

REPORT NUMBER: 214D-MGA-2002-009

**SAFETY COMPLIANCE TESTING FOR FMVSS 214
SIDE IMPACT PROTECTION
INDICANT**

Toyota Motor Corporation
2002 Toyota Prius Hybrid 4 door
NHTSA NUMBER: C25105

**PREPARED BY:
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April 3, 2002

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW, ROOM 6111 (NSA-30)
WASHINGTON, D.C. 20590**

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-97-C-11033.

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COTR, Side Impact

Date of Acceptance

Technical Report Documentation Page

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16. Abstract A 55/28 km/h 90° Moving Deformable Barrier INDICANT Compliance Test was conducted on the 2002 Toyota Prius Hybrid 4 door in accordance with the specifications of the Office of Vehicle Safety Compliance Laboratory Test Procedure No. TP-214D-06 Side Impact Protection (except the test was conducted 8 km/h (5 mph) faster than the standard specifies) for determination of FMVSS No. 214 Side Impact Protection. The test was conducted at MGA Research Corporation, in Burlington Wisconsin on April 3, 2002. The impact velocity of the Moving Deformable Barrier (MDB) was 61.6 km/h, and the ambient temperature at the struck side (driver's) of the vehicle was 20.0° C. The target vehicle's maximum post test static crush was 309 mm at level 2. The test vehicle's occupant performance is as follows: <table style="margin-left: auto; margin-right: auto; border: none;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>DRIVER</u></th> <th style="text-align: center;"><u>PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td style="text-align: center;">90</td> <td style="text-align: center;">65</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">83</td> <td style="text-align: center;">83</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td style="text-align: center;">81</td> <td style="text-align: center;">82</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">85</td> <td style="text-align: center;">83</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">86</td> <td style="text-align: center;">103</td> </tr> <tr> <td>HIC</td> <td style="text-align: center;">402</td> <td style="text-align: center;">853</td> </tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	90	65	Left Lower Rib (LLR) Accel., g	83	83	Lower Spine (T ₁₂) Accel., g	81	82	Thoracic Trauma Index (TTI)	85	83	Pelvis (PEV) Accel., g	86	103	HIC	402	853
	<u>DRIVER</u>	<u>PASS.</u>																						
Left Upper Rib (LUR) Accel., g	90	65																						
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Pelvis (PEV) Accel., g	86	103																						
HIC	402	853																						
17. Key Words Compliance Testing FMVSS 214D Side Impact Protection Side Impact Dummy (SID) New Car Assessment Program (NCAP)		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, Room 5108 (NAD-52) 400 Seventh Street, S.W. Washington, D.C. 20590																						
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SECTION 1

PURPOSE AND TEST PROCEDURE

1.1 PURPOSE

This side impact test is conducted as part of the FY' 2002 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-97-C-11033. The purpose of this test was to evaluate side impact protection in a 2002 Toyota Prius Hybrid 4 door manufactured by Toyota Motor Corporation.

1.2 TEST PROCEDURE

The side impact test was conducted in accordance with the current National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Compliance (OVSC), Laboratory Test Procedure TP-214D-06, dated July 26, 2001 and the corresponding MGA Research Corporation Test Procedure MGA-NHTSA2 with the exception of the test speed, which was at the NCAP High Speed Lateral Impact level (61.2 km/h, approximately 8 km/h faster than compliance speed). The procedures for receiving, inspection, testing, and reporting of test results are described in the test procedures and are not repeated in this report.

MGA does not endorse or certify products. The manufacturer's name appears solely for identification purposes.

SECTION 2

SUMMARY OF SIDE IMPACT TEST

2.1 SUMMARY OF SIDE IMPACT TEST

A model year 2002 Toyota Prius Hybrid 4 door was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.6 km/h. The specified impact velocity range is from 61.1 to 62.7 km/h. The test (target) vehicle was stationary and positioned 63° to the line of forward motion. The weight of the vehicle as tested was 1442.4 kg and the test weight of the MDB was 1362.0 kg. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on April 3, 2002.

One (1) real-time motion picture camera and nine (9) high-speed motion picture cameras were used to document the impact event. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information are documented in the data sheets. Pre- and post-test photographs of the vehicle and Side Impact Dummies (SIDs) can be found in Appendix A. Two 50th percentile adult male SID's were placed in the driver and left rear passenger designated seating positions according to instructions specified in the OVSC Laboratory Test Procedure dated July 26, 2001. Each SID was instrumented with fourteen (14) accelerometers in the following locations:

- Left Upper Rib (LUR) uni-axial accelerometer (Y-axis primary and redundant)
- Left Lower Rib (LLR) uni-axial accelerometer (Y-axis primary and redundant)
- Lower Thoracic Spine (T12) uni-axial accelerometer (Y-axis primary and redundant)
- Pelvic (PEV) section uni-axial accelerometer (Y-axis primary and redundant)
- Head Center of Gravity (CG) tri-axial accelerometers (X, Y and Z axes primary and redundant).

The test vehicle was instrumented with twenty (20) structural accelerometers and the MDB was instrumented with five (5) accelerometers and two (2) contact switches on the bumper to compare left side to right side bumper impact timing. All data channels were recorded with a fully self contained on-board EME Data Acquisition System. The data was digitally sampled at 10,000 samples per second and processed per Appendix V of the Test Procedure.

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 309 mm at level 2, 1200 mm rearward of the left vertical impact point. The driver and passenger SID's, Serial Nos. 37 and 36 respectively, were calibrated just prior to this test. The SID's injury criteria is summarized as follows:

Measurements	Units	Driver	Passenger
Thoracic Trauma Index (TTI)	G's	85	83
Peak Pelvic G's (PEV)	G's	86	103
Head Injury Criteria (HIC)	none	402	853

Test summaries and post-test observations are presented in Section 3. The vehicle, camera, and occupant measurements are presented in Section 4. Appendix A contains the still photograph prints. Appendix B contains the driver and passenger SID's, vehicle, and MDB response data traces. Appendix C contains the SID's configuration and performance verification data. Appendix D contains the test equipment information.

TEST NOTES

The following accelerometers were not used for this test:

Left Front Door on Centerline
Midrear of Left Front Door
Left Front Door Upper Centerline
Midrear of Left Rear door
Left Rear Door Upper Centerline
Rear Seat Track

SECTION 3

SIDE IMPACT DUMMY (SID) AND VEHICLE TEST DATA

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
Test Date: 4/3/02

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	lb ^f /in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	$=(t_f - 32)/1.8$
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

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02

TEST VEHICLE INFORMATION

Make	Toyota
Model	Prius
Body Style	4 Door
NHTSA No.	C25105
VIN	JT2BK12U420042224
Color	white
Delivery Date	March 25, 2002
Odometer Reading (mile)	48
Dealer	Frank Gentile
Transmission	automatic
Final Drive	front
Number of Cylinders	4- Hybrid
Engine Displacement (L)	1.5
Engine Placement	lateral

TEST VEHICLE OPTIONS

Front Airbag	yes
Side Airbags	no
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	Toyota Motor Corporation
Date of Manufacture	9/01

GVWR (kg)	1639.8
GAWR Front (kg)	893.6
GAWR Rear (kg)	818.7

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	240	230
Cold / Test Pressure (kPa)	240	230
Recommended Tire Size	P175/65R14	P175/65R14
Tire Size on Vehicle	P175/65R14	P175/65R14
Tire Manufacturer	Bridgestone	Bridgestone

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Contour	none	
Number Of Occupants x 68.04 kg.	2	3	0	340.2
Capacity Wt. (VCW) (kg)				363.0
Cargo Wt. (RCLW) (kg)				22.8

DATA SHEET NO. 1... (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
Test Date: 4/3/02

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	394.6	259.0		440.9	333.8	
Right	kg	364.7	244.5		377.8	289.9	
Ratio	%	60.1	39.9		56.8	43.2	
Totals	kg	759.3	503.5	1262.8	818.7	623.7	1442.4

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1262.8
Weight of 2 P572E ATDs	kg	161.5
Rated Cargo/Luggage Weight (RCLW)	kg	22.8
Calculated Vehicle Target Weight (TVTW)	kg	1447.1

- Actual As Tested Weight (ATW) will be TVTW -5/-10 kg

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	652	651	629	637	1017
As Tested	mm	636	645	595	609	1103
Fully Loaded	mm	635	644	589	608	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2550
Total Vehicle Length at Left Side	mm	3648
Total Vehicle Length at Centerline	mm	4275
Total Vehicle Length at Right Side	mm	3648
Total Vehicle Width	mm	1700
Weight of Ballast in Cargo Area	kg	0
Amount of Stoddard Solvent in Fuel Tank	liters	41.6

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2550
Target Impact Point Aft of Front Axle	mm	335
Actual Impact Point Aft of Front Axle	mm	305

DATA SHEET NO. 1...(continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
Test Program: FMVSS 214 Indicant Side Impact

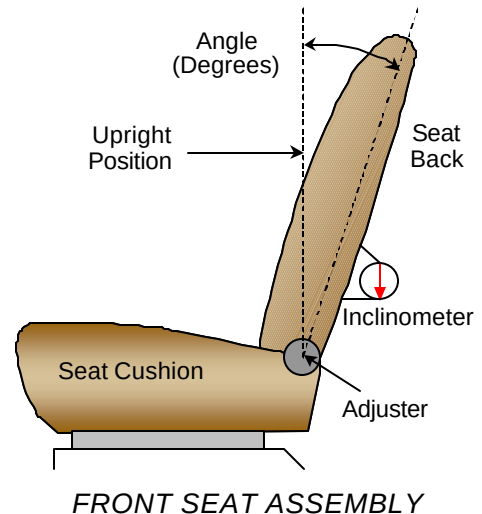
NHTSA No. C25105
Test Date: 4/3/02

NORMAL DESIGN RIDING POSITION

The driver seat is positioned to the manufacturer's designated angle. Recline to the sixth notch from the most upright position (foremost is 1) move rearward 5 notches. Headrest angle 87.0°

Driver seat back angle: 85.7°

Passenger seat back angle: Non-adjustable



SEAT FORE/AFT POSITIONS

The driver's seat is manually operated and the rear passenger seat has no adjustments. The fore/aft is set to the middle position for the driver's seat. The first detent is numbered "1".

Driver seat fore/aft total travel: 17 notches

Passenger seat fore/aft total travel: Non-adjustable

Driver seat fore/aft position: 9th notch

Passenger seat fore/aft position: Non-adjustable

SEAT BELT UPPER ANCHORAGE

The test vehicle is equipped with adjustable "D" ring anchorage for the driver's seat position. There are 5 positions or detents, with the uppermost position numbered "1". The driver's "D" ring anchorage is placed in position 3 or middle position.

DATA SHEET NO. 1...(continued)

TEST VEHICLE INFORMATION

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
Test Date: 4/3/02

FUEL TANK CAPACITY DATA

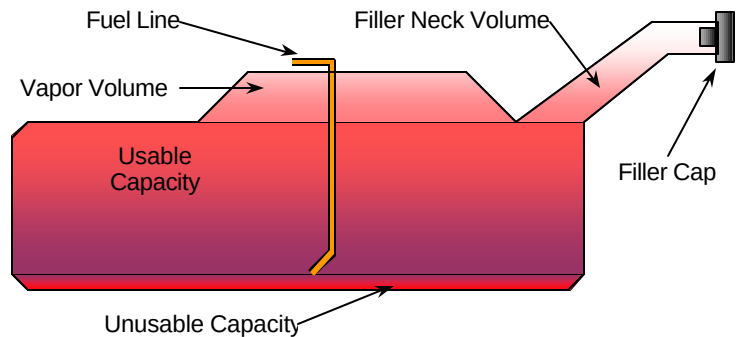
The "Usable Capacity" of the standard equipment fuel tank is: 45.0 liters

The "Usable Capacity" of any optional equipment fuel tank is: N/A liters

92-94% of "Usable Capacity" for certification to FMVSS 301 requirements: 41.4 to 42.3 liters

Actual amount of Stoddard solvent added to vehicle for certification test: 41.6 liters

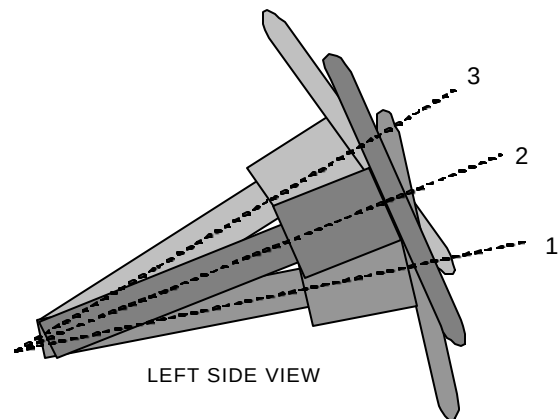
The test vehicle is equipped with an electric fuel pump. The fuel filler door is located on the right rear fender.



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 the locus it describes, when it is moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, and inclinometer is placed onto the plate and the angle is measured.



STEERING COLUMN ASSEMBLY

Lowermost, position 1: 25.8°

Geometric center, position 2: 27.4°

Uppermost, position 3: 29.0°

DATA SHEET NO. 2**TEST VEHICLE SUMMARY OF RESULTS**

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	394.6	259.0		440.9	333.8	
Right	kg	364.7	244.5		377.8	289.9	
Weight Ratio	%	60.1	39.9		56.8	43.2	
Totals	kg	759.3	503.5	1262.8	818.7	623.7	1442.4

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measured Parameter	Units	Maximum Crush	Above Ground
Level 1	Sill Top Height	mm	138	230
Level 2	Occupant H-Point	mm	309	540
Level 3	Mid Door	mm	278	590
Level 4	Window Sill	mm	249	910
Level 5	Window Top	mm	17	1395
N/A	Maximum Penetration	mm	309	540

INSTRUMENTATION

Driver SID Accelerometers	14
Passenger SID Accelerometers	14
Vehicle Structure Accelerometers	20
MDB Accelerometers	5
Total	53

DATA SHEET NO. 3**MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS**

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Face	4115
Wheel base of Framework Carriage	2590
C.G. Location aft of Front Axle	1127

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	395.1	293.8	
Right	kg	385.7	287.4	
Ratio	%	57.3	42.7	
Totals	kg	780.8	581.2	1362.0

SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.6
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.6
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.8

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE

Vertical Location			From Centerline		Max. Crush
Level	Description	Height	Distance	Direction	
1	Center of Bumper (mm)	432	800	Left	192
2	Top of Bumper (mm)	533	800	Left	121
3	Mid Level (mm)	686	800	Left	127
4	Top of Stack (mm)	813	800	Left	151

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	5
Contact Switches	2
High Speed Cameras	2

DATA SHEET NO. 4**POST TEST OBSERVATIONS**

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID	Rear Seat SID
Dummy Type / Serial No.	SID / 037	SID / 036
Head Contact	headrest, left shoulder	c-post, headrest
Upper Torso Contact	rear of door, b-post, window sill	rear of door
Lower Torso Contact	armrest	armrest
Left Knee Contact	lower door	lower door
Right Knee Contact	left knee	left knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Door Opening	remained latched	remained latched
Right Side Door Opening	remained latched	remained latched
Seat Movement	none	none
Seat Back Failure	none	none

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	no separation
Sill Separation	none
Windshield Damage	none
Window Damage	left front and left rear
Other Notable Effects	trunk lid opened during event

AIRBAG DEPLOYMENT

	Driver	Front Passenger	Rear Passenger
Front	yes	yes	none
Side	none	none	none

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	30 forward
Vertical Offset	mm	+/-20	2 up

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5

SID INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02

THORAX AND PELVIS PEAK ACCELERATIONS (FIR 100 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Upper Rib (LUR)	Y	G's	89.7	35	28.1	68	64.6	36	5.6	42
Upper Rib (LUR) (R)	Y	G's	87.0	35	25.9	68	64.9	36	4.5	42
Lower Rib (LLR)	Y	G's	83.2	33	21.0	68	83.0	36	5.0	42
Lower Rib (LLR) (R)	Y	G's	79.5	33	19.0	68	83.8	36	6.4	42
Lower Spine (T ₁₂)	Y	G's	80.7	36	12.0	82	82.3	41	18.7	61
Lower Spine (T ₁₂) (R)	Y	G's	79.9	36	12.5	64	82.9	41	17.9	61
Pelvis (PEV)	Y	G's	85.5	30	13.8	53	102.8	37	11.9	50
Pelvis (PEV) (R)	Y	G's	86.4	30	13.7	53	103.1	37	10.7	57

THORACIC TRAUMA INDEX (TTI) AND PELVIC ACCELERATION (FIR 100 Filtered)

Location	Driver				Passenger			
	LUR	T ₁₂	TTI(g)	PEV(g)	LLR	T ₁₂	TTI(g)	PEV(g)
Rib, Spine, and Pelvis	89.7	80.7	85	85.5	83.0	82.3	83	102.8
Rib, Spine, and Pelvis (R)	87.0	79.9	83	86.4	83.8	82.9	83	103.1

HEAD CG PEAK ACCELERATIONS (SAE CLASS 1000 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	8.7	40	23.8	75	15.2	91	29.6	49
Head CG	Y	G's	36.5	46	10.2	62	94.8	54	26.0	67
Head CG	Z	G's	65.1	59	13.4	44	59.8	49	59.1	57
Head CG Resultant		G's	66.4	59			105.7	54		

HEAD INJURY CRITERIA (SAE CLASS 1000 Filtered)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G's	HIC	T ¹	T ²	Avg G's
Head CG	402	43.8	79.8	41.6	853	46.1	59.9	82.5

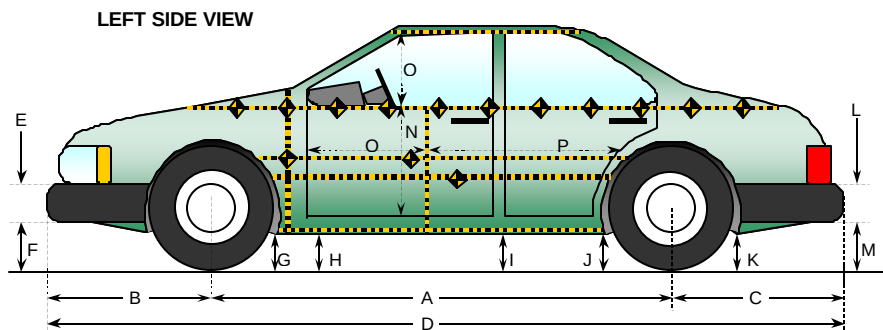
Positive Acceleration Polarities: Longitudinal (X) = Forward
 (Conforms to SAE J211) Lateral (Y) = Right
 Vertical (Z) = Down

DATA SHEET NO. 6

VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02



All Measurements in mm

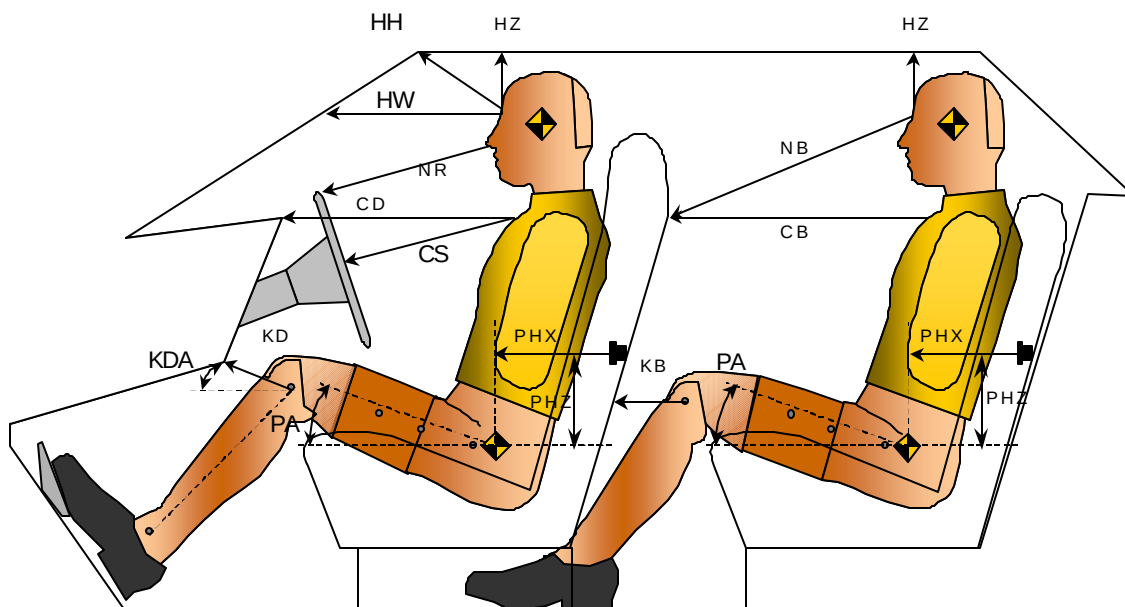
Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2550	2562	-12
B	Front Axle to FSOV	795	785	10
C	Rear Axle to RSOV	930	934	-4
D	Total Length at Centerline	4275	4281	-6
E	Front Bumper Thickness	100	100	0
F	Front Bumper Bottom to Ground	410	403	7
G	Sill Height at Front Wheel Well	156	164	-8
H	Sill Height at Front Door Leading Edge	150	162	-12
I	Sill Height at "B" Pillar	152	190	-38
J1	Sill Height at Rear Wheel Well	141	175	-34
J2	Pinch Weld Height at Rear Wheel Well	147	190	-43
K	Sill Height Aft of Rear Wheel Well	205	211	-6
L	Rear Bumper Thickness	192	192	0
M	Rear Bumper Bottom to Ground	370	390	-20
N	Sill Height to Window Bottom Sill	710	610	100
O	Front Door Leading Edge to Impact CL	783	756	27
P	Rear Door Trailing Edge to Impact CL	1196	1125	71
Q	Front Window Opening	441	431	10
R	Right Side Length	3648	3630	18
S	Left Side Length	3648	3606	42
T	Vehicle Width at "B" Post	1700	1435	265

DATA SHEET NO. 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02

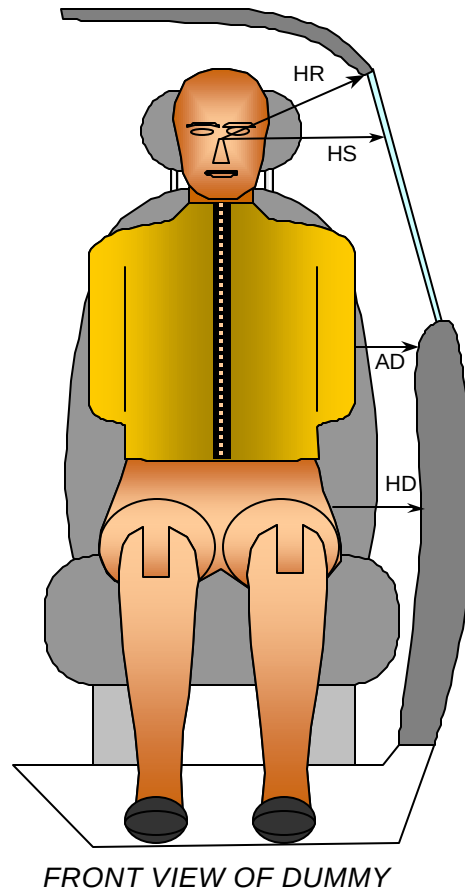


Driver Code	Pass. Code	Measurement Description	Driver 37		Passenger 36	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	404			
HW		Head to Windshield	605			
HZ	HZ	Head to Roof	160		130	
NR	NB	Nose to Rim/Nose to Seatback	471		609	
CD	CB	Chest to Dash or Seatback	621		548	
CS		Chest to Steering Wheel	355			
KDL	KBL	Left Knee to Dash or Seatback	150	0	234	0
KDR	KBR	Right Knee to Dash or Seatback	142	0	247	0
PA	PA	Pelvic Angle		24.4		23.7
PHX	PHX	H-Point to Striker (X-Axis)	191		307	
PHZ	PHZ	H-Point to Striker (Z-Axis)	118		267	

DATA SHEET NO. 8
SID LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02



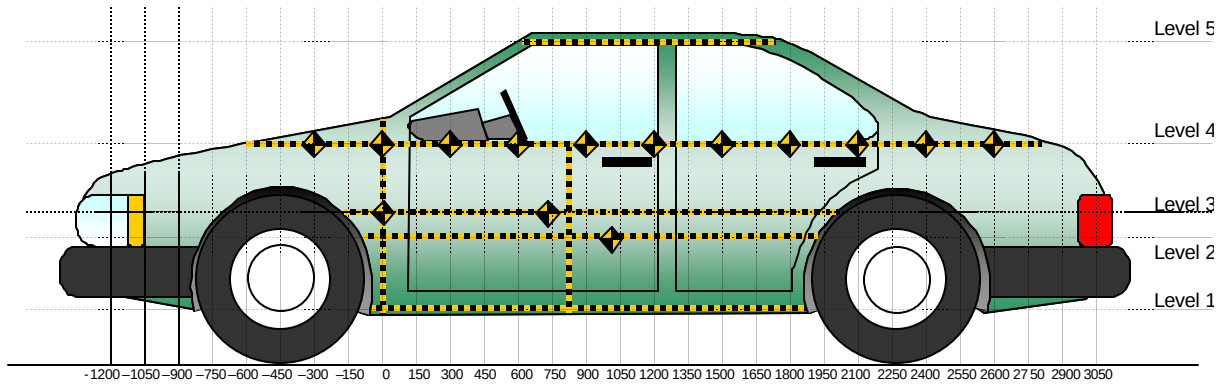
FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver 37	Passenger 36
HR	Head to Side Header	mm	218	206
HS	Head to Side Window	mm	304	315
AD	Arm to Door	mm	89	80
HD	H-Point to Door	mm	141	163

DATA SHEET NO. 9 **VEHICLE SIDE MEASUREMENTS**

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02



All Measurements Shown in mm

LEFT SIDE VIEW

Measurements are taken with vehicle in the as tested condition.
 Measurements along the vertical 800 mm.
 All measurements below in mm.

Level	Measurement Description	Height Above Ground
5	Window	1395
4	Window Sill	910
3	Mid Door	590
2	Occupant H-Point	540
1	Sill Top	230

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1050															
-900															
-750			315					317					2		
-600			274	347				275	350				1	3	
-450				324					330					6	
-300				311					322					11	
-150			254	306				323	325				69	19	
0		253	253	305			375	347	341			122	94	36	
150	298	253	253	305		327	454	448	378		29	201	195	73	
300	300	253	253	303		359	500	474	428		59	247	221	125	
450	302	252	252	303		377	511	494	472		75	259	242	169	
600	303	251	251	303	502	393	522	497	480	505	90	271	246	177	3
750	304	250	250	302	485	410	538	512	494	489	106	288	262	192	4
900	303	250	249	302	480	426	548	522	506	490	123	298	273	204	10
1050	303	248	248	303	480	439	548	525	523	496	136	300	277	220	16
1200	304	249	248	306	480	442	558	526	555	497	138	309	278	249	17
1350	304	249	248	308	481	426	548	523	547	498	122	299	275	239	17
1500	303	249	248	309	483	400	534	519	543	498	97	285	271	234	15
1650	299	249	248	314	485	365	495	487	489	495	66	246	239	175	10
1800	297	249	248	316	490	326	446	454	421	497	29	197	206	105	7
1950		249	249	322	506		321	356	360	505		72	107	38	-1
2100			249	326				300	320				51	-6	
2250			250	333				281	350				31	17	
2400		254	257	342			270	275	355			16	18	13	
2550		266	266	350			275	275	360			9	9	10	
2700		279	279	364			284	281	369			5	2	5	
2850				382					372					-10	
3000															
3150															
3300															

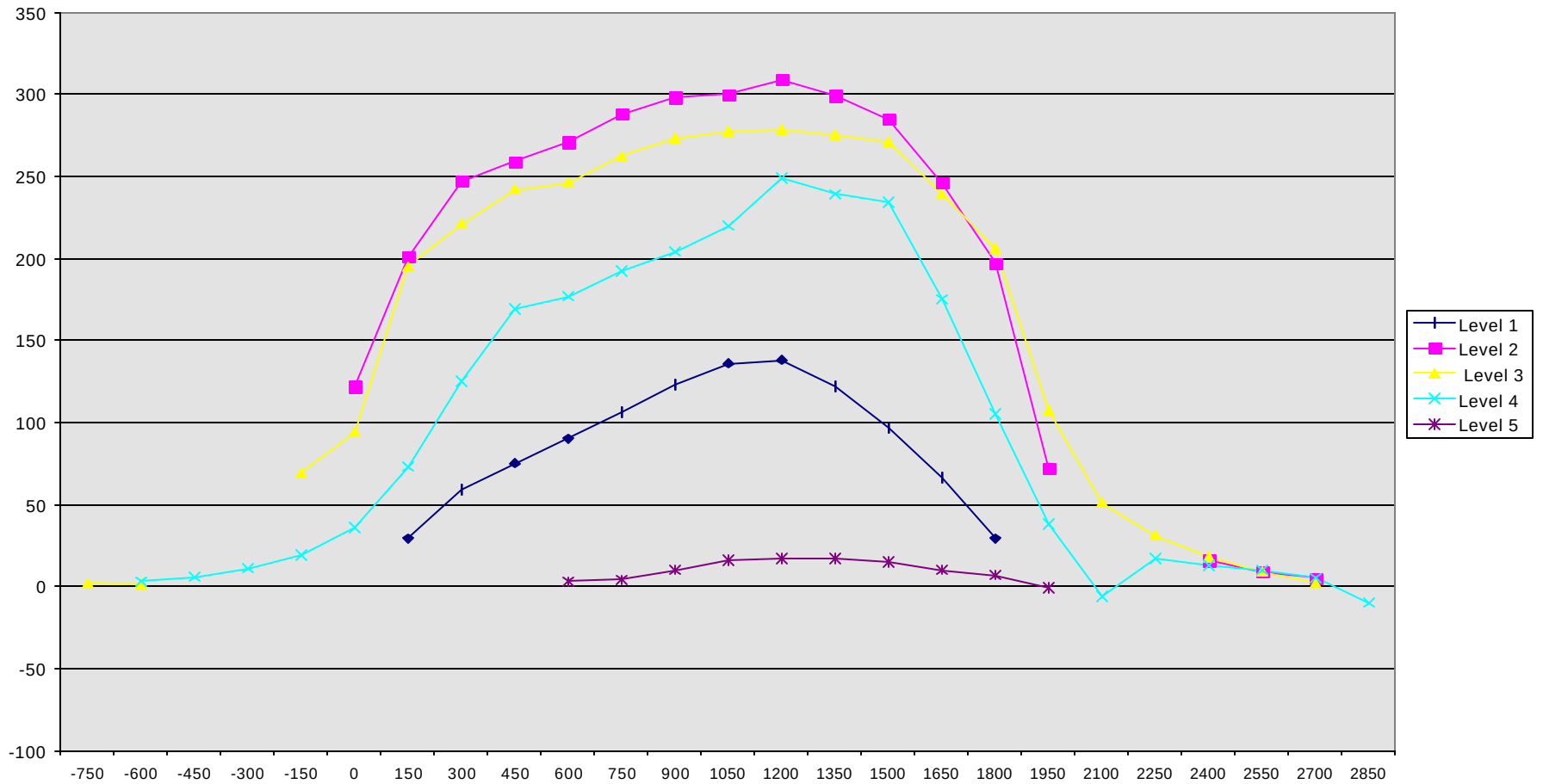
Reference plane is parallel to test vehicle longitudinal centerline.

Given dimensions = Reference plane to car body

DATA SHEET NO. 10...(continued)
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
Test Date: 4/3/02

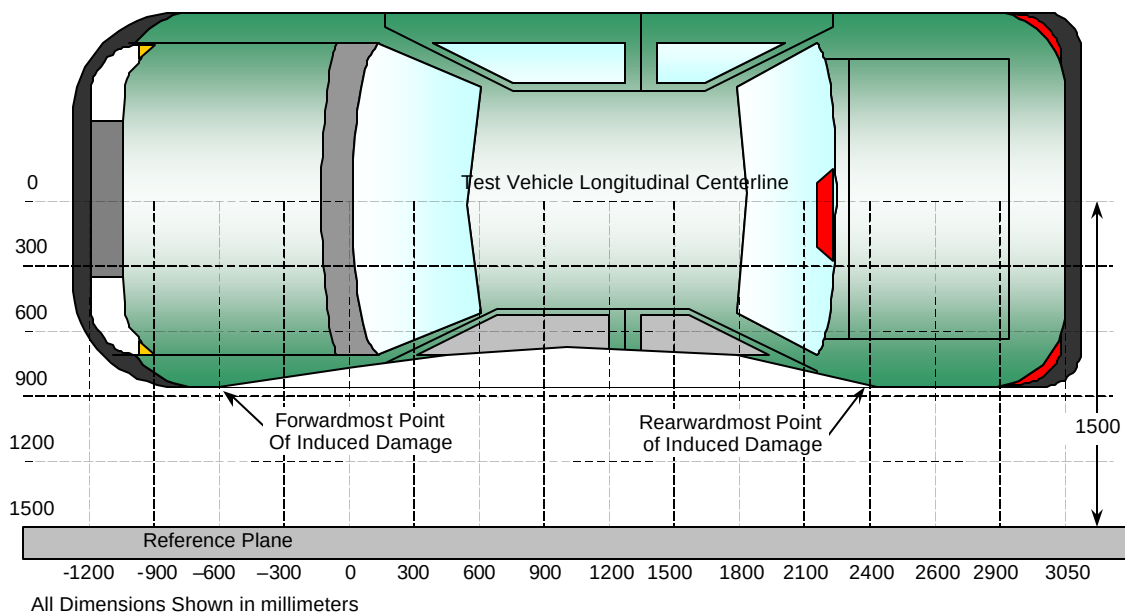


DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02



TOP VIEW

Damage Profile Distances

DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	2700 mm	3	279	281	2
2	2040 mm	3	249	319	70
3	1304 mm	2	249	547	298
4	678 mm	2	250	529	279
5	60 mm	2	253	379	126
6	-600 mm	3	274	275	1

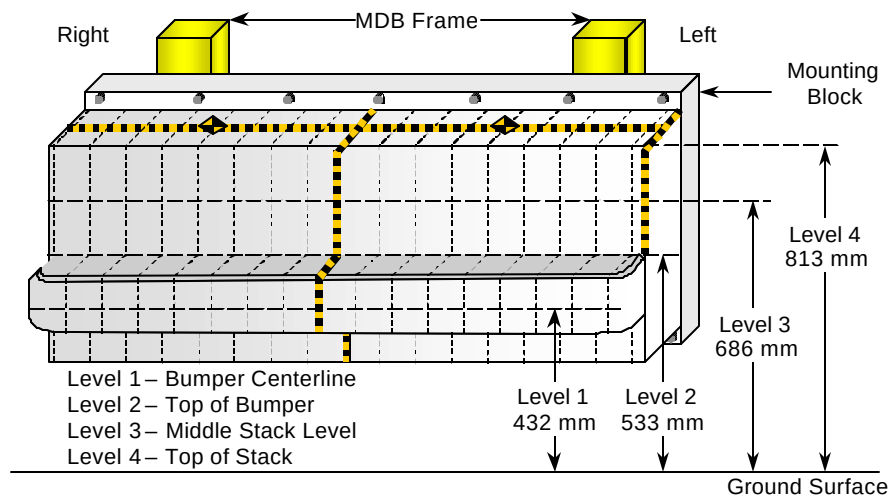
Reference plane is parallel to test vehicle longitudinal centerline.
 Given dimensions = Reference plane to car body.

DATA SHEET NO. 12

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02



DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								C _L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	135	110	93	81	79	88	88	89	88	93	97	102	103	114	132	167	192
2	61	38	28	26	27	32	34	36	38	33	49	55	59	65	73	94	121
3	73	42	14	17	5	5	11	14	12	14	15	17	20	23	39	61	127
4	88	38	10	2	1	1	8	21	18	21	22	26	30	35	59	99	151

All Dimensions in mm

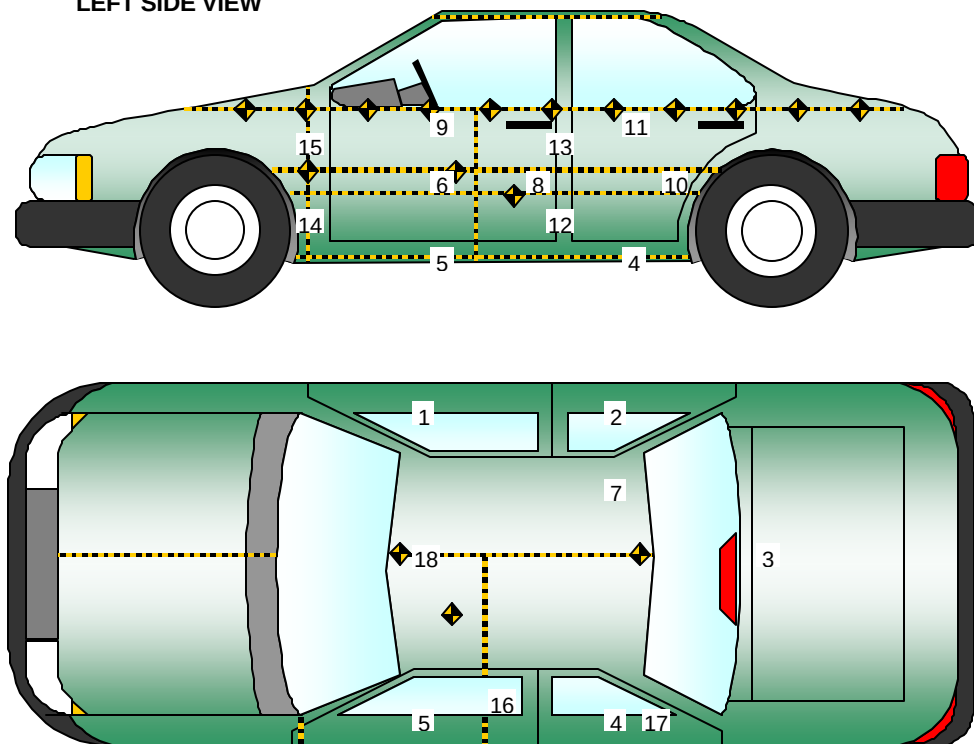
DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02

LEFT SIDE VIEW



No.	Location
1	Right Sill at Front Seat
2	Right Sill at Rear Seat
3	Rear Floorpan Above Axle
4	Left Sill at Rear Door
5	Left Sill at Front Door
6	Left Front Door Centerline
7	Right Rear Occupant Compartment
8	Left Front Door Mid-Rear
9	Left Front Door Upper Centerline

No.	Location
10	Left Rear Door Mid-Rear
11	Left Rear Door Upper Centerline
12	Left Lower B-Post
13	Left Middle B-Post
14	Left Lower A-Post
15	Left Middle A-Post
16	Front Seat Track
17	Rear Seat Track or Structure
18	Vehicle CG

DATA SHEET NO. 13...(continued)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02

VEHICLE ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

Loc. No.	Accelerometer Location	Measurements (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	Right Sill at Front Seat	2491	680	-193	X	3.7	63	7.1	10
					Y	27.2	6	2.8	82
					Z	4.2	71	9.3	9
					RES	27.9	7		
2	Right Sill at Rear Seat	1398	675	-228	X	4.1	64	5.8	11
					Y	26.6	7	3.9	83
					Z	5.4	30	8.6	18
					RES	26.7	7		
3	Rear Floorpan Above Axle	750	0	-280	X	*	*	*	*
					Y**	32.8	12	2.4	5
					Z	13.7	10	13.1	16
					RES	*	*		
4	Left Sill at Rear Door	1382	-675	-216	Y	50.7	6	6.6	2
5	Left Sill at Front Door	480	-680	-191	Y	32.8	4	4.8	53
7	Rear Occupant Compartment	1697	290	-431	Y	28.2	6	1.9	83
12	B-Post Lower	1931	-650	-281	Y	51.7	4	16.5	43
13	B-Post Middle	1954	-662	-917	Y	184.7	5	70.6	14
14	A-Post Lower	2974	-640	-278	Y	32.3	10	1.7	79
15	A-Post Middle	3055	-710	-984	Y	27.6	12	0.4	117
16	Front Seat Track	2166	-570	-561	Y	54.2	5	16.9	53
18	Vehicle CG	2441	0	-280	X	6.8	20	12.1	26
					Y	29.7	21	1.9	58
					Z	15.8	30	14.5	15
					RES	32.5	21		

Reference Points X - Test Vehicle Rear Bumper (+ forward)
 Y - Test Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

* = No valid data collected

** = No valid data after 23 msec.

DATA SHEET NO. 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

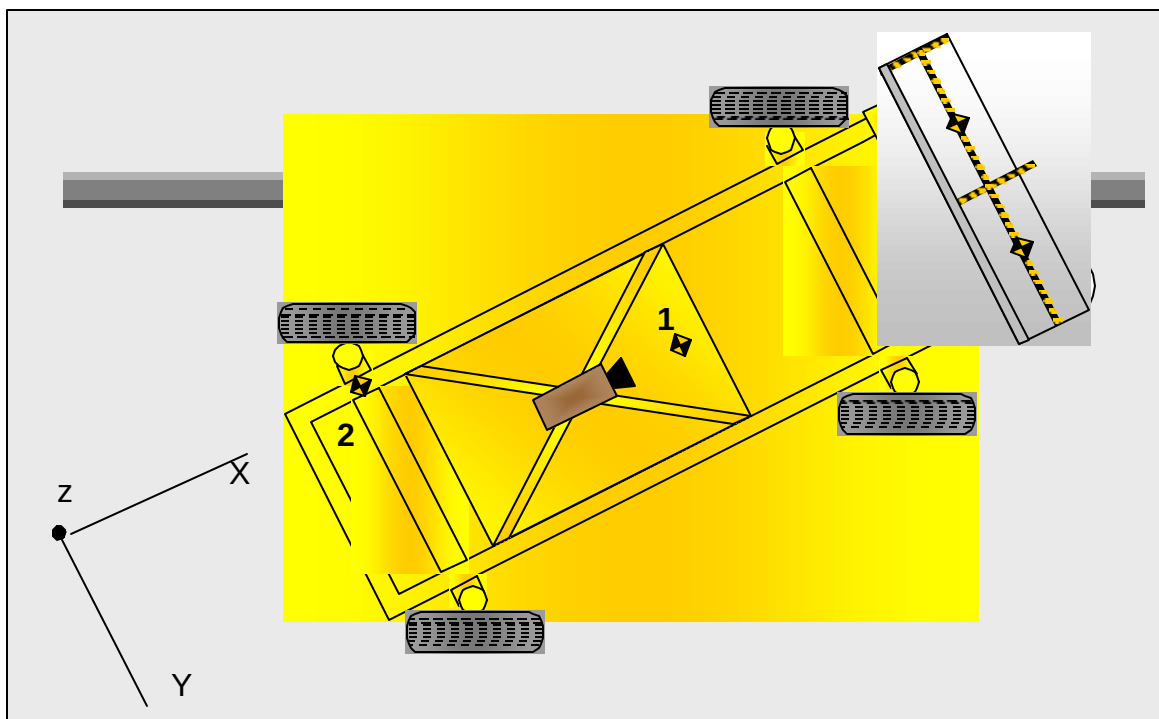
Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02

MDB ACCELEROMETER PEAK DATA AND LOCATIONS

Loc. No.	Accelerometer Location	Measurement (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	MDB CG	-1092	0	-483	X	1.5	120	18.1	32
					Y	1.6	61	6.2	45
					Z	17.1	59	14.2	64
					RES	21.4	43		
2	MDB Rear	-2591	-625	-622	X	1.4	105	20.3	32
					Y	5.6	29	1.2	66

Reference Points X - MDB Front Axle (+ forward)
 Y - MDB Centerline (+ to right)
 Z - Ground Plane (+ down)

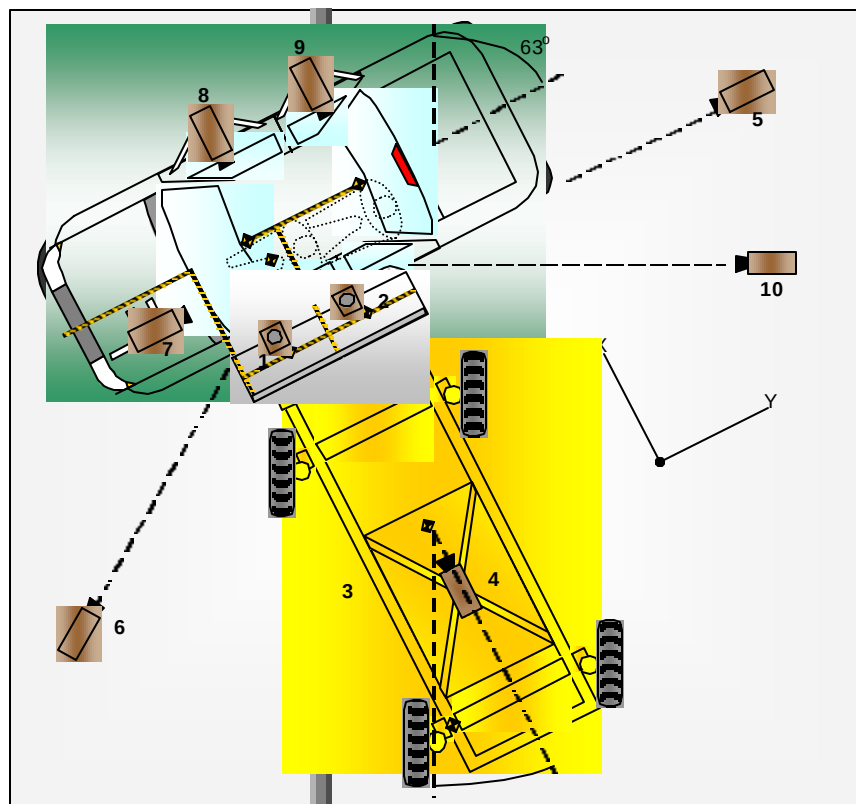


DATA SHEET NO. 15

HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
 Test Date: 4/3/02



No.	Camera View	Location (mm)			Lens (mm)	Film Speed (fps)
		X	Y	Z		
1	Overhead Overall	490	-760	-4950	8	1053
2	Overhead Close-up	-1440	0	-4950	13	1026
3	MDB Onboard, Impact Point Close-up				13	1042
4	MDB Onboard, Centerline of Impact				13	1020
5	Right Side, Ground Level, Overall	4721	-8850	-1835	25	833
6	Left Side, Ground Level, Overall	-1850	1780	-1720	13	943
7	Vehicle Onboard Front SID, Front				13	505
8	Vehicle Onboard Front SID, Side				13	505
9	Vehicle Onboard Rear SID, Side				13	503
10	Real Time Coverage					

Reference Points X - Impact Line
 Y - MDB Left Edge Impact Point
 Z - Ground Plane

DATA SHEET NO. 16

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
Test Program: FMVSS 214 Indicant Side Impact

NHTSA No. C25105
Test Date: 4/3/02

Test Time: 12:33 pm

Temperature at Time of Impact: 20.0°C

Stoddard Solvent Spillage Measurements

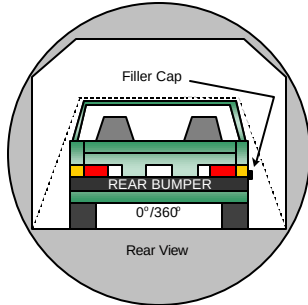
- A. From impact until vehicle motion ceases: 0 oz.
(Maximum Allowable = 1 ounce)
- B. For the 5 minute period after motion ceases: 0 oz.
(Maximum allowable = 5 ounces)
- C. For the following 25 minutes: 0 oz.
(Maximum allowable = 1 oz./minute)
- D. Spillage Details: None

DATA SHEET NO. 17

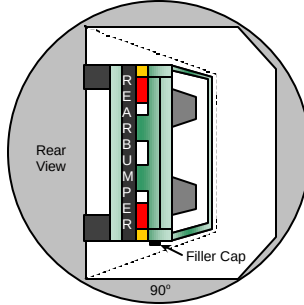
FMVSS 301 STATIC ROLLOVER DATA SHEET

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
 Test Program: FMVSS 214 Indicant Side Impact

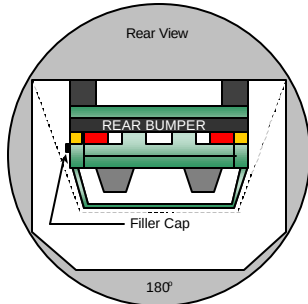
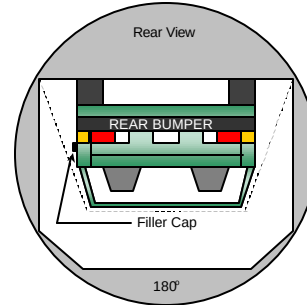
NHTSA No. C25105
 Test Date: 4/3/02



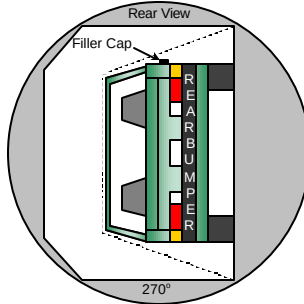
0° to 90°



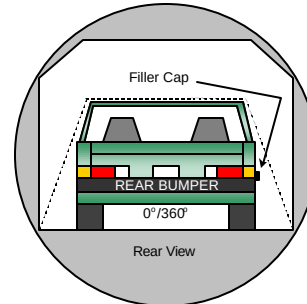
90° to 180°



180° to 270°



270° to 360°



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

Rollover Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° to 90°	164	300	0
90° to 180°	145	300	0
180° to 270°	149	300	0
270° to 360°	169	300	0

APPENDIX A
PHOTOGRAPHS

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Pre-Test Front View of Test Vehicle



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 Rear Three-Quarter View of Test Vehicle



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



Post-Test Right Rear Three-Quarter 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 MDB Positioned Against Vehicle (left side)



Pre-Test MDB Positioned Against Vehicle (right side)



Pre-Test MDB Positioned Against Vehicle Overhead View



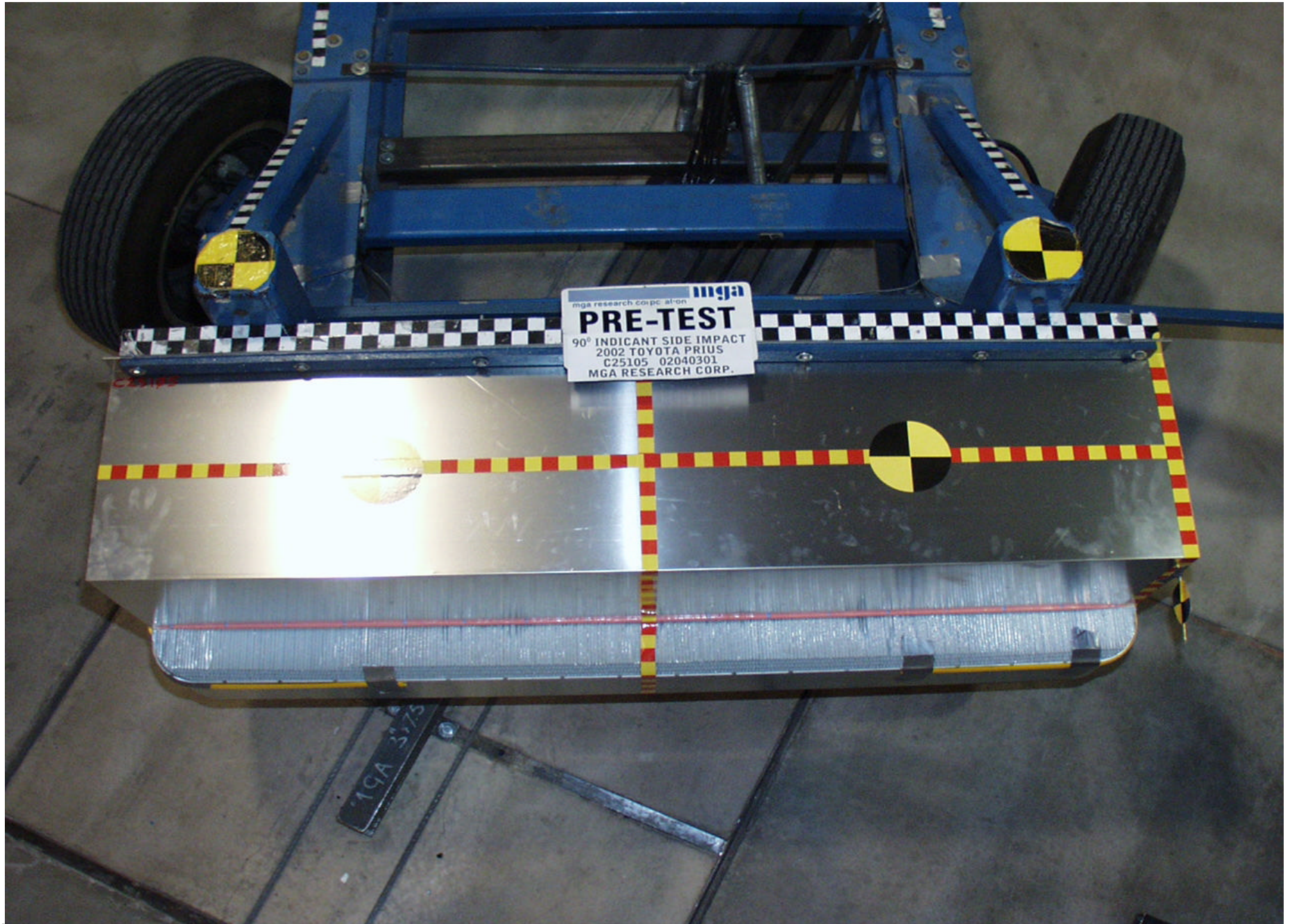
Post-Test MDB and Vehicle (left side)



Post-Test MDB and Vehicle (right side)



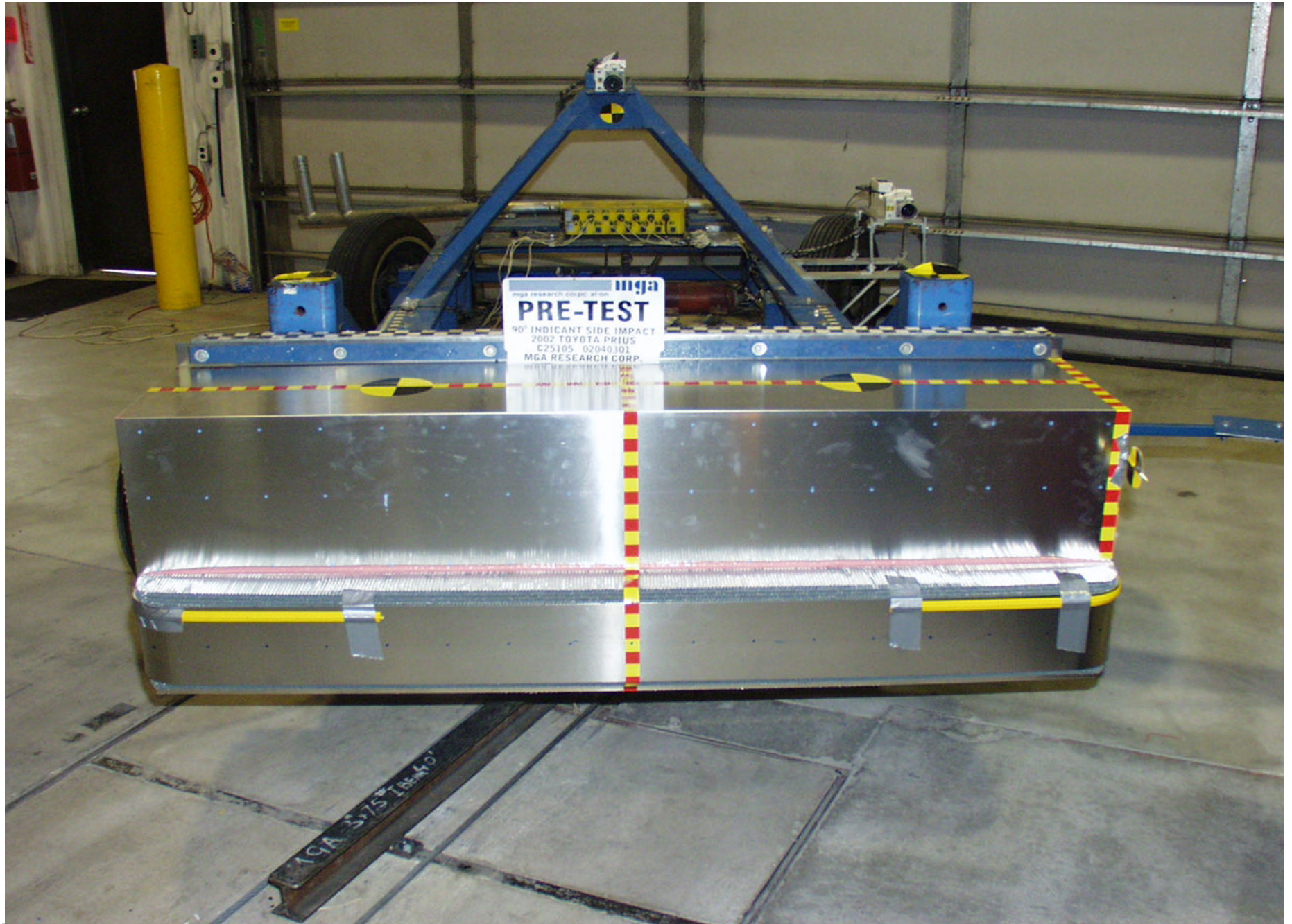
Post-Test MDB and Vehicle Overhead View



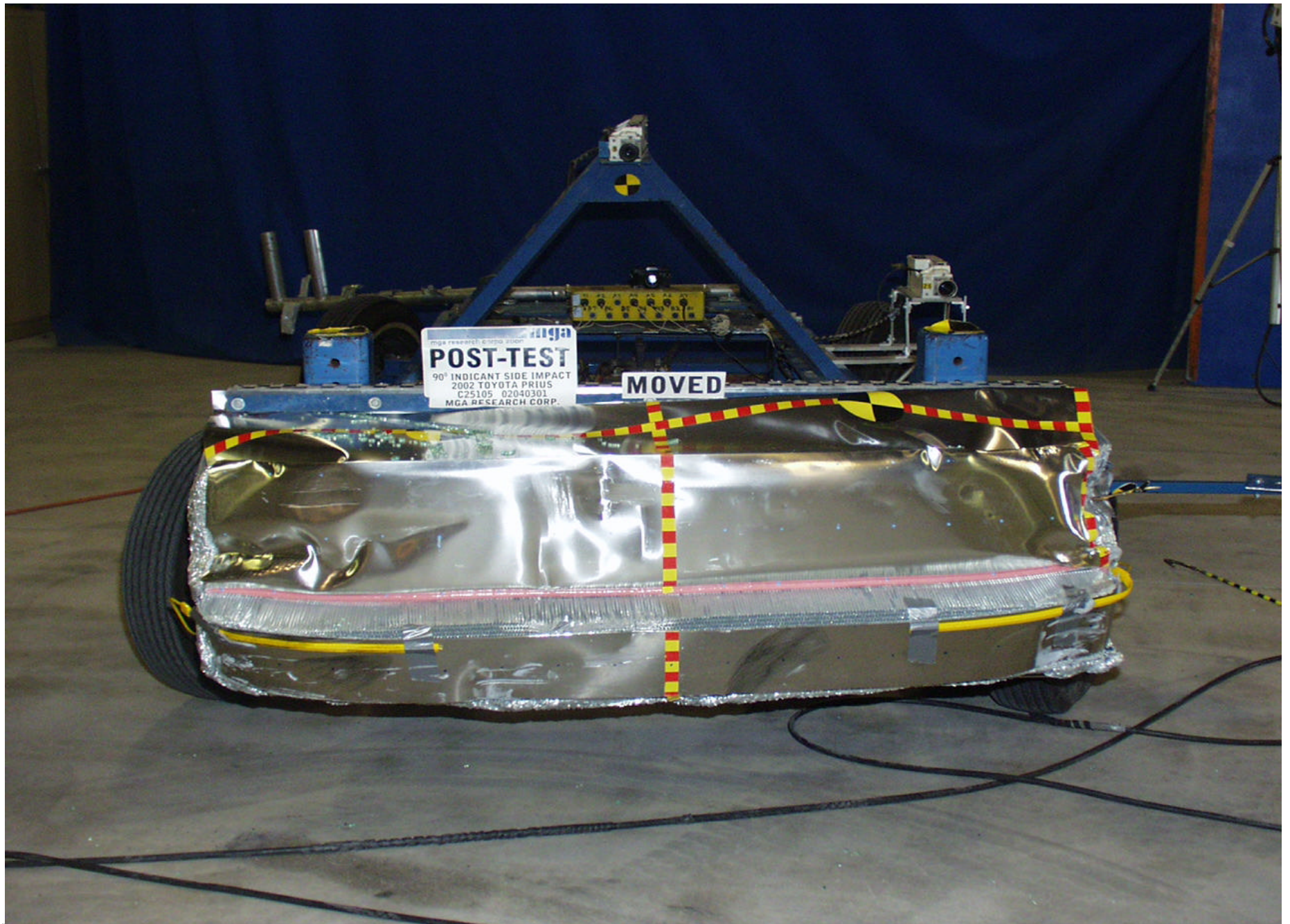
Pre-Test MDB Top View



Post-Test MDB Top View



Pre-Test MDB Front View



Post-Test MDB Front View



Pre-Test MDB Right Side View



Post-Test MDB Right Side View



Pre-Test MDB Left Side View



Post-Test MDB Left Side View



Pre-Test Driver Dummy Right Side View



Post-Test Driver Dummy Right Side View



Pre-Test Driver Dummy Left Side View



Post-Test Driver Dummy Left Side View



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



Pre-Test Driver Dummy Shoulder and Door Top View



Post-Test Driver Dummy Shoulder and Door Top View



Post-Test Driver Dummy Contact



Post-Test Driver Dummy Contact



Post-Test Driver Dummy Head Contact



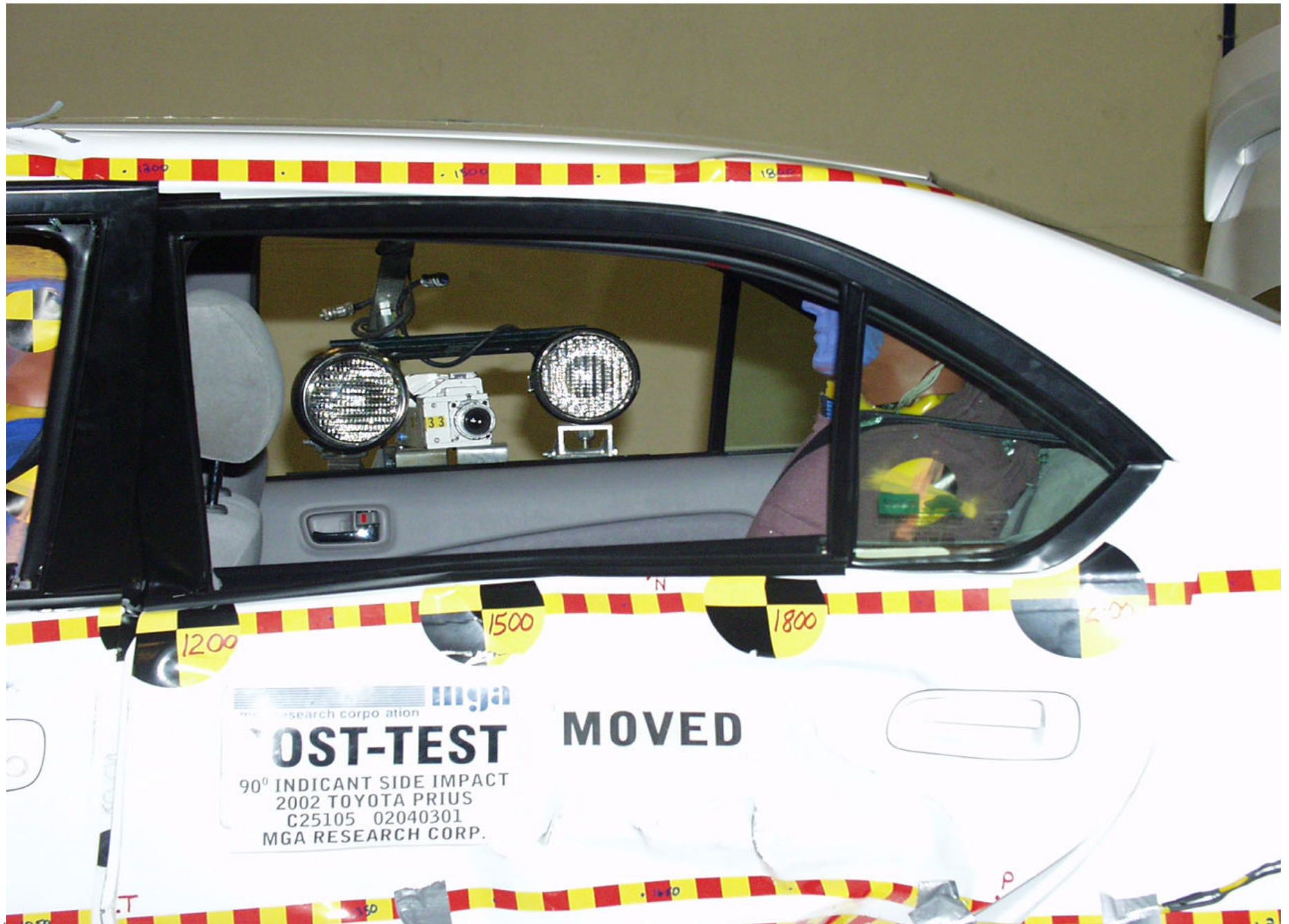
Pre-Test Passenger Dummy Right Side View



Post-Test Passenger Dummy Right Side View



Pre-Test Passenger Dummy Left Side View



Post-Test Passenger Dummy Left Side View



Pre-Test Passenger Dummy Left Side View (Door Open)



Pre-Test Passenger Dummy Shoulder and Door Top View



Post-Test Passenger Dummy Shoulder and Door Top View

A-46.



