REPORT NUMBER: CAL-05-10

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

HONDA OF CANADA, MFG.
2005 ACURA MDX
MPV

NHTSA NUMBER: M55300

CALSPAN TEST NUMBER: 8642-NCAP-60

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

February 24, 2005

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
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Rulemaking
Office of Crashworthiness Standards
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Approval Date:

FINAL REPORT ACCEPTANCE BY OCS:

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NHTSA, Office of Crashworthiness Standards

Date of Report Acceptance

COTR, New Car Assessment Program (NCAP)
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16. Abstract

A frontal load cell barrier test of a 2005 Acura MDX MPV was performed at Calspan's crash test facility in Buffalo, New York, on February 24, 2005.

The impact velocity was 55.84 kph and the temperature at the barrier face was 21°C. The maximum post-test vehicle crush was 555 mm. The test vehicle was equipped with 3-point restraint systems with torso belt pretensioners and force limiters, knee bolsters, adjustable head restraints 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 (061)	327.1	41.7	-24.6	-2744.6	-3187.2
Passenger (064)	336.6	37.1	-22.6	-3822.9	-2957.3

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SECTION 1

PURPOSE AND SUMMARY OF TEST

1.1 PURPOSE

This 55.84 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 55.84 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

1.2 TEST PROCEDURE

This 55.84 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. 061) and the right-front passenger (position 2) ATD (Serial No.064) were calibrated previous 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 177 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 Acura MDX MPV at a velocity of 55.84 kph. The test was performed at Calspan on February 24, 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	327.1	41.7	-24.6	-2744.6	-3187.2	†	†
Passenger ATD	336.6	37.1	-22.6	-3822.9	-2957.3	†	†

† - Not Used

AUTOMATIC DOOR LOCK SUMMARY

ADL Equipped Test Vehicle:	No
ADL Activation Status:	Not Applicable
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 555 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, the top of the head to the side curtain airbag and the back of the head to the left of 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, the top of the head to the grab handle and the back of the head to the right of center of the head restraint, the chest to the airbag and the left and right knees to the knee bolster/glove box door.

The 2005 Acura MDX MPV 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.: M55300 Test Mode: 56.3 kph Frontal Barrier

Test Date: February 24, 2005 Time: 15:05 Temperature: 21 °C

Vehicle Make/Model/Body Style: 2005 Acura MDX MPV

Vehicle Test Weight: 2225.0 kg

Vehicle/Barrier Impact Angle: 0 °

Impact Velocity: 55.84 kph

Maximum Static Crush: 555 mm

Vehicle Rebound: 589 mm

DUMMIES:	DRIVER	PASSENGER
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: 177

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:	DRIVER	PASSENGER
Seat Track Failure: (mm of shift)	4 mm forward	0
Seat Back Failure:	None	None

VISIBLE DUMMY CONTACT POINTS:	DRIVER	PASSENGER
Head:	The face to the center of the airbag, the top of the head to the side curtain airbag and the back of the head to the left of center of the head restraint.	The face to the center of the airbag, the top of the head to the grab handle and the back of the head to the right of center 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 Acura MDX MPV

NHTSA No. : M55300 ; VIN: 2HNYD18235H513291 ; Color: Sage

Engine Data: 6 cylinders; - CID; 3.5 Liters; - cc

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

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

Final Drive: - Rear Wheel Drive; - Front Wheel Drive; X 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: 2-7-2004 ; Odometer Reading 19 km

Selling Dealer: Ray Laks Acura

& Address: 7460 Transit Road Williamsville, New York 14221

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Honda of Canada, MFG.

Date of Manufacture 12/04

GVWR: 2600 kg; GAWR: 1310 kg FRONT; 1335 kg REAR

DATA FROM TIRE PLACARD:

Recommended Tire Size: P235/65R17 103T

* Recommended Cold Tire Pressure: 220 kpa FRONT; 220 kpa REAR

DATA FROM TIRE SIDEWALL:

Size of Tires on Test Vehicle: P235/65R17 103T ; Manufacturer: Goodyear

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

Treadwear: 400 ; Traction: A ; Temperature: B

VEHICLE CAPACITY DATA:

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

Number of Occupants: 2 Front; 5 Rear; 7 Total

Vehicle Capacity Weight (VCW) = 525.0 kg

No. of Occupants x 68.04 kg = 476.28 kg

Rated Cargo/Luggage Weight (RCLW) = 48.72 kg

*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 =	577.0 kg	Right Rear =	417.0 kg
Left Front =	574.0 kg	Left Rear =	463.0 kg
TOTAL FRONT =	1151.0 kg	TOTAL REAR =	880.0 kg

TOTAL DELIVERED WEIGHT = 2031.0 kg

% of Total Front of Vehicle Weight = 56.7 % of Total Rear Weight = 43.3 %

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW) =	2031.0 kg
Rated Cargo/Luggage Weight (RCLW) =	48.72 kg
Weight of 2 p.572 Dummies @ 76 each =	152 kg
TARGET TEST WEIGHT =	2231.7 kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 42.0 KG OF CARGO WEIGHT:

Right Front =	609.0 kg	Right Rear =	479.5 kg
Left Front =	621.0 kg	Left Rear =	515.5 kg
TOTAL FRONT =	1230.0 kg	TOTAL REAR =	995.0 kg

TOTAL TEST WEIGHT = 2225.0 kg

% of Total Front Weight = 55.3 % % of Total Rear Weight = 44.7 %

Weight of Ballast Secured in Vehicle Trunk Area = 0 kg

Vehicle Components Removed for Weight Reduction: 3rd row seat, spare tire, 24.2 L of Stoddard

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED:	RF	832	LF	829	RR	840	LR	837
FULLY LOADED:	RF	819	LF	816	RR	818	LR	815
AS TESTED:	RF	819	LF	816	RR	820	LR	820

Vehicle's Wheel Base: 2700 mm

Location of Vehicle's C.G.: 1207 mm rearward of front wheel center.

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual = 72.7 liters

Usable Capacity Figure Furnished by COTR = 73.4 liters

Test Volume Range (92 to 94% of Usable Capacity) = 67.53 to 69 liters

ACTUAL TEST VOLUME= 43.5 liters (with entire fuel system filled)

Test Fluid Type: Stoddard Solution ; Spec. Grav. = 0.764

Kinematic Viscosity = 0.96 centistokes; Color = Orange

Type of Fuel Pump: Electric- X ; Mechanical- -

Does Electric Pump operate with ignition switch "ON" & engine "OFF" Yes- X No- -

Details of Fuel System: The fuel tank is centered ahead of the rear axle with a leftward bias; The fuel lines run along the inside of the left frame stiffener; The fuel filler is on the left side rearward of the rear axle

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test: Frontal Barrier Impact Angle: 0°

Test Date: February 24, 2005 Time: 15:05 Temperature: 21 °C

Vehicle NHTSA No.: M55300

Required Impact Velocity Range: 55.5 to 57.1 kph

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

Trap No. 1 = 55.84 kph; Trap No. 2 = 55.84 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 =	4655	; C/L =	4778	; Right =	4658
Post-Test	Left =	4192	; C/L =	4223	; Right =	4201
Crush	Left =	463	; C/L =	555	; Right =	457

AVERAGE = 492 mm

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point:

	Left =	652	; C/L =	565	; Right =	550

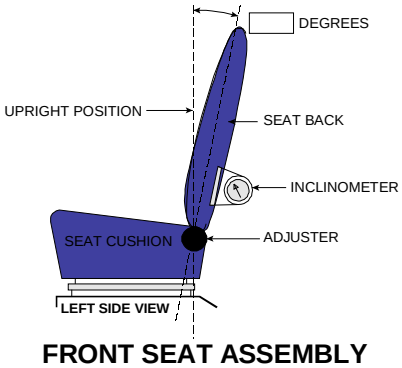
AVERAGE = 589 mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2005 Vehicle Model: Acura MDX Body Style : MPV

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.



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat: 8.1º

Measurement instructions: The seat was reclined to give a distance of 668 mm from the center outboard head restraint post hole to the center of the outer sun visor bolt

Seat back angle for passenger's seat: 8.5º

Measurement instructions: The seat was reclined to the fourth detent from the 1st locking detent 0.

2. SEAT FORE AND AFT POSITIONING:

Positioning of the driver's seat: There are 216 mm of total travel, the seat was placed in lowest position in mid-travel of 108 mm

Positioning of the passenger's seat: There are 220 mm of total travel, the seat was placed at mid travel (110 mm) Or detent 12 from the forward most position

3. FUEL TANK CAPACITY DATA:

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 72.7 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 = 73.4 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 67.4 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 will activate when the ignition is turned to the 'ON' position and run while the engine is running.

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: The steering column was centered on its travel of 20 mm to give 26°

5. SEAT BELT UPPER ANCHORAGE:

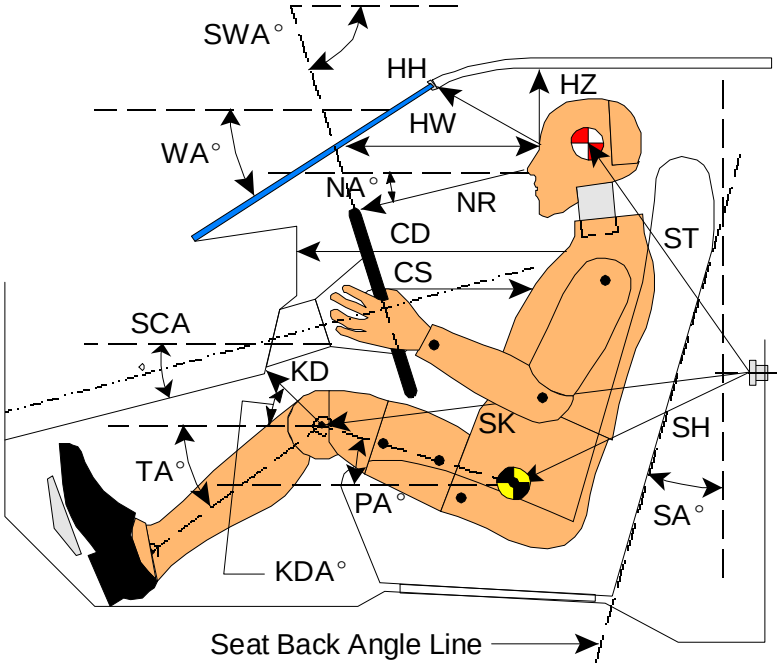
Nominal design riding position: There are four positions labeled 0 (top) to 3. The d-rings were placed in the uppermost position '0'

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

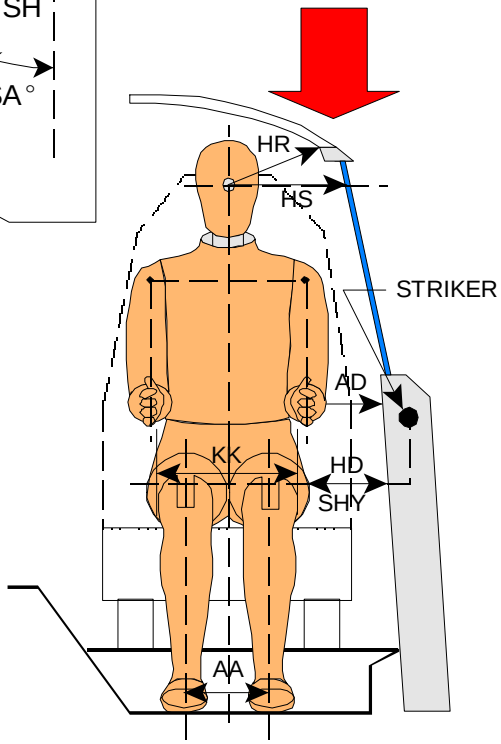
Does vehicle owner's manual describe how to deactivate ADLs? - Yes; - No; X N/A

Comments: The test vehicle was not equipped with this feature

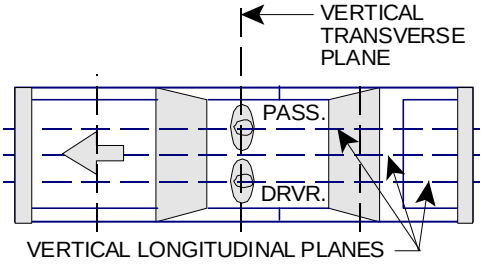
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



AD - Arm to Door
HD - H-Point to Door
HR - Head to Side Header
HS - Head to Side Window
KK - Knee to Knee
AA - Ankle to Ankle
SHY- Striker to H-Point (Y Direction)



CD - Chest to Dash
CS - Steering Wheel to Chest
HH - Head to Header
HW - Head to Windshield
HZ - Head to Roof
KDA - Knee to Dash Angle
KDL- Left Knee to Dash
KDR - Right Knee to Dash
NA - Nose to Rim Angle
NR - Nose to Rim
PA - Pelvic Angle
RA - Rim to Abdomen
SA - Seat Back Angle
SCA - Steering Column Angle
SH - Striker to H-Point
SK - Striker to Knee
ST - Striker to Head
SWA- Steering Wheel Angle
TA - Tibial Angle
WA - Windshield Angle

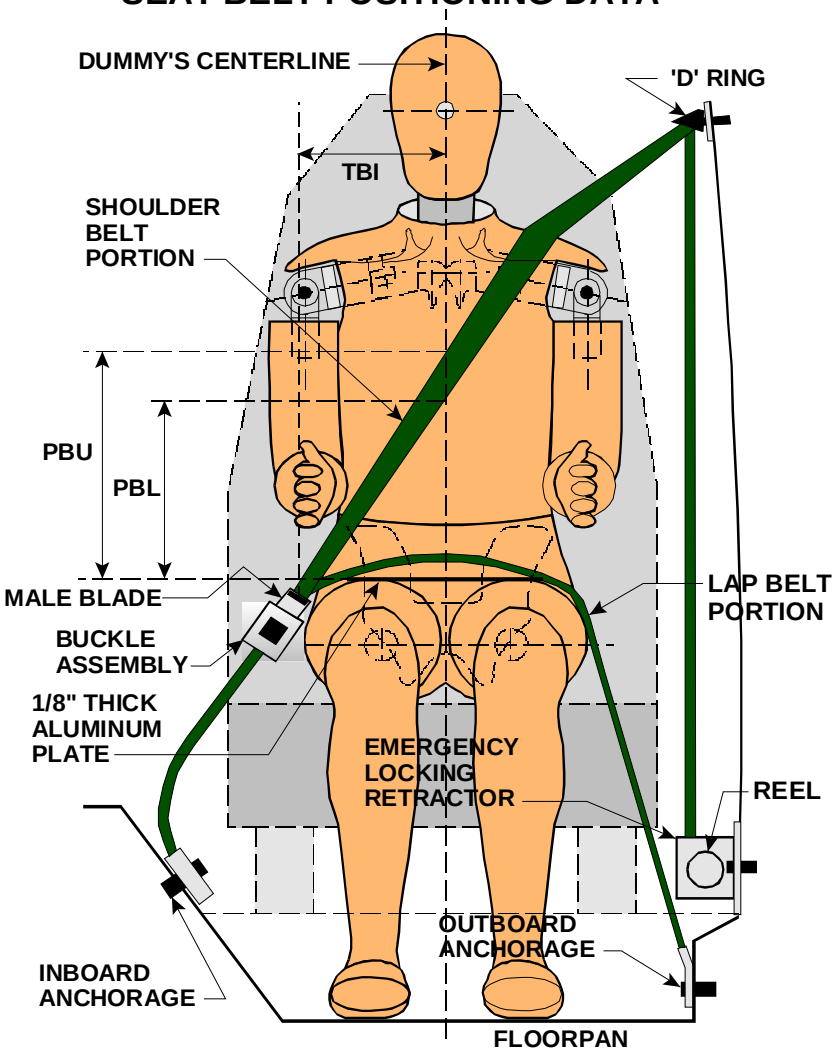


DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #061)			PASS. (Serial #064)		
WA^O	29.8 deg.			N/A		
SWA^O	64 deg.			N/A		
SCA^O	26 deg.			N/A		
SA^O	8.1 deg.			8.5 deg.		
HZ	180			210		
HH	372			377		
HW	635			658		
HR	195			225		
NR	400	Angle	-13 deg.	N/A		
CD	546			542		
CS	285			N/A		
RA	185			N/A		
KDL	137	Angle (KDA)	22 deg.	125		
KDR	137			135	Angle (KDA)	35 deg.
PA^O	21.6 deg.			23.1 deg.		
TA^O	53.5 deg.			49.5 deg.		
KK	348			266		
AA	326			263		
ST	580	Angle	5 deg.	570	Angle	10 deg.
SK	602	Angle	87 deg.	595	Angle	89 deg.
SH	240	Angle	114 deg.	235	Angle	110 deg.
SHY	250			250		
HS	303			357		
HD	208			215		
AD	120			137		

Dimensions in millimeters

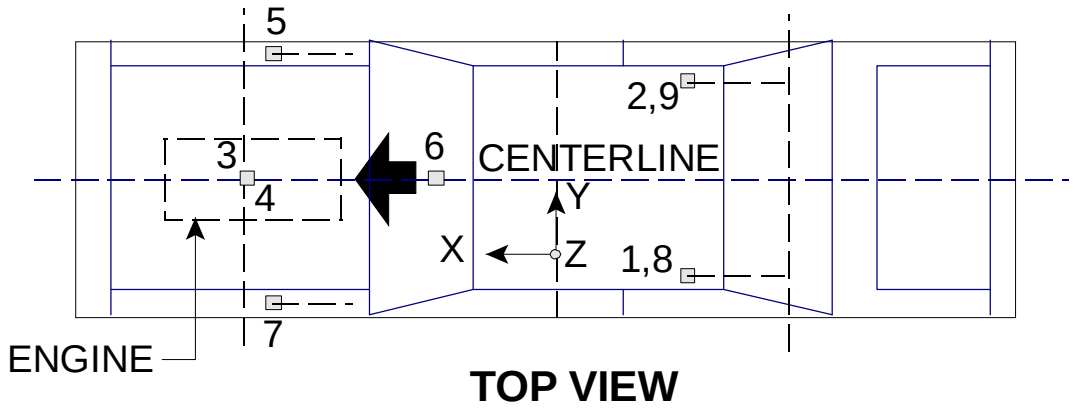
SEAT BELT POSITIONING DATA



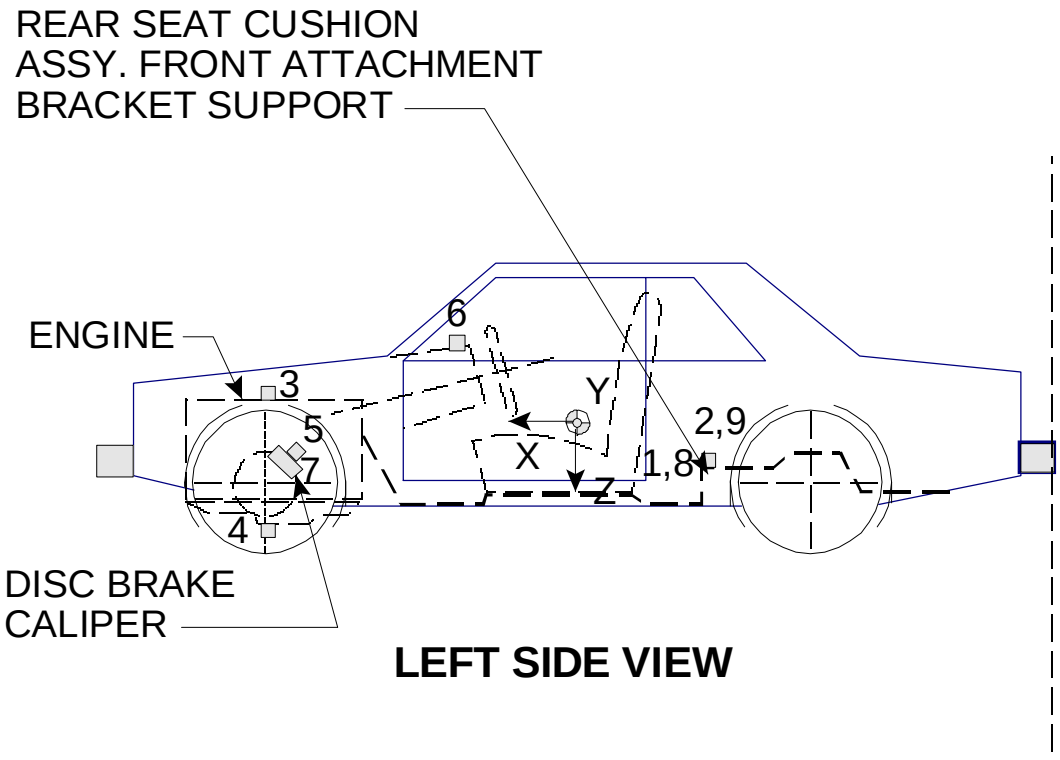
FRONT VIEW OF DUMMY

	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	340	345
PBL-- Top surface of alum. plate to belt lower edge	255	260
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



TOP VIEW



LEFT SIDE VIEW

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	2021	-665	-396
2	Right Rear Seat Cross Member X	2035	-683	-395
3	Top of Engine Block	3957	177	-741
4	Bottom of Engine	3628	84	-94
5	Disc Brake Caliper @ Right Side	3748	-712	-213
6	Instrument Panel	3032	0	-767
7	Disc Brake Caliper @Left Side	3746	-719	-219
8	Left Rear Seat Cross Member Z	2021	-665	-396
9	Right Rear Seat Cross Member Z	2035	-683	-395

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Left Rear Seat Cross Member X	3.2	165.5	-47.8	47.3
2	Right Rear Seat Cross Member X	6.6	25.4	-37.8	63.2
3	Top of Engine Block	133.2	53.2	-202.5	32.8
4	Bottom of Engine	§	§	§	§
5	Disc Brake Caliper @ Right Side	115.8	191.4	-67.2	41.1
6	Instrument Panel	3.9	154.3	-44.8	42.9
7	Disc Brake Caliper @Left Side	29.0	123.3	-48.4	38.2
8	Left Rear Seat Cross Member Z	19.1	48.1	-27.4	38.5
9	Right Rear Seat Cross Member Z	37.7	63.3	-29.6	84.5

§ - Channel Opened

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2005 Acura MDX MPV

NHTSA Test No.: M55300 Test Date: February 24, 2005

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	**Unit**	**Pos**	**msec**	**Neg**	**msec**	**Pos**	**msec**	**Neg**	**msec**
Head X	**g**	36.7	167.9	-43.8	71.5	0.3	18.5	-51.9	80.6
Head Y	**g**	37.2	168.1	-8.1	87.6	7.6	86.8	-3.4	140.4
Head Z	**g**	47.3	167.9	-9.6	170.0	18.8	71.3	-3.4	147.5
Head Resultant	**g**	68.9	167.9	0.1	17.0	53.4	80.5	0.1	-48.6
Redundant Head X	**g**	37.7	167.9	-44.5	73.0	0.4	196.6	-51.1	80.5
Redundant Head Y	**g**	37.3	168.1	-8.4	83.2	7.2	85.8	-3.5	136.9
Redundant Head Z	**g**	47.8	167.9	-8.8	169.6	18.6	71.3	-1.3	153.0
Redundant Head Resultant	**g**	69.8	167.9	0.1	17.1	52.5	80.5	0.1	-49.7
Upper Neck Fx	**N**	273.6	73.3	-358.0	47.9	357.4	92.0	-309.7	110.5
Upper Neck Fy	**N**	181.0	170.7	-190.0	97.1	125.1	86.6	-127.1	138.6
Upper Neck Fz	**N**	1306.6	57.5	-1033.2	168.9	1136.7	71.0	-60.3	153.5
Upper Neck F Resultant	**N**	1307.6	57.5	2.8	-18.2	1143.5	71.0	1.7	-49.6
Upper Neck Mx	**N-m**	12.9	145.2	-15.7	109.7	5.6	63.5	-10.6	143.8
Upper Neck My	**N-m**	31.6	125.8	-15.6	174.0	23.7	144.3	-27.7	78.5
Upper Neck Mz	**N-m**	8.9	90.2	-3.7	132.5	3.7	128.1	-7.2	86.7
Upper Neck M Resultant	**N-m**	31.8	126.9	0.0	-32.6	28.7	78.5	0.1	-27.0
Chest X	**g**	4.1	173.0	-42.4	58.6	1.3	155.7	-39.5	71.8
Chest Y	**g**	8.9	107.6	-6.0	49.3	5.2	48.3	-6.7	78.0
Chest Z	**g**	7.1	169.0	-17.8	92.2	5.4	24.8	-9.0	77.6
Chest Resultant	**g**	42.8	58.5	0.1	-15.1	39.6	71.8	0.0	-48.9
Redundant Chest X	**g**	4.2	173.1	-41.9	58.7	1.3	163.6	-38.8	71.8
Redundant Chest Y	**g**	9.0	103.9	-5.9	49.4	5.2	48.4	-7.0	78.0
Redundant Chest Z	**g**	7.1	169.0	-17.8	92.2	5.4	24.9	-9.3	77.6
Redundant Chest Resultant	**g**	42.3	58.6	0.1	-14.4	38.9	71.8	0.0	-50.0
Chest Displacement	**mm**	0.0	-39.9	-24.6	80.3	0.0	-42.0	-22.6	70.9

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

Vehicle Year/Make/Model/Body Style: 2005 Acura MDX MPV

NHTSA Test No.: M55300 Test Date: February 24, 2005

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	**Unit**	**Pos**	**msec**	**Neg**	**msec**	**Pos**	**msec**	**Neg**	**msec**
Pelvic X	**g**	5.0	199.9	-56.8	54.6	12.3	190.5	-44.6	50.9
Pelvic Y	**g**	10.2	98.2	-9.0	54.5	5.1	50.6	-9.1	89.7
Pelvic Z	**g**	4.6	169.7	-27.1	89.8	1.8	194.9	-23.2	78.5
Pelvic Resultant	**g**	61.2	60.1	0.1	-17.3	45.6	50.9	0.0	16.0
Left Femur	**N**	635.3	46.3	-2744.6	66.5	180.3	25.9	-3822.9	53.6
Right Femur	**N**	197.9	30.7	-3187.2	60.8	168.6	26.0	-2957.3	51.4
Left Upper Tibia Mx	**N-m**	7.1	159.6	-35.6	59.5	4.8	74.5	-45.0	87.2
Left Upper Tibia My	**N-m**	80.8	75.5	-12.4	109.0	2.6	17.7	-130.6	44.8
Left Lower Tibia Fz	**N**	127.6	177.1	-1299.3	37.9	40.7	31.3	-3573.3	52.1
Left Lower Tibia Mx	**N-m**	13.0	75.0	-18.0	82.8	8.9	49.0	-31.8	87.9
Left Lower Tibia My	**N-m**	7.8	84.3	-51.9	74.9	100.8	53.1	-17.7	192.8
Right Upper Tibia Mx	**N-m**	9.8	36.3	-72.0	61.8	‡	‡	‡	‡
Right Upper Tibia My	**N-m**	40.2	59.2	-79.7	43.4	‡	‡	‡	‡
Right Lower Tibia Fz	**N**	80.6	142.0	-2381.7	40.8	261.9	59.4	-1445.5	44.8
Right Lower Tibia Mx	**N-m**	5.2	41.6	-50.9	82.4	15.7	52.3	-23.0	48.1
Right Lower Tibia My	**N-m**	41.4	74.6	-22.6	48.9	68.6	66.7	-6.2	29.8
Left Foot Aft Ax	**g**	14.0	92.7	-76.3	72.4	49.6	67.1	-155.1	47.0
Left Foot Aft Az	**g**	7.3	58.0	-48.5	75.1	23.3	44.5	-85.8	52.4
Left Foot Fore Az	**g**	47.4	70.7	-71.2	76.5	84.9	45.9	-163.3	47.0
Right Foot Aft Ax	**g**	29.2	64.4	-72.3	45.0	10.5	90.3	-45.4	51.5
Right Foot Aft Az	**g**	25.8	62.6	-80.2	48.2	3.0	72.7	-46.2	51.7
Right Foot Fore Az	**g**	55.8	62.9	-136.3	48.1	35.8	44.0	-63.7	51.5
Lap Belt Load	**N**	7174.7	58.6	-82.4	194.0	4709.0	61.2	-6.7	189.8
Torso Belt	**N**	†	†	†	†	4715.4	68.1	-23.2	195.7

‡ - Data spikes are present.

† - Wire cut at 165 ms.

