

REPORT NUMBER: OFFSET-MGA-2004-001

**FRONTAL OFFSET-OBLIQUE MOTOR VEHICLE CRASH TESTS
WITH A MOVING DEFORMABLE BARRIER**

**1997 FORD EXPLORER
NHTSA NUMBER: RV1325**

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Test Date: February 10, 2004

Report Date: March 5, 2004

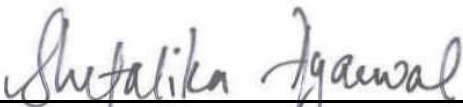
FINAL REPORT

**PREPARED FOR:
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SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This frontal offset oblique crash test is part of a four test series sponsored by the National Highway Traffic Safety Administration (NHTSA) under contract number DTNH22-01-D-12005. The purpose of the testing is to evaluate and compare vehicle and occupant responses during offset-oblique crash events in support of the NHTSA Offset Frontal Program.

SUMMARY

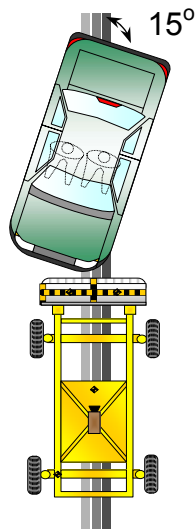
A Moving Deformable Barrier (MDB) with an instrumented load cell face and a special design deformable face without bumper struck a stationary 1997 Ford Explorer at 100 kph. The 1997 Ford Explorer was positioned at 15 degrees to the line of motion so that the center of the deformable barrier face struck the left front virtual corner of the vehicle. (See the figure below) The test was performed at MGA Research Corporation on February 10, 2004. Pre-and post-test photographs of the vehicle and dummies can be found in Appendix A. Appendix B contains the MDB, vehicle, and dummy response data traces.

One real-time camera and twelve high-speed cameras were used to document the impact event. Camera locations and other pertinent camera information can be found in this report.

One Part 572E, 50th percentile male anthropomorphic test device (ATD) was placed in the driver seating position and one Part 572O, 5th percentile female ATD was placed in the right front seating position according to dummy placement instructions specified in the FMVSS 208 TP-12 Laboratory Indicant Test Procedure.

Both ATDs were instrumented with head, chest and pelvis tri-axial accelerometers, chest displacement potentiometer, upper neck transducers, right/left femur load cells, right/left knee shear displacements, and THOR-Lx (50th) and THOR FLx (5th) lower leg instrumentation. ATD certification details, along with instrumentation calibration data, are found in Appendices C and D.

The remainder of this report contains data sheets that document the test conditions.



TEST NOTES

During post test observations it was noted that the Driver X, Y, Z accelerometers were not rigidly attached to the dummy.

The Passenger Left Upper Tibia Force Z has questionable data.

The Driver Right Knee Shear Displacement had no valid data after 120 msec.

The Passenger Right Knee Shear Displacement had no valid data collected.

The Passenger Right Mid Foot X Acceleration had no valid data after 30 msec.

41 load cells were available for the moving barrier face (capable of holding 55).

The following locations were not used for this test: 1-1, 2-1, 3-1, 4-1, 5-1, 5-3, 5-5, 5-6, 5-7, 1-11, 2-11, 3-11, 4-11, 5-11

Moving Deformable Barrier Load Cells 2-2 and 2-3 exceeded there range.

Moving Deformable Barrier Load Cell 3-3 had no valid data after 25 msec.

SECTION 2
OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	English Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	mile/h	km/h	1.609
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.573
Pressure	Tire Pressure	lbf/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	=(tf -32)/1.8
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

*Based on the Recommended Practice in SAE J916, May 85

**DATA SHEET NO. 1
CRASH TEST SUMMARY**

Test Vehicle: 1997 Ford Explorer
Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
Test Date: 02/10/04

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked/Unlocked Doors	Doors were unlocked	Doors were unlocked
Front Door Opening	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Rear Door Opening	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Seat Track Shift (mm)	14 forward	0
Seat Back Failure	None	None

TEST DUMMY INFORMATION

Description	Driver	Passenger
Dummy Type / Serial No.	HIII 50 th / 087	HIII 5 th / 547
Head Contact	Airbag and B Pillar	Airbag
Chest Contact	Airbag	Airbag
Abdomen Contact	Airbag	Airbag
Left Knee Contact	Knee Bolster	Glovebox
Right Knee Contact	Knee Bolster	Glovebox

Driver ATD Sensors	60
Passenger ATD Sensors	60
Belt Assessment Sensors	4
Vehicle Structure Accelerometers	12
Vehicle Displacement	1
Moving Barrier Load Cells	41
Moving Barrier Accelerometers	6
Timing Channels	5
Total	189

DATA SHEET NO. 2**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

TEST VEHICLE INFORMATION

Manufacturer	Ford
Model	Explorer
Body Style	SUV
NHTSA No.	RV1325
VIN	1FMDU34EXVZB34350
Color	Green
Odometer Reading (mile)	120,118
Transmission	Automatic
Final Drive	4 WD
Number of Cylinders	6
Engine Displacement (L)	4.0
Engine Placement	Longitudinal

TEST VEHICLE OPTIONS

Driver Airbag	Yes
Passenger Airbag	Yes
Power Windows	Yes
Power Steering	Yes
Power Door Locks	Yes
Tilt Wheel	Yes
Air Conditioning	Yes
Power Brakes	Yes
Disc Brakes, Front	Yes
Disc Brakes, Rear	Yes
Anti-lock Brakes	Yes
AM/FM/Cassette	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company	GVWR (kg)	2422
Date of Manufacture	3/97	GAWR Front (kg)	1229
		GAWR Rear (kg)	1338

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Cold Pressure (kPa)	179	179
Recommended Tire Size	P235/75R15	P235/75R15
Tire Size on Vehicle	P235/75R15	P235/75R15
Tire Manufacturer	Michelin	Michelin

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number Of Occupants	2	3		5

DATA SHEET NO. 2... (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	561.1	471.3		577.9	562.5	
Right	kg	514.8	455.9		526.6	536.6	
Ratio	%	53.7	46.3		50.1	49.9	
Totals	kg	1075.9	927.2	2003.1	1104.5	1099.1	2203.6

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	2003.1
Weight of 1 P572E & 1 P572O ATDs	kg	127.0
Rated Cargo/Luggage Weight (RCLW)	kg	79.4
Calculated Vehicle Target Weight (TVTW)	kg	2209.5

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	823	837	814	824	1317
As Tested	mm	829	842	787	804	1419
Post Test	mm	792	784	696	900	

Vehicle Wheelbase (mm): 2845

Weight of Ballast secured in cargo area (kg): 93.0

Vehicle Components Removed: Rear carpet, jack, right rear taillight

Ballast weight does not include instrumentation and data acquisition system.

TEST SPEED

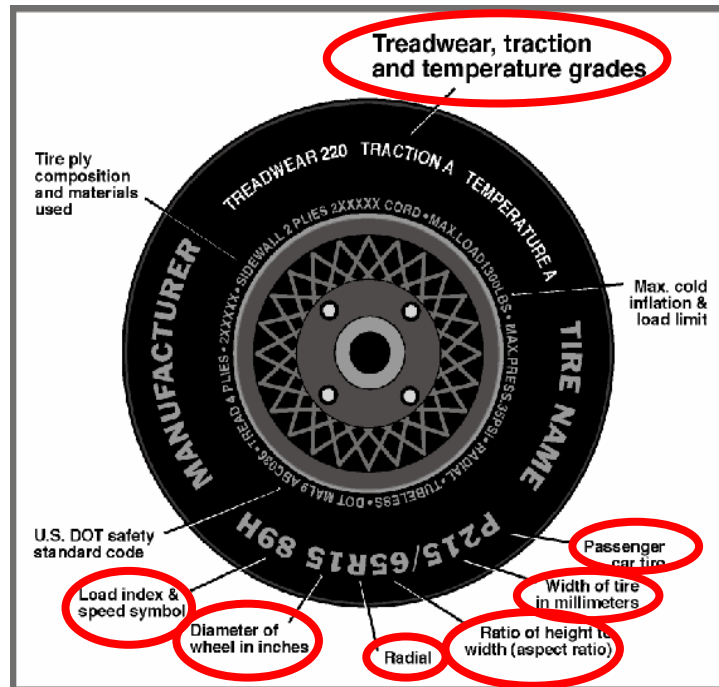
Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	98.5 - 101.5	99.8

DATA SHEET NO. 3
TEST VEHICLE TIRE INFORMATION

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

Vehicle Year	1997	Vehicle Make	Ford
VIN	1FMDU34EXVZB34350	Vehicle Model	Explorer



	Front	Rear
Tire Manufacturer	Michelin	Michelin
Tire Name	XCX / APT	XCX / APT
Tire Type	T	T
Tire Width (mm)	235	235
Ratio of Height to Width (aspect ratio)	75	75
Radial	R	R
Wheel Diameter	15	15
Load Index & Speed Symbol	105S	105S
Treadwear	380	380
Traction Grade	A	A
Temperature Grade	B	B

DATA SHEET NO. 4
TEST VEHICLE INFORMATION

Test Vehicle: 1997 Ford Explorer
Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
Test Date: 02/10/04

SEAT BACK POSITION

Driver seat back angle: 20.3° on seat back frame

Passenger seat back angle: 17.1° on seat back frame

SEAT FORE/AFT POSITIONS

The driver and passenger seat were electric operated.

Driver seat fore/aft total travel: 250 mm

Passenger seat fore/aft total travel: 250 mm

Driver seat fore/aft position: 125 mm

Passenger seat fore/aft position: 18 mm rear of full forward

SEAT BELT UPPER ANCHORAGE

This vehicle doesn't have D-Ring adjustment.

FUEL TANK CAPACITY DATA

The fuel tank was filled with 19.5 gallons of water for ballast.

STEERING COLUMN ADJUSTMENT

Adjustable steering controls are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions.

Lowermost, position 1: 13.1°

Geometric center, position 2: 20.9°

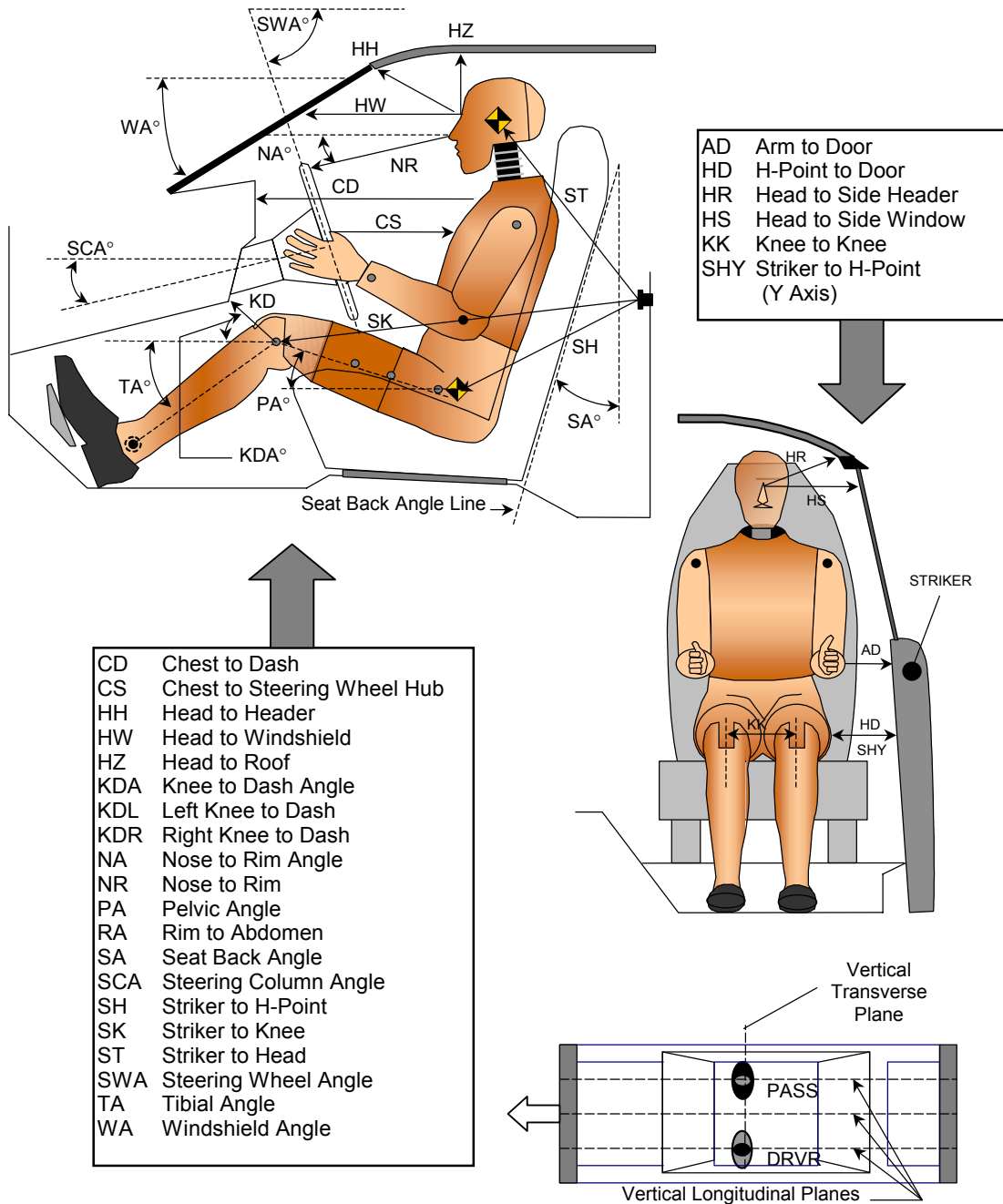
Uppermost position 3: 29.1°

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

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



DATA SHEET NO. 5... (continued)
DUMMY POSITIONING IN VEHICLE

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

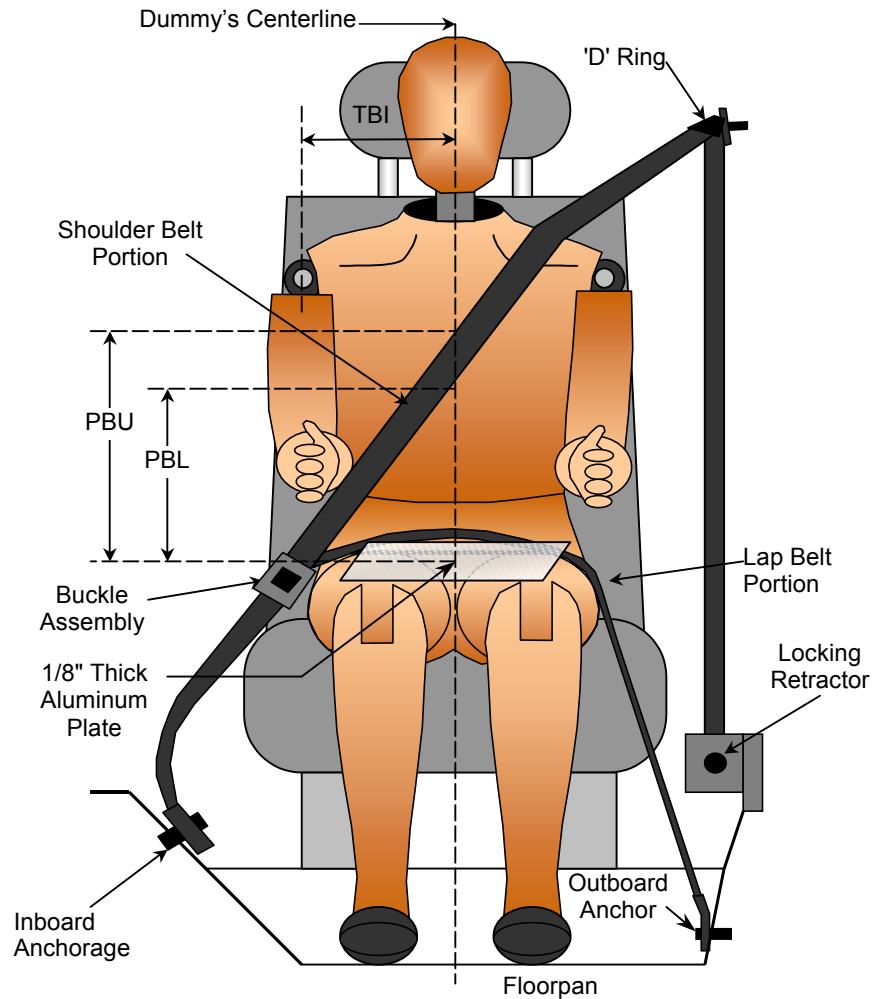
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		38		
SWA	Steering Wheel Angle		69		
SCA	Steering Column Angle		22		
SA	Seat Back Angle		20.3		17.1
HZ	Head to Roof (Z)	221	90	269	90
HH	Head to Header	409	20	336	40
HW	Head to Windshield	594	0	521	0
HR	Head to Side Header (Y)	263		280	
NR	Nose to Rim	364	8		
CD	Chest to Dash	521		441	
CS	Chest to Steering Hub	296	3		
RA	Rim to Abdomen	165	0		
KDL	Left Knee to Dash	145	36	59	
KDR	Right Knee to Dash	146		65	29
PA	Pelvic Angle		24.9		24.8
TA	Tibia Angle		40.0		61.7
KK	Knee to Knee (Y)	291		209	
SK	Striker to Knee	606	86	692	83
ST	Striker to Head	541	15	529	24
SH	Striker to H-Point	246	100	381	94
SHY	Striker to H-Point (Y)	226		269	
HS	Head to Side Window	337		359	
HD	H-Point to Door (Y)	141		165	
AD	Arm to Door (Y)	106		139	
AA	Ankle to Ankle	232		153	

DATA SHEET NO. 6 **SEAT BELT POSITIONING DATA**

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy centerline to shoulder bolt	mm	170	170
PBU - Top surface of reference to belt upper edge	mm	304	253
PBL - To surface of reference to belt lower edge	mm	214	176

DATA SHEET NO. 7

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

VEHICLE ACCELEROMETER PEAK DATA

Accelerometer Location	Peak Values				
	Units	Max	Time	Min	Time
Left Rear Seat Crossmember X	G's	1.8	169	-36.4	64
Left Rear Seat Crossmember Y	G's	11.4	59	-4.1	86
Right Rear Seat Crossmember X	G's	2.6	113	-38.3	63
Right Rear Seat Crossmember Y	G's	12.9	65	-2.3	129
Vehicle CG X	G's	5.8	94	-52.0	57
Vehicle CG Y	G's	30.8	75	-11.4	137
Vehicle CG Z	G's	26.5	52	-26.3	75
Toe Pan (Accelerator) X	G's	13.8	70	-80.6	49
Toe Pan (Accelerator) Y	G's	59.5	54	-10.4	46
Toe Pan (Footrest) X	G's	17.5	80	-102.8	57
Toe Pan (Footrest) Y	G's	56.3	55	-20.5	67
Rear Deck Z	G's	22.1	87	-19.9	94

Accelerometer Location	Pre Test Measurements (mm)			Post Test Measurements (mm)		
	X	Y	Z	X	Y	Z
Left Rear Seat Crossmember	1905	-577	515	1891	-586	359
Right Rear Seat Crossmember	1920	577	530	1889	585	550
Vehicle CG	2680	0	675	2625	-45	440
Toe Pan (Accelerator)	3175	-270	610	3221	-249	392
Toe Pan (Footrest)	3195	-620	665	3280	-608	454
Rear Deck	948	0	710	948	0	809

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

DATA SHEET NO. 8

HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 1997 Ford Explorer
Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
Test Date: 02/10/04

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	26.9	165	-73.4	80	7.6	174	-57.0	75
Head CG	Y	G's	22.8	113	-124.8	165	13.9	69	-14.0	58
Head CG	Z	G's	49.9	165	-20.8	92	17.3	74	-22.1	94
Head CG Resultant	N/A	G's	133.9	165			59.0	74		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	10.7	111	-49.9	76	10.3	132	-51.1	74
Chest CG	Y	G's	34.5	91	-3.8	53	19.6	86	-3.8	173
Chest CG	Z	G's	16.2	68	-25.1	97	10.8	74	-14.1	97
Chest CG Resultant	N/A	G's	51.9	76			52.5	74		

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	mm			-21.6	80			-15.3	81

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	604	86	-4436	60	195	107	-2997	49
Right Femur	Z	Newtons	789	81	-6413	53	222	83	-2580	67

HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	Avg. G's	T ¹	T ²	HIC	Avg. G's	T ¹	T ²
HIC 36	549	50.9	64.9	94.6	405	43.4	58.2	90.9
HIC 15	474	63.1	71.7	86.7	309	53.2	66.3	81.3

CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	49.9	74.2	77.2	49.0	72.7	75.7

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Lap Belt Force	N/A	Newtons	3838	66			2138	73		
Shoulder Belt Force	N/A	Newtons	5511	77			4770	76		

DATA SHEET NO. 8... (continued)

HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 1997 Ford Explorer
Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
Test Date: 02/10/04

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	511	117	-304	166	498	79	-136	63
Neck Force	Y	Newtons	828	113	-158	164	327	134	-248	94
Neck Force	Z	Newtons	2170	76	-420	168	1774	74	-509	105
Neck Moment	X	N•m	56.5	120	-32.0	95	24.6	134	-17.8	72
Neck Moment	Y	N•m	28.7	109	-53.4	131	24.2	120	-24.0	88
Neck Moment	Z	N•m	16.1	109	-33.8	171	8.3	77	-20.6	106

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	35.4	104	-102.7	41	11.2	113	-47.4	72
Pelvis	Y	G's	30.8	85	-34.5	157	29.7	83	-7.2	52
Pelvis	Z	G's	24.0	41	-37.6	35	5.4	167	-21.4	91

** The driver accelerometers were found to be loose during post test observation

UPPER AND LOWER TIBIA PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Lower Moment	X	N•m	97.4	69	-70.9	61	93.2	57	-21.0	65
Left Lower Moment	Y	N•m	17.9	76	-75.1	62	48.4	48	-118.1	55
Left Lower Force	X	Newtons	889	62	-172	103	962	47	-1360	55
Left Lower Force	Y	Newtons	1250	62	-150	89	867	58	-127	158
Left Lower Force	Z	Newtons	477	103	-4707	61	209	47	-4311	58
Left Upper Moment	X	N•m	138.7	62	-46.3	74	26.1	152	-112.6	58
Left Upper Moment	Y	N•m	127.6	63	-19.5	102	70.3	48	-132.6	55
Left Upper Force	X	Newtons	233	62	-384	58	869	55	-706	48
Left Upper Force	Z	Newtons	97	106	-3368	62	2894*	81*	-3251*	71*
Right Lower Moment	X	N•m	165.7	68	-7.2	86	41.5	184	-36.0	64
Right Lower Moment	Y	N•m	51.2	66	-79.6	54	14.3	65	-79.9	55
Right Lower Force	X	Newtons	183	89	-758	57	198	50	-712	56
Right Lower Force	Y	Newtons	205	71	-304	58	982	63	-181	185
Right Lower Force	Z	Newtons	585	118	-3607	62	140	158	-1884	65
Right Upper Moment	X	N•m	40.7	57	-101.7	71	54.7	192	-66.7	63
Right Upper Moment	Y	N•m	55.0	183	-129.4	55	31.5	50	-72.5	56
Right Upper Force	X	Newtons	520	55	-495	67	451	56	-429	50
Right Upper Force	Z	Newtons	800	111	-2222	62	292	126	-649	66

* Questionable Data

DATA SHEET NO. 8... (continued)

HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 1997 Ford Explorer
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NHTSA No.: RV1325
Test Date: 02/10/04

KNEE SHEAR DISPLACEMENT

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left	X	mm	0.2	200	-4.1	57	0.7	56	-3.1	50
Right	Z	mm	0	15	-3.0	54	*	*	*	*

* No valid data collected

** Driver Right had no valid data collected after 120 msec

TIBIA MID SHAFT ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left	X	G's	14.1	76	-73.9	62	84.0	48	-214.7	47
Left	Y	G's	81.7	61	-22.6	73	117.4	57	-30.2	70
Right Mid Foot	X	G's	25.1	66	-73.2	53	14.2	62	-152.6	53
Right Mid Foot	Y	G's	46.5	62	-19.5	84	139.3	62	-12.6	84

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Mid Foot	X	G's	31.2	74	-65.0	52	141.4	61	-259.8	49
Left Mid Foot	Y	G's	49.7	56	-28.5	68	165.2	57	-376.0	62
Left Mid Foot	Z	G's	28.1	77	-111.9	59	179.3	61	-200.5	54
Right Mid Foot	X	G's	45.7	71	-71.5	54	*	*	*	*
Right Mid Foot	Y	G's	82.8	62	-14.1	82	214.0	52	-85.2	64
Right Mid Foot	Z	G's	36.4	61	-108.3	51	91.9	56	-203.8	53

* No valid data collected after 30 msec

FOOT ROTATIONS

Location	Units	Driver				Passenger			
		Max	Time	Min	Time	Max	Time	Min	Time
Left Dorsiflexion / Plantar Flexion	Degrees	12.8	73	-15.4	38	42.9	62	-3.8	11
Left Inversion / Eversion	Degrees	42.5	69	4.2	0	19.7	88	0	0
Left Internal / External	Degrees	6.9	159	-8.5	90	3.0	62	-10.1	200
Right Dorsiflexion / Plantar Flexion	Degrees	23.7	74	-8.7	177	39.1	69	-19.6	180
Right Inversion / Eversion	Degrees	1.5	26	-38.9	70	12.3	194	-1.3	0
Right Internal / External	Degrees	0.3	50	-6.8	101	7.4	68	-13.0	190

DATA SHEET NO. 8... (continued)

HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	24.6	165	-74.8	79	9.4	119	-60.4	76
Head CG	Y	G's	23.5	111	-124.0	165	14.1	69	-13.9	58
Head CG	Z	G's	54.5	165	-18.8	91	14.1	168	-17.5	92
Head CG Resultant	N/A	G's	135.5	165			61.5	76		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	11.6	113	-49.2	76	10.5	124	-51.7	74
Chest CG	Y	G's	32.4	93	-3.5	134	20.4	85	-3.8	64
Chest CG	Z	G's	15.8	68	-26.4	95	12.0	75	-14.6	94
Chest CG Resultant	N/A	G's	51.1	76			53.1	74		

REDUNDANT HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	Avg.	T ¹	T ²	HIC	Avg.	T ¹	T ²
HIC 36	543	50.1	64.4	95.0	378	42.6	58.1	90.1
HIC 15	468	62.8	71.7	86.7	289	51.8	66.2	81.2

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	49.2	74.2	77.2	49.3	72.6	75.6

NECK INJURY CRITERIA

Location	Driver	Passenger
N _{te} (Tension – Extension)	0.5	0.5
N _{tf} (Tension – Flexion)	0.3	0.5
N _{ce} (Compression – Extension)	0.3	0.4
N _{cf} (Compression – Flexion)	0	0.2

DATA SHEET NO. 9
SEAT BELT ASSESSMENT AND POST TEST AIRBAG DATA

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Retractor reel to "D" ring	mm	542	542
Shoulder belt length as measured on ATD	mm	854	896
Lap belt length as measured on ATD	mm	894	1011
Remainder of belt on reel	mm	860	651
Total belt length for continuous webbing systems	mm	3150	3100

BELT SPOOL-OUT DATA

Measurement Description	Units	Driver	Passenger
At the Retractor	mm	22	13
At the Shoulder	mm	78	String broke

POST TEST AIRBAG DATA

Number of Vent Holes			
Driver	2	Passenger	2
Size of Vent Holes (Note whether round or square)			
Driver	Round 16 mm diameter	Passenger	Round 55 mm diameter
Total Vent Area			
Driver	201 mm ²	Passenger	2375 mm ²
Deflated Airbag Length and Width Dimensions or, if Round, Diameter			
Driver	Length:	Width:	Diameter: 626 mm
Passenger	Length: 642 mm	Width: 950 mm	Diameter:
Is the Airbag Tethered?			
Driver	Yes		Length: 330 mm
Passenger		No	Length:

DATA SHEET NO. 10
SUMMARY OF FMVSS 212 DATA

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

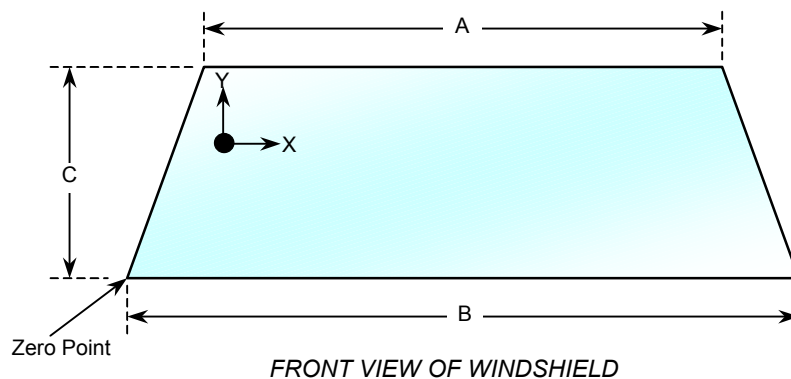
Windshield Mounting Details:

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.

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% of Retention
Left Side	2116	2116	100
Right Side	2116	2116	100
Total	4232	4232	100



WINDSHIELD DIMENSIONS

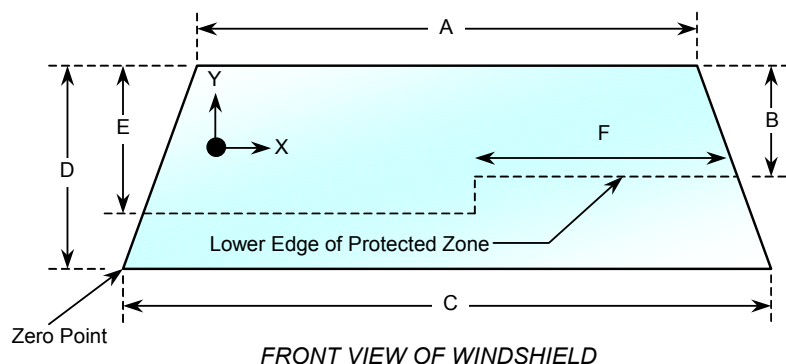
Item	Units	Segment Length	Molding Width
A	mm	1255	20
B	mm	1538	20
C	mm	620	10

DATA SHEET NO. 11

WINDSHIELD ZONE INTRUSION FMVSS 219 (Partial) DATA

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04



Item	Units	Value
A	mm	1255
B	mm	324
C	mm	1538
D	mm	620
E	mm	437
F	mm	610

AREA OF PROTECTED ZONE FAILURES - NONE

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

X	Y

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

X	Y

DATA SHEET NO. 12
VEHICLE MEASUREMENTS

Test Vehicle: 1997 Ford Explorer
Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
Test Date: 02/10/04

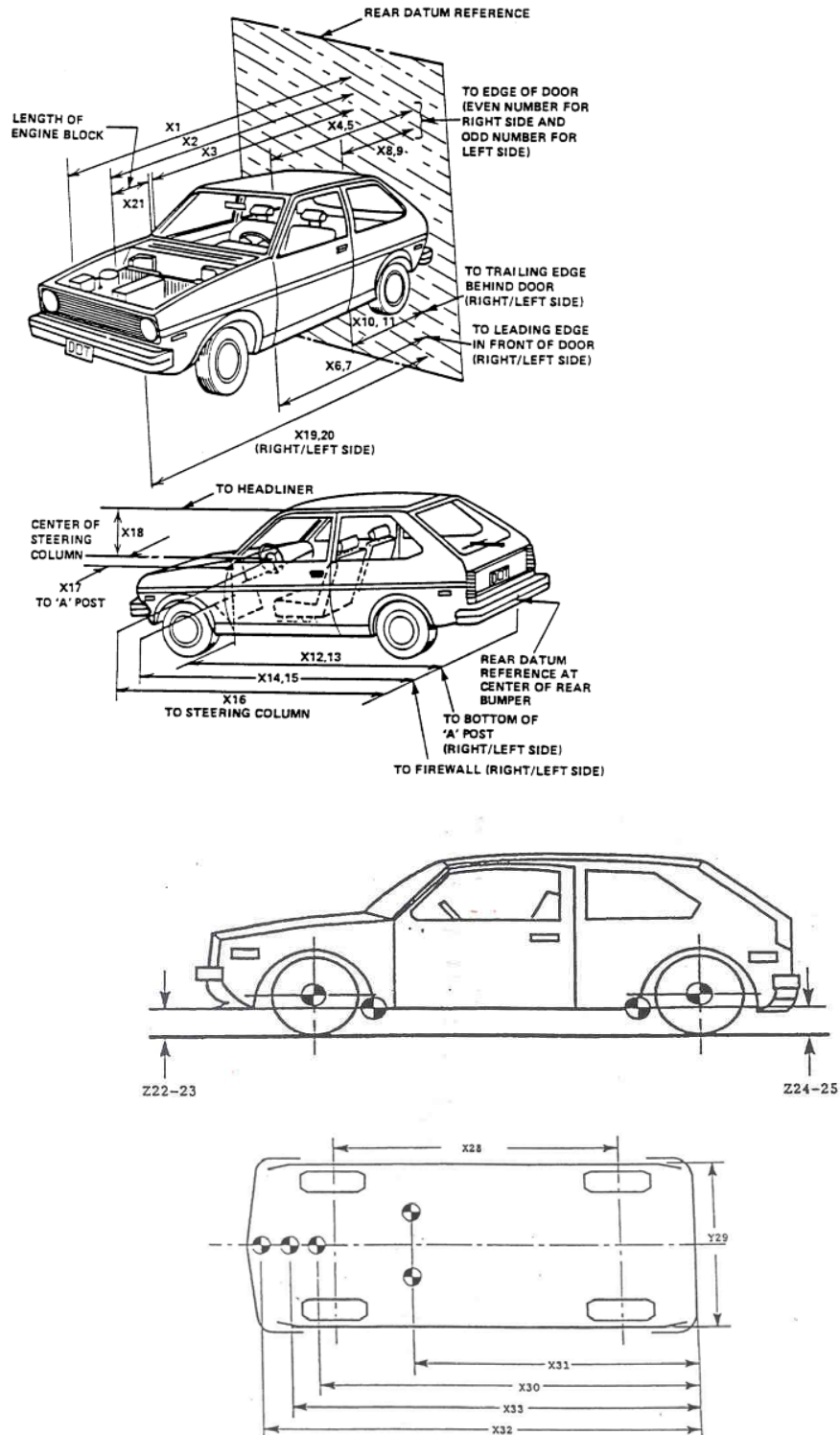
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
X1	Total length of vehicle at centerline	mm	4745	4009	736
X2	RSOV to front of engine	mm	4083	3879	204
X3	RSOV to firewall centerline	mm	3573	3478	95
X4	RSOV to leading edge of right door	mm	3272	3270	2
X5	RSOV to leading edge of left door	mm	3264	3285	-21
X6	RSOV to lower leading edge of right door	mm	3235	3202	33
X7	RSOV to lower leading edge of left door	mm	3226	3267	-41
X8	RSOV to upper leading edge of right door	mm	2252	2265	-13
X9	RSOV to upper leading edge of left door	mm	2242	2269	-27
X10	RSOV to lower trailing edge of right door	mm	2262	2244	18
X11	RSOV to lower trailing edge of left door	mm	2260	2263	-3
X12	RSOV to bottom of right 'A' pillar	mm	3229	3197	32
X13	RSOV to bottom of left 'A' pillar	mm	3216	3244	-28
X14	RSOV to firewall on right side	mm	3592	3603	-11
X15	RSOV to firewall on left side	mm	3578	3574	4
X16	RSOV to steering column	mm	2813	2937	-124
X17	Center of steering column to left 'A' pillar	mm	386	407	-21
X18	Center of steering column to headlining	mm	440	501	-61
X19	RSOV to right side of front bumper	mm	4628	4837	-209
X20	RSOV to left side of front bumper	mm	4618	4009	609
X21	Width of engine block	mm	505	505	0
Z22	Right Front Sill to Ground Plane	mm	445	390	-55
Z23	Left Front Sill to Ground Plane	mm	430	237	-193
Z24	Right Rear Sill to Ground Plane	mm	454	502	48
Z25	Left Rear Sill to Ground Plane	mm	451	309	-142
X26	Firewall to Engine or Transaxle	mm	63	42	-21
Z27	Vertical Dim. From Door Sill to Centerline of St. Col.	mm	692	782	90
X28	Wheelbase of Vehicle (left side)	mm	2845	2570	275
Y29	Width of Vehicle at Maximum Width Point	mm	1750	1748	2
X30	RSOV to Engine Target	mm	3742	3675	67
X31	RSOV to Compartment Target	mm	2677	2676	1
X32	RSOV to Bumper Target	mm	4651	4255	396
X33	RSOV to Frame Crossmember	mm	4004	3953	51

DATA SHEET NO. 12... (continued)

VEHICLE MEASUREMENTS

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04



DATA SHEET NO. 13
CAMERA LOCATIONS

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

No.	Camera View	Location (mm) *			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Side View				13	24
2	Driver Side Full View	3779	9139	1394	13	**
3	Cart Full	-787	7671	1136	13	**
4	Impact Point	3328	8481	1325	35	524
5	Drivers Side	-478	13919	1392	25	526
6	Driver Close-Up	255	7762	1433	50	503
7	Full Passenger	7554	-10193	1563	13	260
8	Cart Full View	-347	-10561	1641	13	524
9	Passenger Side Full View	3824	-13352	1613	25	262
10	Passenger Close-Up	6460	-10443	1584	50	**
11	Cart Left Side	2221	-11296	1581	25	**
12	Overhead Wide	543	0	4122	8	526
13	Overhead Close	265	-255	3869	13	521

*COORDINATES:

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

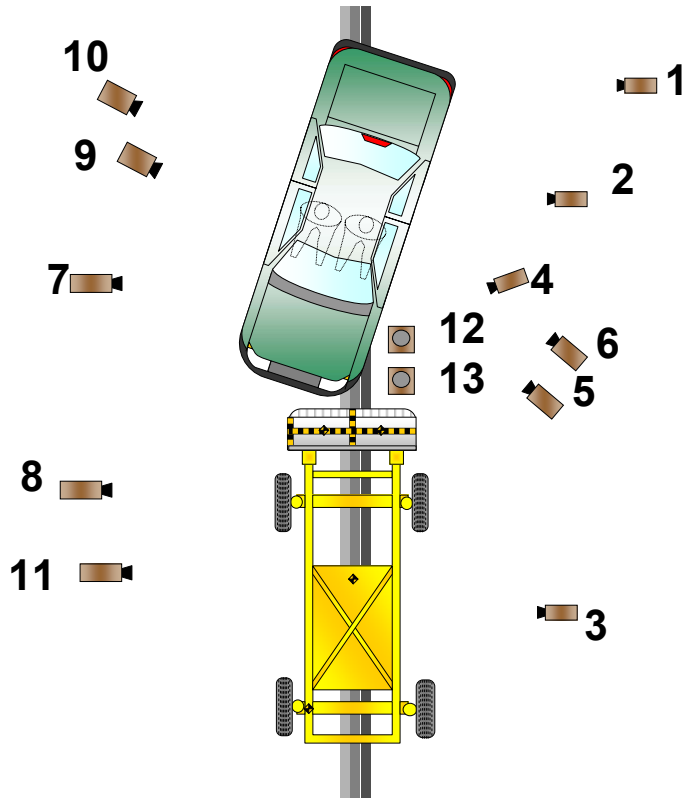
** Camera Did Not Run

DATA SHEET NO. 13... (continued)

CAMERA LOCATIONS

Test Vehicle: 1997 Ford Explorer
Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
Test Date: 02/10/04



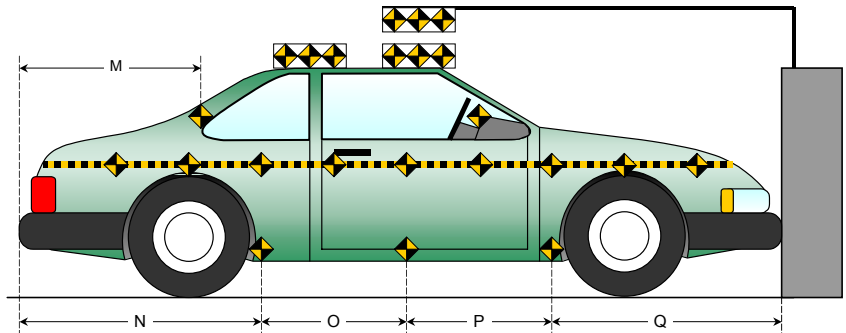
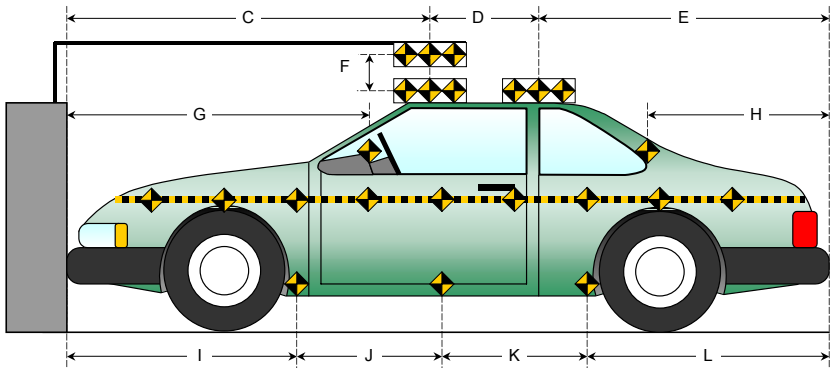
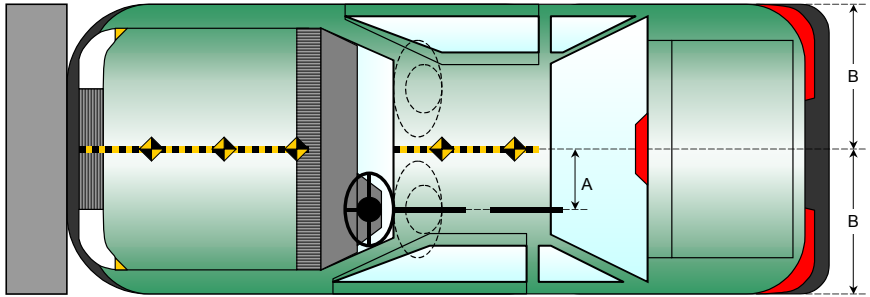
DATA SHEET NO. 14

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

Item	Value
A	360
B	875
C	2330
D	610
E	1805
F	
G	1733
H	1335
I	1370
J	915
K	910
L	1550
M	1333
N	1565
O	910
P	910
Q	1360



DATA SHEET NO. 15
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

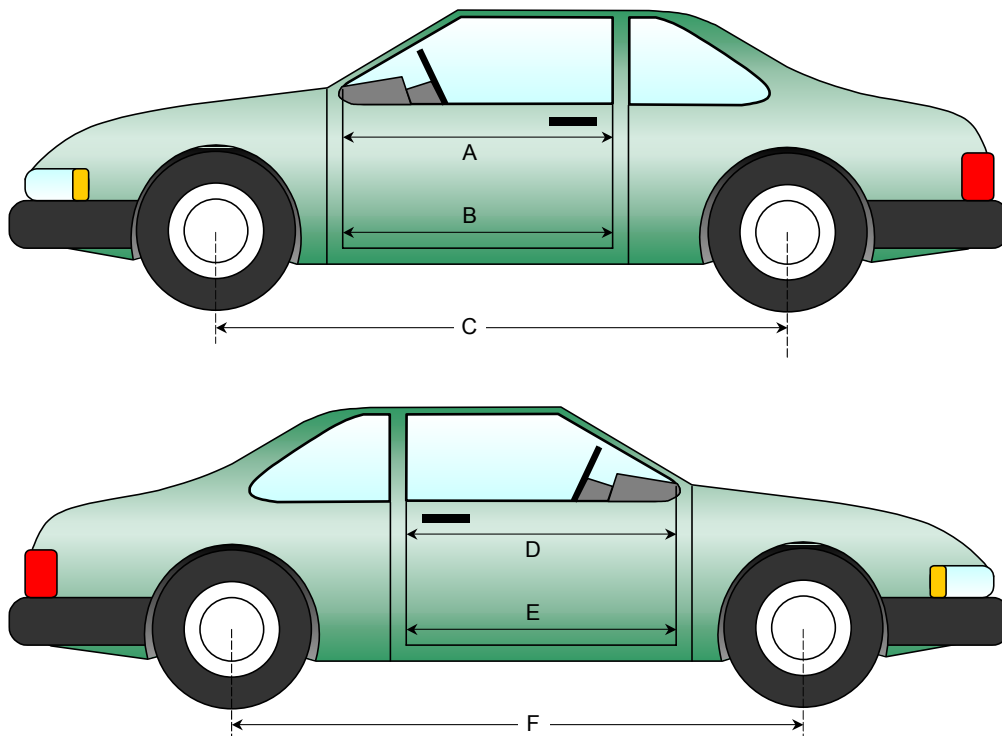
NHTSA No.: RV1325
 Test Date: 02/10/04

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	961	922	39
B	Left Side Lower	mm	811	808	3
D	Right Side Upper	mm	954	945	9
E	Right Side Lower	mm	820	819	1

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2845	2570	275
F	Right Side Wheelbase	mm	2845	2845	0



DATA SHEET NO. 15... (continued)
VEHICLE INTRUSION MEASUREMENTS

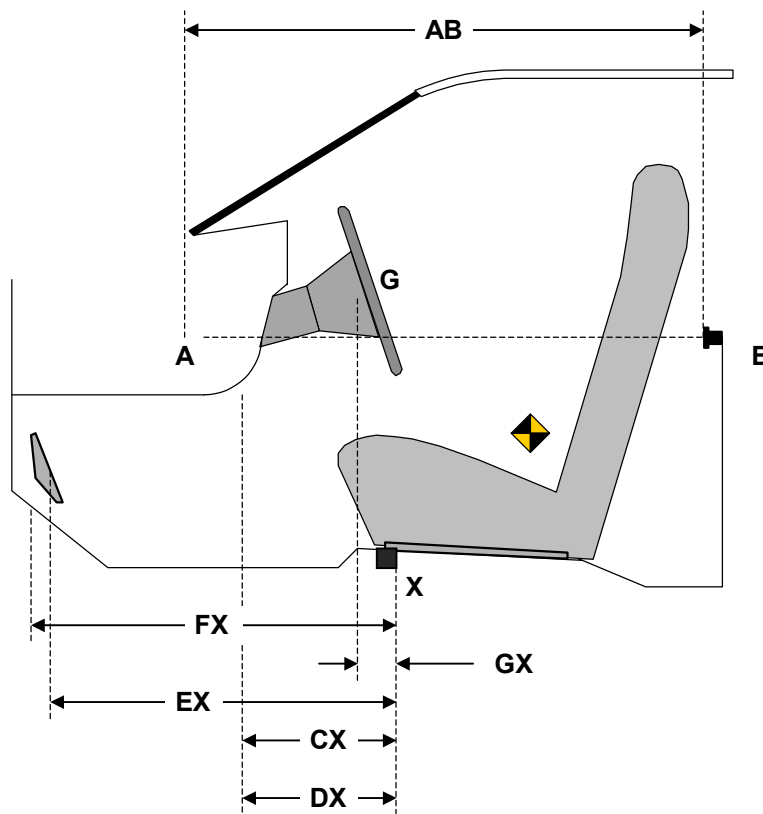
Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside window jam)	mm	961	922	39
CX	Left Knee Bolster to X	mm	265	223	42
DX	Right Knee Bolster to X	mm	232	184	48
EX	Brake Pedal to X	mm	519	498	21
FX	Foot Rest to X	mm	699	607	92
GX	Center of Steering Column Wheel Hub to X	mm	-3	55	58

X = Front of Seat Track (stationary)



DRIVER COMPARTMENT

DATA SHEET NO. 15... (continued)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

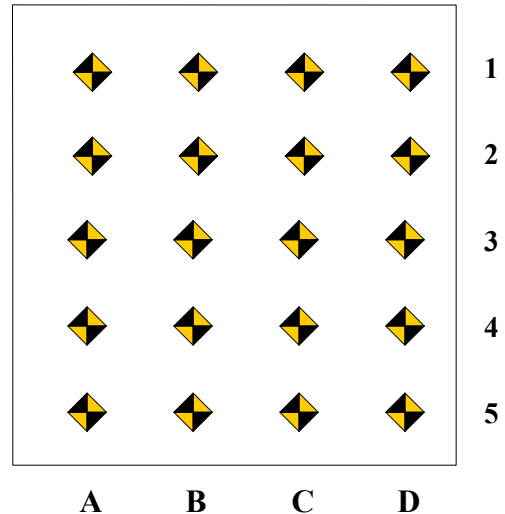
NHTSA No.: RV1325
 Test Date: 02/10/04

Measurement reference point for X and Z axis is the forward outboard seat mounting bolt.

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 FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	650	665	655	643	623	625	615	607	27	40	40	36
2	590	595	581	587	538	553	559	559	52	42	22	28
3	511	502	499	500	455	466	467	464	56	36	32	36
4	301	307	305	298	278	283	271	256	23	24	34	42
5	100	97	90	85	66	82	60	51	34	15	30	34

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	130	65	52	71	205	101	86	99	-75	-36	-34	-28
2	71	21	22	15	135	56	36	34	-64	-35	-14	-19
3	-22	-22	-30	-49	25	0	-16	-11	-47	-22	-14	-38
4	-46	-50	-54	-62	-18	-26	-46	-38	-28	-24	-8	-24
5	-44	-46	-48	-50	-19	-52	-65	-24	-25	6	17	-26

DATA SHEET NO. 15... (continued)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

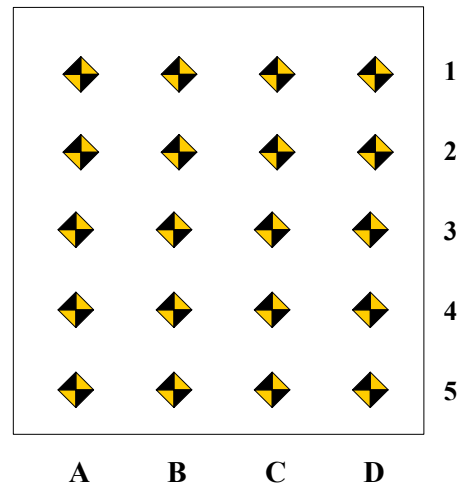
NHTSA No.: RV1325
 Test Date: 02/10/04

Measurement reference point for X and Z axis is the forward outboard seat mounting bolt.

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 FLOOR PAN X-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	681	681	675	674	560	557	642	657	121	124	33	17
2	588	593	590	596	495	544	546	589	93	49	44	7
3	501	495	506	515	419	476	498	495	82	19	8	20
4	281	290	296	302	285	296	294	296	-4	-6	2	6
5	86	89	97	97	81	86	95	87	5	3	2	10

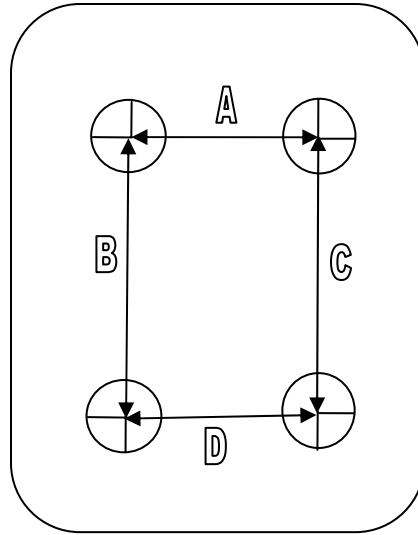
PASSENGER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	61	126	119	124	167	145	145	176	-106	-19	-26	-52
2	42	55	62	62	109	67	54	81	-67	-12	8	-19
3	-18	-35	-41	-25	23	-44	-22	-3	-41	9	-19	-22
4	-42	-46	-41	-44	-49	-71	-51	-41	7	25	10	-3
5	-41	-36	-44	-44	-85	-67	-56	-65	44	31	12	21

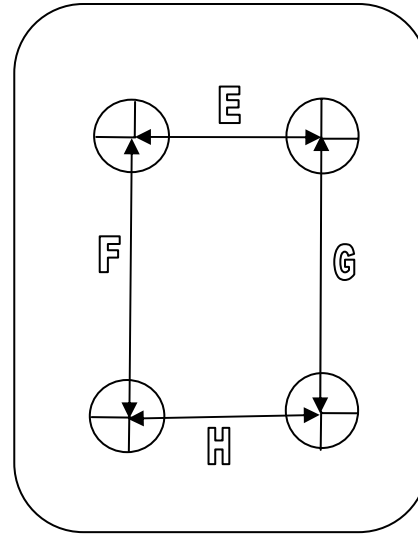
DATA SHEET NO. 15... (continued)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04



Driver



Passenger

UNDERBODY FLOORBOARD DEFORMATION

Measurement	Pre-Test	Post-Test	Difference
A	324	308	16
B	301	296	5
C	347	345	2
D	219	208	11
E	208	201	7
F	305	300	5
G	300	292	8
H	216	212	4

DATA SHEET NO. 16
IIHS VEHICLE MEASUREMENTS

Test Vehicle: 1997 Ford Explorer
Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
Test Date: 02/10/04

Location		Difference
A Pillar	X	-50
	Y	-4
	Z	94
B Pillar	X	-9
	Y	19
	Z	20
Brake Pedal	X	-25
	Y	-18
	Z	90
Footrest	X	-77
	Y	-47
	Z	119
Knee Bolster Left	X	-43
	Y	-13
	Z	104
Knee Bolster Right	X	-44
	Y	-12
	Z	109
Steering Column	X	-24
	Y	-4
	Z	110
Toepan Left	X	-88
	Y	-44
	Z	131
Toepan Center	X	-78
	Y	-43
	Z	125
Toepan Right	X	-77
	Y	-29
	Z	117
Outboard Front Seat Bolt	X	4
	Y	-13
	Z	-9
Inboard Front Seat Bolt	X	-8
	Y	-8
	Z	28
Inboard Aft Seat Bolt	X	5
	Y	3
	Z	22
Outboard Aft Seat Bolt	X	6
	Y	0
	Z	11

DATA SHEET NO. 16... (continued)
IIHS VEHICLE MEASUREMENTS

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No.: RV1325
 Test Date: 02/10/04

Location		Difference
Bumper 1 (Extreme LH)	X	-640
	Y	-337
	Z	226
Bumper 2	X	-640
	Y	336
	Z	233
Bumper 3	X	-618
	Y	-329
	Z	238
Bumper 4	X	-605
	Y	-329
	Z	247
Bumper 5	X	-519
	Y	-274
	Z	242
Bumper 6 (Mid)	X	-453
	Y	-215
	Z	263
Bumper 7	X	-313
	Y	-110
	Z	247
Bumper 8	X	-159
	Y	-24
	Z	248
Bumper 9	X	-17
	Y	42
	Z	243
Bumper 10	X	125
	Y	93
	Z	231
Bumper 11 (Extreme RH)	X	284
	Y	126
	Z	214

X – Positive forward, Y – Positive to the left, Z – Positive up

DATA SHEET NO. 17

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No. RV1325
 Test Date: 02/10/04

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	604.2	494.4	
Right	kg	642.3	458.6	
Ratio	%	56.7	43.3	
Totals	kg	1246.5	953.0	2199.5

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	6
Contact Switches	2
High Speed Cameras	2

DEFORMABLE BARRIER STATIC CRUSH

Above Ground	Distance Right of Center								C _L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
235	5	22	41	65	120	186	272	311	303	271	246	318	387	387	391	359	335
390	-67	-35	-5	28	47	112	192	212	210	205	282	349	356	334	321	326	321
545	-52	-29	9	26	28	43	88	150	166	246	335	406	416	409	405	391	377
700	5	17	29	45	73	119	122	144	194	261	337	416	424	429	426	420	420

All Dimensions in mm

DATA SHEET NO. 17... (continued)

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No. RV1325
 Test Date: 02/10/04

MDB ACCELEROMETER PEAK DATA

Loc. No.	Accelerometer Location	Peak Values (G's)				
		Axis	Max	Time	Min	Time
1	MDB CG	X	2.9	177	-38.7	49
		Y	10.0	52	-8.5	58
		Z	28.2	73	-34.1	57
		RES	43.5	57		
2	MDB Rear	X	3.4	171	-45.5	46
		Y	21.6	49	-5.4	82
		Z	21.8	49	-25.1	62
		RES	48.2	46		

Column

	11	10	9	8	7	6	5	4	3	2	1
Row 1	1-11	1-10	1-9	1-8	1-7	1-6	1-5	1-4	1-3	1-2	1-1
Row 2	2-11	2-10	2-9	2-8	2-7	2-6	2-5	2-4	2-3	2-2	2-1
Row 3	3-11	3-10	3-9	3-8	3-7	3-6	3-5	3-4	3-3	3-2	3-1
Row 4	4-11	4-10	4-9	4-8	4-7	4-6	4-5	4-4	4-3	4-2	4-1
Row 5	5-11	5-10	5-9	5-8	5-7	5-6	5-5	5-4	5-3	5-2	5-1

MDB Load Cell Configuration

DATA SHEET NO. 17... (continued)**MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS**

Test Vehicle: 1997 Ford Explorer
Test Program: Frontal Offset Oblique

NHTSA No. RV1325
Test Date: 02/10/04

MDB LOAD CELL PEAK DATA

Load Cell Location	Units	Max	Time
MDB 1-2	KN	56.3	46
MDB 1-3	KN	33.5	40
MDB 1-4	KN	18.3	39
MDB 1-5	KN	15.6	39
MDB 1-6	KN	8.1	37
MDB 1-7	KN	7.8	39
MDB 1-8	KN	5.2	38
MDB 1-9	KN	3.5	20
MDB 1-10	KN	0.7	168
MDB 2-2 (Exceeded range)	KN	104.6	46
MDB 2-3 (Exceeded range)	KN	103.2	24
MDB 2-4	KN	31.1	47
MDB 2-5	KN	13.6	49
MDB 2-6	KN	6.8	41
MDB 2-7	KN	8.3	10
MDB 2-8	KN	6.1	26
MDB 2-9	KN	5.8	69
MDB 2-10	KN	0.3	62

DATA SHEET NO. 17... (continued)

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Test Vehicle: 1997 Ford Explorer
 Test Program: Frontal Offset Oblique

NHTSA No. RV1325
 Test Date: 02/10/04

MDB LOAD CELL PEAK DATA

Load Cell Location	Units	Max	Time
MDB 3-2	KN	38.7	50
MDB 3-3	KN	*	*
MDB 3-4	KN	38.0	55
MDB 3-5	KN	10.1	53
MDB 3-6	KN	10.2	56
MDB 3-7	KN	7.9	61
MDB 3-8	KN	5.8	15
MDB 3-9	KN	7.0	77
MDB 3-10	KN	2.4	2
MDB 4-2	KN	20.9	68
MDB 4-3	KN	8.8	71
MDB 4-4	KN	25.8	72
MDB 4-5	KN	6.0	60
MDB 4-6	KN	18.9	70
MDB 4-7	KN	9.1	68
MDB 4-8	KN	5.6	26
MDB 4-9	KN	6.3	83
MDB 4-10	KN	2.8	87
MDB 5-2	KN	6.7	37
MDB 5-4	KN	7.6	31
MDB 5-8	KN	7.6	44
MDB 5-9	KN	8.2	46
MDB 5-10	KN	10.5	19

* No valid data collected

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MFG. BY FORD MOTOR CO. IN U.S.A.
DATE: 03/97
FRONT GAWR: 2710LB GVWR: 5340LB/ 2422KG
1229KG
P235/75R15SL WITH TIRES
15X7.0J RIMS
AT 179 kPa/ 26 PSI COLD
REAR GAWR: 2950LB
1338KG WITH TIRES
P235/75R15SL RIMS
15X7.0J
AT 179 kPa/ 26 PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR
VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF
MANUFACTURE SHOWN ABOVE.
VIN: 1FMDU34EXVZB34350
TYPE: MPV

RD 199

Barcode: F0114 T0089

EXT PNT: SH TR IRC: 41 DSO:
WB 112 BRK 4 INT 22 TR TP/PS A/ 8 D4 D BF
UTC 0F65B-1520472-AA

Vehicle Certification Label/Tire Placard



Pre-Test Front View of Test Vehicle

A-3.



Post-Test Front View of Test Vehicle



Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle

A-5.



Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



Pre-Test Left Side View of Test Vehicle



Post-Test Left Side View of Test Vehicle



Pre-Test Right Front $\frac{3}{4}$ View of Test Vehicle



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



Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Pre-Test Right Rear $\frac{3}{4}$ View of Test Vehicle



Post-Test Right Rear ¾ View of Test Vehicle



Pre-Test Rear View of Test Vehicle



Post-Test Rear View of Test Vehicle



Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Windshield View



Post-Test Windshield View



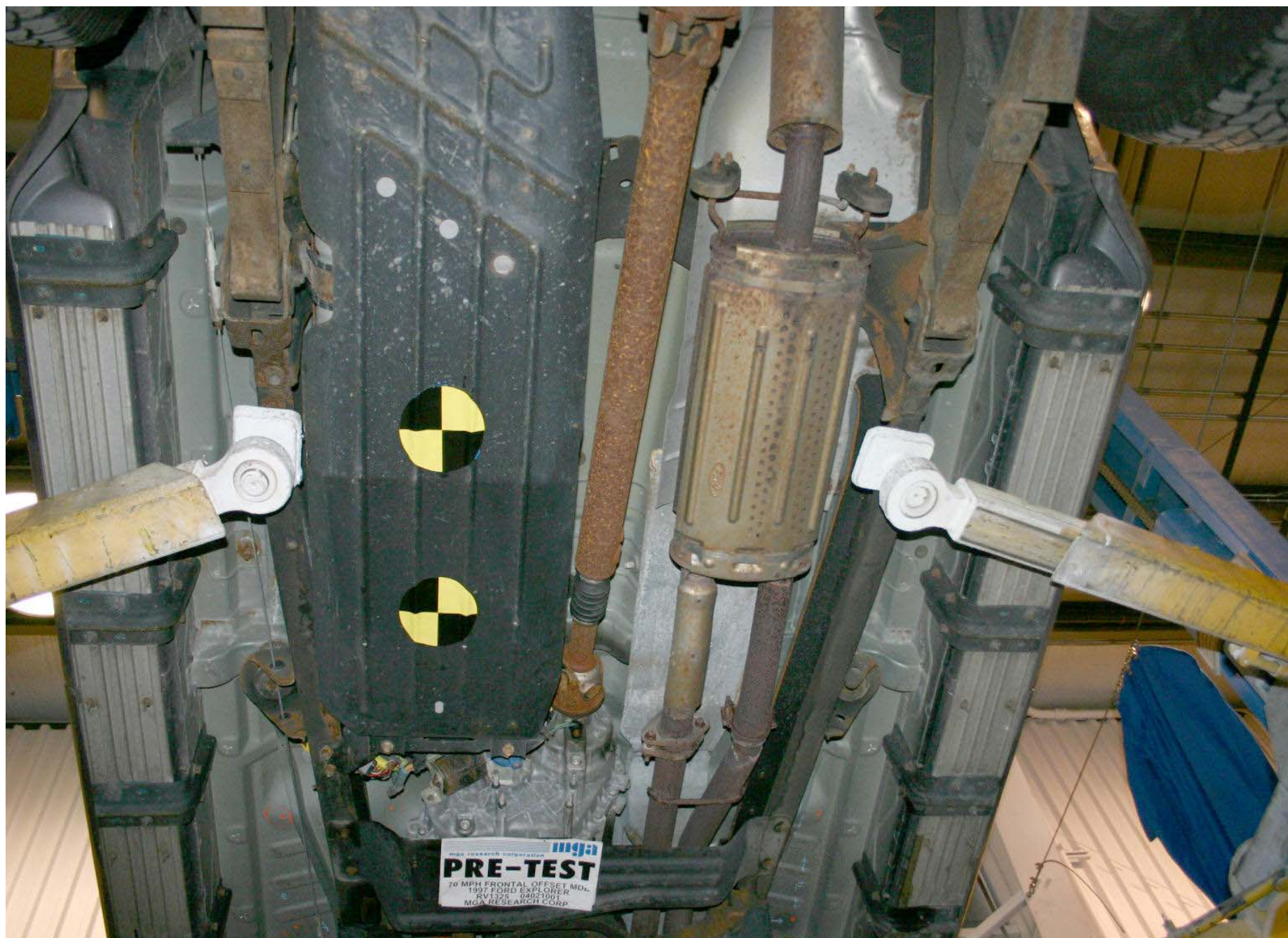
Post-Test Engine Compartment View



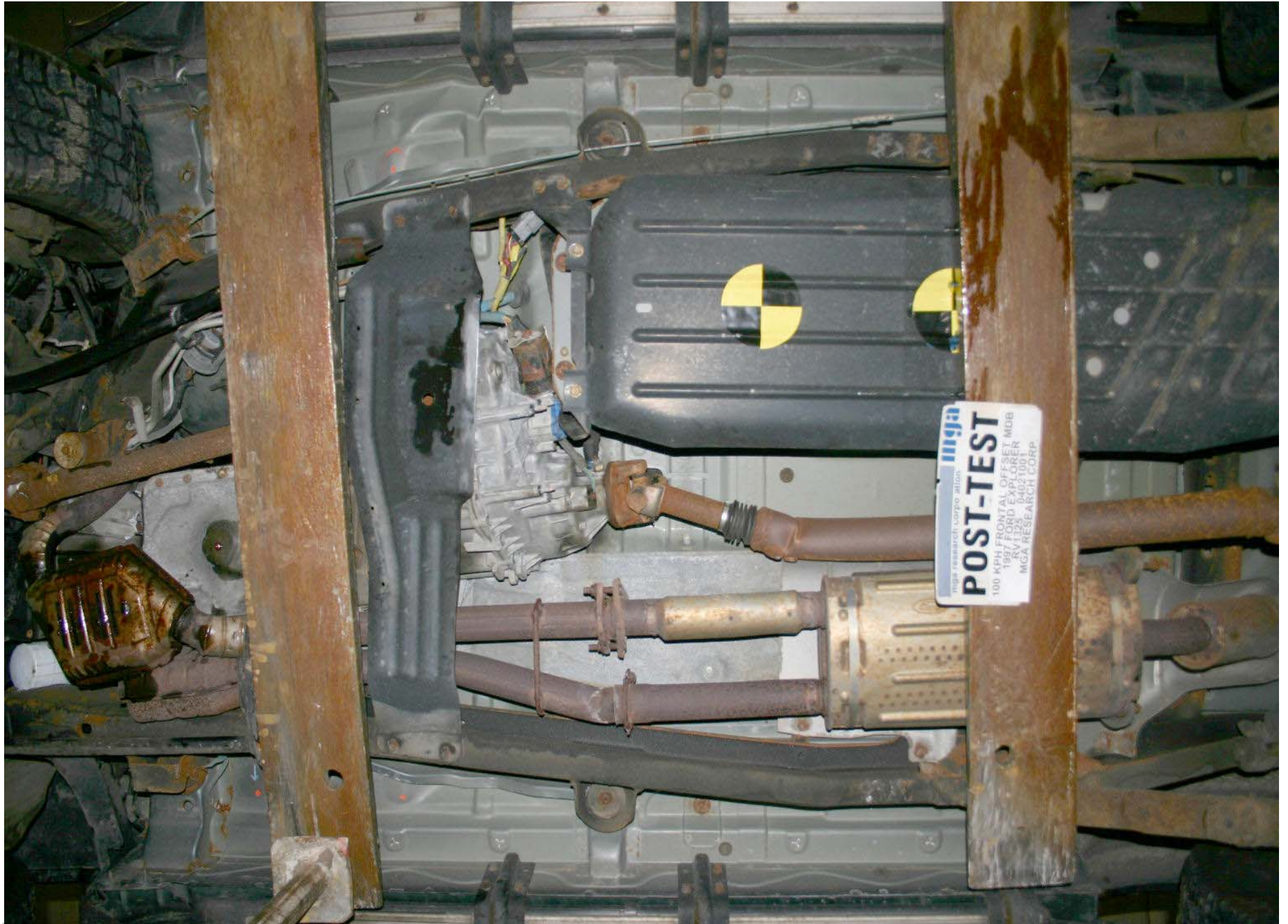
Pre-Test Front Underbody View



Post-Test Front Underbody View



Pre-Test Mid Underbody



Post-Test Mid Underbody



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 Position Left Side View



Post-Test Driver Dummy Position Left Side View



Pre-Test Driver Dummy Position Left Side View (Door Open)



Post-Test Driver Dummy Position Left Side View (Door Open)



Pre-Test Driver Dummy Seat Position



Post-Test Driver Dummy Seat Position



Pre-Test Driver Dummy Feet Position



Post-Test Driver Dummy Feet Position



Pre-Test Driver Side Knee Bolster View



Post-Test Driver Side Knee Bolster View



Post-Test Driver Dummy B Pillar Contact



Post-Test Driver Dummy Knee Contact

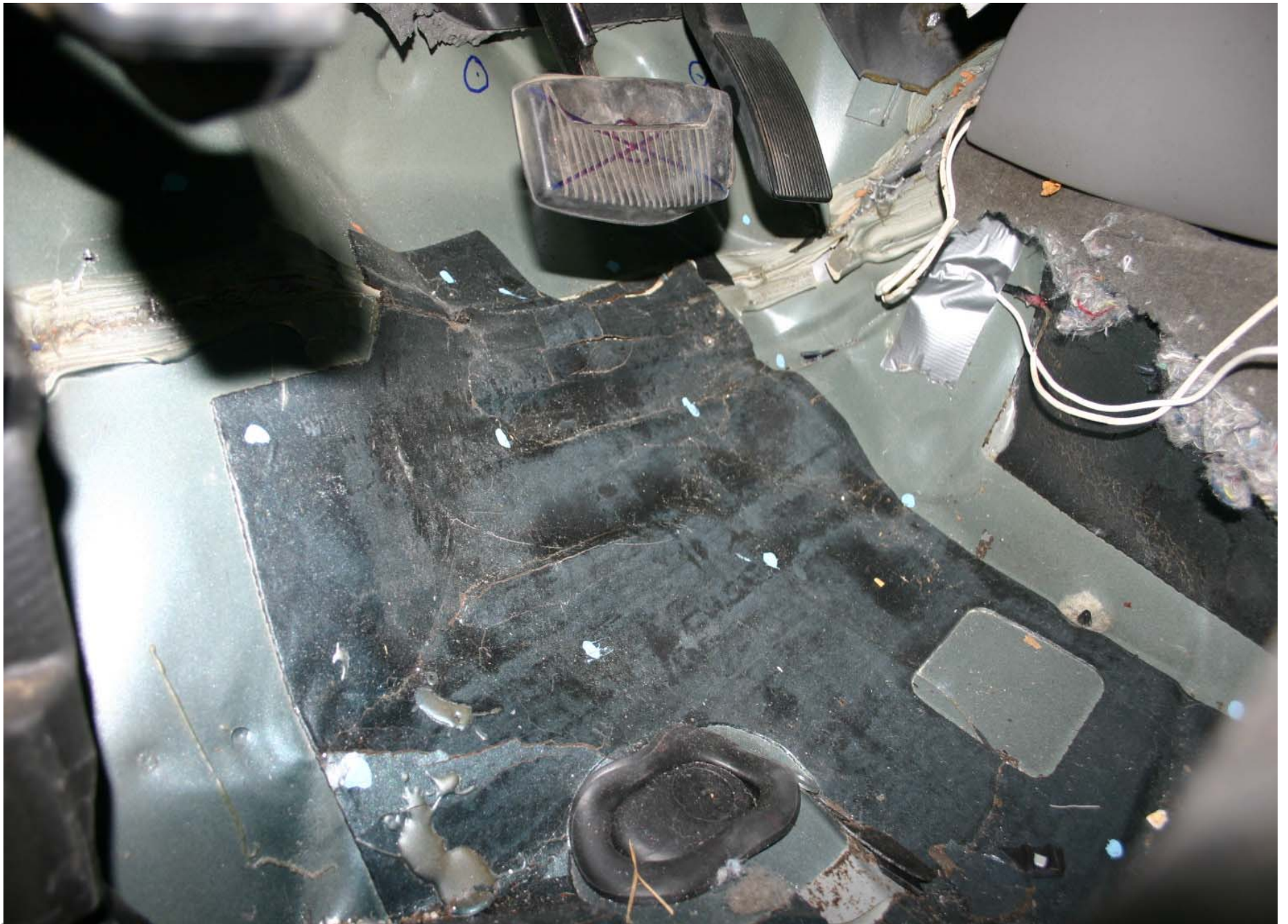


Post-Test Driver Dummy Airbag Contact



Pre-Test Driver Side Floor Pan View

A-43.



