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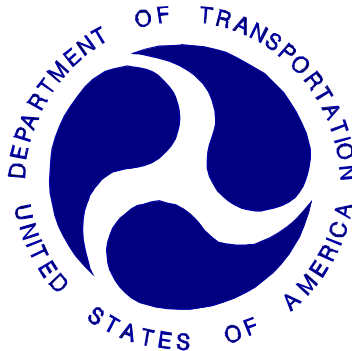
**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

TOYOTA MOTOR MANUFACTURING, CALIFORNIA, INC.
2005 TOYOTA TACOMA
ACCESS CAB PICKUP

NHTSA NUMBER: M55106

GENERAL DYNAMICS TEST NUMBER: 8642-NCAP-59

GENERAL DYNAMICS
ADVANCED INFORMATION ENGINEERING SERVICES
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February 16, 2005

FINAL REPORT

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16. Abstract A frontal load cell barrier test of a 2005 Toyota Tacoma Access Cab Pickup was performed at General Dynamics' crash test facility in Buffalo, New York, on February 16, 2005. The impact velocity was 56.17 kph and the temperature at the barrier face was 21 °C. The maximum post-test vehicle crush was 585 mm. The test vehicle was equipped with 3-point restraint systems with torso belt pretensioners and force limiters, adjustable head restraints, knee bolsters, and airbags at both the driver and right outboard passenger seating positions. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appeared to comply with head, chest, and femur requirements.					
ATD Position	HIC	Clip (g's)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)
Driver (142)	409.0	36.1	-39.9	-1990.5	-928.0
Passenger (150)	412.5	41.4	-31.4	-3213.2	-604.2
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SECTION 1

PURPOSE AND SUMMARY OF TEST

1.1 PURPOSE

This 56.17 kph frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-01-D-32005. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

The 56.17 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

1.2 TEST PROCEDURE

This 56.17 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) New Car Assessment Program (NCAP) Laboratory Indicant Test Procedure, dated December 1999. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion (Partial)"; and FMVSS 301 "Fuel System Integrity" performance. Procedures for receiving, inspection testing and reporting of test results are described in the test procedures and are not repeated in this report.

One real-time camera and 16 high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in this report.

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

Both ATDs were fully instrumented with head, chest and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 142) and the right-front passenger (position 2) ATD (Serial No.150) were used in two tests (M50305 and M50104) previous to this test. The position 1 ATD chest exceeded the FMVSS 208 chest criteria in test M50104 and was recalibrated prior to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The vehicle, occupant, camera and measurement data are presented in Section 2. Appendix A contains the still photograph prints. The 176 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces. Appendix C contains the dummy calibration data and Appendix D contains the transducer calibration dates.

1.3 SUMMARY OF FRONTAL BARRIER IMPACT TEST

A load cell barrier consisting of 36 load cells was impacted by a 2005 Toyota Tacoma Access Cab Pickup at a velocity of 56.17 kph. The test was performed at General Dynamics on February 16, 2005. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The occupant data is summarized below.

	HIC	Clip (g)	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)	Belt Spool (mm)	Belt Stretch (mm/50 mm)
Driver ATD	409.0	36.1	-39.9	-1990.5	-928.0	†	†
Passenger ATD	412.5	41.4	-31.4	-3213.2	-604.2	†	†

† - Not used

AUTOMATIC DOOR LOCK SUMMARY

ADL Equipped Test Vehicle:	No
ADL Activation Status:	N/A
Door Lock Condition:	Unlocked

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

The maximum vehicle static crush was 585 mm and both the driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: The face to the center of the airbag and the back of the head to the center of the head restraint, the chest to the airbag and the left and right knees to the knee bolster. The passenger's visible contact points were as follows: The face to the center of the airbag and the back of the head to the top of the head restraint, the chest to the airbag and the left and right knees to the glove box door/knee bolster.

The 2005 Toyota Tacoma Access Cab Pickup did not exceed the requirements of FMVSS 208, FMVSS 212, FMVSS 219, and FMVSS 301. Data pertaining to these standards are presented in the data sheets.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No.:	M55106	Test Mode:	56.3 kph Frontal Barrier
Test Date:	February 16, 2005	Time:	14:56
		Temperature:	21 °C
Vehicle Make/Model/Body Style:	2005 Toyota Tacoma Access Cab Pickup		
Vehicle Test Weight:	1869.5	kg	
Vehicle/Barrier Impact Angle:	0	°	
Impact Velocity:	56.17	kph	
Maximum Static Crush:	585	mm	
Vehicle Rebound:	464	mm	

<u>DUMMIES:</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Type:	572E	572E
Restraint System:	Three point safety belt with torso belt pretensioner and force limiter, airbag, knee bolster and head restraint.	Three point safety belt with torso belt pretensioner and force limiter, airbag, knee bolster and head restraint.

Number of Data Channels:	176	
Number of Cameras:	1	Real Time
	16	High Speed

DOOR OPENING DATA:

	Closed, latched and Operable without tools - Left Front
	Closed, latched and Operable without tools - Right Front

Front Seat(s) Data:	<u>DRIVER</u>	<u>PASSENGER</u>
Seat Track Failure: (mm of shift)	0	0
Seat Back Failure:	None	None

VISIBLE DUMMY CONTACT POINTS:

	<u>DRIVER</u>	<u>PASSENGER</u>
Head:	The face to the center of the airbag and the back of the head to the center of the head restraint.	The face to the center of the airbag and the back of the head to the top of the head restraint.
Abdomen:	-	-
Chest:	Airbag	Airbag
Knees:	Left and Right Knees to Knee Bolster	Left and Right Knees to Knee Bolster (Glove Box Door)

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2005 Toyota Tacoma Access Cab Pickup

NHTSA No. : M55106 ; VIN: 5TETX22N35Z015936 ; Color: Black

Engine Data: 4 cylinders; - CID; 2.7 Liters; - cc

Placement: X Longitudinal or In-Line; - Transverse or Lateral

Transmission Data: 5 speeds; X Manual; - Automatic; X Overdrive

Final Drive: X Rear Wheel Drive; - Front Wheel Drive; - Four Wheel Drive

Safety Belt Features – Driver X Pretensioner (Shoulder); X Load Limiter; X Adj. Anchorage

Safety Belt Features - Passenger X Pretensioner (Shoulder); X Load Limiter; X Adj. Anchorage

Major Options: - ADLs; X A/C; X Pwr.Strg.; X Pwr. Brakes

X Pwr. Windows; X Pwr. Door Locks; X Tilt Wheel

Date Received: 11/4/2004 ; Odometer Reading 63 km

Selling Dealer: West Herr Toyota

& Address: 4141 Southwestern Boulevard Orchard Park, NY 14127

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Toyota Motor Manufacturing, California, Inc.

Date of Manufacture 11/04

GVWR: 2199 kg; GAWR: 1079 kg FRONT; 1217 kg REAR

DATA FROM TIRE PLACARD:

Recommended Tire Size: P215/70R15

* Recommended Cold Tire Pressure: 200 kPa FRONT; 220 kPa REAR

DATA FROM TIRE SIDEWALL:

Size of Tires on Test Vehicle: P215/70R15 97S ; Manufacturer: Firestone

Tire Pressure with Maximum Capacity Vehicle Load: Front: 300 kPa; Rear: 300 kPa

Treadwear: 480 ; Traction: A ; Temperature: B

VEHICLE CAPACITY DATA:

Type of Front Seats: - Bench; X Bucket; - Split Bench

Number of Occupants: 2 Front; 2 Rear; 4 Total

Vehicle Capacity Weight (VCW) = 518 kg

No. of Occupants x 68.04 kg = 272.16 kg

Rated Cargo/Luggage Weight (RCLW) = 245.84 kg (136.1 kg maximum)

*Tire pressure used for test

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with maximum fluids)= UDW:

Right Front	=	<u>430.0</u>	kg	Right Rear	=	<u>350.0</u>	kg
Left Front	=	<u>443.0</u>	kg	Left Rear	=	<u>366.0</u>	kg
TOTAL FRONT	=	<u>873.0</u>	kg	TOTAL REAR	=	<u>716.0</u>	kg
TOTAL DELIVERED WEIGHT	=	<u>1589.0</u>	kg				
% of Total Front of Vehicle Weight	=	<u>54.9</u>		% of Total Rear Weight	=	<u>45.1</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW)	=	<u>1589.0</u>	kg
Rated Cargo/Luggage Weight (RCLW)	=	<u>136.1</u>	kg (maximum allowed)
Weight of 2 p.572 Dummies @ 76 each	=	<u>152</u>	kg
TARGET TEST WEIGHT	=	<u>1877.1</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 128.5 KG OF CARGO WEIGHT:

Right Front	=	<u>486.5</u>	kg	Right Rear	=	<u>432.0</u>	kg
Left Front	=	<u>508.0</u>	kg	Left Rear	=	<u>443.0</u>	kg
TOTAL FRONT	=	<u>994.5</u>	kg	TOTAL REAR	=	<u>875.0</u>	kg
TOTAL TEST WEIGHT	=	<u>1869.5</u>	kg				
% of Total Front Weight	=	<u>53.2</u>	%	% of Total Rear Weight	=	<u>46.8</u>	%
Weight of Ballast Secured in Vehicle Trunk Area	=	<u>0</u>	kg				
Vehicle Components Removed for Weight Reduction:				<u>Spare tire and tailgate trim</u>			

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED:	RF	<u>807</u>	LF	<u>806</u>	RR	<u>839</u>	LR	<u>833</u>
FULLY LOADED:	RF	<u>791</u>	LF	<u>795</u>	RR	<u>803</u>	LR	<u>800</u>
AS TESTED:	RF	<u>793</u>	LF	<u>795</u>	RR	<u>810</u>	LR	<u>807</u>
Vehicle's Wheel Base:		<u>3230</u>	mm					
Location of Vehicle's C.G.:		<u>1512</u>	mm rearward of front wheel center.					

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual	=	<u>79.8</u>	liters
Usable Capacity Figure Furnished by COTR	=	<u>79.8</u>	liters
Test Volume Range (92 to 94% of Usable Capacity)	=	<u>73.42</u>	to <u>75.01</u> liters
ACTUAL TEST VOLUME	=	<u>74.2</u>	liters (with entire fuel system filled)
Test Fluid Type:	<u>Stoddard Solution</u>	; Spec. Grav. =	<u>0.764</u>
	Kinematic Viscosity =	<u>0.96</u>	centistokes; Color = <u>Orange</u>
Type of Fuel Pump:	Electric- <u>X</u>	; Mechanical- <u>-</u>	
Does Electric Pump operate with ignition switch "ON" & engine "OFF"		Yes- <u>X</u>	No- <u>-</u>
<u>Details of Fuel System: The fuel tank was located along the inside of the left frame rail forward of the rear axle;</u>			
<u>The fuel lines run inside of the left frame rail; The filler neck is on the left side ahead of the rear axle.</u>			

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test: Frontal Barrier Impact Angle: 0°
Test Date: February 16, 2005 Time: 14:56 Temperature: 21 °C
Vehicle NHTSA No.: M55106
Required Impact Velocity Range: 55.5 to 57.1 kph

BARRIER IMPACT VELOCITY: (Speed traps within 5 feet of impact plane.)

Trap No. 1 = 56.17 kph; Trap No. 2 = 56.17 kph
Distance from vehicle to barrier: (1) entering trap = 813 mm
(2) exiting trap = 305 mm

VEHICLE STATIC CRUSH: (mm) (For frontal and rear impacts only.)

Vehicle Length:

Pre-Test	Left = <u>5271</u> ; C/L = <u>5289</u> ; Right = <u>5273</u>
Post-Test	Left = <u>4726</u> ; C/L = <u>4720</u> ; Right = <u>4727</u>
Crush	Left = <u>545</u> ; C/L = <u>569</u> ; Right = <u>546</u>
AVERAGE	= <u>553</u> mm

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point:

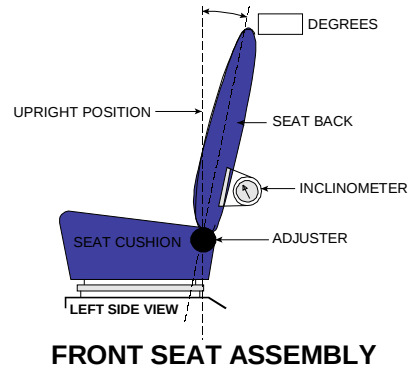
	Left = <u>459</u> ; C/L = <u>443</u> ; Right = <u>490</u>
AVERAGE	= <u>464</u> mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2005 Vehicle Model: Toyota Tacoma Body Style : Access Cab Pickup

1. NOMINAL DESIGN RIDING POSITION:
for adjustable driver and passenger seat backs.
Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



Seat back angle for driver's seat: 1°

Measurement instructions: The seatback was placed in the 4th detent with the forward most detent being '0'

Seat back angle for passenger's seat: 3°

Measurement instructions: The seatback was placed in the 5th detent with the forward most detent being '0'

2. SEAT FORE AND AFT POSITIONING:

Positioning of the driver's seat: There are 17 total detents, with the forward most detent labeled '0.'

The seat was placed in detent '8' or at 120 mm of 240 mm total travel.

Positioning of the passenger's seat: The same as the driver's seat.

3. FUEL TANK CAPACITY DATA:

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 79.8 liters

B. "Usable Capacity" of the optional equipment fuel tank is - liters

C. "Usable Capacity" of the vehicle(s) used for certification
testing to requirements of FMVSS 301 = 79.8 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 74.2 liters

3.3 Is vehicle equipped with electric fuel pump? Yes- X ; No- -

If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

The fuel pump operates when the ignition is in the 'ON' position.

DATA SHEET NO. 4 TEST VEHICLE INFORMATION (cont.)

4. STEERING COLUMN ADJUSTMENTS:

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 driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions: Place wheel in mid-tilt (24.8°) and mid-telescope (10 mm) position.

5. SEAT BELT UPPER ANCHORAGE:

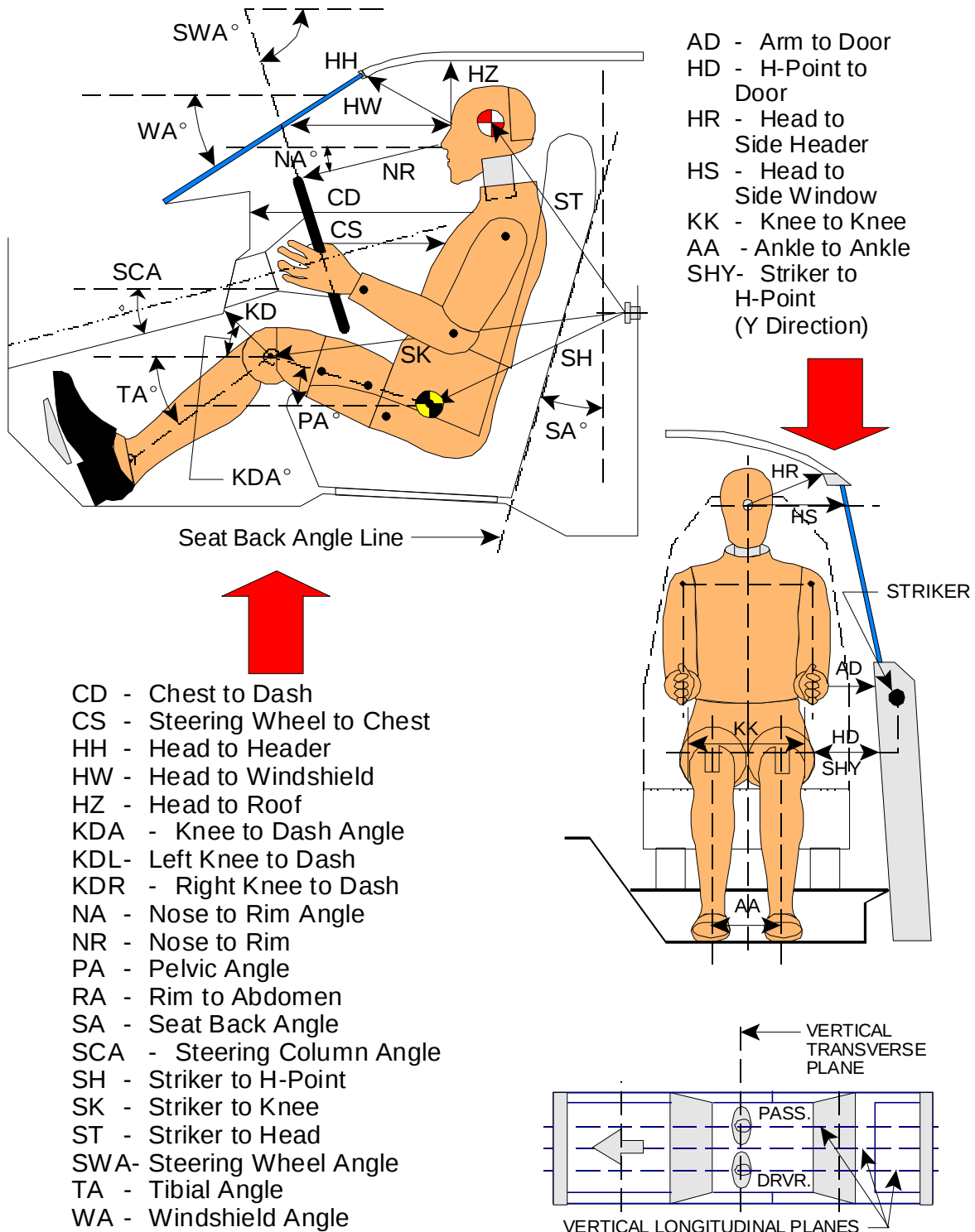
Nominal design riding position: Placed in detent 1 (with uppermost detent labeled 0) of 0 – 3 detents.

6. AUTOMATIC DOOR LOCKS: Is test vehicle equipped with ADLs? - Yes; X No;

Does vehicle owner's manual describe how to deactivate ADLs? - Yes; - No; X N/A

Comments: Test vehicle was not equipped with ADL option.

DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



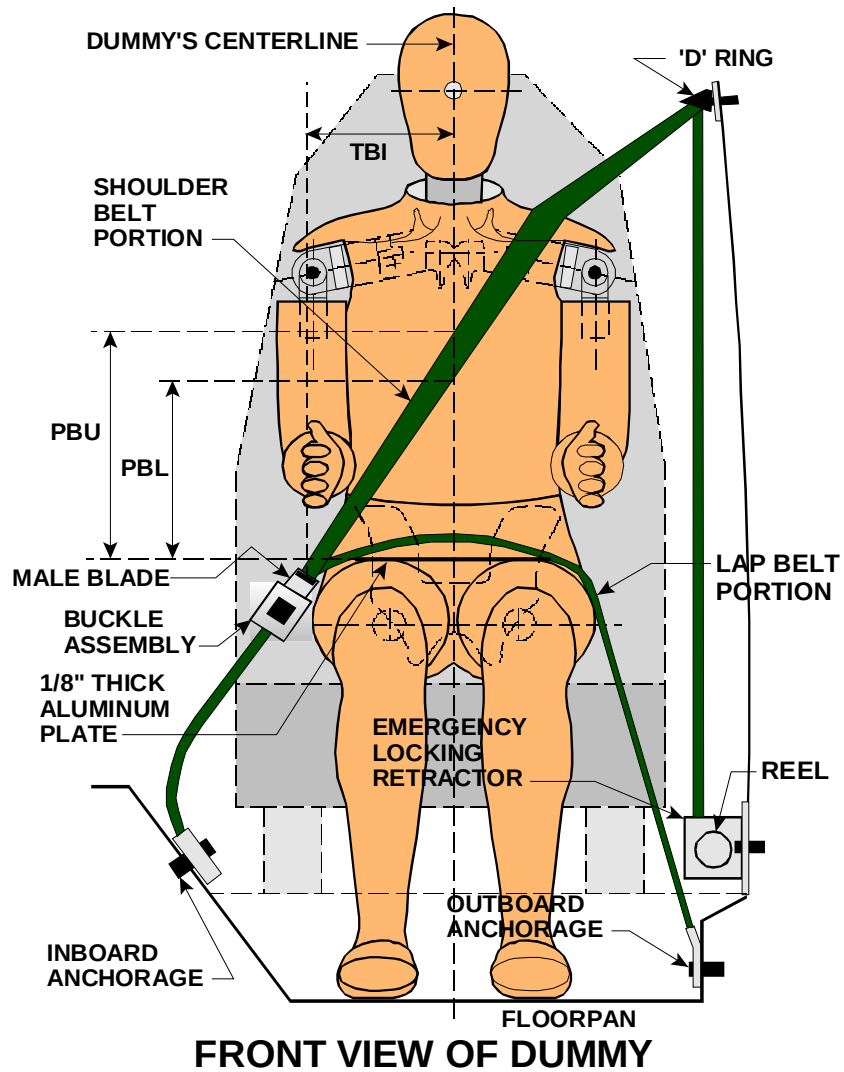
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #142)			PASS. (Serial #150)		
WA ^o	36.5 deg.			N/A		
SWA ^o	65.2 deg.			N/A		
SCA ^o	24.8 deg.			N/A		
SA ^o	1.5 deg.			3.5 deg.		
HZ	220			217		
HH	432			441		
HW	639			633		
HR	238			232		
NR	437	Angle	32 deg.	N/A		
CD	555			548		
CS	329			N/A		
RA	218			N/A		
KDL	182	Angle (KDA)	32 deg.	155		
KDR	270			173	Angle (KDA)	31 deg.
PA ^o	24.3 deg.			24.5 deg.		
TA ^o	37.0 deg.			40.0 deg.		
KK	385			320		
AA	345			175		
ST	472	Angle	2 deg.	459	Angle	2 deg.
SK	587	Angle	97 deg.	576	Angle	97 deg.
SH	255	Angle	132 deg.	252	Angle	133 deg.
SHY	250			250		
HS	365			355		
HD	153			139		
AD	118			122		

Dimensions in millimeters

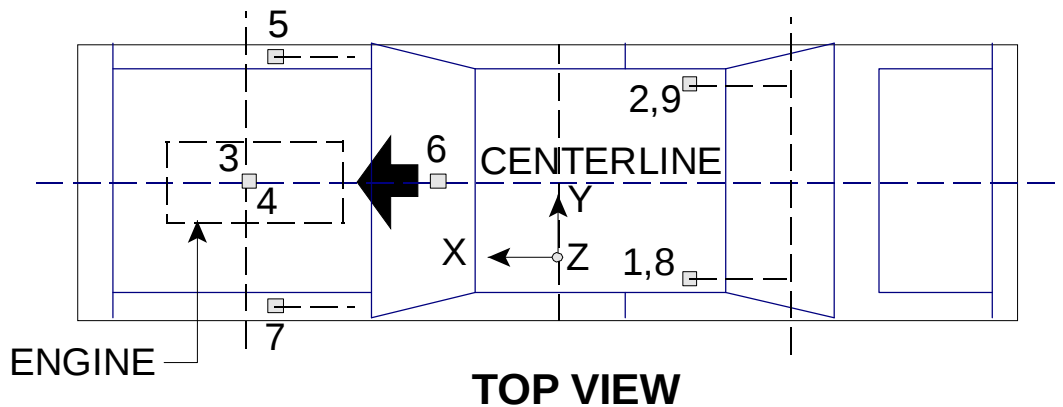
DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

SEAT BELT POSITIONING DATA

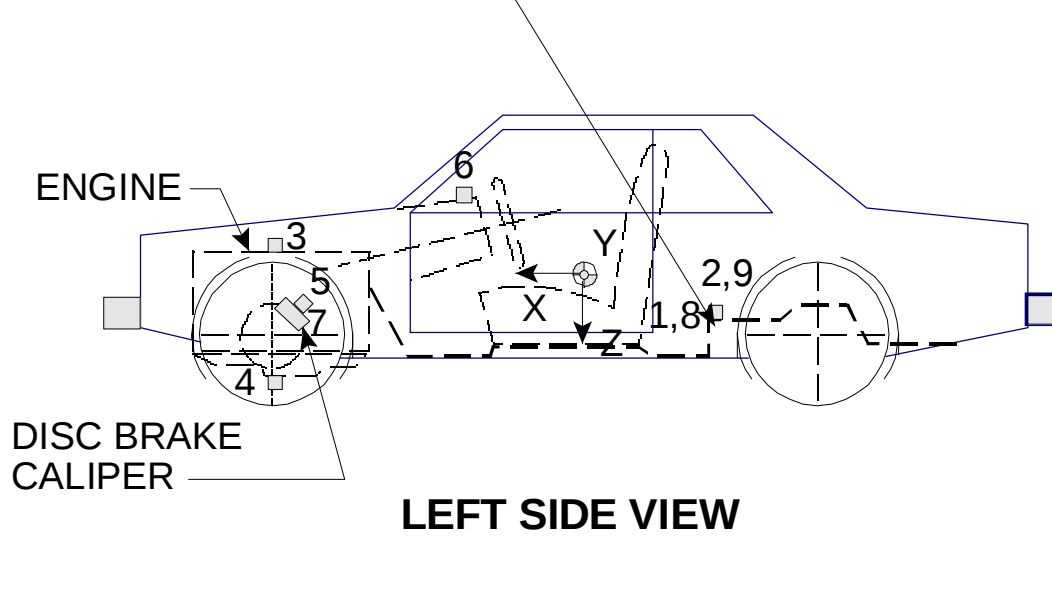


	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	320	338
PBL-- Top surface of alum. plate to belt lower edge	246	260
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



Note: Vehicle accelerometer location and data summary shown in DATA SHEET NO. 7

DATA SHEET NO. 7 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY (cont.)

LOCATION		PRE-TEST LENGTH (mm)		
		X	Y	Z
1	Left Rear Seat Cross Member X	2756	620	519
2	Right Rear Seat Cross Member X	2780	625	523
3	Top of Engine Block	4508	201	930
4	Bottom of Engine	4240	-12	425
5	Disc Brake Caliper @ Right Side	4425	554	319
6	Instrument Panel	3576	0	978
7	Disc Brake Caliper @Left Side	4422	553	316
8	Left Rear Seat Cross Member Z	2756	620	519
9	Right Rear Seat Cross Member Z	2780	625	523

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Left Rear Seat Cross Member X	6.6	124.9	-36.7	53.4
2	Right Rear Seat Cross Member X	4.7	123.0	-42.5	48.8
3	Top of Engine Block	40.1	51.4	-114.4	41.7
4	Bottom of Engine	48.5	51.8	-114.6	41.7
5	Disc Brake Caliper @ Right Side	6.5	80.3	-70.4	43.9
6	Instrument Panel	†	†	†	†
7	Disc Brake Caliper @Left Side	14.2	57.7	-81.5	44.9
8	Left Rear Seat Cross Member Z	16.0	52.9	-16.3	58.3
9	Right Rear Seat Cross Member Z	11.8	38.8	-14.9	109.1

† - Wire Cut at 66 ms.

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2005 Toyota Tacoma Access Cab Pickup

NHTSA Test No.: M55106 Test Date: February 16, 2005

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head X	g	0.4	18.6	-47.5	92.4	0.3	18.9	-50.5	77.5
Head Y	g	3.2	63.0	-4.5	97.8	3.8	30.0	-3.9	169.1
Head Z	g	24.2	68.2	-1.2	20.0	32.5	63.6	-0.7	20.2
Head Resultant	g	49.9	92.4	0.1	-37.8	58.2	77.5	0.0	-25.7
Redundant Head X	g	0.4	24.7	-47.7	92.4	0.5	18.4	-49.3	77.5
Redundant Head Y	g	3.2	60.4	-4.5	97.7	3.8	30.0	-4.2	166.8
Redundant Head Z	g	25.4	67.7	-1.2	19.3	32.7	63.5	-0.8	19.6
Redundant Head Resultant	g	50.4	92.4	0.1	-37.1	57.3	77.5	0.0	-24.9
Upper Neck Fx	N	212.5	73.7	-631.1	146.0	34.0	18.1	-772.4	148.8
Upper Neck Fy	N	174.8	66.3	-131.3	106.3	68.6	75.4	-174.3	160.9
Upper Neck Fz	N	1723.2	66.2	-106.1	110.5	1387.5	78.0	-61.2	19.6
Upper Neck F Resultant	N	1736.0	66.2	3.6	-38.9	1502.2	77.8	1.9	-27.1
Upper Neck Mx	N-m	11.9	93.2	-6.5	116.1	8.9	111.4	-12.7	73.4
Upper Neck My	N-m	41.9	136.6	-17.3	92.5	49.6	141.9	-51.7	76.6
Upper Neck Mz	N-m	5.8	93.1	-1.8	29.1	3.7	107.5	-8.2	75.7
Upper Neck M Resultant	N-m	42.1	136.6	0.2	19.0	52.3	76.6	0.1	18.5
Chest X	g	2.5	179.3	-36.2	53.4	0.9	175.2	-43.8	70.7
Chest Y	g	9.4	86.3	-5.4	43.8	6.0	51.5	-8.1	87.9
Chest Z	g	13.9	80.2	-7.8	115.1	18.8	79.0	-8.3	131.6
Chest Resultant	g	36.7	53.5	0.0	-18.2	43.9	70.8	0.0	-15.7
Redundant Chest X	g	§	§	§	§	1.0	175.2	-42.6	70.6
Redundant Chest Y	g	9.4	86.4	-5.2	43.9	5.7	51.5	-8.5	87.9
Redundant Chest Z	g	14.2	80.0	-7.9	114.8	19.1	79.1	-8.3	131.6
Redundant Chest Resultant	g	§ ¹	§ ¹	§ ¹	§ ¹	42.8	70.7	0.0	-15.6
Chest Displacement	mm	0.0	12.1	-39.9	71.2	0.0	18.6	-31.4	64.4

§ - Channel Opened

§¹ - X Channel Opened

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)

Vehicle Year/Make/Model/Body Style: 2005 Toyota Tacoma Access Cab Pickup

NHTSA Test No.: M55106 Test Date: February 16, 2005

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Pelvic X	g	5.5	130.8	-64.6	62.4	6.6	130.3	-70.3	58.5
Pelvic Y	g	10.8	84.6	-9.1	50.4	9.9	52.9	-10.0	74.9
Pelvic Z	g	2.3	23.7	-22.5	57.0	2.0	25.1	-26.3	70.0
Pelvic Resultant	g	67.8	62.4	0.0	-23.4	73.0	58.5	0.0	-24.1
Left Femur	N	1109.0	49.8	-1990.5	64.3	243.7	46.1	-3213.2	59.1
Right Femur	N	801.3	73.0	-928.0	62.2	965.0	67.9	-604.2	57.7
Left Upper Tibia Mx	N-m	15.3	181.6	-34.7	98.7	10.6	76.4	-38.7	88.8
Left Upper Tibia My	N-m	46.2	24.5	-118.4	62.9	25.1	110.7	-70.2	52.6
Left Lower Tibia Fz	N	150.3	140.1	-1579.7	67.9	246.4	147.3	-2068.4	89.4
Left Lower Tibia Mx	N-m	14.3	71.3	-24.6	67.0	56.7	98.6	-16.7	88.1
Left Lower Tibia My	N-m	33.9	95.5	-64.3	66.9	49.3	93.0	-54.1	51.9
Right Upper Tibia Mx	N-m	43.9	56.4	-11.0	84.9	‡	‡	‡	‡
Right Upper Tibia My	N-m	108.1	53.4	-22.9	136.5	20.0	131.8	-144.3	58.2
Right Lower Tibia Fz	N	91.9	180.2	-2705.1	83.1	218.7	132.3	-2661.8	92.4
Right Lower Tibia Mx	N-m	15.3	57.0	-13.0	84.4	74.5	91.4	-19.9	59.0
Right Lower Tibia My	N-m	35.3	79.4	-64.4	53.9	38.2	77.5	-68.1	40.6
Left Foot Aft Ax	g	70.6	62.0	-64.3	67.4	33.7	62.9	-60.9	101.8
Left Foot Aft Az	g	21.9	91.7	-135.4	62.2	33.0	89.9	-111.3	64.1
Left Foot Fore Az	g	253.1	61.8	-215.5	65.8	169.9	63.1	-123.2	50.0
Right Foot Aft Ax	g	32.1	74.4	-96.6	52.0	38.0	73.3	-174.4	56.4
Right Foot Aft Az	g	20.6	50.4	-29.6	83.1	30.3	56.9	-25.2	95.1
Right Foot Fore Az	g	75.7	30.3	-83.5	53.2	52.5	55.3	-58.7	59.4
Lap Belt Load	N	8551.8	61.6	-11.4	145.0	8808.7	62.9	-12.9	160.3
Torso Belt	N	4898.8	50.9	-55.3	13.7	5066.2	50.4	-45.9	13.8

‡ - Data Clipped

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)

Vehicle Year/Make/Model/Body Style: 2005 Toyota Tacoma Access Cab Pickup

NHTSA Test No.: M55106 Test Date: February 16, 2005

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	409.0	68.8	104.8	41.9 g
Position #2 - Passenger	412.5	65.7	101.7	42.0 g

** HIC is as defined in FMVSS 208. The maximum time interval from t₁ to t₂ is 36 milliseconds.

CLIP SUMMARY*				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	36.1	61.1	64.3	366.0
Position #2 - Passenger	41.4	69.5	72.5	324.3

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration.

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)
REDUNDANT DATA

Vehicle Year/Make/Model/Body Style: 2005 Toyota Tacoma Access Cab Pickup

NHTSA Test No.: M55106 Test Date: February 16, 2005

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	421.6	68.4	104.4	42.4 g
Position #2 - Passenger	401.5	65.7	101.7	41.6 g

** HIC is as defined in FMVSS 208. The maximum time interval from t₁ to t₂ is 36 milliseconds.

CLIP SUMMARY* REDUNDANT				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	36.2 ¹	61.1	64.3	367.7
Position #2 - Passenger	40.0	69.5	72.5	305.7

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration.

¹ Redundant X data was inaccurate, calculated using primary x data.

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

Belt length from trim panel exit
to bolt hole anchor point for
continuous webbing systems.

Driver

Passenger

1670

1735

Shoulder belt length as measured
on Part 572 Dummy.

885

920

Lap belt length as measured
on Part 572 Dummy.

785

815

SHOULDER BELT SPOOL-OFF DATA:

As determined mechanically.

175

N/A

BELT STRETCH DATA:

Measured mechanically.

0.5/50 mm

0/50 mm

Dimensions in millimeters

DATA SHEET NO.10 SUMMARY OF FMVSS 212 DATA

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:

Windshield is bonded in place and covered with a 13 mm molding.

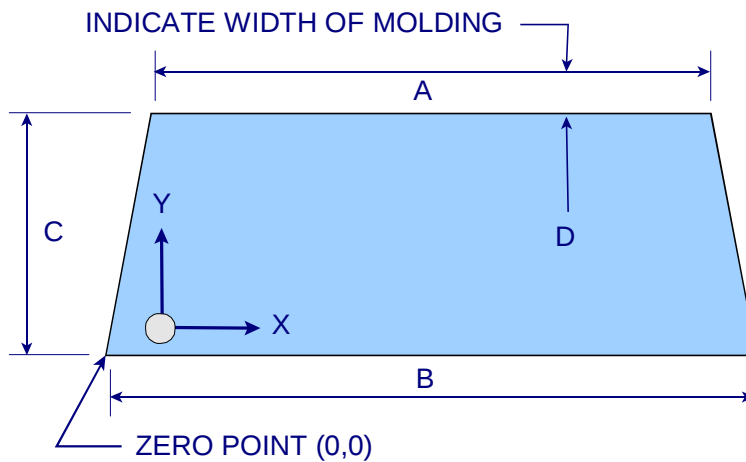
FMVSS 212 REQUIREMENTS:

The Post-Test periphery retention amount must be at least 75% of the Pre-Test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of the windshield for vehicles equipped with automatic restraint systems for front occupants,

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST (mm)	
RIGHT SIDE	2057.5	2057.5	100.0%
LEFT SIDE	2057.5	2057.5	100.0%
TOTAL	4115	4115	100.0%

AREA OF RETENTION FAILURE:



DIMENSIONS (mm)	
A	1235
B	1480
C	700
D	13

FRONT VIEW OF WINDSHIELD

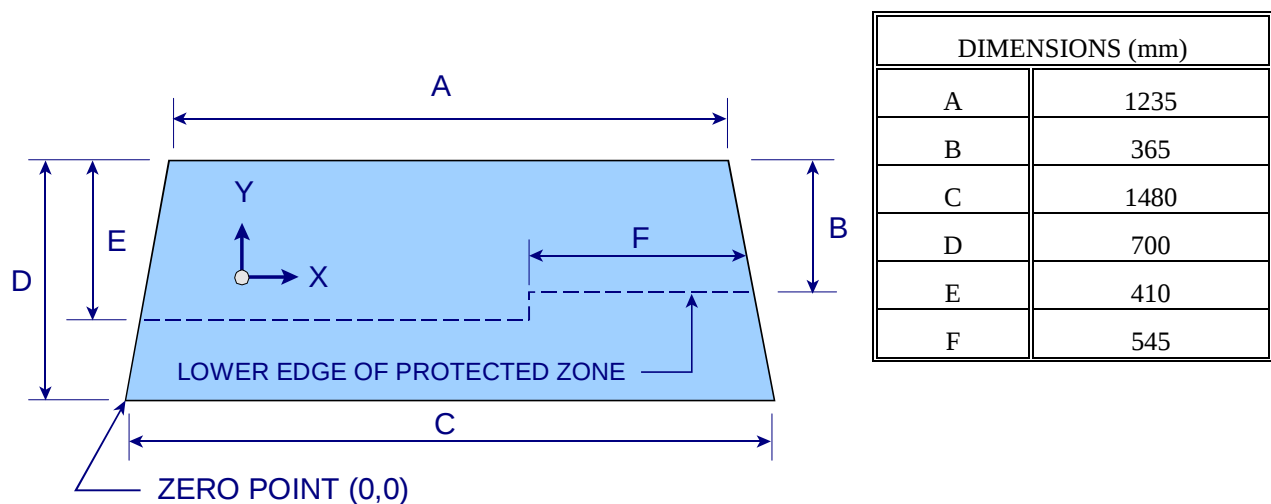
FAILURE DETAILS: None

DATA SHEET NO. 11 FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 165 mm diameter rigid sphere weighing 6.8 kg in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. The locus of points is drawn on the inner surface of the windshield contacted by the sphere across the width of the instrument panel. From the outermost contactable points extend the locus line horizontally to the edges of the windshield, then draw a line on the inner surface of the windshield below and 13 mm distant from the locus line. The LOWER EDGE OF THE PROTECTED ZONE is the longitudinal projection of this line onto the outer surface of the windshield.

FMVSS 219 TEST DATA:



FRONT VIEW OF WINDSHIELD

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

(Show location of penetration on the above sketch)

COORDINATES		
	X	Y
1.	-	-
2.	-	-
3.	-	-
4.	-	-

DATA SHEET NO. 12 FMVSS NO. 301-75 "FUEL SYSTEM INTEGRITY" POST IMPACT TEST DATA

NHTSA TEST No.: M55106 TEST DATE: February 16, 2005

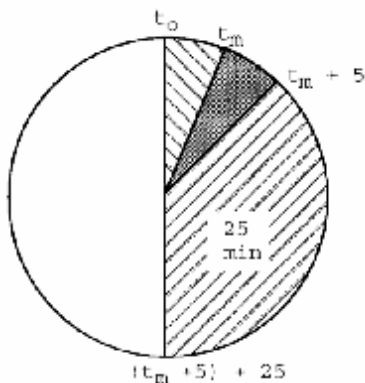
VEHICLE MAKE/MODEL: 2005 Toyota Tacoma Access Cab Pickup

The test vehicle was filled from 92% to 94% of the manufacture's "usable" capacity. The electric fuel pump was operating if it will operate without engine operation. Two Part 572 anthropomorphic test devices were located at each of the front designated seating positions.

=====

TEST VEHICLE IMPACT TYPE: X Frontal (56 kph)
 Oblique (48 kph) with _____ deg. barrier face first contacting _____
 - (driver/passenger) side
 - Rear Moving Barrier (48 kph)
 - Lateral Moving Barrier (32 kph)

FUEL SPILLAGE MEASUREMENT:



1. From impact until vehicle motion ceases
2. For 5 minute period after vehicle motion ceases
3. For next 25 minutes

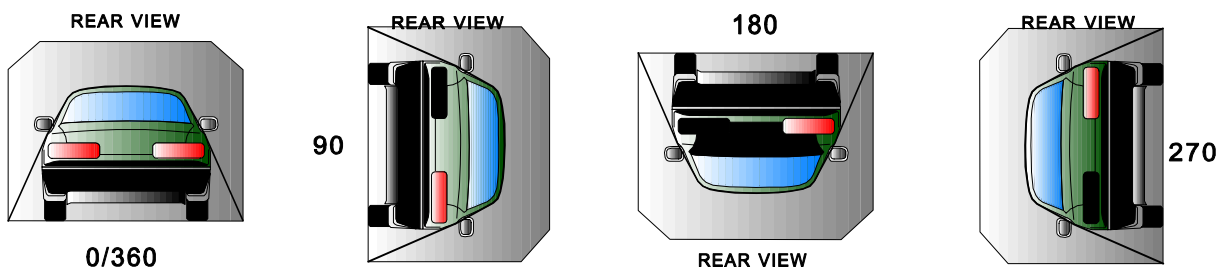
ACTUAL	MAX ALLOWED
0	28 g
0	141 g
0	28 g/min.

SOLVENT SPILLAGE DETAILS: None

DATA SHEET NO. 13 - ROLLOVER DATA

Vehicle: 2005 Toyota Tacoma Access Cab Pickup

NHTSA No.: M55106



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	13	seconds	5	minutes	6	minutes	13	seconds	7	minutes
90° - 180°	1	minutes	05	seconds	5	minutes	6	minutes	5	seconds	7	minutes
180°-270°	1	minutes	02	seconds	5	minutes	6	minutes	2	seconds	7	minutes
270°-360°	1	minutes	09	seconds	5	minutes	6	minutes	9	seconds	7	minutes

II. FMVSS 301 REQUIREMENTS: (Maximum allowable solvent spillage):

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
142 g	28 g	28 g	28 g

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

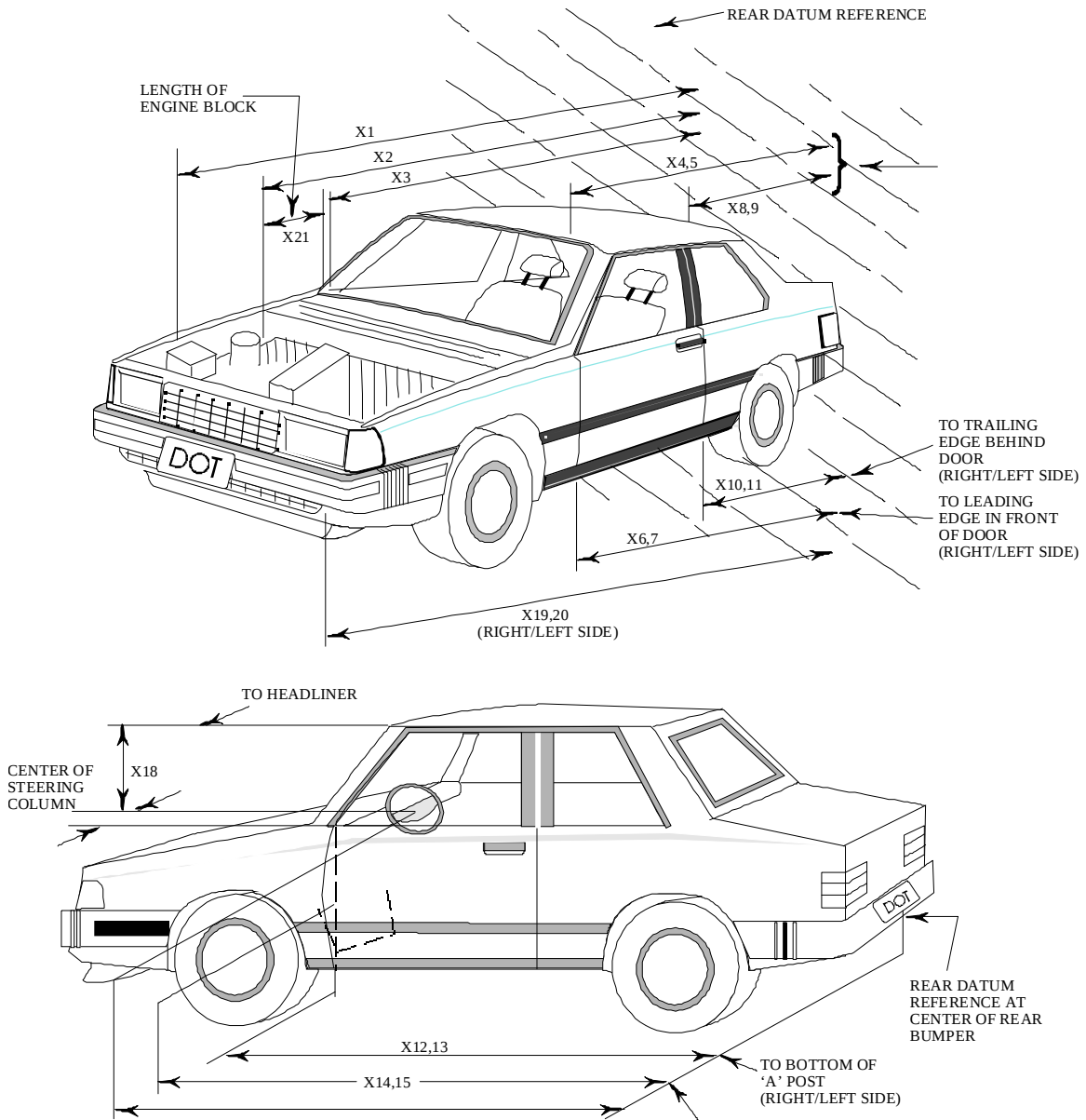
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°	0	0	0	N/A
90° - 180°	0	0	0	N/A
180°-270°	0	0	0	N/A
270°-360°	0	0	0	N/A

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

Rollover Stage	Spillage Location
0° - 90°	None
90° - 180°	None
180°-270°	None
270°-360°	None

DATA SHEET NO. 14 TEST VEHICLE MEASUREMENTS

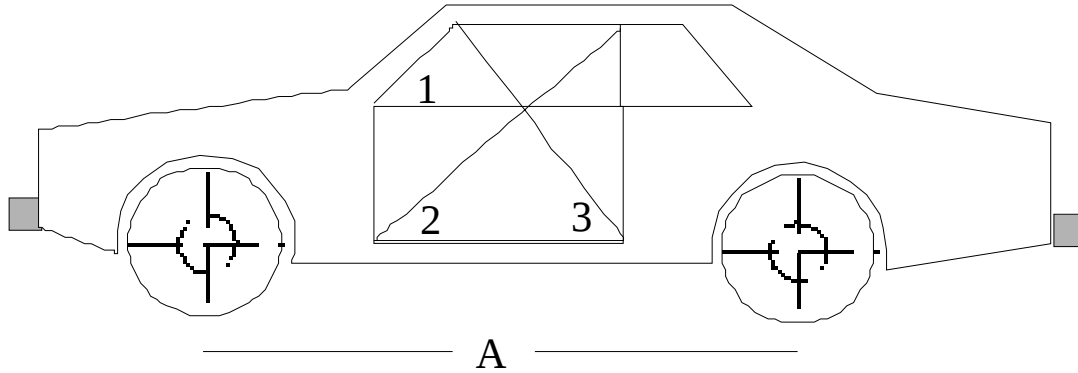


DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	5289	4720	569
X2	Rear Surface of Vehicle to Front of Engine	4664	4501	163
X3	Rear Surface of Vehicle to Firewall	4105	4087	18
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3849	3847	2
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3845	3845	0
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3836	3837	-1
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3834	3834	0
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2795	2794	1
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2791	2791	0
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2785	2790	-5
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2781	2781	0
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3861	3858	3
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3842	3842	0
X14	Rear Surface of Vehicle to Firewall, Right Side	4130	4130	0
X15	Rear Surface of Vehicle to Firewall, Left Side	4126	4088	38
X16	Rear Surface of Vehicle to Steering Column	3407	3420	-13
X17	Center of Steering Column to "A" Post	298	279	19
X18	Center of Steering Column to Headliner	426	460	-34
X19	Rear Surface of Vehicle to Right Side of Front Bumper	5273	4727	546
X20	Rear Surface of Vehicle to Left Side of Front Bumper	5271	4726	545
X21	Length of Engine Block	523	523	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3597	3592	5
CD	Rear Surface of Vehicle to Center of Dash Panel	3561	3555	6
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3596	3596	0

All Dimensions in mm

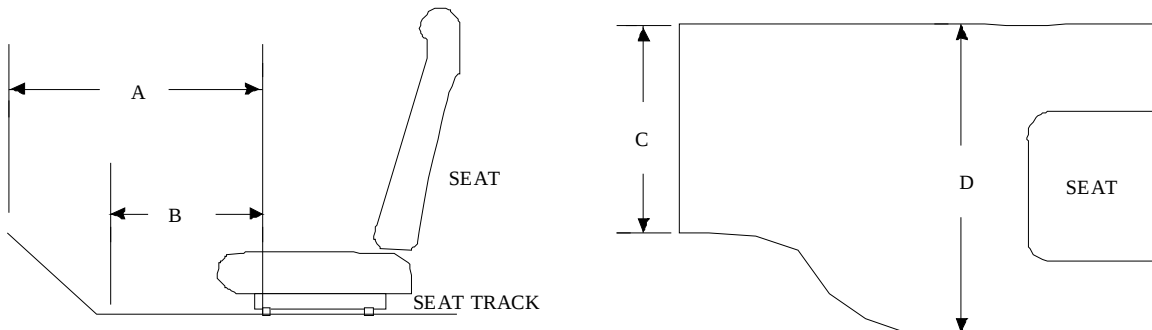
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	969	1450	1148	966	1453	1147
AFTER TEST	969	1448	1156	967	1450	1158
DIFFERENCE	0	2	-8	-1	3	-11

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	3230	3230
AFTER TEST	3221	3225
DIFFERENCE	9	5

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 STATIC FOOTWELL DEFORMATION



DRIVER

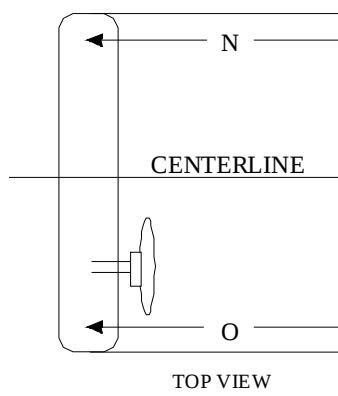
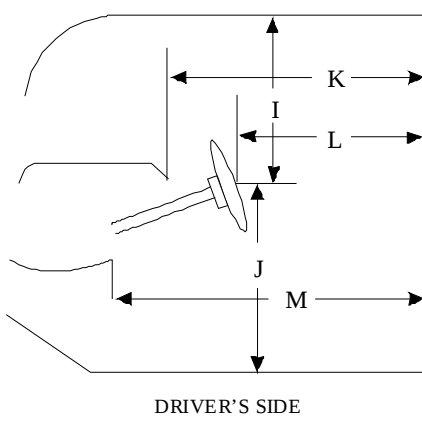
Measurement	Pre-Test	Post-Test	Difference
A	1204	1156	48
B	978	975	3
C	454	450	4
D	463	462	1

PASSENGER

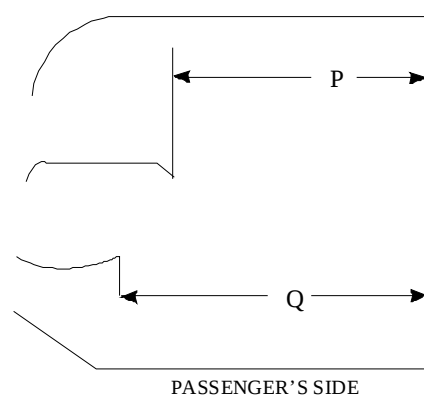
Measurement	Pre-Test	Post-Test	Difference
A	1186	1157	29
B	933	930	3
C	425	425	0
D	454	452	2

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 STATIC PASSENGER COMPARTMENT INTRUSION



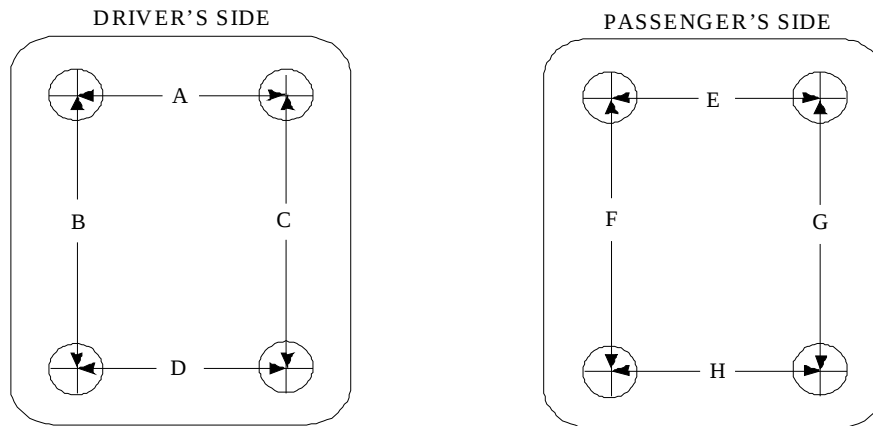
MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



Measurement	Pre-Test	Post-Test	Difference
I	426	460	-34
J	650	636	14
K	720	720	0
L	532	547	-15
M	779	779	0
N	717	718	-1
O	721	723	-2
P = K (PASS.)	725	793	-68
Q = M (PASS.)	806	725	81

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
FLOORBOARD DEFORMATION

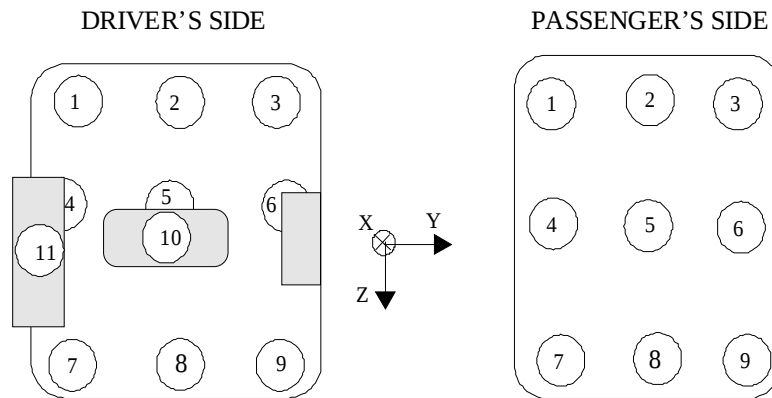


TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	454	450	4
B	329	326	2
C	294	294	1
D	463	462	1
E	425	425	1
F	331	331	-1
G	296	295	0
H	454	452	2

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
TOE-PAN INTRUSION



Driver Side Toe-pan Measurements

Toe-pan Location	X Deformation (mm)			Z Deformation (mm)		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	4093	4065	28	729	743	-14
2	4080	4029	51	730	735	-5
3	4055	3997	58	711	723	-12
4	3998	3995	3	609	605	4
5	3992	3969	23	608	608	0
6	3942	3920	22	606	608	-2
7	3857	3858	-1	557	547	10
8	3854	3848	6	562	552	10
9	3787	3781	6	602	583	19
10	3913	3907	6	714	688	26
11	3918	3922	-4	606	604	2

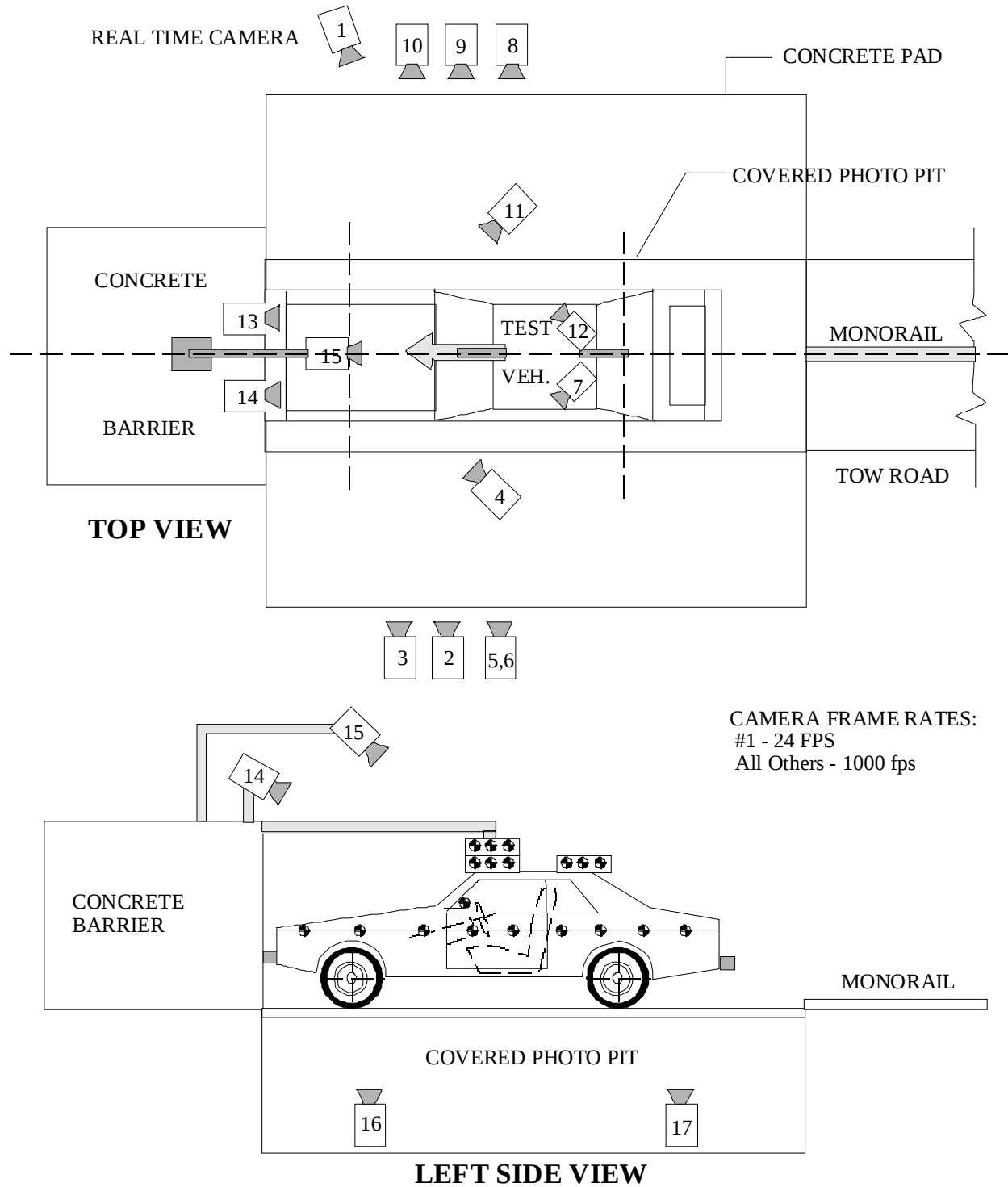
Passenger Side Toe-pan Measurements

Toe-pan Location	X Deformation (mm)			Z Deformation (mm)		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	4033	3977	56	715	744	-29
2	4066	4031	35	693	712	-19
3	4053	4004	49	716	730	-14
4	3939	3909	30	594	605	-11
5	3951	3935	16	593	594	-1
6	3971	3961	10	594	590	4
7	3803	3791	12	541	526	15
8	3813	3805	8	543	531	12
9	3829	3824	5	538	529	9

Reference: SAE: X = Rear Bumper (Positive: forward); Z = Ground (Positive: down)

DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

NOTE: Camera information shown in DATA SHEET NO. 15.



DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS (cont.)

NHTSA Test No.: M55106 Vehicle: 2005 Toyota Tacoma Access Cab Pickup

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)*			ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	30
2	Overall Left Side	7655	1789	1195	-3.9	7282	24	1000
3	Left Side View	9460	1062	1065	-2.0	9087	50	1000
4	Driver and Interior View	7575	2839	2005	-7.6	-	35	500
5	Steering Column (Bottom)	8102	2181	1165	-3.6	7729	25	1000
6	Steering Column (Top)	8102	2181	1780	-8.1	7729	25	1000
7	Left CRS Lateral View	3330	2475	2322	-21.8	-	28	500
8	Overall Right Side	7845	2162	1265	-4.2	8180	24	500
9	Right Side View	7755	1242	1150	-2.0	8090	25	1000
10	Right Passenger View	8290	1782	1324	-2.1	8625	35	1000
11	Passenger and Interior View	7725	2867	1990	-7.0	-	35	500
12	Right CRS Lateral View	3280	2475	2550	-22.2	-	28	500
13	Passenger Front View	620	-92	1987	-30.6	-	13	500
14	Driver Front View	620	-92	1987	-29.7	-	13	500
15	Windshield View	0	-530	3374	-48.0	-	24-70	500
16	Pit View of Engine	0	615	-3048	90	-	13	500
17	Pit View of Fuel Tank	0	2870	-3048	90	-	13	500

*X = film plane to monorail centerline ** = referenced to horizontal plane

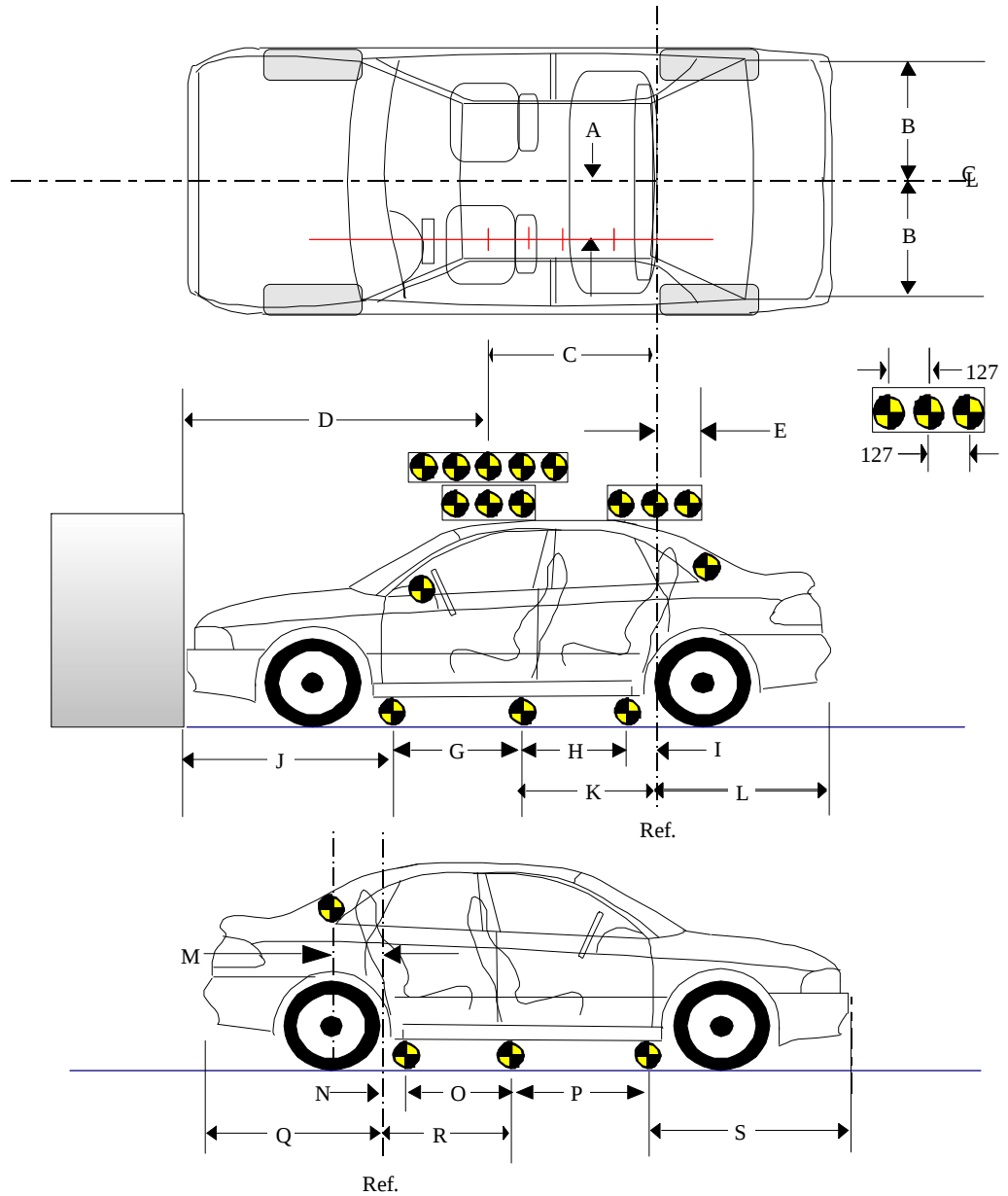
Y = film plane to impact location N.T. indicates No Timing

Z = film plane to ground

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

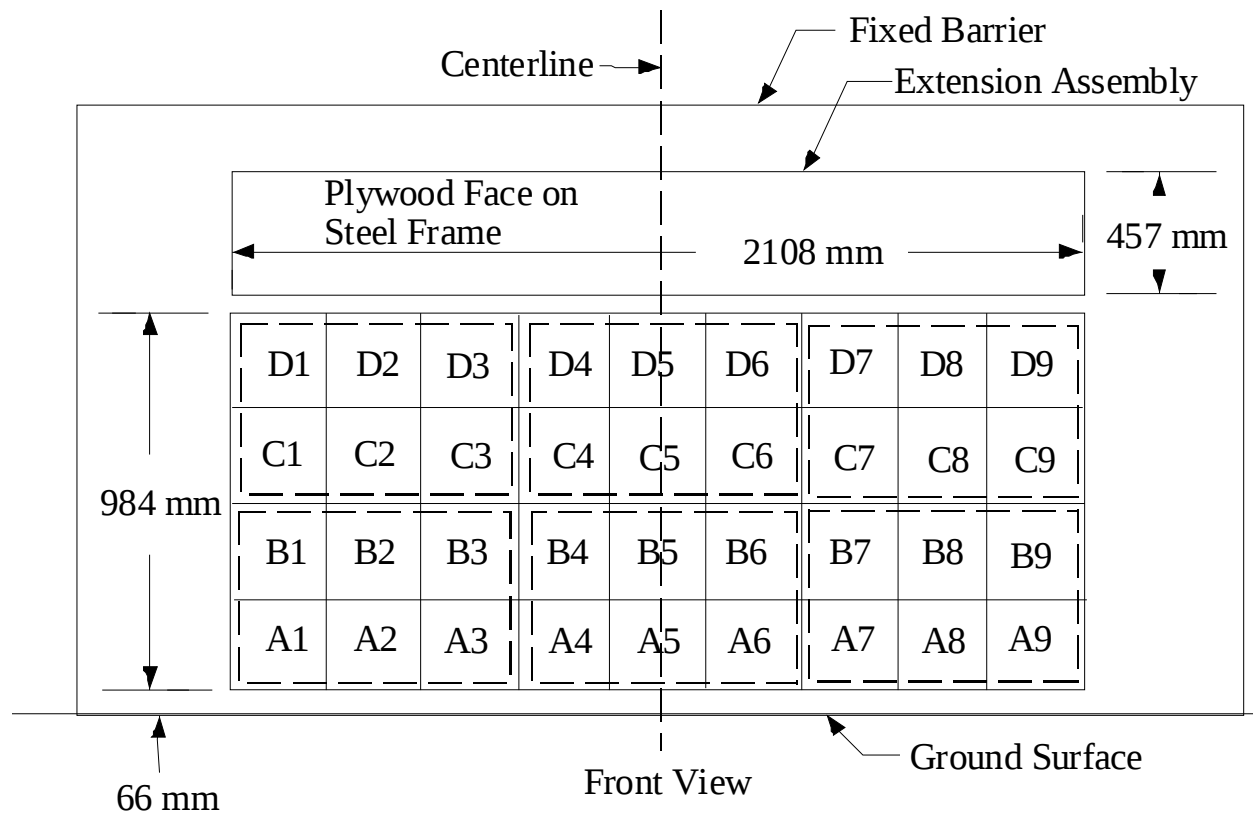
(Dimensions in millimeters)

A	411
B	708
C	1221
D	1834
E	25
F	1242
G	1094
H	1094
I	182
J	1359
K	1276
L	1560
M	23
N	182
O	1093
P	1093
Q	1570
R	1275
S	1352



DATA SHEET NO. 17 LOAD CELL LOCATIONS ON FIXED BARRIER

36 Load Cells
 4 Rows
 9 Columns
 6 Groupings (6 cells/group)



6 GROUPS OF 6 LOAD CELLS EACH

Group 4 C1 thru D3	Group 5 C4 thru D6	Group 6 C7 thru D9
Group 1 A1 thru B3	Group 2 A4 thru B6	Group 3 A7 thru B9

The following data is presented in Appendix B:

- (1)Data from 36 individual load cells
- (2)Total or Sum of 36 individual load cells
- (3)Data from 6 Groupings shown above (6 cells/group)

DATA SHEET NO. 18 POST TEST AIR BAG DATA

NHTSA No.: M55106; Test Date: February 16, 2005; Technician: L. Valvo

Vehicle Model Year/Make/Model: 2005 Toyota Tacoma Access Cab Pickup

A. No. of vent holes: 2 -Driver 2 -Passenger

B. Size of vent holes: (mm²) 707 -Driver 2827 -Passenger

C. Total vent area: (mm²) 1414 -Driver 5654 -Passenger

D. Deflated air bag length and width dimensions or, if round, diameter. (mm)

Driver: 600 -Height; 600 -Width; 320 -Depth

Passenger: 500 -Height; 400 -Width; 340 -Depth

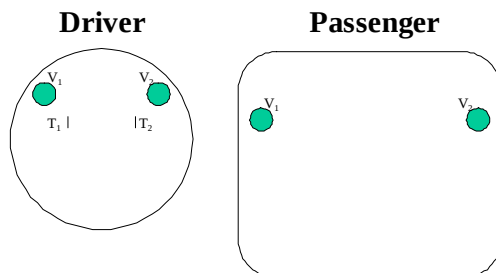
E. Is the air bag tethered?

Driver: X -Yes; - -No; If yes, record length of tether- 350

Passenger: - -Yes; X -No; If yes, record length of tether- -

Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.

(Note: Not to scale; V_n = Vent hole_n, T_n = Tether_n).



F. Record part numbers and manufacturer name of the air bag and gas generator.

Driver: Air bag: GA120-08650

Generator: -

Passenger: Air bag: GG59

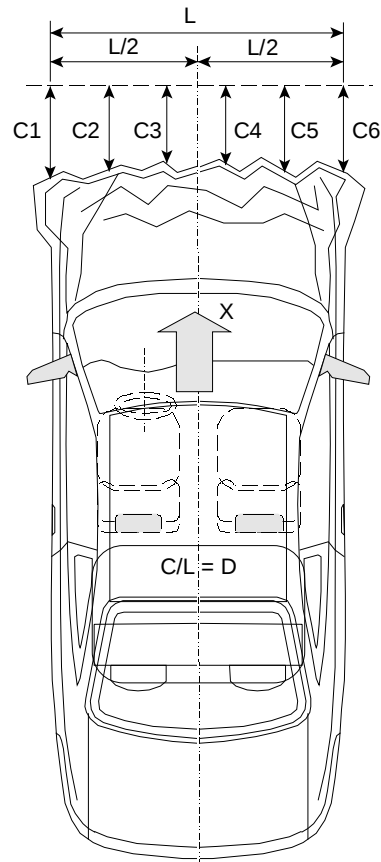
Generator: -

DATA SHEET NO. 19 ACCIDENT INVESTIGATION DIVISION DATA
FOR FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Toyota Tacoma Access Cab Pickup
 NHTSA Test No.: M55106 VIN: 5TETX22N35Z015936
 Model Year: 2005 Build Date: 11/04 Test Date: February 16, 2005
 Vehicle Size Category: Standard Pickup Test Weight: 1869.5 kg
 Vehicle Wheelbase: 3230 mm; Front Overhang: 840 mm; Overall Width: 1835 mm
 Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions

	PRE (mm)	POST (mm)	DIFF (mm)
C1 =	5136	4713	423
C2 =	5271	4686	585
C3 =	5287	4725	562
C4 =	5288	4726	562
C5 =	5273	4702	571
C6 =	5142	4752	390



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region: L1= 1571 mm
 L2= 785.5 mm
 L5= 314.2 mm

APPENDIX A
PHOTOGRAPHS

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A-37	Post-Test Driver Feet View	A-40
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A-40	Pre-Test Driver Floor Pan View	A-43
A-41	Post-Test Driver Floor Pan View	A-44
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A-48	Pre-Test Passenger And Interior View	A-51
A-49	Post-Test Passenger And Interior View	A-52
A-50	Pre-Test Passenger Feet View	A-53
A-51	Post-Test Passenger Feet View	A-54
A-52	Pre-Test Passenger Knee Bolster View	A-55
A-53	Post-Test Passenger Knee Bolster View	A-56
A-54	Pre-Test Passenger Floor Pan View	A-57
A-55	Post-Test Passenger Floor Pan View	A-58
A-56	Post-Test Passenger Head View	A-59
A-57	Post-Test Passenger Contact To Airbag	A-60
A-58	Rollover View	A-61
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Figure A-1 LOAD CELL LOCATIONS

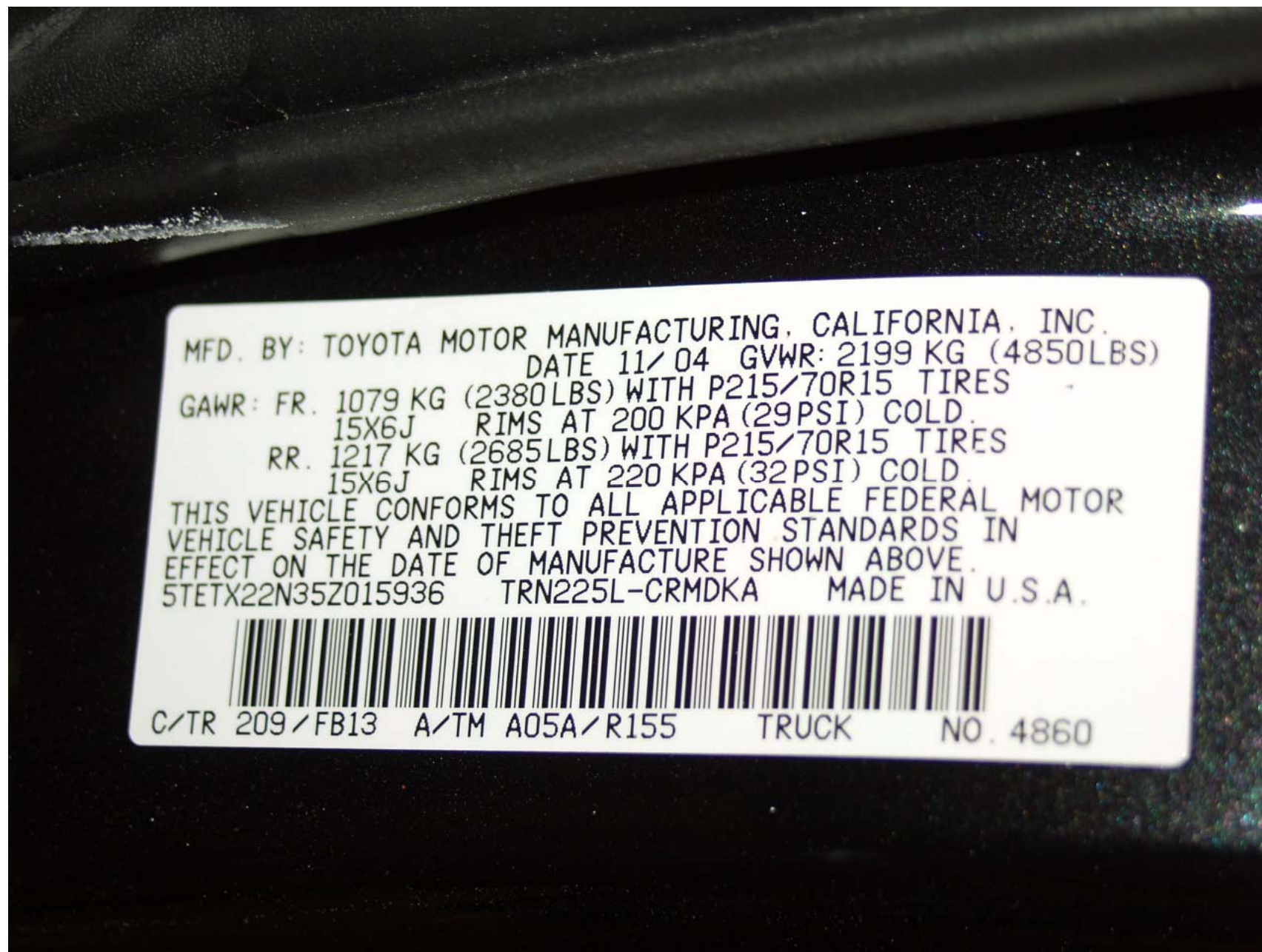


Figure A-2 VEHICLE CERTIFICATION PLACARD

TIRE AND LOADING INFORMATION
SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
RENSEIGNEMENTS RELATIFS AUX PNEUS ET À LA CHARGE DU VÉHICULE
CONSULTER LE GUIDE DU PROPRIÉTAIRE POUR DE PLUS AMPLES RENSEIGNEMENTS



SEATING CAPACITY	TOTAL	FRONT	REAR
NOMBRE DE PLACES	TOTAL: 4	AVANT: 2	ARRIERE: 2

The combined weight of occupants and cargo should never exceed 518 kg or 1143 lbs.
 La charge du véhicule (occupants et baggages) ne doit jamais dépasser 518 kg ou 1143 lbs.

