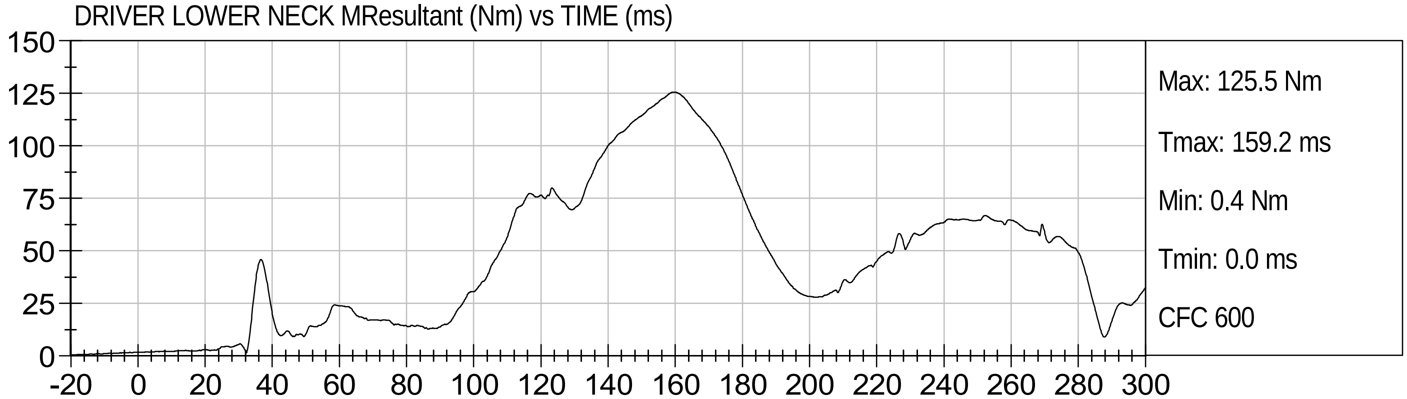
DRIVER LOWER NECK MY (Nm) vs TIME (ms)



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



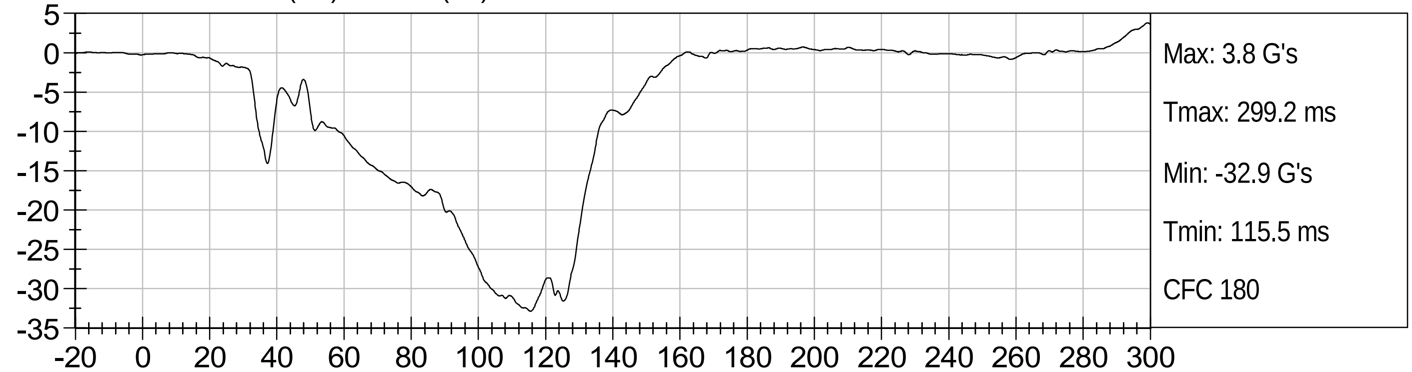
DRIVER LOWER NECK MResultant (Nm) vs TIME (ms)



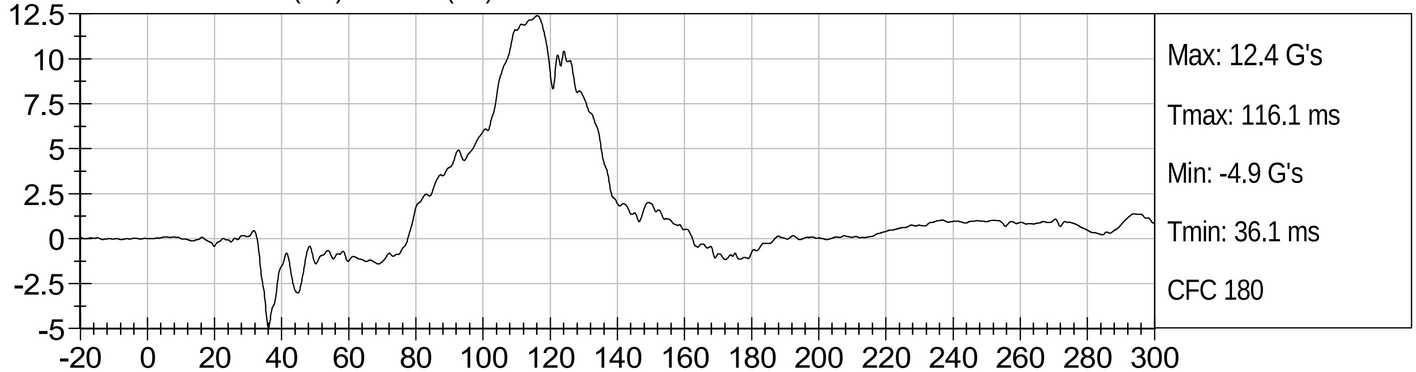
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

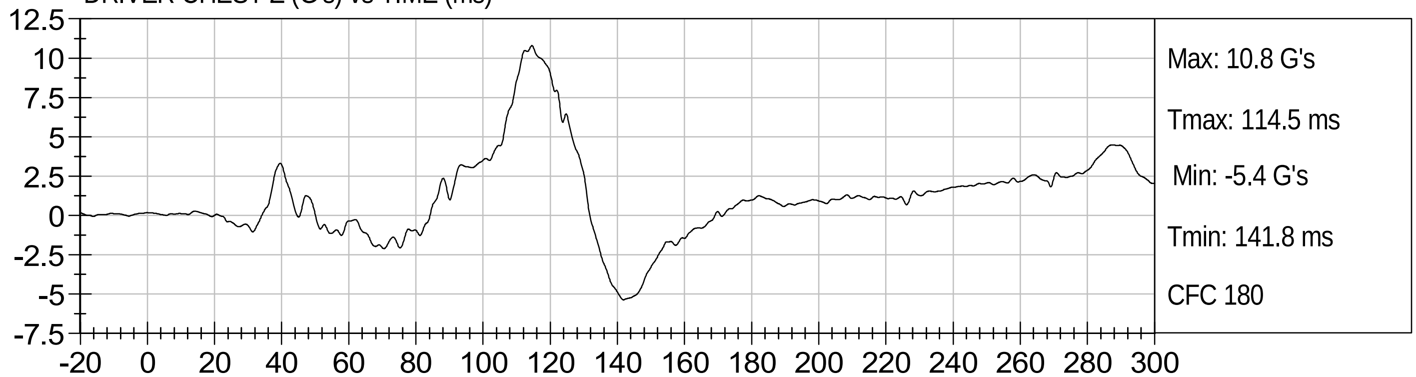
DRIVER CHEST X (G's) vs TIME (ms)



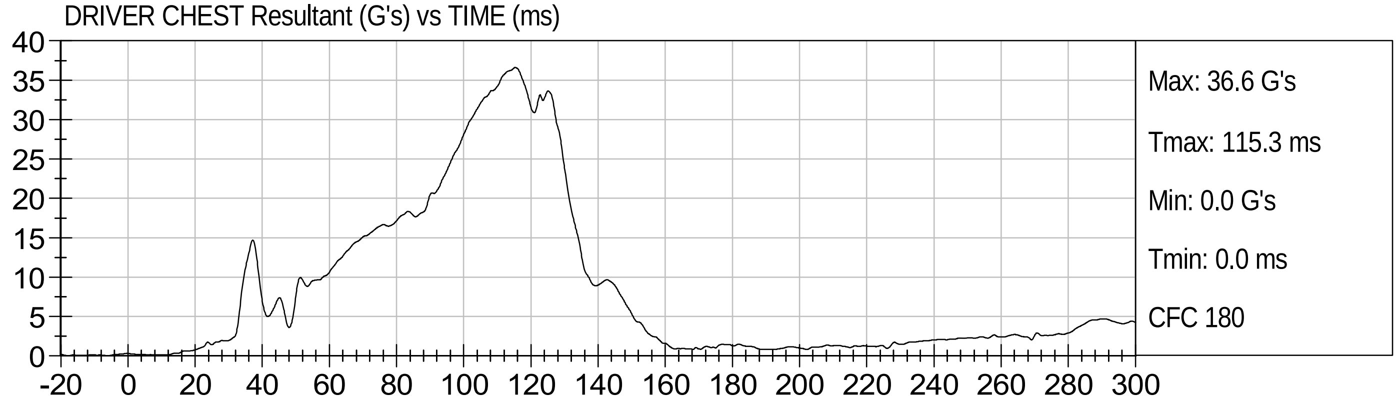
DRIVER CHEST Y (G's) vs TIME (ms)



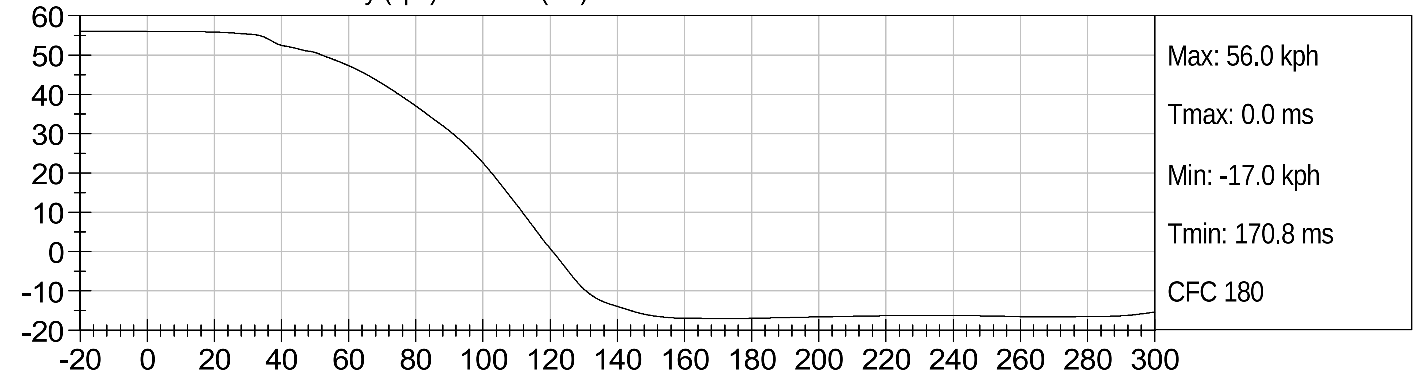
DRIVER CHEST Z (G's) vs TIME (ms)



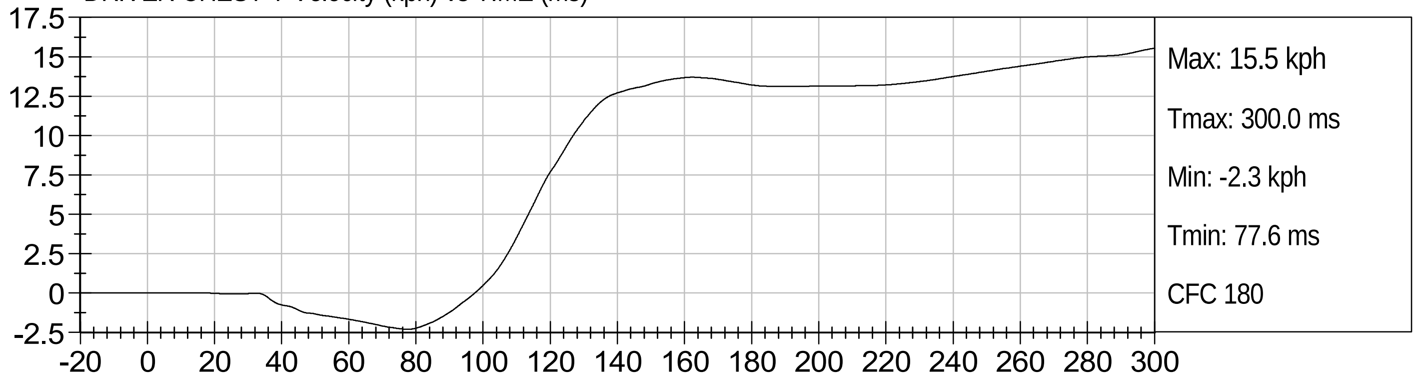
DRIVER CHEST Resultant (G's) vs TIME (ms)



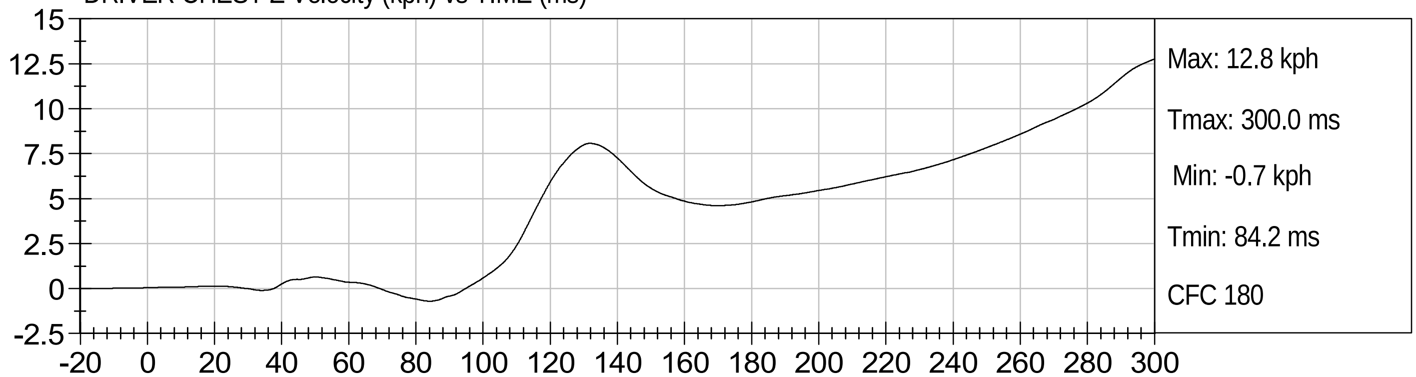
DRIVER CHEST X Velocity (kph) vs TIME (ms)



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



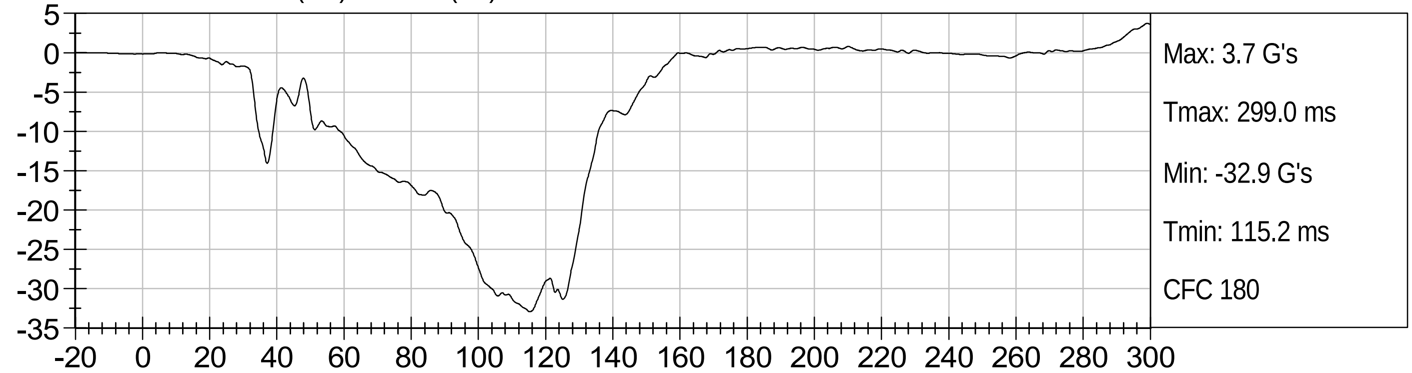
DRIVER CHEST Z Velocity (kph) vs TIME (ms)



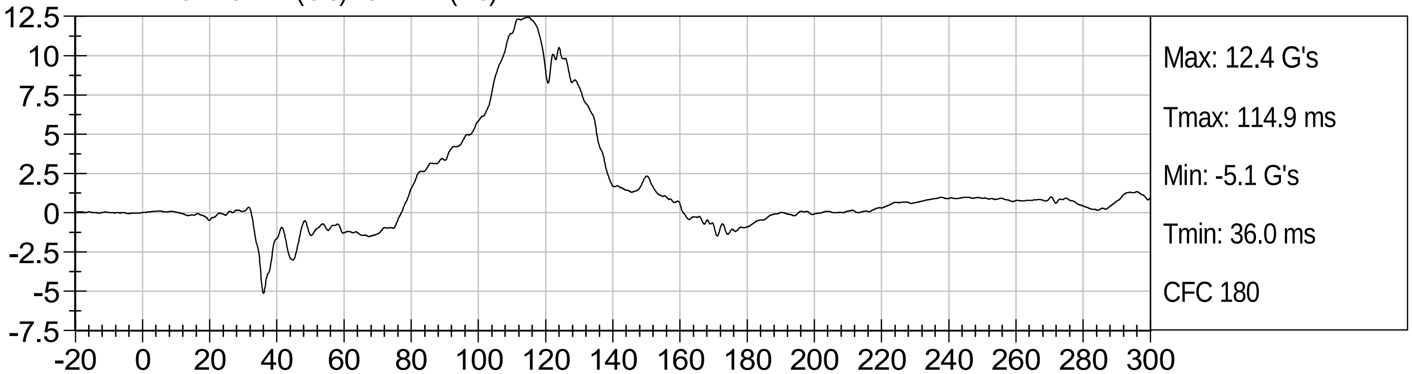
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

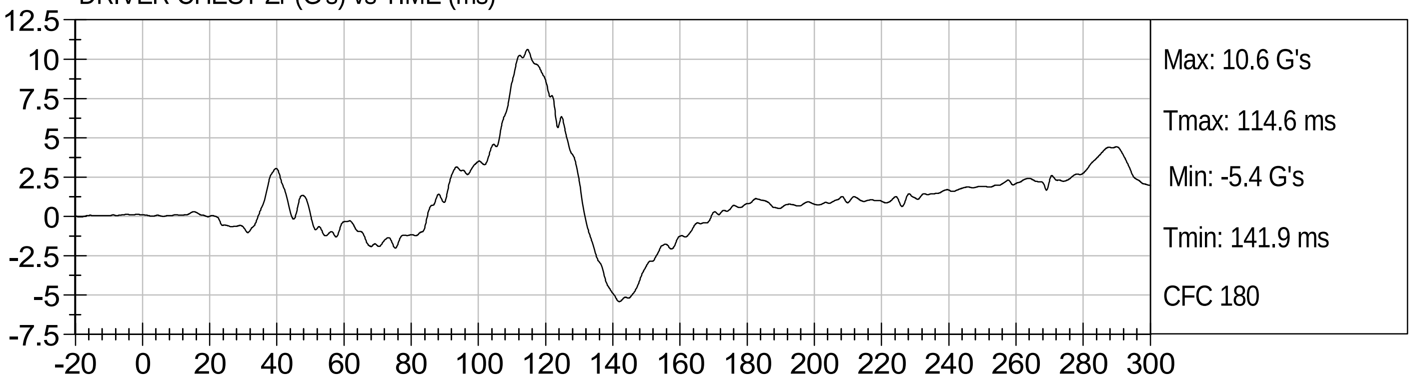
DRIVER CHEST Xr (G's) vs TIME (ms)



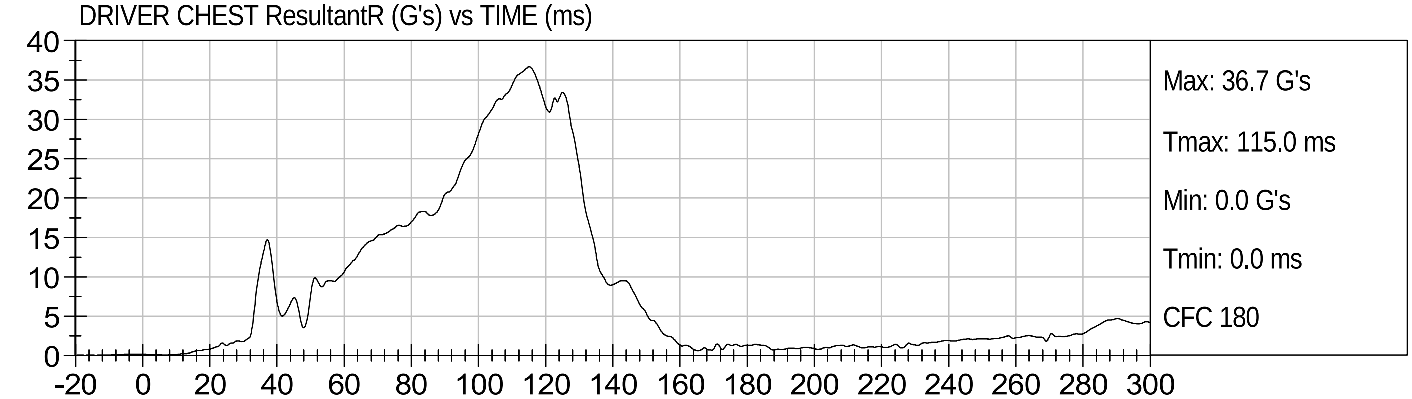
DRIVER CHEST Yr (G's) vs TIME (ms)



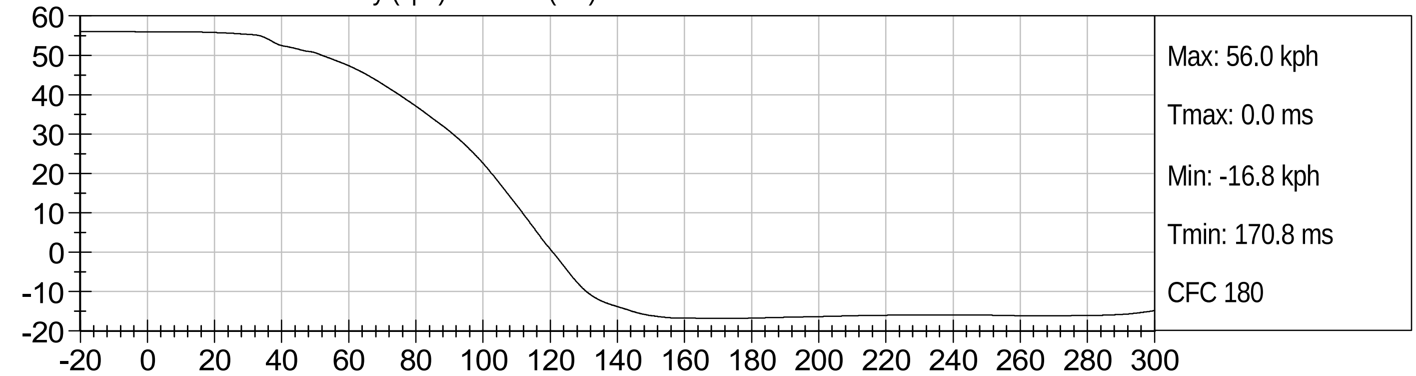
DRIVER CHEST Zr (G's) vs TIME (ms)



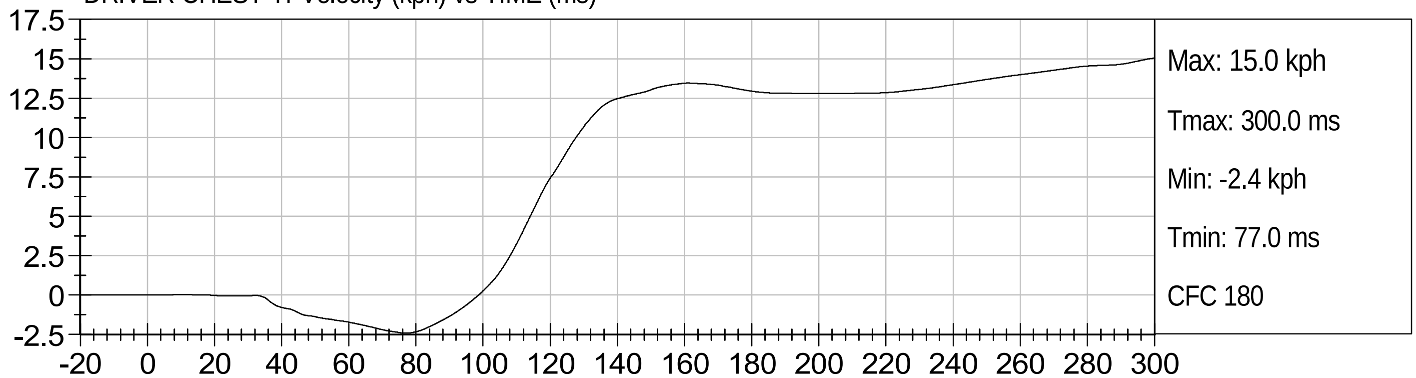
DRIVER CHEST ResultantR (G's) vs TIME (ms)



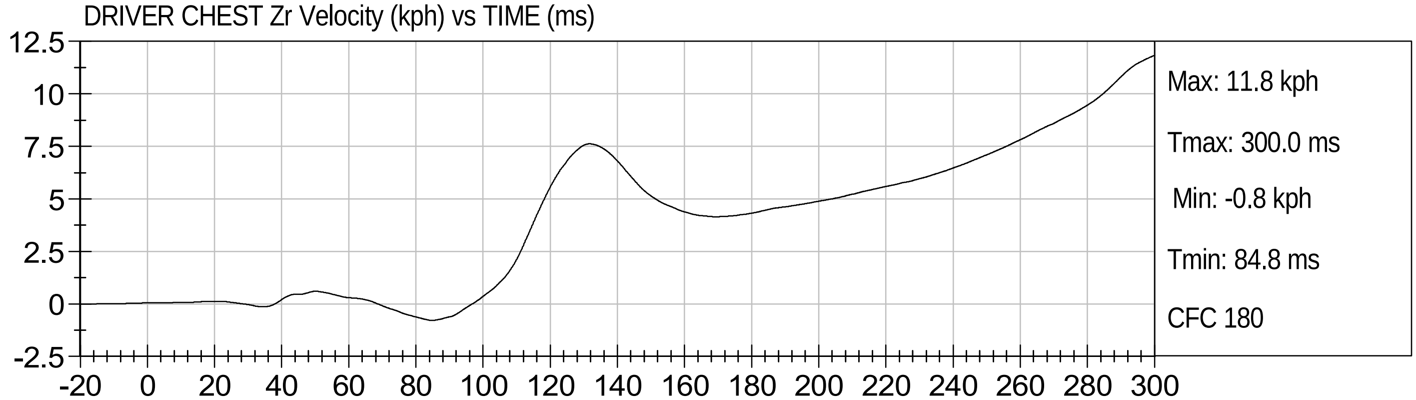
DRIVER CHEST Xr Velocity (kph) vs TIME (ms)



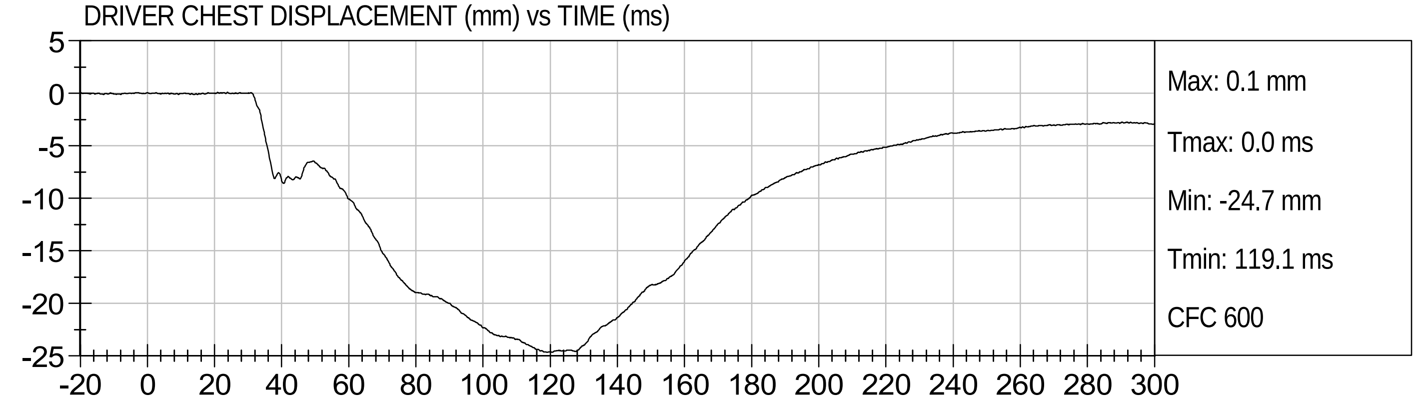
DRIVER CHEST Yr Velocity (kph) vs TIME (ms)



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



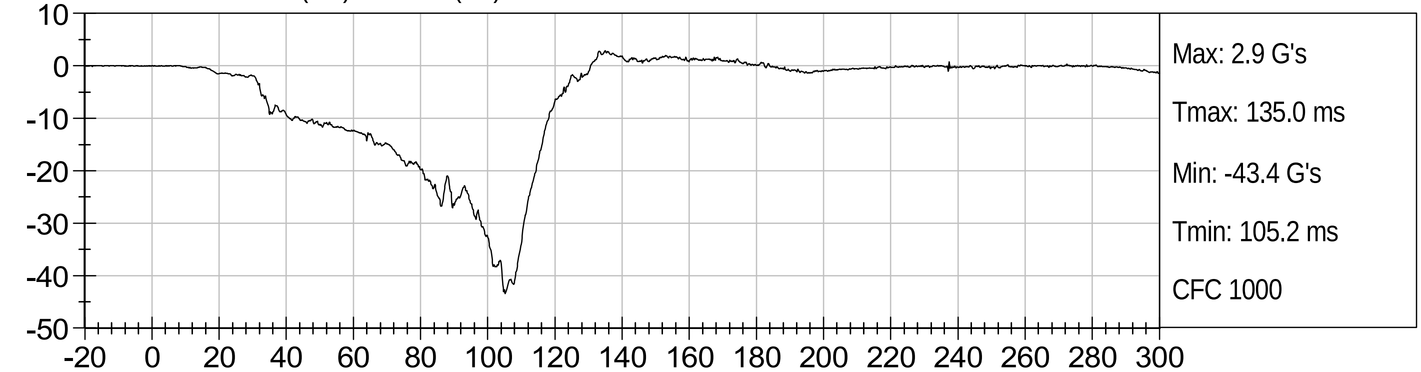
DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)



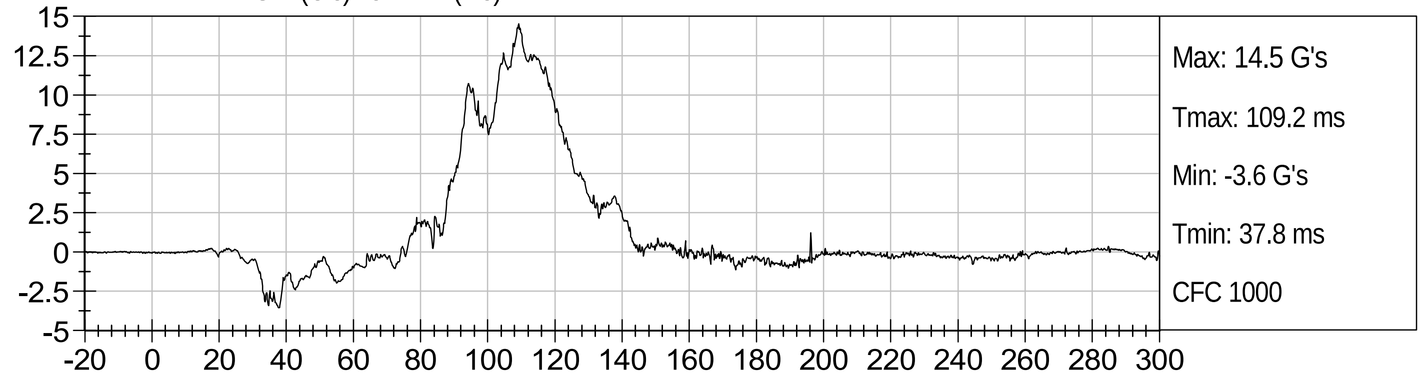
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

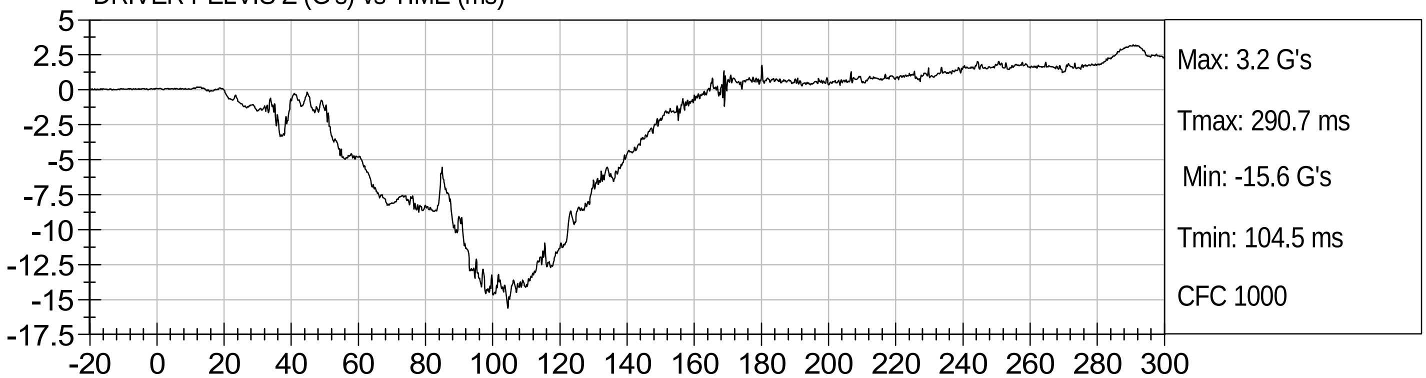
DRIVER PELVIS X (G's) vs TIME (ms)



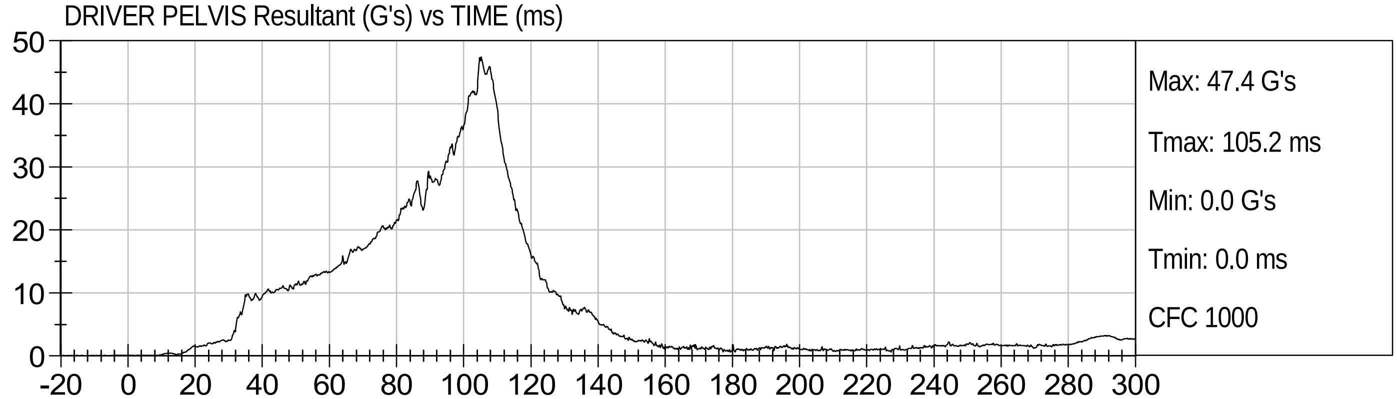
DRIVER PELVIS Y (G's) vs TIME (ms)

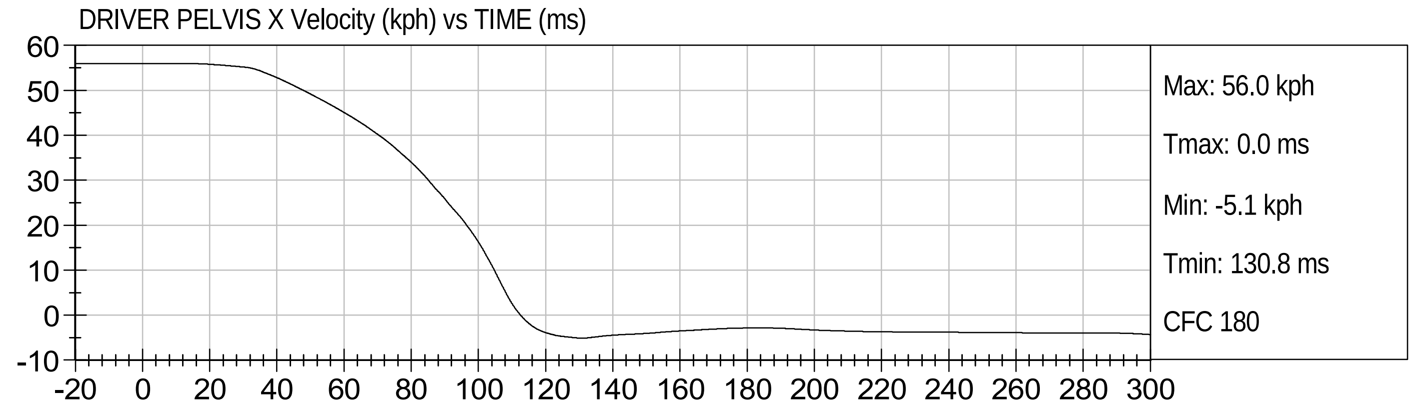


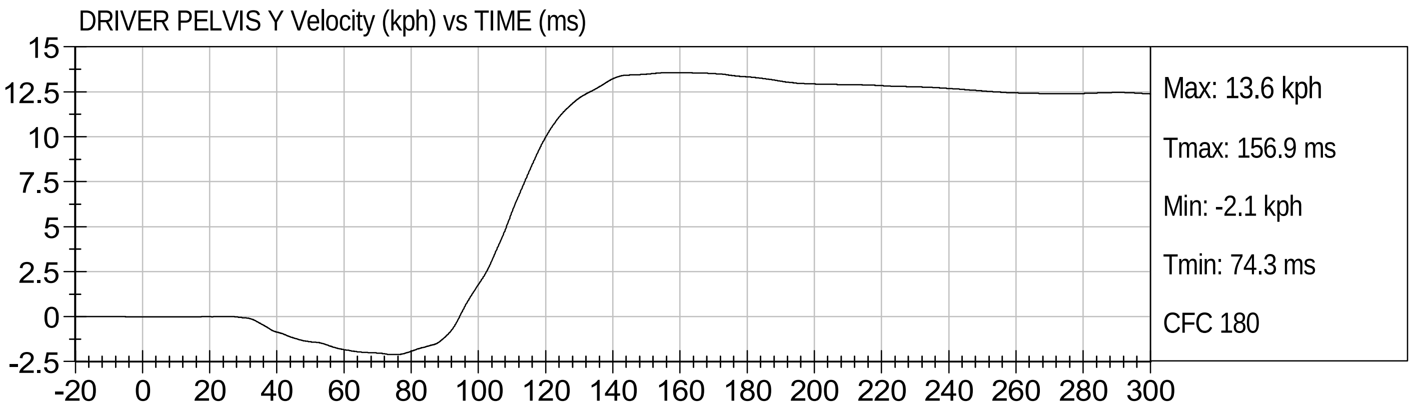
DRIVER PELVIS Z (G's) vs TIME (ms)

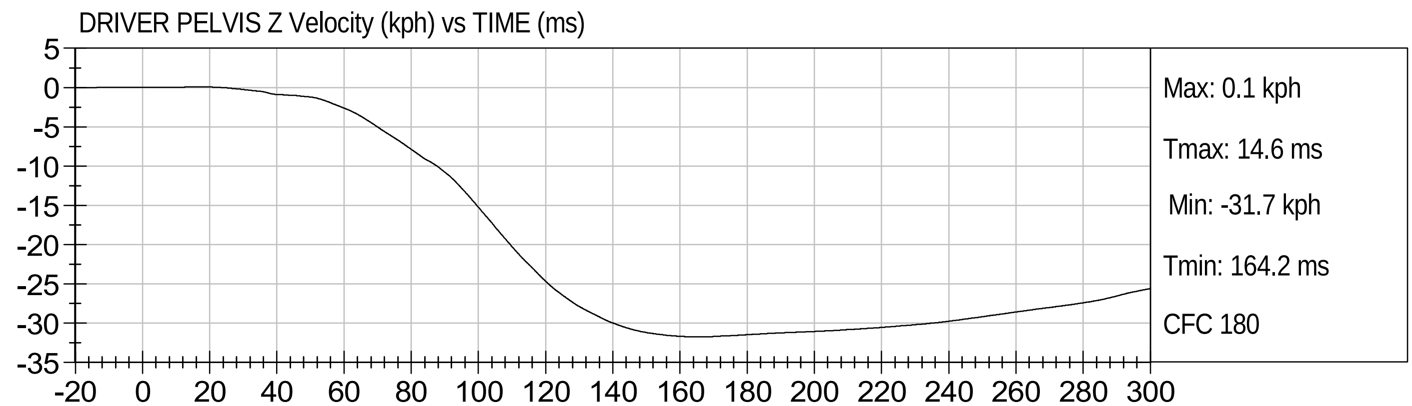


DRIVER PELVIS Resultant (G's) vs TIME (ms)



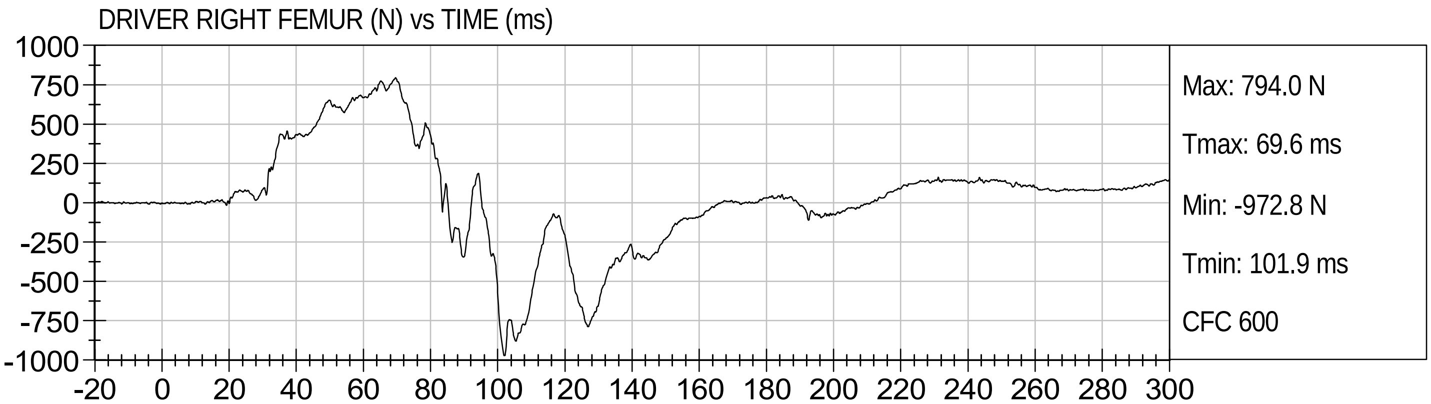

DRIVER PELVIS X Velocity (kph) vs TIME (ms)
60
50
40
30
20
10
0
-10
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 56.0 kph
Tmax: 0.0 ms
Min: -5.1 kph
Tmin: 130.8 ms
CFC 180

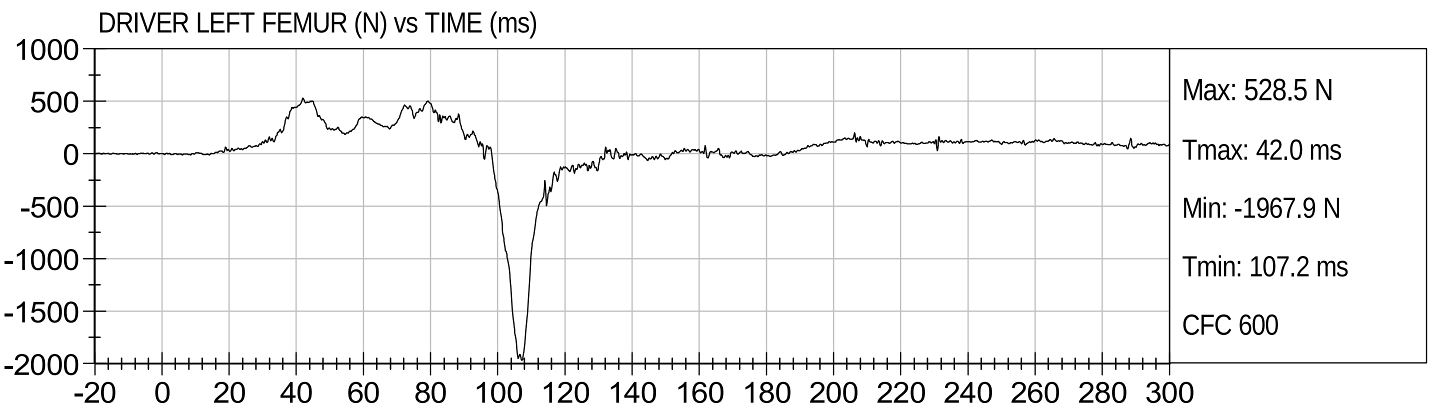

DRIVER PELVIS Y Velocity (kph) vs TIME (ms)
15
12.5
10
7.5
5
2.5
0
-2.5
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 13.6 kph
Tmax: 156.9 ms
Min: -2.1 kph
Tmin: 74.3 ms
CFC 180

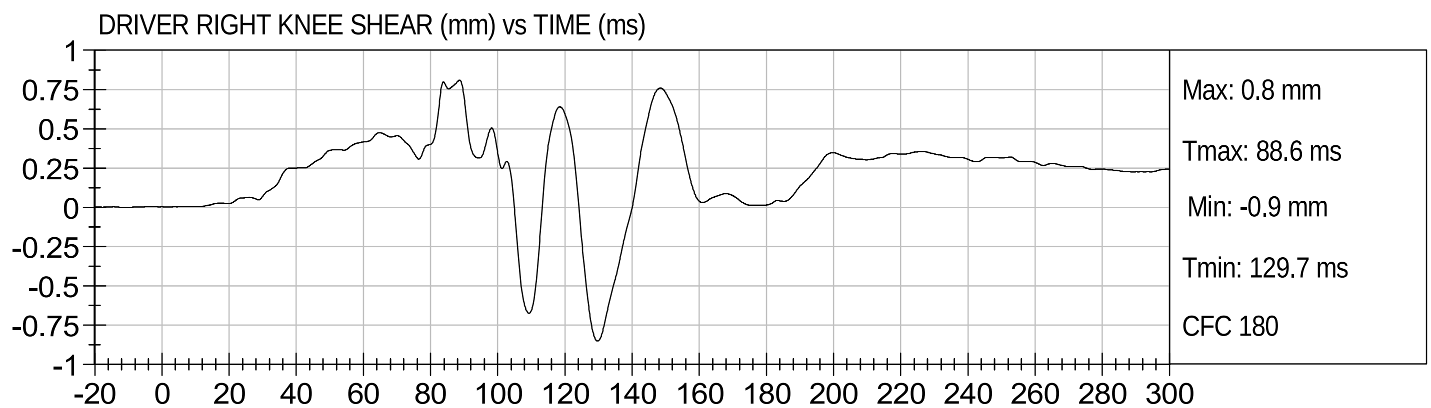

DRIVER PELVIS Z Velocity (kph) vs TIME (ms)
5
0
-5
-10
-15
-20
-25
-30
-35
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.1 kph
Tmax: 14.6 ms
Min: -31.7 kph
Tmin: 164.2 ms
CFC 180

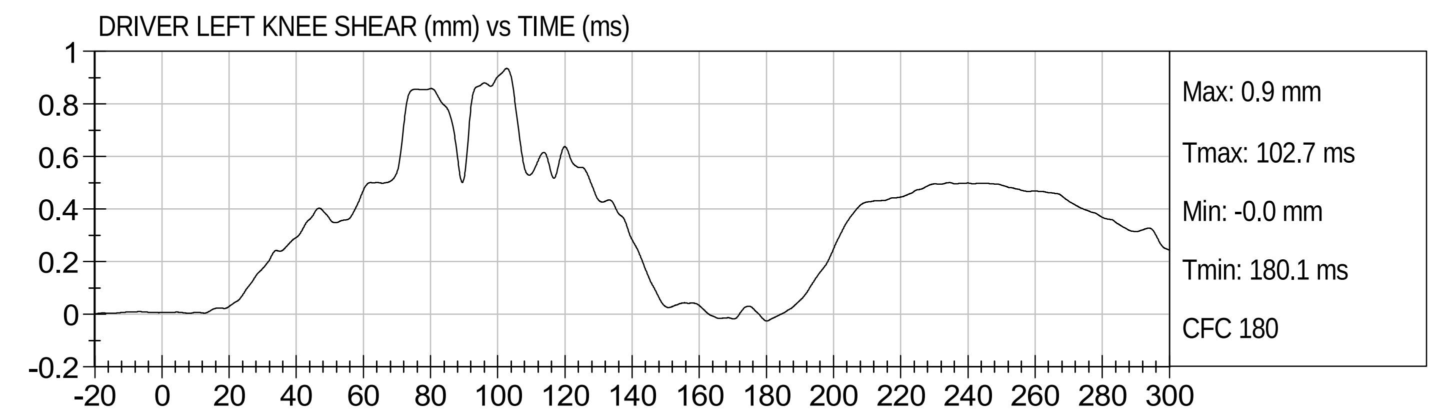
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)



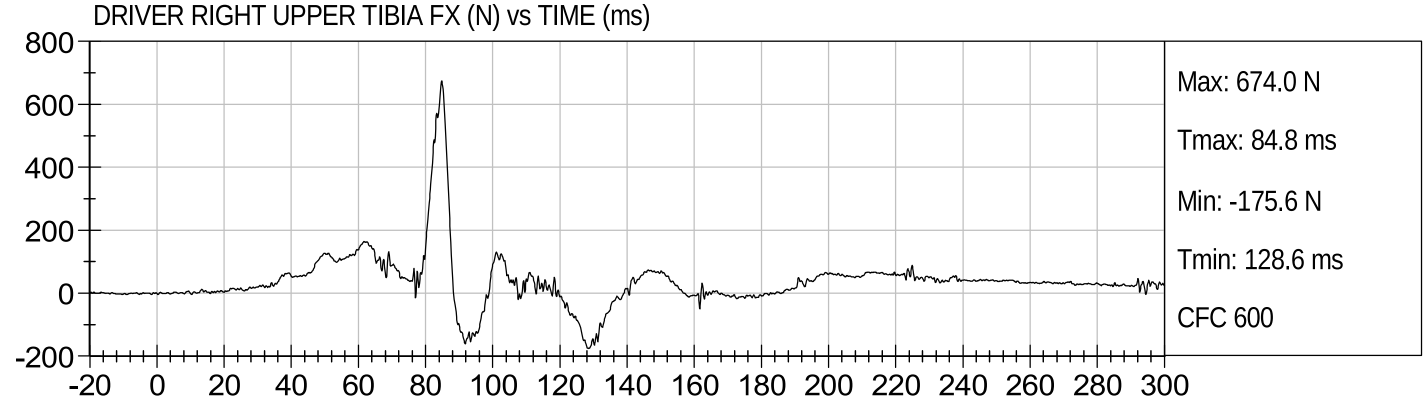


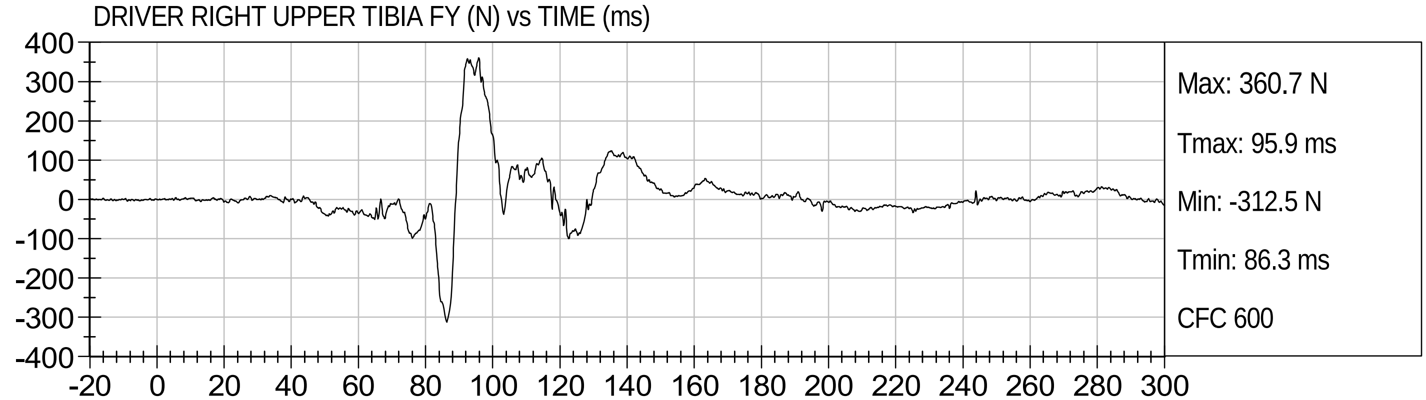


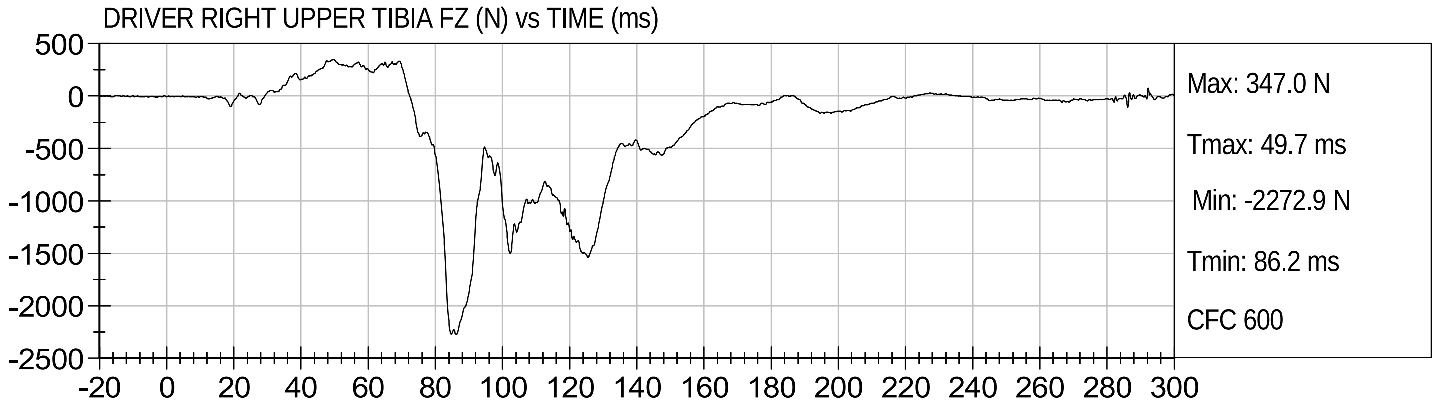


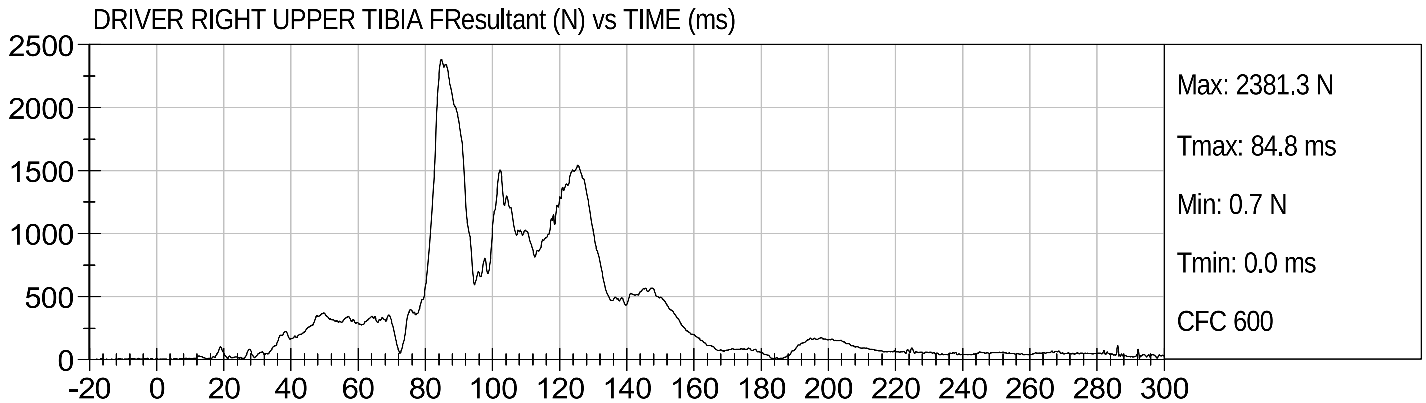
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

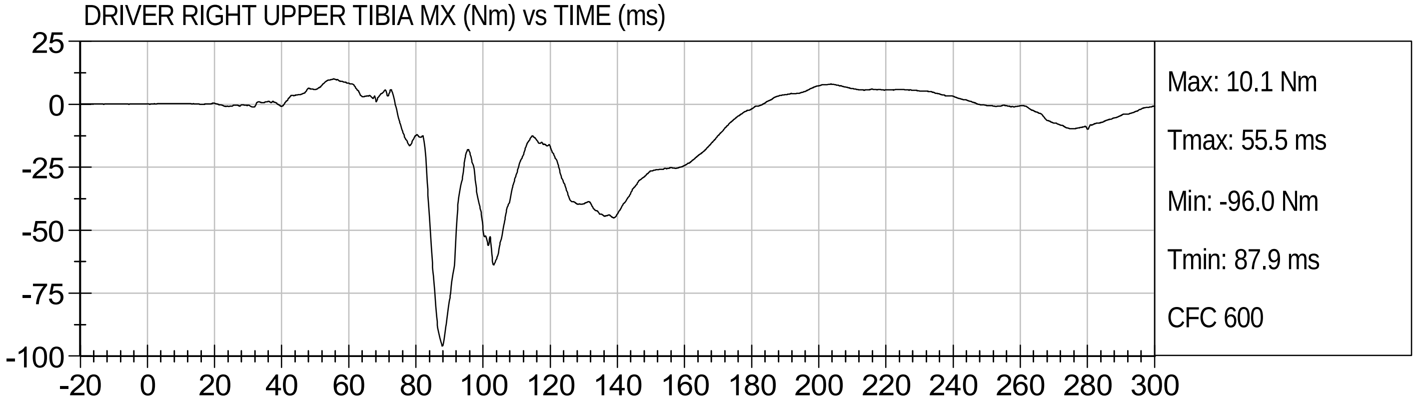
Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

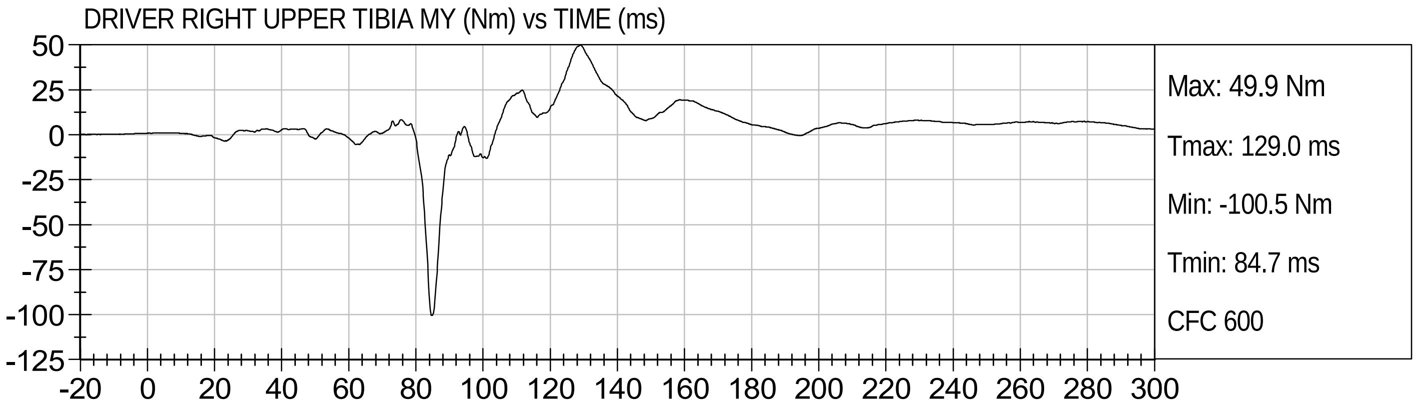




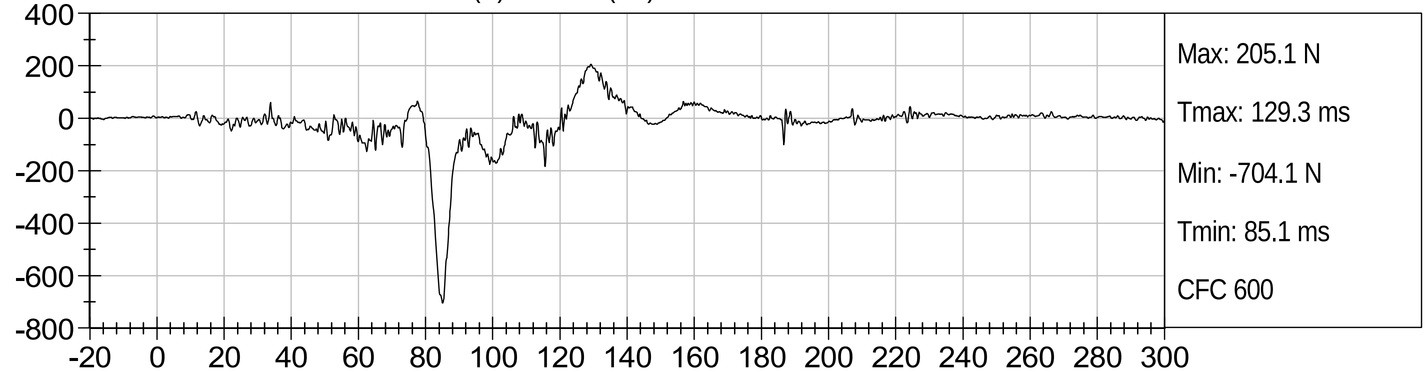




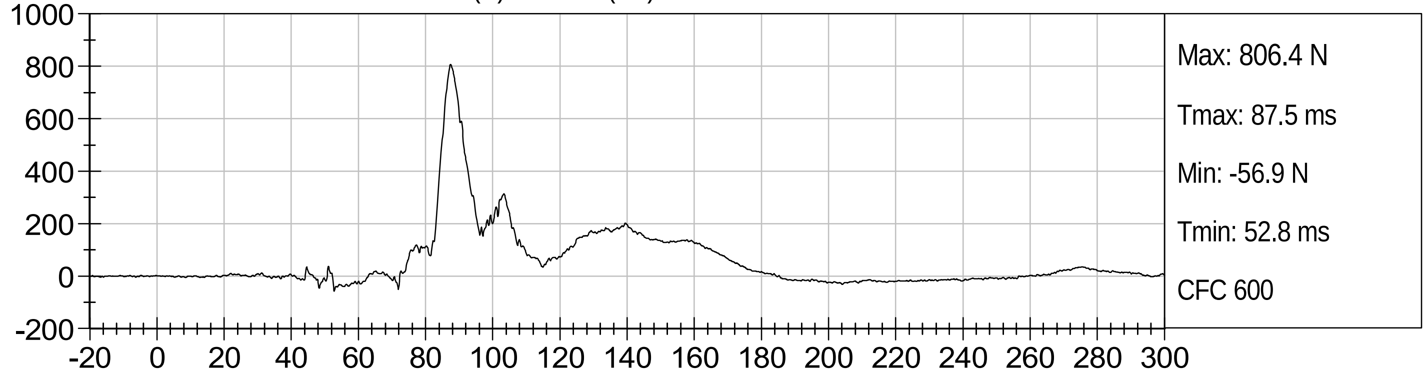

DRIVER RIGHT UPPER TIBIA MX (Nm) vs TIME (ms)
25
0
-25
-50
-75
-100
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 10.1 Nm
Tmax: 55.5 ms
Min: -96.0 Nm
Tmin: 87.9 ms
CFC 600


DRIVER RIGHT UPPER TIBIA MY (Nm) vs TIME (ms)
50
25
0
-25
-50
-75
-100
-125
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 49.9 Nm
Tmax: 129.0 ms
Min: -100.5 Nm
Tmin: 84.7 ms
CFC 600

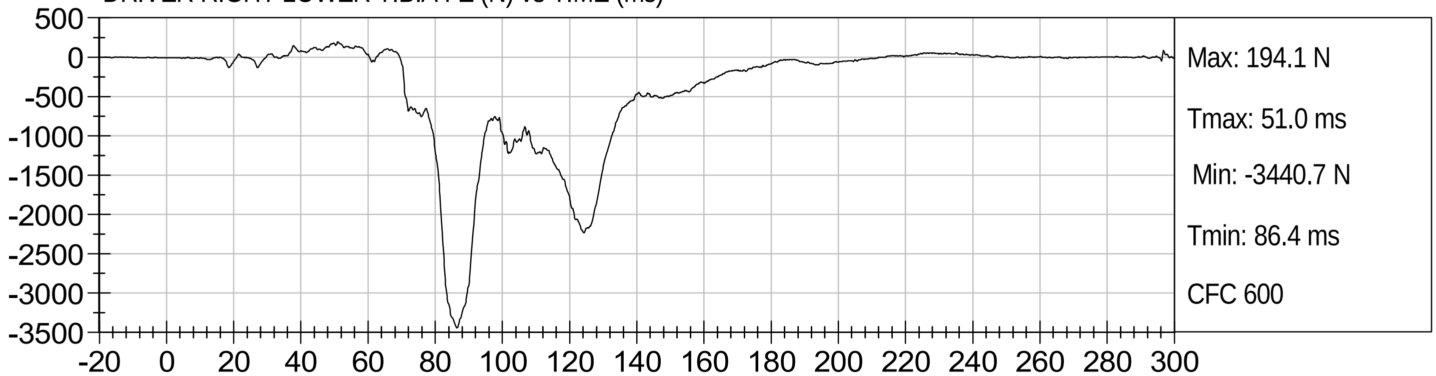
DRIVER RIGHT LOWER TIBIA FX (N) vs TIME (ms)



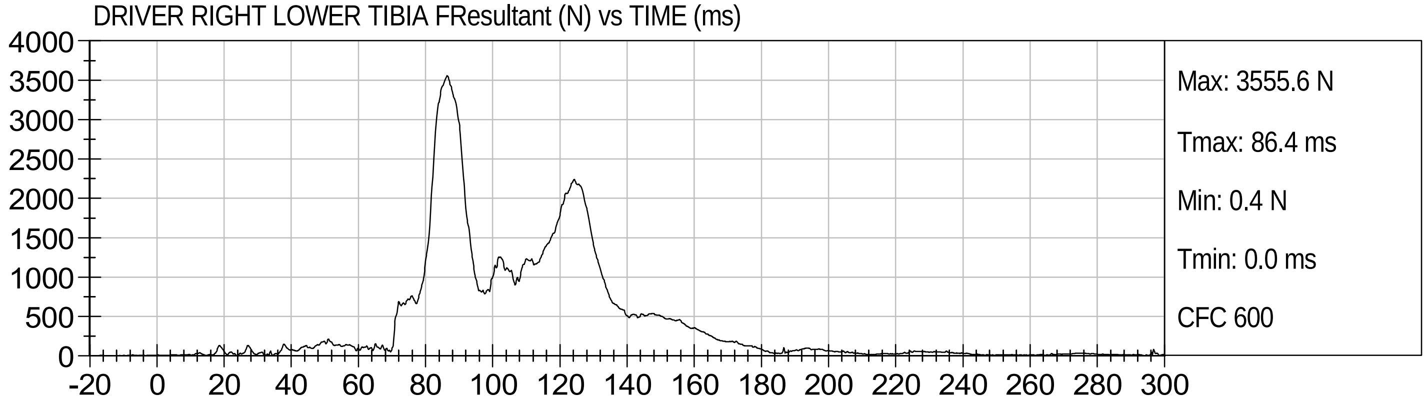
DRIVER RIGHT LOWER TIBIA FY (N) vs TIME (ms)

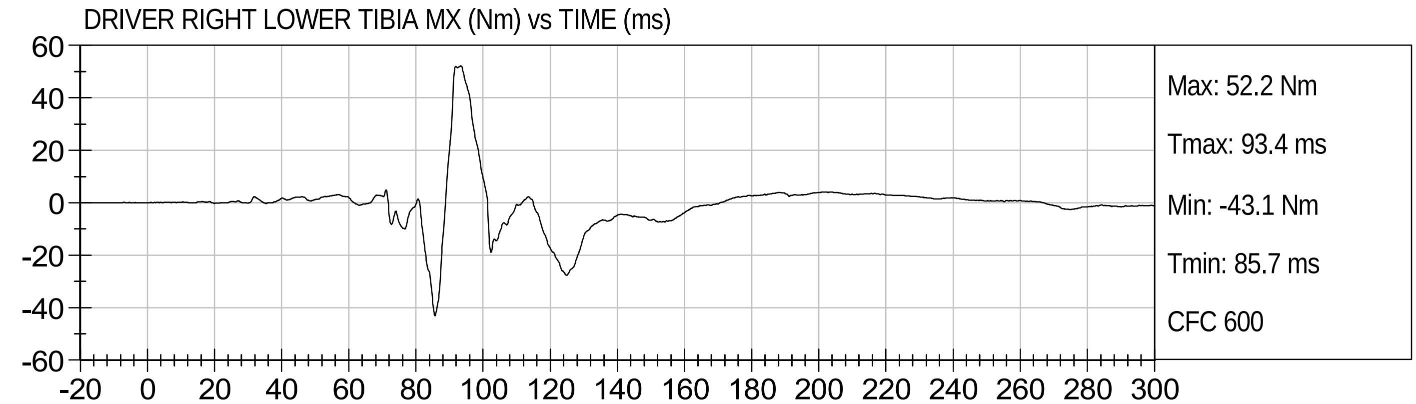


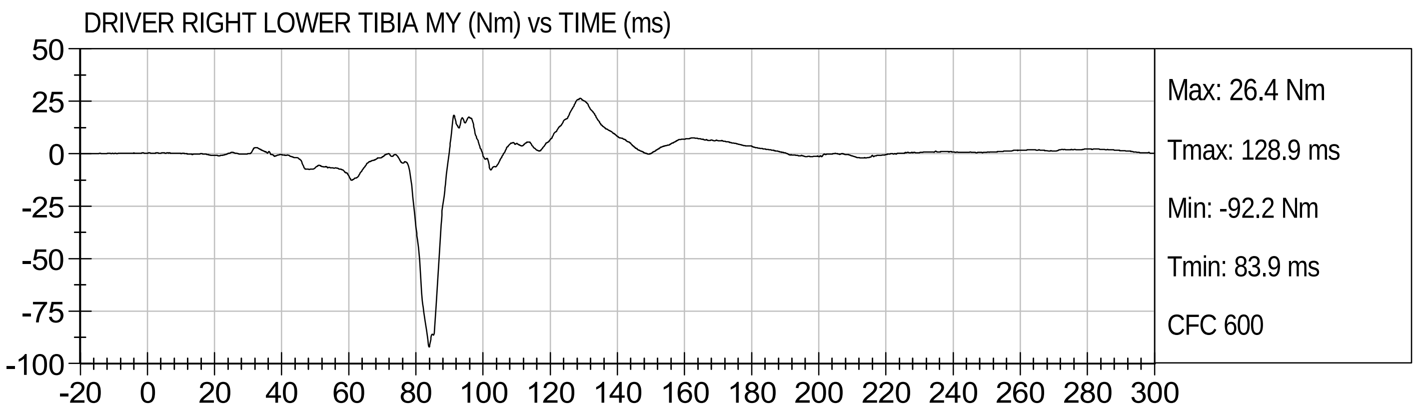
DRIVER RIGHT LOWER TIBIA FZ (N) vs TIME (ms)



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

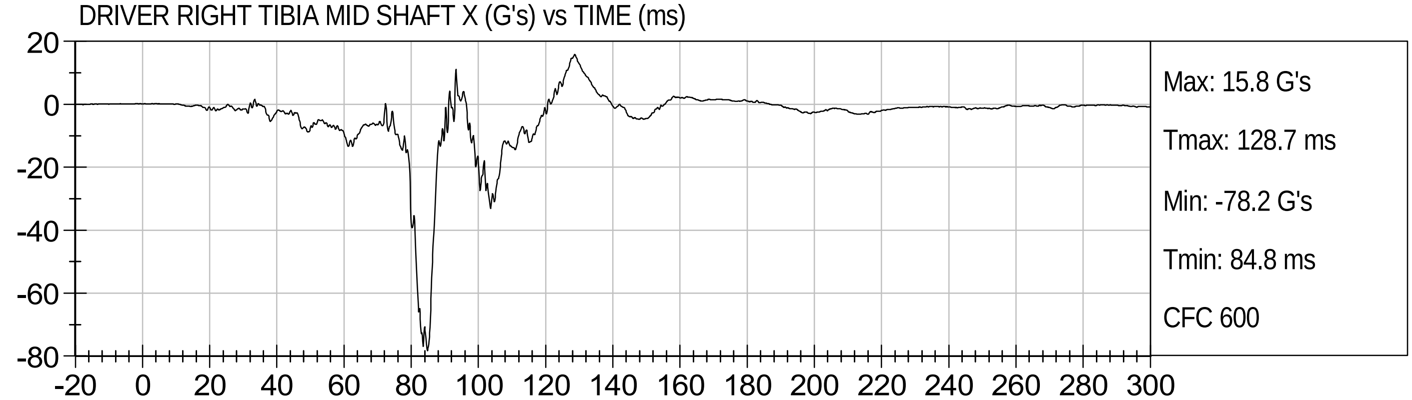


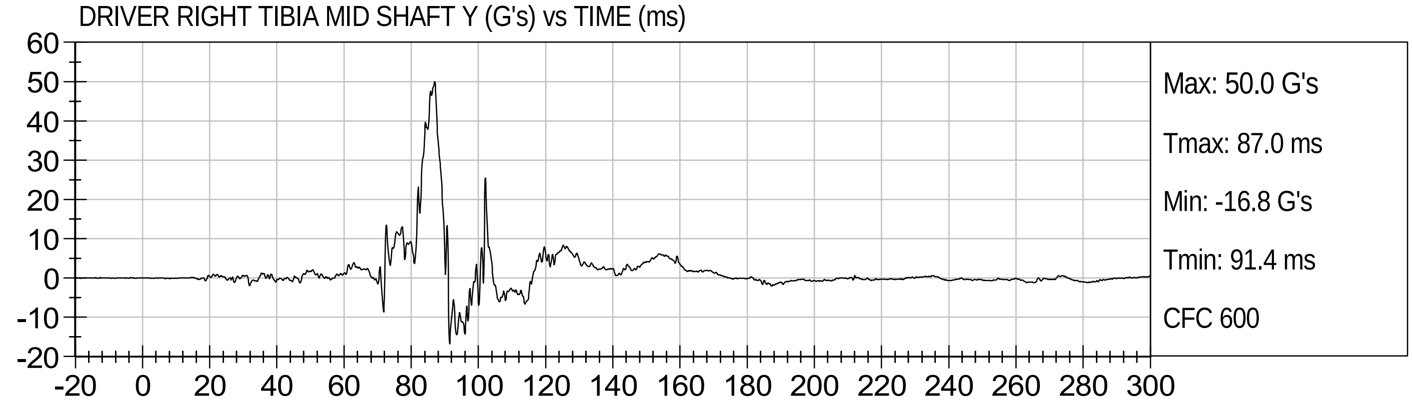

DRIVER RIGHT LOWER TIBIA MX (Nm) vs TIME (ms)
Max: 52.2 Nm
Tmax: 93.4 ms
Min: -43.1 Nm
Tmin: 85.7 ms
CFC 600

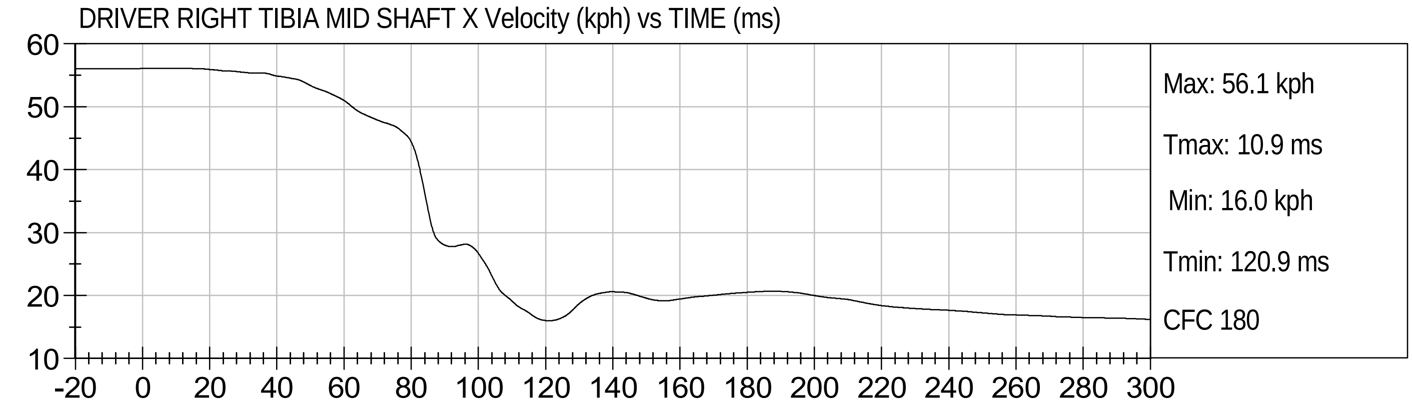

DRIVER RIGHT LOWER TIBIA MY (Nm) vs TIME (ms)
Max: 26.4 Nm
Tmax: 128.9 ms
Min: -92.2 Nm
Tmin: 83.9 ms
CFC 600

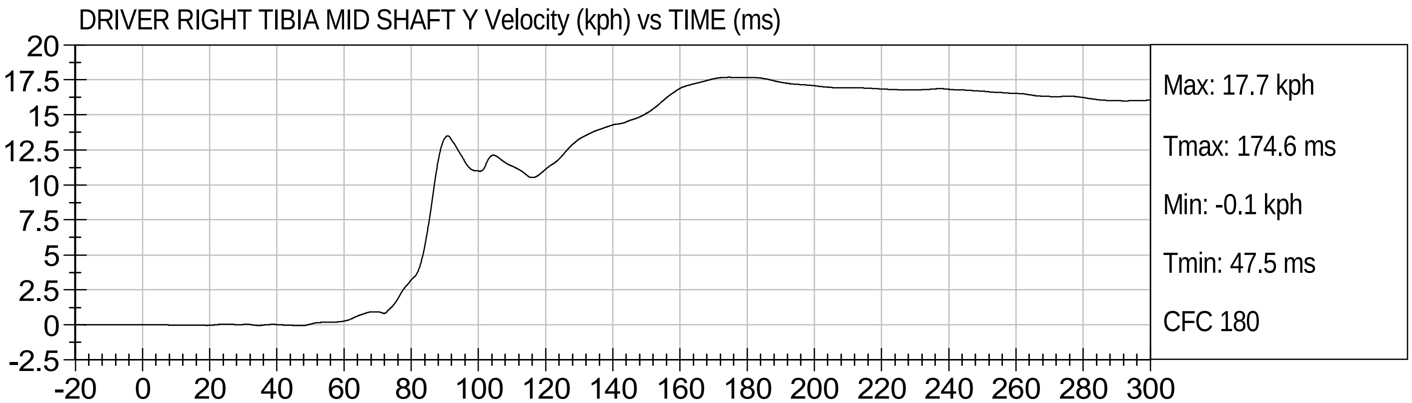
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

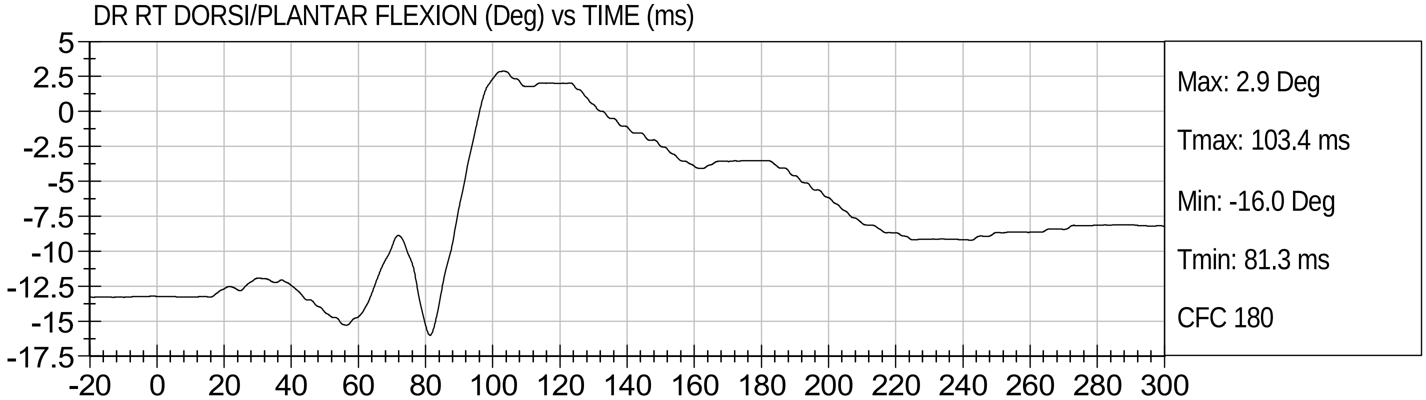
Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

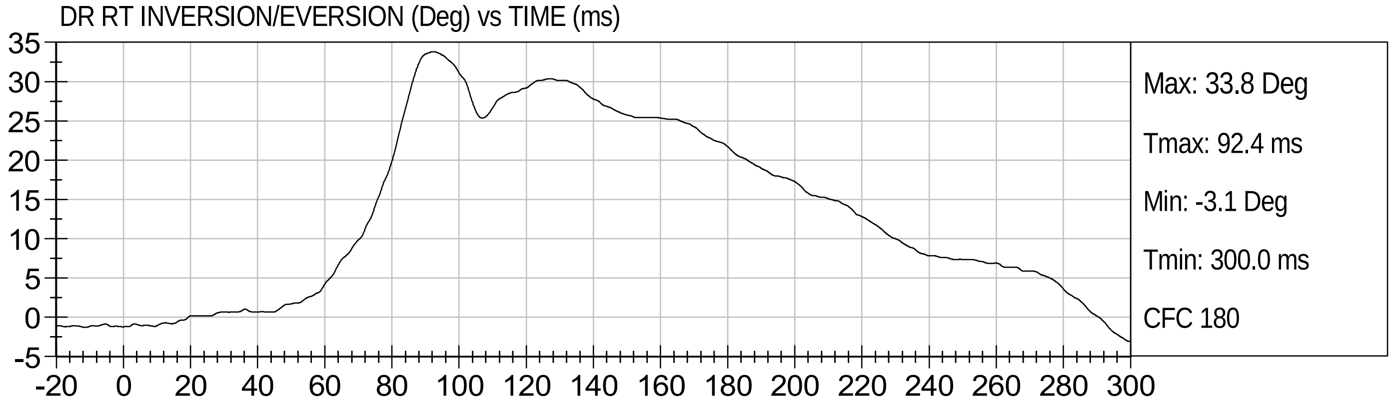


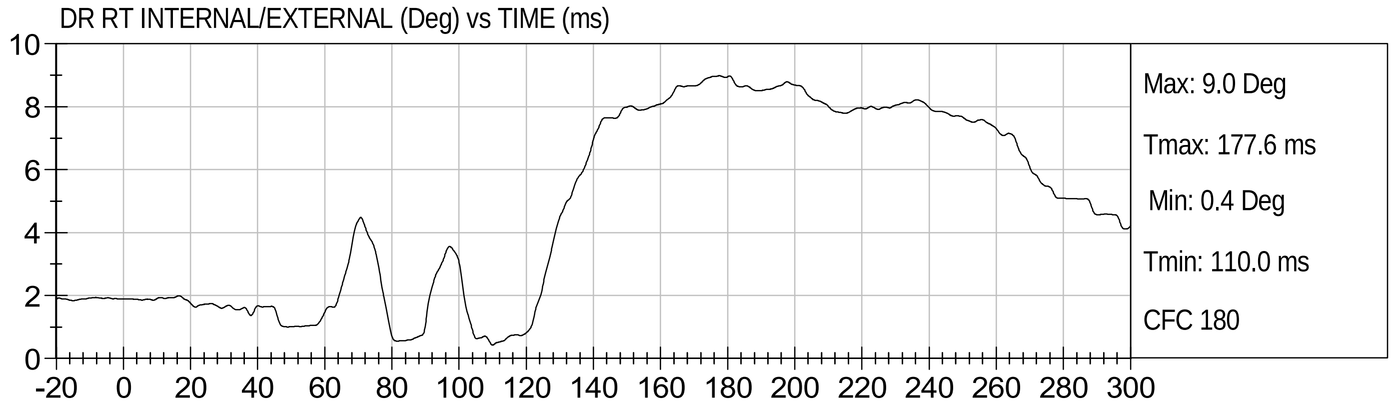




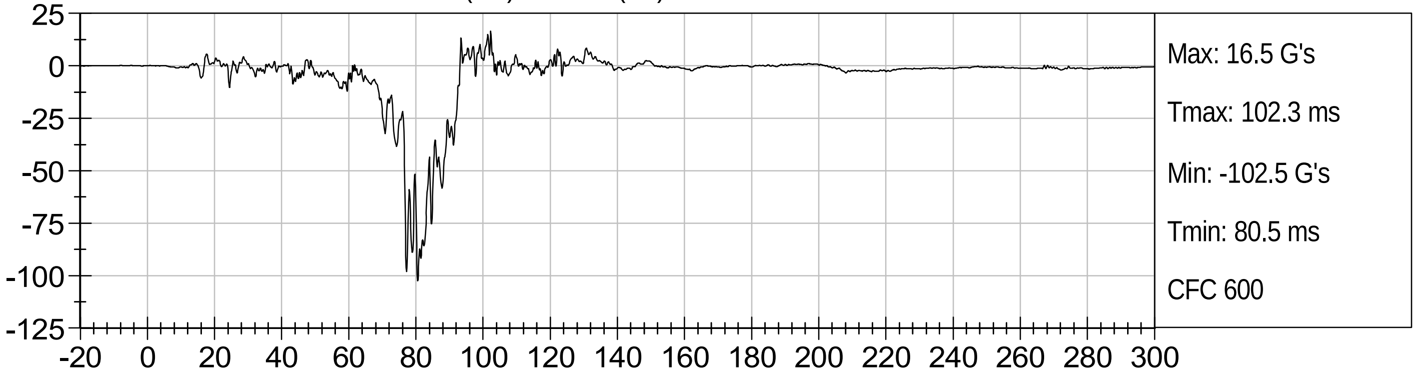



DR RT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)
Max: 2.9 Deg
Tmax: 103.4 ms
Min: -16.0 Deg
Tmin: 81.3 ms
CFC 180

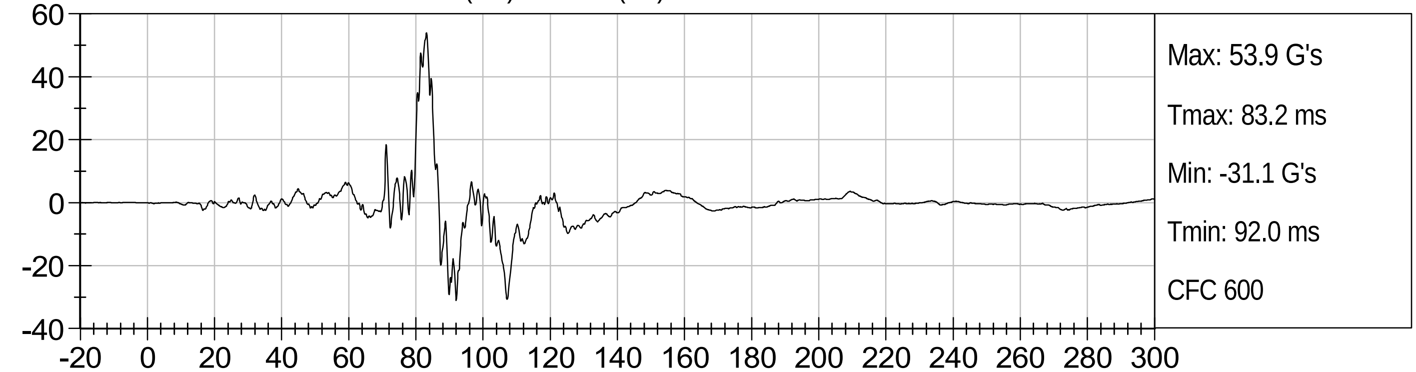

DR RT INVERSION/EVERSION (Deg) vs TIME (ms)
Max: 33.8 Deg
Tmax: 92.4 ms
Min: -3.1 Deg
Tmin: 300.0 ms
CFC 180


DR RT INTERNAL/EXTERNAL (Deg) vs TIME (ms)
Max: 9.0 Deg
Tmax: 177.6 ms
Min: 0.4 Deg
Tmin: 110.0 ms
CFC 180

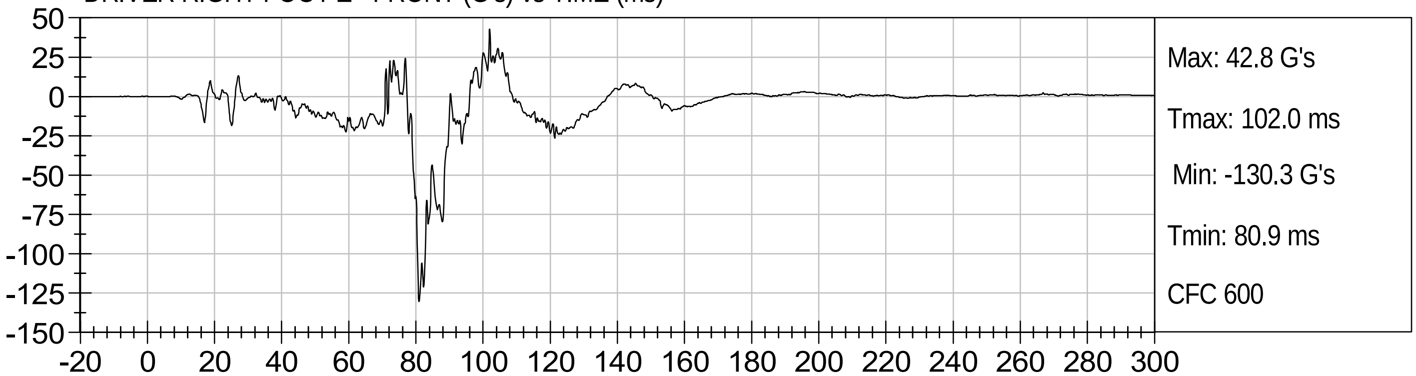
DRIVER RIGHT FOOT X - FRONT (G's) vs TIME (ms)



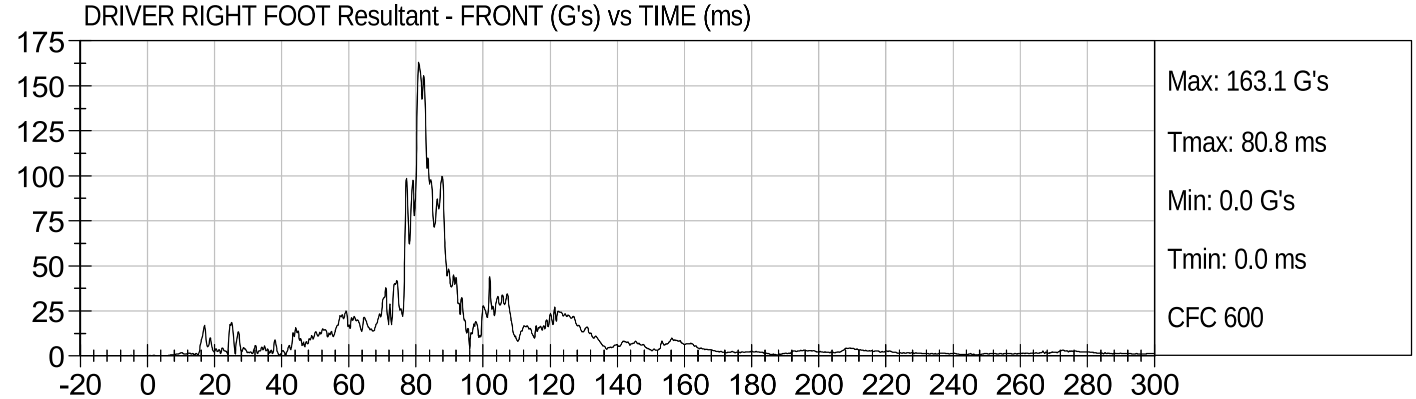
DRIVER RIGHT FOOT Y - FRONT (G's) vs TIME (ms)



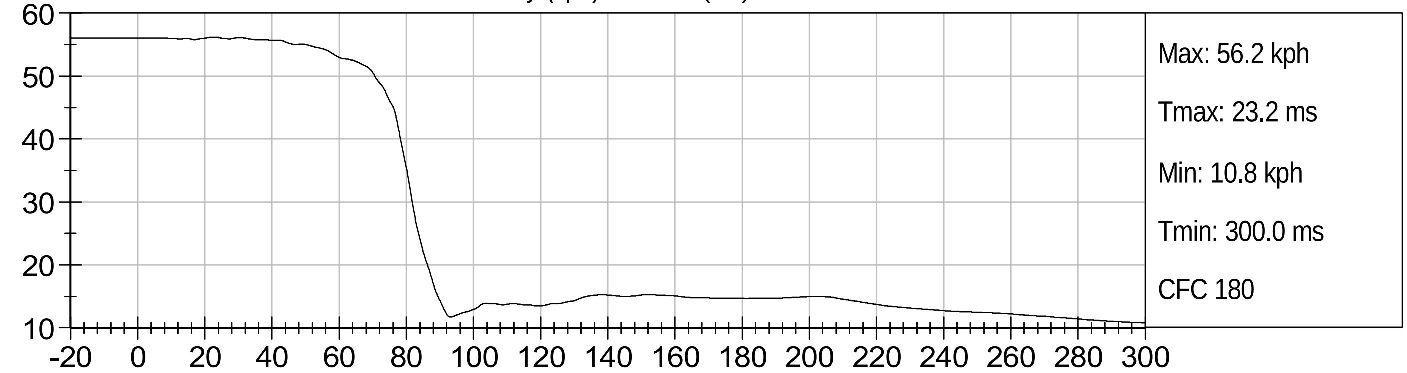
DRIVER RIGHT FOOT Z - FRONT (G's) vs TIME (ms)



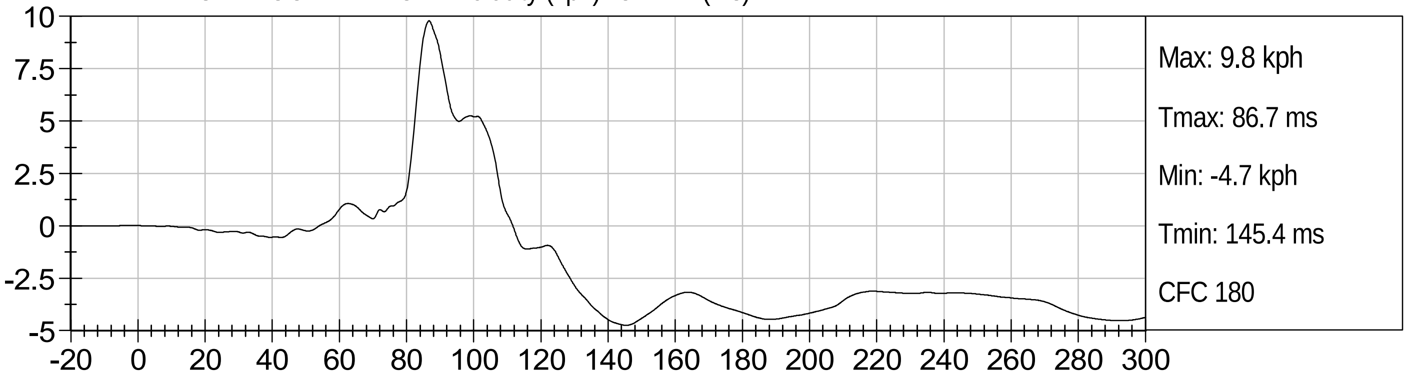
DRIVER RIGHT FOOT Resultant - FRONT (G's) vs TIME (ms)



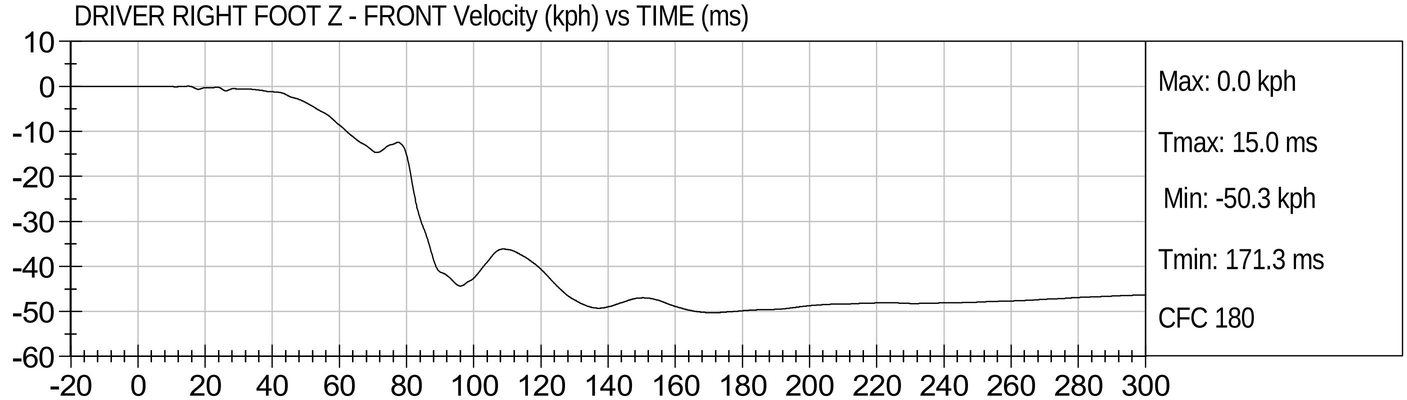
DRIVER RIGHT FOOT X - FRONT Velocity (kph) vs TIME (ms)



DRIVER RIGHT FOOT Y - FRONT Velocity (kph) vs TIME (ms)



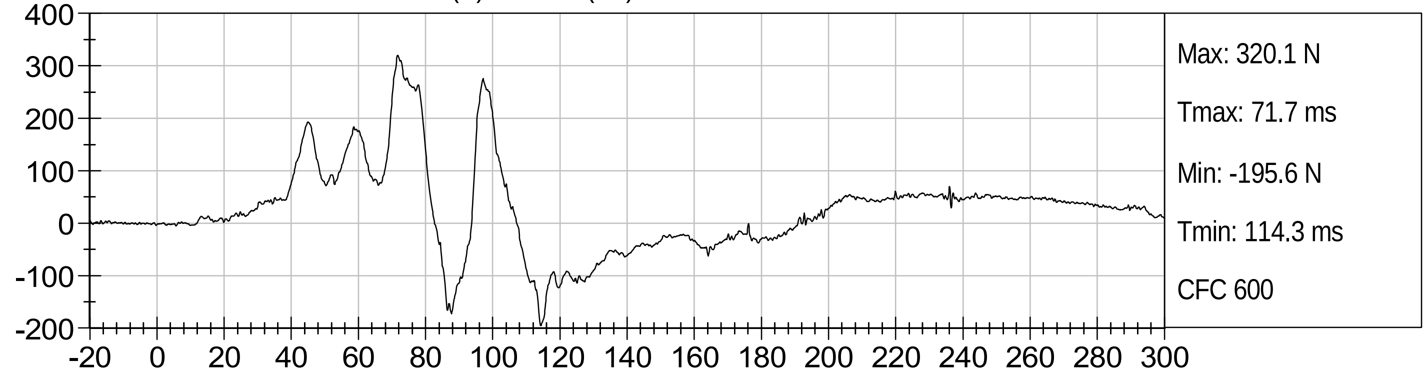
DRIVER RIGHT FOOT Z - FRONT Velocity (kph) vs TIME (ms)



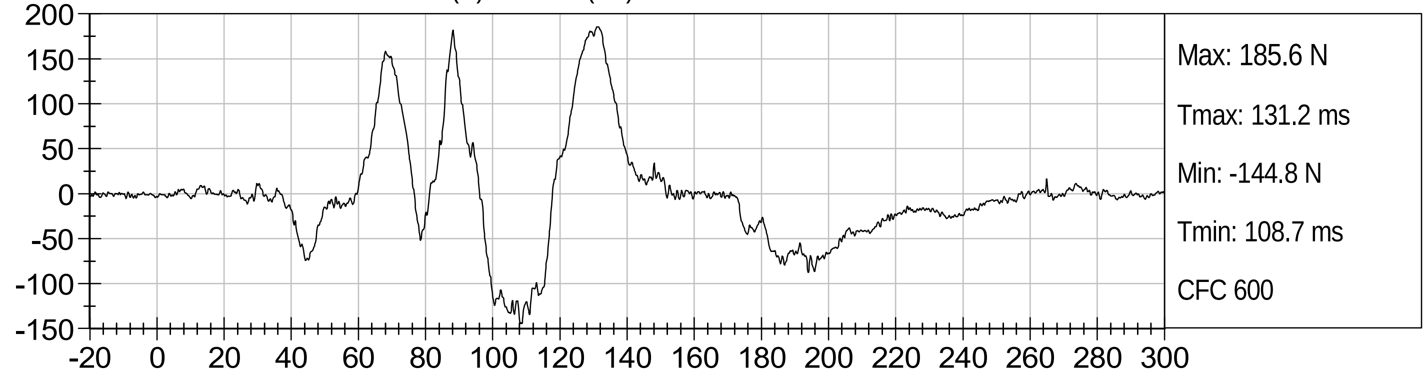
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

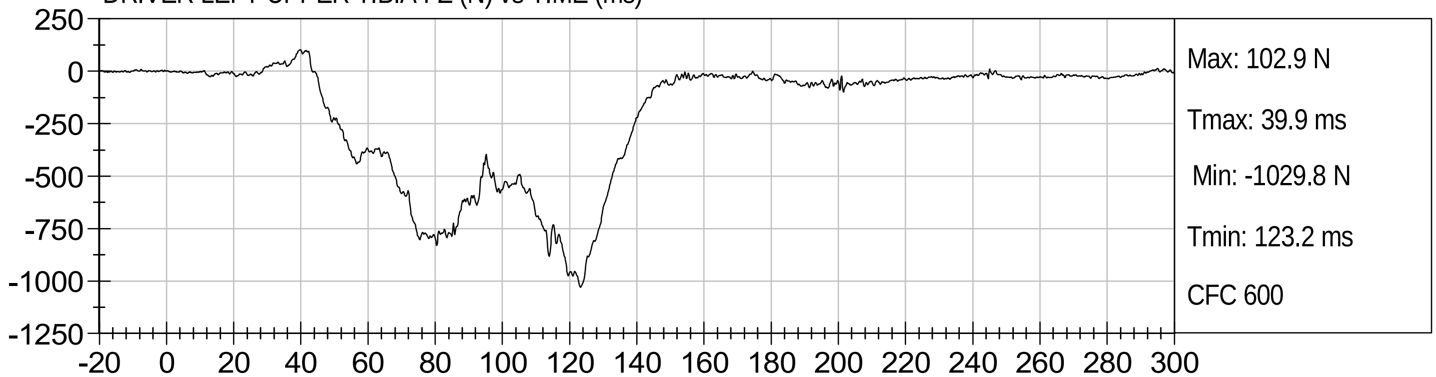
DRIVER LEFT UPPER TIBIA FX (N) vs TIME (ms)



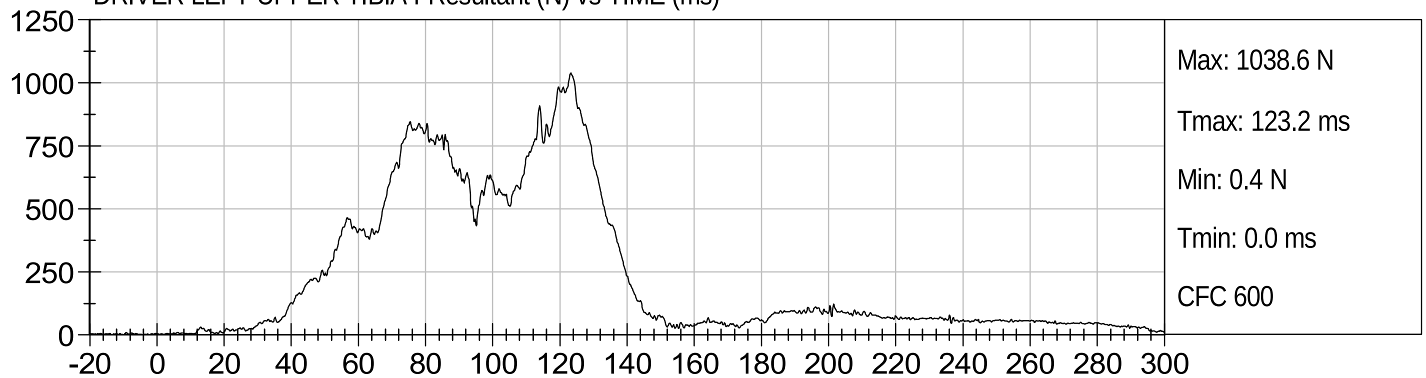
DRIVER LEFT UPPER TIBIA FY (N) vs TIME (ms)

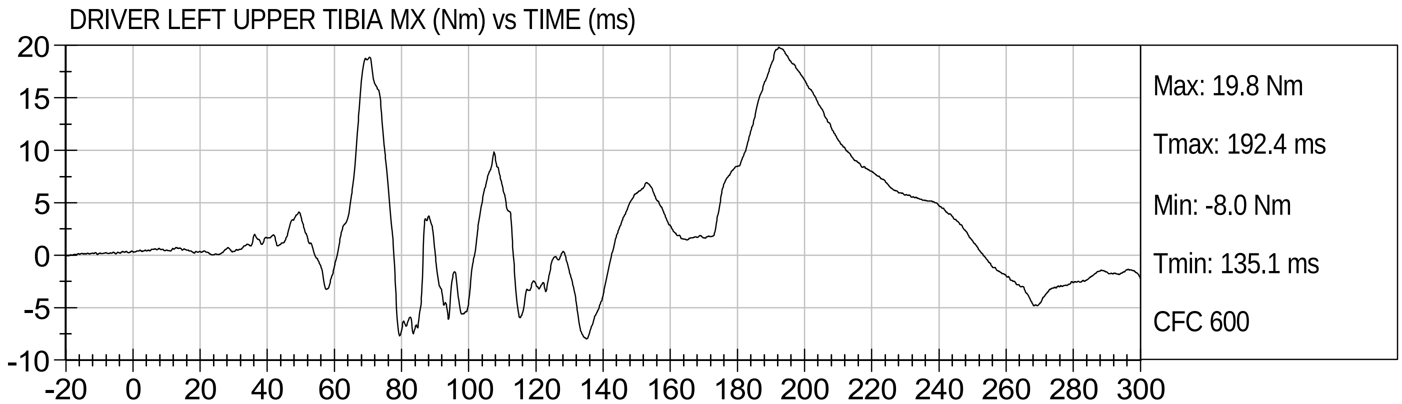


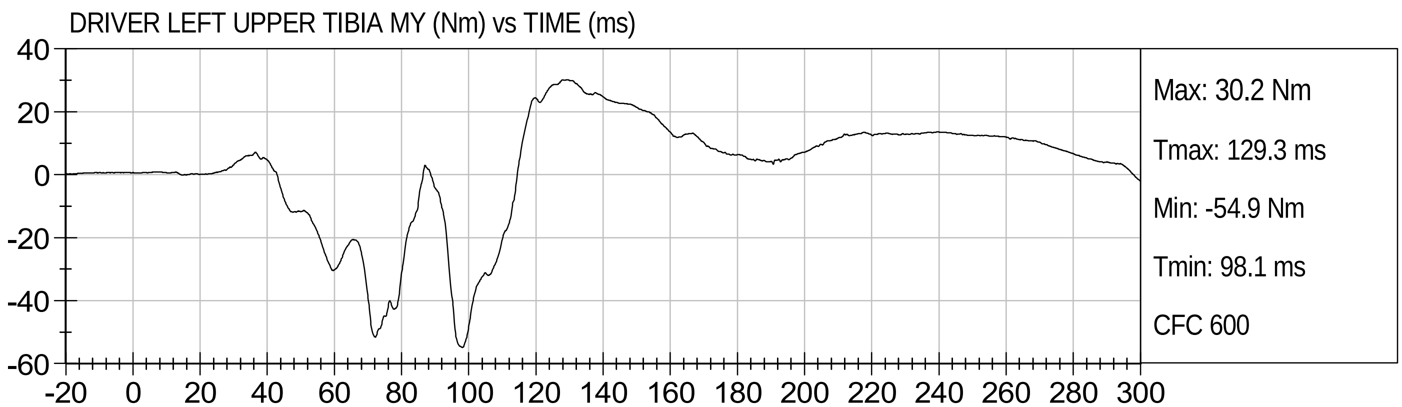
DRIVER LEFT UPPER TIBIA FZ (N) vs TIME (ms)



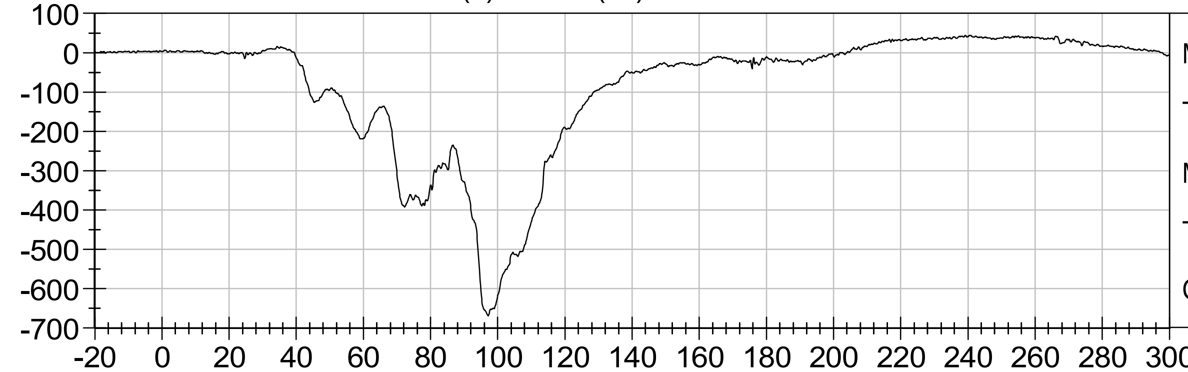
DRIVER LEFT UPPER TIBIA FResultant (N) vs TIME (ms)




DRIVER LEFT UPPER TIBIA MX (Nm) vs TIME (ms)
Max: 19.8 Nm
Tmax: 192.4 ms
Min: -8.0 Nm
Tmin: 135.1 ms
CFC 600

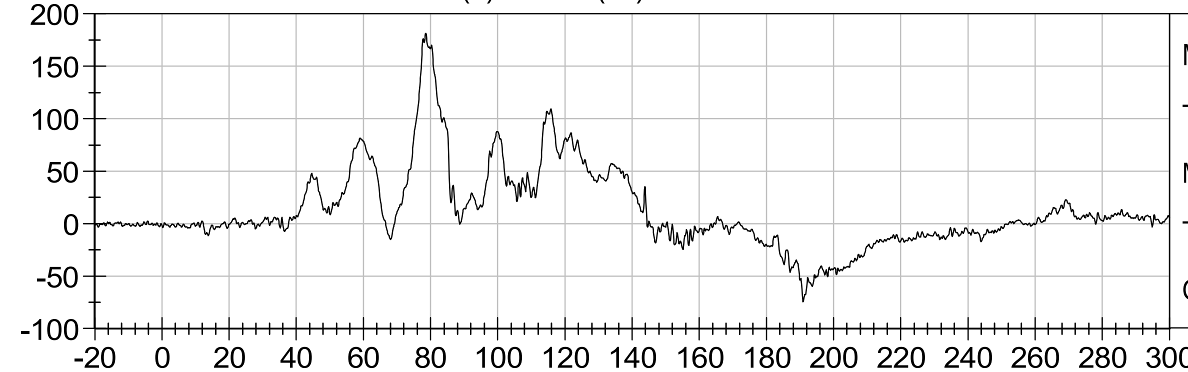

DRIVER LEFT UPPER TIBIA MY (Nm) vs TIME (ms)
Max: 30.2 Nm
Tmax: 129.3 ms
Min: -54.9 Nm
Tmin: 98.1 ms
CFC 600

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



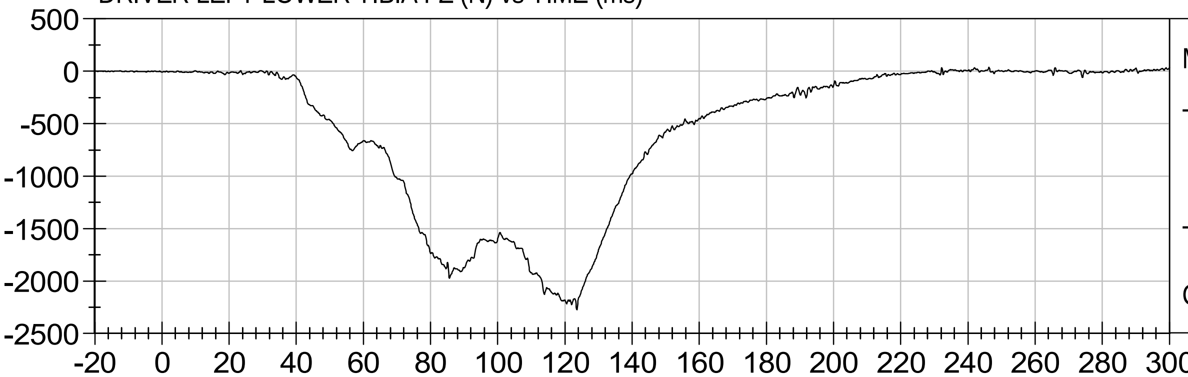
Max: 44.2 N
Tmax: 239.3 ms
Min: -669.0 N
Tmin: 97.1 ms
CFC 600

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



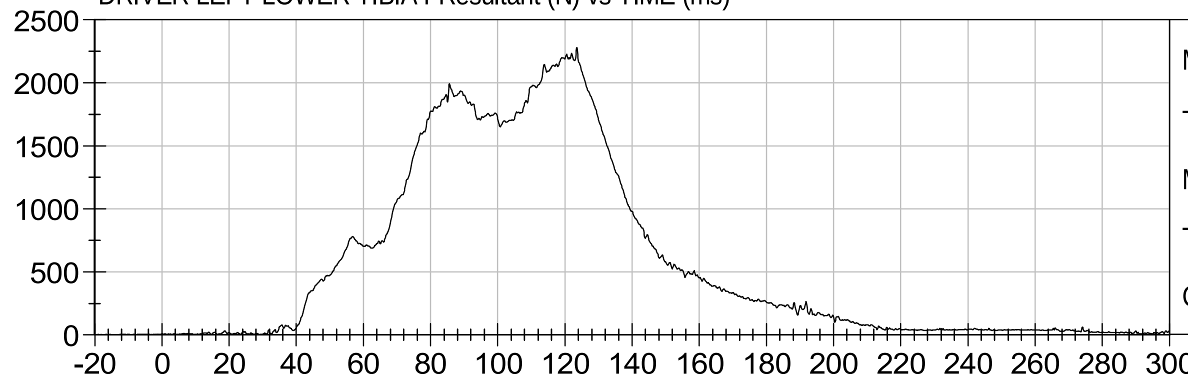
Max: 181.6 N
Tmax: 78.6 ms
Min: -74.5 N
Tmin: 190.9 ms
CFC 600

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



Max: 36.4 N
Tmax: 246.3 ms
Min: -2272.3 N
Tmin: 123.6 ms
CFC 600

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

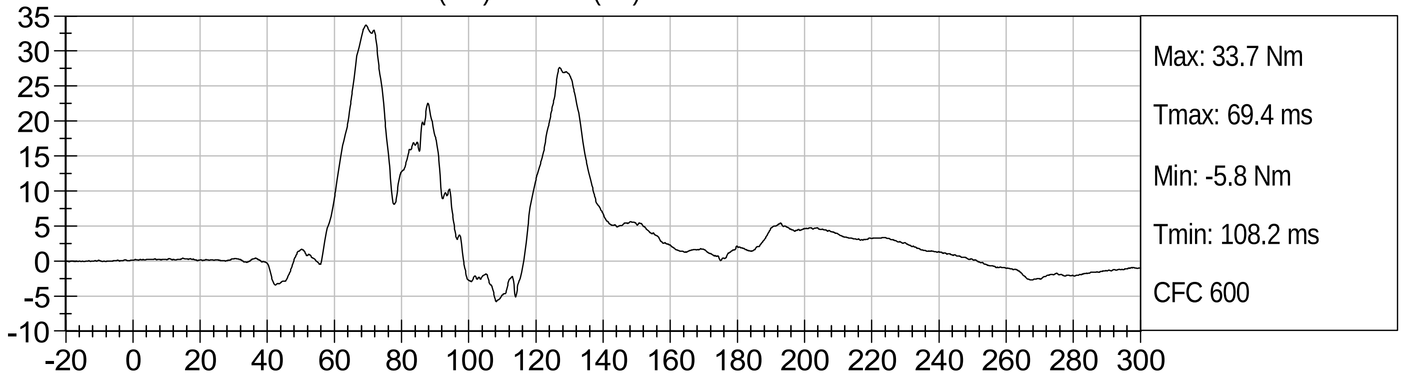


Max: 2279.1 N
Tmax: 123.6 ms
Min: 0.3 N
Tmin: 23.6 ms
CFC 600

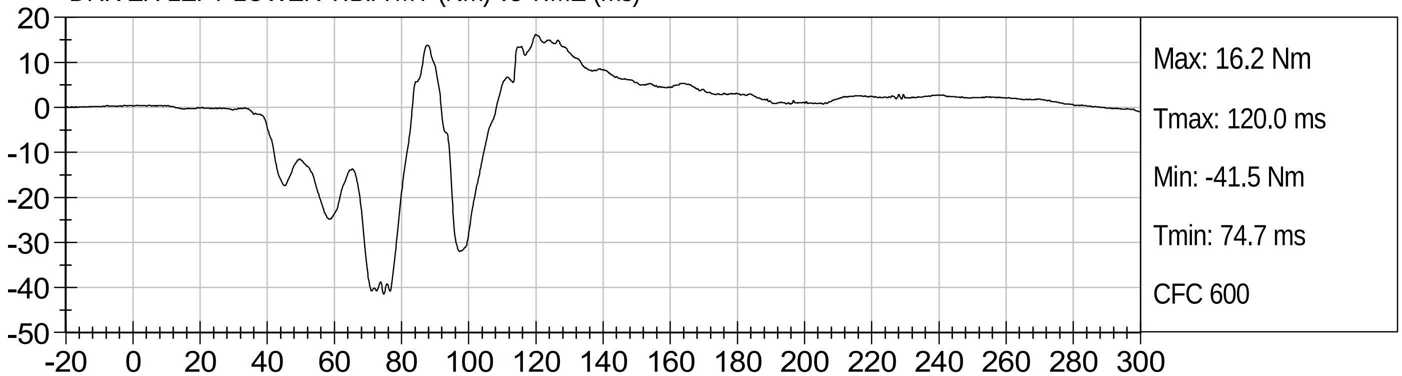
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