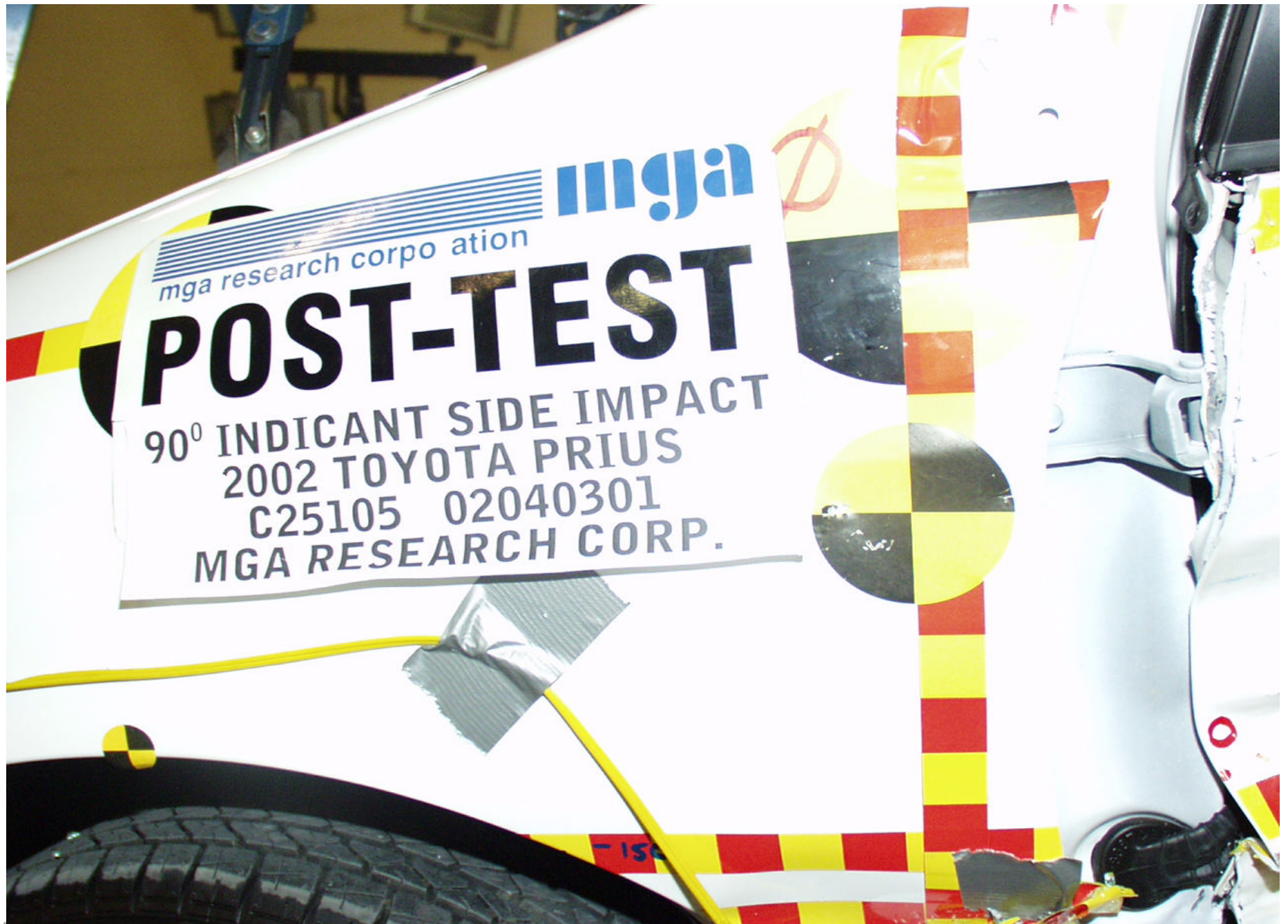
Post-Test Passenger Dummy Contact



Post-Test Passenger Dummy Head Contact



Pre-Test Left Front Impact Point on Vehicle



Post-Test Left Front Impact Point on Vehicle



Impact

*

MFD. BY: TOYOTA MOTOR CORPORATION 09/01
GVWR 3615LB GAWR FR 1970LB RR 1685LB
THIS VEHICLE CONFORMS TO ALL APPLICABLE
FEDERAL MOTOR VEHICLE SAFETY, BUMPER, AND
THEFT PREVENTION STANDARDS IN EFFECT ON
THE DATE OF MANUFACTURE SHOWN ABOVE.

JT2BK12U420042224 PASS. CAR



C/TR: 040/FC95
A/TM: -01A/P111

MODEL: NHW11L-AEEEEBA
MADE IN JAPAN
NO. 740

*

*

AIR FILTER SERVICE FOR AIR CONDITIONING SYSTEM

THE AIR CONDITIONING SYSTEM HAS AN AIR FILTER TO ELIMINATE DUST, POLLEN, ETC. FOR YOUR COMFORTABLE DRIVING, PERFORM AIR FILTER SERVICE PERIODICALLY. FOR MORE INFORMATION, SEE OWNER'S MANUAL OR CONSULT YOUR DEALER.

ENTRETIEN DU FILTRE A AIR DU SYSTEME DE CLIMATISATION

LE SYSTEME DE CLIMATISATION EST MUNI D'UN FILTRE A AIR SERVANT A ELIMINER POUSSIERE, POLLEN ET AUTRES IMPURETES. POUR VOTRE CONFORT, EFFECTUEZ REGULIEREMENT L'ENTRETIEN DE CE FILTRE A AIR. POUR PLUS DE DETAILS, VOYEZ LE MANUEL DU PROPRIETAIRE OU CONSULTEZ VOTRE CONCESSIONNAIRE.

TIRE - LOADING INFORMATION

VEHICLE CAPACITY WEIGHT : 363kg (800lbs)
OCCUPANTS : FRT. 2 RR. 3 TOTAL 5
TIRE SIZE : P175/65R14 84S
SPARE TIRE : T125/70D16 96M
COLD TIRE PRESSURES : kPa (psi)
P175/65R14 84S : FRT. 240(35), RR. 230(33)
SPARE TIRE : 420 (60)

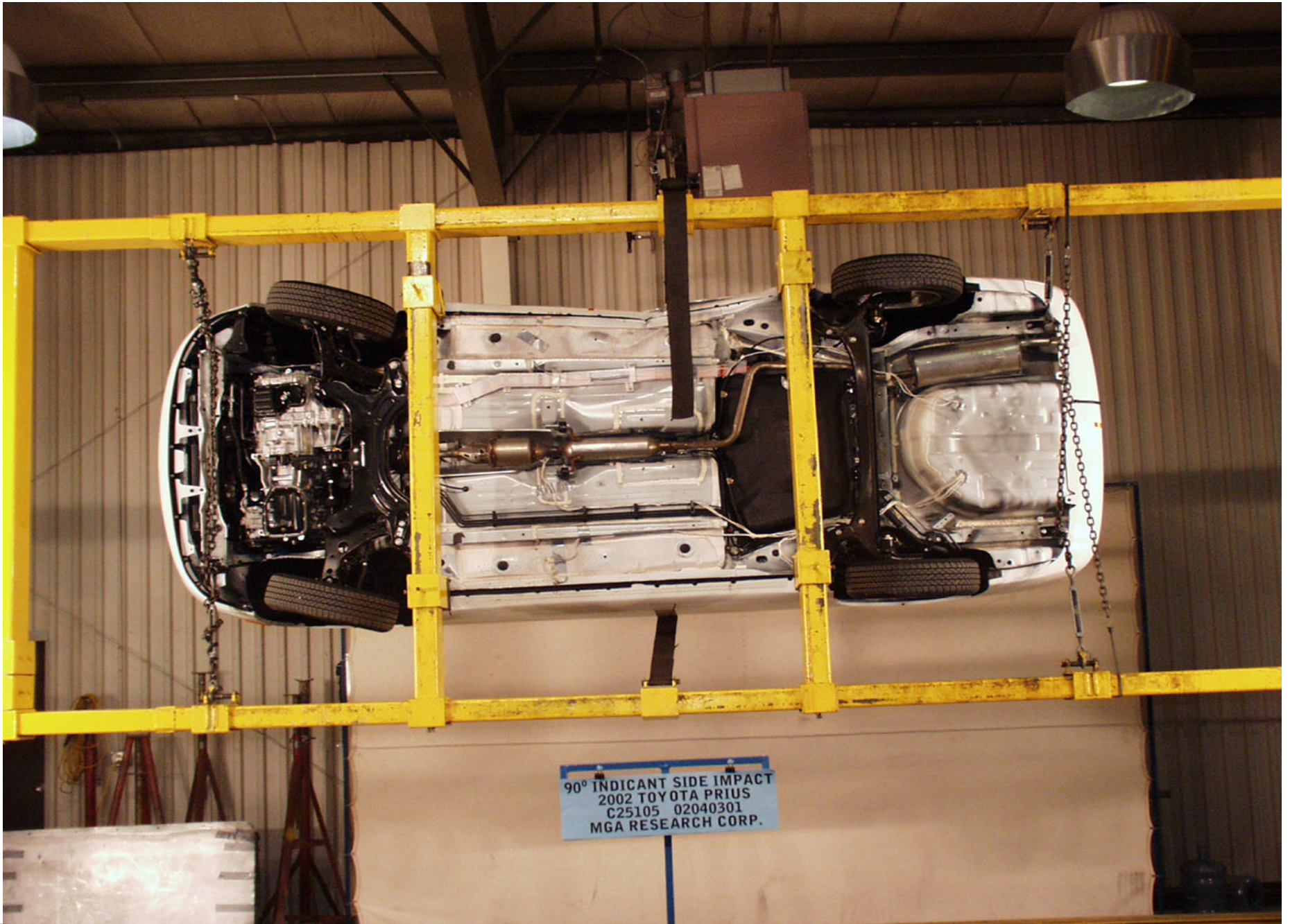
SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION

CHARGE MAXIMALE DU VEHICULE : 363kg (800LIVRES)
PERSONNES : AVANT 2 ARRIERE 3 TOTAL 5
DIMENSION DES PNEUS : P175/65R14 84S
PNEU DE RECHANGE : T125/70D16 96M
PRESSION DE PNEUS : kPa (LB/PO2)
P175/65R14 84S : AVANT 240 (35), ARRIERE 230 (33)
PNEU DE RECHANGE : 420 (60)
POUR DE PLUS AMPLES DETAILS, VOIR LE MANUEL DU PROPRIETAIRE

47020

5 P

A-53.



Rollover 90

A-54.



Rollover 180



A-56.



Rollover 360



Left Front Attitude Point

mga
mga research corporation
PRE-TEST
90° INDICANT SIDE IMPACT
2002 TOYOTA PRIUS
C25105 02040301
MGA RESEARCH CORP.



A-58.

Right Front Attitude Point



Left Rear Attitude Point



Right Rear Attitude Point

APPENDIX B

SID, VEHICLE, AND MDB RESPONSE DATA

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* No Valid Data After Approximately 40 msec.

** No Valid Data After Approximately 23 msec.

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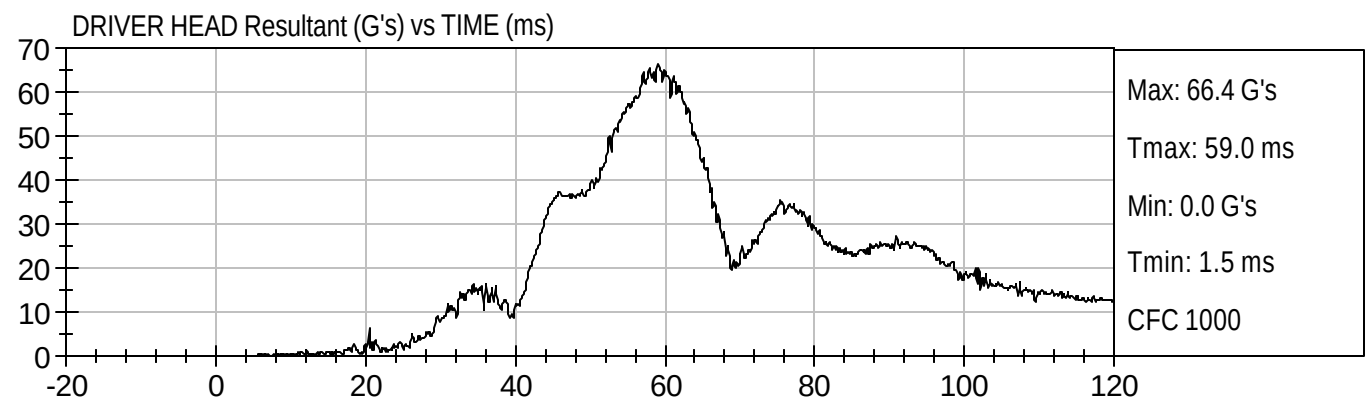
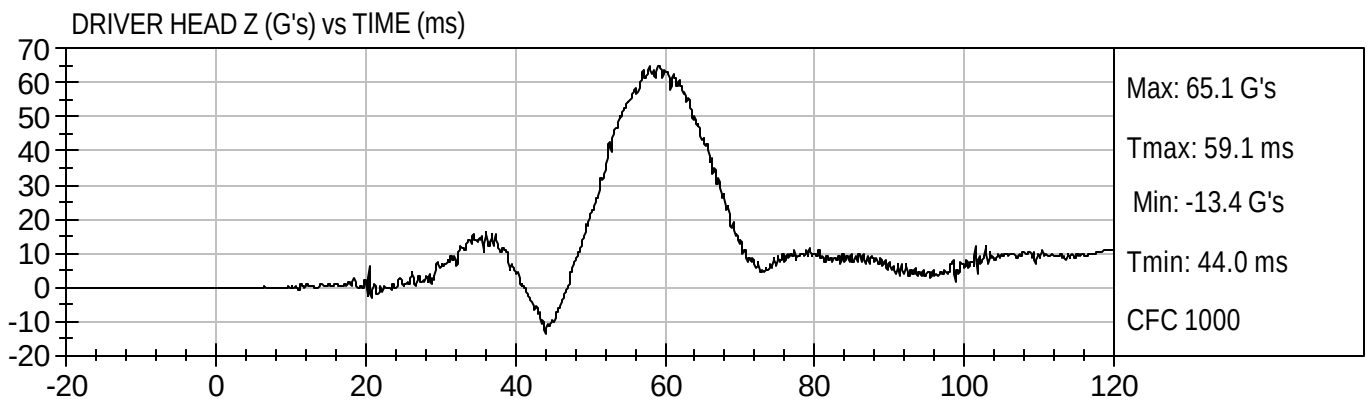
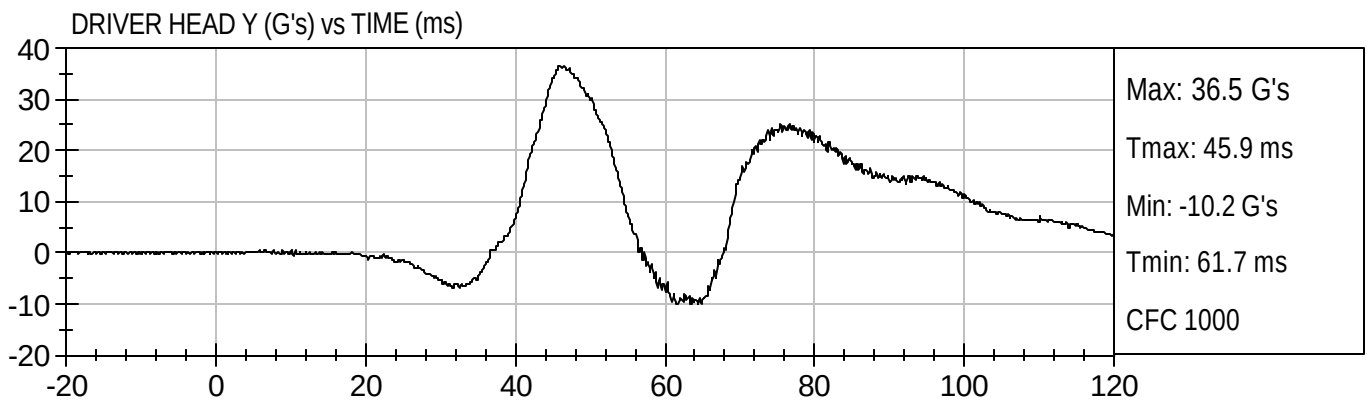
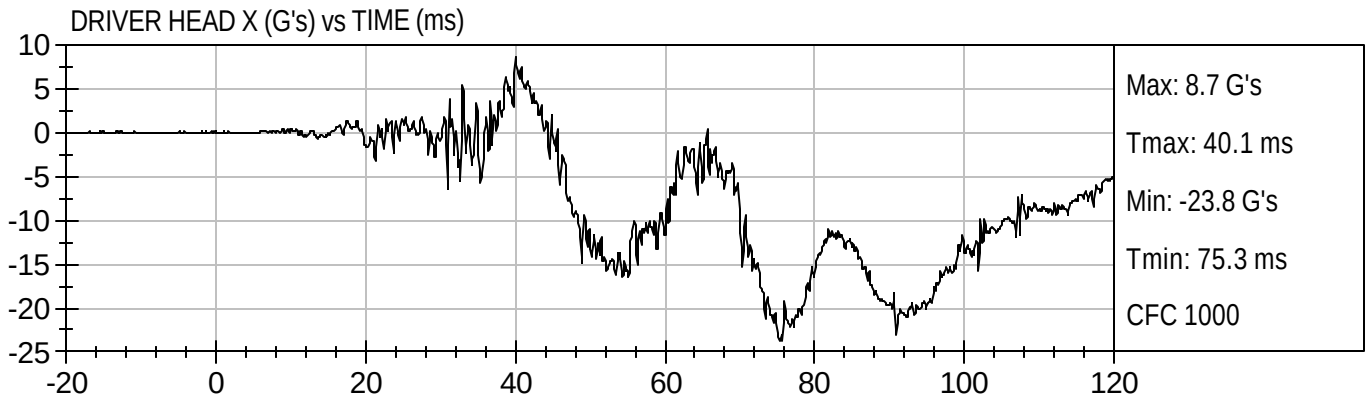
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38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

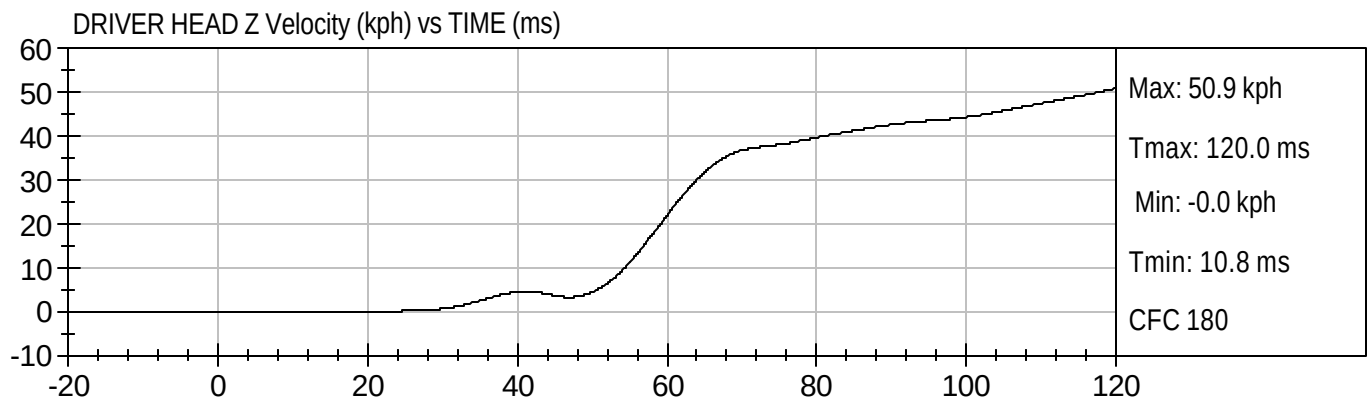
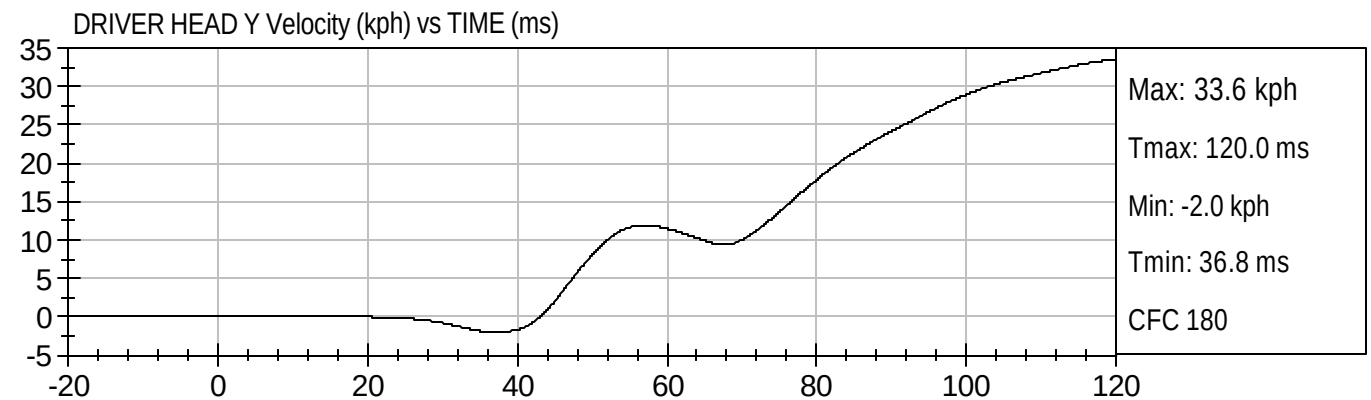
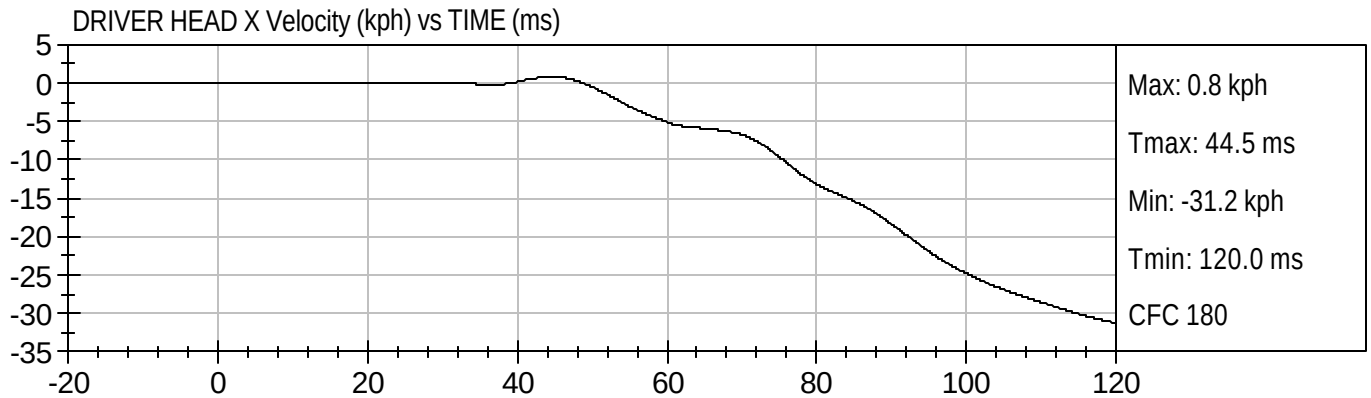
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38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

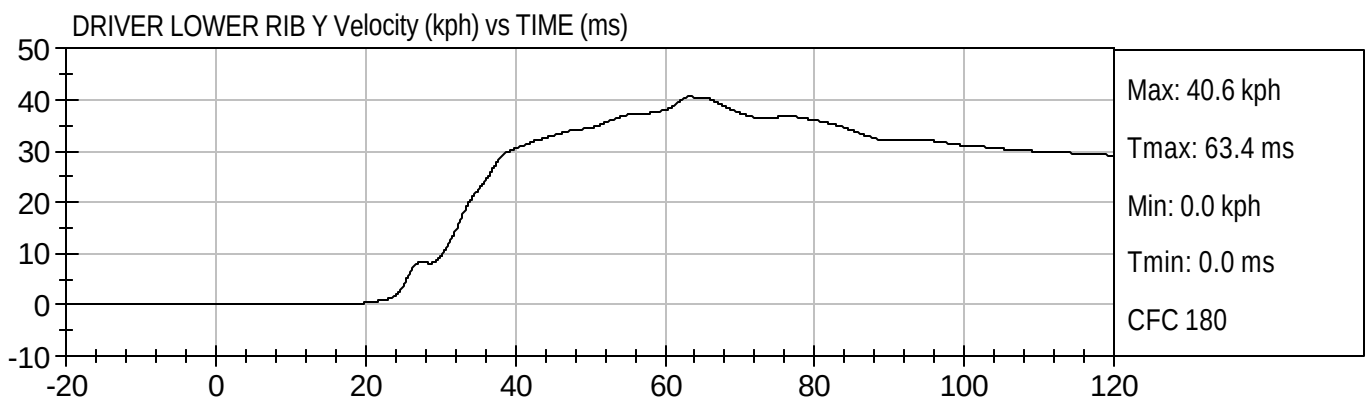
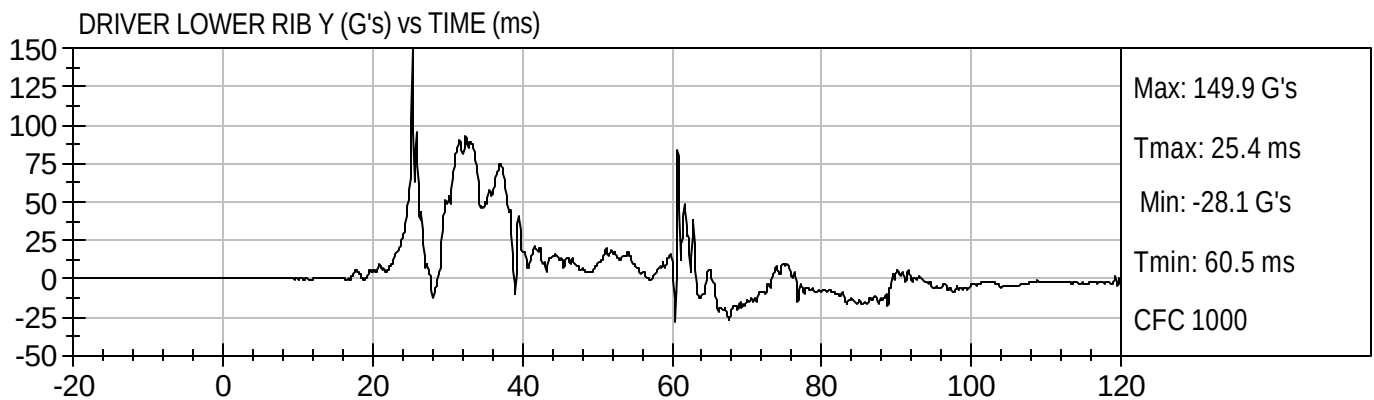
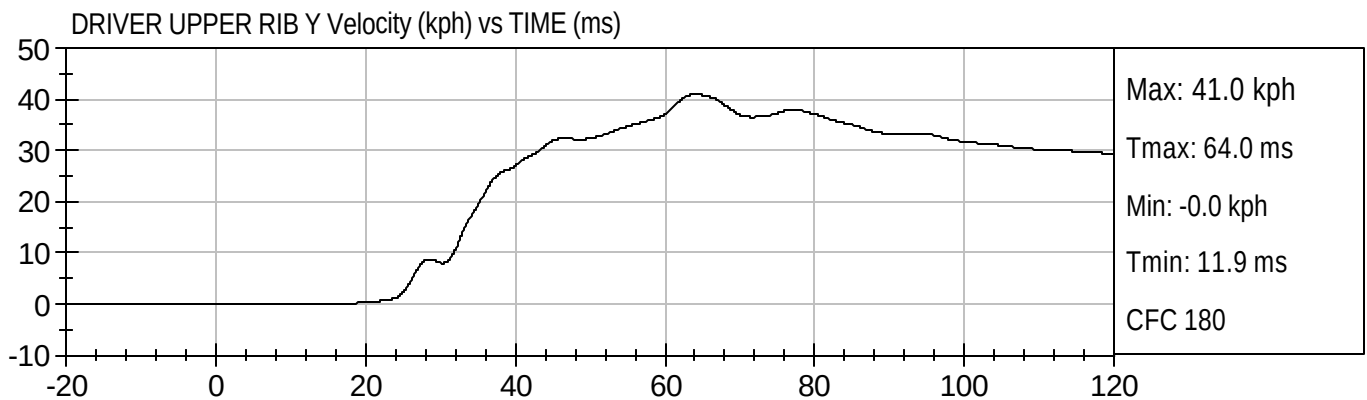
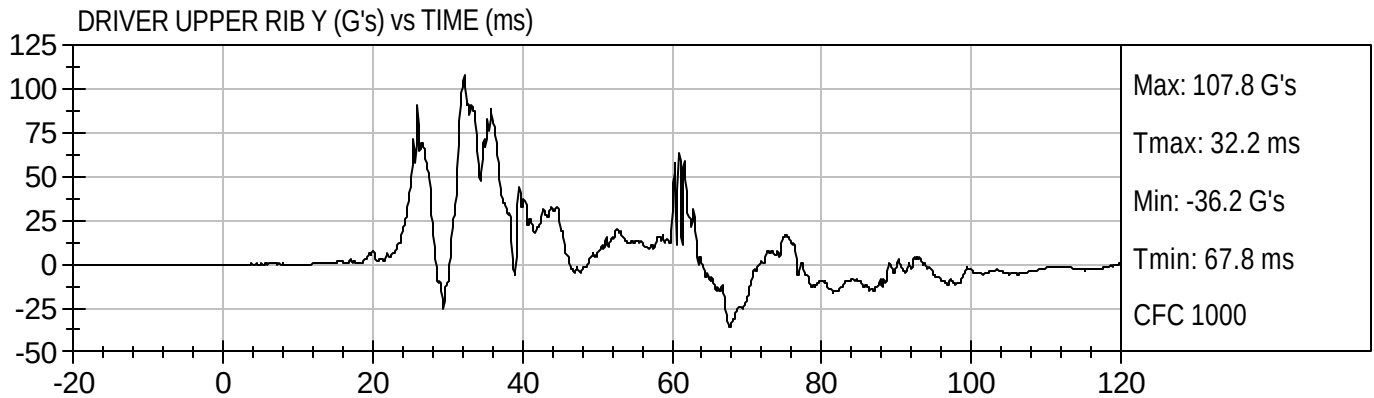
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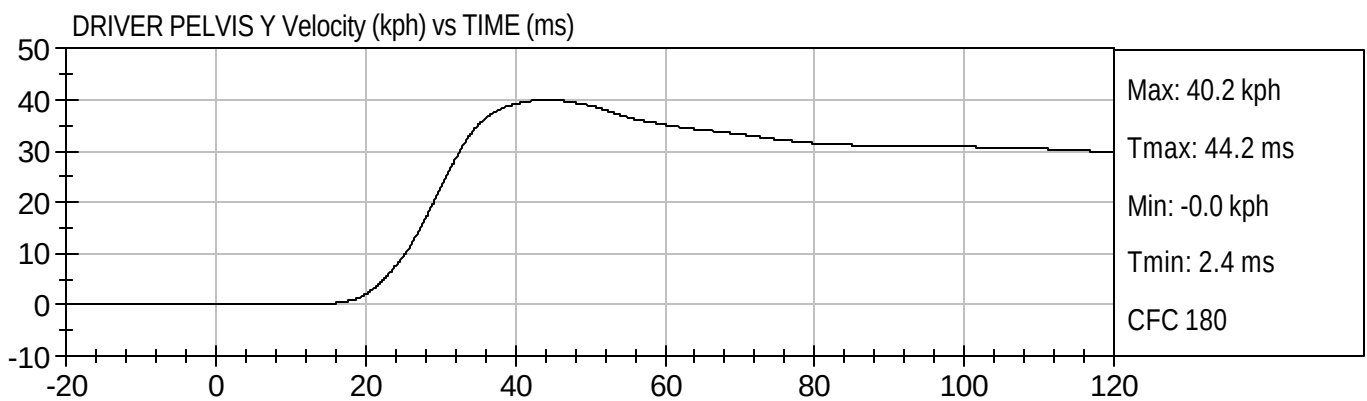
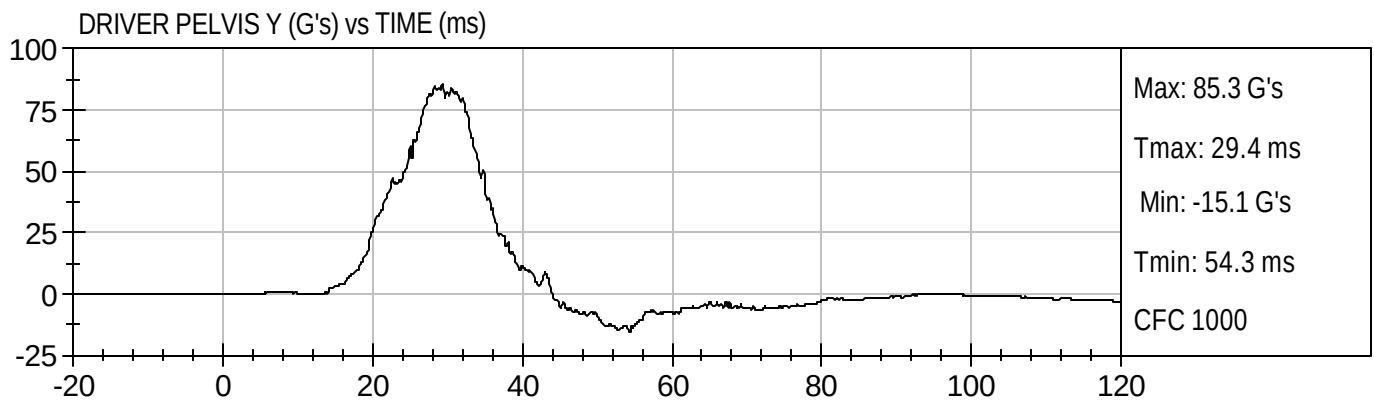
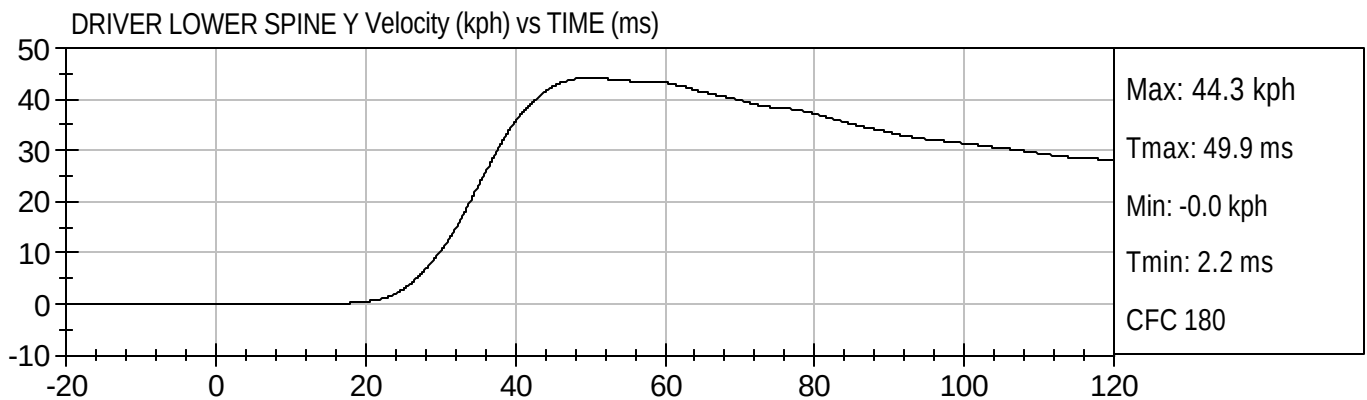
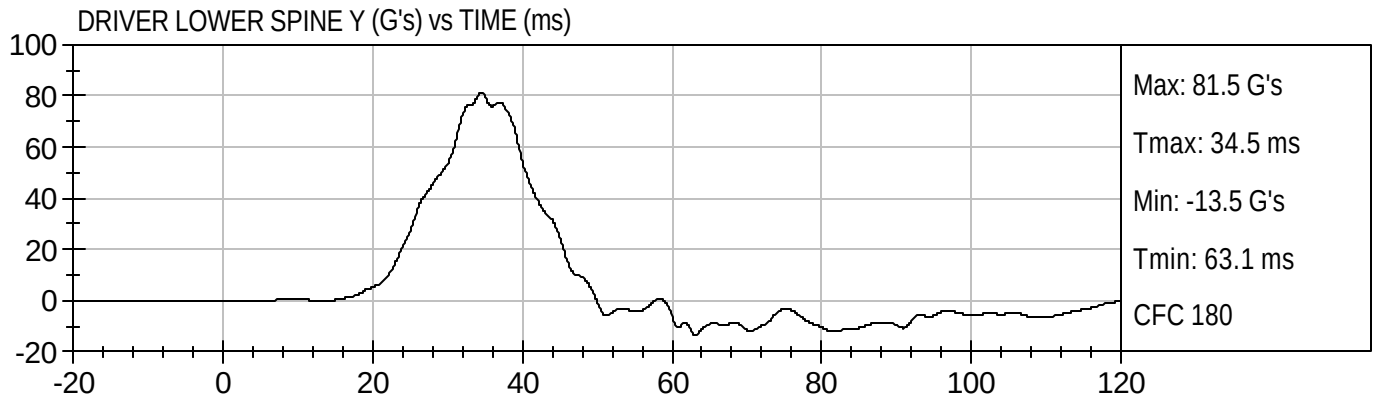
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38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

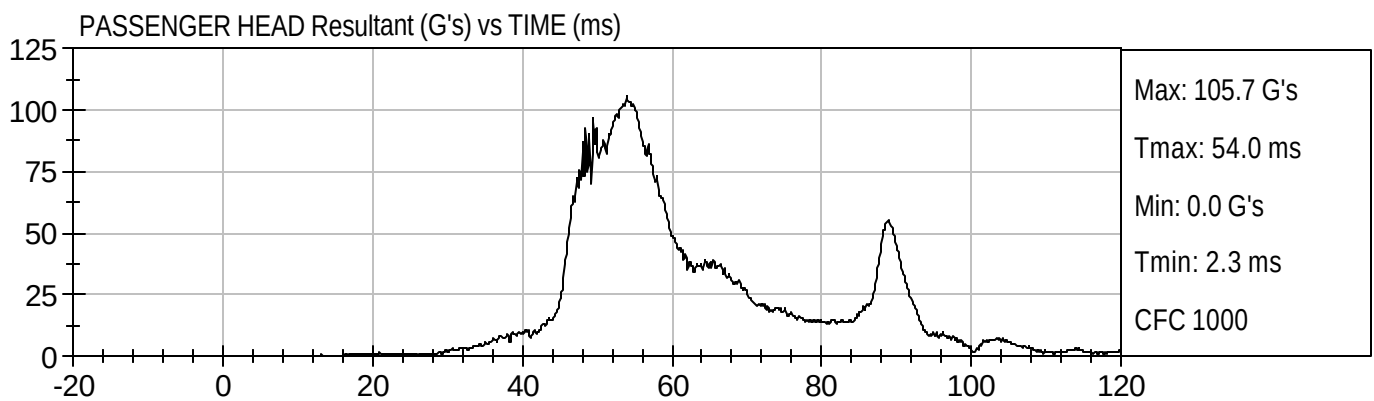
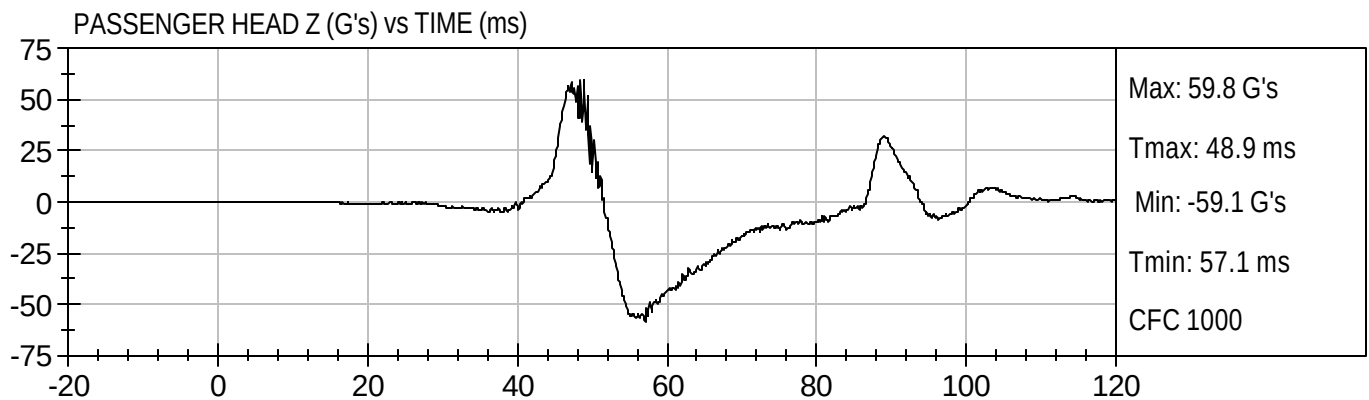
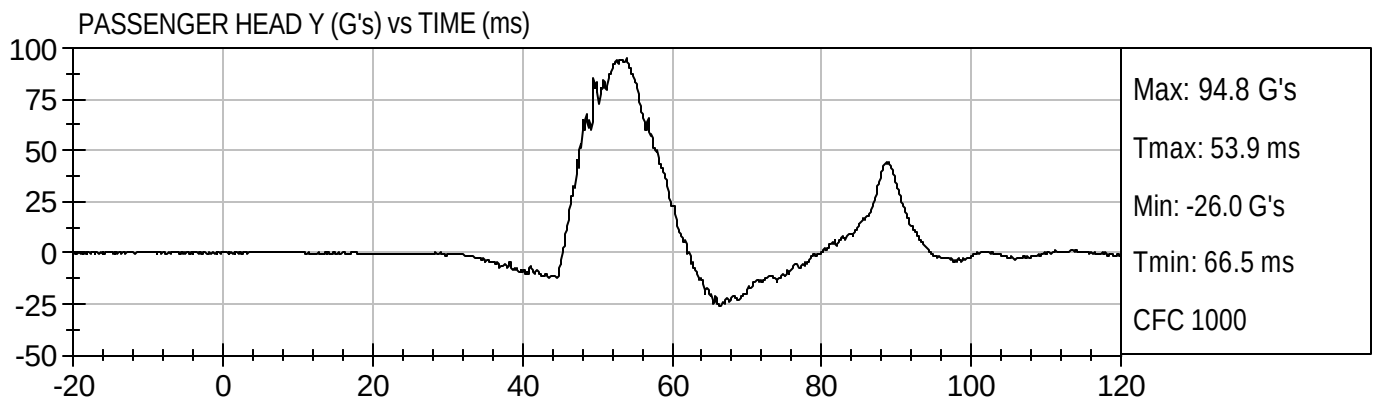
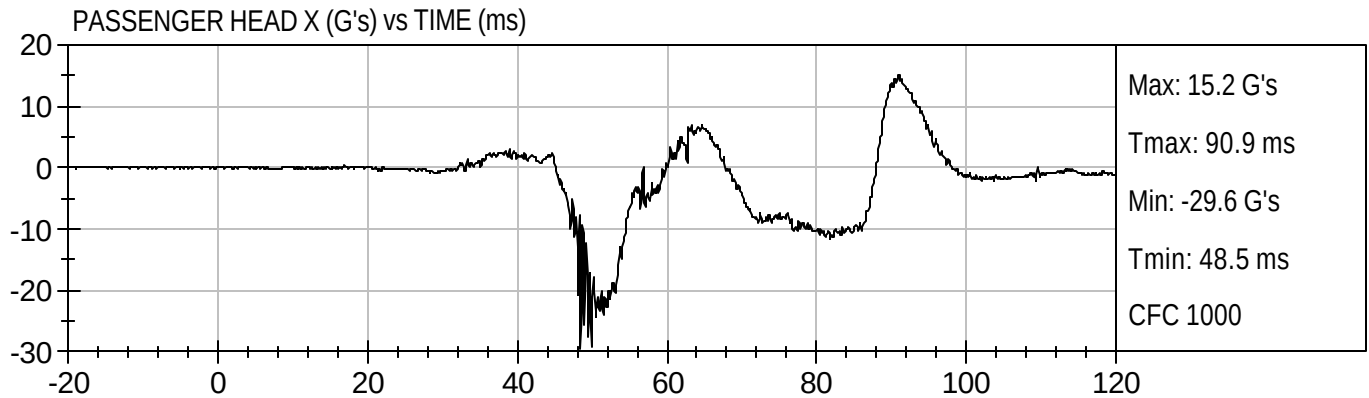
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38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

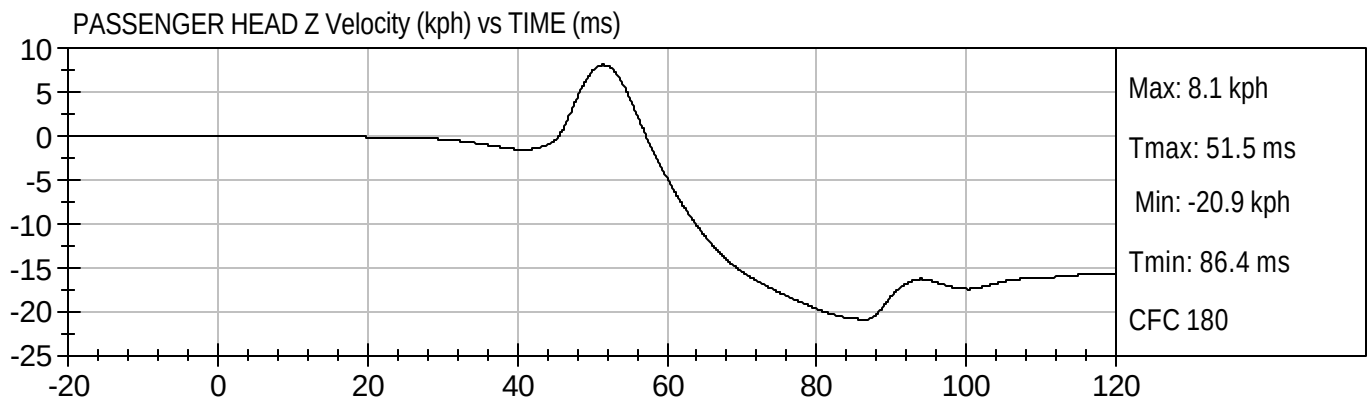
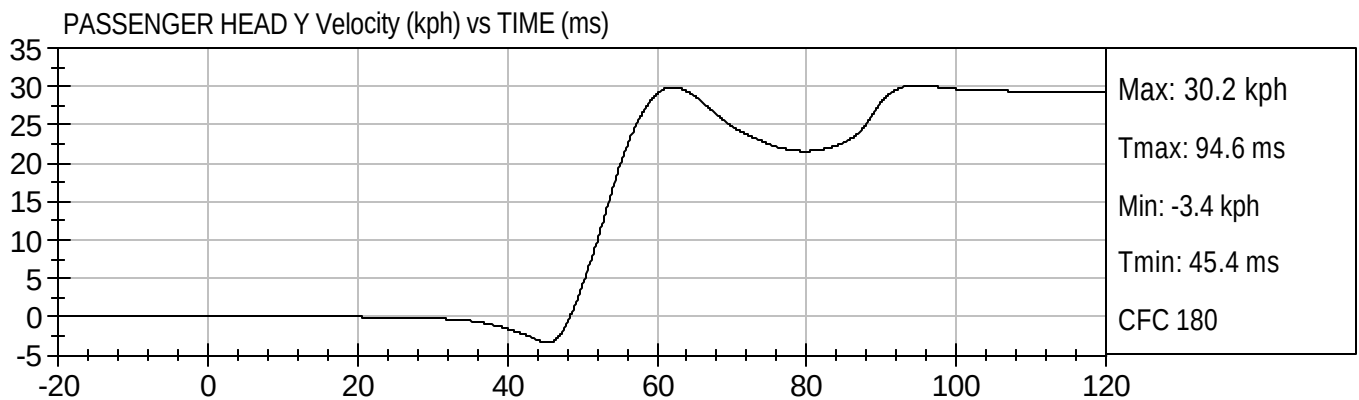
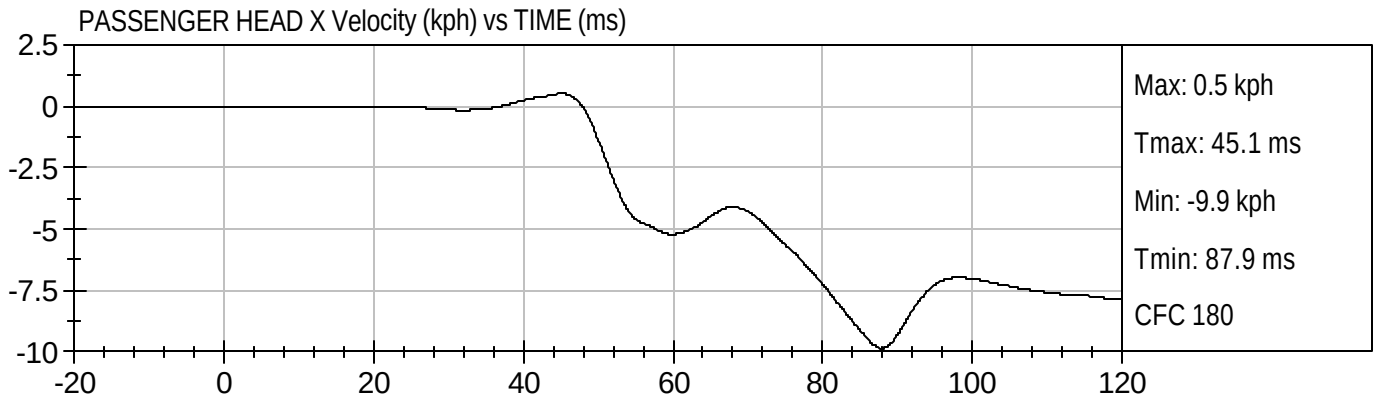
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38.5 MPH SIDE IMPACT
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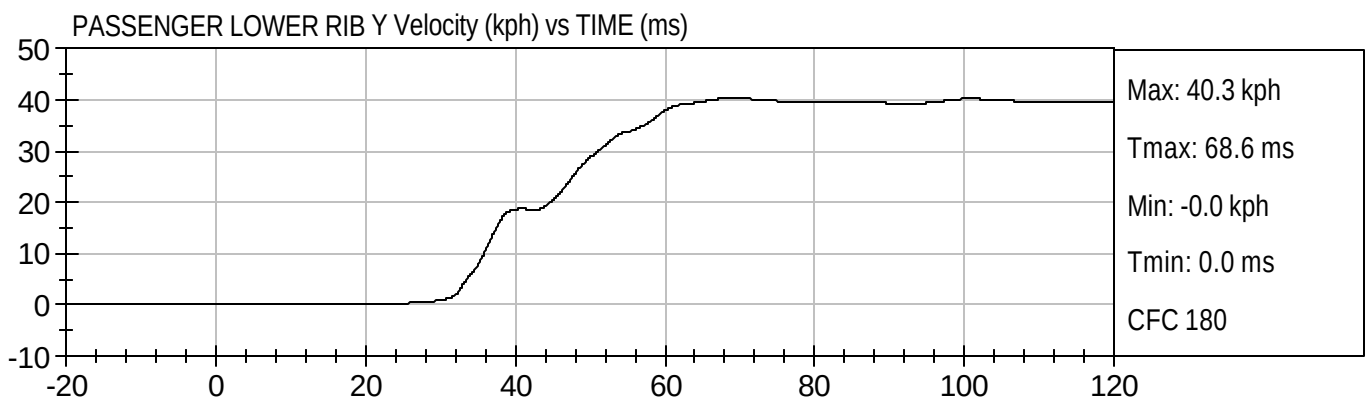
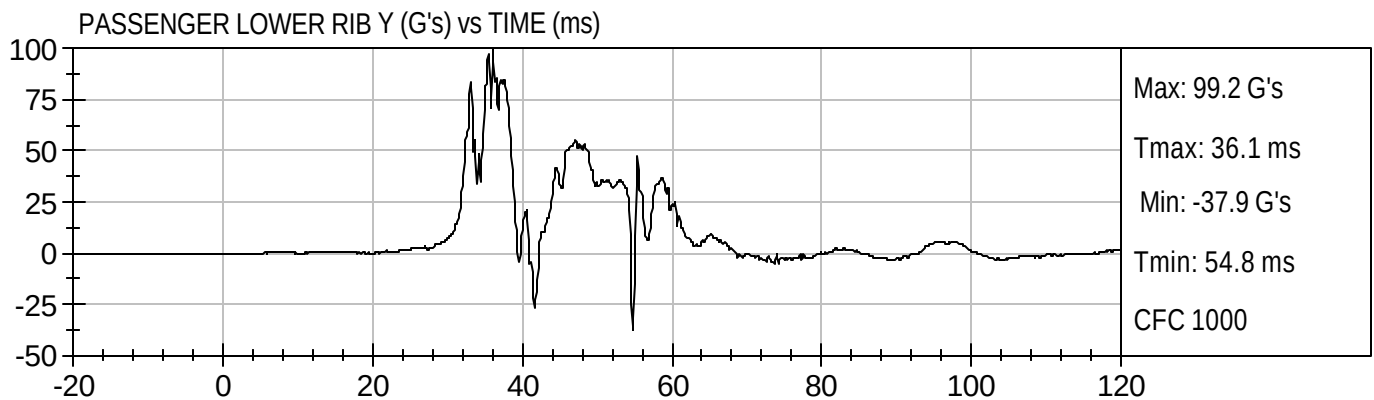
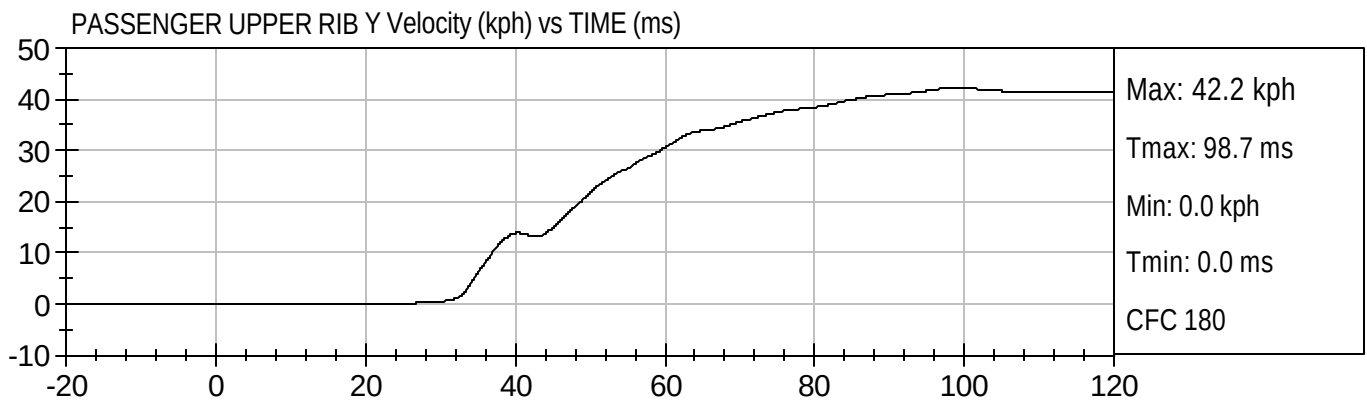
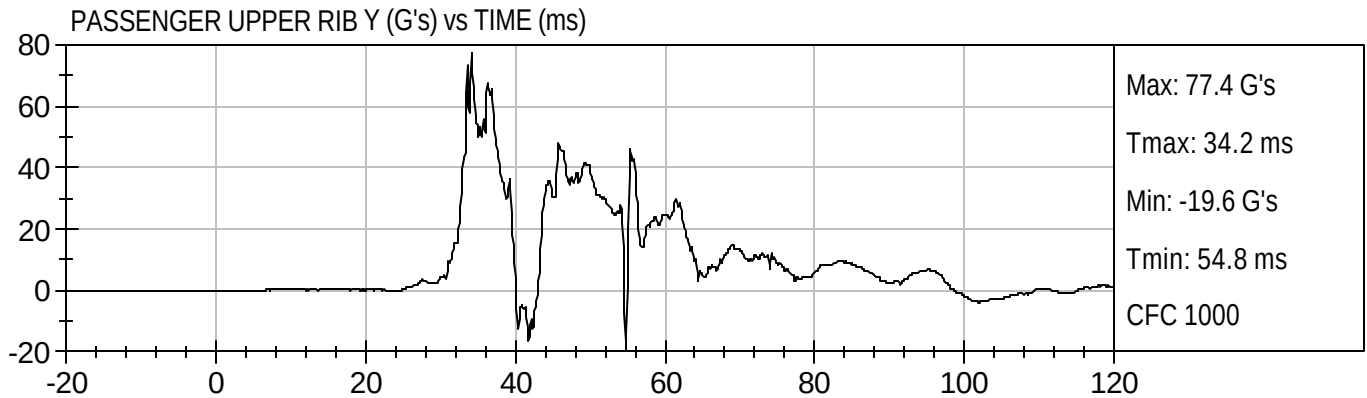
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2002 TOYOTA PRIUS HYBRID (C25105)