ORIGINAL TIRE SIZE DIMENSIONS DES PNEUS D'ORIGINE		COLD TIRE INFLATION PRESSURE PRESSION DE GONFLAGE A FROID	
FRONT/AVANT	P215/70R15	FRONT/AVANT	29 PSI, 200 kPa
REAR/ARRIERE	P215/70R15	REAR/ARRIERE	32 PSI, 220 kPa
COMPACT SIZE SPARE TIRE DIMENSIONS DU PNEU DE SECOURS COMPACT		COLD TIRE INFLATION PRESSURE PRESSION DE GONFLAGE A FROID	
- - - - / - - - / - - -		- - PSI, - - - kPa	

4860

Figure A-3 VEHICLE TIRE PLACARD



Figure A-4 RIGHT FRONT, AS RECEIVED



Figure A-5 LEFT REAR, AS RECEIVED



Figure A-6 PRE-TEST FRONT VIEW



Figure A-7 POST-TEST FRONT VIEW



Figure A-8 PRE-TEST LEFT SIDE VIEW



Figure A-9 POST-TEST LEFT SIDE VIEW



Figure A-10 PRE-TEST RIGHT SIDE VIEW



Figure A-11 POST-TEST RIGHT SIDE VIEW



Figure A-12 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-13 POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-14 PRE-TEST LEFT REAR THREE-QUARTER VIEW



Figure A-15 POST-TEST LEFT REAR THREE-QUARTER VIEW



Figure A-16 LEFT REAR THREE-QUARTER VIEW OF DOORS AFTER IMPACT

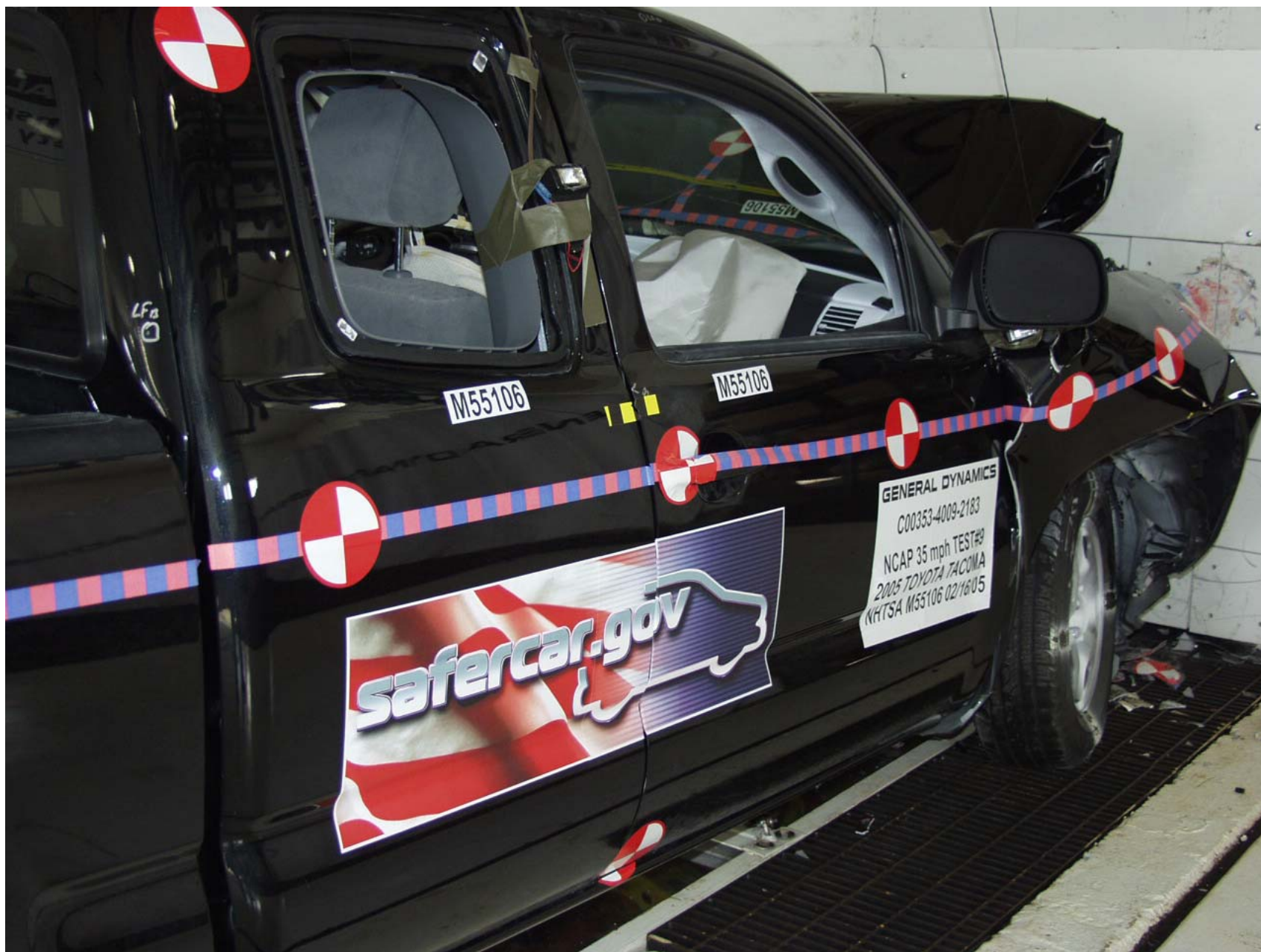


Figure A-17 RIGHT REAR THREE-QUARTER VIEW OF DOORS AFTER IMPACT



Figure A-18 PRE-TEST WINDSHIELD VIEW



Figure A-19 POST-TEST WINDSHIELDVIEW



Figure A-20 PRE-TEST ENGINE COMPARTMENT VIEW



Figure A-21 POST-TEST ENGINE COMPARTMENT VIEW



Figure A-22 PRE-TEST FUEL CAP VIEW



Figure A-23 POST-TEST FUEL CAP VIEW



Figure A-24 PRE-TEST FRONT UNDERBODY VIEW



Figure A-25 POST-TEST FRONT UNDERBODY VIEW



Figure A-26 PRE-TEST MID UNDERBODY VIEW

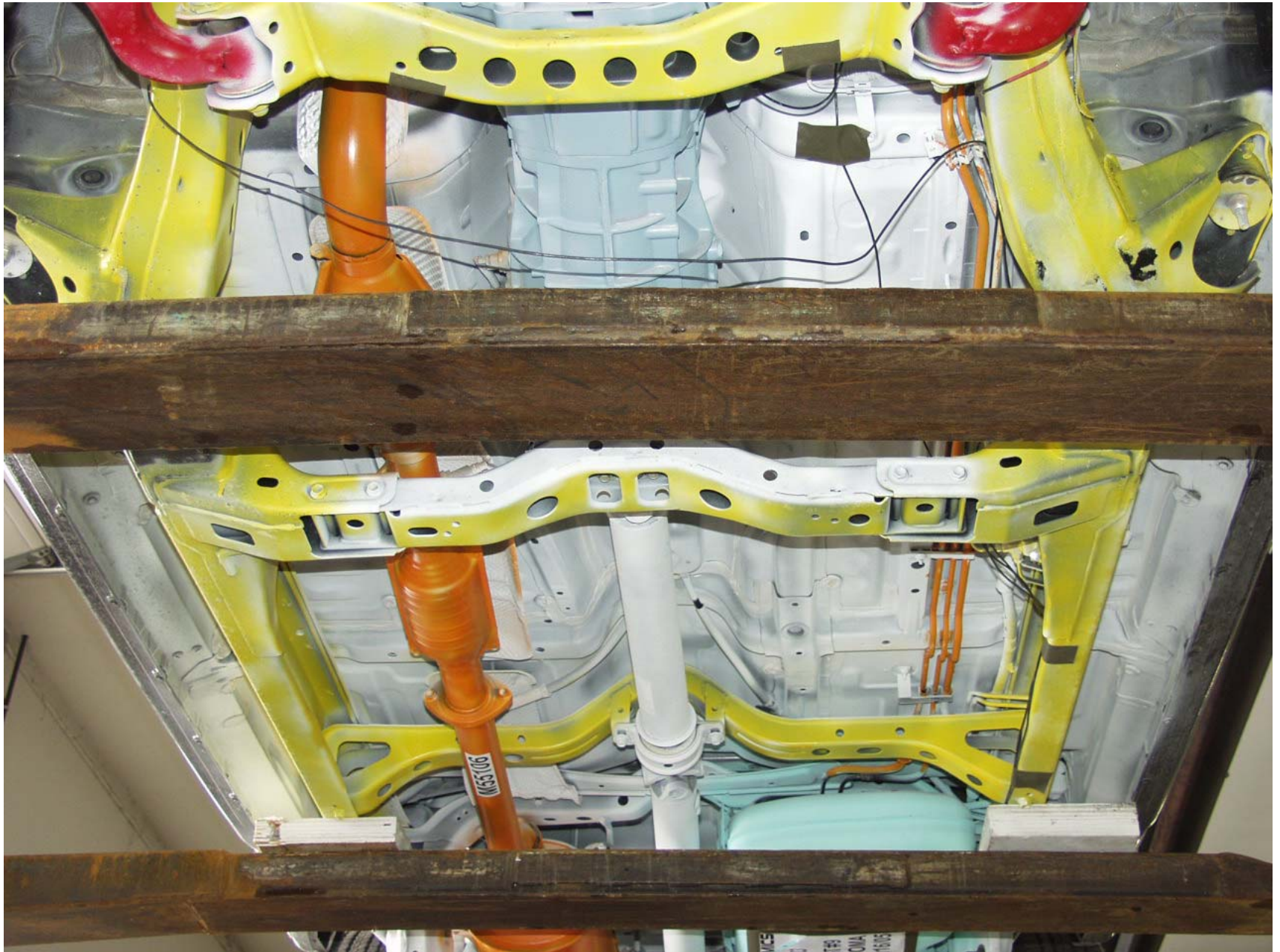


Figure A-27 POST-TEST MID UNDERBODY VIEW



Figure A-28 PRE-TEST REAR UNDERBODY VIEW



Figure A-29 POST-TEST REAR UNDERBODY VIEW



Figure A-30 PRE-TEST DRIVER HEAD LOCATION



Figure A-31 POST-TEST DRIVER HEAD LOCATION



Figure A-32 PRE-TEST DRIVER POSITION VIEW



Figure A-33 POST-TEST DRIVER POSITION VIEW



Figure A-34 PRE-TEST DRIVER AND INTERIOR VIEW



Figure A-35 POST-TEST DRIVER AND INTERIOR VIEW



Figure A-36 PRE-TEST DRIVER FEET VIEW



Figure A-37 POST-TEST DRIVER FEET VIEW



Figure A-38 PRE-TEST DRIVER KNEE BOLSTER VIEW



Figure A-39 POST-TEST DRIVER KNEE BOLSTER VIEW



Figure A-40 PRE-TEST DRIVER FLOOR PAN VIEW



Figure A-41 POST-TEST DRIVER FLOOR PAN VIEW



Figure A-42 POST-TEST DRIVER HEAD VIEW



Figure A-43 POST-TEST DRIVER CONTACT TO AIRBAG



Figure A-44 PRE-TEST PASSENGER HEAD LOCATION



Figure A-45 POST-TEST PASSENGER HEAD LOCATION



Figure A-46 PRE-TEST PASSENGER POSITION VIEW



Figure A-47 POST-TEST PASSENGER POSITION VIEW



Figure A-48 PRE-TEST PASSENGER AND INTERIOR VIEW



Figure A-49 POST-TEST PASSENGER AND INTERIOR VIEW



Figure A-50 PRE- TEST PASSENGER FEET VIEW



Figure A-51 POST-TEST PASSENGER FEET VIEW



Figure A-52 PRE-TEST PASSENGER KNEE BOLSTER VIEW



Figure A-53 POST-TEST PASSENGER KNEE BOLSTER VIEW



Figure A-54 PRE-TEST PASSENGER FLOOR PAN VIEW



Figure A-55 POST-TEST PASSENGER FLOOR PAN VIEW



Figure A-56 POST-TEST PASSENGER HEAD VIEW



Figure A-57 POST-TEST PASSENGER CONTACT TO AIRBAG



Figure A-58 ROLLOVER VIEW



Figure A-59 IMPACT VIEW

APPENDIX B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

**Hybrid III Dummy Sign Conventions
Load Cells and Special Transducers**

Transducer	SAE Sign Convention (positive unless noted)	
Upper Neck Load Cell	Fx	Head rearward
	Fy	Head left
	Fz	Neck in tension
	Mx	Left ear to left shoulder
	My	Chin to chest (flexion)
	Mz	Chin to left shoulder (look left)
Chest Displacement Potentiometer	Compression is negative	
Pelvic Load Cell (Lower Lumbar)	Fx	Chest rearward
	Fy	Chest left
	Fz	Spine in tension
Femur Load Cell	Compression is negative	
Upper Tibia Load Cell (right and left leg)	Mx	Support tibia at ends, load left side center
	My	Support tibia at ends, load front (shin) center
Lower Tibia Load Cell (right and left leg)	Fz	Tibia in tension
	Mx	Support tibia at ends, load left side center
	My	Support tibia at ends, load front (shin) center

DATA CHANNEL FILTER CLASS SUMMARY

NHTSA TEST NO.

DATA TYPE	SAE FILTER CLASS (Hz)
Dummy Head Accelerations	1000
Dummy Chest Accelerations	180
Dummy Chest Displacements	600
Dummy Femur Forces	600
Dummy Belt Loads	60
Dummy Belt Displacements	180
Dummy Neck Forces	1000
Dummy Neck Moments	600
Vehicle Accelerations	60
Vehicle Velocity Integrations	180
Vehicle Displacement Integrations	180
Load Cell Barrier Forces	60

Table of Data Plots

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
1	V1P1 Head CG x [g, CFC_1000]	B-8
2	V1P1 Head CG y [g, CFC_1000]	B-8
3	V1P1 Head CG z [g, CFC_1000]	B-8
4	V1P1 Head CG Resultant [g, CFC_1000]	B-8
5	V1P1 Head CG Red x [g, CFC_1000]	B-9
6	V1P1 Head CG Red y [g, CFC_1000]	B-9
7	V1P1 Head CG Red z [g, CFC_1000]	B-9
8	V1P1 Head CG Red Resultant [g, CFC_1000]	B-9
9	V1P1 Upper Neck Fx [N, CFC_1000]	B-10
10	V1P1 Upper Neck Fy [N, CFC_1000]	B-10
11	V1P1 Upper Neck Fz [N, CFC_1000]	B-10
12	V1P1 Upper Neck F Resultant [N, CFC_1000]	B-10
13	V1P1 Upper Neck Mx [N-m, CFC_600]	B-11
14	V1P1 Upper Neck My [N-m, CFC_600]	B-11
15	V1P1 Upper Neck Mz [N-m, CFC_600]	B-11
16	V1P1 Upper Neck M Resultant [N-m, CFC_600]	B-11
17	V1P1 Chest x [g, CFC_180]	B-12
18	V1P1 Chest y [g, CFC_180]	B-12
19	V1P1 Chest z [g, CFC_180]	B-12
20	V1P1 Chest Resultant [g, CFC_180]	B-12
21	V1P1 Chest Red x [g, CFC_180]	B-13
22	V1P1 Chest Red y [g, CFC_180]	B-13
23	V1P1 Chest Red z [g, CFC_180]	B-13
24	V1P1 Chest Red Resultant [g, CFC_180]	B-13
25	V1P1 Chest Compression [mm, CFC_600]	B-14
26	V1P1 Pelvic x [g, CFC_1000]	B-15
27	V1P1 Pelvic y [g, CFC_1000]	B-15
28	V1P1 Pelvic z [g, CFC_1000]	B-15
29	V1P1 Pelvic Resultant [g, CFC_1000]	B-15
30	V1P1 Left Femur [N, CFC_600]	B-16
31	V1P1 Right Femur [N, CFC_600]	B-16
32	V1P1 Left Upper Tibia Mx [N-m, CFC_600]	B-17
33	V1P1 Left Upper Tibia My [N-m, CFC_600]	B-17
34	V1P1 Left Lower Tibia Fz [N, CFC_600]	B-18
35	V1P1 Left Lower Tibia Mx [N-m, CFC_600]	B-18
36	V1P1 Left Lower Tibia My [N-m, CFC_600]	B-18
37	V1P1 Right Upper Tibia Mx [N-m, CFC_600]	B-19
38	V1P1 Right Upper Tibia My [N-m, CFC_600]	B-19
39	V1P1 Right Lower Tibia Fz [N, CFC_600]	B-20
40	V1P1 Right Lower Tibia Mx [N-m, CFC_600]	B-20
41	V1P1 Right Lower Tibia My [N-m, CFC_600]	B-20
42	V1P1 Left Foot Aft x [g, CFC_600]	B-21
43	V1P1 Left Foot Aft z [g, CFC_600]	B-21
44	V1P1 Left Foot Fore z [g, CFC_600]	B-21
45	V1P1 Right Foot Aft x [g, CFC_600]	B-22
46	V1P1 Right Foot Aft z [g, CFC_600]	B-22

Table of Data Plots (Continued)

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
47	V1P1 Right Foot Fore z [g, CFC_600]	B-22
48	V1 Driver Lap Belt [N, CFC_60]	B-23
49	V1 Driver Torso Belt [N, CFC_60]	B-23
50	V1P2 Head CG x [g, CFC_1000]	B-24
51	V1P2 Head CG y [g, CFC_1000]	B-24
52	V1P2 Head CG z [g, CFC_1000]	B-24
53	V1P2 Head CG Resultant [g, CFC_1000]	B-24
54	V1P2 Head CG Red x [g, CFC_1000]	B-25
55	V1P2 Head CG Red y [g, CFC_1000]	B-25
56	V1P2 Head CG Red z [g, CFC_1000]	B-25
57	V1P2 Head CG Red Resultant [g, CFC_1000]	B-25
58	V1P2 Upper Neck Fx [N, CFC_1000]	B-26
59	V1P2 Upper Neck Fy [N, CFC_1000]	B-26
60	V1P2 Upper Neck Fz [N, CFC_1000]	B-26
61	V1P2 Upper Neck F Resultant [N, CFC_1000]	B-26
62	V1P2 Upper Neck Mx [N-m, CFC_600]	B-27
63	V1P2 Upper Neck My [N-m, CFC_600]	B-27
64	V1P2 Upper Neck Mz [N-m, CFC_600]	B-27
65	V1P2 Upper Neck M Resultant [N-m, CFC_600]	B-27
66	V1P2 Chest x [g, CFC_180]	B-28
67	V1P2 Chest y [g, CFC_180]	B-28
68	V1P2 Chest z [g, CFC_180]	B-28
69	V1P2 Chest Resultant [g, CFC_180]	B-28
70	V1P2 Chest Red x [g, CFC_180]	B-29
71	V1P2 Chest Red y [g, CFC_180]	B-29
72	V1P2 Chest Red z [g, CFC_180]	B-29
73	V1P2 Chest Red Resultant [g, CFC_180]	B-29
74	V1P2 Chest Compression [mm, CFC_600]	B-30
75	V1P2 Pelvic x [g, CFC_1000]	B-31
76	V1P2 Pelvic y [g, CFC_1000]	B-31
77	V1P2 Pelvic z [g, CFC_1000]	B-31
78	V1P2 Pelvic Resultant [g, CFC_1000]	B-31
79	V1P2 Left Femur [N, CFC_600]	B-32
80	V1P2 Right Femur [N, CFC_600]	B-32
81	V1P2 Left Upper Tibia Mx [N-m, CFC_600]	B-33
82	V1P2 Left Upper Tibia My [N-m, CFC_600]	B-33
83	V1P2 Left Lower Tibia Fz [N, CFC_600]	B-34
84	V1P2 Left Lower Tibia Mx [N-m, CFC_600]	B-34
85	V1P2 Left Lower Tibia My [N-m, CFC_600]	B-34
86	V1P2 Right Upper Tibia Mx [N-m, CFC_600]	B-35
87	V1P2 Right Upper Tibia My [N-m, CFC_600]	B-35
88	V1P2 Right Lower Tibia Fz [N, CFC_600]	B-36
89	V1P2 Right Lower Tibia Mx [N-m, CFC_600]	B-36
90	V1P2 Right Lower Tibia My [N-m, CFC_600]	B-36
91	V1P2 Left Foot Aft Ax [g, CFC_600]	B-37
92	V1P2 Left Foot Aft Az [g, CFC_600]	B-37

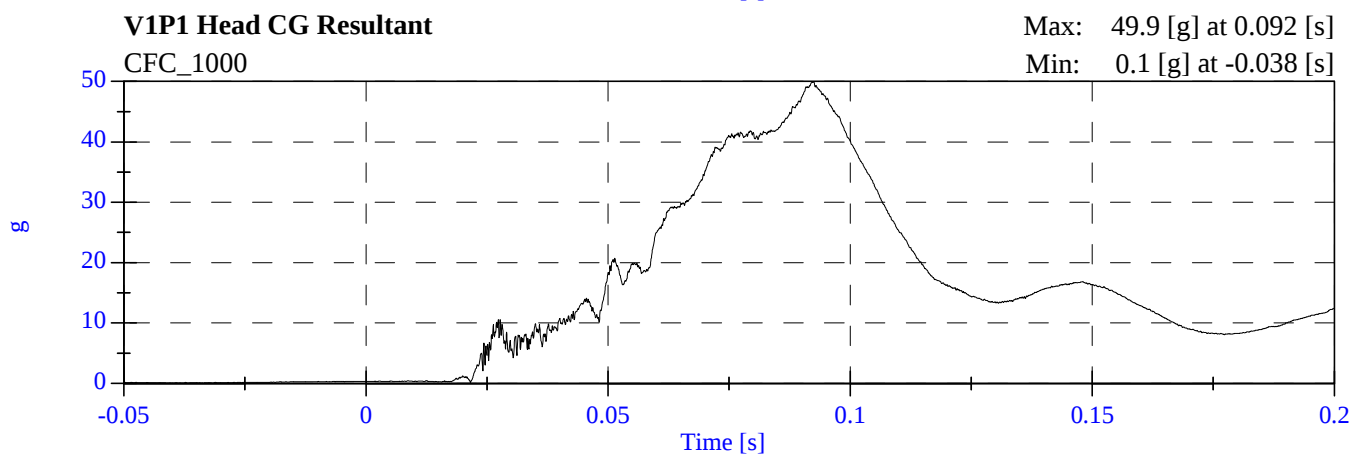
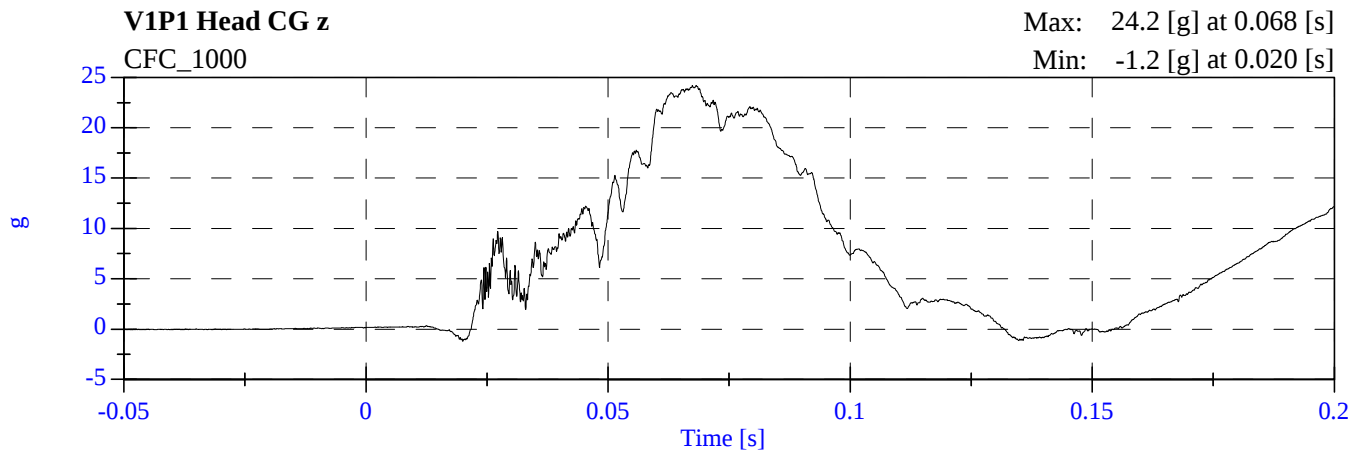
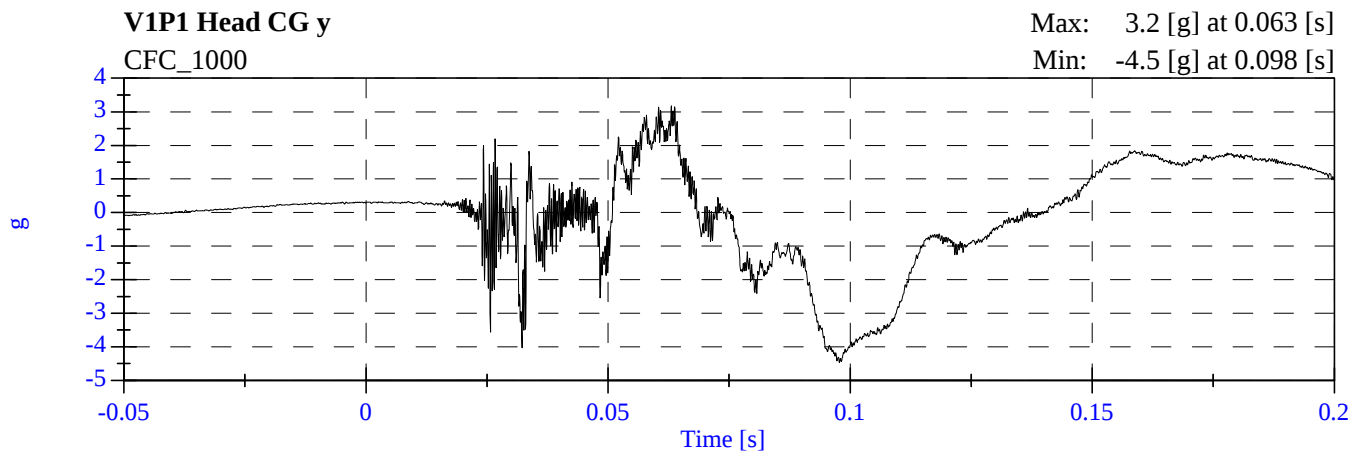
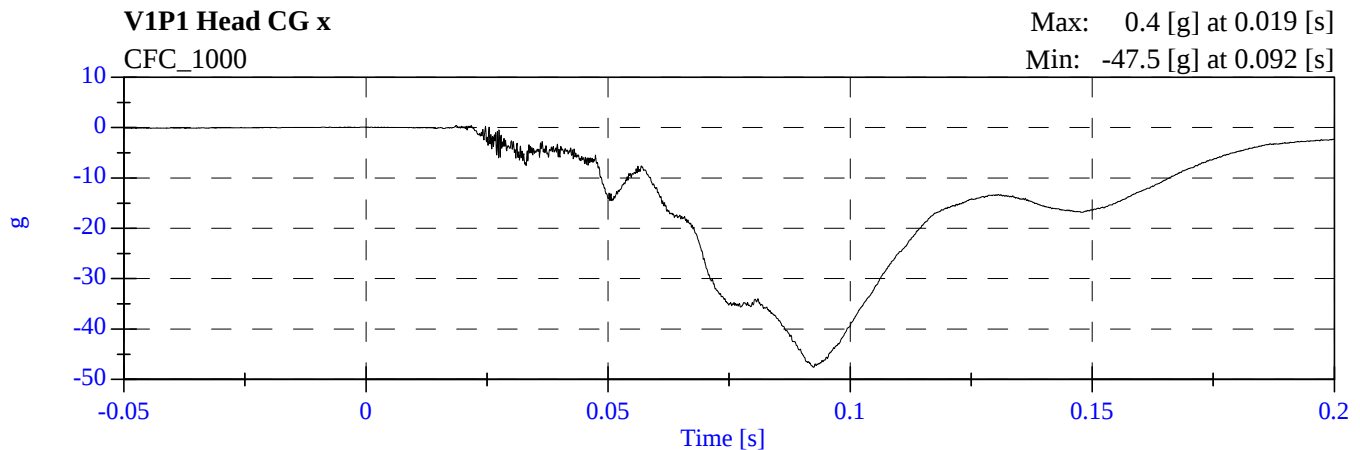
Table of Data Plots (Continued)

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
93	V1P2 Left Foot Fore Az [g, CFC_600]	B-37
94	V1P2 Right Foot Aft x [g, CFC_600]	B-38
95	V1P2 Right Foot Aft z [g, CFC_600]	B-38
96	V1P2 Right Foot Fore z [g, CFC_600]	B-38
97	V1 RFP Lap Belt [N, CFC_60]	B-39
98	V1 RFP Torso Belt [N, CFC_60]	B-39
99	V1 Left Rear #1x [g, CFC_60]	B-40
100	V1 Left Rear #1x Velocity [kph, CFC_180]	B-40
101	V1 Left Rear #1x Displacement [mm, CFC_180]	B-40
102	V1 Right Rear #2x [g, CFC_60]	B-41
103	V1 Right Rear #2x Velocity [kph, CFC_180]	B-41
104	V1 Right Rear #2x Displacement [mm, CFC_180]	B-41
105	V1 Engine Top #3x [g, CFC_60]	B-42
106	V1 Engine Top #3x Velocity [kph, CFC_180]	B-42
107	V1 Engine Top #3x Displacement [mm, CFC_180]	B-42
108	V1 Engine Bottom #4x [g, CFC_60]	B-43
109	V1 Engine Bottom #4x Velocity [kph, CFC_180]	B-43
110	V1 Engine Bottom #4x Displacement [mm, CFC_180]	B-43
111	V1 Right Caliper #5x [g, CFC_60]	B-44
112	V1 Right Caliper #5x Velocity [kph, CFC_180]	B-44
113	V1 Right Caliper #5x Displacement [mm, CFC_180]	B-44
114	V1 Instrument Panel #6x [g, CFC_60]	B-45
115	V1 Instrument Panel #6x Velocity [kph, CFC_180]	B-45
116	V1 Instrument Panel #6x Displacement [mm, CFC_180]	B-45
117	V1 Left Caliper #7x [g, CFC_60]	B-46
118	V1 Left Caliper #7x Velocity [kph, CFC_180]	B-46
119	V1 Left Caliper #7x Displacement [mm, CFC_180]	B-46
120	V1 Left Rear #8z [g, CFC_60]	B-47
121	V1 Left Rear #8z Velocity [kph, CFC_180]	B-47
122	V1 Left Rear #8z Displacement [mm, CFC_180]	B-47
123	V1 Right Rear #9z [g, CFC_60]	B-48
124	V1 Right Rear #9z Velocity [kph, CFC_180]	B-48
125	V1 Right Rear #9z Displacement [mm, CFC_180]	B-48
126	Barrier Load Cell A1 Fx [N, CFC_60]	B-49
127	Barrier Load Cell A2 Fx [N, CFC_60]	B-49
128	Barrier Load Cell A3 Fx [N, CFC_60]	B-49
129	Barrier Load Cell A4 Fx [N, CFC_60]	B-49
130	Barrier Load Cell A5 Fx [N, CFC_60]	B-50
131	Barrier Load Cell A6 Fx [N, CFC_60]	B-50
132	Barrier Load Cell A7 Fx [N, CFC_60]	B-50
133	Barrier Load Cell A8 Fx [N, CFC_60]	B-50
134	Barrier Load Cell A9 Fx [N, CFC_60]	B-51
135	Barrier Load Cell B1 Fx [N, CFC_60]	B-51
136	Barrier Load Cell B2 Fx [N, CFC_60]	B-51
137	Barrier Load Cell B3 Fx [N, CFC_60]	B-51
138	Barrier Load Cell B4 Fx [N, CFC_60]	B-52