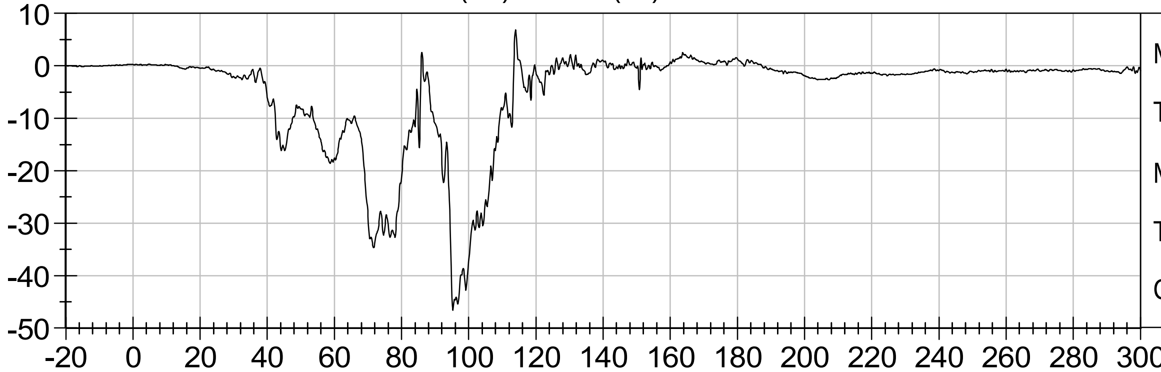
DRIVER LEFT LOWER TIBIA MX (Nm) vs TIME (ms)



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

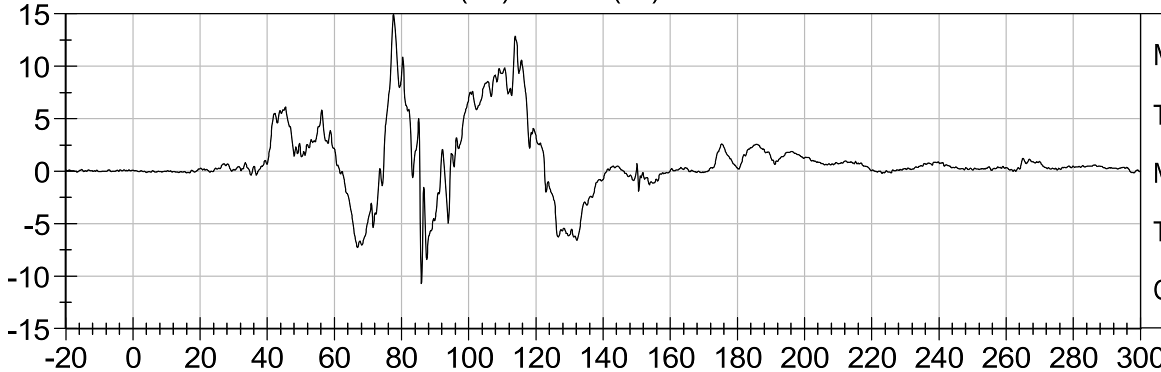


DRIVER LEFT TIBIA MID SHAFT X (G's) vs TIME (ms)



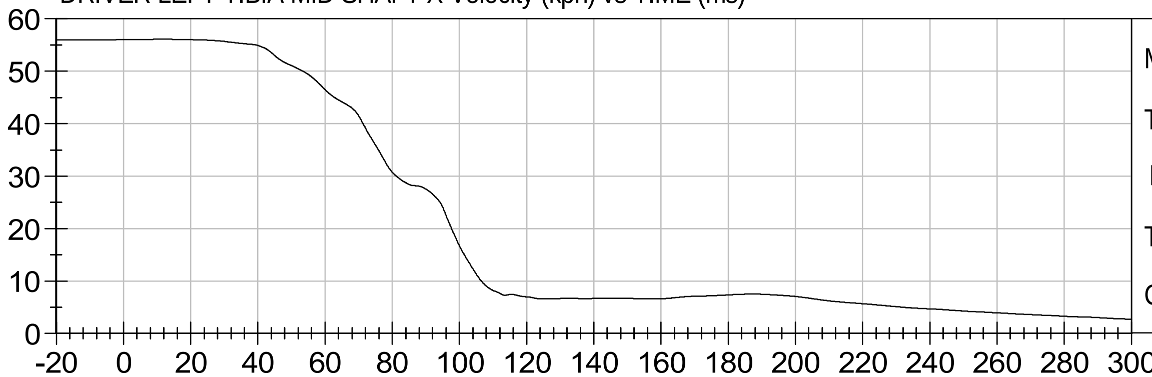
Max: 6.9 G's
Tmax: 114.0 ms
Min: -46.6 G's
Tmin: 95.3 ms
CFC 600

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



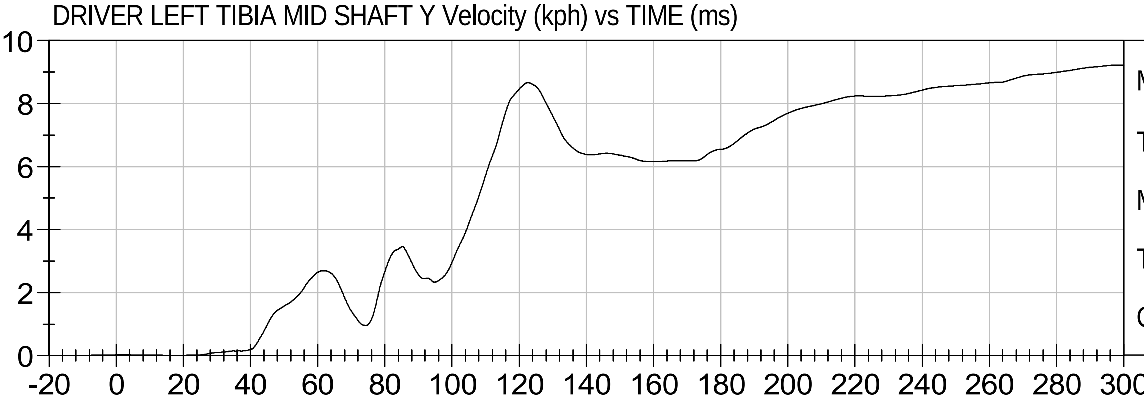
Max: 14.9 G's
Tmax: 77.6 ms
Min: -10.7 G's
Tmin: 85.9 ms
CFC 600

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



Max: 56.1 kph
Tmax: 12.1 ms
Min: 2.7 kph
Tmin: 300.0 ms
CFC 180

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

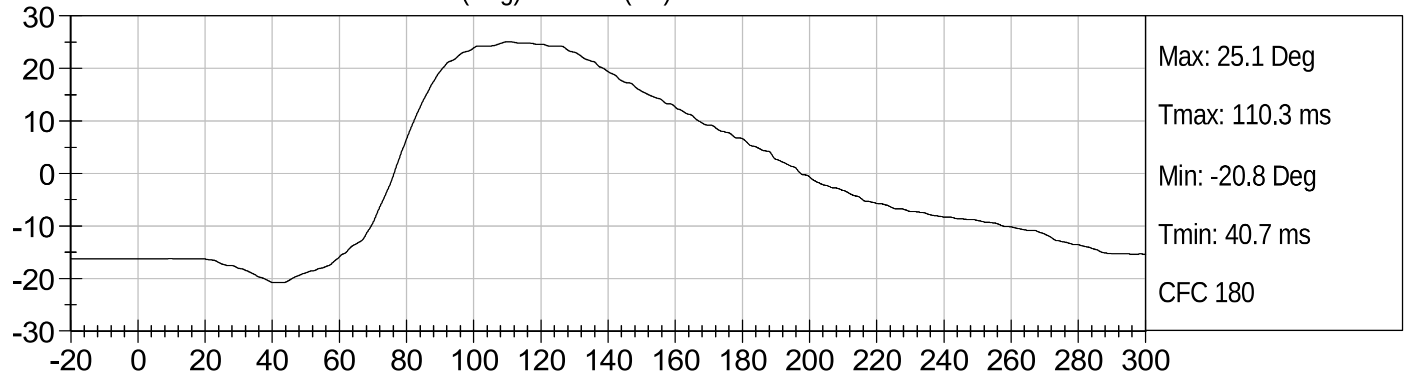


Max: 9.2 kph
Tmax: 297.1 ms
Min: 0.0 kph
Tmin: 0.0 ms
CFC 180

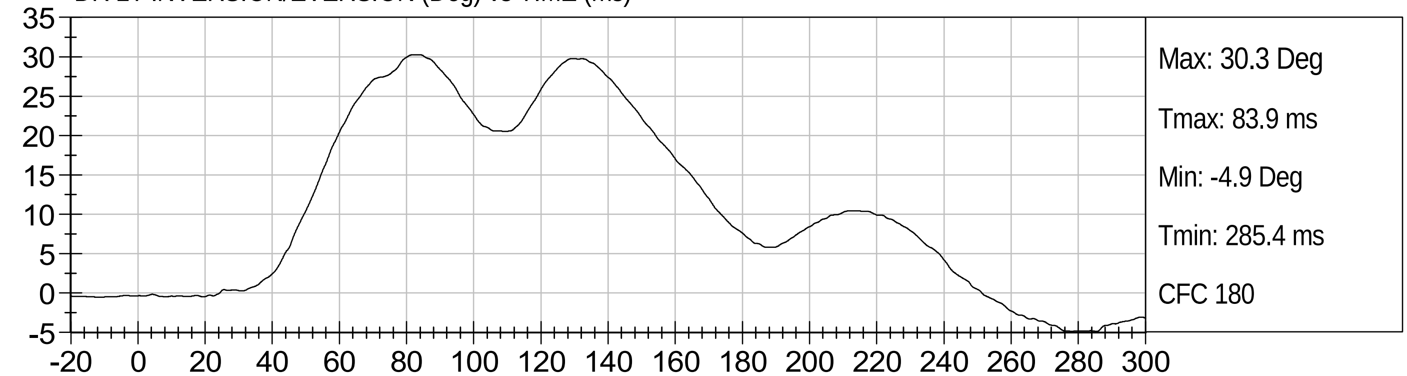
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

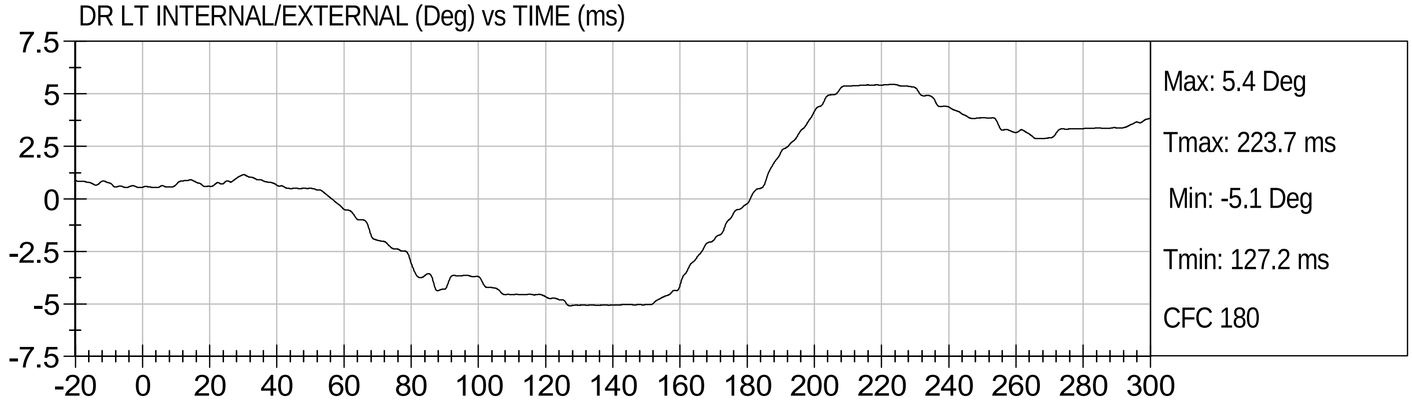
DR LT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)



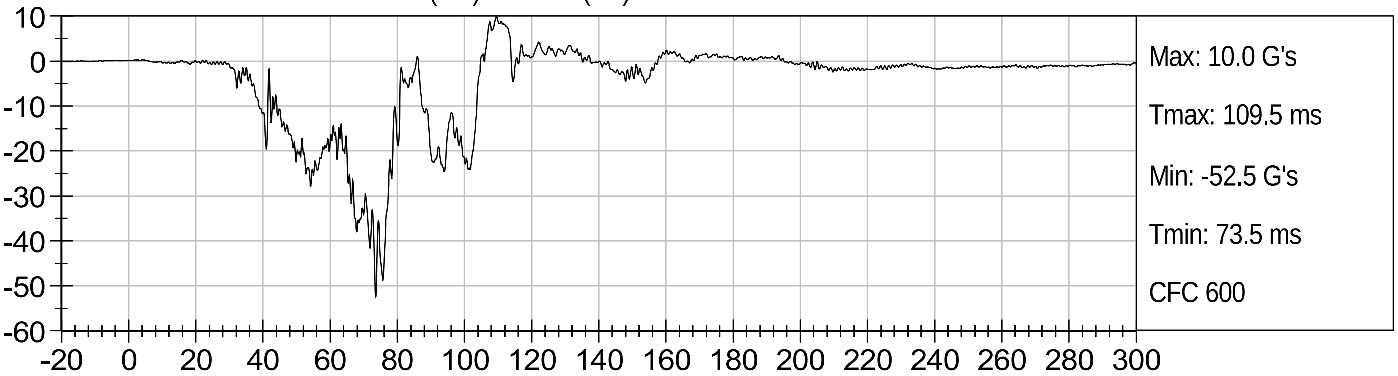
DR LT INVERSION/EVERSION (Deg) vs TIME (ms)



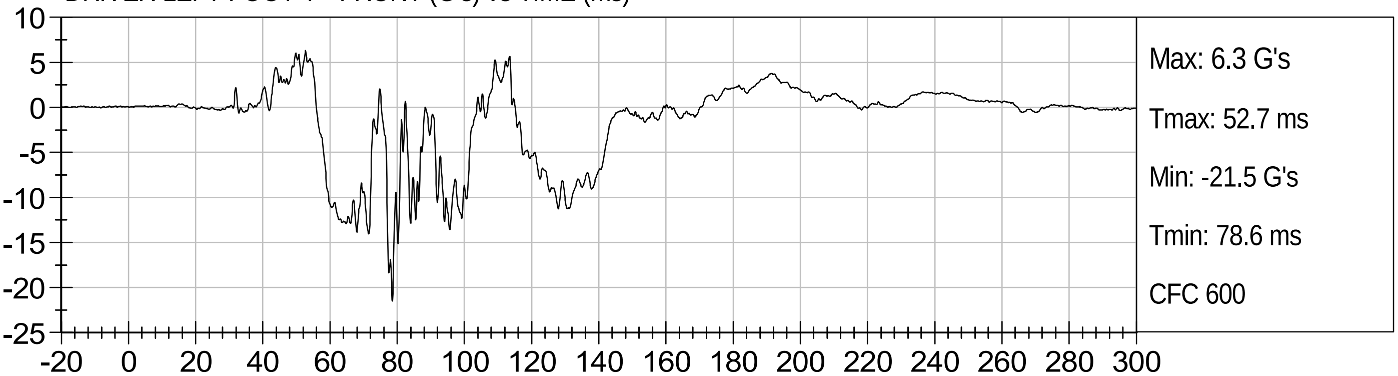
DR LT INTERNAL/EXTERNAL (Deg) vs TIME (ms)



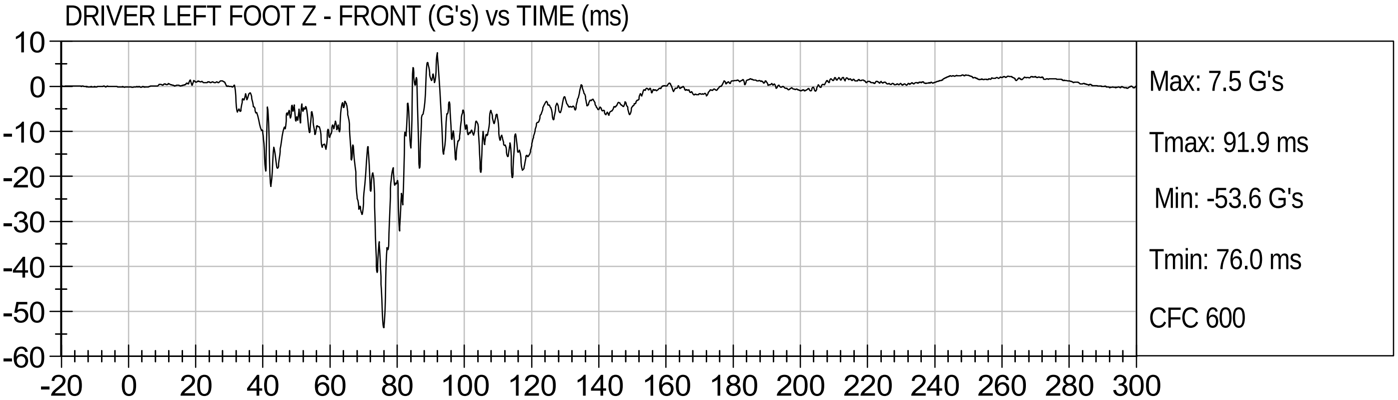
DRIVER LEFT FOOT X - FRONT (G's) vs TIME (ms)



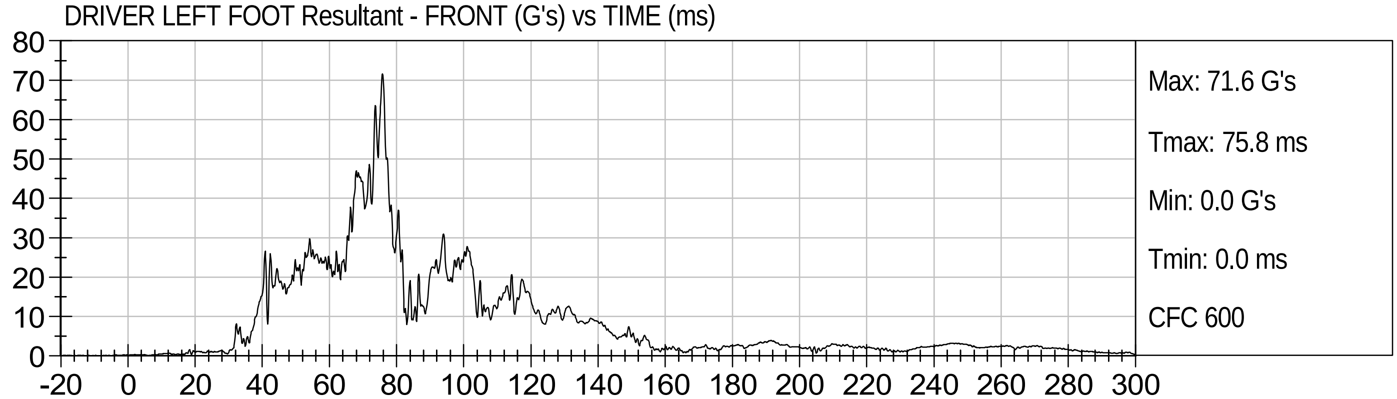
DRIVER LEFT FOOT Y - FRONT (G's) vs TIME (ms)



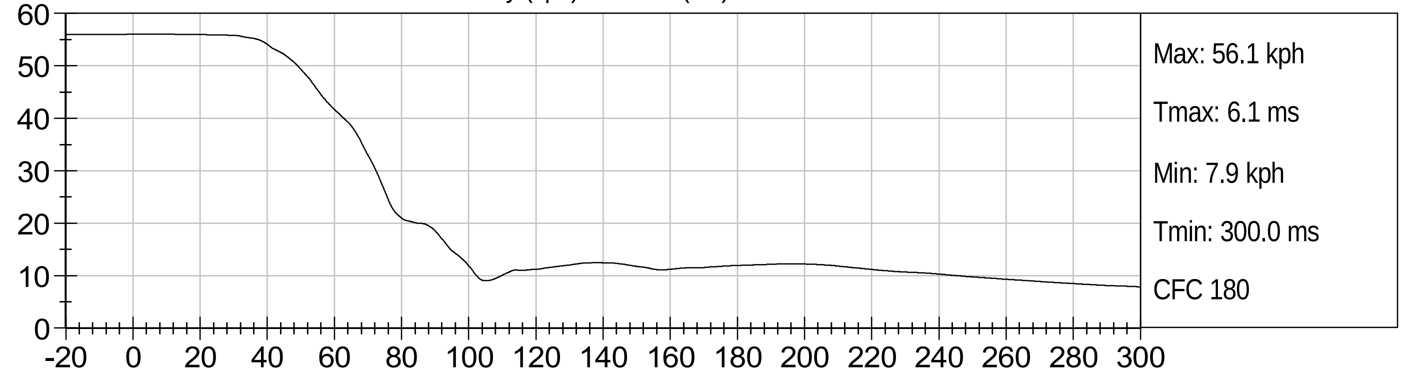
DRIVER LEFT FOOT Z - FRONT (G's) vs TIME (ms)



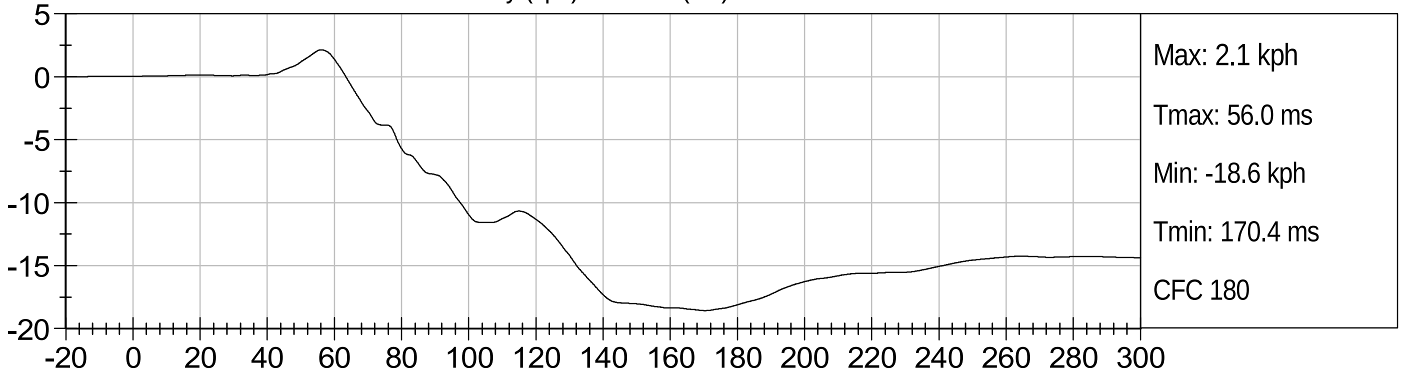
DRIVER LEFT FOOT Resultant - FRONT (G's) vs TIME (ms)



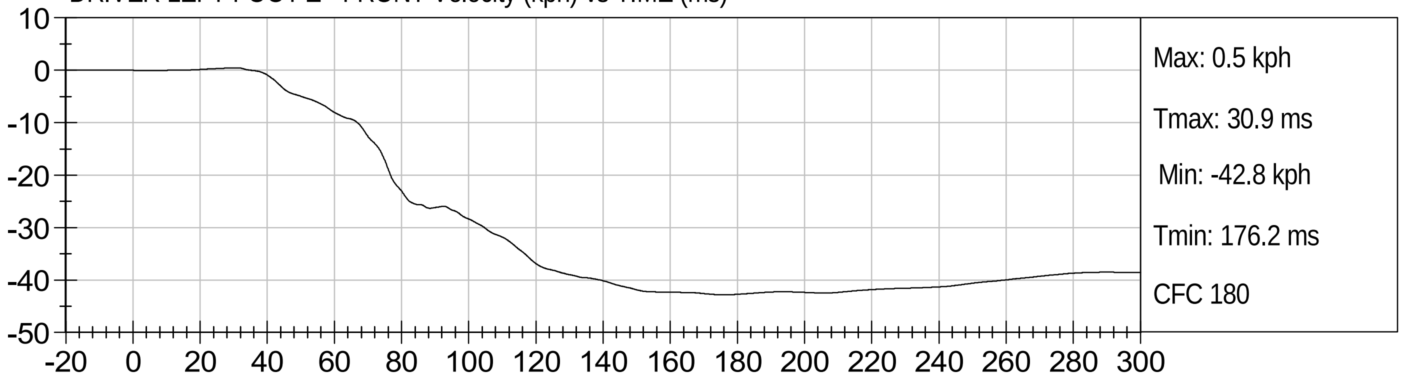
DRIVER LEFT FOOT X - FRONT Velocity (kph) vs TIME (ms)



DRIVER LEFT FOOT Y - FRONT Velocity (kph) vs TIME (ms)

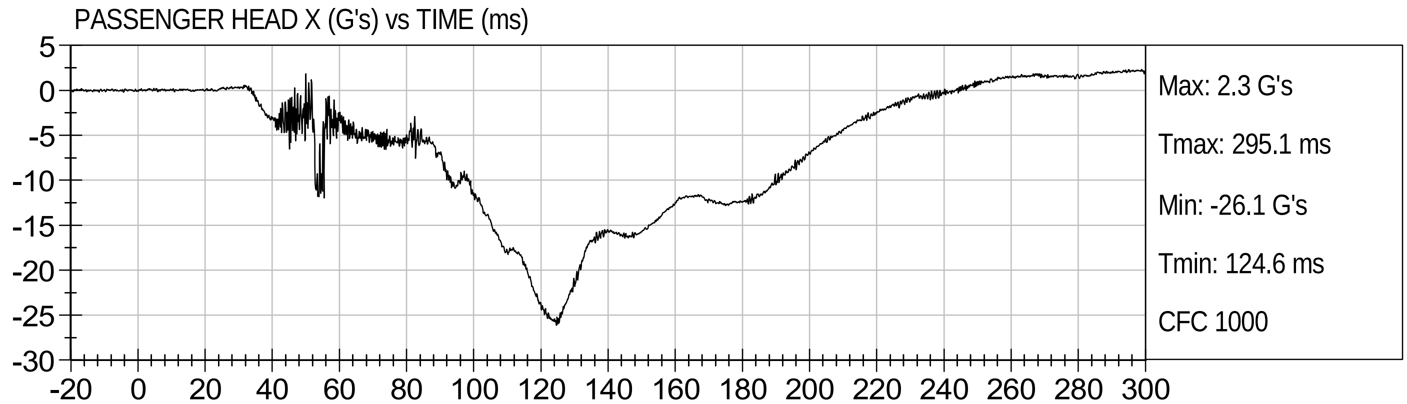


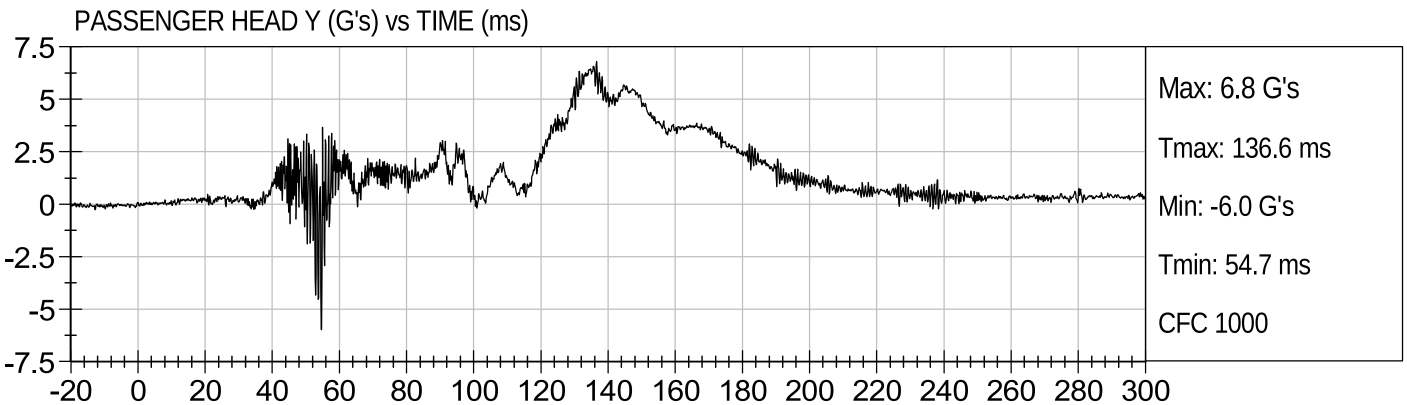
DRIVER LEFT FOOT Z - FRONT Velocity (kph) vs TIME (ms)

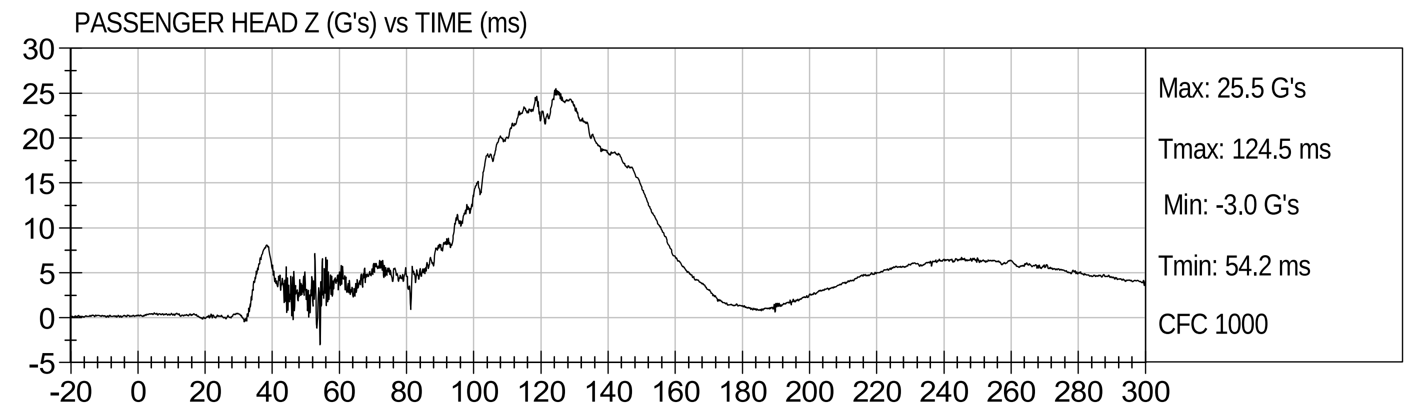


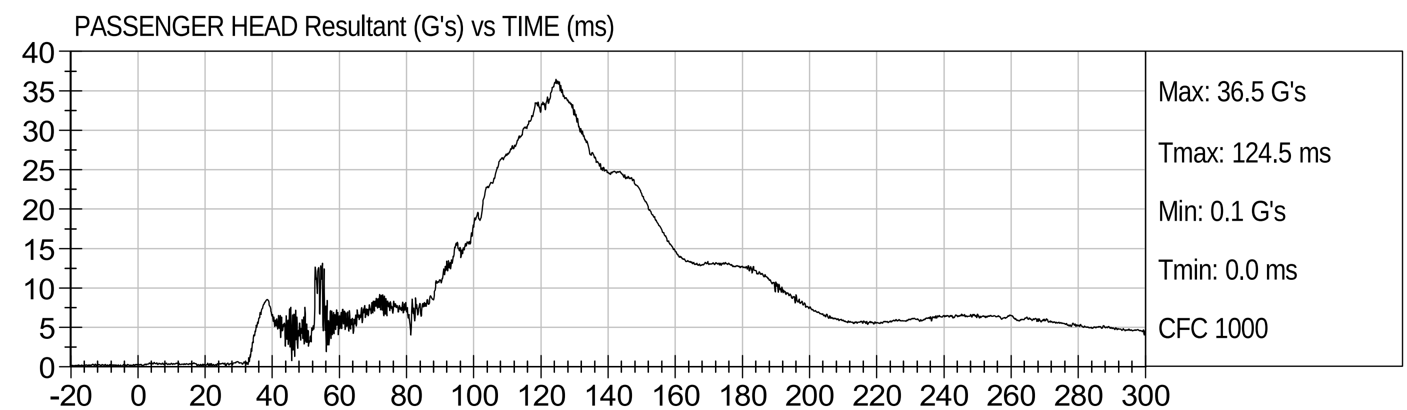
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

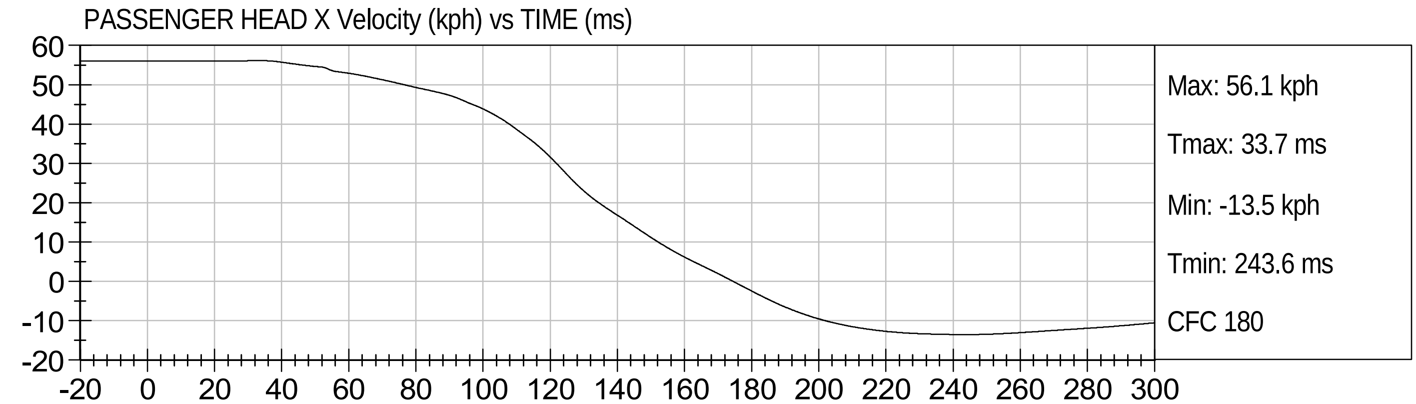
Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

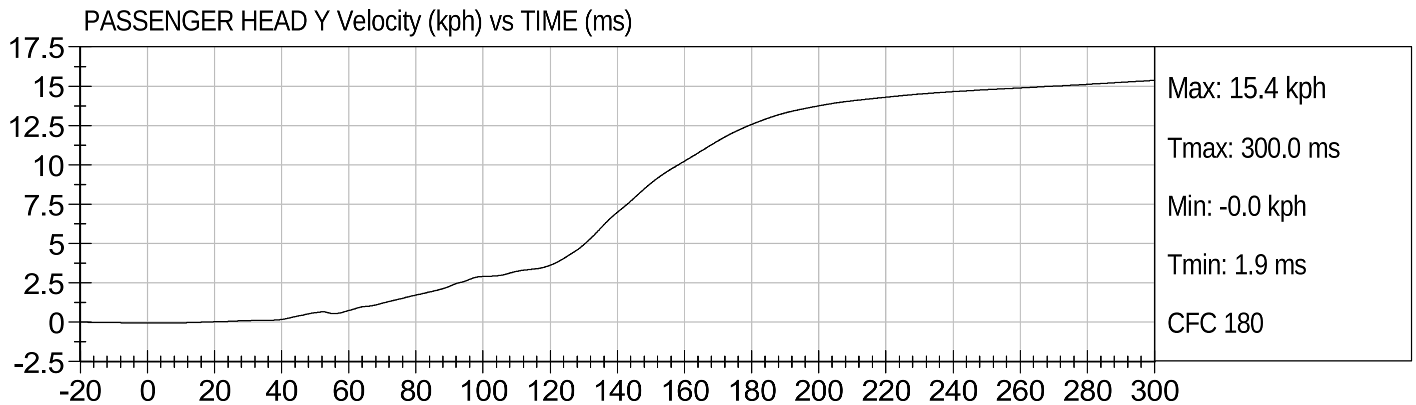


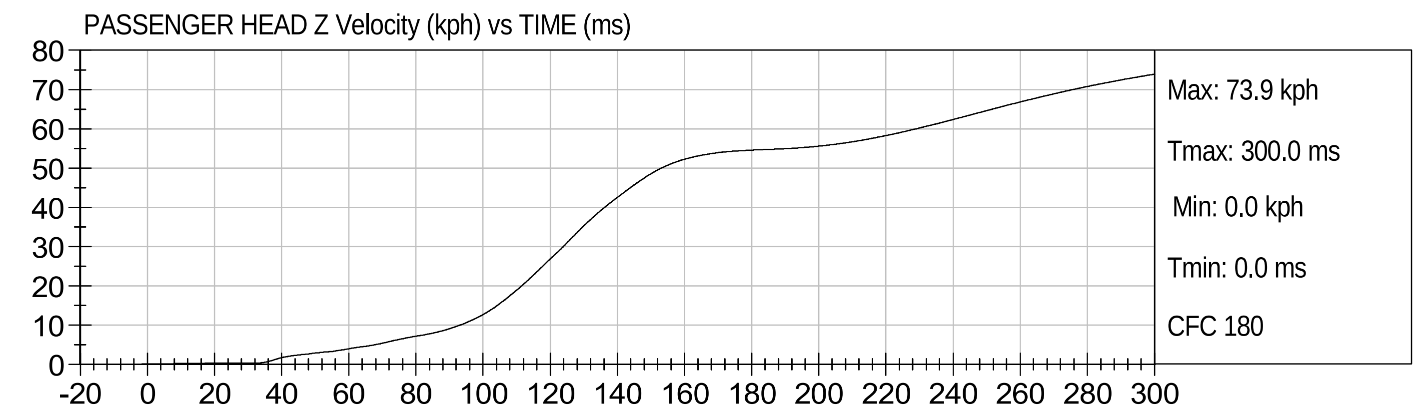







PASSENGER HEAD X Velocity (kph) vs TIME (ms)
Max: 56.1 kph
Tmax: 33.7 ms
Min: -13.5 kph
Tmin: 243.6 ms
CFC 180

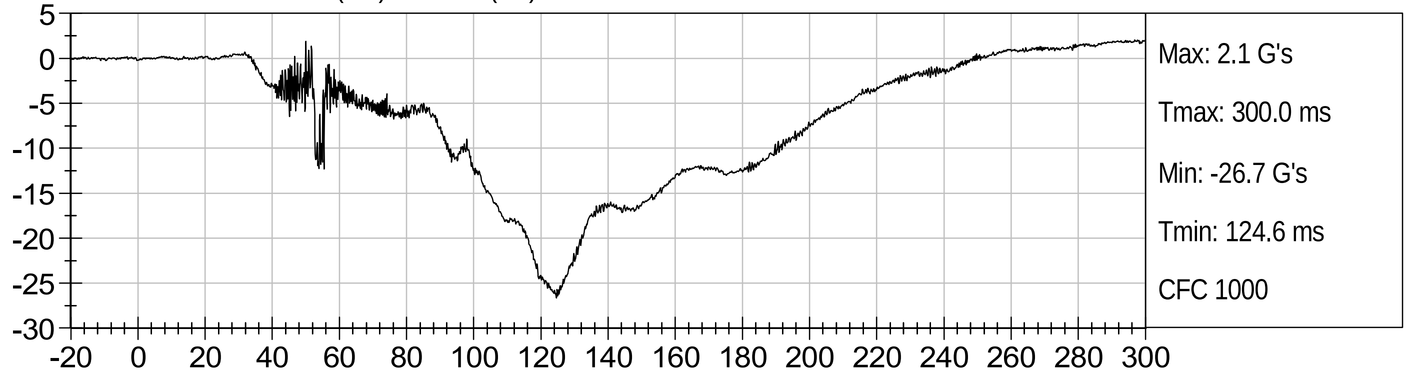

PASSENGER HEAD Y Velocity (kph) vs TIME (ms)
Max: 15.4 kph
Tmax: 300.0 ms
Min: -0.0 kph
Tmin: 1.9 ms
CFC 180


PASSENGER HEAD Z Velocity (kph) vs TIME (ms)
Max: 73.9 kph
Tmax: 300.0 ms
Min: 0.0 kph
Tmin: 0.0 ms
CFC 180

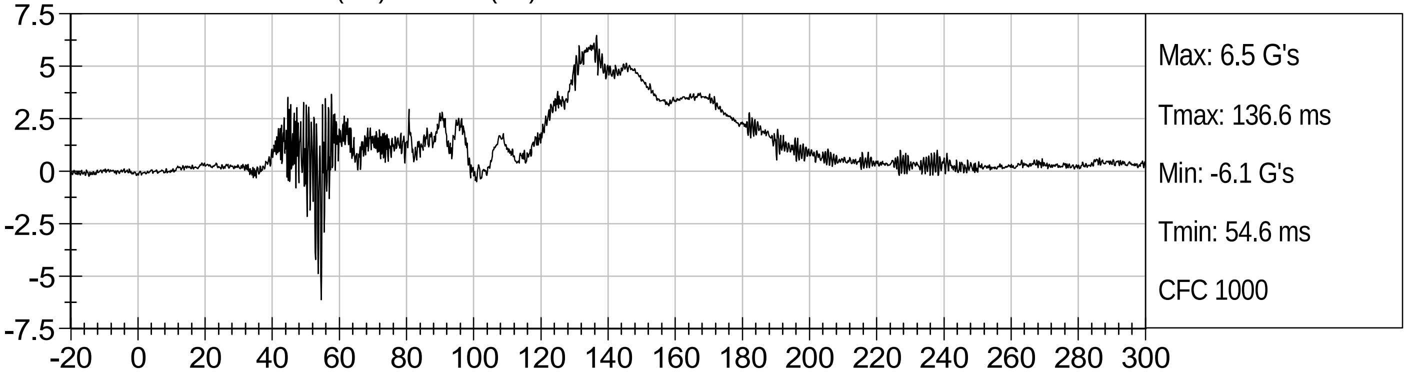
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

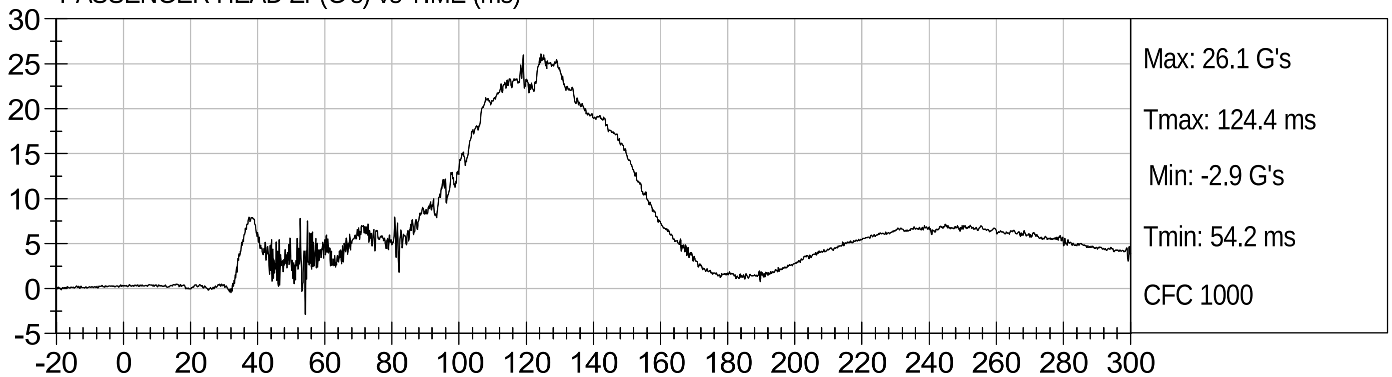
PASSENGER HEAD Xr (G's) vs TIME (ms)



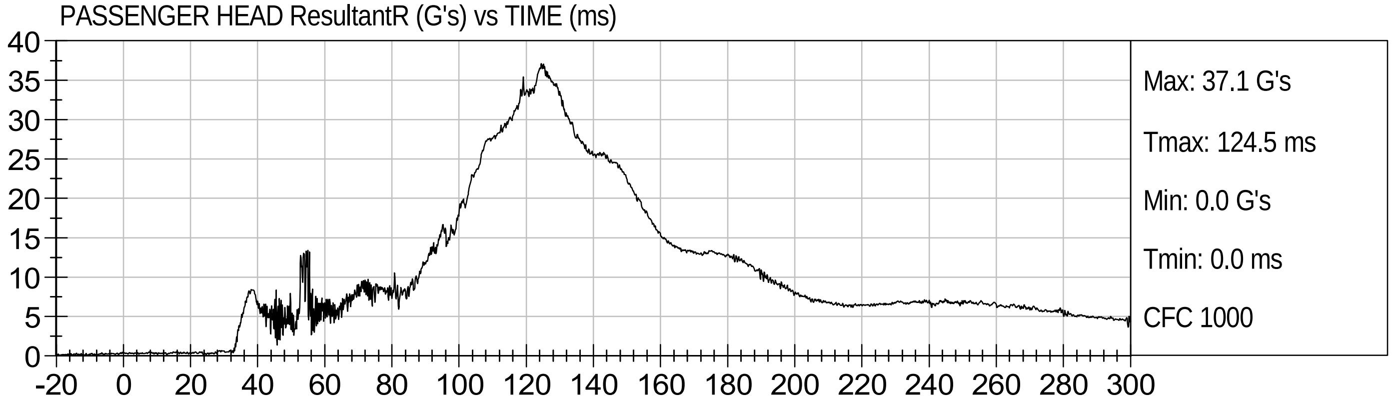
PASSENGER HEAD Yr (G's) vs TIME (ms)



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

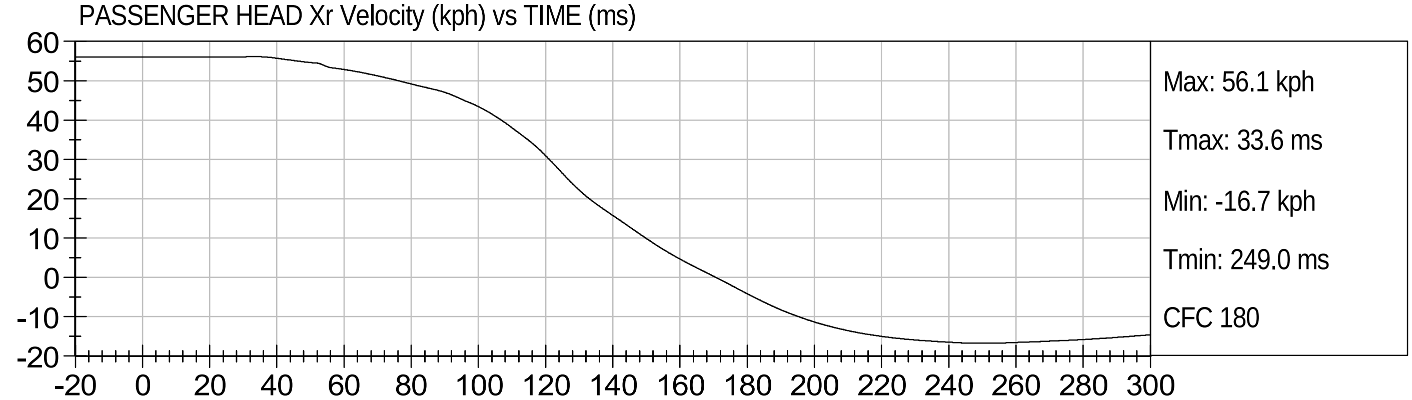


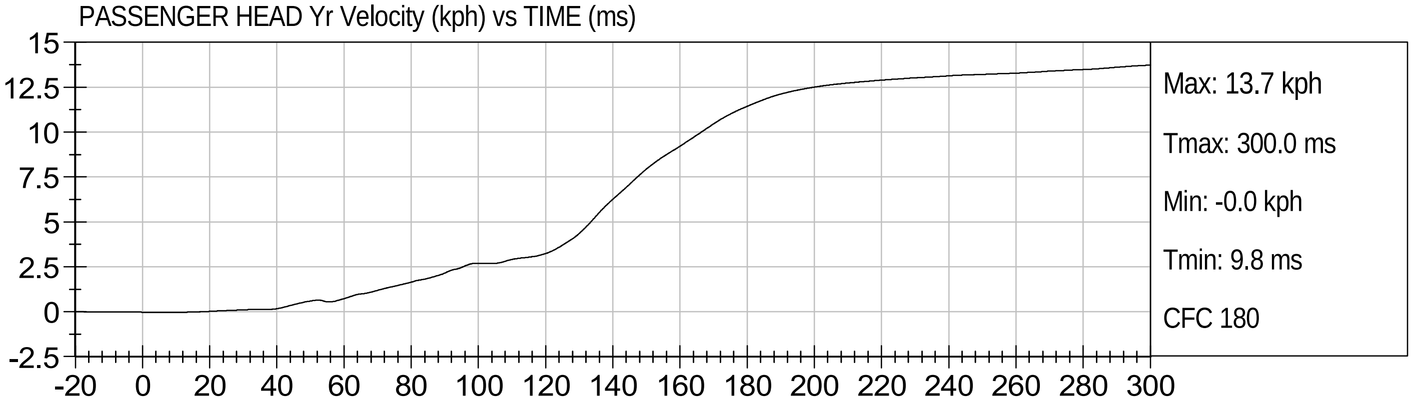
PASSENGER HEAD ResultantR (G's) vs TIME (ms)

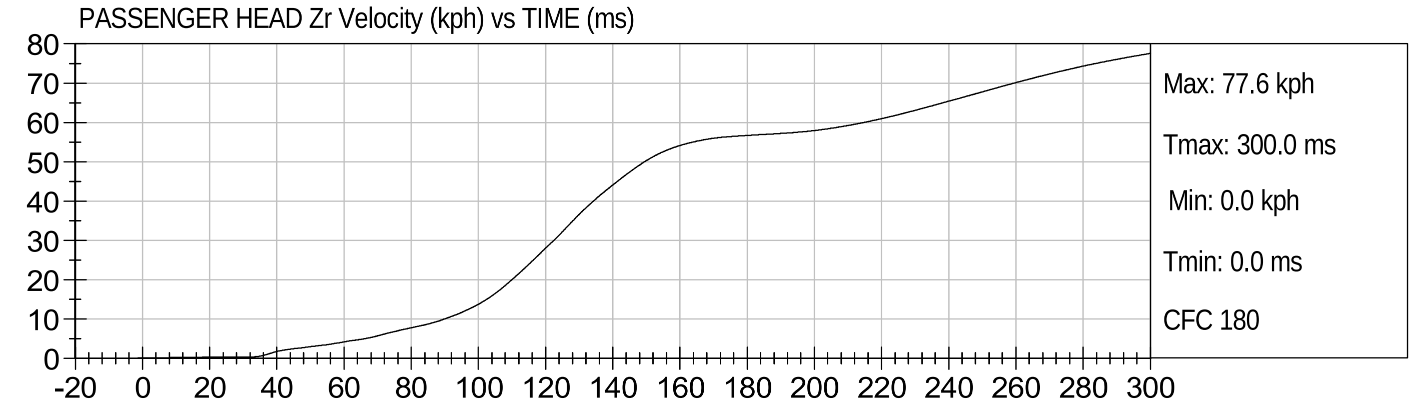


NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

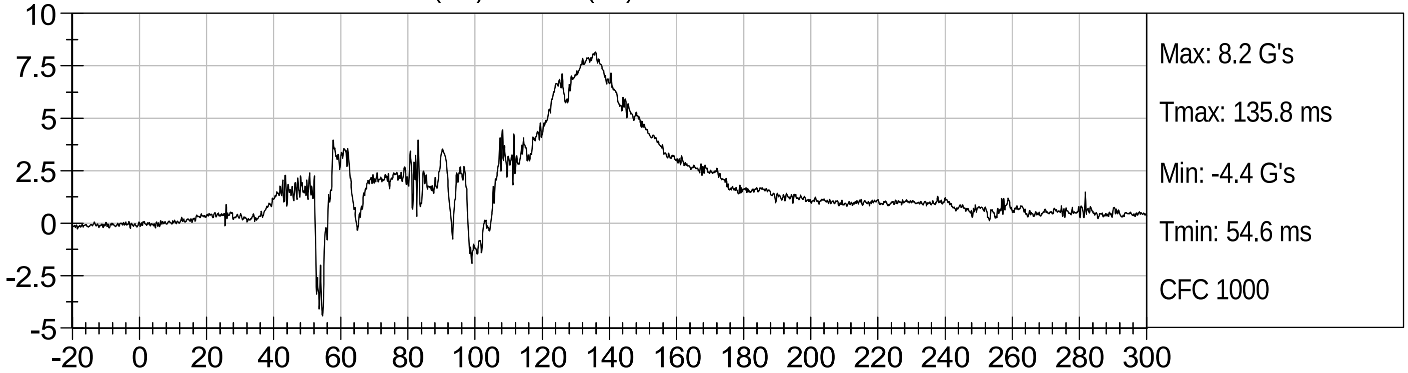
Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)



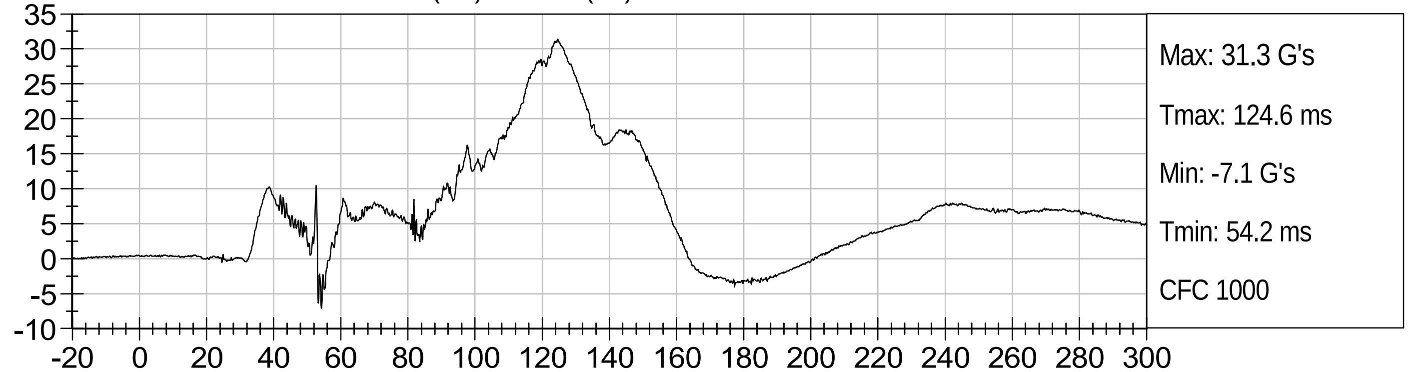




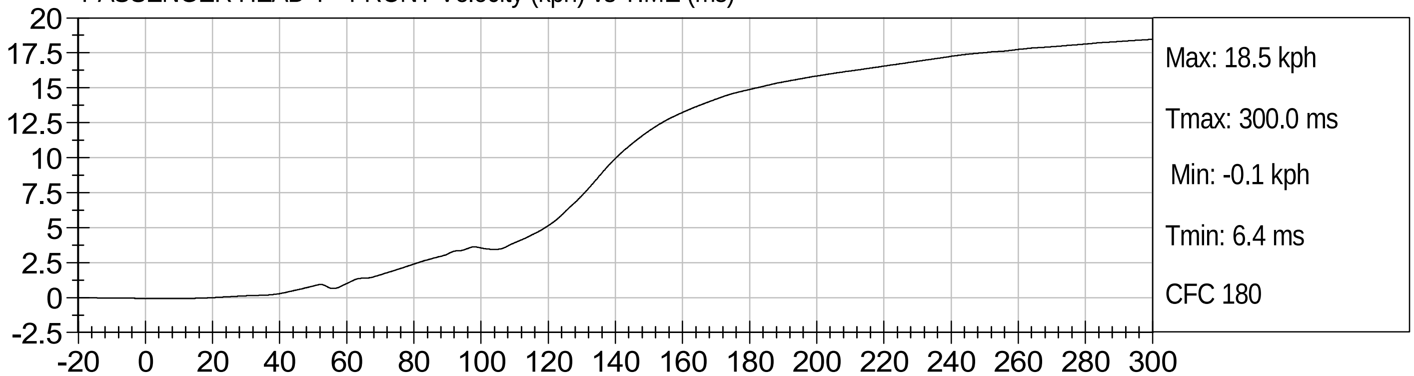
PASSENGER HEAD Y - FRONT (G's) vs TIME (ms)



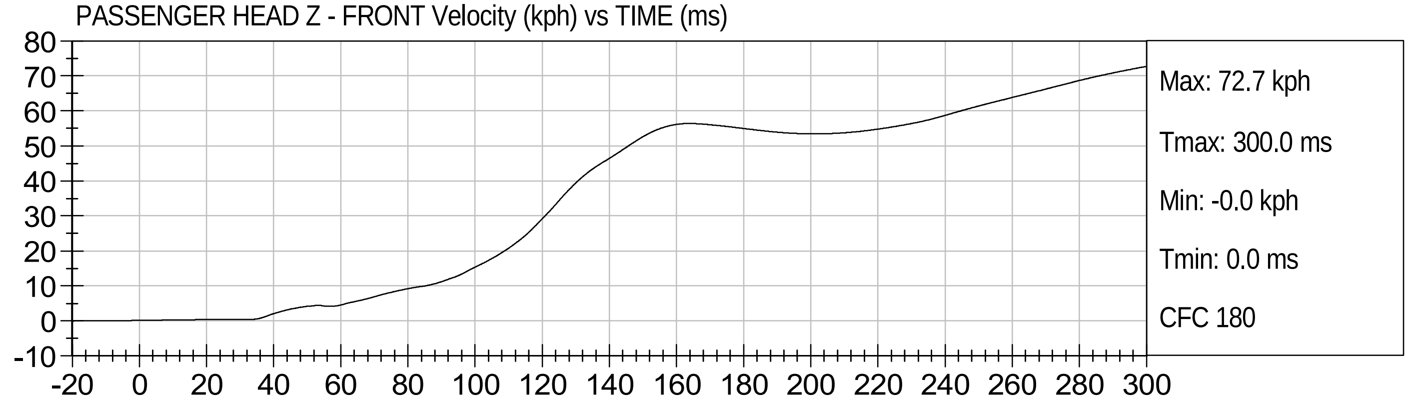
PASSENGER HEAD Z - FRONT (G's) vs TIME (ms)



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



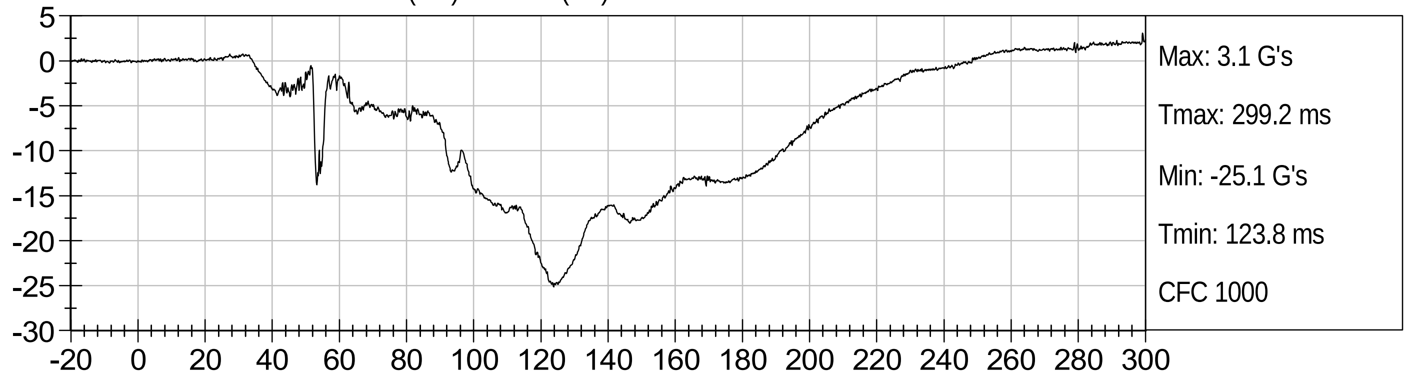
PASSENGER HEAD Z - FRONT Velocity (kph) vs TIME (ms)



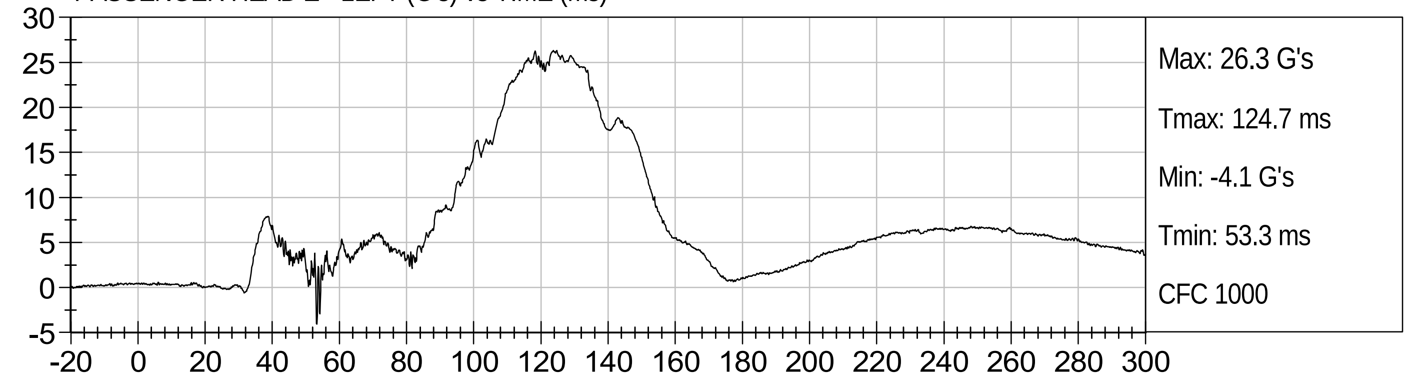
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

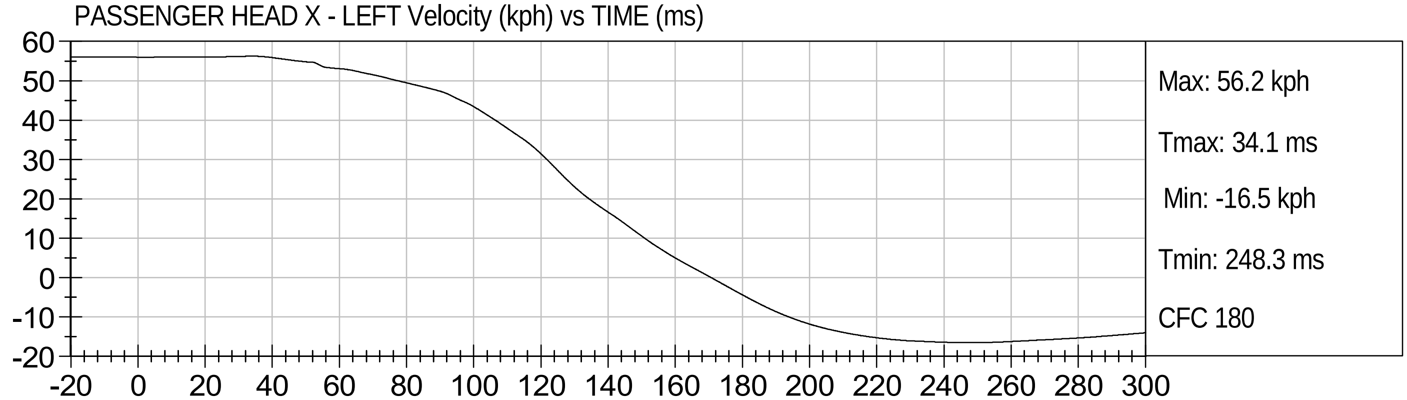
PASSENGER HEAD X - LEFT (G's) vs TIME (ms)



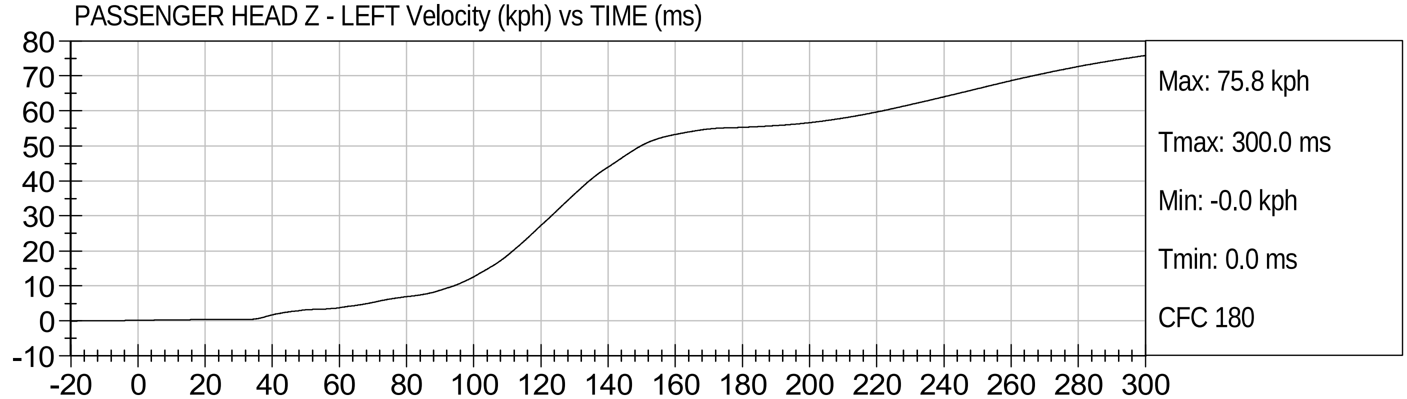
PASSENGER HEAD Z - LEFT (G's) vs TIME (ms)



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



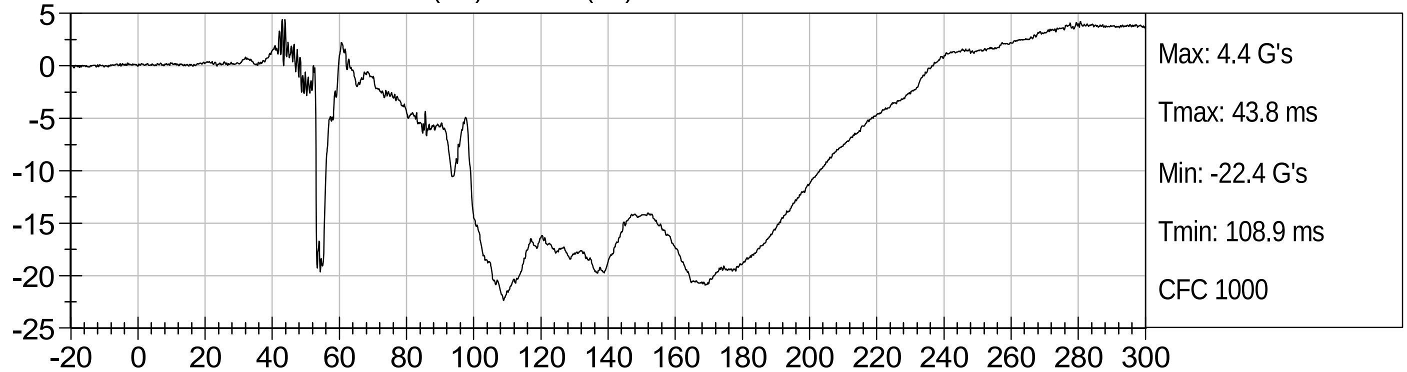
PASSENGER HEAD Z - LEFT Velocity (kph) vs TIME (ms)



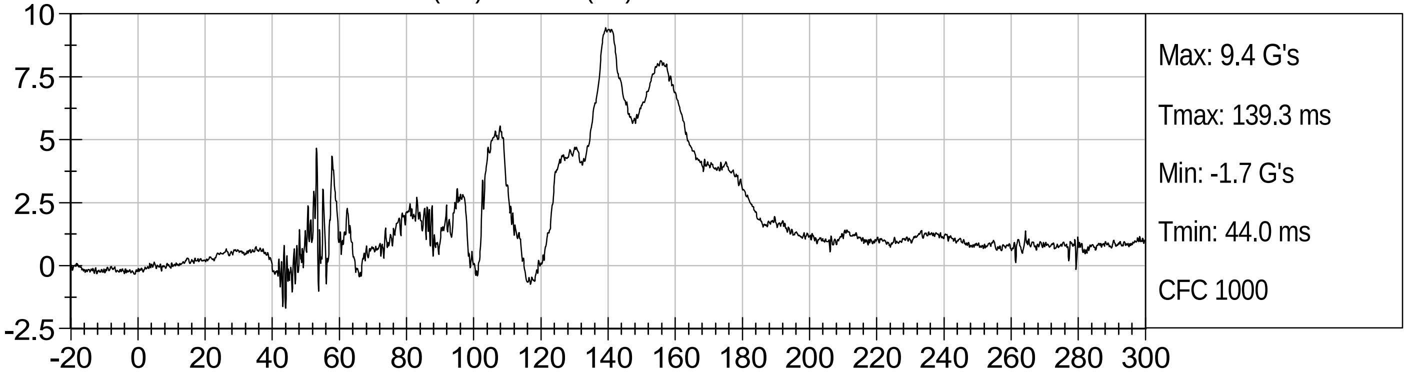
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

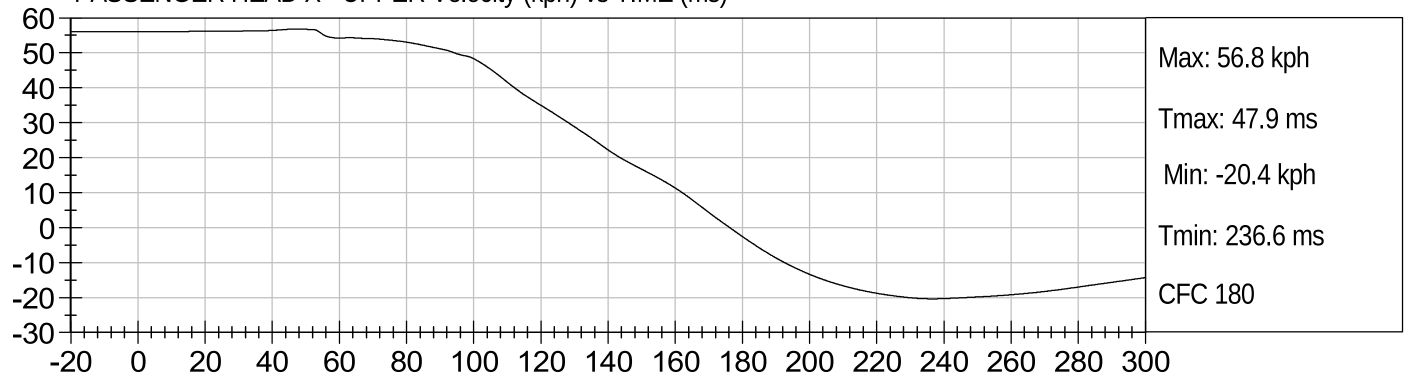
PASSENGER HEAD X - UPPER (G's) vs TIME (ms)



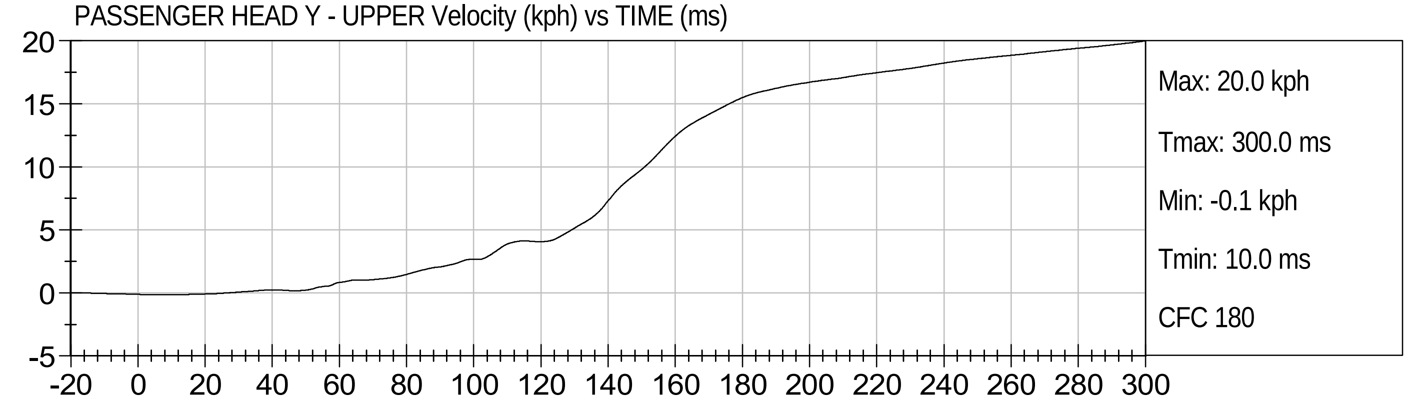
PASSENGER HEAD Y - UPPER (G's) vs TIME (ms)



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



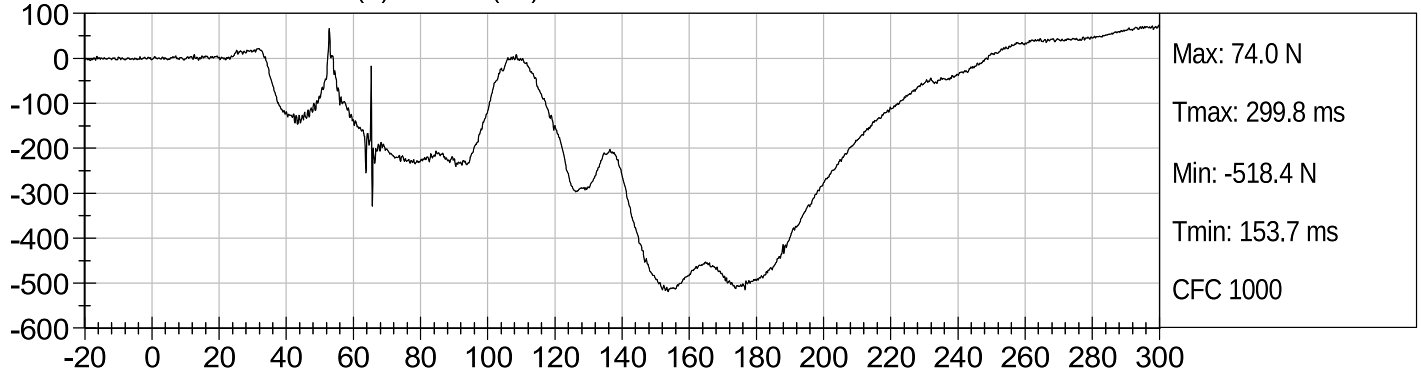
PASSENGER HEAD Y - UPPER Velocity (kph) vs TIME (ms)



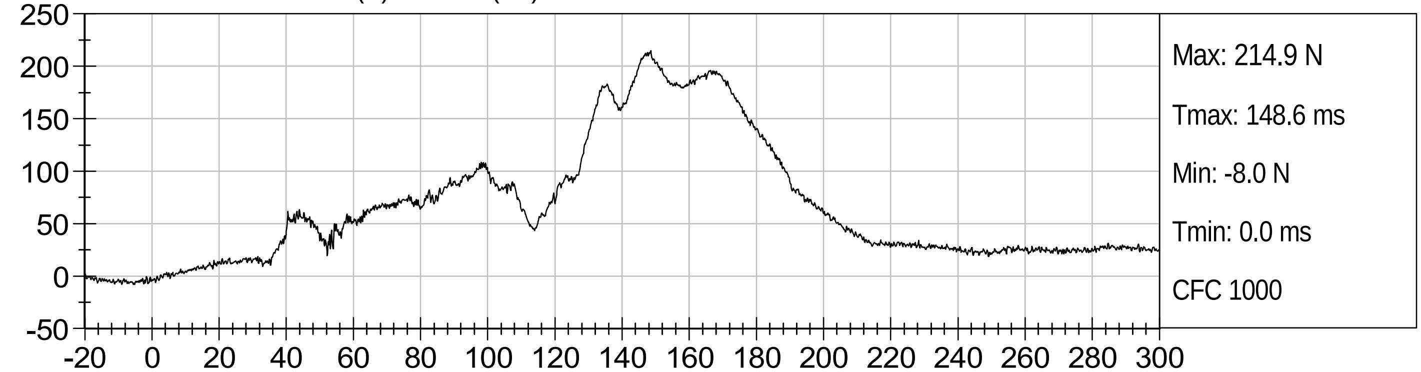
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

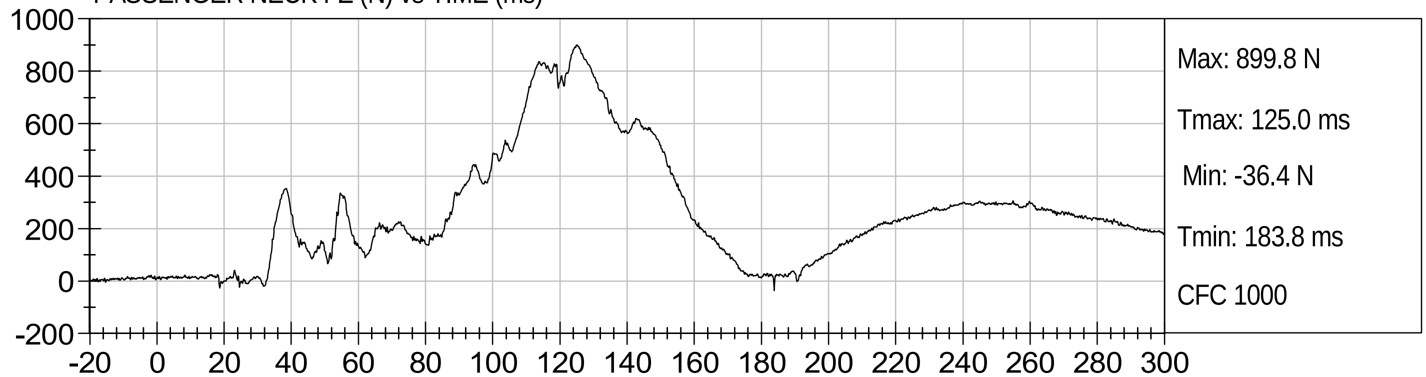
PASSENGER NECK FX (N) vs TIME (ms)



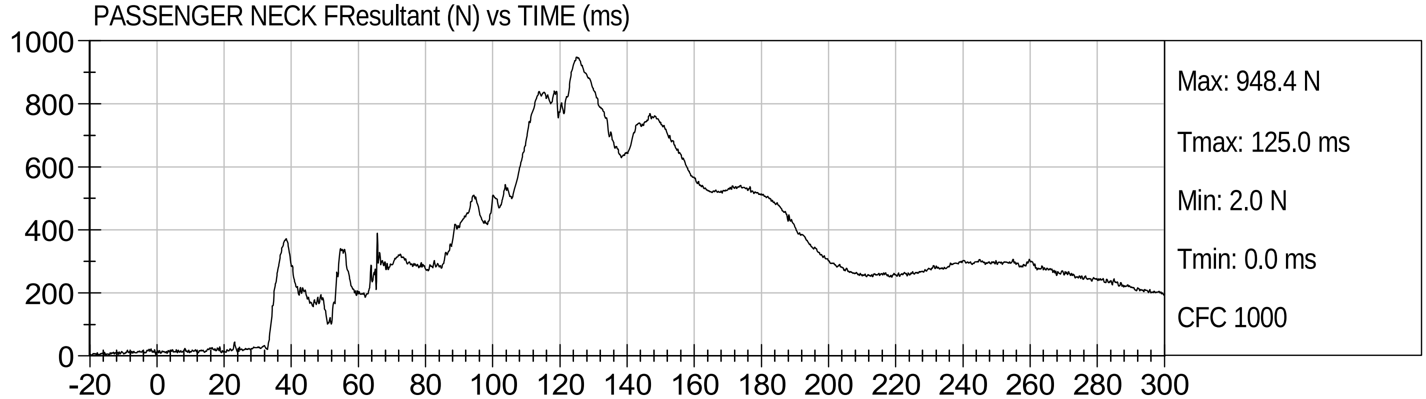
PASSENGER NECK FY (N) vs TIME (ms)



PASSENGER NECK FZ (N) vs TIME (ms)



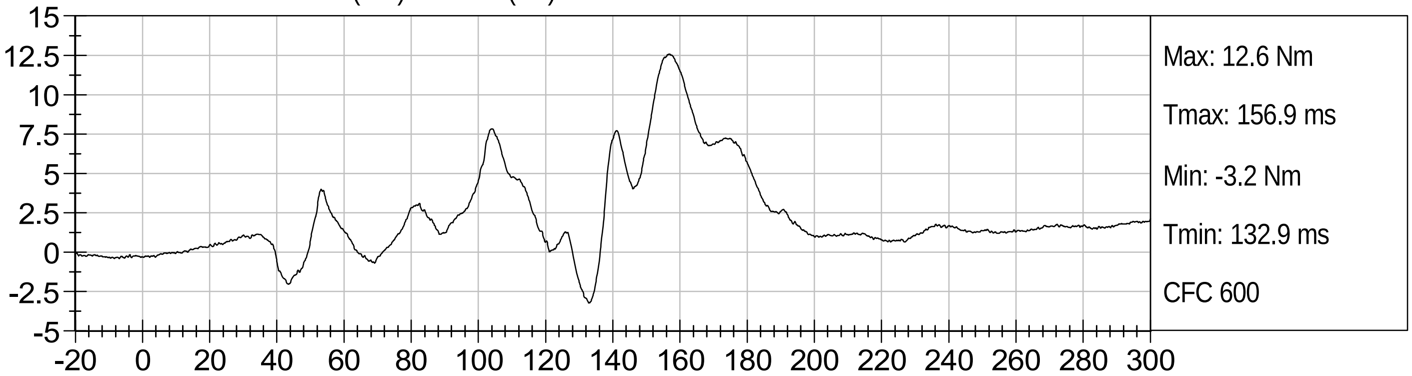
PASSENGER NECK FResultant (N) vs TIME (ms)



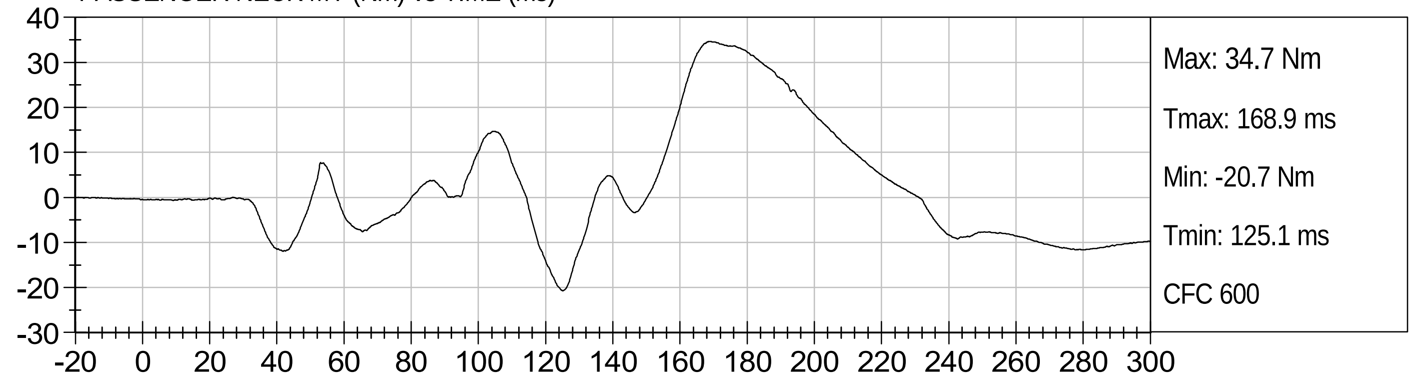
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

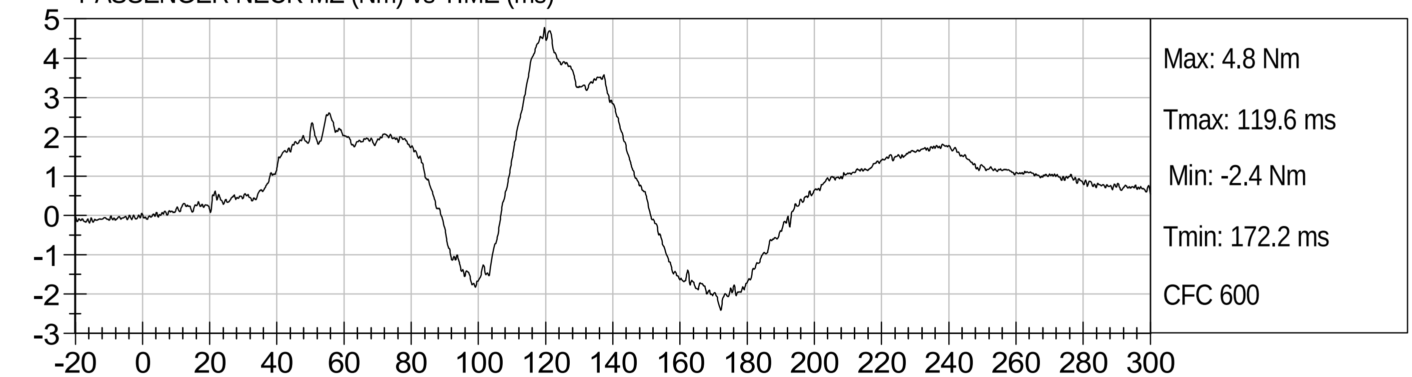
PASSENGER NECK MX (Nm) vs TIME (ms)



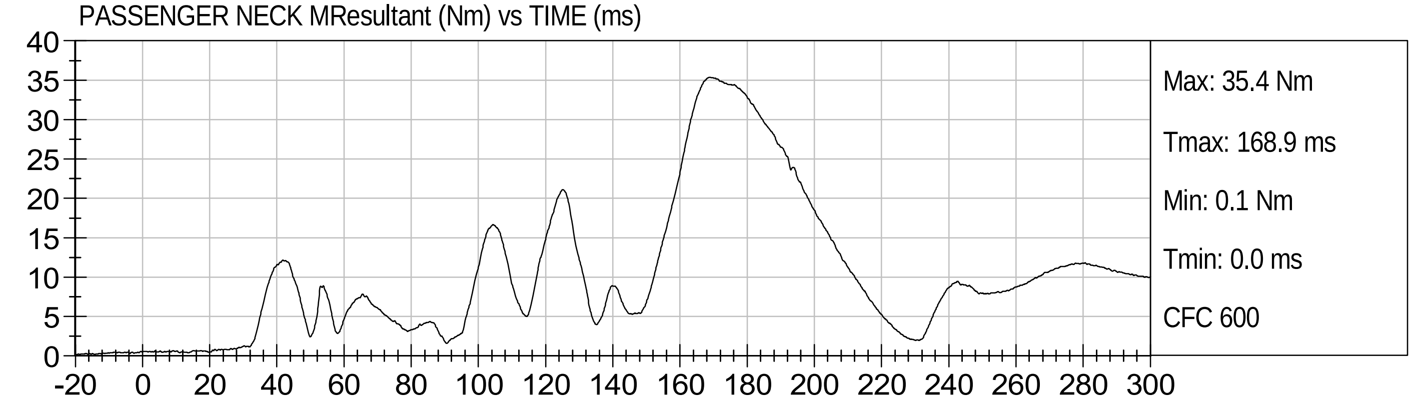
PASSENGER NECK MY (Nm) vs TIME (ms)



PASSENGER NECK MZ (Nm) vs TIME (ms)

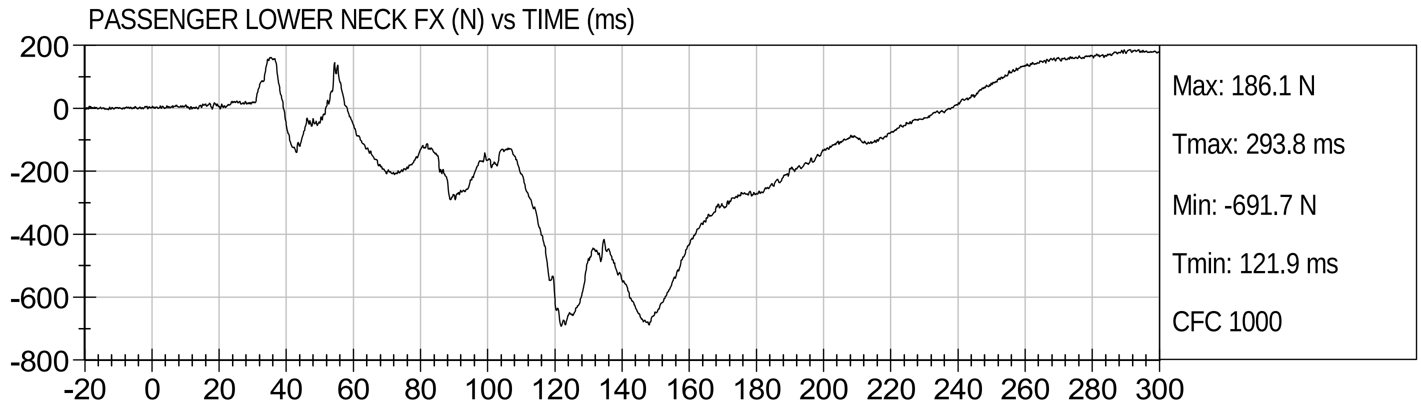


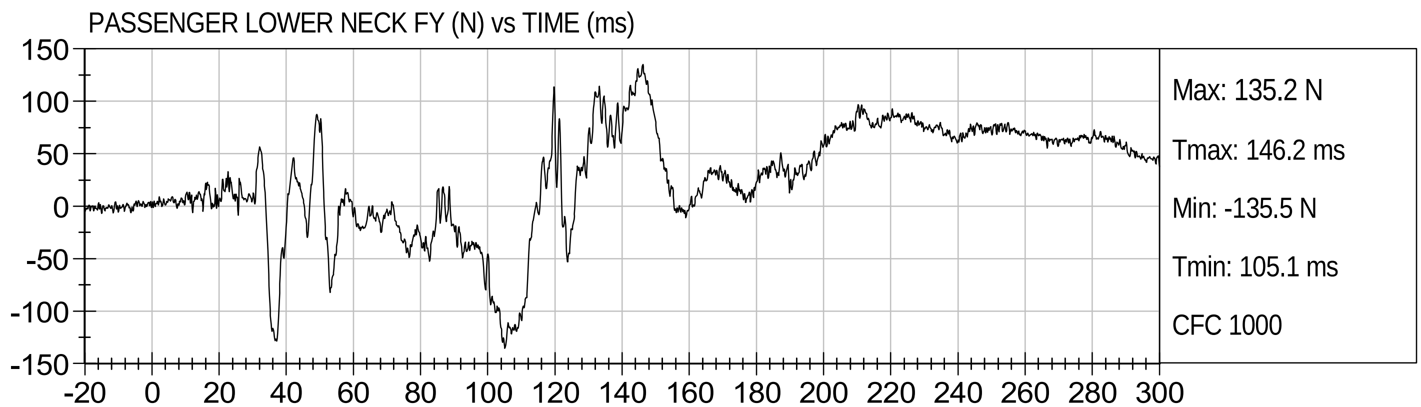
PASSENGER NECK MResultant (Nm) vs TIME (ms)

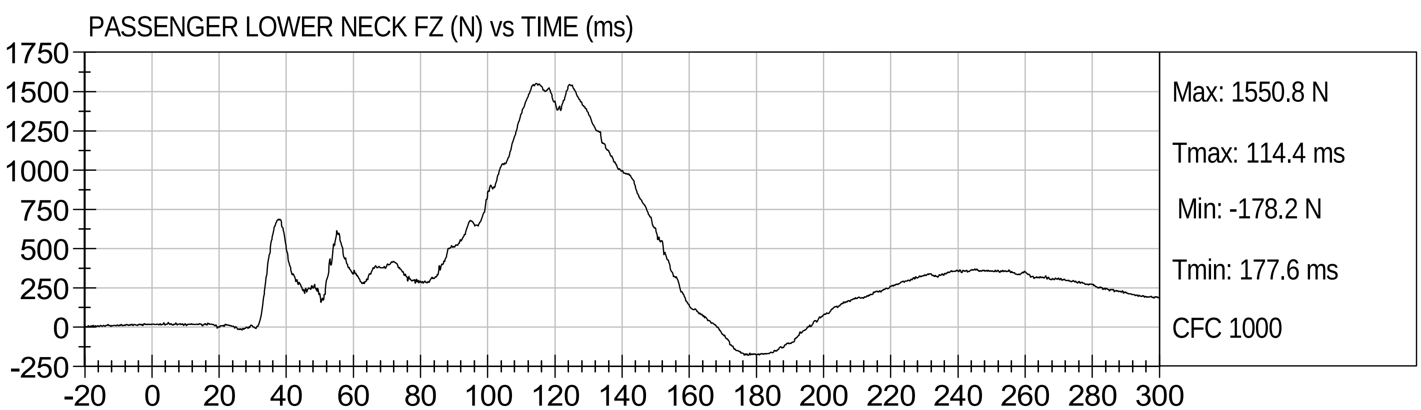


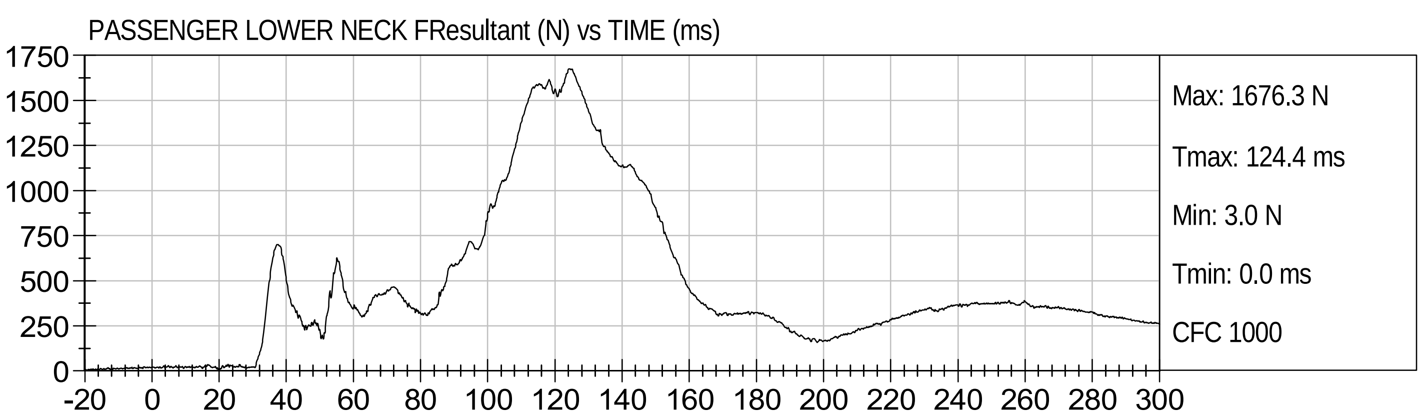
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

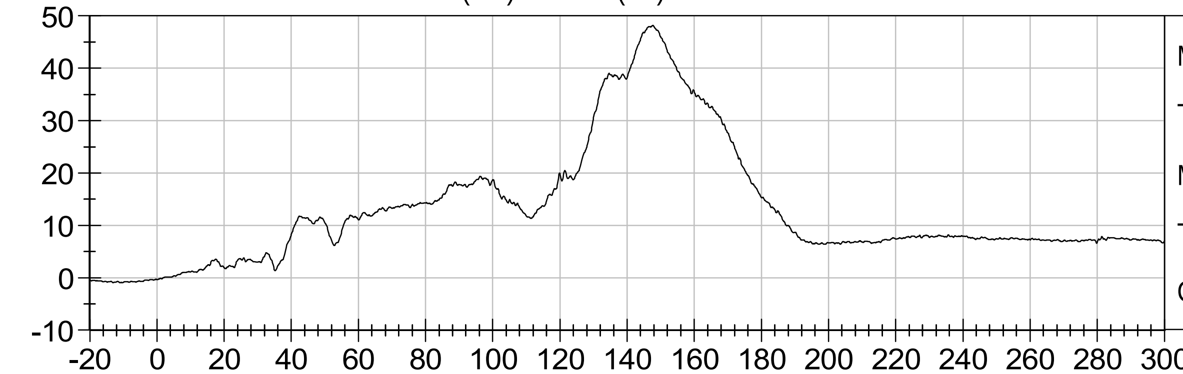






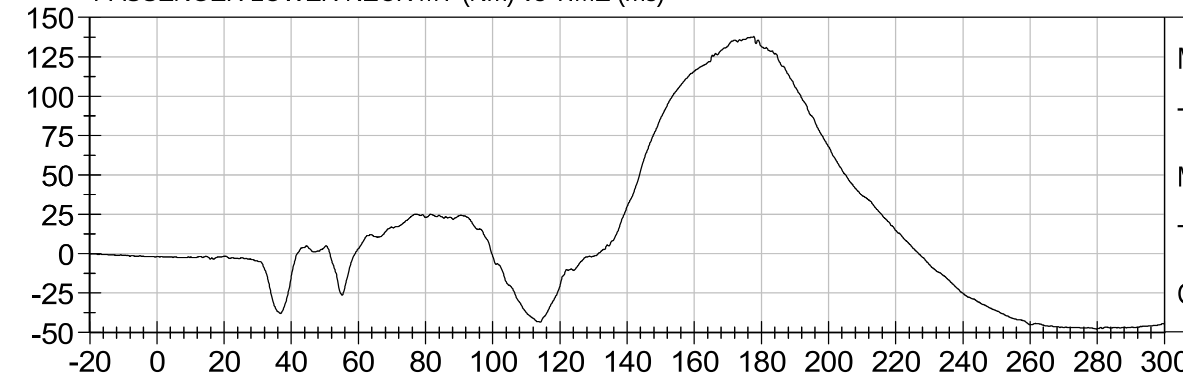


PASSENGER LOWER NECK MX (Nm) vs TIME (ms)



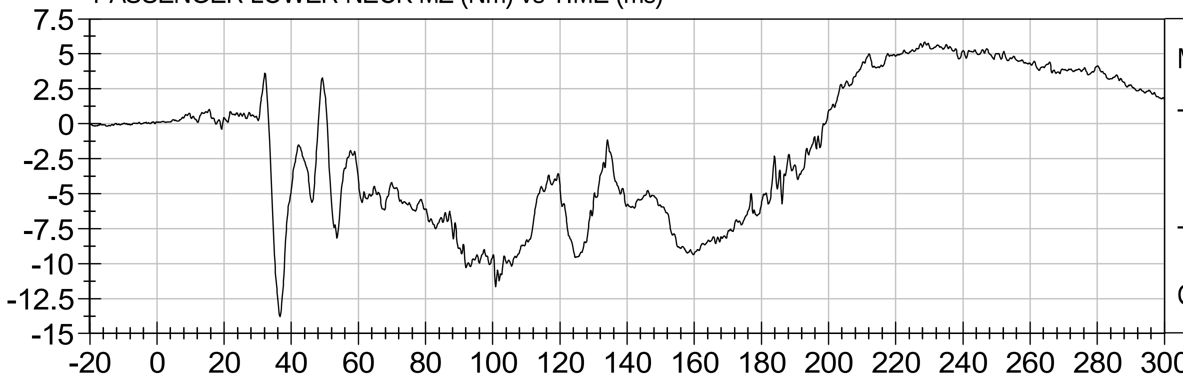
Max: 48.2 Nm
Tmax: 147.7 ms
Min: -0.9 Nm
Tmin: 0.0 ms
CFC 600

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



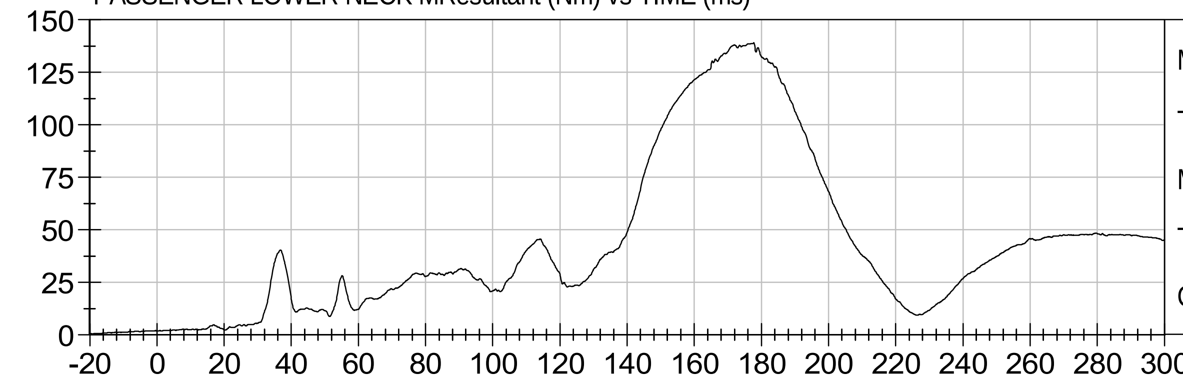
Max: 137.9 Nm
Tmax: 177.7 ms
Min: -47.8 Nm
Tmin: 279.7 ms
CFC 600

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



Max: 5.8 Nm
Tmax: 228.7 ms
Min: -13.8 Nm
Tmin: 36.6 ms
CFC 600

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

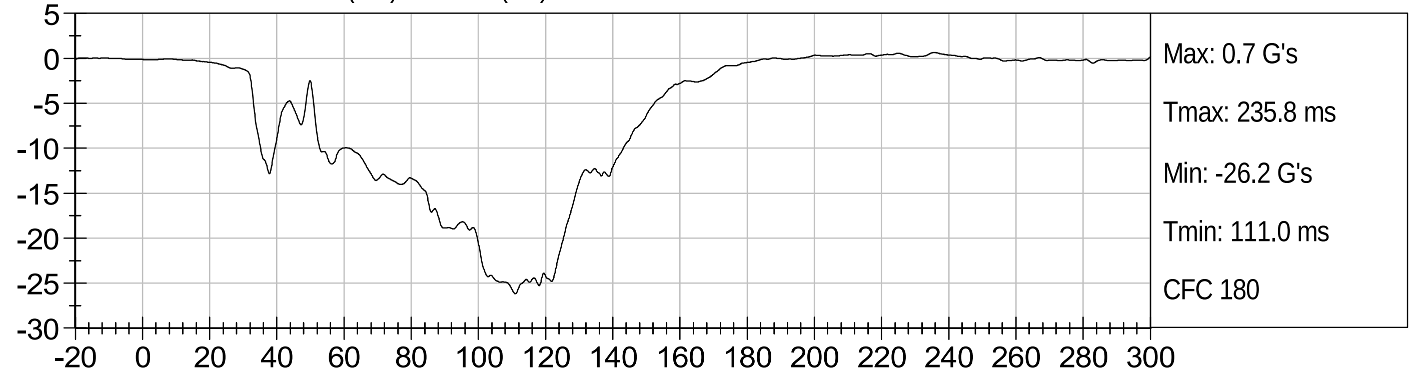


Max: 139.2 Nm
Tmax: 177.7 ms
Min: 0.4 Nm
Tmin: 0.0 ms
CFC 600

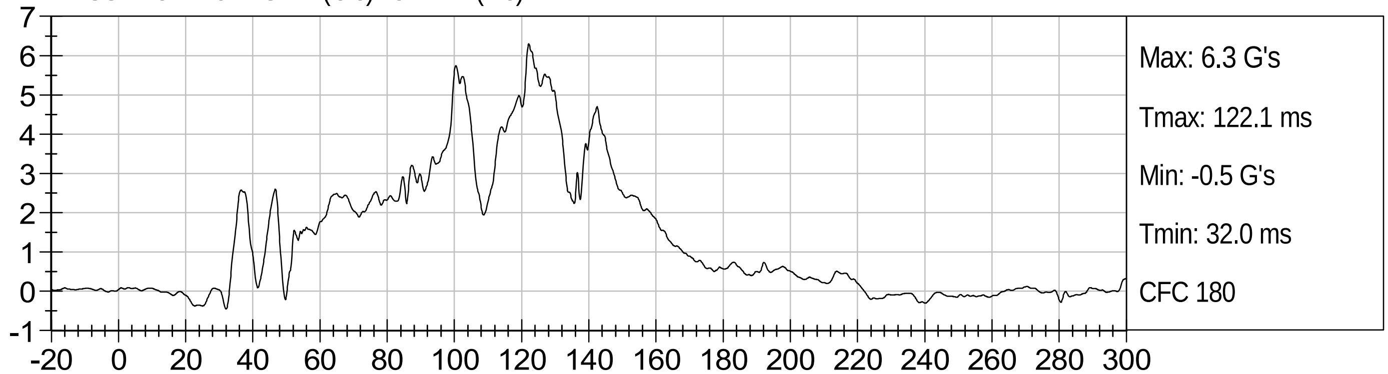
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

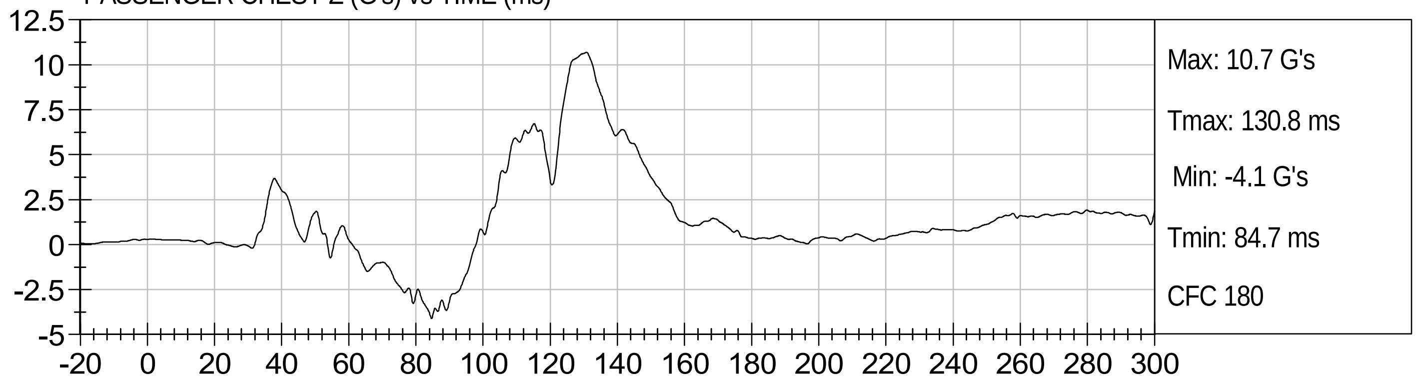
PASSENGER CHEST X (G's) vs TIME (ms)



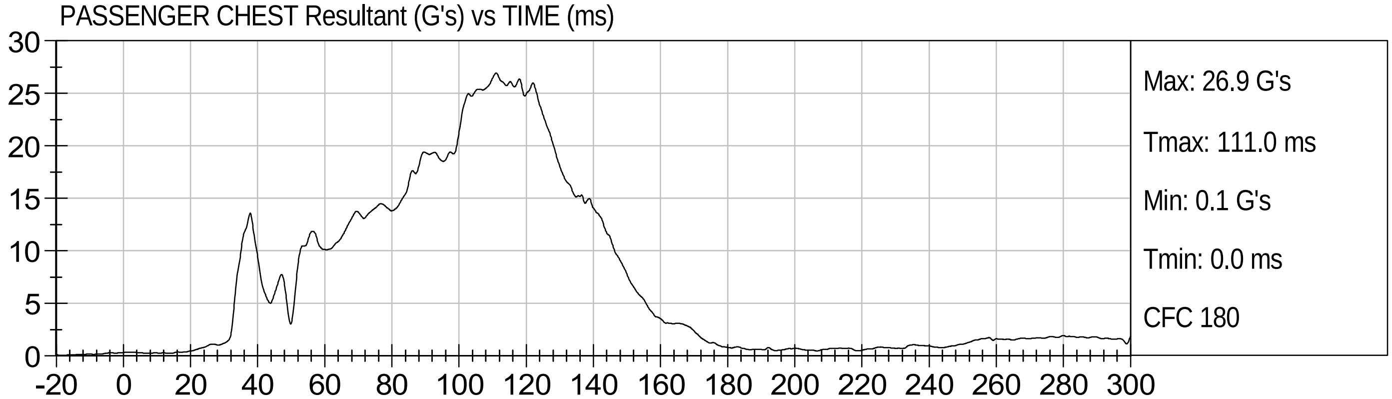
PASSENGER CHEST Y (G's) vs TIME (ms)



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



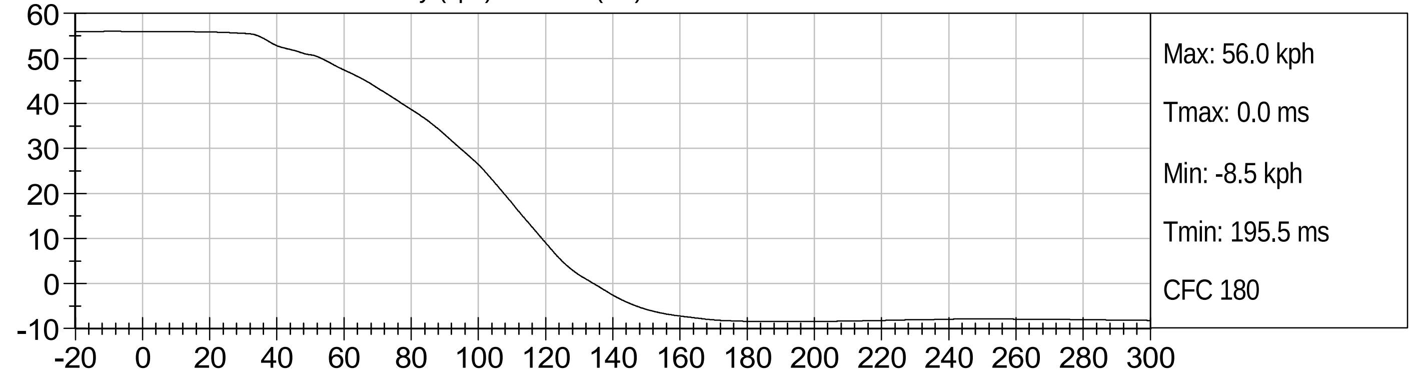
PASSENGER CHEST Resultant (G's) vs TIME (ms)



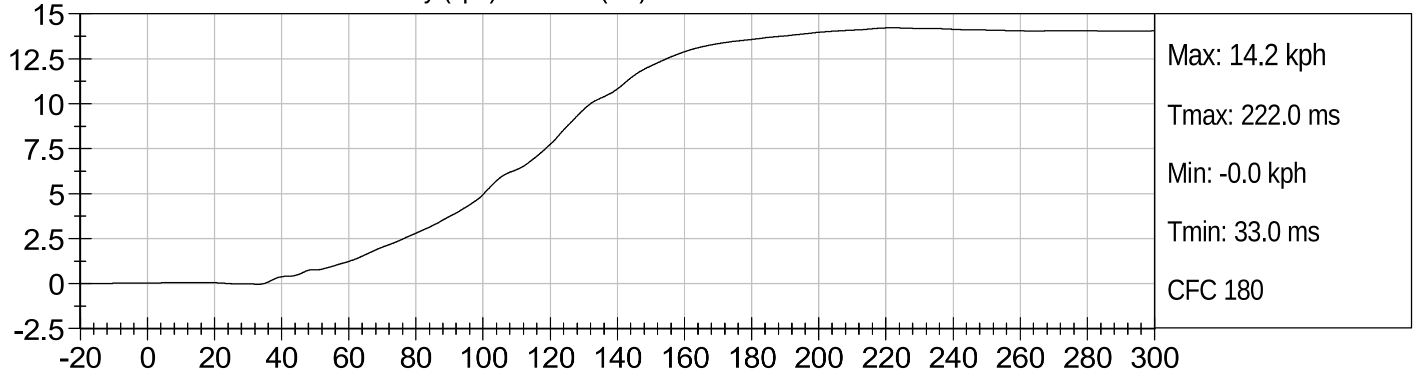
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

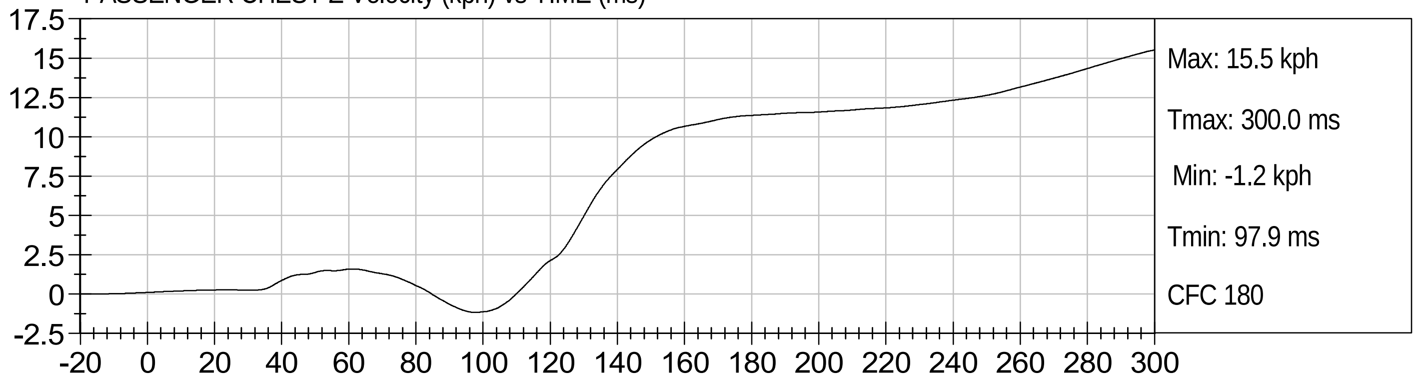
PASSENGER CHEST X Velocity (kph) vs TIME (ms)



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



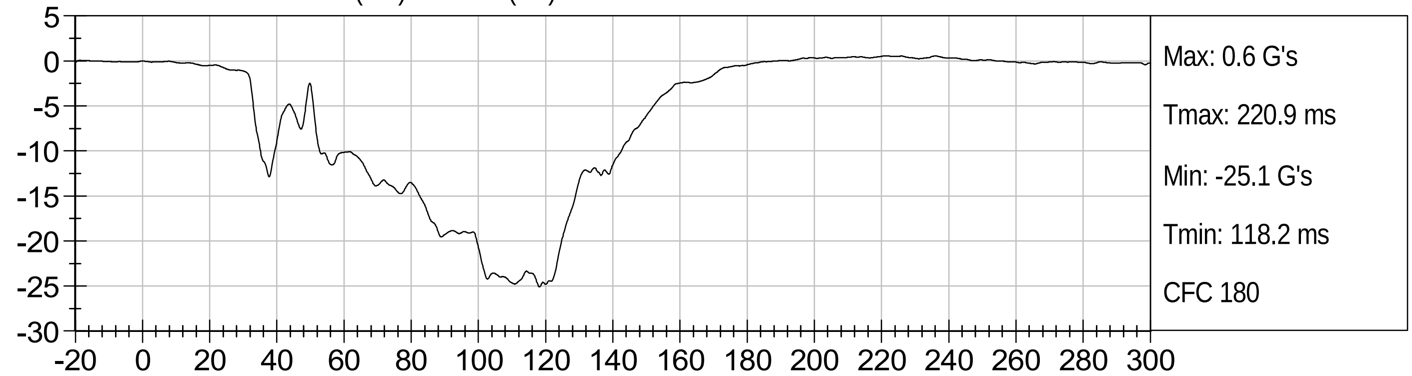
PASSENGER CHEST Z Velocity (kph) vs TIME (ms)



NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

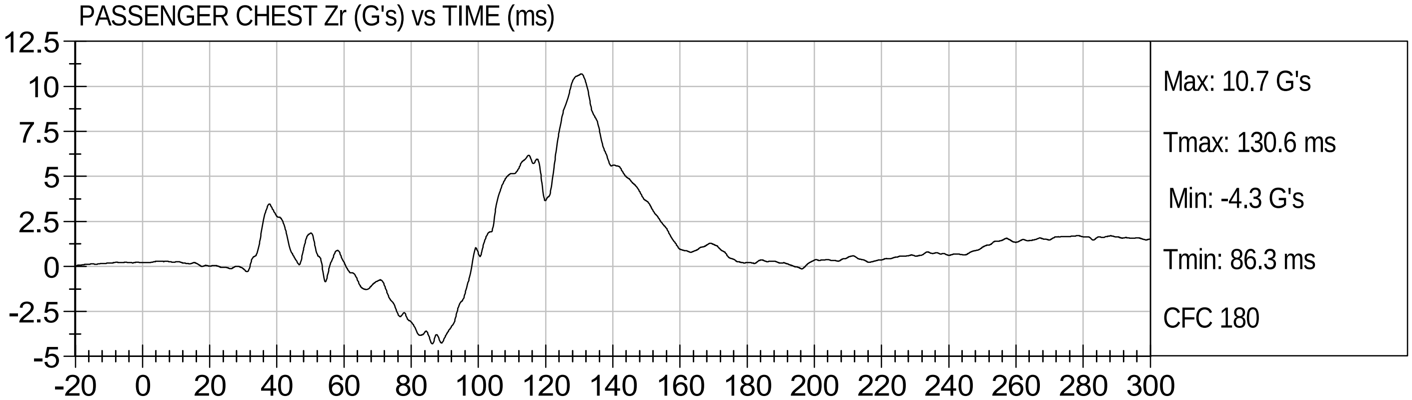
Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

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

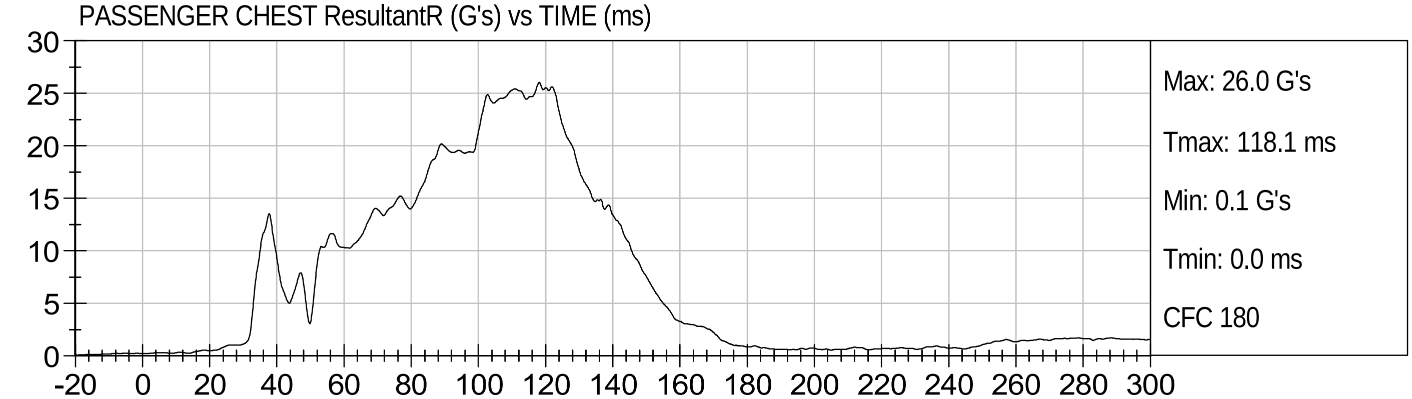


PASSENGER CHEST Yr (G's) vs TIME (ms)