Post-Test Driver Side Floor Pan View



Pre-Test Passenger Dummy Front View (head position)



Post-Test Passenger Dummy Front View (head position)



Pre-Test Passenger Dummy Position Right Side View



Post-Test Passenger Dummy Position Right Side View



Pre-Test Passenger Dummy Position Right Side View (Door Open)



Post-Test Passenger Dummy Position Right Side View (Door Open)



Pre-Test Passenger Dummy Seat Position



Post-Test Passenger Dummy Seat Position



Pre-Test Passenger Dummy Feet Position



Post-Test Passenger Dummy Feet Position



Pre-Test Passenger Side Knee Bolster View



Post-Test Passenger Side Knee Bolster View



Post-Test Passenger Dummy Knee Contact



Post-Test Passenger Dummy Airbag Contact

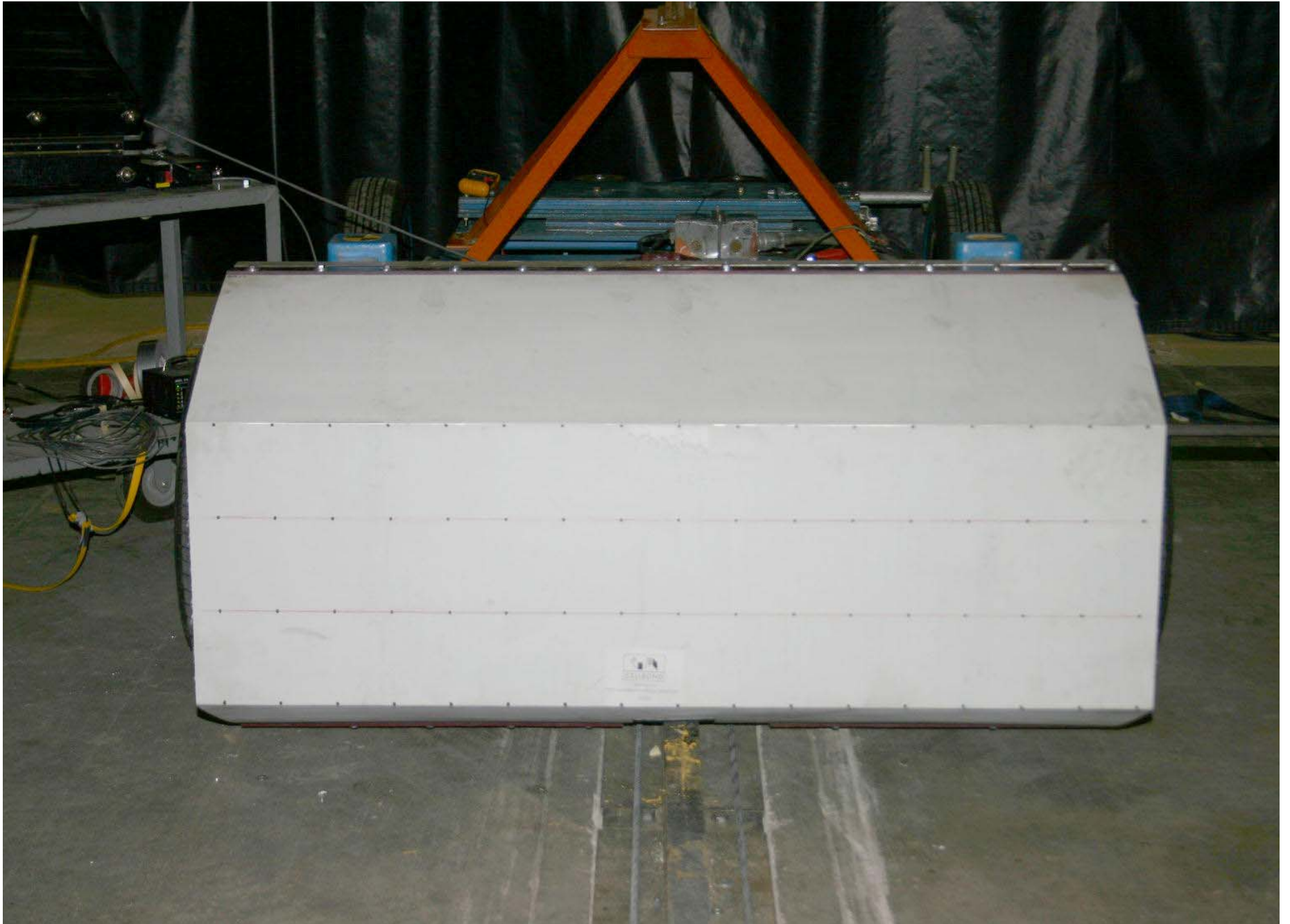


Pre-Test Passenger Side Floor Pan View

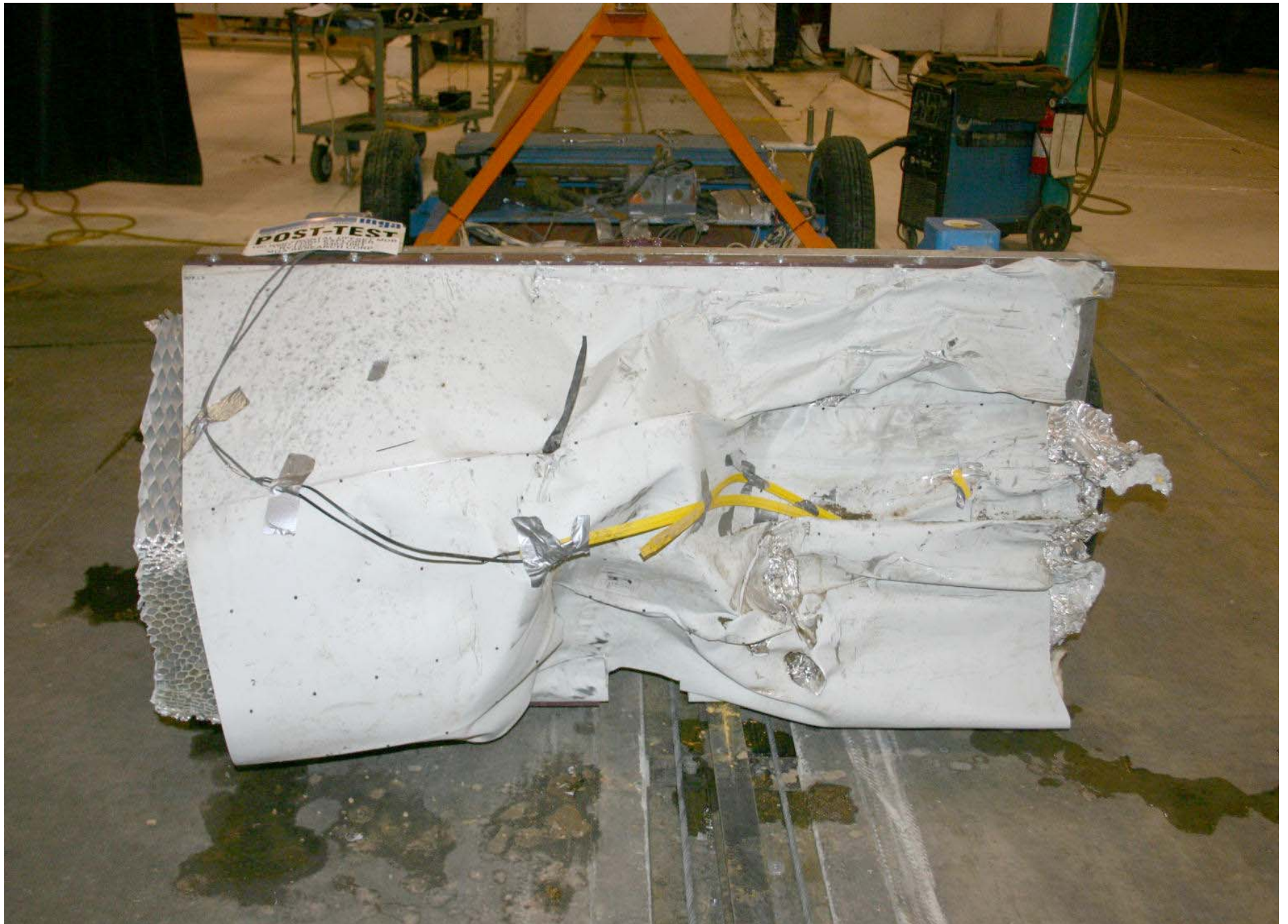


Post-Test Passenger Side Floor Pan View

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Pre-Test MDB Front View



Post-Test MDB Front View



Pre-Test MDB Top View



Post-Test MDB Top View

A-64.

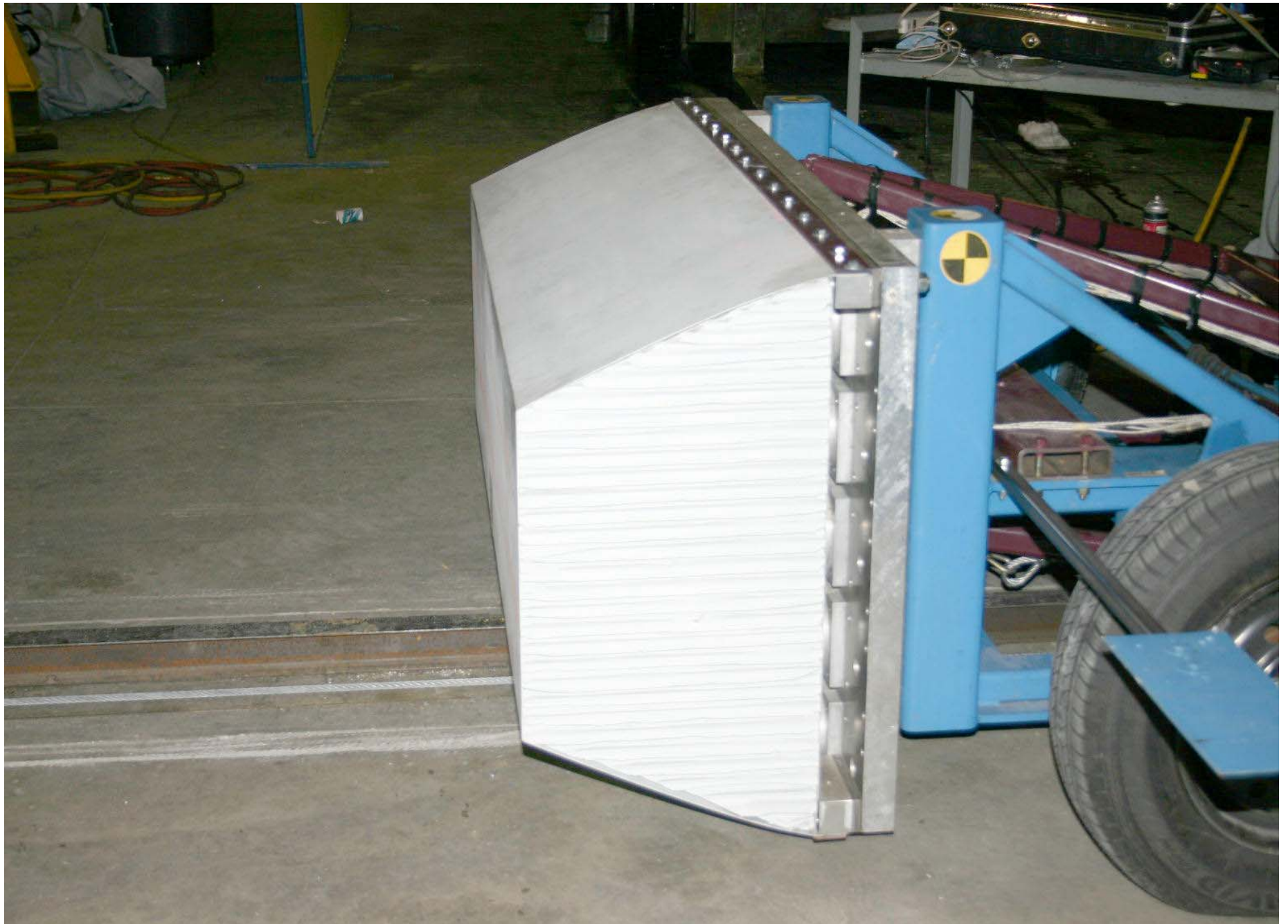


Pre-Test MDB Right Side View

A-65.



Post-Test MDB Right Side View



Pre-Test MDB Left Side View



Post-Test MDB Left Side View



Pre-Test Left Front Wheel Well



Post-Test Left Front Wheel Well



Pre-Test Right Front Wheel Well



Post-Test Right Front Wheel Well

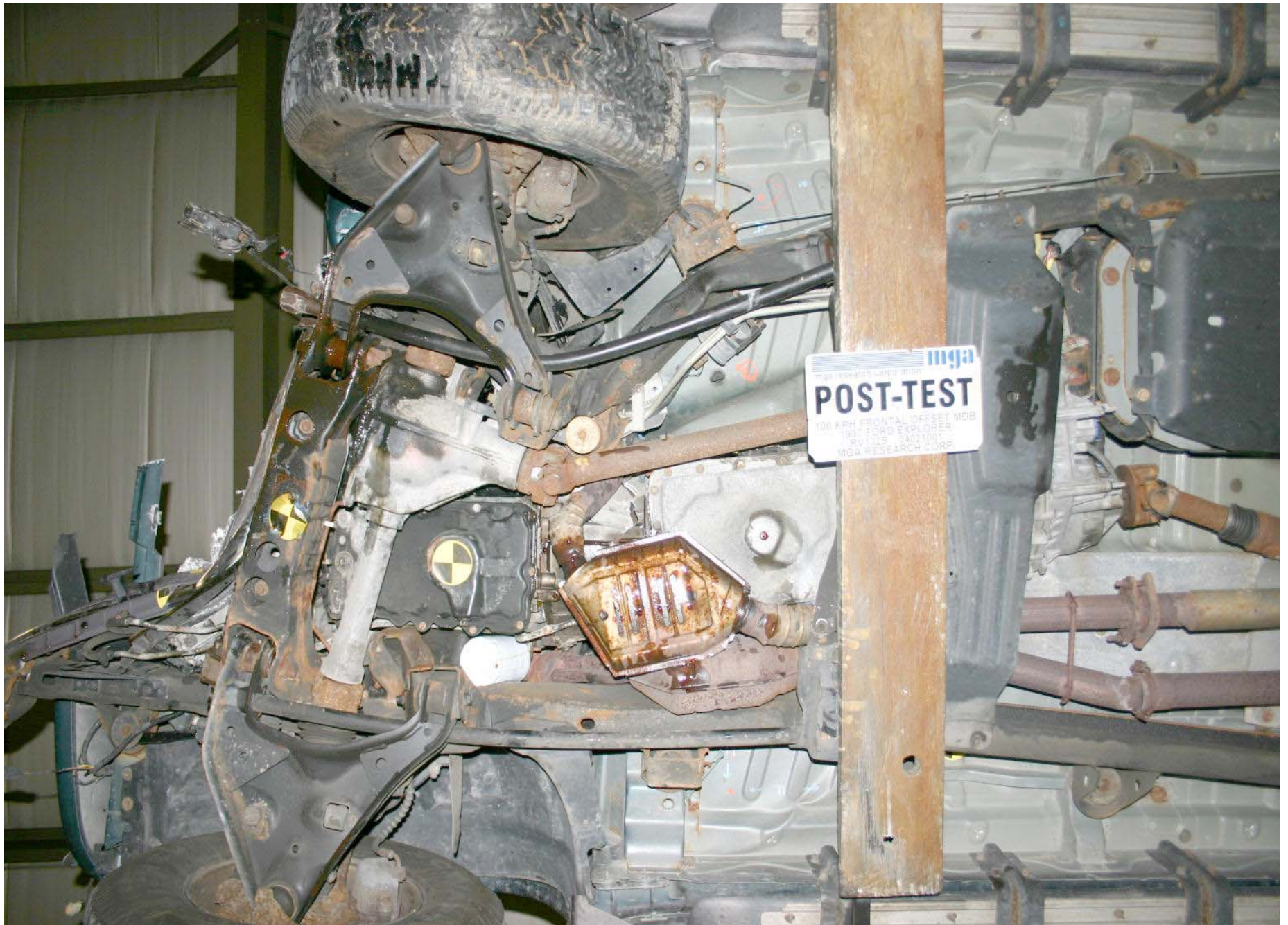


Post-Test Left Front Close-Up View



Post-Test Roof Buckle View

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Post-Test Front Sub-Frame View #1

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Post-Test Front Sub-Frame View #2

A-76.



Post-Test Front Sub-Frame View #3

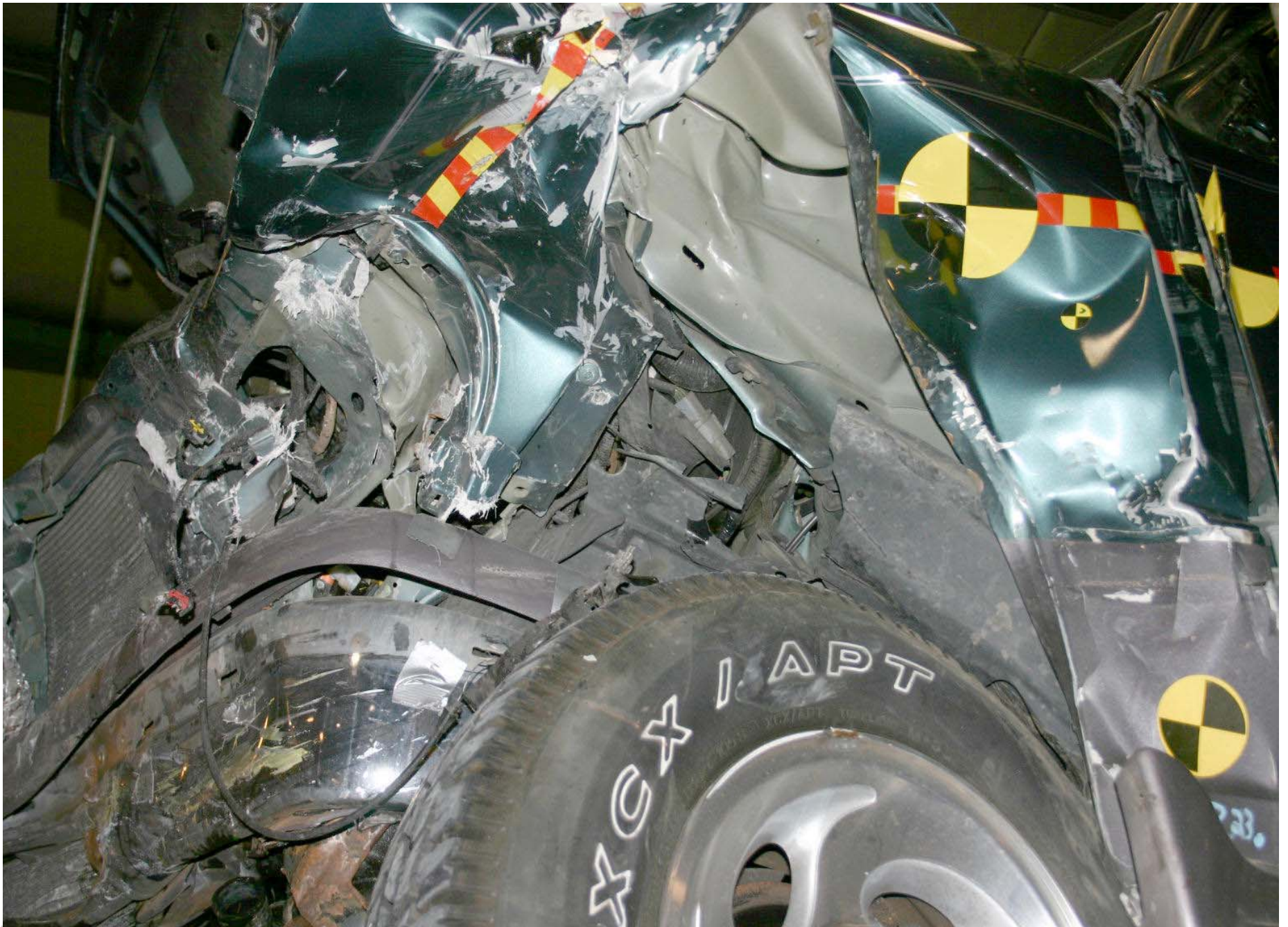


Post-Test Front Sub-Frame View #4

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Post-Test Front Sub-Frame View #5



Post-Test Front Sub-Frame View #6



Post-Test Front Sub-Frame View #7

APPENDIX B

MDB, DUMMY AND VEHICLE RESPONSE DATA TRACES

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B-62

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B-62

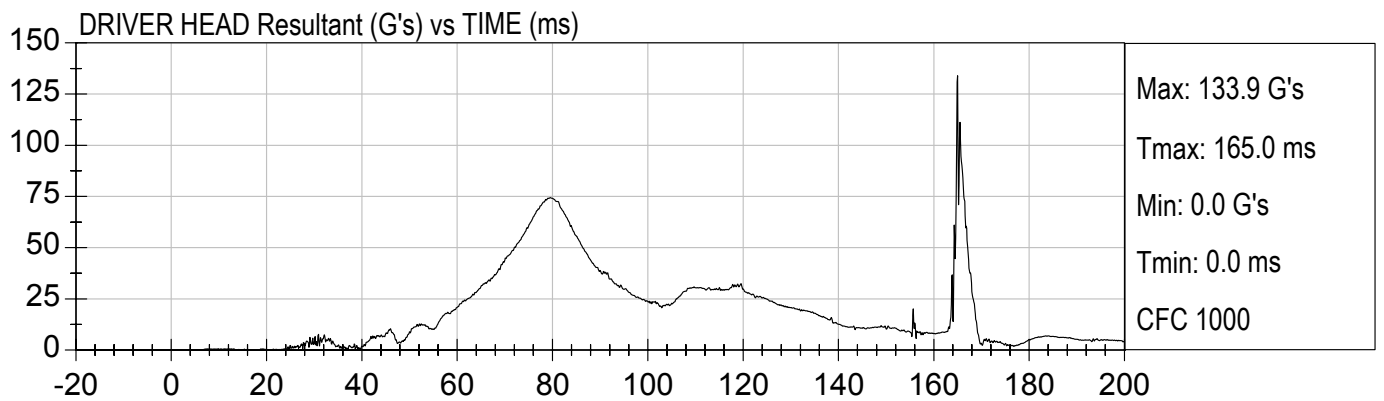
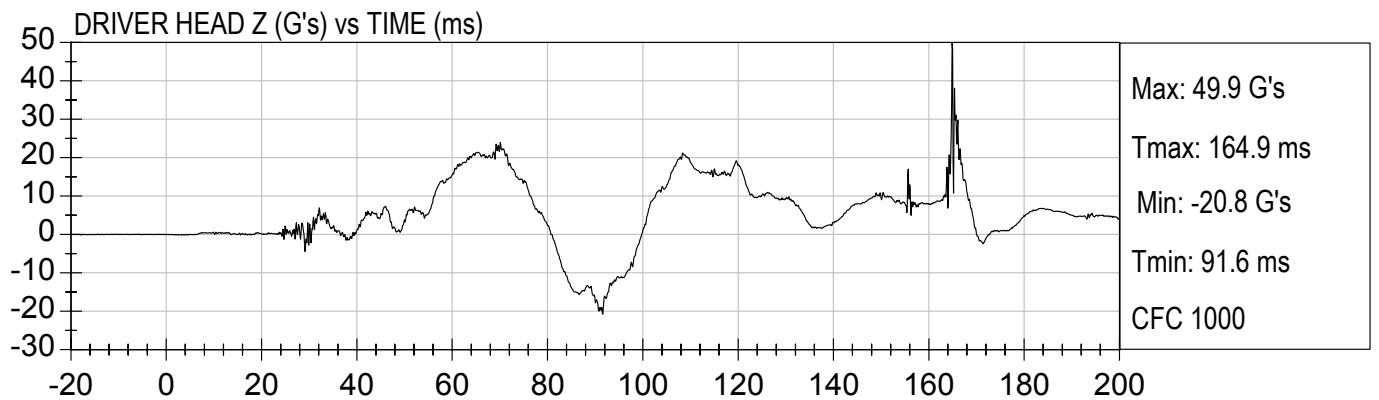
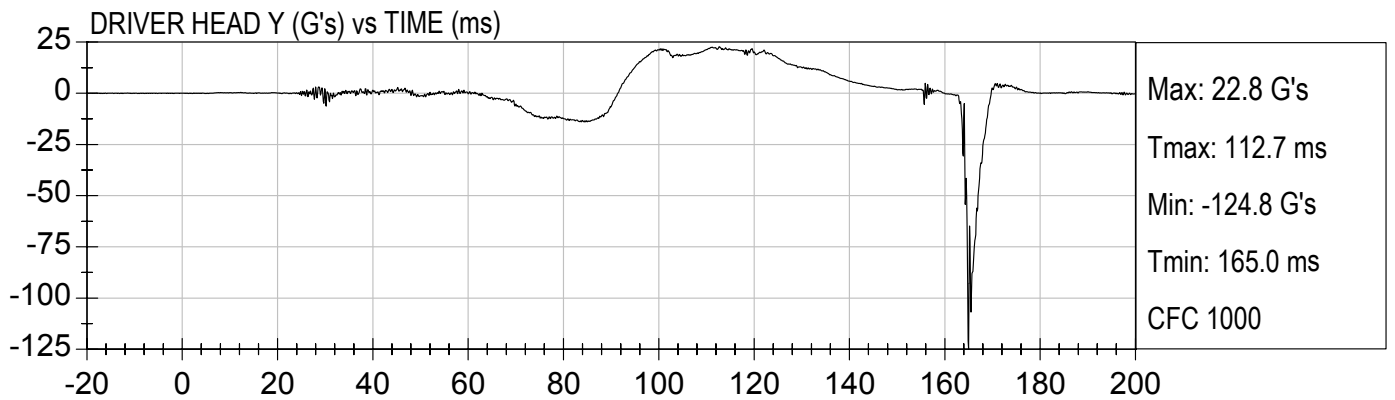
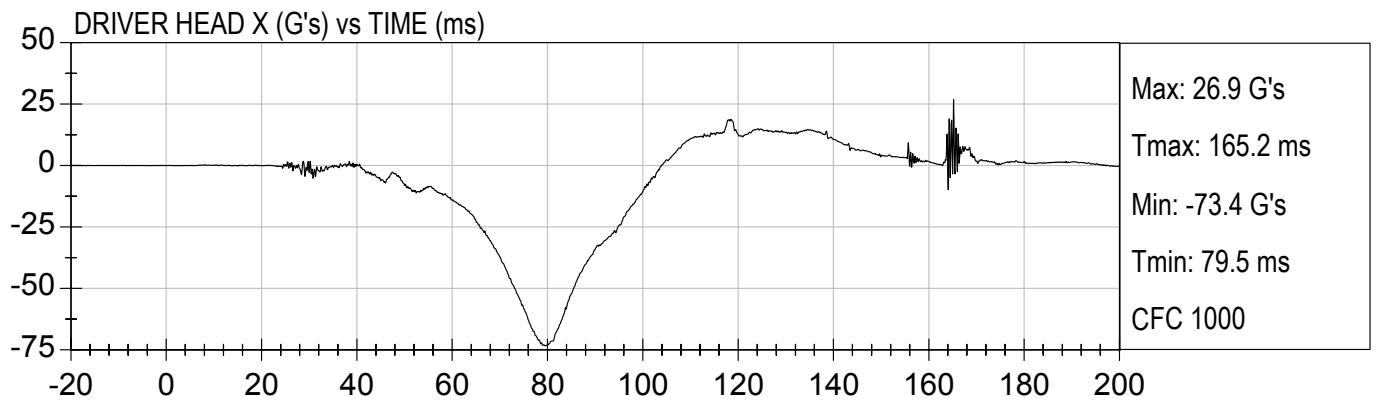
Figure No. 213. Rear Z Velocity vs. Time

B-62



100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

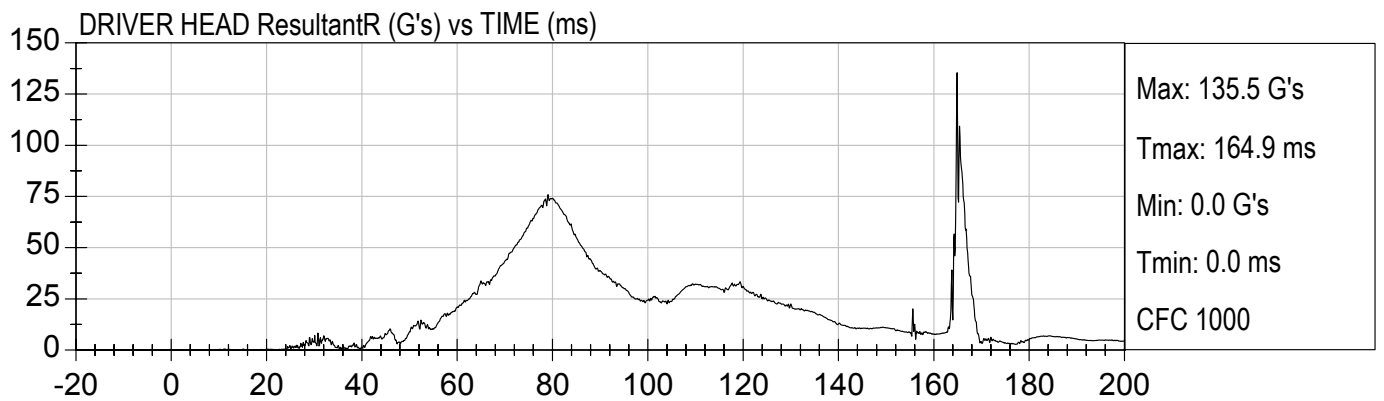
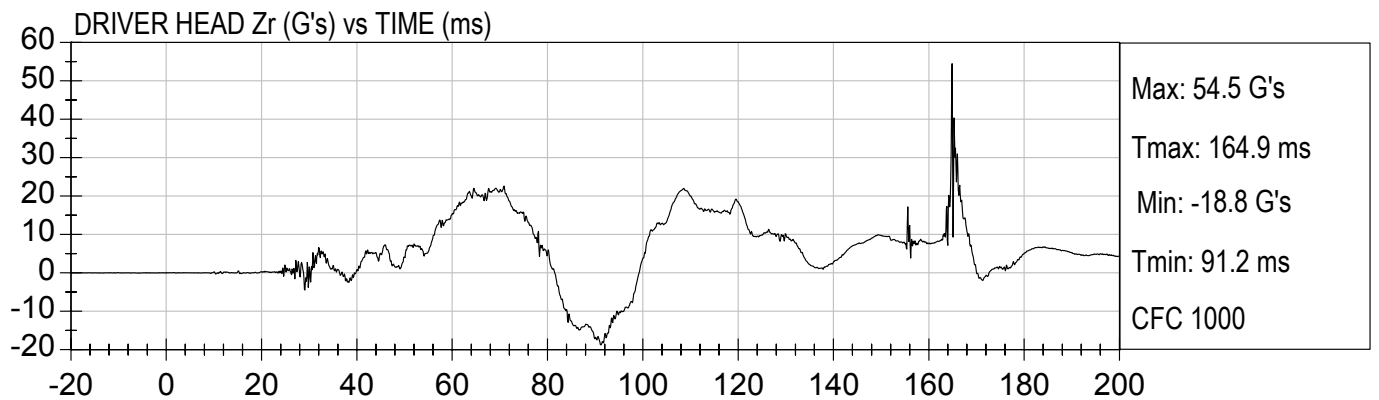
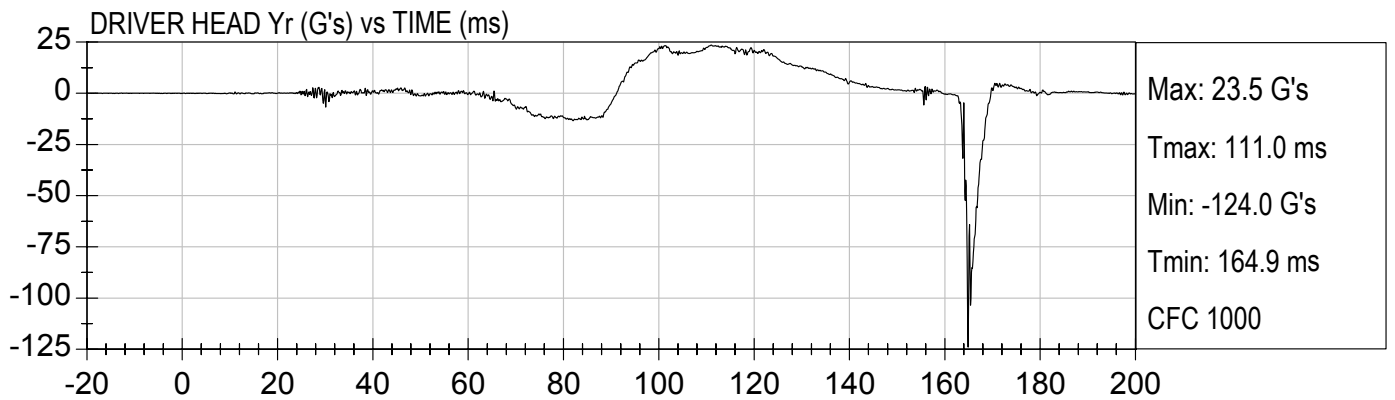
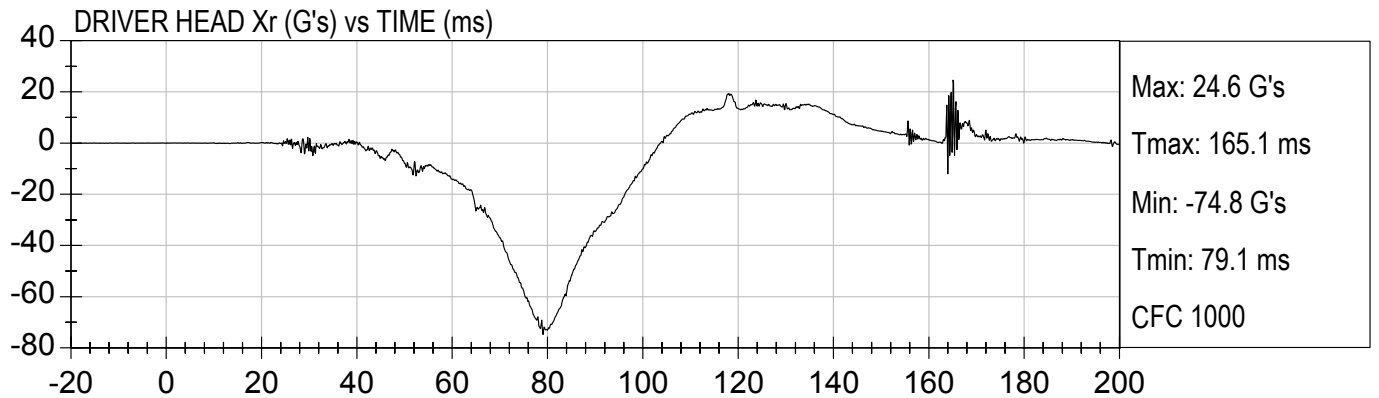
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

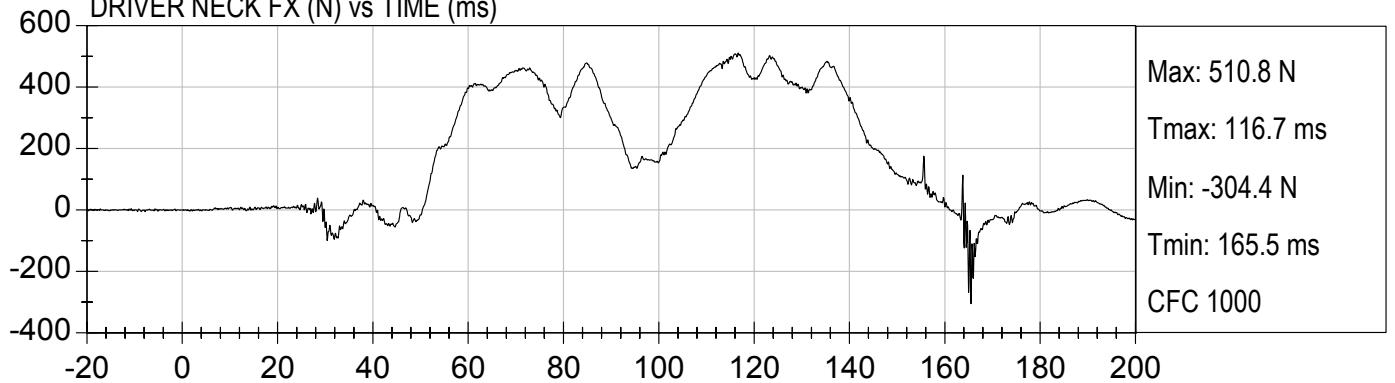




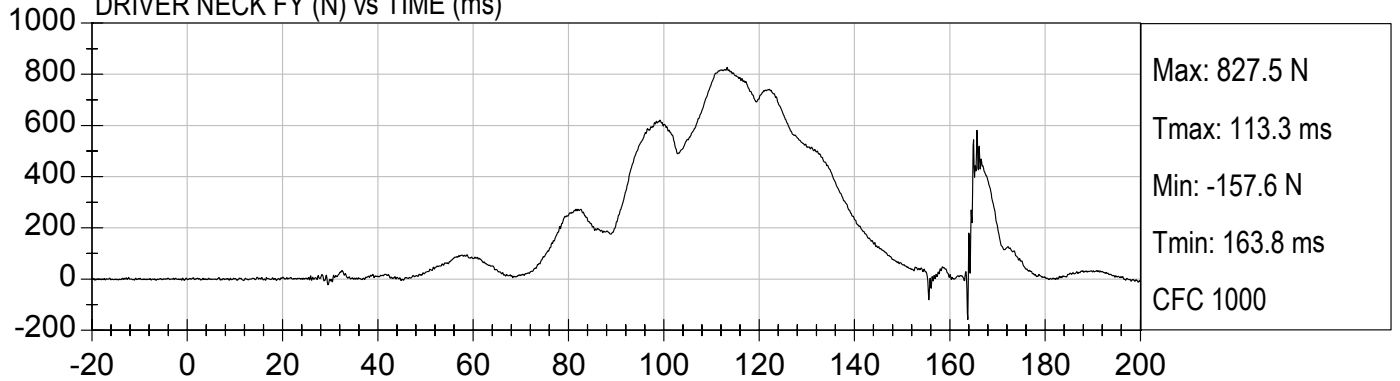
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
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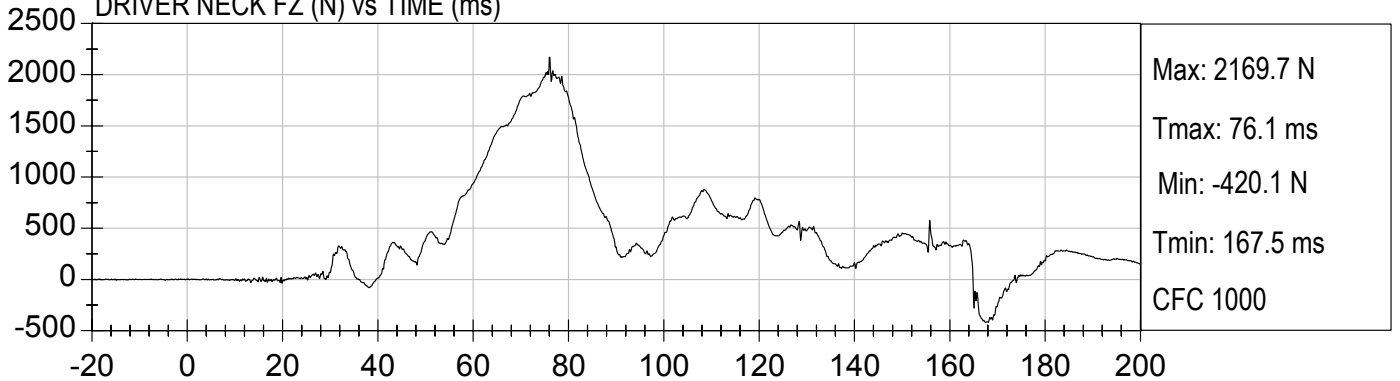
DRIVER NECK FX (N) vs TIME (ms)



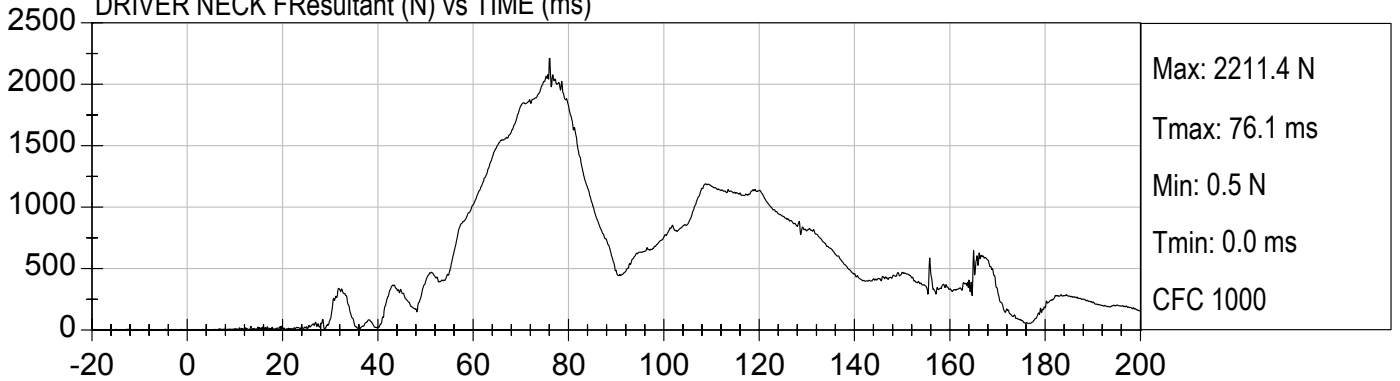
DRIVER NECK FY (N) vs TIME (ms)



DRIVER NECK FZ (N) vs TIME (ms)



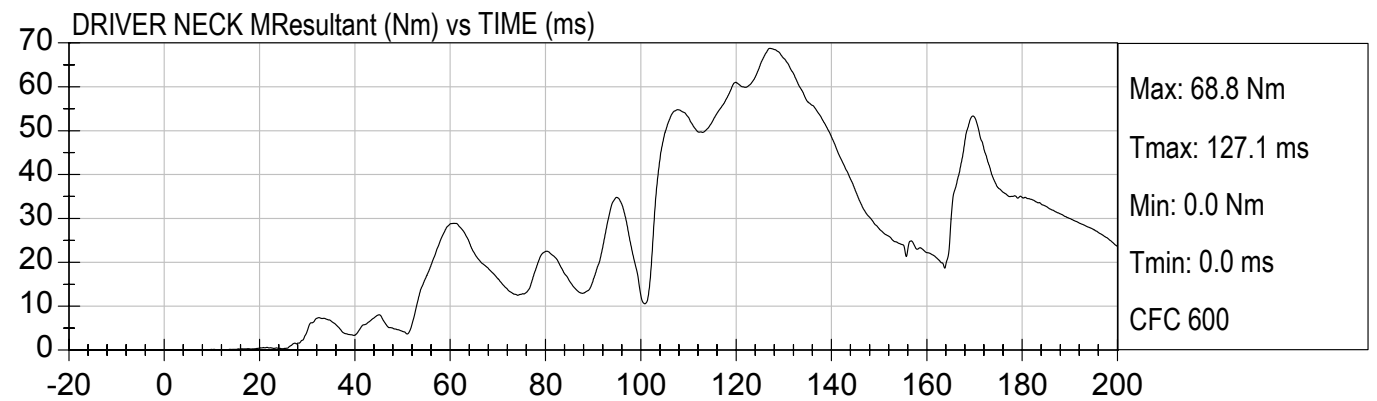
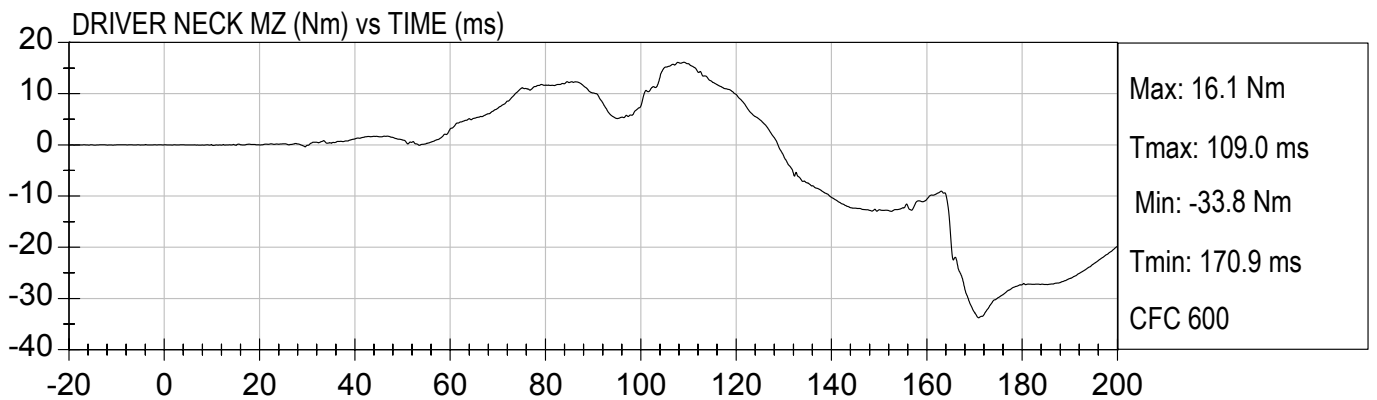
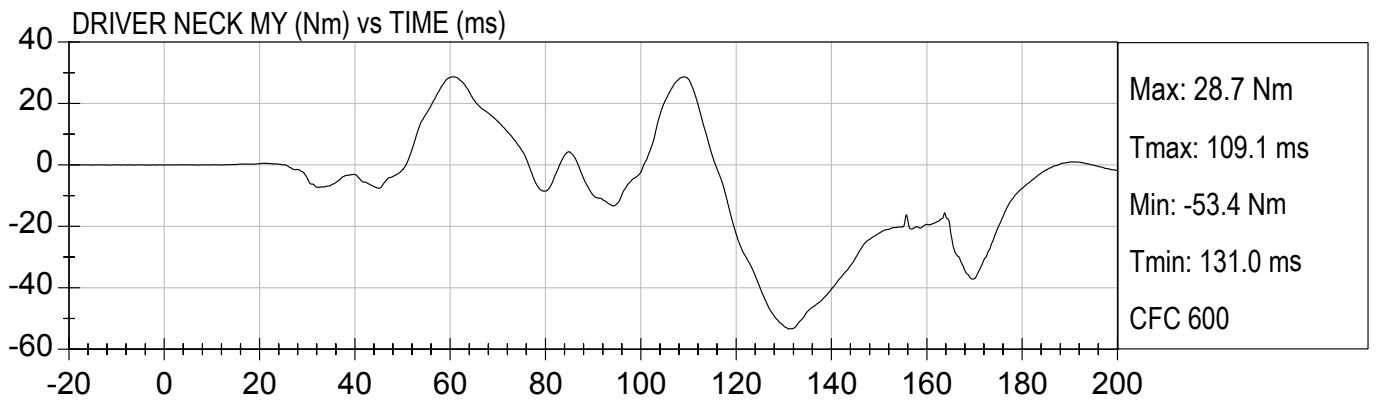
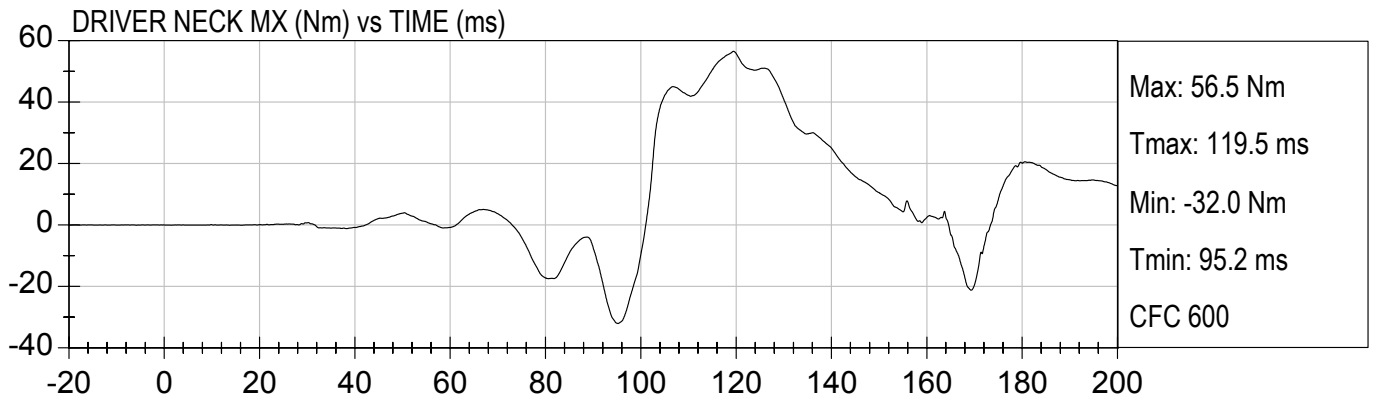
DRIVER NECK FResultant (N) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

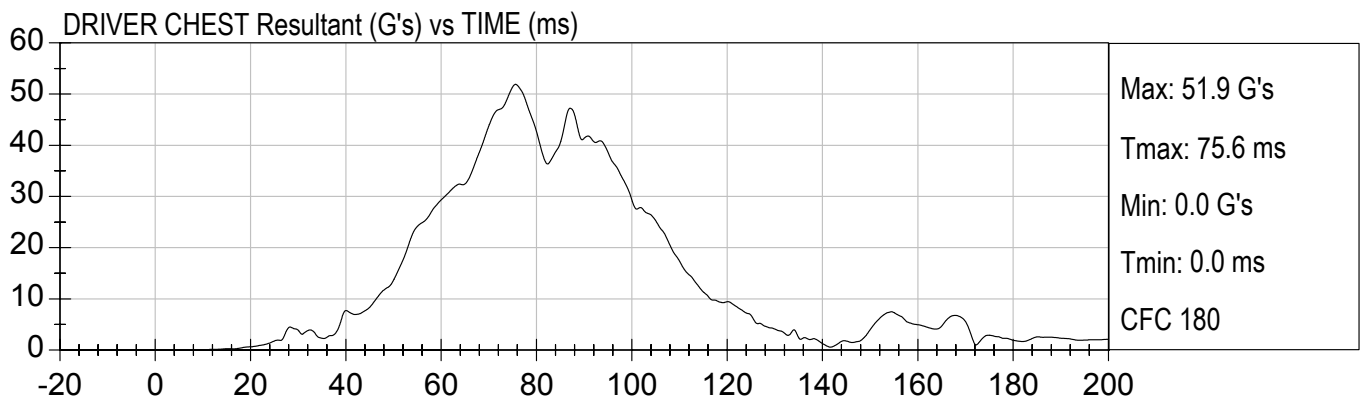
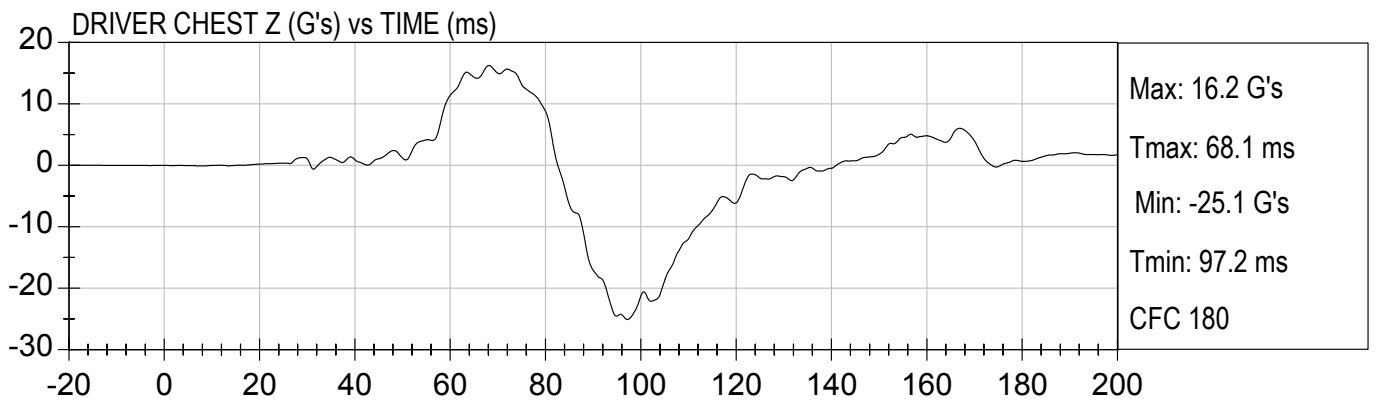
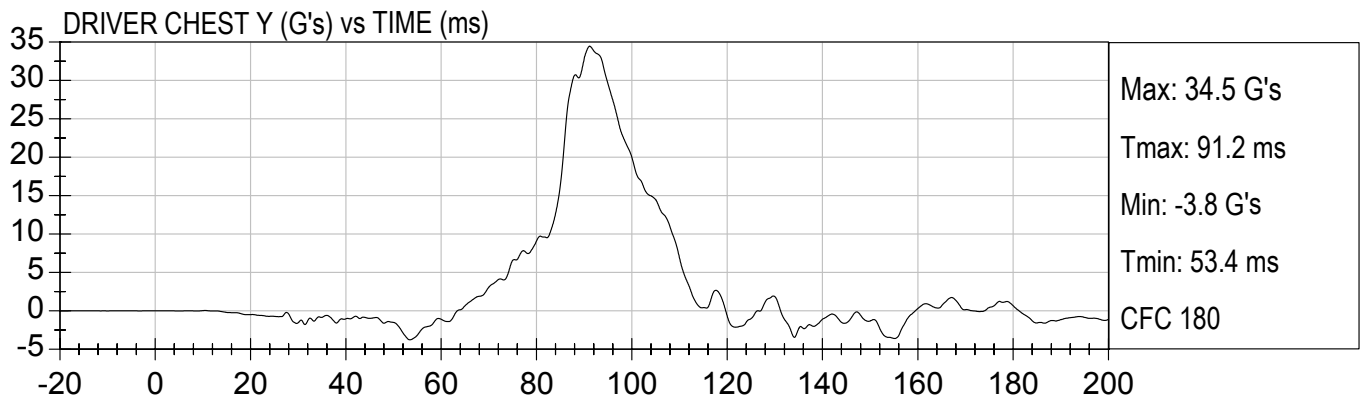
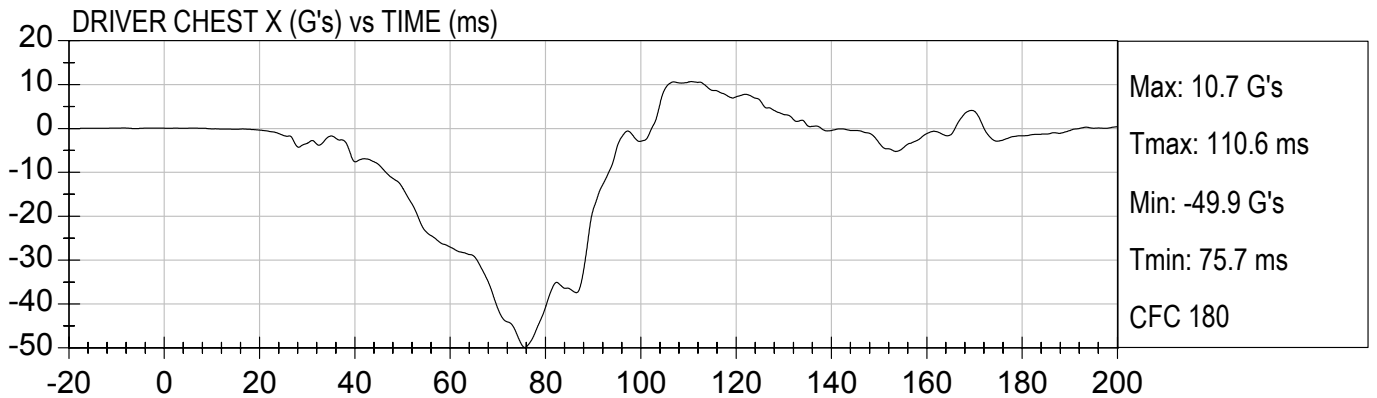
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Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

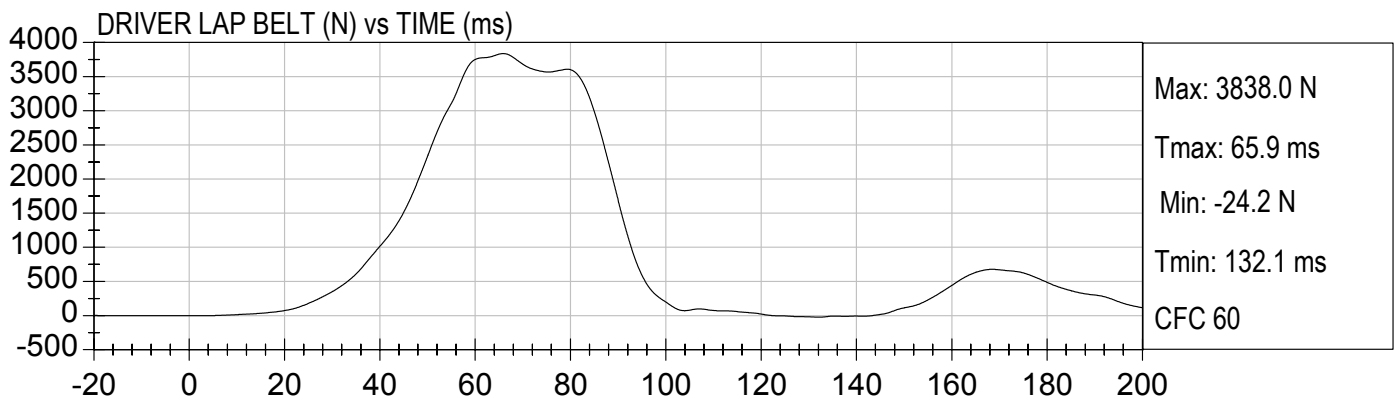
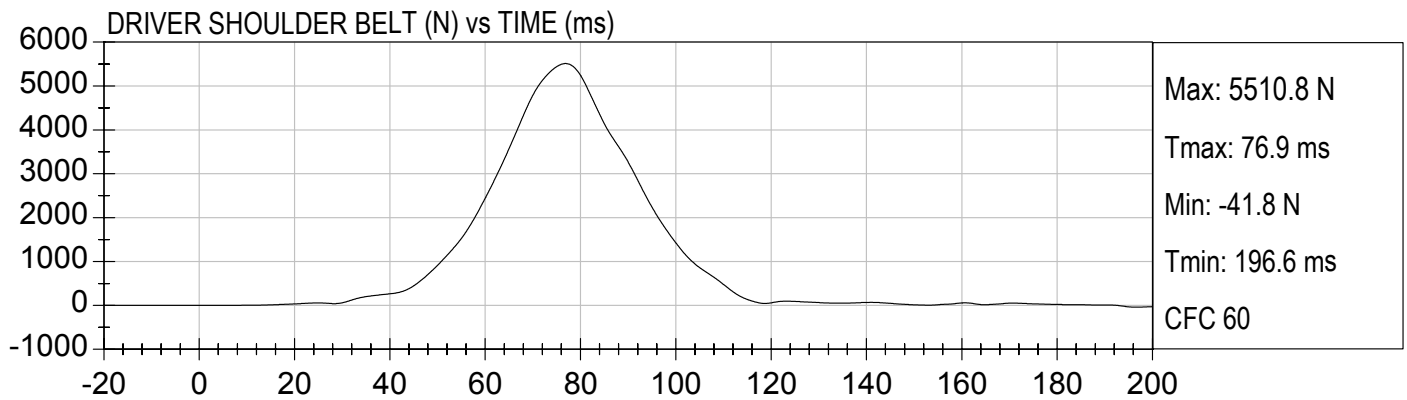
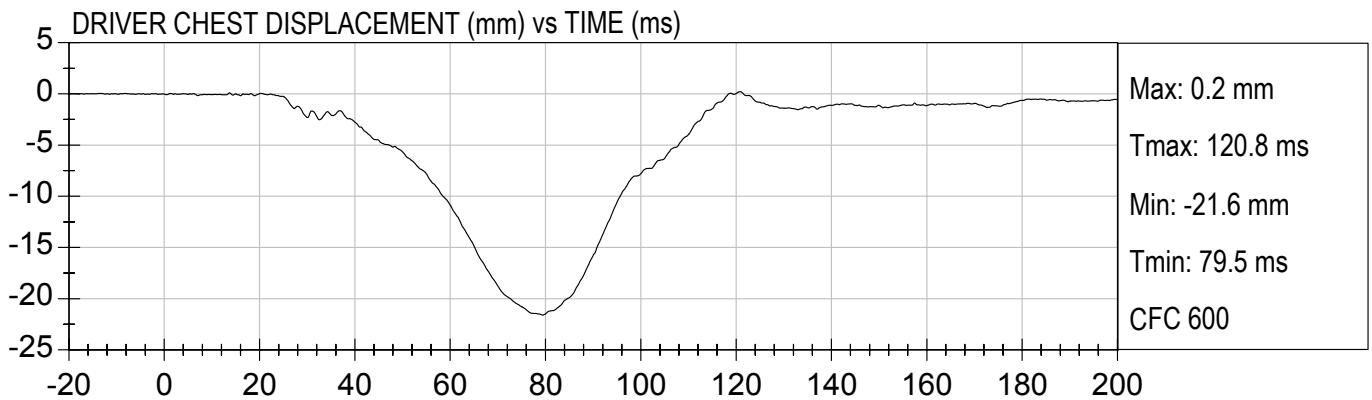
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

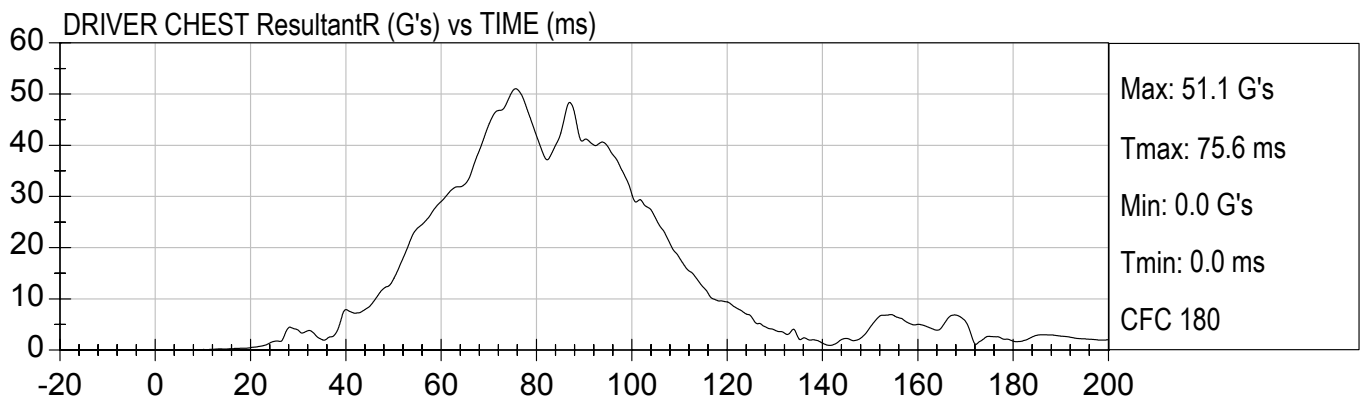
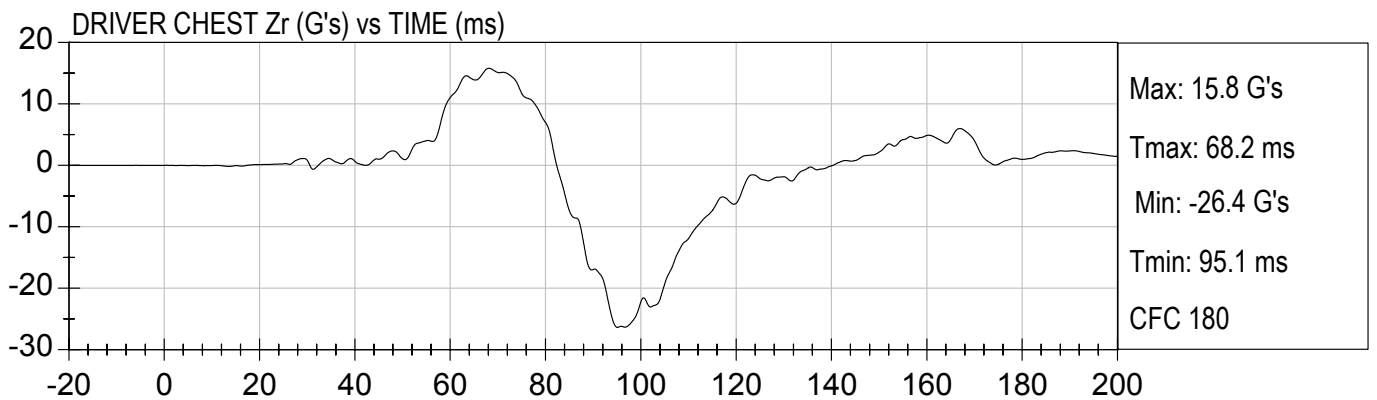
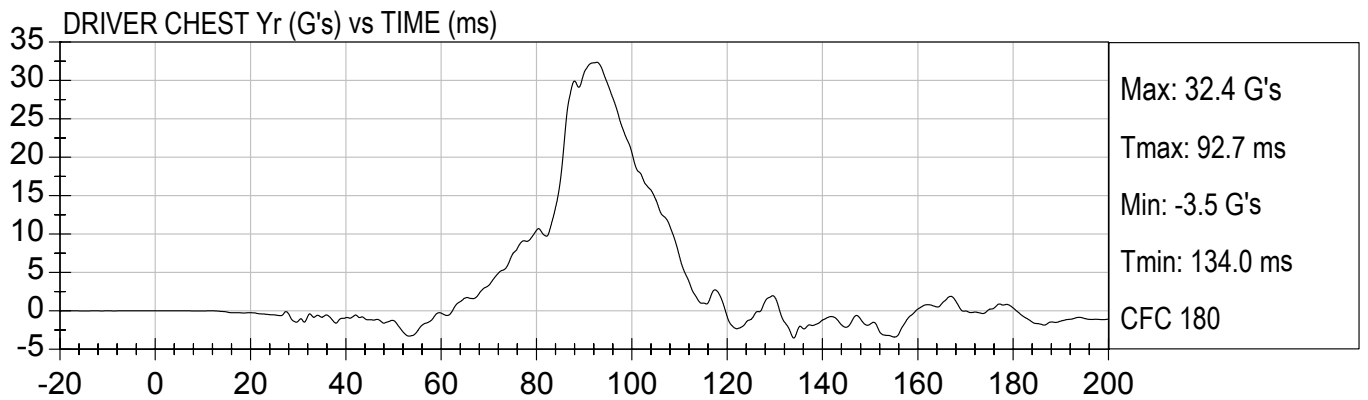
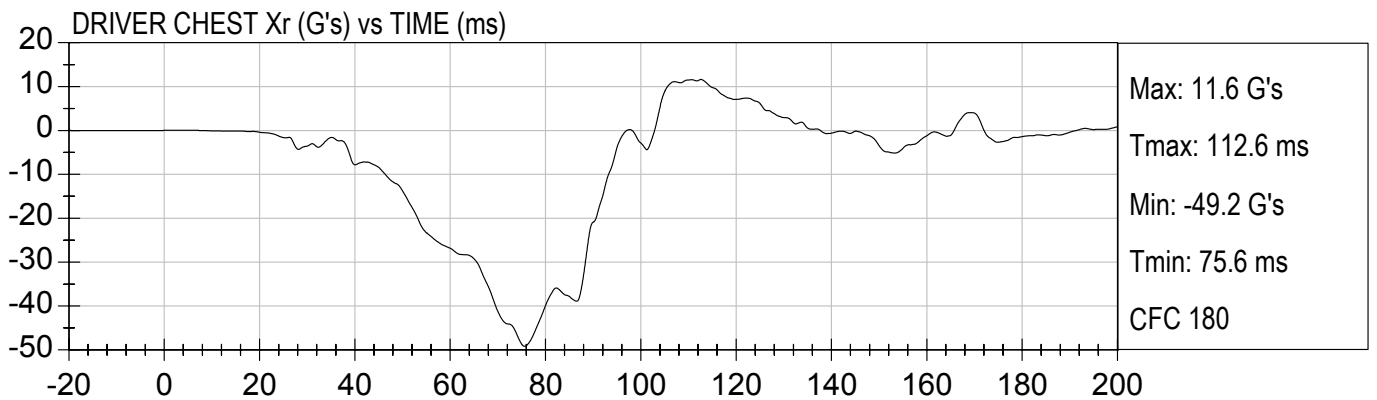
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Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