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

Vehicle Year/Make/Model/Body Style: 2005 Acura MDX MPV

NHTSA Test No.: M55300 Test Date: February 24, 2005

	HEAD INJURY CRITERIA (HIC)			
	HIC**	t_1 (msec)	t_2 (msec)	Average Acceleration t_1 to t_2
Position #1 - Driver	327.1	55.1	91.1	38.3 g
Position #2 - Passenger	336.6	67.5	103.5	38.8 g

** HIC is as defined in FMVSS 208. The maximum time interval from t_1 to t_2 is 36 milliseconds.

	CLIP SUMMARY*			
	CLIP (g's)	t_1 (msec)	t_2 (msec)	CSI
Position #1 - Driver	41.7	56.9	59.9	414.0
Position #2 - Passenger	37.1	70.0	73.0	320.9

* 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 Acura MDX MPV

NHTSA Test No.: M55300 Test Date: February 24, 2005

	HEAD INJURY CRITERIA (HIC) **REDUNDANT**			
	HIC**	t_1 (msec)	t_2 (msec)	Average Acceleration t_1 to t_2
Position #1 - Driver	335.9	55.1	91.1	38.7 g
Position #2 - Passenger	326.6	67.5	103.5	38.3 g

** HIC is as defined in FMVSS 208. The maximum time interval from t_1 to t_2 is 36 milliseconds.

	CLIP SUMMARY* **REDUNDANT**			
	CLIP (g's)	t_1 (msec)	t_2 (msec)	CSI
Position #1 - Driver	41.0	56.9	59.9	404.9
Position #2 - Passenger	36.5	70.1	73.1	309.2

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

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:	Driver	Passenger
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	2080	2055
Shoulder belt length as measured on Part 572 Dummy.	940	925
Lap belt length as measured on Part 572 Dummy.	900	890

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 18 mm molding.

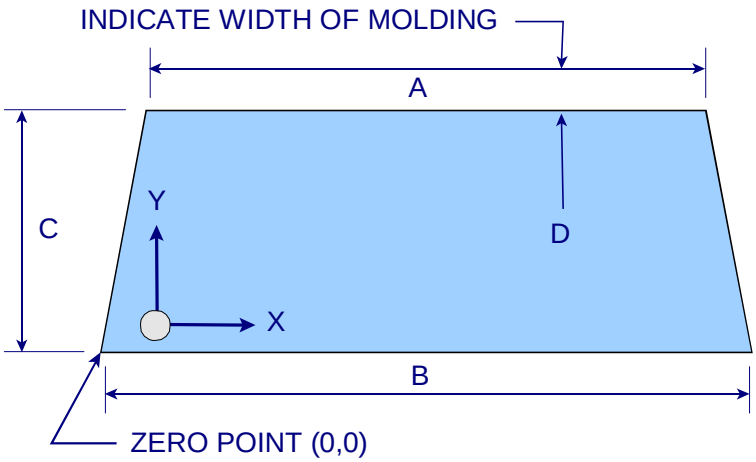
FMVSS 212 REQUIREMENTS:

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	2295	2295	100.0%
LEFT SIDE	2295	2295	100.0%
TOTAL	4590	4590	100.0%

AREA OF RETENTION FAILURE:



FRONT VIEW OF WINDSHIELD

DIMENSIONS (mm)	
A	1290
B	1620
C	840
D	18

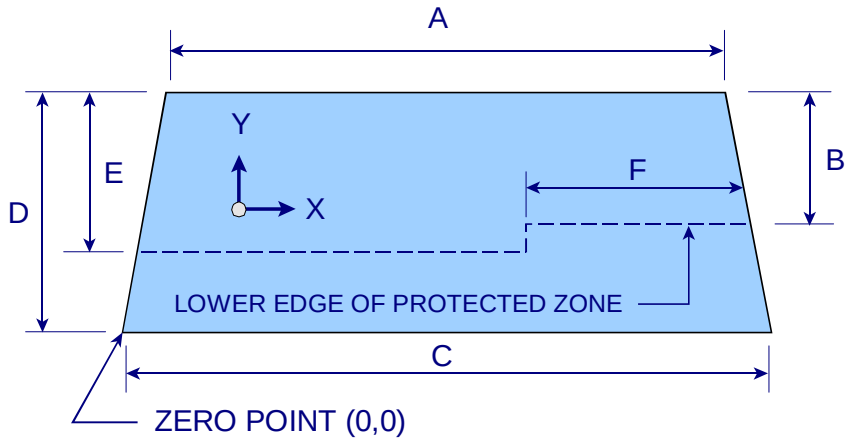
FAILURE DETAILS: None

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:



DIMENSIONS (mm)	
A	1290
B	565
C	1620
D	840
E	540
F	570

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

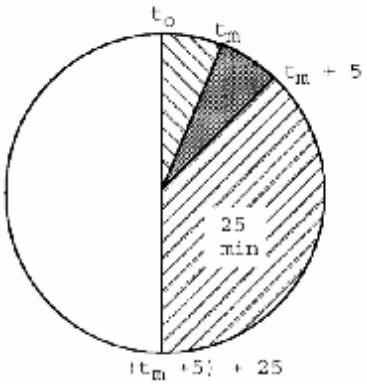
NHTSA TEST No.:	M55300	TEST DATE:	February 24, 2005
VEHICLE MAKE/MODEL:	2005 Acura MDX MPV		

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:

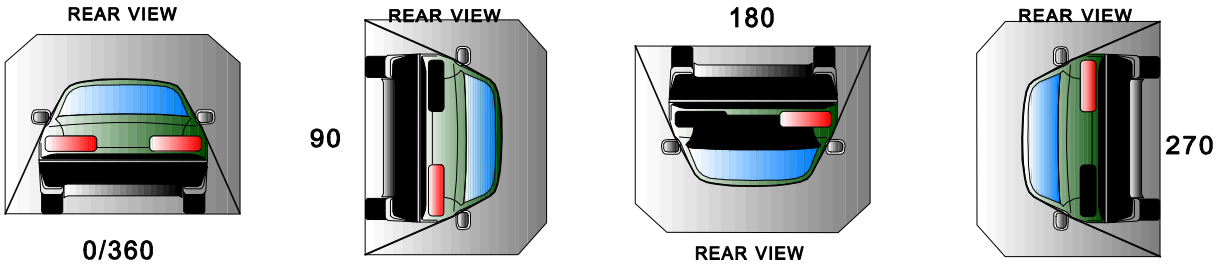


	ACTUAL	MAX ALLOWED
1. From impact until vehicle motion ceases	0	28 g
2. For 5 minute period after vehicle motion ceases	0	141 g
3. For next 25 minutes	0	28 g/min.

SOLVENT SPILLAGE DETAILS: None

DATA SHEET NO. 13 - ROLLOVER DATA

Vehicle: 2005 Acura MDX MPV NHTSA No.: M55300



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	
0º - 90º	1	minutes	14	seconds	5	minutes	6	minutes	14	seconds	7	minutes
90º - 180º	1	minutes	09	seconds	5	minutes	6	minutes	9	seconds	7	minutes
180º-270º	1	minutes	07	seconds	5	minutes	6	minutes	7	seconds	7	minutes
270º-360º	1	minutes	12	seconds	5	minutes	6	minutes	12	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:

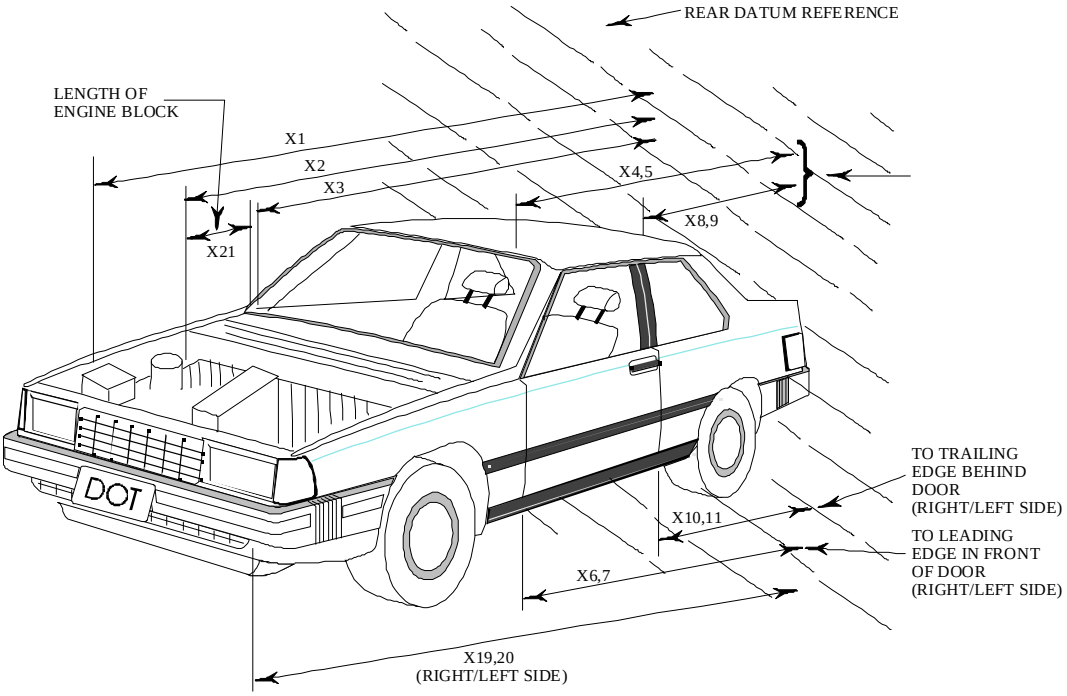
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0º - 90º	0	0	0	N/A
90º - 180º	0	0	0	N/A
180º-270º	0	0	0	N/A
270º-360º	0	0	0	N/A

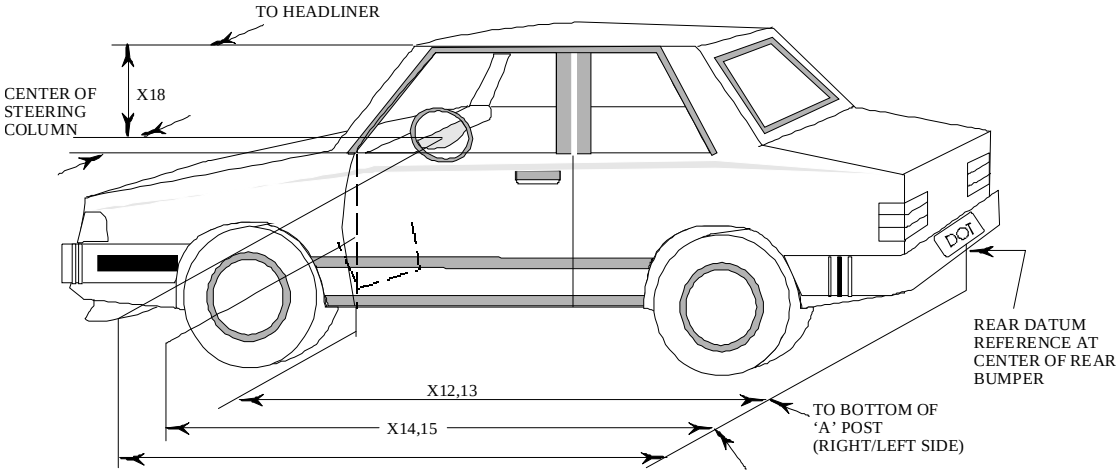
Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

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

DATA SHEET NO. 14 TEST VEHICLE MEASUREMENTS





DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

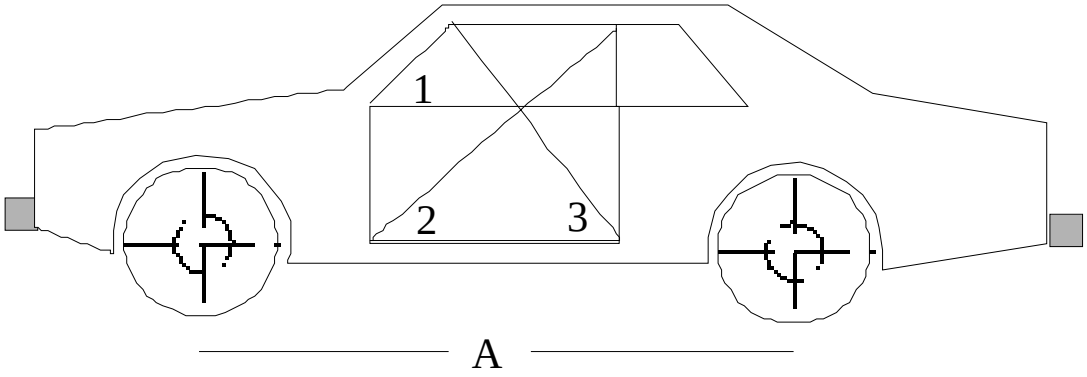
No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4778	4223	555
X2	Rear Surface of Vehicle to Front of Engine	4296	3905	391
X3	Rear Surface of Vehicle to Firewall	3856	3821	35
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3326	3326	0
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3322	3323	-1
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3284	3284	0
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3282	3281	1
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2287	2287	0
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2283	2285	-2
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2277	2277	0
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2272	2271	1
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3464	3463	1
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3465	3462	3
X14	Rear Surface of Vehicle to Firewall, Right Side	3942	3887	55
X15	Rear Surface of Vehicle to Firewall, Left Side	3937	3891	46
X16	Rear Surface of Vehicle to Steering Column	2917	2917	0
X17	Center of Steering Column to "A" Post	320	309	11
X18	Center of Steering Column to Headliner	452	409	43
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4658	4201	457
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4655	4192	463
X21	Length of Engine Block	415	415	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3086	3084	2
CD	Rear Surface of Vehicle to Center of Dash Panel	3225	3213	12
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3085	3081	4

All Dimensions in mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

DOOR OPENING WIDTH



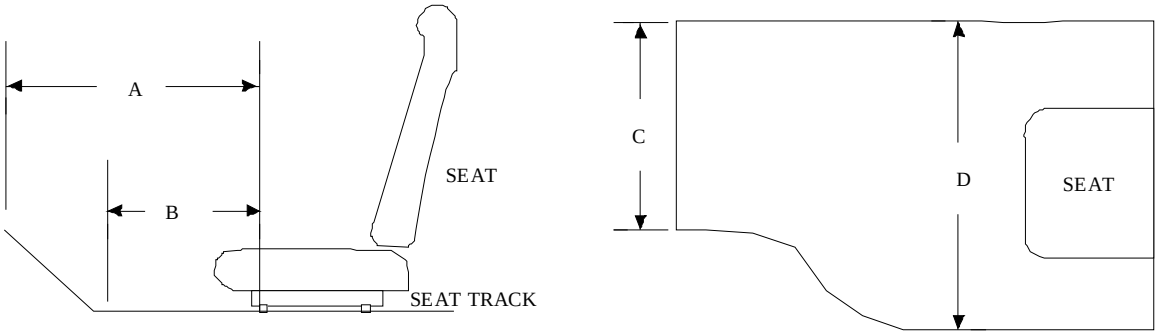
UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	946	1483	1096	942	1482	1082
AFTER TEST	944	1483	1097	940	1481	1084
DIFFERENCE	2	0	-1	2	1	-2

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2700	2700
AFTER TEST	2603	2590
DIFFERENCE	97	110

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

STATIC FOOTWELL DEFORMATION



DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	2231	2090	141
B	1993	1968	25
C	468	457	11
D	533	519	14

PASSENGER

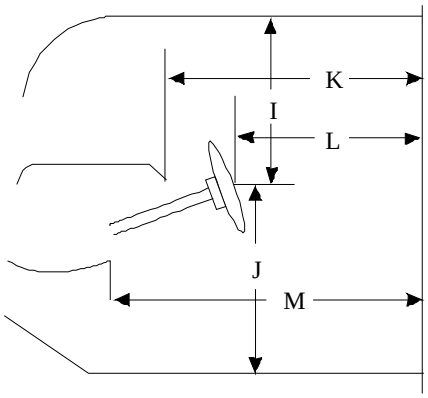
Measurement	Pre-Test	Post-Test	Difference
A	2235	2088	147
B	1996	1979	17
C	460	454	6
D	524	522	2

Units = mm

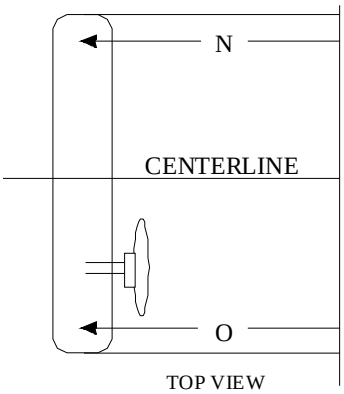
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

STATIC PASSENGER COMPARTMENT INTRUSION

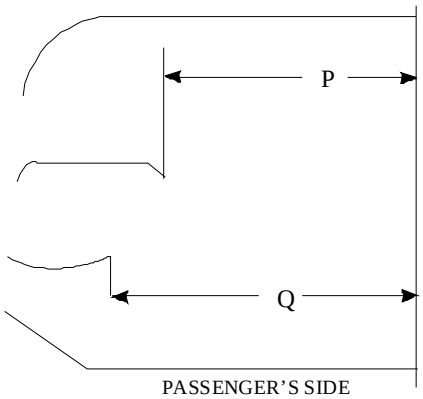


DRIVER'S SIDE



TOP VIEW

MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



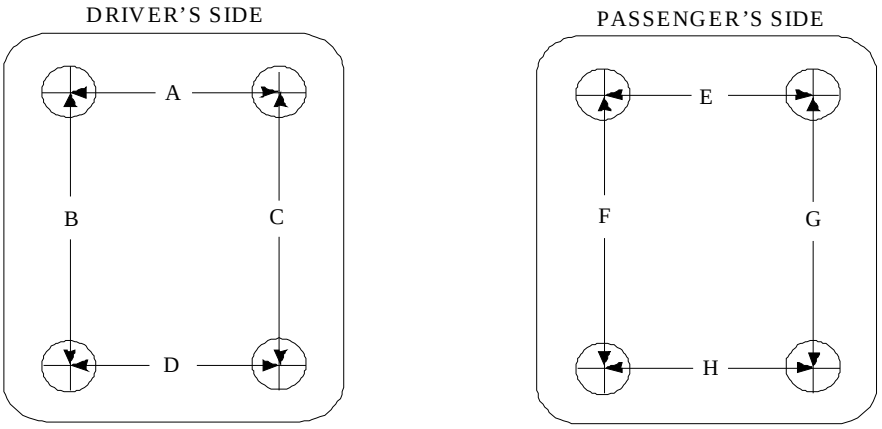
PASSENGER'S SIDE

Measurement	Pre-Test	Post-Test	Difference
I	452	409	43
J	678	728	-50
K	777	769	8
L	533	535	-2
M	834	820	14
N	699	697	2
O	701	699	2
P = K (PASS.)	940	939	1
Q = M (PASS.)	768	763	5

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

FLOORBOARD DEFORMATION



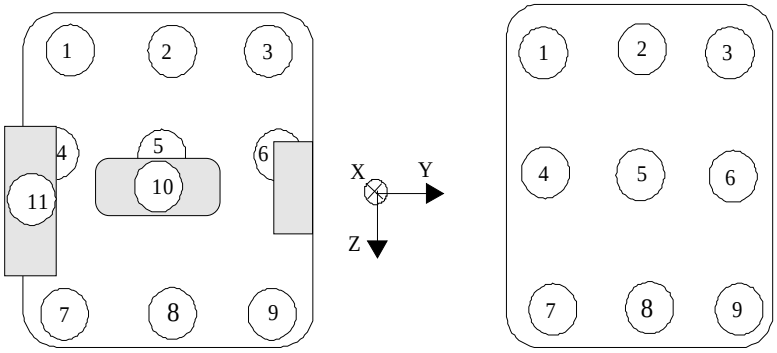
TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	468	457	11
B	279	280	0
C	349	271	78
D	533	519	14
E	460	454	6
F	300	299	2
G	264	234	30
H	524	522	2

Units = mm

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

DRIVER'S SIDE PASSENGER'S SIDE



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	3542	3436	106	-481	-532	51
2	3582	3439	143	-485	-521	36
3	3569	3452	117	-491	-525	34
4	3393	3360	33	-359	-379	20
5	3486	3384	102	-364	-423	59
6	3498	3378	120	-378	-403	25
7	3248	3330	-82	-305	-305	0
8	3345	3318	27	-309	-315	6
9	3359	3280	79	-325	-525	200
10	3372	3297	75	-470	-373	-97
11	3317	3244	73	-376	-289	-87

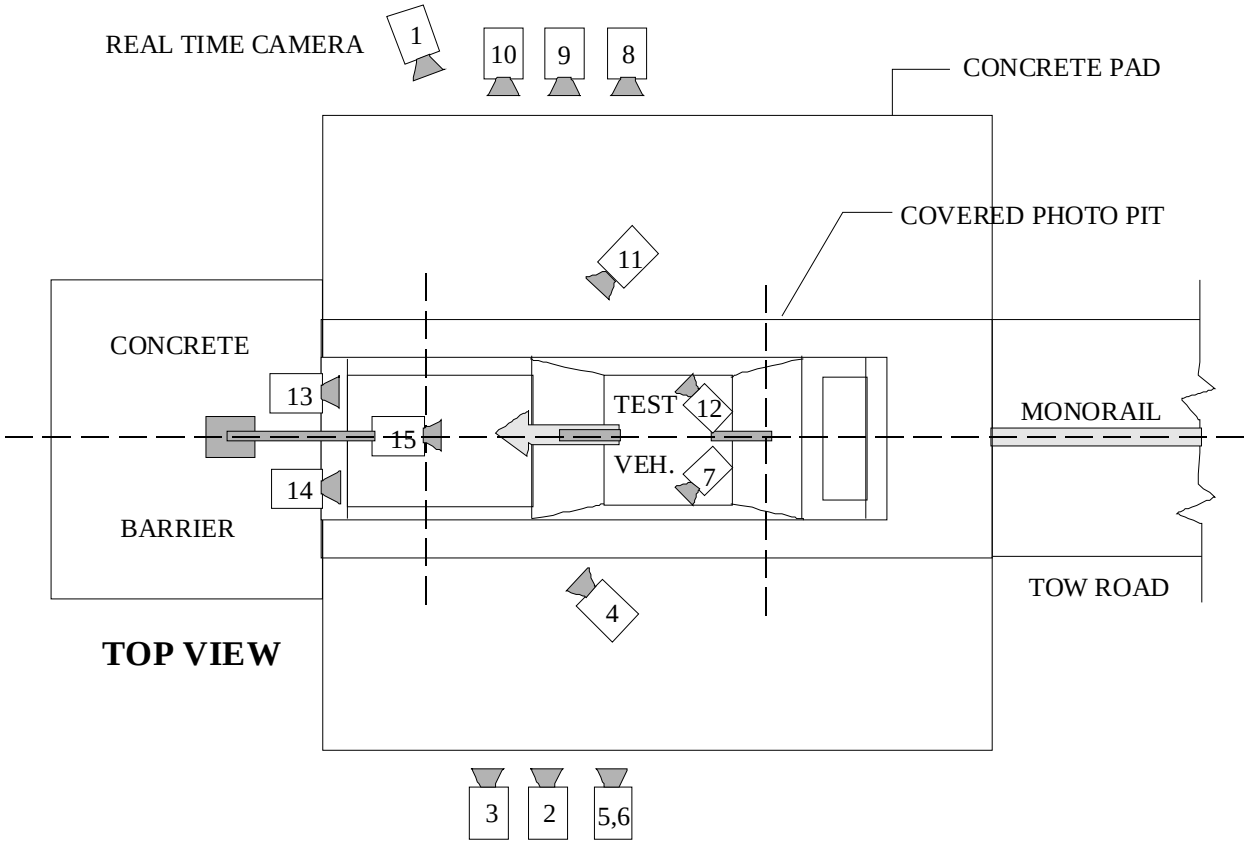
Passenger Side Toe-pan Measurements

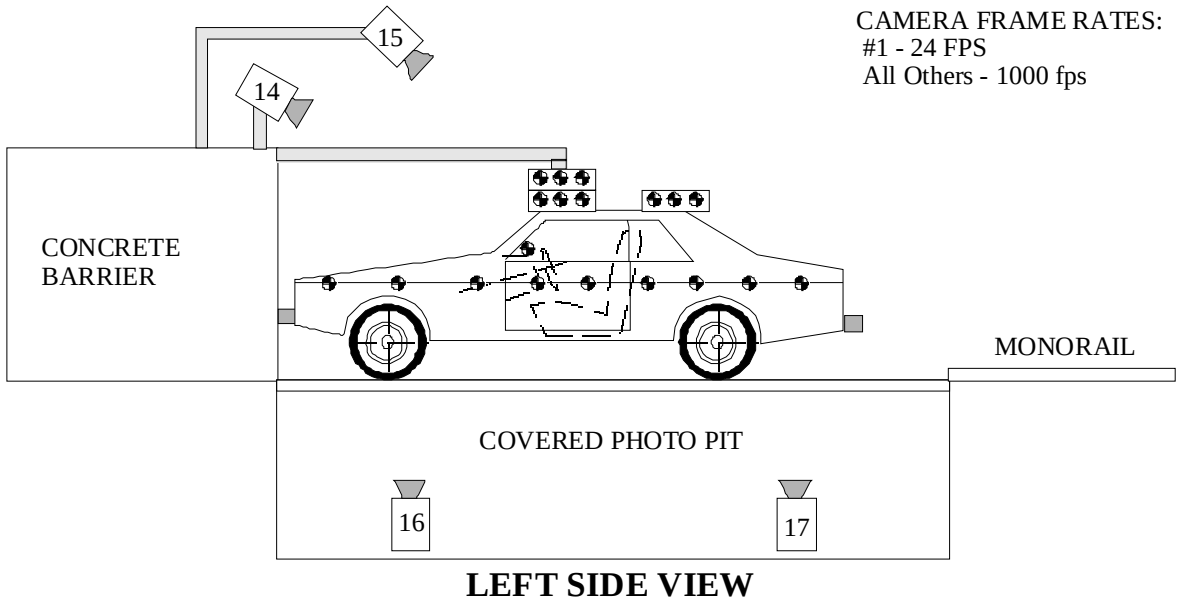
Toe-pan Location	X Deformation (mm)			Z Deformation (mm)		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3588	3396	192	-490	-558	68
2	3589	3442	147	-484	-560	76
3	3527	3465	62	-490	-514	24
4	3529	3389	140	-368	-419	51
5	3498	3446	52	-367	-397	30
6	3438	3412	26	-368	-381	13
7	3349	3316	33	-319	-295	-24
8	3350	3333	17	-319	-306	-13
9	3309	3305	4	-318	-328	10

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.