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



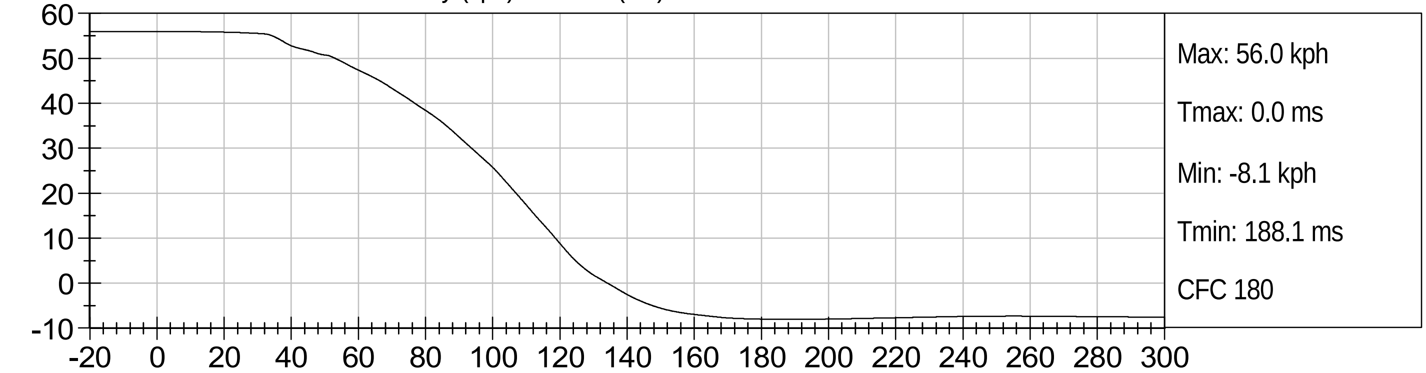
PASSENGER CHEST ResultantR (G's) vs TIME (ms)



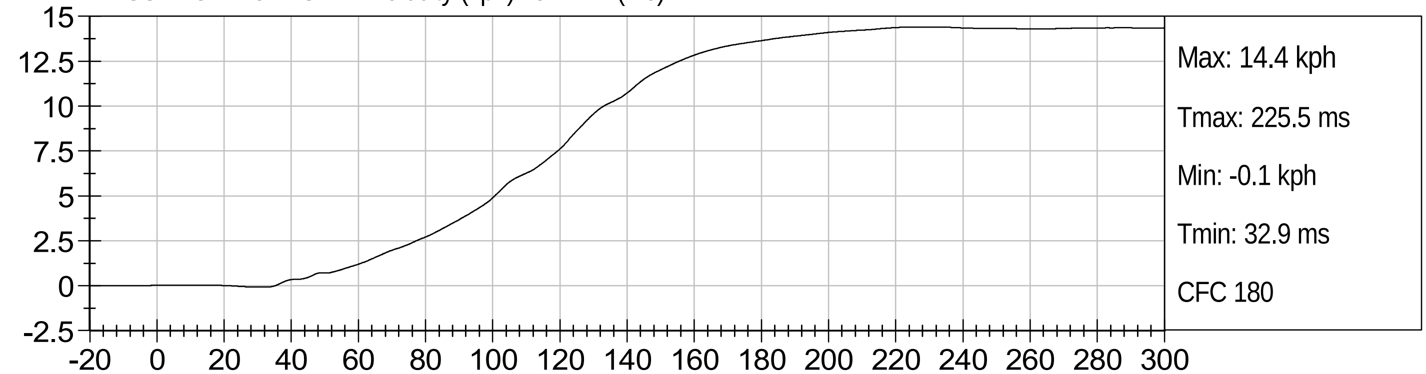
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

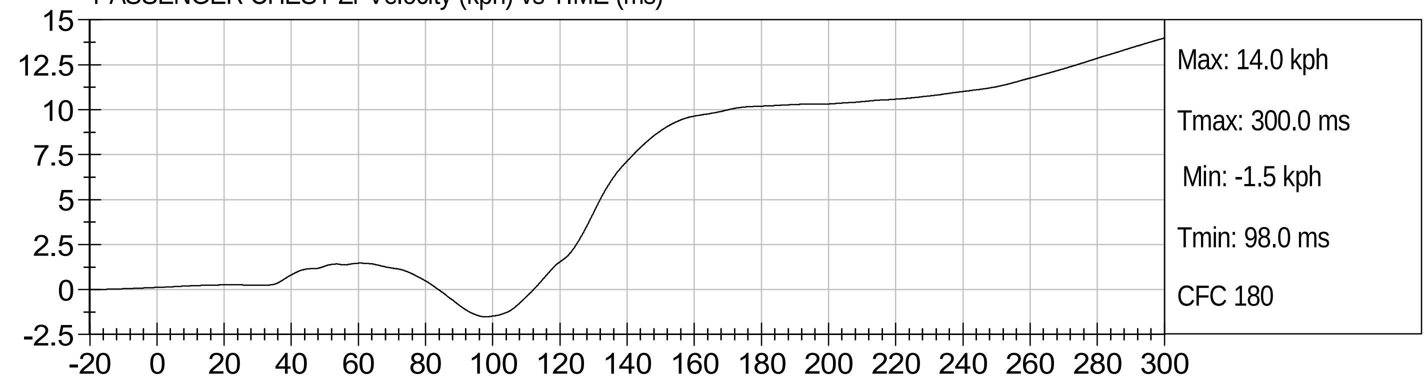
PASSENGER CHEST Xr Velocity (kph) vs TIME (ms)



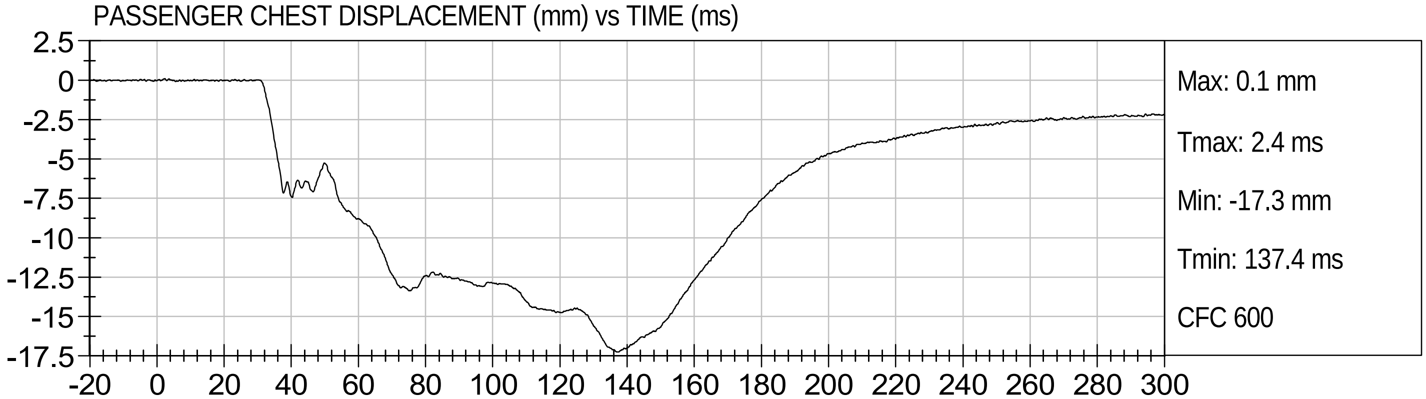
PASSENGER CHEST Yr Velocity (kph) vs TIME (ms)



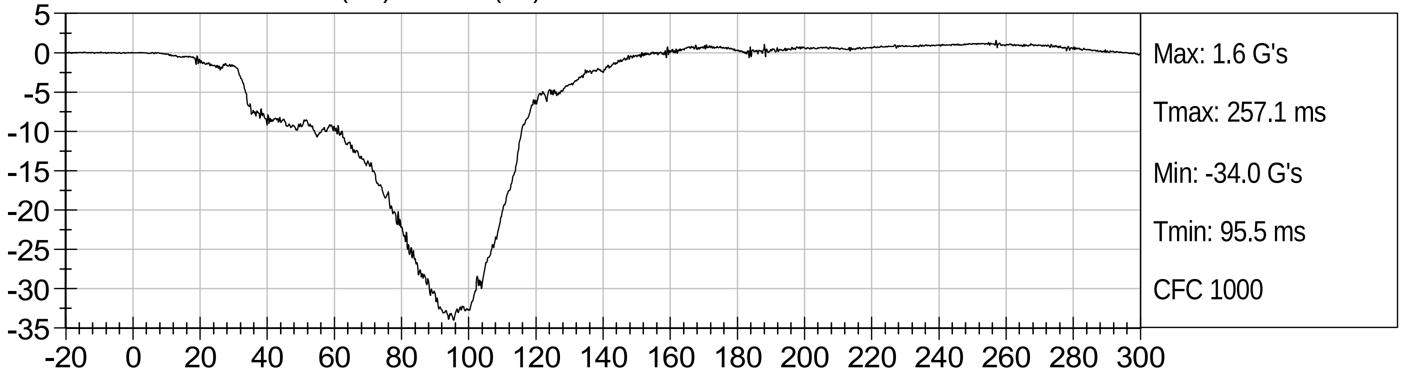
PASSENGER CHEST Zr Velocity (kph) vs TIME (ms)



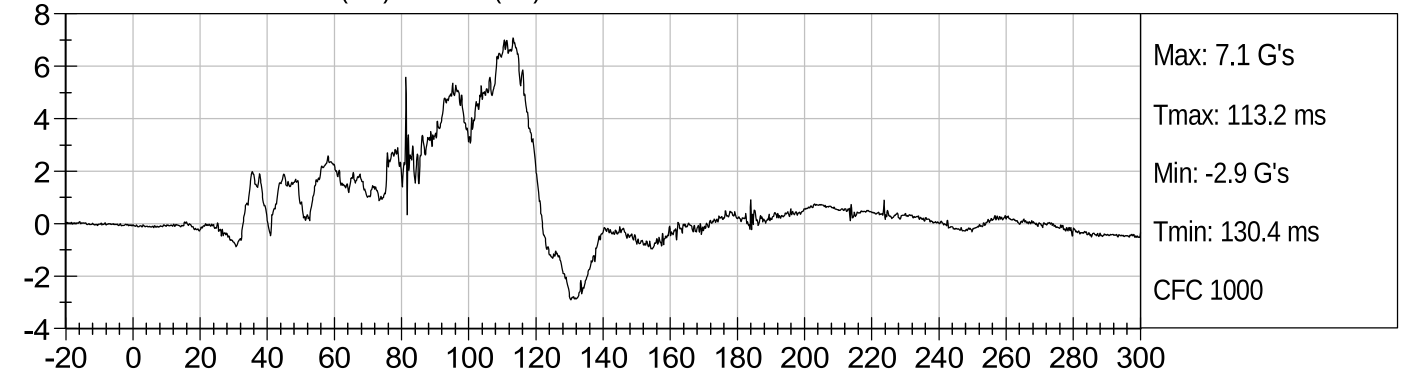
PASSENGER CHEST DISPLACEMENT (mm) vs TIME (ms)



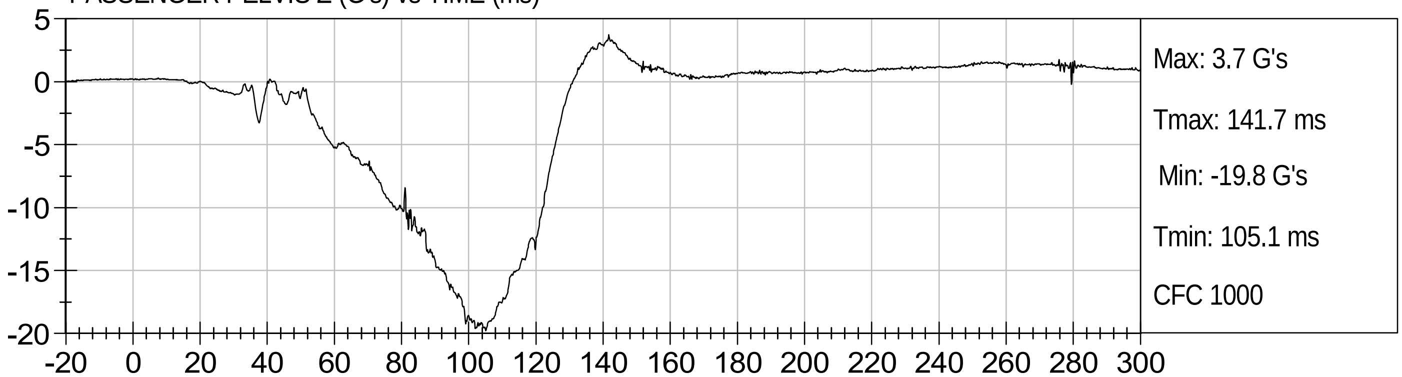
PASSENGER PELVIS X (G's) vs TIME (ms)



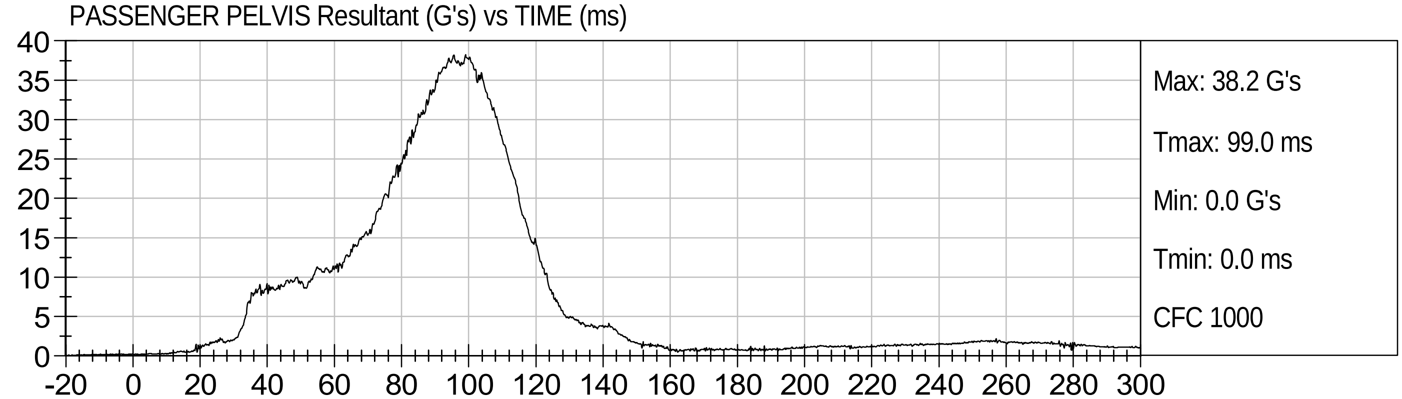
PASSENGER PELVIS Y (G's) vs TIME (ms)



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



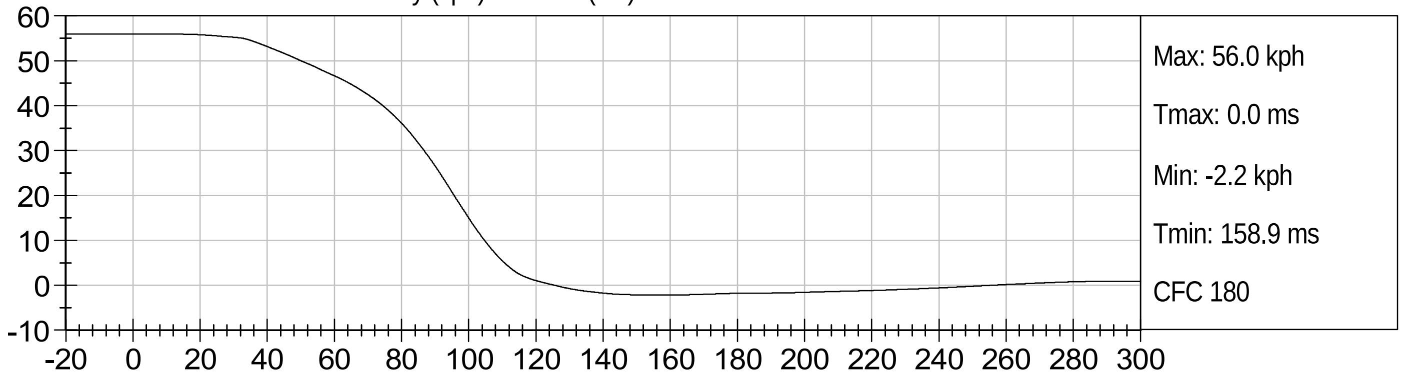
PASSENGER PELVIS Resultant (G's) vs TIME (ms)



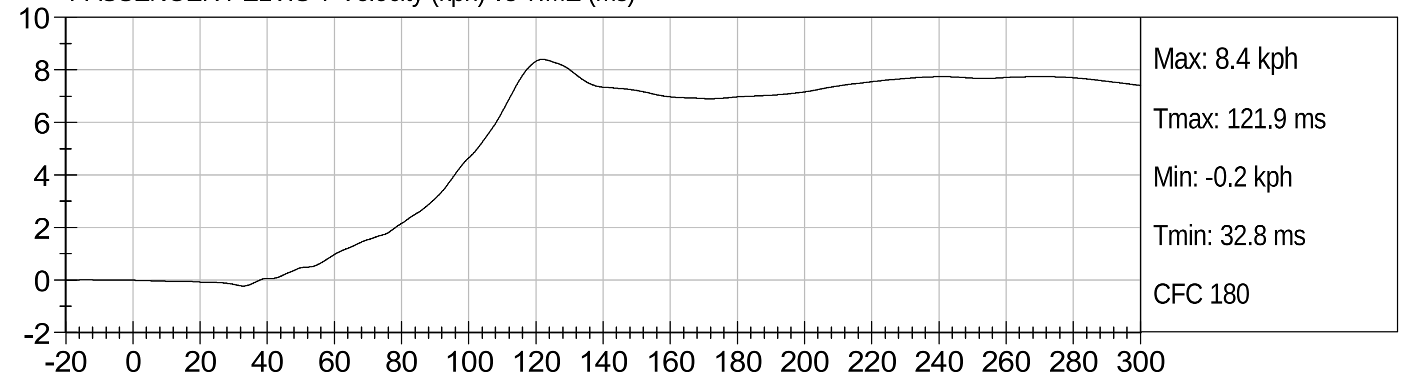
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

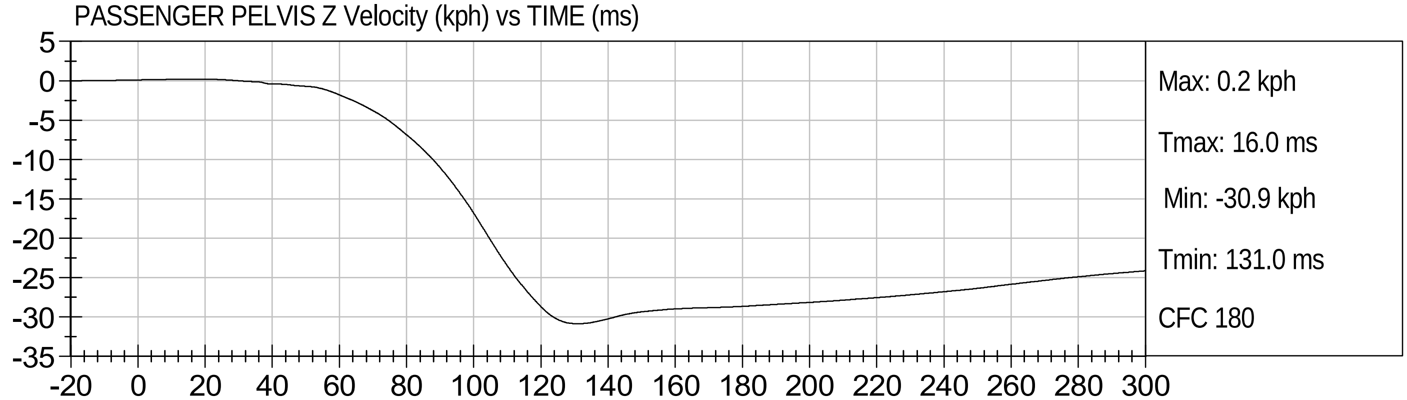
PASSENGER PELVIS X Velocity (kph) vs TIME (ms)



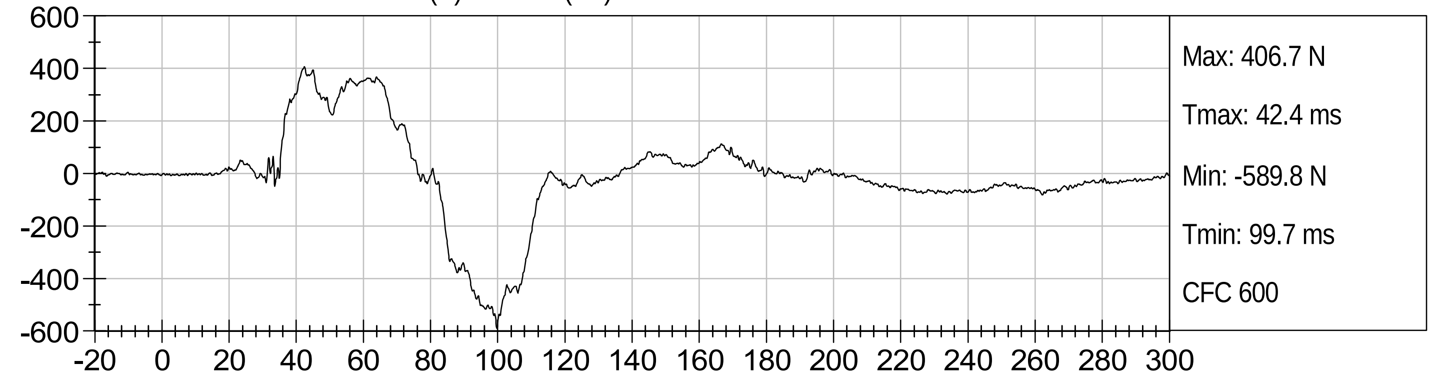
PASSENGER PELVIS Y Velocity (kph) vs TIME (ms)



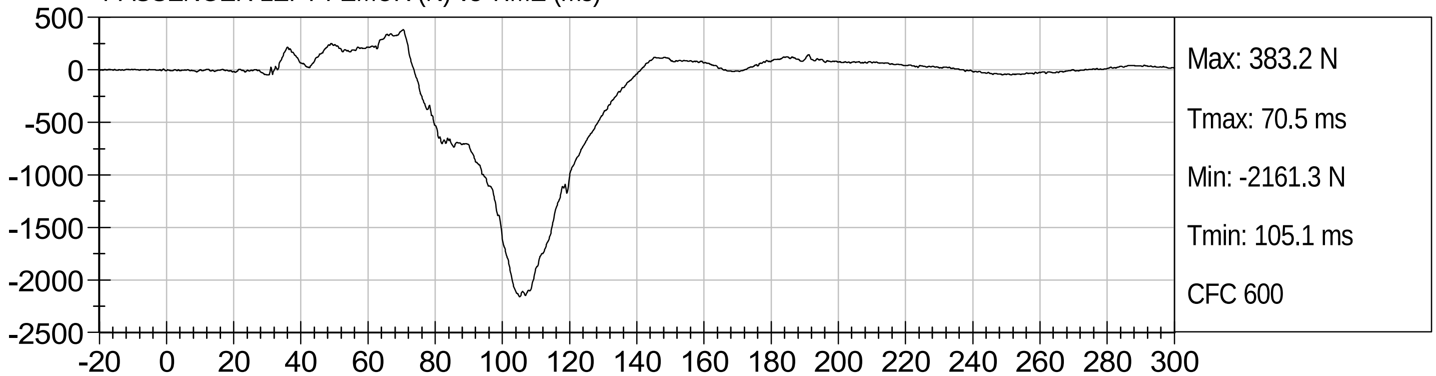
PASSENGER PELVIS Z Velocity (kph) vs TIME (ms)



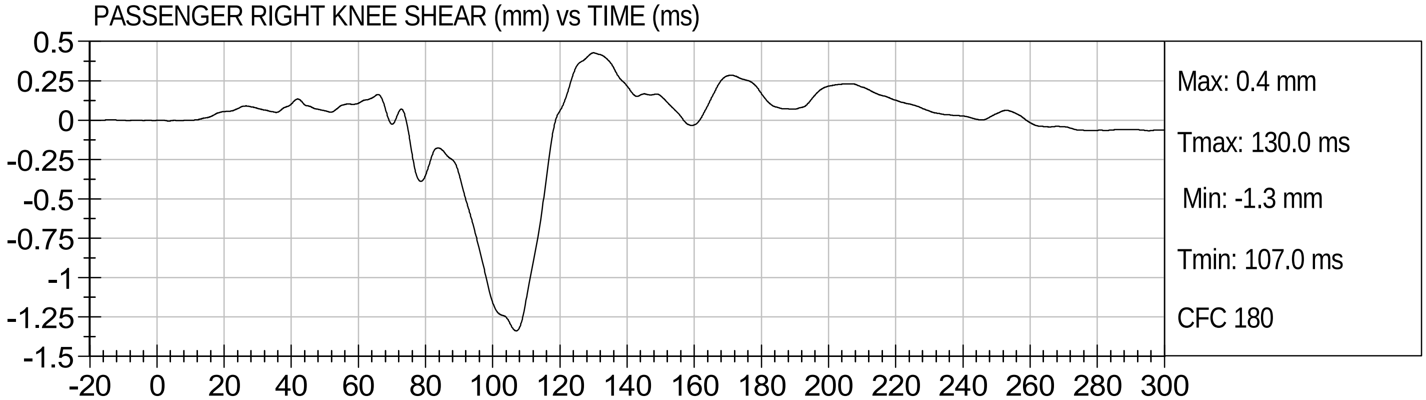
PASSENGER RIGHT FEMUR (N) vs TIME (ms)



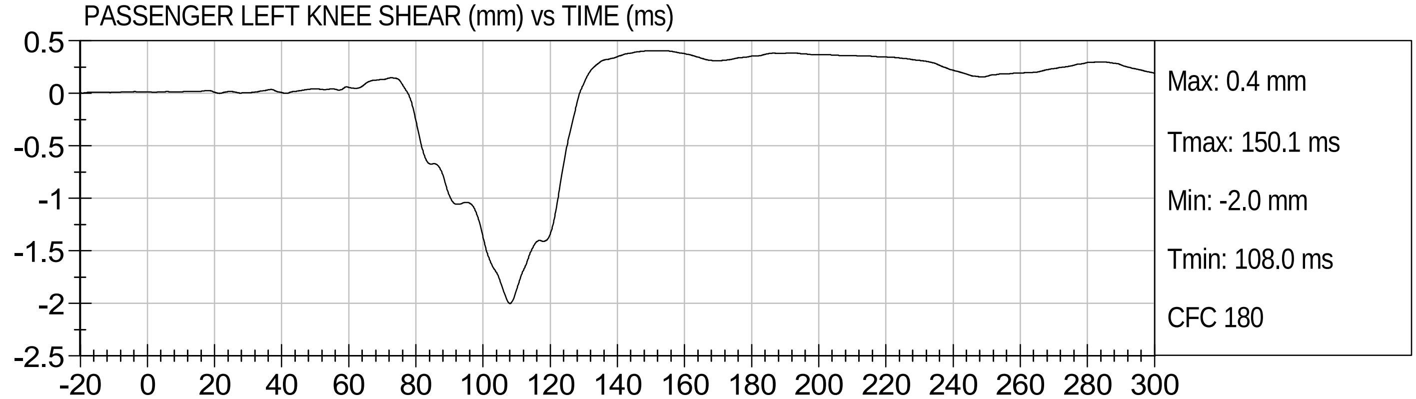
PASSENGER LEFT FEMUR (N) vs TIME (ms)



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



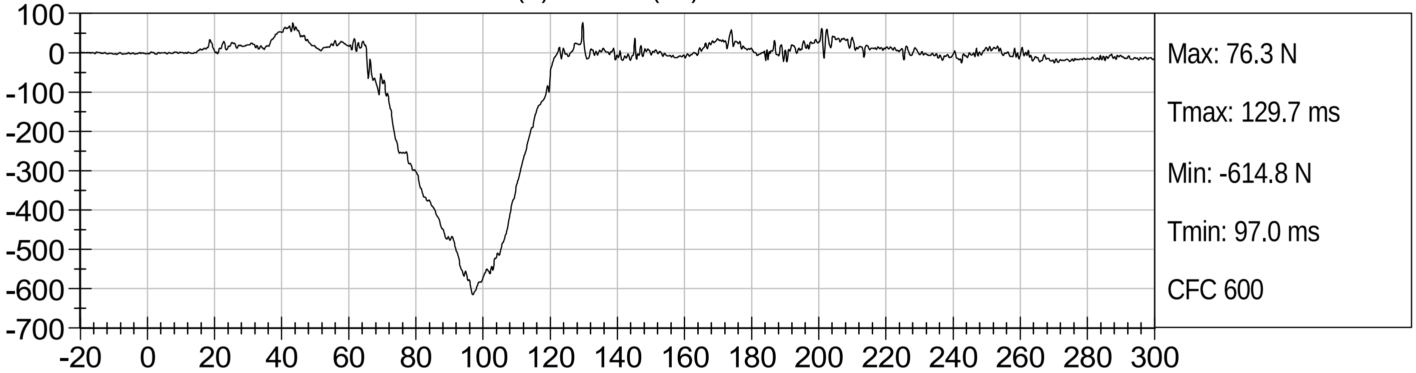
PASSENGER LEFT KNEE SHEAR (mm) vs TIME (ms)



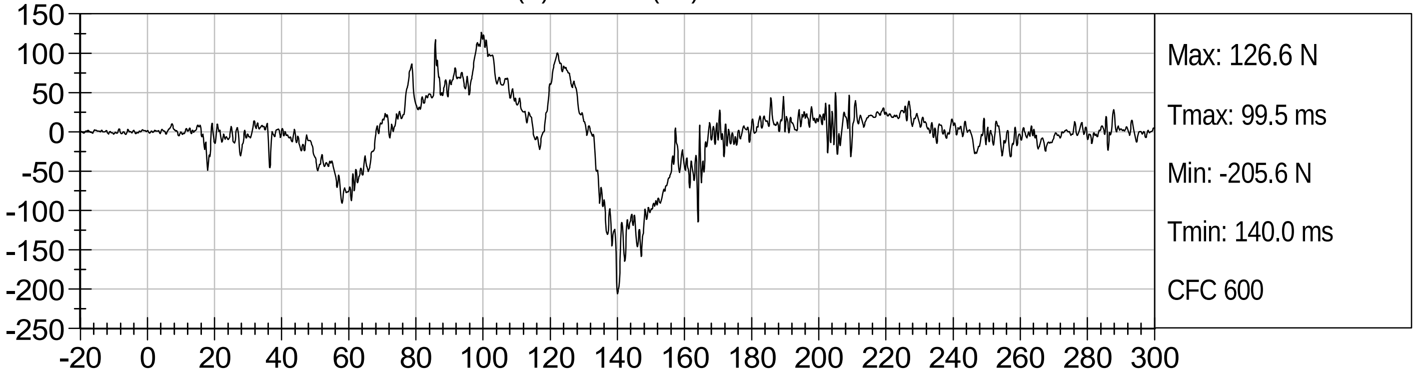
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

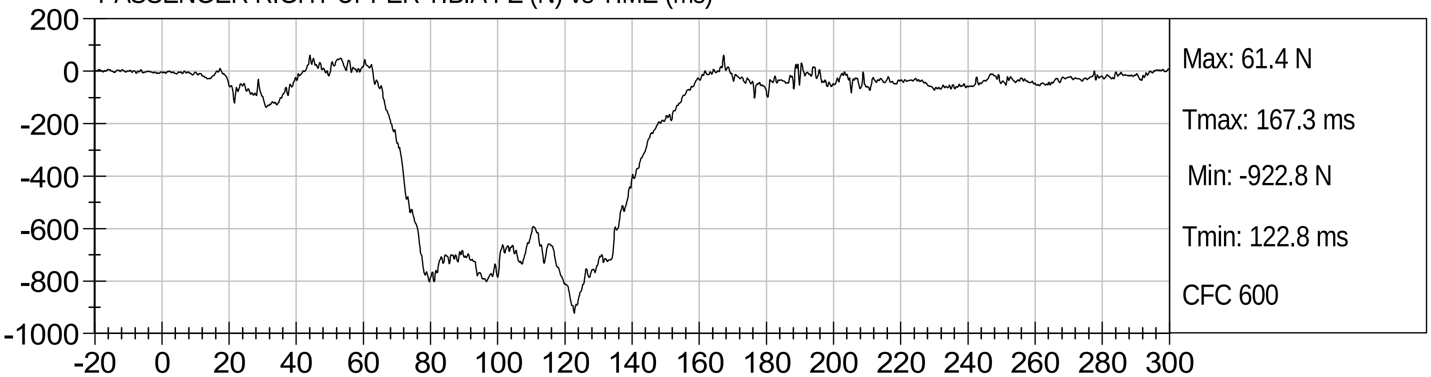
PASSENGER RIGHT UPPER TIBIA FX (N) vs TIME (ms)



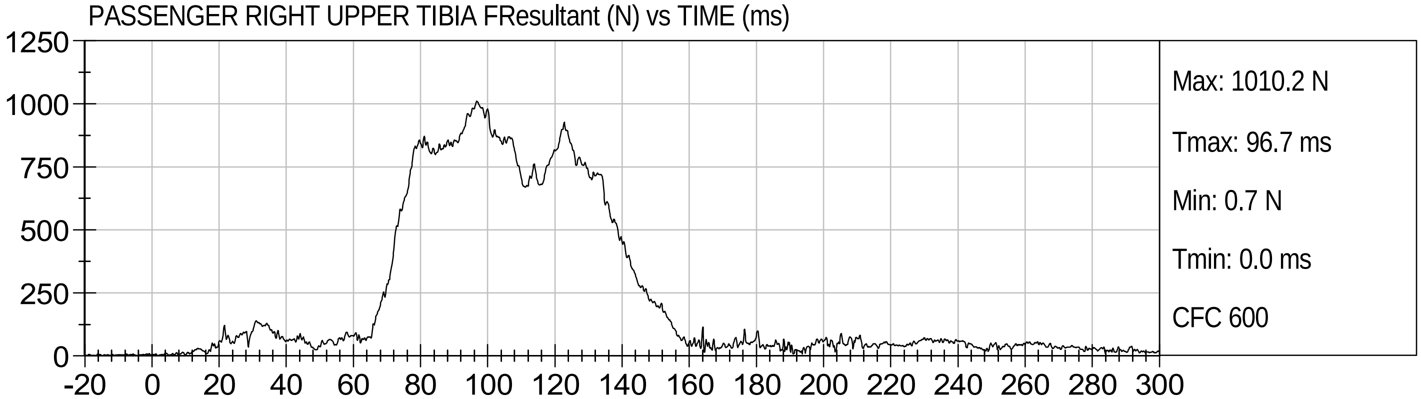
PASSENGER RIGHT UPPER TIBIA FY (N) vs TIME (ms)



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



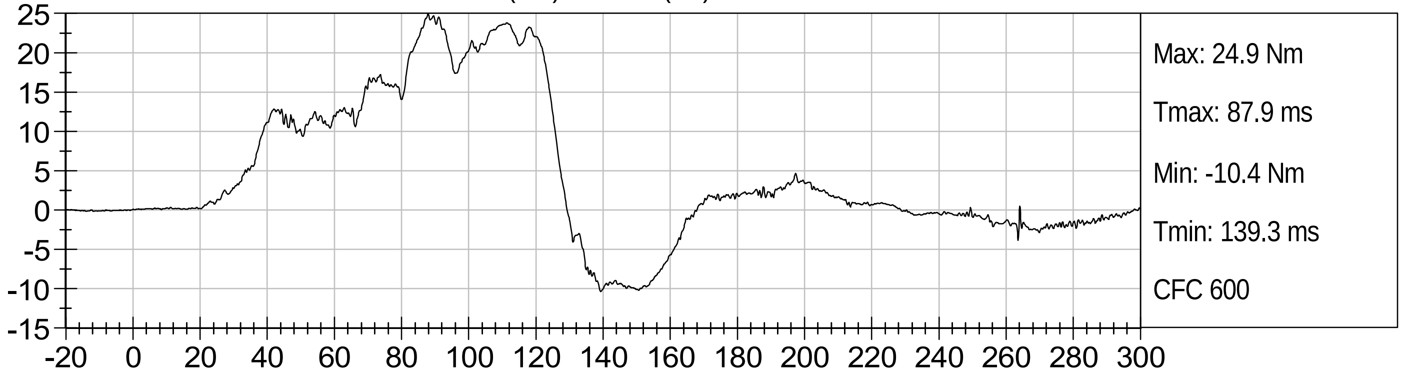
PASSENGER RIGHT UPPER TIBIA FResultant (N) vs TIME (ms)



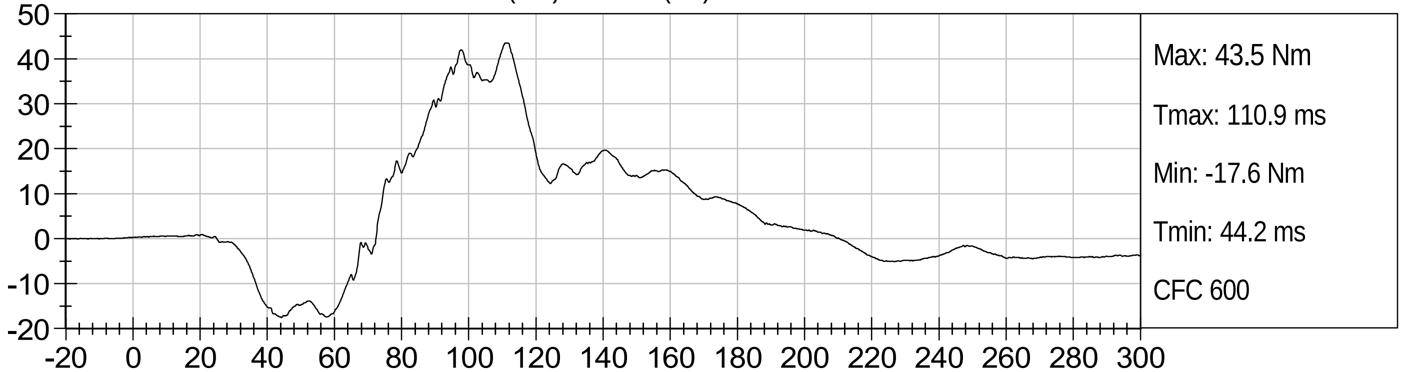
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

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



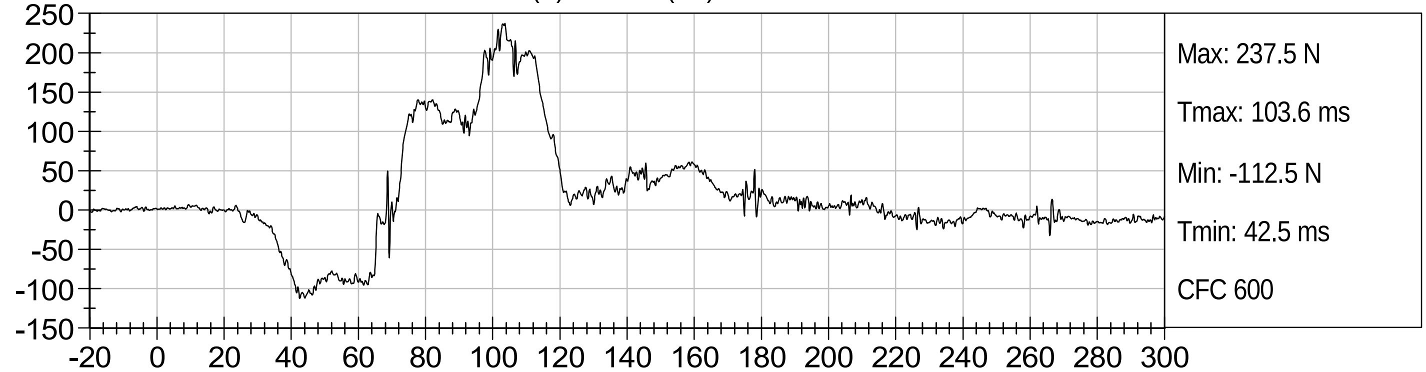
PASSENGER RIGHT UPPER TIBIA MY (Nm) vs TIME (ms)



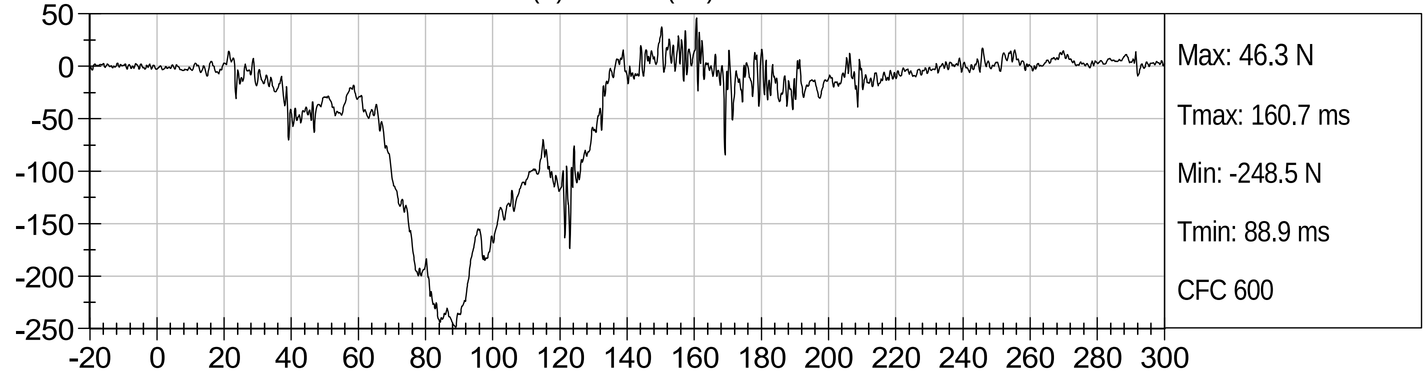
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

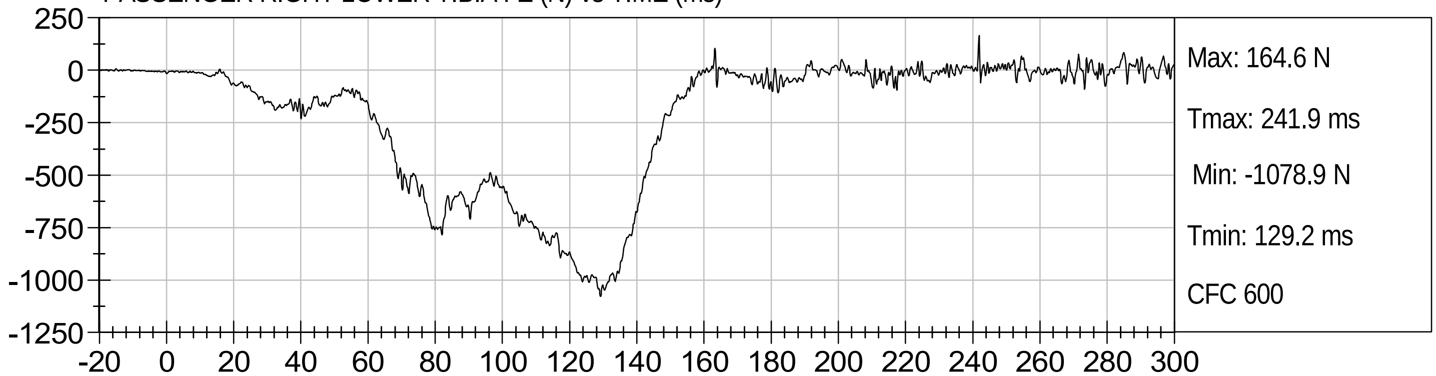
PASSENGER RIGHT LOWER TIBIA FX (N) vs TIME (ms)



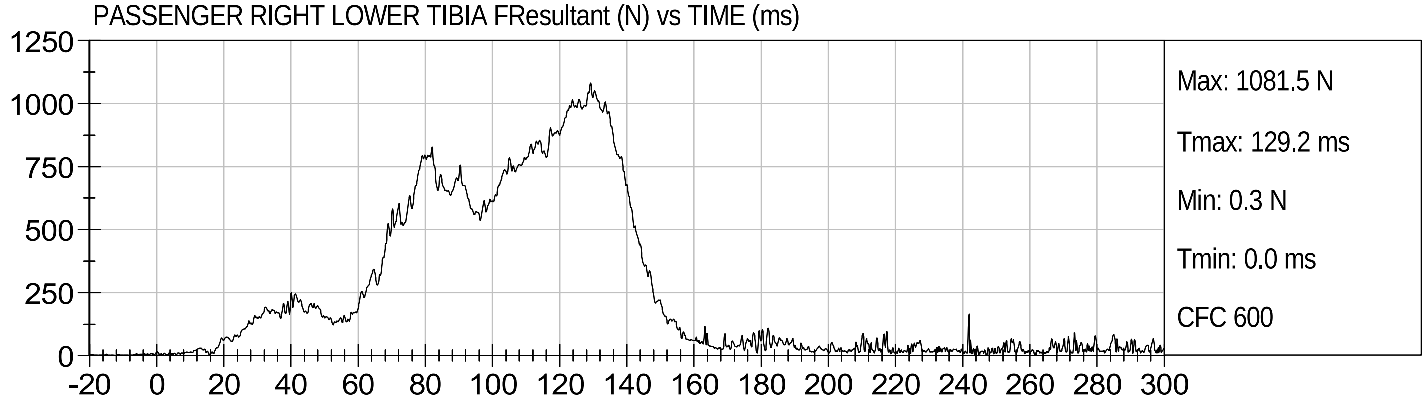
PASSENGER RIGHT LOWER TIBIA FY (N) vs TIME (ms)

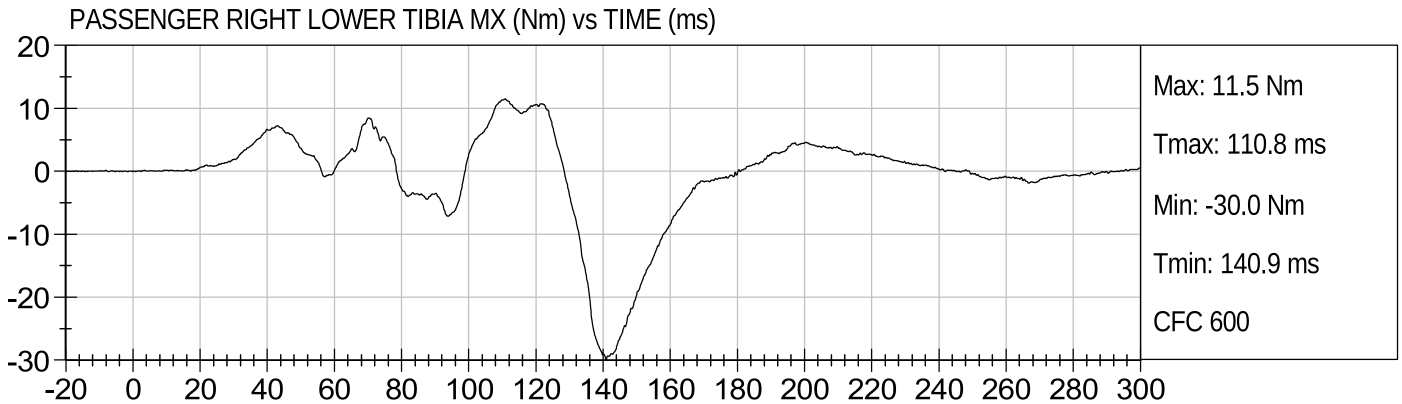


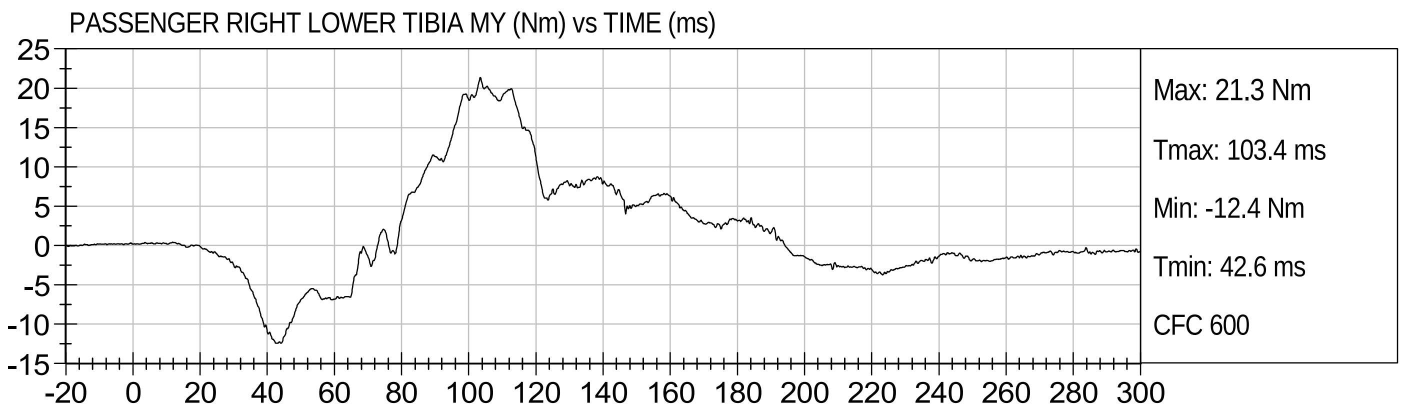
PASSENGER RIGHT LOWER TIBIA FZ (N) vs TIME (ms)

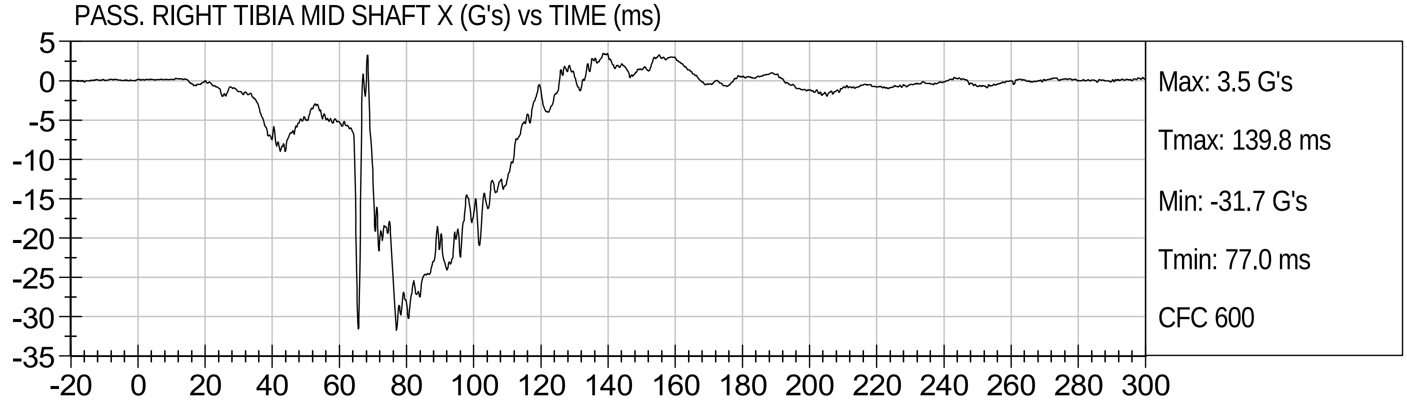


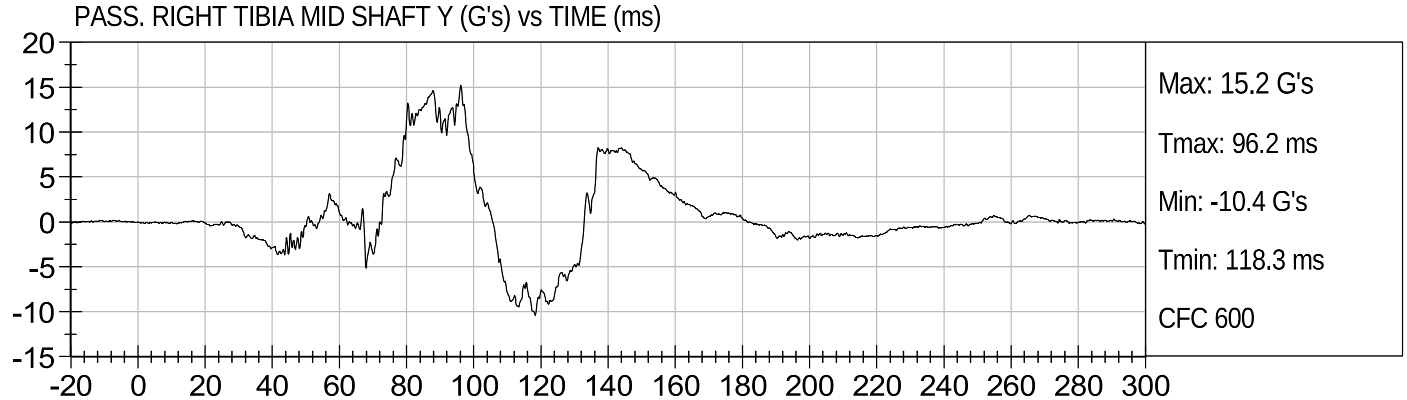
PASSENGER RIGHT LOWER TIBIA FResultant (N) vs TIME (ms)

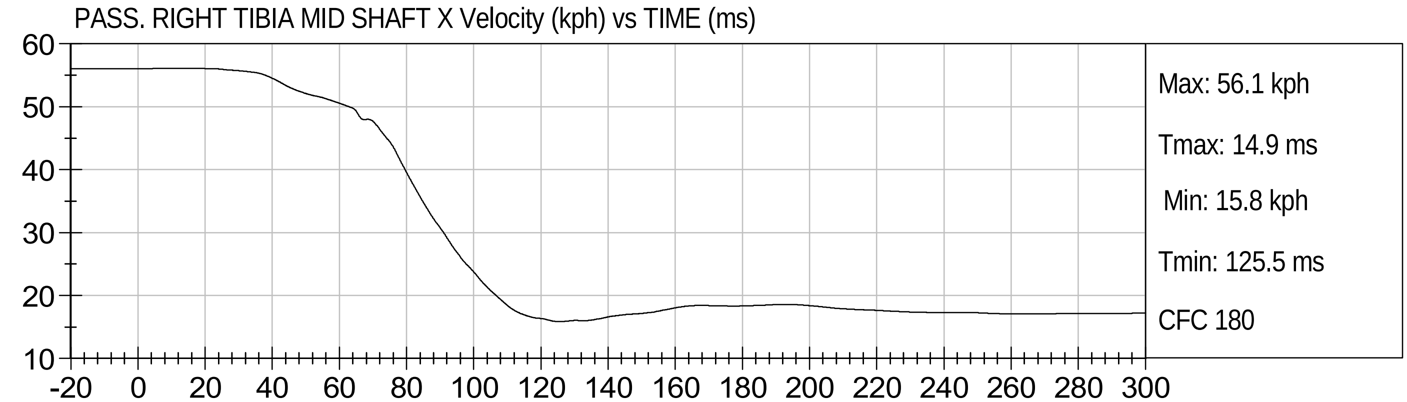


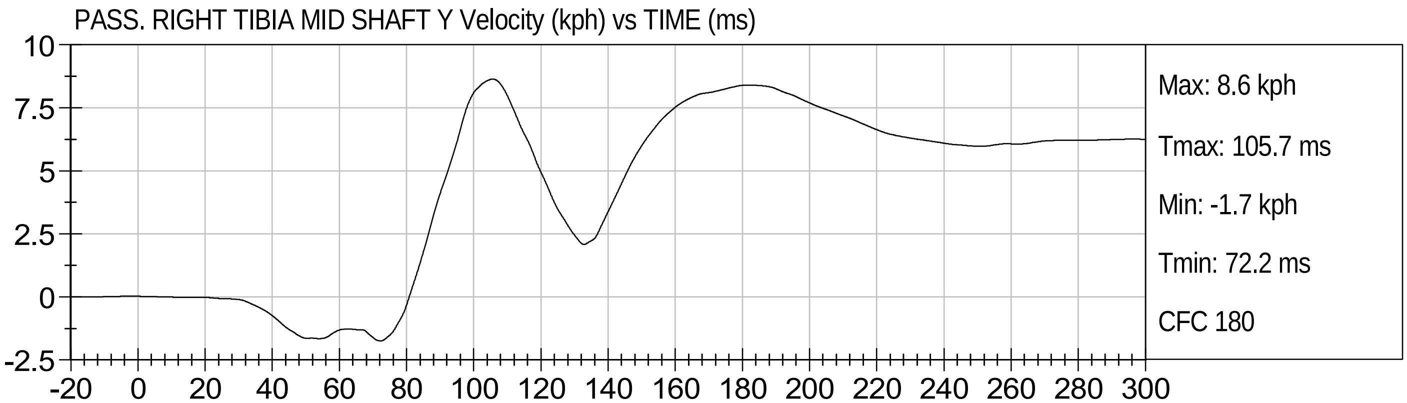

PASSENGER RIGHT LOWER TIBIA MX (Nm) vs TIME (ms)
20
10
0
-10
-20
-30
-20
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
Max: 11.5 Nm
Tmax: 110.8 ms
Min: -30.0 Nm
Tmin: 140.9 ms
CFC 600


PASSENGER RIGHT LOWER TIBIA MY (Nm) vs TIME (ms)
25
20
15
10
5
0
-5
-10
-15
-20
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
Max: 21.3 Nm
Tmax: 103.4 ms
Min: -12.4 Nm
Tmin: 42.6 ms
CFC 600

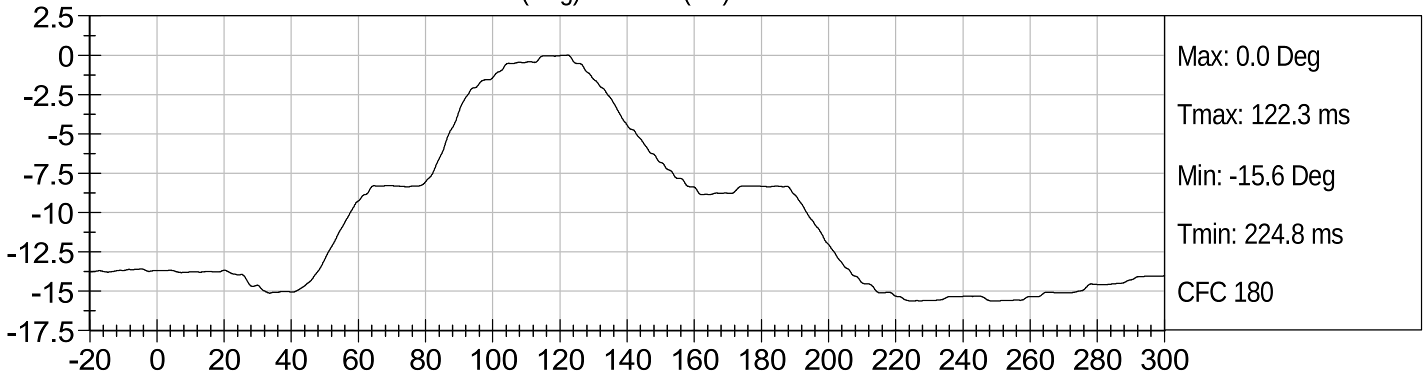

PASS. RIGHT TIBIA MID SHAFT X (G's) vs TIME (ms)
Max: 3.5 G's
Tmax: 139.8 ms
Min: -31.7 G's
Tmin: 77.0 ms
CFC 600


PASS. RIGHT TIBIA MID SHAFT Y (G's) vs TIME (ms)
Max: 15.2 G's
Tmax: 96.2 ms
Min: -10.4 G's
Tmin: 118.3 ms
CFC 600

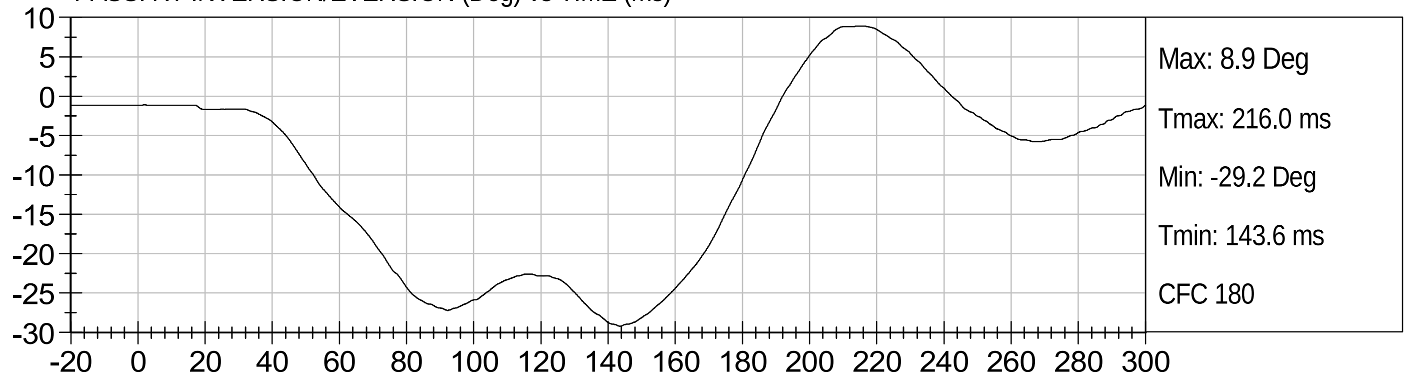

PASS. RIGHT TIBIA MID SHAFT X Velocity (kph) vs TIME (ms)
Max: 56.1 kph
Tmax: 14.9 ms
Min: 15.8 kph
Tmin: 125.5 ms
CFC 180


PASS. RIGHT TIBIA MID SHAFT Y Velocity (kph) vs TIME (ms)
Max: 8.6 kph
Tmax: 105.7 ms
Min: -1.7 kph
Tmin: 72.2 ms
CFC 180

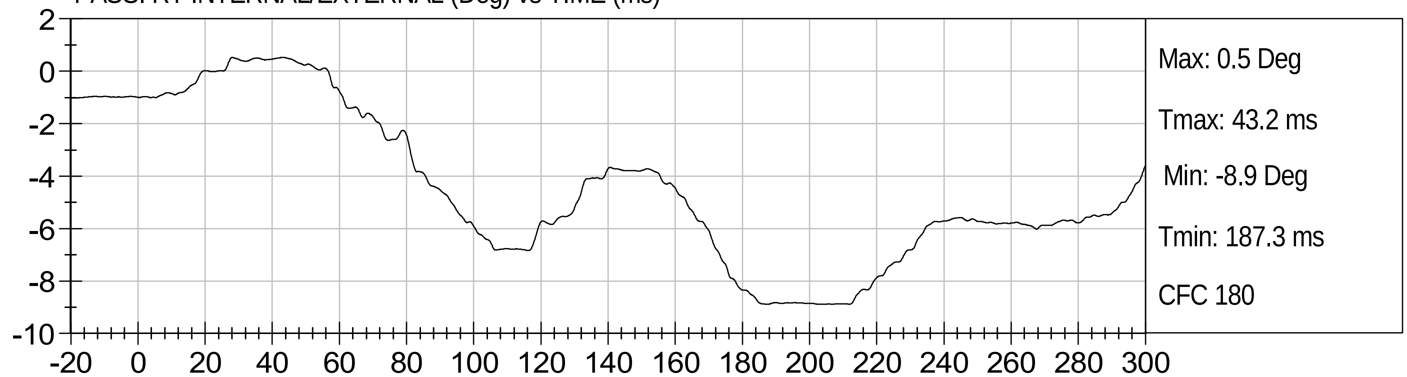
PASS. RT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)



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



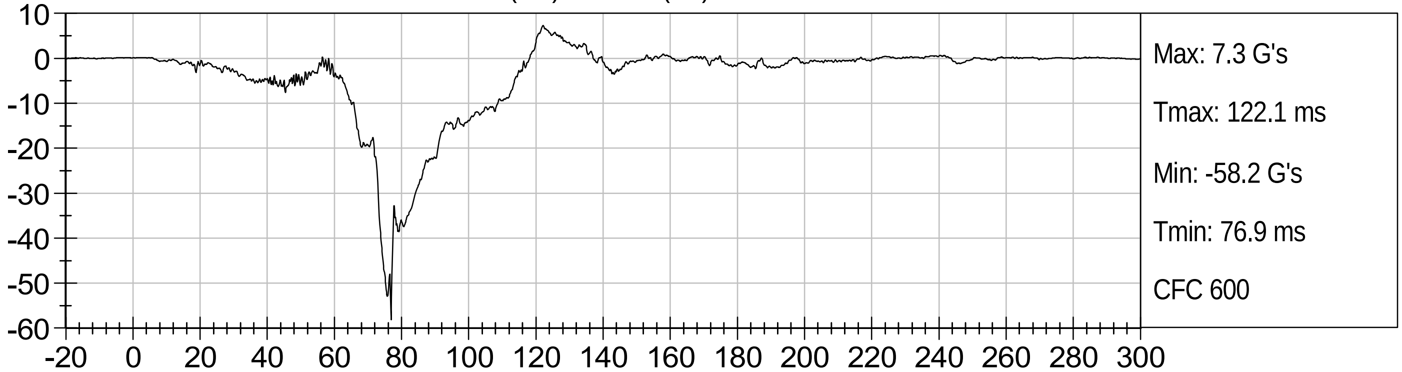
PASS. RT INTERNAL/EXTERNAL (Deg) vs TIME (ms)



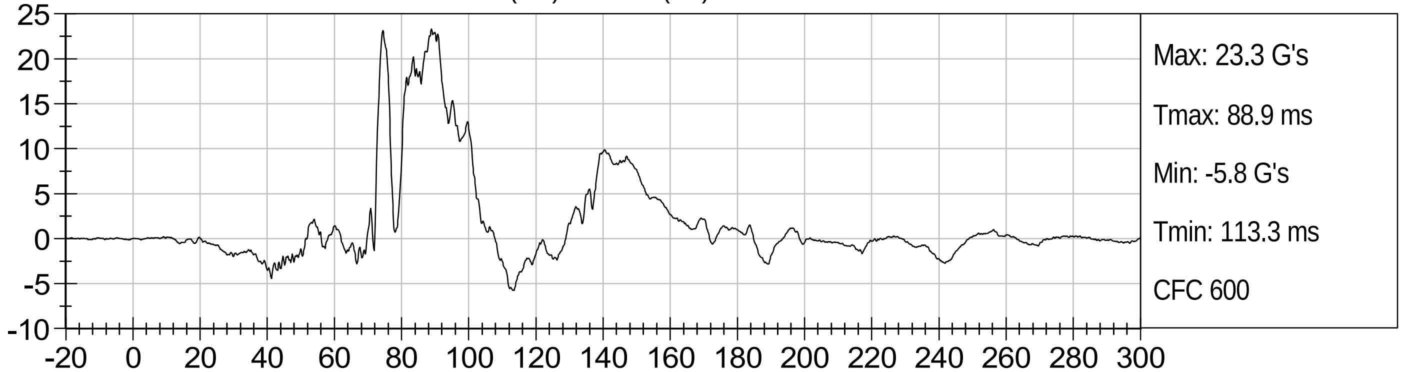
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

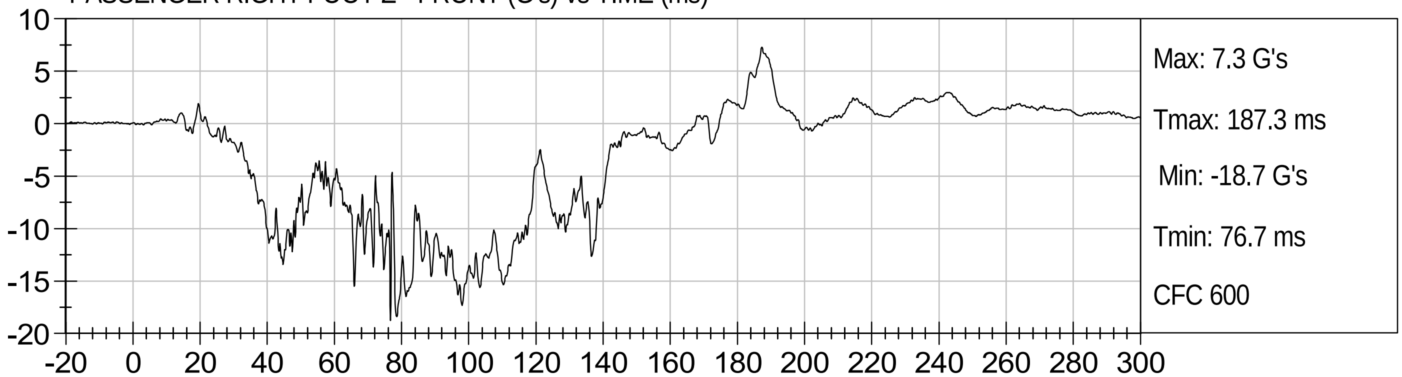
PASSENGER RIGHT FOOT X - FRONT (G's) vs TIME (ms)



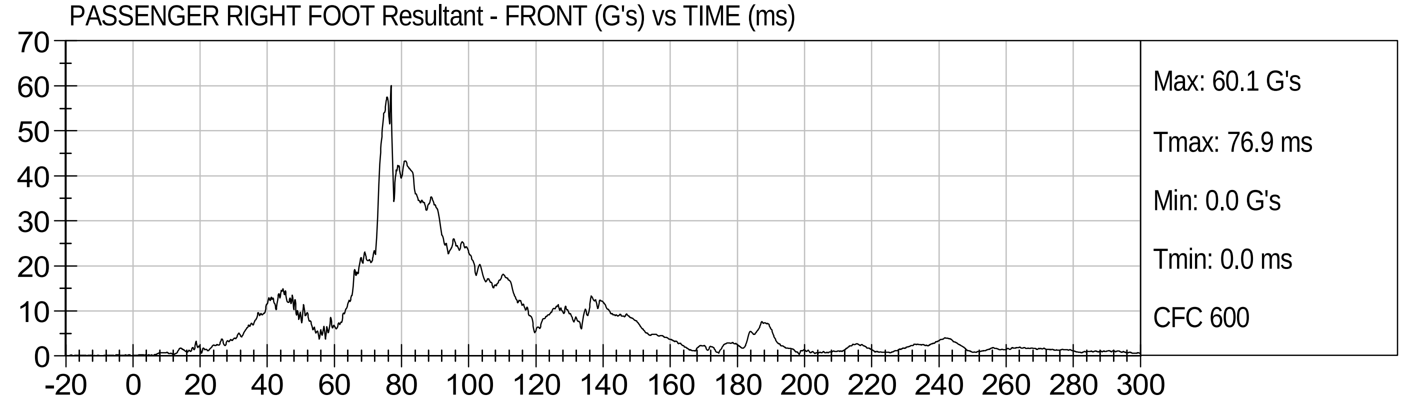
PASSENGER RIGHT FOOT Y - FRONT (G's) vs TIME (ms)

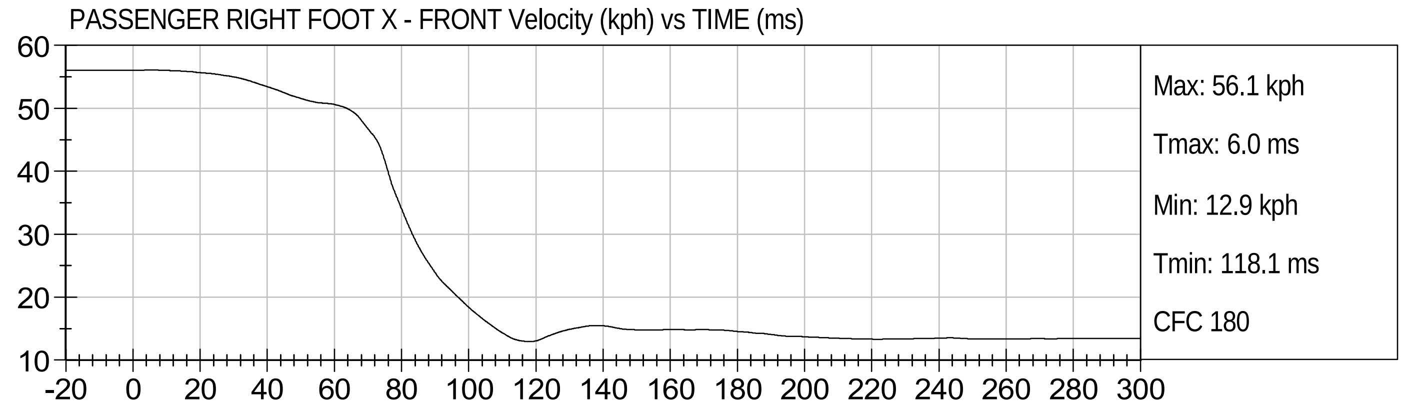


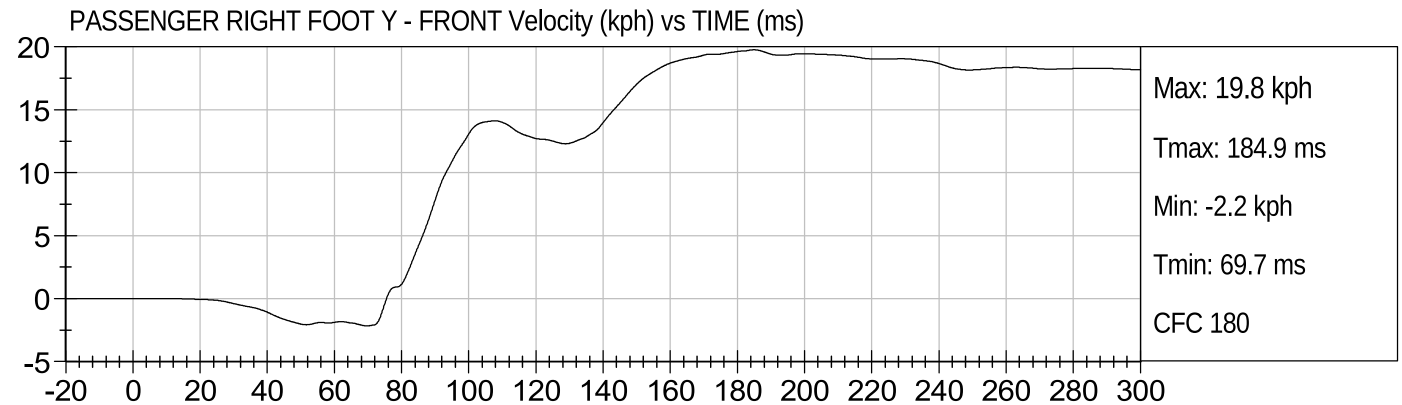
PASSENGER RIGHT FOOT Z - FRONT (G's) vs TIME (ms)

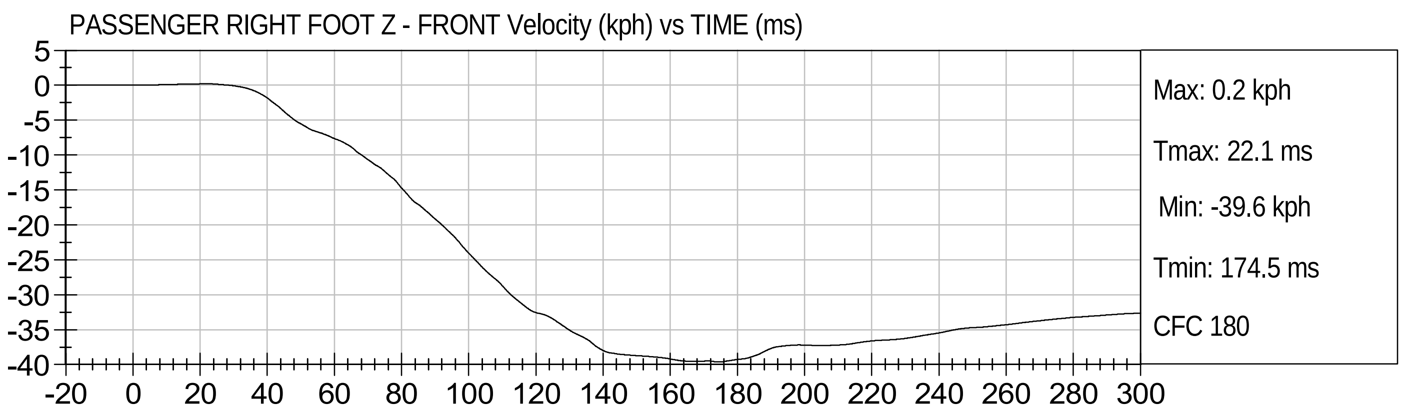


PASSENGER RIGHT FOOT Resultant - FRONT (G's) vs TIME (ms)

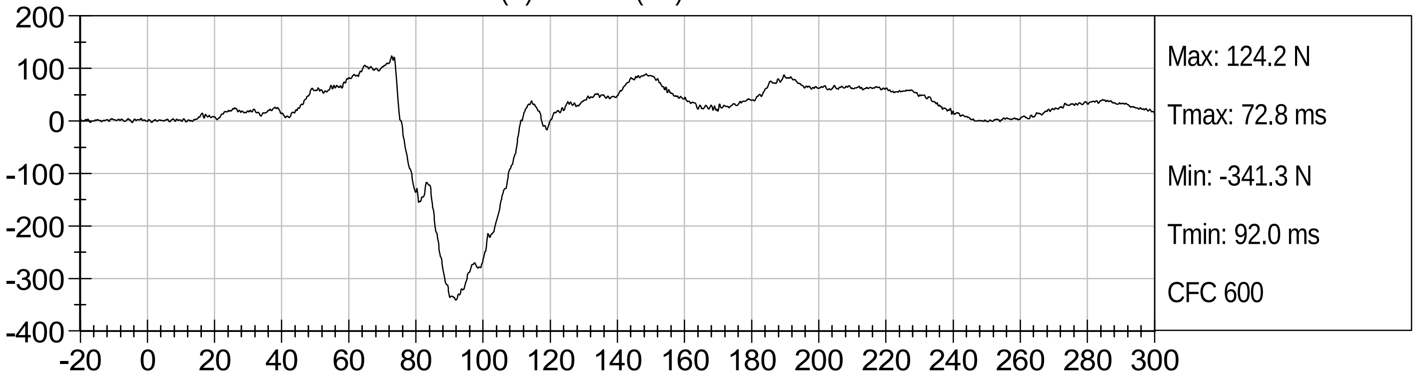



PASSENGER RIGHT FOOT X - FRONT Velocity (kph) vs TIME (ms)
Max: 56.1 kph
Tmax: 6.0 ms
Min: 12.9 kph
Tmin: 118.1 ms
CFC 180


PASSENGER RIGHT FOOT Y - FRONT Velocity (kph) vs TIME (ms)
Max: 19.8 kph
Tmax: 184.9 ms
Min: -2.2 kph
Tmin: 69.7 ms
CFC 180

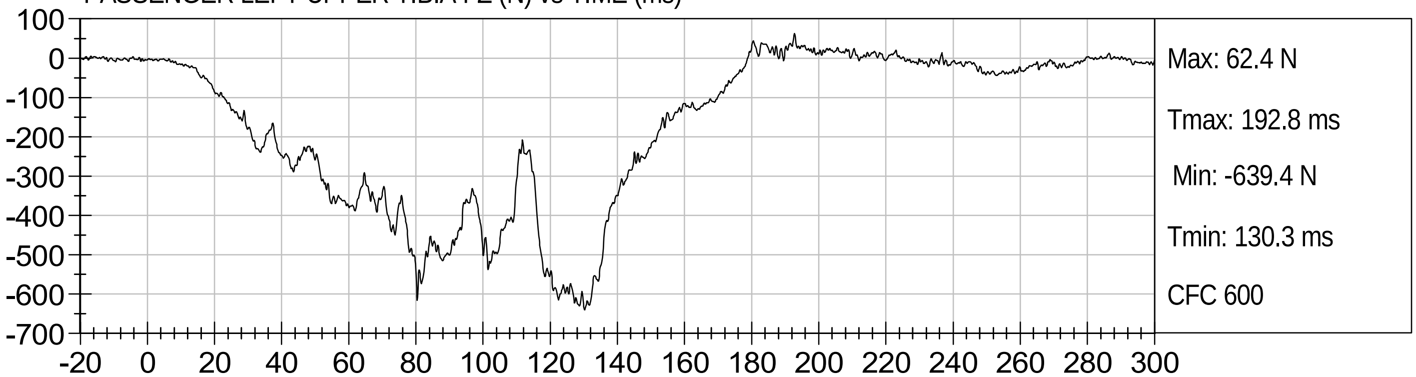

PASSENGER RIGHT FOOT Z - FRONT Velocity (kph) vs TIME (ms)
Max: 0.2 kph
Tmax: 22.1 ms
Min: -39.6 kph
Tmin: 174.5 ms
CFC 180

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

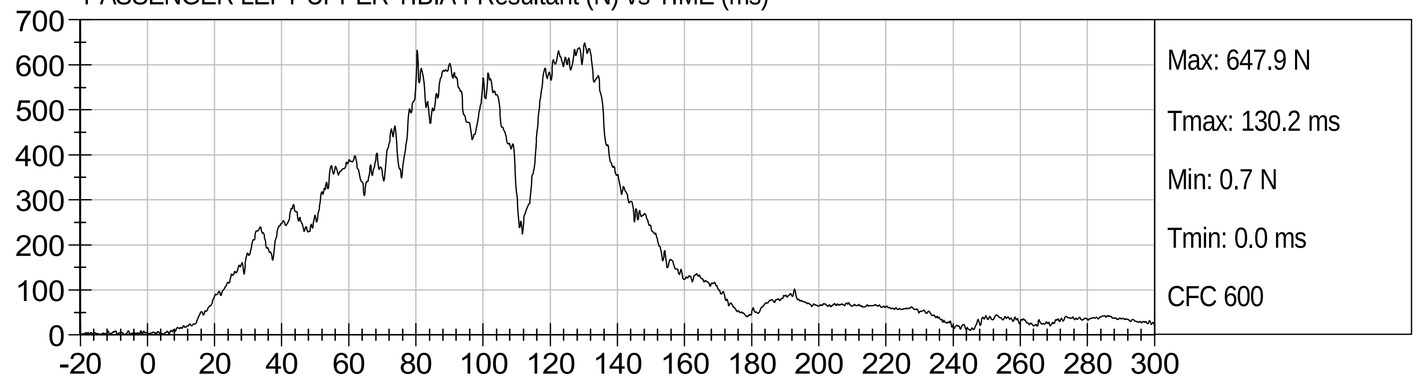


PASSENGER LEFT UPPER TIBIA FY (N) vs TIME (ms)

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

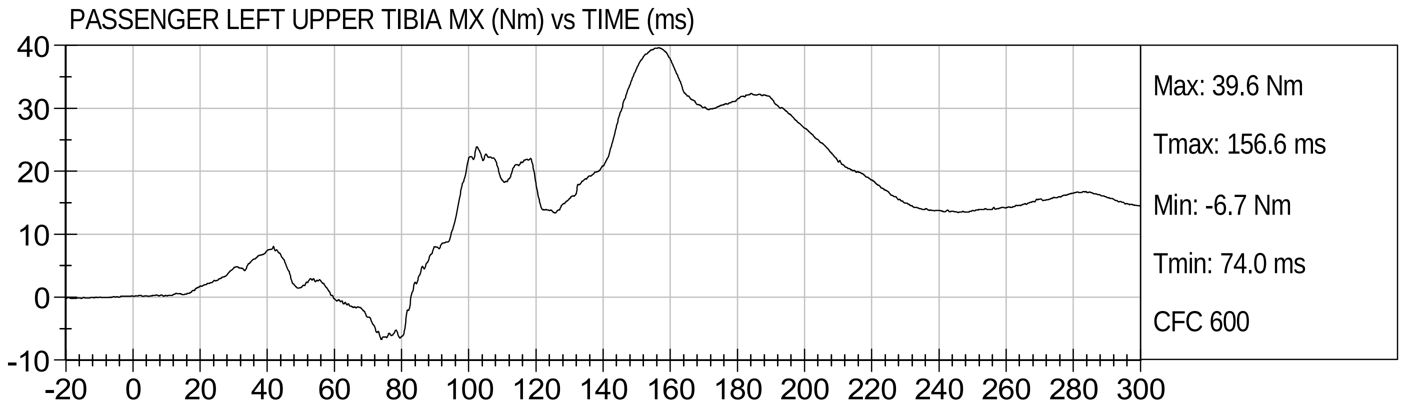


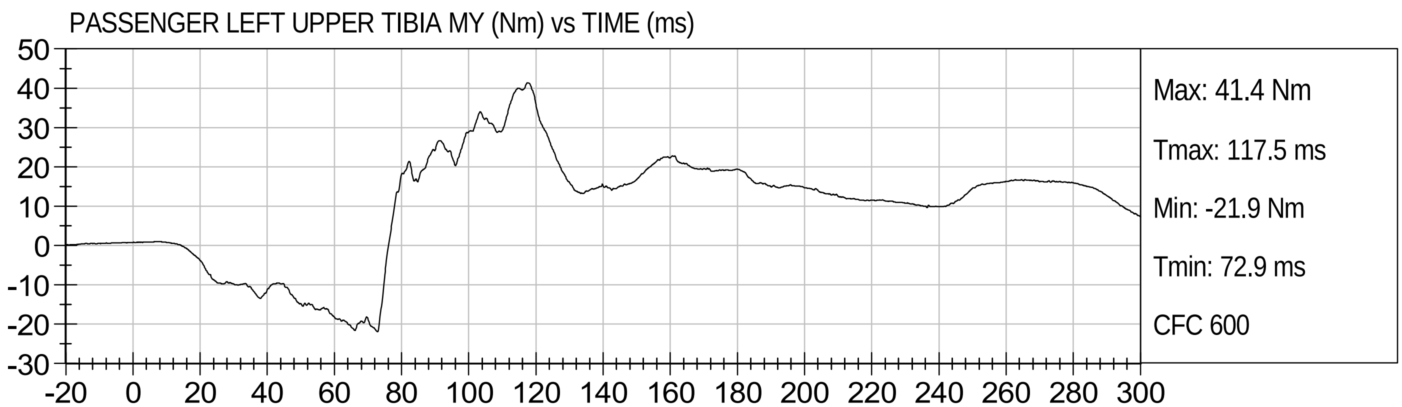
PASSENGER LEFT UPPER TIBIA FResultant (N) vs TIME (ms)



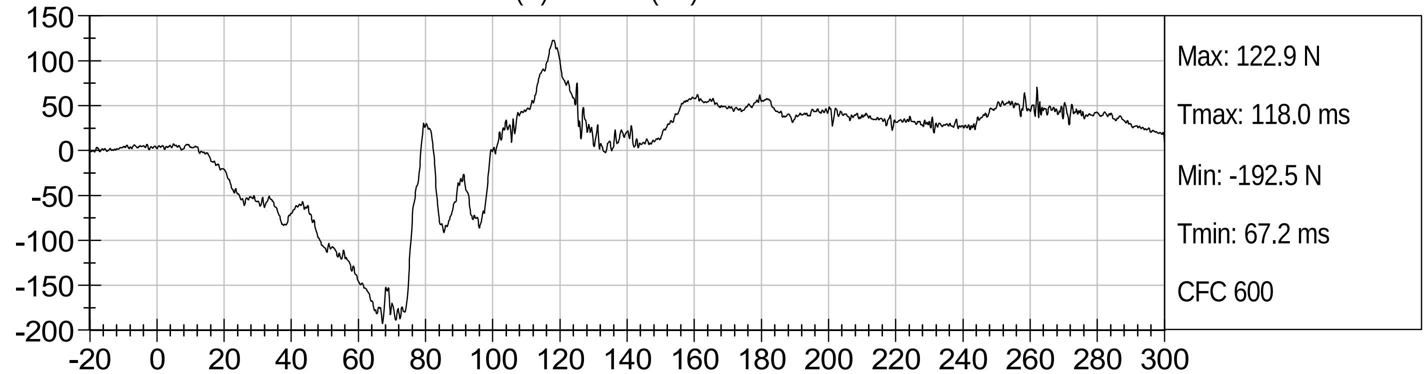
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

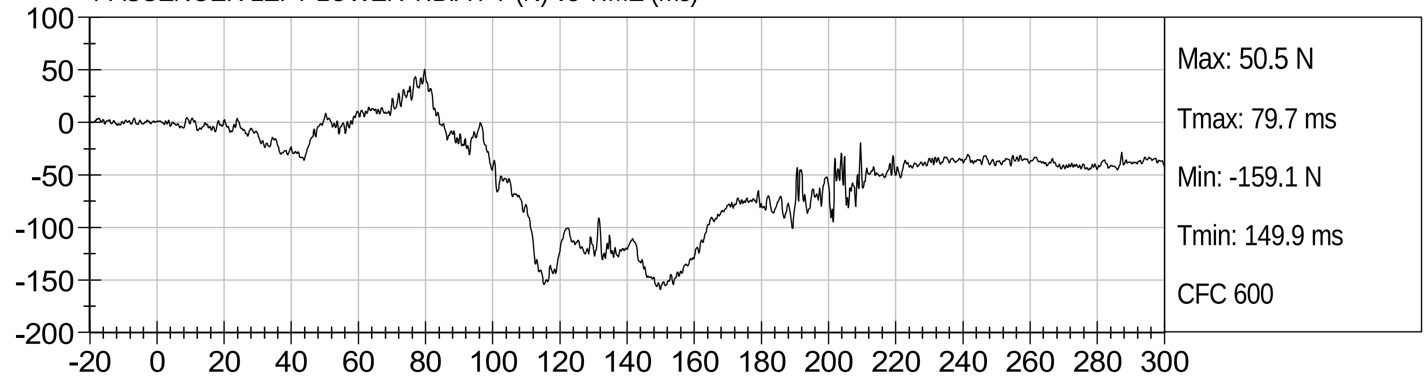




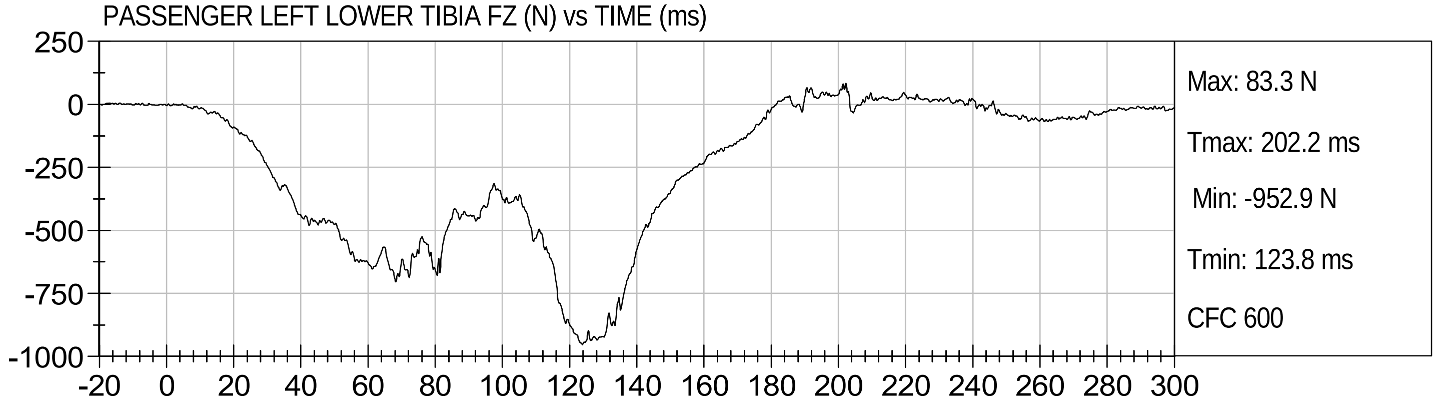
PASSENGER LEFT LOWER TIBIA FX (N) vs TIME (ms)



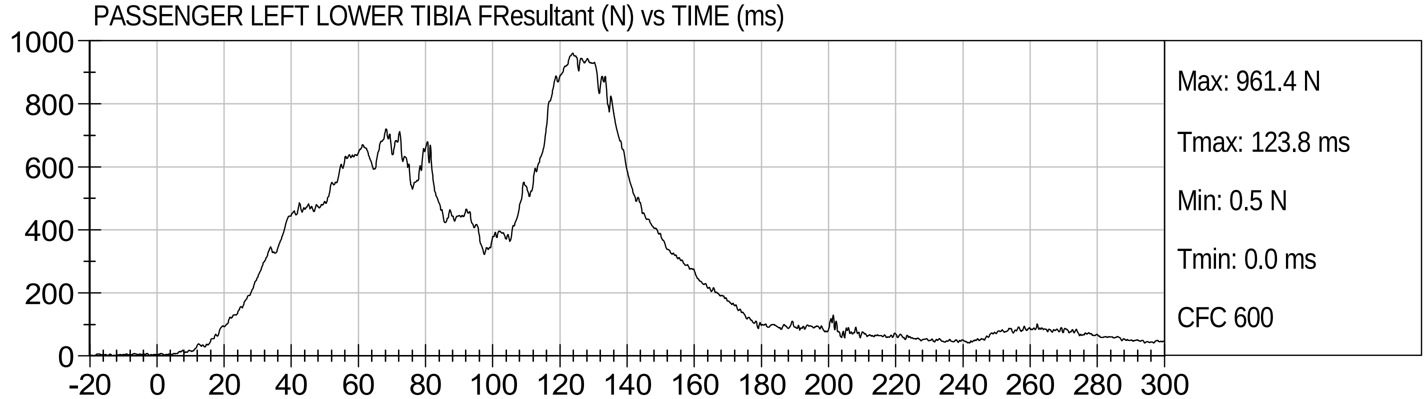
PASSENGER LEFT LOWER TIBIA FY (N) vs TIME (ms)

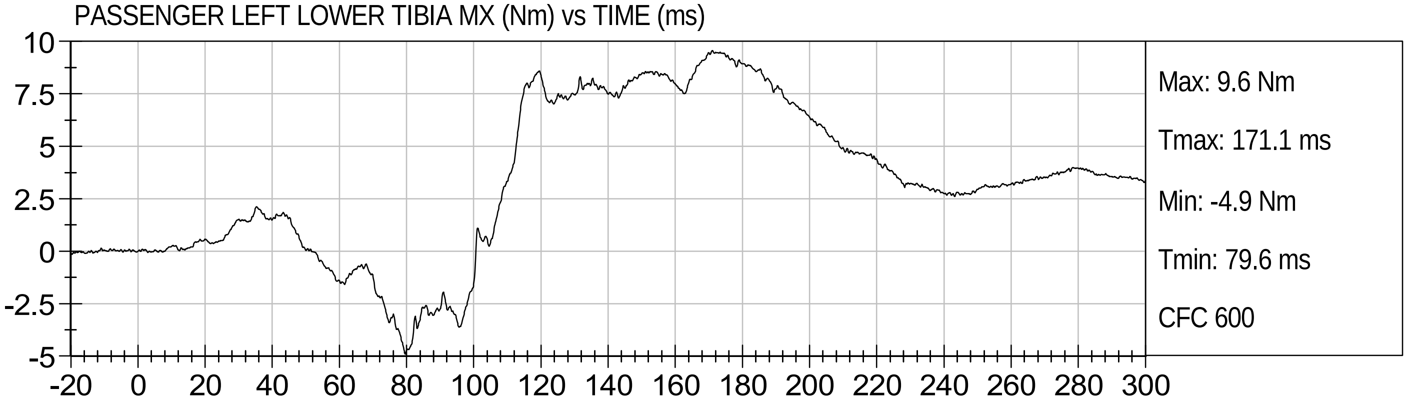


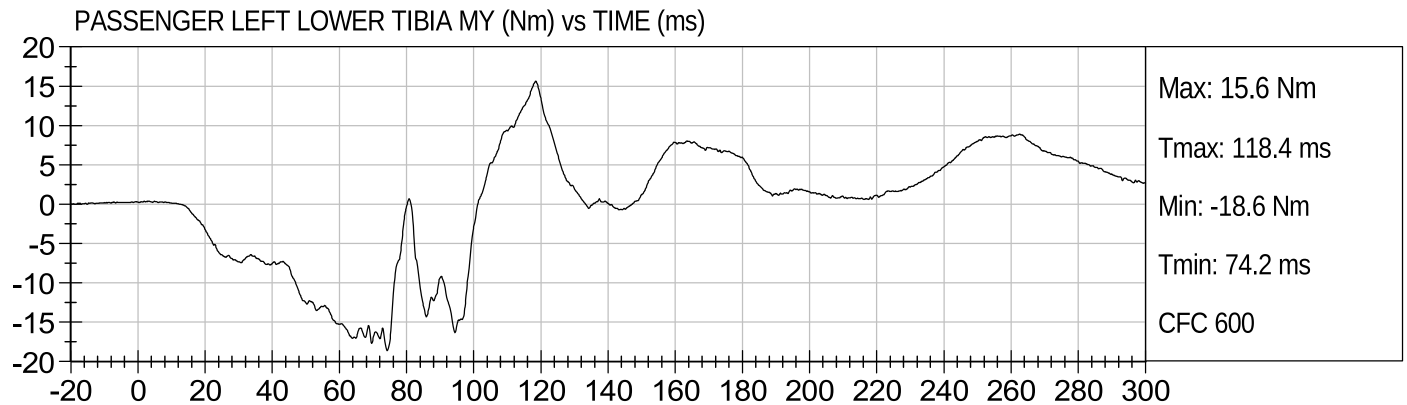
PASSENGER LEFT LOWER TIBIA FZ (N) vs TIME (ms)



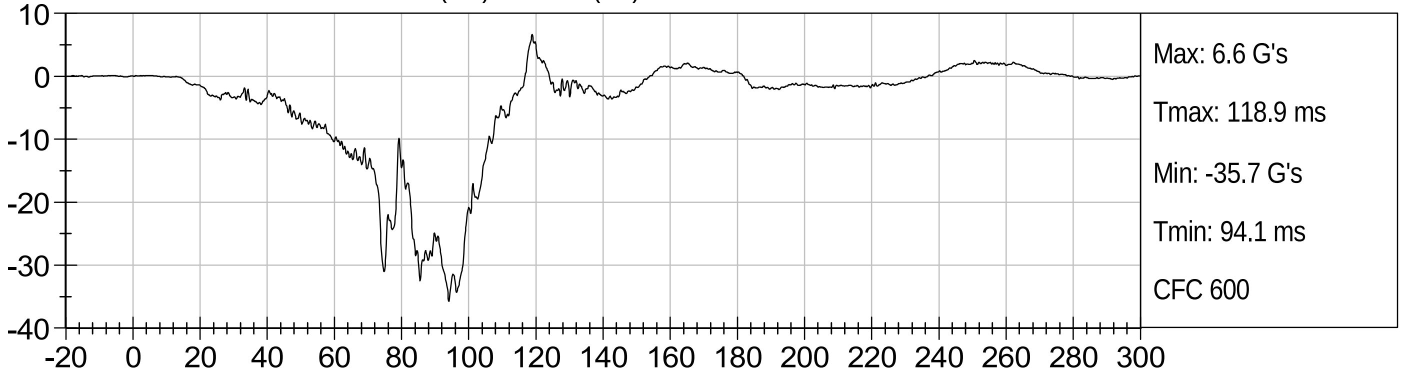
PASSENGER LEFT LOWER TIBIA FResultant (N) vs TIME (ms)



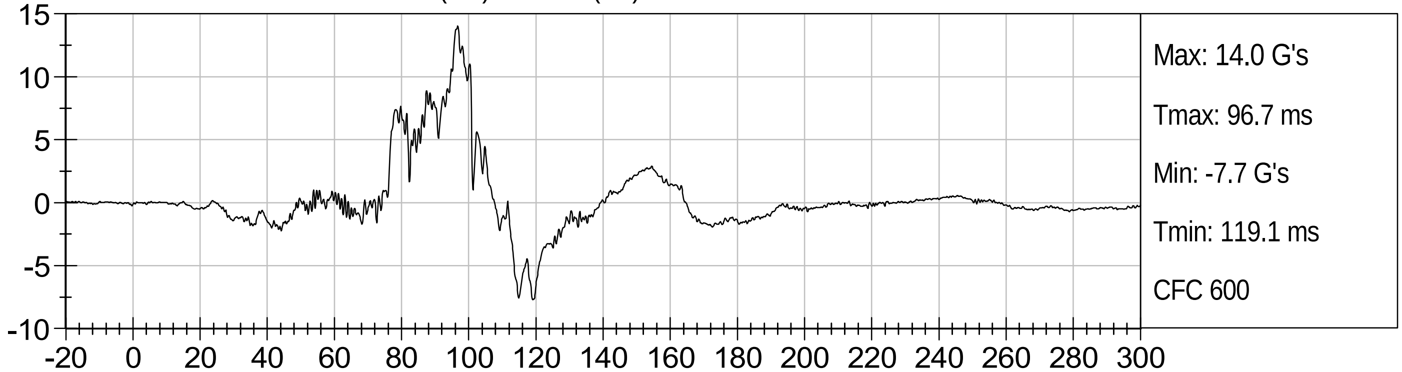

PASSENGER LEFT LOWER TIBIA MX (Nm) vs TIME (ms)
10
7.5
5
2.5
0
-2.5
-5
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 9.6 Nm
Tmax: 171.1 ms
Min: -4.9 Nm
Tmin: 79.6 ms
CFC 600


PASSENGER LEFT LOWER TIBIA MY (Nm) vs TIME (ms)
20
15
10
5
0
-5
-10
-15
-20
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 15.6 Nm
Tmax: 118.4 ms
Min: -18.6 Nm
Tmin: 74.2 ms
CFC 600

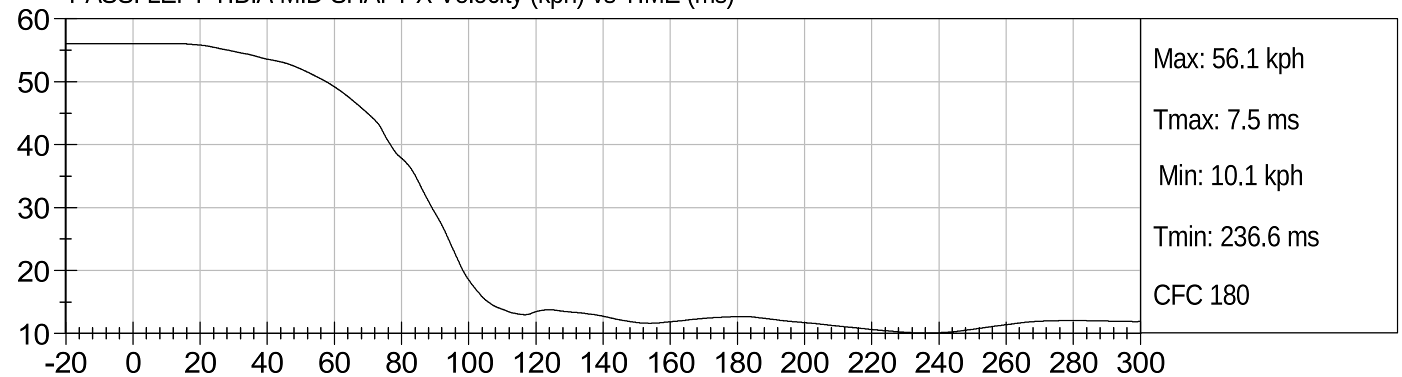
PASS. LEFT TIBIA MID SHAFT X (G's) vs TIME (ms)



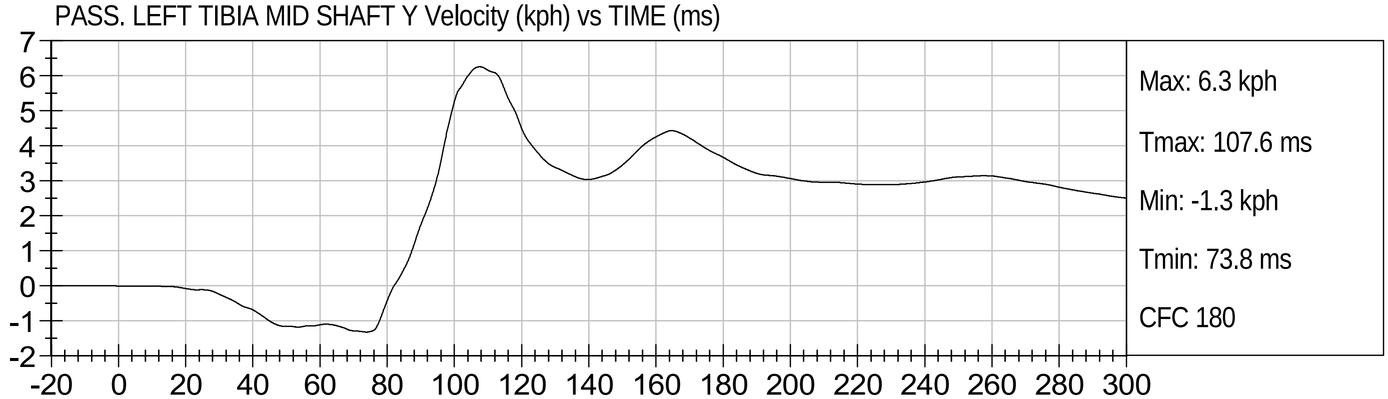
PASS. LEFT TIBIA MID SHAFT Y (G's) vs TIME (ms)



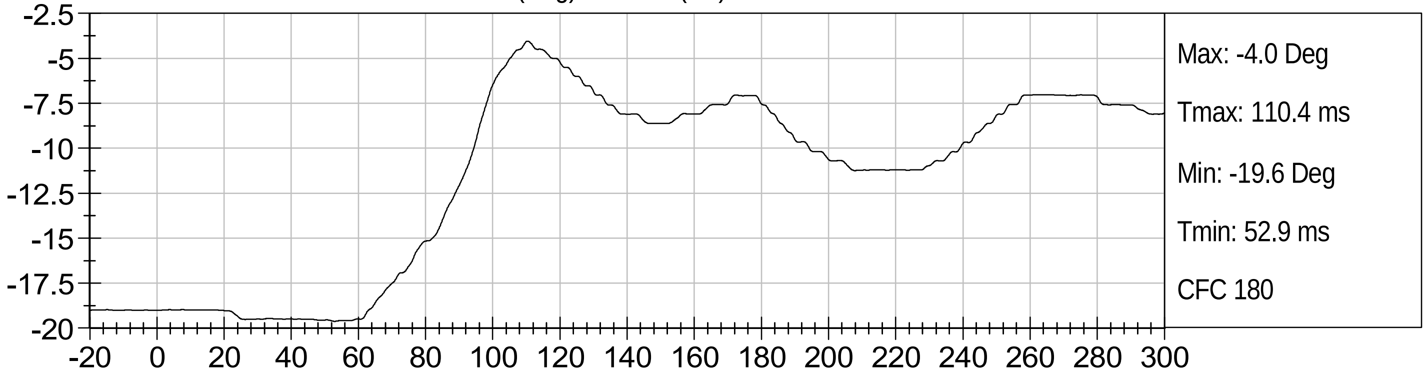
PASS. LEFT TIBIA MID SHAFT X Velocity (kph) vs TIME (ms)



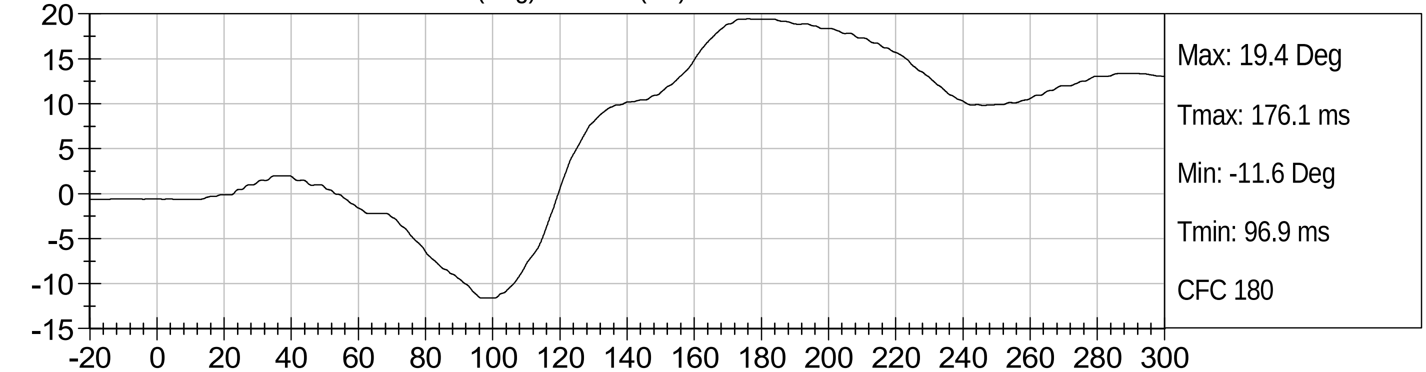
PASS. LEFT TIBIA MID SHAFT Y Velocity (kph) vs TIME (ms)



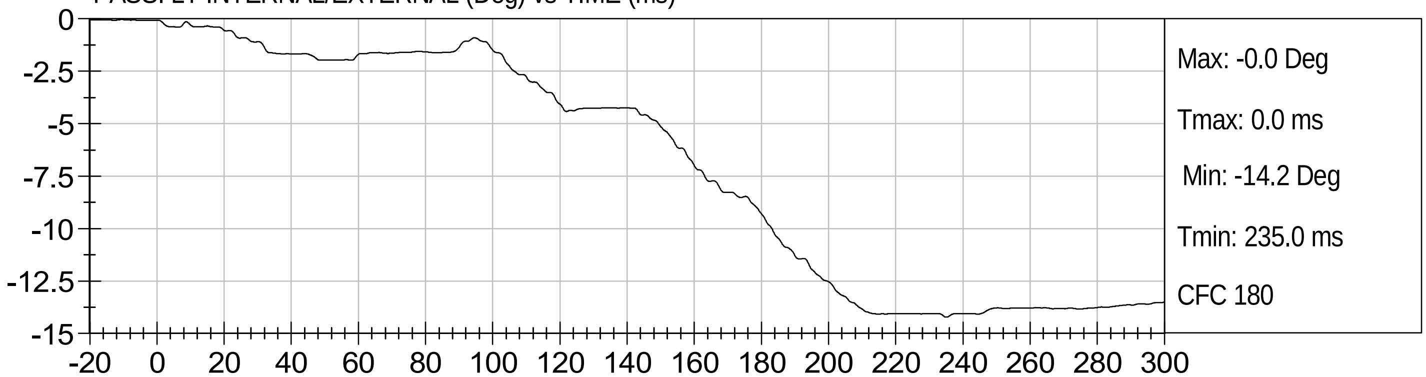
PASS. LT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)

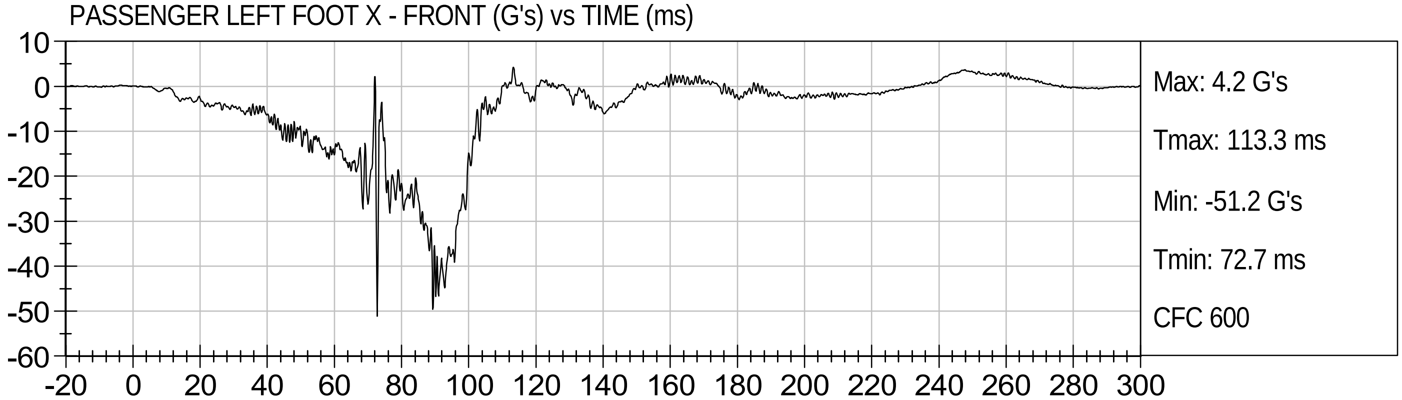


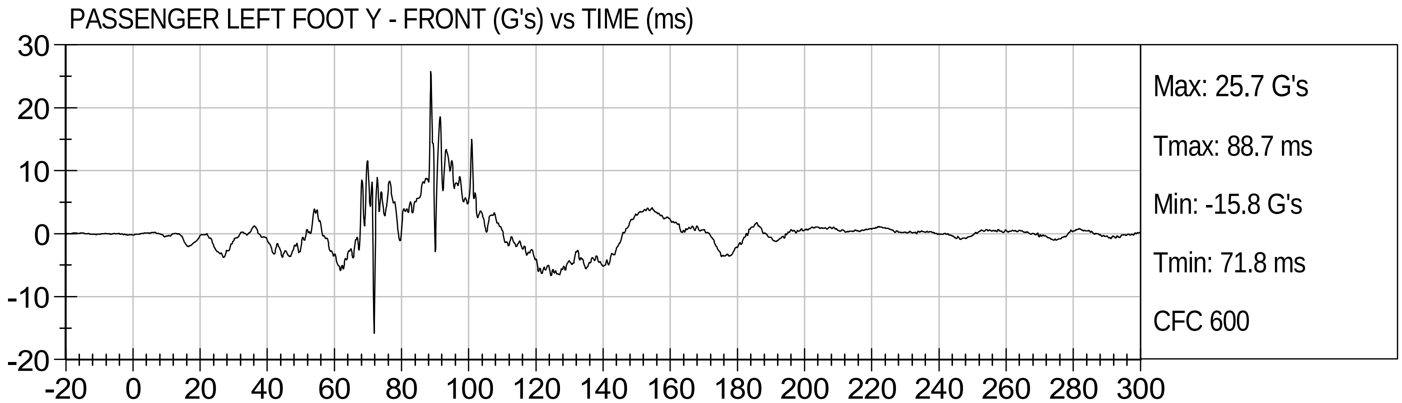
PASS. LT INVERSION/EVERSION (Deg) vs TIME (ms)

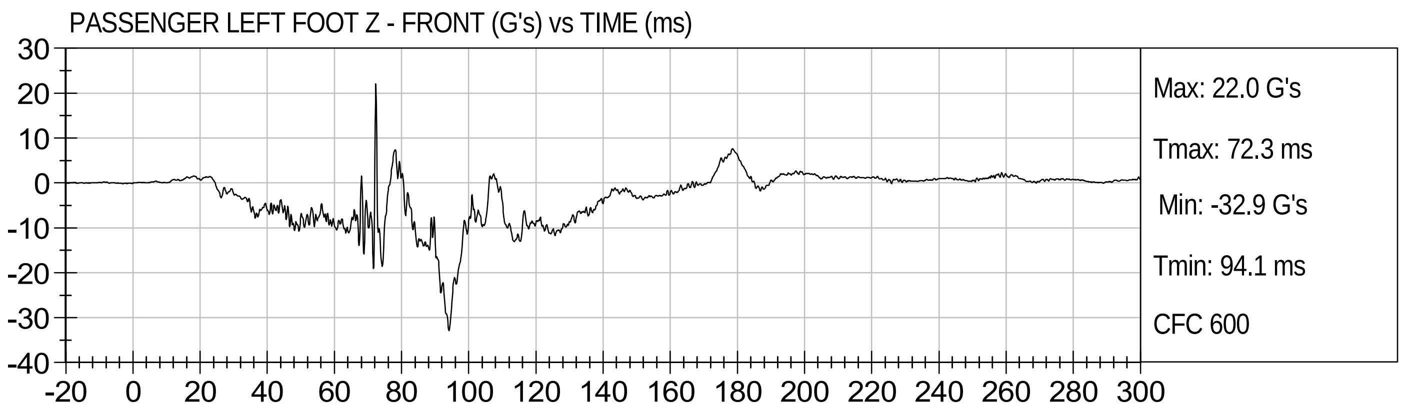


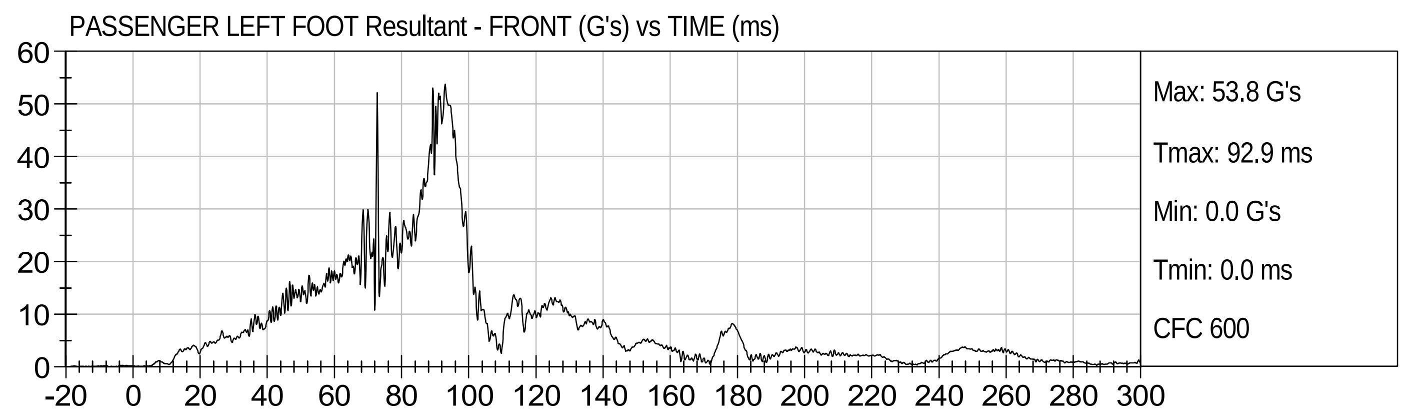
PASS. LT INTERNAL/EXTERNAL (Deg) vs TIME (ms)