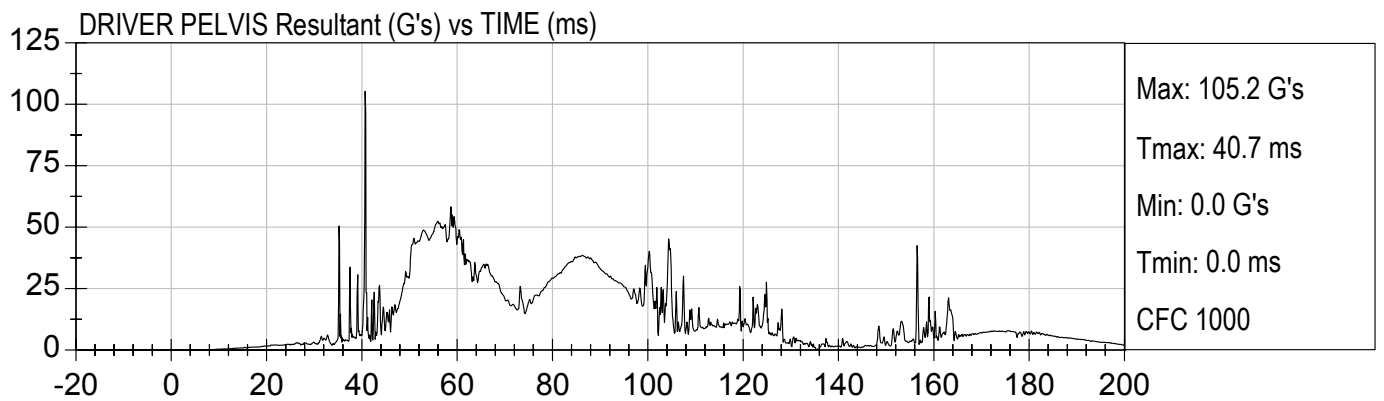
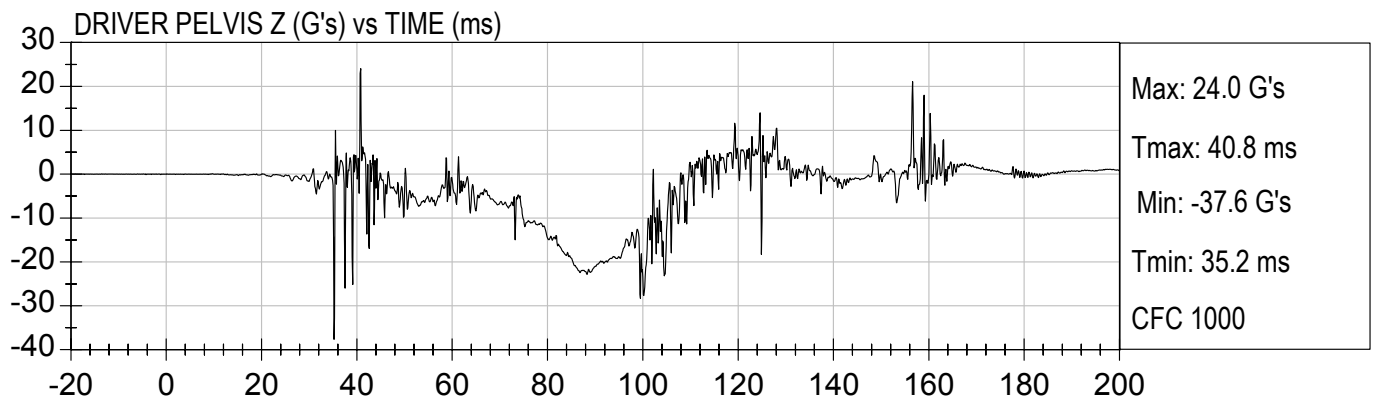
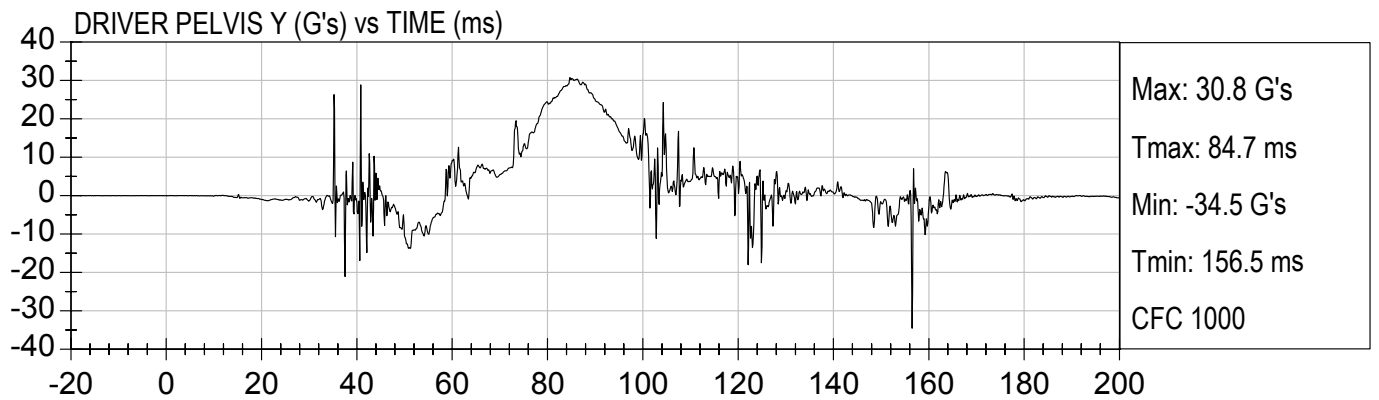
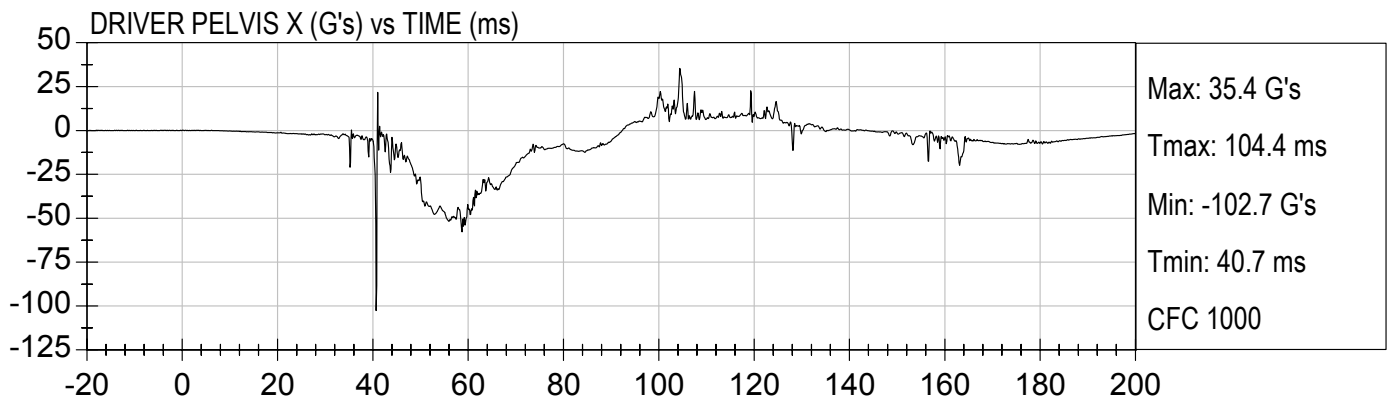
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

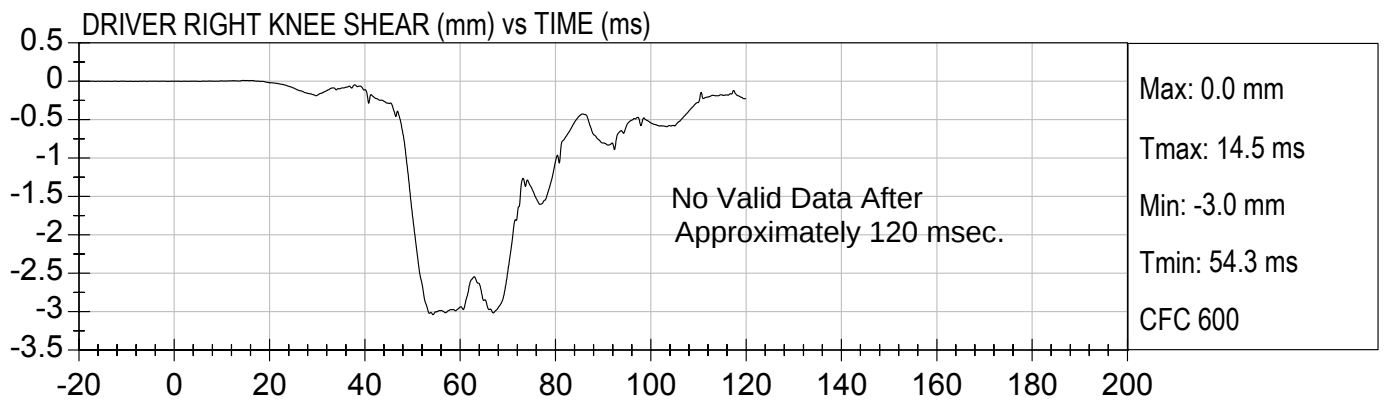
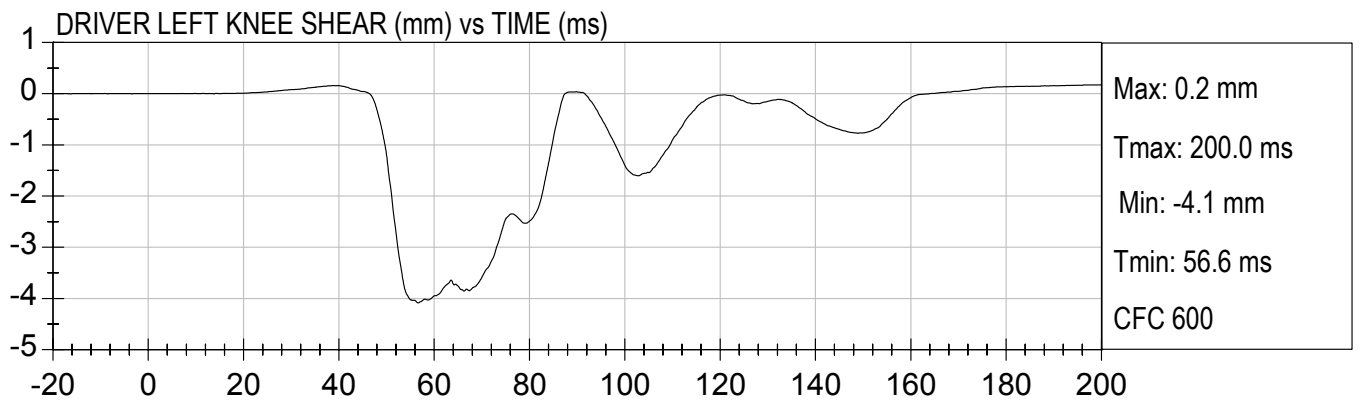
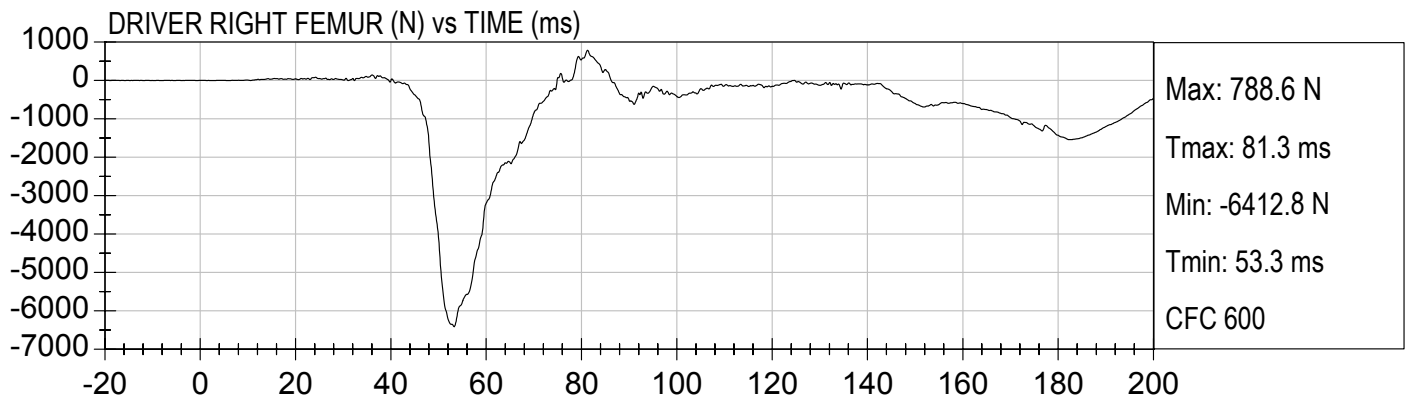
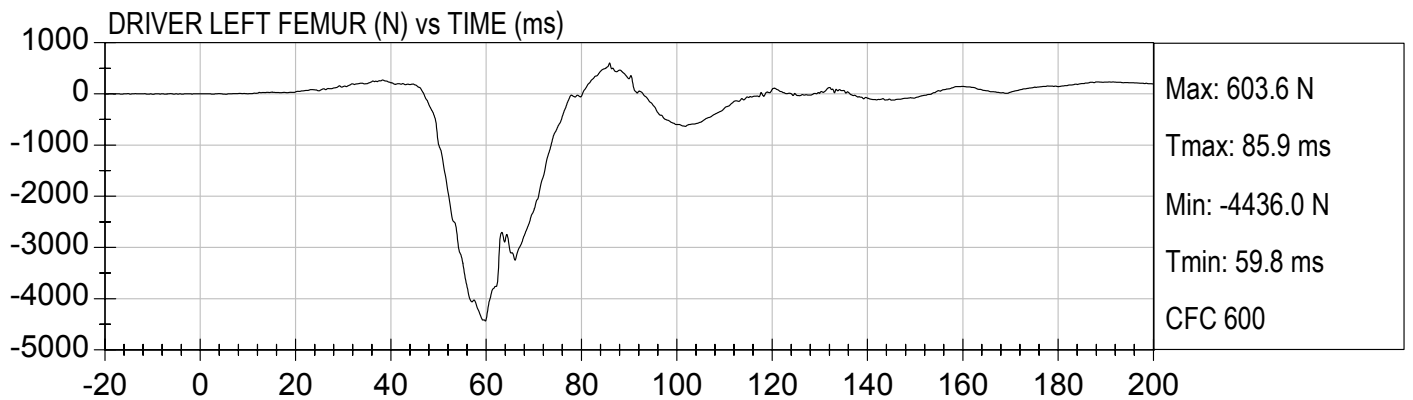
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

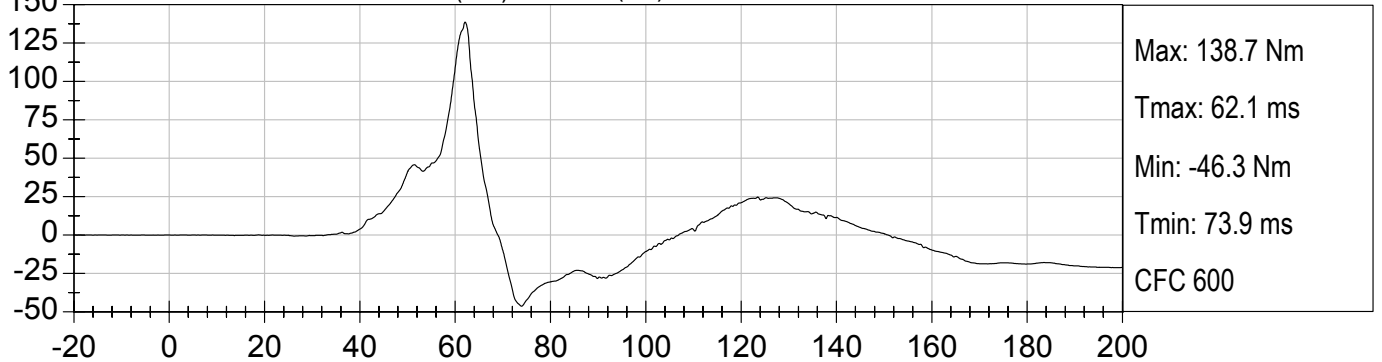




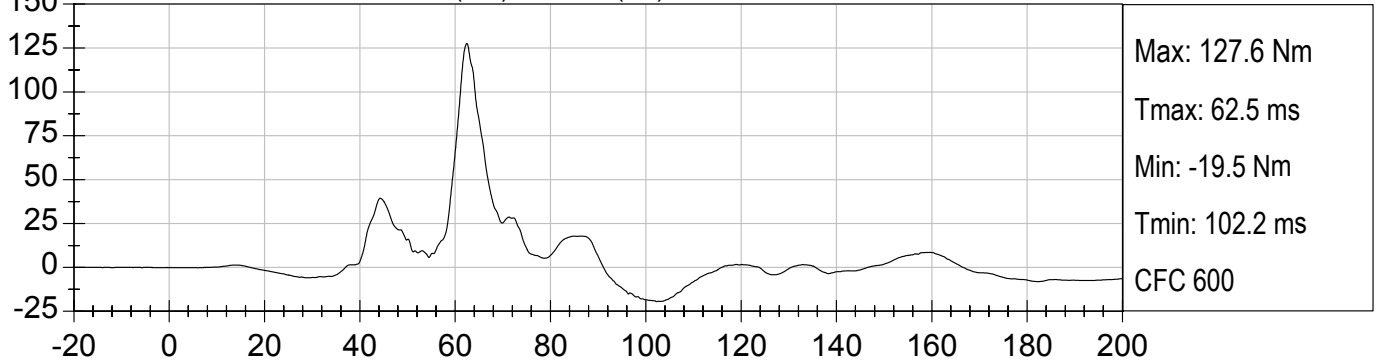
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

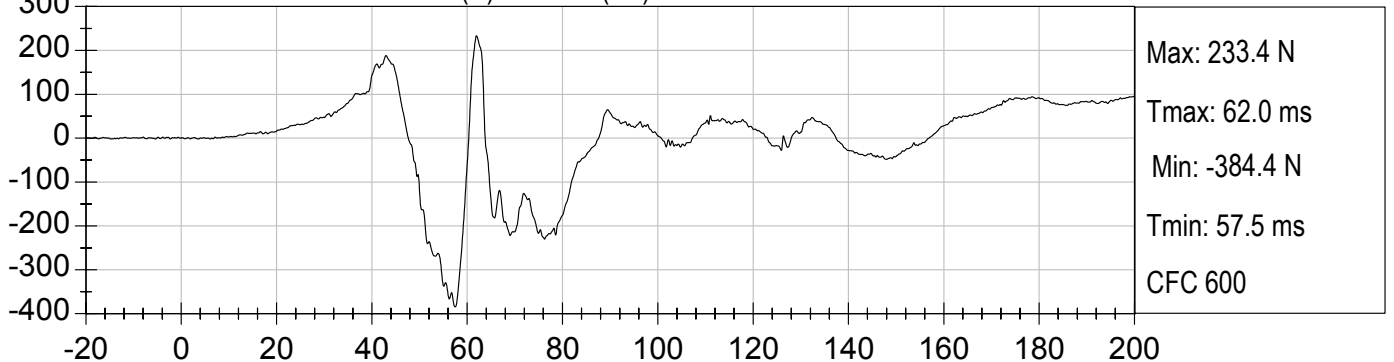
DRIVER LEFT UPPER TIBIA MX (Nm) vs TIME (ms)



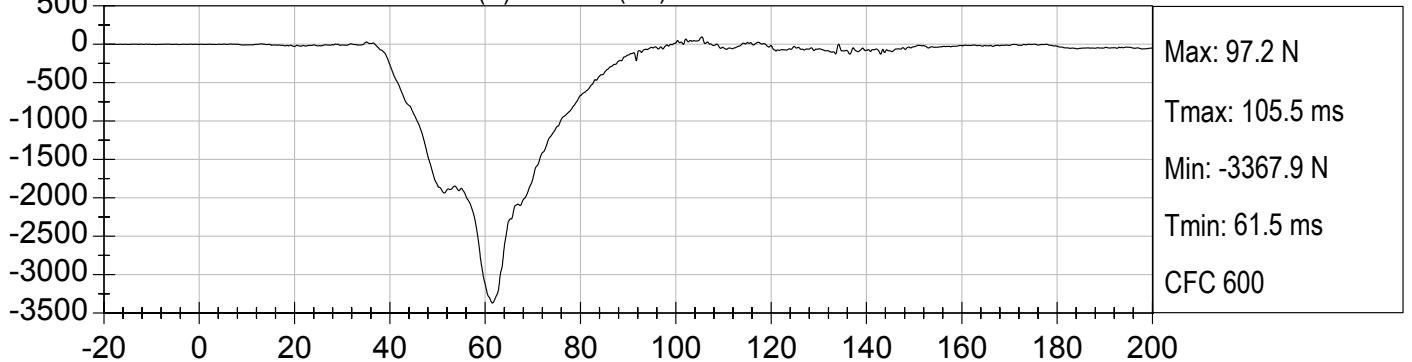
DRIVER LEFT UPPER TIBIA MY (Nm) vs TIME (ms)



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



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

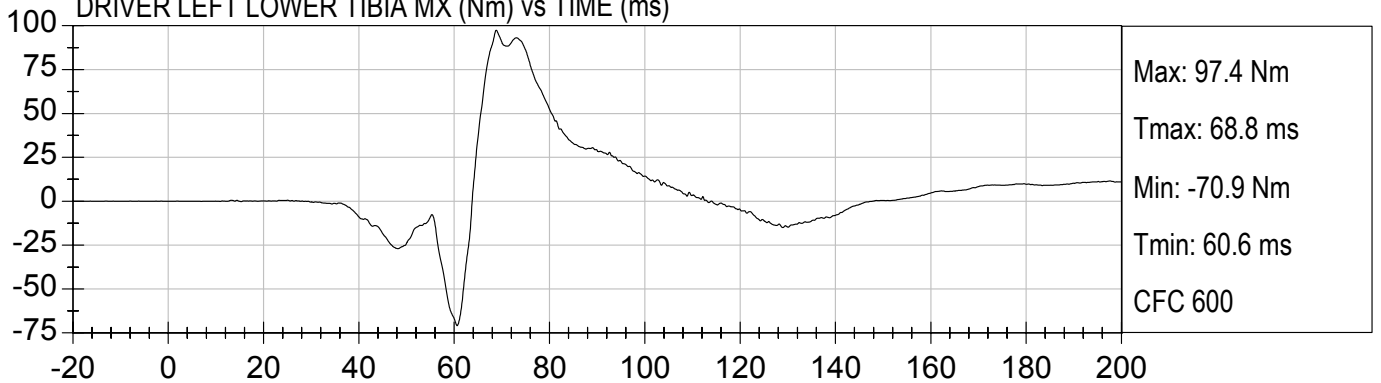




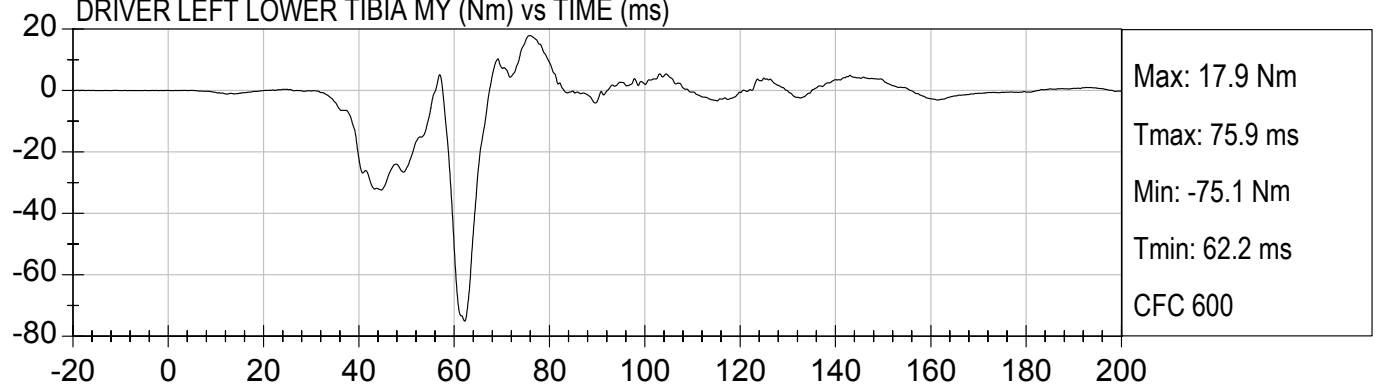
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

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



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

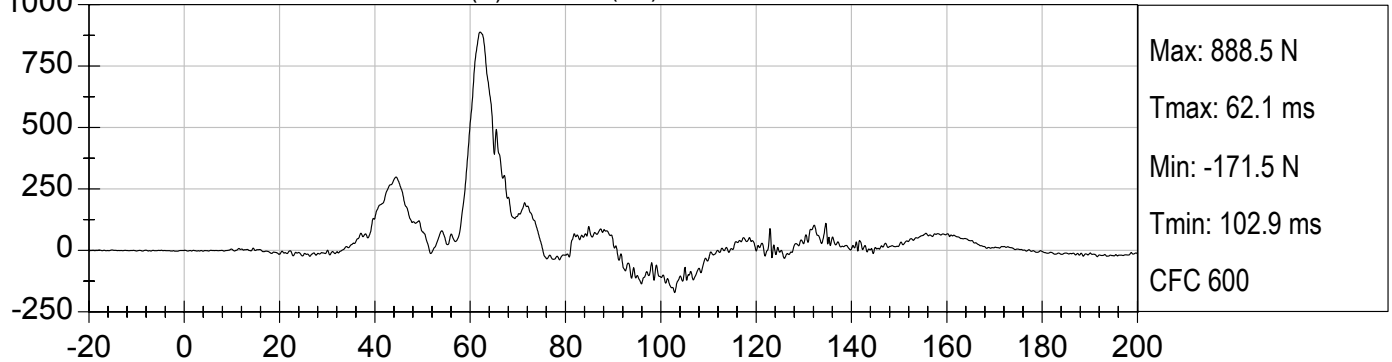




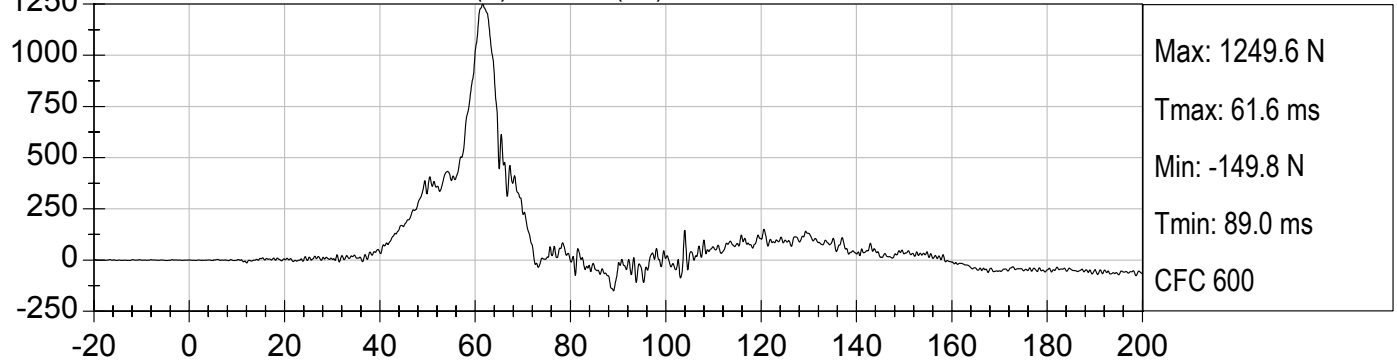
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

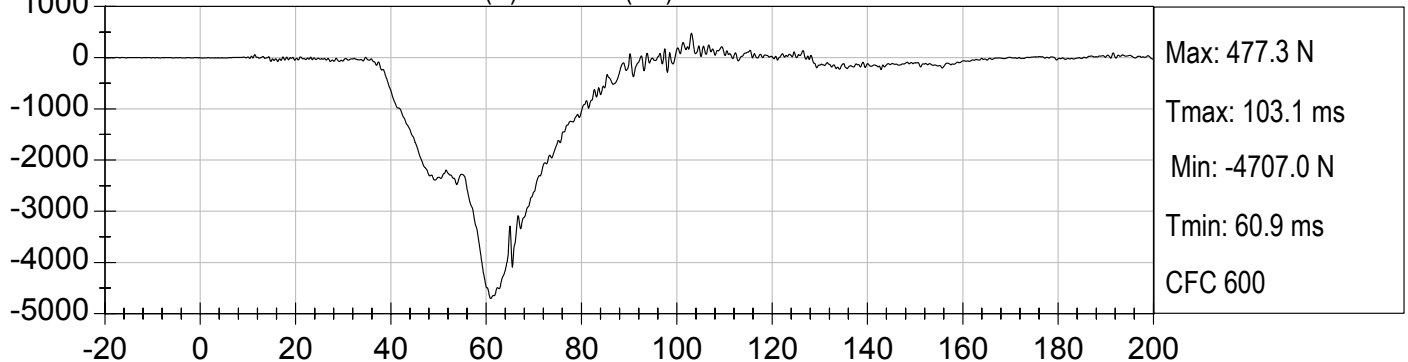
DRIVER LEFT LOWER TIBIA FX (N) vs TIME (ms)



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



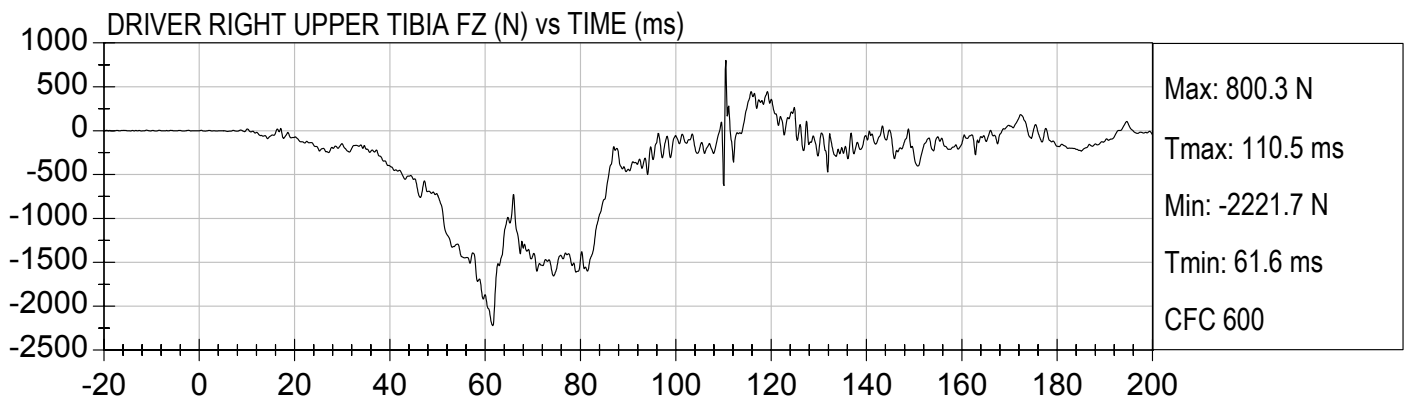
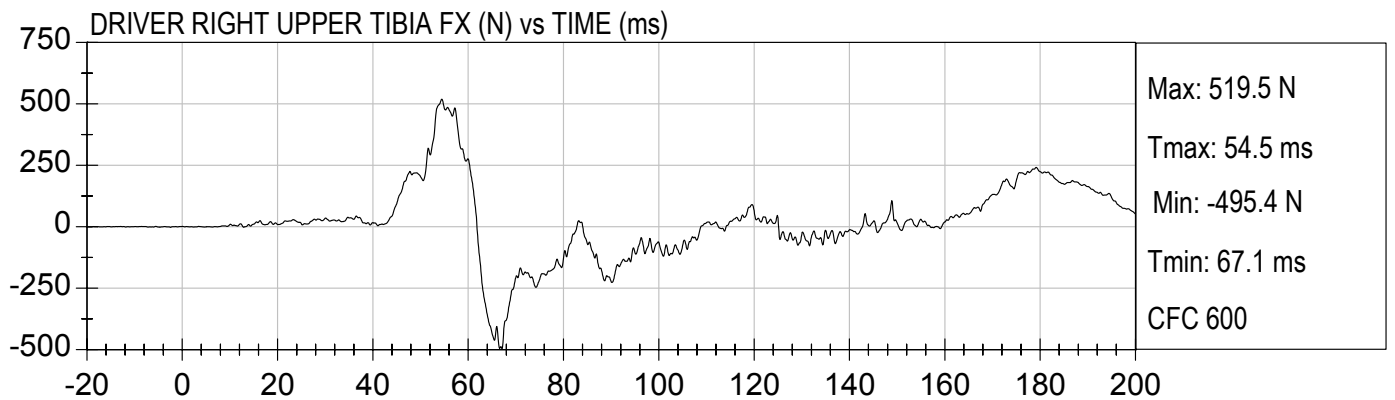
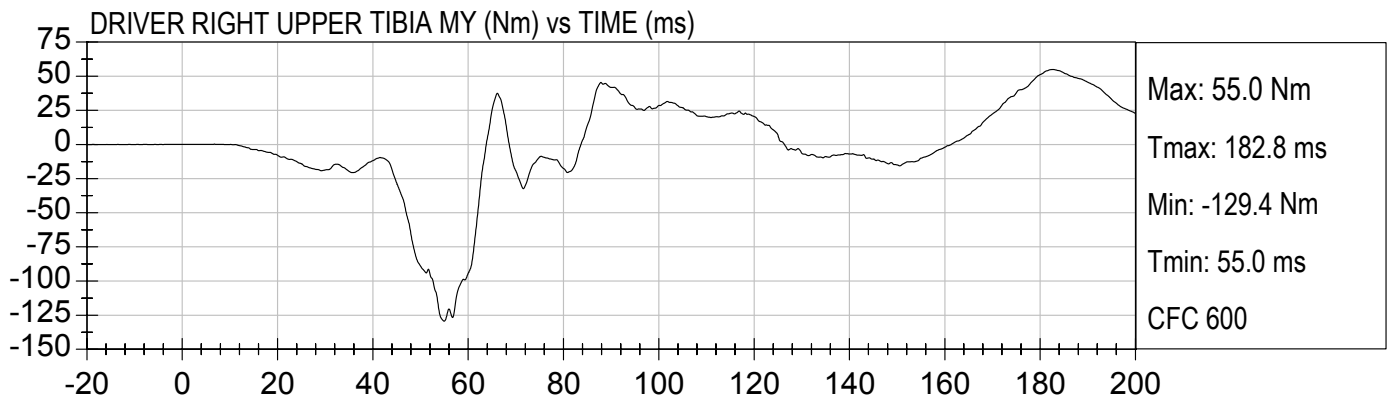
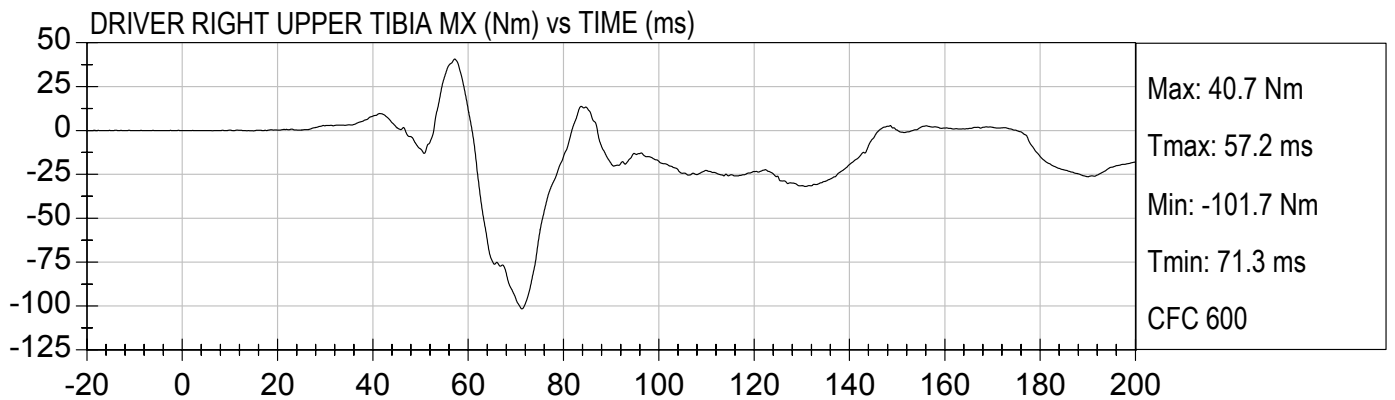
DRIVER LEFT LOWER TIBIA FZ (N) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

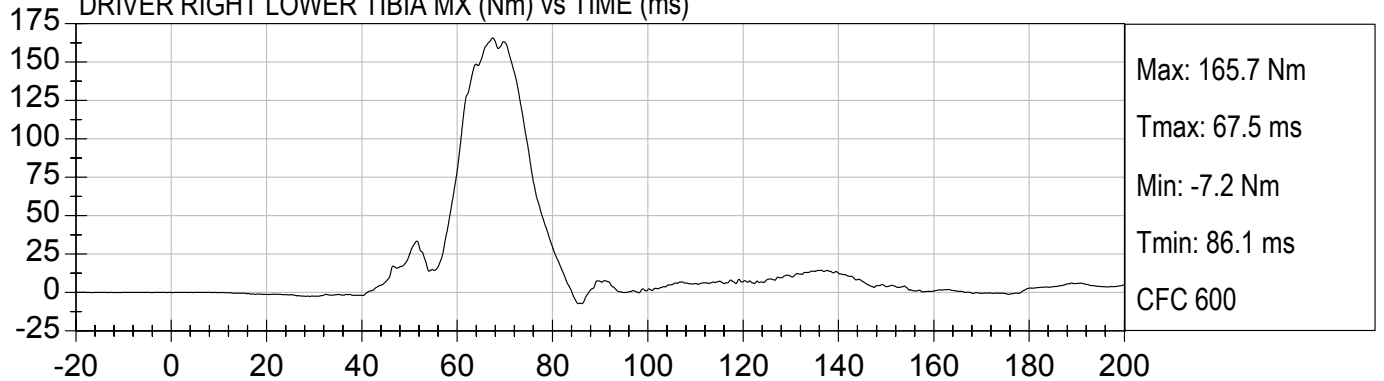




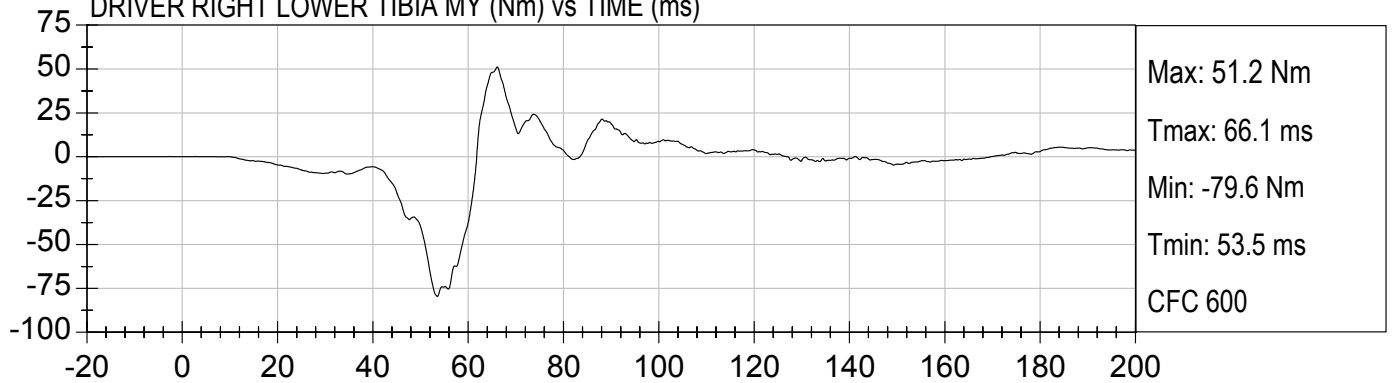
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

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



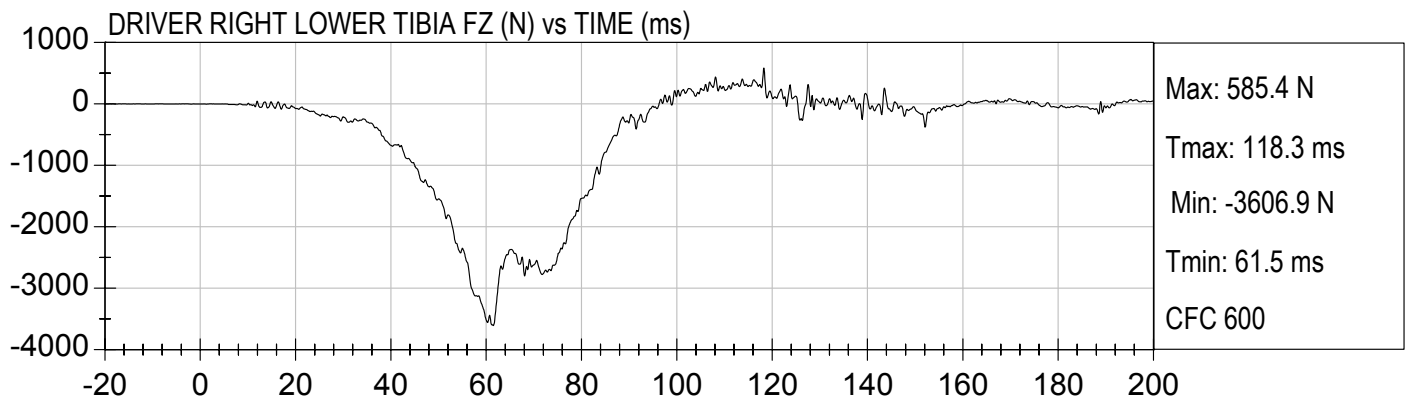
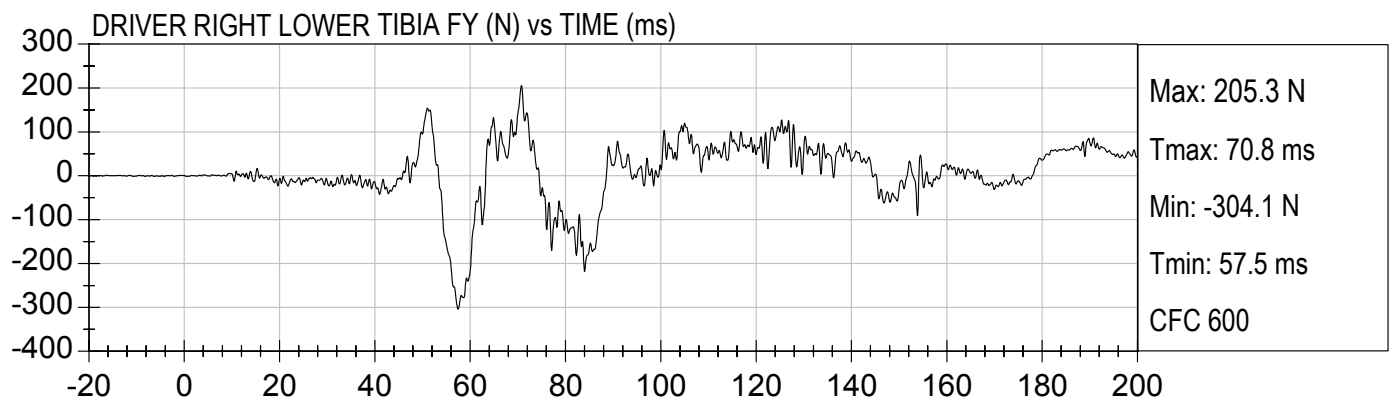
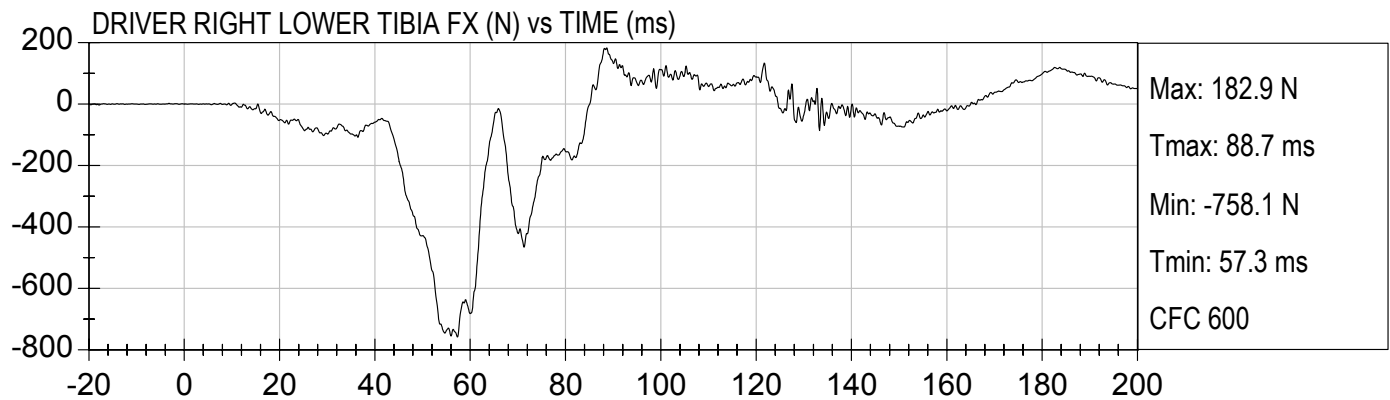
DRIVER RIGHT LOWER TIBIA MY (Nm) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

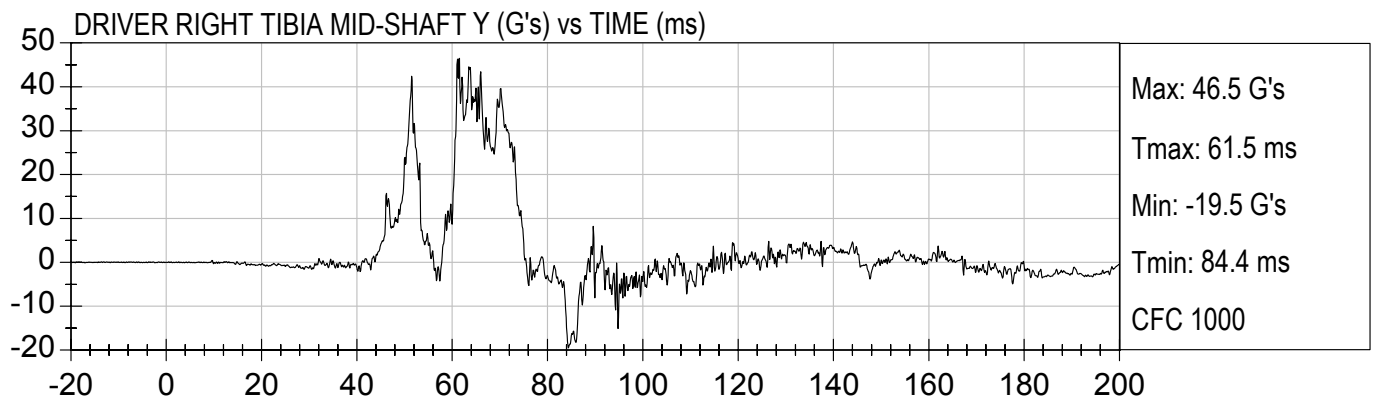
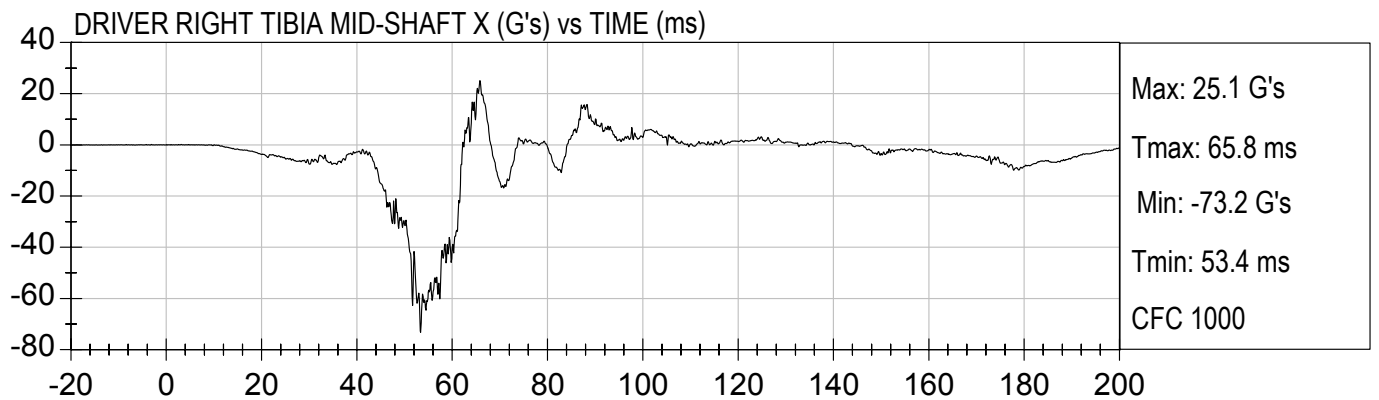
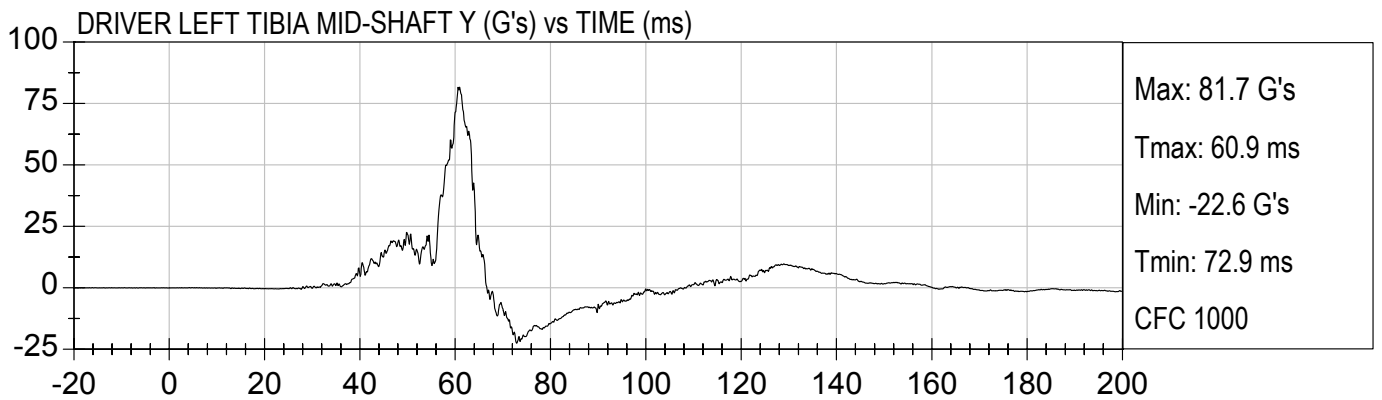
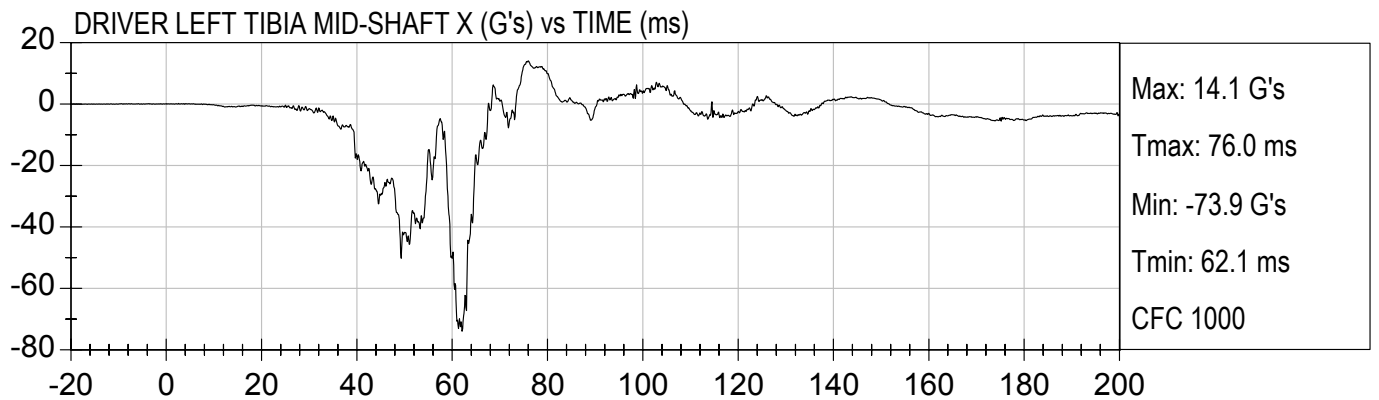
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

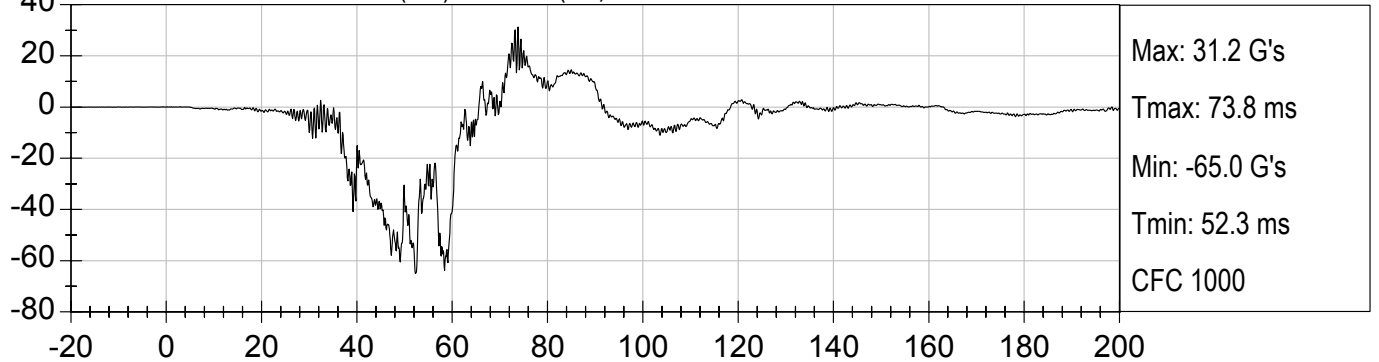




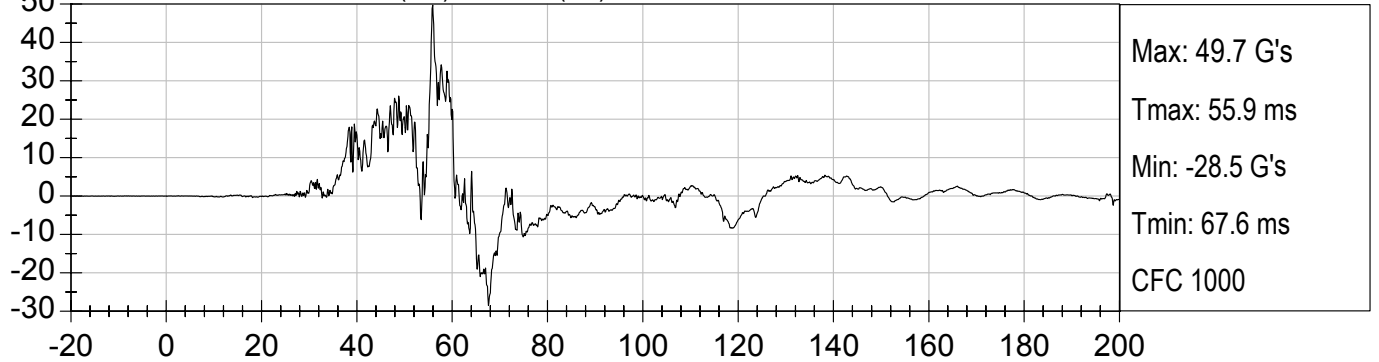
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

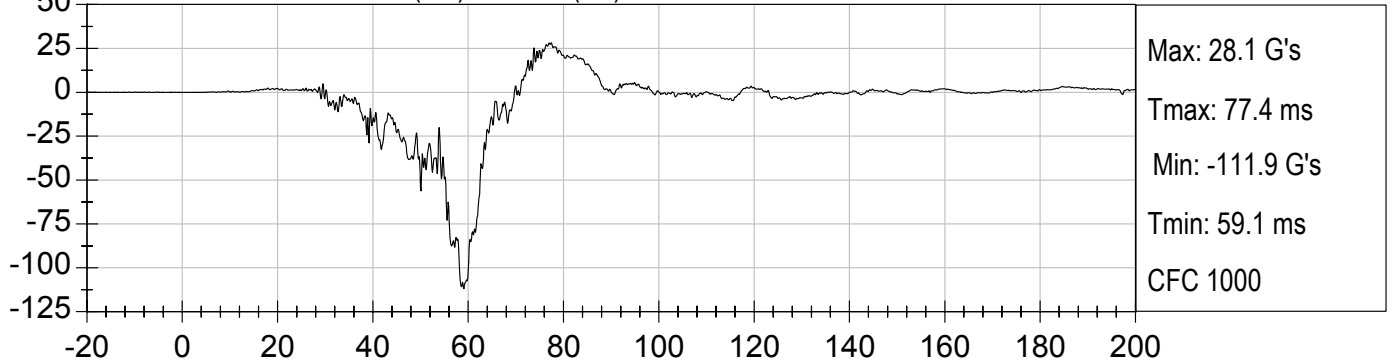
DRIVER LEFT MID-FOOT X (G's) vs TIME (ms)



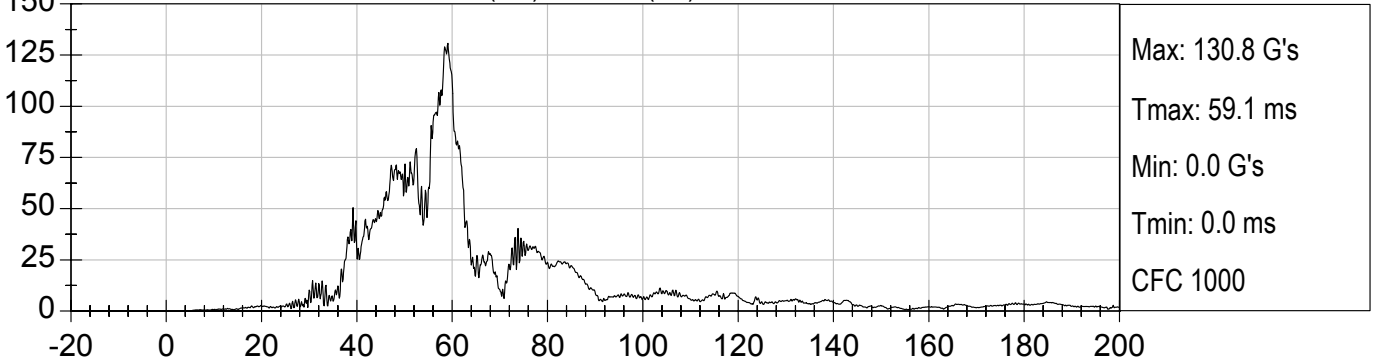
DRIVER LEFT MID-FOOT Y (G's) vs TIME (ms)



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



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

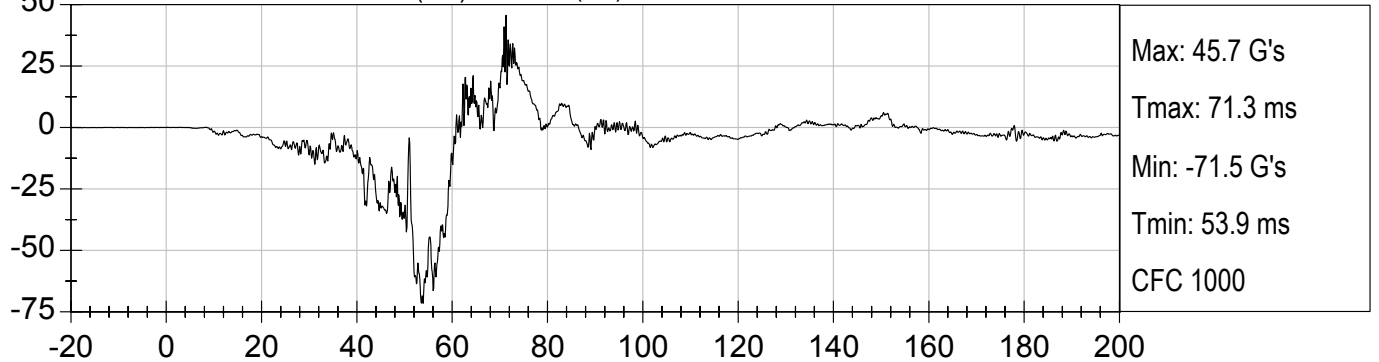




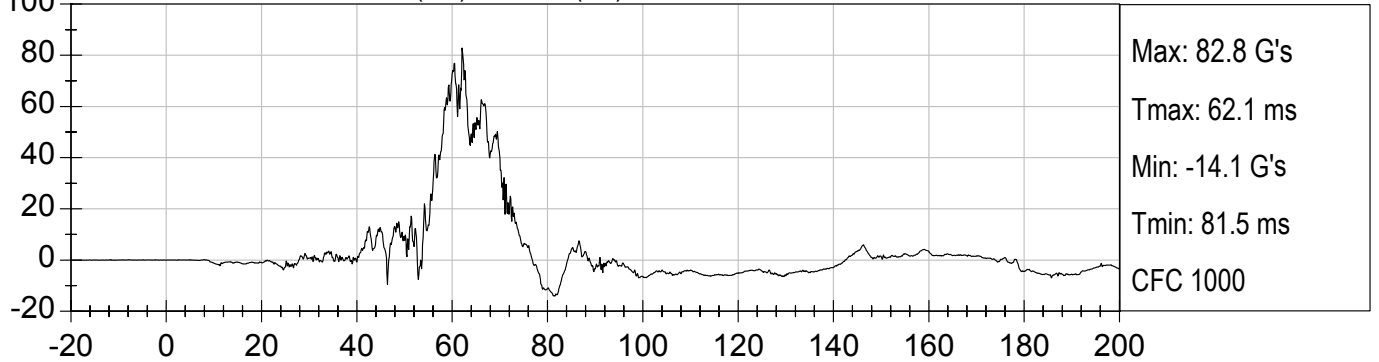
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

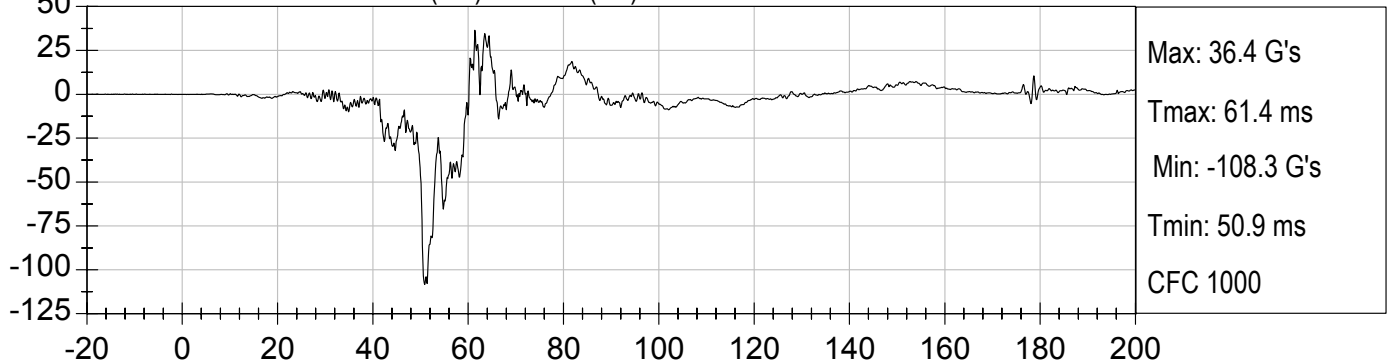
DRIVER RIGHT MID-FOOT X (G's) vs TIME (ms)



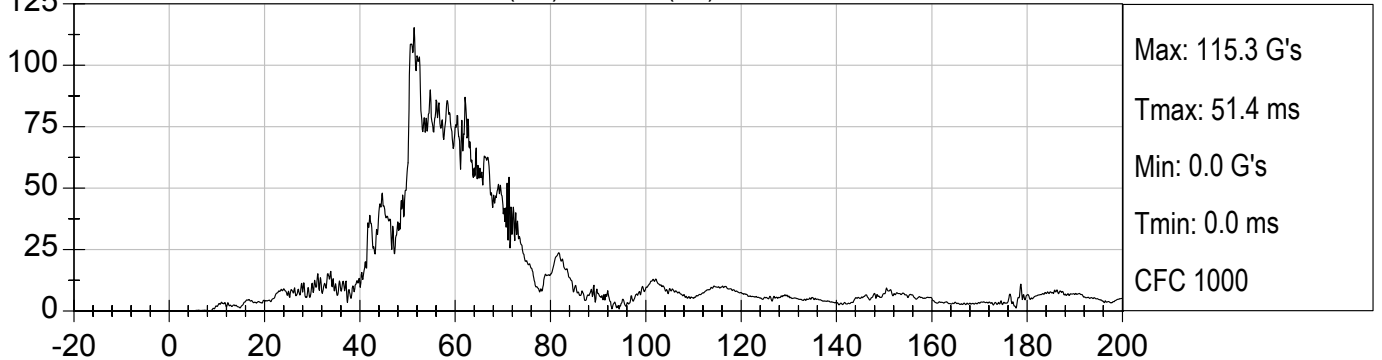
DRIVER RIGHT MID-FOOT Y (G's) vs TIME (ms)



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



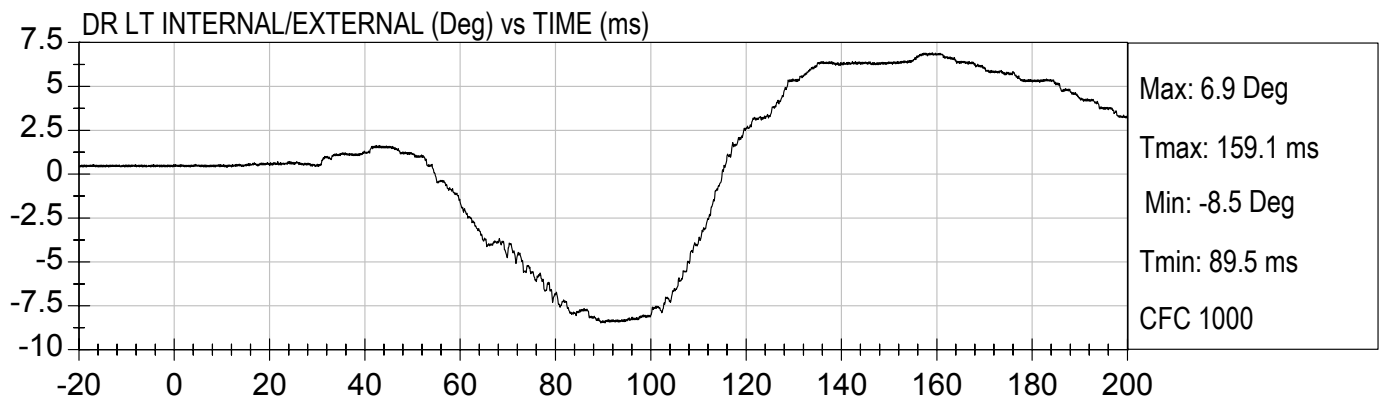
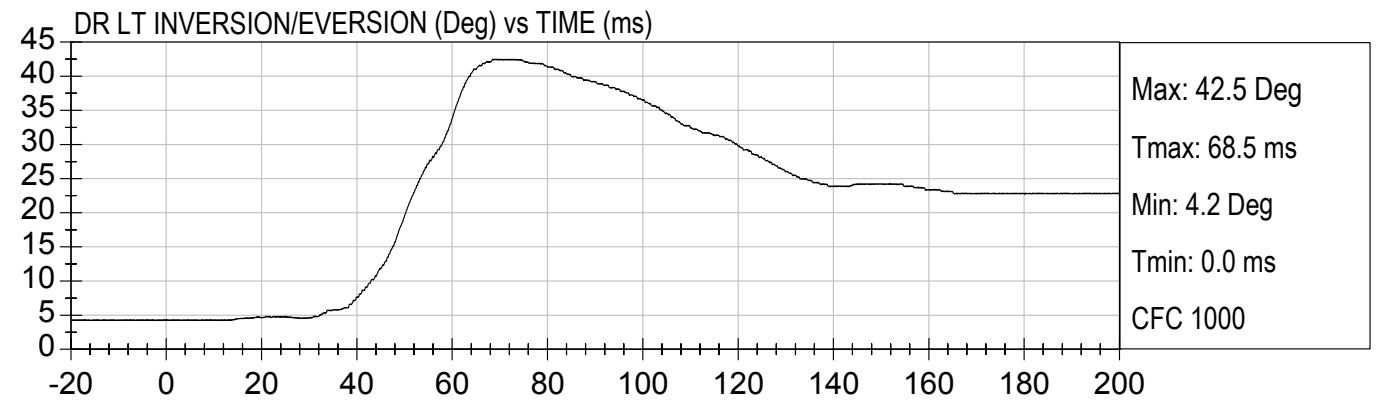
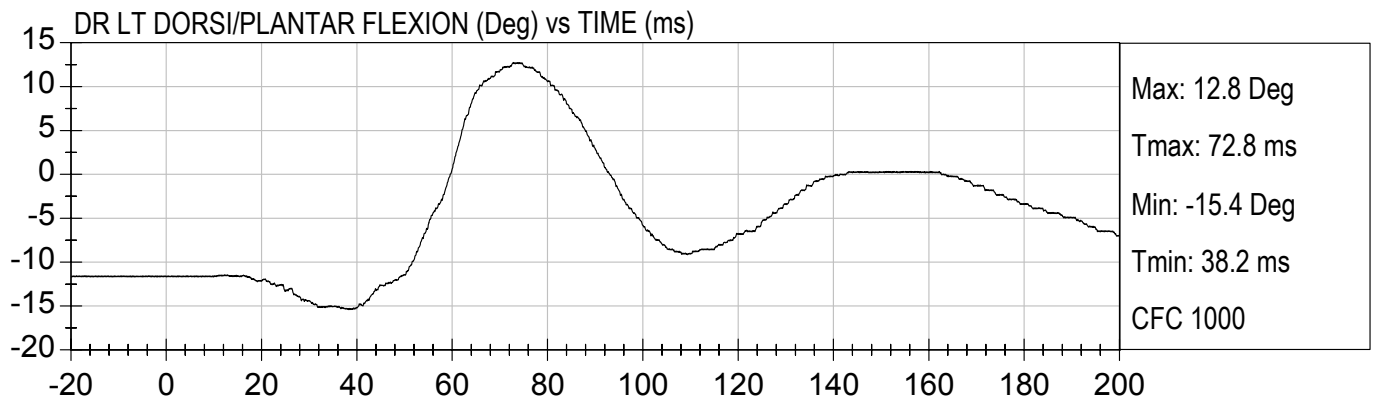
DRIVER RIGHT MID-FOOT Resultant (G's) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