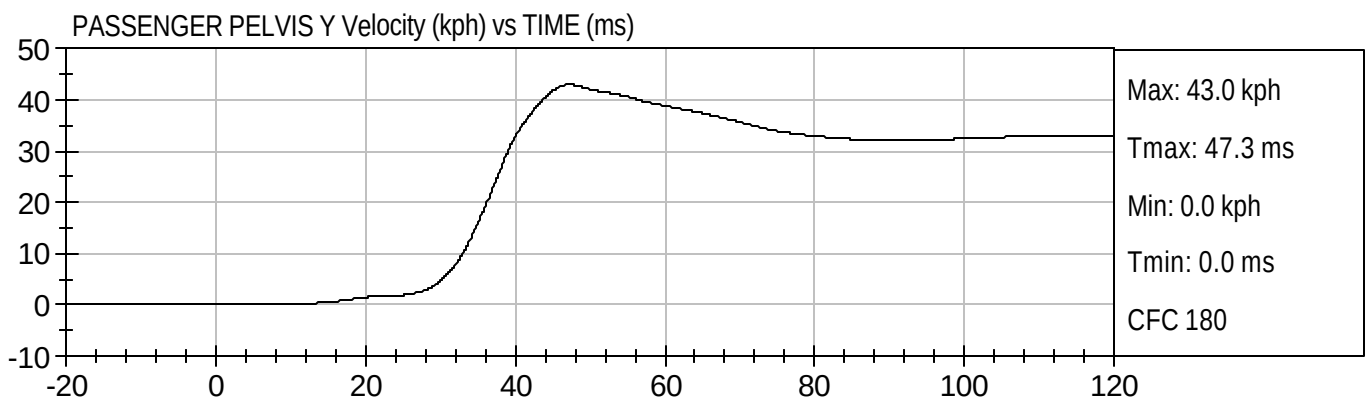
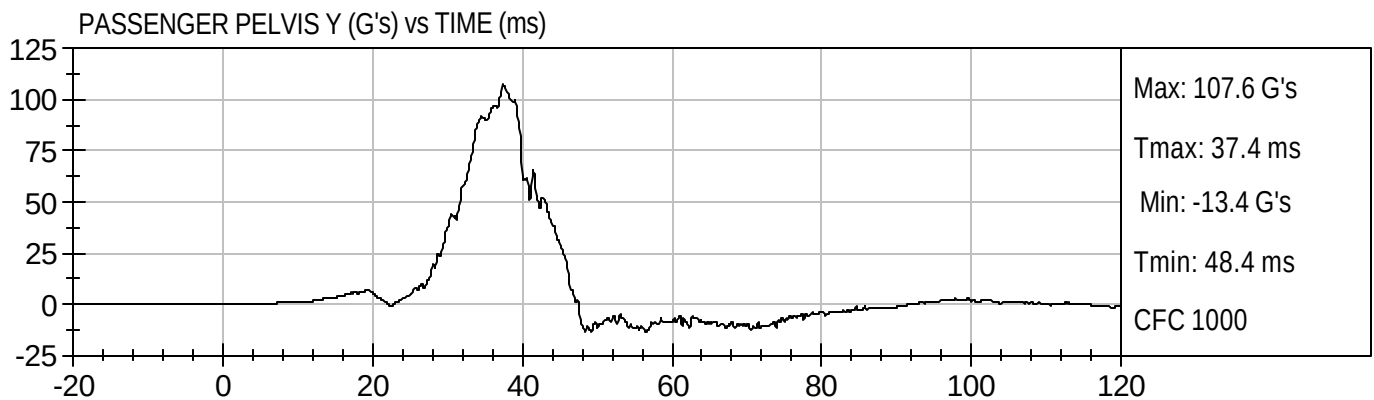
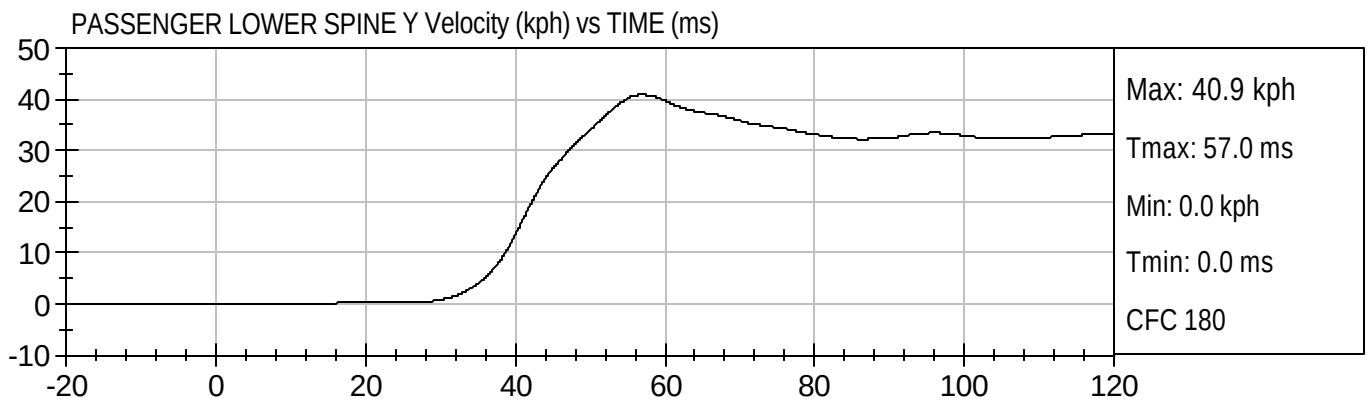
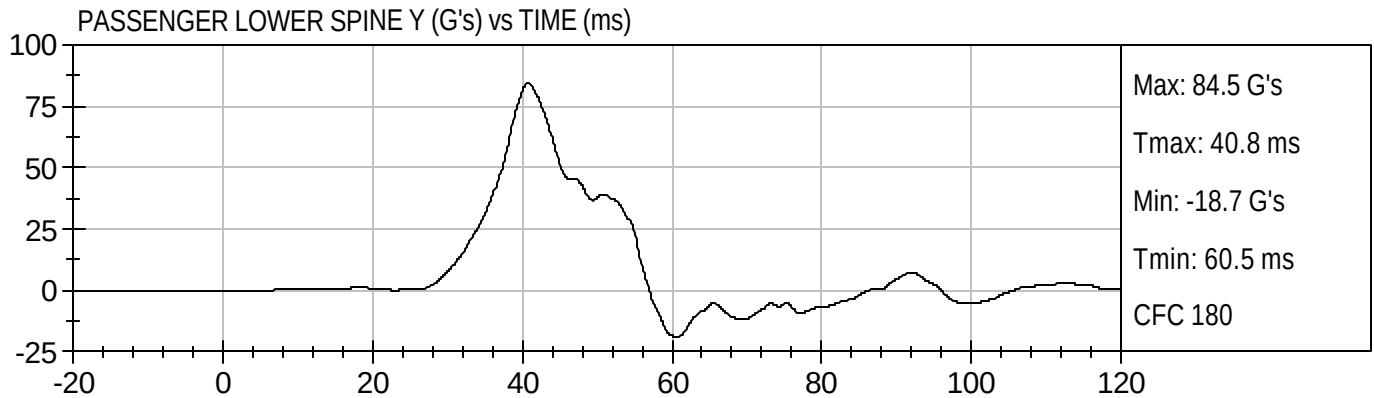
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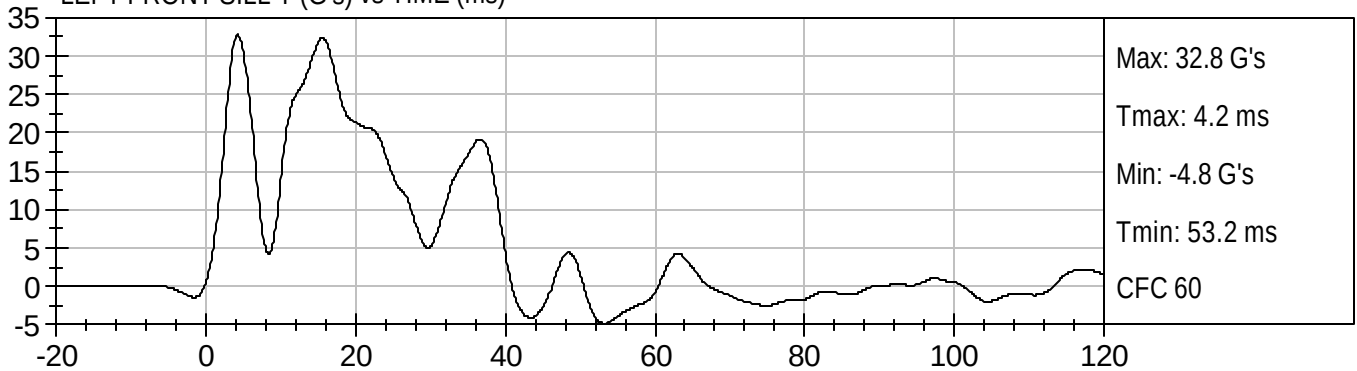
38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

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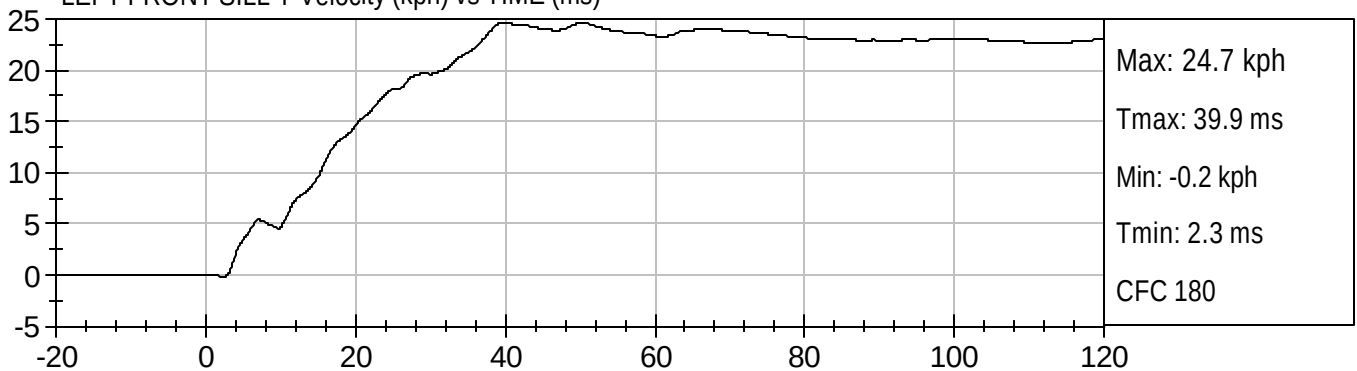




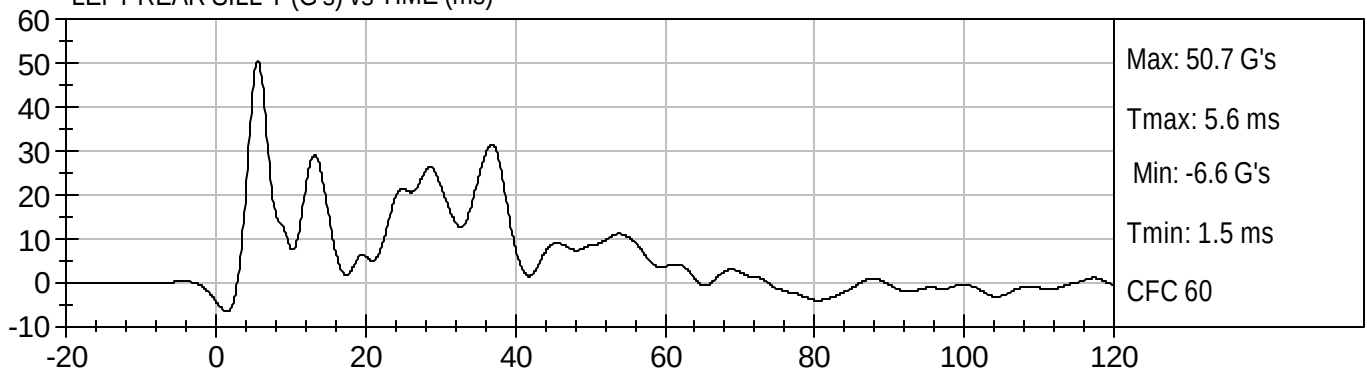
LEFT FRONT SILL Y (G's) vs TIME (ms)



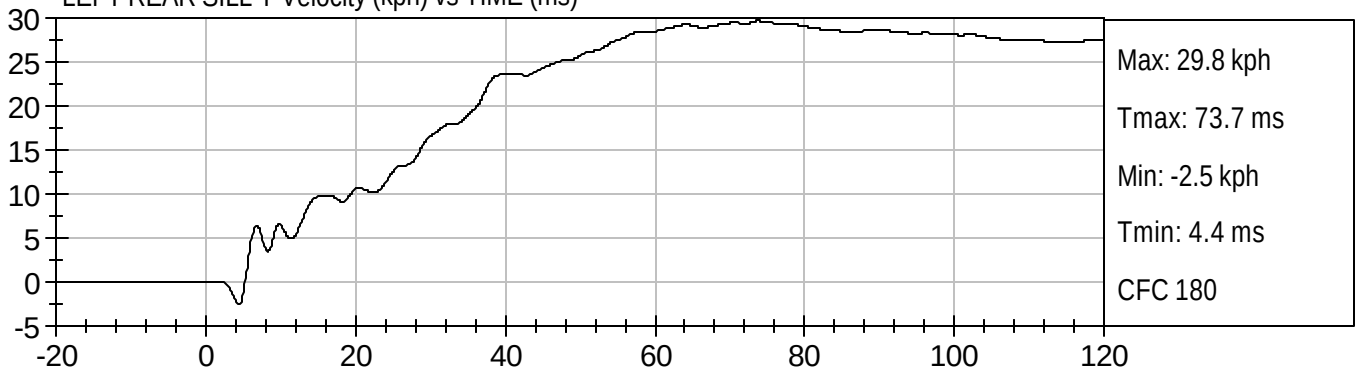
LEFT FRONT SILL Y Velocity (kph) vs TIME (ms)



LEFT REAR SILL Y (G's) vs TIME (ms)



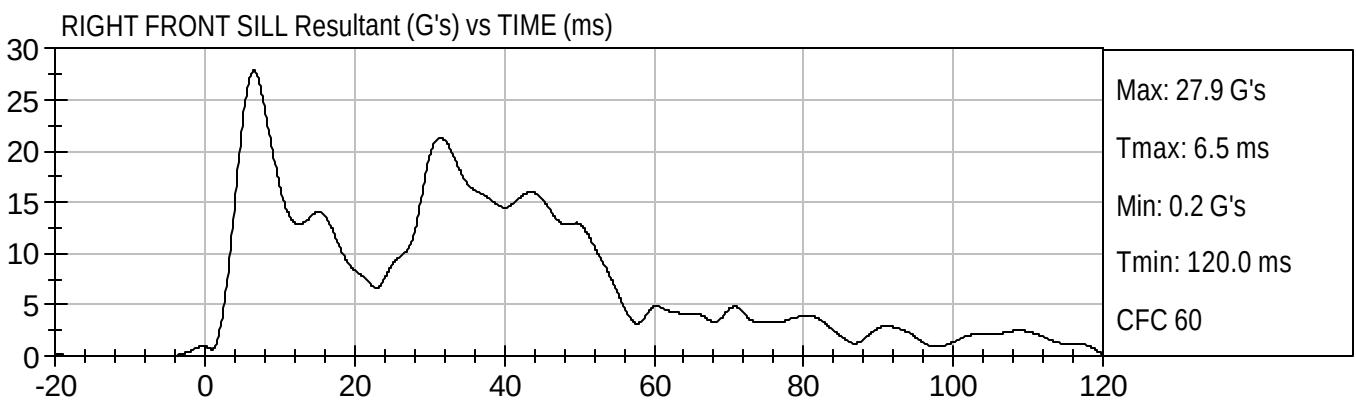
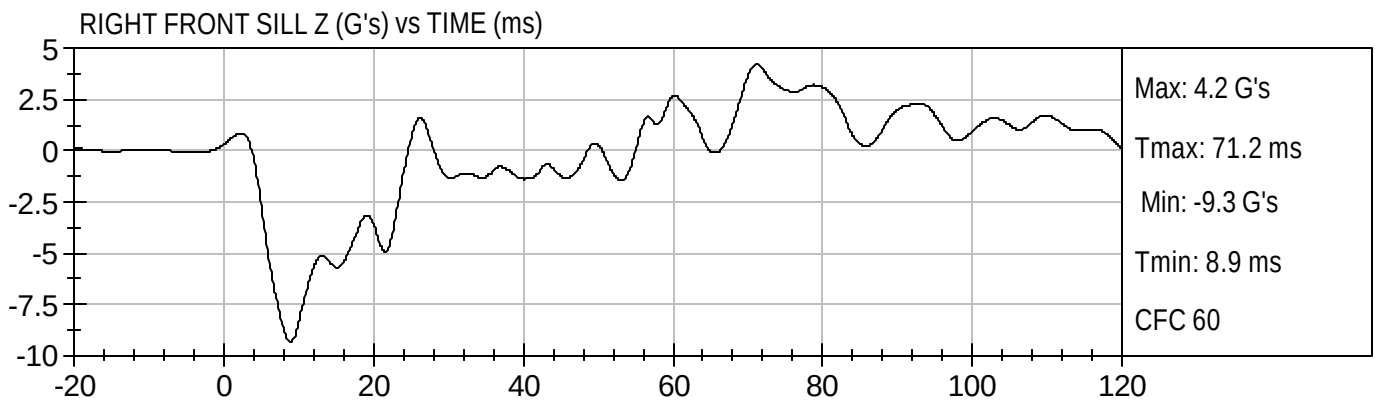
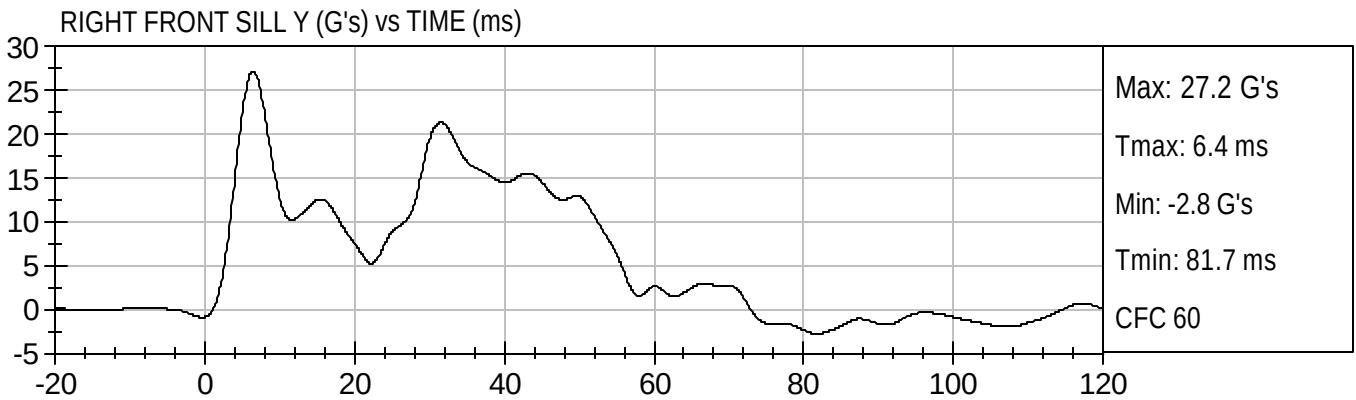
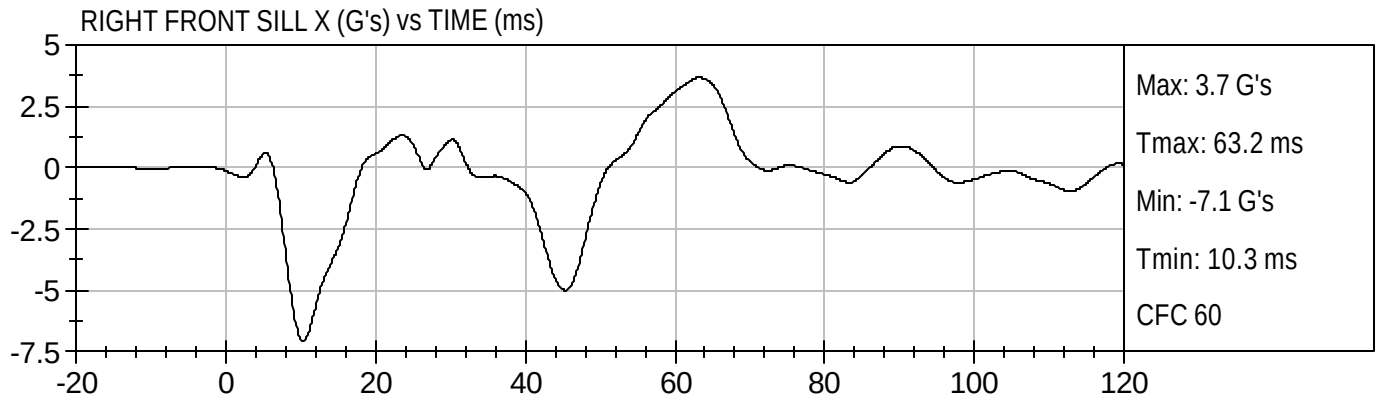
LEFT REAR SILL Y Velocity (kph) vs TIME (ms)





38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

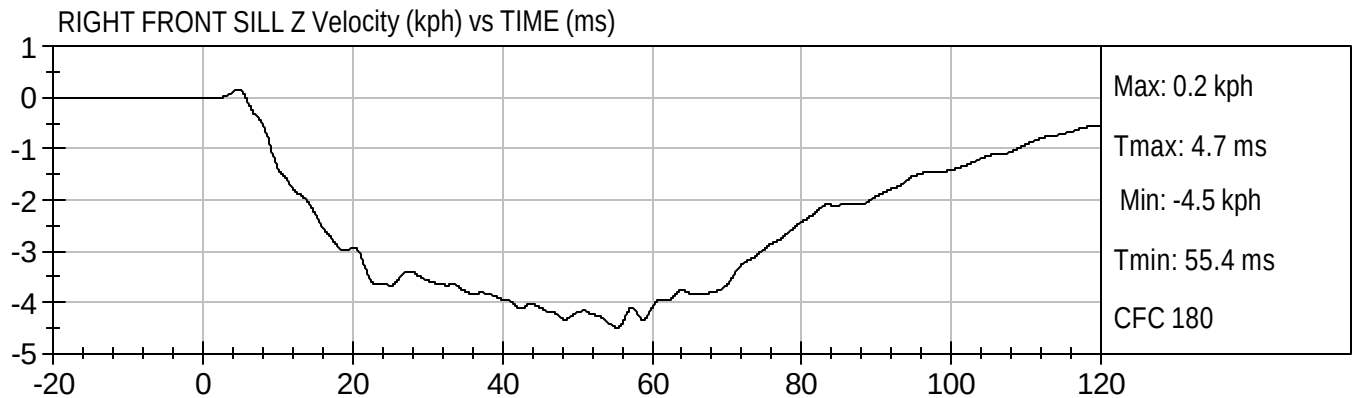
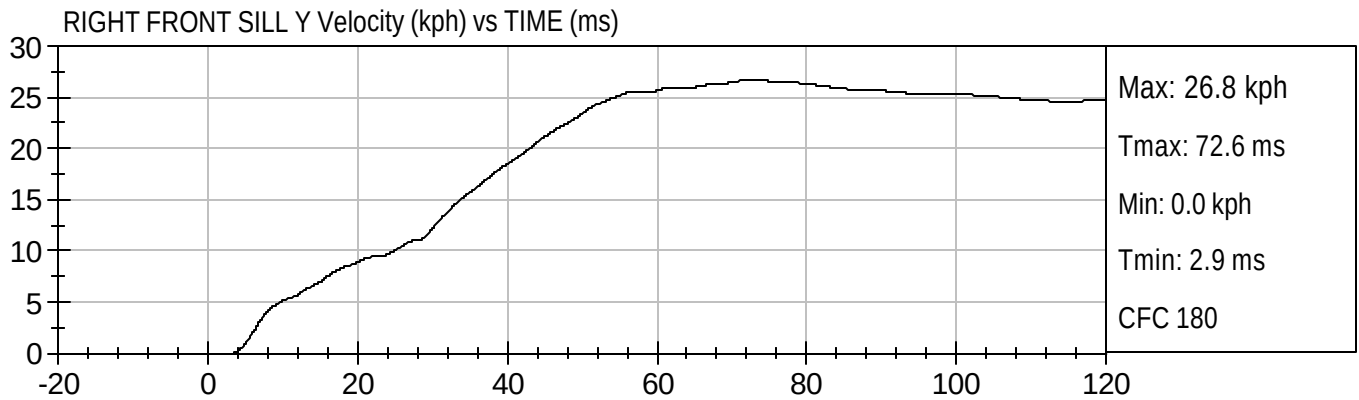
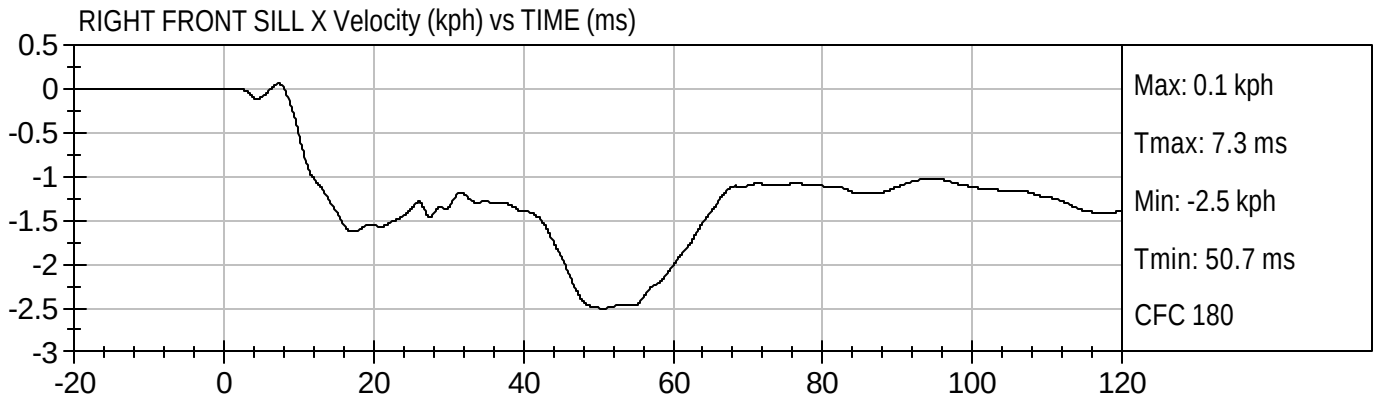
Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)





38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)

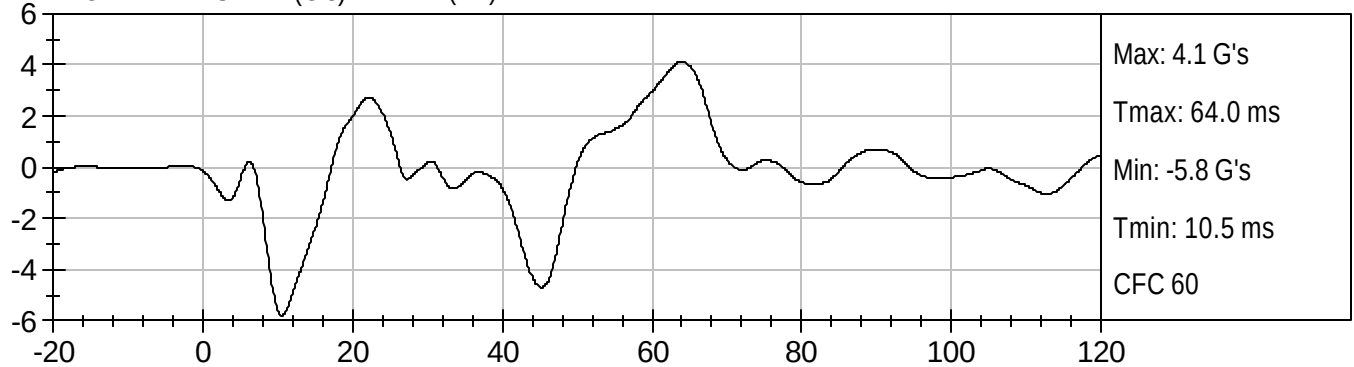




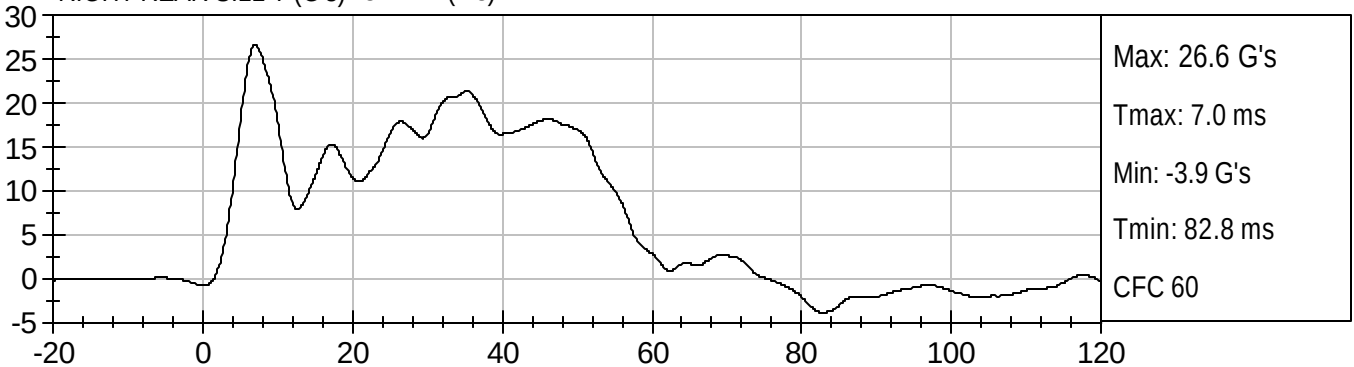
38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)

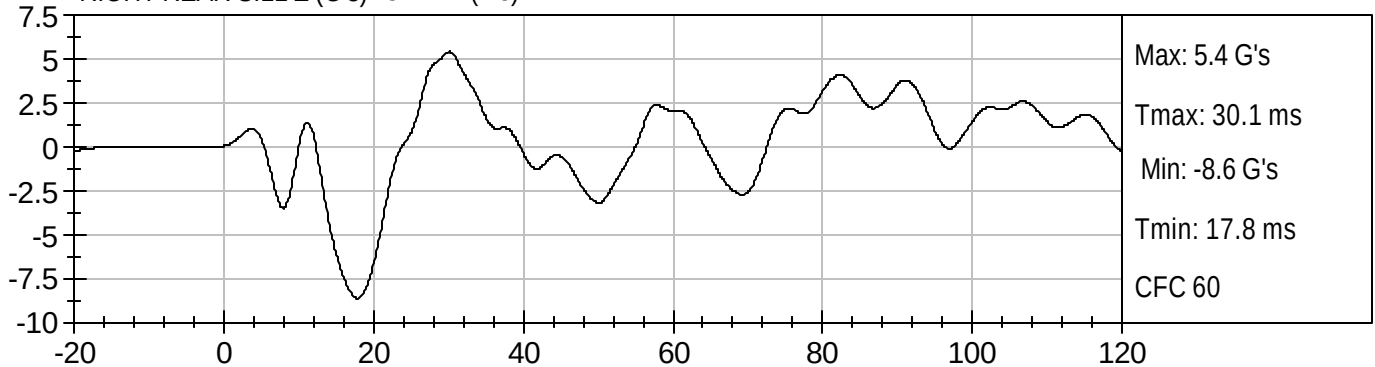
RIGHT REAR SILL X (G's) vs TIME (ms)



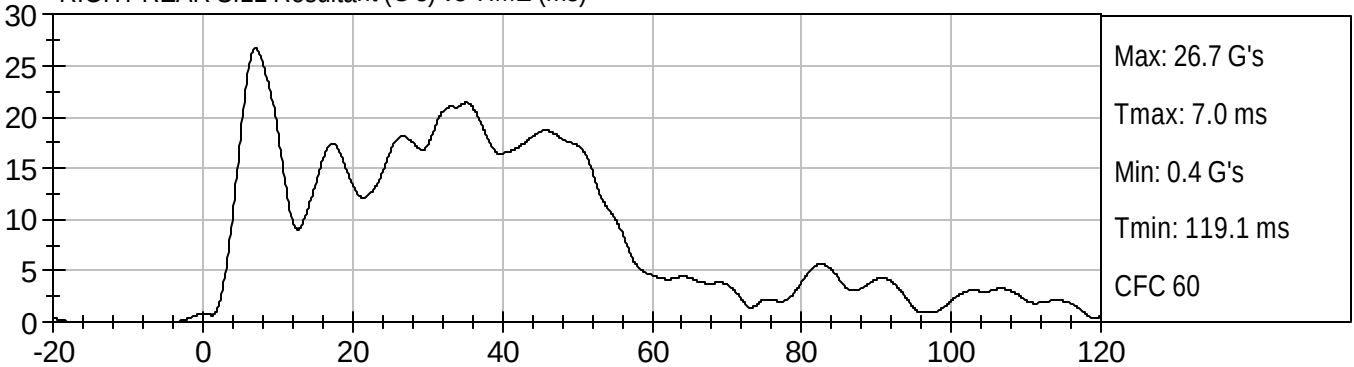
RIGHT REAR SILL Y (G's) vs TIME (ms)



RIGHT REAR SILL Z (G's) vs TIME (ms)



RIGHT REAR SILL Resultant (G's) vs TIME (ms)

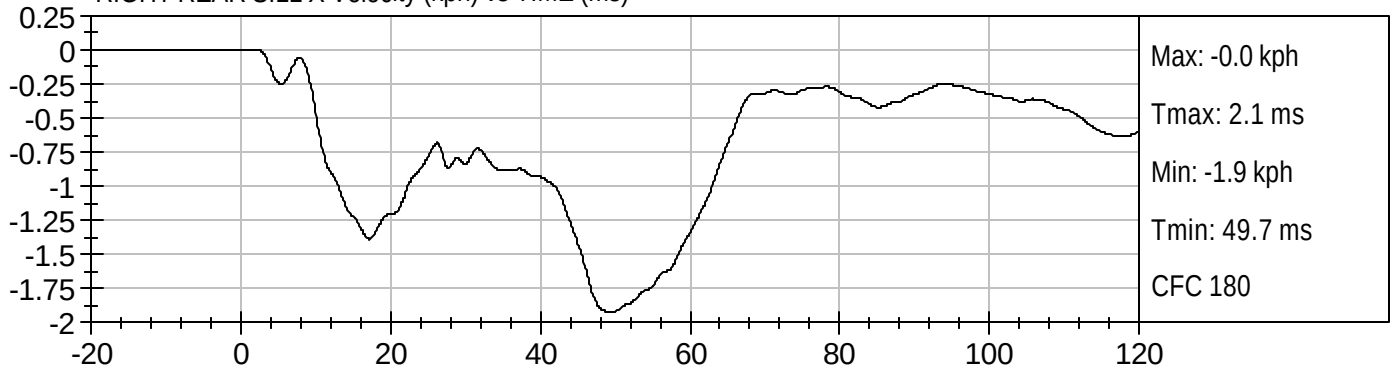




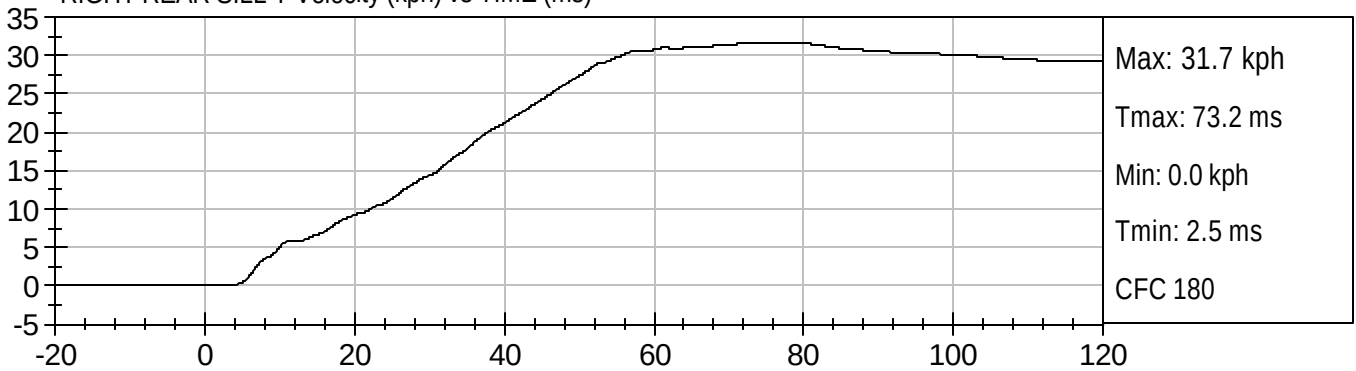
38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)

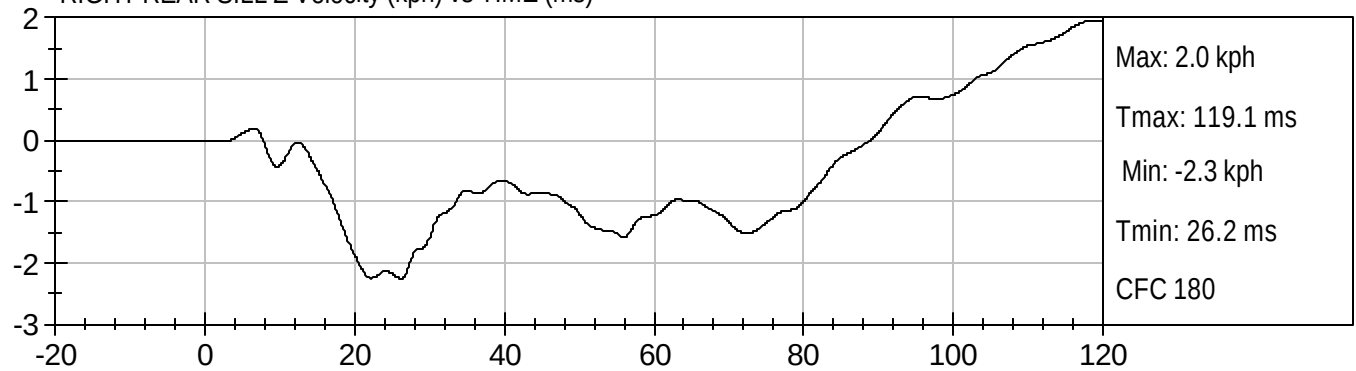
RIGHT REAR SILL X Velocity (kph) vs TIME (ms)

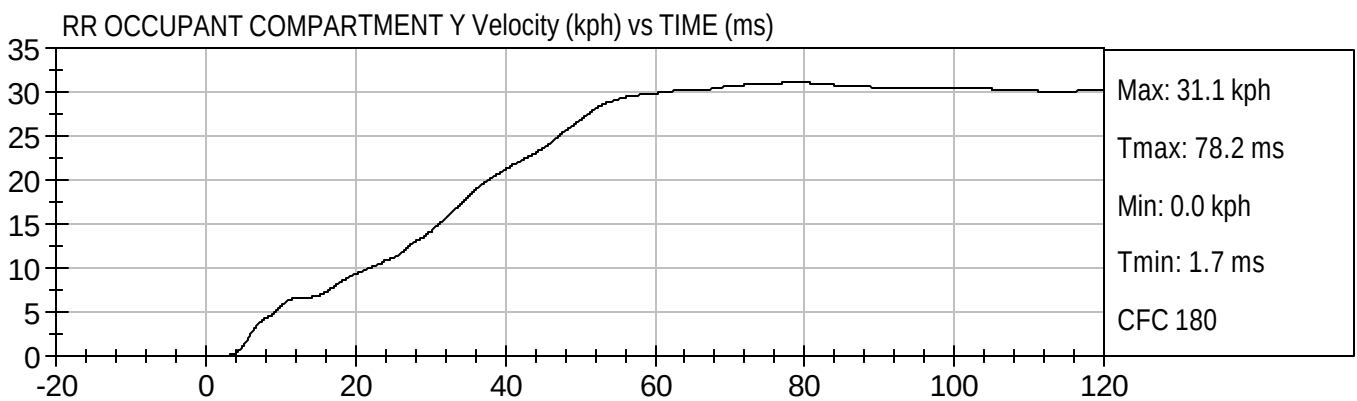
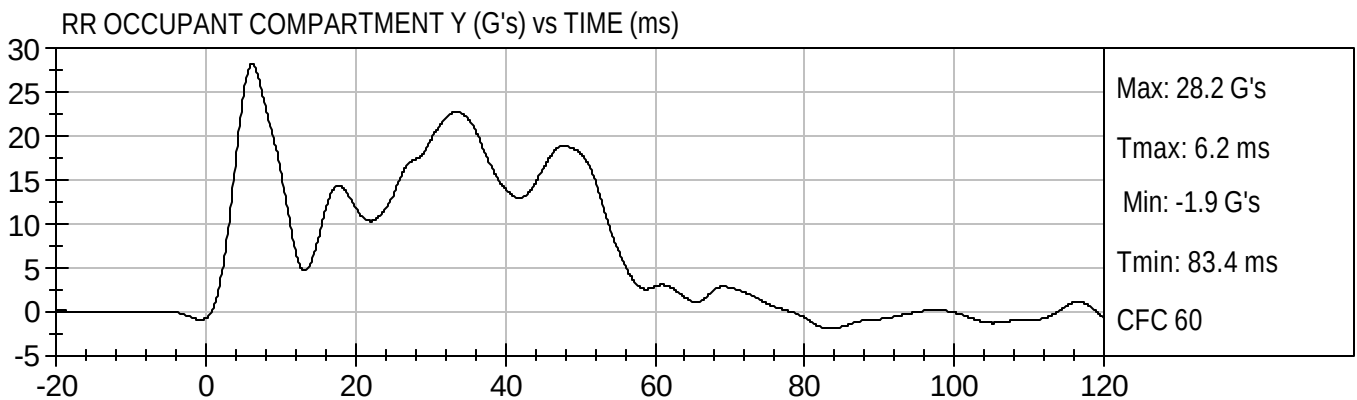
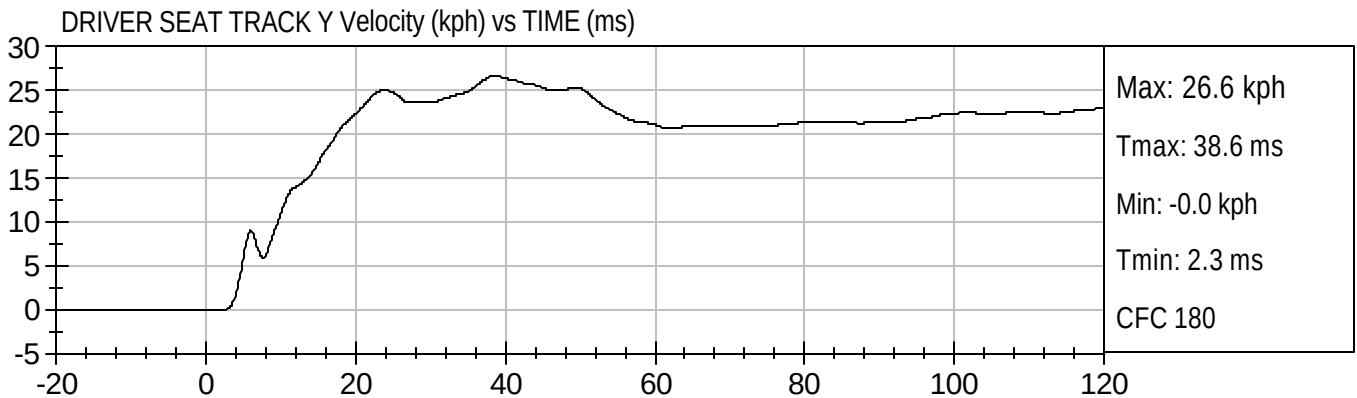
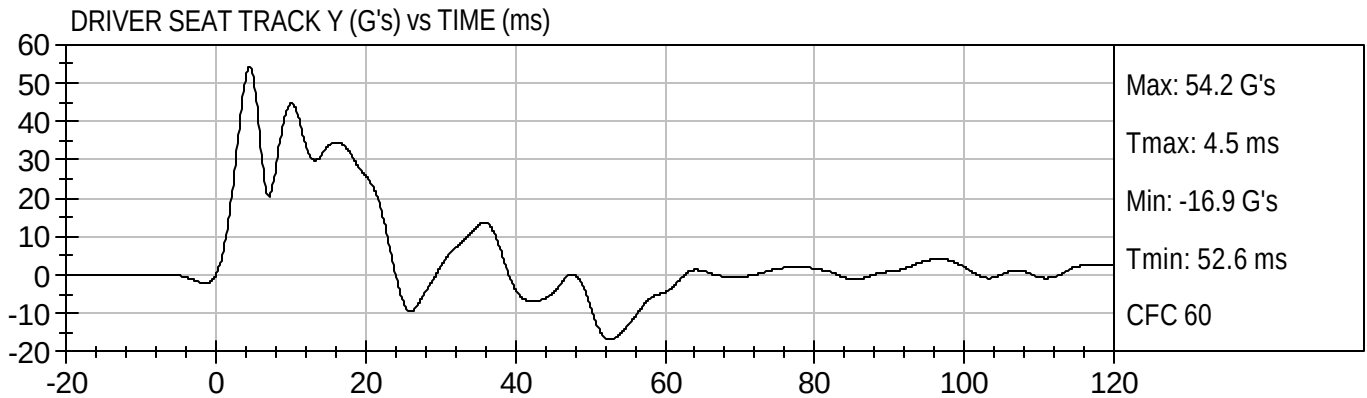


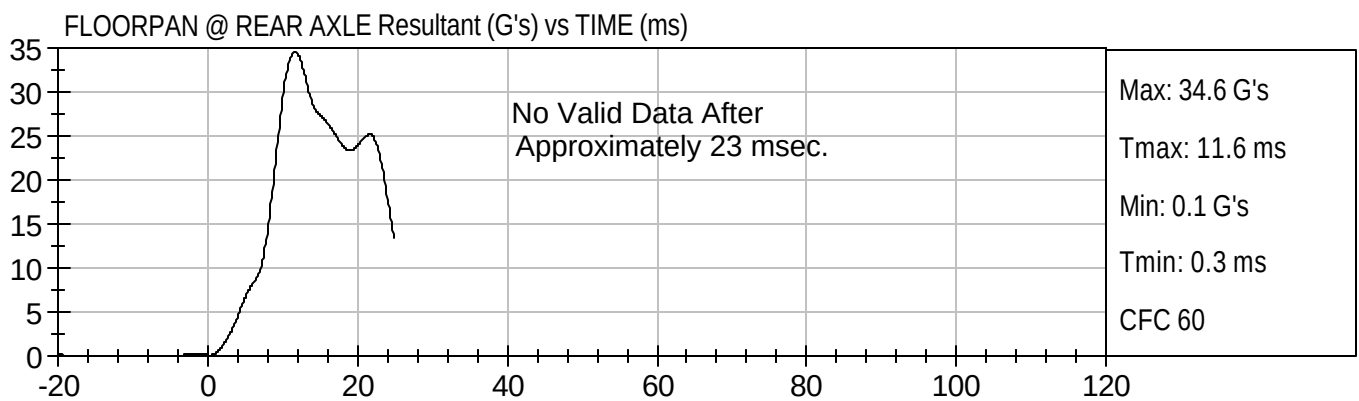
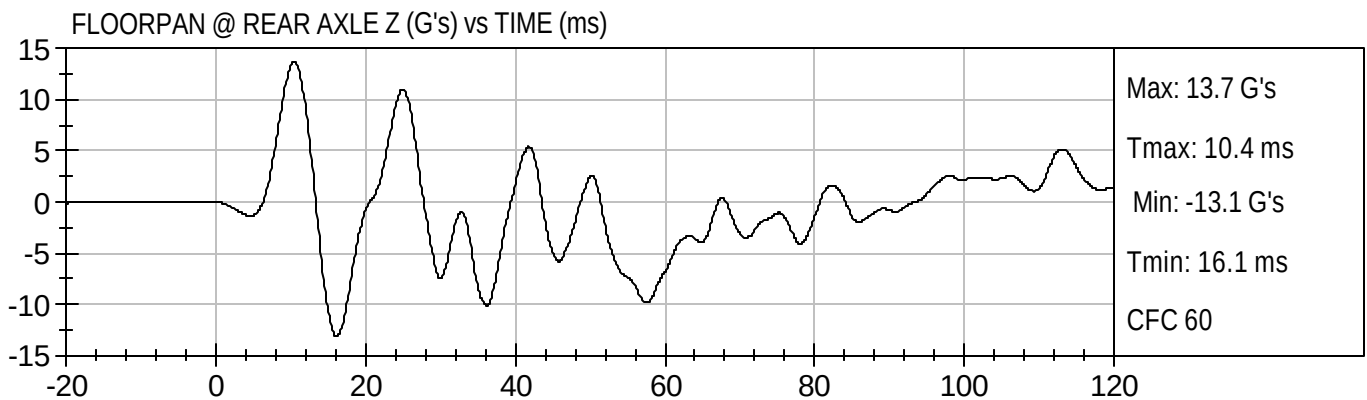
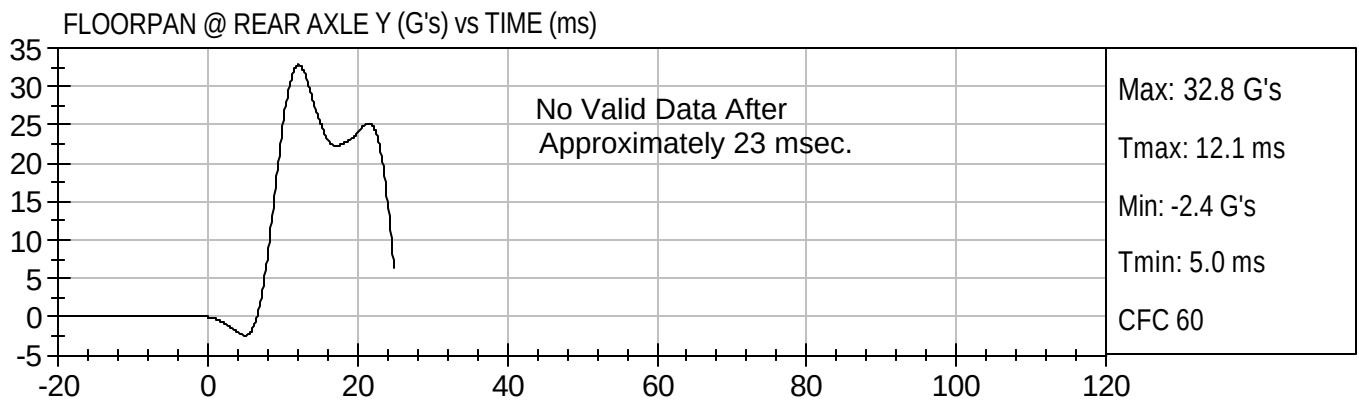
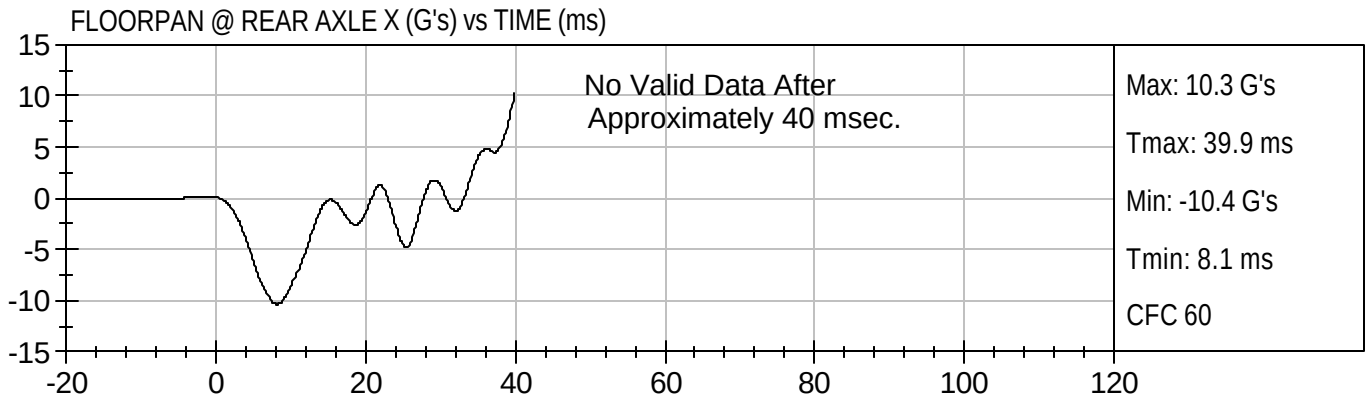
RIGHT REAR SILL Y Velocity (kph) vs TIME (ms)



RIGHT REAR SILL Z Velocity (kph) vs TIME (ms)