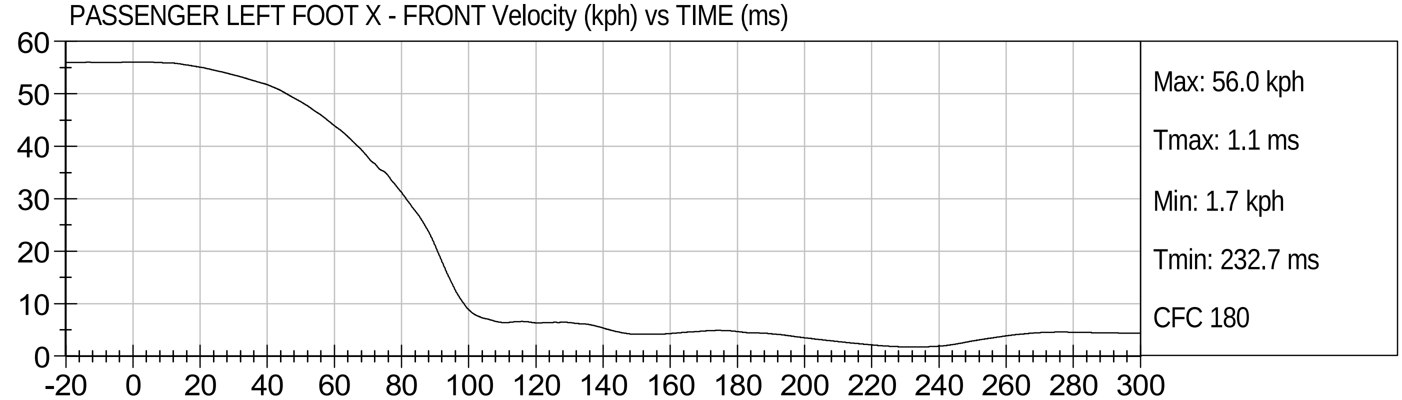


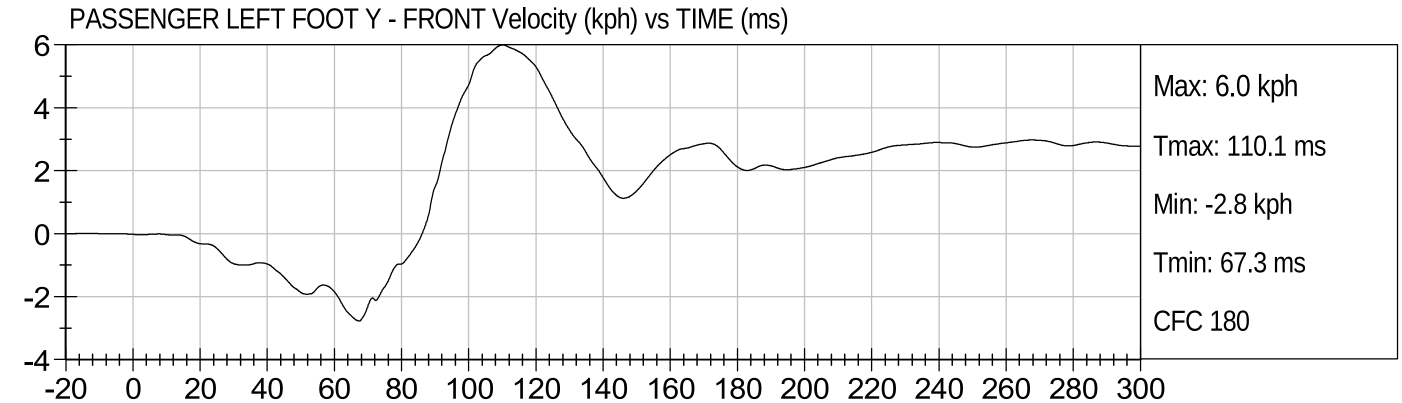

PASSENGER LEFT FOOT X - FRONT (G's) vs TIME (ms)
Max: 4.2 G's
Tmax: 113.3 ms
Min: -51.2 G's
Tmin: 72.7 ms
CFC 600

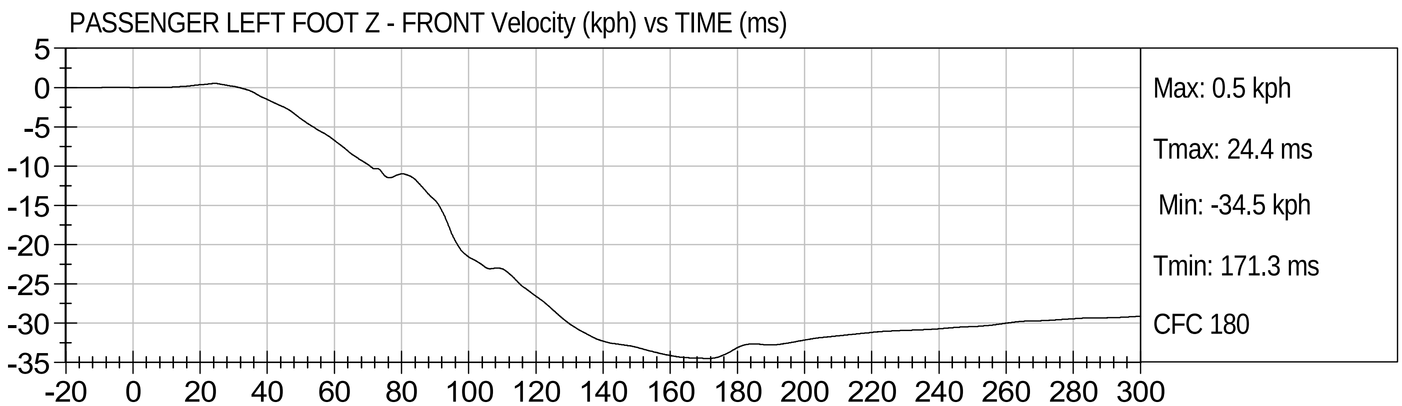

PASSENGER LEFT FOOT Y - FRONT (G's) vs TIME (ms)
Max: 25.7 G's
Tmax: 88.7 ms
Min: -15.8 G's
Tmin: 71.8 ms
CFC 600


PASSENGER LEFT FOOT Z - FRONT (G's) vs TIME (ms)
Max: 22.0 G's
Tmax: 72.3 ms
Min: -32.9 G's
Tmin: 94.1 ms
CFC 600


PASSENGER LEFT FOOT Resultant - FRONT (G's) vs TIME (ms)
Max: 53.8 G's
Tmax: 92.9 ms
Min: 0.0 G's
Tmin: 0.0 ms
CFC 600

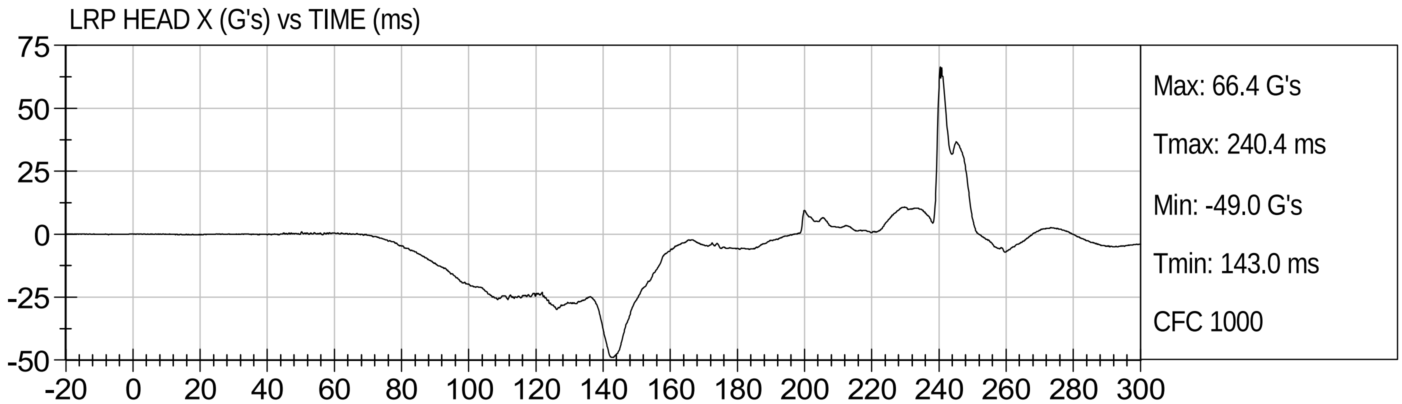

PASSENGER LEFT FOOT X - FRONT Velocity (kph) vs TIME (ms)
60
50
40
30
20
10
0
-20
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
Max: 56.0 kph
Tmax: 1.1 ms
Min: 1.7 kph
Tmin: 232.7 ms
CFC 180

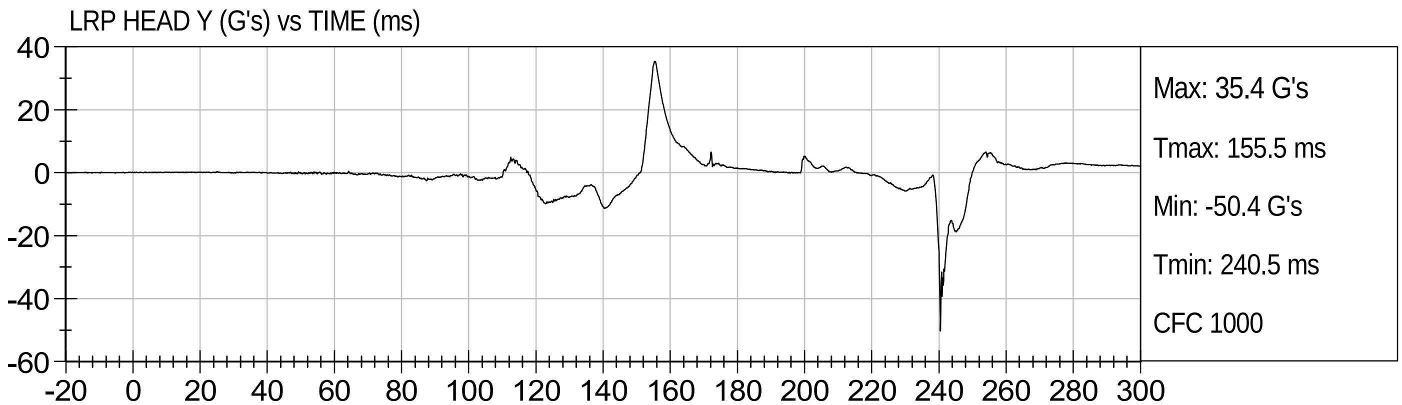

PASSENGER LEFT FOOT Y - FRONT Velocity (kph) vs TIME (ms)
6
4
2
0
-2
-4
-20
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
Max: 6.0 kph
Tmax: 110.1 ms
Min: -2.8 kph
Tmin: 67.3 ms
CFC 180

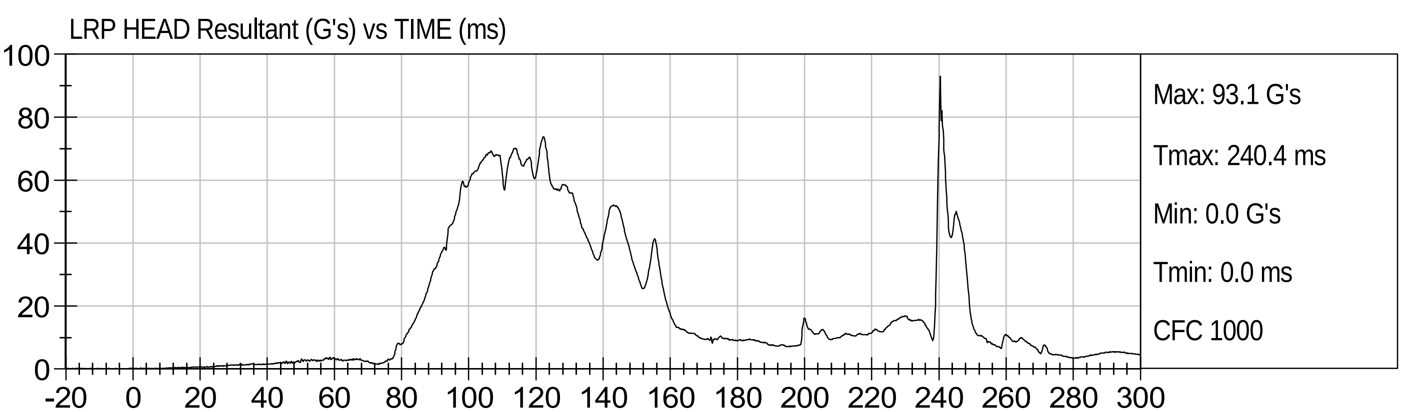

PASSENGER LEFT FOOT Z - FRONT Velocity (kph) vs TIME (ms)
5
0
-5
-10
-15
-20
-25
-30
-35
-20
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
Max: 0.5 kph
Tmax: 24.4 ms
Min: -34.5 kph
Tmin: 171.3 ms
CFC 180

NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

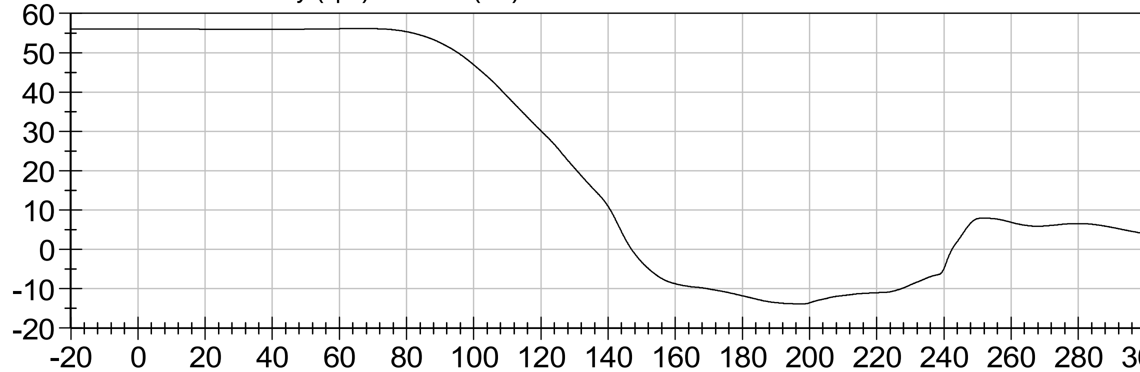
Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)





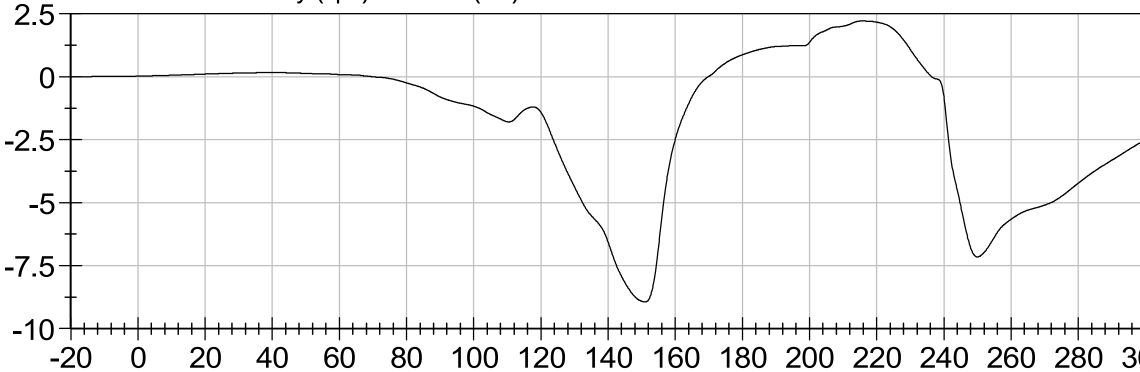


LRP HEAD X Velocity (kph) vs TIME (ms)



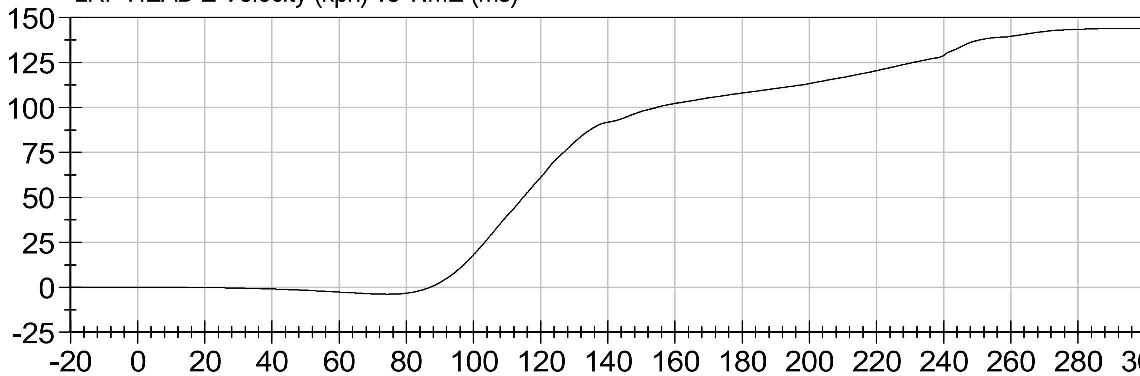
Max: 56.1 kph
Tmax: 67.3 ms
Min: -13.8 kph
Tmin: 197.9 ms
CFC 180

LRP HEAD Y Velocity (kph) vs TIME (ms)



Max: 2.2 kph
Tmax: 215.7 ms
Min: -8.9 kph
Tmin: 151.0 ms
CFC 180

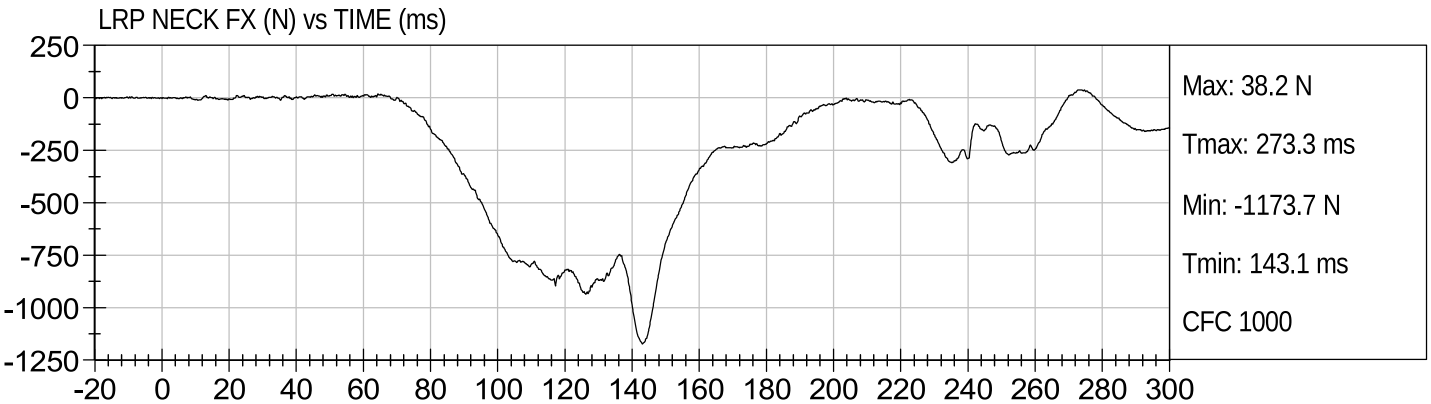
LRP HEAD Z Velocity (kph) vs TIME (ms)

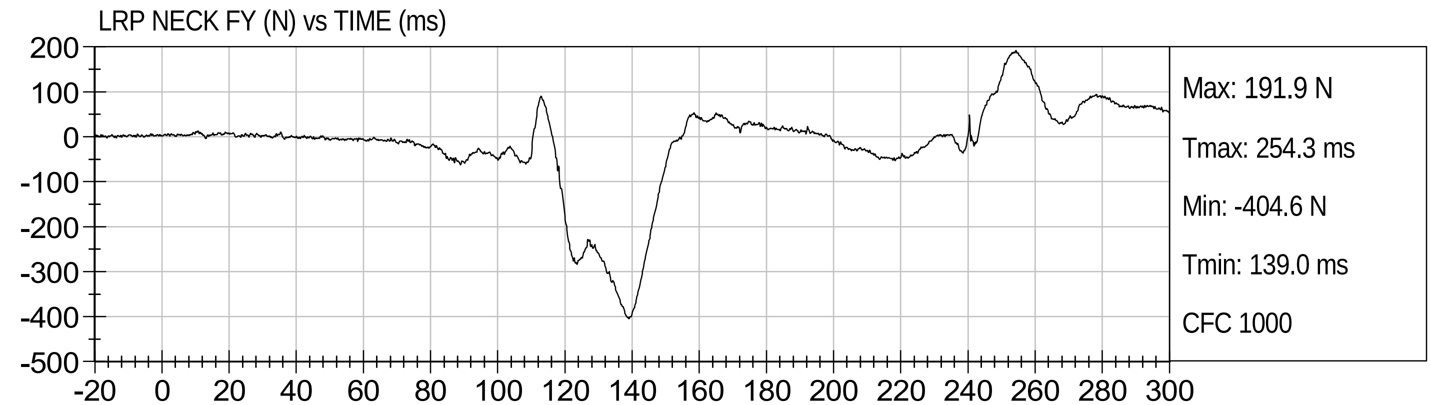


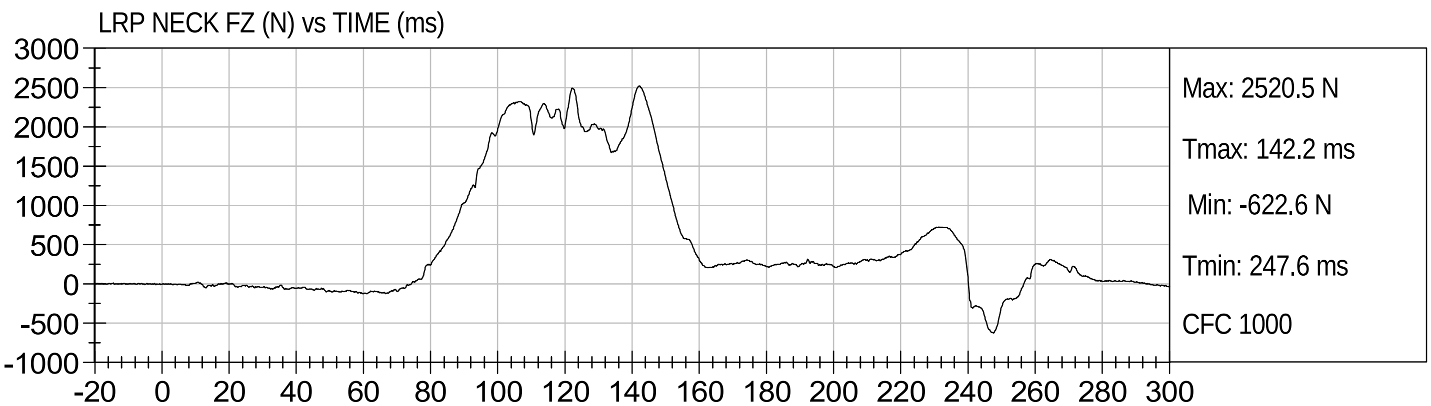
Max: 144.0 kph
Tmax: 293.1 ms
Min: -3.9 kph
Tmin: 74.3 ms
CFC 180

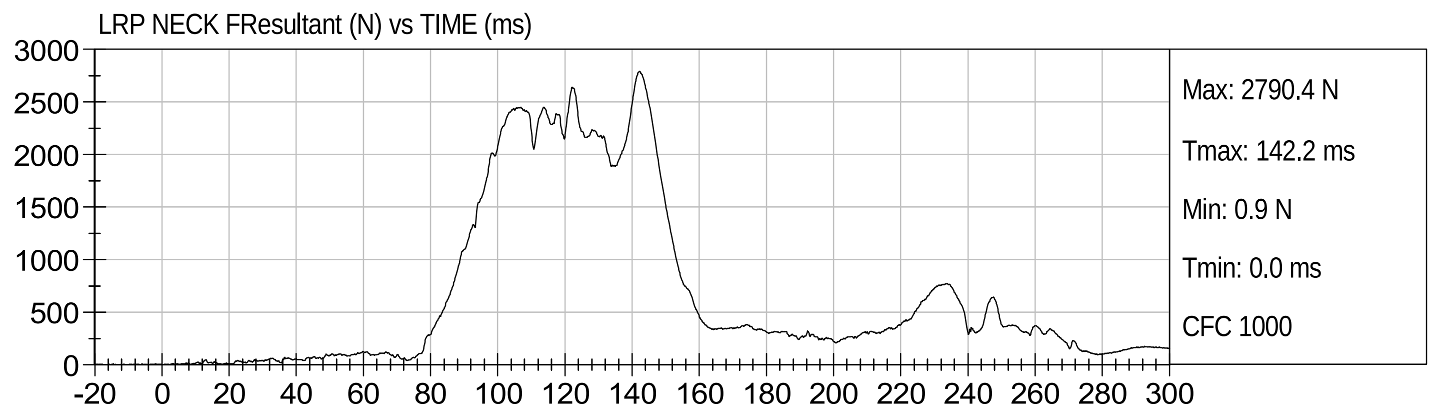
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)





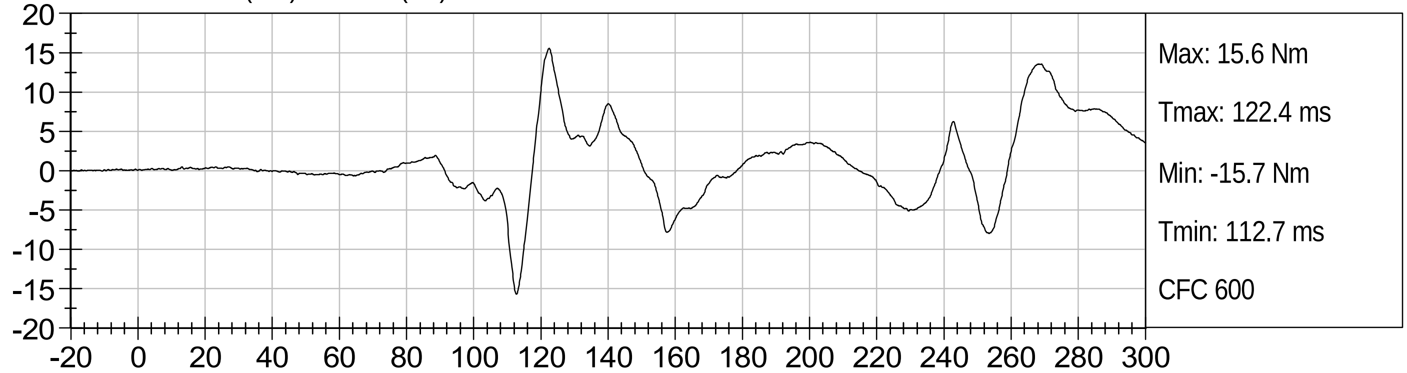




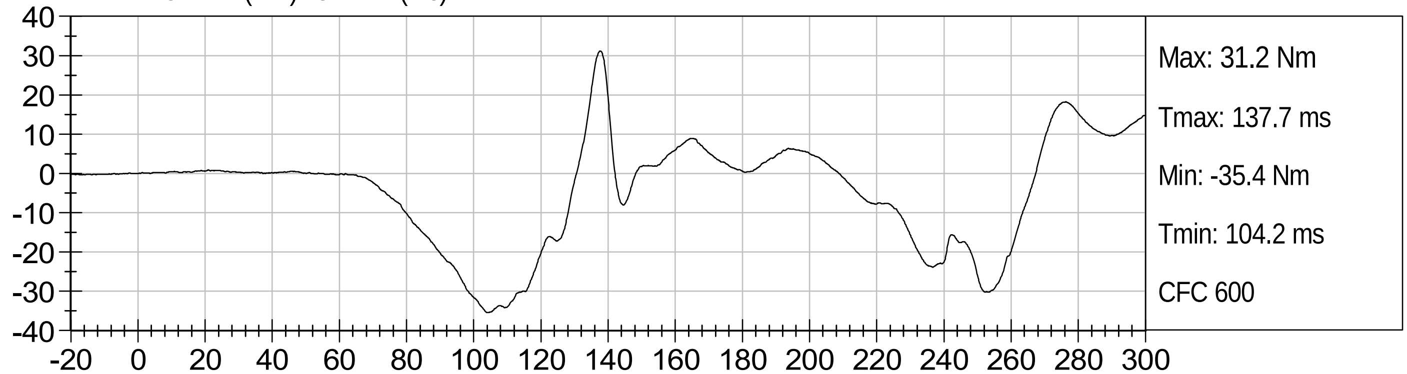
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

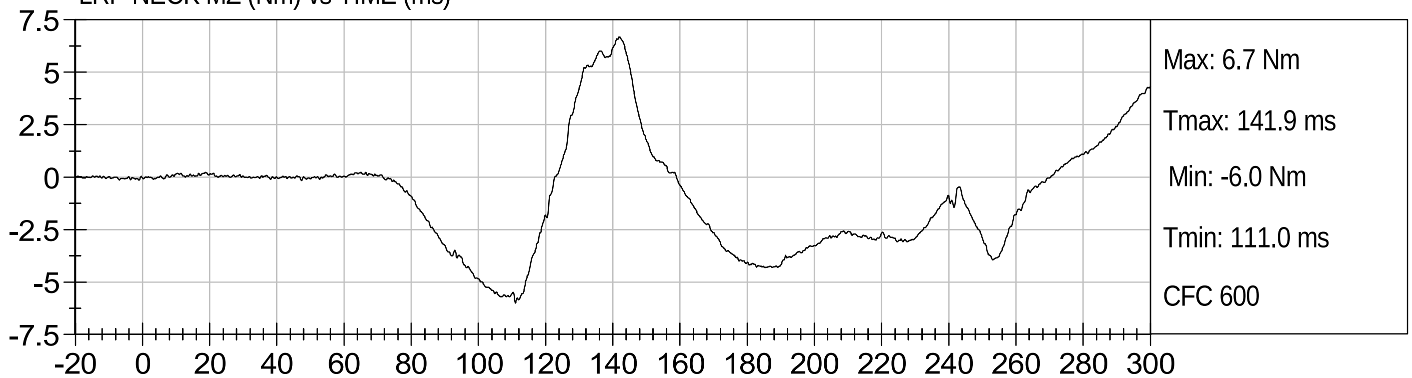
LRP NECK MX (Nm) vs TIME (ms)



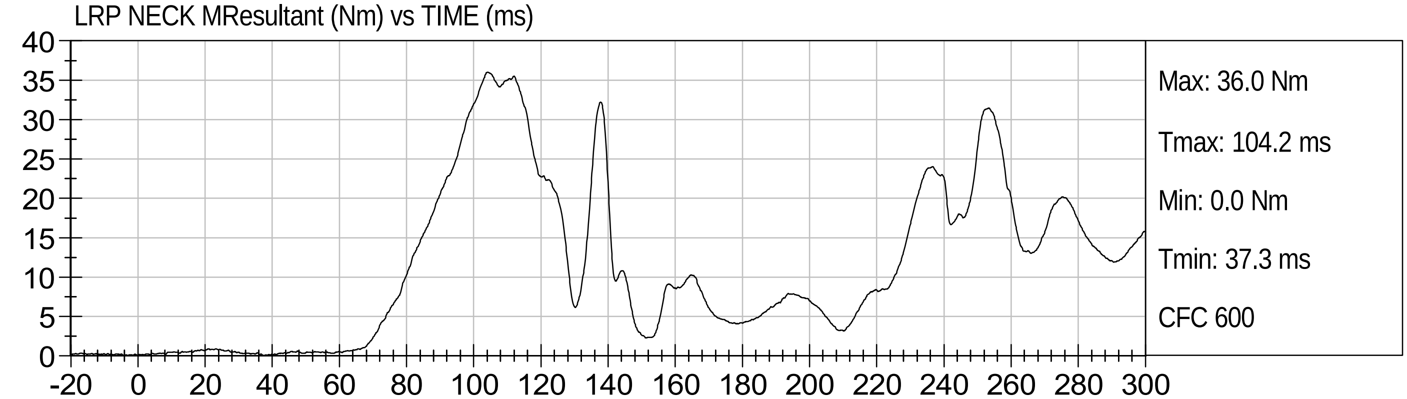
LRP NECK MY (Nm) vs TIME (ms)



LRP NECK MZ (Nm) vs TIME (ms)



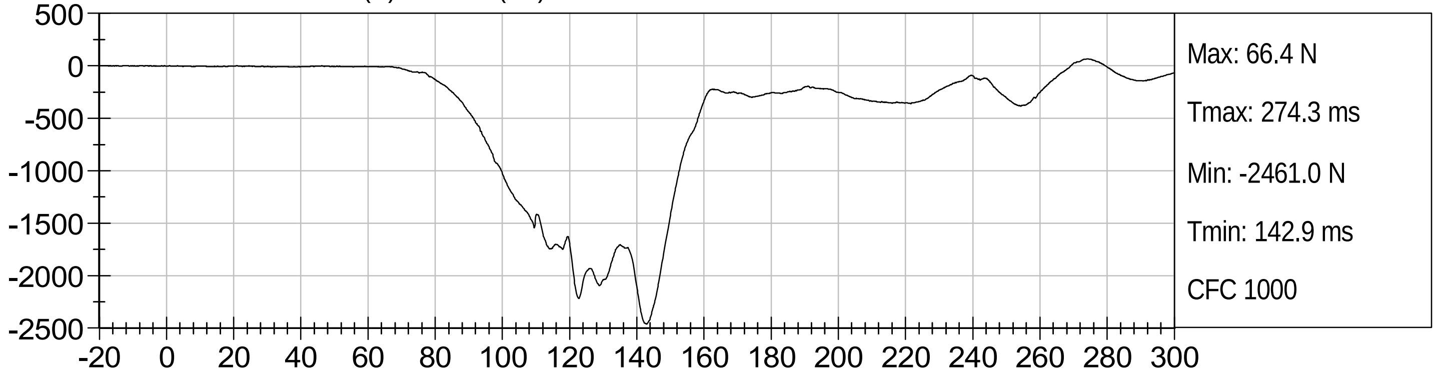
LRP NECK MResultant (Nm) vs TIME (ms)



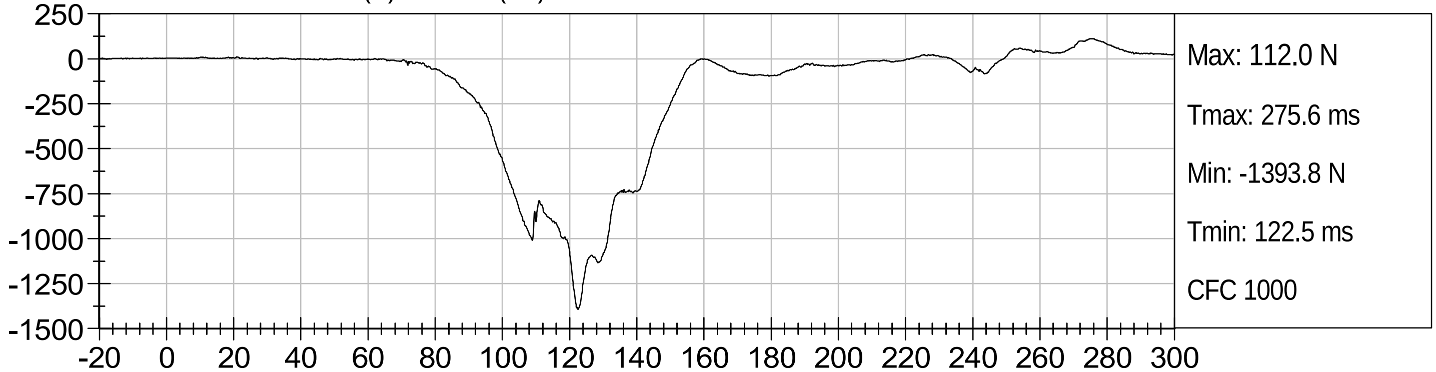
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

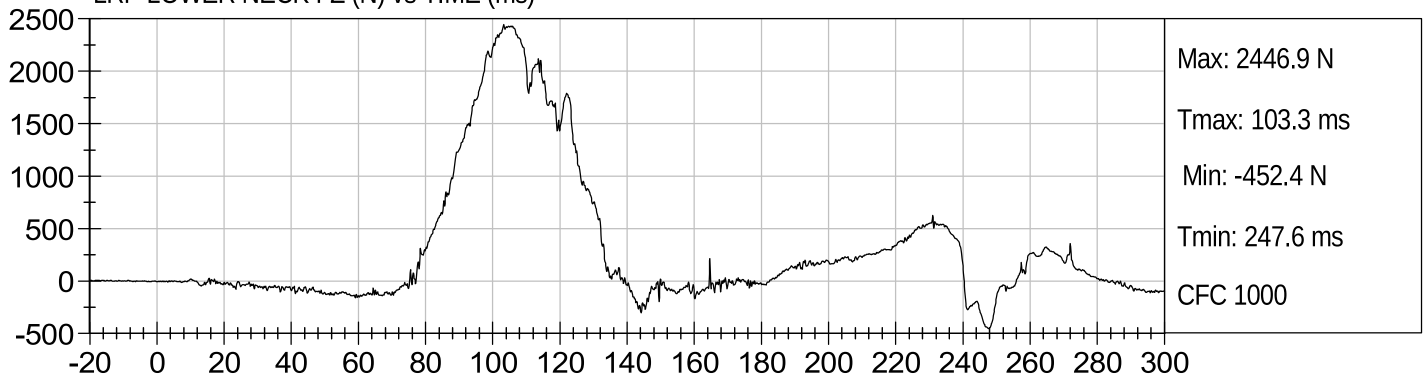
LRP LOWER NECK FX (N) vs TIME (ms)



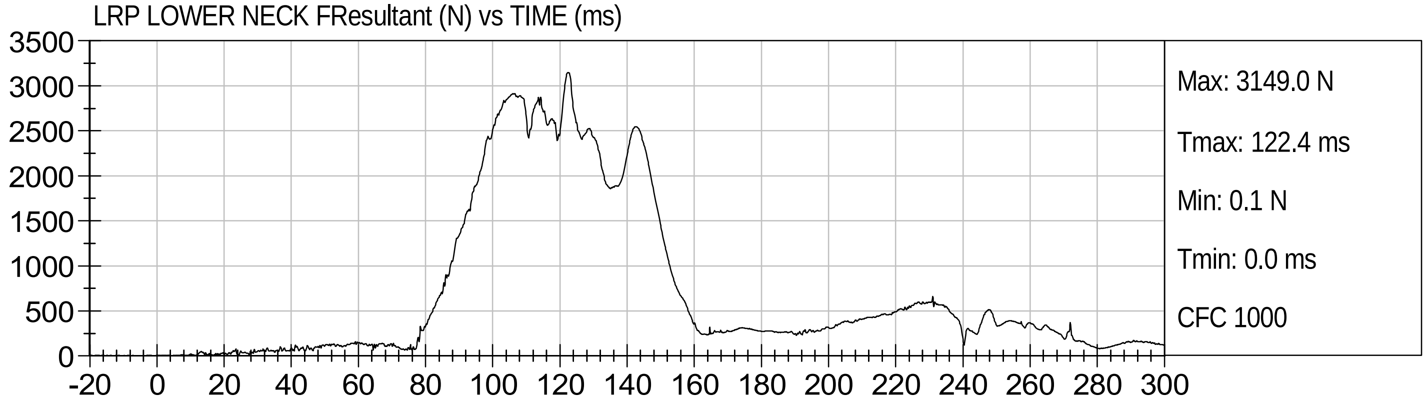
LRP LOWER NECK FY (N) vs TIME (ms)



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



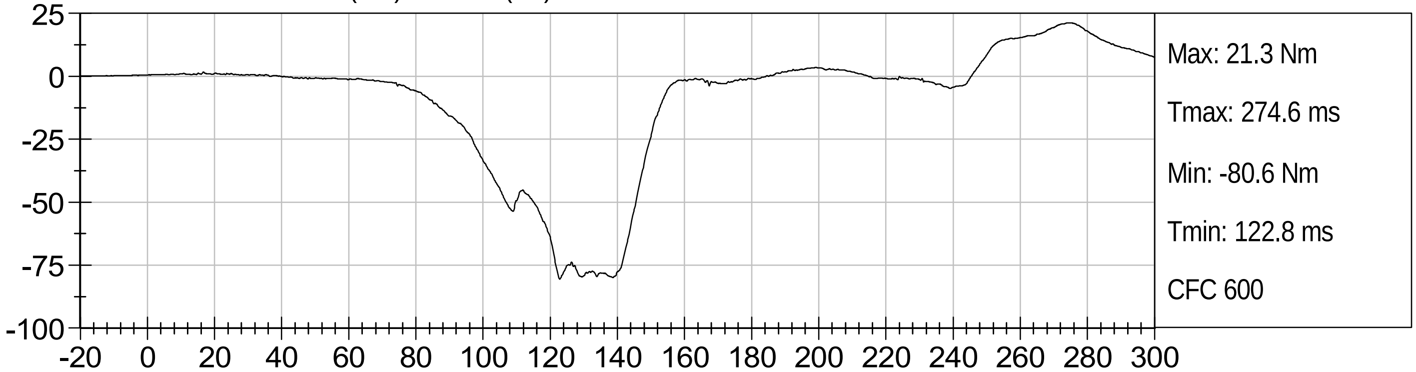
LRP LOWER NECK FResultant (N) vs TIME (ms)



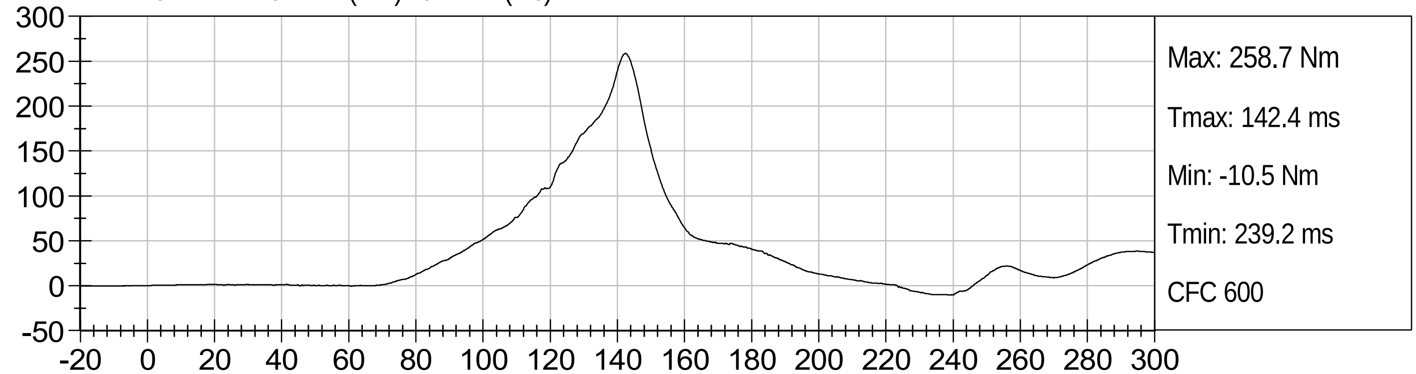
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

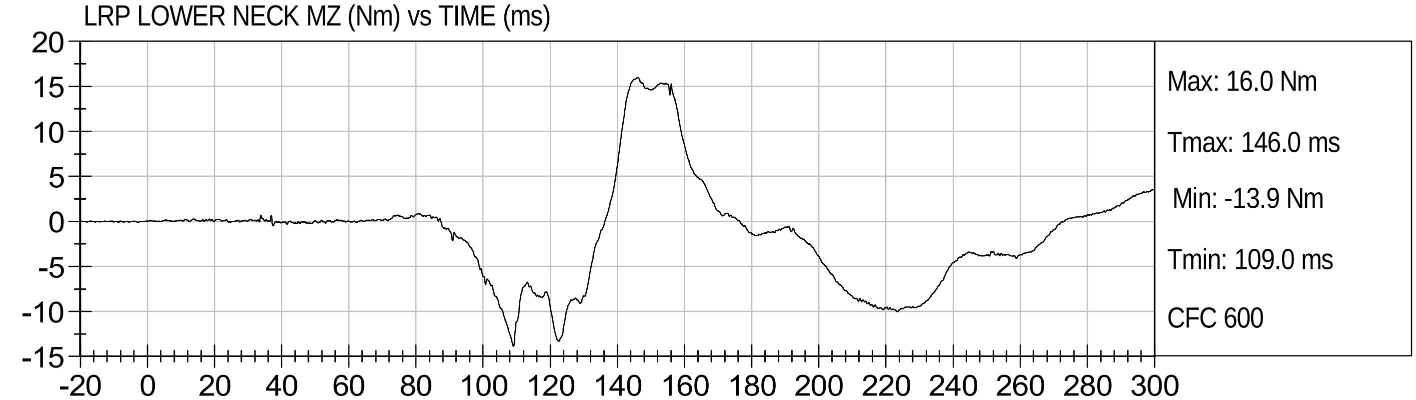
LRP LOWER NECK MX (Nm) vs TIME (ms)



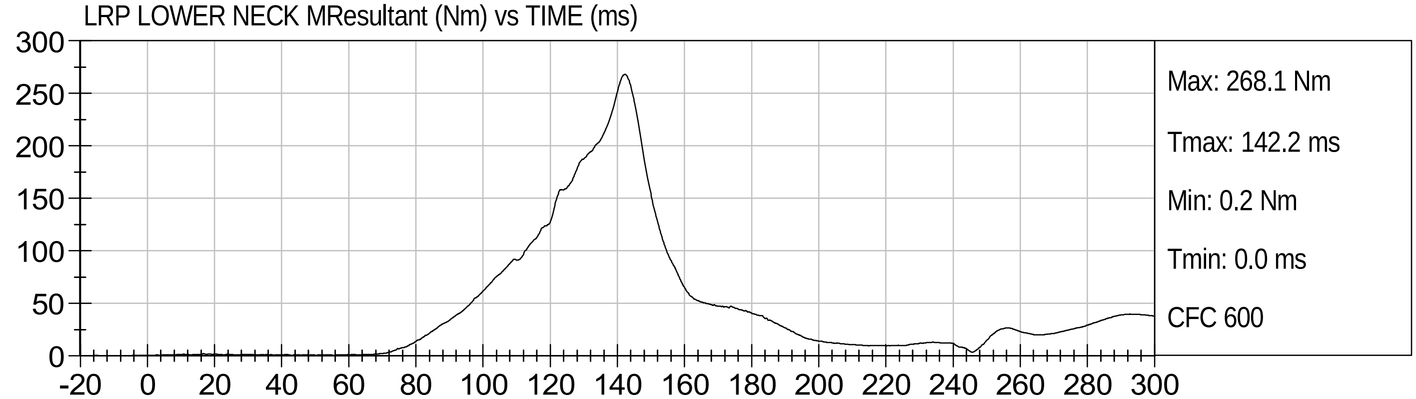
LRP LOWER NECK MY (Nm) vs TIME (ms)



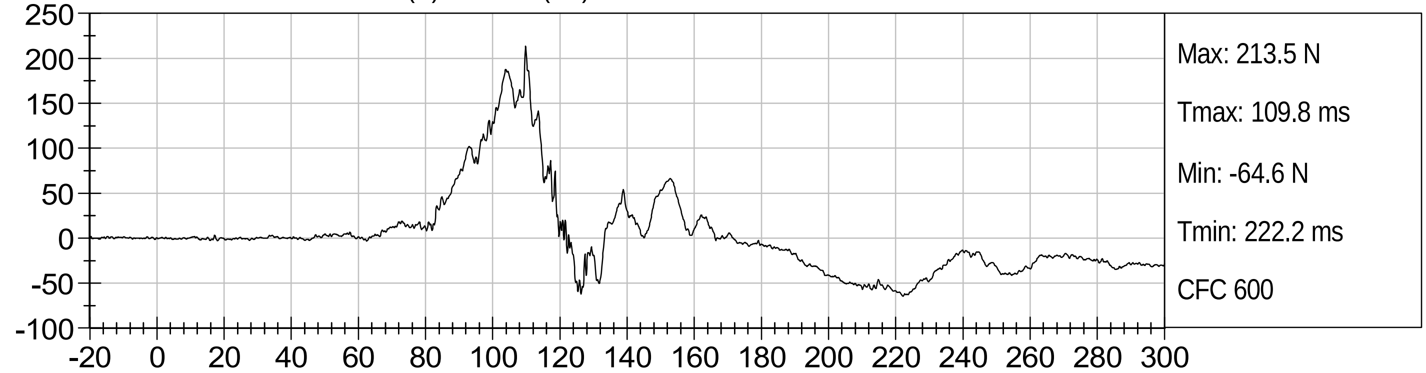
LRP LOWER NECK MZ (Nm) vs TIME (ms)



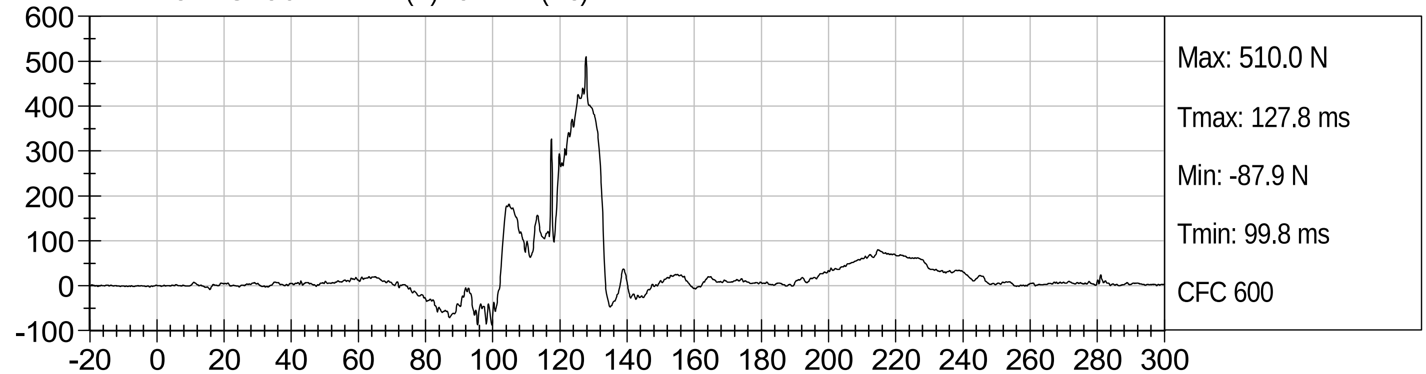
LRP LOWER NECK MResultant (Nm) vs TIME (ms)



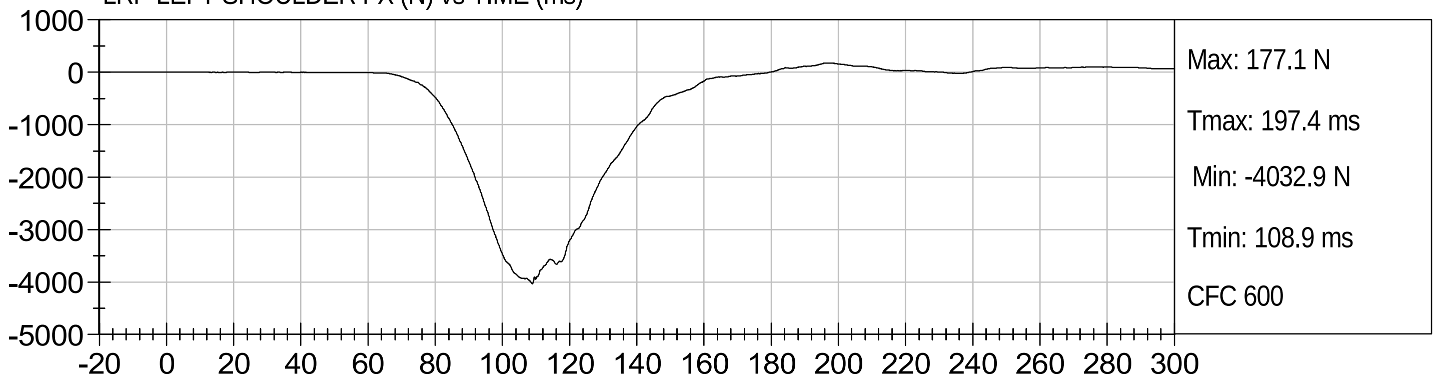
LRP RIGHT SHOULDER FX (N) vs TIME (ms)



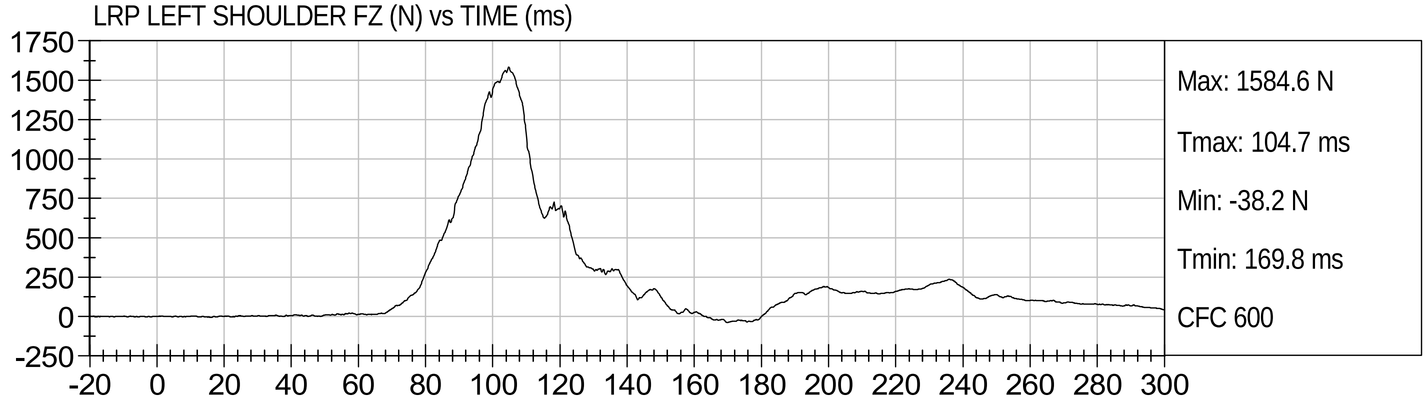
LRP RIGHT SHOULDER FZ (N) vs TIME (ms)

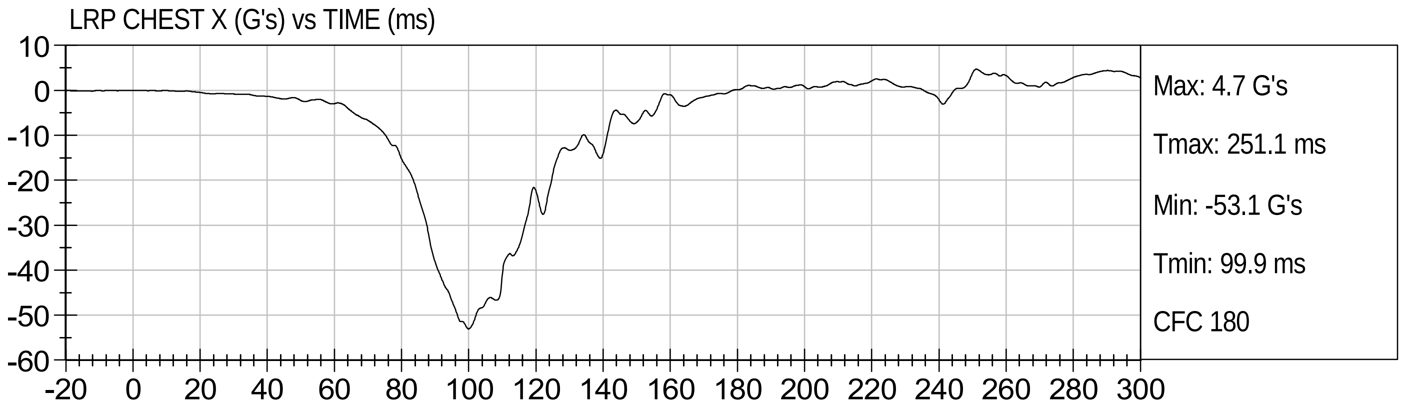


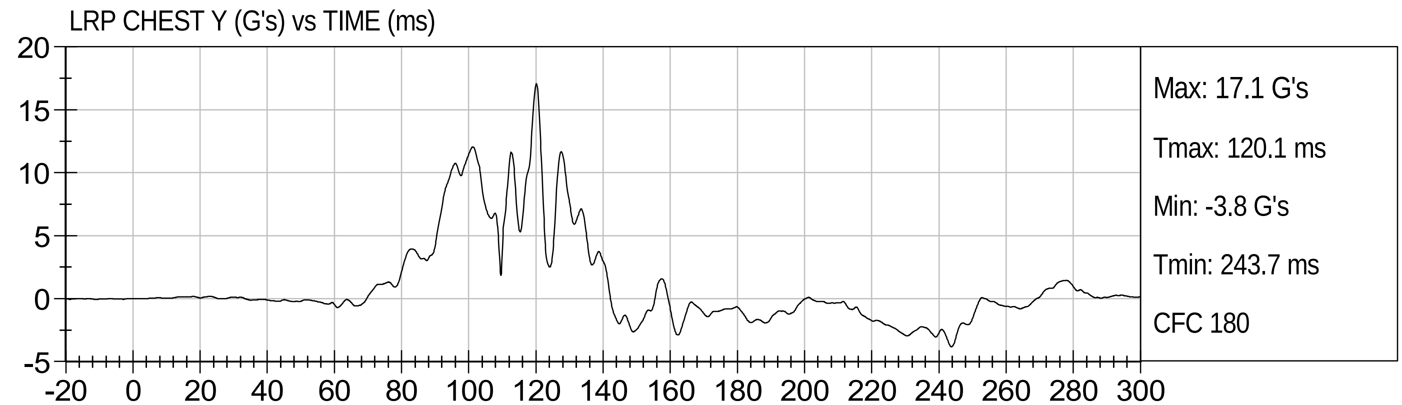
LRP LEFT SHOULDER FX (N) vs TIME (ms)

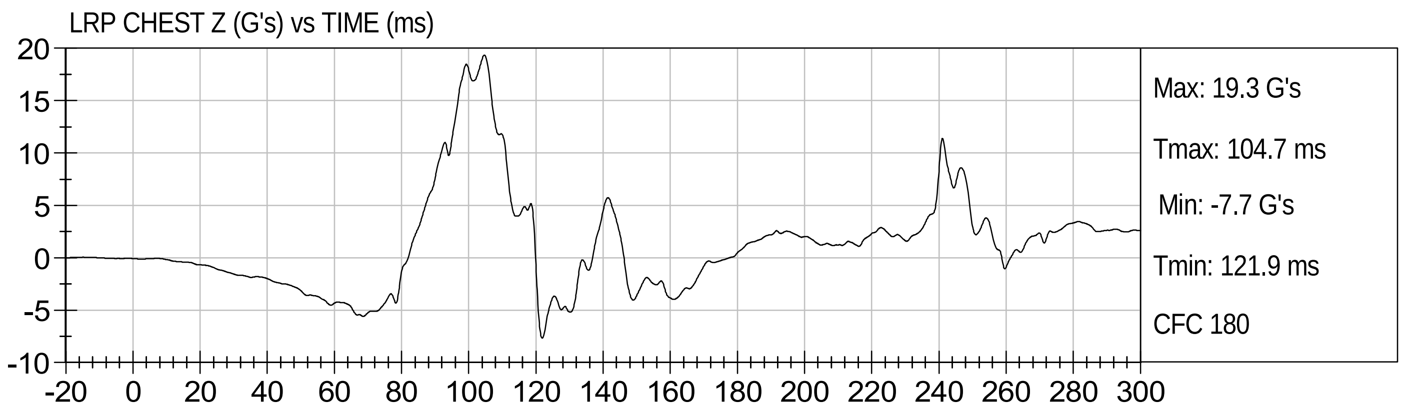


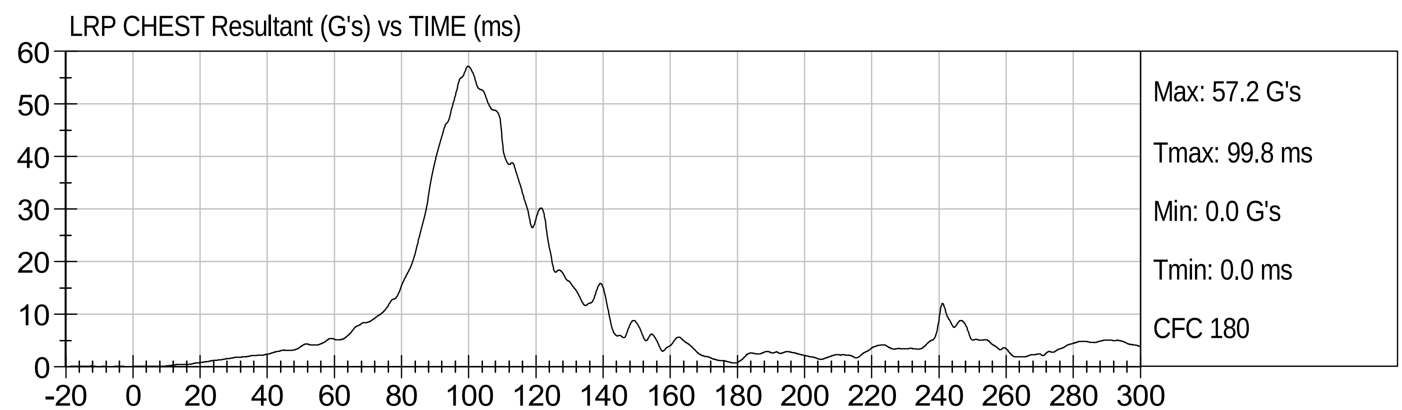
LRP LEFT SHOULDER FZ (N) vs TIME (ms)



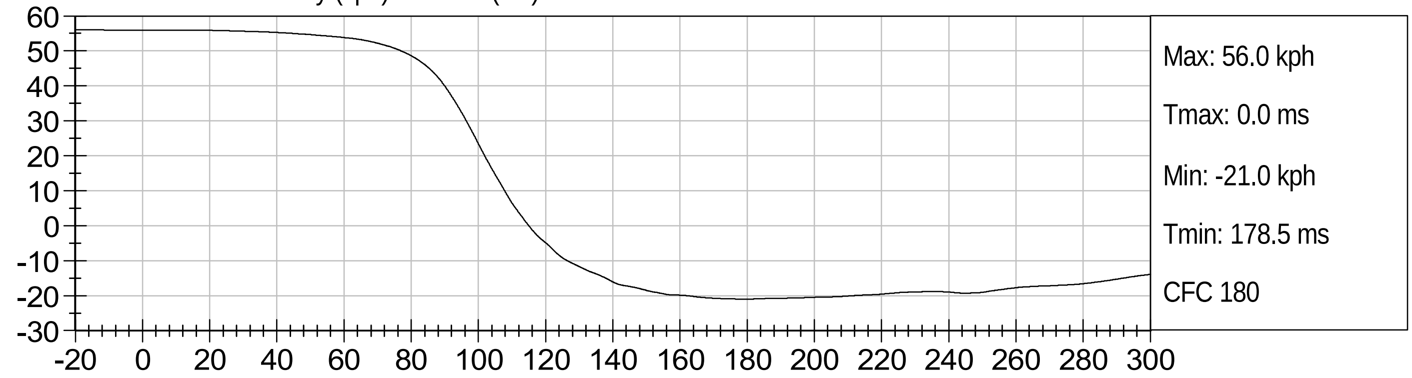

LRP CHEST X (G's) vs TIME (ms)
Max: 4.7 G's
Tmax: 251.1 ms
Min: -53.1 G's
Tmin: 99.9 ms
CFC 180


LRP CHEST Y (G's) vs TIME (ms)
Max: 17.1 G's
Tmax: 120.1 ms
Min: -3.8 G's
Tmin: 243.7 ms
CFC 180

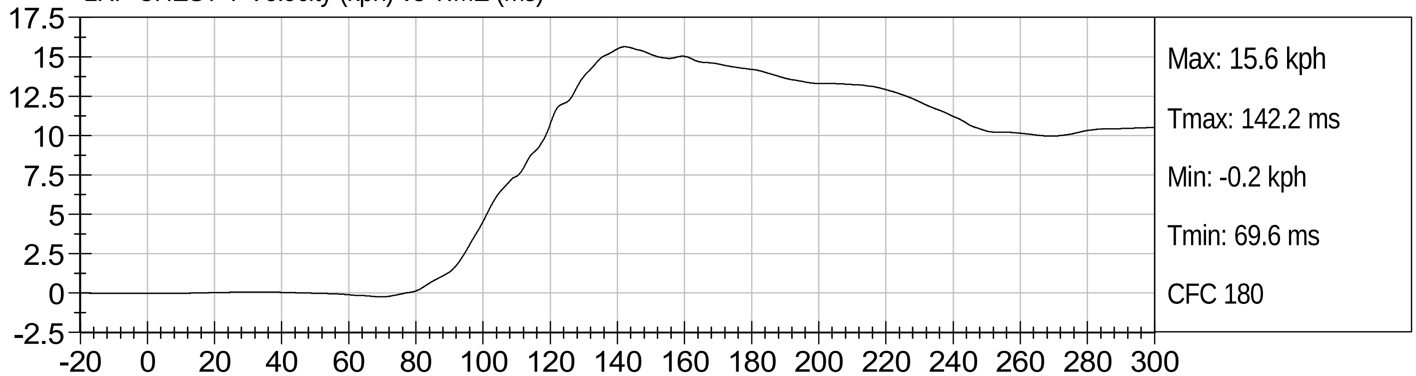

LRP CHEST Z (G's) vs TIME (ms)
Max: 19.3 G's
Tmax: 104.7 ms
Min: -7.7 G's
Tmin: 121.9 ms
CFC 180


LRP CHEST Resultant (G's) vs TIME (ms)
Max: 57.2 G's
Tmax: 99.8 ms
Min: 0.0 G's
Tmin: 0.0 ms
CFC 180

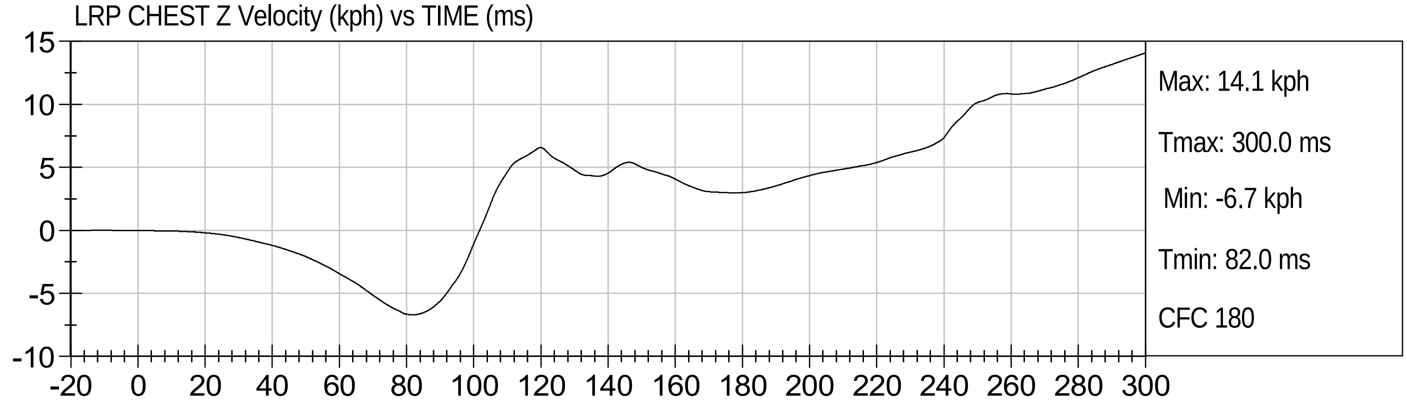
LRP CHEST X Velocity (kph) vs TIME (ms)



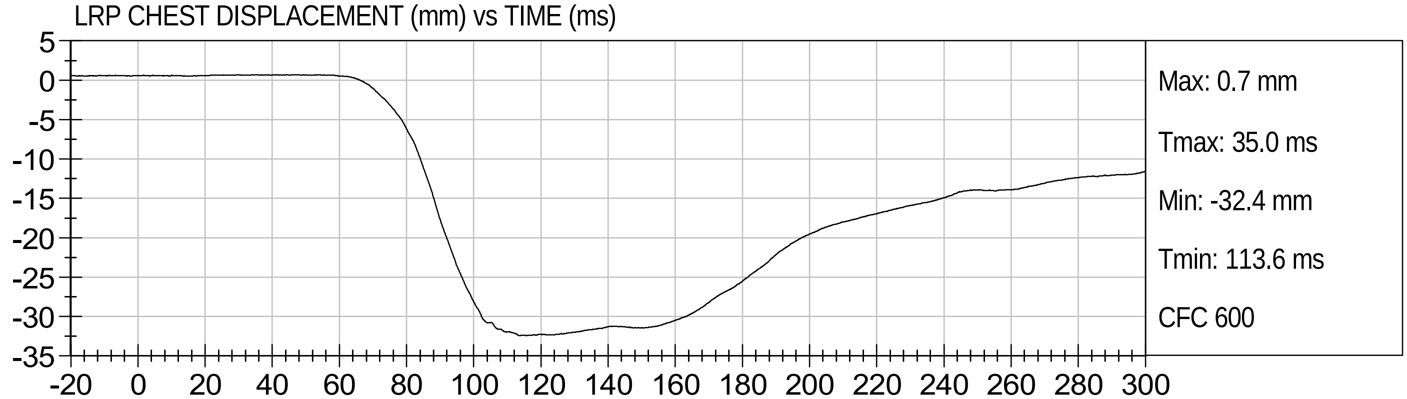
LRP CHEST Y Velocity (kph) vs TIME (ms)



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



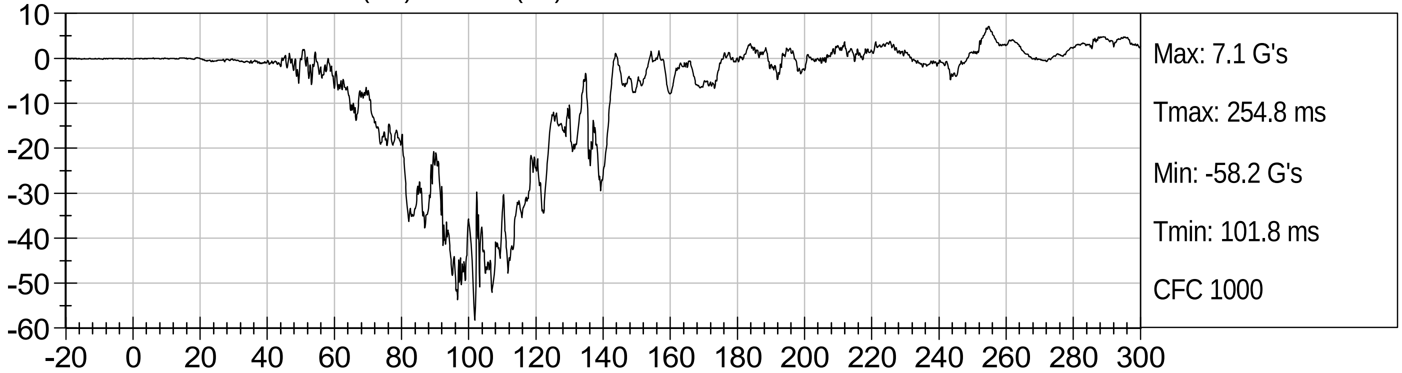
LRP CHEST DISPLACEMENT (mm) vs TIME (ms)



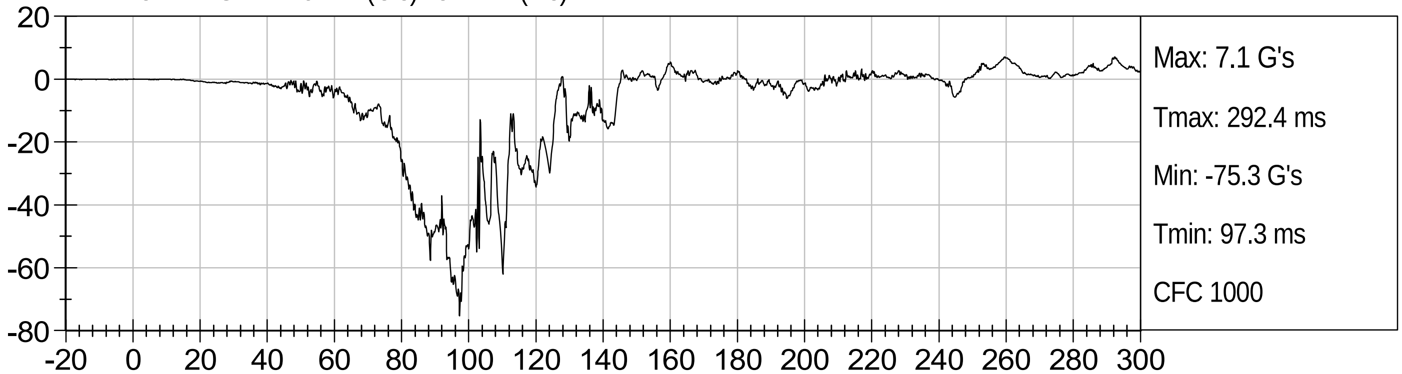
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

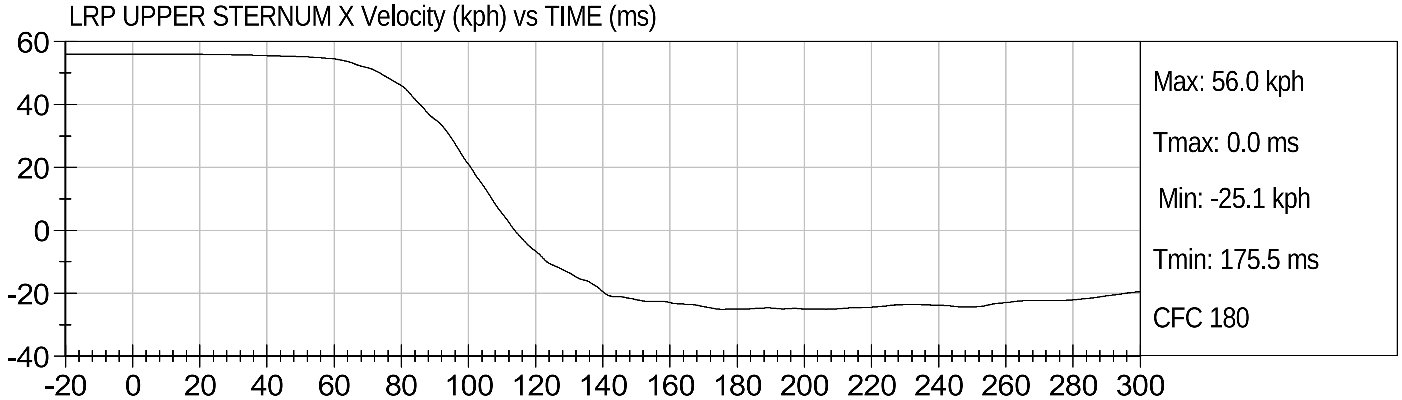
LRP UPPER STERNUM X (G's) vs TIME (ms)



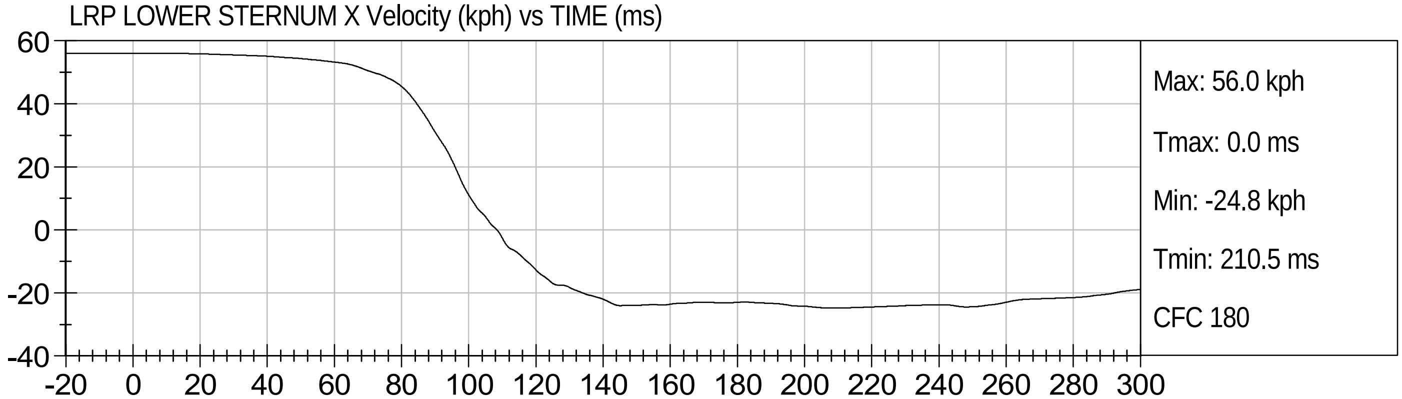
LRP LOWER STERNUM X (G's) vs TIME (ms)



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



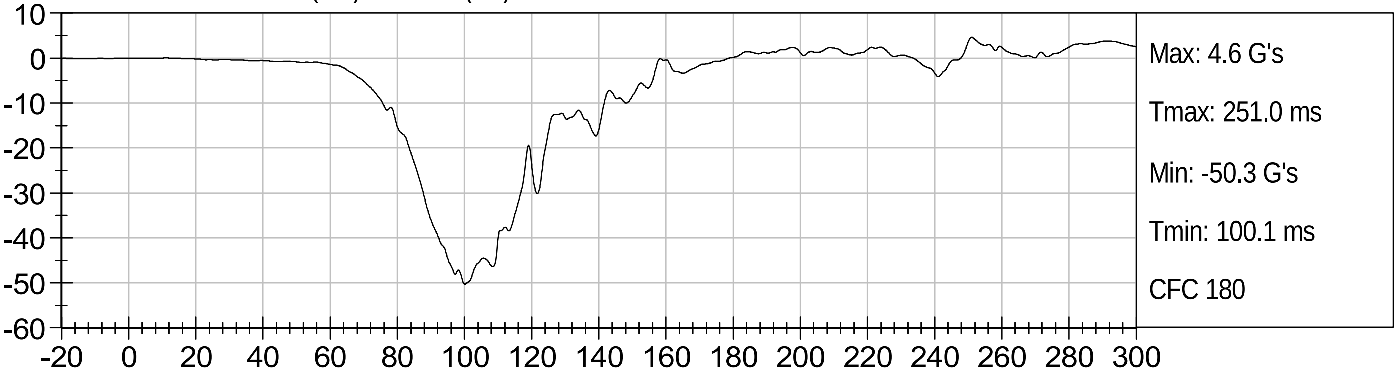
LRP LOWER STERNUM X Velocity (kph) vs TIME (ms)



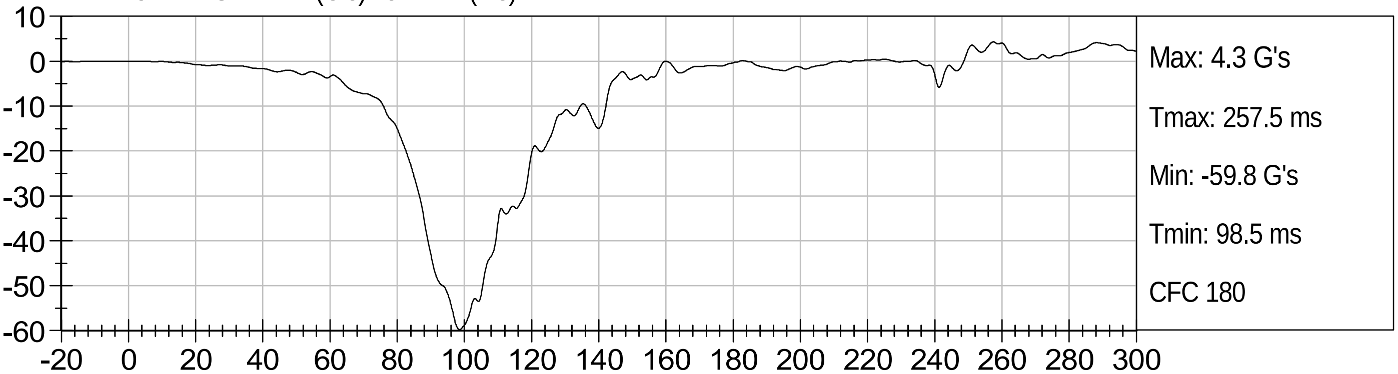
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

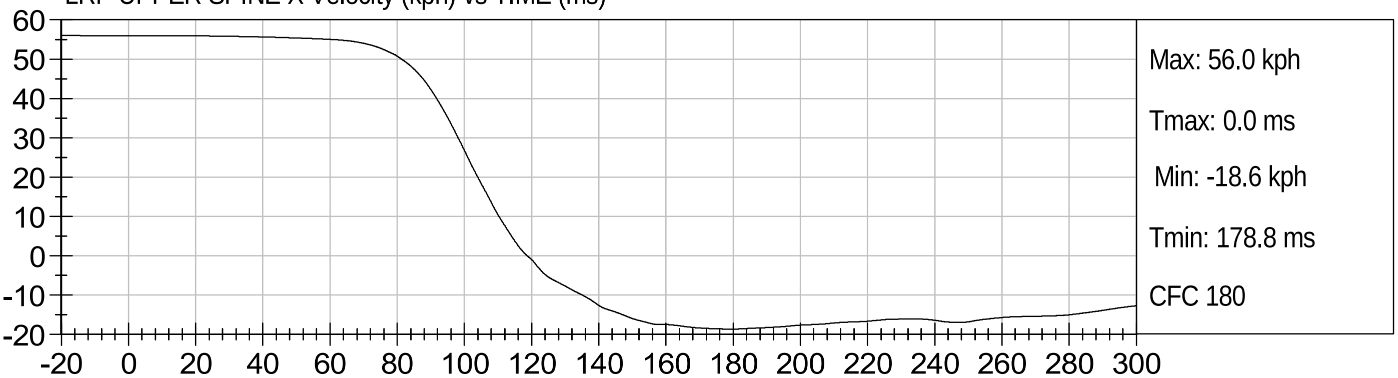
LRP UPPER SPINE X (G's) vs TIME (ms)



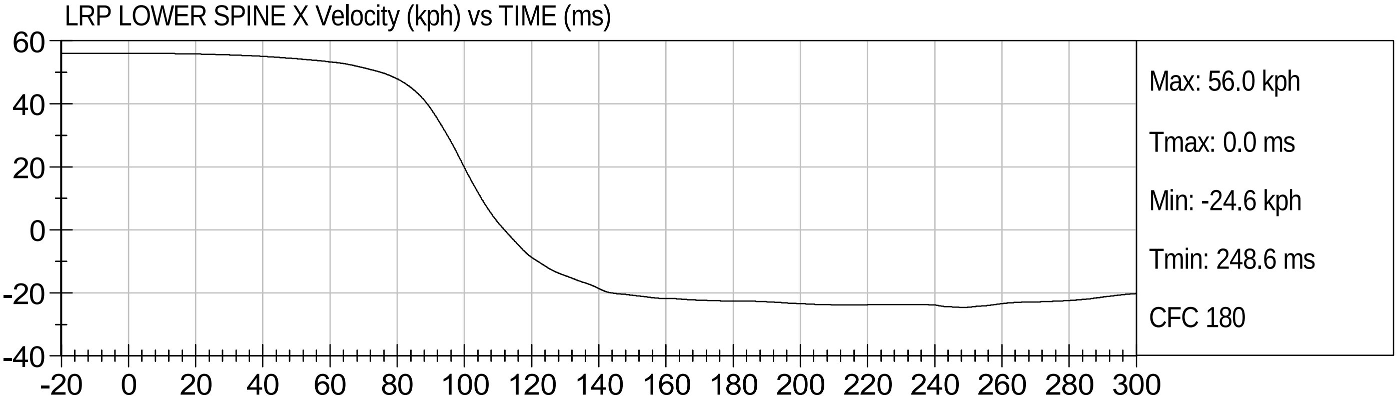
LRP LOWER SPINE X (G's) vs TIME (ms)



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

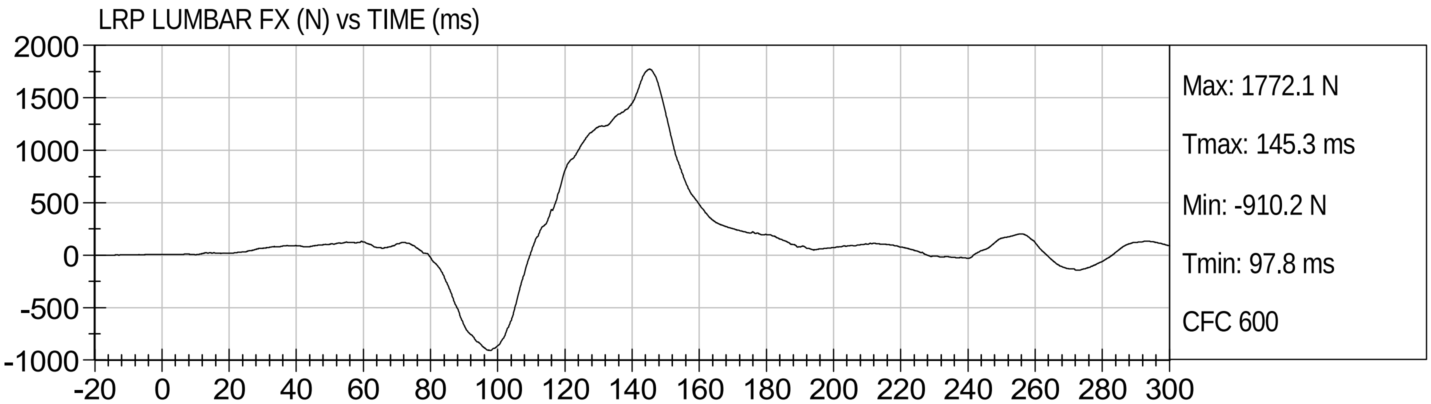


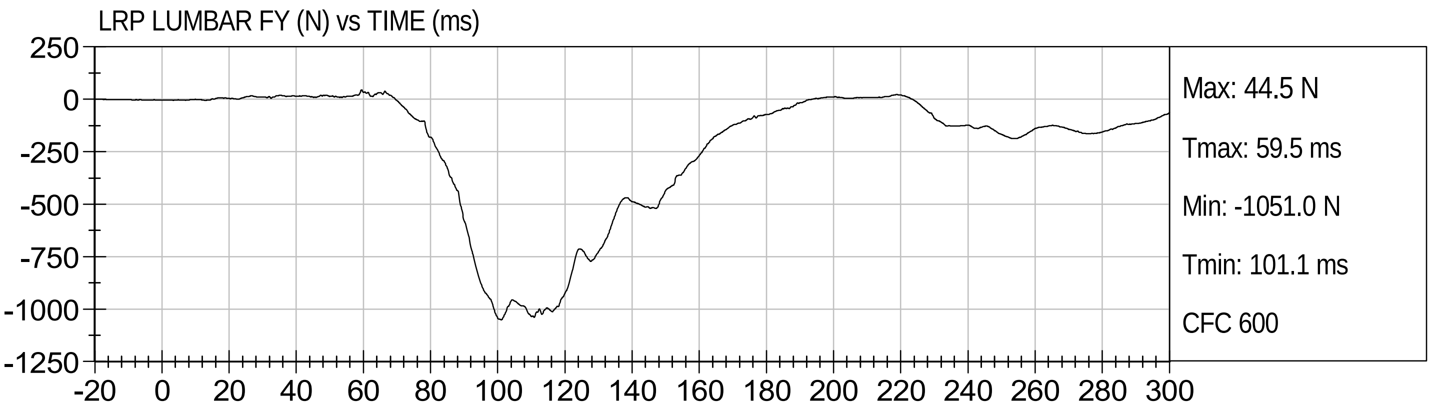
LRP LOWER SPINE X Velocity (kph) vs TIME (ms)

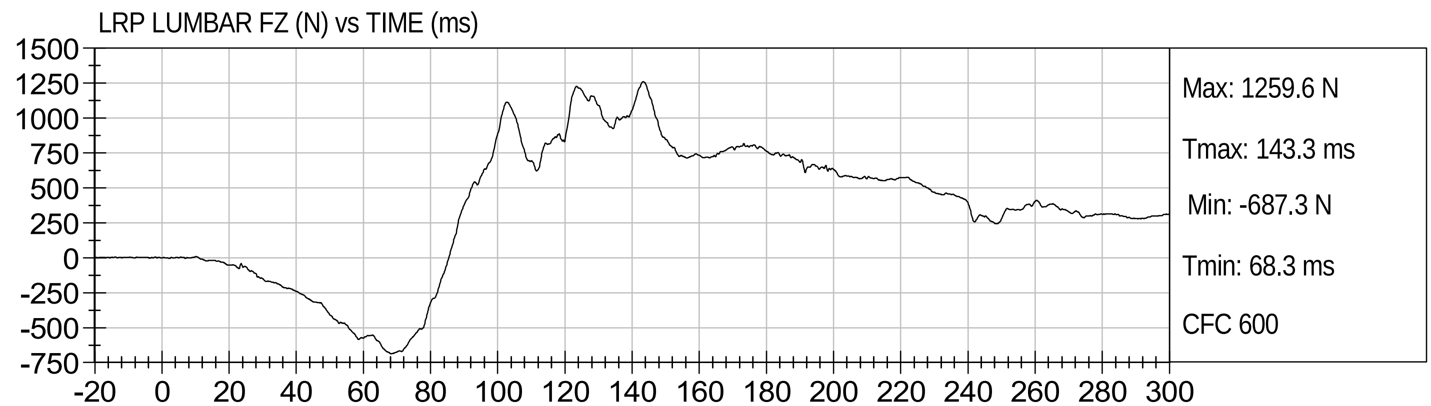


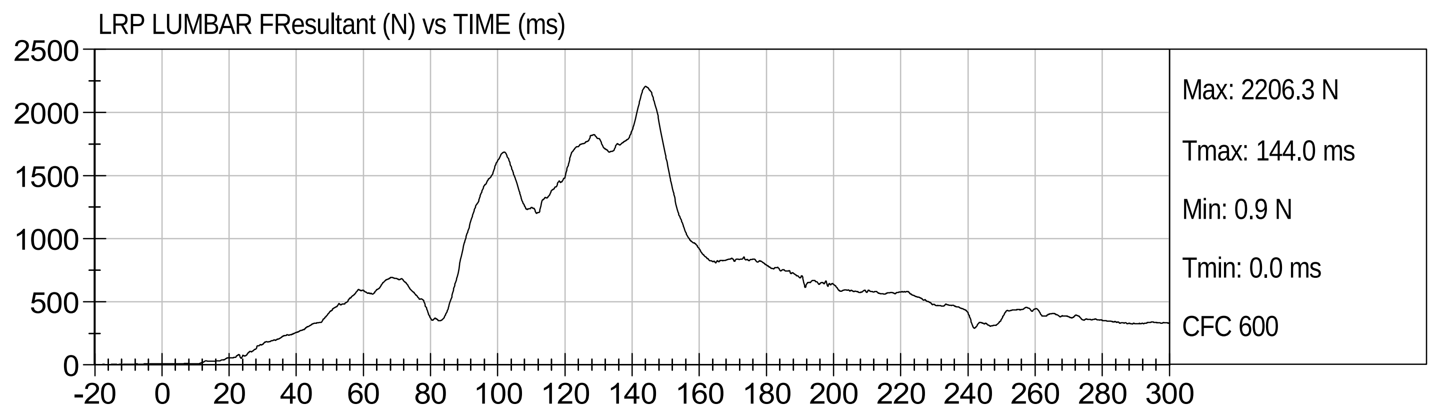
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

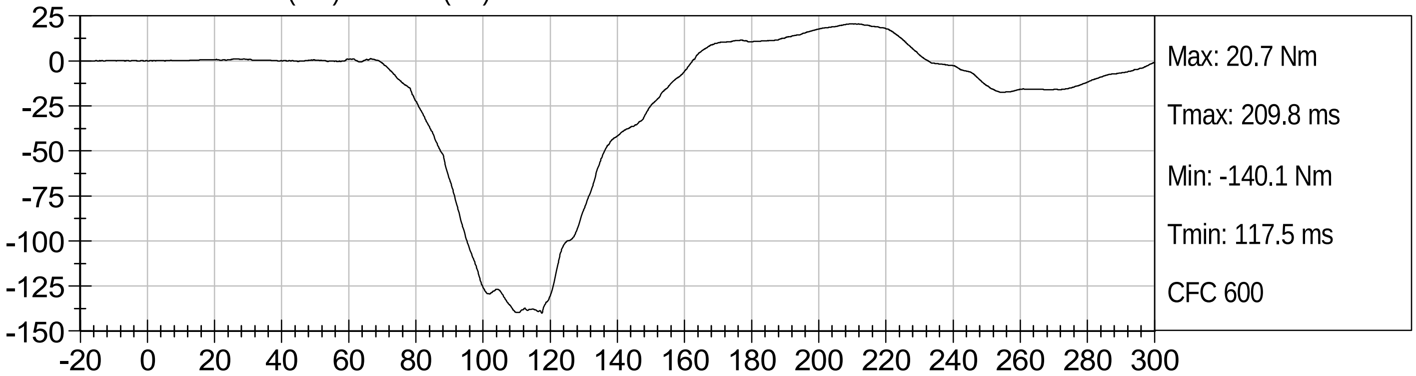




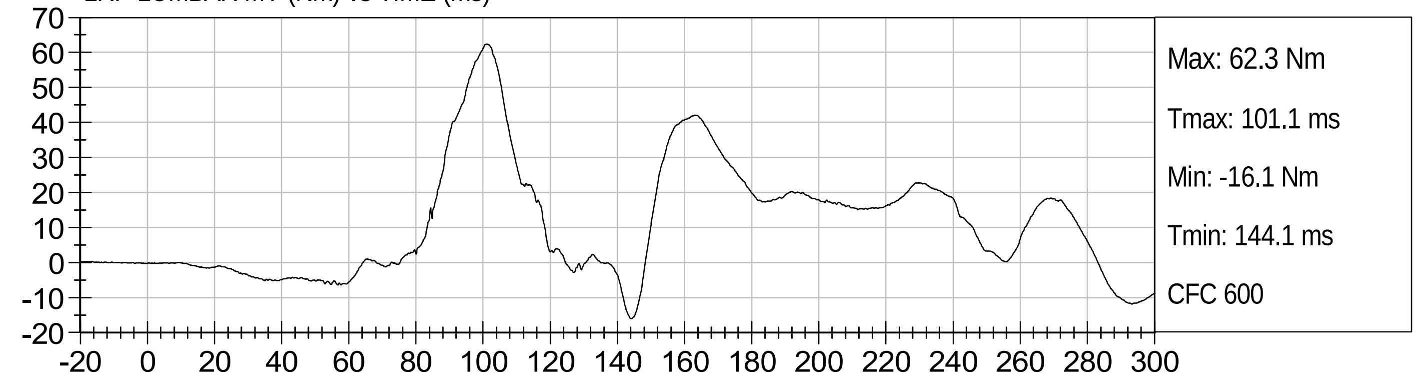




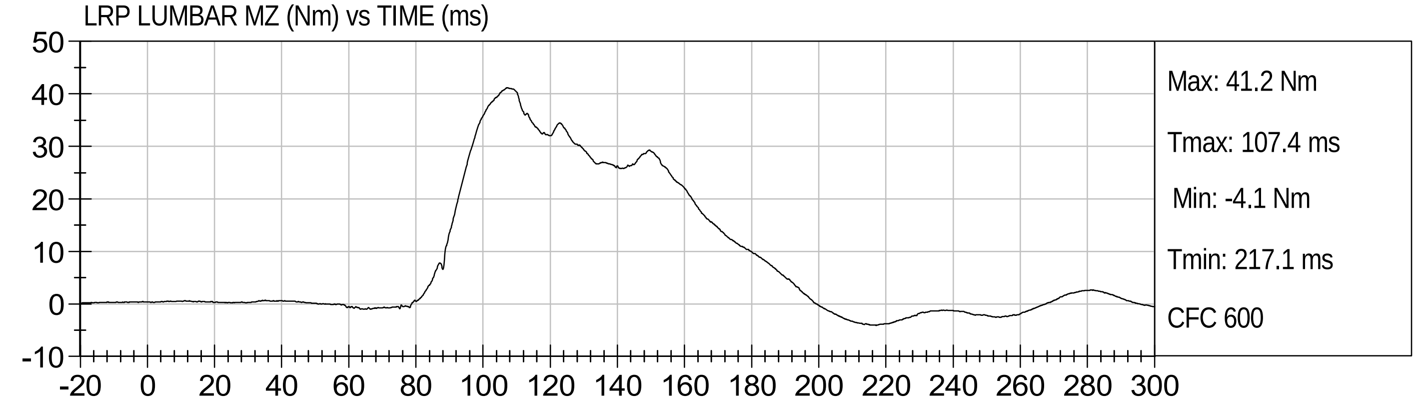
LRP LUMBAR MX (Nm) vs TIME (ms)



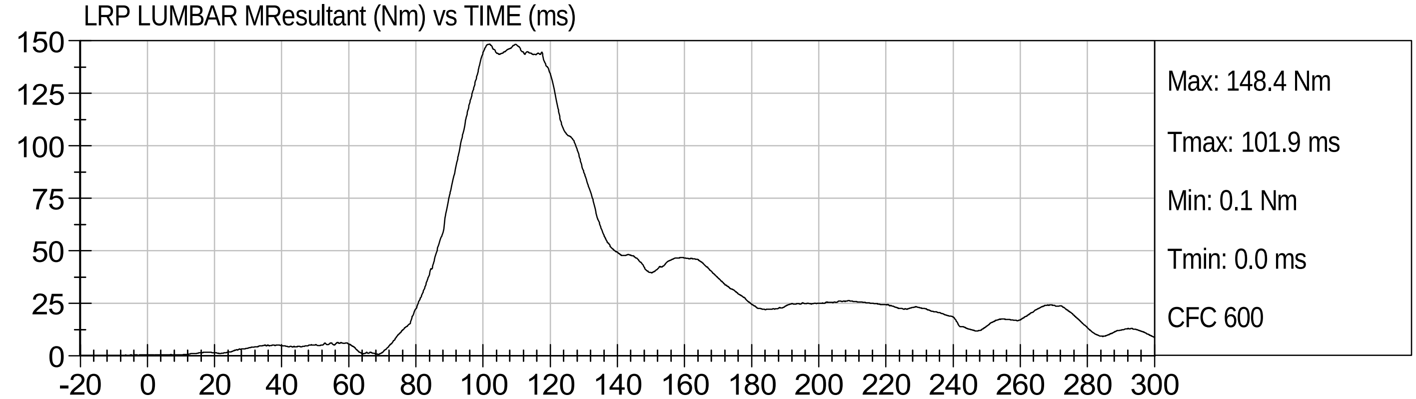
LRP LUMBAR MY (Nm) vs TIME (ms)



LRP LUMBAR MZ (Nm) vs TIME (ms)



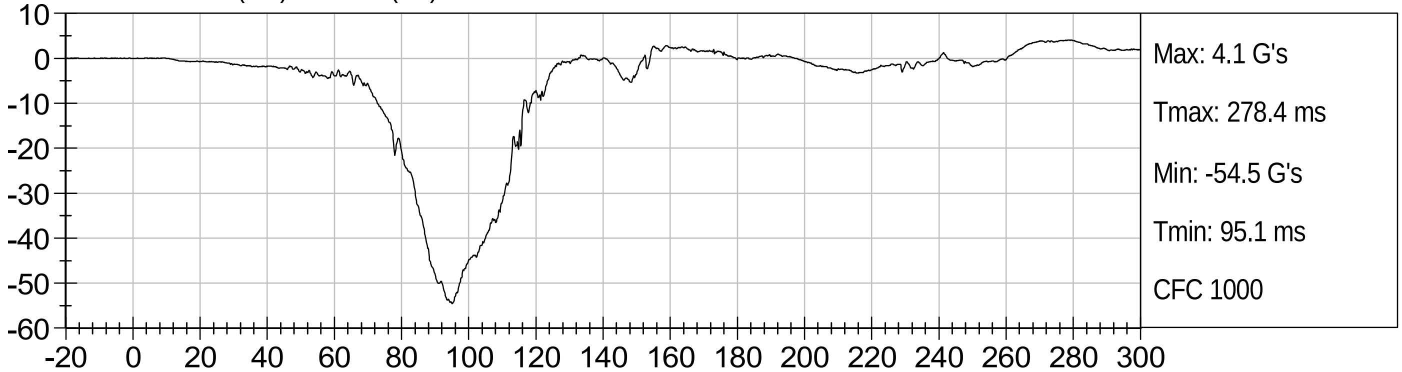
LRP LUMBAR MResultant (Nm) vs TIME (ms)



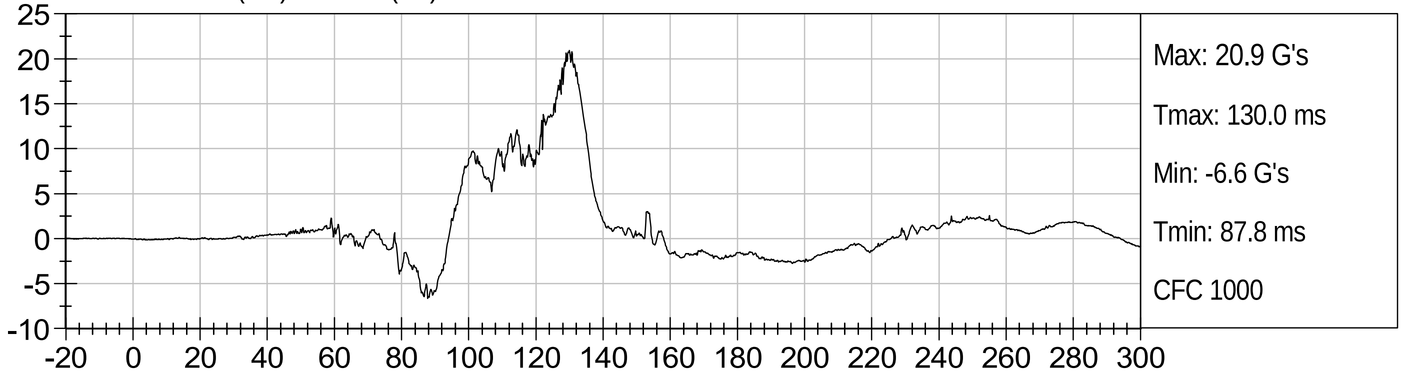
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

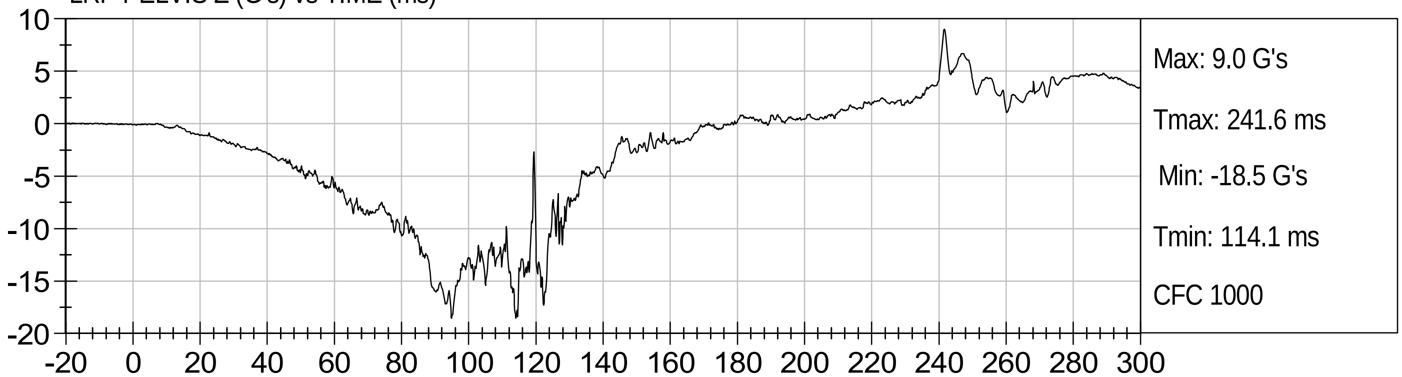
LRP PELVIS X (G's) vs TIME (ms)



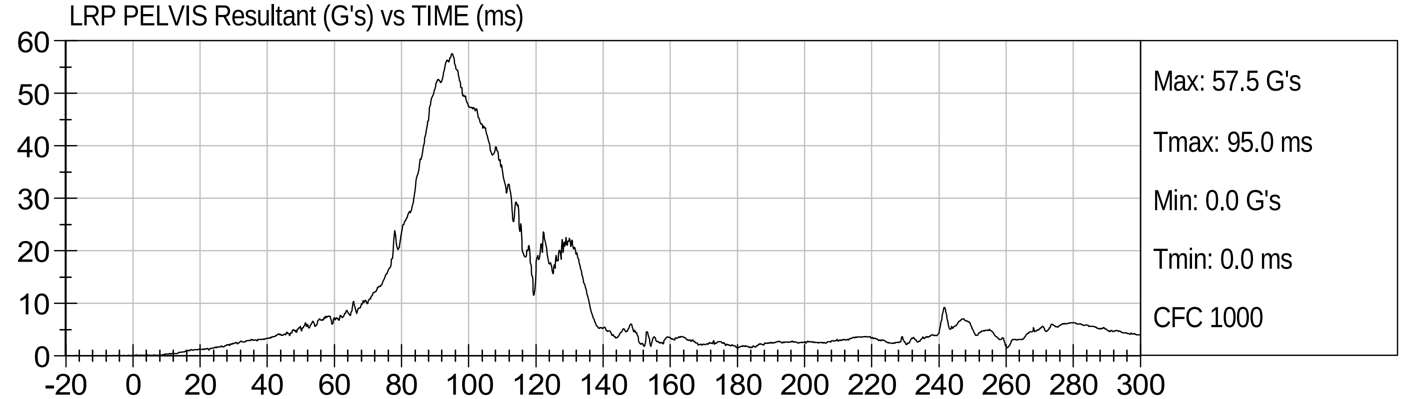
LRP PELVIS Y (G's) vs TIME (ms)

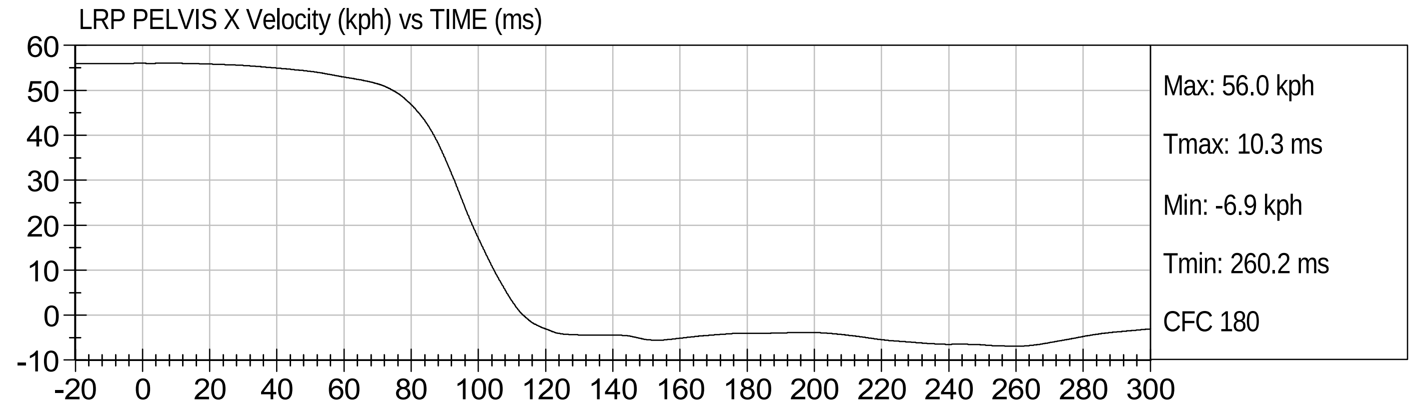


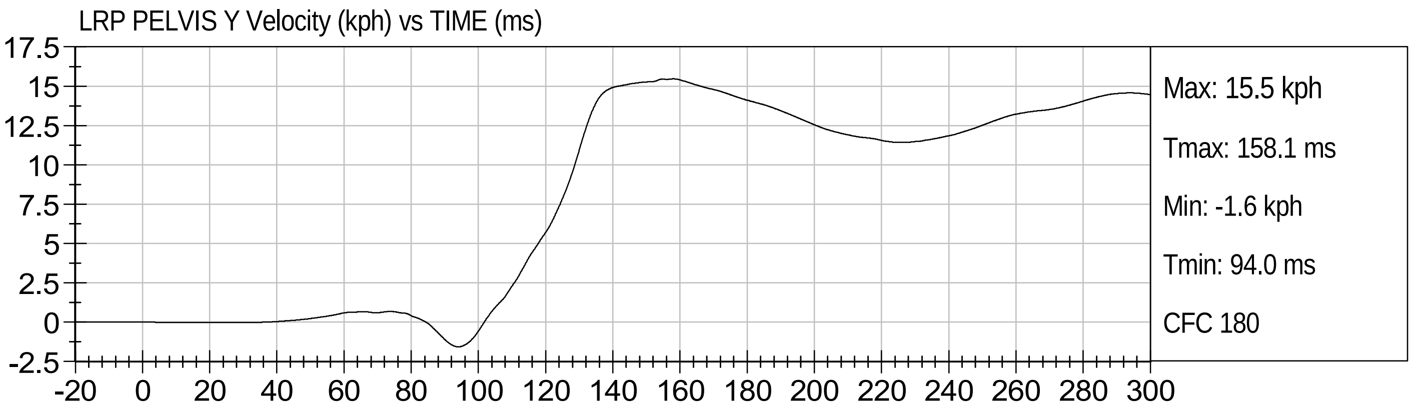
LRP PELVIS Z (G's) vs TIME (ms)

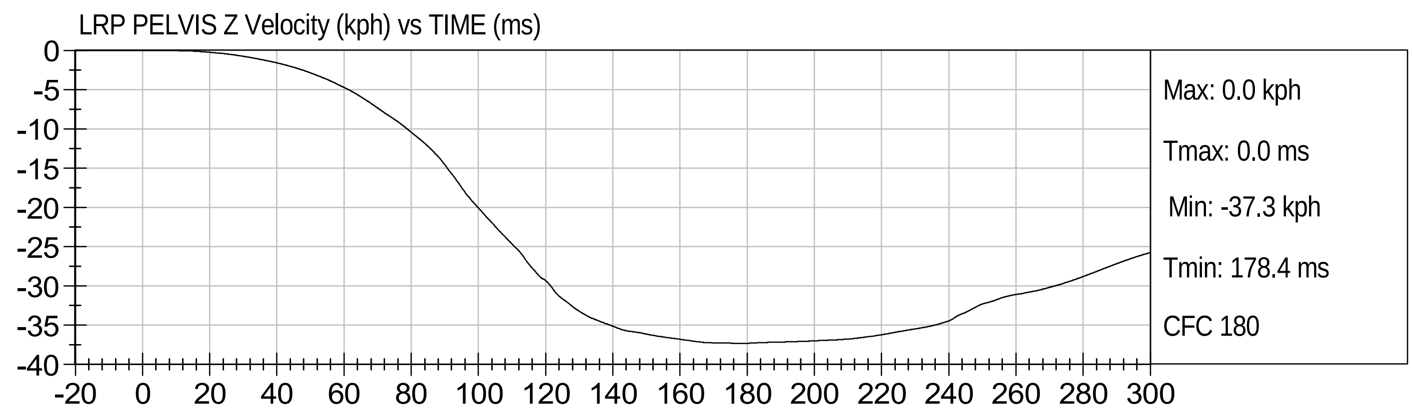


LRP PELVIS Resultant (G's) vs TIME (ms)

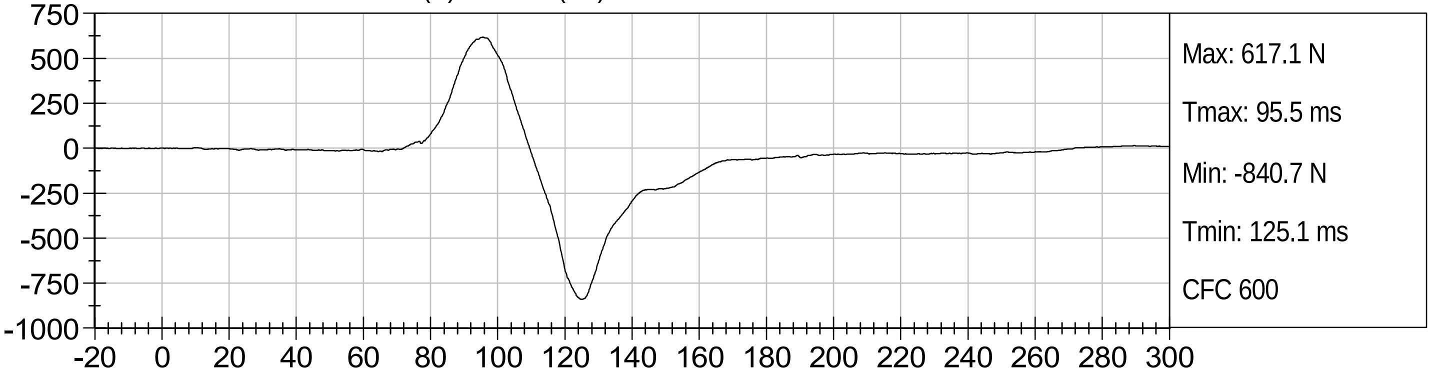



LRP PELVIS X Velocity (kph) vs TIME (ms)
60
50
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
Max: 56.0 kph
Tmax: 10.3 ms
Min: -6.9 kph
Tmin: 260.2 ms
CFC 180

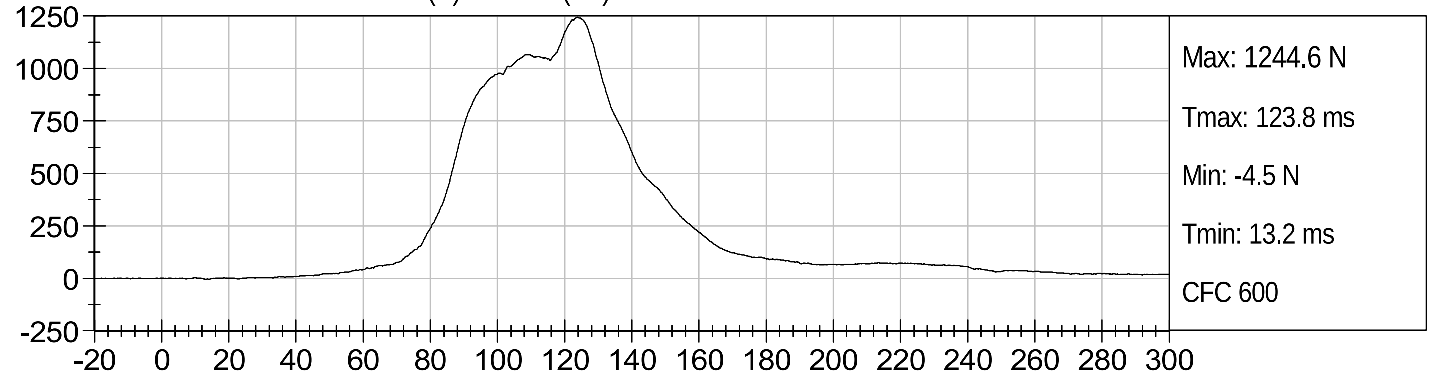

LRP PELVIS Y Velocity (kph) vs TIME (ms)
17.5
15
12.5
10
7.5
5
2.5
0
-2.5
-20
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
Max: 15.5 kph
Tmax: 158.1 ms
Min: -1.6 kph
Tmin: 94.0 ms
CFC 180


LRP 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: -37.3 kph
Tmin: 178.4 ms
CFC 180

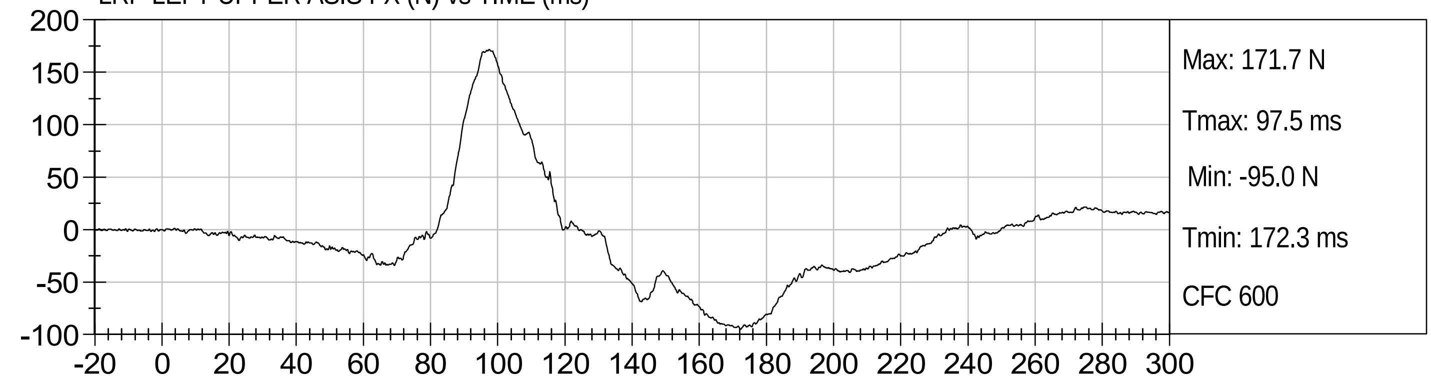
LRP RIGHT UPPER ASIS FX (N) vs TIME (ms)



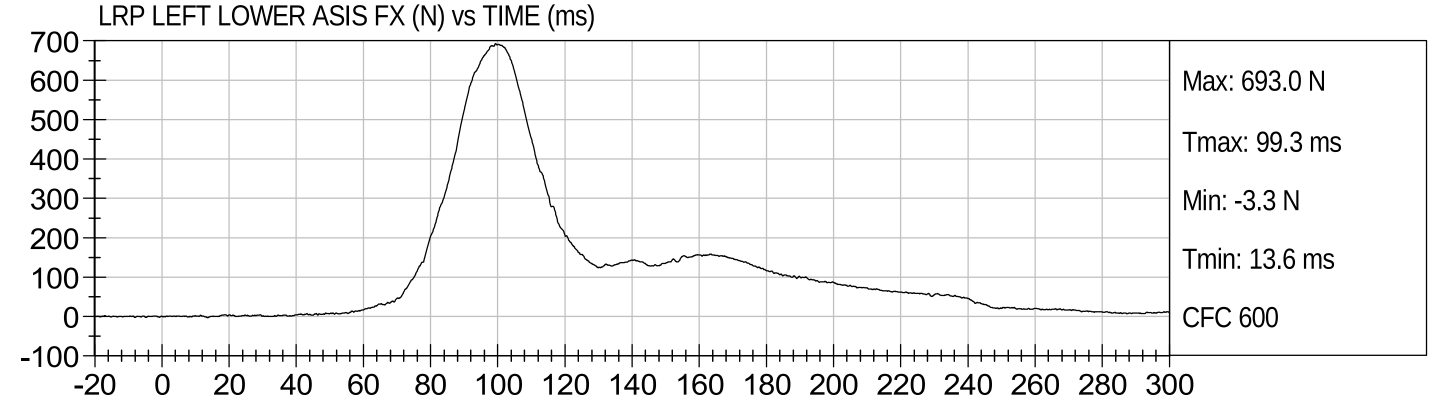
LRP RIGHT LOWER ASIS FX (N) vs TIME (ms)



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



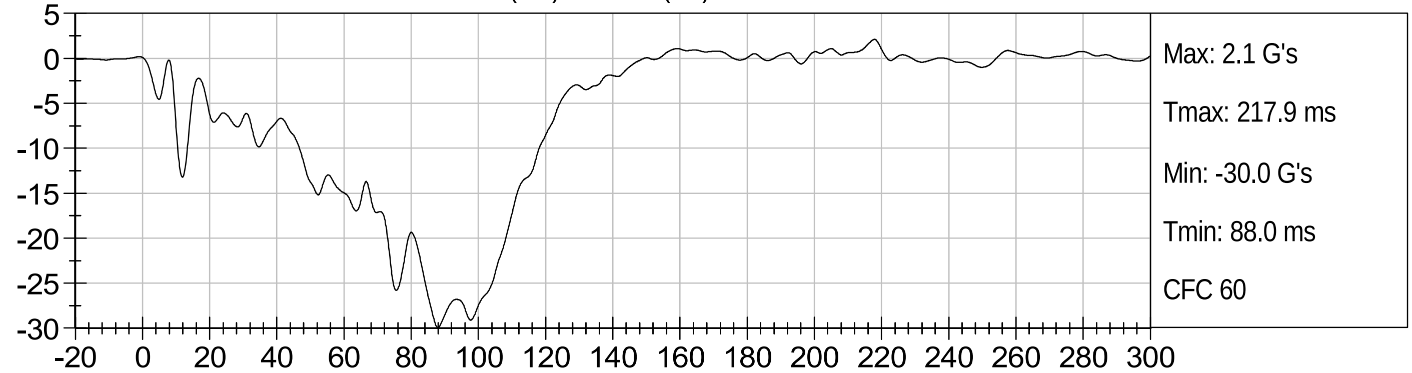
LRP LEFT LOWER ASIS FX (N) vs TIME (ms)



