

REPORT NUMBER: NCAP-MGA-2002-005

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

**2002 MITSUBISHI LANCER 4 DOOR
NHTSA NUMBER: M25601**

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



Test Date: February 19, 2002

Report Date: February 26, 2002

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
400 SEVENTH STREET, SW, ROOM 5311
WASHINGTON, D.C. 20590**

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Prepared by: _____ Date: _____
Chris Havens, Project Engineer

Reviewed by: _____ Date: _____
David Winkelbauer, Facility Director

FINAL REPORT ACCEPTED BY:

Manager, New Car Assessment Program

Date of Acceptance

COTR, NCAP Frontal Impact Program

Date of Acceptance

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16. Abstract A 35 mph (56.3 km/h) frontal barrier impact was conducted on a 2002 Mitsubishi Lancer 4 door at MGA Research Corporation on February 19, 2002. This test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and foot well intrusion performance. The impact velocity was 56.3 km/h. The ambient temperature at the barrier face at the time of impact was 20.6 degrees Celsius. The vehicle's maximum post test static crush is 521 mm located at the vehicle centerline. The test vehicle is equipped with a 3-point continuous belt system and an airbag in both front outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection", the occupant injury criteria summary is as follows: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left;"><u>Measurement Description</u></th> <th style="text-align: left;"><u>Units</u></th> <th style="text-align: left;"><u>Threshold</u></th> <th style="text-align: left;"><u>Driver ATD</u></th> <th style="text-align: left;"><u>Pass. ATD</u></th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC)</td> <td>N/A</td> <td>1000</td> <td>492</td> <td>540</td> </tr> <tr> <td>Max. Thorax Accel. (3msec Clip)</td> <td>G's</td> <td>60</td> <td>46</td> <td>45</td> </tr> <tr> <td>Left Femur force</td> <td>Newtons</td> <td>10009</td> <td>2985</td> <td>4877</td> </tr> <tr> <td>Right Femur force</td> <td>Newtons</td> <td>10009</td> <td>3507</td> <td>3850</td> </tr> </tbody> </table>				<u>Measurement Description</u>	<u>Units</u>	<u>Threshold</u>	<u>Driver ATD</u>	<u>Pass. ATD</u>	Head Injury Criteria (HIC)	N/A	1000	492	540	Max. Thorax Accel. (3msec Clip)	G's	60	46	45	Left Femur force	Newtons	10009	2985	4877	Right Femur force	Newtons	10009	3507	3850
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SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This 56.3 kph frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under contract number DTNH22-01-D-12005. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact in excess of the current 48.3 kph requirements.

SUMMARY

A load cell barrier consisting of 30 load cells was impacted by a 2002 Mitsubishi Lancer 4 door, at a velocity of 56.3 kph. The test was performed at MGA Research Corporation on 2/19/02. Pre-and post-test photographs of the vehicle and dummies can be found in Appendix A.

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

Two Part 572E, 50th percentile male anthropomorphic test devices (ATDs), were placed in the driver and right-front passenger seating positions according to dummy placement instructions specified in the Laboratory Indicant Test Procedure.

Both ATDs were fully instrumented with nine accelerometer array head, chest and pelvis triaxial accelerometers, chest displacement potentiometer, upper neck transducers, right/left femur load cells, left and right knee sliders, and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 065) and right-front passenger (position 2) ATD (Serial No. 066) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 113 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces.

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

The maximum static crush of the vehicle was 521 mm and both the driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's head, chest, and abdomen contacted the airbag. The driver's head contacted the headrest. The driver's knees contacted the knee bolster. The passenger's head, chest, and abdomen contacted the airbag. The passenger's head contacted the headrest and side header. The passenger's knees contacted the glove box.

The occupant data is summarized below:

ATD position	HIC	Clip(g)	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)	Belt Spool (mm)	Belt Stretch (mm/m)
Driver	492	46	28.5	2985	3507	127	N/A
Passenger	540	45	25.6	4877	3850	152	N/A

SECTION 2
OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

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: 2002/Mitsubishi/Lancer/4 door
Test Program: NCAP

NHTSA No.: M25601
Test Date: 2/19/02

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
Velocity at Impact	km/hr	56.3
Test Weight	kg	1410.7
Average Rebound	mm	893
Maximum Static Crush	mm	521
Impact Angle	degrees	0

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Front Door Opening	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Rear Door Opening	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Seat Track Shift (mm)	0	0
Seat Back Failure	None	None

TEST DUMMY INFORMATION

Description	Driver	Passenger
Dummy Type / Serial No.	HIII / 65	HIII / 66
Head Contact	Airbag/headrest	Airbag/headrest/side header
Chest Contact	Airbag	Airbag
Abdomen Contact	Airbag	Airbag
Left Knee Contact	Knee bolster	Glove box
Right Knee Contact	Knee bolster	Glove box

16mm MOVIE COVERAGE

High Speed	16
Real Time	1
Total	17

Driver ATD Sensors	50
Passenger ATD Sensors	50
Belt Assessment Sensors	4
Vehicle Structure Accelerometers	9
Rigid Barrier Load Cells	6
Total	119

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

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

TEST VEHICLE INFORMATION

Manufacturer	Mitsubishi
Model	Lancer
Body Style	4 door sedan
NHTSA No.	M25601
VIN	JA3AJ26E42V006992
Color	Red
Delivery Date	1/3/02
Odometer Reading (mile)	16
Dealer	Ricart Automotive
Transmission	4 sp Automatic
Final Drive	Front
Number of Cylinders	4
Engine Displacement (L)	2.0
Engine Placement	Transverse

TEST VEHICLE OPTIONS

Driver Airbag	Yes
Passenger Airbag	Yes
Force Limiter	Yes
Pretensioner	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	No
AM/FM/Cassette	Yes
Anti-theft System	No
Cruise Control	No

DATA FROM CERTIFICATION LABEL

Manufactured By	Mitsubishi Motors	GVWR (kg)	1650
Date of Manufacture	7/01	GAWR Front (kg)	920
		GAWR Rear (kg)	780

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	200	180
Cold Pressure (kPa)	200	180
Recommended Tire Size	P185/65R14	P185/65R14
Tire Size on Vehicle	P185/65R14	P185/65R14
Tire Manufacturer	Yokohama	Yokohama

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Contour		
Number Of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				375.1
Cargo Wt. (RCLW) (kg)				35.0

DATA SHEET NO. 2...(continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	395.1	231.8		438.6	282.1	
Right	kg	372.9	229.1		411.9	278.1	
Ratio	%	62.5	37.5		60.3	39.7	
Totals	kg	768.0	460.9	1228.9	850.5	560.2	1410.7

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1228.9
Weight of 2 P572E ATDs	kg	156.0
Rated Cargo/Luggage Weight (RCLW)	kg	35.0
Calculated Vehicle Target Weight (TVTW)	kg	1418.9

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	633	641	624	635	976
As Tested	mm	620	628	604	616	1033
Post Test	mm	667	575	701	627	

Vehicle Wheelbase (mm): 2600

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

Vehicle Components Removed: trunk interior, tail lights, rear seat, rear door trim, mirrors

Ballast weight does not include cameras, instrumentation, and brake abort system.

FUEL SYSTEM DATA

Fuel System Capacity From Owner's Manual (L): 50.0

Usable Capacity Figure Furnished by COTR (L): 0

Actual Test Volume (L): 46.4

Test Fluid Type: Stoddard Solvent ; Specific Gravity: 0.77

Is Vehicle Fuel Pump Electric or Mechanical? Yes

If electric, does pump operate with ignition switch "ON" & engine "OFF"? No

DATA SHEET NO. 3
POST IMPACT DATA

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
Test Program: NCAP

NHTSA No.: M25601
Test Date: 2/19/02

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	55.5 – 57.1	56.3
Trap No. 1 Entry Distance	mm	<1524	1300
Trap No. 1 Exit Distance	mm	<1524	300
Trap No. 2 Velocity (Redundant)	km/h	55.5 – 57.1	NVD
Trap No. 2 Entry Distance	mm	<1524	1425
Trap No. 2 Exit Distance	mm	<1524	425

VEHICLE STATIC CRUSH

Measured Parameter	Units	Pre-Test	Post-Test	Difference
Left Side	mm	4287	3974	313
Center	mm	4497	3976	521
Right Side	mm	4286	3982	304

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	872
Center	mm	872
Right Side	mm	935
Average	mm	893

DATA SHEET NO. 4
TEST VEHICLE INFORMATION

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
Test Program: NCAP

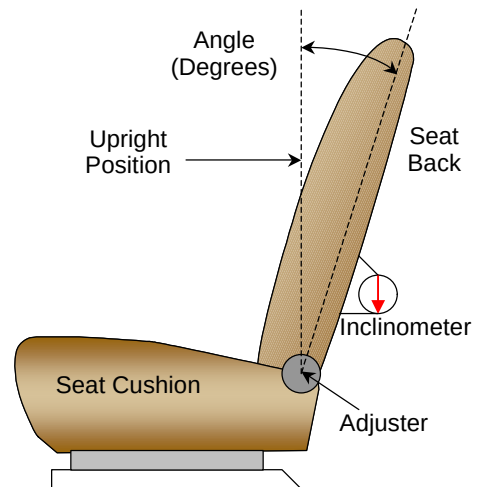
NHTSA No.: M25601
Test Date: 2/19/02

NORMAL DESIGN RIDING POSITION

The driver and passenger seat back is positioned to the manufacturer's designated angle. The procedure is as follows: Adjust the seat back to the 4th step, counting the first (most upright) locking position as the 1st step

Driver seat back angle: 4th step, 1st as "1"

Passenger seat back angle: 4th step, 1st as "1"



FRONT SEAT ASSEMBLY

SEAT FORE/AFT POSITIONS

The driver seat and the passenger seat are manually operated. The fore/aft position is set at the middle position for both driver and passenger.

Driver seat fore/aft total travel: 26 detents

Passenger seat fore/aft total travel: 26 detents

Driver seat fore/aft position: 14th detent from 1st as "1"

Passenger seat fore/aft position: 14th detent from 1st as "1"

SEAT BELT UPPER ANCHORAGE

The test vehicle has B-pillar mounted upper anchorages, there are 5 positions total. The D-ring is placed in the 3rd position, counting the lowermost position as 1st position.

DATA SHEET NO. 4...(continued)

TEST VEHICLE INFORMATION

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
Test Program: NCAP

NHTSA No.: M25601
Test Date: 2/19/02

FUEL TANK CAPACITY DATA

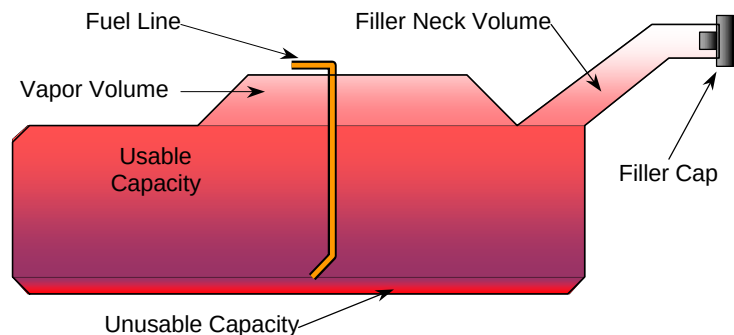
The "Usable Capacity" of the standard equipment fuel tank is: 50.0 liters

The "Usable Capacity" of any optional equipment fuel tank is: n/a liters

The "Usable Capacity" used for certification to FMVSS 301 requirements: 46.0-47.0 liters

Actual amount of Stoddard solvent added to vehicle for certification test: 46.4 liters

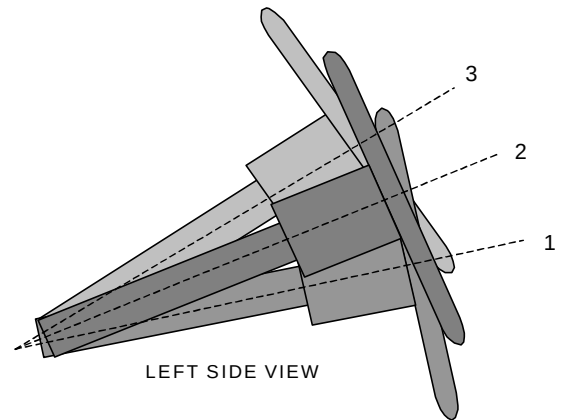
The test vehicle is equipped with an electric fuel pump. The fuel filler door is located on the left rear fender.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of its locus. To measure column angle, place a level or straight edge up/down across the center of the driver air bag module resting it on the upper and lower steering wheel rims. Place an inclinometer on the level or straight edge to measure the steering column angle. The inclinometer should read approximately 21.9 degrees relative to a level vehicle rocker.



STEERING COLUMN ASSEMBLY

Lowermost, position 1: 18.8

Geometric center, position 2: 22.0

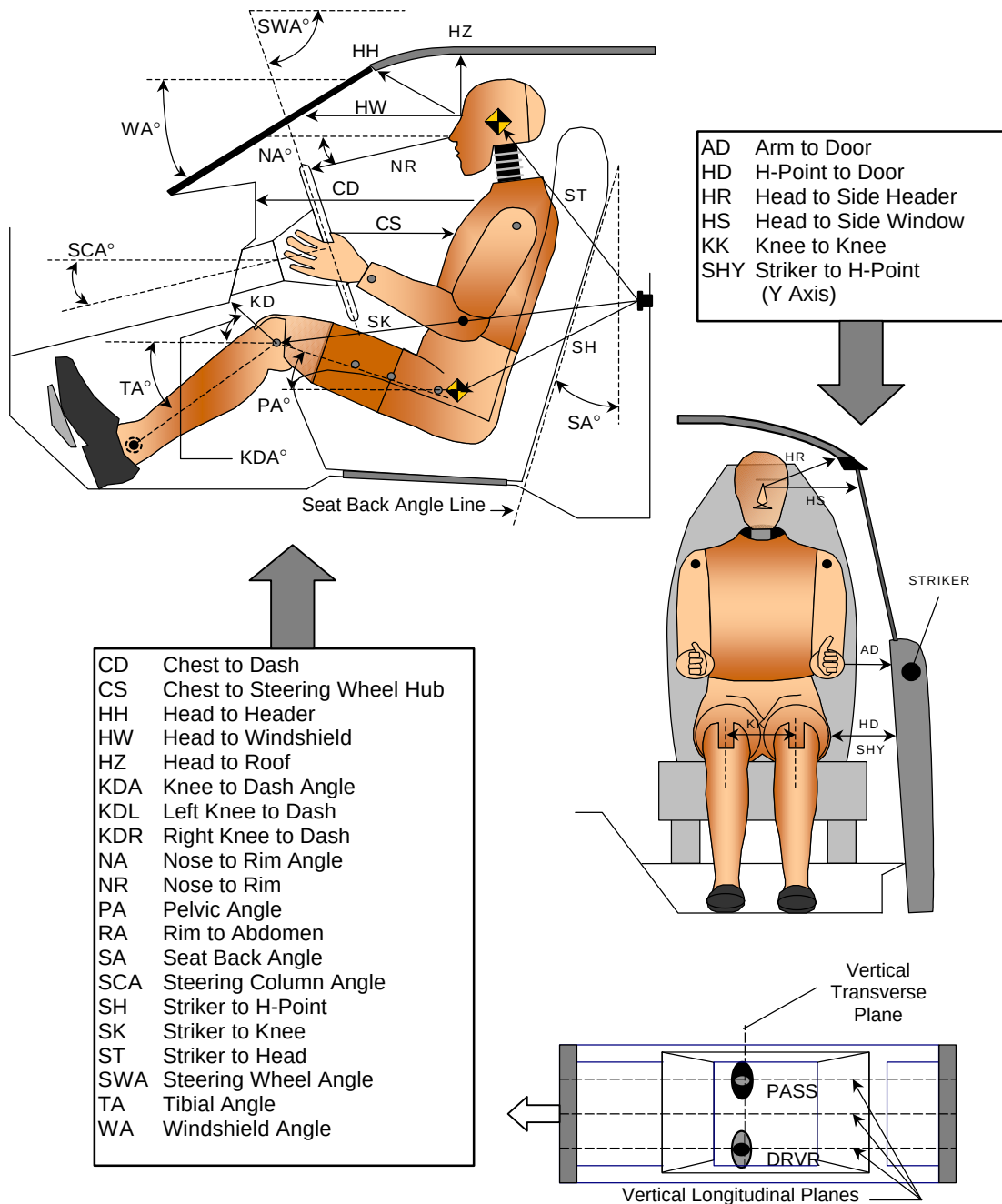
Uppermost, position 3: 25.2

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

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



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

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

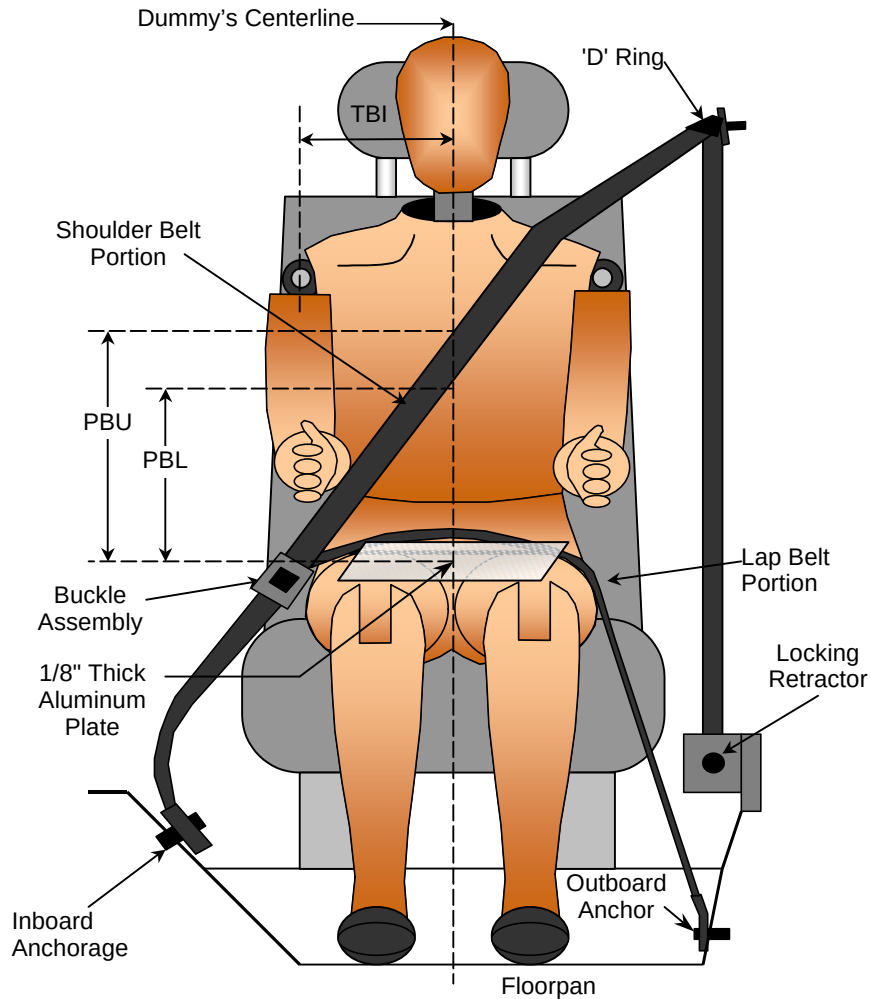
TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		30.0		
SWA	Steering Wheel Angle		68.0		
SCA	Steering Column Angle		22.0		
SA	Seat Back Angle		2.4		2.2
HZ	Head to Roof (Z)	154	0	143	0
HH	Head to Header	336	28.8	312	15.4
HW	Head to Windshield	568	0	523	0
HR	Head to Side Header (Y)	205		189	
NR	Nose to Rim	379	14.4		
CD	Chest to Dash	527		607	
CS	Chest to Steering Hub	311	0		
RA	Rim to Abdomen	182	0		
KDL	Left Knee to Dash	153	0	103	
KDR	Right Knee to Dash	121		149	0
PA	Pelvic Angle		24.7		24.6
TA	Tibia Angle		44.9		44.1
KK	Knee to Knee (Y)	299		255	
SK	Striker to Knee	583	87.9	624	93.7
ST	Striker to Head	543	12.6	547	11.4
SH	Striker to H-Point	227	109.9	237	125.4
SHY	Striker to H-Point (Y)	221		243	
HS	Head to Side Window	298		284	
HD	H-Point to Door (Y)	142		138	
AD	Arm to Door (Y)	99		95	
AA	Ankle to Ankle	304		204	

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

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy centerline to shoulder bolt	mm	171	171
PBU - Top surface of reference to belt upper edge	mm	331	338
PBL - To surface of reference to belt lower edge	mm	259	260

DATA SHEET NO. 7

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

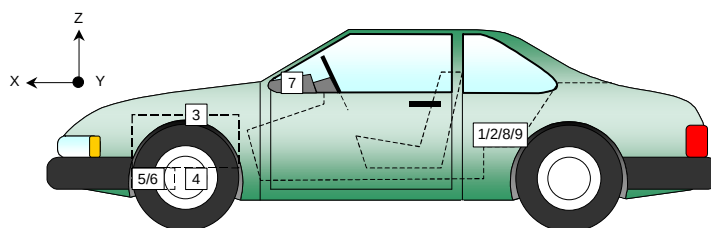
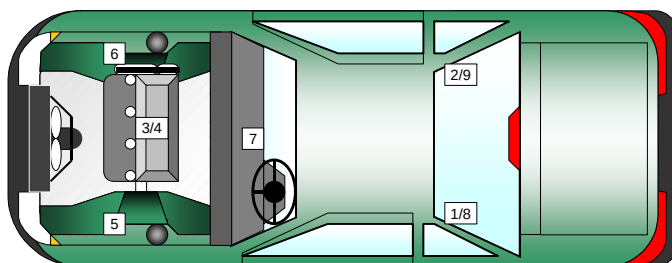
VEHICLE ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)			Peak Values				
		X	Y	Z	Units	Max	Time	Min	Time
1	Left Rear X-Member X	1698	-395	425	G's	2.0	150	44.5	34
2	Right Rear X-Member X	1695	395	425	G's	1.2	150	44.7	48
3	Engine Top X	3842	-52	737	G's	30.2	38	147.9	31
4	Engine Bottom X	3772	245	160	G's	27.4	35	123.5	27
5	Left Brake Caliper X	3715	651	215	G's	61.2	55	99.7	35
6	Right Brake Caliper X	3715	651	215	G's	50.9	64	113.5	44
7	Instrument Panel X	3050	0	968	G's	21.8	85	70.9	52
8	Left Rear X-Member Z	1698	-395	425	G's	11.7	33	10.2	19
9	Right Rear X-Member Z	1695	395	425	G's	7.4	32	16.1	48

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: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

HEAD PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	11.9	200	59.2	73	1.0	199	52.7	80
Head CG	Y	G's	11.7	84	3.7	30	6.0	68	17.0	94
Head CG	Z	G's	24.0	50	11.4	91	29.7	77	4.8	115
Head CG Resultant	N/A	G's	60.1	73			59.7	78		

CHEST PRIMARY PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	3.1	131	46.6	61	2.1	156	47.1	70
Chest CG	Y	G's	4.8	76	6.2	51	3.4	44	5.2	93
Chest CG	Z	G's	9.3	49	9.9	99	11.2	79	8.2	116
Chest CG Resultant	N/A	G's	46.9	61			47.2	69		

FEMUR PEAK FORCES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Femur	Z	Newtons	371	39	2985	46	417	88	4877	42
Right Femur	Z	Newtons	179	160	3507	50	102	20	3850	58

SEAT BELT SENSOR PEAK VALUES

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Lap Belt Force	N/A	Newtons	7511	55			7738	57		
Shoulder Belt	N/A	Newtons	6467	58			5833	55		

HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	Avg G's	T ¹	T ²	HIC	Avg G's	T ¹	T ²
Head CG Primary	492	45.1	51.2	88.1	540	47.0	60.3	96.3

CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Primary	45.9	58.6	61.6	45.1	68.3	71.3

DATA SHEET NO. 8...(continued)

HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
Test Program: NCAP

NHTSA No.: M25601
Test Date: 2/19/02

PELVIC PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Pelvis	X	G's	5.7	103	56.6	57	4.7	120	61.1	58
Pelvis	Y	G's	10.5	69	9.7	53	12.8	65	10.2	94
Pelvis	Z	G's	2.3	39	25.5	58	1.4	186	20.0	68

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	205	77	403	50	224	73	468	56
Neck Force	Y	Newtons	187	117	224	73	270	73	189	121
Neck Force	Z	Newtons	1862	65	162	98	1383	56	200	115
Neck Moment	X	N•m	19.4	121	4.8	88	15.3	86	10.5	67
Neck Moment	Y	N•m	29.7	127	24.8	54	24.9	96	34.5	57
Neck Moment	Z	N•m	8.8	148	15.7	100	19.0	102	6.3	156

FOOT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Left Foot Aft	X	G's	15.4	67	72.8	48	33.1	80	119.9	43
Left Foot Aft	Z	G's	1.3	190	58.0	36	30.9	72	64.7	86
Left Foot Fore	Z	G's	24.8	47	95.4	40	45.2	72	124.8	39
Right Foot Aft	X	G's	33.9	63	140.2	41	21.6	82	124.7	45
Right Foot Aft	Z	G's	19.5	64	153.5	41	14.7	64	97.9	45
Right Foot Fore	Z	G's	122.7	47	331.8	34	26.2	59	125.1	45

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	44.2	68	7.6	45	33.5	39	71.8	50
Left Lower Moment	Y	N•m	41.9	48	36.4	40	60.2	92	9.8	72
Left Lower Force	Z	Newtons	134	177	1917	37	425	72	5649	37
Left Upper Moment	X	N•m	15.6	102	26.2	47	40.0	40	77.6	51
Left Upper Moment	Y	N•m	110.6	45	67.8	37	58.5	62	65.2	88
Left Upper Force	Z	Newtons	149	112	1699	48	151	116	4642	42
Right Lower Moment	X	N•m	9.2	49	26.9	76	6.3	35	83.6	46
Right Lower Moment	Y	N•m	159.6	52	50.6	42	60.9	80	25.6	48
Right Lower Force	Z	Newtons	169	126	4364	42	116	124	3725	47
Right Upper Moment	X	N•m	32.9	58	20.6	39	24.3	41	82.3	51
Right Upper Moment	Y	N•m	23.1	81	118.2	42	40.5	188	169.0	48
Right Upper Force	Z	Newtons	162	137	3703	42	108	125	3402	47

DATA SHEET NO. 8...(continued)

HYBRID III ATD INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

CHEST PEAK DISPLACEMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	mm			28.5	73			25.6	80

HEAD REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	12.6	200	57.7	74	1.7	200	51.4	78
Head CG	Y	G's	10.9	84	3.0	197	6.5	55	17.1	97
Head CG	Z	G's	24.5	50	12.3	91	29.7	77	4.7	115
Head CG	N/A	G's	58.4	74			59.1	77		

CHEST REDUNDANT PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Chest CG	X	G's	3.1	130	46.3	60	1.9	156	47.2	69
Chest CG	Y	G's	6.1	77	6.8	51	4.1	71	5.2	91
Chest CG	Z	G's	9.7	52	9.8	101	11.3	79	8.2	116
Chest CG	N/A	G's	46.6	60			47.4	69		

REDUNDANT HEAD INJURY CRITERIA (HIC)

Location	Driver				Passenger			
	HIC	Avg G's	T ¹	T ²	HIC	Avg G's	T ¹	T ²
Head CG Redundant	474	44.4	51.6	87.6	509	45.7	59.9	95.9

REDUNDANT CHEST CLIP (3MSEC)

Location	Driver			Passenger		
	CLIP	T ¹	T ²	CLIP	T ¹	T ²
Chest CG Redundant	45.4	58.6	61.6	45.2	68.2	71.2

DATA SHEET NO. 9
SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

SEAT BELT PLACEMENT MEASUREMENTS

Measurement Description	Units	Driver	Passenger
TBI - Dummy centerline to shoulder bolt	mm	171	171
PBU - Top surface of reference to belt upper edge	mm	331	338
PBL - Top surface of reference to belt lower edge	mm	259	260

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Retractor reel to "D" ring	mm	210	210
Shoulder belt length as measured on ATD	mm	868	887
Lap belt length as measured on ATD	mm	826	868
Remainder of belt on reel	mm	1037	1197
Total belt length for continuous webbing systems	mm	2941	3162

SHOULDER BELT SPOOL-OUT DATA

Measurement Description	Units	Driver	Passenger
As determined by film analysis	mm	127	152

BELT STRETCH DATA

Measurement Description	Units	Driver	Passenger
As determined electronically	mm/m	N/A	N/A

DATA SHEET NO. 10
SUMMARY OF FMVSS 212 DATA

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

Windshield Mounting Details:

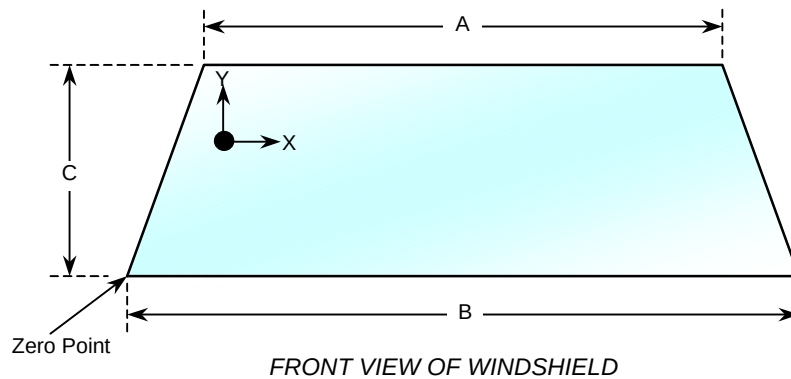
Windshield glass is secured to the vehicle frame with a rubber trim and glue.

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

Temperature of windshield molding during test: 20.6°C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% of Retention
Left Side	2082	2082	100
Right Side	2107	2107	100
Total	4189	4189	100



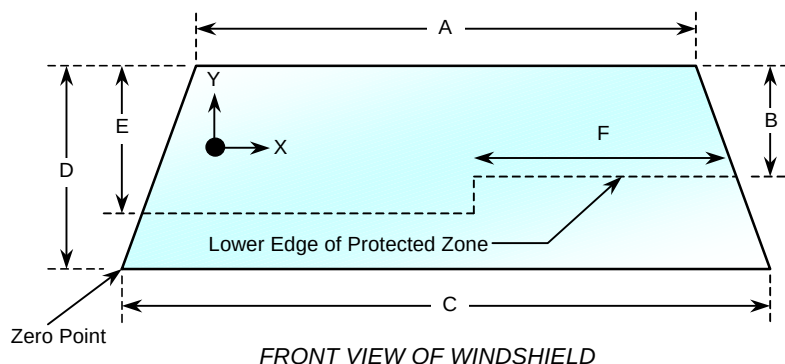
WINDSHIELD DIMENSIONS

Item	Units	Segment Length	Molding Width
A	mm	1124	18
B	mm	812	23
C	mm	1451	7

DATA SHEET NO. 11
WINDSHIELD ZONE INTRUSION FMVSS 219 (Partial) DATA

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02



Item	Units	Value
A	mm	1124
B	mm	524
C	mm	1451
D	mm	812
E	mm	544
F	mm	552

AREA OF PROTECTED ZONE FAILURES - NONE

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

X	Y

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

X	Y

DATA SHEET NO. 12

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
Test Program: NCAP

NHTSA No.: M25601
Test Date: 2/19/02

Temperature at Time of Impact: 20.6° C Test Time: 1:31 p.m.

Stoddard Solvent Spillage Measurements

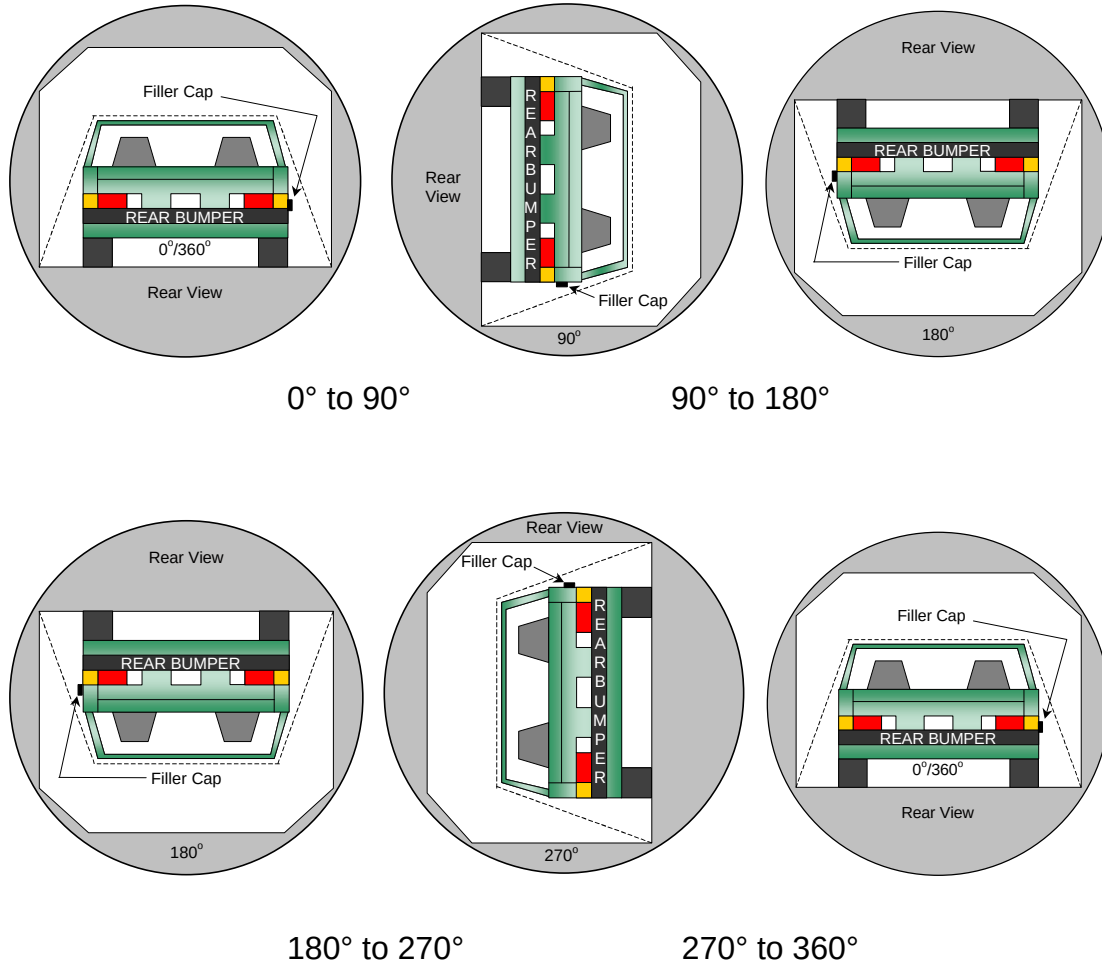
- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum Allowable = 1 ounce)
- B. For the 5 minute period after motion ceases: 0 oz.
 (Maximum Allowable = 5 ounces)
- C. For the following 25 minutes: 0 oz.
 (Maximum Allowable = 1 oz./minute)
- D. Spillage : None

DATA SHEET NO. 13
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

Test Time: 1:31 p.m.



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations: None

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° to 90°	167	300	0
90° to 180°	144	300	0
180° to 270°	146	300	0
270° to 360°	168	300	0

DATA SHEET NO. 14
VEHICLE MEASUREMENTS

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
Test Program: NCAP

NHTSA No.: M25601
Test Date: 2/19/02

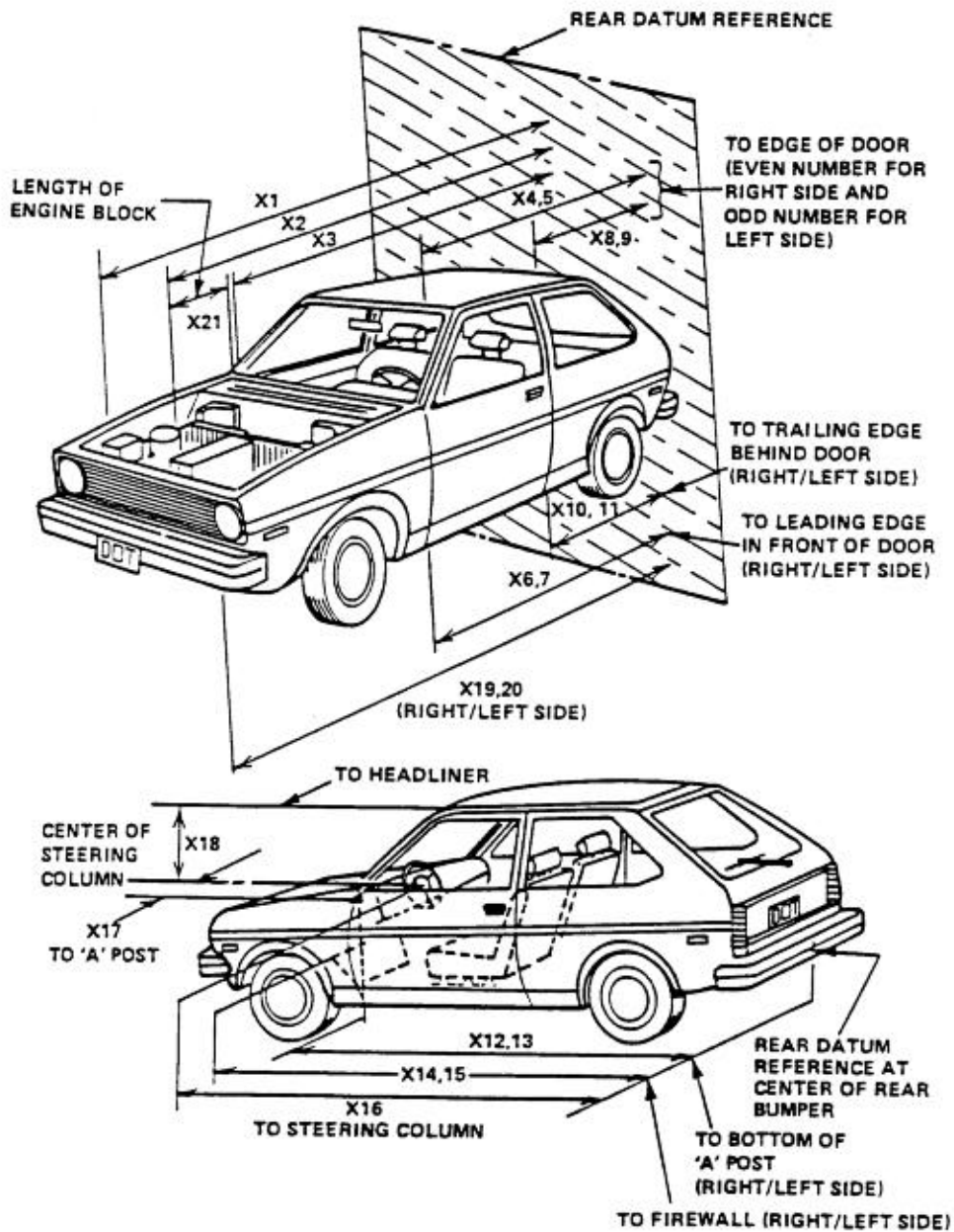
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total length of vehicle at centerline	mm	4497	3976	521
2	RSOV to front of engine	mm	3864	3628	236
3	RSOV to firewall centerline	mm	3516	3280	236
4	RSOV to leading edge of right door	mm	3116	2897	219
5	RSOV to leading edge of left door	mm	3108	3103	5
6	RSOV to lower leading edge of right door	mm	3115	3115	0
7	RSOV to lower leading edge of left door	mm	3110	3110	0
8	RSOV to upper leading edge of right door	mm	2064	2064	0
9	RSOV to upper leading edge of left door	mm	2060	2055	5
10	RSOV to lower trailing edge of right door	mm	2051	2054	-3
11	RSOV to lower trailing edge of left door	mm	2049	2049	0
12	RSOV to bottom of right 'A' pillar	mm	3057	3058	-1
13	RSOV to bottom of left 'A' pillar	mm	3043	3049	-6
14	RSOV to firewall on right side	mm	3518	3483	35
15	RSOV to firewall on left side	mm	3522	3464	58
16	RSOV to steering column	mm	2668	2668	0
17	Center of steering column to left 'A' pillar	mm	369	350	19
18	Center of steering column to headlining	mm	397	384	13
19	RSOV to right side of front bumper	mm	4286	3982	304
20	RSOV to left side of front bumper	mm	4287	3974	313
21	Length of engine block	mm	420	420	0
RD	RSOV to right side of dash panel	mm	2913	2896	17
CD	RSOV to center of dash panel	mm	3015	2940	75
LD	RSOV to left side of dash panel	mm	2903	2899	4

DATA SHEET NO. 14...(continued)

VEHICLE MEASUREMENTS

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02



DATA SHEET NO. 15
CAMERA LOCATIONS

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
Test Program: NCAP

NHTSA No.: M25601
Test Date: 2/19/02

No.	Camera View	Location (mm) *			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Side View				18	32
2	Left Front View	926	-8171	1555	3	1026
3	Steering Column Top	1820	-8373	1571	25	952
4	Steering Column Bottom	1800	-8283	1028	25	1026
5	Driver Close-up	1451	-9221	1482	50	943
6	Driver Angle	5098	-4718	2108	50	1000
7	Onboard Driver				13	1010
8	Onboard Passenger				13	1015
9	Right Overall	2189	6819	1459	13	1026
10	Right Passenger Half	705	6624	1480	13	952
11	Right Close-up	1420	10351	1336	25	1010
12	Right Angle	4998	5718	2618	50	943
13	Windshield	700	0	2650	13	1020
14	Top Driver	-90	-430	1745	13	1036
15	Top Passenger	-90	460	1745	13	1015
16	Pit Front	1097	0	-5000	13	1000
17	Pit Rear	3319	0	-5000	13	1020

*COORDINATES:

+X = film plane rearward of barrier

+Y = film plane to right of monorail centerline

+Z = film plane above ground level

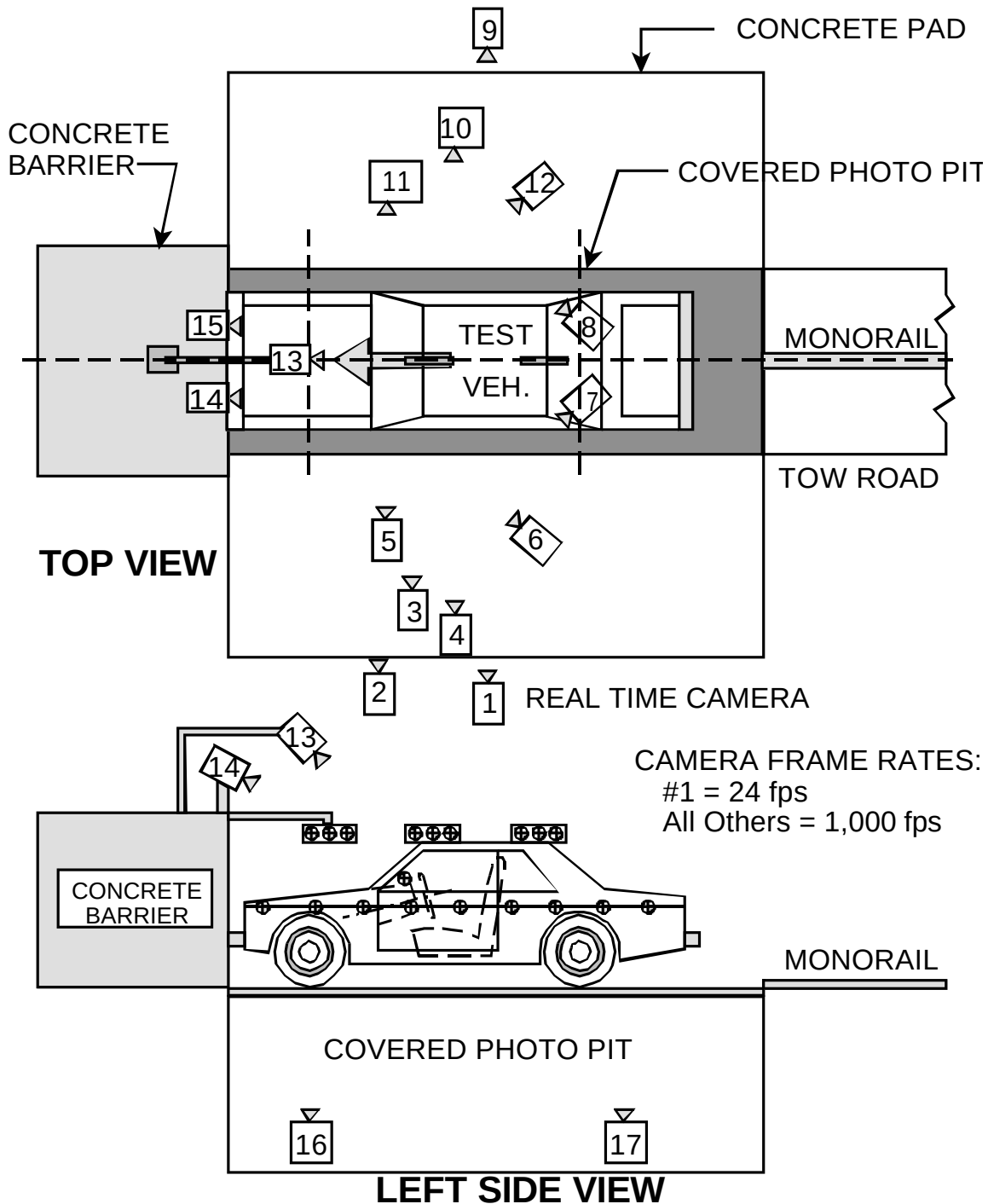
DATA SHEET NO. 15...(continued)

CAMERA LOCATIONS

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
Test Program: NCAP

NHTSA No.: M25601
Test Date: 2/19/02

CAMERA POSITIONS FOR FRONTAL IMPACTS

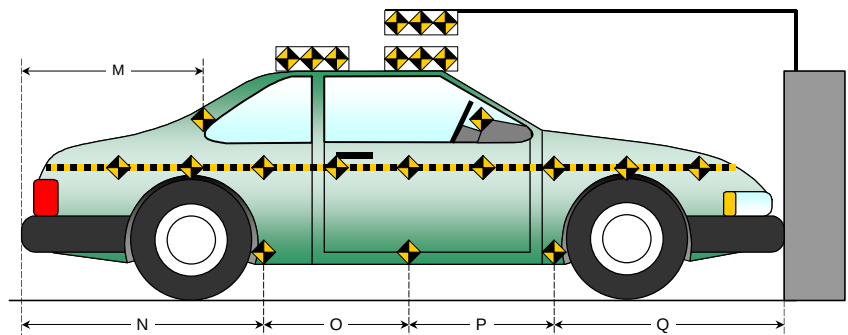
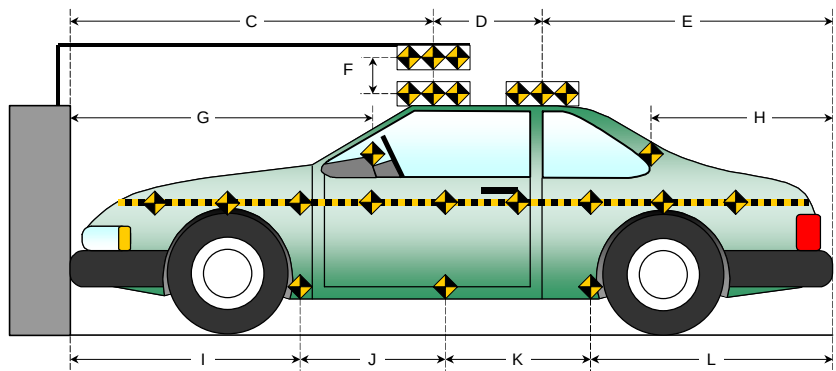
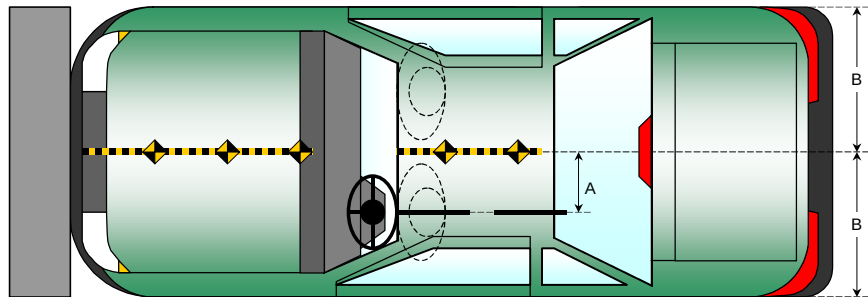


DATA SHEET NO. 16
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

Item	Value
A	342
B	814
C	2245
D	609
E	1643
F	167
G	1676
H	1197
I	1315
J	1001
K	903
L	1278
M	1238
N	1371
O	915
P	907
Q	1304



DATA SHEET NO. 17
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

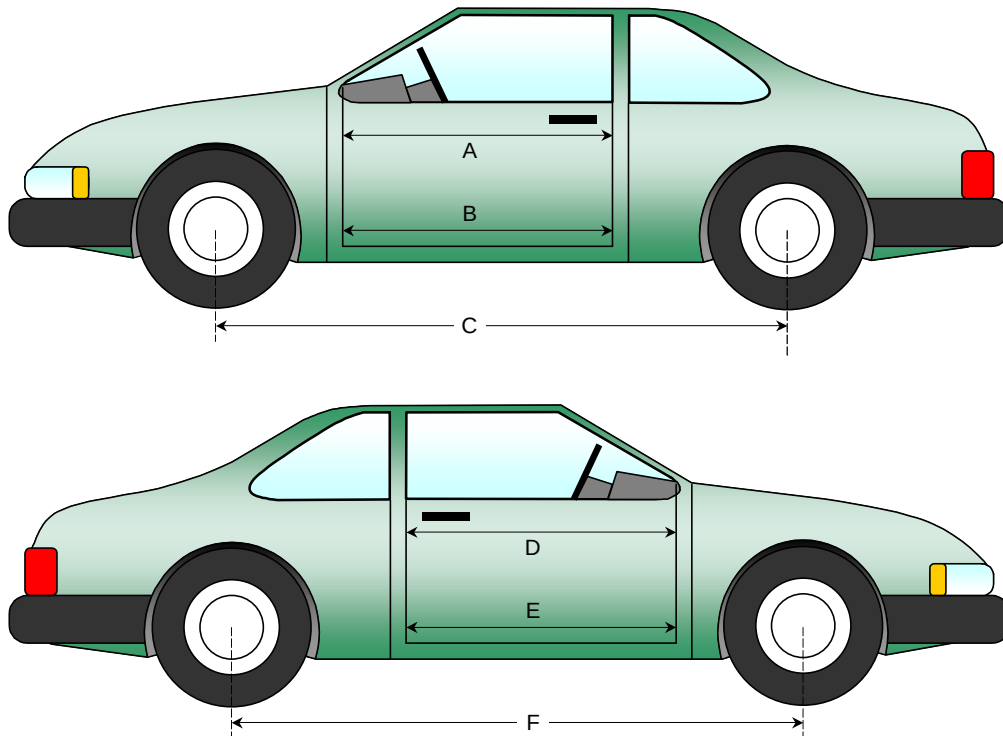
NHTSA No.: M25601
 Test Date: 2/19/02

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	953	946	7
B	Left Side Lower	mm	920	917	3
D	Right Side Upper	mm	953	952	1
E	Right Side Lower	mm	920	919	1

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2600	2532	68
F	Right Side Wheelbase	mm	2600	2550	50



DATA SHEET NO. 17...(continued)
VEHICLE INTRUSION MEASUREMENTS

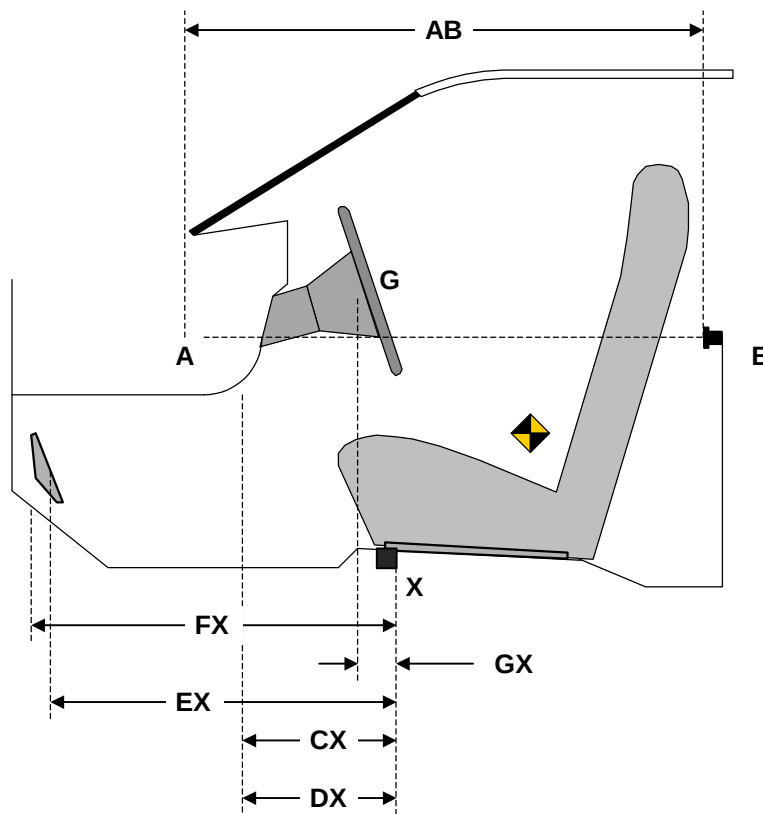
Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside window jam)	mm	935	935	0
CX	Left Knee Bolster to X	mm	257	262	-5
DX	Right Knee Bolster to X	mm	257	270	-13
EX	Brake Pedal to X	mm	555	473	82
FX	Foot Rest to X	mm	580	547	33
GX	Center of Steering Column Wheel Hub to X	mm	73	87	-14

X = Left Front Seat Front Outboard Anchor Bolt Head



DRIVER COMPARTMENT

DATA SHEET NO. 17...(continued)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

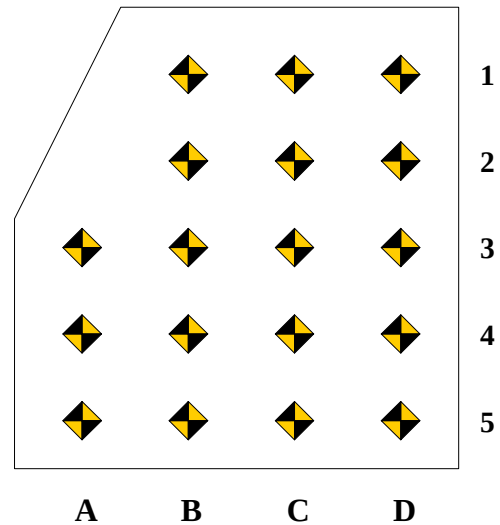
NHTSA No.: M25601
 Test Date: 2/19/02

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		635	626	625		560	537	531		75	89	94
2		572	565	565		532	505	512		40	60	53
3	513	510	510	508	507	510	500	486	6	0	10	22
4	424	420	418	416	423	420	418	414	1	0	0	2
5	330	327	322	320	330	327	322	320	0	0	0	0

DRIVER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1		-33	-27	-25		-6	0	0		-27	-27	-25
2		-65	-50	-65		-58	-62	-60		-8	12	-5
3	-87	-87	-87	-87	-103	-108	-112	-115	16	21	25	28
4	-95	-85	-79	-83	-99	-83	-81	-91	4	-2	2	8
5	-95	-83	-74	-78	-103	-85	-75	-81	8	2	1	3

DATA SHEET NO. 17...(continued)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

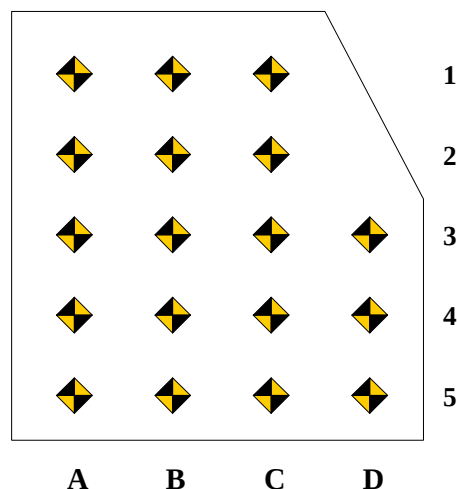
NHTSA No.: M25601
 Test Date: 2/19/02

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	658	655			592	590			66	65		
2	592	590	598		543	537	560		49	53	38	
3	512	514	511	515	501	511	502	507	11	3	9	8
4	419	420	422	424	419	420	422	424	0	0	0	0
5	328	334	334	336	328	334	334	336	0	6	0	0

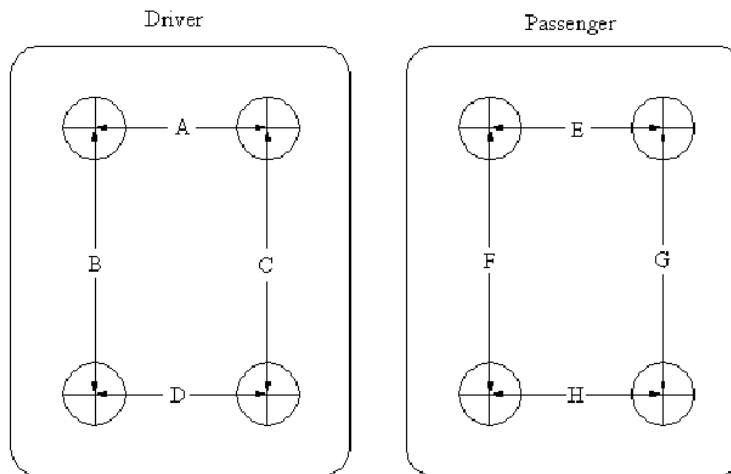
PASSENGER FLOOR PAN Z-AXIS

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
1	0	-4			18	0			-18	-4		
2	-43	-37	-51		-54	-70	-49		11	33	-2	
3	-87	-80	-80	-81	-127	-118	-97	-85	40	38	17	4
4	-82	-75	-78	-80	-104	-90	-80	-67	22	15	2	-13
5	-76	-73	-84	-83	-100	-83	-80	-70	24	10	-4	-13

DATA SHEET NO. 17...(continued)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02



UNDERBODY FLOORBOARD DEFORMATION

Measurement	Pre-Test	Post-Test	Difference
A	289	286	3
B	398	379	19
C	379	376	3
D	298	292	6
E	279	274	5
F	376	370	6
G	376	373	3
H	273	270	3

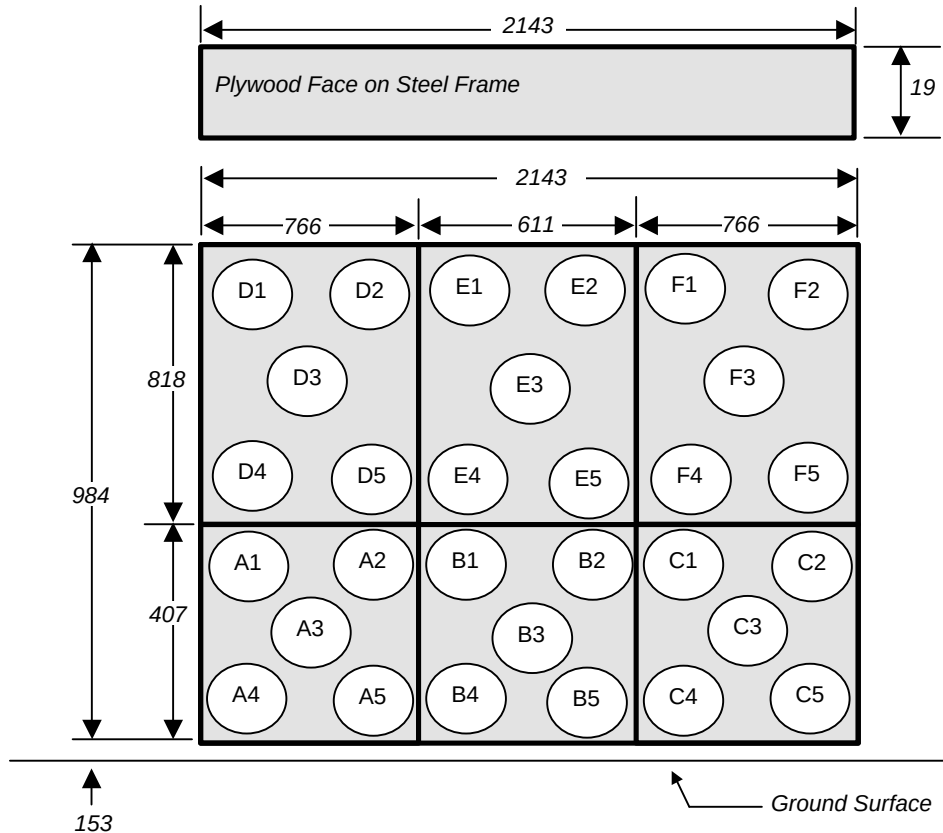
DATA SHEET NO. 18

LOAD CELL LOCATIONS ON FIXED BARRIER

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
 Test Program: NCAP

NHTSA No.: M25601
 Test Date: 2/19/02

30 Load Cell Rigid Barrier Load Cell Locations on Fixed Barrier



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

6 Groups of 5 Load Cells Each

The Data is presented in Appendix B with the following requirements:

1. Sum data from 6 groupings shown above (5 cells/group)
2. Sum of left 2 groupings, center 2 groupings and right 2 groupings.
3. Total or sum of all 30 individual load cells.
4. Total versus average rear seat crossmember displacement.

DATA SHEET NO. 19**ACCIDENT INVESTIGATION DIVISION DATA**

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
Test Program: NCAP

NHTSA No.: M25601
Test Date: 2/19/02

VEHICLE INFORMATION

VIN: JA3AJ26E42U006992 Wheelbase (mm) : 2600
Vehicle Size Category: COMPACT Test Weight (kg) : 1410.7

ACCELEROMETER DATA

Accelerometer Locations: As per measurements on Page 13
Cal. Procedure/Interval: MGA procedure / 6 month
Integration Algorithm: Trapezoidal Linearity: > 99%
Impact Velocity (km/h): 56.3
Velocity Change (km/h): 63.2 Time of Separation (msec): 158

CRUSH PROFILE

Collision Deformation Classification: Frontal Midpoint of Damage: C/L
Damage Region Length (mm): 1428 Impact Mode: Frontal

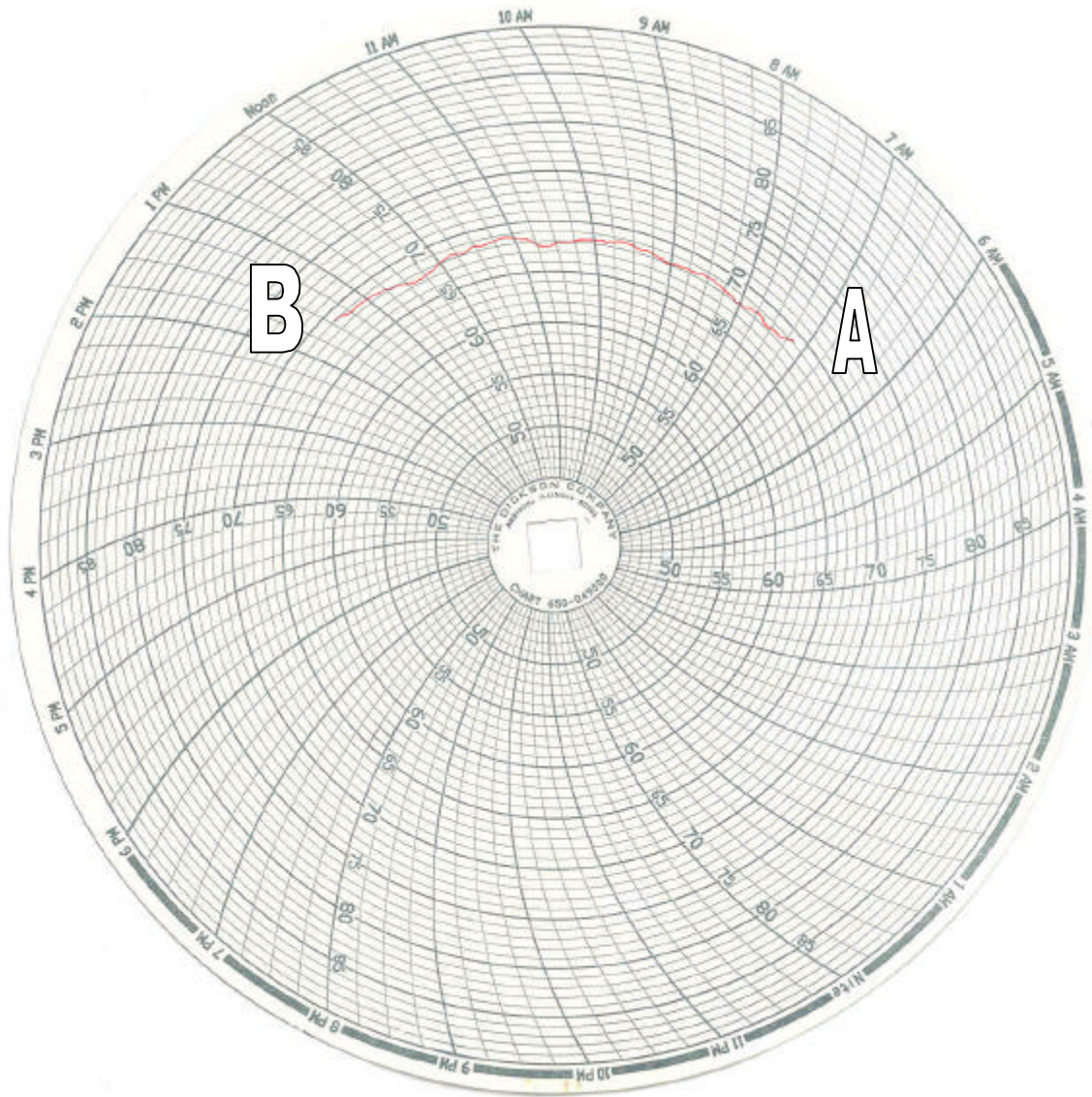
No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4286	3974	312
C2	Crush zone 2 at left side	mm	4414	4010	404
C3	Crush zone 3 at left side	mm	4488	3988	500
C4	Crush zone 4 at right side	mm	4490	3989	501
C5	Crush zone 5 at right side	mm	4412	3991	421
C6	Crush zone 6 at right side	mm	4287	3982	305

DATA SHEET NO. 20

DUMMY / VEHICLE TEMPERATURE STABILIZATION CHART

Test Vehicle: 2002/Mitsubishi/Lancer/4 door
Test Program: NCAP

NHTSA No.: M25601
Test Date: 2/19/02



A = Dummies installed in vehicle at 7:30 a.m.

B = Test conducted at 1:31 p.m.

APPENDIX A
PHOTOGRAPHS

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Pre-Test Front View of Test Vehicle

A-2.