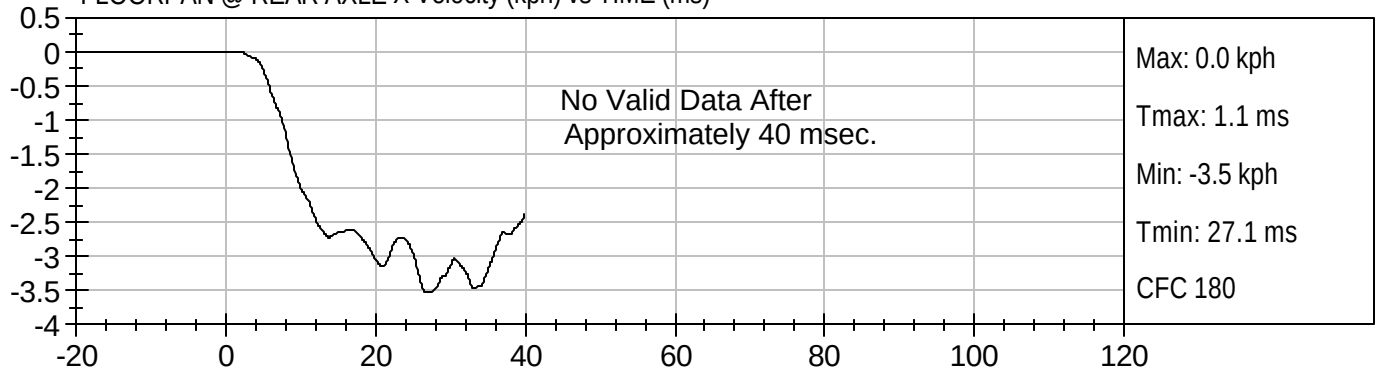




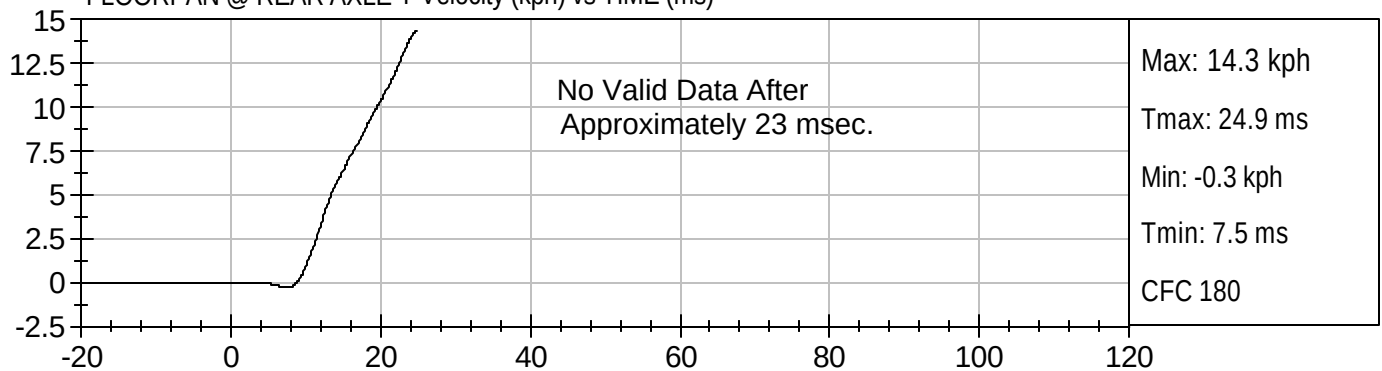




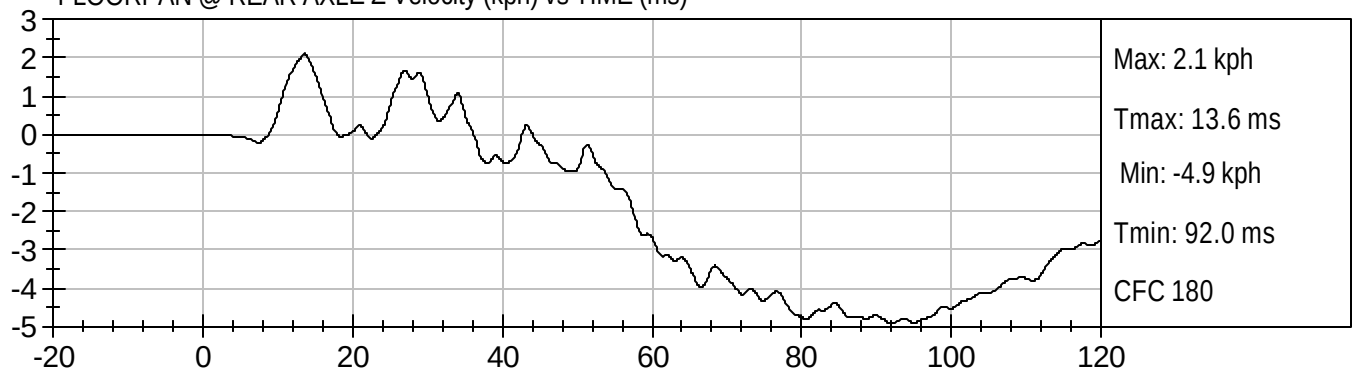
FLOORPAN @ REAR AXLE X Velocity (kph) vs TIME (ms)

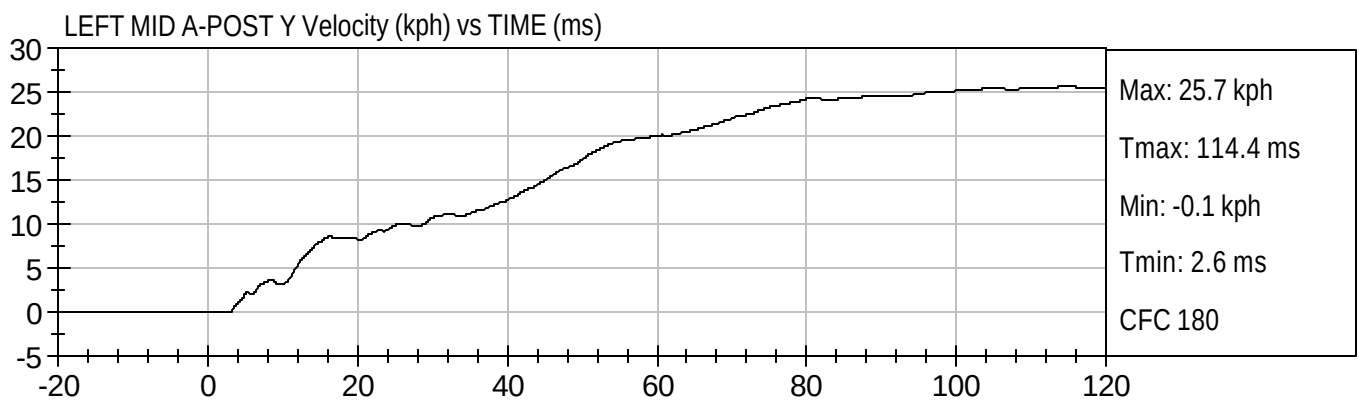
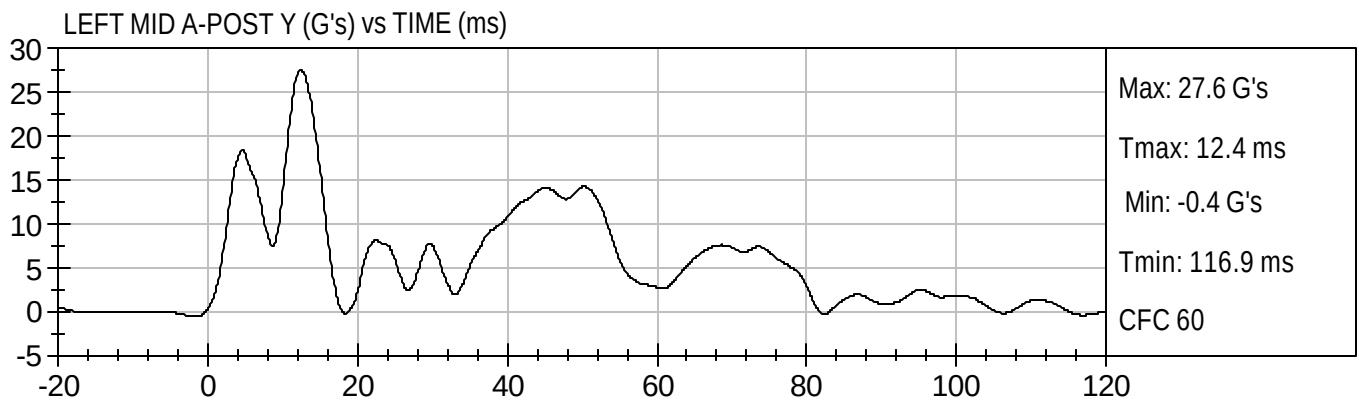
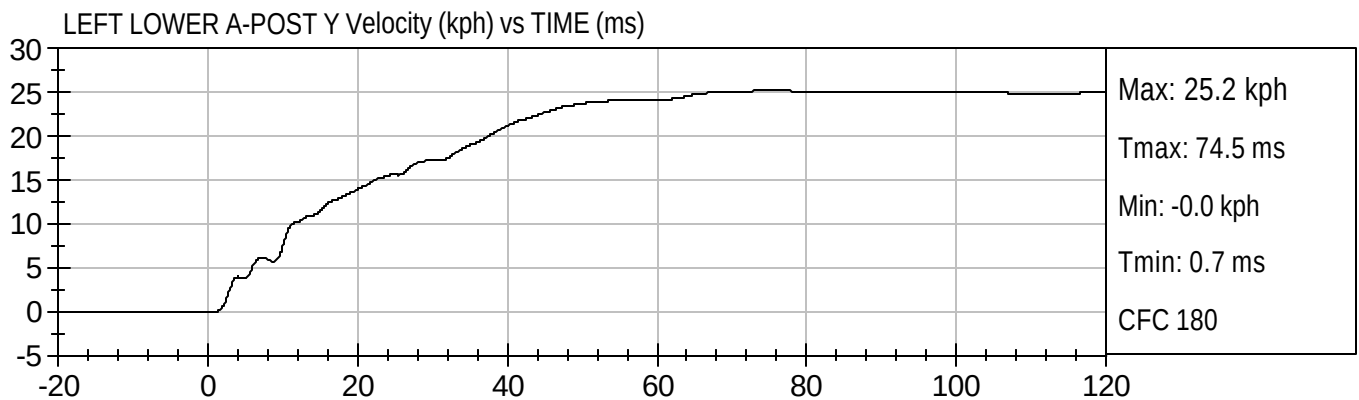
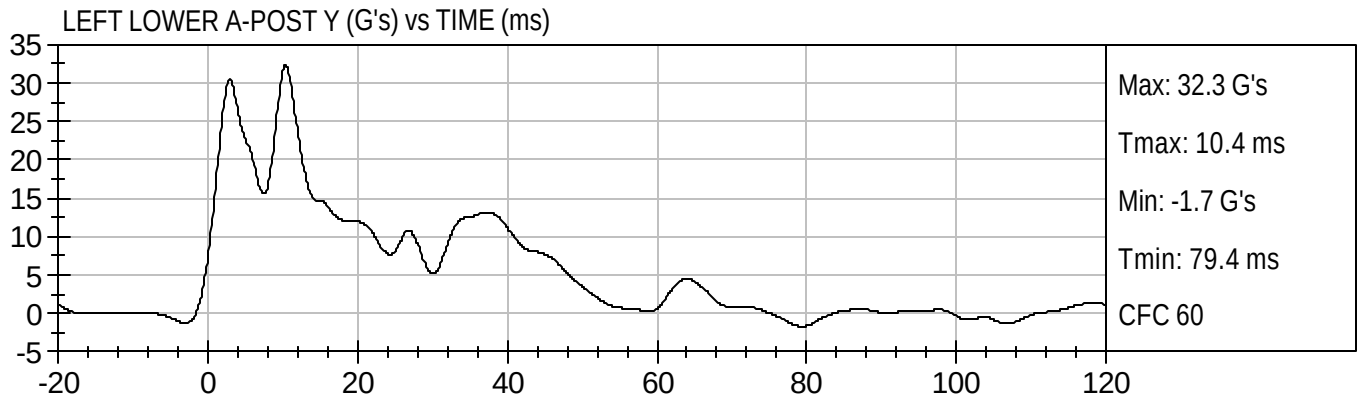


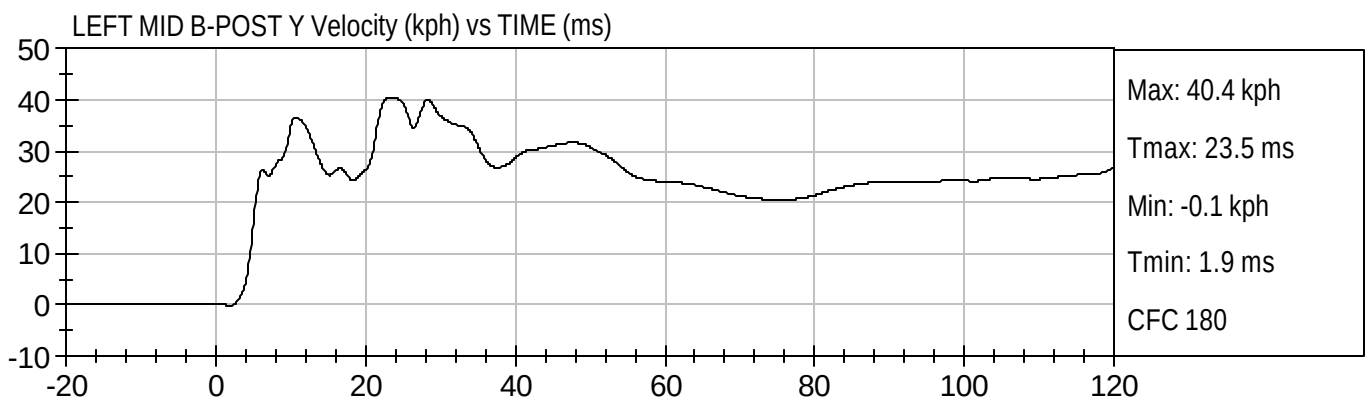
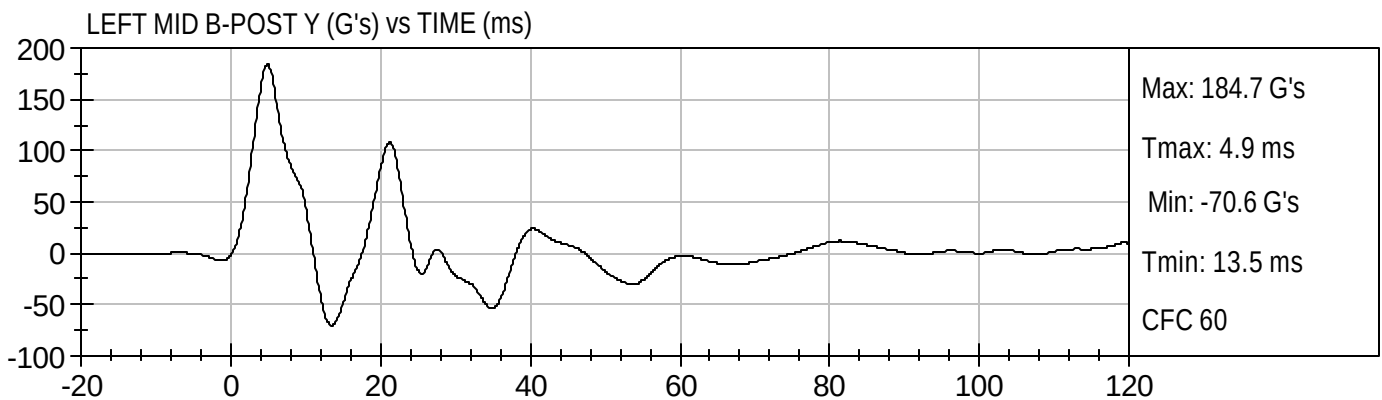
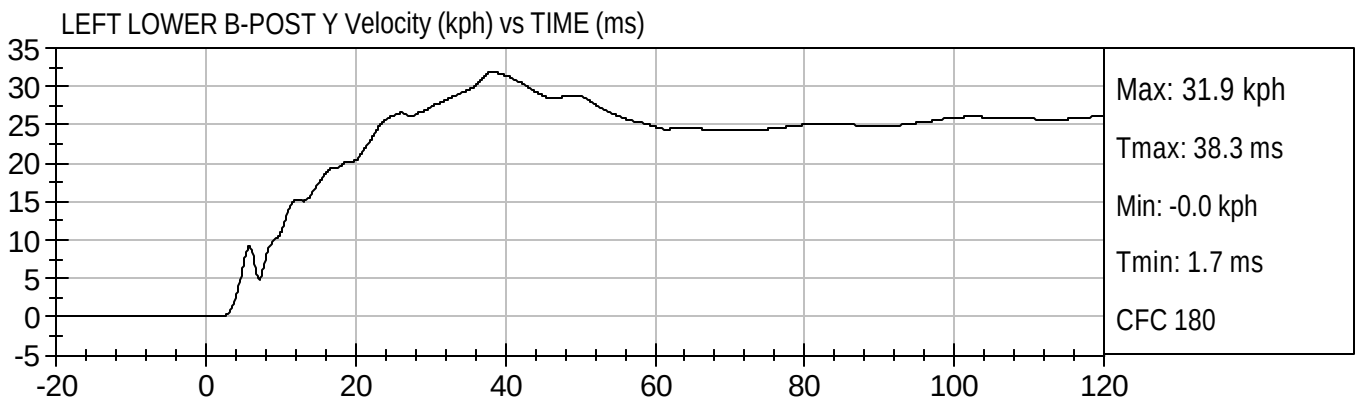
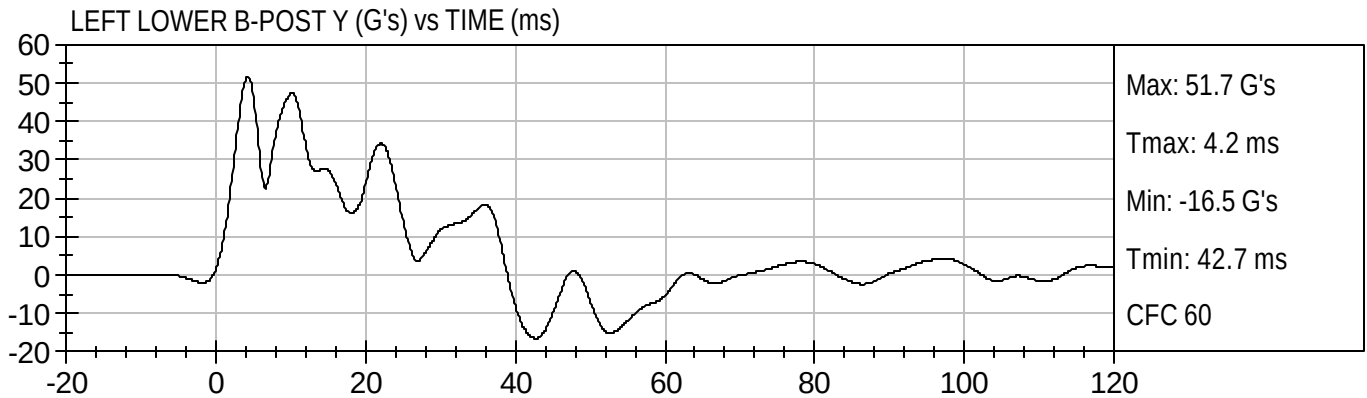
FLOORPAN @ REAR AXLE Y Velocity (kph) vs TIME (ms)



FLOORPAN @ REAR AXLE Z Velocity (kph) vs TIME (ms)



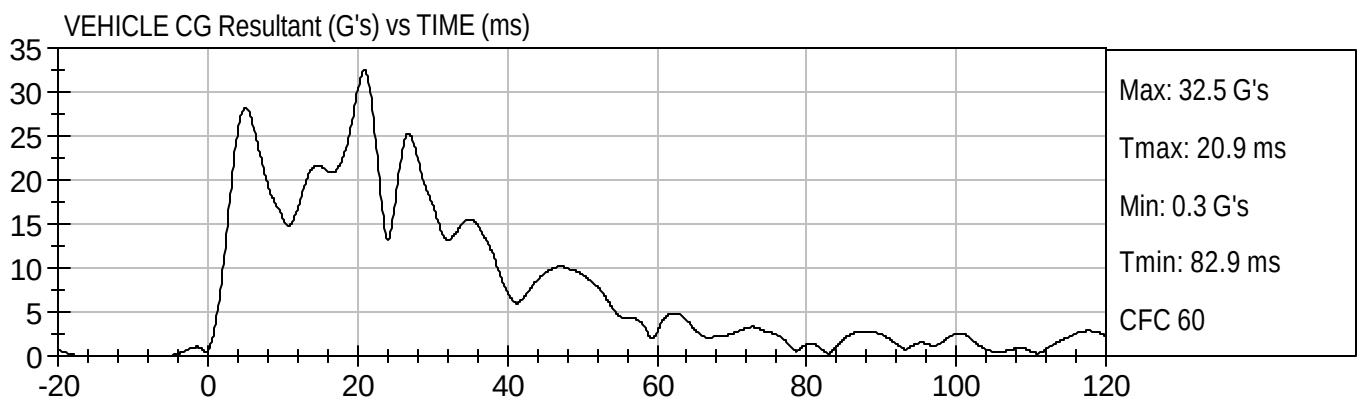
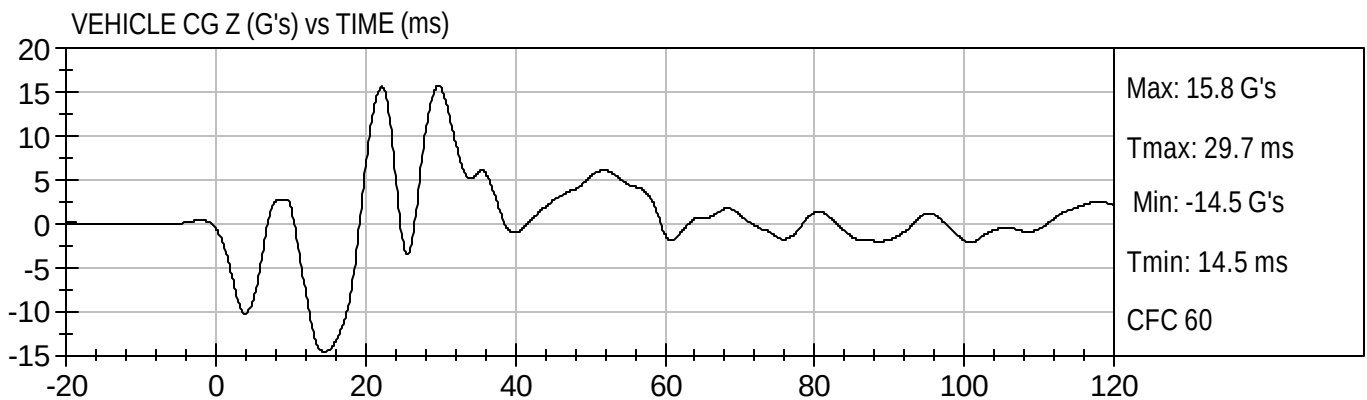
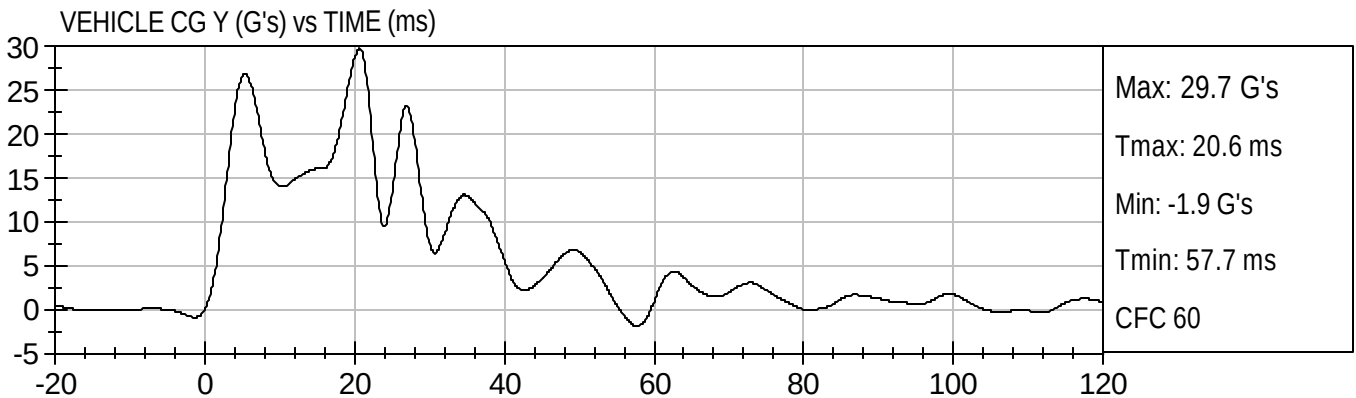
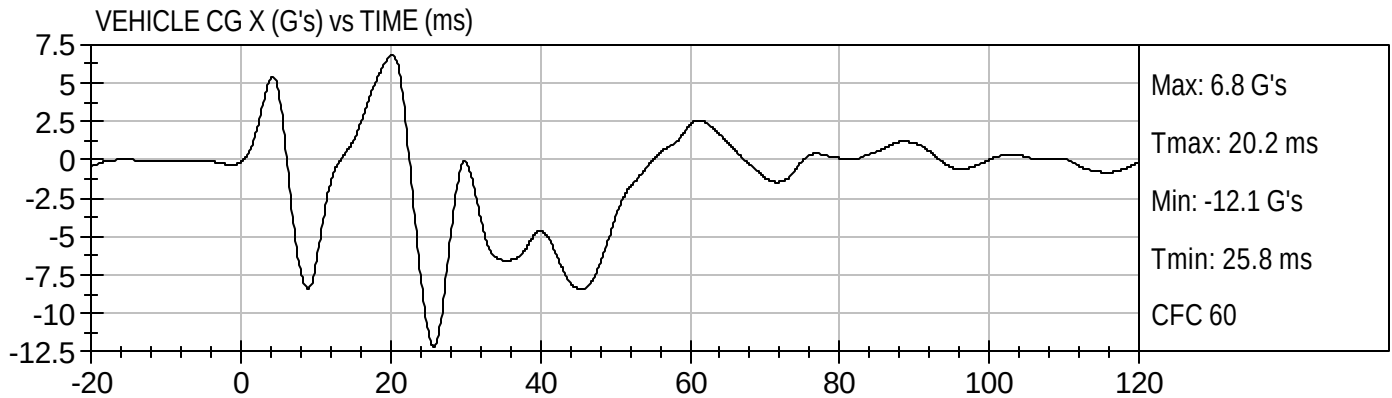


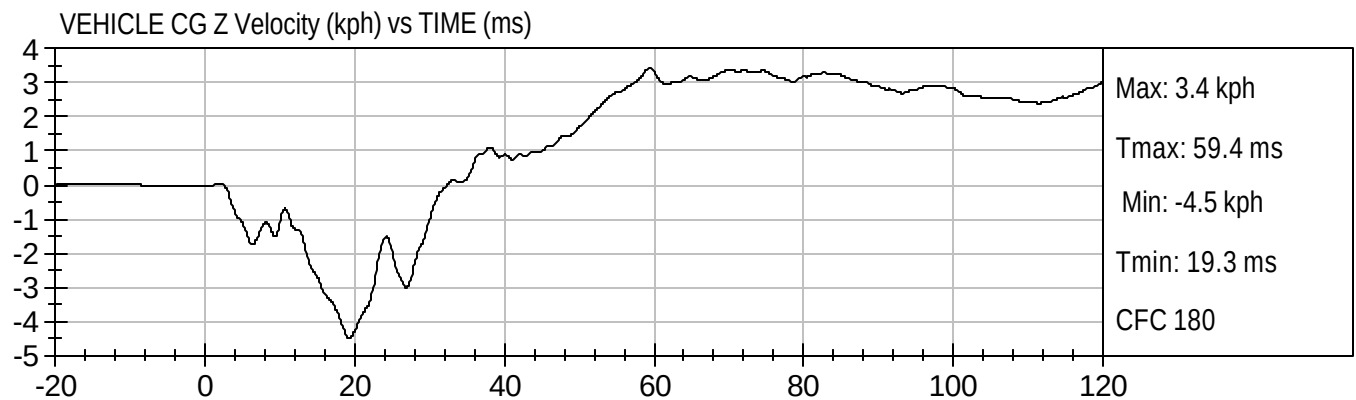
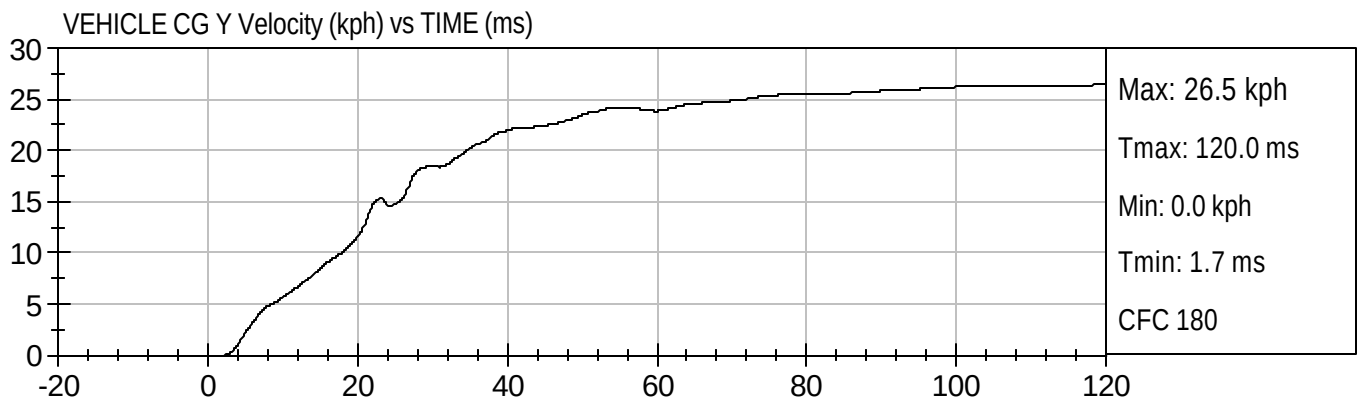
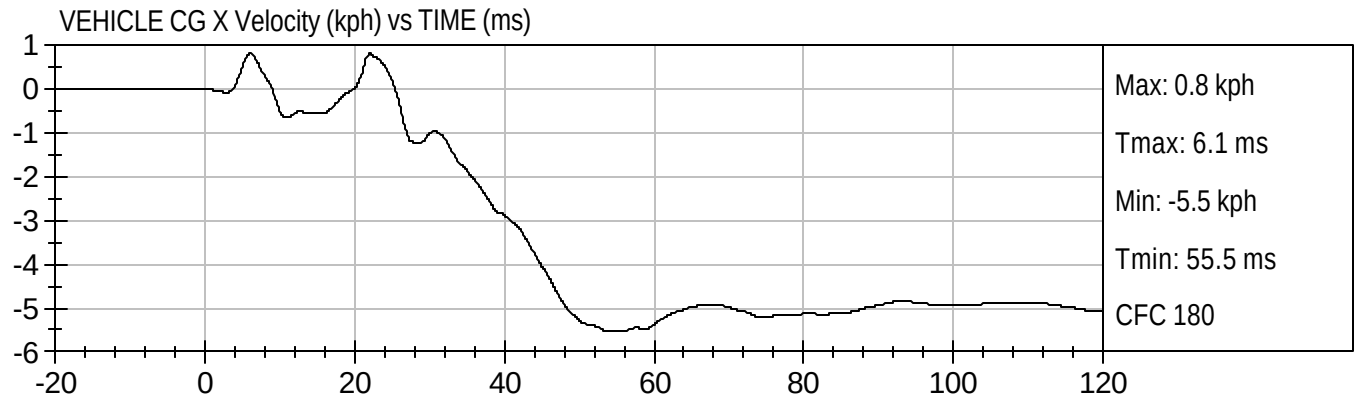




38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)

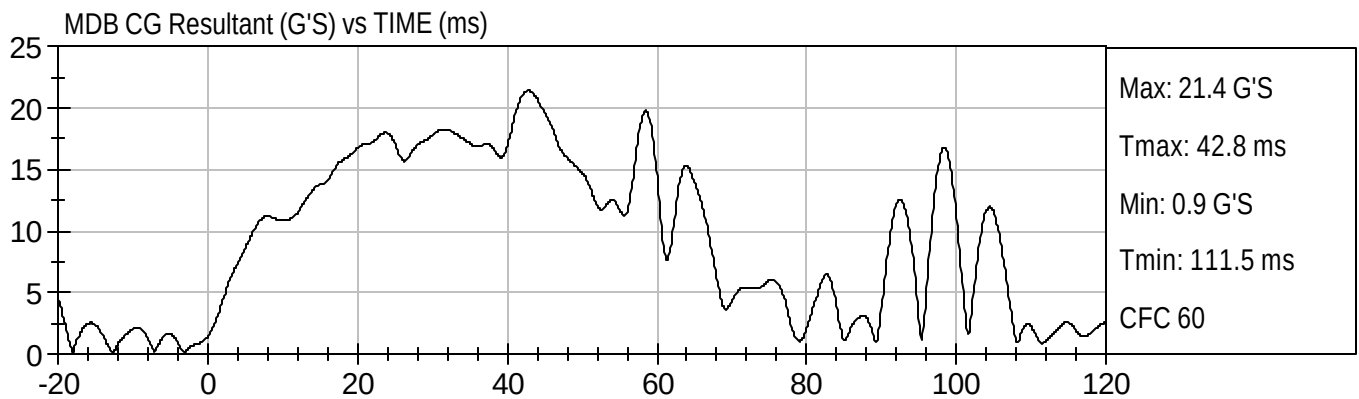
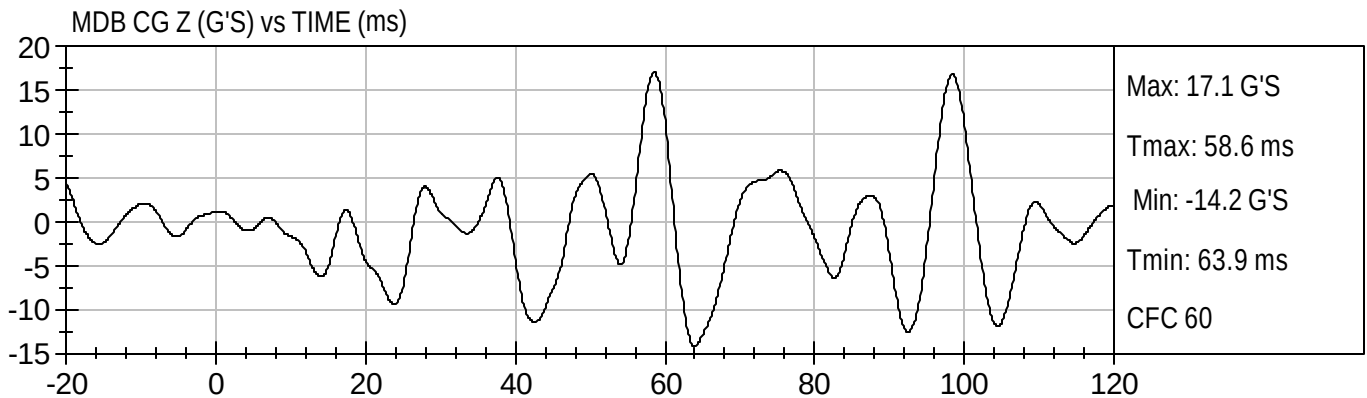
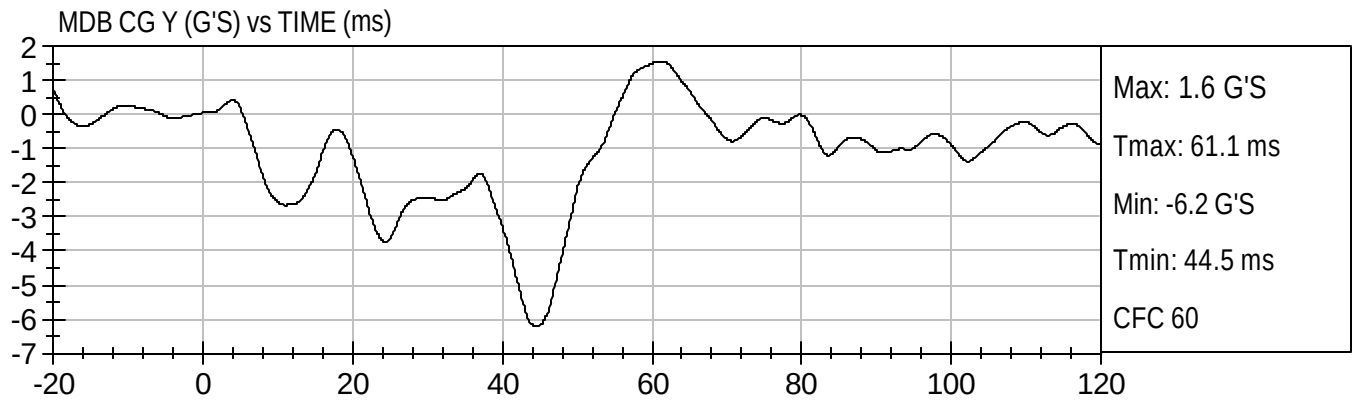
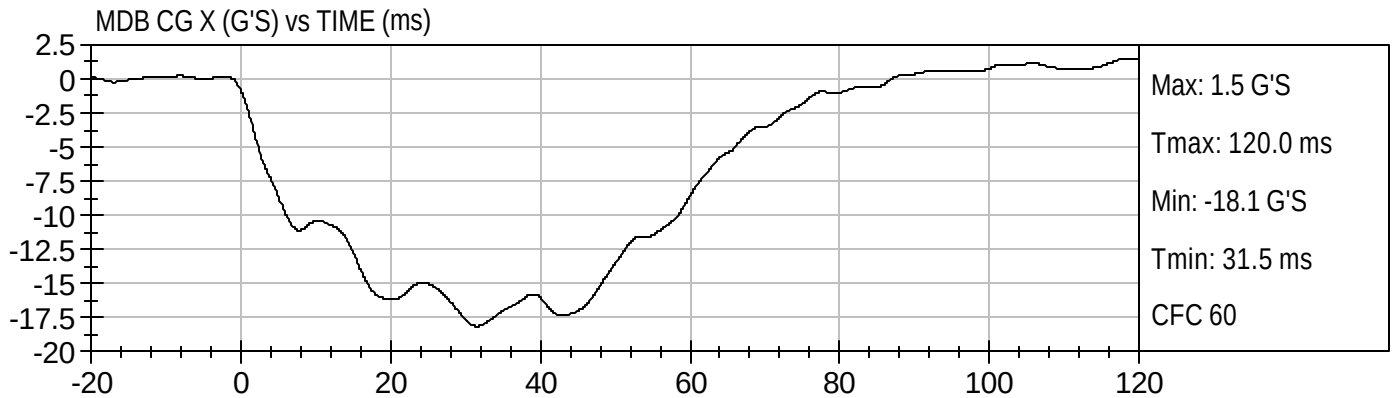






38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

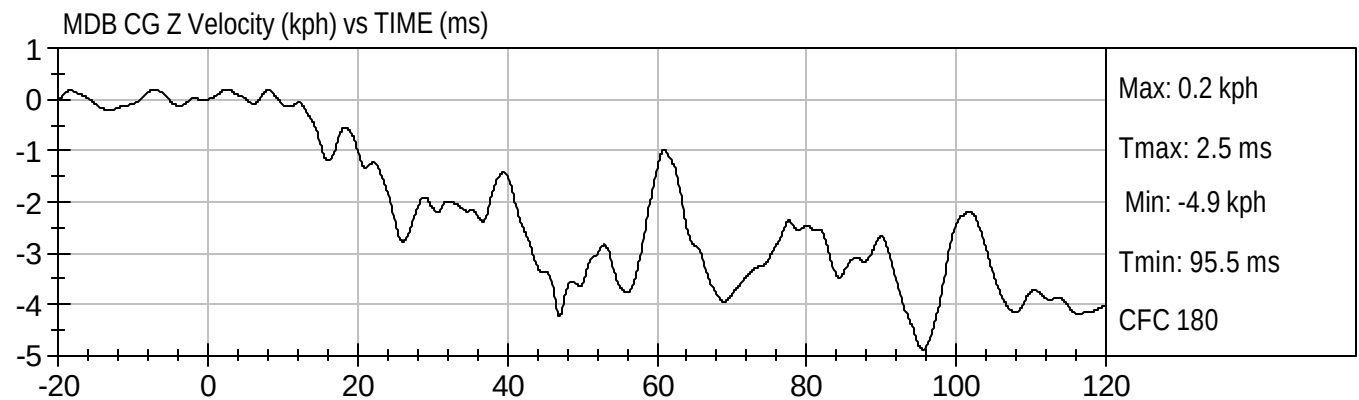
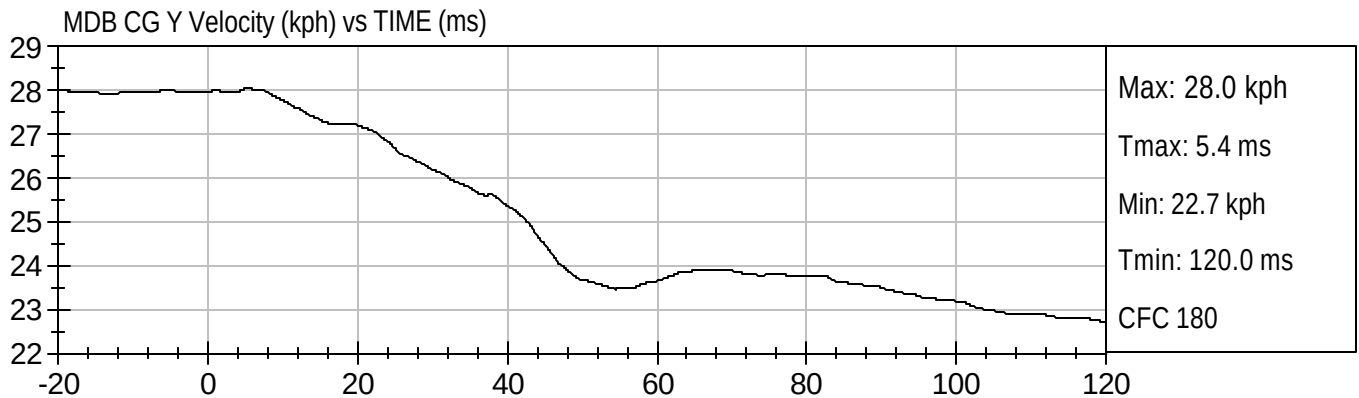
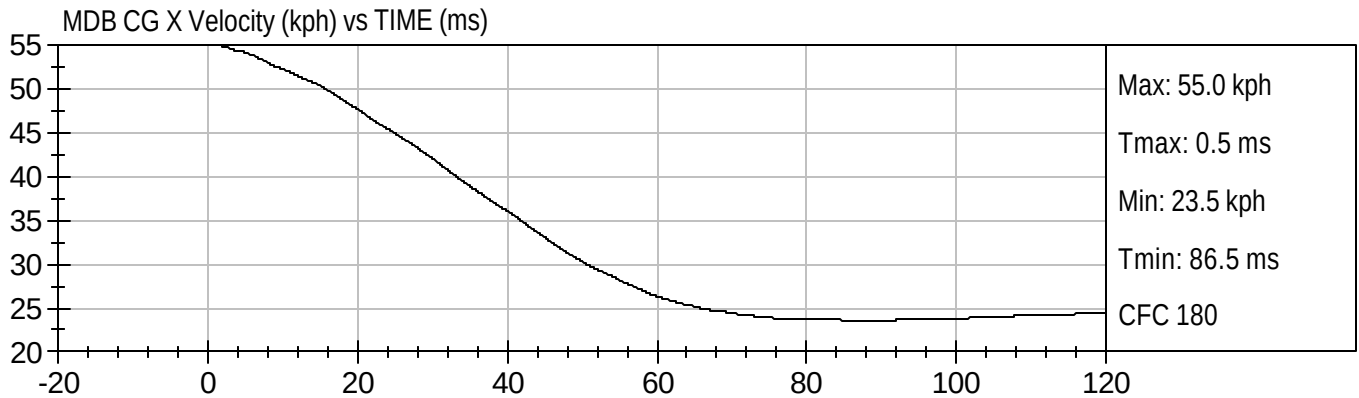
Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)





38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

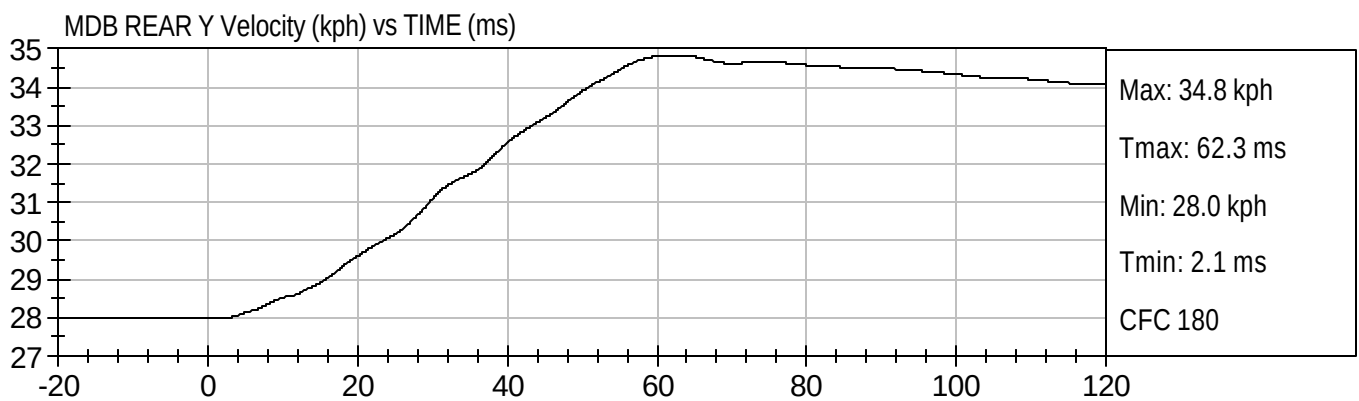
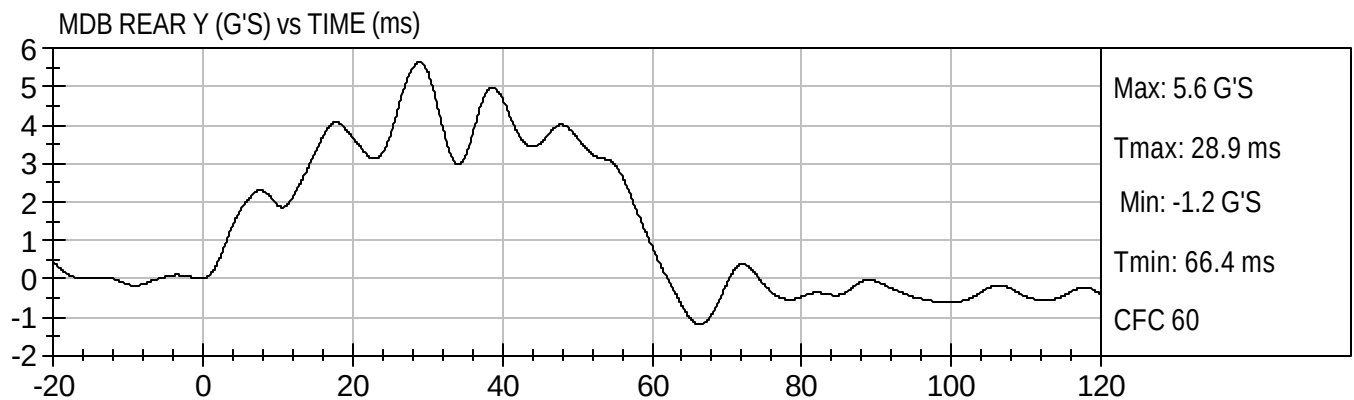
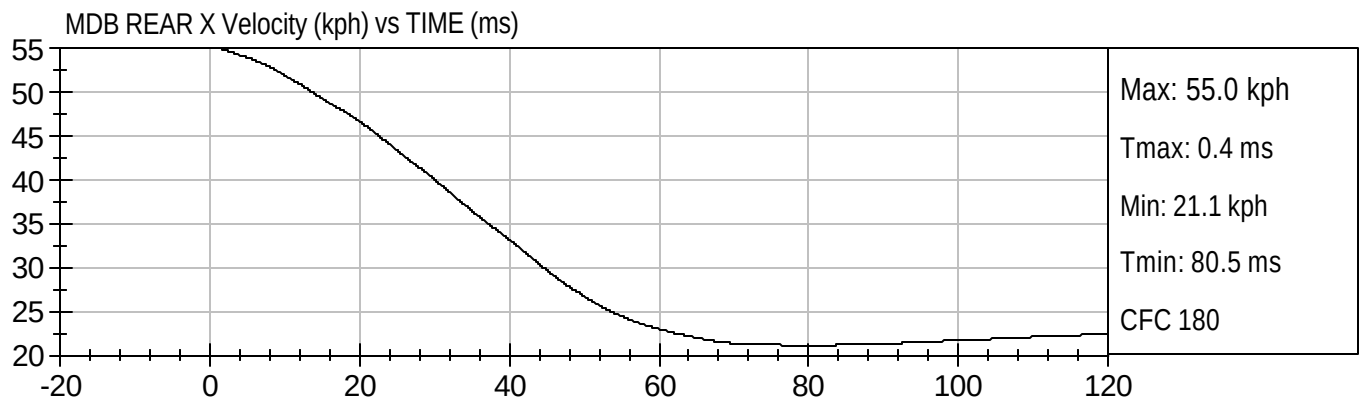
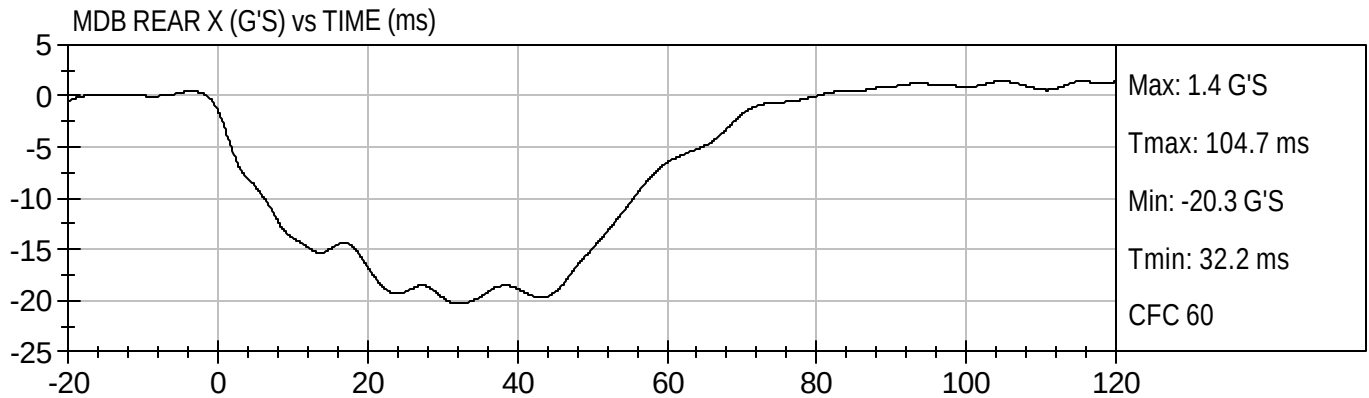
Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)





38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

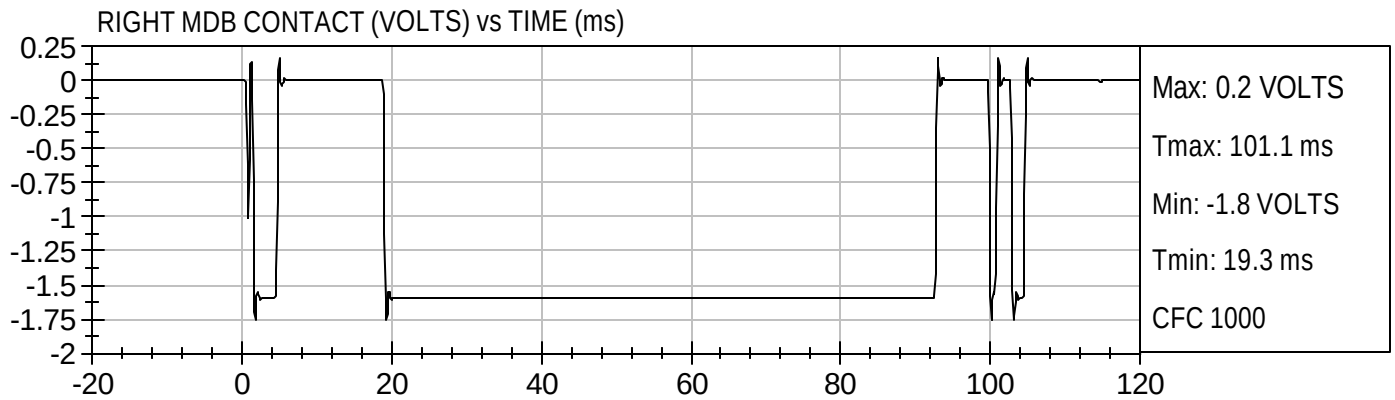
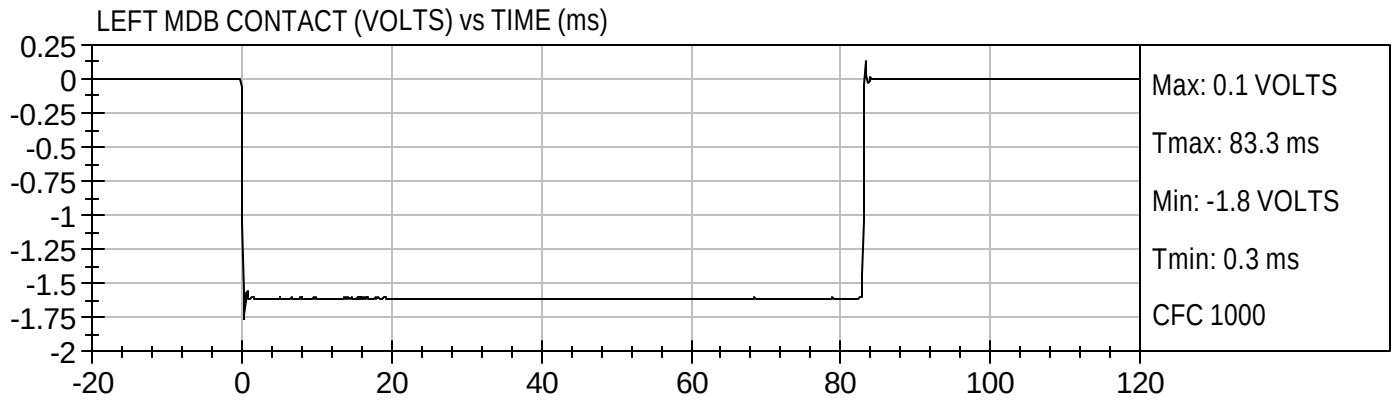
Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)





38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

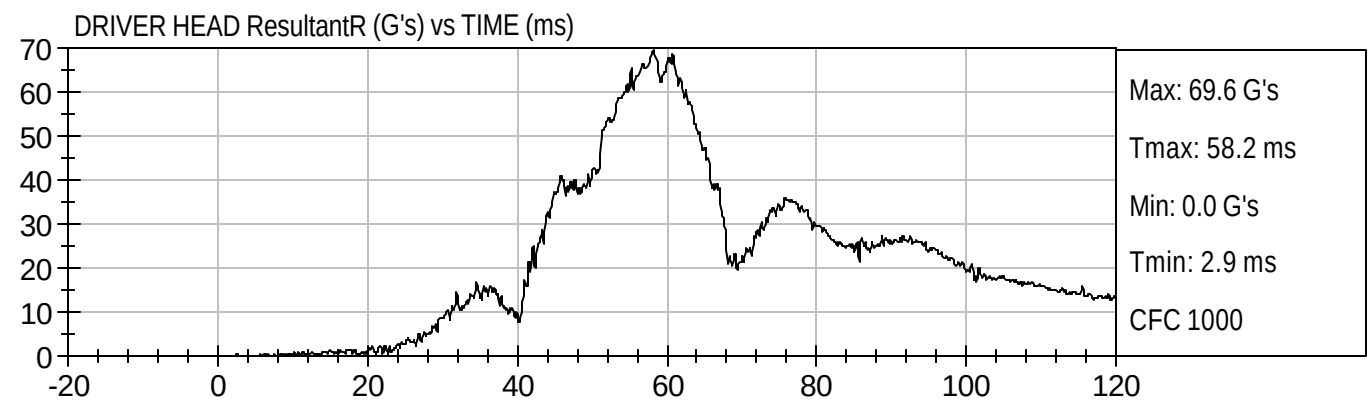
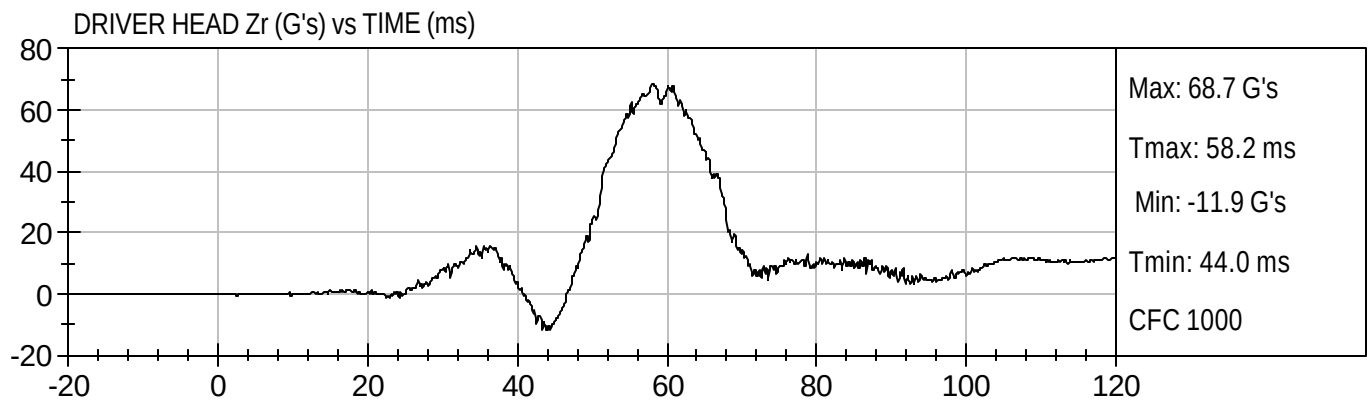
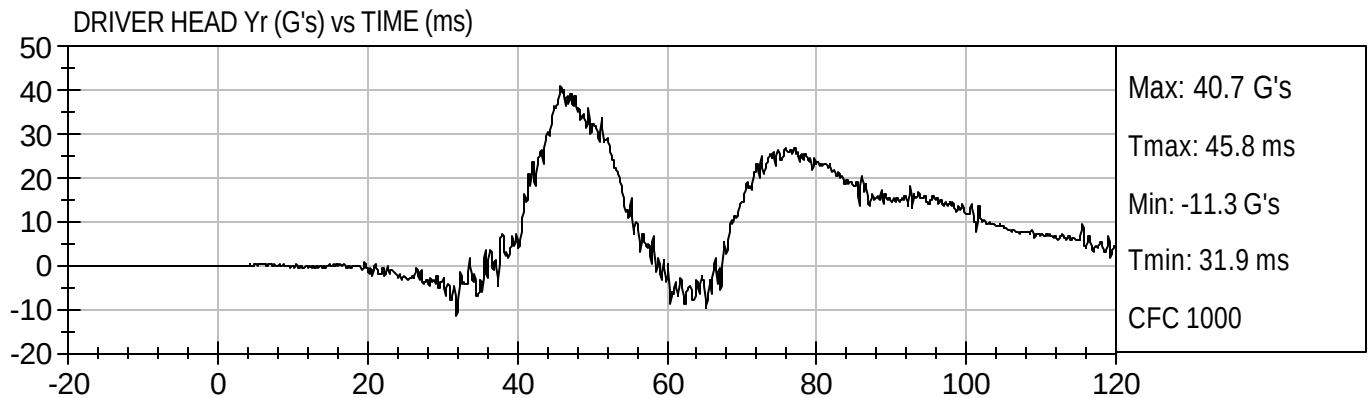
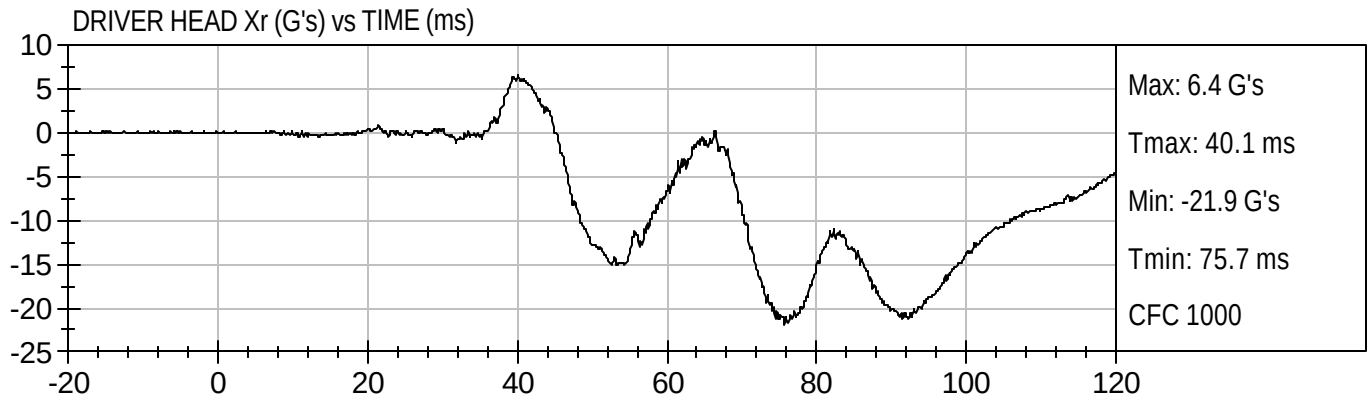
Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)