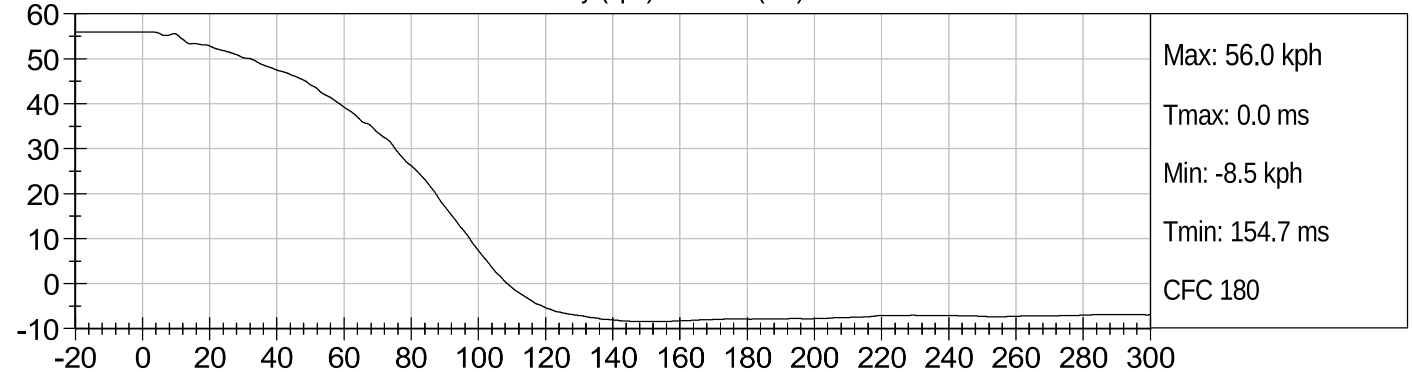
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

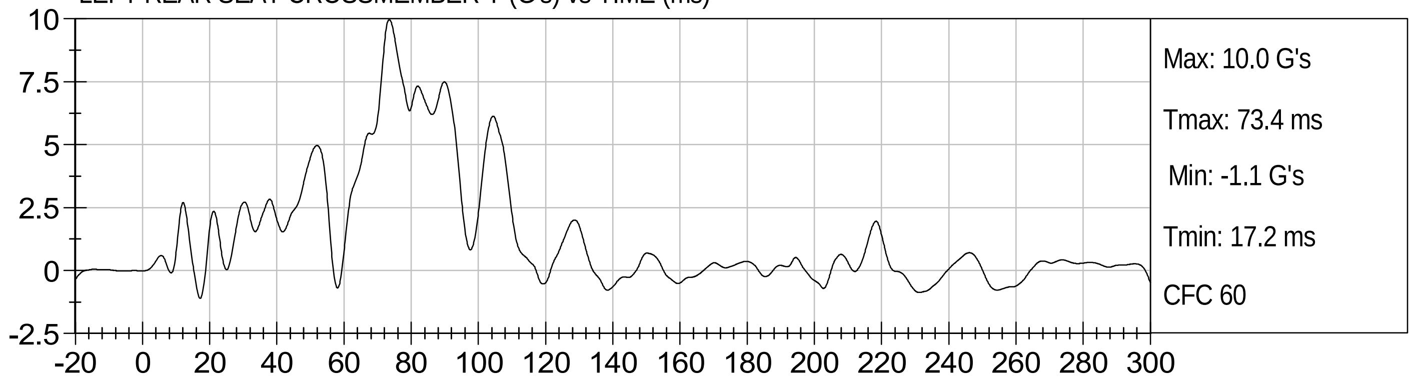
LEFT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)



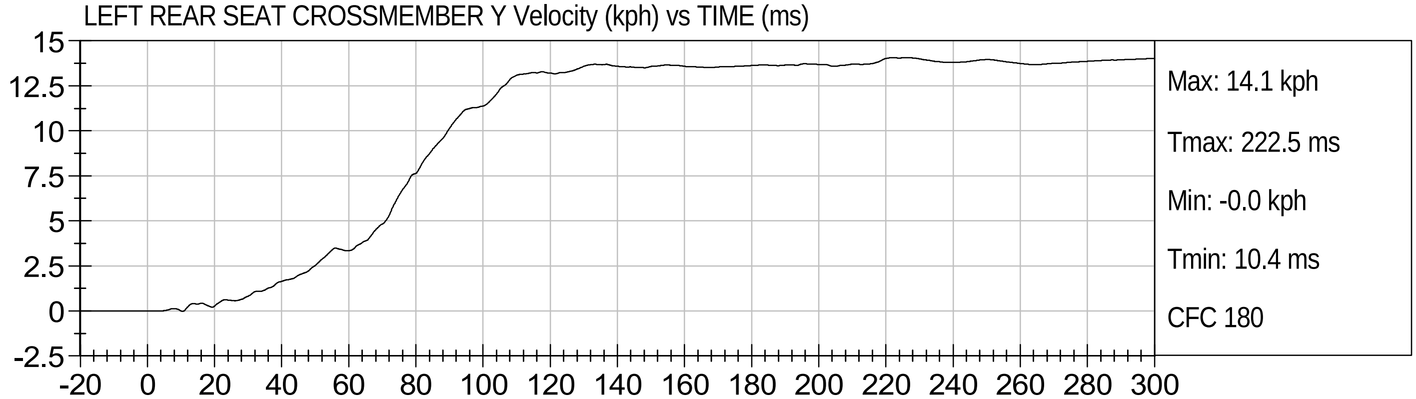
LEFT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)



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

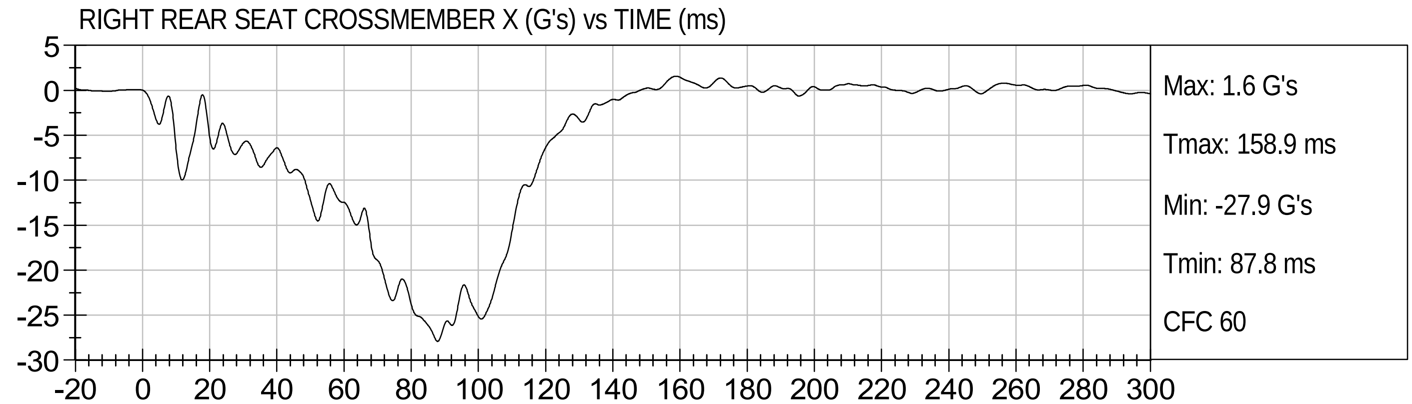


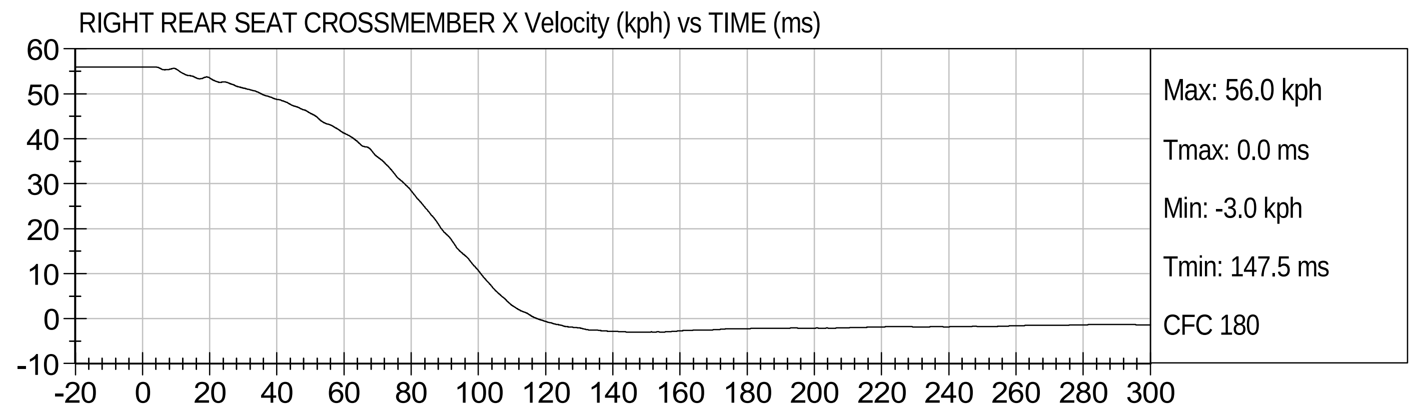
LEFT REAR SEAT CROSSMEMBER Y Velocity (kph) vs TIME (ms)

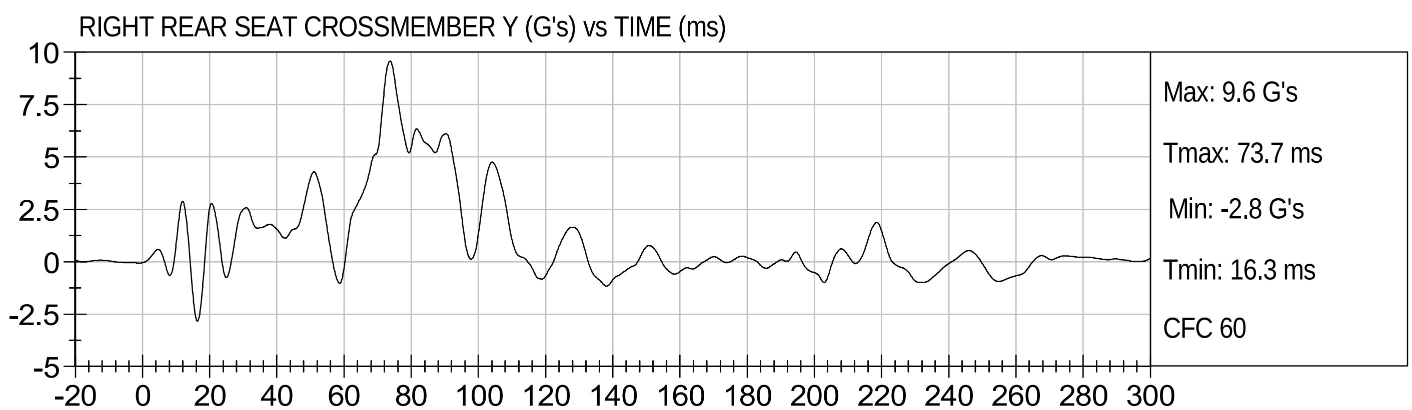


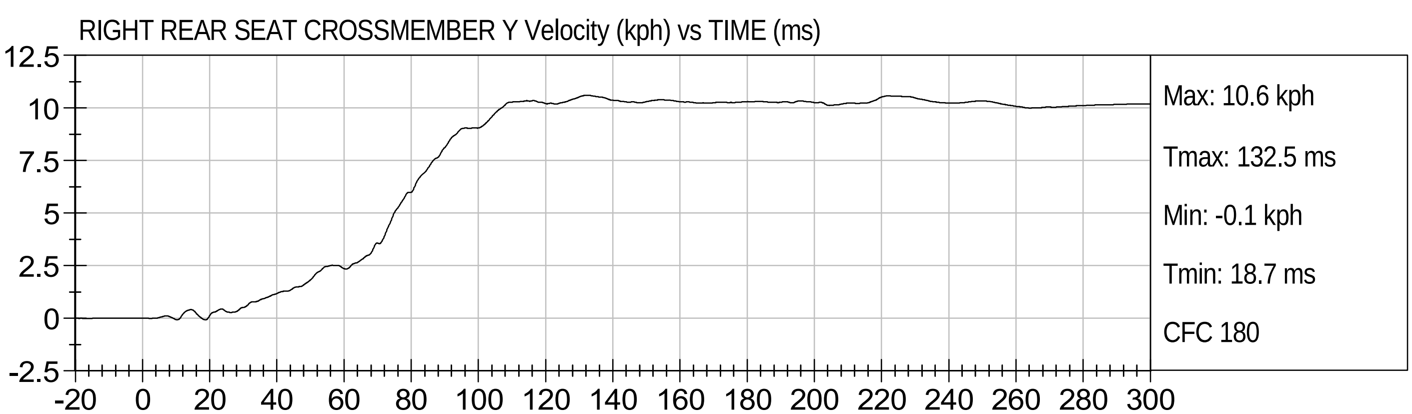
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)





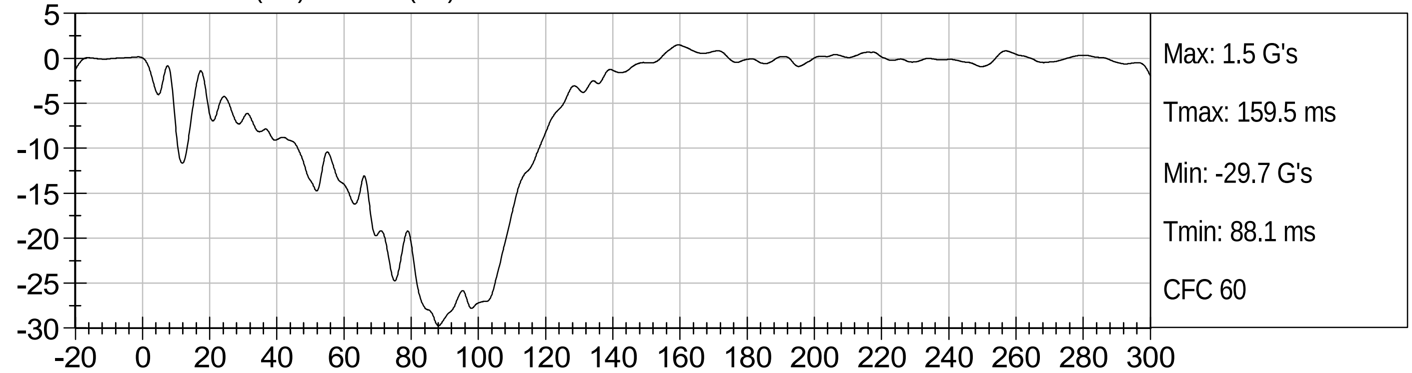




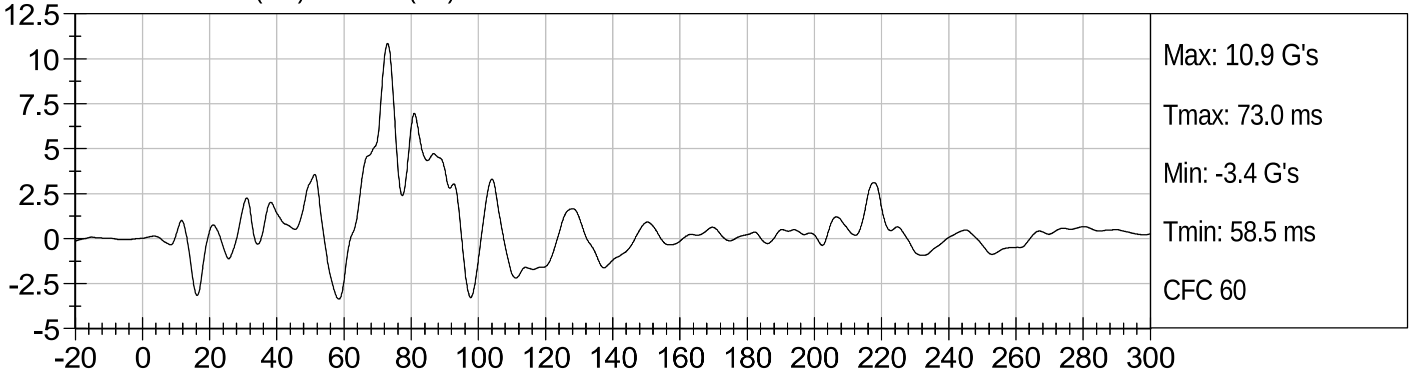
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

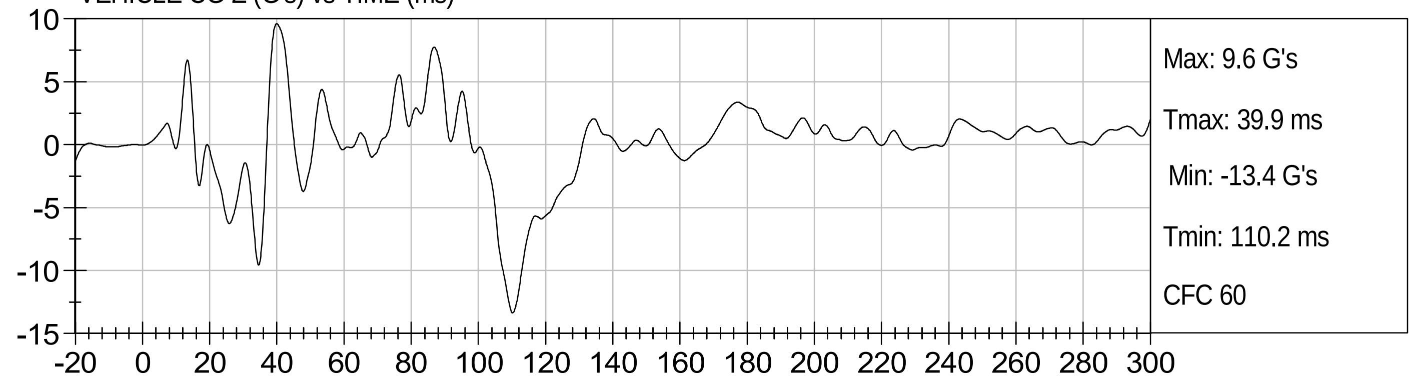
VEHICLE CG X (G's) vs TIME (ms)



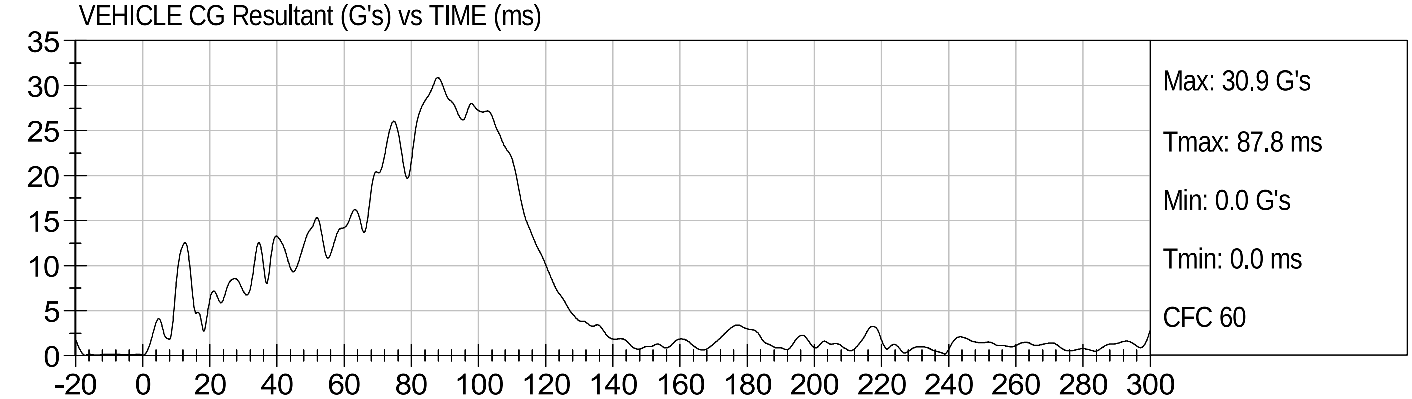
VEHICLE CG Y (G's) vs TIME (ms)

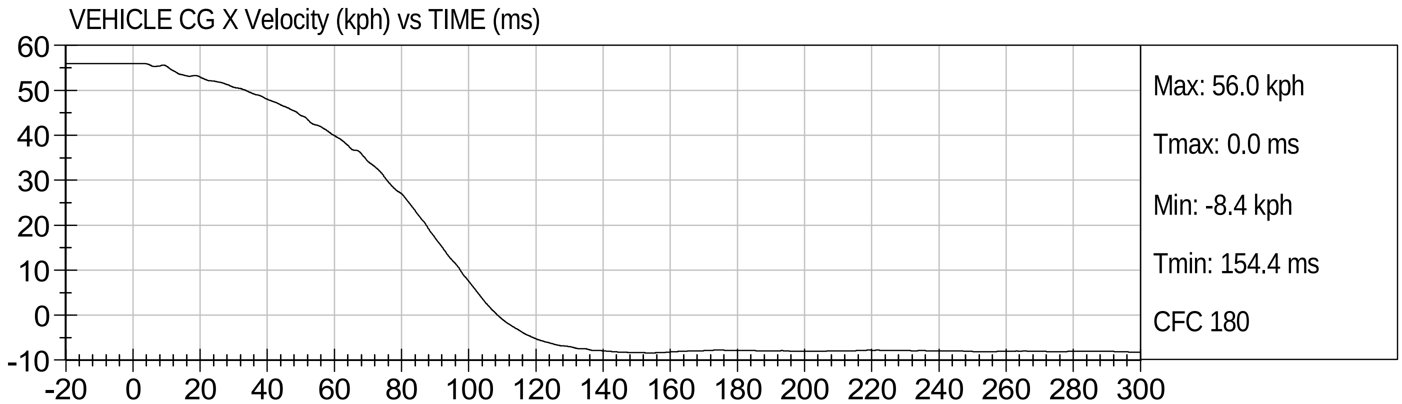


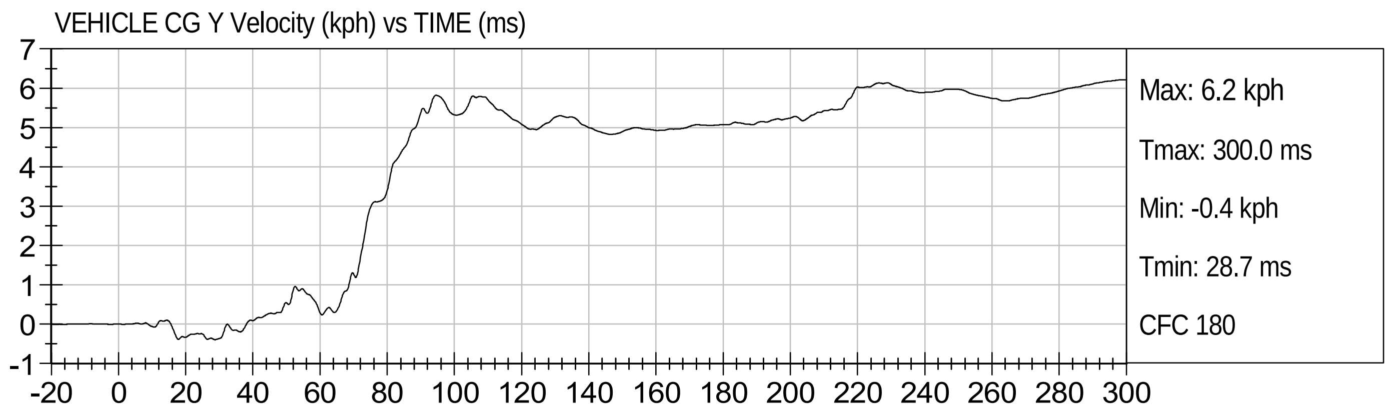
VEHICLE CG Z (G's) vs TIME (ms)

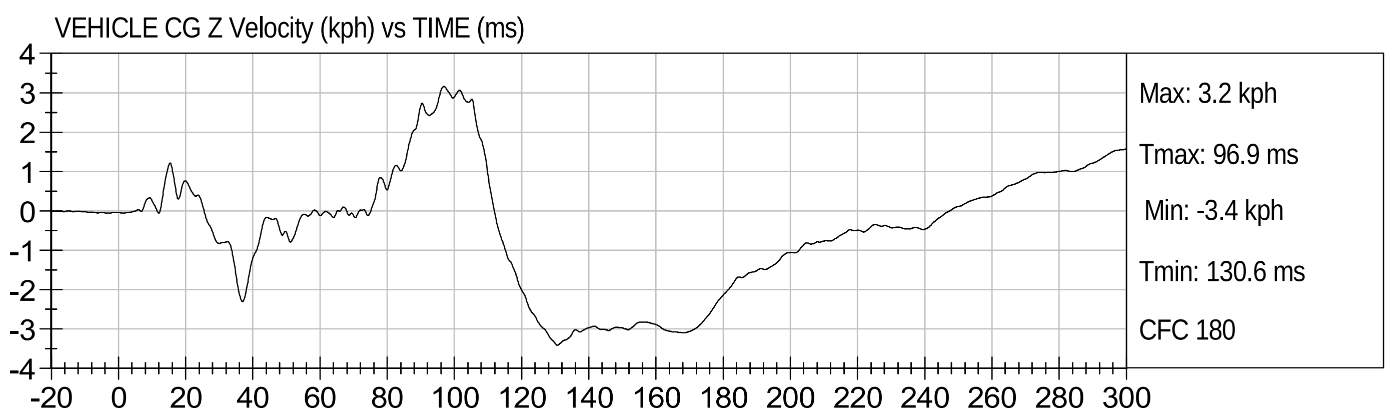


VEHICLE CG Resultant (G's) vs TIME (ms)




VEHICLE CG X Velocity (kph) vs TIME (ms)
Max: 56.0 kph
Tmax: 0.0 ms
Min: -8.4 kph
Tmin: 154.4 ms
CFC 180

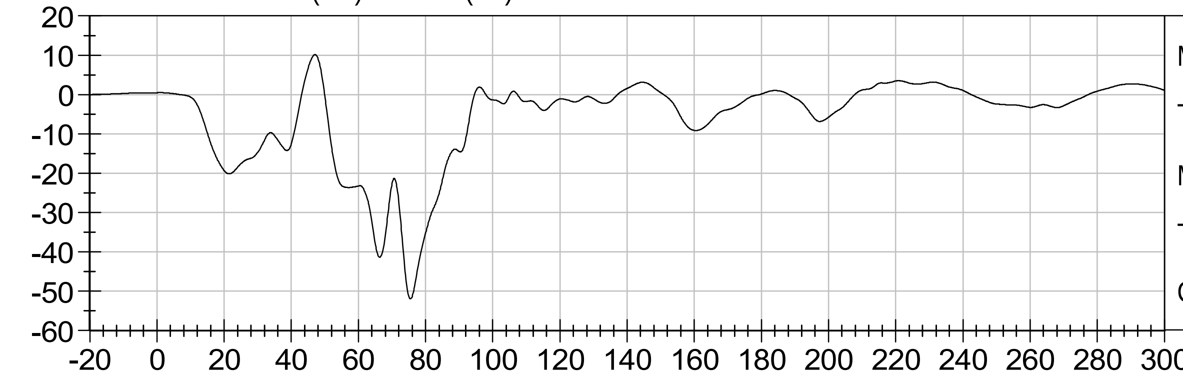

VEHICLE CG Y Velocity (kph) vs TIME (ms)
Max: 6.2 kph
Tmax: 300.0 ms
Min: -0.4 kph
Tmin: 28.7 ms
CFC 180


VEHICLE CG Z Velocity (kph) vs TIME (ms)
Max: 3.2 kph
Tmax: 96.9 ms
Min: -3.4 kph
Tmin: 130.6 ms
CFC 180

NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

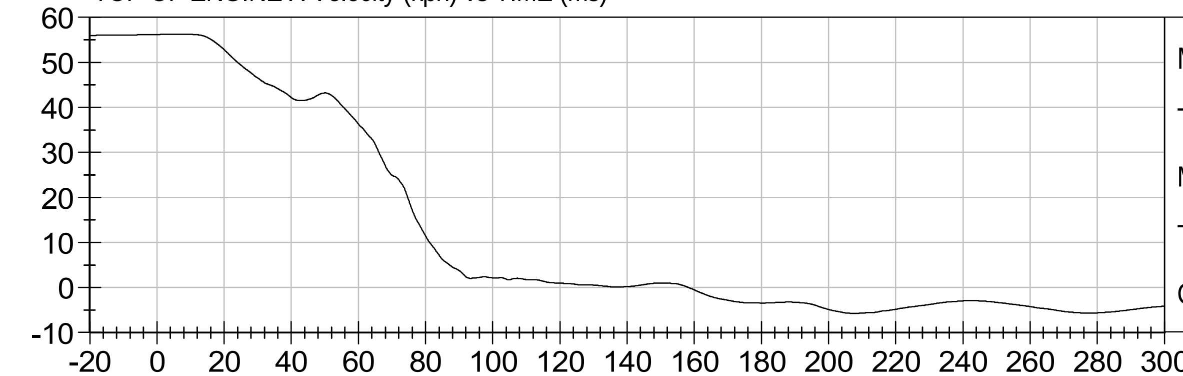
Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

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



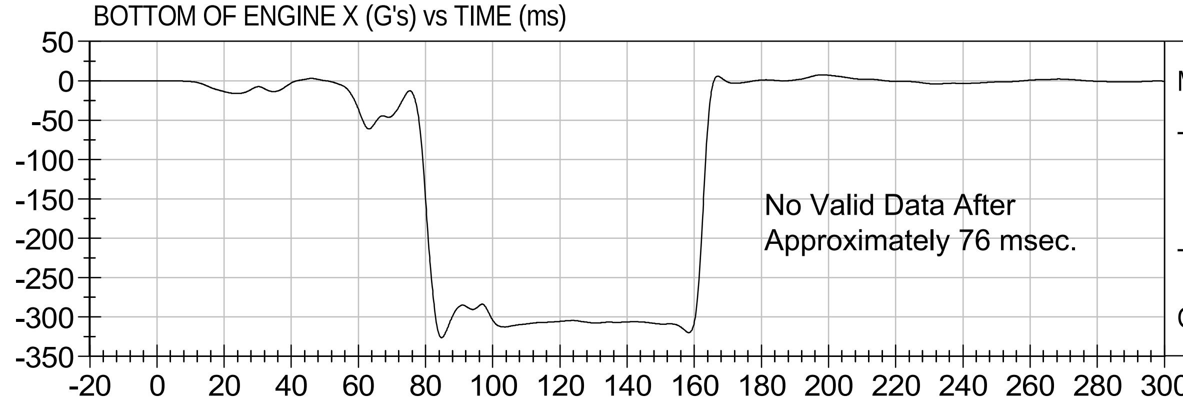
Max: 10.2 G's
Tmax: 47.1 ms
Min: -51.9 G's
Tmin: 75.5 ms
CFC 60

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



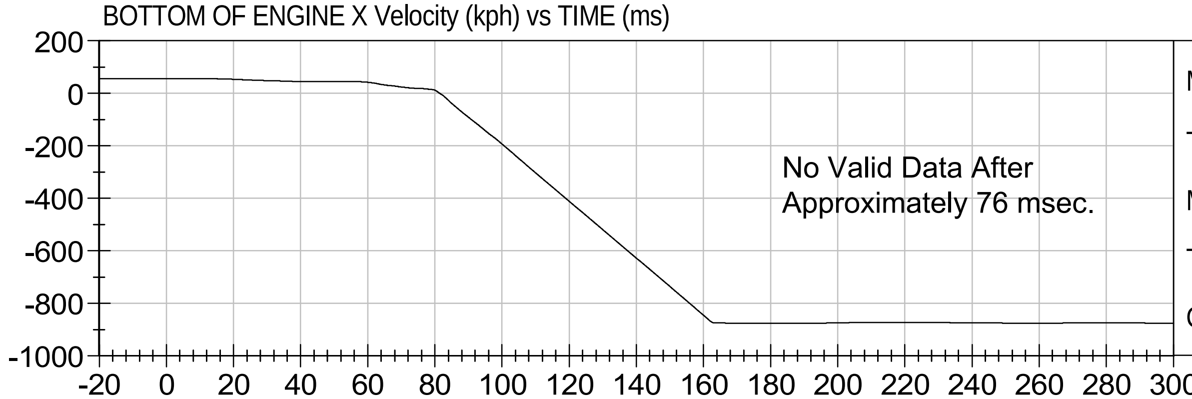
Max: 56.3 kph
Tmax: 6.0 ms
Min: -5.7 kph
Tmin: 207.3 ms
CFC 180

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



Max: 7.5 G's
Tmax: 198.0 ms
Min: -326.2 G's
Tmin: 84.8 ms
CFC 60

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

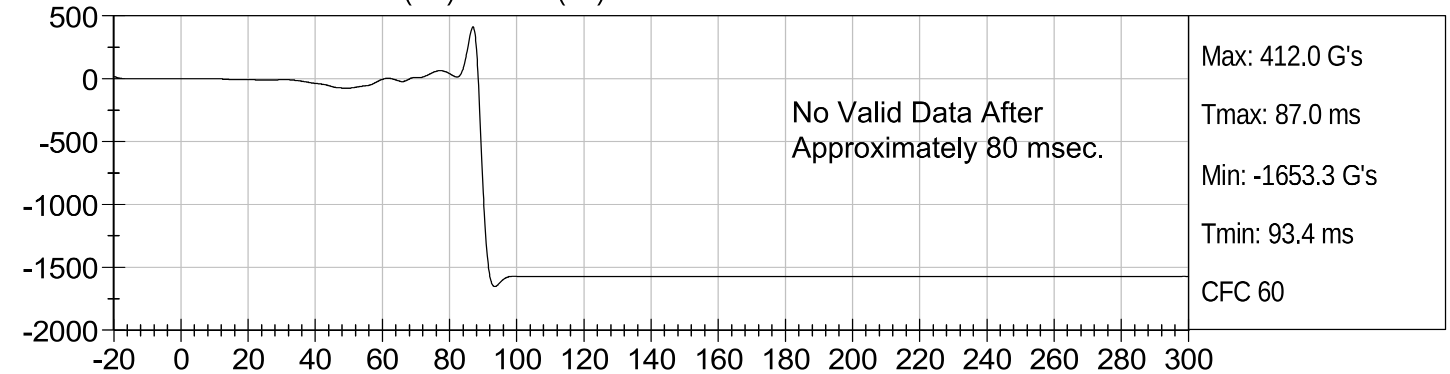


Max: 56.0 kph
Tmax: 0.0 ms
Min: -875.9 kph
Tmin: 177.6 ms
CFC 180

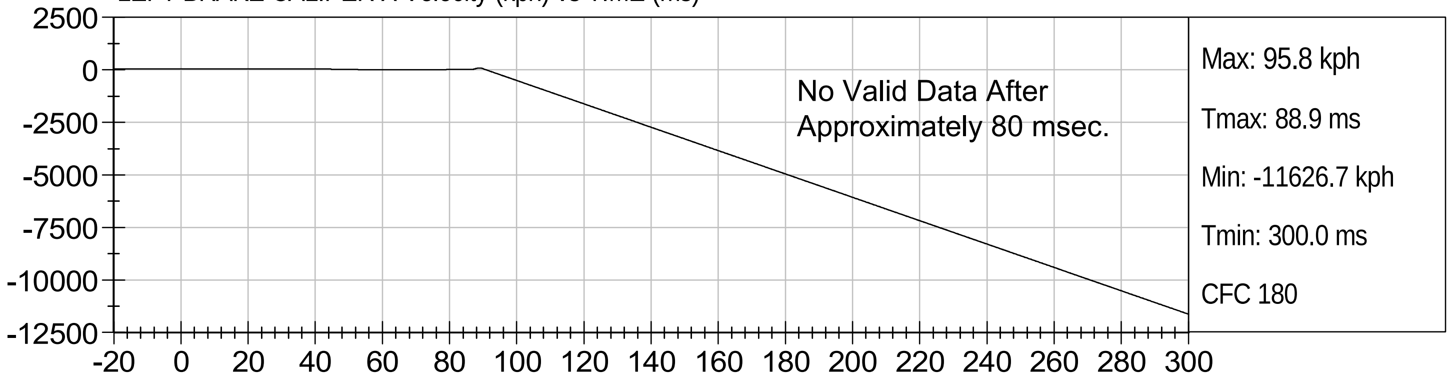
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

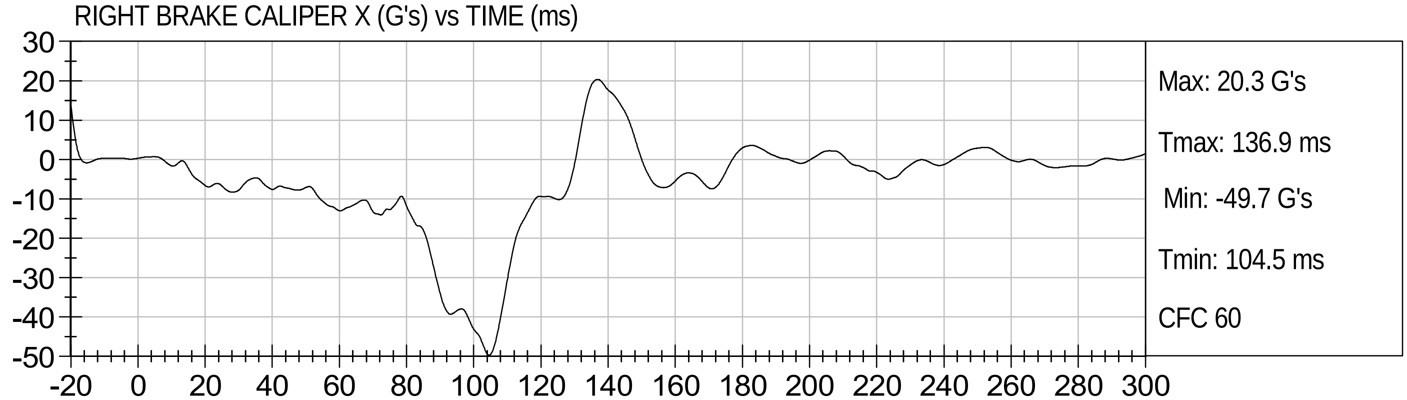
LEFT BRAKE CALIPER X (G's) vs TIME (ms)



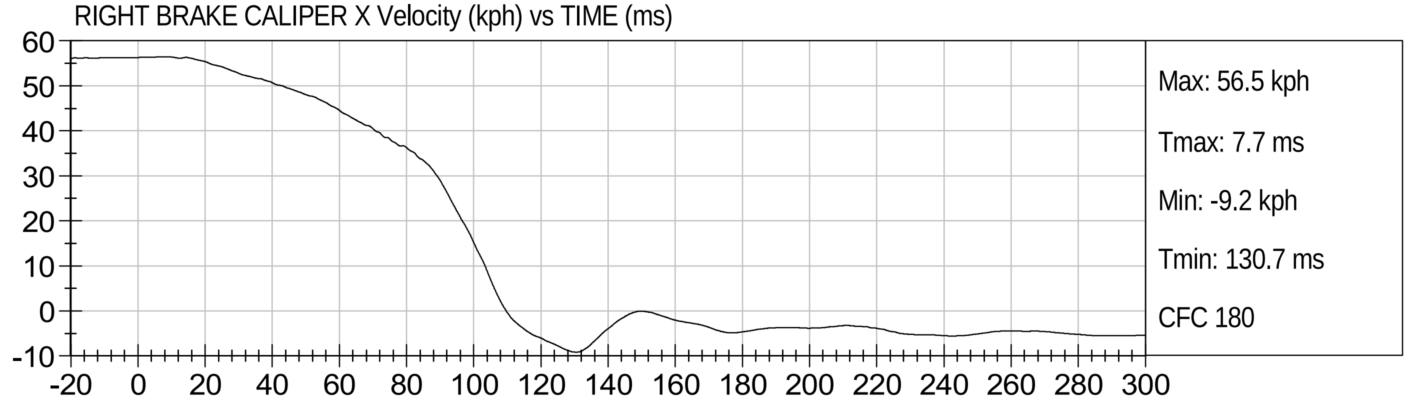
LEFT BRAKE CALIPER X Velocity (kph) vs TIME (ms)



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



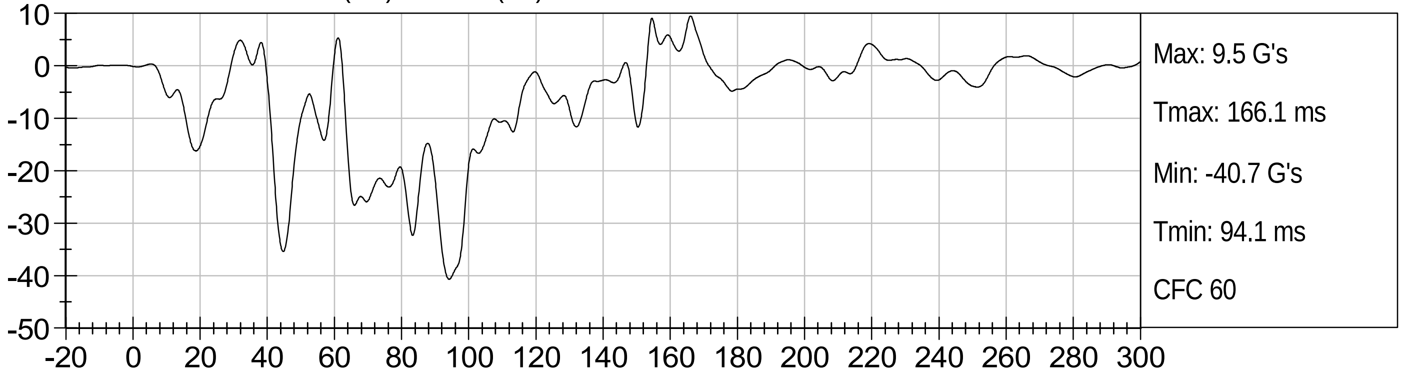
RIGHT BRAKE CALIPER X Velocity (kph) vs TIME (ms)



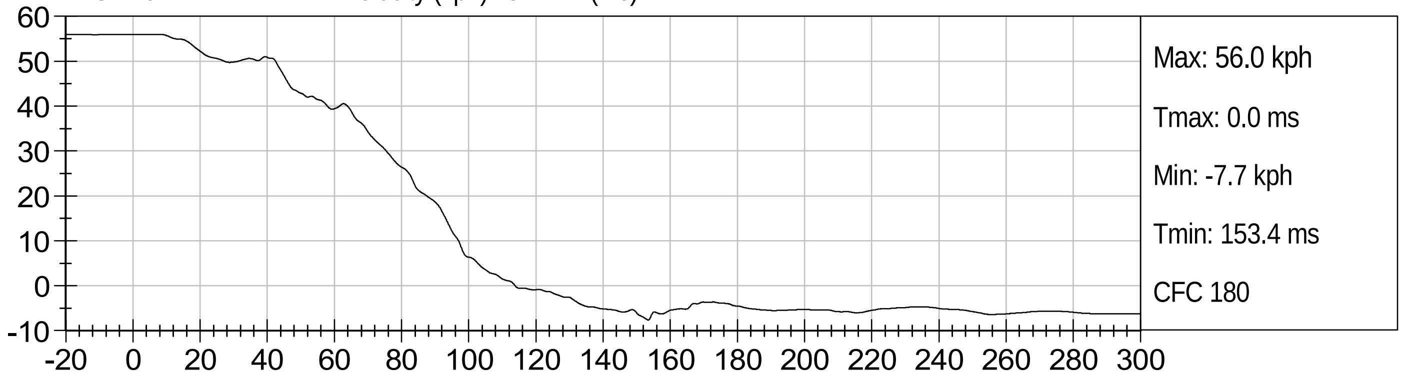
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

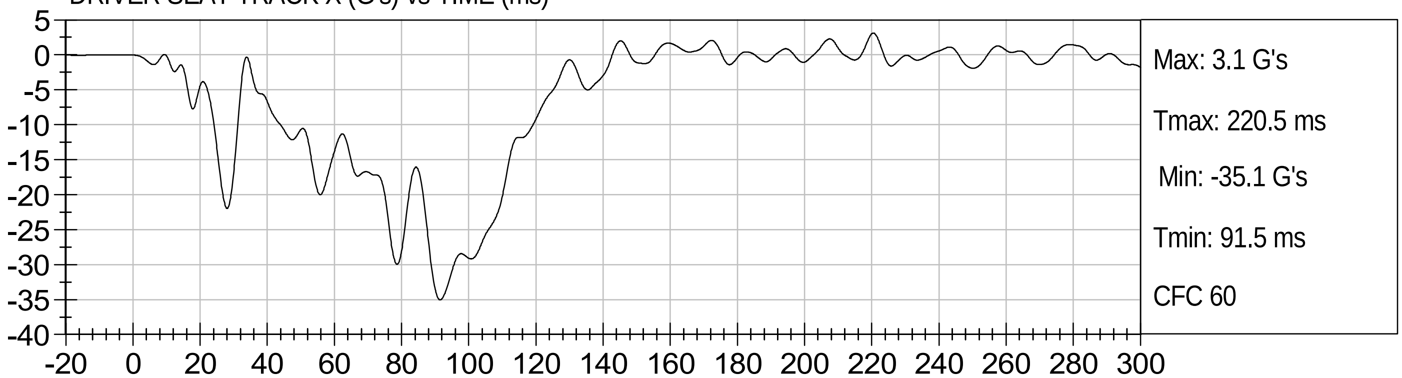
INSTRUMENT PANEL X (G's) vs TIME (ms)



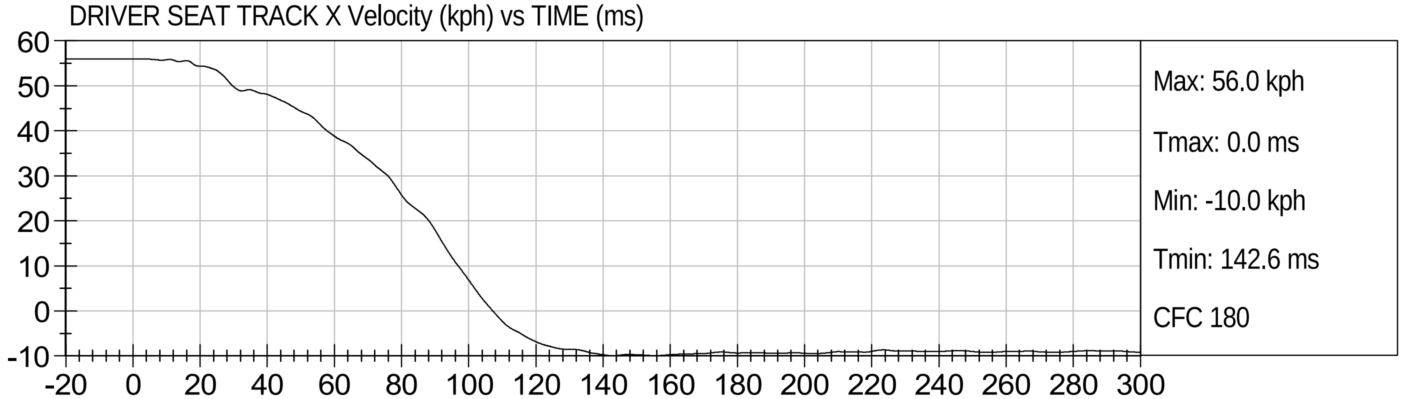
INSTRUMENT PANEL X Velocity (kph) vs TIME (ms)



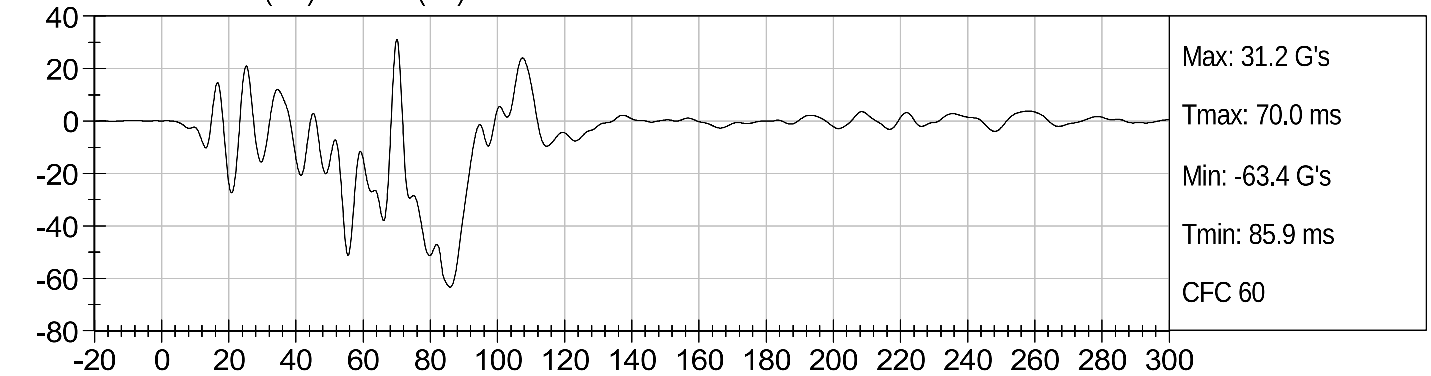
DRIVER SEAT TRACK X (G's) vs TIME (ms)



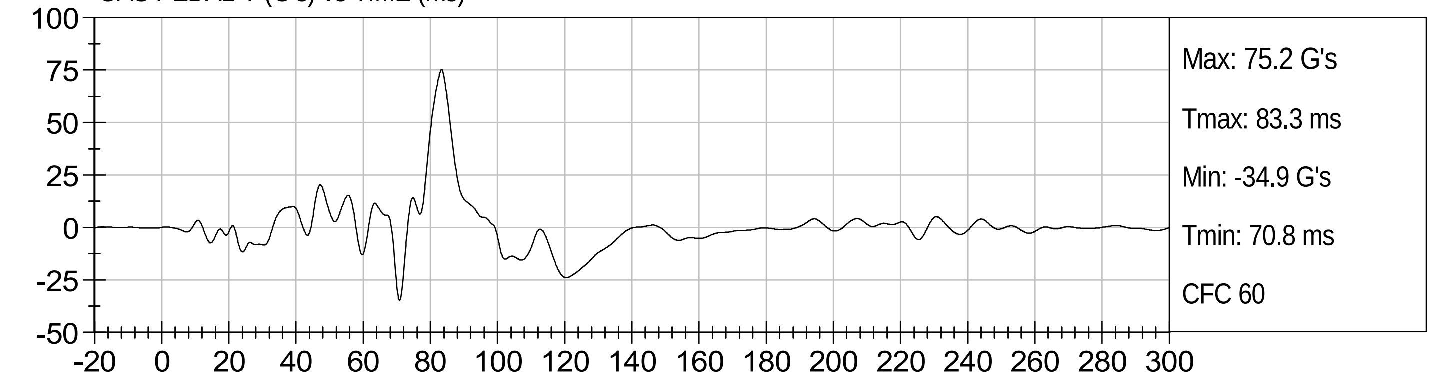
DRIVER SEAT TRACK X Velocity (kph) vs TIME (ms)



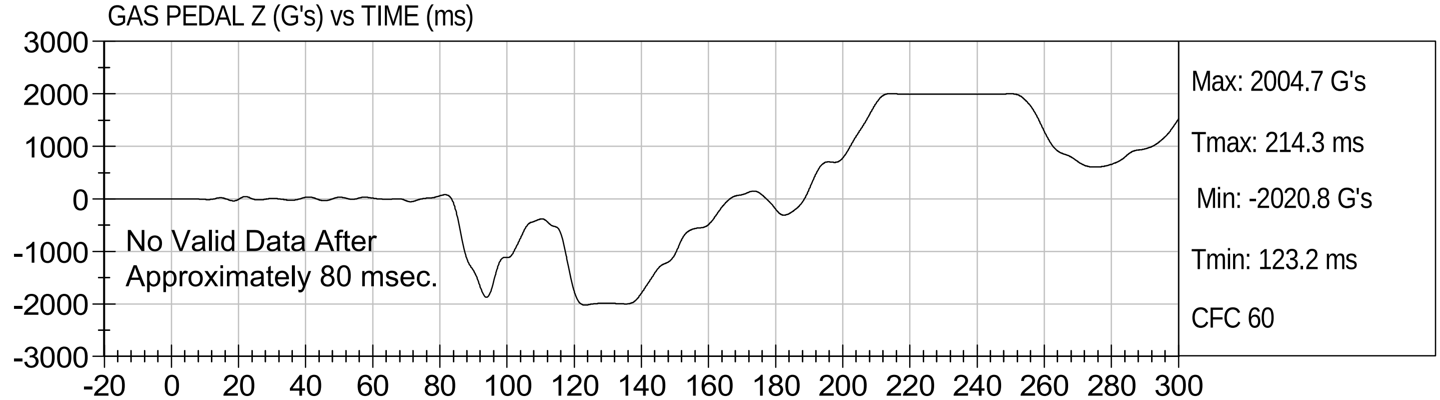
GAS PEDAL X (G's) vs TIME (ms)



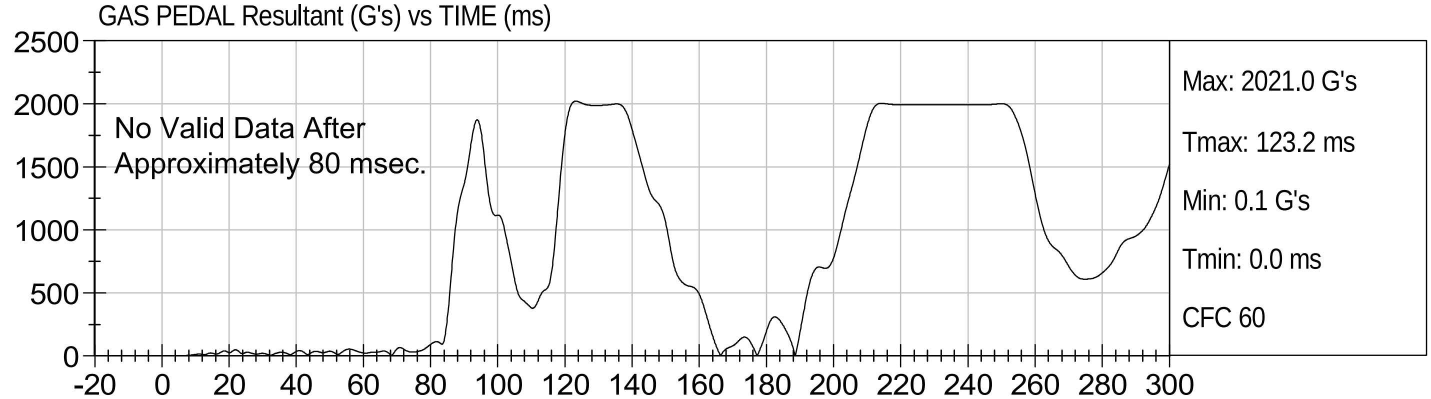
GAS PEDAL Y (G's) vs TIME (ms)



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

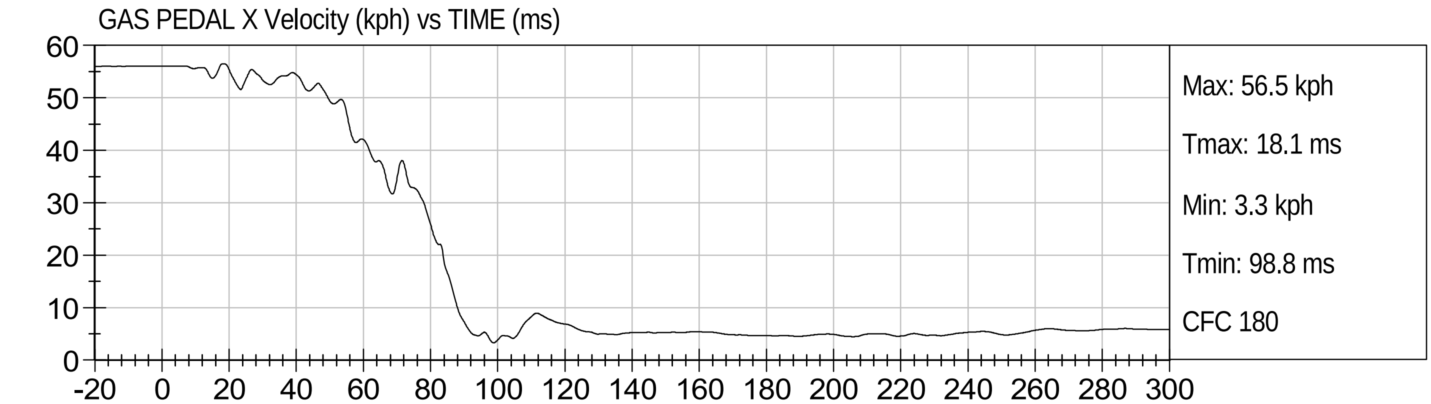


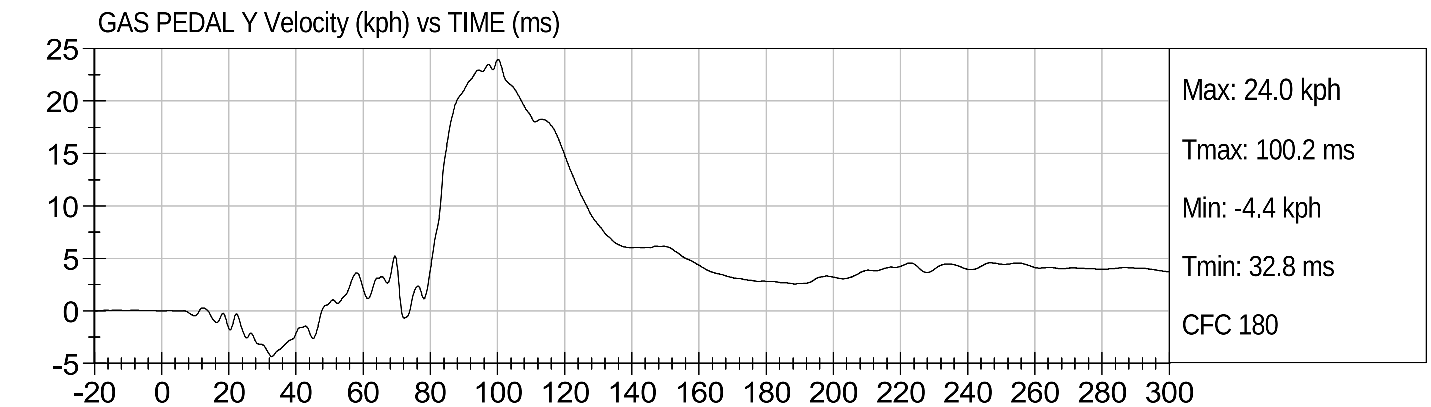
GAS PEDAL Resultant (G's) vs TIME (ms)

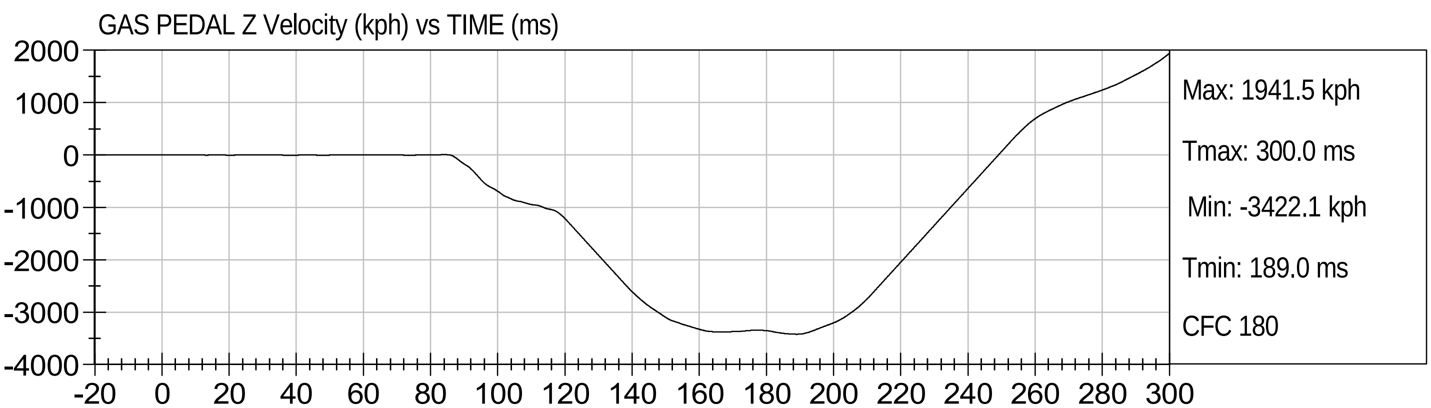


NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)



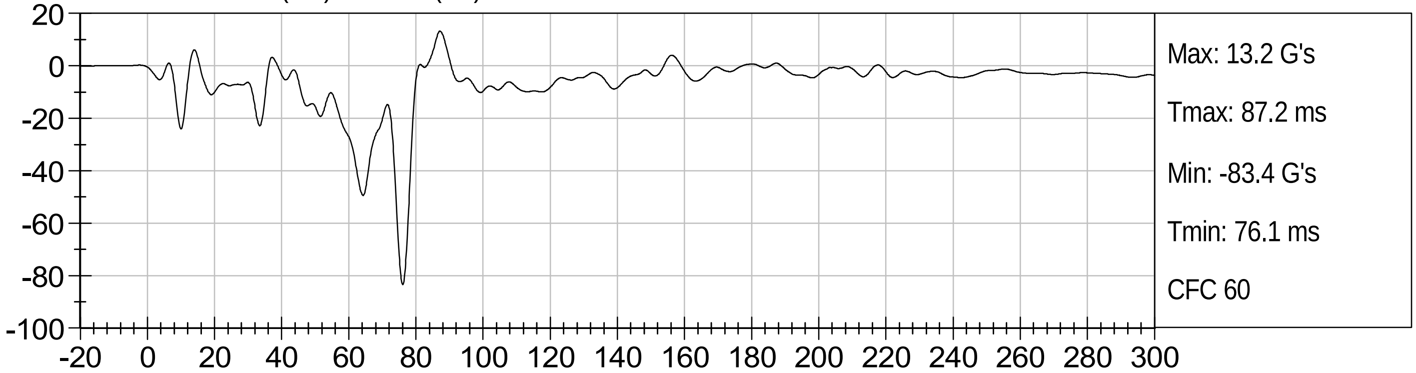




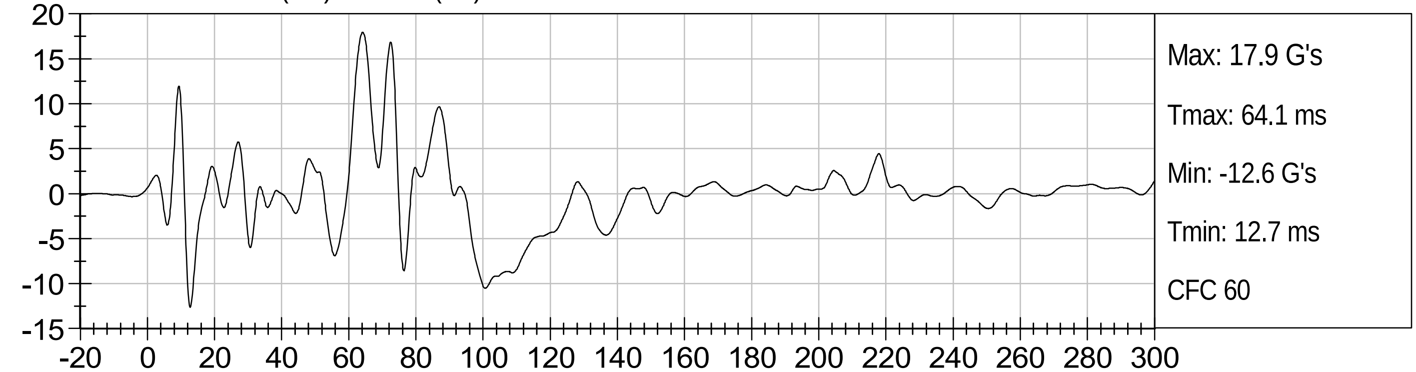
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

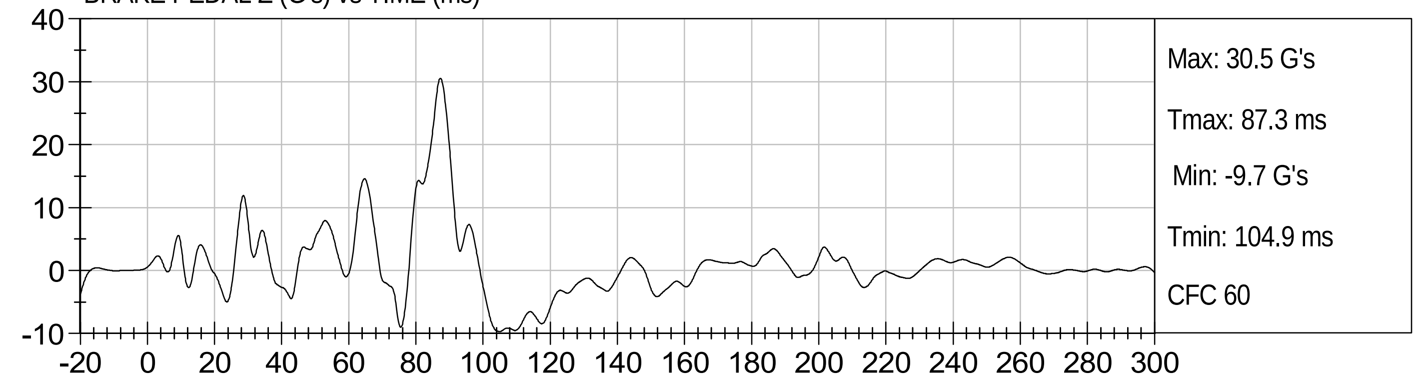
BRAKE PEDAL X (G's) vs TIME (ms)



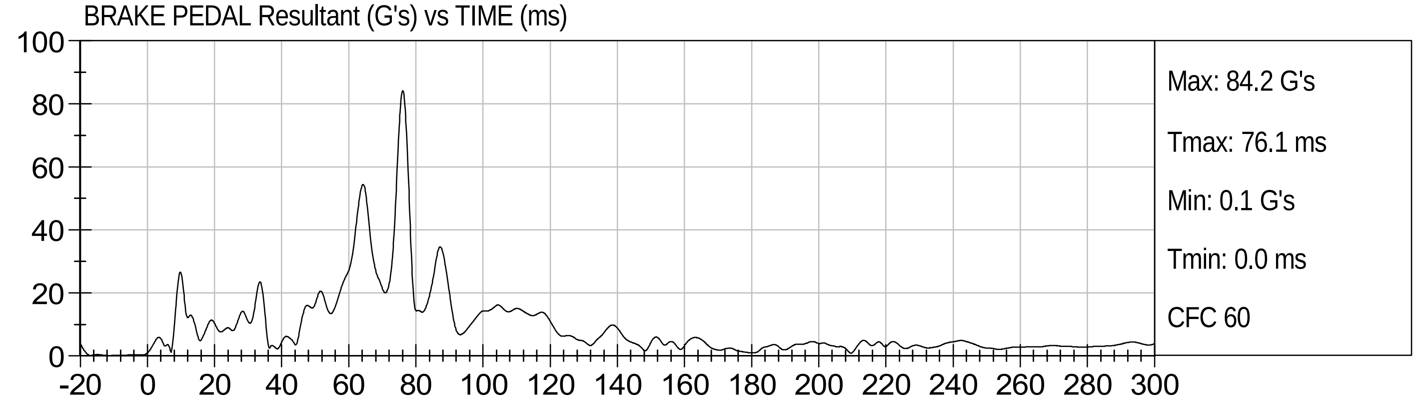
BRAKE PEDAL Y (G's) vs TIME (ms)

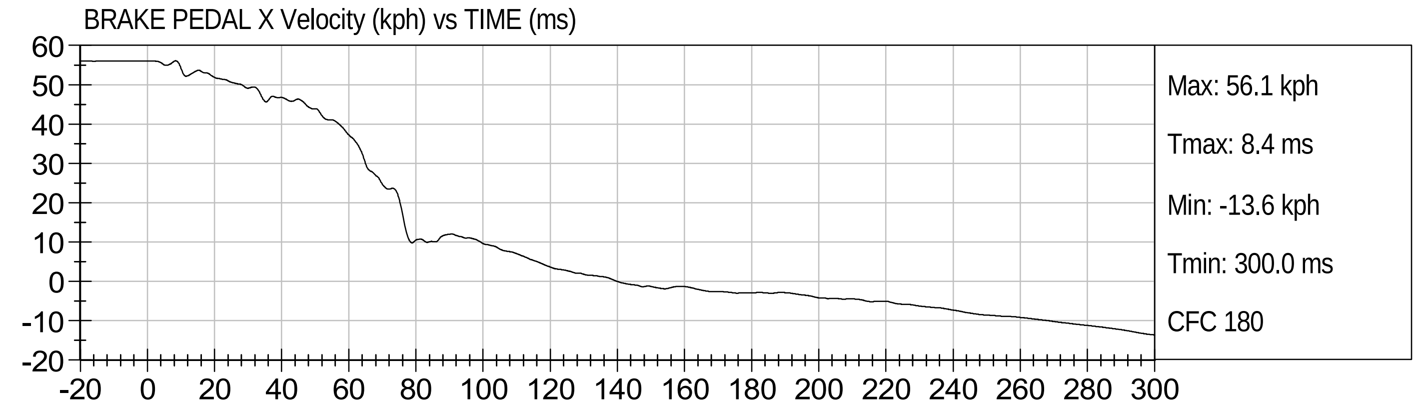


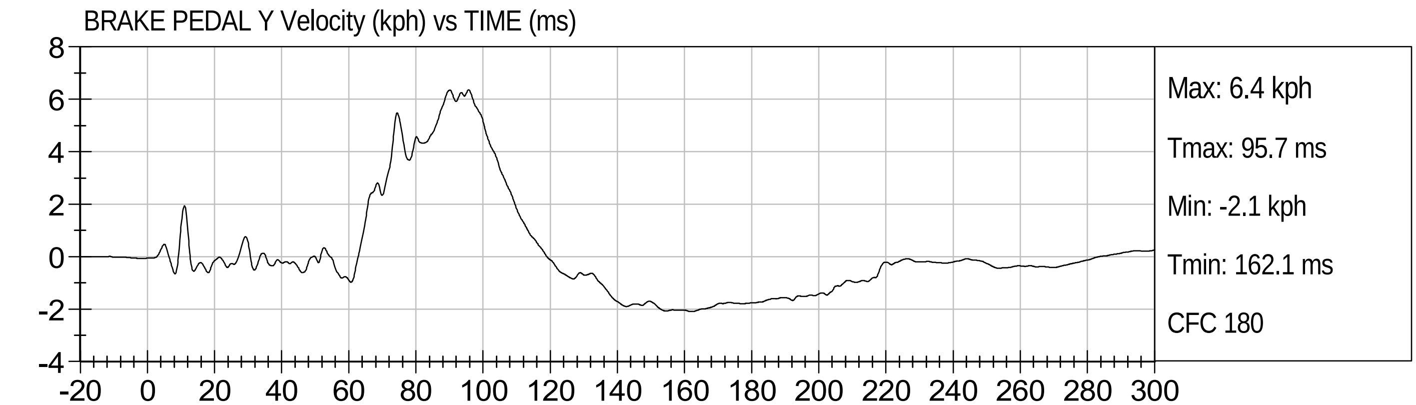
BRAKE PEDAL Z (G's) vs TIME (ms)

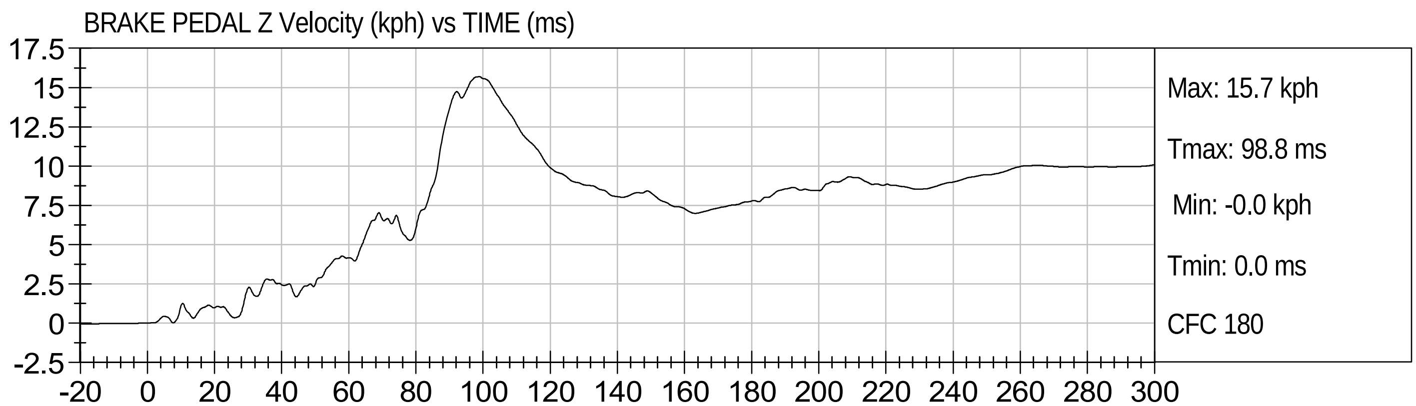


BRAKE PEDAL Resultant (G's) vs TIME (ms)




BRAKE PEDAL X Velocity (kph) vs TIME (ms)
Max: 56.1 kph
Tmax: 8.4 ms
Min: -13.6 kph
Tmin: 300.0 ms
CFC 180

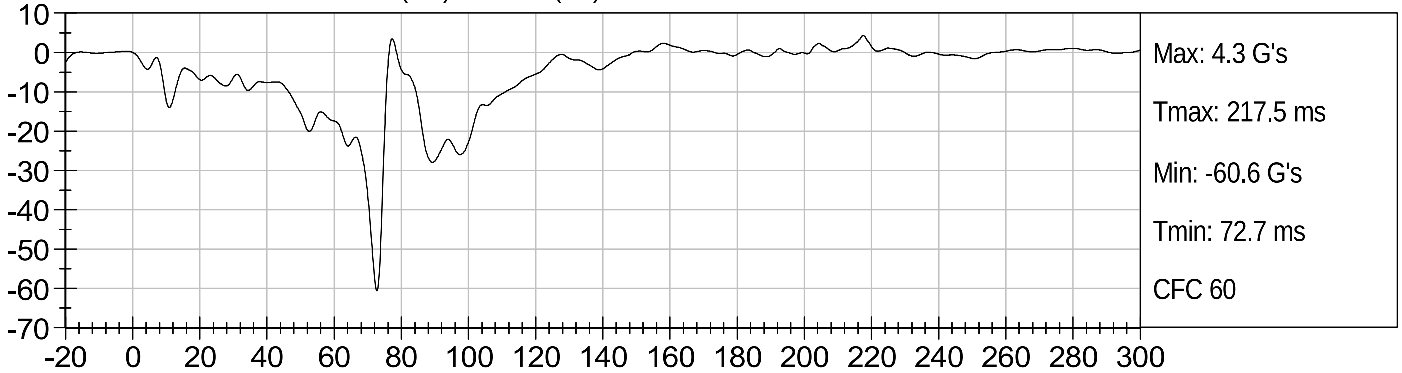

BRAKE PEDAL Y Velocity (kph) vs TIME (ms)
Max: 6.4 kph
Tmax: 95.7 ms
Min: -2.1 kph
Tmin: 162.1 ms
CFC 180


BRAKE PEDAL Z Velocity (kph) vs TIME (ms)
Max: 15.7 kph
Tmax: 98.8 ms
Min: -0.0 kph
Tmin: 0.0 ms
CFC 180

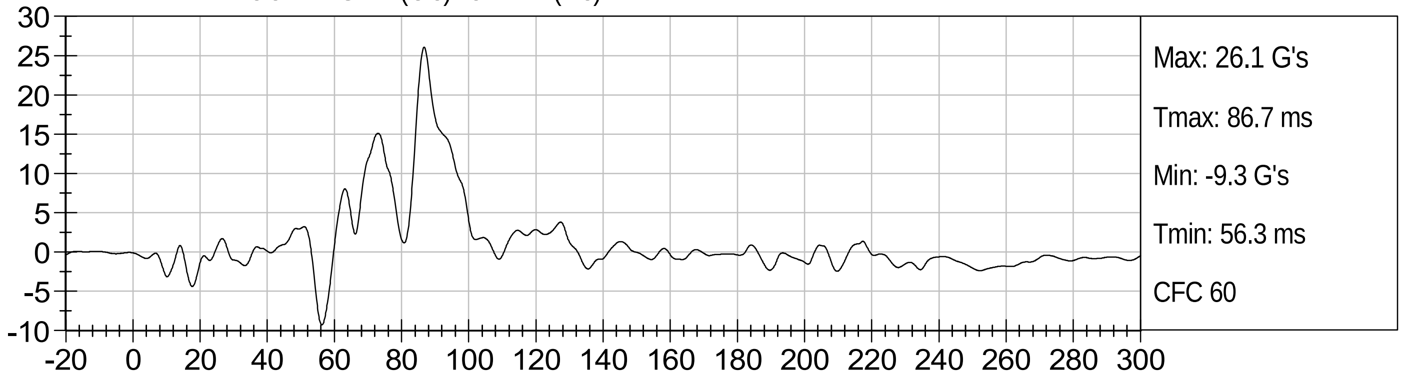
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

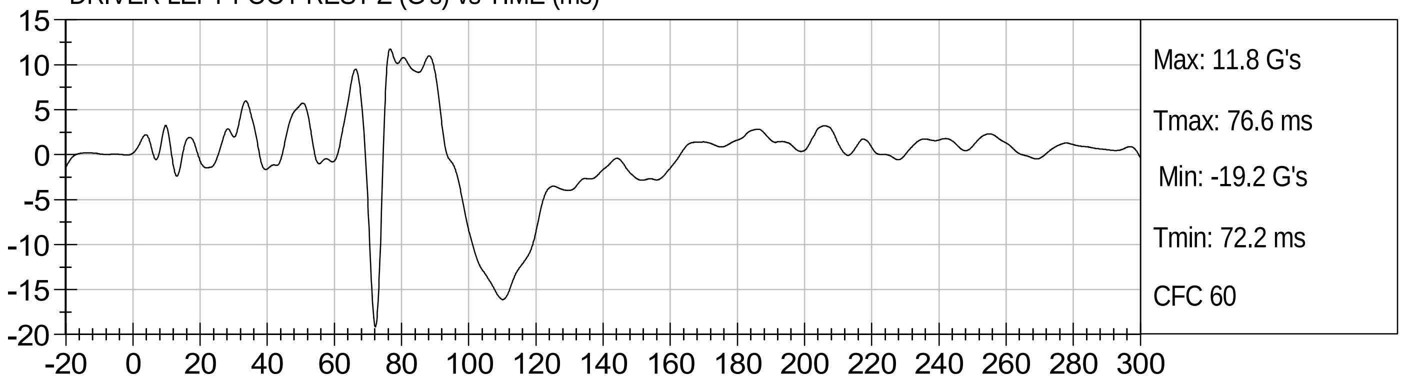
DRIVER LEFT FOOT REST X (G's) vs TIME (ms)



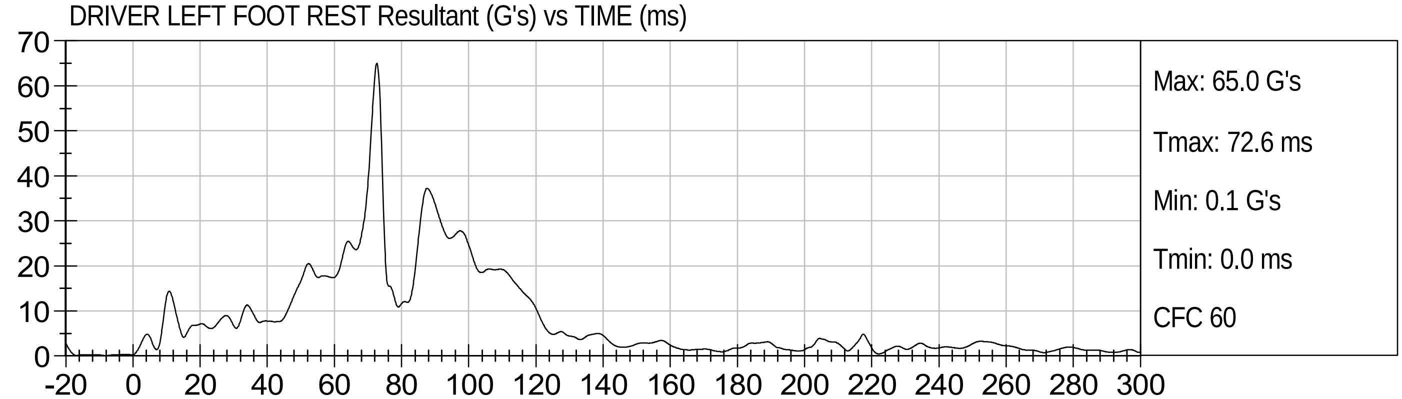
DRIVER LEFT FOOT REST Y (G's) vs TIME (ms)

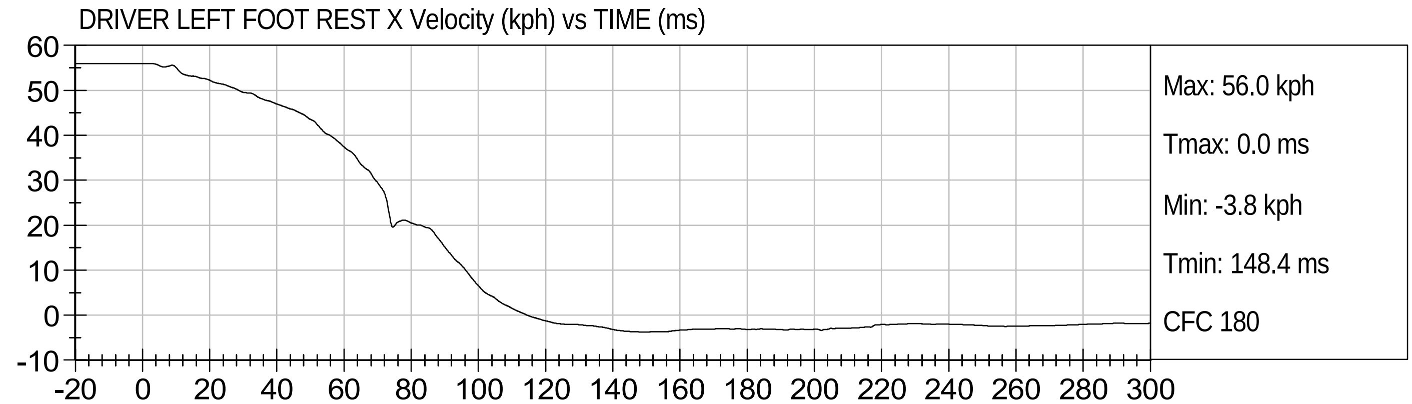


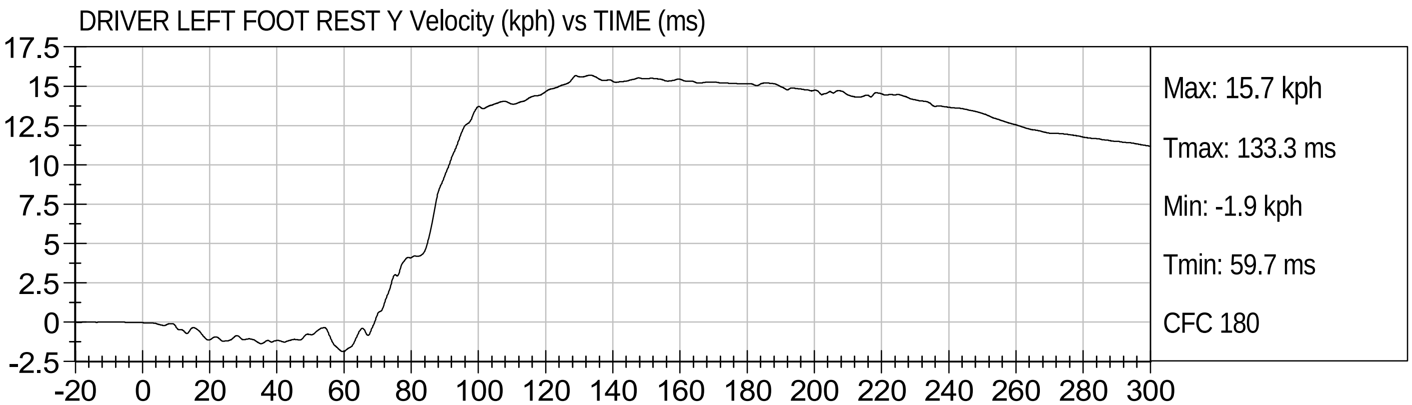
DRIVER LEFT FOOT REST Z (G's) vs TIME (ms)

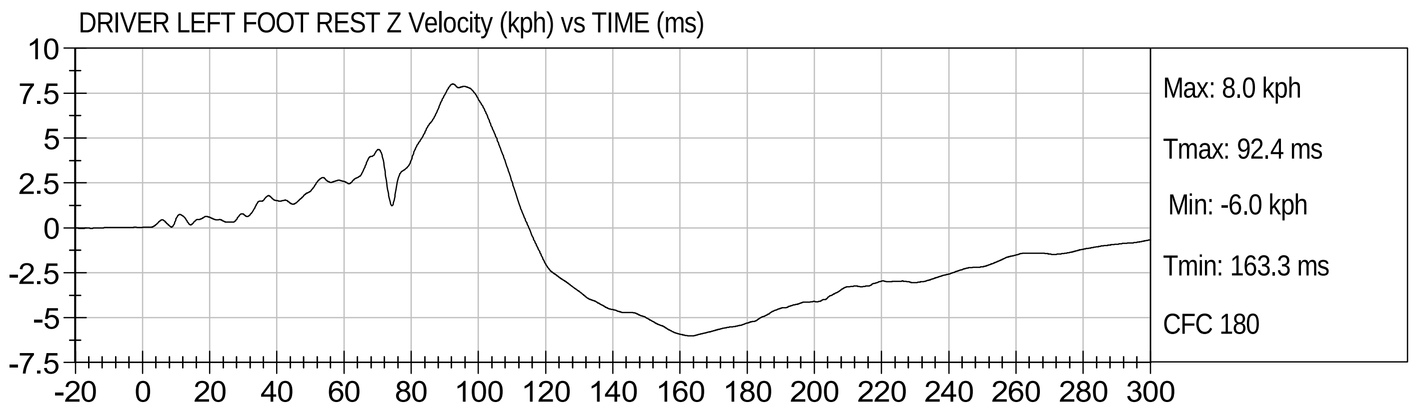


DRIVER LEFT FOOT REST Resultant (G's) vs TIME (ms)



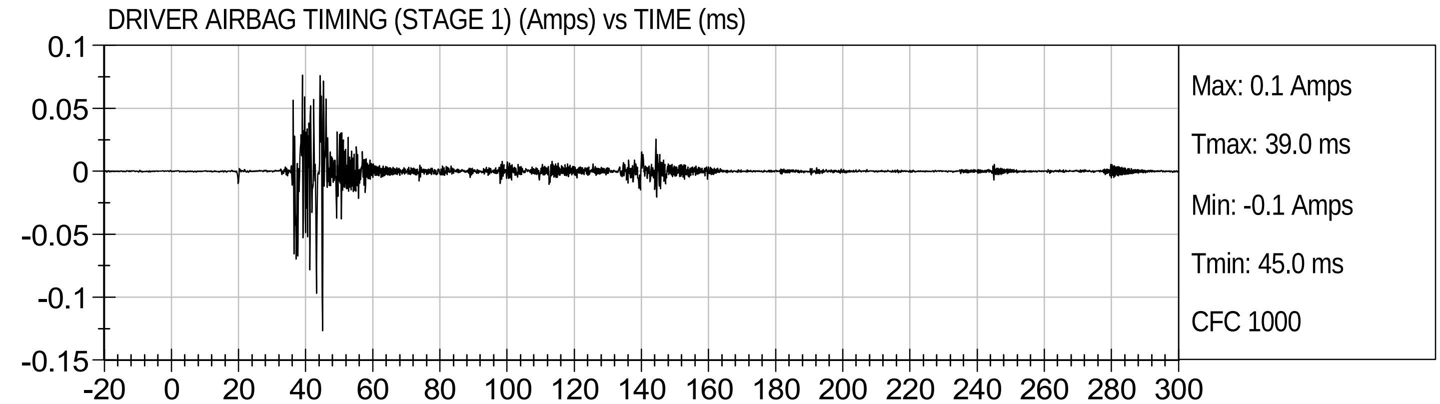

DRIVER LEFT FOOT REST X Velocity (kph) vs TIME (ms)
Max: 56.0 kph
Tmax: 0.0 ms
Min: -3.8 kph
Tmin: 148.4 ms
CFC 180

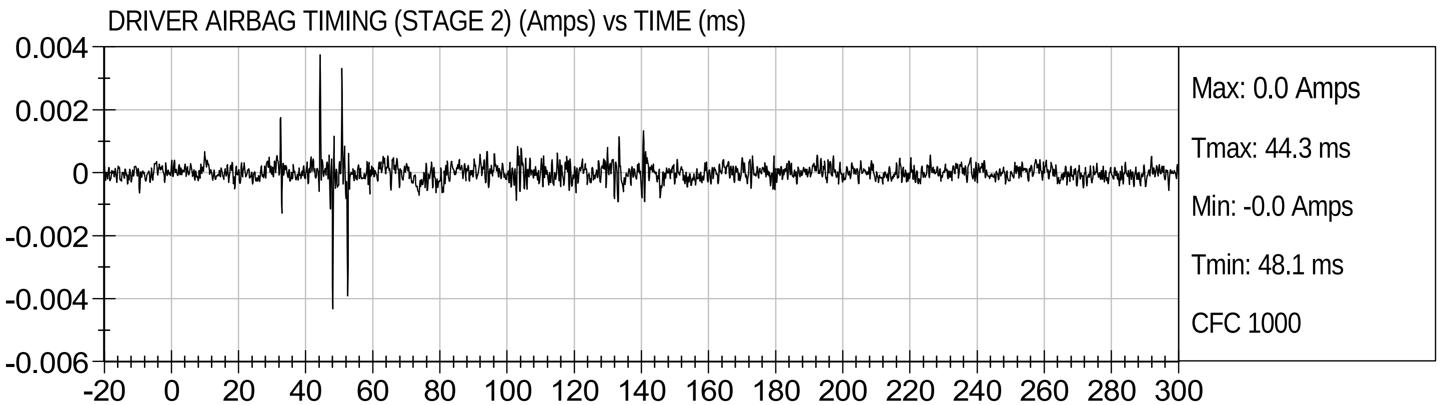

DRIVER LEFT FOOT REST Y Velocity (kph) vs TIME (ms)
Max: 15.7 kph
Tmax: 133.3 ms
Min: -1.9 kph
Tmin: 59.7 ms
CFC 180

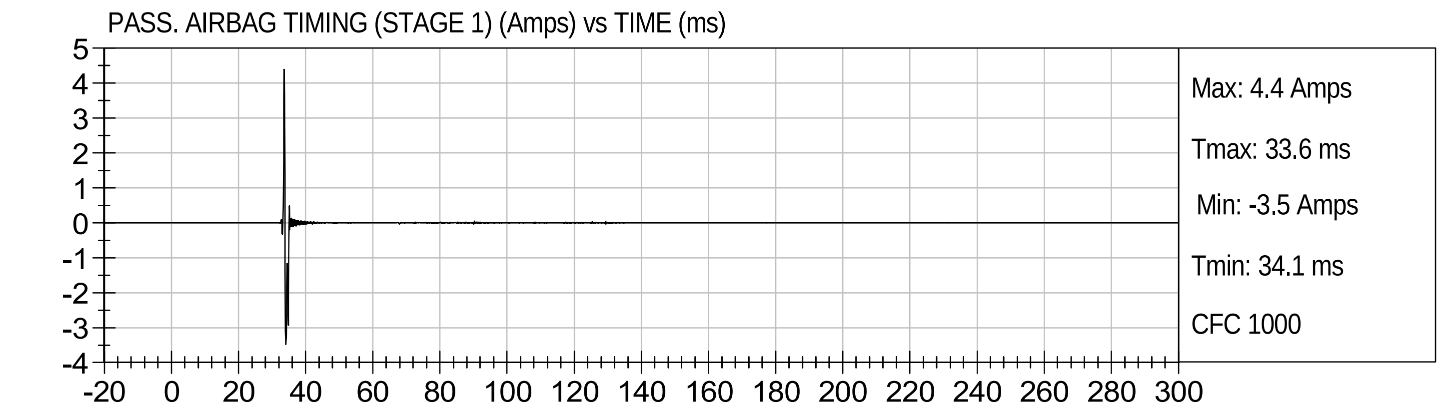

DRIVER LEFT FOOT REST Z Velocity (kph) vs TIME (ms)
Max: 8.0 kph
Tmax: 92.4 ms
Min: -6.0 kph
Tmin: 163.3 ms
CFC 180

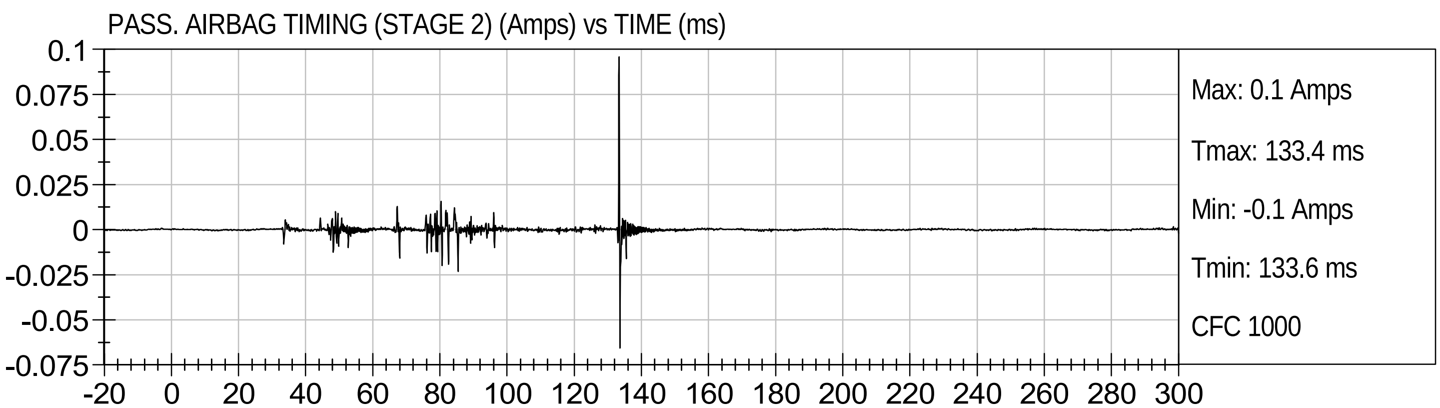
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

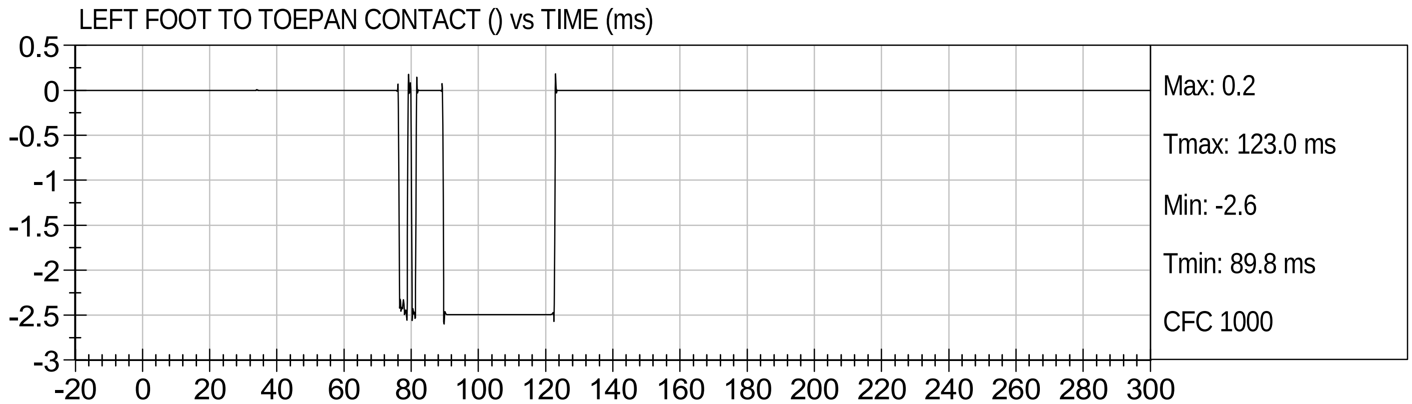
Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

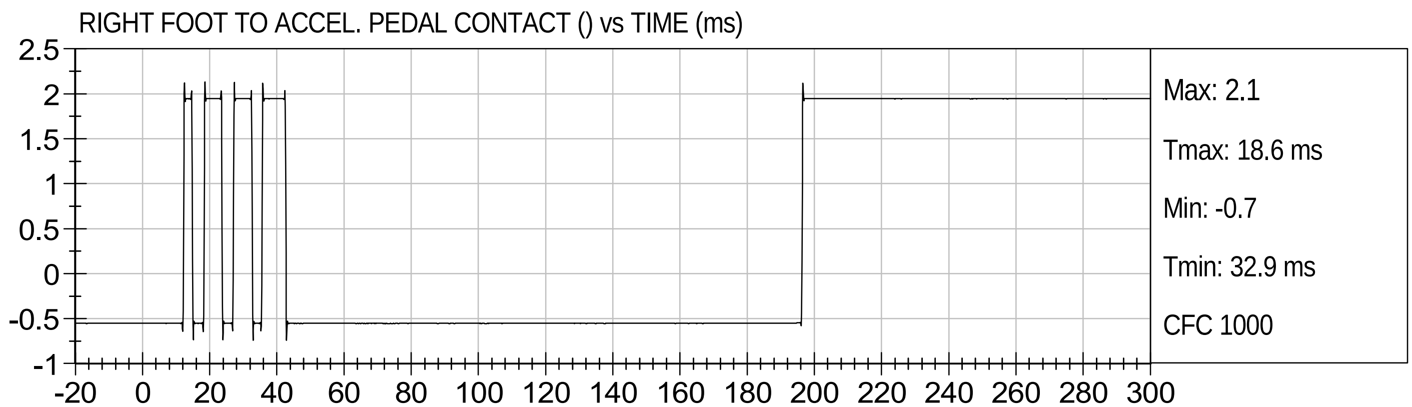


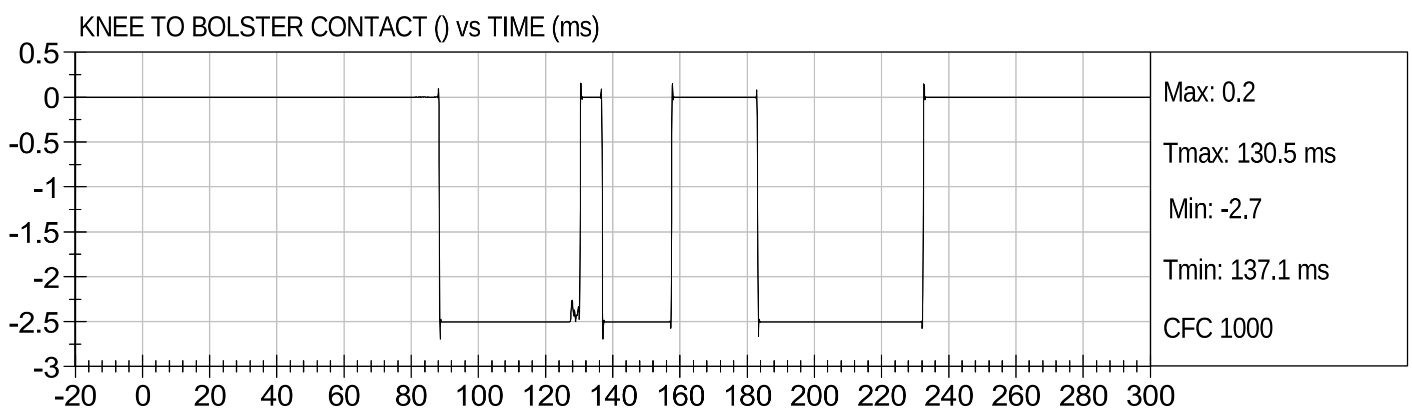







LEFT FOOT TO TOEPAN CONTACT () vs TIME (ms)
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.2
Tmax: 123.0 ms
Min: -2.6
Tmin: 89.8 ms
CFC 1000

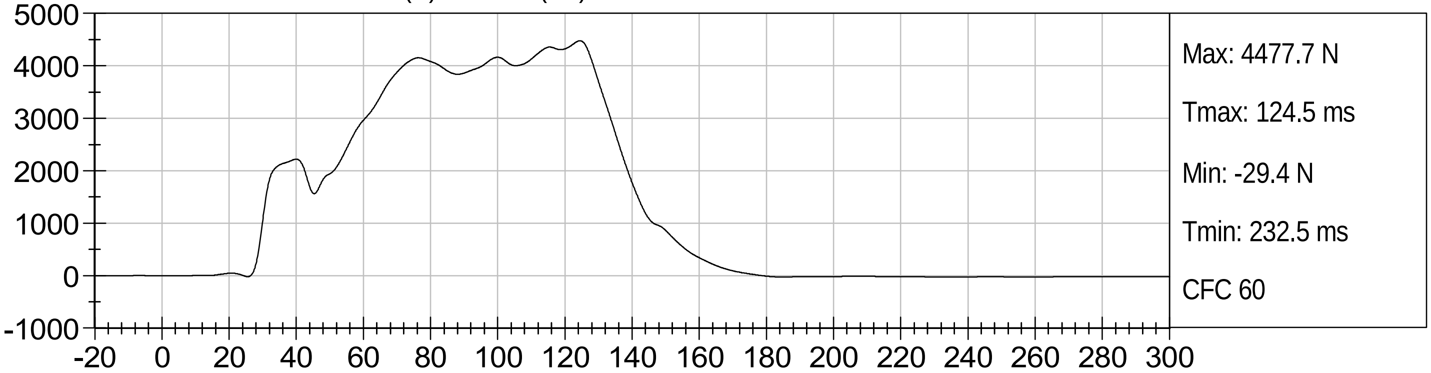

RIGHT FOOT TO ACCEL. PEDAL CONTACT () vs TIME (ms)
2.5
2
1.5
1
0.5
0
-0.5
-1
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 2.1
Tmax: 18.6 ms
Min: -0.7
Tmin: 32.9 ms
CFC 1000


KNEE TO BOLSTER CONTACT () vs TIME (ms)
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.2
Tmax: 130.5 ms
Min: -2.7
Tmin: 137.1 ms
CFC 1000

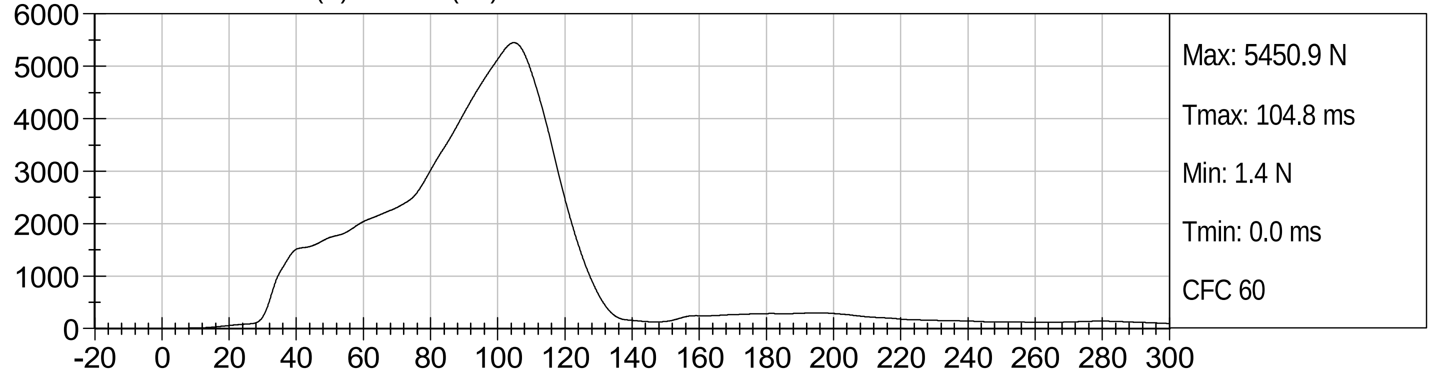
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

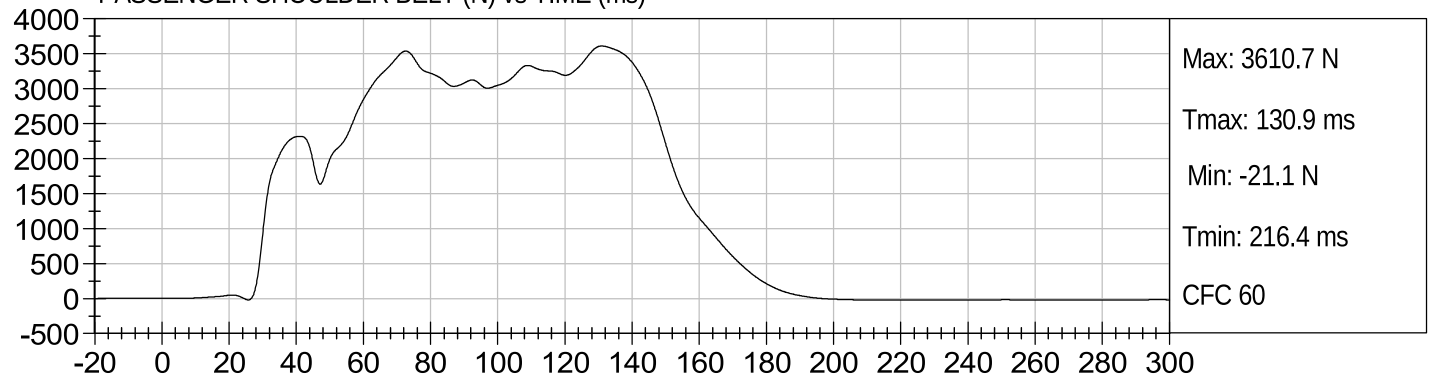
DRIVER SHOULDER BELT (N) vs TIME (ms)



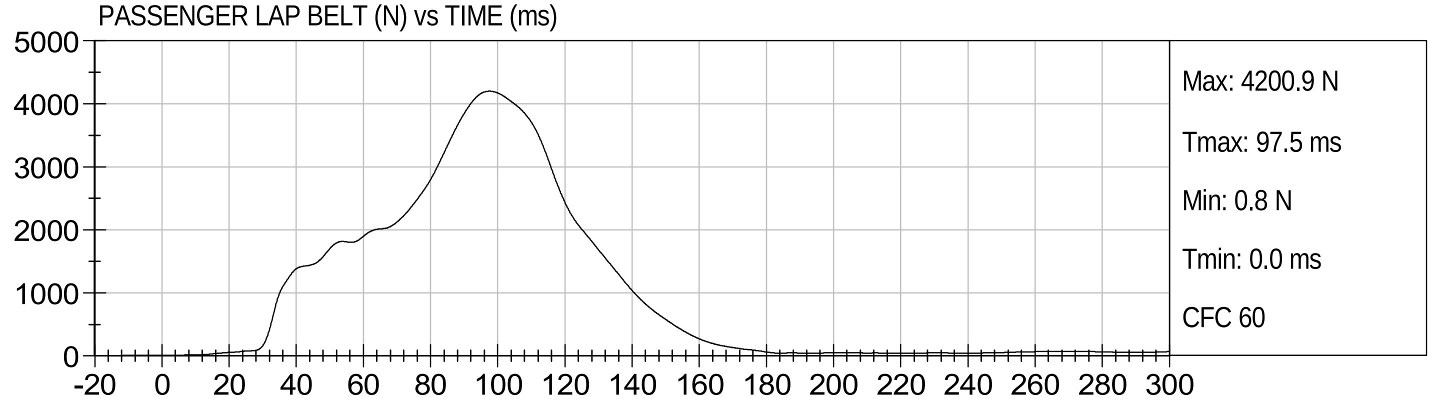
DRIVER LAP BELT (N) vs TIME (ms)

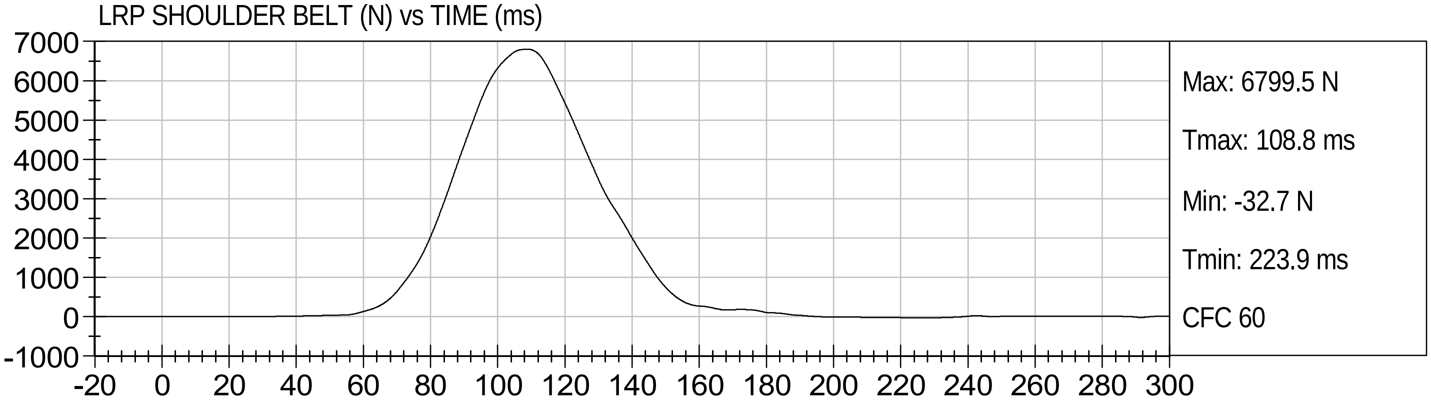


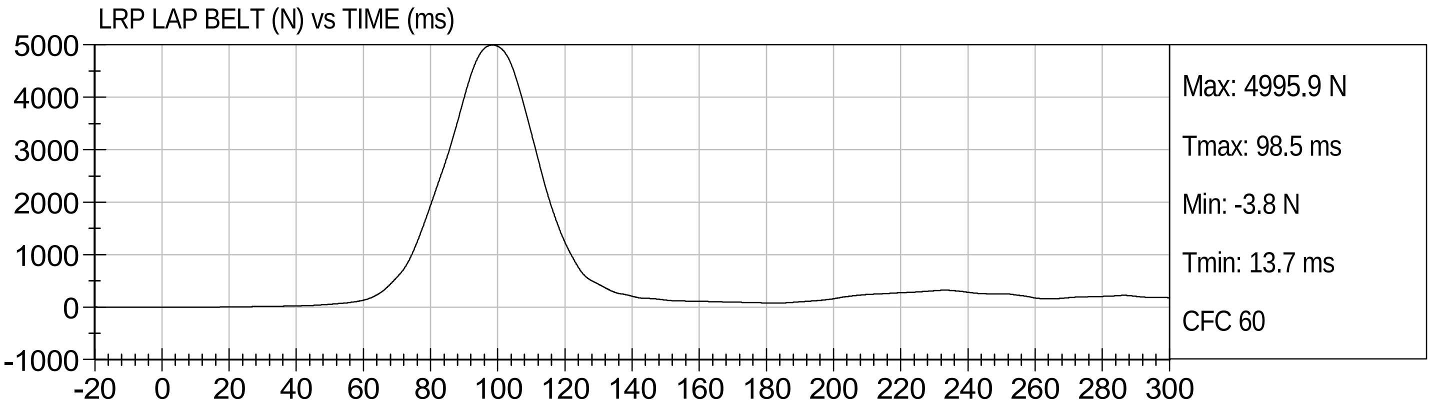
PASSENGER SHOULDER BELT (N) vs TIME (ms)



PASSENGER LAP BELT (N) vs TIME (ms)



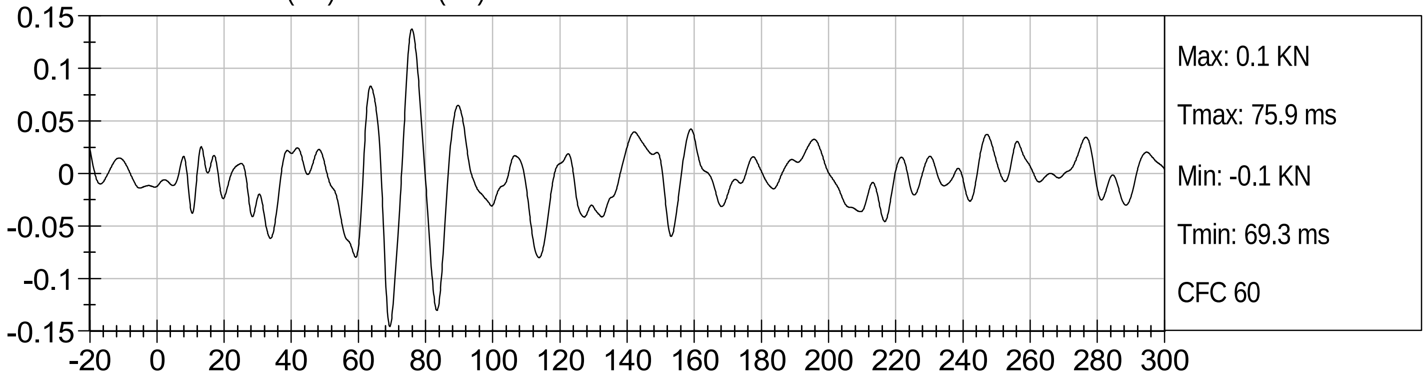

LRP SHOULDER BELT (N) vs TIME (ms)
7000
6000
5000
4000
3000
2000
1000
0
-1000
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 6799.5 N
Tmax: 108.8 ms
Min: -32.7 N
Tmin: 223.9 ms
CFC 60


LRP LAP BELT (N) vs TIME (ms)
5000
4000
3000
2000
1000
0
-1000
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 4995.9 N
Tmax: 98.5 ms
Min: -3.8 N
Tmin: 13.7 ms
CFC 60

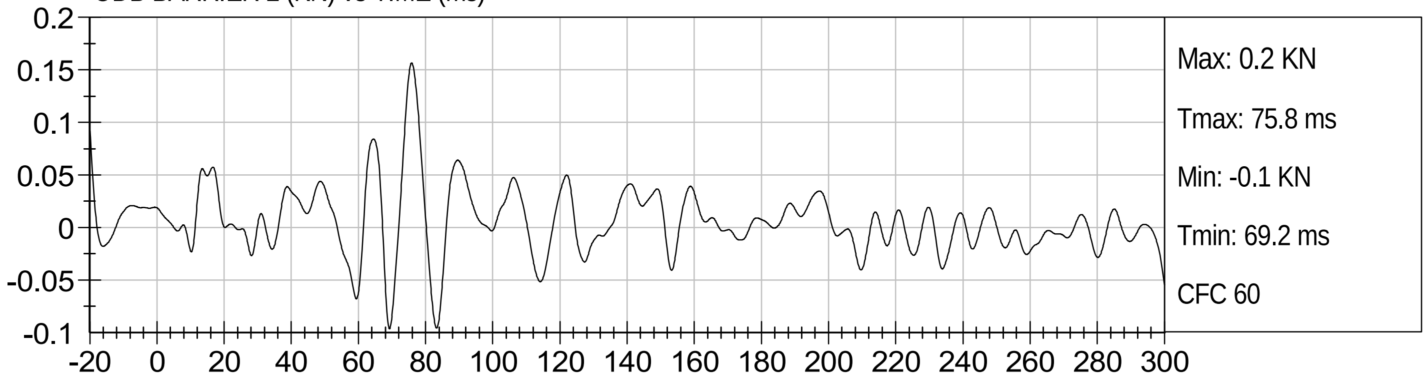
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

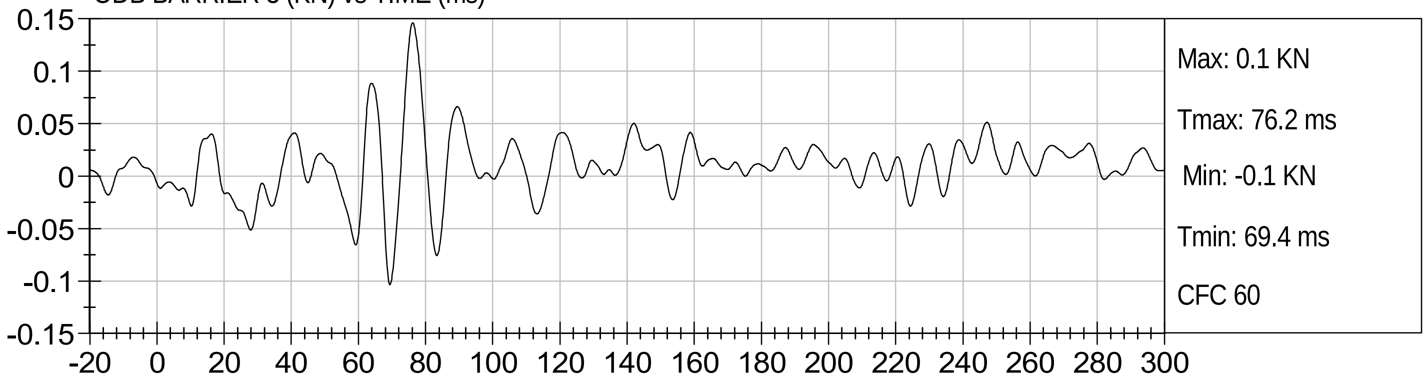
ODB BARRIER 1 (KN) vs TIME (ms)



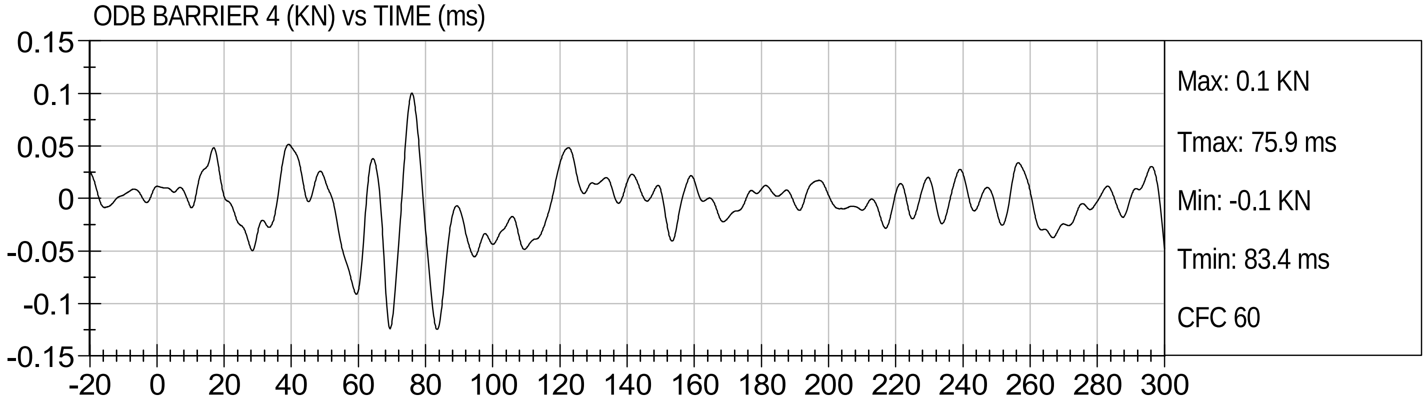
ODB BARRIER 2 (KN) vs TIME (ms)