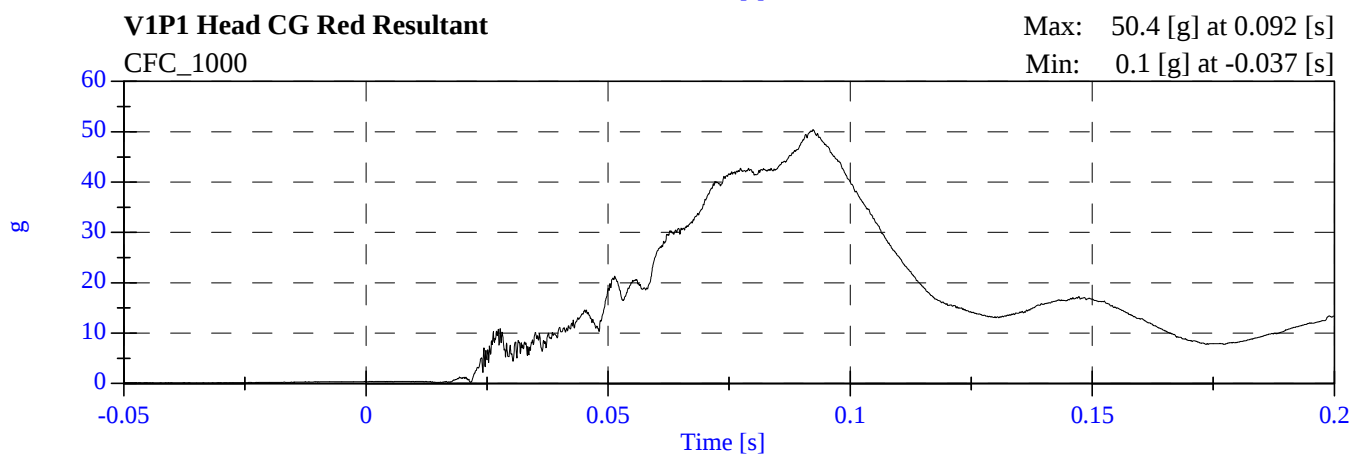
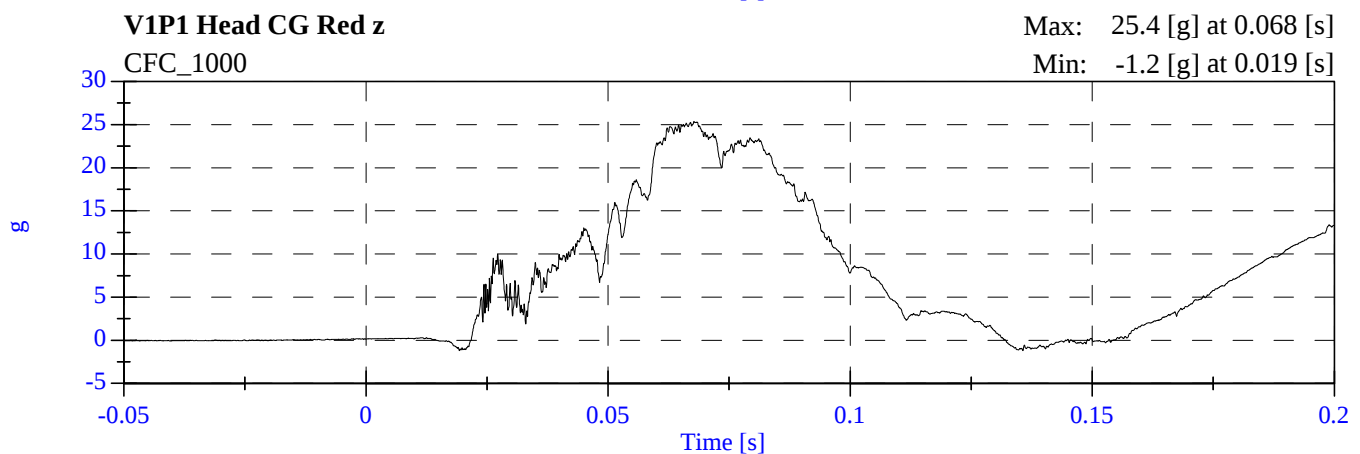
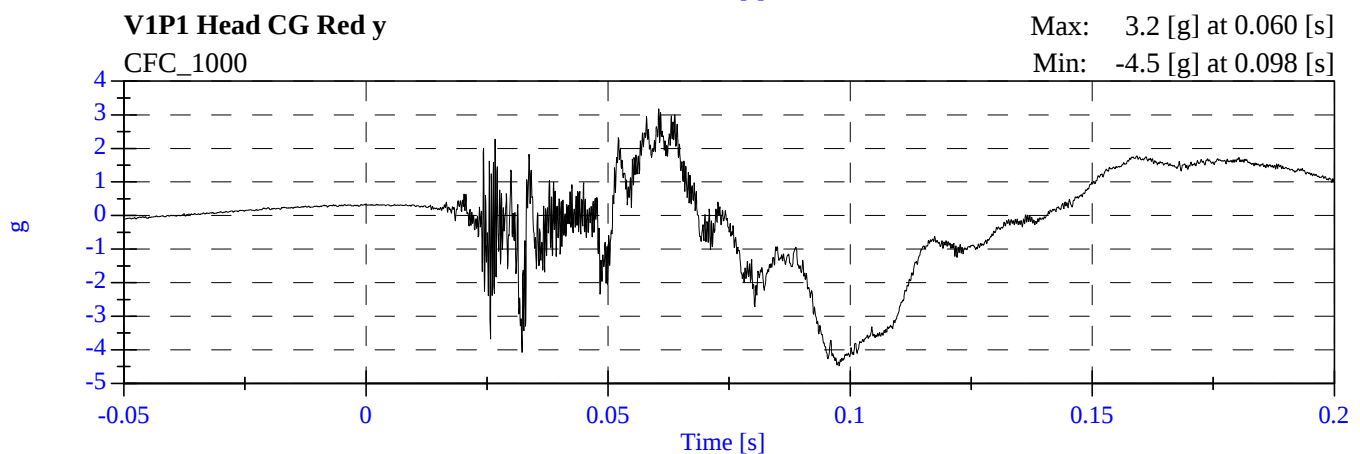
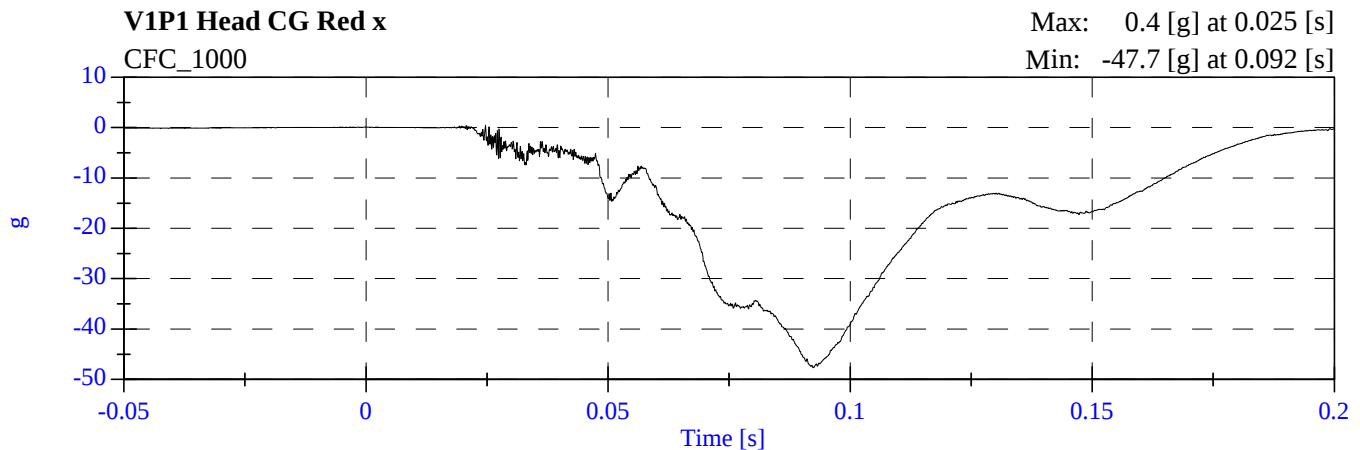
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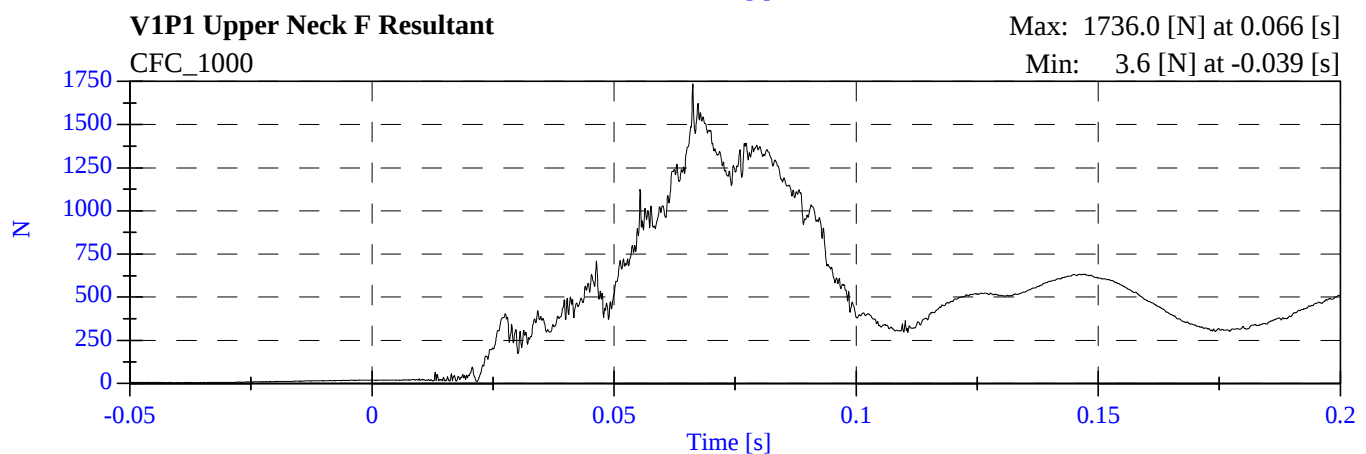
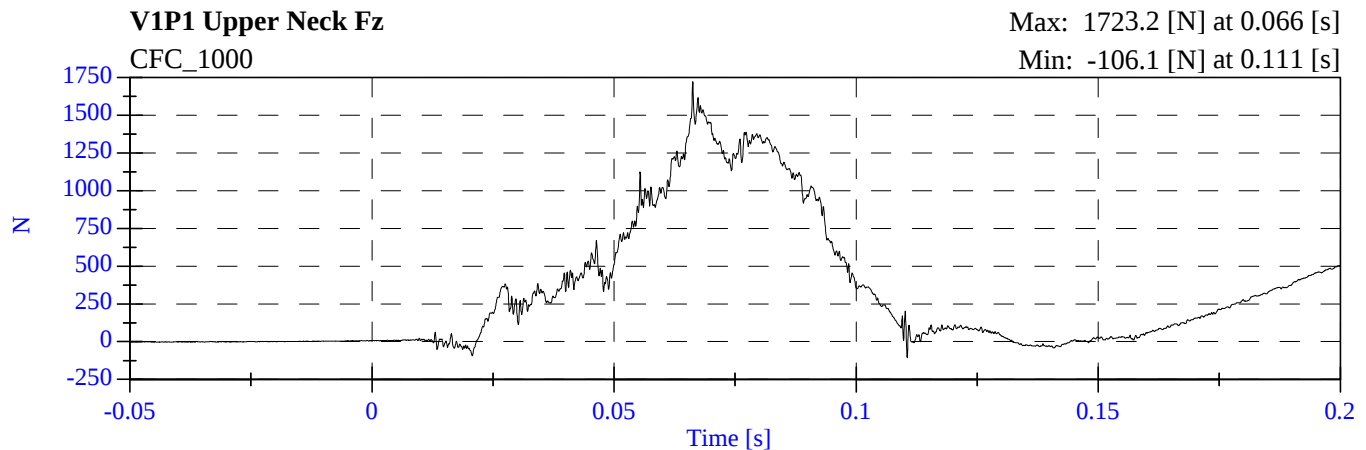
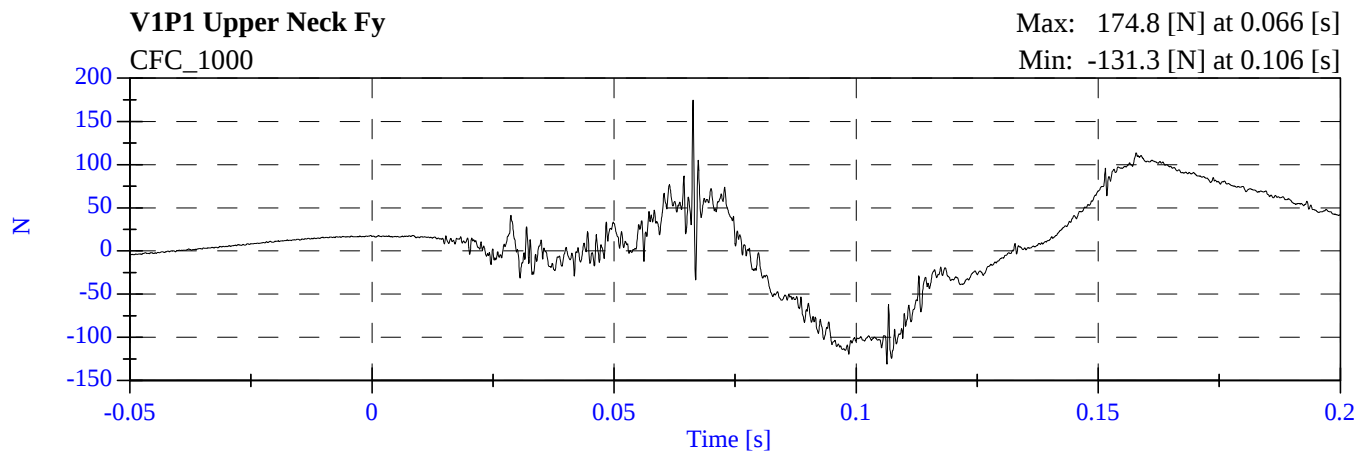
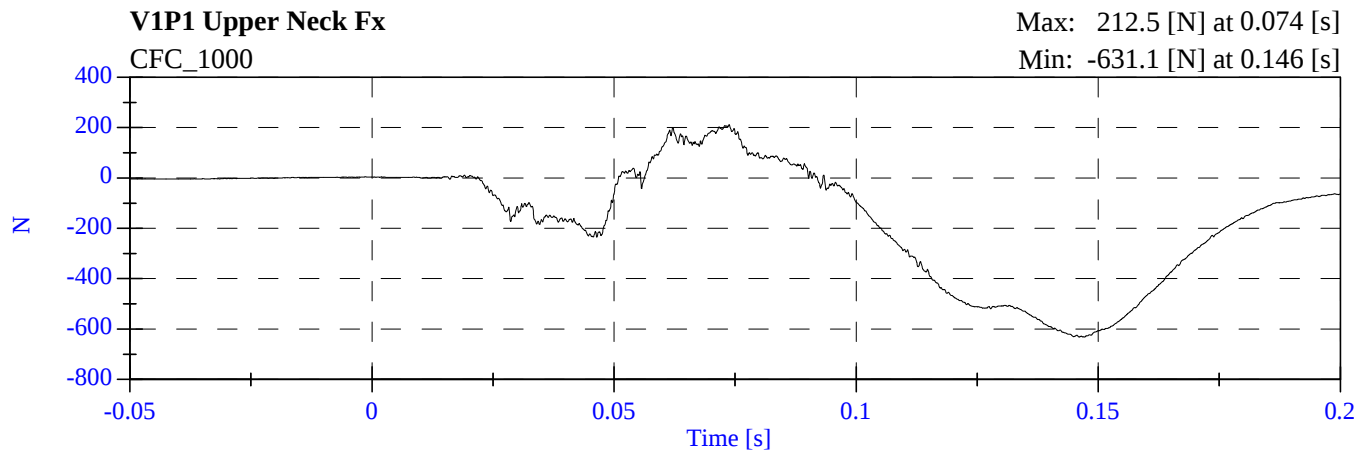
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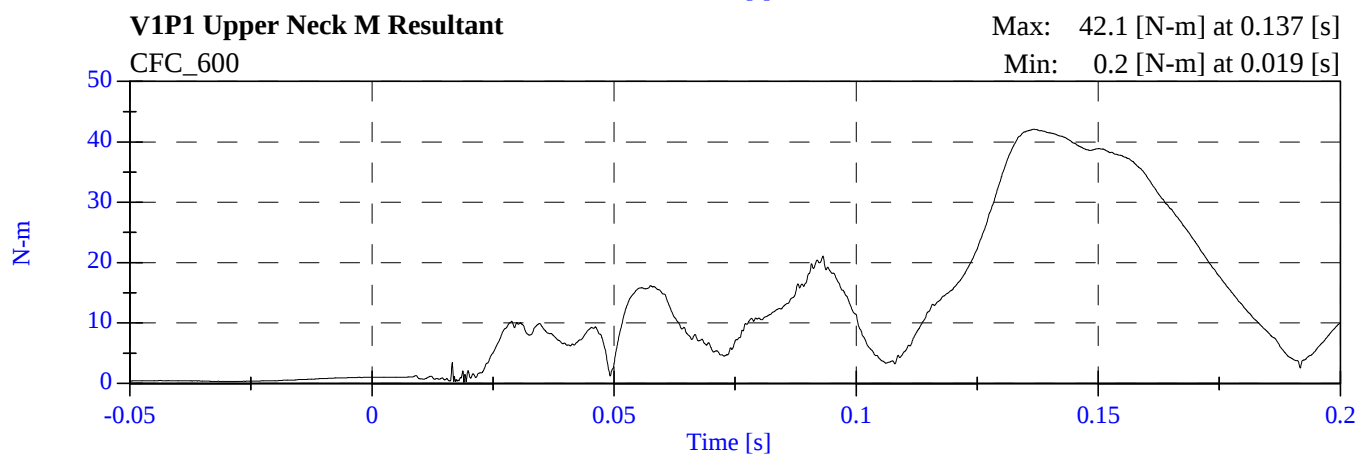
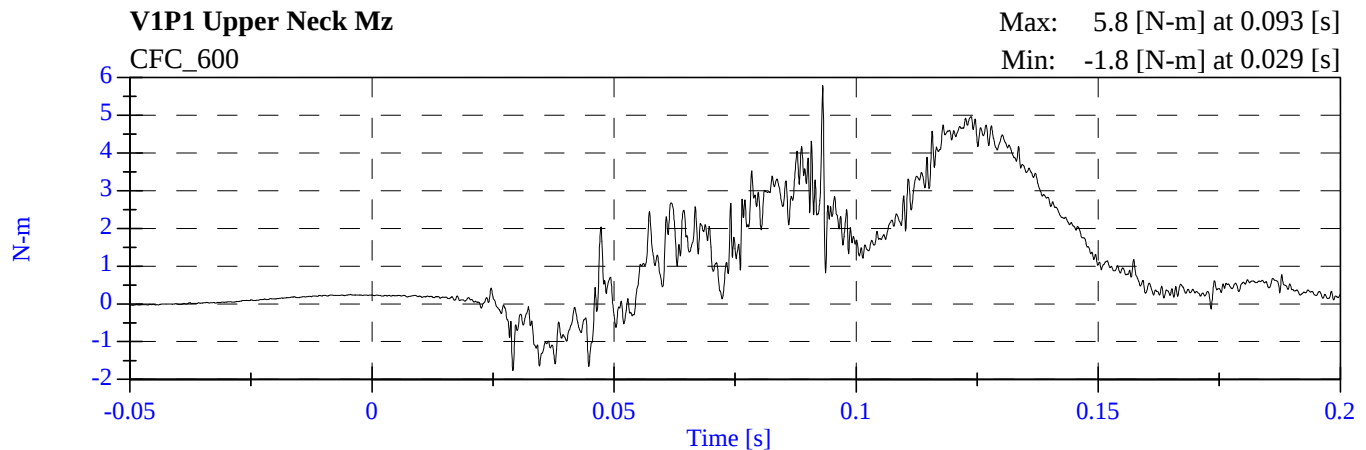
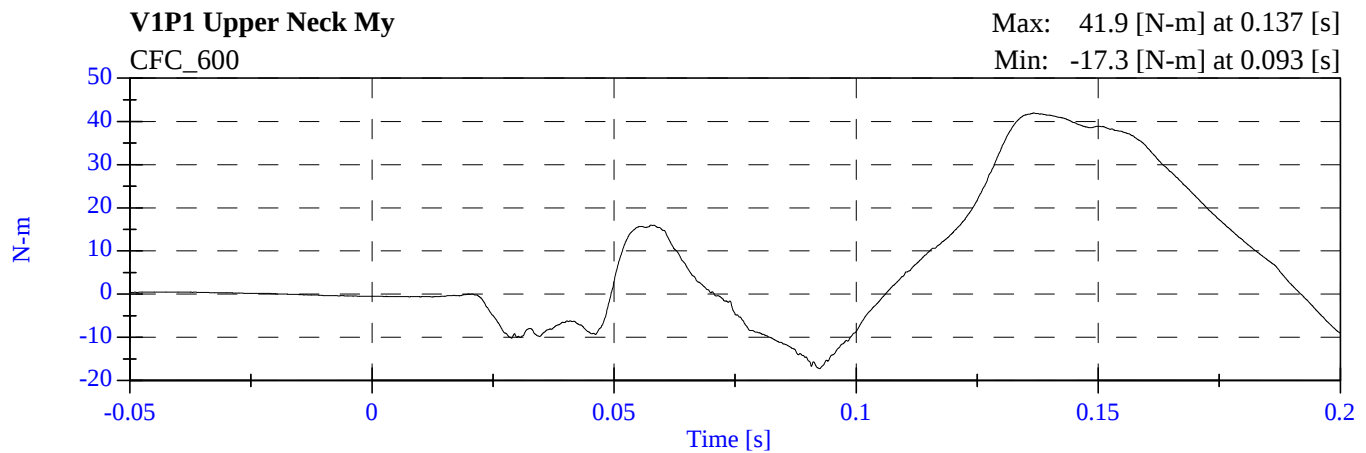
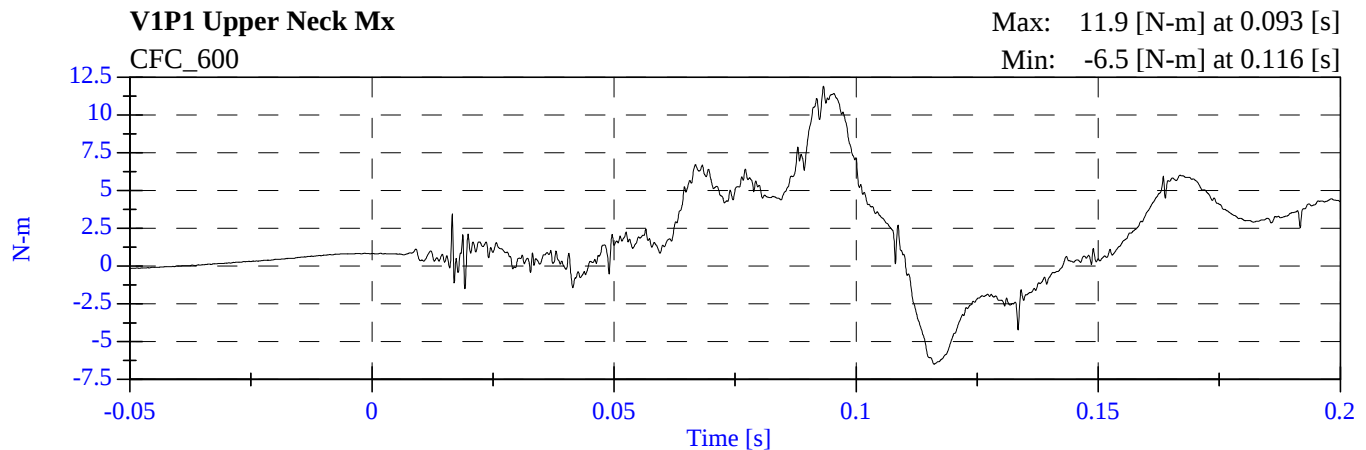
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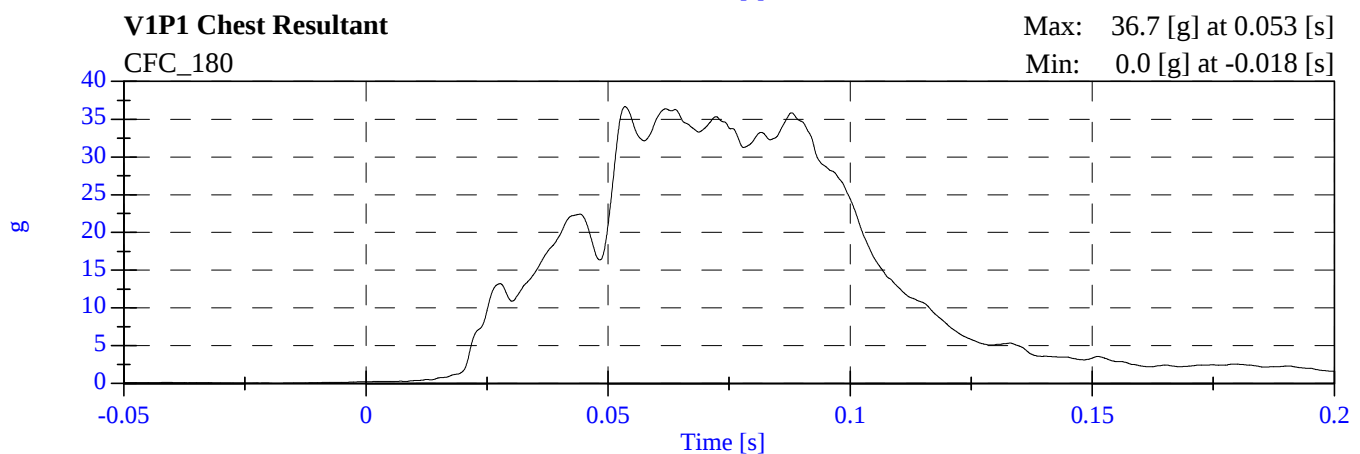
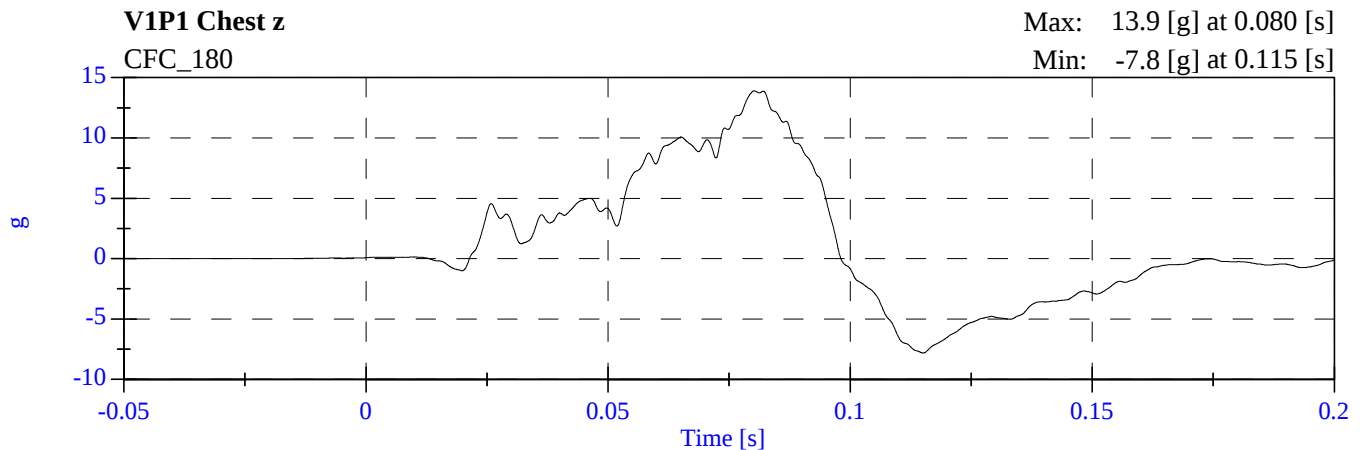
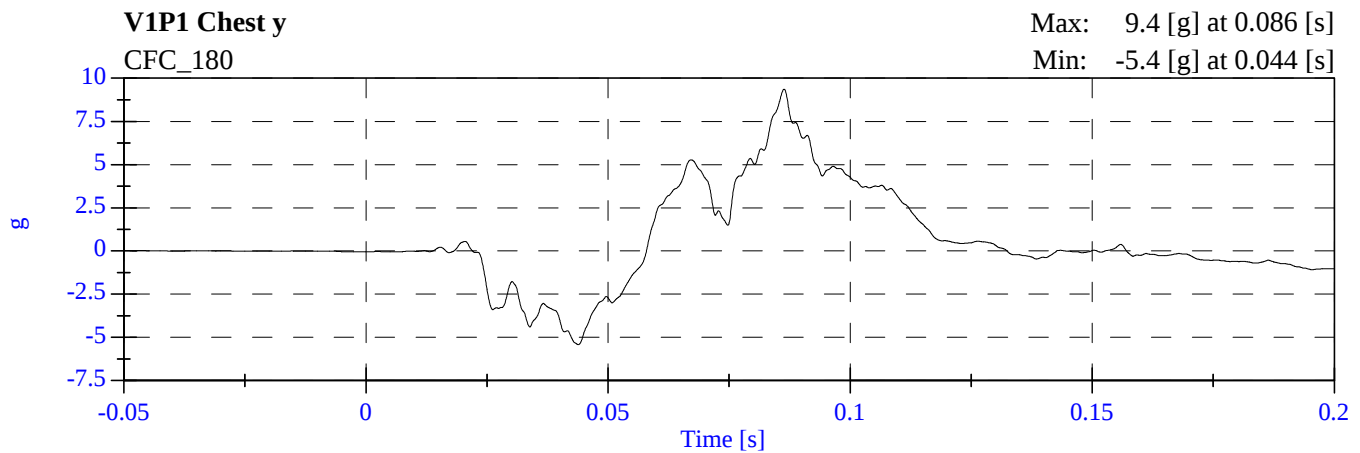
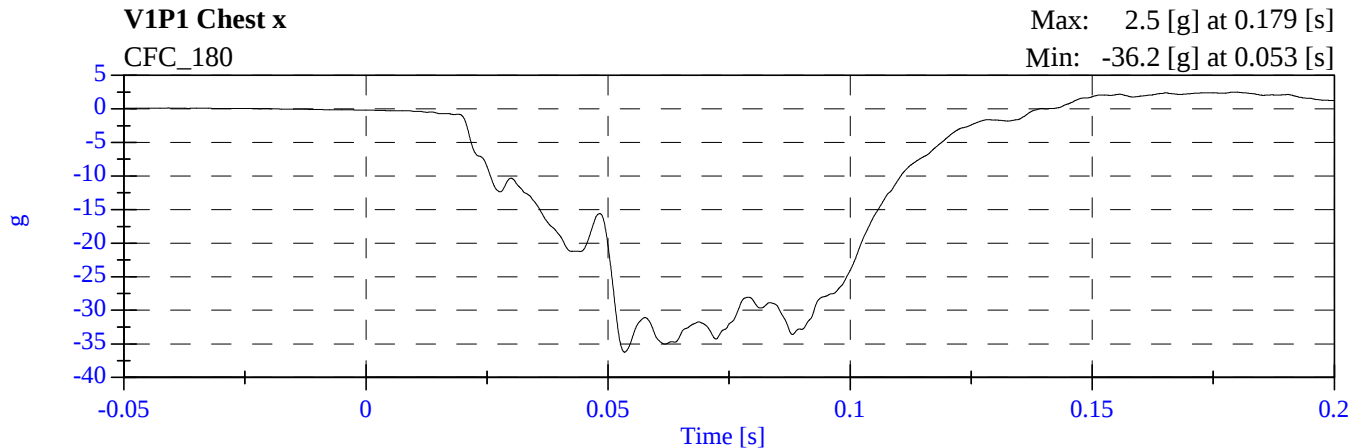
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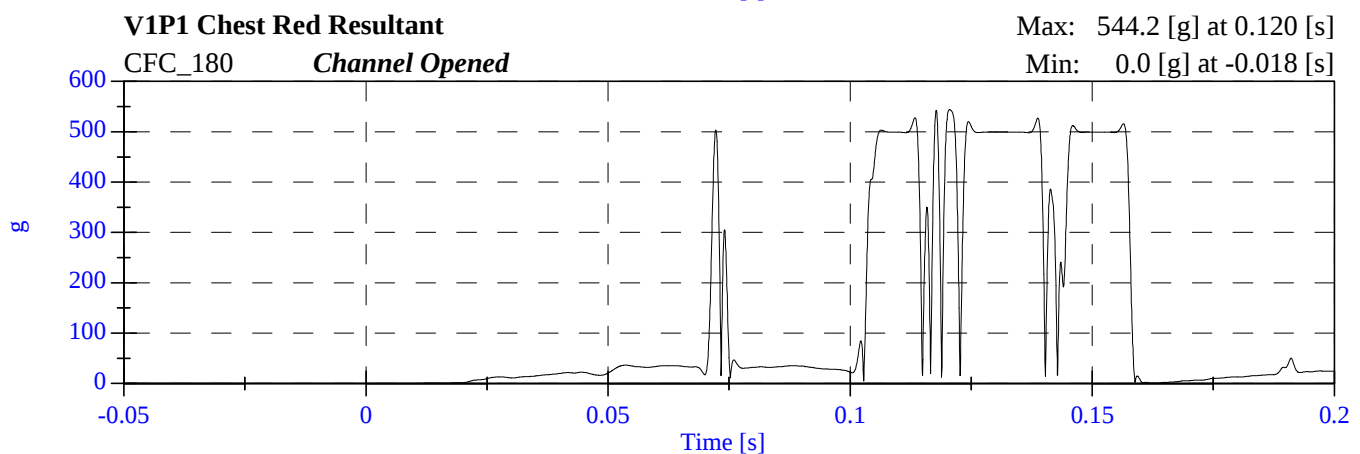
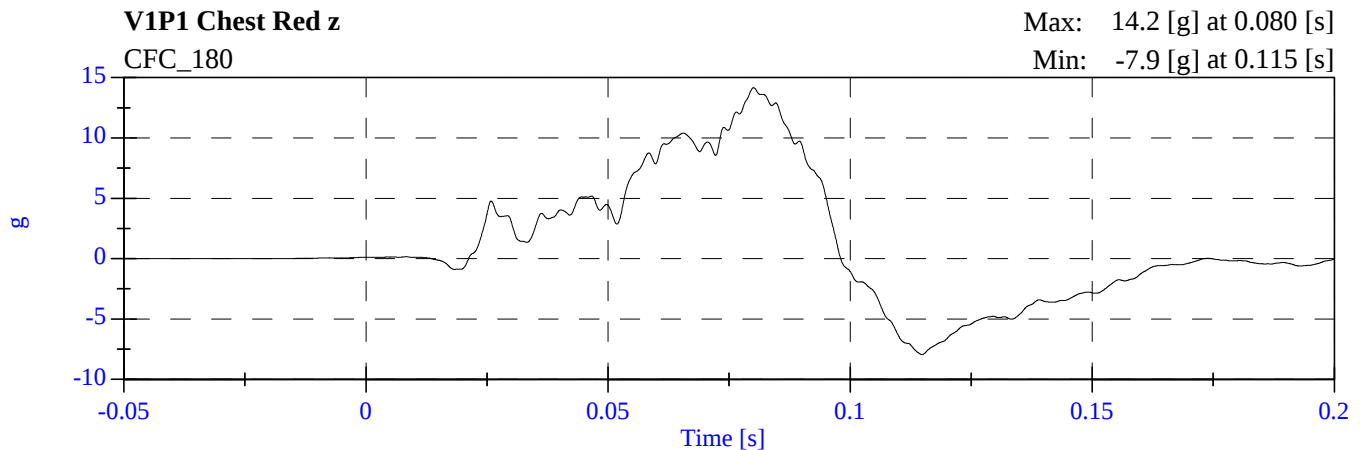
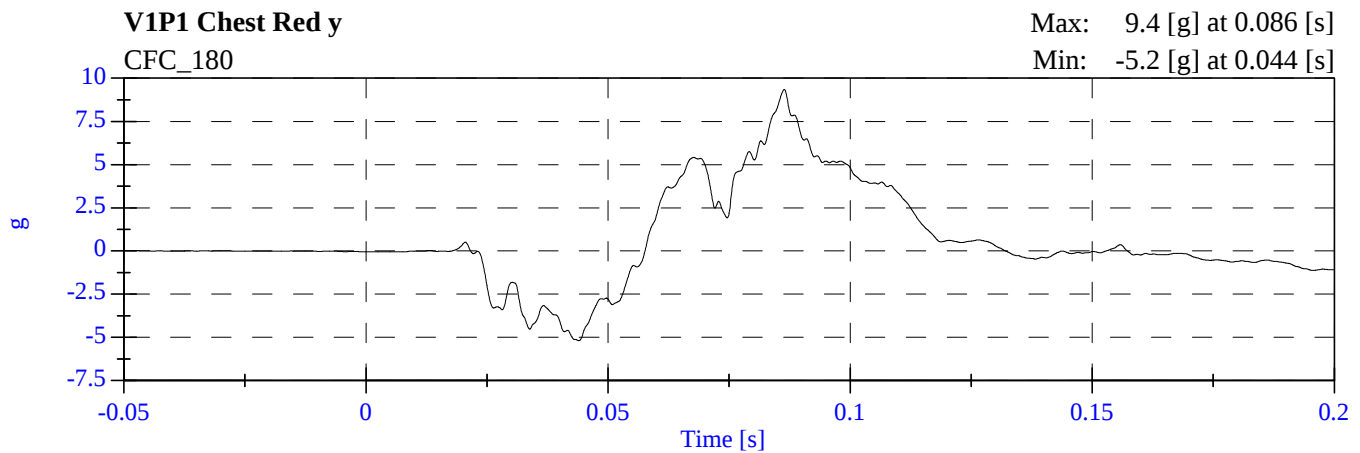
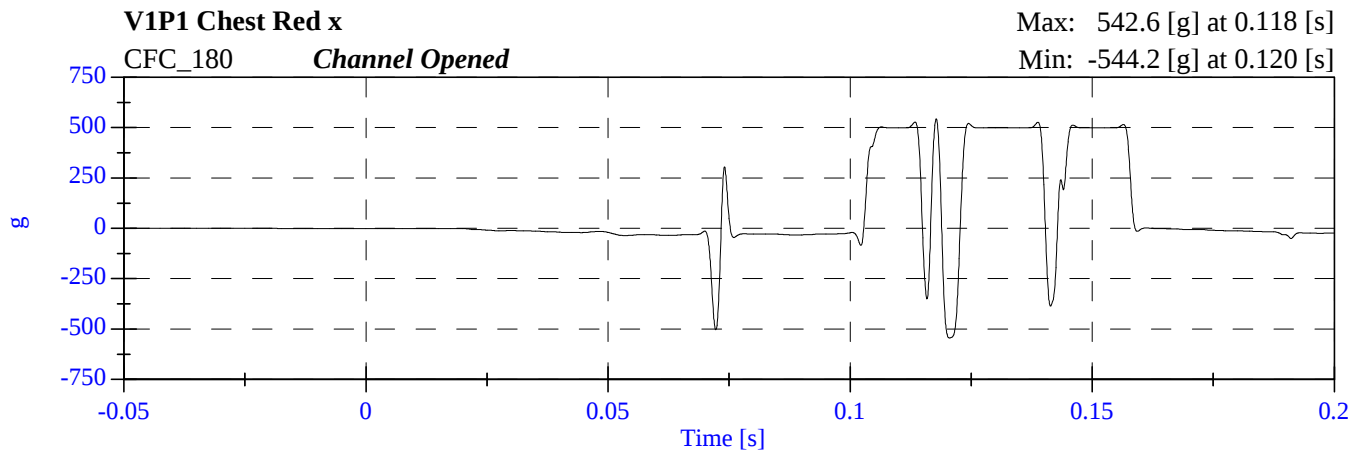
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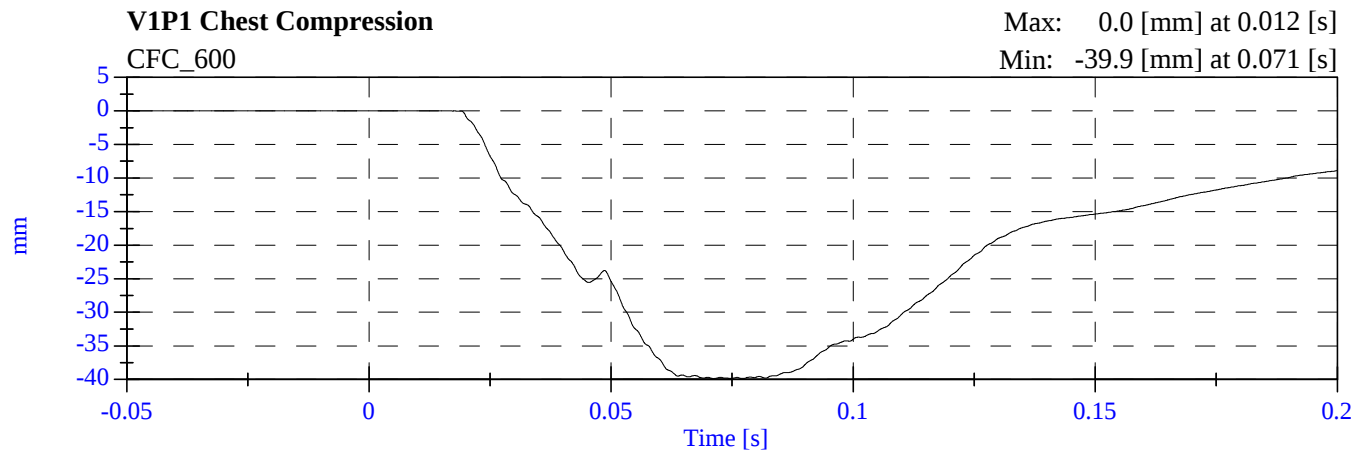
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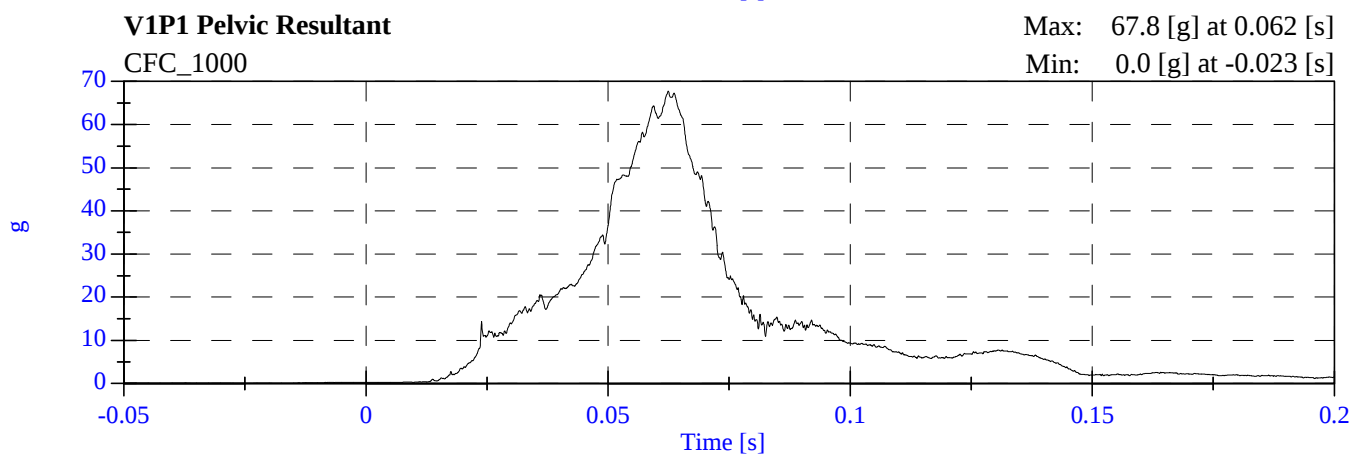
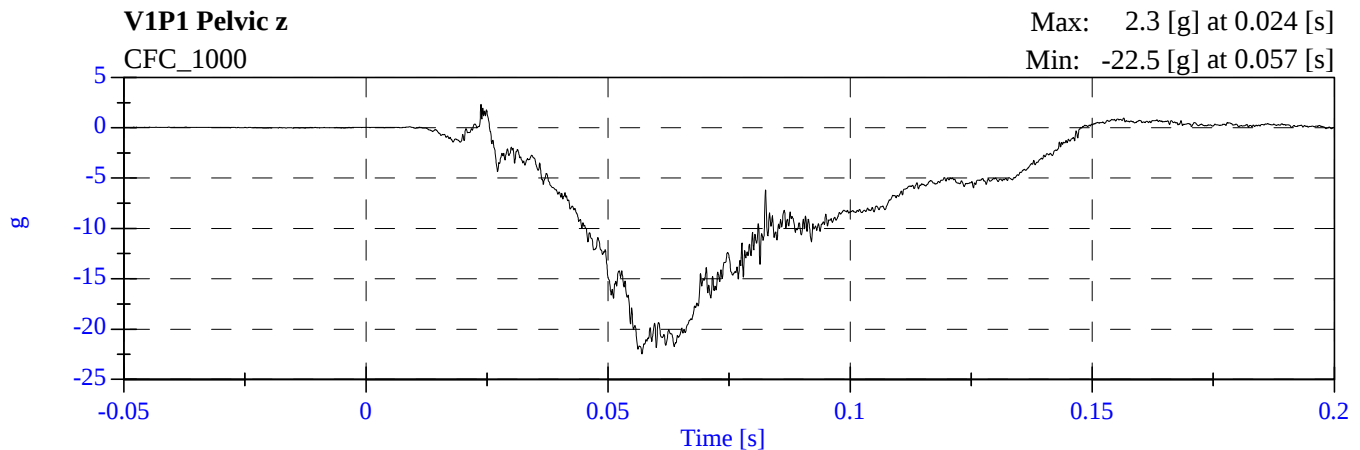
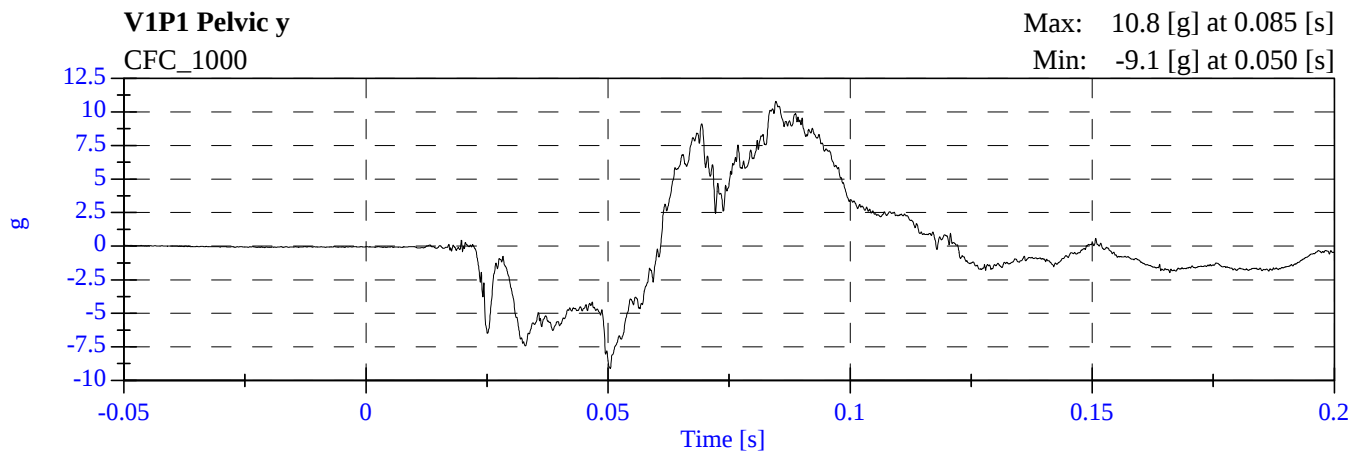
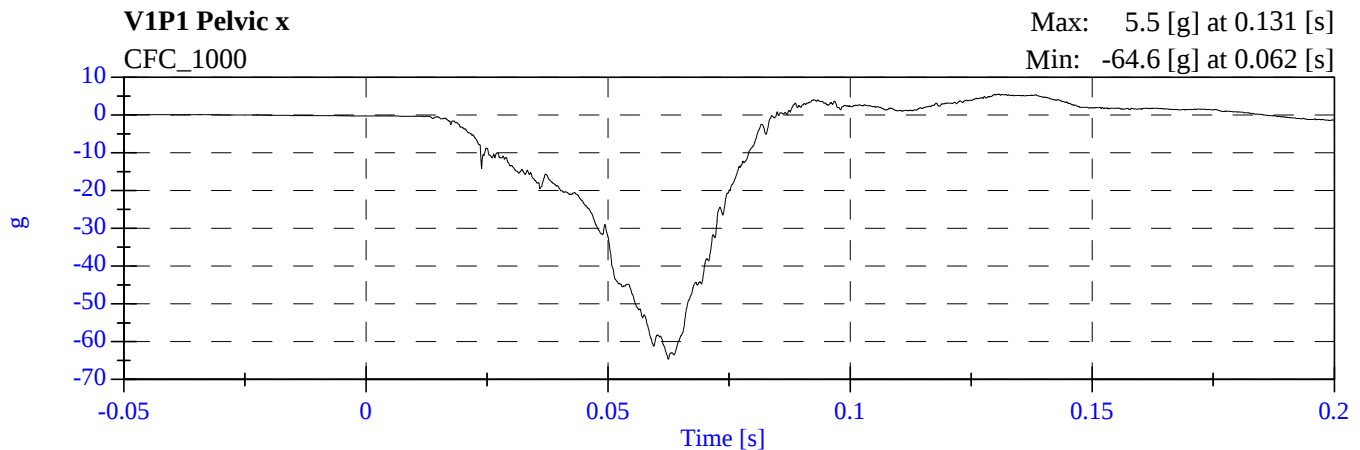
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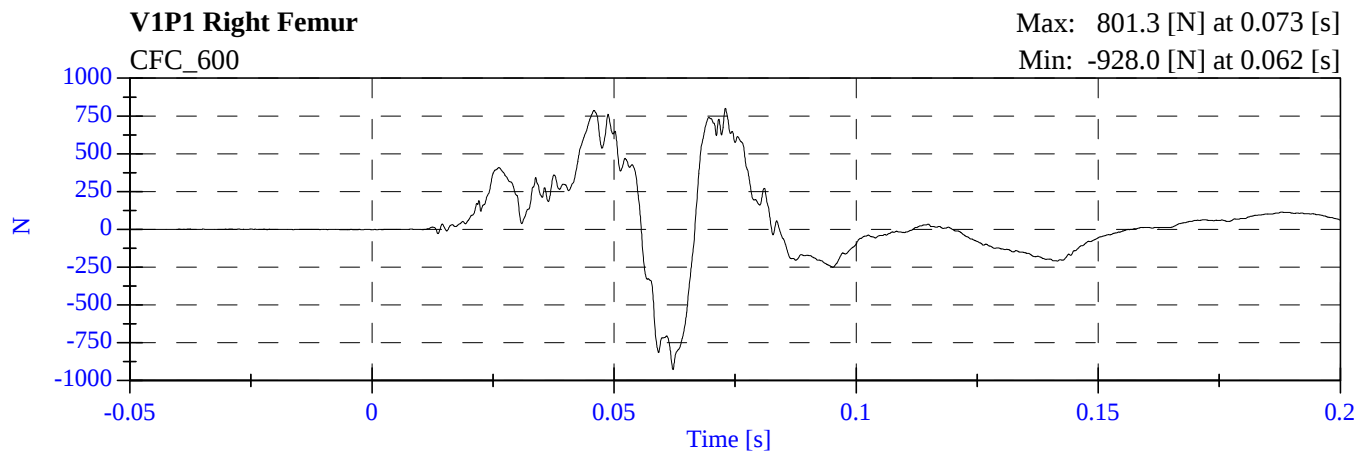
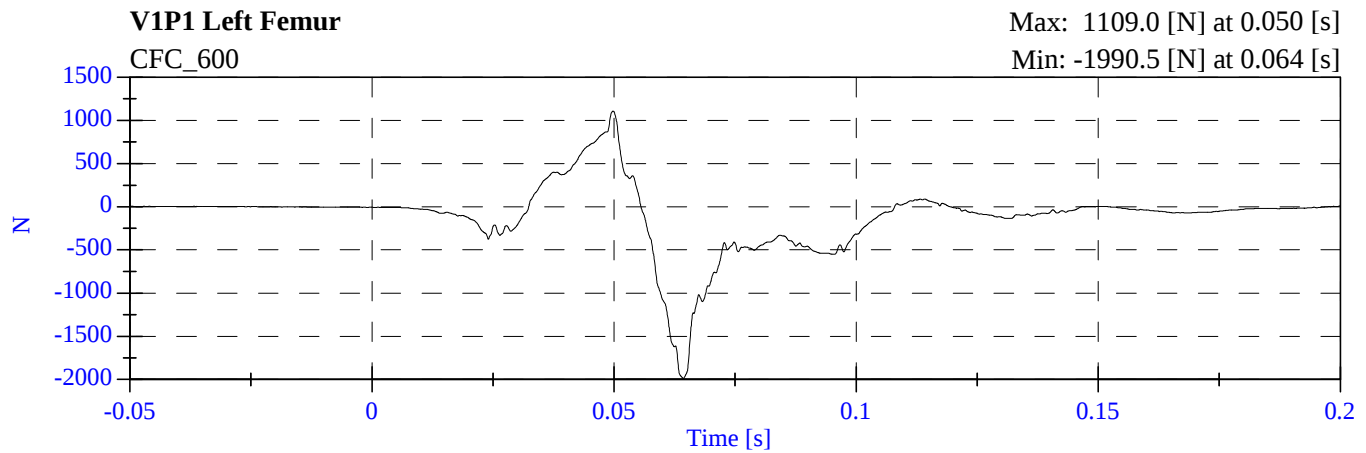
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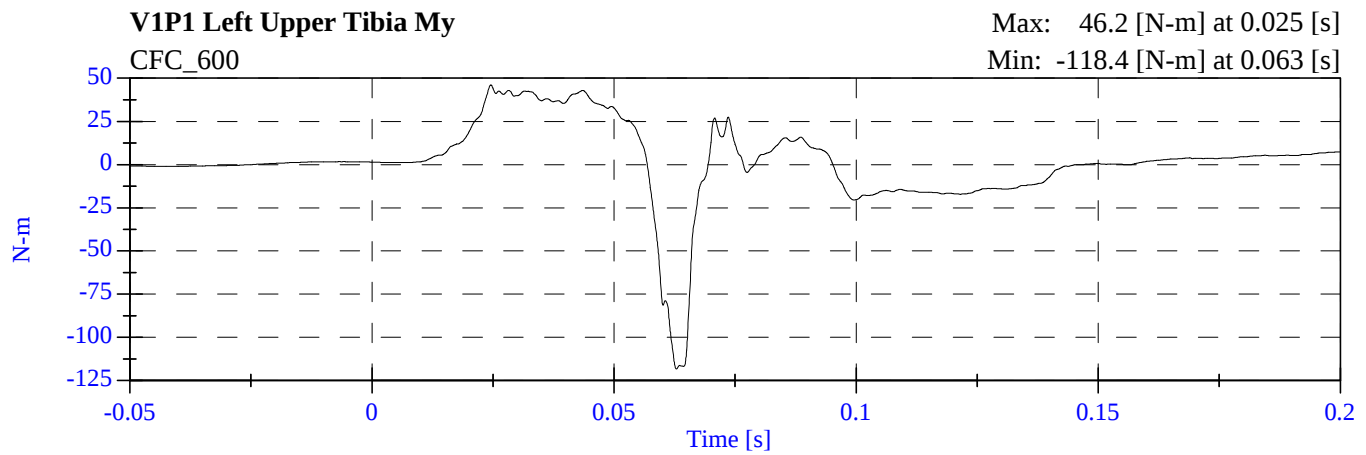
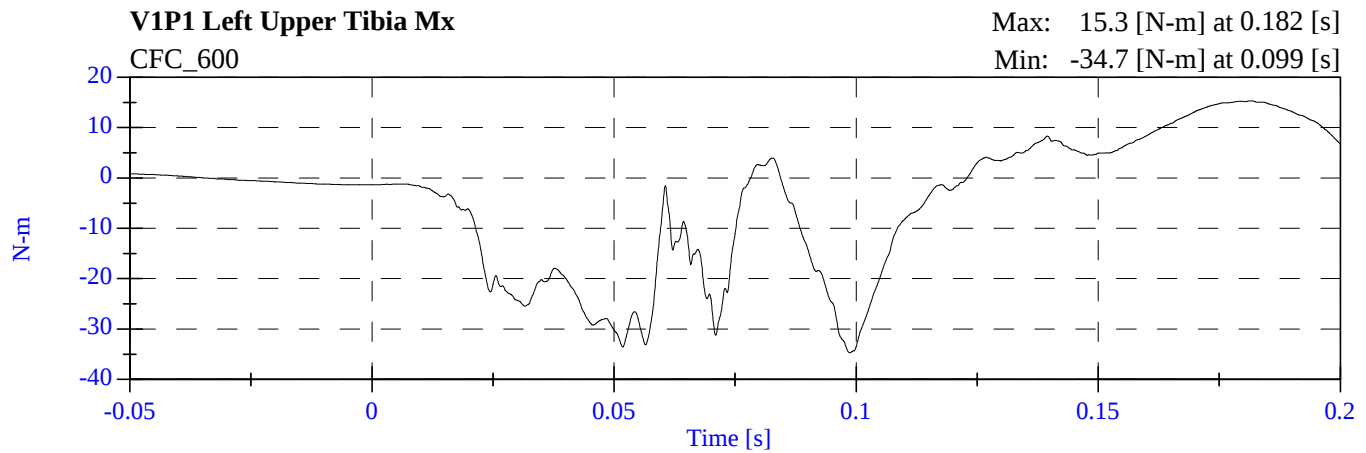
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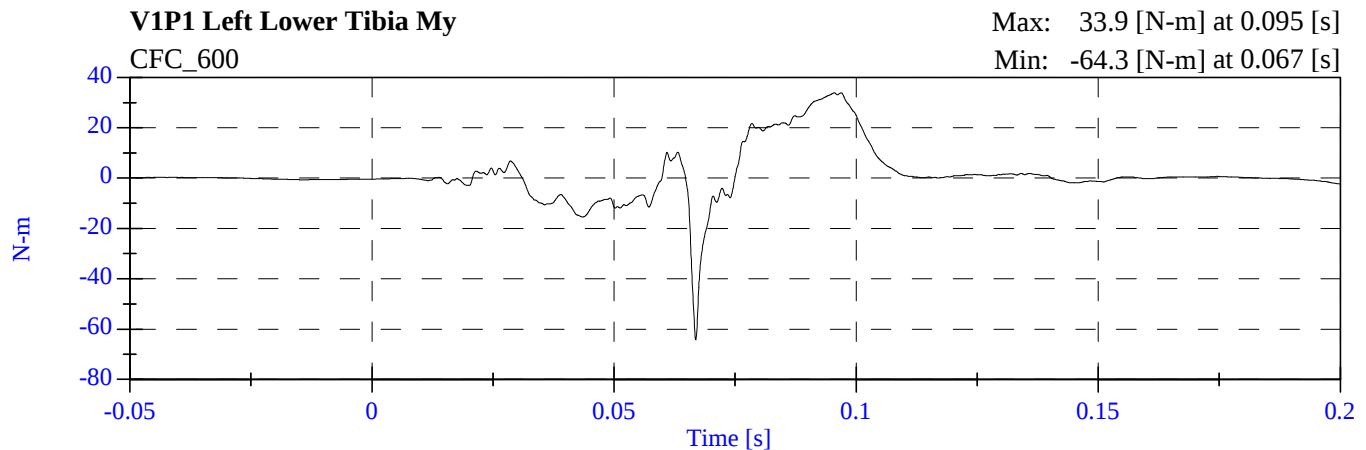
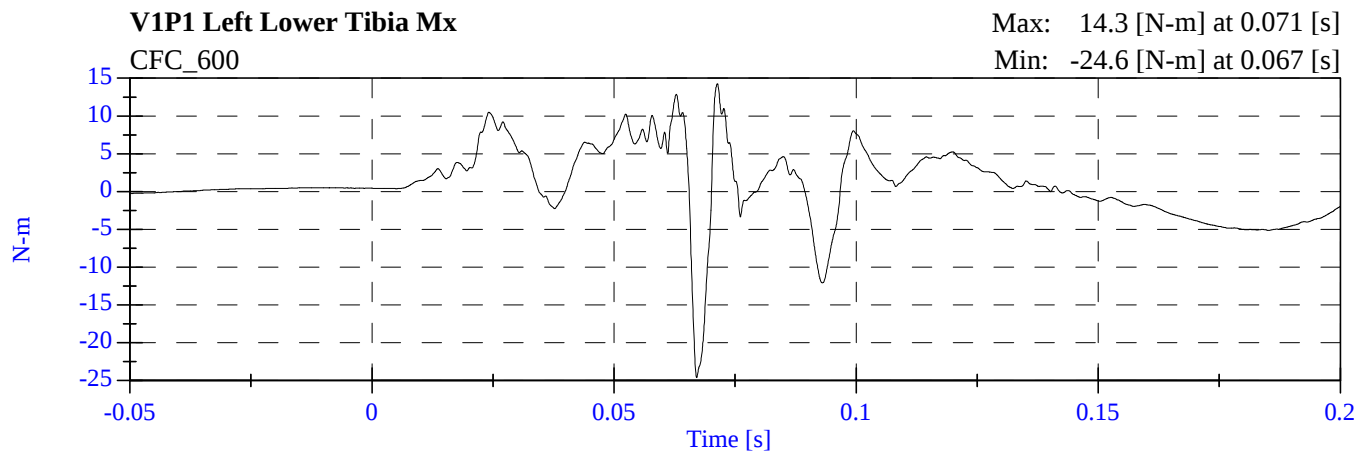
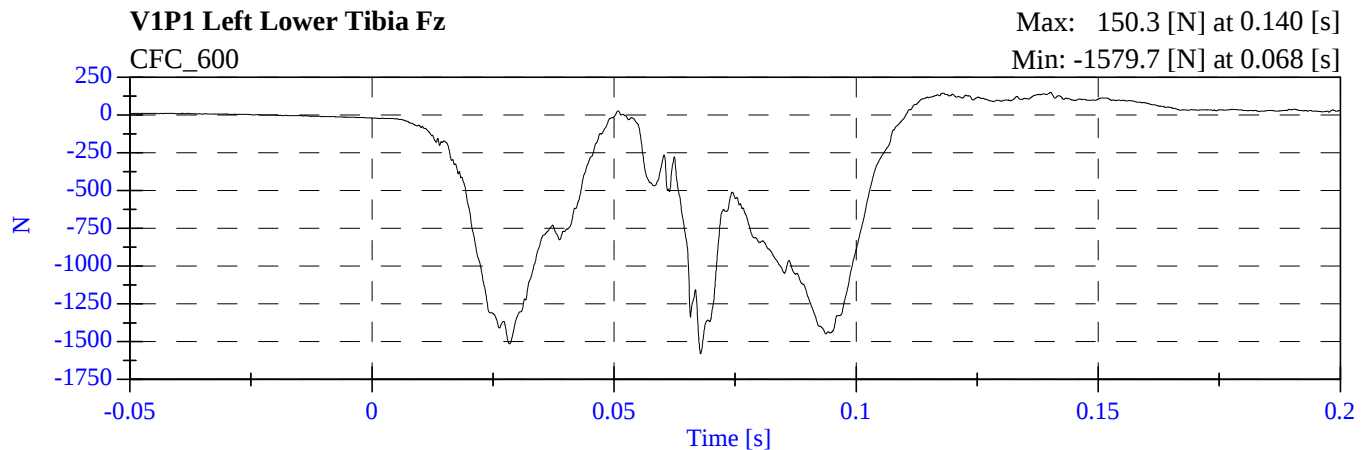
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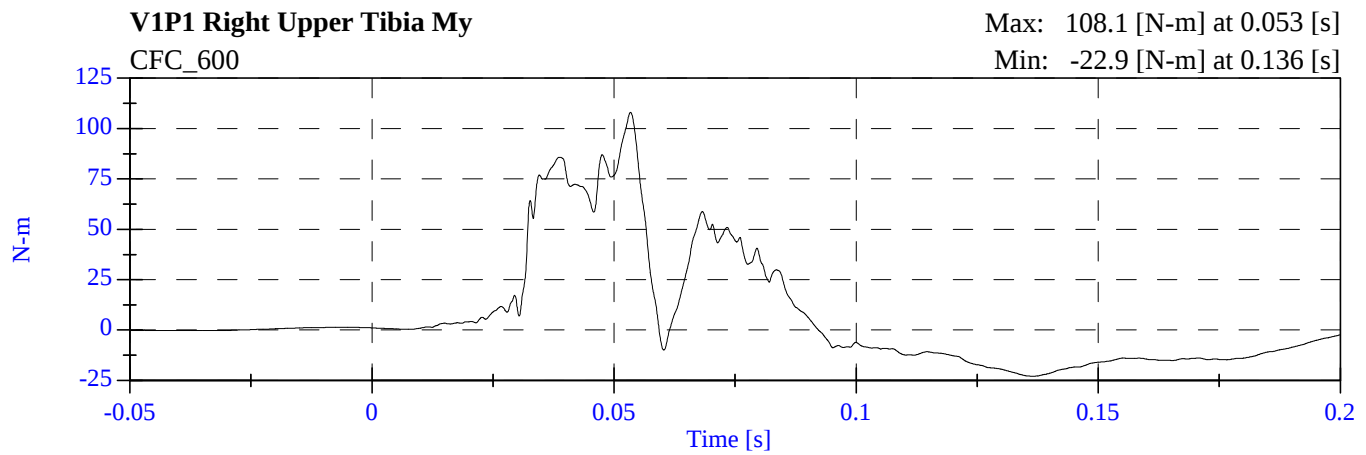
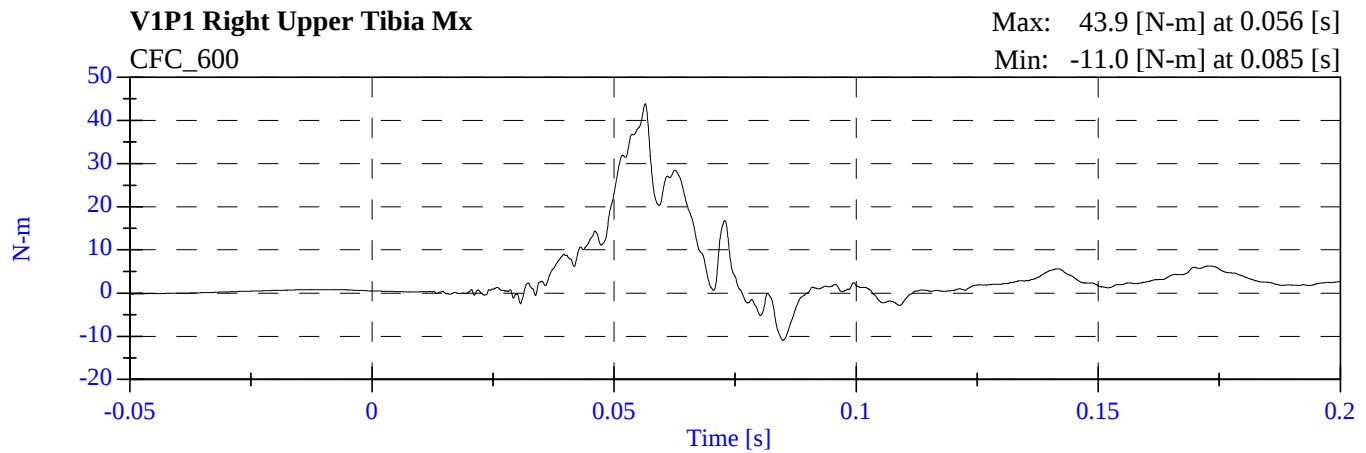
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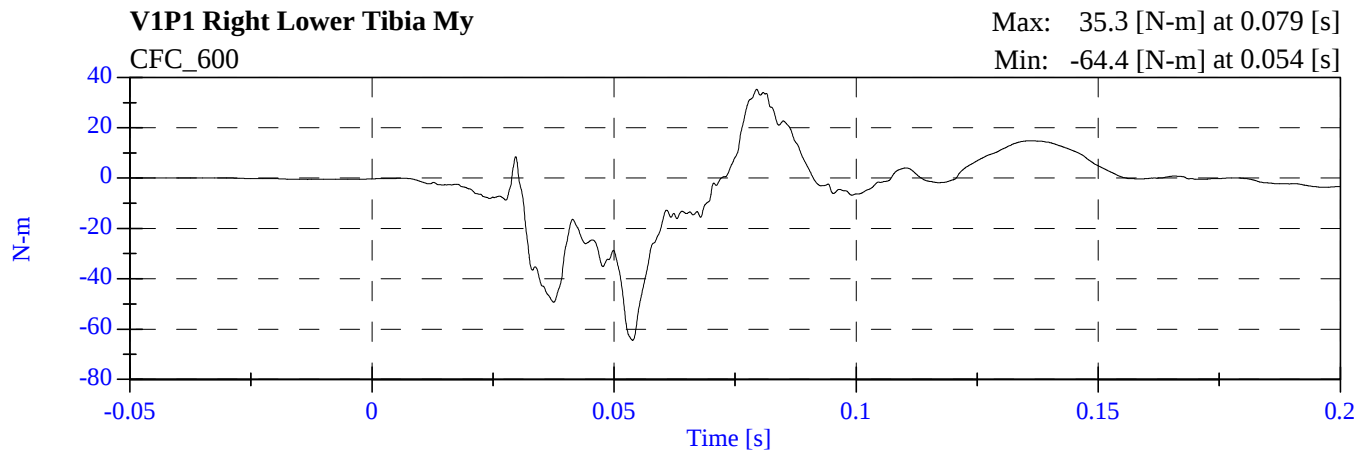
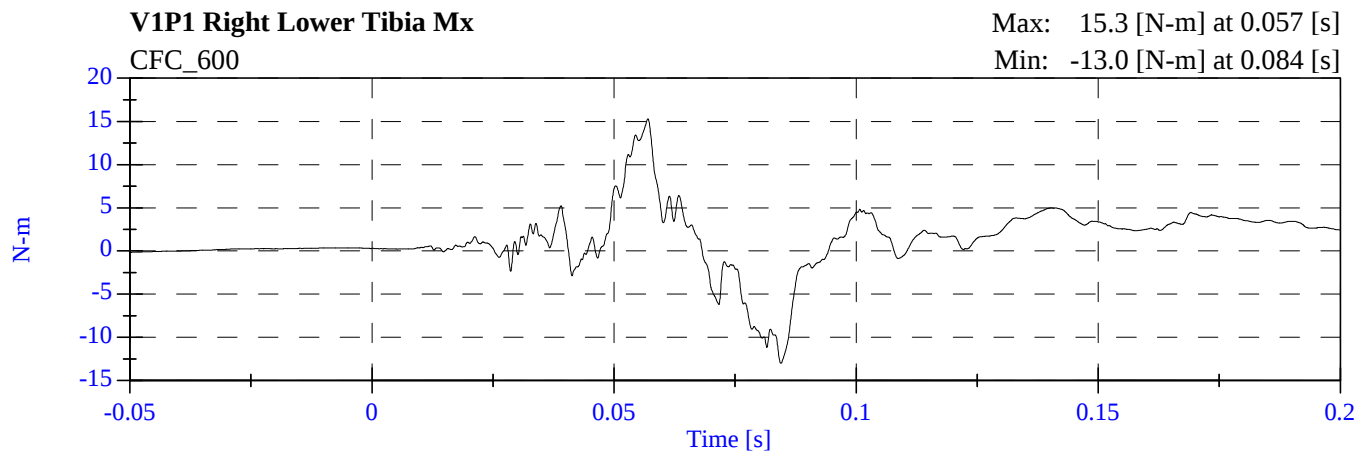
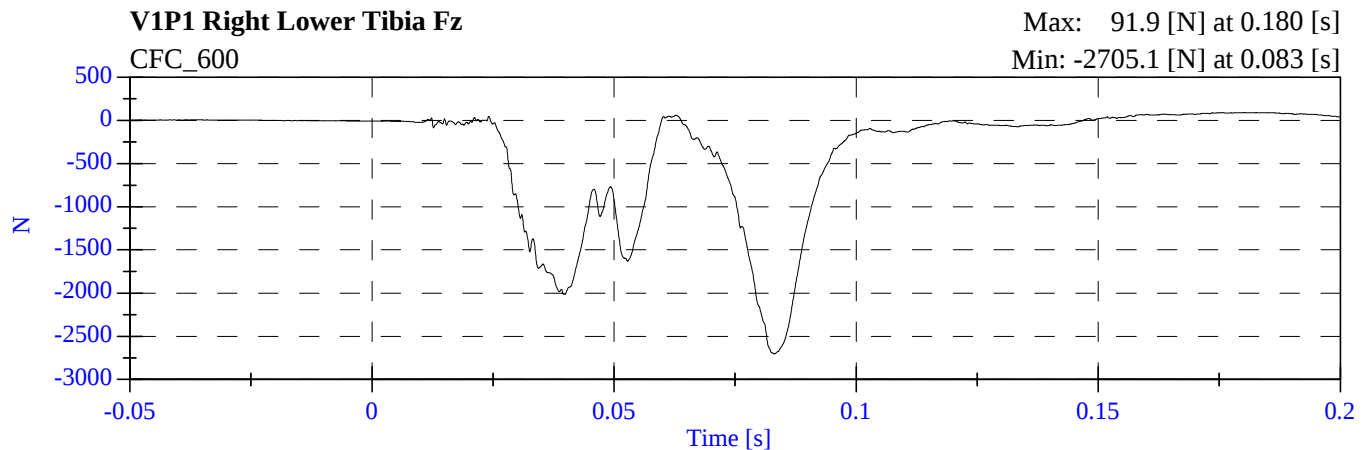
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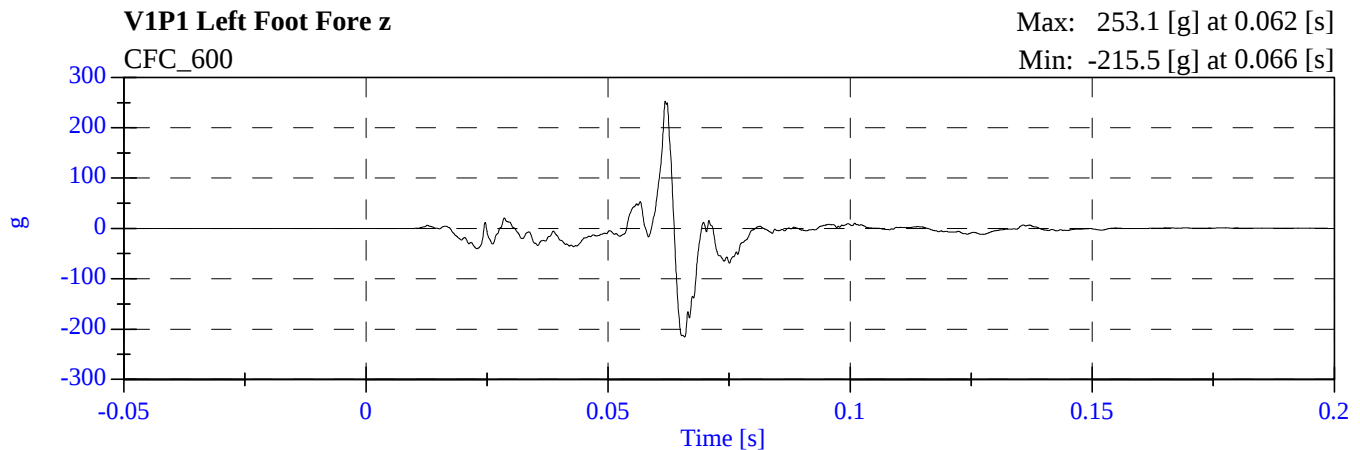
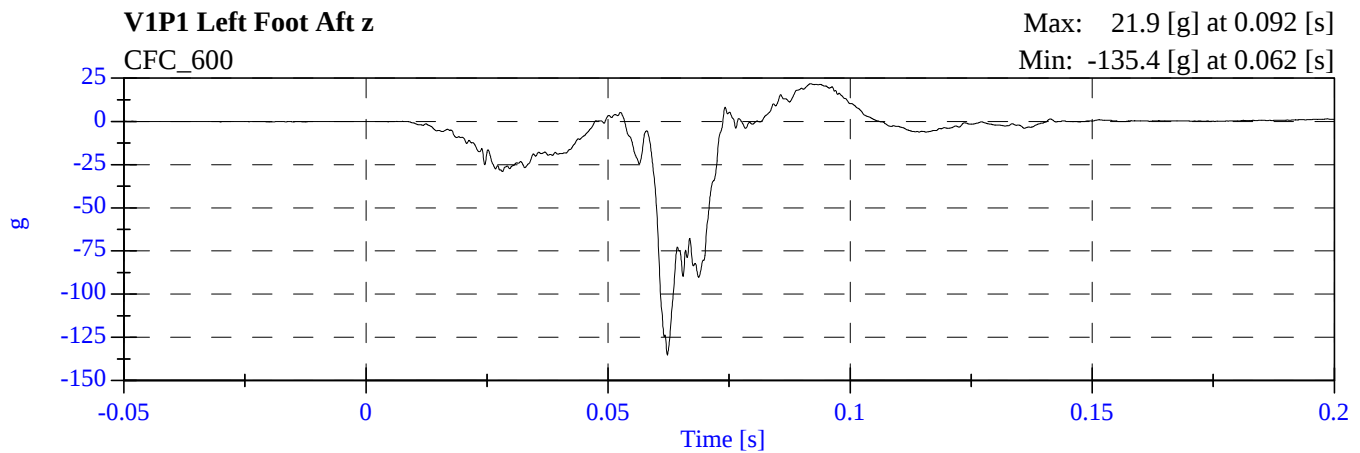
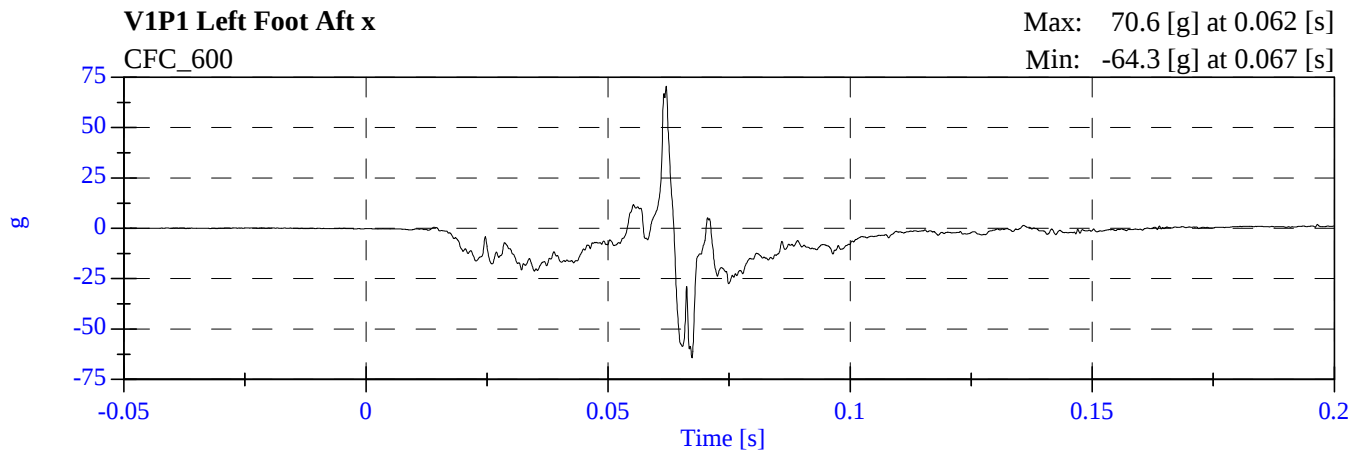
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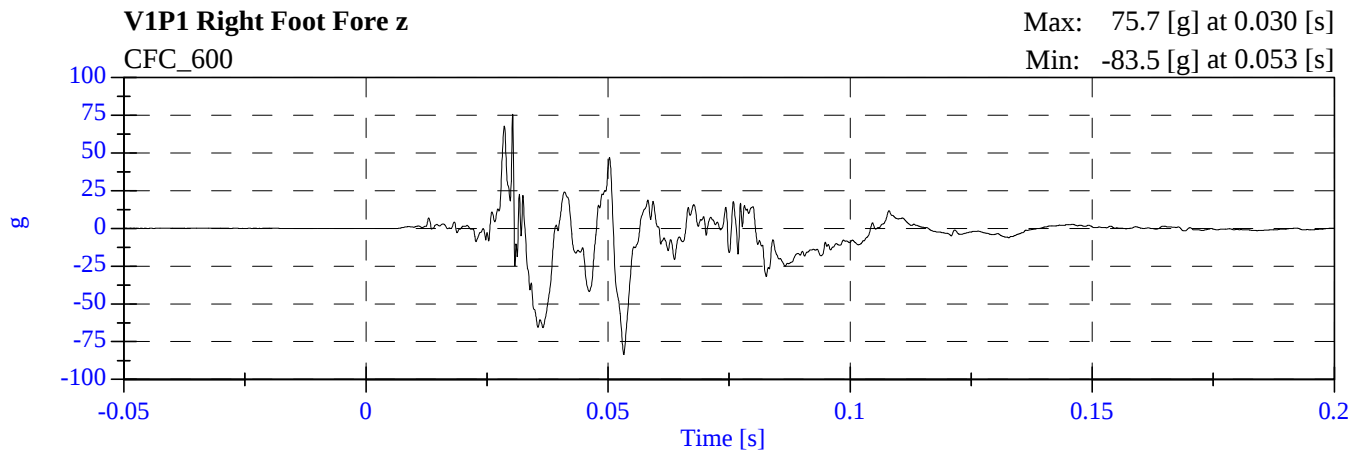
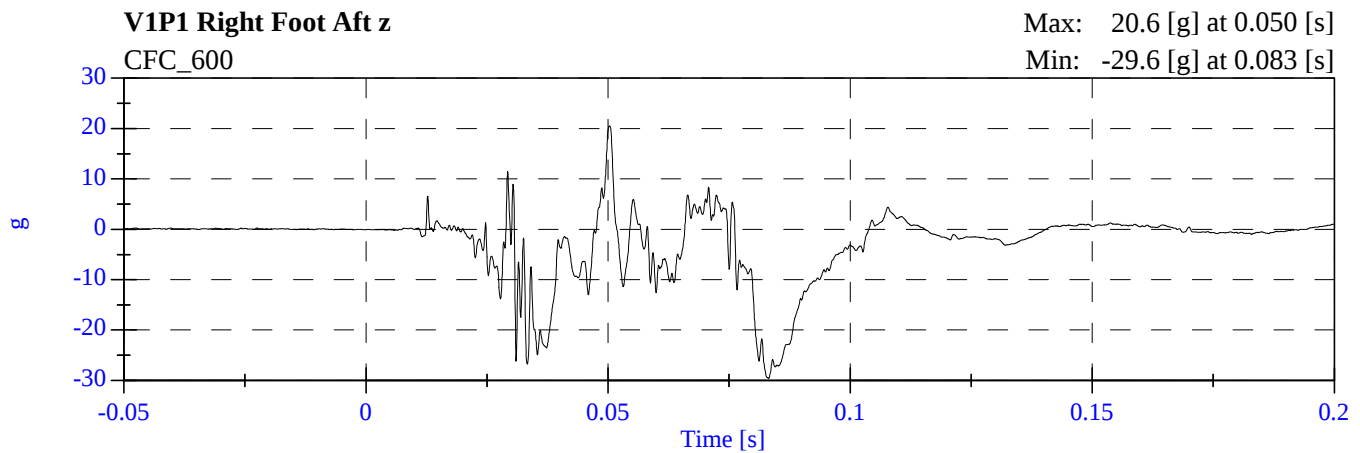
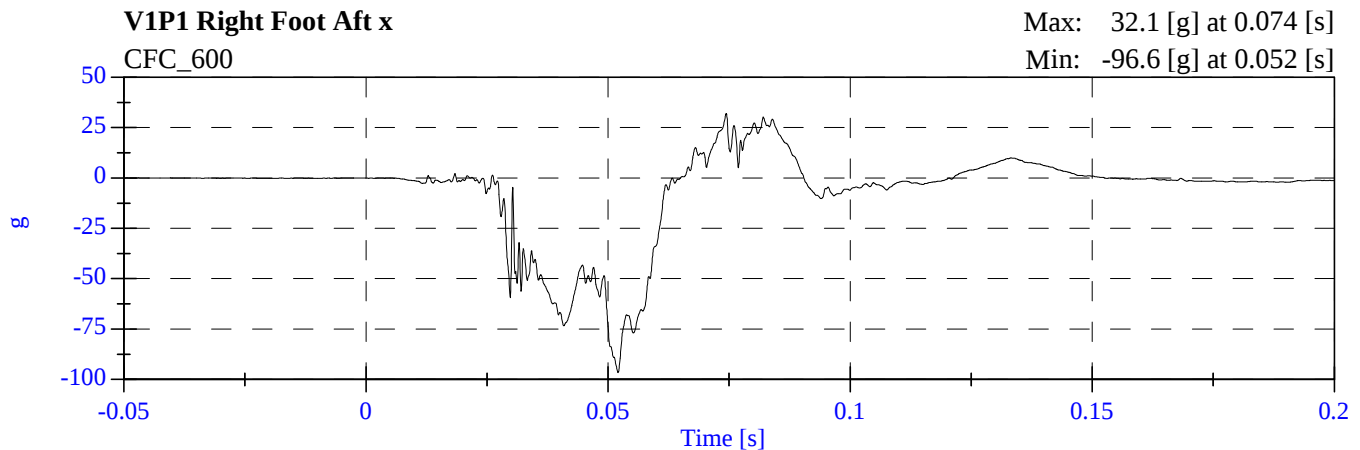
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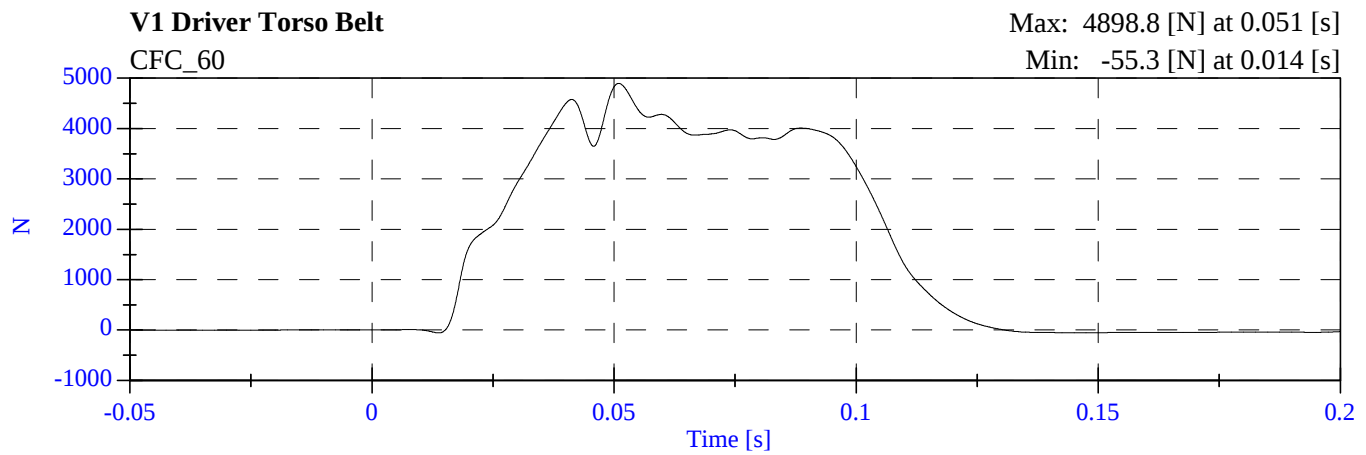
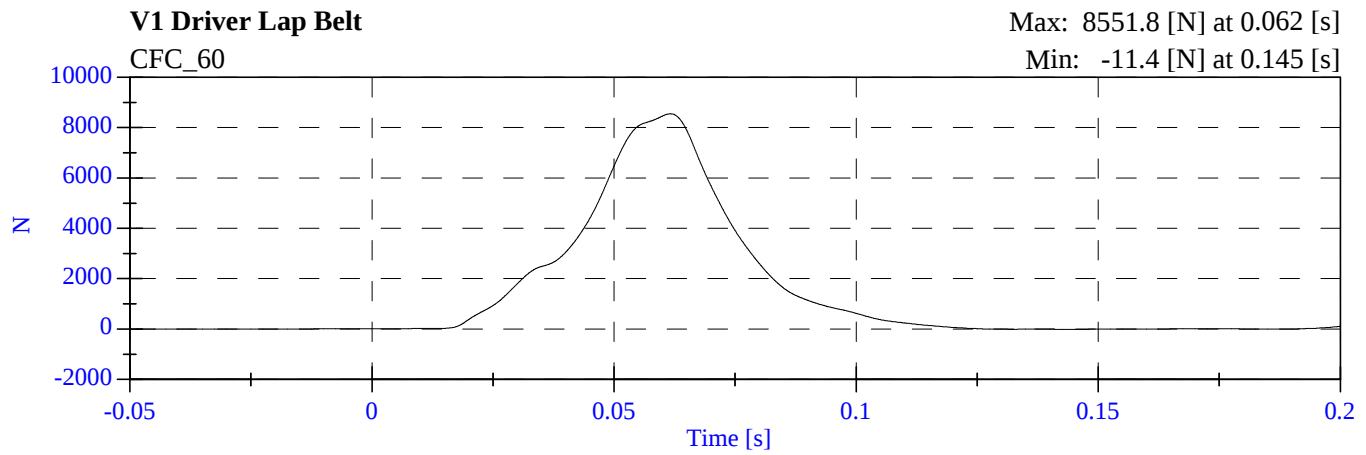
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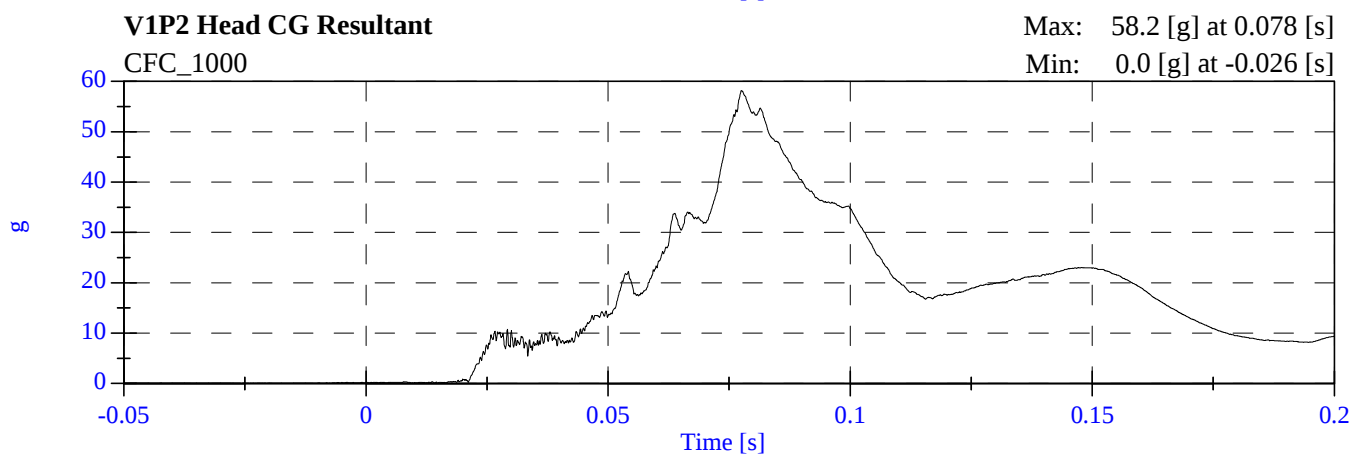
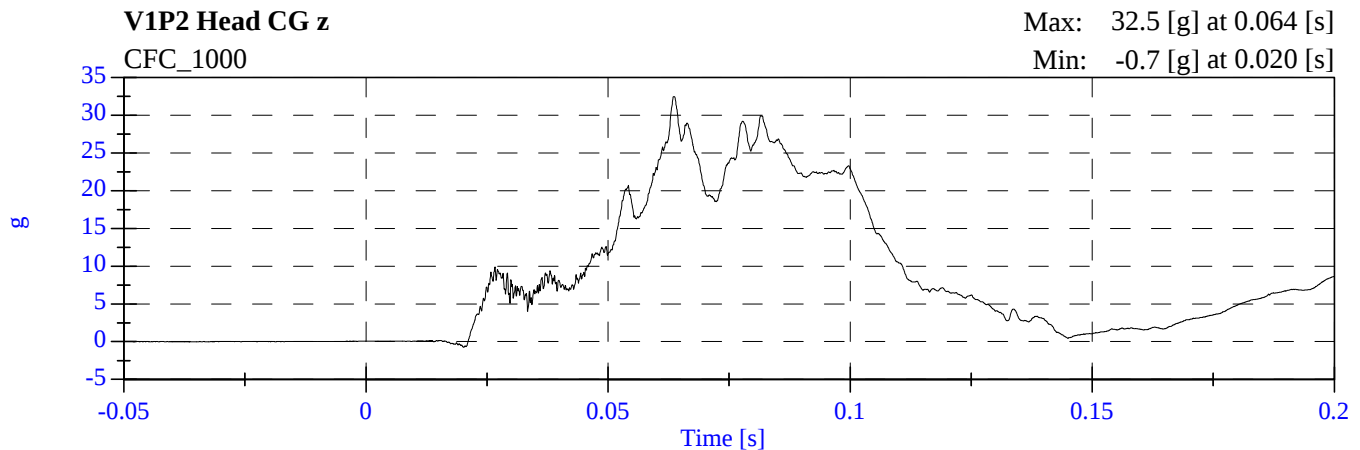
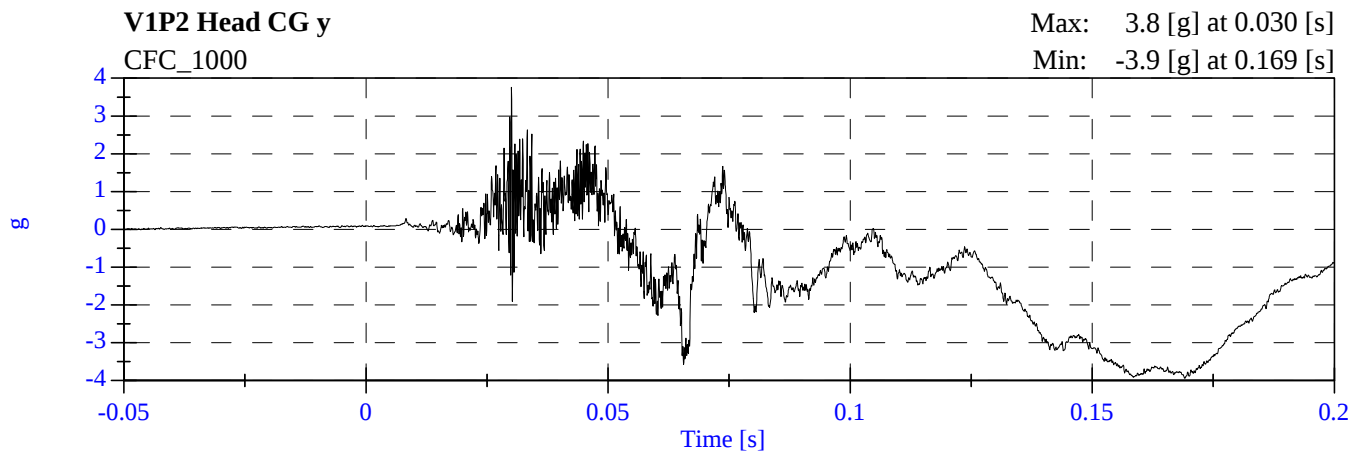
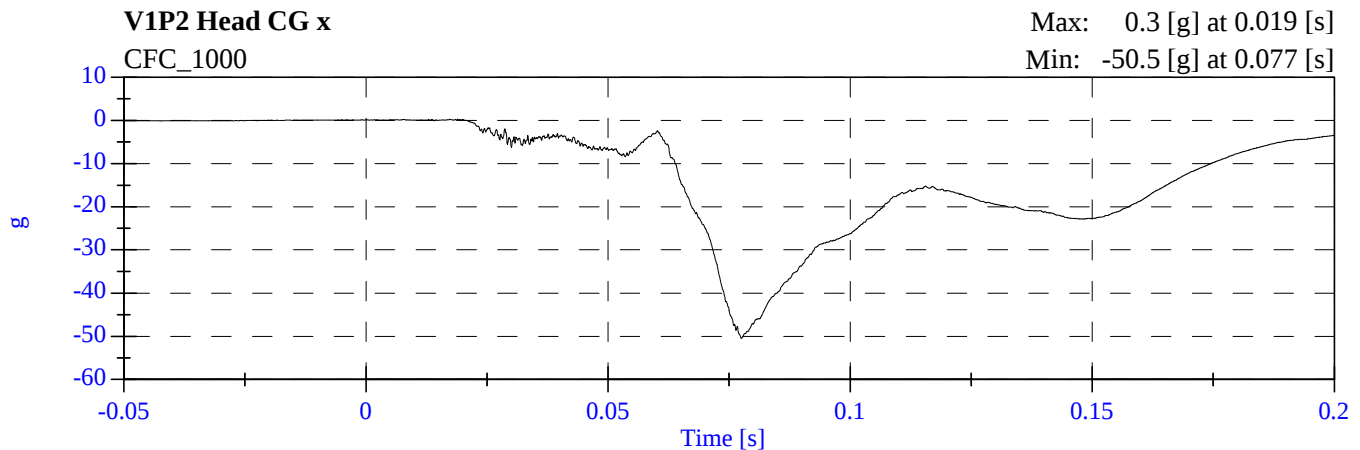
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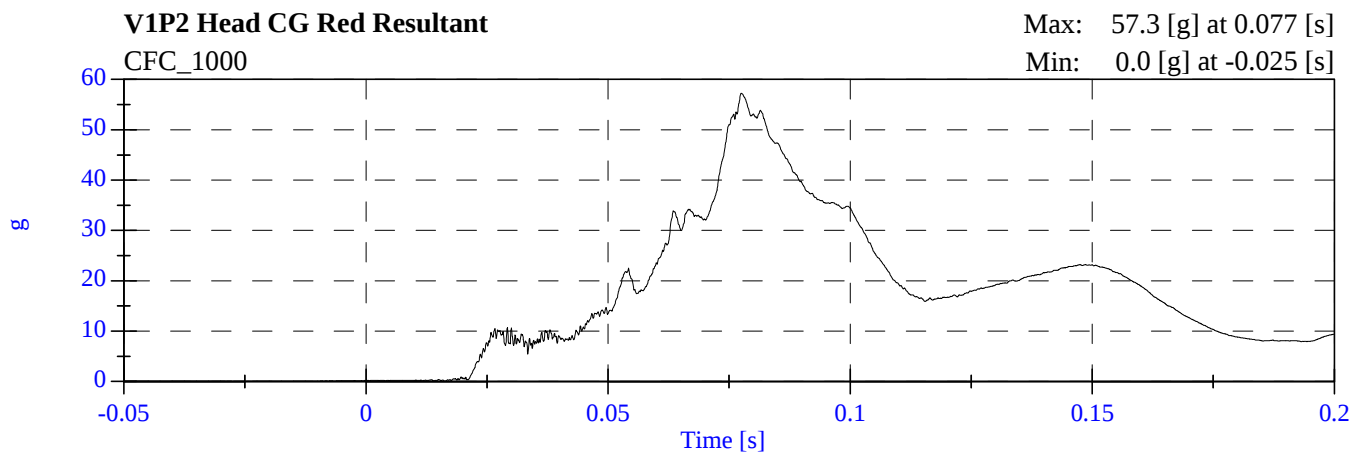
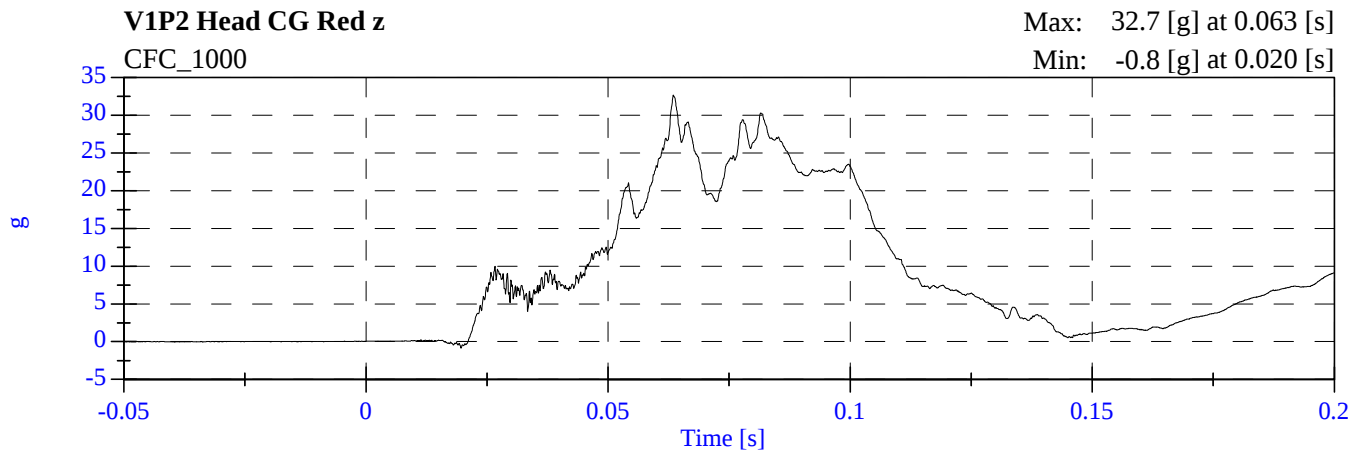
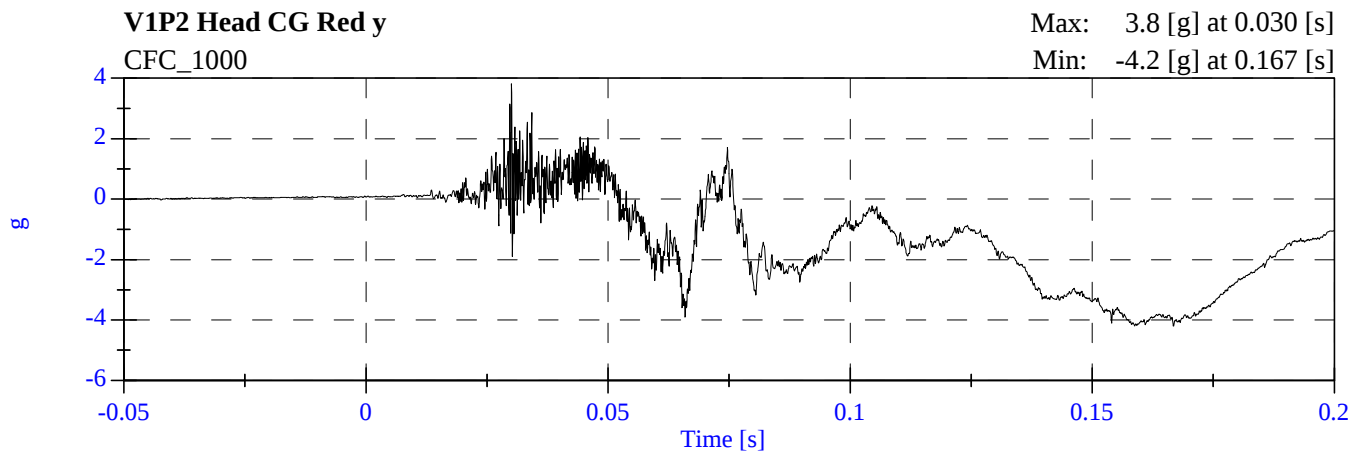
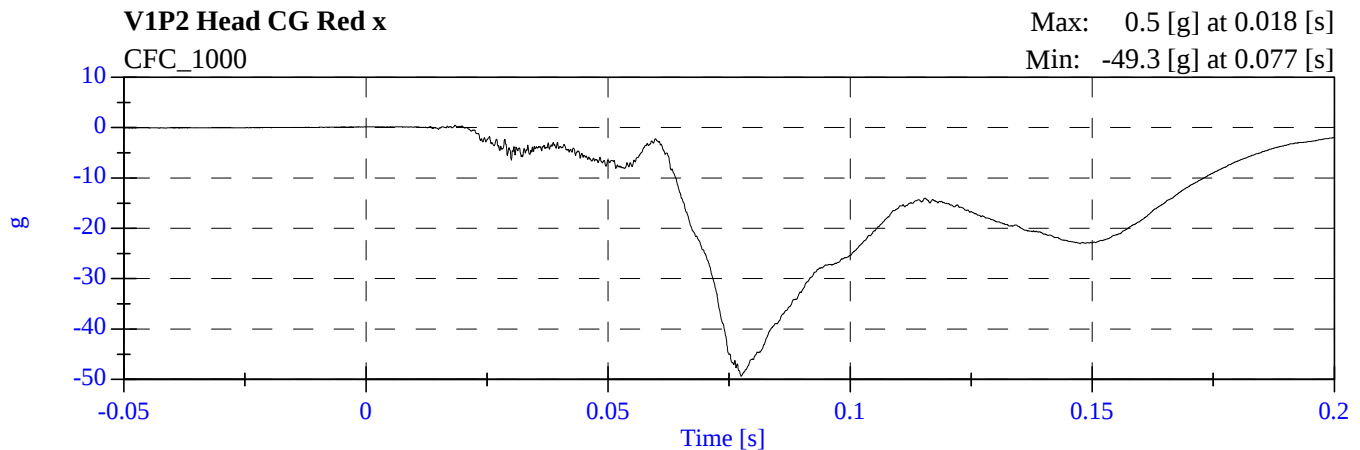
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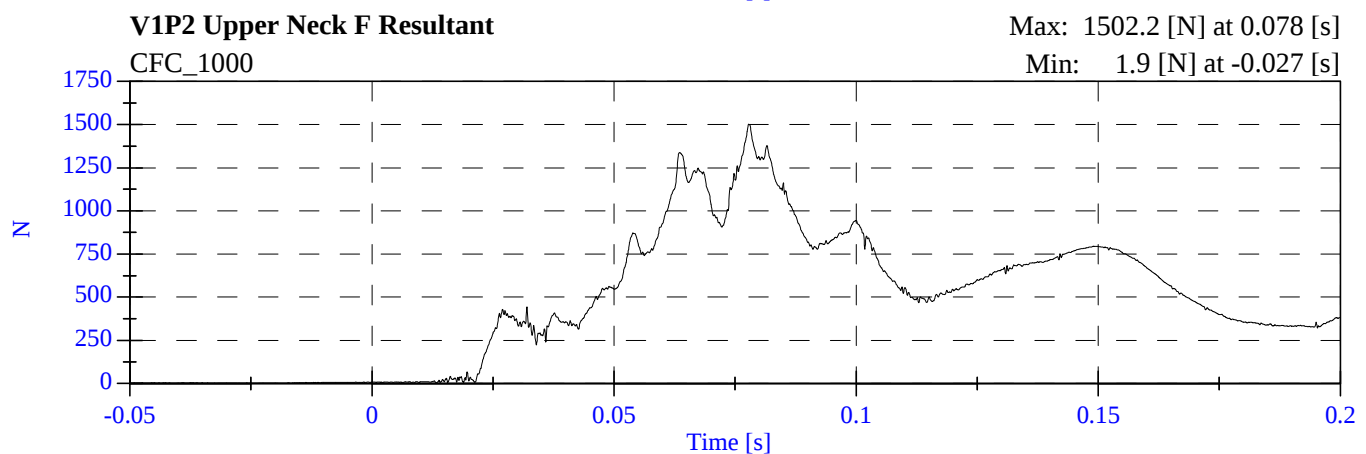
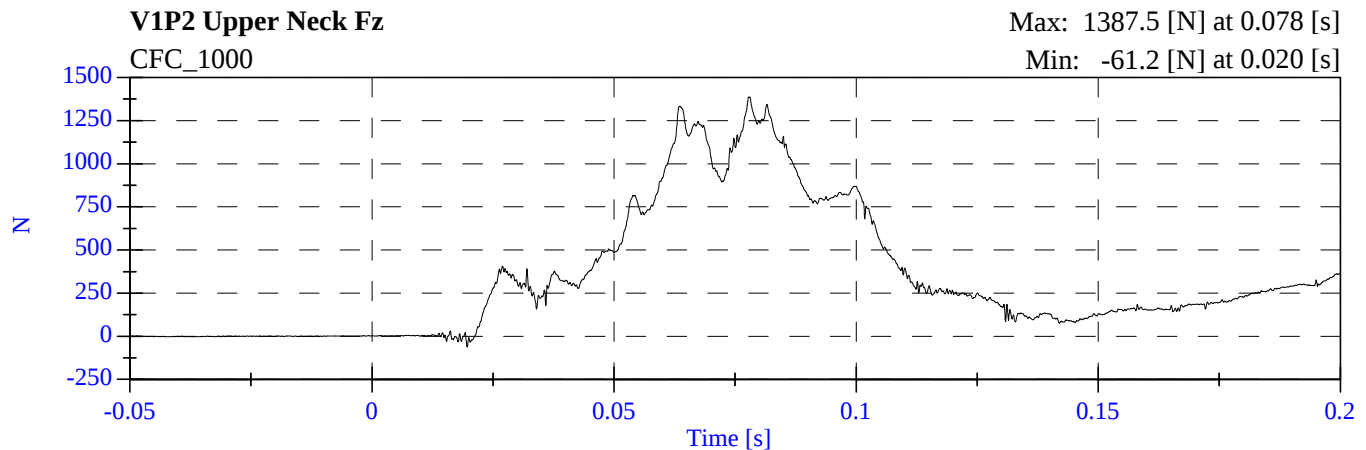
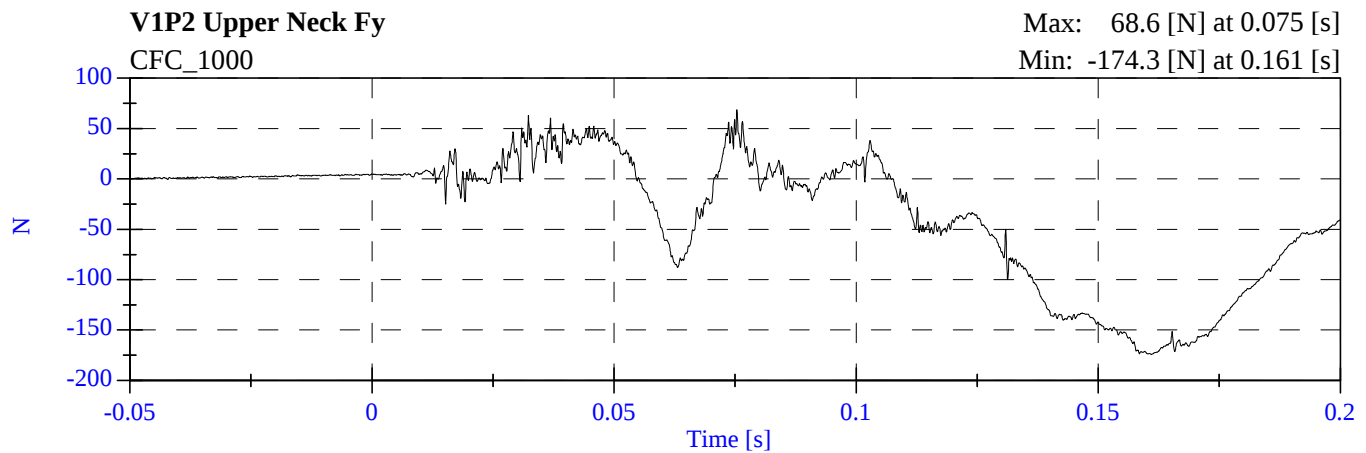
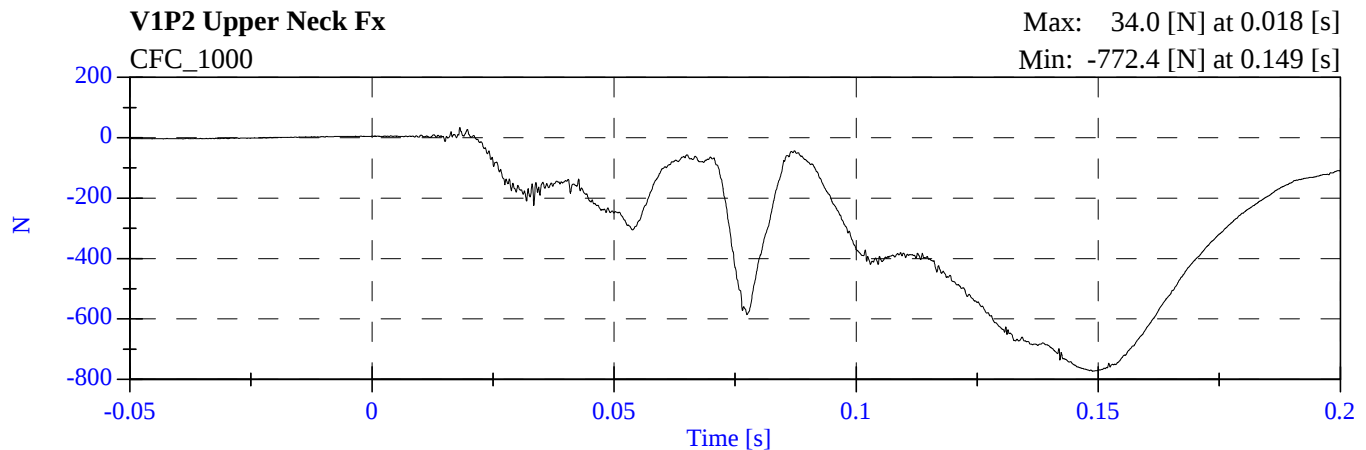
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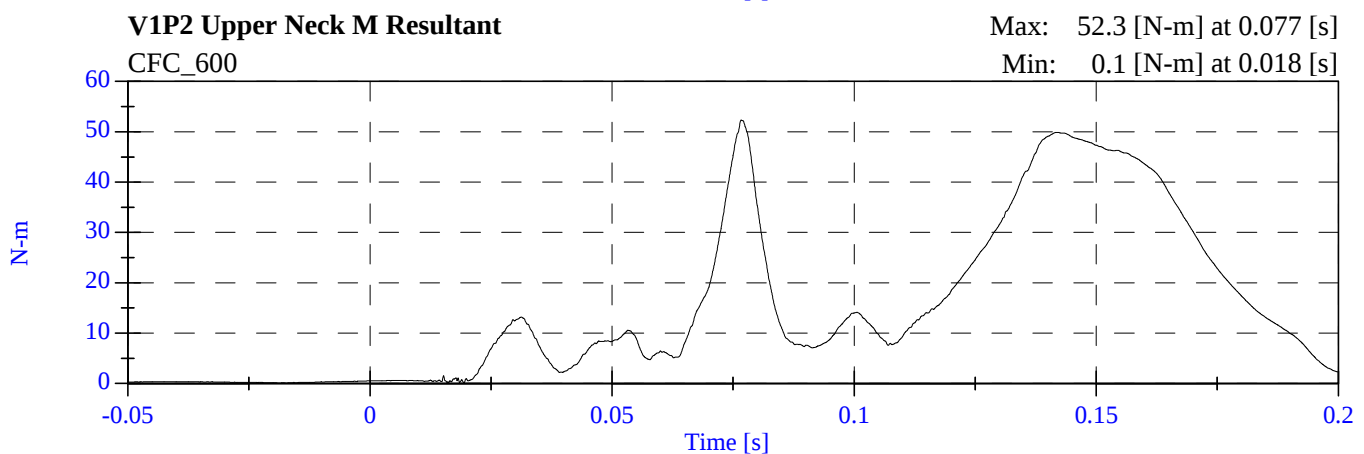
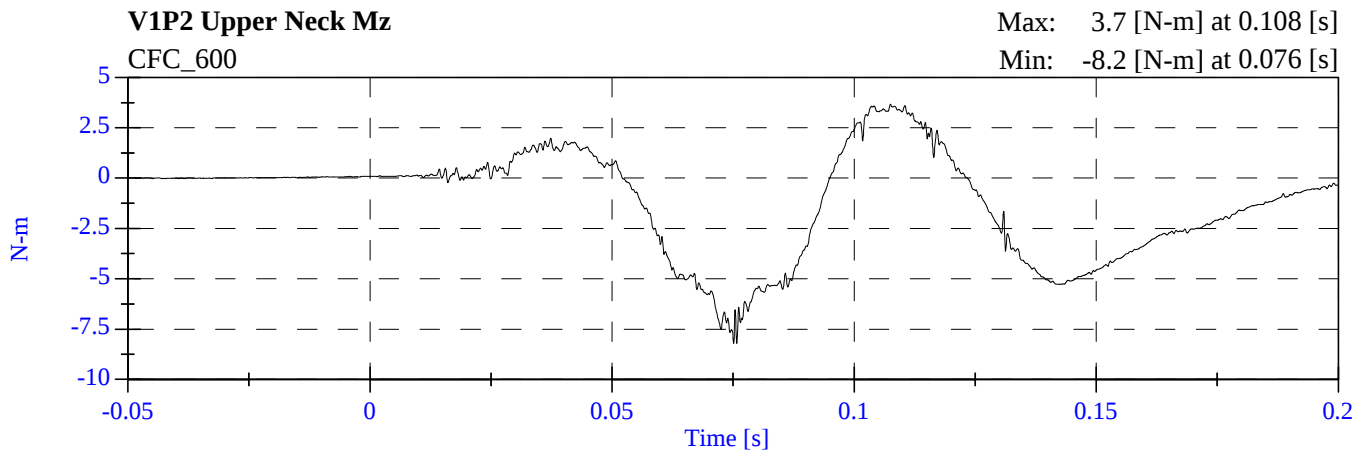
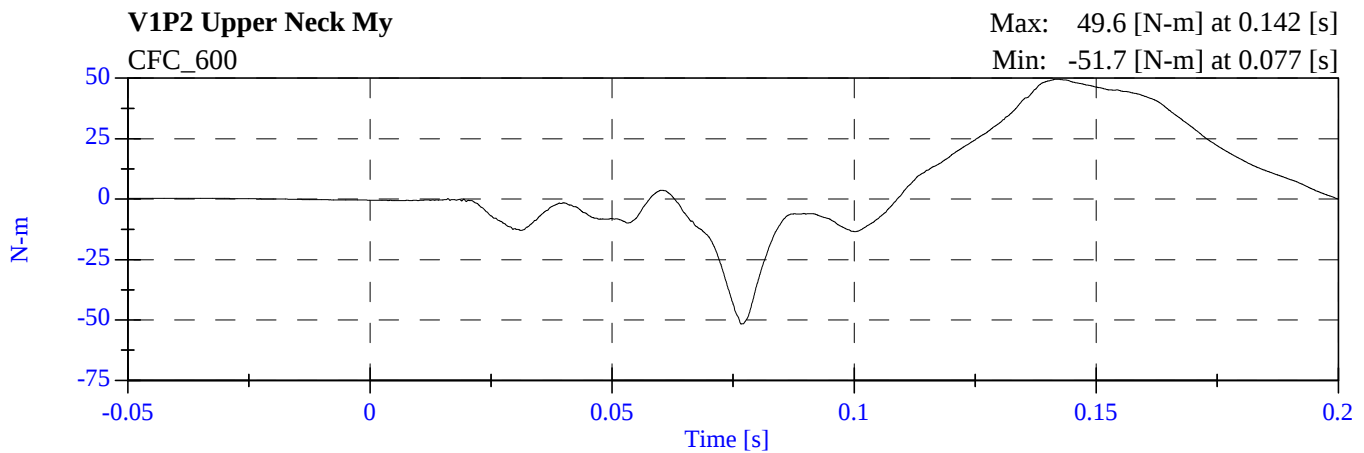
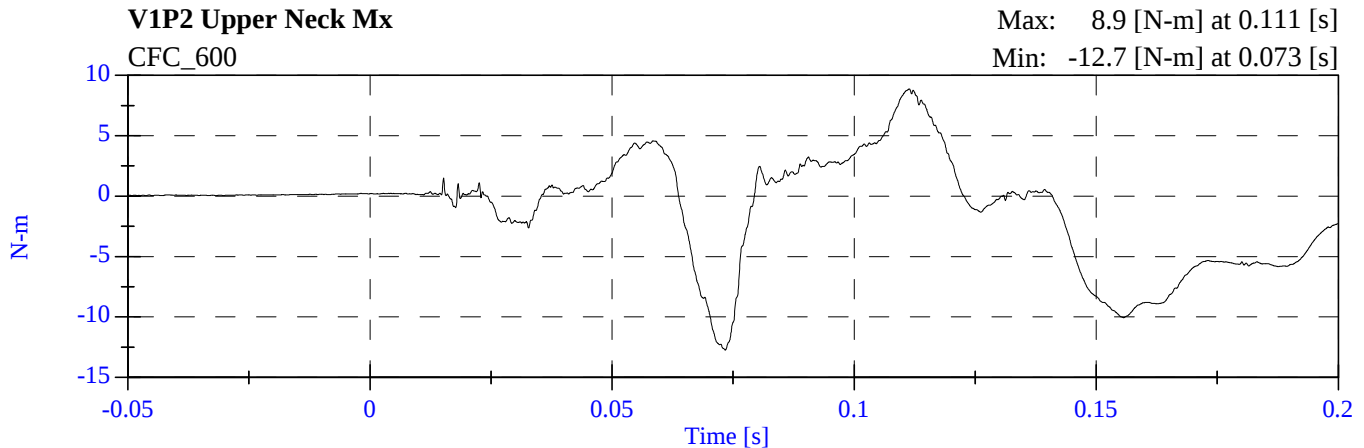
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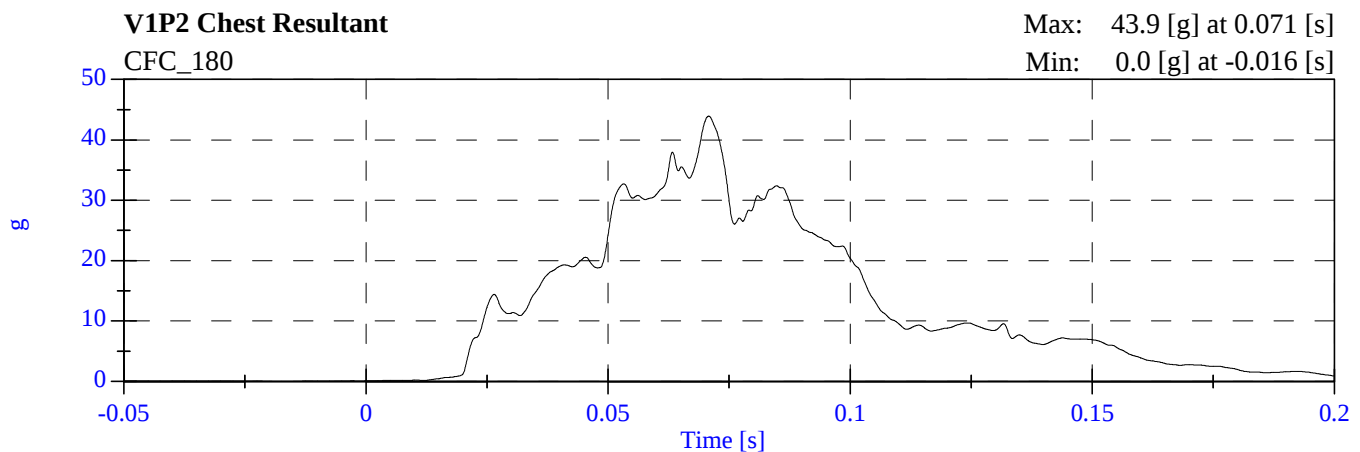
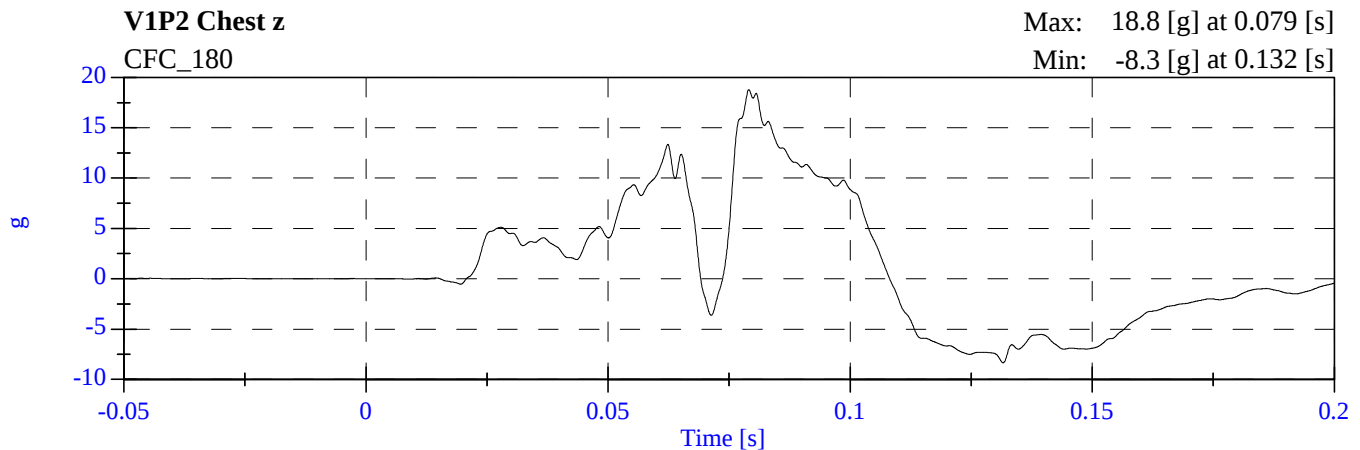
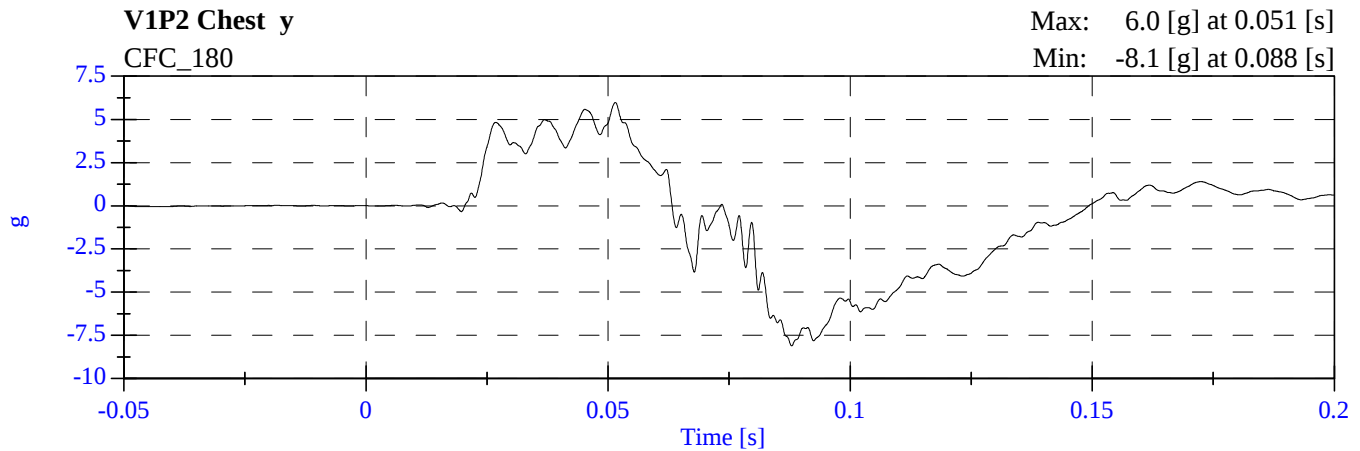
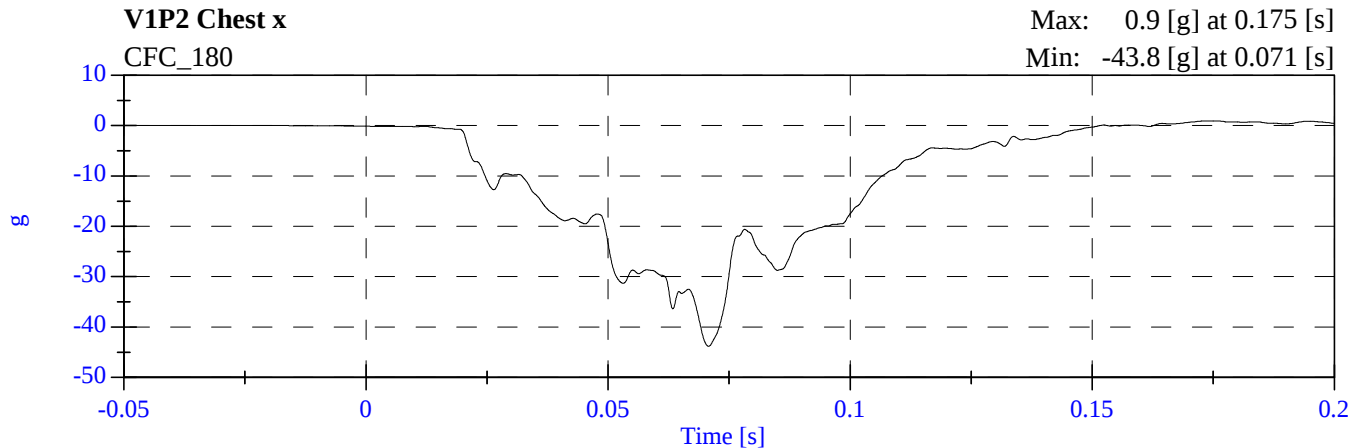
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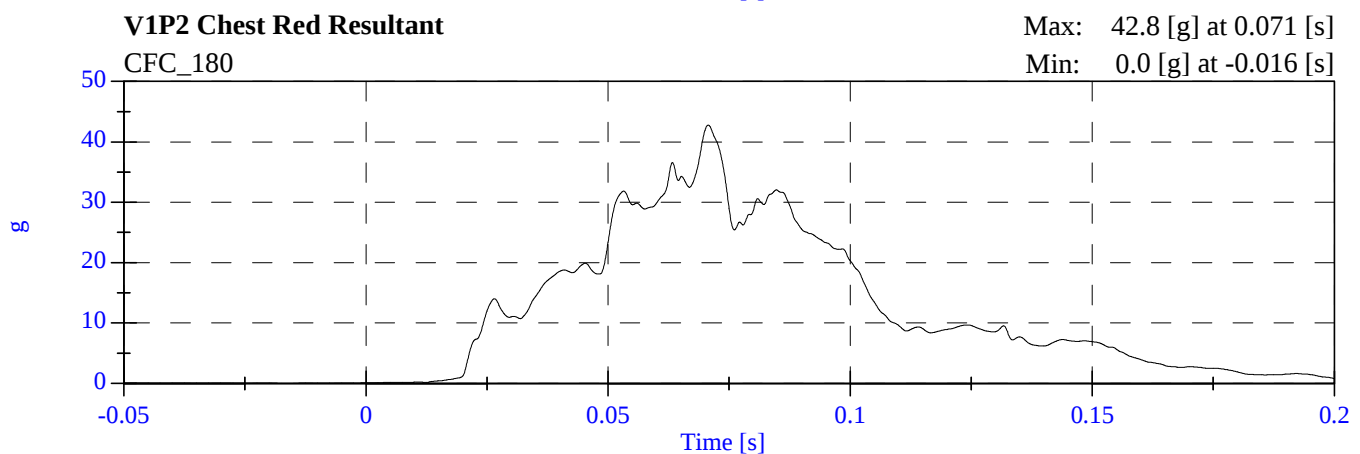
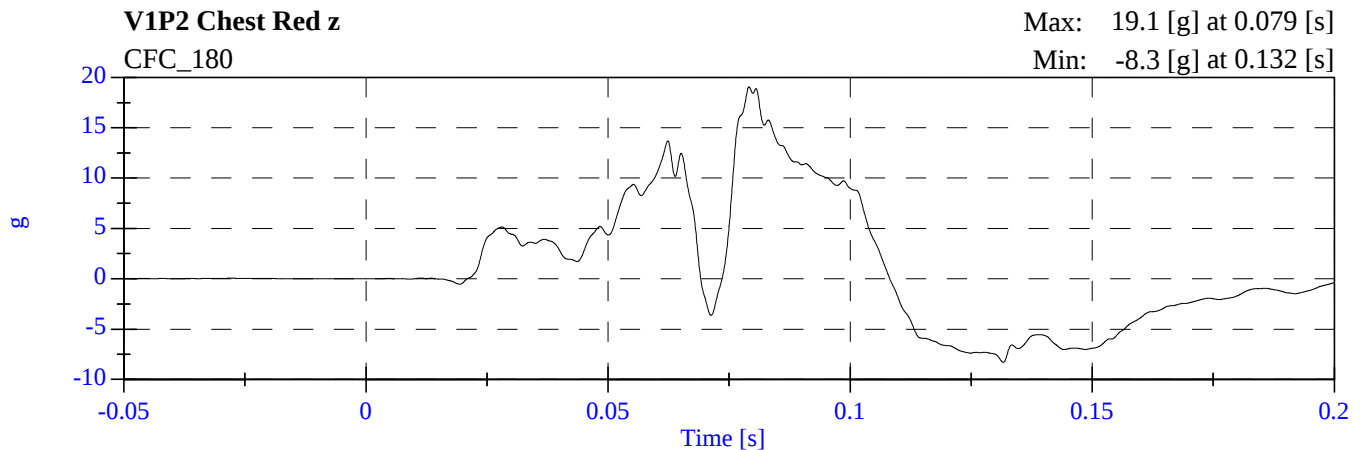
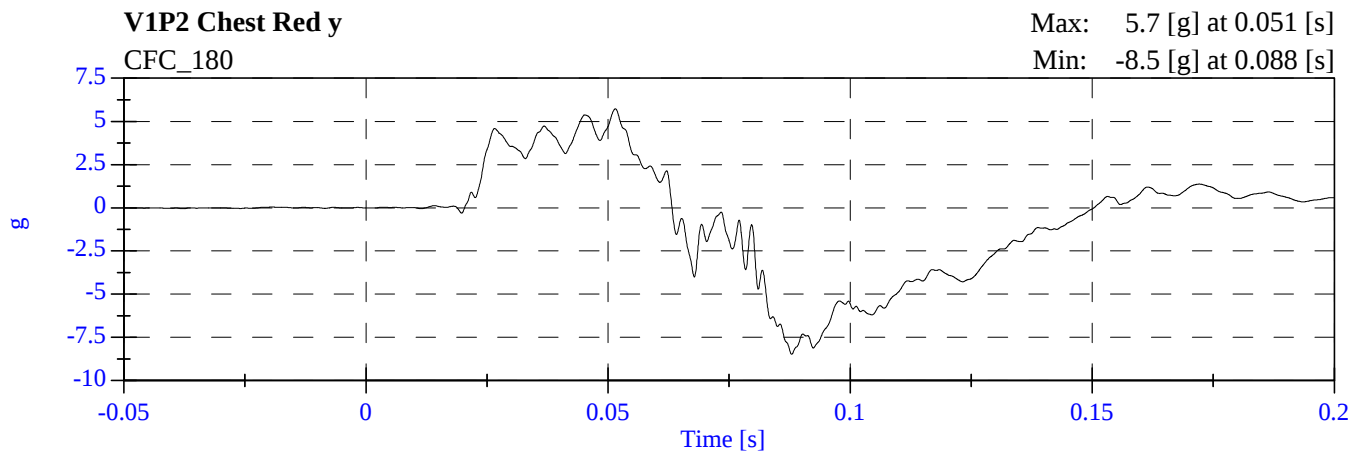
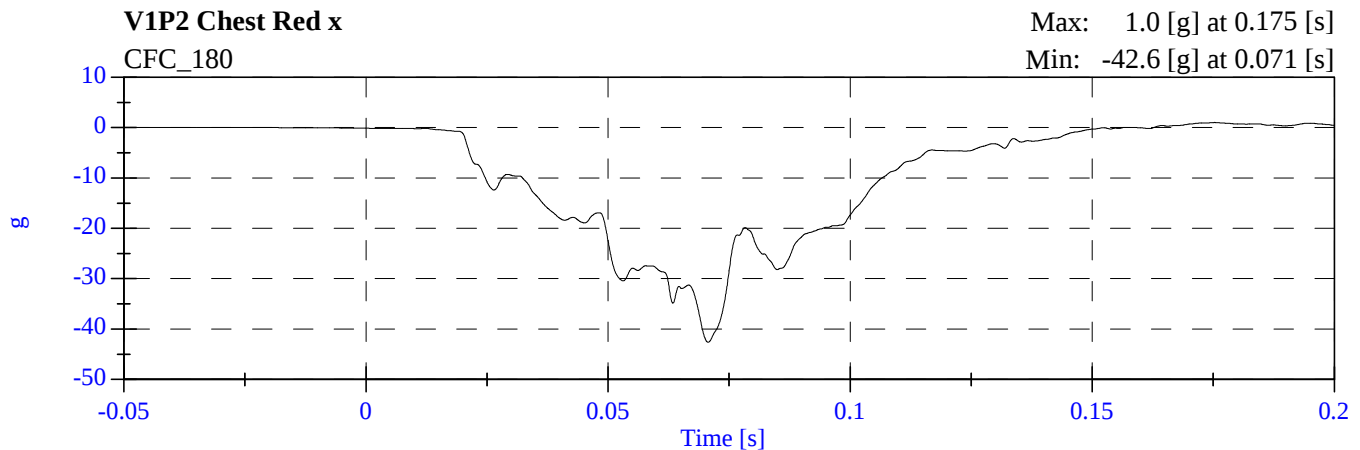
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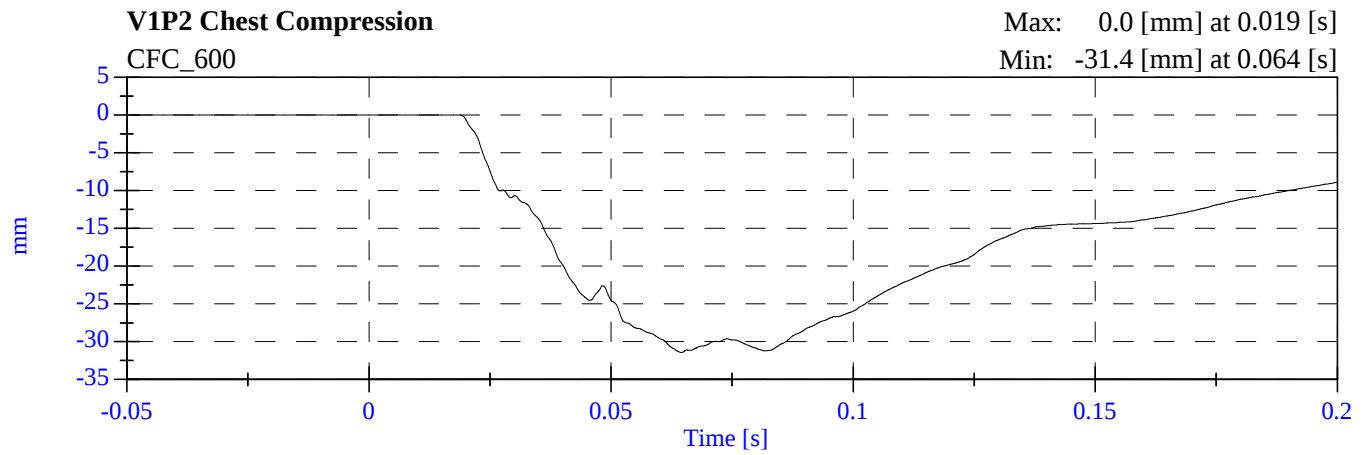
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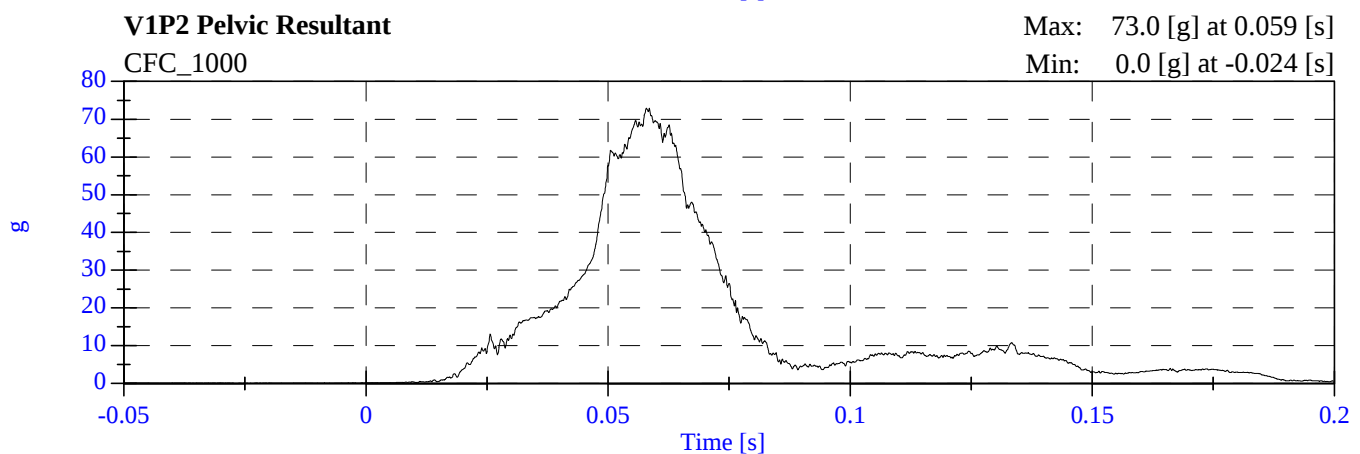
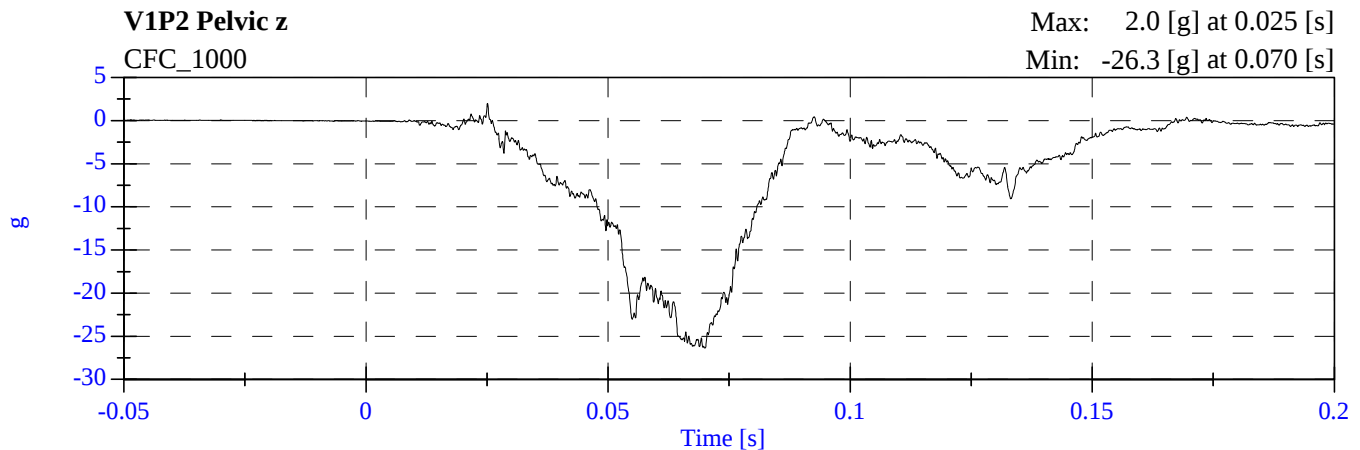
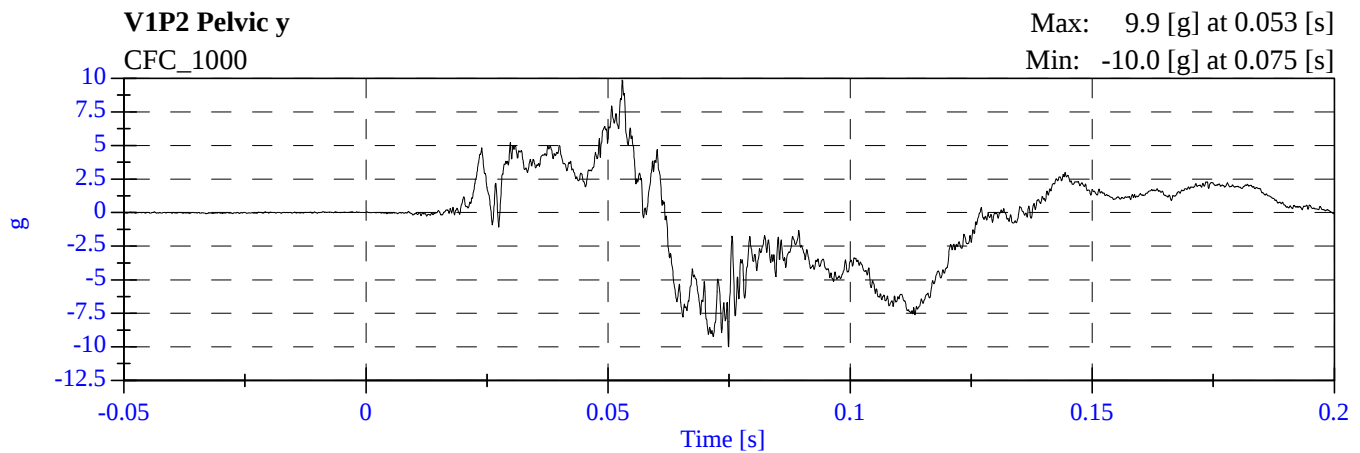
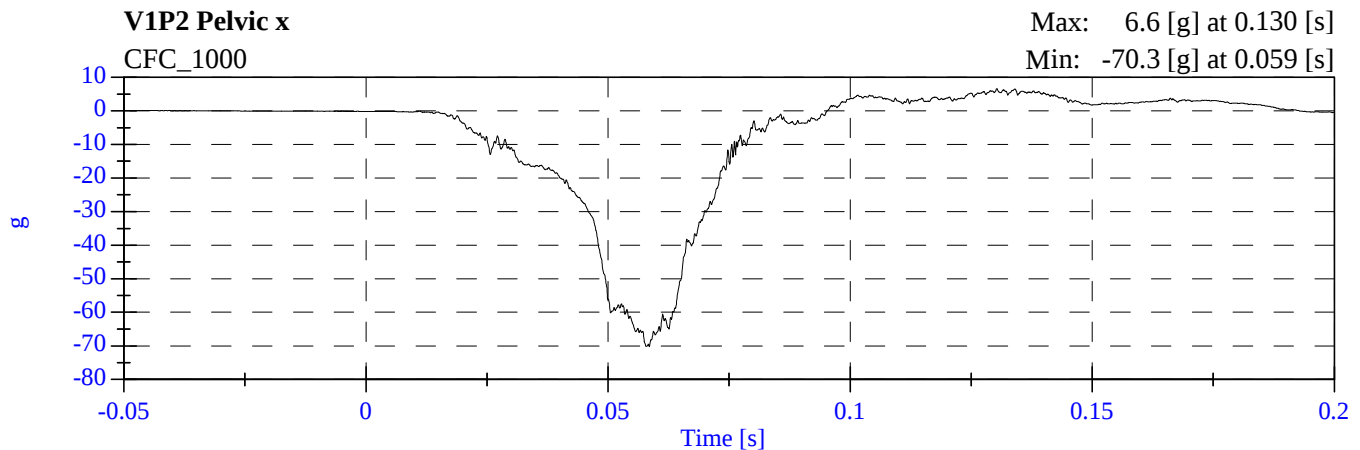
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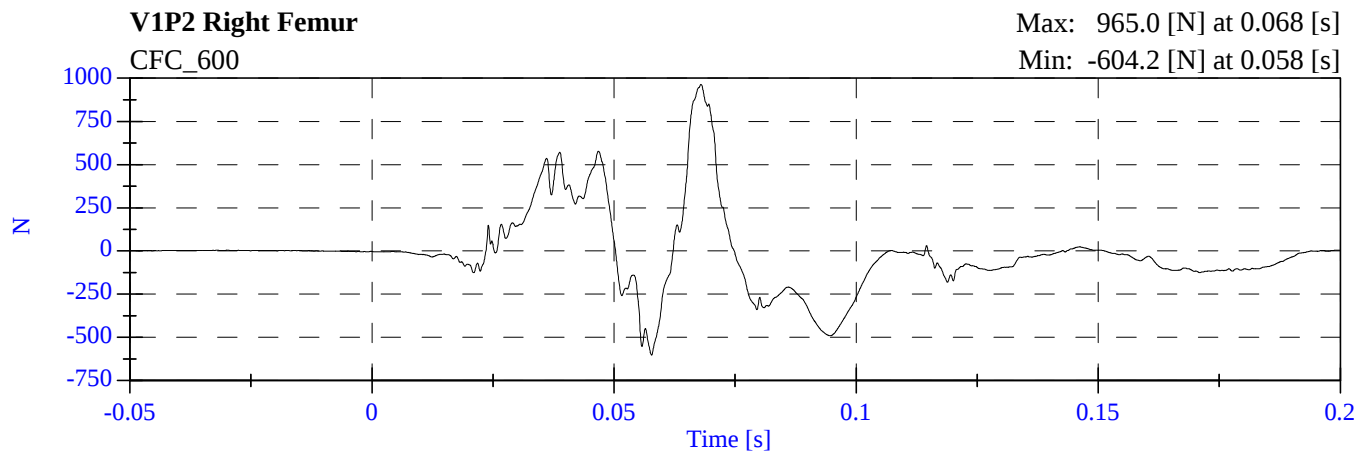
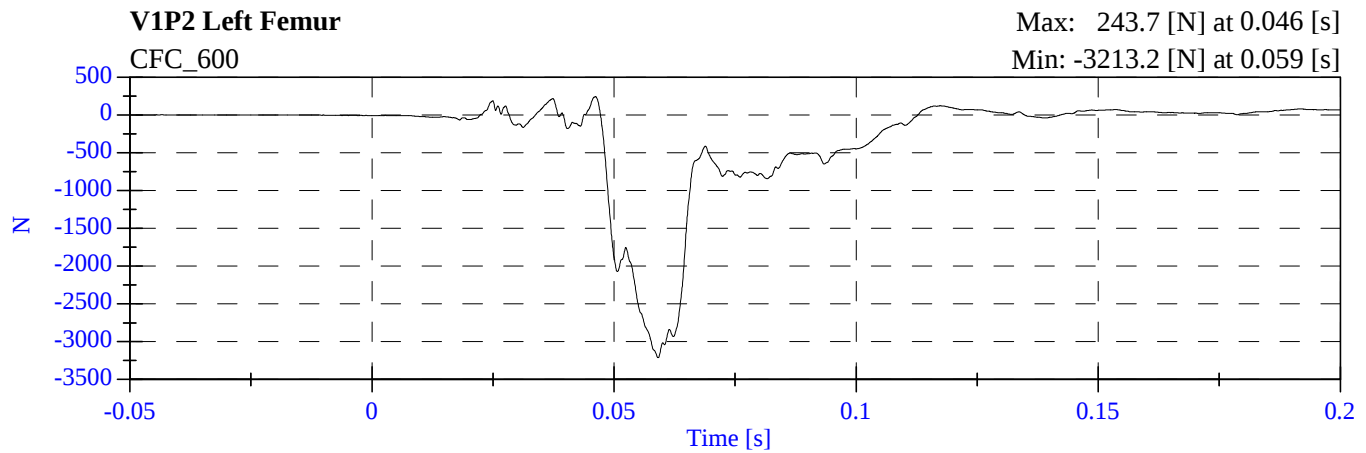
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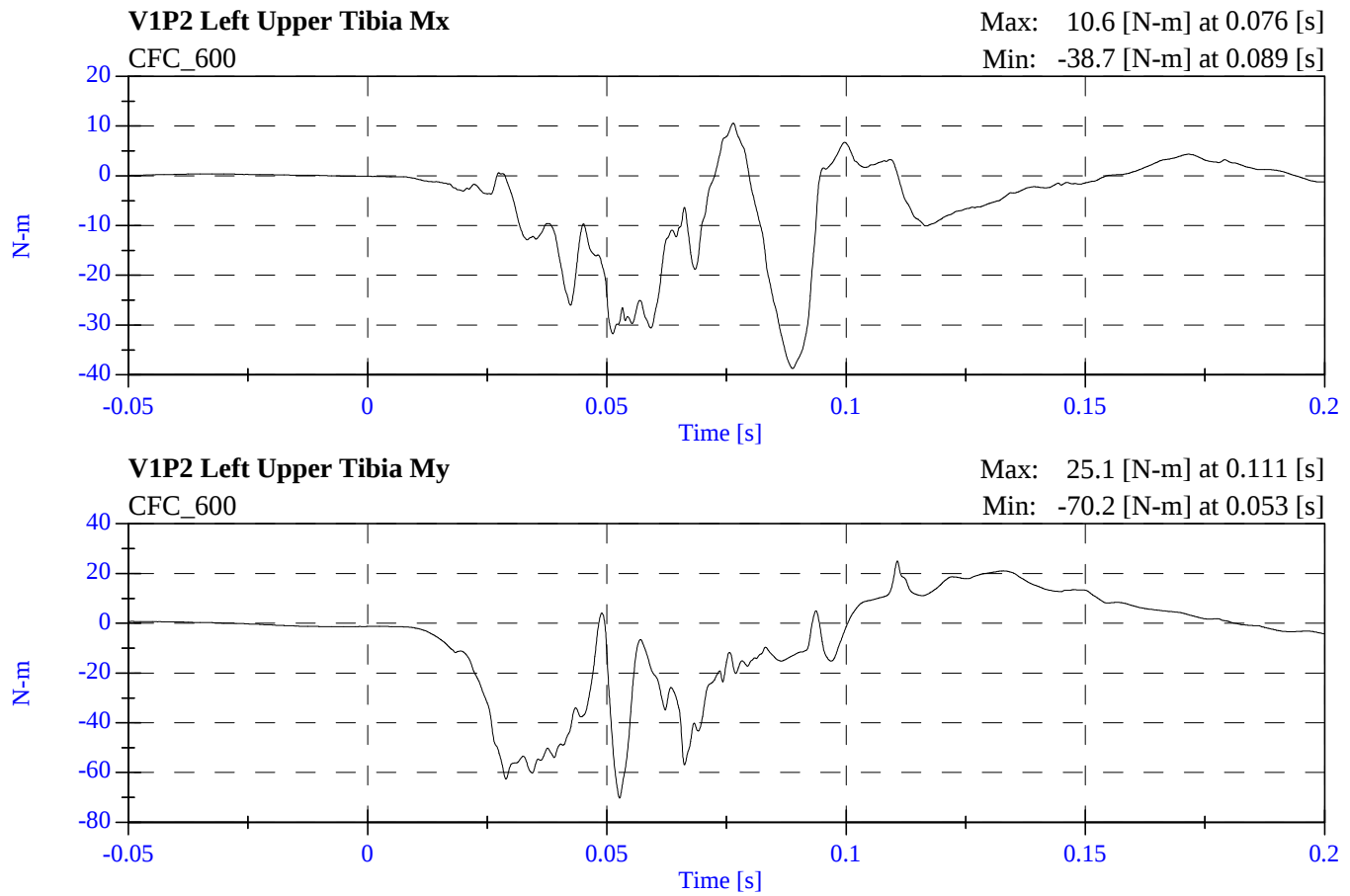
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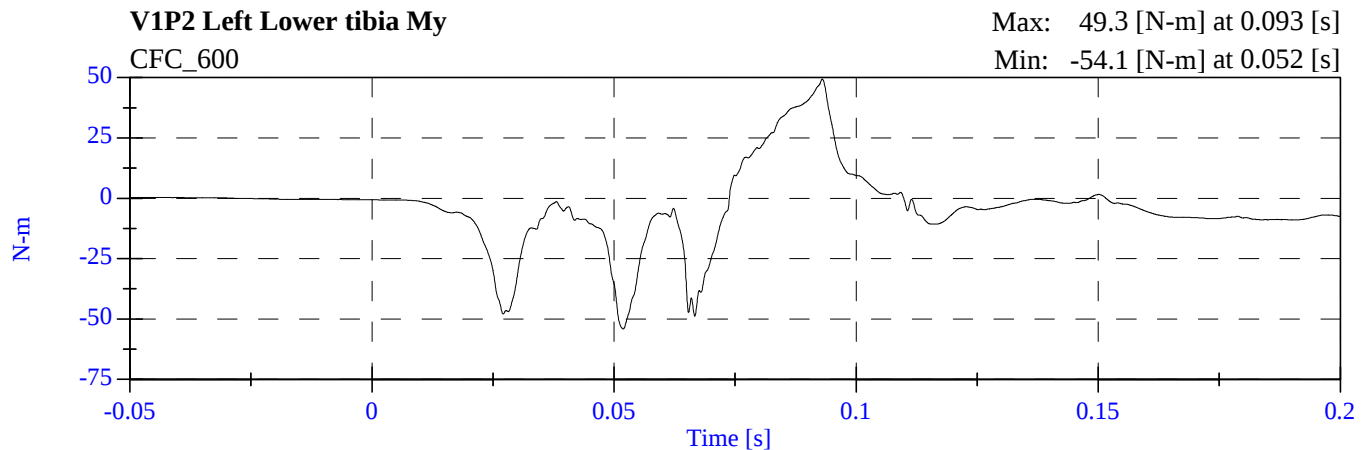
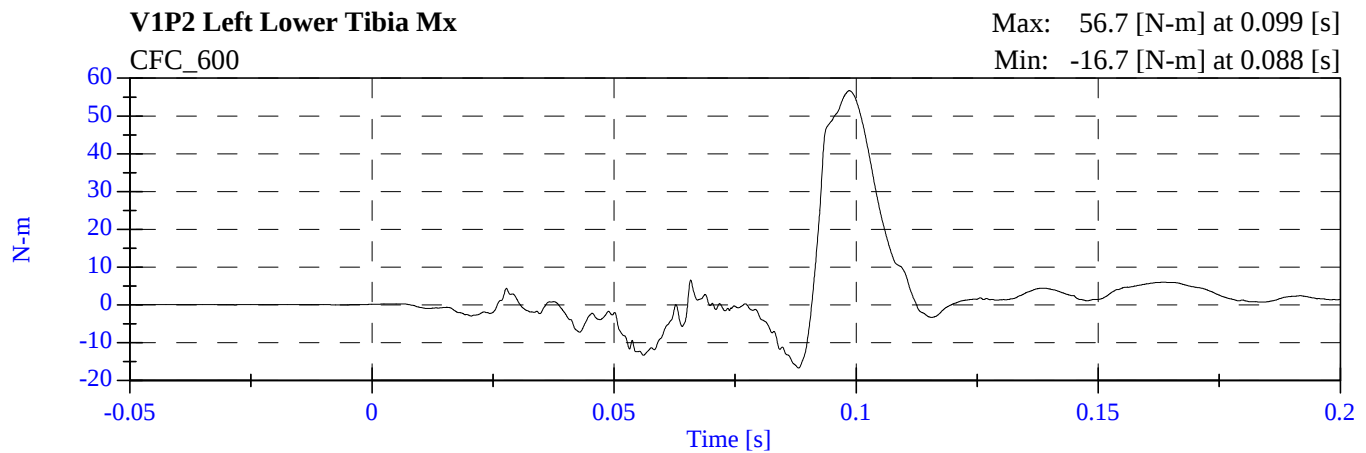
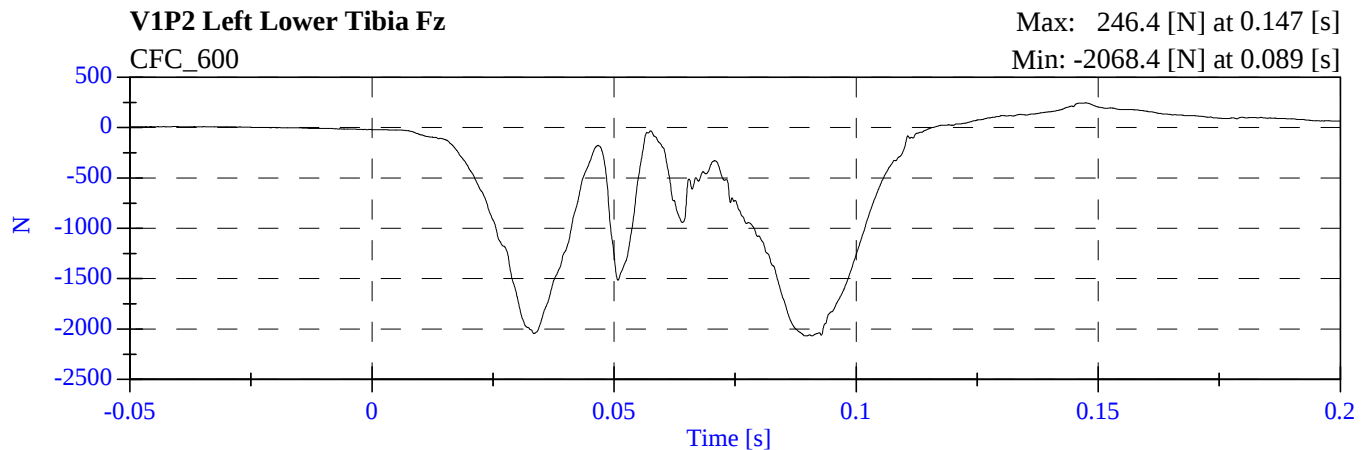
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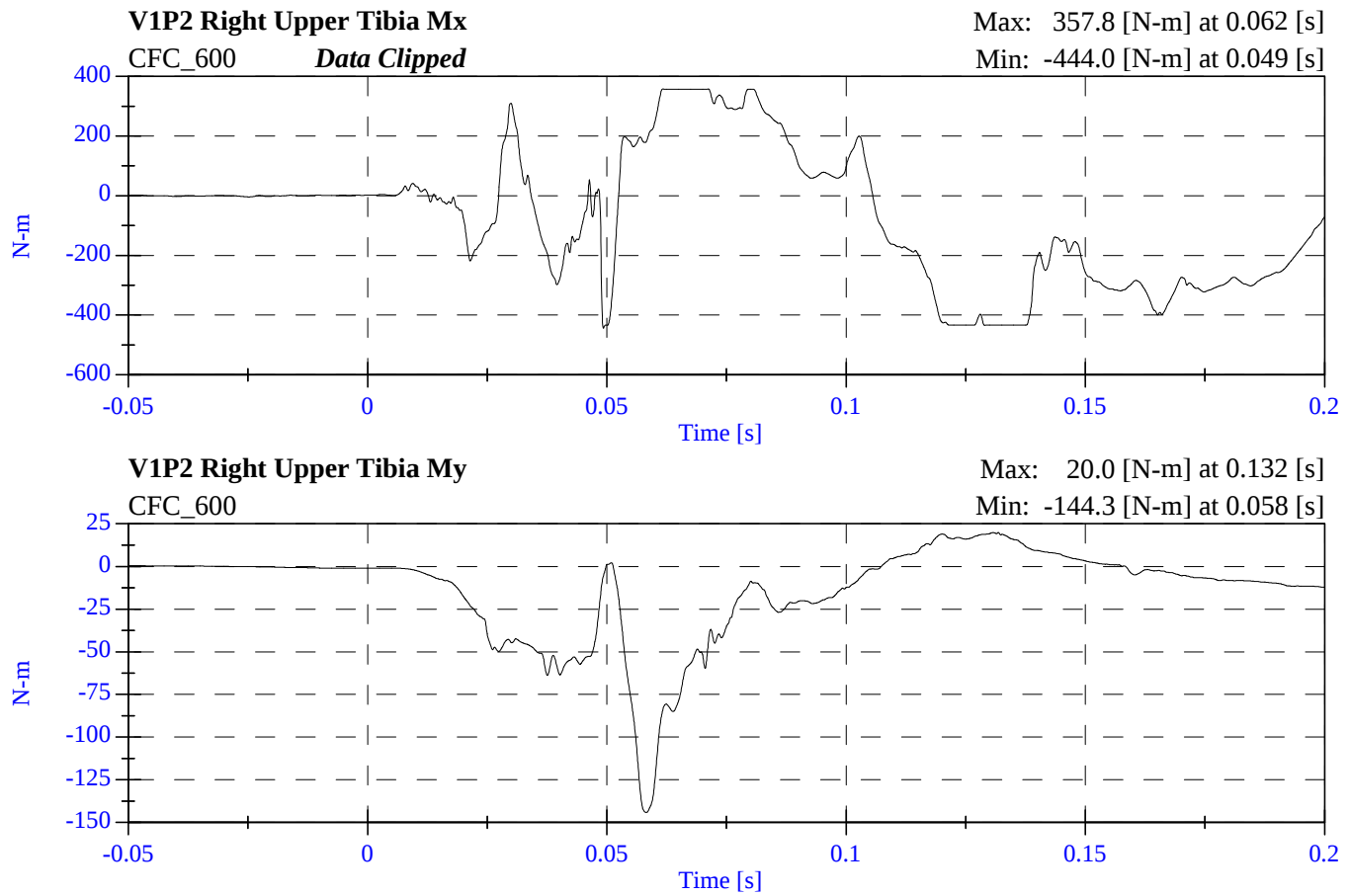
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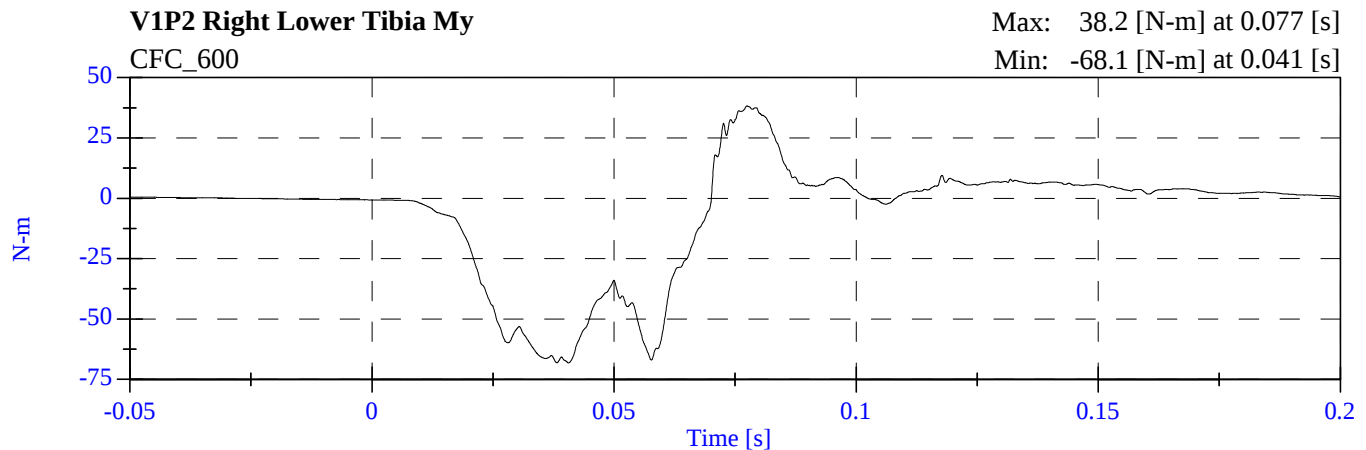
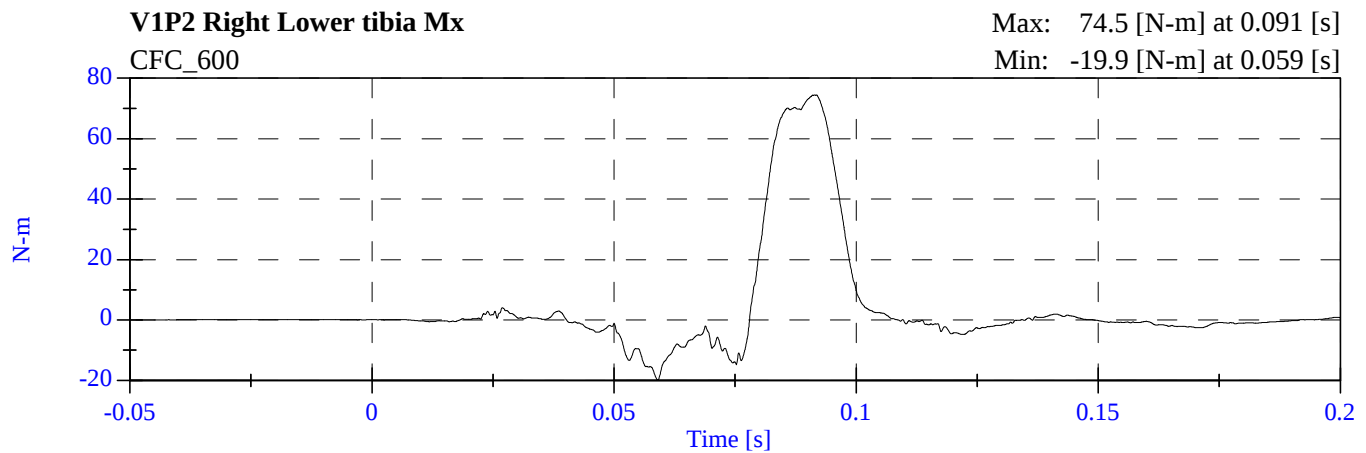
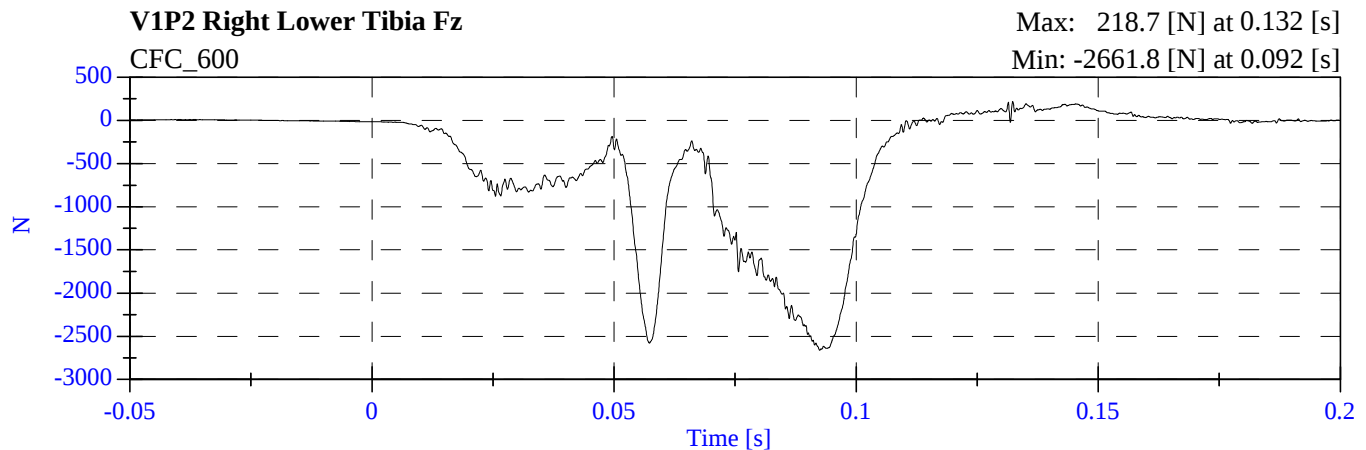
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