CAMERA FRAME RATES:
#1 - 24 FPS
All Others - 1000 fps

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

NHTSA Test No.: M55300 Vehicle: 2005 Acura MDX MPV

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)* X	Y	Z	ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Real-Time Camera	-	-	-	-	-	-	30
2	Overall Left Side	8615	1383	1198	-4	8245	28	1000
3	Left Side View	9170	1077	1070	0	8800	25	1000
4	Driver and Interior View	7620	2804	2500	-9	-	25	500
5	Steering Column (Bottom)	8120	2110	1177	-4	7750	25	1000
6	Steering Column (Top)	8120	2110	1777	-9	7750	25	1000
7	Left CRS Lateral View	3254	2540	2307	-32	-	24	500
8	Overall Right Side	8759	2084	1269	-4	9069	24-70	500
9	Right Side View	8406	1169	1142	-2	8716	25	1000
10	Right Passenger View	8676	1504	1415	-1	8986	35	1000
11	Passenger and Interior View	7620	3998	1968	-10	-	35	500
12	Right CRS Lateral View	3111	2540	2268	-32	-	24	500
13	Passenger Front View	620	-92	1987	-43	-	13	500
14	Driver Front View	620	-92	1987	-39	-	13	500
15	Windshield View	0	-530	3374	-30	-	13	500
16	Pit View of Engine	0	615	-3048	90	-	13	500
17	Pit View of Fuel Tank	0	2540	-3048	90	-	13	500

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

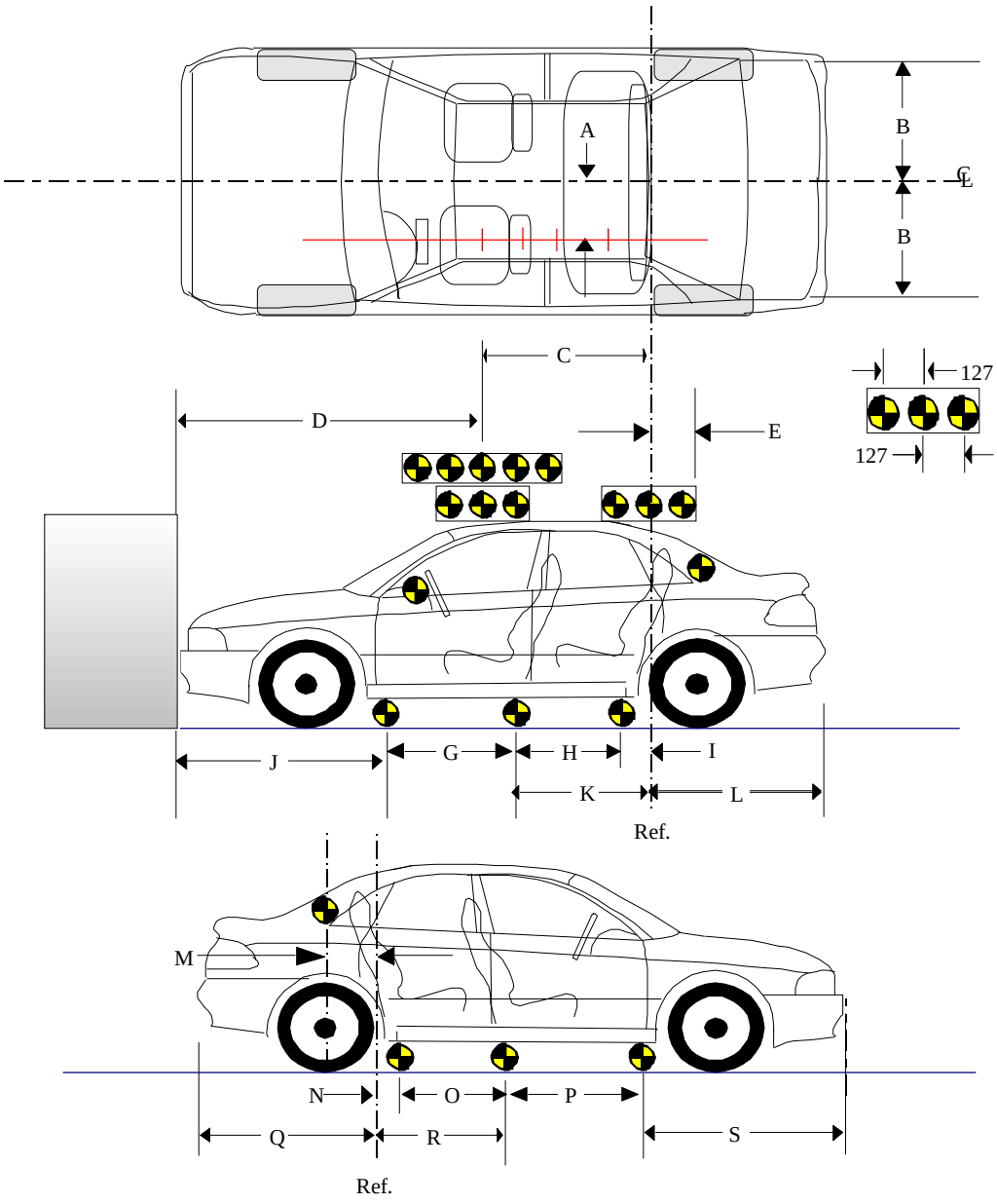
Y = film plane to impact location N.T. indicates No Timing

Z = film plane to ground

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

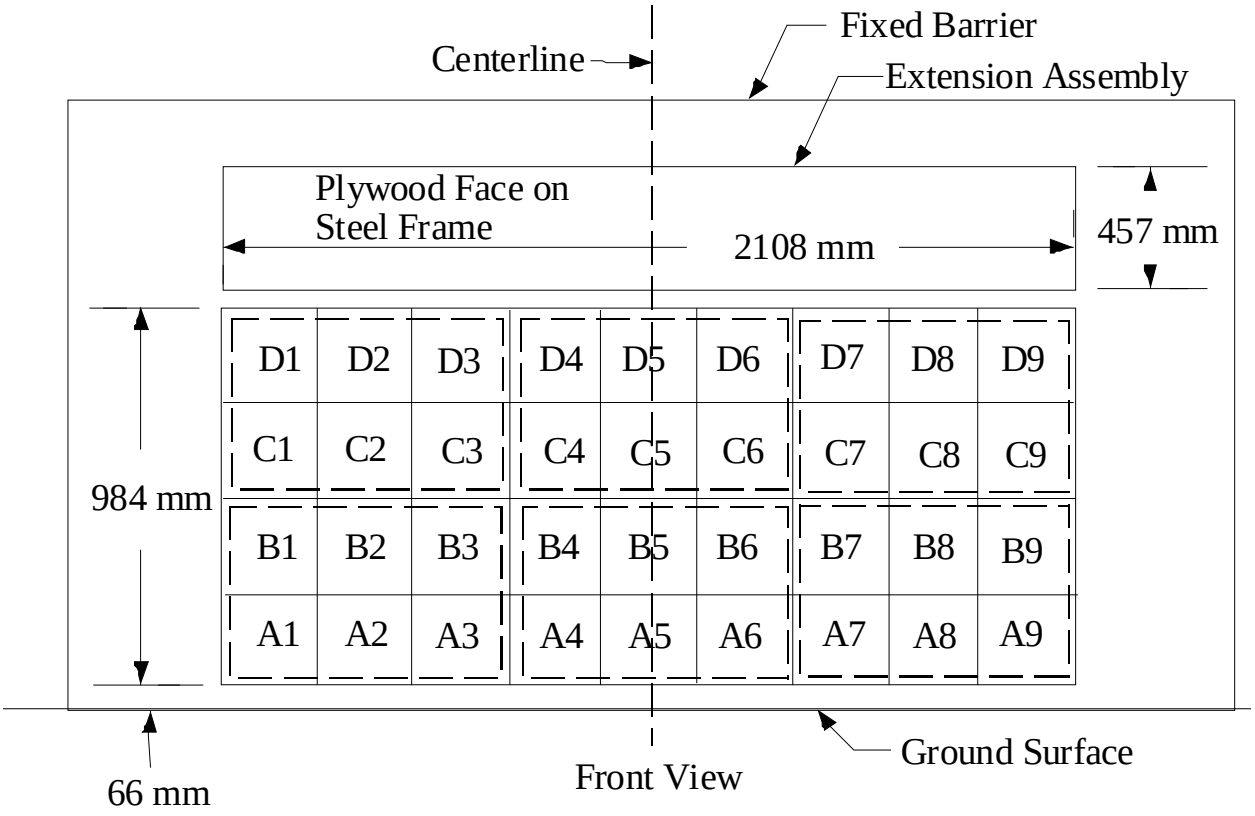
(Dimensions in millimeters)

A	386
B	680
C	1222
D	2063
E	248
F	1368
G	822
H	834
I	120
J	1545
K	954
L	1457
M	234
N	115
O	826
P	834
Q	1461
R	941
S	1541



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.: M55300; Test Date: February 24, 2005; Technician: P. MacDiarmid

Vehicle Model Year/Make/Model: 2005 Acura MDX MPV

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

B. Size of vent holes: (mm^2) 1257 -Driver 1963.5 -Passenger

C. Total vent area: (mm^2) 2514 -Driver 3927 -Passenger

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

Driver: 500 -Height; 550 -Width; 300 -Depth

Passenger: 660 -Height; 650 -Width; 775 -Depth

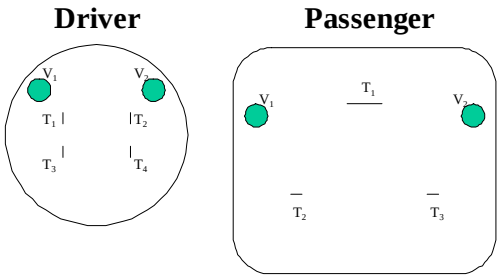
E. Is the air bag tethered?

Driver: X -Yes; - -No; If yes, record length of tether- 300

Passenger: X -Yes; - -No; If yes, record length of tether- 400

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: Honda 2403514 10 11 04

Generator: -

Passenger: Air bag: Honda GX 2010178 22 11 04 L10

Generator: -

DATA SHEET NO. 19 ACCIDENT INVESTIGATION DIVISION DATA

FOR FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Acura MDX MPV

NHTSA Test No.: M55300 VIN: 2HNYD18235H513291

Model Year: 2005 Build Date: 12/04 Test Date: February 24, 2005

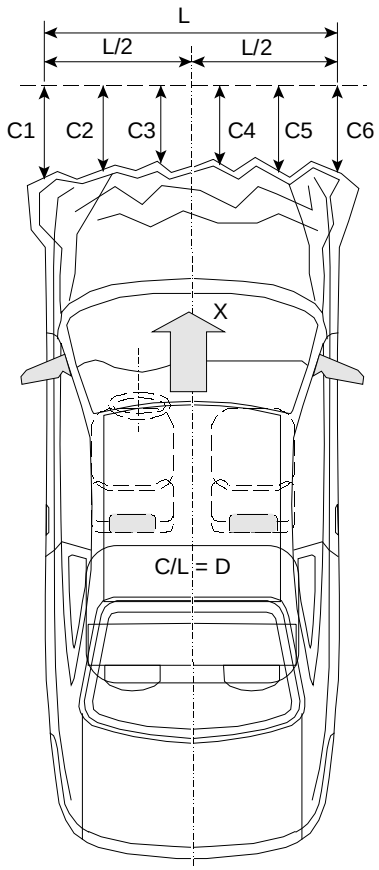
Vehicle Size Category: Special Purpose Test Weight: 2225.0 kg

Vehicle Wheelbase: 2700 mm; Front Overhang: 988 mm; Overall Width: 1955 mm

Collision Deformation Classification (CDC) Code: 12FDEW4

Crush Depth Dimensions

	PRE (mm)	POST (mm)	DIFF (mm)
C1 =	4552	4191	361
C2 =	4690	4195	495
C3 =	4766	4221	545
C4 =	4765	4220	545
C5 =	4691	4199	492
C6 =	4553	4162	391



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region: L1= 1590 mm

L2= 795.0 mm

L5= 318 mm

APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

TABLE OF PHOTOGRAPHS (CONTINUED)