ODB BARRIER 3 (KN) vs TIME (ms)



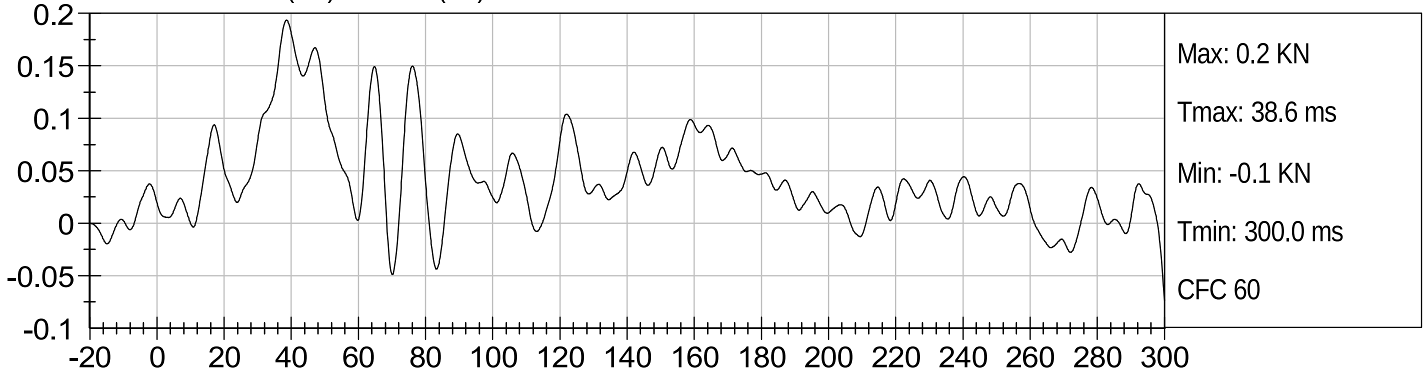
ODB BARRIER 4 (KN) vs TIME (ms)



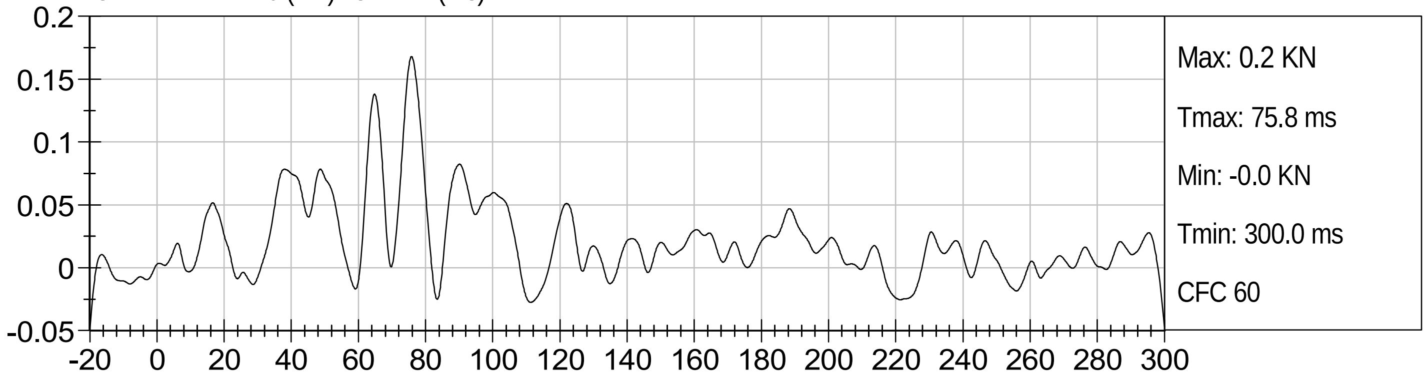
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

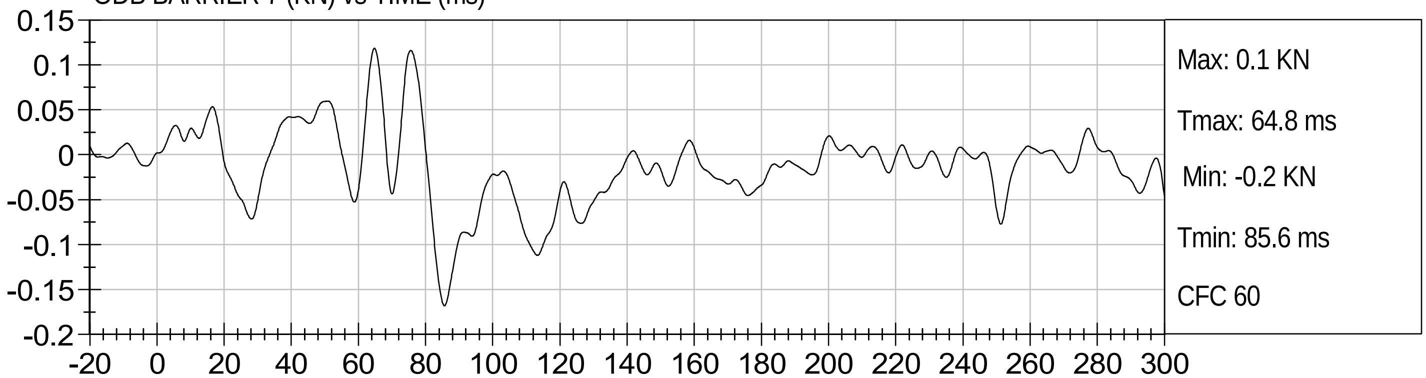
ODB BARRIER 5 (KN) vs TIME (ms)



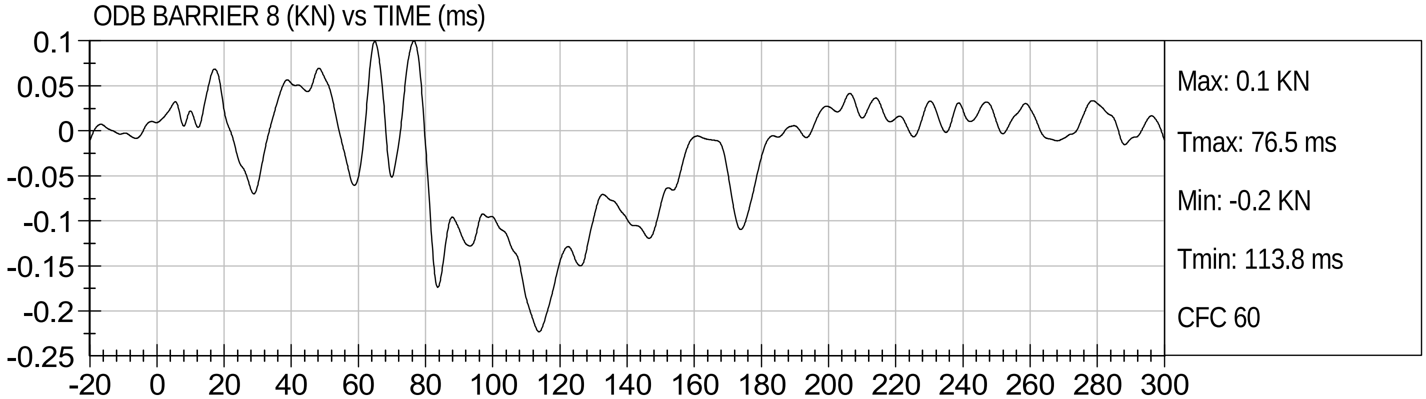
ODB BARRIER 6 (KN) vs TIME (ms)



ODB BARRIER 7 (KN) vs TIME (ms)



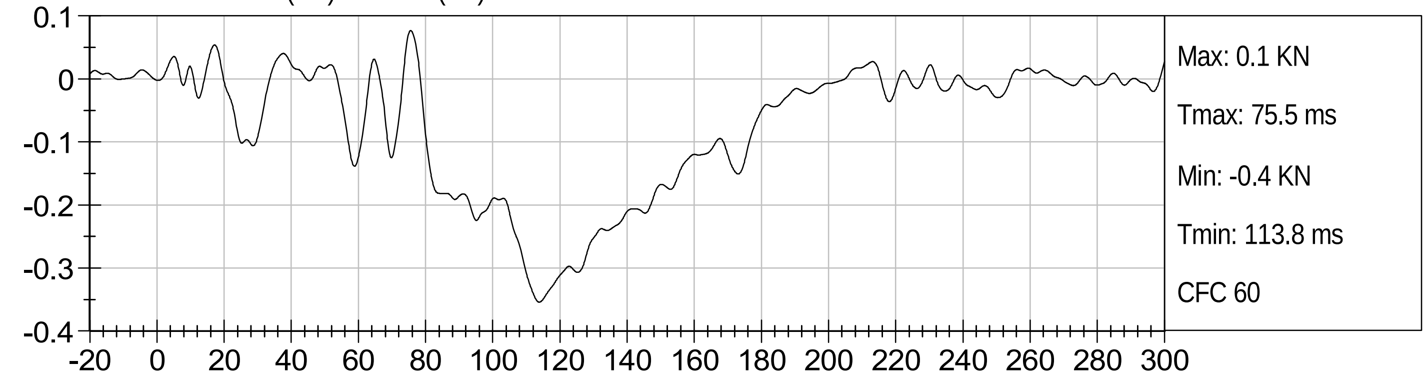
ODB BARRIER 8 (KN) vs TIME (ms)



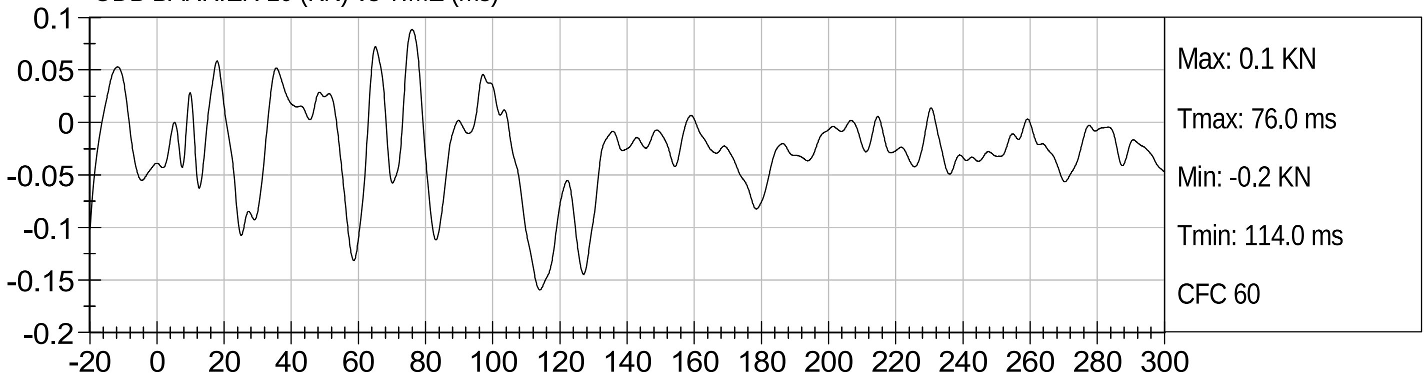
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

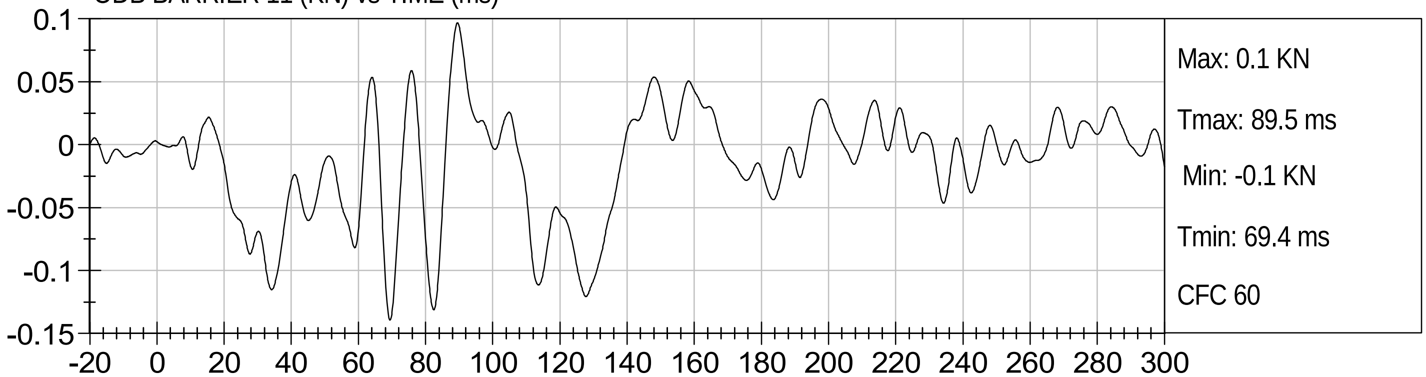
ODB BARRIER 9 (KN) vs TIME (ms)



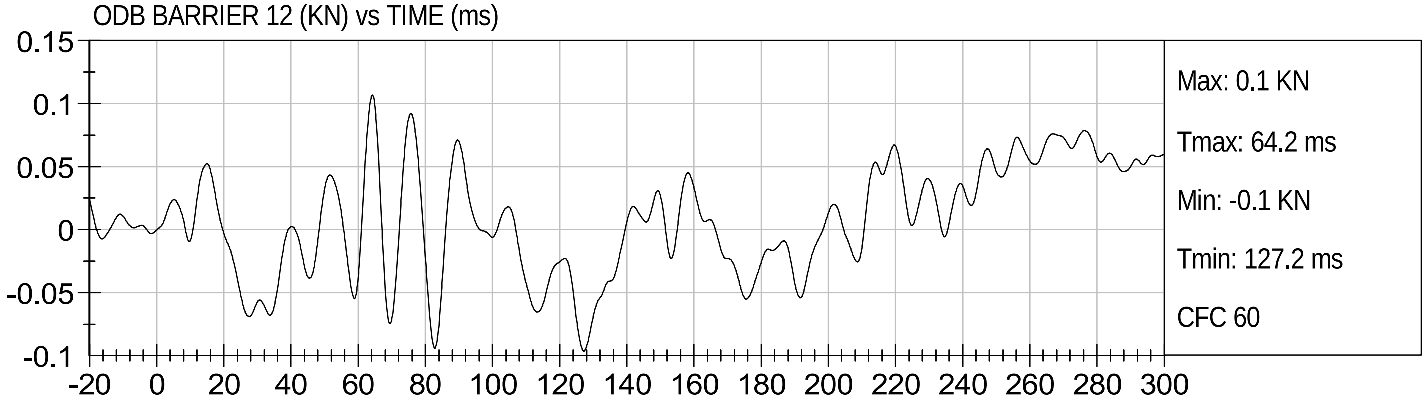
ODB BARRIER 10 (KN) vs TIME (ms)



ODB BARRIER 11 (KN) vs TIME (ms)



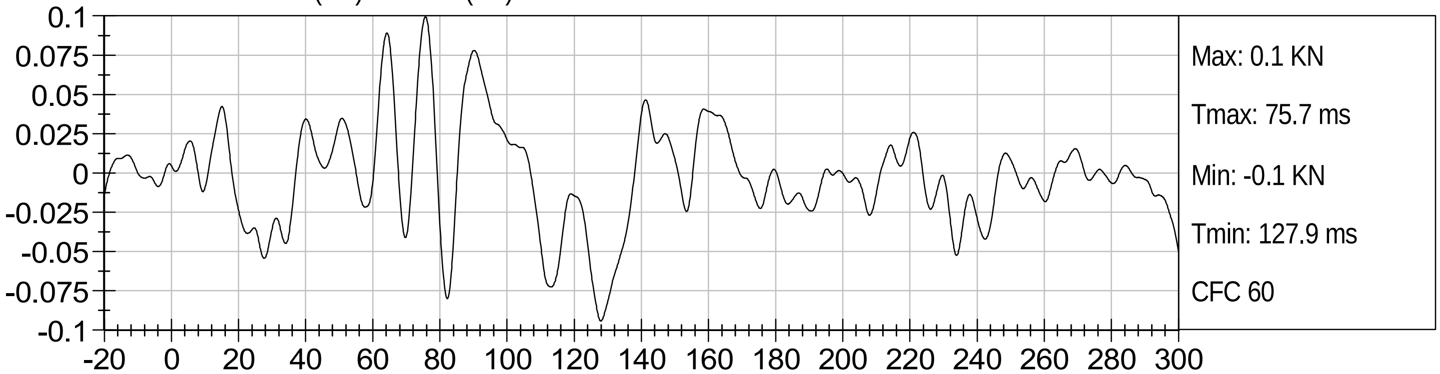
ODB BARRIER 12 (KN) vs TIME (ms)



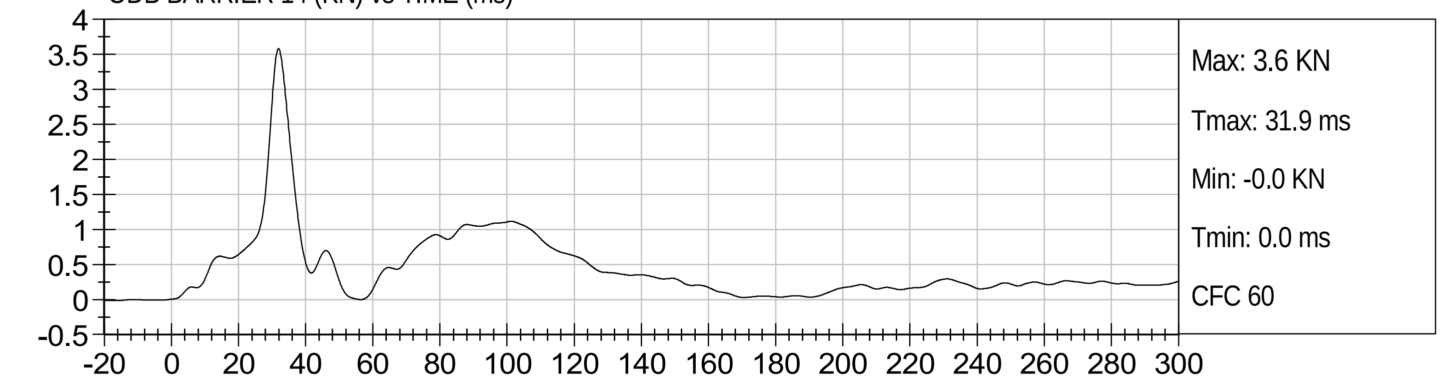
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

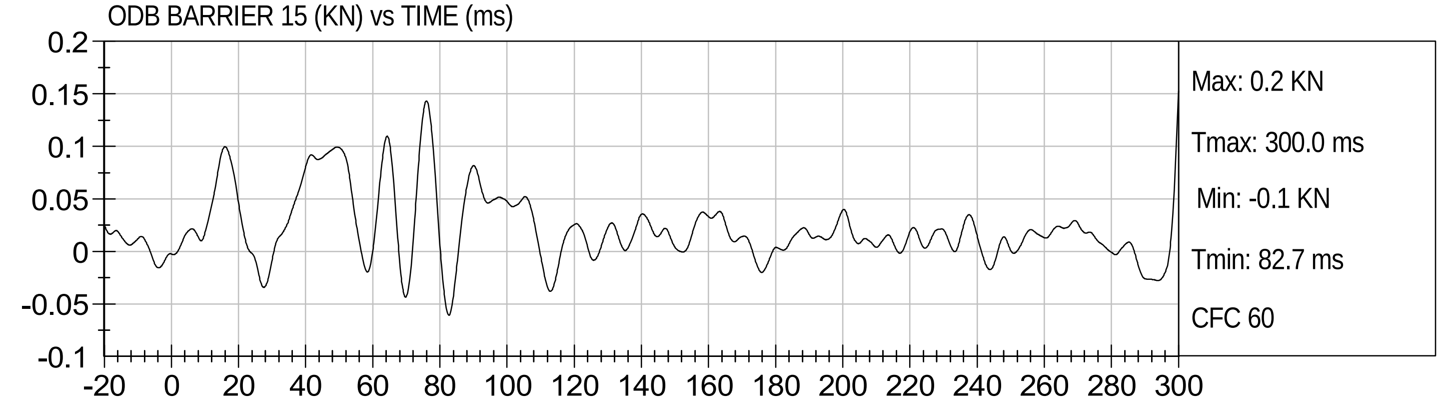
ODB BARRIER 13 (KN) vs TIME (ms)



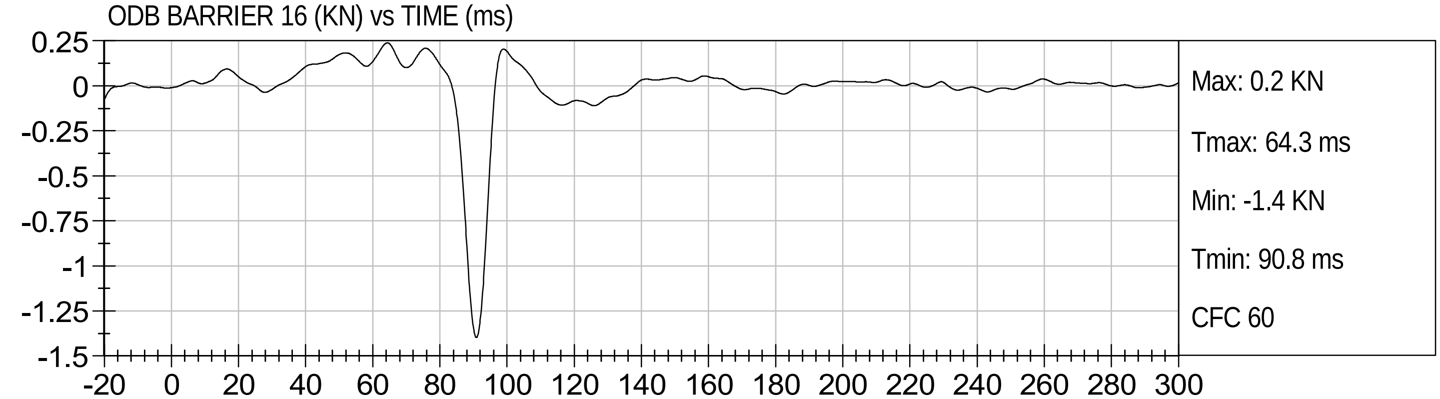
ODB BARRIER 14 (KN) vs TIME (ms)



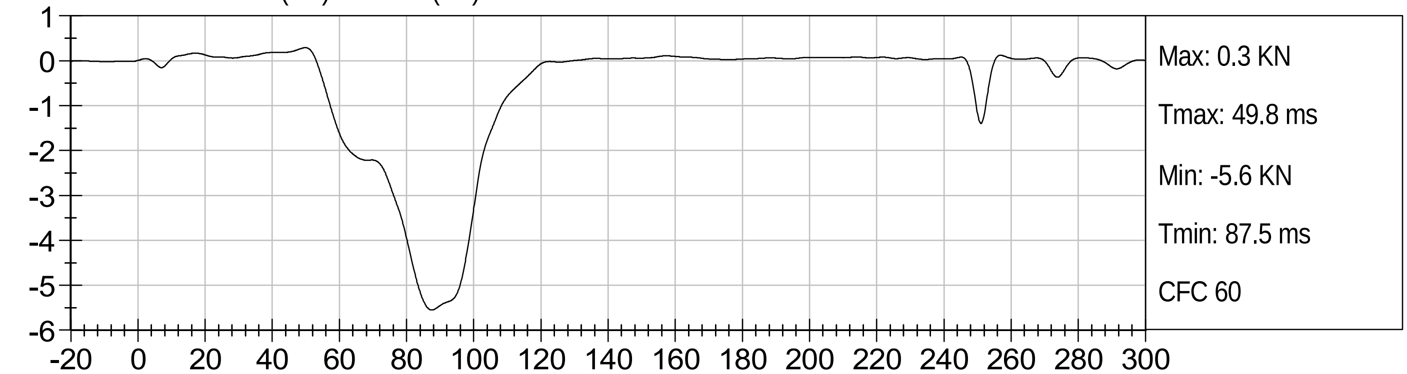
ODB BARRIER 15 (KN) vs TIME (ms)



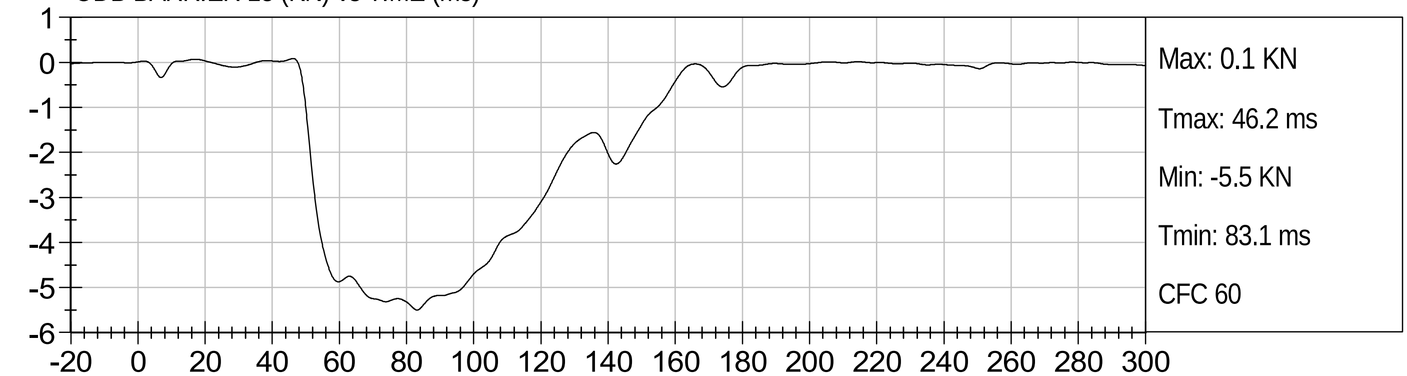
ODB BARRIER 16 (KN) vs TIME (ms)



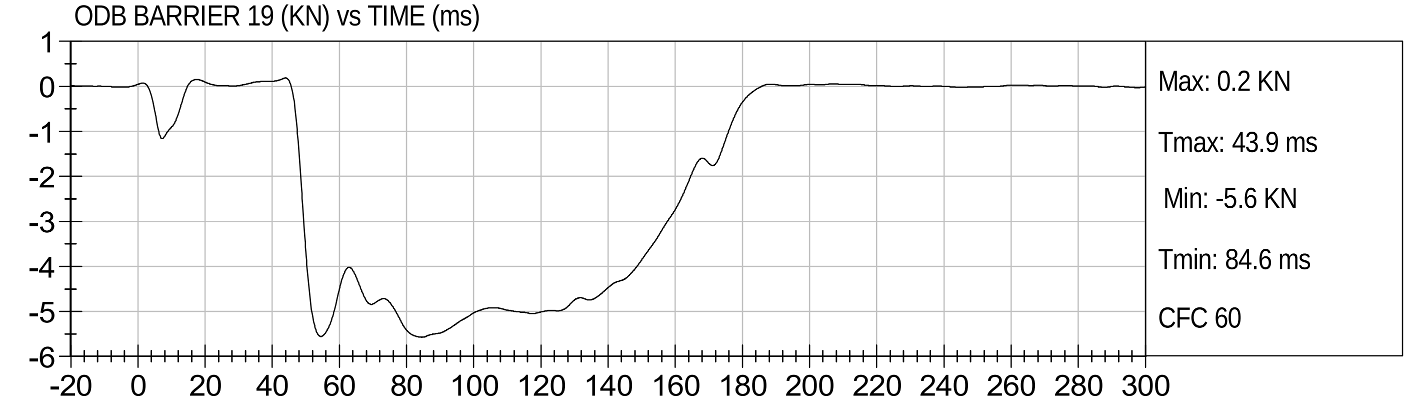
ODB BARRIER 17 (KN) vs TIME (ms)



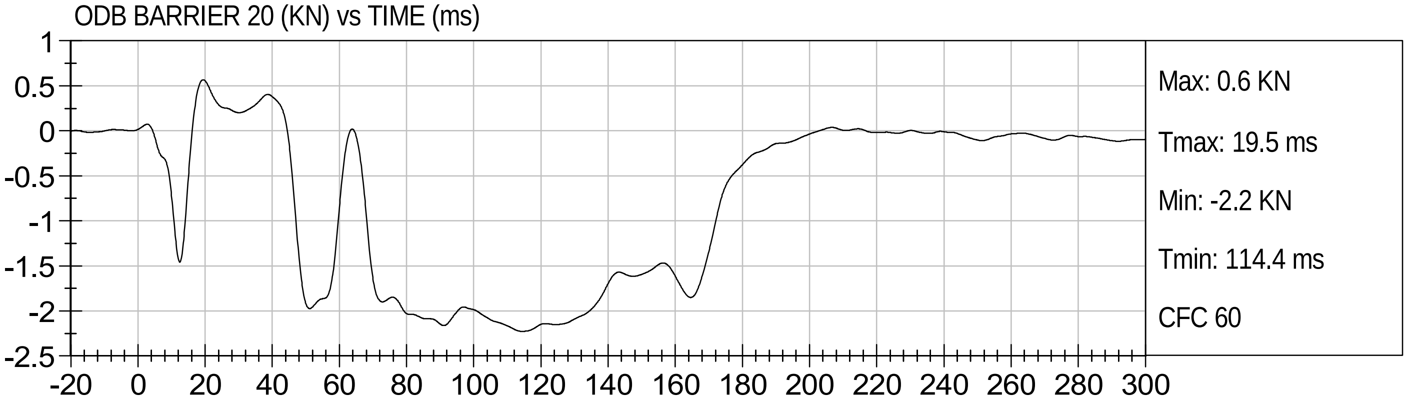
ODB BARRIER 18 (KN) vs TIME (ms)



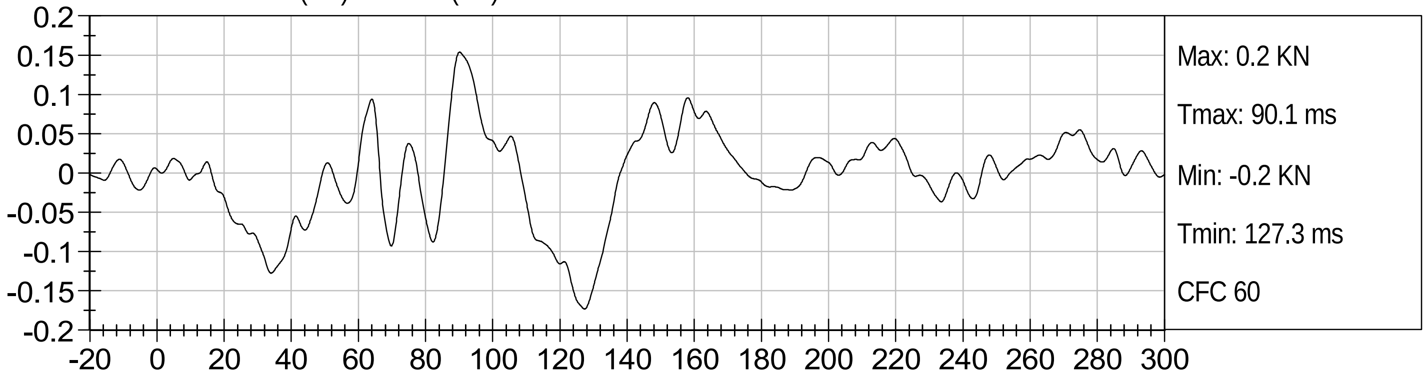
ODB BARRIER 19 (KN) vs TIME (ms)



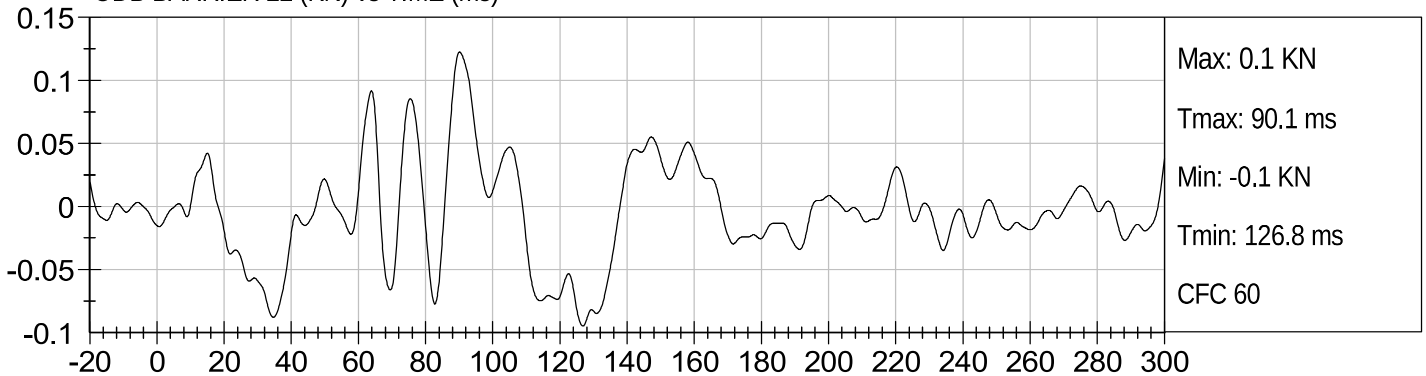
ODB BARRIER 20 (KN) vs TIME (ms)



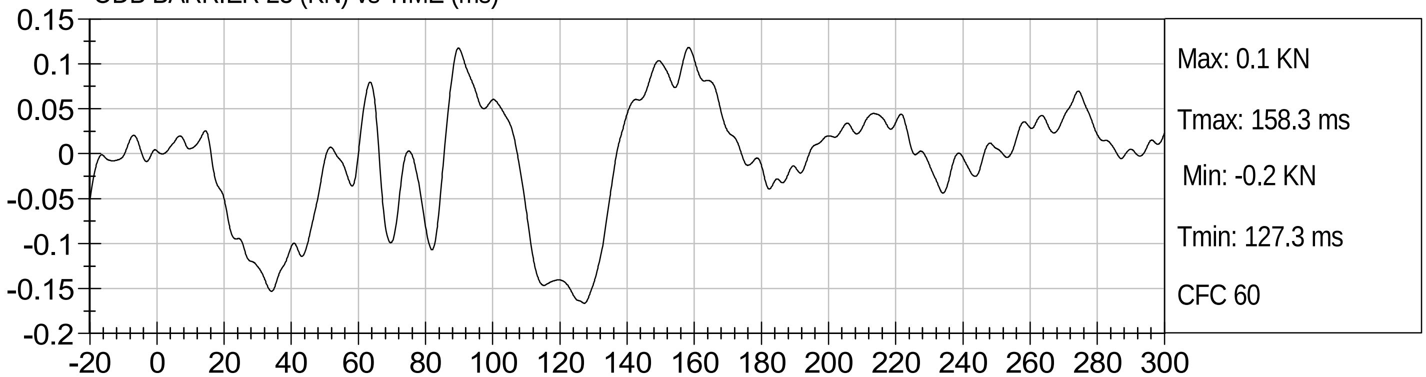
ODB BARRIER 21 (KN) vs TIME (ms)



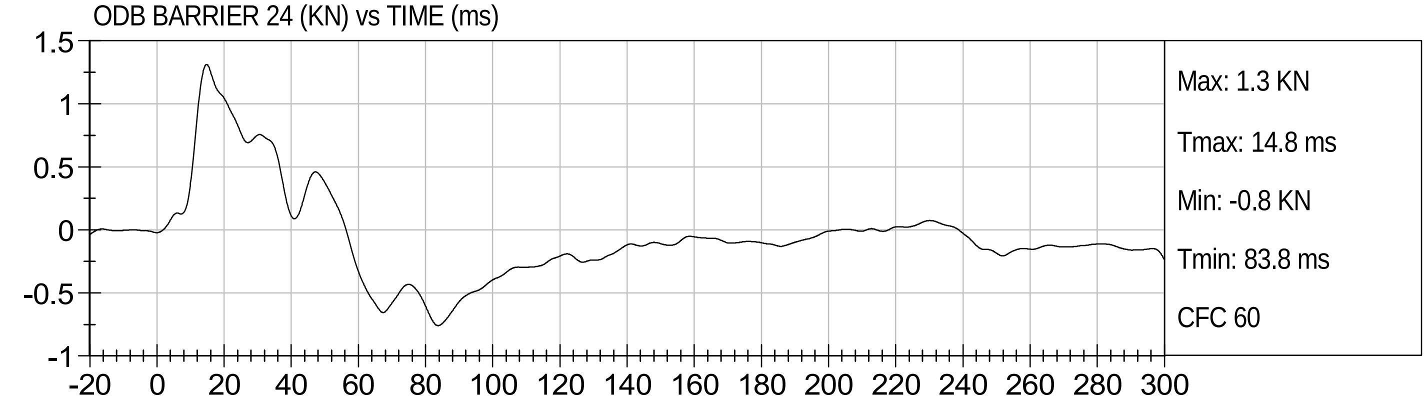
ODB BARRIER 22 (KN) vs TIME (ms)



ODB BARRIER 23 (KN) vs TIME (ms)



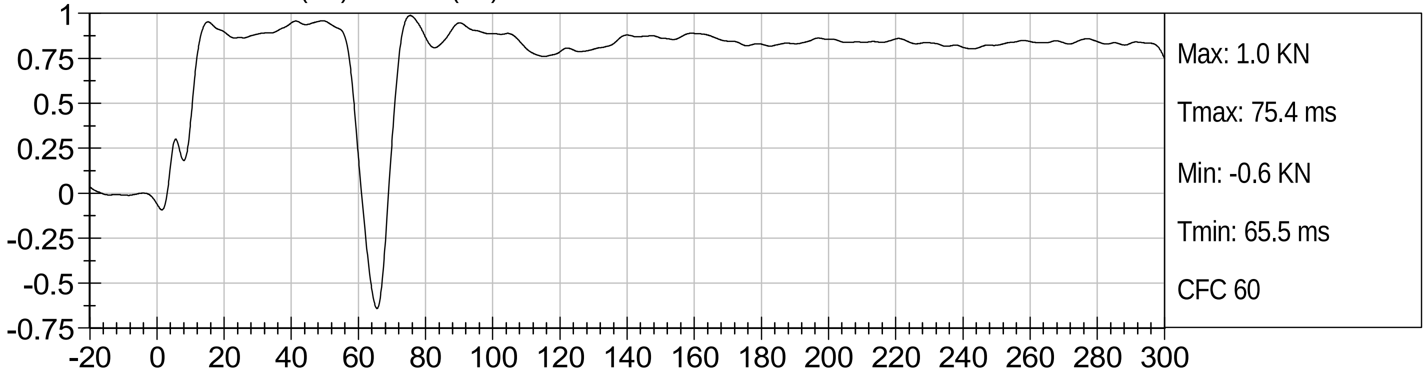
ODB BARRIER 24 (KN) vs TIME (ms)



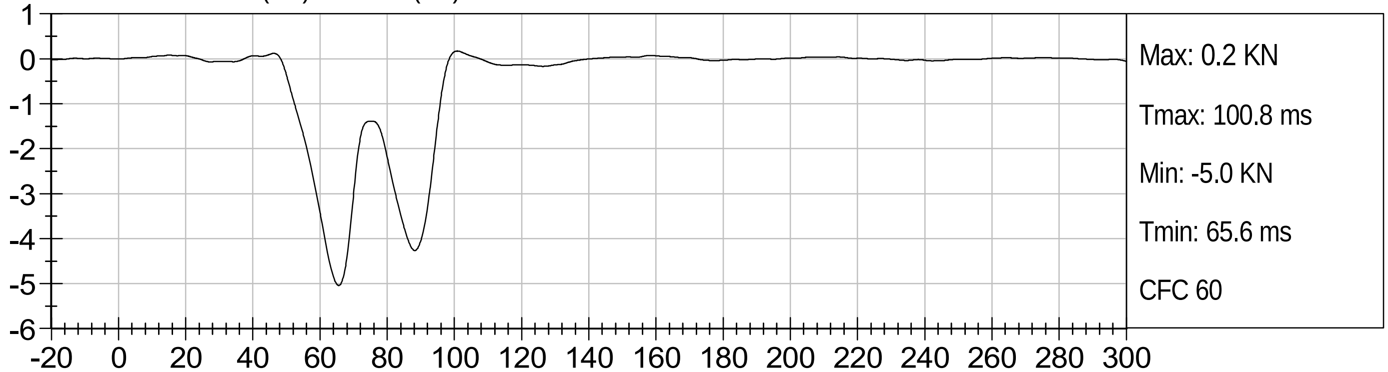
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

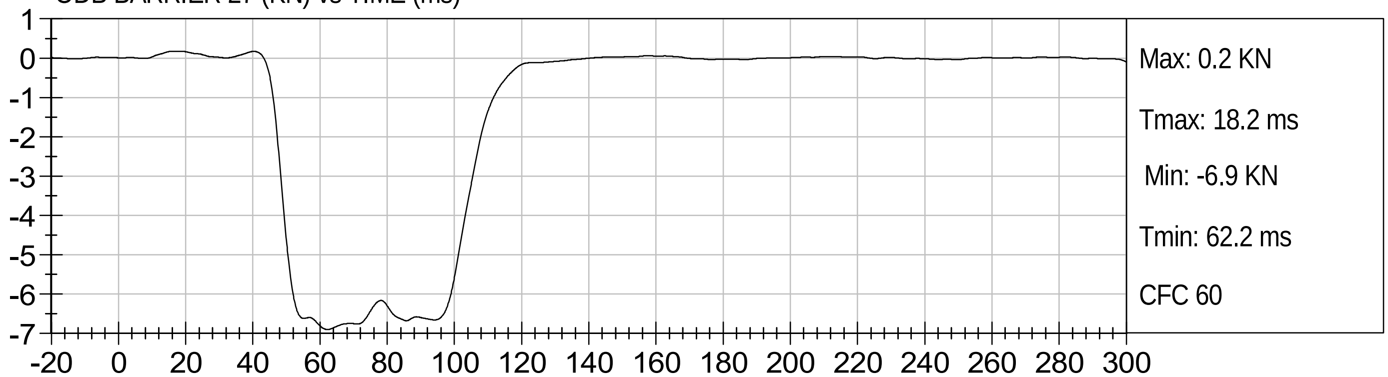
ODB BARRIER 25 (KN) vs TIME (ms)



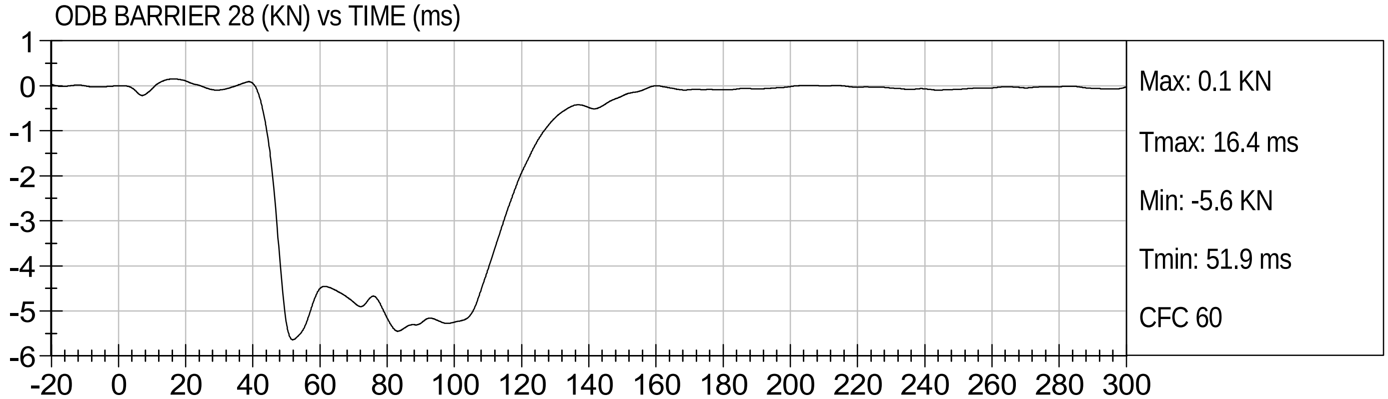
ODB BARRIER 26 (KN) vs TIME (ms)



ODB BARRIER 27 (KN) vs TIME (ms)



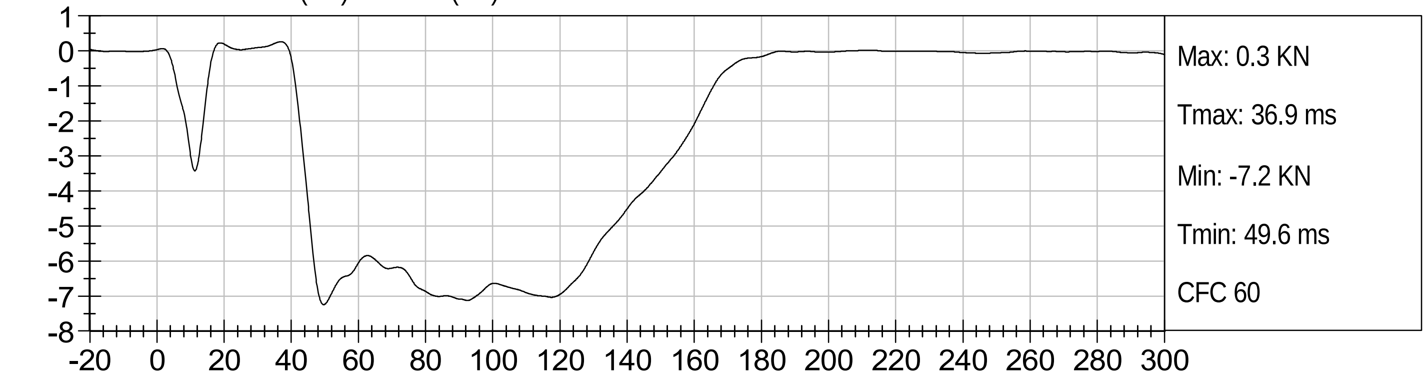
ODB BARRIER 28 (KN) vs TIME (ms)



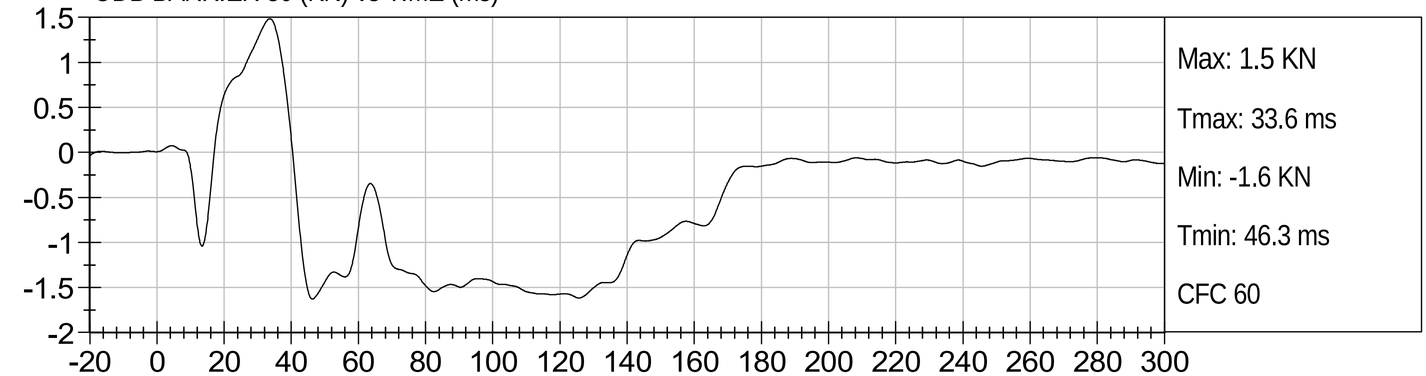
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

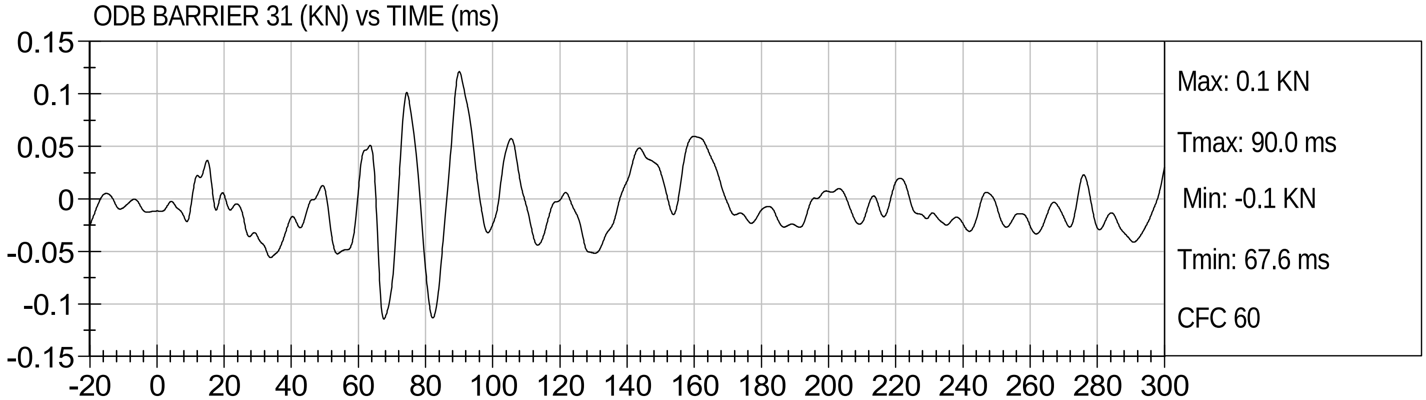
ODB BARRIER 29 (KN) vs TIME (ms)



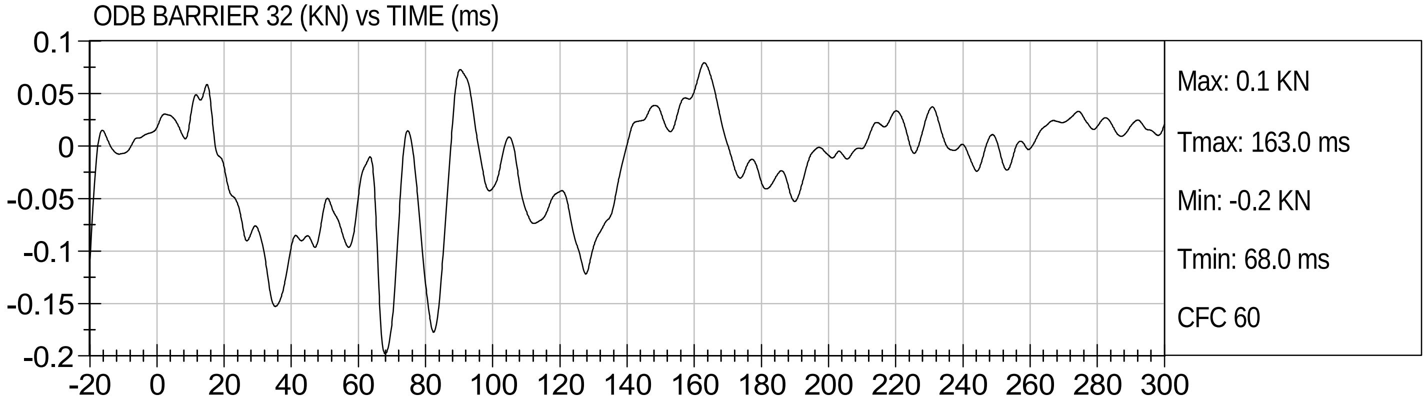
ODB BARRIER 30 (KN) vs TIME (ms)



ODB BARRIER 31 (KN) vs TIME (ms)



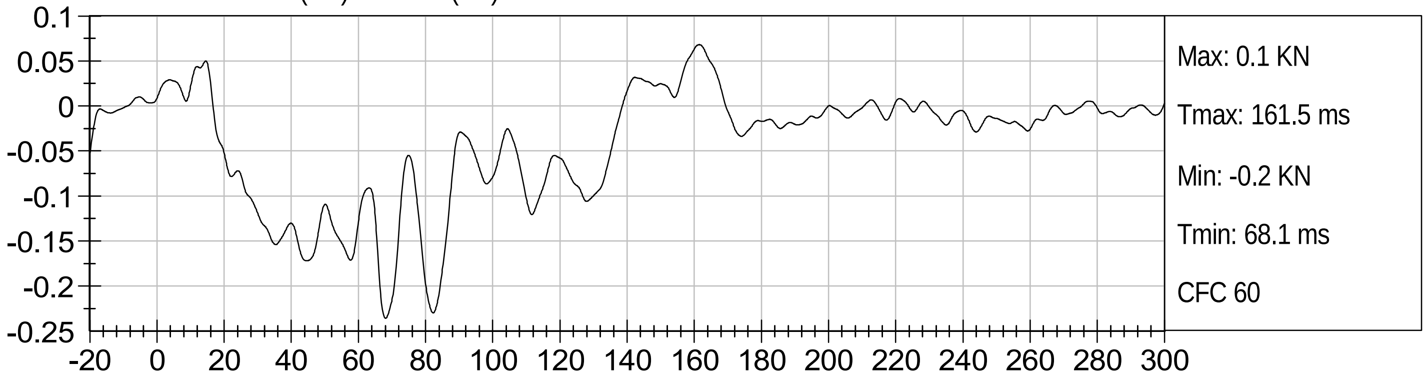
ODB BARRIER 32 (KN) vs TIME (ms)



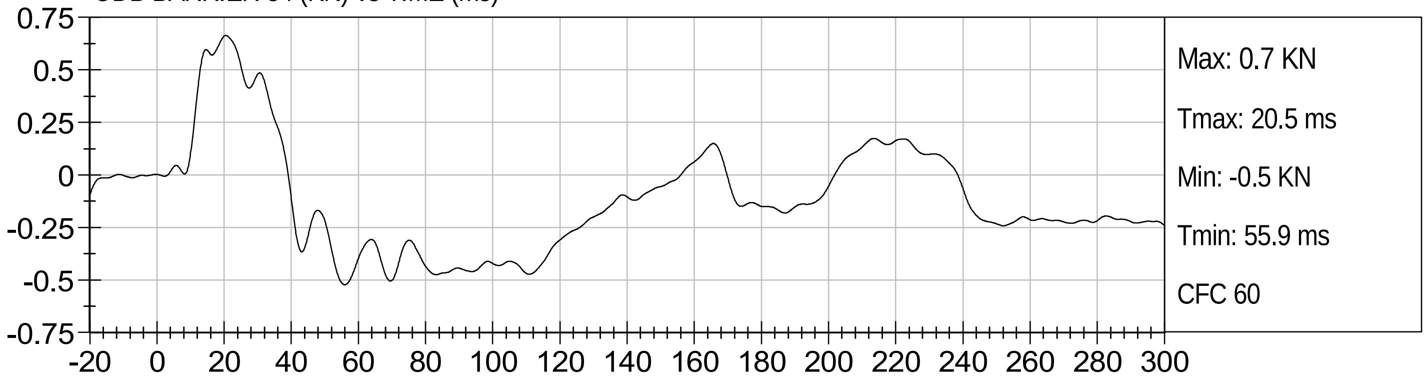
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

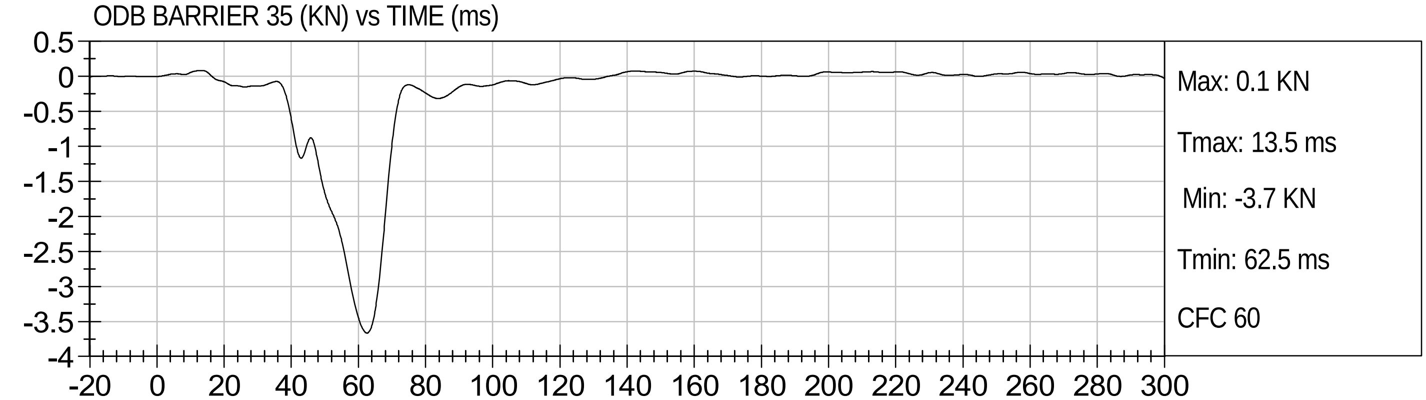
ODB BARRIER 33 (KN) vs TIME (ms)



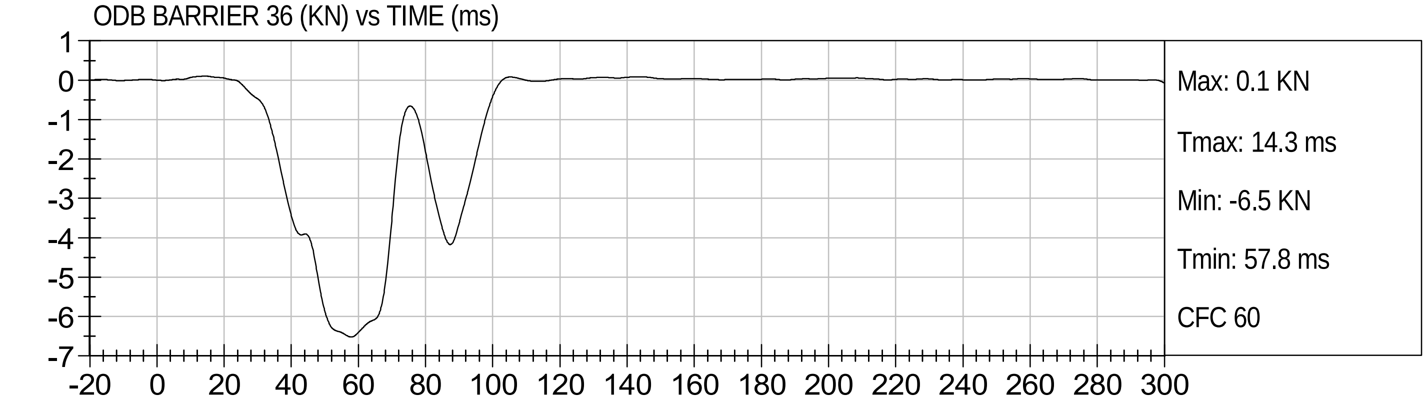
ODB BARRIER 34 (KN) vs TIME (ms)



ODB BARRIER 35 (KN) vs TIME (ms)



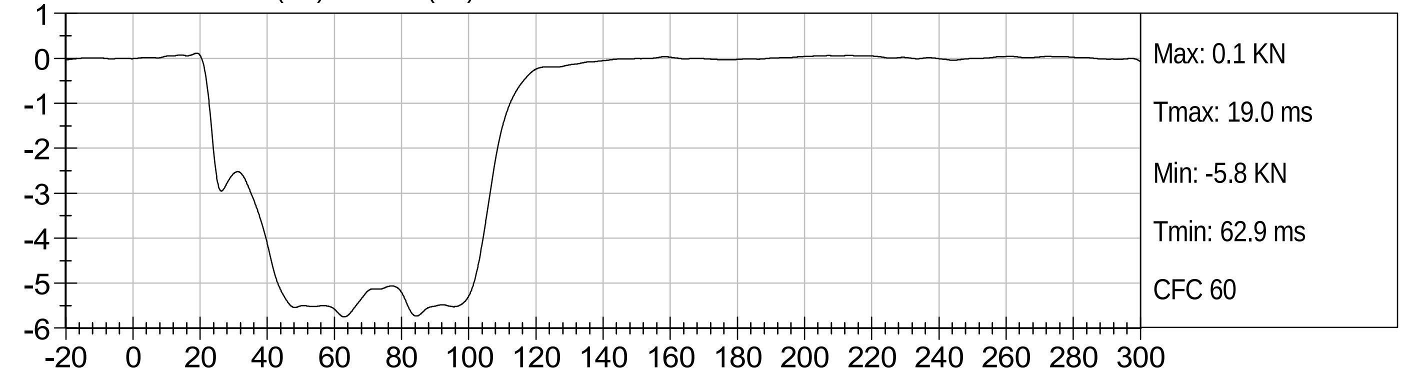
ODB BARRIER 36 (KN) vs TIME (ms)



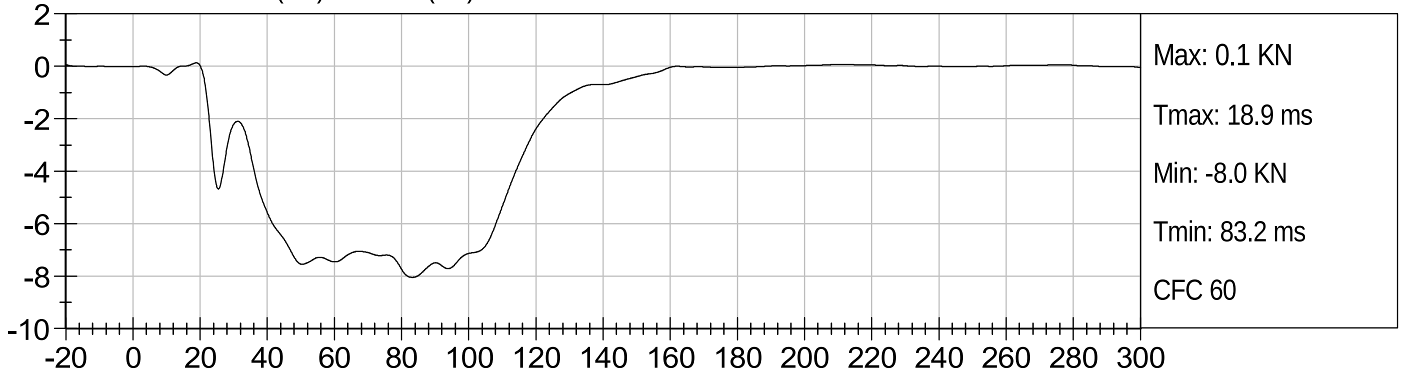
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

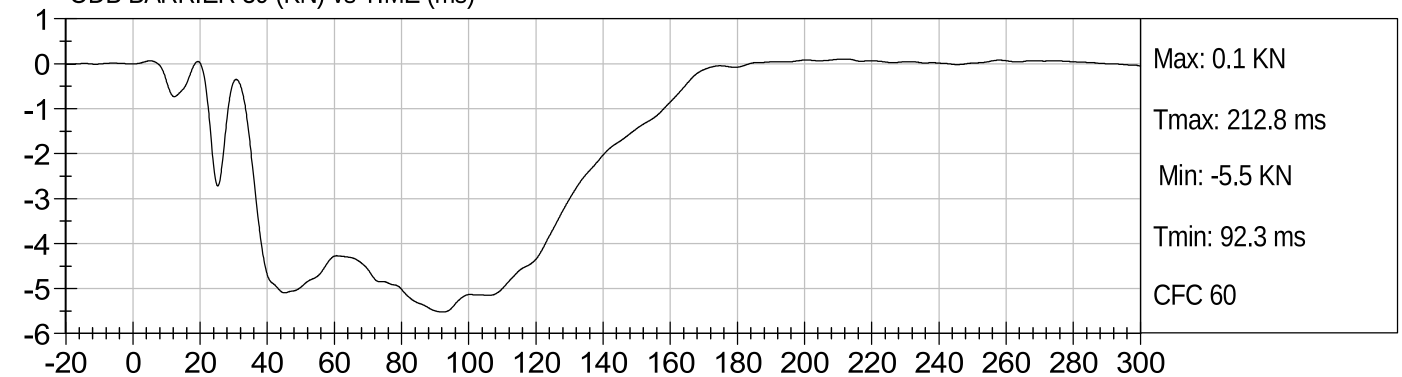
ODB BARRIER 37 (KN) vs TIME (ms)



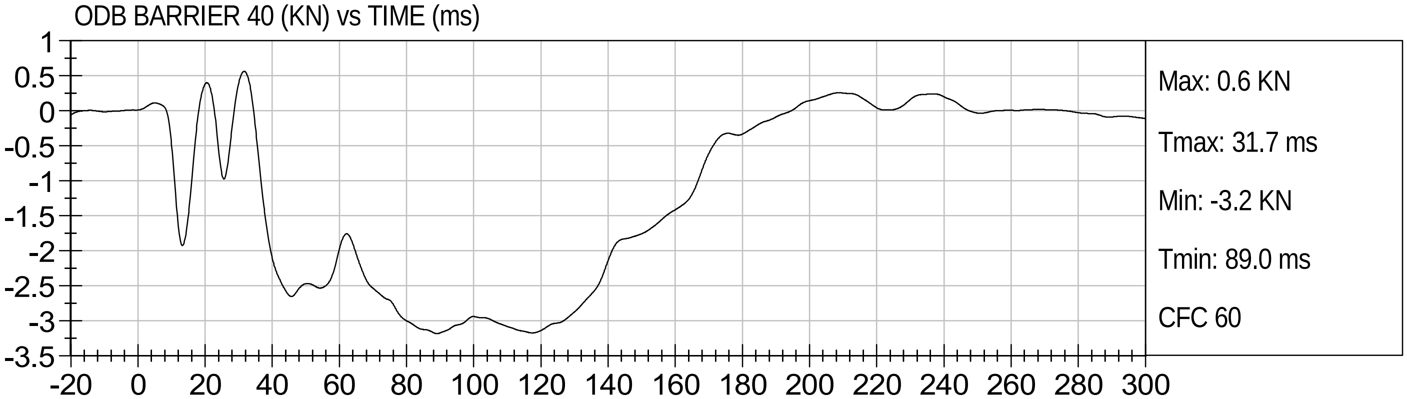
ODB BARRIER 38 (KN) vs TIME (ms)



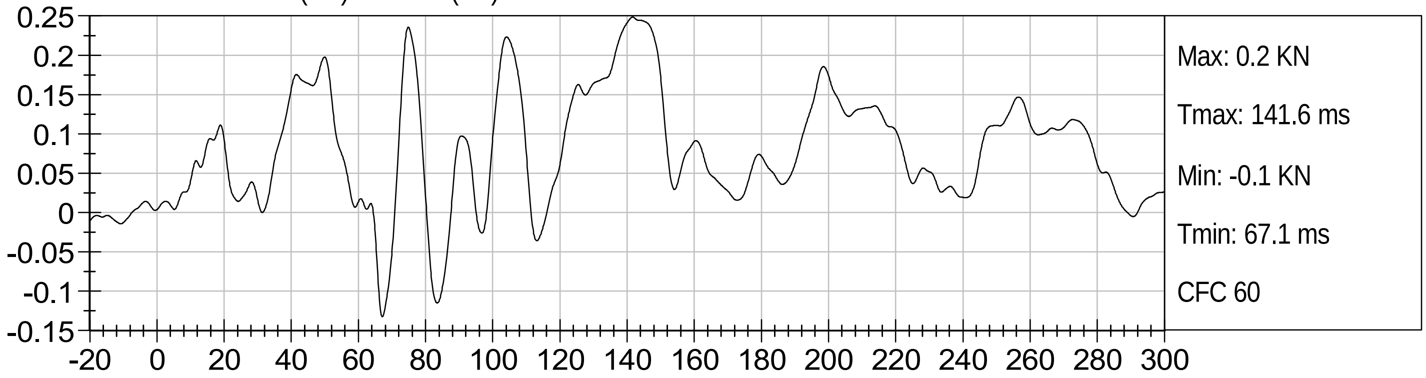
ODB BARRIER 39 (KN) vs TIME (ms)



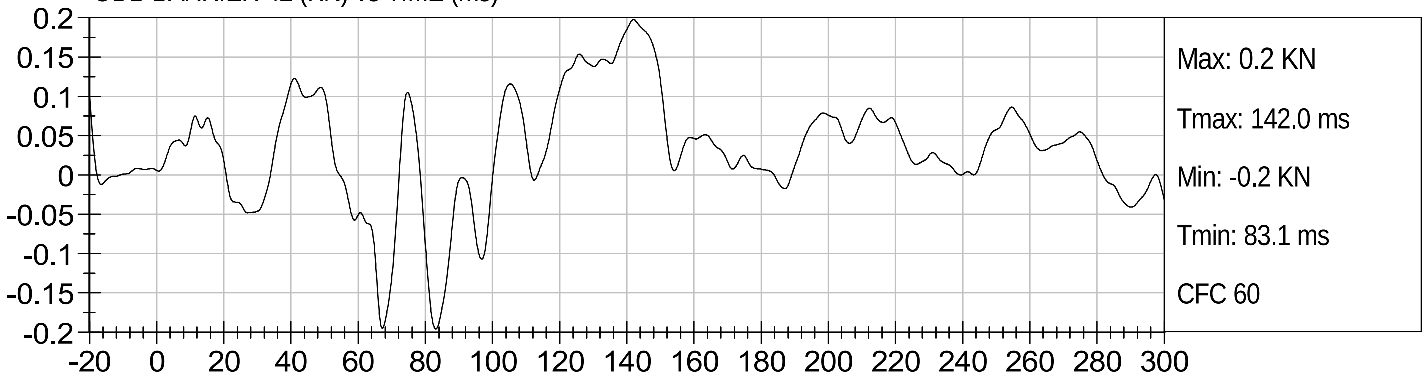
ODB BARRIER 40 (KN) vs TIME (ms)



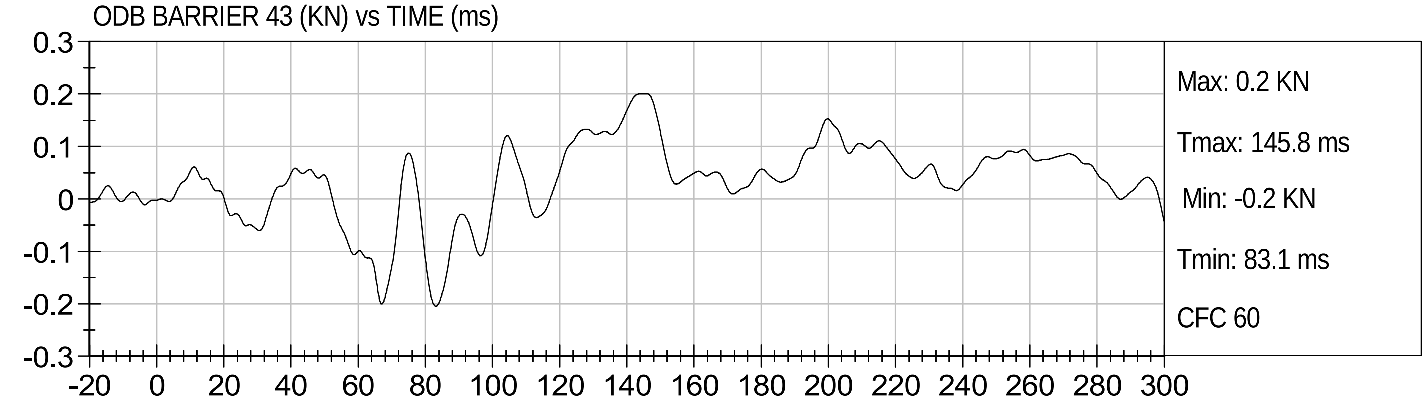
ODB BARRIER 41 (KN) vs TIME (ms)



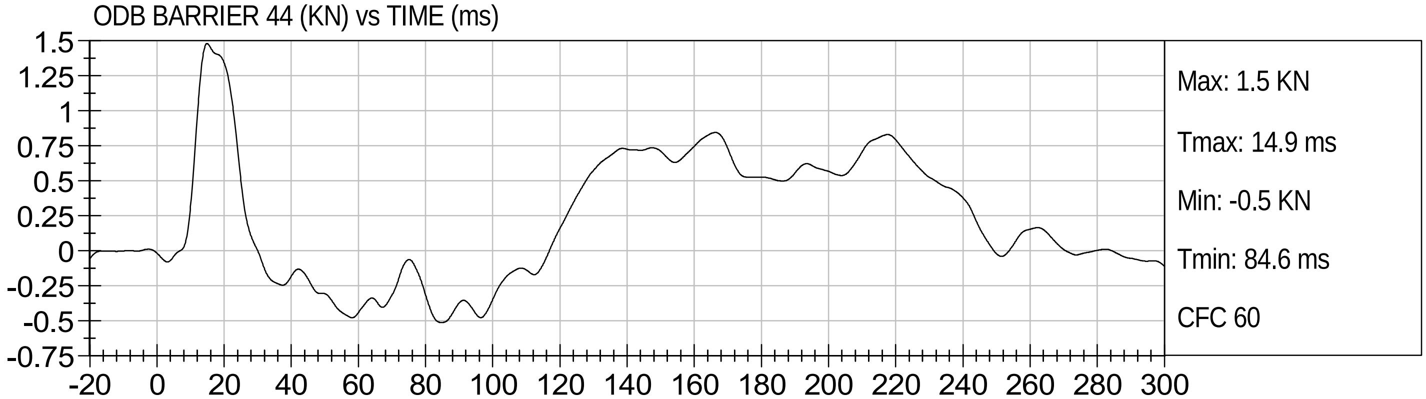
ODB BARRIER 42 (KN) vs TIME (ms)



ODB BARRIER 43 (KN) vs TIME (ms)



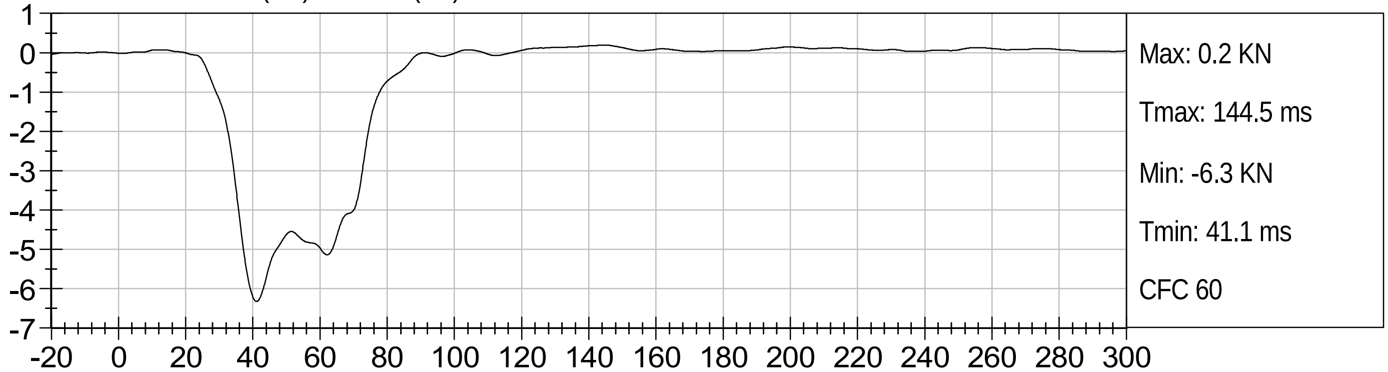
ODB BARRIER 44 (KN) vs TIME (ms)



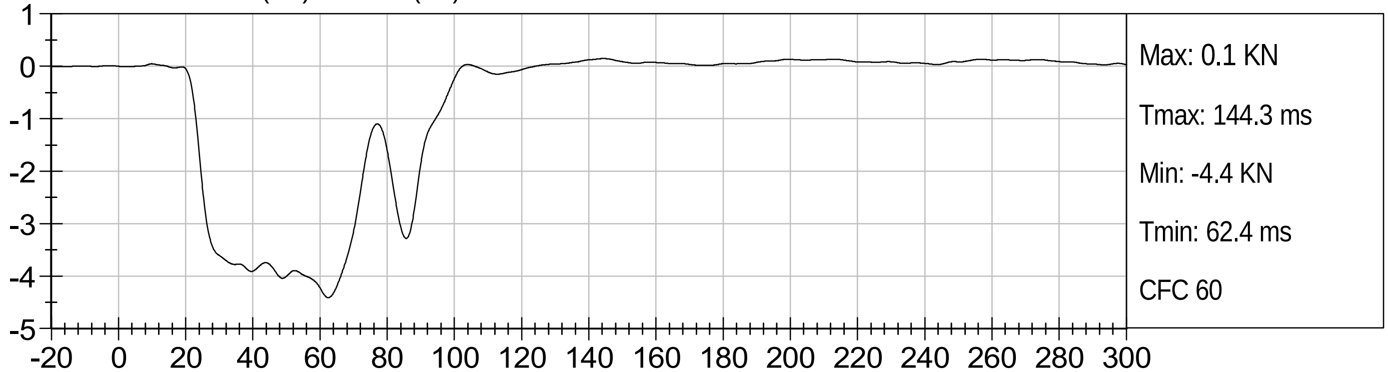
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

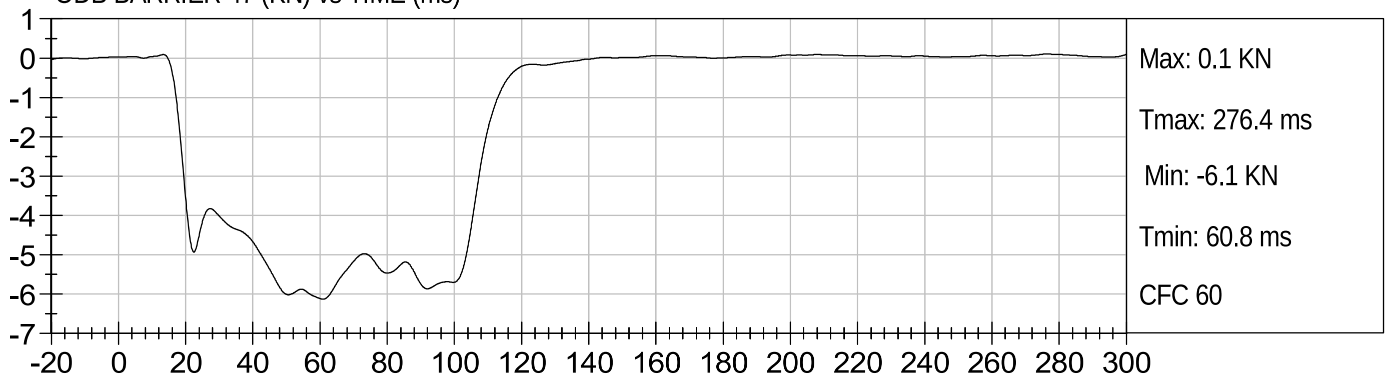
ODB BARRIER 45 (KN) vs TIME (ms)



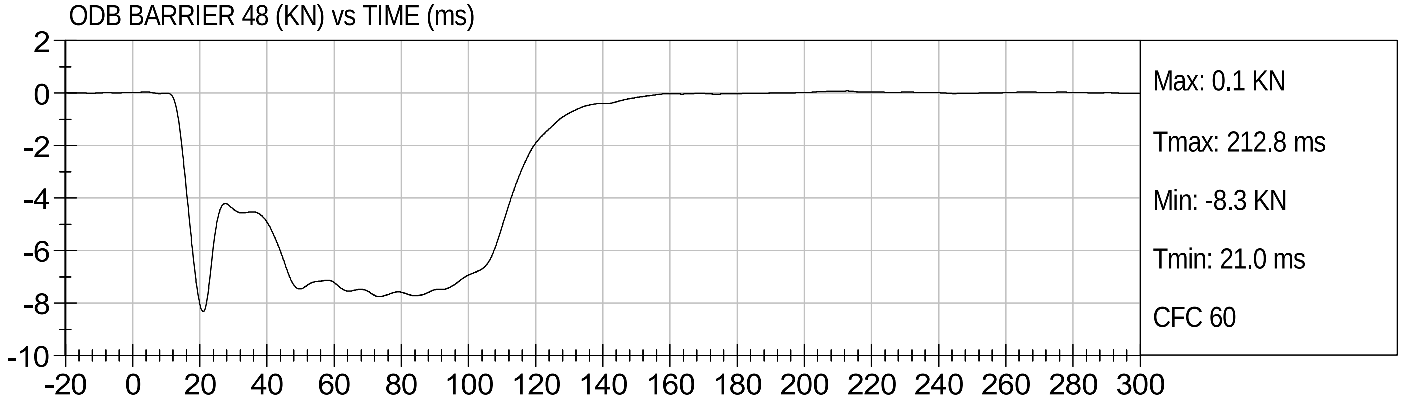
ODB BARRIER 46 (KN) vs TIME (ms)



ODB BARRIER 47 (KN) vs TIME (ms)



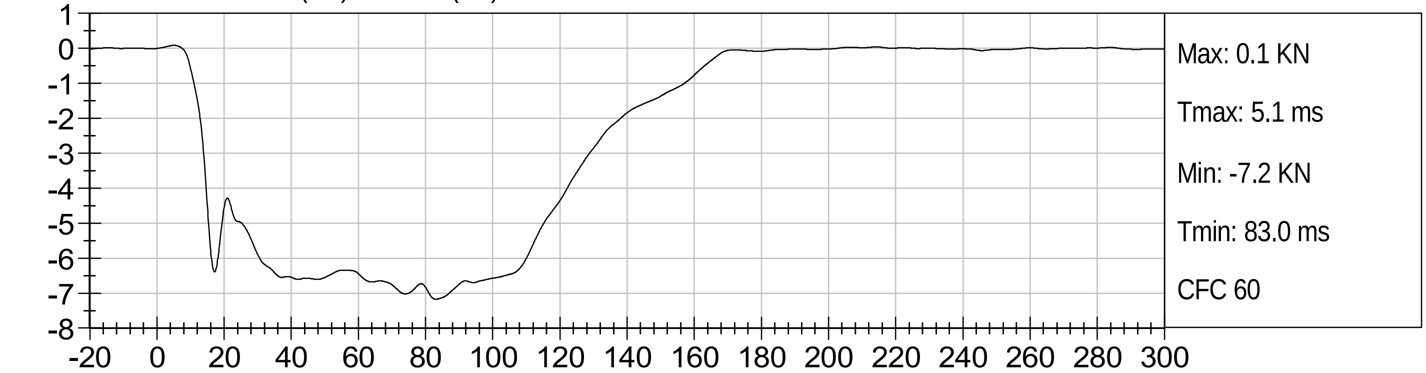
ODB BARRIER 48 (KN) vs TIME (ms)



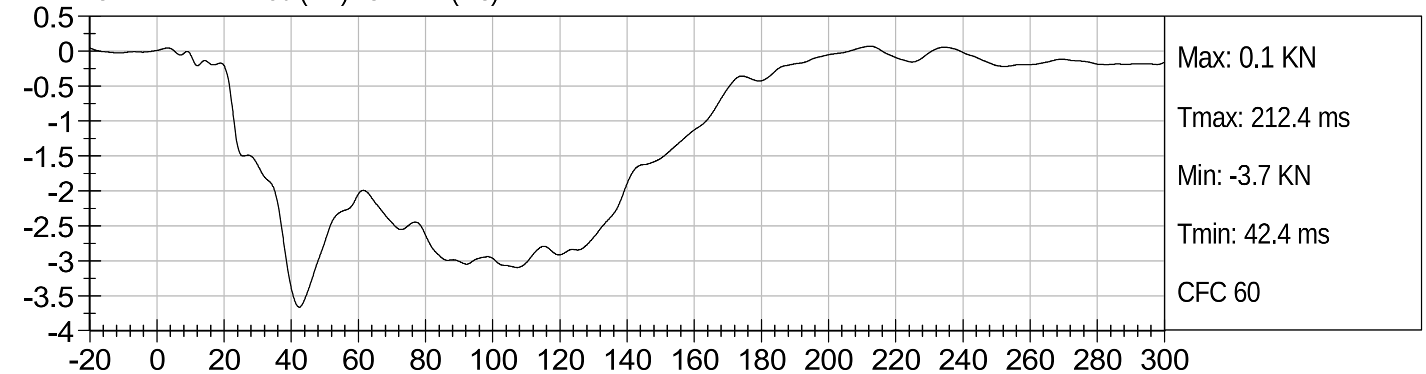
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

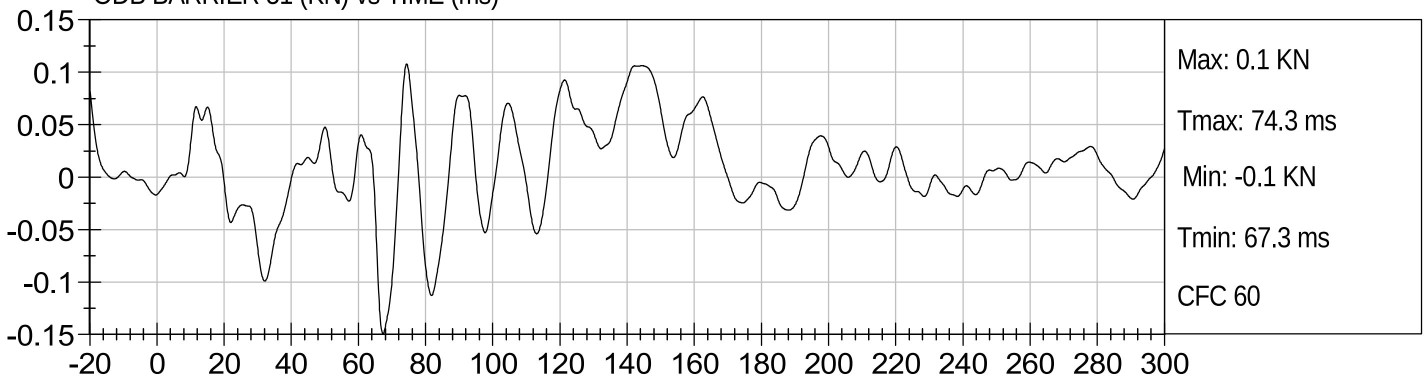
ODB BARRIER 49 (KN) vs TIME (ms)



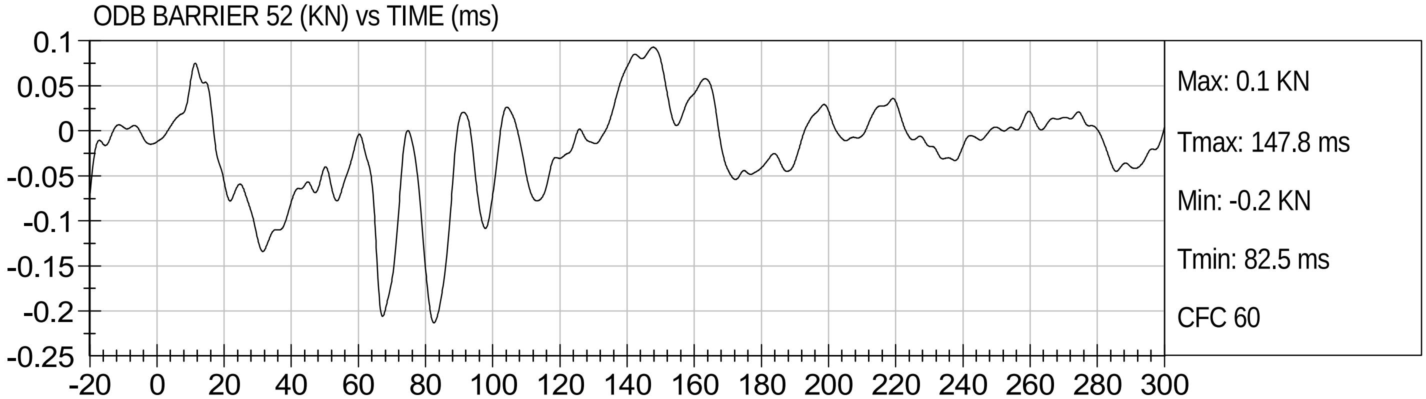
ODB BARRIER 50 (KN) vs TIME (ms)



ODB BARRIER 51 (KN) vs TIME (ms)



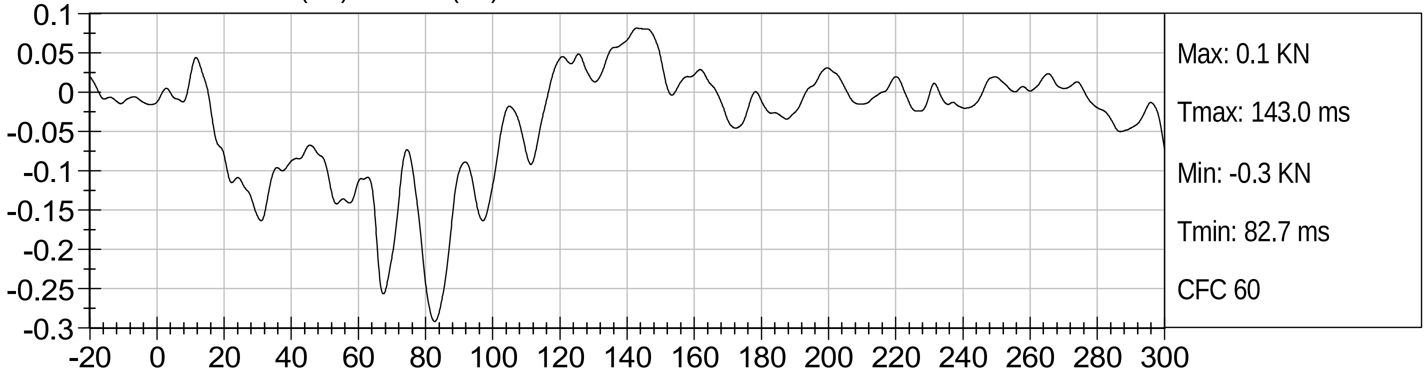
ODB BARRIER 52 (KN) vs TIME (ms)



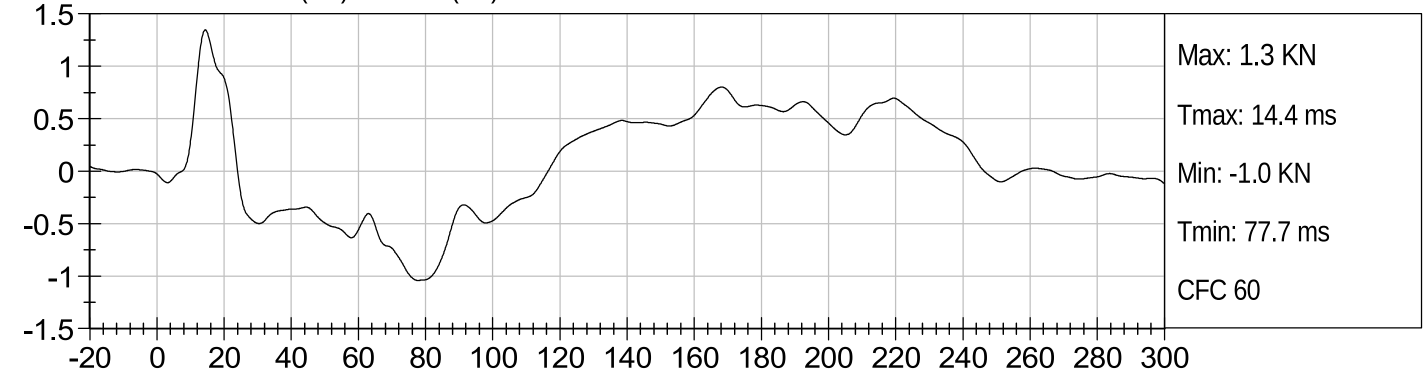
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

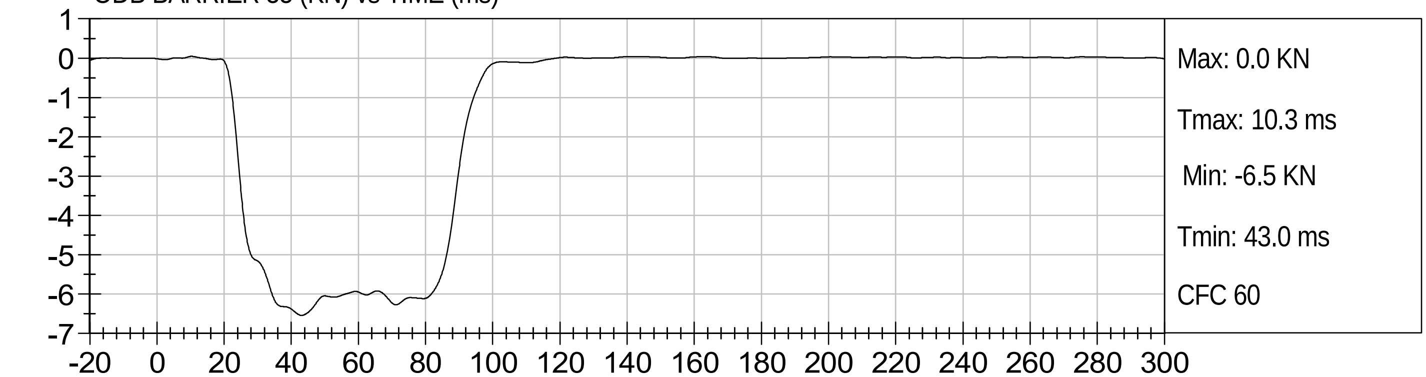
ODB BARRIER 53 (KN) vs TIME (ms)



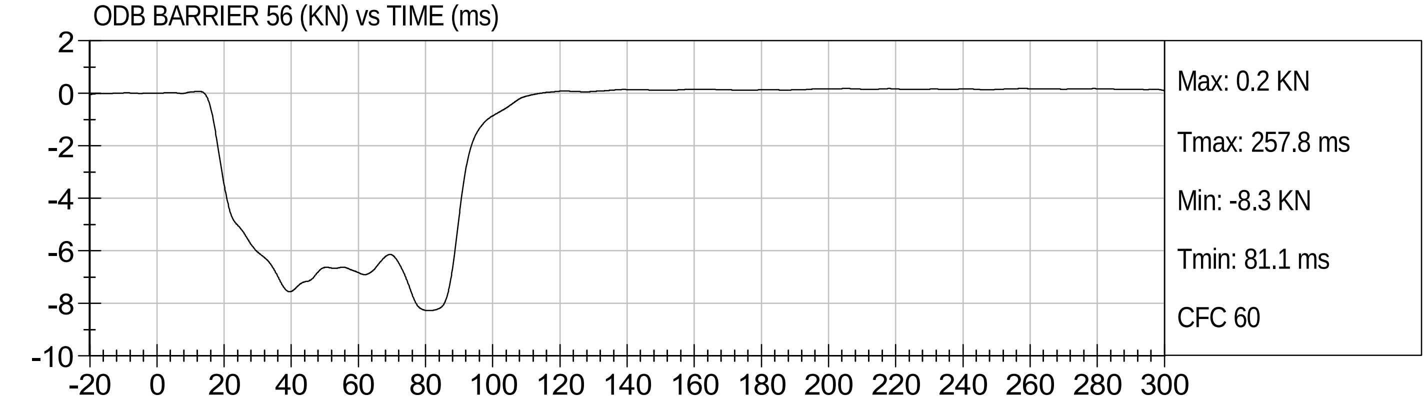
ODB BARRIER 54 (KN) vs TIME (ms)



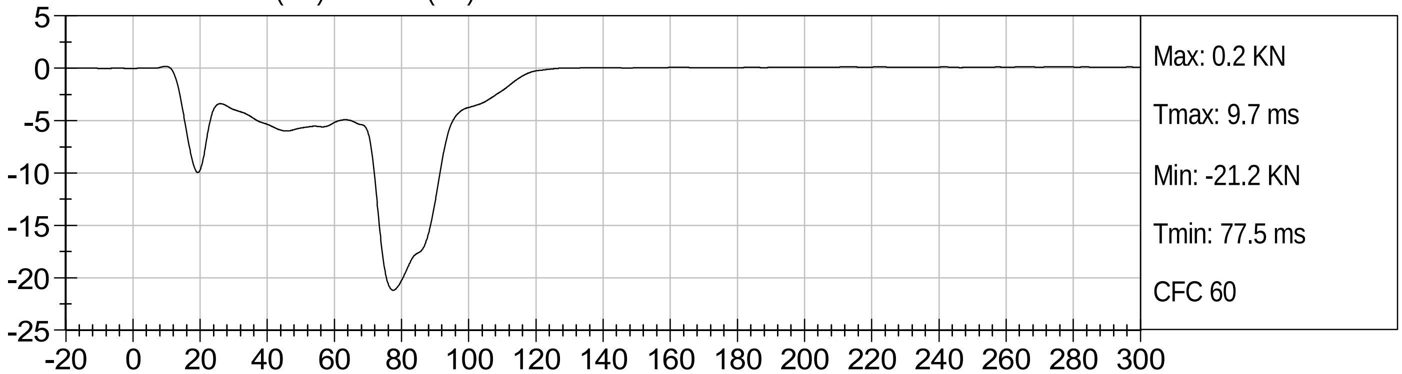
ODB BARRIER 55 (KN) vs TIME (ms)



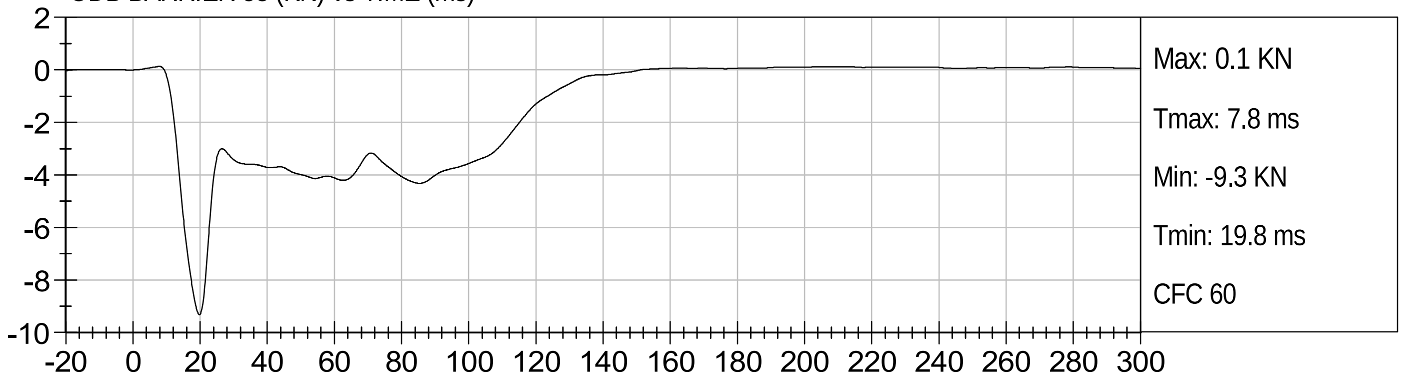
ODB BARRIER 56 (KN) vs TIME (ms)



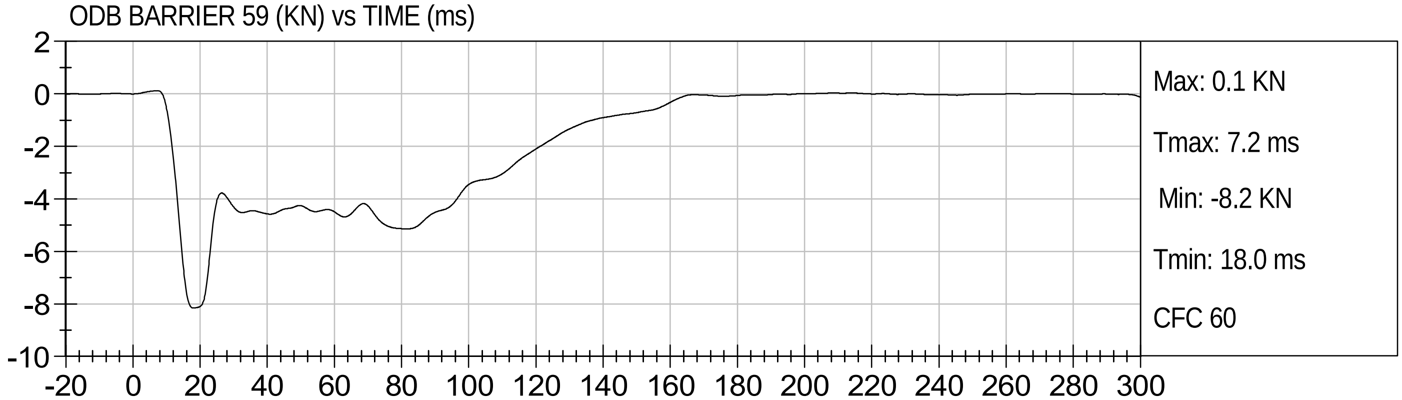
ODB BARRIER 57 (KN) vs TIME (ms)



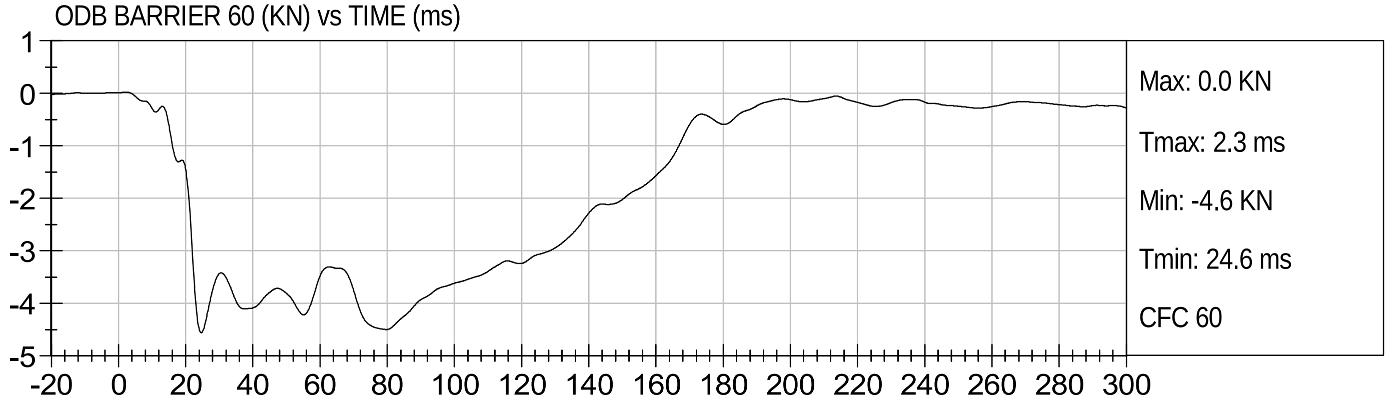
ODB BARRIER 58 (KN) vs TIME (ms)



ODB BARRIER 59 (KN) vs TIME (ms)



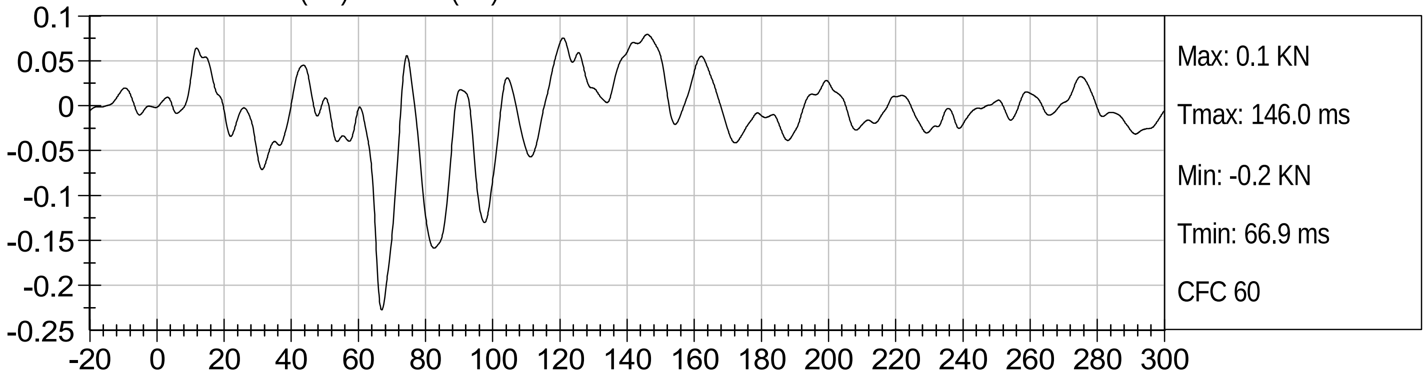
ODB BARRIER 60 (KN) vs TIME (ms)



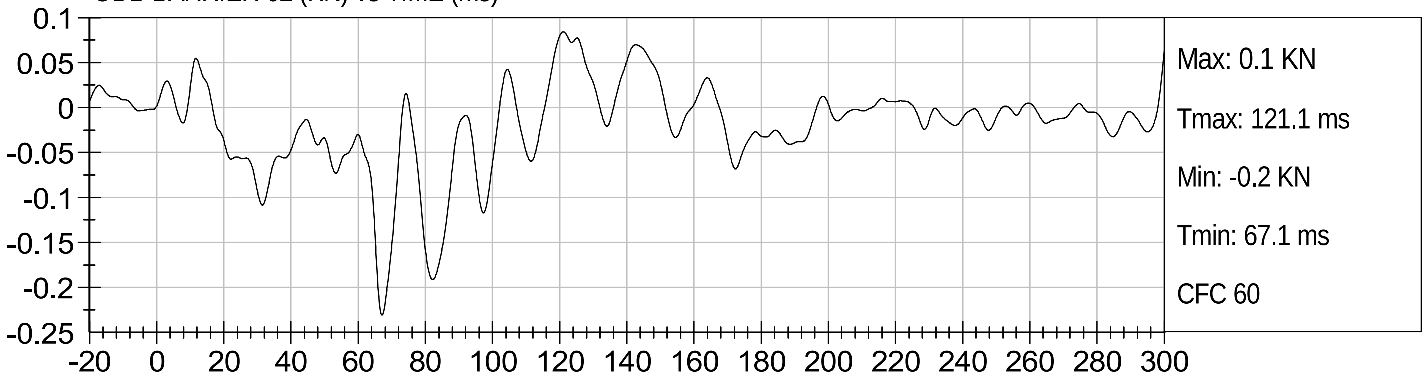
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

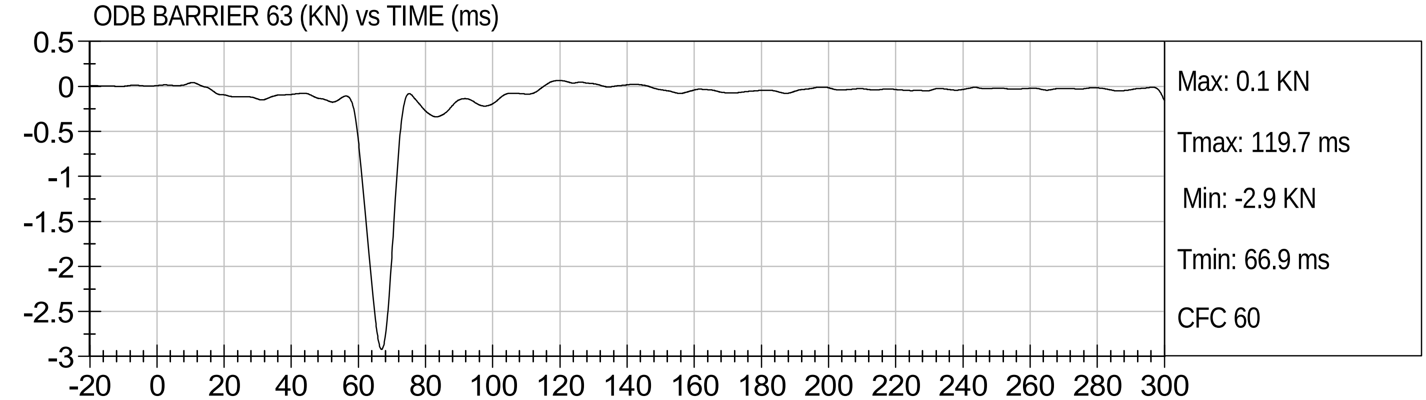
ODB BARRIER 61 (KN) vs TIME (ms)



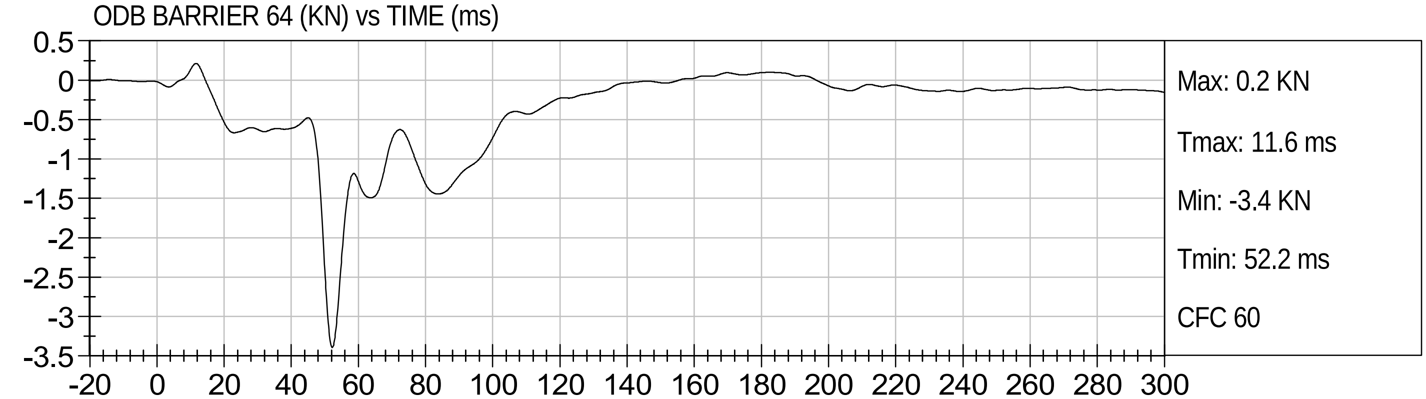
ODB BARRIER 62 (KN) vs TIME (ms)



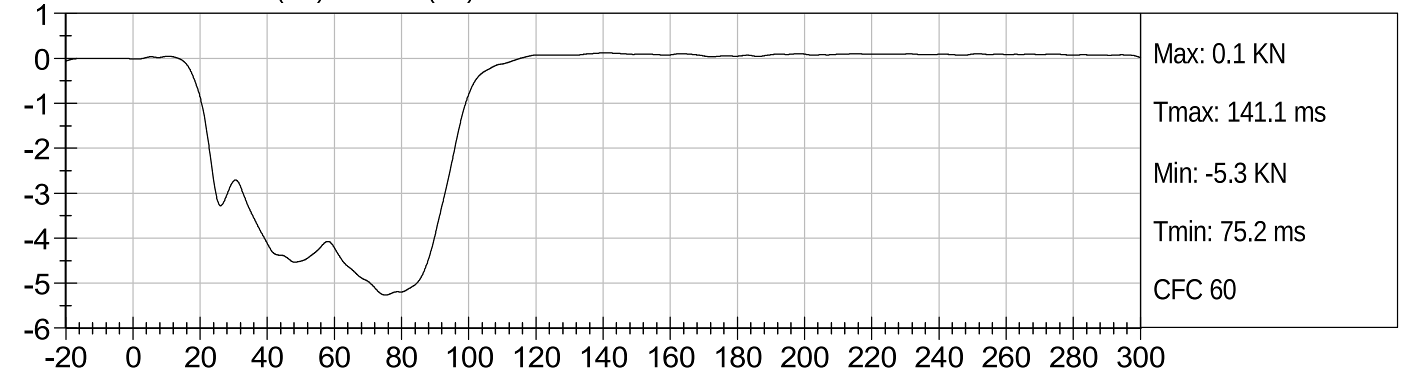
ODB BARRIER 63 (KN) vs TIME (ms)



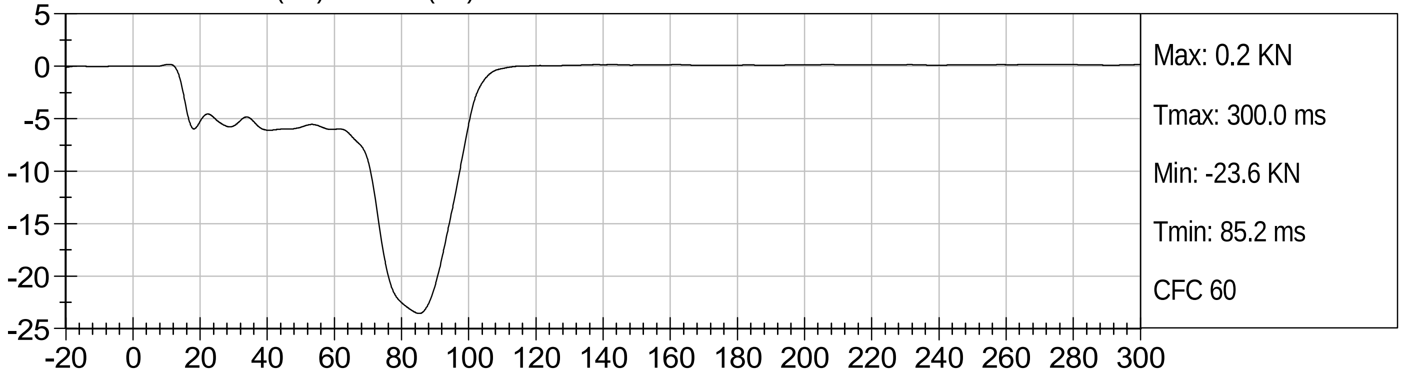
ODB BARRIER 64 (KN) vs TIME (ms)



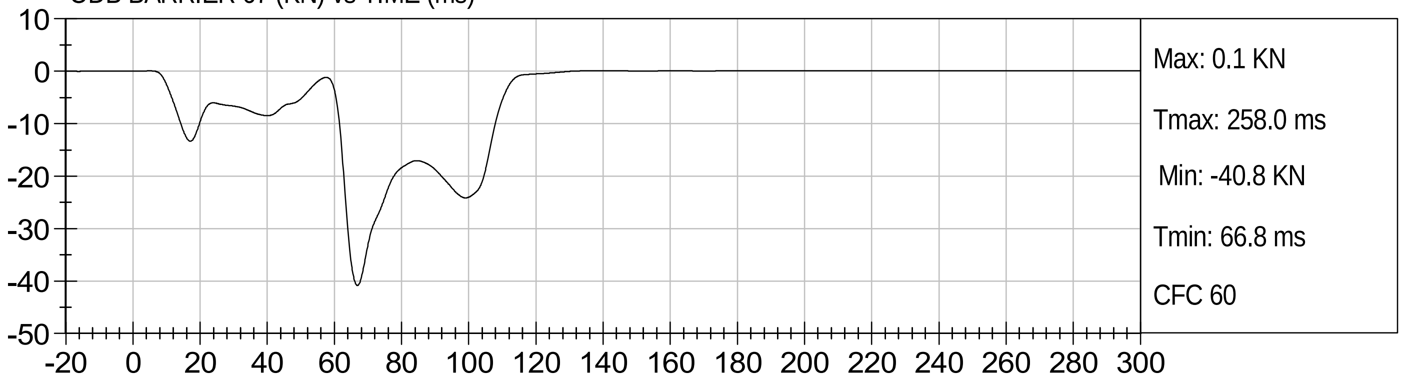
ODB BARRIER 65 (KN) vs TIME (ms)



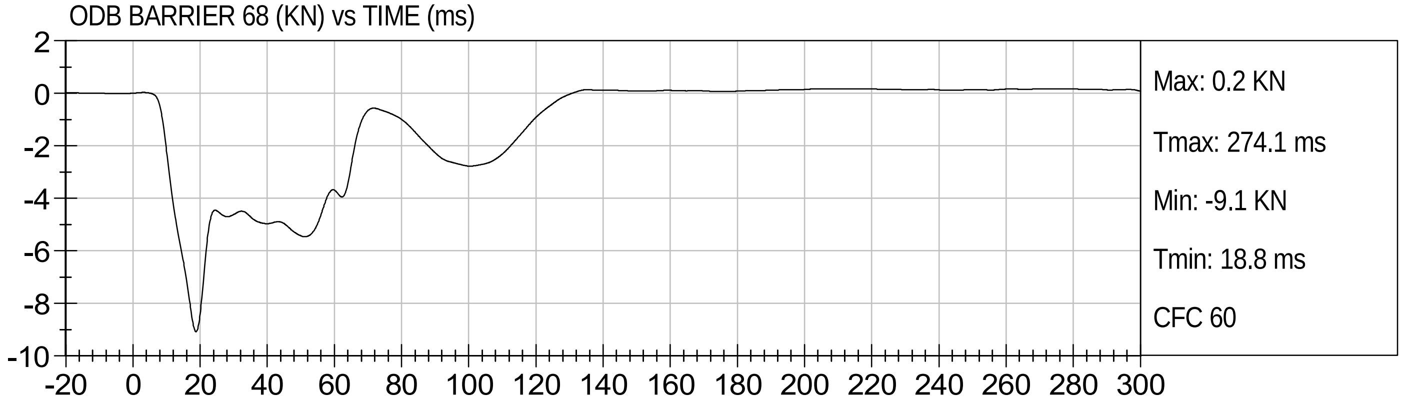
ODB BARRIER 66 (KN) vs TIME (ms)



ODB BARRIER 67 (KN) vs TIME (ms)



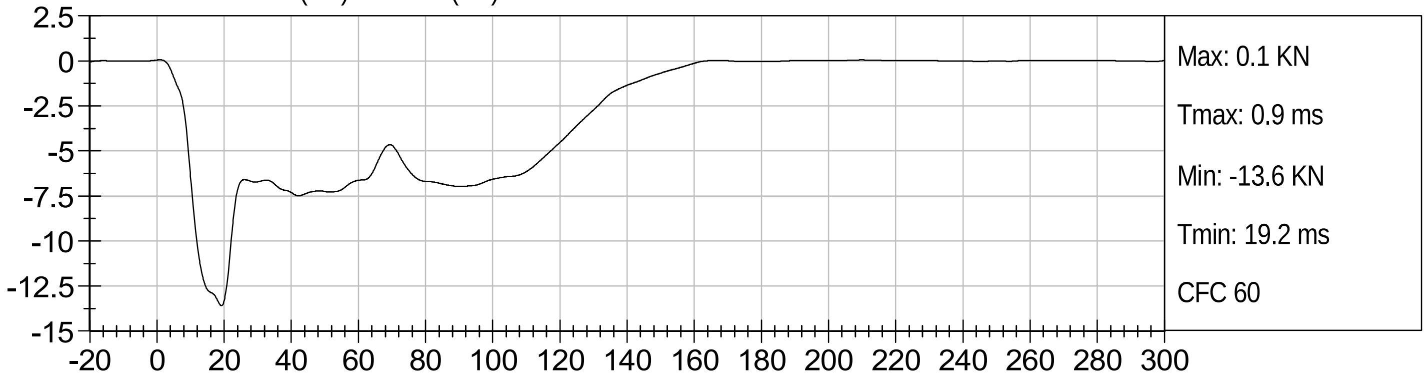
ODB BARRIER 68 (KN) vs TIME (ms)



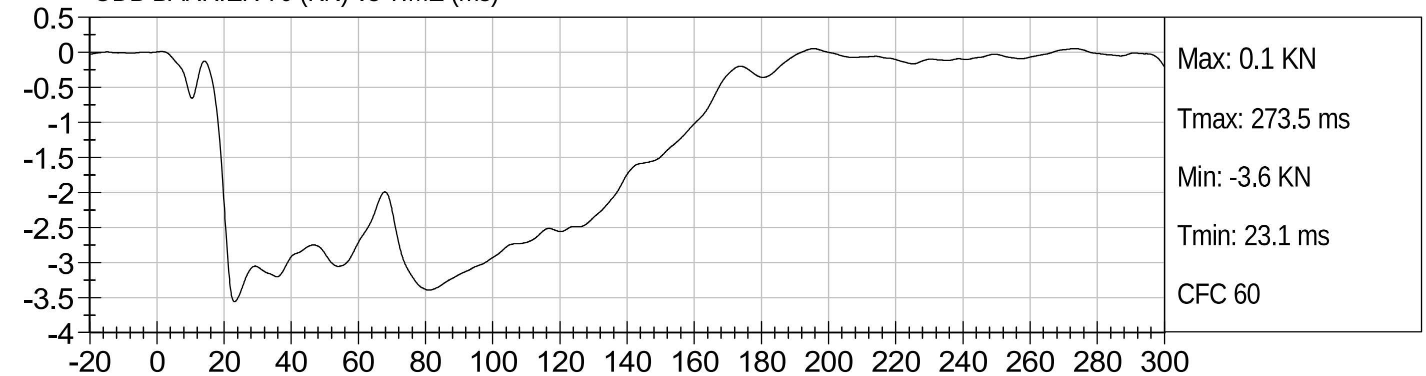
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