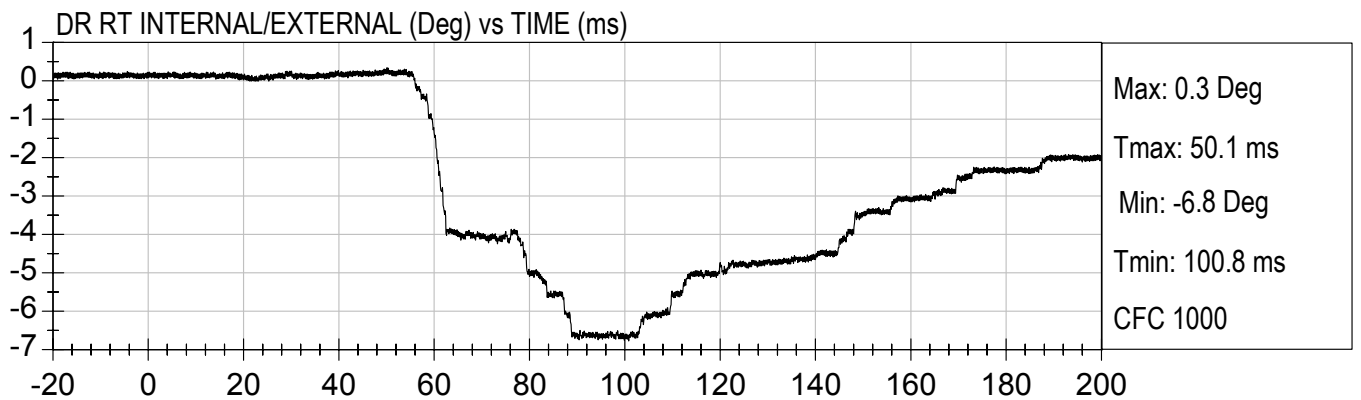
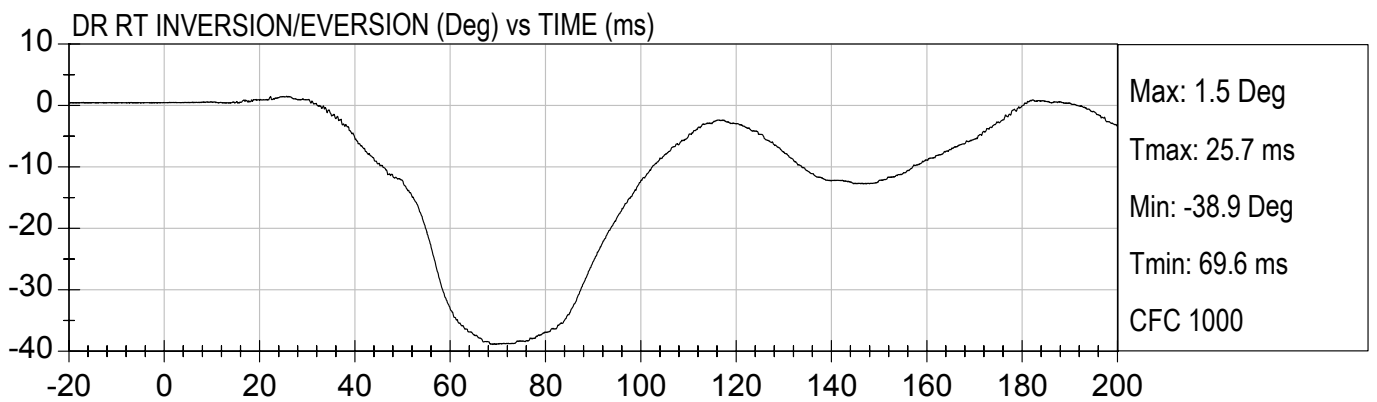
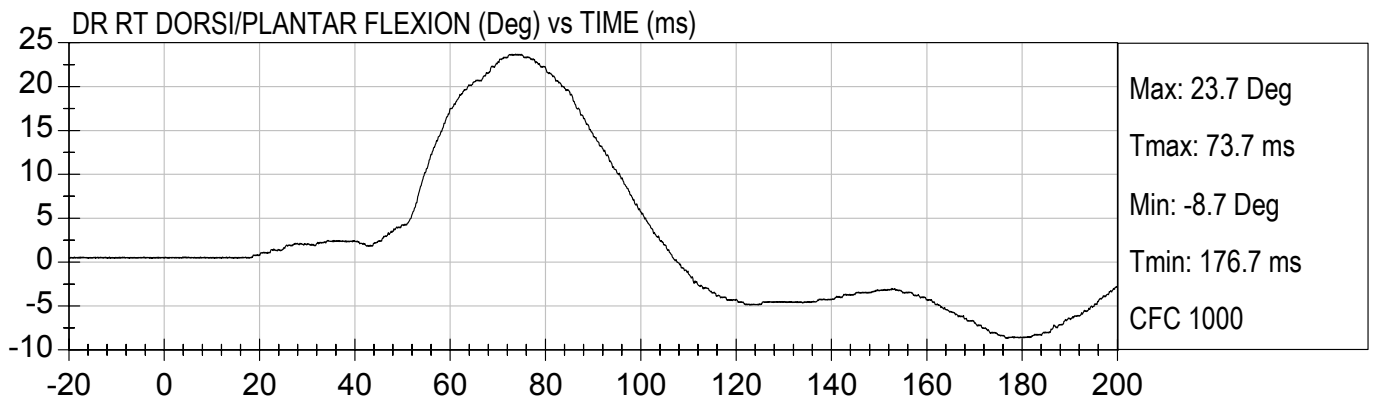
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

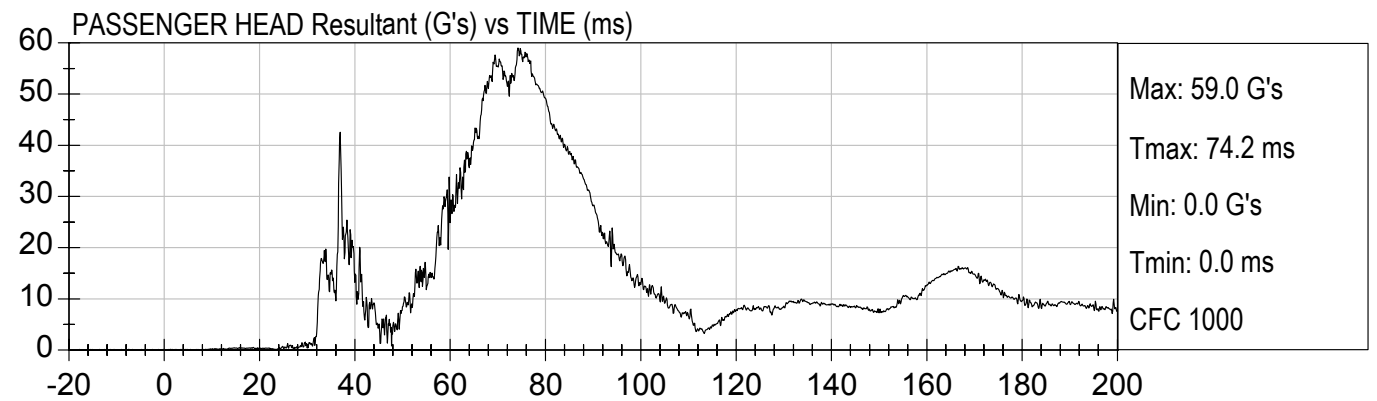
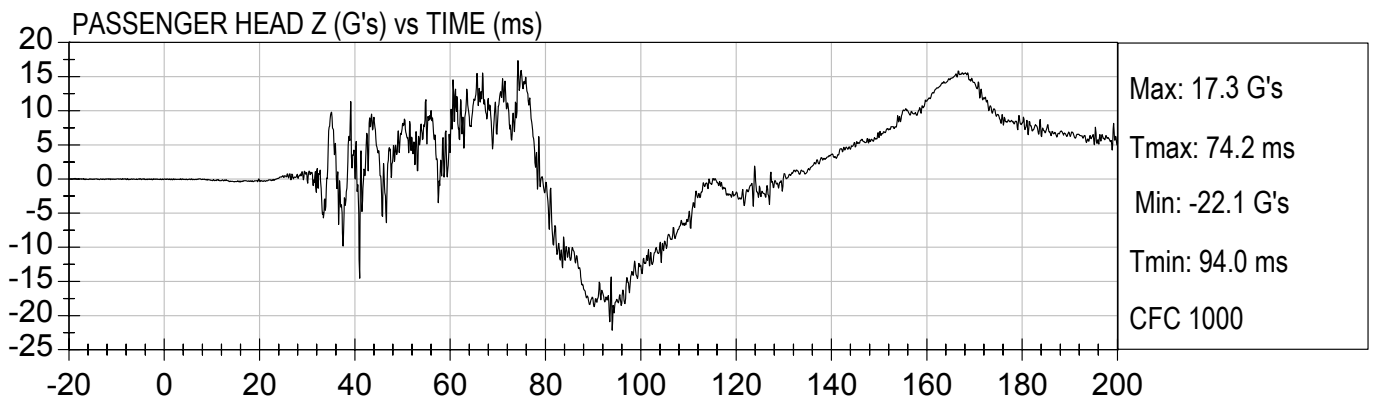
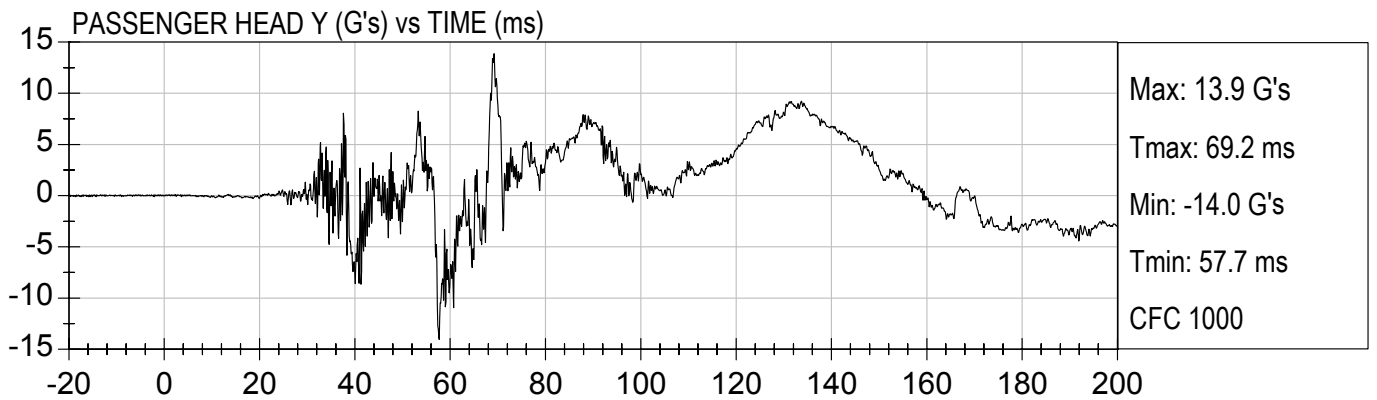
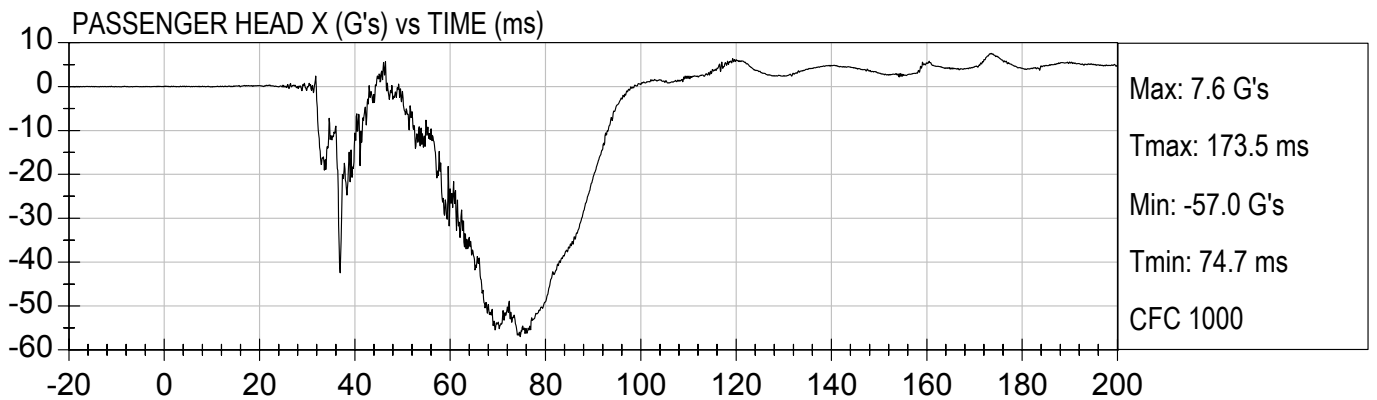
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

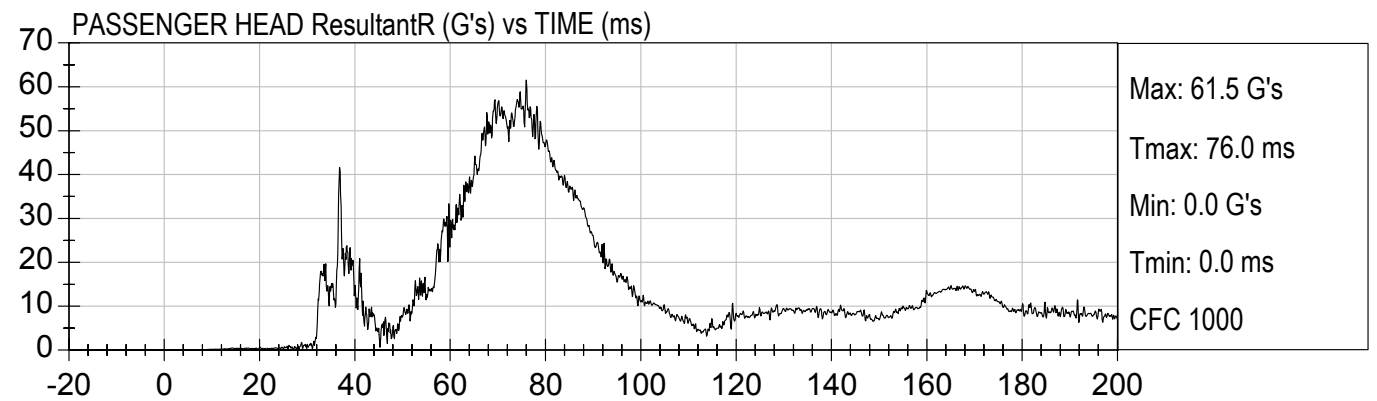
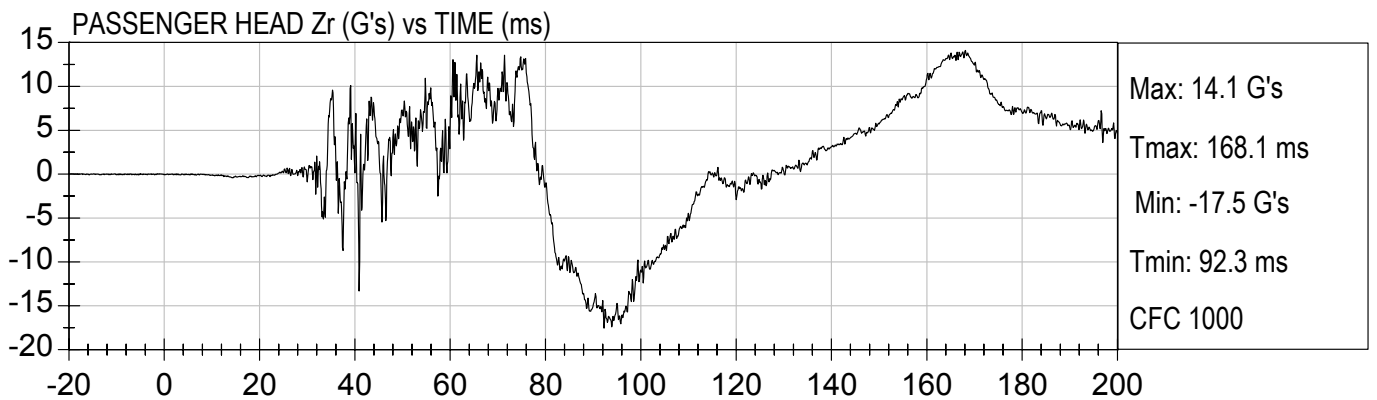
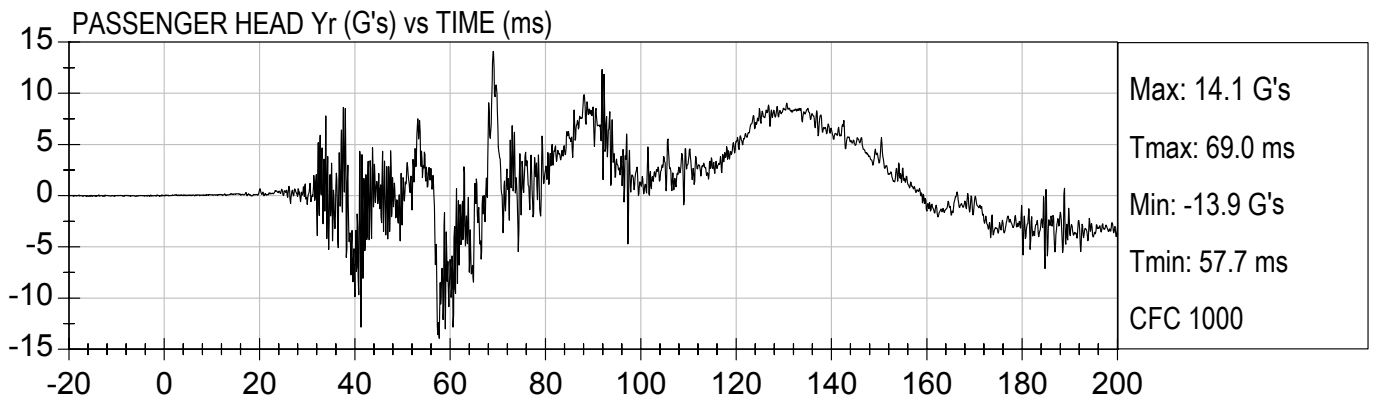
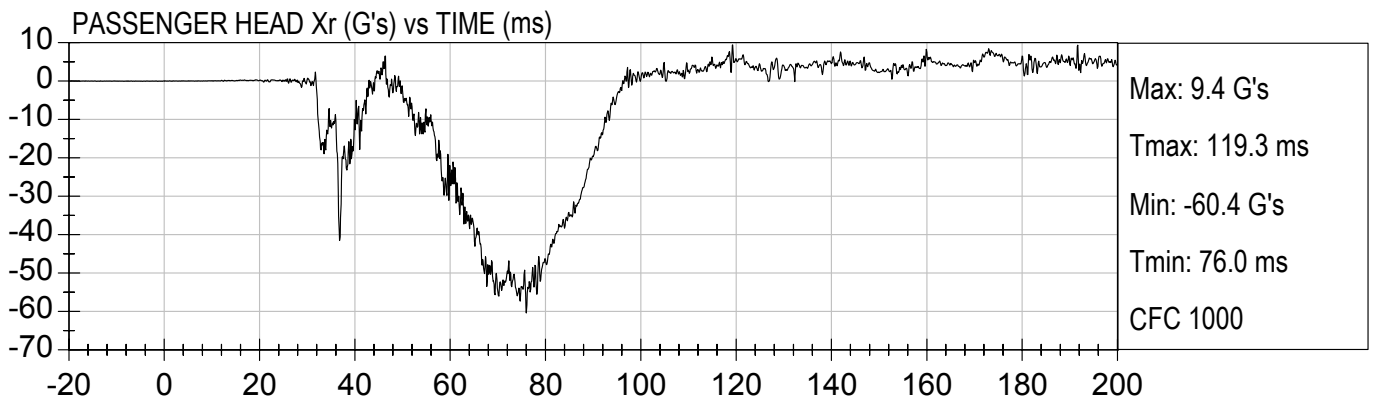
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

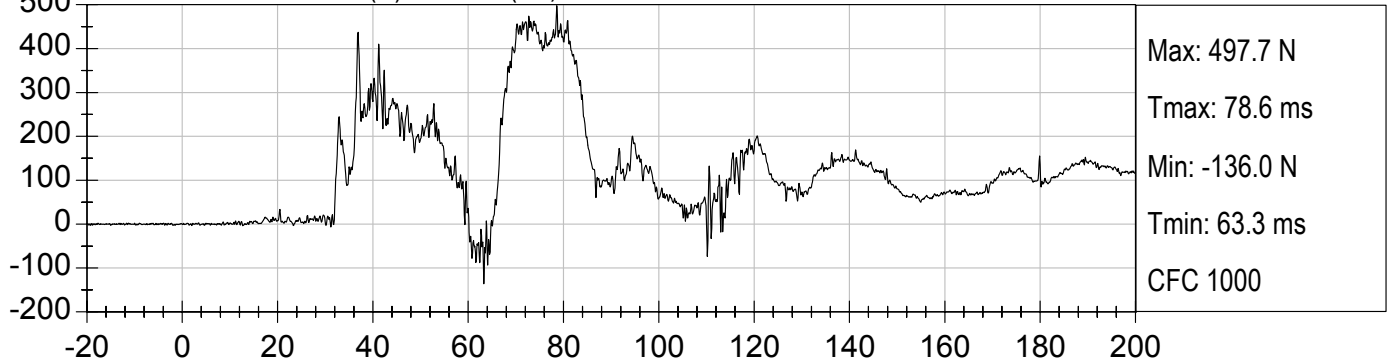




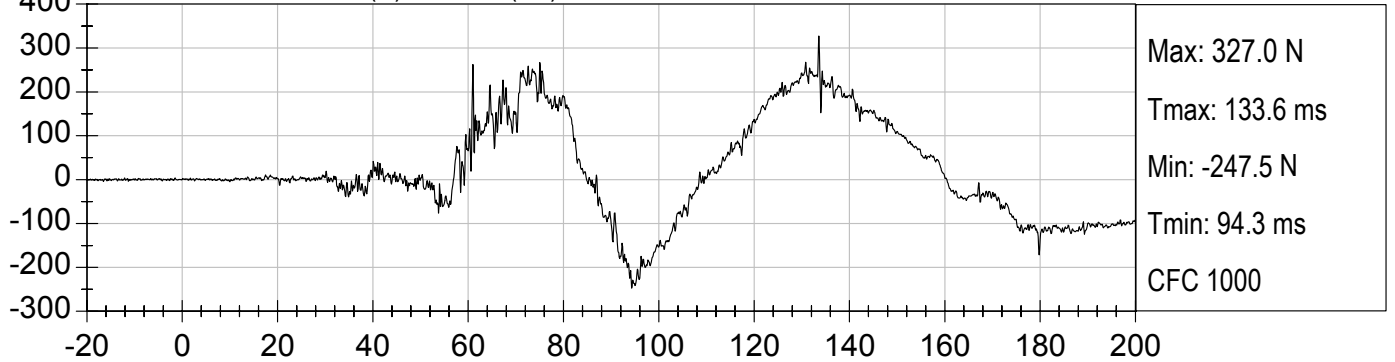
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

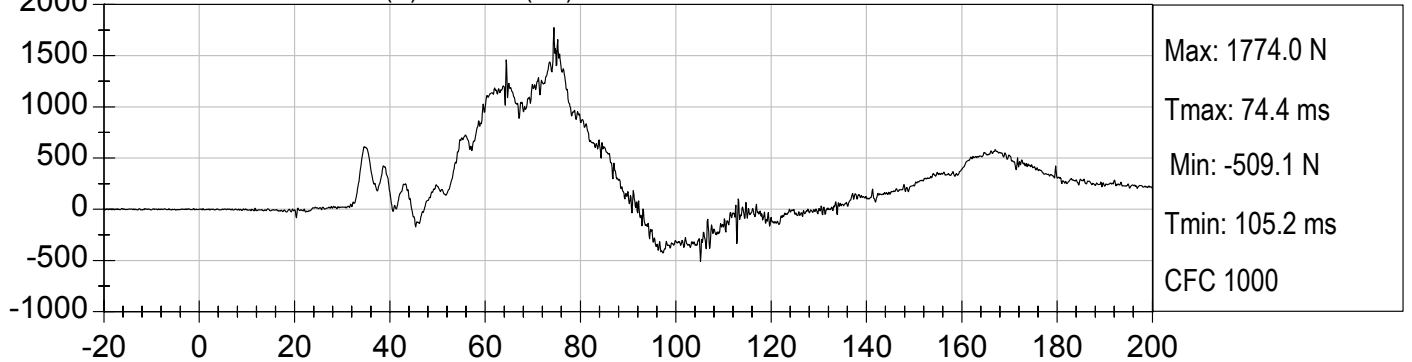
PASSENGER NECK FX (N) vs TIME (ms)



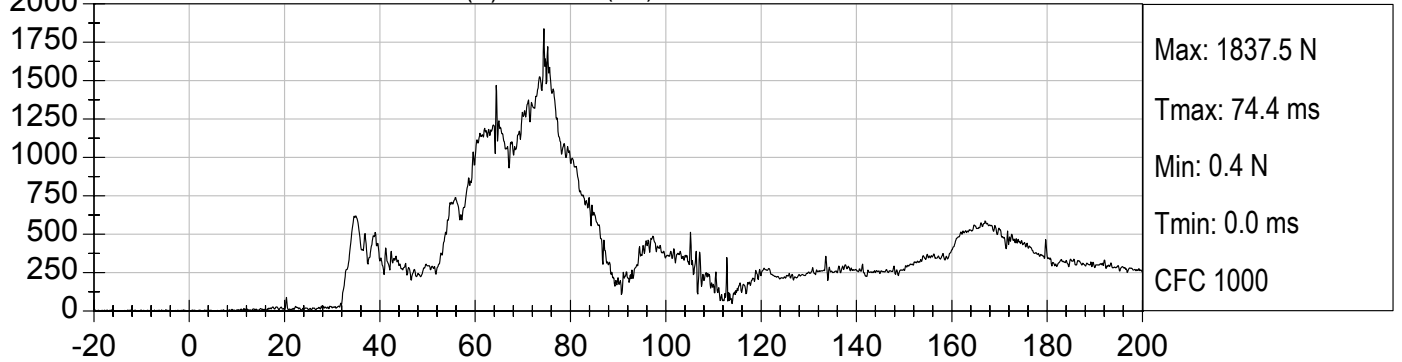
PASSENGER NECK FY (N) vs TIME (ms)



PASSENGER NECK FZ (N) vs TIME (ms)



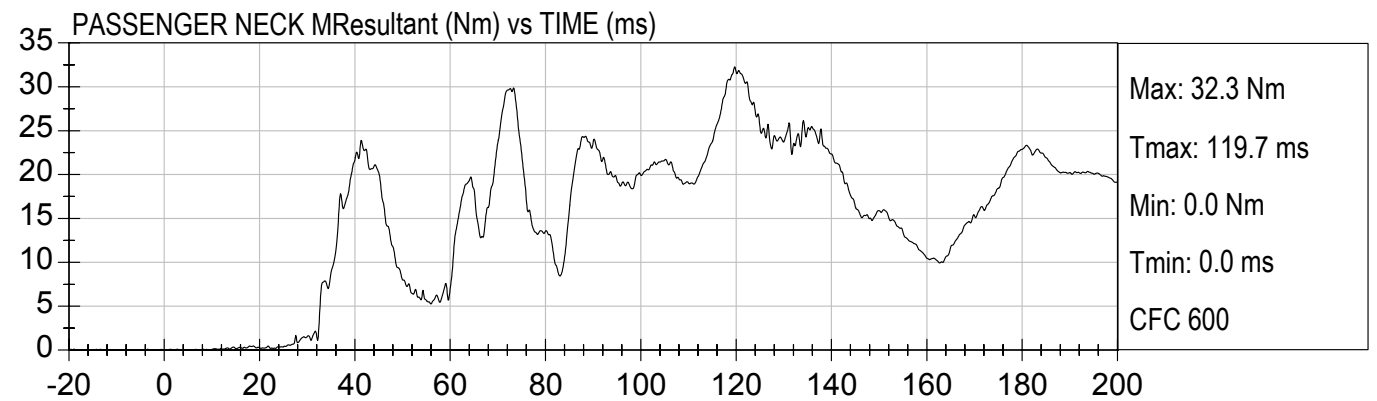
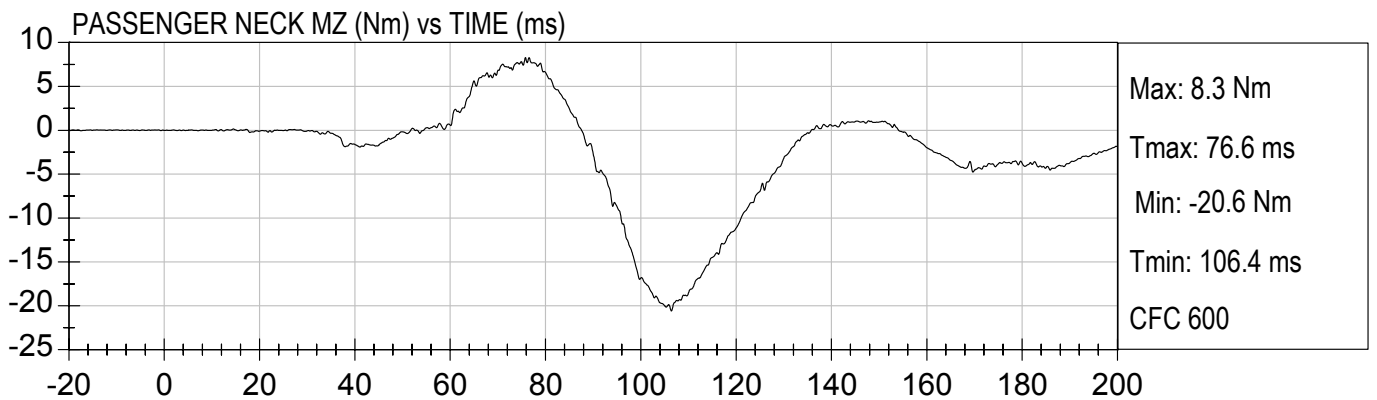
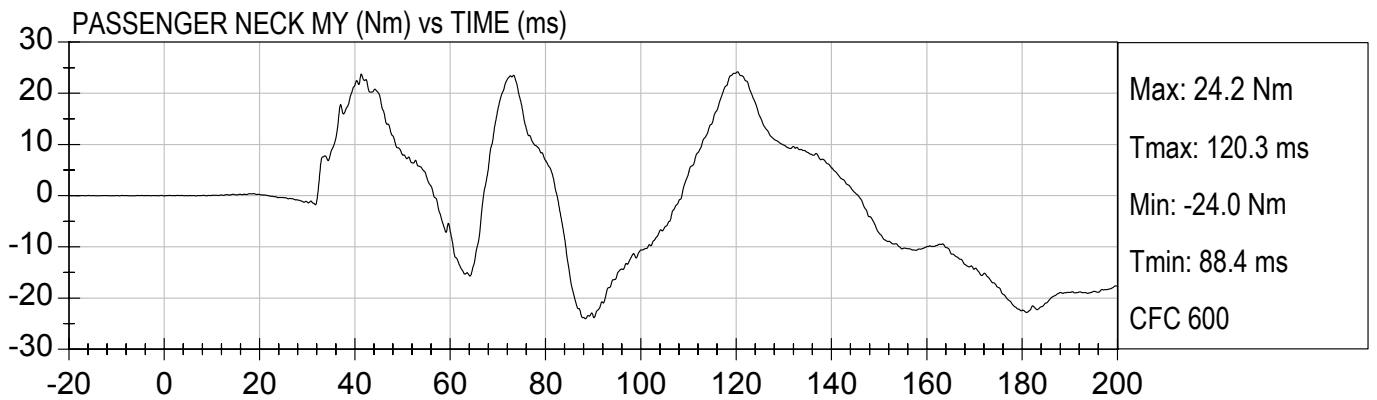
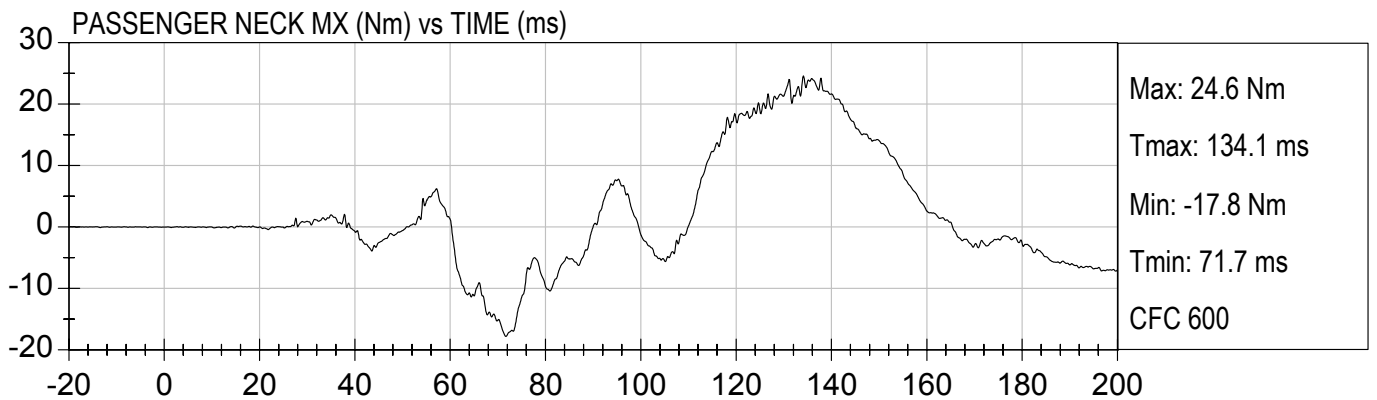
PASSENGER NECK FResultant (N) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

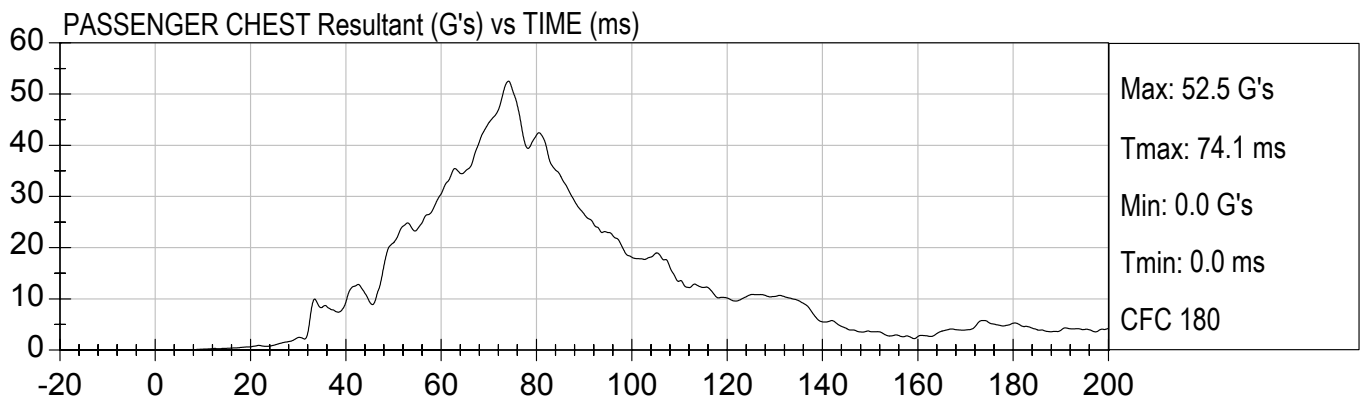
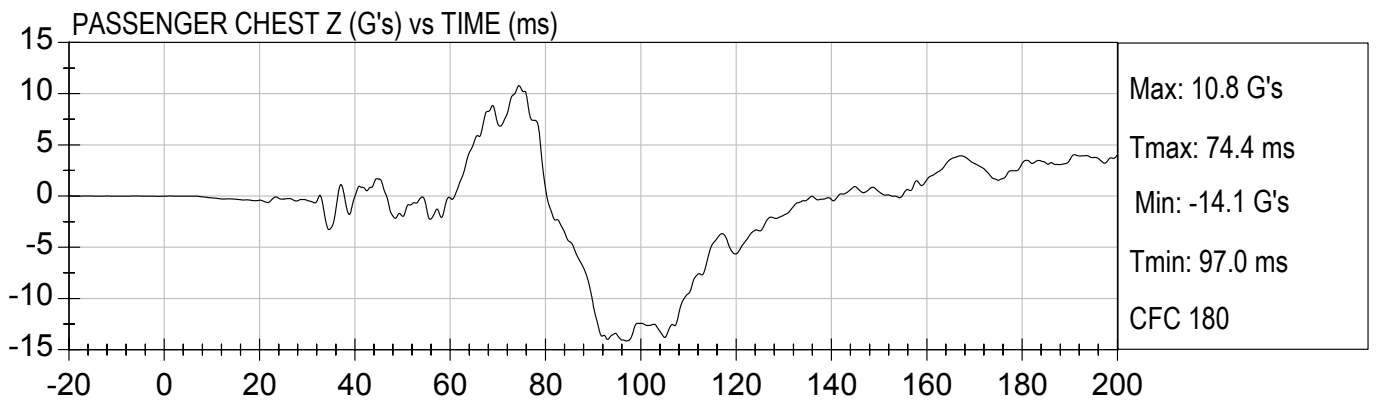
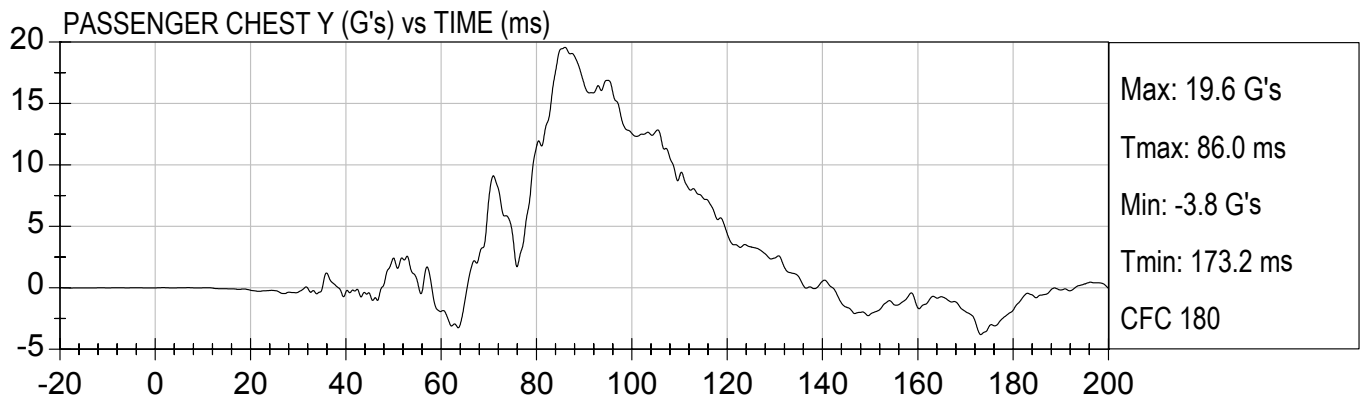
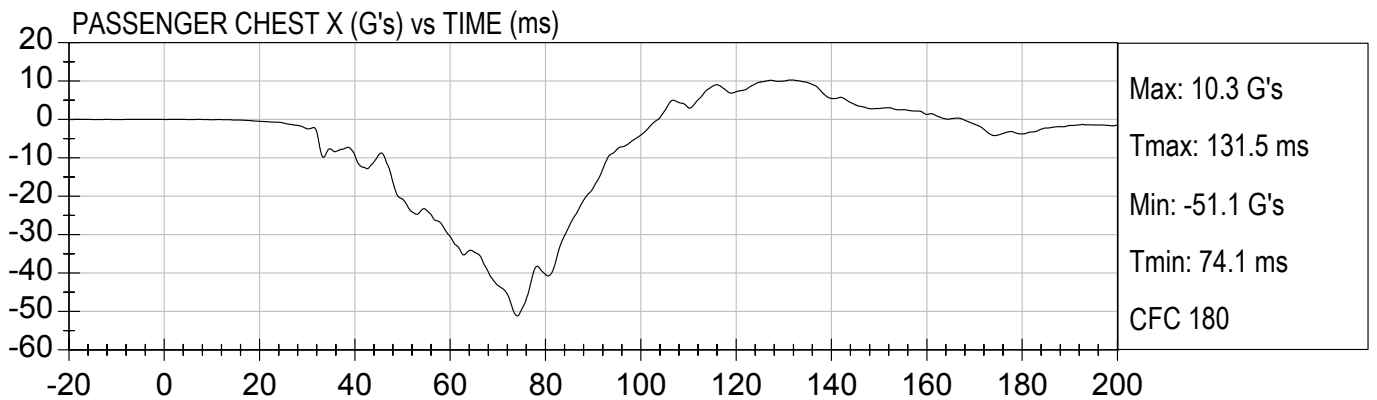
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

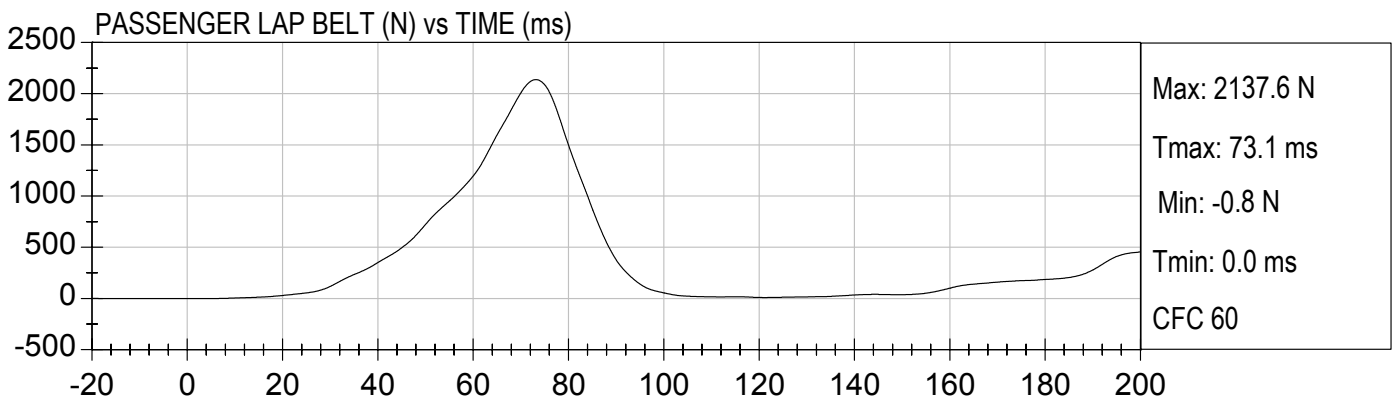
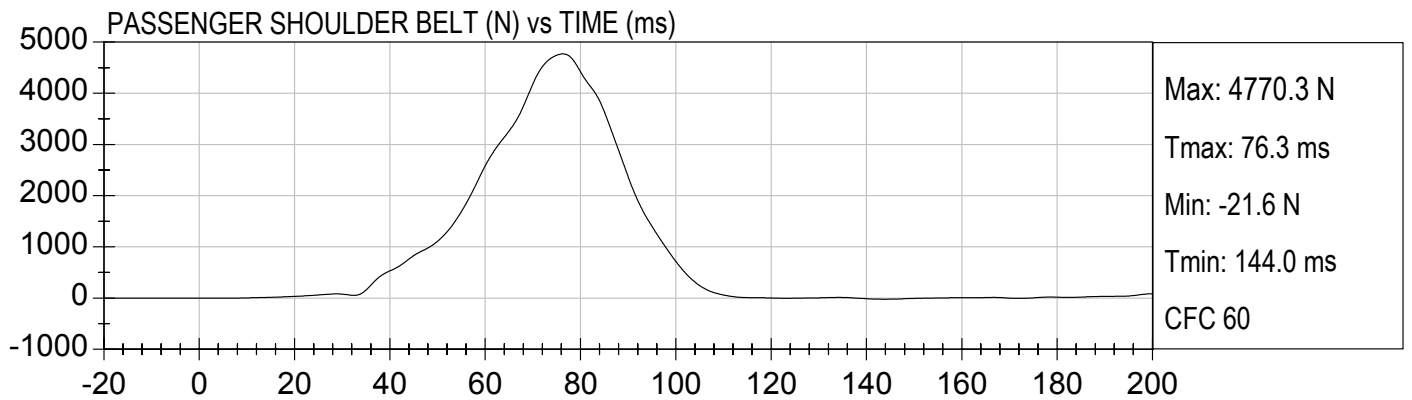
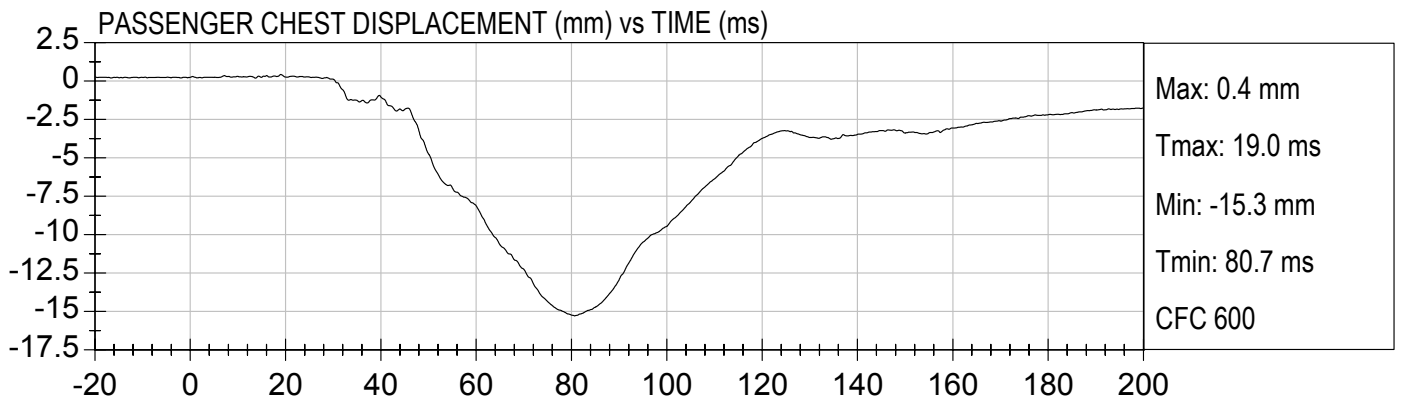
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

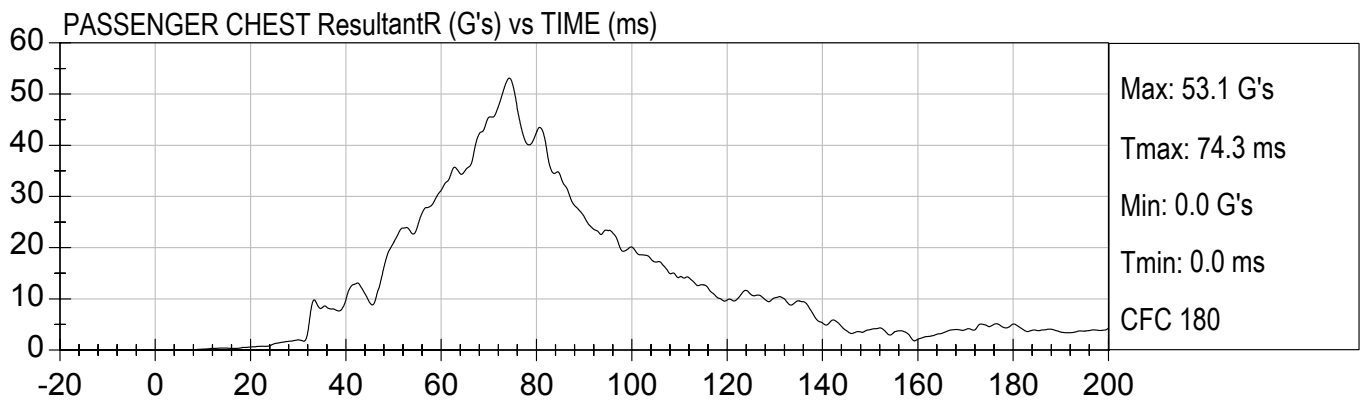
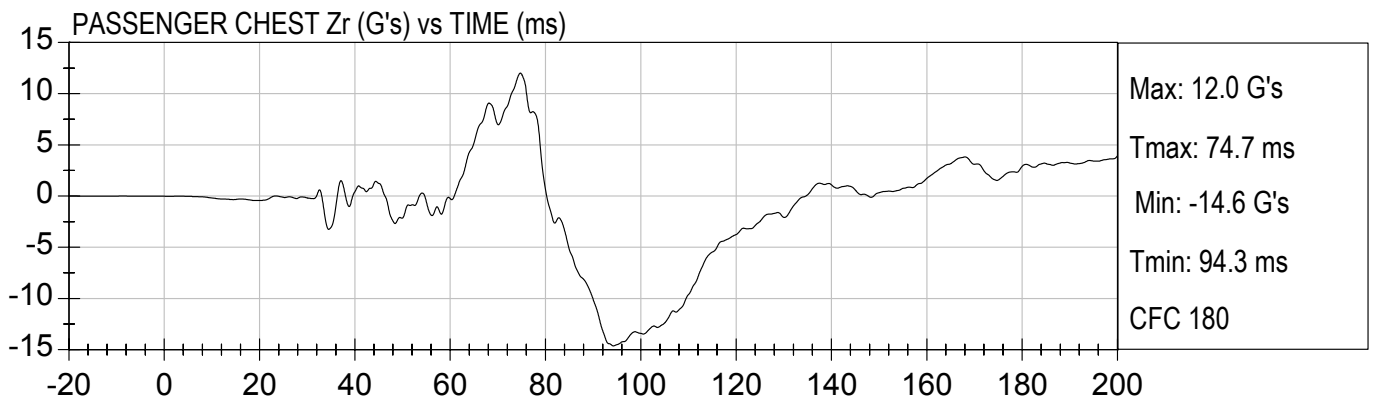
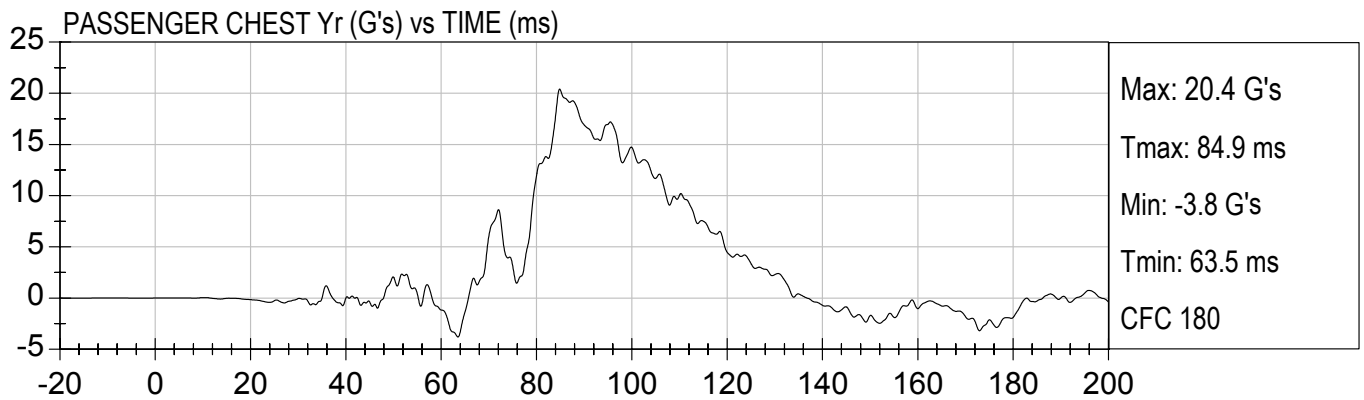
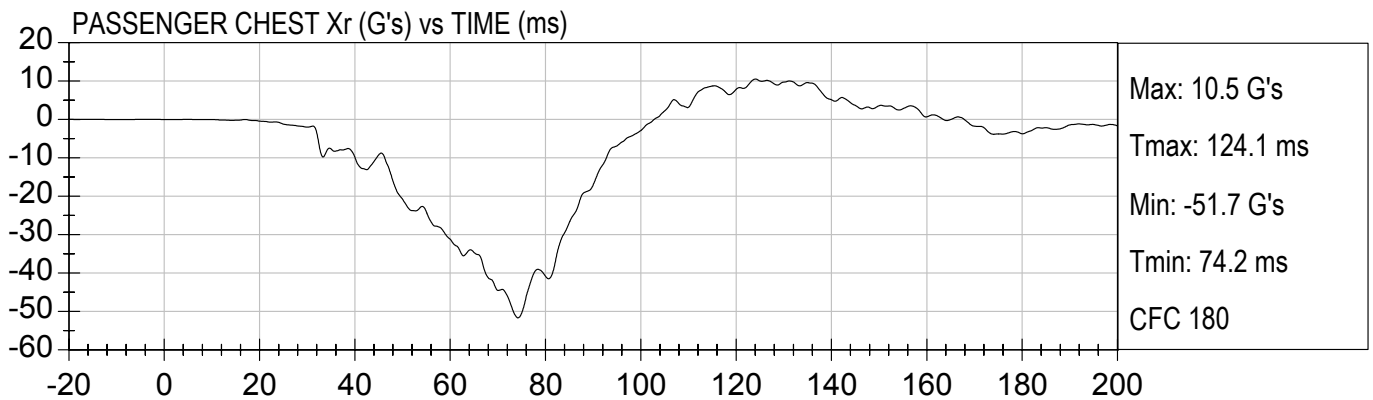
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

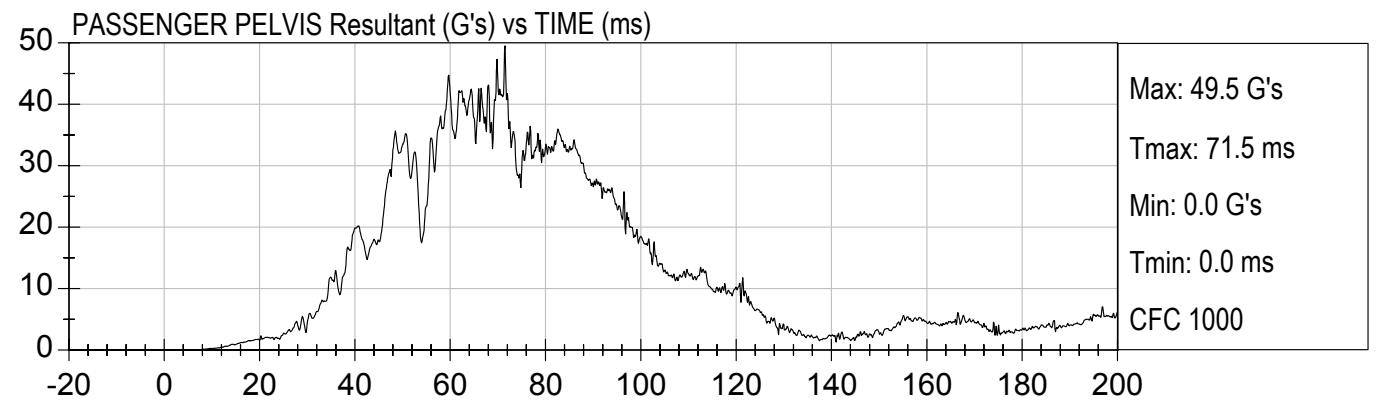
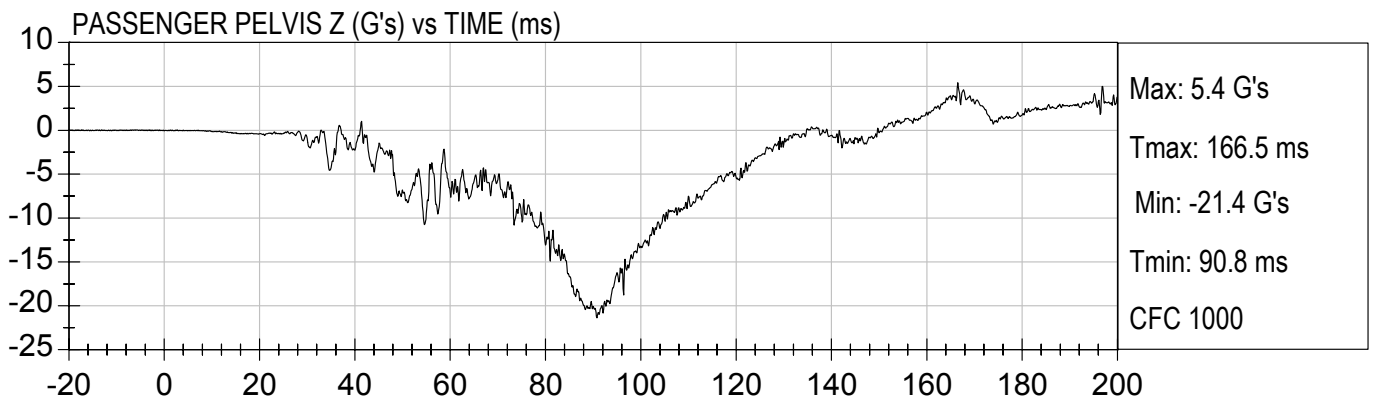
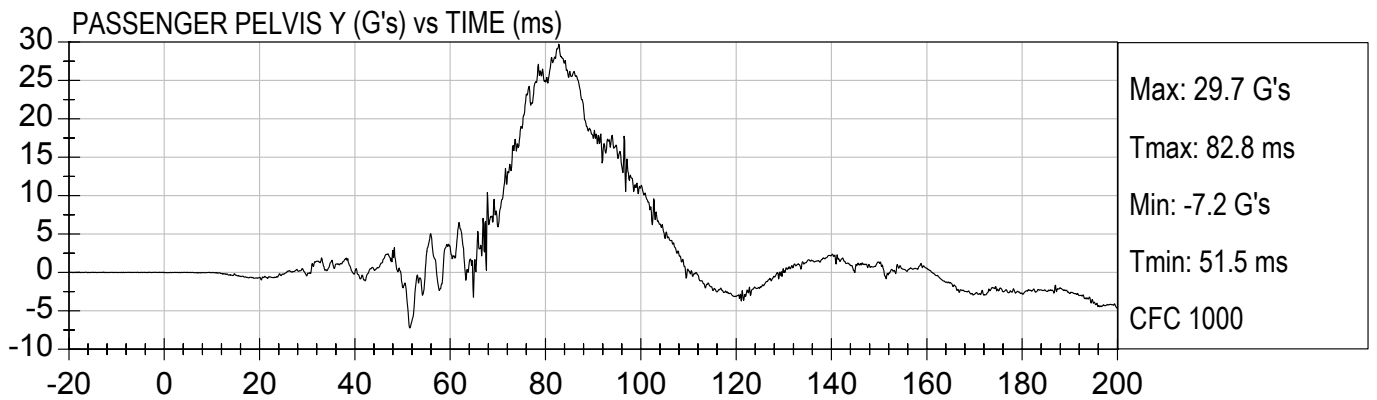
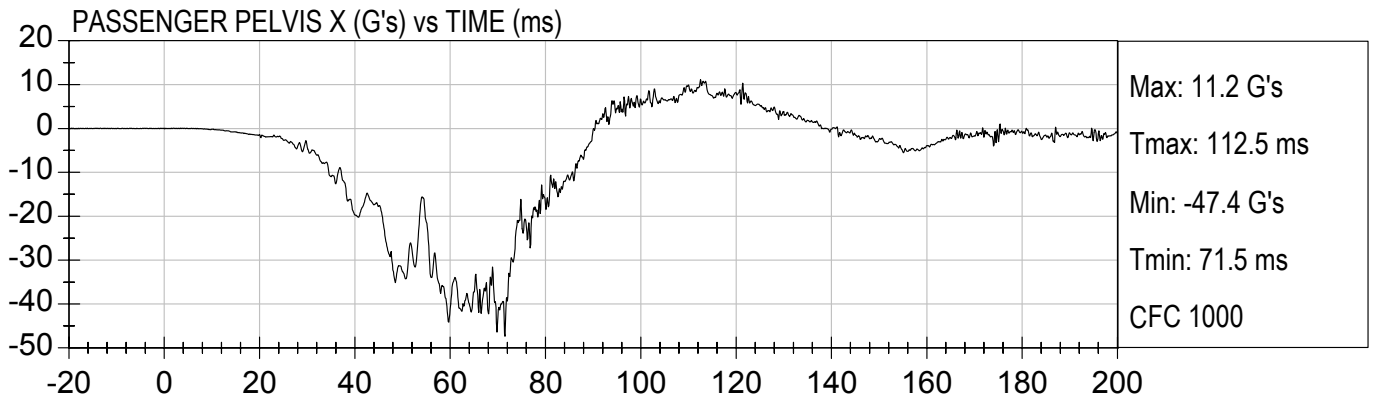
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

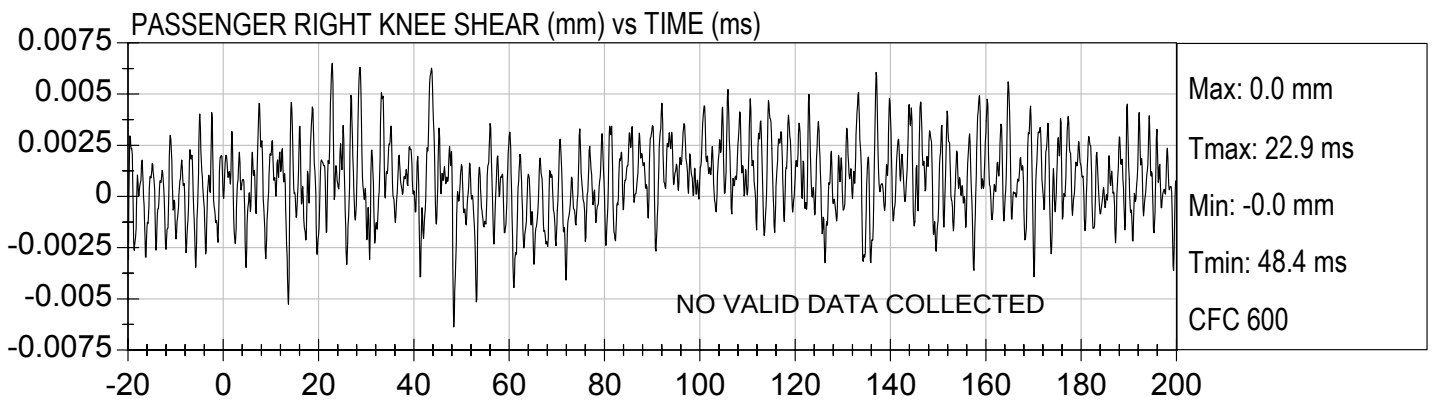
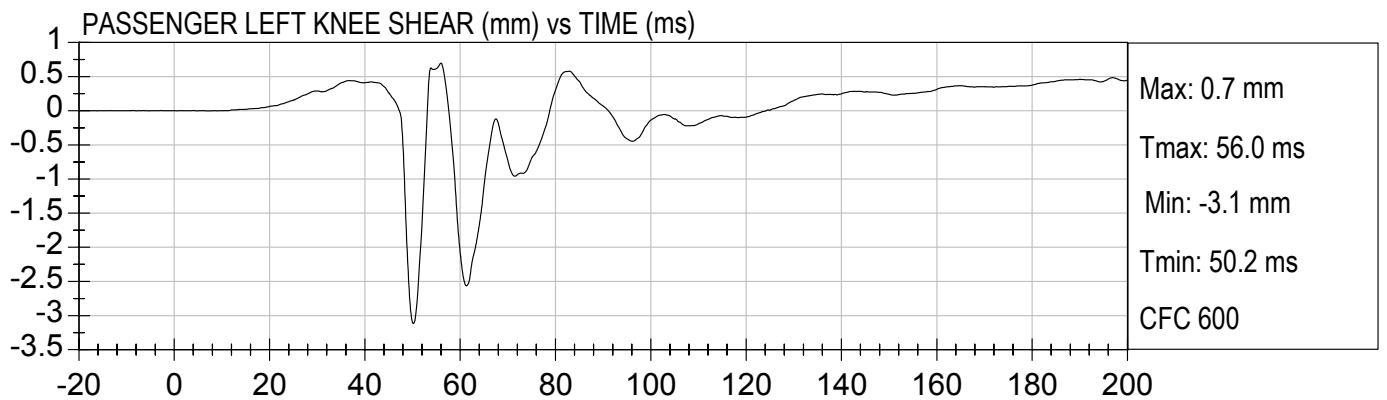
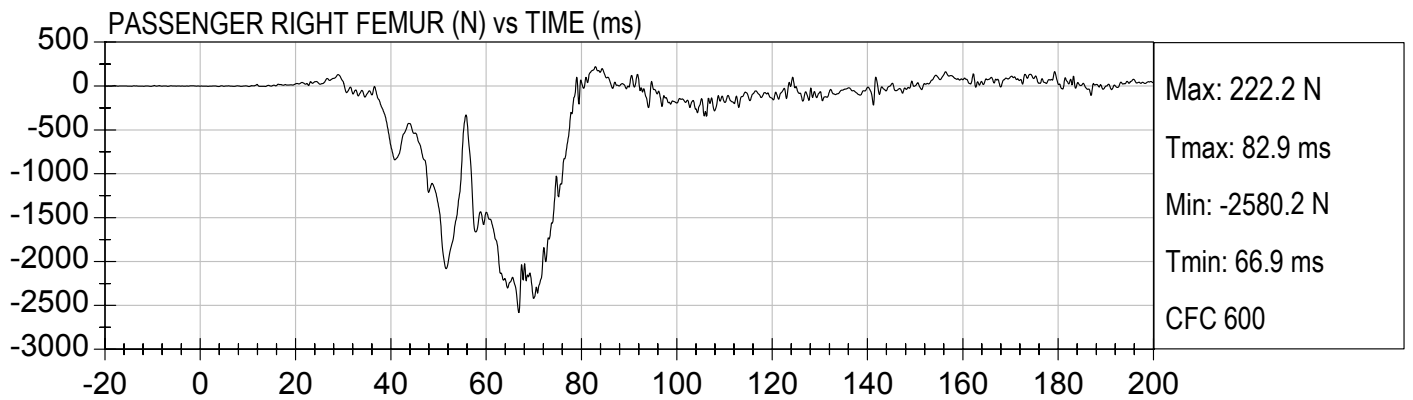
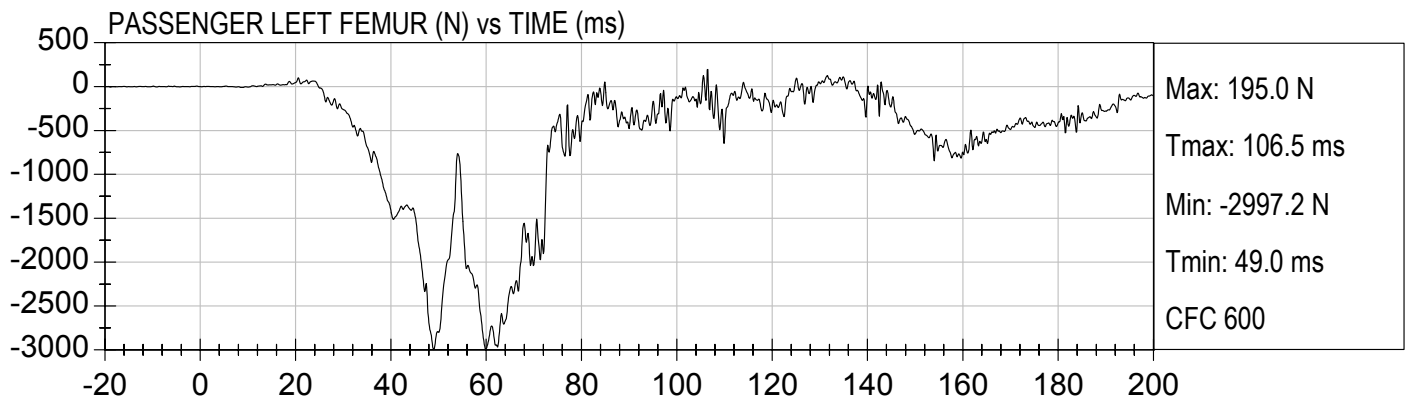
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

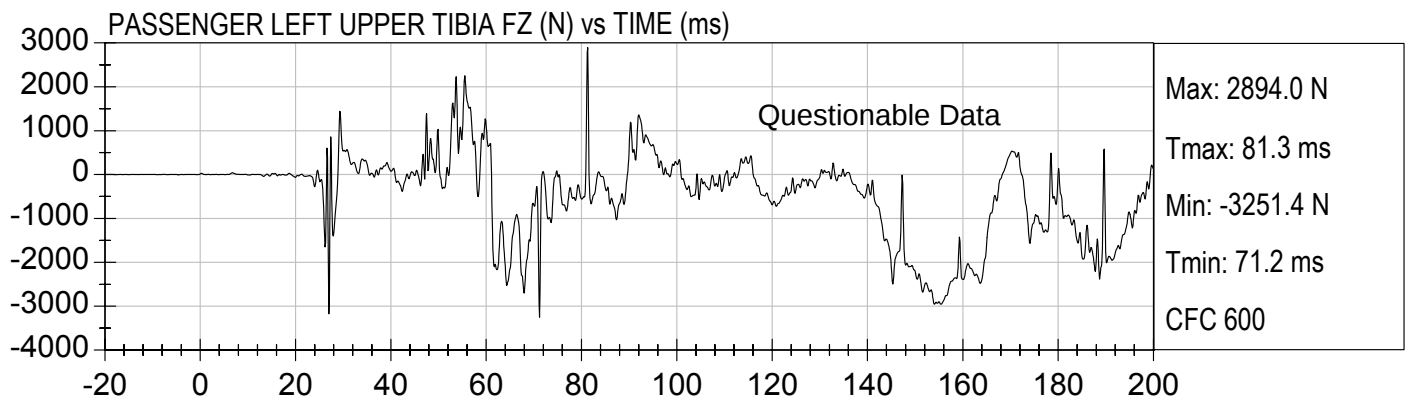
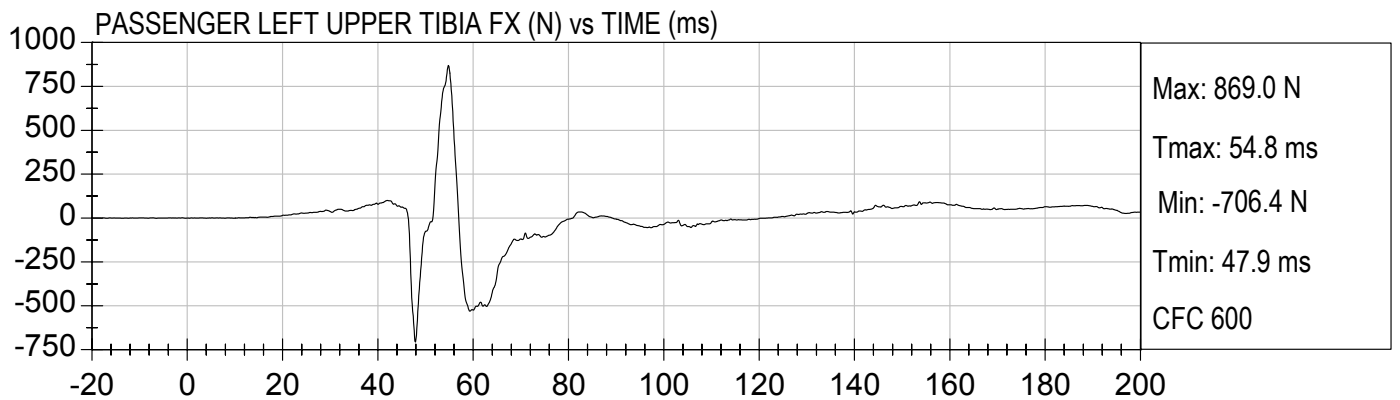
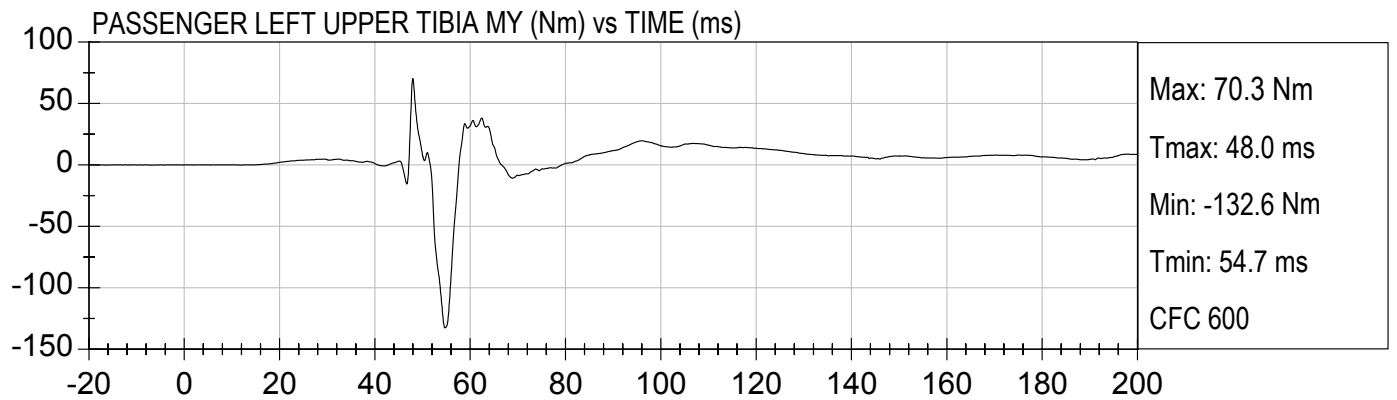
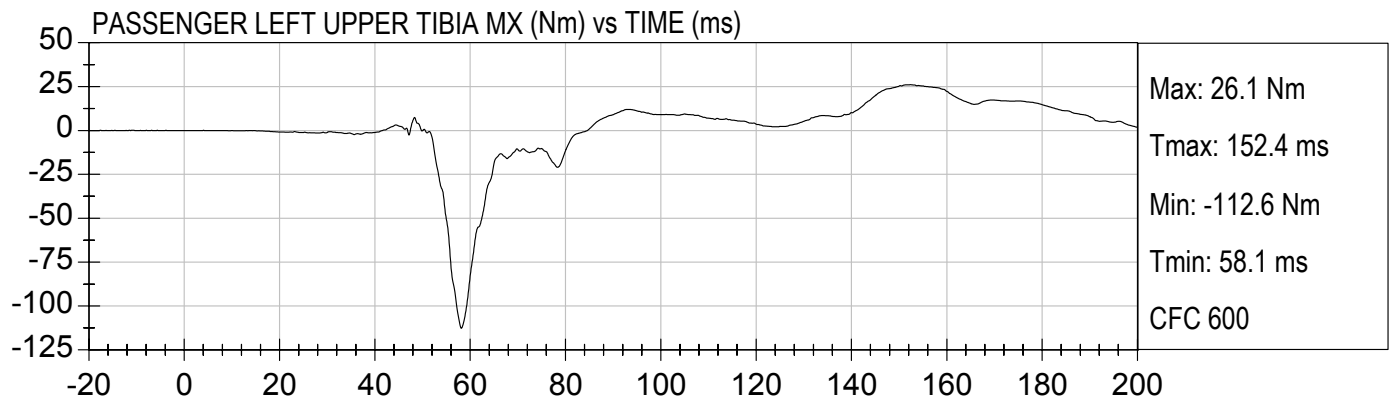
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