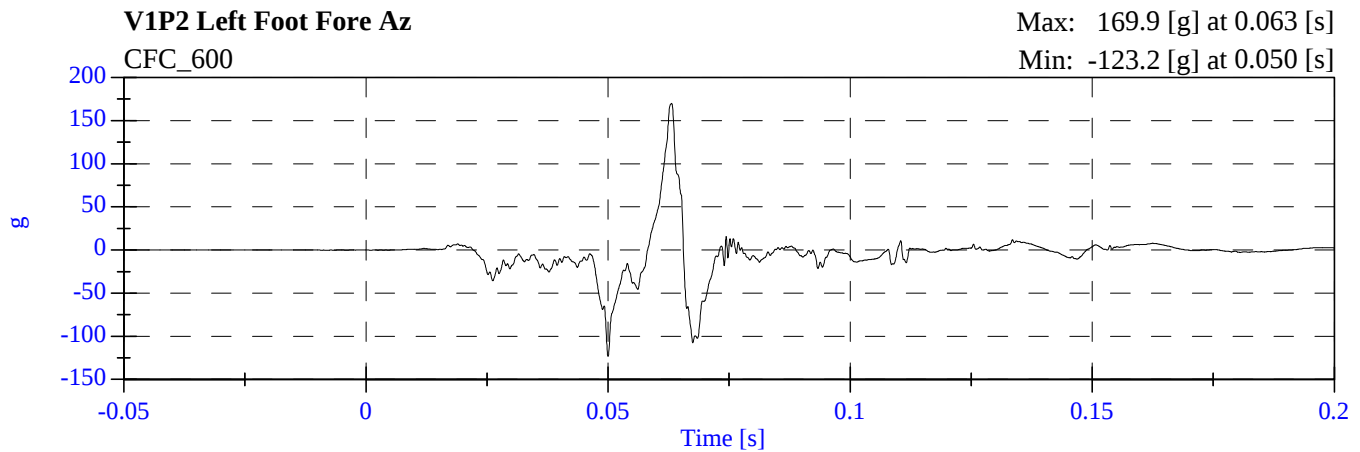
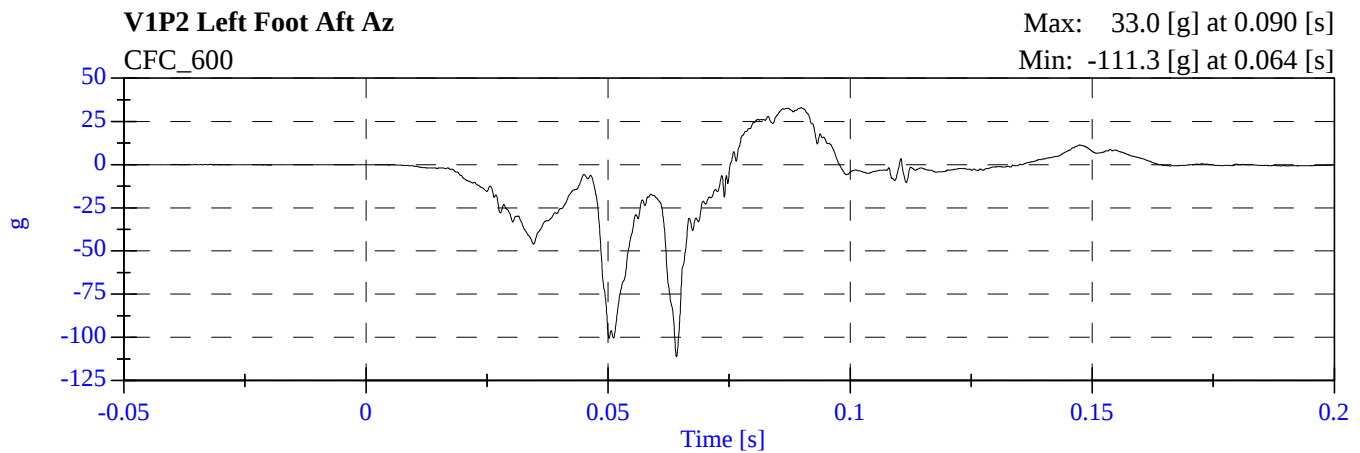
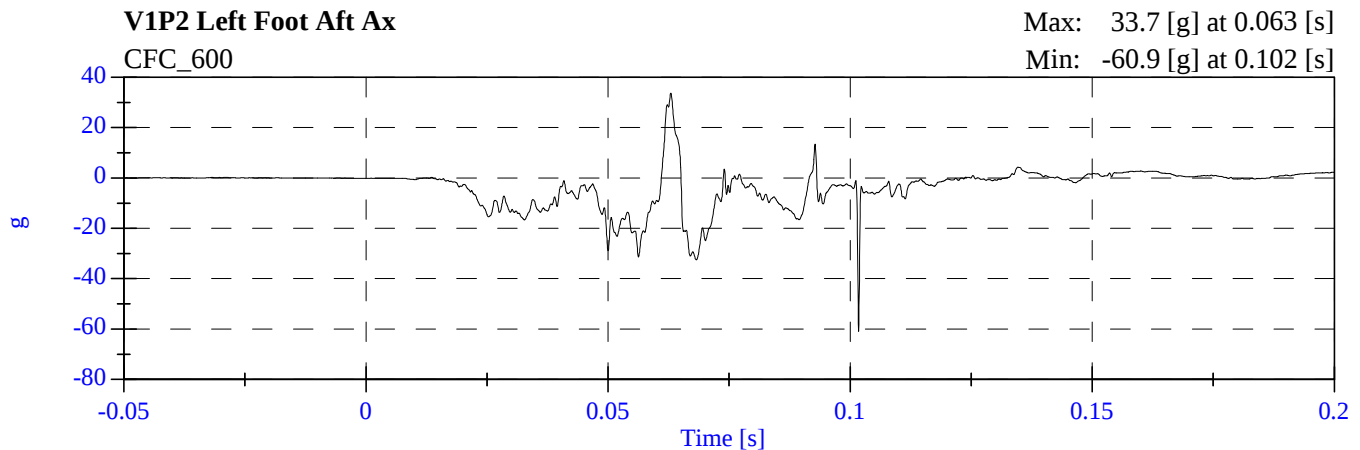
2005 NCAP Test 9 2005 Toyota Tacoma
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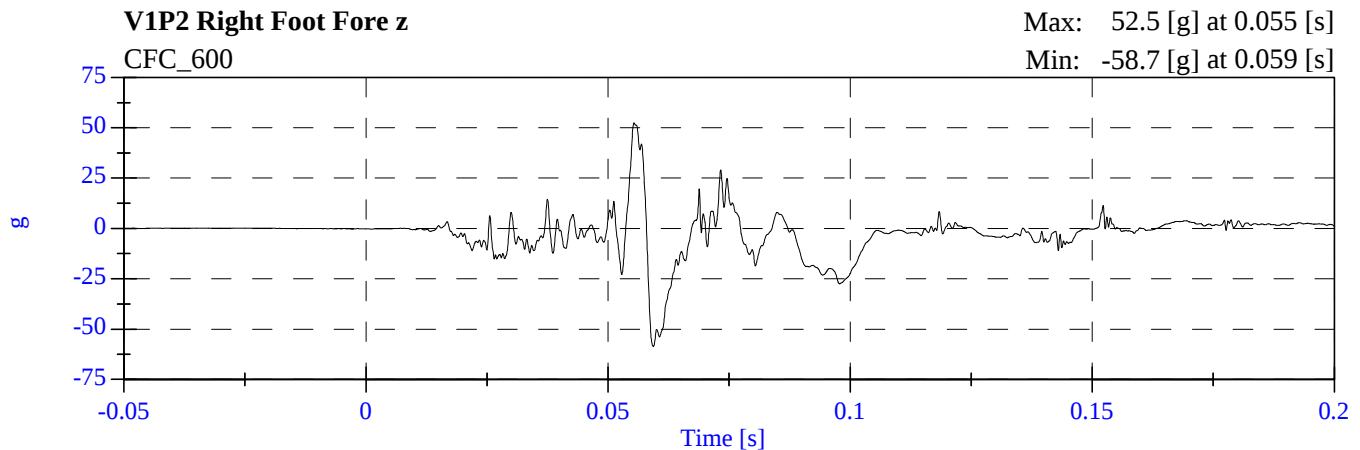
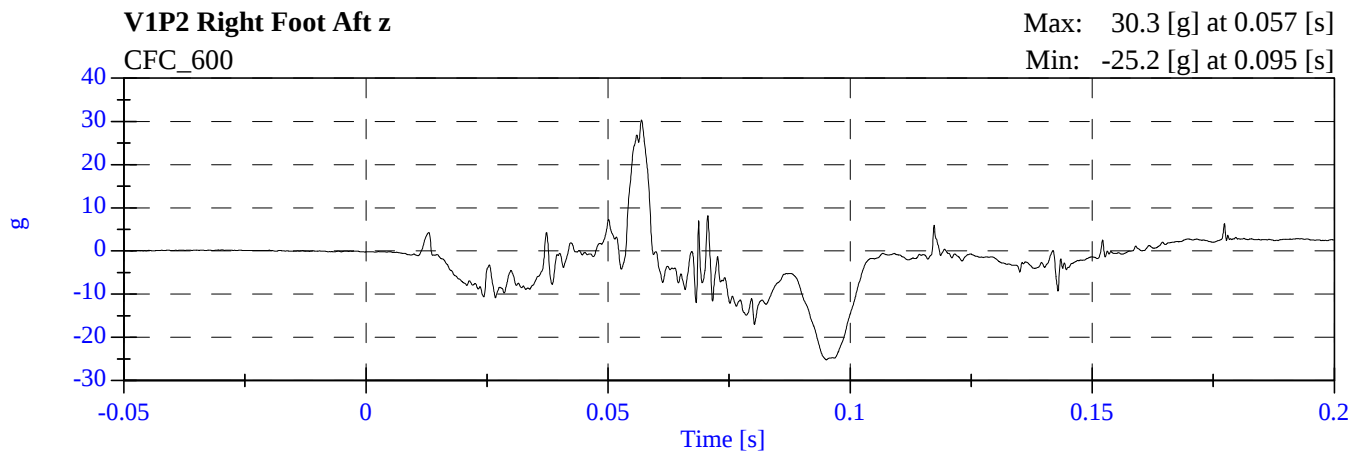
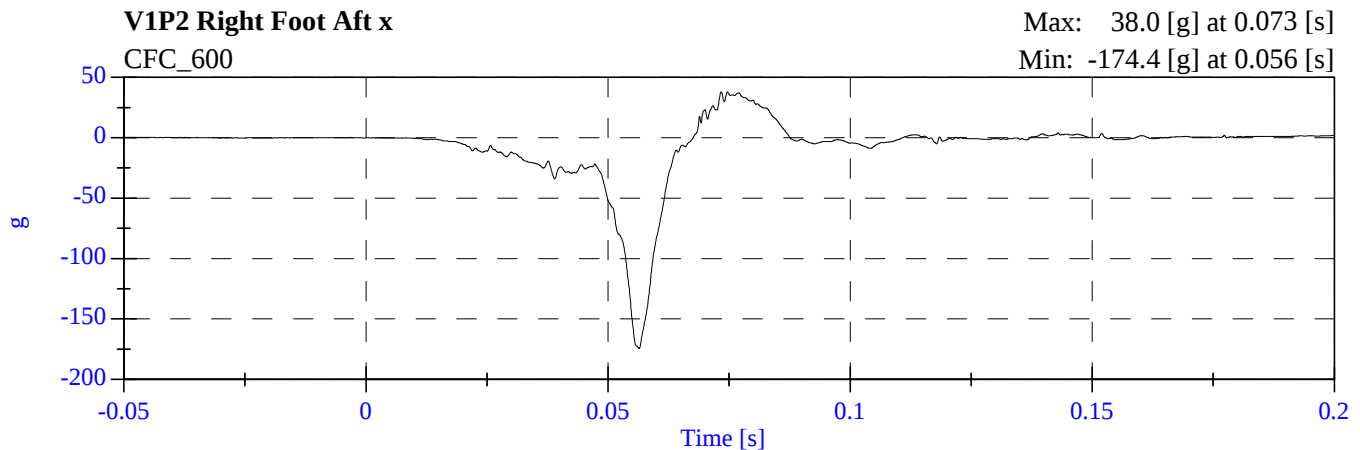
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



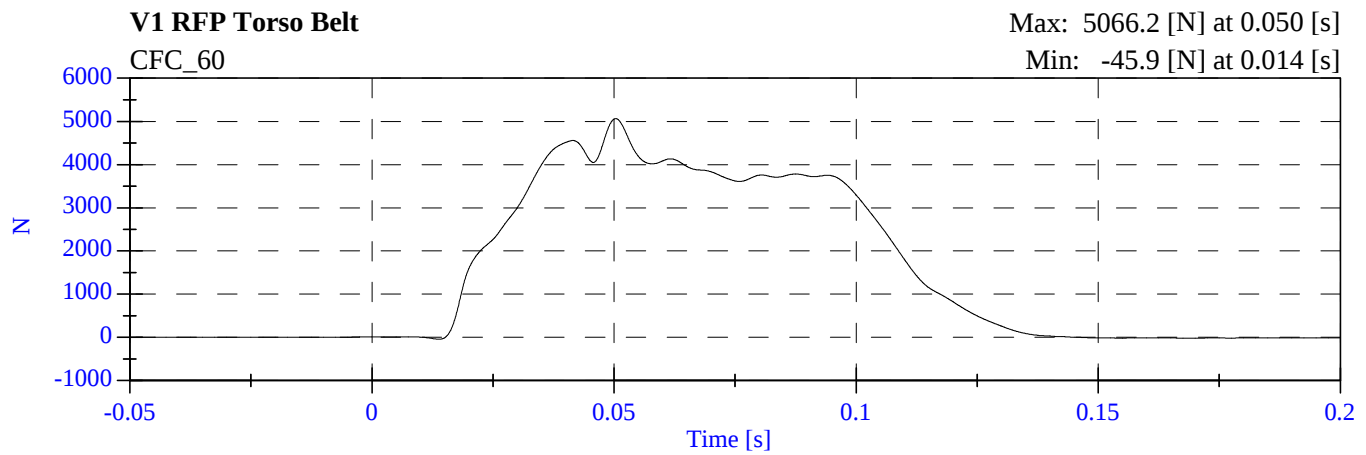
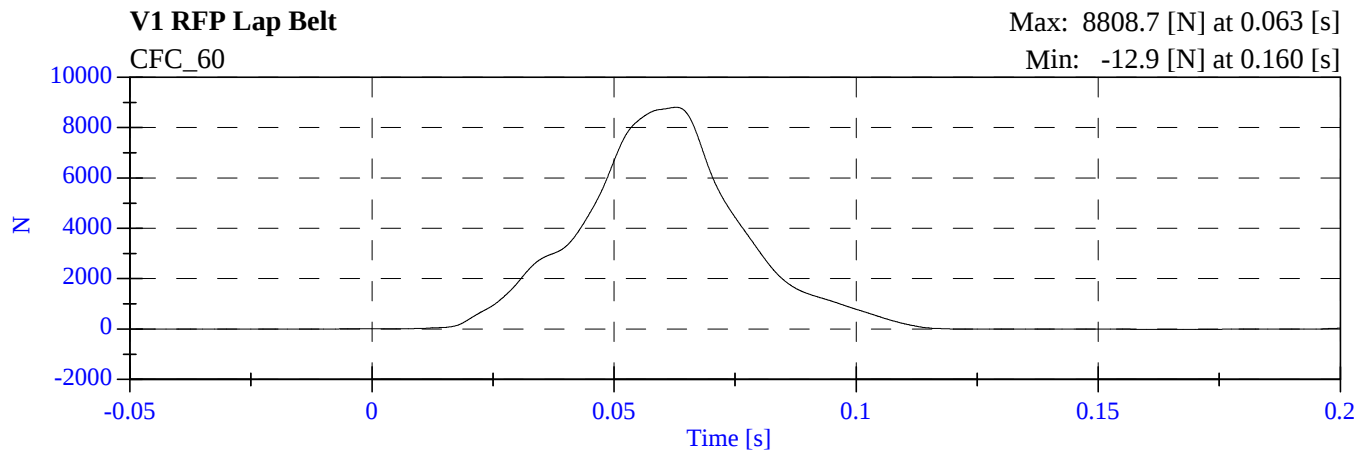
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



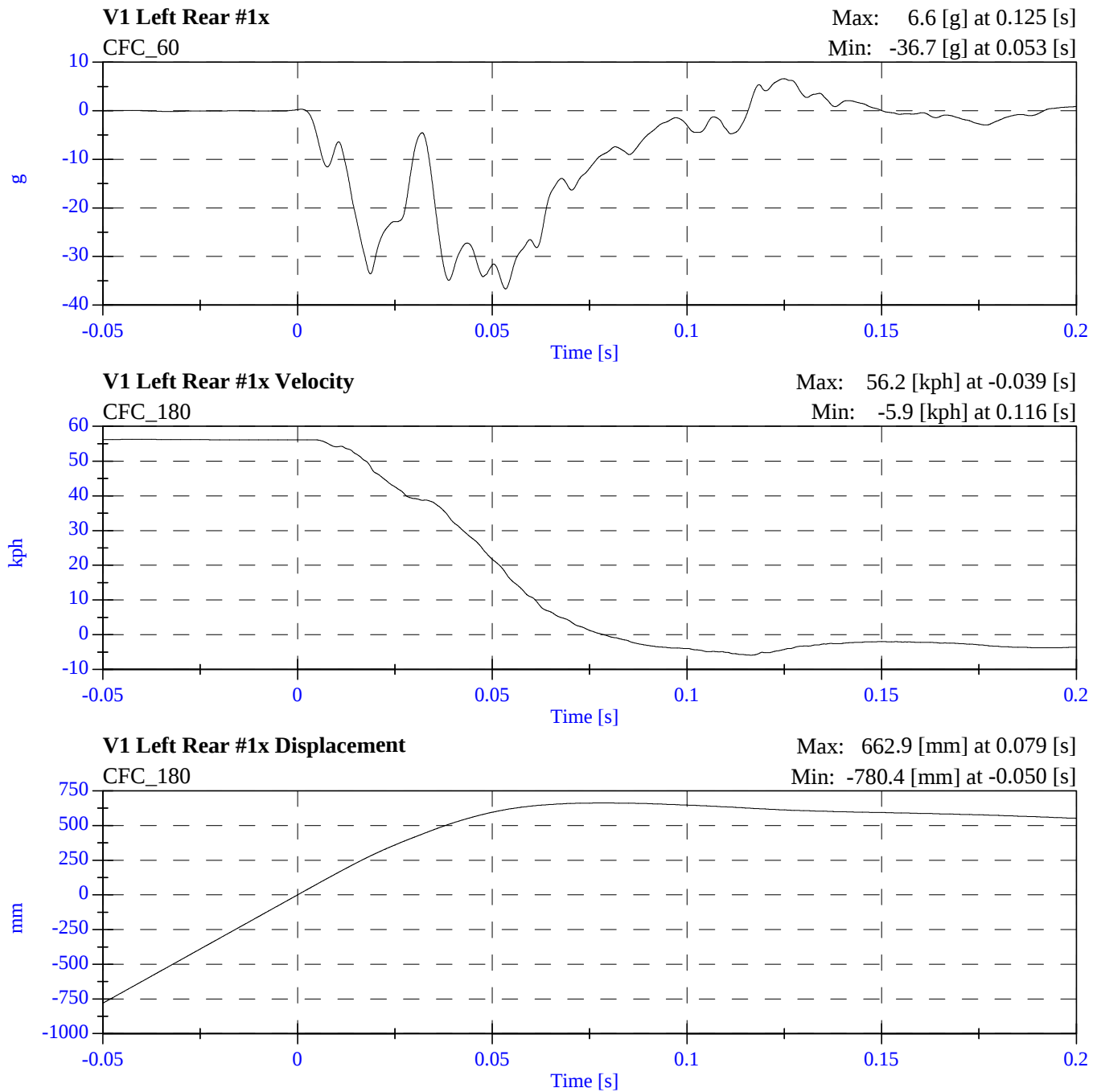
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



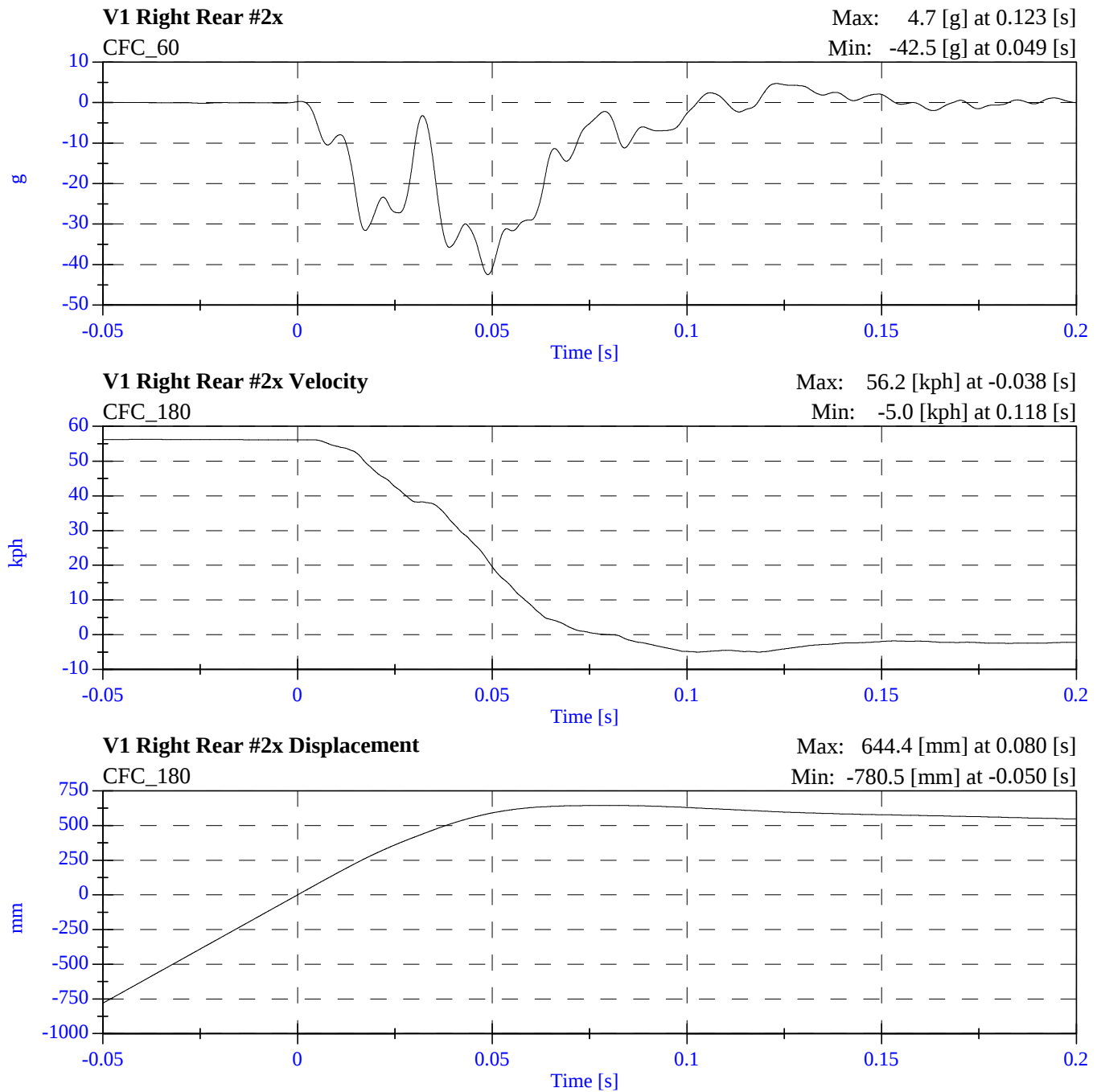
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



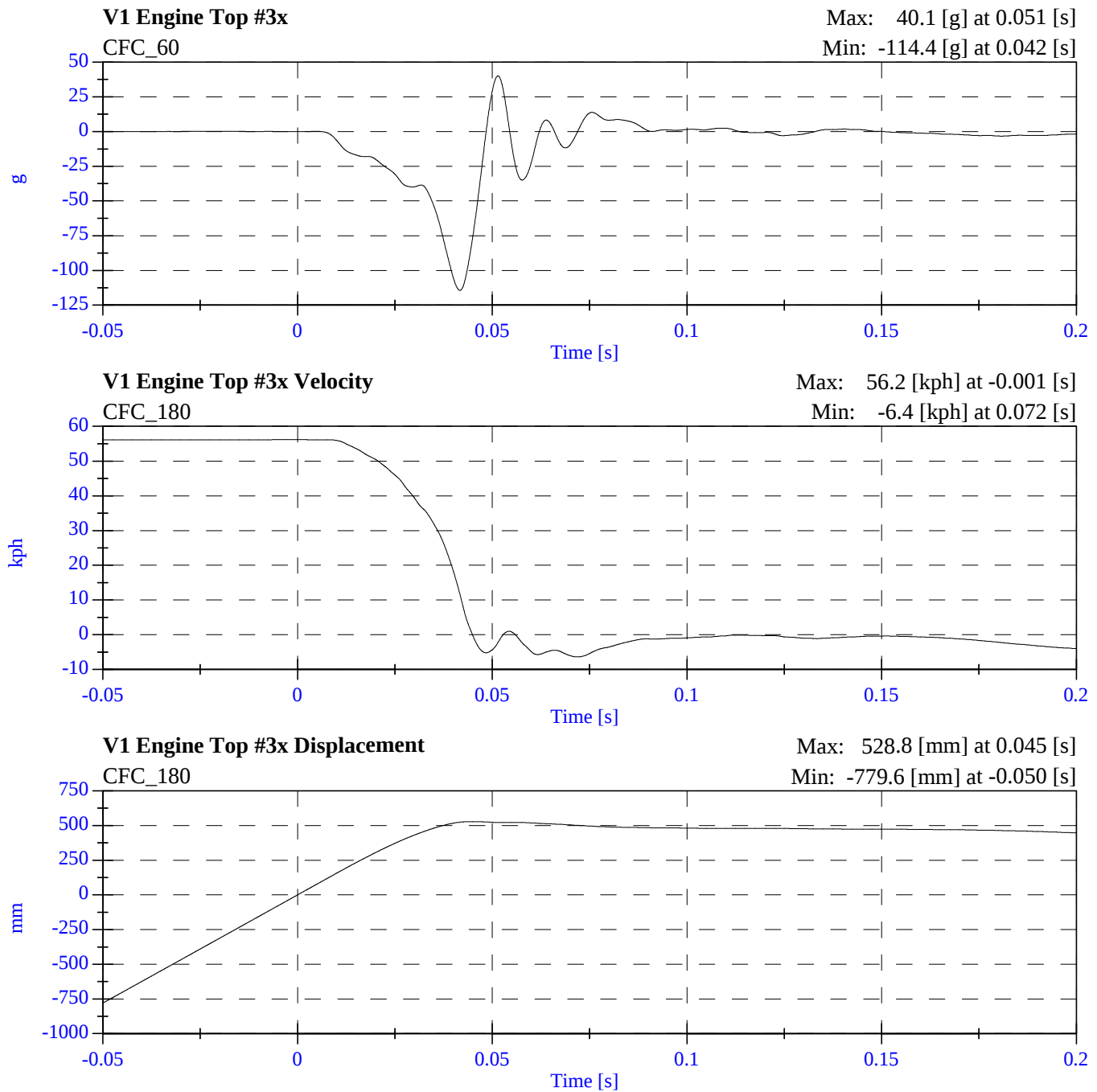
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



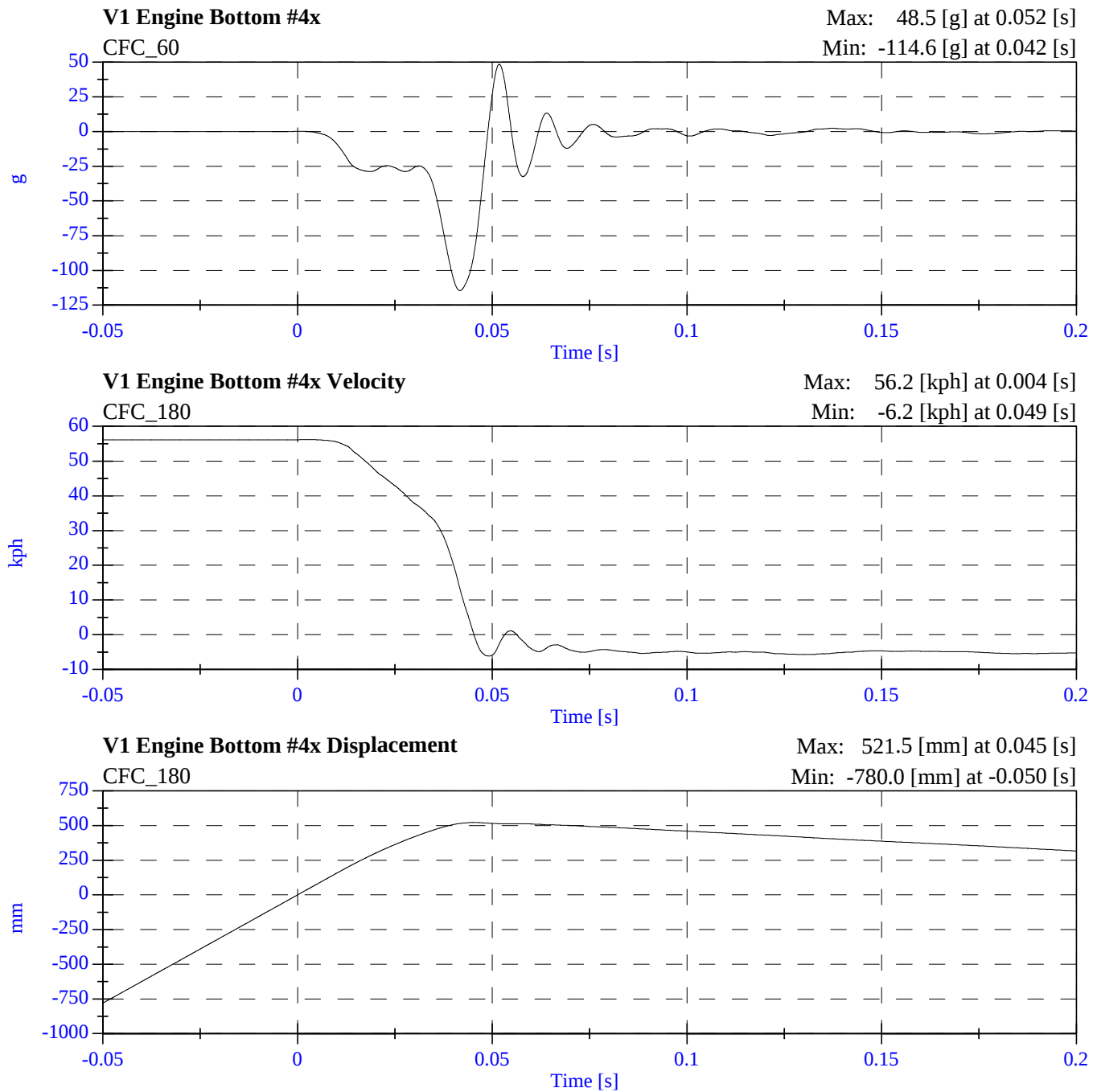
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



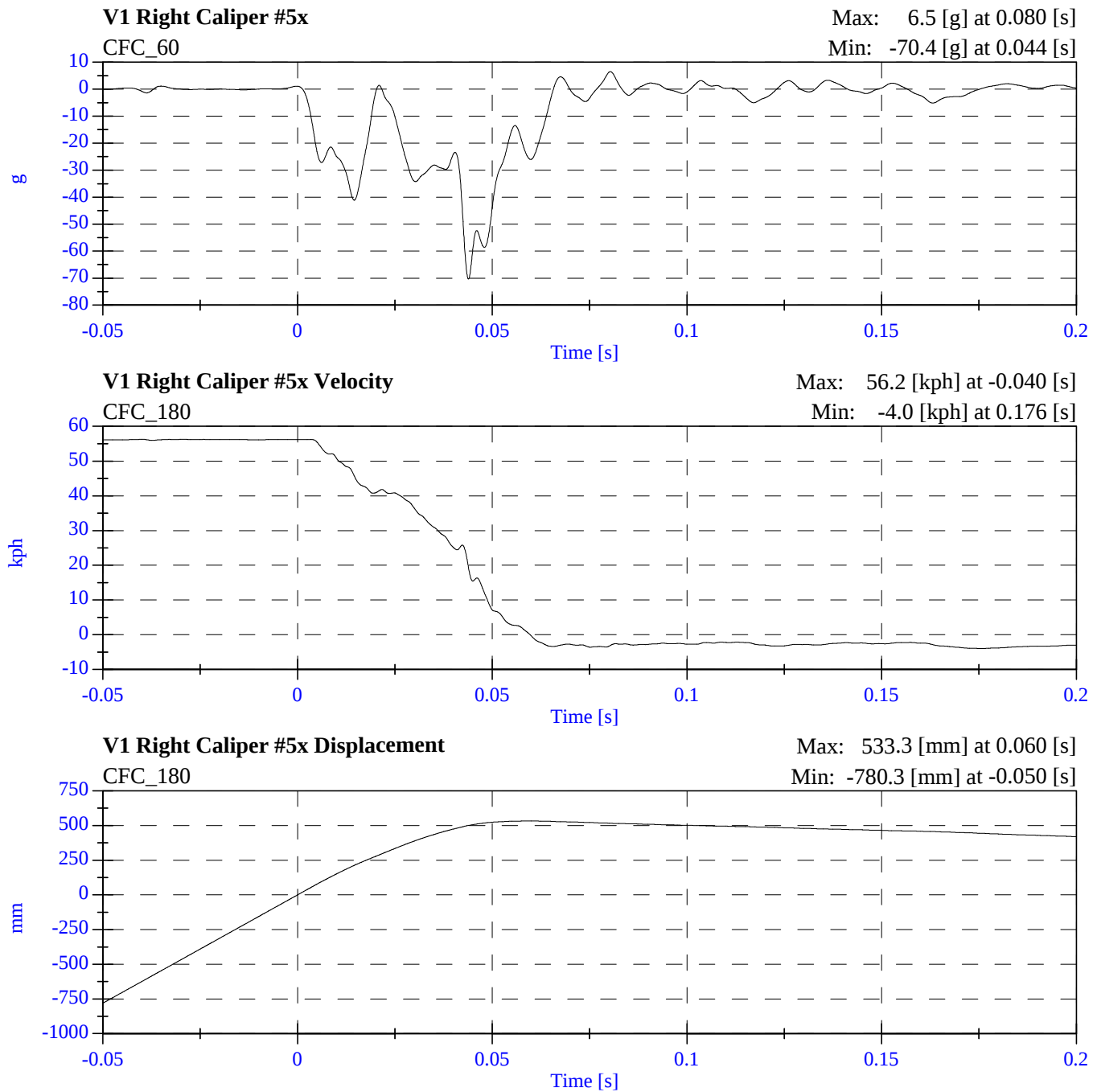
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



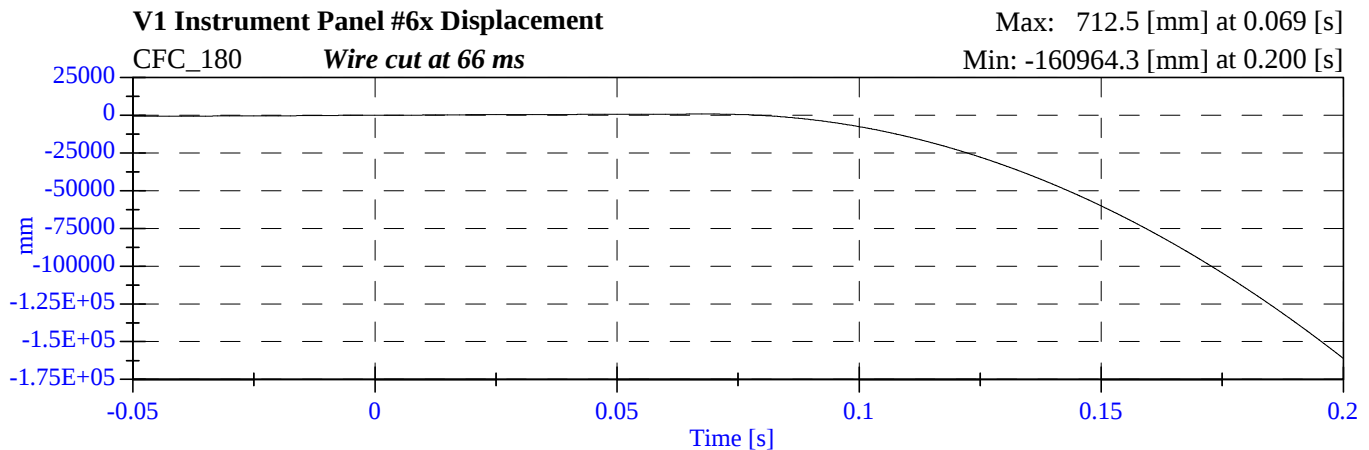
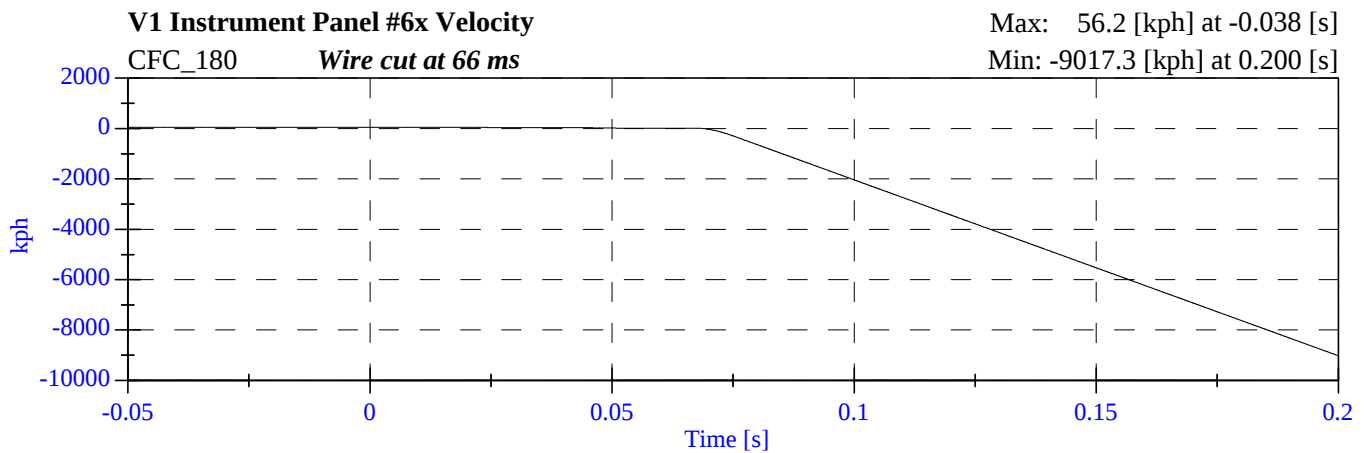
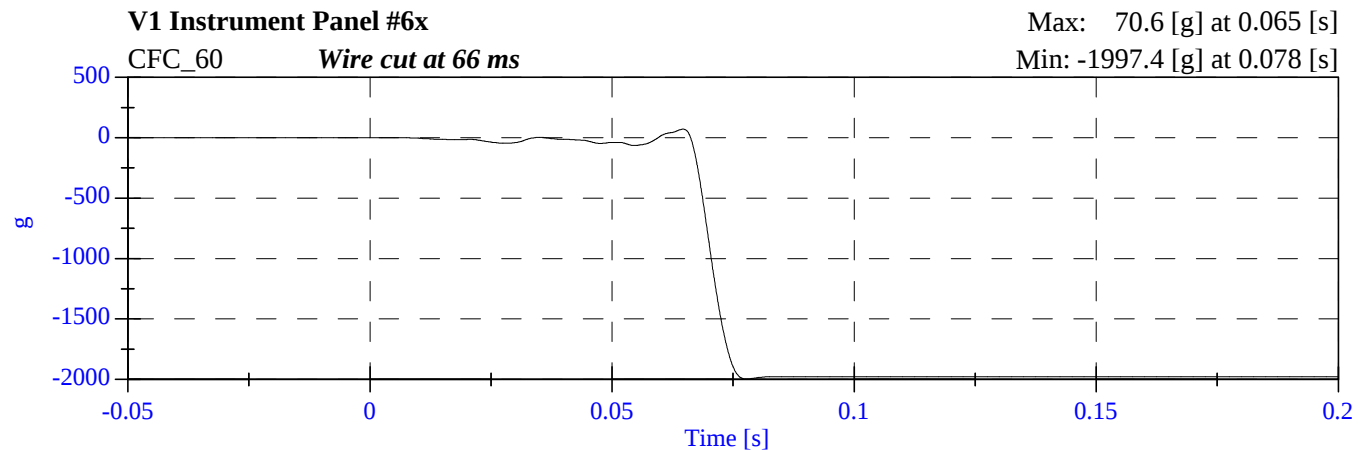
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



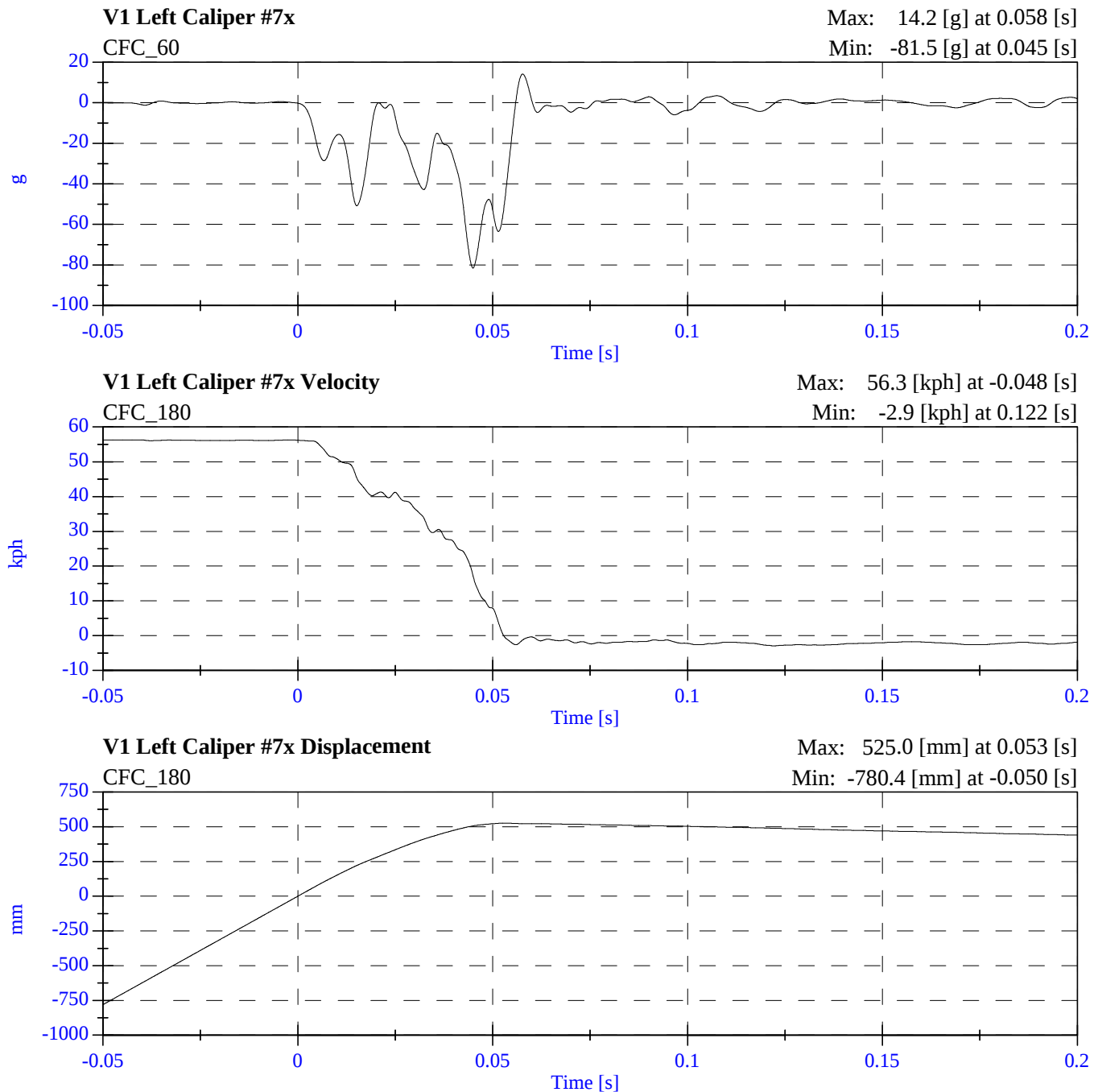
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



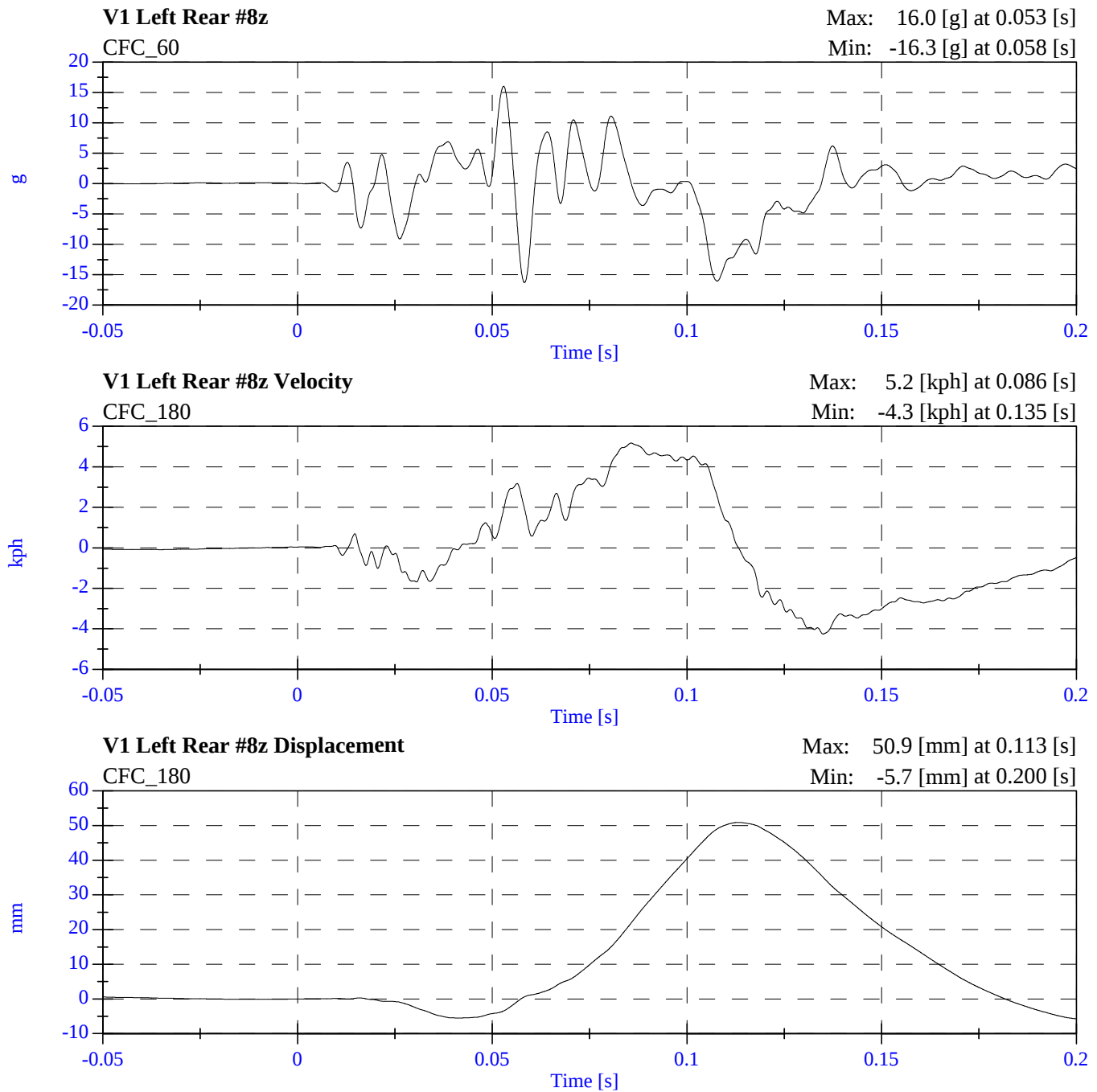
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