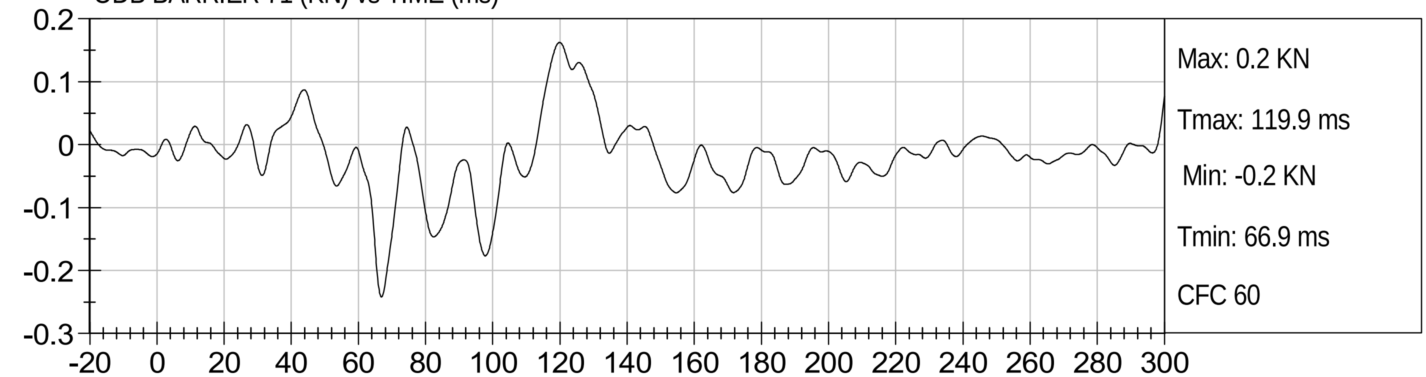
ODB BARRIER 69 (KN) vs TIME (ms)



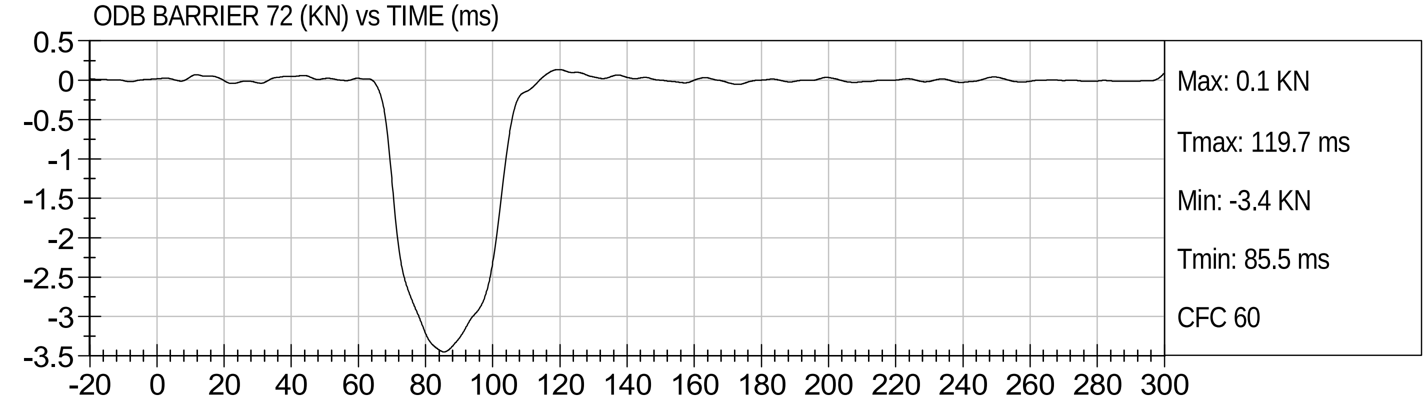
ODB BARRIER 70 (KN) vs TIME (ms)



ODB BARRIER 71 (KN) vs TIME (ms)

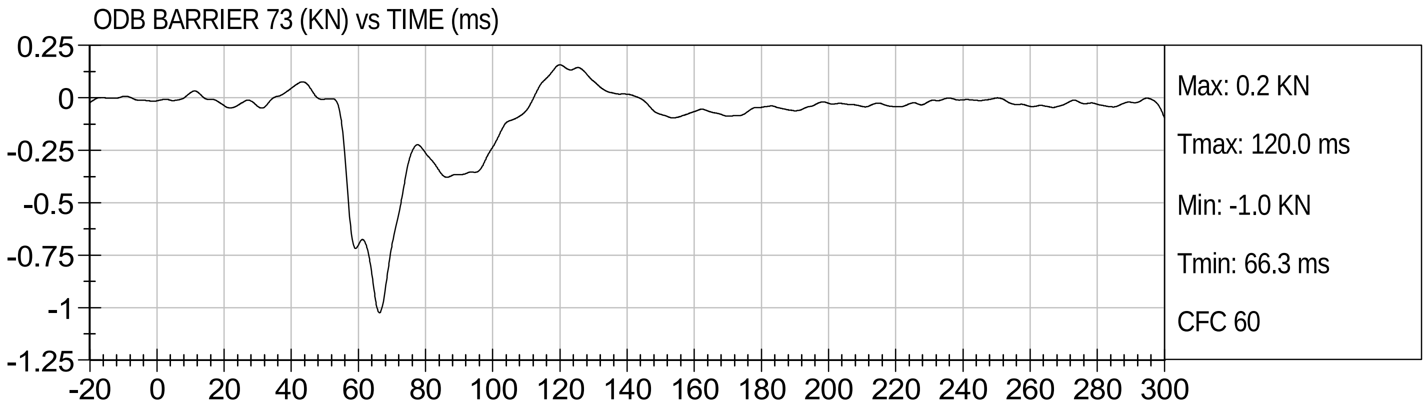


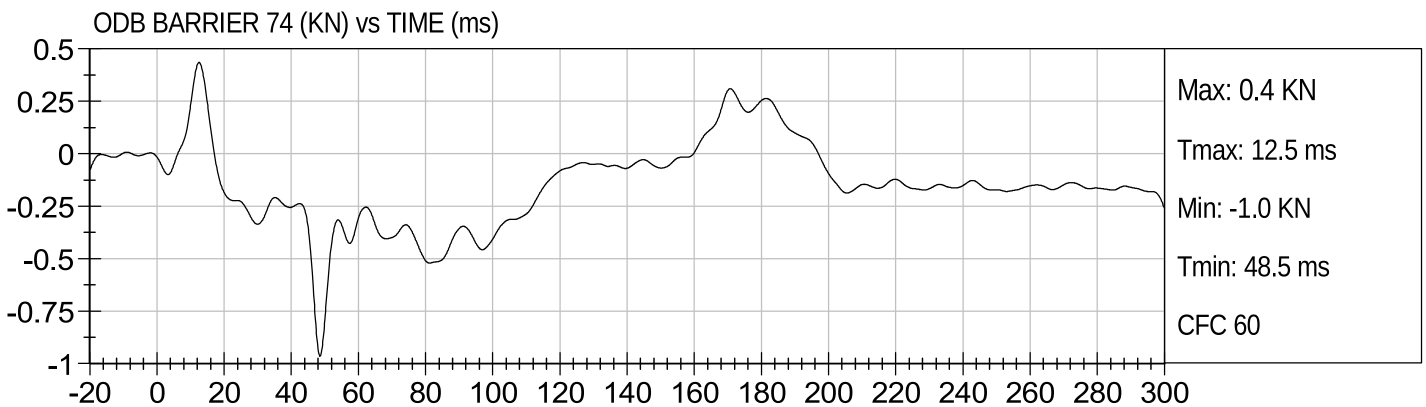
ODB BARRIER 72 (KN) vs TIME (ms)

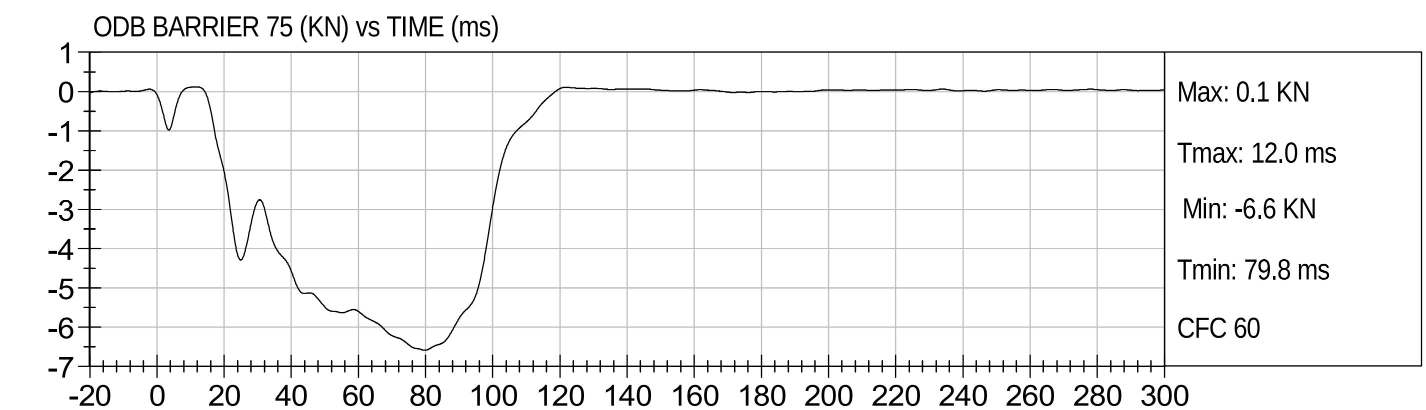


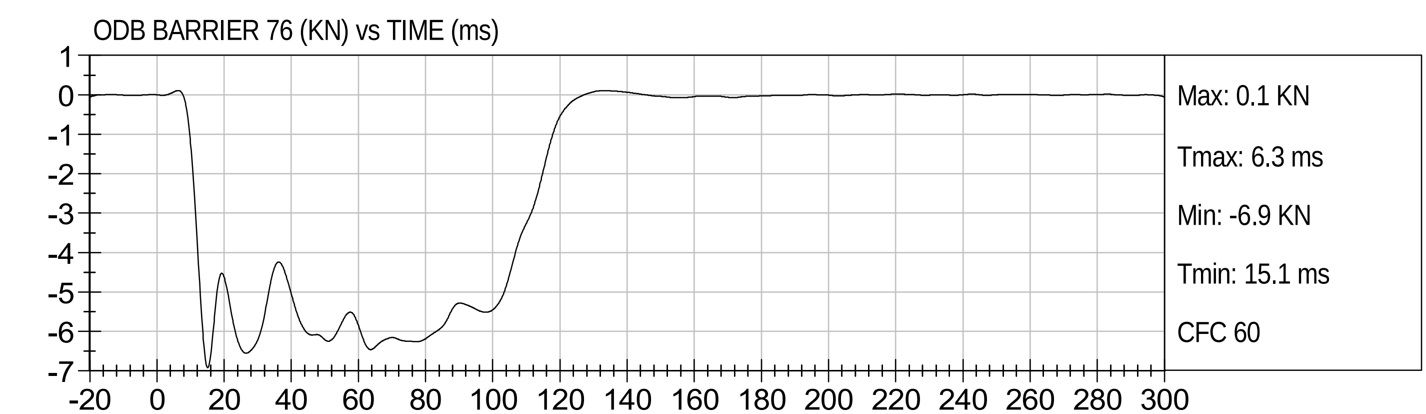
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)





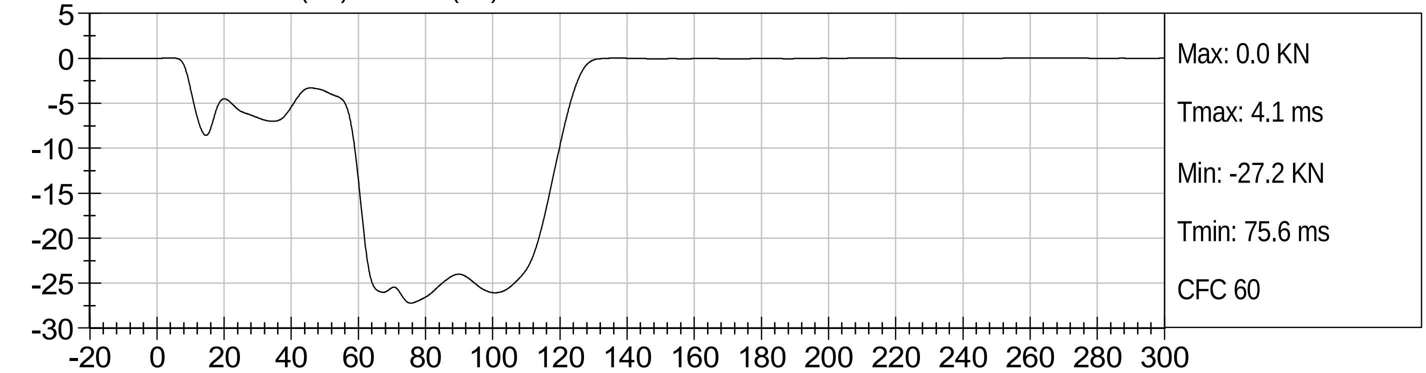




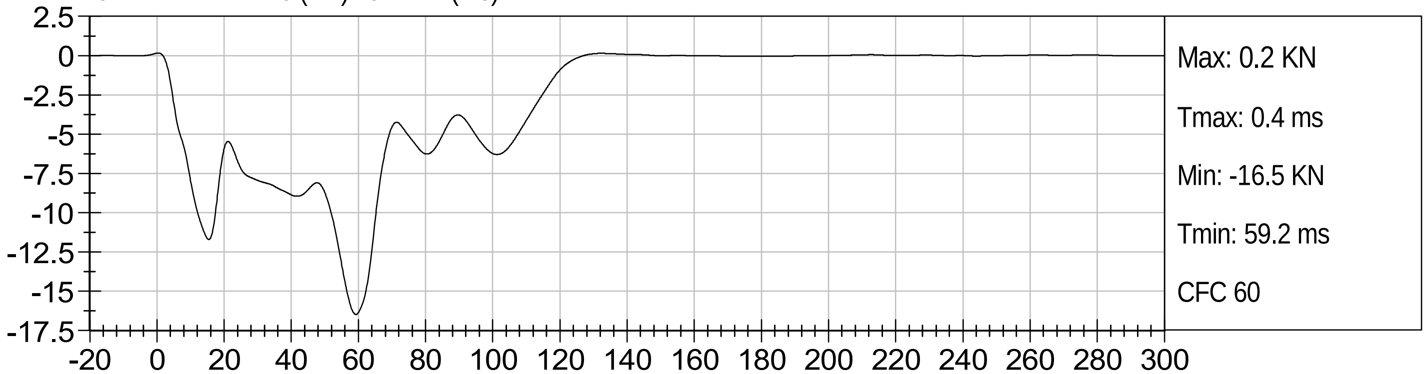
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

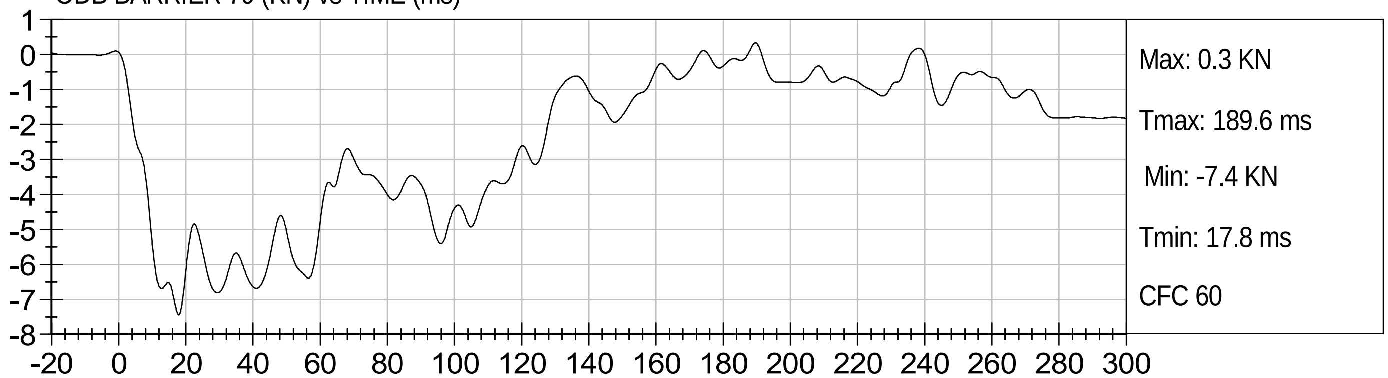
ODB BARRIER 77 (KN) vs TIME (ms)



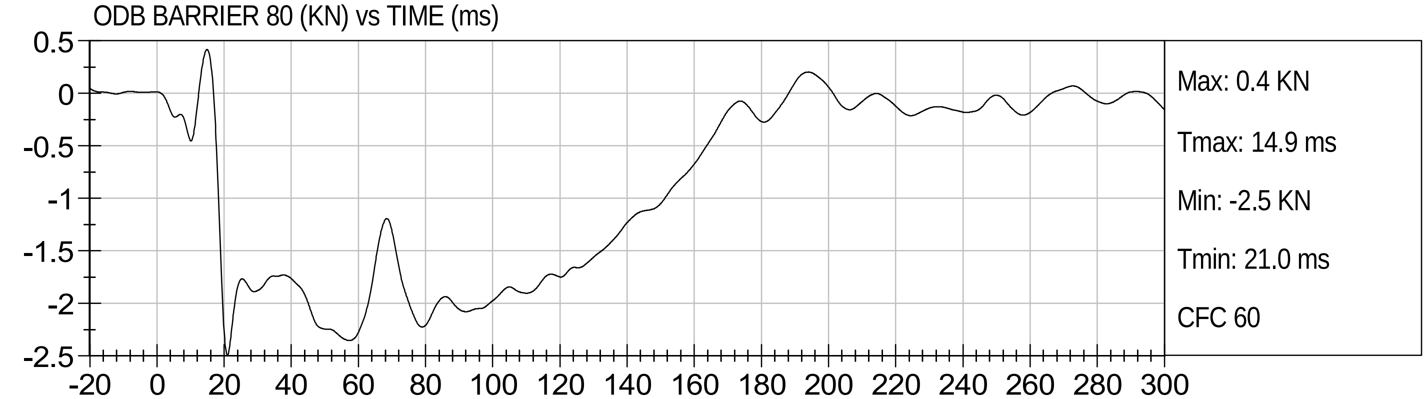
ODB BARRIER 78 (KN) vs TIME (ms)



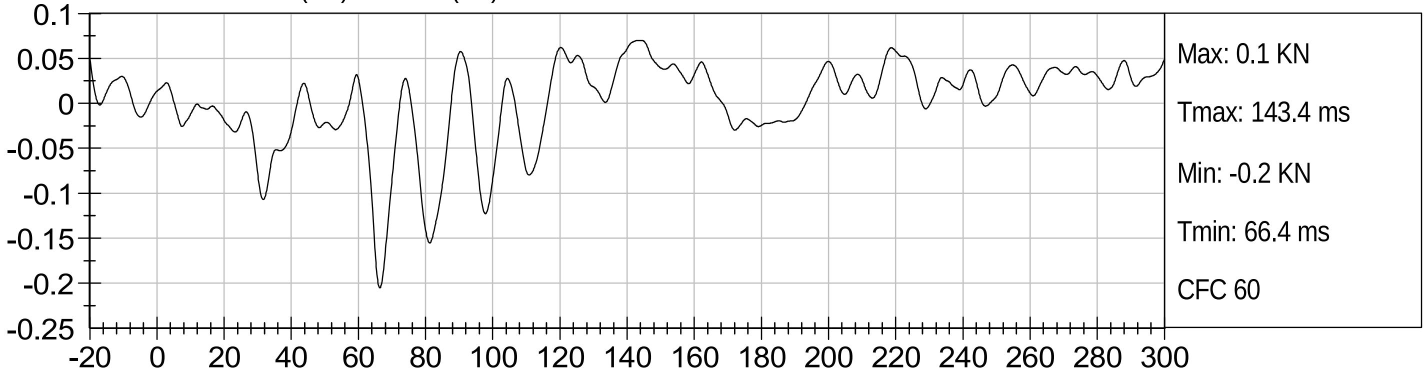
ODB BARRIER 79 (KN) vs TIME (ms)



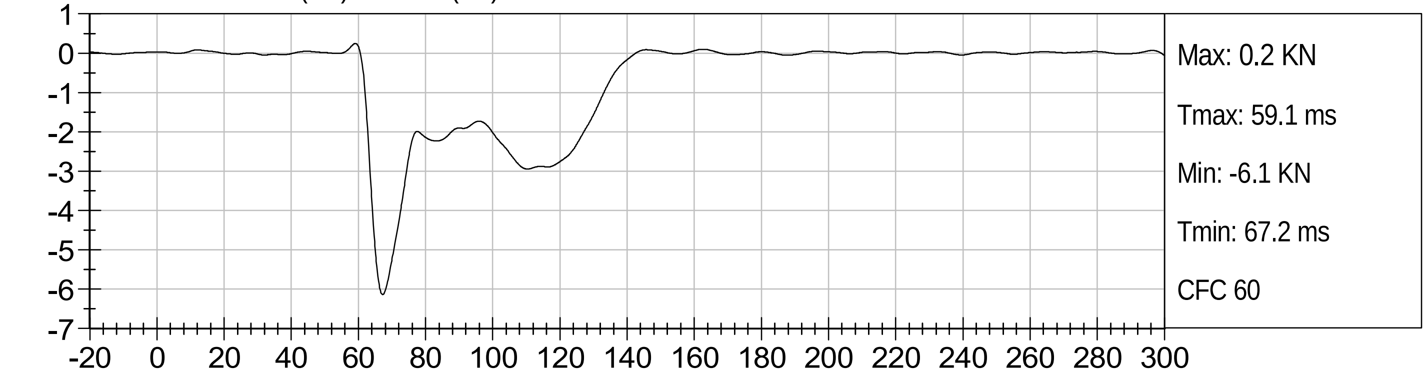
ODB BARRIER 80 (KN) vs TIME (ms)



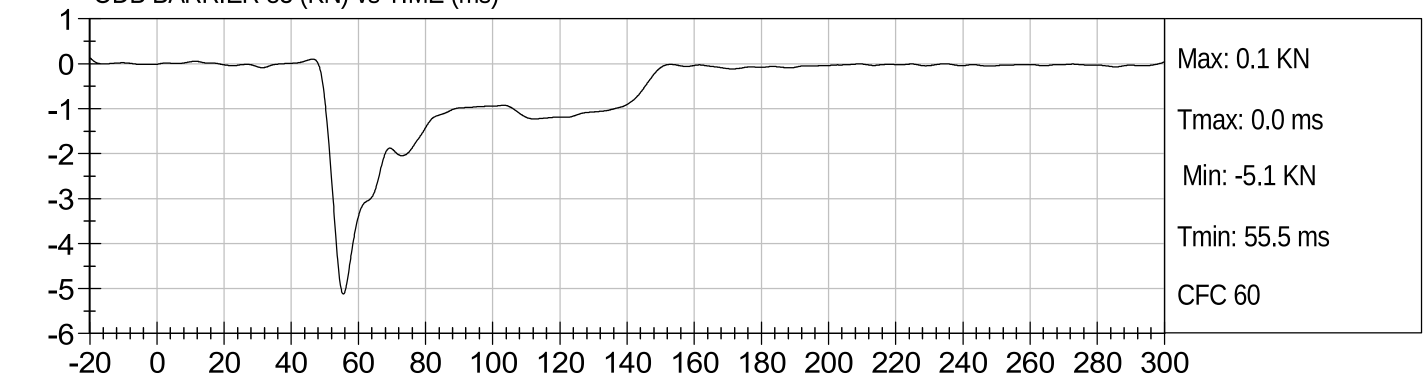
ODB BARRIER 81 (KN) vs TIME (ms)



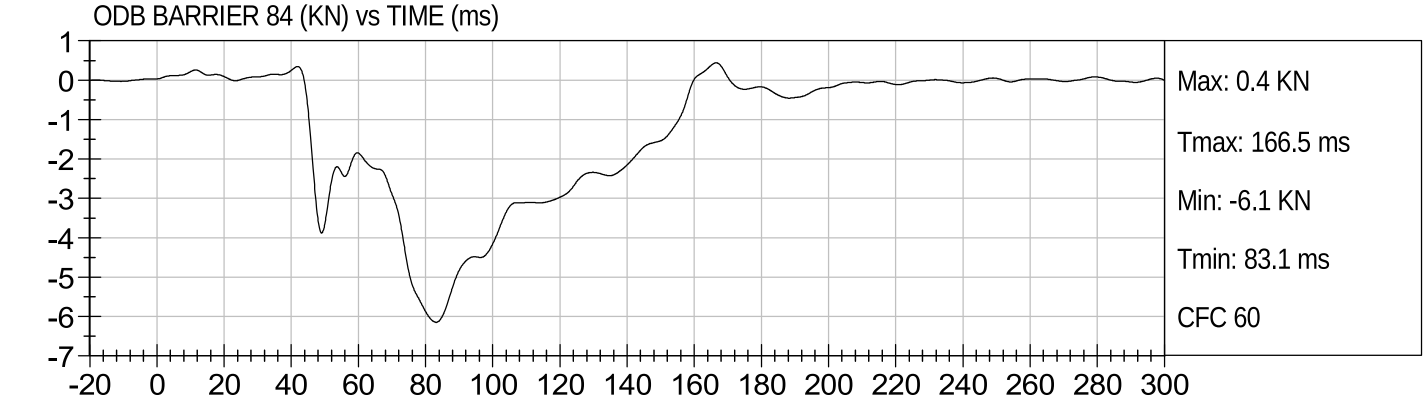
ODB BARRIER 82 (KN) vs TIME (ms)



ODB BARRIER 83 (KN) vs TIME (ms)

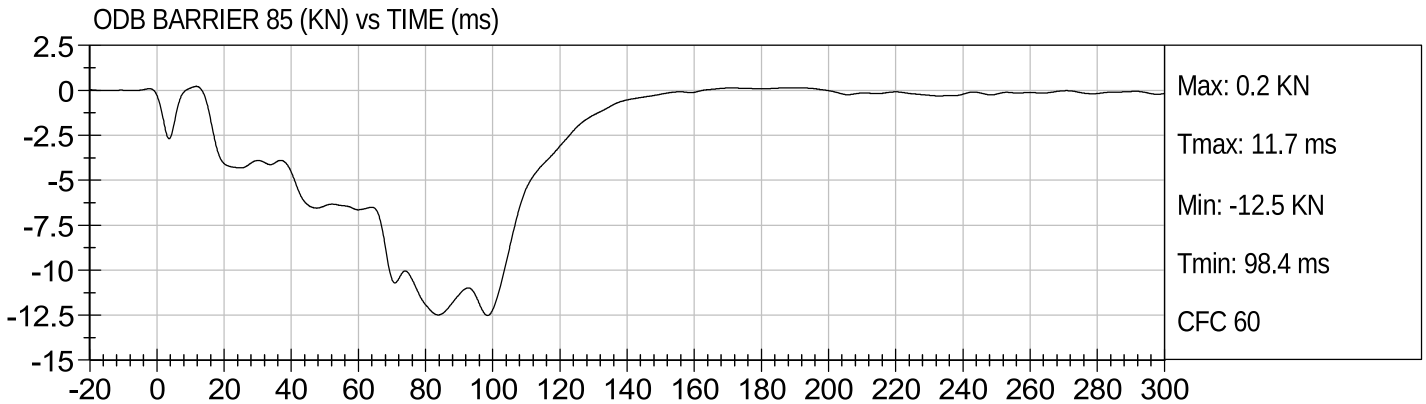


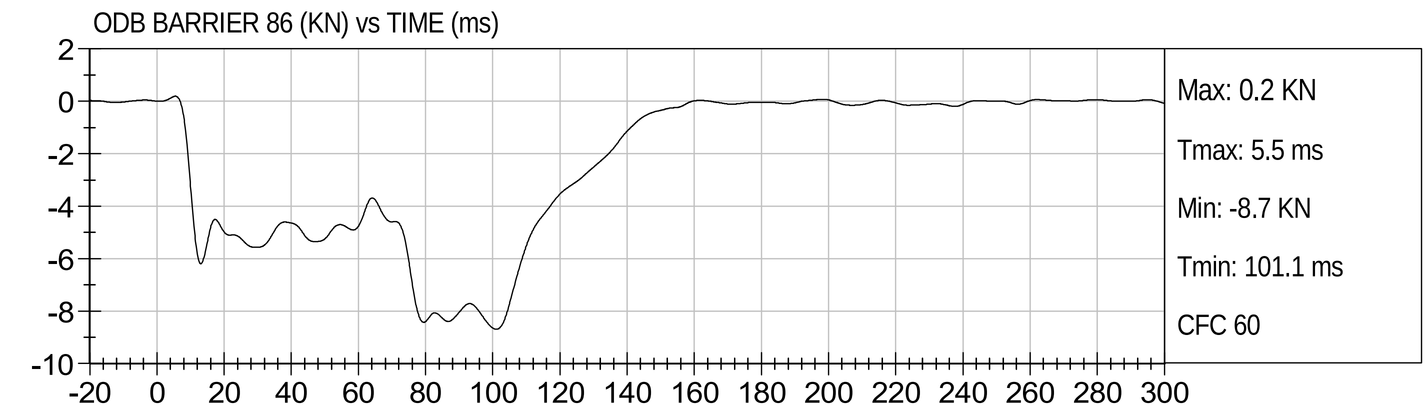
ODB BARRIER 84 (KN) vs TIME (ms)

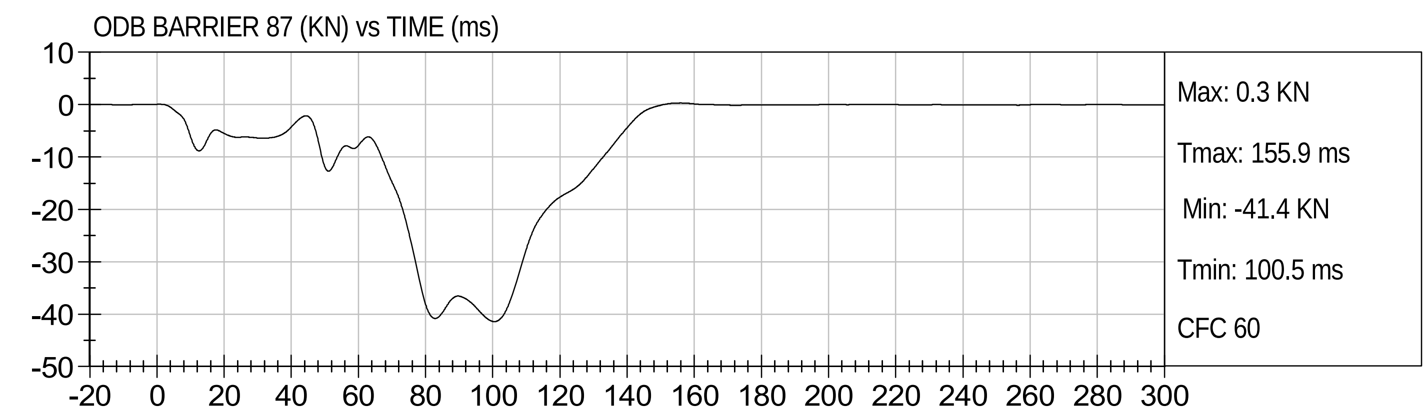


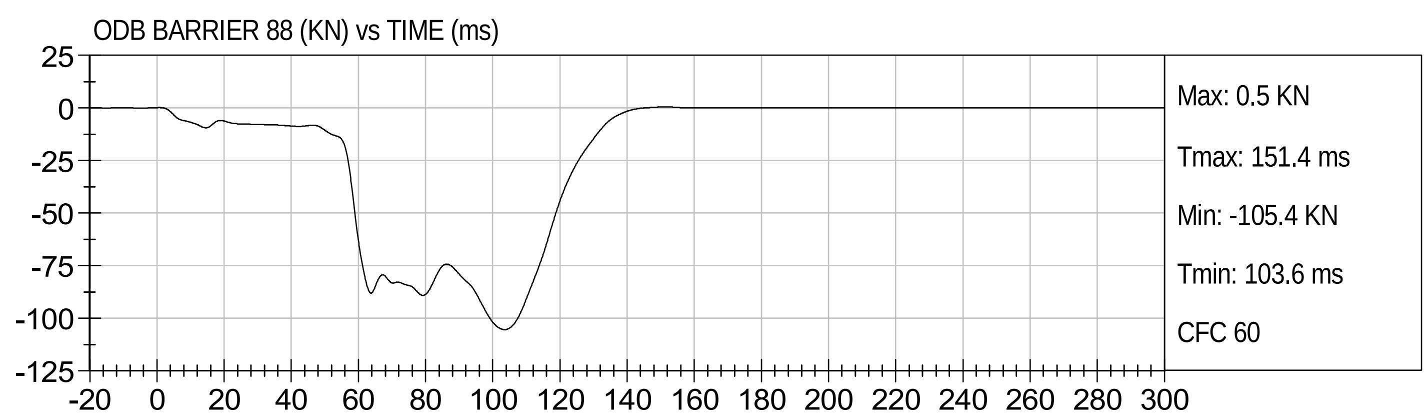
NHTSA 40% OFFSET ODB FRONTAL
2008 FORD ESCAPE R80202

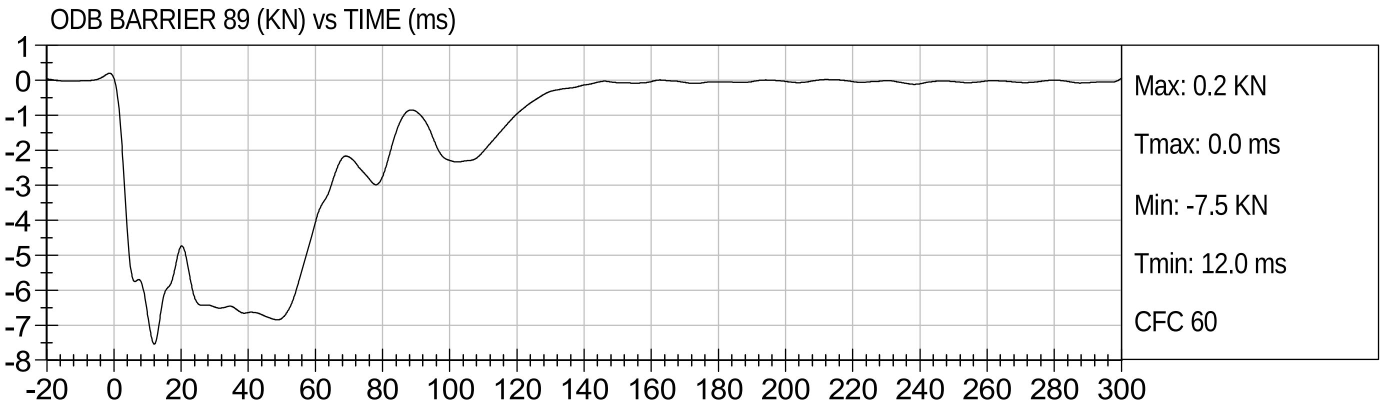
Test Date: 01/18/2008
Speed: 34.8 mph (56.0 km/h)

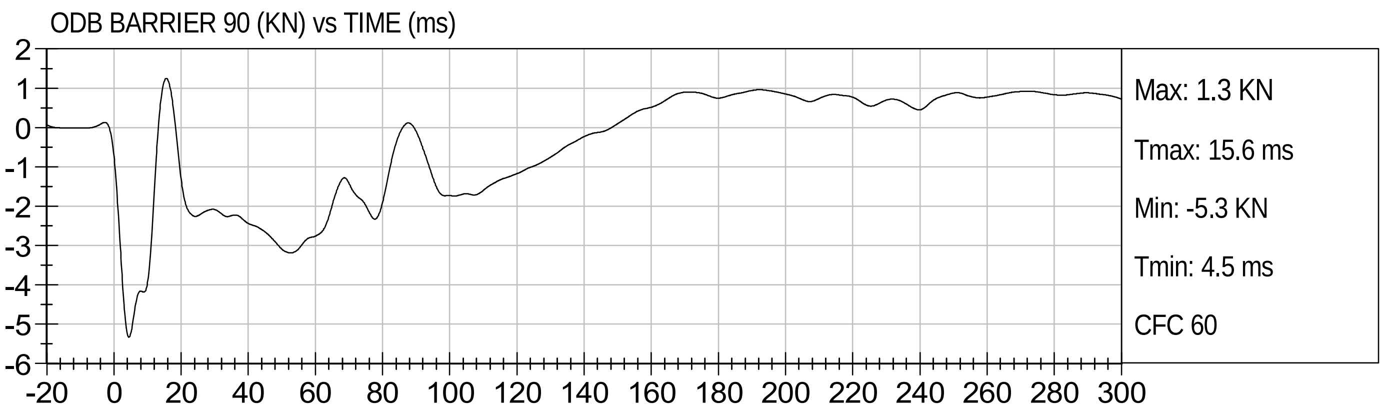









ODB BARRIER 89 (KN) vs TIME (ms)
1
0
-1
-2
-3
-4
-5
-6
-7
-8
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.2 KN
Tmax: 0.0 ms
Min: -7.5 KN
Tmin: 12.0 ms
CFC 60


ODB BARRIER 90 (KN) vs TIME (ms)
2
1
0
-1
-2
-3
-4
-5
-6
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 1.3 KN
Tmax: 15.6 ms
Min: -5.3 KN
Tmin: 4.5 ms
CFC 60

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:** D08001

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.6	20.8	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Peak Resultant Acceleration	G's	225 - 275	248	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	-5.0	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
		Overall Test Results		Pass

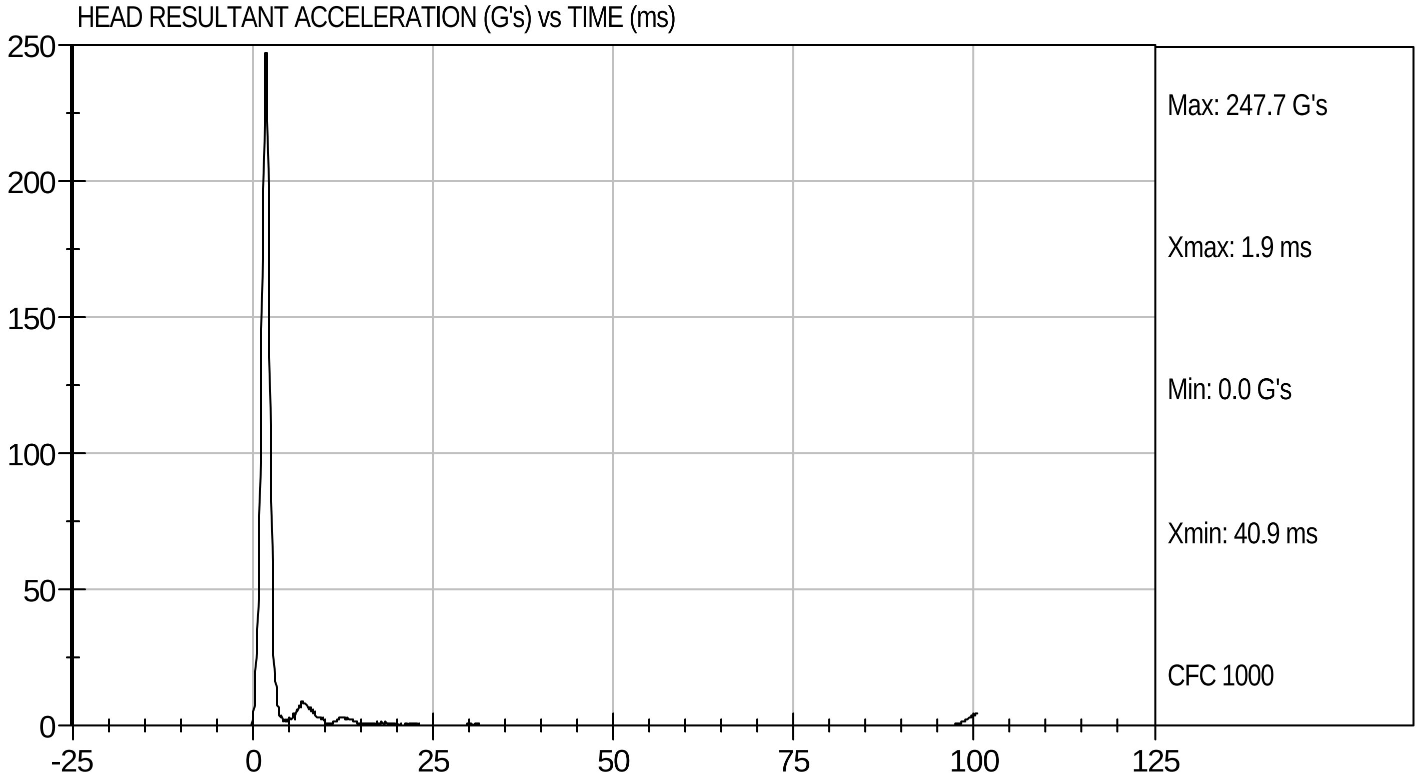
Tim Bratz
Laboratory Technician

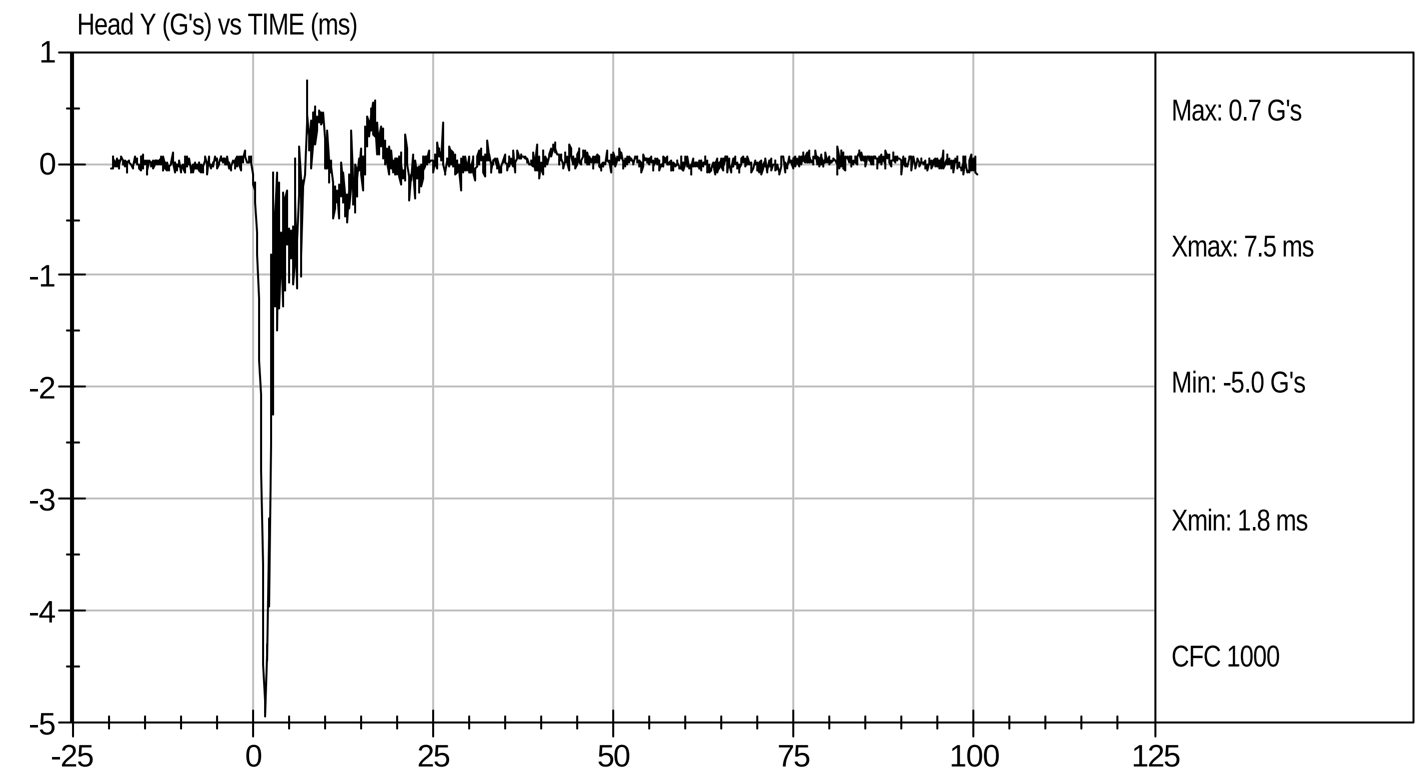
1/4/08
Test Date

David Winkelbauer
Approved By

Test Desc: Head Drop
Component ID: D08001

Test Date: 1/4/08
Velocity: 0 ft/s, 0.00 m/s





MGA RESEARCH CORPORATION

NECK FLEXION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08002

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	22.0	Pass
Laboratory Relative Humidity		%	10 to 70	18	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.05	Pass
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	23.26	Pass
	20 msec	G's	17.60 to 22.60	18.01	Pass
	30 msec	G's	12.50 to 18.50	13.88	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 29.0	13.84	Pass
Deceleration Decay Time to Cross 5 G's		msec	34.0 to 42.0	36.6	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	68.7	Pass
	Time	msec	57.0 to 64.0	57.9	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	113.0 to 128.0	113.1	Pass
Moment About Occipital Condyle	Maximum	N m	88.1 to 108.5	96.9	Pass
	Time	msec	47.0 to 58.0	49.7	Pass
Positive Moment Decay Time To Zero Crossing		msec	97.0 to 107.0	97.6	Pass
		Overall Test Results			Pass

Tim Brat
Laboratory Technician

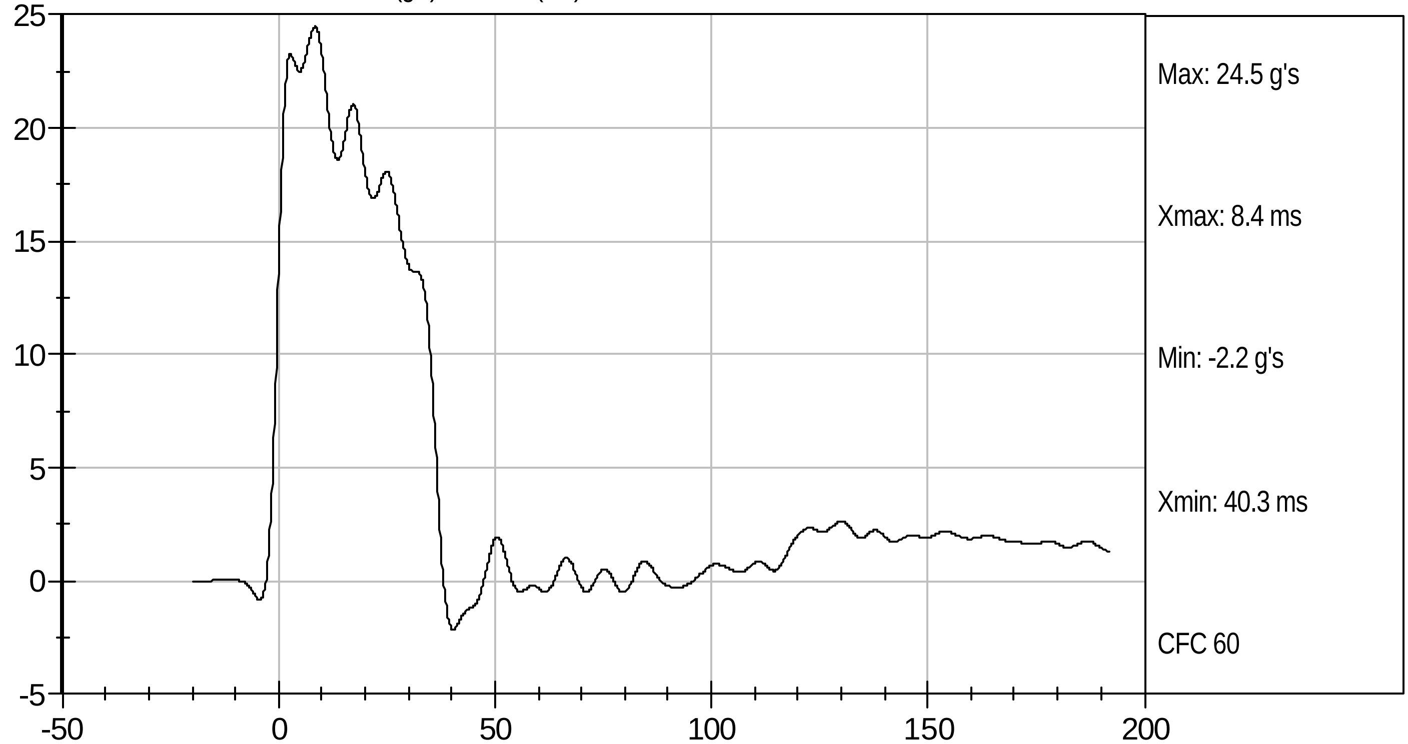
1/4/08
Test Date

David Winkelbauer
Approved By

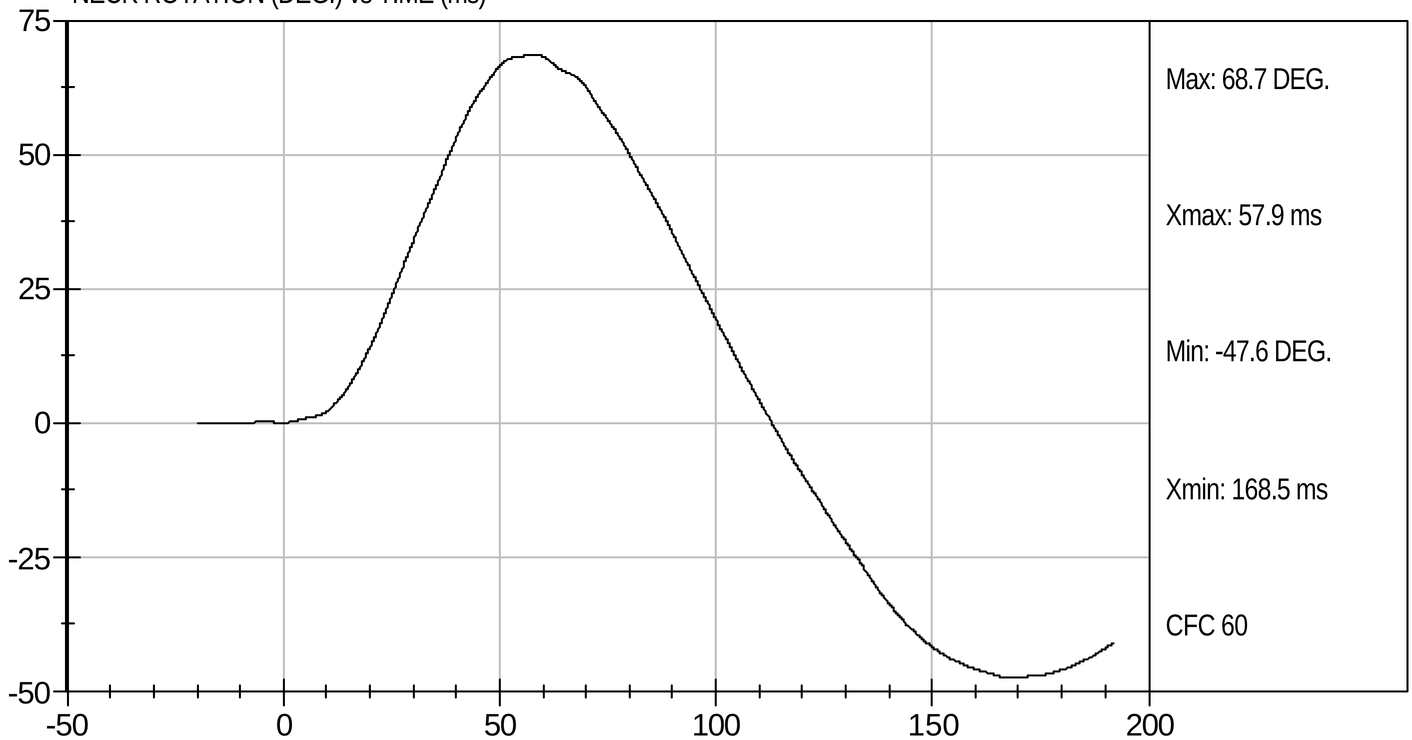
Test Desc: Neck Flexion
Component ID: D08002

Test Date: 1/4/08
Velocity: 23.14 ft/s, 7.05 m/s

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

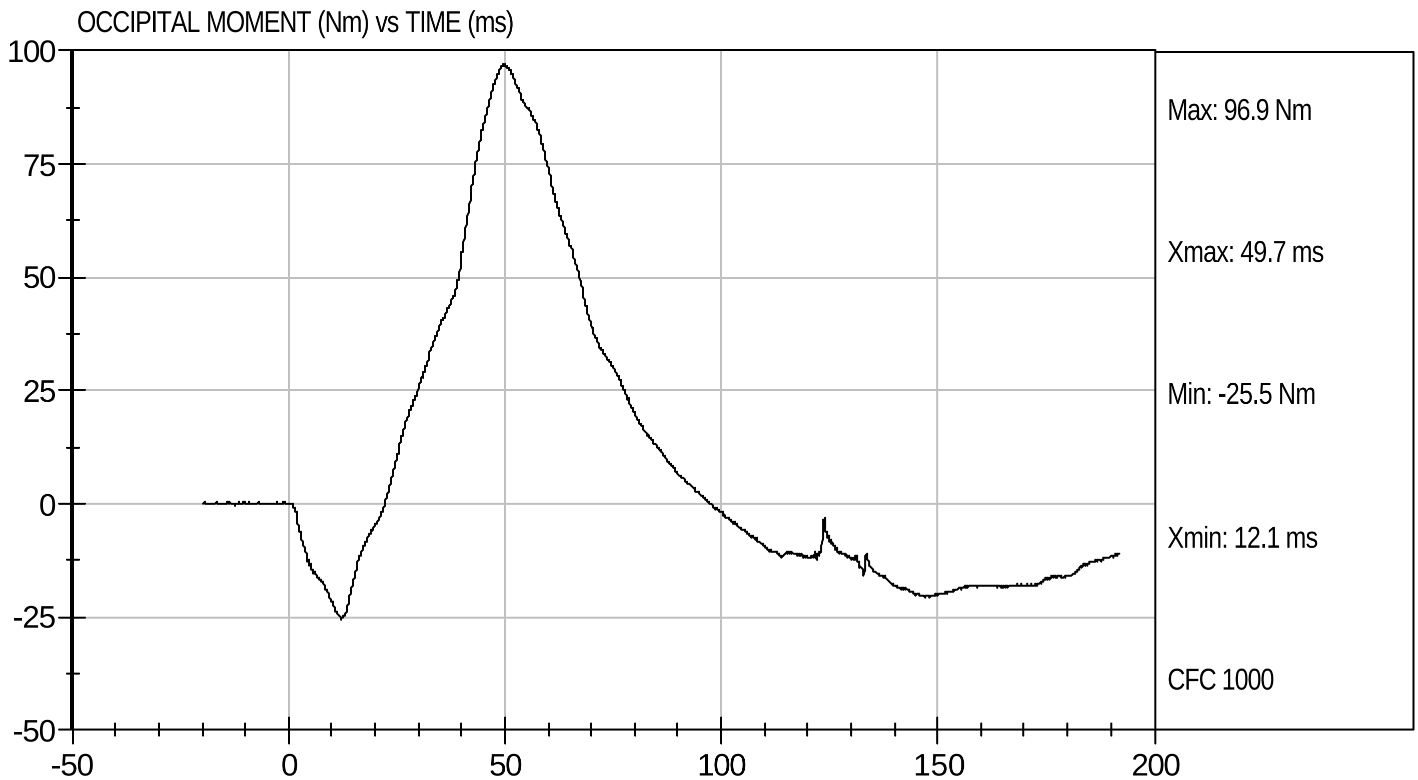


NECK ROTATION (DEG.) vs TIME (ms)



Test Desc: Neck Flexion
Component ID: D08002

Test Date: 1/4/08
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:** D08003

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity		%	10 to 70	18	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.12	Pass
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	17.98	Pass
	20 msec	G's	14.00 to 19.00	16.18	Pass
	30 msec	G's	11.00 to 16.00	12.89	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 22.0	12.88	Pass
Deceleration Decay Time to Cross 5 G's		msec	38.0 to 46.0	38.4	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	93.5	Pass
	Time	msec	72.0 to 82.0	77.0	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	147.0 to 174.0	155.1	Pass
Moment About Occipital Condyle	Maximum	N m	-52.9 to -79.9	-64.4	Pass
	Time	msec	65.0 to 79.0	69.8	Pass
Negative Moment Decay Time To Zero Crossing		msec	120.0 to 148.0	140.0	Pass
			Overall Test Results		Pass

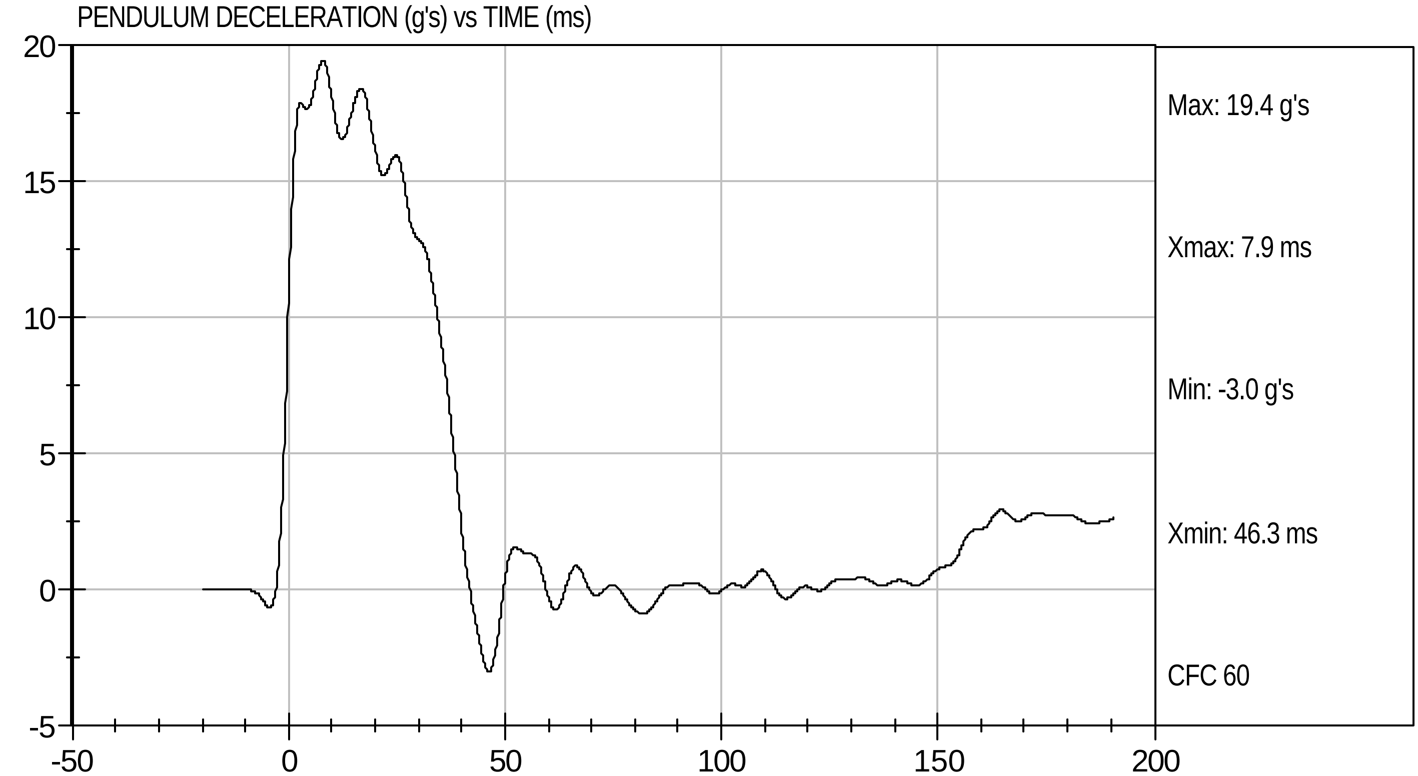
Tim Bratz
Laboratory Technician

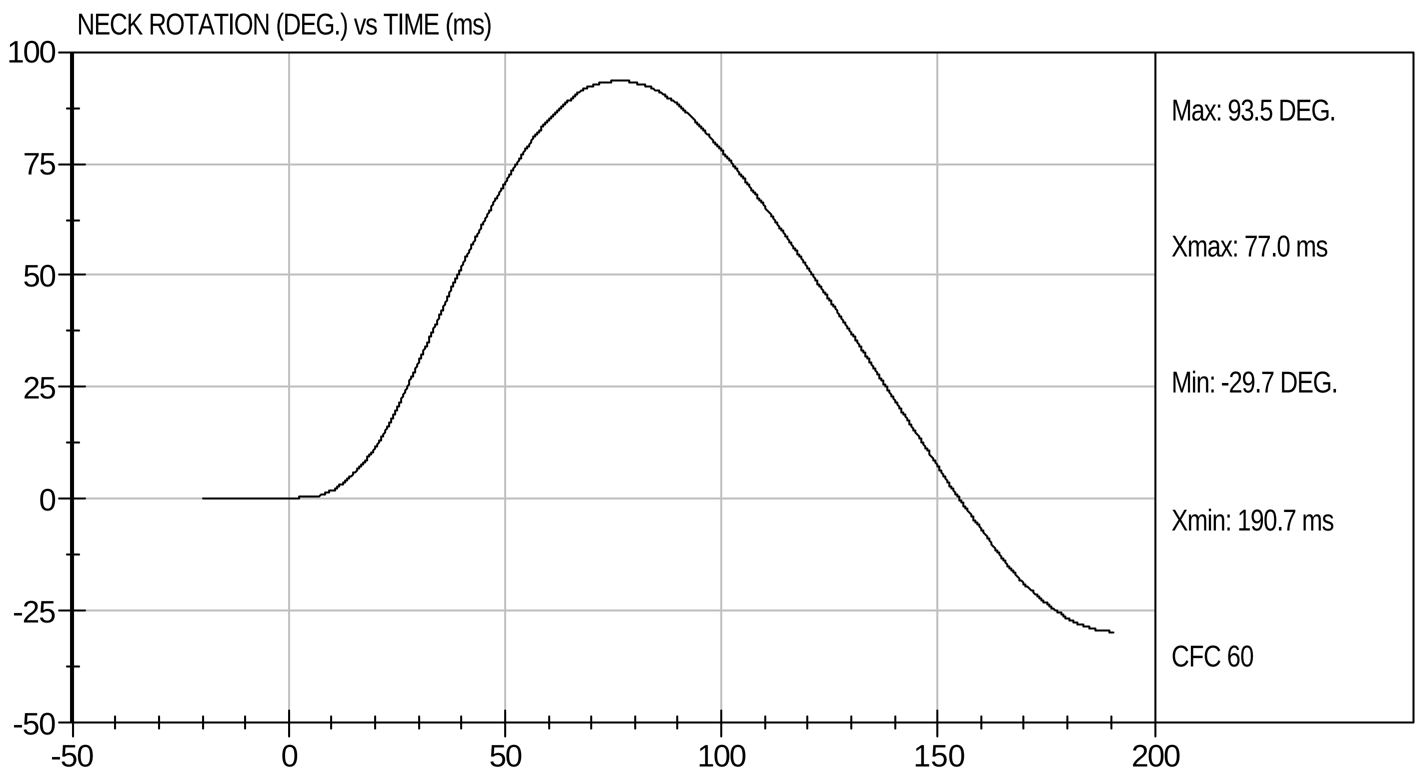
1/4/08
Test Date

David Winkelbauer
Approved By

Test Desc: Neck Extension
Component ID: D08003

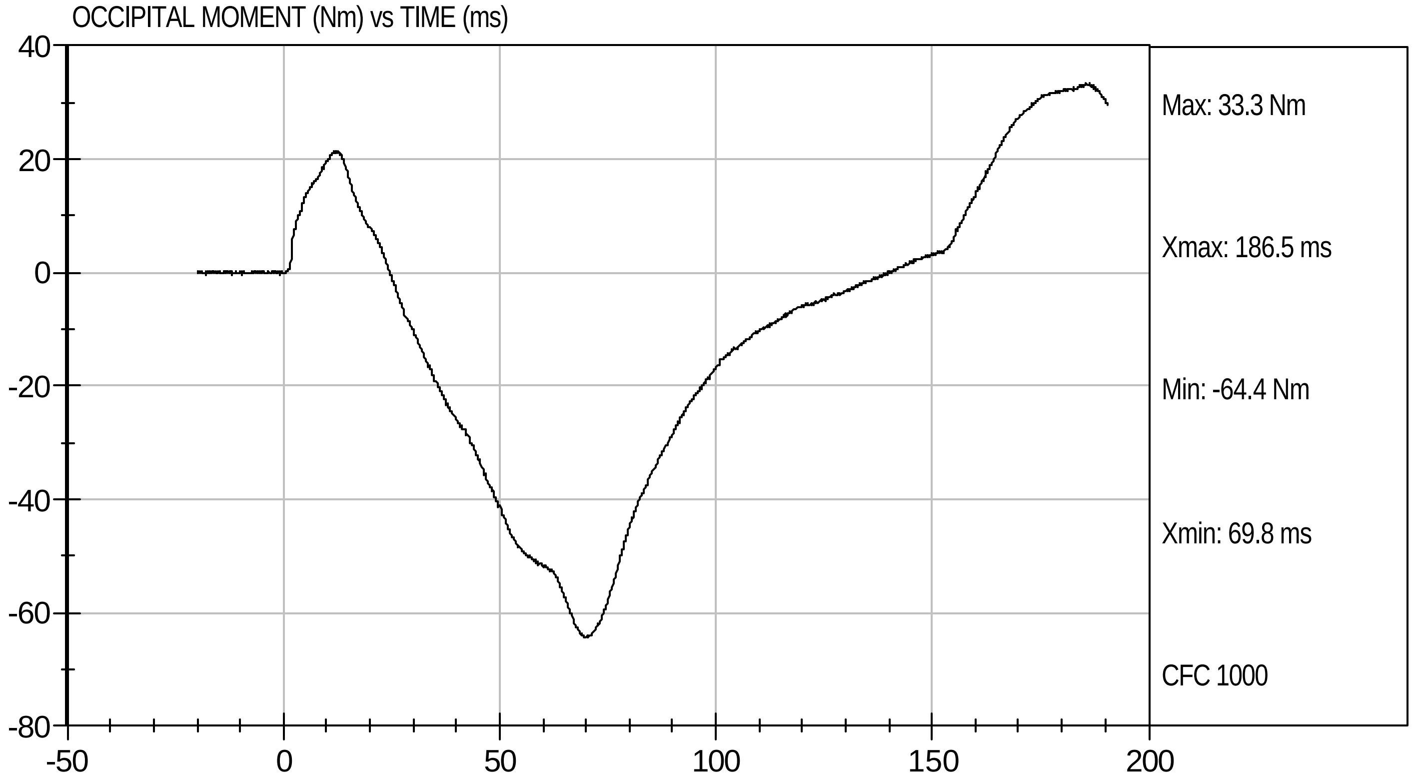
Test Date: 1/4/08
Velocity: 20.08 ft/s, 6.12 m/s





Test Desc: Neck Extension
Component ID: D08003

Test Date: 1/4/08
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:** D08004

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	18	Pass
Probe Velocity	m/s	6.58 to 6.82	6.68	Pass
Peak Probe Force	N	5159 to 5893	5,418	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.68	Pass
Internal Hysteresis	%	69 to 85	69	Pass
		Overall Test Results		Pass

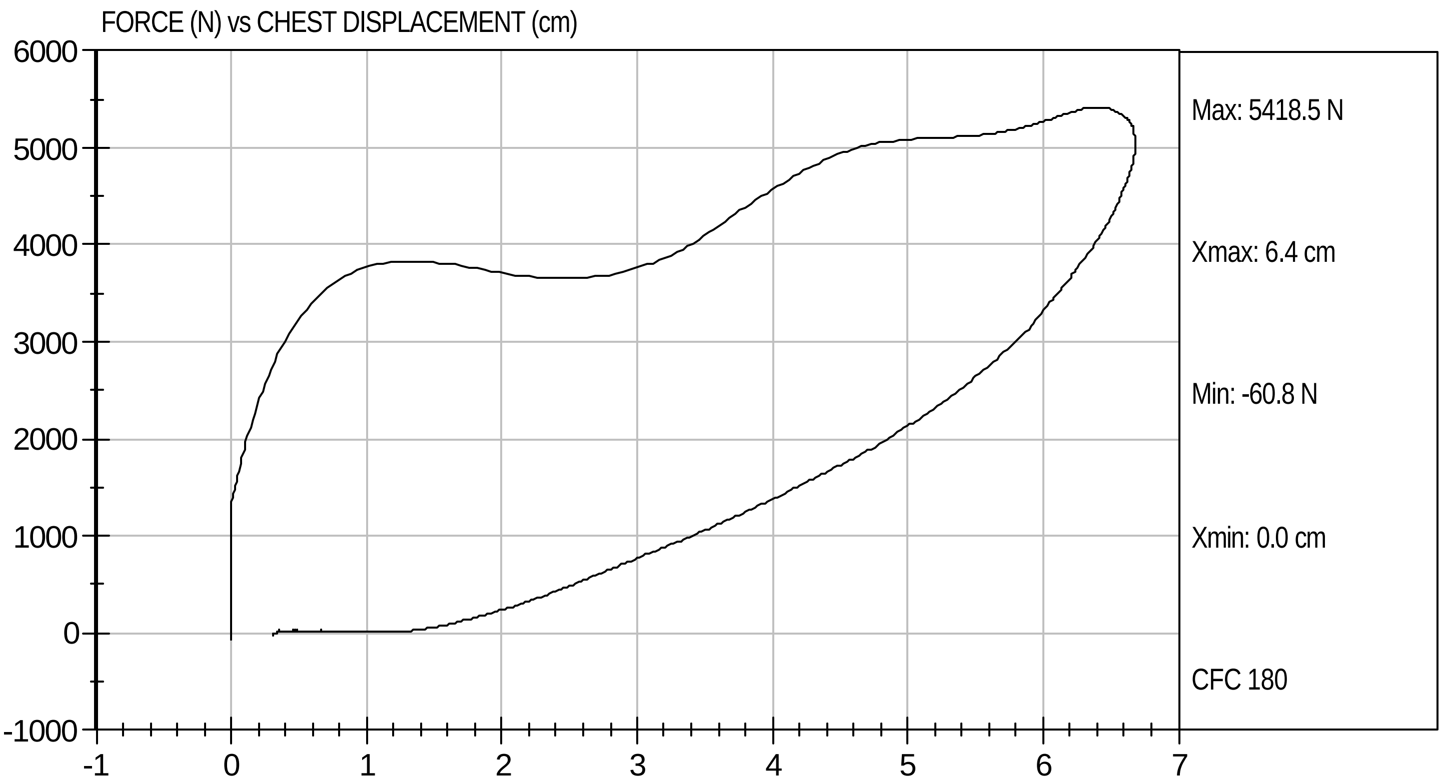
Tim Brat
Laboratory Technician

1/7/08
Test Date

David Winkelbauer
Approved By

Test Desc: Thorax Impact
Component ID: D08004

Test Date: 1/7/08
Velocity: 21.92 ft/s, 6.68 m/s



MGA RESEARCH CORPORATION

RIGHT KNEE IMPACT TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08005

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	49	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	5,165	Pass
		Overall Test Results		Pass

Tim Bratz

Laboratory Technician

1/7/08

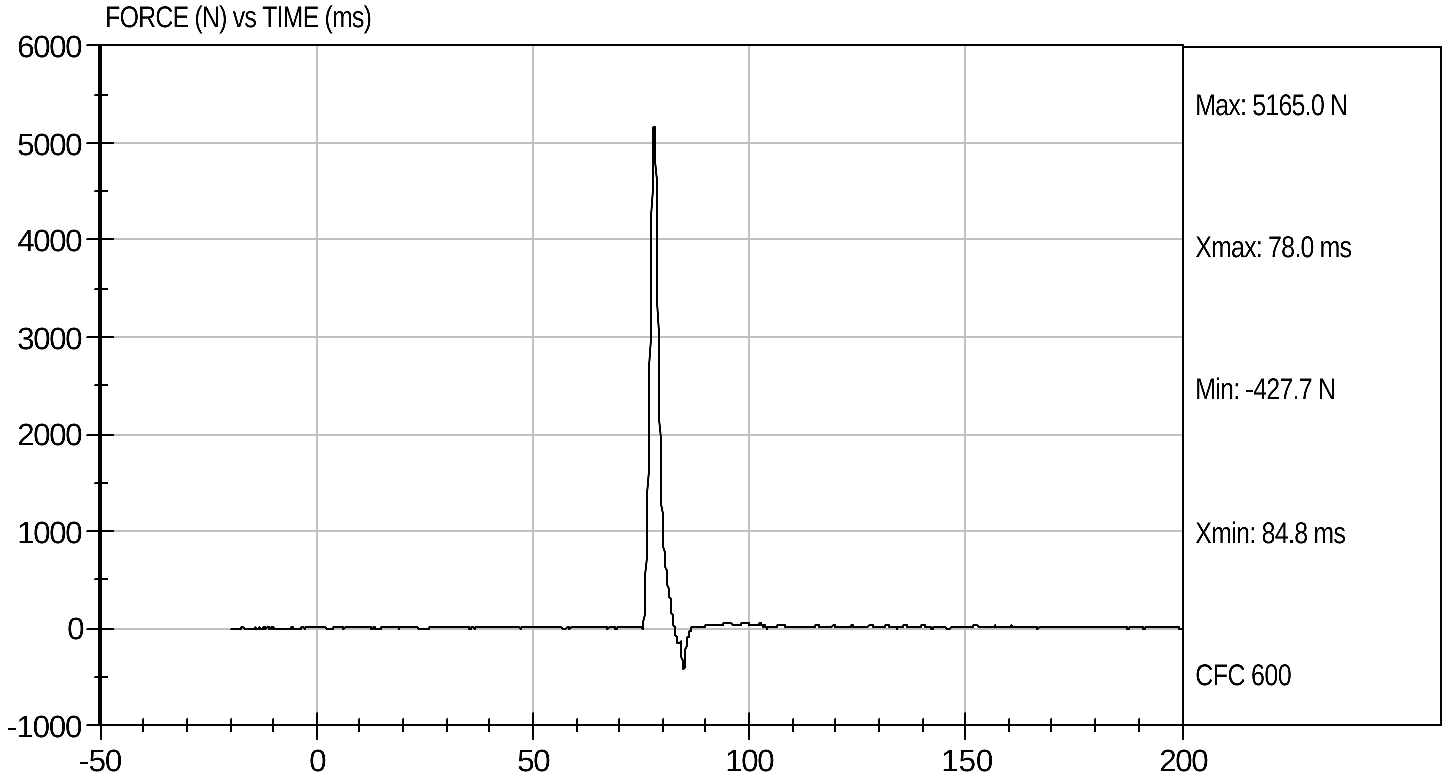
Test Date

David Winkelbauer

Approved By

Test Desc: Right Knee
Component ID: D08005

Test Date: 1/7/08
Velocity: 6.83 ft/s, 2.08 m/s



MGA RESEARCH CORPORATION

LEFT KNEE IMPACT TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08006

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	49	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	4,862	Pass
		Overall Test Results		Pass

Tim Bratz

Laboratory Technician

1/7/08

Test Date

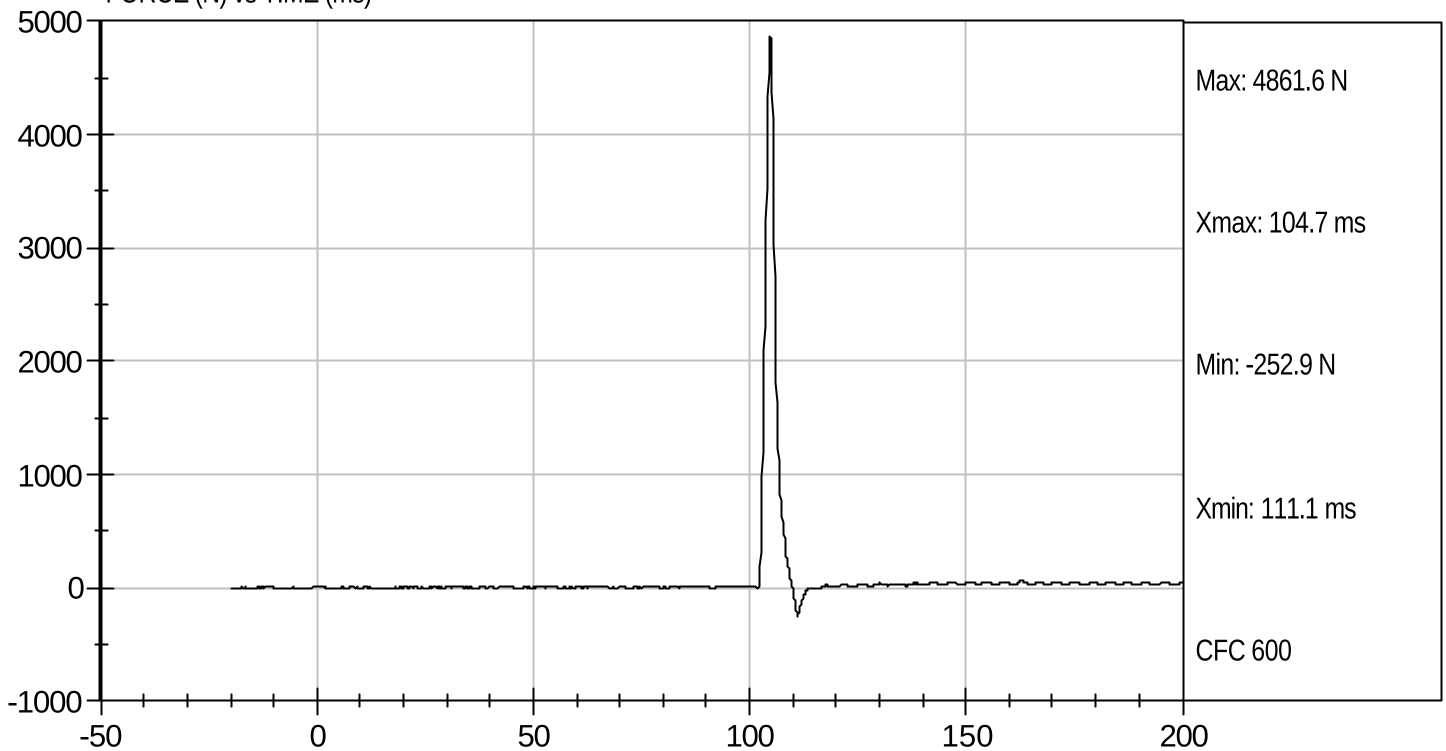
David Winkelbauer

Approved By

Test Desc: Left Knee
Component ID: D08006

Test Date: 1/7/08
Velocity: 6.83 ft/s, 2.08 m/s

FORCE (N) vs TIME (ms)



MGA RESEARCH CORPORATION

HIP-FEMUR FLEXION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 202 **Test I.D:** D08000

Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.5	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	18	18	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	83.1	77.2	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	41	42	Pass
		Overall Test Results			Pass

Tim Bratz

Laboratory Technician

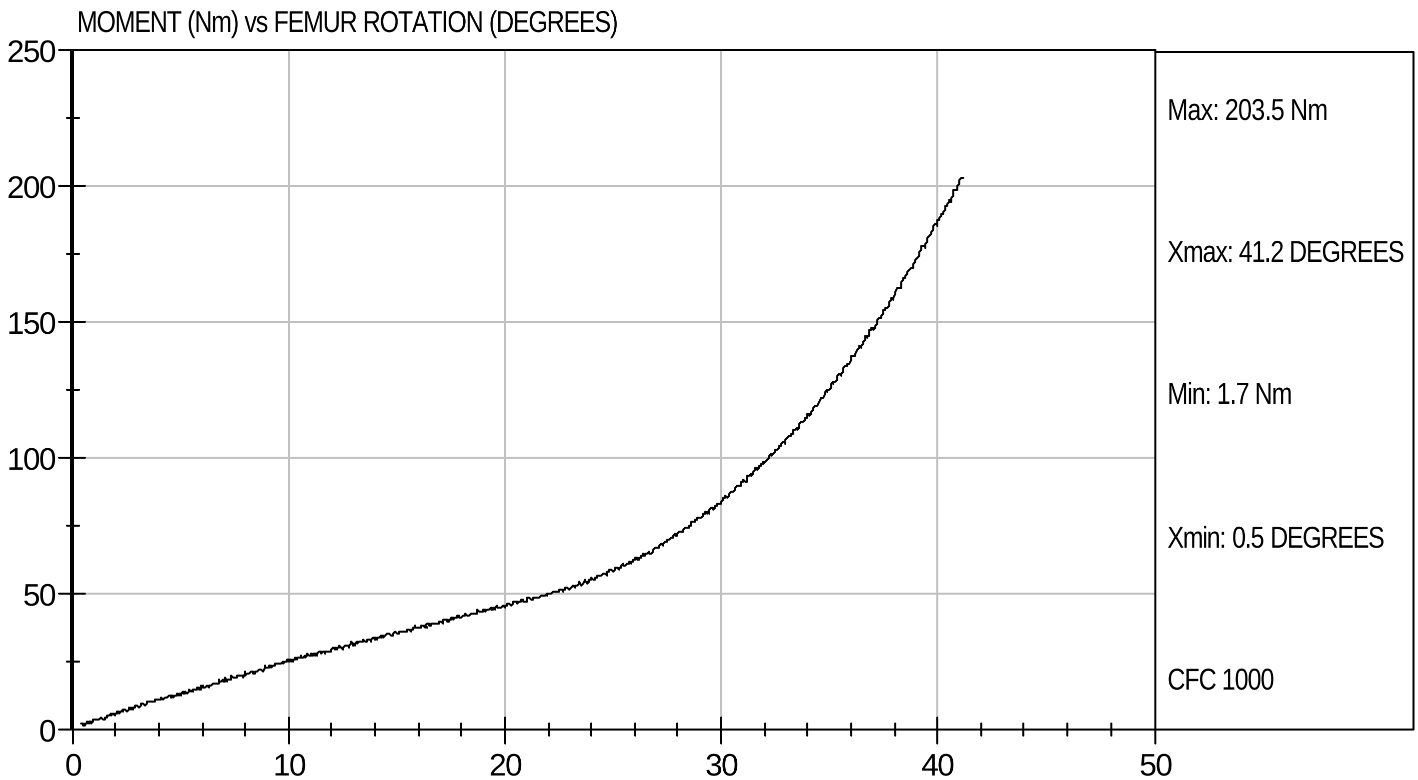
1/4/08

Test Date

David Winkelbauer

Approved By

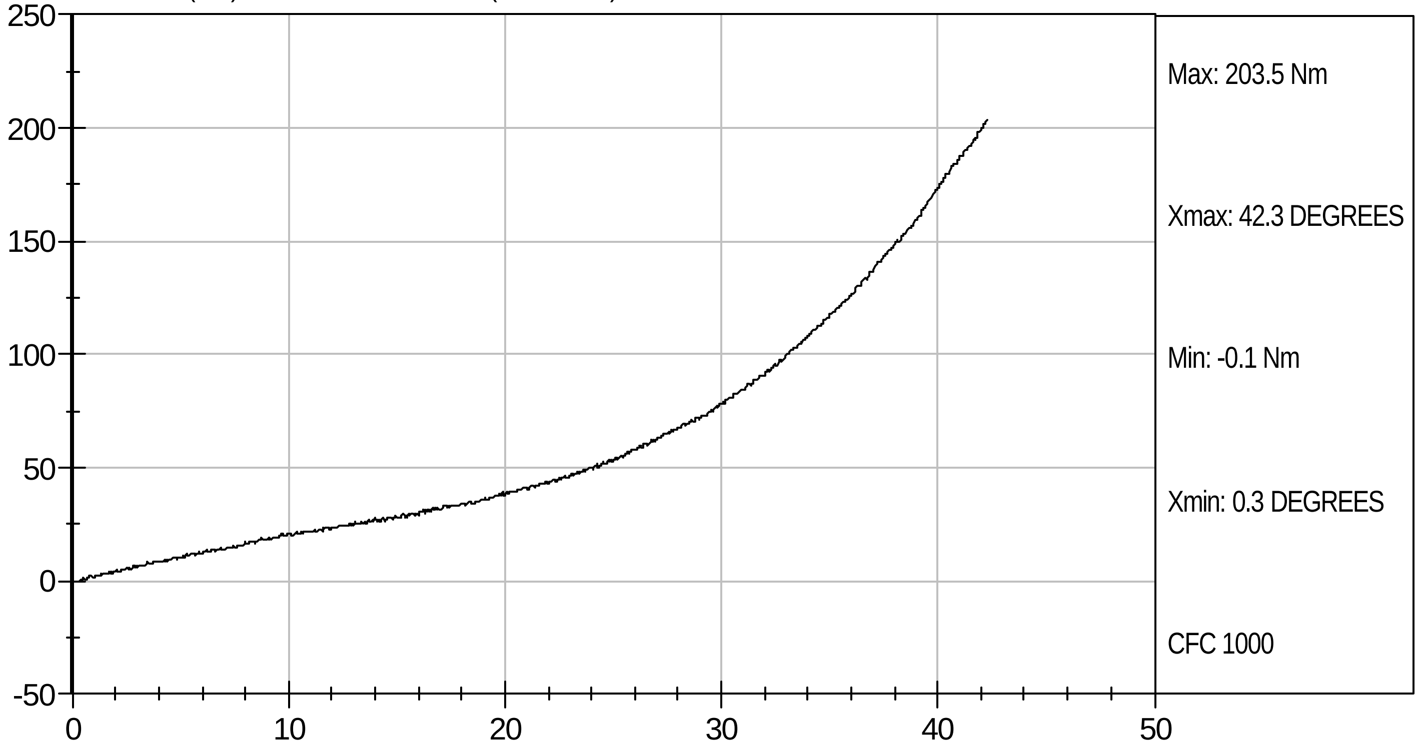
Test Desc: Hip Femur Flexion	Test Date: 1/4/08
Component ID: D08009	Velocity: 0 ft/s, 0.00 m/s



Test Desc: Hip Femur Flexion
Component ID: D08000

Test Date: 1/4/08
Velocity: 0 ft/s, 0.00 m/s

MOMENT (Nm) vs FEMUR ROTATION (DEGREES)



CERTIFICATION DATA

THOR Lx Legs #036 & #037

Installed in Hybrid III 50th Percentile Male Dummy #202

Test Performer: Vehicle Research and Test Center
Test Type: Dorsiflexion/Ball of Foot
Test Name: LX0036_19DEC07_DORSI_02
Test Date: 12/19/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(4.9 - 5.1)	4.97	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	27	Pass	
Peak Tibia Compressive Load (N)	(2956 - 3613)	3259.632	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(77.1 - 94.2)	77.124	Pass	Channel ANKLE MOMENT
Peak Ankle Y-axis Rotation (º)	(32.7 - 39.9)	35.293	Pass	Channel ANKRY

Test Performer: Vehicle Research and Test Center
Test Type: Heel of Foot
Test Name: LX0036_20DEC07_HEEL_03
Test Date: 12/20/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(3.9 - 4.1)	3.98	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	37	Pass	
Peak Tibia Compressive Load (N)	(2738 - 3346)	2755.950	Pass	Channel LTIBFZ

Test Performer: Vehicle Research and Test Center

Test Type: Eversion

Test Name: LX0036_19DEC07_EVER_01

Test Date: 12/19/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	1.98	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	25	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	617.374	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(36.3 - 44.4)	40.916	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(-30.3 - -37.0)	-33.917	Pass	Channel ANKRX

Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX0036_19DEC07_INVER_01
Test Date: 12/19/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	2.00	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.1	Pass	
Relative Humidity (%)	(N/A)	25	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	640.921	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(-36.3 - -44.4)	-40.060	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(30.3 - 37.0)	32.901	Pass	Channel ANKRX

Test Performer: Vehicle Research and Test Center
Test Type: Dorsiflexion/Ball of Foot
Test Name: LX0037_12DEC07_DORSI_01
Test Date: 12/26/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(4.9 - 5.1)	5.04	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	33	Pass	
Peak Tibia Compressive Load (N)	(2956 - 3613)	3289.176	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(77.1 - 94.2)	84.367	Pass	Channel ANKLE MOMENT
Peak Ankle Y-axis Rotation (º)	(32.7 - 39.9)	33.943	Pass	Channel ANKRY

Test Performer: Vehicle Research and Test Center
Test Type: Heel of Foot
Test Name: LX0037_14DEC07_HEEL_01
Test Date: 12/14/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(3.9 - 4.1)	3.90	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	28	Pass	
Peak Tibia Compressive Load (N)	(2738 - 3346)	2982.207	Pass	Channel LTIBFZ

Test Performer: Vehicle Research and Test Center
Test Type: Eversion
Test Name: LX0037_13DEC07_EVER_01
Test Date: 12/13/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	2.01	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	33	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	687.630	Fail	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(-36.3 - -44.4)	-42.357	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(30.3 - 37.0)	31.428	Pass	Channel ANKRX

Test Performer: Vehicle Research and Test Center

Test Type: Inversion

Test Name: LX0037_13DEC07_INVER_01

Test Date: 12/13/2007

Test Parameter:	Specification:	Test Results:	Pass/Fail:	Notes:
Velocity (M/Sec)	(1.9 - 2.1)	2.00	Pass	
Temperature (ºC)	(20.6 - 22.2)	22.2	Pass	
Relative Humidity (%)	(N/A)	33	Pass	
Peak Tibia Compressive Load (N)	(552 - 675)	631.205	Pass	Channel LTIBFZ
Peak Ankle Resistive Moment (N-m)	(36.3 - 44.4)	40.369	Pass	Channel ANKLE MOMENT
Peak Ankle X-axis Rotation (º)	(-30.3 - -37.0)	-34.108	Pass	Channel ANKRX

MGA RESEARCH CORPORATION

HEAD DROP TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test ID:** D08011

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.6	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Peak Resultant Acceleration	G's	225 - 275	233	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	-10.3	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
		Overall Test Results		Pass

Tim B[illegible]

Laboratory Technician

1/4/08

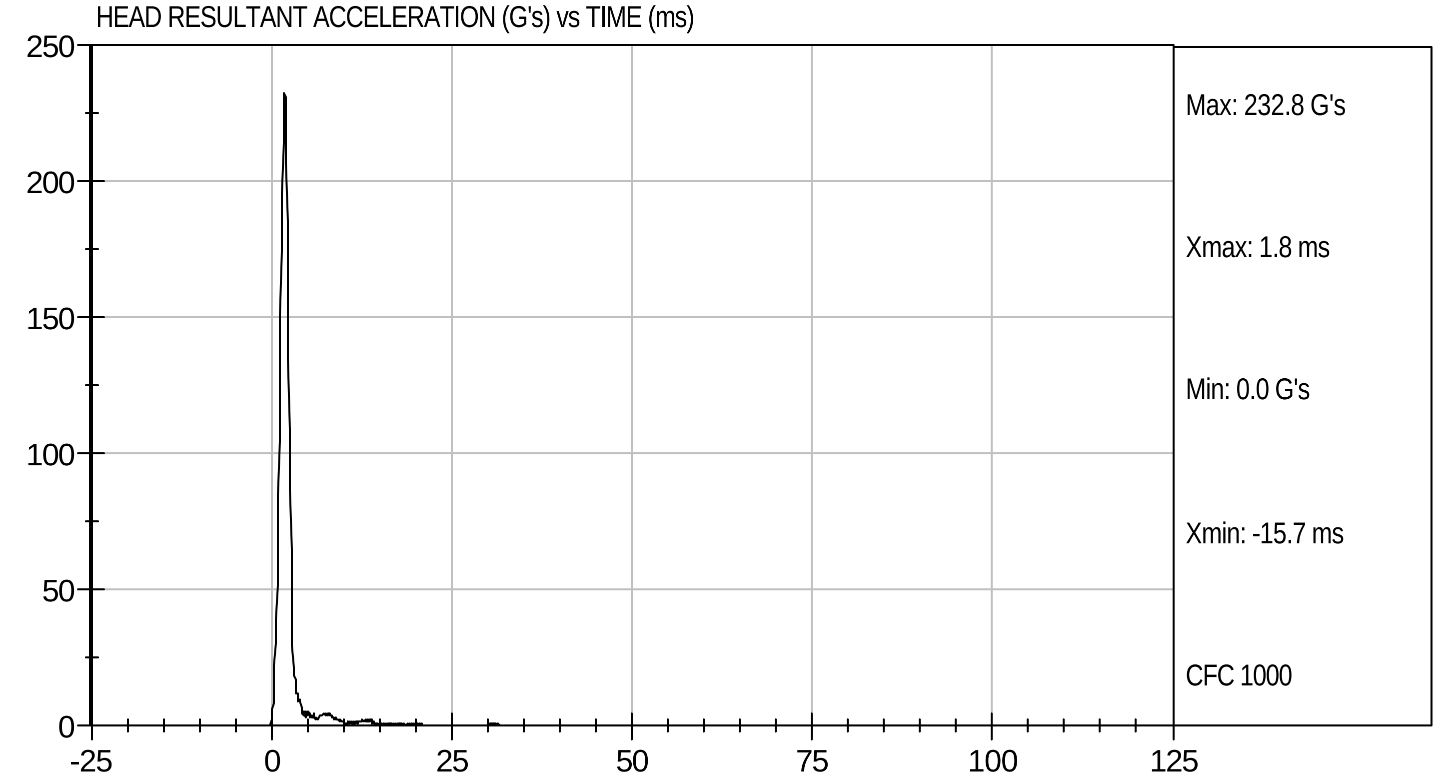
Test Date

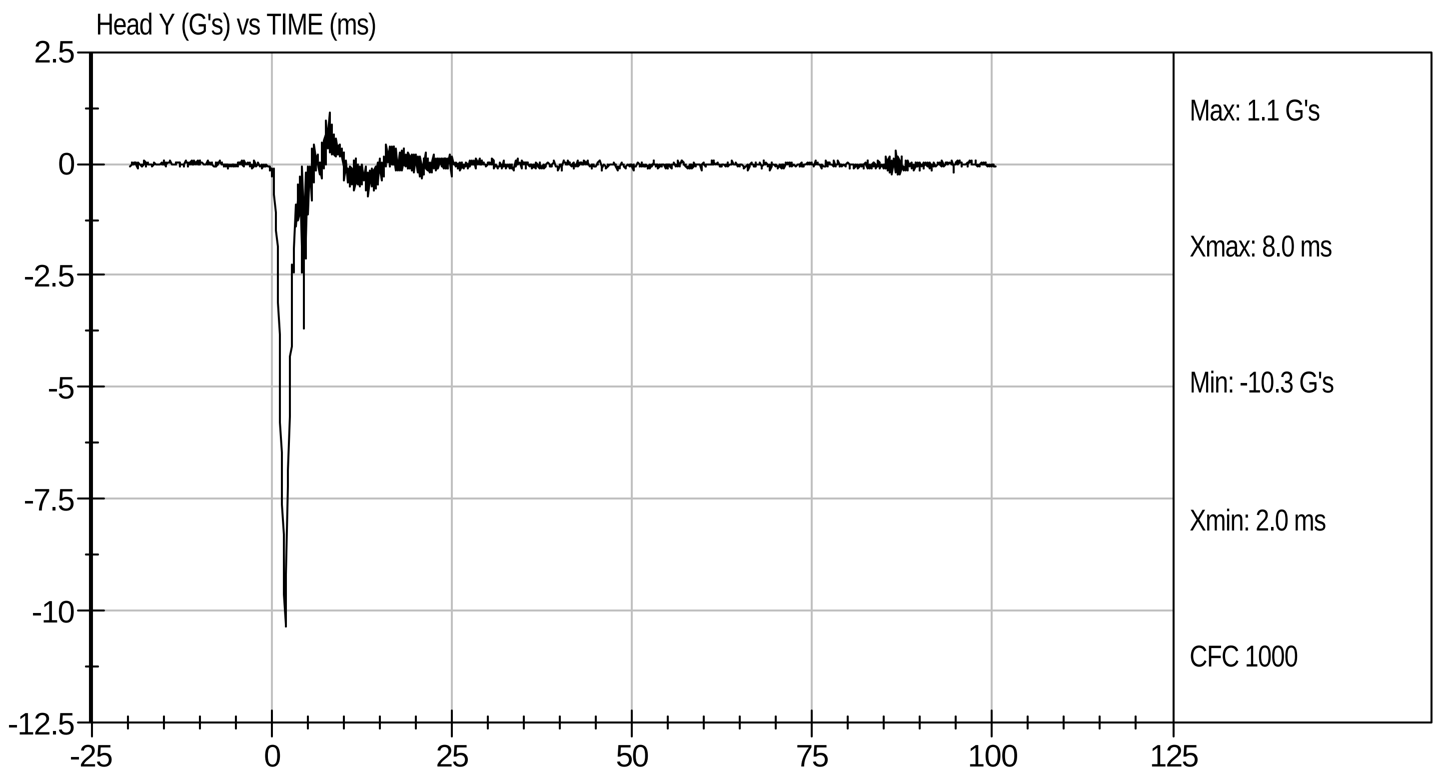
David Winkelbauer

Approved By

Test Desc: Head Drop
Component ID: D08011

Test Date: 1/4/08
Velocity: 0 ft/s, 0.00 m/s





MGA RESEARCH CORPORATION

NECK FLEXION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08012

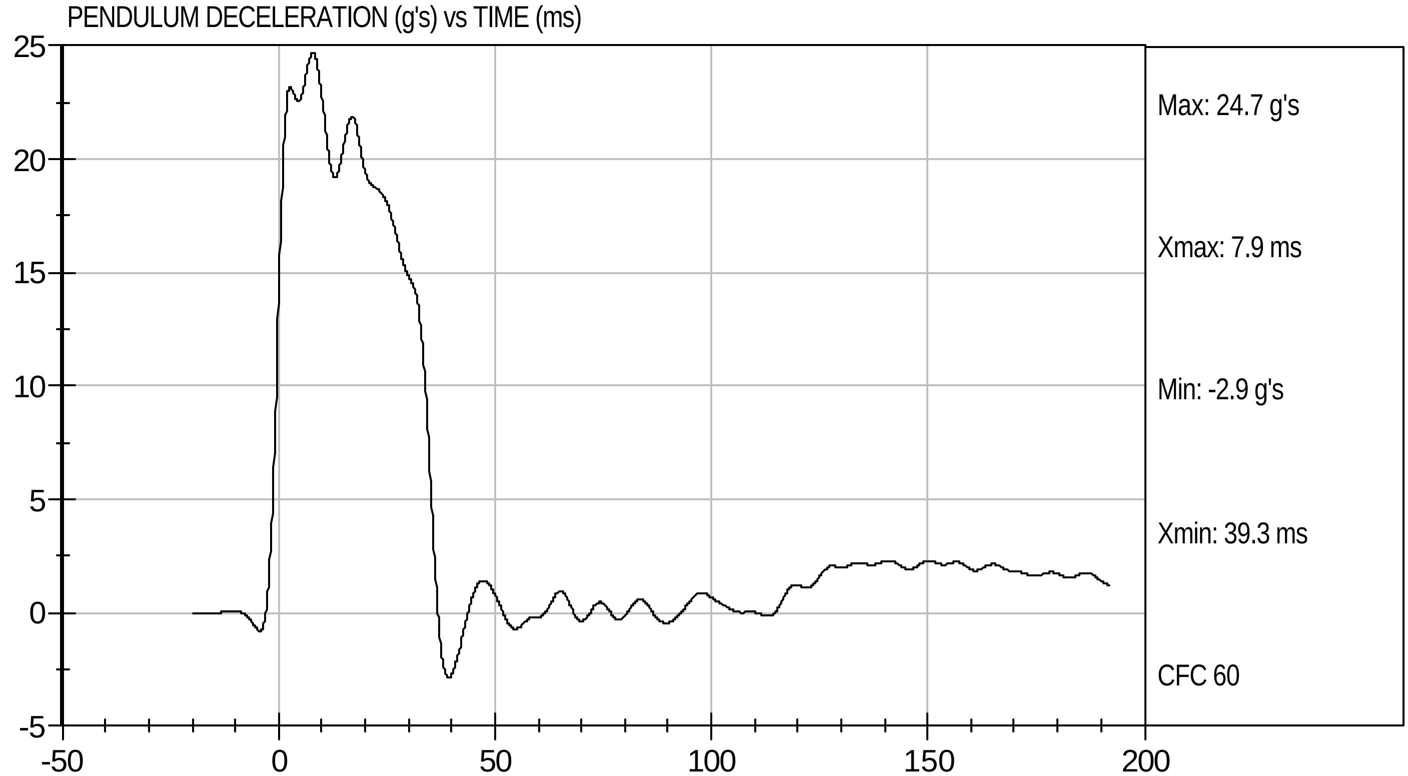
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity		%	10 to 70	19	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.05	Pass
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	22.77	Pass
	20 msec	G's	17.60 to 22.60	19.43	Pass
	30 msec	G's	12.50 to 18.50	14.84	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 29.0	14.81	Pass
Deceleration Decay Time to Cross 5 G's		msec	34.0 to 42.0	35.4	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	69.7	Pass
	Time	msec	57.0 to 64.0	59.0	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	113.0 to 128.0	116.9	Pass
Moment About Occipital Condyle	Maximum	N m	88.1 to 108.5	92.5	Pass
	Time	msec	47.0 to 58.0	48.3	Pass
Positive Moment Decay Time To Zero Crossing		msec	97.0 to 107.0	101.6	Pass
			Overall Test Results		Pass

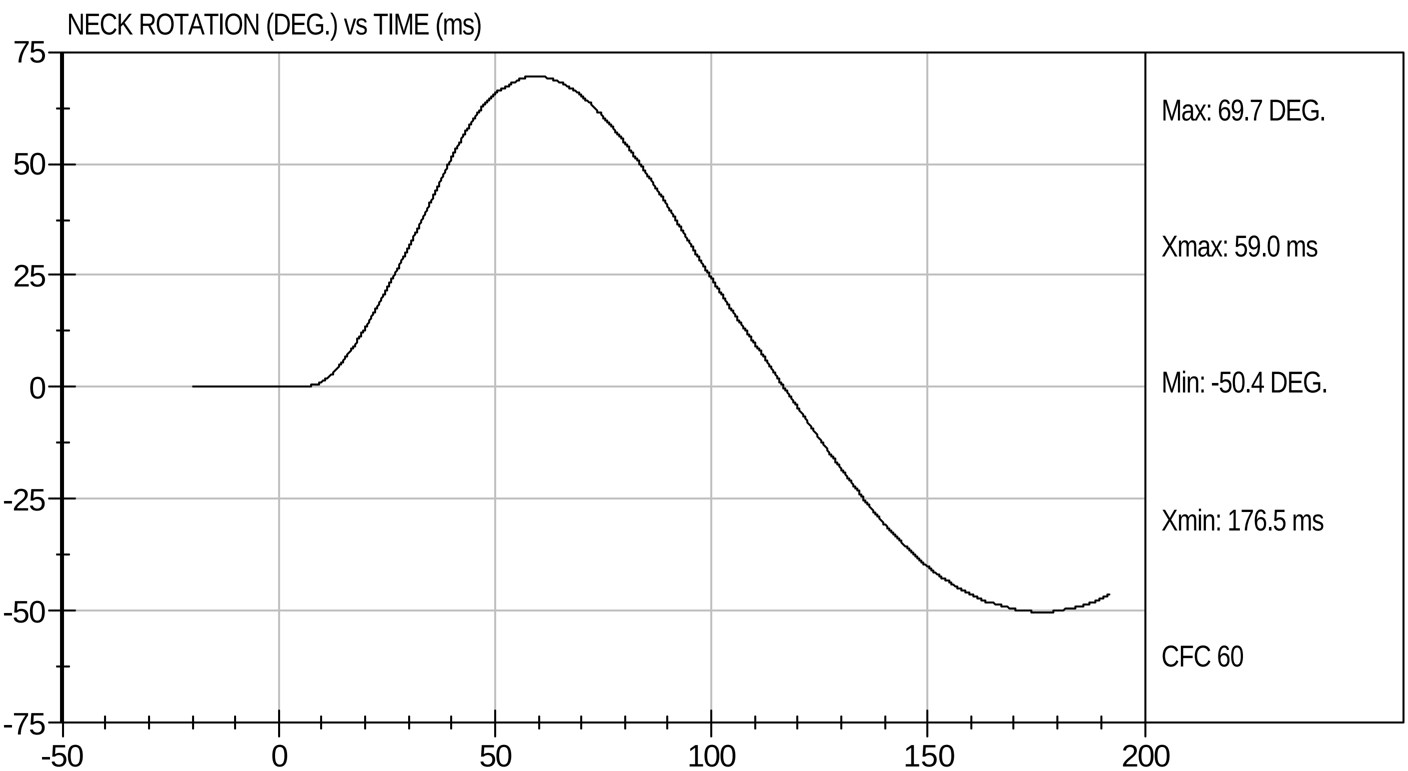
Tim Bratz
Laboratory Technician

1/4/08
Test Date

David Winkelbauer
Approved By

Test Desc: Neck Flexion	Test Date: 1/4/08
Component ID: D08012	Velocity: 23.14 ft/s, 7.05 m/s

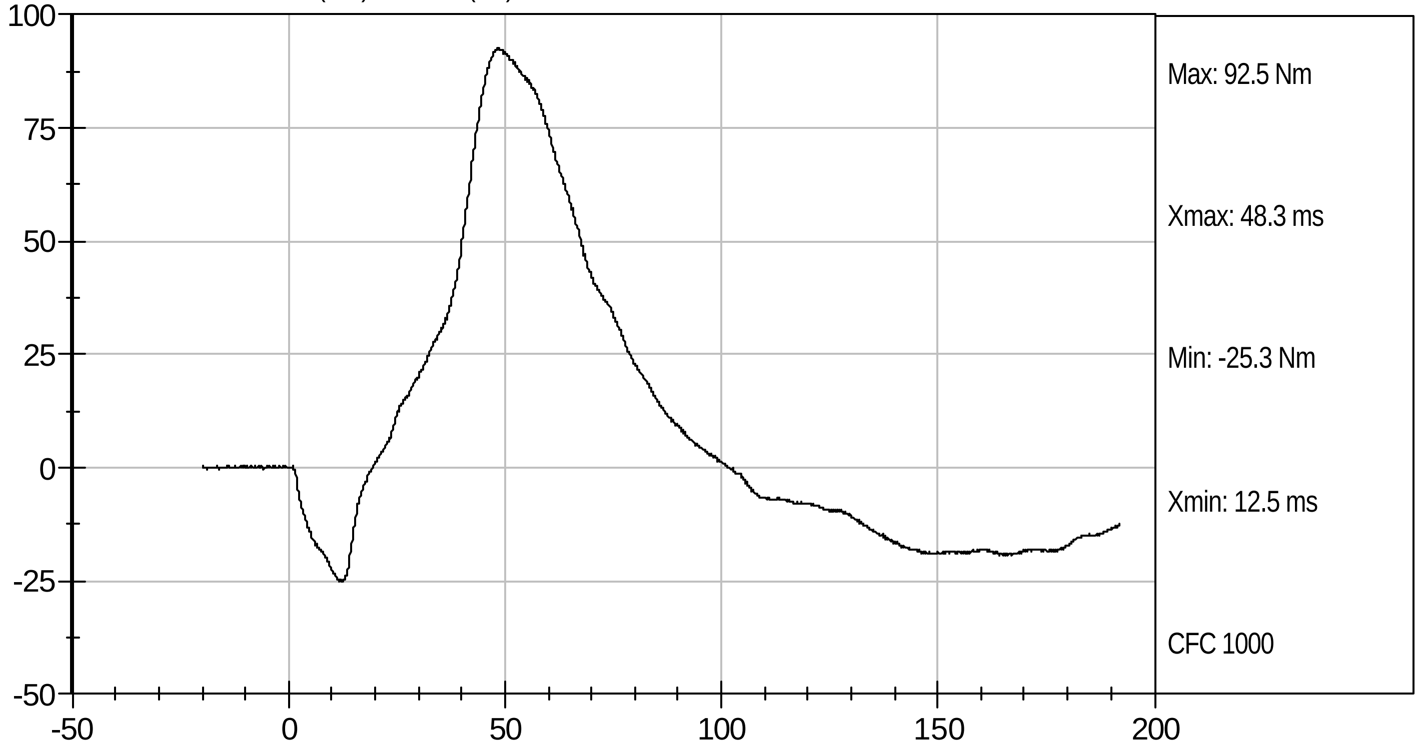




Test Desc: Neck Flexion
Component ID: D08012

Test Date: 1/4/08
Velocity: 23.14 ft/s, 7.05 m/s

OCCIPITAL MOMENT (Nm) vs TIME (ms)



MGA RESEARCH CORPORATION

NECK EXTENSION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08013

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity		%	10 to 70	18	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.12	Pass
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	18.20	Pass
	20 msec	G's	14.00 to 19.00	15.74	Pass
	30 msec	G's	11.00 to 16.00	11.37	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 22.0	11.37	Pass
Deceleration Decay Time to Cross 5 G's		msec	38.0 to 46.0	40.8	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	94.3	Pass
	Time	msec	72.0 to 82.0	75.0	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	147.0 to 174.0	159.6	Pass
Moment About Occipital Condyle	Maximum	N m	-52.9 to -79.9	-62.8	Pass
	Time	msec	65.0 to 79.0	71.5	Pass
Negative Moment Decay Time To Zero Crossing		msec	120.0 to 148.0	138.9	Pass
		Overall Test Results			Pass

Tim Bratz

Laboratory Technician

1/4/08

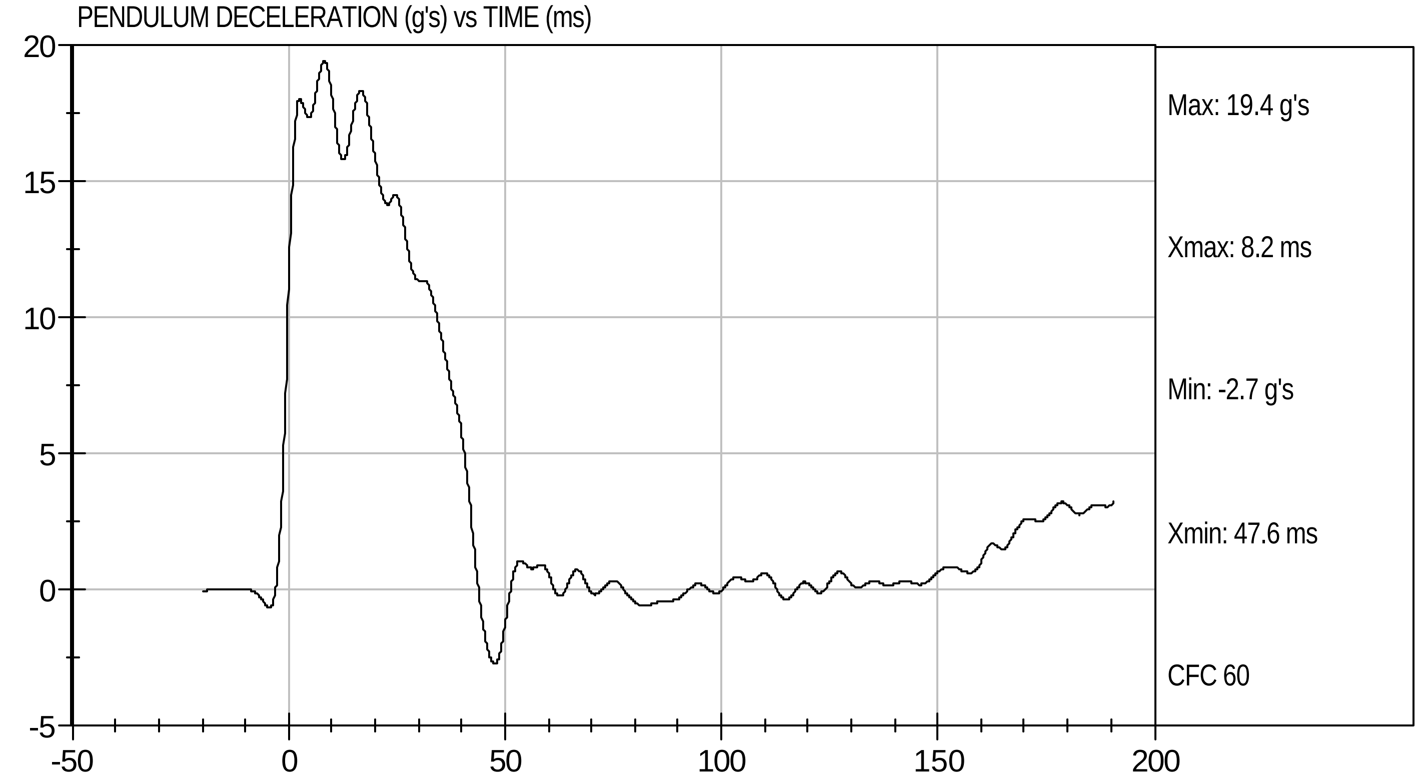
Test Date

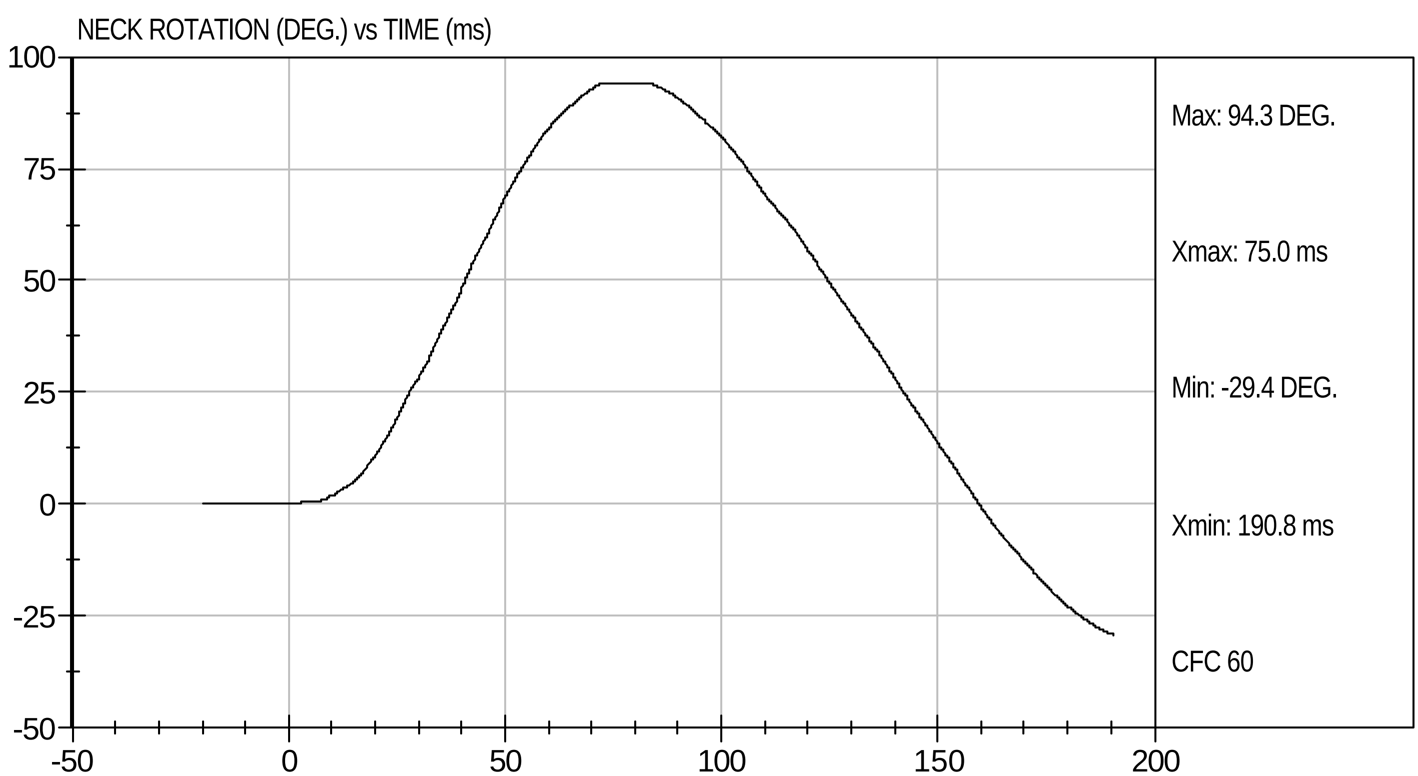
David Winkelbauer

Approved By

Test Desc: Neck Extension
Component ID: D08013

Test Date: 1/4/08
Velocity: 20.08 ft/s, 6.12 m/s

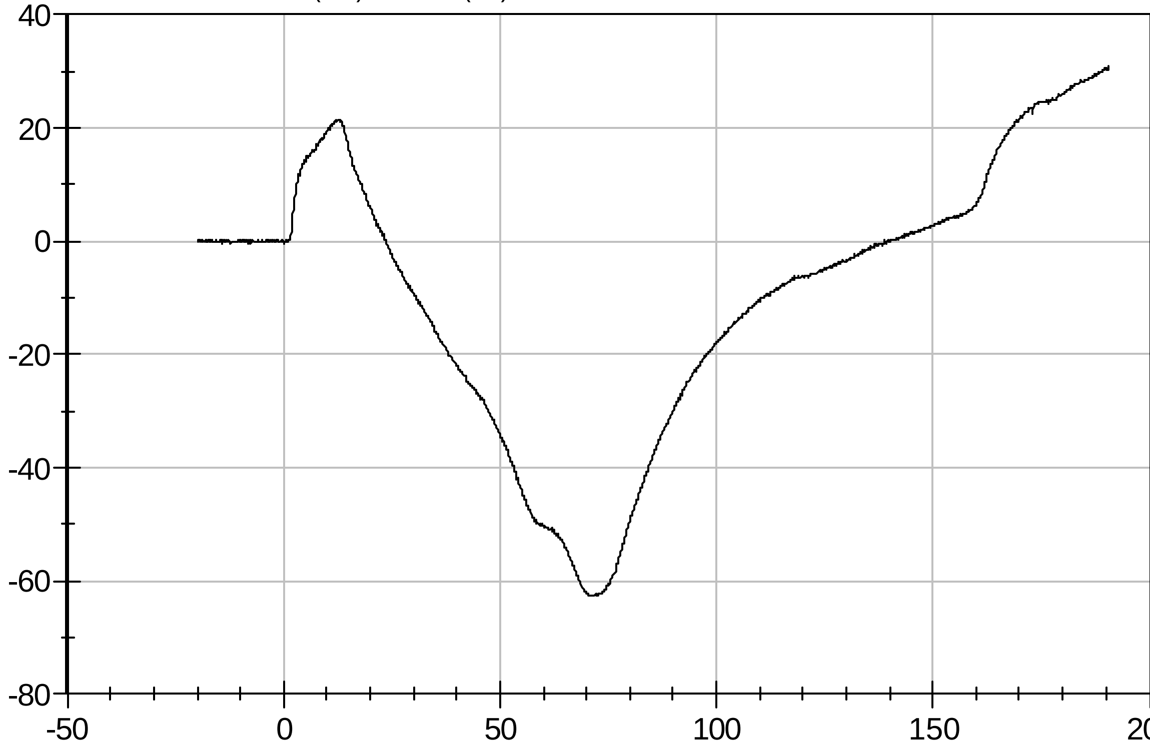




Test Desc: Neck Extension
Component ID: D08013

Test Date: 1/4/08
Velocity: 20.08 ft/s, 6.12 m/s

OCCIPITAL MOMENT (Nm) vs TIME (ms)