Post-Test Front View of Test Vehicle



Pre-Test Rear View of Test Vehicle



Post-Test Rear View of Test Vehicle



Pre-Test Left Side View of Test Vehicle



Post-Test Left Side View of Test Vehicle



Pre-Test Left Front Three-Quarter View of Test Vehicle



Post-Test Left Front Three-Quarter View of Test Vehicle



Pre-Test Right Side View of Test Vehicle



Post-Test Right Side View of Test Vehicle



Pre-Test Right Front Three-Quarter View of Test Vehicle



Post-Test Right Front Three-Quarter View of Test Vehicle



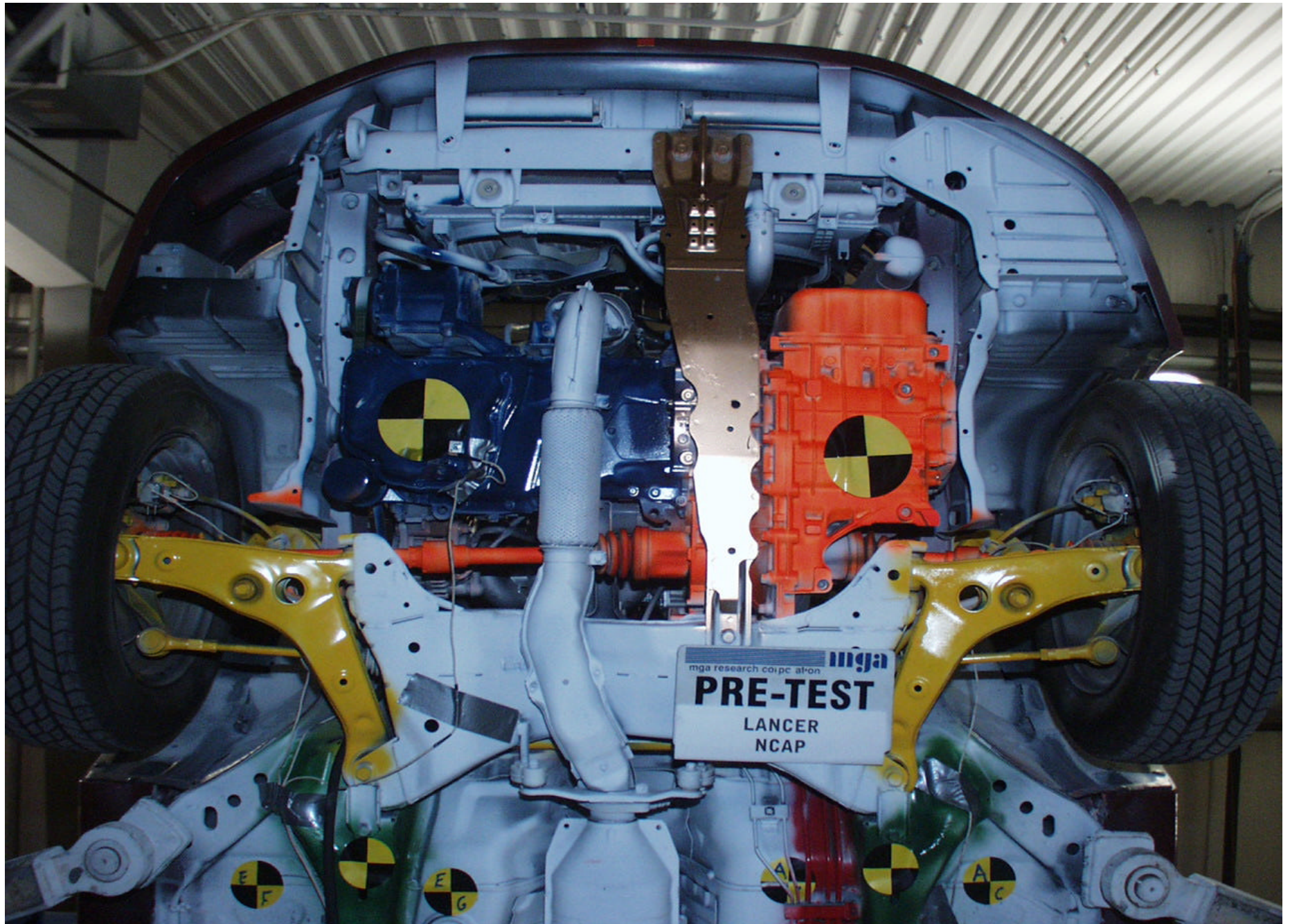
Pre-Test Fuel Filler Cap View



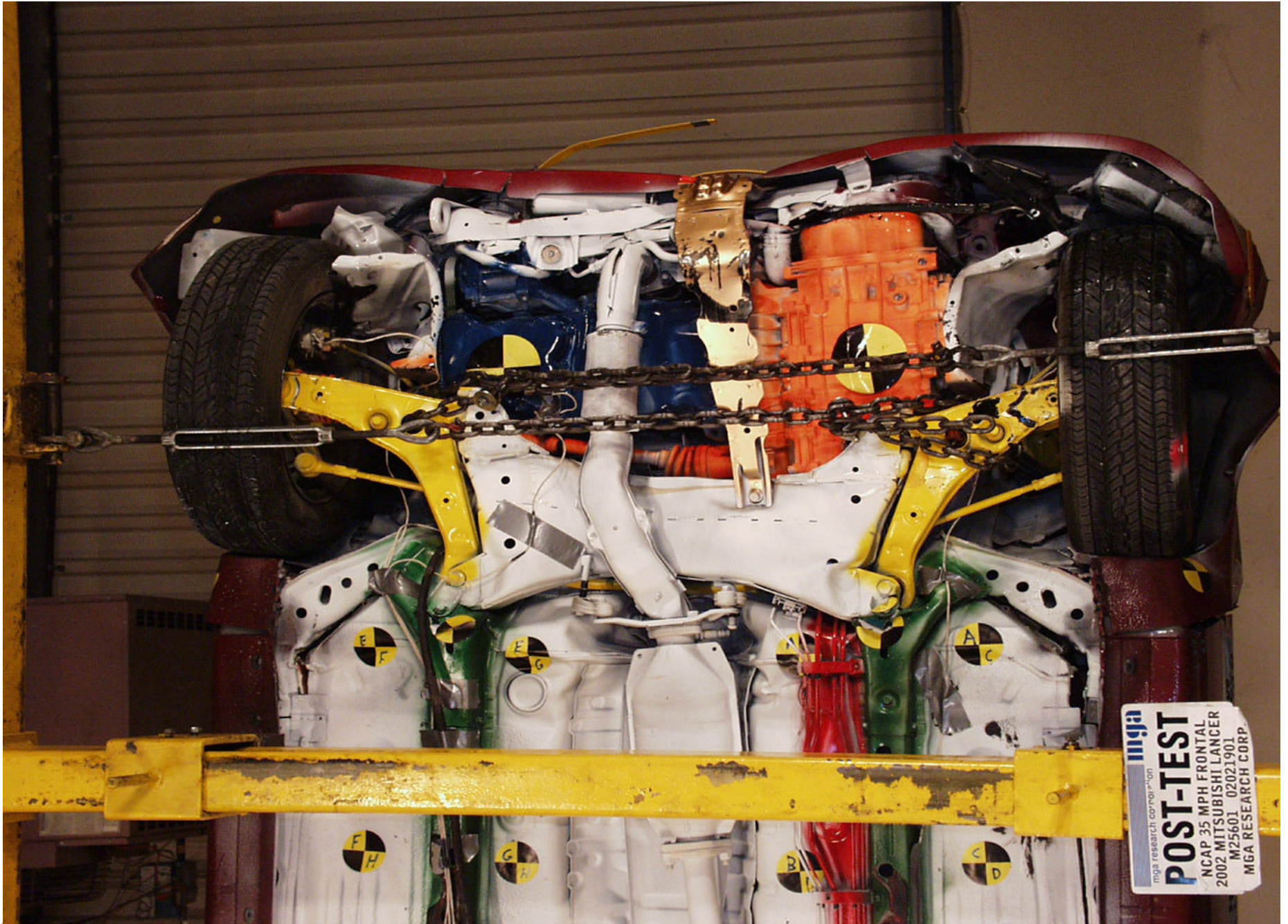
Pre-Test Engine Compartment View



Post-Test Engine Compartment View



Pre-Test Front Underbody View



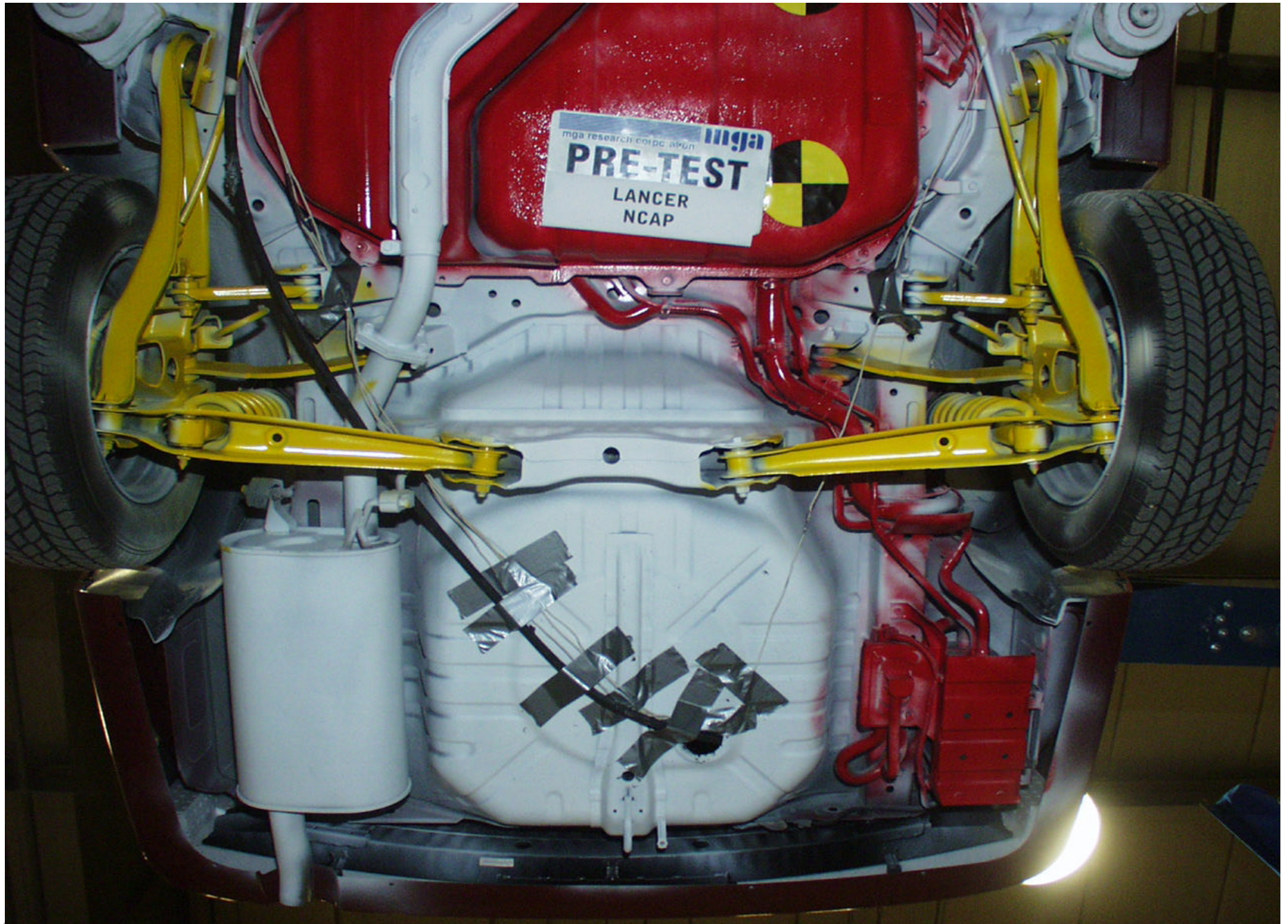
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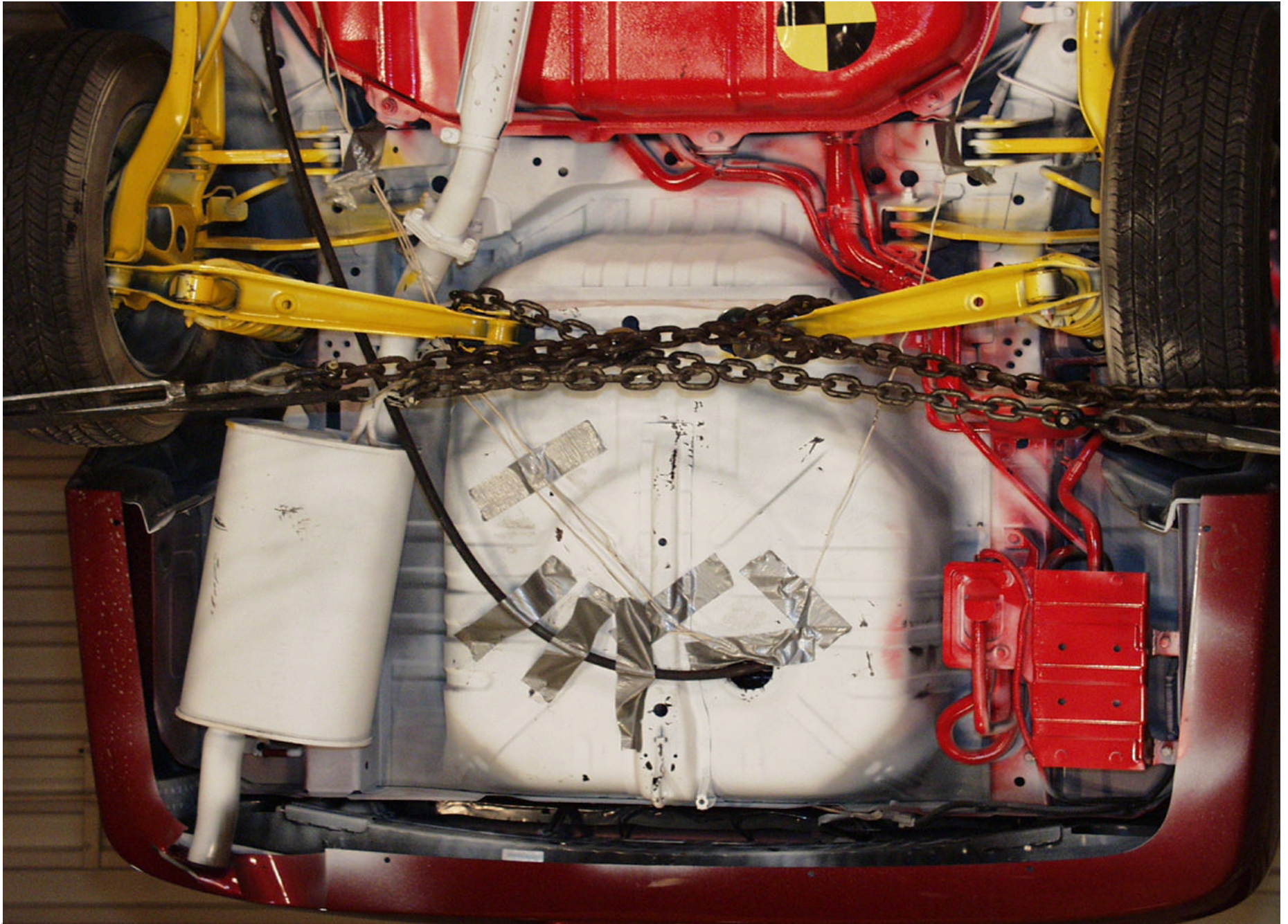
Pre-Test Mid Underbody



Post-Test Mid Underbody



Pre-Test Rear Underbody View



Post-Test Rear Underbody View



Pre-Test Windshield View



Post-Test Windshield View



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 Seat Position View



Post-Test Driver Seat Position View



Pre-Test Driver Dummy Knee Position



Post-Test Driver Dummy Knee Position



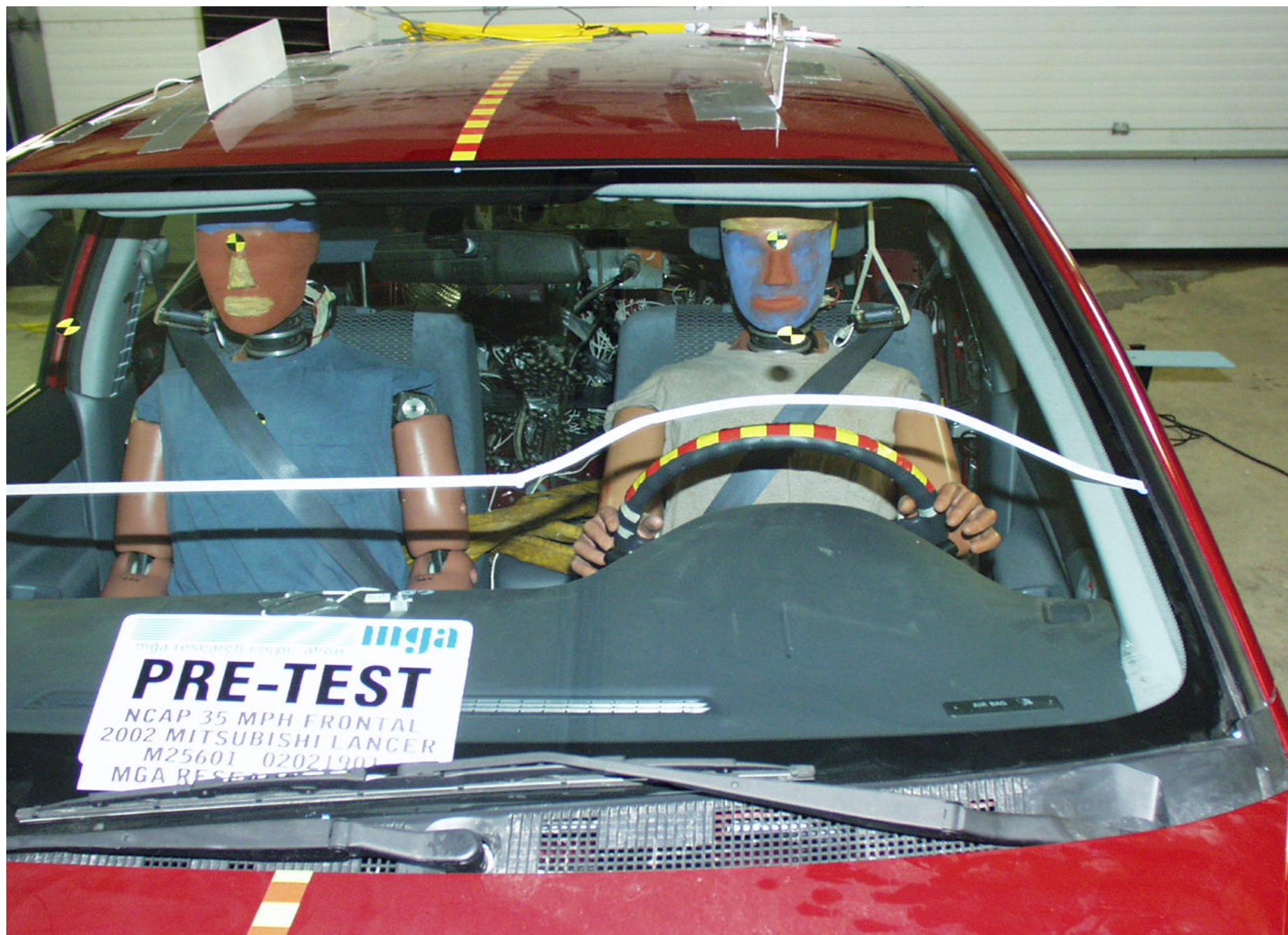
Post-Test Driver Airbag Contact



Post-Test Driver Head Contact View (headrest)



Post-Test Driver Knee Contact View



Pre-Test Driver Windshield View



Post-Test Driver Windshield View



Pre-Test Passenger Dummy Position Right Side View



Post-Test Passenger Dummy Position Right Side View



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



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



Pre-Test Passenger Seat Position View



Post-Test Passenger Seat Position View



Pre-Test Passenger Dummy Knee Position



Post-Test Passenger Dummy Knee Position



Post-Test Passenger Airbag Contact



Post-Test Passenger Head Contact View (headrest)



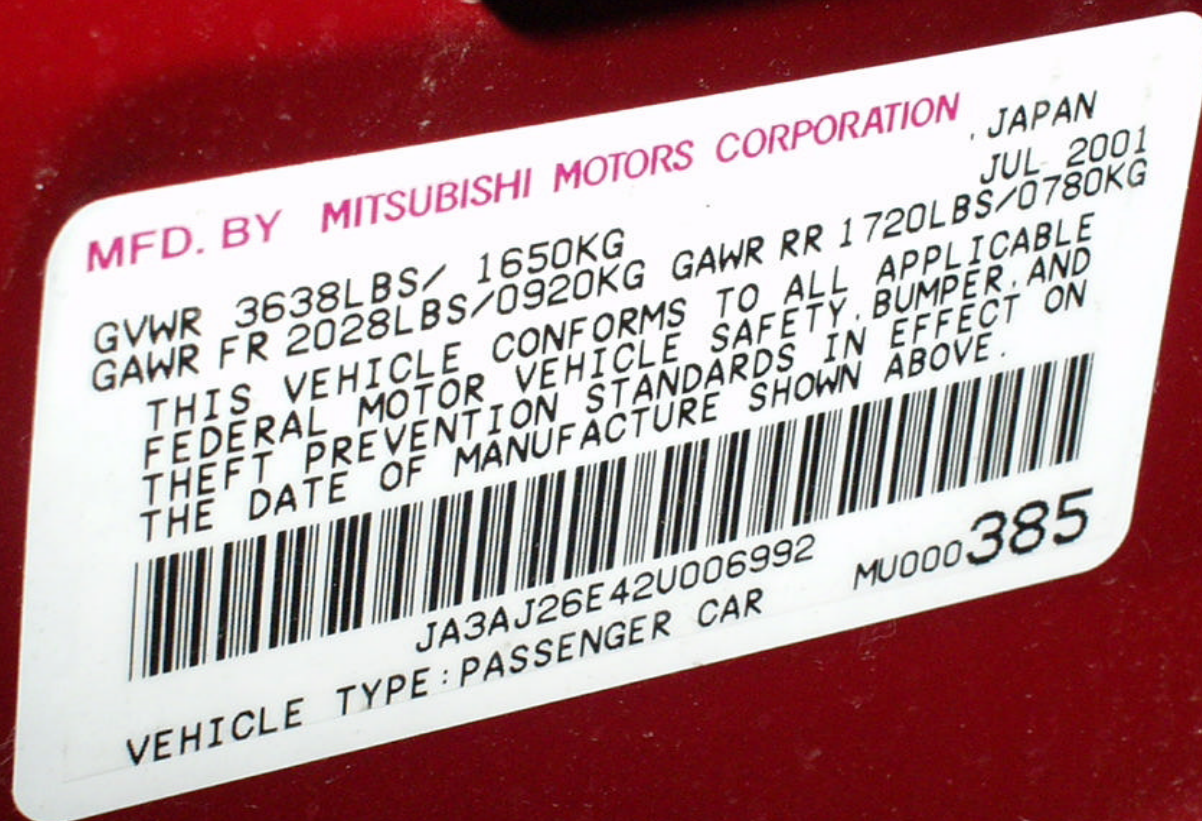
Post-Test Passenger Knee Contact View



Pre-Test Passenger Windshield View



Post-Test Passenger Windshield View



Vehicle Certification Label



**TIRE INFLATION PRESSURE
(CHECK WITH TIRE COOL)**

STANDARD INFLATION PRESSURE
FOR ALL LOAD.

1ST SEAT : 2 PASSENGERS

2ND SEAT : 3 PASSENGERS

TOTAL : 5 PASSENGERS

LUGGAGE : 35kg(77lbs)

TOTAL WEIGHT : 375kg (827lbs)

TIRE SIZE	FRONT	REAR
P185/65R14	29PSI (200kPa)	26PSI (180kPa)

TEMPORARY TIRE SIZE

T125/70D15

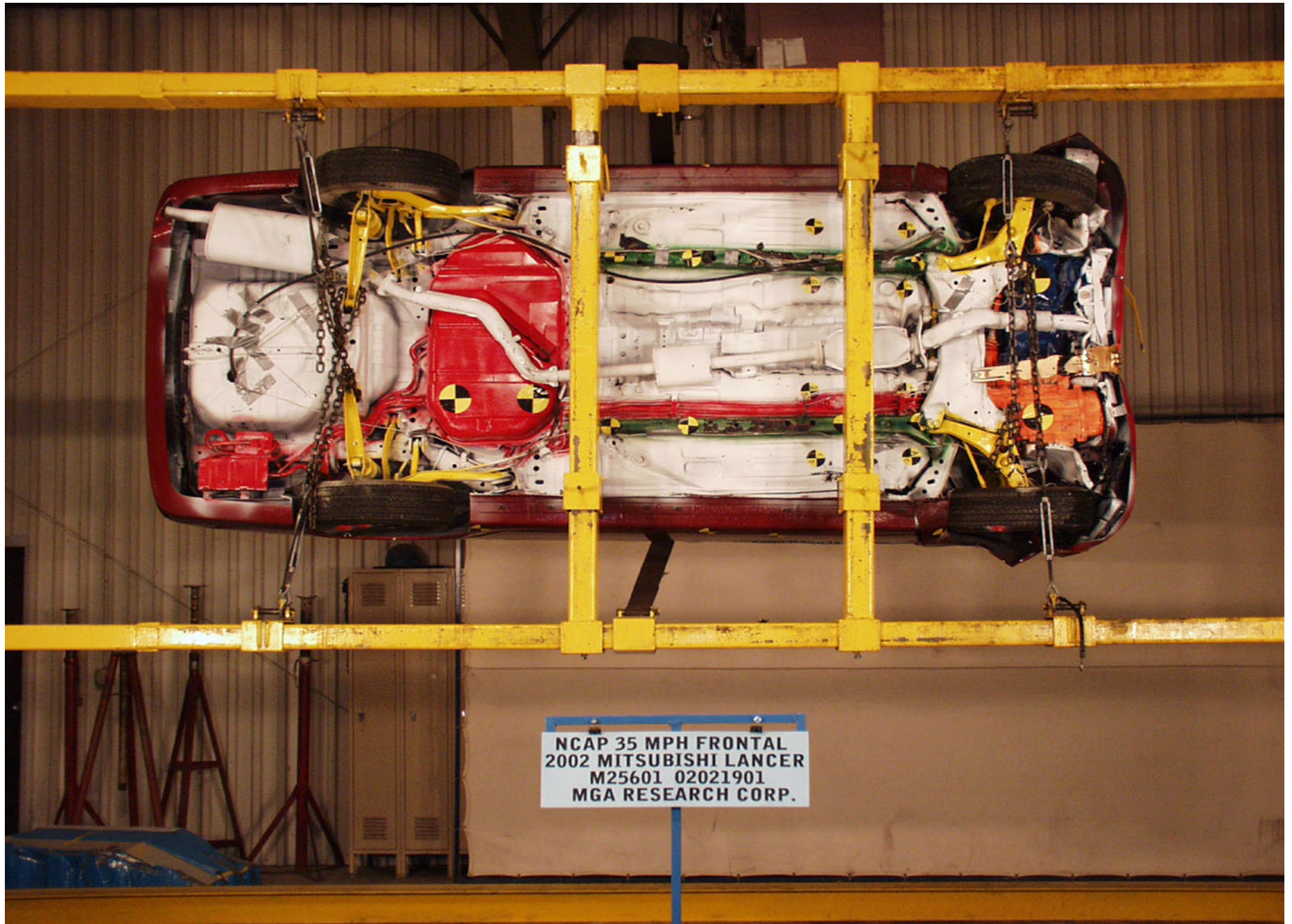
60PSI (420kPa)

MR130494 B

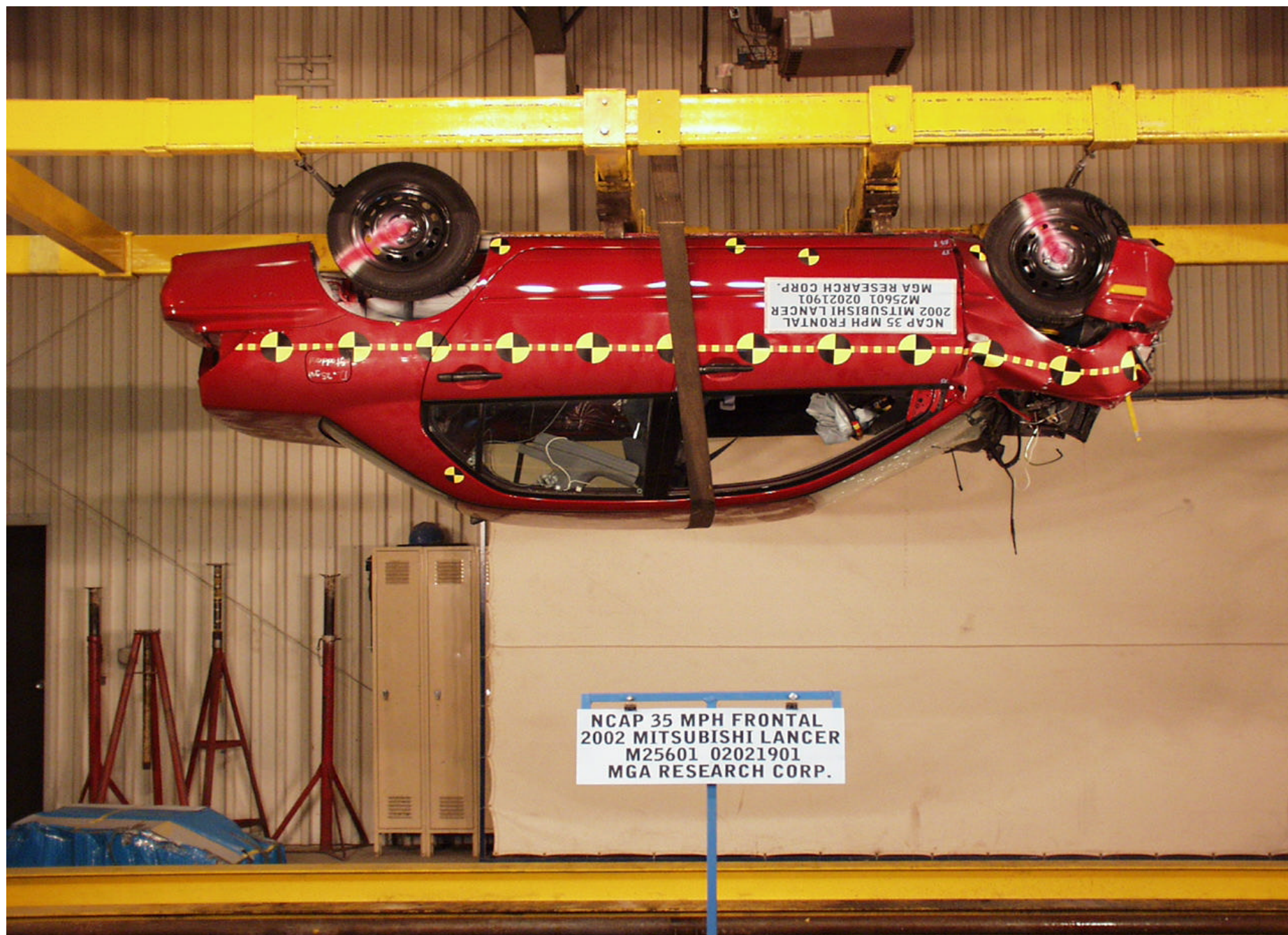
Tire Placard



Vehicle Impact



Rollover 90 Degrees



Rollover 180 Degrees



Rollover 270 Degrees



Rollover 360 Degrees

APPENDIX B

DUMMY AND VEHICLE RESPONSE DATA TRACES

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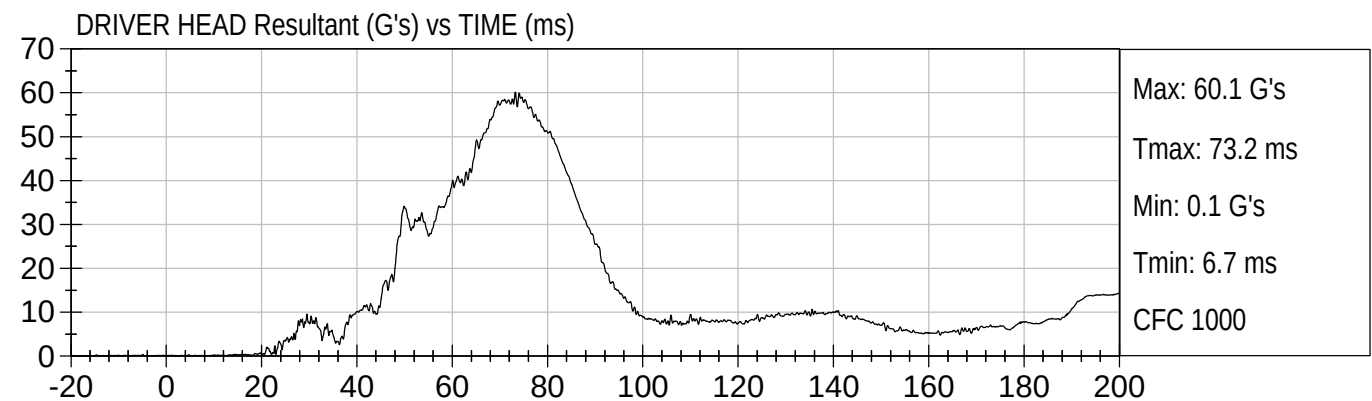
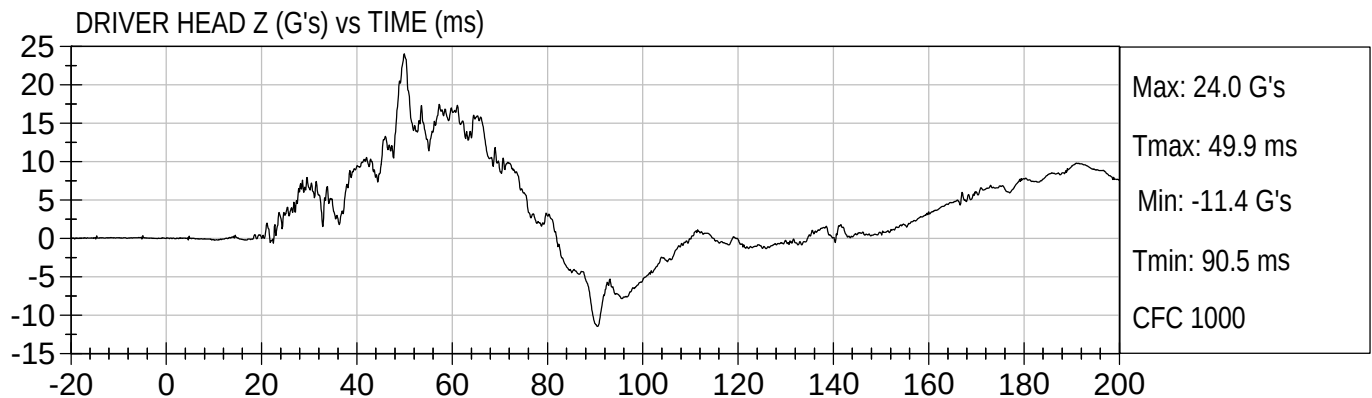
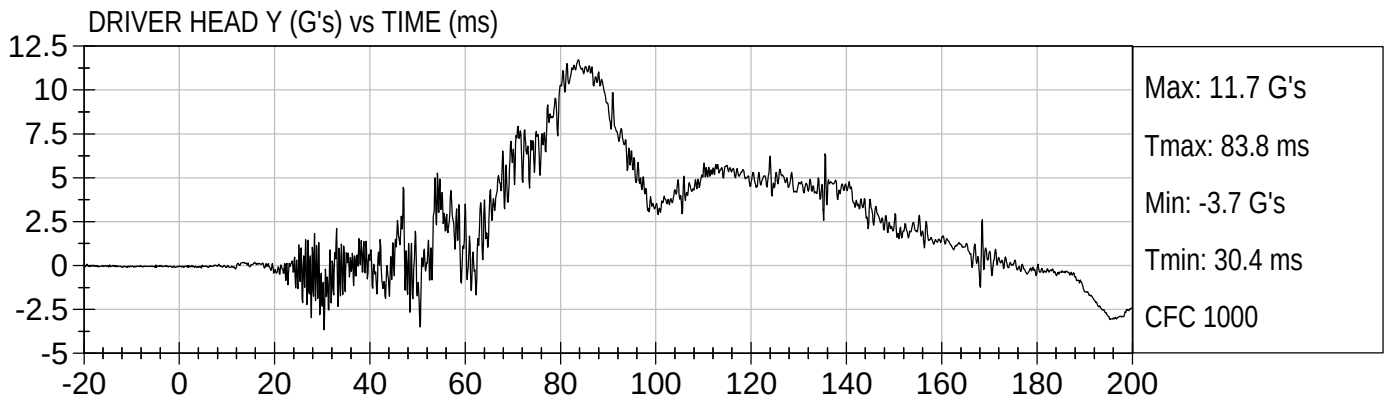
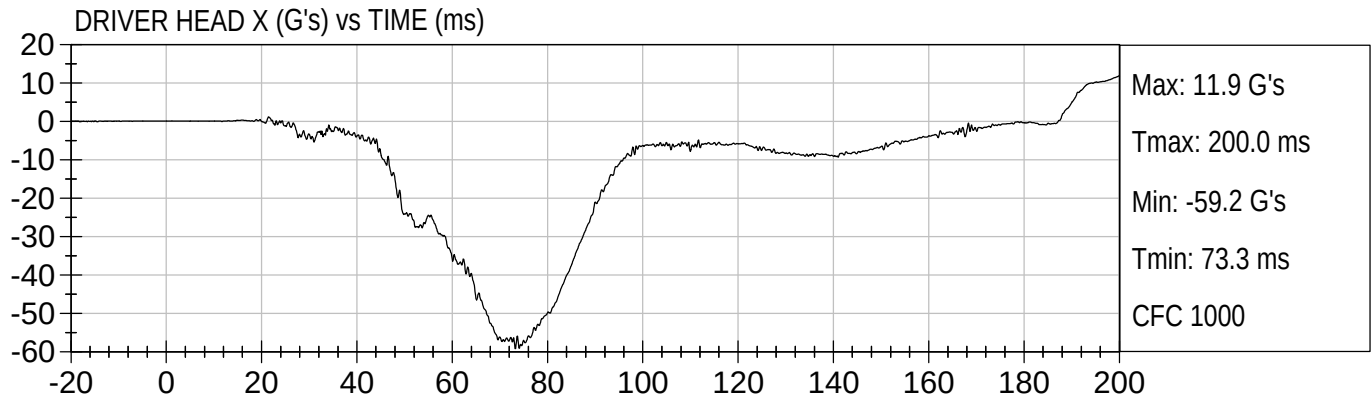
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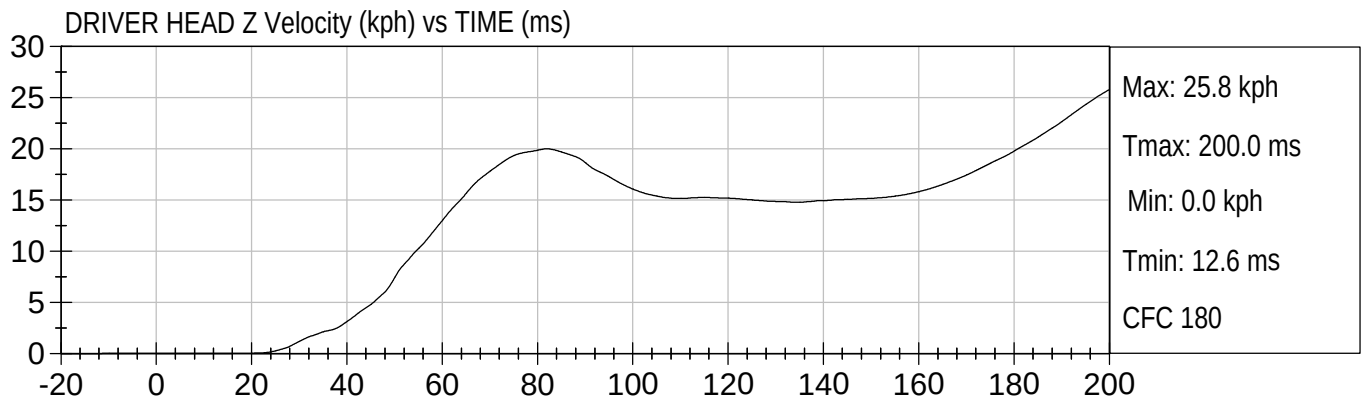
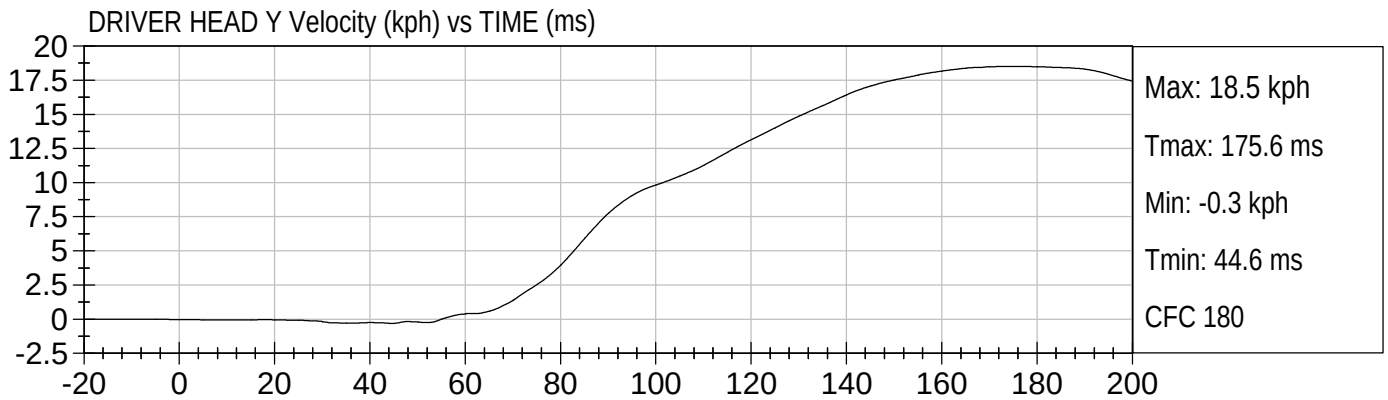
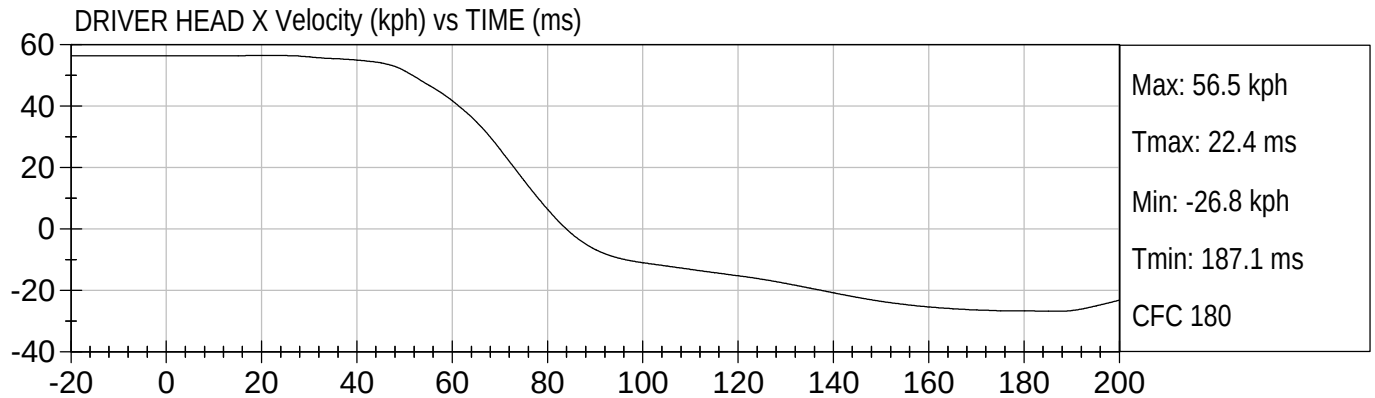
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35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)

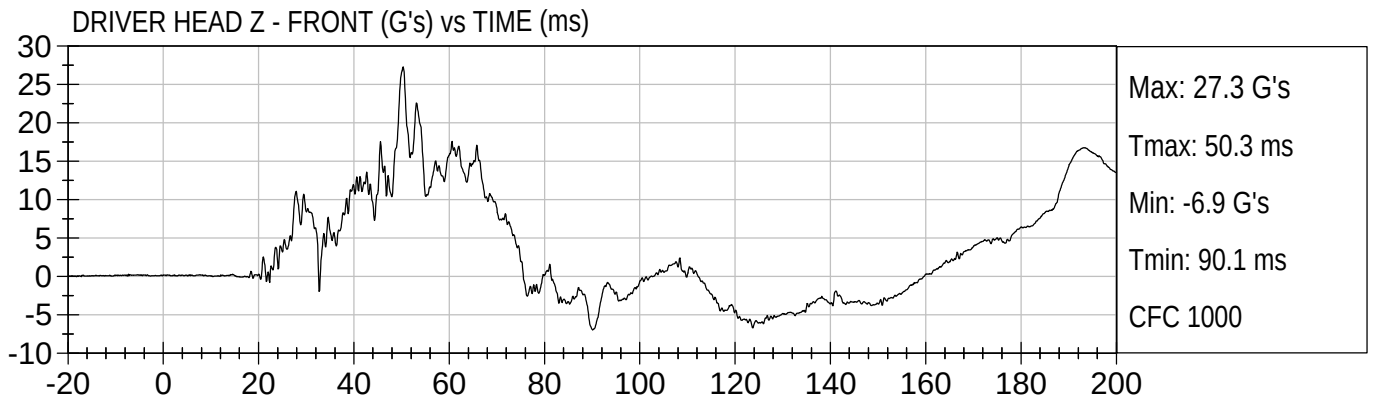
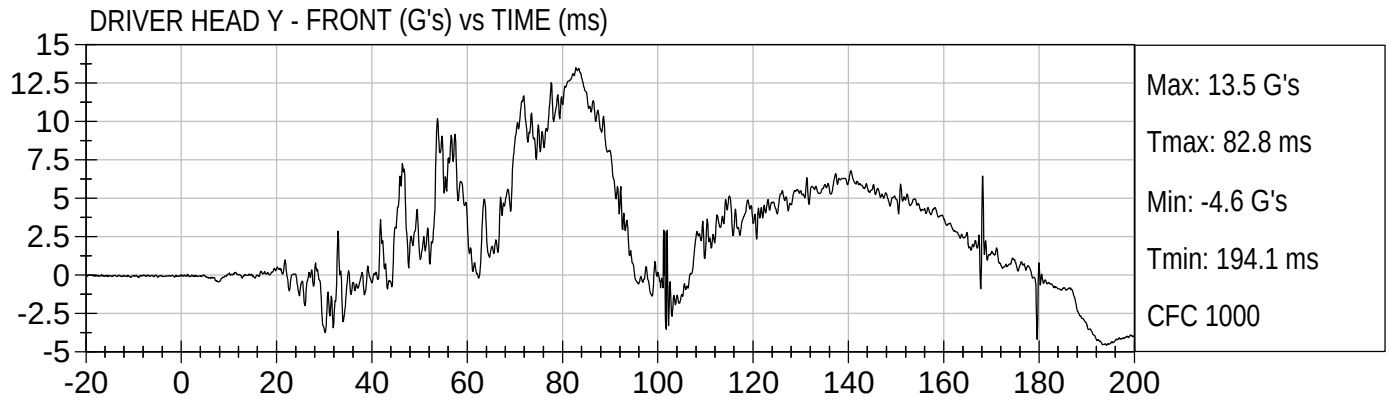






35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

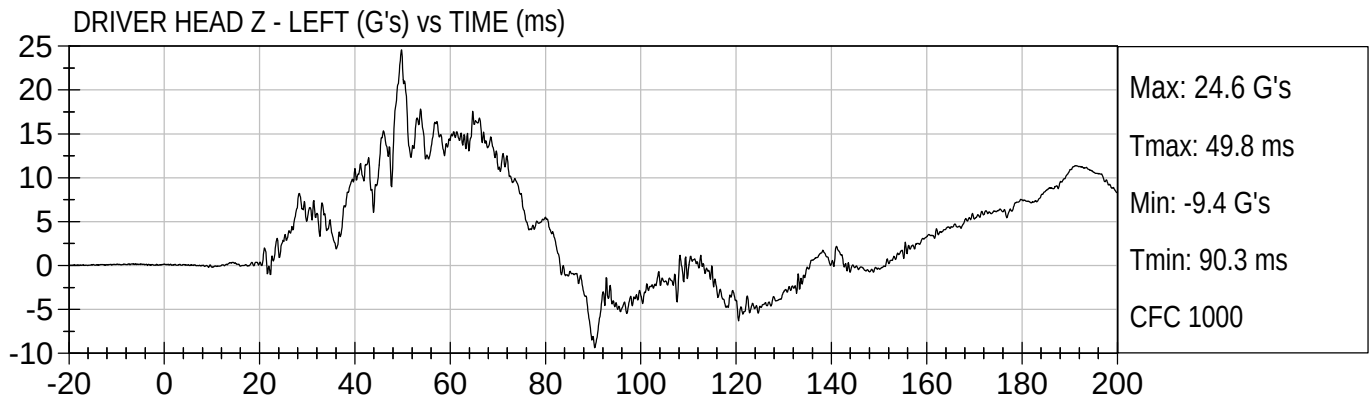
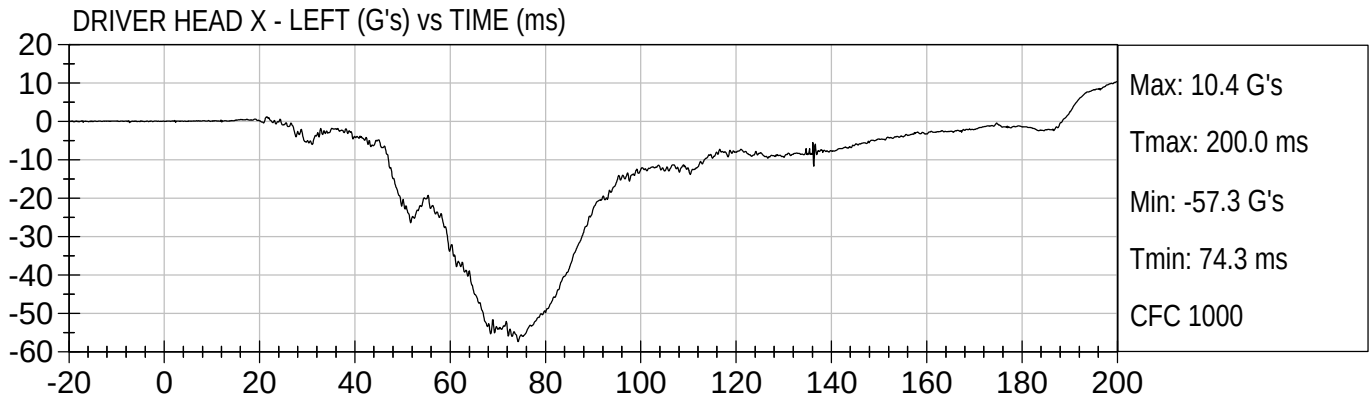
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Speed: 35.0 mph (56.3 km/h)





35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

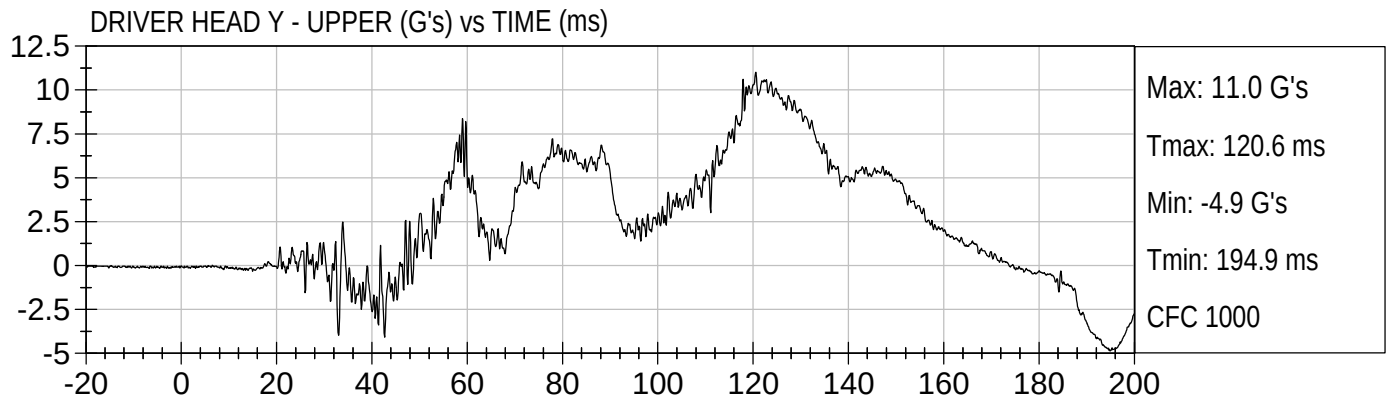
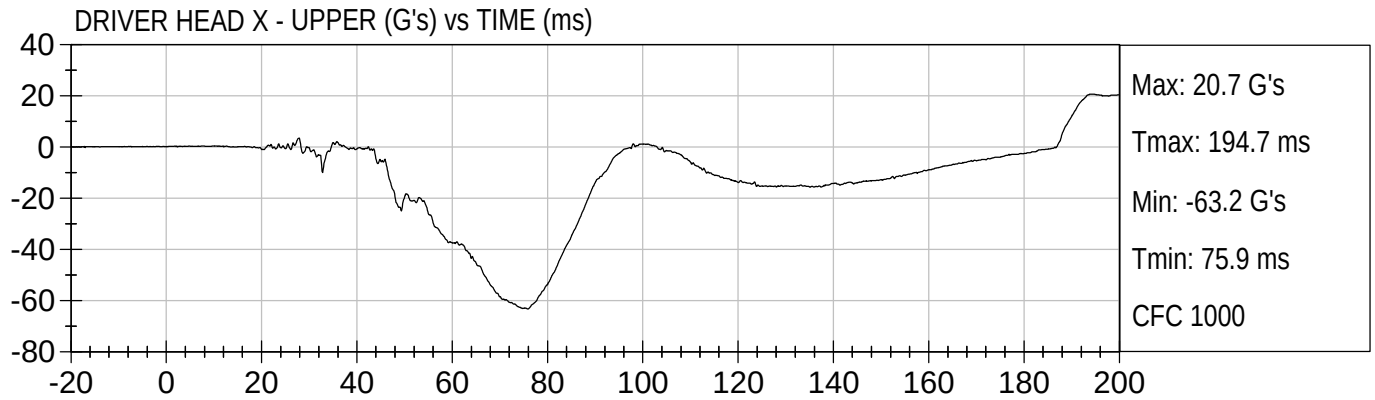
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35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

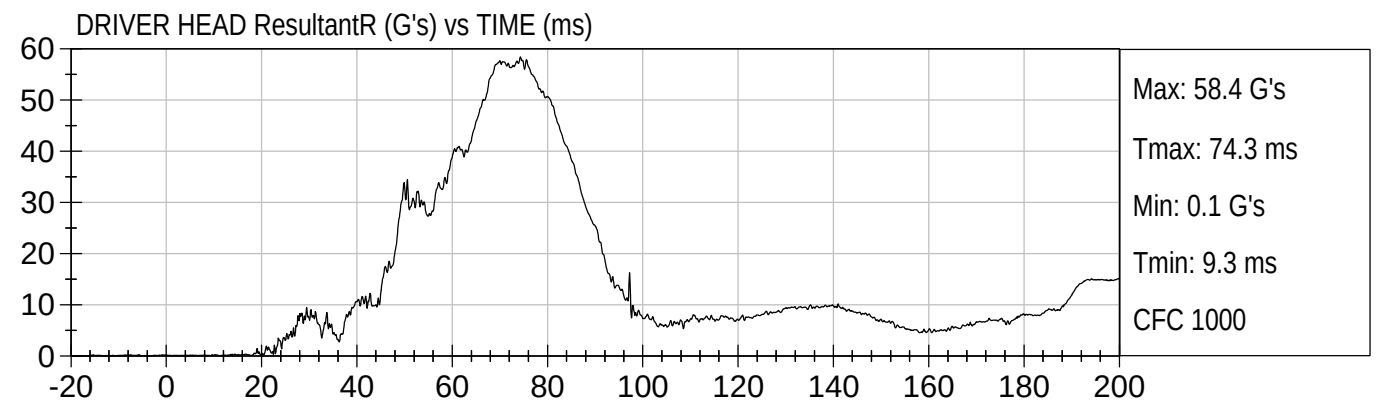
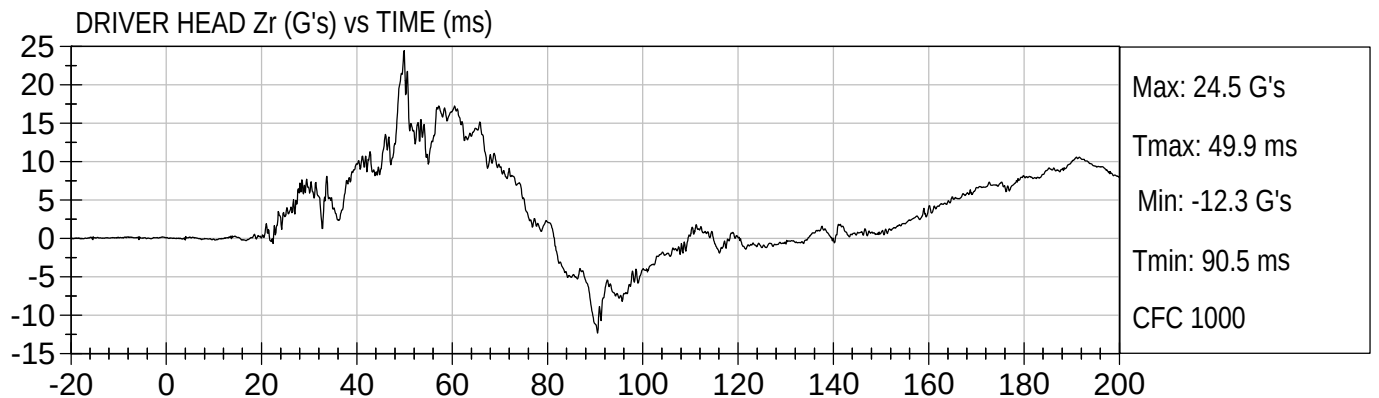
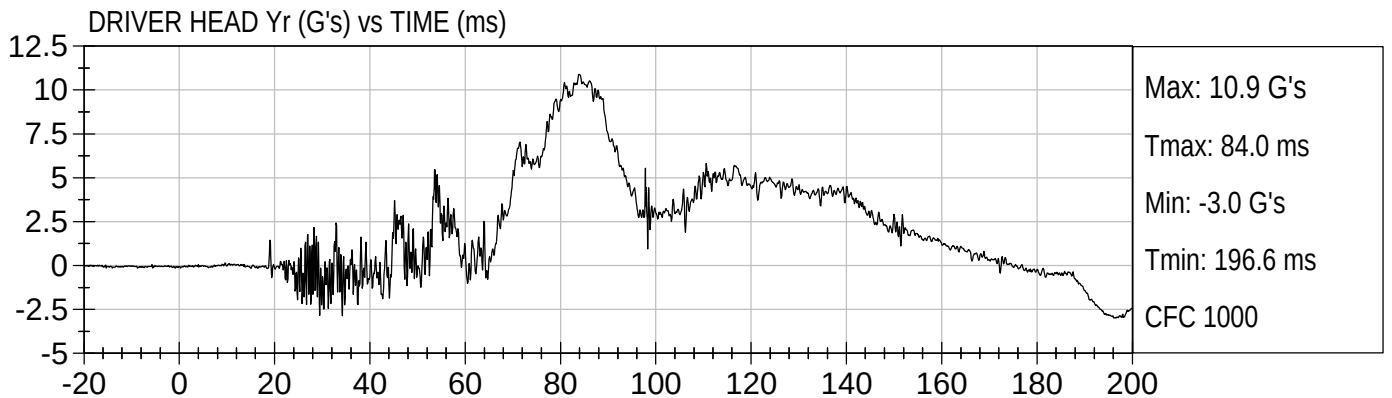
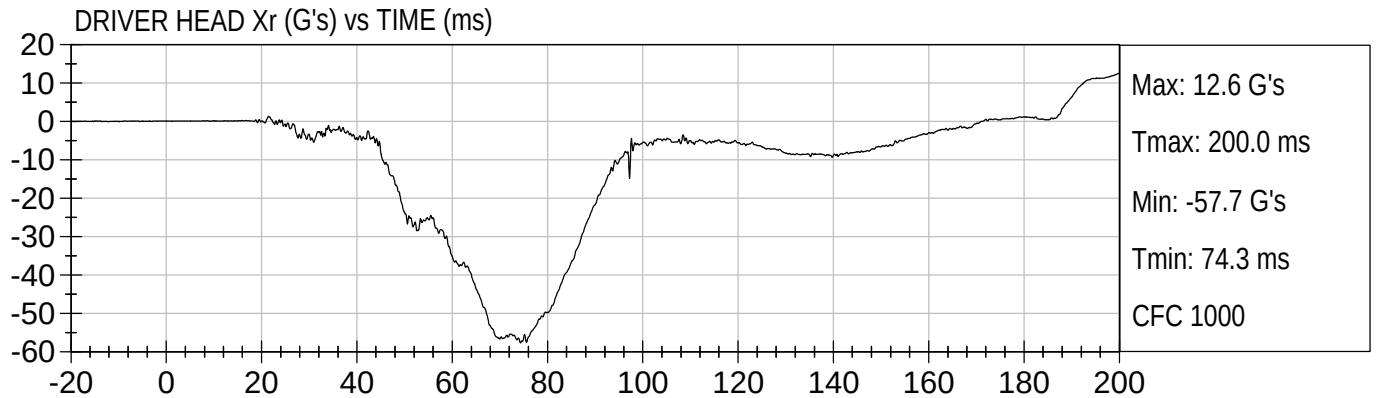
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)

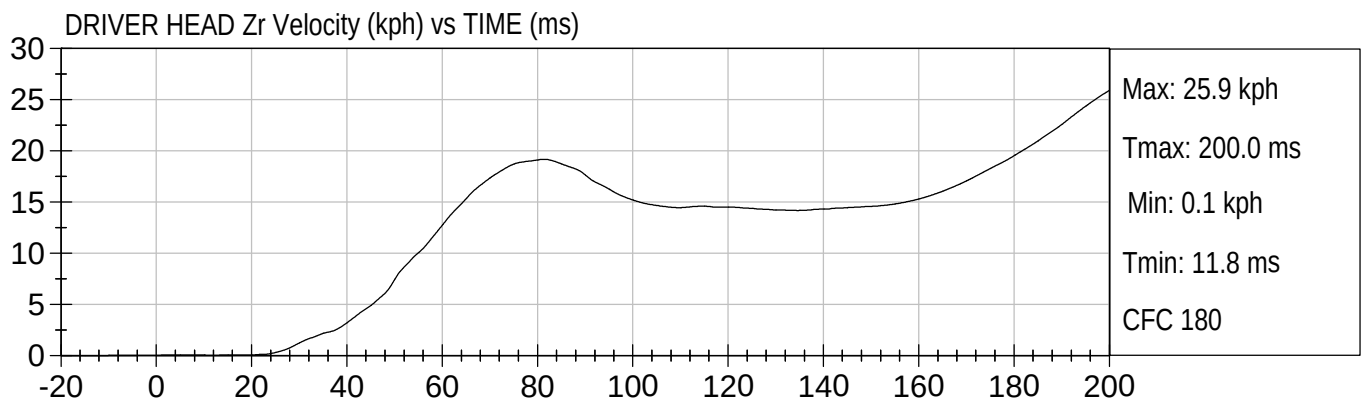
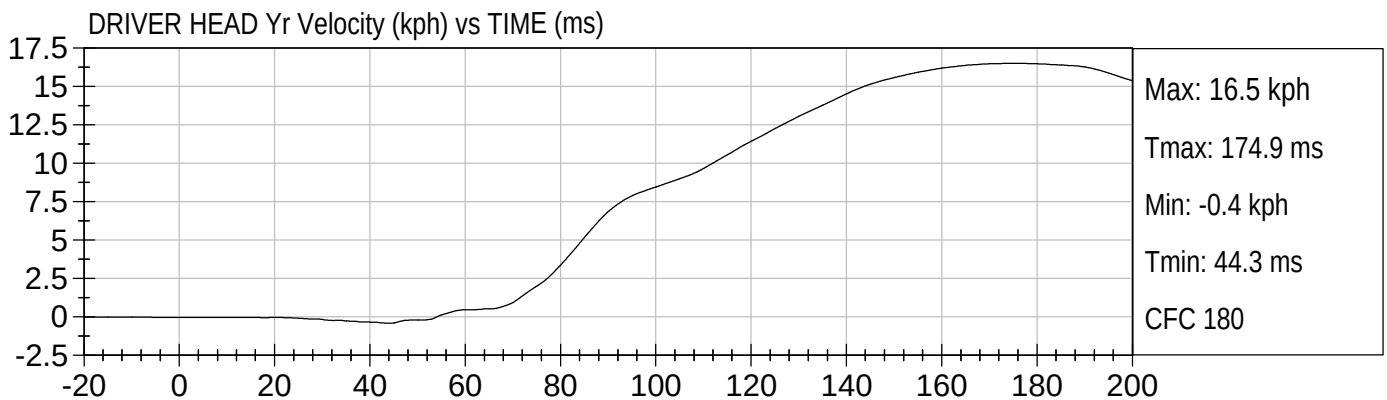
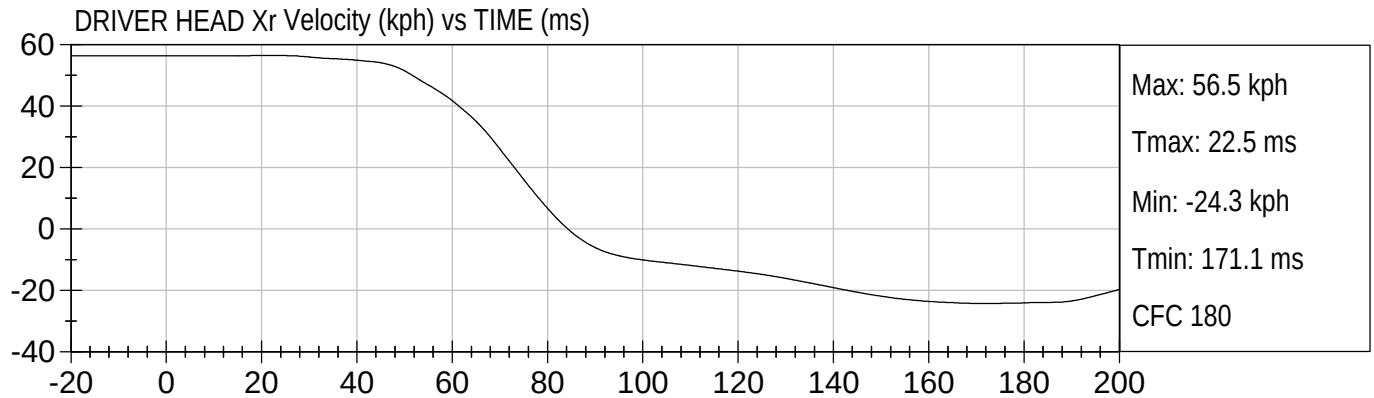




35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)

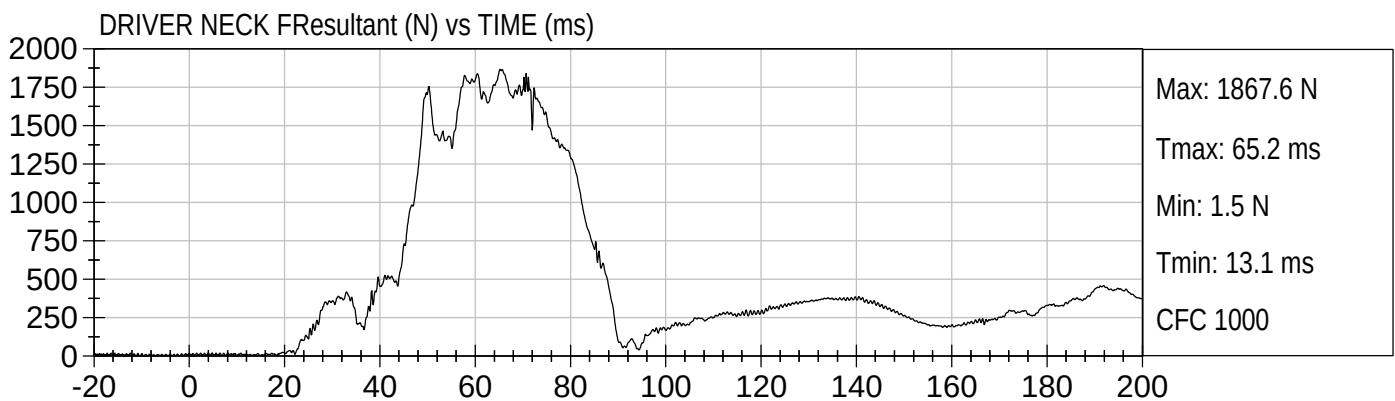
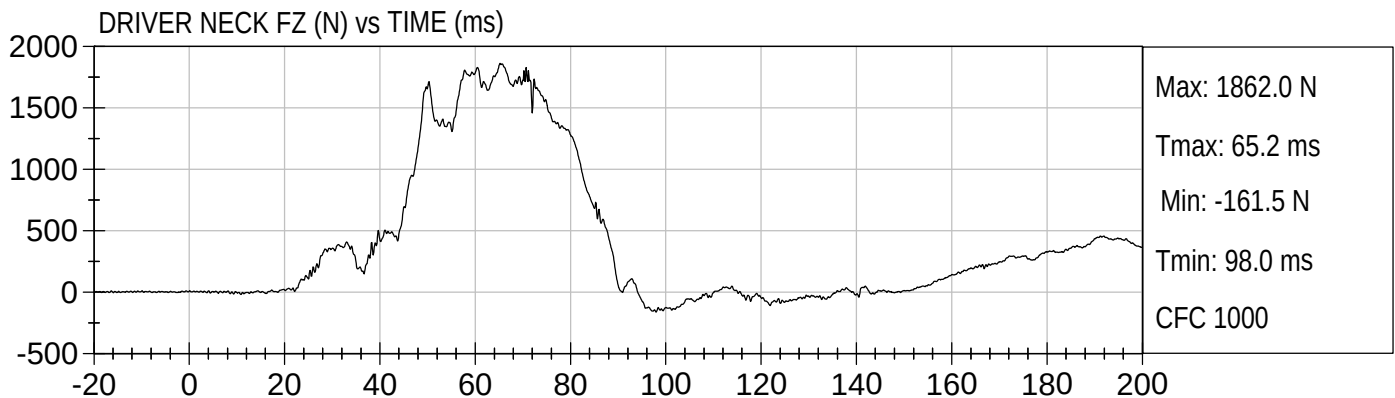
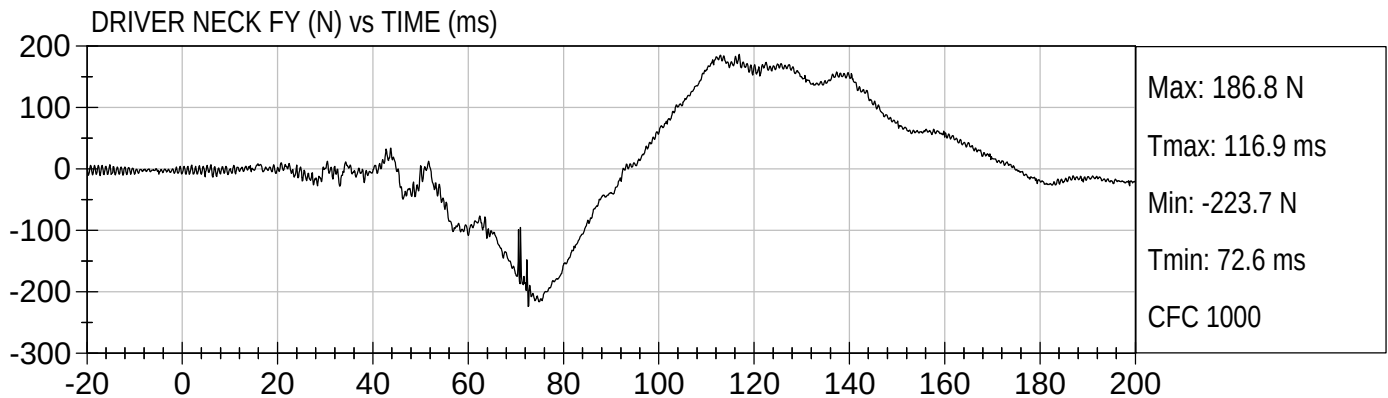
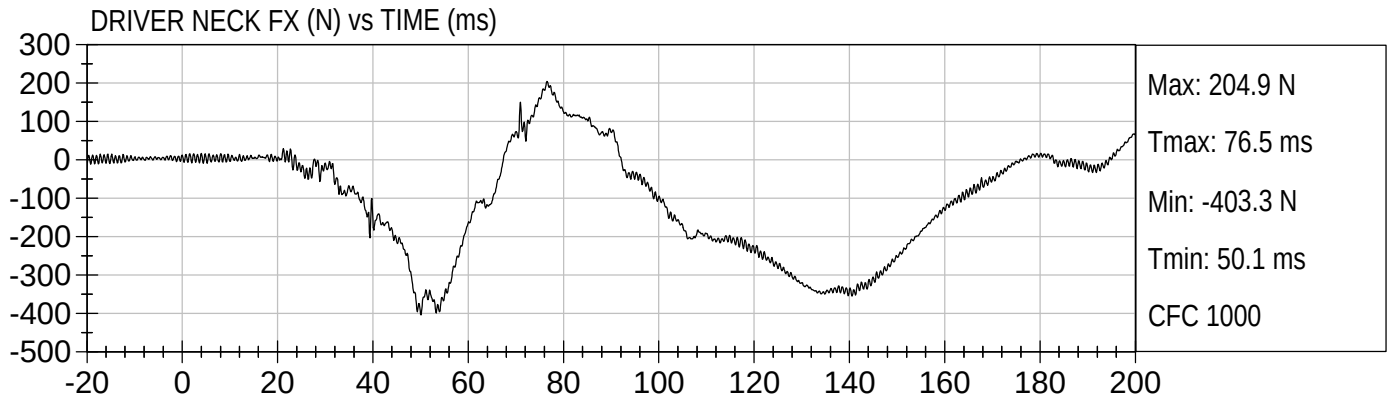


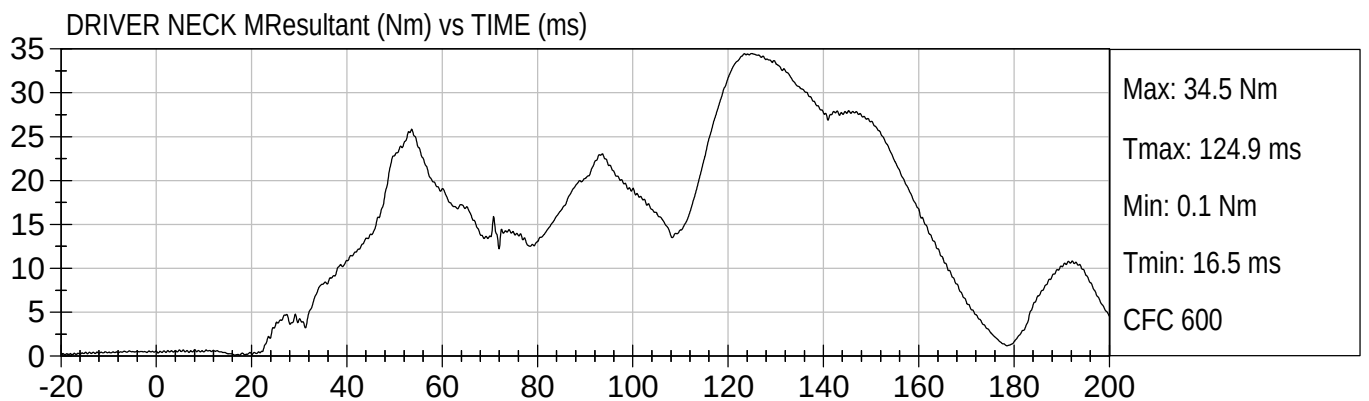
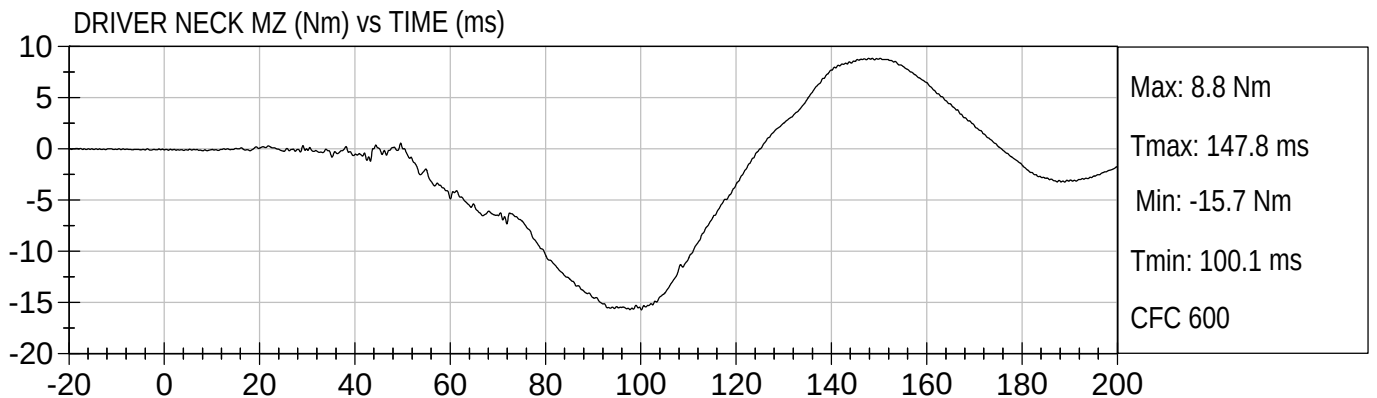
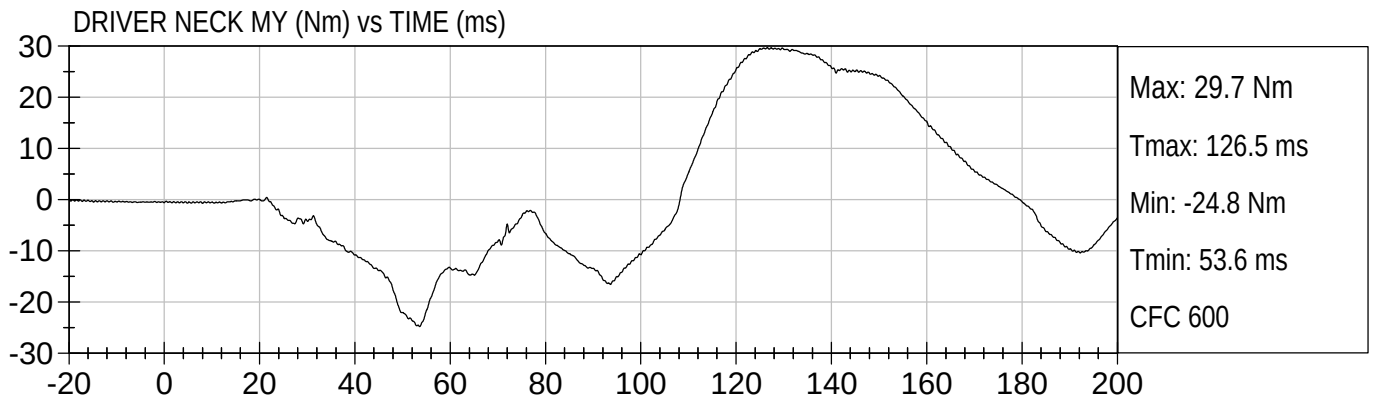
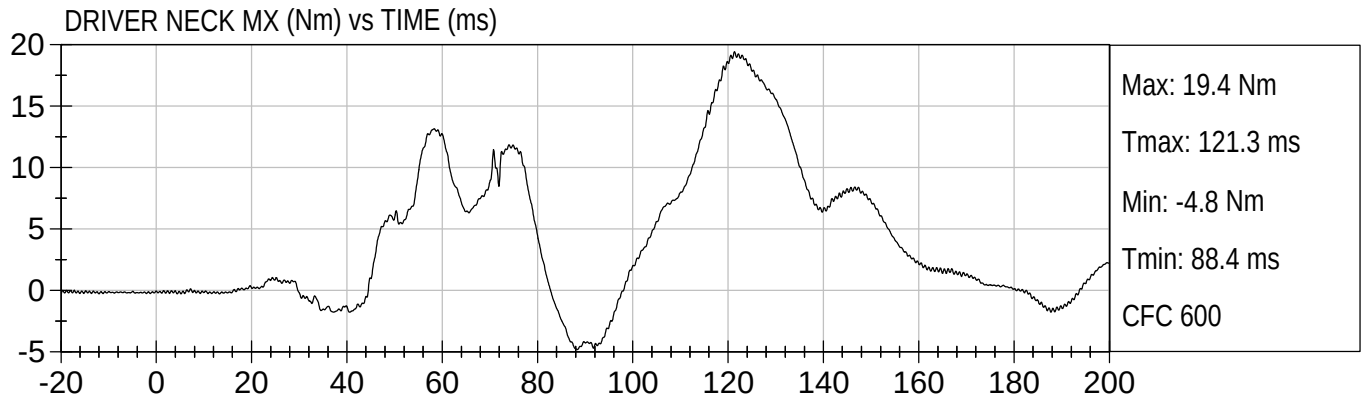