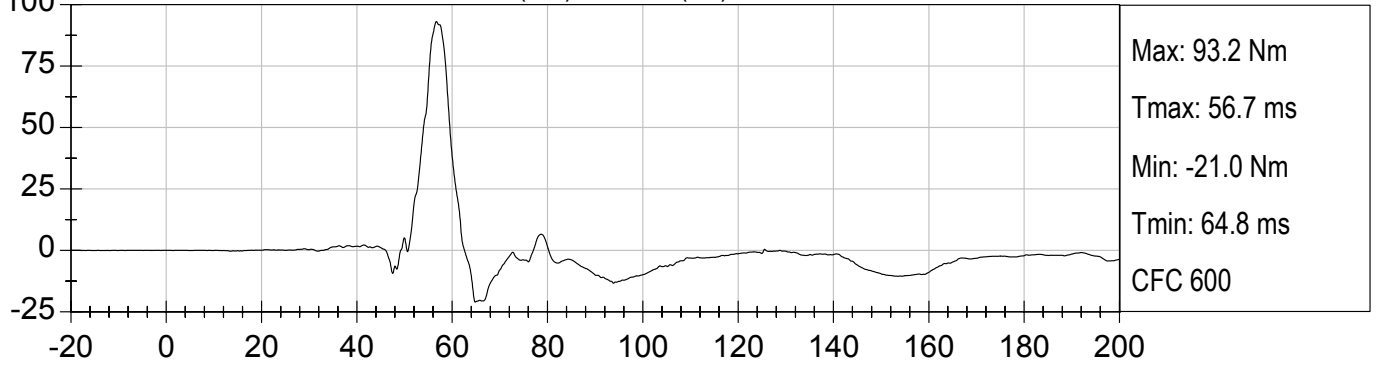




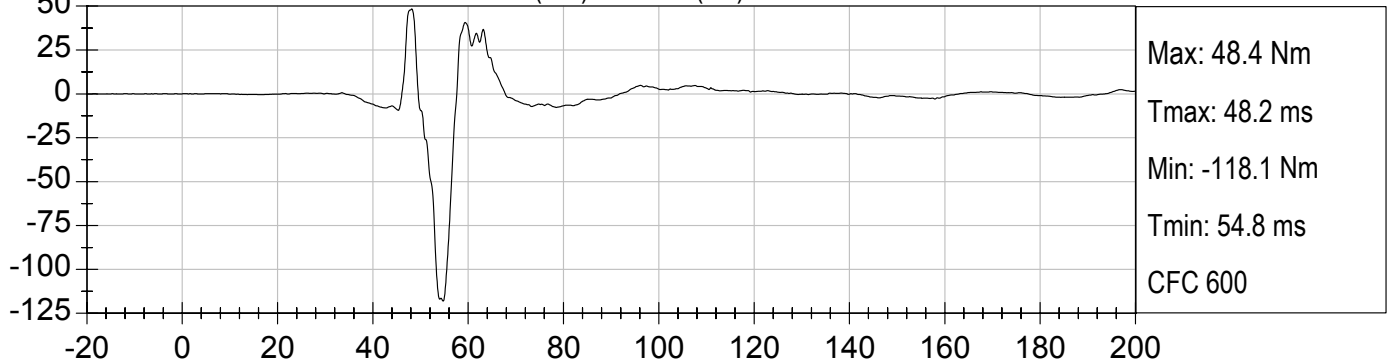
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

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



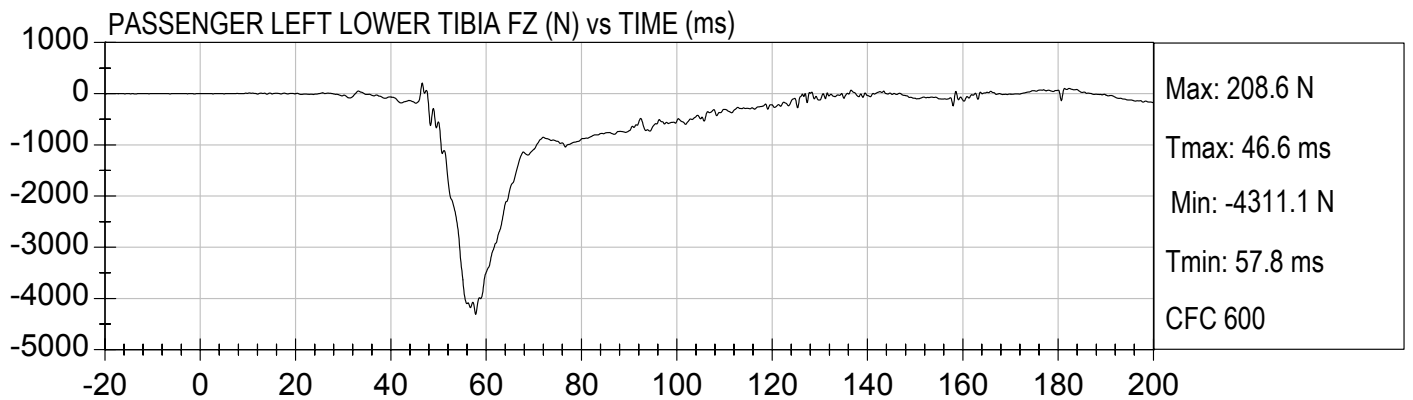
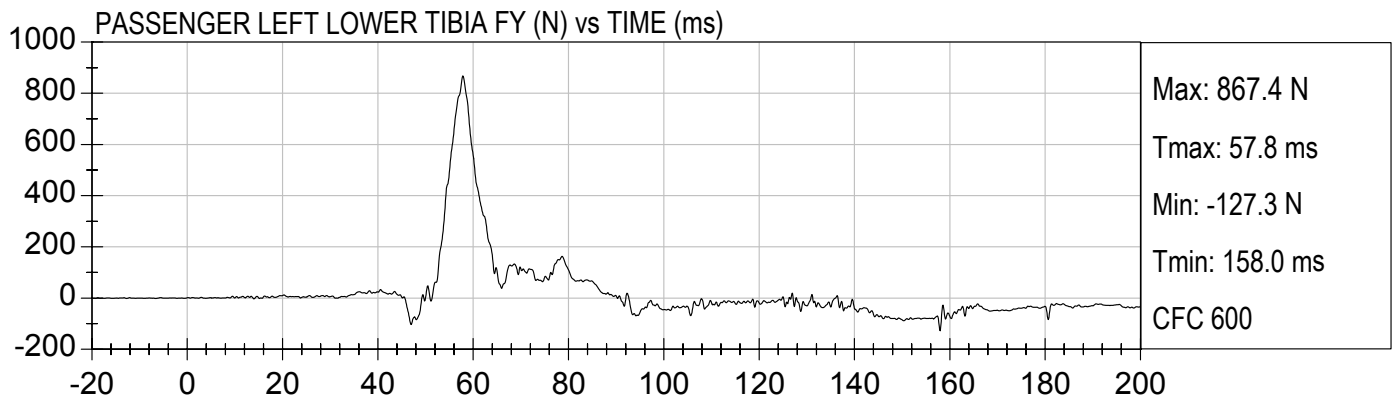
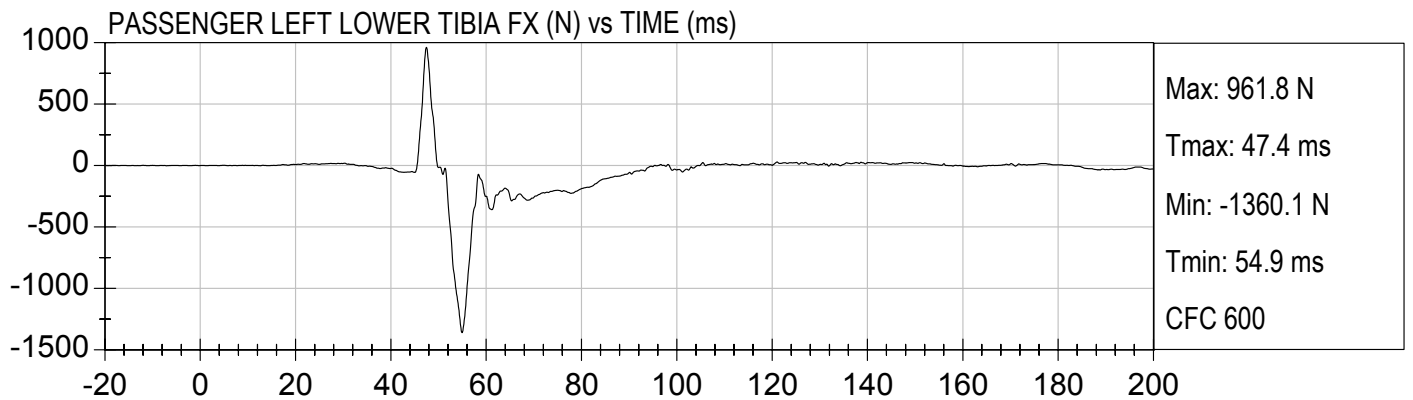
PASSENGER LEFT LOWER TIBIA MY (Nm) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

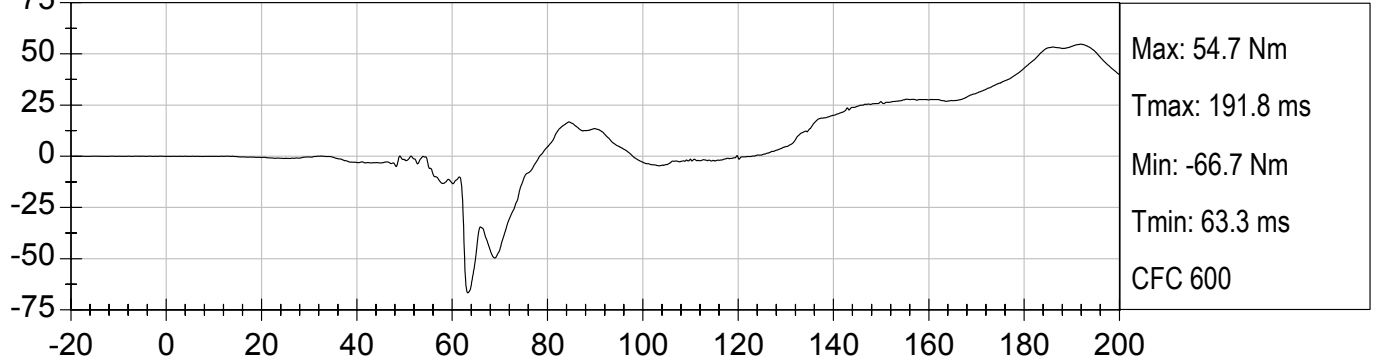




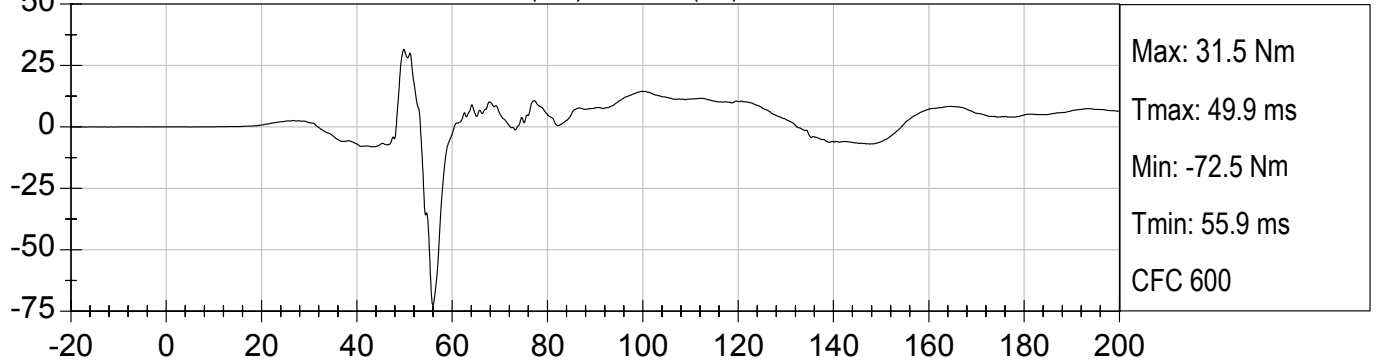
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

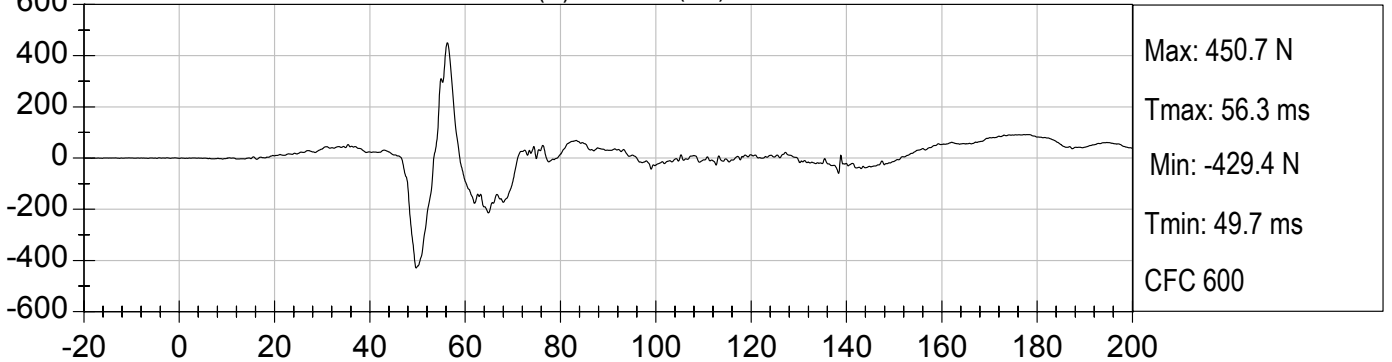
PASSENGER RIGHT UPPER TIBIA MX (Nm) vs TIME (ms)



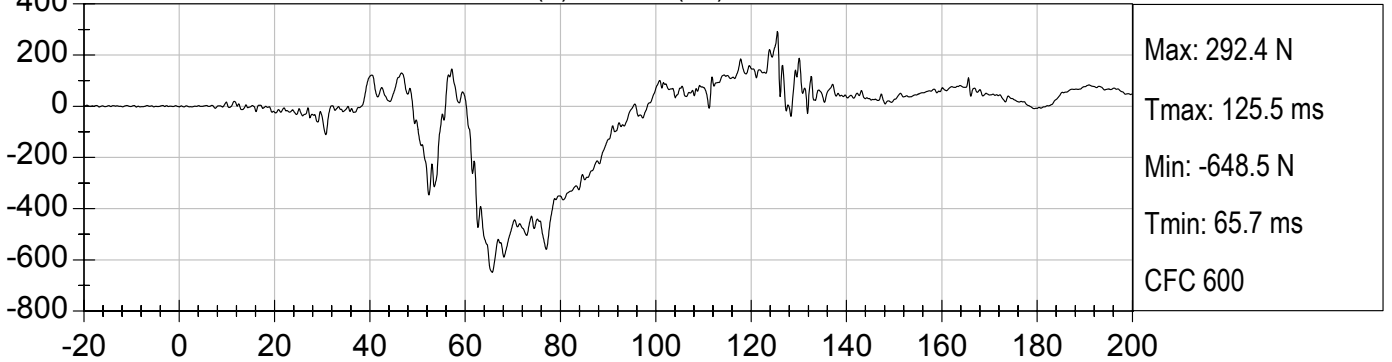
PASSENGER RIGHT UPPER TIBIA MY (Nm) vs TIME (ms)



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



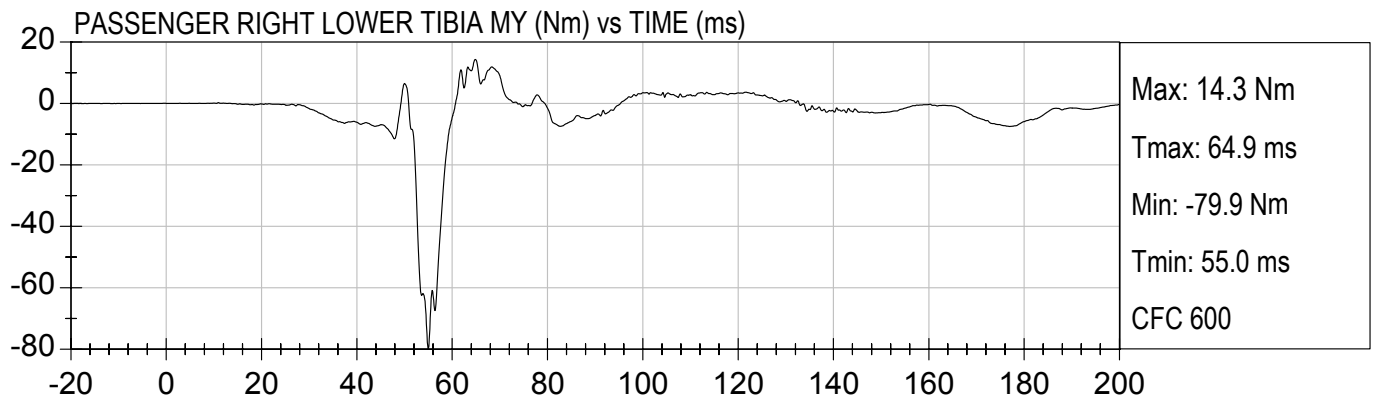
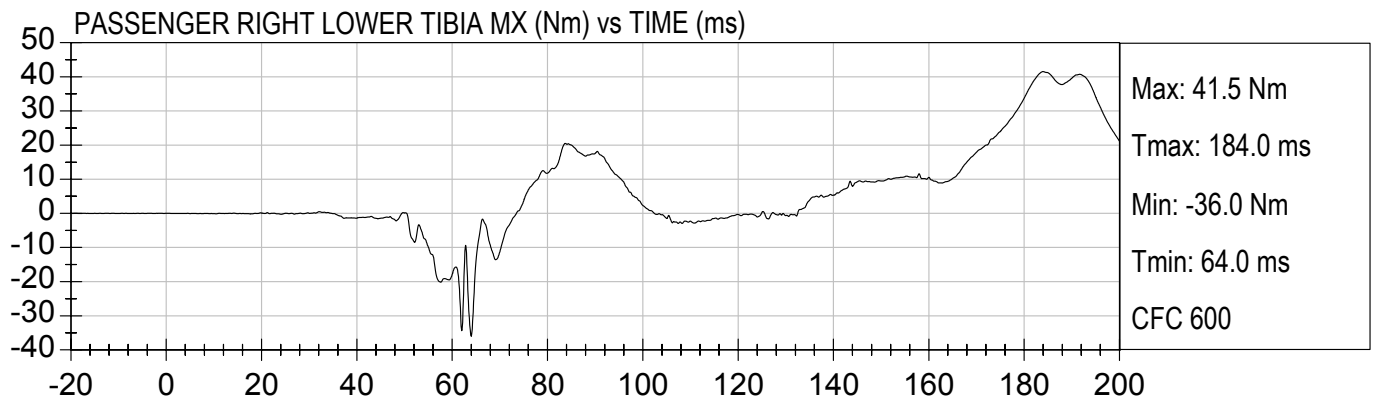
PASSENGER RIGHT UPPER TIBIA FZ (N) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

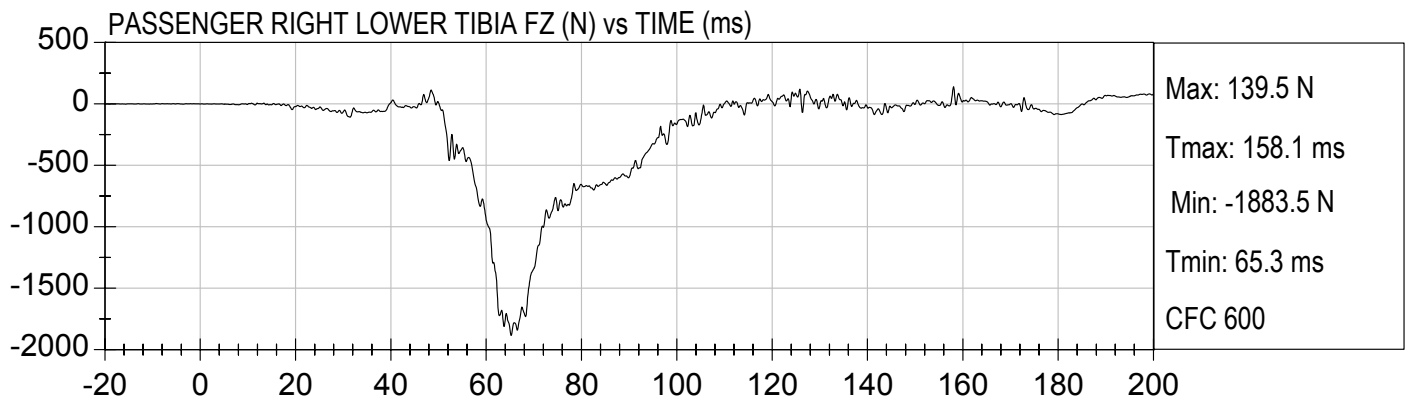
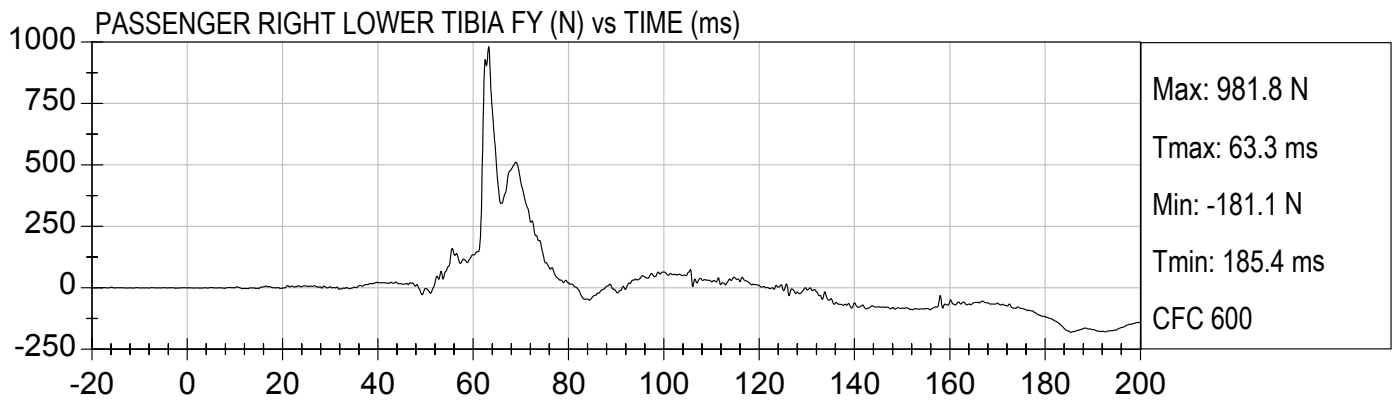
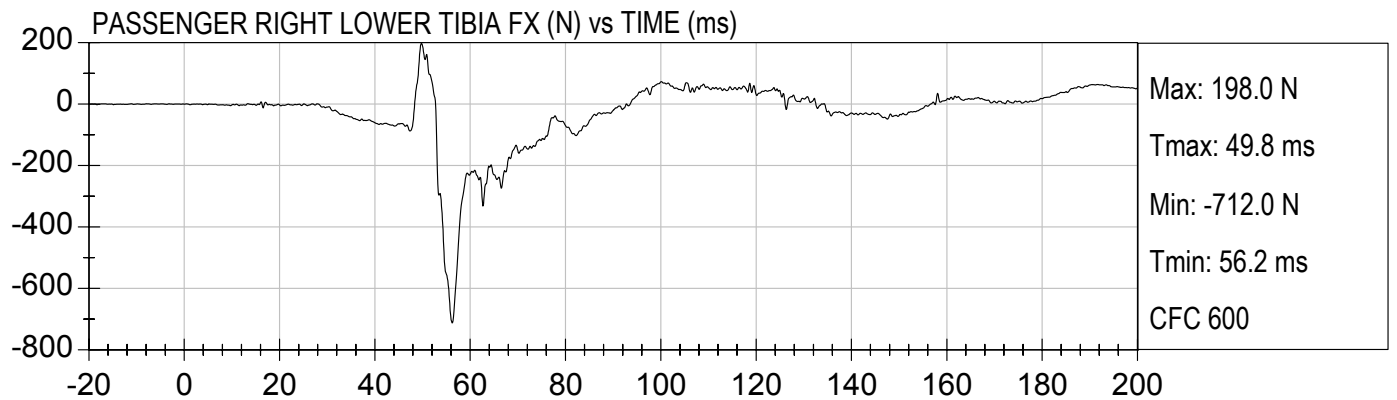
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

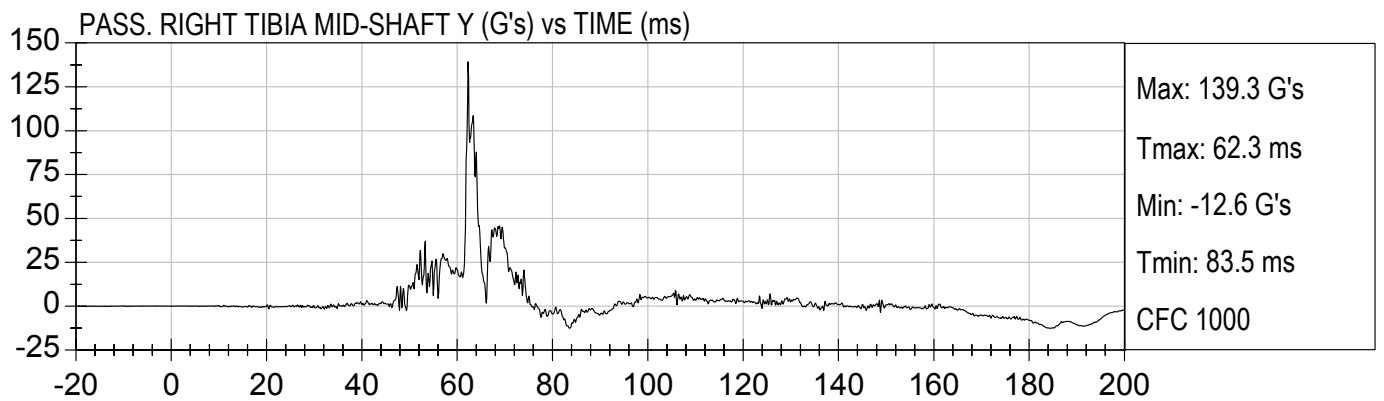
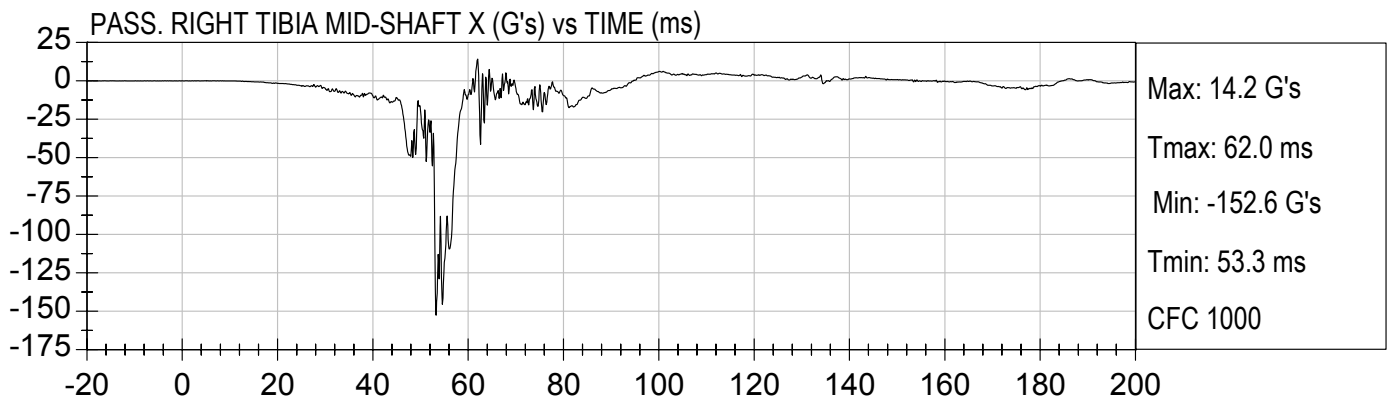
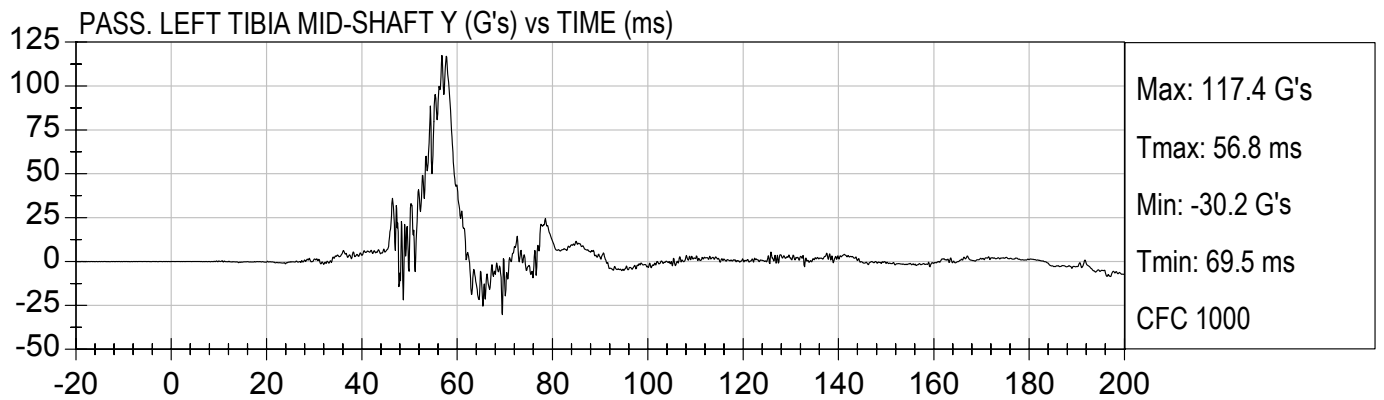
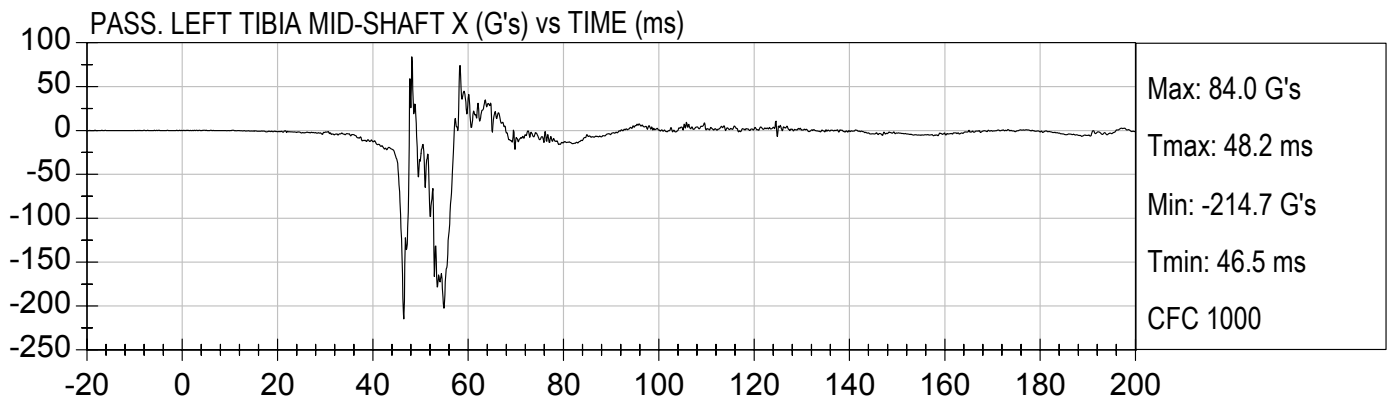
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

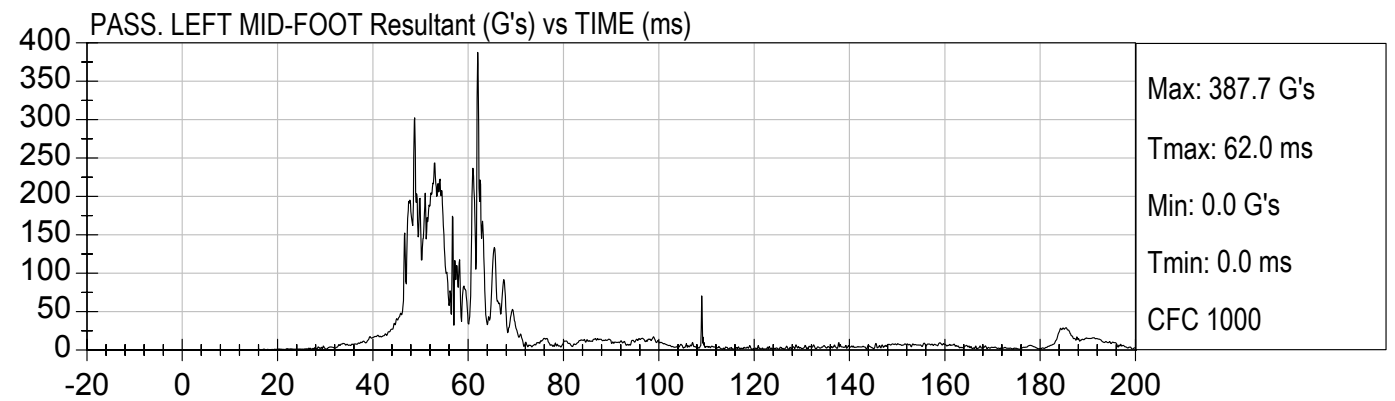
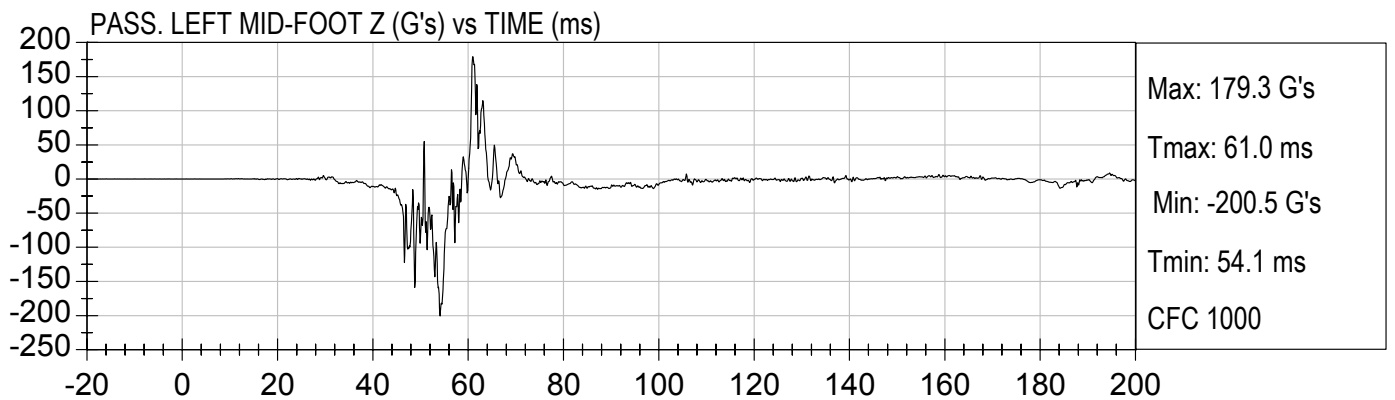
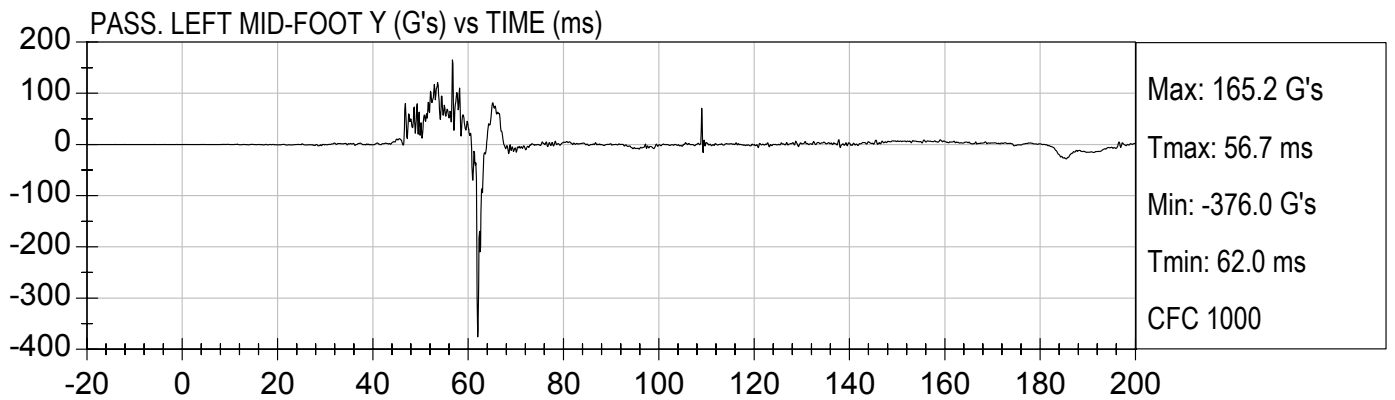
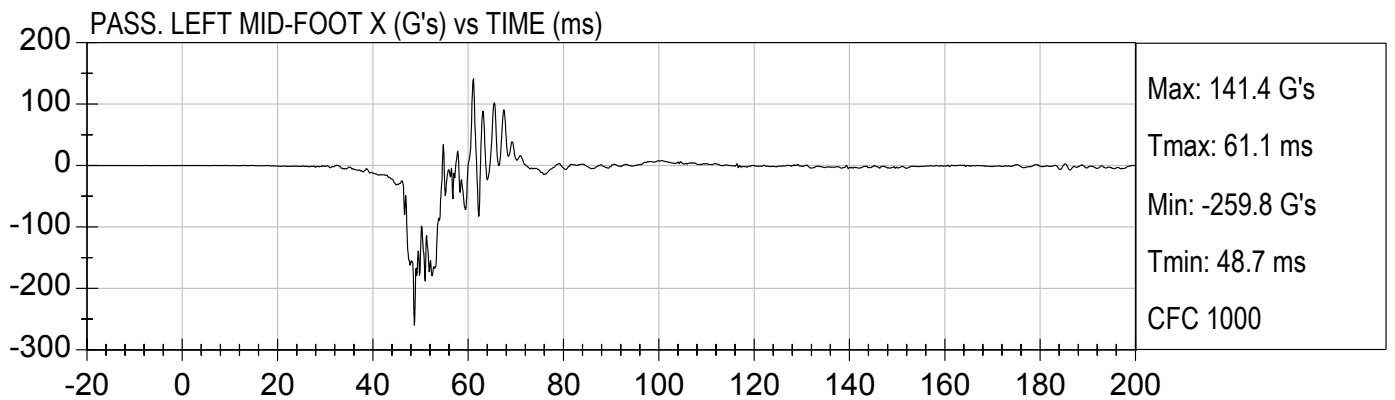
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

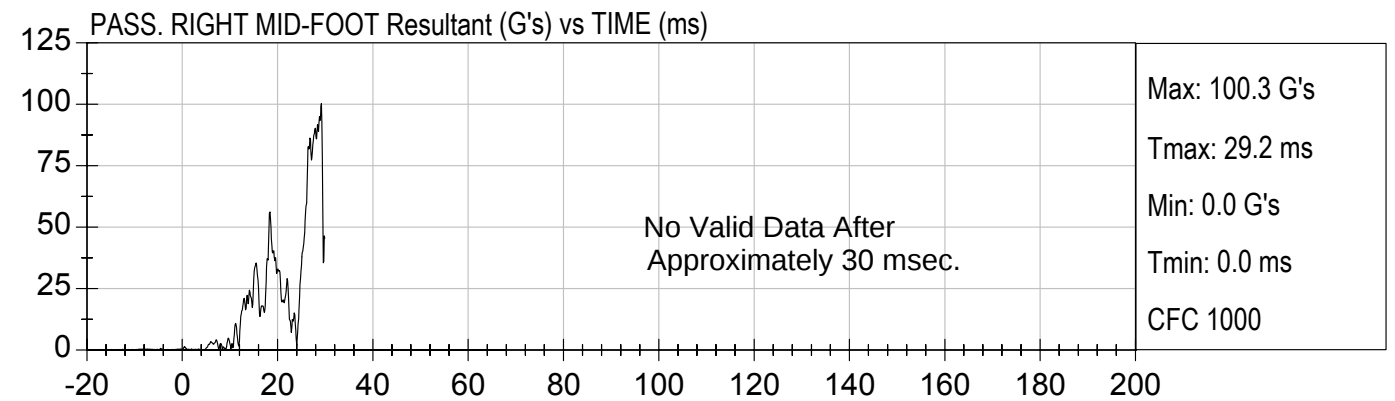
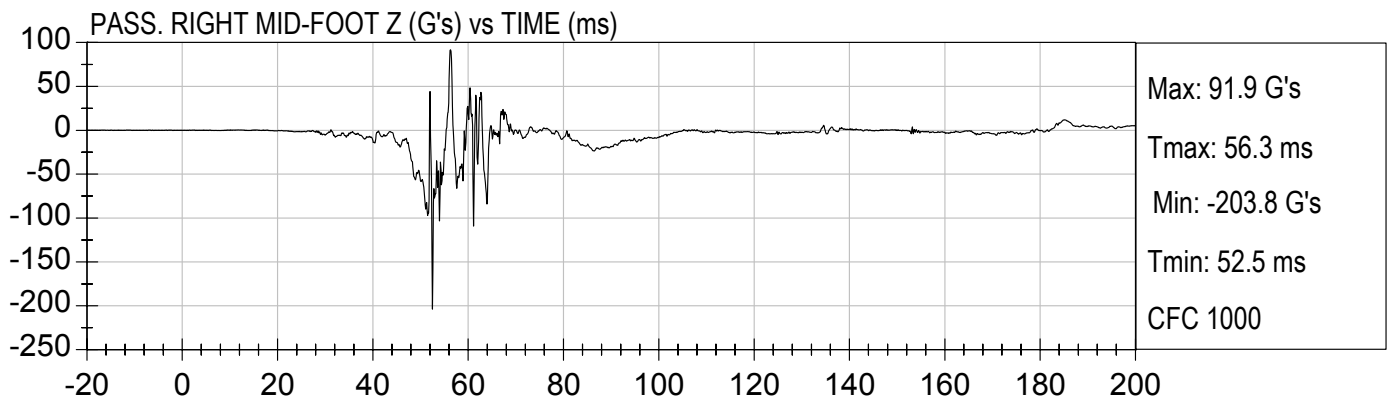
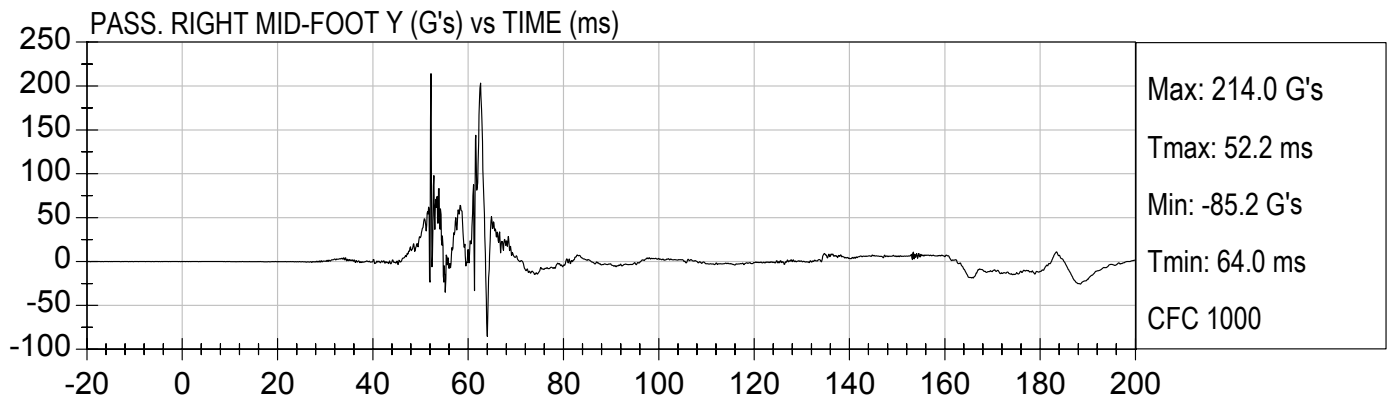
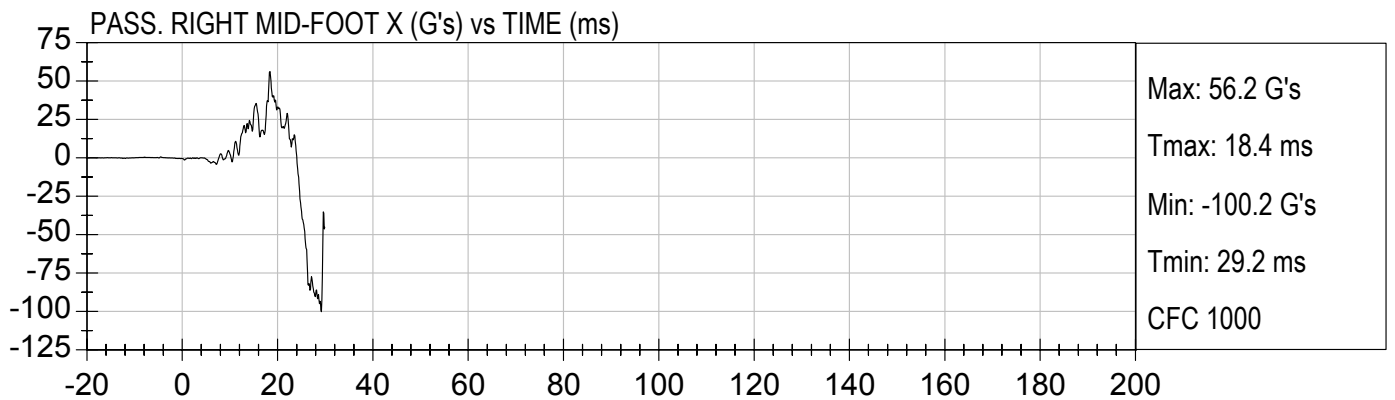
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

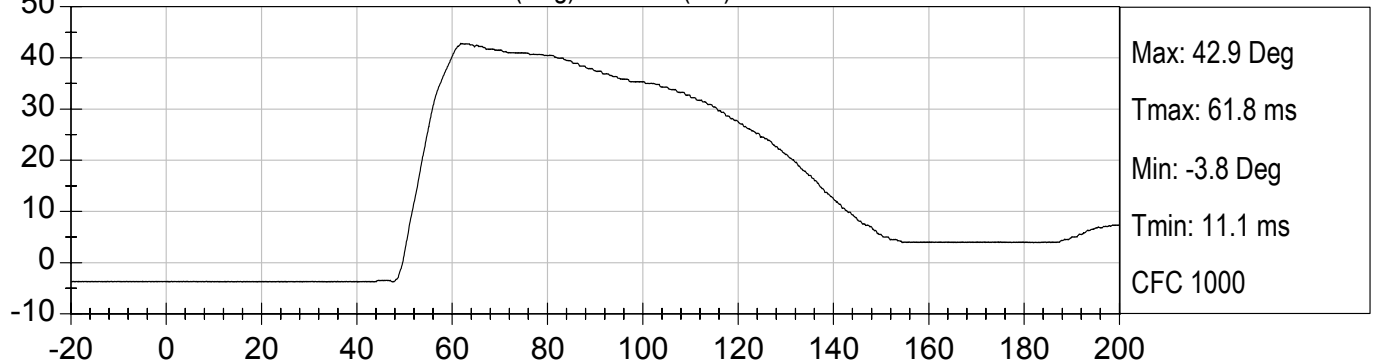




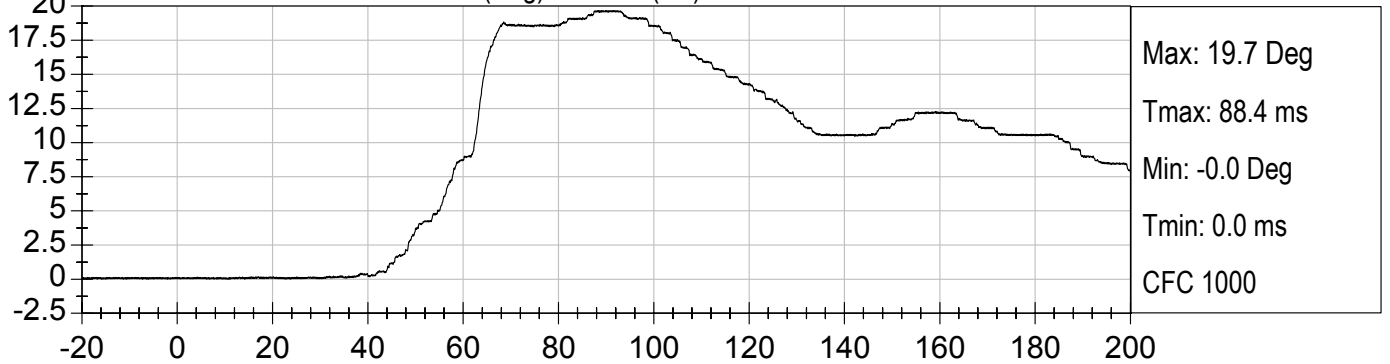
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

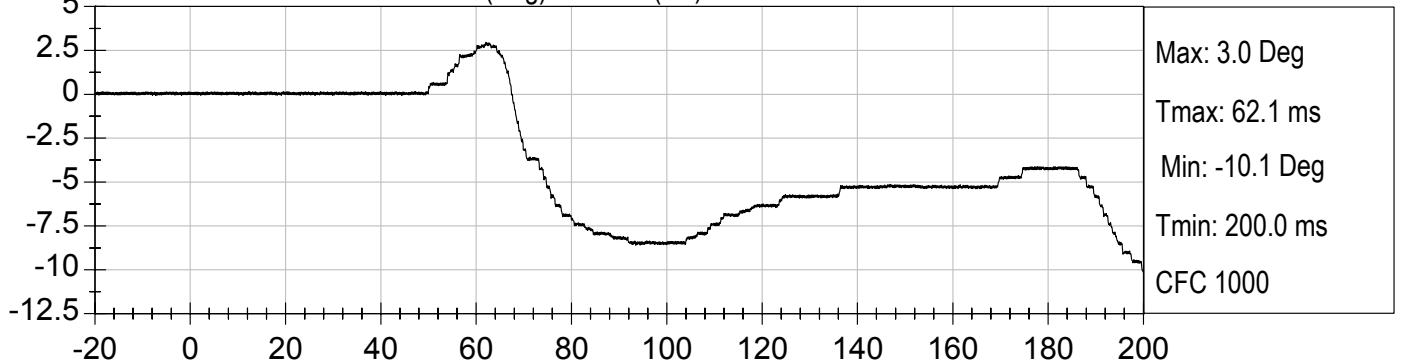
PASS. LT DORSI/PLANTAR FLEXION (Deg) vs TIME (ms)



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



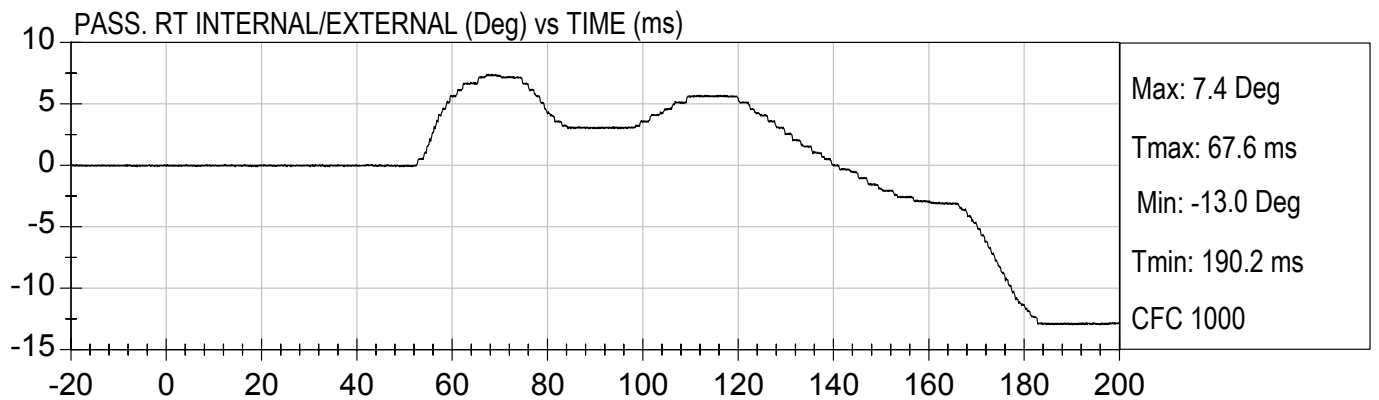
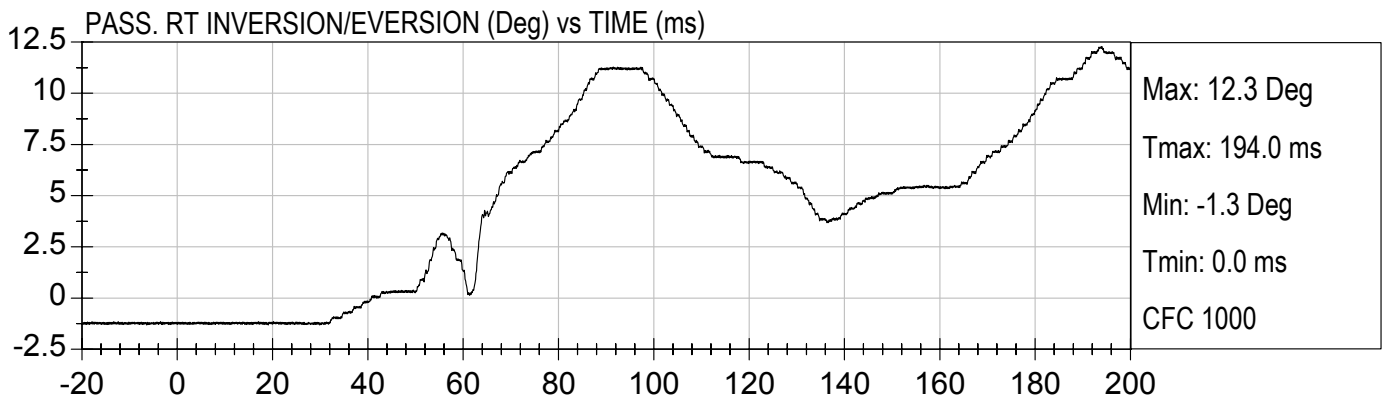
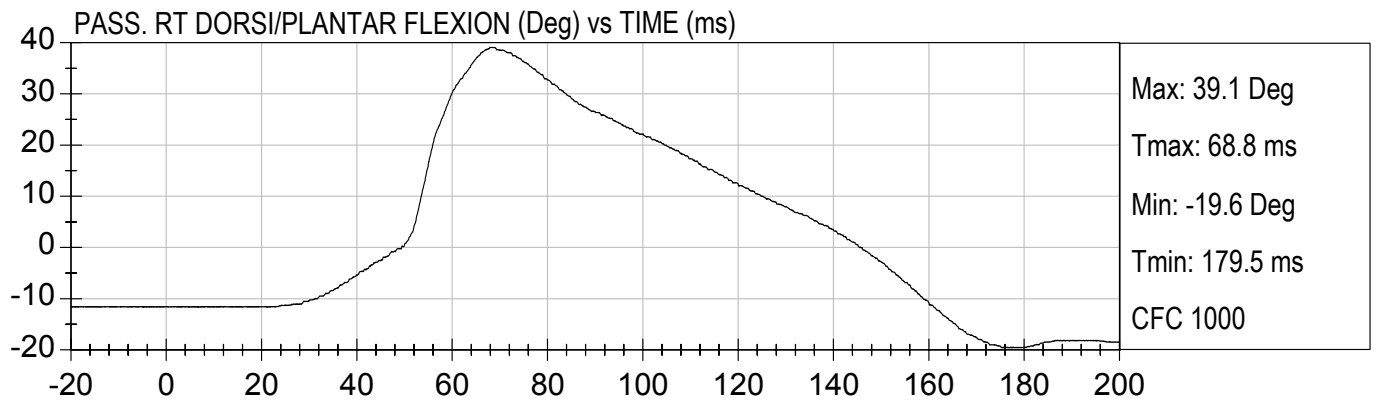
PASS. LT INTERNAL/EXTERNAL (Deg) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

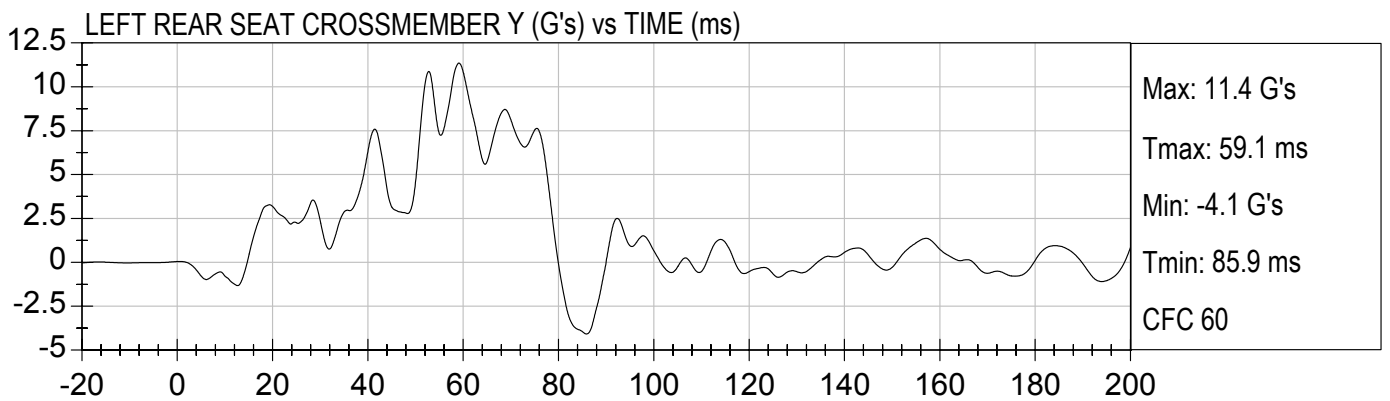
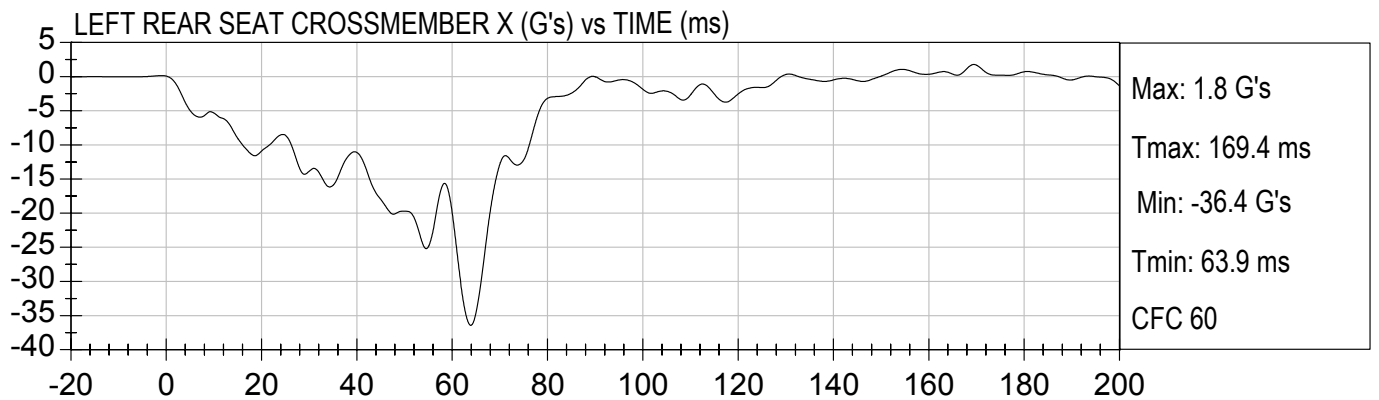
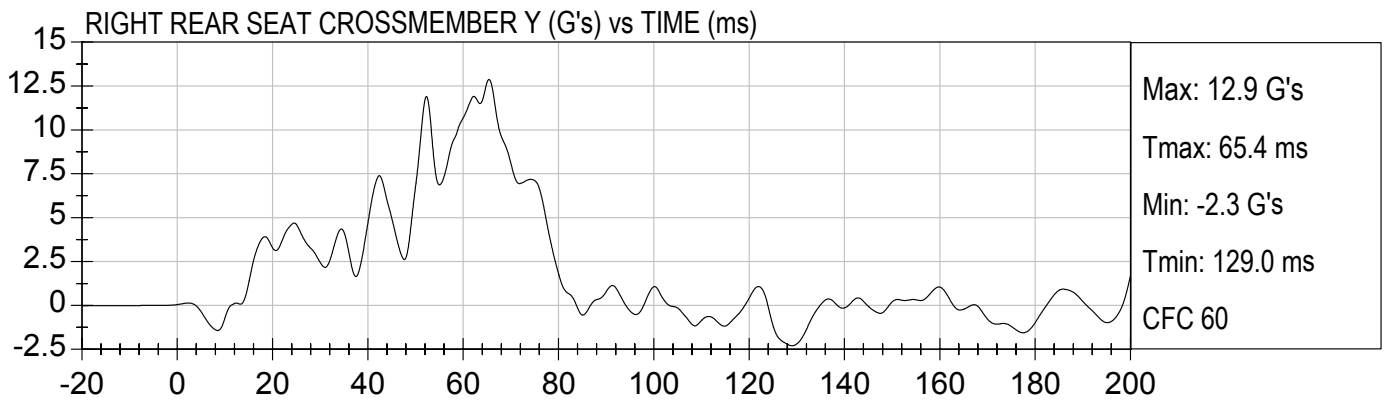
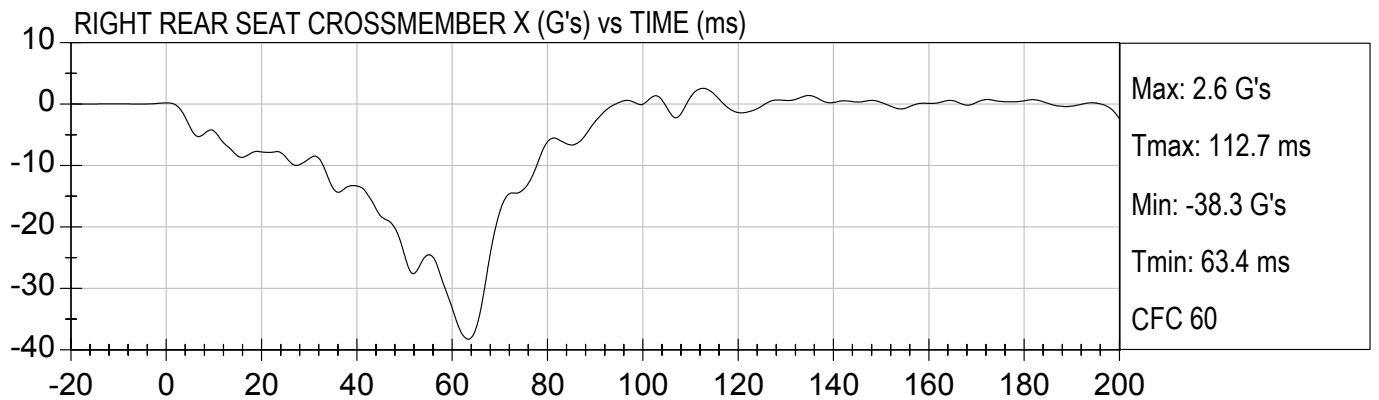
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

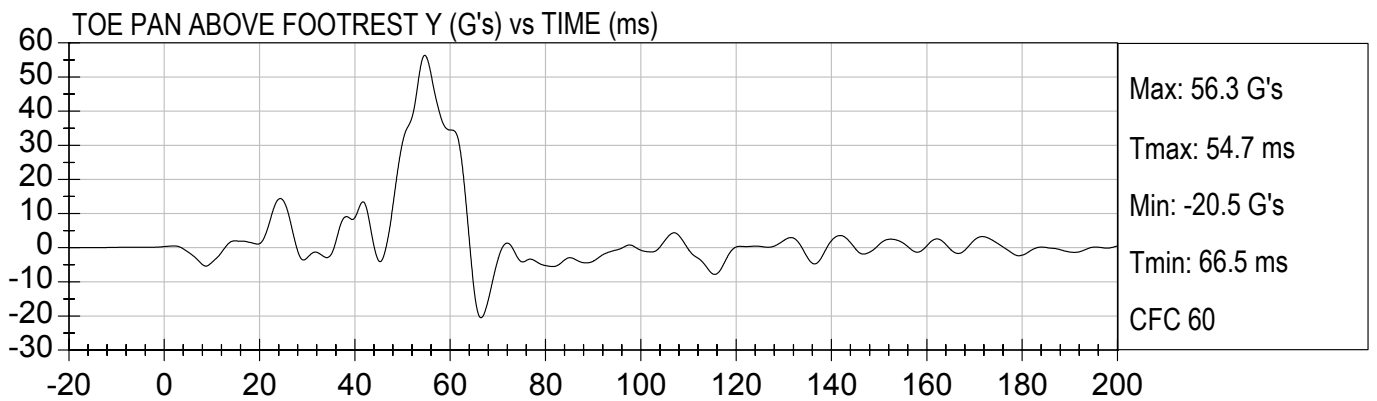
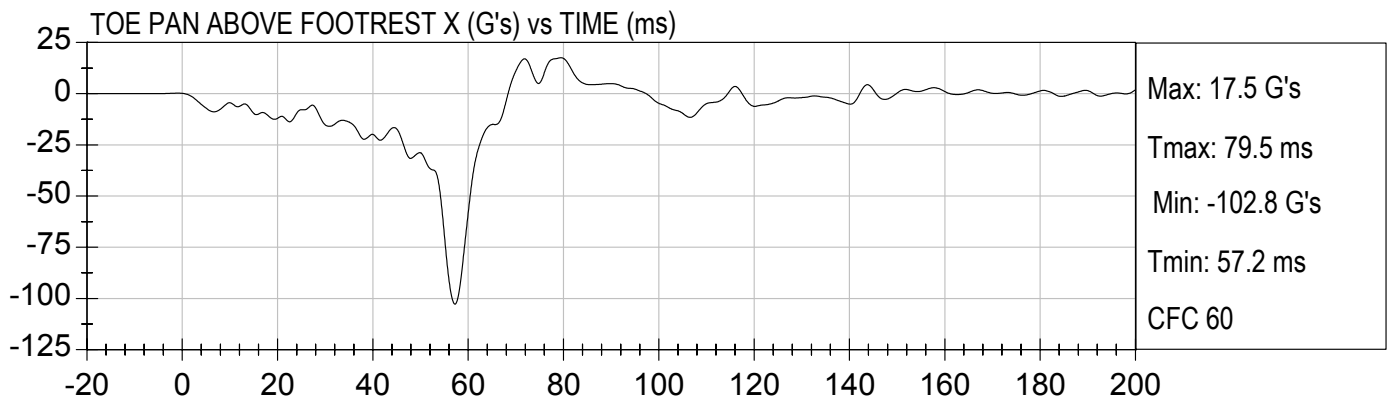
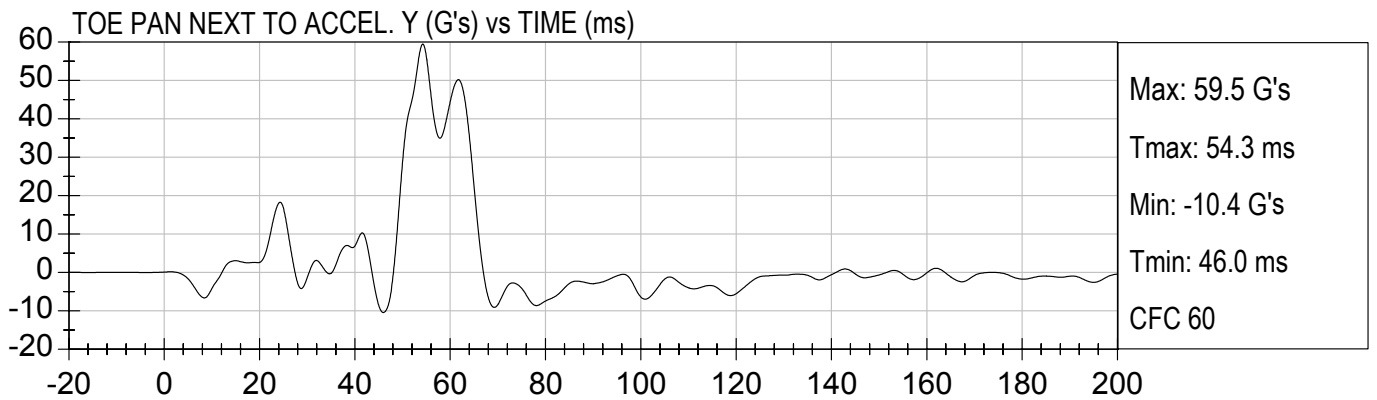
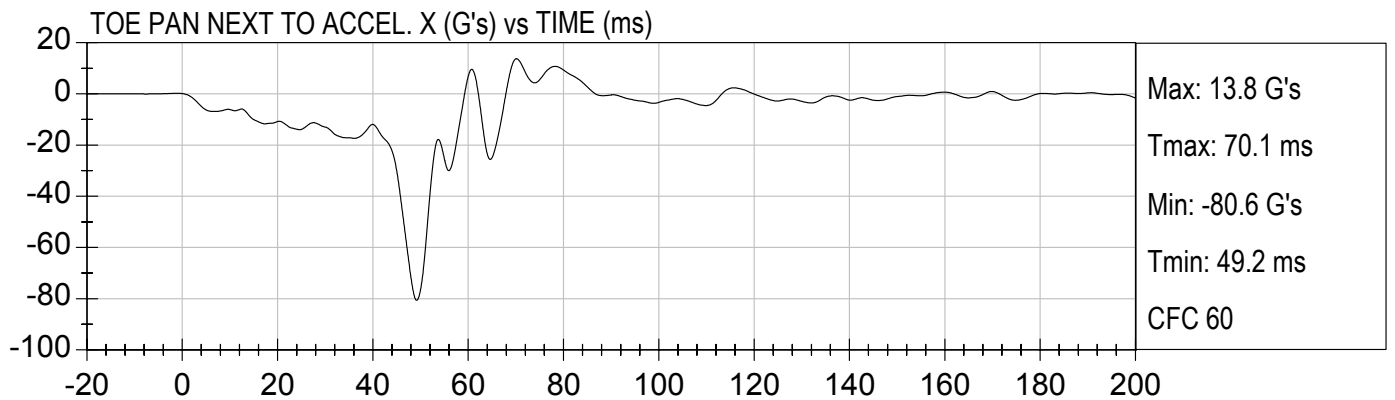
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