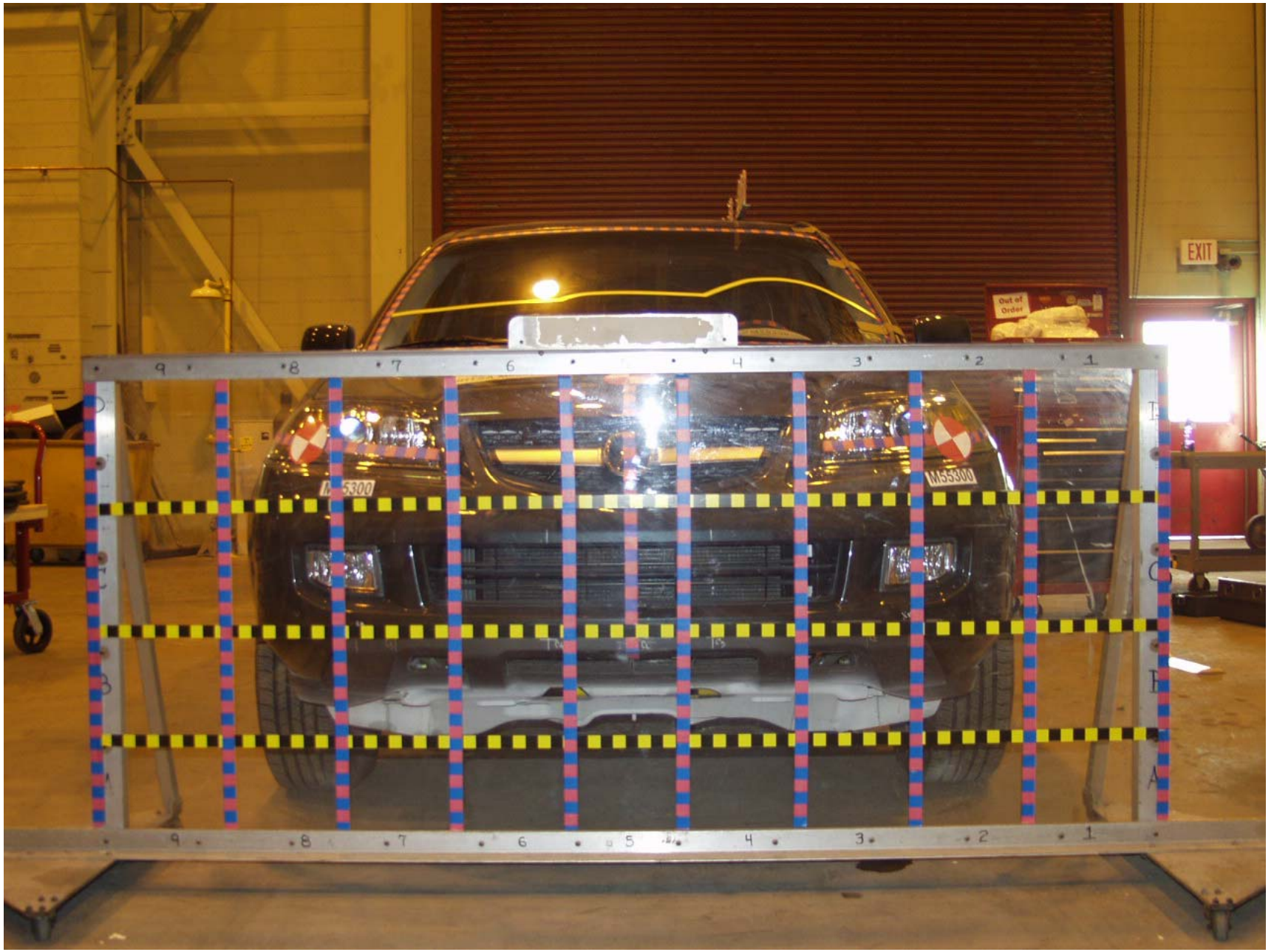


Figure A-1 LOAD CELL LOCATIONS

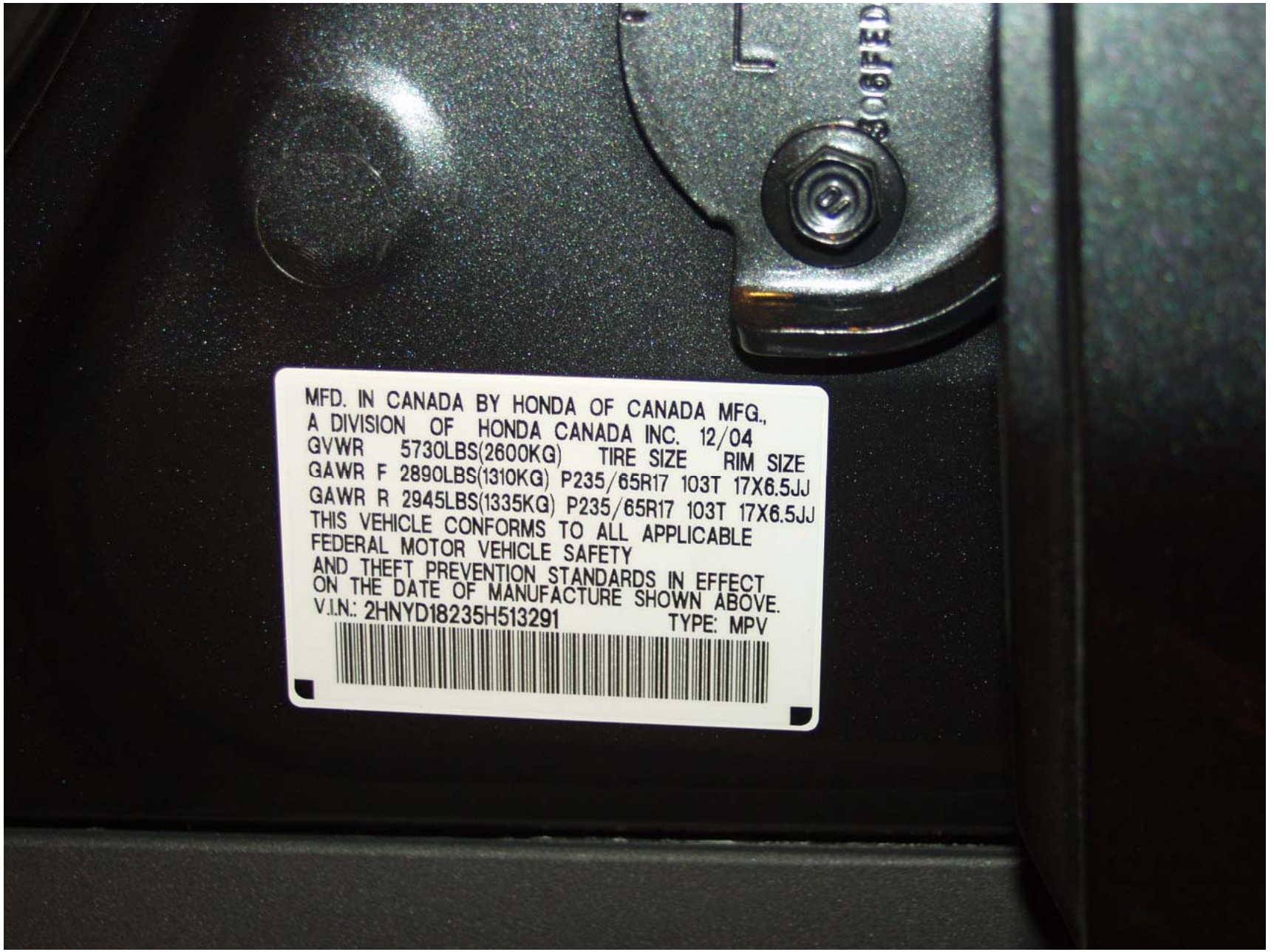


Figure A-2 VEHICLE CERTIFICATION PLACARD

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

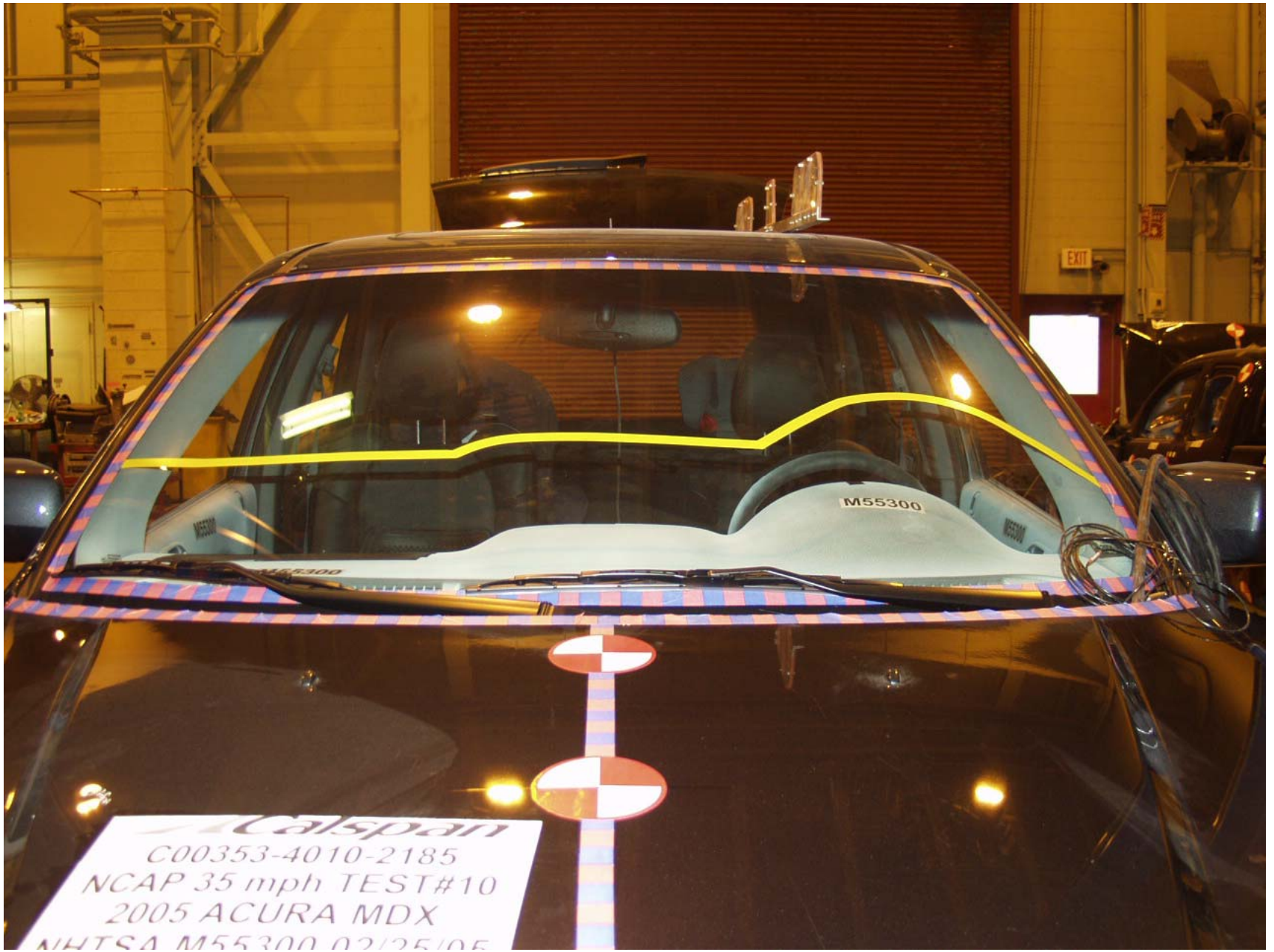


Figure A-18 PRE-TEST WINDSHIELD VIEW

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

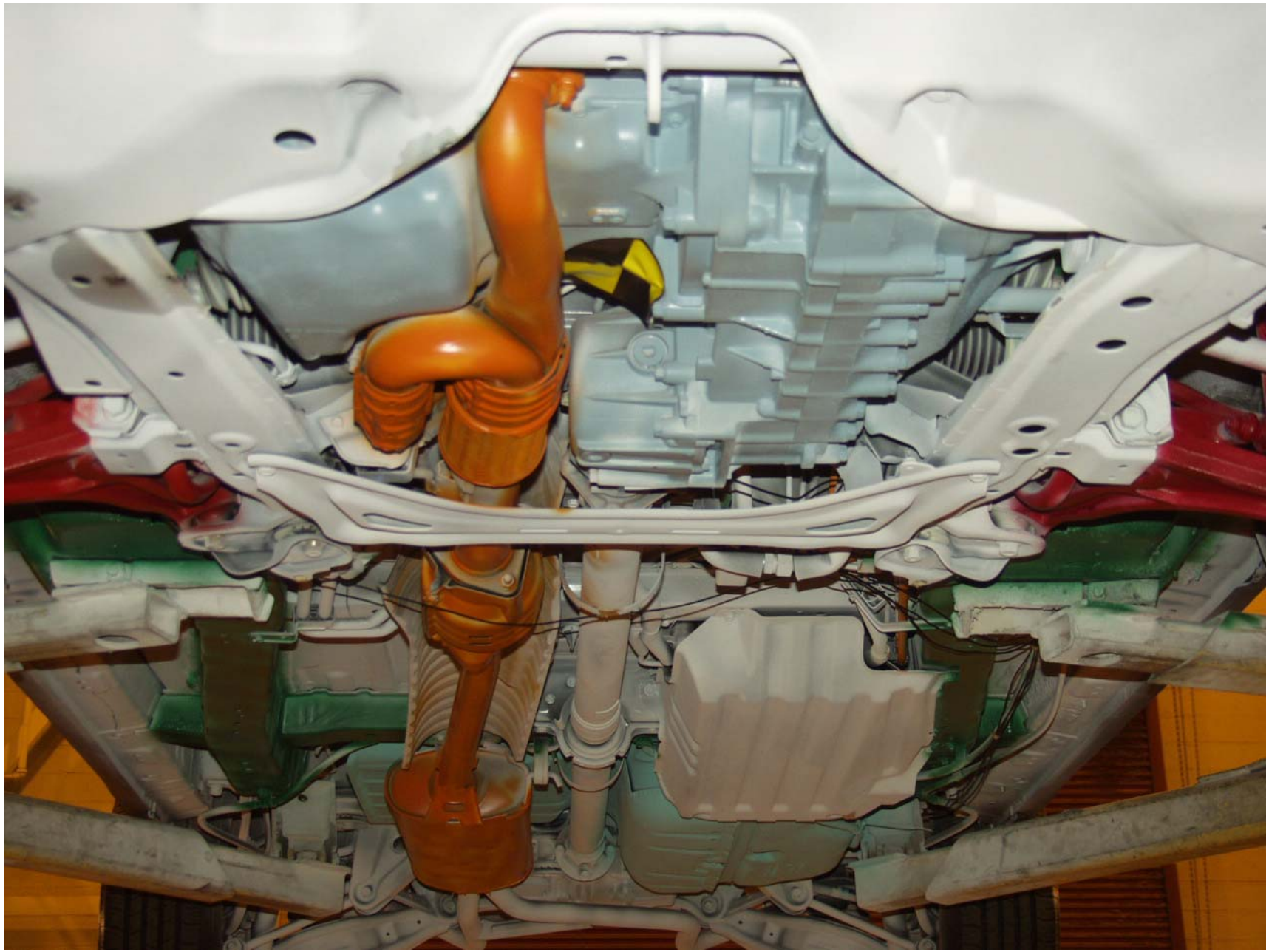


Figure A-26 PRE-TEST MID UNDERBODY VIEW

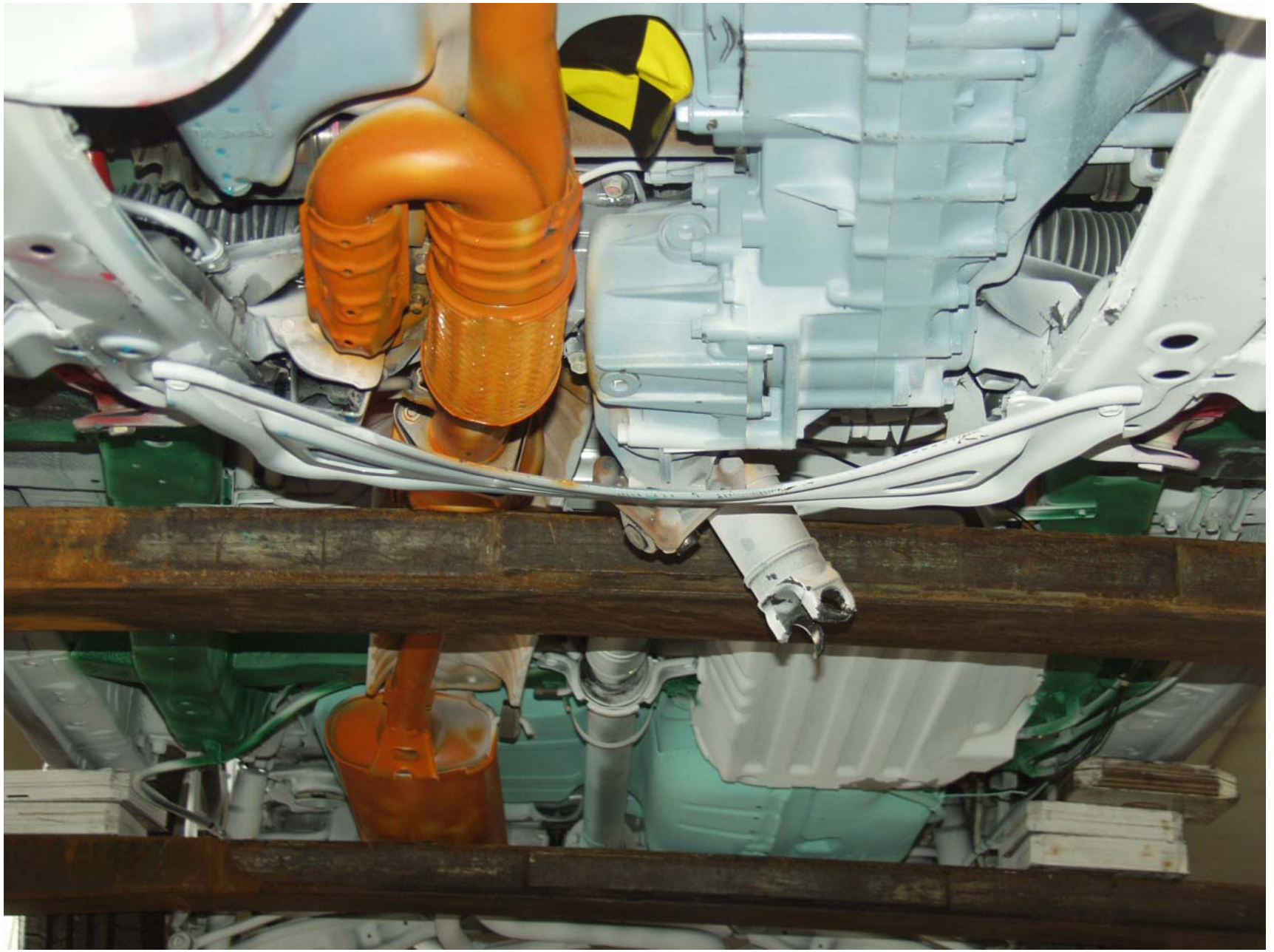


Figure A-27 POST-TEST MID UNDERBODY VIEW

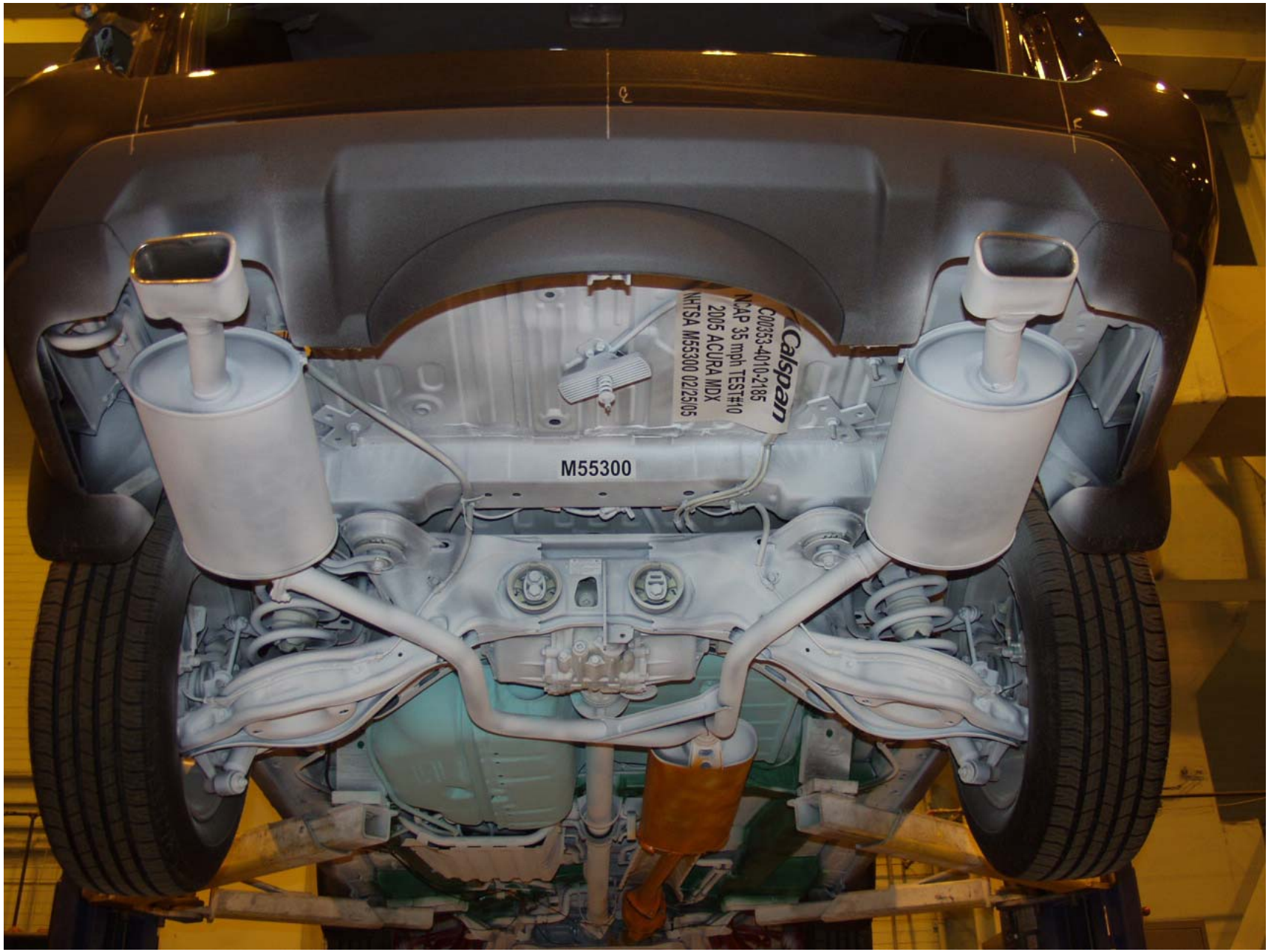


Figure A-28 PRE-TEST REAR UNDERBODY VIEW

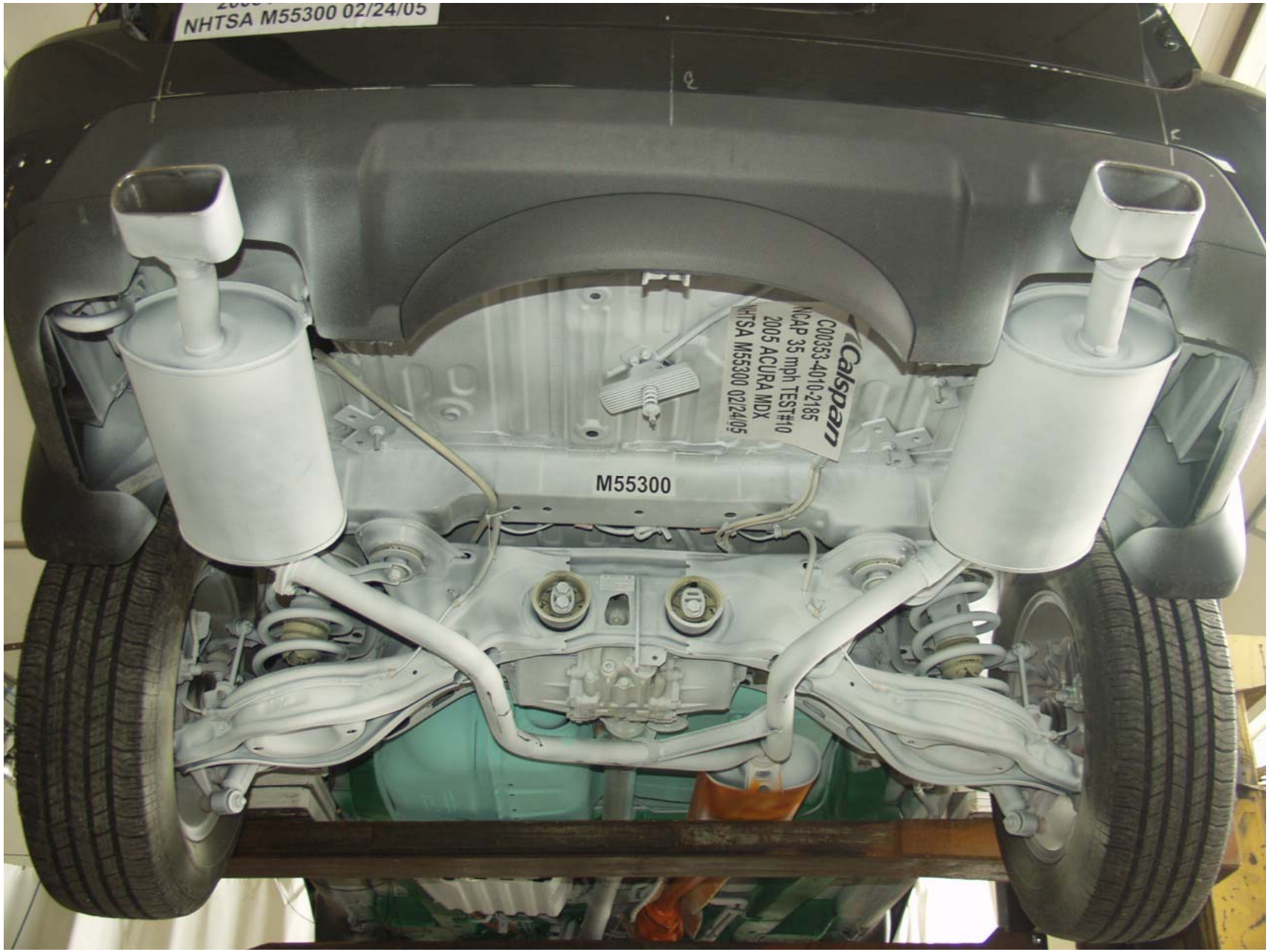


Figure A-29 POST-TEST REAR UNDERBODY VIEW

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

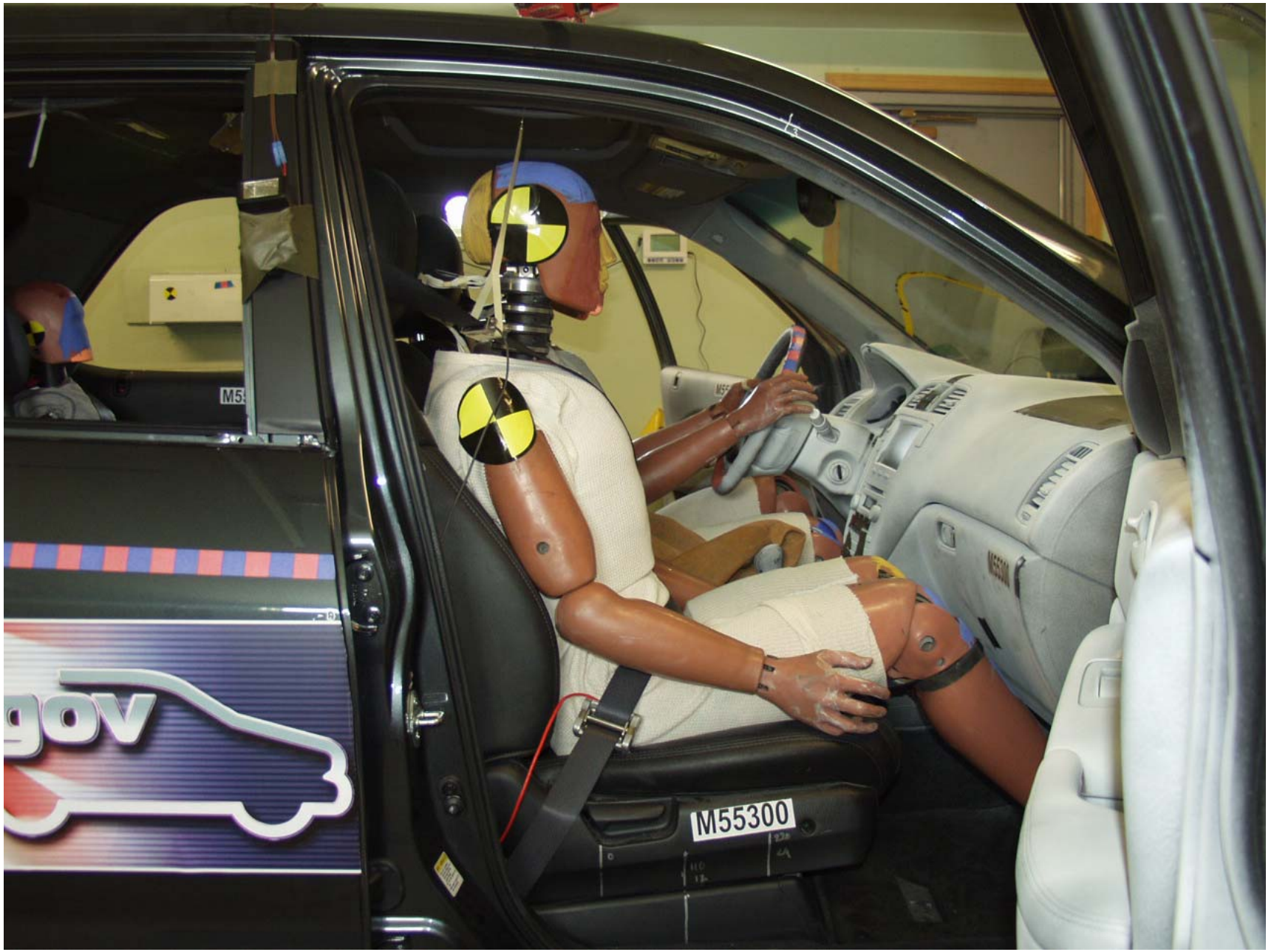


Figure A-48 PRE-TEST PASSENGER AND INTERIOR VIEW

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

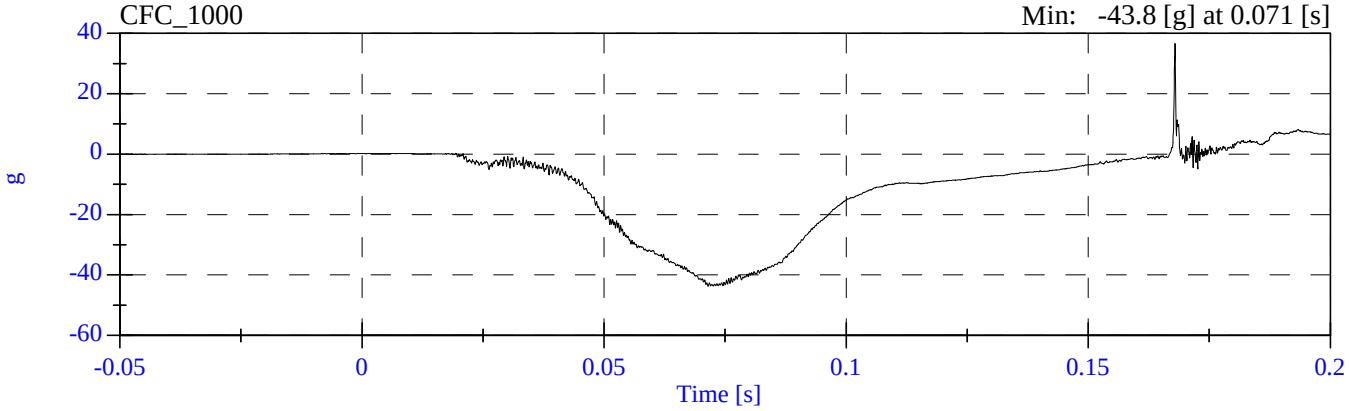
Table of Data Plots (Continued)

Table of Data Plots (Continued)

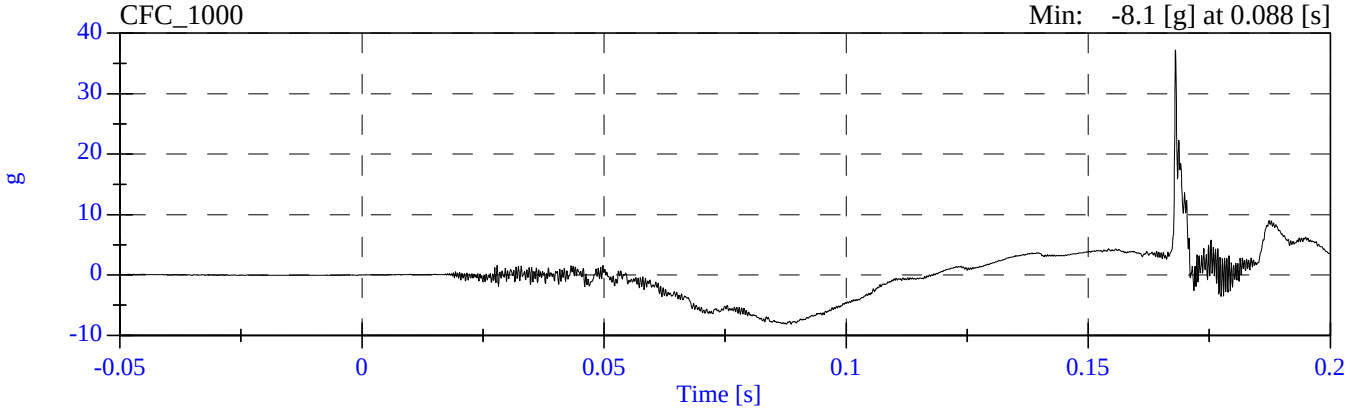
Table of Data Plots (Continued)

2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

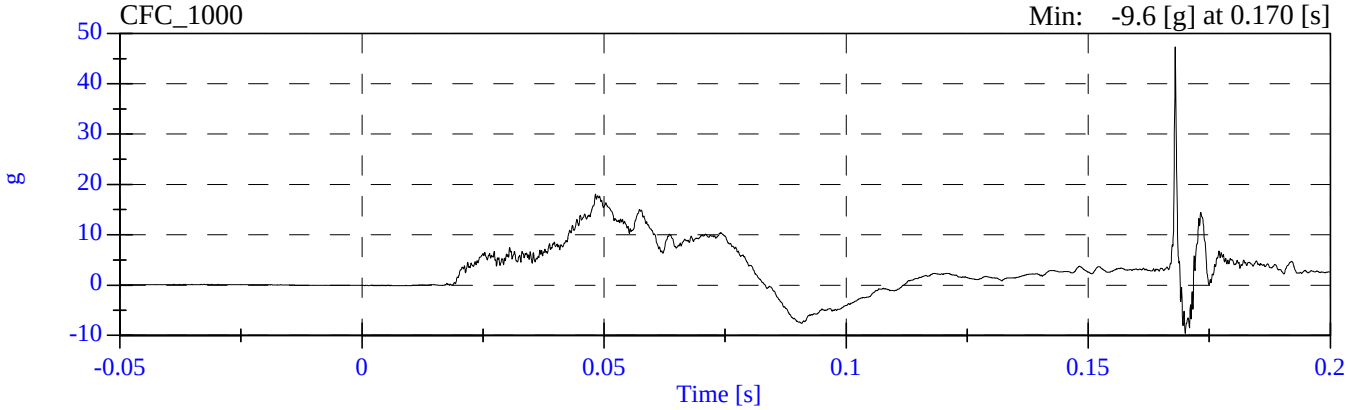
V1P1 Head CG x
CFC_1000
Max: 36.7 [g] at 0.168 [s]
Min: -43.8 [g] at 0.071 [s]



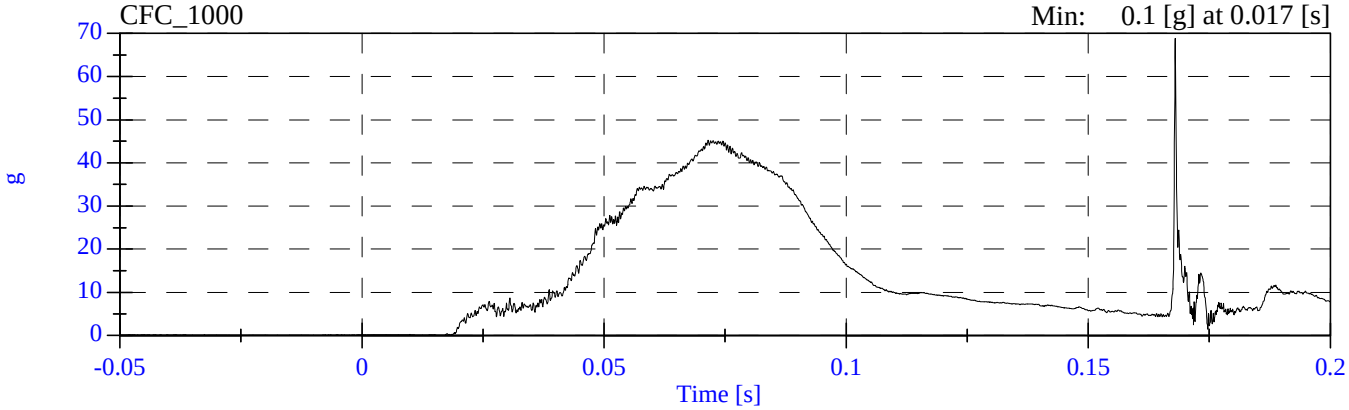
V1P1 Head CG y
CFC_1000
Max: 37.2 [g] at 0.168 [s]
Min: -8.1 [g] at 0.088 [s]



V1P1 Head CG z
CFC_1000
Max: 47.3 [g] at 0.168 [s]
Min: -9.6 [g] at 0.170 [s]

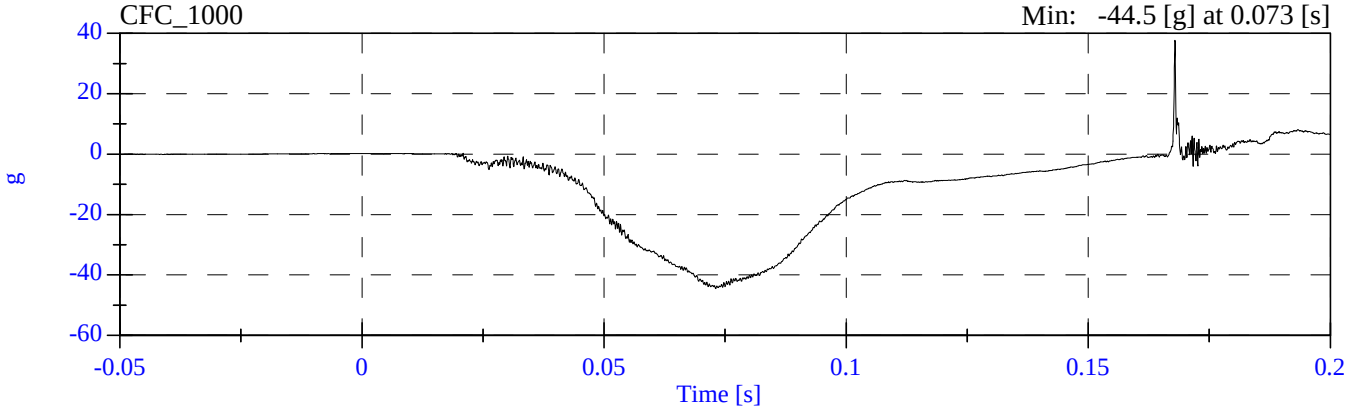


V1P1 Head CG Resultant
CFC_1000
Max: 68.9 [g] at 0.168 [s]
Min: 0.1 [g] at 0.017 [s]

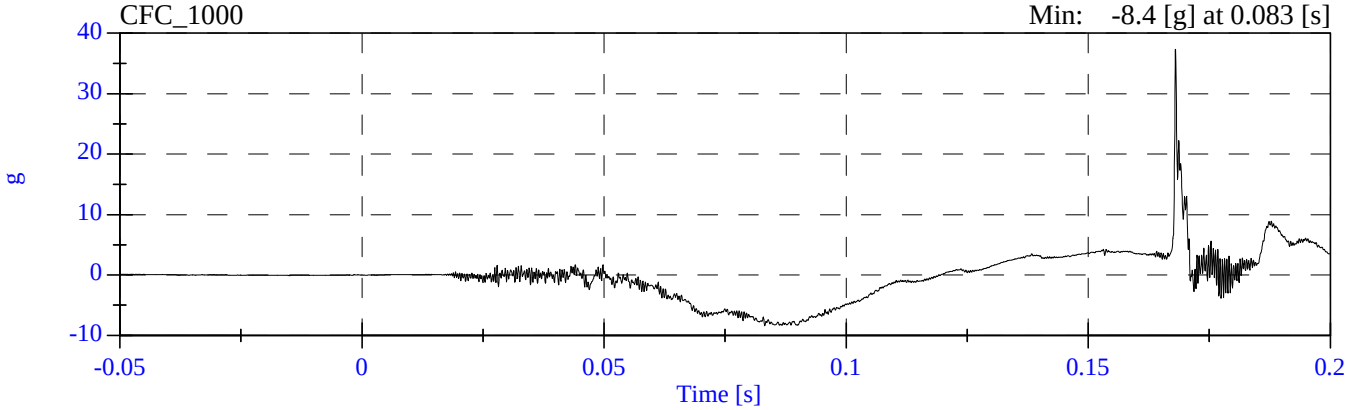


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

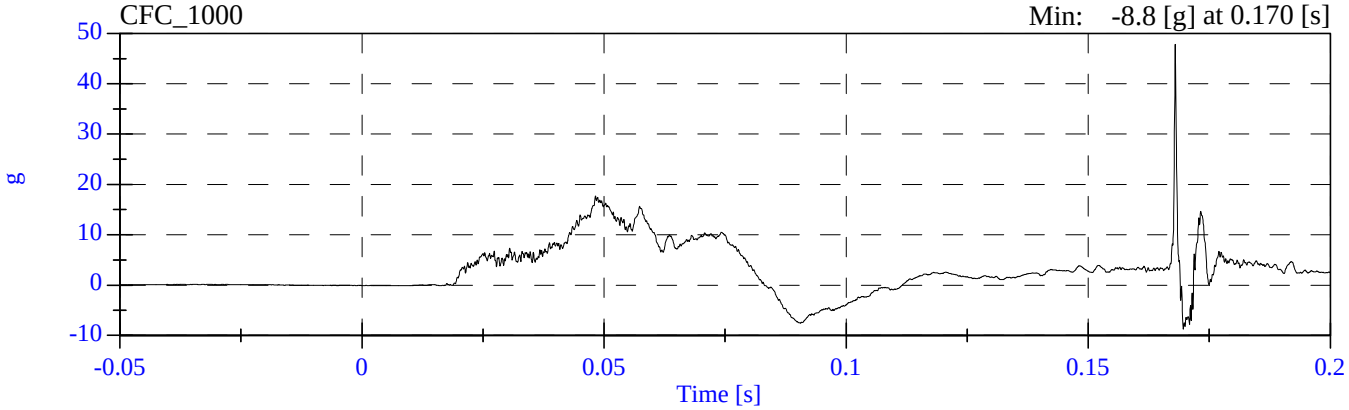
V1P1 Head CG Red x
CFC_1000
Max: 37.7 [g] at 0.168 [s]
Min: -44.5 [g] at 0.073 [s]



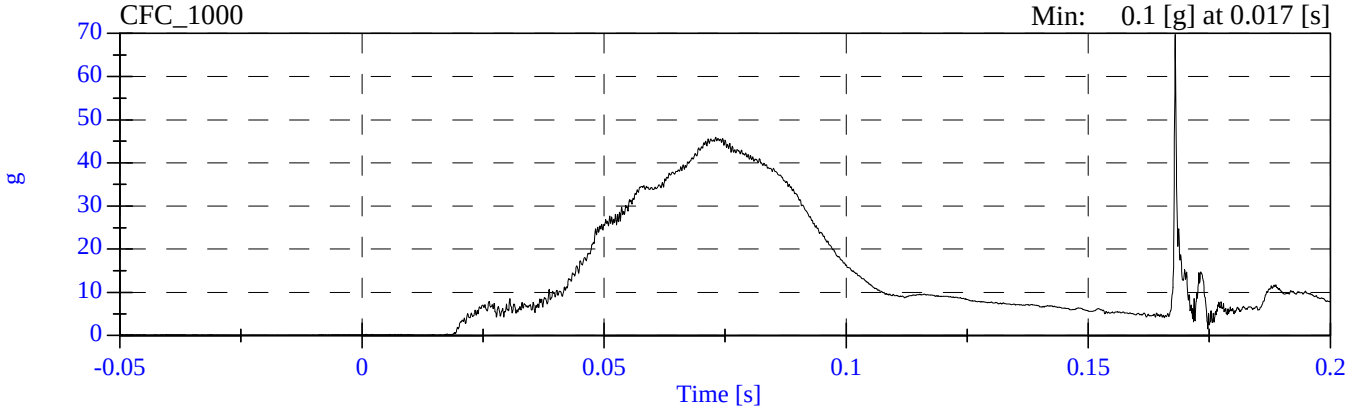
V1P1 Head CG Red y
CFC_1000
Max: 37.3 [g] at 0.168 [s]
Min: -8.4 [g] at 0.083 [s]



V1P1 Head CG Red z
CFC_1000
Max: 47.8 [g] at 0.168 [s]
Min: -8.8 [g] at 0.170 [s]