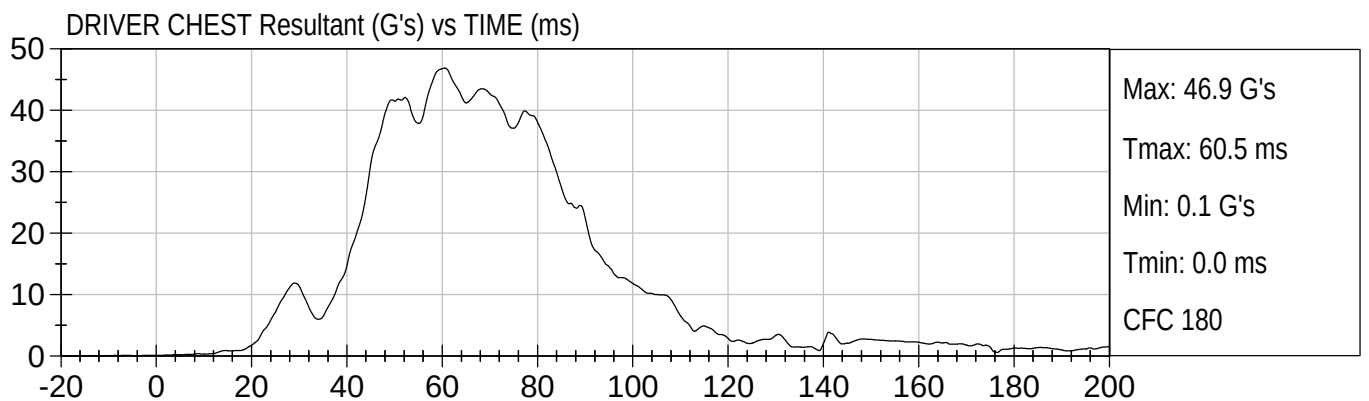
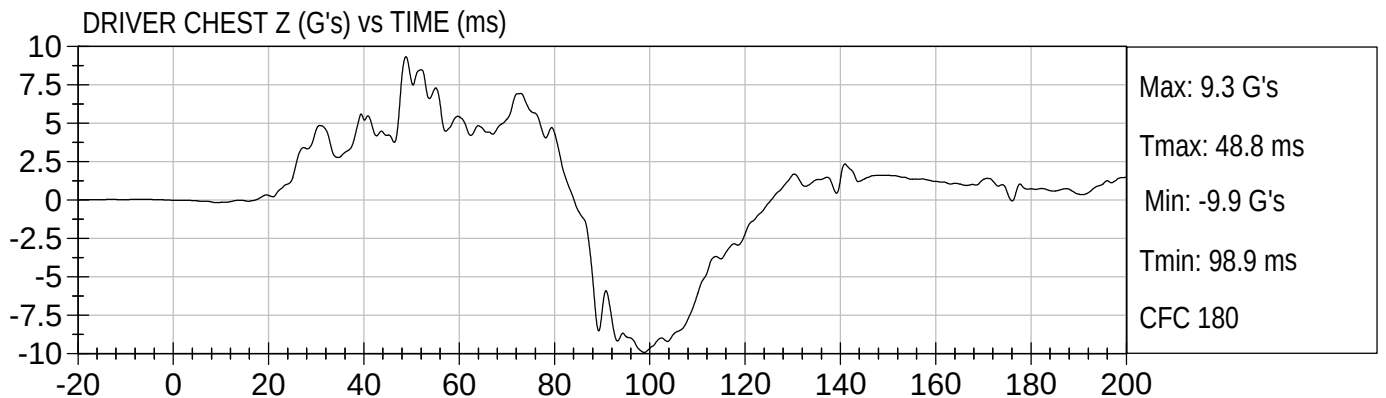
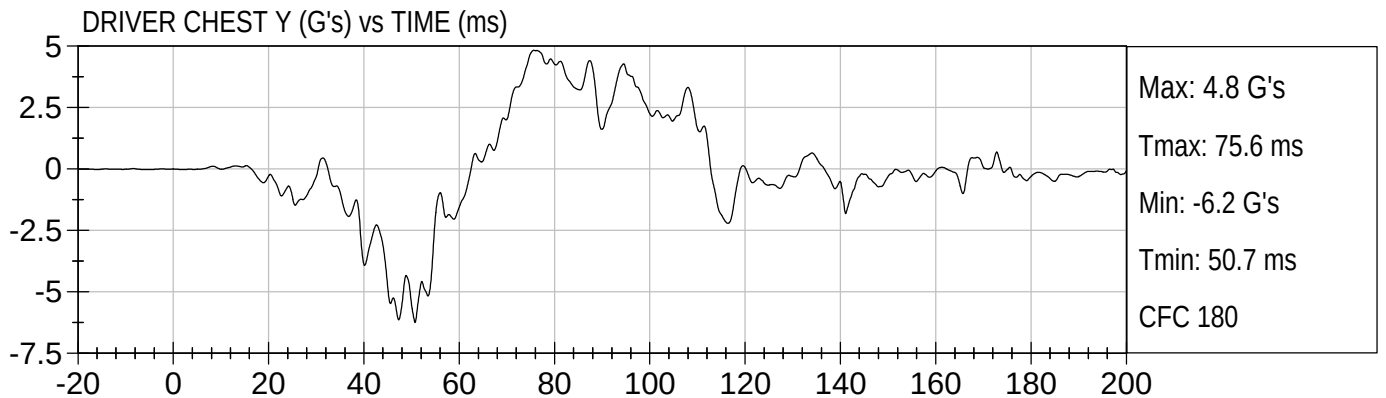
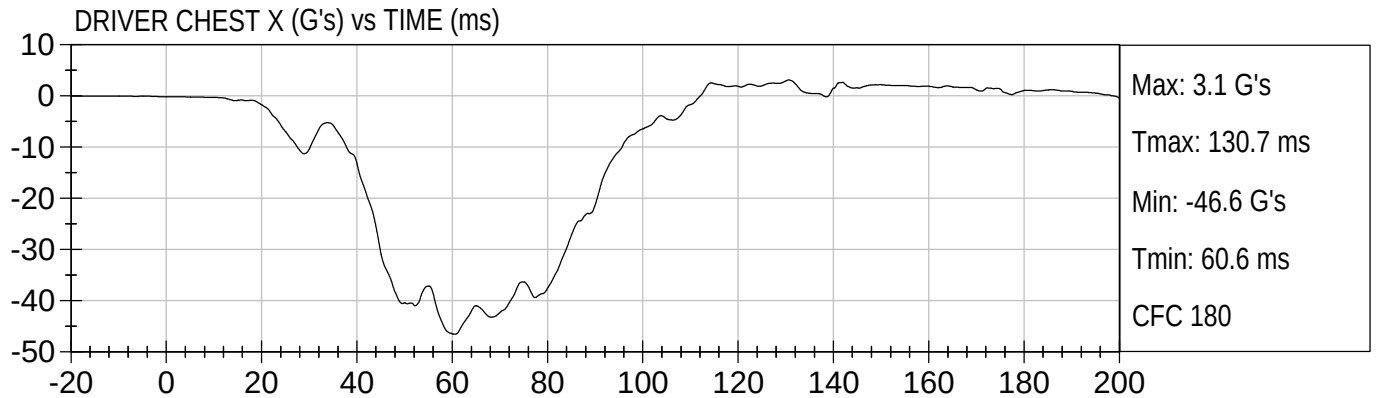


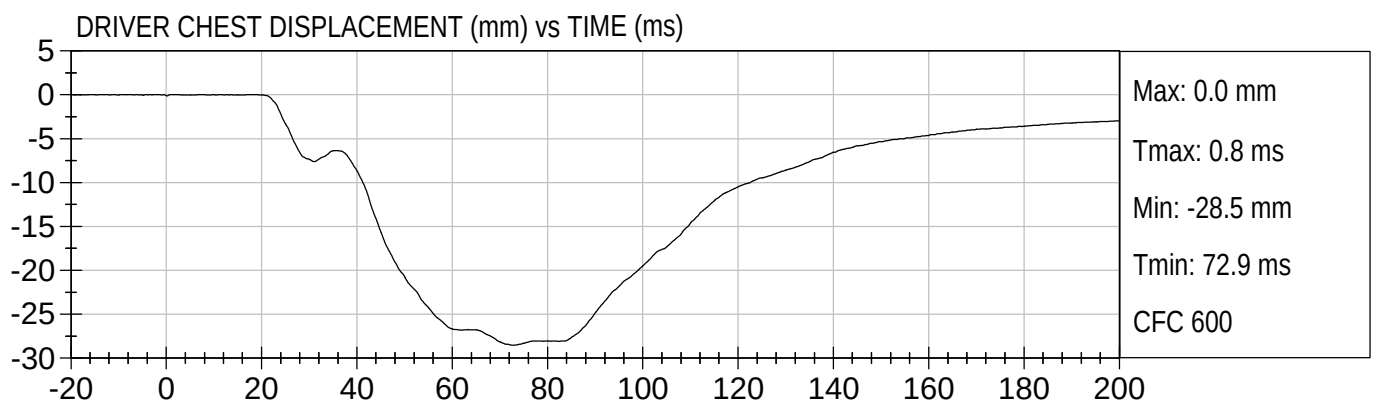
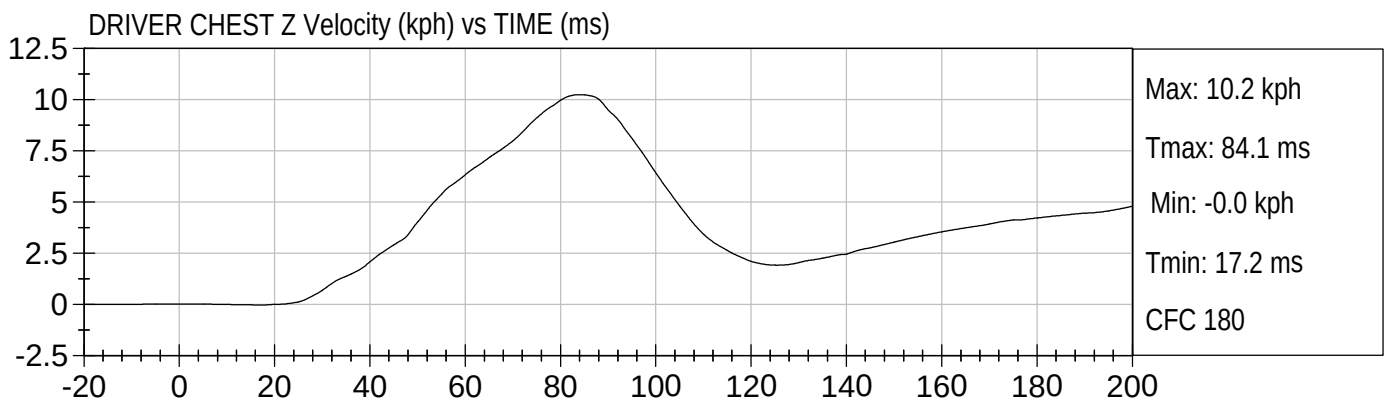
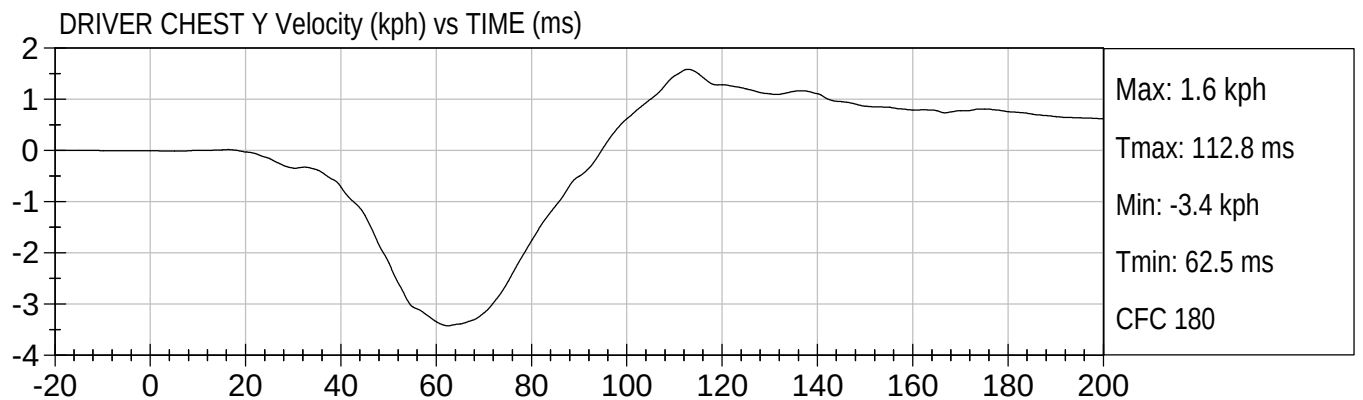
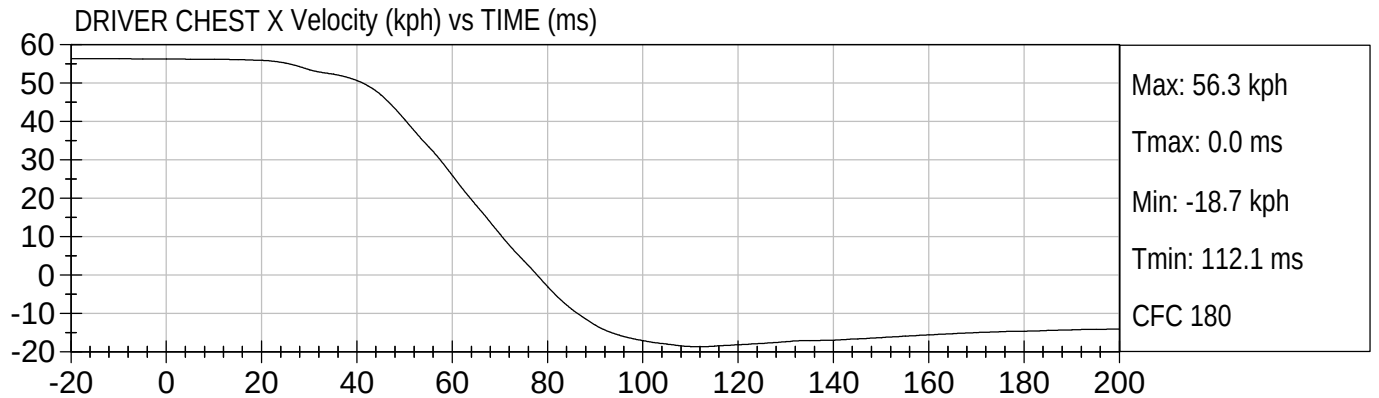
35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

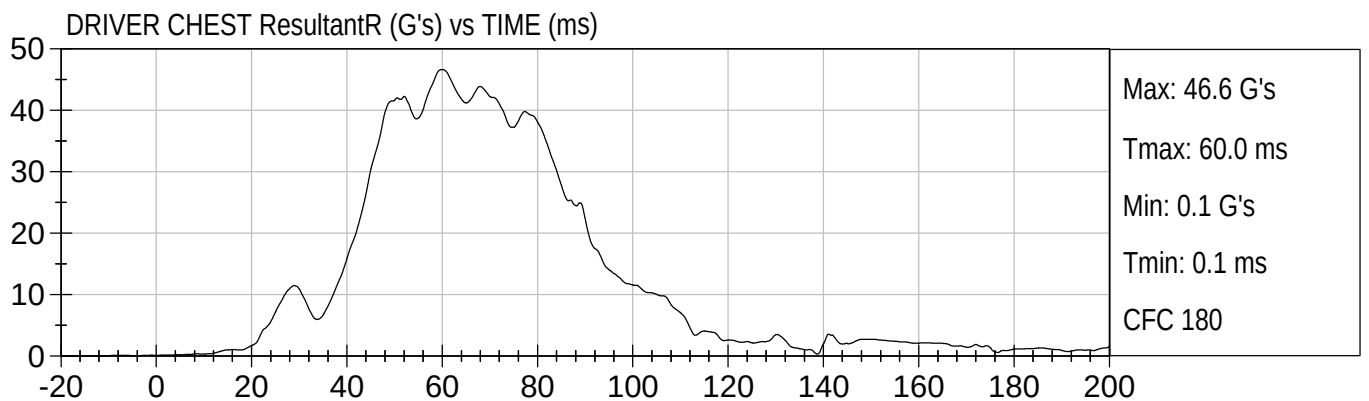
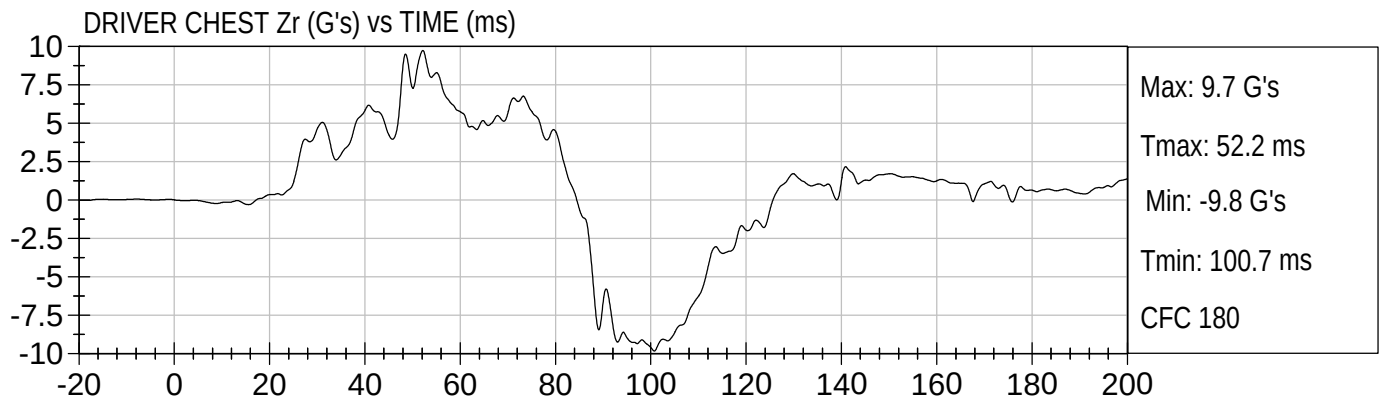
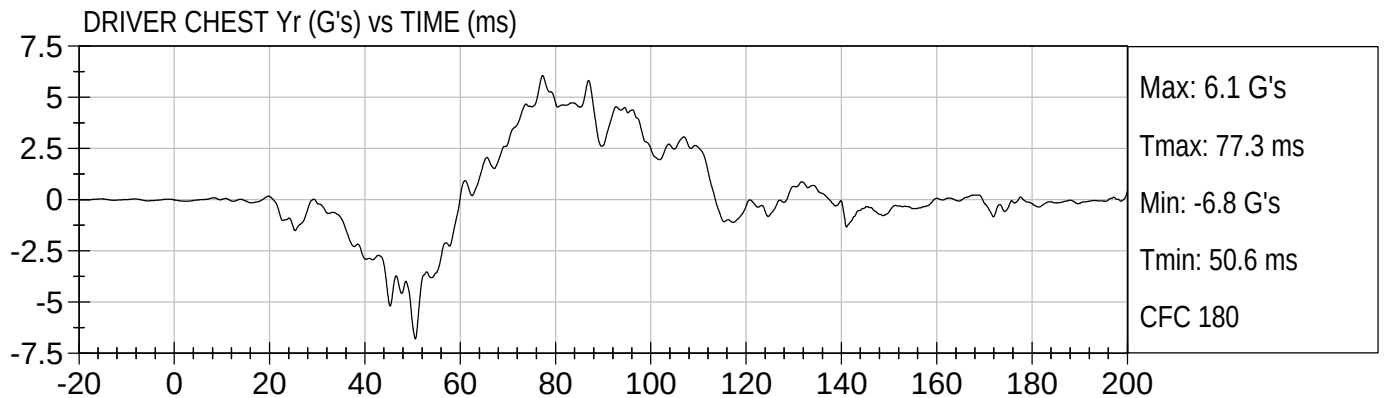
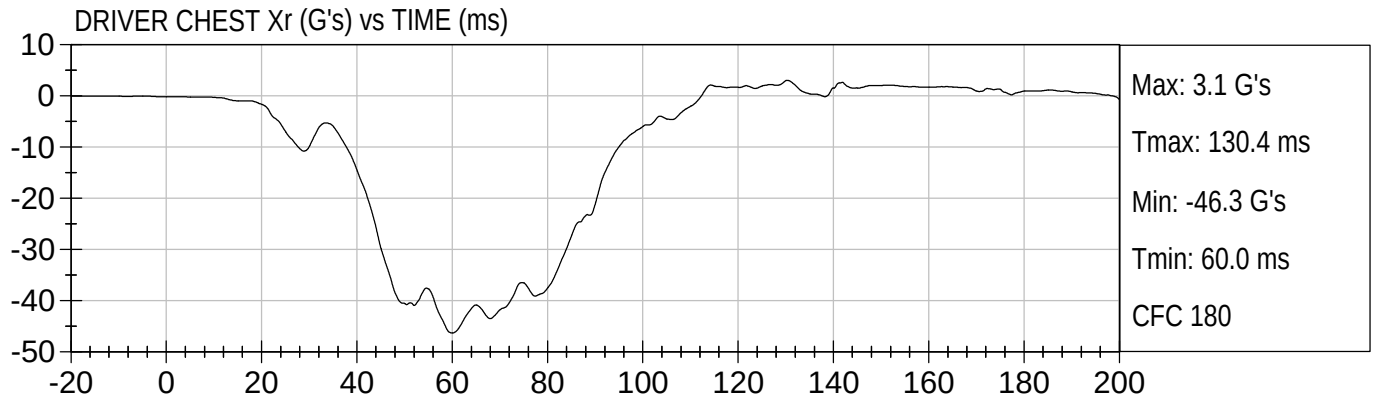
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)

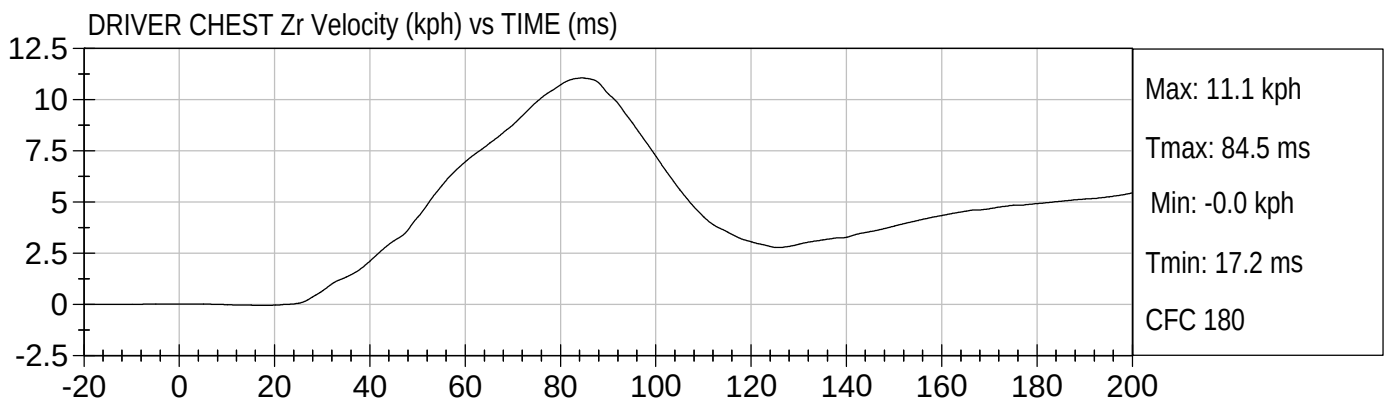
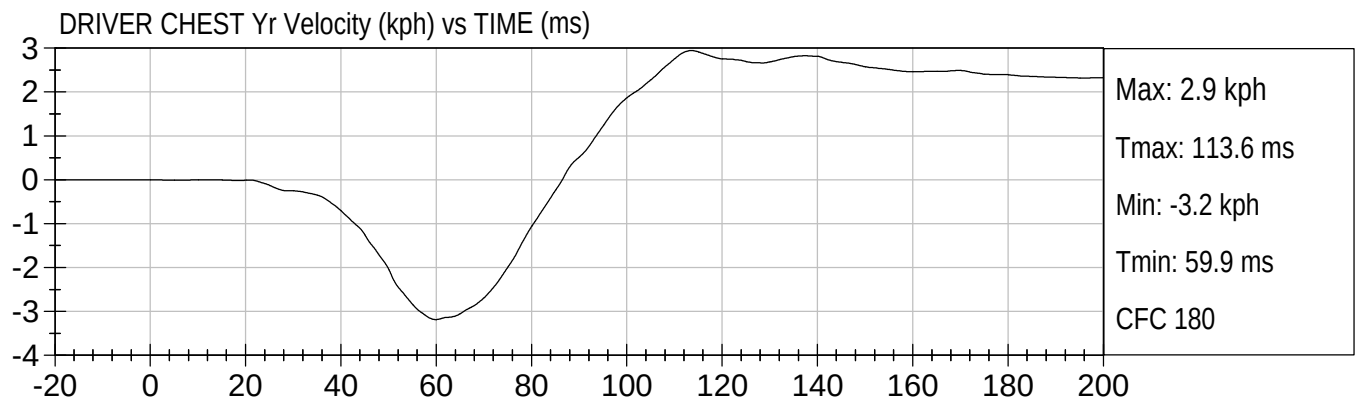
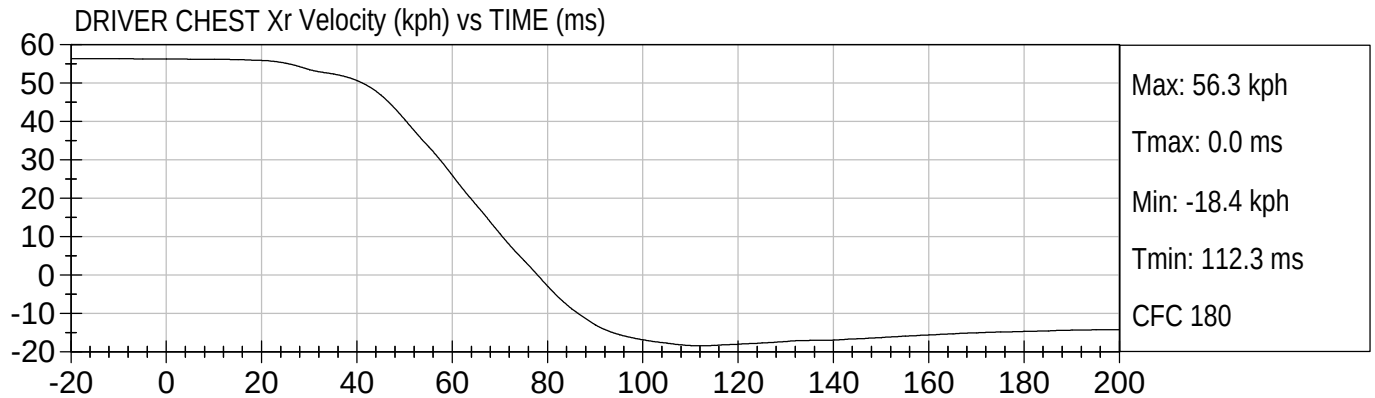


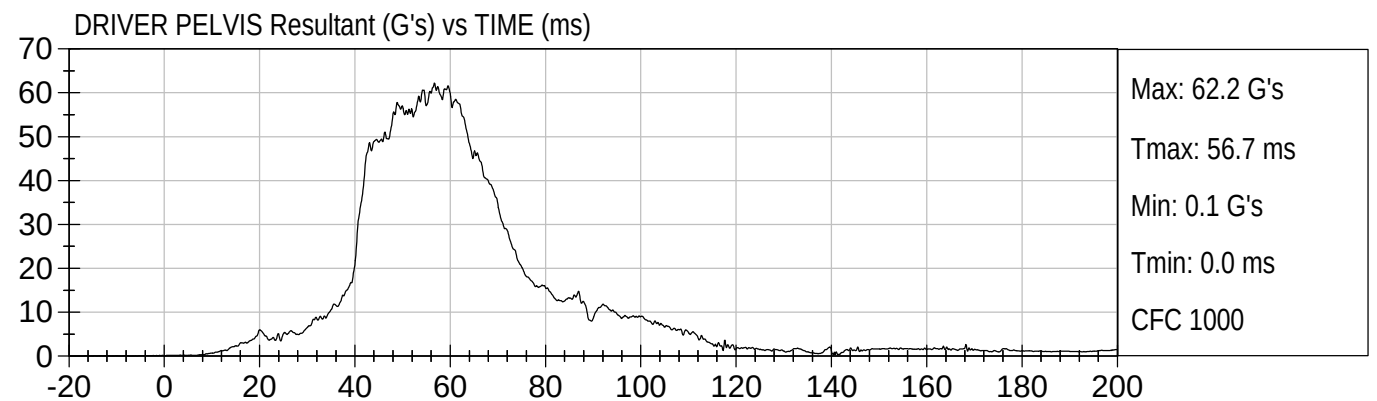
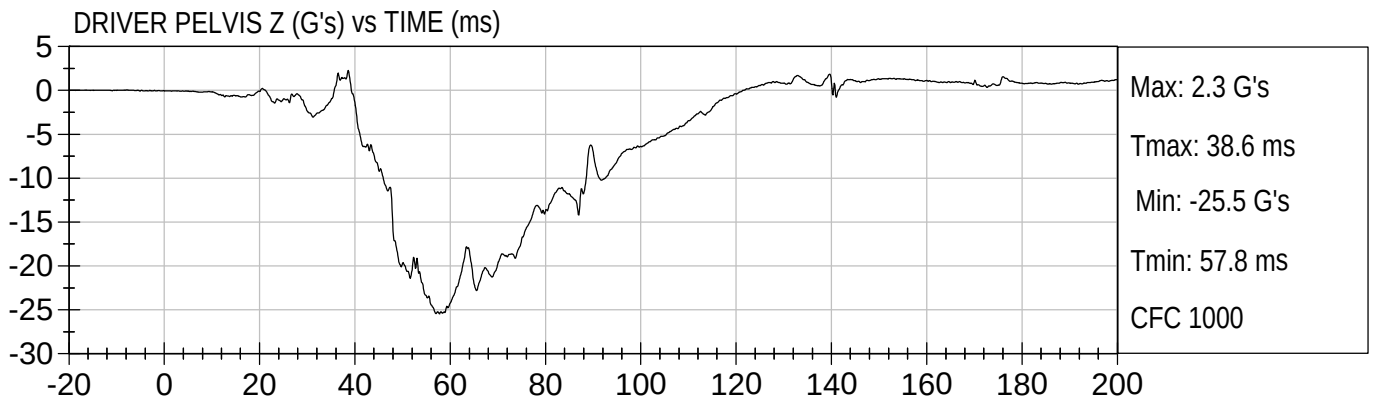
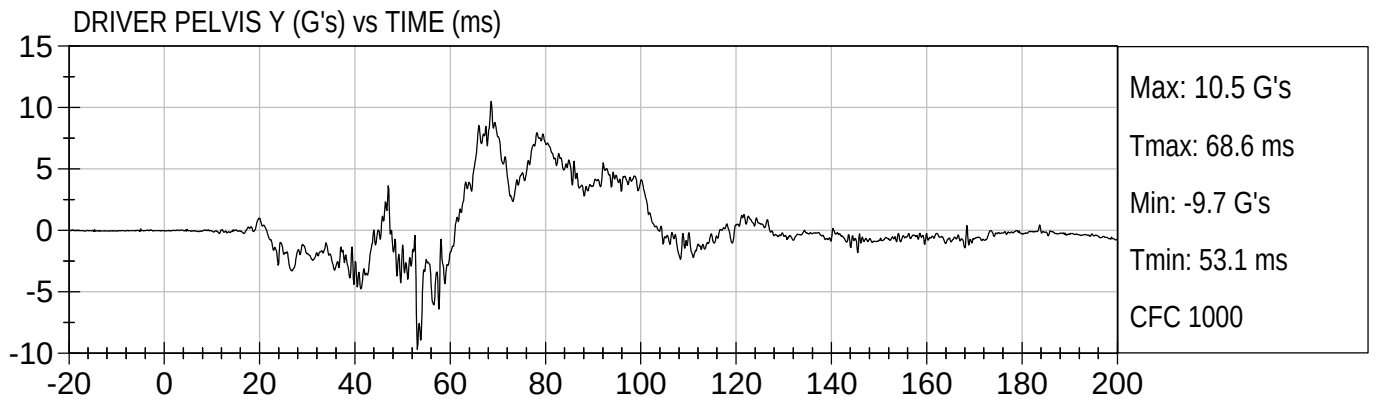
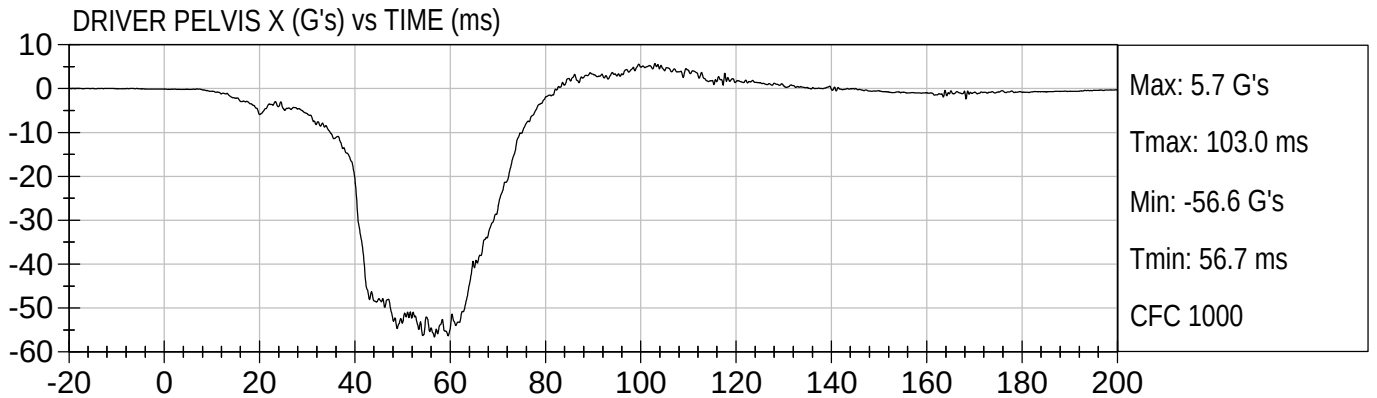


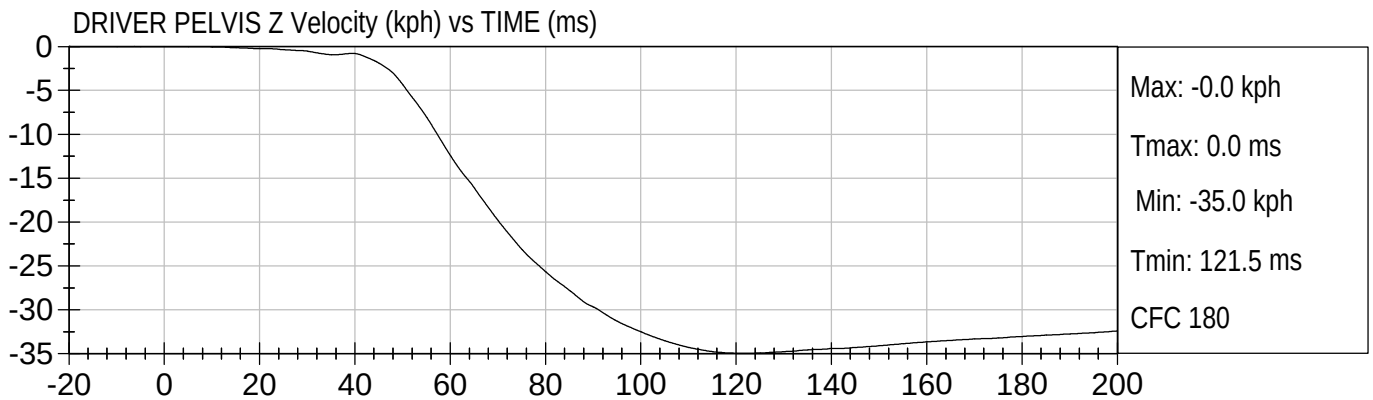
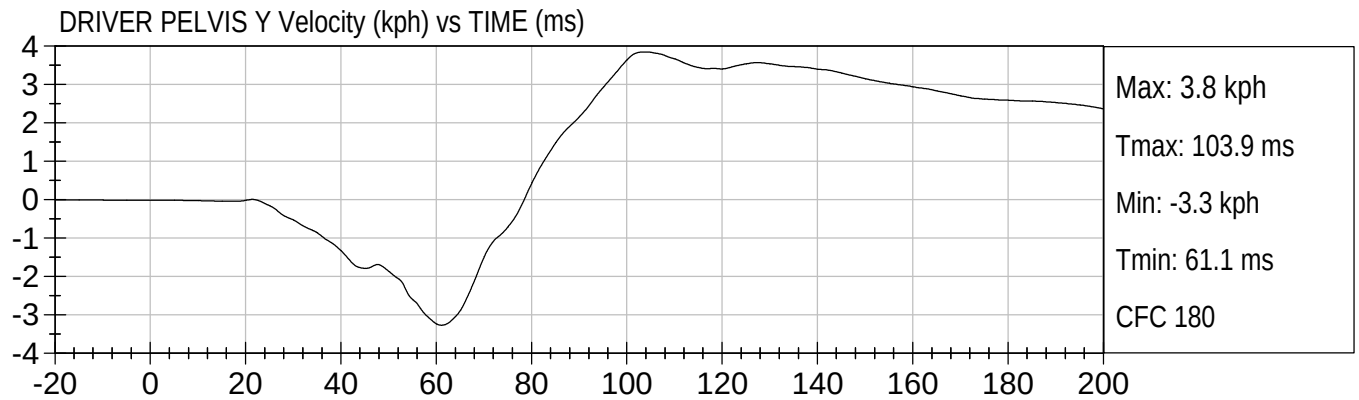
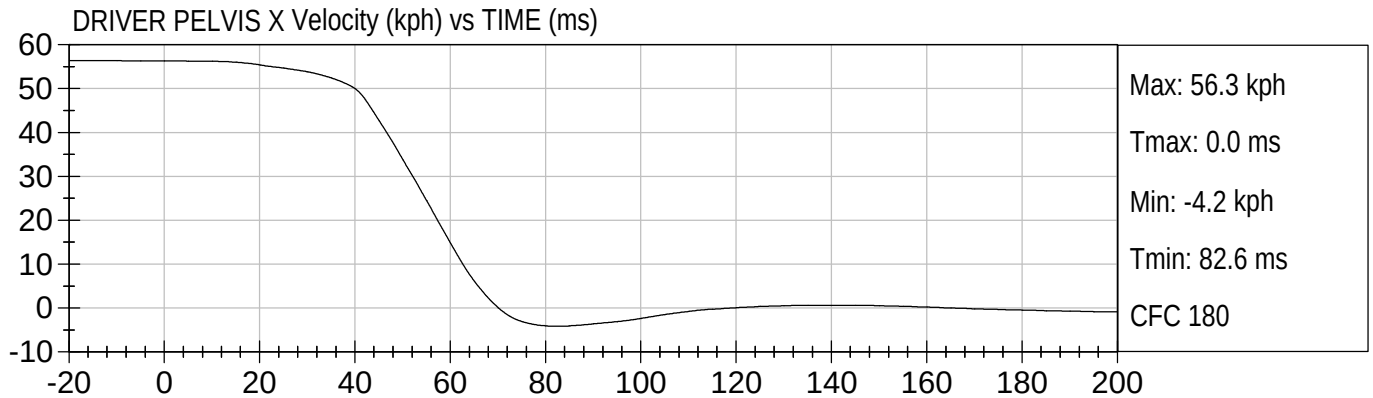


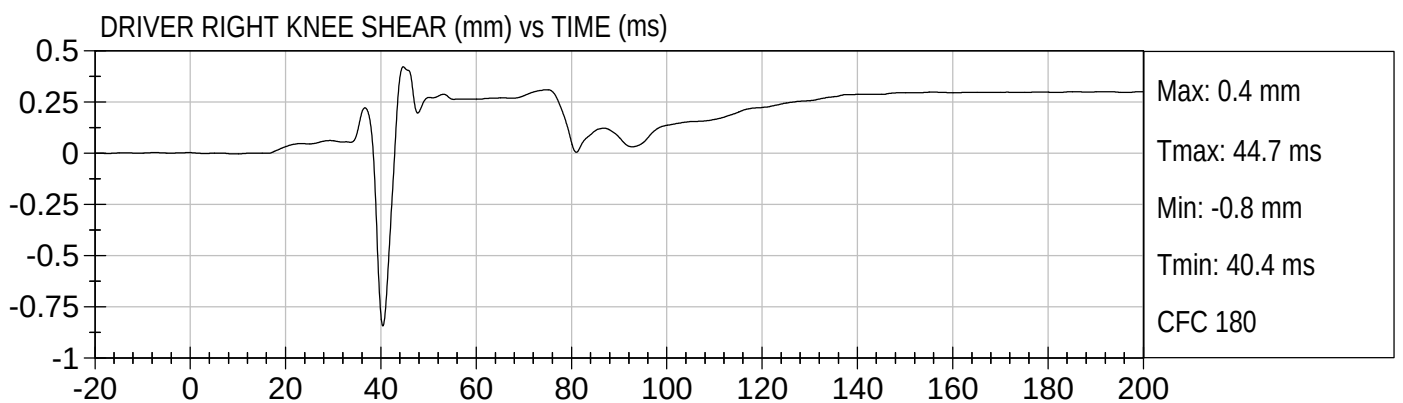
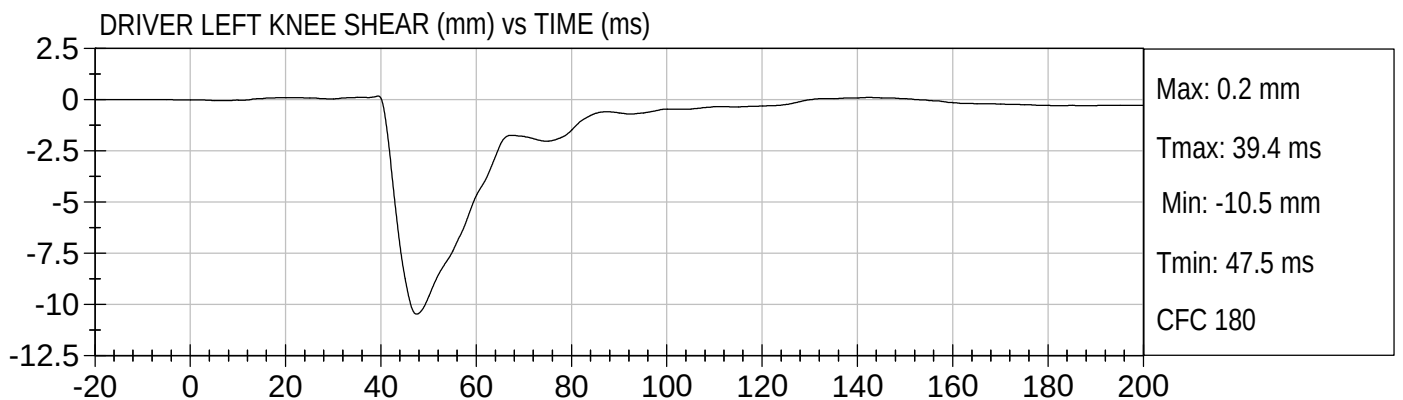
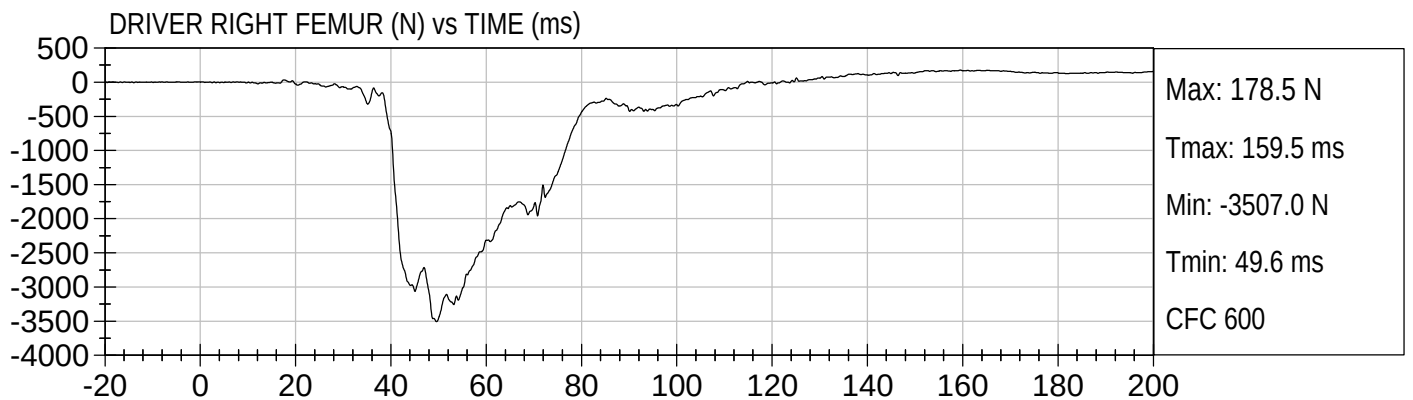
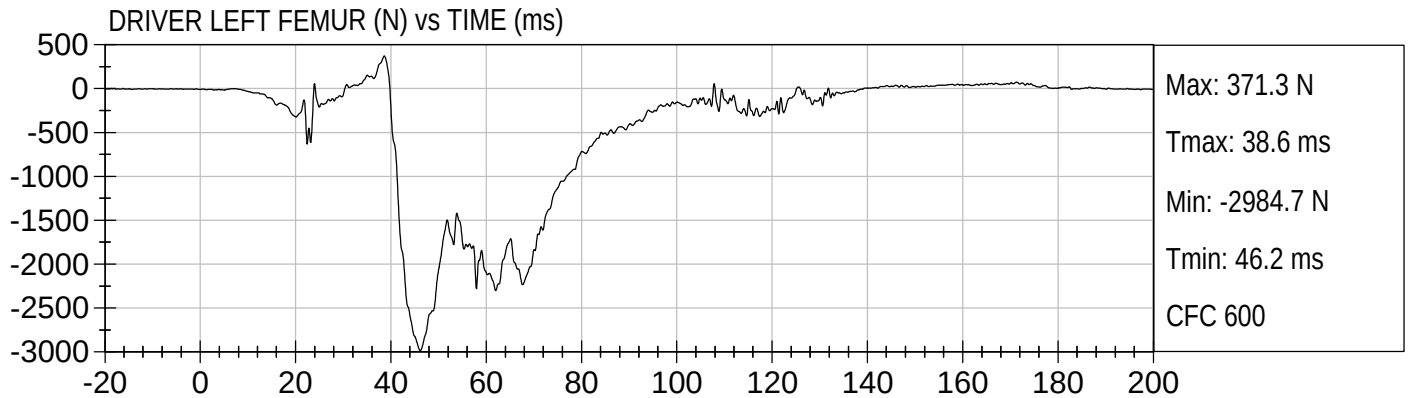








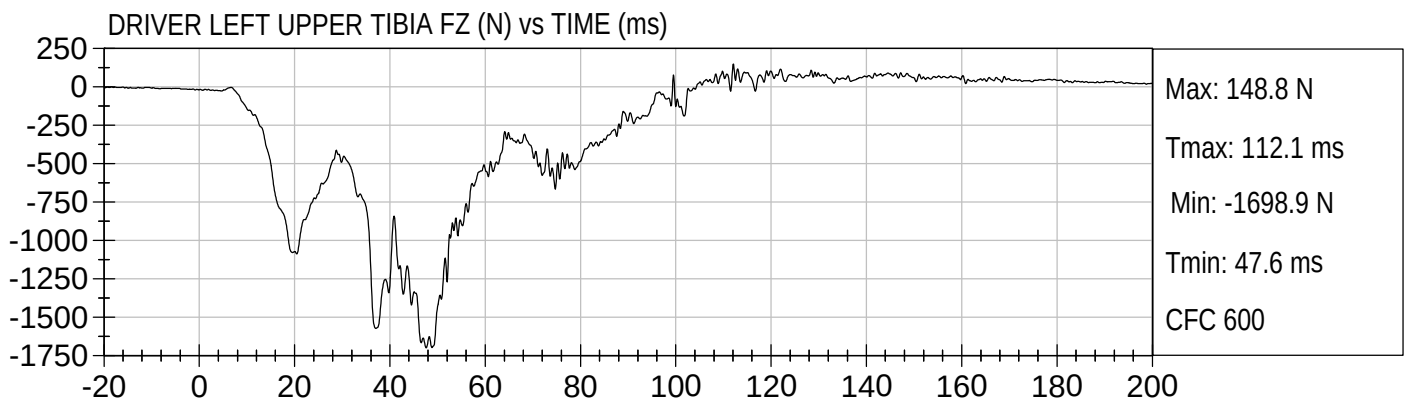
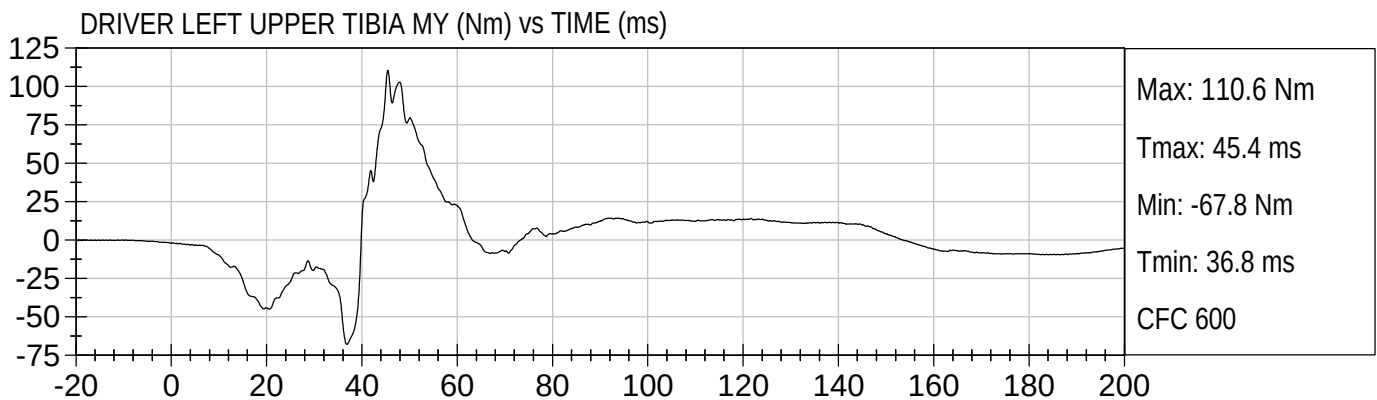
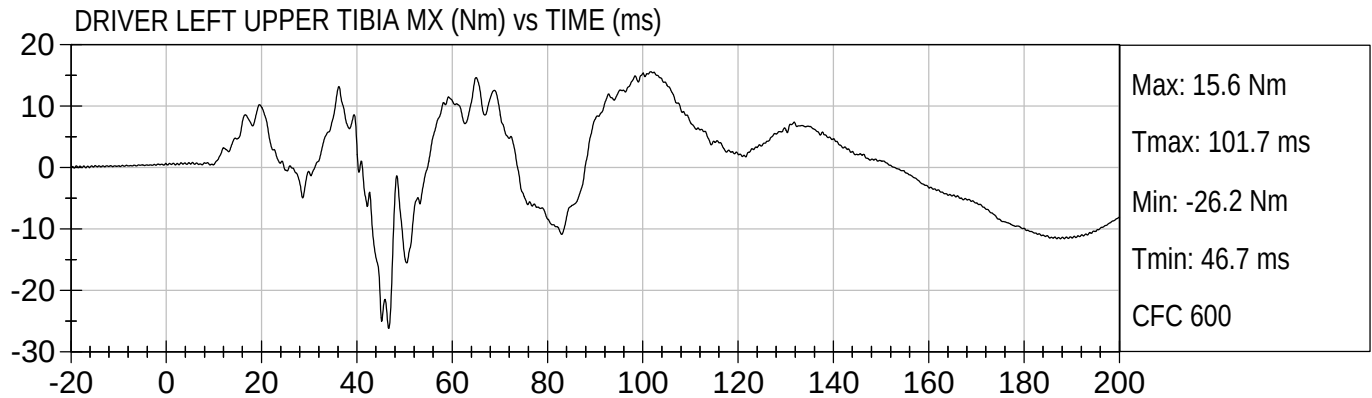


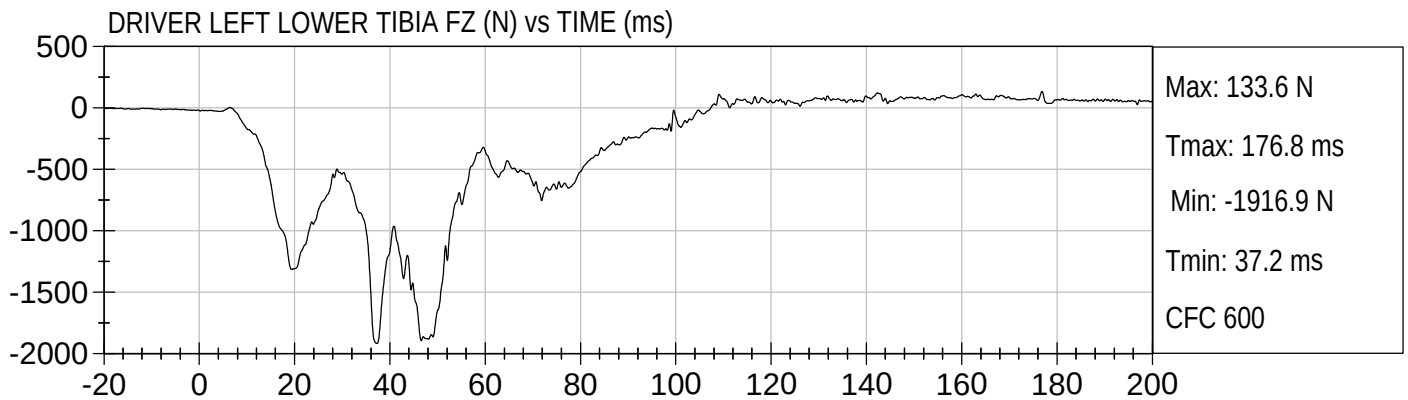
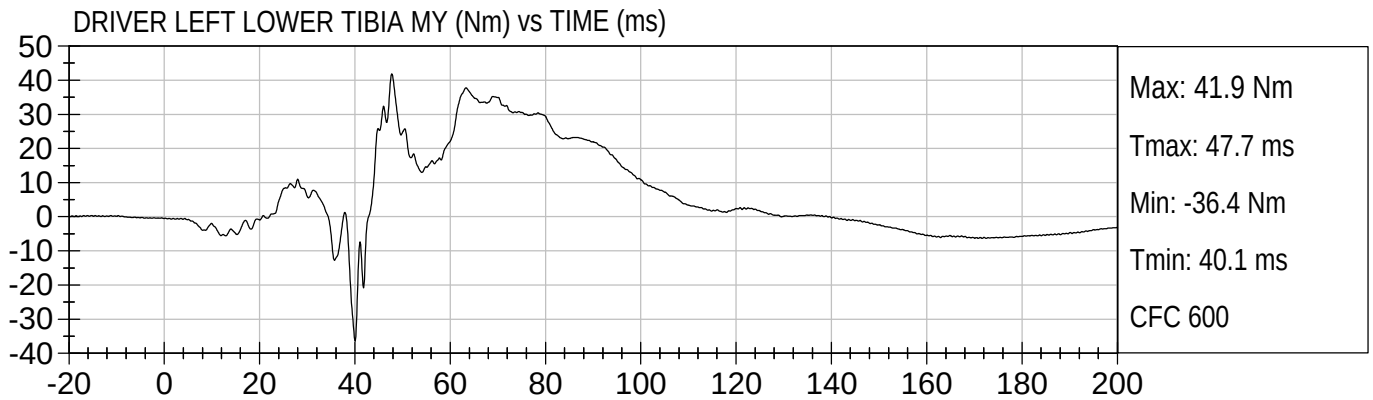
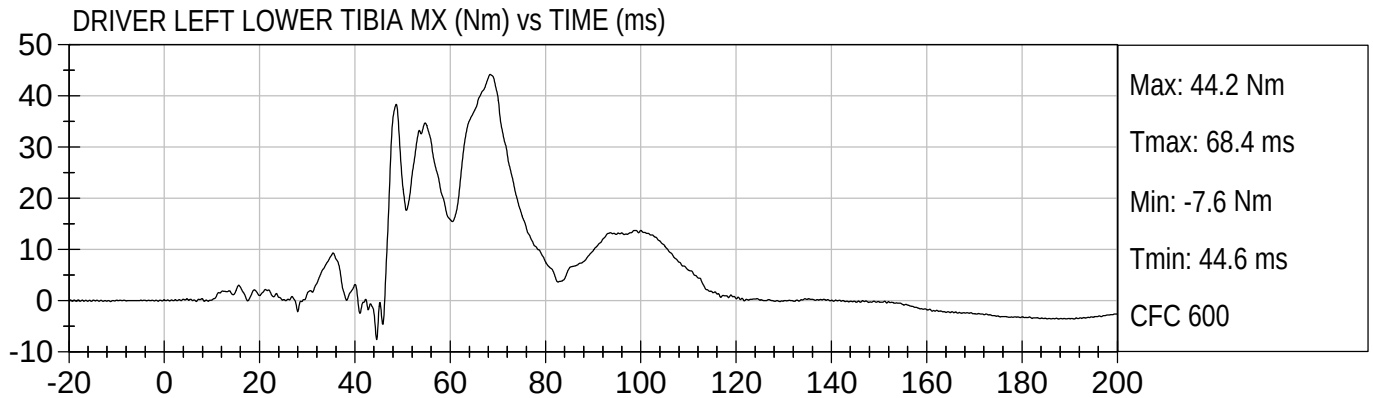




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2002 MITSUBISHI LANCER (M25601)

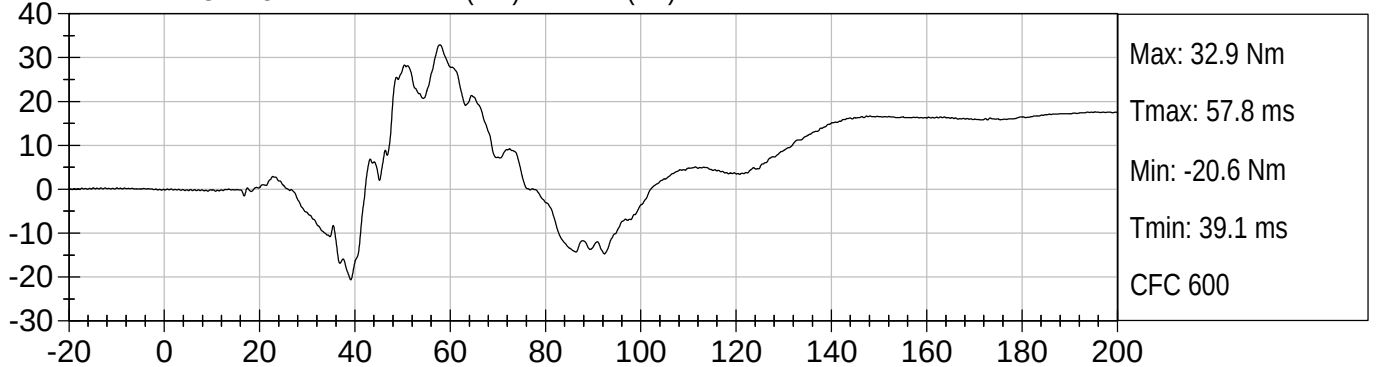
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)



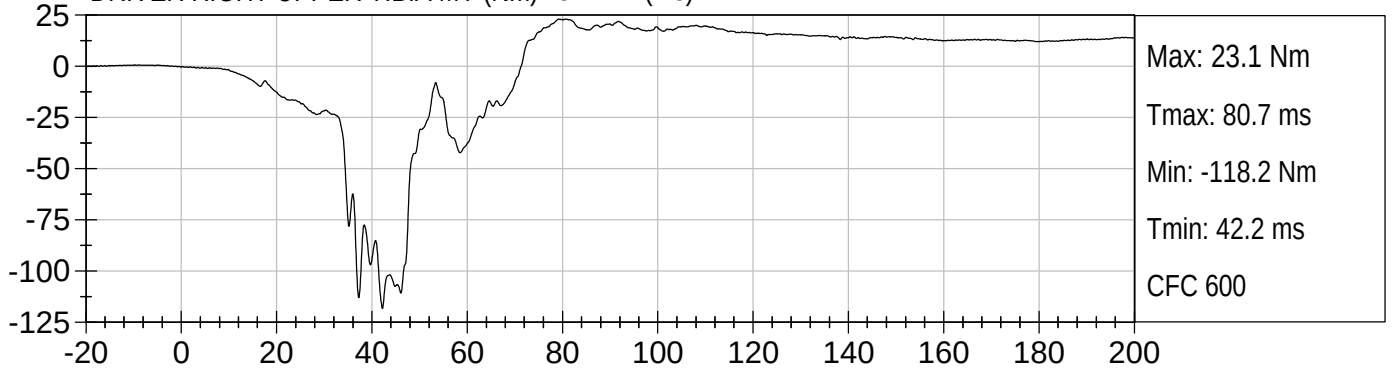




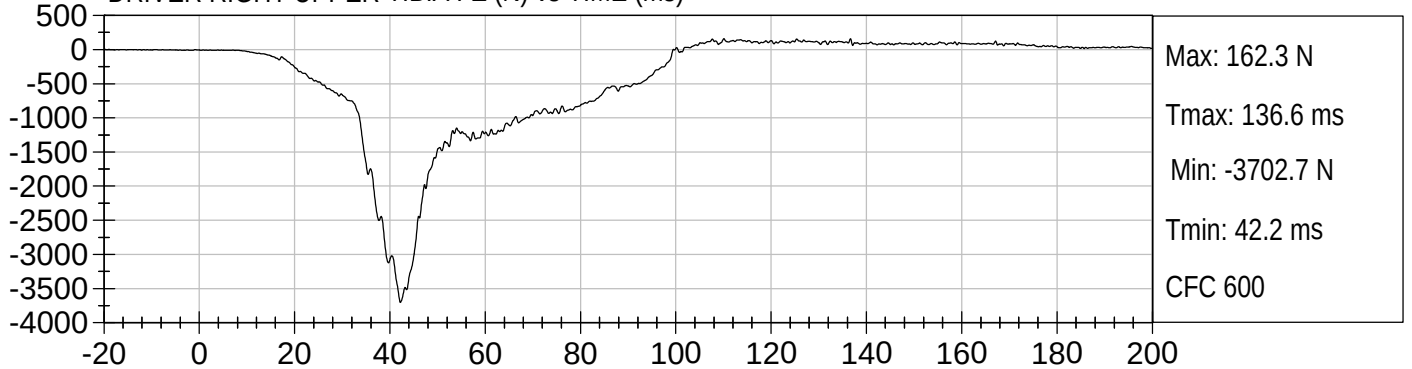
DRIVER RIGHT UPPER TIBIA MX (Nm) vs TIME (ms)



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

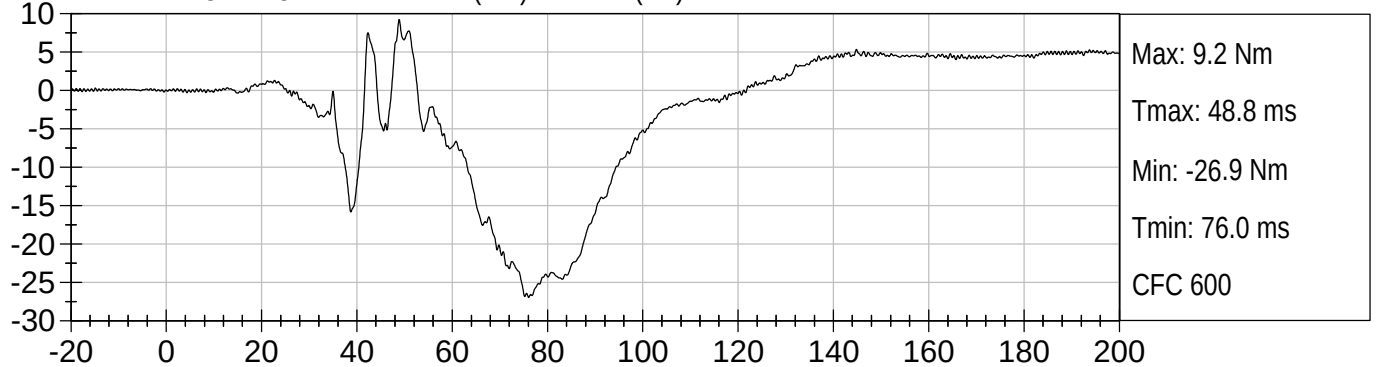


DRIVER RIGHT UPPER TIBIA FZ (N) vs TIME (ms)

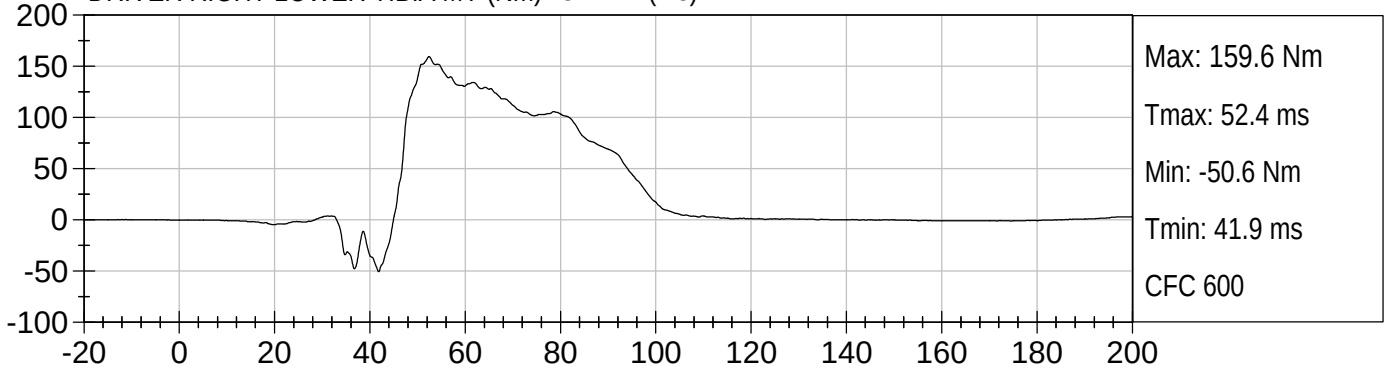




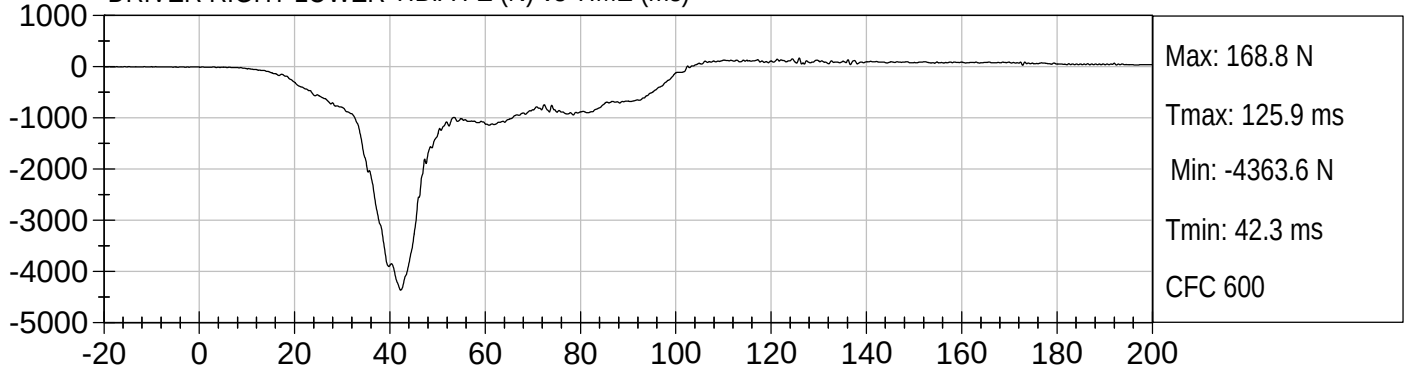
DRIVER RIGHT LOWER TIBIA MX (Nm) vs TIME (ms)

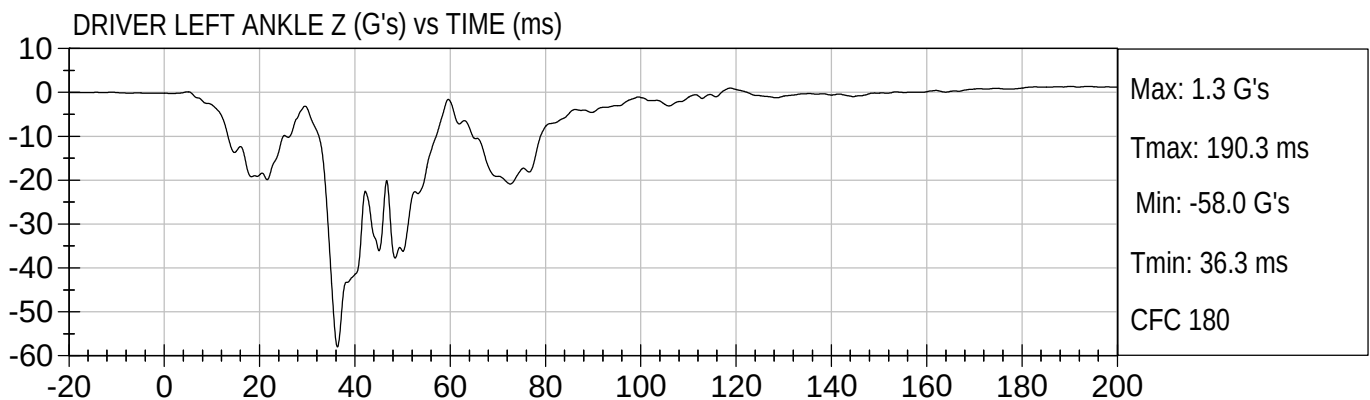
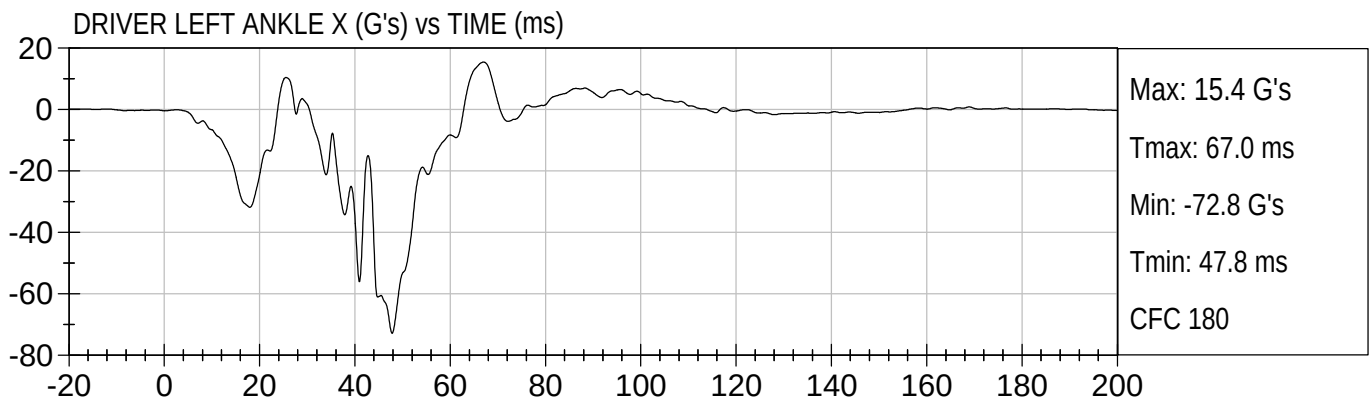
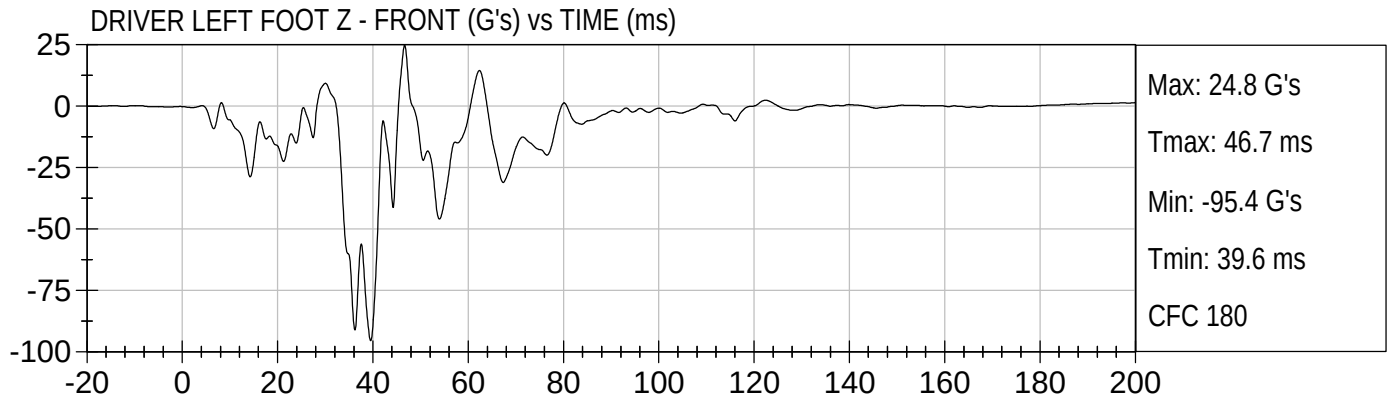


DRIVER RIGHT LOWER TIBIA MY (Nm) vs TIME (ms)