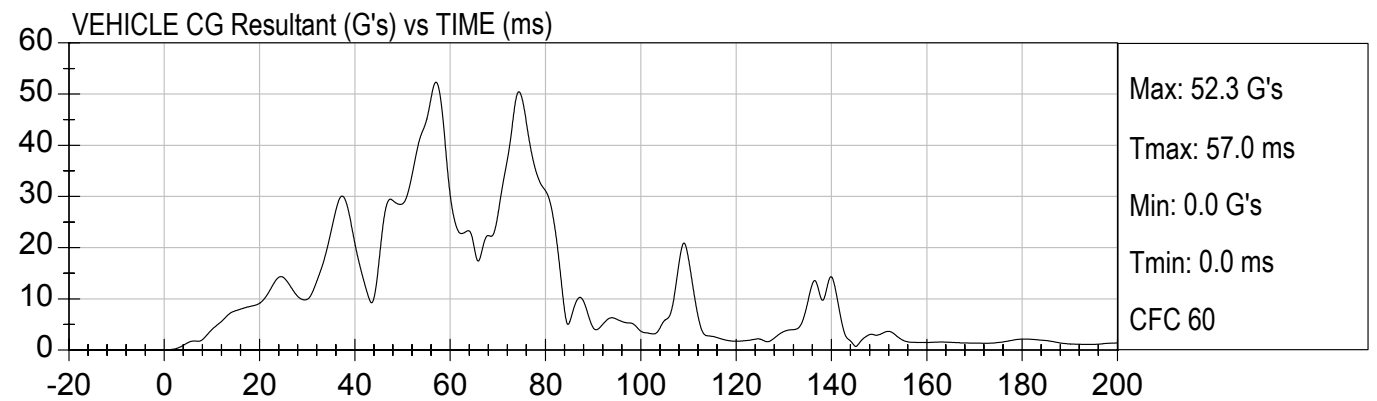
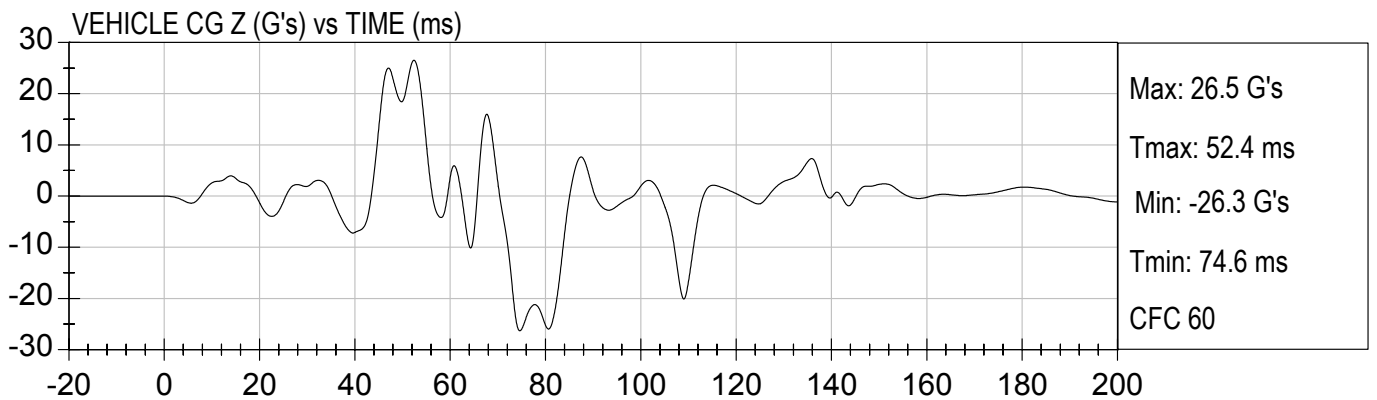
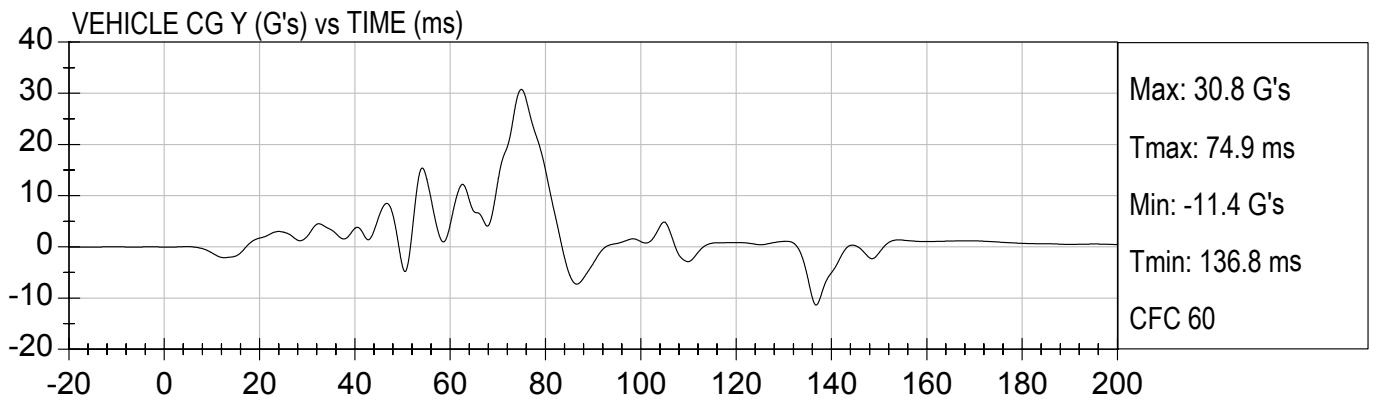
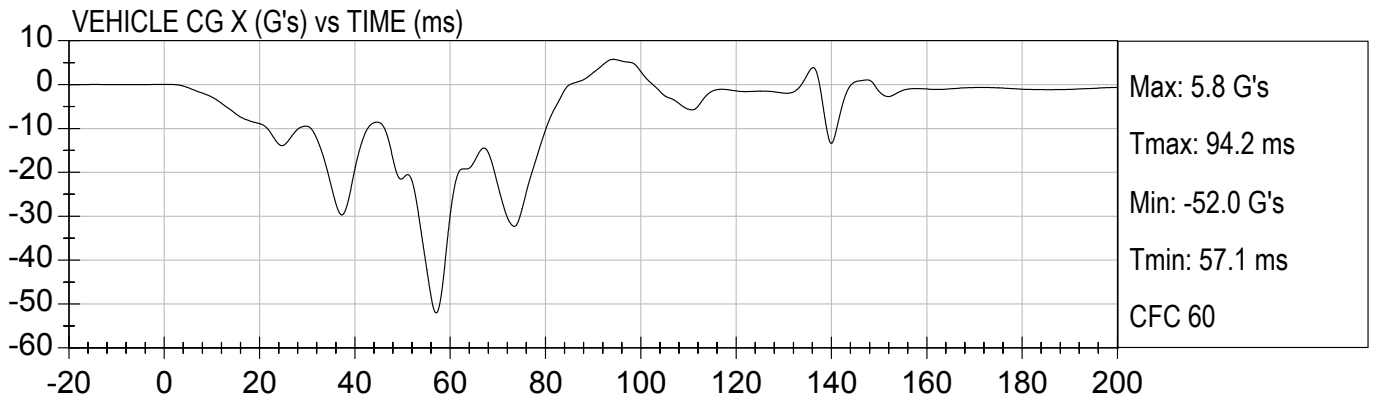
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

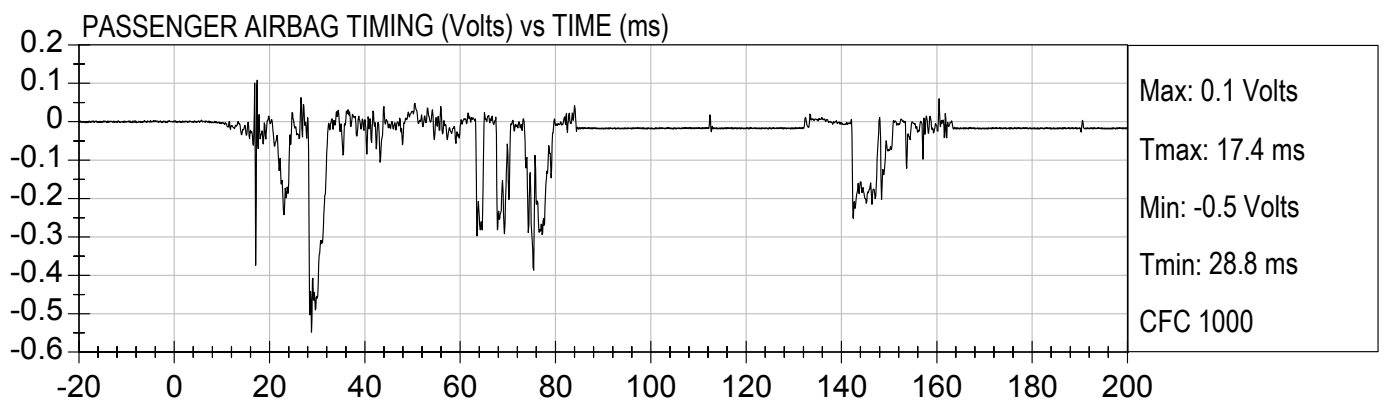
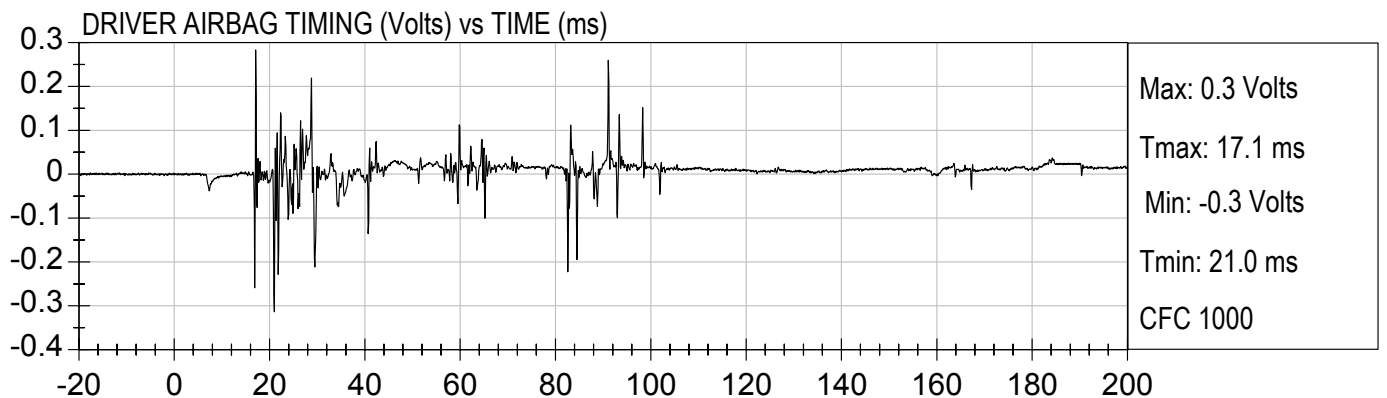
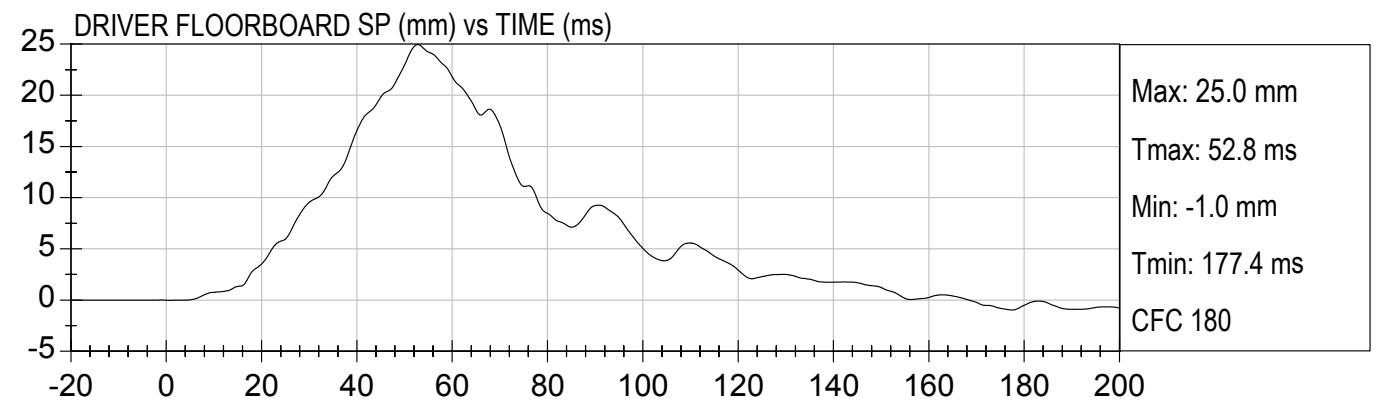
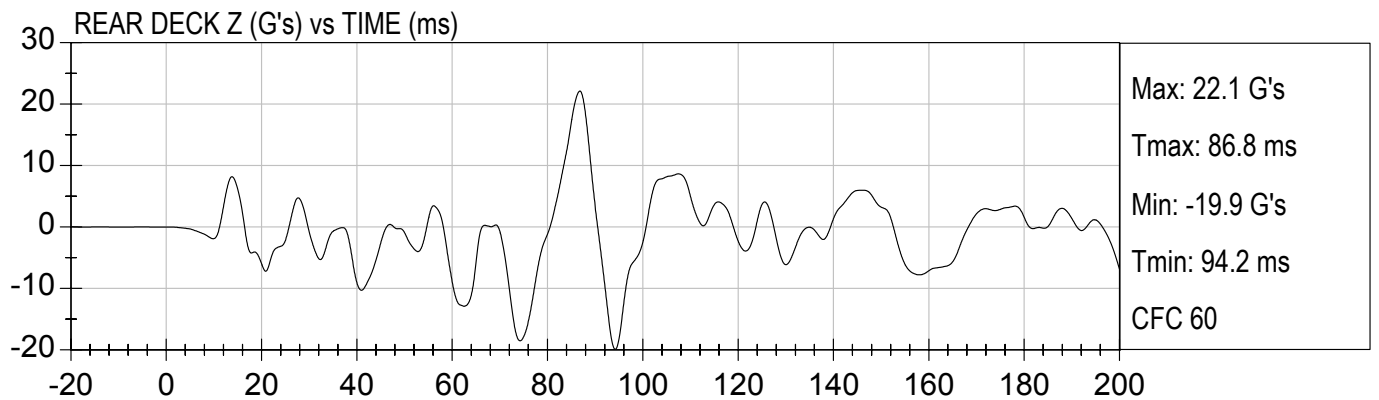
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

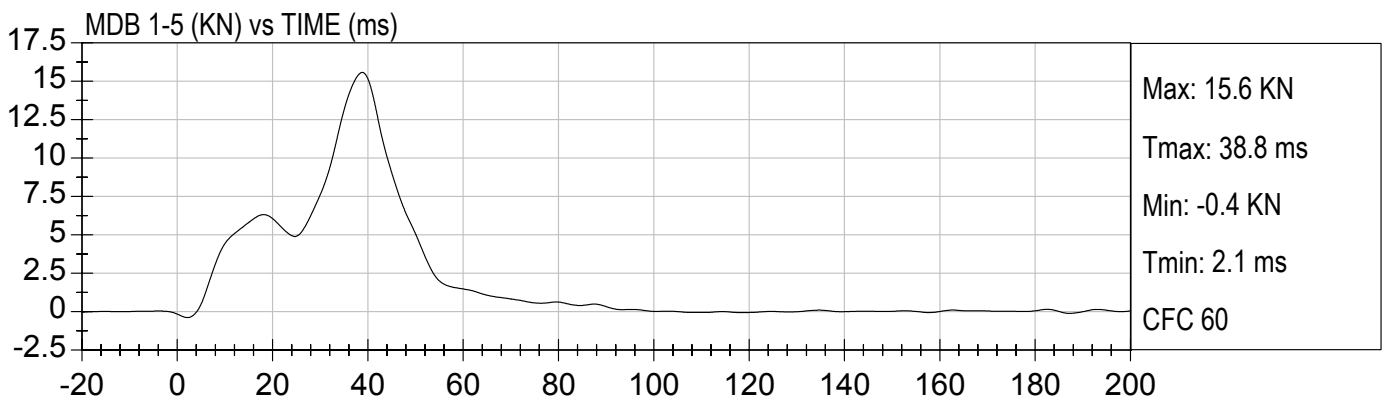
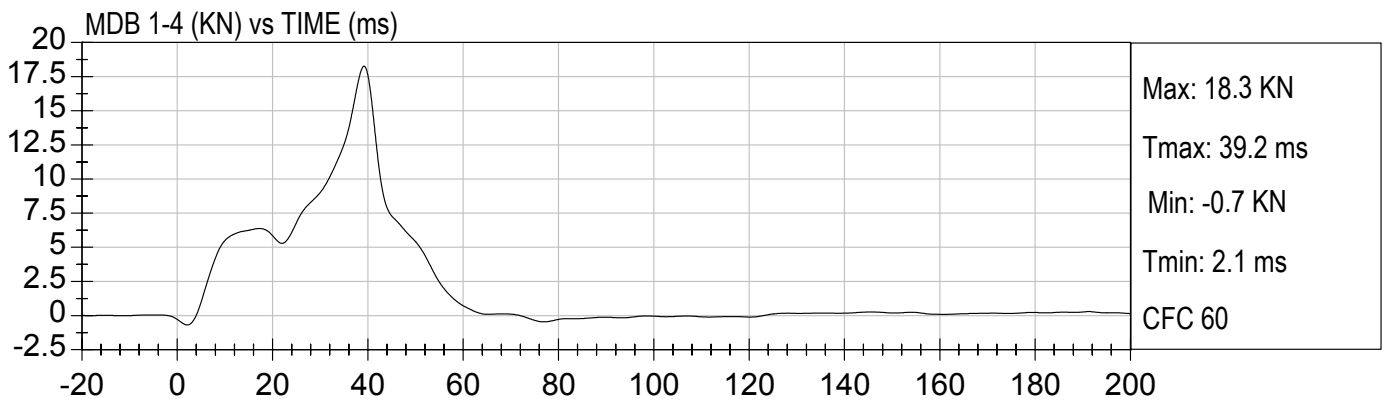
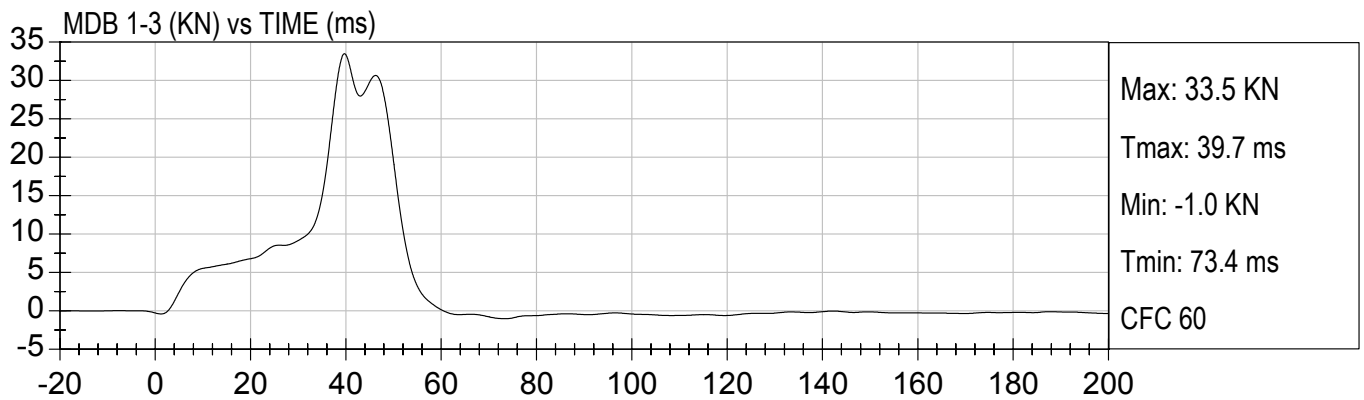
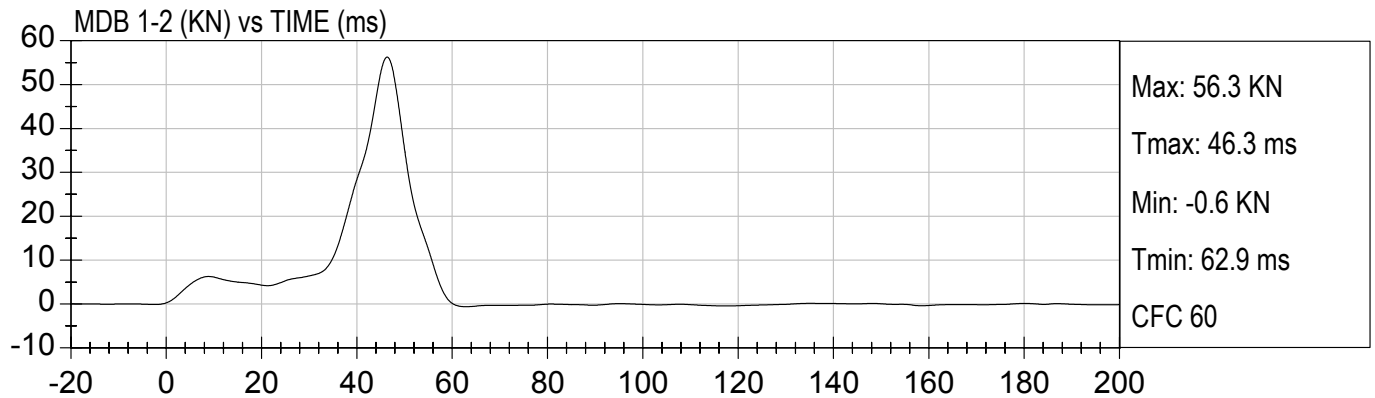
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

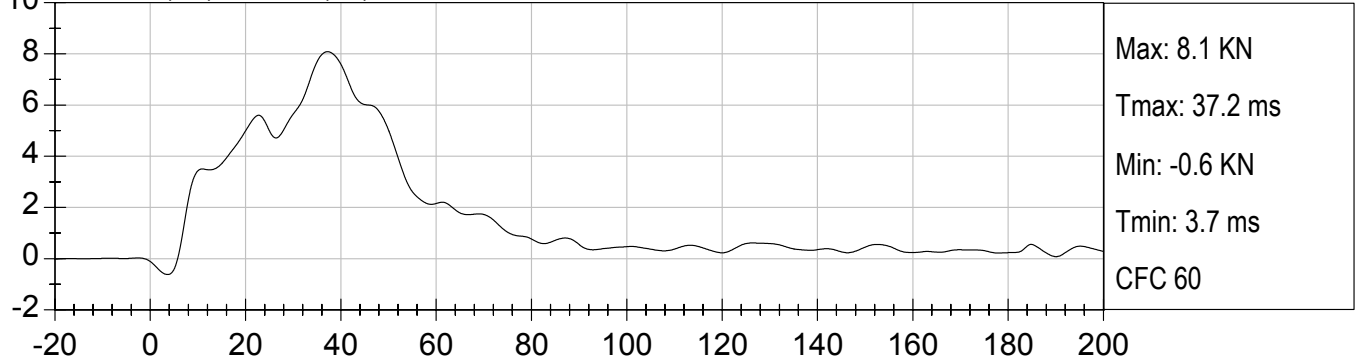




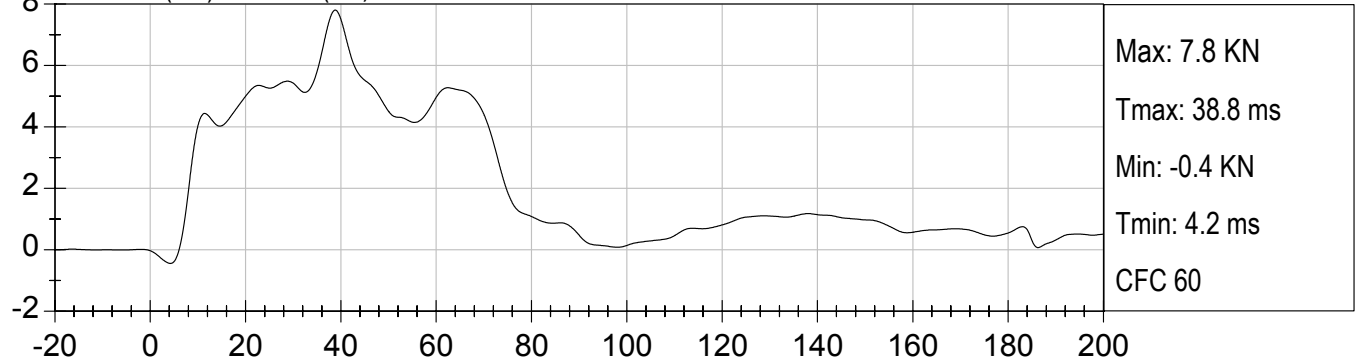
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

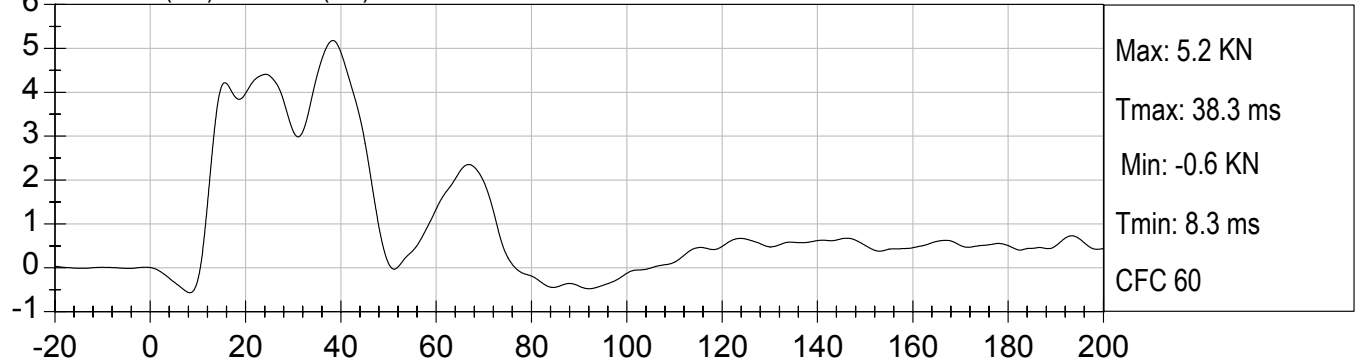
MDB 1-6 (KN) vs TIME (ms)



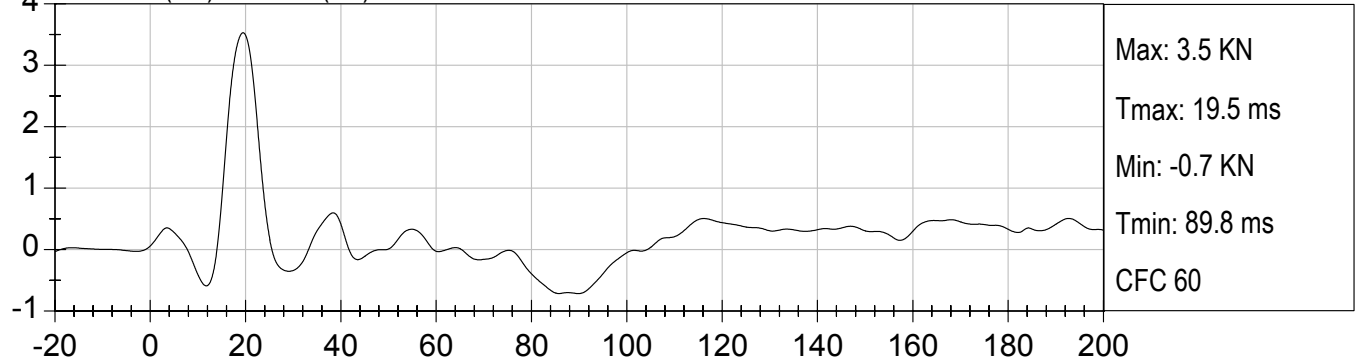
MDB 1-7 (KN) vs TIME (ms)



MDB 1-8 (KN) vs TIME (ms)



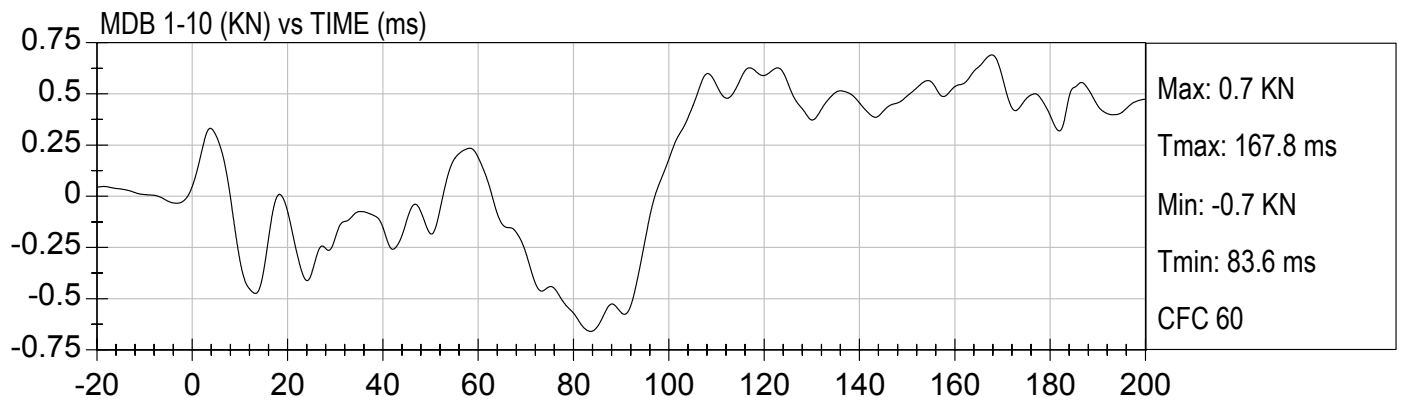
MDB 1-9 (KN) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

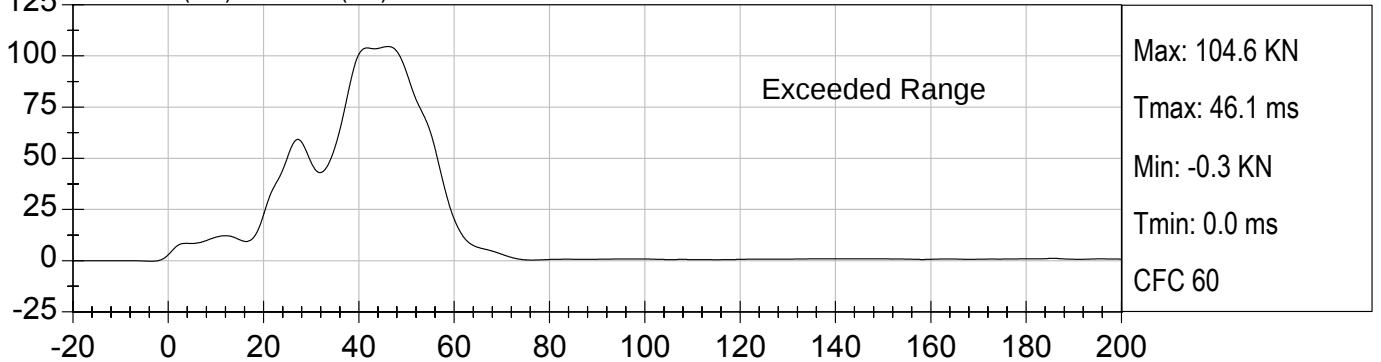




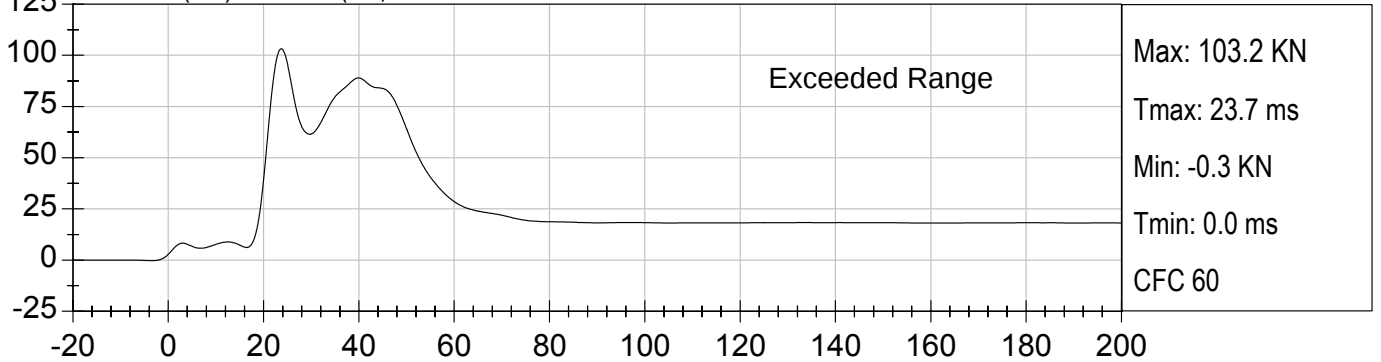
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

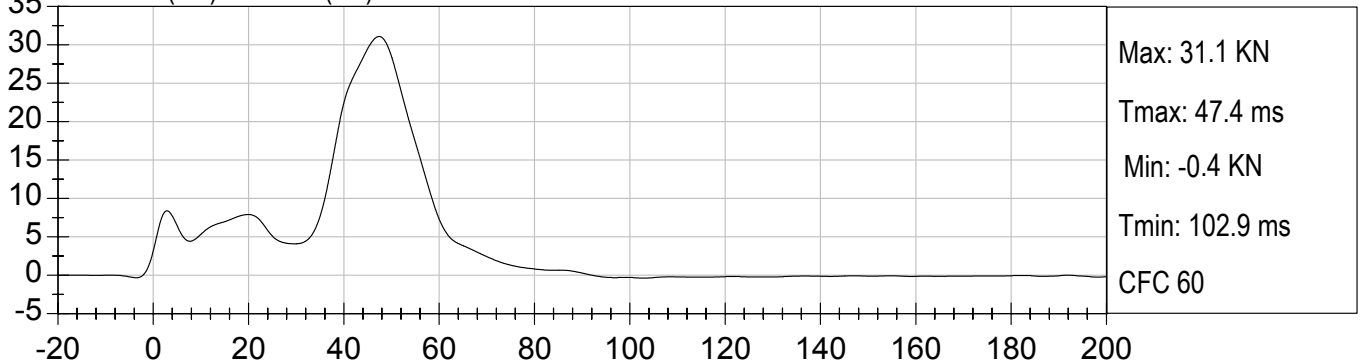
MDB 2-2 (KN) vs TIME (ms)



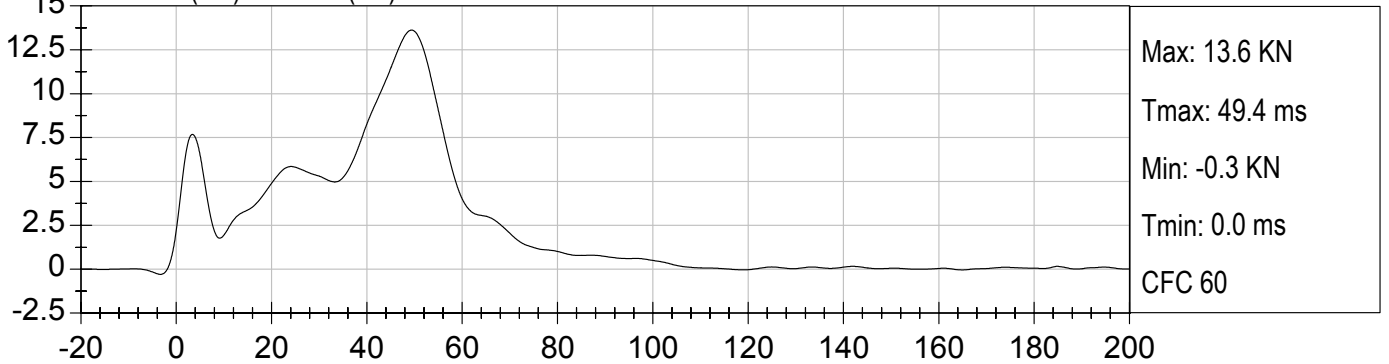
MDB 2-3 (KN) vs TIME (ms)



MDB 2-4 (KN) vs TIME (ms)



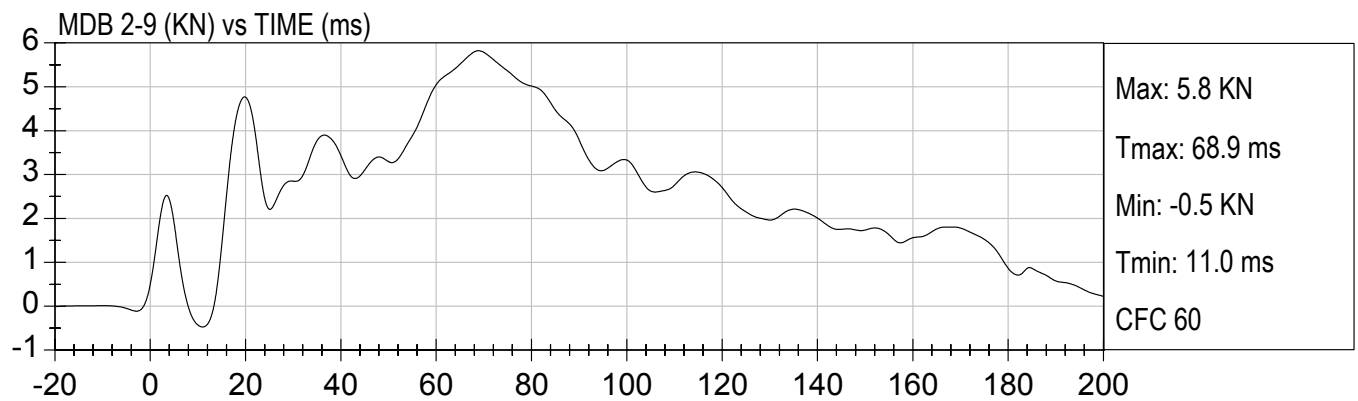
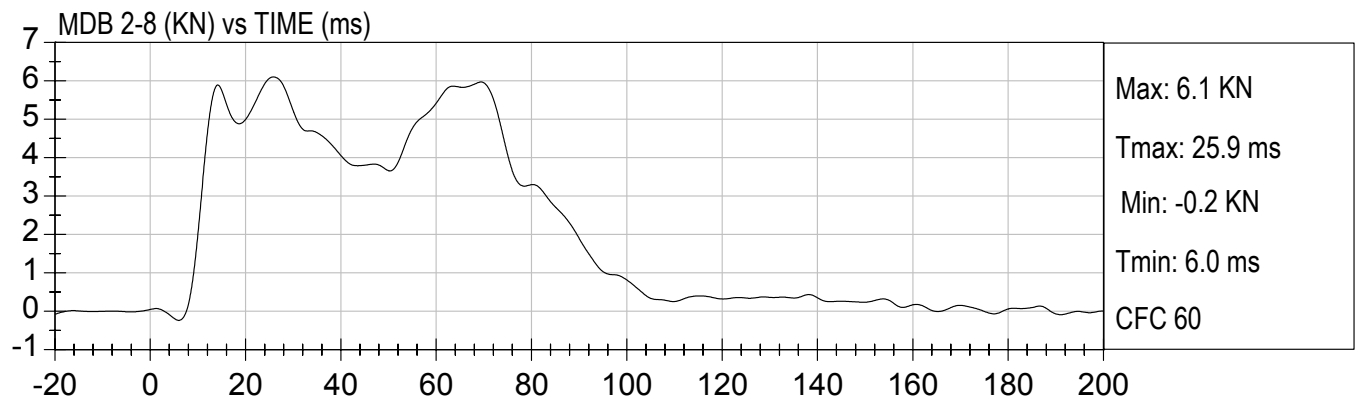
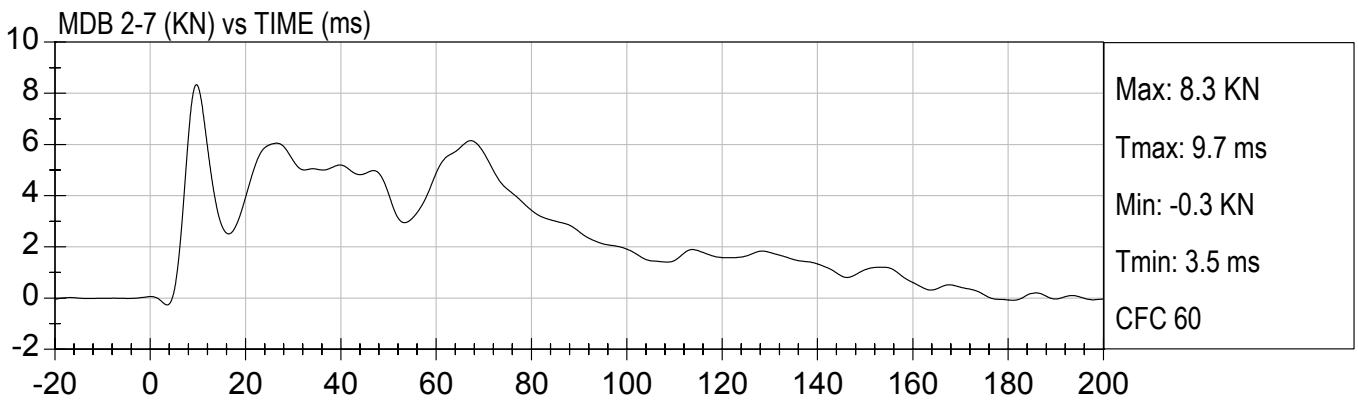
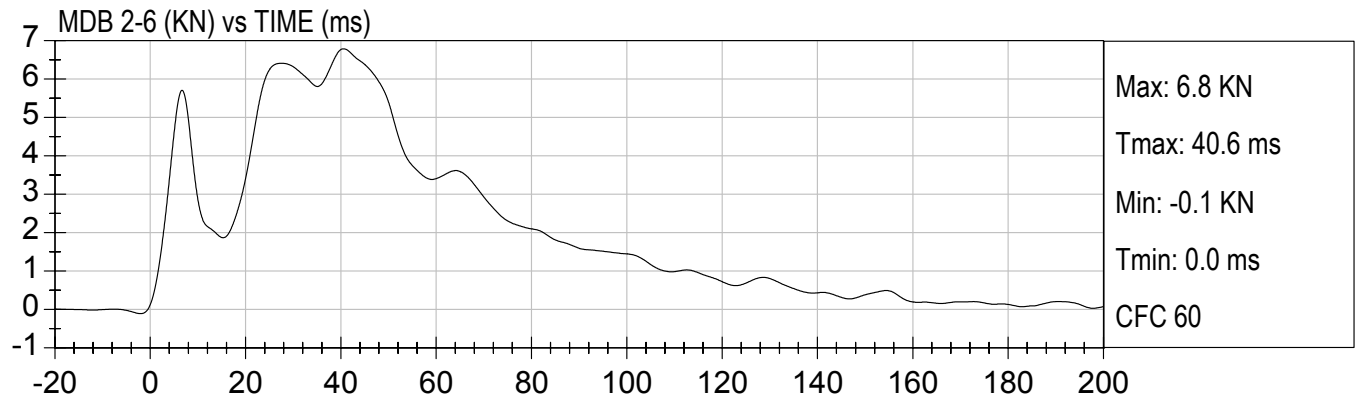
MDB 2-5 (KN) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

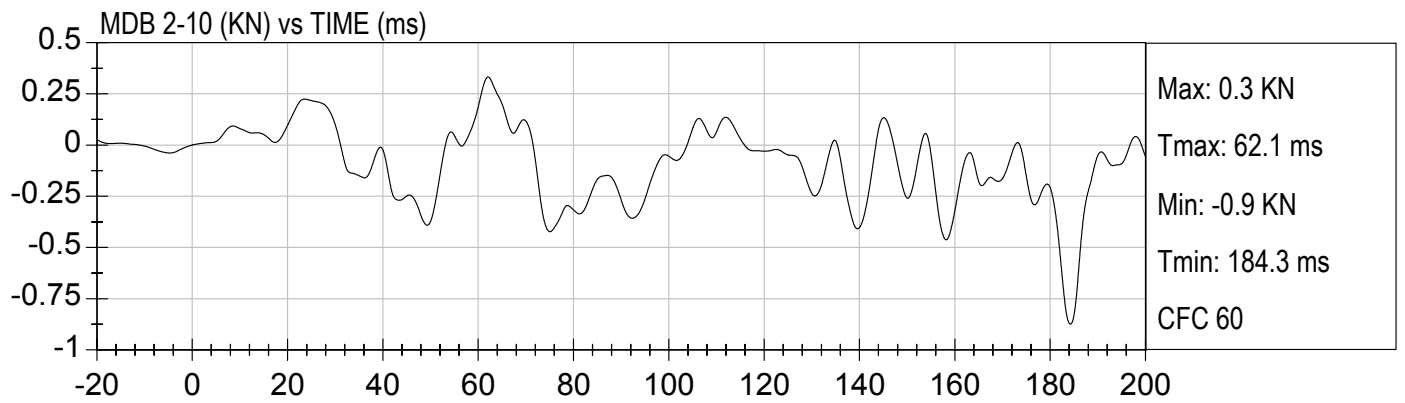
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

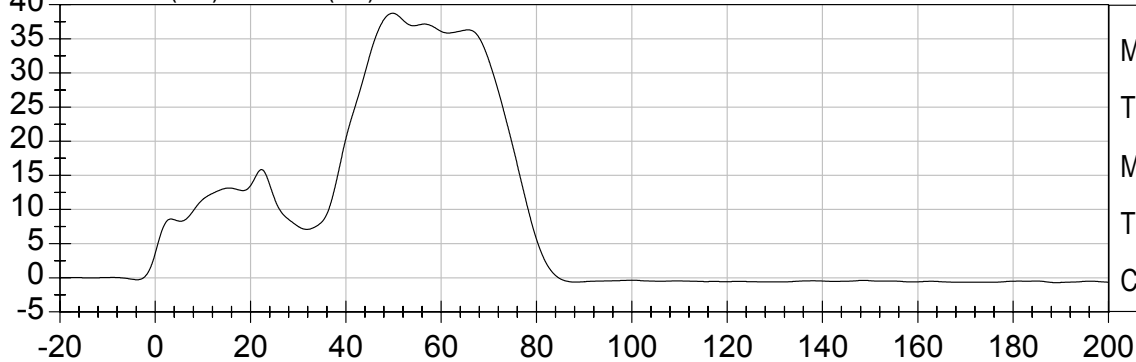




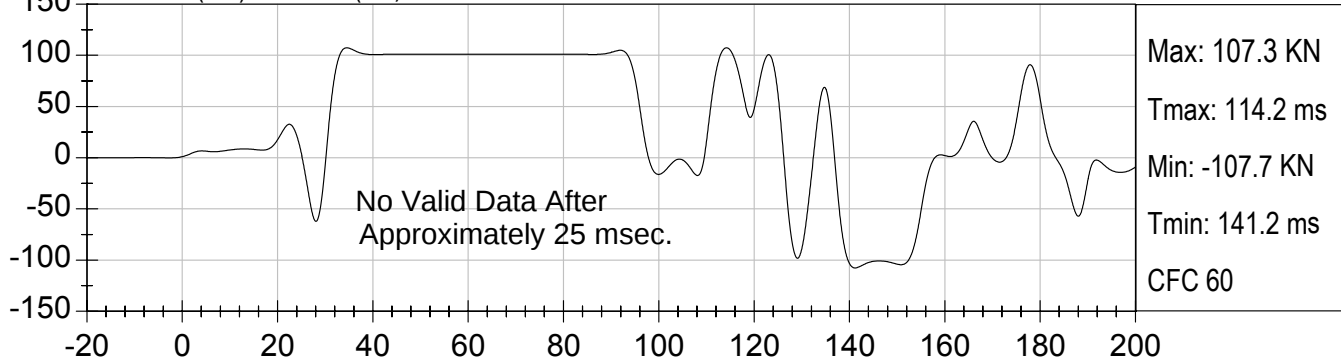
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

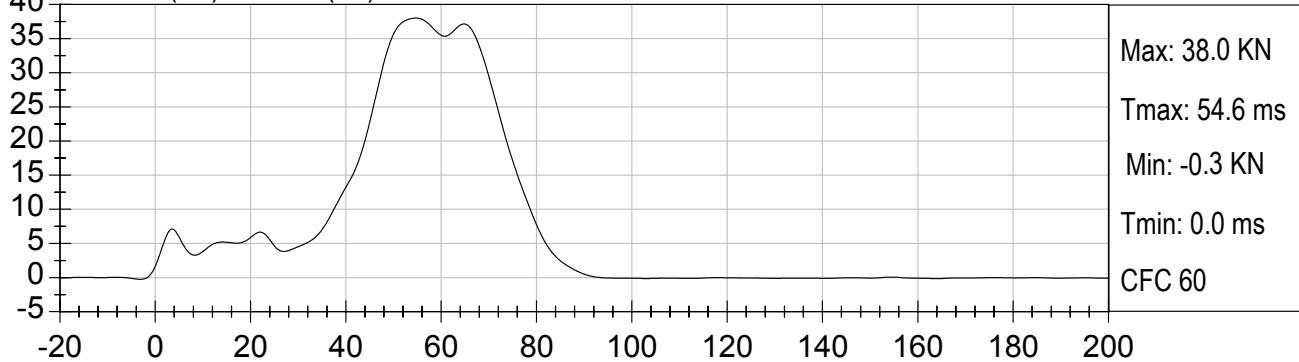
MDB 3-2 (KN) vs TIME (ms)



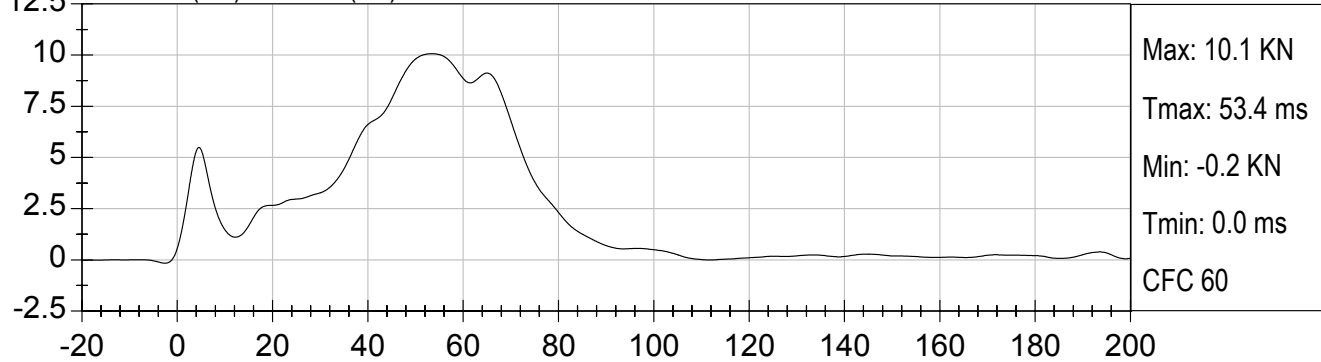
MDB 3-3 (KN) vs TIME (ms)



MDB 3-4 (KN) vs TIME (ms)



MDB 3-5 (KN) vs TIME (ms)

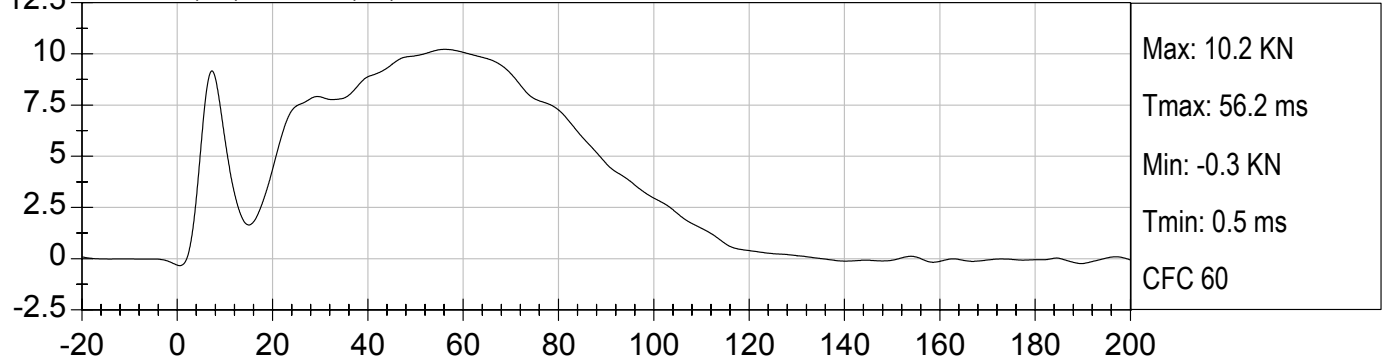




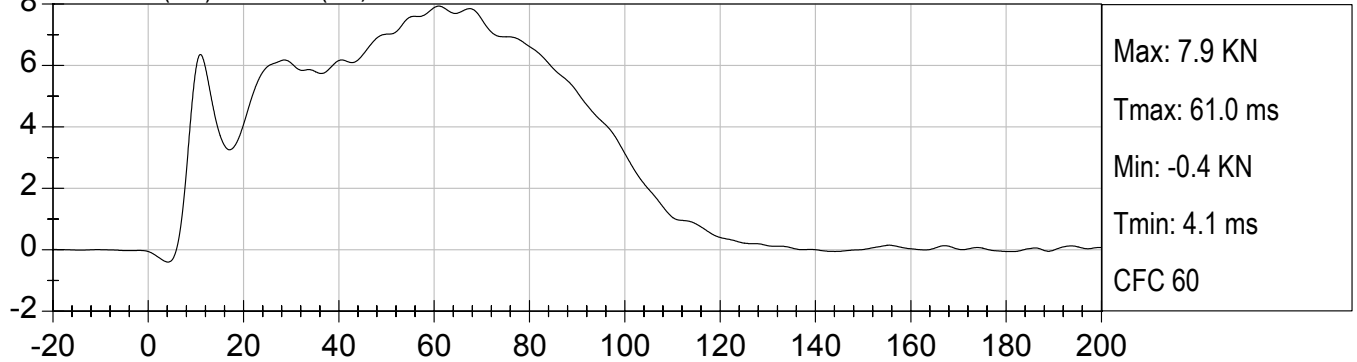
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

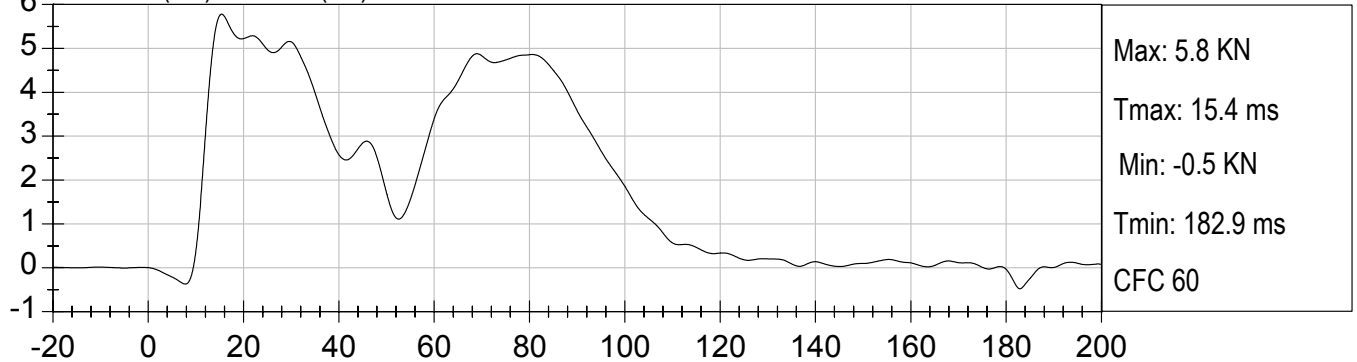
MDB 3-6 (KN) vs TIME (ms)



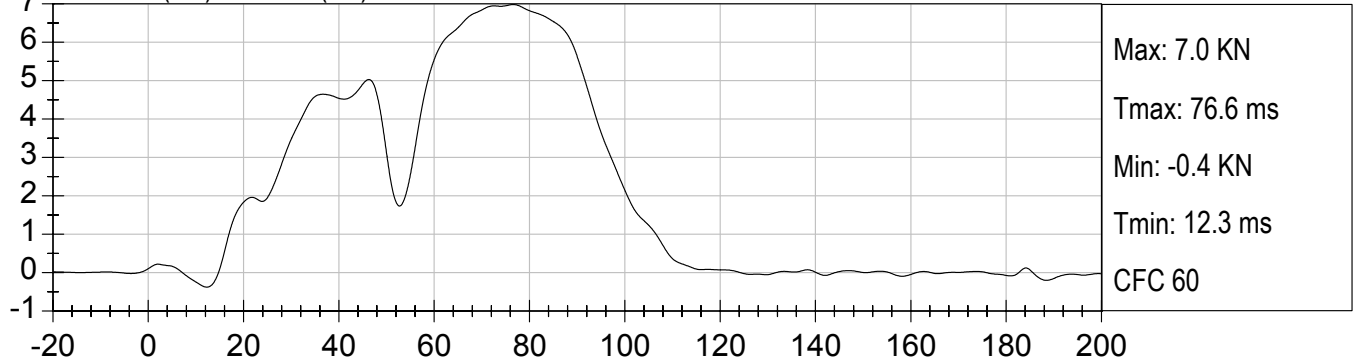
MDB 3-7 (KN) vs TIME (ms)



MDB 3-8 (KN) vs TIME (ms)



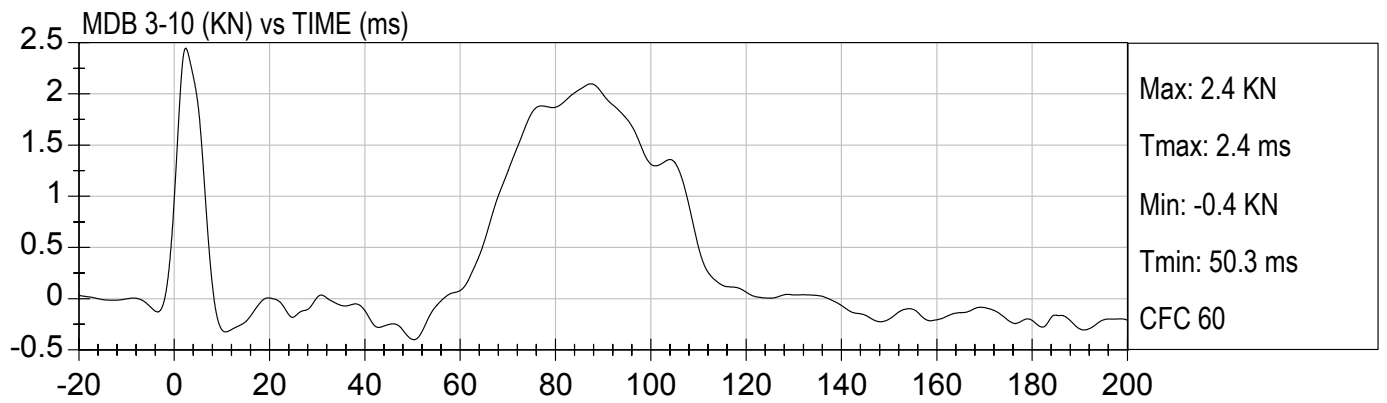
MDB 3-9 (KN) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

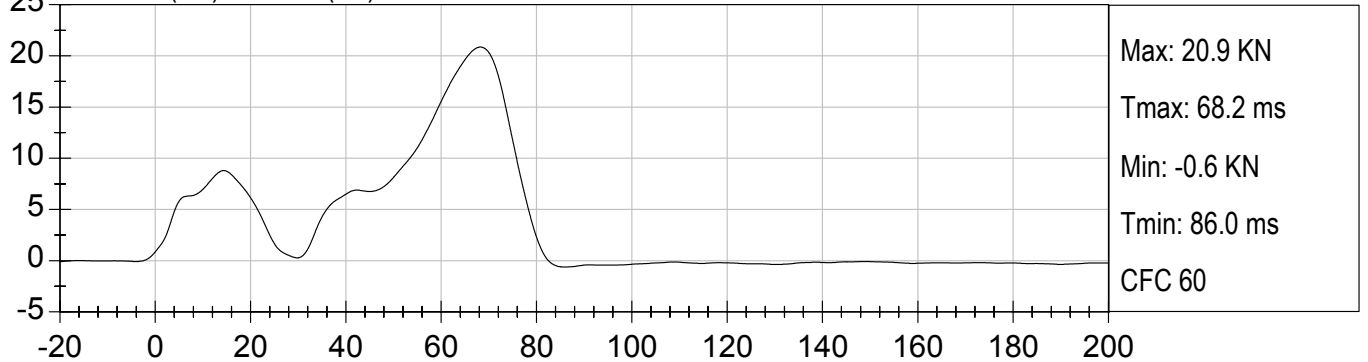




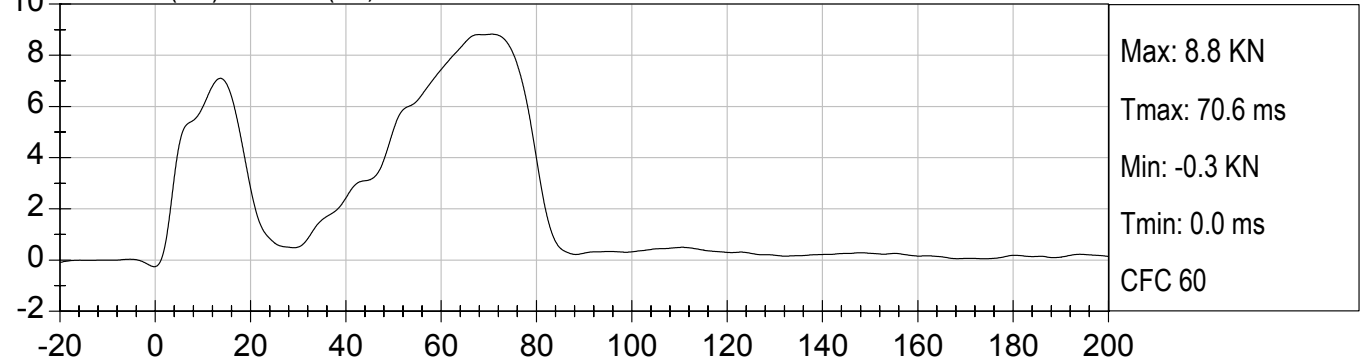
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

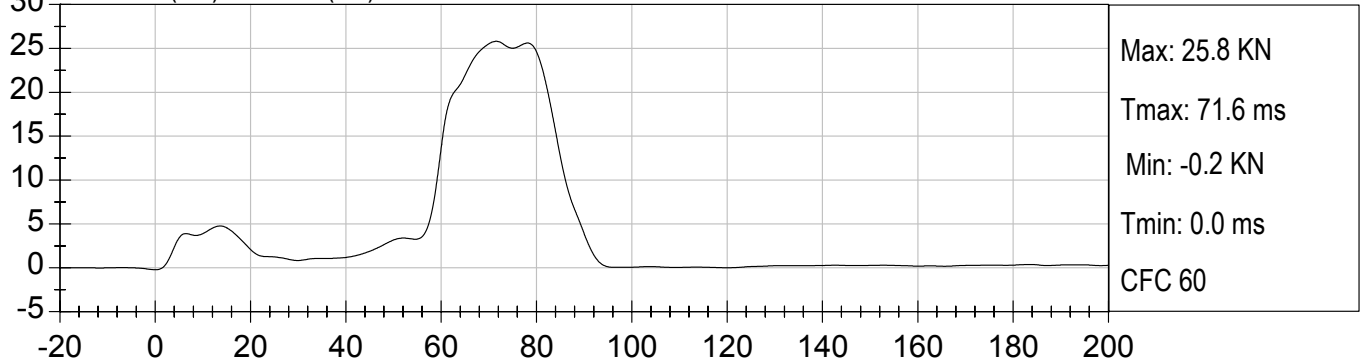
MDB 4-2 (KN) vs TIME (ms)



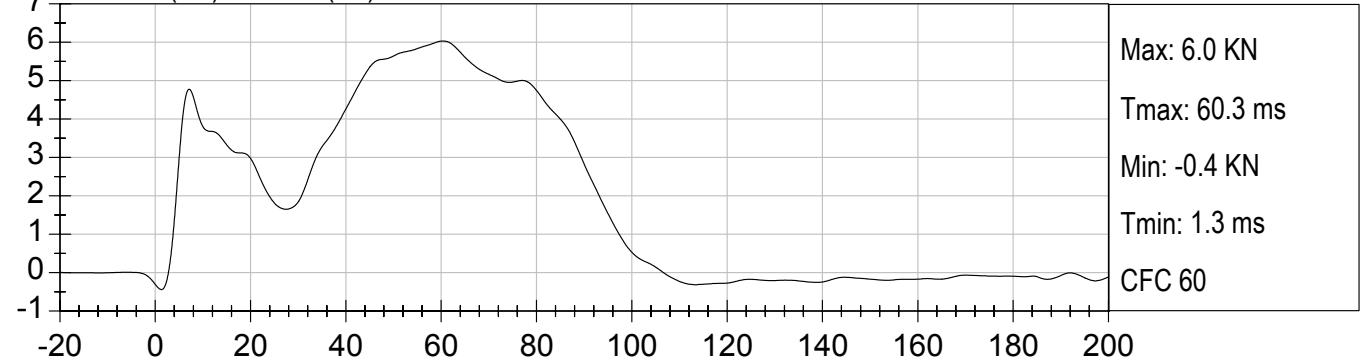
MDB 4-3 (KN) vs TIME (ms)



MDB 4-4 (KN) vs TIME (ms)