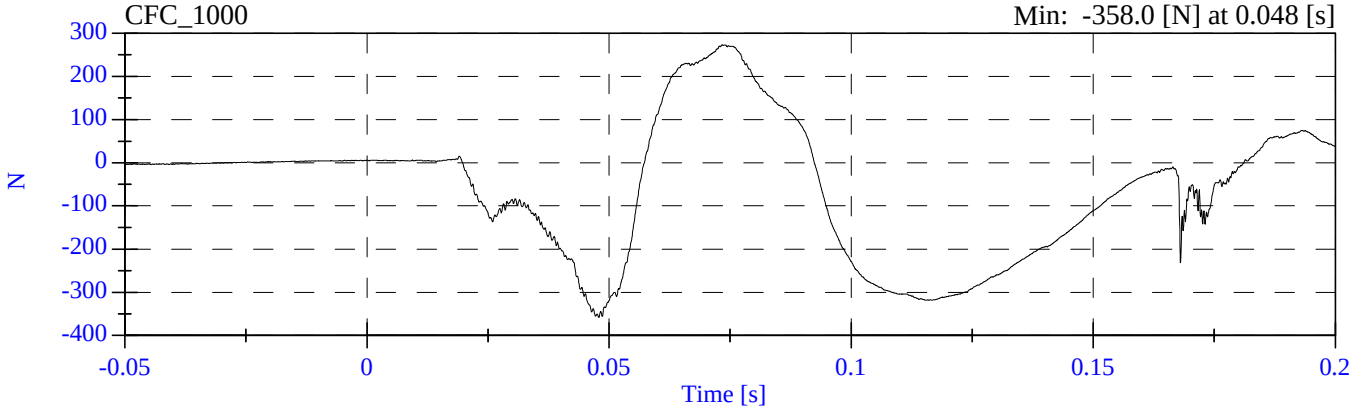


V1P1 Head CG Red Resultant
CFC_1000
Max: 69.8 [g] at 0.168 [s]
Min: 0.1 [g] at 0.017 [s]

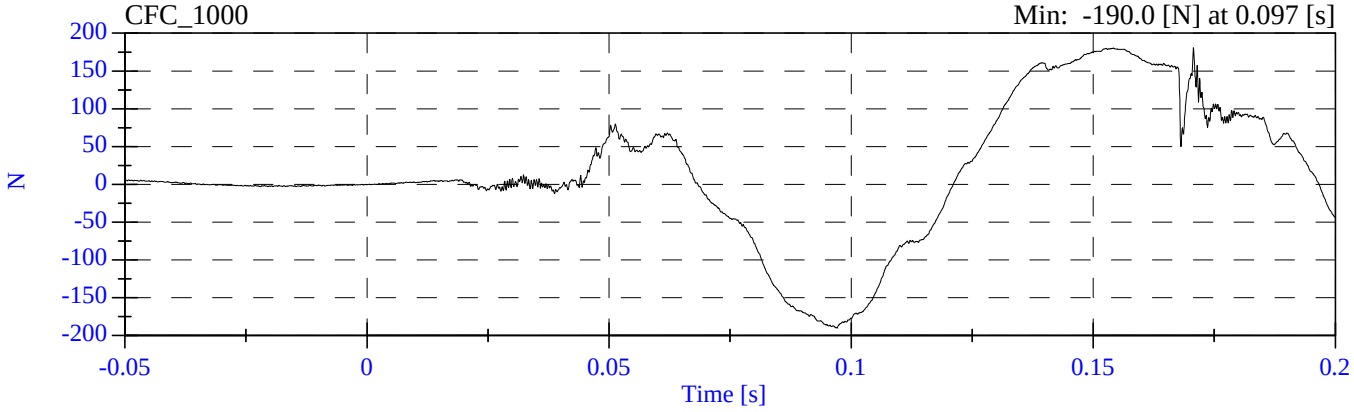


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

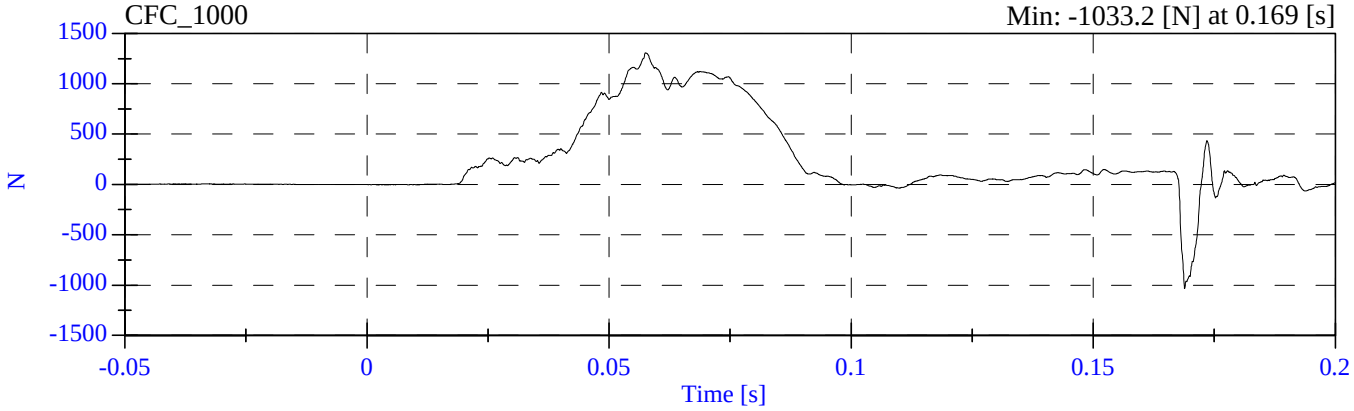
V1P1 Upper Neck Fx
CFC_1000
Max: 273.6 [N] at 0.073 [s]
Min: -358.0 [N] at 0.048 [s]



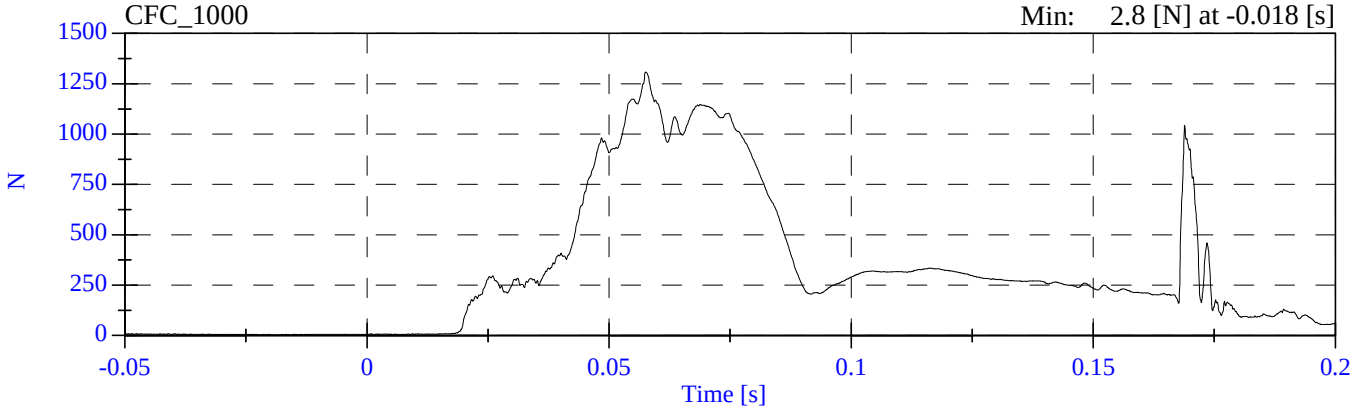
V1P1 Upper Neck Fy
CFC_1000
Max: 181.0 [N] at 0.171 [s]
Min: -190.0 [N] at 0.097 [s]



V1P1 Upper Neck Fz
CFC_1000
Max: 1306.6 [N] at 0.058 [s]
Min: -1033.2 [N] at 0.169 [s]



V1P1 Upper Neck F Resultant
CFC_1000
Max: 1307.6 [N] at 0.058 [s]
Min: 2.8 [N] at -0.018 [s]



2005 NCAP Test 10 2005 Acura MDX
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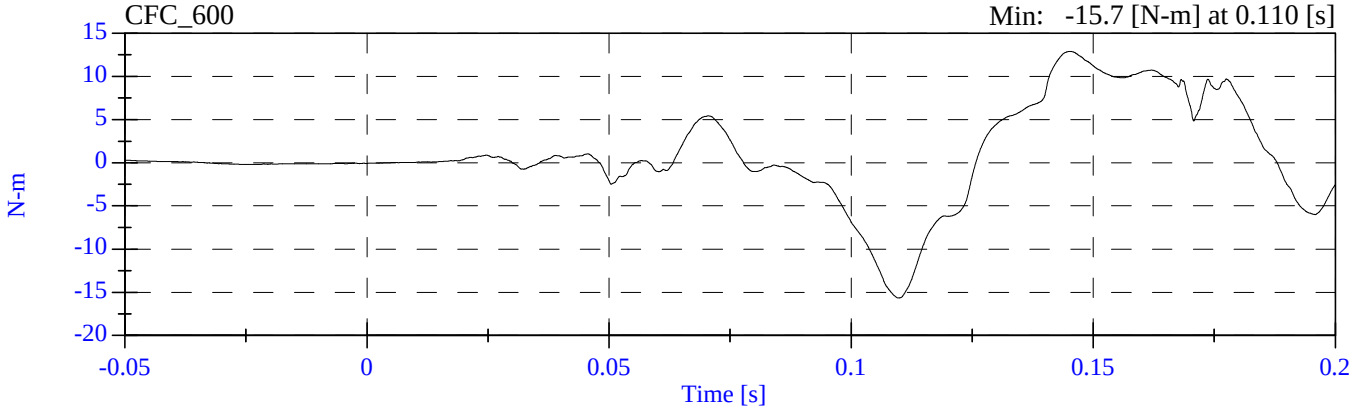
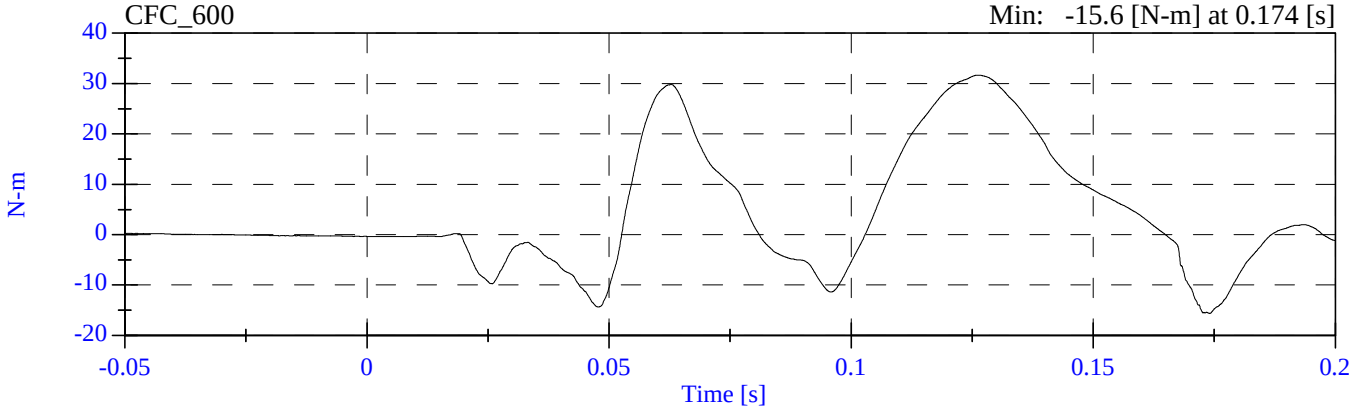
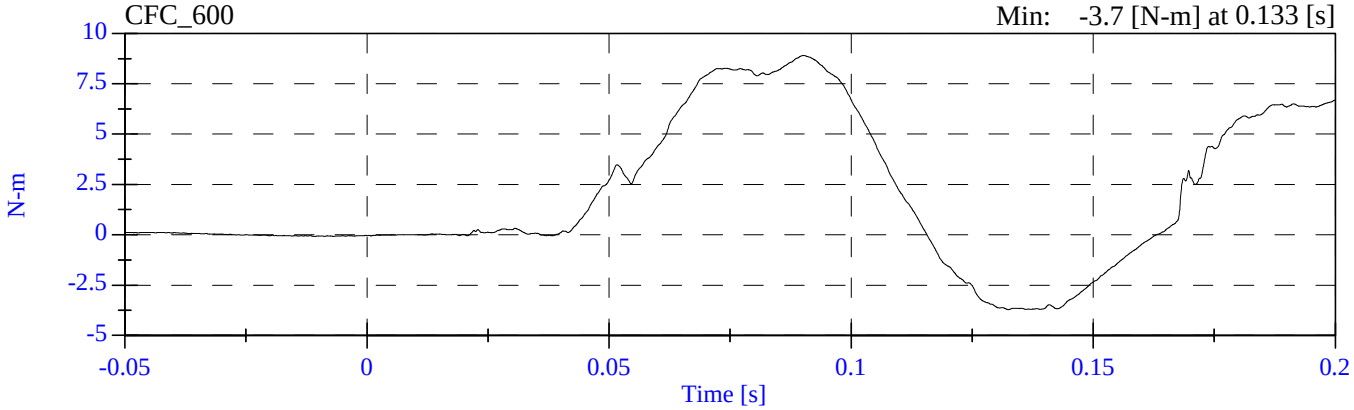
V1P1 Upper Neck Mx
CFC_600
Max: 12.9 [N-m] at 0.145 [s]
Min: -15.7 [N-m] at 0.110 [s]



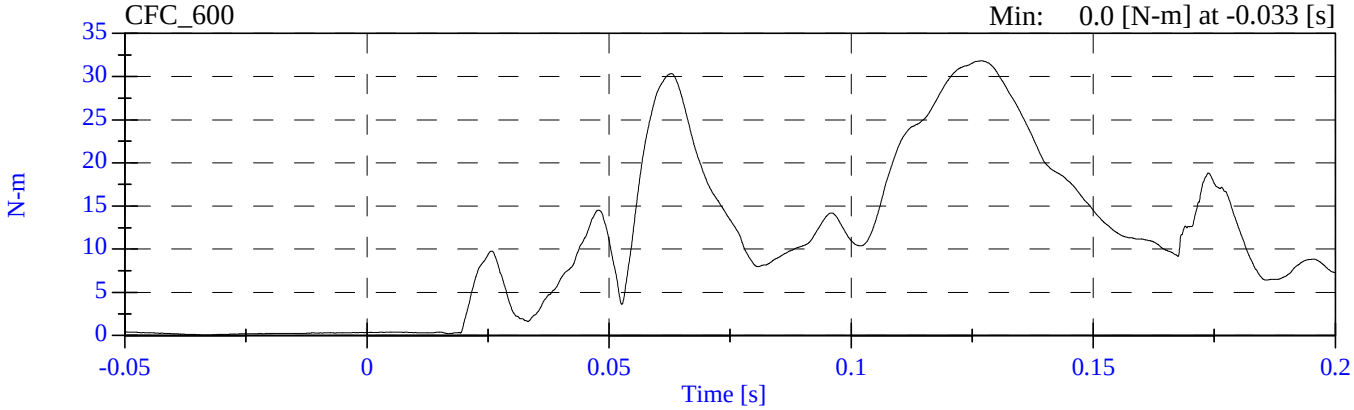
V1P1 Upper Neck My
CFC_600
Max: 31.6 [N-m] at 0.126 [s]
Min: -15.6 [N-m] at 0.174 [s]



V1P1 Upper Neck Mz
CFC_600
Max: 8.9 [N-m] at 0.090 [s]
Min: -3.7 [N-m] at 0.133 [s]

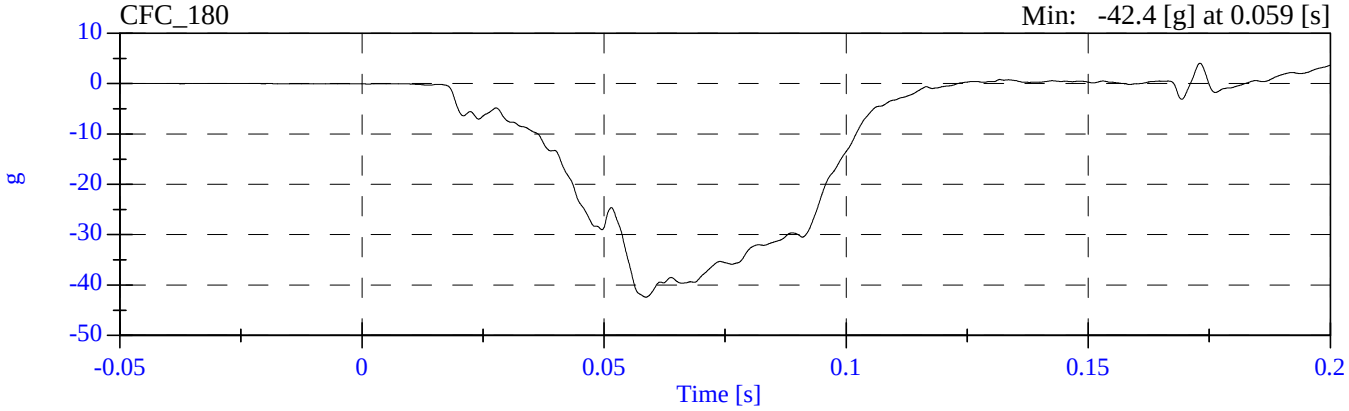


V1P1 Upper Neck M Resultant
CFC_600
Max: 31.8 [N-m] at 0.127 [s]
Min: 0.0 [N-m] at -0.033 [s]

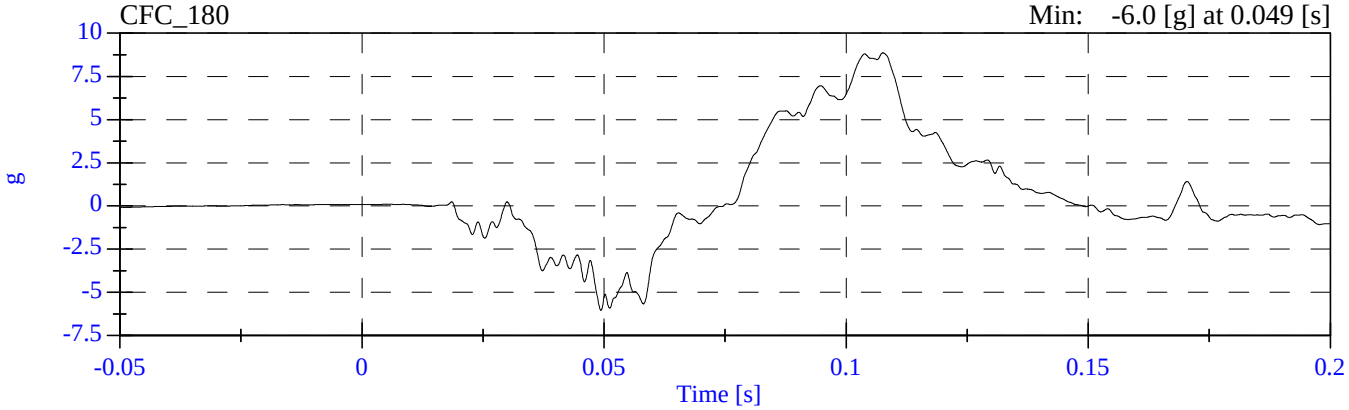


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

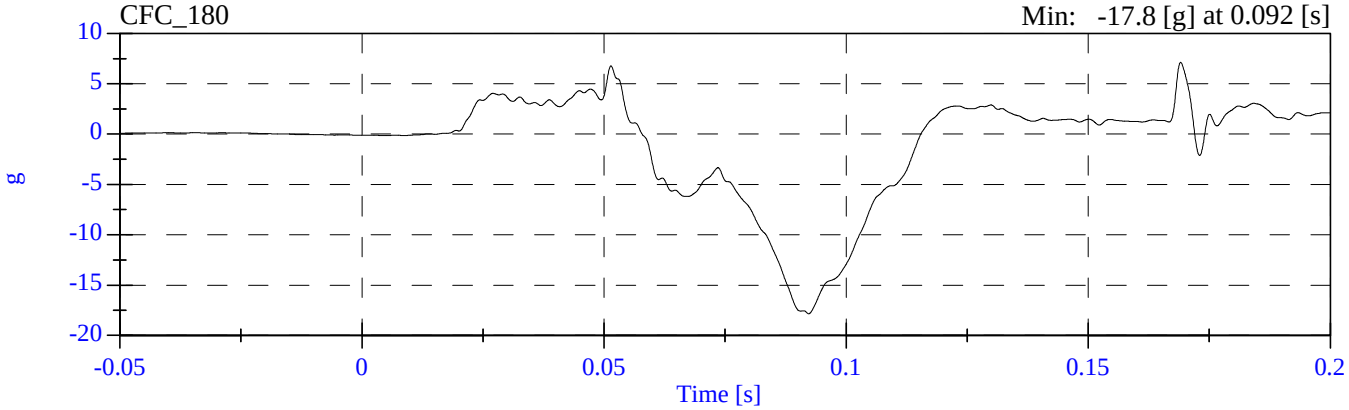
V1P1 Chest x
CFC_180
Max: 4.1 [g] at 0.173 [s]
Min: -42.4 [g] at 0.059 [s]



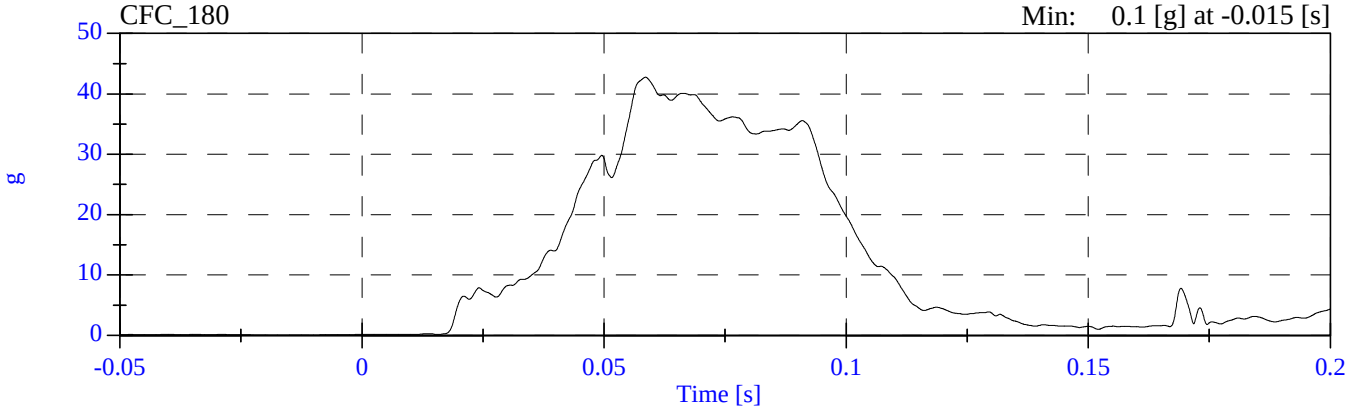
V1P1 Chest y
CFC_180
Max: 8.9 [g] at 0.108 [s]
Min: -6.0 [g] at 0.049 [s]



V1P1 Chest z
CFC_180
Max: 7.1 [g] at 0.169 [s]
Min: -17.8 [g] at 0.092 [s]

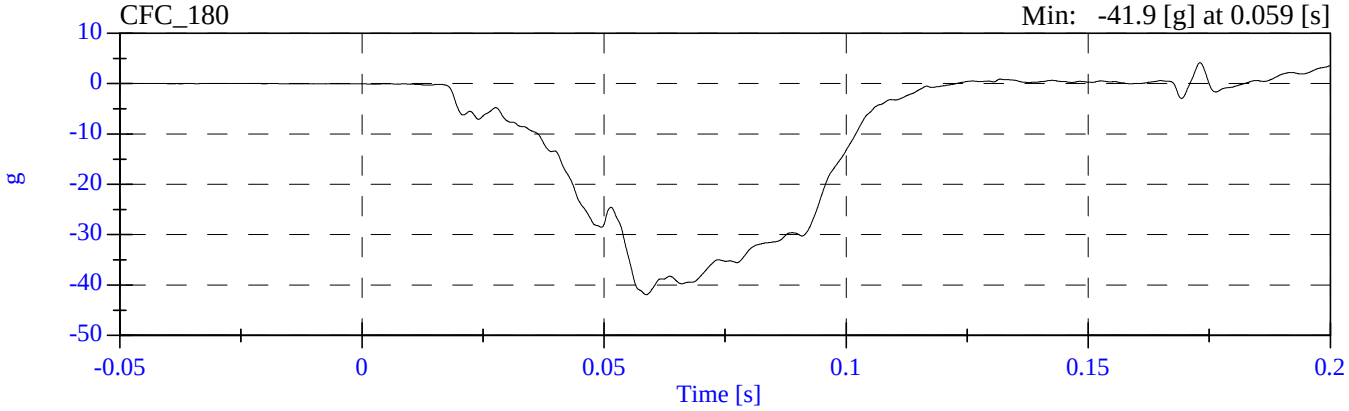


V1P1 Chest Resultant
CFC_180
Max: 42.8 [g] at 0.059 [s]
Min: 0.1 [g] at -0.015 [s]

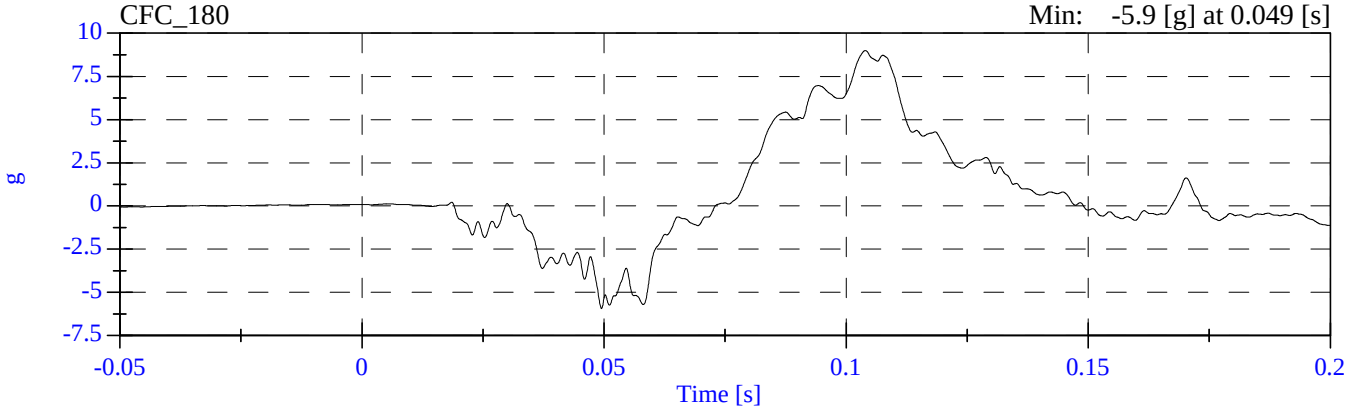


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

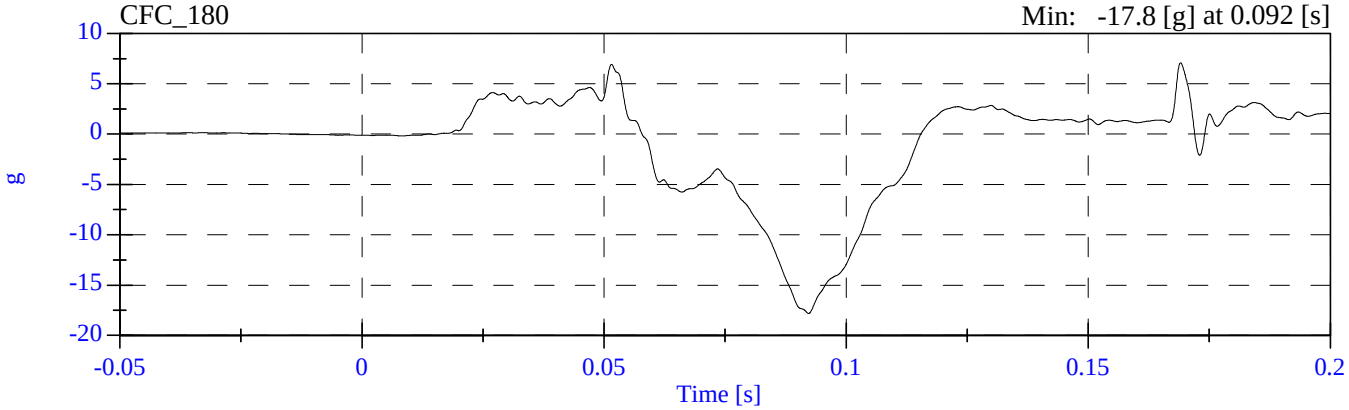
V1P1 Chest Red x
CFC_180
Max: 4.2 [g] at 0.173 [s]
Min: -41.9 [g] at 0.059 [s]