Max: 30.8 Nm

Xmax: 190.8 ms

Min: -62.8 Nm

Xmin: 71.5 ms

CFC 1000

MGA RESEARCH CORPORATION

THORAX IMPACT

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08014

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Probe Velocity	m/s	6.58 to 6.82	6.77	Pass
Peak Probe Force	N	5159 to 5893	5,451	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.63	Pass
Internal Hysteresis	%	69 to 85	70	Pass
		Overall Test Results		Pass

Tim Bratz

Laboratory Technician

1/7/08

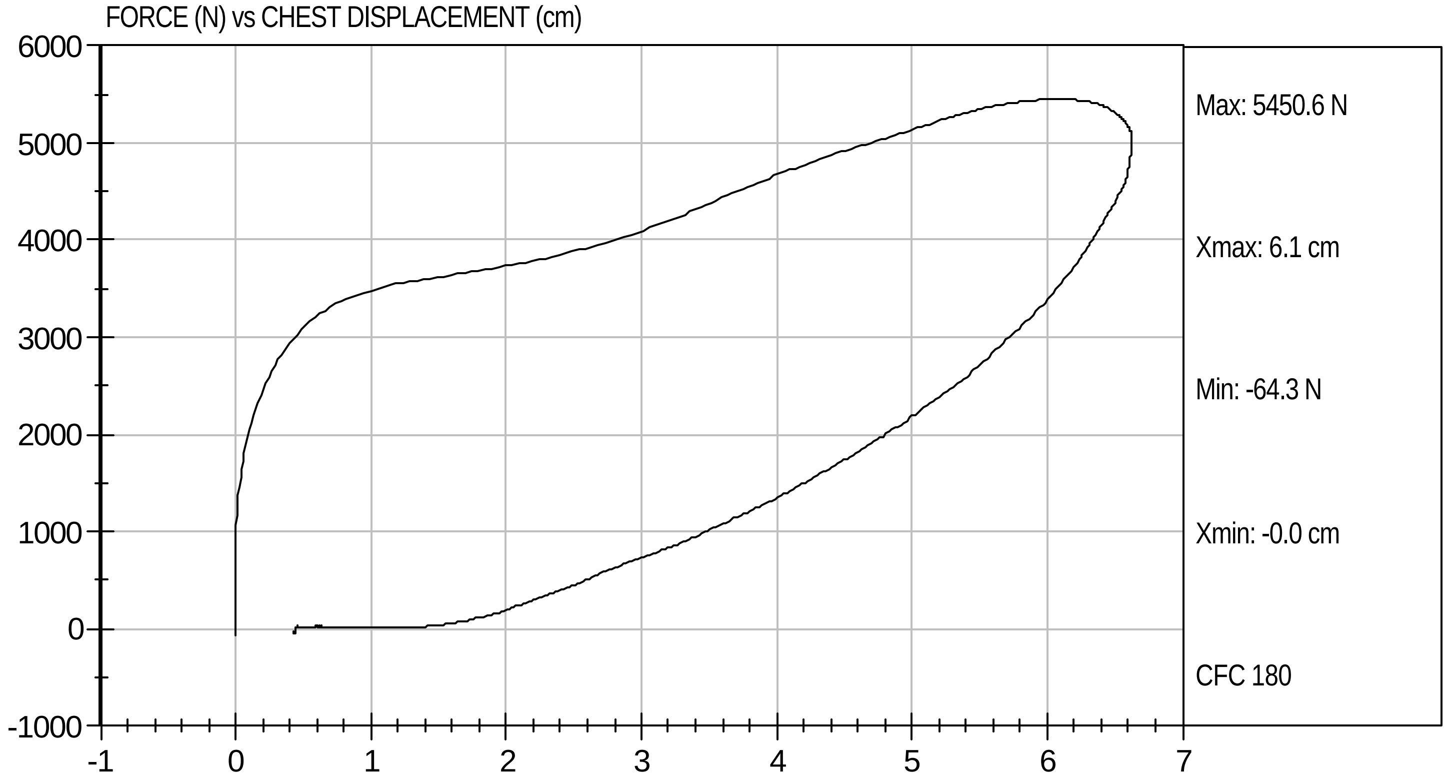
Test Date

David Winkelbauer

Approved By

Test Desc: Thorax Impact
Component ID: D08014

Test Date: 1/7/08
Velocity: 22.22 ft/s, 6.77 m/s



MGA RESEARCH CORPORATION

RIGHT KNEE IMPACT TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08015

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	48	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.08	Pass
Peak Probe Force	Newtons	4715 to 5782	4,839	Pass
		Overall Test Results		Pass

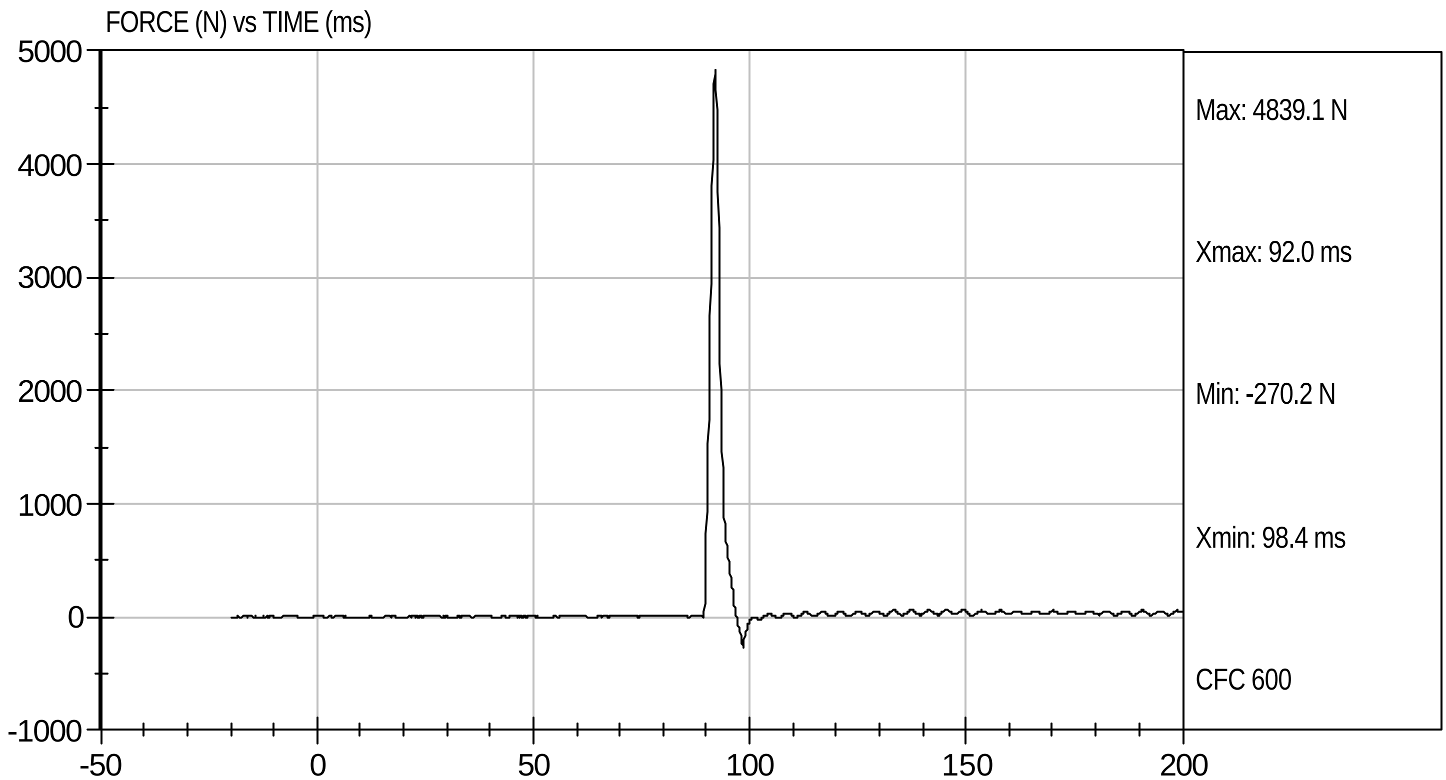
Tim Bratz
Laboratory Technician

1/7/08
Test Date

David Winkelbauer
Approved By

Test Desc: Right Knee
Component ID: D08015

Test Date: 1/7/08
Velocity: 6.83 ft/s, 2.08 m/s



MGA RESEARCH CORPORATION

LEFT KNEE IMPACT TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08016

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	48	Pass
Probe Velocity	m/sec	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	4,846	Pass
		Overall Test Results		Pass

Tim Bratz

Laboratory Technician

1/7/08

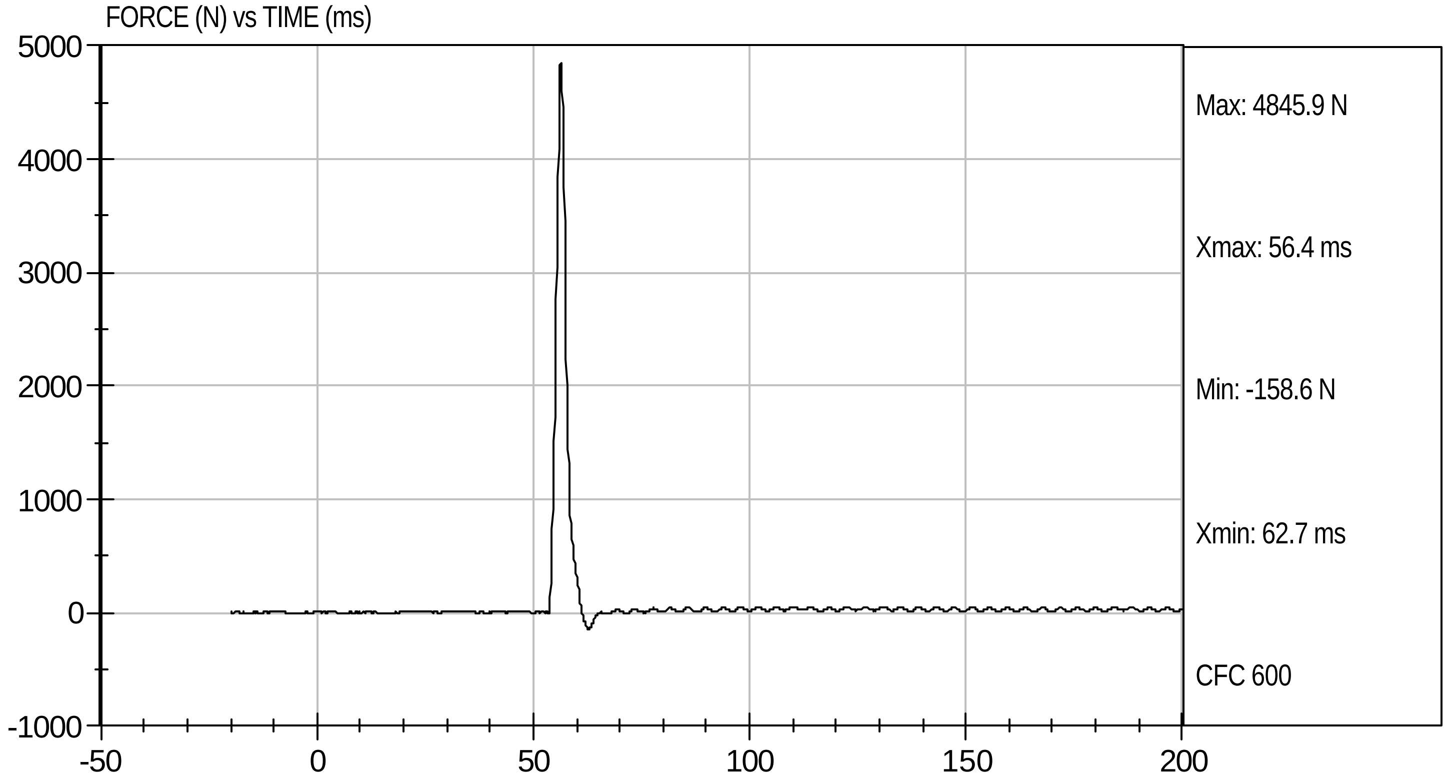
Test Date

David Winkelbauer

Approved By

Test Desc: Left Knee
Component ID: D08016

Test Date: 1/7/08
Velocity: 6.85 ft/s, 2.09 m/s



MGA RESEARCH CORPORATION

HIP-FEMUR FLEXION TEST

HYBRID III 50TH PERCENTILE MALE

ATD Serial No: 206 **Test I.D:** D08010

Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.8	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	17	17	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	72.5	59.8	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	42	44	Pass
		Overall Test Results			Pass

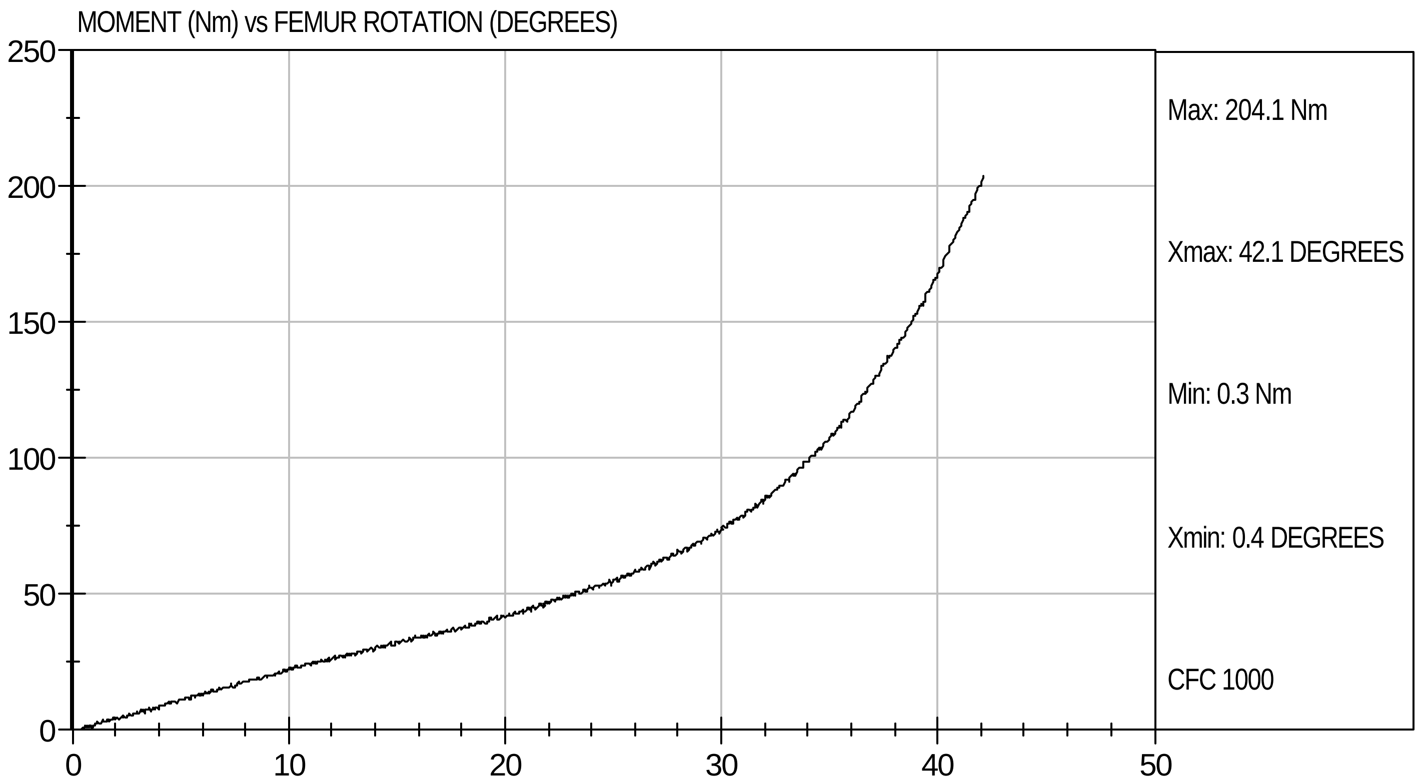
Tim Brat
Laboratory Technician

1/4/08
Test Date

David Winkelbauer
Approved By

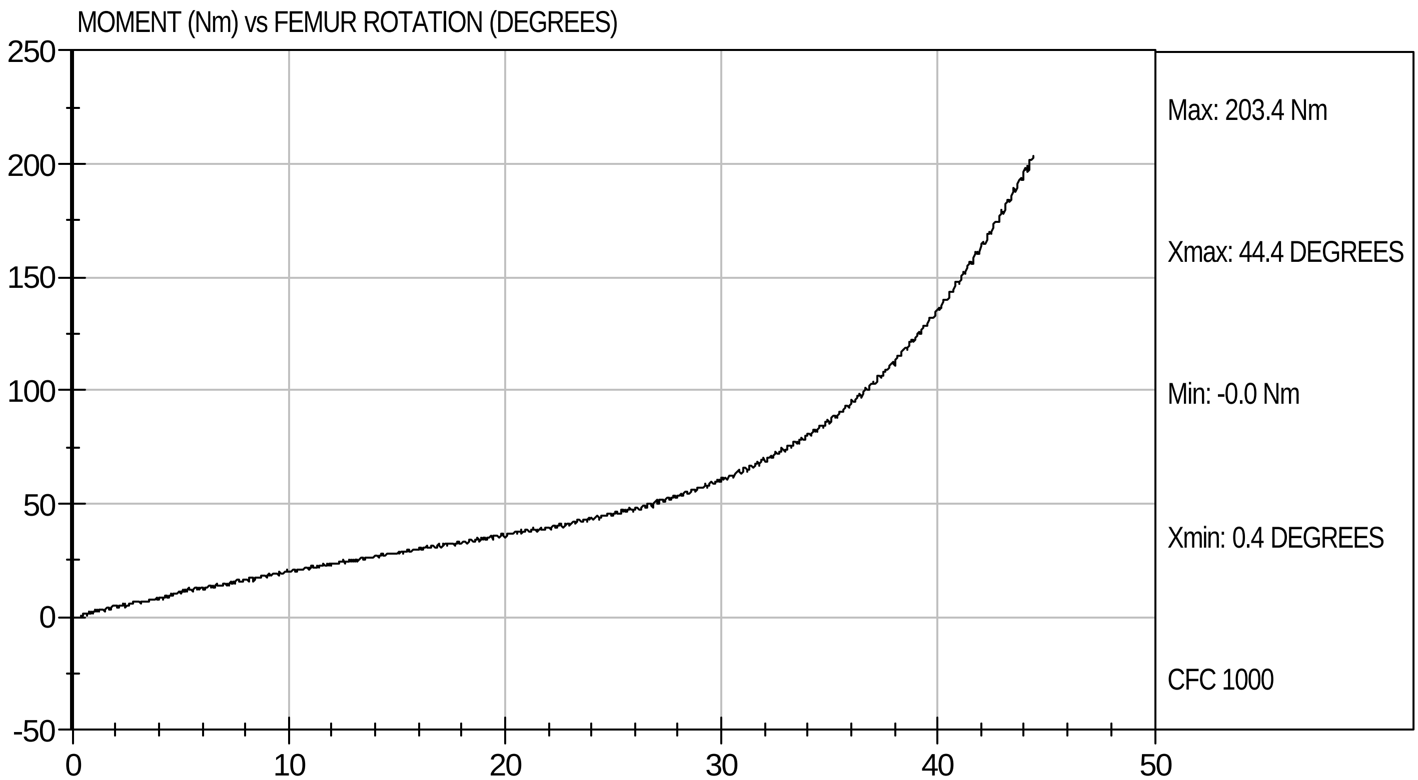
Test Desc: Hip Femur Flexion
Component ID: D08019

Test Date: 1/4/08
Velocity: 0 ft/s, 0.00 m/s



Test Desc: Hip Femur Flexion
Component ID: D08010

Test Date: 1/4/08
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

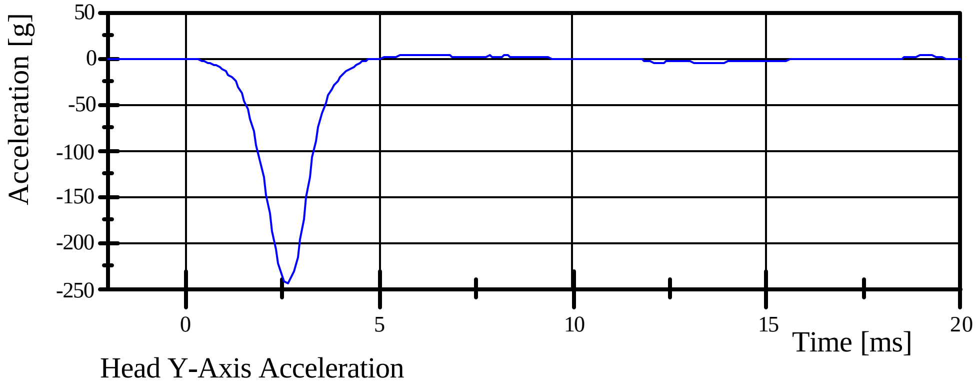
Transportation Research Center Inc.

Front Head Drop

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

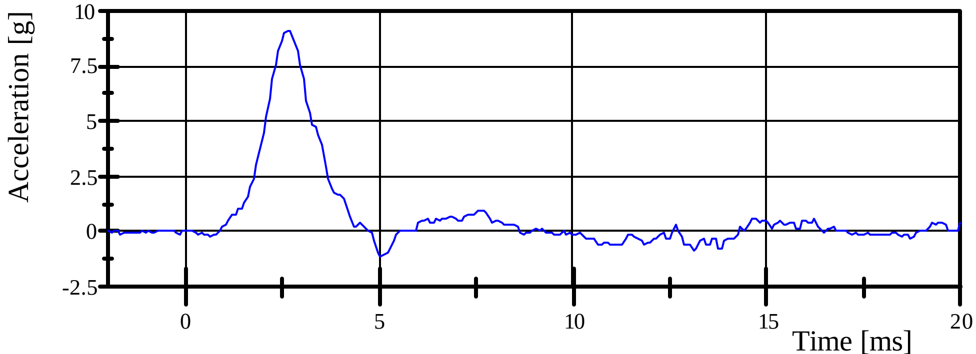
Test Date: 6/12/2007

Head X-Axis Acceleration



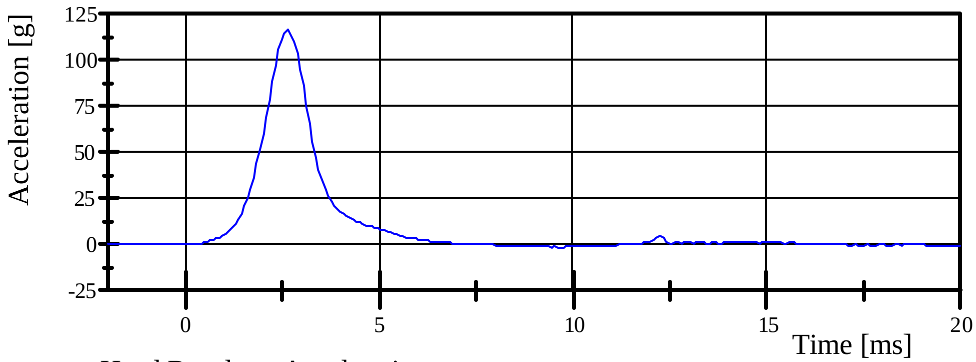
Filter Class: CFC_1000
Max: 4.4 g at 5.9 ms
Min: -243.9 g at 2.6 ms

Head Y-Axis Acceleration



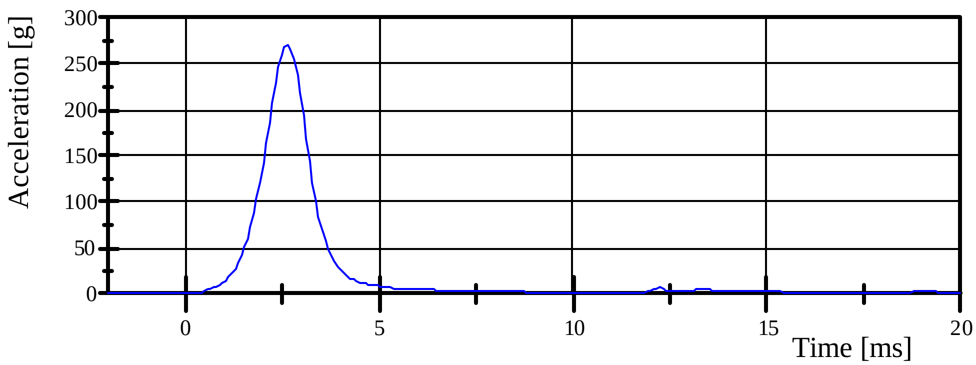
Filter Class: CFC_1000
Max: 9.1 g at 2.6 ms
Min: -1.1 g at 5.0 ms

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

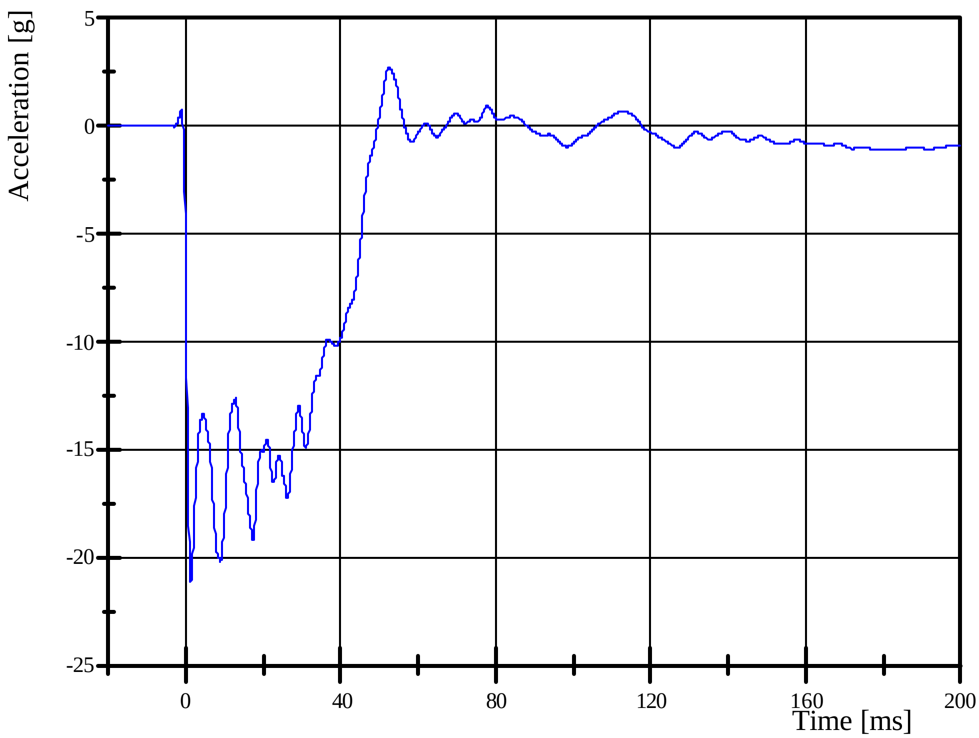
Transportation Research Center Inc.

Neck Flexion

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

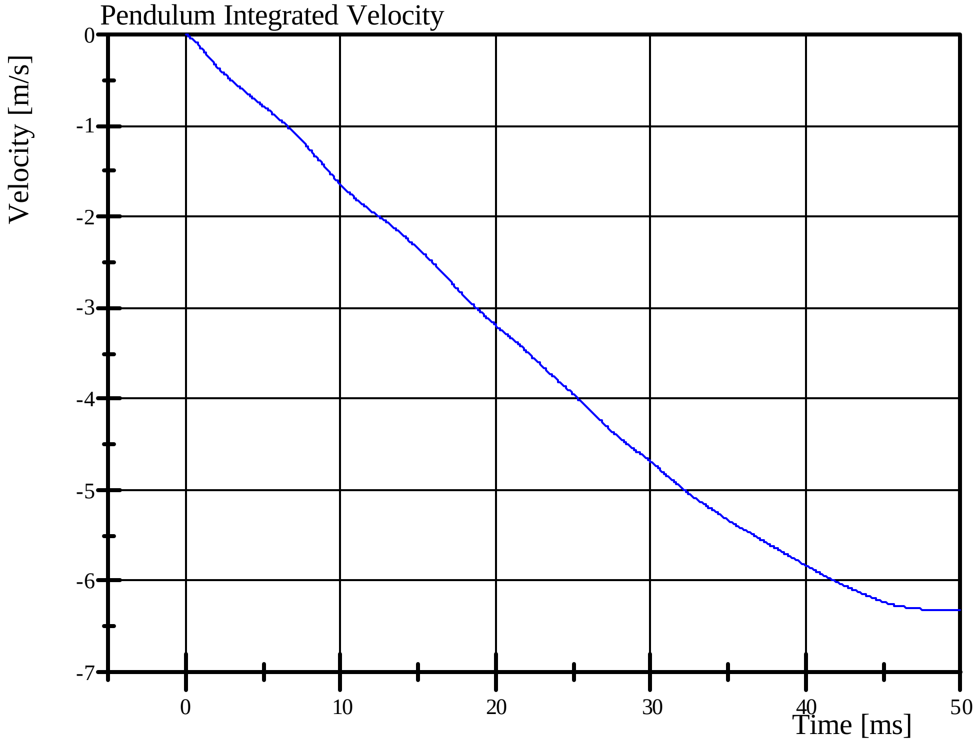
Test Date: 6/13/2007

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

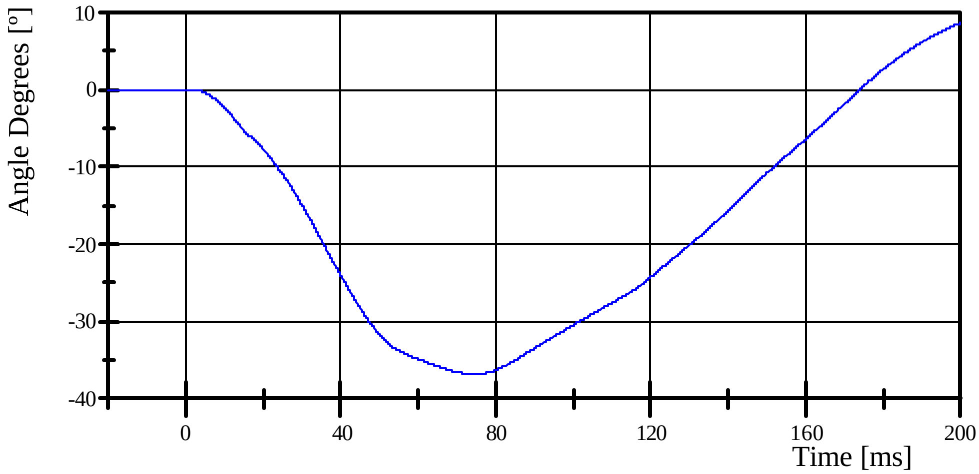
Transportation Research Center Inc.

Neck Flexion

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

Test Date: 6/13/2007

Pot Rotation at the Base of Neck

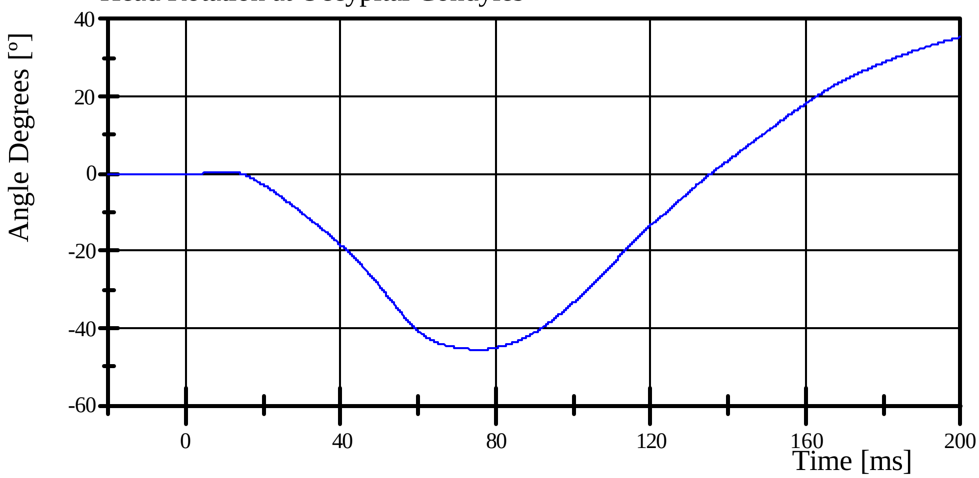


Filter Class: CFC_60

Max: 8.7 ° at 200.0 ms

Min: -36.8 ° at 74.3 ms

Head Rotation at Occypital Condyles

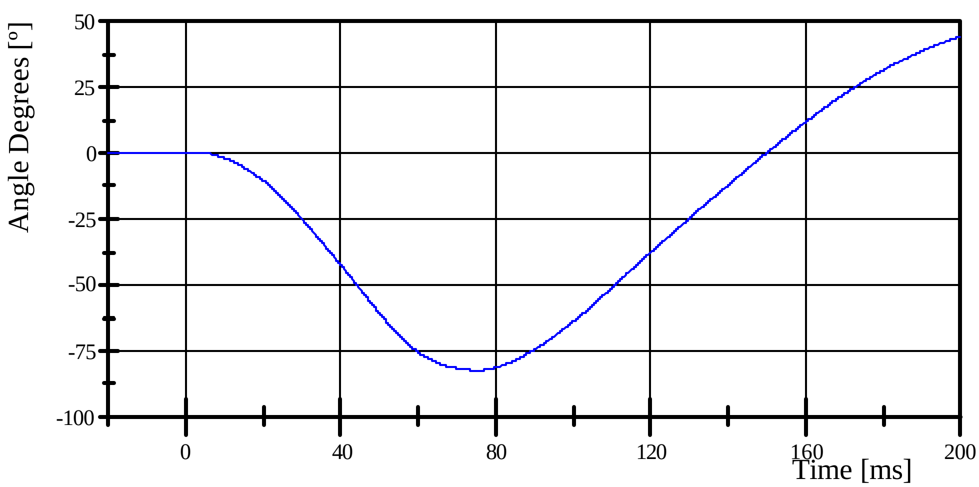


Filter Class: CFC_60

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

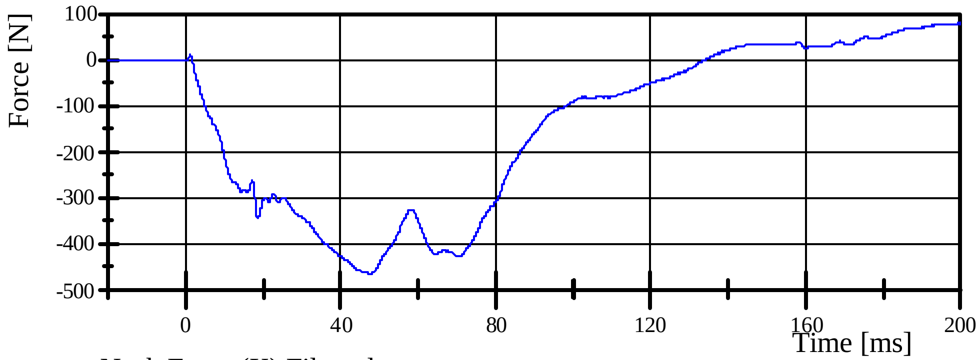
Transportation Research Center Inc.

Neck Flexion

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

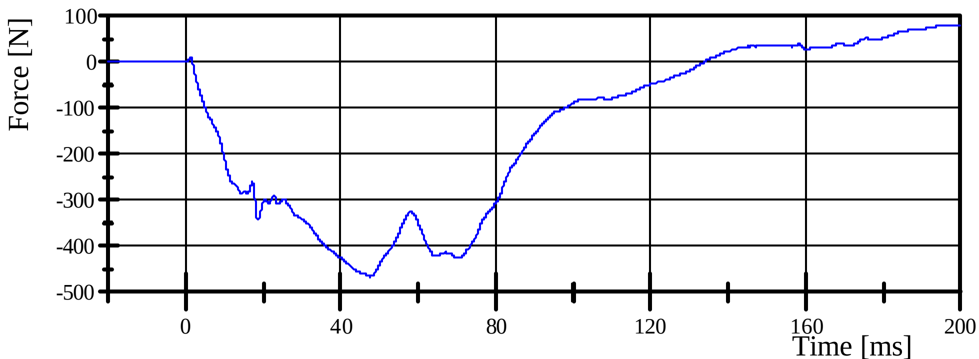
Test Date: 6/13/2007

Neck Force (X)



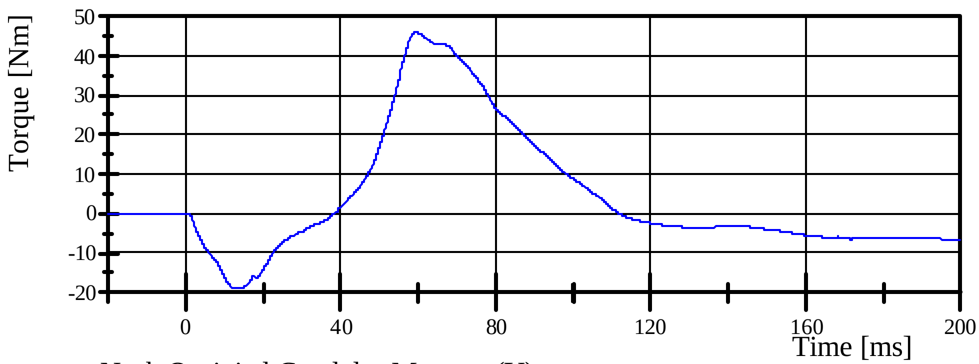
Filter Class: CFC_1000
Max: 80.1 N at 199.8 ms
Min: -467.0 N at 47.6 ms

Neck Force (X) Filtered



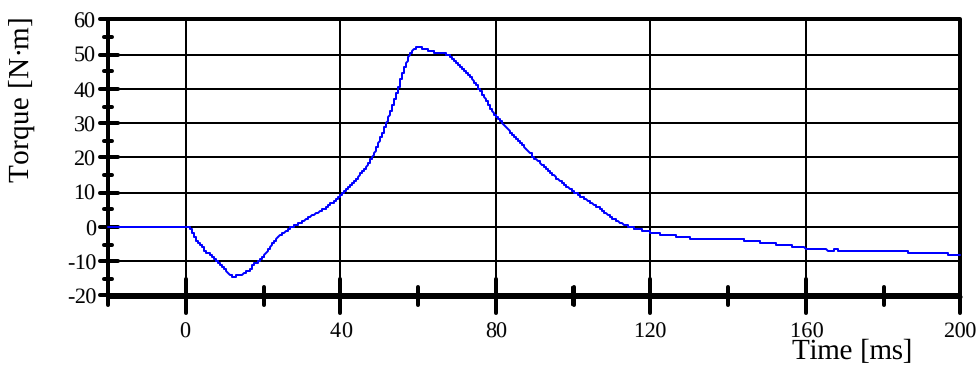
Filter Class: CFC_600
Max: 79.9 N at 200.0 ms
Min: -466.7 N at 47.5 ms

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

TRC

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

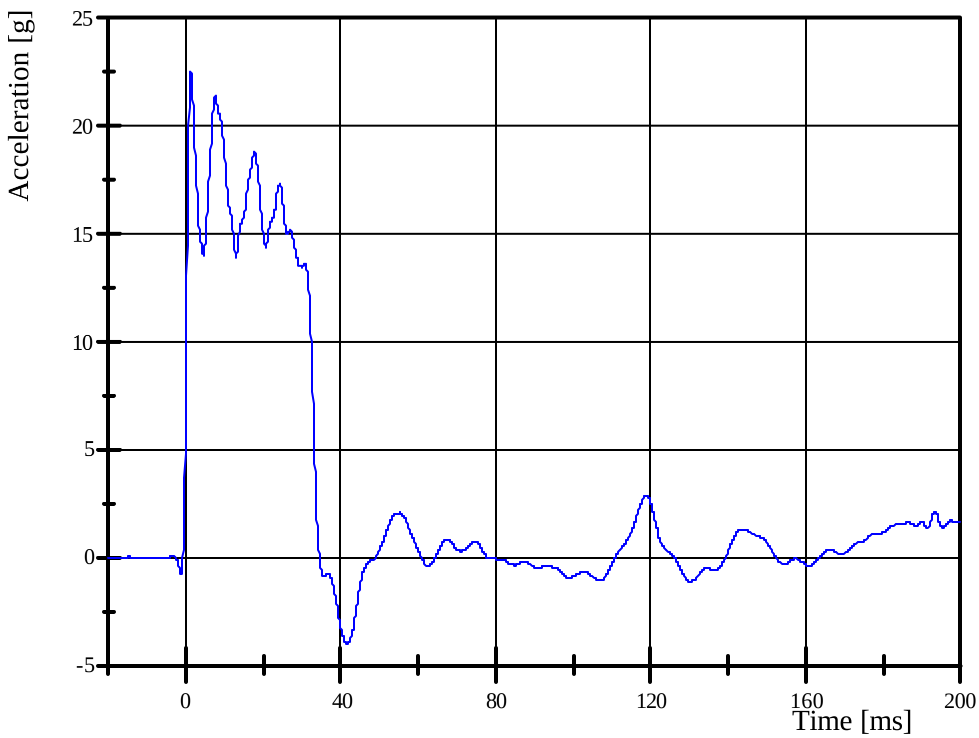
Transportation Research Center Inc.

Neck Extension

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

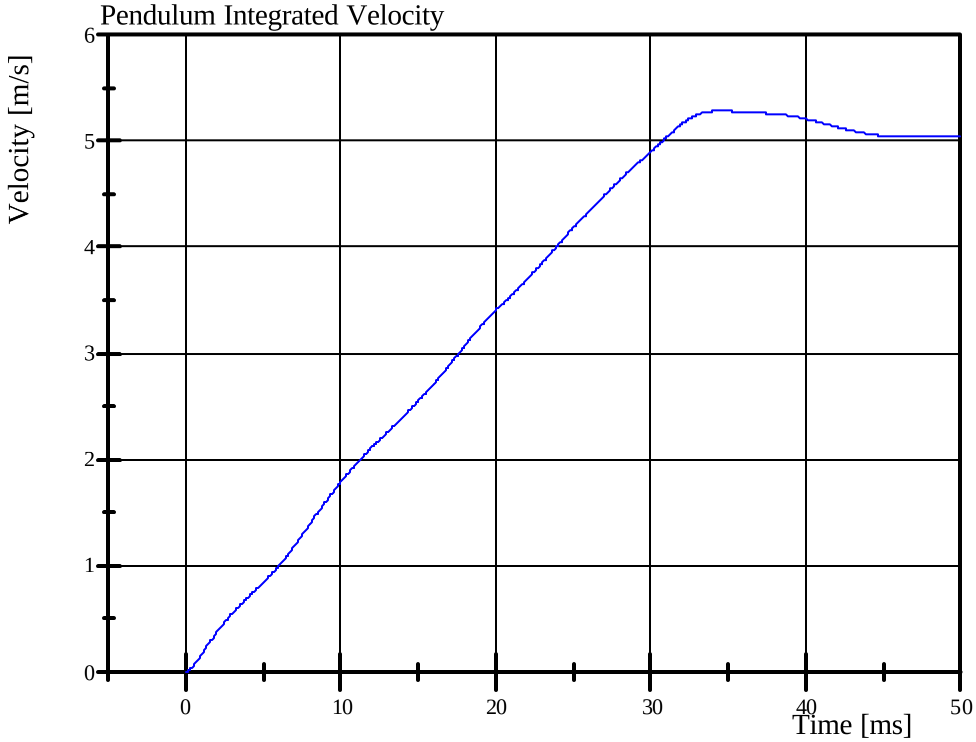
Test Date: 6/13/2007

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

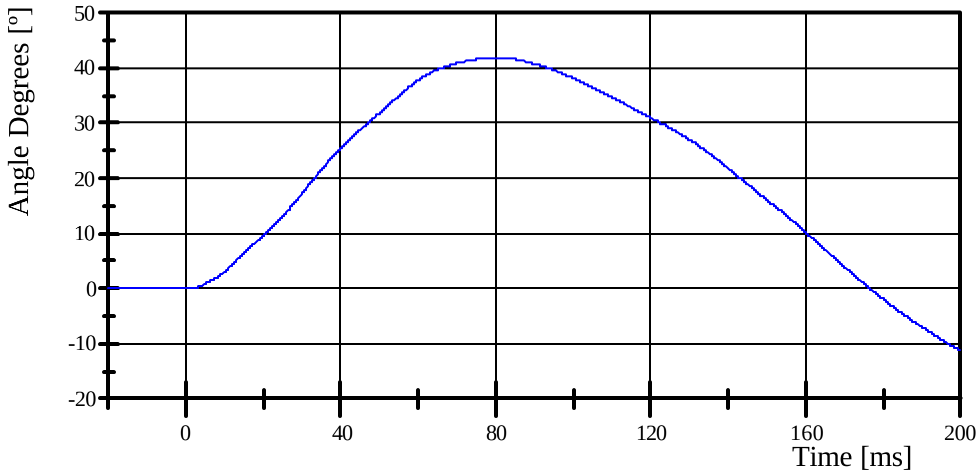
Specification Source: CFR49 Part 572 Subpart T
with Polarity in accordance with J211

06.13.2007 15:23:28 1295

Transportation Research Center Inc.

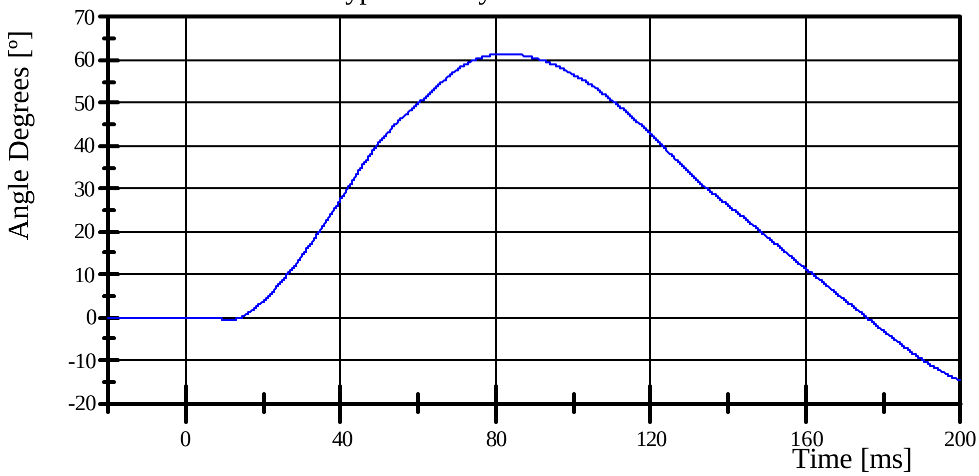
Neck Extension
HIII 10YO   Serial No. D001 Certification No. 14-1
Test Date: 6/13/2007

Pot Rotation at the Base of Neck



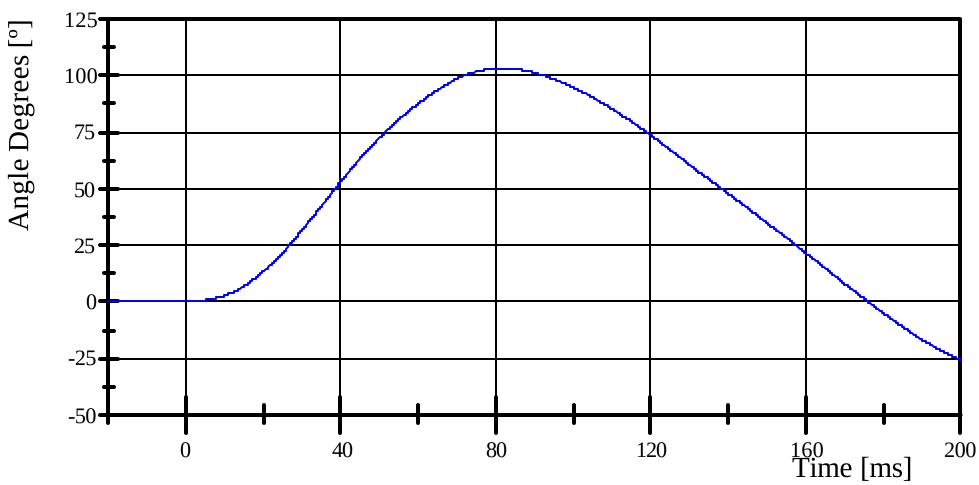
Filter Class: CFC_60
Max: 41.8 ° at 80.1 ms
Min: -11.2 ° at 200.0 ms

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

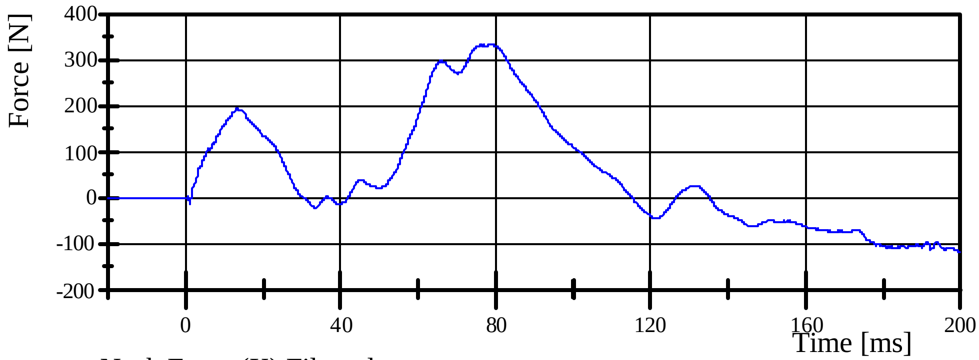
Transportation Research Center Inc.

Neck Extension

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

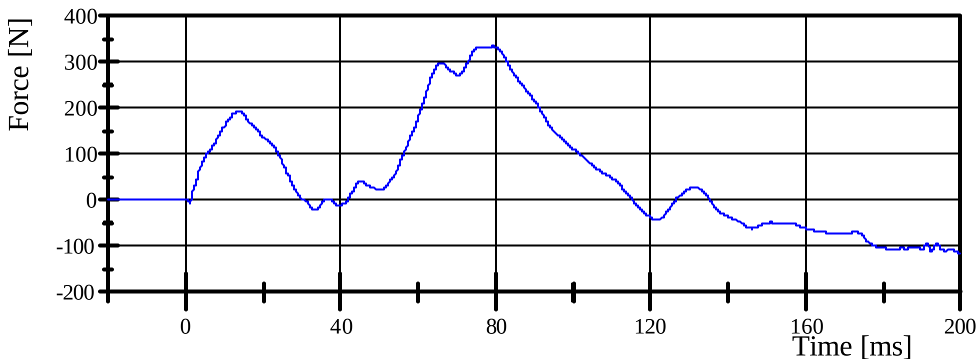
Test Date: 6/13/2007

Neck Force (X)



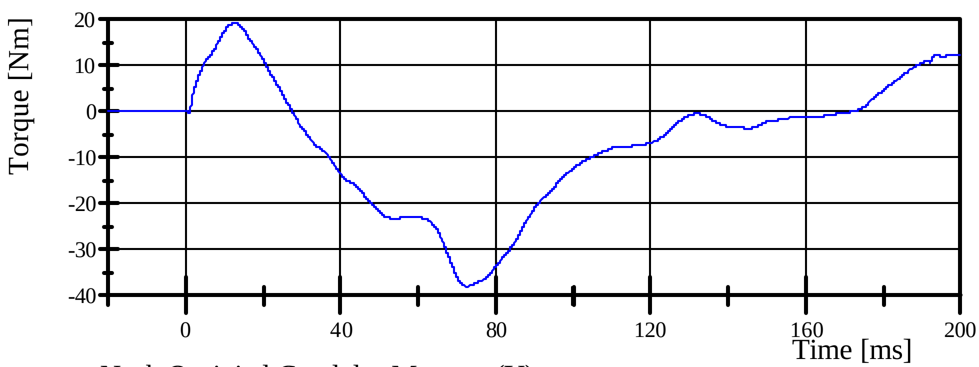
Filter Class: CFC_1000
Max: 333.9 N at 79.3 ms
Min: -118.3 N at 200.0 ms

Neck Force (X) Filtered



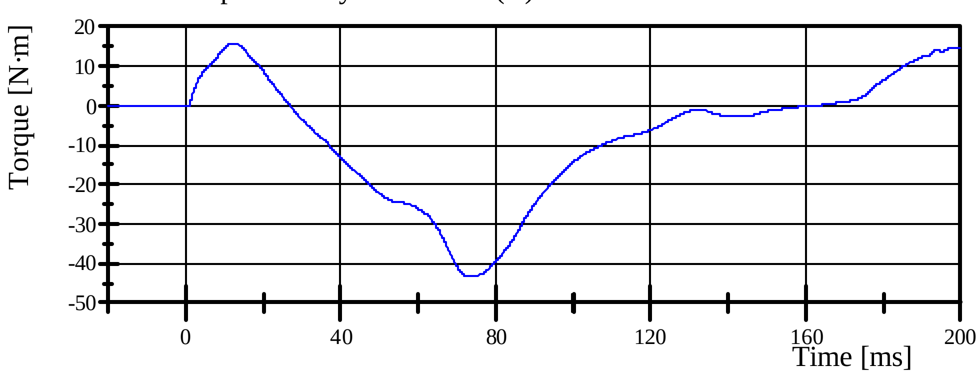
Filter Class: CFC_600
Max: 333.5 N at 79.3 ms
Min: -118.2 N at 200.0 ms

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

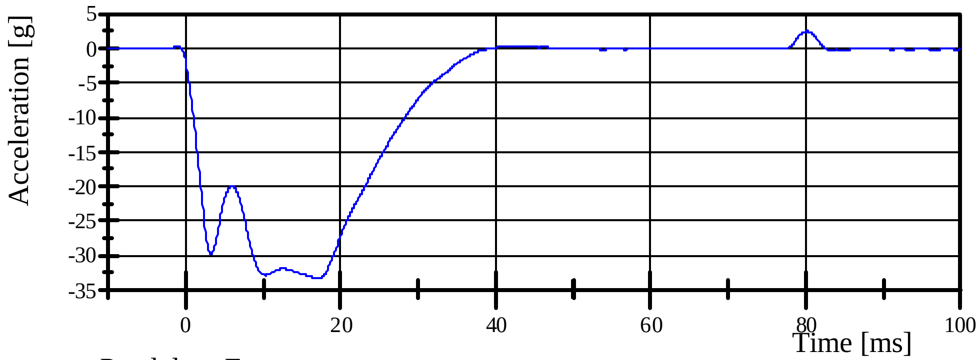
Transportation Research Center Inc.

Front Thorax

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

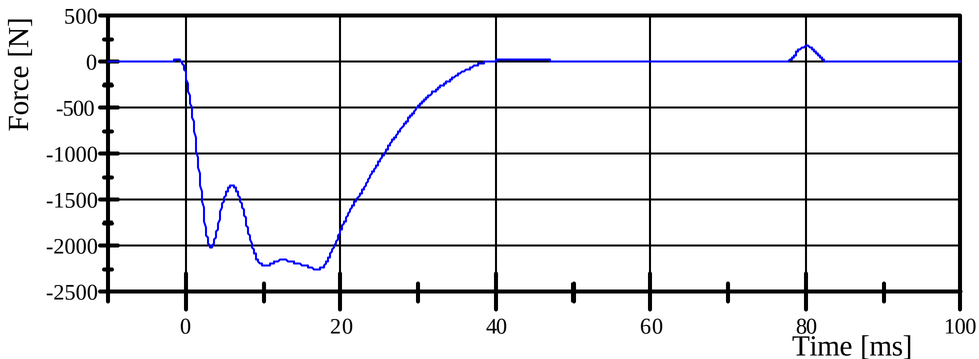
Test Date: 6/13/2007

Pendulum Acceleration



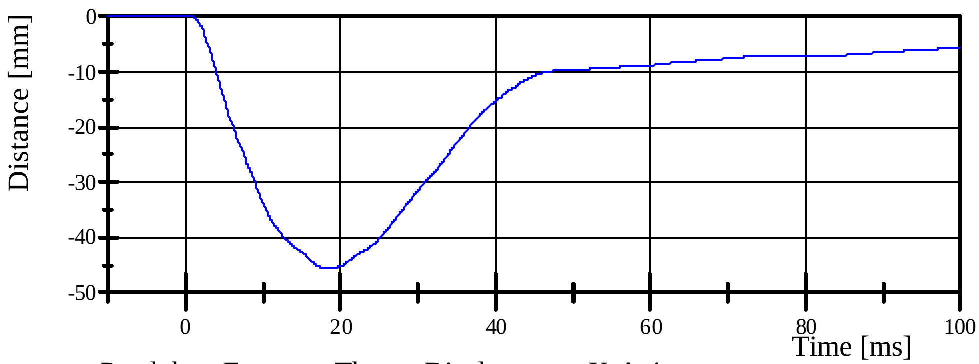
Filter Class: CFC_180
Max: 2.5 g at 80.2 ms
Min: -33.4 g at 17.0 ms

Pendulum Force



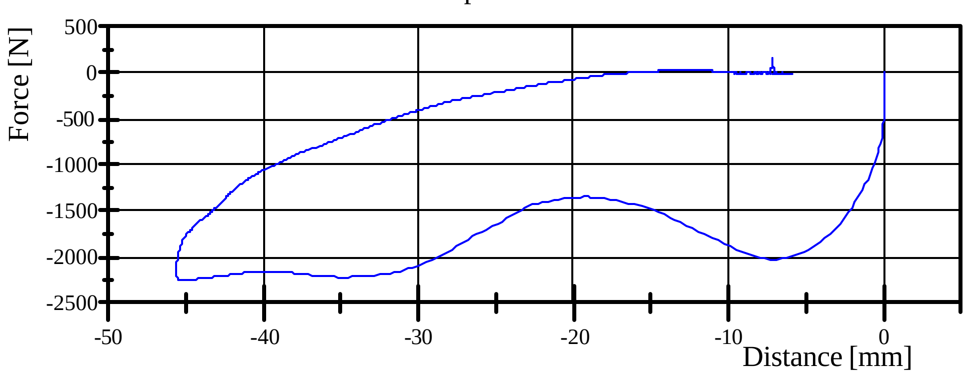
Filter Class: CFC_180
Max: 169.5 N at 80.2 ms
Min: -2,255.5 N at 17.0 ms

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 50^{th} Percentile Male with THOR Lx Legs
Serial Number:	#202 (Right Leg #037; Left Leg #036)
Inspected By:	Jessica Gall
Date:	January 21, 2008
Comments:	No Damage.

Position:	Passenger
Dummy:	Hybrid III 50^{th} Percentile Male with THOR Lx Legs
Serial Number:	#206 (Right Leg #045; Left Leg #046)
Inspected By:	Jessica Gall
Date:	January 21, 2008
Comments:	No Damage.

Position:	Left Rear
Dummy:	Hybrid III 10 year old
Serial Number:	#D001
Inspected By:	Jessica Gall
Date:	January 21, 2008
Comments:	No Damage.

APPENDIX D

CUSTOMER PROVIDED SEATING PROCEDURE

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 heel is on Line L2 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.

__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~~ uses 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:

$$X_{HP} = X_{CG} + \frac{A(X_{KP} - X_{CG})}{B} + \frac{\sqrt{473^2 - A^2}(Z_{KP} - Z_{CG})}{B}$$

$$Z_{HP} = Z_{CG} + \frac{A(Z_{KP} - Z_{CG})}{B} - \frac{\sqrt{473^2 - A^2}(X_{KP} - X_{CG})}{B}$$

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 $\pm$ 1° off of horizontal.
o) Document final H-point, Head CG, and Knee Pivot coordinates in addition to the torso angle.

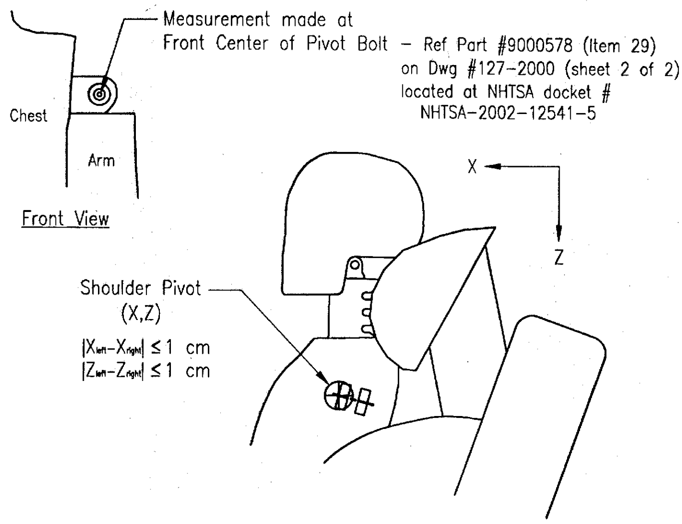


Figure 1. Shoulder Pivot Bolt Alignment

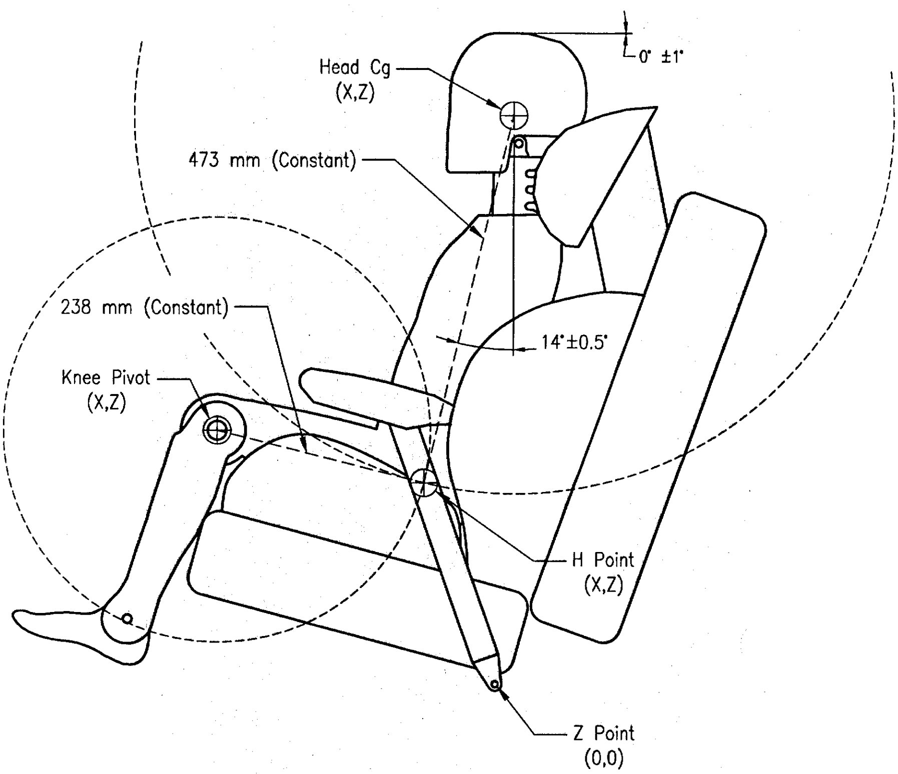


Figure 2. Locating the H-Point so that HIII-6C Torso Angle is 14 ± 0.5 Degrees from Vertical

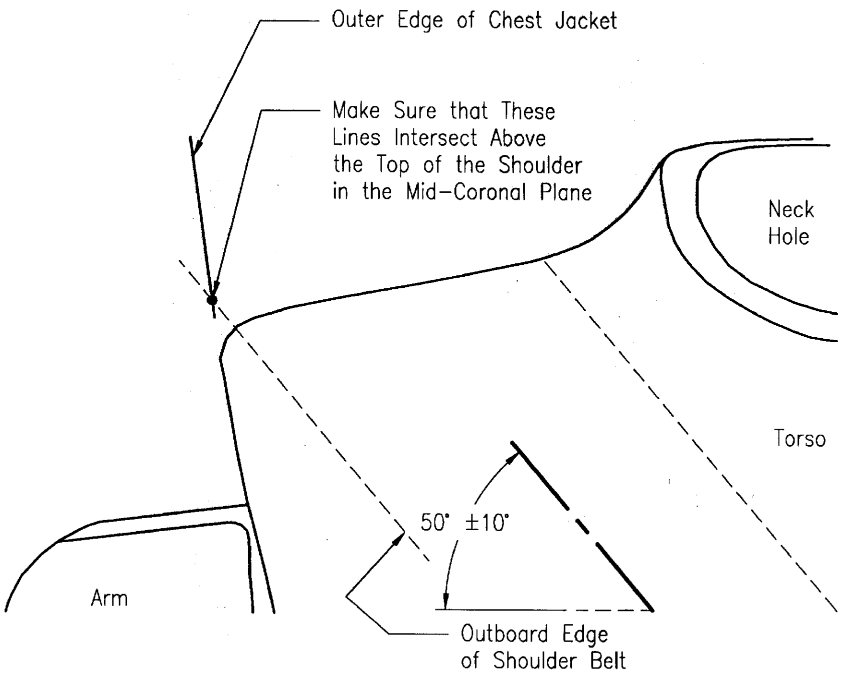


Figure 3. Shoulder Belt Placement

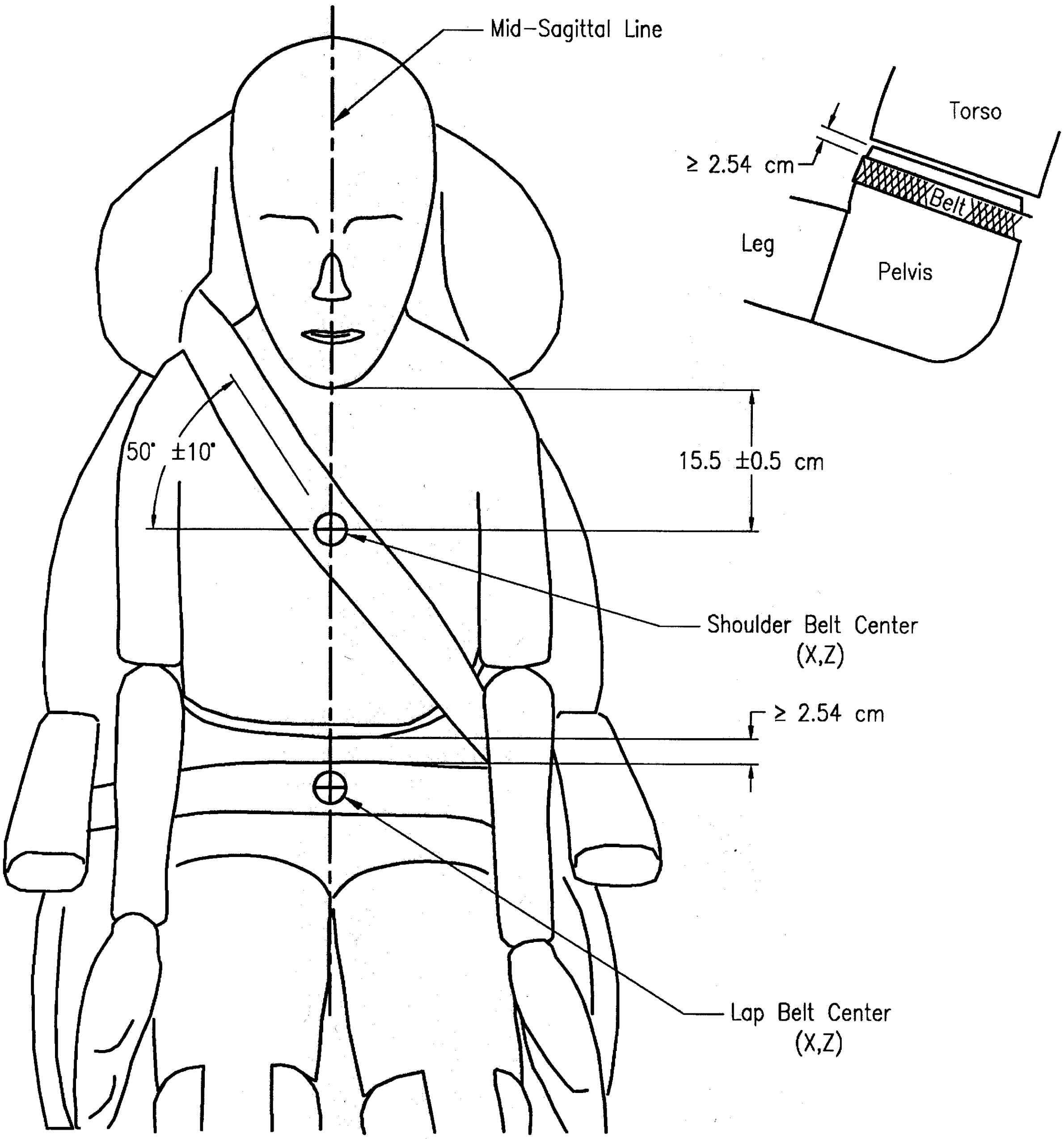


Figure 4. Overall Belt Placement for HIII-6C Dummy

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.

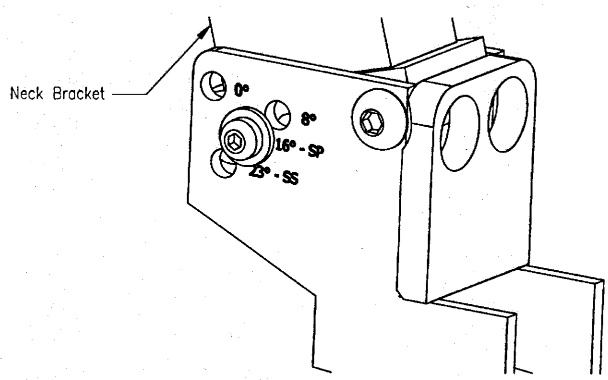


Figure 5a. Neck Angle Setting is SP-16 Degrees

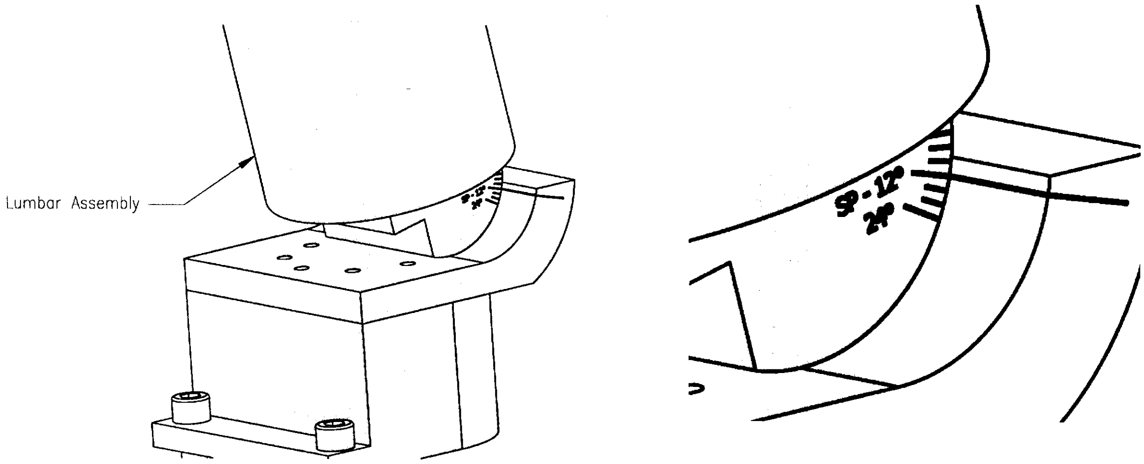


Figure 5b. Lumbar Angle Setting is SP-12 Degrees

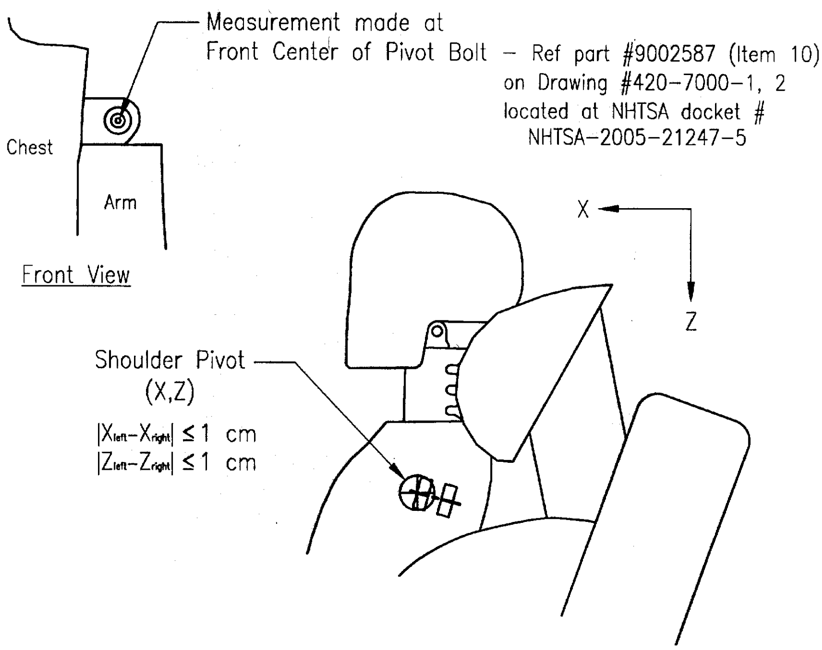


Figure 6. Shoulder Pivot Bolt Alignment

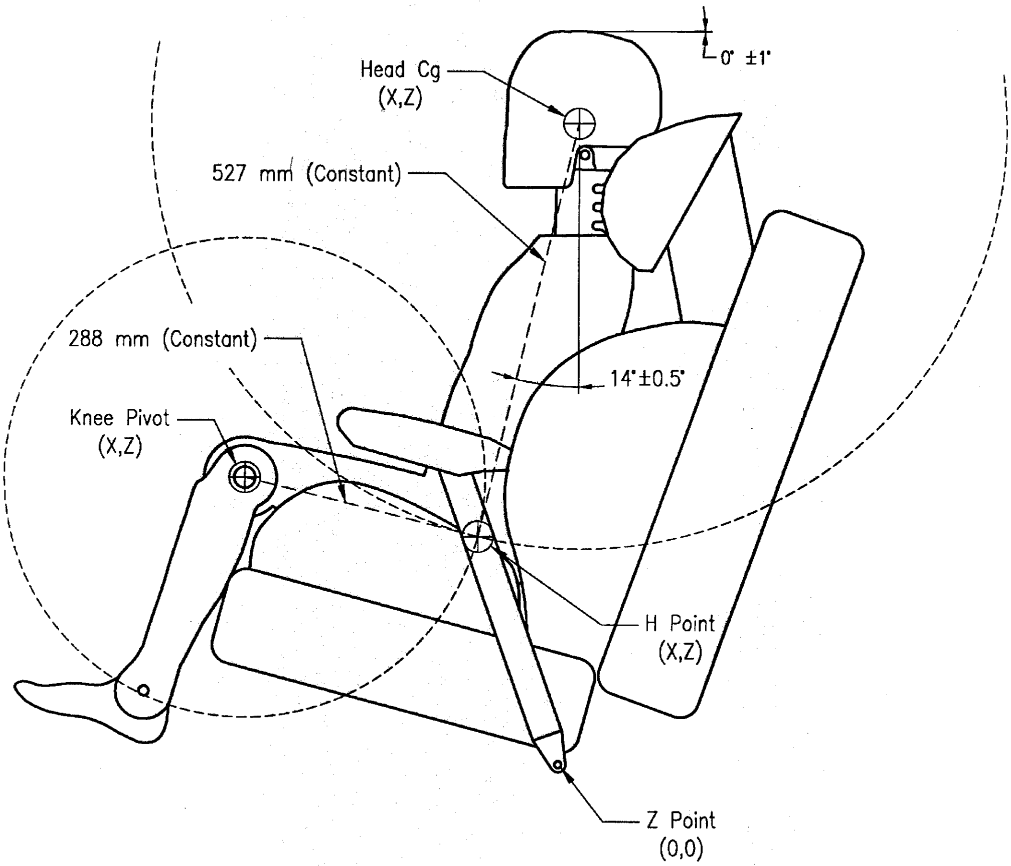


Figure 7. Locating the H-Point so that HIII-10C Torso Angle is 14 ± 0.5 Degrees from Vertical

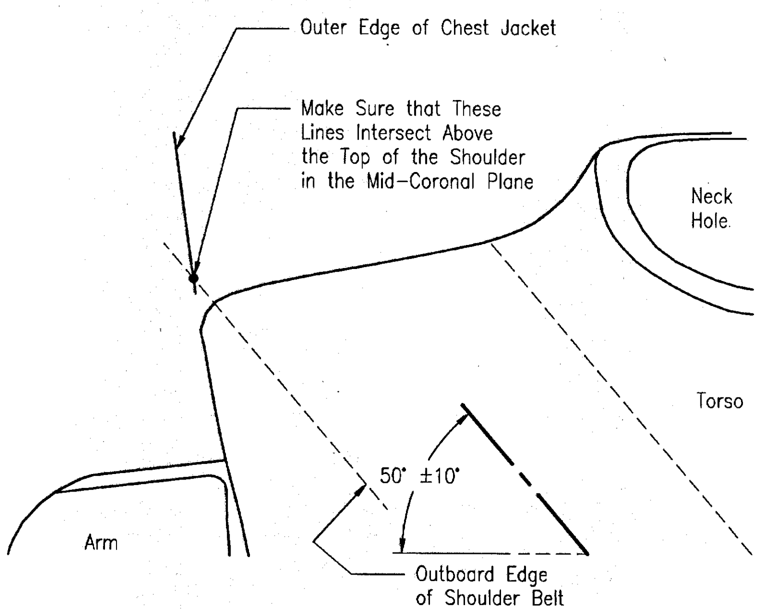


Figure 8. Shoulder Belt Placement

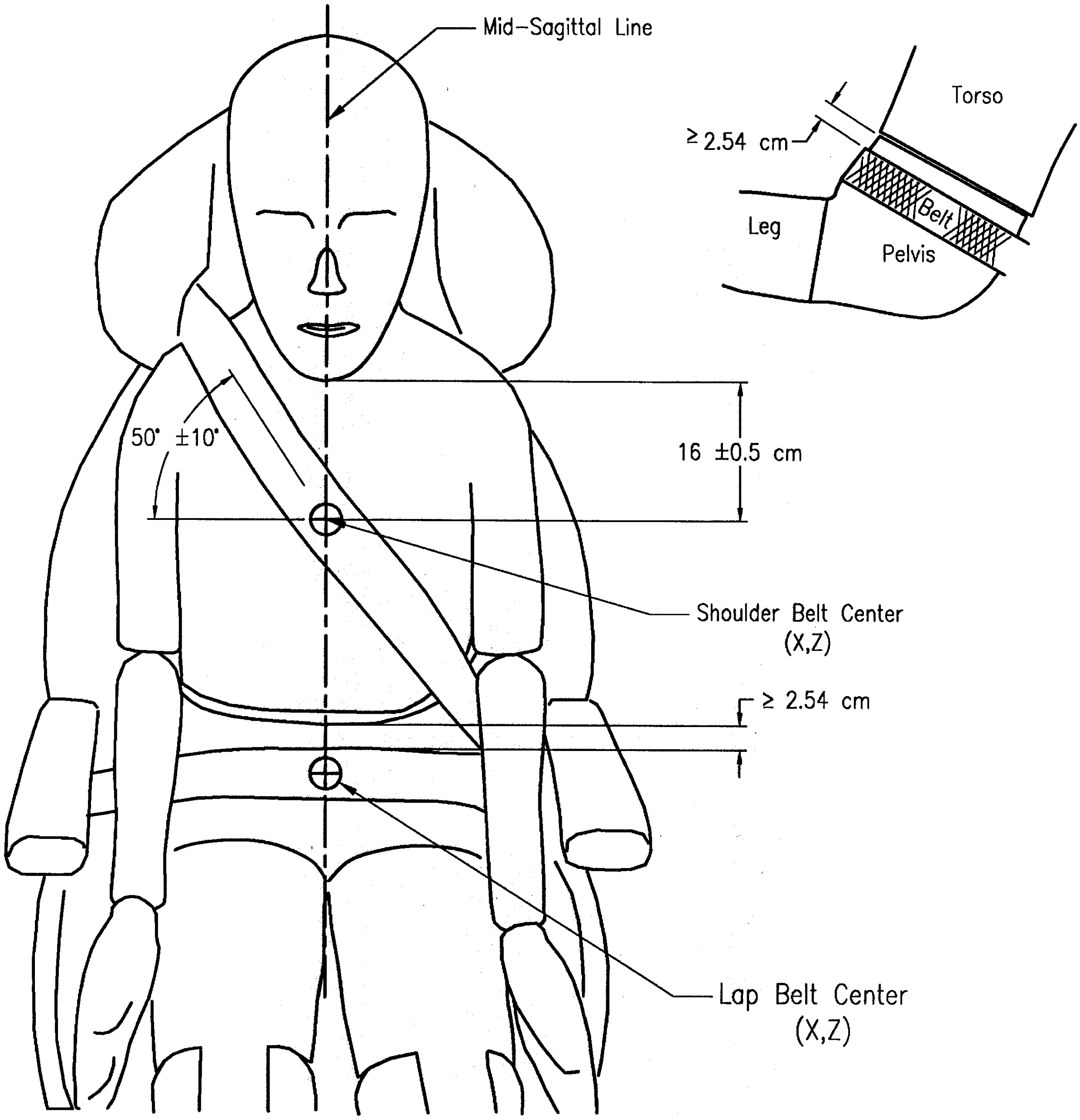


Figure 9. Overall Belt Placement for HIII-10C Dummy

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

APPENDIX E

BARRIER CERTIFICATION

CERTIFICATE OF CONFORMITY

CELLBOND

Certificate No. 26741
Serial No. GC047

Product Description	Frontal ODB painted grey
Cellbond Part No.	70EEVCFIUS

	Test Results	GR No.	Blk No.
1	7542-8	CHC0303098GB	N/A
2	7558-8	CHC0511016FL	N/A

Declaration.

The above moving deformable barrier has been manufactured in accordance with the provisions of the European Parliament and Council No 96/79/EC Directive (Regulation ECE R94)

Additional Information...

Cellbond Composites Ltd
5 Stukeley Business Centre
Blackstone Road
Huntingdon
Cambridgeshire
PE29 6EF
United Kingdom

telephone
+44 (0) 1480 435302
telefax
+44 (0) 1480 450181
email
sales@cellbond.com
website
www.cellbond.com

company registration
England 1944904

registered office
5 Stukeley Business Centre
Blackstone Road
Huntingdon
Cambridgeshire
PE29 6EF

Cellbond Offices
United Kingdom
United States of America

FM 78320
FM 31401

CELLBOND

EEVC DEFORMABLE FRONTAL BARRIER
ALUMINIUM HONEYCOMB CERTIFICATION
STATIC TEST RESULTS

BUMPER
Core: 5.2 1/4 3003

Required Crush Strength
1.540 MPa to 1.711 MPa

Test No: 7558-8

GR No: CHC0511016FL
Block No: N/A

	Crush Strength (MPa)			
	6.4 to 9.7 mm	9.7 to 13.2 mm	13.2 to 16.5 mm	RESULT
Sample* 1	1.697	1.713	1.709	FAIL
Sample 2	1.548	1.549	1.567	PASS
Sample 3	1.630	1.636	1.639	PASS
Sample 4	1.552	1.554	1.580	PASS
Sample 5	1.572	1.559	1.549	PASS
Sample 6	1.573	1.572	1.569	PASS
Sample 7	1.573	1.596	1.567	PASS
Sample 8	1.543	1.549	1.541	PASS

Seven out of the eight samples must fulfil the crush strength requirement in order to pass the block certification

*Sample size and location as per R94.

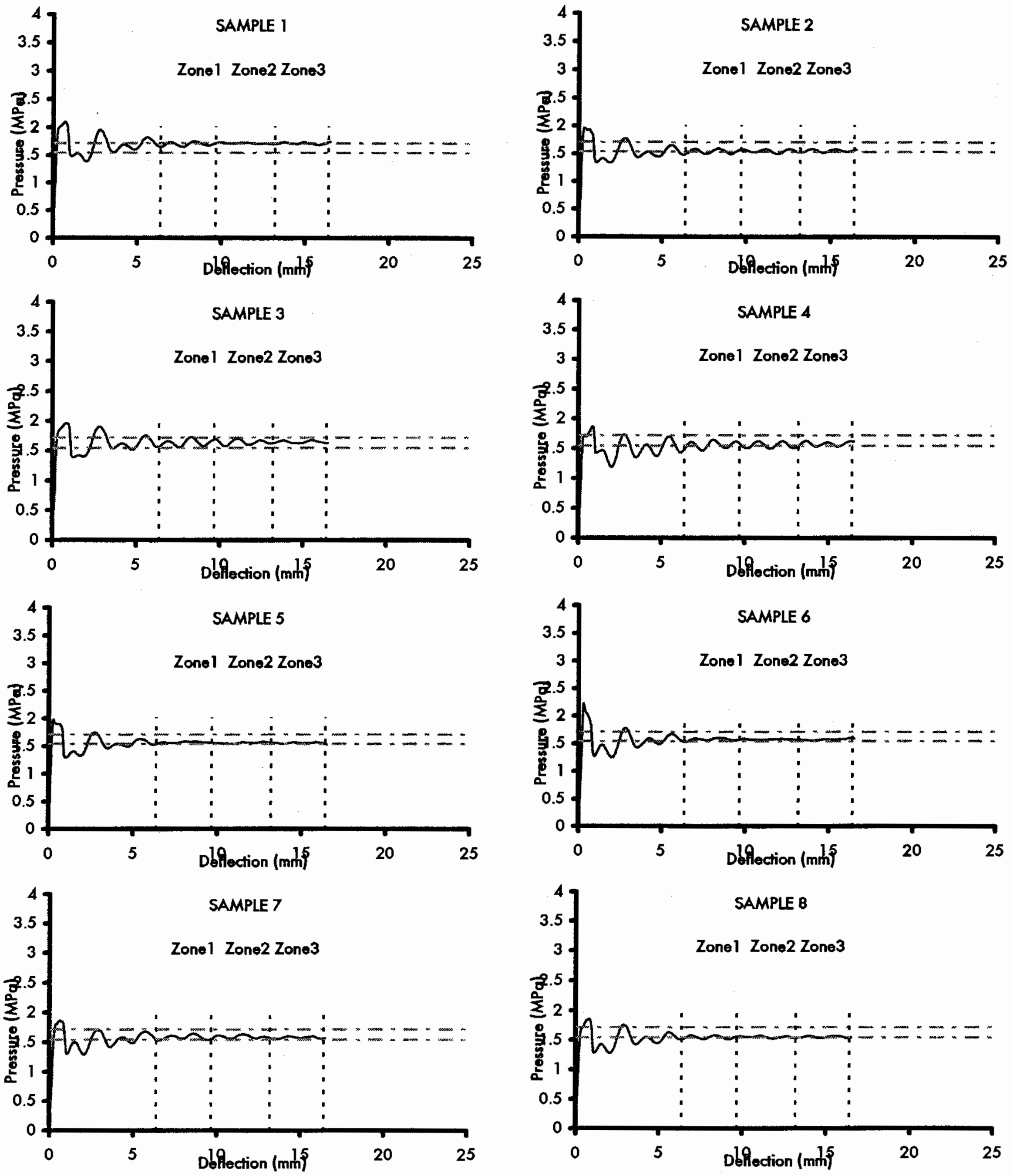
RESULT: PASSED

EEVC DEFORMABLE FRONTAL BARRIER
BUMPER

Honeycomb Type: 5.2 1/4 3003
Higher Acceptable Crush Strength Limit: 1.711 MPa
Lower Acceptable Crush Strength Limit: 1.540 MPa

Section 1:	6.4 - 9.7mm
Section 2:	9.7 - 13.2mm
Section 3:	13.2 - 16.5mm
Speed:	6.35 mm/min

Test No: 7558-8 GR No: CHC0511016FL Block No: N/A



CELLBOND

EEVC DEFORMABLE FRONTAL BARRIER
ALUMINIUM HONEYCOMB CERTIFICATION
STATIC TEST RESULTS

MAIN BLOCK
Core: 1.8 3/4 3003

Required Crush Strength
0.308 MPa to 0.342 MPa

Test No: 7542-8

GR No : chc0303098gb
Block No: N/A

	Crush Strength (MPa)			
	6.4 to 9.7 mm	9.7 to 13.2 mm	13.2 to 16.5 mm	RESULT
Sample* 1	0.3238	0.3212	0.3164	PASS
Sample 2	0.3268	0.3208	0.3225	PASS
Sample 3	0.3218	0.3103	0.3091	PASS
Sample 4	0.3150	0.3088	0.3128	PASS
Sample 5	0.3117	0.3196	0.3211	PASS
Sample 6	0.3169	0.3231	0.3113	PASS
Sample 7	0.3250	0.3077	0.3217	FAIL
Sample 8	0.3329	0.3211	0.3317	PASS

Seven out of the eight samples must fulfil the crush strength requirement in order to pass the block certification

*Sample size and location as per R94.

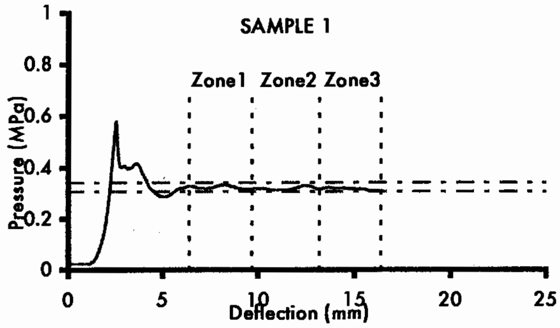
RESULT: PASSED

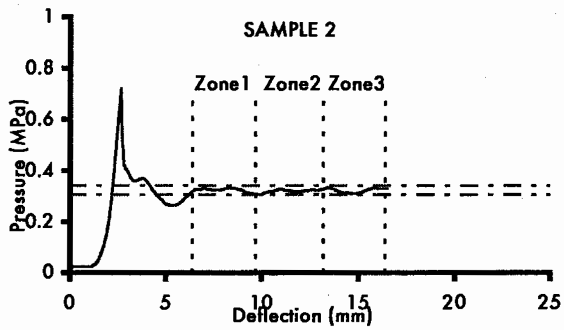
EEVC DEFORMABLE FRONTAL BARRIER
MAIN BLOCK

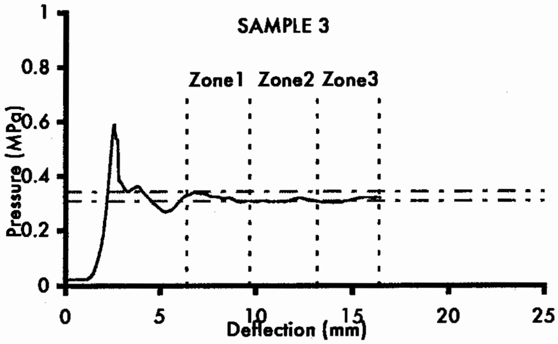
Honeycomb Type: 1.8 3/4 3003
Higher Acceptable Crush Strength Limit: 0.342 MPa
Lower Acceptable Crush Strength Limit: 0.308 MPa

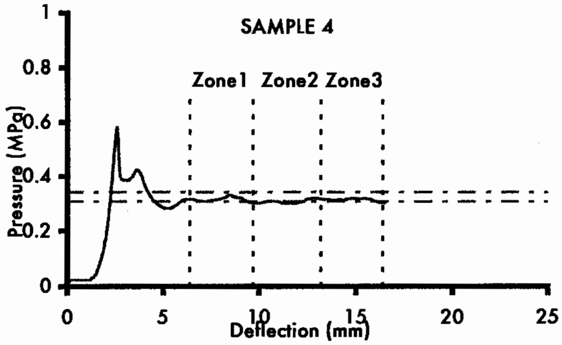
Section 1:	6.4 - 9.7mm
Section 2:	9.7 - 13.2mm
Section 3:	13.2 - 16.5mm
Speed:	6.35 mm/min

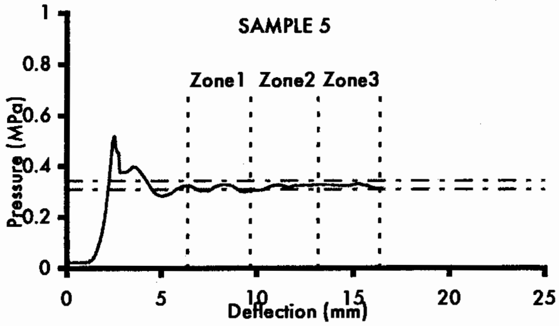
Test No: 7542-8 GR No: chc0303098gb Block No: N/A

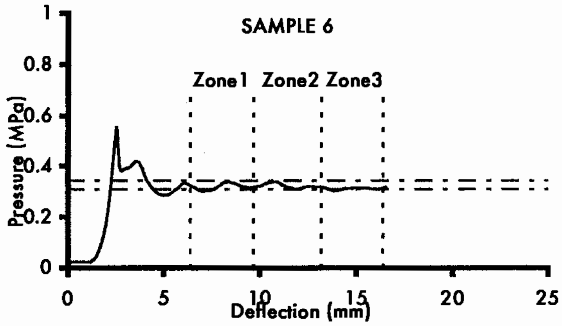


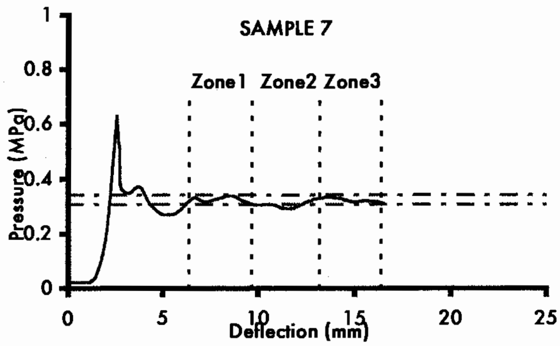


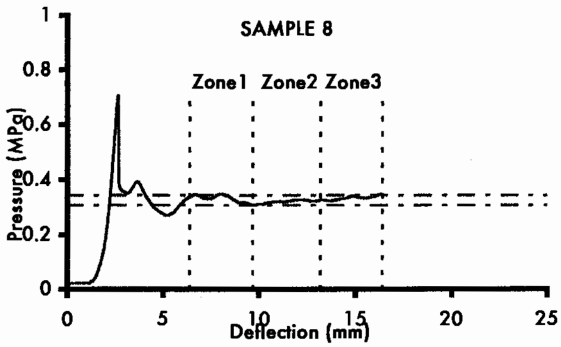












APPENDIX F

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.

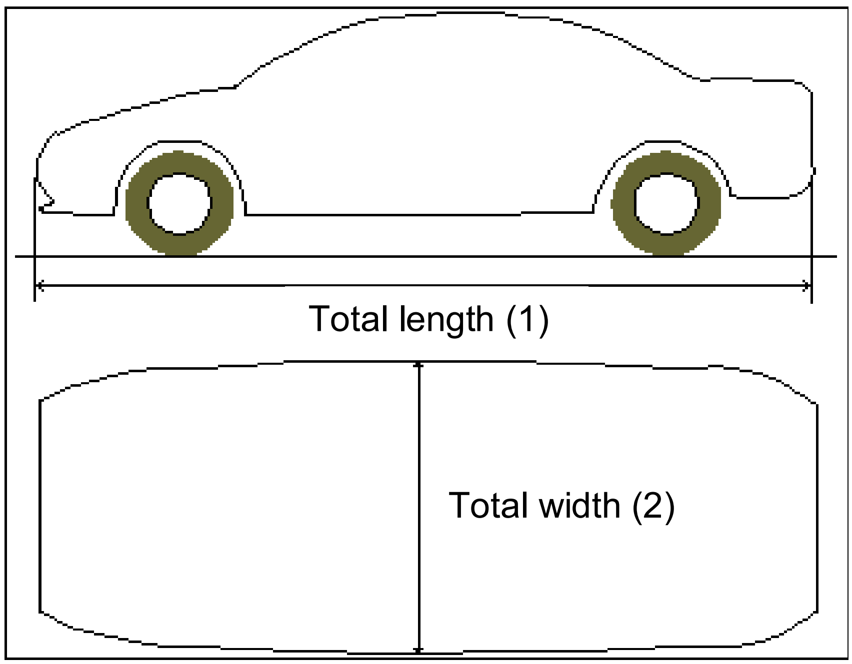


Figure 1.- Definition of the main resistant elements. General dimensions.

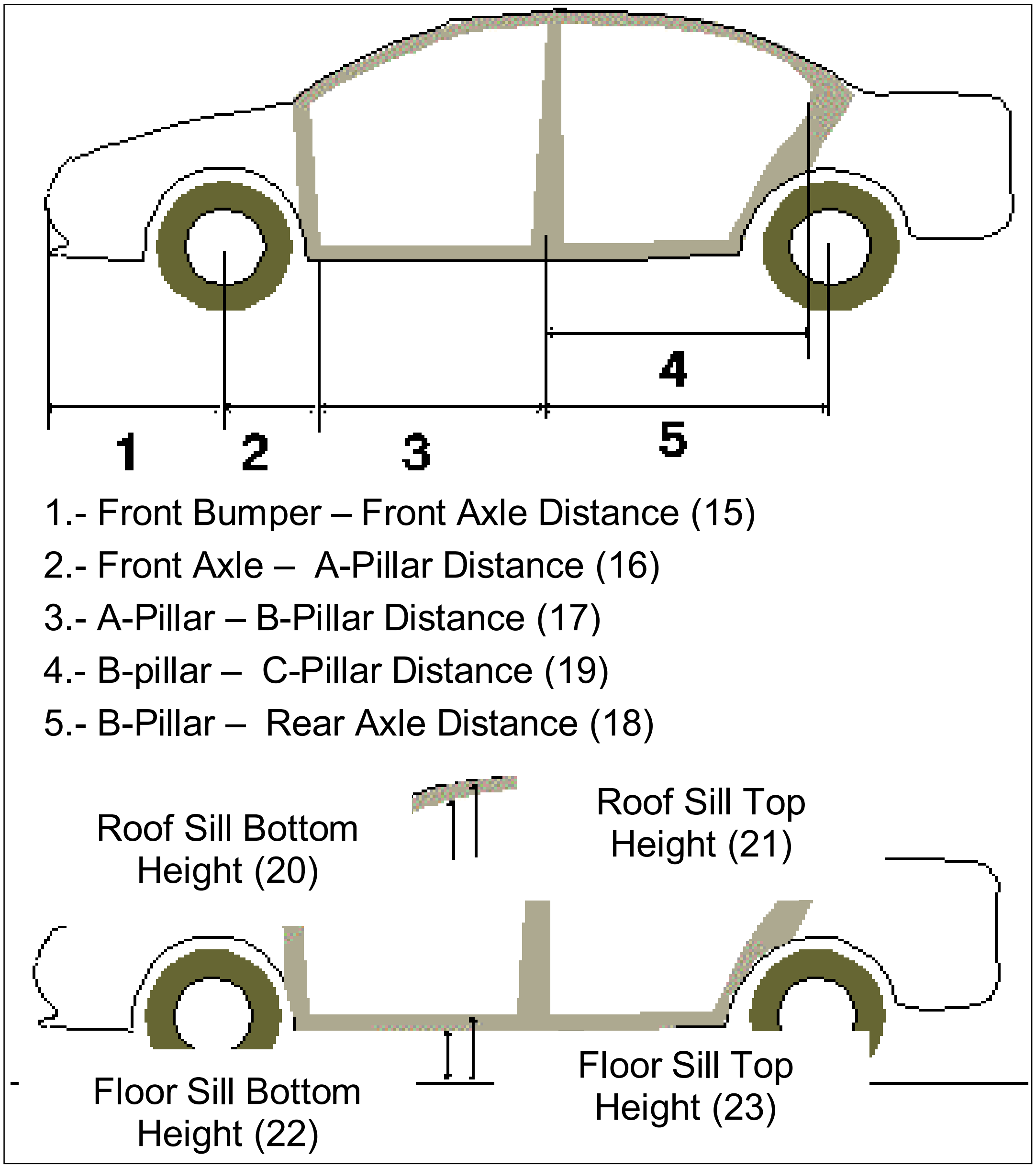


Figure 2.- Definition of the main resistant elements. Side elements.

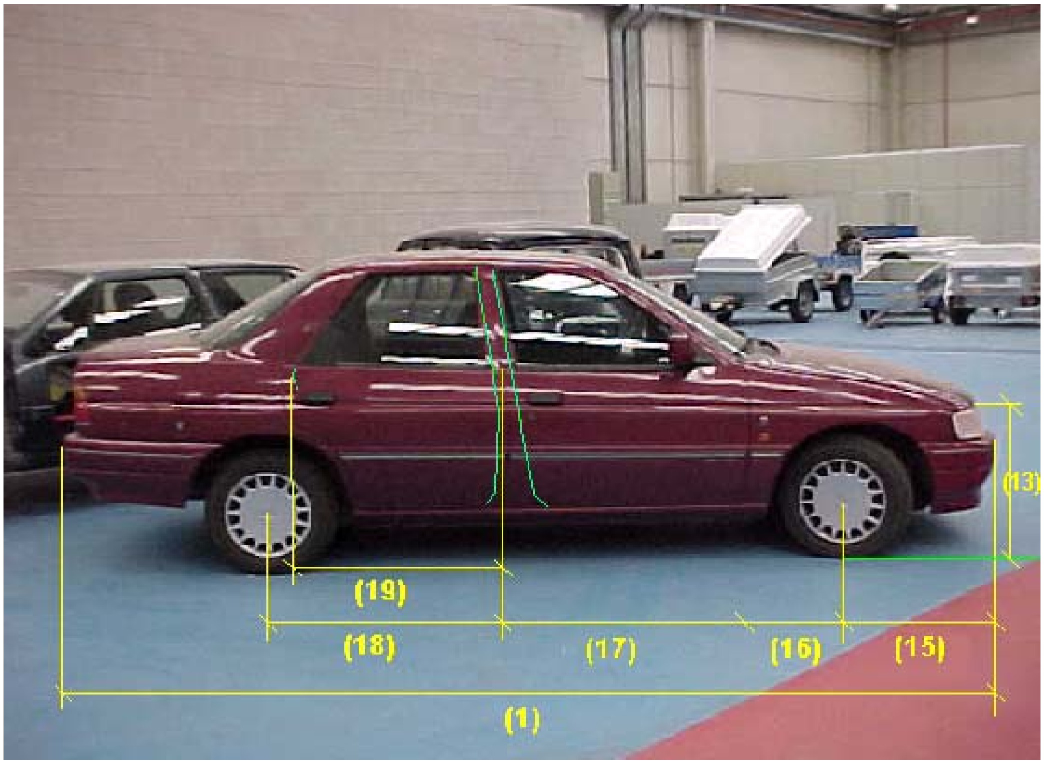


Figure 3.- Measurements of the side resistant elements (outer).

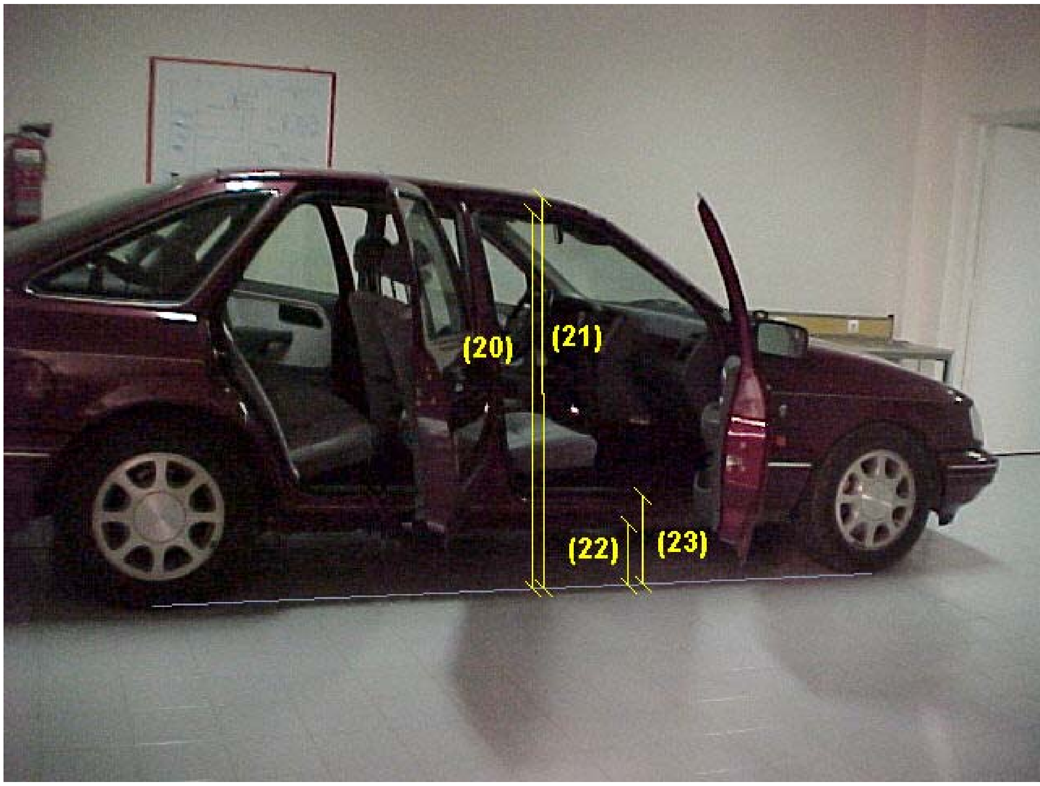


Figure 4.- Measurements of the side resistant elements (inner).

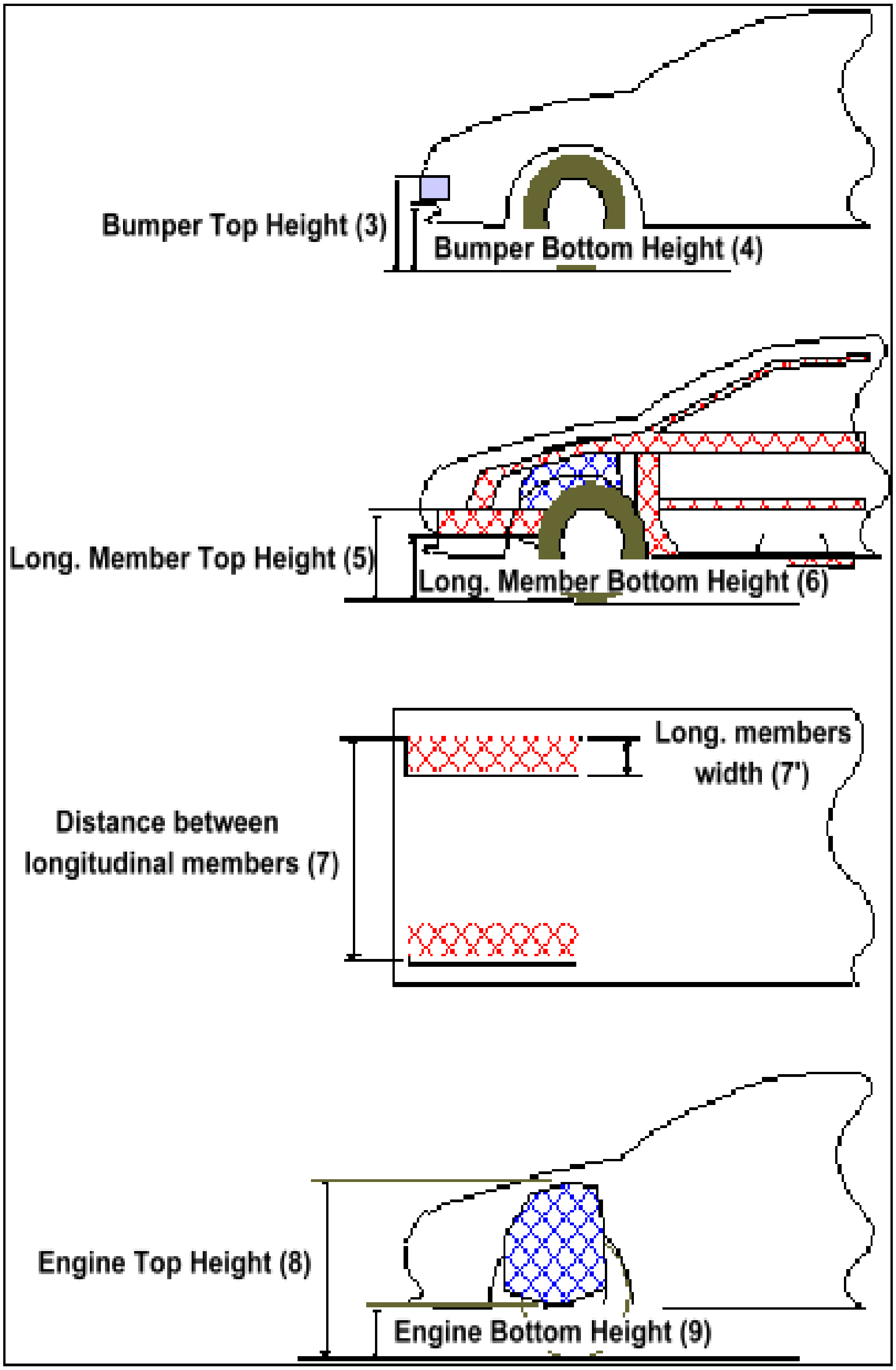


Figure 5.- Definition of the main resistant elements. Front elements.

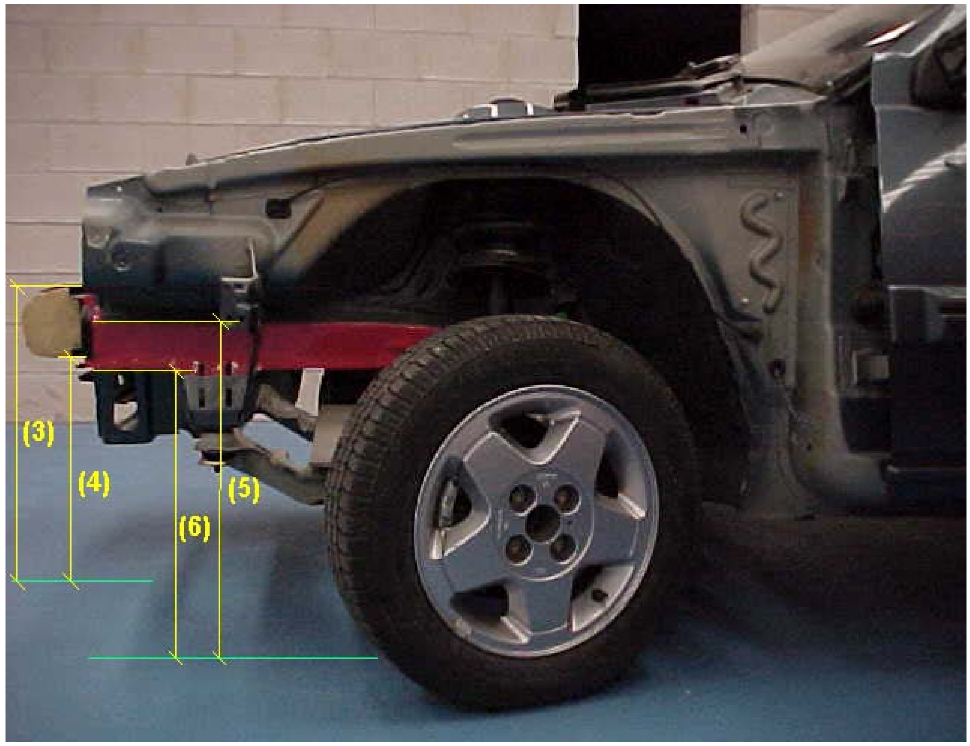


Figure 6.- Measurements of the main resistant elements. Front elements 1.

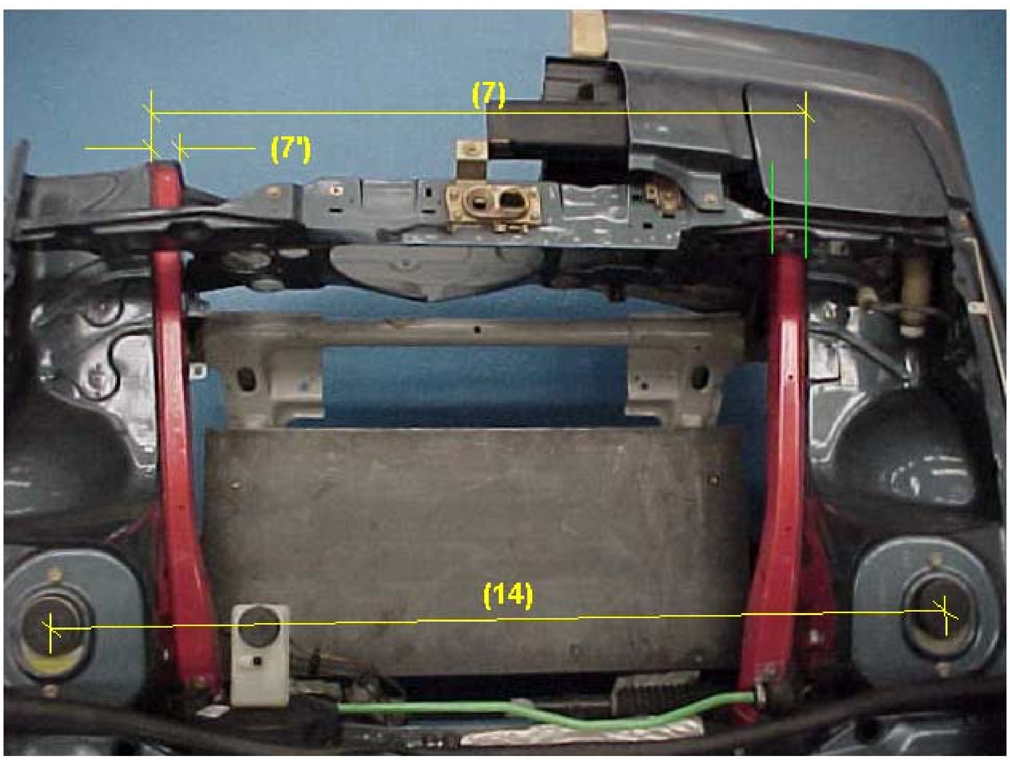


Figure 7.- Measurements of the main resistant elements. Front elements 2.

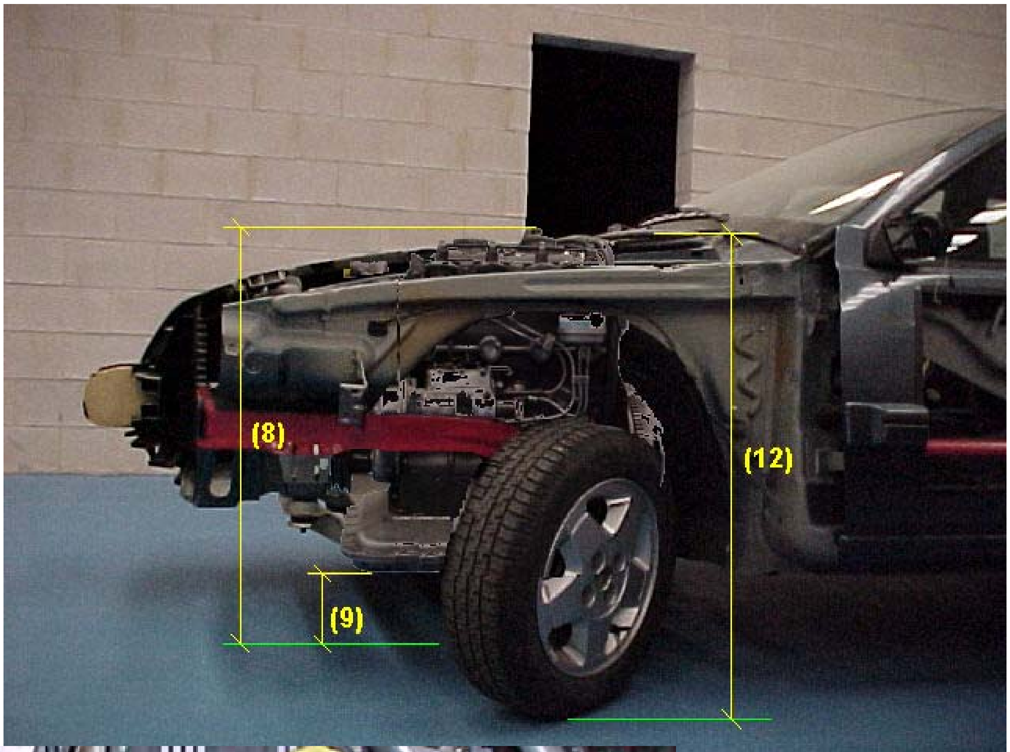


Figure 8.- Measurements of the main resistant elements. Front elements 3.

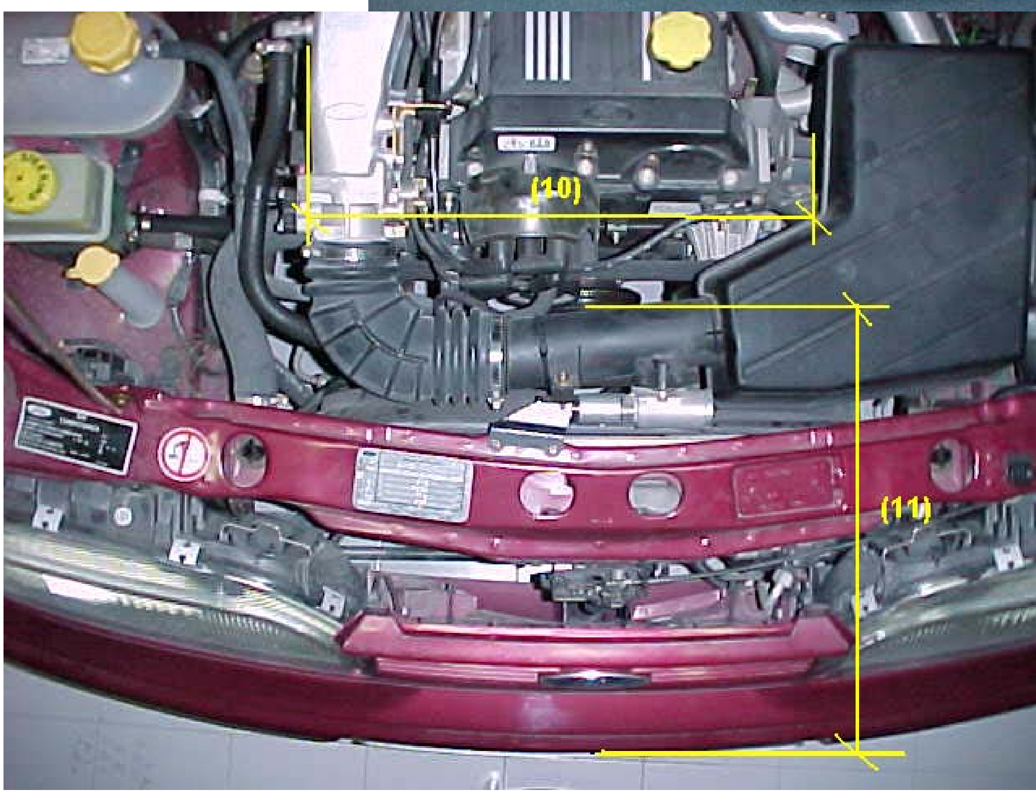


Figure 9.- Definition of the main resistant elements. Front elements (Longitudinal engine).

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.