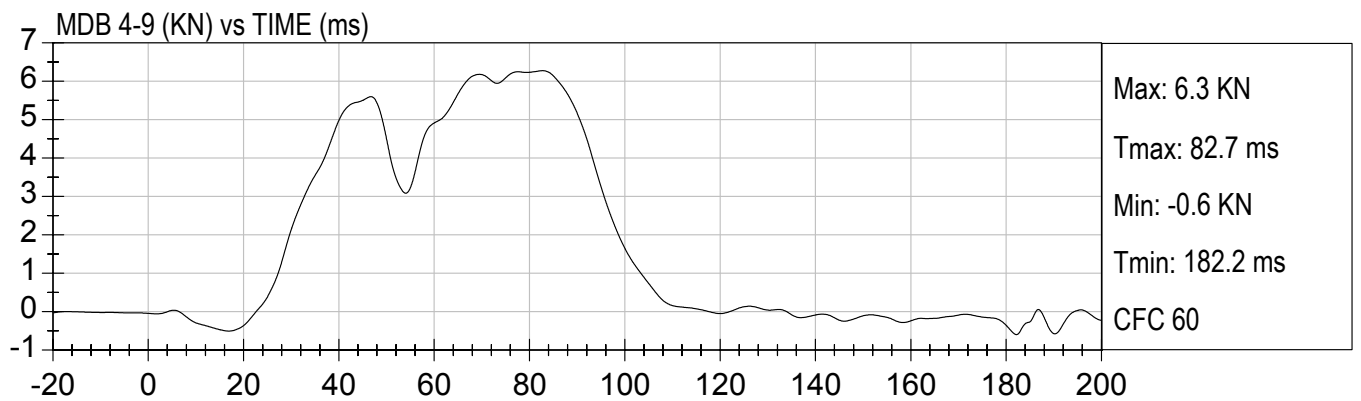
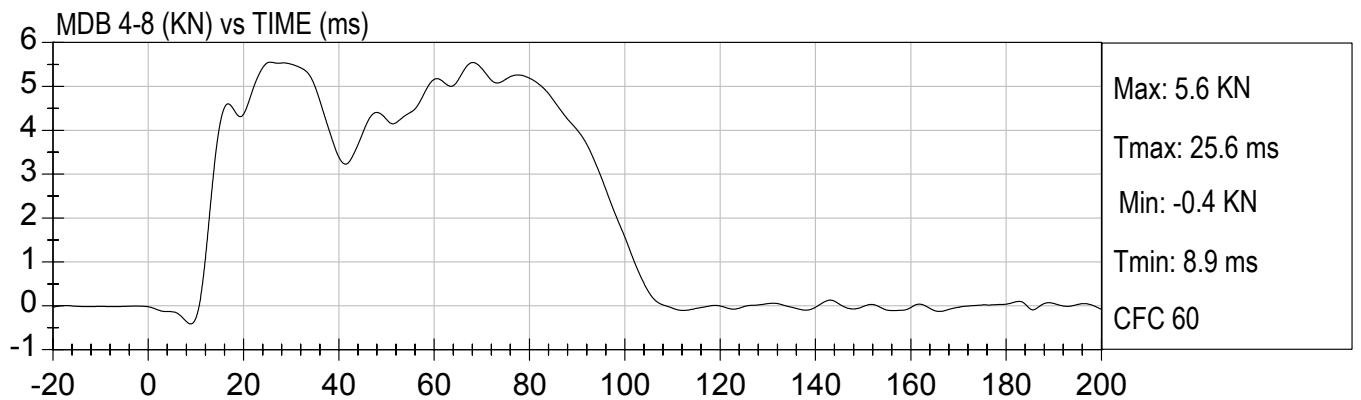
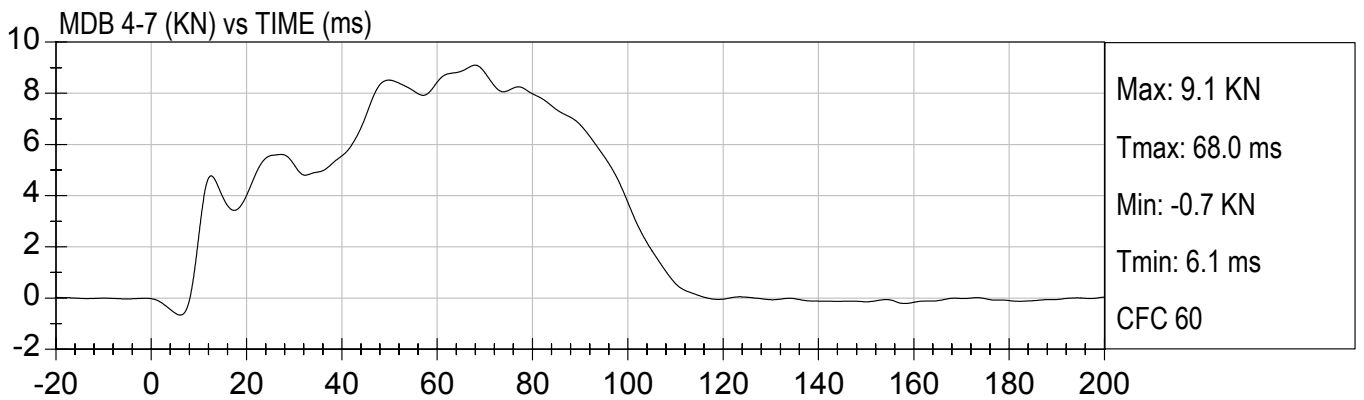
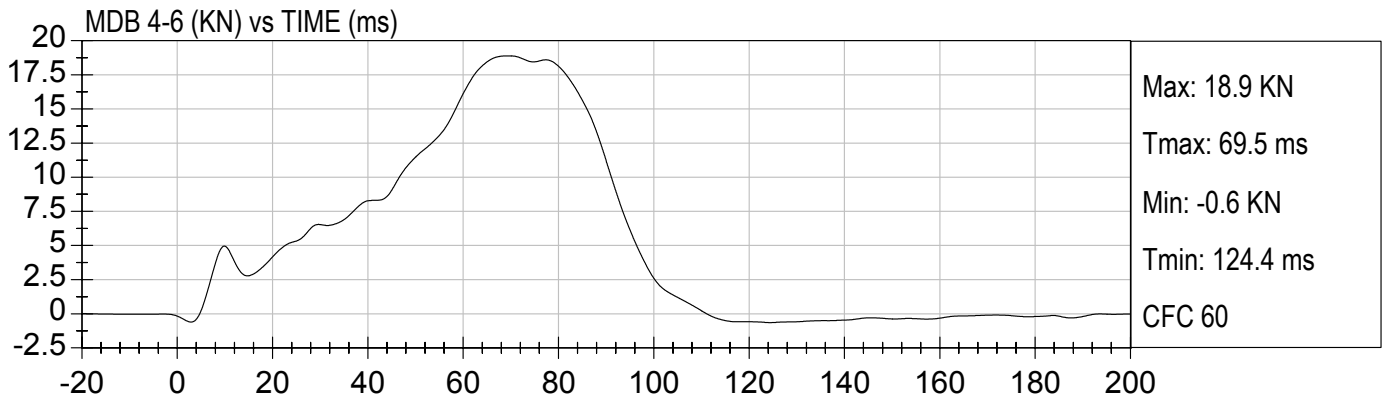
MDB 4-5 (KN) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

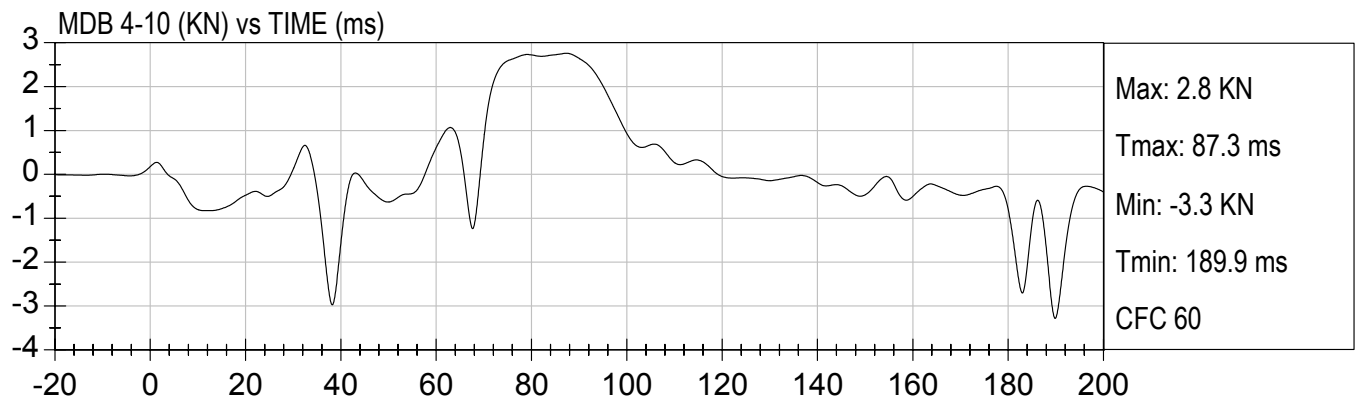
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

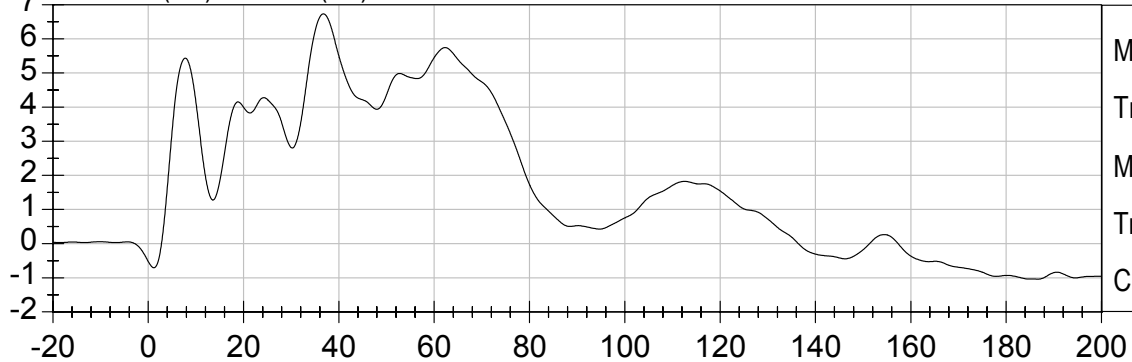




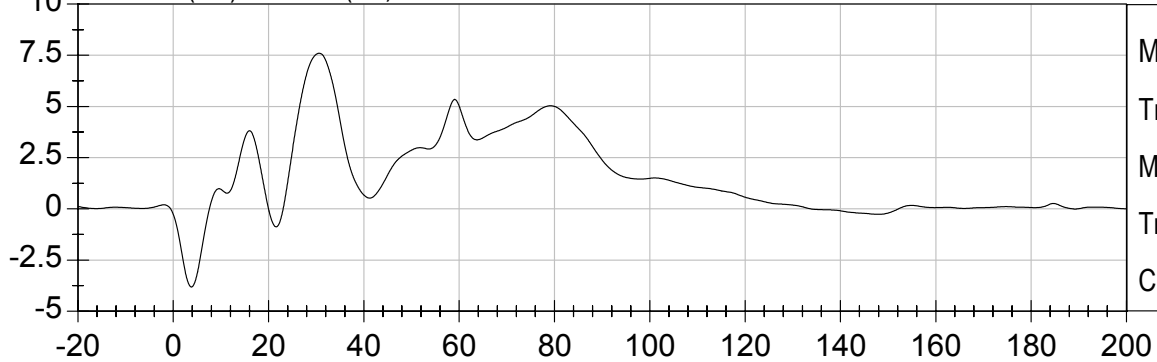
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

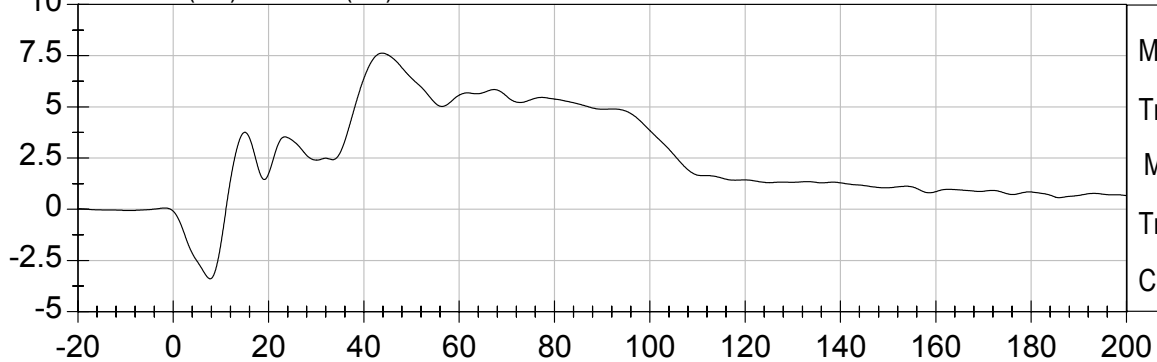
MDB 5-2 (KN) vs TIME (ms)



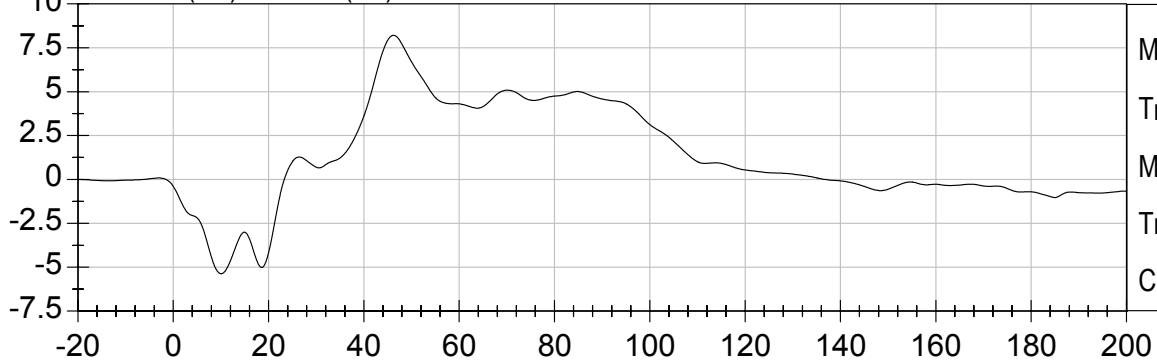
MDB 5-4 (KN) vs TIME (ms)



MDB 5-8 (KN) vs TIME (ms)



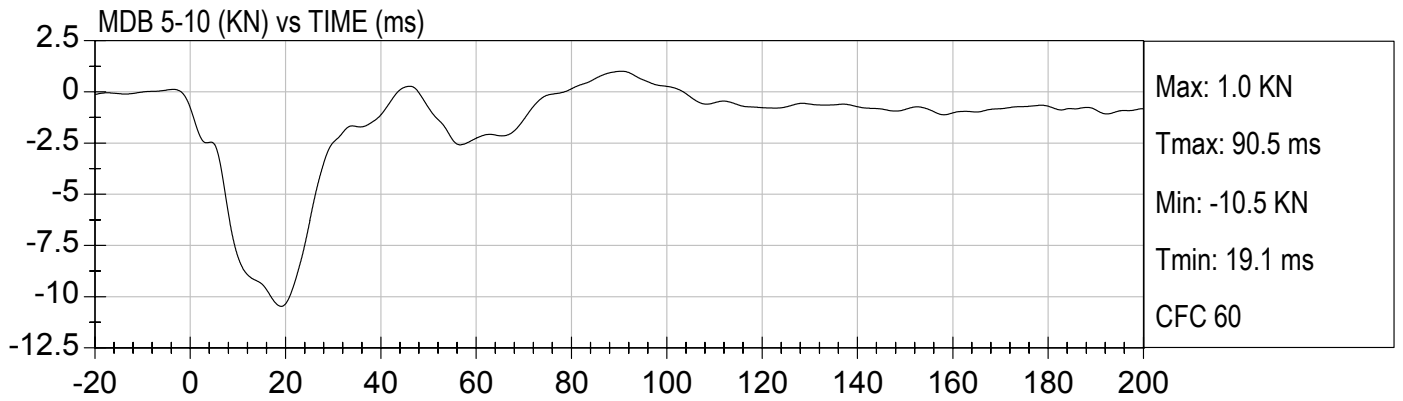
MDB 5-9 (KN) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

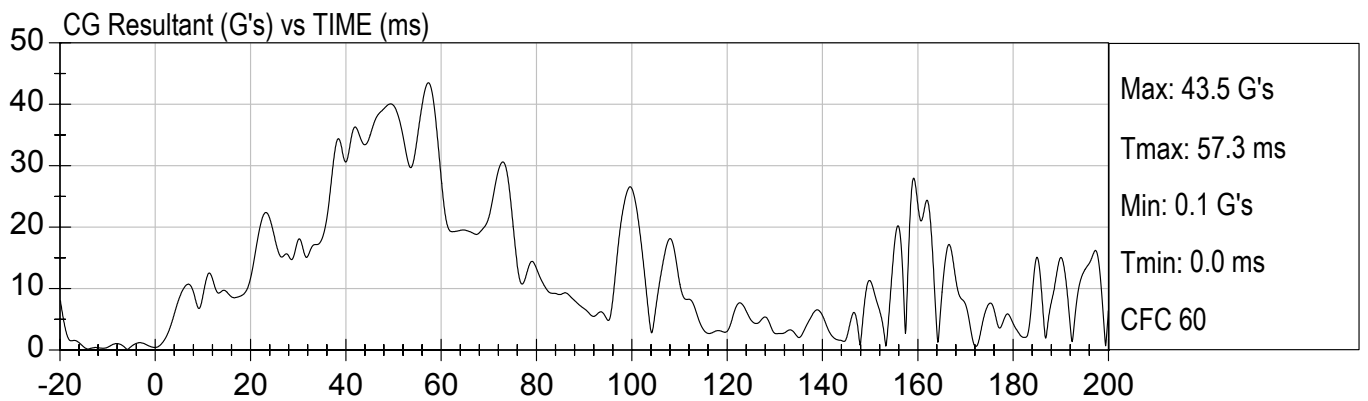
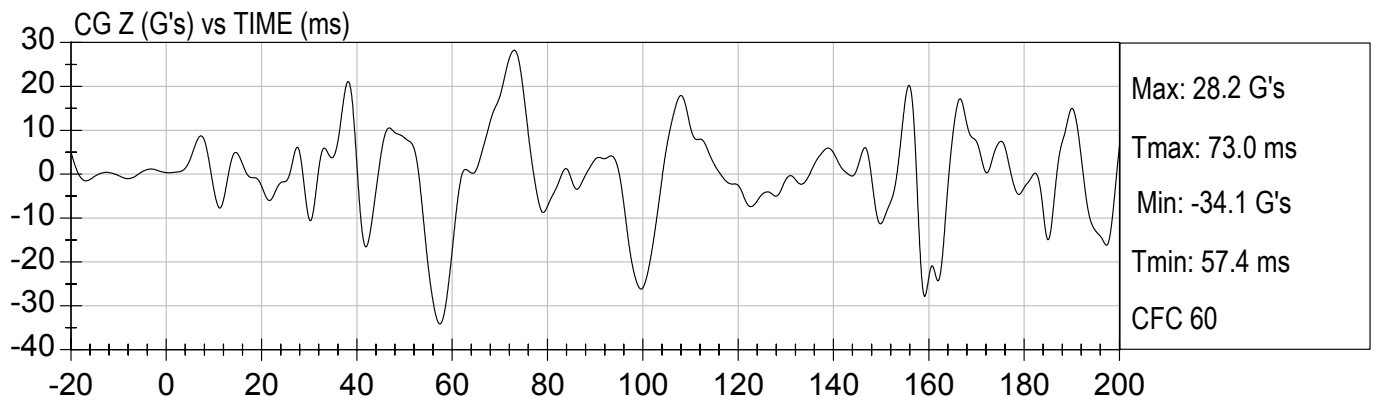
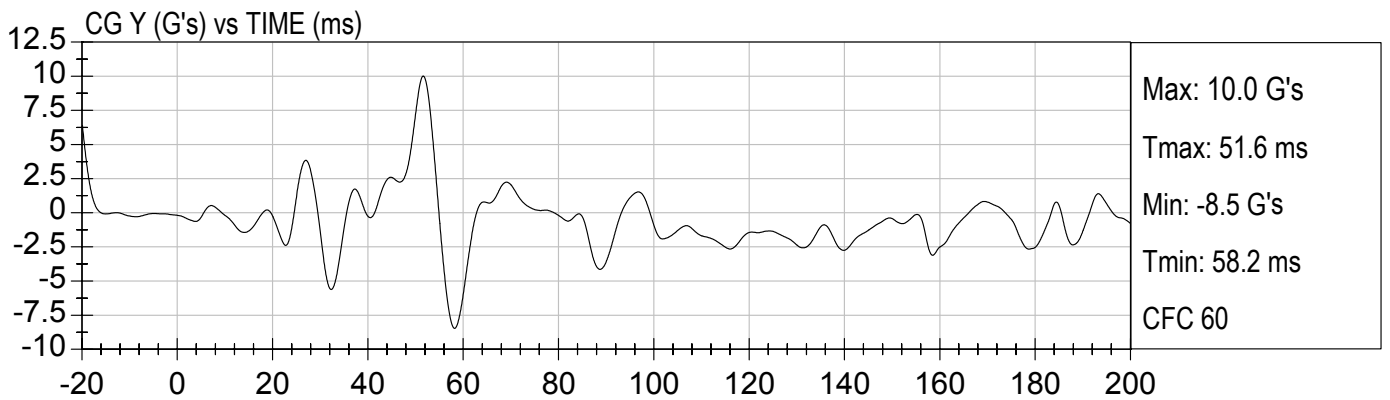
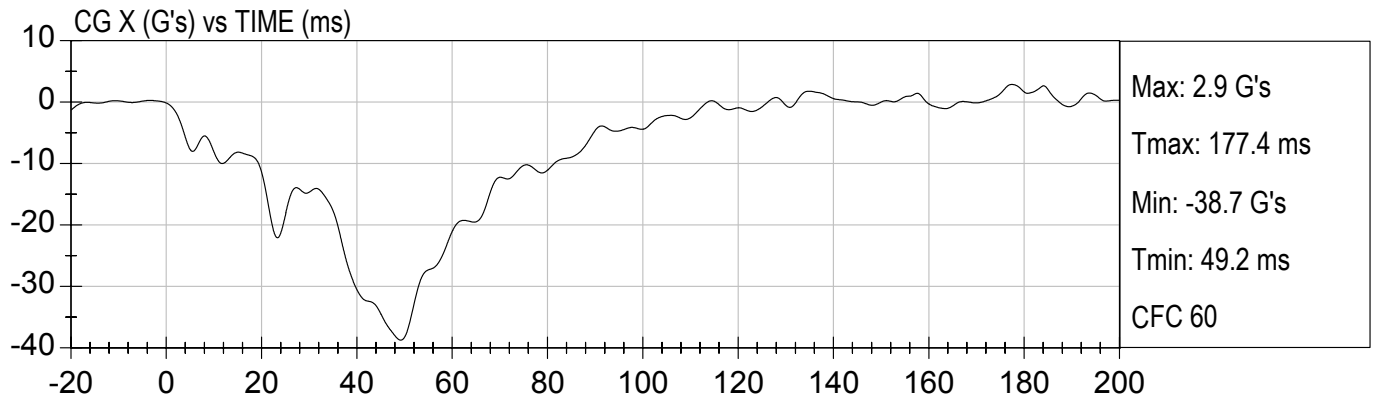
Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

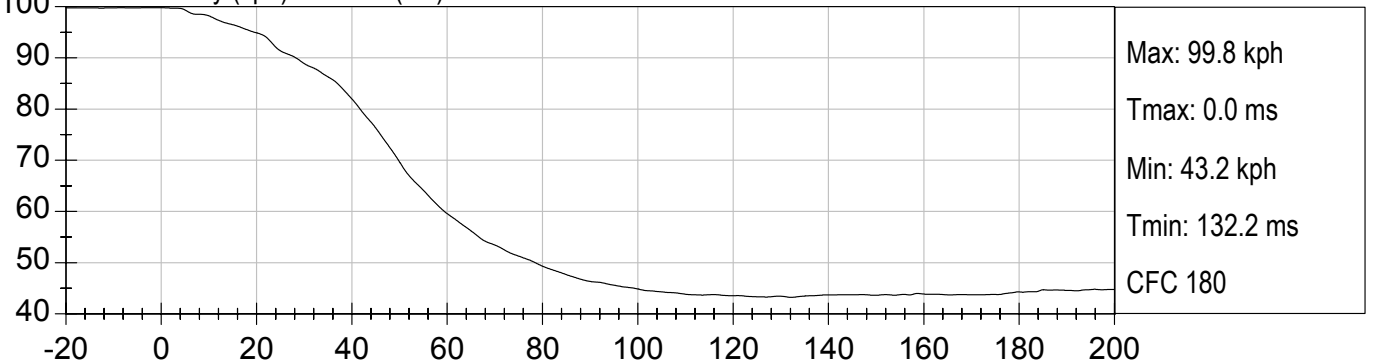




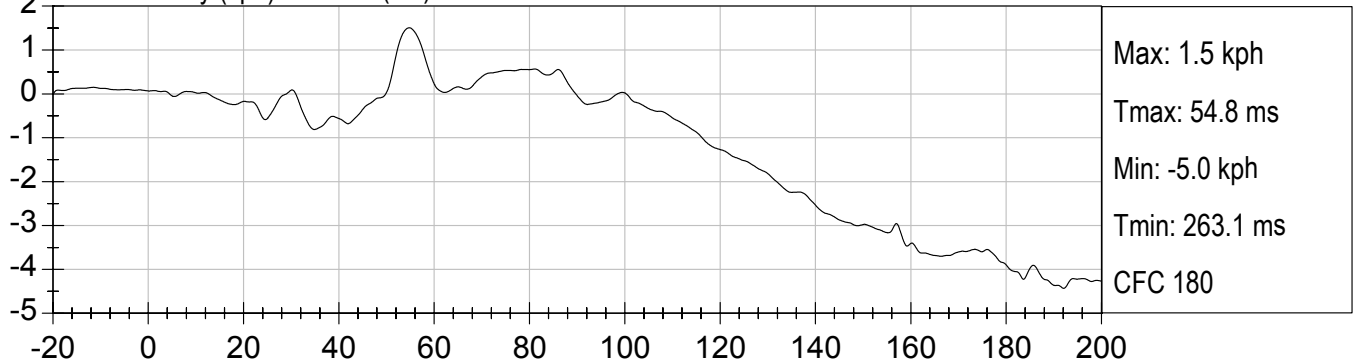
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

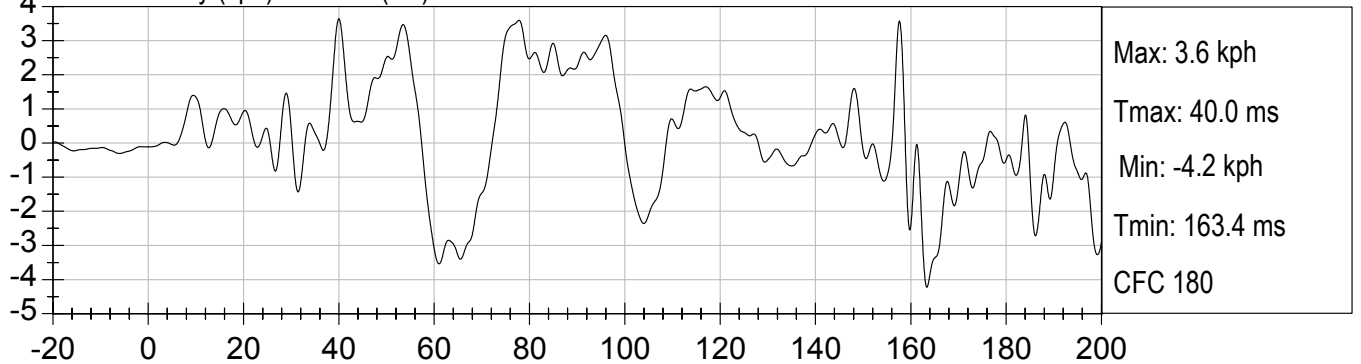
CG X Velocity (kph) vs TIME (ms)



CG Y Velocity (kph) vs TIME (ms)



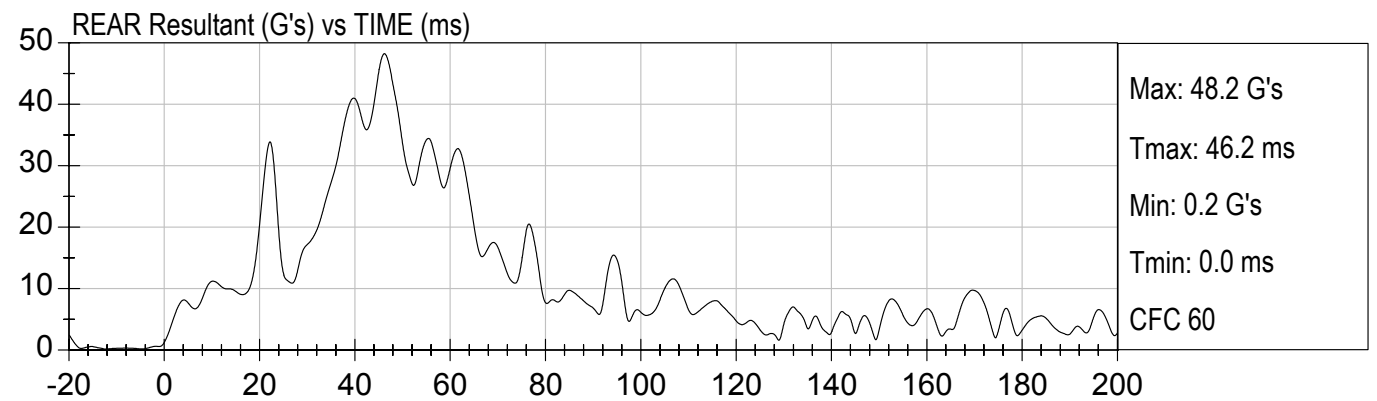
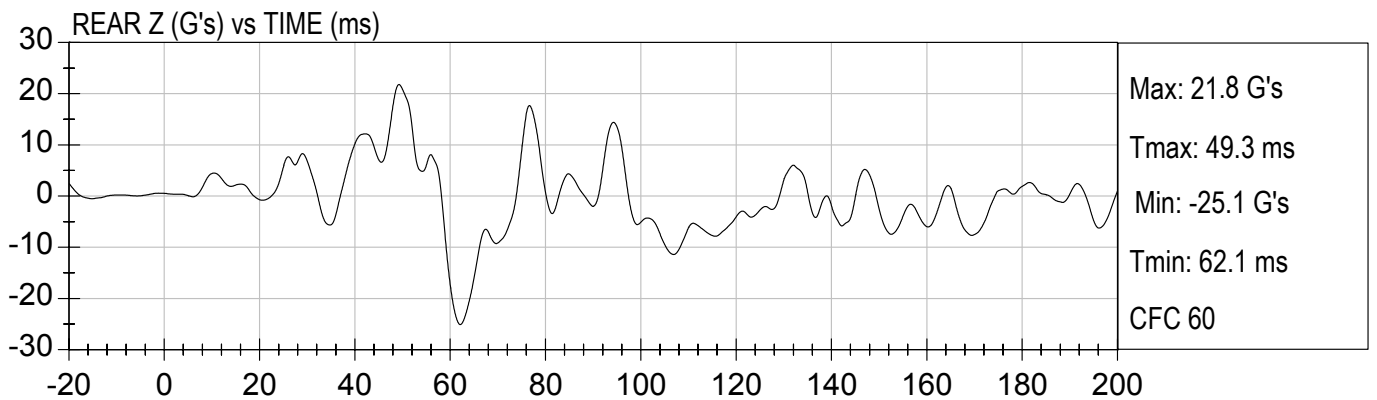
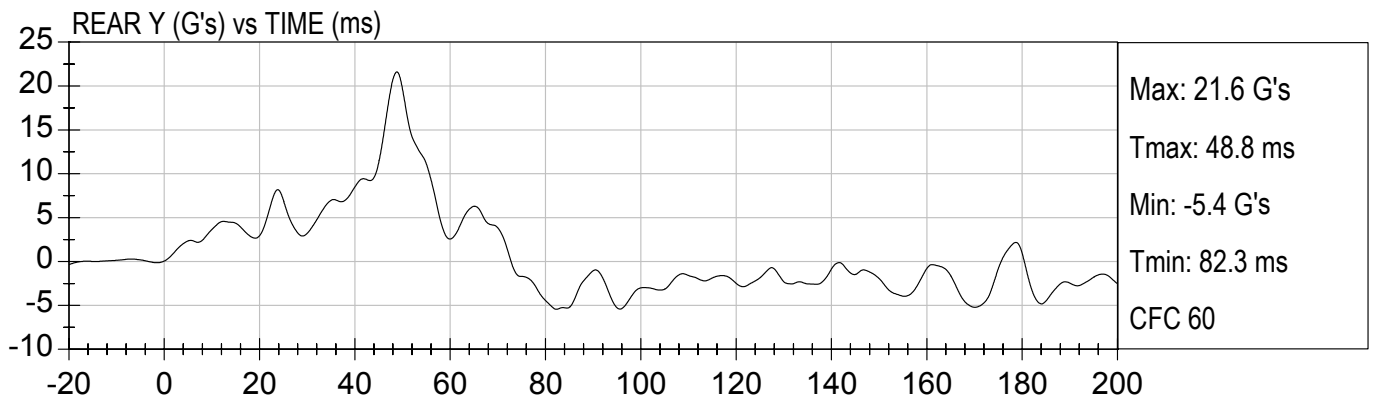
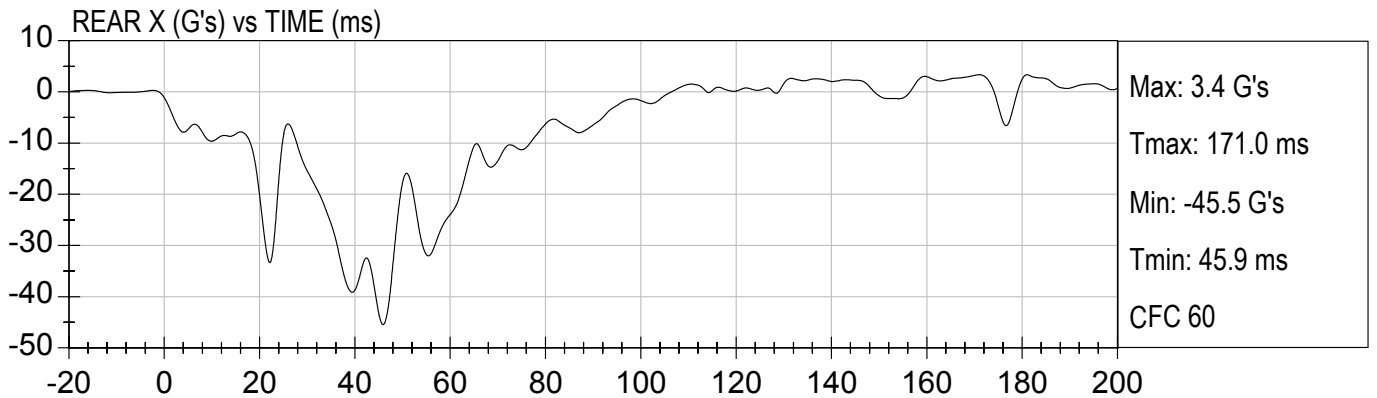
CG Z Velocity (kph) vs TIME (ms)





100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

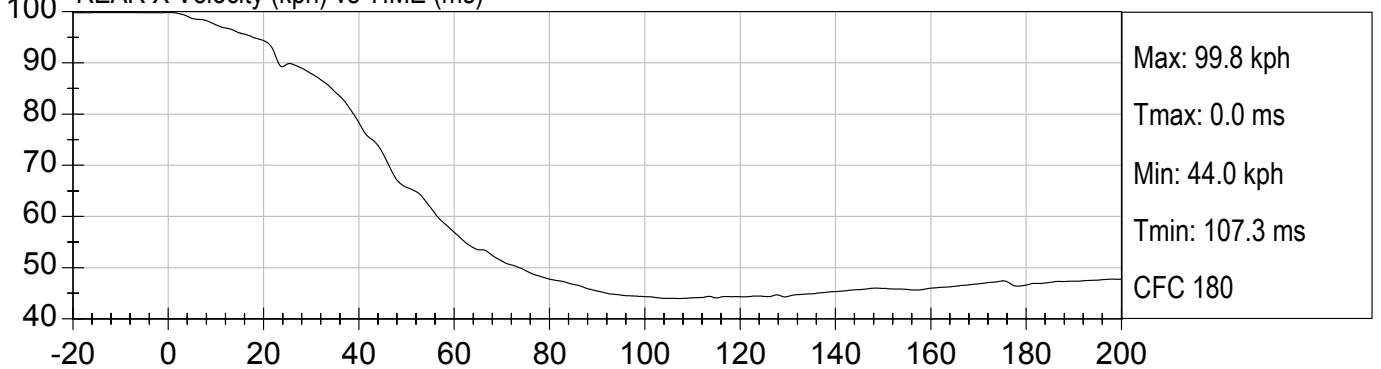




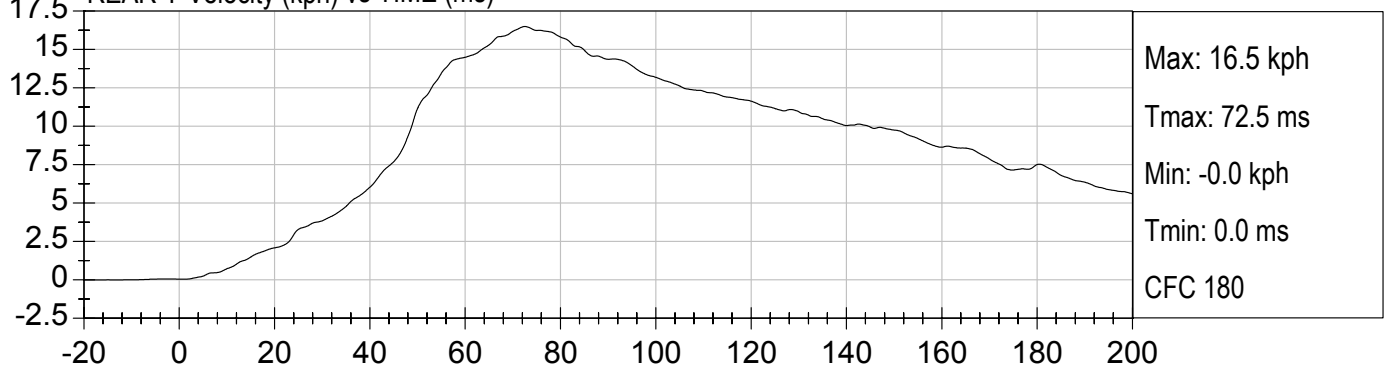
100 KPH FRONTAL OFFSET
1997 FORD EXPLORER RV1325

Test Date: 2/10/2004
Speed: 62.0 mph (99.8 km/h)

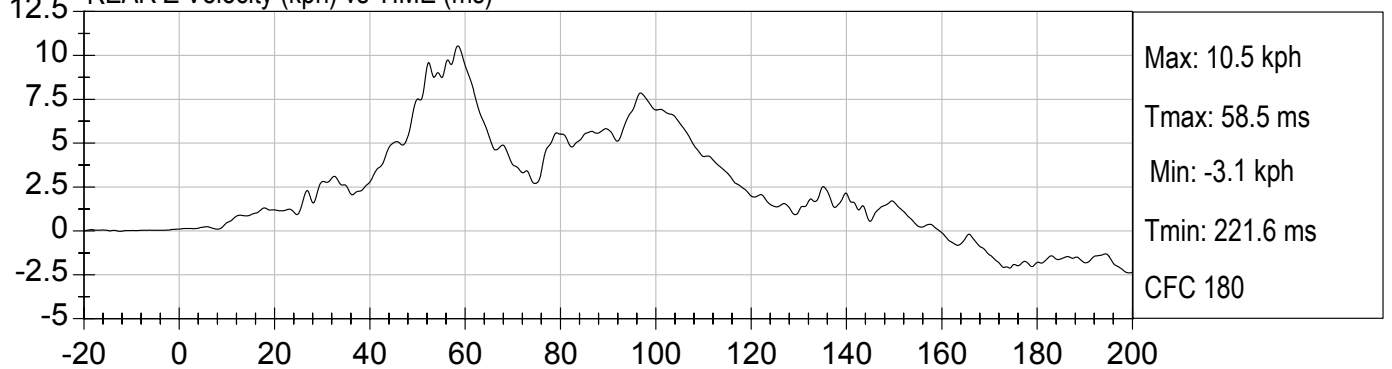
REAR X Velocity (kph) vs TIME (ms)



REAR Y Velocity (kph) vs TIME (ms)



REAR Z Velocity (kph) vs TIME (ms)



APPENDIX C
DUMMY CALIBRATION DATA TRACES AND TABLES

Hybrid III Calibration Data Sheet
50th Percentile Male
Head Drop Calibration

ATD Serial No: 087

Test I.D: D04071

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	250.8	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	7.3	Pass
Is Acceleration Unimodal?	Yes/No	< 10% Peak	Yes	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

David Winkelbauer
Approved By

01/19/2004
Test Date



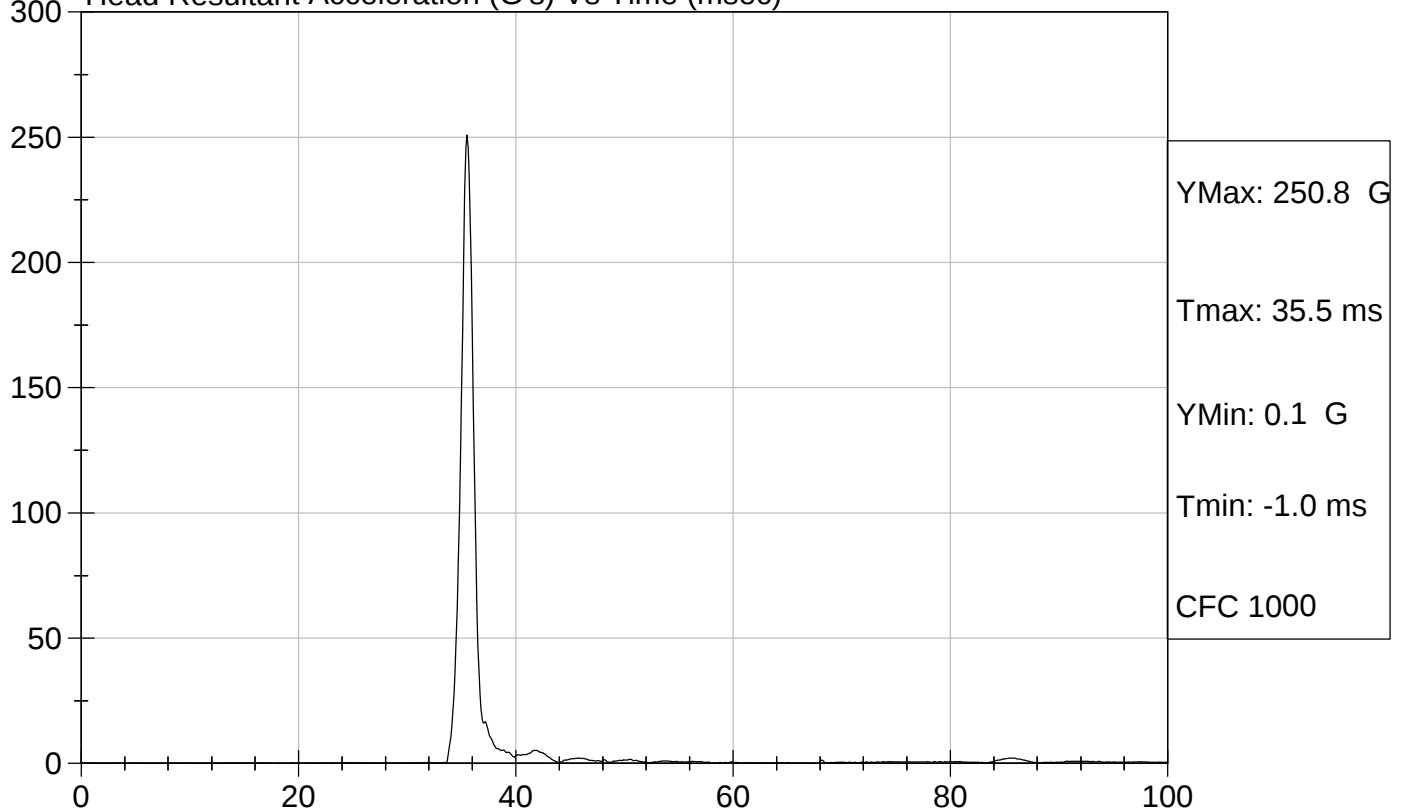
Test Description: Head Drop

Test Date: 01/19/2004

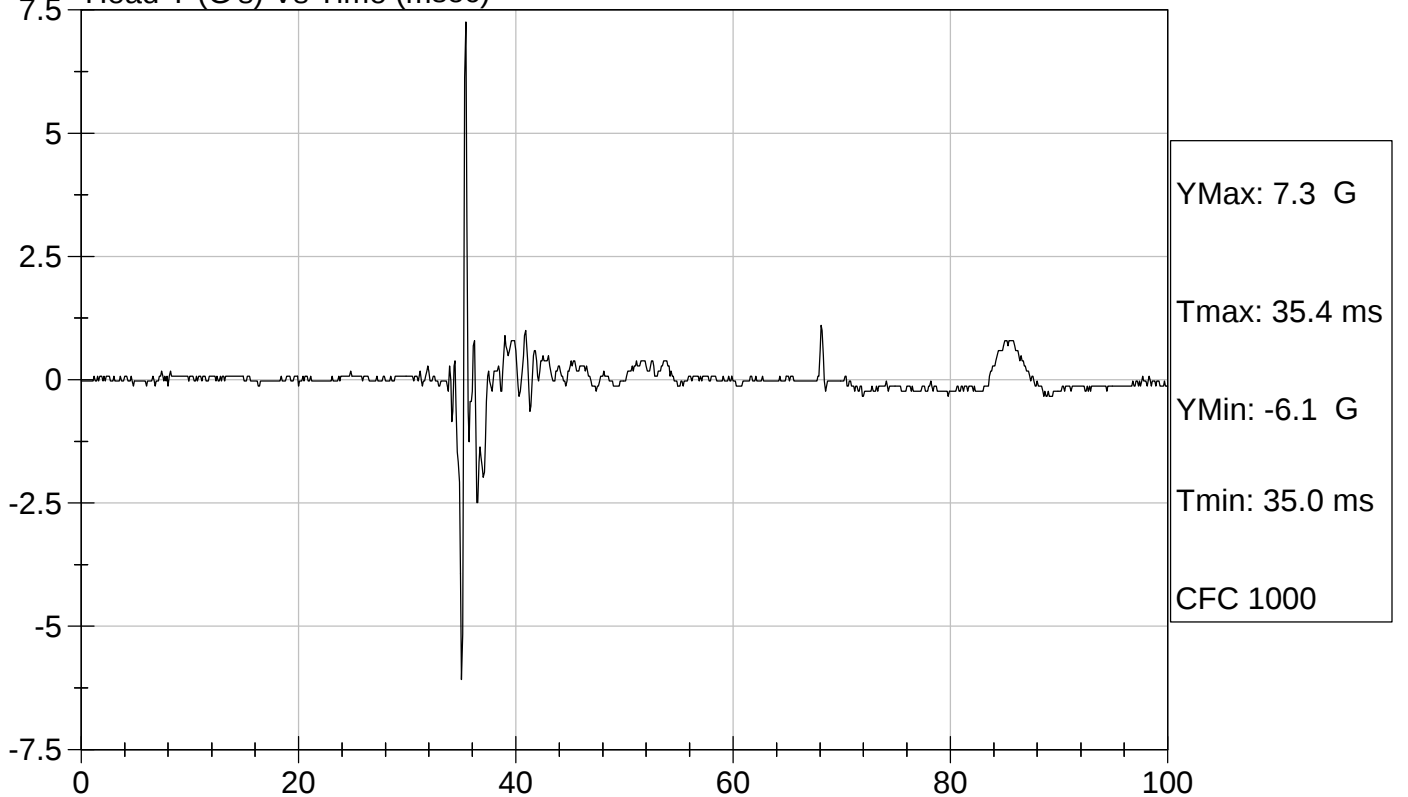
Component: D04071

Speed: 0 ft/s, 0.0 m/s

Head Resultant Acceleration (G's) Vs Time (msec)



Head Y (G's) Vs Time (msec)



Hybrid III Calibration Data Sheet
50th Percentile Male
Neck Flexion Test

ATD Serial No: 087

Test I.D: D04072

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	21	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.04	Pass
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	23.76	Pass
	20 msec	G's	17.60 to 22.60	20.64	Pass
	30 msec	G's	12.50 to 18.50	16.53	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 29.0	16.53	Pass
Deceleration Decay Time to Cross 5 G's		msec	34.0 to 42.0	35.8	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	77.0	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	120.4	Pass
Moment About Occipital Condyle	Maximum	N m	84.1 to 108.5	97.8	Pass
	Time	msec	47.0 to 58.0	49.2	Pass
Positive Moment Decay Time To Zero Crossing		msec	97.0 to 107.0	100.4	Pass
Overall Test Results					Pass


 Laboratory Technician

01/20/2004

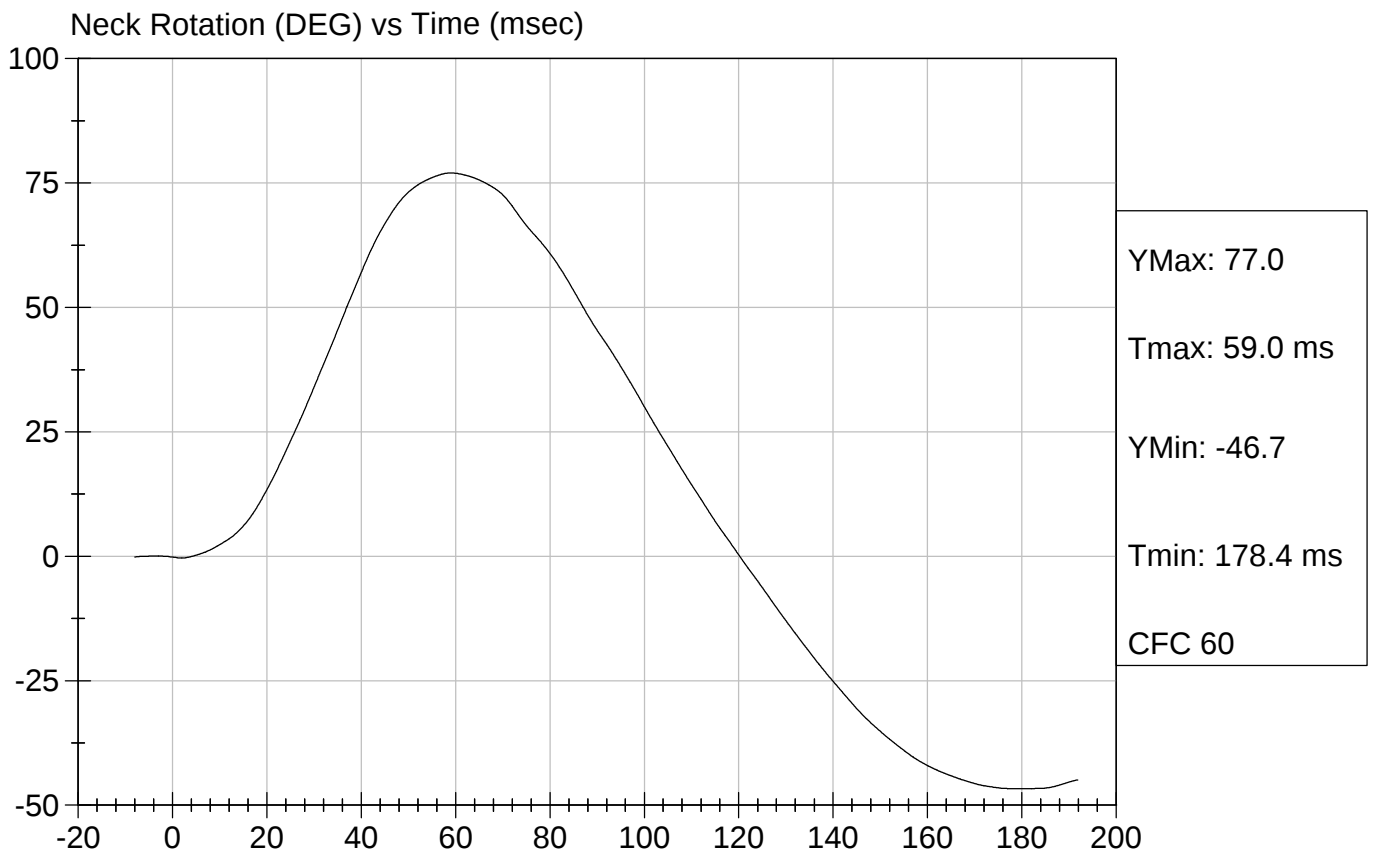
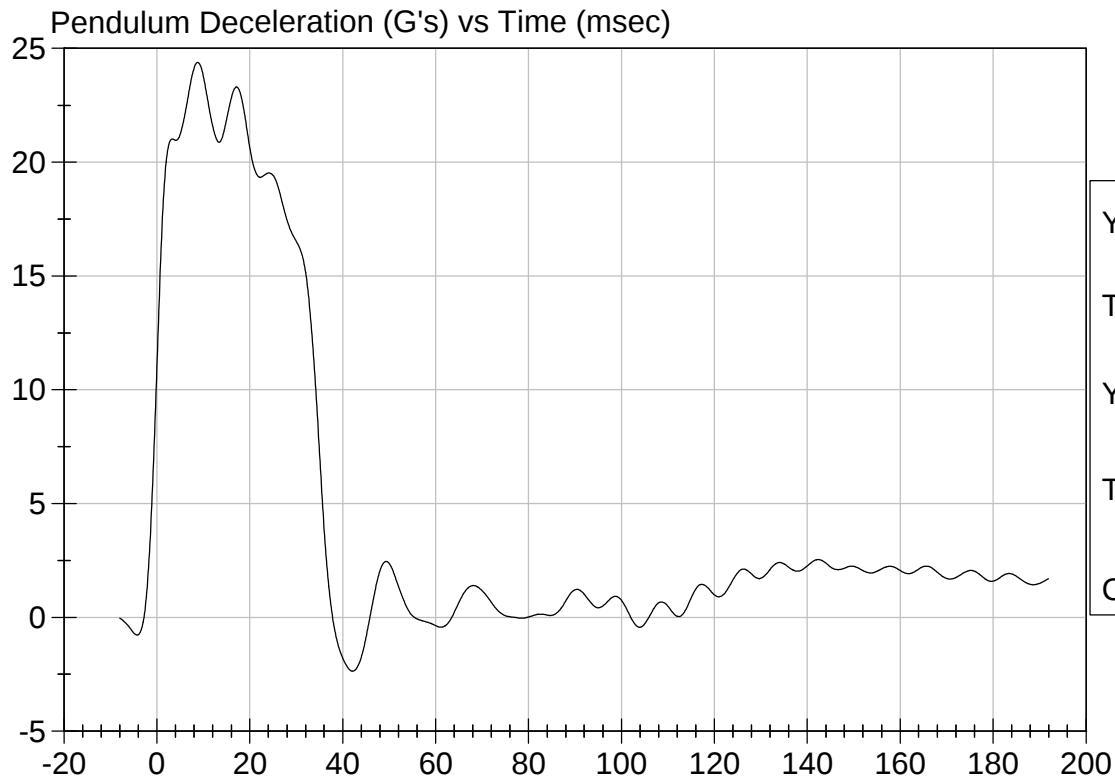
Test Date


 Approved By



Test Desc: Neck Extension
Component ID: D04072

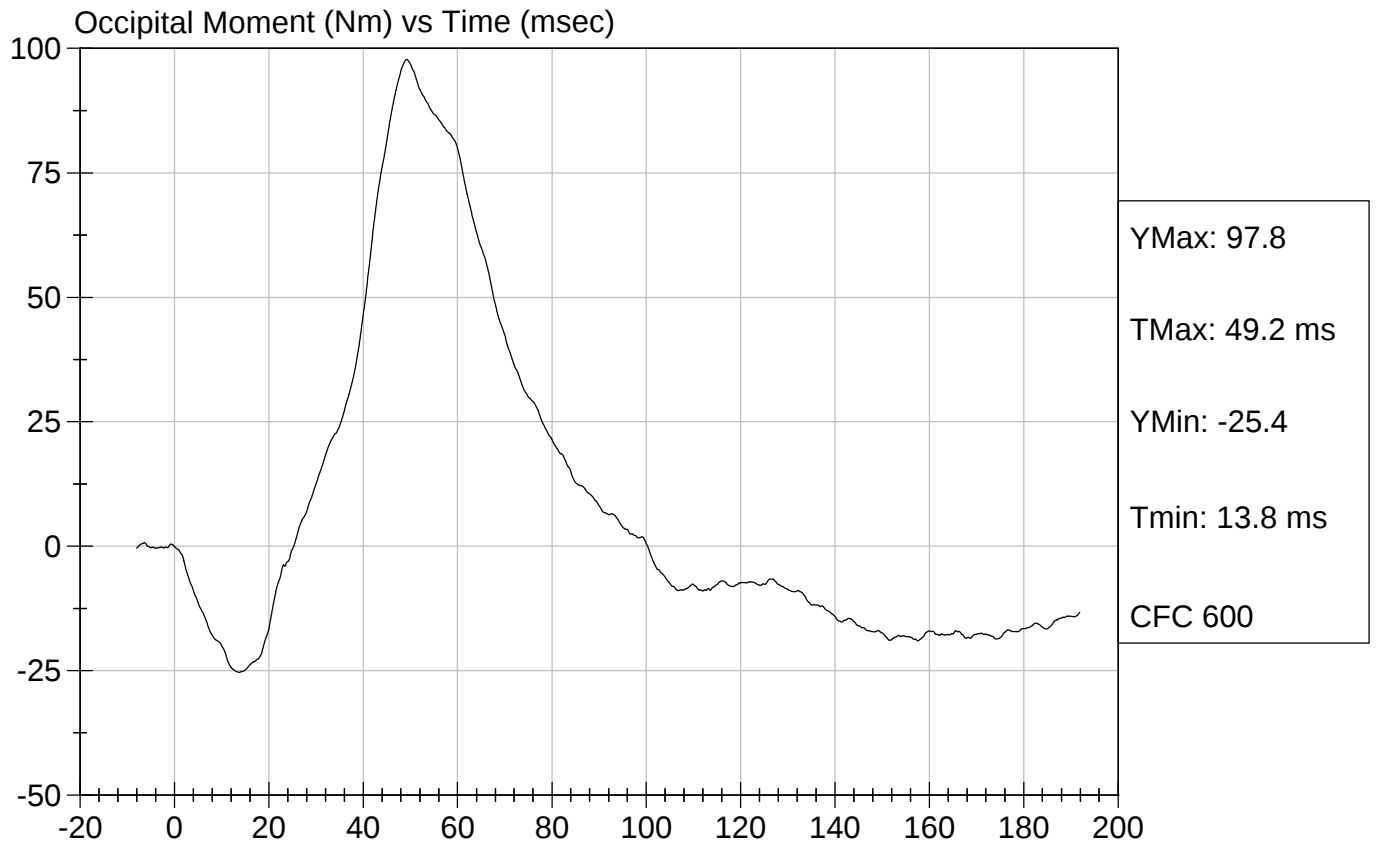
Test Date: 01/20/2004
Speed: 23.1 ft/sec, 7.04 m/sec





Test Desc: Neck Extension
Component ID: D04072

Test Date: 01/20/2004
Speed: 23.1 ft/sec, 7.04 m/sec

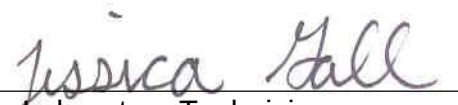


Hybrid III Calibration Data Sheet
50th Percentile Male
Neck Extension Test

ATD Serial No: 087

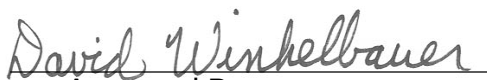
Test I.D: D04073

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	21	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.18	Pass
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	18.68	Pass
	20 msec	G's	14.00 to 19.00	15.78	Pass
	30 msec	G's	11.00 to 16.00	13.45	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 22.0	13.5	Pass
Deceleration Decay Time to Cross 5 G's		msec	38.0 to 46.0	41.2	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	102.2	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	160.5	Pass
Moment About Occipital Condyle	Minimum	N m	-52.9 to -79.9	-68.6	Pass
	Time	msec	65.0 to 79.0	71.4	Pass
Negative Moment Decay Time To Zero Crossing		msec	120.0 to 148.0	139.5	Pass
Overall Test Results					Pass


Laboratory Technician

01/20/2004

Test Date

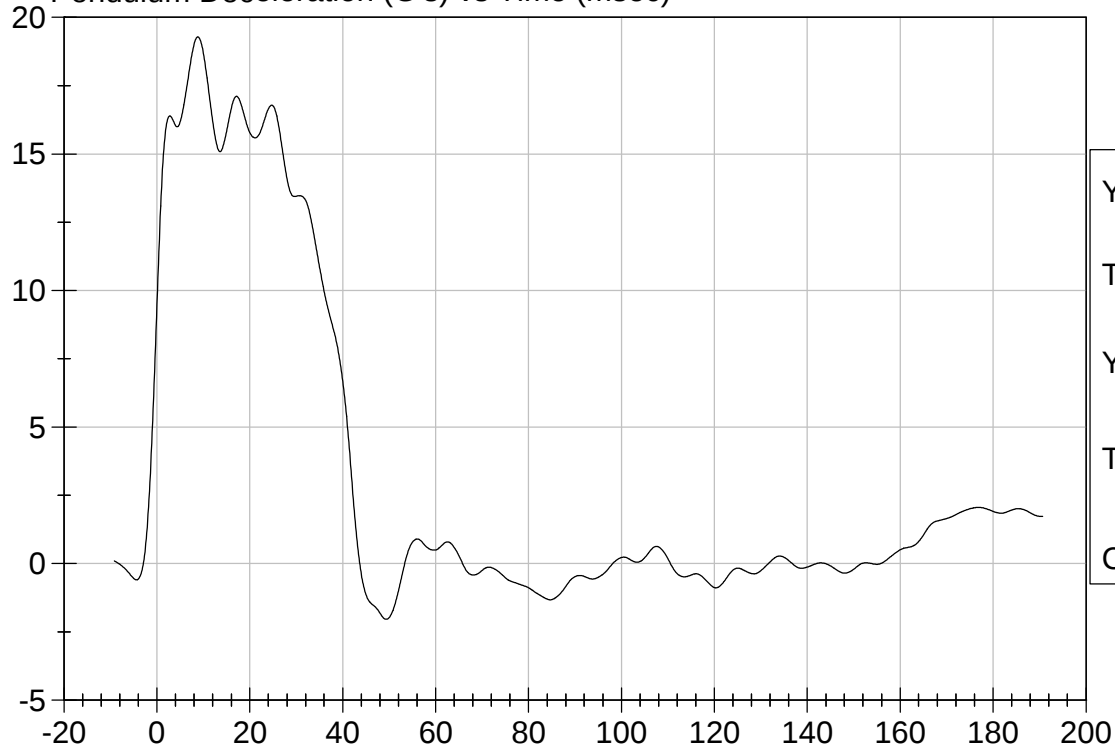

Approved By



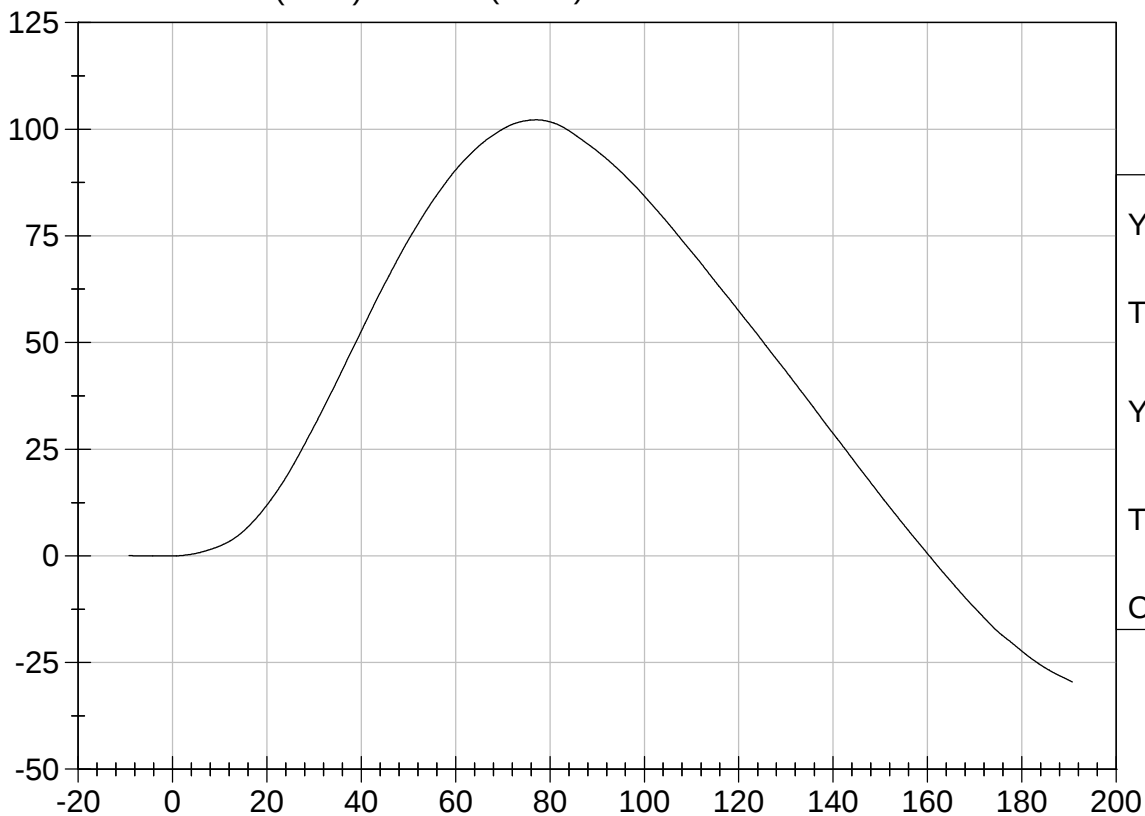
Test Desc: Neck Extension
Component ID: D04073

Test Date: 01/20/2004
Speed: 20.29 ft/sec, 6.18 m/sec

Pendulum Deceleration (G's) vs Time (msec)



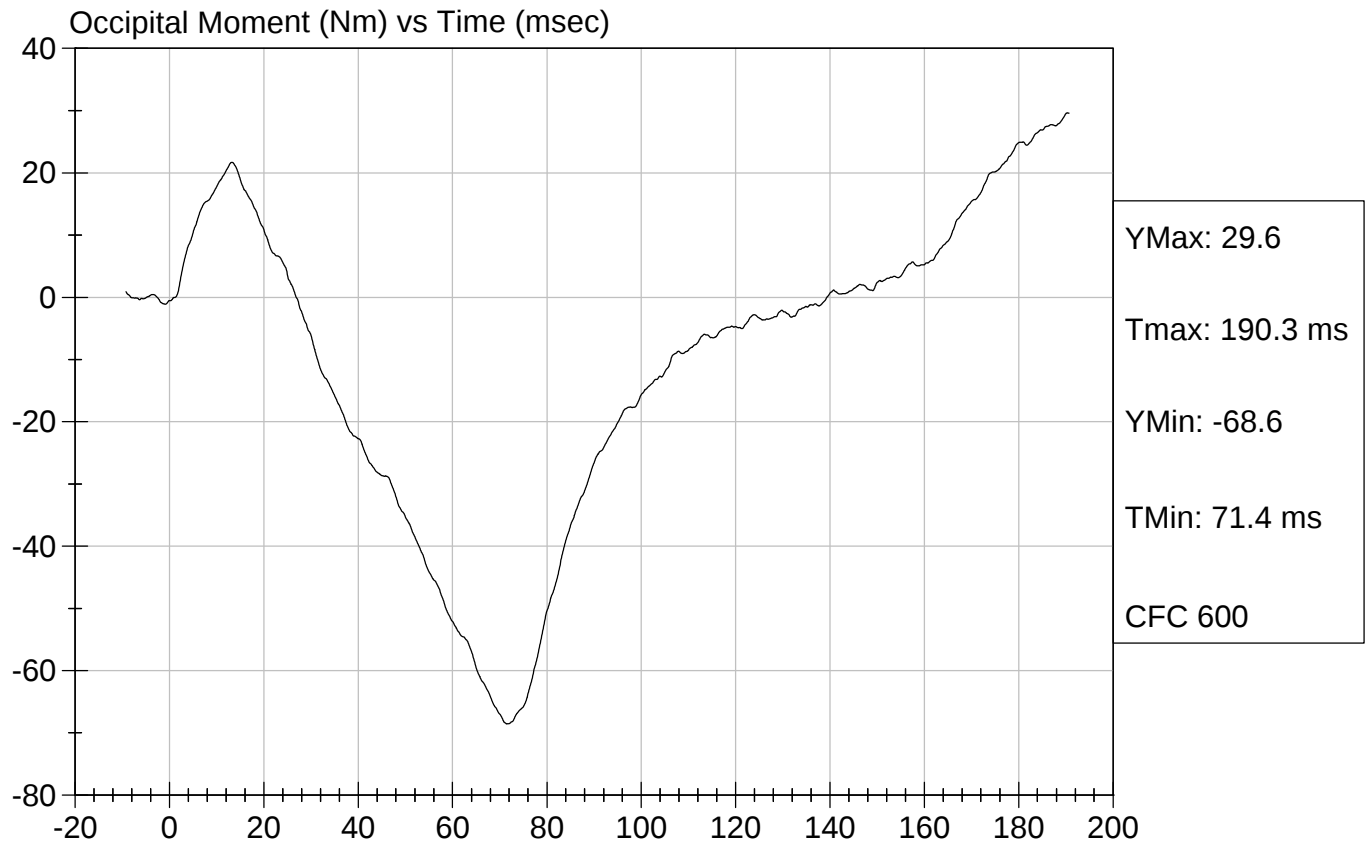
Neck Rotation (DEG) vs Time (msec)





Test Desc: Neck Extension
Component ID: D04073

Test Date: 01/20/2004
Speed: 20.29 ft/sec, 6.18 m/sec

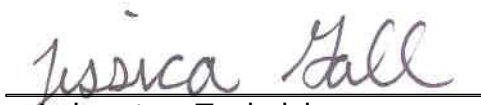


Hybrid III Calibration Data Sheet
50th Percentile Male
Thorax Impact Test

ATD Serial No: 087

Test I.D: D04074

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Probe Velocity	m/s	6.58 to 6.82	6.60	Pass
Peak Probe Force	Newtons	5159 to 5893	5,231	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.72	Pass
Internal Hysteresis	%	69 to 85	71	Pass
Overall Test Results				Pass


Laboratory Technician


Approved By

01/20/2004
Test Date

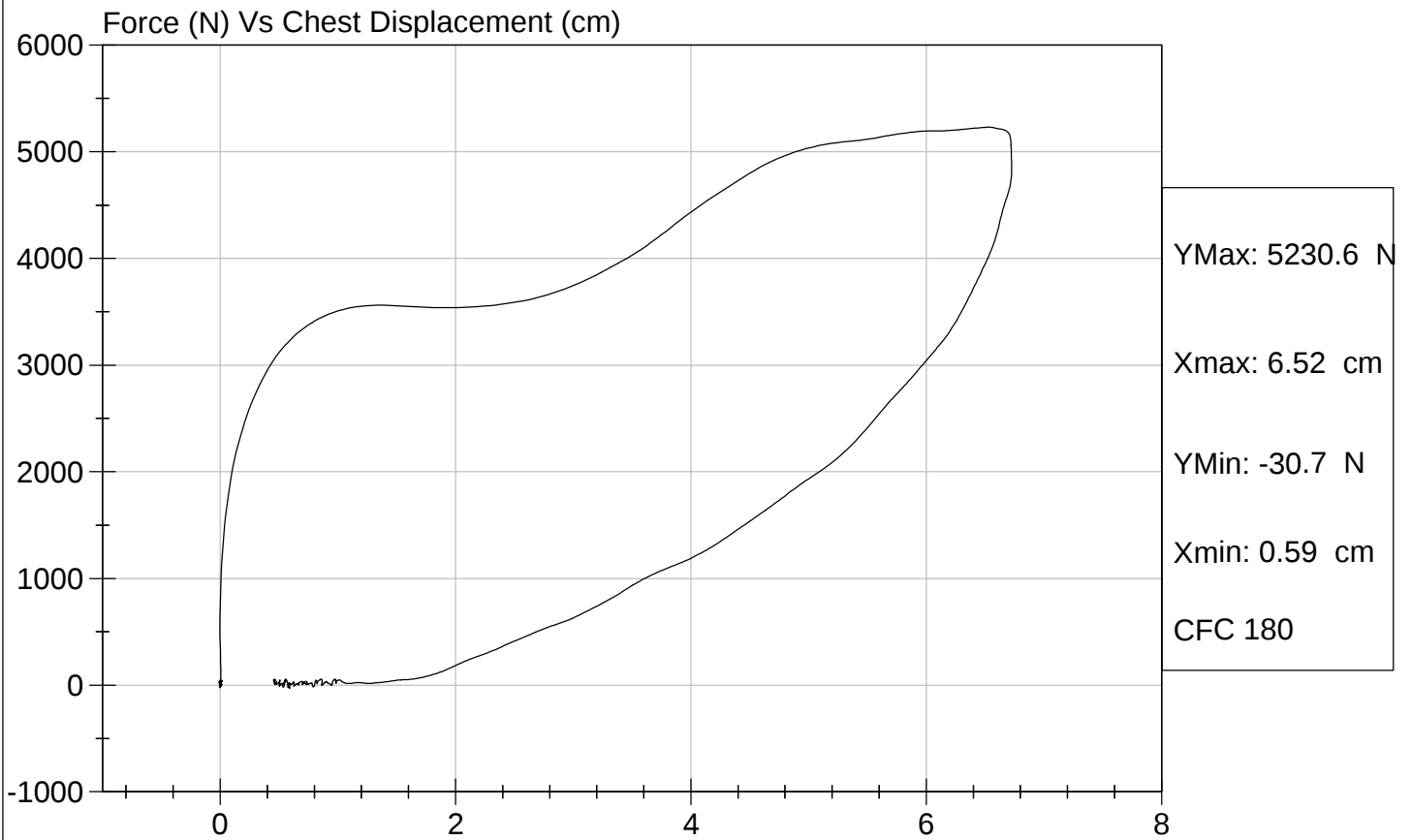


Test Description: Thorax Impact

Test Date: 01/20/2004

Component: D04074

Speed: 21.66 ft/sec, 6.60 m/sec

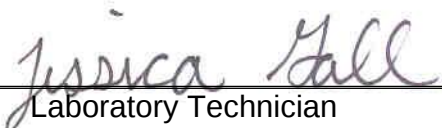


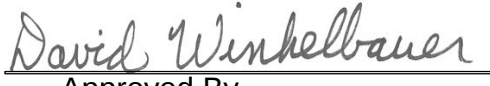
Hybrid III Calibration Data Sheet
50th Percentile Male
Right Knee Impact Test