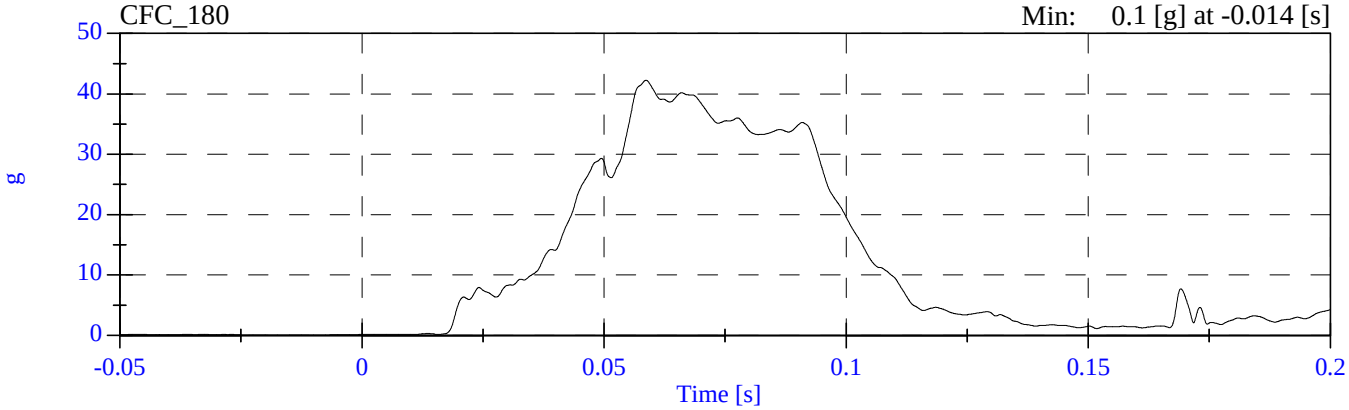
V1P1 Chest Red y
CFC_180
Max: 9.0 [g] at 0.104 [s]
Min: -5.9 [g] at 0.049 [s]



V1P1 Chest Red z
CFC_180
Max: 7.1 [g] at 0.169 [s]
Min: -17.8 [g] at 0.092 [s]



V1P1 Chest Red Resultant
CFC_180
Max: 42.3 [g] at 0.059 [s]
Min: 0.1 [g] at -0.014 [s]



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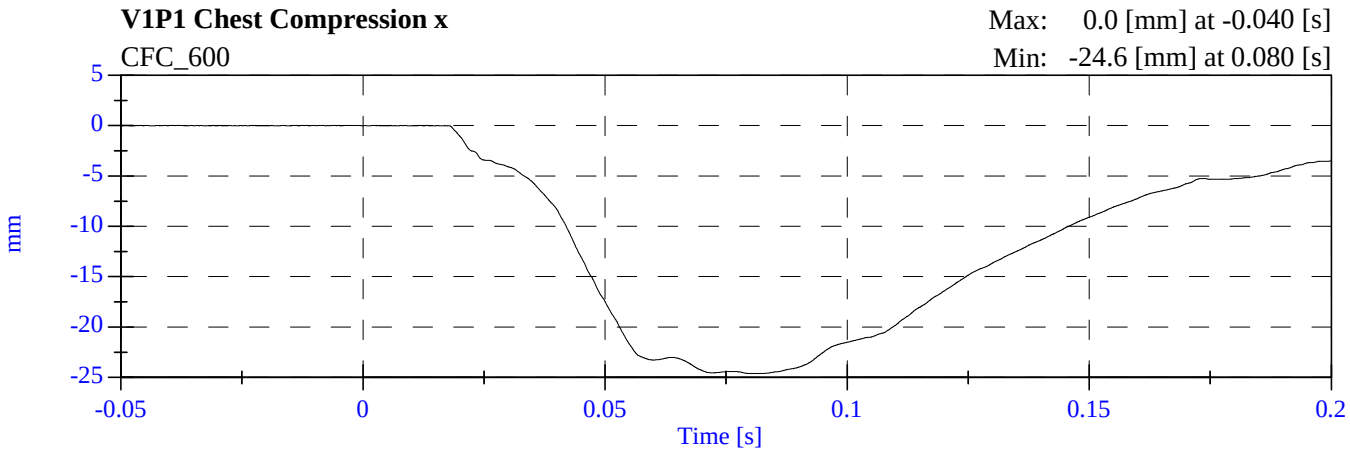

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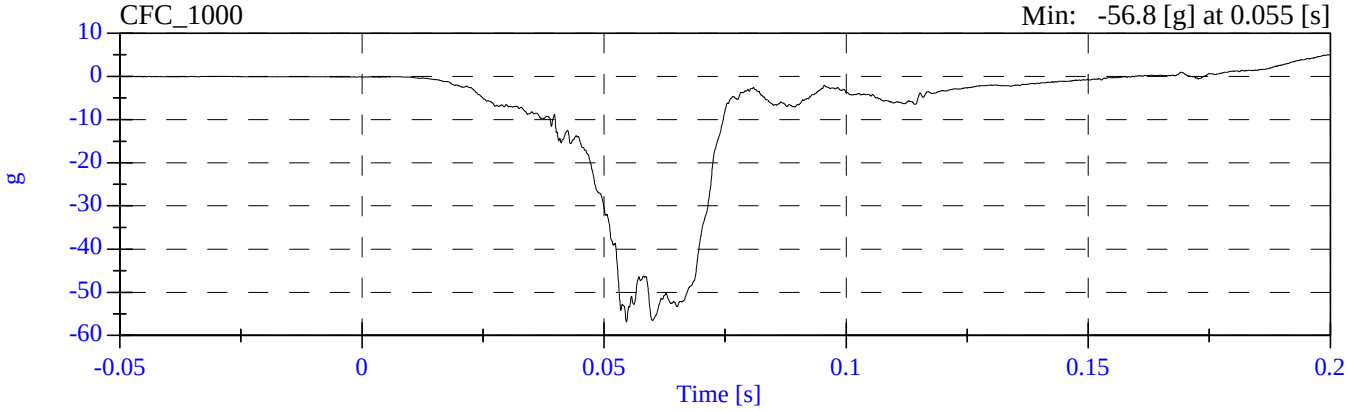
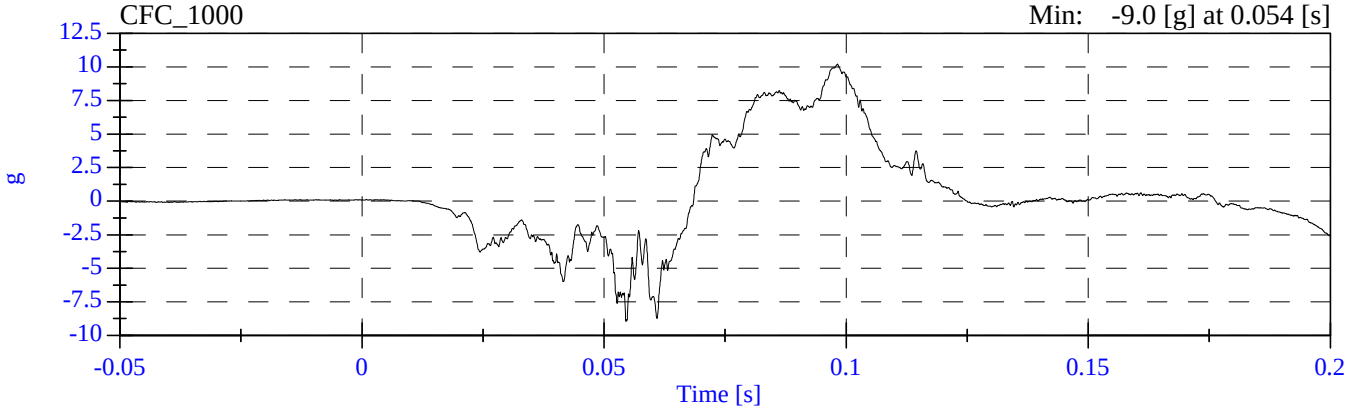
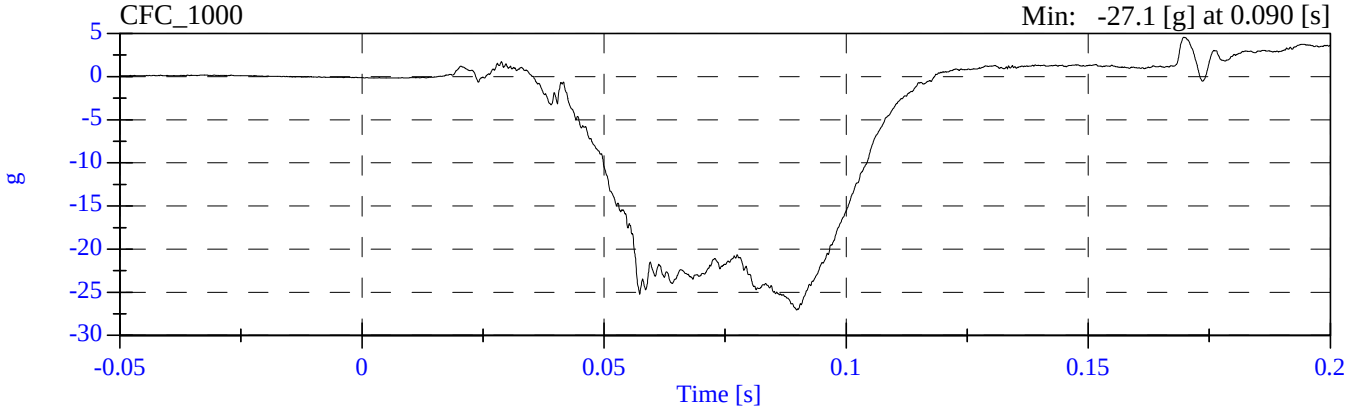
V1P1 Pelvic x
CFC_1000
Max: 5.0 [g] at 0.200 [s]
Min: -56.8 [g] at 0.055 [s]



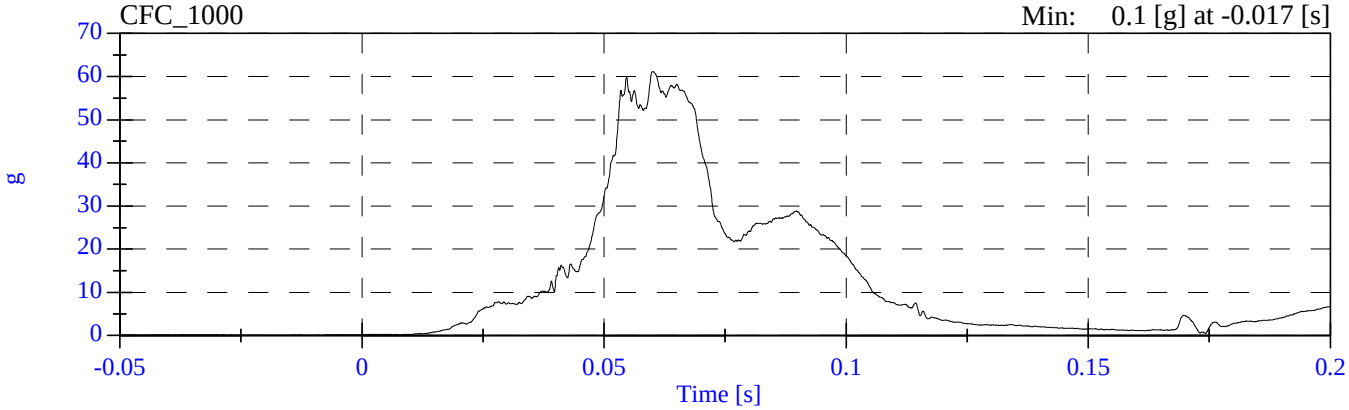
V1P1 Pelvic y
CFC_1000
Max: 10.2 [g] at 0.098 [s]
Min: -9.0 [g] at 0.054 [s]



V1P1 Pelvic z
CFC_1000
Max: 4.6 [g] at 0.170 [s]
Min: -27.1 [g] at 0.090 [s]



V1P1 Pelvic Resultant
CFC_1000
Max: 61.2 [g] at 0.060 [s]
Min: 0.1 [g] at -0.017 [s]



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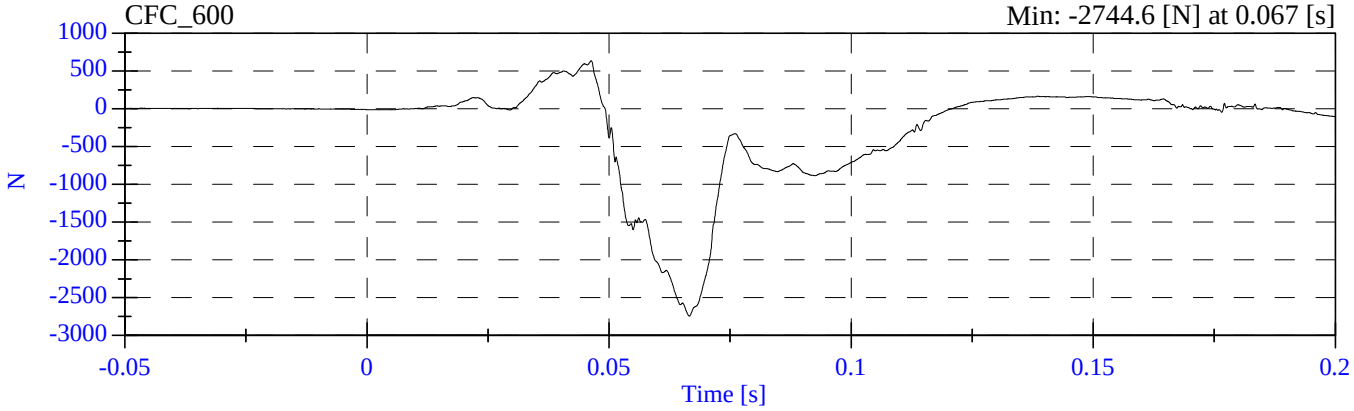
V1P1 Left Femur z

Max: 635.3 [N] at 0.046 [s]

CFC_600

Min: -2744.6 [N] at 0.067 [s]

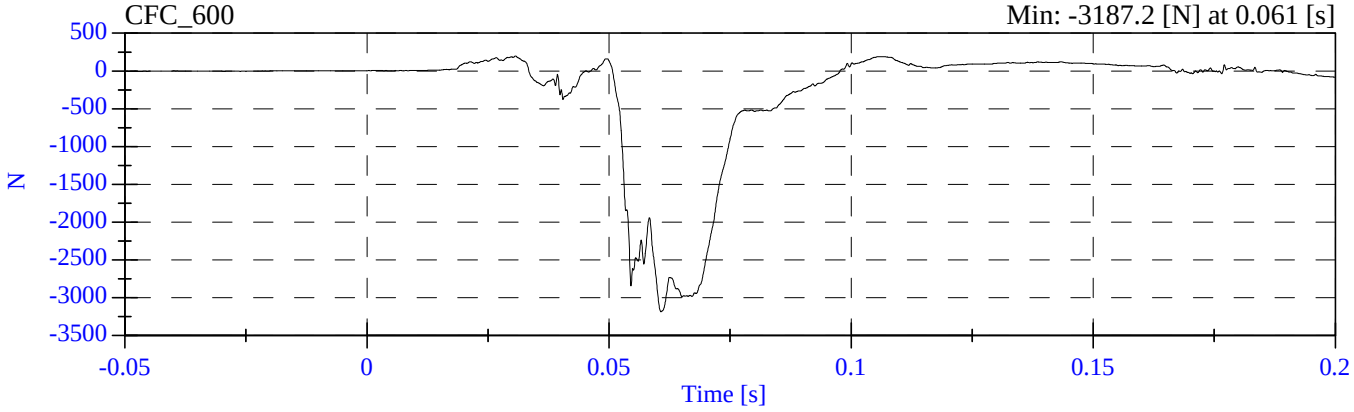


V1P1 Right Femur z

Max: 197.9 [N] at 0.031 [s]

CFC_600

Min: -3187.2 [N] at 0.061 [s]



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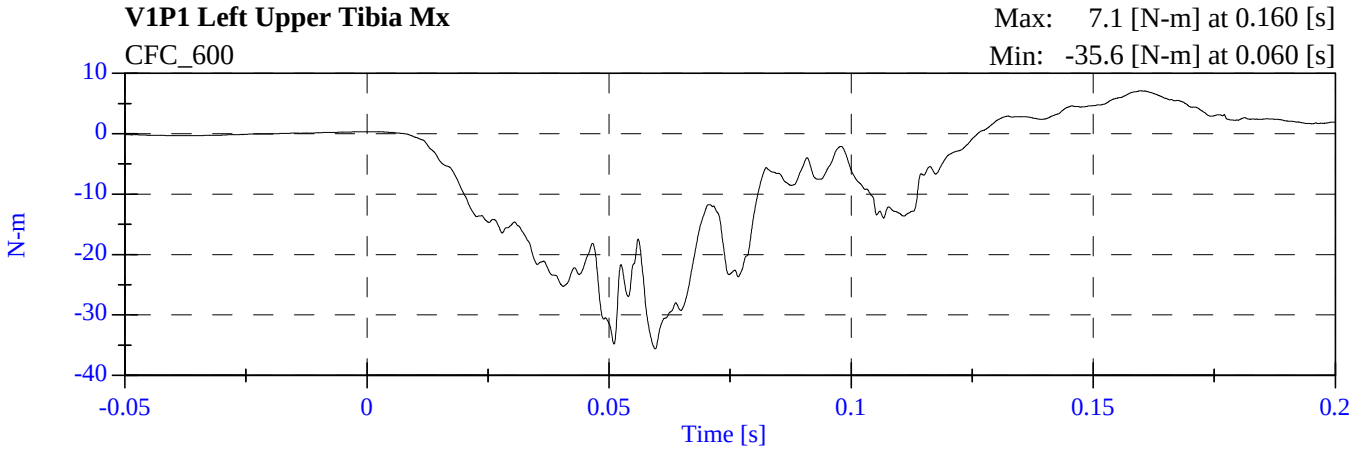

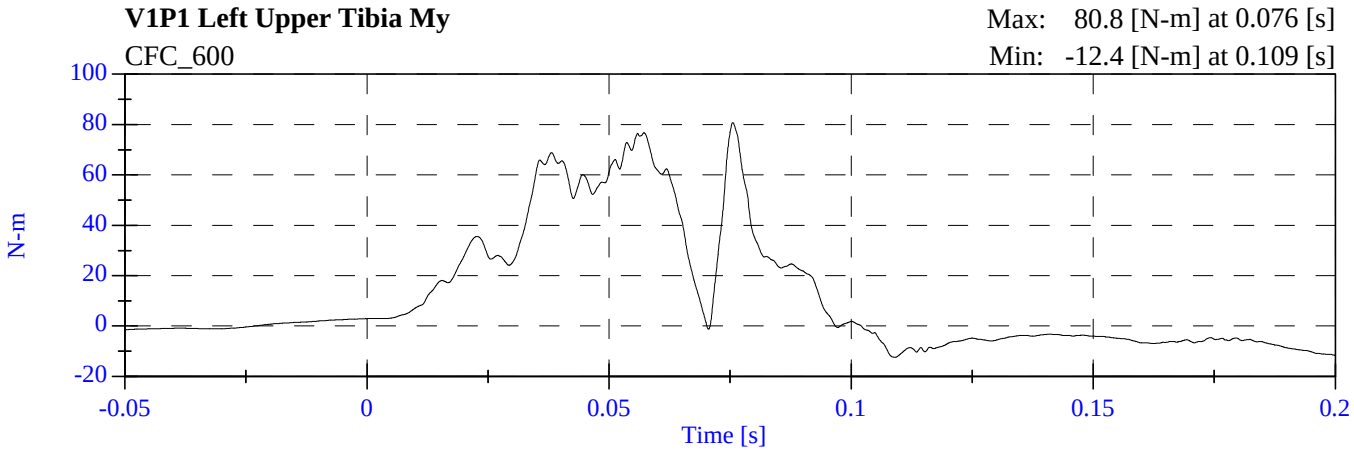

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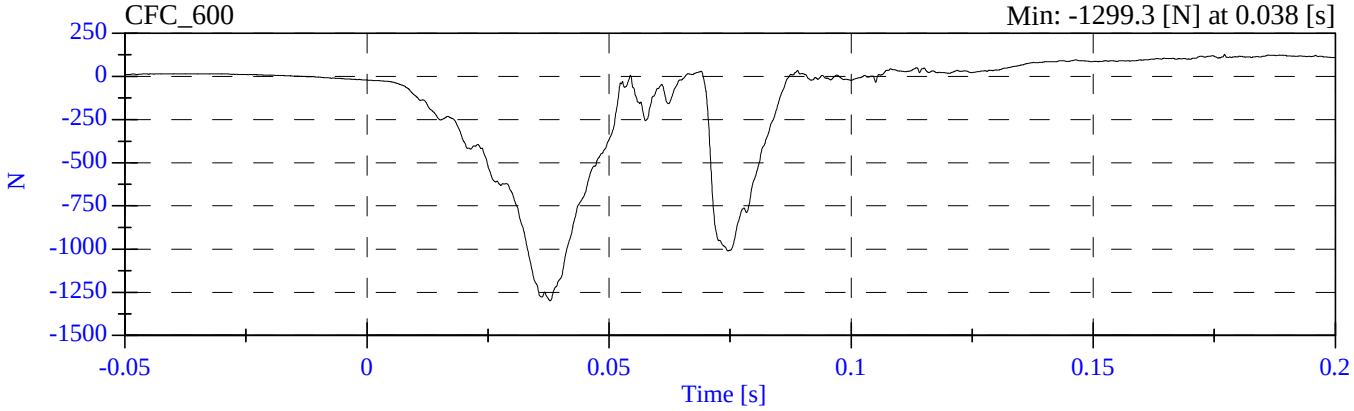
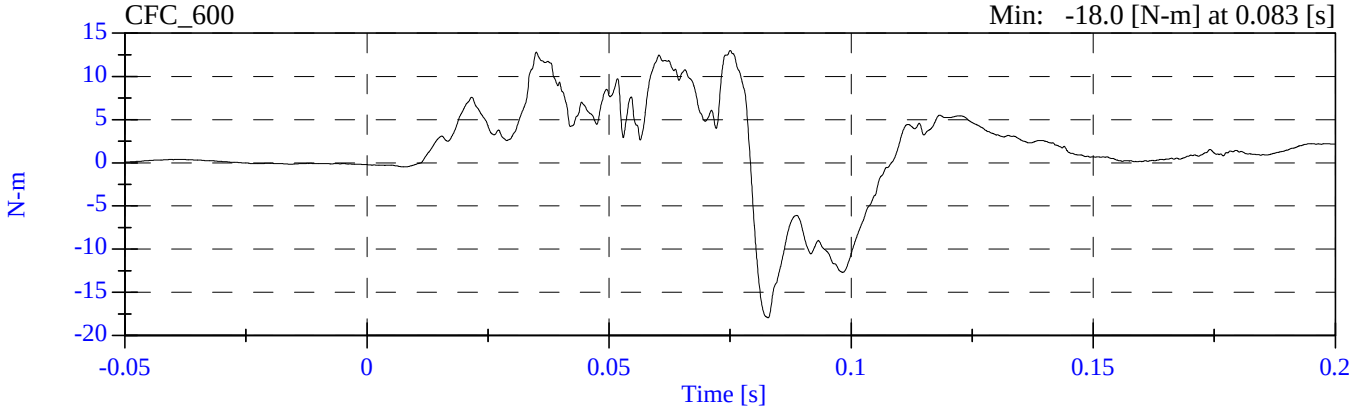
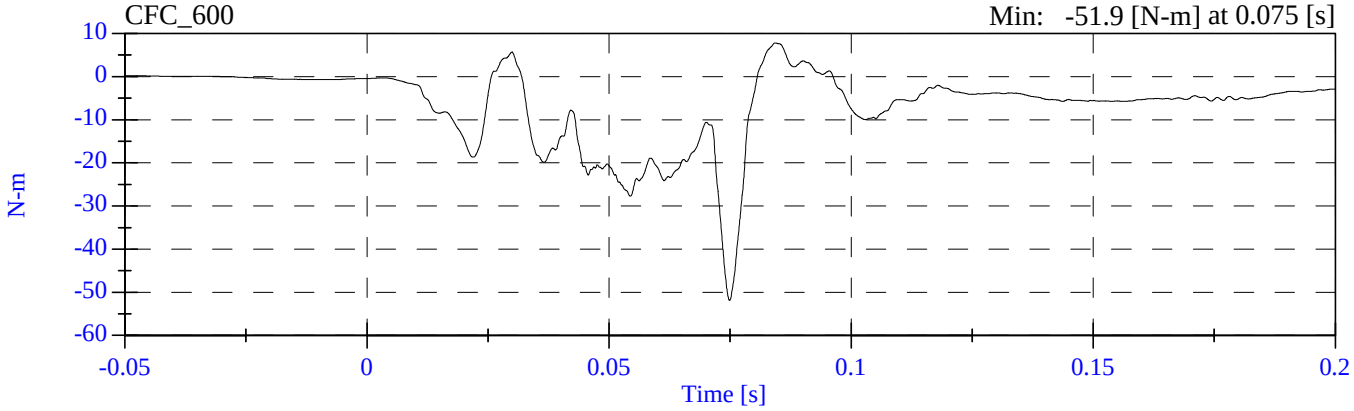
V1P1 Left Lower Tibia Fz
CFC_600
Max: 127.6 [N] at 0.177 [s]
Min: -1299.3 [N] at 0.038 [s]



V1P1 Left Lower Tibia Mx
CFC_600
Max: 13.0 [N-m] at 0.075 [s]
Min: -18.0 [N-m] at 0.083 [s]



V1P1 Left Lower Tibia My
CFC_600
Max: 7.8 [N-m] at 0.084 [s]
Min: -51.9 [N-m] at 0.075 [s]



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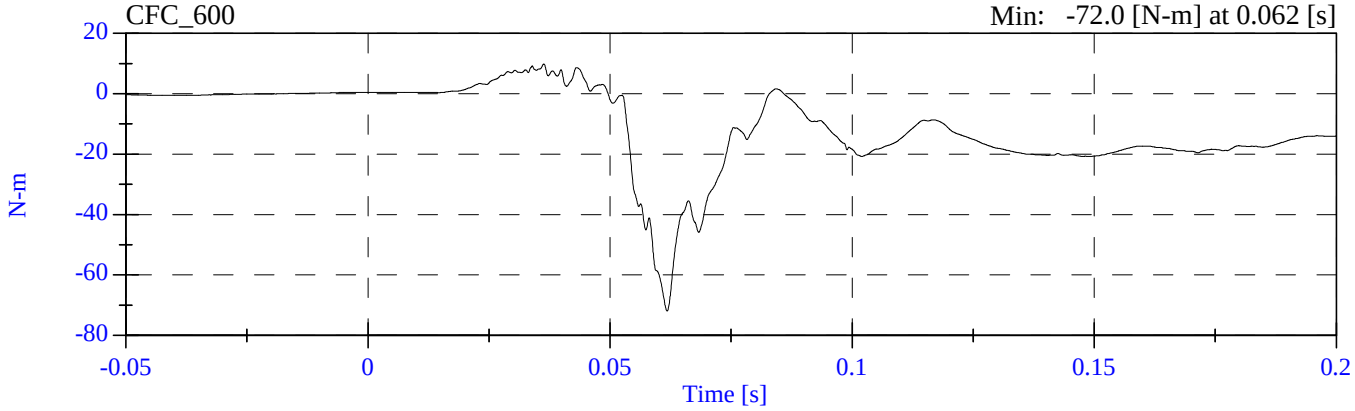
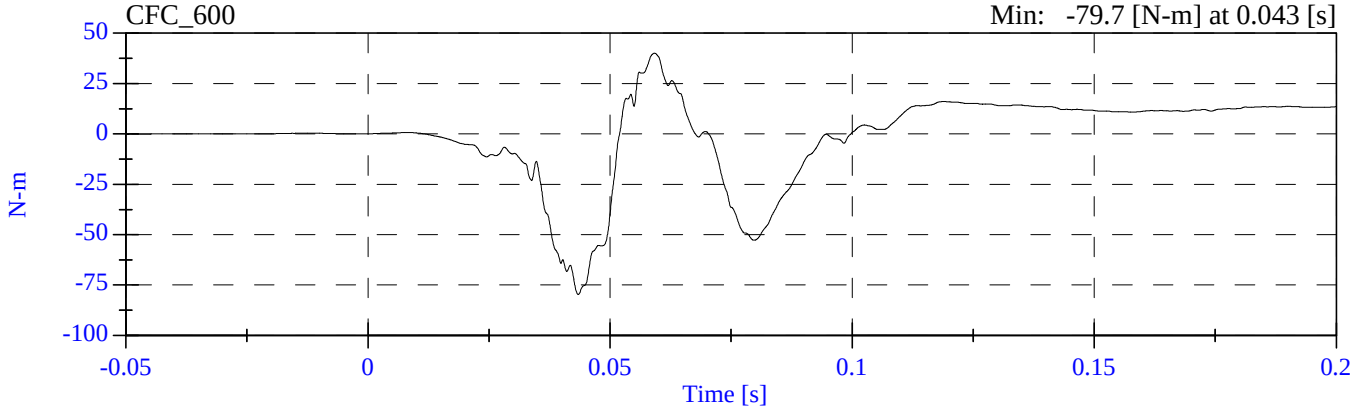
V1P1 Right Upper Tibia Mx
CFC_600
Max: 9.8 [N-m] at 0.036 [s]
Min: -72.0 [N-m] at 0.062 [s]