38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

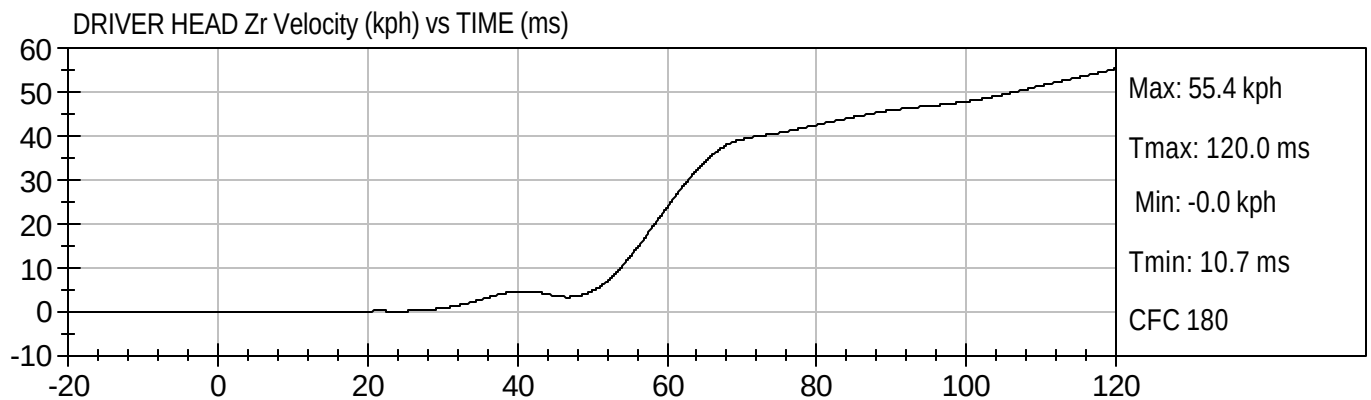
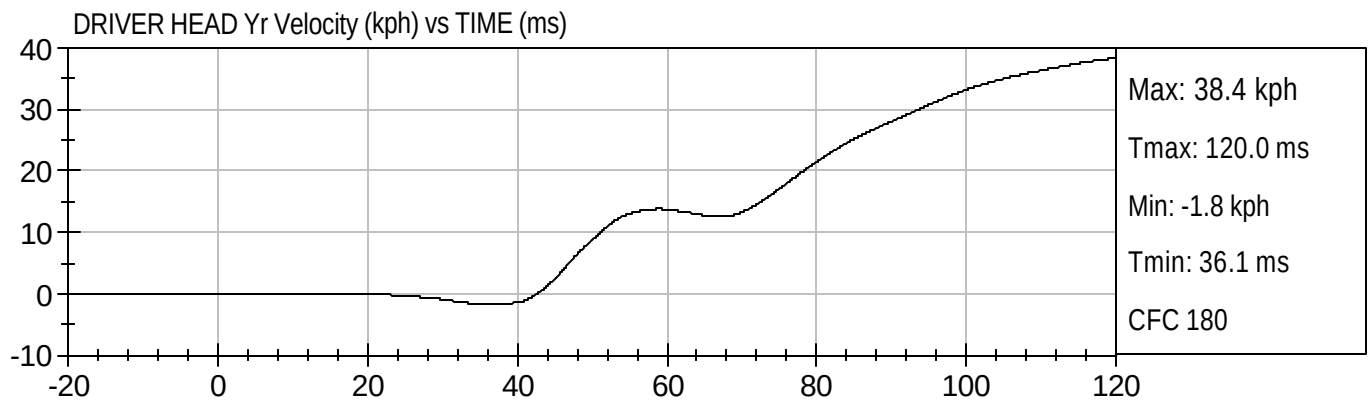
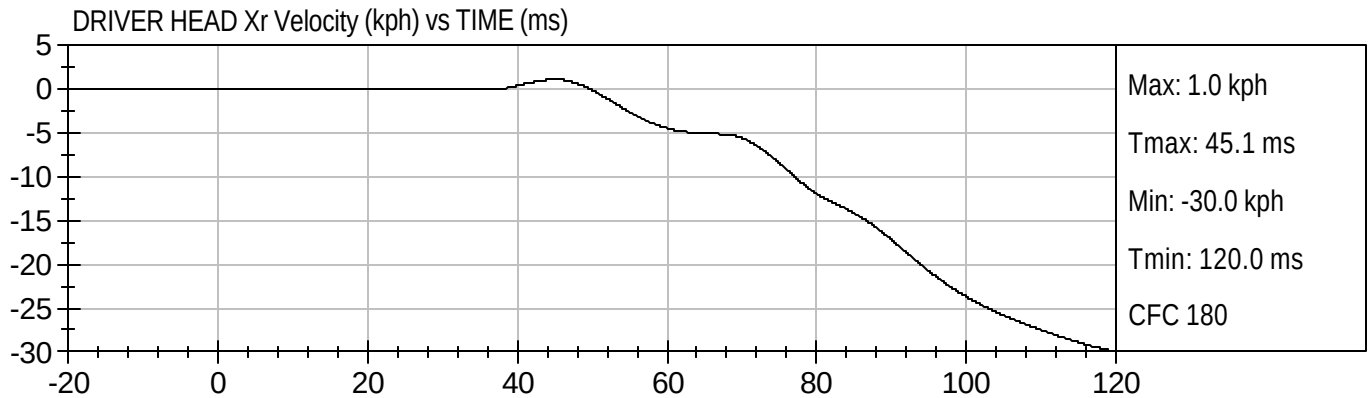
Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)





38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

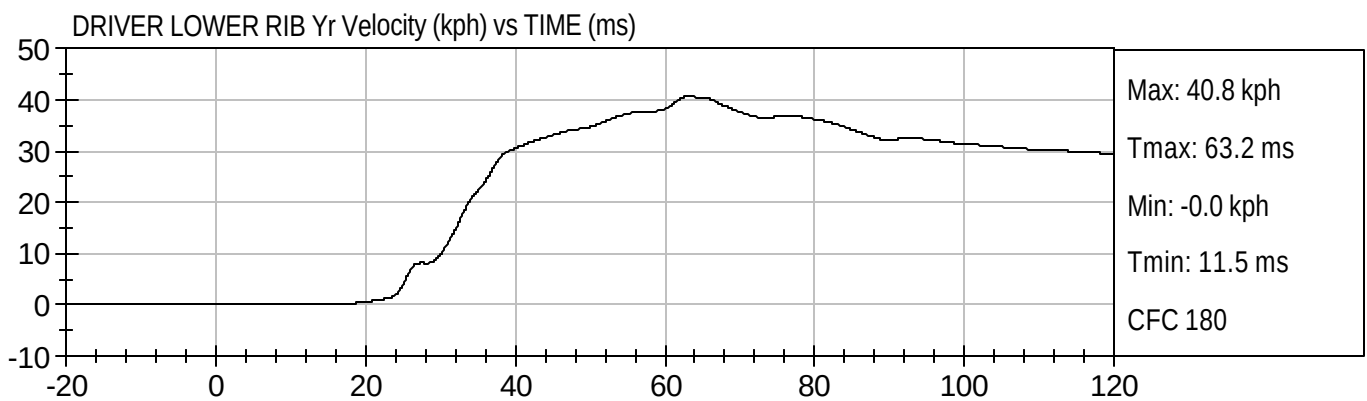
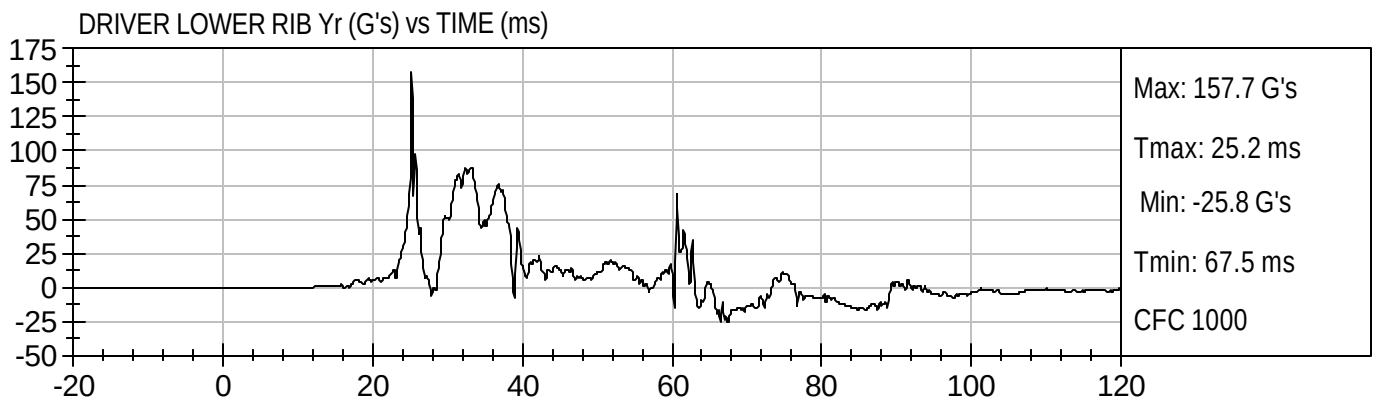
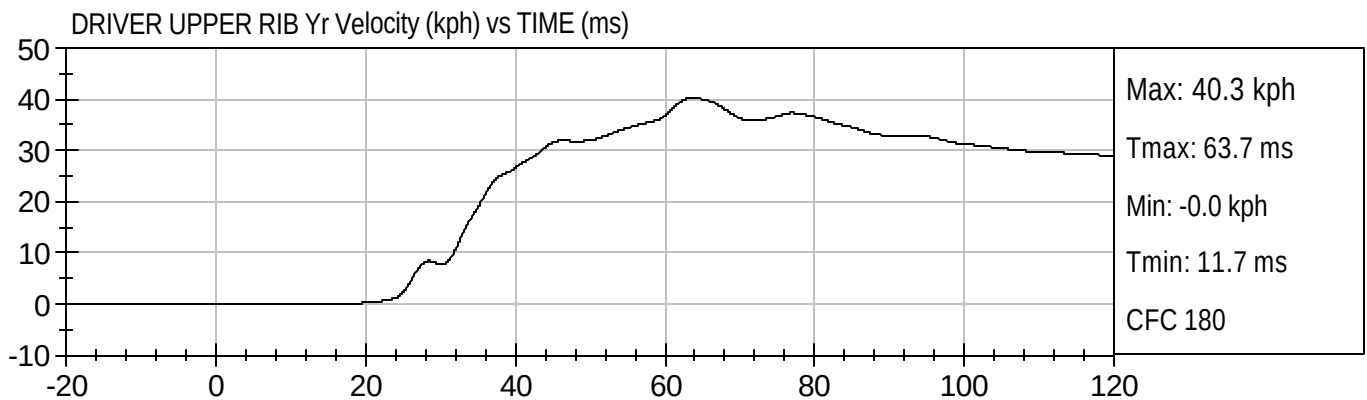
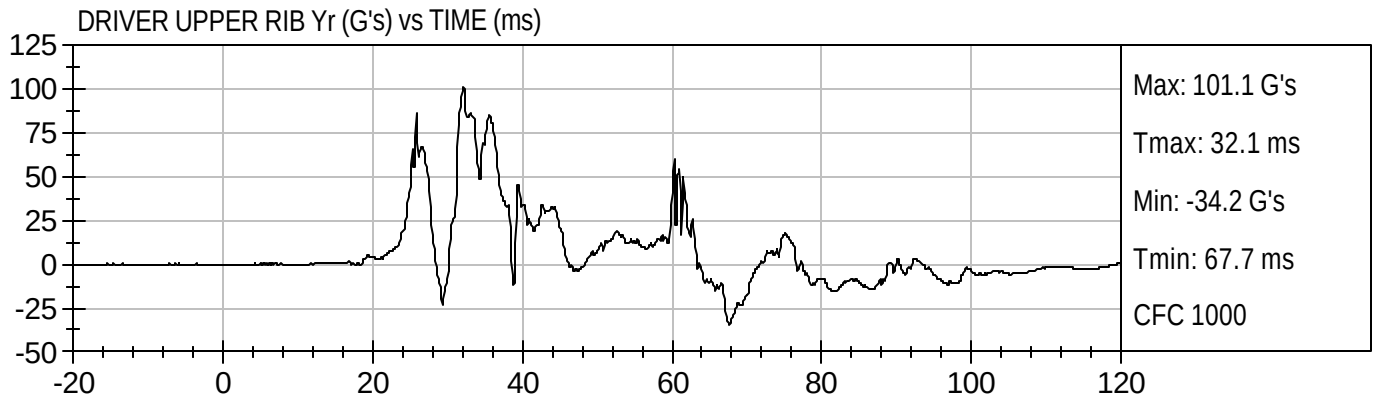
Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)

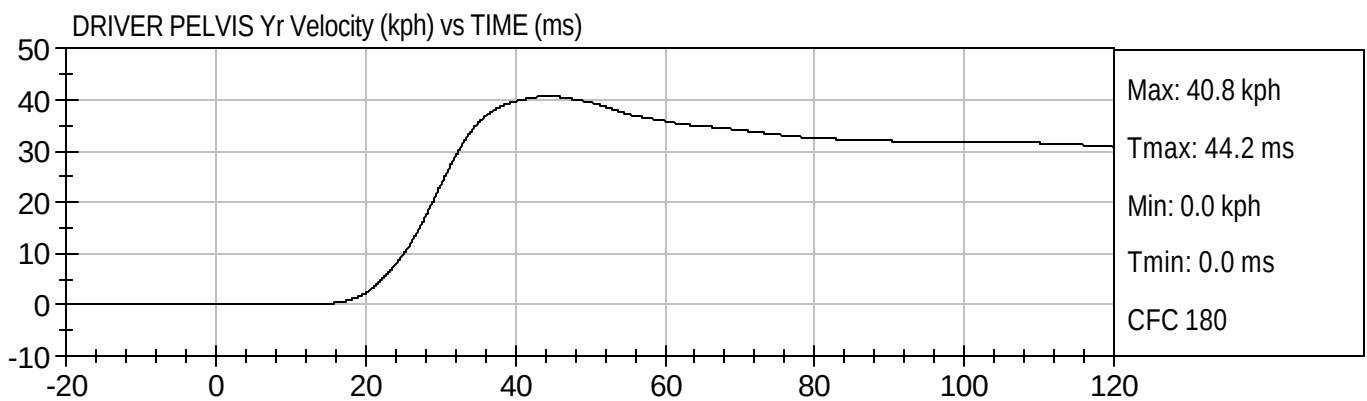
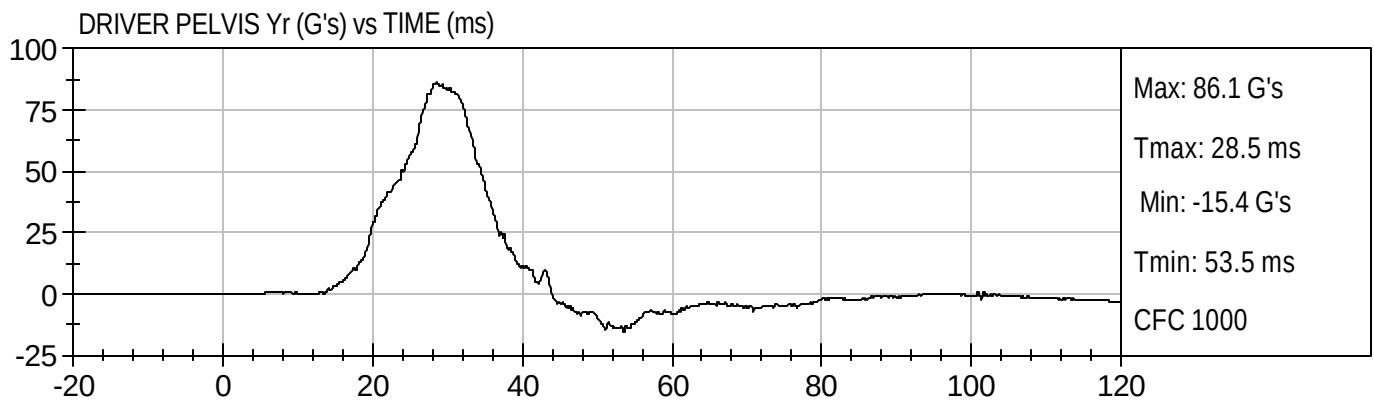
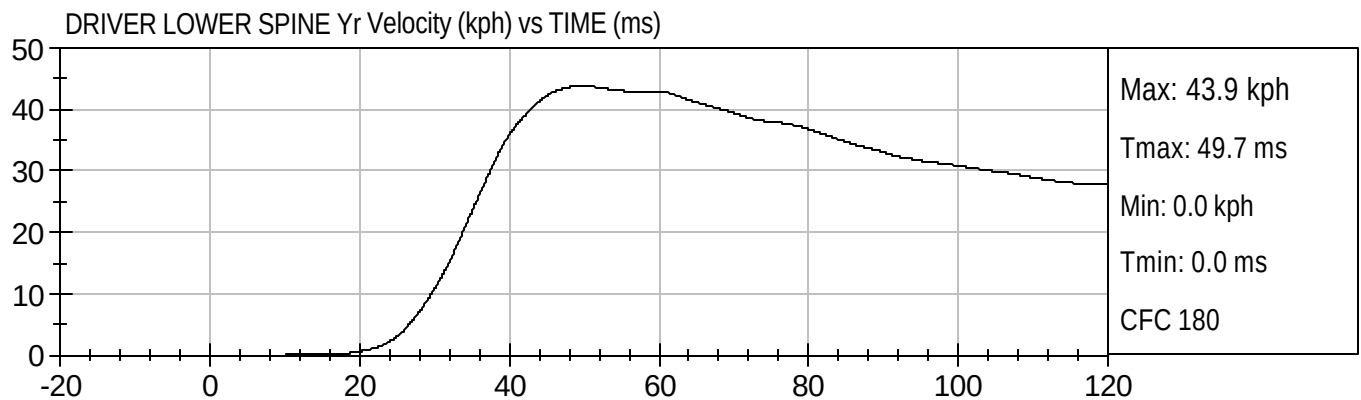
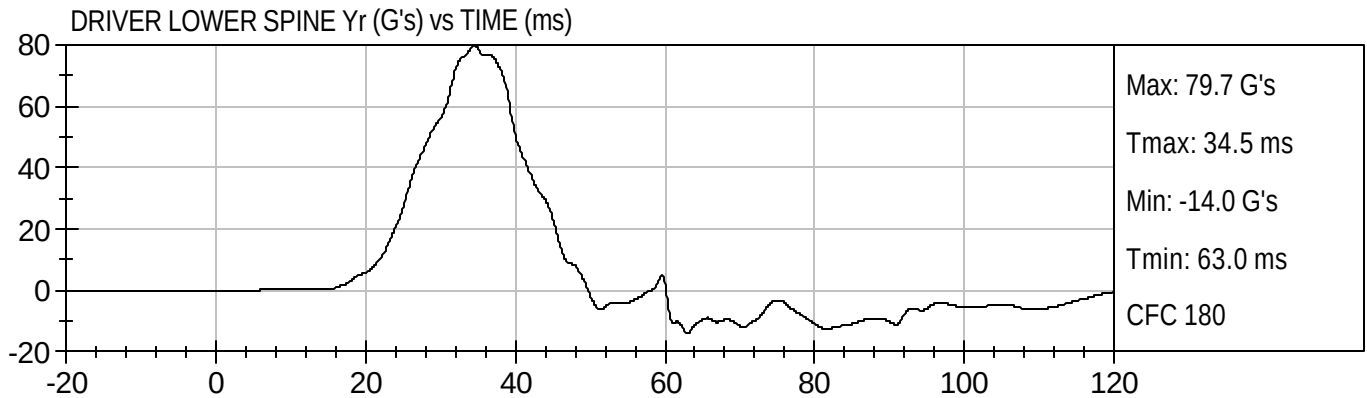




38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)

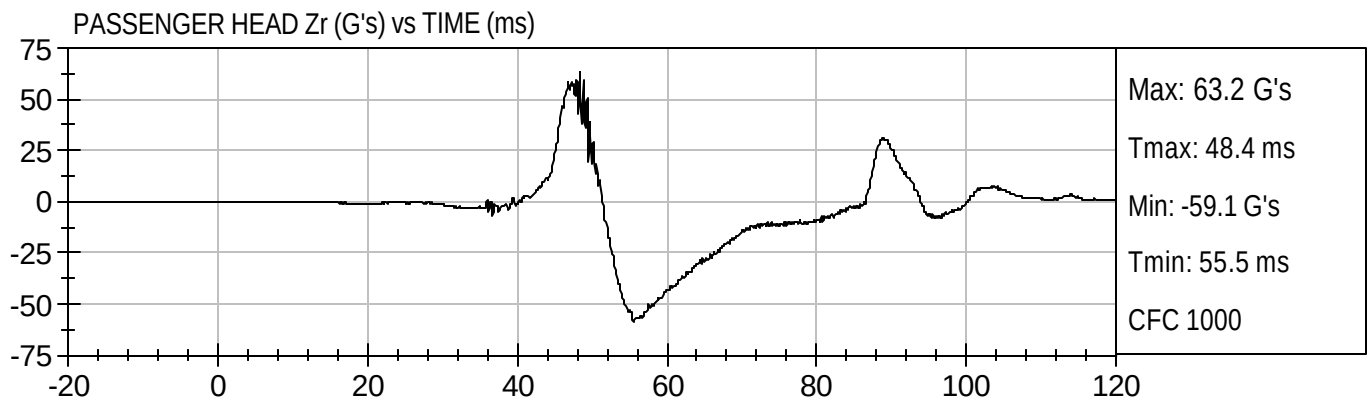
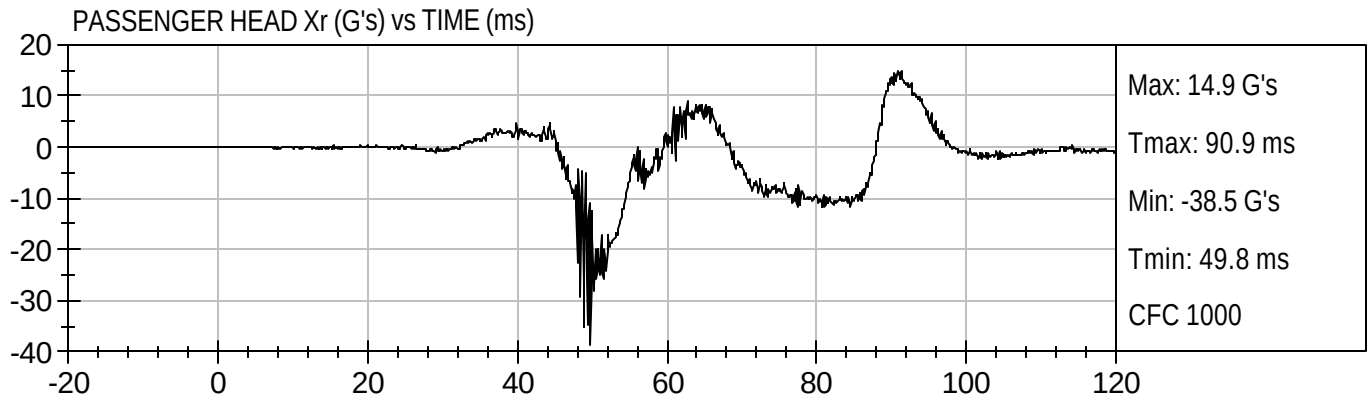






38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)

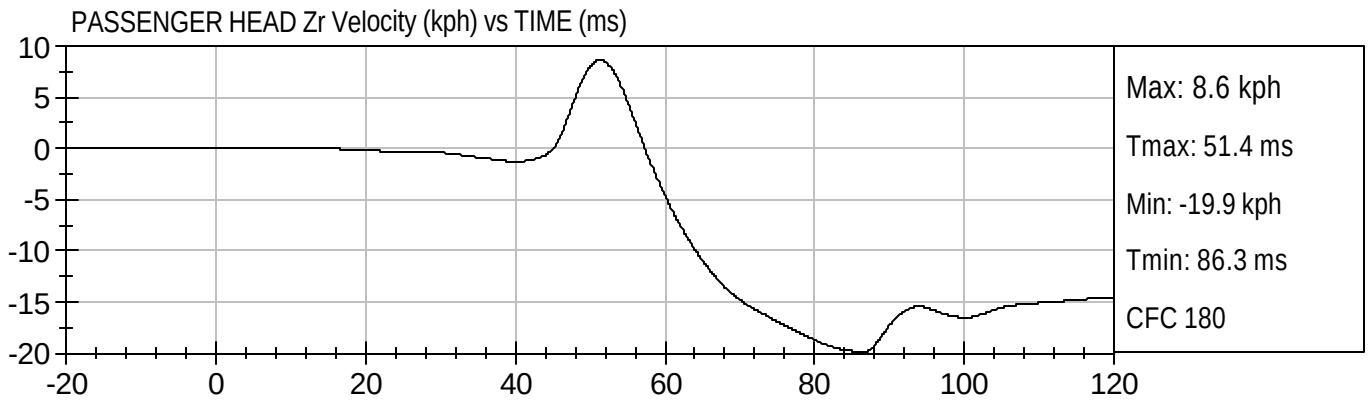
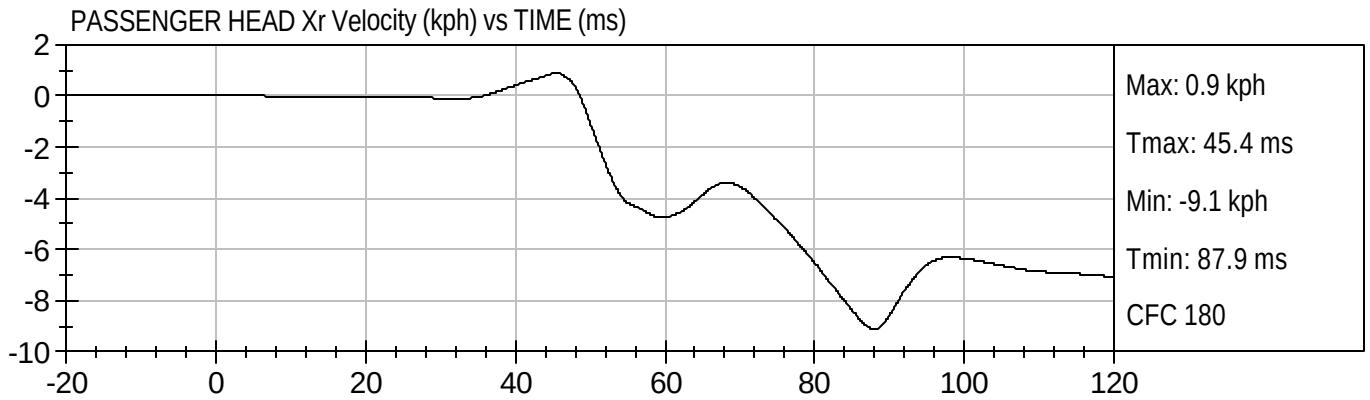


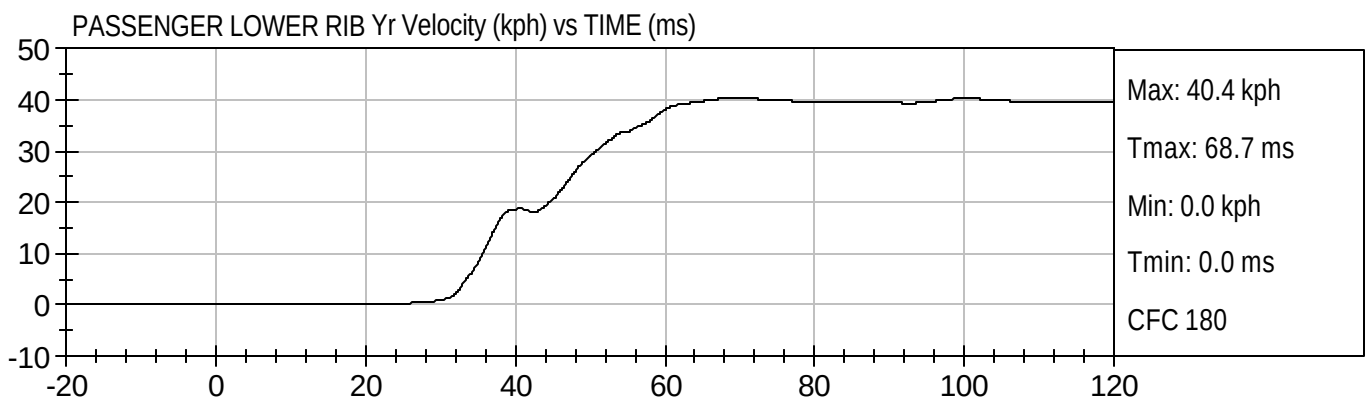
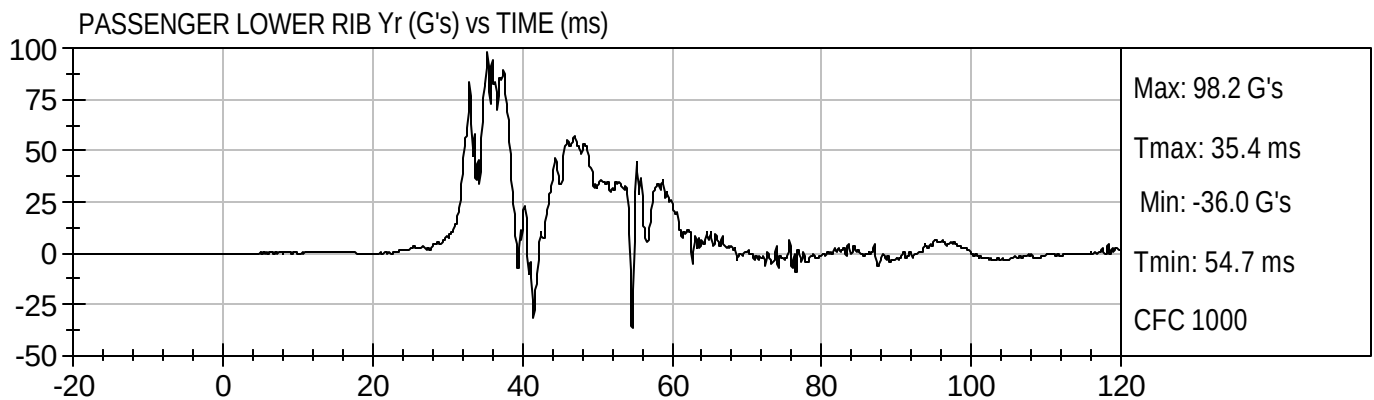
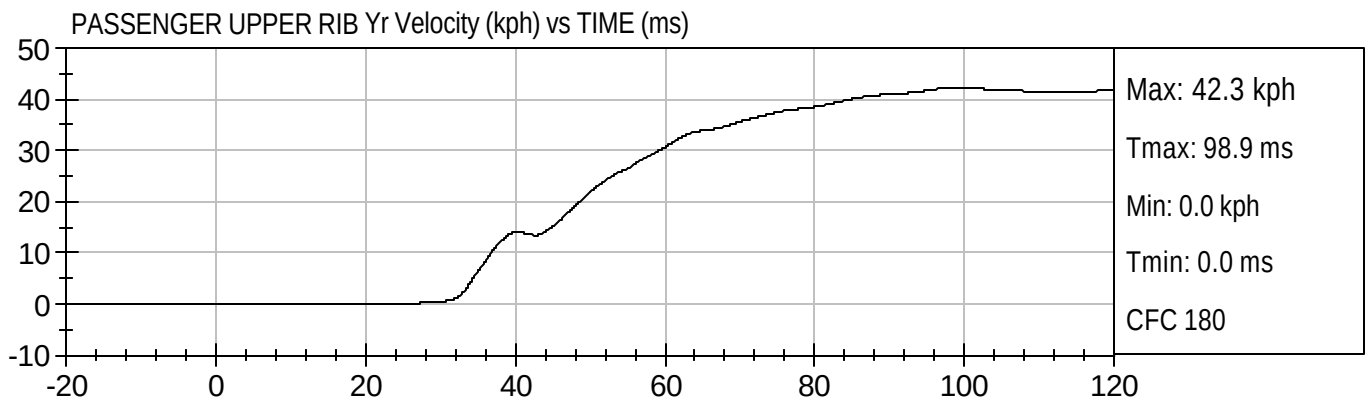
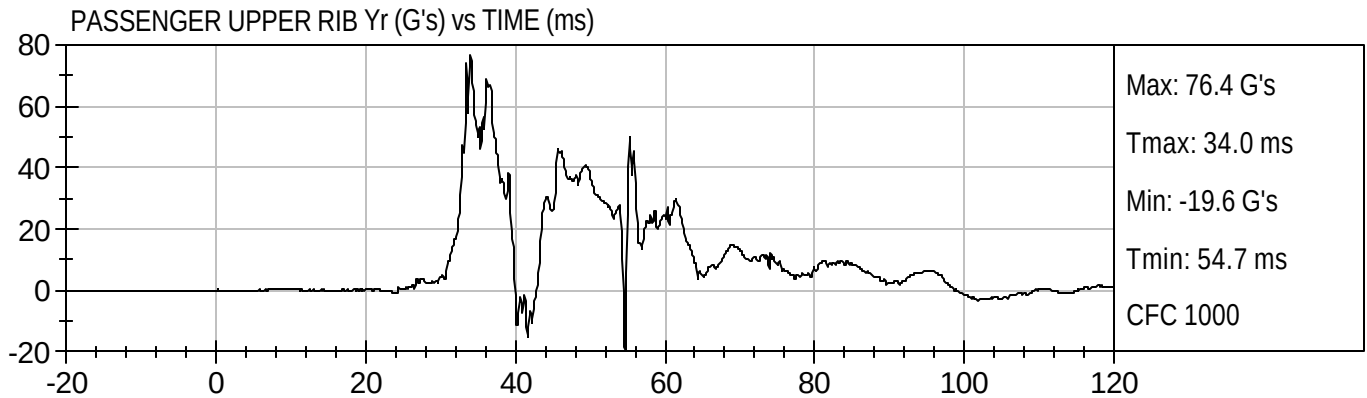
PASSENGER HEAD Y REDUNDANT (G'S) vs TIME (ms)
NO VALID DATA COLLECTED



38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)

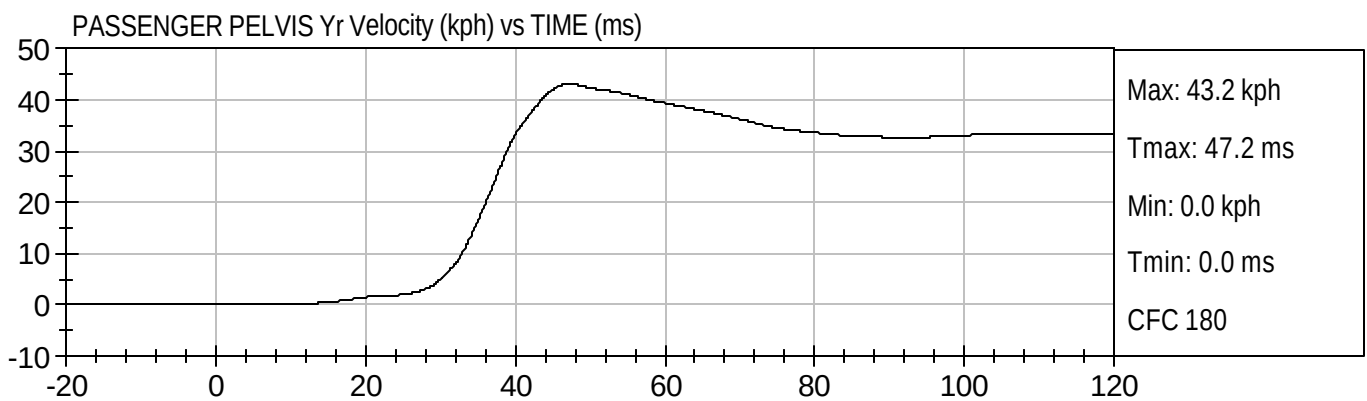
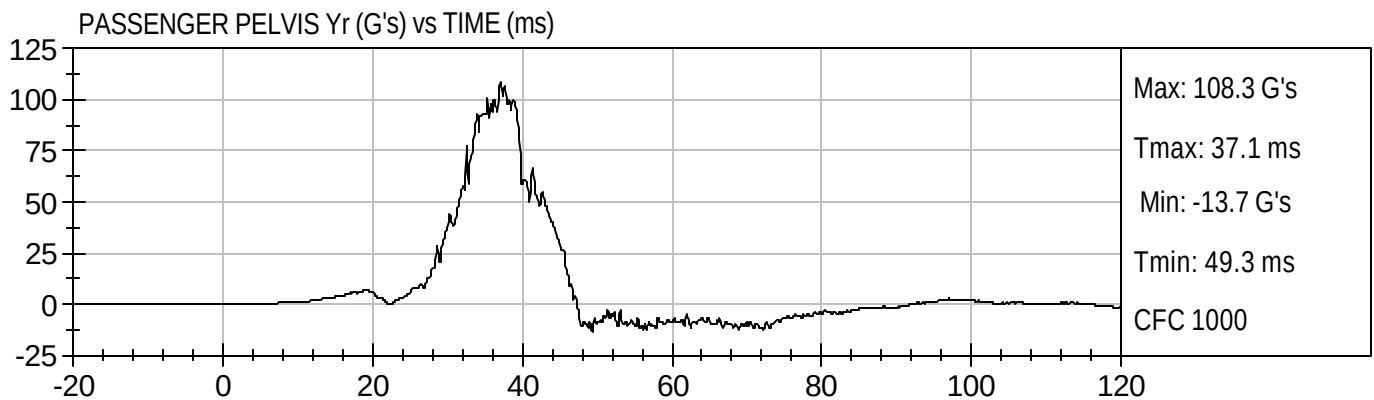
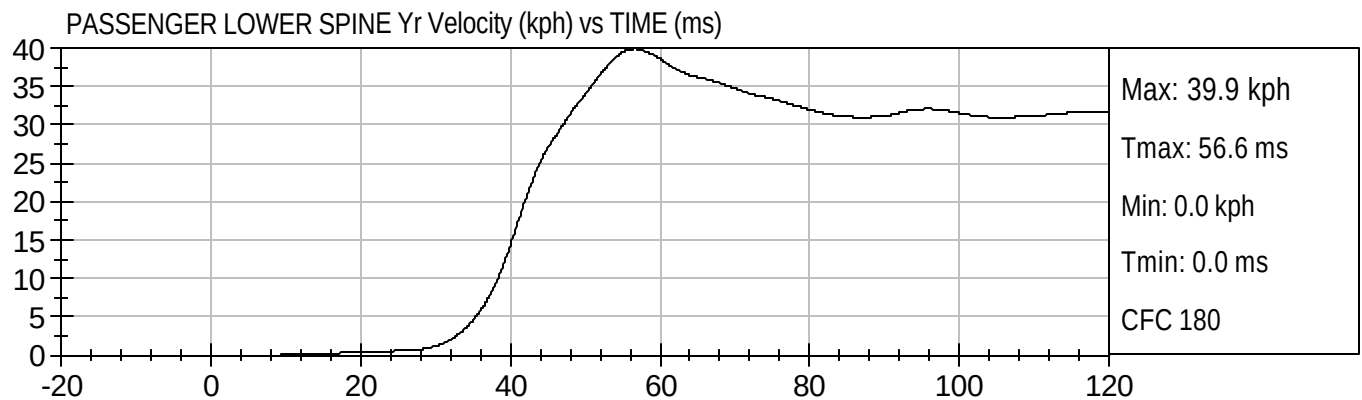
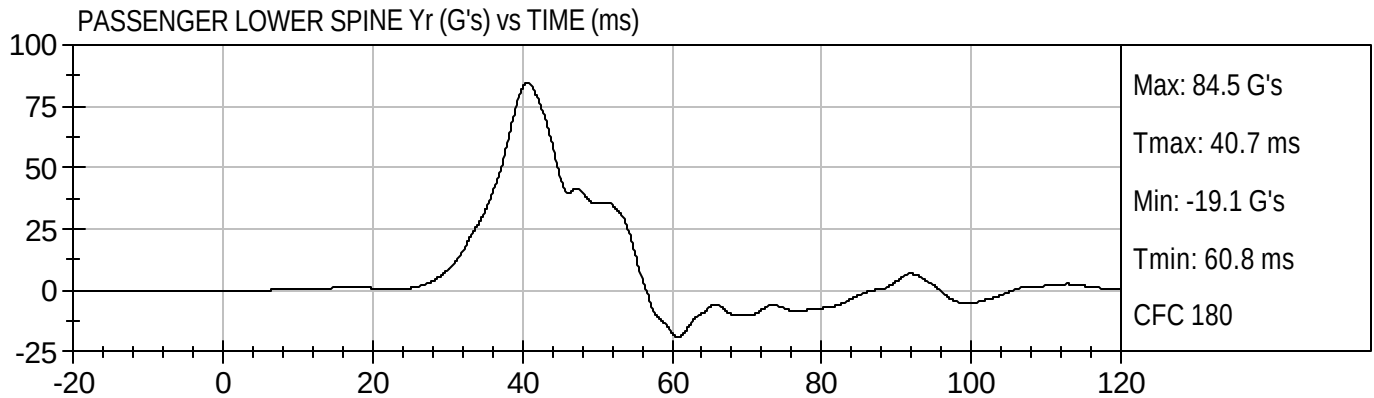






38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

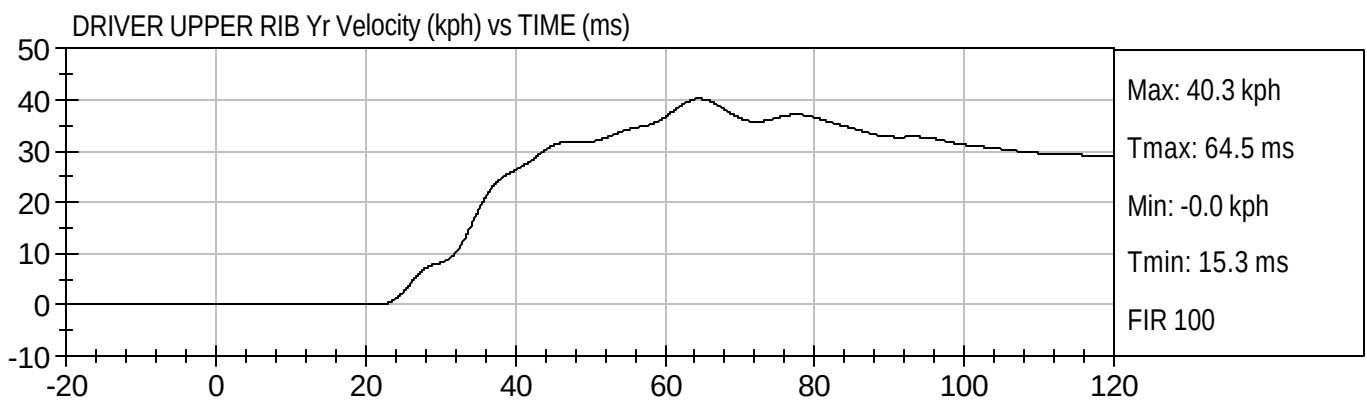
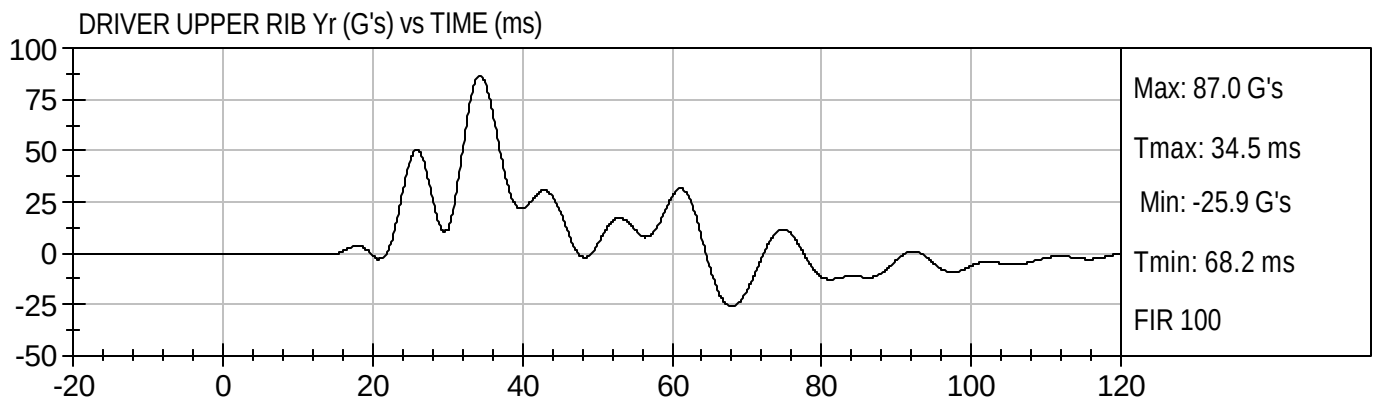
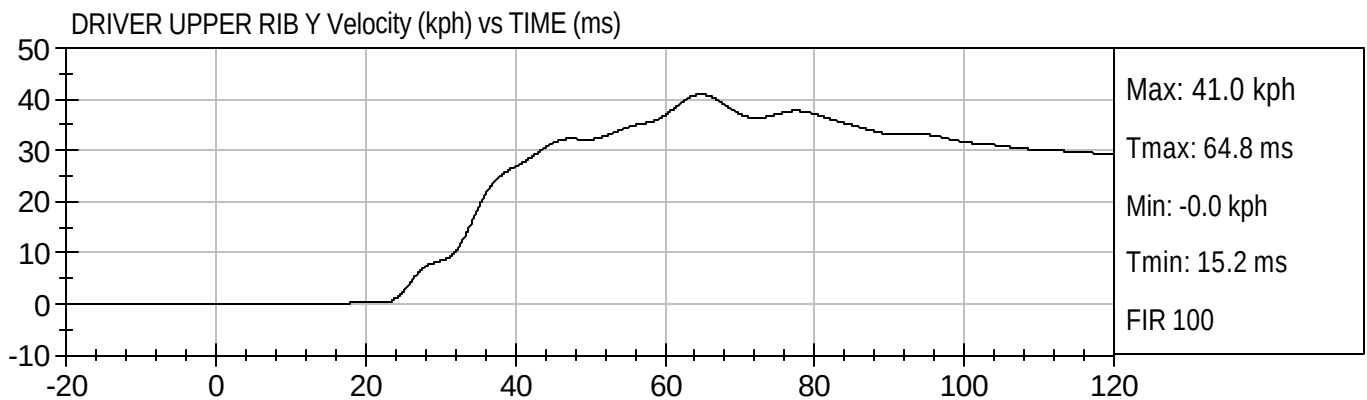
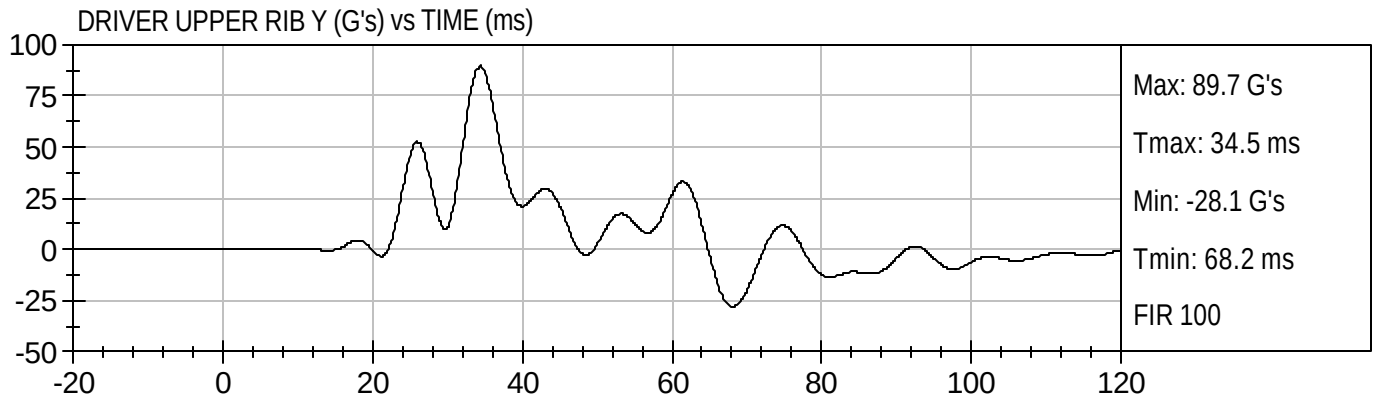
Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)





38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

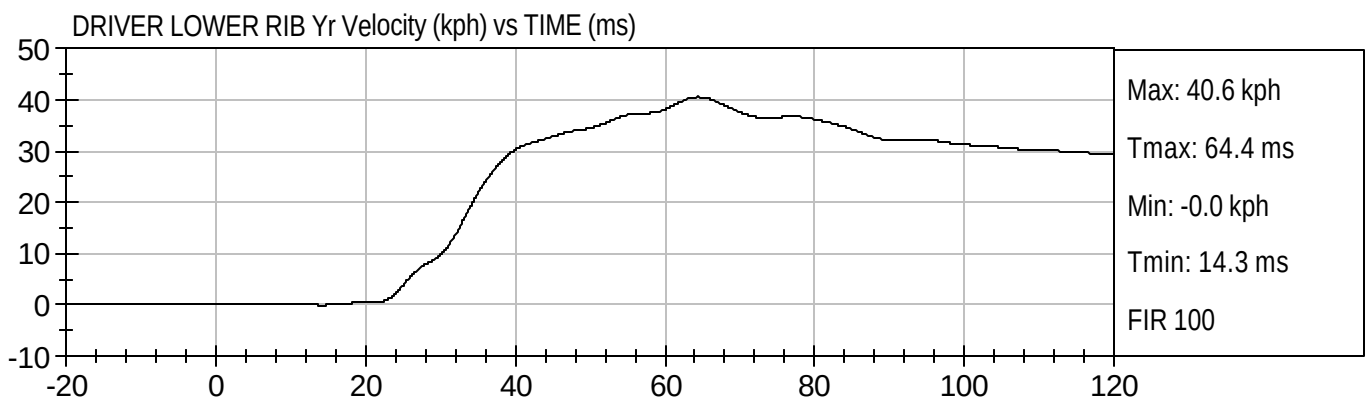
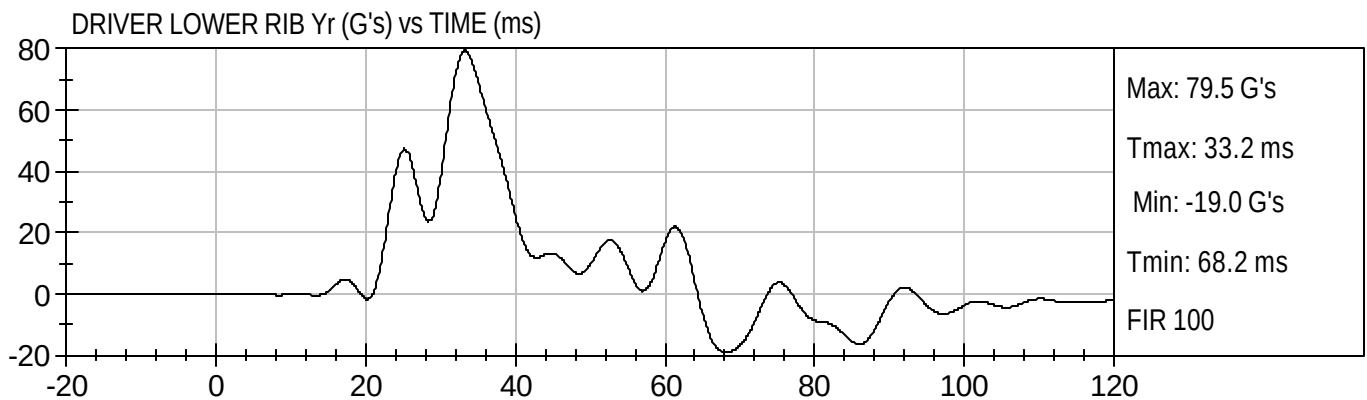
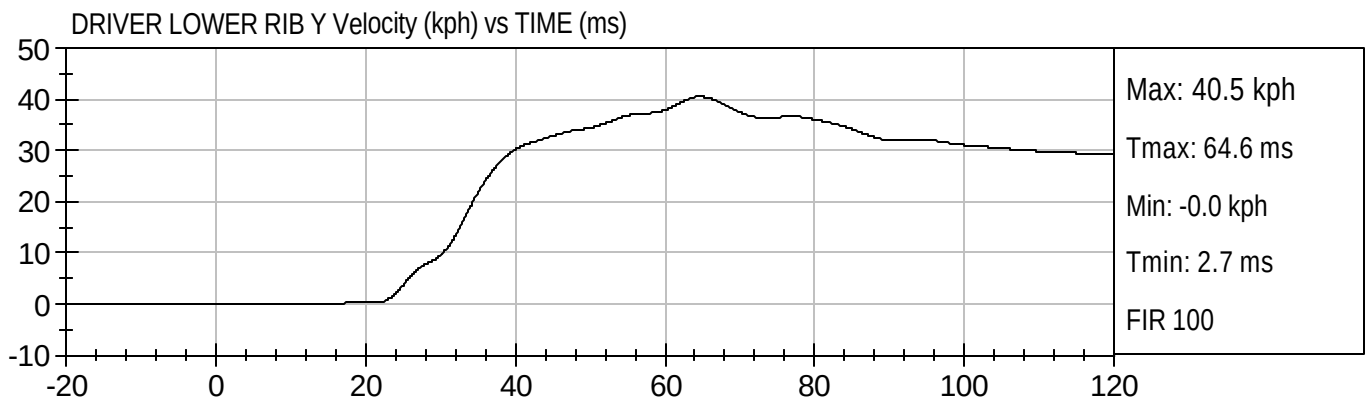
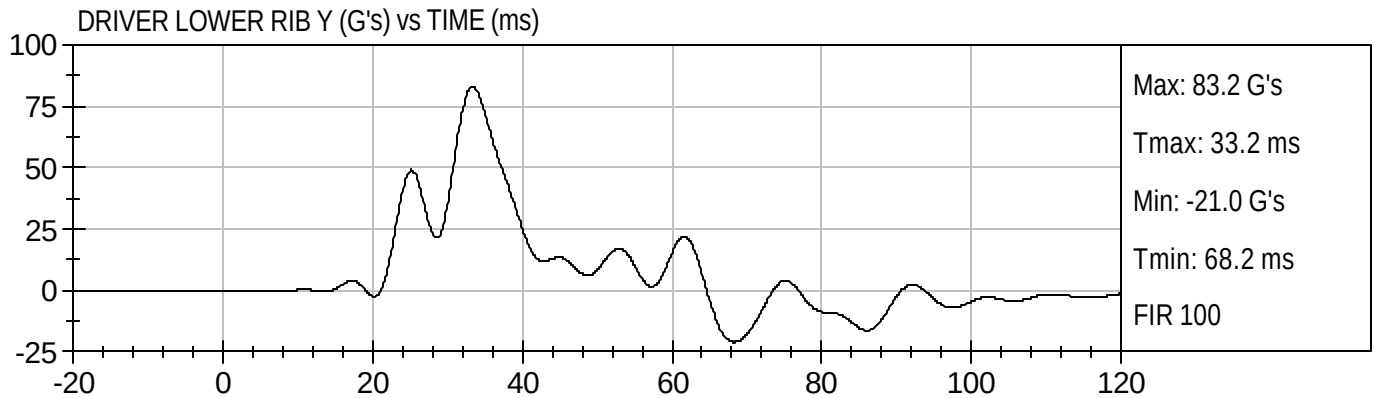
Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)