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

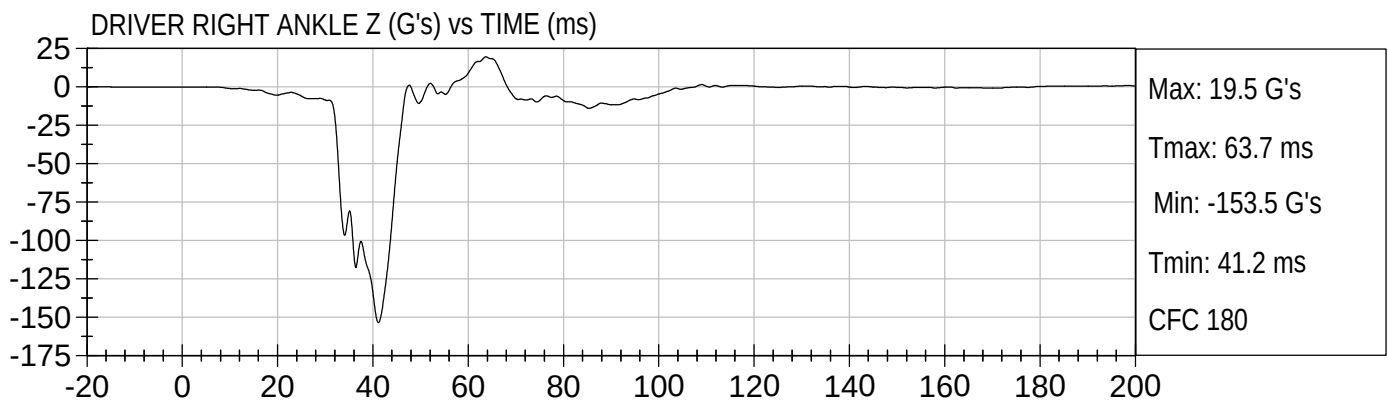
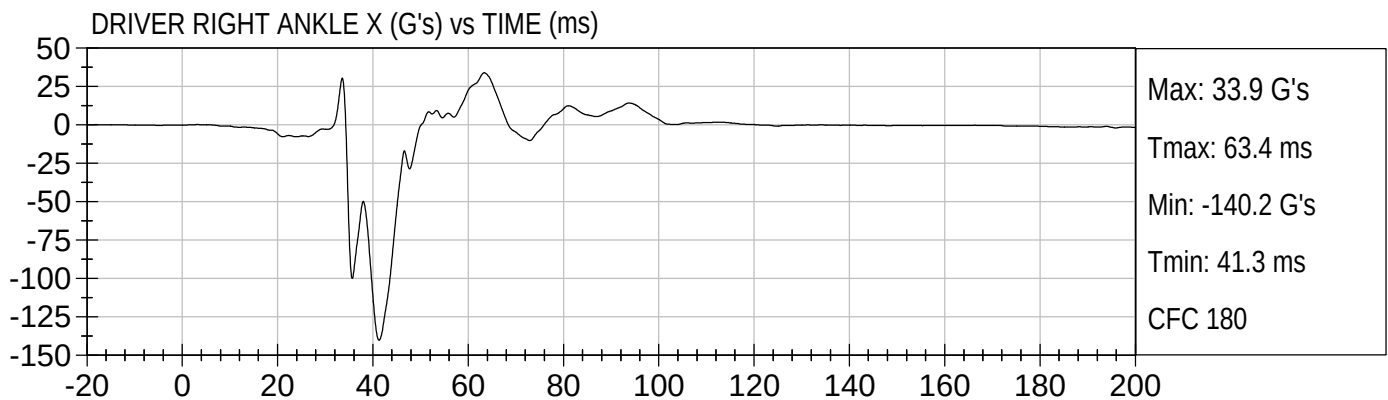
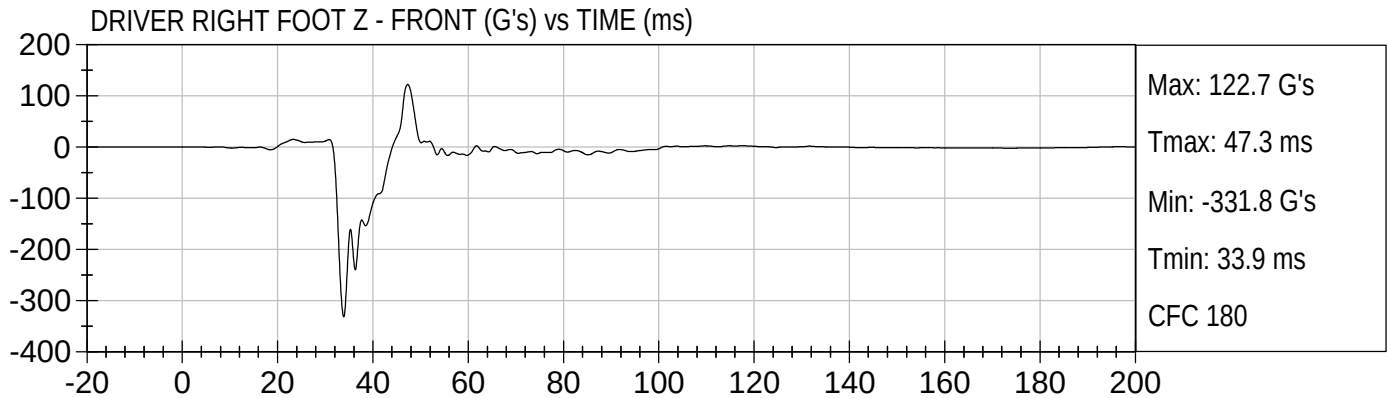






35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

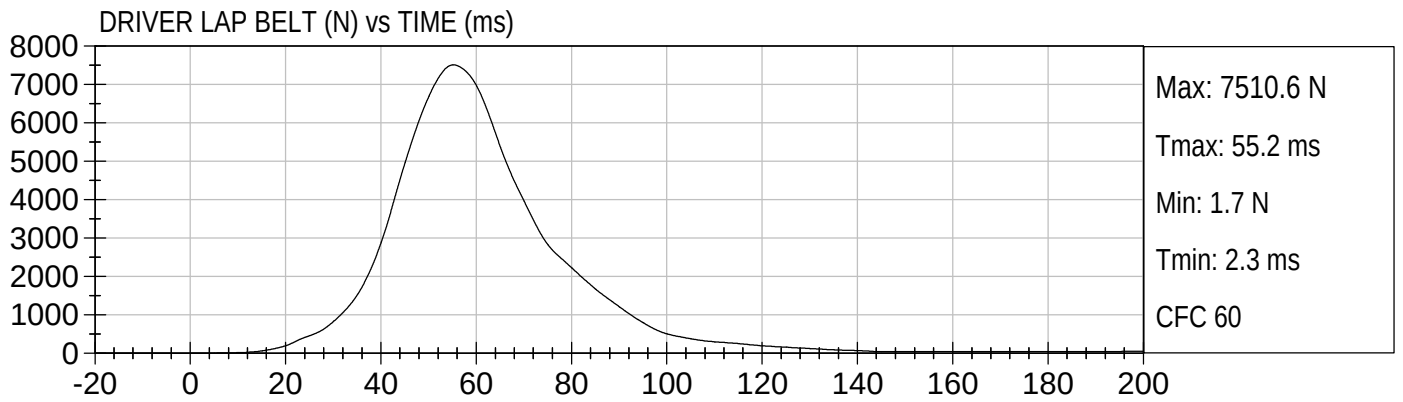
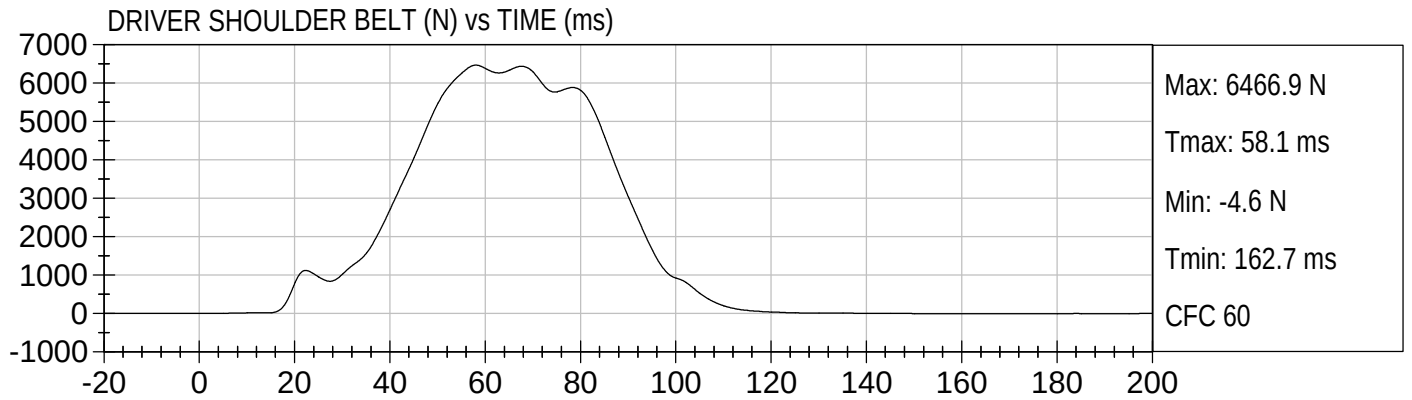
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)

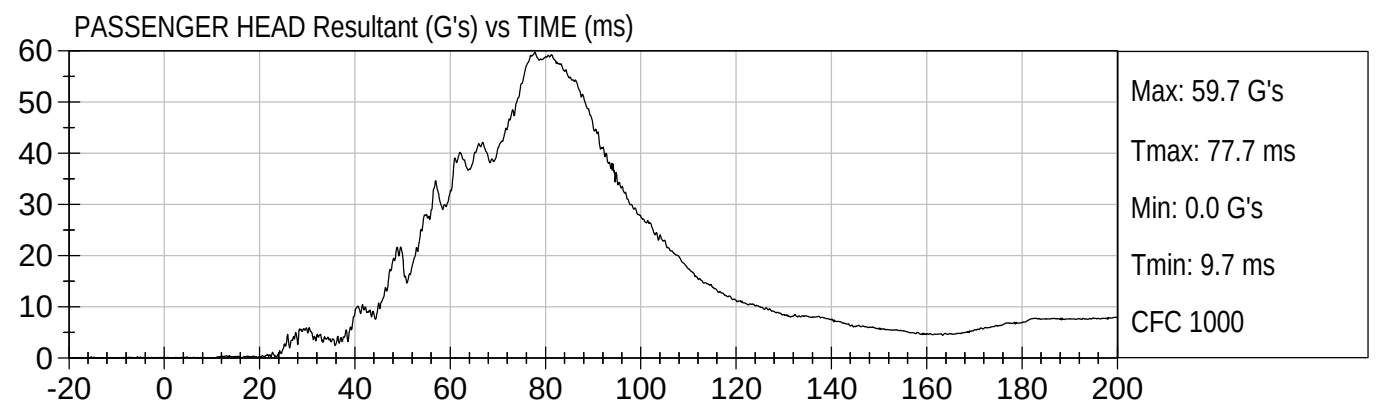
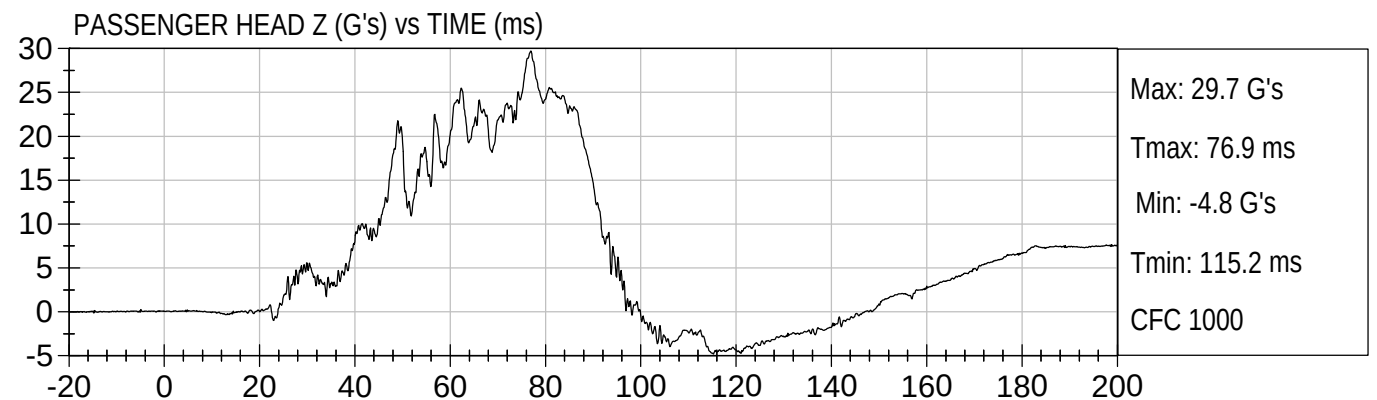
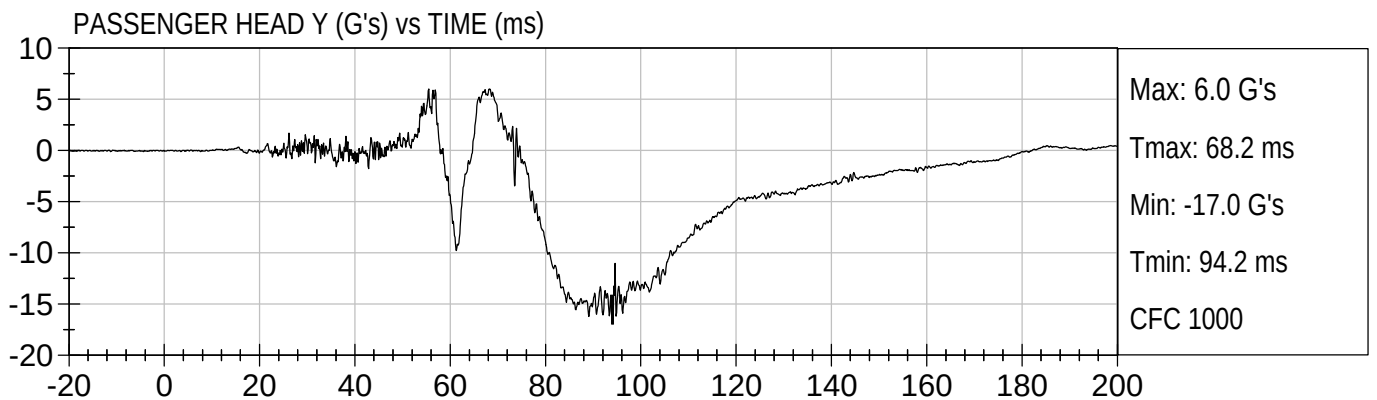
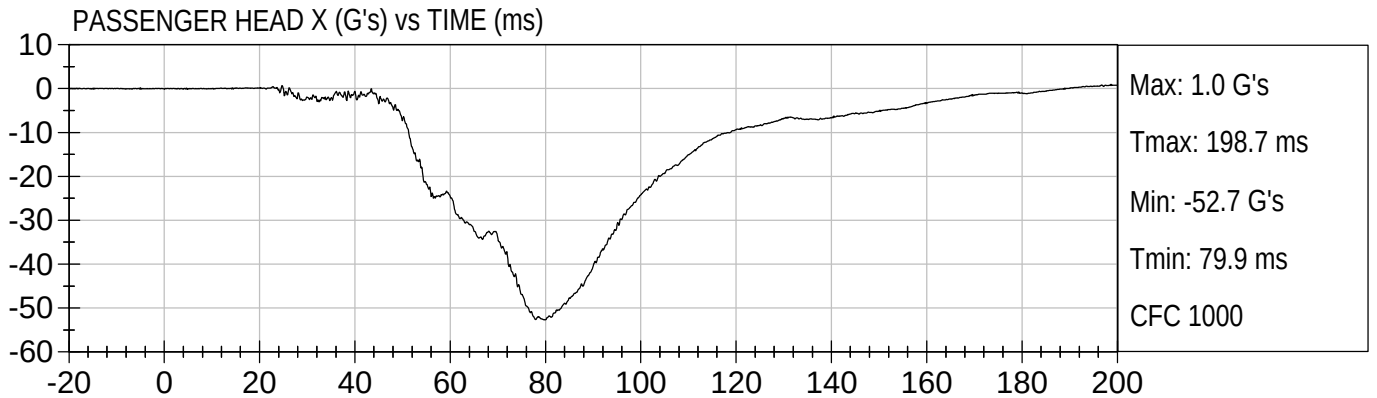


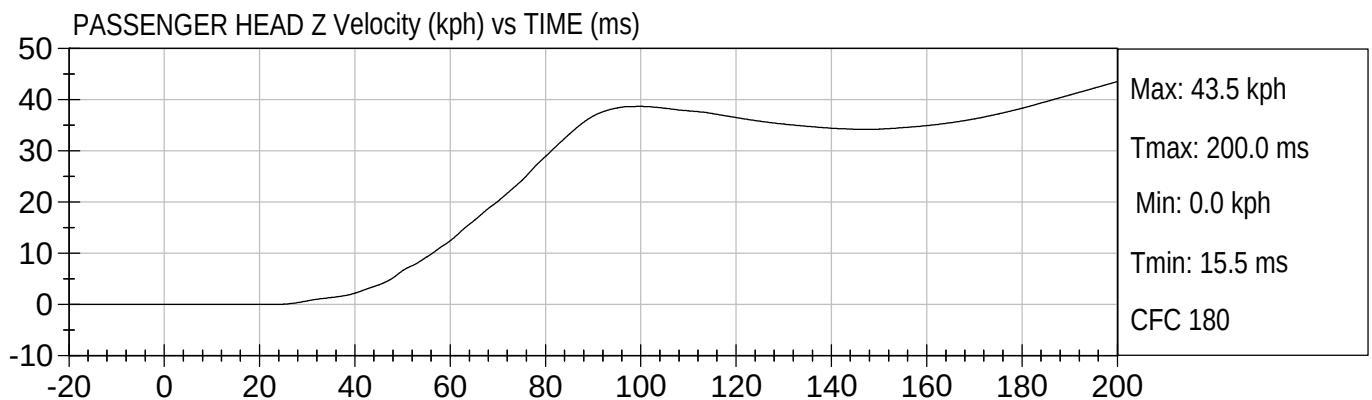
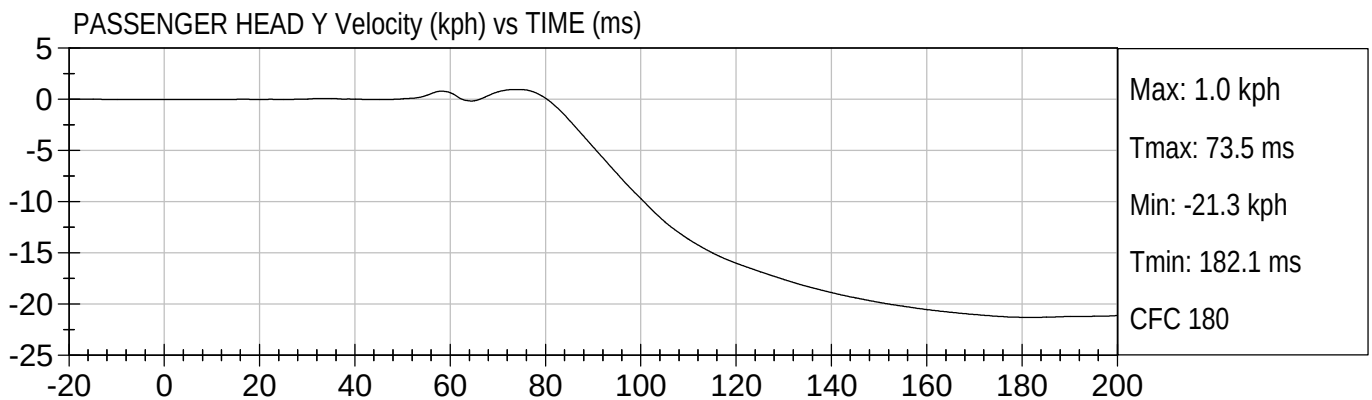
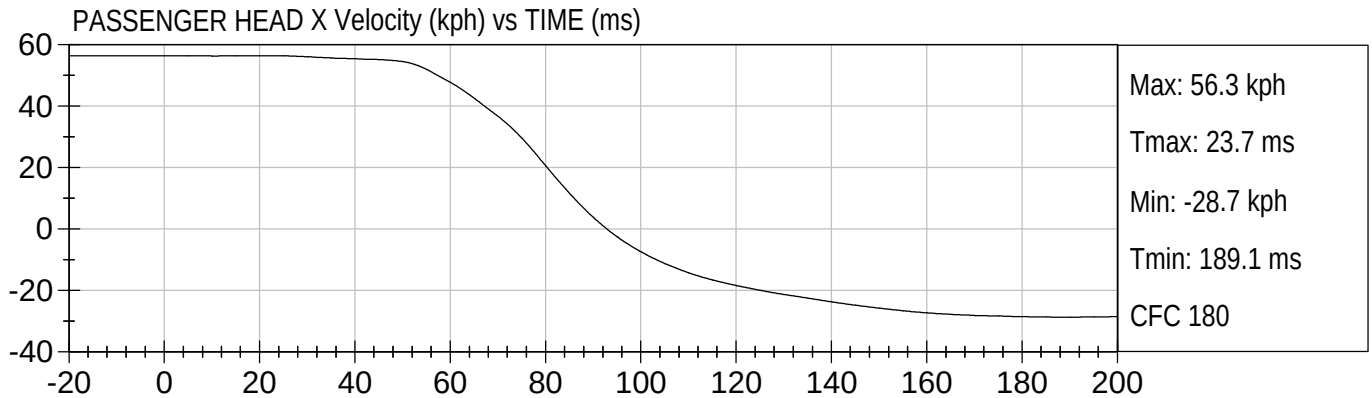


35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)



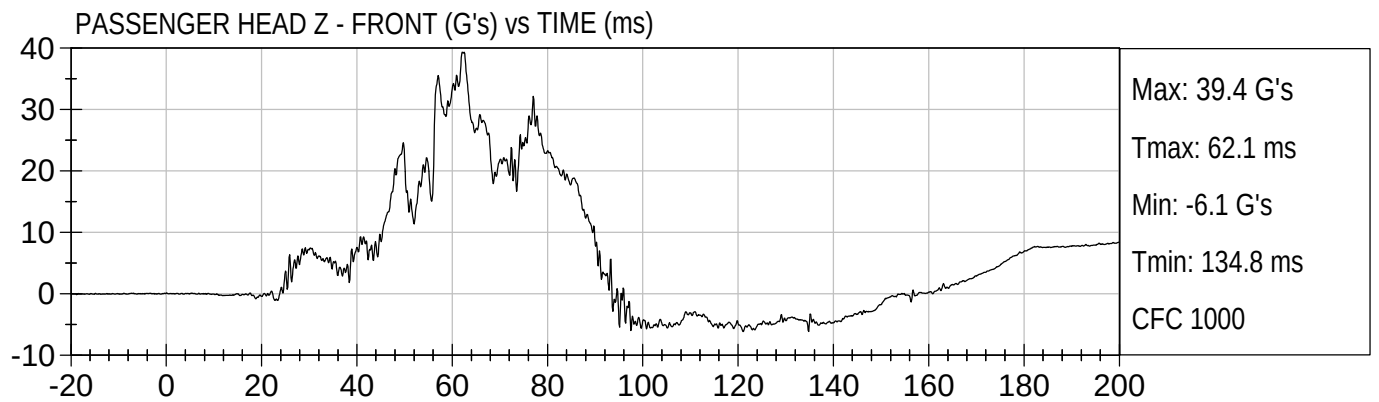
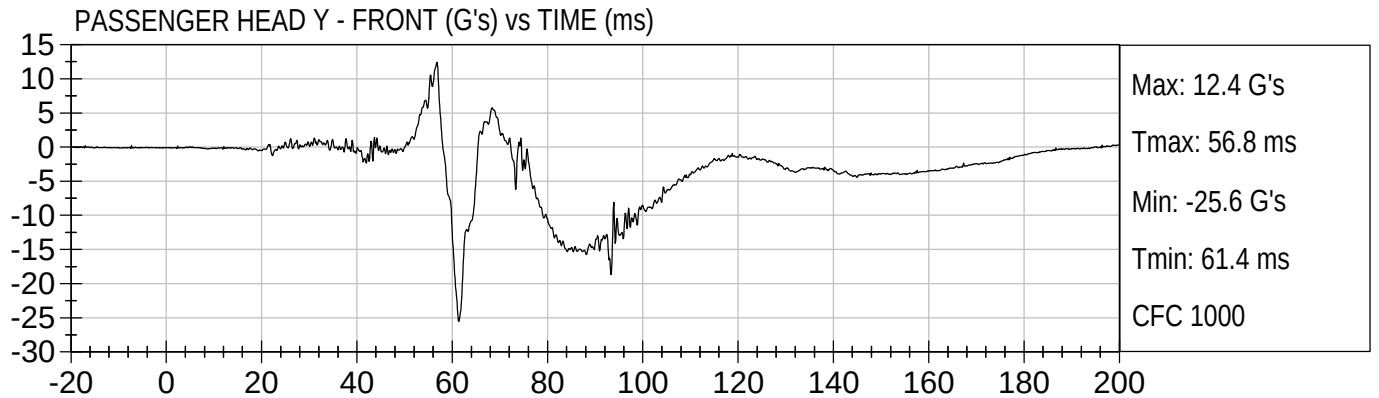






35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

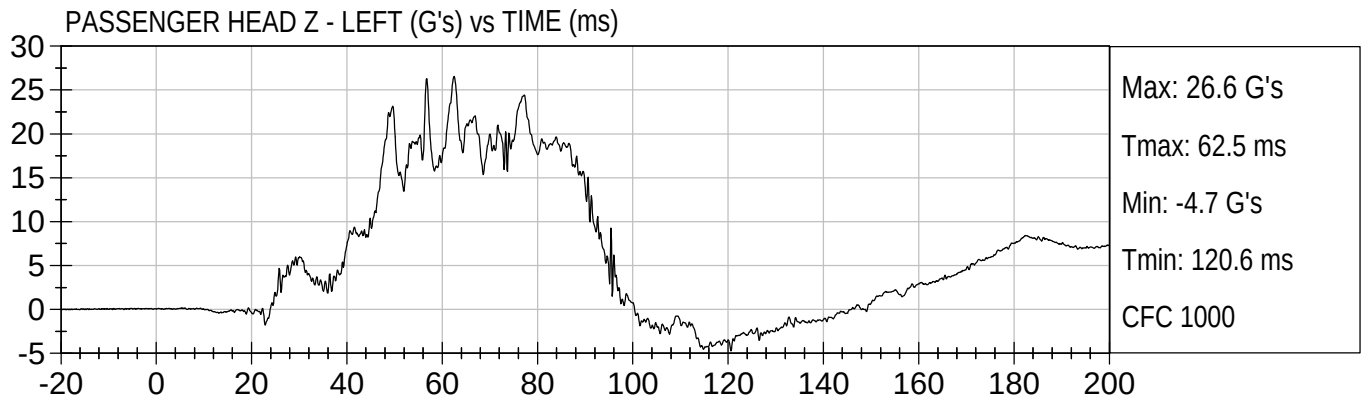
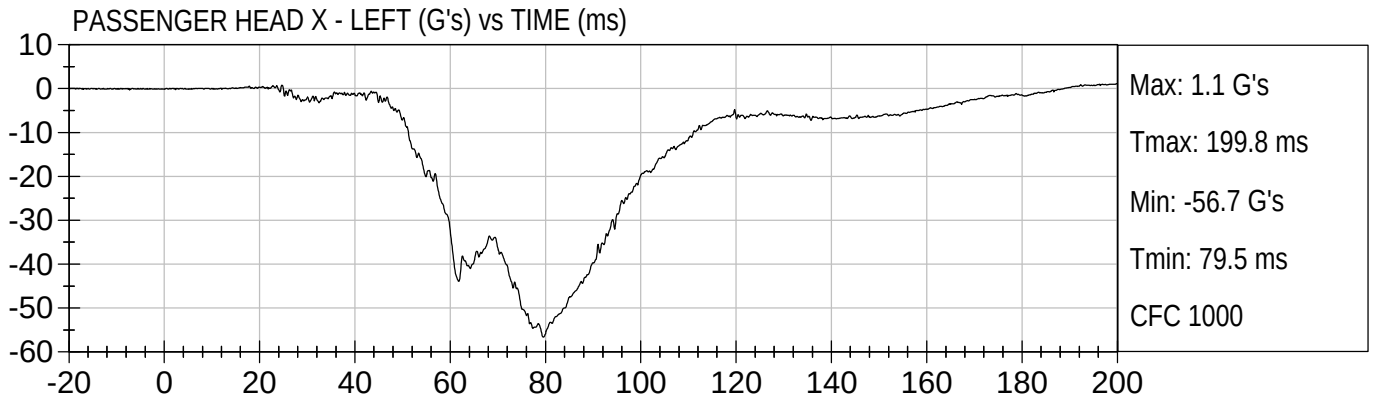
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)

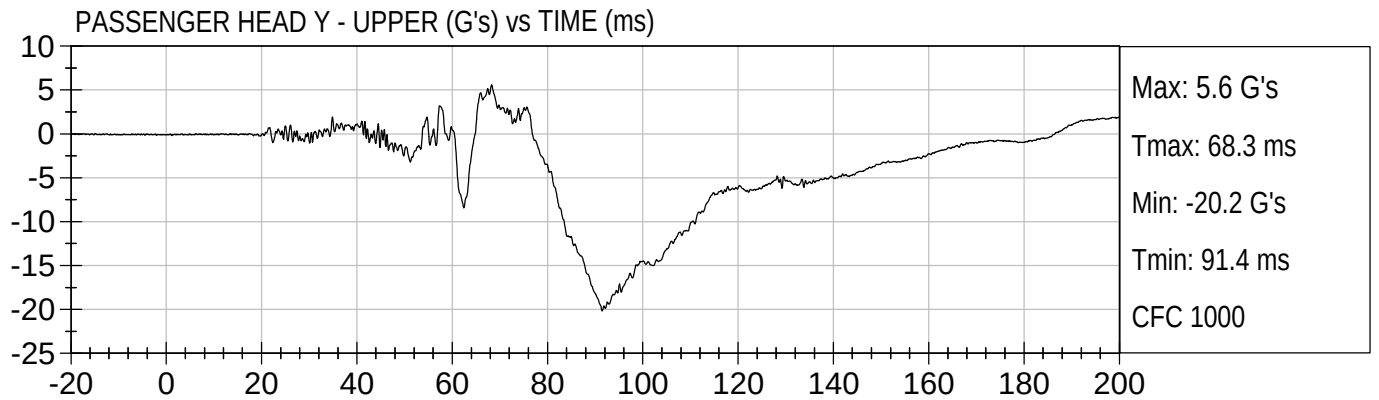
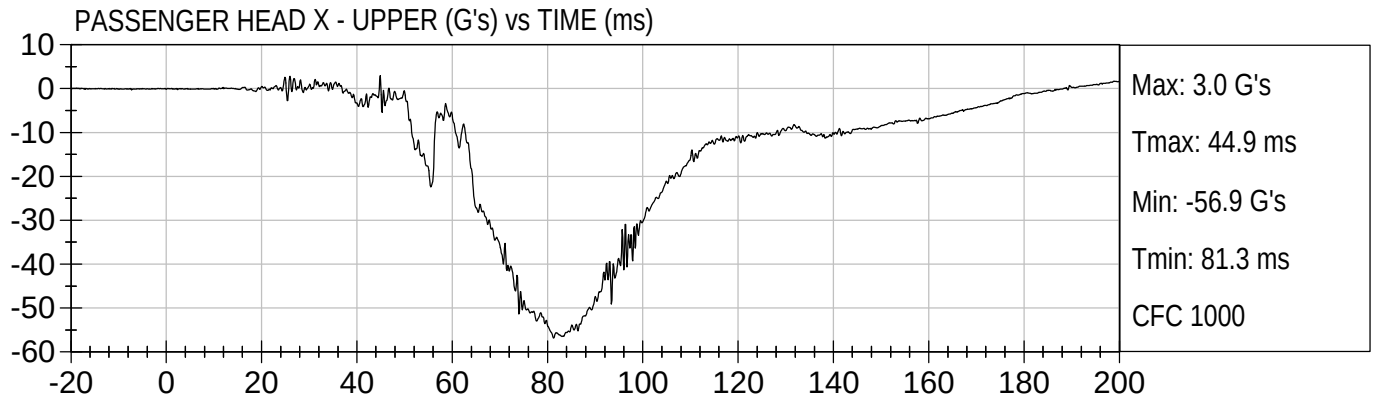


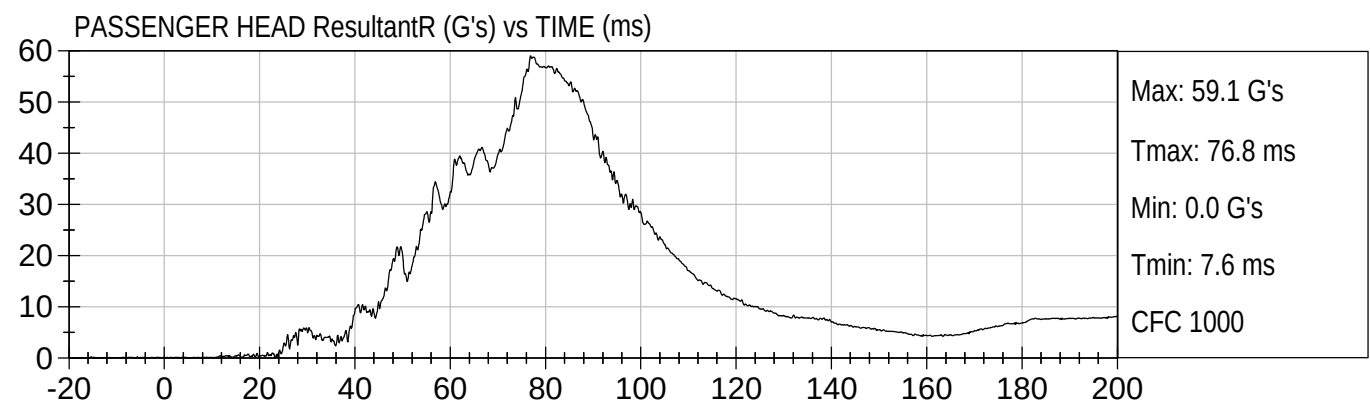
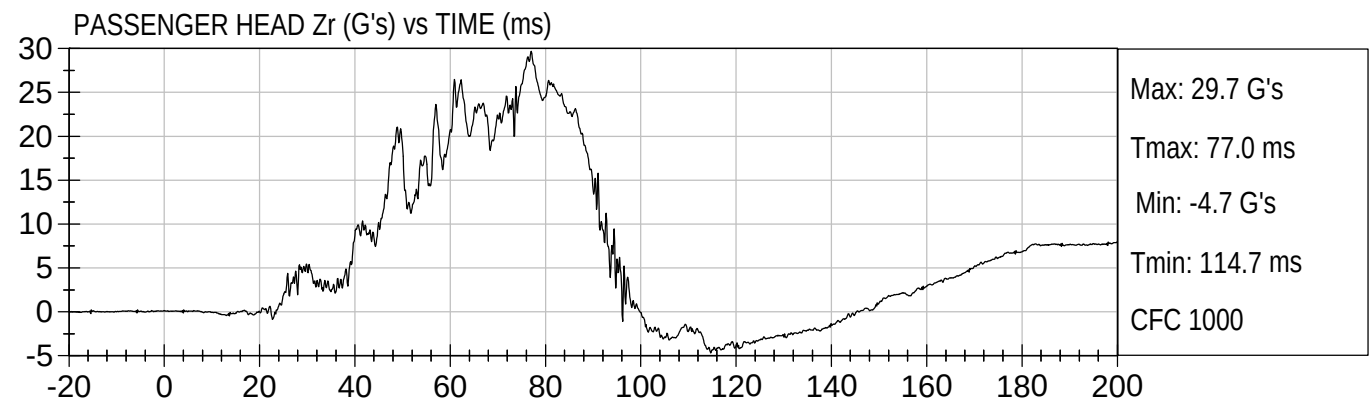
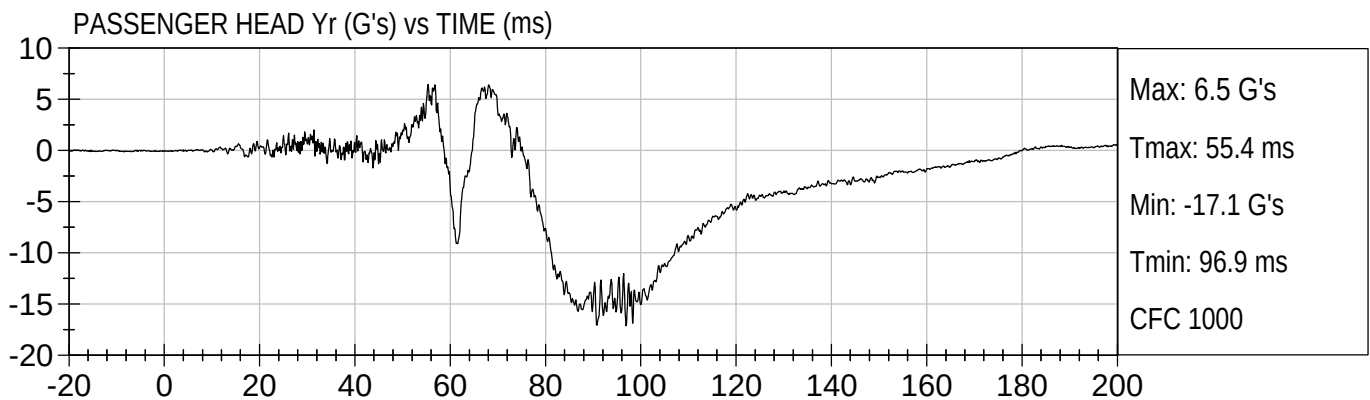
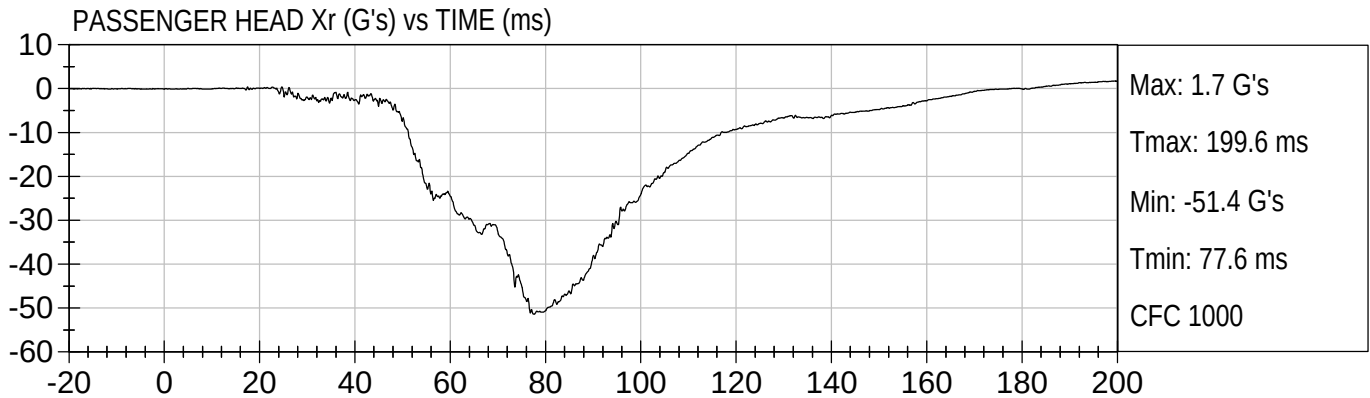


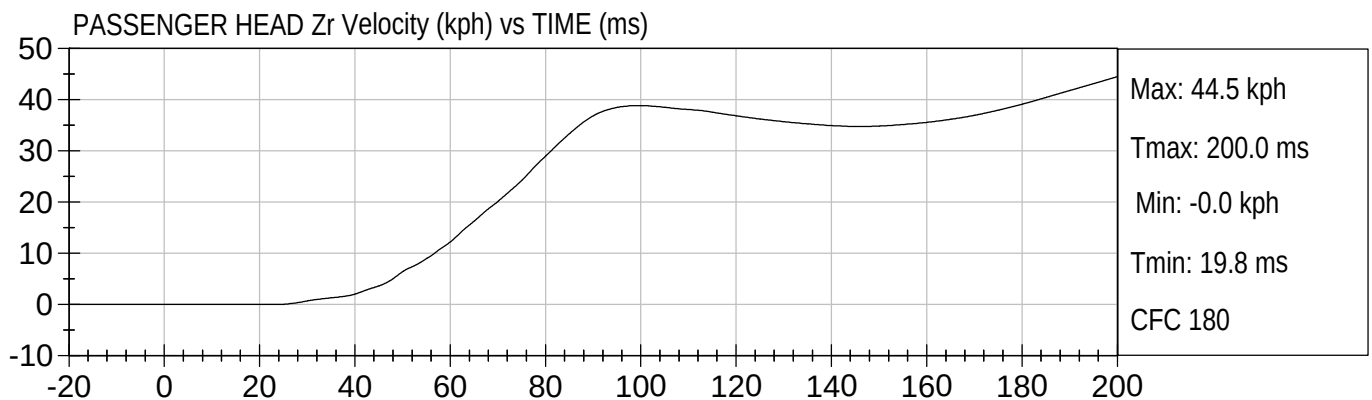
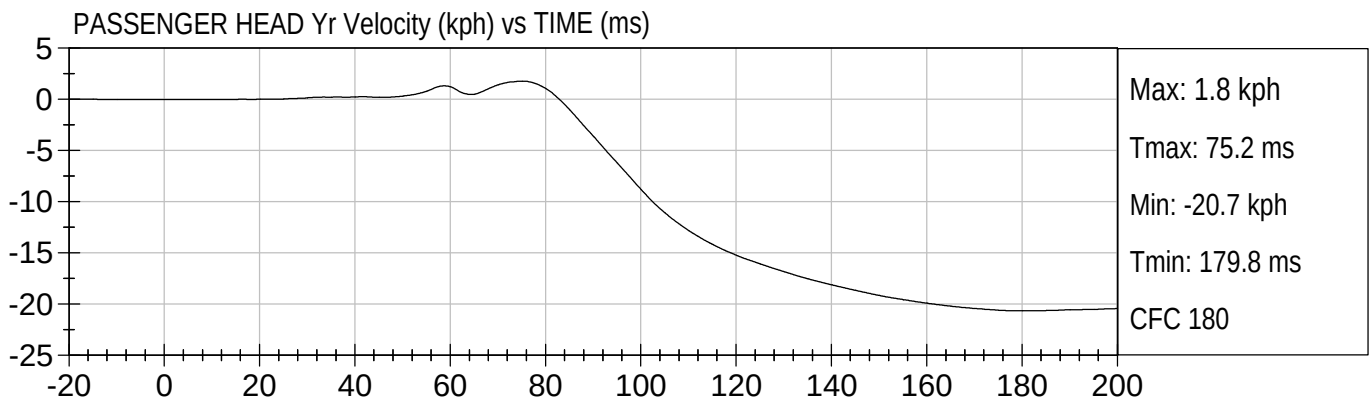
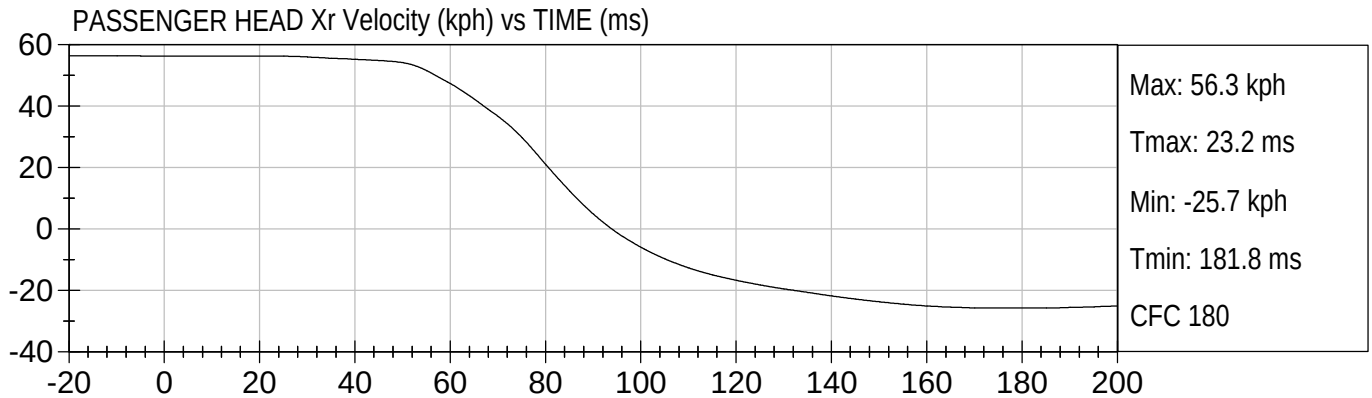
35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)





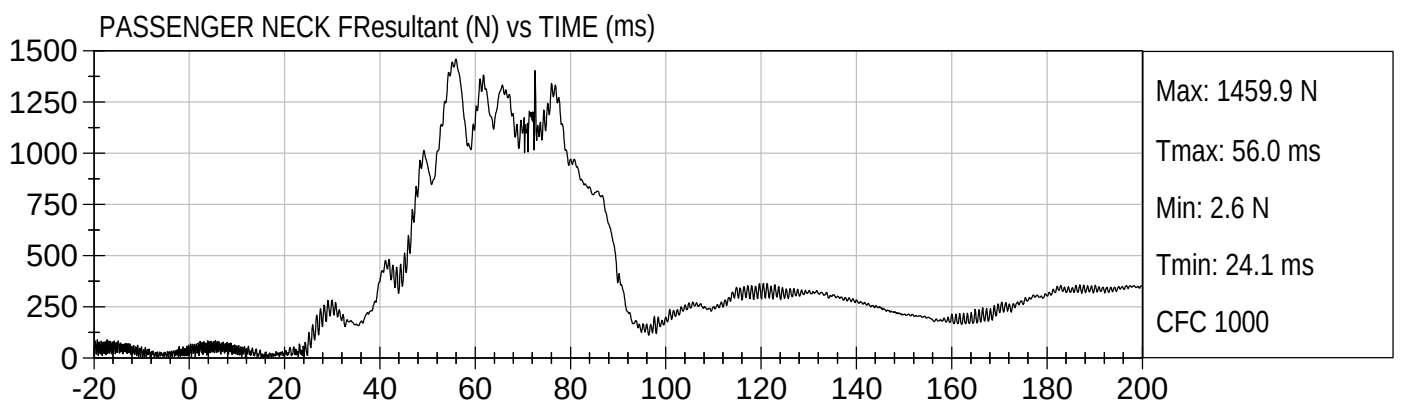
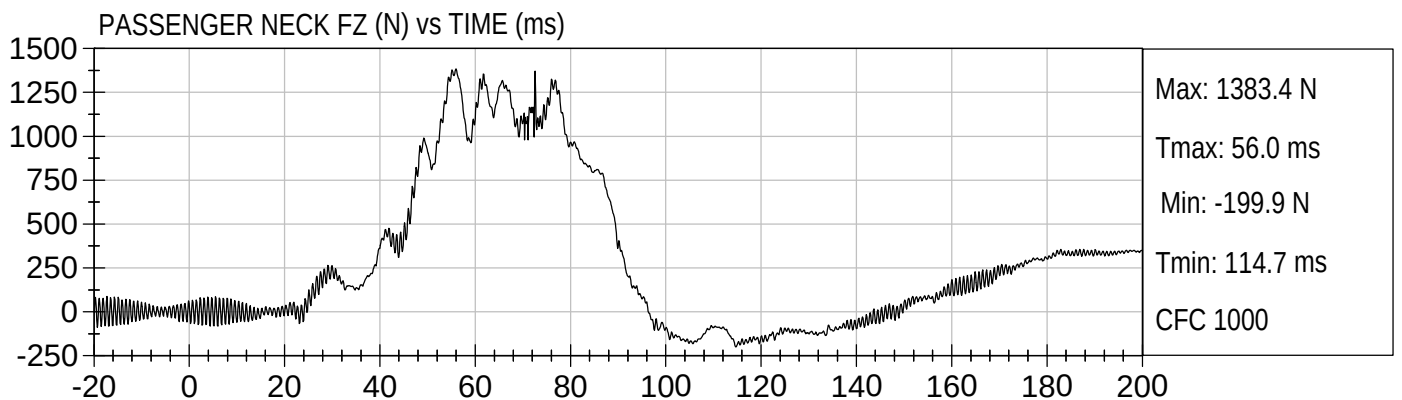
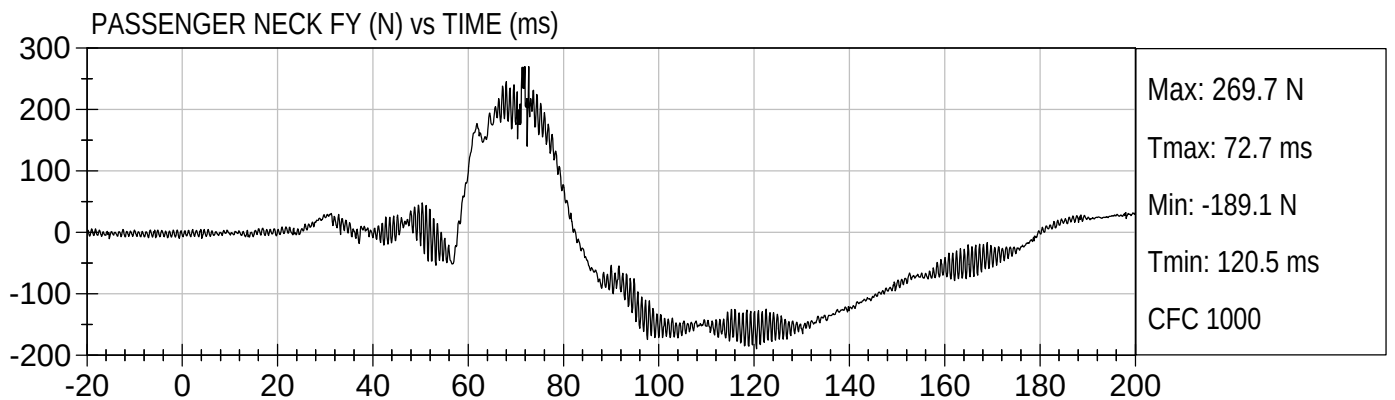
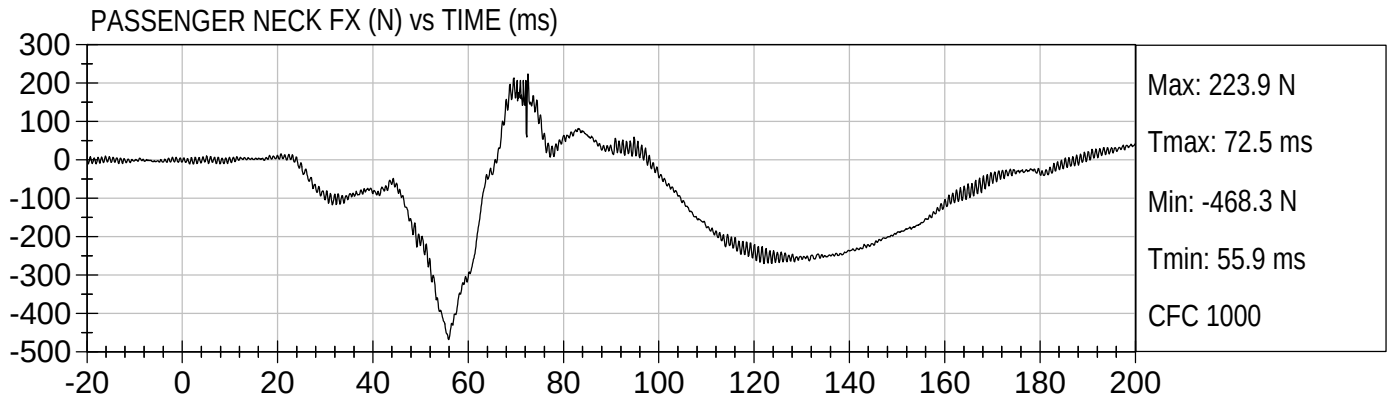


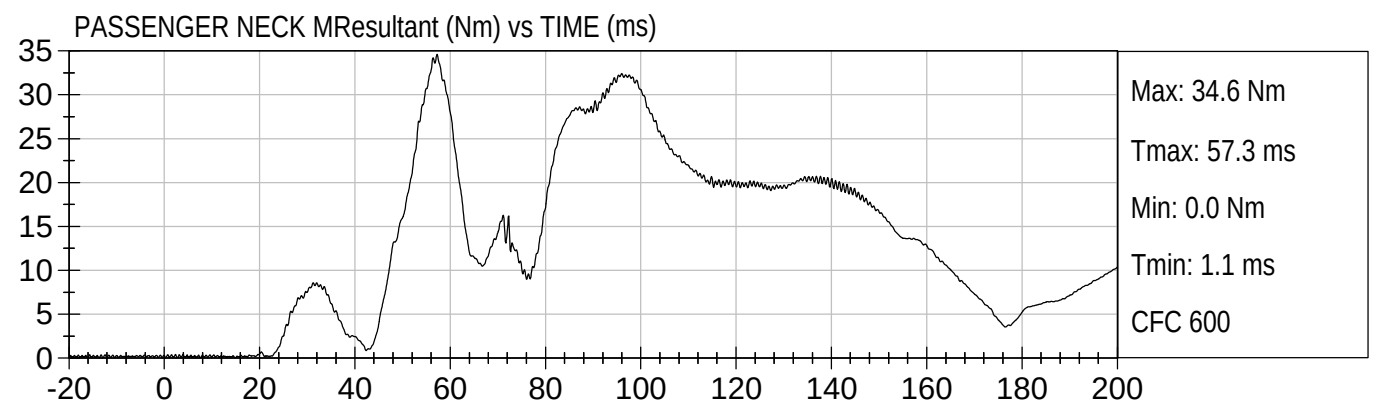
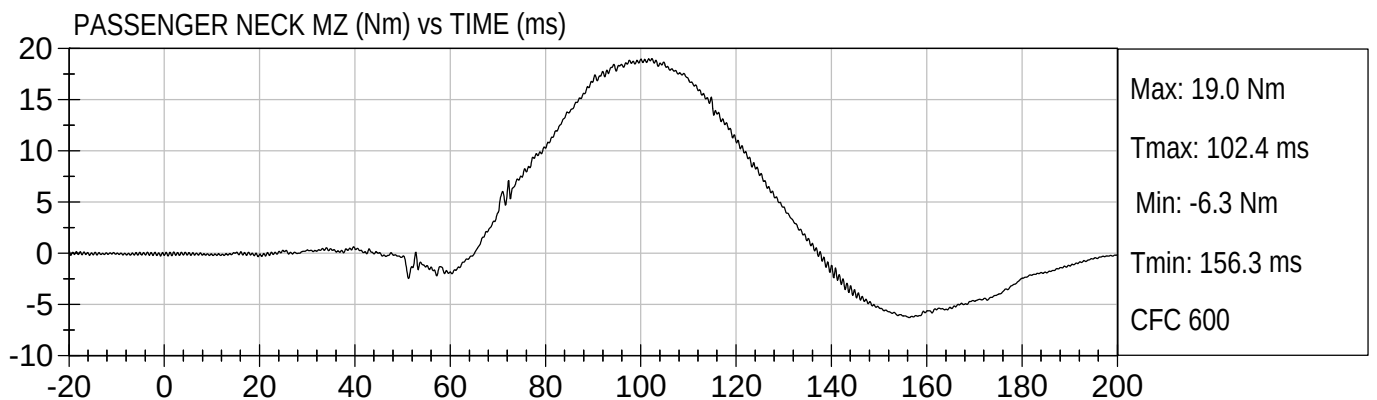
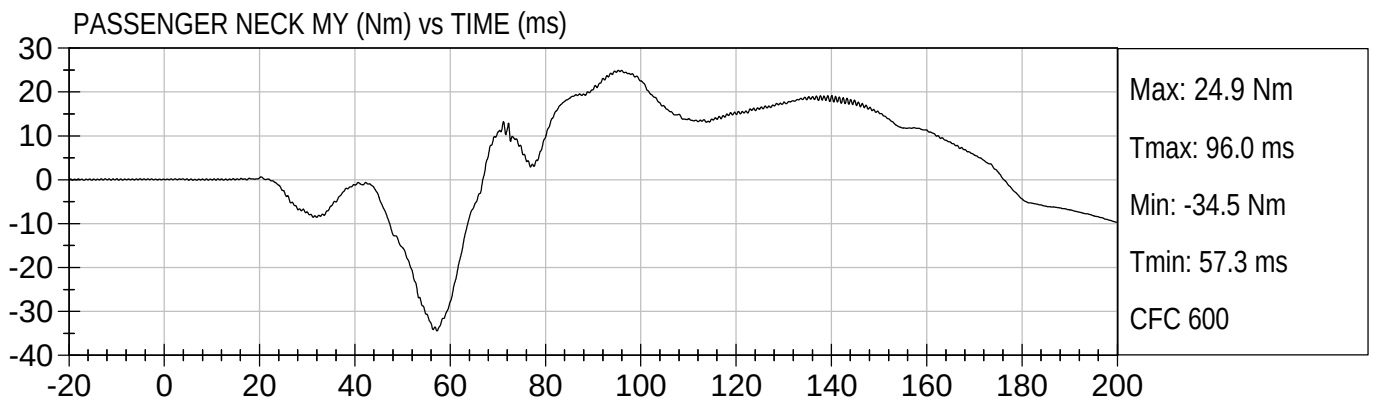
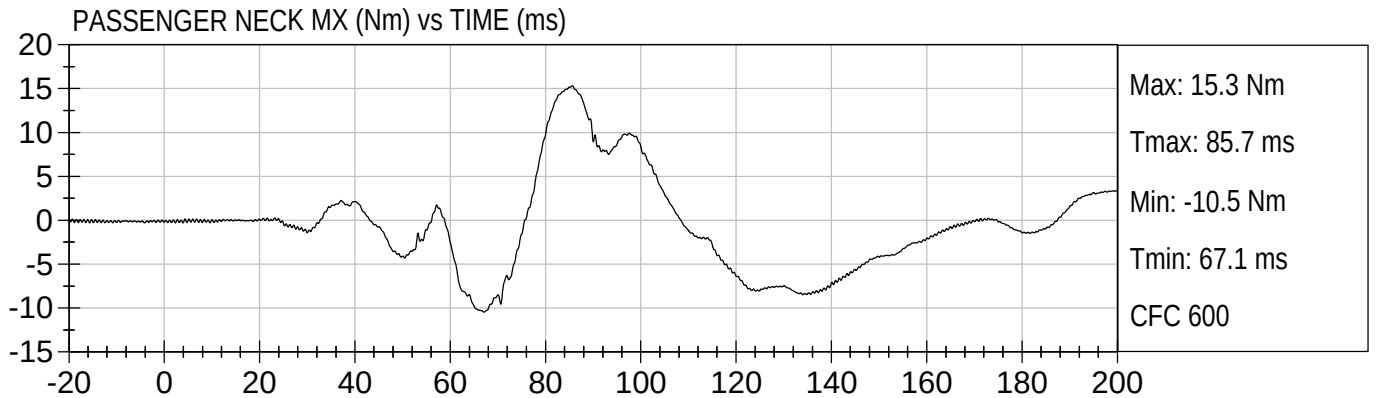


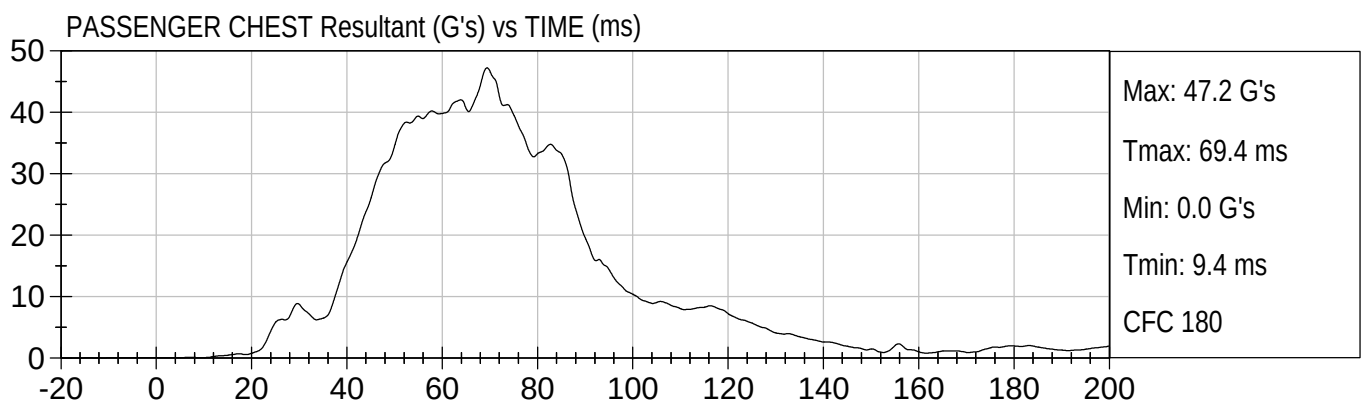
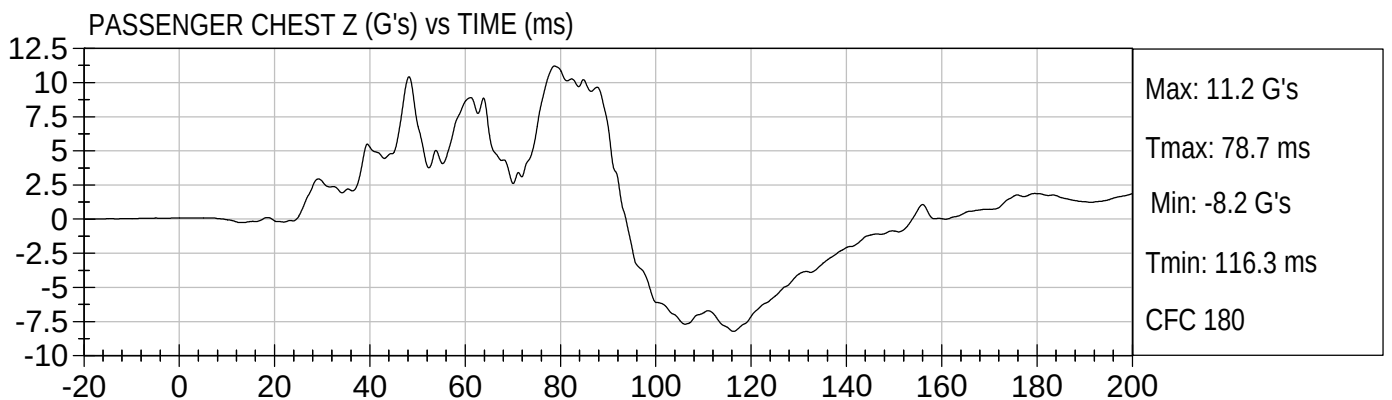
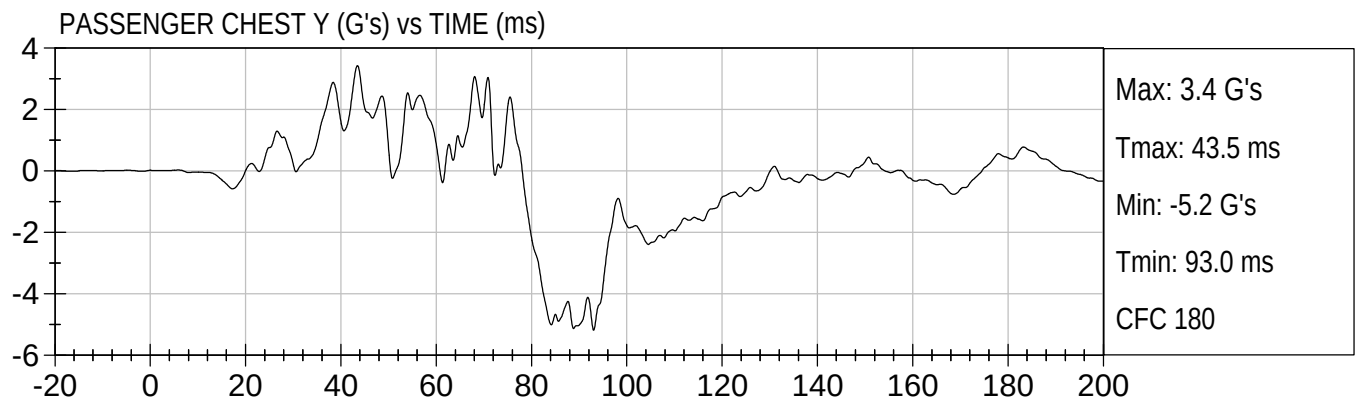
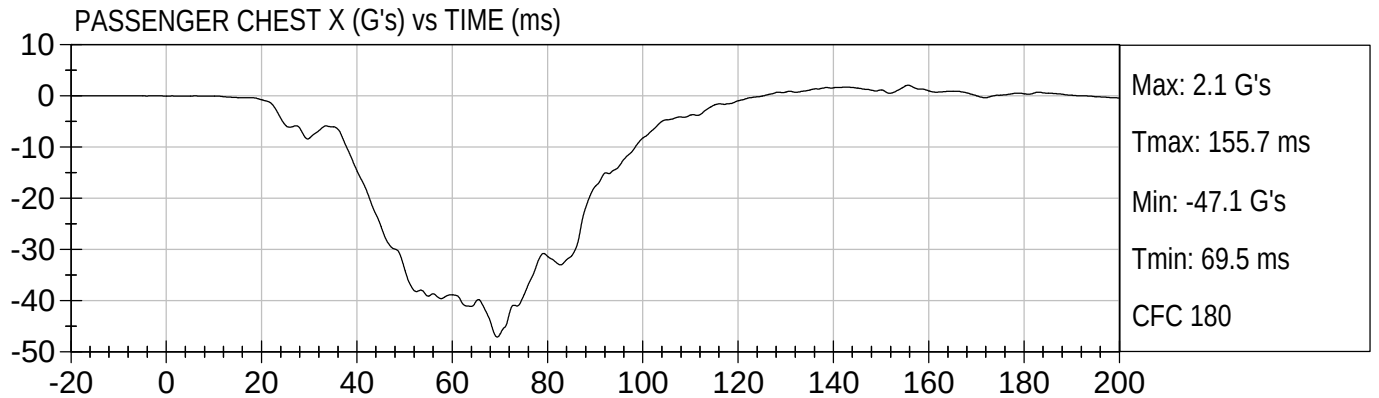


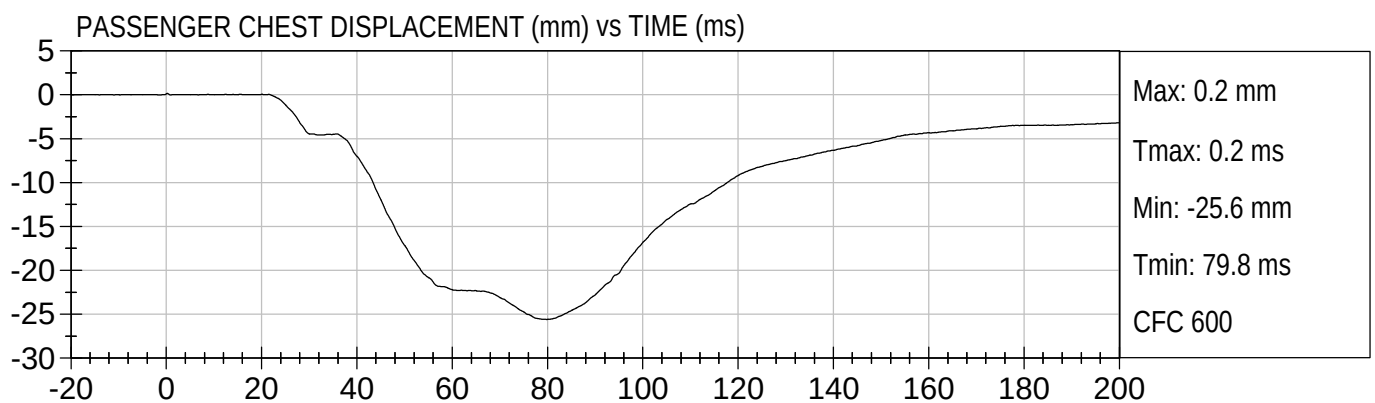
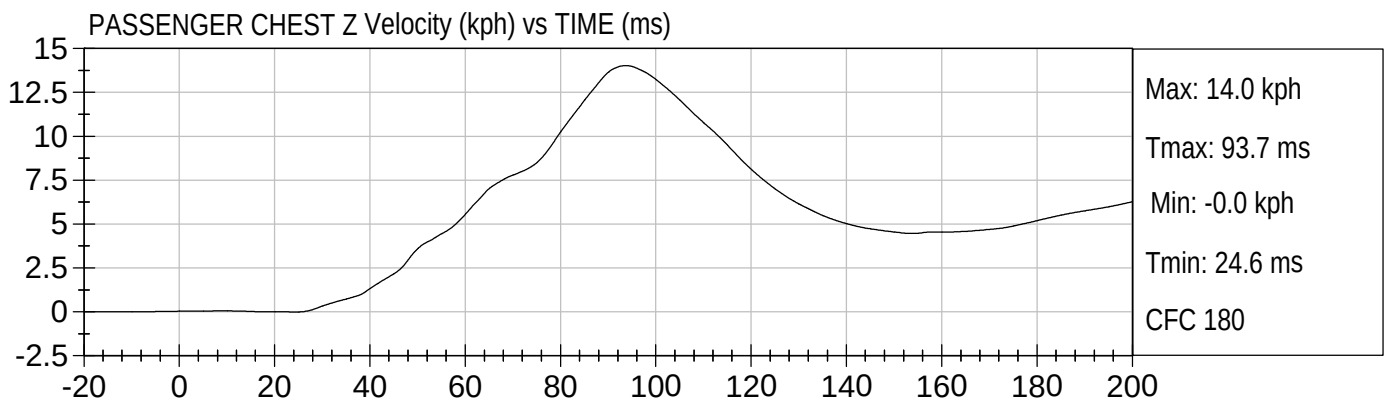
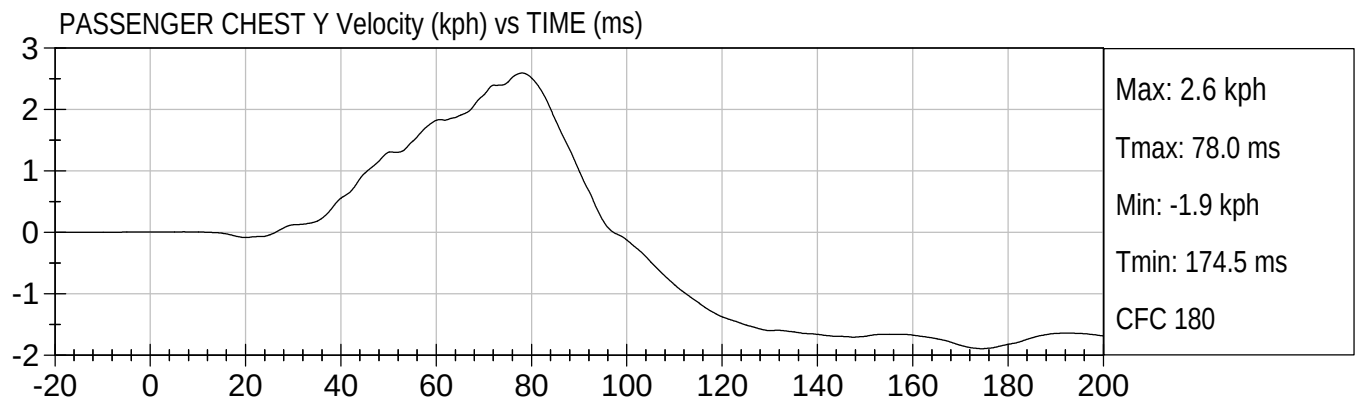
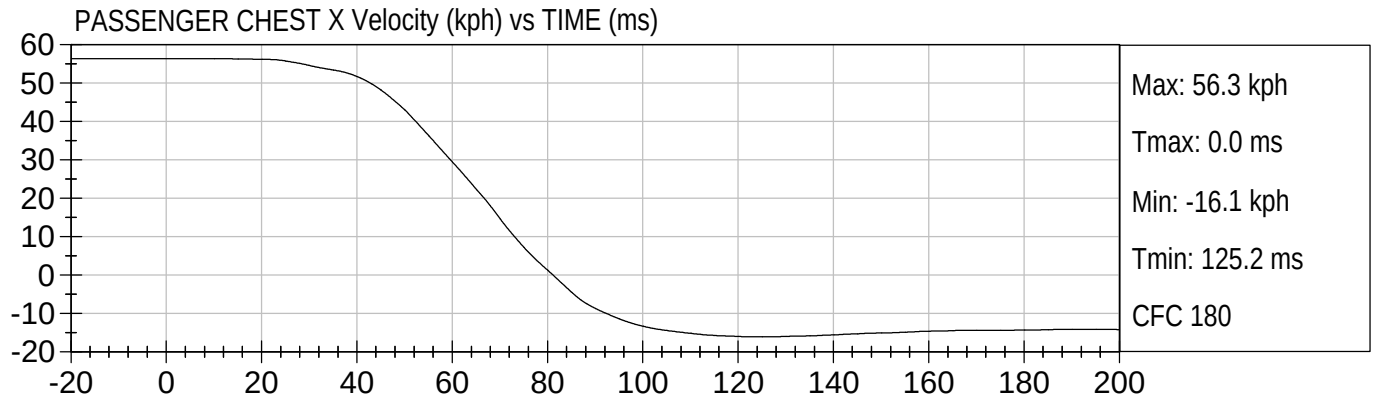
35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)