V1P1 Right Upper Tibia My
CFC_600
Max: 40.2 [N-m] at 0.059 [s]
Min: -79.7 [N-m] at 0.043 [s]



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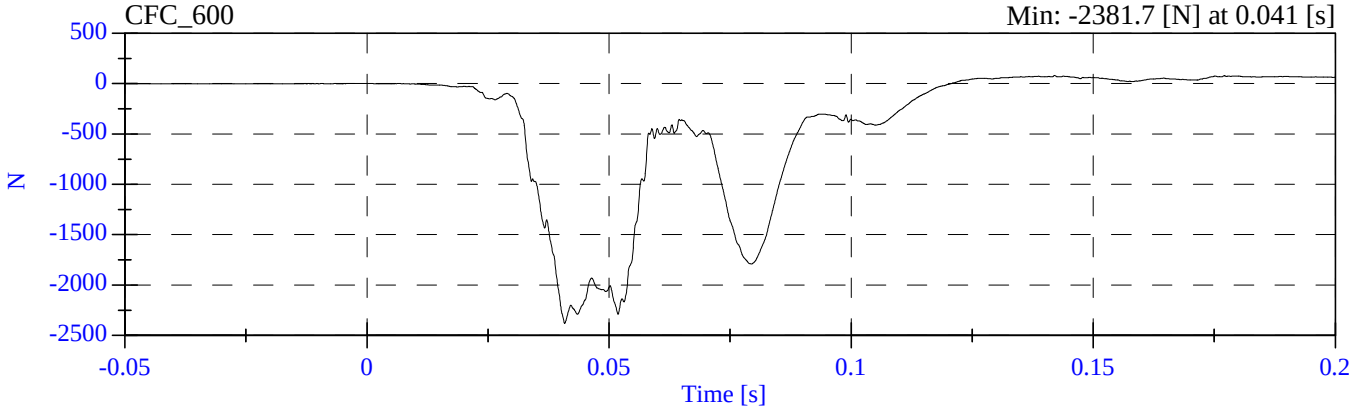
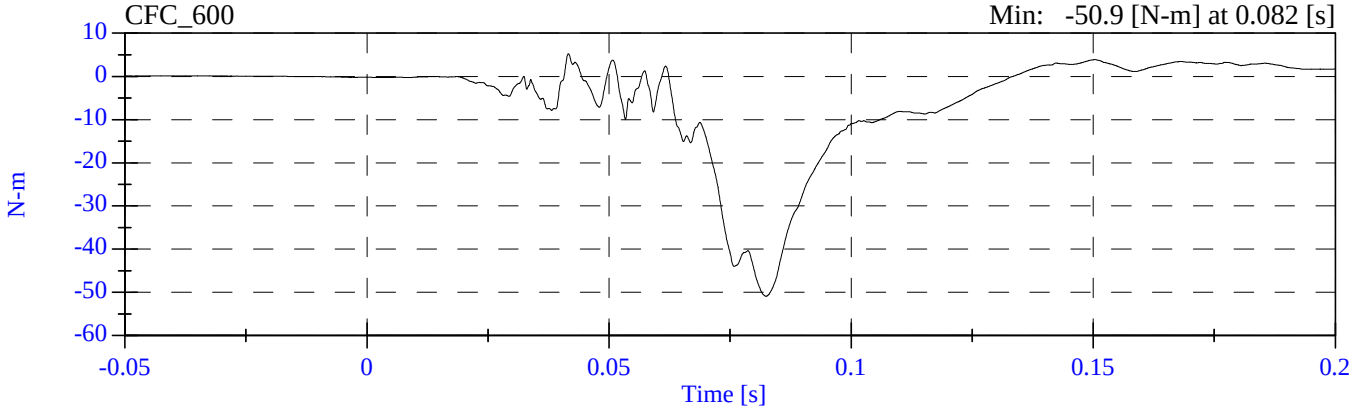
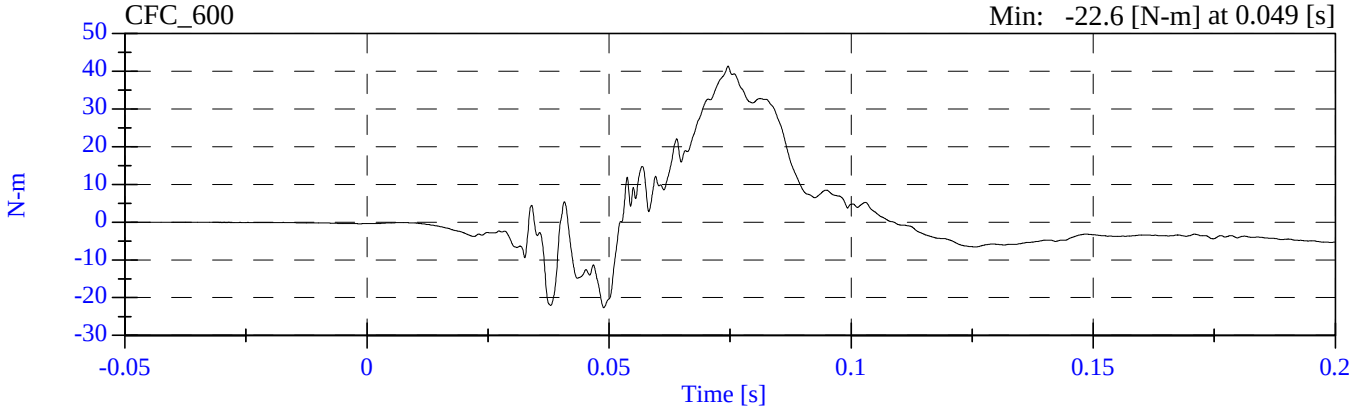
V1P1 Right Lower Tibia Fz
CFC_600
Max: 80.6 [N] at 0.142 [s]
Min: -2381.7 [N] at 0.041 [s]



V1P1 Right Lower Tibia Mx
CFC_600
Max: 5.2 [N-m] at 0.042 [s]
Min: -50.9 [N-m] at 0.082 [s]



V1P1 Right Lower Tibia My
CFC_600
Max: 41.4 [N-m] at 0.075 [s]
Min: -22.6 [N-m] at 0.049 [s]



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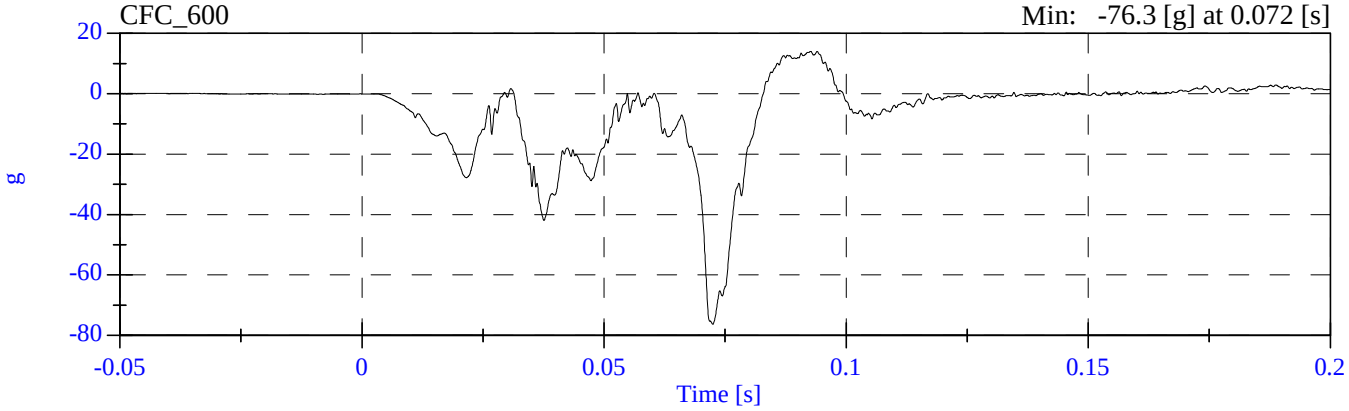
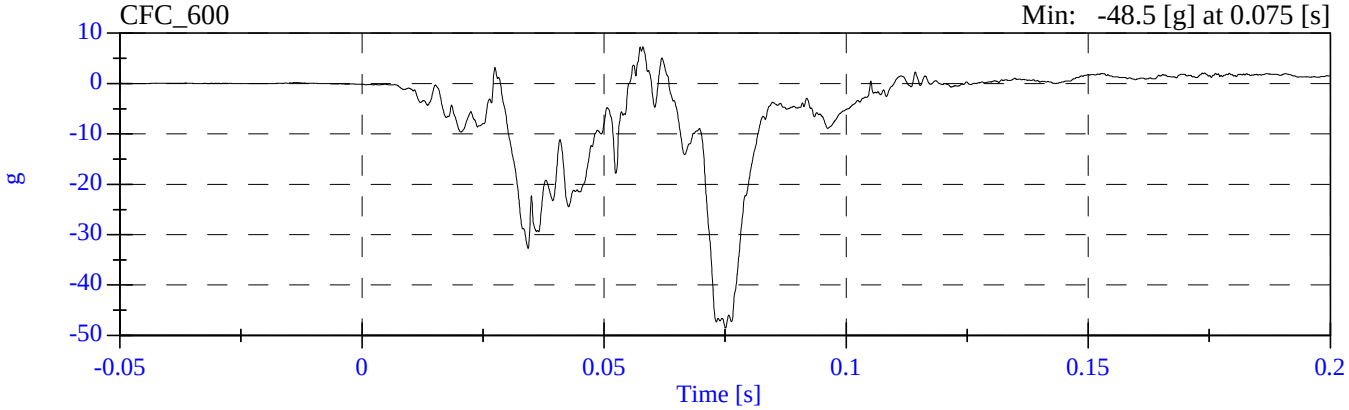
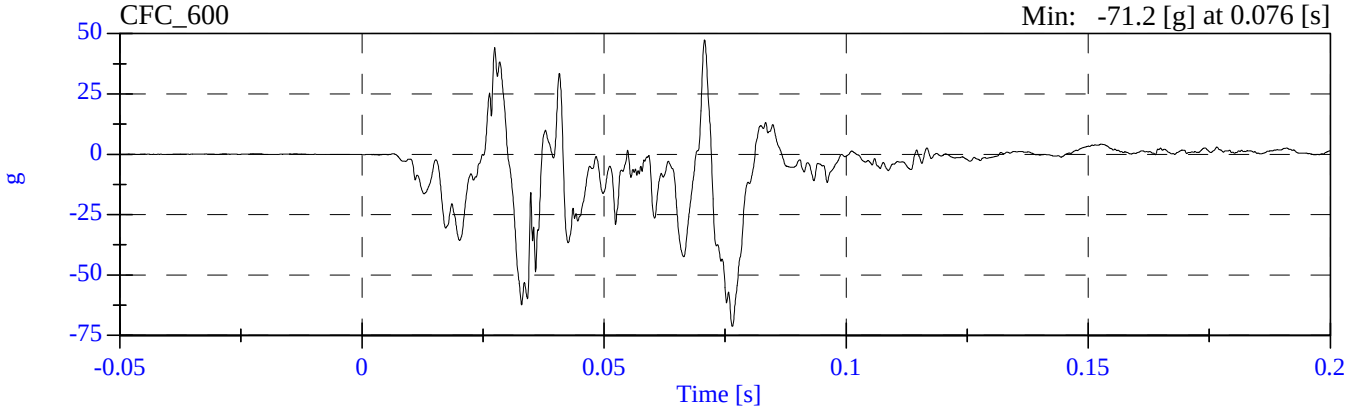
V1P1 Left Foot Aft x
CFC_600
Max: 14.0 [g] at 0.093 [s]
Min: -76.3 [g] at 0.072 [s]



V1P1 Left Foot Aft z
CFC_600
Max: 7.3 [g] at 0.058 [s]
Min: -48.5 [g] at 0.075 [s]



V1P1 Left Foot Fore z
CFC_600
Max: 47.4 [g] at 0.071 [s]
Min: -71.2 [g] at 0.076 [s]



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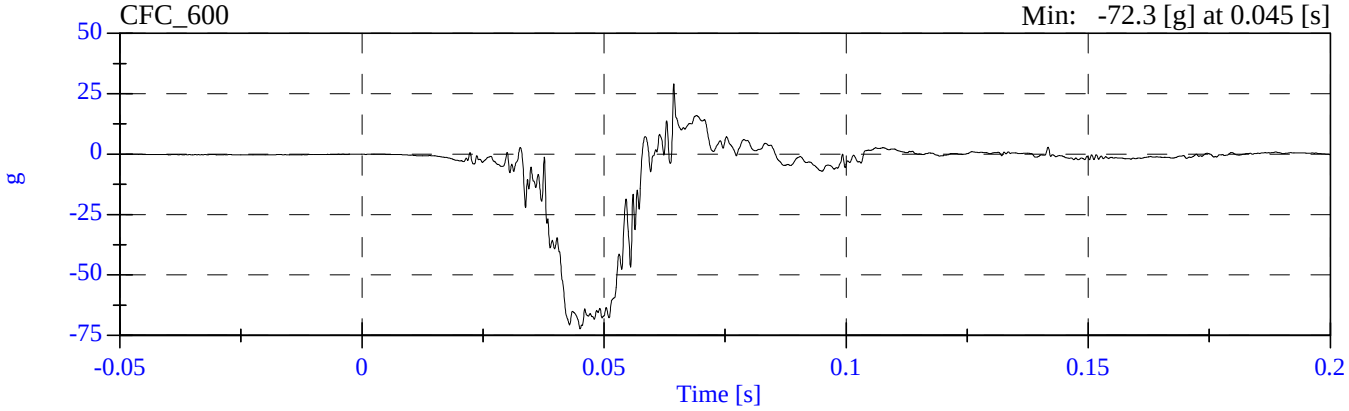
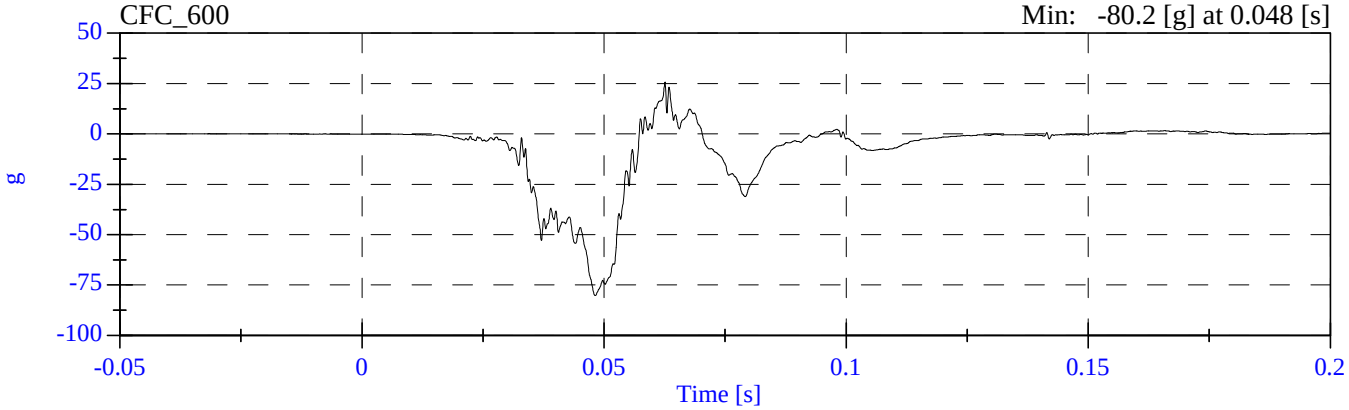
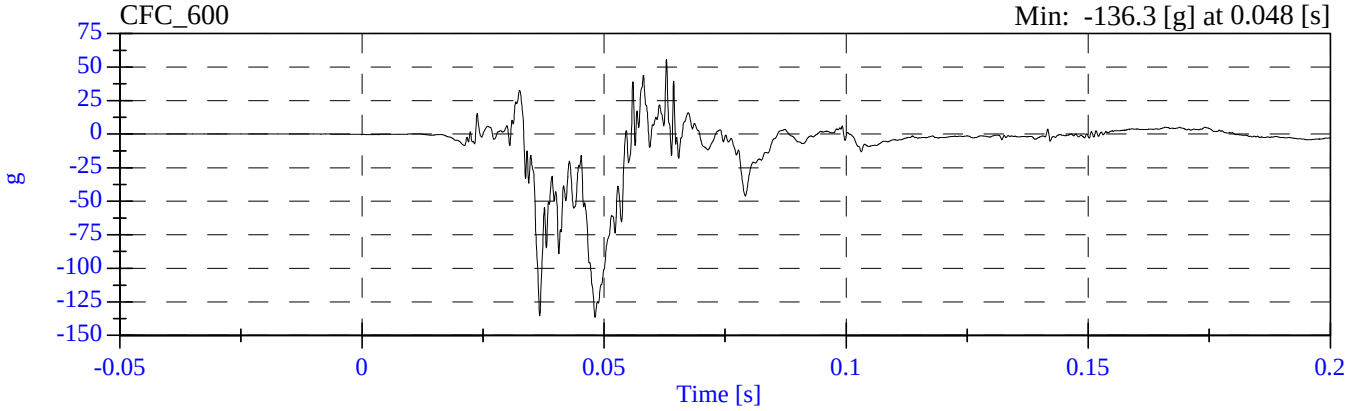
V1P1 Right Foot Aft x
CFC_600
Max: 29.2 [g] at 0.064 [s]
Min: -72.3 [g] at 0.045 [s]



V1P1 Right Foot Aft z
CFC_600
Max: 25.8 [g] at 0.063 [s]
Min: -80.2 [g] at 0.048 [s]



V1P1 Right Foot Fore z
CFC_600
Max: 55.8 [g] at 0.063 [s]
Min: -136.3 [g] at 0.048 [s]



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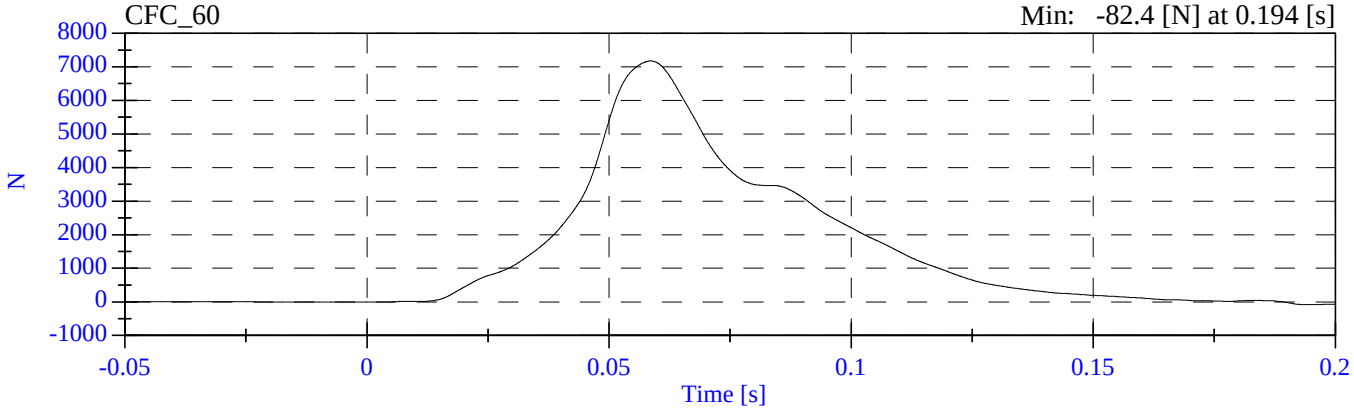
V1 Driver Lap Belt

Max: 7174.7 [N] at 0.059 [s]

CFC_60

Min: -82.4 [N] at 0.194 [s]

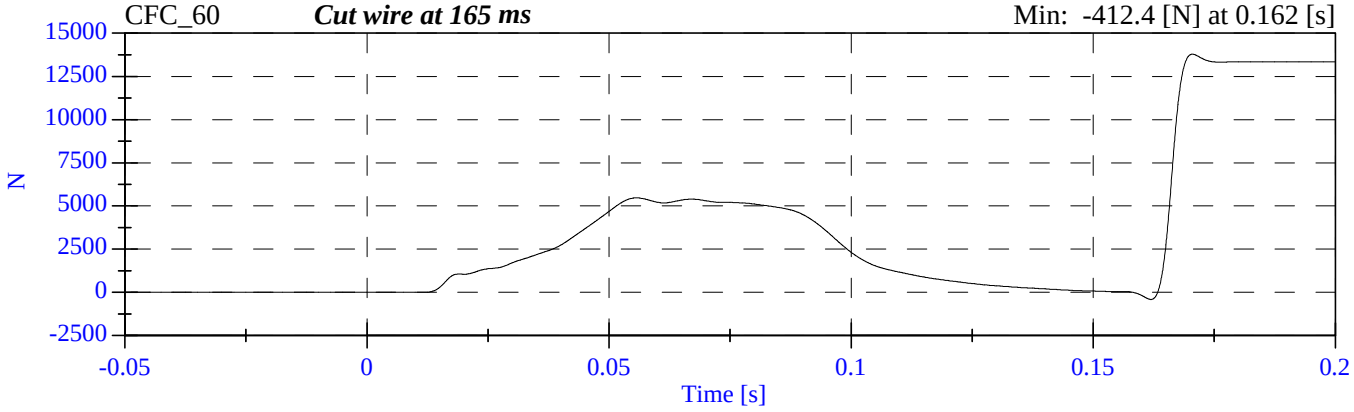


V1 Driver Torso Belt

Max: 13791.3 [N] at 0.170 [s]

CFC_60 ***Cut wire at 165 ms***

Min: -412.4 [N] at 0.162 [s]



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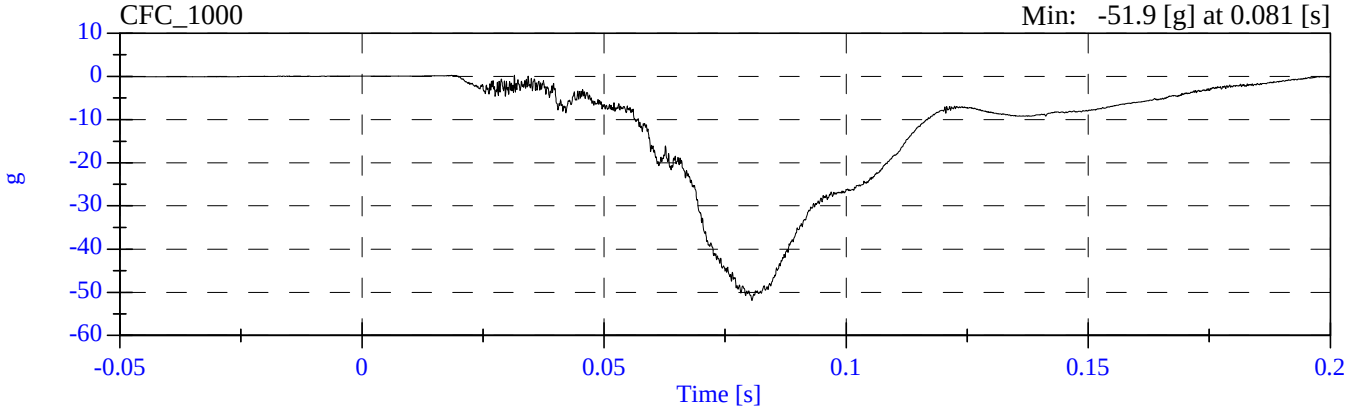
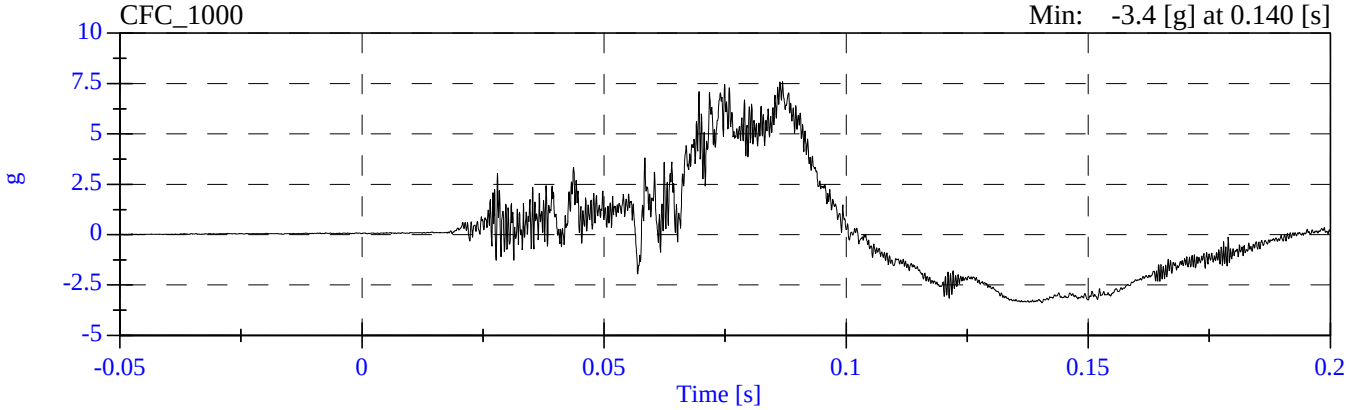
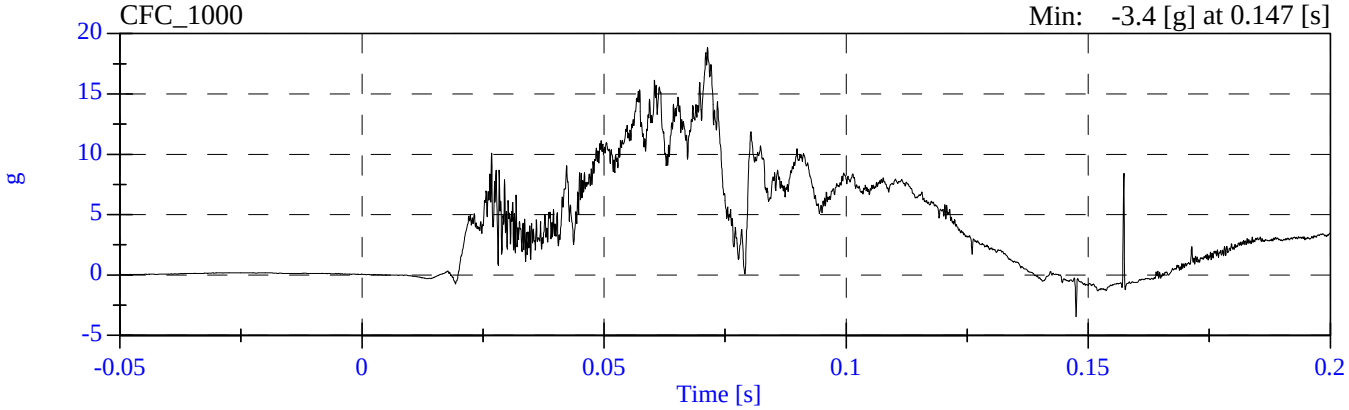
V1P2 Head CG x
CFC_1000
Max: 0.3 [g] at 0.018 [s]
Min: -51.9 [g] at 0.081 [s]