ATD Serial No: 087

Test I.D: D04075

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.0	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Probe Velocity	m/s	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	4,980	Pass
Overall Test Results				Pass


Laboratory Technician


Approved By

01/19/2004

Test Date

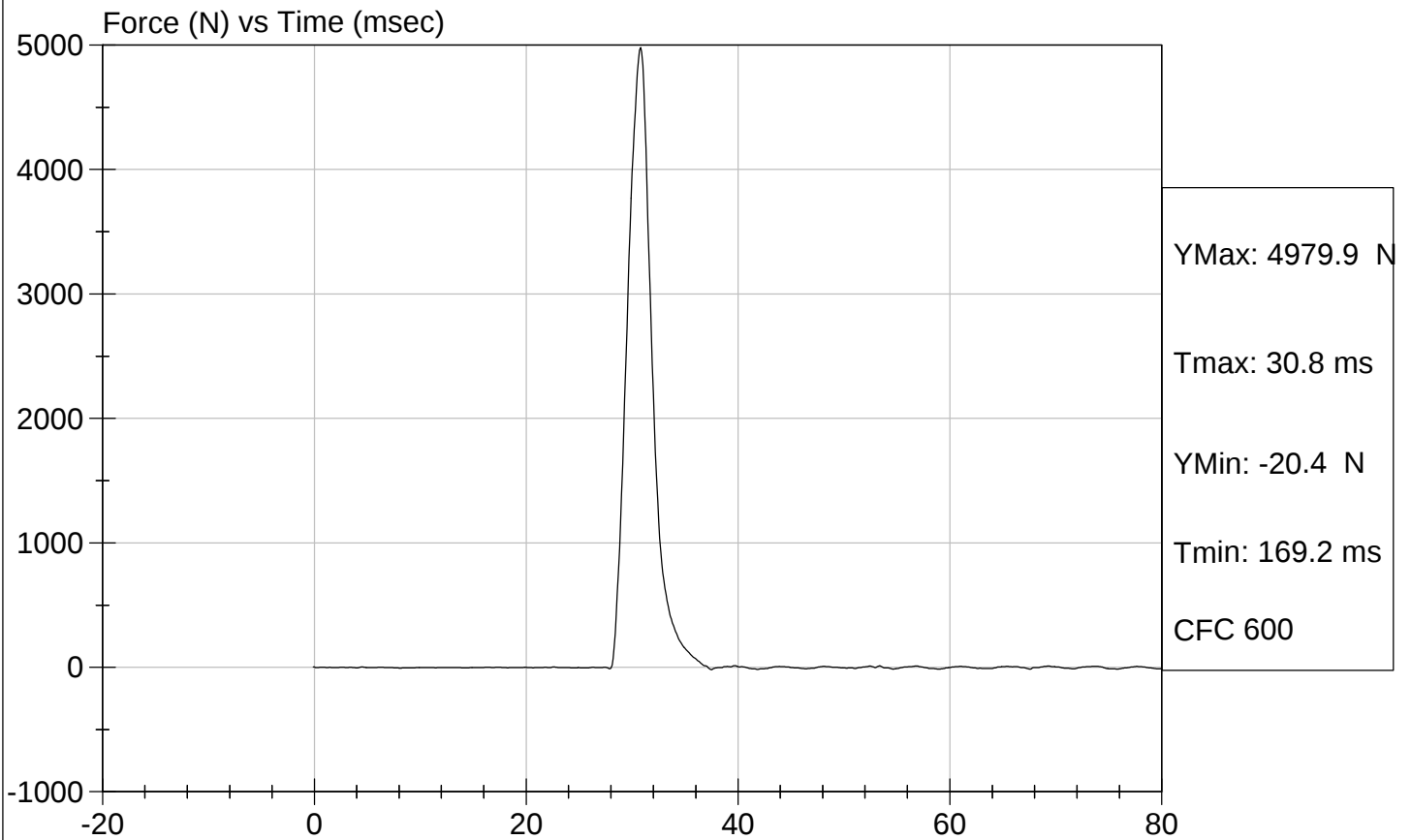


Test Description: Right Knee

Test Date: 01/19/2004

Component: D04075

Speed: 6.84 ft/sec, 2.085 m/sec

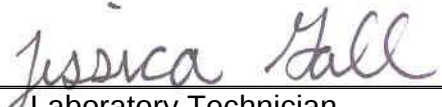


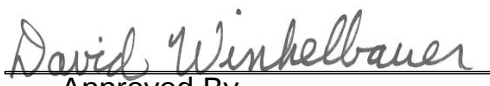
Hybrid III Calibration Data Sheet
50th Percentile Male
Left Knee Impact Test

ATD Serial No: 087

Test I.D: D04076

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.0	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Probe Velocity	m/s	2.07 to 2.13	2.09	Pass
Peak Probe Force	Newtons	4715 to 5782	5,252	Pass
Overall Test Results				Pass


Laboratory Technician


Approved By

01/19/2004
Test Date

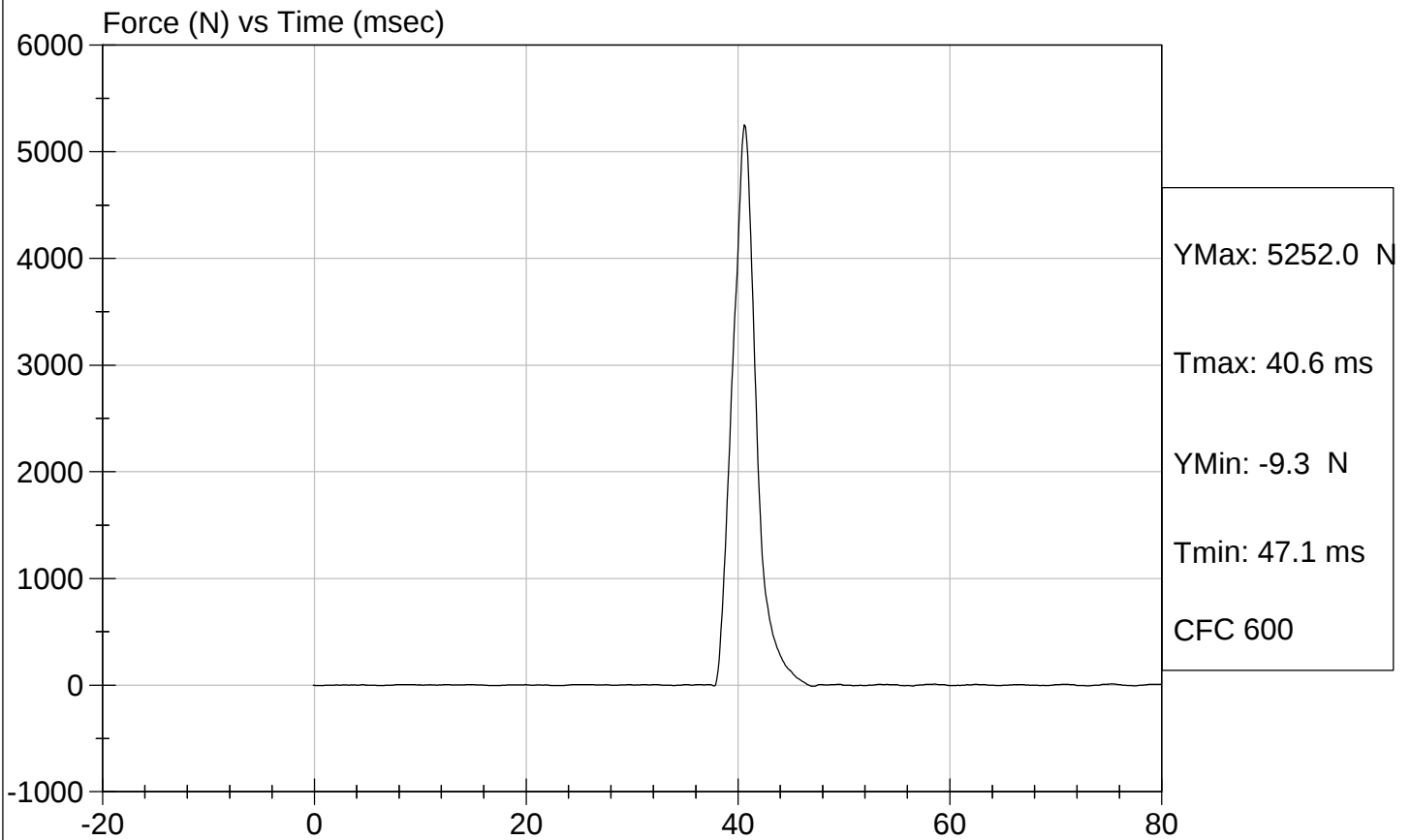


Test Description: Left Knee

Test Date: 01/19/2004

Component: D04076

Speed: 6.86 ft/sec, 2.091 m/sec



Hybrid III Calibration Data Sheet
50th Percentile Male
Hip-Femur Flexion Test

ATD Serial No: 087

Test I.D: D04070

Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.1	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	21	21	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	84.0	77.6	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	43	43	Pass
Overall Test Results					Pass

Jessica Hall
Laboratory Technician

David Winkelbauer
Approved By

01/20/2004
Test Date

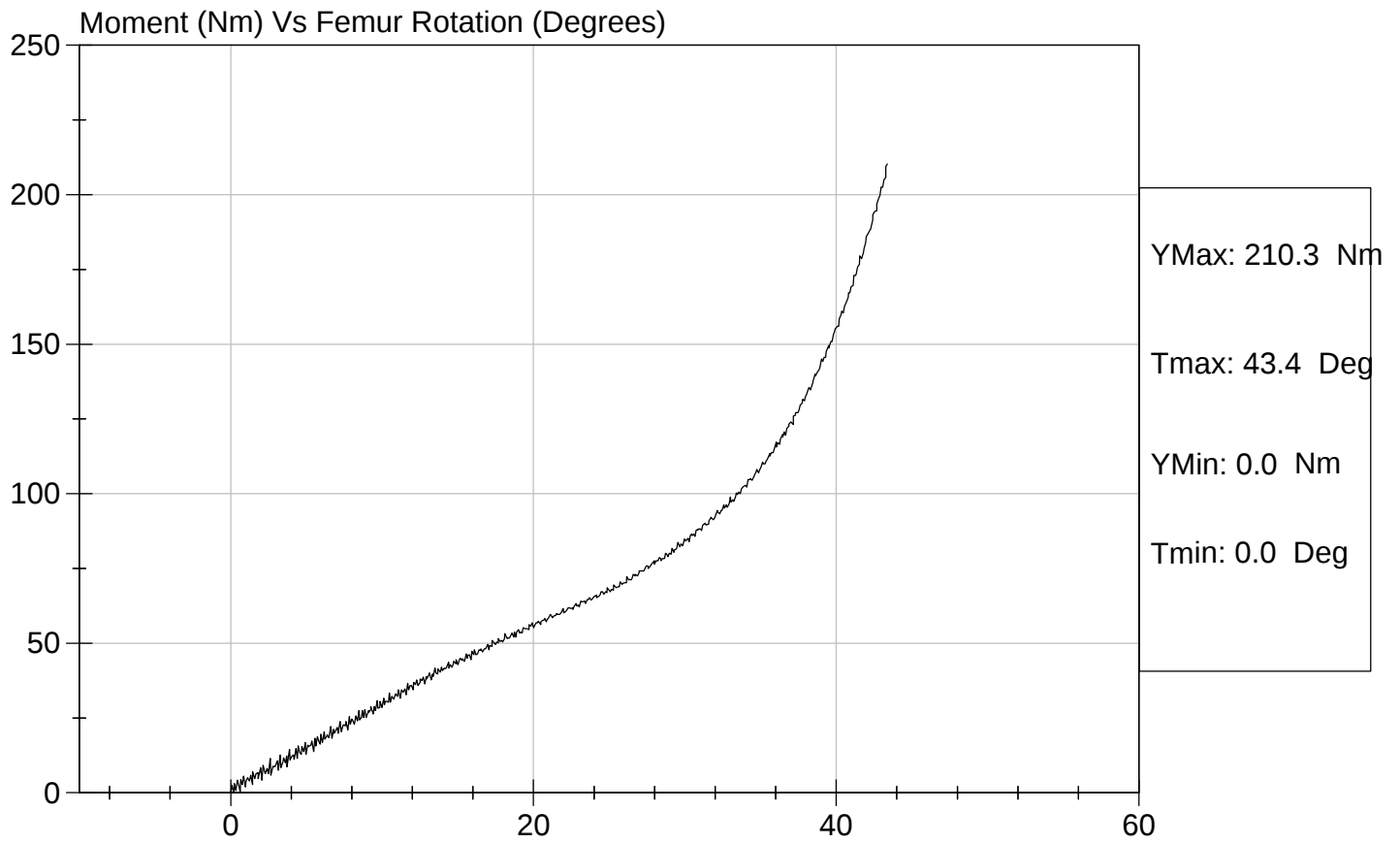


Test Description: Hip Femur Flexion

Test Date: 01/20/2004

Component: D04079

Speed: 0 ft/sec, 0.0 m/sec



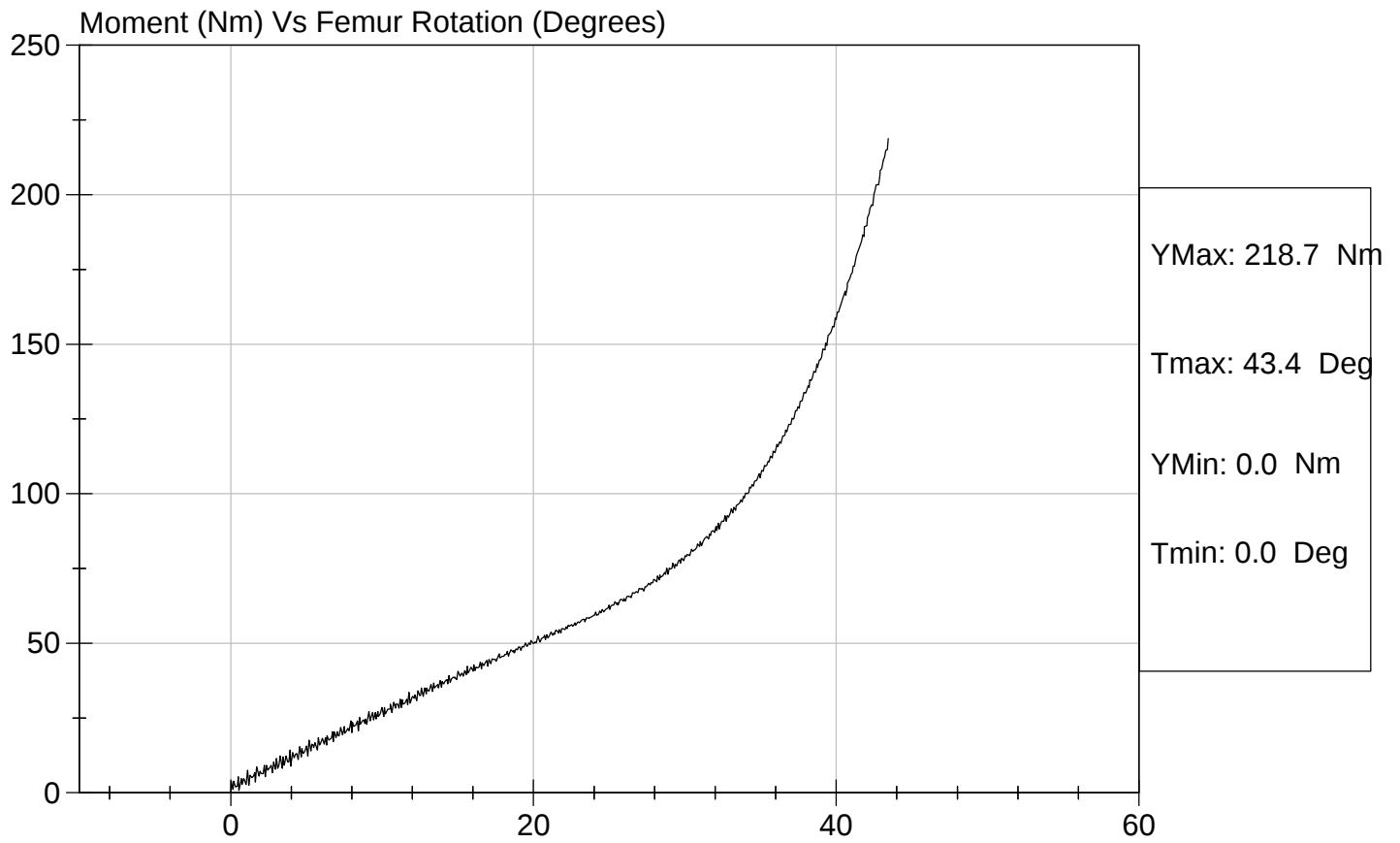


Test Description: Hip Femur Flexion

Test Date: 01/20/2004

Component: D04070

Speed: 0 ft/sec, 0.0 m/sec



MGA RESEARCH CORPORATION
HEAD DROP TEST
HYBRID III 5th PERCENTILE

ATD Serial No: 547

Test I.D: D04251

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.6	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Peak Resultant Acceleration	G's	250 - 300	278	Pass
Peak Lateral Acceleration	G's	+/- 15	11	Pass
Unimodal above 50 G's	Yes/No	within 10% of peak	Yes	Pass
Overall Test Results				Pass


Laboratory Technician

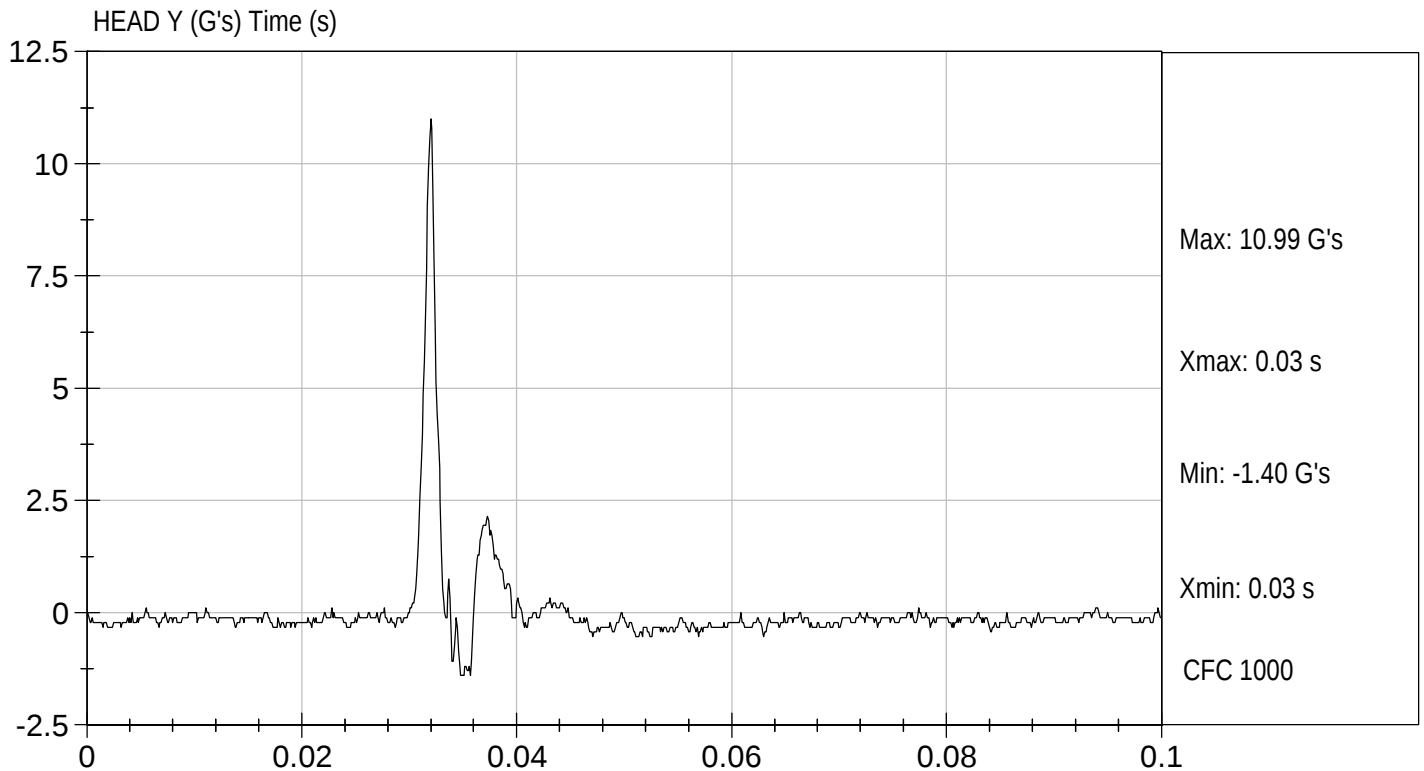
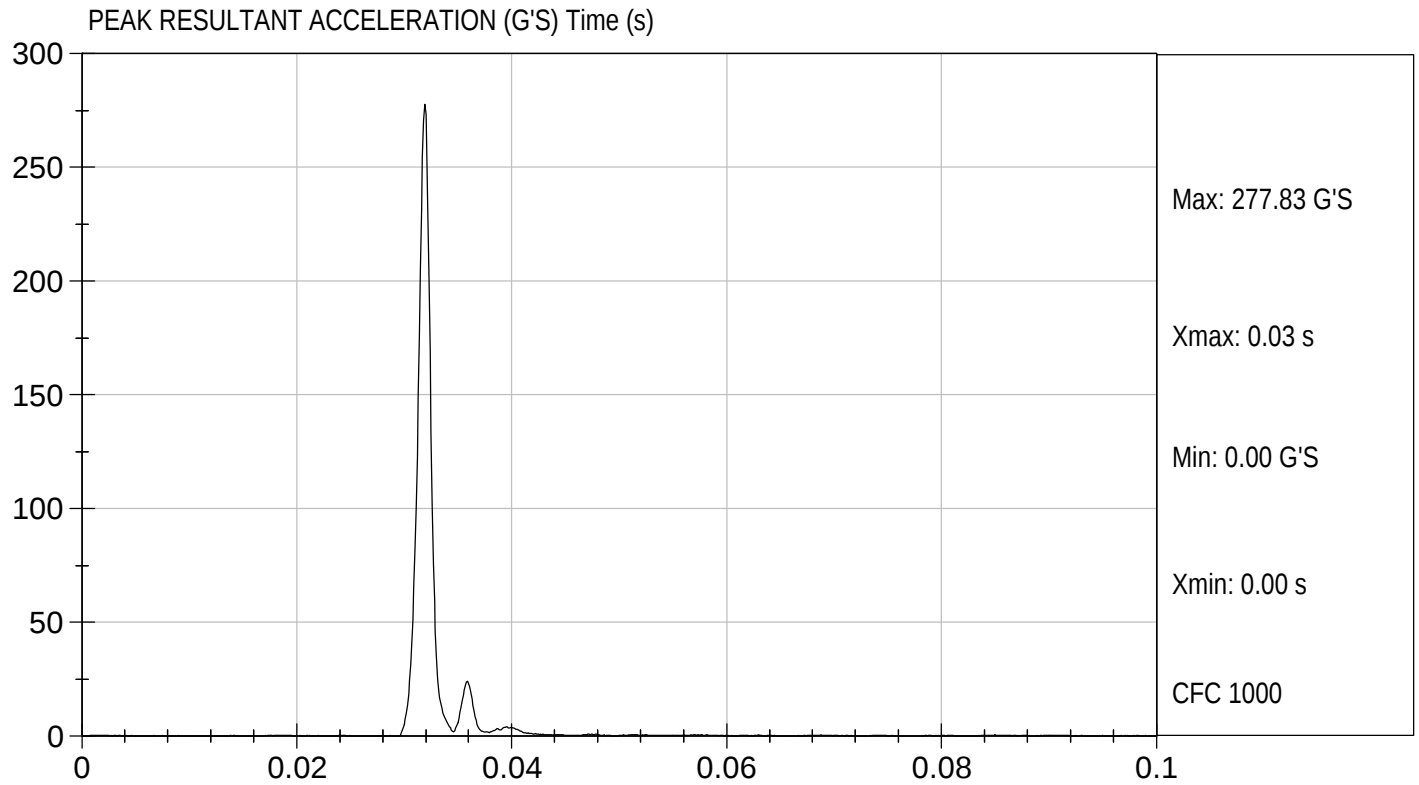
02/04/2004
Test Date


Approved By



Test Desc: Head Drop
Componet ID: D04251

Test Date: 02/04/2004
Velocity: 0 ft/s, 0 m/s

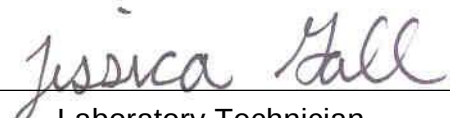


MGA RESEARCH CORPORATION
NECK FLEXION TEST
HYBRID III 5TH PERCENTILE

ATD Serial No: 547

Test I.D: D04252

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity		%	10 to 70	23	Pass
Pendulum Speed		m/sec	6.89 to 7.13	7.12	Pass
Pendulum Deceleration	10 msec	msec	2.1 to 2.5	2.4	Pass
	20 msec	msec	4.0 to 5.0	4.6	Pass
	30 msec	msec	5.8 to 7.0	6.6	Pass
D Plane Rotation	Max	deg	77 to 91	86	Pass
Occipital Condyle Moment within Deflection Corridor		Nm	69 to 83	77	Pass
Positive Moment Time Curve Decay to 10 Nm		msec	80 to 100	86	Pass
Overall Results				Pass	


 Laboratory Technician

02/04/2004
 Test Date

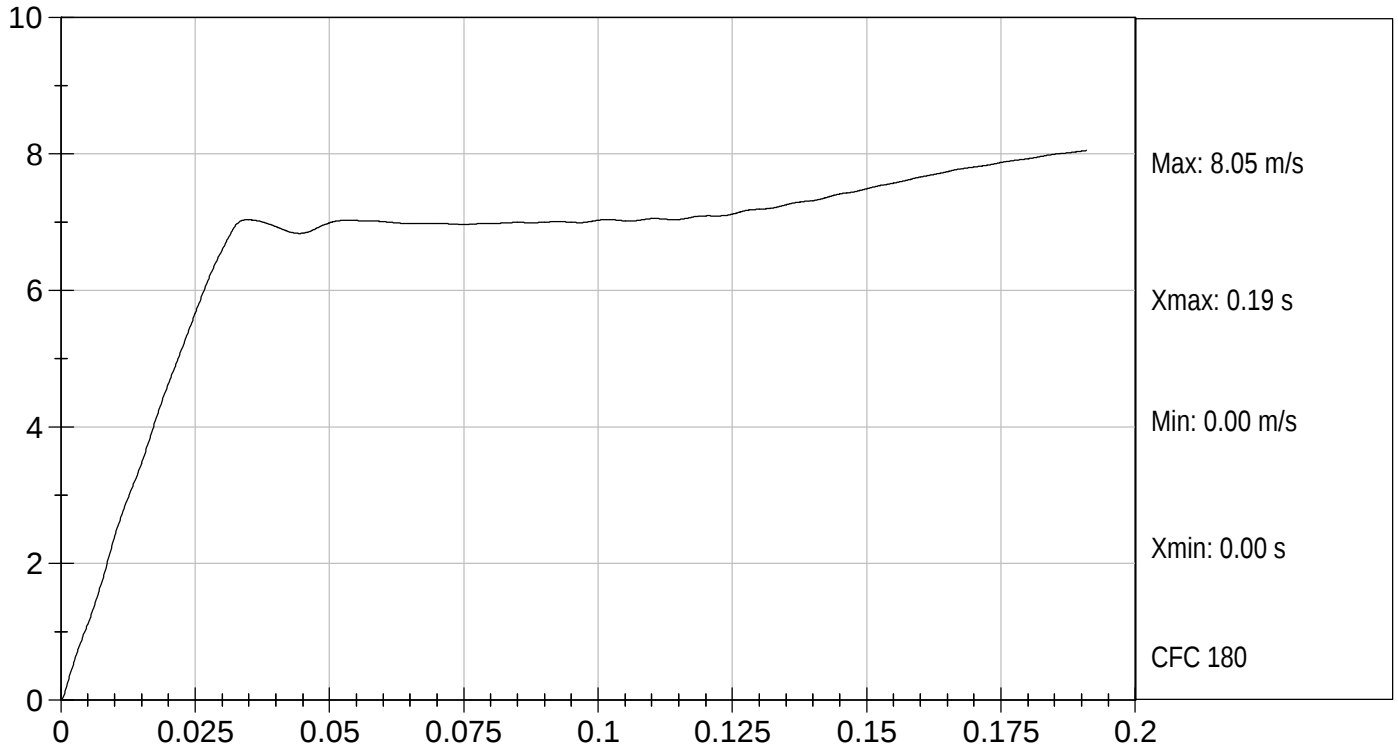

 Approved By



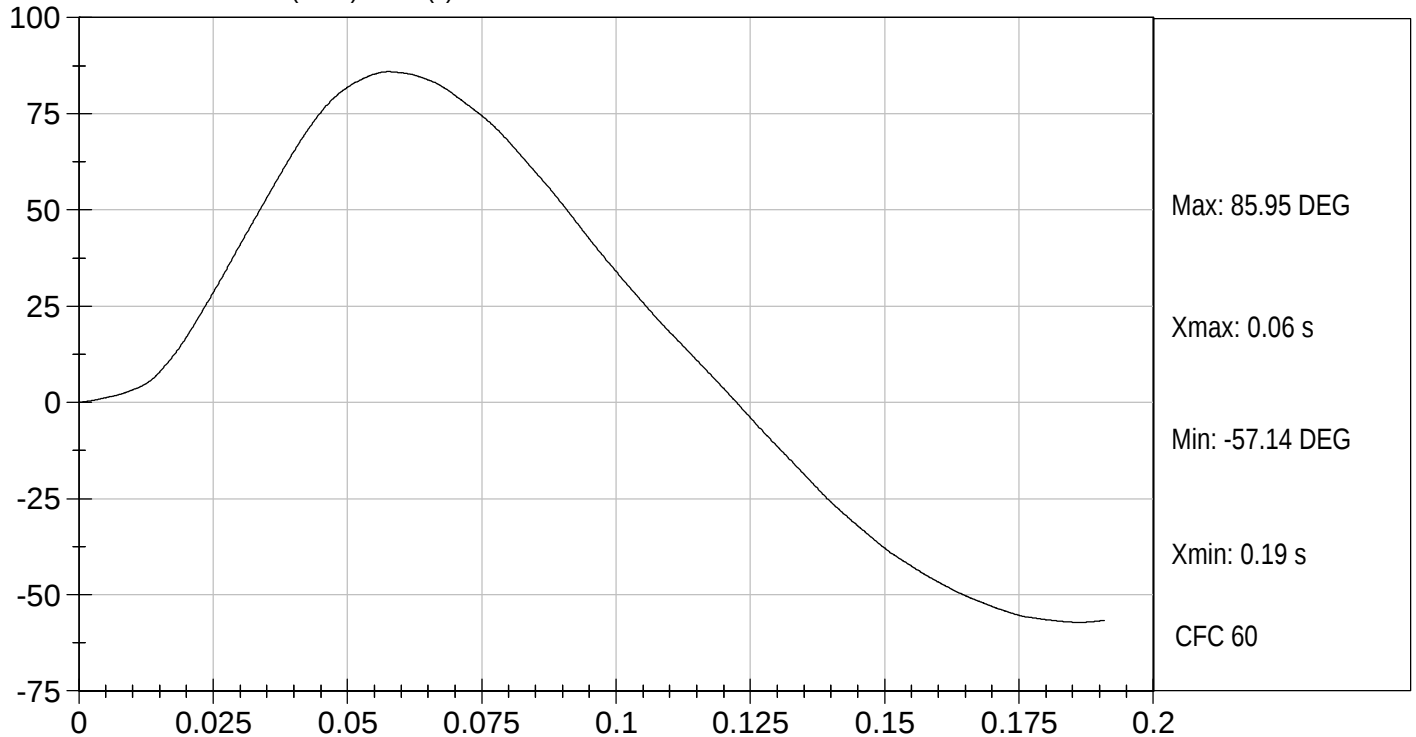
Test Desc: Neck Flexion
Componet ID: D04252

Test Date: 02/04/2004
Velocity: 23.35 ft/s, 7.12 m/s

PENDULUM DECELERATION (m/s) Time (s)



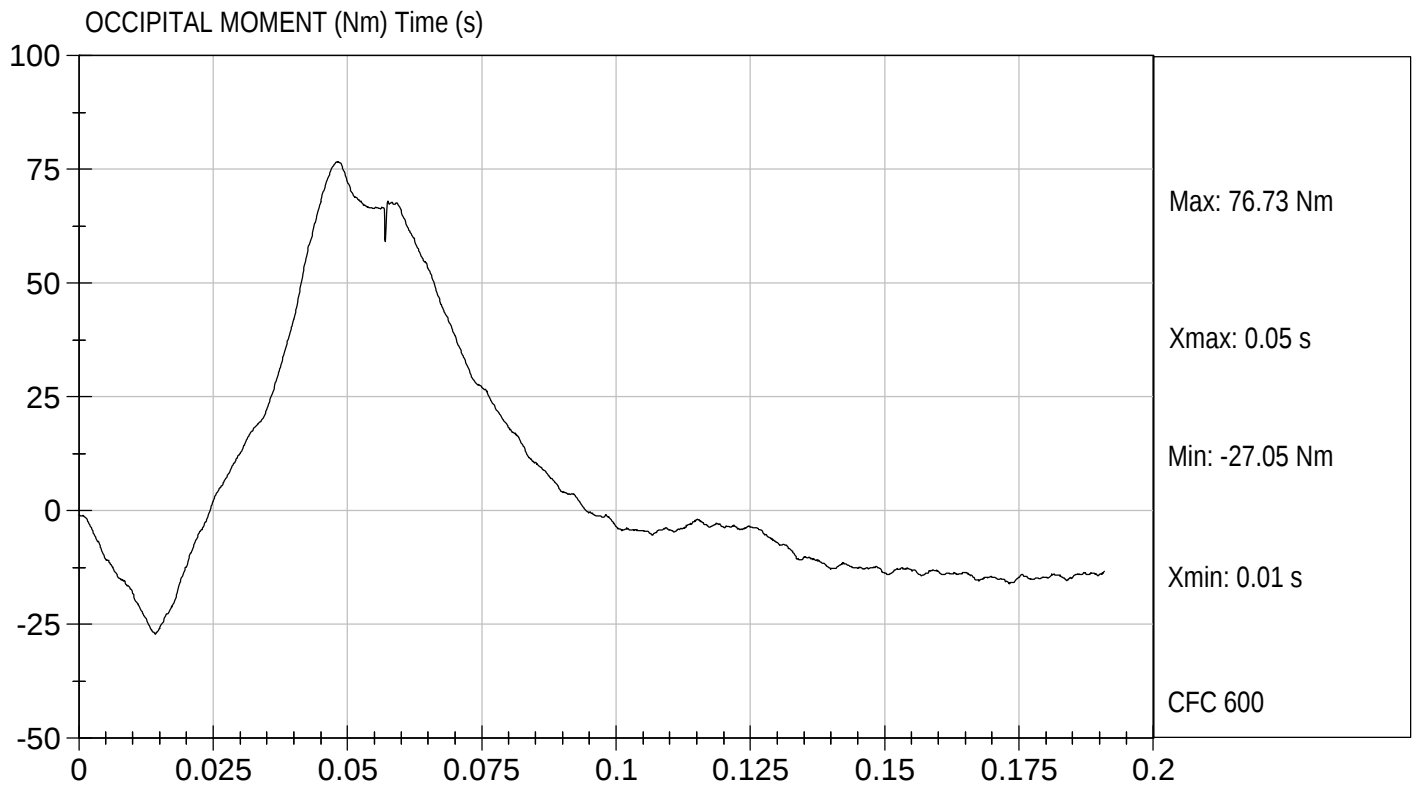
NECK ROTATION (DEG) Time (s)





Test Desc: Neck Flexion
Componet ID: D04252

Test Date: 02/04/2004
Velocity: 23.35 ft/s, 7.12 m/s

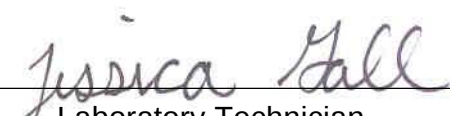


MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 5TH PERCENTILE

ATD Serial No: 547

Test I.D: D04253

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity		%	10 to 70	23	Pass
Pendulum Speed		m/sec	5.95 to 6.19	6.18	Pass
Pendulum Deceleration	10 msec	msec	1.5 to 1.9	1.8	Pass
	20 msec	msec	3.1 to 3.9	3.4	Pass
	30 msec	msec	4.6 to 5.6	5	Pass
D Plane Rotation	Max	deg	99 to 114	107	Pass
Occipital Condyle Moment within Deflection Corridor		Nm	-65 to -53	-57	Pass
Positive Moment Time Curve Decay to -10 Nm		msec	94 to 114	106	Pass
Overall Results				Pass	


 Laboratory Technician

02/04/2004

Test Date

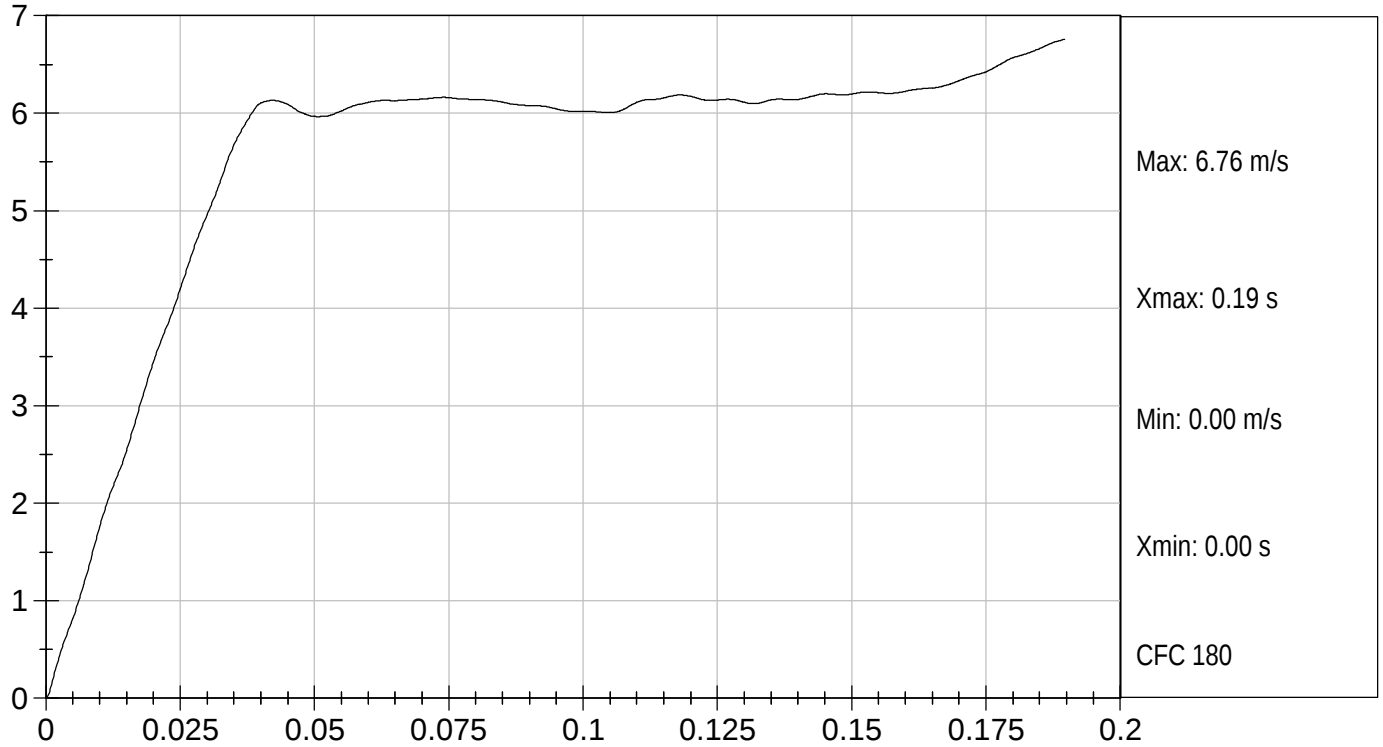

 Approved By



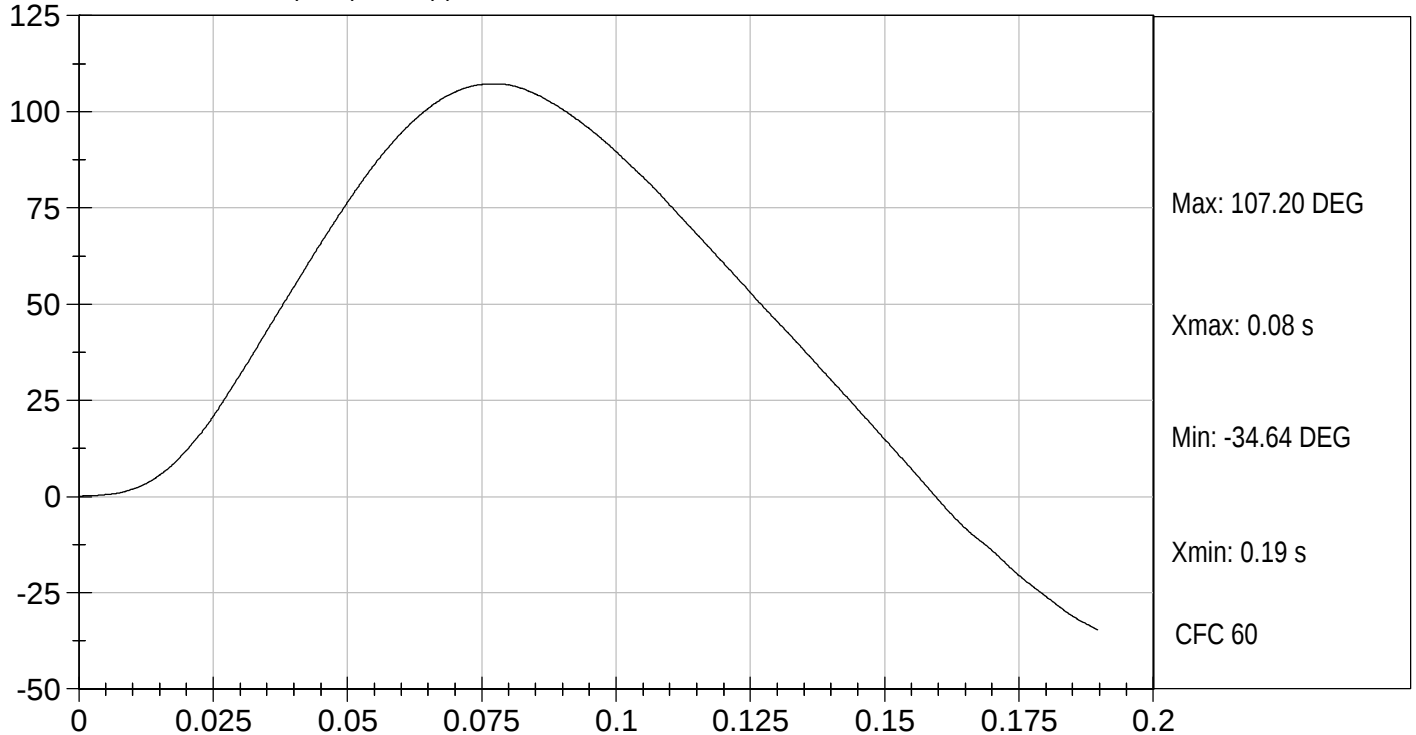
Test Desc: Neck Extension
Componet ID: D04253

Test Date: 02/04/2004
Velocity: 20.28 ft/s, 6.18 m/s

PENDULUM DECELERATION (m/s) Time (s)



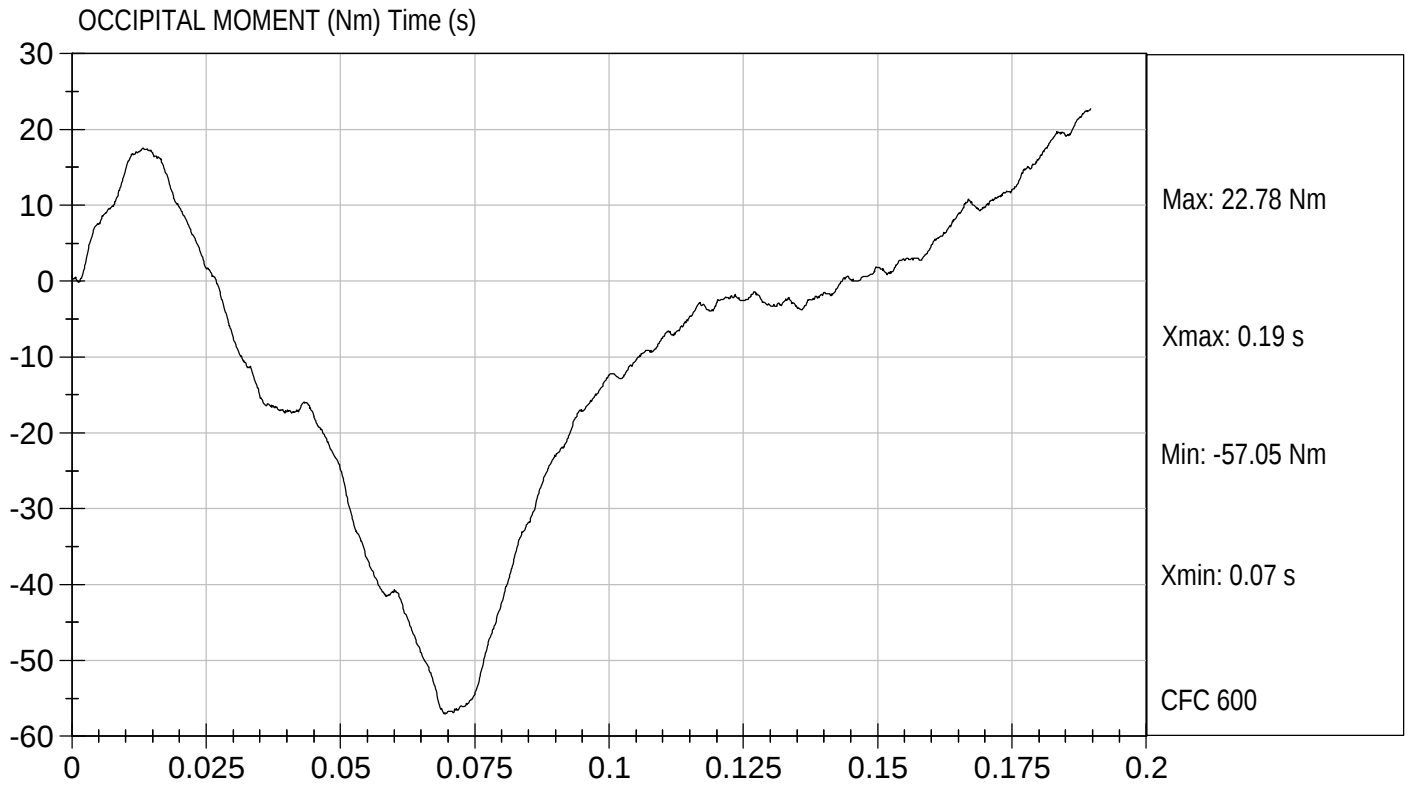
NECK ROTATION (DEG) Time (s)





Test Desc: Neck Extension
Componet ID: D04253

Test Date: 02/04/2004
Velocity: 20.28 ft/s, 6.18 m/s



MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 5TH PERCENTILE

ATD Serial No: 547

Test I.D: D04254

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Relative Humidity	%	10 to 70	20	Pass
Probe Speed	m/s	6.59 to 6.83	6.81	Pass
Peak Deflection	mm	50 to 58	54	Pass
Peak Resistive Force w/in Deflection Corridor	kN	3.9 to 4.4	4.2	Pass
Internal Hysteresis	%	69 to 85	69	Pass
Peak Force 12.5 mm - 38 mm	Yes/No	< 105% of Peak Force in Deflection Corridor	Yes	Pass
Overall Test Results				Pass


 Laboratory Technician

02/05/2004
 Test Date


 Approved By

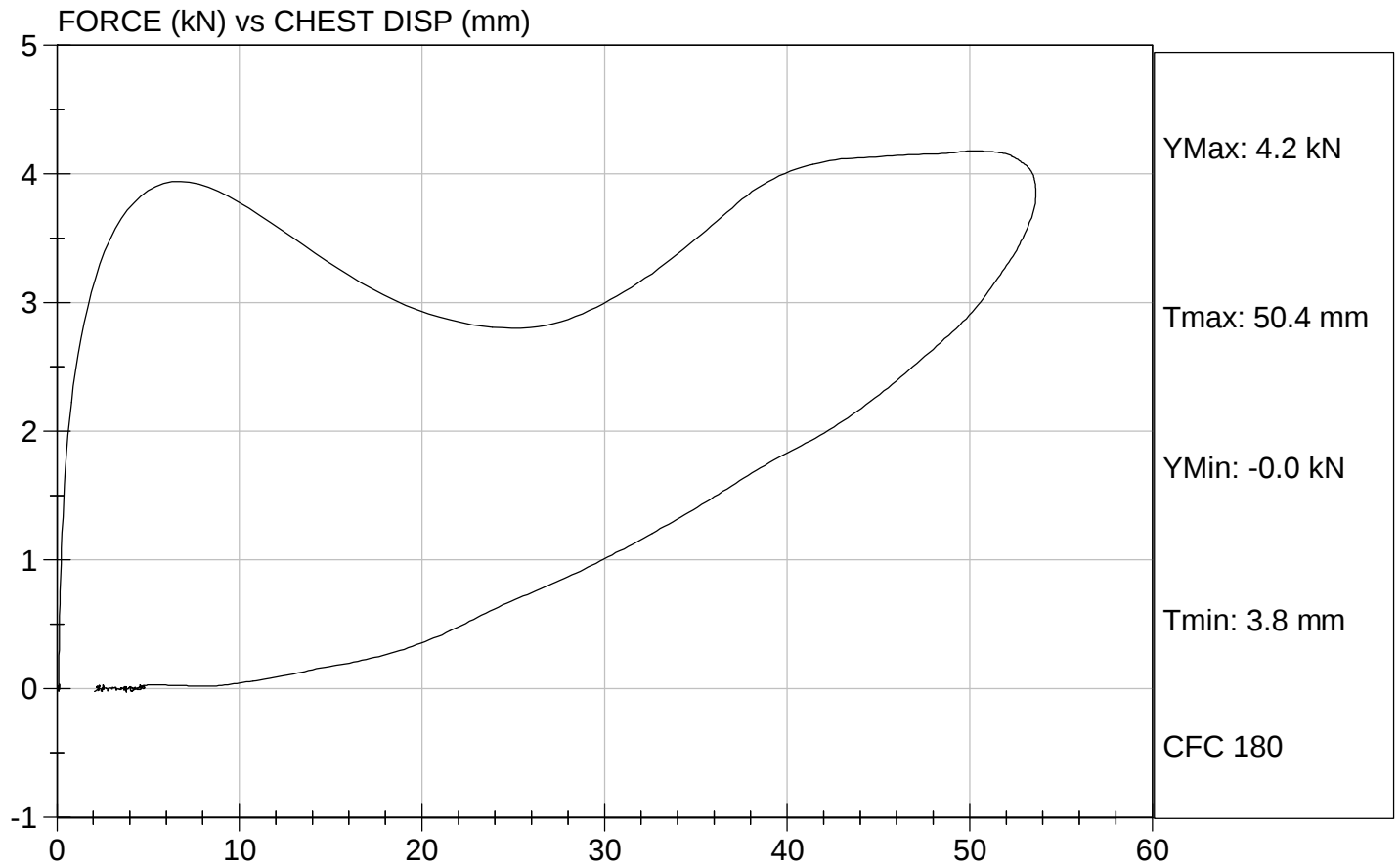


Test Description: Thorax Impact

Test Date: 02/05/2004

Component: D04254

Speed: 22.34 ft/sec, 6.81 m/sec



MGA RESEARCH CORPORATION
RIGHT KNEE IMPACT TEST
HYBRID III 5TH PERCENTILE

ATD Serial No: 547

Test I.D: D04255

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	23	Pass
Probe Speed	m/sec	2.07 to 2.13	2.12	Pass
Maximum Force	kN	3.45 to 4.06	3.56	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

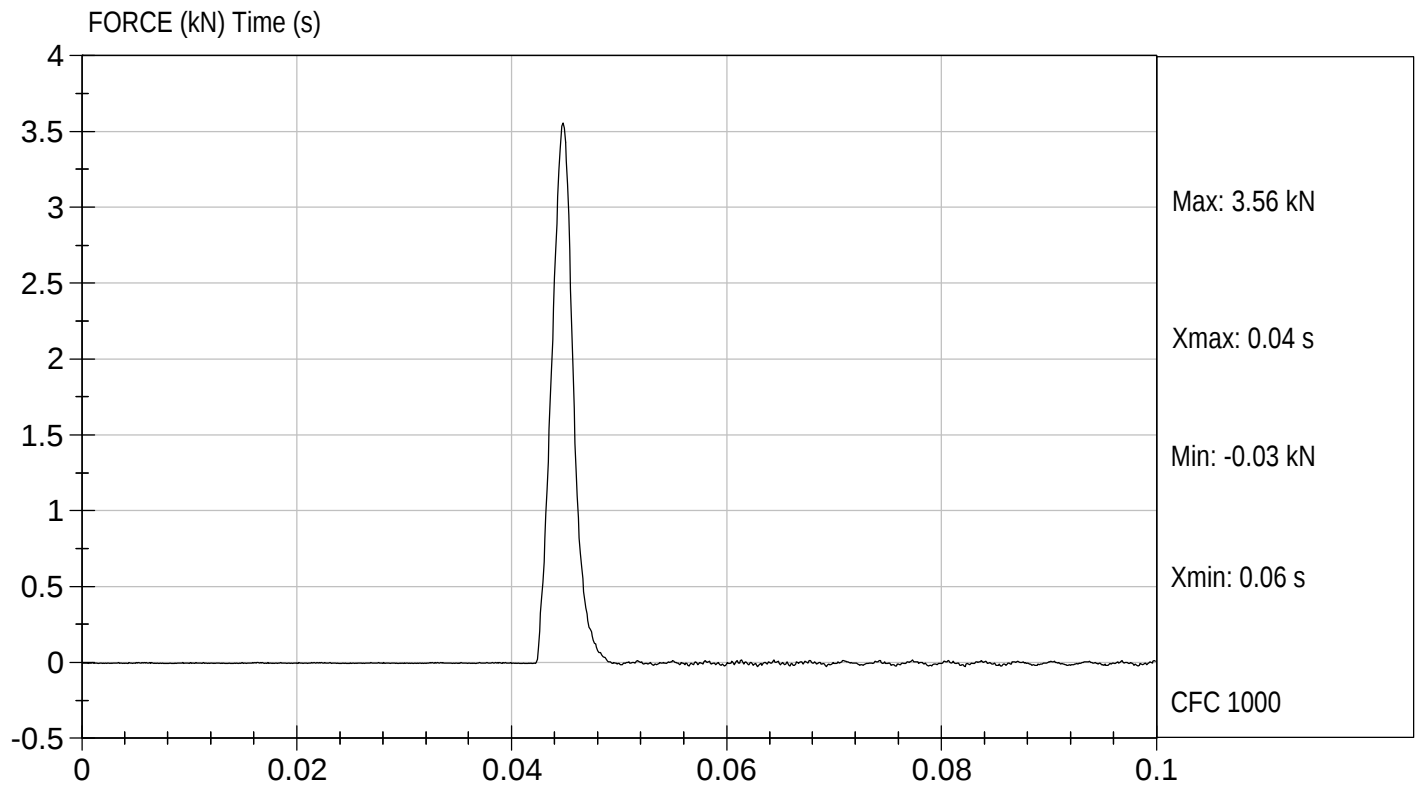
David Winkelbauer
Approved By

02/04/2004
Test Date



Test Desc: Right Knee
Componet ID: D04255

Test Date: 02/04/2004
Velocity: 6.95 ft/s, 2.12 m/s

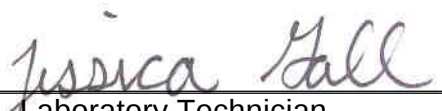


MGA RESEARCH CORPORATION
LEFT KNEE IMPACT TEST
HYBRID III 5TH PERCENTILE

ATD Serial No: 547

Test I.D: D04256

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	23	Pass
Probe Speed	m/sec	2.07 to 2.13	2.12	Pass
Maximum Force	kN	3.45 to 4.06	3.65	Pass
Overall Test Results				Pass


Laboratory Technician

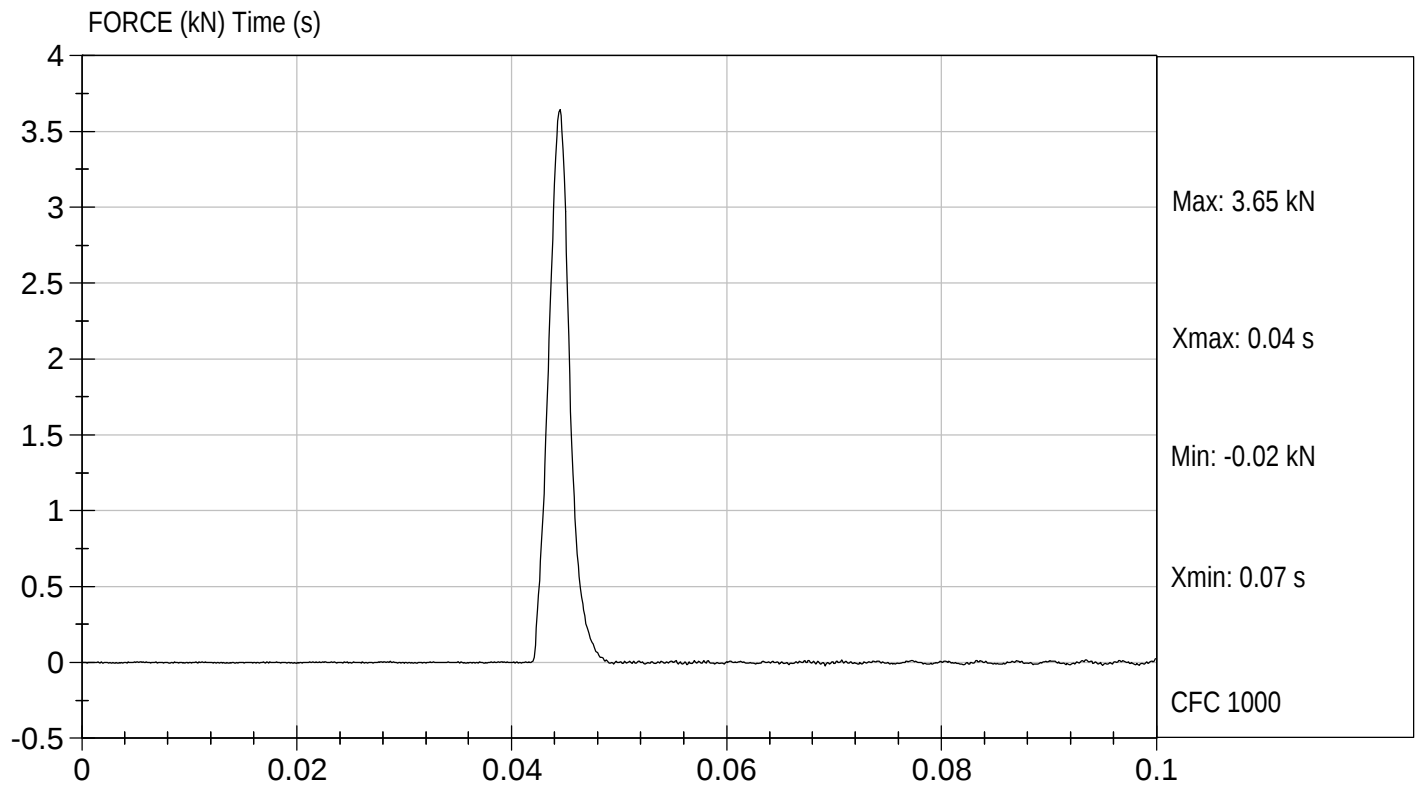

Approved By

02/04/2004
Test Date



Test Desc: Left Knee
Componet ID: D04256

Test Date: 02/04/2004
Velocity: 6.97 ft/s, 2.12 m/s



MGA RESEARCH CORPORATION
TORSO FLEXION TEST
HYBRID III 5th PERCENTILE

ATD Serial No: 547

Test I.D: D04257

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.6	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Initial Angle	deg	0 to 20	8	Pass
Return Angle	deg	0 to 8	5	Pass
Force at 45 deg	N	320 to 390	353	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

02/05/2004
Test Date

David Winkelbauer
Approved By

APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION

INSTRUMENTS FOR DRIVER DUMMY NO. 087

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	AGTB5	Endevco	9/12/03
Head Y	AGM47	Endevco	11/12/03
Head Z	AJ9D9	Endevco	11/12/03
Head X Redundant	AGTG8	Endevco	11/9/03
Head Y Redundant	ANAN3	Endevco	11/12/03
Head Z Redundant	ANAN6	Endevco	11/12/03
Neck Load Cell	1561	Denton	1/13/04
Chest X	J10431	Endevco	12/5/03
Chest Y	J14007	Endevco	11/10/03
Chest Z	J13424	Endevco	11/10/03
Chest Displacement	087	Servo	9/17/03
Chest X Redundant	AN9E3	Endevco	12/5/03
Chest Y Redundant	J13650	Endevco	11/10/03
Chest Z Redundant	P22692	Endevco	12/5/03
Pelvis X	P27020	Endevco	12/5/03
Pelvis Y	P26986	Endevco	12/5/03
Pelvis Z	P27025	Endevco	12/5/03
Shoulder Belt Load Cell	172	Denton	10/11/03
Lap Belt Load Cell	199	Denton	12/9/03
Left Femur Load Cell	957	Denton	9/30/03
Right Femur Load Cell	956	Denton	9/30/03
Left Upper Tibia Load Cell	T76	Denton	8/20/03
Left Lower Tibia Load Cell	A77	Denton	8/22/03
Right Upper Tibia Load Cell	T75	Denton	8/20/03
Right Lower Tibia Load Cell	A76	Denton	8/22/03
Left Tibia Mid-Shaft X	P24154	Endevco	12/5/03
Left Tibia Mid-Shaft Y	P23059	Endevco	12/5/03
Right Tibia Mid-Shaft X	J18260	Endevco	2/4/04
Right Tibia Mid-Shaft Z	AKAH1	Endevco	2/4/04
Left Knee Shear	013739	Servo	2/6/04
Right Knee Shear	013723	Servo	2/6/04
Left Mid-Foot X	L17-Z14	Entran	2/4/04
Left Mid-Foot Y	L20-B14	Entran	2/4/04
Left Mid-Foot Z	L20-B17	Entran	2/4/04
Right Mid-Foot X	L17-Z13	Entran	2/4/04

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Right Mid-Foot Y	A12-A14	Entran	2/4/04
Right Mid-Foot Z	L18-N01	Entran	2/4/04
LT Dorsi/Plantar	LX104X	Gesac	9/17/03
LT Inversion/Eversion	LX104Y	Gesac	9/17/03
LT Internal/External	LX104Z	Gesac	9/17/03
RT Dorsi/Plantar	LX103X	Gesac	9/17/03
RT Inversion/Eversion	LX103Y	Gesac	9/17/03
RT Internal/External	LX103Z	Gesac	9/17/03

INSTRUMENTS FOR PASSENGER DUMMY NO. 547

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	AH097	Endevco	10/8/03
Head Y	AJ9P7	Endevco	1/13/04
Head Z	AH0F0	Endevco	10/8/03
Head X Redundant	AJ462	Endevco	1/13/04
Head Y Redundant	J13851	Endevco	10/8/03
Head Z Redundant	AH1F9	Endevco	10/8/03
Neck Load Cell	606	Denton	8/26/03
Chest X	J13535	Endevco	10/6/03
Chest Y	J13658	Endevco	10/8/03
Chest Z	J13927	Endevco	10/6/03
Chest Displacement	547	Servo	2/5/04
Chest X Redundant	ALFL9	Endevco	10/8/03
Chest Y Redundant	AHTB2	Endevco	10/6/03
Chest Z Redundant	J33416	Endevco	10/6/03
Pelvis X	J11046	Endevco	1/13/04
Pelvis Y	J11784	Endevco	1/13/04
Pelvis Z	J14771	Endevco	1/13/04
Shoulder Belt Load Cell	161	Denton	9/18/03
Lap Belt Load Cell	198	Denton	12/9/03
Left Femur Load Cell	9426	Denton	1/23/04
Right Femur Load Cell	9425	Denton	1/23/04
Left Upper Tibia Load Cell	091	Denton	9/5/03
Left Lower Tibia Load Cell	92	Denton	9/5/03
Right Upper Tibia Load Cell	090	Denton	9/4/03
Right Lower Tibia Load Cell	93	Denton	9/5/03
Left Tibia Mid-Shaft X	J13772	Endevco	10/8/03
Left Tibia Mid-Shaft Y	AJ9D6	Endevco	10/8/03
Right Tibia Mid-Shaft X	AJ9D8	Endevco	10/8/03
Right Tibia Mid-Shaft Y	J11014	Endevco	11/10/03
Left Knee Shear	022653	Servco	2/6/04
Right Knee Shear	020590	Servco	2/6/04
Left Mid-Foot X	J12439	Entran	11/12/03
Left Mid-Foot Y	AJ8T5	Entran	11/12/03
Left Mid-Foot Z	J20965	Entran	11/12/03
Right Mid-Foot X	P22687	Entran	2/2/04

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Right Mid-Foot Y	P26991	Entran	2/2/04
Right Mid-Foot Z	P23012	Entran	9/4/03
LT Dorsi/Plantar	FLX102X	Gesac	11/5/03
LT Inversion/Eversion	FLX102Y	Gesac	11/5/03
LT Internal/External	FLX102Z	Gesac	11/5/03
RT Dorsi/Plantar	FLX101X	Gesac	11/5/03
RT Inversion/Eversion	FLX101Y	Gesac	11/5/03
RT Internal/External	FLX101Z	Gesac	11/5/03

INSTRUMENTS FOR VEHICLE AND MDB

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Rear Seat Crossmember X	K07-R17	Entran	1/21/04
Left Rear Seat Crossmember Y	L18-J06	Entran	1/29/04
Right Rear Seat Crossmember X	L18-N11	Entran	1/29/04
Right Rear Seat Crossmember Y	L17-D06	Entran	1/29/04
Vehicle CG X	L19-K05	Entran	1/23/04
Vehicle CG Y	L18-N20	Entran	1/23/04
Vehicle CG Z	L19-K03	Entran	1/23/04
Rear Deck Z	K07-R09	Entran	1/21/04
Toe Pan Next to Accel. X	G13-F15	Entran	8/13/03
Toe Pan Next to Accel. Y	K07-R10	Entran	1/21/04
Toe Pan Above Footrest X	D07-N02	Entran	2/3/04
Toe Pan Above Footrest Y	L20-B16	Entran	1/29/04
MDB 1-10	CLC108FZ	Key	3/3/03
MDB 2-10	CLC145FZ	Key	3/5/03
MDB 3-10	CLC129FZ	Key	3/5/03
MDB 4-10	CLC135FZ	Key	3/5/03
MDB 5-10	CLC142FZ	Key	2/27/03
MDB 1-9	CLC127FZ	Key	3/6/03
MDB 2-9	CLC139FZ	Key	2/28/03
MDB 3-9	CLC122FZ	Key	3/6/03
MDB 4-9	CLC109FZ	Key	3/5/03
MDB 5-9	CLC161FZ	Key	2/27/03
MDB 1/8	CLC116FZ	Key	2/27/03
MDB 2-8	CLC124FZ	Key	3/5/03
MDB 3-8	CLC107FZ	Key	3/5/03
MDB 4-8	CLC166FZ	Key	3/12/03
MDB 5-8	CLC123FZ	Key	3/6/03
MDB 1-7	CLC134FZ	Key	3/3/03
MDB 2-7	CLC106FZ	Key	3/5/03
MDB 3-7	CLC149FZ	Key	3/6/03
MDB 4-7	CLC114FZ	Key	3/4/03
MDB 1-6	CLC118FZ	Key	3/5/03
MDB 2-6	CLC137FZ	Key	3/5/03
MDB 3-6	CLC132FZ	Key	3/4/03
MDB 4-6	CLC128FZ	Key	3/5/03
MDB 1-5	CLC140FZ	Key	2/28/03

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
MDB 2-5	CLC101FZ	Key	2/28/03
MDB 3-5	CLC143FZ	Key	3/3/03
MDB 4-5	CLC113FZ	Key	3/4/03
MDB 1-4	CLC136FZ	Key	2/28/03
MDB 2-4	CLC131FZ	Key	3/3/03
MDB 3-4	CLC144FZ	Key	3/5/03
MDB 4-4	CLC117FZ	Key	2/28/03
MDB 5-4	CLC119FZ	Key	3/6/03
MDB 1-3	CLC148FZ	Key	3/6/03
MDB 2-3	CLC120FZ	Key	3/6/03
MDB 3-3	CLC163FZ	Key	2/27/03
MDB 4-3	CLC165FZ	Key	2/27/03
MDB 1-2	CLC111FZ	Key	3/6/03
MDB 2-2	CLC130FZ	Key	3/3/03
MDB 3-2	CLC147FZ	Key	3/6/03
MDB 4-2	CLC102FZ	Key	3/3/03
MDB 5-2	CLC104FZ	Key	2/27/03
CG X	L17-D39	Entran	1/23/04
CG Y	L19-K06	Entran	1/23/04
CG Z	L17-D04	Entran	1/23/04
Rear X	L17-D23	Entran	1/29/04
Rear Y	L18-J03	Entran	1/29/04
Rear Z	L17-D09	Entran	1/29/04