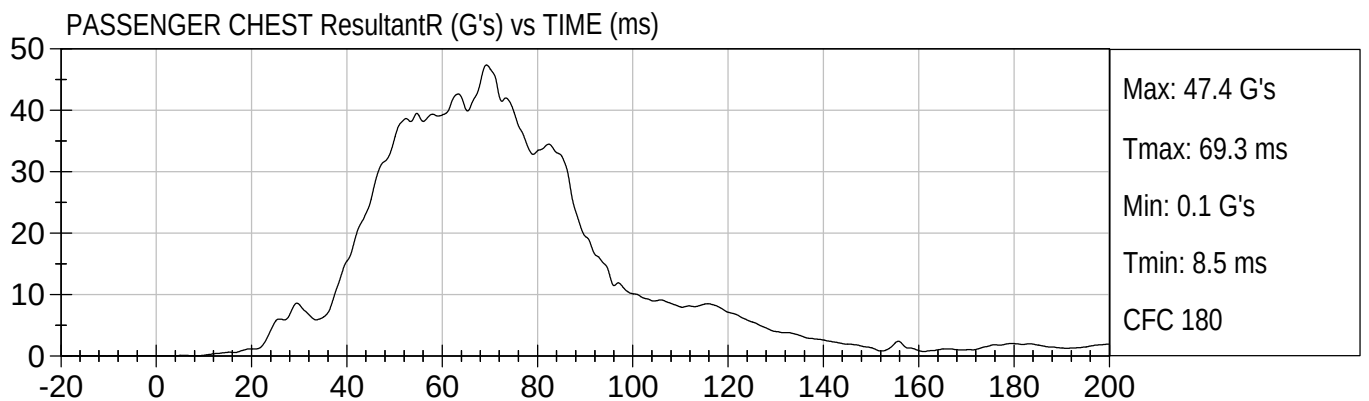
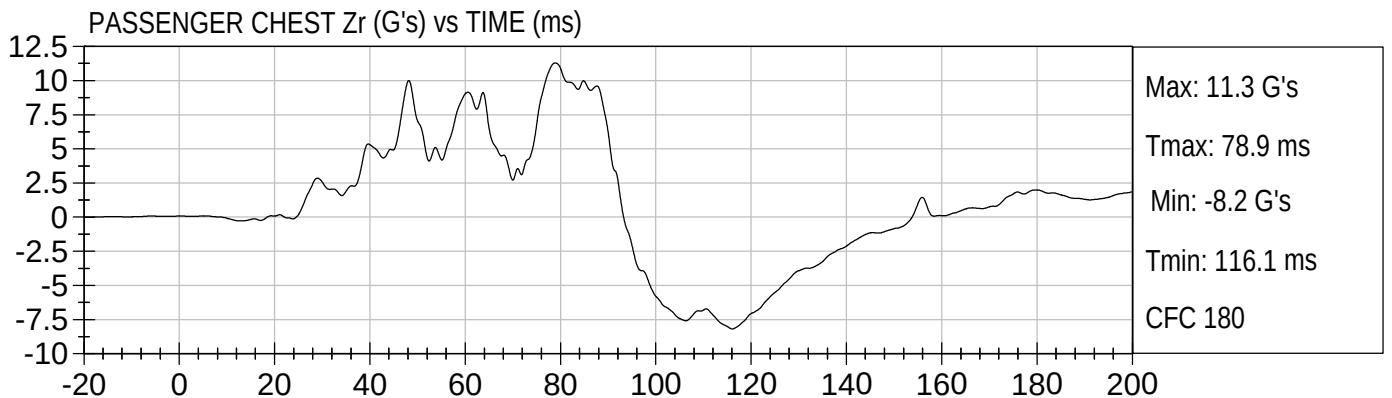
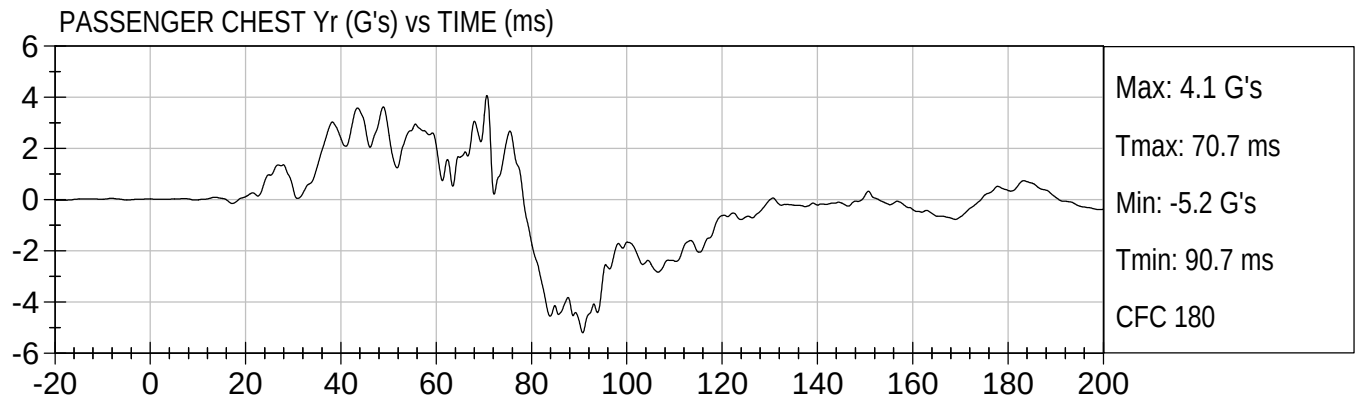
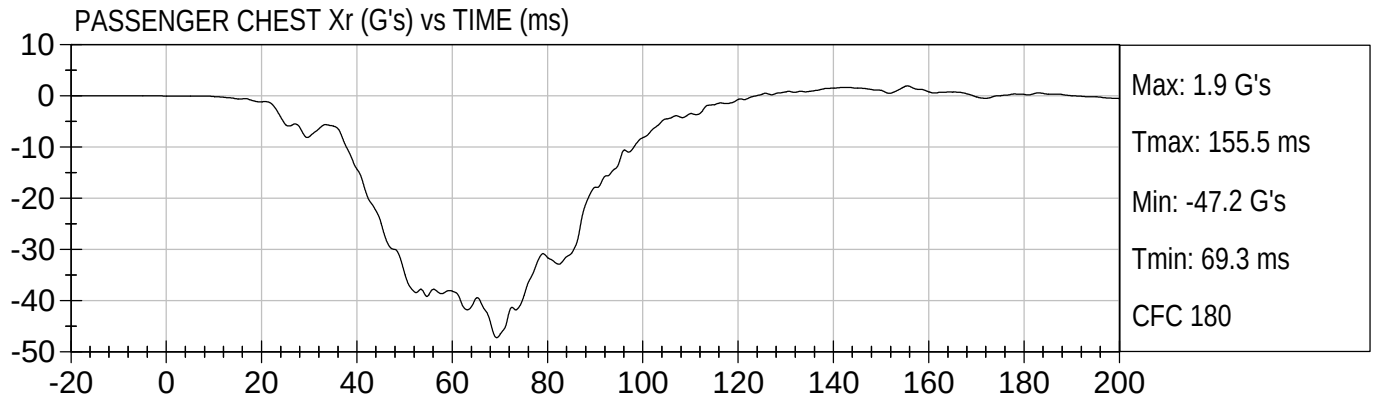


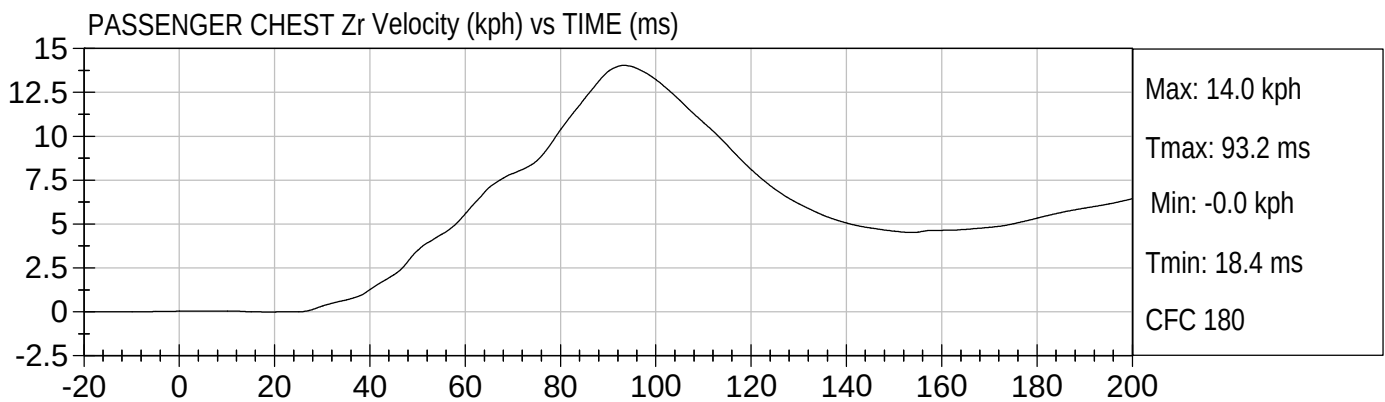
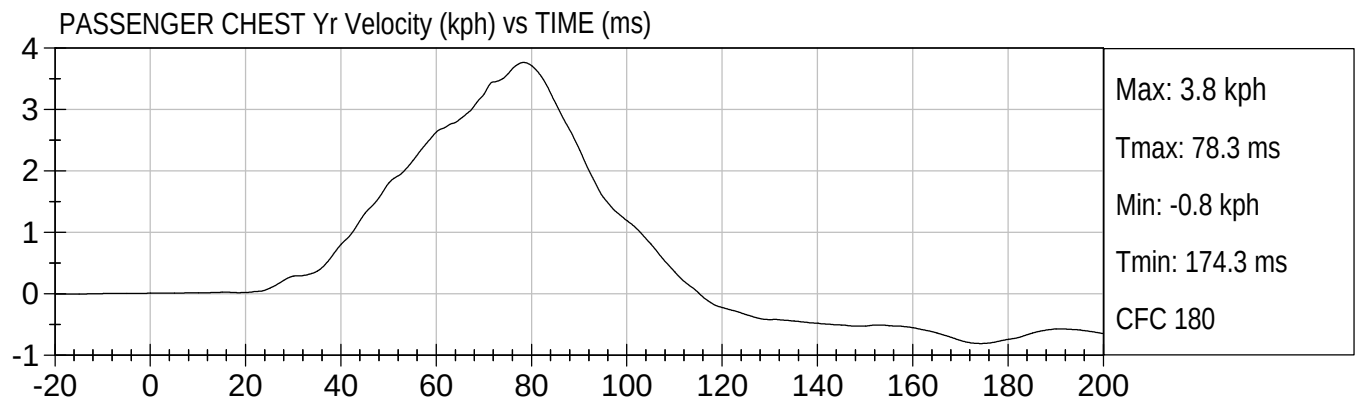
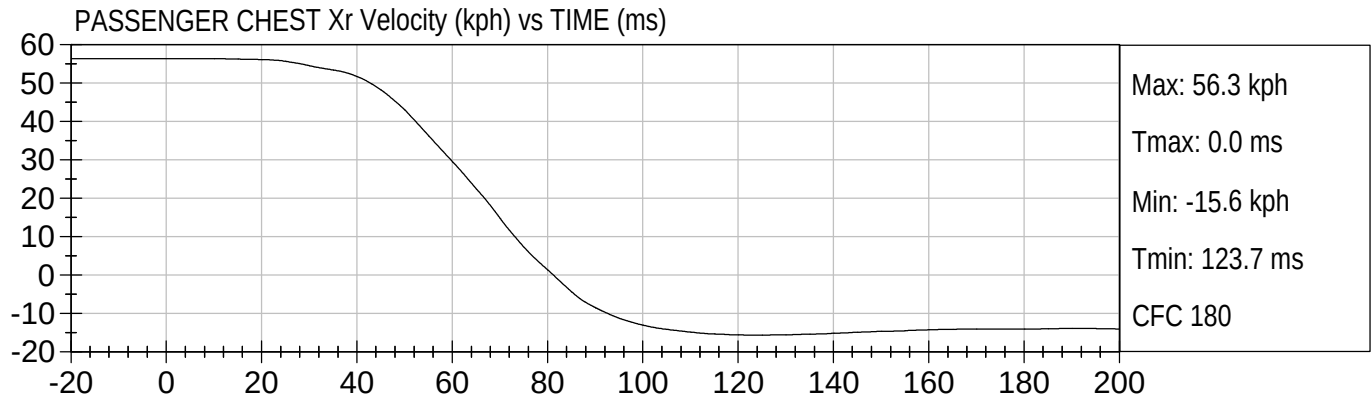




35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)

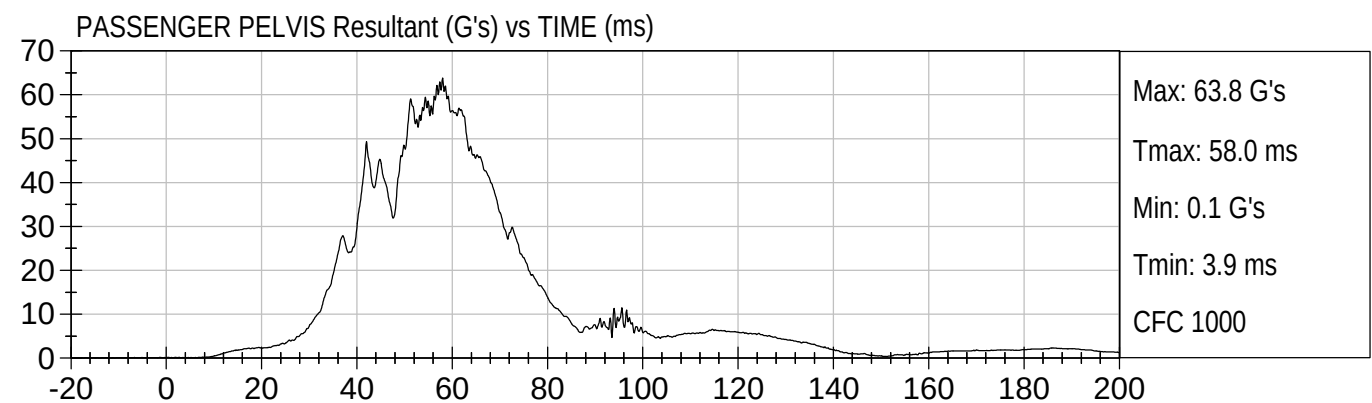
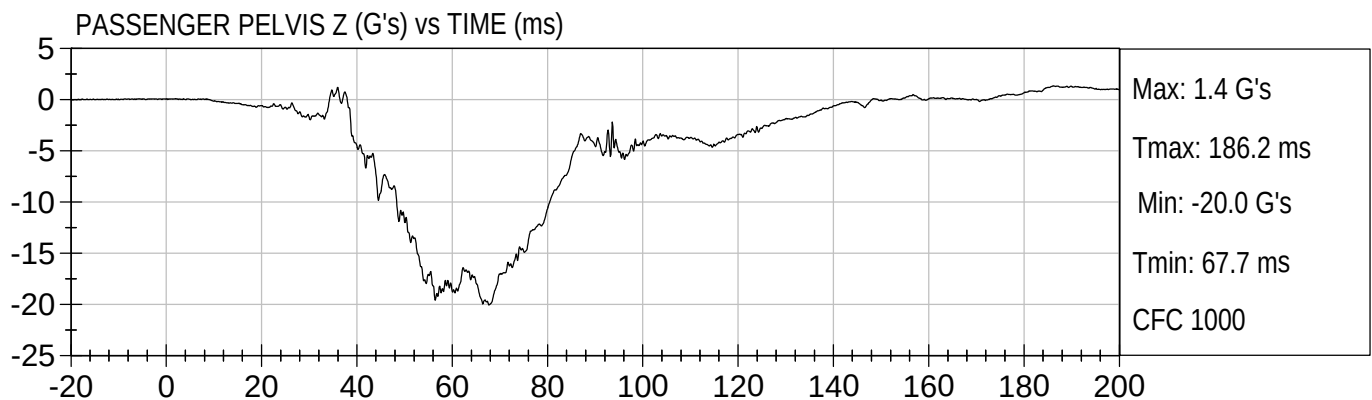
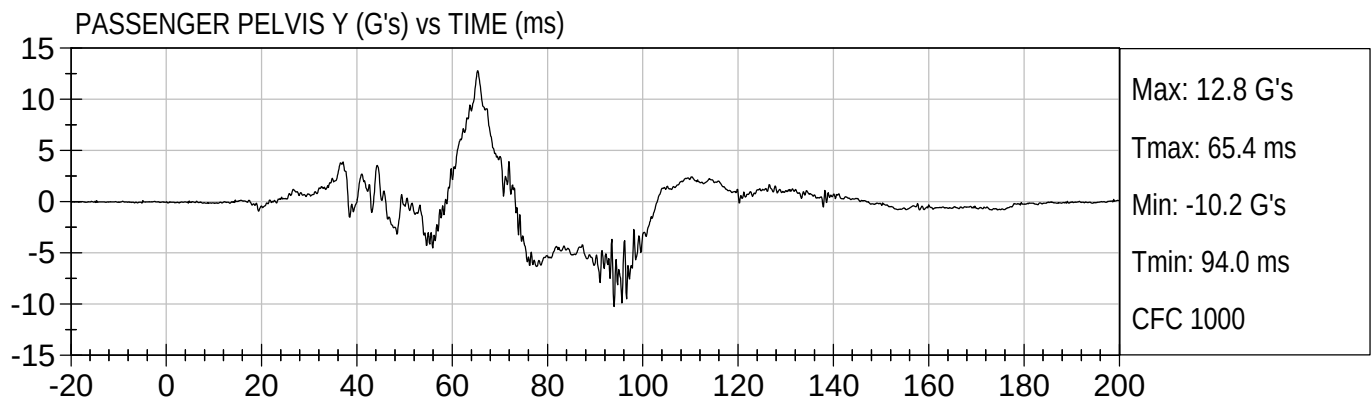
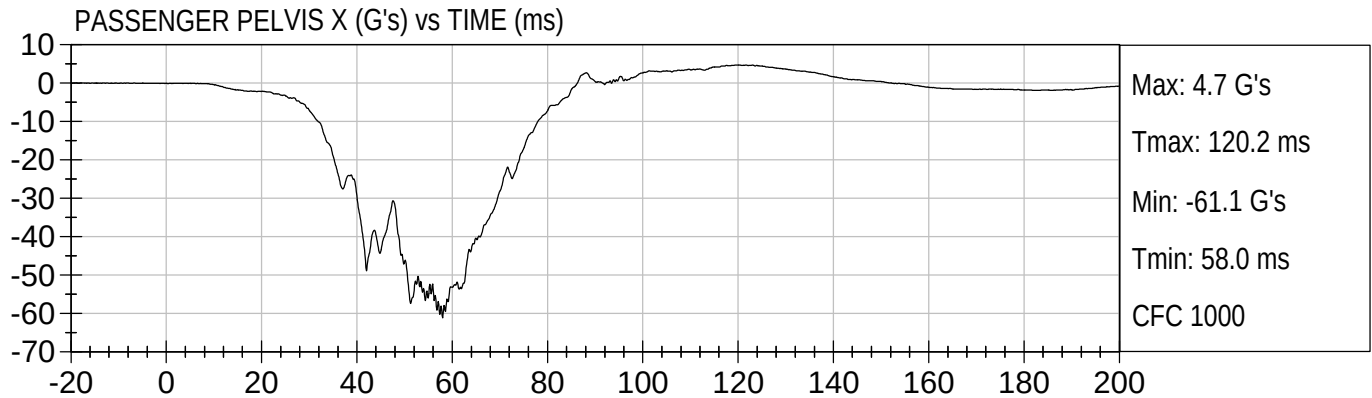


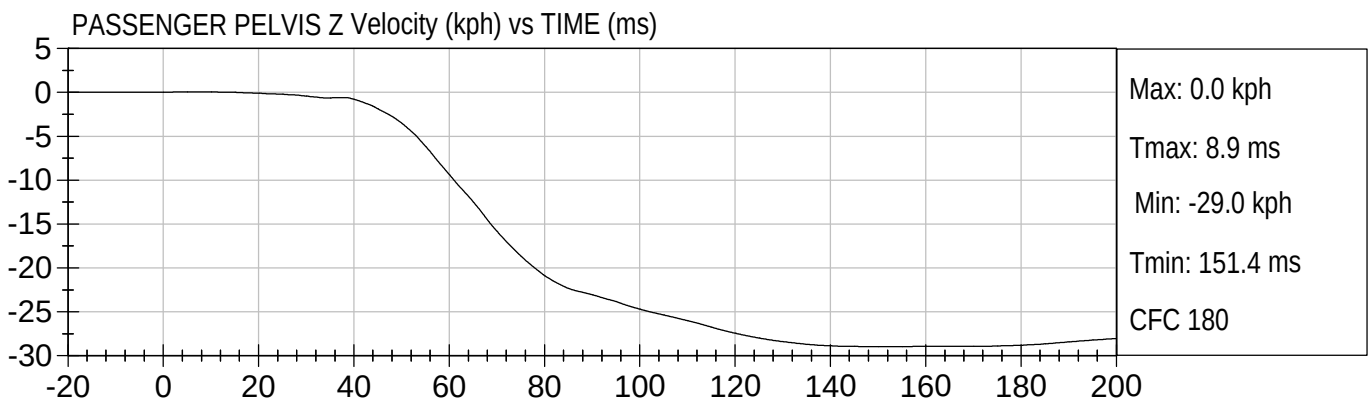
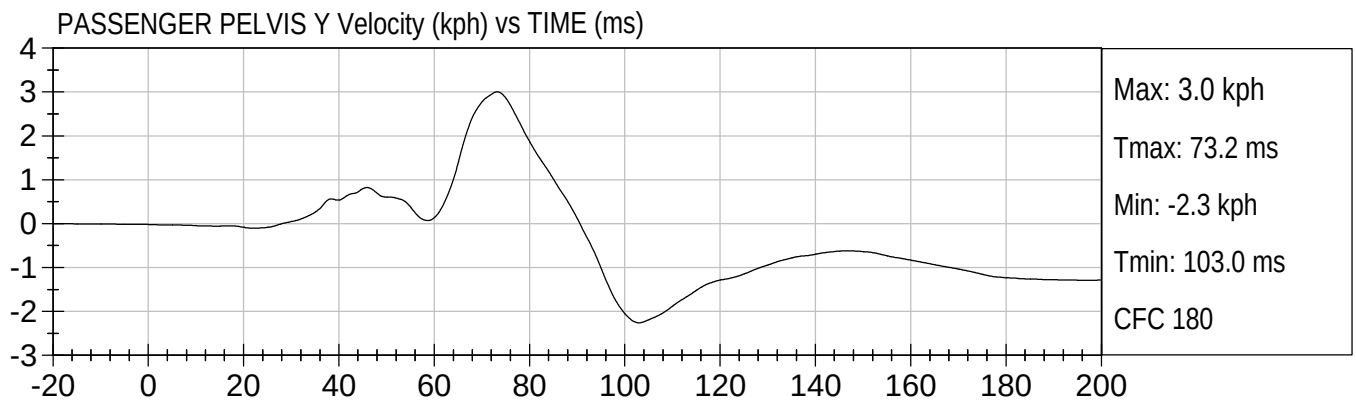
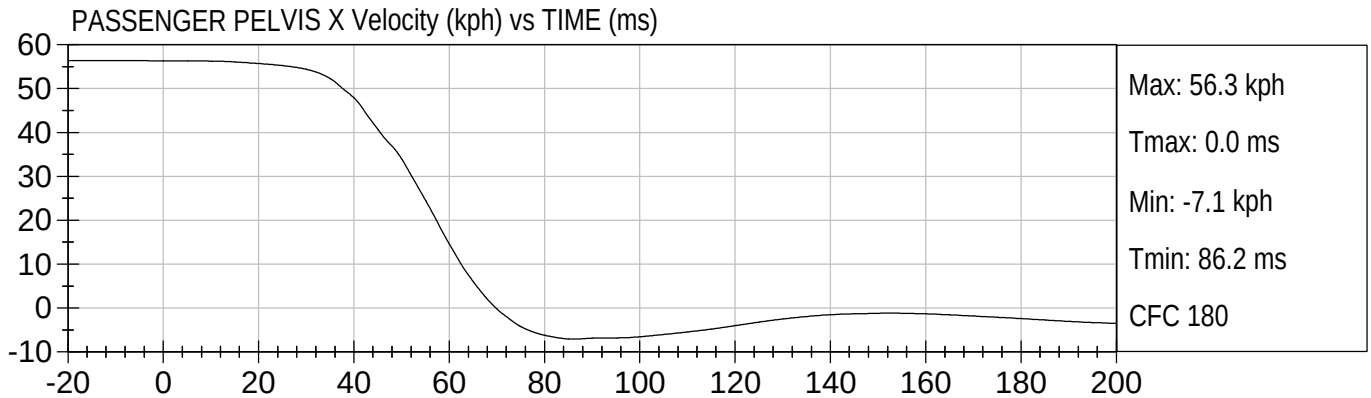




35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

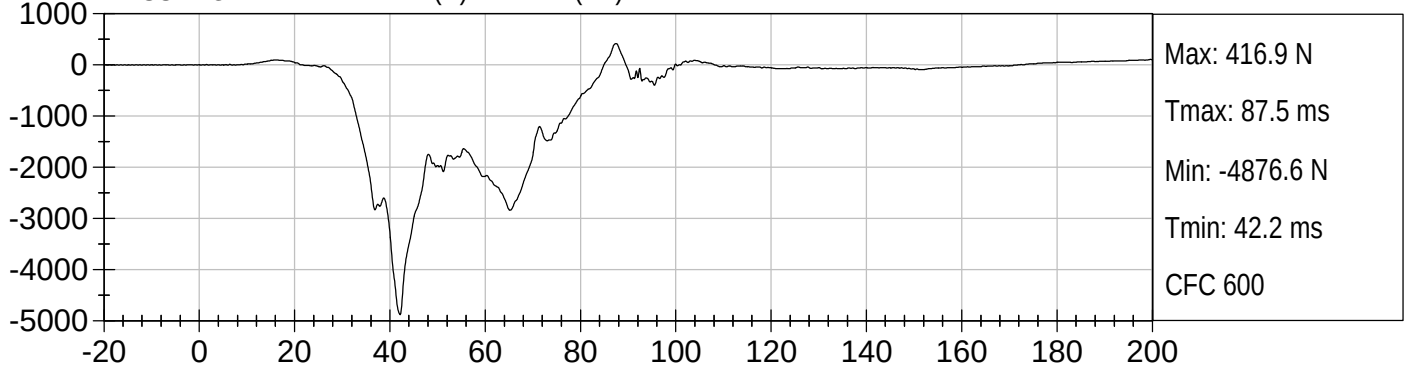
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)



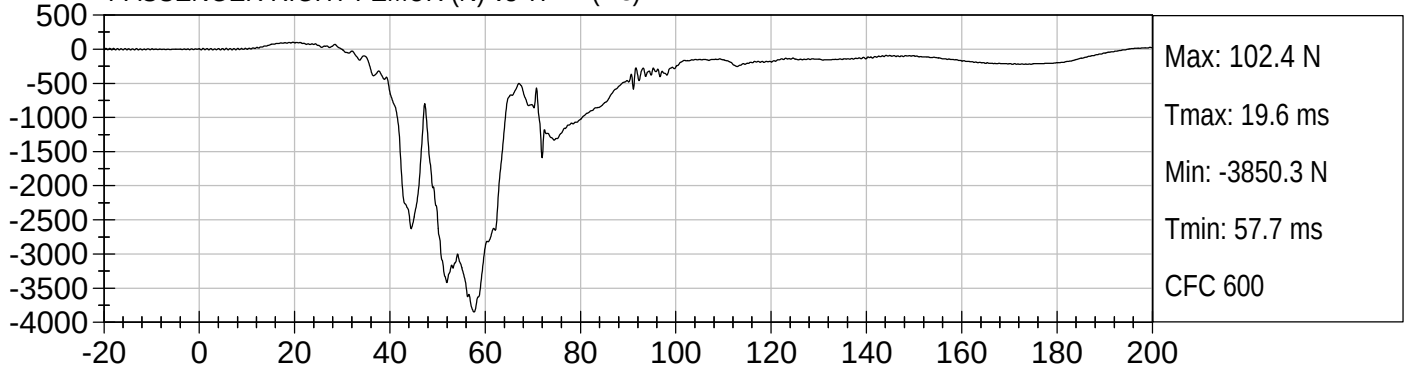




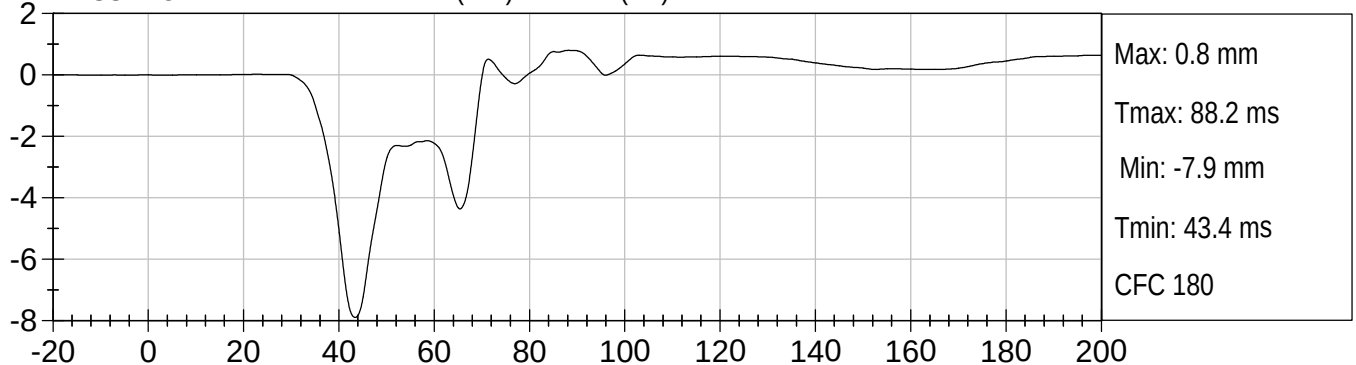
PASSENGER LEFT FEMUR (N) vs TIME (ms)



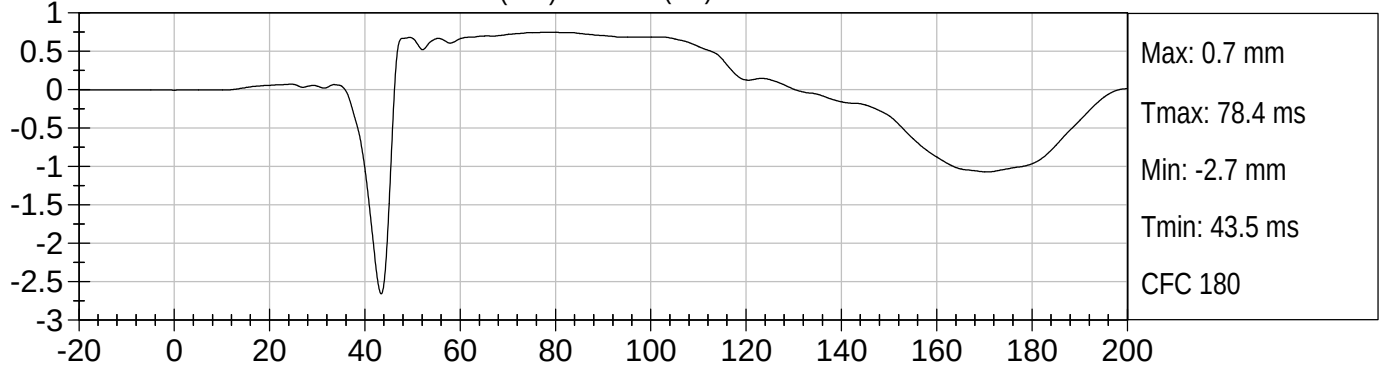
PASSENGER RIGHT FEMUR (N) vs TIME (ms)



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



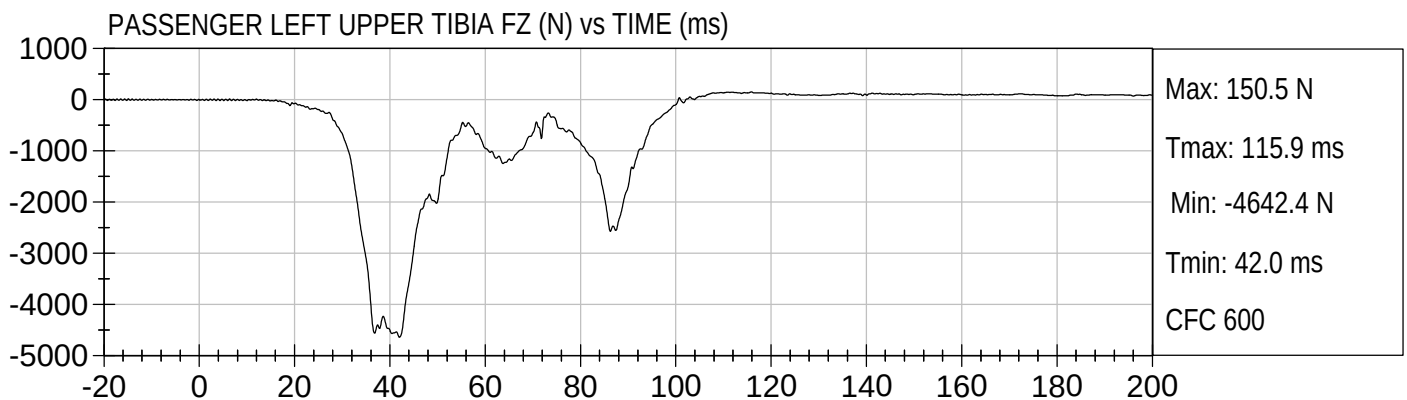
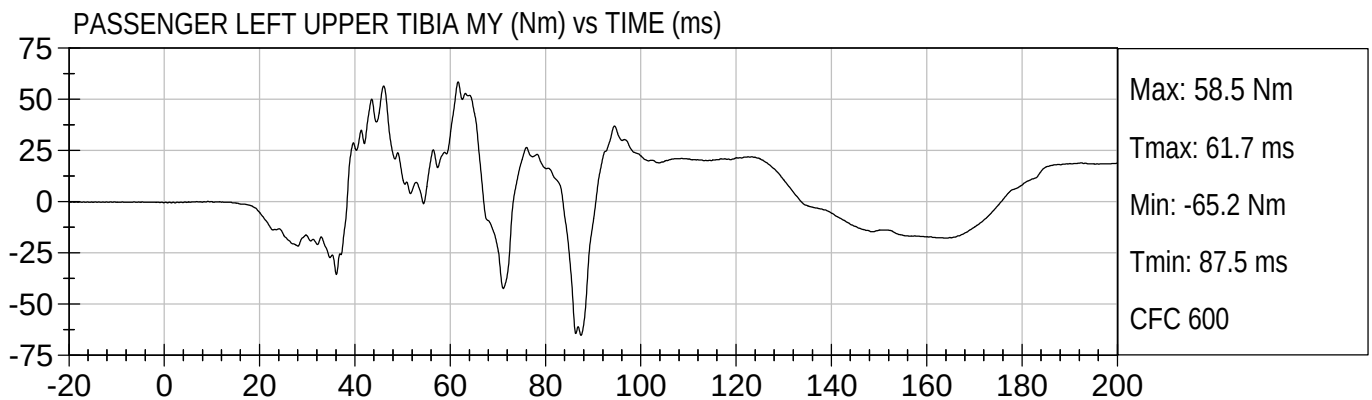
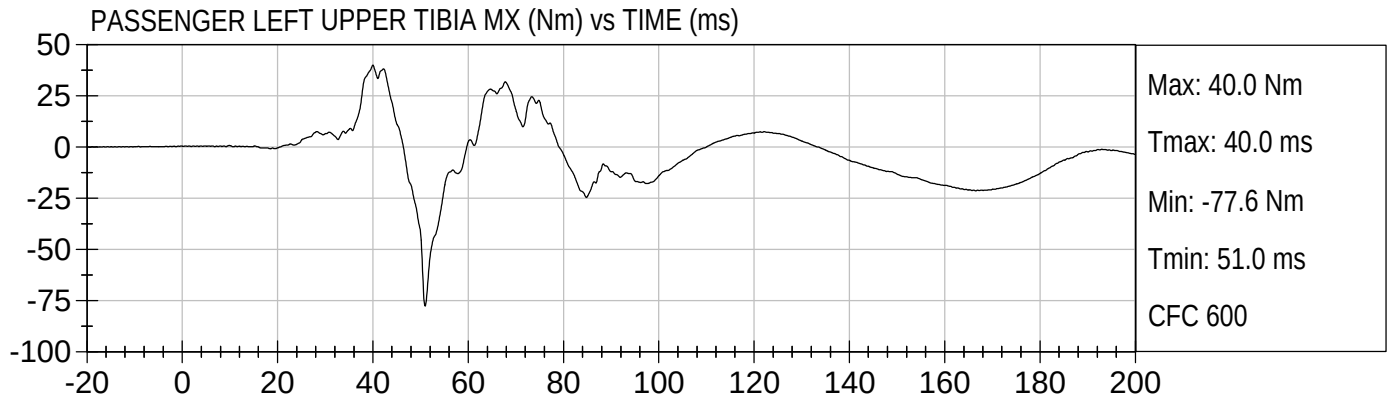
PASSENGER RIGHT KNEE SHEAR (mm) vs TIME (ms)





35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

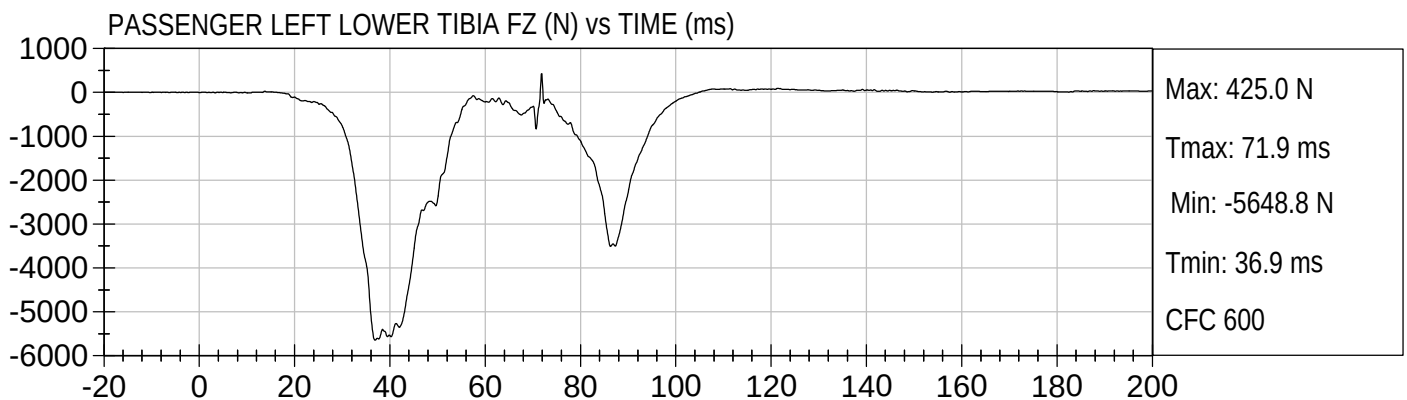
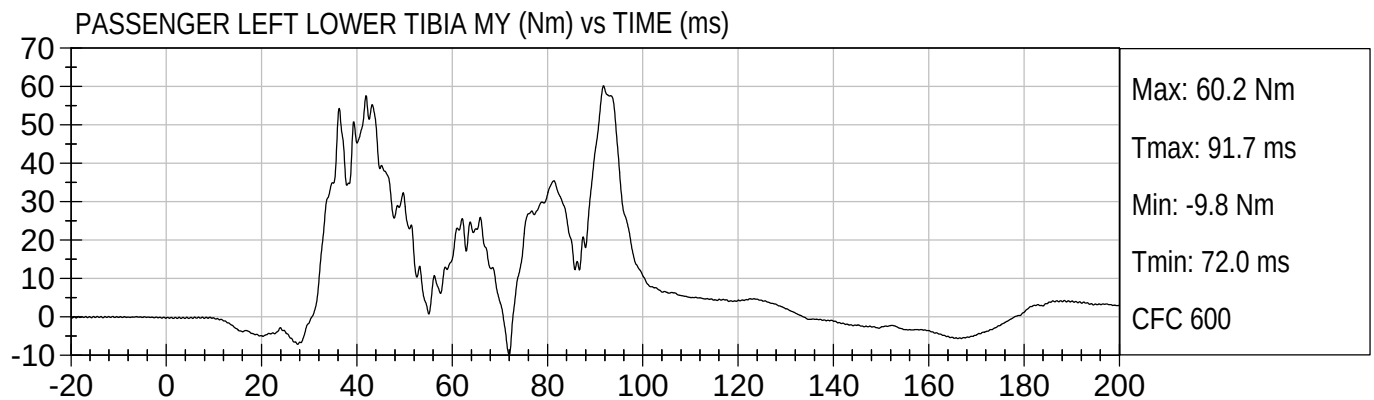
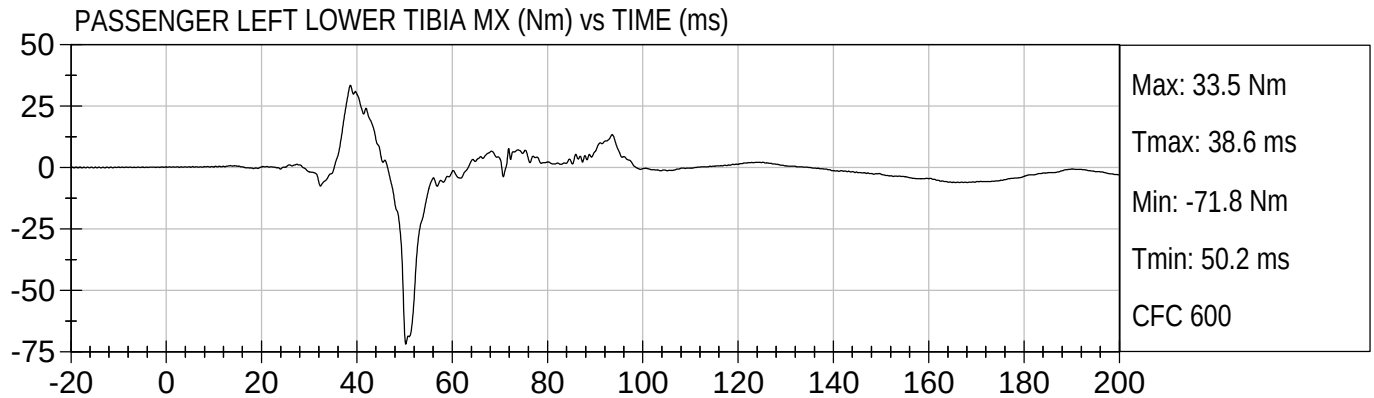
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)





35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

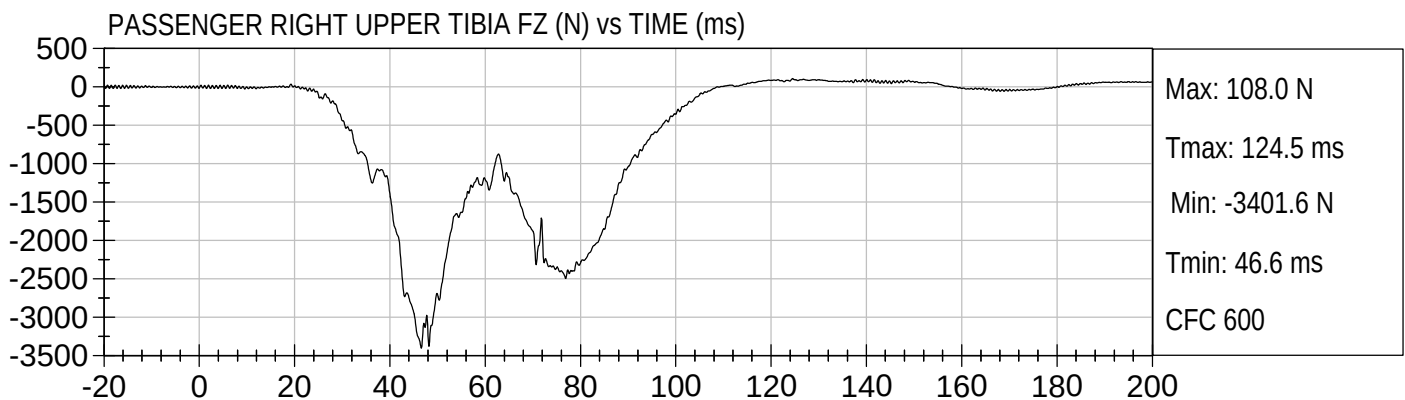
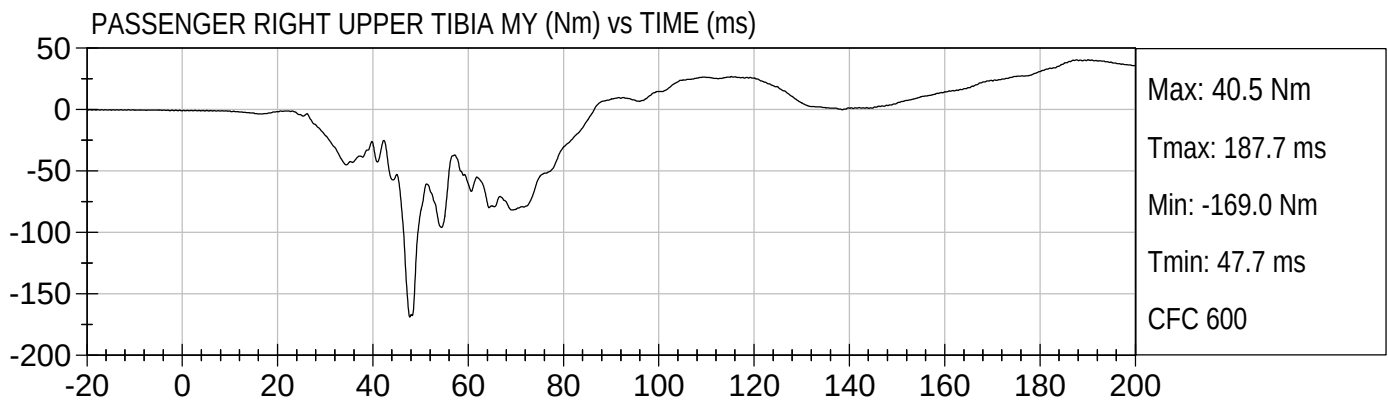
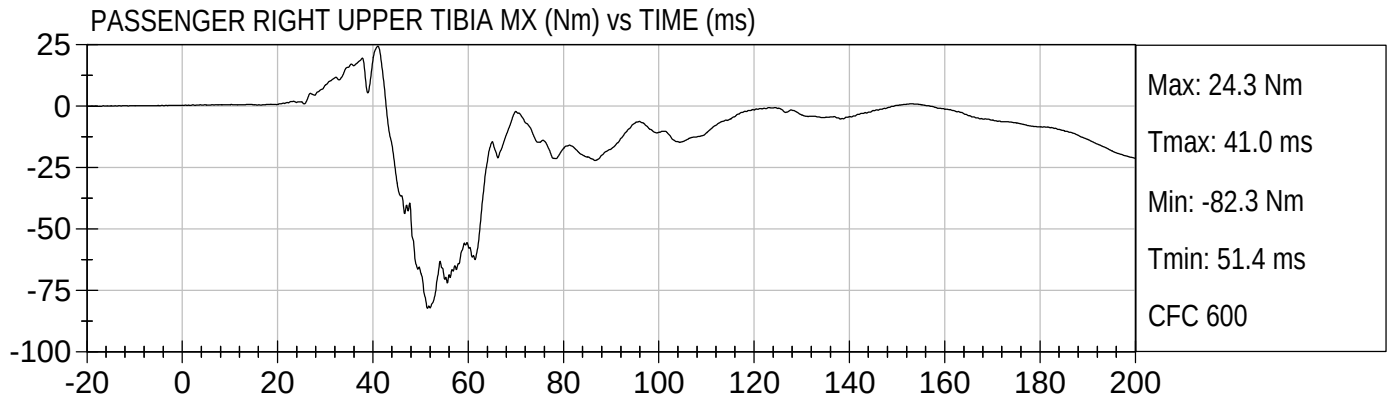
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)





35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

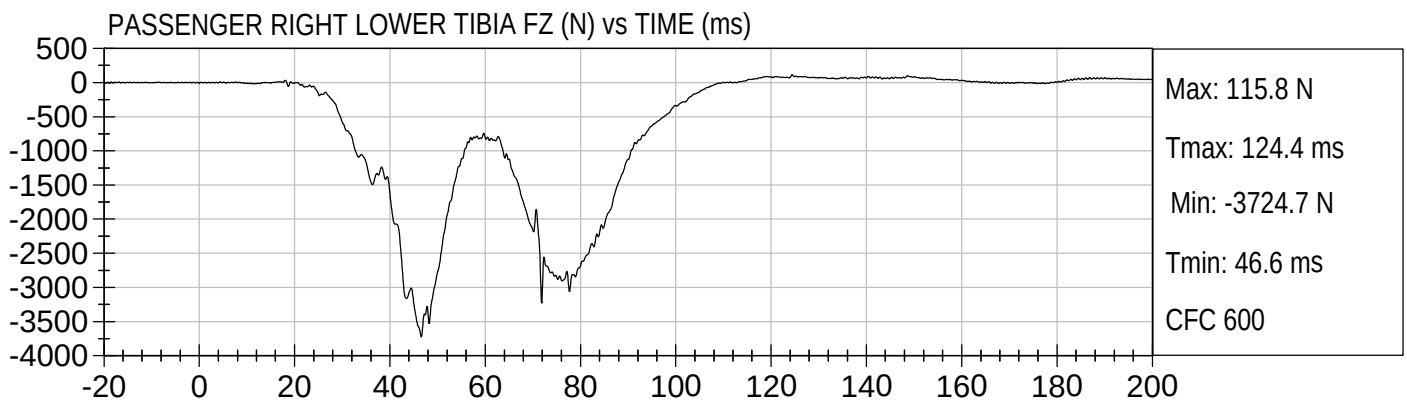
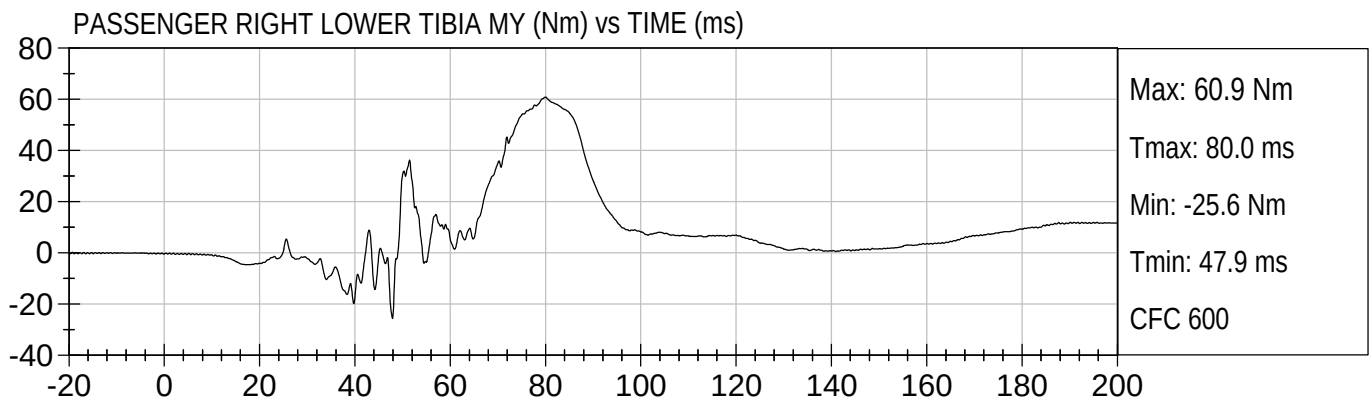
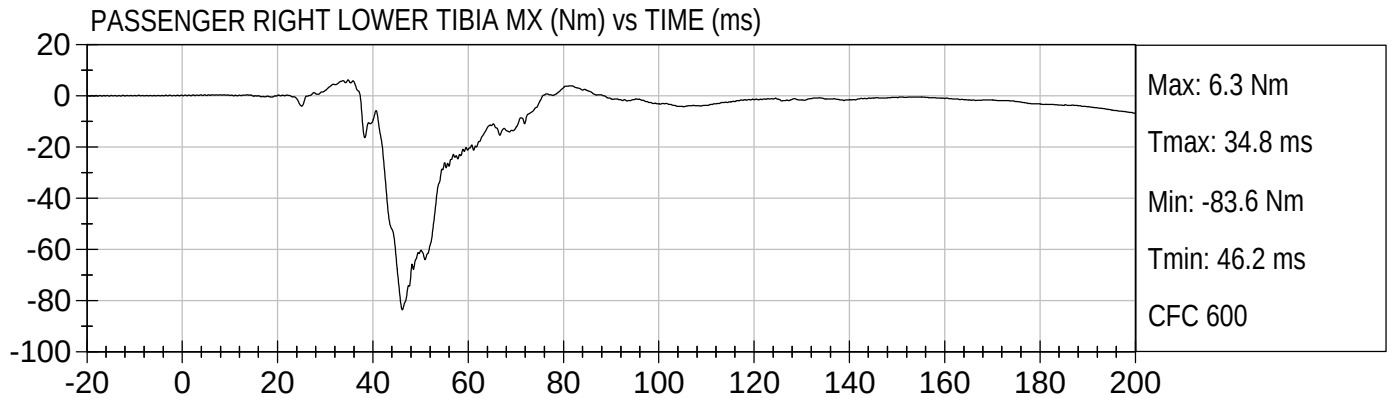
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)





35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

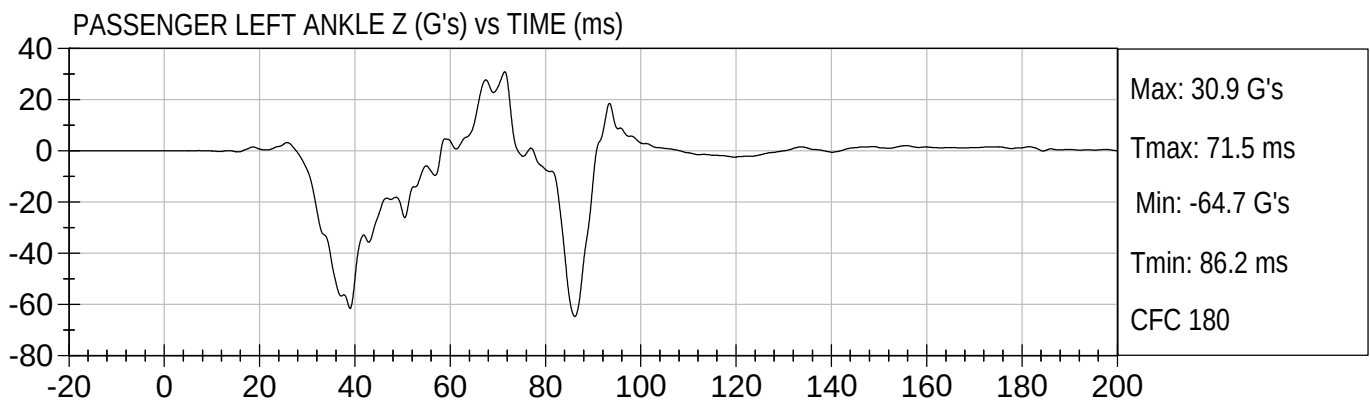
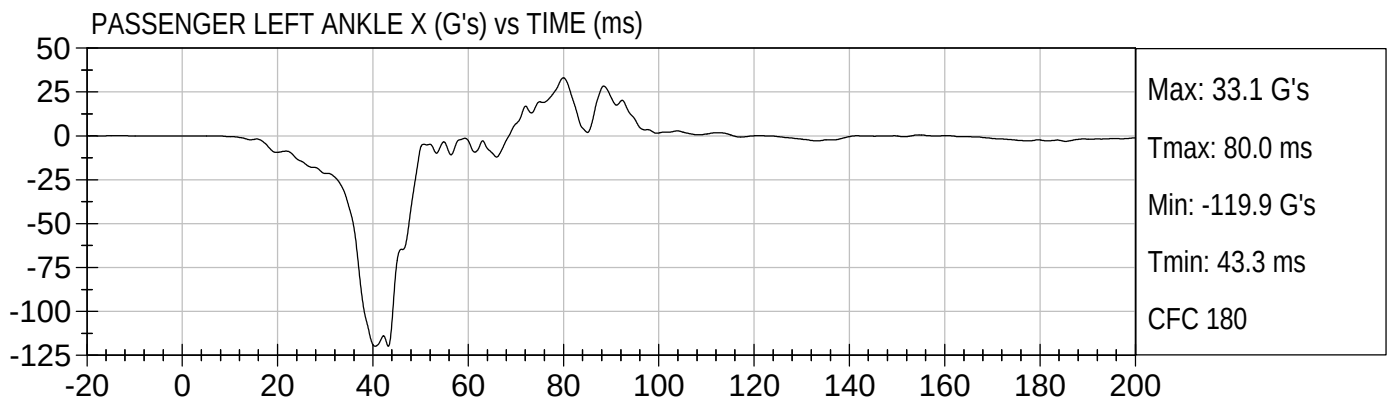
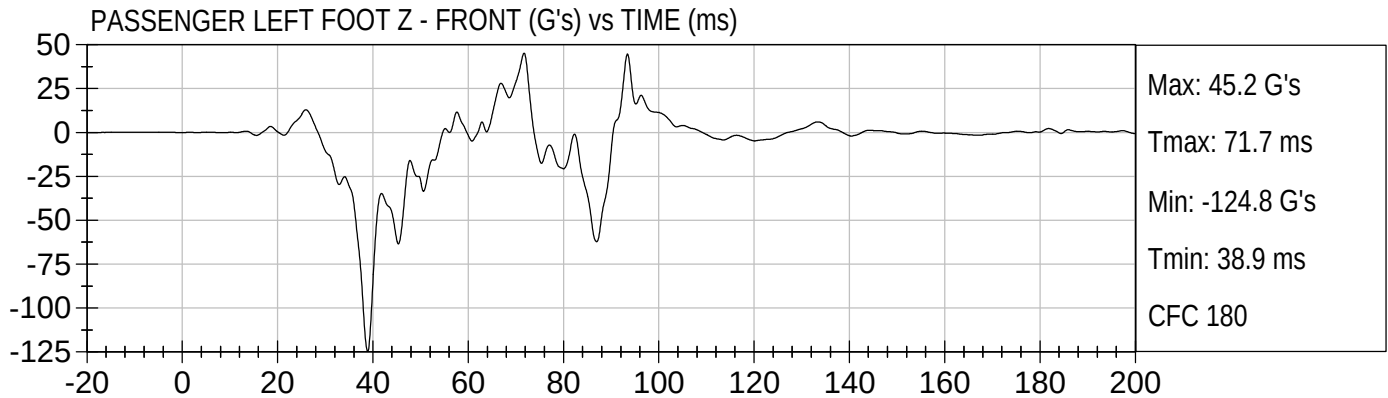
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)





35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

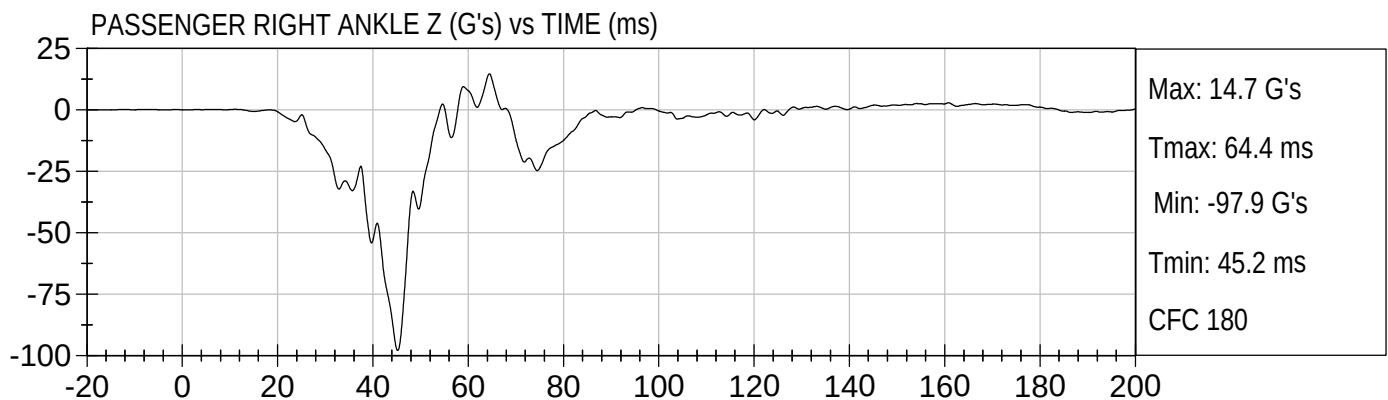
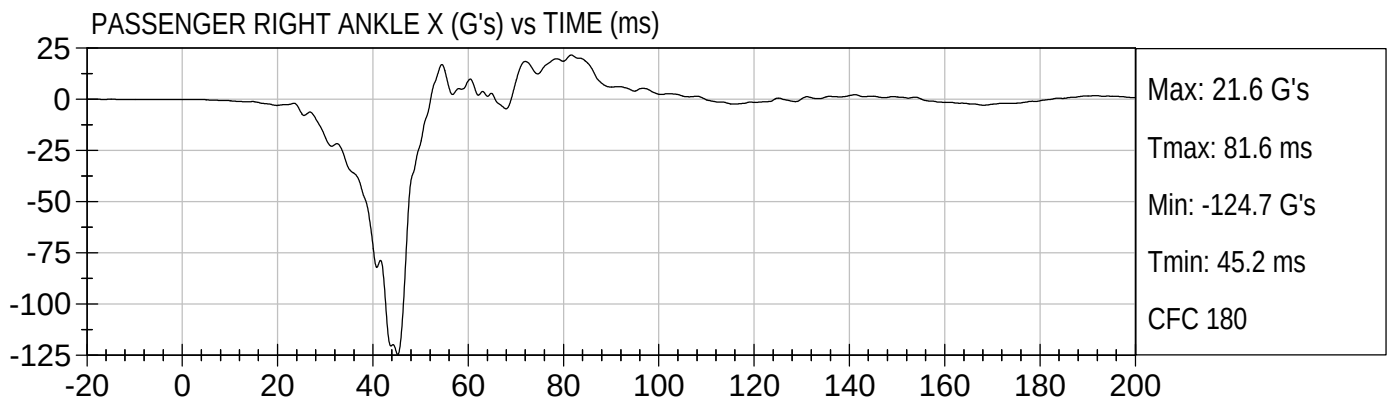
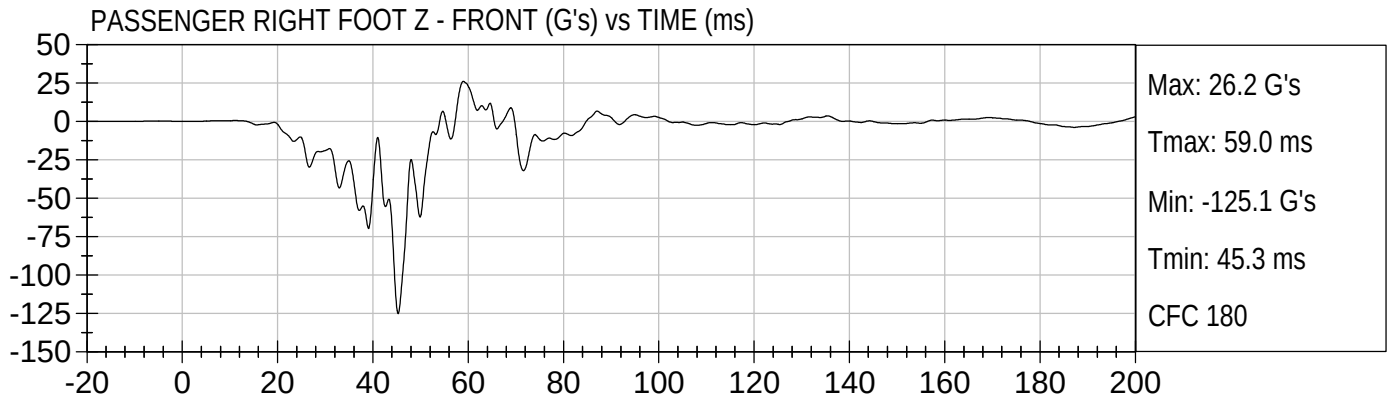
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)





35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

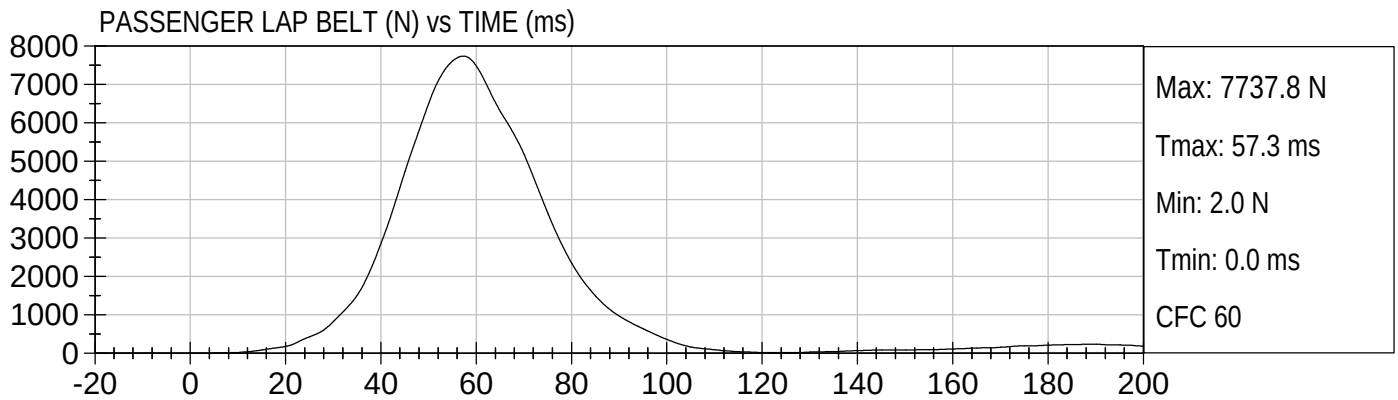
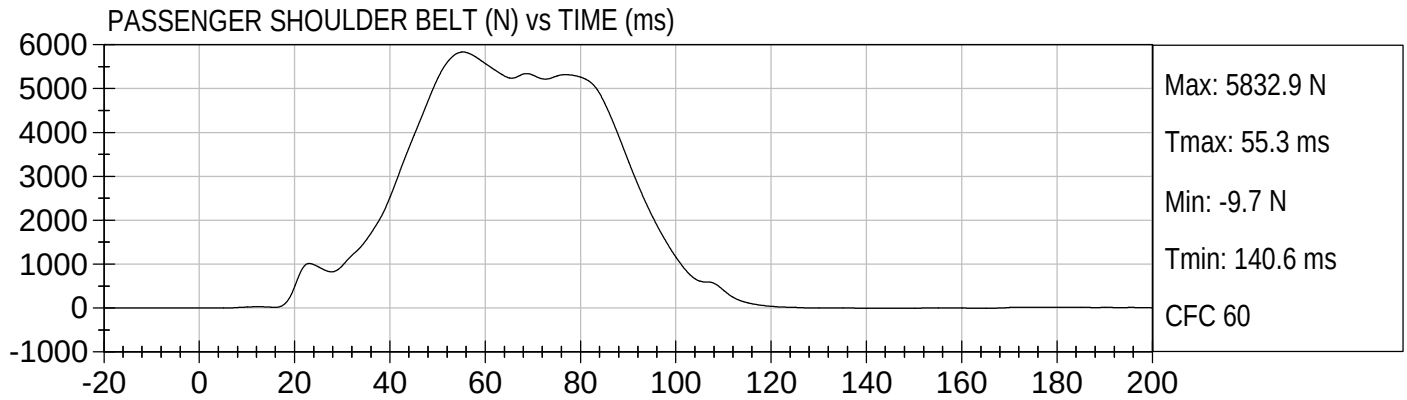
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)

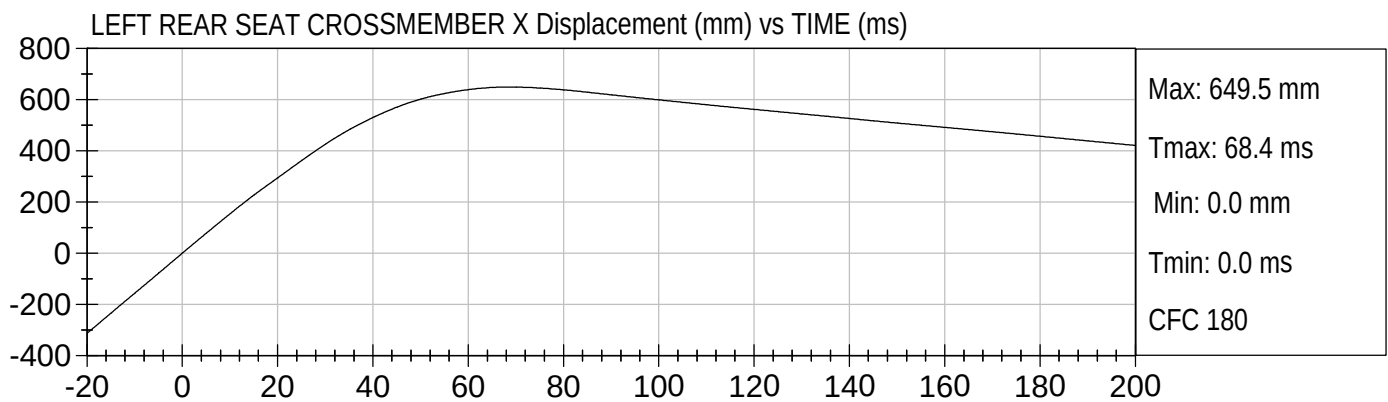
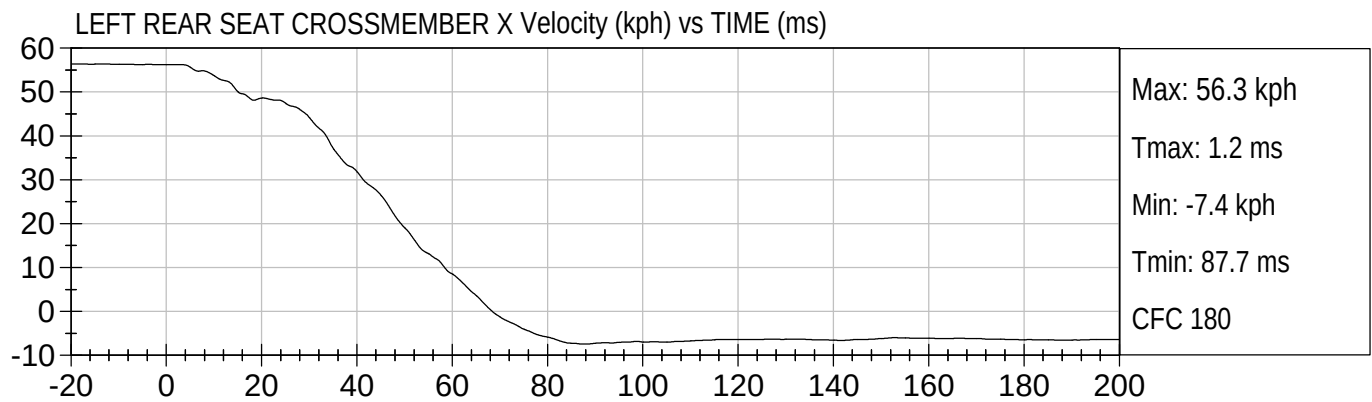
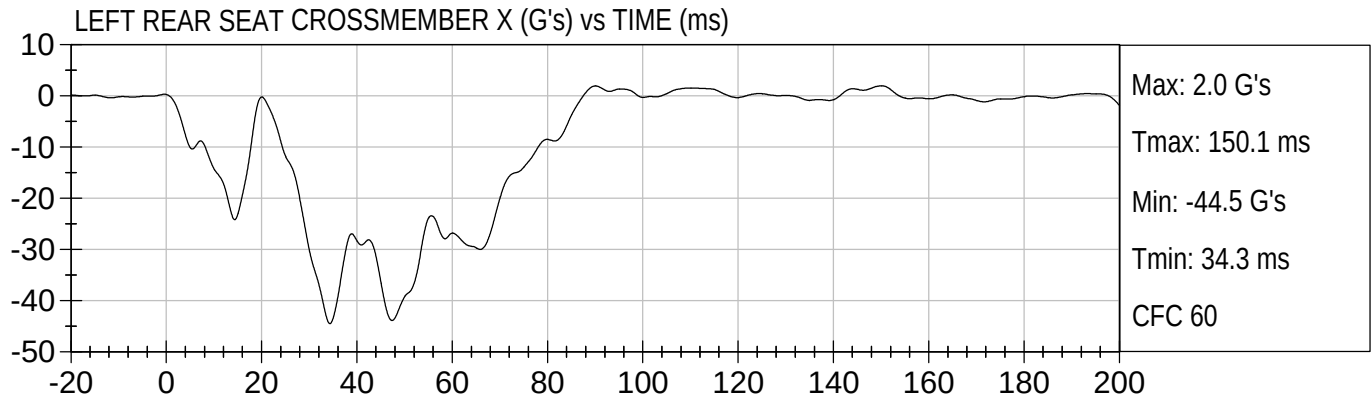


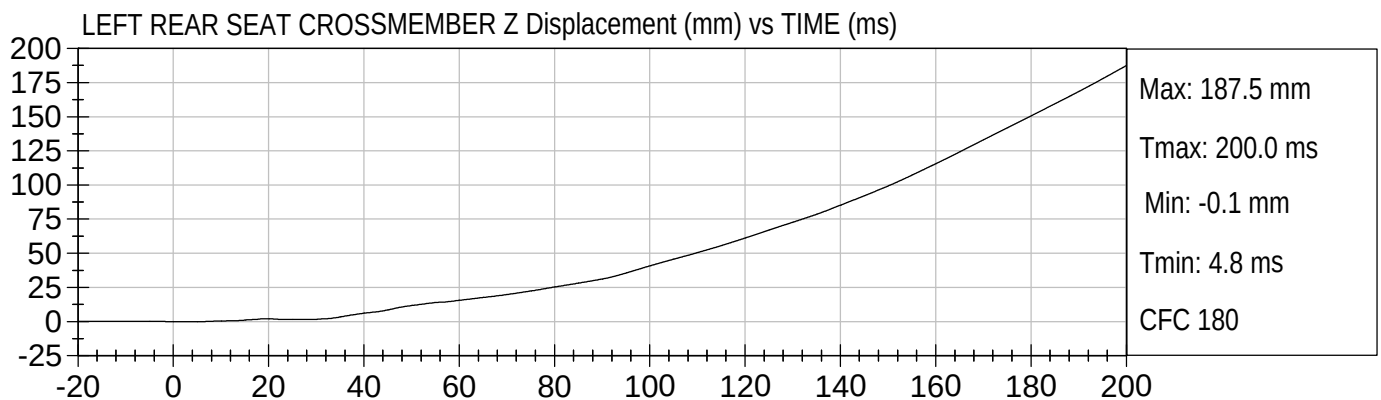
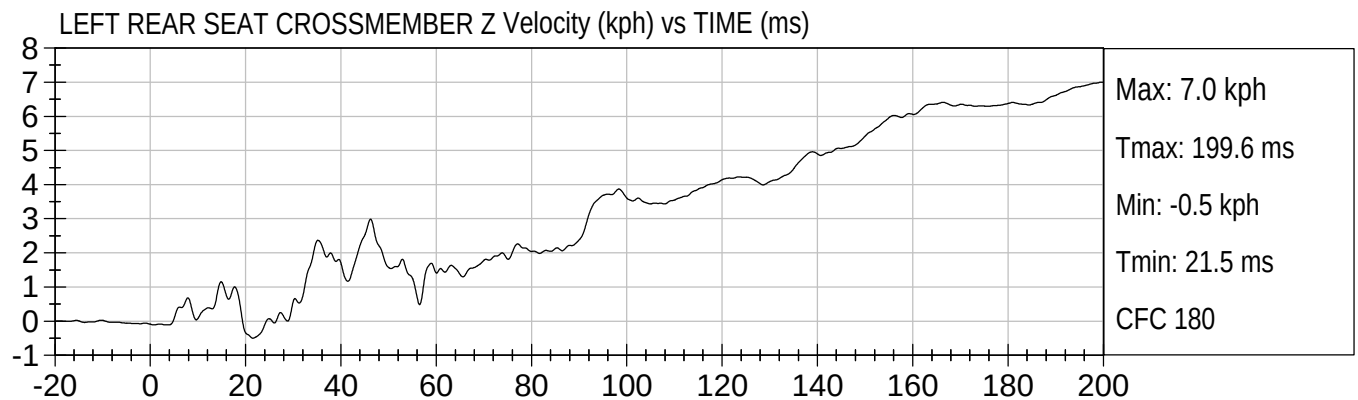
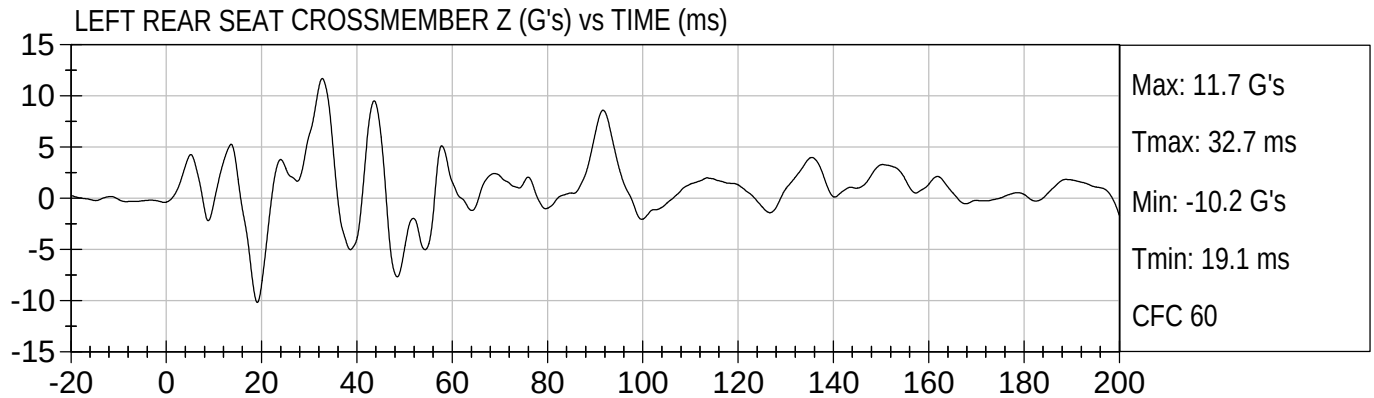