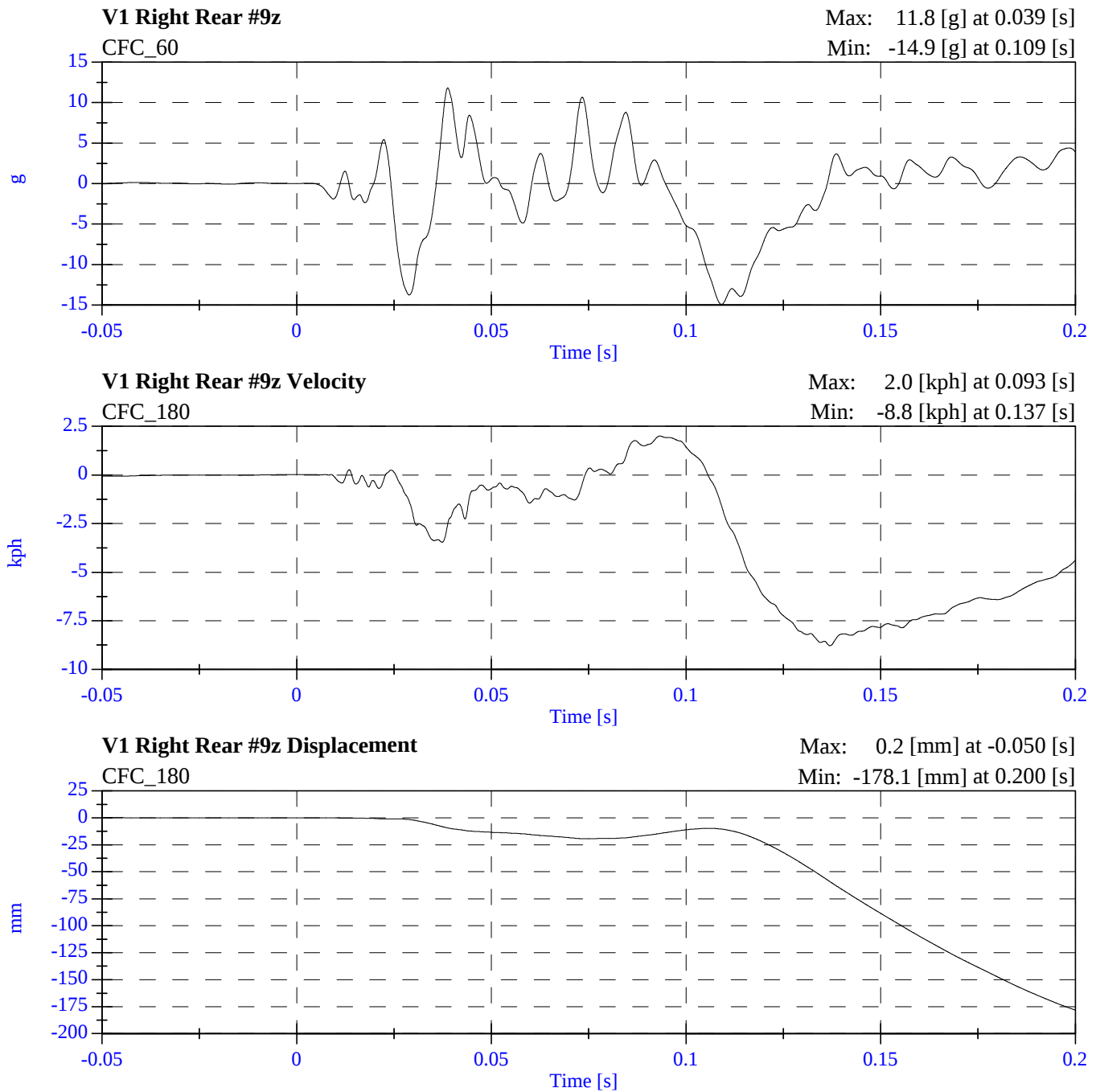
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



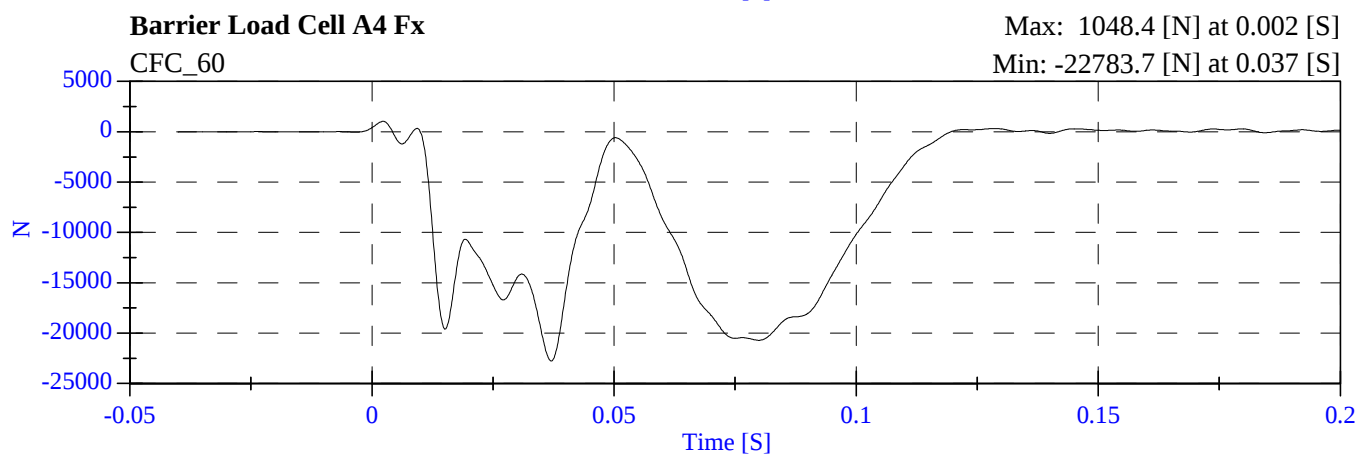
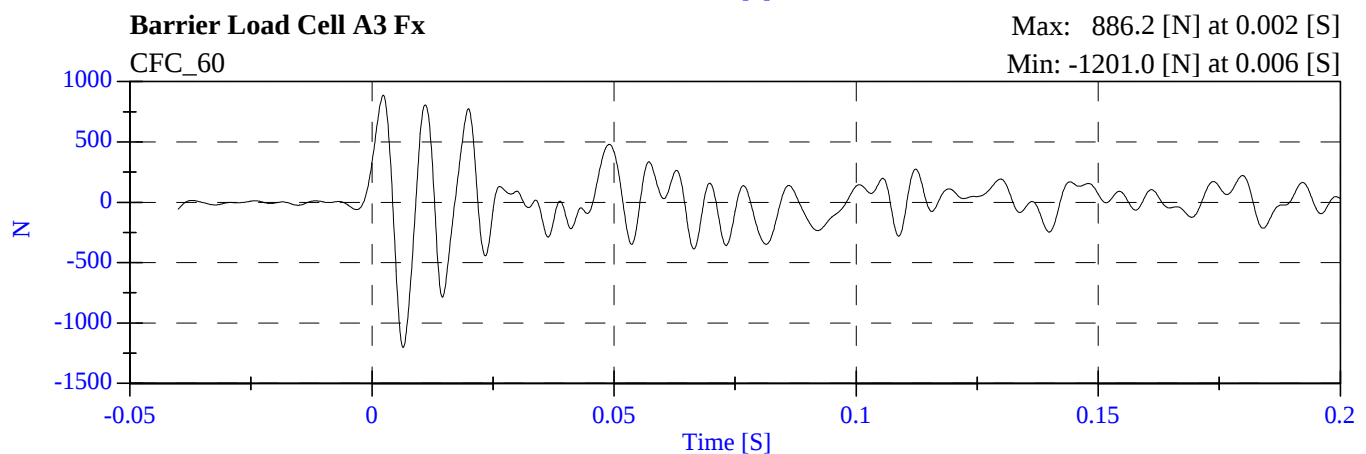
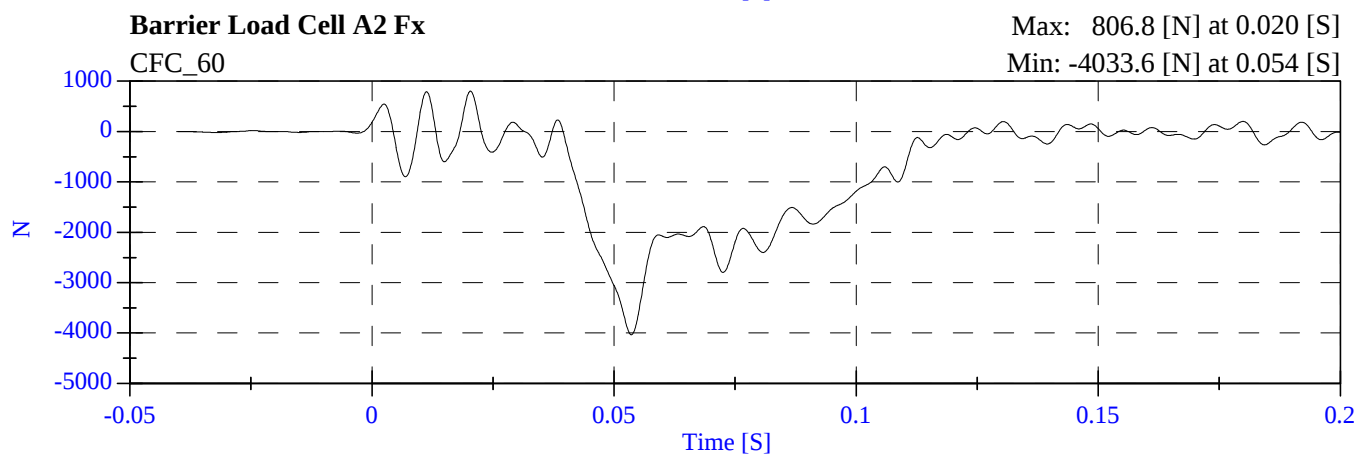
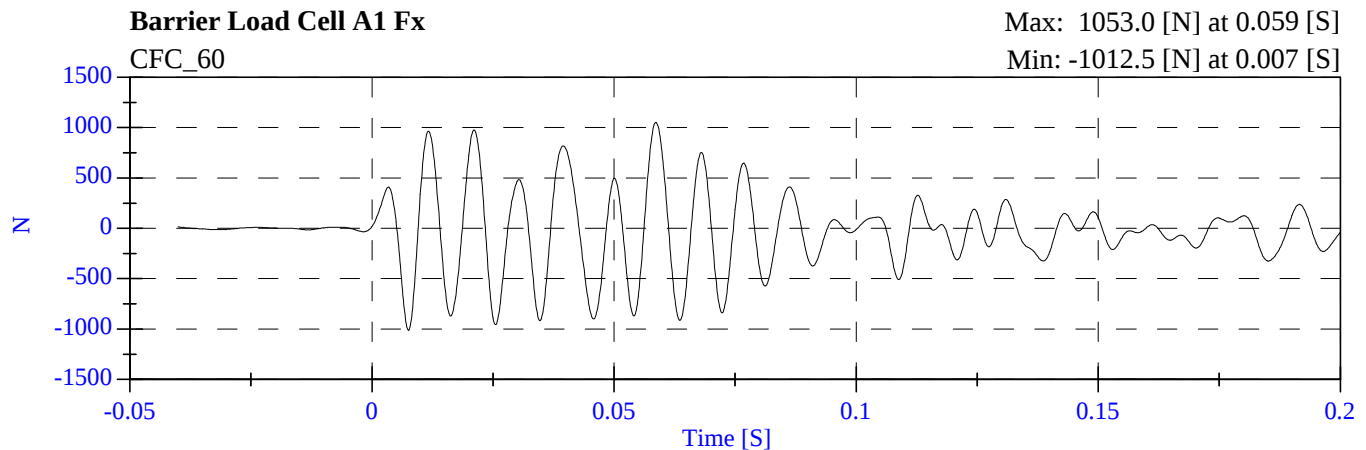
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



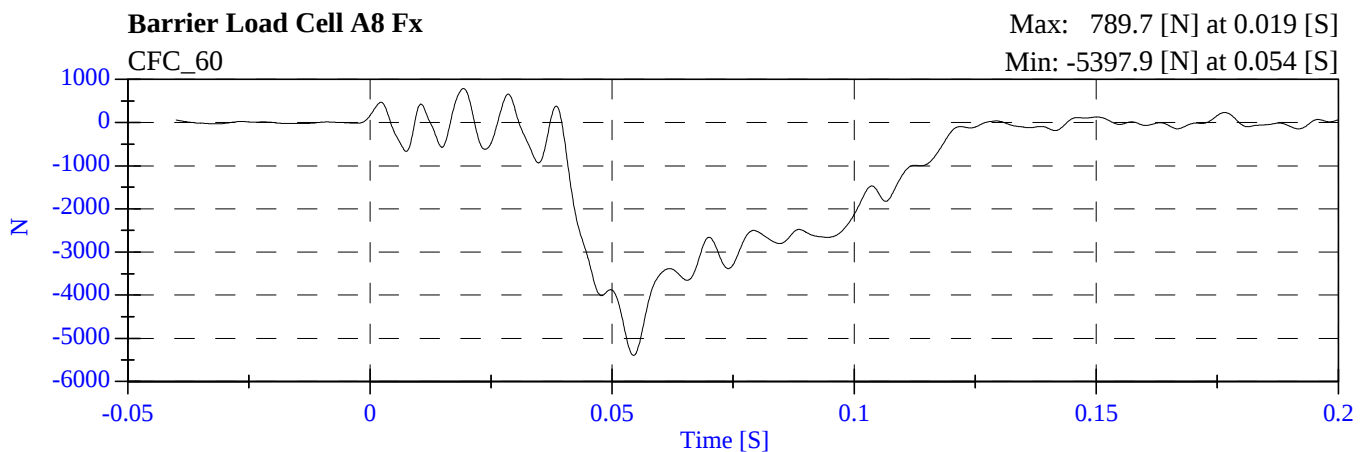
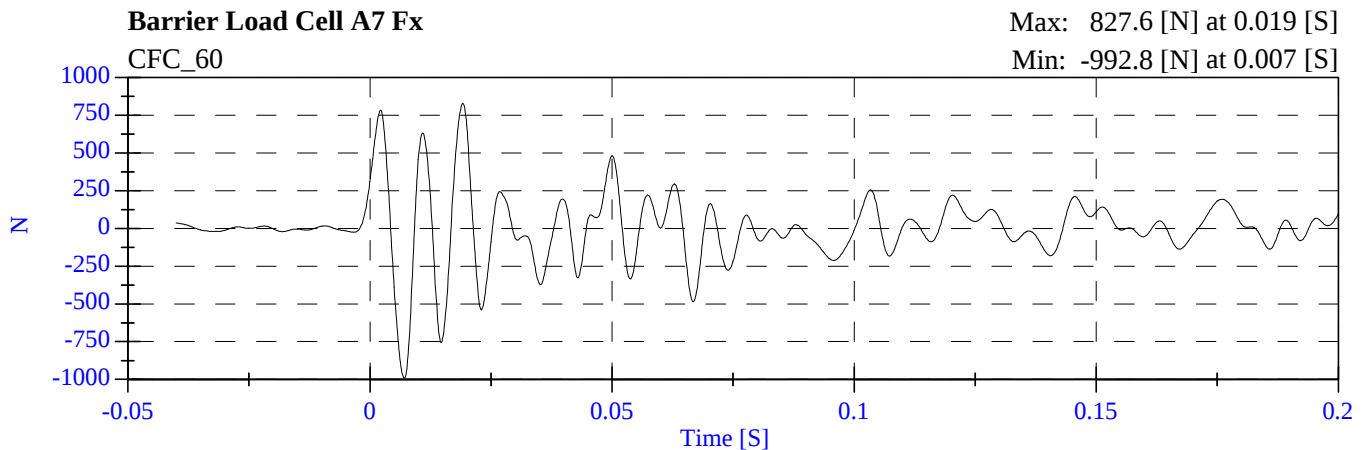
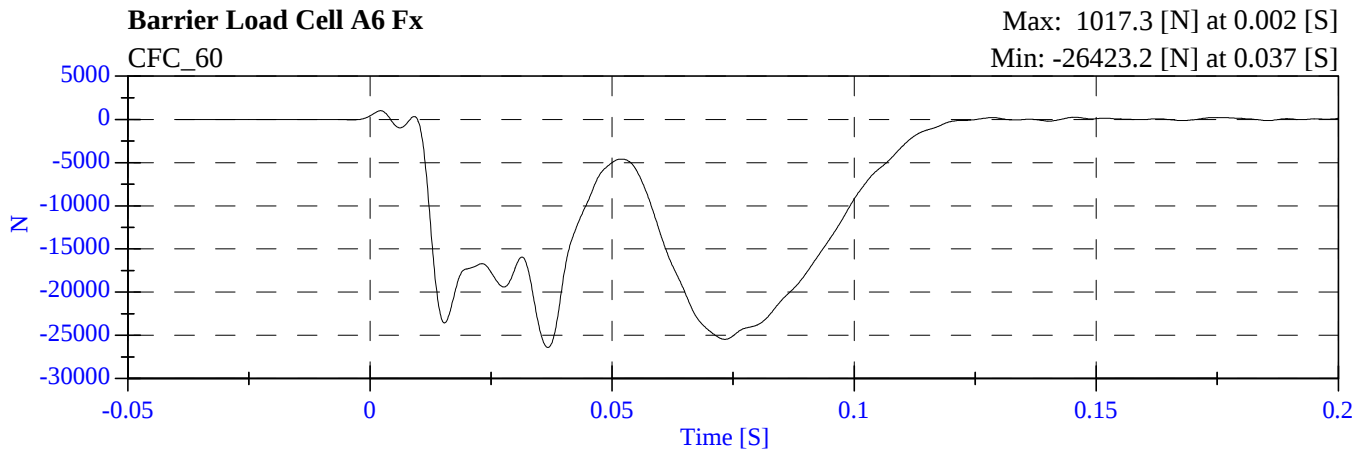
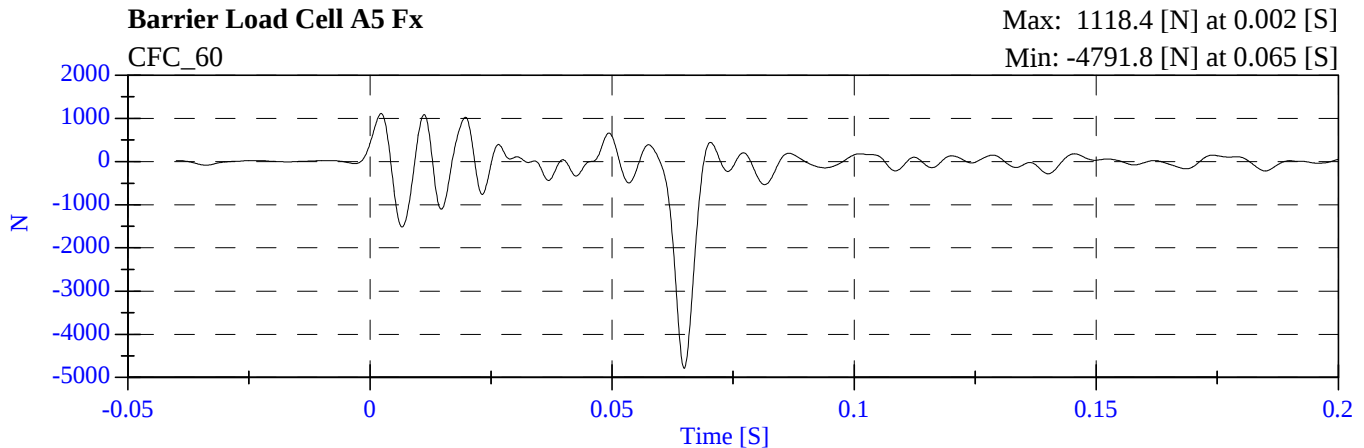
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



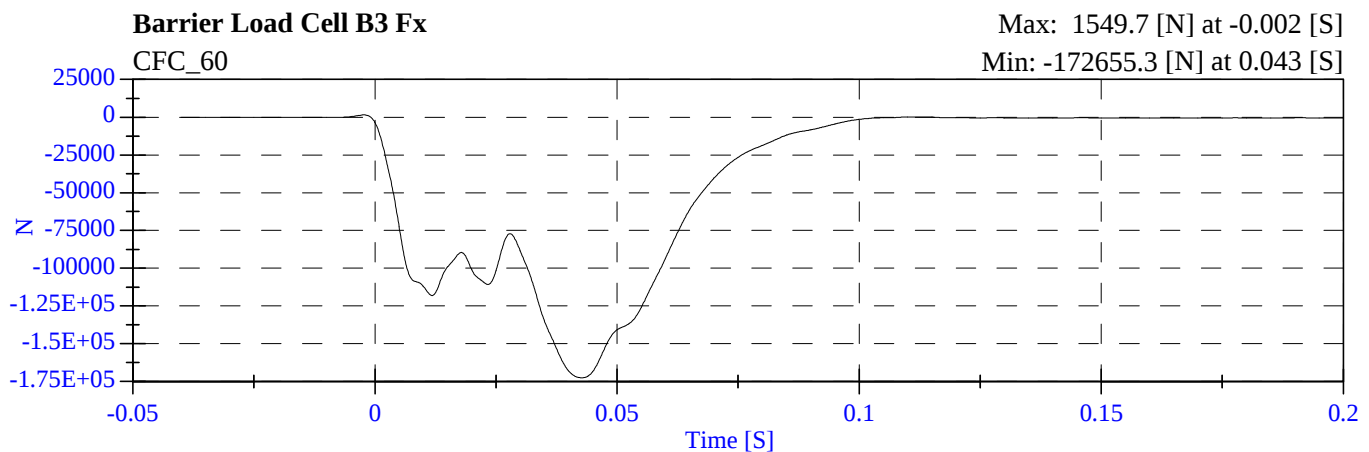
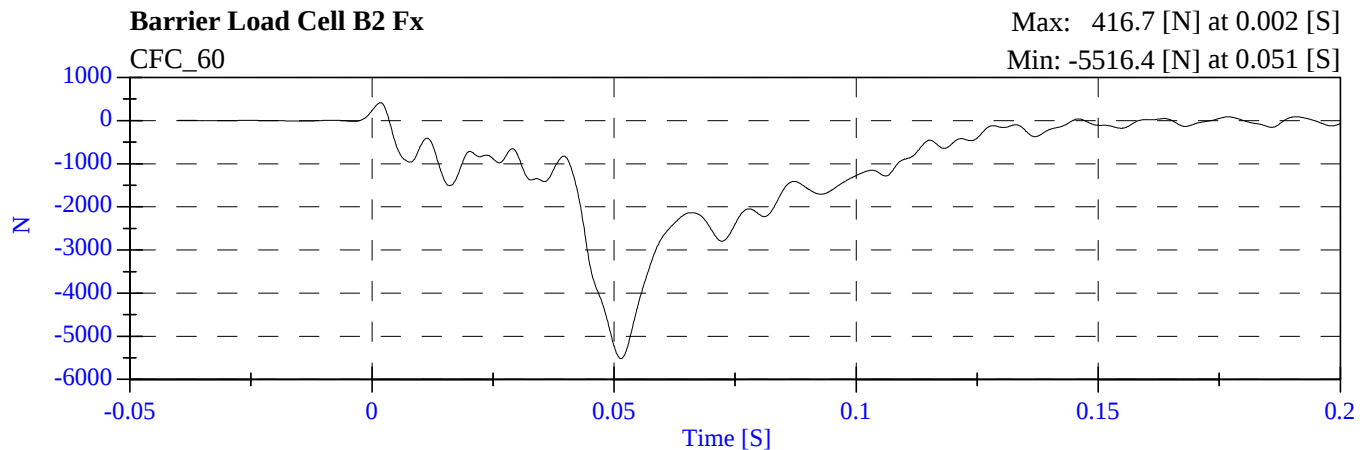
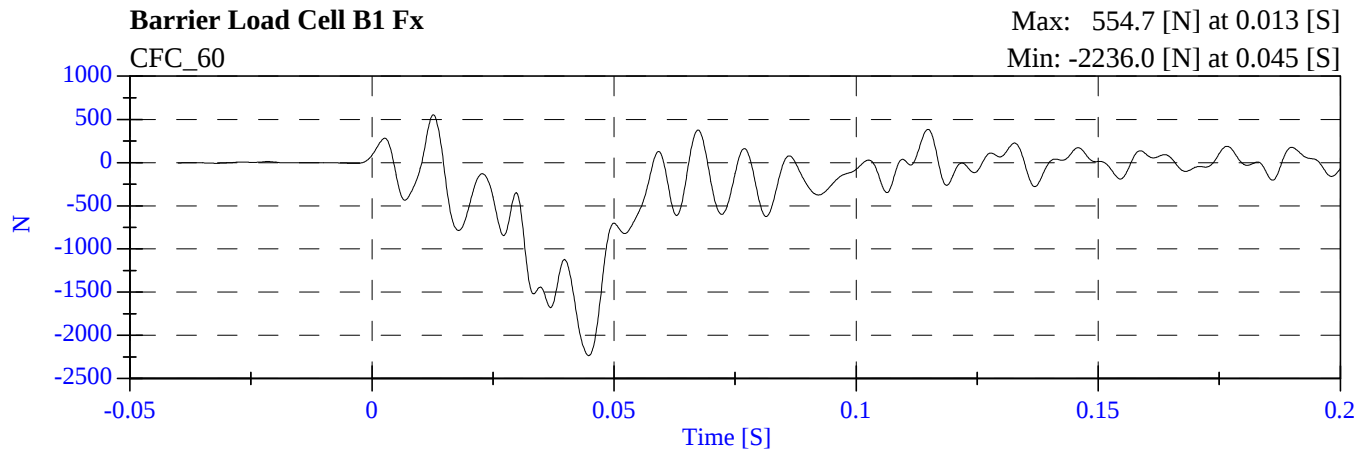
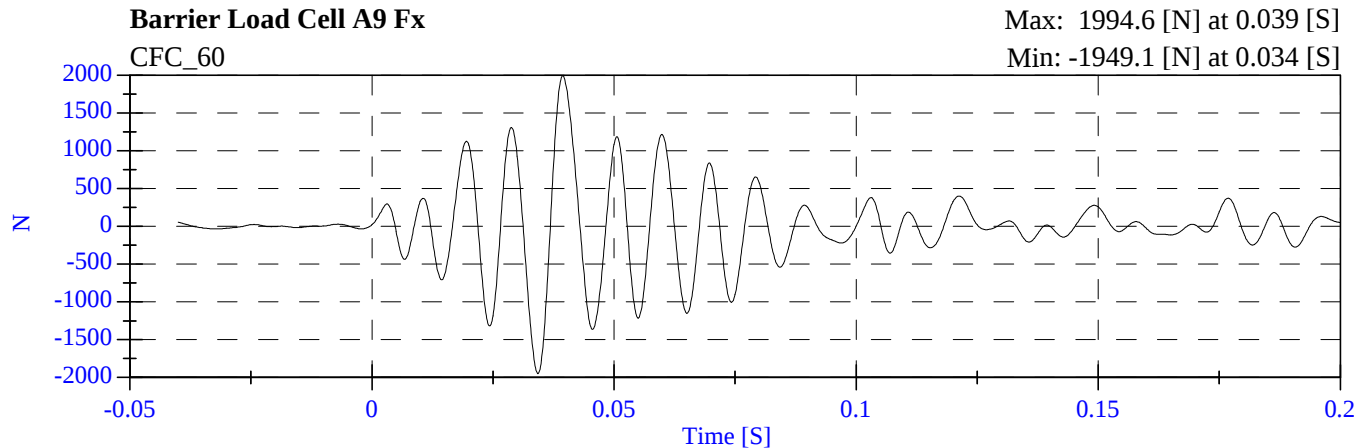
2005 NCAP Test 9 - 2005 Toyota Tacoma M55106 - February 16, 2005



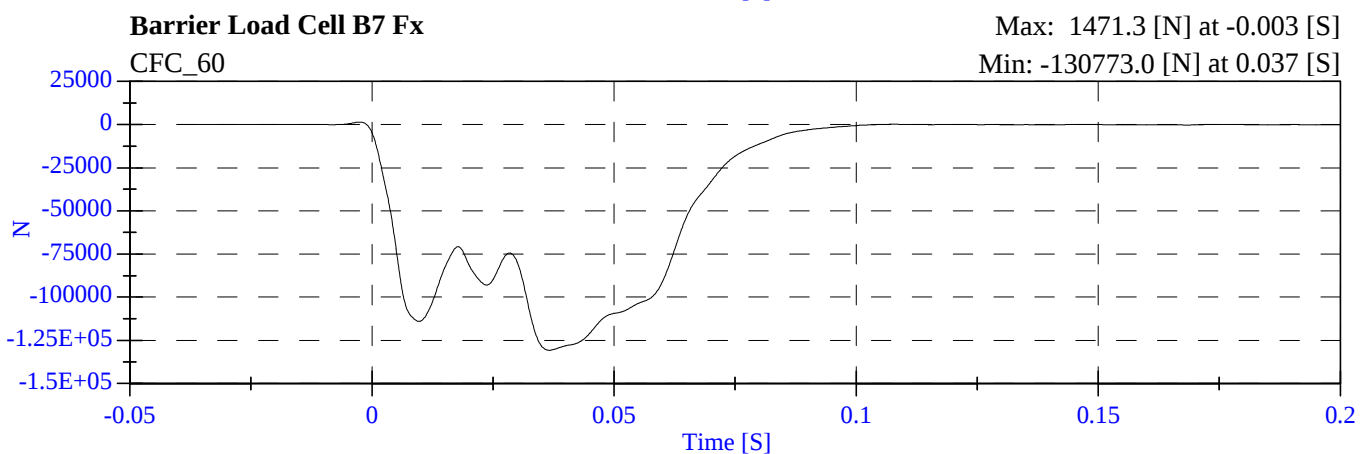
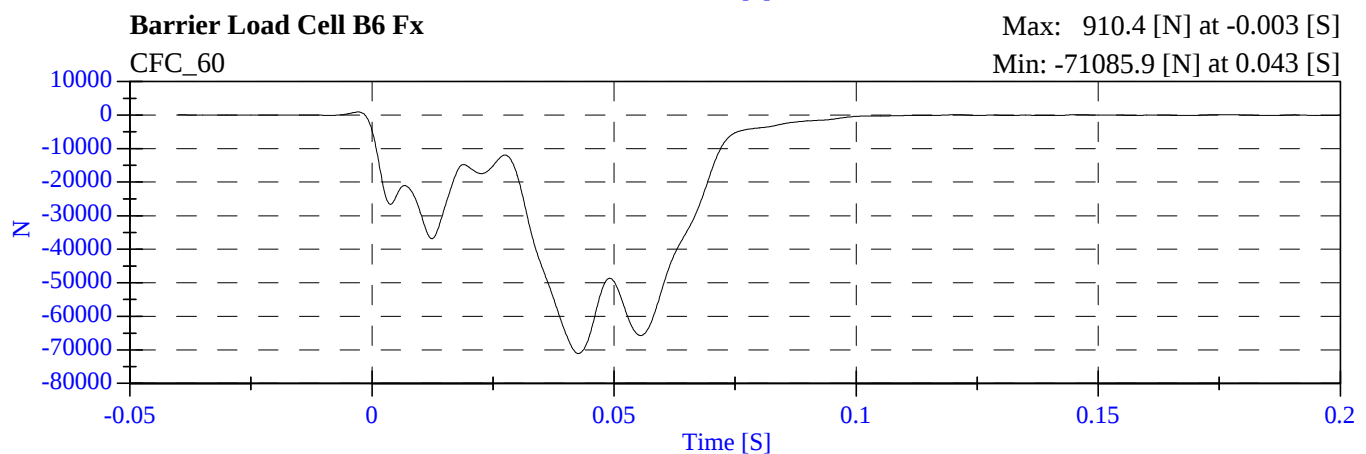
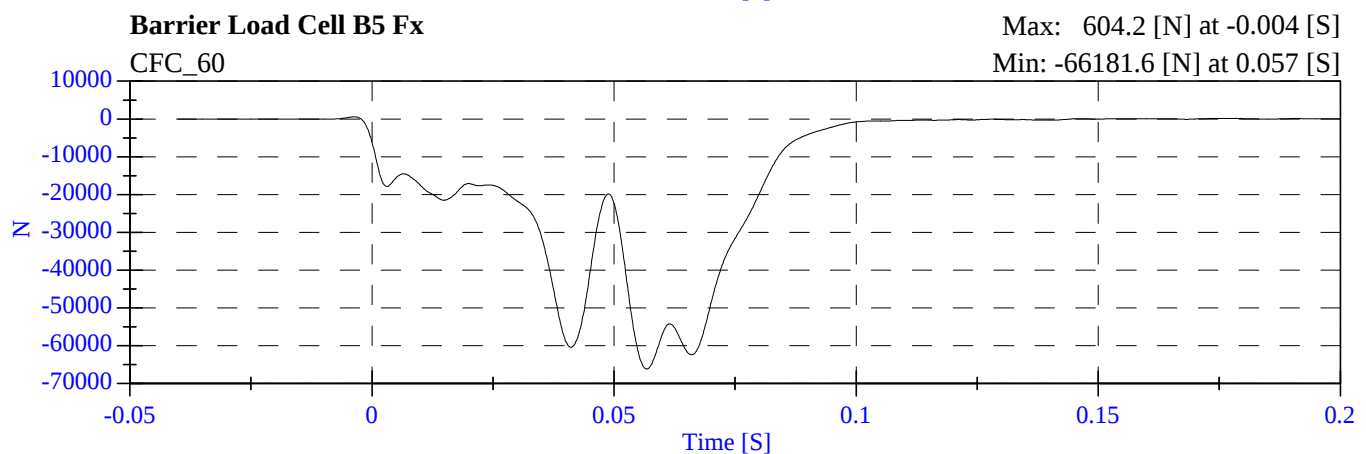
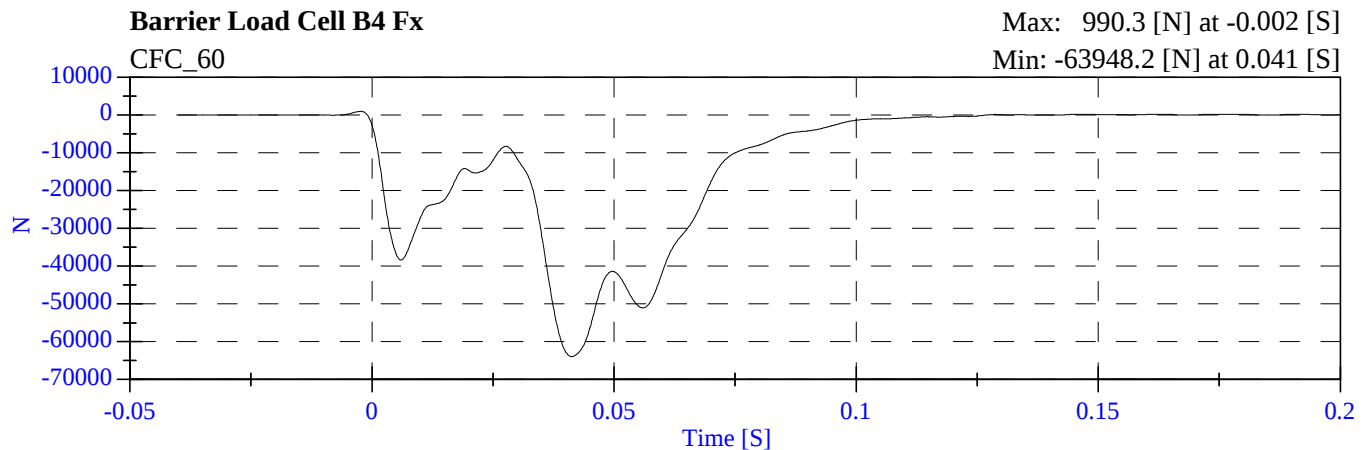
2005 NCAP Test 9 - 2005 Toyota Tacoma M55106 - February 16, 2005



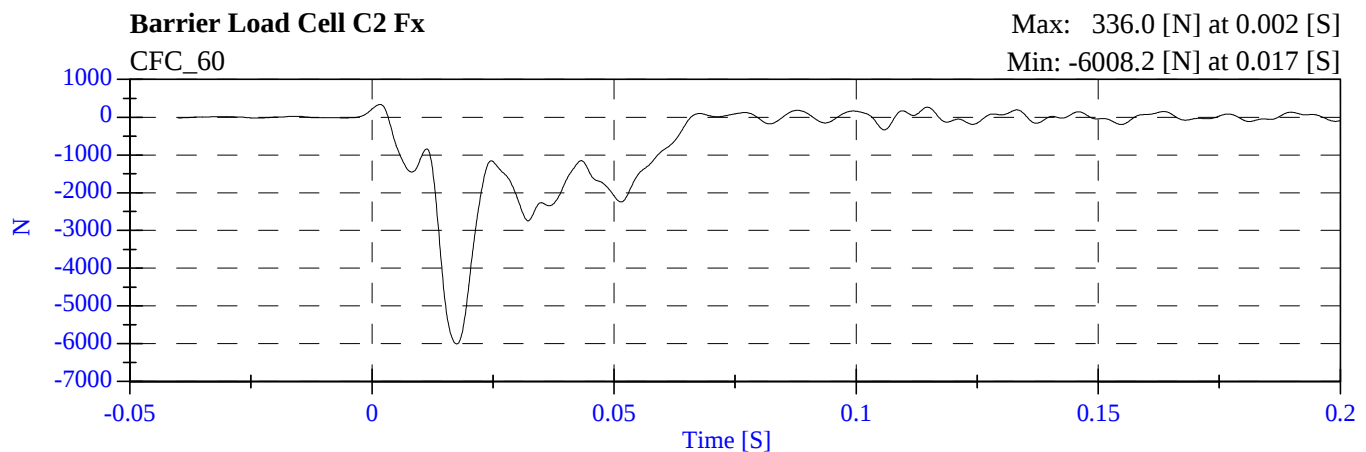
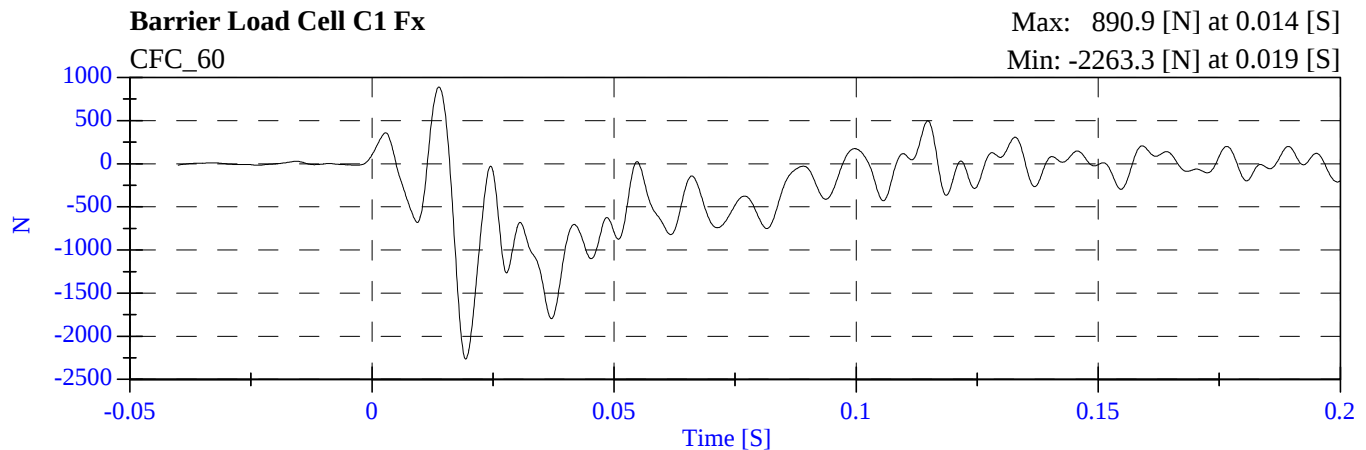
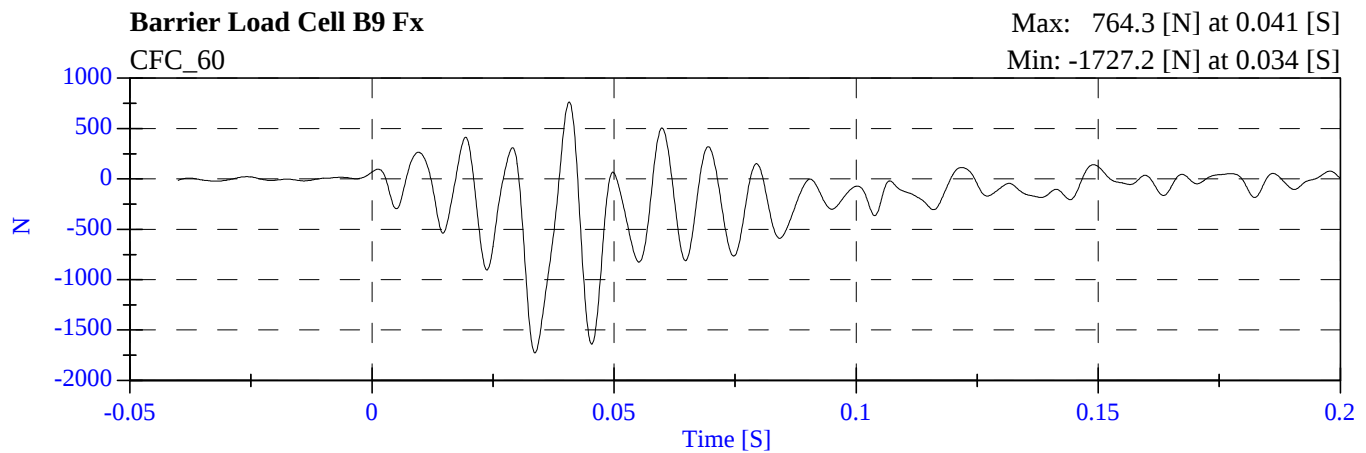
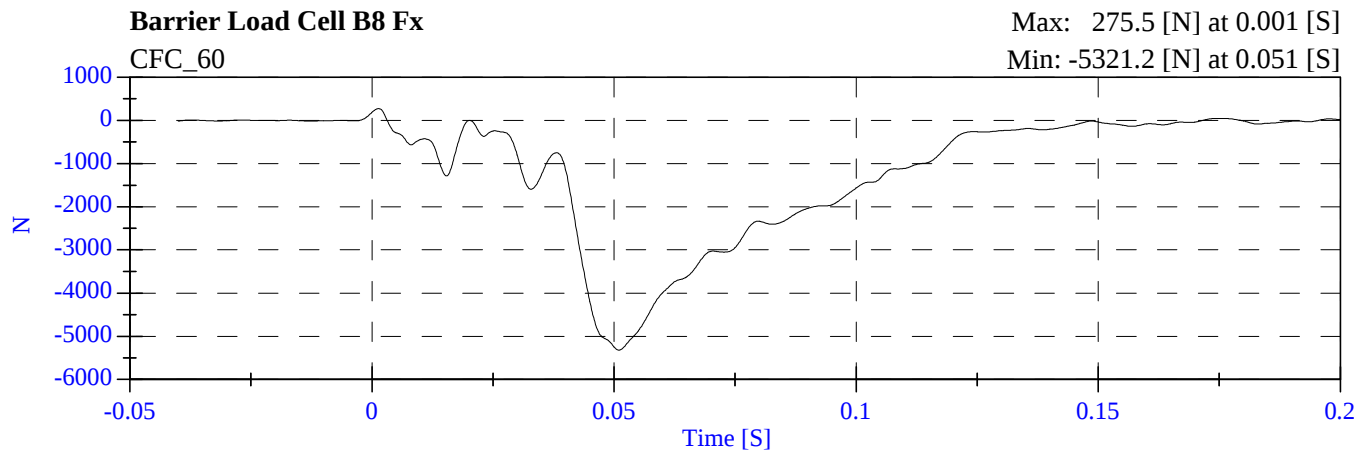
2005 NCAP Test 9 - 2005 Toyota Tacoma M55106 - February 16, 2005



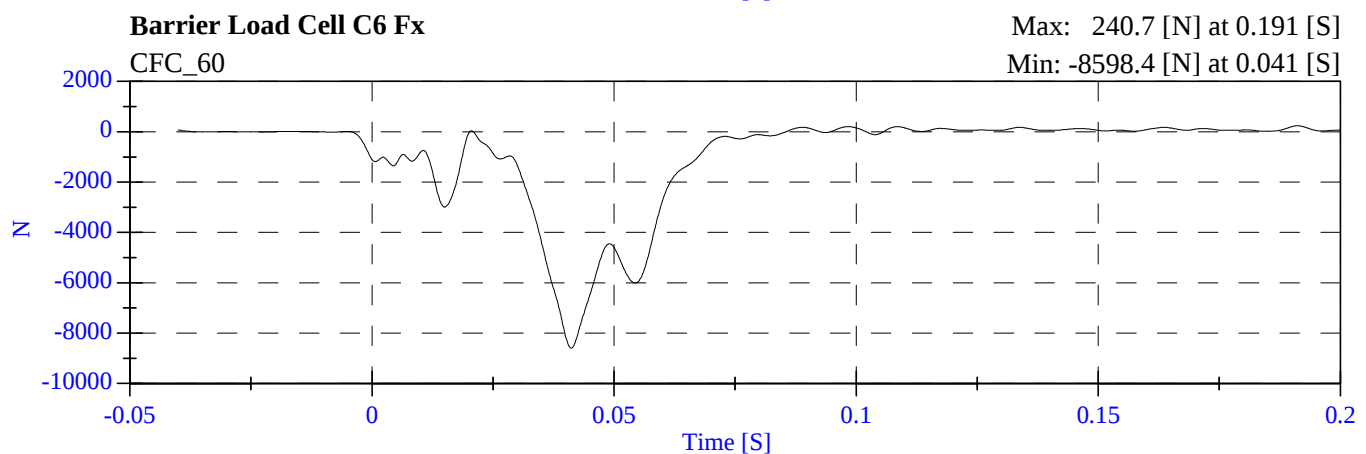
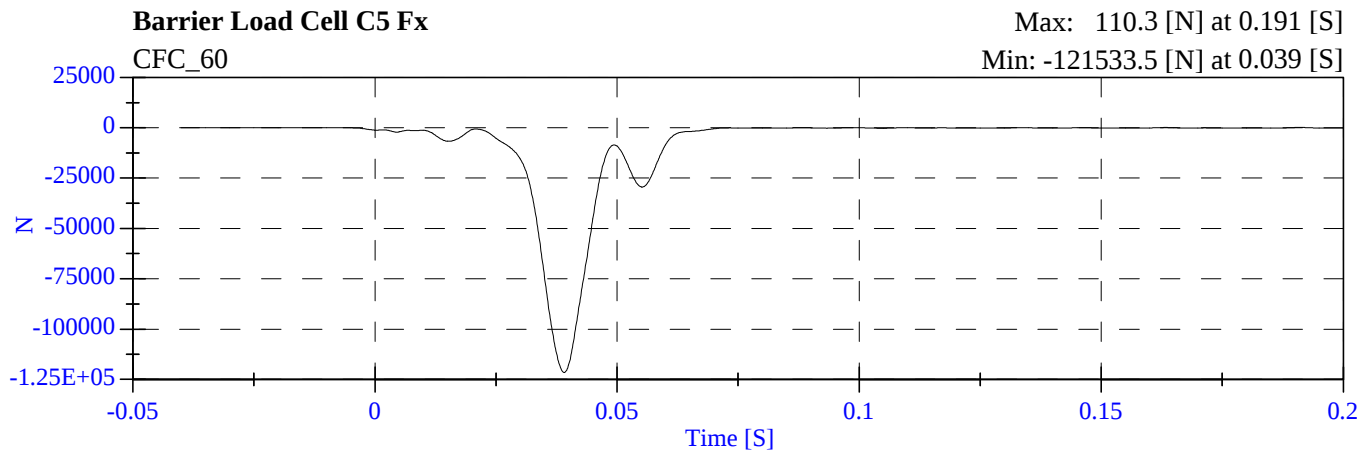
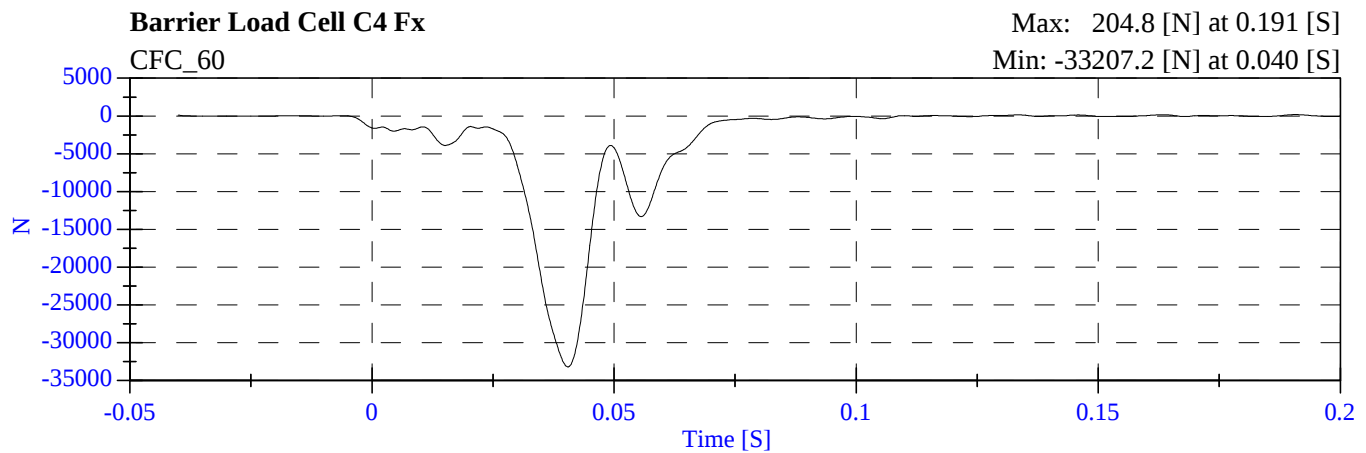
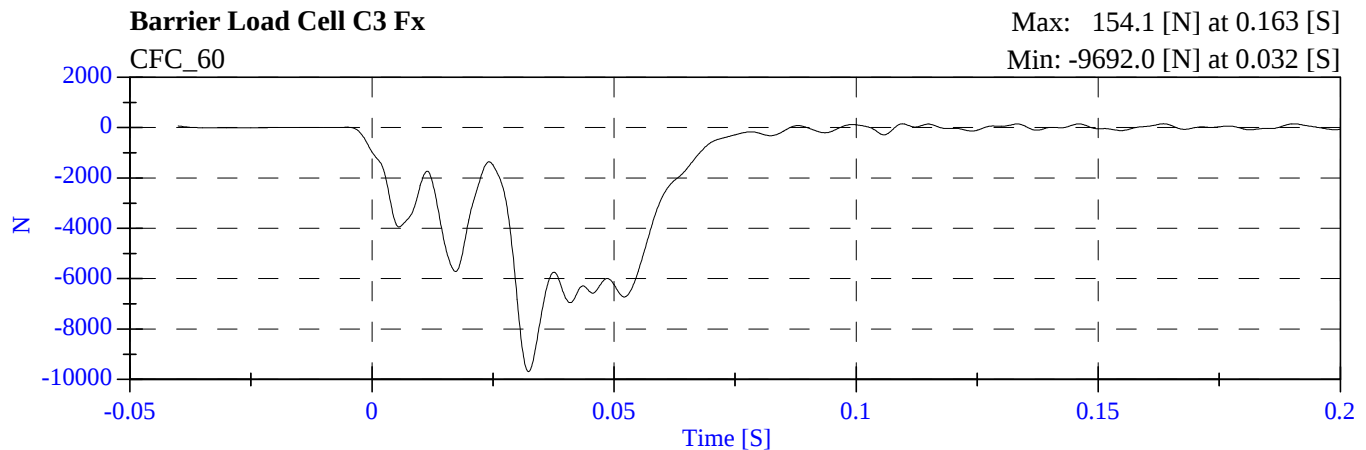
2005 NCAP Test 9 - 2005 Toyota Tacoma M55106 - February 16, 2005



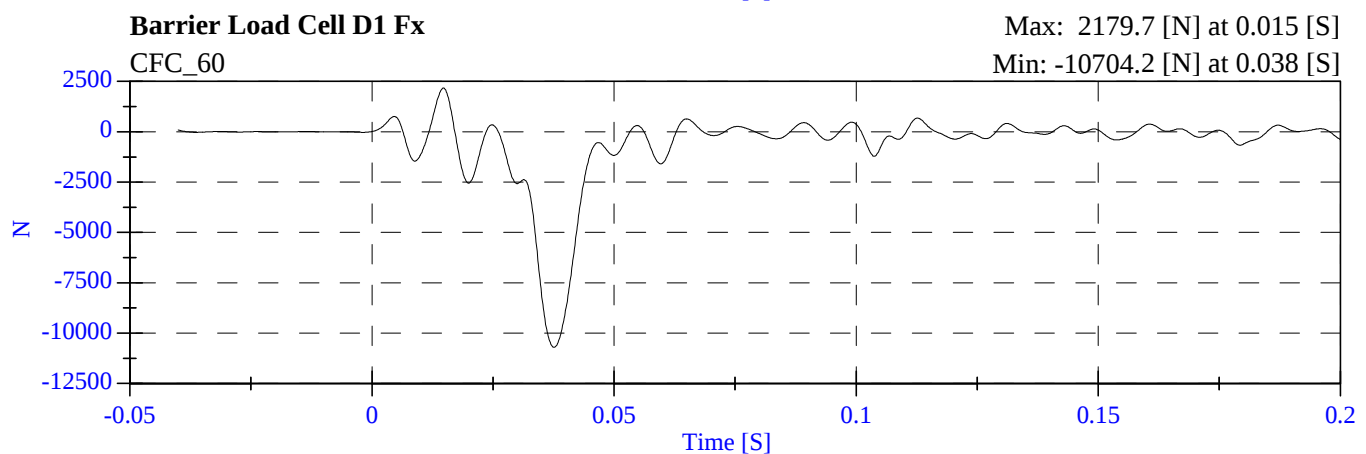
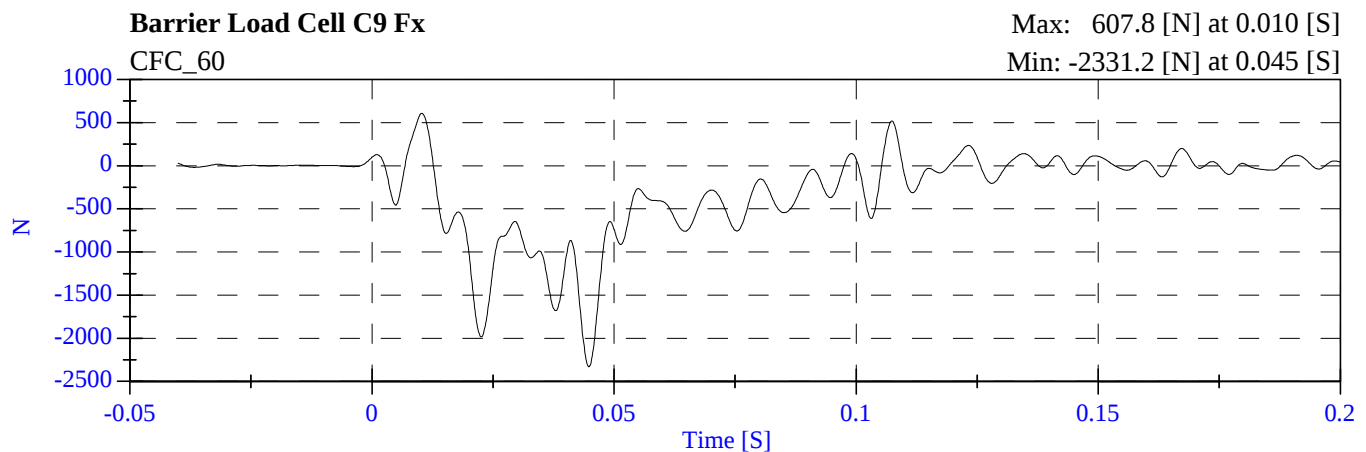
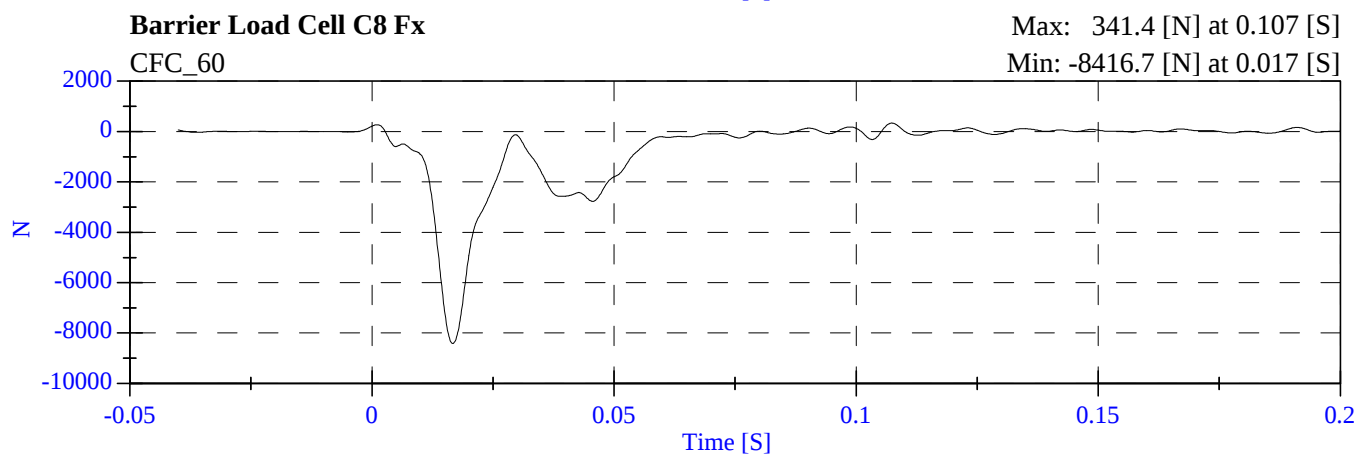
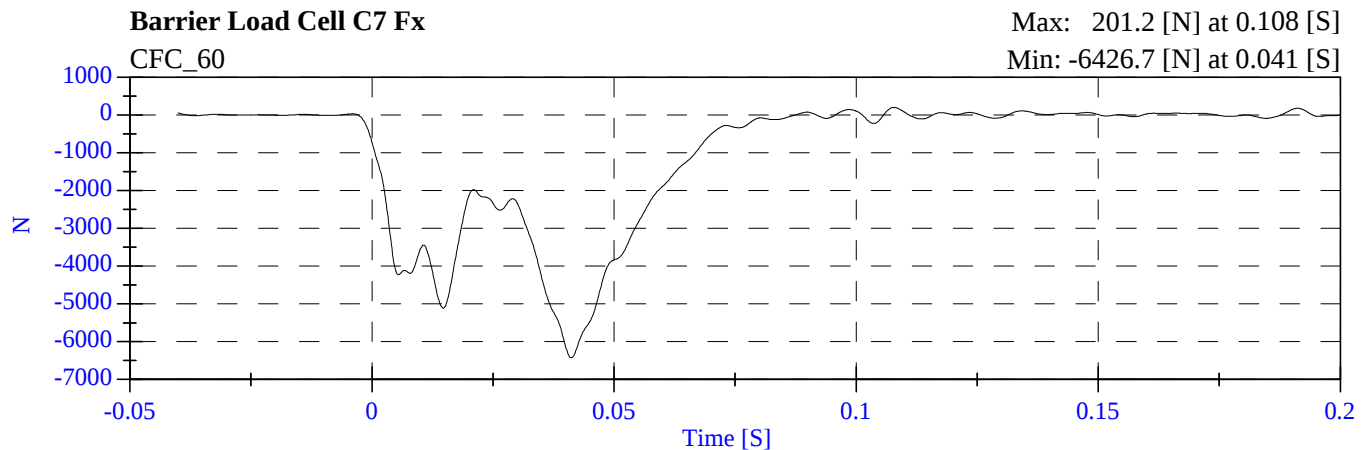
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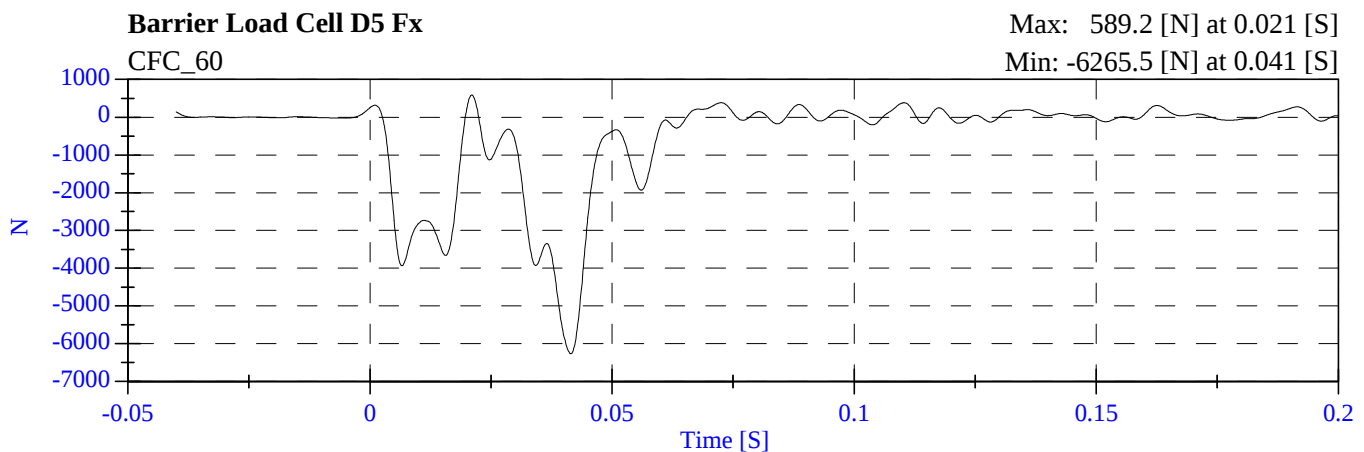
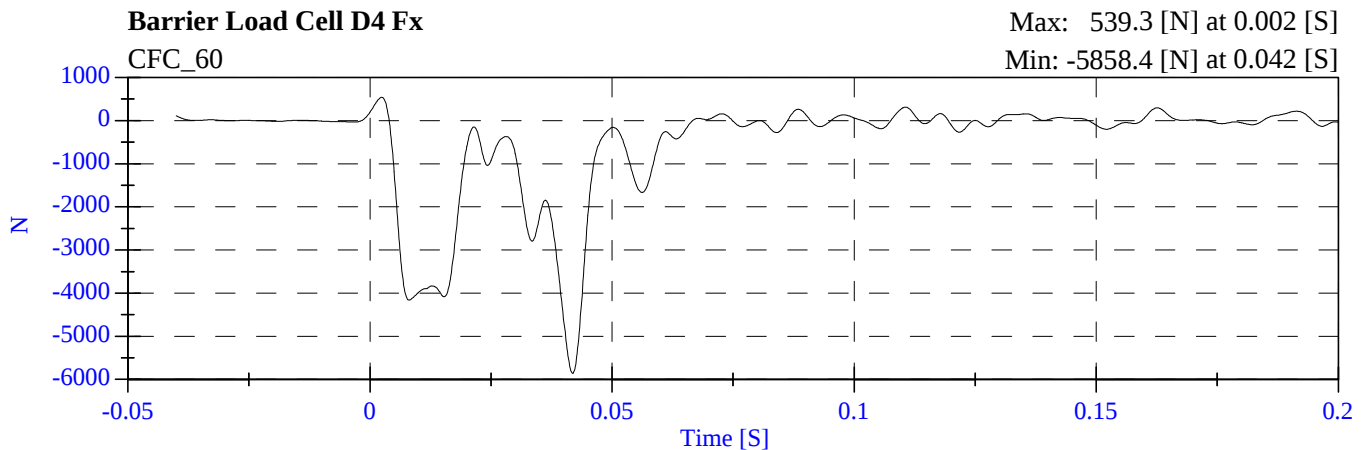
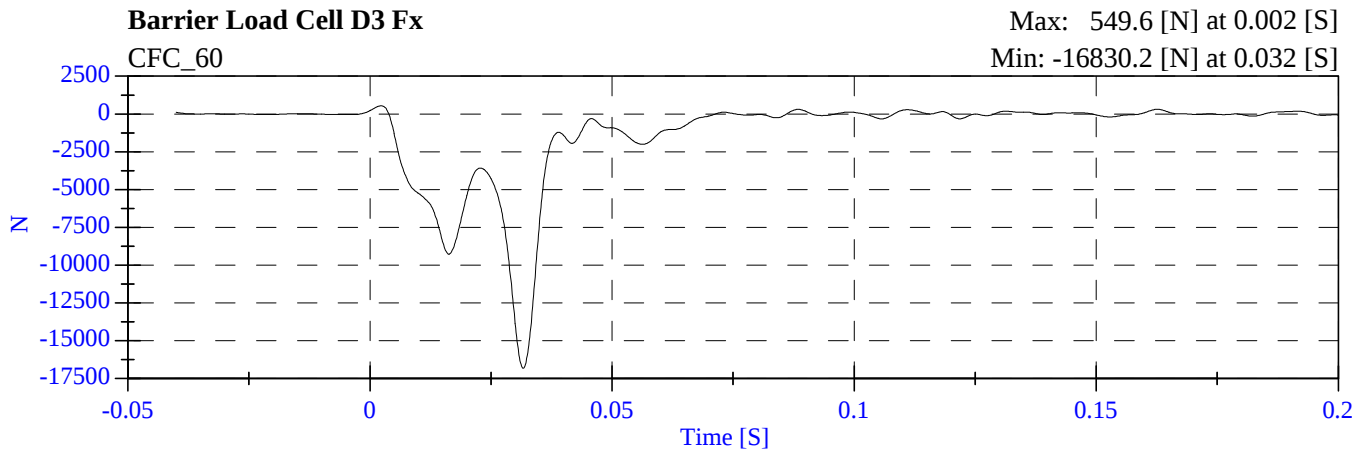
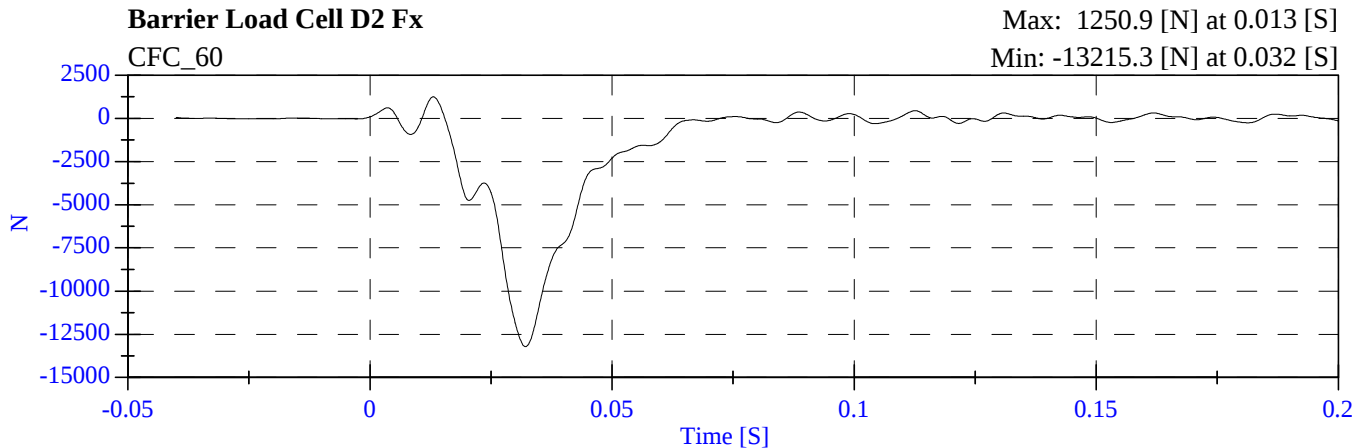
2005 NCAP Test 9 - 2005 Toyota Tacoma M55106 - February 16, 2005



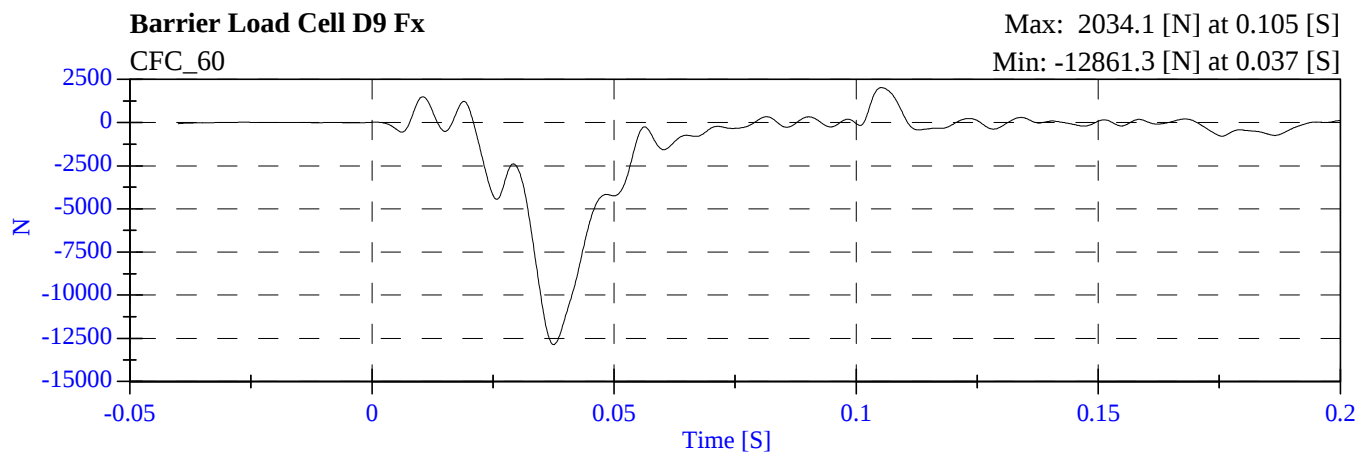
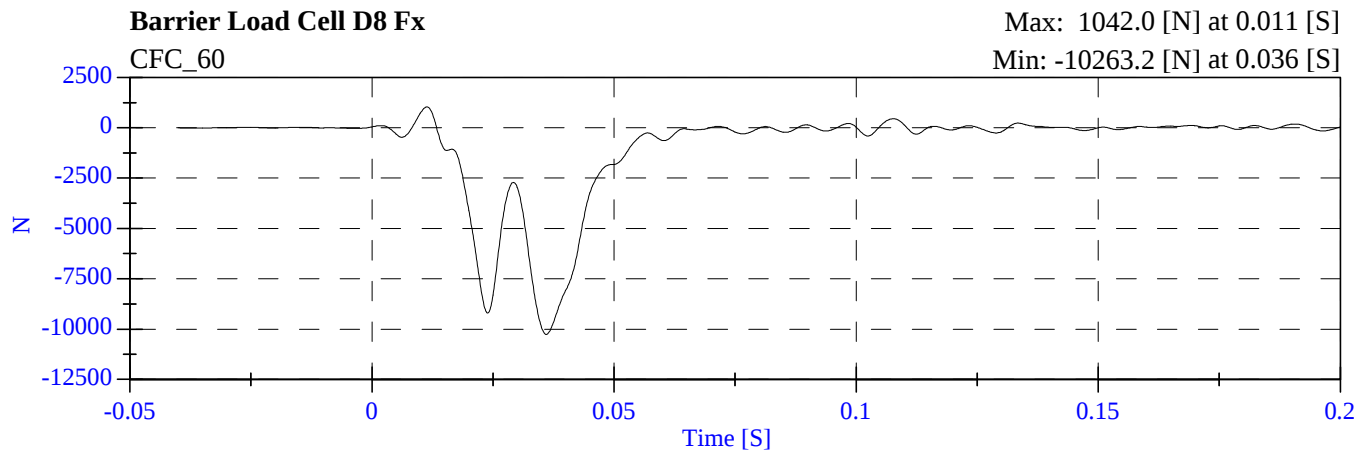
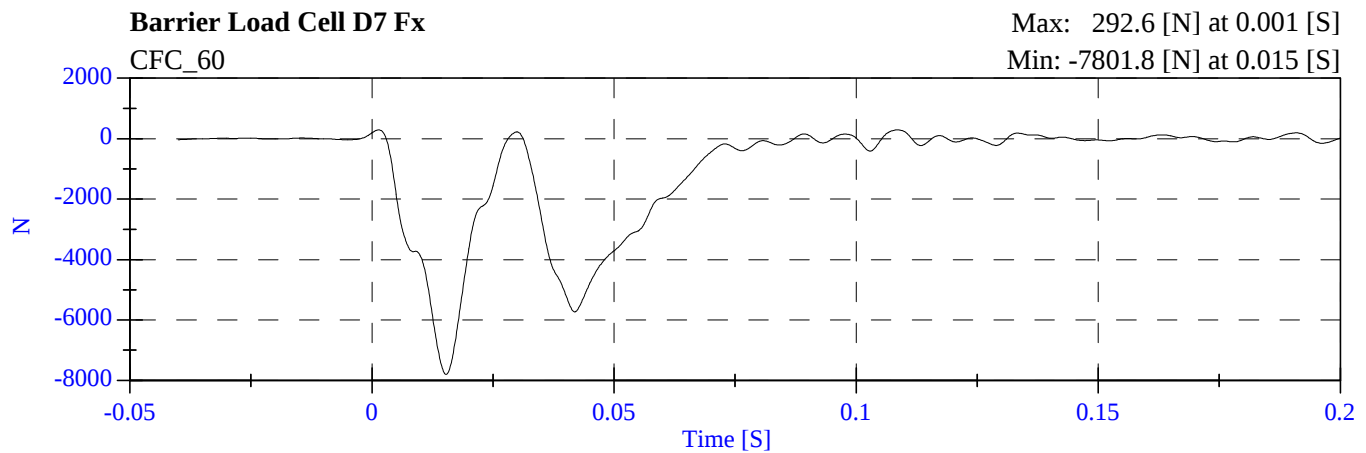
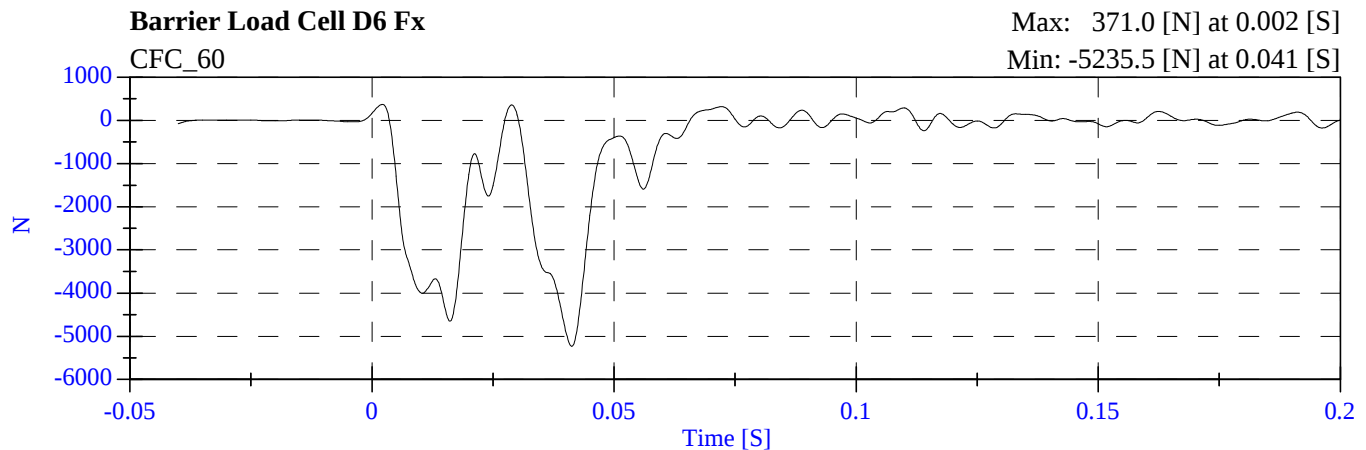
2005 NCAP Test 9 - 2005 Toyota Tacoma M55106 - February 16, 2005



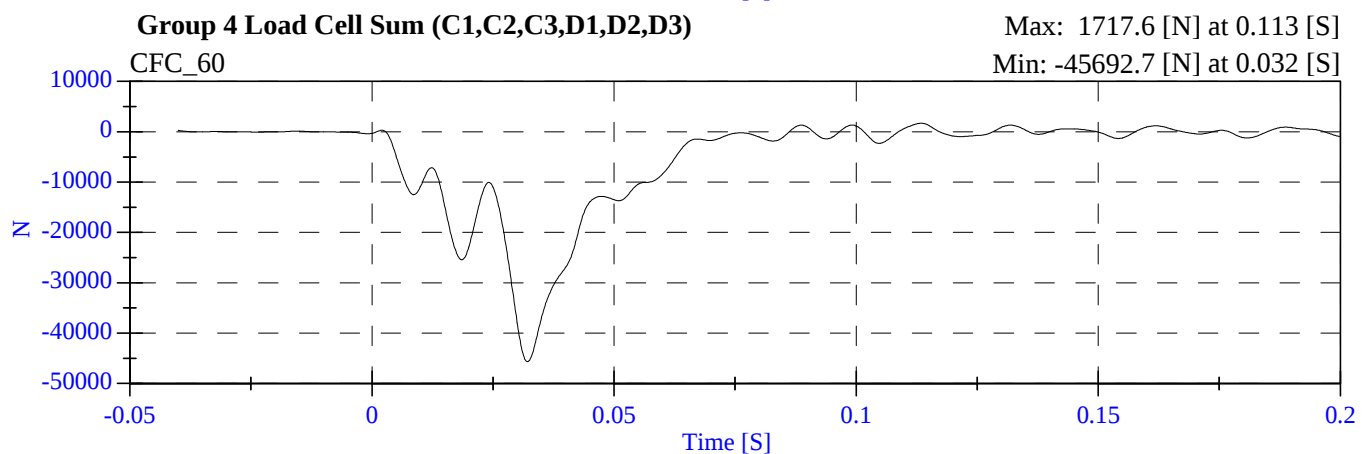
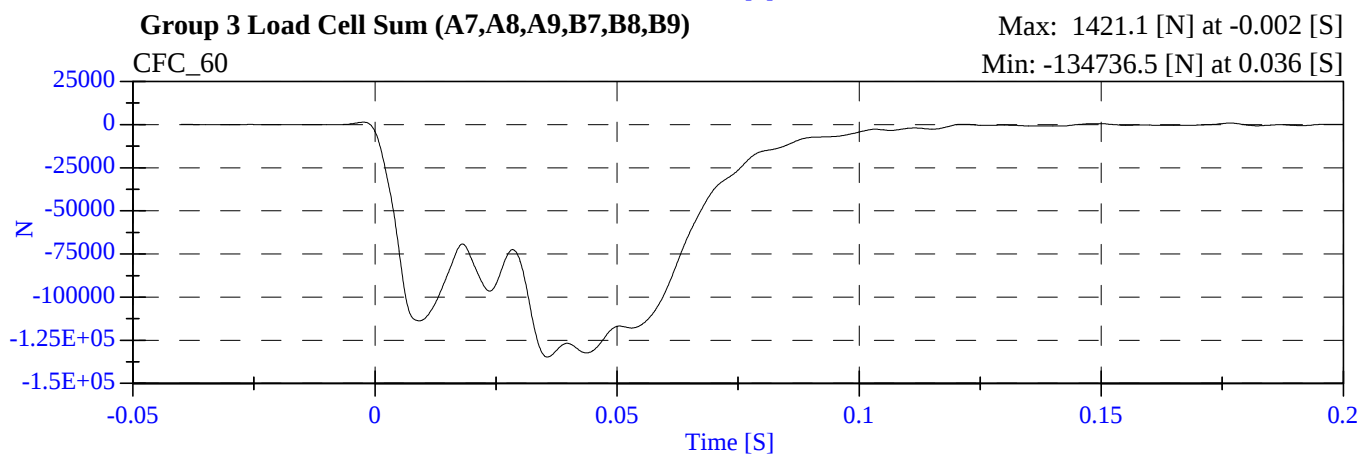
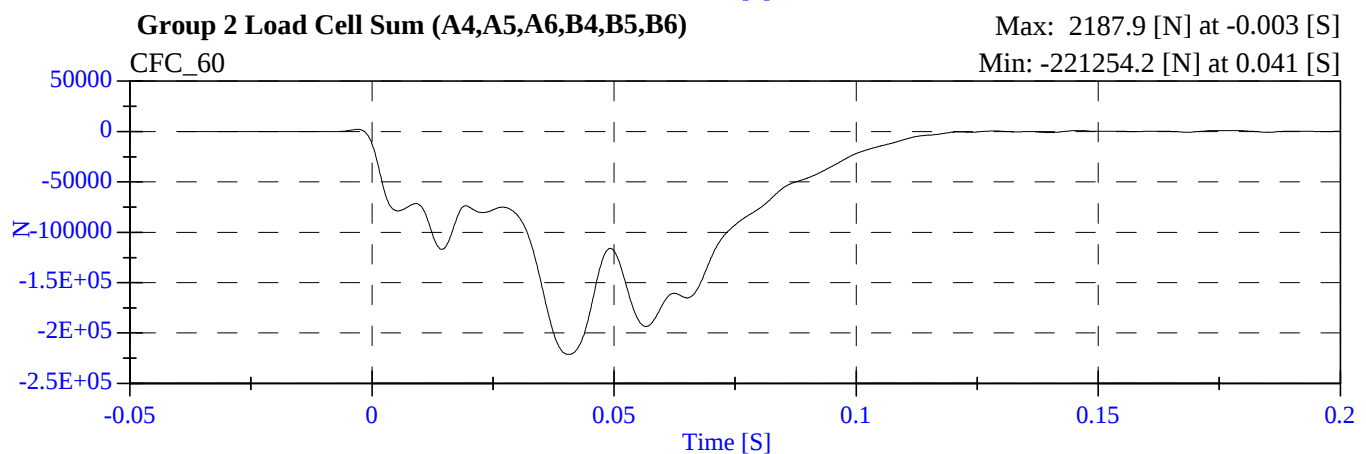
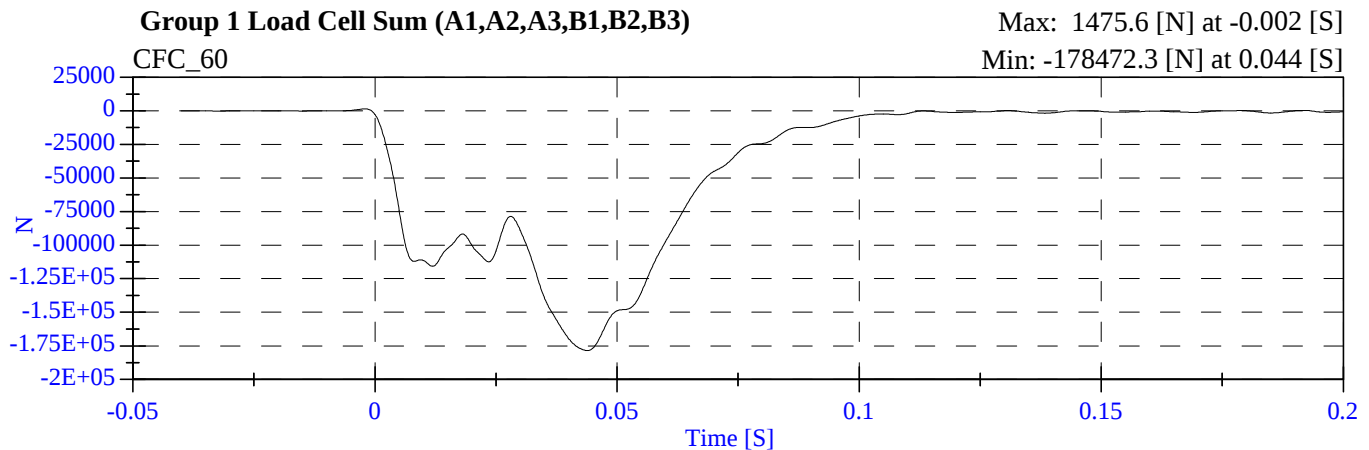
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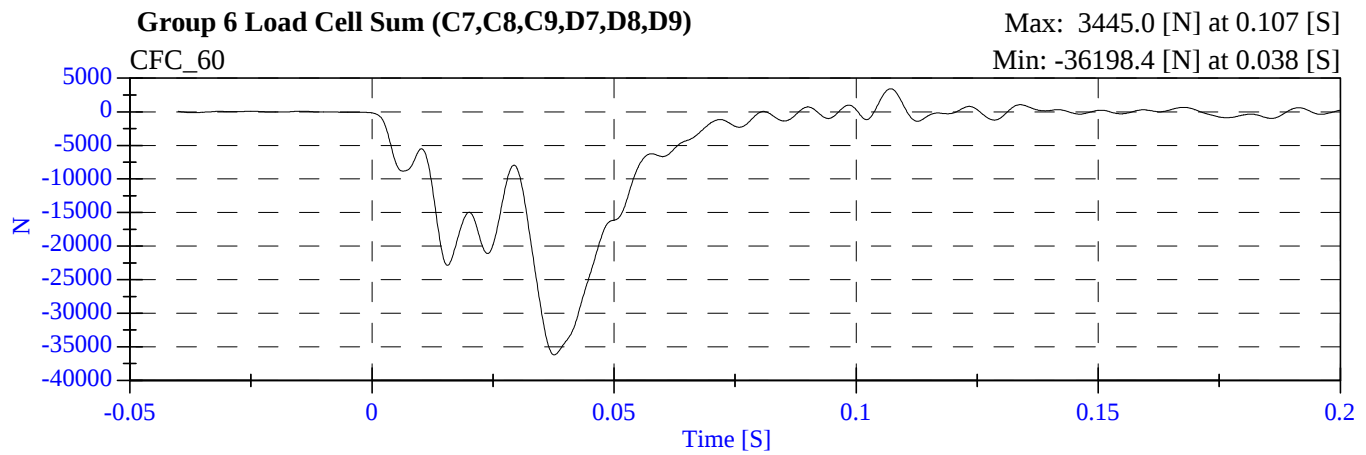
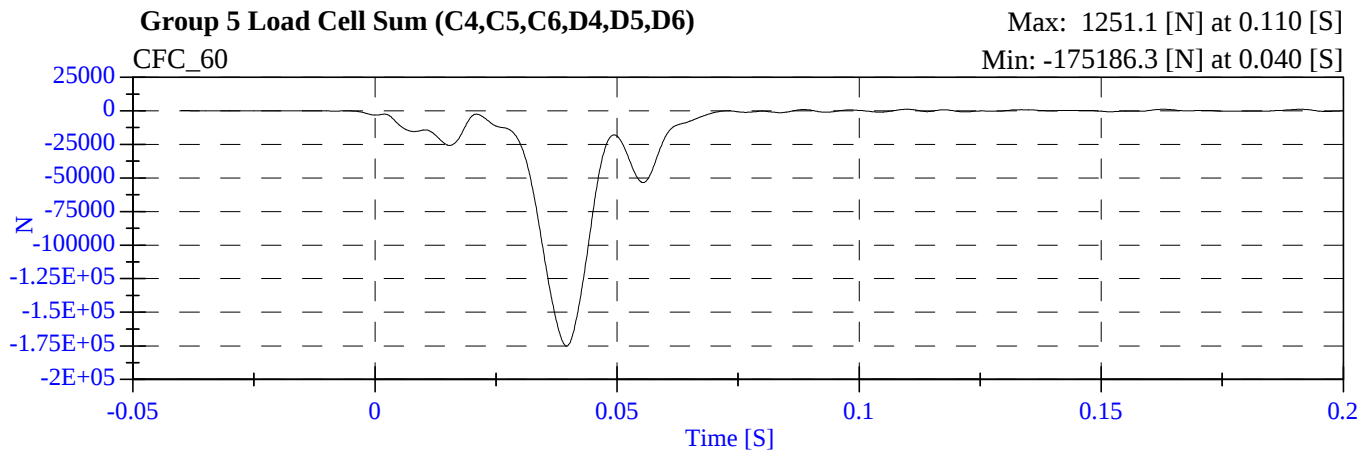
2005 NCAP Test 9 - 2005 Toyota Tacoma M55106 - February 16, 2005



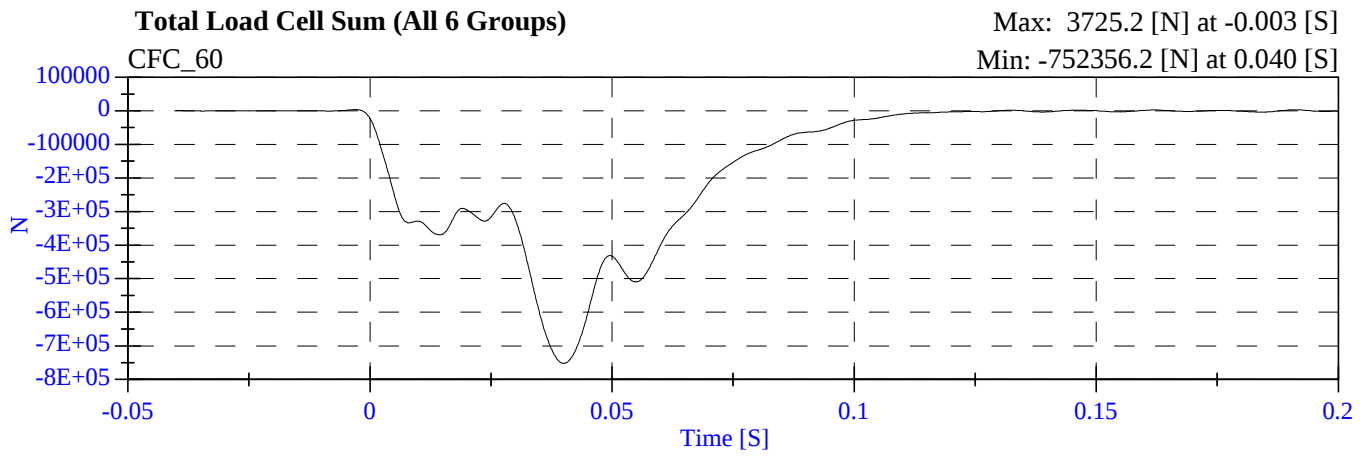
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2005 NCAP Test 9 - 2005 Toyota Tacoma M55106 - February 16, 2005



2005 NCAP Test 9 - 2005 Toyota Tacoma M55106 - February 16, 2005



APPENDIX C

PART 572B/E DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA SHEETS

Appendix C contains the results from certification tests performed on the 50th percentile male anthropomorphic test devices utilized for this crash test. The results indicate that the dummies meet all of the performance requirements of the six standard tests as specified in 49 CFR Part 572, Federal Register, Volume 42, No. 25, dated February 7, 1977.