38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

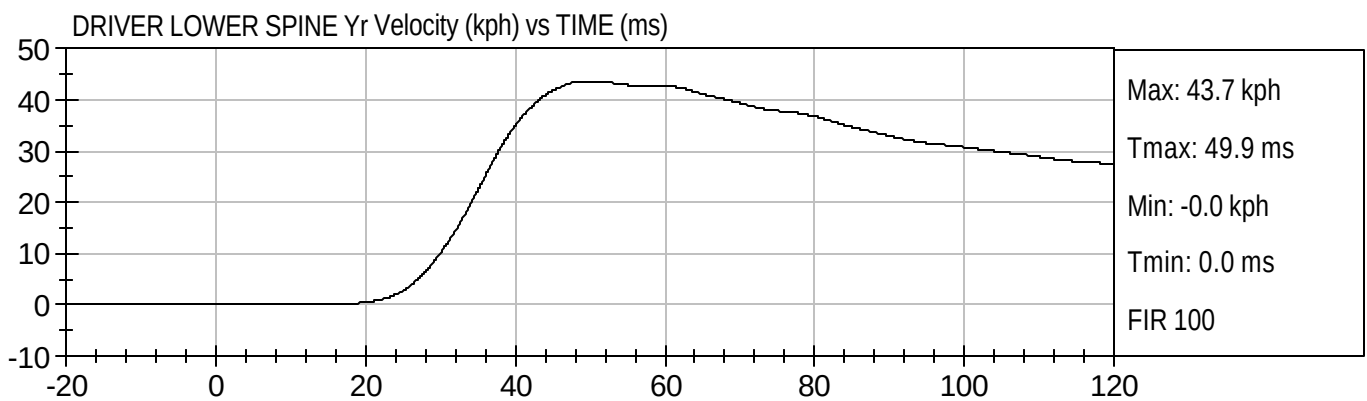
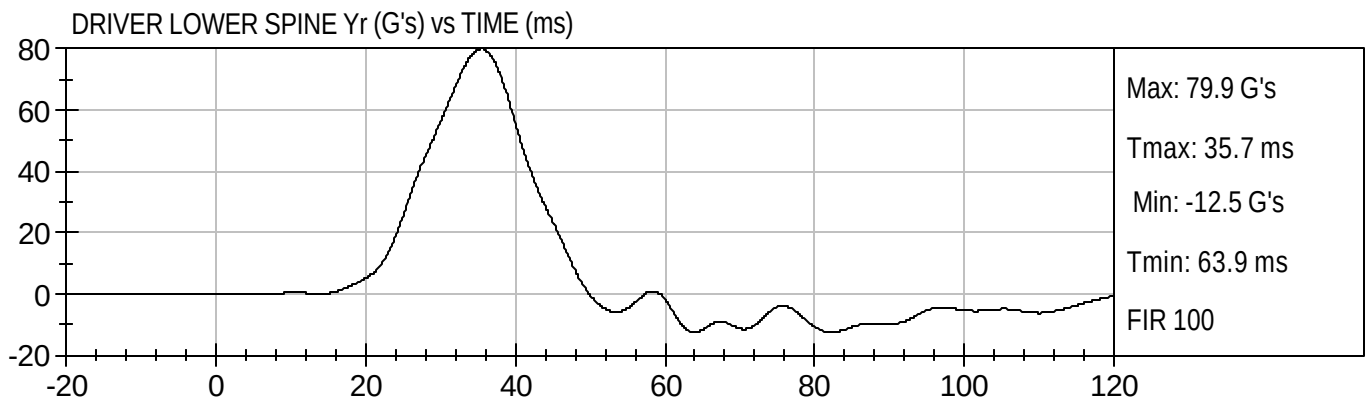
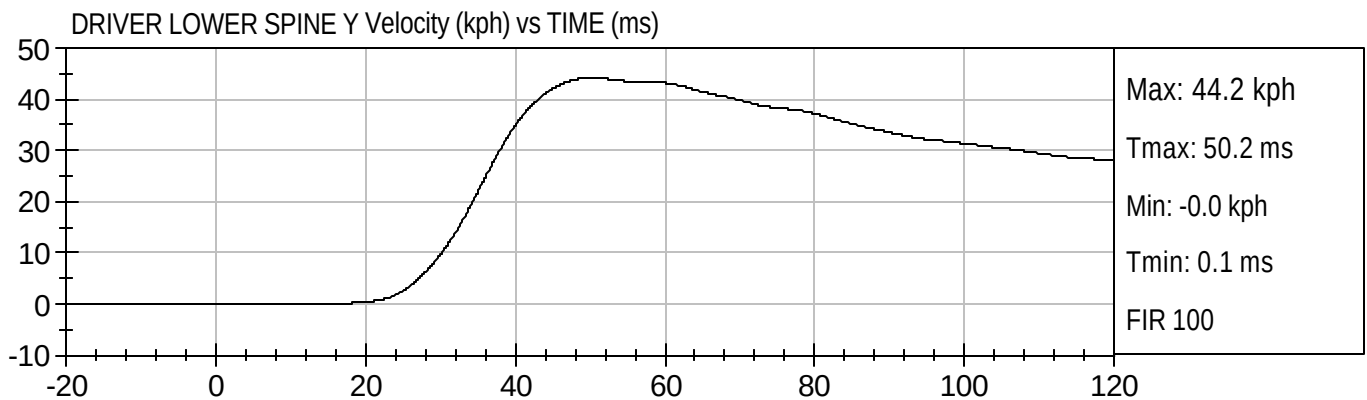
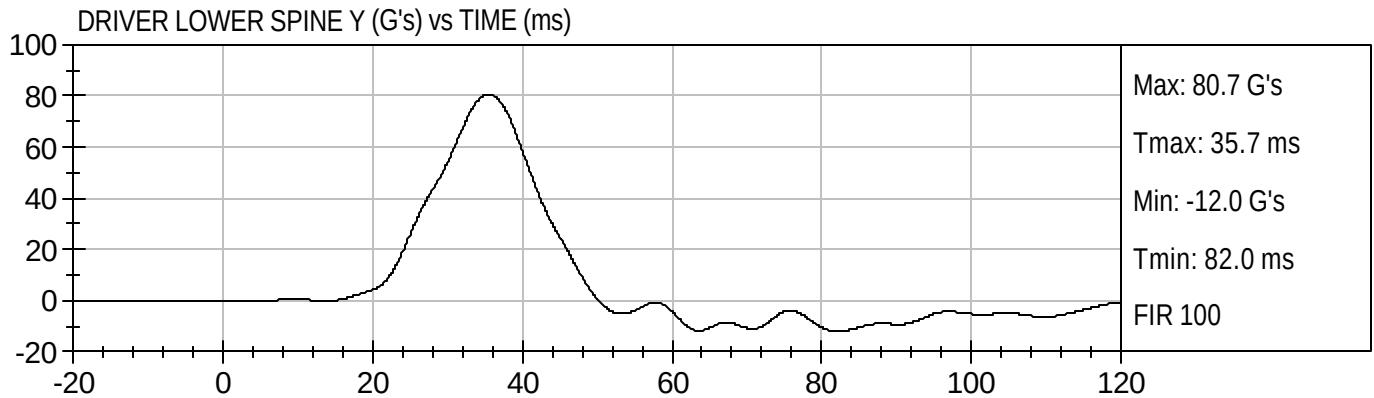
Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)

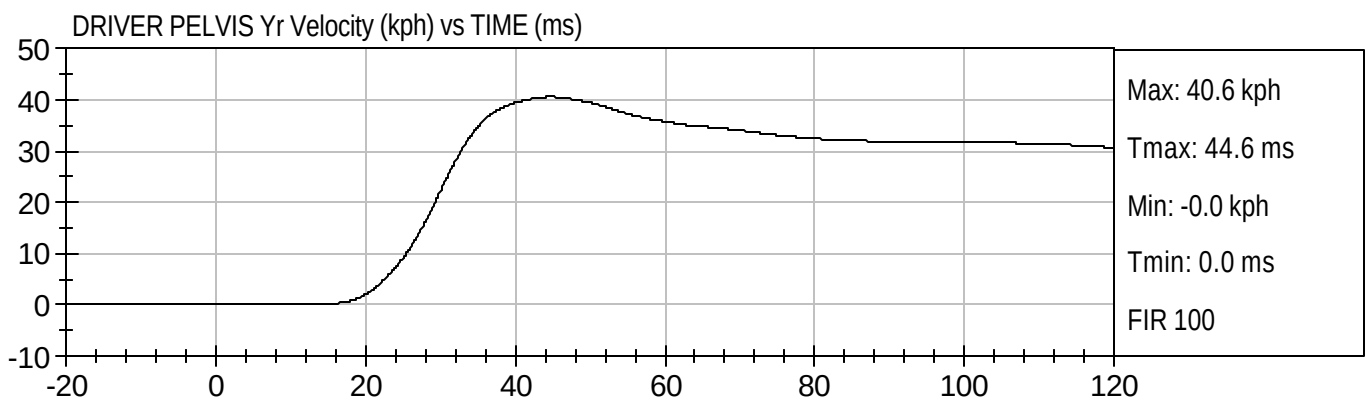
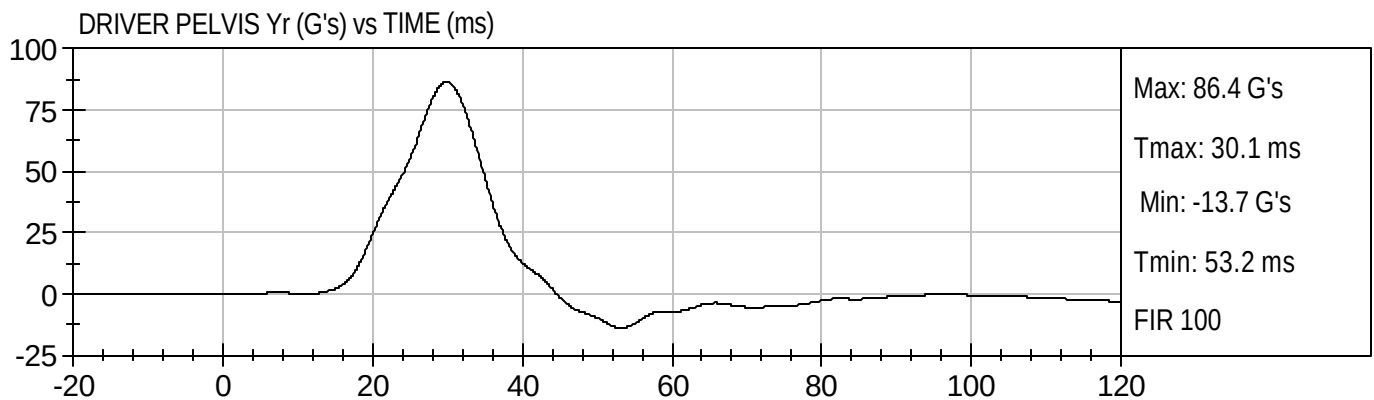
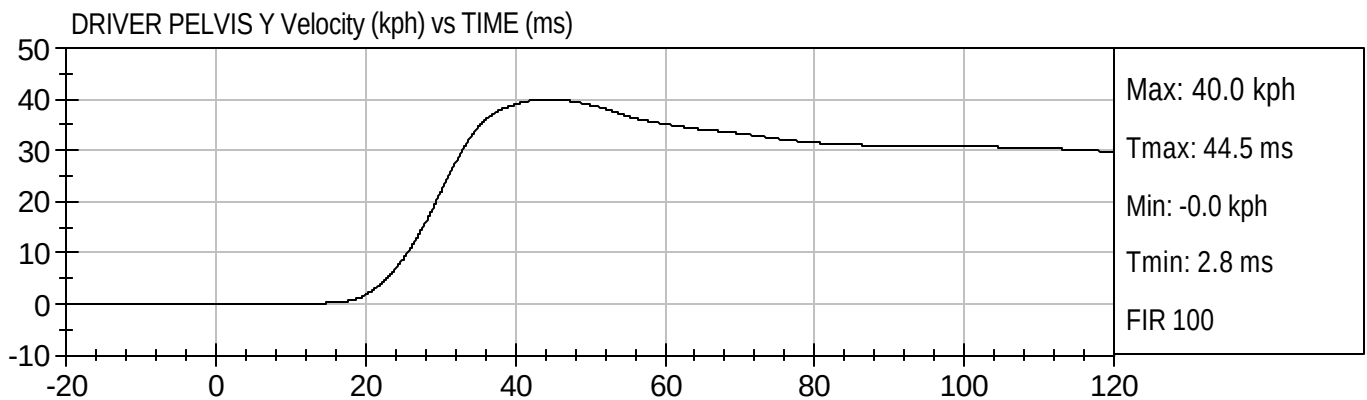
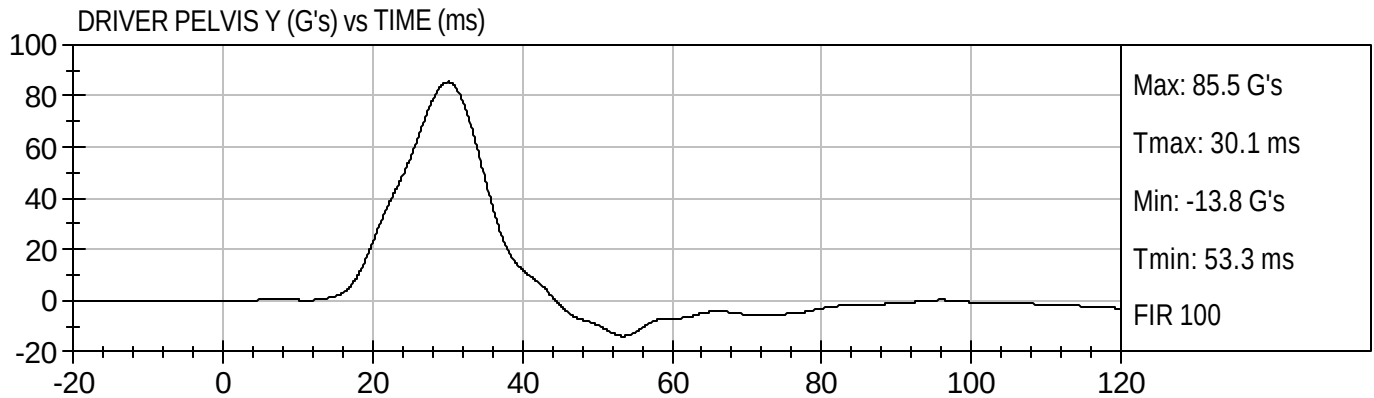




38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)

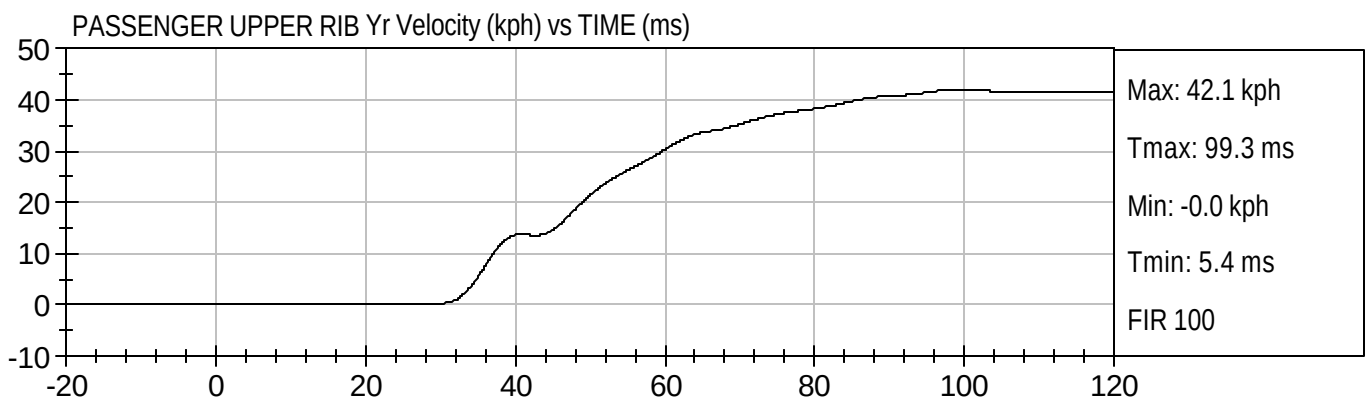
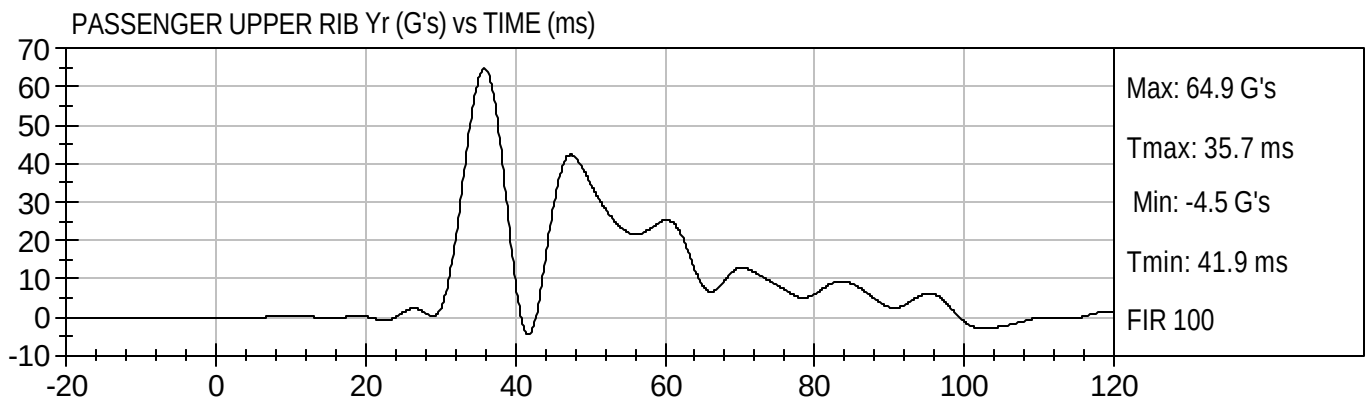
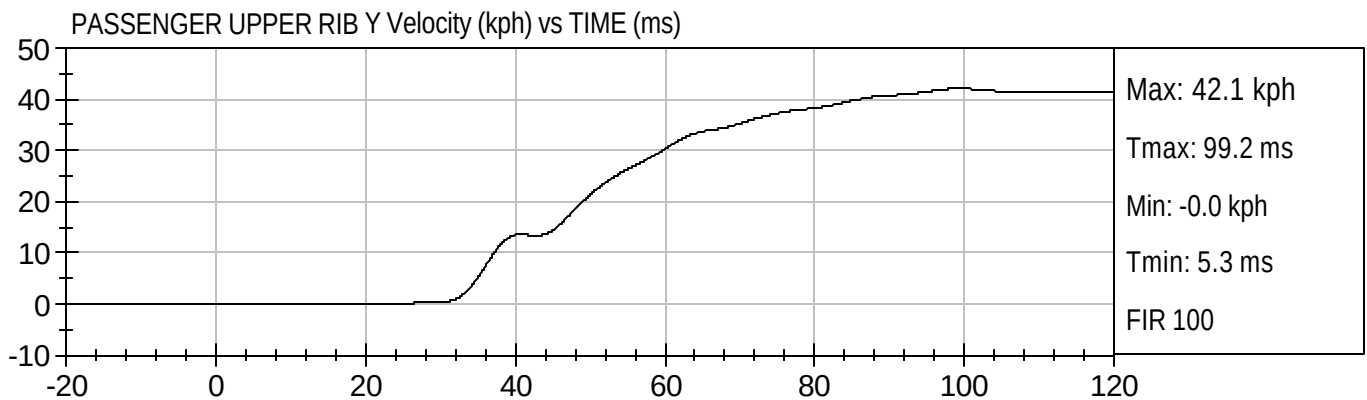
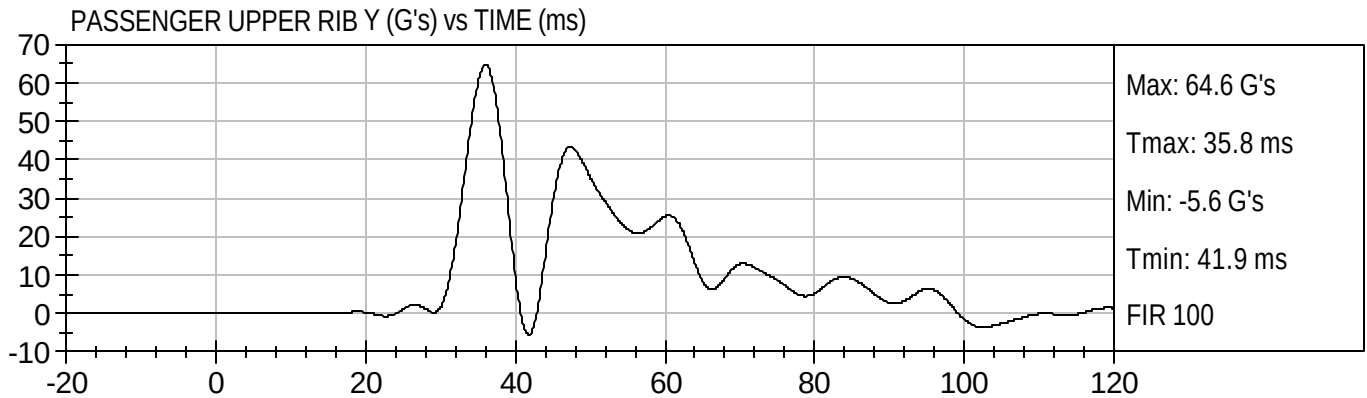






38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

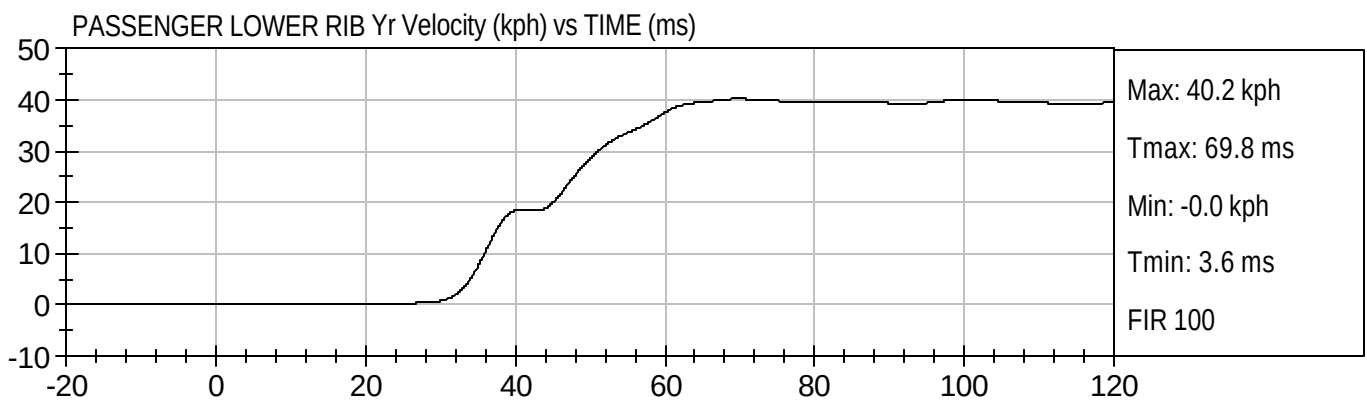
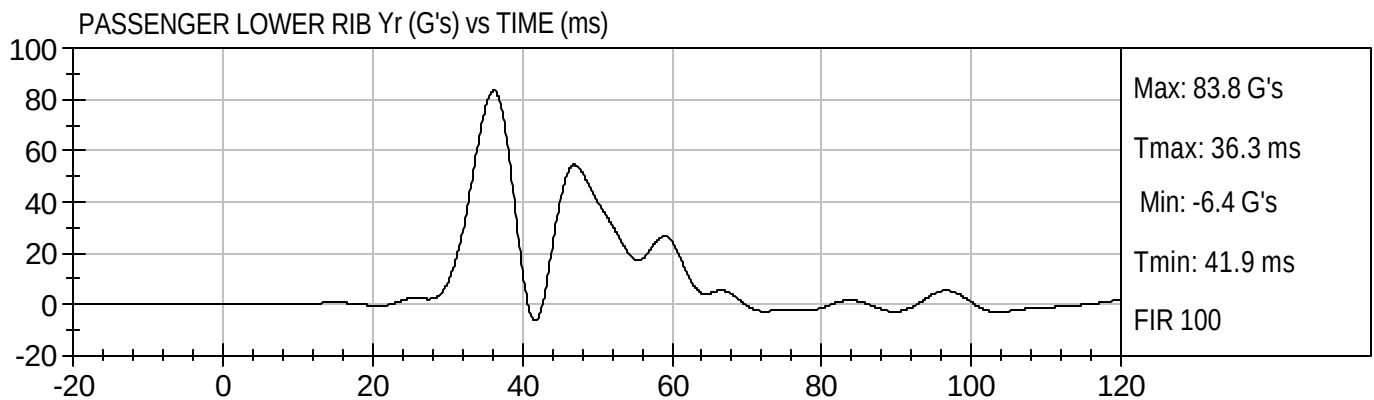
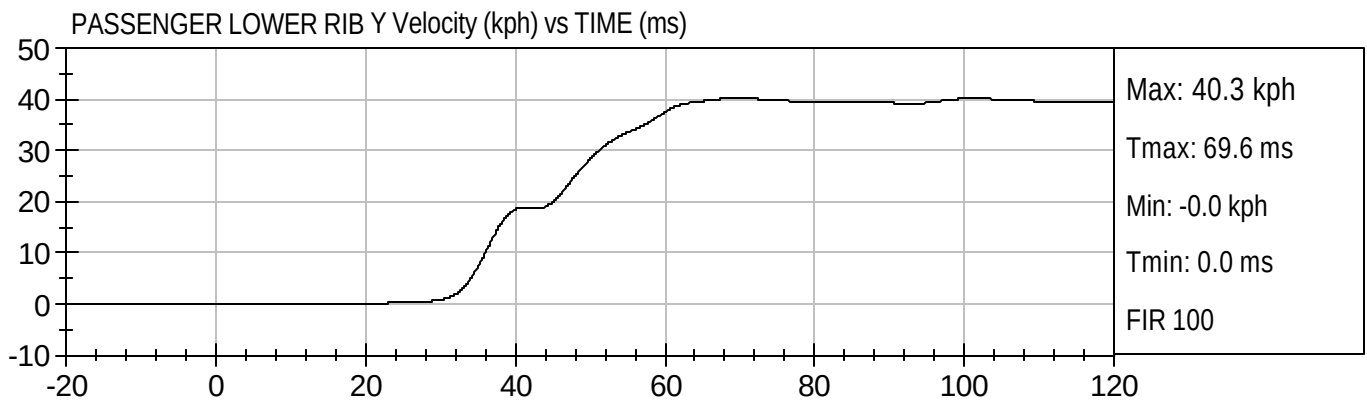
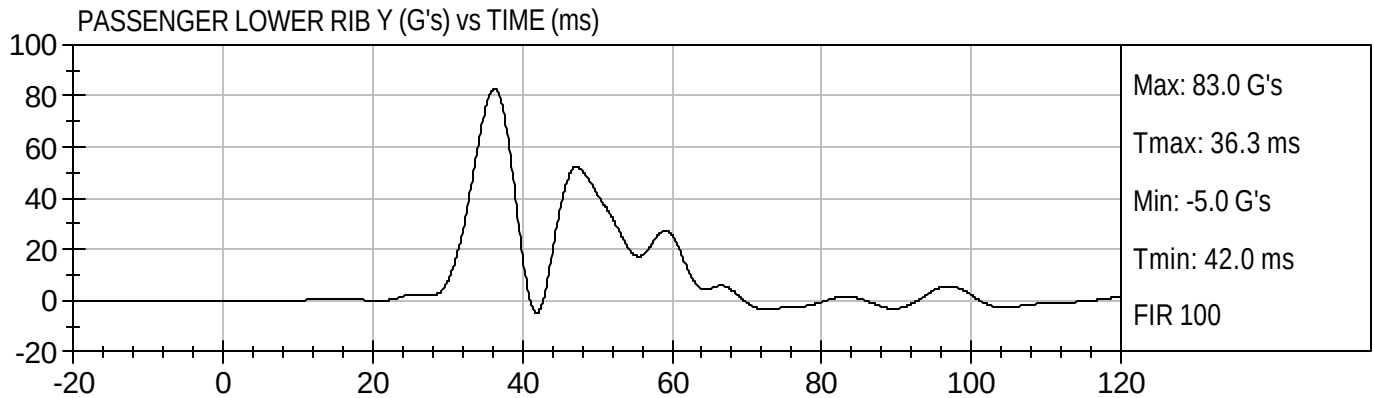
Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)

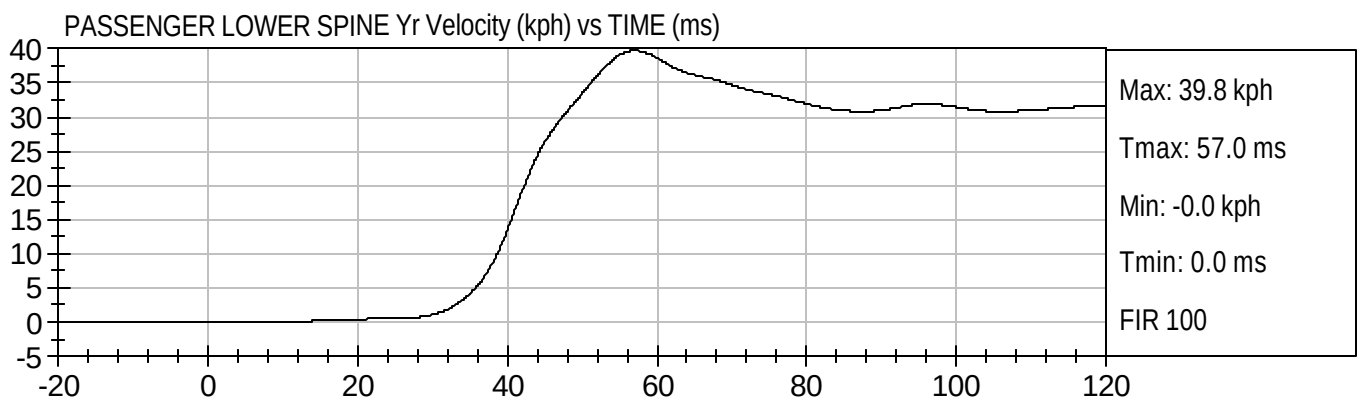
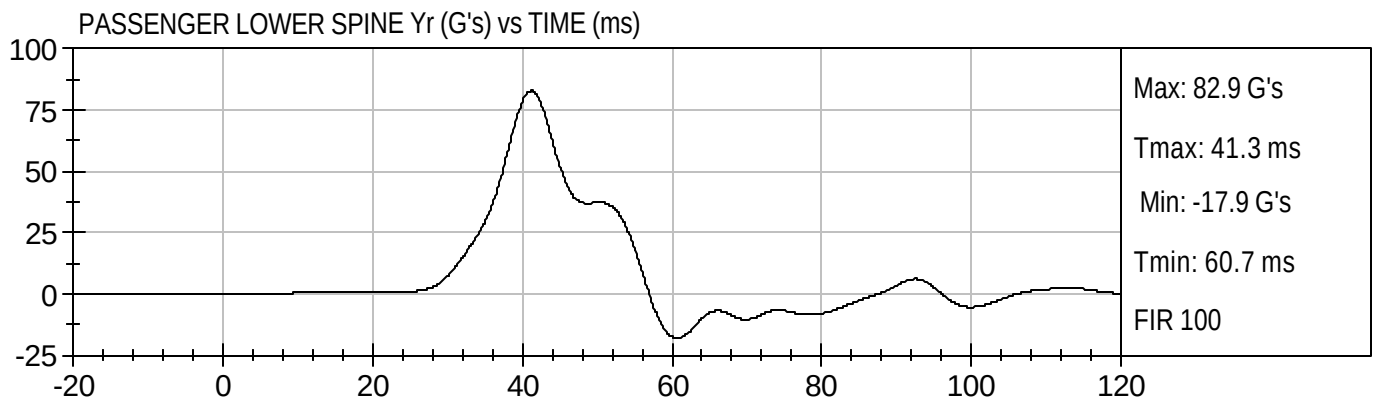
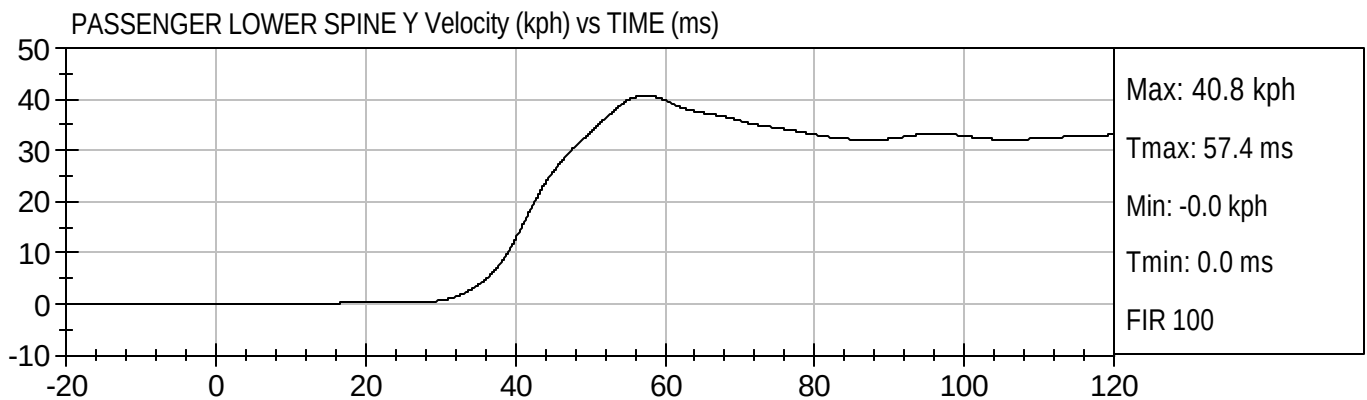
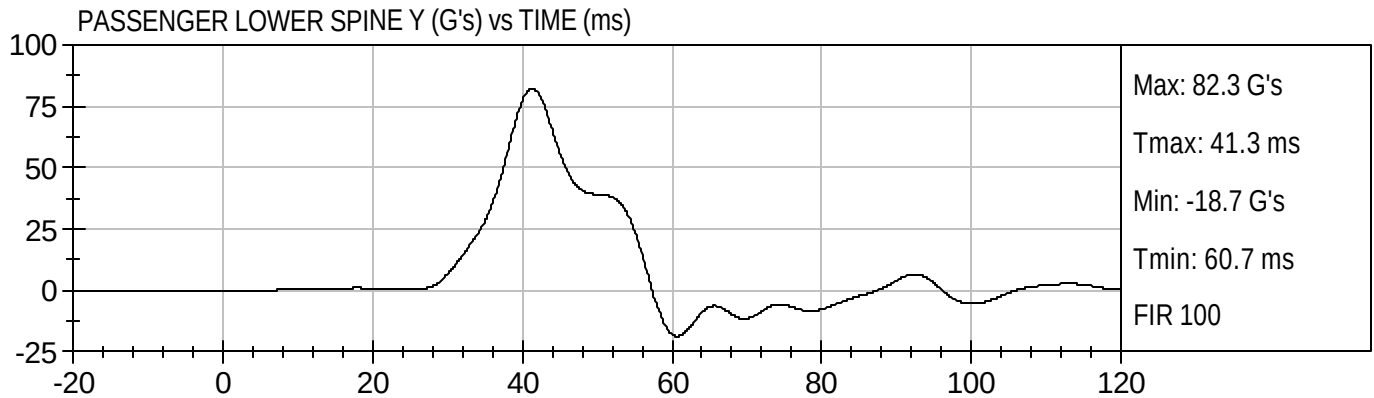




38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)

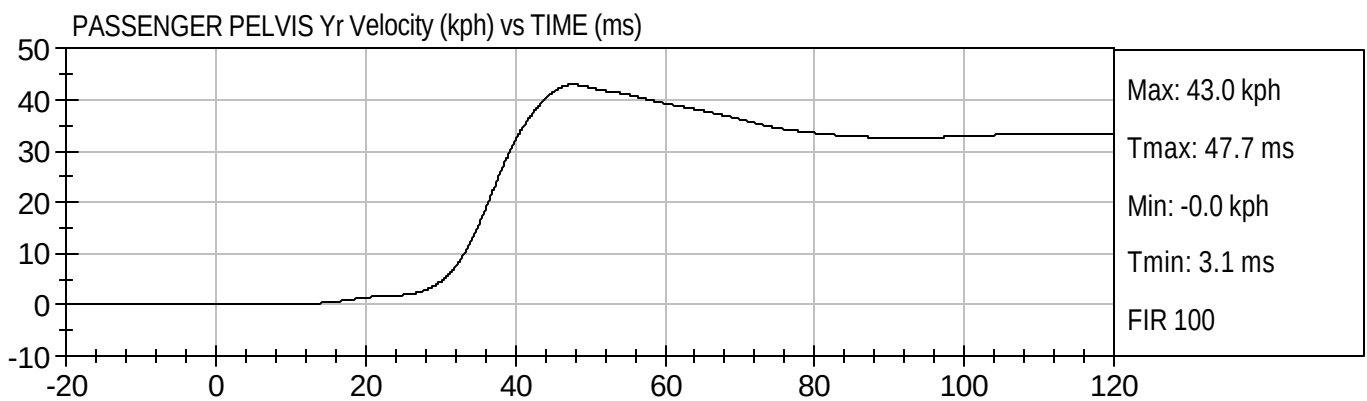
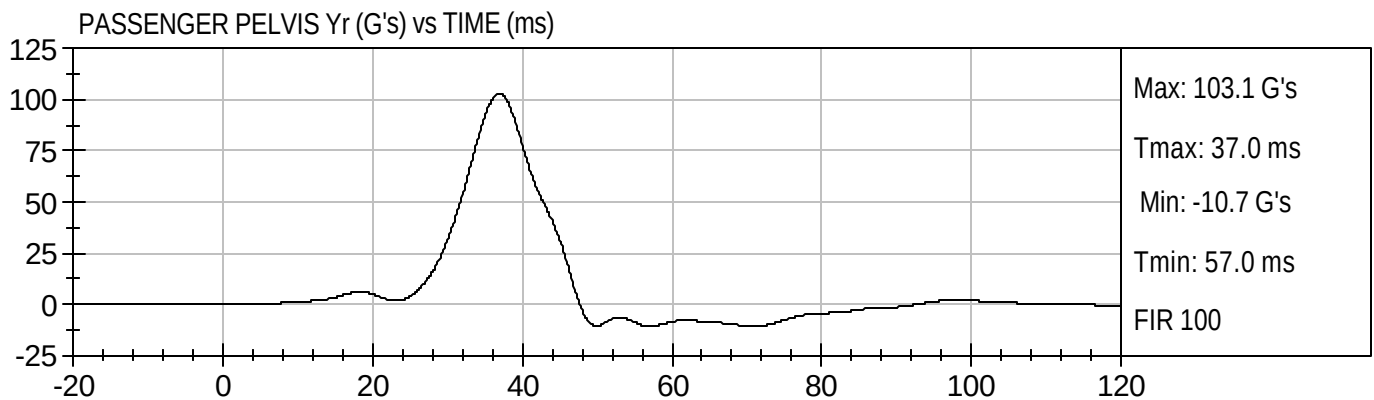
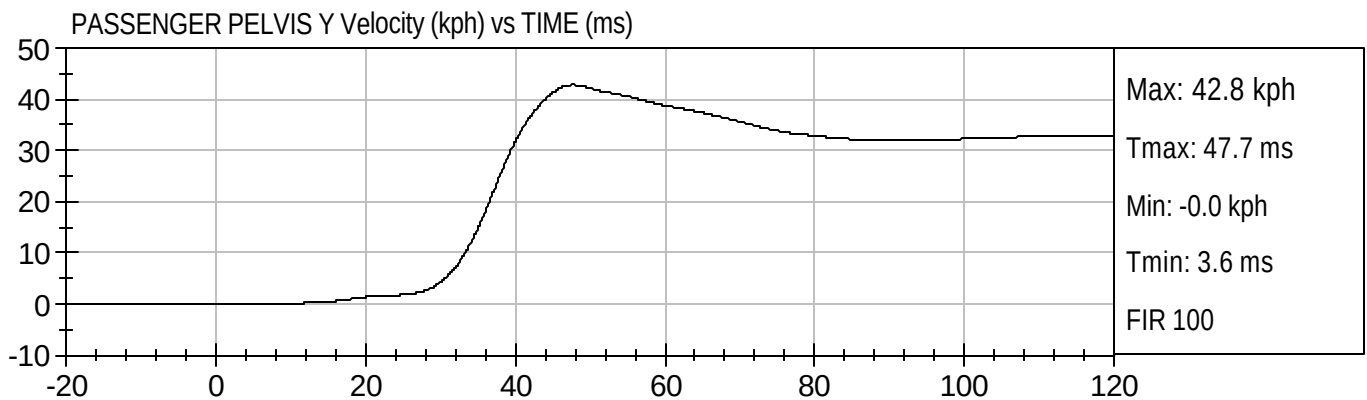
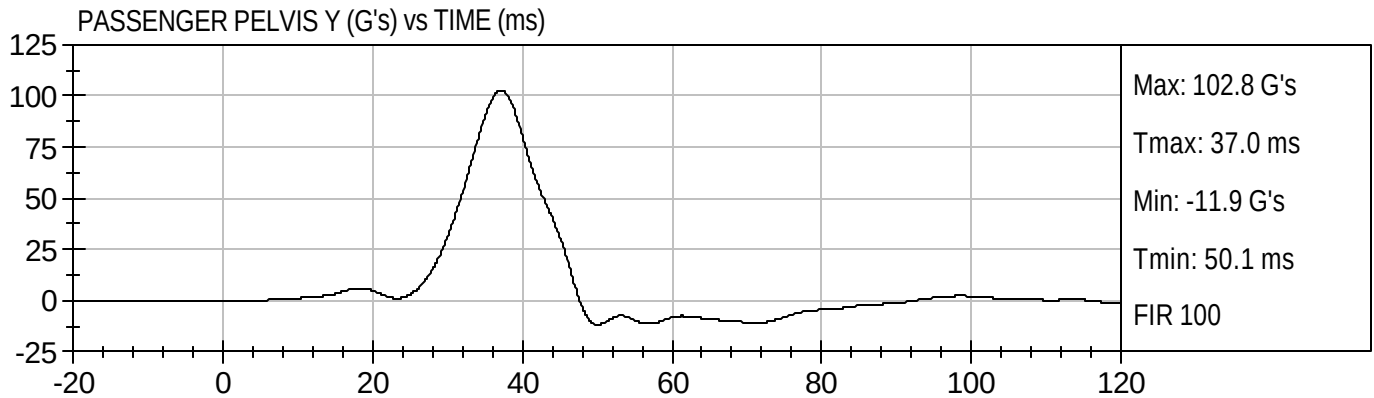






38.5 MPH SIDE IMPACT
2002 TOYOTA PRIUS HYBRID (C25105)

Test Date: 4/3/02
Speed: 38.3 mph (61.6 km/h)



APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SID Calibration Data Sheet
Side Impact Dummy
Configured to Left Side Impact

Technician: Tim Michnay

Tested Parameter	Units	Specification	Dummy Serial Number: 037	
			Pre-Test	Post-Test
SH - Seated Height	mm	889 - 909	902	902
RH - Rib Height	mm	501 - 521	509	509
HP - Hip Pivot Height	mm	99 ref.	99	99
RD - Rib from Back Line	mm	229 - 241	232	232
KV - Knee Pivot to Back Line	mm	511 - 526	519	519
SW - Knee Pivot to Floor	mm	490 - 505	493	493
HW - Hip Width	mm	356 - 391	378	378
Thorax Impact				
Laboratory Temperature	deg C	18.9 - 25.5	20.3	21.3
Laboratory Relative Humidity	%	10 to 70	21	29
Probe Velocity	m/s	4.27 - 4.33	4.29	4.3
Upper Rib	G's	37 - 46	45	44
Lower Rib	G's	37 - 46	45	45
Lower Spine	G's	15 - 22	21	20
Pelvis Impact				
Laboratory Temperature	deg C	18.9 to 25.5	20.6	21.3
Laboratory Relative Humidity	%	10 to 70	21	29
Probe Velocity	m/s	4.27 - 4.33	4.3	4.29
Pelvis	G's	40 - 60	47	44

SID Calibration Data Sheet
Side Impact Dummy
Configured to Left Side Impact

Technician: Tim Michnay

Tested Parameter	Units	Specification	Dummy Serial Number: 036	
			Pre-Test	Post-Test
SH - Seated Height	mm	889 - 909	903	903
RH - Rib Height	mm	501 - 521	506	506
HP - Hip Pivot Height	mm	99 ref.	99	99
RD - Rib from Back Line	mm	229 - 241	232	232
KV - Knee Pivot to Back Line	mm	511 - 526	518	518
SW - Knee Pivot to Floor	mm	490 - 505	497	497
HW - Hip Width	mm	356 - 391	370	370
Thorax Impact				
Laboratory Temperature	deg C	18.9 - 25.5	19.9	21.3
Laboratory Relative Humidity	%	10 to 70	20	29
Probe Velocity	m/s	4.27 - 4.33	4.29	4.27
Upper Rib	G's	37 - 46	45	45
Lower Rib	G's	37 - 46	46	45
Lower Spine	G's	15 - 22	18	17
Pelvis Impact				
Laboratory Temperature	deg C	18.9 to 25.5	19.9	21.3
Laboratory Relative Humidity	%	10 to 70	20	29
Probe Velocity	m/s	4.27 - 4.33	4.29	4.28
Pelvis	G's	40 - 60	43	48

CERTIFICATION DATA

Dummy Serial Number: 037

CERTIFICATION DATA

Dummy Serial Number: 037

Pre-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvis Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SID Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 037

Test I.D: D0238

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	902	Pass
RH - Rib Height	mm	501 - 521	509	Pass
HP - Hip Pivot Height	mm	99 ref.	99	Pass
RD - Rib from Back Line	mm	229 - 241	232	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	519	Pass
SW - Knee Pivot to Floor	mm	490 - 505	493	Pass
HW - Hip Width	mm	356 - 391	378	Pass
Overall Test Results			Pass	

Laboratory Technician

3/11/02
Test Date

Approved By

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration

ATD Serial No: 037

Test I.D: D02381

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Peak Resultant Acceleration	G's	210 to 260	218	Pass
Peak Lateral Acceleration	G's	< 10	10	Pass
Time Above 100 G	msec	0.9 - 1.5	1.2	Pass
Overall Test Results				Pass

Laboratory Technician

3/8/02
Test Date

Approved By



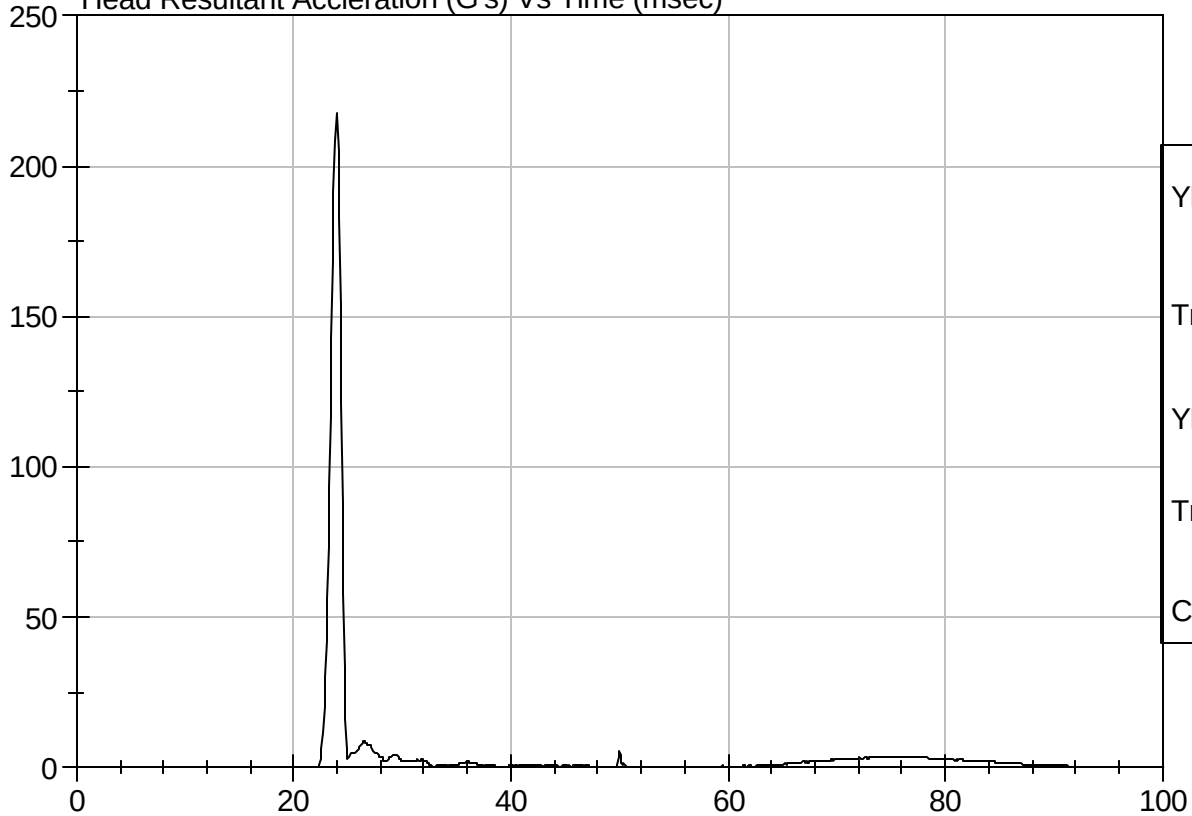
Test Description: Head Drop

Test Date: 3/8/02

Component: D02381

Speed: 0 ft/s, 0 m/s

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



YMax: 217.8 G

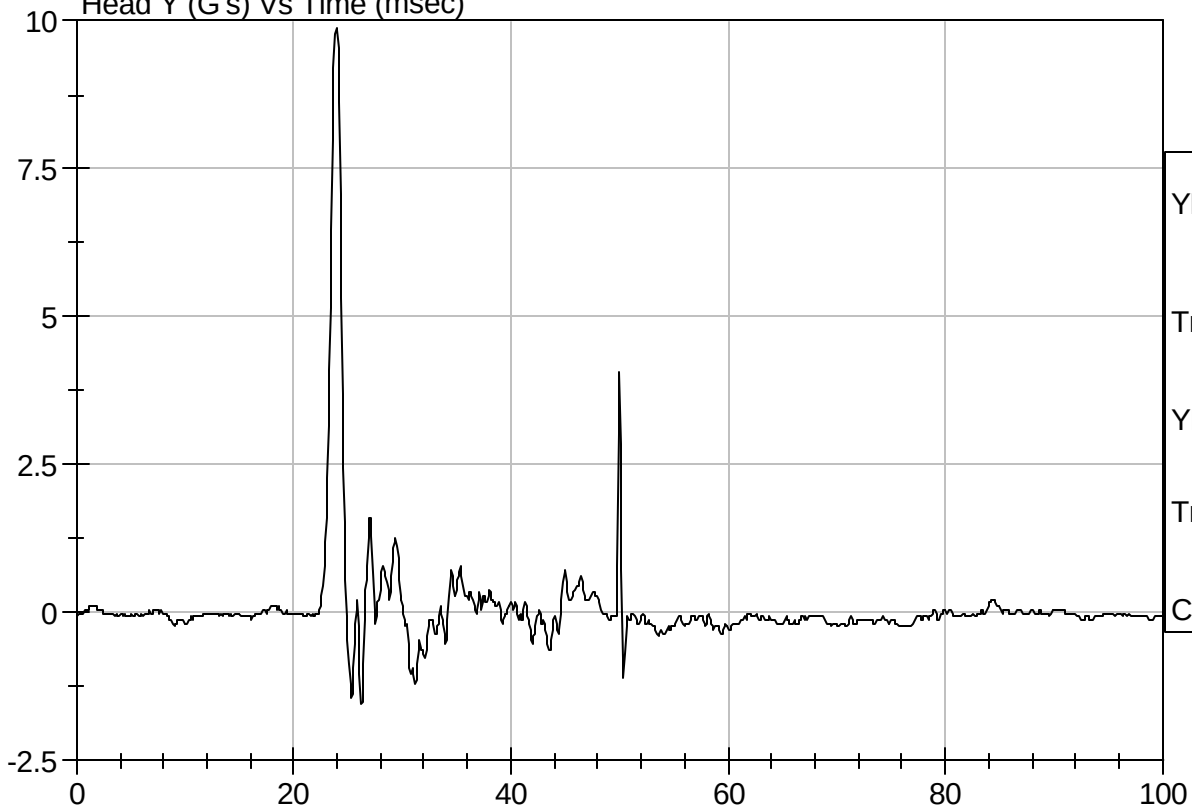
Tmax: 23.9 ms

YMin: 0.1 G

Tmin: 0.2 ms

CFC 1000

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



YMax: 9.9 G

Tmax: 23.9 ms

YMin: -1.6 G

Tmin: 26.2 ms

CFC 1000

SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 037

Test I.D: D02382

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.3	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Upper Rib	G's	37 - 46	45	Pass
Lower Rib	G's	37 - 46	45	Pass
Lower Spine	G's	15 - 22	21	Pass
Overall Test Results				Pass

Laboratory Technician

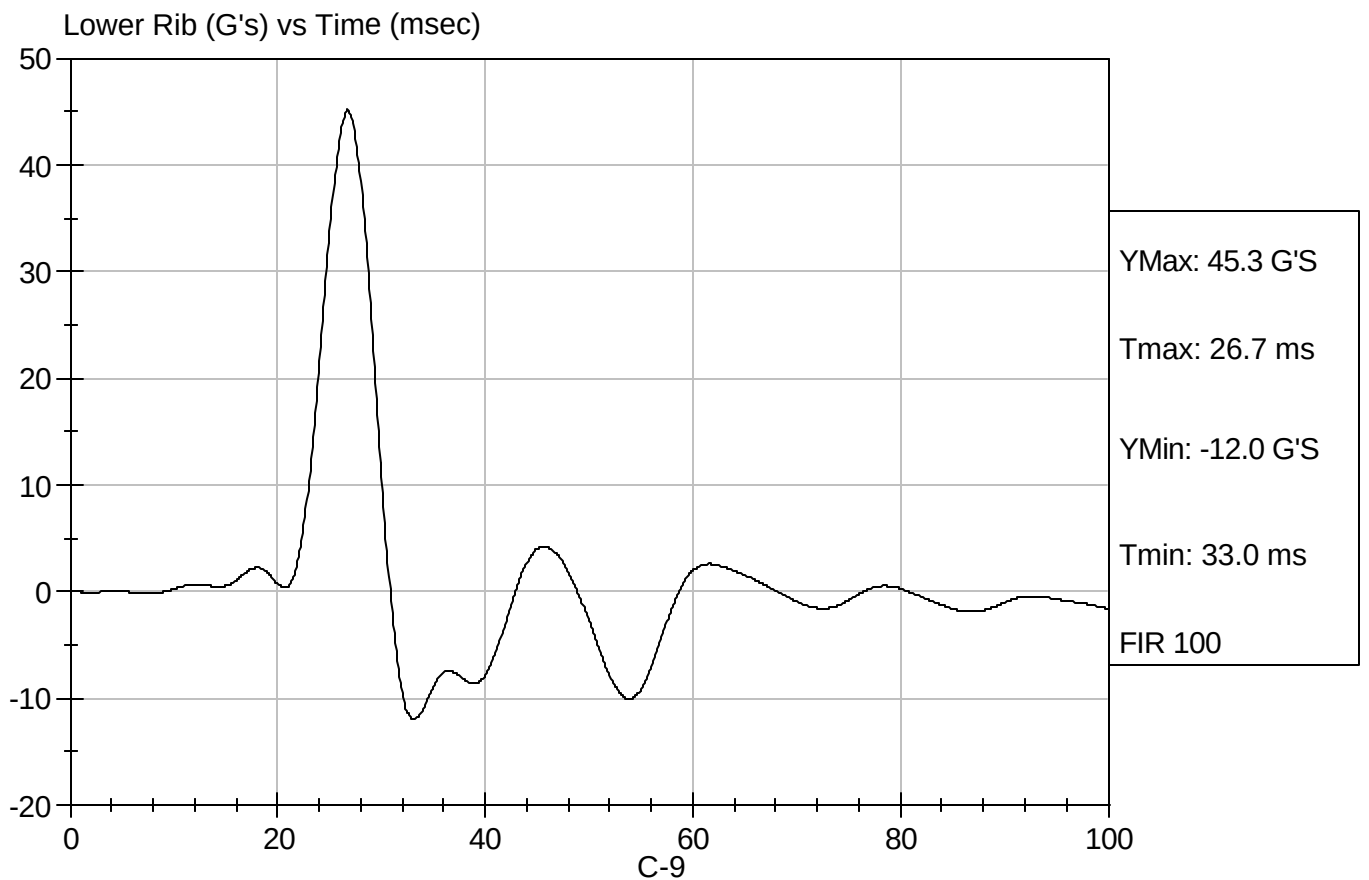
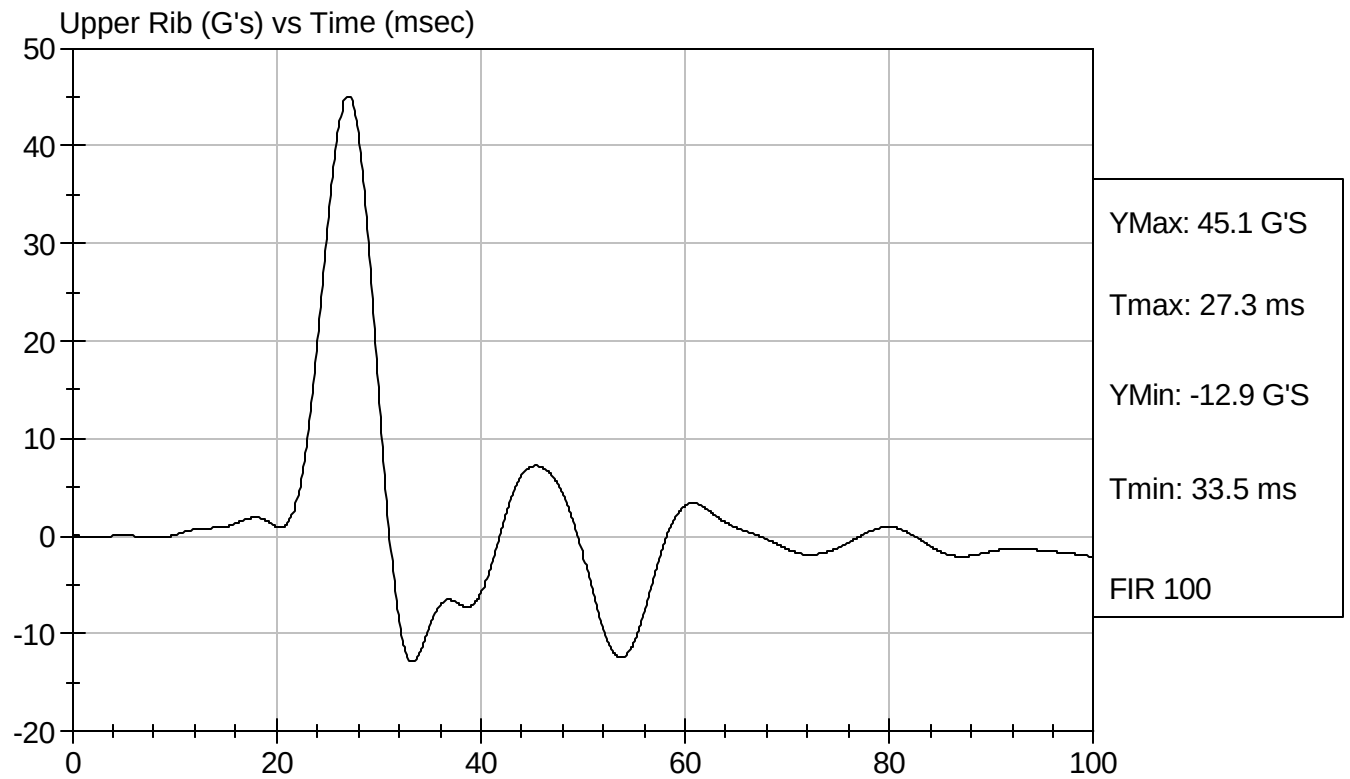
3/11/02
Test Date