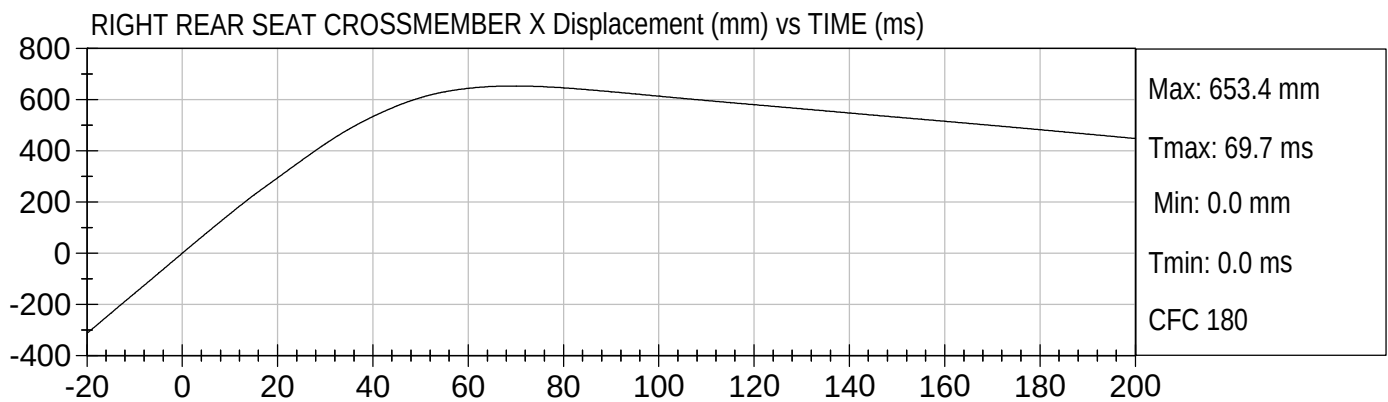
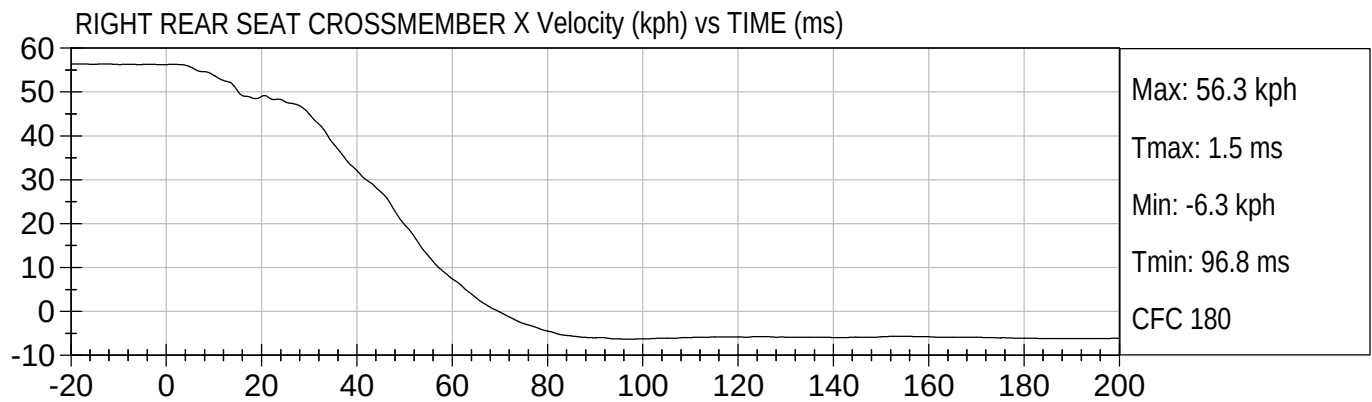
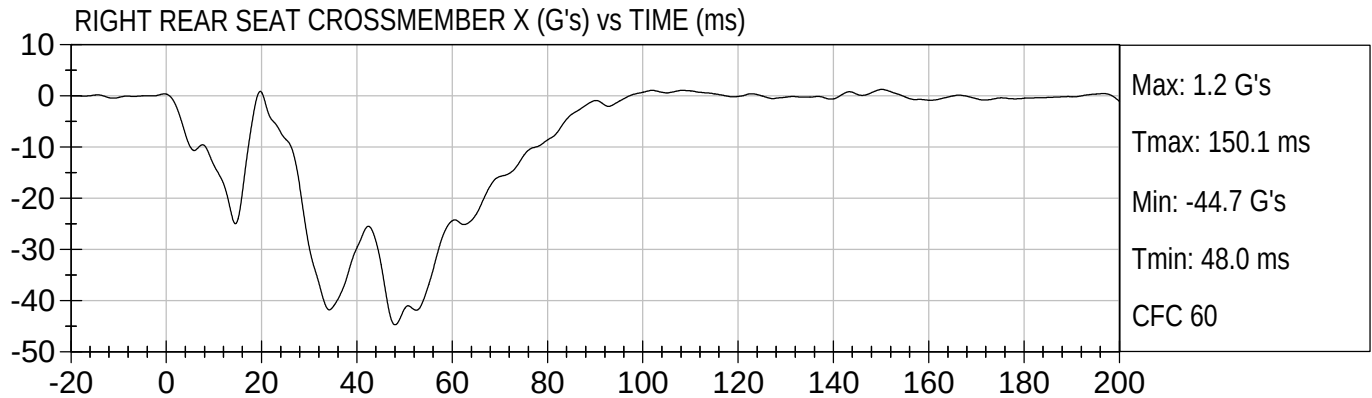
35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

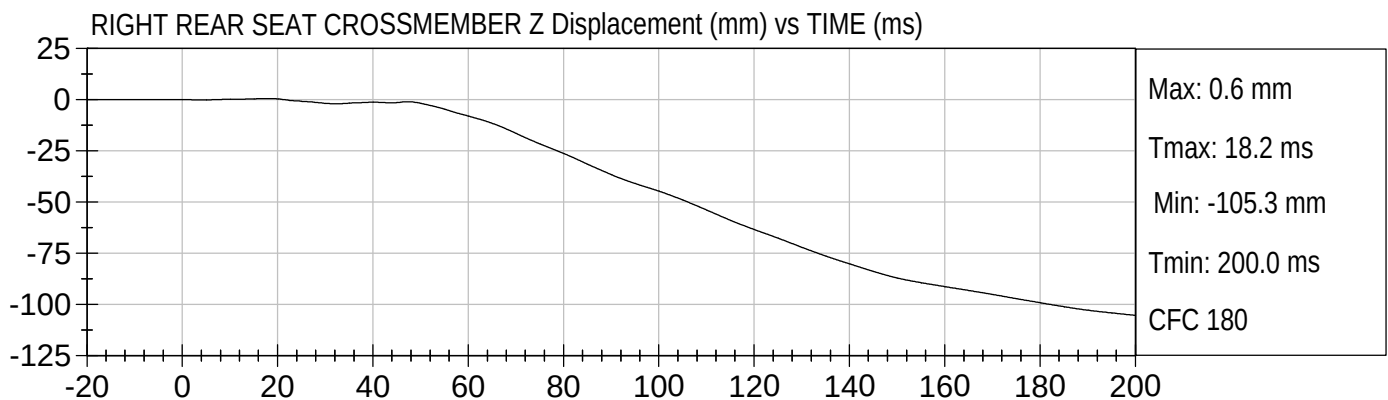
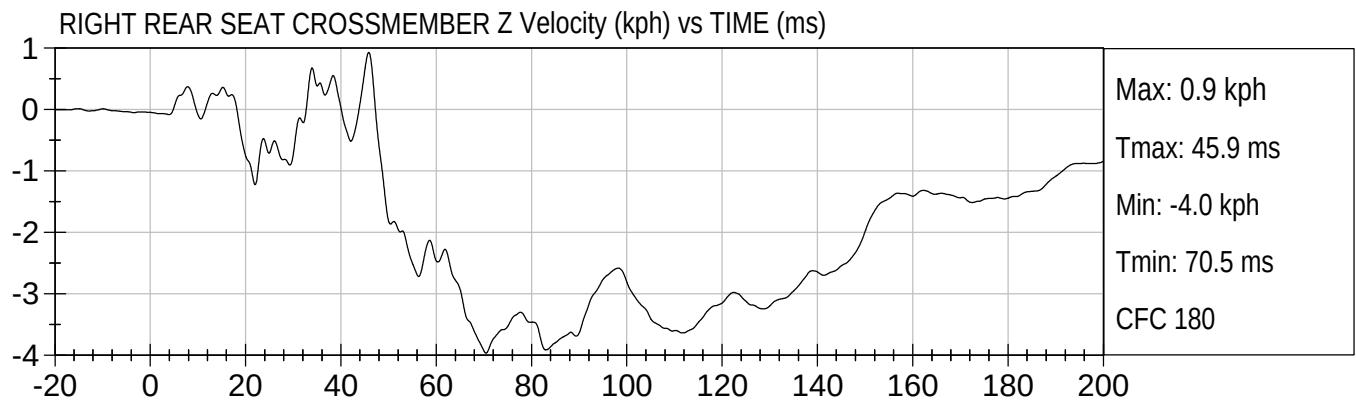
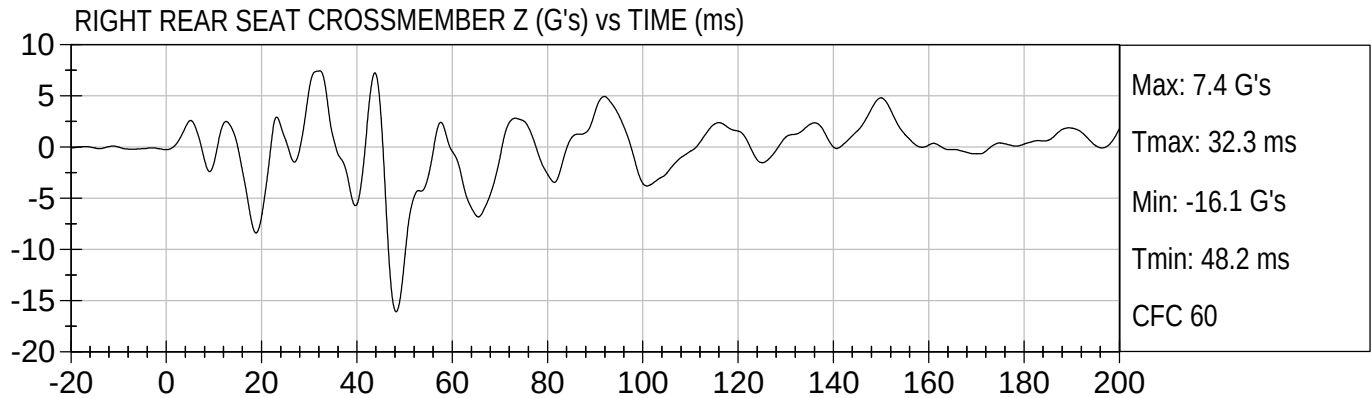
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)

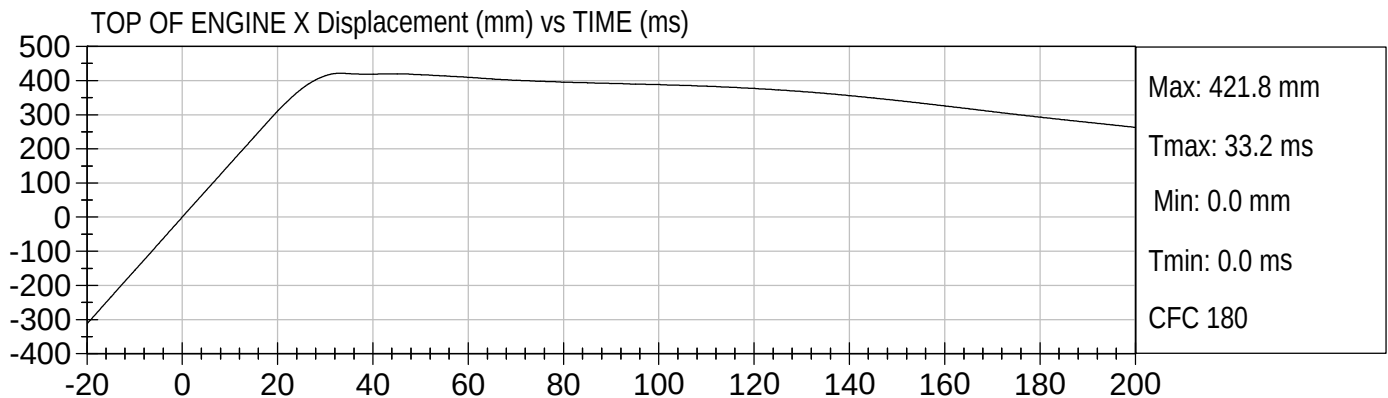
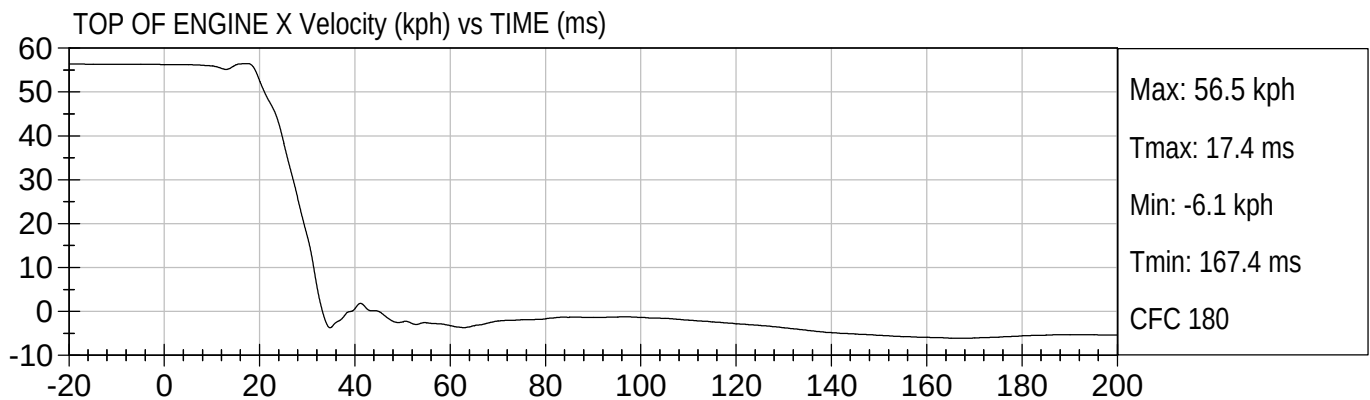
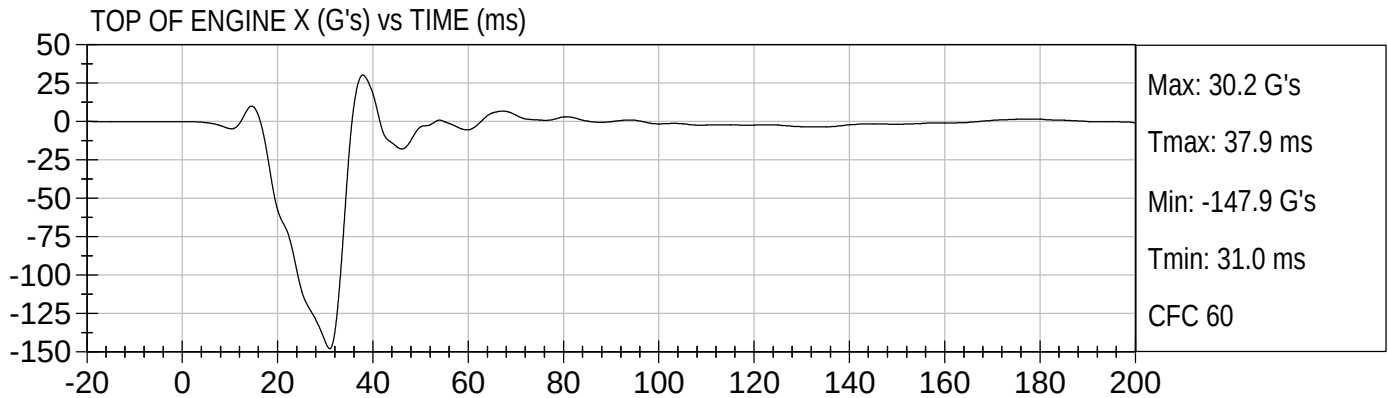








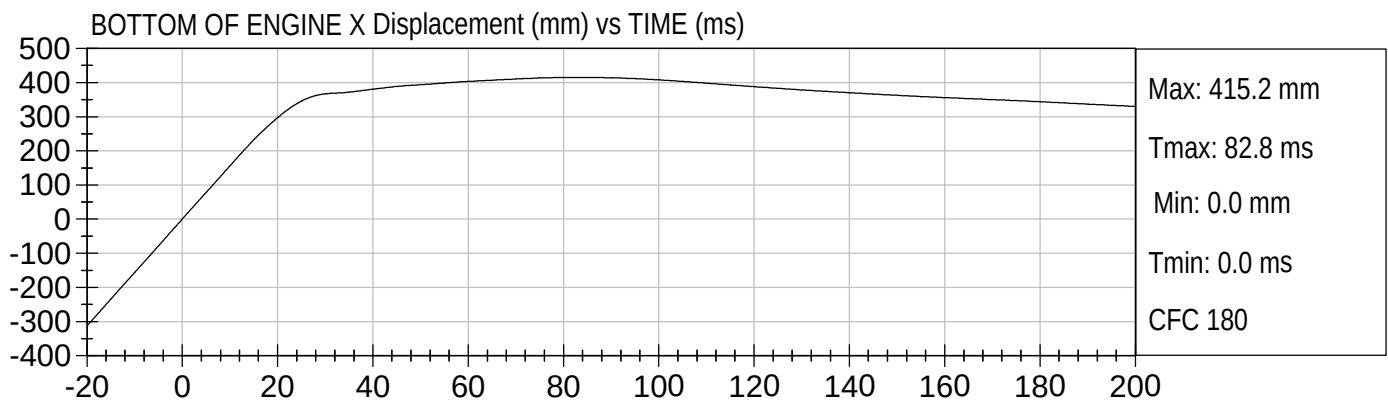
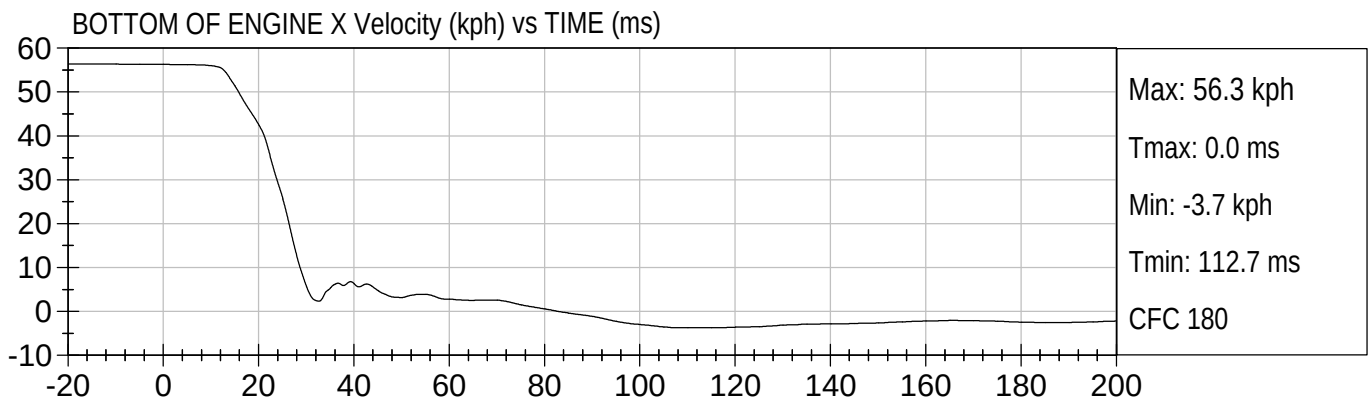
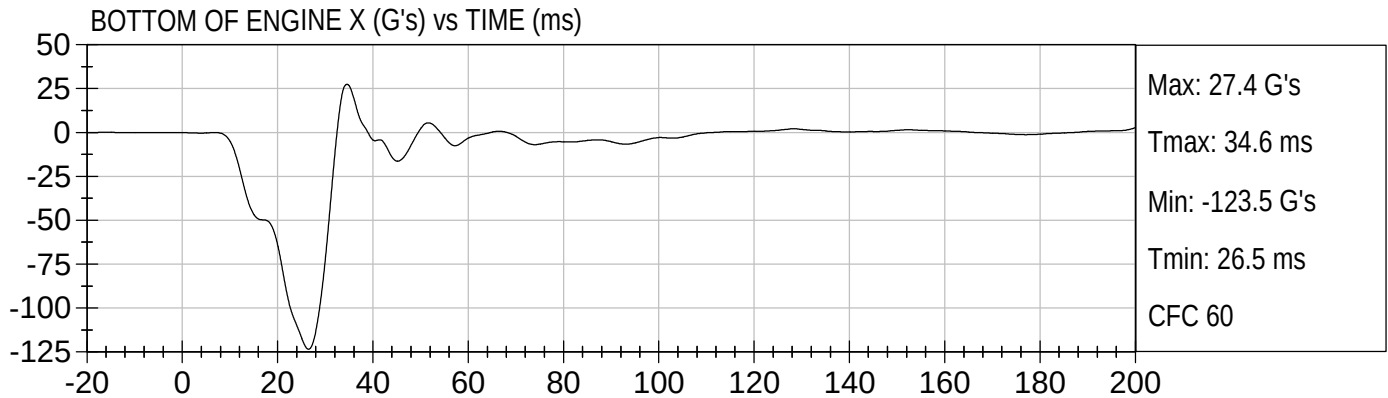






35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

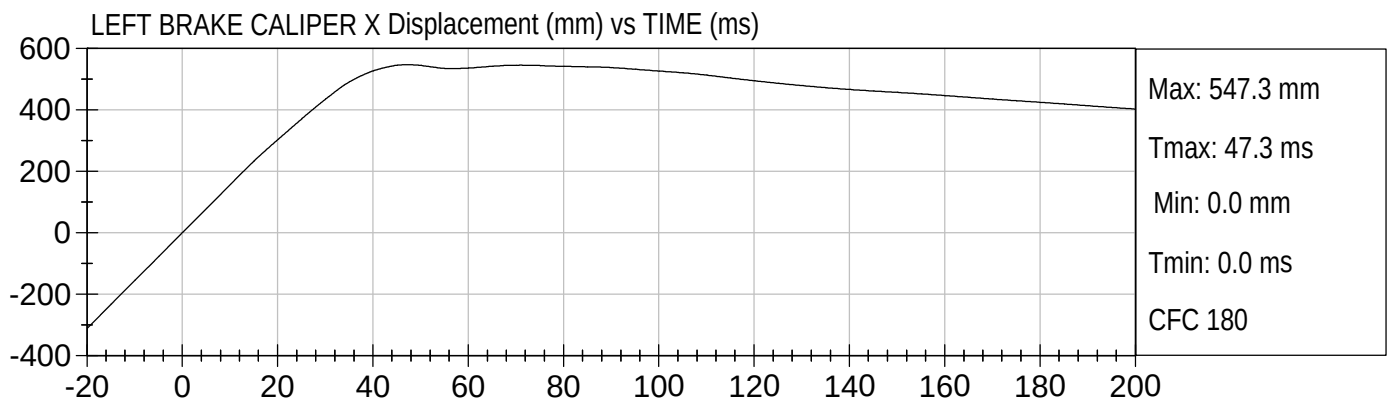
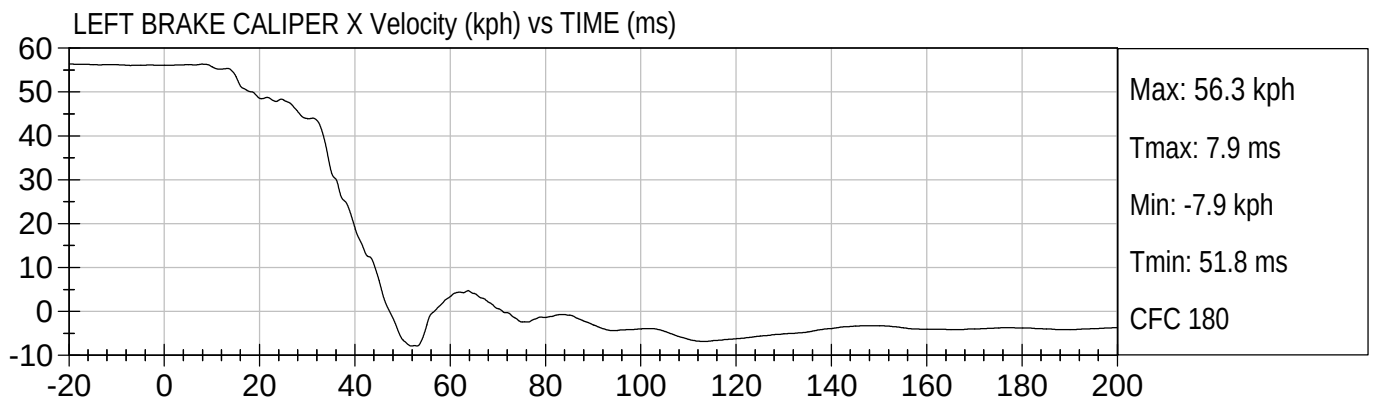
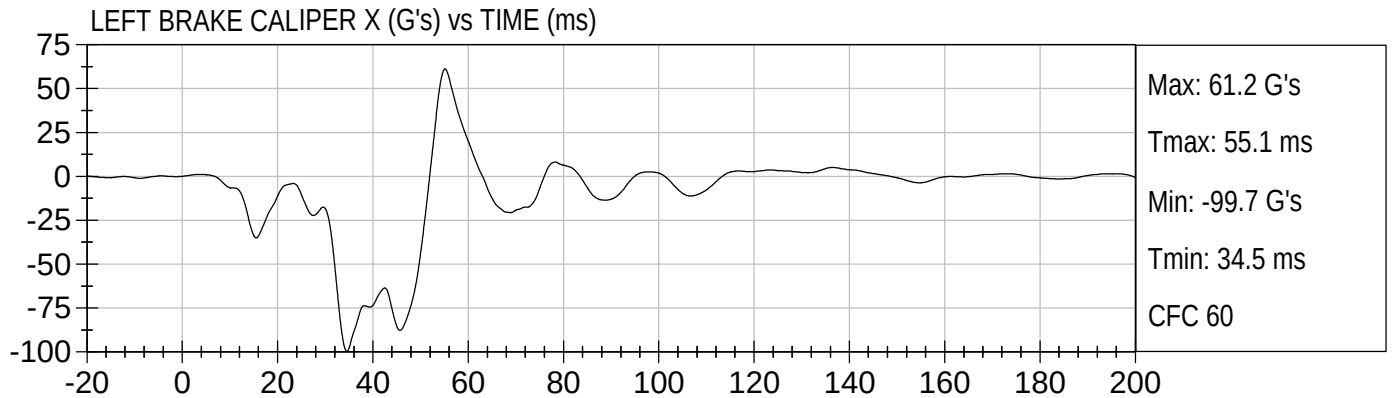
Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)

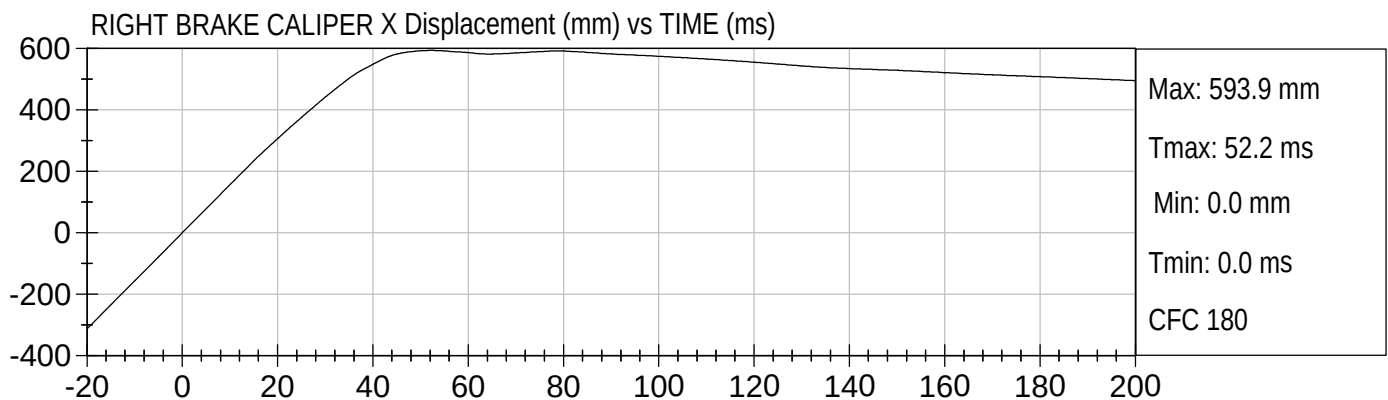
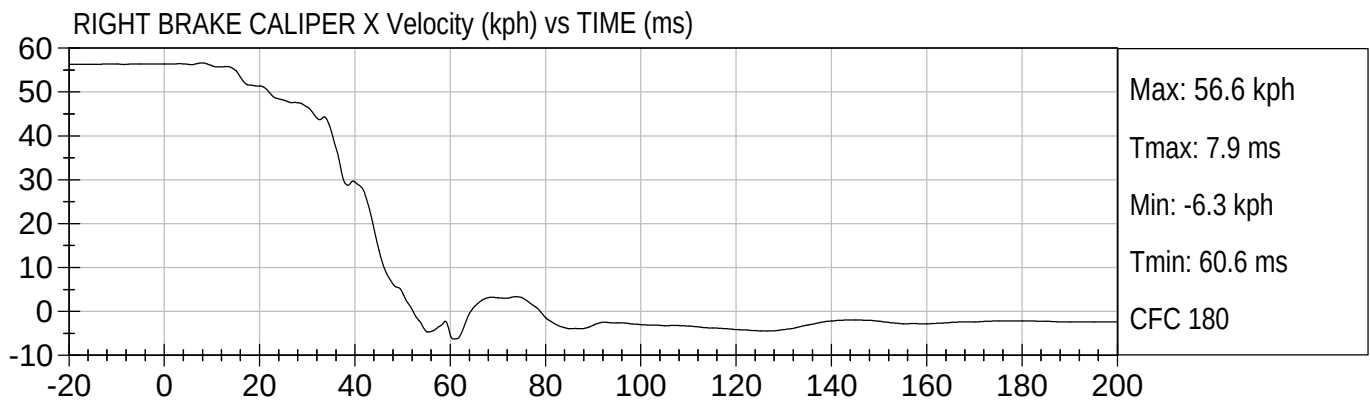
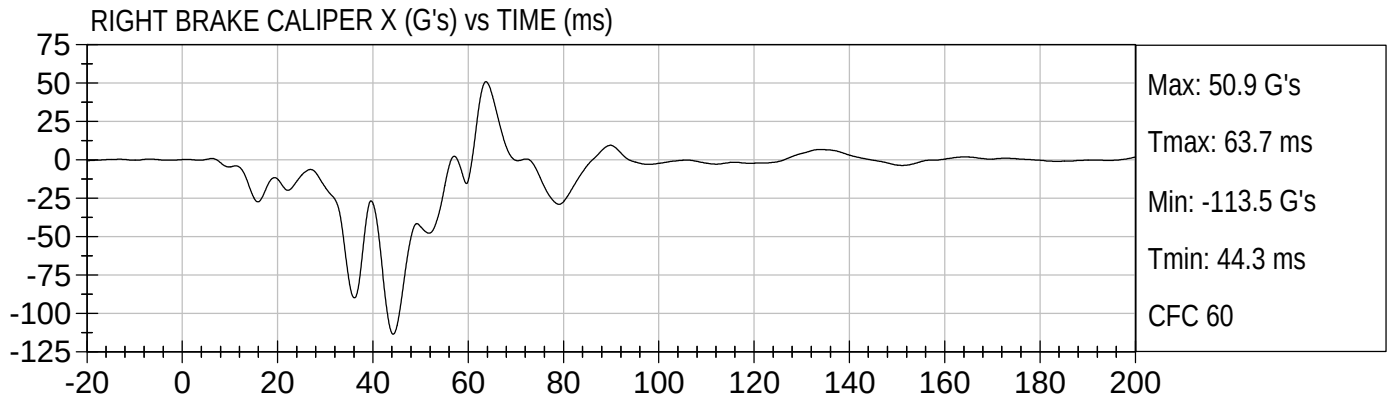




35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)

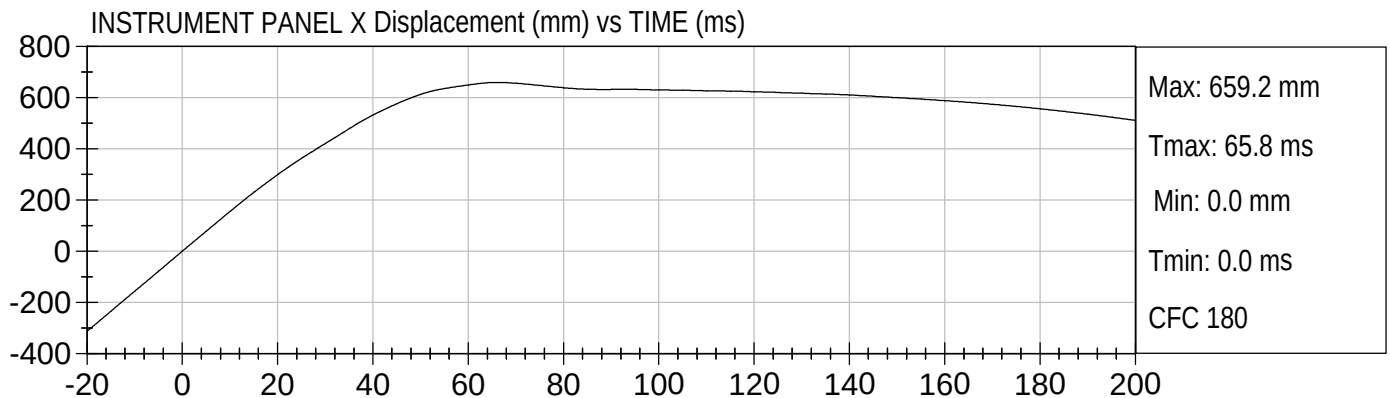
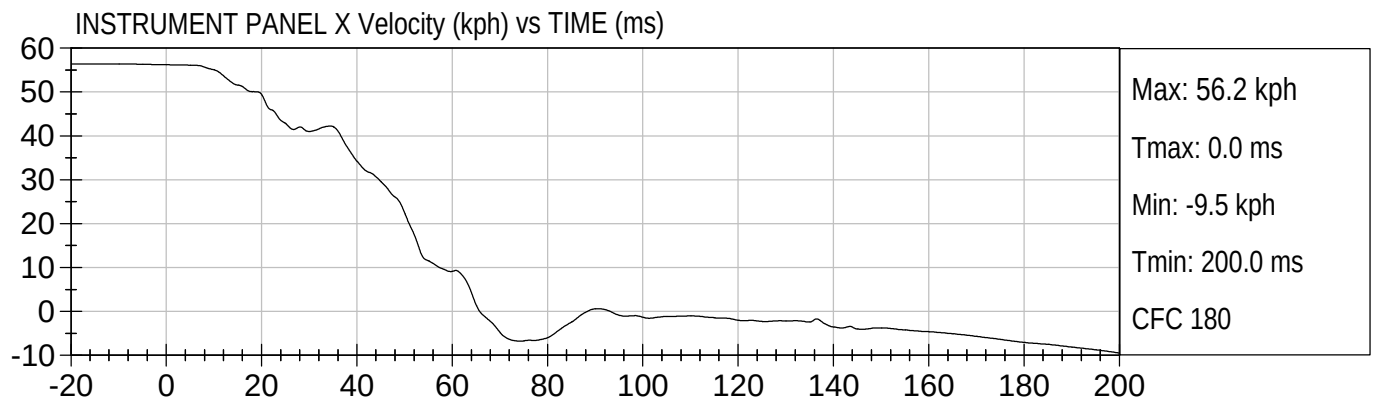
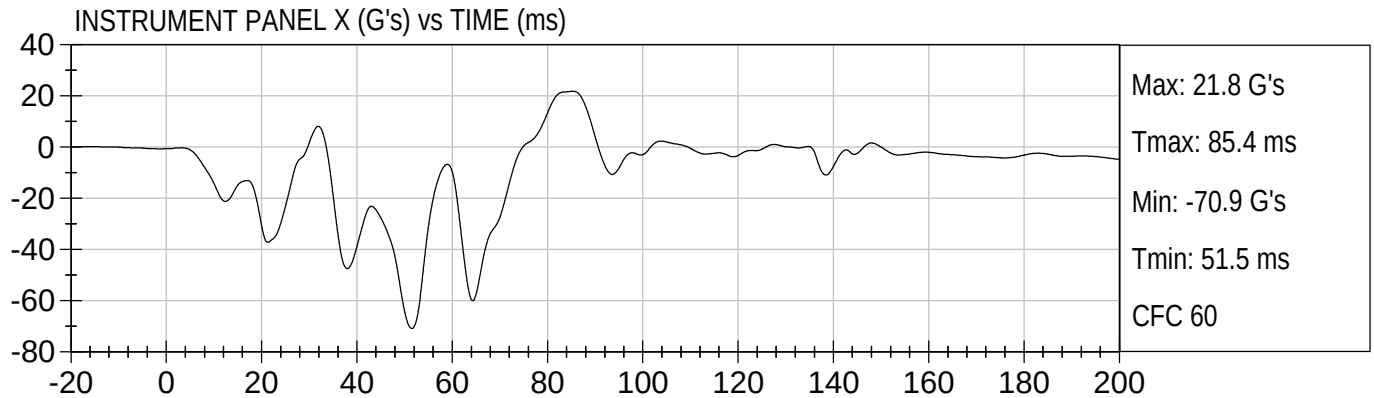


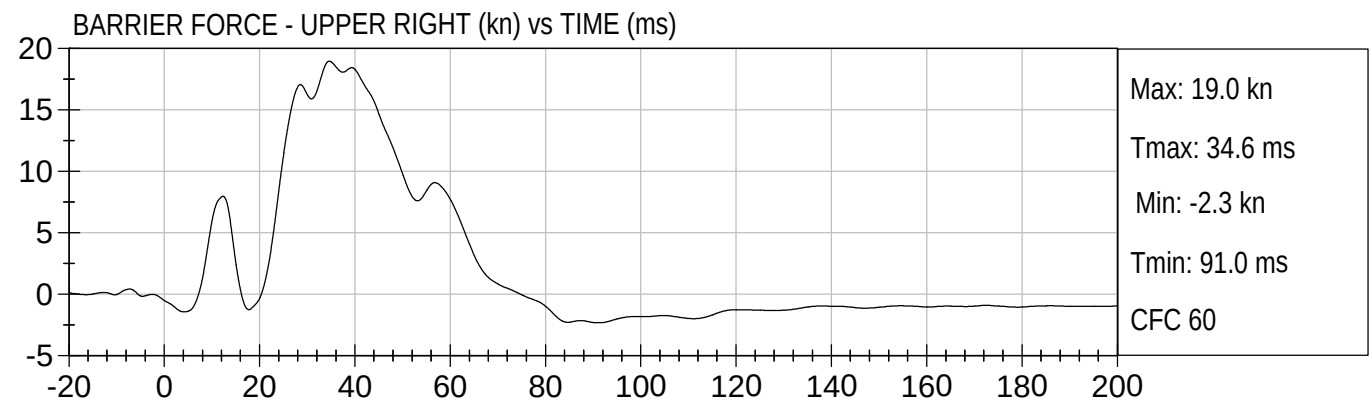
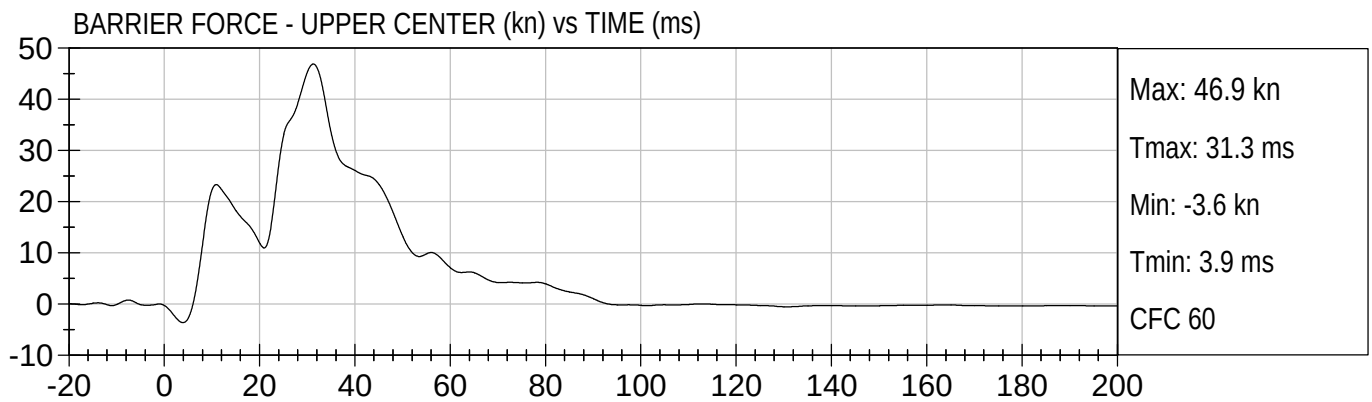
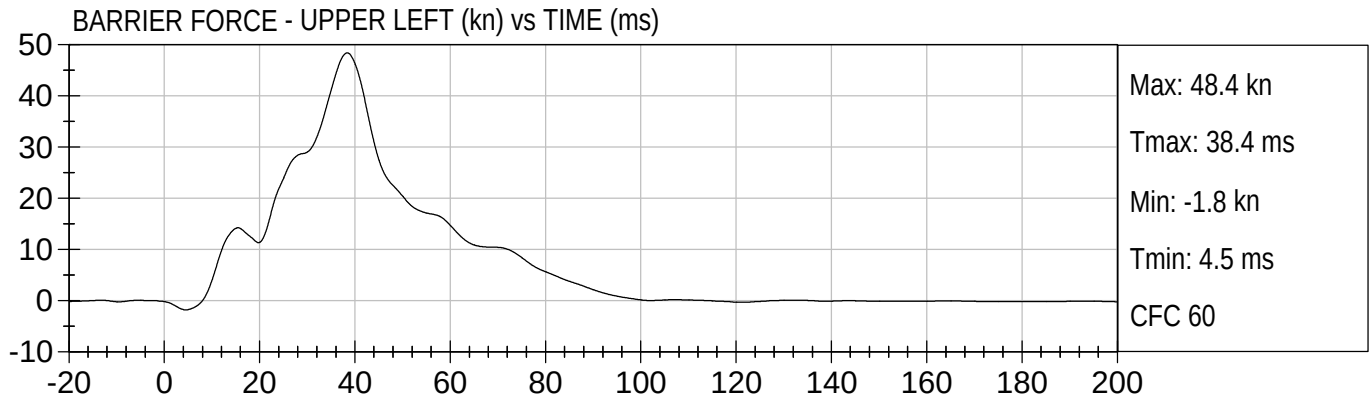




35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)



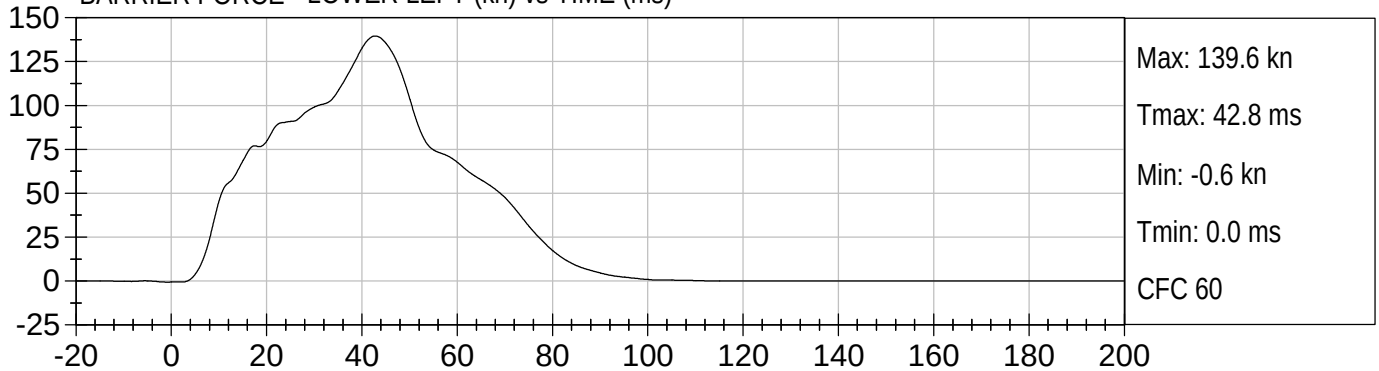




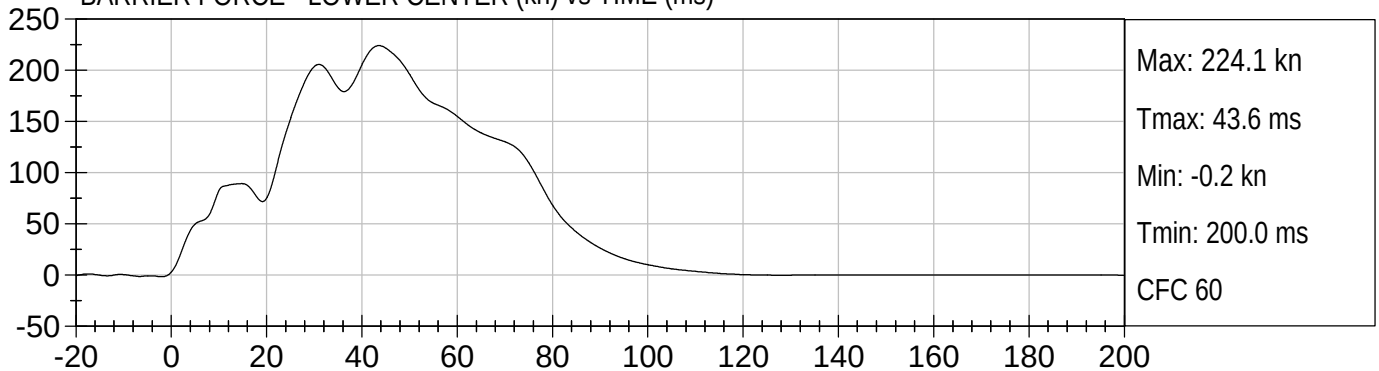
35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)

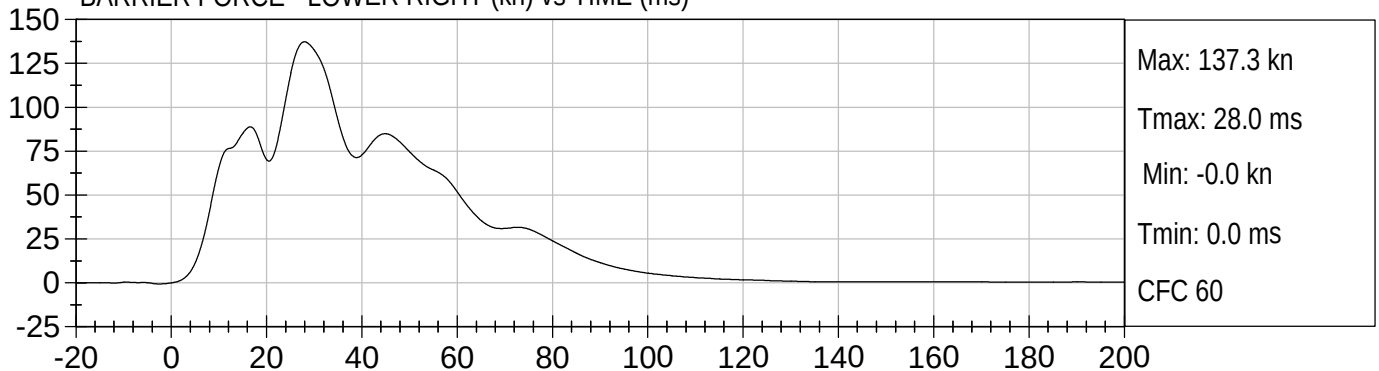
BARRIER FORCE - LOWER LEFT (kn) vs TIME (ms)

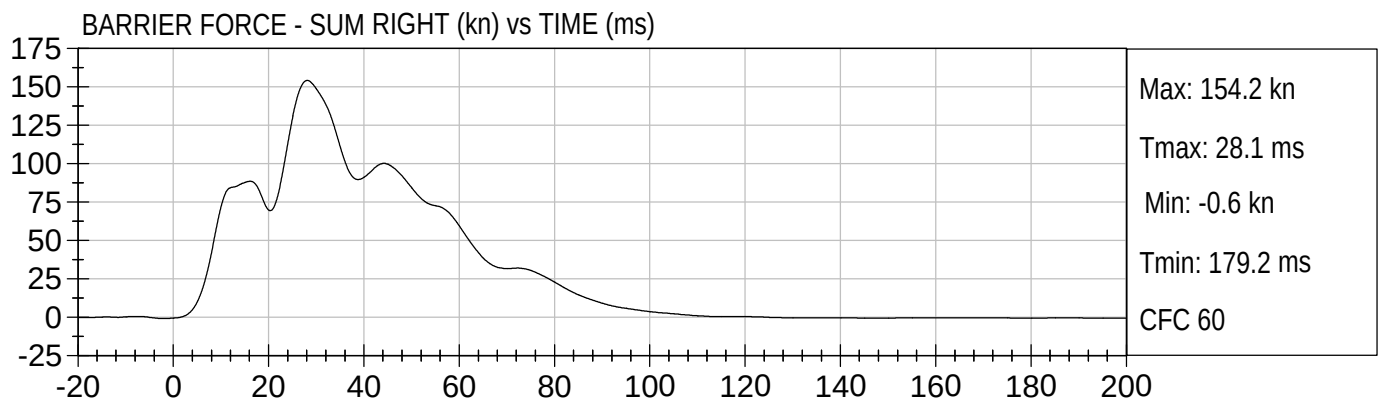
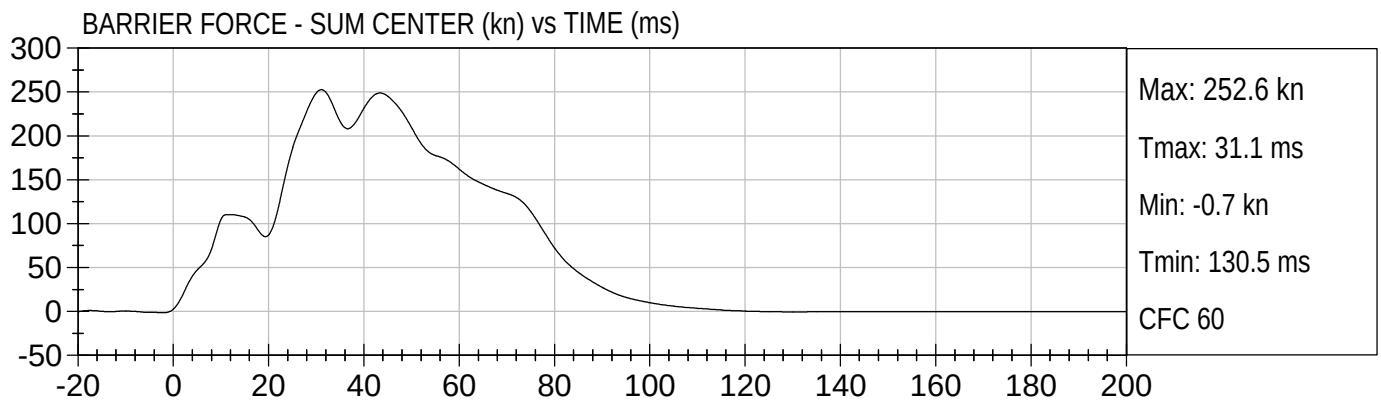
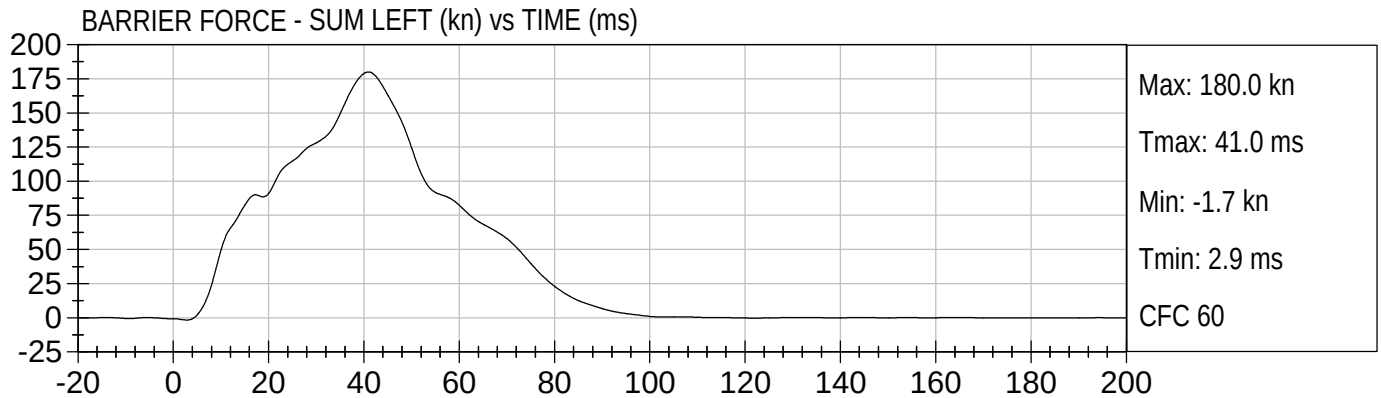


BARRIER FORCE - LOWER CENTER (kn) vs TIME (ms)



BARRIER FORCE - LOWER RIGHT (kn) vs TIME (ms)

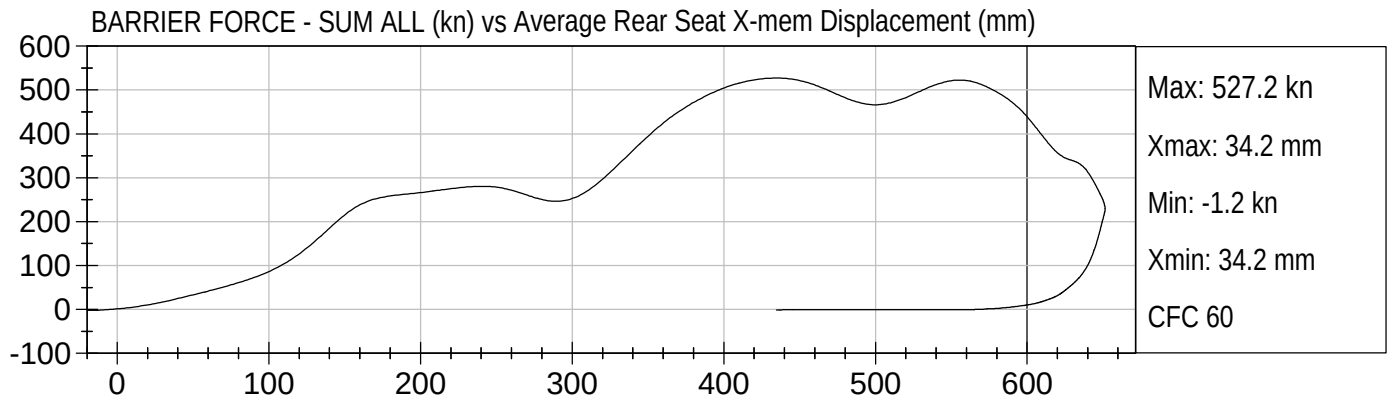
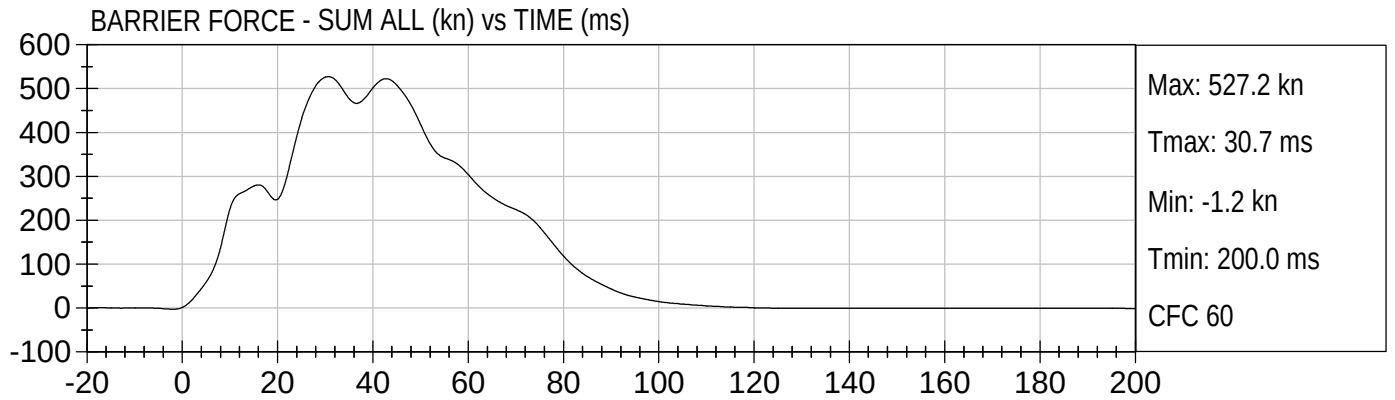






35 MPH FRONTAL IMPACT
2002 MITSUBISHI LANCER (M25601)

Test Date: 2/19/02
Speed: 35.0 mph (56.3 km/h)



APPENDIX C

DUMMY CALIBRATION DATA TRACES AND TABLES

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

ATD Serial No: 065

Test I.D: D02181

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	243.3	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	8.2	Pass
Is Acceleration Unimodal?	Yes/No	< 10% Peak	Yes	Pass
			Overall Test Results	Pass

Laboratory Technician

2/7/02
Test Date

Approved By



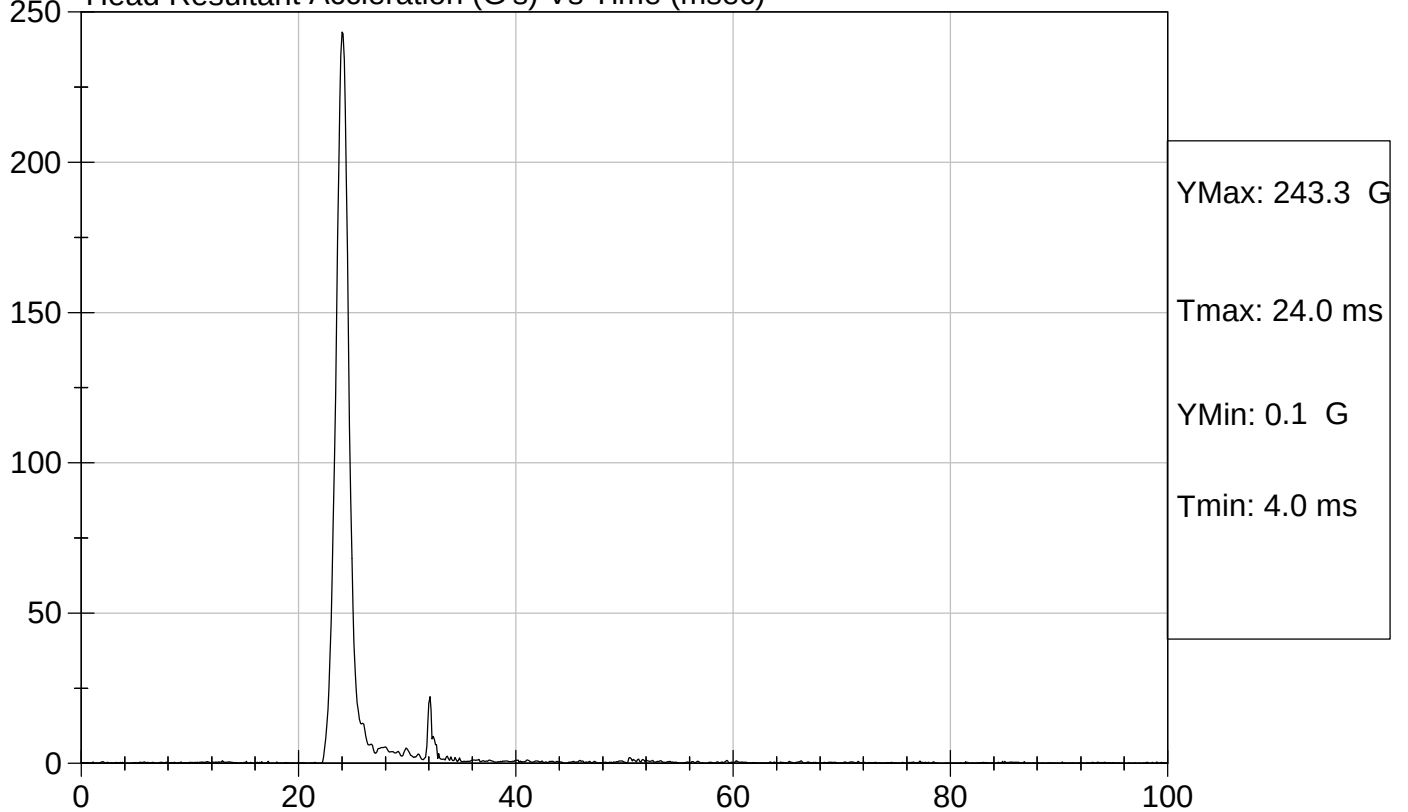
Test Description: Head Drop

Test Date: 2/7/02

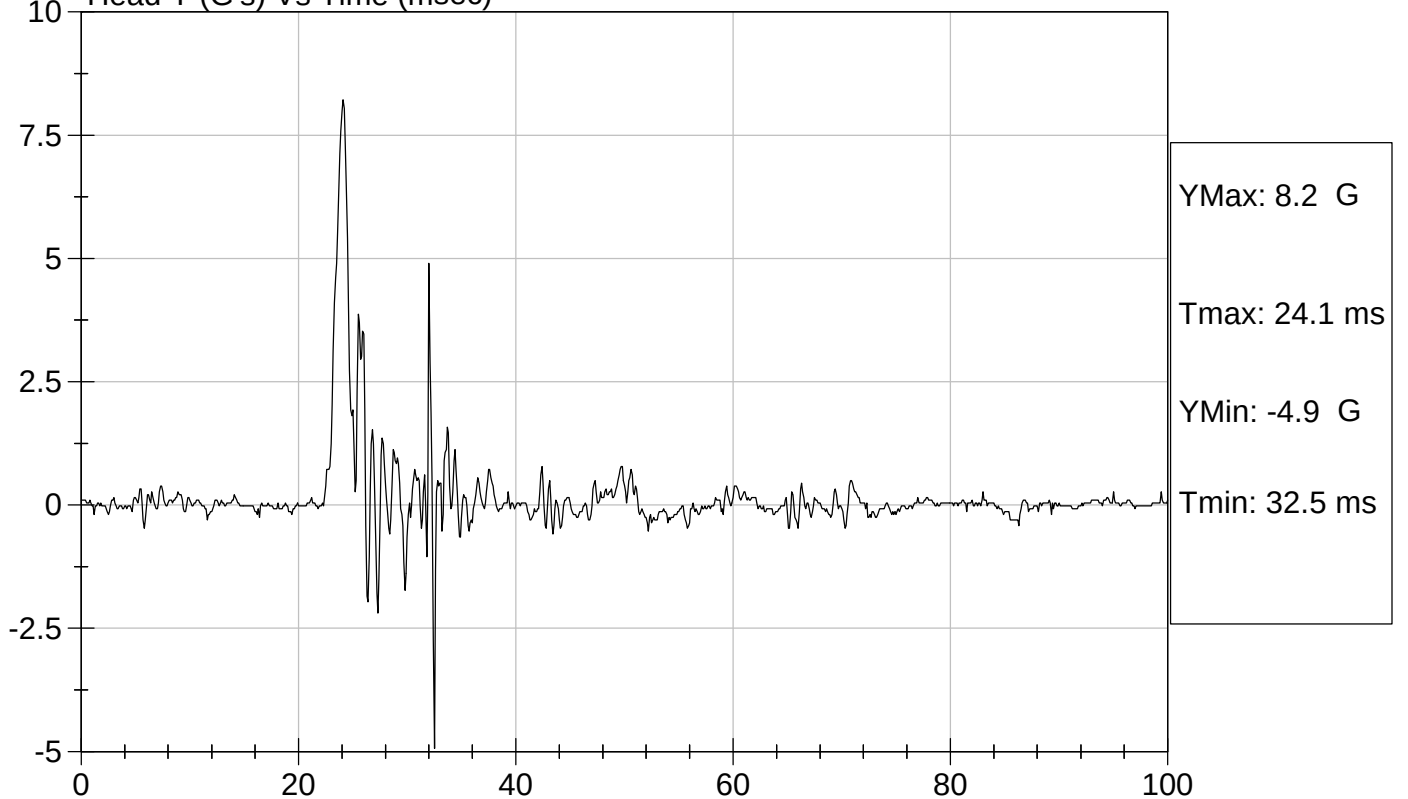
Component: D02181

Speed: 0 ft/s, 0.00 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: 065

Test I.D: D02182

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	19	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.98	Pass
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	23.43	Pass
	20 msec	G's	17.60 to 22.60	19.29	Pass
	30 msec	G's	12.50 to 18.50	15.18	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 29.0	15.2	Pass
Deceleration Decay Time to Cross 5 G's		msec	34.0 to 42.0	38.7	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	74.6	Pass
	Time	msec	57.0 to 64.0	57.6	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	113.0 to 128.0	113.7	Pass
Moment About Occipital Condyle	Maximum	N m	84.1 to 108.5	92.3	Pass
	Time	msec	47.0 to 58.0	51.8	Pass
Positive Moment Decay Time To Zero Crossing		msec	97.0 to 107.0	102.1	Pass
Overall Test Results					Pass

Laboratory Technician

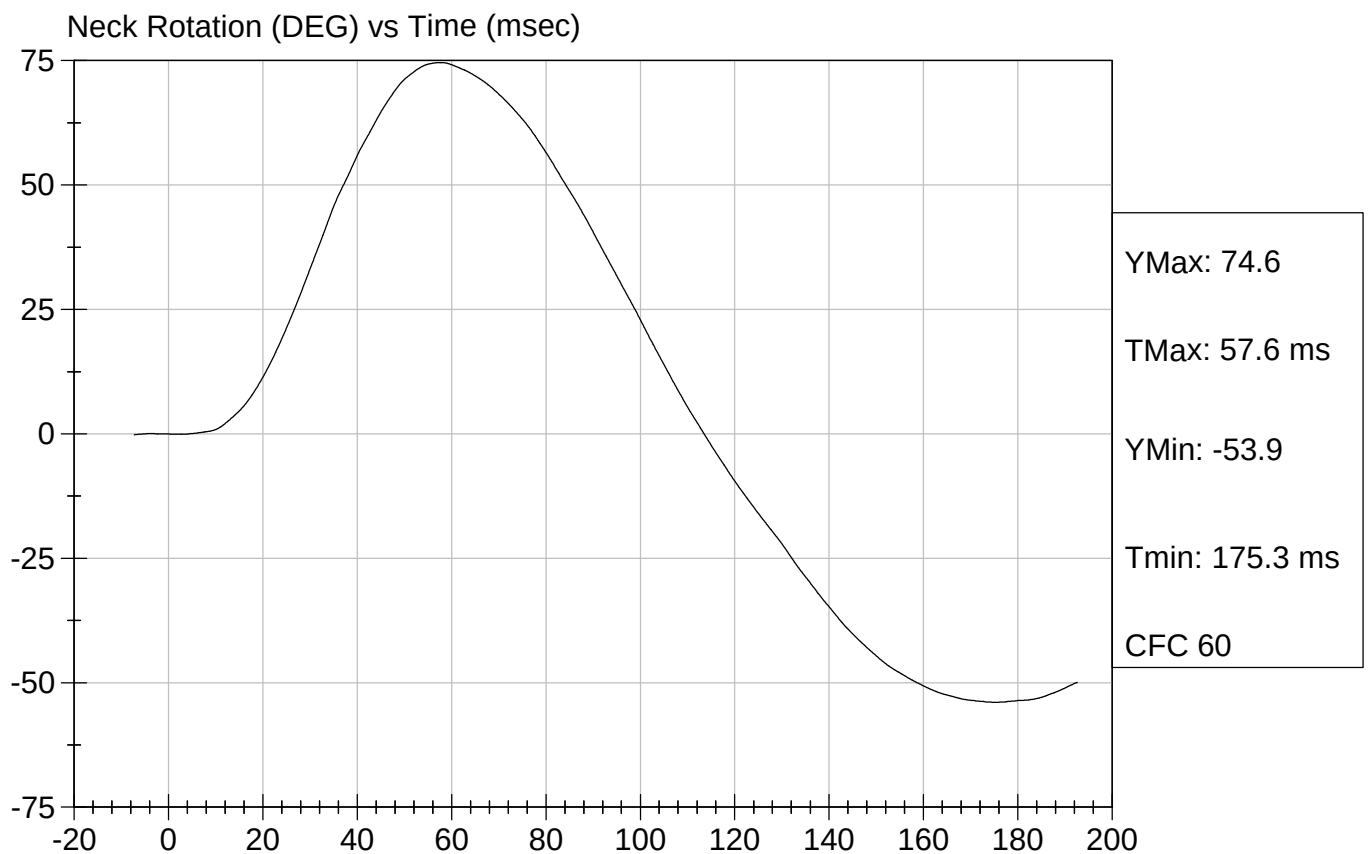
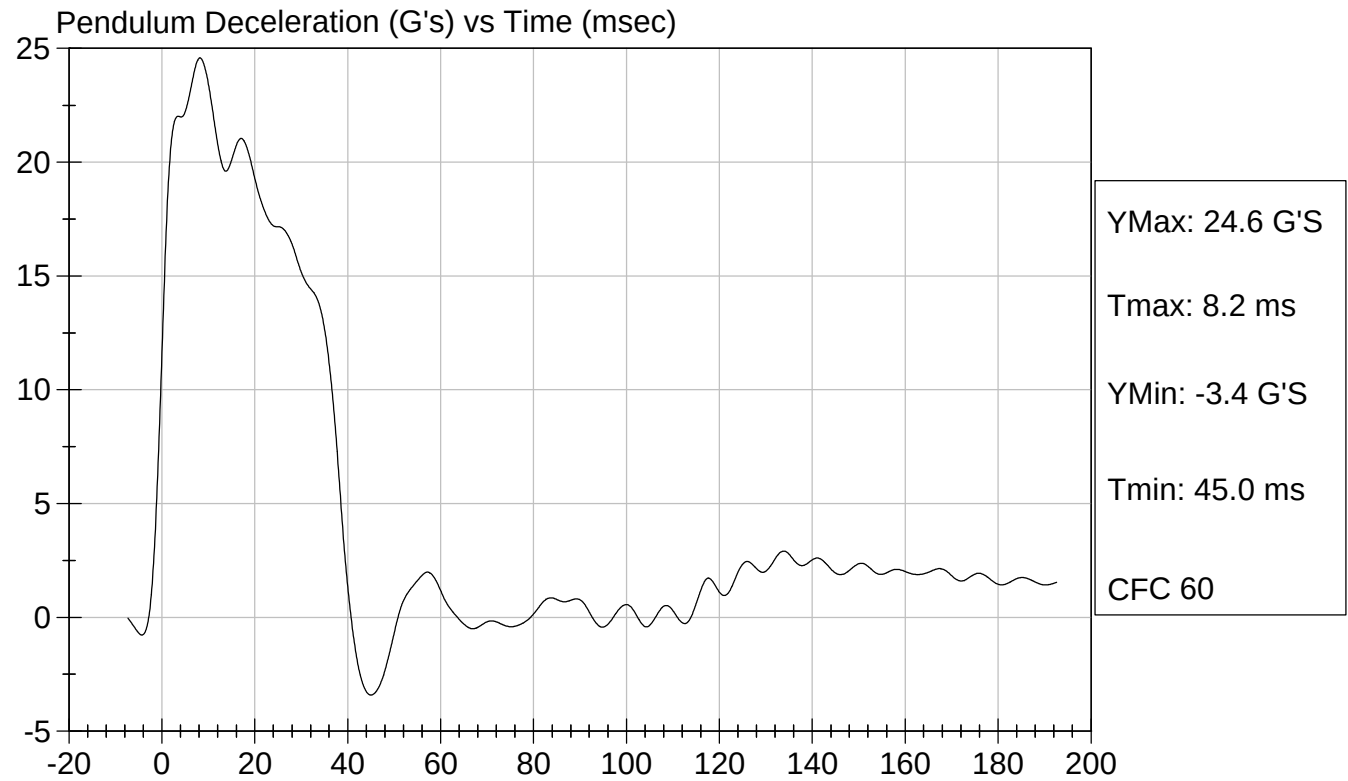
2/11/02
Test Date