The tests were conducted at the Dummy Certification Test Facility of General Dynamics. A summary of the test results, and Part 572 specifications are included in this Appendix.

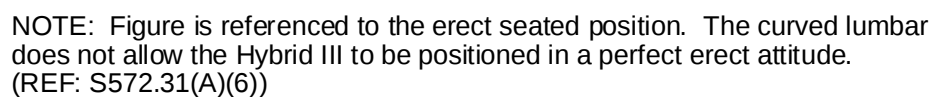
Dummy serial numbers and certification dates are:

<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	142	February 11, 2005
#2/Right Front Passenger	150	January 31, 2005

Electronic Test Equipment

The complement of signal conditioning, recording and display equipment, in conjunction with dummy certification testing, can be found in New Car Assessment and Standards Inducant Testing Final Report No. 6525-V-1.

EXTERNAL DIMENSIONS SPECIFICATIONS



PART 572E
HEAD DROP TEST

Dummy Serial Number 142
Sequential Test Number 2
Date January 21, 2005
Workfile 142H2 01-21-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70.00
Relative Humidity	10% - 70%	29.00
Peak Resultant Acceleration	225-275 G's	225.09
Peak Lateral Acceleration	15 G's Max	6.64
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	142	
Sequential Test Number	1	
Date	January 24, 2005	6 Axis Neck Transducer
Workfile	142NF 01-24-05	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6-22.2 Deg C	21.1
Relative Humidity		10% - 70%	33.00
Impact Velocity		6.89-7.13 m/s	7.01
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.59
	20 ms	17.60 - 22.60 G's	22.53
	30 ms	12.50 - 18.50 G's	17.78
Max Pendulum G's Above 30 ms		29 G's Max	17.78
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	37.00
D Plane Rotation	Max	64 - 78 Deg	66.09
	Time	57 - 64 ms	59.70
Moment About Occipital Condyle	Max	88.13-108.47 N-m	99.02
	Time	47 - 58 ms	49.70
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	120.10
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	98.09

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	142	
Sequential Test Number	1	
Date	January 24, 2005	6 Axis Neck Transducer
Workfile	142NE 01-24-05	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6-22.2 Deg C	21.11
Relative Humidity		10% - 70%	33.00
Impact Velocity		5.94 – 6.19 Ft/s	6.00
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.09
	20 ms	14.00 - 19.00 G's	18.27
	30 ms	11.00 - 16.00 G's	15.89
Max Pendulum G's Above 30 ms		22 G's Max	15.89
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	38.60
D Plane Rotation	Max	81 - 106 Deg	96.57
	Time	72 - 82 ms	76.40
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-68.41
	Time	65 - 79 ms	72.20
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	162.00
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	141.60

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 142
Sequential Test Number 1
Date February 11, 2005
Workfile 142T3 02-11-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	20.6-22.2 Deg C	21.1
Relative Humidity	10% - 70%	33.00
Pendulum Velocity	6.58 – 6.83 m/s	6.78
Maximum Deflection	64.52 – 72.64 mm	65.93
Maximum Resistive Force	5159.90 – 5893.90 N	5347.03
Internal Hysteresis	69 - 85 %	76.86

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 142
Sequential Test Number 1
Date January 28, 2005
Workfile 142LF 01-28-05/142RF 01-28-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70.00
Relative Humidity	10% - 70%	33.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1073.54
RIGHT KNEE		
Temperature	66 - 78 Deg F	70.00
Relative Humidity	10% - 70%	33.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1086.61

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 142
Sequential Test Number 1
Date January 31, 2005

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70.0
Relative Humidity			35.0
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Total Sitting Height	A	34.6 - 35.0 in	35.0
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
H-Point Height	C	3.3 - 3.5 in	3.5
H-Point from Backline	D	5.3 - 5.5 in	5.3
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Thigh Clearance	F	5.5 - 6.1 in	6.0
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.5
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.5
Elbow Rest Height	J	7.5 - 8.3 in	8.25
Buttock Knee Length	K	22.8 - 23.8 in	23.5
Popliteal Height	L	16.9 - 17.9 in	17.75
Knee Pivot Height	M	19.1 - 19.7 in	19.25
Buttock Popliteal Length	N	17.8 - 18.8 in	18.75
Chest Depth	O	8.4 - 9.0 in	9.0
Foot Length	P	9.9 - 10.5 in	10.25
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Foot Breadth	W	3.6 - 4.2 in	4.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.75
Waist Circumference	Z	32.9 - 34.1 in	33.0

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 150
Sequential Test Number 1
Date January 24, 2005
Workfile 150H 01-24-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70.0
Relative Humidity	10% - 70%	33.00
Peak Resultant Acceleration	225-275 G's	237.16
Peak Lateral Acceleration	15 G's Max	1.10
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	150	
Sequential Test Number	1	
Date	January 25, 2005	6 Axis Neck Transducer
Workfile	150NF 01-25-05	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	38.00
Impact Velocity		6.89 – 7.13 m/s	7.01
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	25.10
	20 ms	17.60 - 22.60 G's	21.97
	30 ms	12.50 - 18.50 G's	16.58
Max Pendulum G's Above 30 ms		29 G's Max	16.58
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	37.20
D Plane Rotation	Max	64 - 78 Deg	69.11
	Time	57 - 64 ms	58.10
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	93.84
	Time	47 - 58 ms	51.40
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	121.40
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	51.40

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	150	
Sequential Test Number	1	
Date	January 25, 2005	6 Axis Neck Transducer
Workfile	150NE 01-25-05	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	38.00
Impact Velocity		5.94 – 6.19 m/s	6.02
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.88
	20 ms	14.00 - 19.00 G's	18.62
	30 ms	11.00 - 16.00 G's	14.91
Max Pendulum G's Above 30 ms		22 G's Max	14.91
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	40.00
D Plane Rotation	Max	81 - 106 Deg	93.42
	Time	72 - 82 ms	76.30
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-65.41
	Time	65 - 79 ms	71.90
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	163.10
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	138.90

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 150
Sequential Test Number 1
Date January 28, 2005
Workfile 150T1 01-28-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	20.6 – 22.2 Deg C	21.1
Relative Humidity	10% - 70%	33.00
Pendulum Velocity	6.58 – 6.83 m/s	6.60
Maximum Deflection	64.52 – 72.64 mm	65.05
Maximum Resistive Force	5159.90 – 5893.90 N	5318.43
Internal Hysteresis	69 - 85 %	72.43

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 150
Sequential Test Number 1
Date January 28, 2005
Workfile 150LF 01-28-05/150RF 01-28-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70.00
Relative Humidity	10% - 70%	33.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1093.56
RIGHT KNEE		
Temperature	66 - 78 Deg F	70.00
Relative Humidity	10% - 70%	33.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1140.72

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 150
Sequential Test Number 1
Date January 31, 2005

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			35
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Total Sitting Height	A	34.6 - 35.0 in	34.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.1
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.5
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Thigh Clearance	F	5.5 - 6.1 in	6.0
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.5
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Elbow Rest Height	J	7.5 - 8.3 in	8.1
Buttock Knee Length	K	22.8 - 23.8 in	23.5
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.5
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Chest Depth	O	8.4 - 9.0 in	9.0
Foot Length	P	9.9 - 10.5 in	10.2
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Foot Breadth	W	3.6 - 4.2 in	4.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.0
Waist Circumference	Z	32.9 - 34.1 in	34.0

Remarks:

Laboratory Technician:

B. Swiecicki

APPENDIX D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 142)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-P35811	04-Jan-05	05-Jul-05
	Y	ENDEVCO	AC-P35764	10-Dec-04	10-Jun-05
	Z	ENDEVCO	AC-P39729	14-Dec-04	14-Jun-05
Head	X (R)	ENDEVCO	AC-P35788	09-Dec-04	09-Jun-05
	Y (R)	ENDEVCO	AC-P35761	04-Jan-05	05-Jul-05
	Z (R)	ENDEVCO	AC-P39736	07-Dec-04	07-Jun-05
Neck Load Cell	X	DENTON	LC-441Fx	12-Nov-04	13-May-05
	Y	DENTON	LC-441Fy	12-Nov-04	13-May-05
	Z	DENTON	LC-441Fz	12-Nov-04	13-May-05
Neck Moment	X	DENTON	LC-441Mx	12-Nov-04	13-May-05
	Y	DENTON	LC-441My	12-Nov-04	13-May-05
	Z	DENTON	LC-441Mz	12-Nov-04	13-May-05
Chest	X	ENDEVCO	AC-P19255	01-Dec-04	01-Jun-05
	Y	ENDEVCO	AC-P16576	01-Dec-04	01-Jun-05
	Z	ENDEVCO	AC-P19216	01-Dec-04	01-Jun-05
Chest	X (R)	ENDEVCO	AC-P15534	01-Dec-04	01-Jun-05
	Y (R)	ENDEVCO	AC-P23303	01-Dec-04	01-Jun-05
	Z (R)	ENDEVCO	AC-P15526	01-Dec-04	01-Jun-05
Chest Deflection	X	SERVO	DS-142	27-Jan-05	28-Jul-05
Pelvic	X	ENDEVCO	AC-P18792	17-Nov-04	18-May-05
	Y	ENDEVCO	AC-P17535	17-Nov-04	18-May-05
	Z	ENDEVCO	AC-P23134	17-Nov-04	18-May-05

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 142)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	GSE	LC-652	05-Nov-04	06-May-05
Right Femur Load Cell	Fz	GSE	LC-655	05-Nov-04	06-May-05
Left Upper Tibia	Mx	DENTON	LC-038Mx	09-Nov-04	10-May-05
	My	DENTON	LC-038My	09-Nov-04	10-May-05
Left Lower Tibia	Fz	DENTON	LC-124Fz	09-Nov-04	10-May-05
	Mx	DENTON	LC-124Mx	09-Nov-04	10-May-05
	My	DENTON	LC-124My	09-Nov-04	10-May-05
Right Upper Tibia	Mx	DENTON	LC-045Mx	09-Nov-04	10-May-05
	My	DENTON	LC-045My	09-Nov-04	10-May-05
Right Lower Tibia	Fz	DENTON	LC-125Fz	09-Nov-04	10-May-05
	Mx	DENTON	LC-125Mx	09-Nov-04	10-May-05
	My	DENTON	LC-125My	09-Nov-04	10-May-05
Left Foot Rear	X	ENDEVCO	AC-J31034	07-Jan-05	08-Jul-05
	Z	ENTRAN	AC-02I02I10-N17	03-Nov-04	04-May-05
Left Foot Front	Z	ENTRAN	AC-03E03E18-F18	03-Nov-04	04-May-05
Right Foot Rear	X	ENTRAN	AC-03E03E02-N16	03-Nov-04	04-May-05
	Z	ENTRAN	AC-03D03D16-F18	03-Nov-04	04-May-05
Right Foot Front	Z	ENDEVCO	AC-J32787	07-Jan-05	08-Jul-05
Lap Belt Load Cell		LEBOW	LC-711	01-Nov-04	02-May-05
Shoulder Belt Load Cell		First Technology	LC-156	01-Nov-04	02-May-05

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 150)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-P39575	04-Jan-05	05-Jul-05
	Y	ENDEVCO	AC-P35818	04-Jan-05	05-Jul-05
	Z	ENDEVCO	AC-P39743	04-Jan-05	05-Jul-05
Head	X (R)	ENDEVCO	AC-P35803	06-Jan-05	07-Jul-05
	Y (R)	ENDEVCO	AC-P35758	04-Jan-05	05-Jul-05
	Z (R)	ENDEVCO	AC-P35804	04-Jan-05	05-Jul-05
Neck Load Cell	X	DENTON	LC-076Fx	12-Nov-04	13-May-05
	Y	DENTON	LC-076Fy	12-Nov-04	13-May-05
	Z	DENTON	LC-076Fz	12-Nov-04	13-May-05
Neck Moment	X	DENTON	LC-076Mx	12-Nov-04	13-May-05
	Y	DENTON	LC-076My	12-Nov-04	13-May-05
	Z	DENTON	LC-076Mz	12-Nov-04	13-May-05
Chest	X	ENTRAN	AC-03D03D09-N07	03-Nov-04	04-May-05
	Y	ENTRAN	AC-02A09-F12	03-Nov-04	04-May-05
	Z	ENTRAN	AC-03E03E02-N13	03-Nov-04	04-May-05
Chest	X (R)	ENTRAN	AC-03D03D16-F01	03-Nov-04	04-May-05
	Y (R)	ENTRAN	AC-03E03E20-N16	03-Nov-04	04-May-05
	Z (R)	ENTRAN	AC-03F03E29-N17	03-Nov-04	04-May-05
Chest Deflection	X	SERVO	DS-150	12-Nov-04	13-May-05
Pelvic	X	ENDEVCO	AC-P23164	16-Nov-04	17-May-05
	Y	ENDEVCO	AC-P23174	16-Nov-04	17-May-05
	Z	ENDEVCO	AC-P23137	16-Nov-04	17-May-05

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 150)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	DENTON	LC-231	05-Nov-04	06-May-05
Right Femur Load Cell	Fz	DENTON	LC-232	05-Nov-04	06-May-05
Left Upper Tibia	Mx	DENTON	LC-023Mx	09-Nov-04	10-May-05
	My	DENTON	LC-023My	09-Nov-04	10-May-05
Left Lower Tibia	Fz	DENTON	LC-111Fz	09-Nov-04	10-May-05
	Mx	DENTON	LC-111Mx	09-Nov-04	10-May-05
	My	DENTON	LC-111My	09-Nov-04	10-May-05
Right Upper Tibia	Mx	DENTON	LC-016Mx	10-Nov-04	11-May-05
	My	DENTON	LC-016My	10-Nov-04	11-May-05
Right Lower Tibia	Fz	DENTON	LC-123Fz	09-Nov-04	10-May-05
	Mx	DENTON	LC-123Mx	09-Nov-04	10-May-05
	My	DENTON	LC-123My	09-Nov-04	10-May-05
Left Foot Rear	X	ENDEVCO	AC-J31066	10-Nov-04	11-May-05
	Z	ENTRAN	AC-04J04I20-Z11	04-Nov-04	05-May-05
Left Foot Front	Z	ENTRAN	AC-04J04I20-Z22	04-Nov-04	05-May-05
Right Foot Rear	X	ENTRAN	AC-04J04I01-R12	04-Nov-04	05-May-05
	Z	ENTRAN	AC-04J04I01-R23	05-Nov-04	06-May-05
Right Foot Front	Z	ENTRAN	AC-04J04I01-R02	05-Nov-04	06-May-05
Lap Belt Load Cell		LEBOW	LC-712	01-Nov-04	02-May-05
Shoulder Belt Load Cell		First Technology	LC-174	01-Nov-04	02-May-05

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(Six Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	GS SENSORS	AC-9440-032	14-Dec-04	14-Jun-05
Right Rear Seat Crossmember X	GS SENSORS	AC-9440-046	14-Dec-04	14-Jun-05
Top of Engine	ICS	AC-FGP15	27-Aug-04	25-Feb-05
Bottom of Engine	ICS	AC-FGP43	27-Aug-04	25-Feb-05
Right Disc Brake Caliper	ICS	AC-FGP37	27-Aug-04	25-Feb-05
Instrument Panel	ICS	AC-FGP41	20-Aug-04	18-Feb-05
Left Disc Brake Caliper	ICS	AC-FGP23	20-Aug-04	18-Feb-05
Left Seat Rear Crossmember Z	GS SENSORS	AC-9440-017	14-Dec-04	14-Jun-05
Right Seat Rear Crossmember Z	GS SENSORS	AC-9440-023	14-Dec-04	14-Jun-05

REPORT NUMBER: CAL-05-09

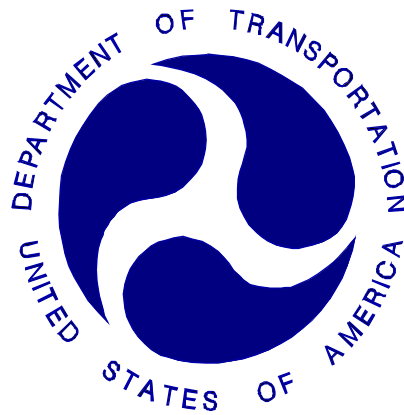
NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

EVENFLO TITAN V FORWARD FACING CONVERTIBLE WITH LATCH AND TOP TETHER
GRACO TURBOBOOSTER HIGH BACK BOOSTER

NHTSA NUMBER: M55106

GDAIS ENGINEERING REPORT NUMBER: 8642-NCAP-59

GENERAL DYNAMICS
TRANSPORTATION SCIENCES CENTER
P.O. BOX 400
BUFFALO, NEW YORK 14225



February 16, 2005

FINAL REPORT

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Rulemaking
Office of Crashworthiness Standards
Mail Code: NVS-111
400 Seventh Street, SW, Room No. 5313
Washington, DC 20590

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-01-D-32005. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

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Acceptance Date:

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16. Abstract This CRS test was performed in conjunction with a New Car Assessment Program (NCAP) load cell barrier test. An Evenflo Titan V Forward Facing Convertible CRS was secured in Position 3 (P3) with the LATCH system and top tether. A Graco TurboBooster Highback Booster was placed in Position 4 (P4) with the safety belt in ALR mode. This test was conducted at the General Dynamics Crash Test Facility in Buffalo, New York, on February 16, 2005.					
ATD Position		HIC 15		HIC 36	
P3 (Right Rear) (040)		373.2		759.2	
P4 (Left Rear) (186)		660.4		1077.8	
				Clip (3 ms)	
				41.1	
				71.7	
17. Key Words New Car Assessment Program (NCAP)				18. Distribution Statement	
				<u>Copies of this report are available from:</u> National Highway Traffic Safety Administration Technical Reference Division Room 5111 (NAD-52) 400 Seventh St., S.W. Washington, D.C. 20590 Telephone No. (202) 366-4946 ATTN: Robert Hornicle	
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SECTION 1

PURPOSE AND SUMMARY OF TEST M35306

The purpose of this test was to obtain CRS performance data in a frontal impact NCAP condition. These data constitute part of the general consumer information collected by the New Car Assessment Program (NCAP).

The 56.17 kph NCAP frontal impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) NCAP Laboratory Test Procedure.

SUMMARY

Both child dummies were instrumented with head, chest, and pelvic triaxial accelerometers. In addition, chest displacement and upper six axial neck force and moment load cell sensors were utilized. Position 3 was equipped with lower neck force and moment transducers.

The right rear (Position 3) child dummy (serial no. 040) and left rear (Position 4) child dummy (serial no. 186) were calibrated previous to this test. Child dummy certification information is found in section 5.

The right rear child dummy's HIC (15 ms) was 373.2, the 36 ms HIC was 759.2 and the maximum chest deceleration over 3 ms was 41.1 g's. The left rear child dummy's HIC (15 ms) was 660.4, the 36 ms HIC was 1077.8 and the maximum chest deceleration over 3 ms was 71.7 g's.

SECTION 2
DATA SHEET NO. 1
CRASH TEST SUMMARY

TEST DUMMY INFORMATION:

DESCRIPTION	Position #3 CRS	Position #4 CRS
ATD Type/Serial No.	Hybrid III 3C/040	Hybrid III 6C /186
Restraint System:	Evenflo Titan V forward facing LATCH	Graco TurboBooster

Number of Data Channels	47	
Number of Cameras:	1	Real Time
	2	High Speed

POST TEST DOOR OPENING

DESCRIPTION	FRONT	REAR
Left Side Doors	Closed, Latched and Operable without tools	Closed, Latched and Operable without tools
Right Side Doors	Closed, Latched and Operable without tools	Closed, Latched and Operable without tools
Hatch/Other Door	N/A	N/A

POST TEST SEAT DATA

LOCATION	SEAT MOVEMENT (mm)	SEAT BACK FAILURE
P1 (Left Front)	0	None
P2 (Right Front)	0	None
P3 (Right Rear)	0	None
P4 (Left Rear)	0	None

VISIBLE DUMMY CONTACT POINTS

	Position #3 CRS	Position #4 CRS
Head Contact:	The face and chin to the chest and the back of the head to the top of the child restraint	The face and chin to the chest, the top of the head to the P1 seatback and the back of the head to the CRS head restraint.
Upper Torso Contact:	Chin to chest	Chin to chest
Lower Torso Contact:	None	None
Left Knee Contact:	None, Toe to P2 seatback	None, Toe to P1 seatback
Right Knee Contact:	None, Toe to P2 seatback	None, Toe to P1 seatback

DATA SHEET NO. 2

CRS PARAMETER DATA

CRS: Evenflo Vangaurd V forward facing LATCH and Graco TurboBooster

NHTSA No. M55106

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Delivered Weight of Vehicle with Maximum Fluids = 1589.0 kg (A)

AS TESTED WEIGHT OF VEHICLE

(2 P572E + 1 P572P w/ CRS + 1 P572N w/ CRS +CARGO + EQUIPMENT & INSTRUMENTATION):

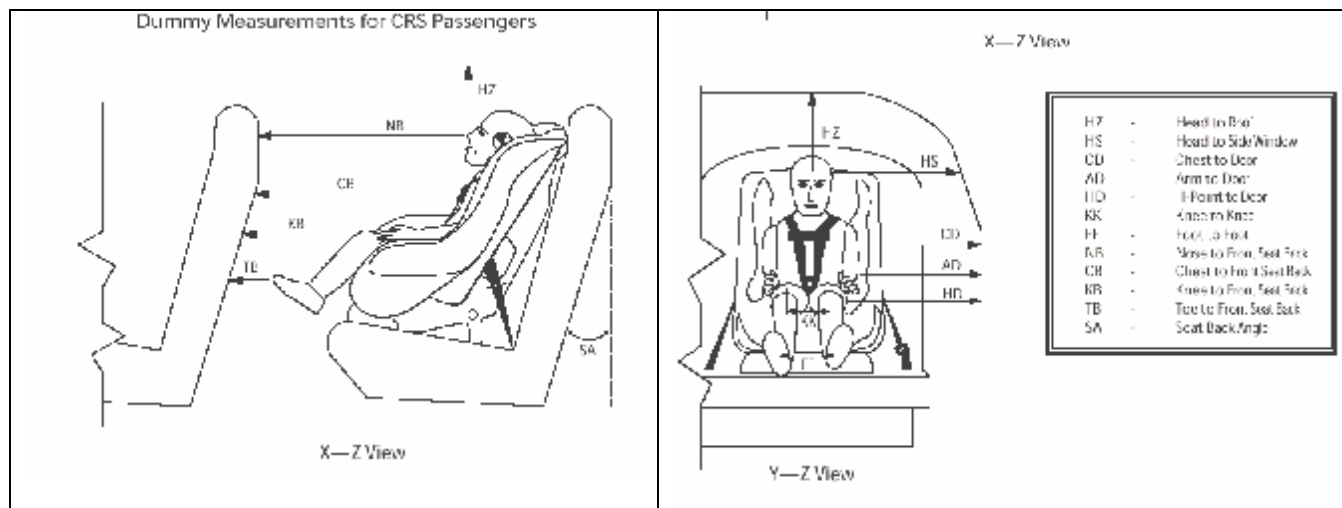
Left Front	=	<u>508.0</u>	kg	Left Rear	=	<u>443.0</u>	kg
Right Front	=	<u>486.5</u>	kg	Right Rear	=	<u>432.0</u>	kg
TOTAL FRONT	=	<u>994.5</u>	kg	TOTAL REAR	=	<u>875.0</u>	kg
TOTAL TEST WEIGHT =		<u>1869.5</u>	kg				

DATA SHEET NO. 3

CHILD DUMMY POSITIONING IN VEHICLE

CRS: Evenflo Vangaurd V forward facing LATCH and Graco TurboBooster

NHTSA No. M55106



Measurement	(mm)	(mm)
	P3 CRS (040)	P4 CRS (186)
SA	3°	3°
HS	460	430
CD	382	365
AD	213	184
HD	296	220
HZ	434	410
NB	255	228
CB	302	306
KB	110	122
FF	106	122
KB – LEFT	210	230
KB – RIGHT	210	230
TB – LEFT	0	0
TB – RIGHT	0	0
Top Tether Anchor to CRS		
	CRS to Guide	Guide to Anchor
Angle	27°	40°
Length	34	387
X	N/A	N/A
Y	N/A	N/A
Z	N/A	N/A

All dimensions in mm (unless noted)

P3 – Right Rear Passenger (CRS #1)

P4 – Left Rear Passenger (CRS #2)

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES

CRS: Evenflo Vangaurd V forward facing LATCH and Graco TurboBooster

NHTSA No. M55106

DESCRIPTION	Unit	MAXIMUM VALUE							
		Position #3				Position #4			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head X	g	33.6	185.3	-31.6	94.1	2.0	35.9	-35.9	57.0
Head Y	g	2.6	99.3	-10.3	94.6	5.9	43.6	-24.2	44.0
Head Z	g	57.2	80.1	-90.2	133.4	71.8	69.4	-2.5	19.5
Head Resultant	g	90.6	133.4	0.0	-7.3	77.9	69.5	0.0	-36.3
Upper Neck Fx	N	104.9	160.8	-810.7	89.8	46.8	36.3	-825.3	56.5
Upper Neck Fy	N	60.8	88.7	-57.3	137.7	46.8	43.6	-220.0	90.5
Upper Neck Fz	N	1620.7	84.2	-117.3	35.5	2331.9	59.0	-115.3	16.0
Upper Neck F Resultant	N	1765.5	85.8	0.3	-14.2	2463.9	58.9	0.1	-35.9
Upper Neck Mx	N-m	3.0	59.4	-3.9	140.8	9.4	132.0	-14.9	95.2
Upper Neck My	N-m	9.4	159.4	-17.0	191.7	13.0	94.3	-49.0	55.3
Upper Neck Mz	N-m	3.9	195.0	-1.5	83.3	8.6	103.3	-8.0	60.5
Upper Neck M Resultant	N-m	17.4	191.7	0.0	9.4	50.0	55.3	0.0	-35.4
Lower Neck Fx	N	-	-	-	-	7.5	14.6	-1428.6	69.9
Lower Neck Fy	N	-	-	-	-	210.9	107.0	-215.2	70.9
Lower Neck Fz	N	-	-	-	-	2799.7	56.4	-168.0	26.1
Lower Neck F Resultant	N	-	-	-	-	2902.6	56.4	0.2	-37.1
Lower Neck Mx	N-m	-	-	-	-	5.0	45.9	-46.7	87.6
Lower Neck My	N-m	-	-	-	-	51.0	87.5	-52.9	63.1
Lower Neck Mz	N-m	-	-	-	-	19.6	116.4	-10.1	77.3
Lower Neck M Resultant	N-m	-	-	-	-	69.2	87.6	0.1	-31.5
Chest X	g	11.0	162.6	-37.5	66.4	2.3	198.2	-70.9	50.2
Chest Y	g	5.6	76.9	-2.9	112.7	8.7	49.9	-22.7	64.7
Chest Z	g	22.2	83.0	-25.5	112.7	25.9	57.4	-10.4	145.6
Chest Resultant	g	42.2	70.2	0.0	-50.0	73.7	50.3	0.0	-33.7
Chest Displacement	g	0.0	-32.1	-17.5	91.8	0.0	-0.6	-39.2	60.6

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES (CONTINUED)

CRS: Evenflo Vangaurd V forward facing LATCH and Graco TurboBooster

NHTSA No. M55106

		MAXIMUM VALUE							
		Position #3				Position #4			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Pelvic X	g	28.8	111.9	-49.2	46.4	8.5	125.1	-69.7	42.2
Pelvic Y	g	7.1	35.5	-96.9	71.8	13.8	64.8	-7.2	42.4
Pelvic Z	g	18.0	183.8	-25.7	44.3	18.4	78.3	-22.0	130.3
Pelvic Resultant	g	97.8	71.8	0.0	-14.9	71.7	40.4	0.0	-42.5
Lap Belt Load	N	-	-	-	-	5869.2	50.0	-12.0	171.3
Torso Belt Load	N	-	-	-	-	5641.2	62.2	-4.1	-10.2
Tether Belt Load	N	714.4	96.3	-83.9	151.5	-	-	-	-

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES (CONTINUED)

CRS: Evenflo Vangaurd V forward facing LATCH and Graco TurboBooster

NHTSA No. M55106

	HEAD INJURY CRITERIA (HIC)							
	HIC15				HIC36			
	HIC	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂	HIC	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #3 - Right	373.2	66.5	81.5	57.3 g	759.2	57.0	93.0	53.7 g
Position #4 - Left	660.4	55.5	70.5	72.0 g	1077.8	46.8	81.2	62.9 g

	CLIP SUMMARY*			
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #3 - Right	41.1	68.4	71.4	505.4
Position #4 - Left	71.7	49.3	52.3	620.5

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration.

DATA SHEET NO. 5
CRS PERFORMANCE DATA

CRS: Evenflo Vangaurd V forward facing LATCH and Graco TurboBooster

NHTSA No. M55106

		MAXIMUM VALUE			
DESCRIPTION	Unit	Positive	Time (ms)	Negative	Time (ms)
P3 CRS X	g	22.2	182.9	-59.9	49.3
P3 CRS Y	g	5.9	124.7	-5.8	33.0
P3 CRS Z	g	20.8	71.6	-24.6	113.9
P3 CRS Resultant	g	60.0	49.4	0.0	-50.0
P4 CRS X	g	27.4	127.1	-67.2	46.7
P4 CRS Y	g	§	§	§	§
P4 CRS Z	g	30.6	75.4	-28.7	59.9
P4 CRS Resultant	g	§	§	§	§

§ - Channel Opened

DATA SHEET NO. 5

CRS PERFORMANCE DATA (CONTINUED)

CRS: Evenflo Vangaurd V forward facing LATCH and Graco TurboBooster

NHTSA No. M55106

POSITION #3 CRS POST-TEST INSPECTION (Serial No. 3671439 P1 06JAN05)

LOCATION	DAMAGE	REMARKS
Upper Tether Strap	No	None
Upper Tether Buckle	No	None
Upper Tether Hook	No	None
Vehicle Upper Tether Anchor	No	None
Lower Anchor Strap	No	None
Lower Anchor Buckle	No	None
Lower Anchor Hooks	No	None
Vehicle Lower CRS Anchors	No	None
Five Point Harness Connections	No	None
Cracks on CRS	No	None
Fabric Tears on CRS	No	None
Vehicle Seat Structure	No	None
Vehicle Seat Fabric Tears	No	None
Child Dummy	No	None

POSITION #4 CRS POST-TEST INSPECTION (Serial No. JJ 1008042008612 100804)

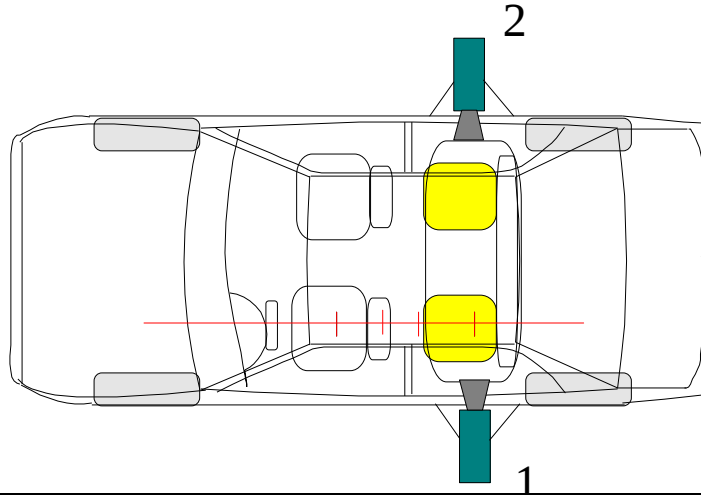
LOCATION	DAMAGE	REMARKS
Upper Tether Strap	NA	NA
Upper Tether Buckle	NA	NA
Upper Tether Hook	NA	NA
Vehicle Upper Tether Anchor	NA	NA
Lower Anchor Strap	NA	NA
Lower Anchor Buckle	NA	NA
Lower Anchor Hooks	NA	NA
Vehicle Lower CRS Anchors	NA	NA
Five Point Harness Connections	NA	NA
Cracks on CRS	No	None
Fabric Tears on CRS	No	None
Vehicle Seat Structure	No	None
Vehicle Seat Fabric Tears	No	None
Child Dummy	No	None

DATA SHEET NO. 6

CRS CAMERA DATA

CRS: Evenflo Vangaurd V forward facing LATCH and Graco TurboBooster

NHTSA No. M55106



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Left side CRS lateral view	3330	2475	2322	-22	28	500
2	Right side CRS lateral view	3280	2475	2250	-22	28	500

* Reference (from point of impact); all measurements accurate to within ± 6 mm.

X = + Forward

Y = + To Right

Z = + Down

SECTION 3

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Figure 3-1 CLOSE-UP VIEW OF POSITION 3 CRS LABEL



Figure 3-2 PRE-TEST FRONTAL VIEW OF POSITION 3 CRS



Figure 3-3 POST-TEST FRONTAL VIEW OF POSITION 3 CRS



Figure 3-4 PRE-TEST REAR VIEW OF POSITION 3 CRS



Figure 3-5 POST-TEST REAR VIEW OF POSITION 3 CRS



Figure 3-6 PRE-TEST LEFT SIDE VIEW OF POSITION 3 CRS



Figure 3-7 POST-TEST LEFT SIDE VIEW OF POSITION 3 CRS



Figure 3-8 PRE-TEST RIGHT SIDE VIEW OF POSITION 3 CRS



Figure 3-9 POST-TEST RIGHT SIDE VIEW OF POSITION 3 CRS

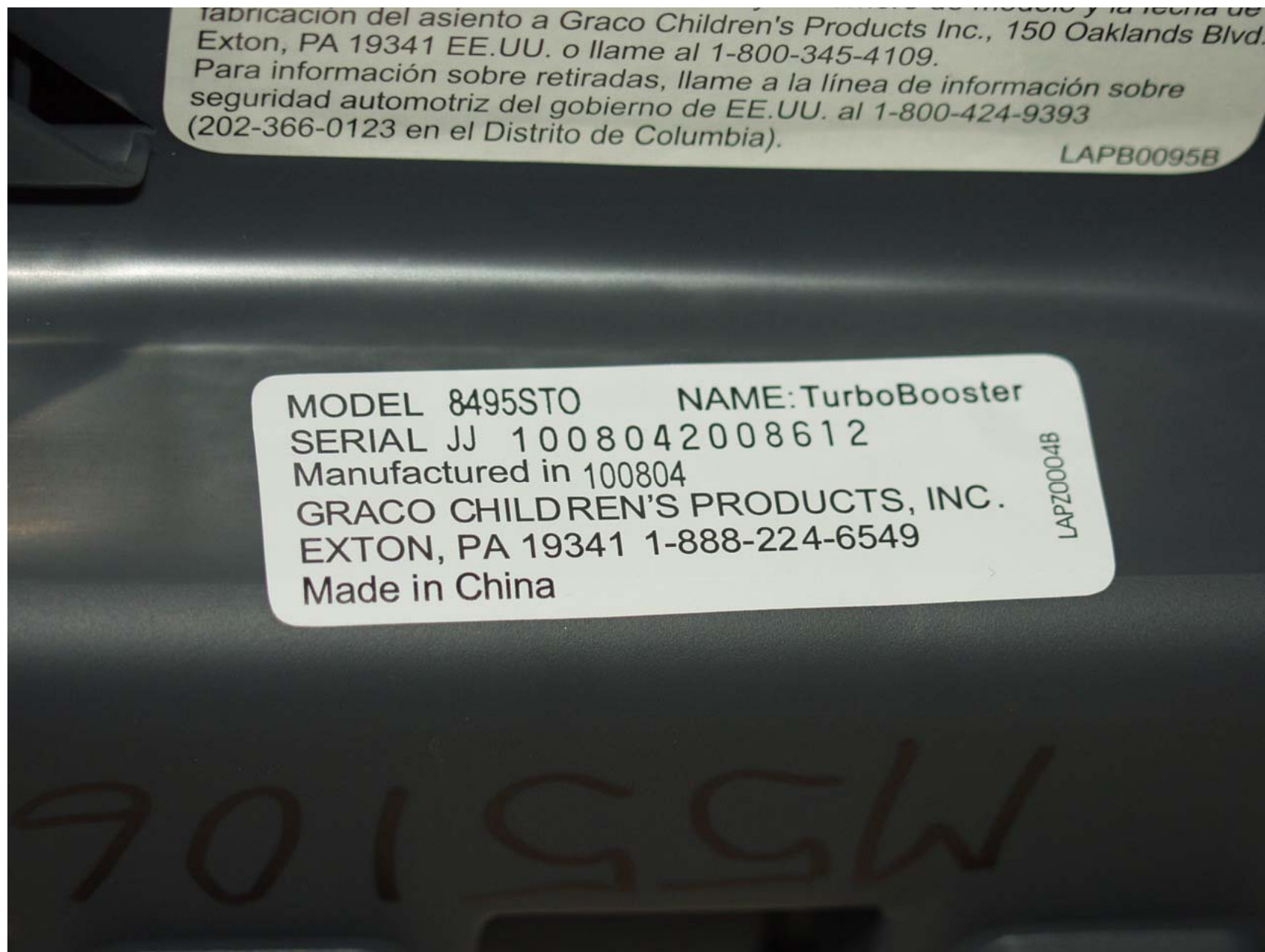


Figure 3-10 CLOSE-UP VIEW OF POSITION 4 CRS LABEL



Figure 3-11 PRE-TEST FRONTAL VIEW OF POSITION 4 CRS



Figure 3-12 POST-TEST FRONTAL VIEW OF POSITION 4 CRS



Figure 3-13 PRE-TEST REAR VIEW OF POSITION 4 CRS



Figure 3-14 POST-TEST REAR VIEW OF POSITION 4 CRS



Figure 3-15 PRE-TEST LEFT SIDE VIEW OF POSITION 4 CRS



Figure 3-16 POST-TEST LEFT SIDE VIEW OF POSITION 4 CRS



Figure 3-17 PRE-TEST RIGHT SIDE VIEW OF POSITION 4 CRS



Figure 3-18 POST-TEST RIGHT SIDE VIEW OF POSITION 4 CRS



Figure 3-19 PRE-TEST POSITION 3 LEFT SIDE VIEW



Figure 3-20 POST-TEST POSITION 3 LEFT SIDE VIEW



Figure 3-21 PRE-TEST POSITION 4 LEFT SIDE VIEW



Figure 3-22 POST-TEST POSITION 4 LEFT SIDE VIEW



Figure 3-23 PRE-TEST POSITION 3 RIGHT SIDE VIEW



Figure 3-24 POST-TEST POSITION 3 RIGHT SIDE VIEW



Figure 3-25 PRE-TEST POSITION 4 RIGHT SIDE VIEW



Figure 3-26 POST-TEST POSITION 4 RIGHT SIDE VIEW



Figure 3-27 PRE-TEST POSITION 3 FRONT VIEW



Figure 3-28 POST-TEST POSITION 3 FRONT VIEW



Figure 3-29 PRE-TEST POSITION 4 FRONT VIEW

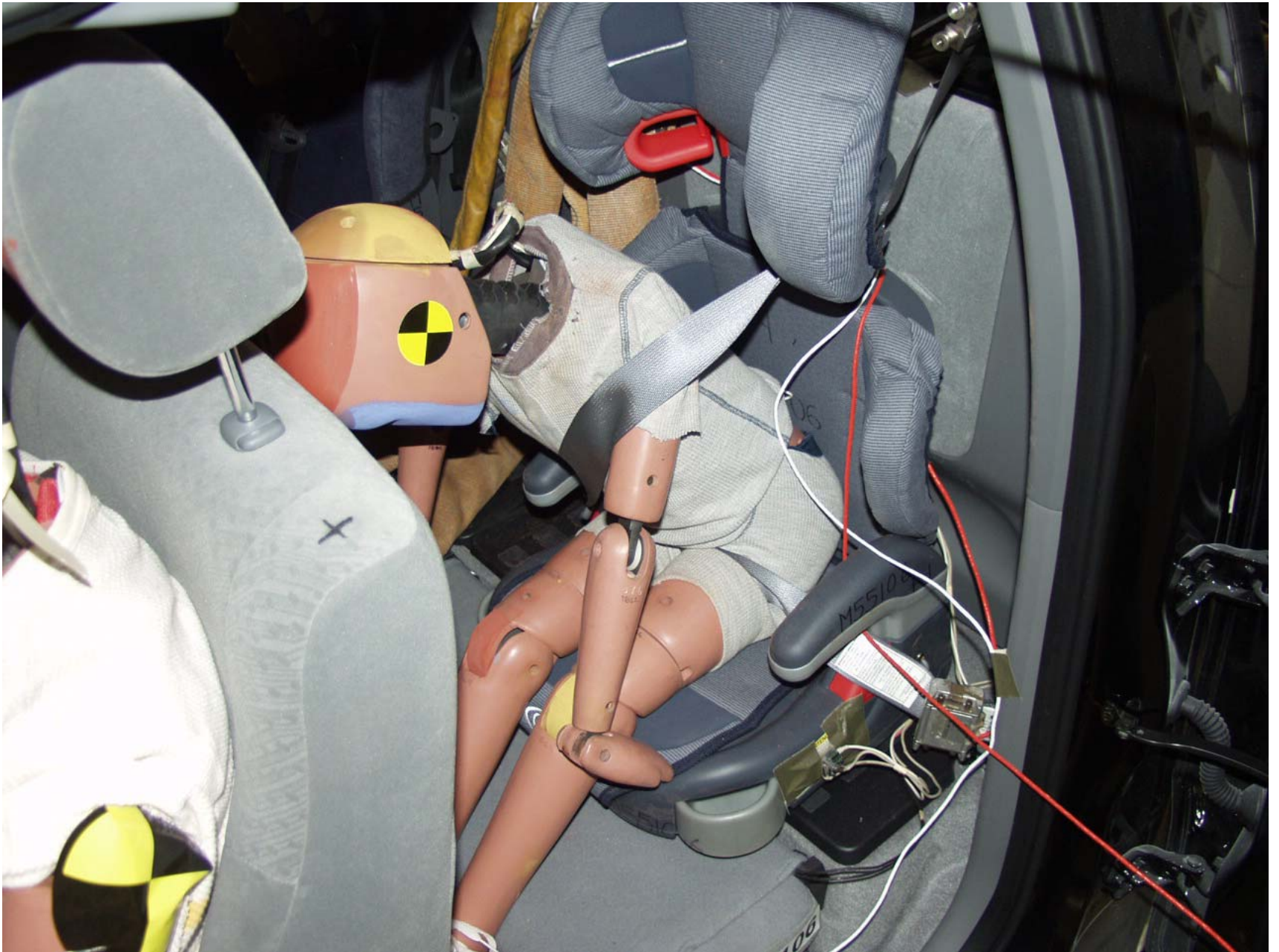


Figure 3-30 POST-TEST POSITION 4 FRONT VIEW

SECTION 4

CHILD DUMMY RESPONSE AND CRS DATA TRACES

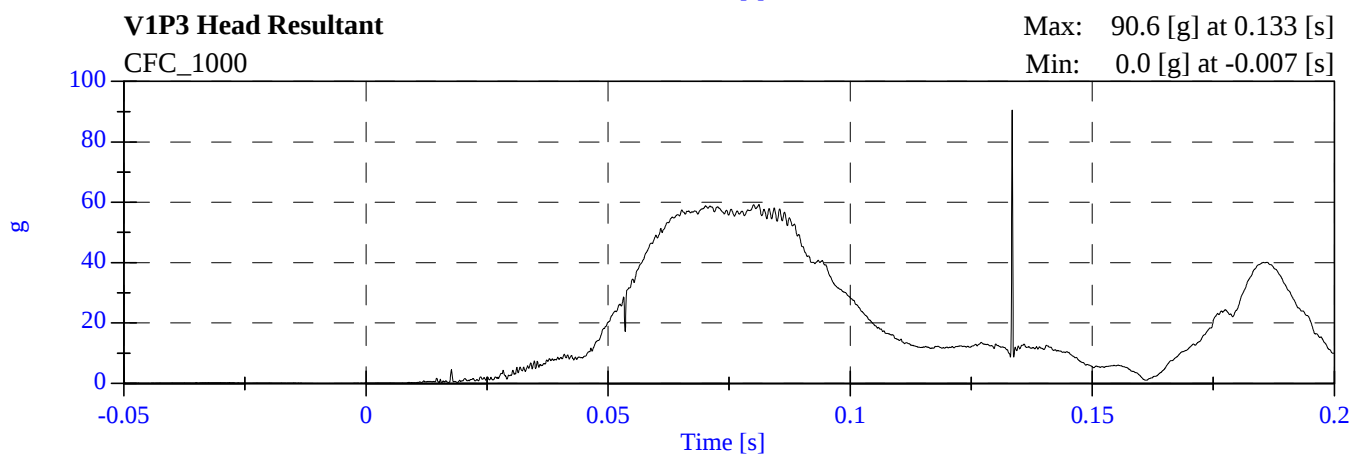
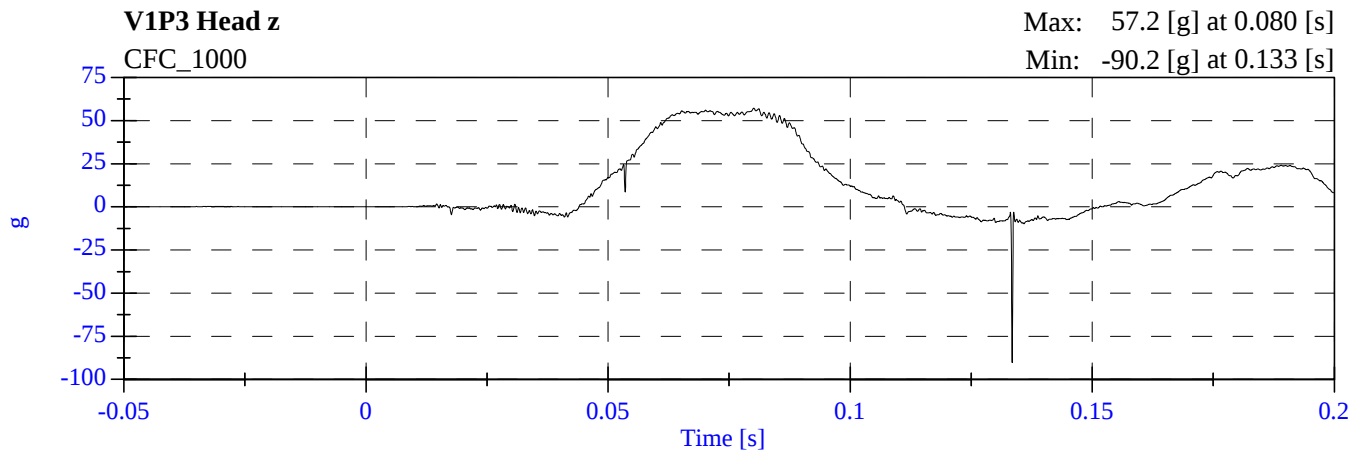
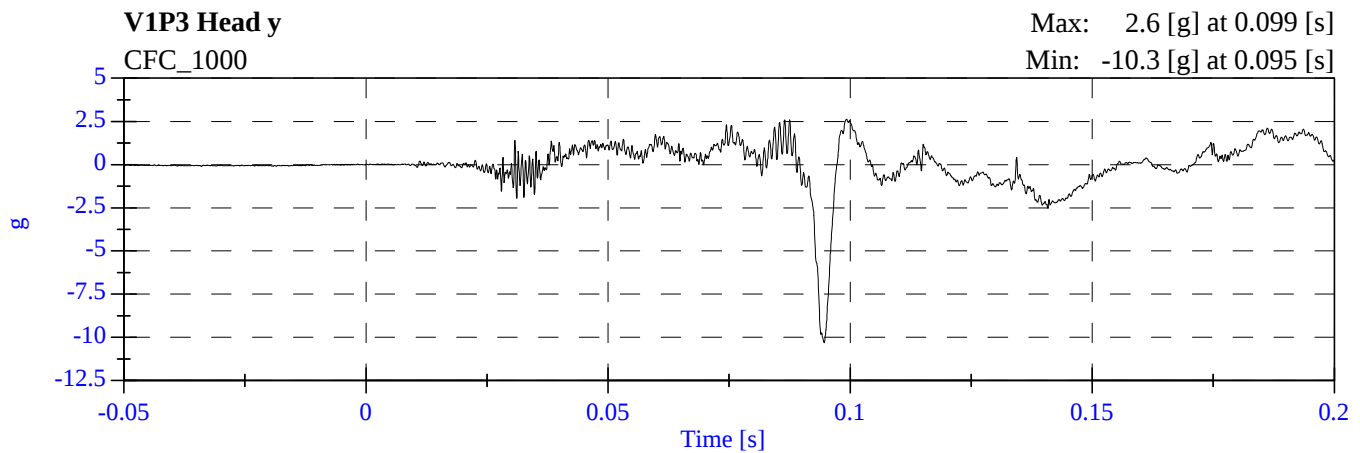
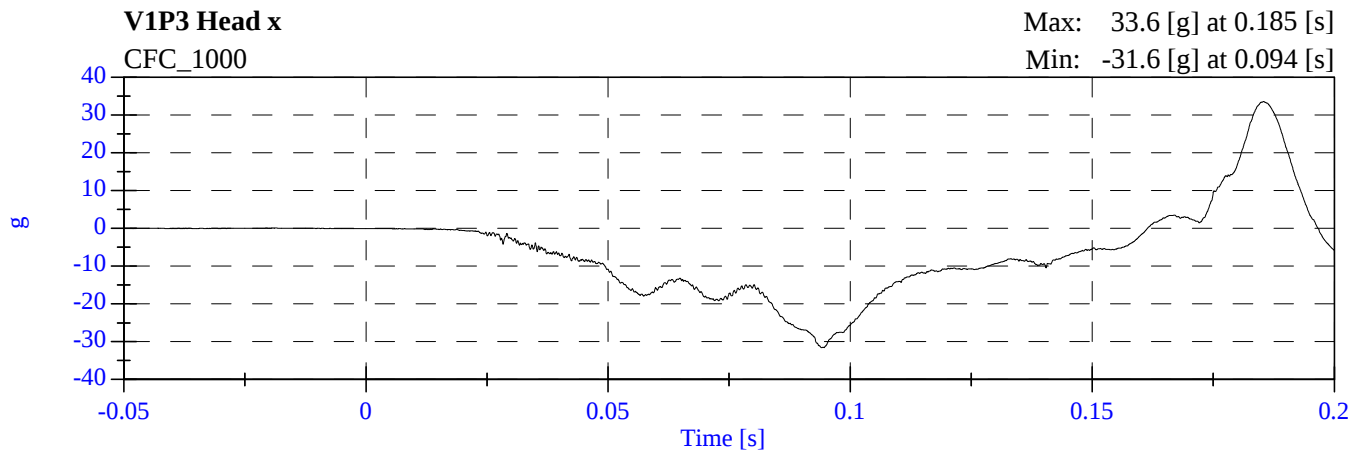
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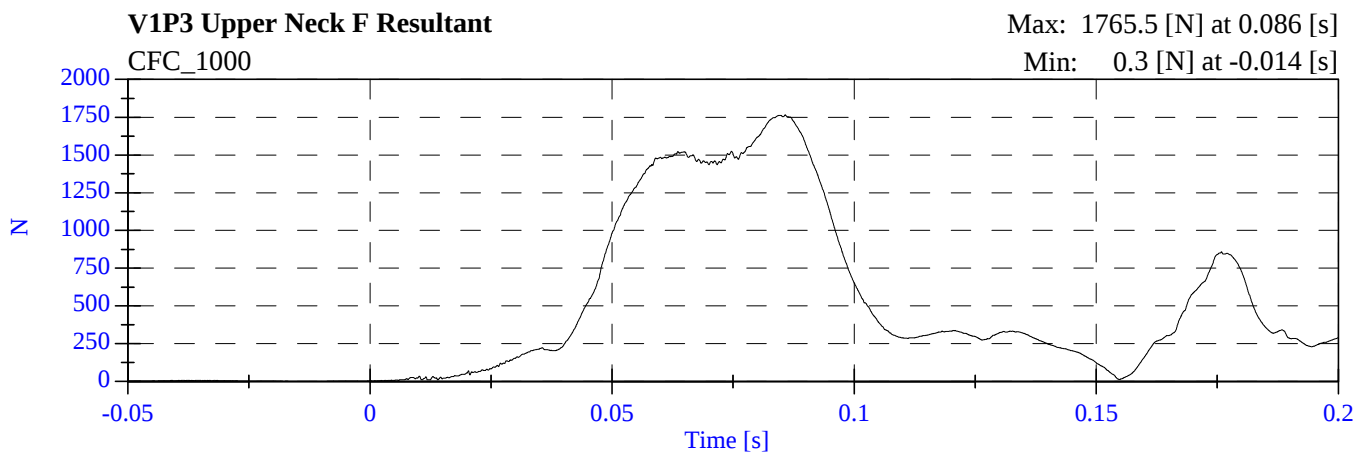
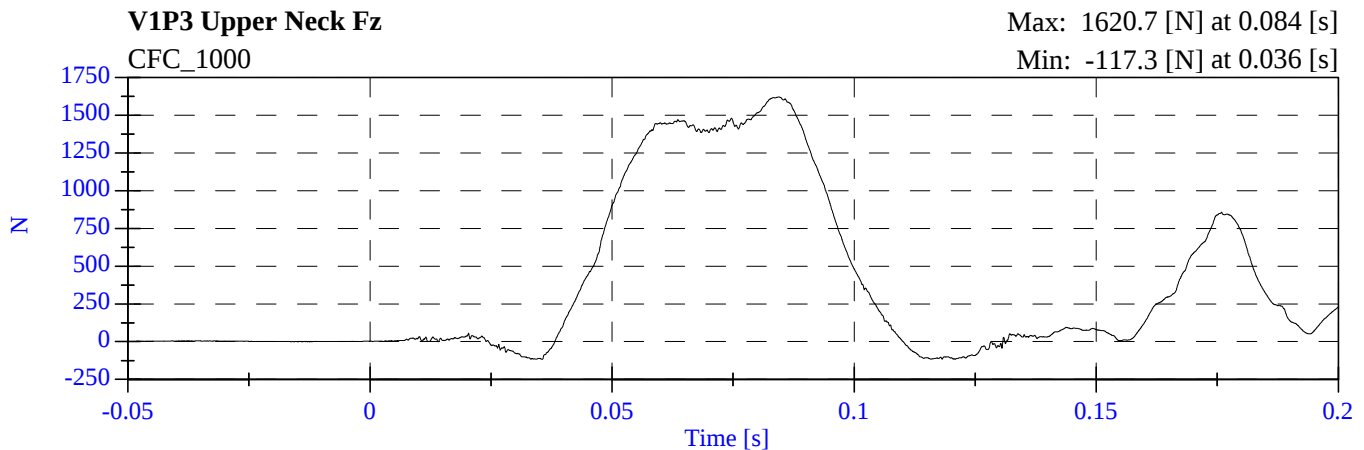
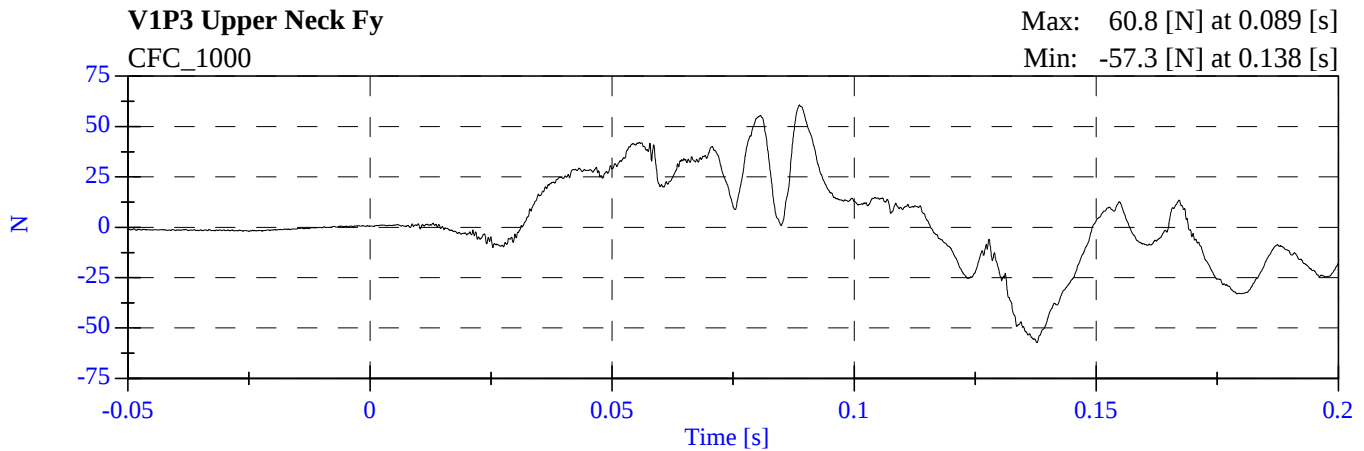
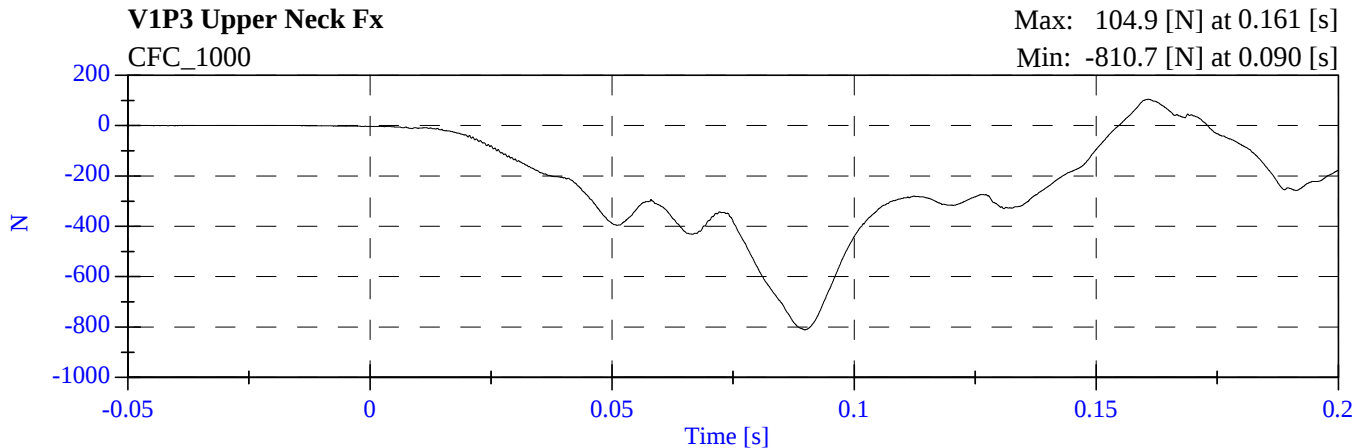
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72	V1P4 CRS y Displacement [mm, CFC_180]	4-25
73	V1P4 CRS z Displacement [mm, CFC_180]	4-25