Approved By



Test Desc: Thorax Impact
Component ID: D02382

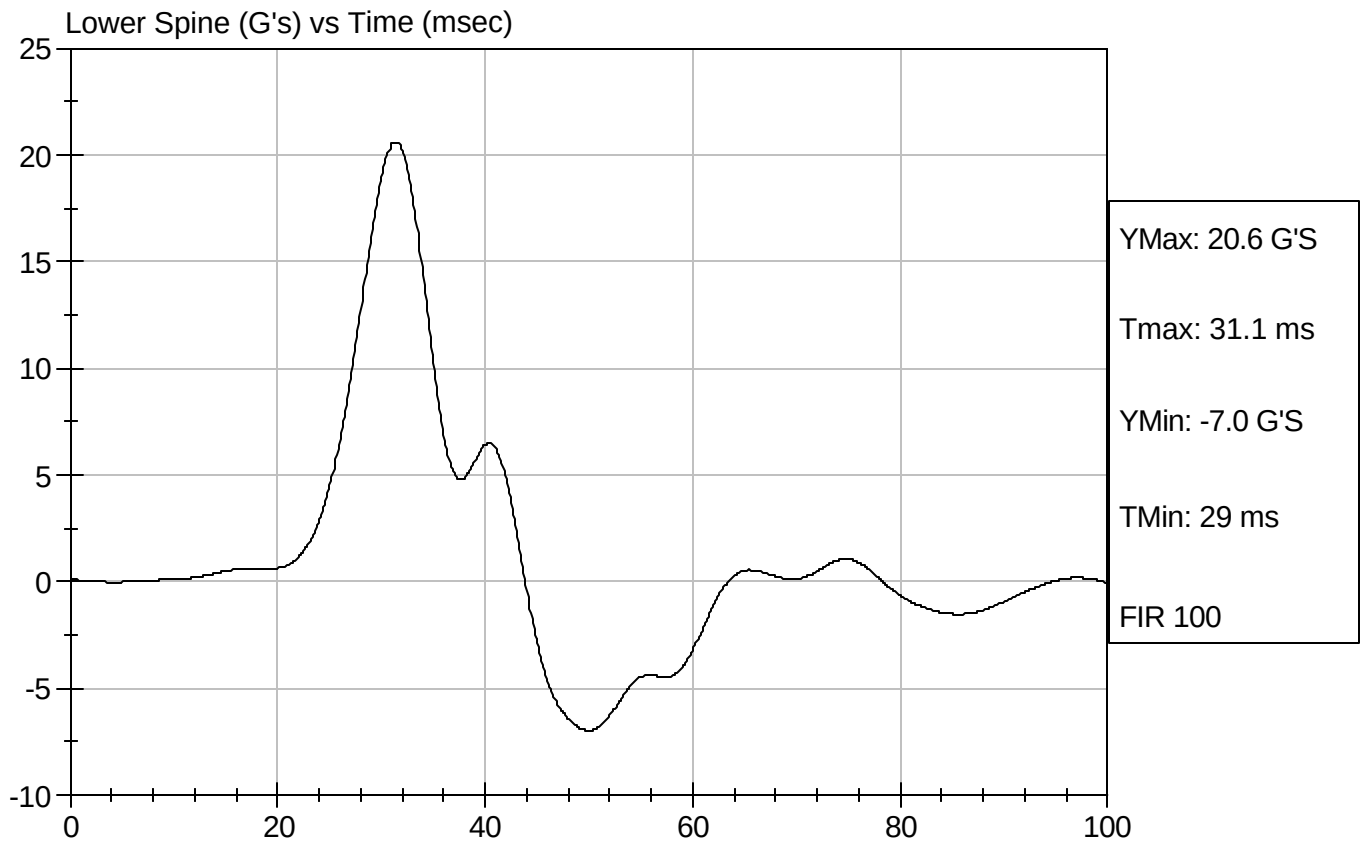
Test Date: 3/11/02
Speed: 14.08 ft/sec, 4.29 m/sec





Test Desc: Thorax Impact
Component ID: D02382

Test Date: 3/11/02
Speed: 14.08 ft/sec, 4.29 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: _____ 037 _____

Test I.D: _____ D02383 _____

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Probe Velocity	m/s	4.27 - 4.33	4.3	Pass
Pelvis Acceleration	G's	40 - 60	47	Pass
			Overall Test Results	Pass

Laboratory Technician

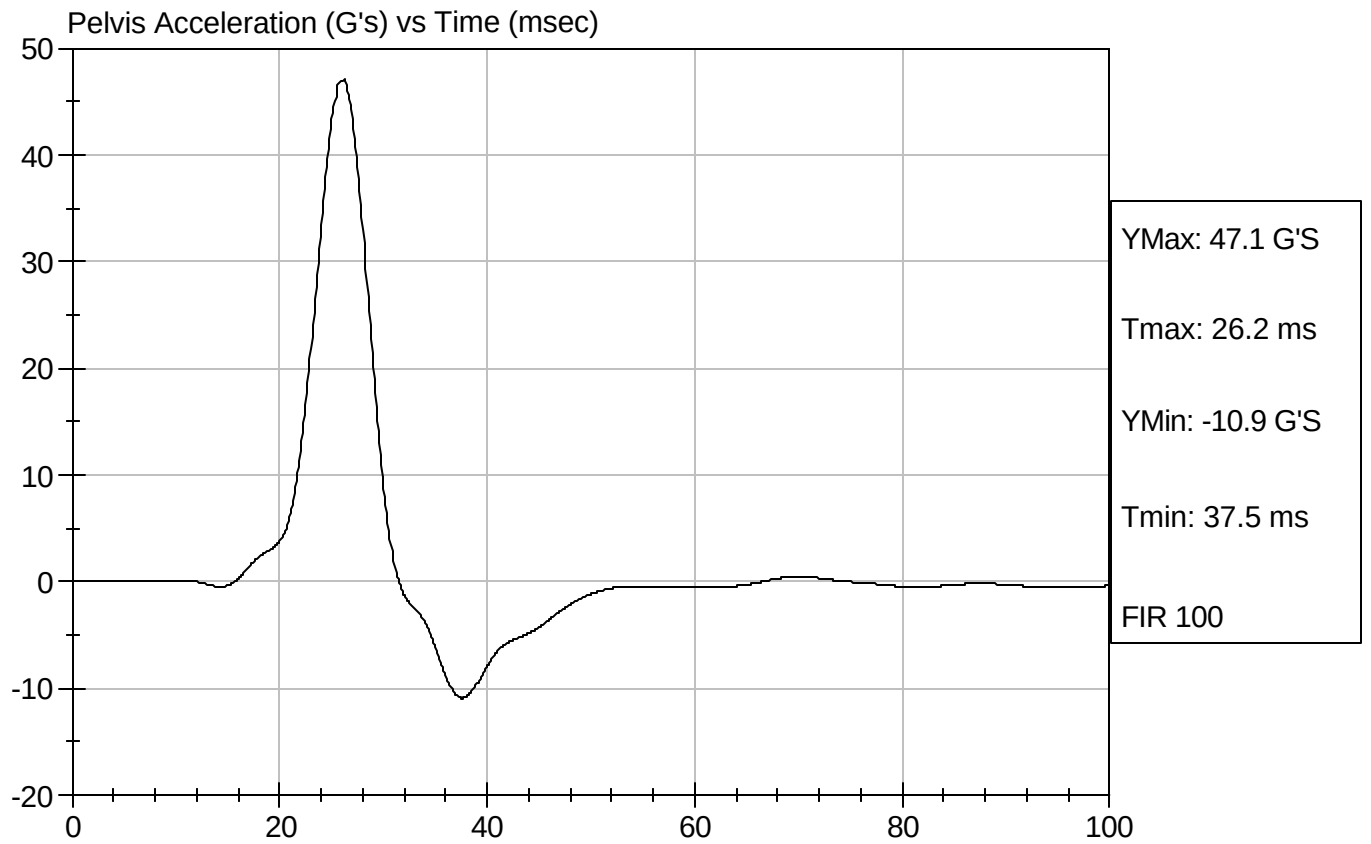
3/11/02
Test Date

Approved By



Test Desc: Pelvis Impact
Component ID: D02383

Test Date: 3/11/02
Speed: 14.1 ft/sec, 4.3 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 037

Test I.D: D02384

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 12.7 mm	N	104 -162	139	Pass
Force At 19 mm	N	163 - 222	191	Pass
Force At 25.4 mm	N	222 - 280	259	Pass
Force At 33 mm	N	325 - 391	363	Pass
			Overall Test Results	Pass

Laboratory Technician

3/8/2002
Test Date

Approved By

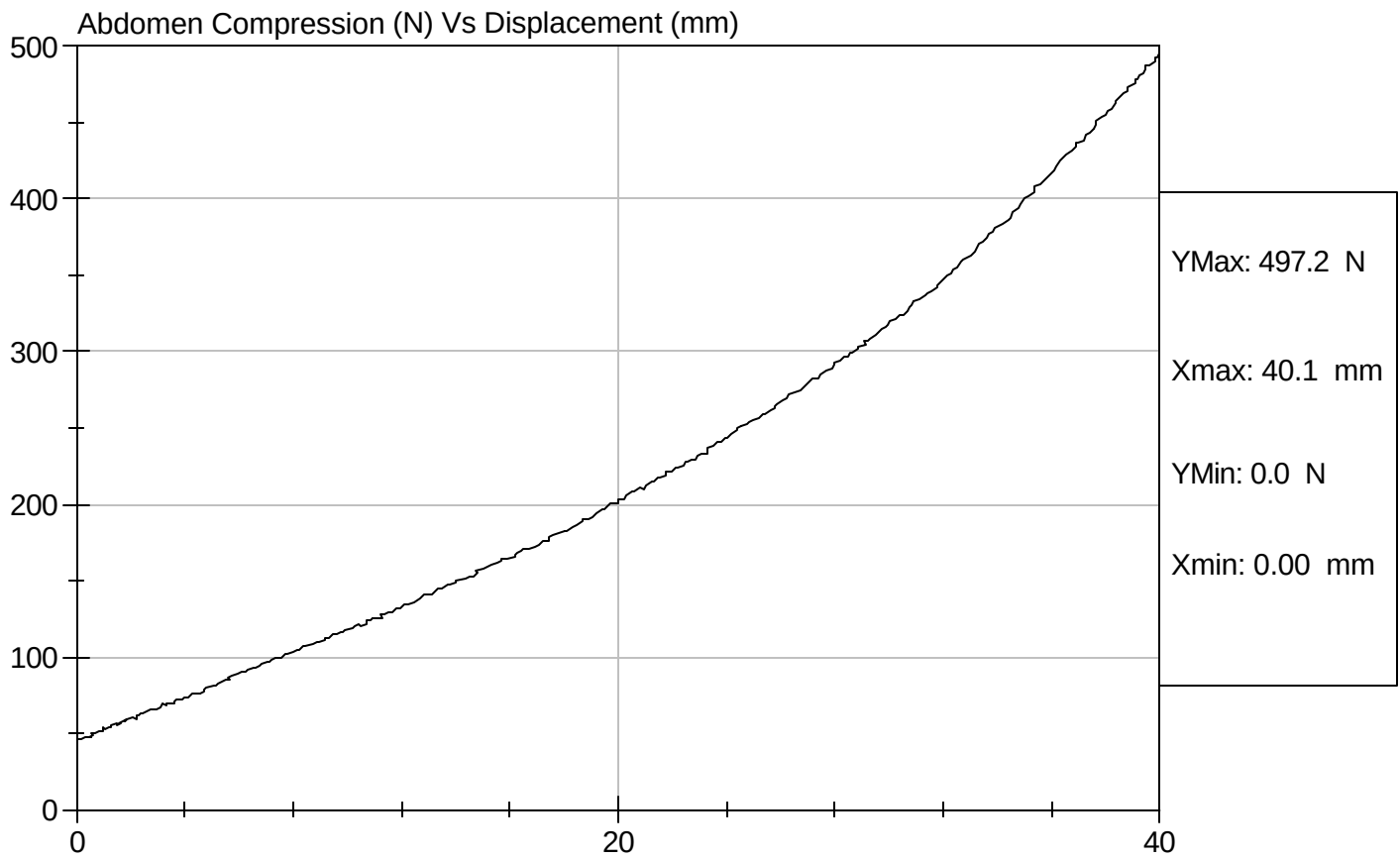


Test Description: Abdomen Compression

Test Date: 3/8/2002

Component: D02384

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 037

Test I.D: D02385

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	116.8	Pass
Force At 30 deg	N	151.2 - 204.6	165.1	Pass
Force At 40 deg	N	204.6 - 258.0	209.4	Pass
Return Angle	Deg	12 Maximum	0	Pass
			Overall Test Results	Pass

Laboratory Technician

03/08/2002
Test Date

Approved By

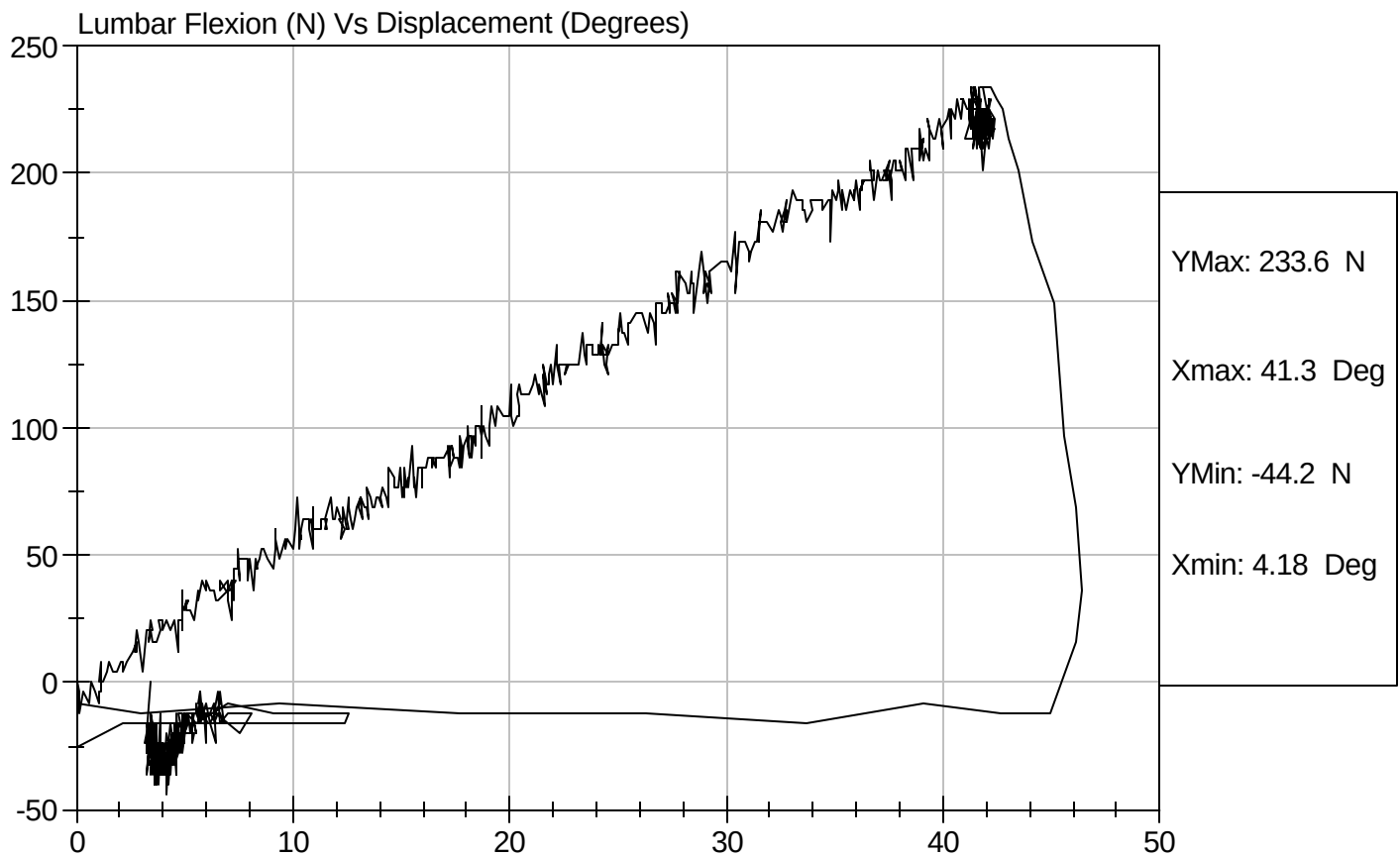


Test Description: Lumbar Flexion

Test Date: 03/08/2002

Component: D02385

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 037

Test Part	Items Checked	Result
Skin	Visual inspection	Pass
Head	Visual, ballast, accelerometer mount	Pass
Neck	Visual	Pass
Spine Box	Visual, ballast, accelerometer mount	Pass
Rib Cage	Visual, measure	Pass
Sternum	Visual	Pass
Lumbar Spine	Visual	Pass
Abdomen	Visual	Pass
Pelvis	Visual, palpate, accelerometer mount	Pass
Upper Legs	Visual	Pass
Knees	Visual	Pass
Lower Legs	Visual, range of motion	Pass
Ankles	Visual, range of motion	Pass
Feet	Visual, range of motion	Pass
Joints	1 to 2 g range	Pass
Other		

Laboratory Technician

3/11/02

Test Date

Approved By

CERTIFICATION DATA

Dummy Serial Number: 036

CERTIFICATION DATA

Dummy Serial Number: 036

Pre-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvis Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SID Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 036

Test I.D: D0237

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	903	Pass
RH - Rib Height	mm	501 - 521	506	Pass
HP - Hip Pivot Height	mm	99 ref.	99	Pass
RD - Rib from Back Line	mm	229 - 241	232	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	518	Pass
SW - Knee Pivot to Floor	mm	490 - 505	497	Pass
HW - Hip Width	mm	356 - 391	370	Pass
Overall Test Results			Pass	

Laboratory Technician

3/11/02
Test Date

Approved By

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration

ATD Serial No: 036

Test I.D: D02371

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.9	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Peak Resultant Acceleration	G's	210 to 260	232	Pass
Peak Lateral Acceleration	G's	< 10	5	Pass
Time Above 100 G	msec	0.9 - 1.5	1.2	Pass
Overall Test Results				Pass

Laboratory Technician

3/8/02
Test Date

Approved By



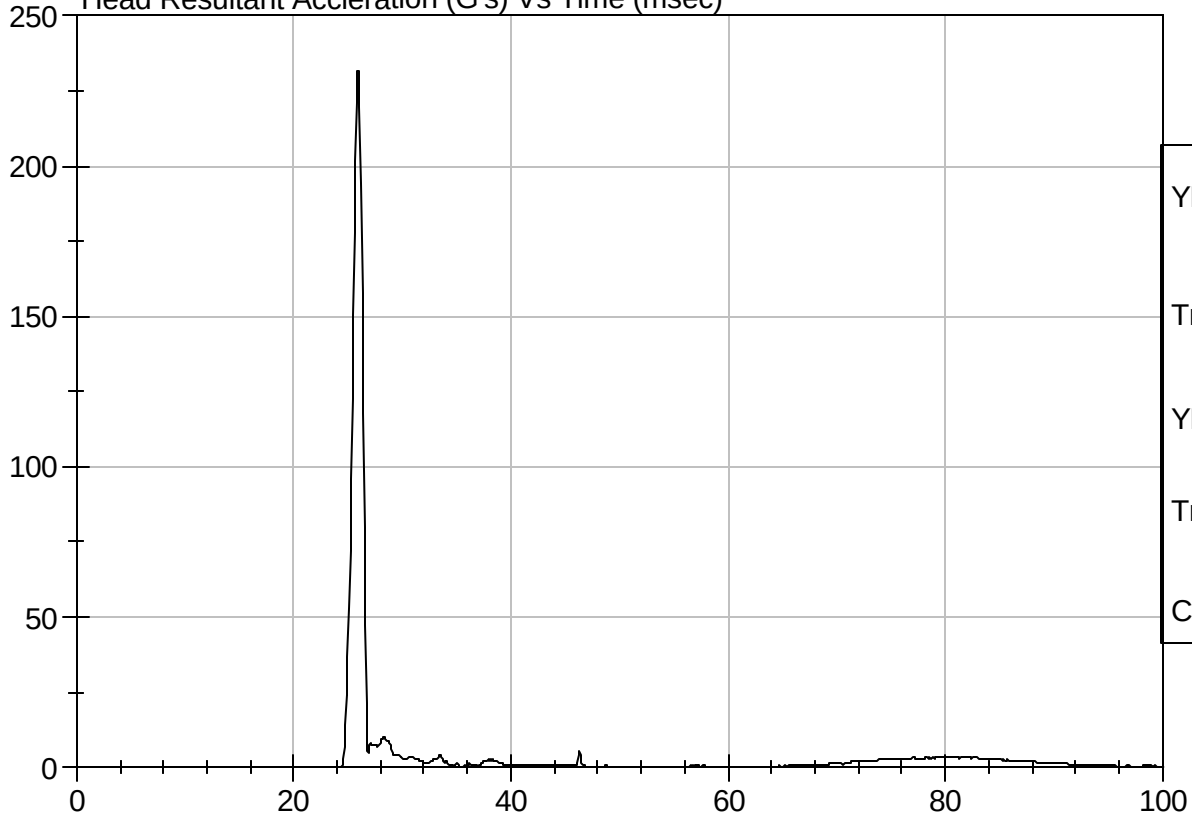
Test Description: Head Drop

Test Date: 3/8/02

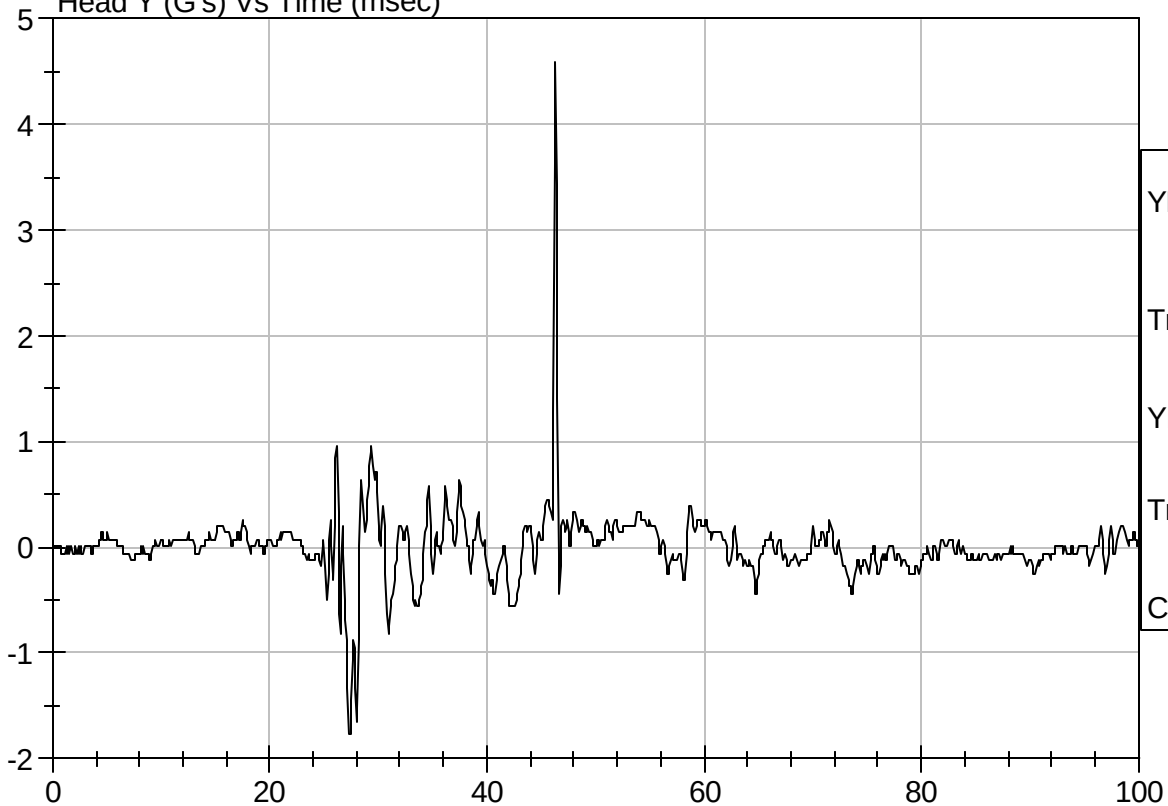
Component: D02371

Speed: 0 ft/s, 0 m/s

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



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



SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 036

Test I.D: D02372

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	19.9	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Upper Rib	G's	37 - 46	46	Pass
Lower Rib	G's	37 - 46	46	Pass
Lower Spine	G's	15 - 22	18	Pass
Overall Test Results				Pass

Laboratory Technician

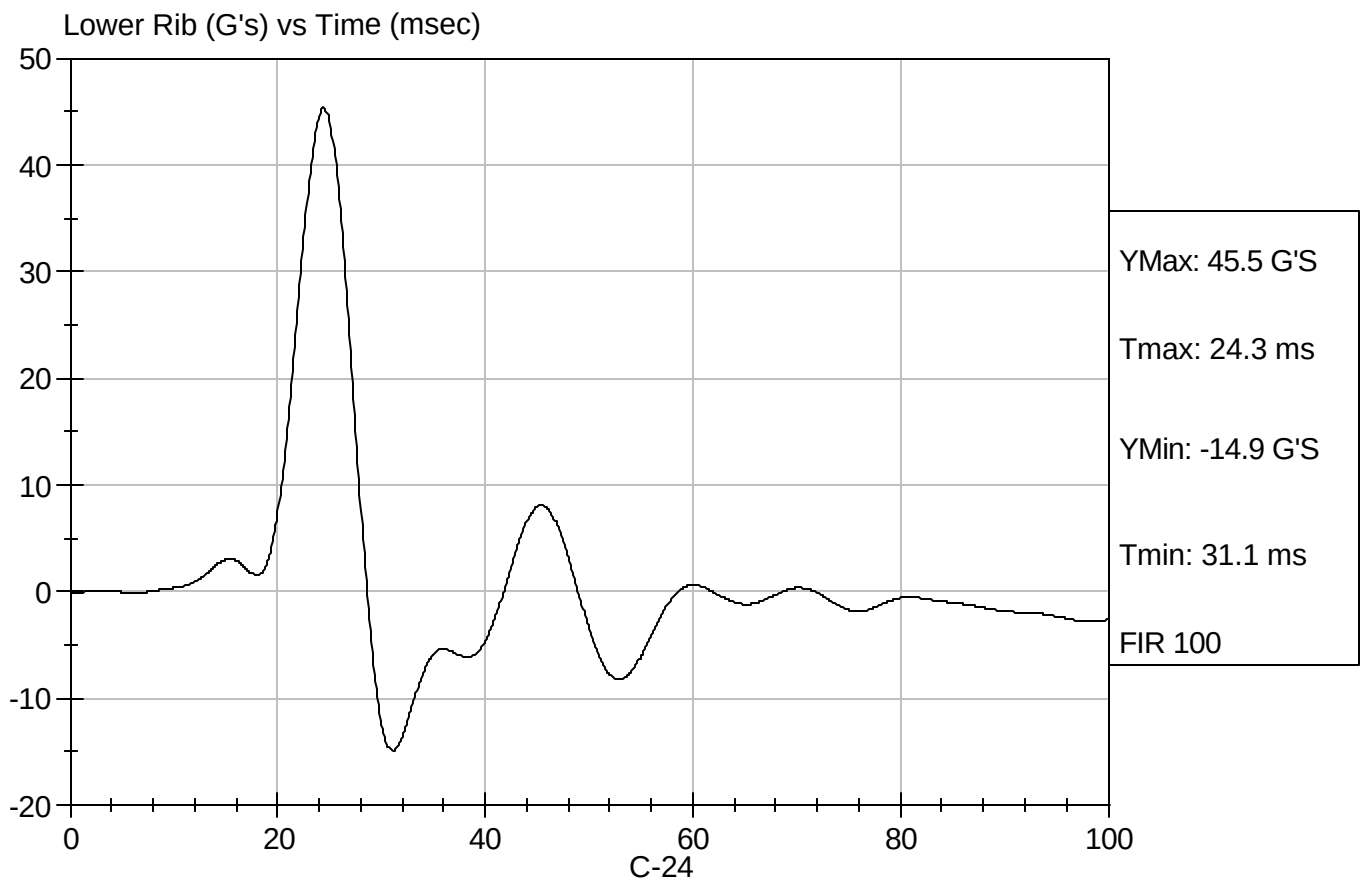
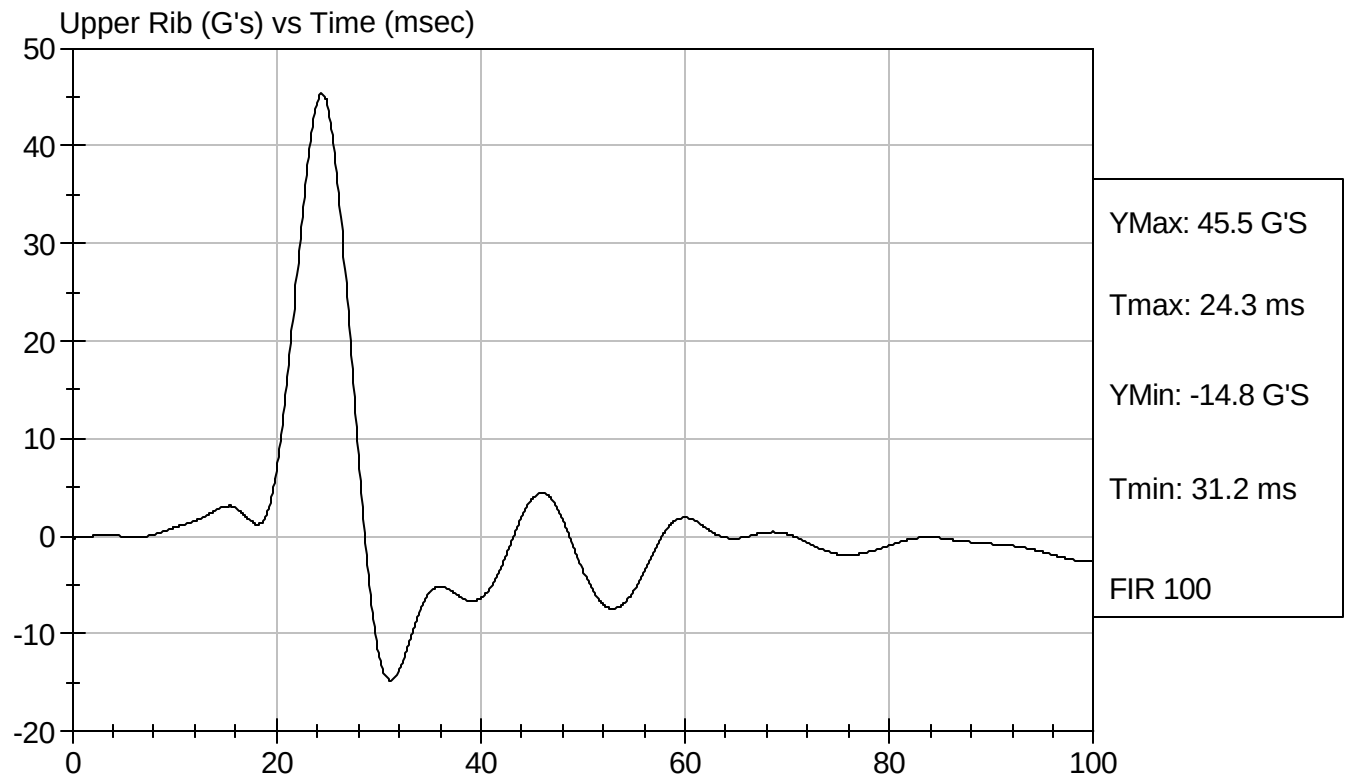
3/11/02
Test Date

Approved By



Test Desc: Thorax Impact
Component ID: D02372

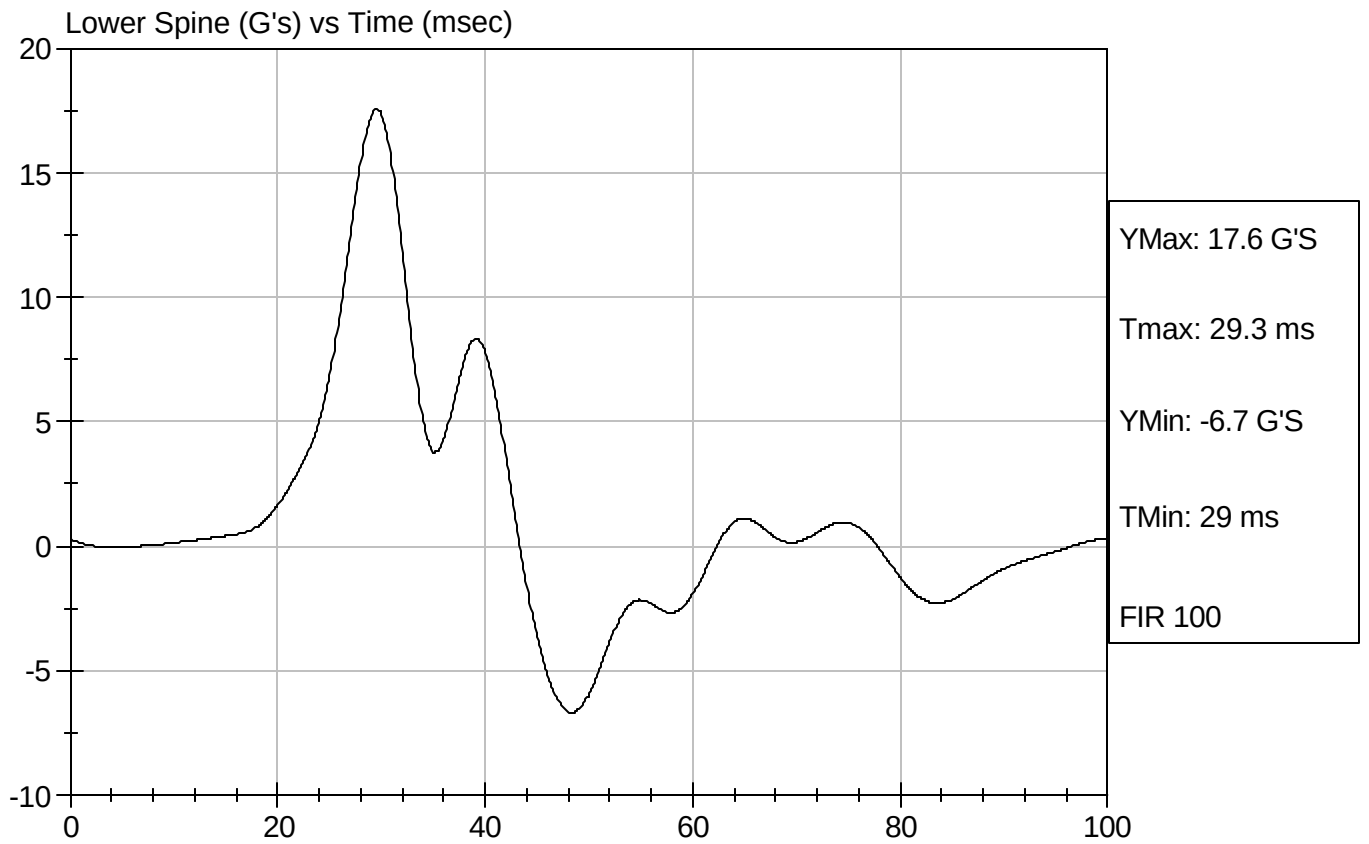
Test Date: 3/11/02
Speed: 14.08 ft/sec, 4.29 m/sec





Test Desc: Thorax Impact
Component ID: D02372

Test Date: 3/11/02
Speed: 14.08 ft/sec, 4.29 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: _____ 036 _____

Test I.D: _____ D02373 _____

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	19.9	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Pelvis Acceleration	G's	40 - 60	43	Pass
			Overall Test Results	Pass

Laboratory Technician

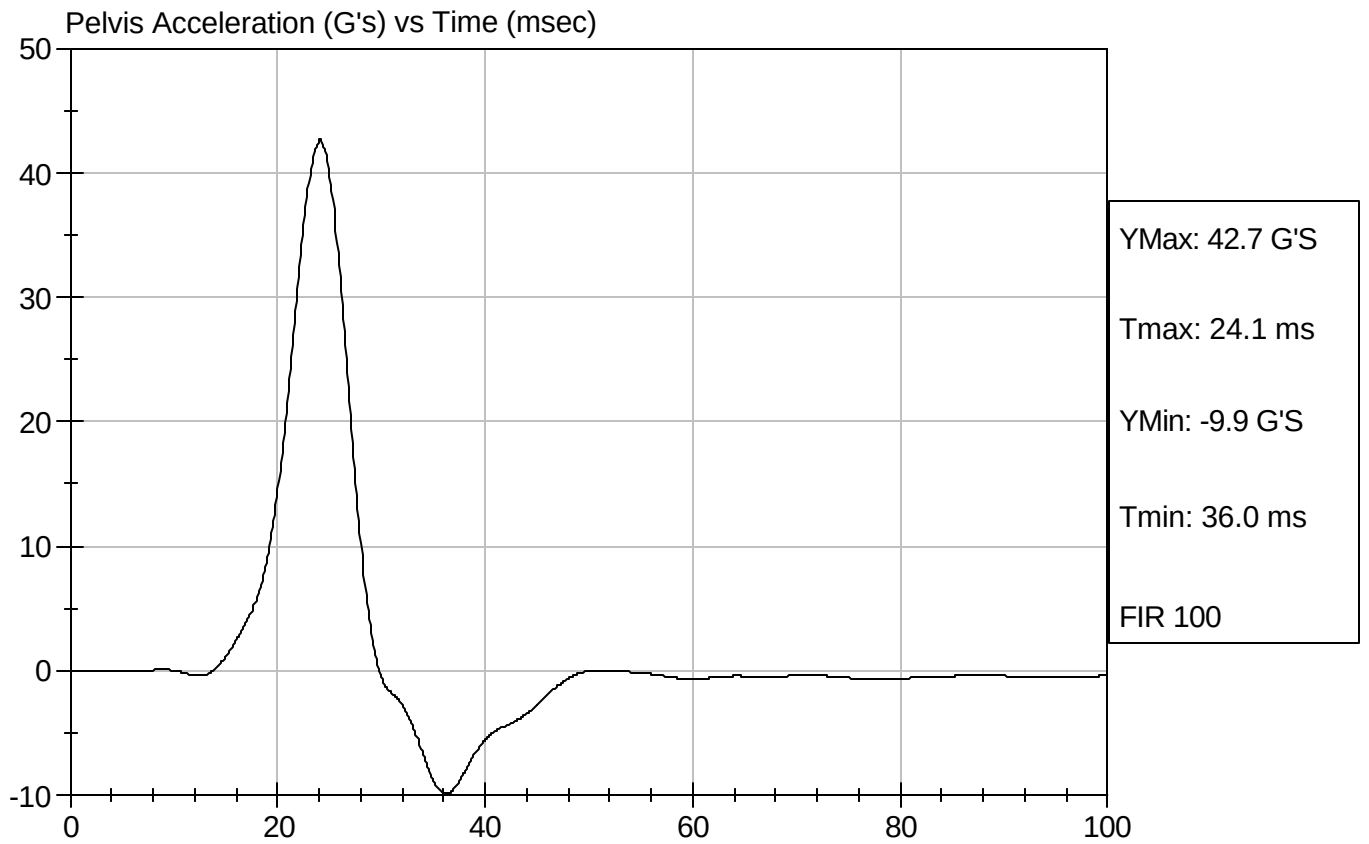
3/11/02
Test Date

Approved By



Test Desc: Pelvis Impact
Component ID: D02373

Test Date: 3/11/02
Speed: 14.08 ft/sec, 4.29 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 036

Test I.D: D02374

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 12.7 mm	N	104 -162	146	Pass
Force At 19 mm	N	163 - 222	206	Pass
Force At 25.4 mm	N	222 - 280	278	Pass
Force At 33 mm	N	325 - 391	391	Pass
			Overall Test Results	Pass

Laboratory Technician

3/8/02
Test Date

Approved By



Test Description: Abdomen Compression

Test Date: 3/8/02

Component: D02374

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 036

Test I.D: D02375

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	112.1	Pass
Force At 30 deg	N	151.2 - 204.6	180.5	Pass
Force At 40 deg	N	204.6 - 258.0	248.9	Pass
Return Angle	Deg	12 Maximum	6	Pass
			Overall Test Results	Pass

Laboratory Technician

3/8/02
Test Date

Approved By

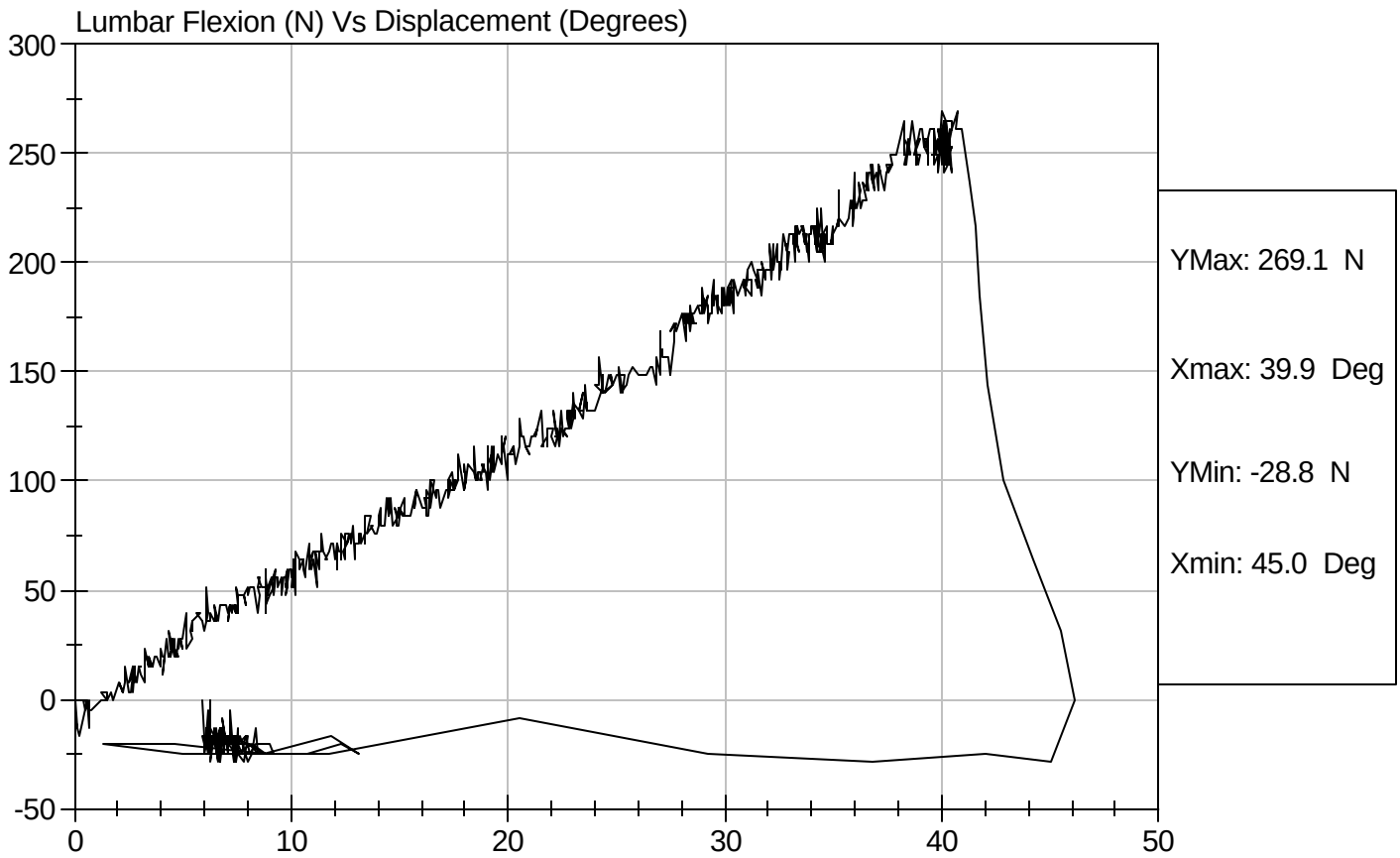


Test Description: Lumbar Flexion

Test Date: 3/8/02

Component: D02375

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 036

Test Part	Items Checked	Result
Skin	Visual inspection	Pass
Head	Visual, ballast, accelerometer mount	Pass
Neck	Visual	Pass
Spine Box	Visual, ballast, accelerometer mount	Pass
Rib Cage	Visual, measure	Pass
Sternum	Visual	Pass
Lumbar Spine	Visual	Pass
Abdomen	Visual	Pass
Pelvis	Visual, palpate, accelerometer mount	Pass
Upper Legs	Visual	Pass
Knees	Visual	Pass
Lower Legs	Visual, range of motion	Pass
Ankles	Visual, range of motion	Pass
Feet	Visual, range of motion	Pass
Joints	1 to 2 g range	Pass
Other		

Laboratory Technician

3/11/02

Test Date

Approved By

CERTIFICATION DATA

Dummy Serial Number: 037

CERTIFICATION DATA

Dummy Serial Number: 037

Post-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvis Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SID Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 037

Test I.D: D0249

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	902	Pass
RH - Rib Height	mm	501 - 521	509	Pass
HP - Hip Pivot Height	mm	99 ref.	99	Pass
RD - Rib from Back Line	mm	229 - 241	232	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	519	Pass
SW - Knee Pivot to Floor	mm	490 - 505	493	Pass
HW - Hip Width	mm	356 - 391	378	Pass
Overall Test Results			Pass	

Laboratory Technician

4/5/02
Test Date

Approved By

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration

ATD Serial No: 037

Test I.D: D02491

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Peak Resultant Acceleration	G's	210 to 260	228	Pass
Peak Lateral Acceleration	G's	< 10	-2	Pass
Time Above 100 G	msec	0.9 - 1.5	1.2	Pass
Overall Test Results				Pass

Laboratory Technician

4/5/02
Test Date

Approved By



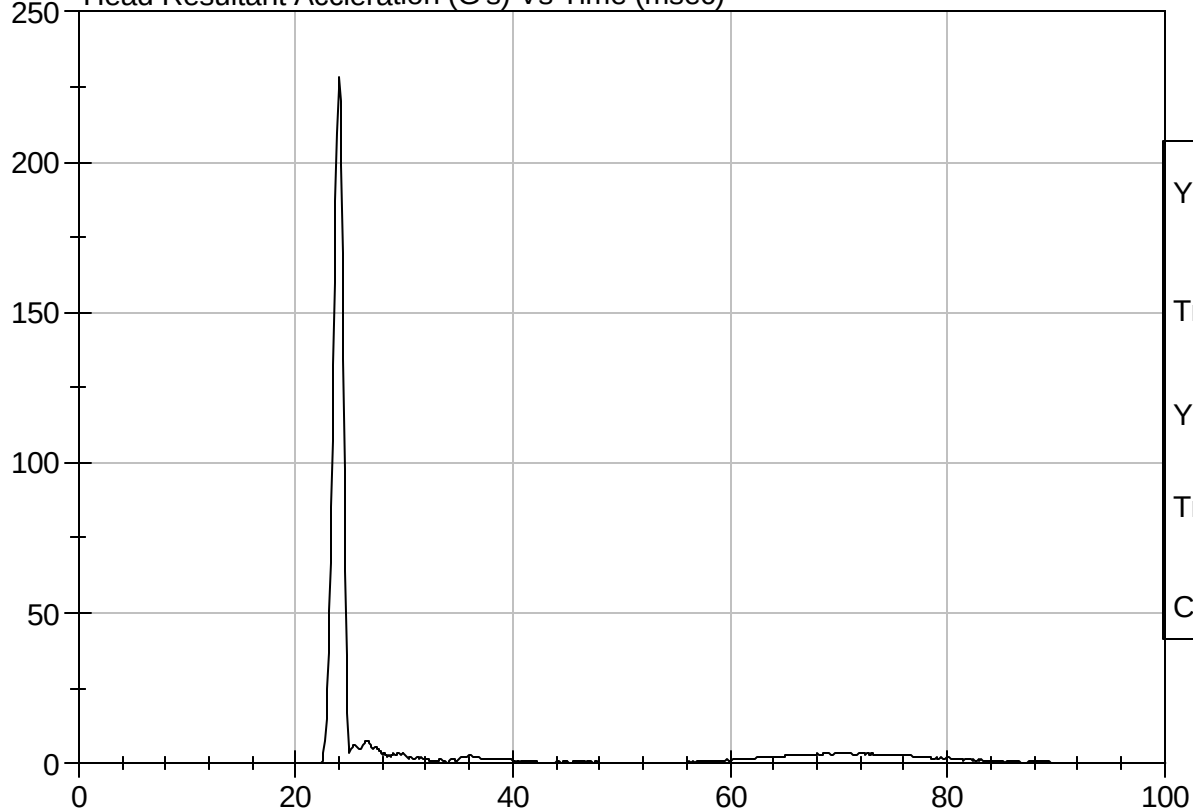
Test Description: Head Drop

Test Date: 4/5/02

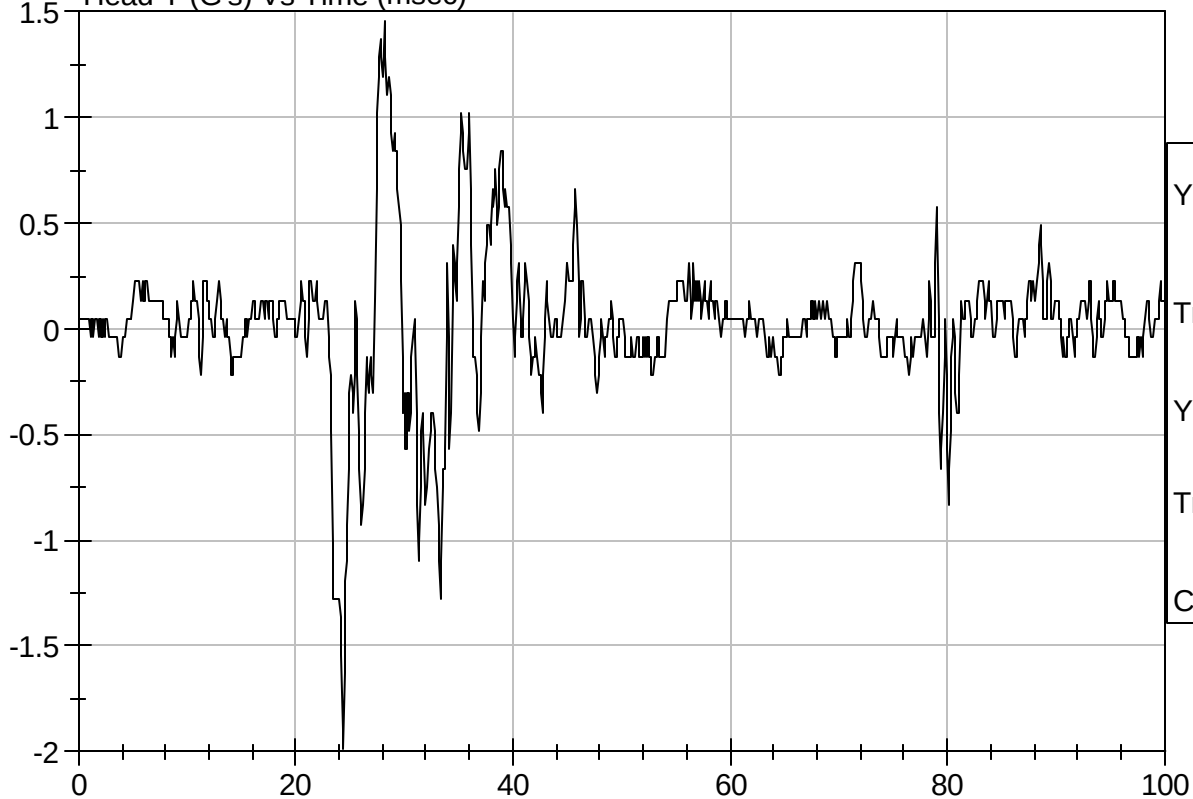
Component: D02491

Speed: 0 ft/s, 0 m/s

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



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



SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 037

Test I.D: D02492

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Probe Velocity	m/s	4.27 - 4.33	4.3	Pass
Upper Rib	G's	37 - 46	44	Pass
Lower Rib	G's	37 - 46	45	Pass
Lower Spine	G's	15 - 22	20	Pass
Overall Test Results				Pass

Laboratory Technician

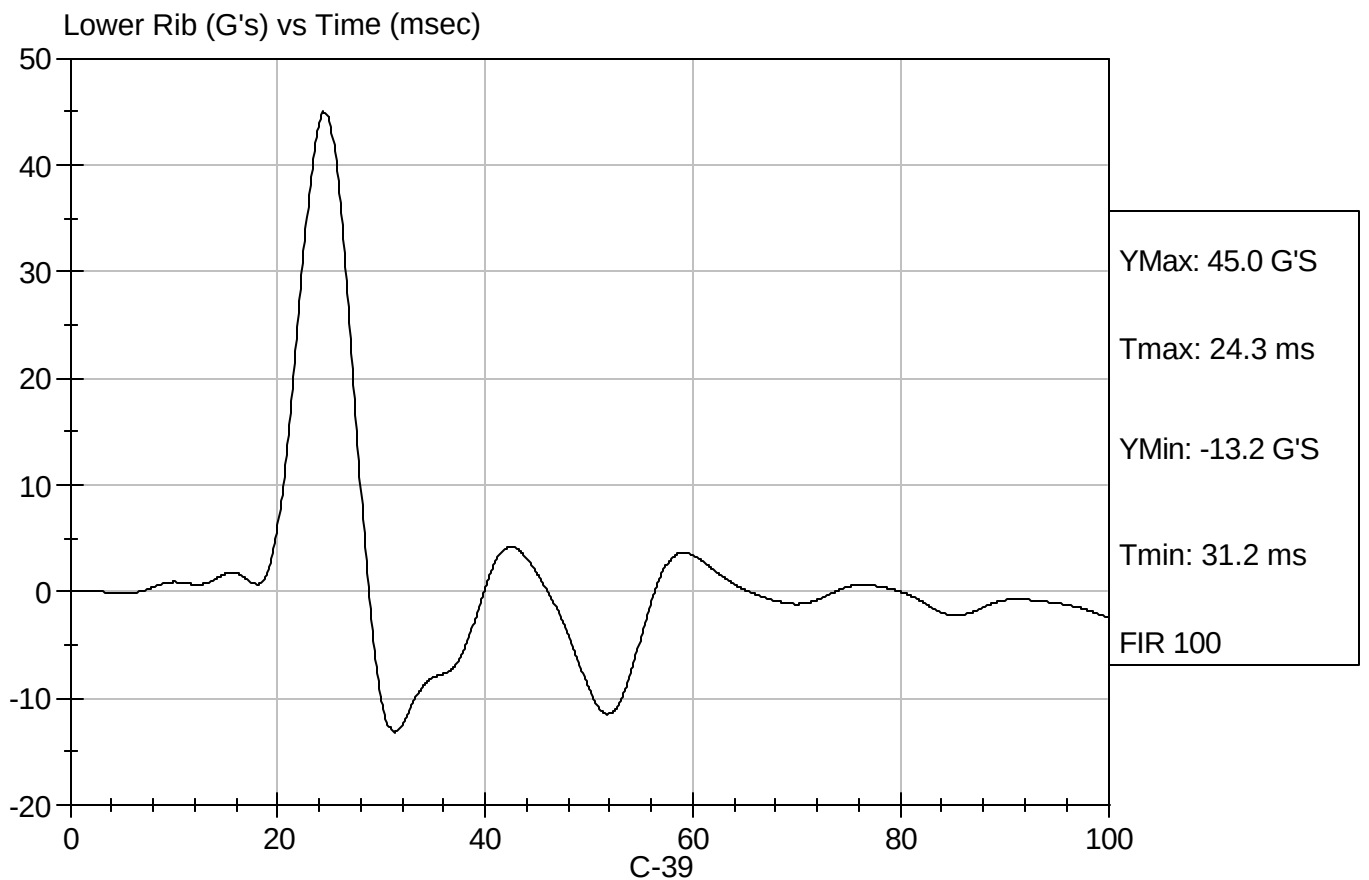
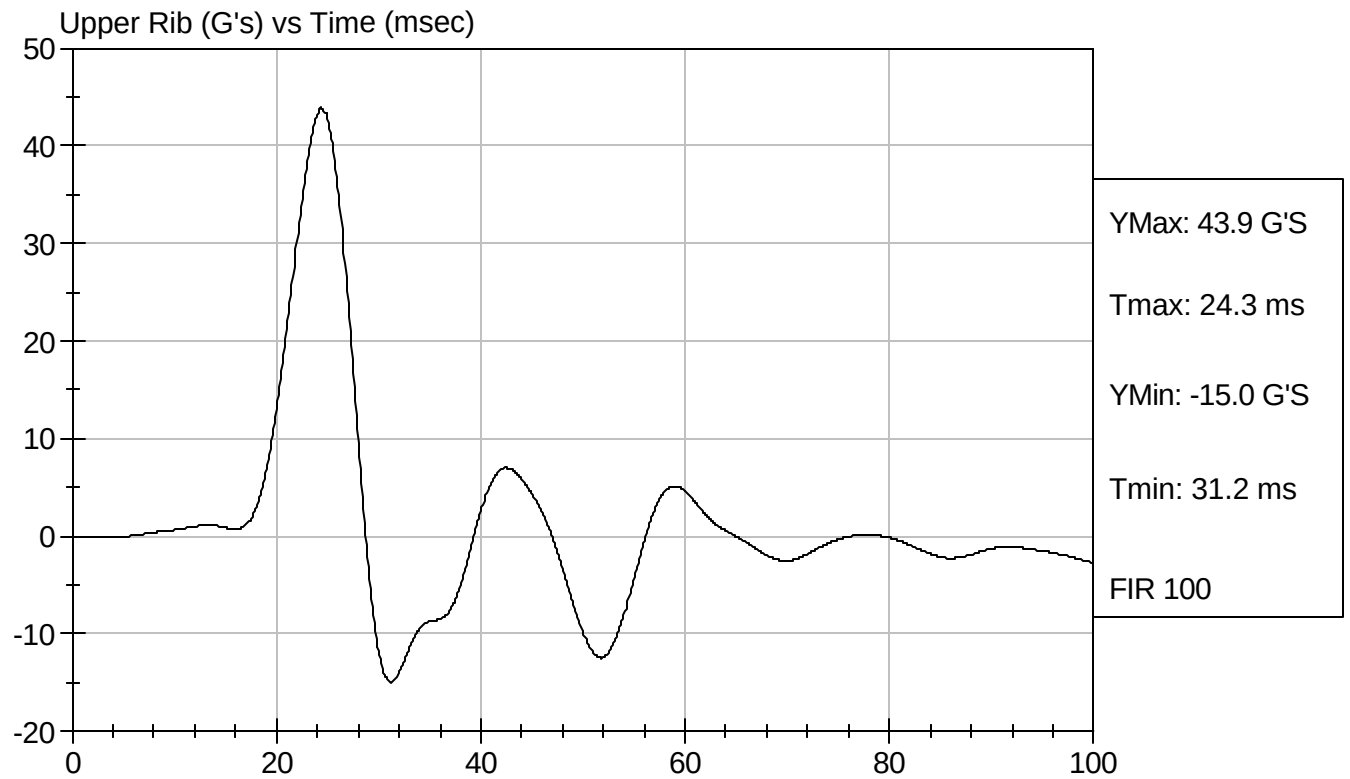
4/4/02
Test Date