Approved By



Test Desc: Neck Flexion
Component ID: D02182

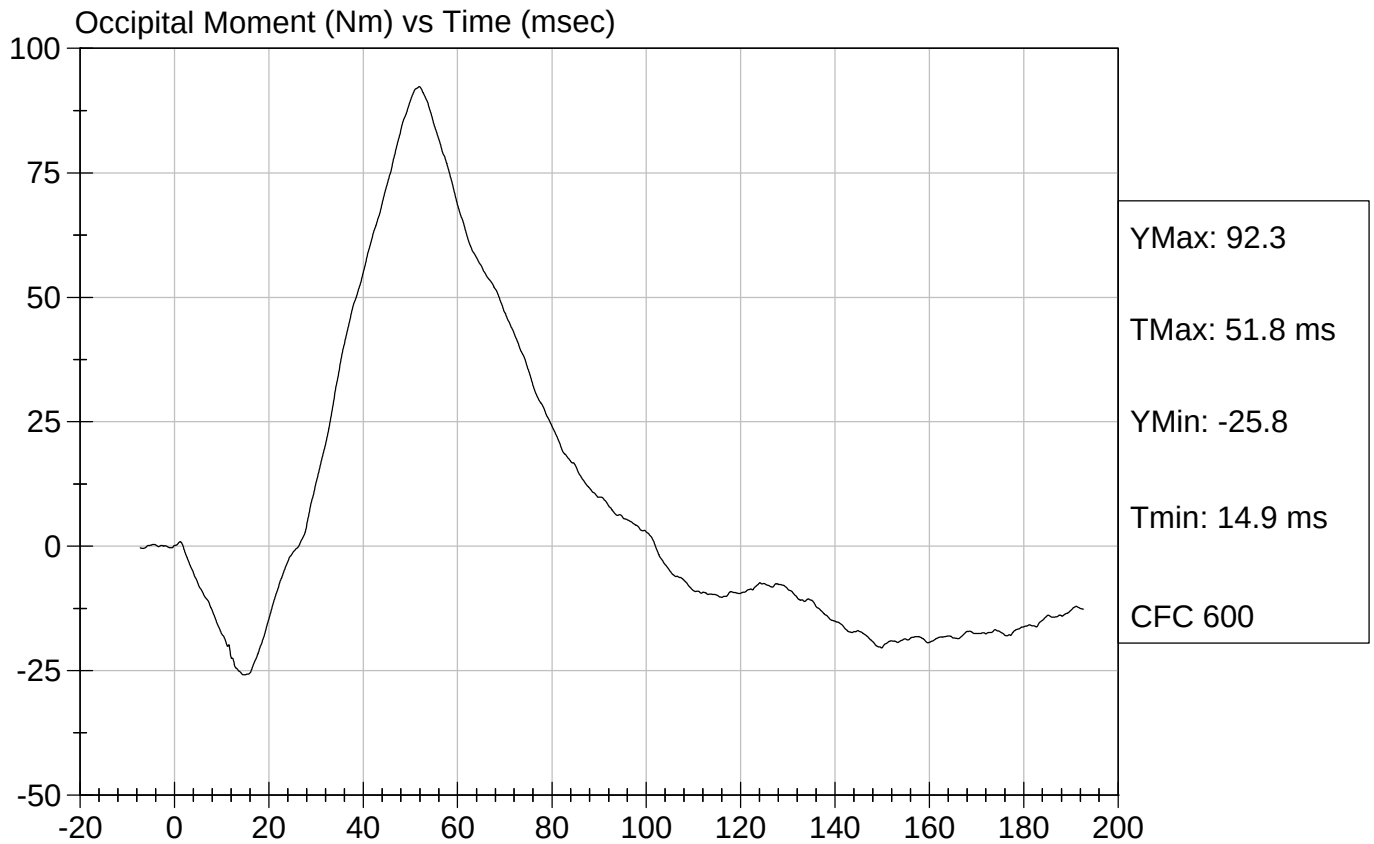
Test Date: 2/11/02
Speed: 22.90 ft/sec, 6.98 m/sec





Test Desc: Neck Flexion
Component ID: D02182

Test Date: 2/11/02
Speed: 22.90 ft/sec, 6.98 m/sec



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

ATD Serial No: 065

Test I.D: D02183

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	19	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.08	Pass
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	19.02	Pass
	20 msec	G's	14.00 to 19.00	16.92	Pass
	30 msec	G's	11.00 to 16.00	13.36	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 22.0	13.9	Pass
Deceleration Decay Time to Cross 5 G's		msec	38.0 to 46.0	38.5	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	100.7	Pass
	Time	msec	72.0 to 82.0	75.9	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	147.0 to 174.0	155.2	Pass
Moment About Occipital Condyle	Minimum	N m	-52.9 to -79.9	-62.6	Pass
	Time	msec	65.0 to 79.0	72.4	Pass
Negative Moment Decay Time To Zero Crossing		msec	120.0 to 148.0	143.2	Pass
Overall Test Results					Pass

Laboratory Technician

2/11/02

Test Date

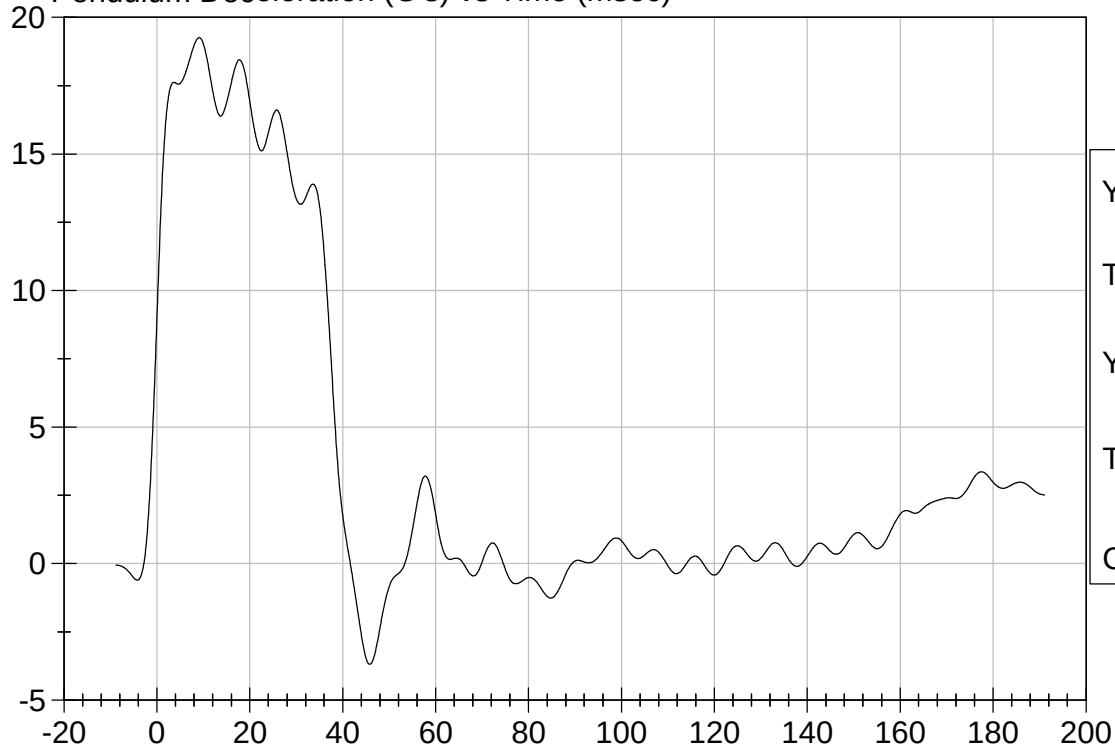
Approved By



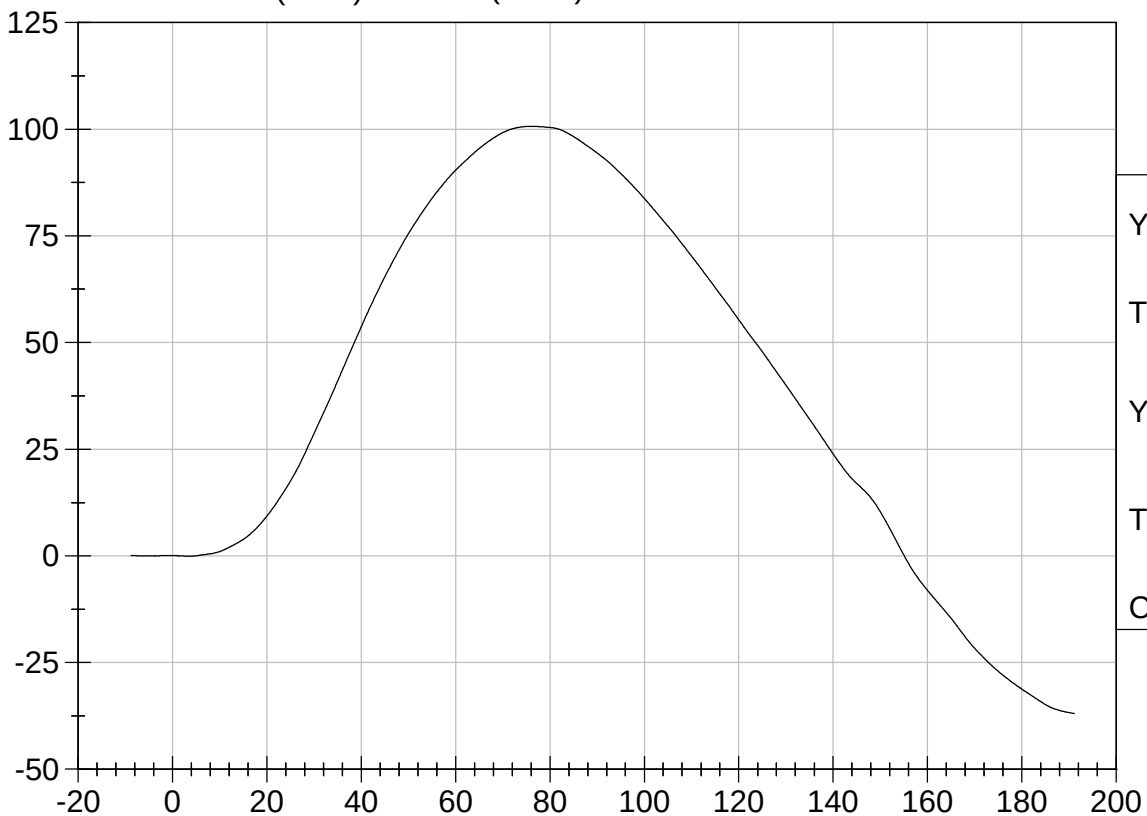
Test Desc: Neck Extension
Component ID: D02183

Test Date: 2/11/02
Speed: 19.95 ft/sec, 6.08 m/sec

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



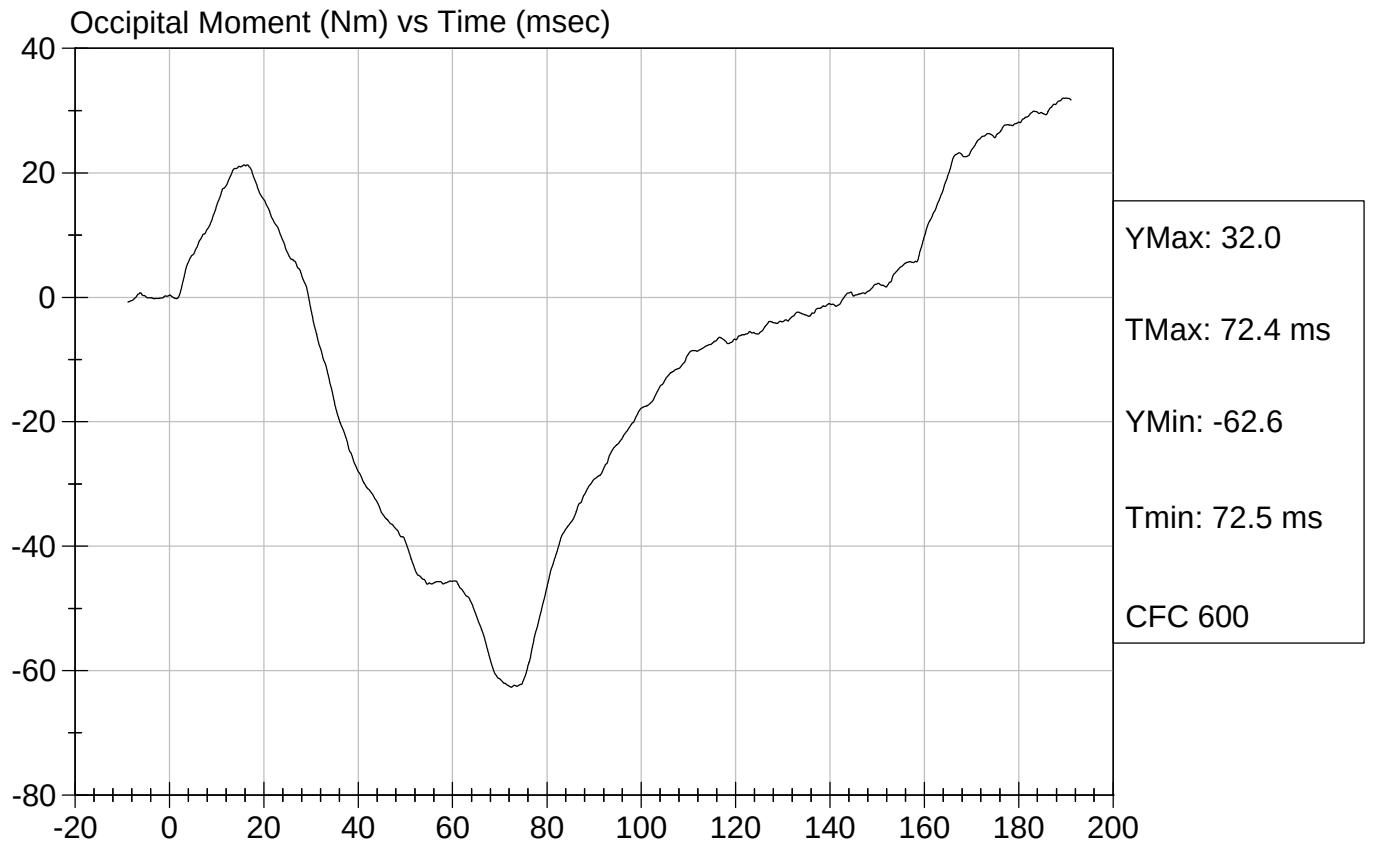
Neck Rotation (DEG) vs Time (msec)





Test Desc: Neck Extension
Component ID: D02183

Test Date: 2/11/02
Speed: 19.95 ft/sec, 6.08 m/sec



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

ATD Serial No: 065

Test I.D: D02184

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Probe Velocity	m/s	6.58 to 6.82	6.73	Pass
Peak Probe Force	Newtons	5159 to 5893	5,808	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.82	Pass
Internal Hysteresis	%	69 to 85	69	Pass
			Overall Test Results	Pass

Laboratory Technician

2/11/02
Test Date

Approved By

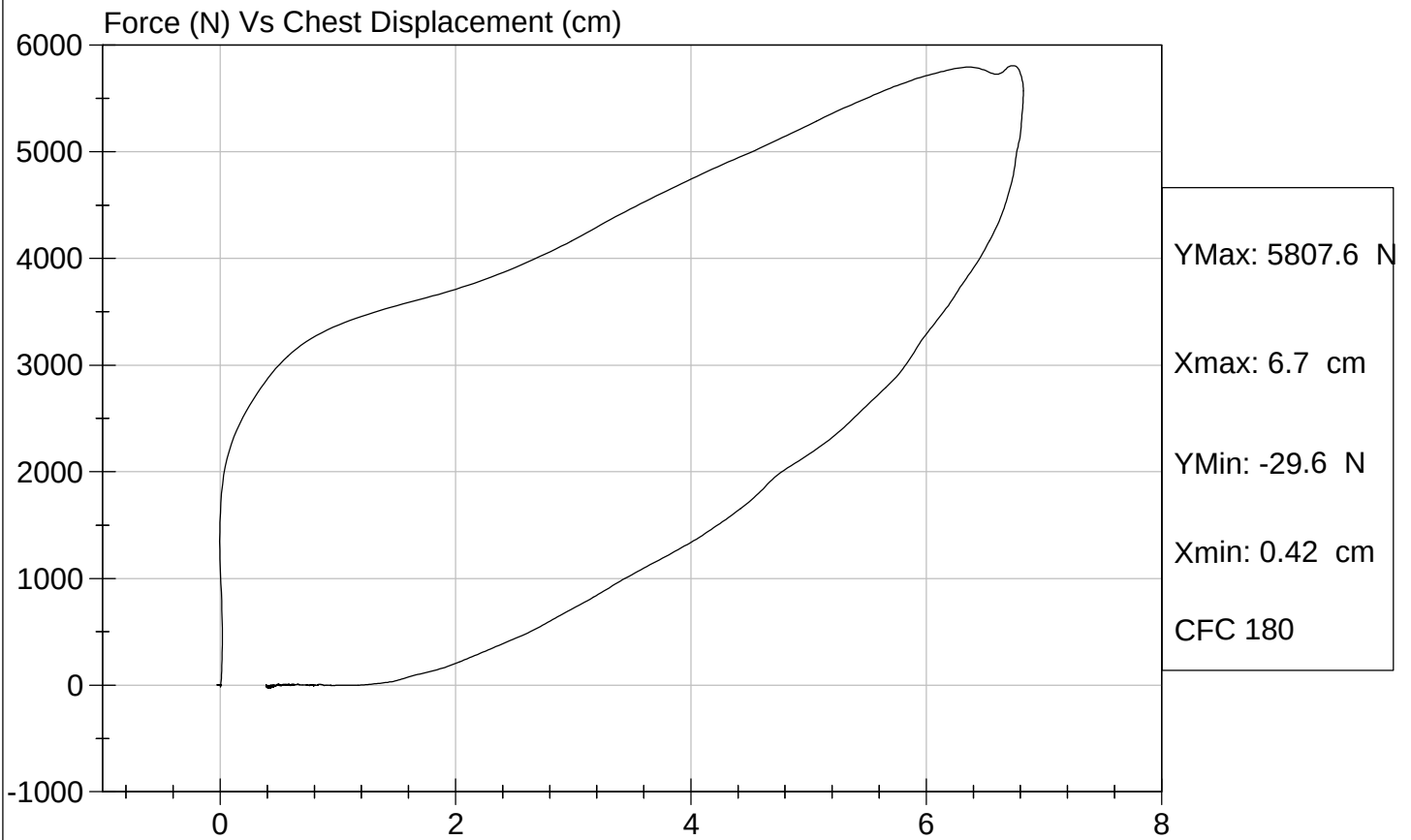


Test Description: Thorax Impact

Test Date: 2/11/02

Component: D02184

Speed: 22.08 ft/sec, 6.73 m/sec



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

ATD Serial No: 065

Test I.D: D02185

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	22	Pass
Probe Velocity	m/s	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5,663	Pass
Overall Test Results				Pass

Laboratory Technician

2/7/02
Test Date

Approved By

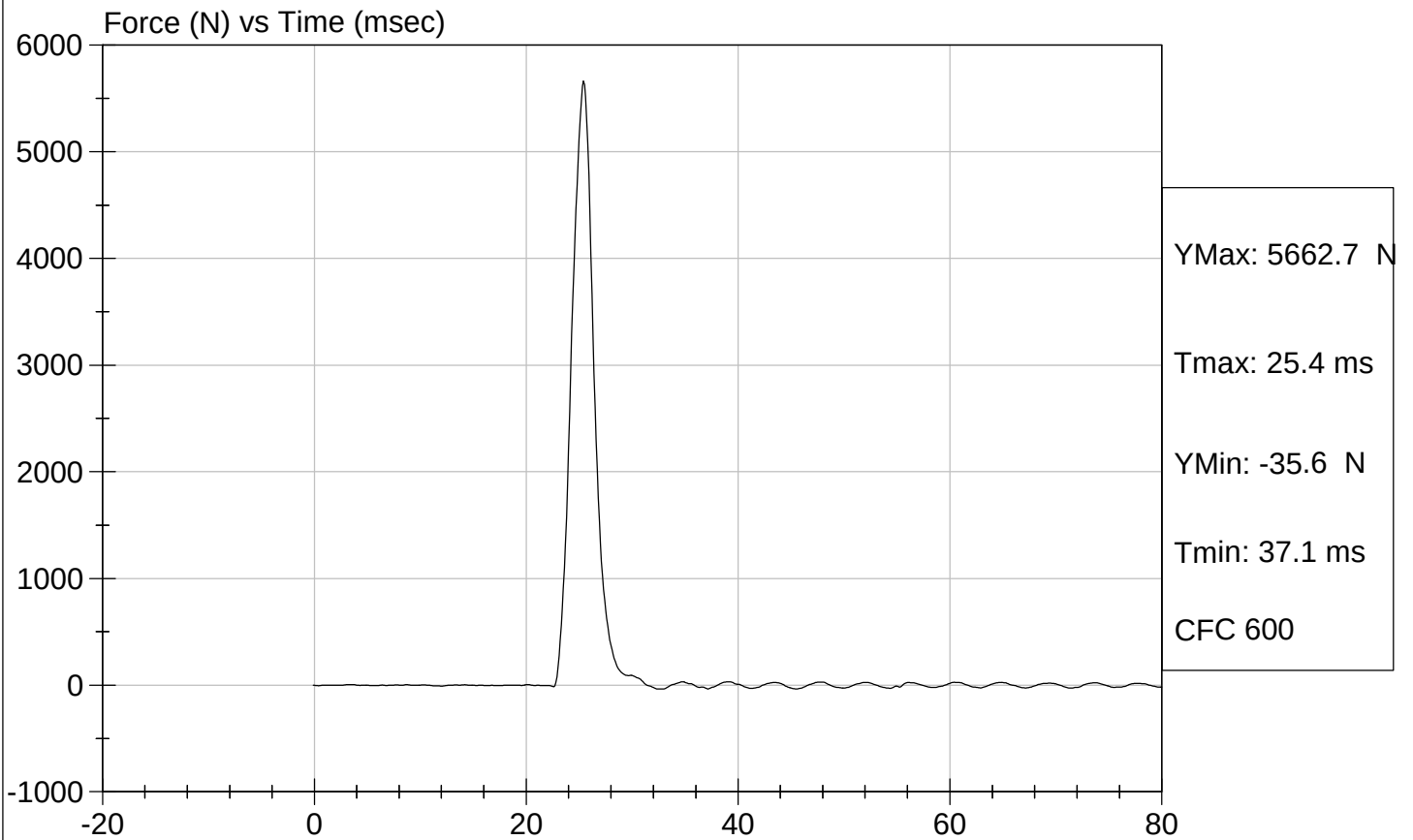


Test Description: Right Knee Impact

Test Date: 2/7/02

Component: D02185

Speed: 6.89 ft/sec, 2.10 m/sec



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

ATD Serial No: 065

Test I.D: D02186

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	22	Pass
Probe Velocity	m/s	2.07 to 2.13	2.10	Pass
Peak Probe Force	Newtons	4715 to 5782	5,500	Pass
Overall Test Results				Pass

Laboratory Technician

2/7/02
Test Date

Approved By

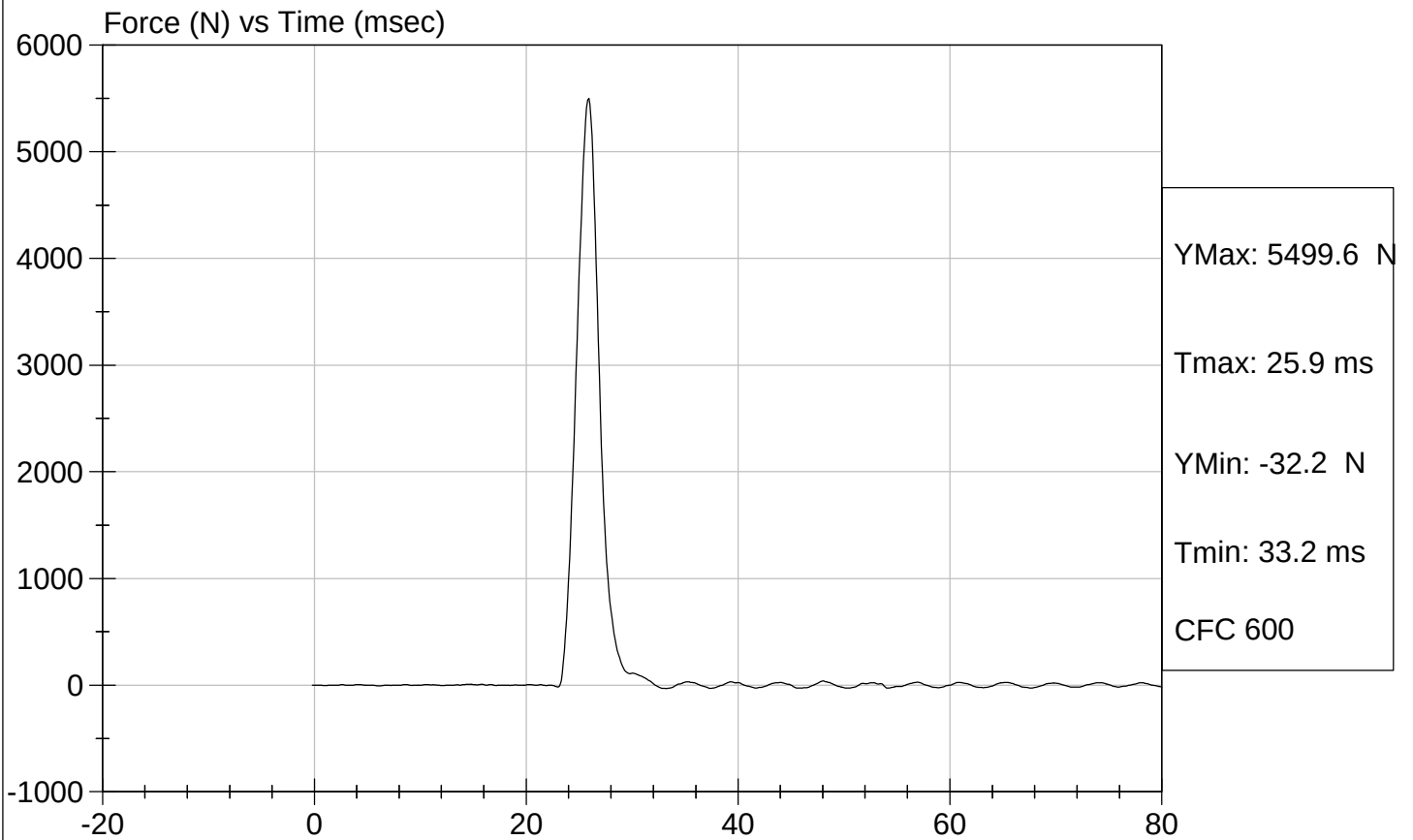


Test Description: Left Knee Impact

Test Date: 2/7/02

Component: D02186

Speed: 6.89 ft/sec, 2.10 m/sec



Hybrid III Calibration Data Sheet
50th Percentile Male
Right Knee Slider

ATD Serial No: 065

Test I.D: D02187

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
Velocity	m/s	2.7 to 2.8	2.74	Pass
Impact Force At 10 mm	kN	-1.72 to -1.26	-1.41	Pass
Impact Force At 18 mm	kN	-3.10 to -2.27	-2.54	Pass
Overall Test Results				Pass

Laboratory Technician

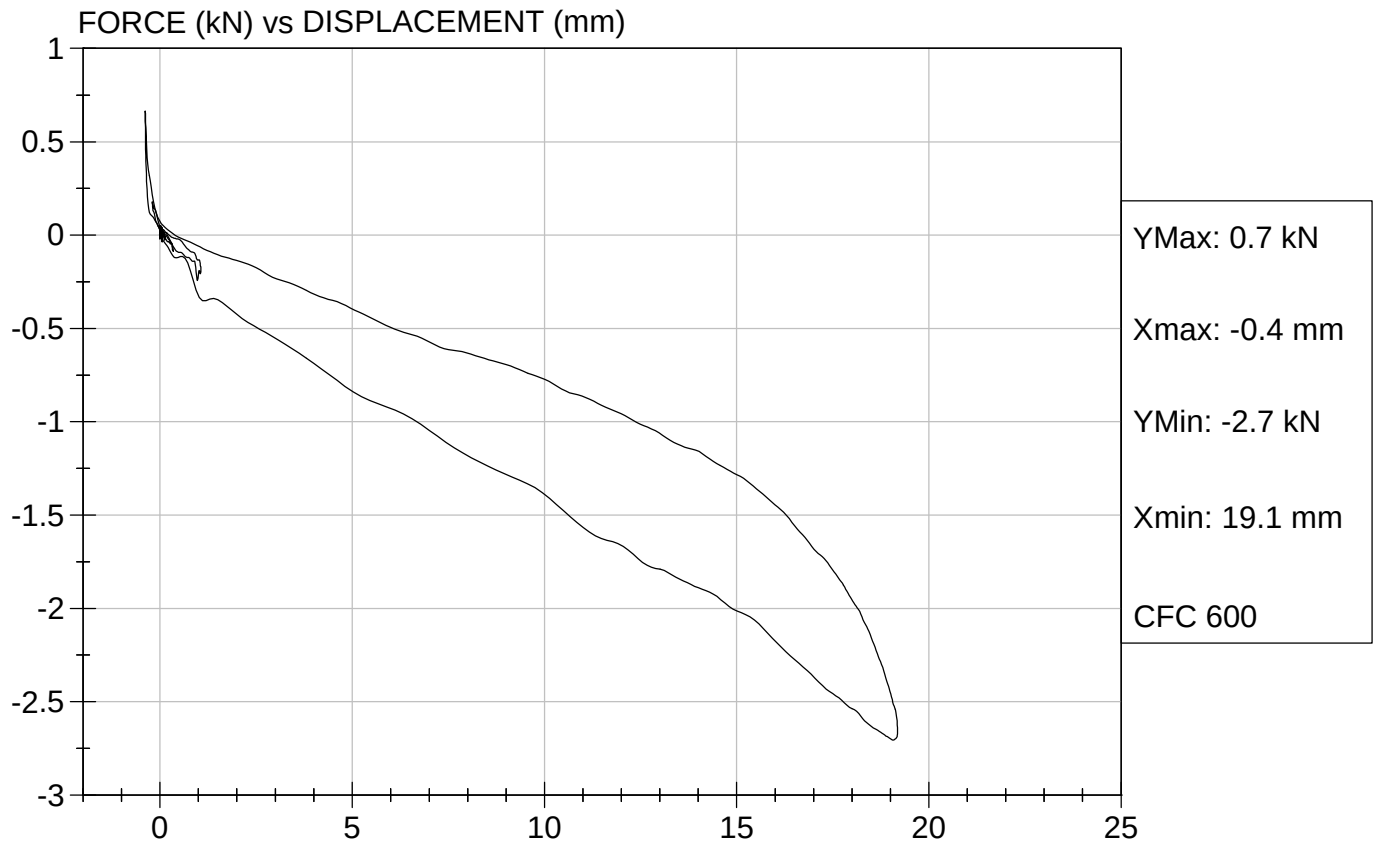
2/8/02
Test Date

Approved By



Test Desc: Right Knee Slider
Component ID: D02187

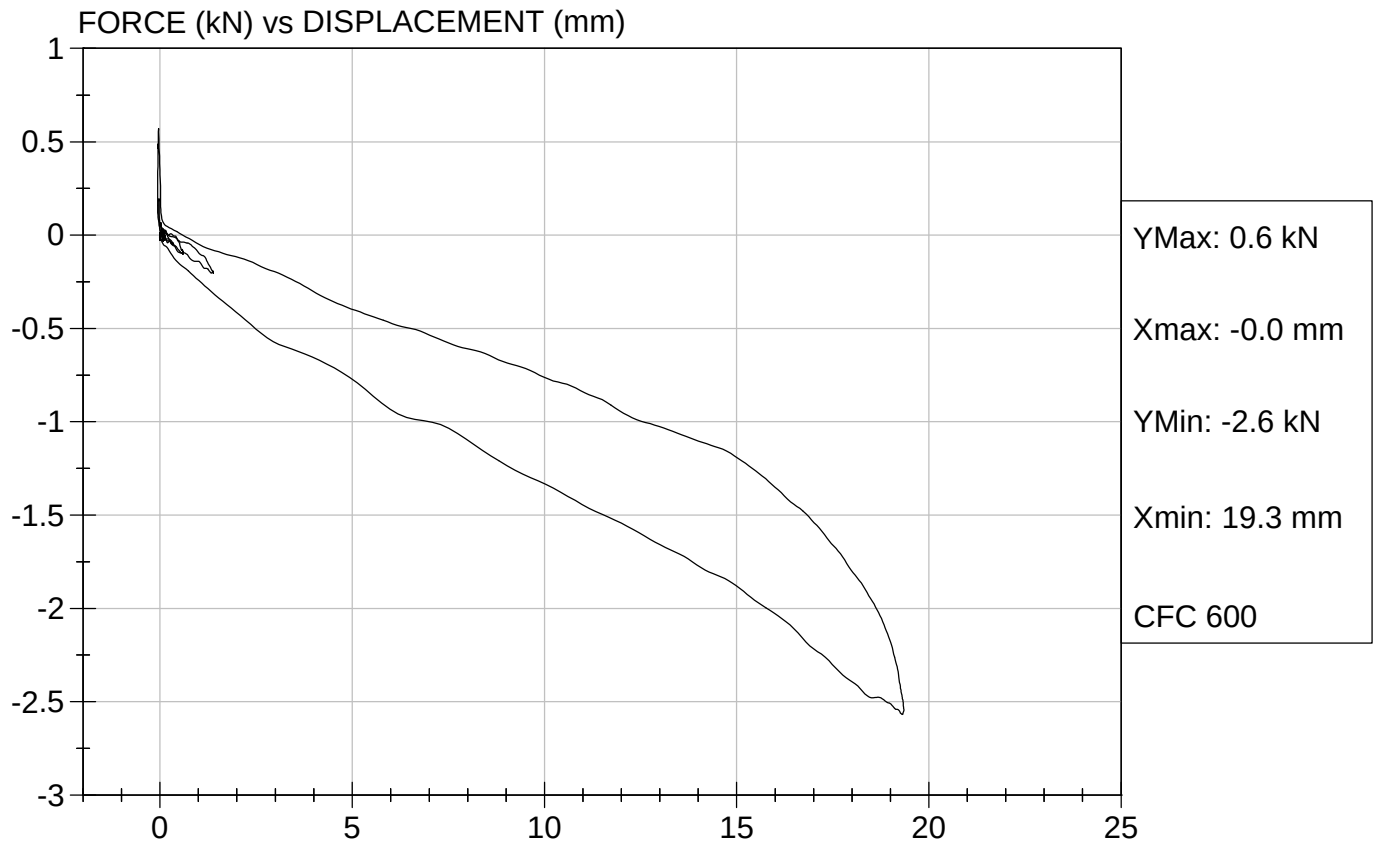
Test Date: 2/8/02
Speed: 8.99 ft/sec, 2.74 m/sec





Test Desc: Left Knee Slider
Component ID: D02188

Test Date: 2/8/02
Speed: 9.00 ft/sec, 2.74 m/sec



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

ATD Serial No: 065

Test I.D: D02189/0

Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	20.4	20.4	Pass
Laboratory Relative Humidity	%	10 to 70	22	22	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	58.6	66.8	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	47	45	Pass
Overall Test Results					Pass

Laboratory Technician

2/8/02
Test Date

Approved By

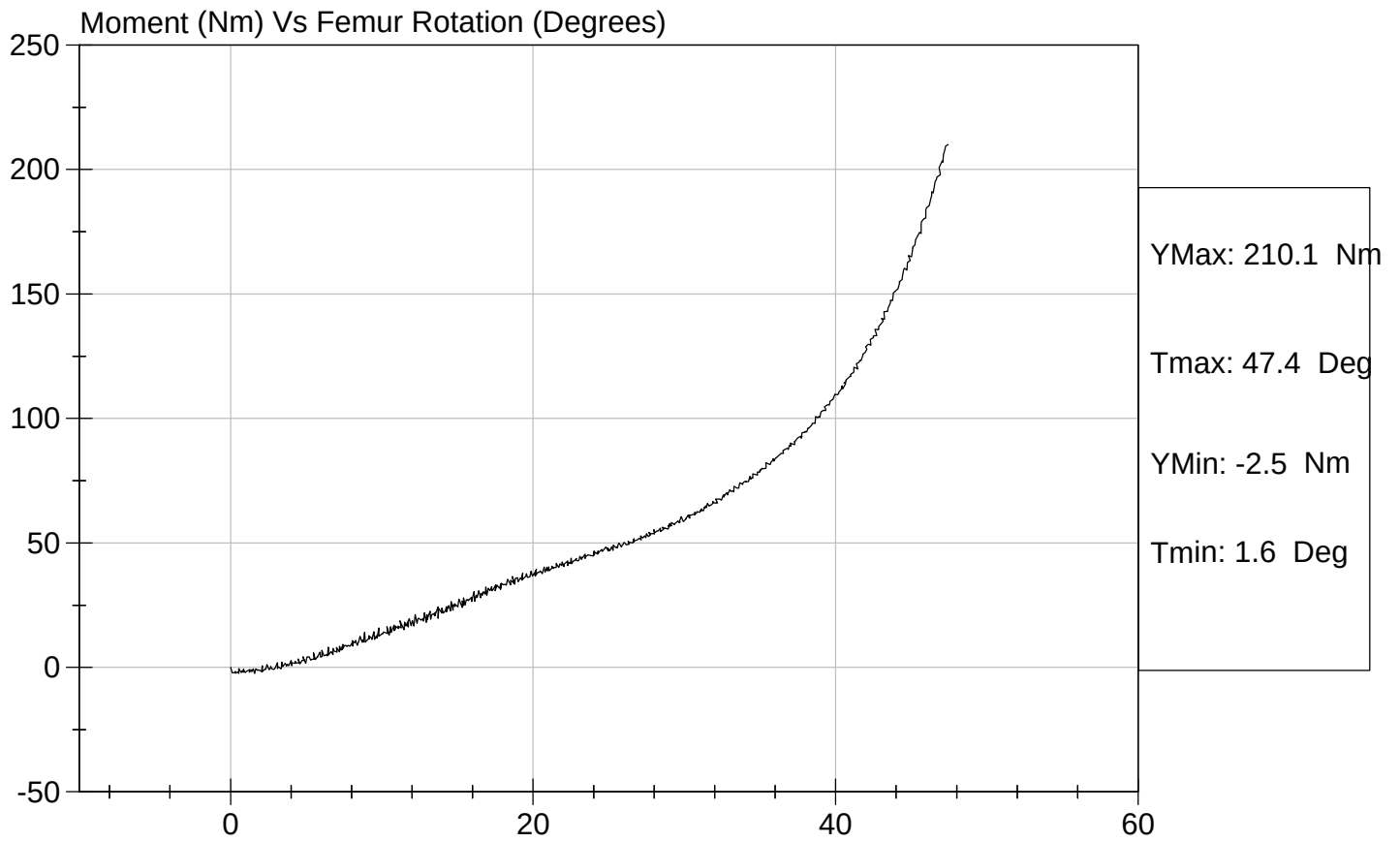


Test Description: Right Femur

Test Date: 2/8/02

Component: D02189

Speed: 0 ft/sec, 0.00 m/sec



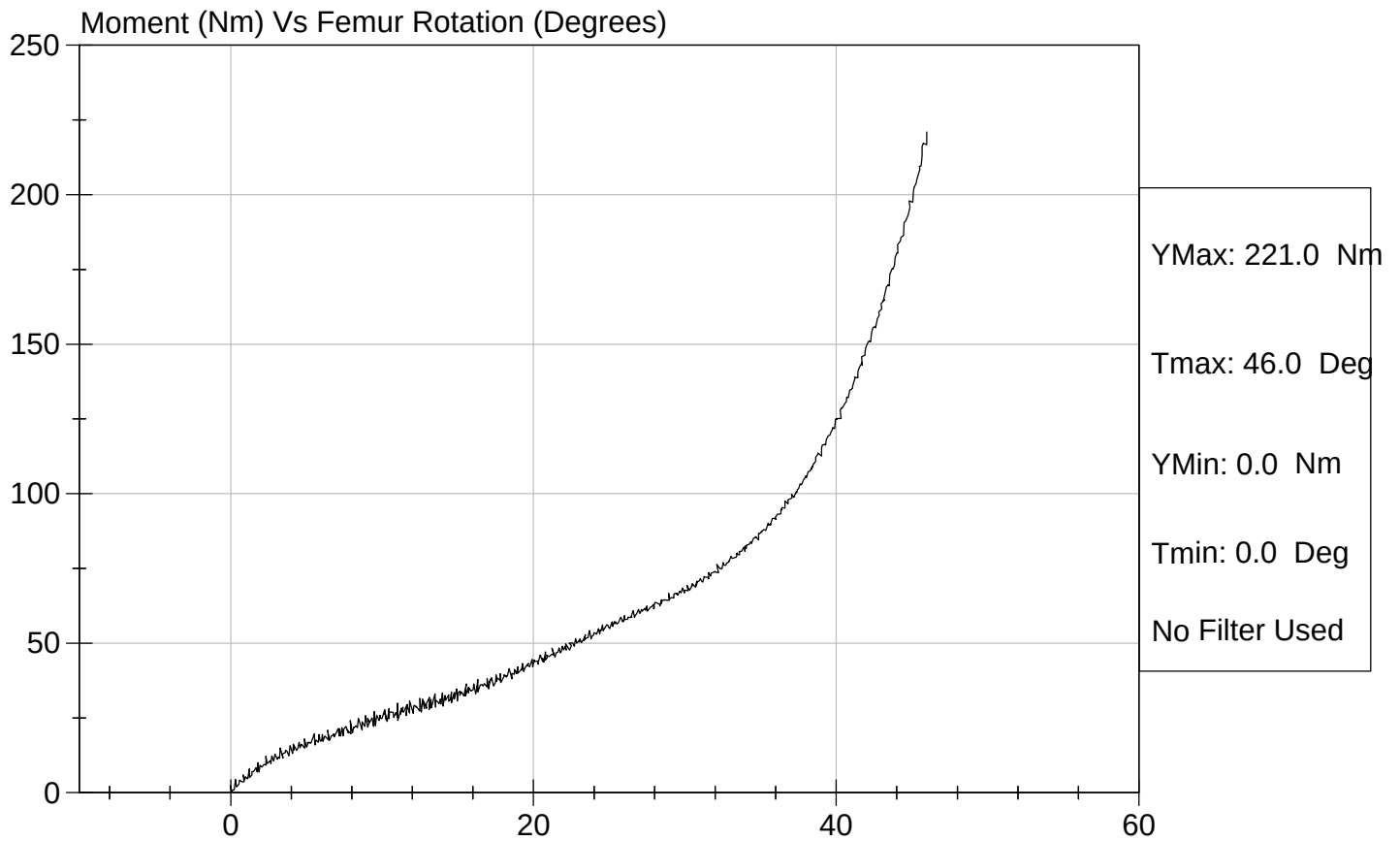


Test Description: Left Femur

Test Date: 2/8/02

Component: D02180

Speed: 0 ft/sec, 0.00 m/sec



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

ATD Serial No: 066

Test I.D: D02191

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Peak Resultant Acceleration	G's	225.0 to 275.0	262.1	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	12.7	Pass
Is Acceleration Unimodal?	Yes/No	< 10% Peak	Yes	Pass
			Overall Test Results	Pass

Laboratory Technician

2/7/02
Test Date

Approved By



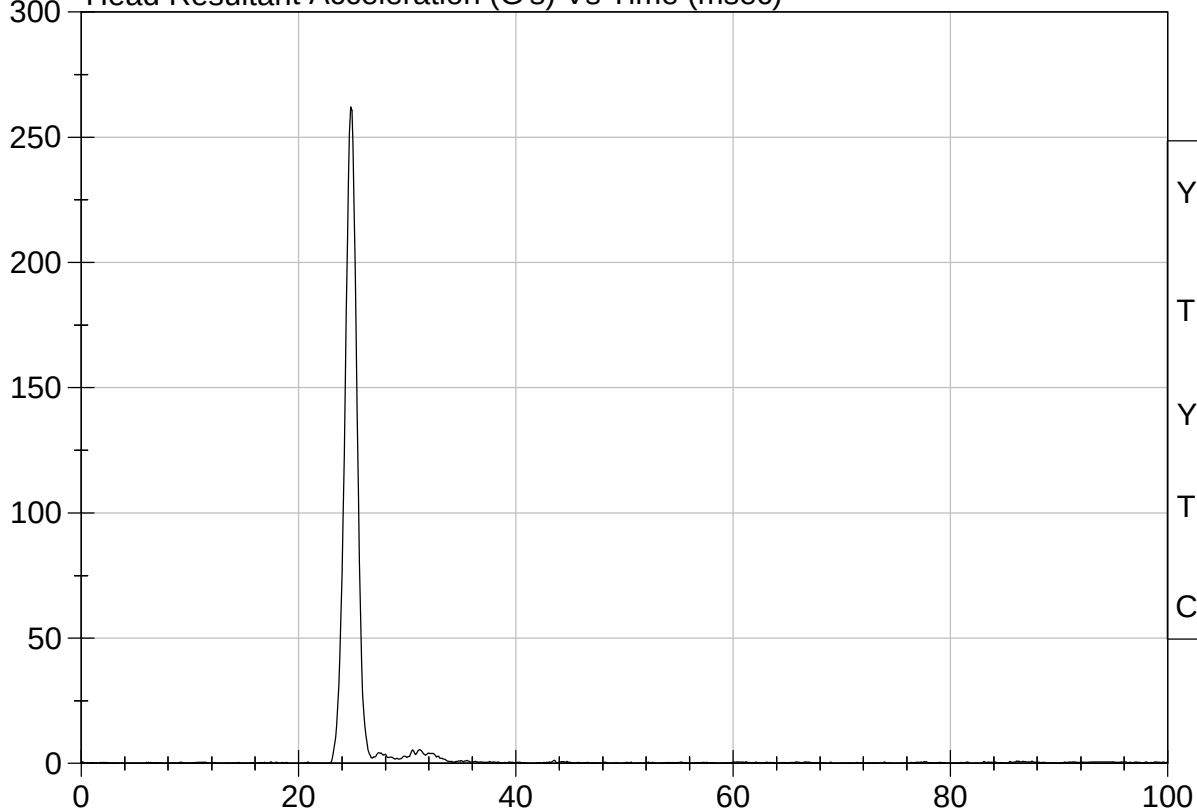
Test Description: Head Drop

Test Date: 2/7/02

Component: D02191

Speed: 0 ft/s, 0.00 m/s

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



YMax: 262.1 G

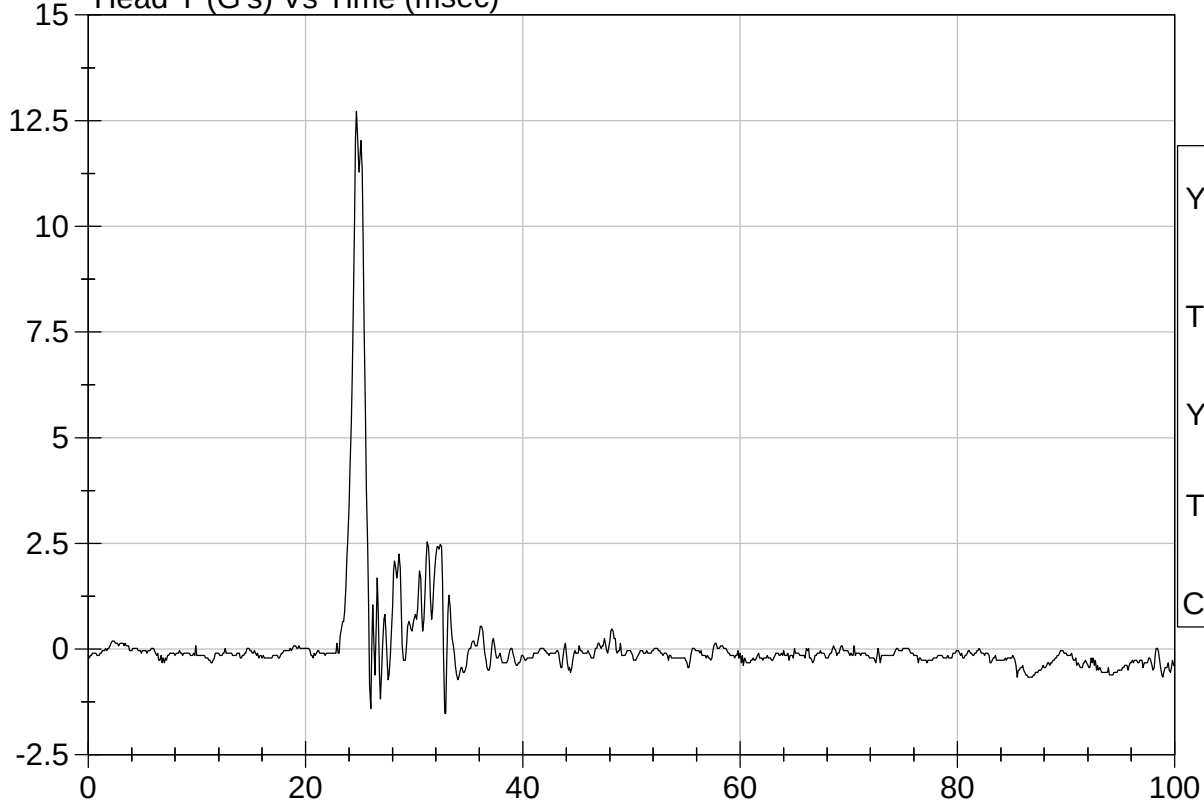
Tmax: 24.8 ms

YMin: 0.1 G

Tmin: 4.1 ms

CFC 1000

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



YMax: 12.7 G

Tmax: 24.7 ms

YMin: -1.5 G

Tmin: 32.8 ms

CFC 1000

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

ATD Serial No: 066

Test I.D: D02192

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	22	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.95	Pass
Pendulum Deceleration	10 msec	G's	22.50 to 27.50	23.90	Pass
	20 msec	G's	17.60 to 22.60	18.78	Pass
	30 msec	G's	12.50 to 18.50	14.67	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 29.0	14.7	Pass
Deceleration Decay Time to Cross 5 G's		msec	34.0 to 42.0	37.2	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	64.0 to 78.0	73.1	Pass
	Time	msec	57.0 to 64.0	57.3	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	113.0 to 128.0	114.9	Pass
Moment About Occipital Condyle	Maximum	N m	84.1 to 108.5	95.0	Pass
	Time	msec	47.0 to 58.0	50.5	Pass
Positive Moment Decay Time To Zero Crossing		msec	97.0 to 107.0	97.8	Pass
Overall Test Results					Pass

Laboratory Technician

2/7/02

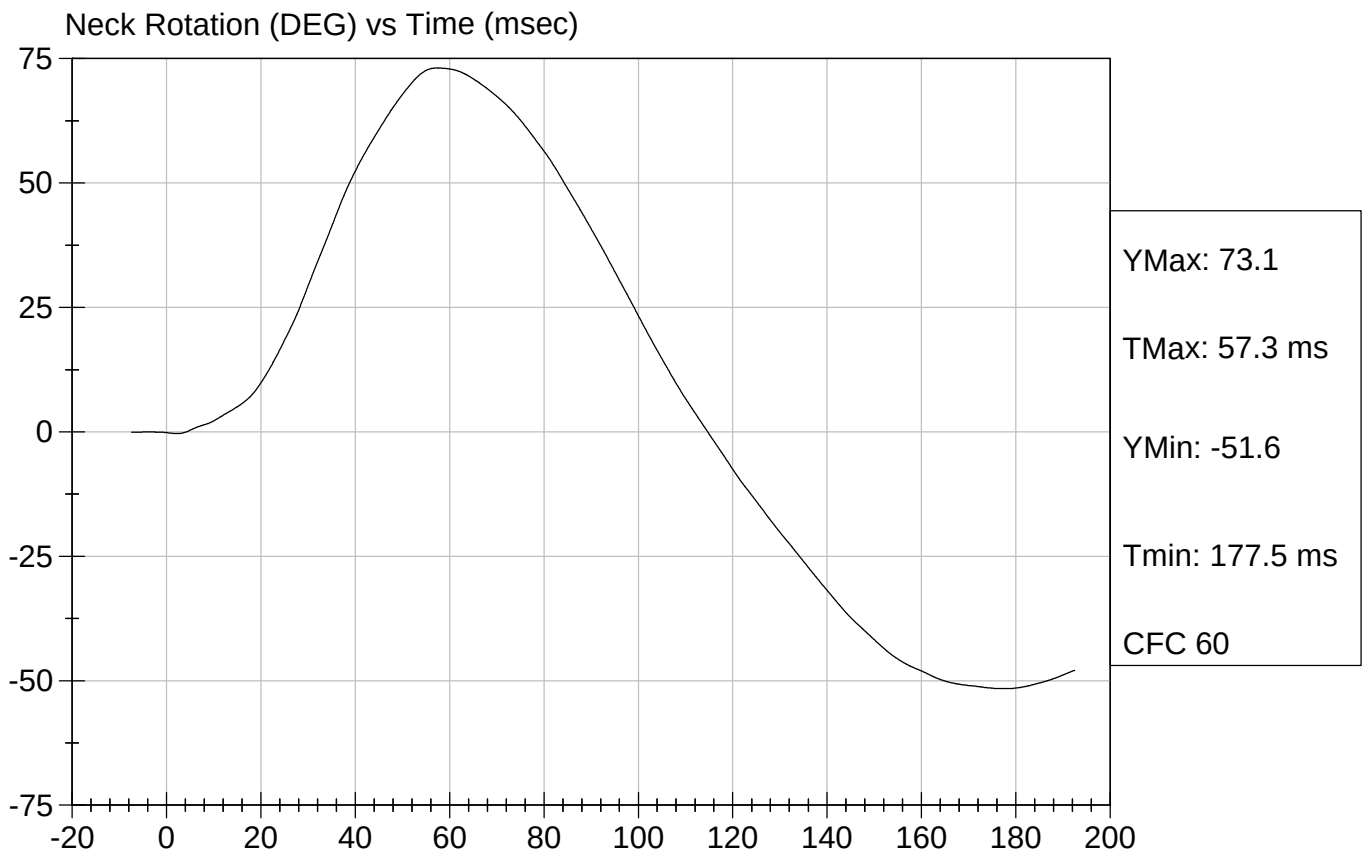
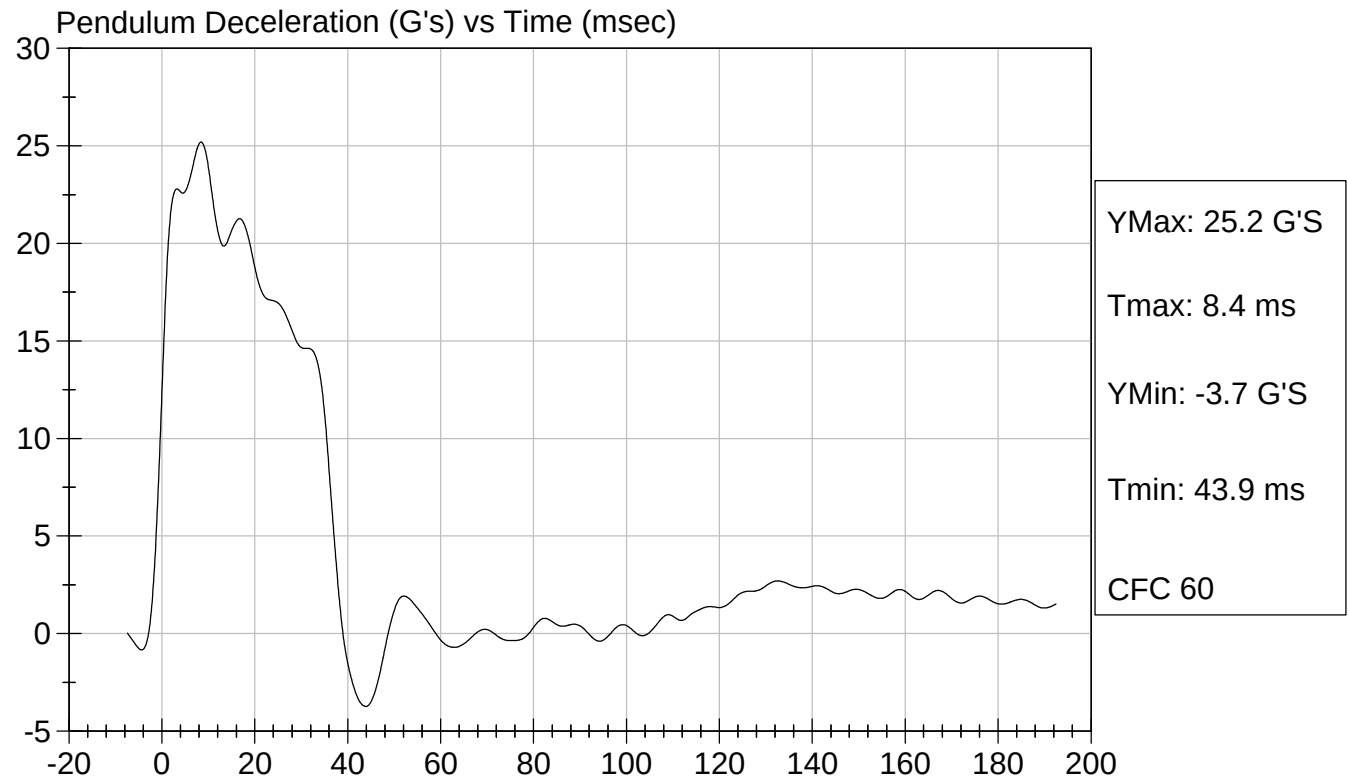
Test Date

Approved By



Test Desc: Neck Flexion
Component ID: D02192

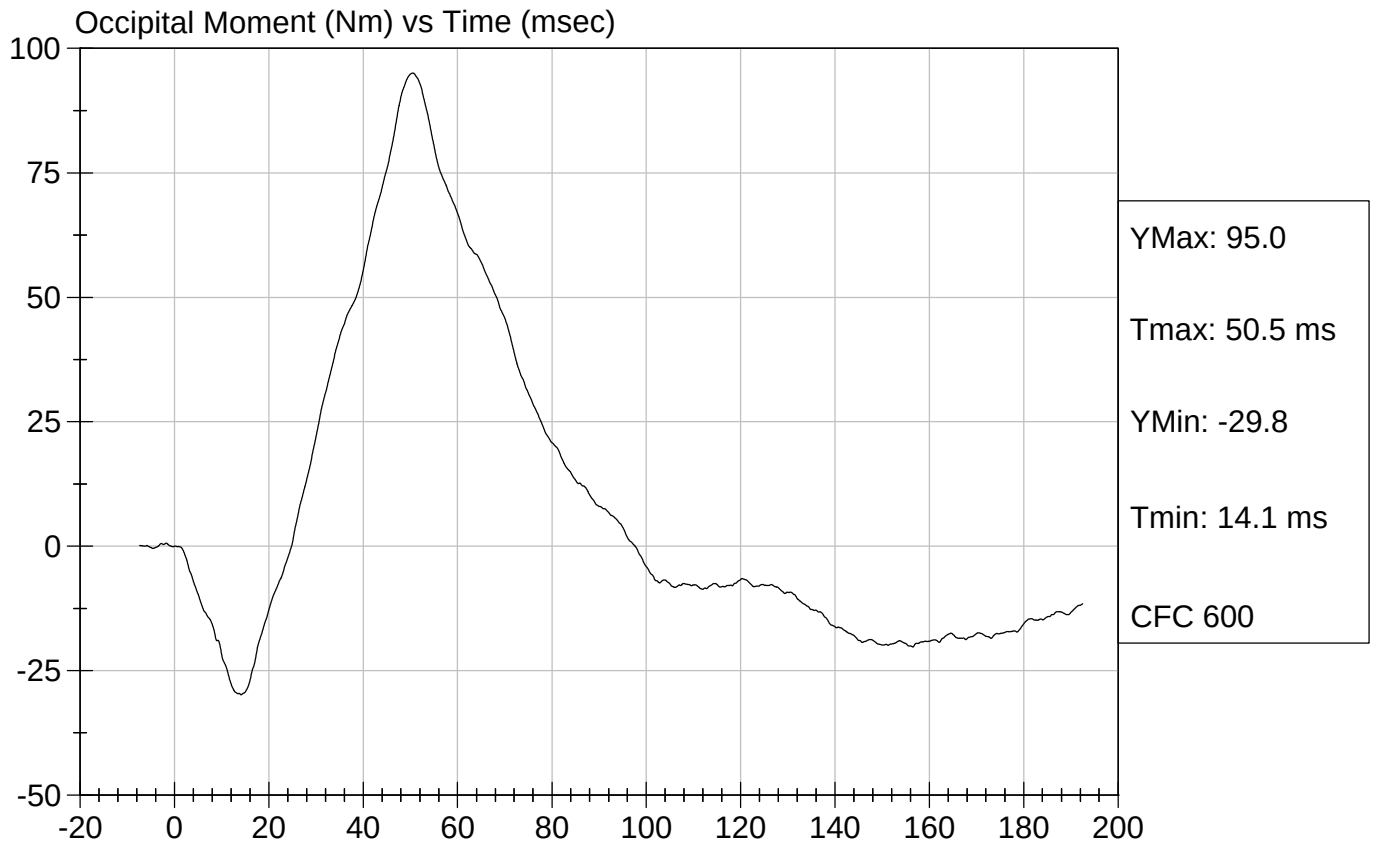
Test Date: 2/7/02
Speed: 22.80 ft/sec, 6.95 m/sec





Test Desc: Neck Flexion
Component ID: D02192

Test Date: 2/7/02
Speed: 22.80 ft/sec, 6.95 m/sec



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

ATD Serial No: 066

Test I.D: D02193

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	22	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.06	Pass
Pendulum Deceleration	10 msec	G's	17.20 to 21.20	18.17	Pass
	20 msec	G's	14.00 to 19.00	16.17	Pass
	30 msec	G's	11.00 to 16.00	13.82	Pass
Peak Pendulum Deceleration After 30 msec		G's	<= 22.0	13.8	Pass
Deceleration Decay Time to Cross 5 G's		msec	38.0 to 46.0	39.6	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	98.6	Pass
	Time	msec	72.0 to 82.0	75.3	Pass
"D" Plane Rotation Decay Time To Zero Crossing		msec	147.0 to 174.0	153.5	Pass
Moment About Occipital Condyle	Minimum	N m	-52.9 to -79.9	-62.5	Pass
	Time	msec	65.0 to 79.0	69.7	Pass
Negative Moment Decay Time To Zero Crossing		msec	120.0 to 148.0	138.8	Pass
Overall Test Results					Pass

Laboratory Technician

2/7/02

Test Date

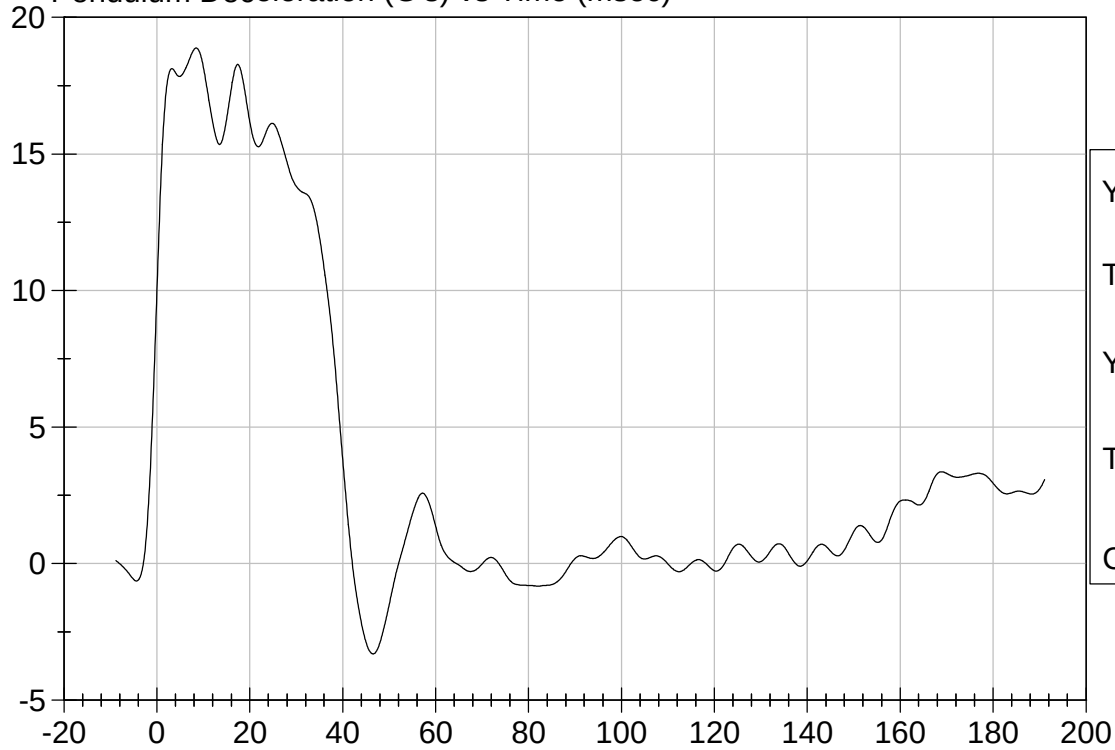
Approved By



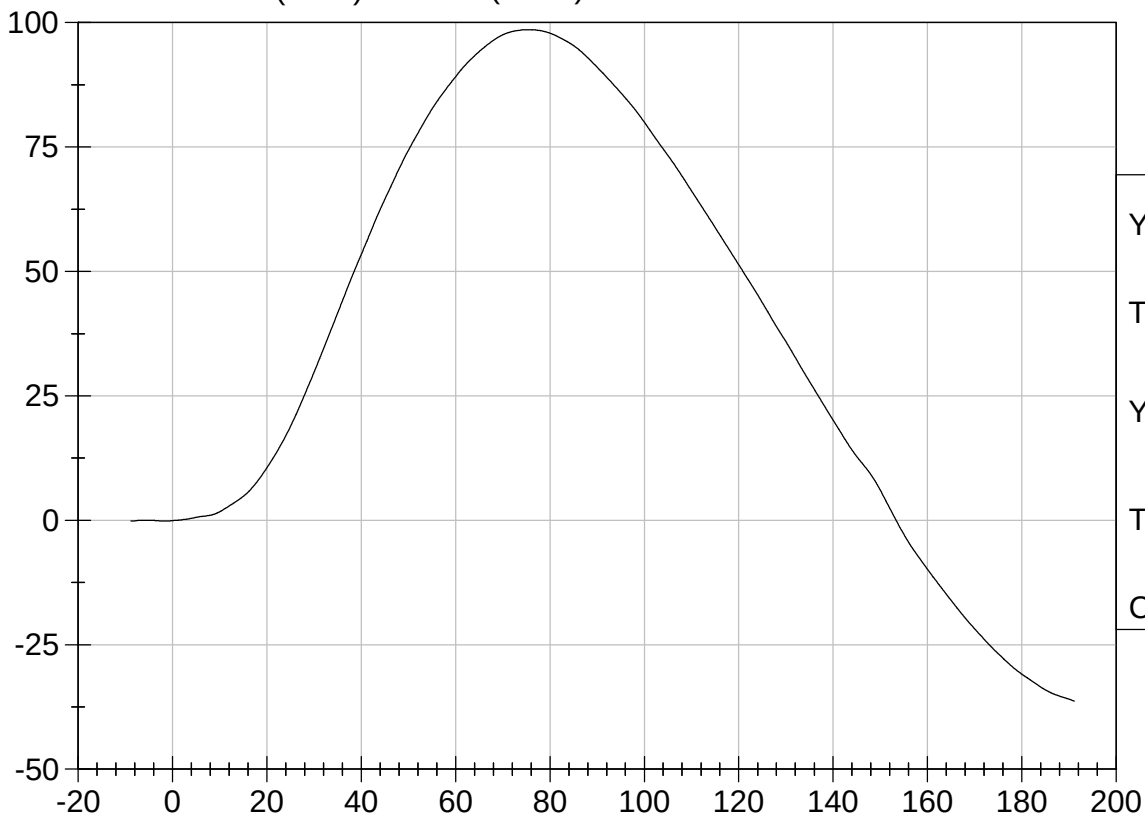
Test Desc: Neck Extension
Component ID: D02193

Test Date: 2/7/02
Speed: 19.88 ft/sec, 6.06 m/sec

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



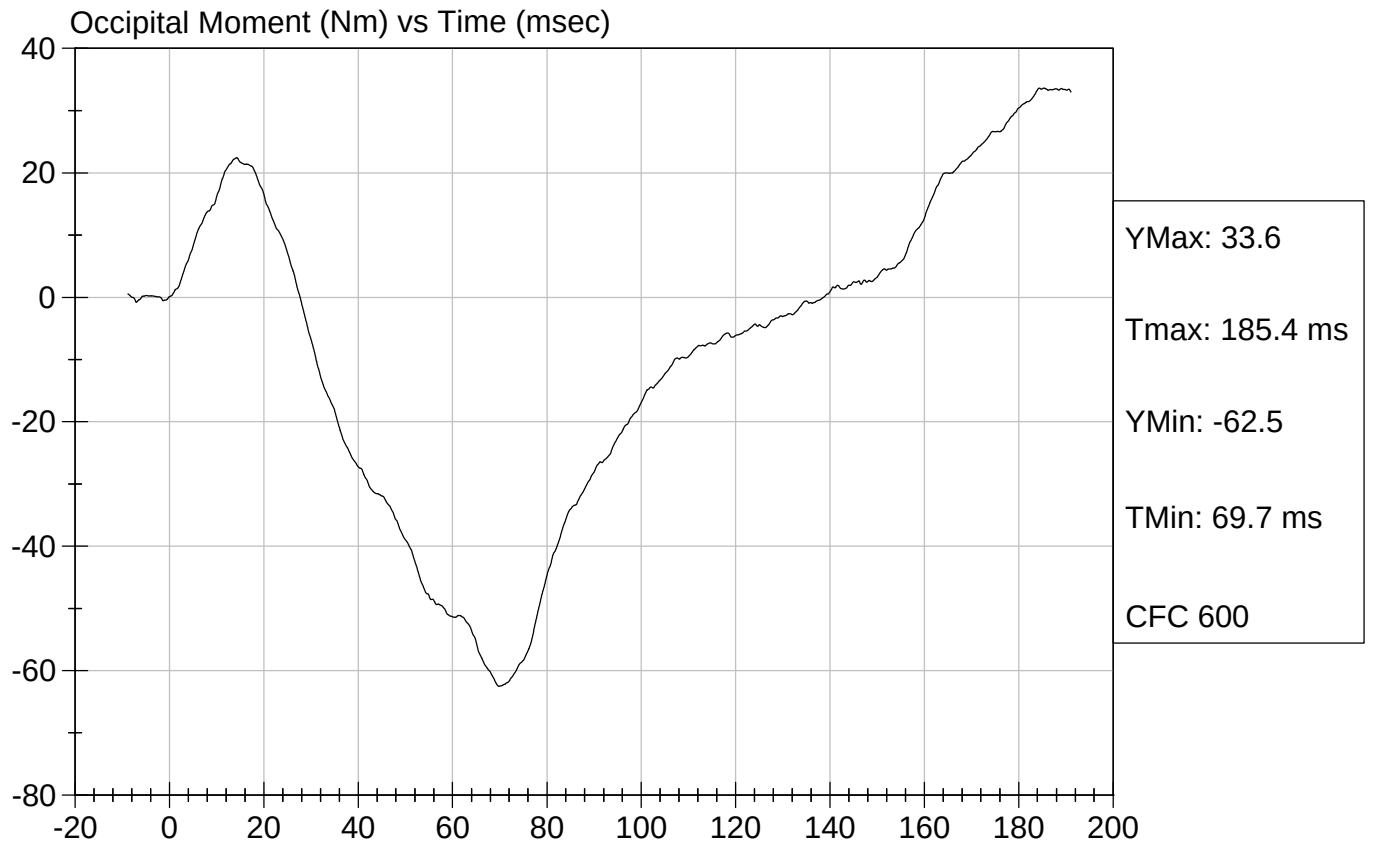
Neck Rotation (DEG) vs Time (msec)





Test Desc: Neck Extension
Component ID: D02193

Test Date: 2/7/02
Speed: 19.88 ft/sec, 6.06 m/sec



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

ATD Serial No: 066

Test I.D: D02194

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Probe Velocity	m/s	6.58 to 6.82	6.69	Pass
Peak Probe Force	Newtons	5159 to 5893	5,787	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	6.68	Pass
Internal Hysteresis	%	69 to 85	71	Pass
Overall Test Results				Pass

Laboratory Technician

2/11/02
Test Date

Approved By

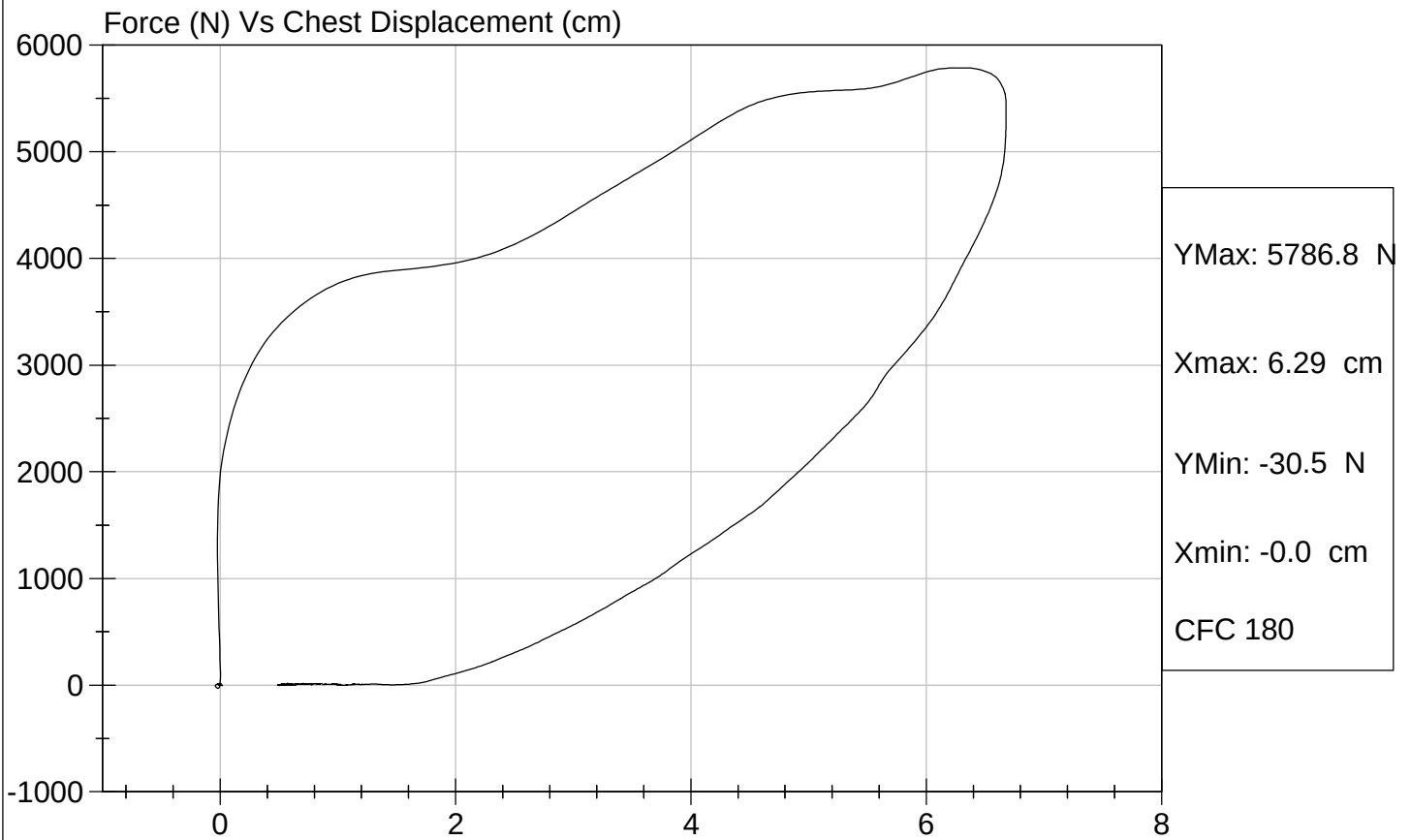


Test Description: Thorax Impact

Test Date: 2/11/02

Component: D02194

Speed: 21.95 ft/sec, 6.69 m/sec



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

ATD Serial No: 066

Test I.D: D02195

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	22	Pass
Probe Velocity	m/s	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	4715 to 5782	4,966	Pass
Overall Test Results				Pass