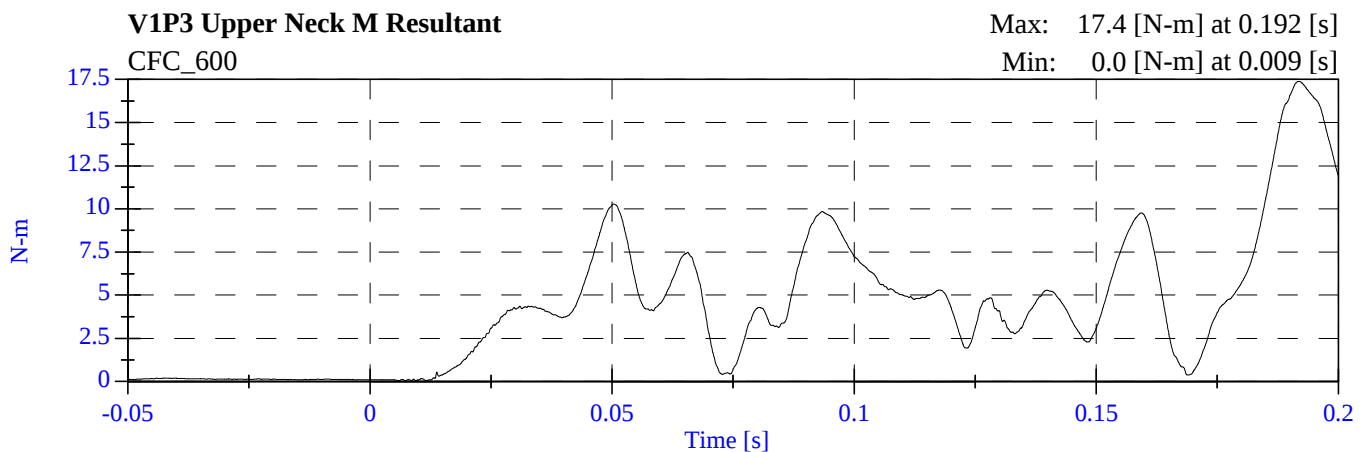
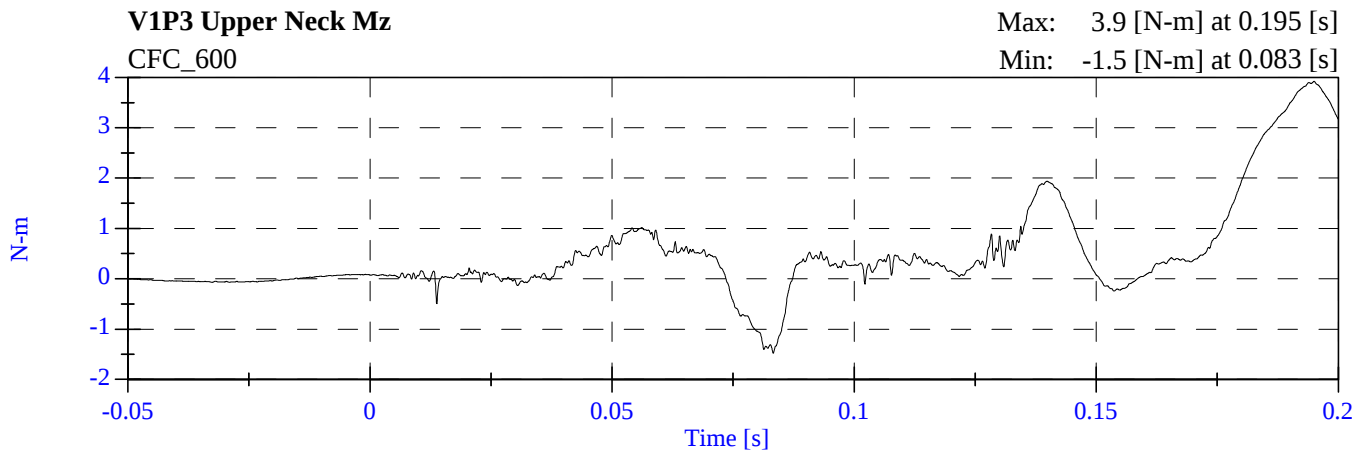
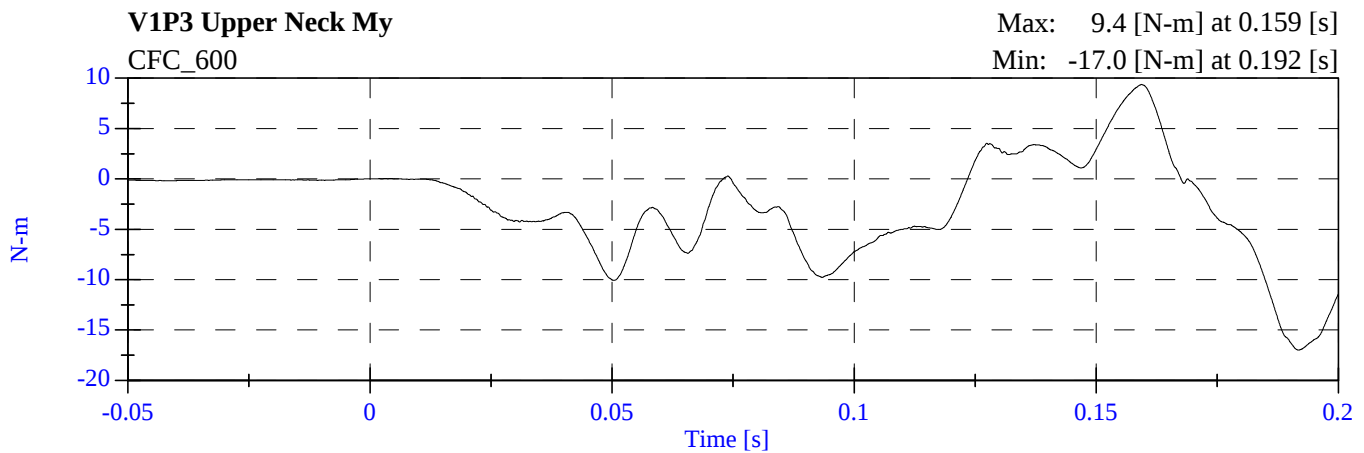
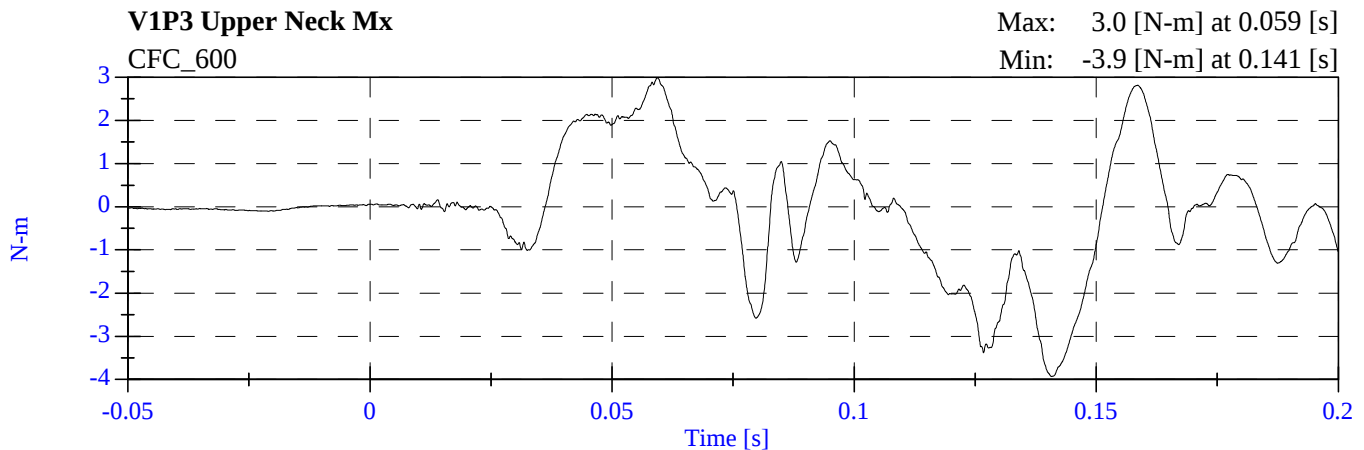
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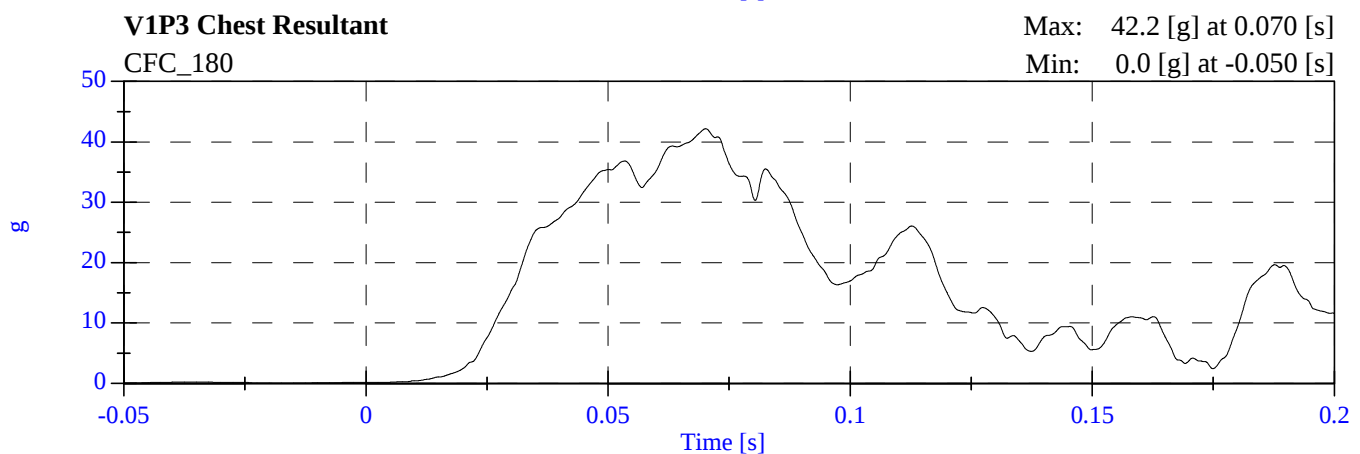
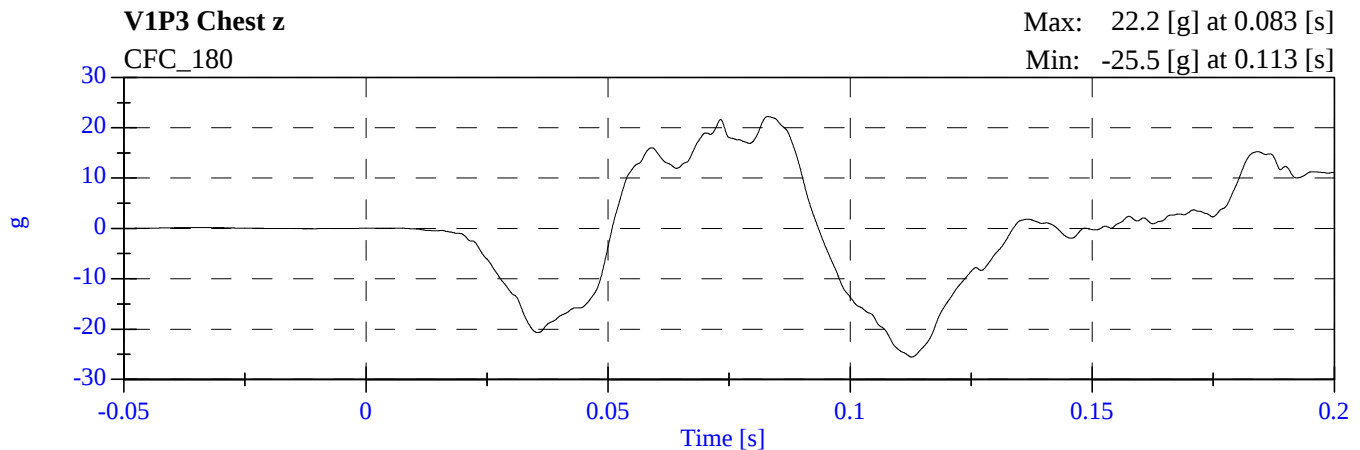
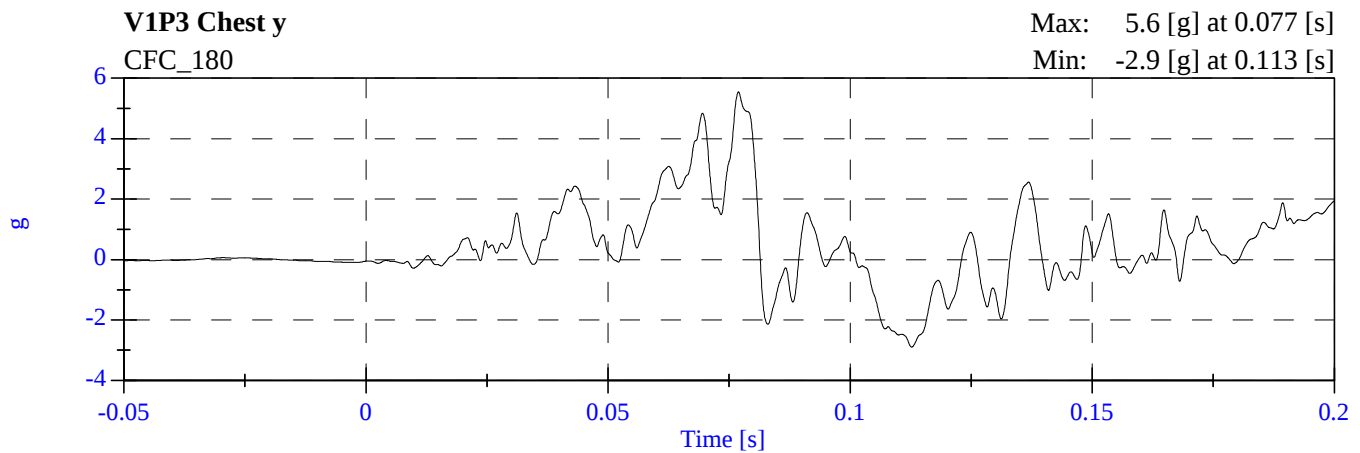
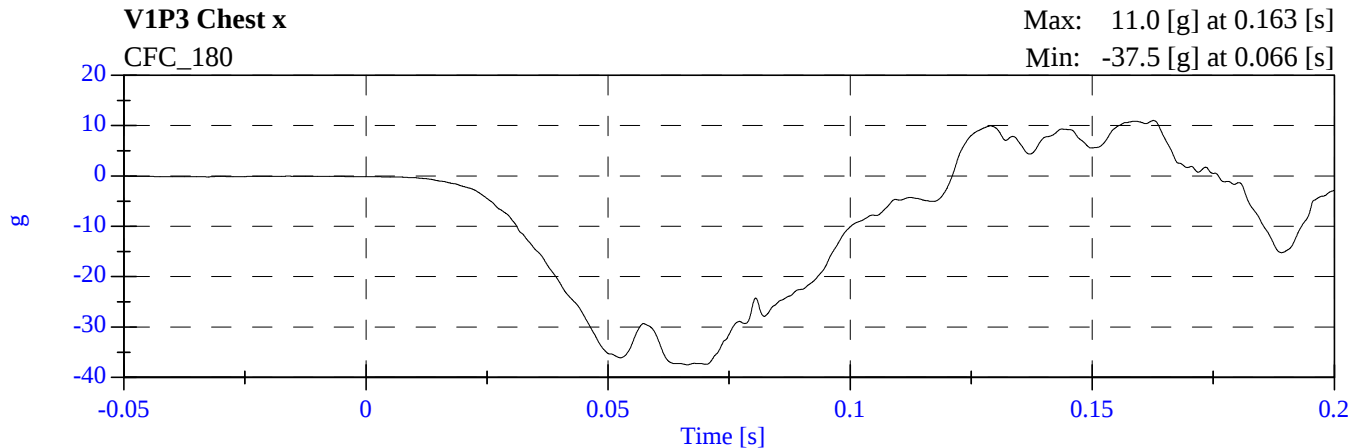
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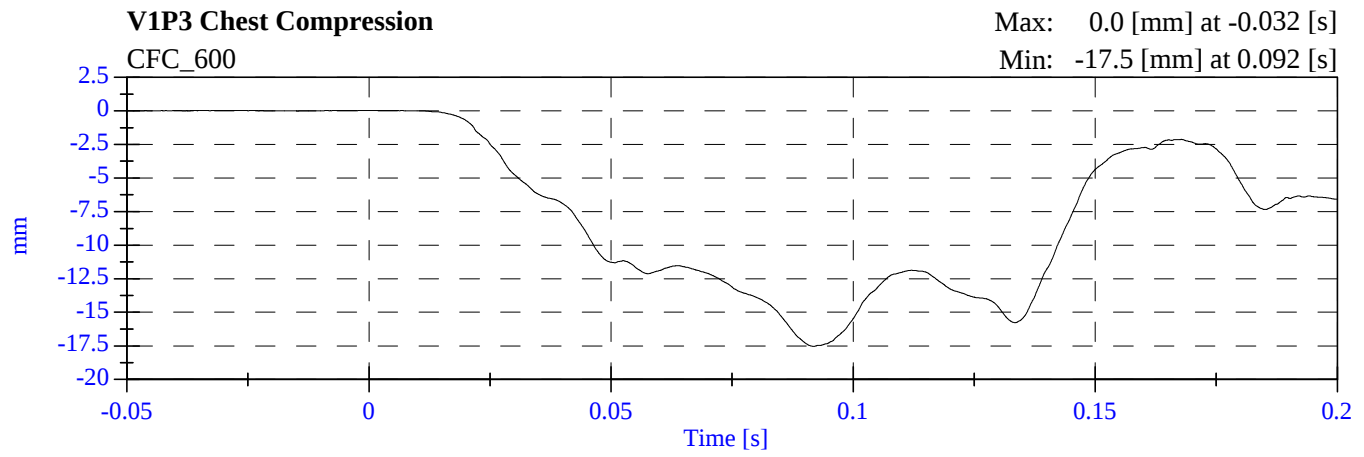
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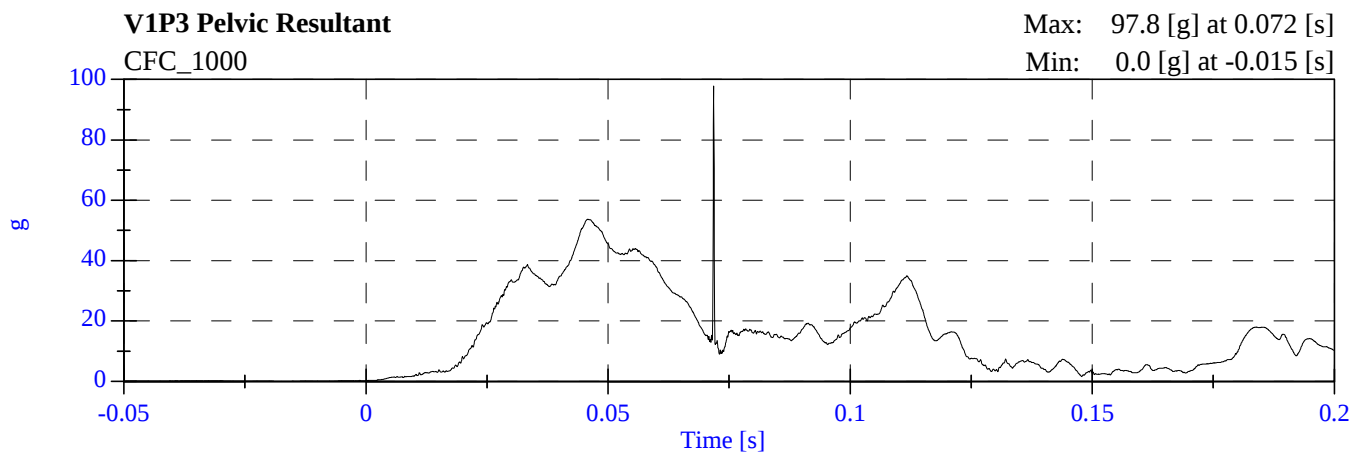
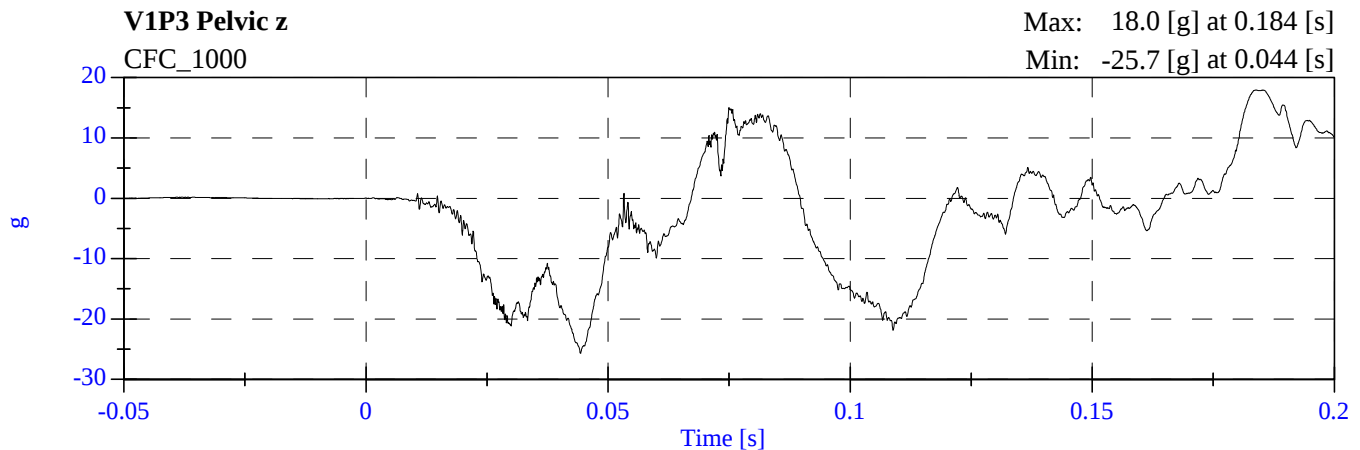
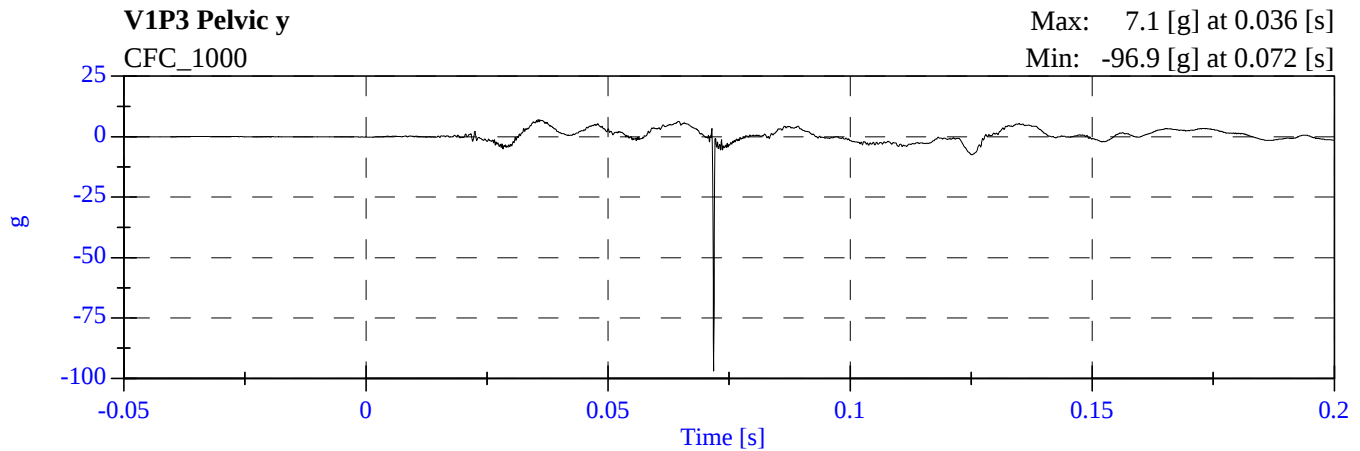
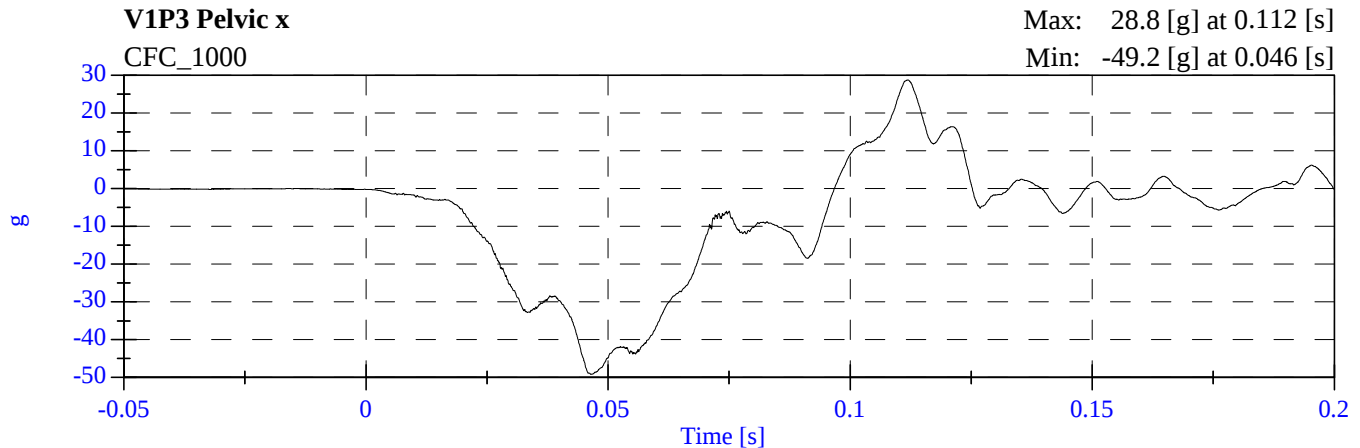
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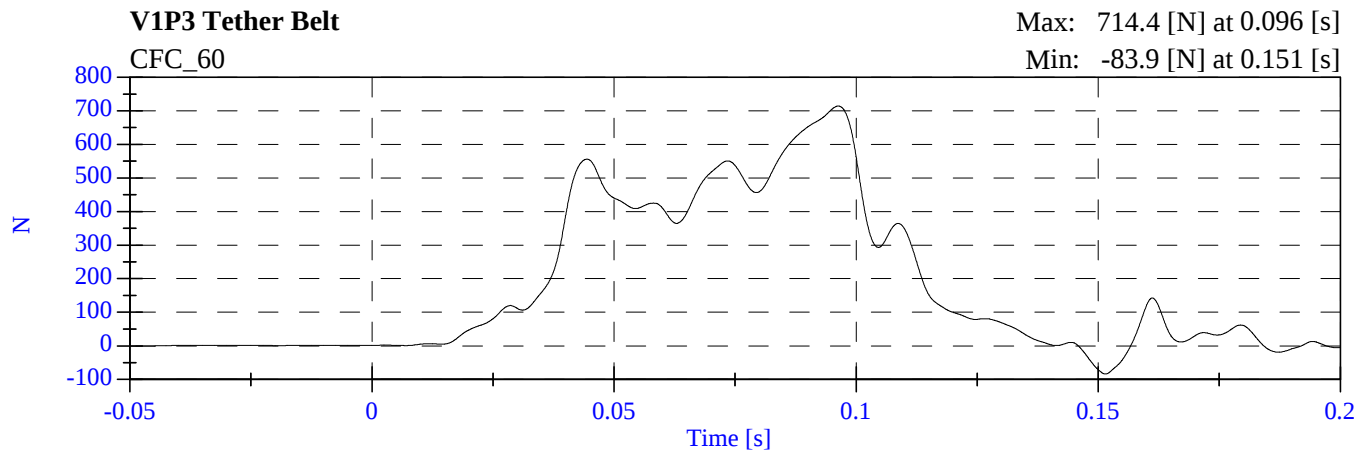
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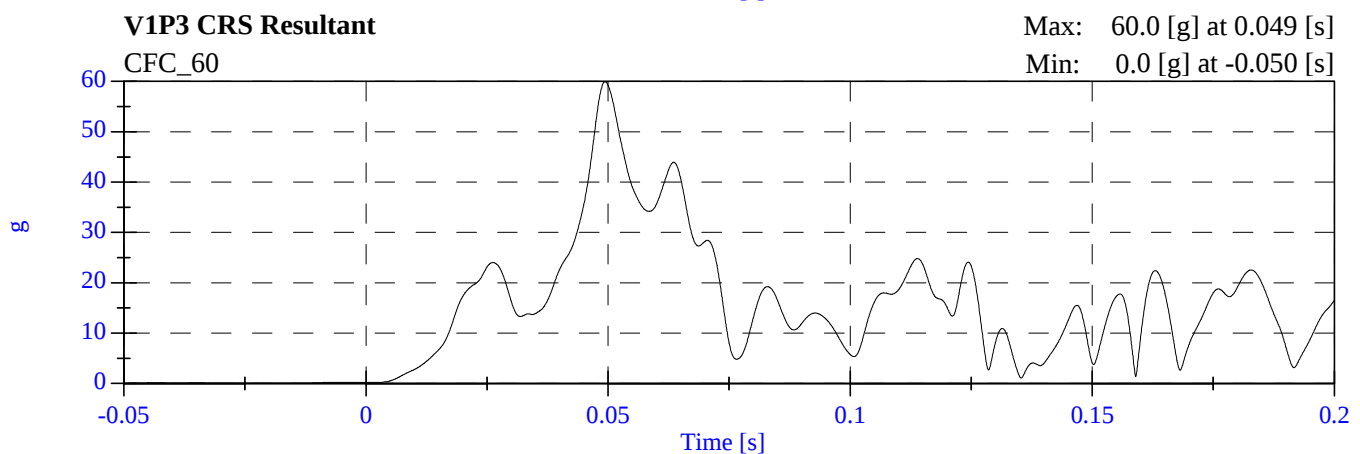
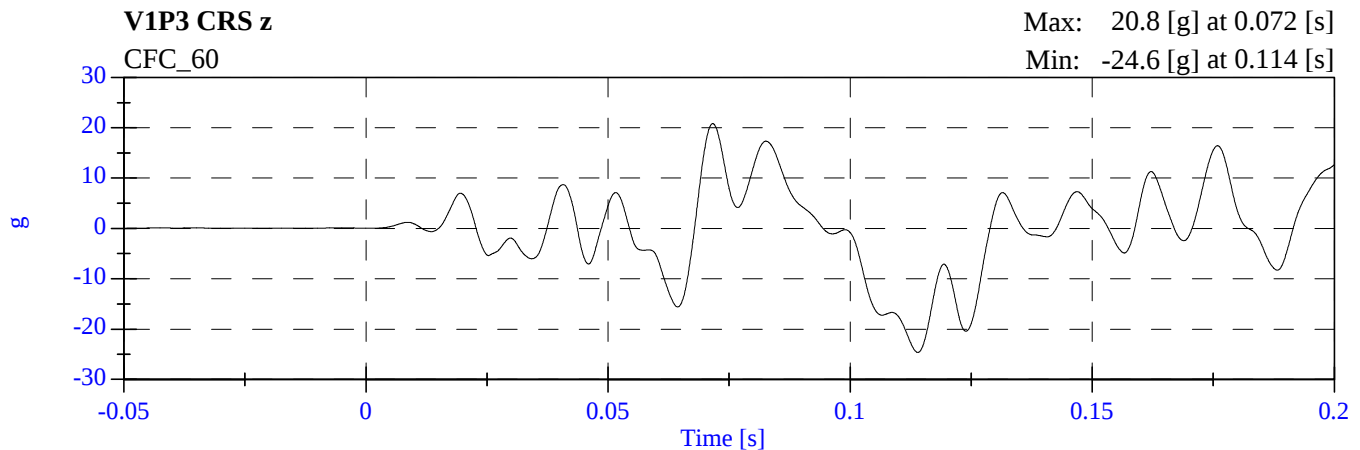
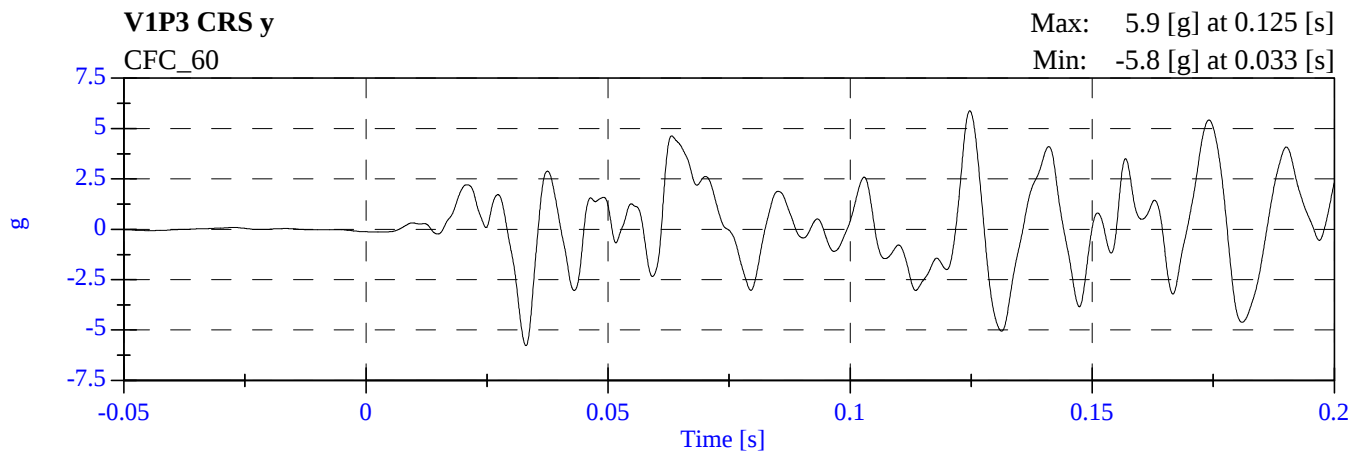
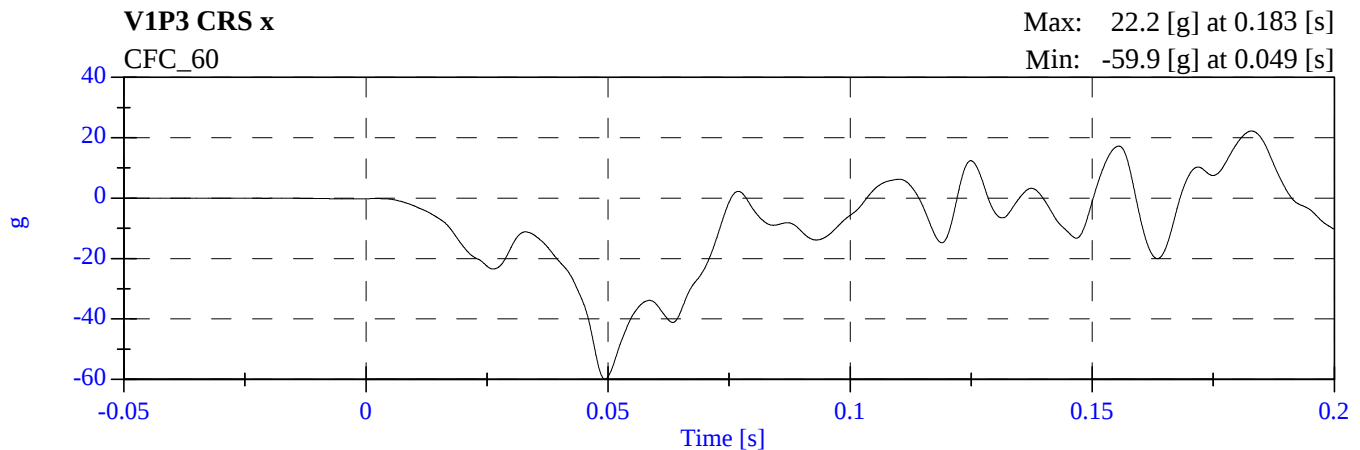
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



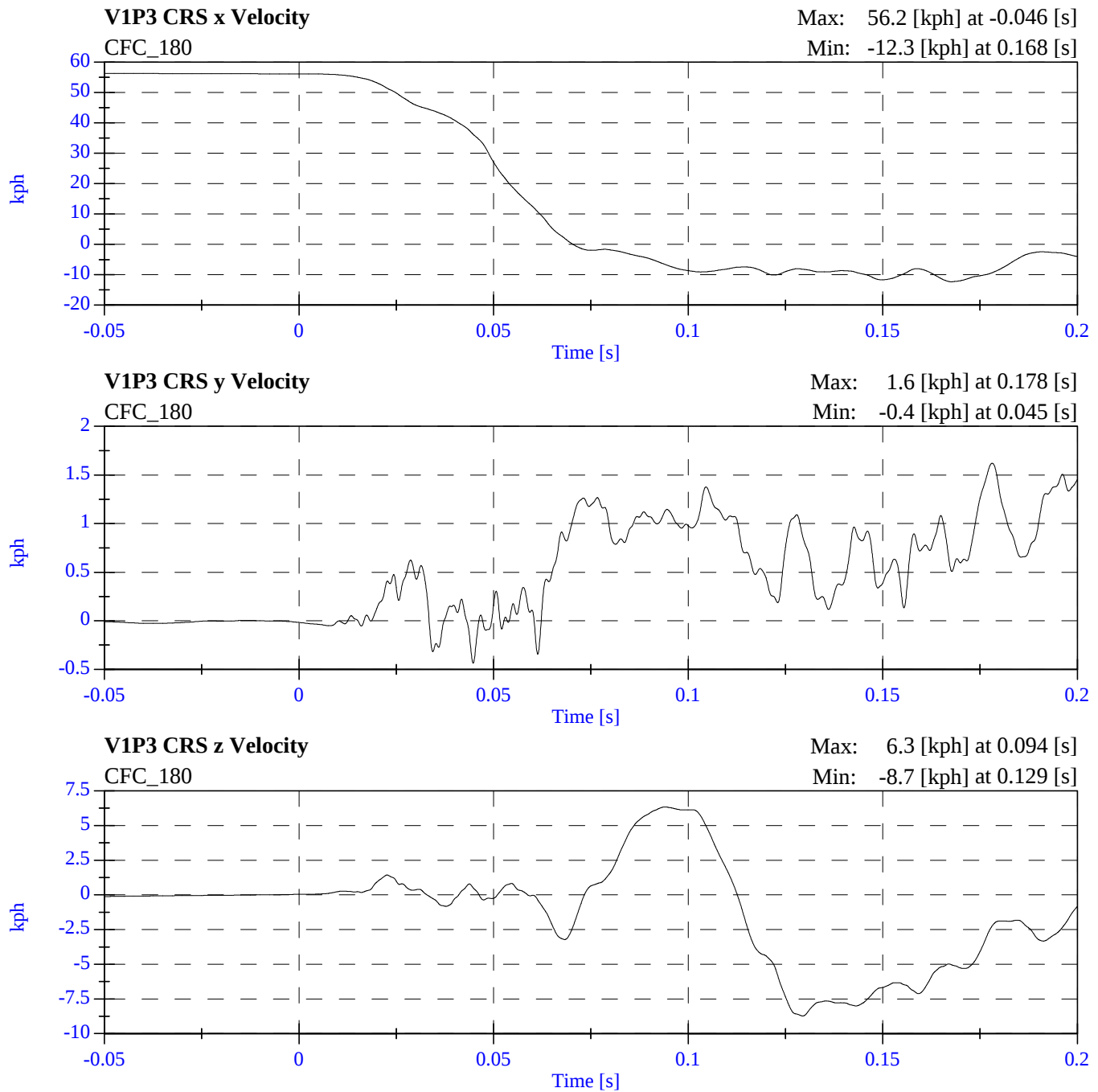
2005 NCAP Test 9 2005 Toyota Tacoma
M55106 - February 16, 2005



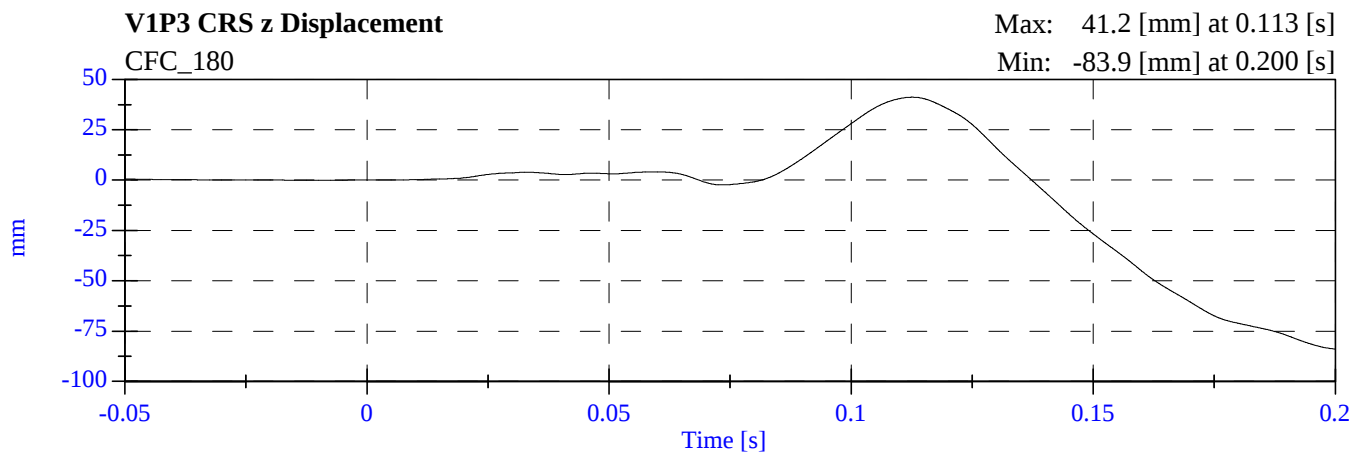
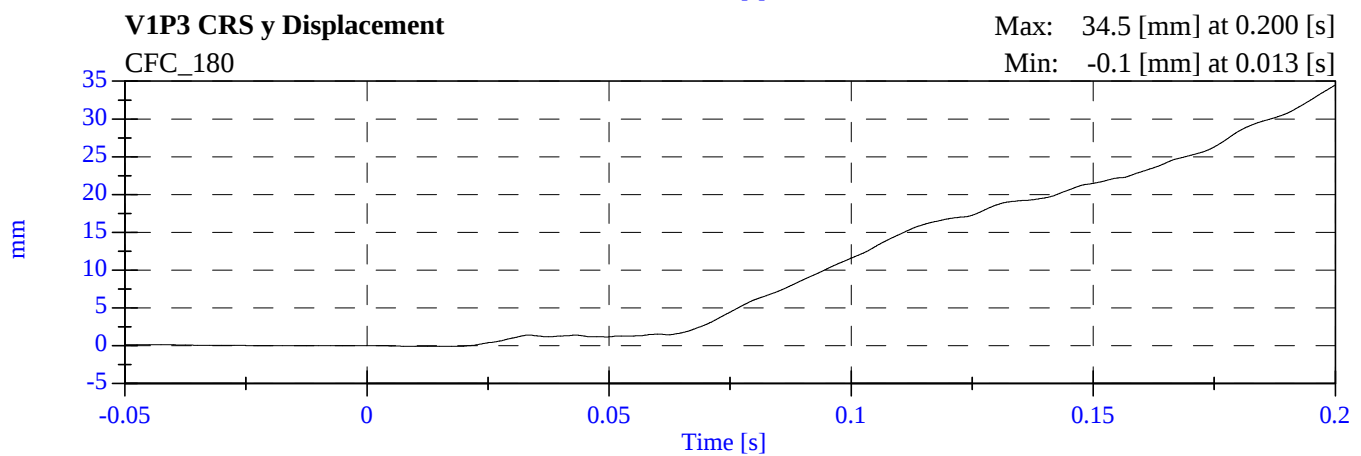
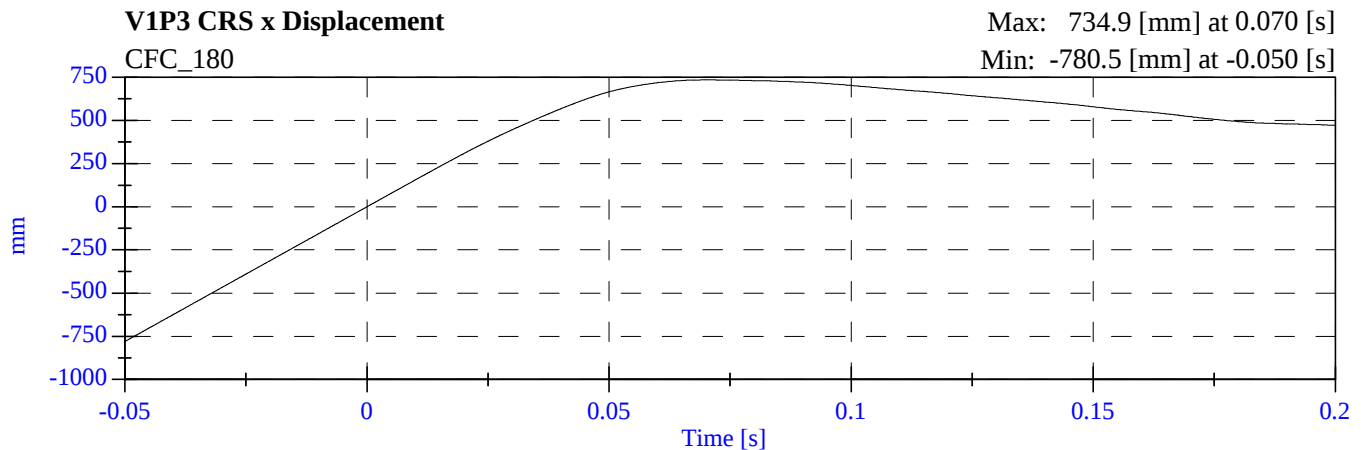
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



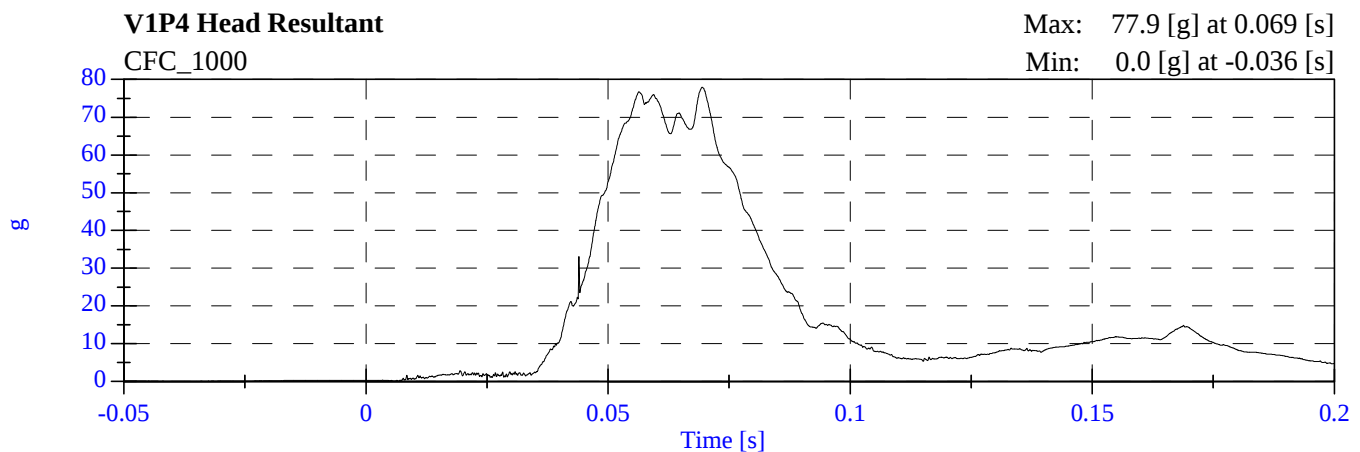
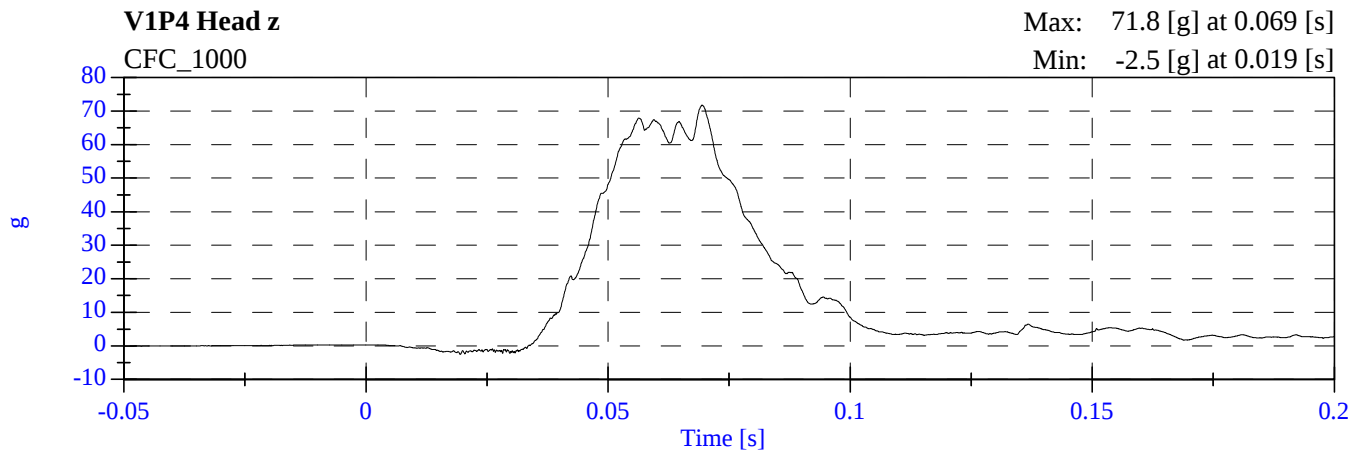
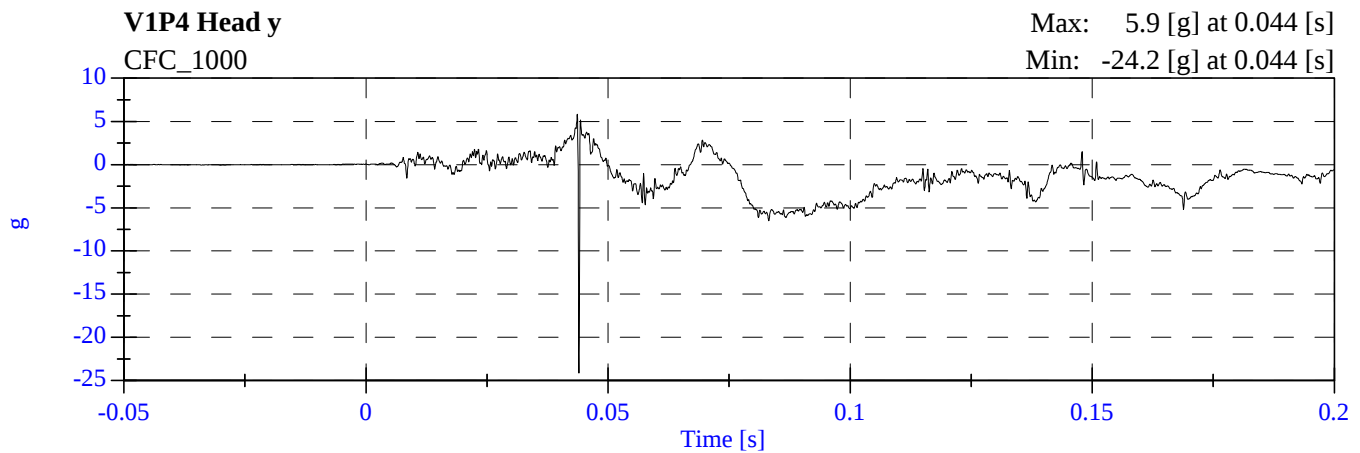
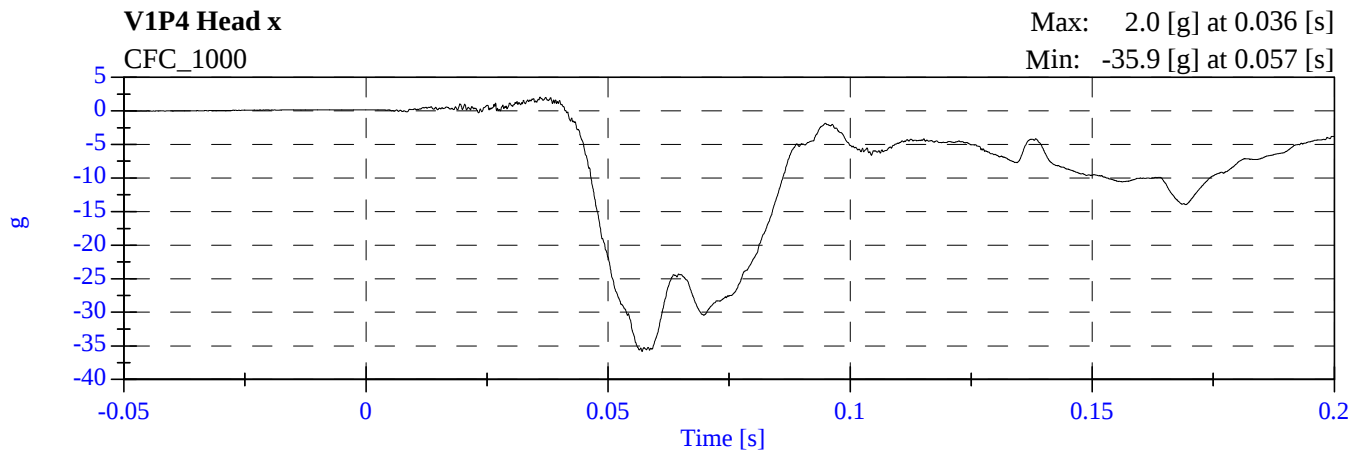
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



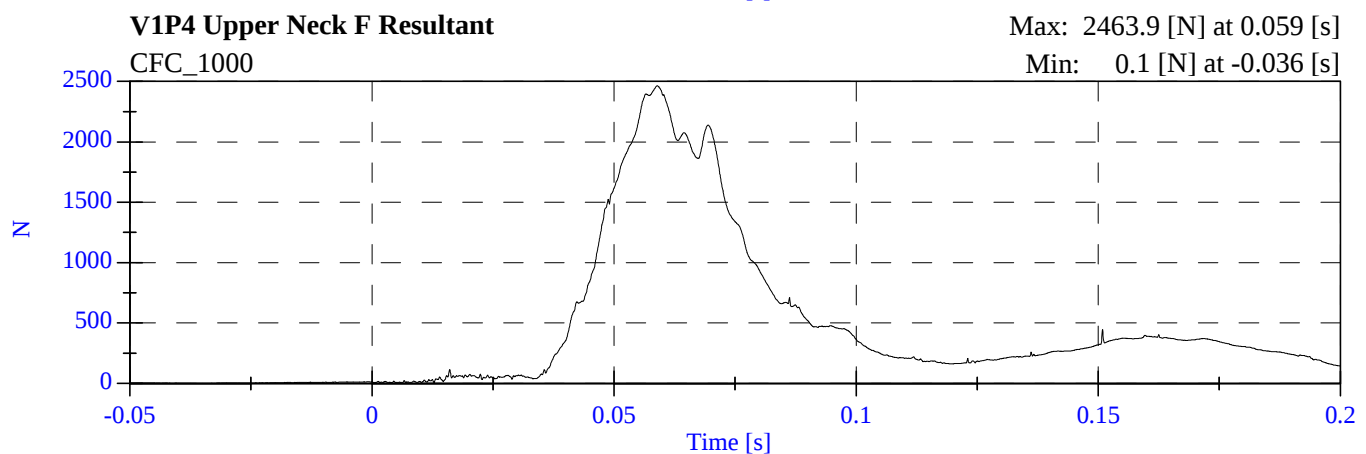
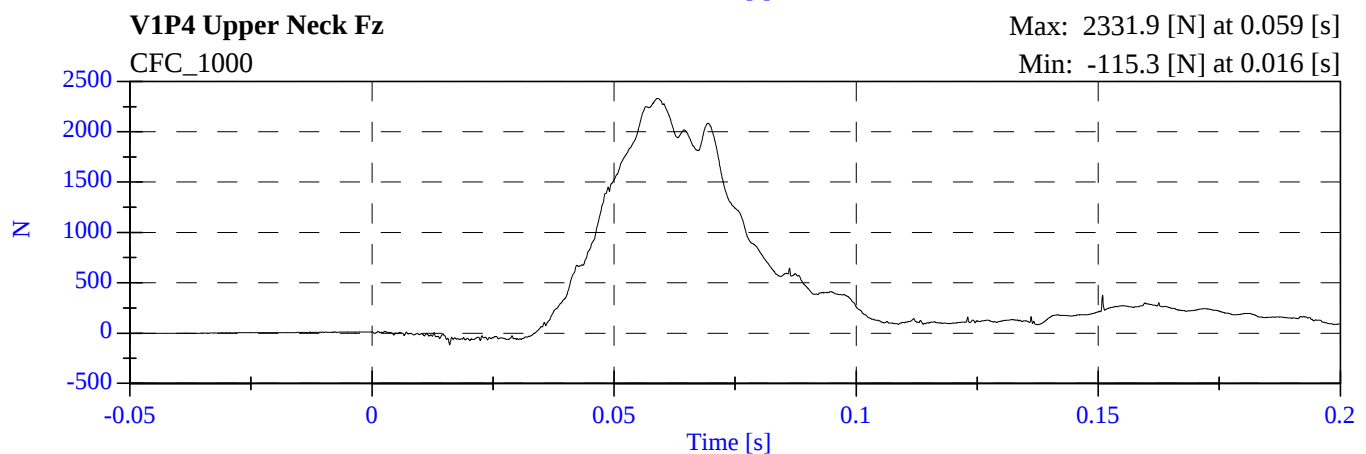
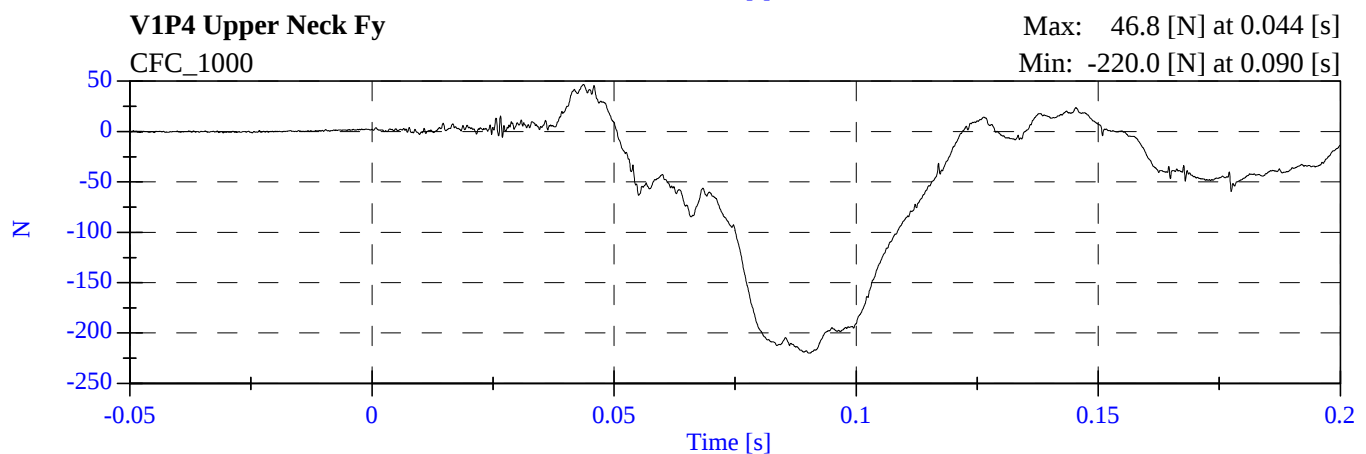
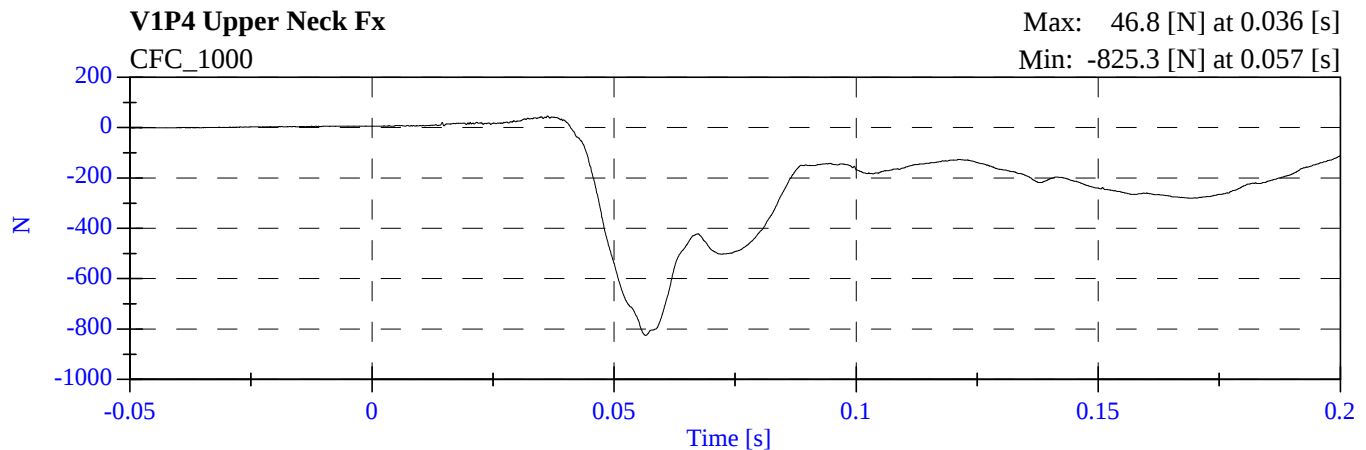
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



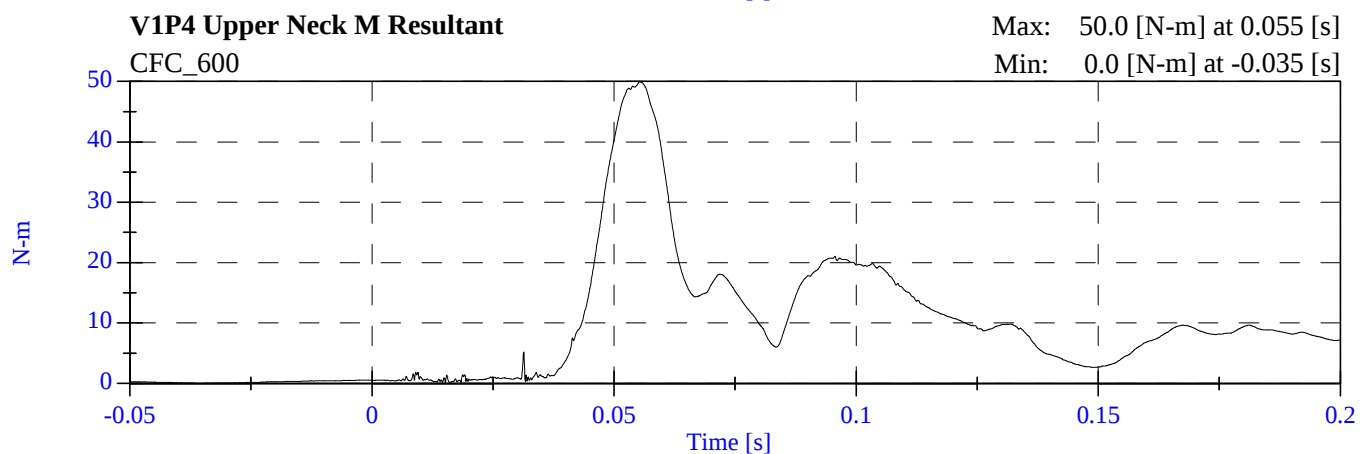
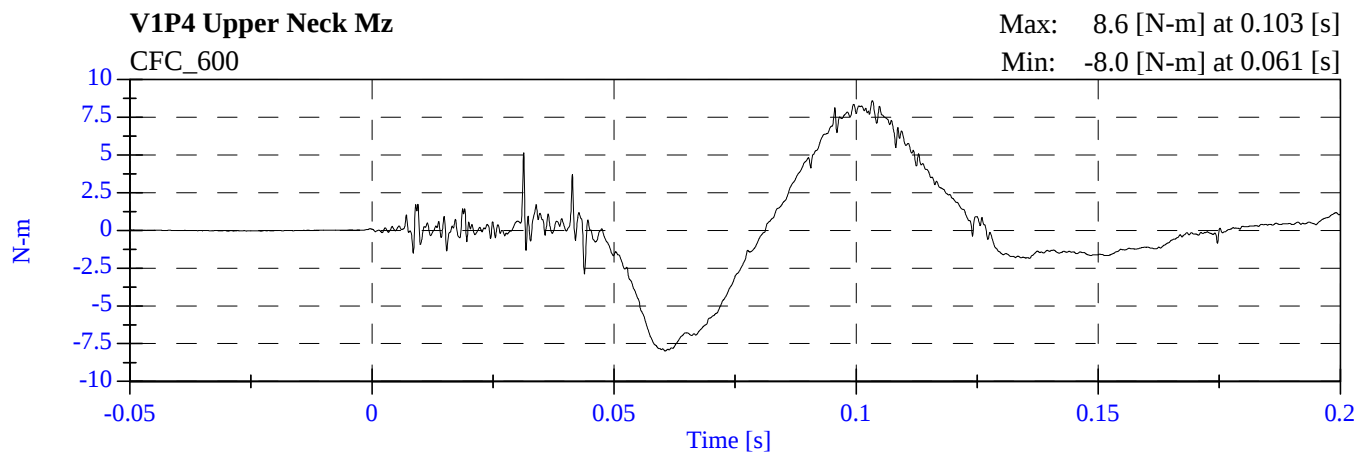
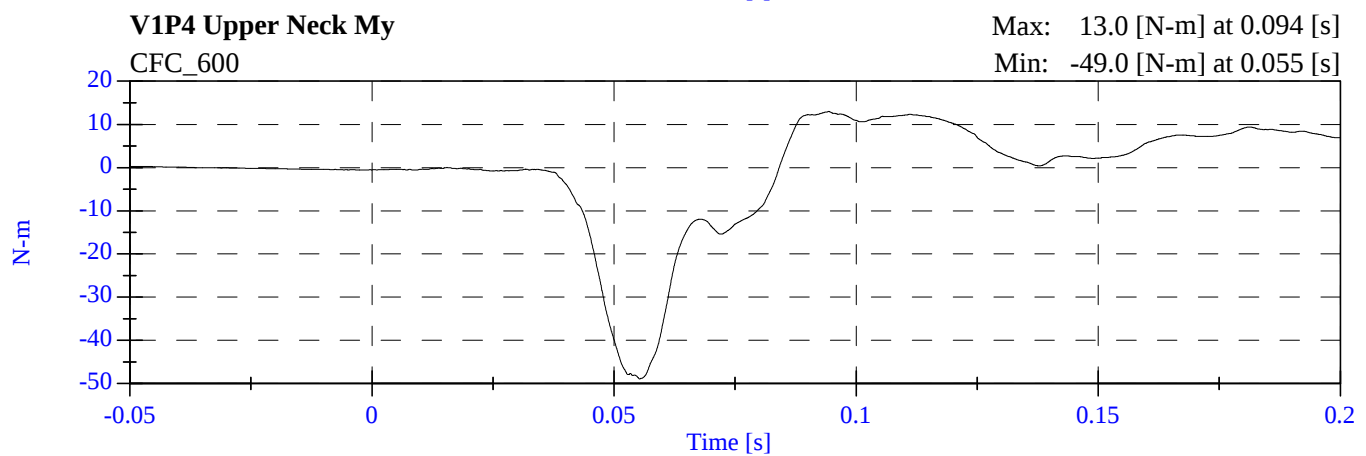
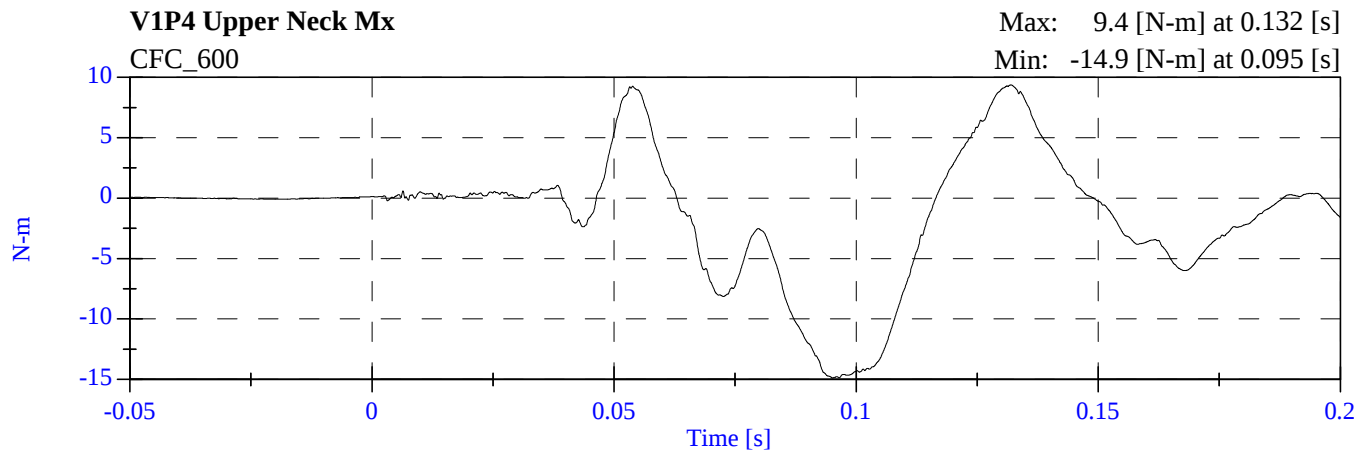
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



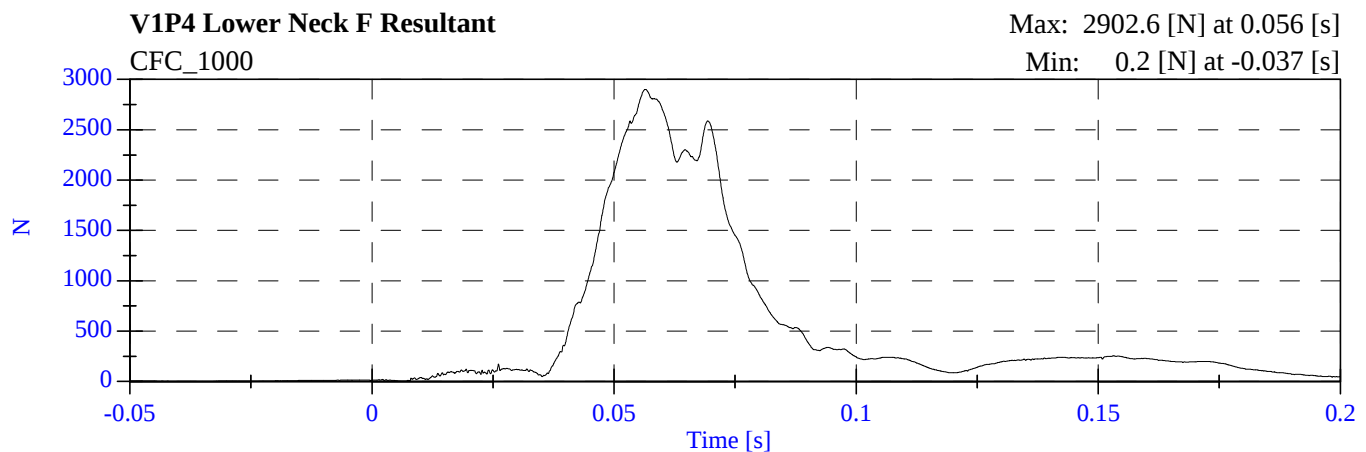
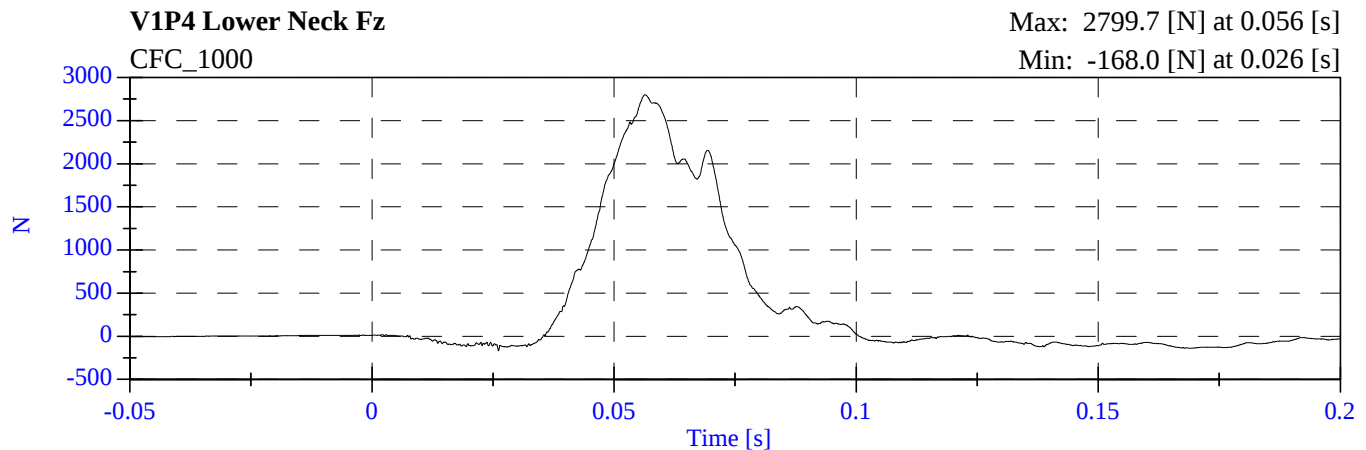
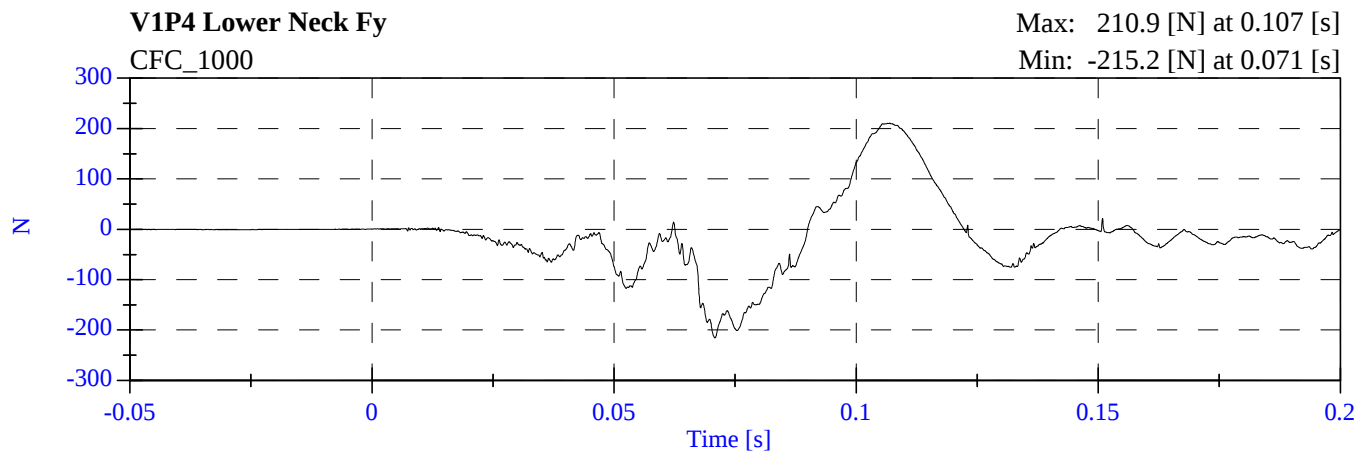
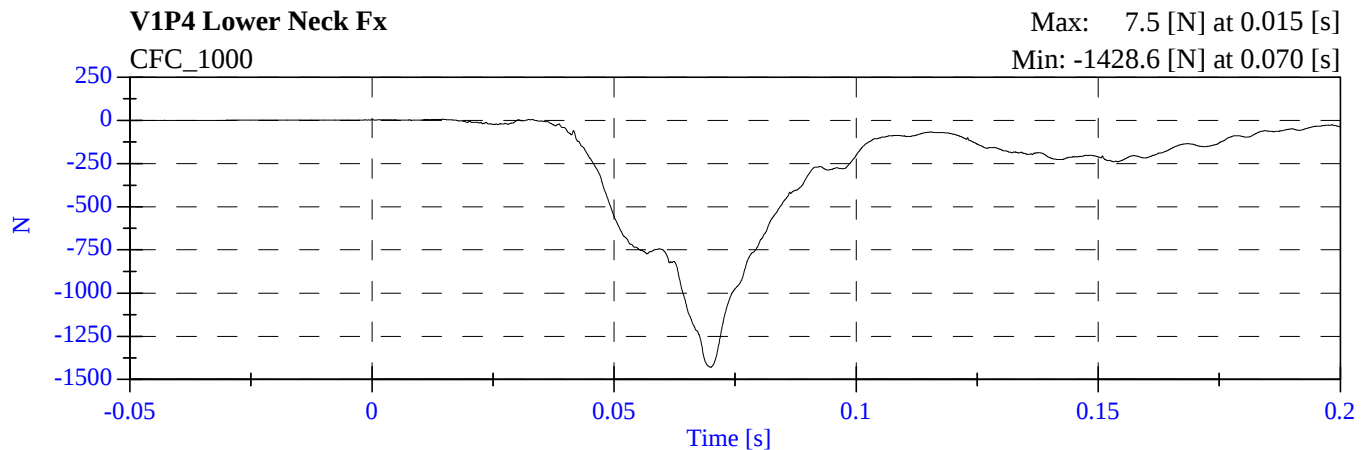
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



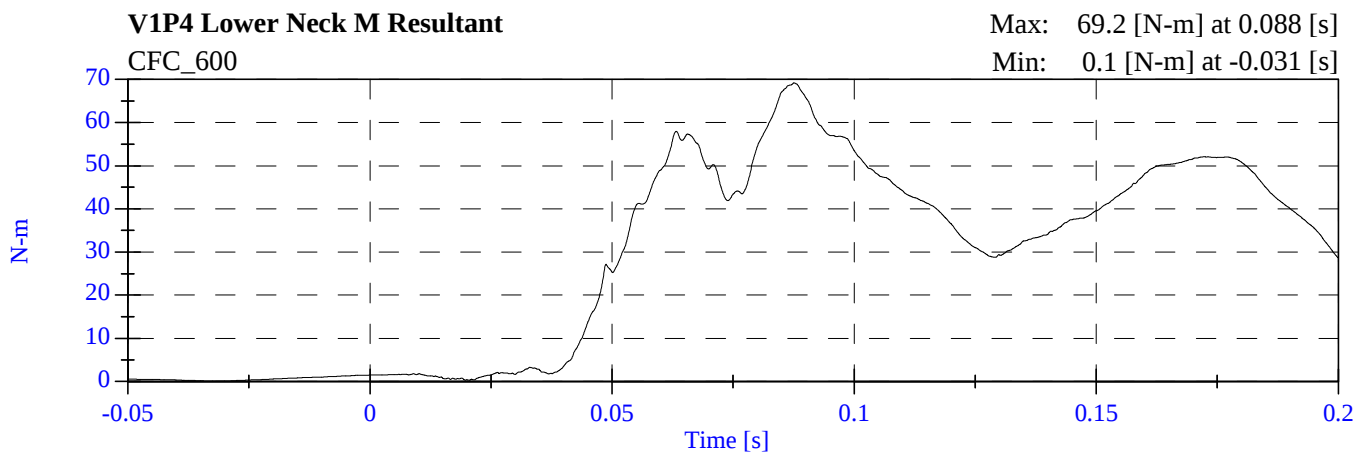
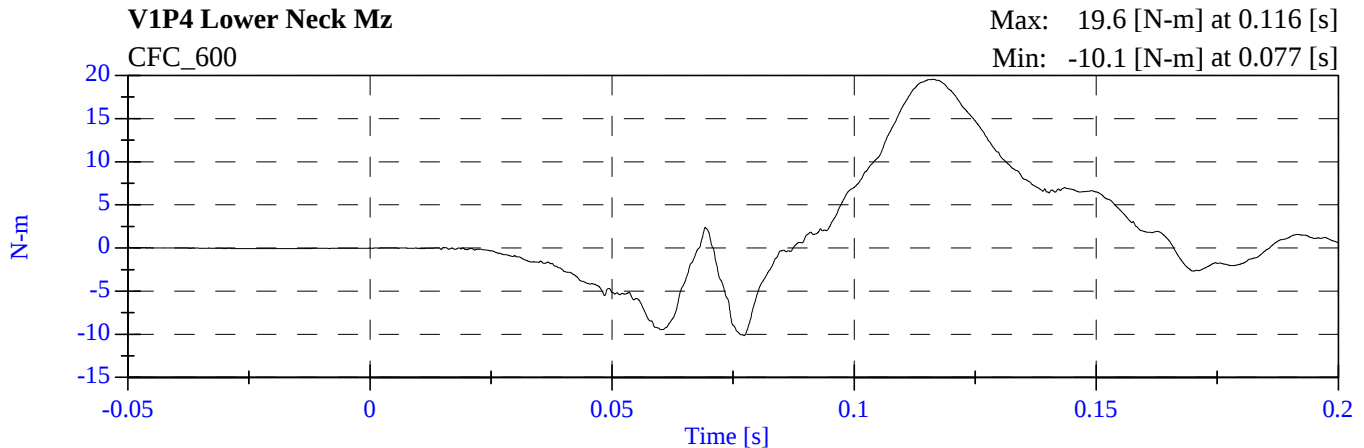
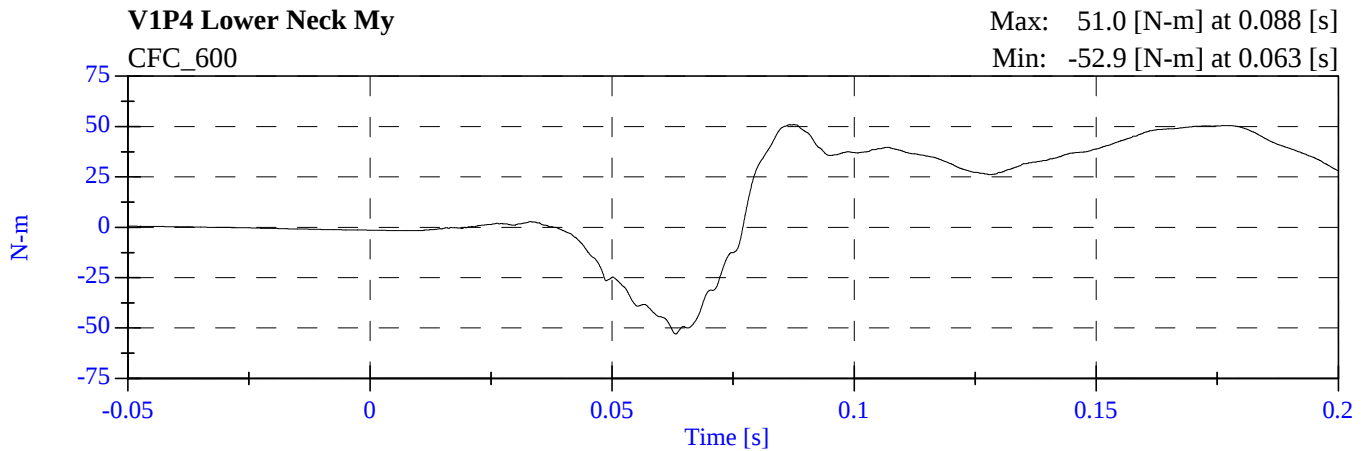
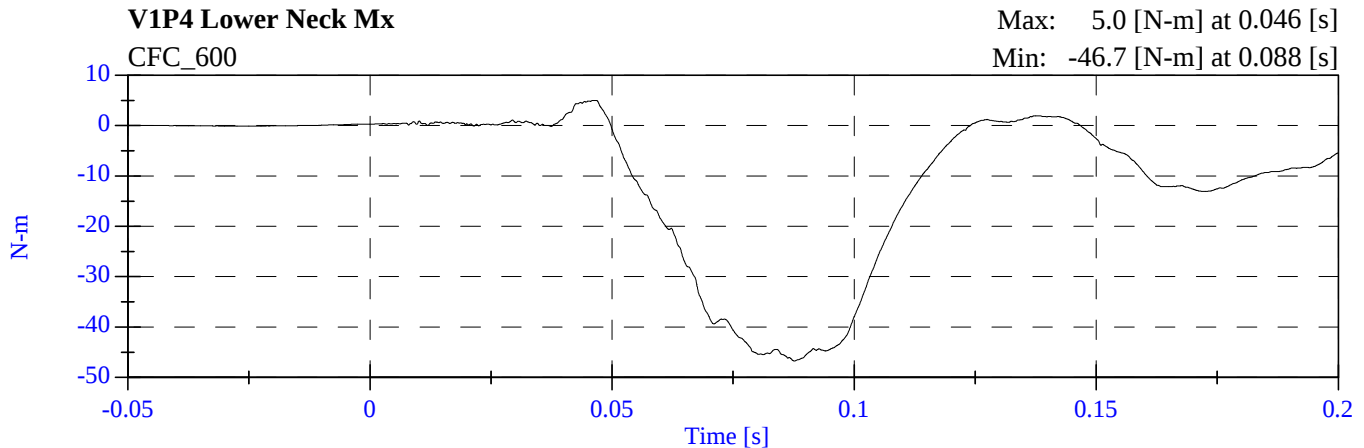
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



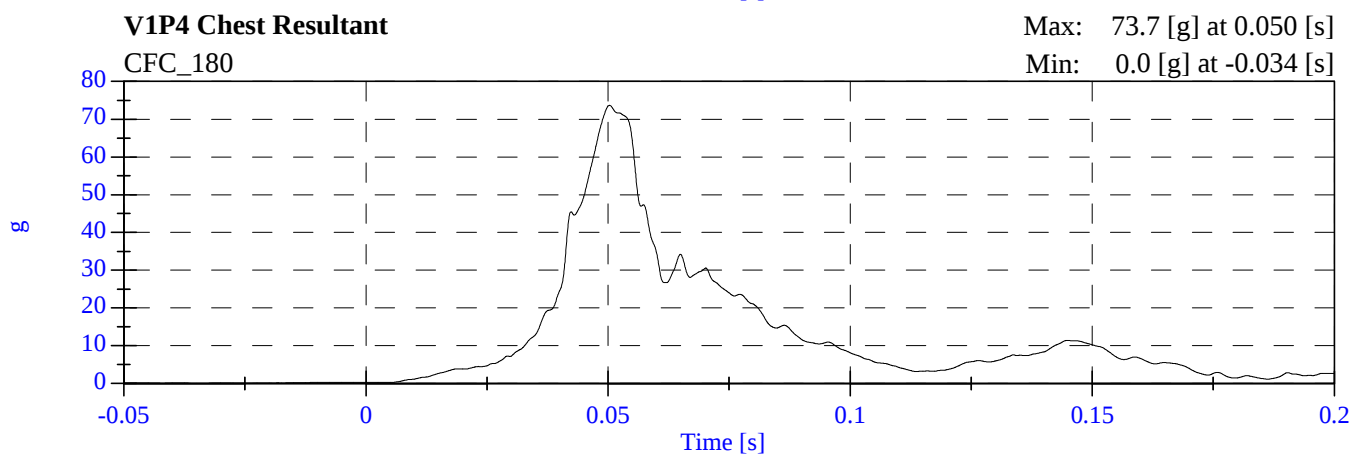
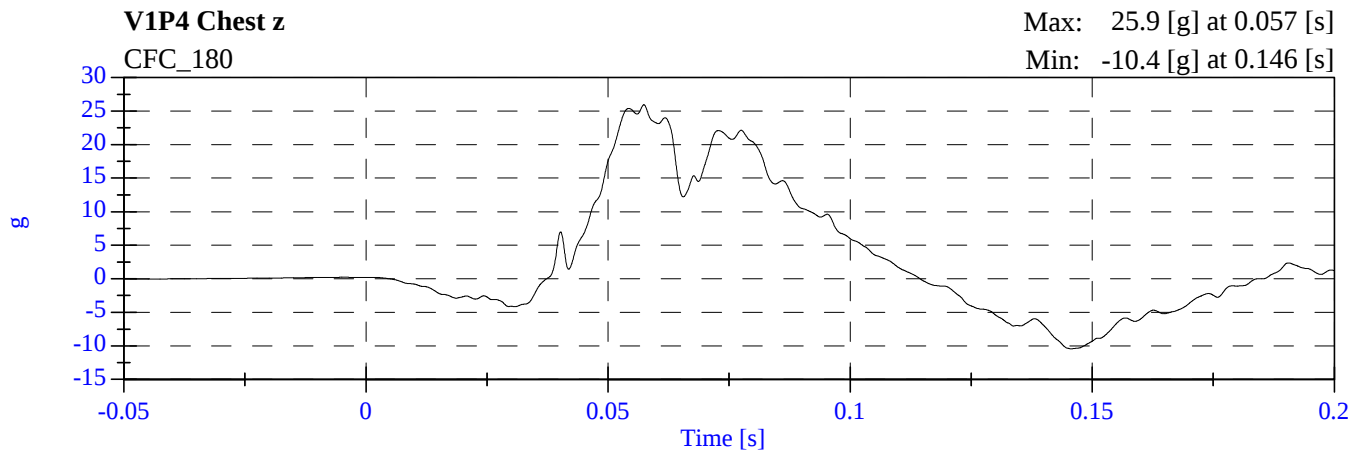
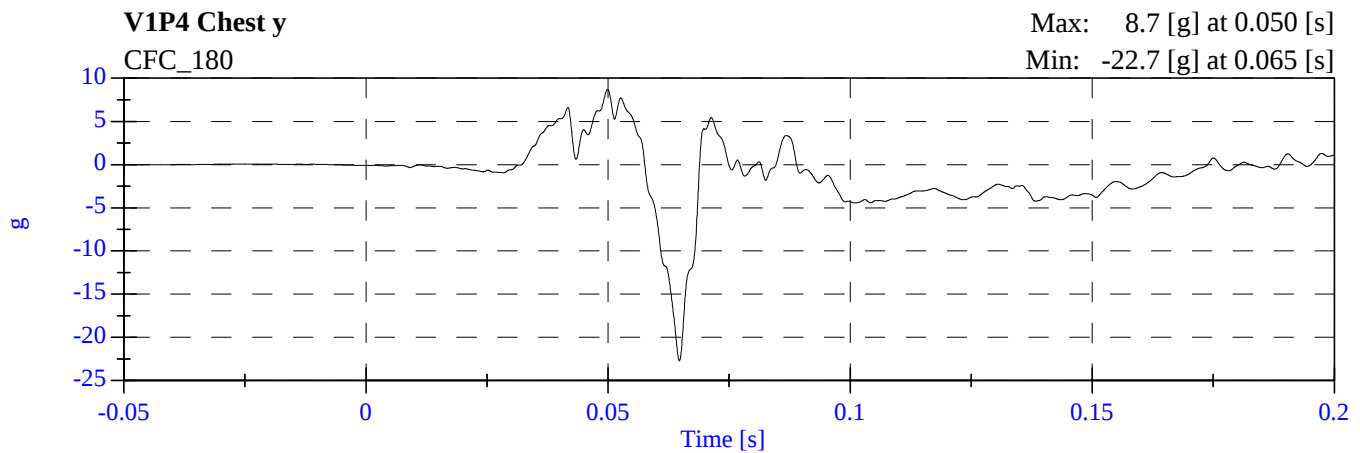
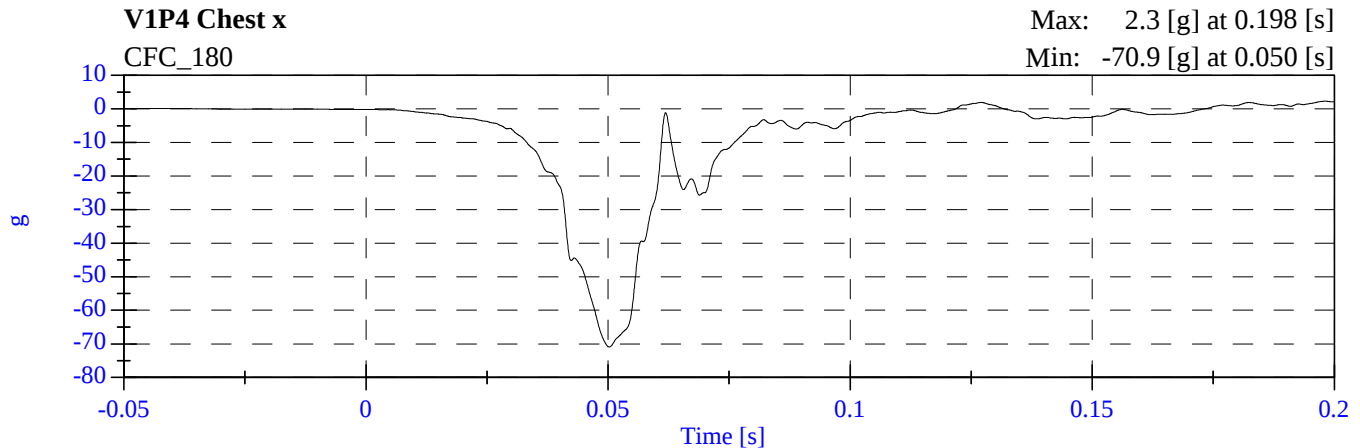
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



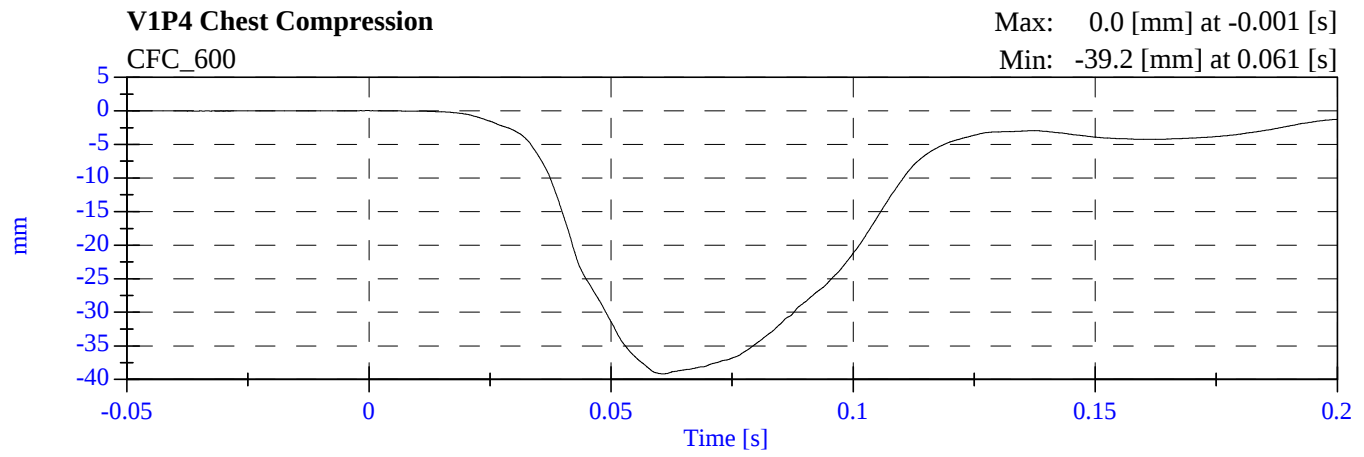
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