Approved By



Test Desc: Thorax Impact
Component ID: D02492

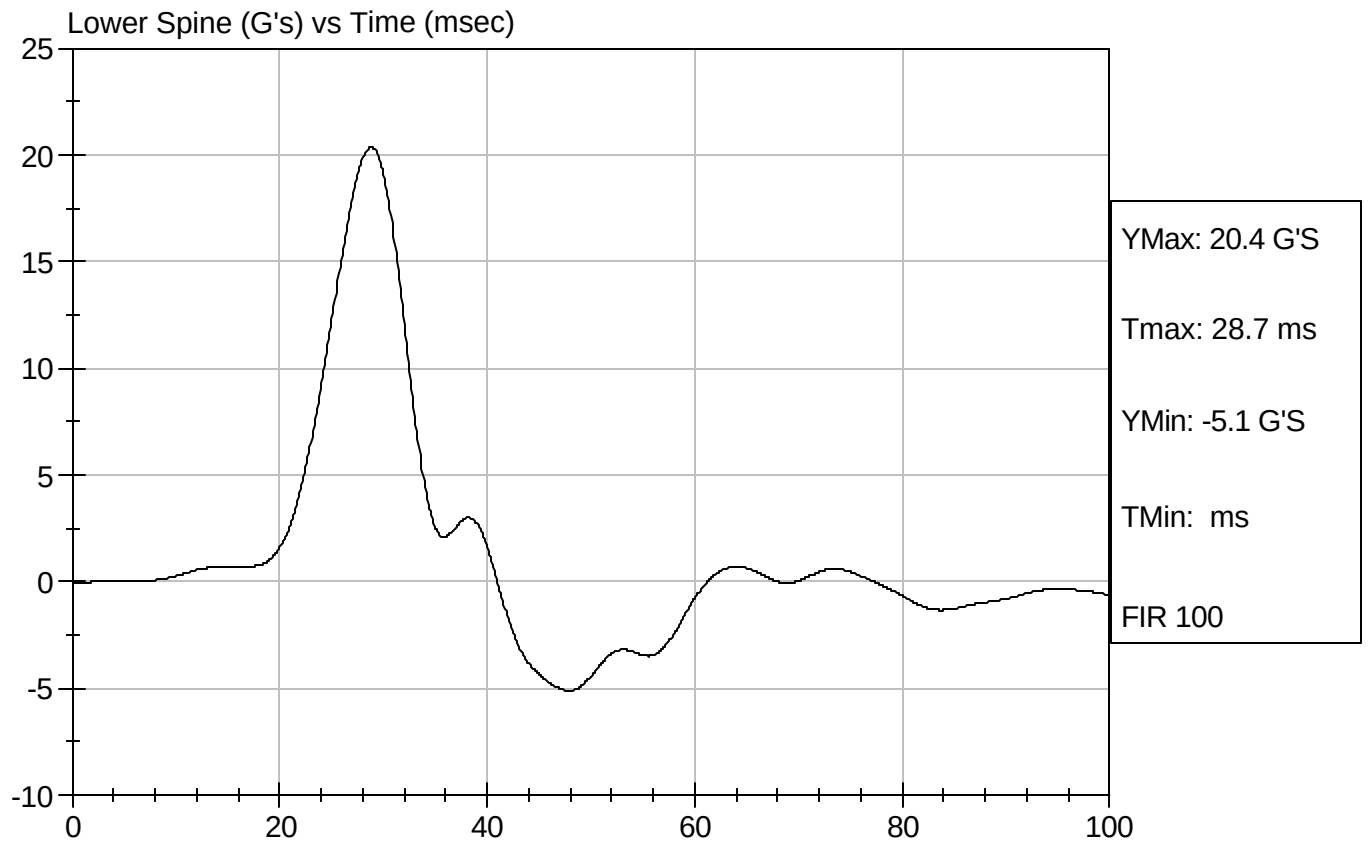
Test Date: 4/4/02
Speed: 14.11 ft/sec, 4.3 m/sec





Test Desc: Thorax Impact
Component ID: D02492

Test Date: 4/4/02
Speed: 14.11 ft/sec, 4.3 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 037

Test I.D: D02493

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Pelvis Acceleration	G's	40 - 60	44	Pass
			Overall Test Results	Pass

Laboratory Technician

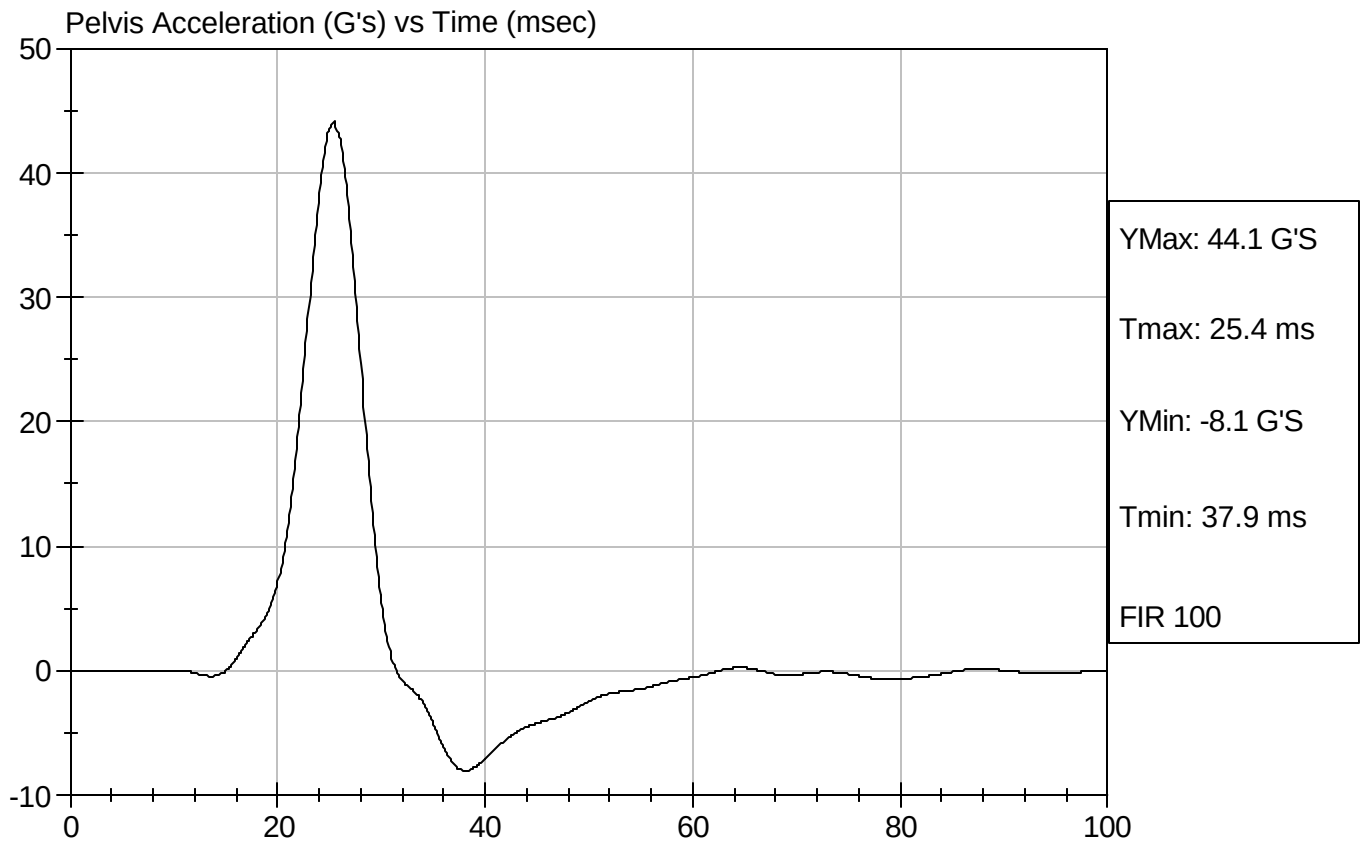
4/4/02
Test Date

Approved By



Test Desc: Pelvis Impact
Component ID: D02493

Test Date: 4/4/02
Speed: 14.08 ft/sec, 4.29 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 037

Test I.D: D02494

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Force At 12.7 mm	N	104 -162	138	Pass
Force At 19 mm	N	163 - 222	191	Pass
Force At 25.4 mm	N	222 - 280	258	Pass
Force At 33 mm	N	325 - 391	358	Pass
			Overall Test Results	Pass

Laboratory Technician

4/5/02
Test Date

Approved By

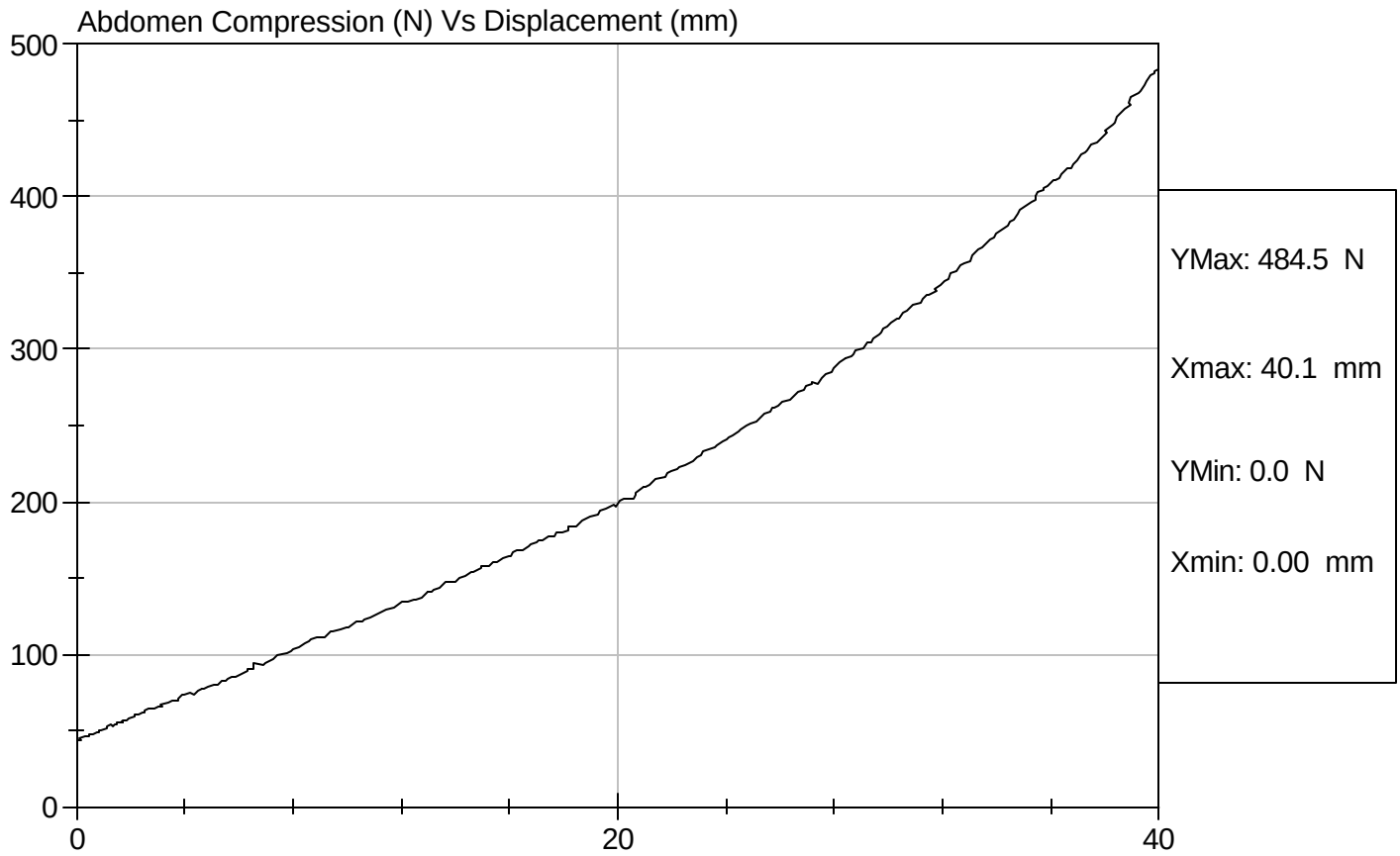


Test Description: Abdomen Compression

Test Date: 4/5/02

Component: D02494

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 037

Test I.D: D02495

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	98.9	Pass
Force At 30 deg	N	151.2 - 204.6	159.3	Pass
Force At 40 deg	N	204.6 - 258.0	211.6	Pass
Return Angle	Deg	12 Maximum	3	Pass
Overall Test Results			Pass	

Laboratory Technician

4/5/02
Test Date

Approved By

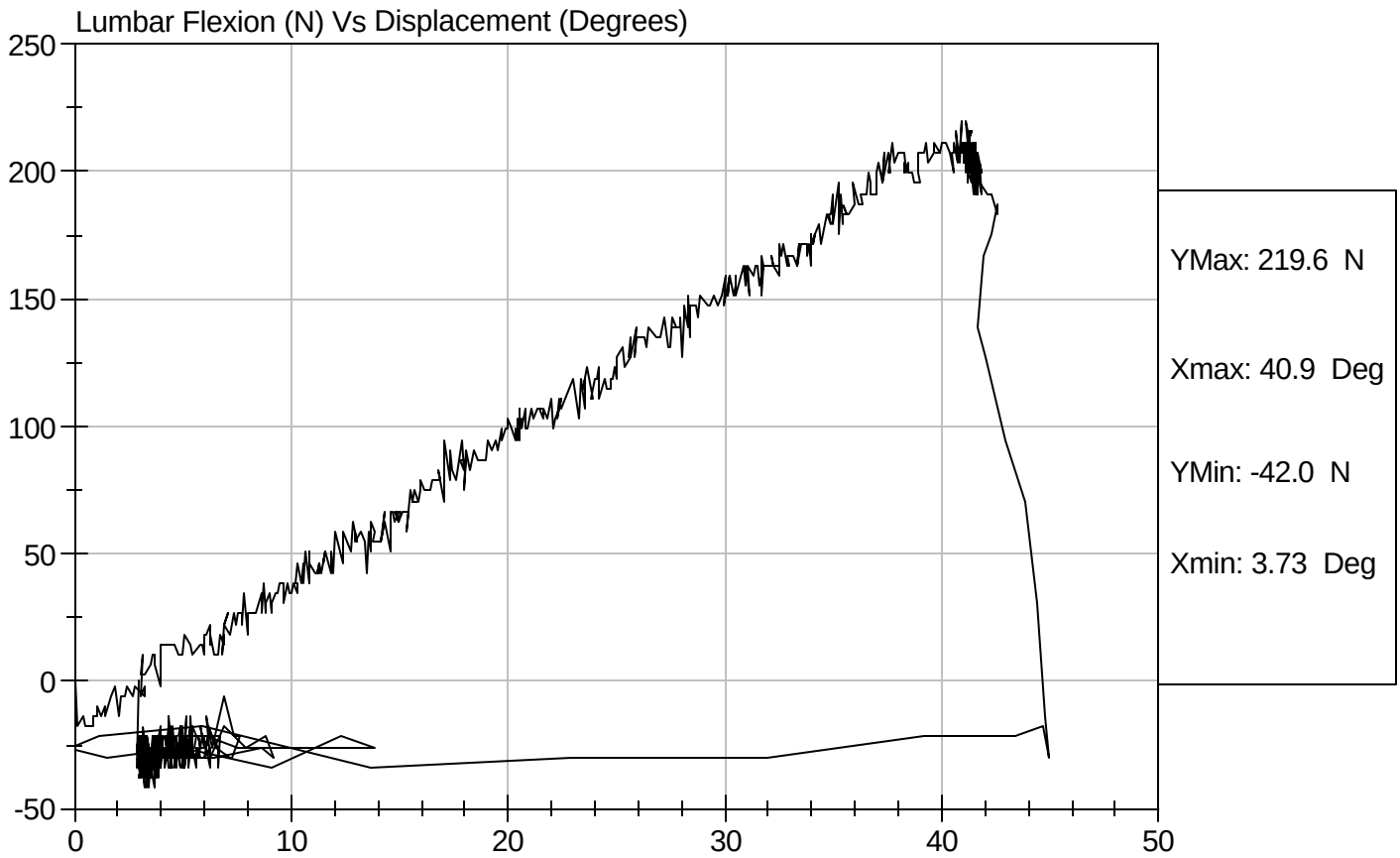


Test Description: Lumbar Flexion

Test Date: 4/5/02

Component: D02495

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 037

Test Part	Items Checked	Result
Skin	Visual inspection	Pass
Head	Visual, ballast, accelerometer mount	Pass
Neck	Visual	Pass
Spine Box	Visual, ballast, accelerometer mount	Pass
Rib Cage	Visual, measure	Pass
Sternum	Visual	Pass
Lumbar Spine	Visual	Pass
Abdomen	Visual	Pass
Pelvis	Visual, palpate, accelerometer mount	Pass
Upper Legs	Visual	Pass
Knees	Visual	Pass
Lower Legs	Visual, range of motion	Pass
Ankles	Visual, range of motion	Pass
Feet	Visual, range of motion	Pass
Joints	1 to 2 g range	Pass
Other		

Laboratory Technician

4/5/02

Test Date

Approved By

CERTIFICATION DATA

Dummy Serial Number: 036

CERTIFICATION DATA

Dummy Serial Number: 036

Post-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvis Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SID Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 036

Test I.D: D0248

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	903	Pass
RH - Rib Height	mm	501 - 521	506	Pass
HP - Hip Pivot Height	mm	99 ref.	99	Pass
RD - Rib from Back Line	mm	229 - 241	232	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	518	Pass
SW - Knee Pivot to Floor	mm	490 - 505	497	Pass
HW - Hip Width	mm	356 - 391	370	Pass
Overall Test Results			Pass	

Laboratory Technician

4/5/02
Test Date

Approved By

SID Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration

ATD Serial No: 036

Test I.D: D02481

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	21	Pass
Peak Resultant Acceleration	G's	210 to 260	226	Pass
Peak Lateral Acceleration	G's	< 10	-8	Pass
Time Above 100 G	msec	0.9 - 1.5	1.2	Pass
			Overall Test Results	Pass

Laboratory Technician

4/5/02
Test Date

Approved By



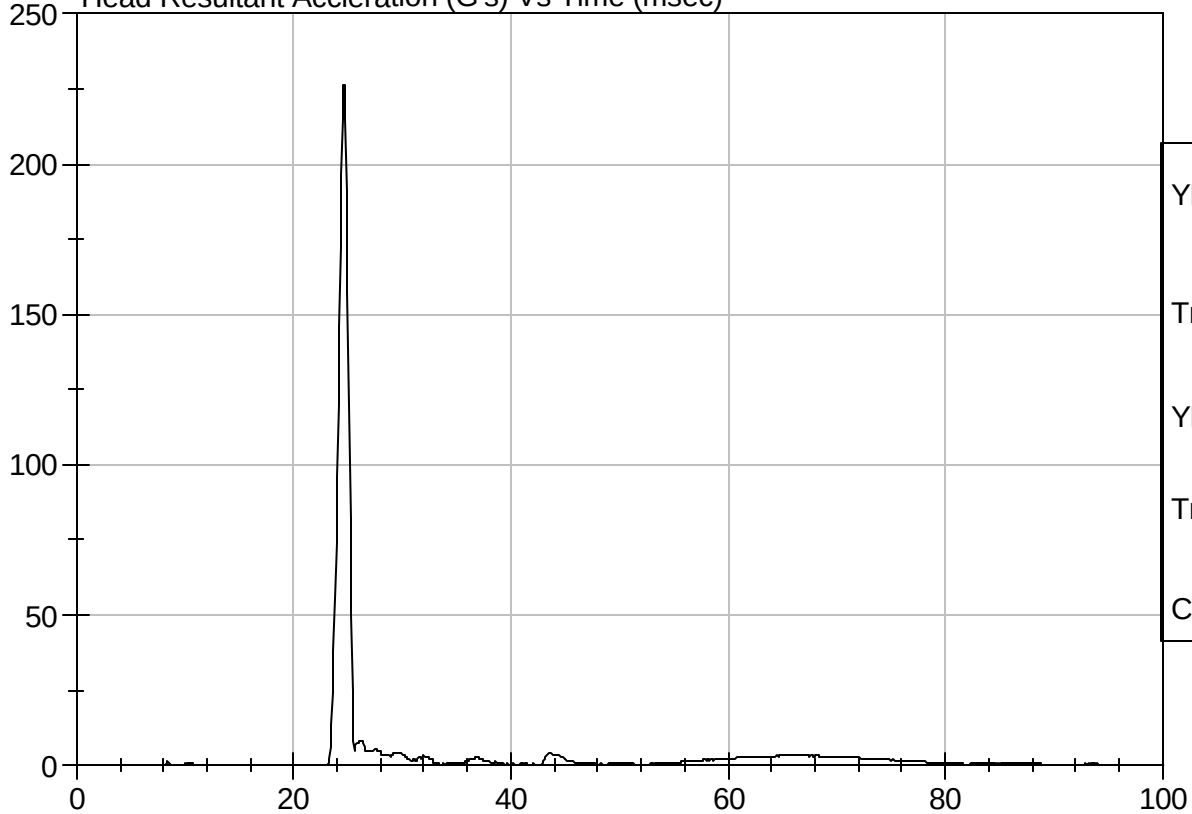
Test Description: Head Drop

Test Date: 4/5/02

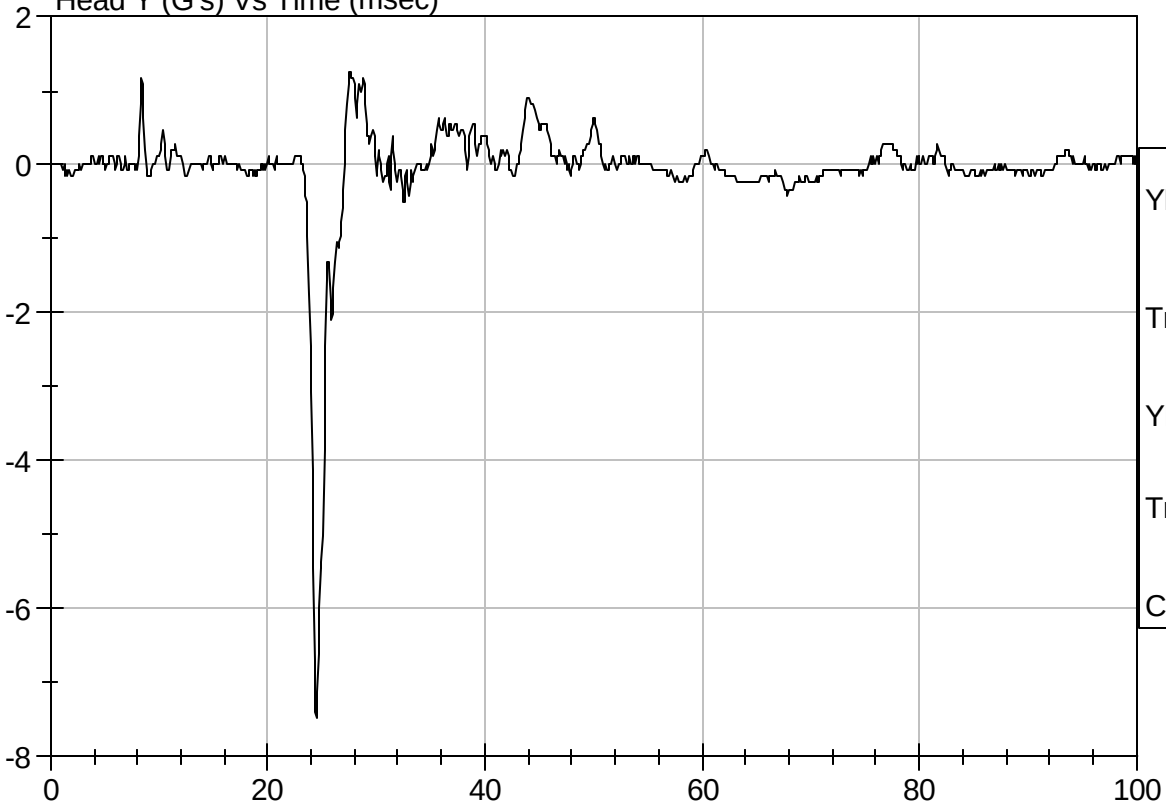
Component: D02481

Speed: 0 ft/s, 0 m/s

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



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



SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 036

Test I.D: D02482

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Probe Velocity	m/s	4.27 - 4.33	4.27	Pass
Upper Rib	G's	37 - 46	45	Pass
Lower Rib	G's	37 - 46	45	Pass
Lower Spine	G's	15 - 22	17	Pass
Overall Test Results				Pass

Laboratory Technician

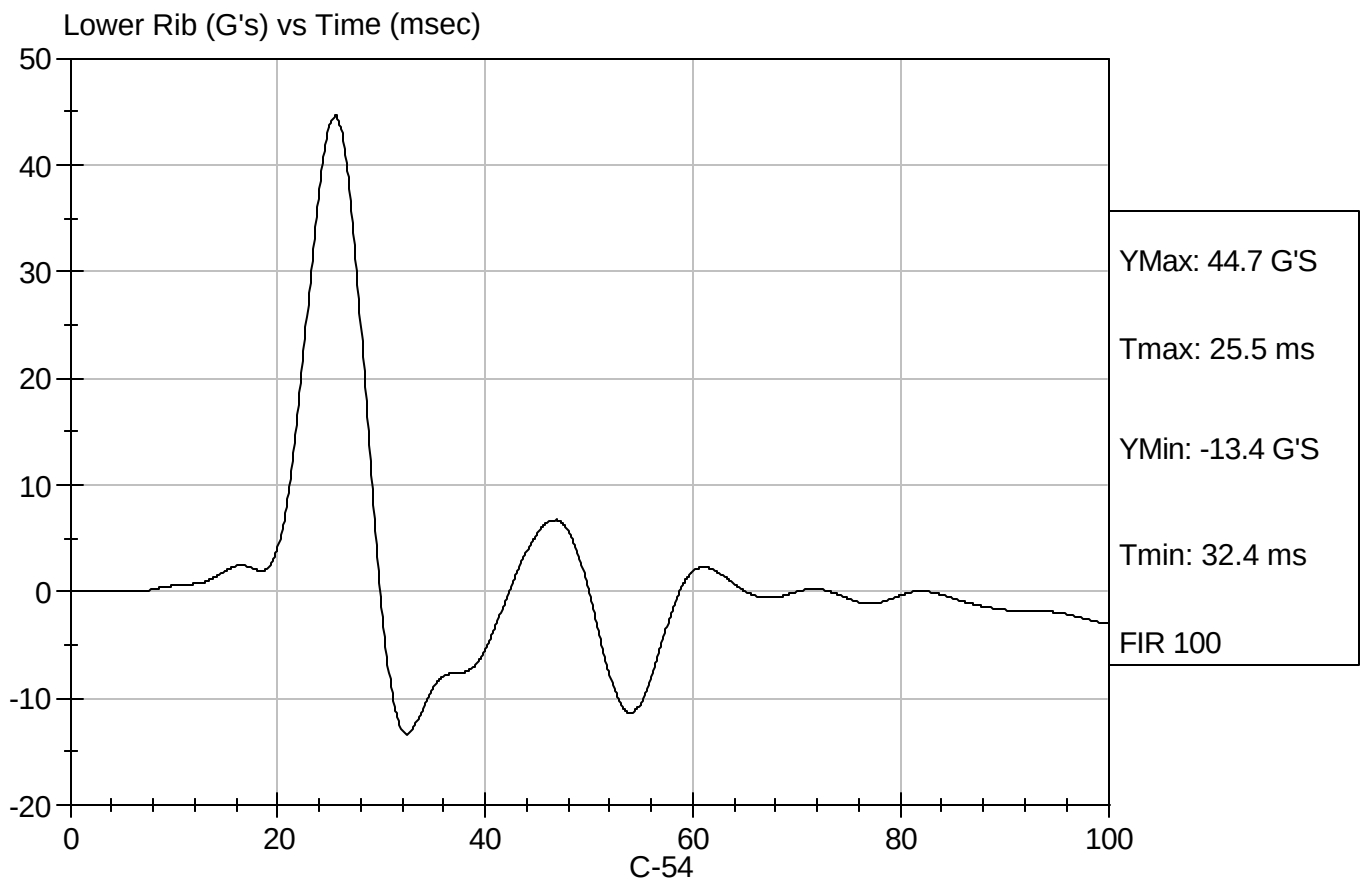
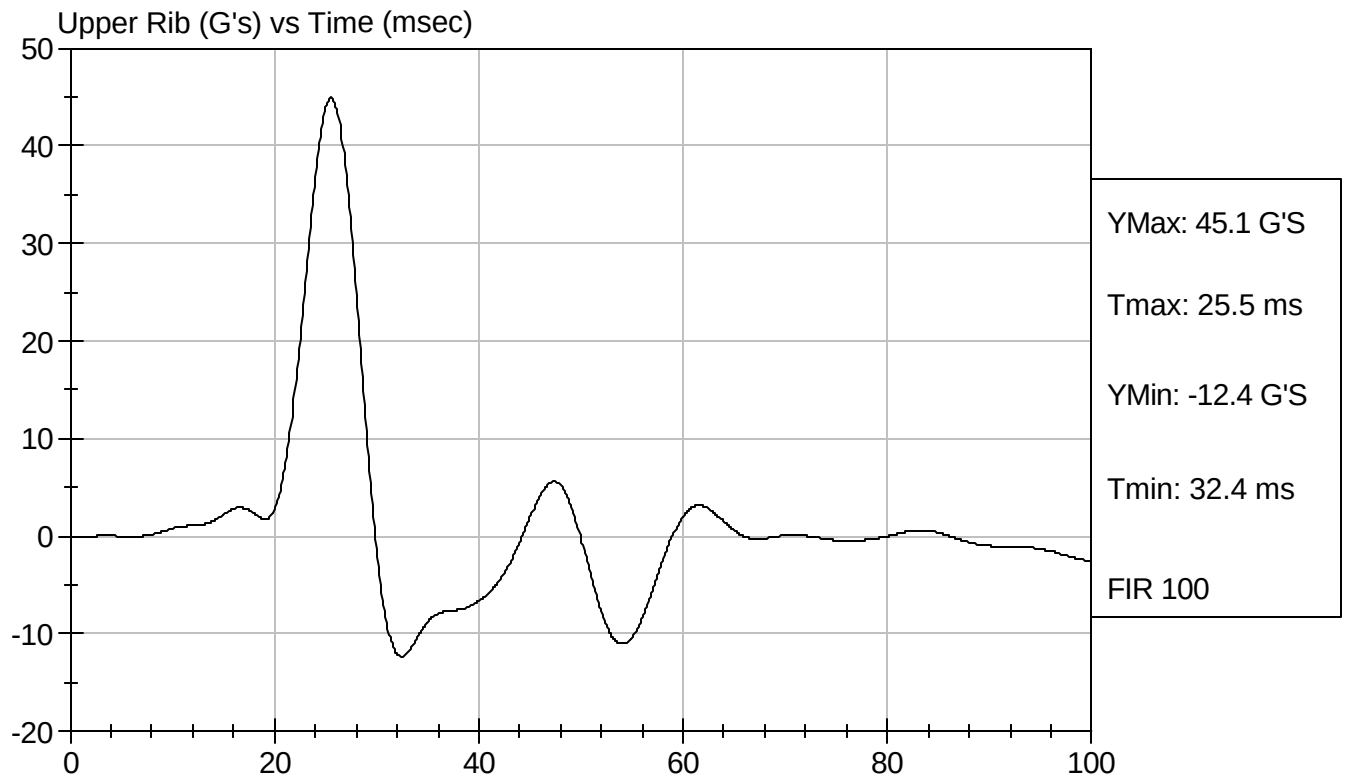
4/4/02
Test Date

Approved By



Test Desc: Thorax Impact
Component ID: D02482

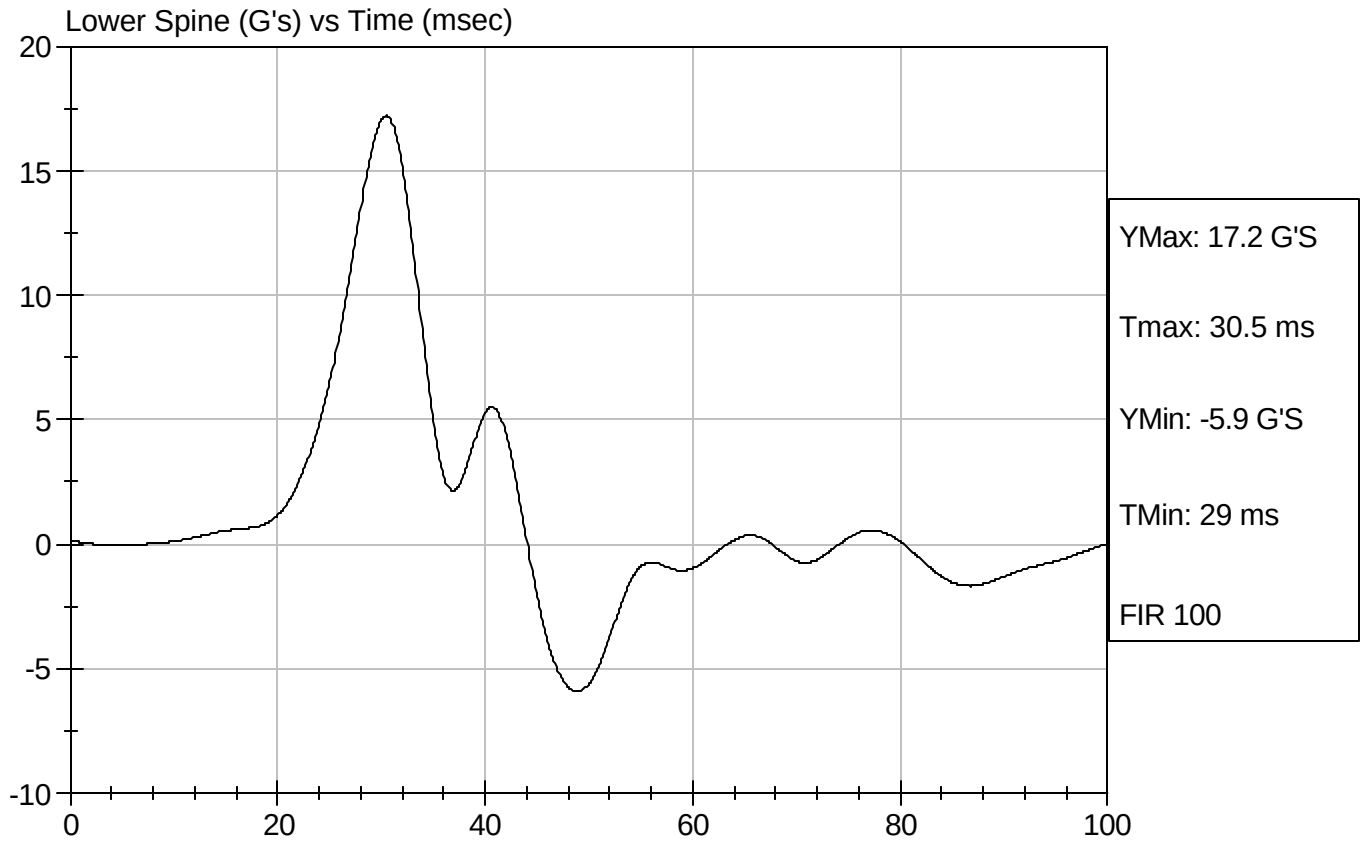
Test Date: 4/4/02
Speed: 14.01 ft/sec, 4.27 m/sec





Test Desc: Thorax Impact
Component ID: D02482

Test Date: 4/4/02
Speed: 14.01 ft/sec, 4.27 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: _____ 036 _____

Test I.D: _____ D02483 _____

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Probe Velocity	m/s	4.27 - 4.33	4.28	Pass
Pelvis Acceleration	G's	40 - 60	48	Pass
			Overall Test Results	Pass

Laboratory Technician

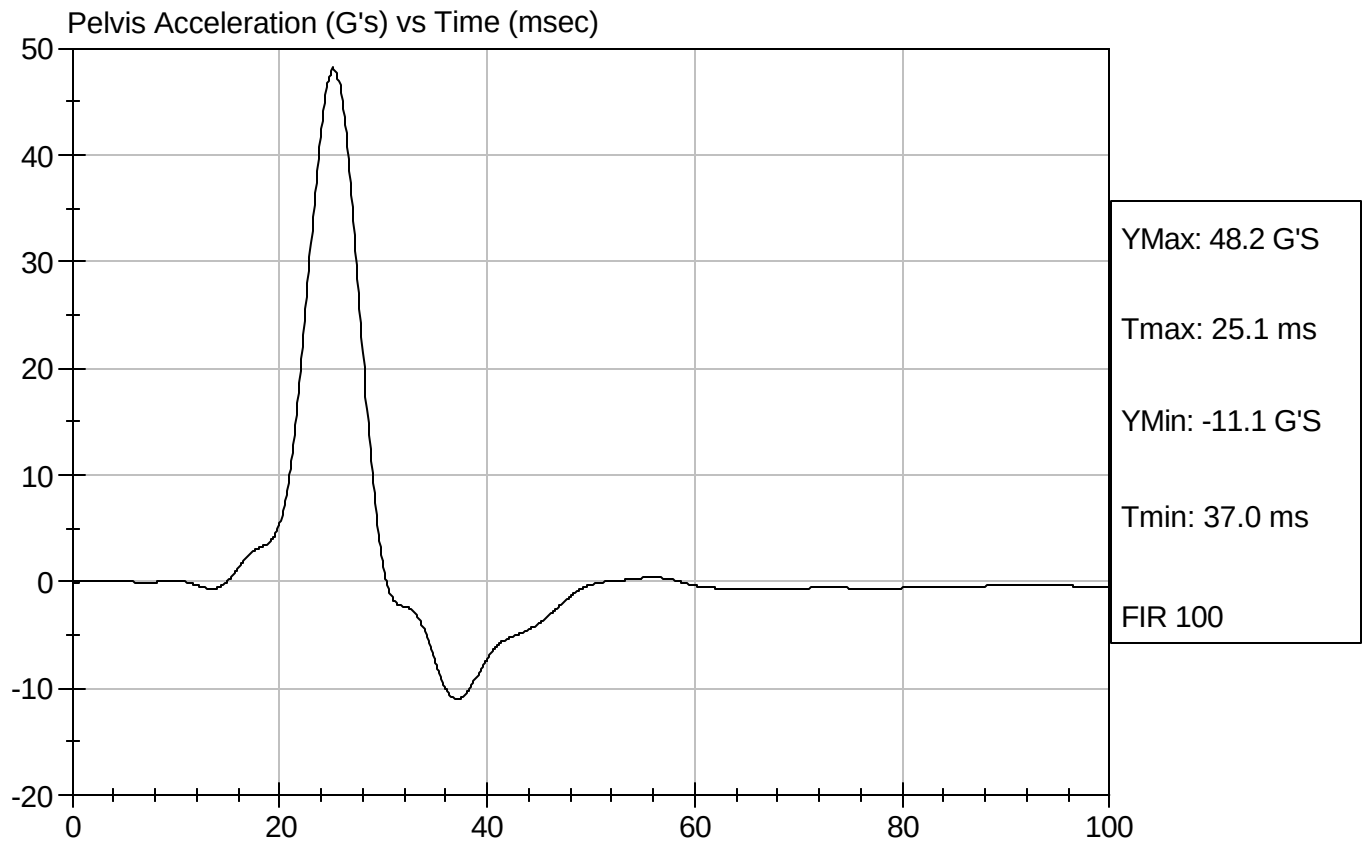
4/4/02
Test Date

Approved By



Test Desc: Pelvis Impact
Component ID: D02483

Test Date: 4/4/02
Speed: 14.03 ft/sec, 4.28 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 036

Test I.D: D02484

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Force At 12.7 mm	N	104 -162	155	Pass
Force At 19 mm	N	163 - 222	207	Pass
Force At 25.4 mm	N	222 - 280	272	Pass
Force At 33 mm	N	325 - 391	376	Pass
			Overall Test Results	Pass

Laboratory Technician

4/5/02
Test Date

Approved By

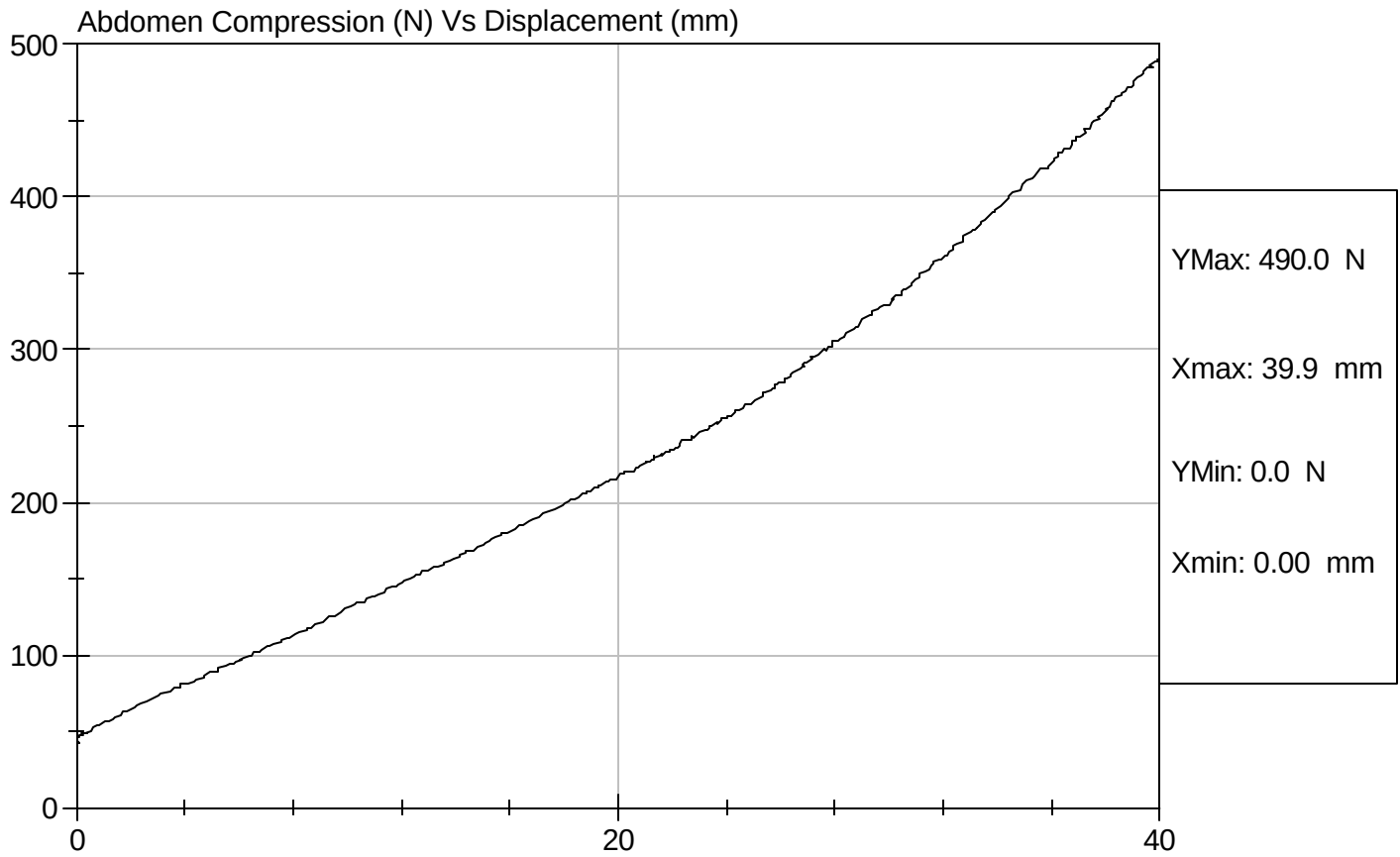


Test Description: Abdomen Compression

Test Date: 4/5/02

Component: D02484

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 037

Test I.D: D02485

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	115.3	Pass
Force At 30 deg	N	151.2 - 204.6	203.8	Pass
Force At 40 deg	N	204.6 - 258.0	232.0	Pass
Return Angle	Deg	12 Maximum	4	Pass
Overall Test Results			Pass	

Laboratory Technician

4/5/02
Test Date

Approved By

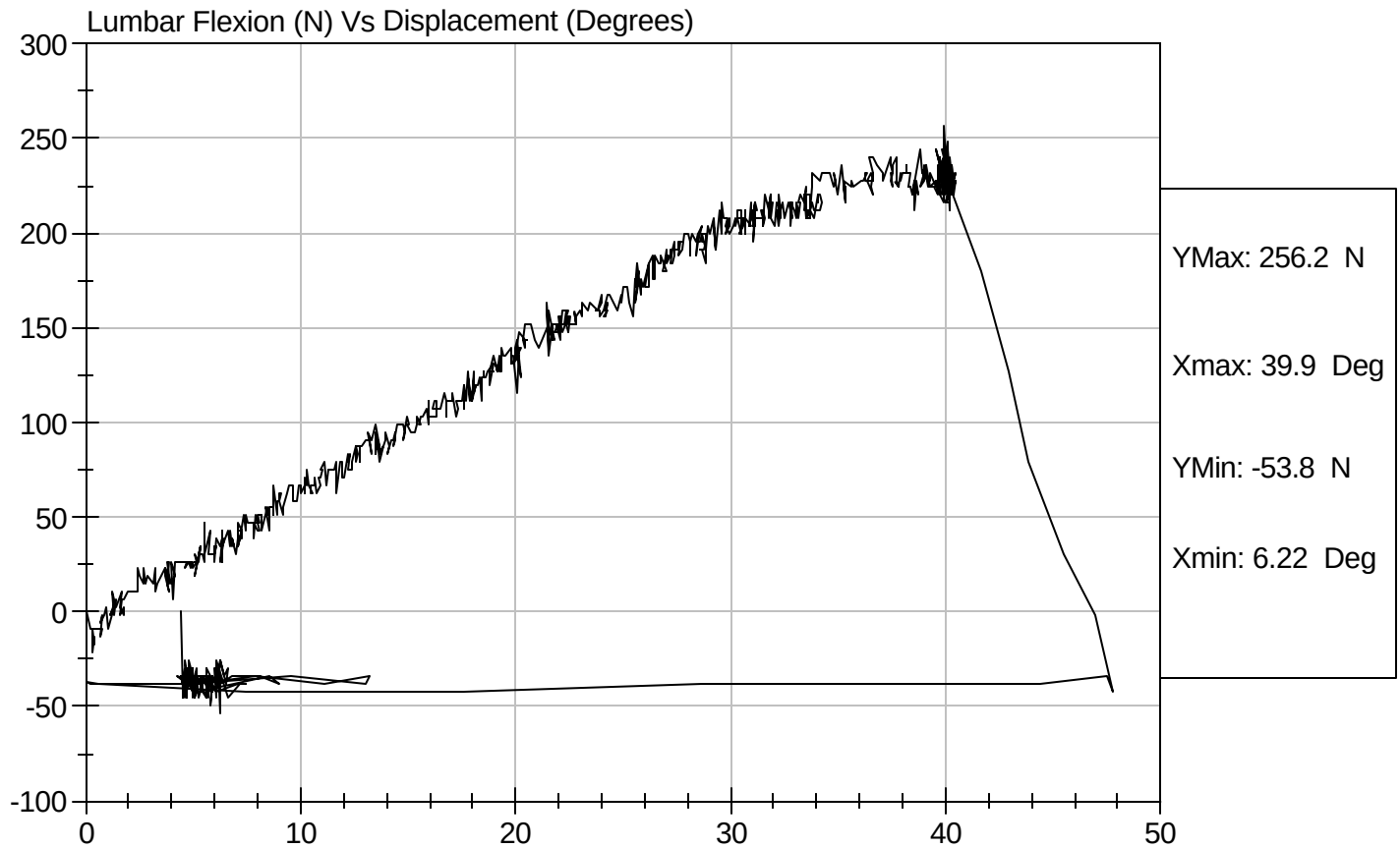


Test Description: Lumbar Flexion

Test Date: 4/5/02

Component: D02485

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 036

Test Part	Items Checked	Result
Skin	Visual inspection	Pass
Head	Visual, ballast, accelerometer mount	Pass
Neck	Visual	Pass
Spine Box	Visual, ballast, accelerometer mount	Pass
Rib Cage	Visual, measure	Pass
Sternum	Visual	Pass
Lumbar Spine	Visual	Pass
Abdomen	Visual	Pass
Pelvis	Visual, palpate, accelerometer mount	Pass
Upper Legs	Visual	Pass
Knees	Visual	Pass
Lower Legs	Visual, range of motion	Pass
Ankles	Visual, range of motion	Pass
Feet	Visual, range of motion	Pass
Joints	1 to 2 g range	Pass
Other		

Laboratory Technician

4/5/02

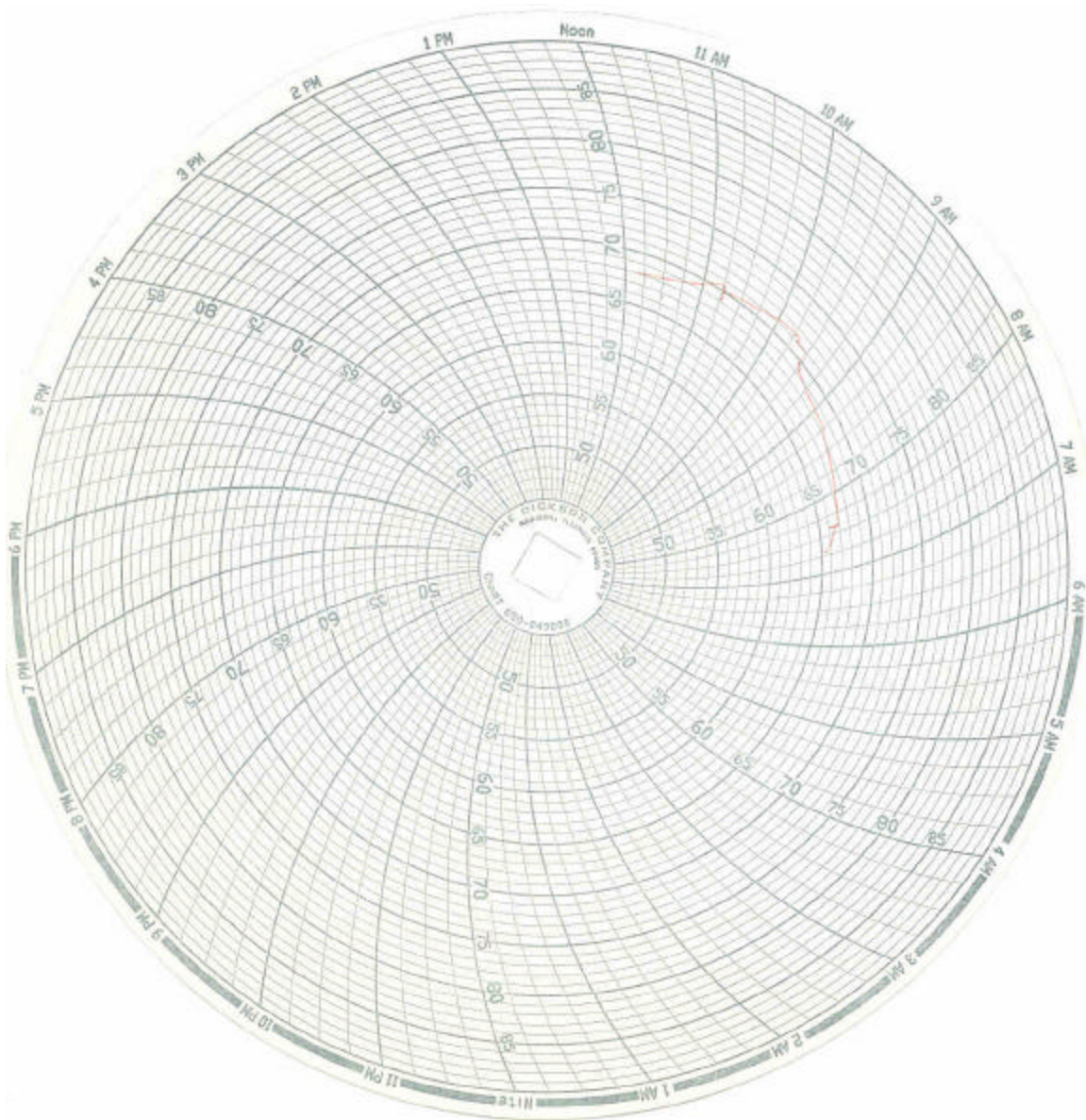
Test Date

Approved By

VEHICLE AND DUMMY TEMPERATURE

Test Vehicle: 2002/Toyota/Prius/Hybrid/4 Door
Test Program: FMVSS 214 Indicant Side Impact

NHTSA No.: C25105
Test Date: 4/3/02



APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

DUMMY AND VEHICLE CALIBRATION DATA

	INSTRUMENTS FOR DRIVER DUMMY NO. 37		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	J13943	Endevco	1/8/02
Lower Rib Y	AJ420	Endevco	1/7/02
Lower Spine Y	ALDY8	Endevco	1/7/02
Pelvis Y	J13851	Endevco	1/7/02
Upper Rib Redundant Y	J13422	Endevco	1/8/02
Lower Rib Redundant Y	AMTA3	Endevco	1/7/02
Lower Spine Redundant Y	AP0E1	Endevco	1/7/02
Pelvis Redundant Y	J13658	Endevco	1/7/02
Head Center of Gravity X	ALB87	Endevco	1/7/02
Head Center of Gravity Y	AHRP5	Endevco	1/7/02
Head Center of Gravity Z	AJ9T6	Endevco	1/7/02

	INSTRUMENTS FOR PASSENGER DUMMY NO. 36		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AKAC4	Endevco	1/7/02
Lower Rib Y	J10420	Endevco	1/7/02
Lower Spine Y	AP1Y8	Endevco	1/7/02
Pelvis Y	AP138	Endevco	1/7/02
Upper Rib Redundant Y	J13642	Endevco	1/7/02
Lower Rib Redundant Y	AKAF2	Endevco	1/7/02
Lower Spine Redundant Y	AMT78	Endevco	1/7/02
Pelvis Redundant Y	AP0G2	Endevco	1/7/02
Head Center of Gravity X	J21970	Endevco	1/7/02
Head Center of Gravity Y	J21691	Endevco	1/7/02
Head Center of Gravity Z	J22033	Endevco	1/7/02

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	I18-E14	Entran	12/5/02
Moving Barrier CG Y	A08-A08	Entran	11/2/01
Moving Barrier CG Z	J07-X16	Entran	10/29/01
Moving Barrier Rear Axle X	F04-N06	Entran	3/1/02
Moving Barrier Rear Axle Y	D11-F16	Entran	11/2/01
Left Mid A-Post Y	K21-N07	Entran	12/11/01
Left Lower A-Post Y	I12-F16	Entran	10/29/01
Left Mid B-Post Y	K21-N20	Entran	1/17/02
Left Lower B-Post Y	K21-N01	Entran	12/11/01
Rear Floorpan Above Axle X	K21-N27	Entran	1/17/02
Rear Floorpan Above Axle Y	K21-N22	Entran	1/17/02
Rear Floorpan Above Axle Z	G13-F10	Entran	1/16/02
Driver Seat Track Y	K21-N19	Entran	1/17/02
Right Side Sill at Front Seat X	E03-H24	Entran	3/1/02
Right Side Sill at Front Seat Y	F07-A14	Entran	3/1/02
Right Side Sill at Front Seat Z	G03-N11	Entran	3/1/02
Right Side Sill at Rear Seat X	D11-F05	Entran	3/8/02
Right Side Sill at Rear Seat Y	E03-H14	Entran	3/6/02
Right Side Sill at Rear Seat Z	D11-F06	Entran	3/8/02
Left Side Sill at Front Seat Y	K21-N08	Entran	12/11/01
Left Side Sill at Rear Seat Y	K21-N06	Entran	12/11/01
Right Rear Occupant Compartment Y	K21-N22	Entran	1/17/02
Vehicle CG X	K21-N18	Entran	1/17/02
Vehicle CG Y	K21-N15	Entran	3/1/02
Vehicle CG Z	G13-F02	Entran	3/1/02

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