Laboratory Technician

2/7/02
Test Date

Approved By

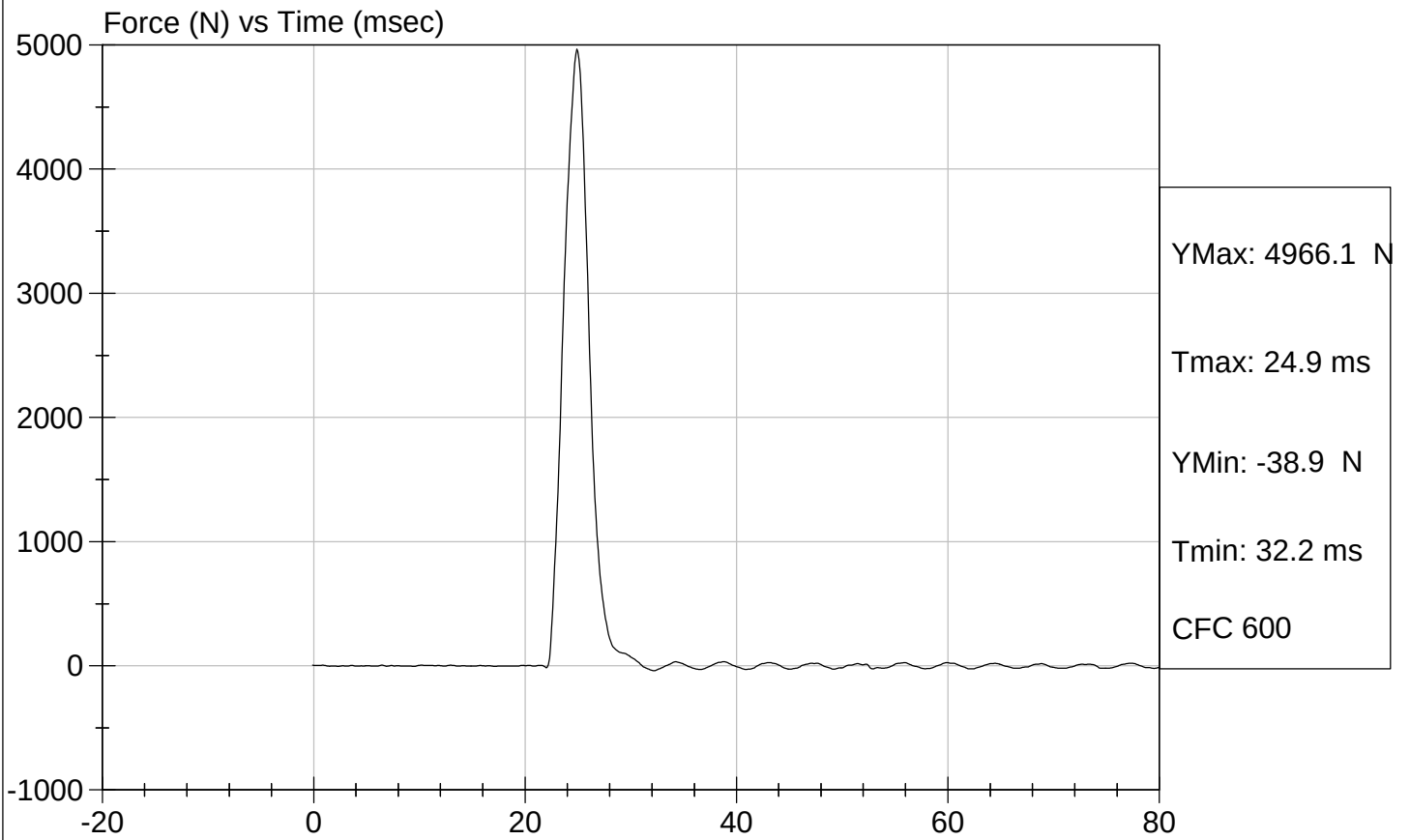


Test Description: Right Knee

Test Date: 2/7/02

Component: D02195

Speed: 6.92 ft/sec, 2.11 m/sec



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

ATD Serial No: 066

Test I.D: D02196

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	22	Pass
Probe Velocity	m/s	2.07 to 2.13	2.11	Pass
Peak Probe Force	Newtons	4715 to 5782	5,146	Pass
Overall Test Results				Pass

Laboratory Technician

2/7/02
Test Date

Approved By

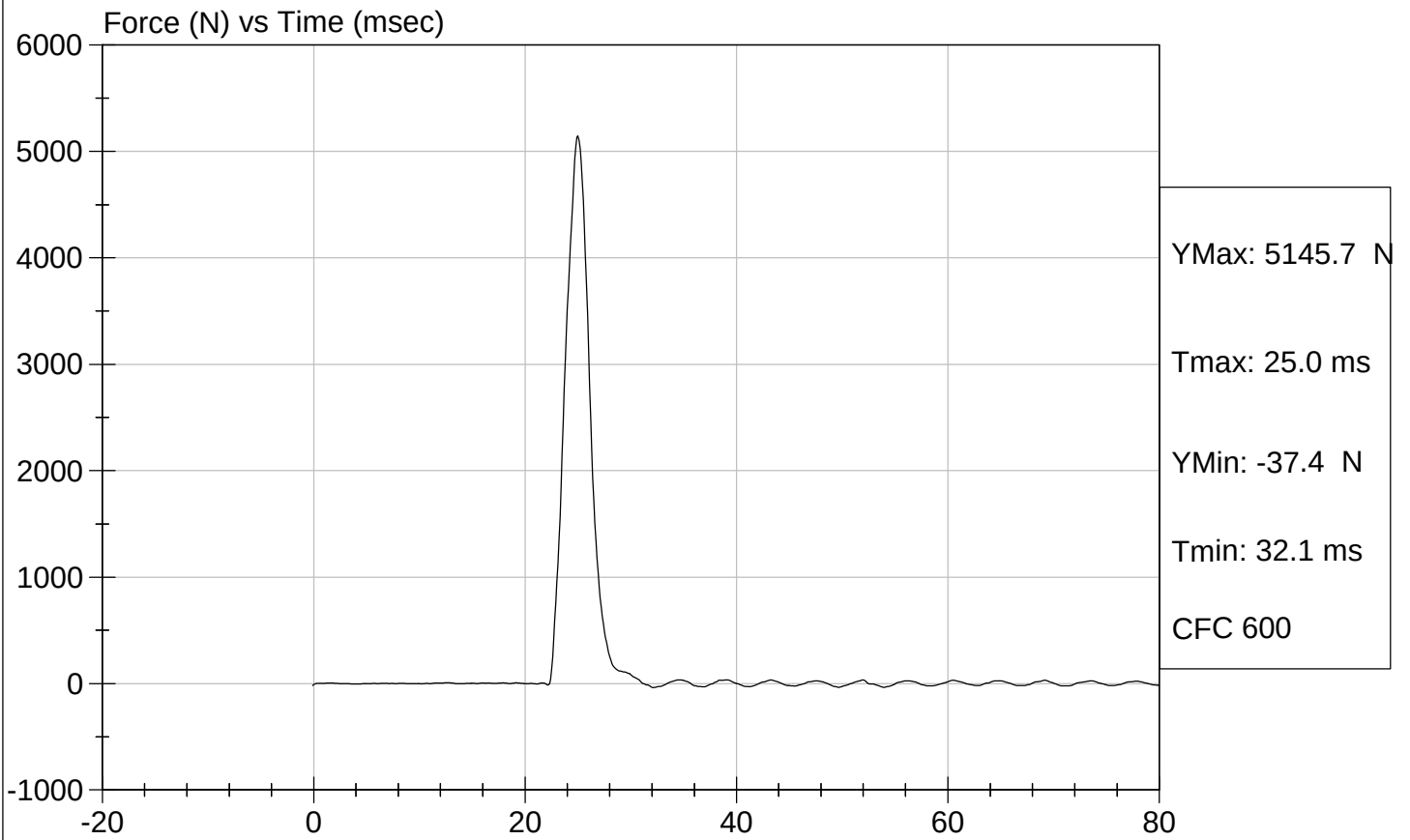


Test Description: Left Knee

Test Date: 2/7/02

Component: D02196

Speed: 6.92 ft/sec, 2.11 m/sec



Hybrid III Calibration Data Sheet
50th Percentile Male
Right Knee Slider

ATD Serial No: 066

Test I.D: D02197

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
Velocity	m/s	2.7 to 2.8	2.74	Pass
Impact Force At 10 mm	kN	-1.72 to -1.26	-1.39	Pass
Impact Force At 18 mm	kN	-3.10 to -2.27	-2.40	Pass
Overall Test Results				Pass

Laboratory Technician

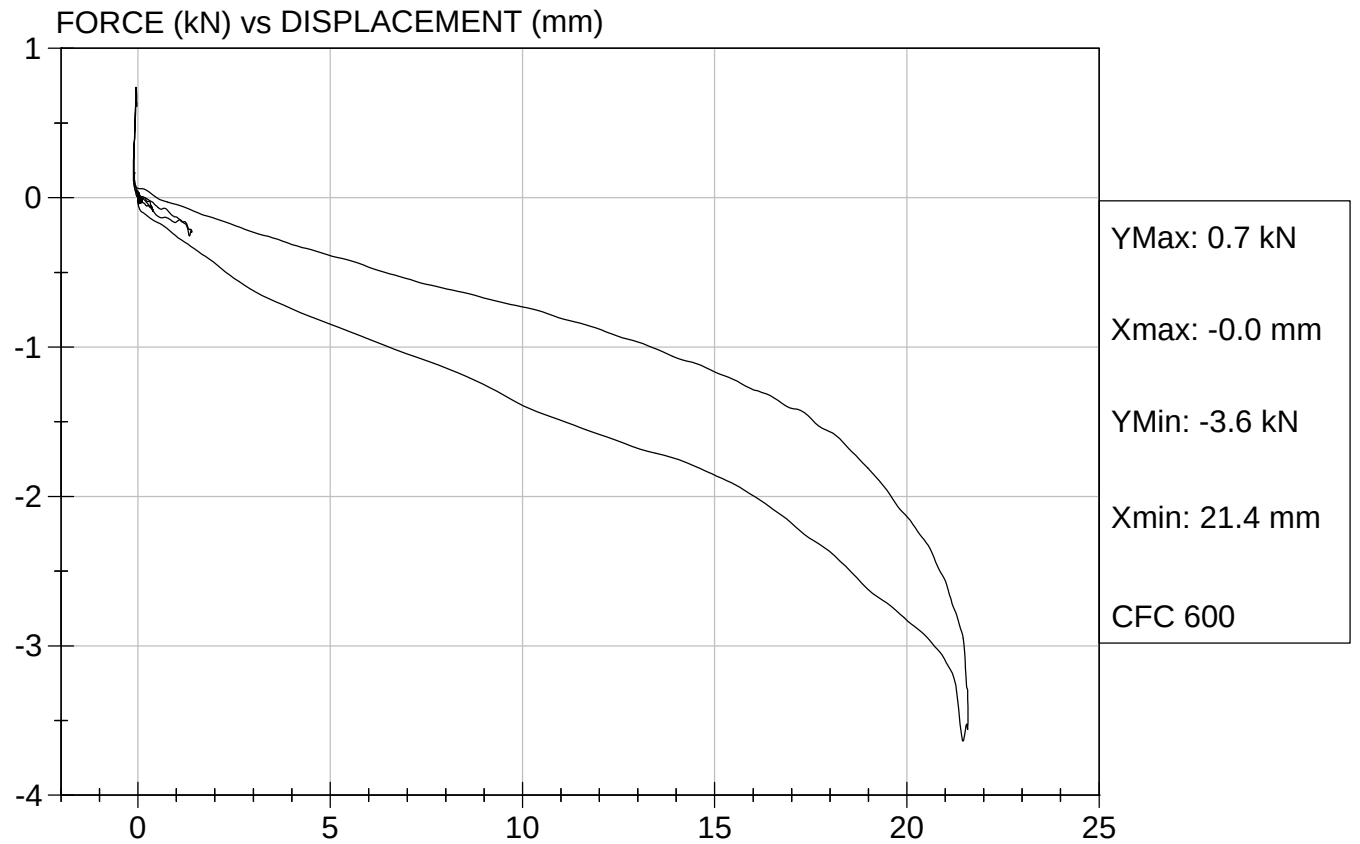
2/8/02
Test Date

Approved By



Test Desc: Right Knee Slider
Component ID: D02197

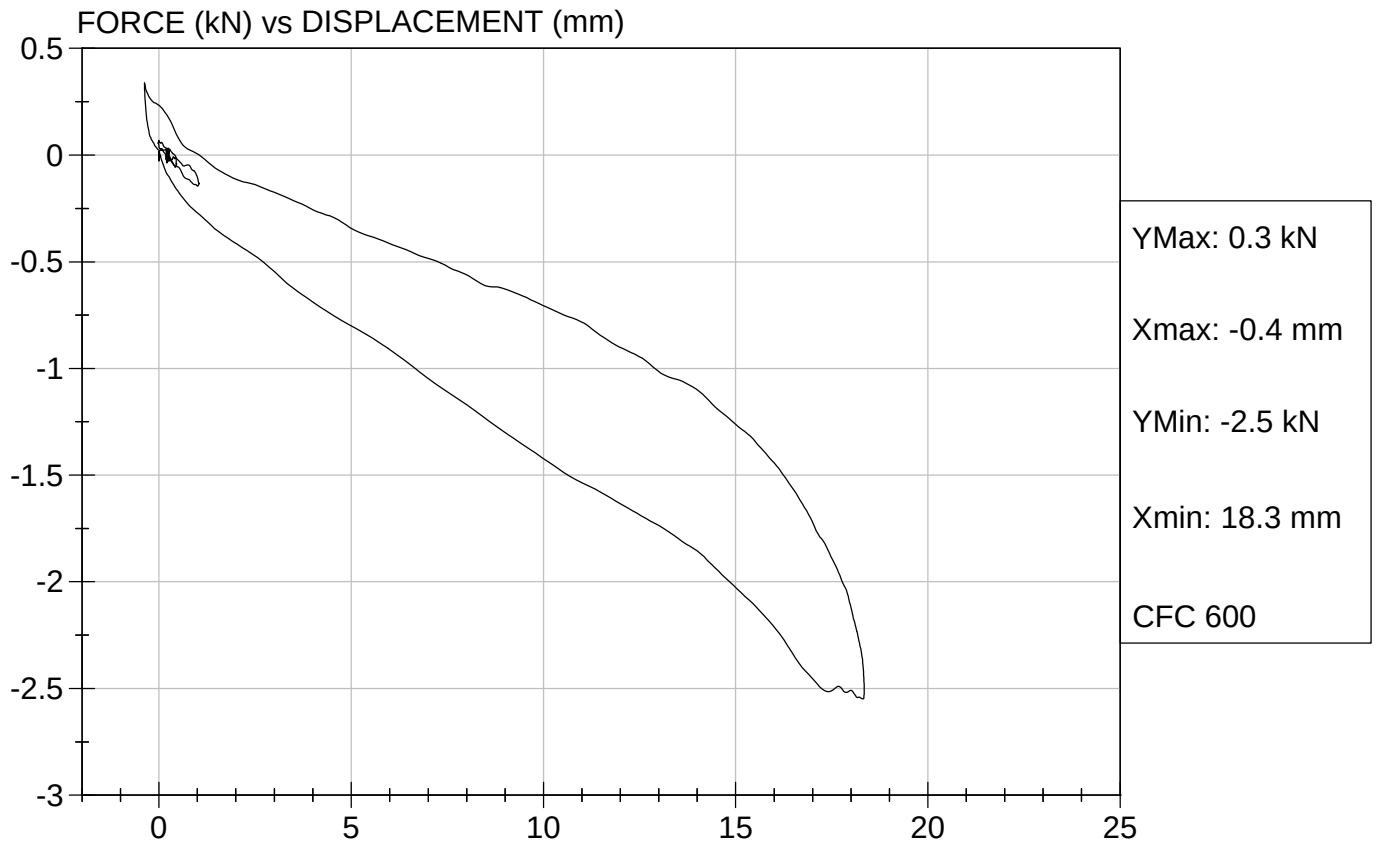
Test Date: 2/8/02
Speed: 8.99 ft/sec, 2.74 m/sec





Test Desc: Right Knee Slider
Component ID: D02198

Test Date: 2/8/02
Speed: 8.99 ft/sec, 2.74 m/sec



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

ATD Serial No: 066

Test I.D: D02199/0

Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	20.4	20.4	Pass
Laboratory Relative Humidity	%	10 to 70	22	22	Pass
Rotation Rate	deg/sec	5 -10	8	8	Pass
30 Degrees	Nm	94.9 Nm Max	72.2	69.7	Pass
150 ft-lbf / 203.4 Nm	Deg	40- 50 Degree Max Rotation	45	44	Pass
Overall Test Results					Pass

Laboratory Technician

2/8/02
Test Date

Approved By

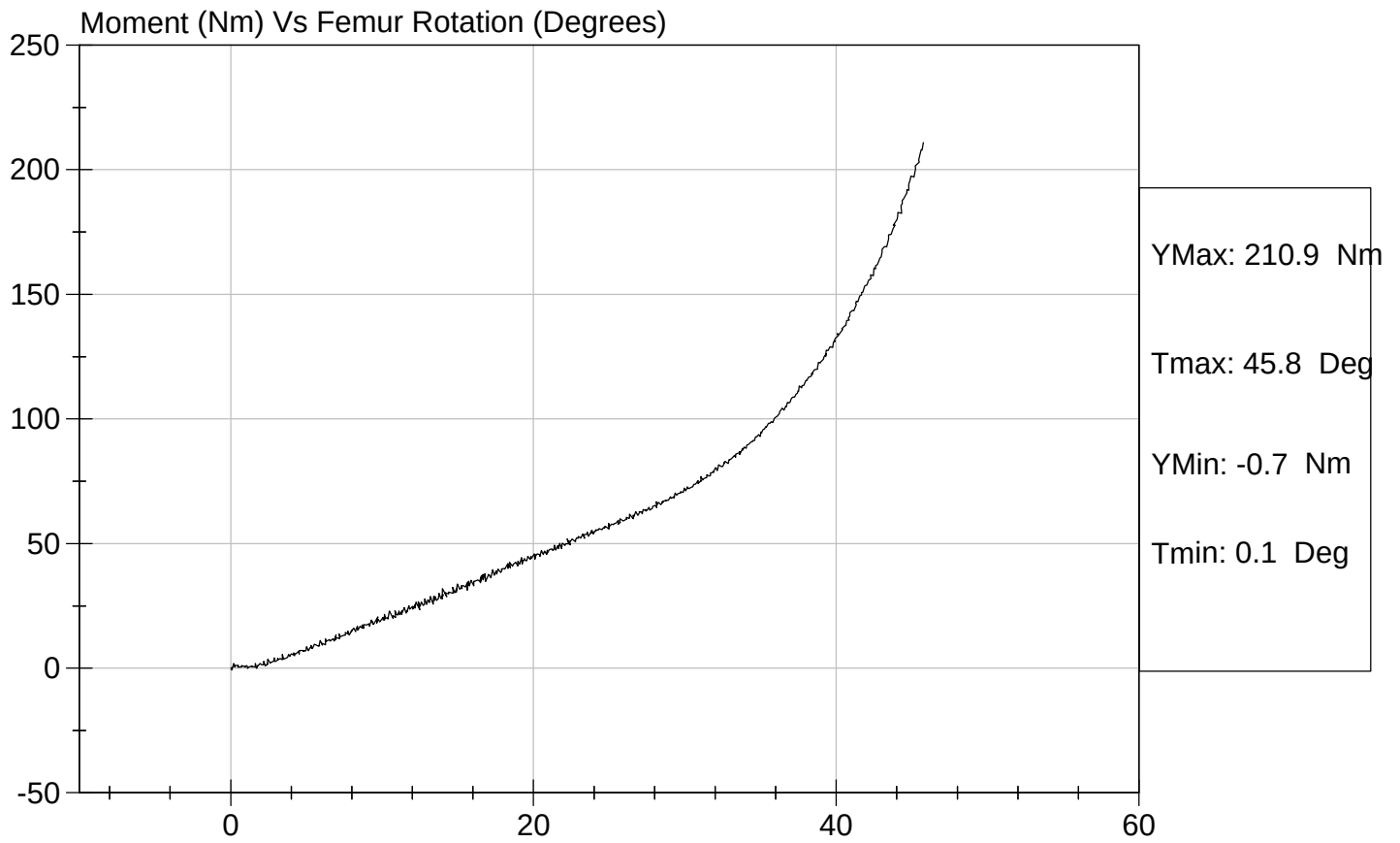


Test Description: Hip Femur Flexion

Test Date: 2/8/02

Component: D02199

Speed: 0 ft/sec, 0.00 m/sec



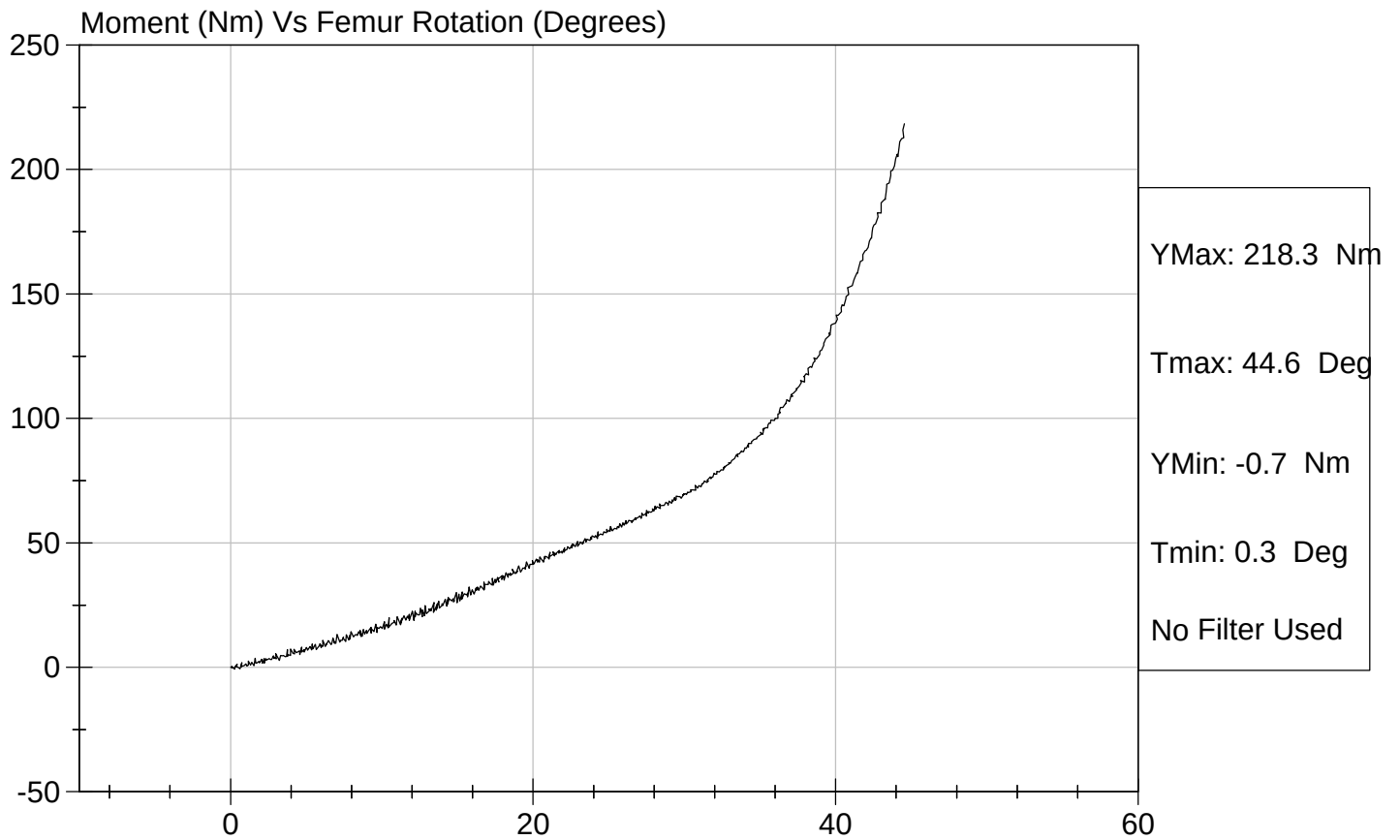


Test Description: Hip Femur Flexion

Test Date: 2/8/02

Component: D02190

Speed: 0 ft/sec, 0.00 m/sec



APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION

INSTRUMENTS FOR DRIVER DUMMY NO. 065

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	ACCY6	Endevco	11/14/01
Head Y	J13941	Endevco	10/2/01
Head Z	AAMW5	Endevco	11/14/01
Head Y – Front	J20165	Endevco	11/15/01
Head Z – Front	J28708	Endevco	11/15/01
Head X – Left	J27513	Endevco	11/15/01
Head Z – Left	J23946	Endevco	11/15/01
Head X – Upper	J20580	Endevco	11/15/01
Head Y - Upper	J23914	Endevco	11/15/01
Head X Redundant	J18724	Endevco	11/15/01
Head Y Redundant	J14235	Endevco	11/15/01
Head Z Redundant	AJ5R0	Endevco	11/15/01
Neck Load Cell	442	Denton	9/7/01
Chest X	ACC78	Endevco	11/14/01
Chest Y	ACCE6	Endevco	11/14/01
Chest Z	ACCY3	Endevco	11/14/01
Chest Deflection Gauge	065	Servo	11/28/01
Chest X Redundant	J19927	Endevco	11/15/01
Chest Y Redundant	J14674	Endevco	11/15/01
Chest Z Redundant	J18736	Endevco	11/15/01
Pelvis X	AJ9N4	Endevco	11/16/01
Pelvis Y	ALFL9	Endevco	11/16/01
Pelvis Z	AJ808	Endevco	11/16/01
Left Femur Load Cell	946	Denton	1/17/02
Right Femur Load Cell	945	Denton	1/17/02
Left Knee Shear	14690	Denton	12/1/01
Right Knee Shear	14682	Denton	12/1/01
Left Upper Tibia Load Cell	105	Denton	11/19/01

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Lower Tibia Load Cell	133	Denton	11/16/01
Right Upper Tibia Load Cell	103	Denton	11/19/01
Right Lower Tibia Load Cell	134	Denton	11/16/01
Left Foot Z – Front	AJ9F3	Endevco	9/10/01
Left Ankle X	J13942	Endevco	10/2/01
Left Ankle Z	AJ9D4	Endevco	9/10/01
Right Foot Z – Front	AJ9J7	Endevco	11/16/01
Right Ankle X	AJ819	Endevco	11/16/01
Right Ankle Z	AJ7A2	Endevco	11/16/01
Shoulder Belt Load Cell	196	Denton	11/7/01
Lap Belt Load Cell	198	Denton	11/19/01

INSTRUMENTS FOR PASSENGER DUMMY NO. 066

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	AAMN8	Endevco	11/14/01
Head Y	ACC61	Endevco	11/14/01
Head Z	ACCW9	Endevco	11/14/01
Head Y – Front	APYY3	Endevco	10/2/01
Head Z – Front	J23774	Endevco	11/15/01
Head X – Left	J20382	Endevco	11/15/01
Head Z – Left	J28988	Endevco	11/15/01
Head X – Upper	J22036	Endevco	11/15/01
Head Y – Upper	J20569	Endevco	11/15/01
Head X Redundant	J19884	Endevco	11/15/01
Head Y Redundant	J21988	Endevco	11/15/01
Head Z Redundant	J28986	Endevco	11/15/01
Neck Load Cell	443	Denton	1/24/02
Chest X	ACCY1	Endevco	11/14/01
Chest Y	ACCC8	Endevco	11/14/01
Chest Z	ACCT7	Endevco	11/14/01
Chest Deflection Gauge	066	Servo	11/28/01
Chest X Redundant	J13541	Endevco	10/2/01
Chest Y Redundant	J20093	Endevco	11/15/01
Chest Z Redundant	J19440	Endevco	11/15/01
Pelvis X	AJ820	Endevco	8/29/01
Pelvis Y	AGTG8	Endevco	8/29/01
Pelvis Z	AJ8Y6	Endevco	8/29/01
Left Femur Load Cell	262	Denton	11/30/01
Right Femur Load Cell	261	Denton	11/30/01
Left Knee Shear	13462	Denton	12/1/01
Right Knee Shear	18921	Denton	12/1/01
Left Upper Tibia Load Cell	109	Denton	11/19/01

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Lower Tibia Load Cell	138	Denton	11/16/01
Right Upper Tibia Load Cell	106	Denton	11/19/01
Right Lower Tibia Load Cell	135	Denton	11/16/01
Left Foot Z – Front	AHWK8	Endevco	11/16/01
Left Ankle X	AH0D1	Endevco	11/16/01
Left Ankle Z	AH0M0	Endevco	11/16/01
Right Foot Z – Front	J21612	Endevco	11/16/01
Right Ankle X	J22034	Endevco	11/16/01
Right Ankle Z	J21724	Endevco	11/16/01
Shoulder Belt Load Cell	195	Denton	11/7/01
Lap Belt Load Cell	190	Denton	11/6/01

INSTRUMENTS FOR VEHICLE AND LABORATORY

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Rear Seat Crossmember X	K21-N19	Entran	1/17/02
Left Rear Seat Crossmember Z	K21-N20	Entran	1/17/02
Right Rear Seat Crossmember X	K21-N28	Entran	1/17/02
Right Rear Seat Crossmember Z	K21-N25	Entran	1/17/02
Top of Engine X	K21-N23	Entran	1/17/02
Bottom of Engine X	F18-G13	Entran	1/16/02
Left Brake Caliper X	I25-F09	Entran	1/16/02
Right Brake Caliper X	I12-F05	Entran	10/10/01
Instrument Panel X	J10-E03	Entran	1/15/02

Note: All Endevco accelerometers are Model No. 7264-2000
All Entran accelerometers are Model No. EGE-72

APPENDIX E

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT INSTRUCTIONS

Seat and restraint systems

ND01G-Bc

Front seats

ND01A-Cg

Your vehicle has seat belts and other features that help protect you and your passengers in an accident.

Seat belts are the most important safety device. When worn properly, seat belts can reduce the chance of serious injury or death in various types of crashes. For added protection during a severe frontal collision, your vehicle has a Supplemental Restraint System (SRS) with air bags for the driver and front seat passenger. The seats, head restraints, and door locks also are safety equipment, which must be used correctly.

Always check the following before you drive:

- (1) That everyone in your vehicle is properly wearing their seat belt.
- (2) That infants and small children are properly secured in appropriate child restraints in the rear seat.
- (3) That all doors are fully closed and locked.
- (4) That seatbacks are upright, with head restraints properly adjusted.

No safety equipment can prevent all injuries or deaths that could occur in a severe collision. You can help reduce the risk of injury though, by making sure that all your passengers follow the instructions in this manual.



G21A0710

Make sure the driver's seat is positioned as far back as possible to a position that still enables you to fully apply the pedals, easily control the steering wheel and safely operate the vehicle. Make sure you have a clear view out front.

1-2

Seat and restraint systems

⚠ WARNING

- (1) Do not attempt to adjust the seat while driving. This can be dangerous.
- (2) After adjusting the seat, make sure that it is securely locked into position.
- (3) The seat must be adjusted by an adult. A child will not be able to lock it properly.
- (4) In order to reduce the risk to passengers of serious or fatal injury in a collision, especially from the front passenger air bag, move the front passenger seat as far back as possible. Children 12 years old and under should ride restrained in the rear seat. Children in rear-facing child restraints **MUST** ride in the rear seat.
- (5) In order to reduce the risk to the driver of serious or fatal injury in an accident, especially from the driver's air bag, move the driver's seat as far back as possible, while still maintaining good frontal visibility and good control of the steering wheel, accelerator and brake pedals.

To adjust the seat forward or backward

ND01B-K



G21B0560

Pull the seat adjusting lever up and slide the seat forward or backward to the desired position. Release the adjusting lever to lock the seat in place.

⚠ WARNING

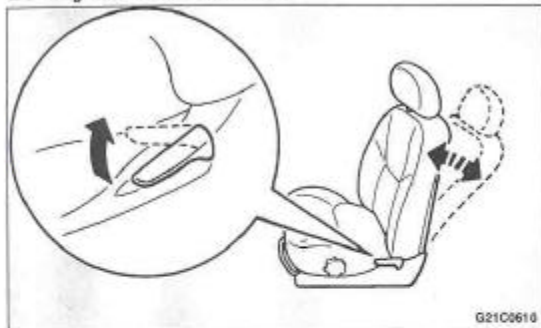
To make sure that the seat is securely locked, try to move it forward or backward without using the adjusting lever.

1-3

Seat and restraint systems

To adjust the seatback

ND01C-H6



To adjust the seatback, lean forward slightly, gently pull the seatback lock lever up, then lean backward to a comfortable position and release the lever. The seatback will lock in place.

⚠ WARNING

To reduce the risk of a severe or fatal personal injury in the event of a collision or sudden stop, both the driver and all passenger seatbacks should always be kept in an upright position when the vehicle is in motion. The seat belts' ability to protect you will be significantly reduced the more the seatback is reclined. The more the seatback is reclined, the more the seat belts will not be properly positioned against your body and/or the risk you will slide under the belt in an accident and be severely or fatally injured.

⚠ CAUTION

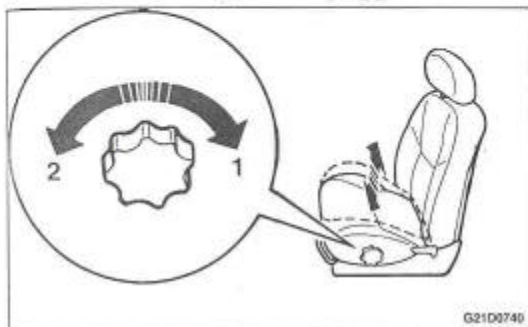
To return the seatback to its original position, pull the seatback lock lever. When pulling this lever, sit close to the seatback or hold it with your hand to control its return motion.

1-4

Seat and restraint systems

To adjust the seat height (Driver's side only, if so equipped)

ND01D-V

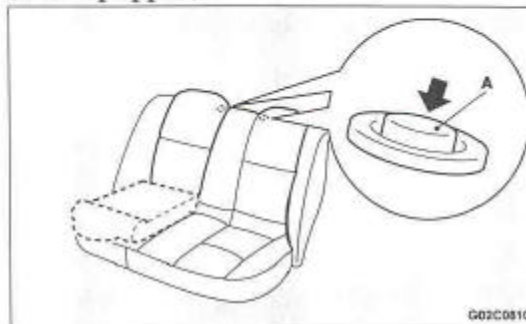


Turn the knob to raise or lower the whole seat cushion.

- 1- Raise
- 2- Lower

Rear seat Fold down rear seatbacks (if so equipped)

ND02C-Y



The rear seatbacks can be folded forward to provide additional luggage compartment space. Push the left and/or right release buttons (A), and fold the rear seatbacks forward.

⚠ WARNING

When folding the seatbacks forward in order to store luggage, position the center seat belt so that it will not make contact with the luggage. When returning the seatbacks to their upright positions, make sure that the center seat belt does not become sandwiched between the seats. Improper placement of the center seat belt could cause it to become damaged, and if it is used in this condition, it may not perform properly in a collision, which could cause severe injury.

NOTE (1) If the seatbacks are returned using too much force, this may cause the center seat belt to lock up. If the seat belt lock up, pull the seat belt once with force and let it retract all the way.
(2) Confirm that the seat back locks securely when it is returned.

1-5

Seat and restraint systems

⚠ WARNING

The luggage compartment in the rear of the vehicle should never be used as a play area by children.

Children should always be seated in the rear seat in an appropriate child restraint with the seat belts fastened when the vehicle is in motion. Be sure that the rear seatbacks are in their fully upright position and locked in place.

Anti-theft lock lever (if so equipped)

ND02F-G



G02C0020

1-6

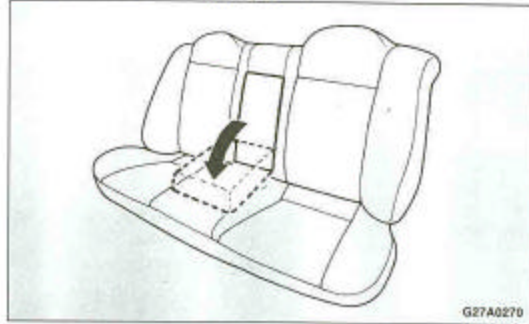
The anti-theft lock lever is located on the back side of the rear seatback (on the luggage compartment side). When the lock lever is in the "LOCK" position, the seatback cannot be folded down by using the seatback release buttons.

This feature is useful to help prevent theft when the vehicle is parked in an exposed area, because it prevents access to the trunk from the passenger compartment.

The seatback can be folded down when the lock lever is returned to the "FREE" position.

Arm rest (if so equipped)

ND02G-I



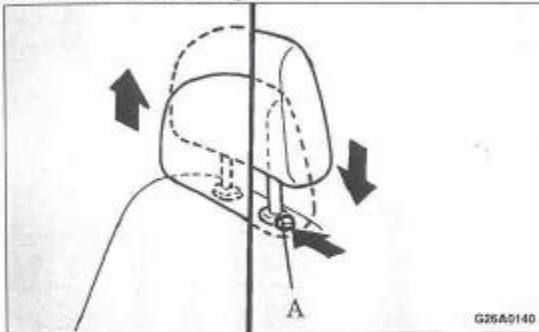
G27A0270

Tilt the arm rest for use as shown. The arm rest includes a cup holder.

Seat and restraint systems

Head restraints (Front seat only)

ND05A-X



G26A0140

Padded head restraints for the seats may reduce the risk of a whiplash injury if your vehicle is hit from the rear.

Adjustment of the head restraints

To reduce the risk of injury in the event of a collision, adjust the head restraint height so that the center of the restraint is as close as possible to your eye level when seated. Any person too tall for the restraint to reach their eye level when seated should raise the restraint as high as possible.

- To raise the restraint, pull it straight up.
- To lower the restraint, push down on it while pressing the lock knob (A) in the direction shown by the arrow.
- After adjusting the height, push down on the restraint to make sure that it is locked in position.

⚠ WARNING

(1) Failure to have the head restraints properly mounted and adjusted may increase the chance of injury in the event of a collision.

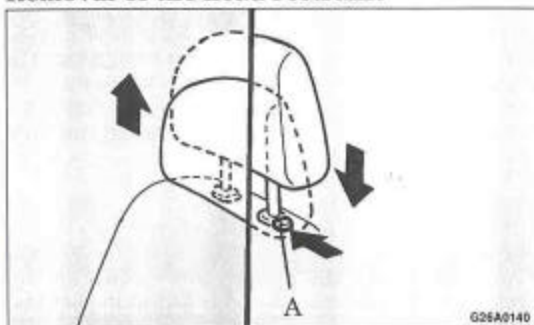
(2) A cushion or similar device should not be placed on the seatback as it may increase the distance between your head and the head restraint and reduce the effectiveness of the restraint.

1-7

Seat and restraint systems

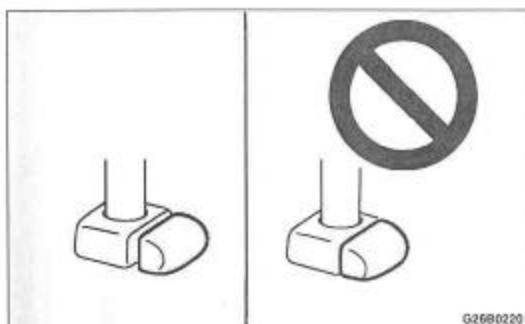
Removal of the head restraint

ND03B-P



To remove the head restraints, press the lock knob (A) in the direction shown by the arrows. Then pull the head restraints up and out of the seatbacks.

To remount the head restraints, first check that they are facing in the right direction as shown in the illustration, then insert them into the seatback. Push the head restraints down while pressing the lock knob until the restraints lock into place. Check that the lock knobs are extended out as shown in the illustration. Then pull the head restraints up to make sure that they will not come out of the seatback.



⚠ WARNING

Driving without the head restraints can lead to a serious injury to you and your passengers in an accident. Always have them mounted and properly adjusted before operating your vehicle. Failure to do so will increase the risk of injury in a collision.

1-8

Seat and restraint systems

Seat belts

ND06A-16

Seat belts are installed in your vehicle for the protection of the driver and passengers.

Always use the seat belts. In an accident, injury to the driver and passengers can be reduced if the seat belts are properly used.

NOTE

Legislation in your state may require seat belt usage. But even if it is not required by law, seat belts should always be used.

⚠ WARNING

- (1) Lock all doors before driving to reduce the risk of injury or ejection in a collision.
- (2) Seat belts must always be worn by every adult who drives or rides in your vehicle, and by all children who are large enough to wear seat belts properly.
- (3) Never use one seat belt for more than one person.
- (4) Never carry more people in your vehicle than there are seat belts.
- (5) Always adjust the seat belt for a snug fit.

⚠ WARNING

- (6) Always place the shoulder belt over your shoulder and across your chest. Never put it behind you or under your arm.
- (7) Always wear the lap belt as low as possible across your hips, not around your waist.
- (8) To reduce the risk to the driver of a serious or fatal injury in a collision, especially from a deploying driver air bag, always properly wear your seat belt and adjust the driver's seat as far back as possible to a position that still allows you to maintain a clear view out front and have good control of the steering wheel, brake, accelerator, and vehicle controls.
- (9) To reduce the risk to a front seat passenger of a severe or fatal injury from a deploying air bag, make sure the passenger always wears their seat belts properly, that they remain seated all the way back and upright in their seat, and that their seat is moved as far back as possible. Refer to "Supplemental Restraint System (SRS)- air bag" on page 1-28.

1-9

Seat and restraint systems

⚠ WARNING

- (10) Never hold an infant or child in your arms or on your lap when riding in this vehicle even if you are wearing your seat belt. Also never place any part of the seat belt you are wearing around an infant or child. This would create a risk of severe or fatal injury to your child in a collision or sudden stop.
- (11) Children 12 years old and under should always ride in the rear seat, properly restrained. This reduces their risk of serious or fatal injury in a collision, especially from the deployment of a front passenger air bag. Refer to "Child restraints" on page 1-16.
- (12) Any child who is too small to properly wear a seat belt must be properly restrained in an appropriate child restraint system. To reduce their risk of severe or fatal injury in a collision, especially from the deployment of a front passenger air bag, children should be seated only in the rear seat. Infants **MUST** be in a rear-facing child safety seat that **MUST ONLY** be used in the rear seat.

UNIBELT restraint system

ND062AG

The front seats and both outboard rear seat positions are equipped with a UNIBELT system which uses one combined lap-and-shoulder belt with an emergency locking retractor.

This system is designed to provide both comfort and safety. It permits full extension and automatic retraction of the belts during normal vehicle operation. A sensing device inside the belt retractor is designed to lock the retractor in the event of a sudden change in the vehicle's motion.

NOTE

For instructions on how to install a child restraint system, see "Installing a child restraint system to a UNIBELT" on page 1-22.

1-10

Seat and restraint systems

UNIBELT instructions

ND062 BI



G28A0210

1. Sit in your vehicle in a normal correct posture. To reduce the risk of a severe or fatal injury caused by an inflating air bag, adjust the driver's seat as far back as possible to a position that still allows you to fully apply the pedals, easily control the steering wheel and safely operate your vehicle. The front passenger seat should also be moved as far back as possible. Refer to "Supplemental Restraint System (SRS)- air bag" on page 1-28. Also refer to "To adjust the seat forward or backward" on page 1-3.

Everyone riding in your vehicle should sit and remain seated all the way back in their seat with their back resting straight against the upright seat-back.

⚠ WARNING

To reduce the risk of severe or fatal personal injury in the event of a collision or sudden stop, both the driver and all passenger seatbacks should always be kept in the upright position whenever the vehicle is in motion.

The seat belts cannot protect you if the seatbacks are reclined. The more the seatback is reclined, the more the seat belts will not be properly positioned against your body and/or the risk you will slide under the belt in an accident, resulting in severe or fatal injury.

1-11

Seat and restraint systems



2. Grasp the metal tongue and slide it up the webbing so that it easily pulls across your body. With practice, this will become an automatic one-handed motion.



3. Pull the seat belt out slowly while holding the metal tongue. The belt will not lock up if you stop or hesitate, so relax and continue to "buckle-up". Push the metal tongue into the buckle until you hear a "click". Pull up on the belt to be sure the metal tongue is locked securely in the buckle.

NOTE

If the seat belt locks up and cannot be pulled out, pull it once with force and let it retract all the way. Then, pull the belt out slowly once again.

1-12

Seat and restraint systems



4. Pull up on the shoulder portion of the belt to take up any extra slack in the lap portion of the belt. The shoulder belt portion will keep enough slack for comfort whenever you return to your normal seated position. If the shoulder belt portion is too tight, pull out 6 to 8 inches of webbing by pulling down on the shoulder belt. Then release the belt and let it return against your chest.

NOTE

If anyone wearing a seat belt causes their belt to fully extend out of the retractor by moving either their upper body or the belt itself, the retractor may switch to its Automatic Locking Retractor (ALR) child restraint installation mode (see page 1-22). The belt will lock when in this position and prevent further movement. If this happens, the retractor can be switched back to its Emergency Locking Retractor (ELR) mode by unlatching the buckle and letting the belt fully retract. Then put the seat belt back on, repeating steps 1 through 4.

⚠ WARNING

- (1) Be sure the lap belt portion fits snugly and is worn as low as possible across the hips, not around the waist. Failure to do this will increase the risk of severe or fatal injury in a collision.
- (2) Be sure the seat belt webbing is not twisted when worn.

1-13

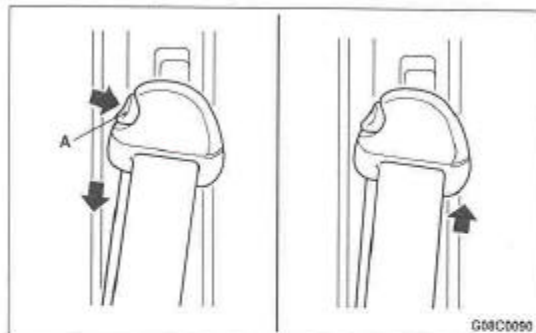
Seat and restraint systems



5. The shoulder belt portion will allow regular movement under normal conditions. The belt will lock in the event of an abrupt change in the vehicle's motion.
6. To release the belt, push the button on the buckle. The belt retracts automatically, so hold the tongue when the belt is released and while it retracts. If the belt does not fully return to its stowed position, pull the shoulder belt down slightly, then release it quickly.

Adjustable seat belt shoulder anchor (front seats)

ND06E-C9



The seat belt shoulder anchor position can be adjusted for greater comfort.

To move the anchor down, press the lock knob (A). To move the anchor up, simply slide the anchor up to the desired position (there is no need to press the lock knob).

1-14

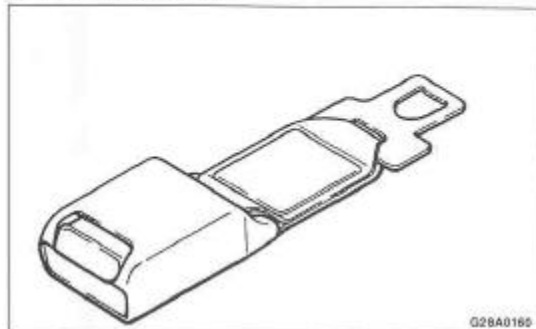
Seat and restraint systems

⚠ WARNING

- (1) To reduce the risk of injury in a collision, adjust the shoulder belt anchor so that the shoulder belt is positioned across the center of your shoulder without touching your neck. The belt should not be able to fall off your shoulder. If the shoulder belt anchor is not properly adjusted, the shoulder belt cannot protect you properly.
- (2) Adjust the shoulder belt anchor only when the vehicle is not in motion.
- (3) Make sure the anchor is securely locked in position after adjusting it.

Seat belt extender

ND06L-A9



If the seat belt is too short, even when fully extended, a seat belt extender is available from your dealer. The extender may be used for either of the front seats.

⚠ WARNING

- (1) The extender should only be used if the existing belt is not long enough. Anyone who can use the standard seat belt should not use an extender. Unnecessary use of the extender could result in serious personal injury in a collision.

1-15

Pregnant women restraint

ND06G-Bp

⚠ WARNING

Mitsubishi Motors Corporation recommends that pregnant women use the available UNIBELT. This will reduce the likelihood of injury to both the woman and the unborn child. The lap belt should be worn as snug and as low as possible across the hips, NOT across the waist. Consult your doctor if you have any questions or concerns.

Maintenance and inspection of seat belts

ND05H-AE

The seat belt webbing may be cleaned with a hydrocarbon dry cleaning solution or with mild soap or detergent solution. Allow the belts to dry in the shade. Do not allow them to retract until completely dry. Do not attempt to bleach or re-dye the belts. The color may rub off and the webbing strength could be affected.

Regularly check your seat belt buckles and their release mechanisms for positive engagement and release of the latch plate. Check the retractors for automatic locking when in the Automatic Locking Retractor mode. Refer to "Installing a child restraint system to a UNIBELT (with emergency/automatic locking mechanism)" on page 1-22.

Check that the anchor mounting bolts are tight. The entire seat belt assembly should be replaced if the webbing shows any obvious cuts, tears, increase in thickness in any section of the webbing from broken fibers, or severe fading from sunlight. All of these conditions indicate a weakening of the belt.

1-27

Seat and restraint systems

⚠ WARNING

All seat belt assemblies, including retractors and attaching hardware, should be inspected by an authorized Mitsubishi dealer after any collision. We recommend that all seat belt assemblies that were used in a collision be replaced unless the collision was VERY minor and the belts show no damage and continue to operate properly.

Do not attempt to repair or replace any part of the seat belt assemblies. This work should be done by an authorized Mitsubishi dealer. Failure to have an authorized Mitsubishi dealer perform the work could reduce the effectiveness of the belts and could result in a serious or fatal injury in a collision.

Supplemental Restraint System (SRS)-air bag

ND10A-L

This vehicle is equipped with a Supplemental Restraint System (SRS), which includes air bags for the driver and front passenger. The SRS air bag is designed to supplement the primary protection of the driver and front passenger side seat belt systems by providing those occupants with protection against head and chest injuries in certain moderate to severe frontal collisions. The SRS side air bag (if so equipped) is also designed to supplement the seat belts and provide the driver and front passenger with protection against chest injuries in certain moderate to severe side impact collisions.

The SRS is NOT a substitute for the seat belts. For maximum protection in all types of crashes and accidents, seat belts must ALWAYS be worn by everyone who drives or rides in this vehicle (with infants and small children in an appropriate child restraint in the rear seat, and older children buckled in the rear seat). Refer to "Child restraints" on page 1-16.

1-28

⚠ WARNING

IT IS VERY IMPORTANT TO ALWAYS WEAR YOUR SEAT BELT PROPERLY EVEN WITH AN AIR BAG.

- (1) Seat belts help keep the driver and front passenger properly positioned. This reduces the risk of injury in all collisions, and reduces the risk of serious or fatal injuries when the air bags inflate. During sudden braking just before a collision, an unrestrained or improperly restrained driver or front passenger can move forward into direct contact with, or within close proximity to, the air bag when it begins to inflate. The beginning stage of air bag inflation is the most forceful and can cause serious or fatal injuries if the occupant comes in contact with the air bag at this time.
- (2) Seat belts reduce the risk of injury in roll-overs, side or rear impact collisions, and in lower-speed frontal collisions, because the air bags are not designed to inflate in those situations.
- (3) Seat belts reduce the risk of being thrown from your vehicle in a collision or roll-over.

⚠ WARNING

IT IS VERY IMPORTANT TO BE PROPERLY SEATED.

A driver or front passenger sitting too close to the steering wheel or instrument panel during air bag deployment can be killed or seriously injured.

Air bags inflate very quickly and with great force. If the driver and front passenger are not properly seated and restrained, the air bag may not provide the proper protection, and could cause serious or fatal injuries when it inflates.

- (1) Before driving, adjust the driver's seat as far back as possible without affecting your ability to be in complete control of the vehicle.
- (2) Before driving, adjust the front passenger seat as far back as possible.
- (3) Make sure all vehicle occupants are always properly restrained using the available seat belts.
- (4) With the seat belts properly fastened, the driver and front passenger should sit well back in their seats and remain upright without leaning against the window or door.

1-29

Seat and restraint systems



⚠ WARNING

- (5) Do not sit on the edge of the seat or lean your head or chest close to the steering wheel or the instrument panel. Do not put your feet or legs on or against the instrument panel.
- (6) Seat all infants and children 12 years of age and under in the rear seat, properly restrained in an appropriate child restraint system.



⚠ WARNING

- (7) Infants and small children should never ride unrestrained, or lean against the instrument panel. They should never ride held in your arms or on your lap. They could be seriously injured or killed in a collision, especially when the air bags inflate. Children should be properly seated in the rear seat in an appropriate child restraint system. Refer to "Child restraints" on page 1-16.

1-30



⚠ WARNING

- **REAR-FACING CHILD RESTRAINTS** must NOT be used in the front passenger seat. The force of an inflating passenger air bag could kill or cause serious injuries to the child. Rear-facing child restraints must only be used in the rear seat.



⚠ WARNING

- **FRONT-FACING CHILD RESTRAINTS** should be used in the rear seat whenever possible. If they must be used in the front passenger seat, move the seat to the full rear position. Failure to do so could kill or cause serious injuries to the child.

1-31

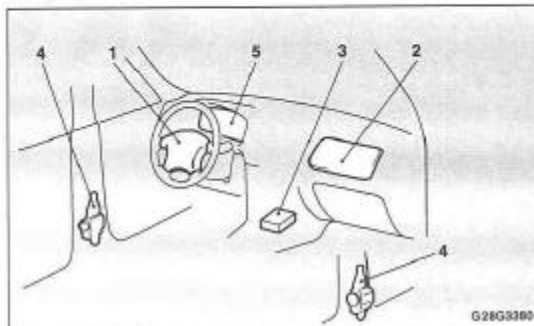
Seat and restraint systems

⚠ WARNING

Older children, up to and including 12 years old, should be seated in the rear seat with their seat belt properly worn, and with an appropriate booster seat if needed.

How the Supplement Restraint System works

ND108-P

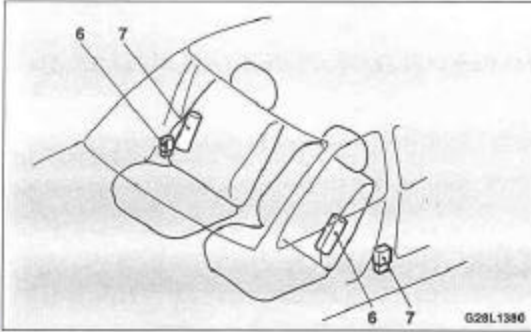


The SRS includes the following components:

- 1- Air bag module (Driver)
- 2- Air bag module (Passenger)
- 3- Air bag control unit
(includes front impact sensors)
- 4- Seat belt pre-tensioners
- 5- SRS warning light

1-32

Seat and restraint systems



- 6- Side air bag modules (if so equipped)
7- Side impact sensors (if so equipped)

The air bag control unit monitors the readiness of the electronic parts of the system whenever the ignition switch is in the "ON" or "START" position. These include all of the items listed above and all related wiring.

The air bags will operate only when the ignition switch is in the "ON" or "START" position.

When an impact sensor detects a front or side impact of sufficient force, it automatically ignites materials in the module inflator which generate gas and inflates the appropriate air bags.

Deployment of an air bag produces a sudden, loud noise and releases some smoke and powder. This is not dangerous and does not indicate a fire in the vehicle. People with breathing problems may feel some temporary irritation from the chemicals used to inflate the bags. You may open the windows after the air bags inflate if it is safe to do so.

After deployment, the air bags deflate very rapidly, so there is little danger of not being able to see. The time between the sensors first detecting an impact and the air bags deflating after deployment is shorter than a blink of an eye.

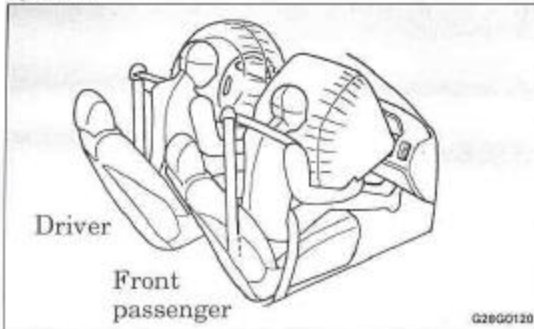
⚠ CAUTION

Air bags inflate very quickly and with great force. In certain situations, contact with an inflating air bag may cause small cuts, abrasions, and bruises.

1-33

Seat and restraint systems

Driver's and passenger's front air bag system



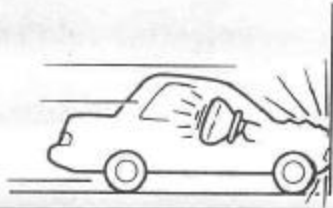
The driver's air bag is located under the padded cover in the middle of the steering wheel. The front passenger air bag is contained in the instrument panel above the glove compartment. The driver's air bag and the front passenger's air bag are designed to deploy at the same time.

1-34

Deployment of front air bags

The front air bags ARE DESIGNED TO DEPLOY in a ...

Head-on collision with a solid wall at speeds of approx. 15 mph (25 km/h) or higher



The front air bags are designed to deploy when the vehicle suffers a moderate to severe frontal impact. A typical condition is shown in the illustration on the left.

The front air bags are designed to deploy only in certain moderate to severe frontal collisions within the shaded area between the arrows in the illustration on the right.

The front air bags will deploy if the force of the impact to the vehicle's main structure is above a specific minimum level. The minimum level is an approximately 15 mph (25 km/h) frontal collision straight into a

Moderate to severe frontal impact within the shaded area between the arrows



G26L0681

solid wall that does not move, bend or deform. If the force of the impact to the vehicle's main structure is below this minimum level, the front air bags may not deploy. However, this minimum speed will be considerably higher if the vehicle hits something that absorbs the impact by either bending or moving (for example, another stationary vehicle, a pole or a guard rail).

1-35

Seat and restraint systems

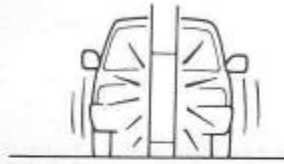
Because frontal collisions can easily move you out of position, it is important to always wear your seat belts properly. They will help keep you a safe distance from the steering wheel and instrument panel in a collision when the air bag begins to inflate. The beginning stage of air bag inflation is the most forceful, and can possibly cause serious or fatal injuries if a safe distance from the air bag is not maintained during a collision. Also, the seat belts in your vehicle are your primary means of protection in a collision. The SRS (Supplemental Restraint System) air bags are designed to provide additional protection. Therefore, for your safety and the safety of all occupants, be sure to always wear your seat belts properly.

The front air bags MAY NOT DEPLOY in a ...

With certain types of frontal collisions, the vehicle's body structure is designed to absorb the shock to help protect the occupants from harm. (The vehicle body's front area may bend significantly as it absorbs the impact.) In these situations, the front air bags may not deploy in spite of what may appear to be major damage to the vehicle body. Some typical situations are shown in the illustrations.

Because the front air bags do not protect the occupant in all types of frontal collisions, be sure to always wear your seat belts properly.

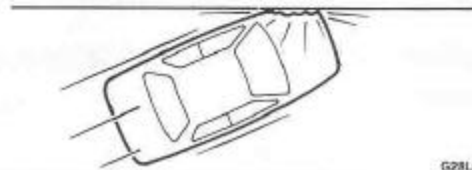
Collision with a utility pole, tree or other narrow object



Collision where the vehicle slides under the rear body of a truck



Oblique frontal impact



G28L0692

1-37

Seat and restraint systems

The front air bags ARE NOT DESIGNED TO DEPLOY in a ...

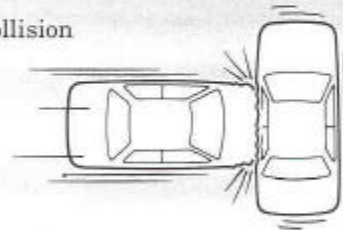
The front air bags are not designed to deploy in situations where they cannot normally provide protection to the occupants. Those situations are shown in the illustrations.

Because the front air bags do not protect the occupants in all types of frontal collisions, be sure to always wear your seat belts properly.

Rear end collision



Side collision



Vehicle rolls onto its side or roof



G28L0702

1-38

The front air bags MAY DEPLOY in a ...

The front air bags may deploy if the underside of the vehicle suffers a moderate to severe impact (undercarriage damage). Some typical situations are shown in the illustrations.

Because the front air bags may deploy in certain types of unexpected impacts, as shown in the illustrations, that could easily move you out of position, it is important to always wear your seat belts properly. Your seat belts will help keep you a safe distance from the steering wheel and instrument panel when the air bag begins to inflate. The beginning stage of air bag inflation is the most forceful and can cause severe or fatal injuries if you come in contact with the air bag at that time.

Collision with an elevated median/island or curb



Vehicle travels over a deep hole/pothole



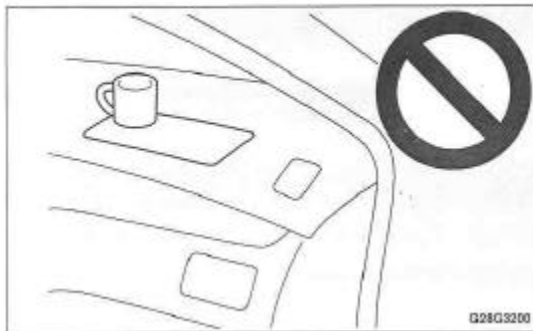
Vehicle drives down a steep slope and hits the ground



G28L0782

1-39

Seat and restraint systems



G28G3200

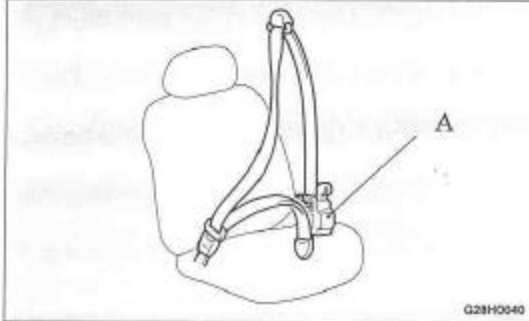
⚠ WARNING

- (1) Do not attach anything to the steering wheel's padded cover, such as trim material, badges, etc. These could strike and injure an occupant if the air bag inflates.
- (2) Do not set anything on, or attach anything to, the instrument panel above the glove compartment. Such items could strike and injure an occupant if the air bag inflates.

⚠ WARNING

- (3) Do not attach accessories to, or put them in front of, the windshield. They could restrict the air bag inflation, or strike and injure an occupant, when the air bag inflates.
- (4) Do not put packages, pets or other objects between the air bags and either the driver or the front passenger. This could affect air bag performance, or could cause severe or even fatal injury when the air bag inflates.
- (5) Right after air bag inflation, several parts of the air bag system will be hot. Do not touch them. You could be burned.
- (6) The air bag system is designed to work only once. After the air bags deploy, they will not work again. They must promptly be replaced and the entire air bag system inspected by an authorized Mitsubishi dealer.

Seat belt pre-tensioner system



The driver's and front passenger's seats are provided with a seat belt pre-tensioner system which actuates simultaneously with the deployment of the front air bags in a moderate-to-severe frontal collision.

In certain moderate-to-severe frontal collisions, the seat belt pre-tensioner retracts the seat belt instantaneously to hold the occupant tightly in the seat, making the seat belt and air bag work more effectively.

The pre-tensioner (A) is inside the seat belt's retractor.

Fasten and use the pre-tensioner seat belt system the same way as conventional unbelted.

When the seat belt pre-tensioner activates, some

smoke is released and a loud noise will be heard. The smoke is not harmful, but care should be taken not to intentionally inhale it, as it may cause some temporary irritation to people with breathing problems.

The pre-tensioner activates whenever a strong impact is applied at the front of the vehicle, even if the seat belt is not worn. The seat belt pre-tensioners may not activate in certain frontal collisions, even though the vehicle may be severely damaged. Such non-activation does not mean that something is wrong with the seat belt pre-tensioner system, but rather that the collision forces were not severe enough to activate it.

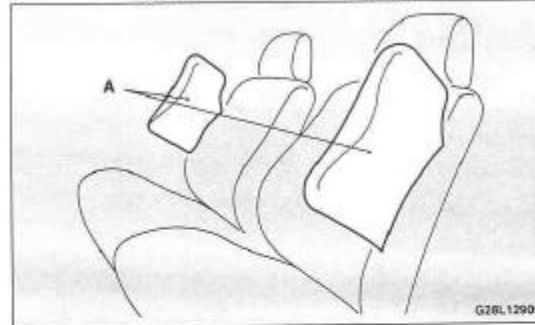
1-41

Seat and restraint systems

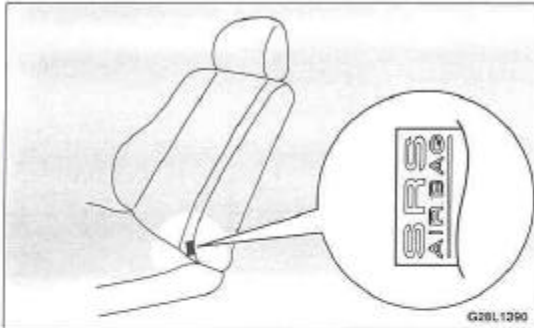
⚠ WARNING

- (1) After the seat belt pre-tensioner activates, several seat belt pre-tensioner system components will be hot. Do not touch the seat belt retractor after activation.
- (2) The seat belt pre-tensioner system is designed to work only once. After the seat belt pre-tensioners have been activated, they will not work again. They must promptly be replaced and the entire seat belt pre-tensioner system inspected by an authorized Mitsubishi dealer.
- (3) If the vehicle is involved in a collision, be sure to have each seat belt system checked and, if necessary, replaced by an authorized Mitsubishi dealer.

Side air bag system (if so equipped)



The side air bags (A) are contained in the driver and front passenger seat backs.



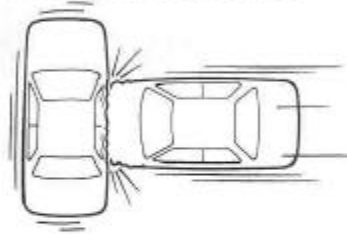
A label is attached to the seat backs in vehicles with side air bags.

The side air bag is designed to inflate only on the side of the vehicle that is hit.

Deployment of side air bags

The side air bag IS DESIGNED TO DEPLOY in a ...

Moderate to severe impact to the middle of the vehicle body's side structure



A side air bag is designed to deploy when the vehicle suffers a moderate to severe side impact to the middle of the passenger compartment. The typical situation is shown in the illustration.

The seat belts in your vehicle are your primary means of protection in a collision. The SRS (Supplemental Restraint System) side air bags are designed to provide additional protection. Therefore, for your safety and the safety of all occupants, be sure to always wear your seat belts properly.

1-43

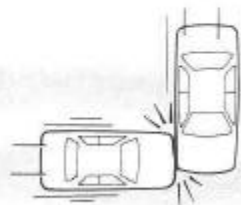
Seat and restraint systems

The side air bag MAY NOT DEPLOY in a ...

With certain types of side collisions, the vehicle's body structure is designed to absorb the impact to help protect the occupants from harm. (The vehicle body's side area may bend significantly as it absorbs the impact.) In these situations, the side air bag may not deploy, even though there may be major damage to the vehicle body. Examples of some typical situations are shown in the illustrations.

Because the side air bags do not protect the occupant in all types of side collisions, be sure to always wear your seat belts properly.

Side impact in an area away from the passenger compartment



Motorcycle or other similar small vehicle collision with the side of vehicle



Collision with a utility pole, tree or other narrow object

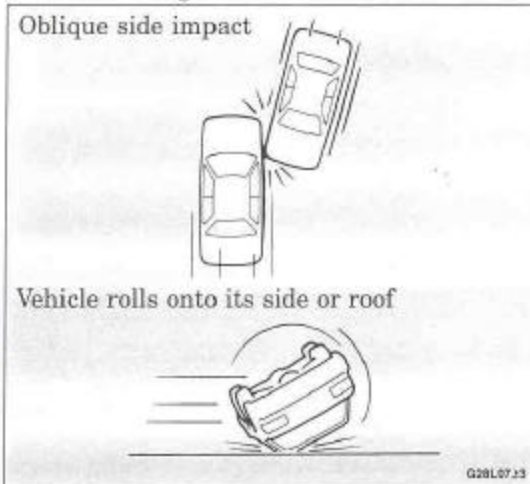


G28L0722

1-44

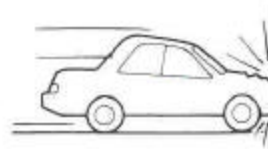
The side air bag **MAY NOT DEPLOY** in an ...

Oblique side impact



The side air bags **ARE NOT DESIGNED TO DEPLOY** in a ...

Head-on collision



Rear end collision



The side air bags are not designed to deploy in situations where they will not provide protection to the occupants. Typical situations are shown in the illustrations.

Because the side air bags do not protect the occupants in all types of collisions, be sure to always wear your seat belts properly.

1-45

Seat and restraint systems

⚠ WARNING

- (1) The side air bags are designed to supplement the driver and front passenger seat belts in certain side impacts. Seat belts should always be worn properly, and the driver and front passenger should sit well back and upright in their seats without leaning against the window or door.



⚠ WARNING

- (2) The side air bag inflates with great force. In order to reduce the risk of serious or possibly fatal injury when the air bag is inflating, the driver and front passenger should not put their arms out the windows or lean against the doors.

⚠ WARNING

- (3) In order to reduce the risk of injury from a deploying side air bag, do not allow any rear seat passengers to hold onto the back of either front seat. Special care should be taken with children.
- (4) Do not place any objects near or around the front of either front seatback. Such objects could interfere with proper side air bag inflation, and could also cause injury if thrown by the deployment of the side air bag.
- (5) Do not place stickers, labels or additional trim on the back of either front seat. It could interfere with proper side air bag inflation.
- (6) Do not install seat covers on seats with side air bags. Do not re-cover the seats that have side air bags. Covers could interfere with proper side air bag inflation.

⚠ WARNING

- (7) Never install a rear-facing child restraint in the front passenger seat. Rear-facing child restraints **MUST ONLY** be used in the rear seat. Forward-facing child restraints should also be used in the rear seat. If a forward-facing child restraint must be used in the front passenger seat, move the seat as far back as possible, and make sure that the child stays in the child restraint and away from the door.

Do not allow the child to lean against or close to the passenger door, even if the child is seated in a child restraint system. The child's head should also not lean against or be close to the section of the seatback where the side air bag is located. It is dangerous if the side air bag inflates. Failure to follow all of these instructions could lead to serious or fatal injury to the child.

1-47

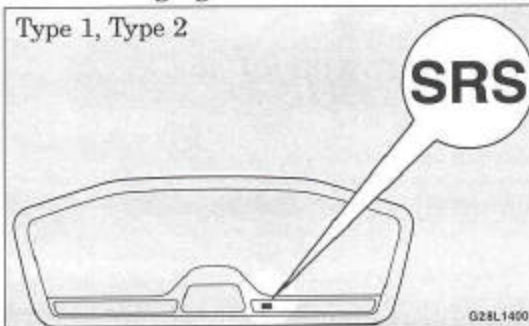
Seat and restraint systems

⚠ WARNING

- (8) Work done around and on the side air bag system components should only be done by an authorized Mitsubishi dealer. Improper work methods could cause an accidental side air bag deployment, or could make a side air bag inoperable. Either of these situations could result in serious injury.

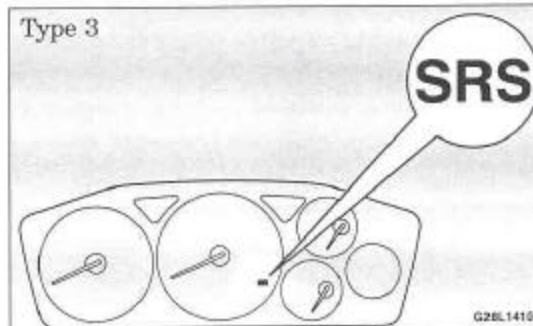
SRS warning light

Type 1, Type 2



G28L1400

Type 3



G28L1410

1-48

There is a Supplemental Restraint System (SRS) warning light on the instrument panel. The system checks itself each time the ignition is turned on and the light indicates if there is a problem.

When the ignition key is turned to the "ON" or "START" position, the warning light should come on for several seconds and then go out. This means the system is working properly. The SRS warning light is shared by the driver's air bag, the front passenger's air bag, the optional side air bags, and the seat belt pre-tensioner.

The air bags will operate only when the ignition switch is in the "ON" or "START" position.

⚠ WARNING

If any of following conditions occur, the SRS is not working properly and you should immediately have it inspected by an authorized Mitsubishi dealer:

- The SRS warning light does not come on when you start the vehicle.
- The SRS warning light does not go out after several seconds.
- The SRS warning light comes on while driving.

SRS servicing

ND10C-06

The entire SRS must be inspected by an authorized Mitsubishi dealer 10 years after the vehicle's manufacture date as shown on the certification label located on the center pillar of the vehicle, on the driver's side.

⚠ WARNING

- (1) Any maintenance performed on or near the components of the SRS should be performed only by an authorized Mitsubishi dealer. Do not permit anyone else to do service, inspection, maintenance or repair on any SRS components or wiring. Similarly, no part of the SRS should ever be handled, removed or disposed by anyone except an authorized Mitsubishi dealer.

Improper work methods on the SRS components or wiring could result in an accidental air bag deployment or could make the SRS inoperable. Either of these situations could result in serious injury.

1-49

Seat and restraint systems

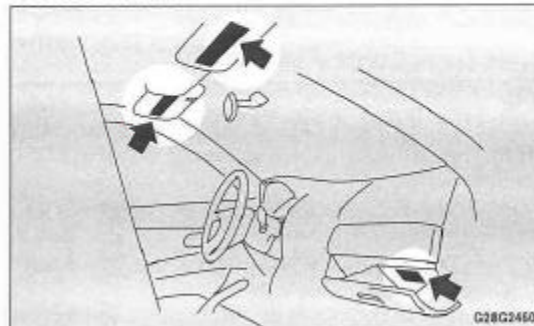
⚠ WARNING

- (2) Do not modify your steering wheel or any other SRS component or related vehicle part. For example, replacement of the steering wheel, or modifications to the front bumper or body structure can negatively affect SRS performance and may lead to possible injury.
- (3) If your vehicle has received any front-end damage, you should have the SRS inspected by an authorized Mitsubishi dealer to make sure it is in proper working order.
- (4) On vehicles with side air bags, do not modify your front seats, center pillar or center console. Such modifications can adversely affect SRS performance and may lead to possible injury. Also, if you discover any tear or open seam in the seat fabric near the side air bag, have the seat inspected by an authorized Mitsubishi dealer.
- (5) On vehicles with side air bags, if your vehicle has received any damage on either side, you should have the SRS inspected by an authorized Mitsubishi dealer to make sure it is in proper working order.

NOTE

- (1) When you transfer ownership of the vehicle to another person, we urge you to alert the new owner that it is equipped with the SRS and refer that owner to the applicable sections in this owner's manual.
- (2) If you decide to junk or scrap your vehicle, we urge you to first take it to an authorized Mitsubishi dealer so that the SRS can be made safe for disposal.

Caution label



Passenger restraint warning/caution labels for the SRS are located in the vehicle as shown in the illustration.

1-50