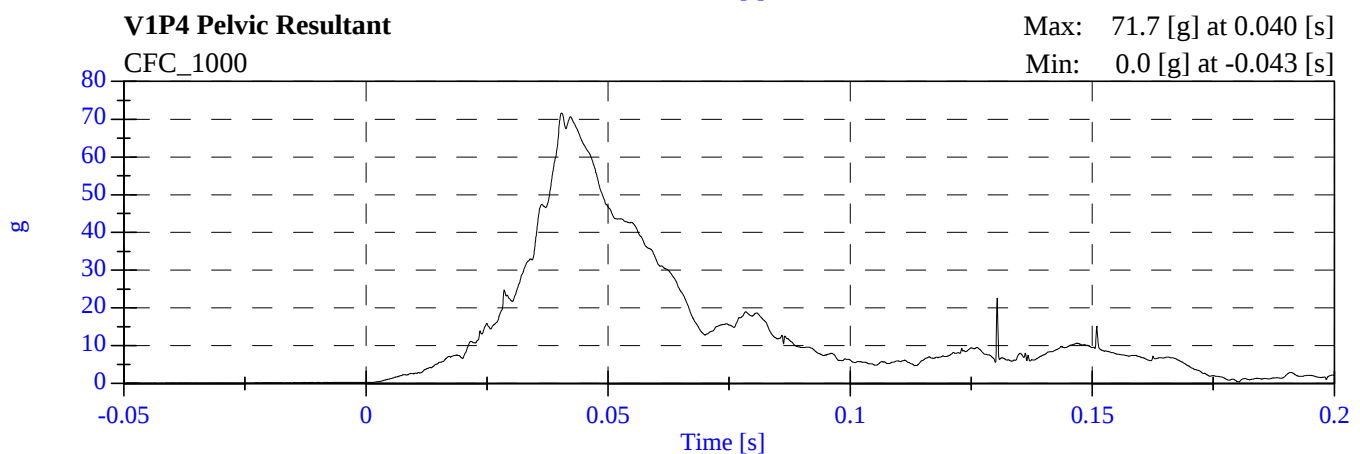
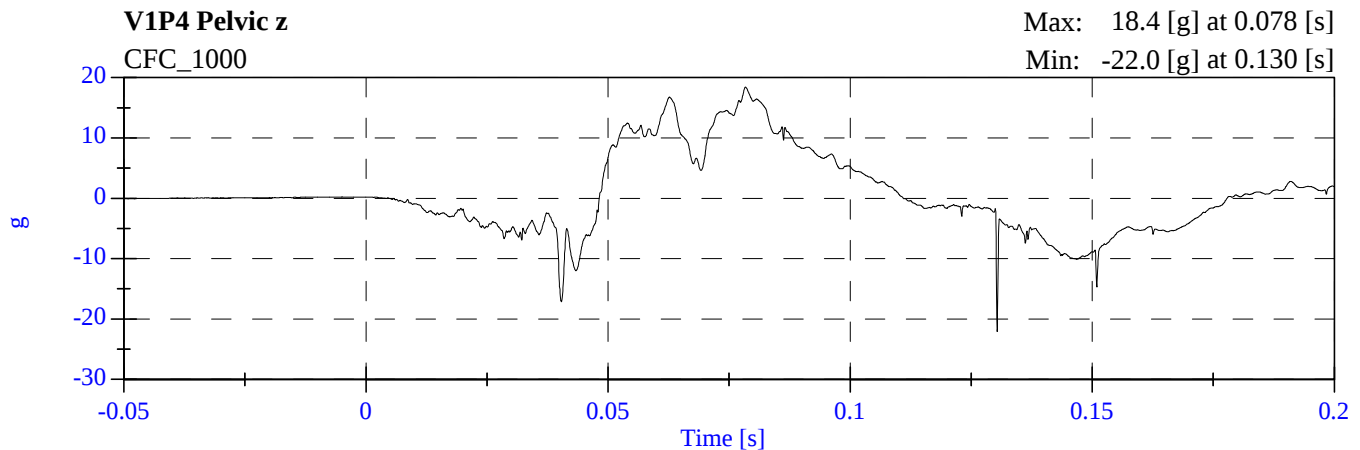
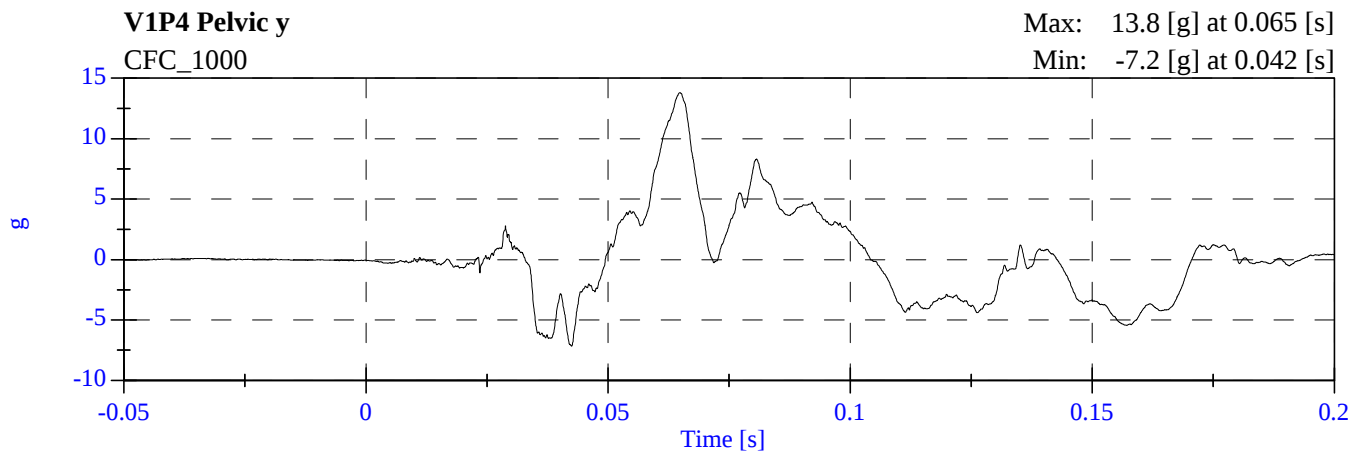
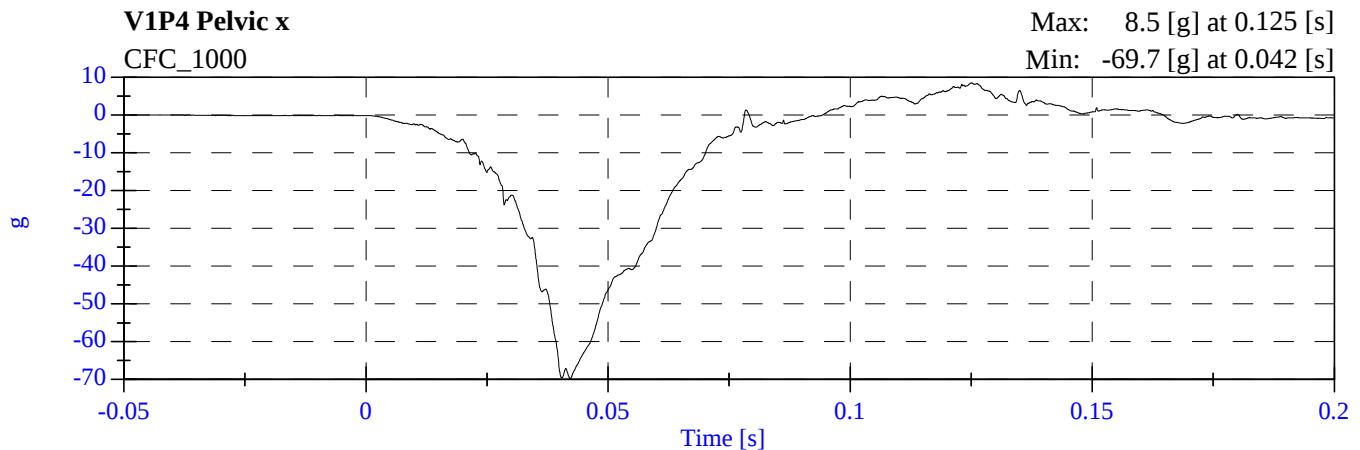
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



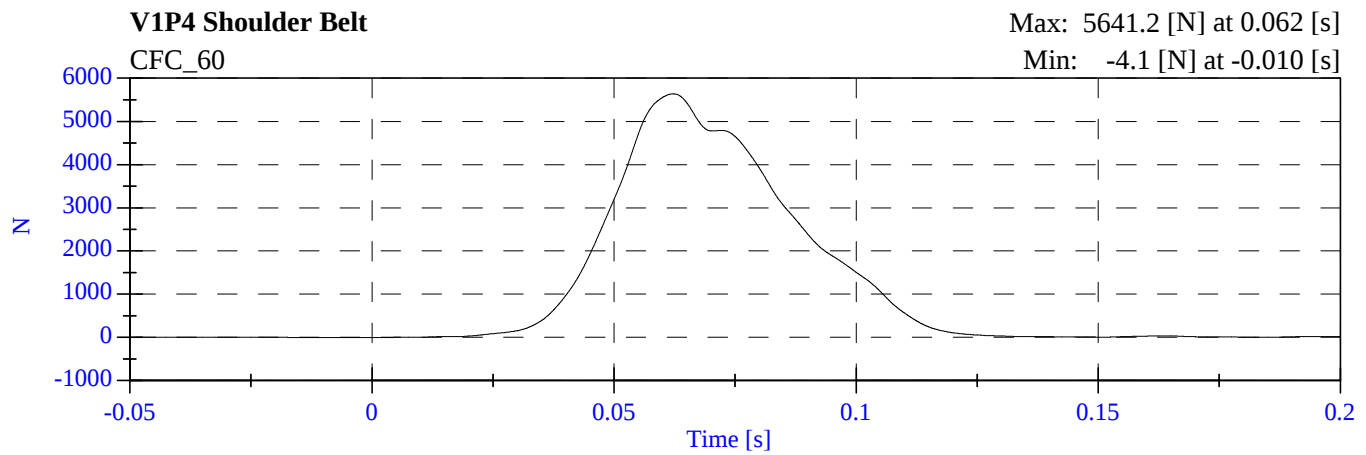
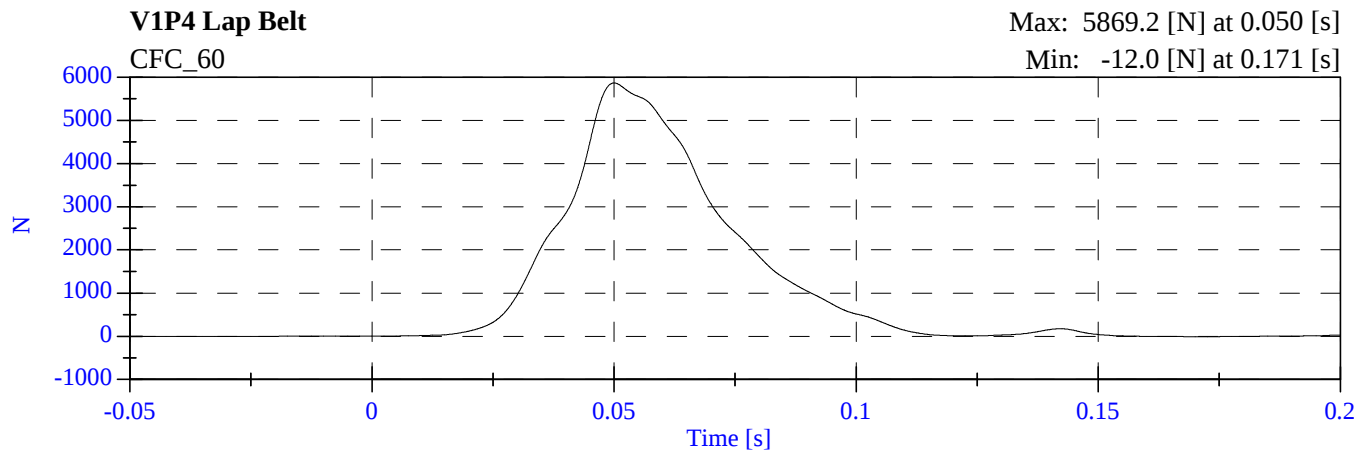
2005 NCAP Test 9 2005 Toyota Tacoma
M55106 - February 16, 2005



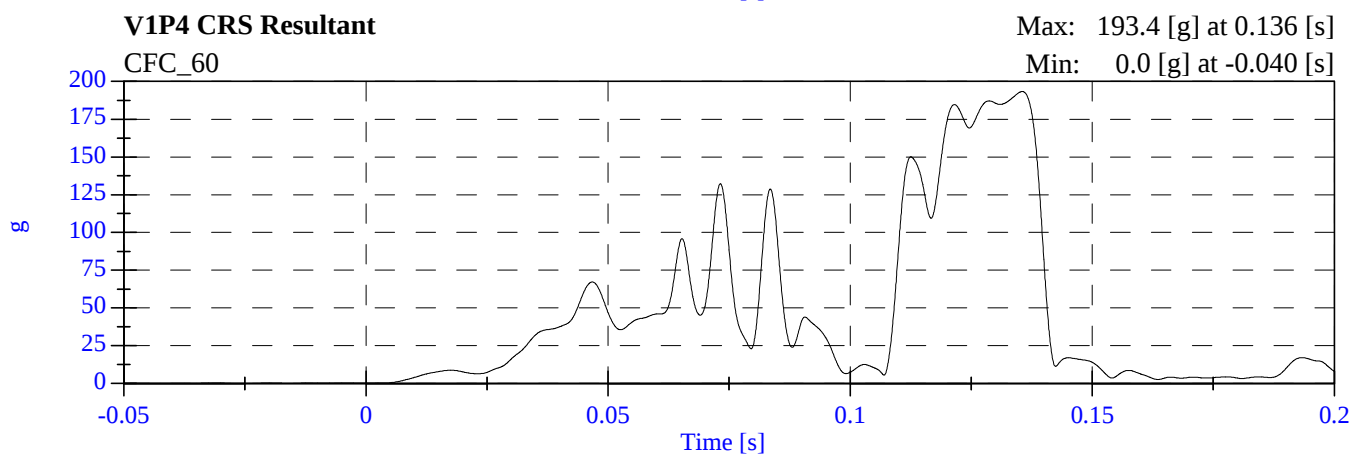
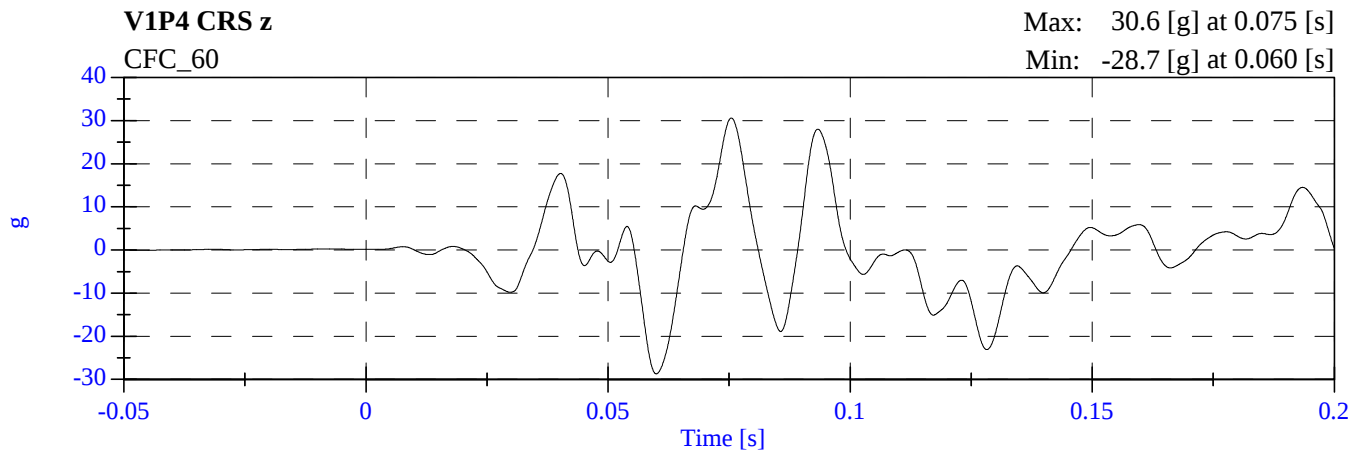
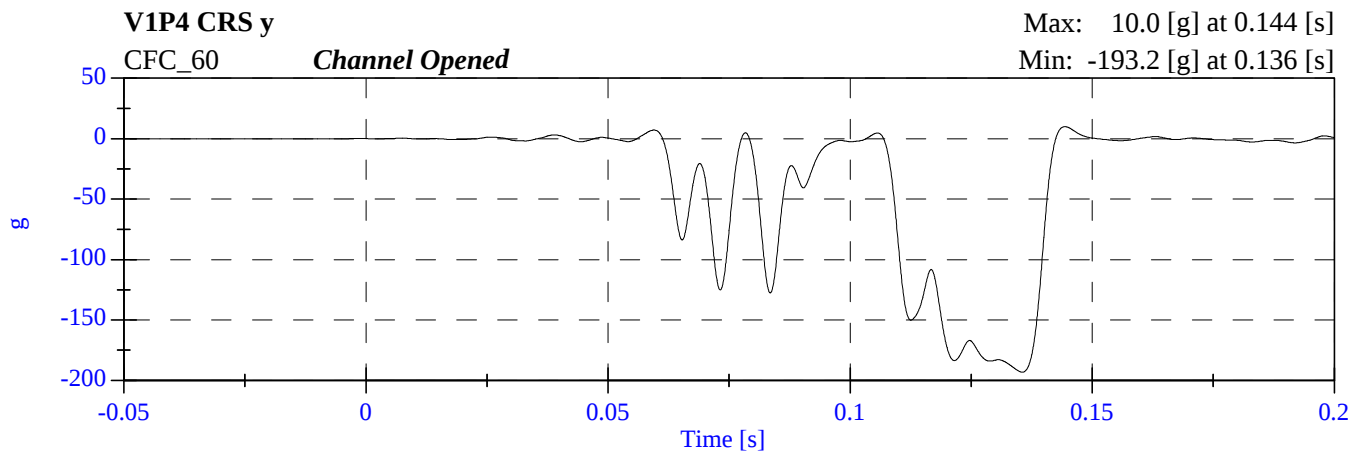
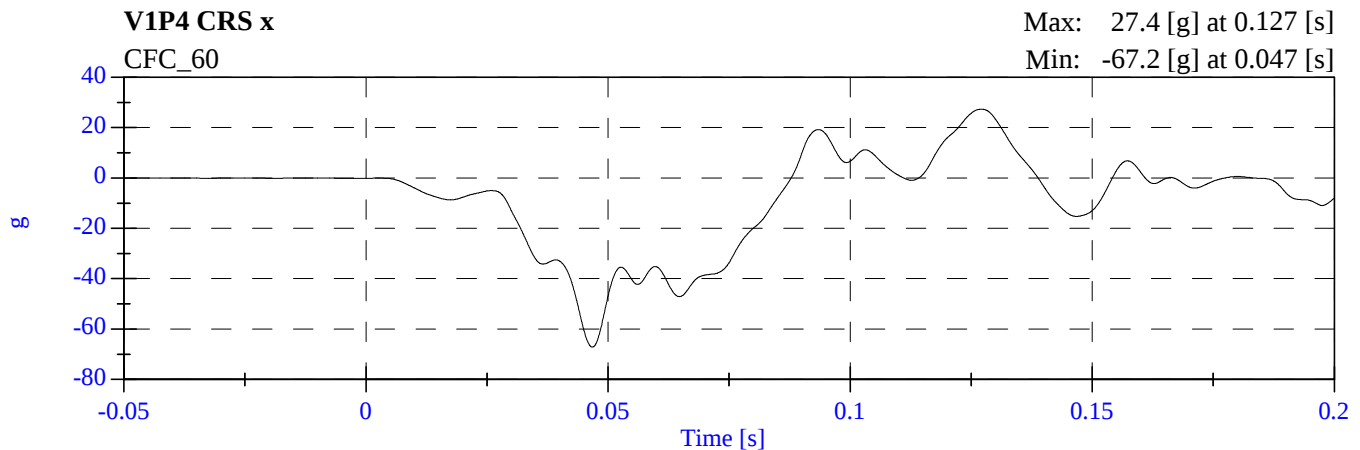
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



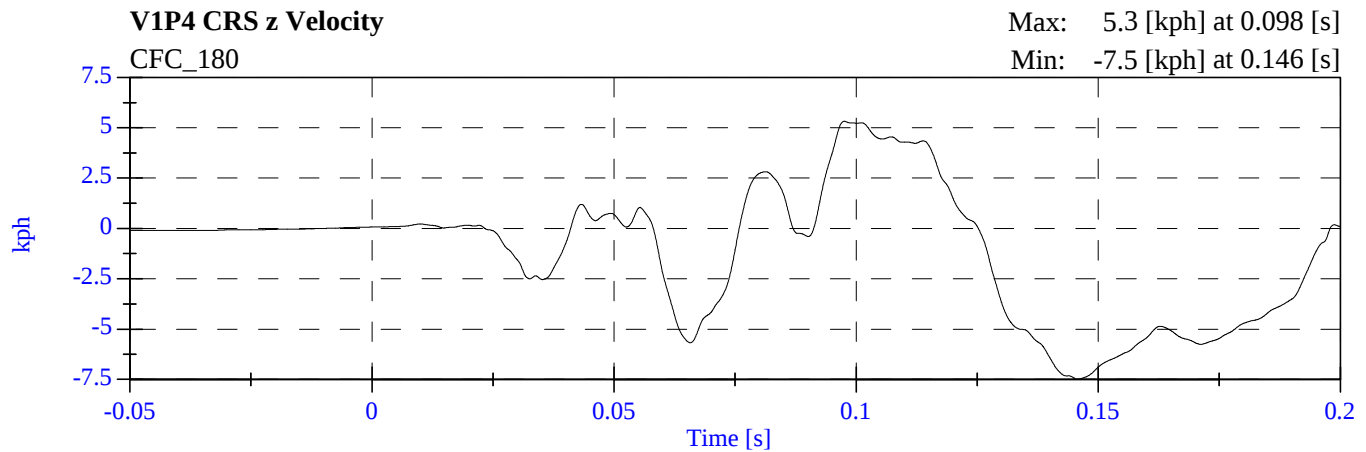
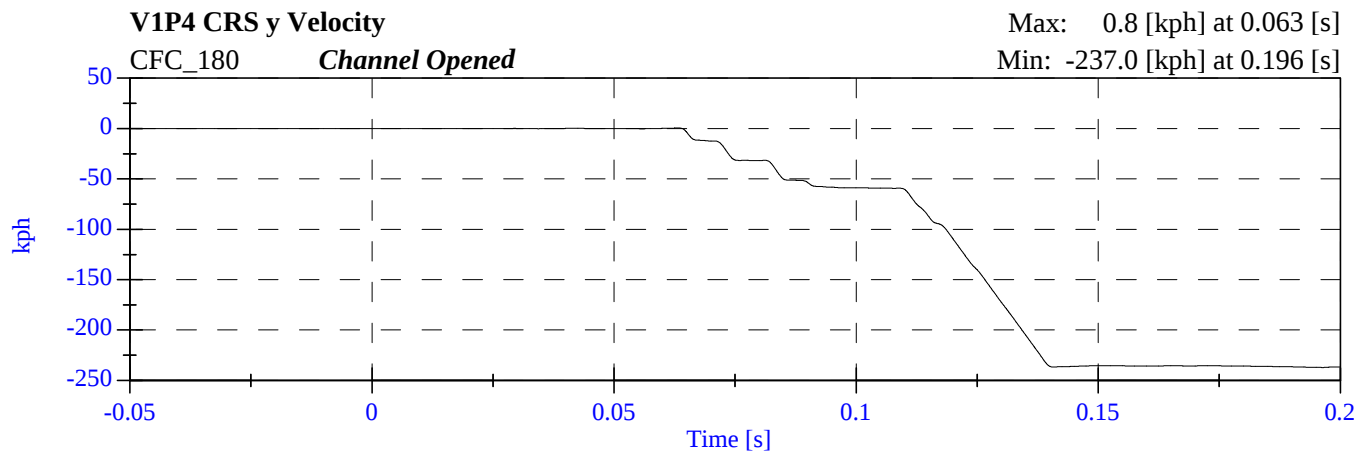
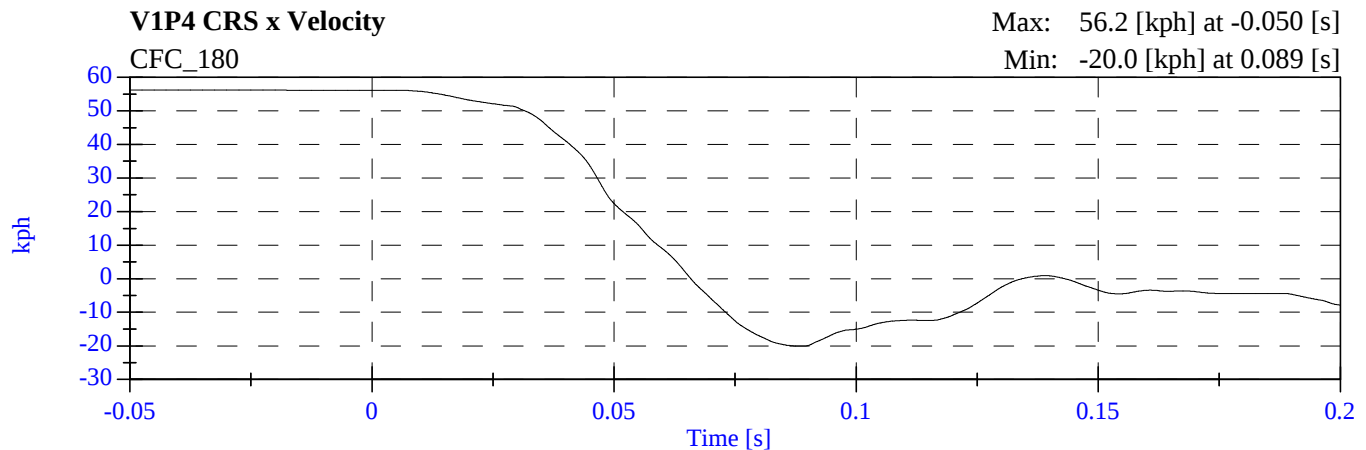
2005 NCAP Test 9 2005 Toyota Tacoma
M55106 - February 16, 2005



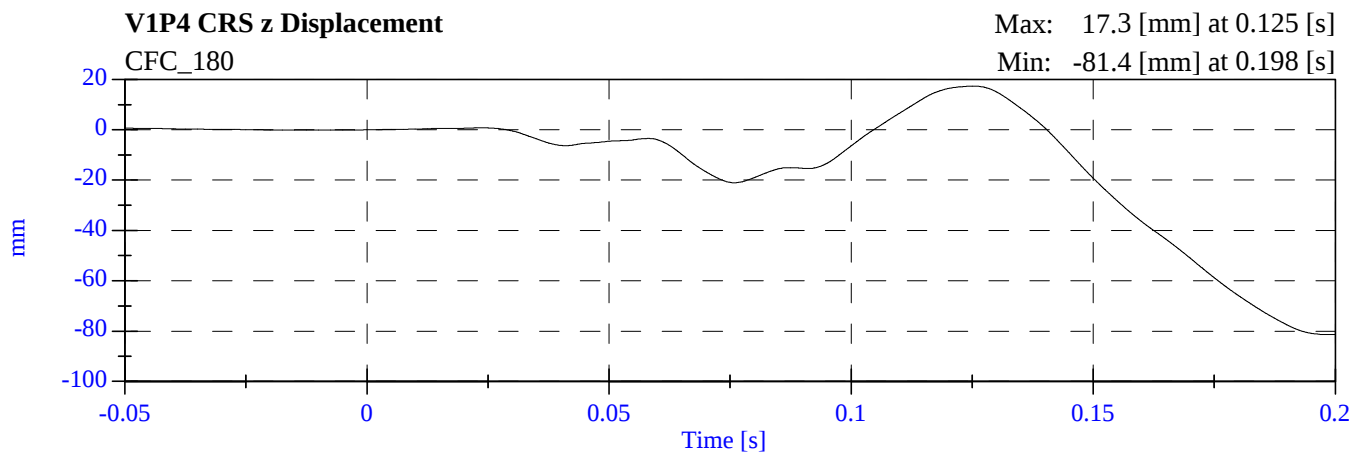
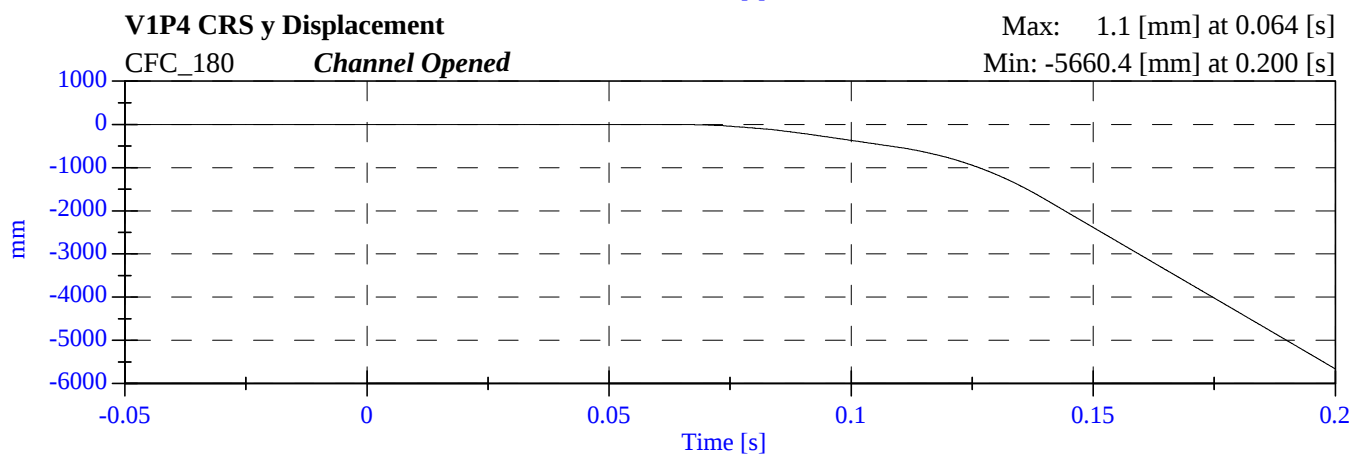
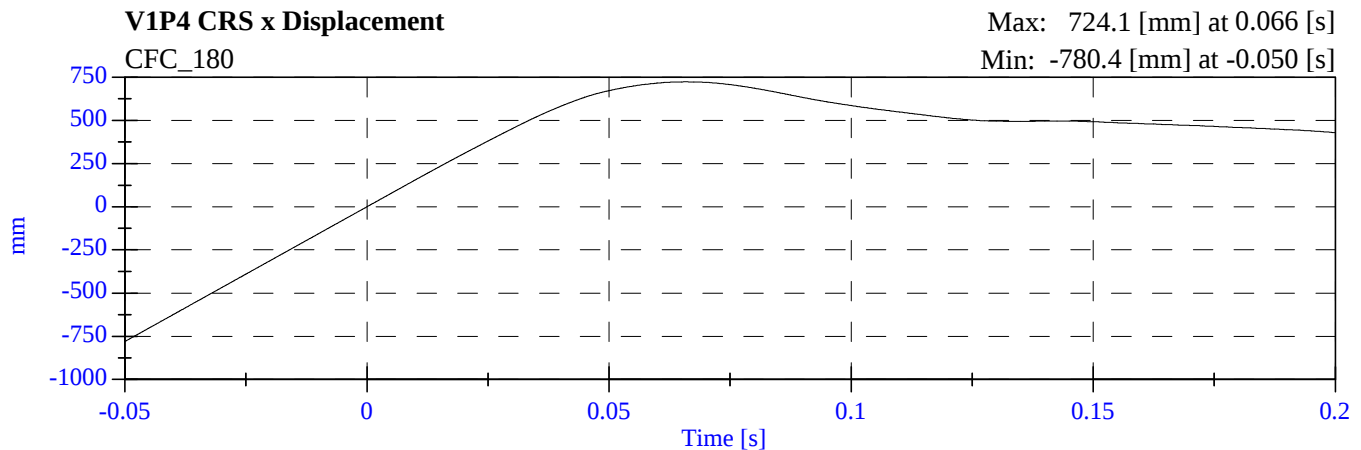
2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



2005 NCAP Test 9 2005 Toyota Tacoma M55106 - February 16, 2005



SECTION 5

CHILD DUMMY CALIBRATION INFORMATION

**Transportation Research Center
Inc.**

ATD Calibration Report

for

VRTC

**HIII 3 Year Old Serial No. 040
Calibration No. 04**



Transportation Research Center Inc.
P.O. Box B-67
10820 St. Rt. 347
East Liberty, OH 43319-0367

Transportation Research Center Inc.
572P HIII 3 Year Old Dummy
External Dimensions
Serial No. 040 Calibration No. 04
08/06/04

Test Parameter	Dimension	Specification	Results	Pass
Total Sitting Height	A	538.5 - 553.7 mm	550 mm	Yes
Shoulder Pivot Height	B	307.3 - 322.6 mm	315 mm	Yes
Hip Pivot Height	C	33.0 - 43.2 mm	40 mm	Yes
Hip Pivot from Backline	D	56.9 - 67.1 mm	63 mm	Yes
Shoulder Pivot from Backline	E	58.4 - 68.6 mm	66 mm	Yes
Thigh Clearance	F	81.0 - 91.2 mm	85 mm	Yes
Back of Elbow to Finger Tip	G	247.4 - 262.6 mm	254 mm	Yes
Head Back to Backline	H	48.3 - 58.4 mm	53 mm	Yes
Shoulder to Elbow Length	I	185.0 - 200.7 mm	197 mm	Yes
Elbow Rest Height	J	133.6 - 148.8 mm	140 mm	Yes
Buttock to Knee Length	K	287.3 - 302.5 mm	295 mm	Yes
Popliteal Height	L	221.0 - 236.2 mm	226 mm	Yes
Knee to Floor Height	M	241.6 - 256.8 mm	251 mm	Yes
Buttock Popliteal Length	N	217.9 - 233.2 mm	224 mm	Yes
Chest Depth with Jacket	O	134.6 - 149.9 mm	143 mm	Yes
Foot Length	P	137.7 - 147.8 mm	140 mm	Yes
Stature	Q	932.2 - 957.6 mm	944 mm	Yes
Buttock to Knee Pivot Length	R	251.5 - 261.6 mm	254 mm	Yes
Head Breadth	S	128.3 - 143.5 mm	135 mm	Yes
Head Depth	T	167.4 - 182.6 mm	175 mm	Yes
Hip Breadth	U	200.7 - 215.9 mm	205 mm	Yes
Shoulder Breadth	V	236.5 - 251.7 mm	243 mm	Yes
Foot Breadth	W	53.6 - 63.8 mm	57 mm	Yes
Head Circumference	X	500.4 - 515.6 mm	502 mm	Yes
Chest Circumference with Jacket	Y	527.1 - 552.5 mm	543 mm	Yes
Waist Circumference	Z	527.1 - 552.5 mm	545 mm	Yes
Reference Location for Chest Circumference	AA	248.9 - 259.1 mm	254 mm	Yes
Reference Location for Waist Circumference	BB	160.0 - 170.2 mm	165 mm	Yes

Technician



Approved





Transportation Research Center Inc.

572P Head Drop Test

HIII 3 Year Old Serial No. 040 Calibration No. 04 - 2

Test Date 08/05/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Peak Resultant Acceleration	250 - 280 g	254.1 g	Yes
Peak Lateral Acceleration	15 g Max	-3.0 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician



Approved

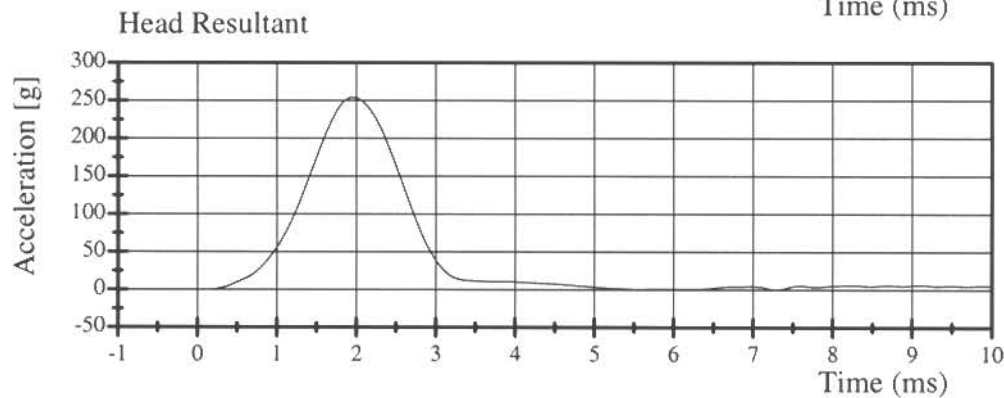
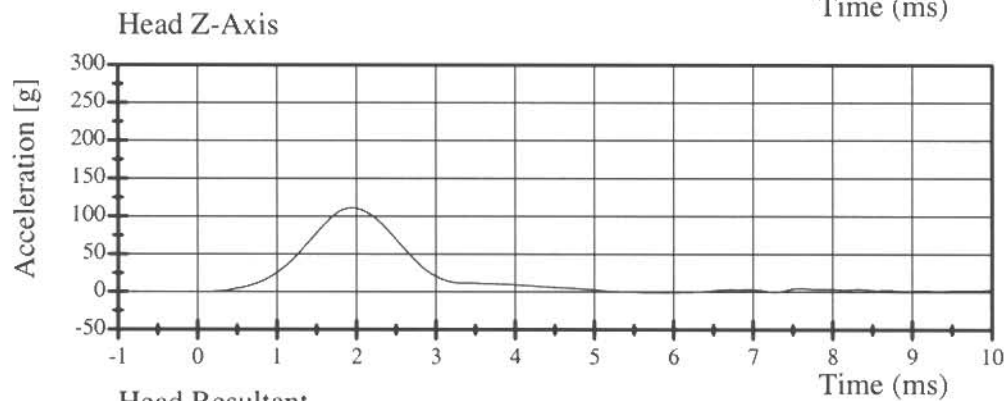
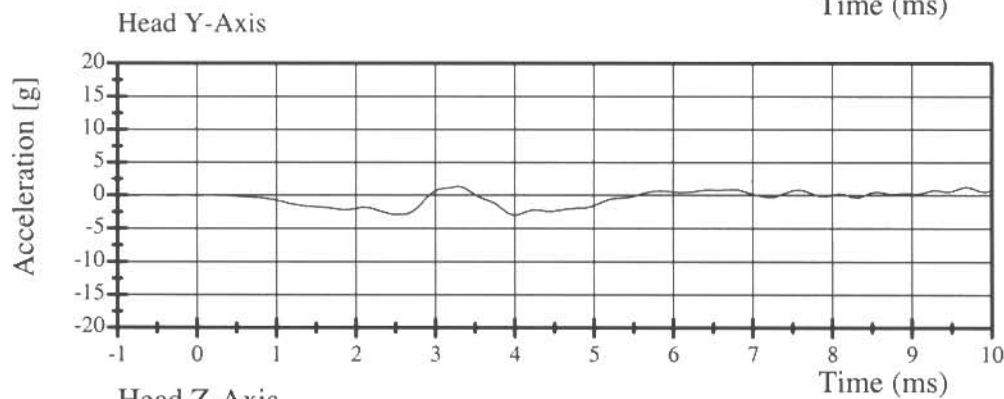
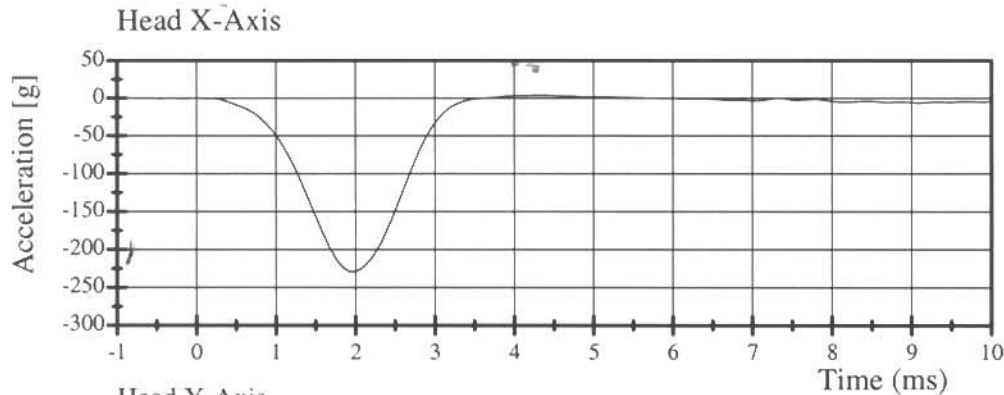


Transportation Research Center Inc.

572P Head Drop Test

HIII 3 Year Old Serial No. 040 Calibration No. 04 - 2

Test Date 08/05/2004



Transportation Research Center Inc.

572P Neck Flexion Test - 6 Channel Transducer

HIII 3 Year Old Serial No. 040 Calibration No. 04 - 1

Test Date 08/06/2004

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Impact Velocity	5.40 - 5.60 m/s	5.58 m/s	Yes
Integrated Pendulum Velocity			
10 ms	2.00 - 2.70 m/s	2.44 m/s	Yes
15 ms	3.00 - 4.00 m/s	3.50 m/s	Yes
20 ms	4.00 - 5.10 m/s	4.76 m/s	Yes
Peak D Plane Rotation	70 - 82 °	72.7 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	42.0 - 53.0 N·m	42.70 N·m	Yes
Positive Moment Decay Time To 10 N·m	60 - 80 ms	70.72 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



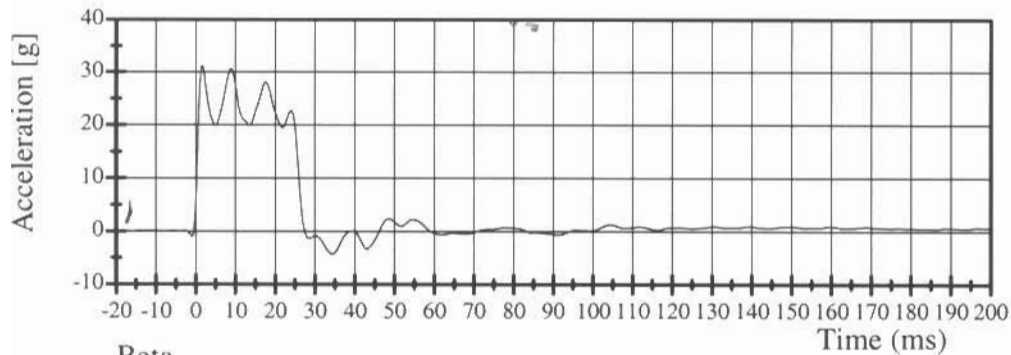
Transportation Research Center Inc.

572P Neck Flexion Test

HIII 3 Year Old Serial No. 040 Calibration No. 04 - 1

Test Date 08/06/2004

Pendulum Deceleration

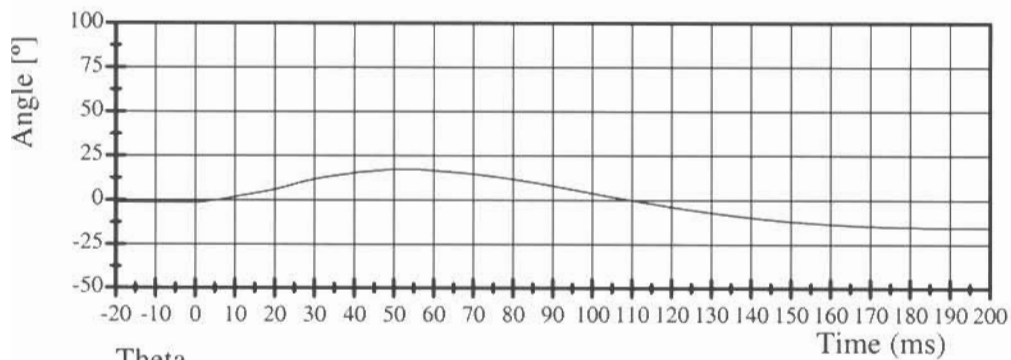


Filter Class: 180

Max: 31.2 g at 1.7 ms

Min: -4.3 g at 34.4 ms

Beta

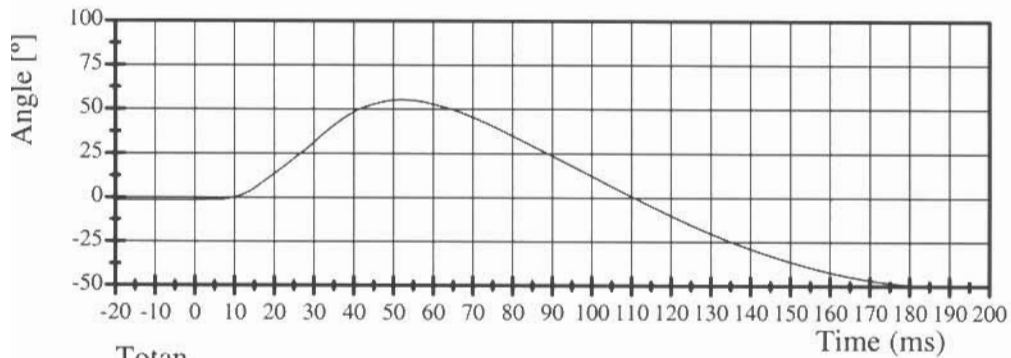


Filter Class: 60

Max: 17.4 ° at 52.0 ms

Min: -15.4 ° at 192.4 ms

Theta

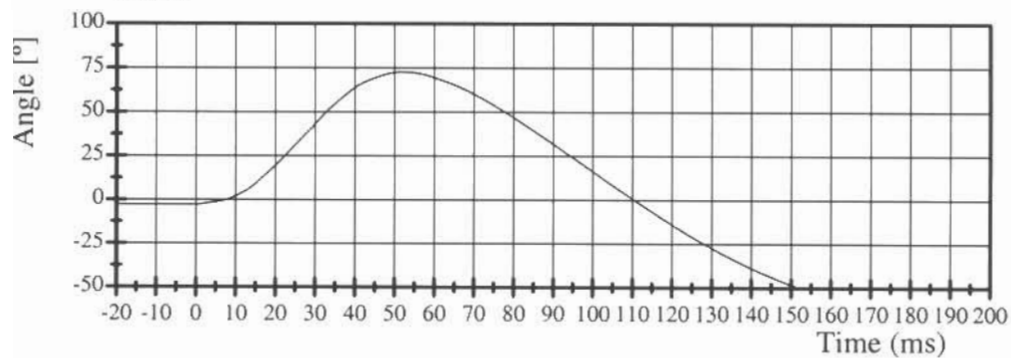


Filter Class: 60

Max: 55.3 ° at 52.0 ms

Min: -50.0 ° at 192.3 ms

Totan



Filter Class: 60

Max: 72.7 ° at 52.0 ms

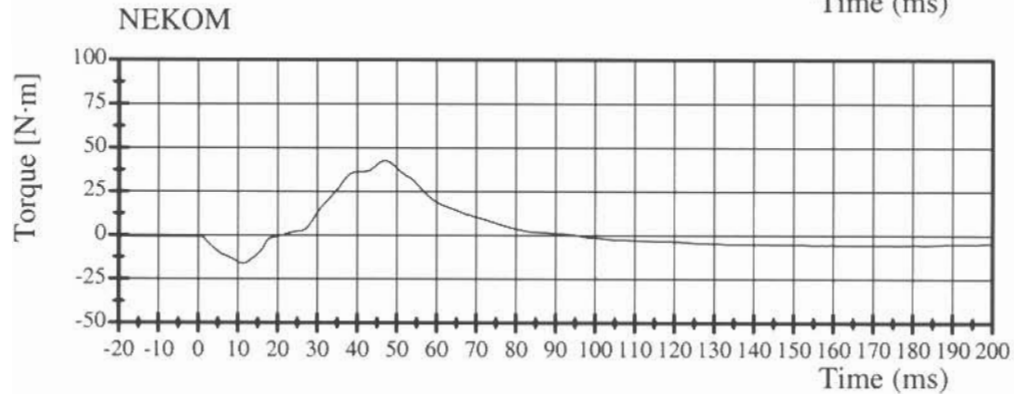
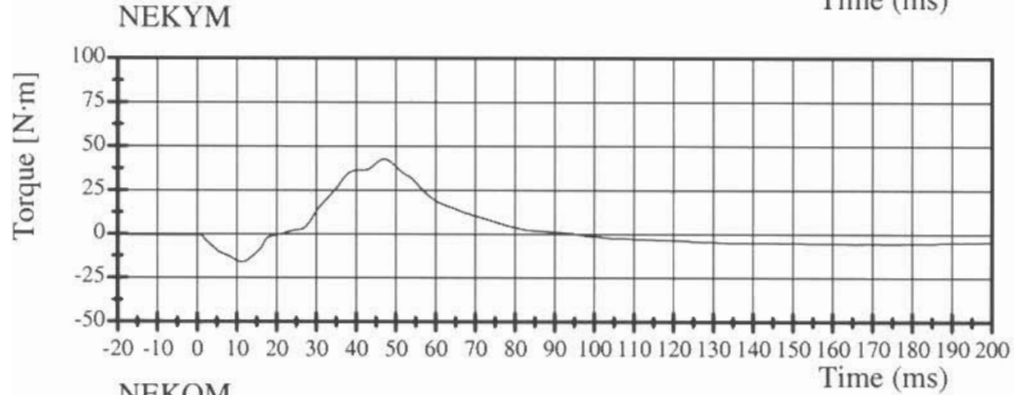
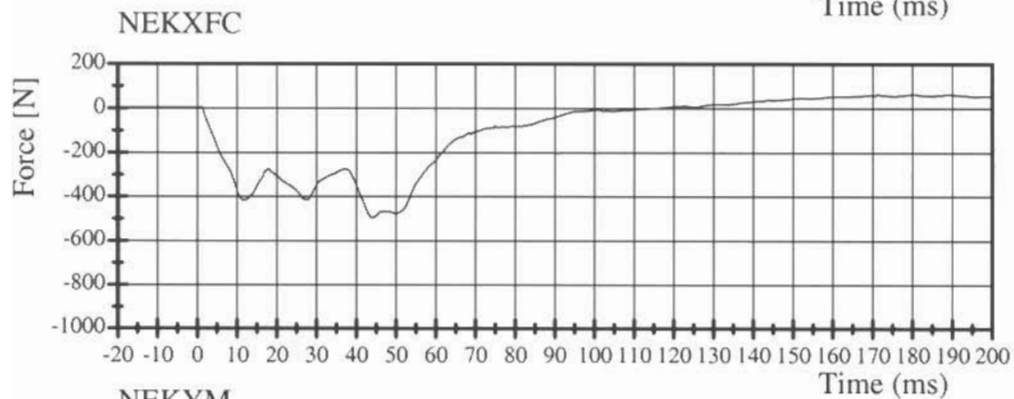
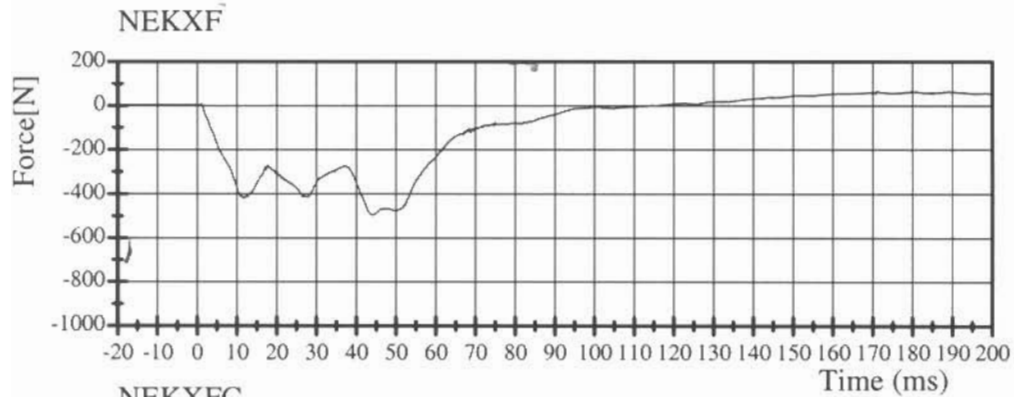
Min: -65.4 ° at 192.3 ms

Transportation Research Center Inc.

572P Neck Flexion Test

HIII 3 Year Old Serial No. 040 Calibration No. 04 - 1

Test Date 08/06/2004



Transportation Research Center Inc.

572P Neck Extension Test - 6 Channel Transducer

HIII 3 Year Old Serial No. 040 Calibration No. 04 - 3

Test Date 08/06/2004

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.8 °C	Yes
Relative Humidity	10 - 70 %	48 %	Yes
Impact Velocity	3.55 - 3.75 m/s	3.66 m/s	Yes
Integrated Pendulum Velocity			
10 ms	1.00 - 1.40 m/s	1.19 m/s	Yes
15 ms	1.90 - 2.50 m/s	2.10 m/s	Yes
20 ms	2.80 - 3.50 m/s	2.86 m/s	Yes
Peak D Plane Rotation	83 - 93 °	84.2 °	Yes
Peak Moment About Occipital Condyles (During time interval rotation is within specified corridors)	-53.3 - (-43.7) N·m	-44.22 N·m	Yes
Positive Moment Decay Time To -10 N·m	60 - 80 ms	70.80 ms	Yes

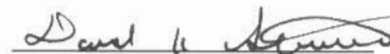
Test meets specifications.

Comments:

Technician



Approved



08.06.2004 10:06:41 1000

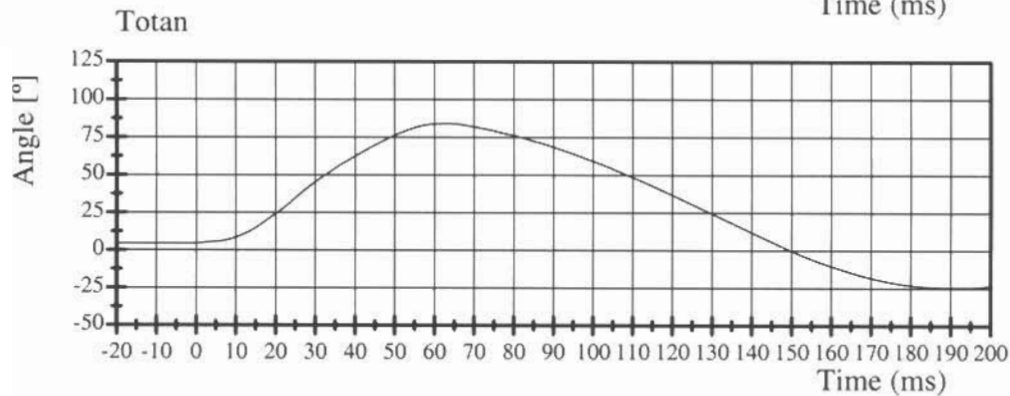
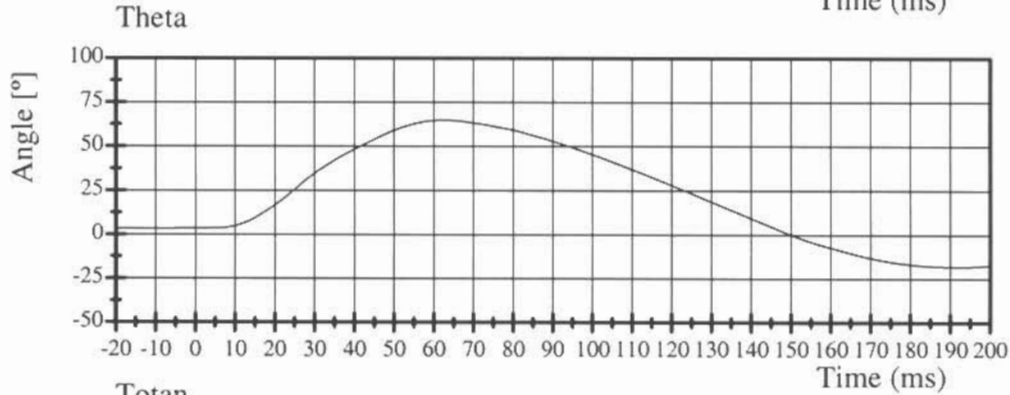
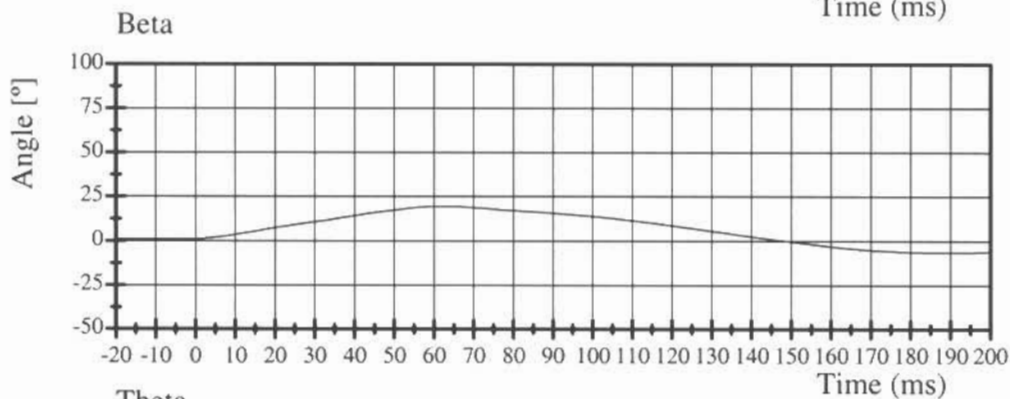
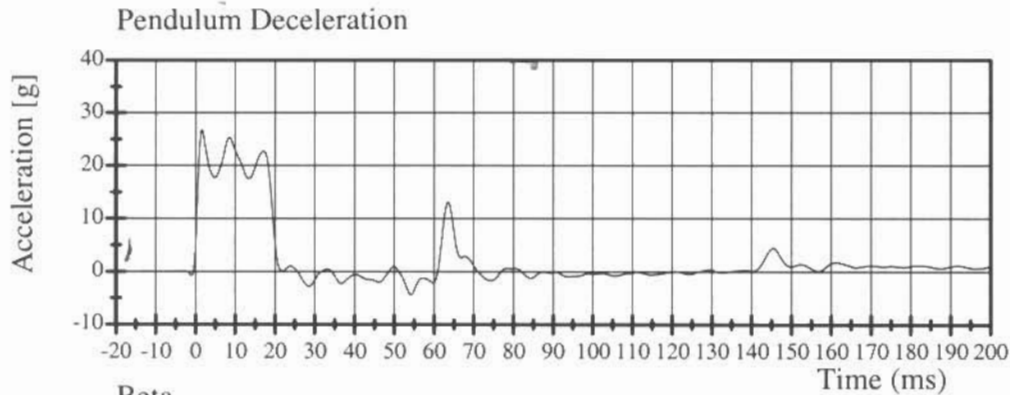


Transportation Research Center Inc.

572P Neck Extension Test

HIII 3 Year Old Serial No. 040 Calibration No. 04 - 3

Test Date 08/06/2004

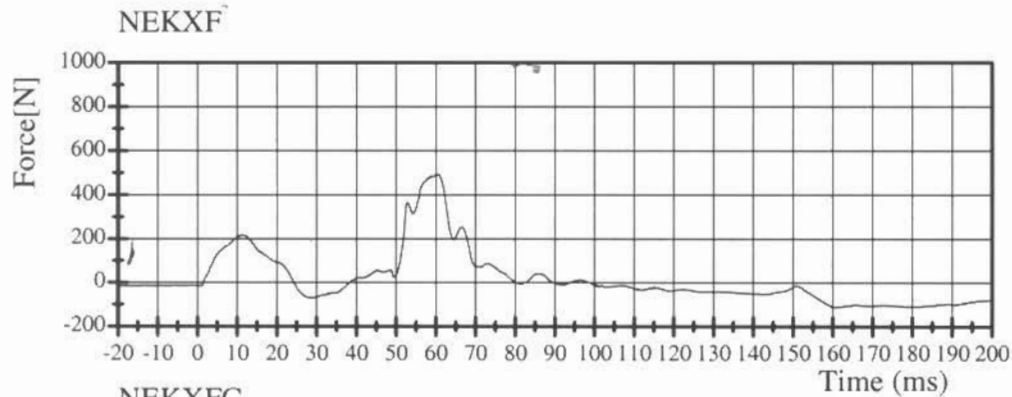


Transportation Research Center Inc.

572P Neck Extension Test

HIII 3 Year Old Serial No. 040 Calibration No. 04 - 3

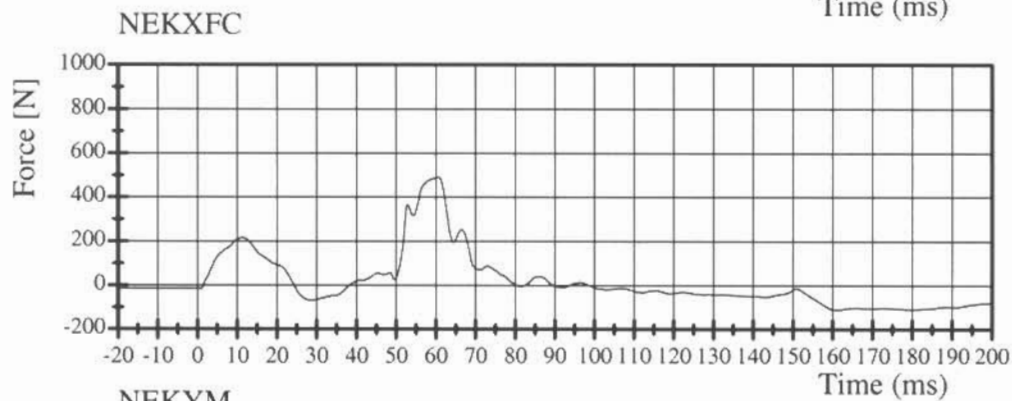
Test Date 08/06/2004



Filter Class: 1000

Max: 491.8 N at 60.8 ms

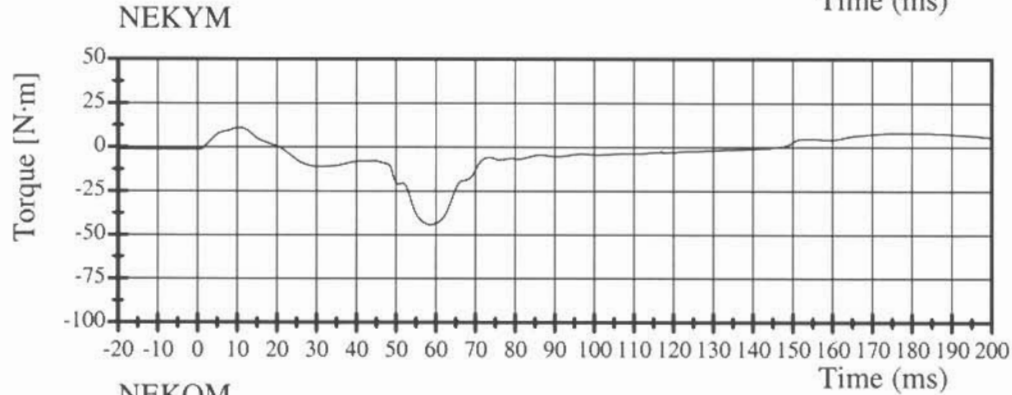
Min: -111.4 N at 161.0 ms



Filter Class: 600

Max: 491.8 N at 60.6 ms

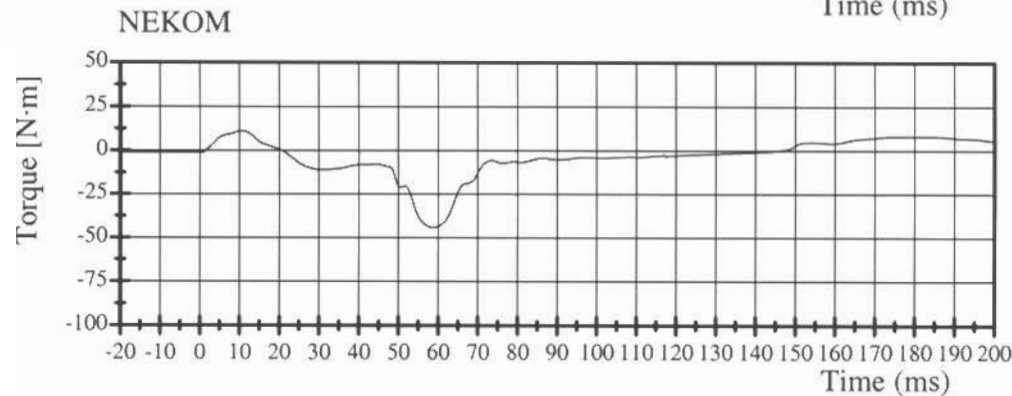
Min: -111.3 N at 161.0 ms



Filter Class: 600

Max: 11.1 N·m at 10.4 ms

Min: -44.2 N·m at 58.6 ms



Filter Class: 600

Max: 11.1 N·m at 10.4 ms

Min: -44.2 N·m at 58.6 ms

Transportation Research Center Inc.

572P Thorax Test

HIH 3 Year Old Serial No. 040 Calibration No. 04 - 1

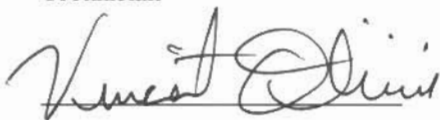
Test Date 08/05/2004

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Pendulum Velocity	5.90 - 6.10 m/s	5.97 m/s	Yes
Maximum Chest Deflection	-38.0 - (-32.0) mm	-35.8 mm	Yes
Peak Impact Probe Force Within Compression Corridor	680 - 810 N	741 N	Yes
Internal Hysteresis	65 - 85 %	67 %	Yes
Maximum Force Between 12.5 mm & 32 mm Of Deflection	<= 910	758	Yes

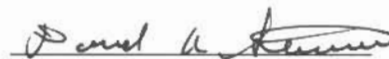
Test meets specifications.

Comments:

Technician



Approved



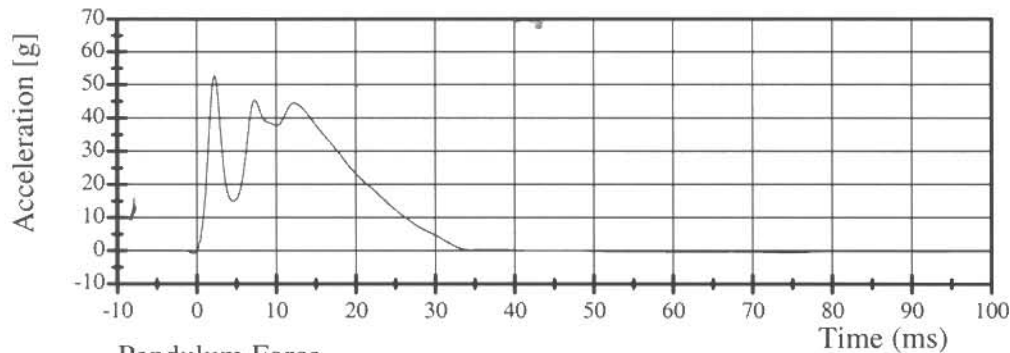
Transportation Research Center Inc.

572P Thorax Test

HIII 3 Year Old Serial No. 040 Calibration No. 04 - 1

Test Date 08/05/2004

Pendulum Deceleration

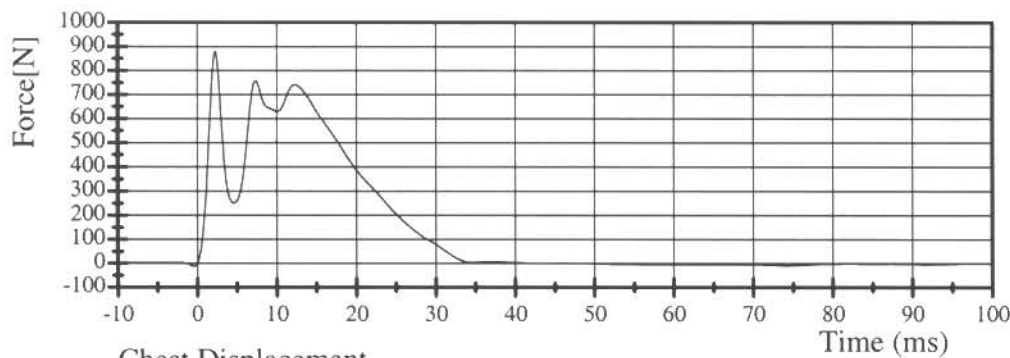


Filter Class: 180

Max: 52.8 g at 2.2 ms

Min: -0.7 g at -0.4 ms

Pendulum Force

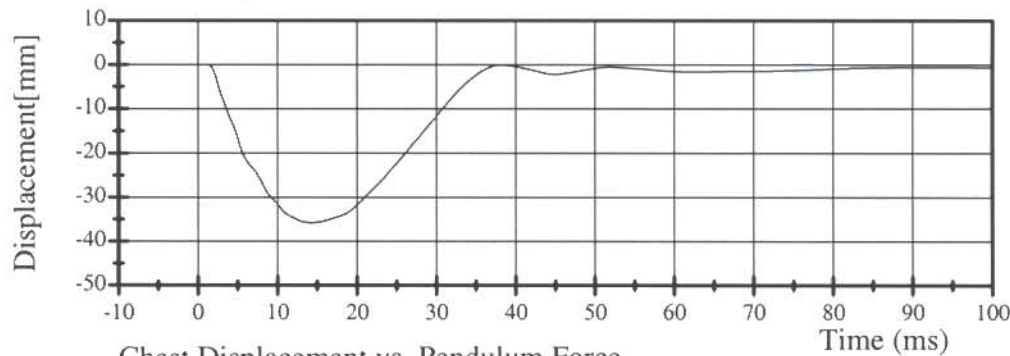


Filter Class: 180

Max: 880.2 N at 2.2 ms

Min: -11.7 N at -0.4 ms

Chest Displacement

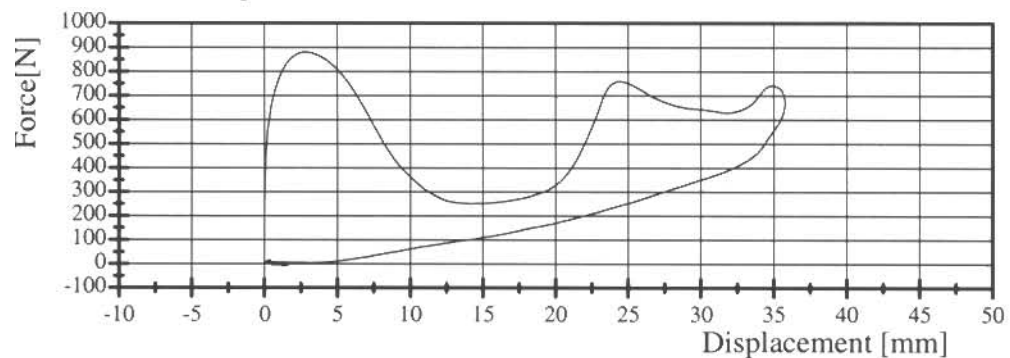


Filter Class: 600

Max: 0.0 mm at -80.0 ms

Min: -35.8 mm at 14.3 ms

Chest Displacement vs. Pendulum Force



TRANSPORTATION RESEARCH CENTER INC.

TORSO FLEXION TEST

HYBRID III THREE-YEAR-OLD

CAL DATE: 04-Aug-04

TRC, INC.

TEST NO: 040C04TF1

572 P SN 040 TORSO FLEX CAL 04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 – 25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 – 70 %	56 %
INITIAL ANGLE OF UNSUPPORTRED DUMMY	<= 15 DEG. REFERENCED TO VERTICAL	8.3 DEG.
MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD	130 – 180 N	165.3 N
RETURN ANGLE		5.4 °
DIFFERENCE BETWEEN RETURN ANGLE & INTIAL ANGLE	+/- 8 ° OF INTIAL ANGLE	2.9 °
RATE	0.5° - 1.5°/sec	1.06 °/sec

TEST MEETS SPECIFICATIONS

TECHNICIAN



Head Drop

Part 572N Head Drop

Calibration Date: February 3, 2005

Serial No: 186

Work File: 186H2 02-03-05

-----TEST RESULTS-----

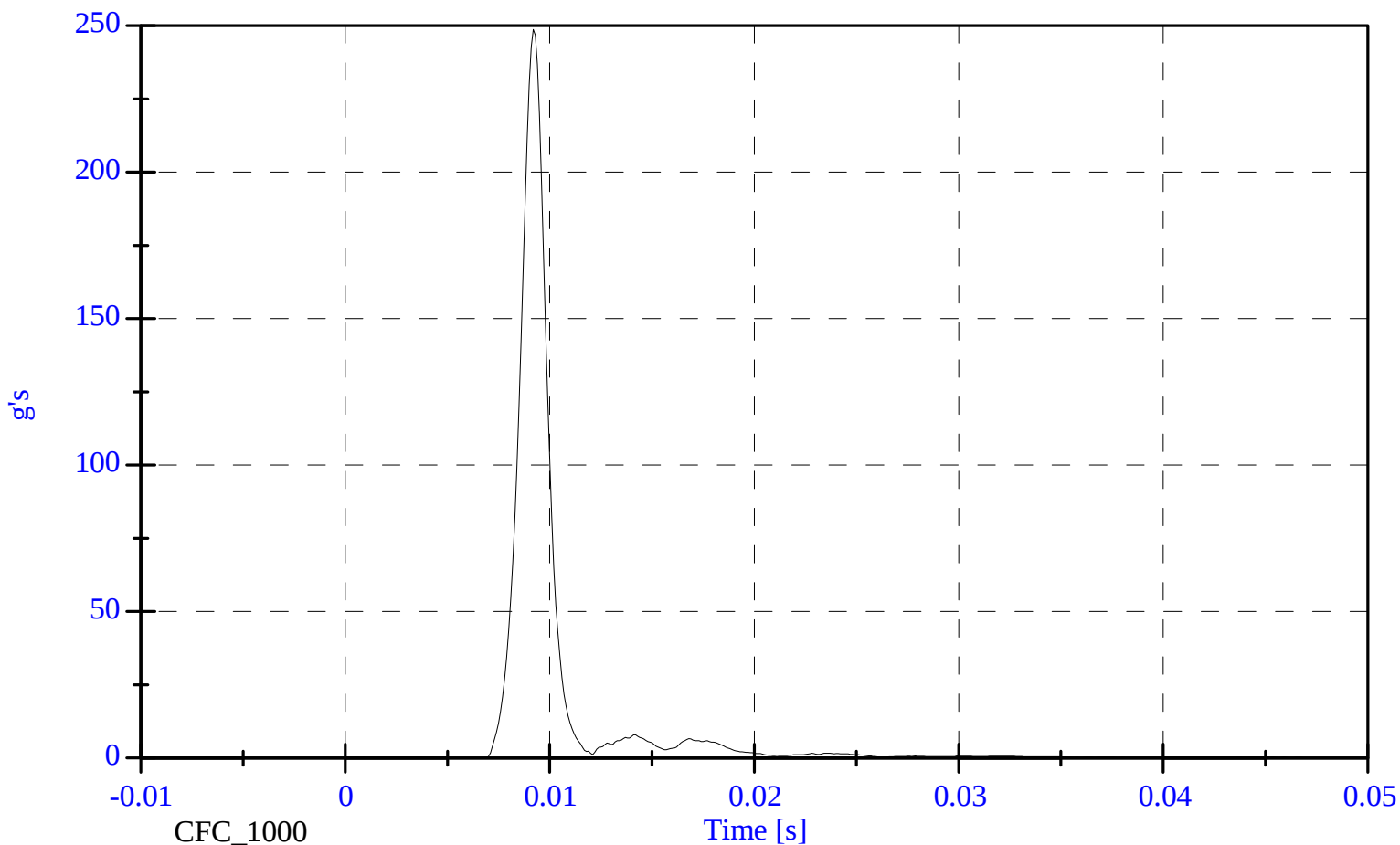
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Peak Resultant Accel.:	245-300 Gs	248.69 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	7.98 Gs	Passed
Curve PerCent NonModal:	< 10%	3.19 %	Passed

Head Drop

Head Resultant

Max: 248.7 [g's] at 0.009 [s]

Min: 0.0 [g's] at 0.041 [s]



Neck Extension

Part 572N	Neck Extension Test	Calibration Date:	February 2, 2005
Serial No:	186	Work File:	186NF 02-03-05

-----TEST RESULTS-----

<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.11 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Test Pendulum Speed:	4.18- 4.42 m/s	4.27 m/s	Passed

-----PENDULUM PULSE-----

Pulse at 10 ms:	1.00- 1.40 m/s	1.28 m/s	Passed
Pulse at 20 ms:	2.20- 3.00 m/s	2.64 m/s	Passed
Pulse at 30 ms:	3.20- 4.20 m/s	3.92 m/s	Passed

-----D PLANE ROTATION-----

Maximum Rotation:	85.0-103.0 Deg	94.48 Deg	Passed
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-----MOMENT ABOUT THE OCCIPITAL CONDYLE-----

Max Occipital Moment:	-24.00--19.00 N-m	-19.22 N-m	Passed
Occipital Moment Decay:	123.0-147.0 ms	131.00 ms	Passed

Neck Flexion

Part 572N	Neck Flexion Test	Calibration Date:	February 3, 2005
Serial No:	186	Work File:	186NF 02-03-05

-----TEST RESULTS-----

<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.11 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Test Pendulum Speed:	4.83- 5.07 m/s	4.95 m/s	Passed

-----PENDULUM PULSE-----

Pulse at 10 ms:	1.20- 1.60 m/s	1.60 m/s	Passed
Pulse at 20 ms:	2.40- 3.40 m/s	3.22 m/s	Passed
Pulse at 30 ms:	3.80- 5.00 m/s	4.71 m/s	Passed

-----D PLANE ROTATION-----

Maximum Rotation:	74.0-92.0 Deg	86.76 Deg	Passed
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-----MOMENT ABOUT THE OCCIPITAL CONDYLE-----

Max Occipital Moment:	27.00- 33.00 N-m	30.11 N-m	Passed
Occipital Moment Decay:	103.0-123.0 ms	113.60 ms	Passed

Thorax Impact

Part 572N Thorax Impact

Calibration Date: 02-04-05

Serial No: 186

Work File: 186T1 02-04-05

-----TEST RESULTS-----

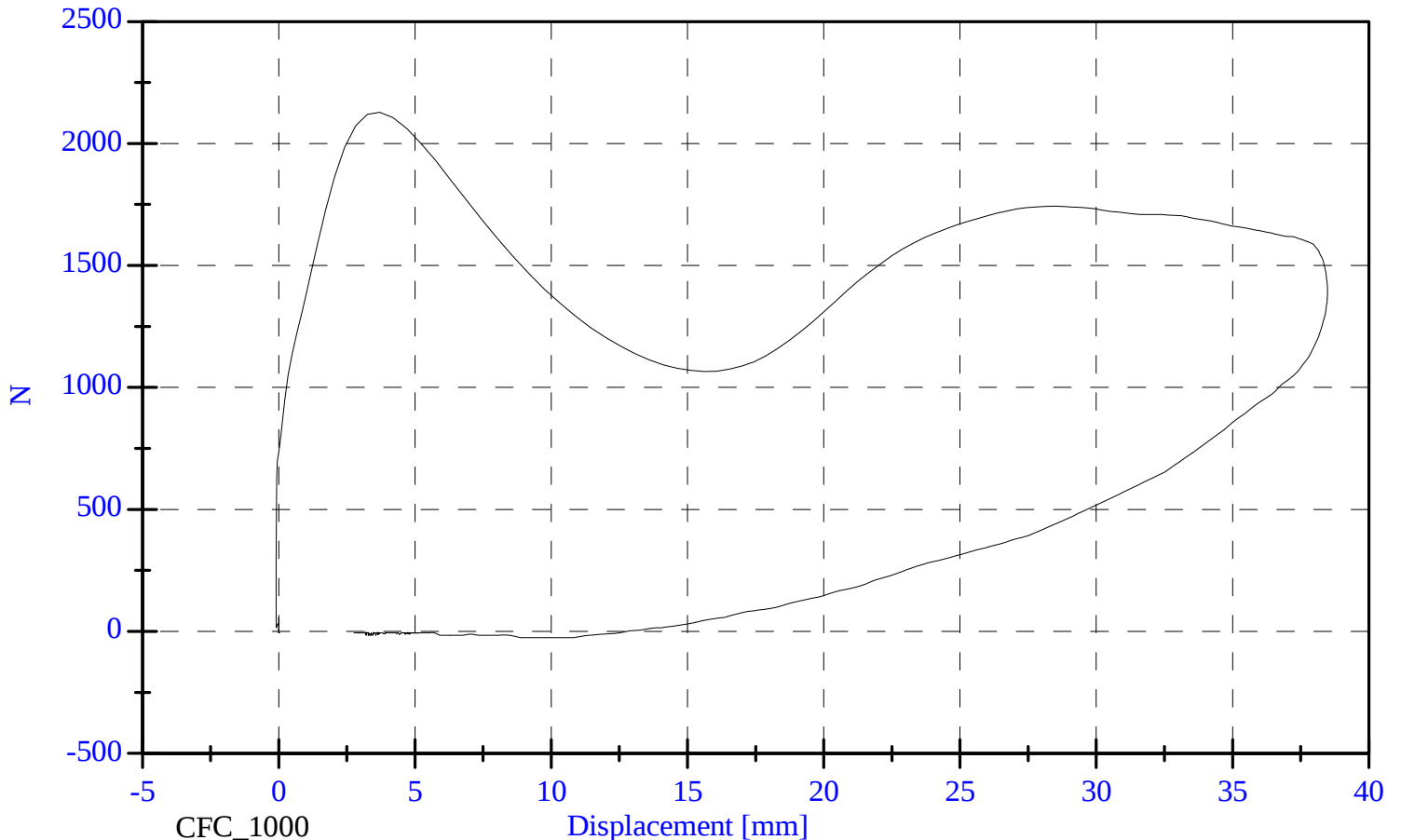
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Pendulum Velocity:	6.59- 6.83 m/s	6.71 m/s	Passed
Maximum Deflection:	38.00-46.00 mm	38.48 mm	Passed
Maximum Res. Force:	1150.00-1380.00 N	1167.99 N	Passed
Internal Hysteresis:	65-85 %	82.25 %	Passed

Thorax Impact

Probe Force vs. Displacement

Max: 2127.8 [N] at 3.716 [mm]

Min: -25.4 [N] at 9.024 [mm]



Torso Flexion Test
P572N Hybrid III Six-Year-Old Child Dummy

February 03, 2005

Dummy SN: 186
Force@45 Degrees: 41 lbf
Return Angle: 6 degrees

SECTION 6

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

HYBRID III 3C INSTRUMENTATION

	POSITION #3 (RIGHT) SERIAL NO.: 040		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-J36611	ENDEVCO	25-Jan-05
HEAD AY	AC-P35789	ENDEVCO	04-Jan-05
HEAD AZ	AC-J27466	ENDEVCO	25-Jan-05
UPPER NECK FX	LC-210Fx	Denton	02-Aug-04
UPPER NECK FY	LC-210Fy	Denton	02-Aug-04
UPPER NECK FZ	LC-210Fz	Denton	02-Aug-04
UPPER NECK MX	LC-210Mx	Denton	02-Aug-04
UPPER NECK MY	LC-210My	Denton	02-Aug-04
UPPER NECK MZ	LC-210Mz	Denton	02-Aug-04
CHEST AX	AC-J20047	ENDEVCO	25-Jan-05
CHEST AY	AC-CC92H	ENDEVCO	25-Jan-05
CHEST AZ	AC-J29006	ENDEVCO	25-Jan-05
CHEST DISPLACEMENT X	DS-040	SERVO	02-Aug-04
PELVIS AX	AC-01G18-F09	ENTRAN	25-Jan-05
PELVIS AY	AC-J27525	ENDEVCO	25-Jan-05
PELVIS AZ	AC-J17988	ENDEVCO	25-Jan-05
TETHER BELT LOAD	LC-707	LEBOW	01-Nov-04

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

HYBRID III 6C INSTRUMENTATION

	POSITION #4 (LEFT) SERIAL NO.: 186		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-99H30-Z09	ENTRAN	02-Feb-05
HEAD AY	AC-J31026	ENDEVCO	18-Aug-04
HEAD AZ	AC-01J02-F08	ENTRAN	02-Feb-05
UPPER NECK FX	LC-1632Fx	DENTON	12-Aug-03
UPPER NECK FY	LC-1632Fy	DENTON	12-Aug-03
UPPER NECK FZ	LC-1632Fz	DENTON	12-Aug-03
UPPER NECK MX	LC-1632Mx	DENTON	12-Aug-03
UPPER NECK MY	LC-1632My	DENTON	12-Aug-03
UPPER NECK MZ	LC-1632Mz	DENTON	12-Aug-03
LOWER NECK FX	LC-138Fx	DENTON	16-Apr-03
LOWER NECK FY	LC-138Fy	DENTON	16-Apr-03
LOWER NECK FZ	LC-138Fz	DENTON	16-Apr-03
LOWER NECK MX	LC-138Mx	DENTON	16-Apr-03
LOWER NECK MY	LC-138My	DENTON	16-Apr-03
LOWER NECK MZ	LC-138Mz	DENTON	16-Apr-03
CHEST AX	AC-02I02I05-F10	ENTRAN	02-Feb-05
CHEST AY	AC-02I02I16-A04	ENTRAN	02-Feb-05
CHEST AZ	AC-03E03E20-N18	ENTRAN	02-Feb-05
CHEST DISPLACEMENT X	DS-186	SERVO	19-May-04
PELVIS AX	AC-02I02I05-F05	ENTRAN	02-Feb-05
PELVIS AY	AC-98H14-K13	ENTRAN	02-Feb-05
PELVIS AZ	AC-02I02I16-A10	ENTRAN	02-Feb-05
LAP BELT LOAD	LC-635	LEBOW	01-Nov-04
TORSO BELT LOAD	LC-170	First Technology	01-Nov-04

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

CRS INSTRUMENTATION

	CRS Accelerometers		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
P3 CRS AX	AC-P19246	ENDEVCO	07-Jan-05
P3 CRS AY	AC-P18528	ENDEVCO	19-Aug-04
P3 CRS AZ	AC-P23873	ENDEVCO	07-Jan-05
P4 CRS AX	AC-J32838	ENDEVCO	07-Jan-05
P4 CRS AY	AC-J32143	ENDEVCO	07-Jan-05
P4 CRS AZ	AC-P23358	ENDEVCO	02-Dec-04