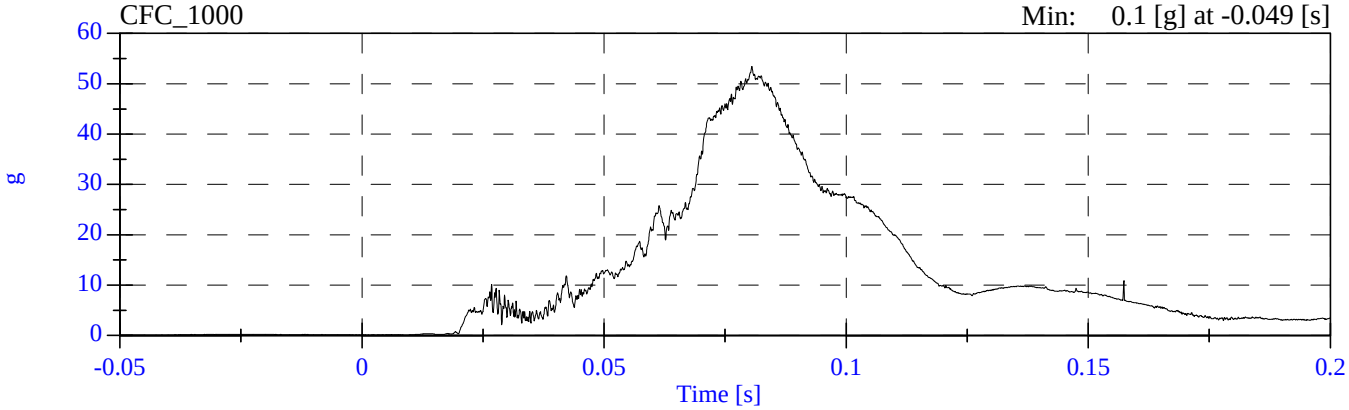
V1P2 Head CG y
CFC_1000
Max: 7.6 [g] at 0.087 [s]
Min: -3.4 [g] at 0.140 [s]



V1P2 Head CG z
CFC_1000
Max: 18.8 [g] at 0.071 [s]
Min: -3.4 [g] at 0.147 [s]



V1P2 Head CG Resultant
CFC_1000
Max: 53.4 [g] at 0.080 [s]
Min: 0.1 [g] at -0.049 [s]



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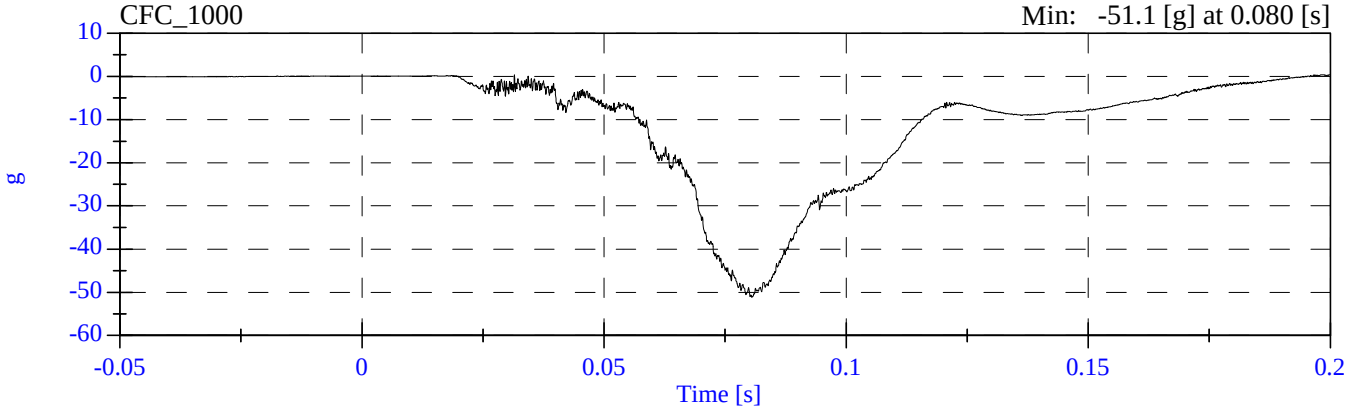
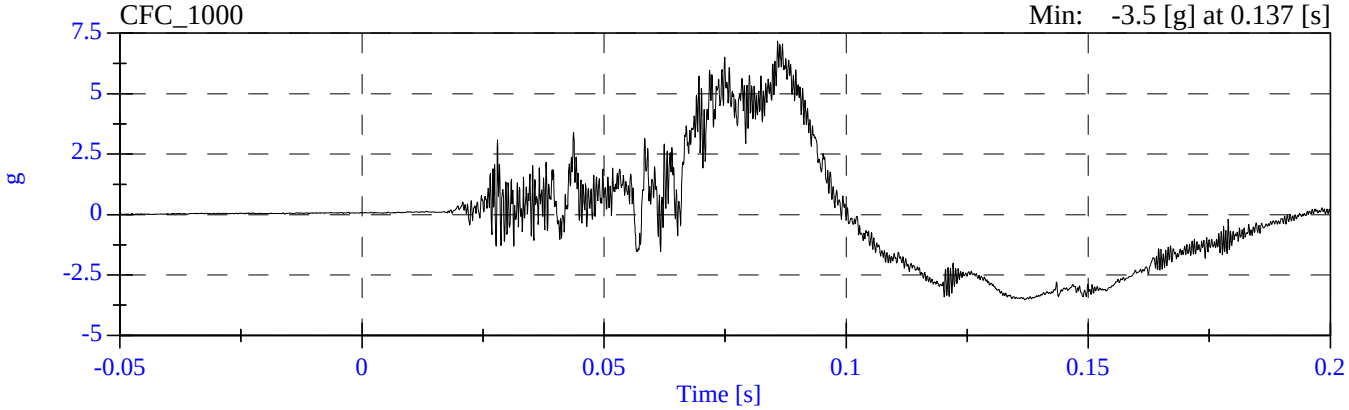
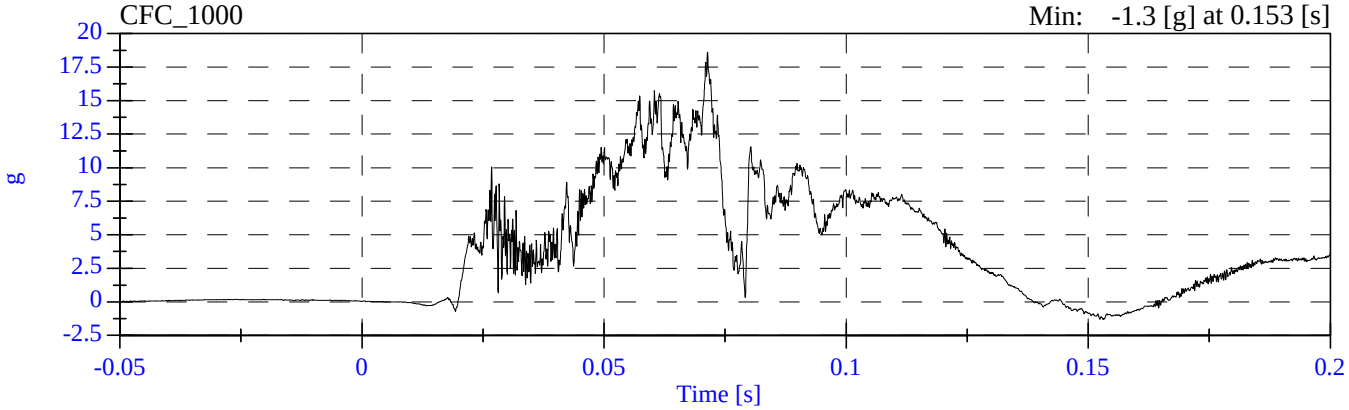
V1P2 Head CG Red x
CFC_1000
Max: 0.4 [g] at 0.197 [s]
Min: -51.1 [g] at 0.080 [s]



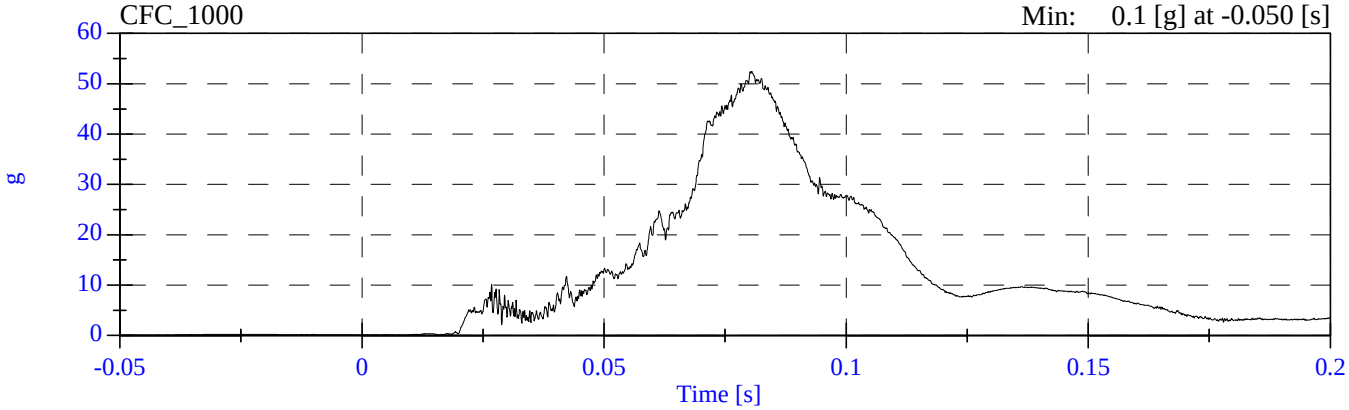
V1P2 Head CG Red y
CFC_1000
Max: 7.2 [g] at 0.086 [s]
Min: -3.5 [g] at 0.137 [s]



V1P2 Head CG Red z
CFC_1000
Max: 18.6 [g] at 0.071 [s]
Min: -1.3 [g] at 0.153 [s]



V1P2 Head CG Red Resultant
CFC_1000
Max: 52.5 [g] at 0.080 [s]
Min: 0.1 [g] at -0.050 [s]



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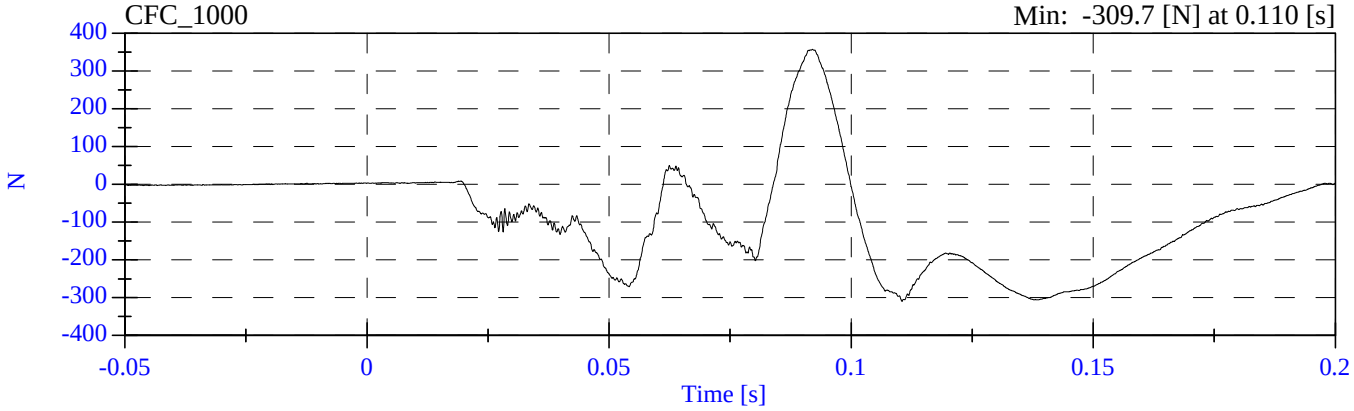
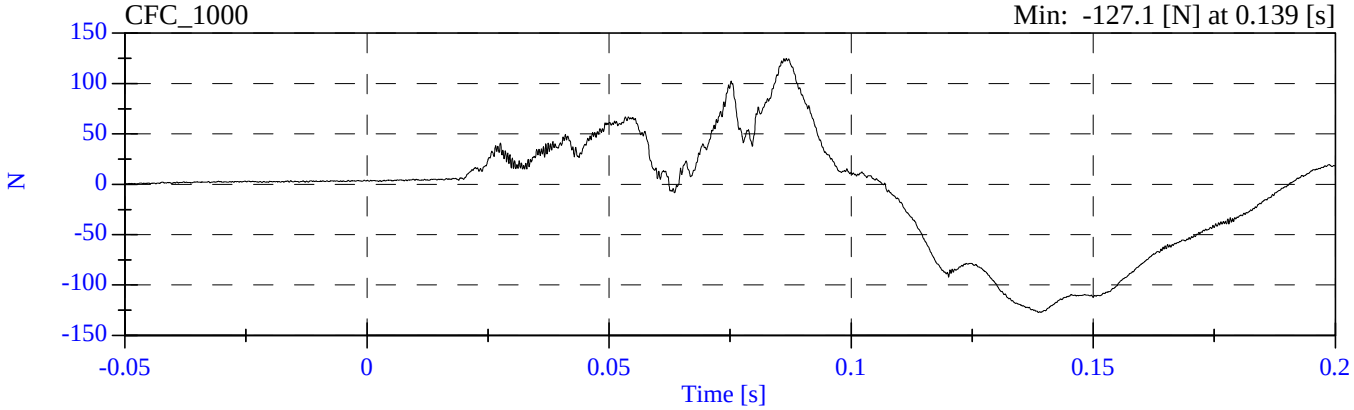
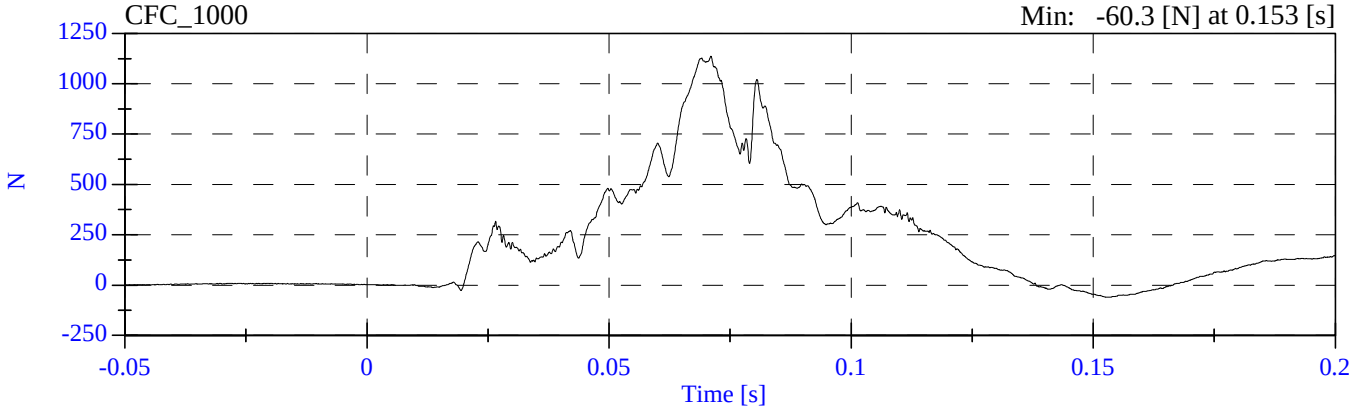
V1P2 Upper Neck Fx
CFC_1000
Max: 357.4 [N] at 0.092 [s]
Min: -309.7 [N] at 0.110 [s]



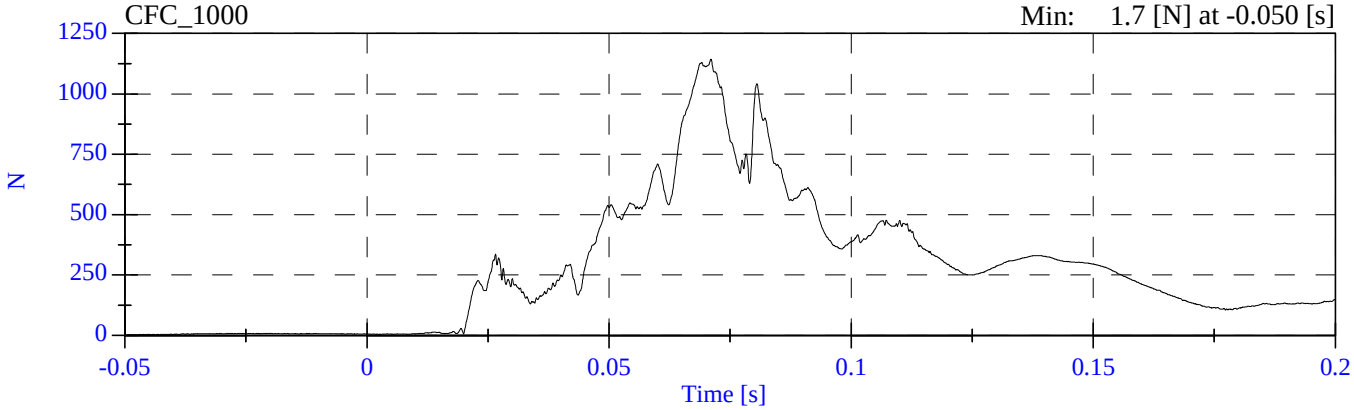
V1P2 Upper Neck Fy
CFC_1000
Max: 125.1 [N] at 0.087 [s]
Min: -127.1 [N] at 0.139 [s]



V1P2 Upper Neck Fz
CFC_1000
Max: 1136.7 [N] at 0.071 [s]
Min: -60.3 [N] at 0.153 [s]



V1P2 Upper Neck F Resultant
CFC_1000
Max: 1143.5 [N] at 0.071 [s]
Min: 1.7 [N] at -0.050 [s]



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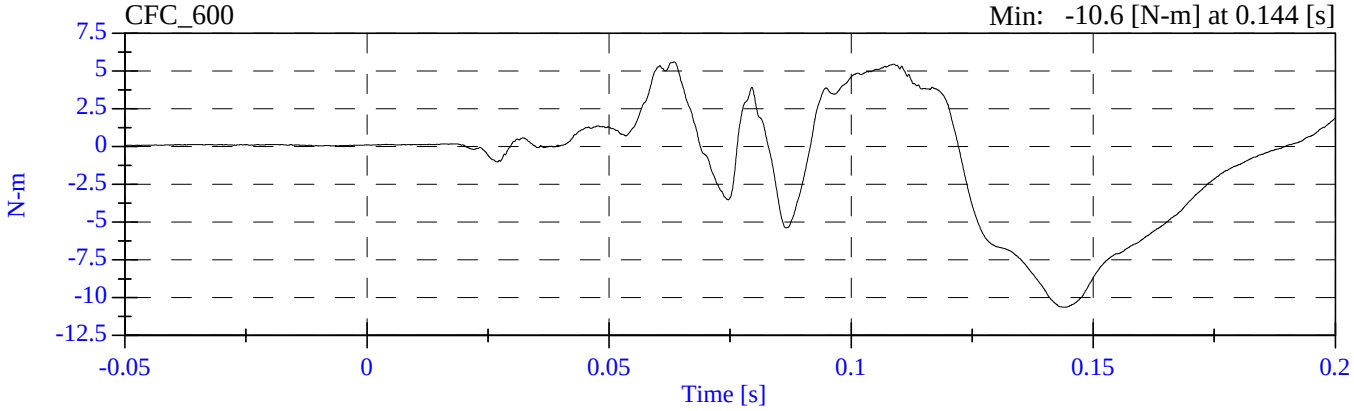
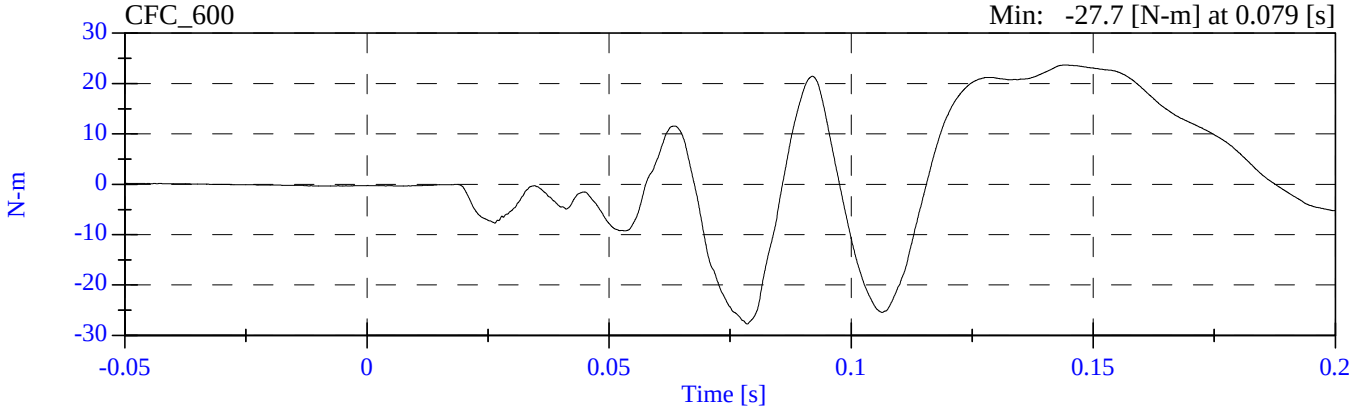
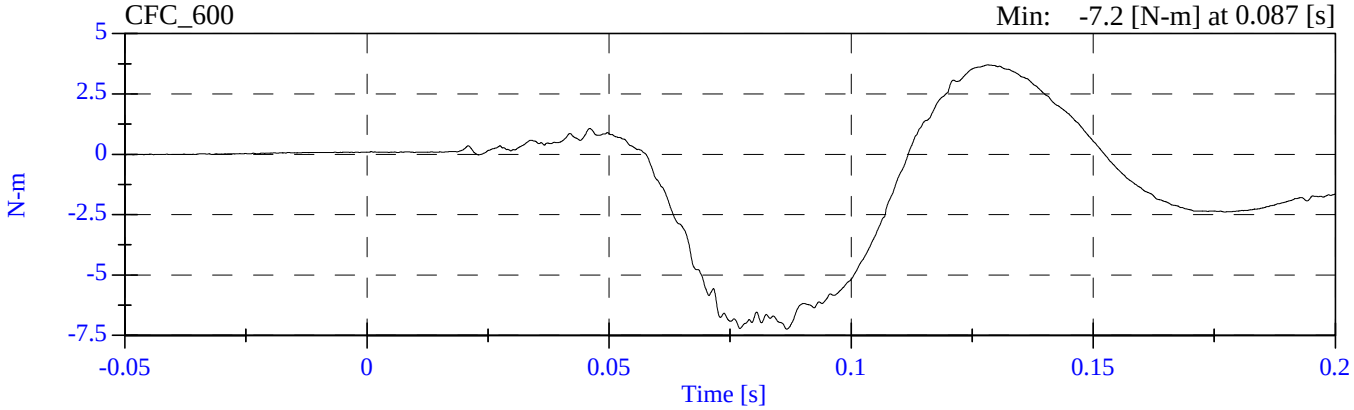
V1P2 Upper Neck Mx
CFC_600
Max: 5.6 [N-m] at 0.063 [s]
Min: -10.6 [N-m] at 0.144 [s]



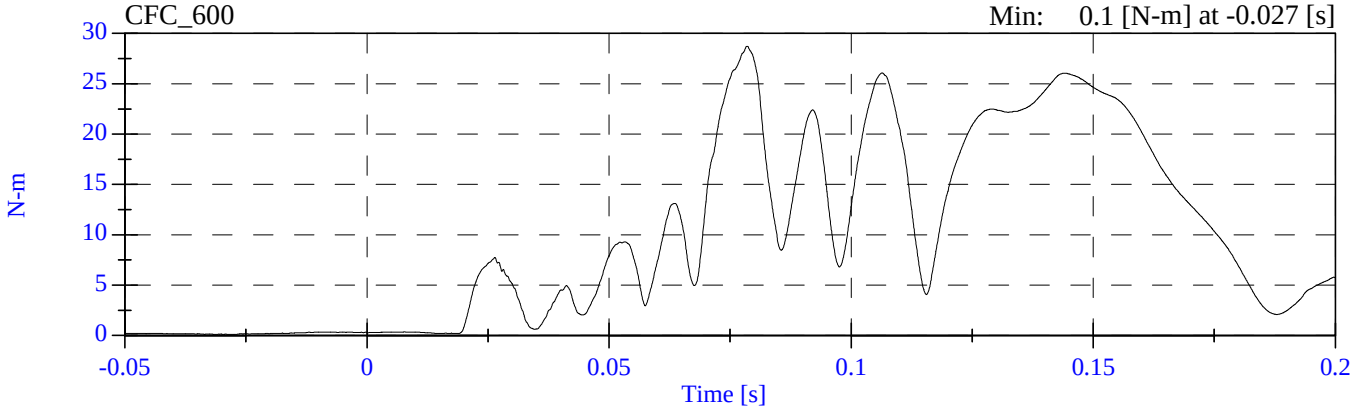
V1P2 Upper Neck My
CFC_600
Max: 23.7 [N-m] at 0.144 [s]
Min: -27.7 [N-m] at 0.079 [s]



V1P2 Upper Neck Mz
CFC_600
Max: 3.7 [N-m] at 0.128 [s]
Min: -7.2 [N-m] at 0.087 [s]



V1P2 Upper Neck M Resultant
CFC_600
Max: 28.7 [N-m] at 0.079 [s]
Min: 0.1 [N-m] at -0.027 [s]



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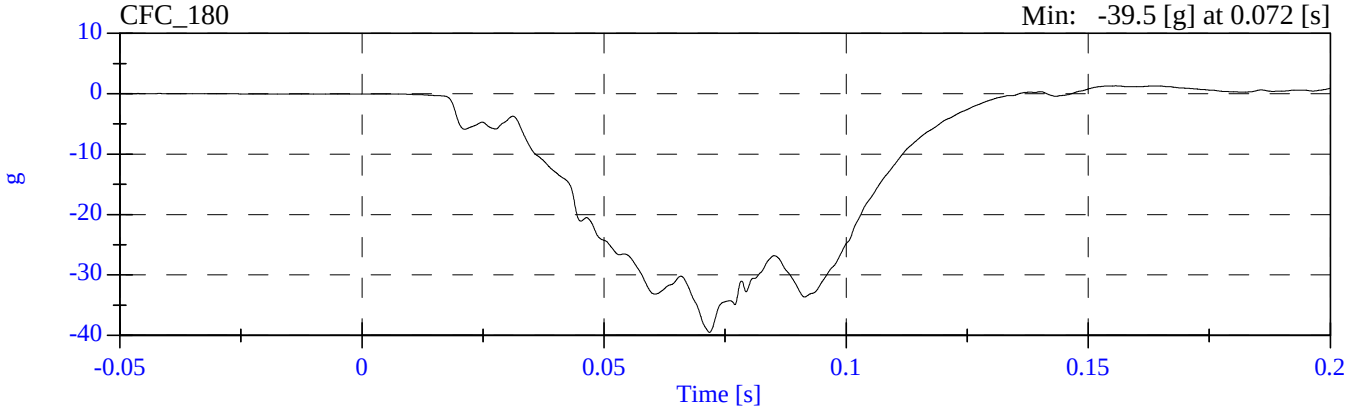
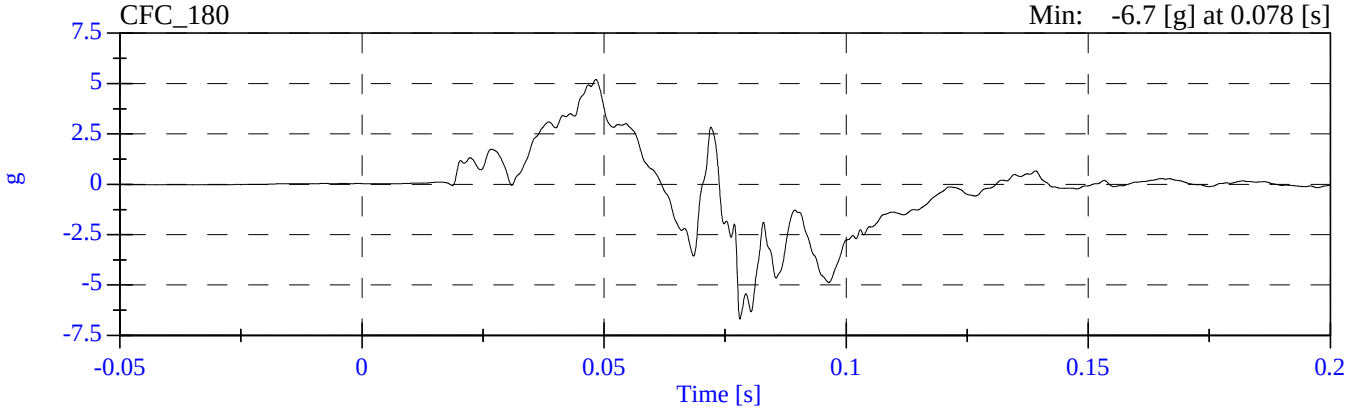
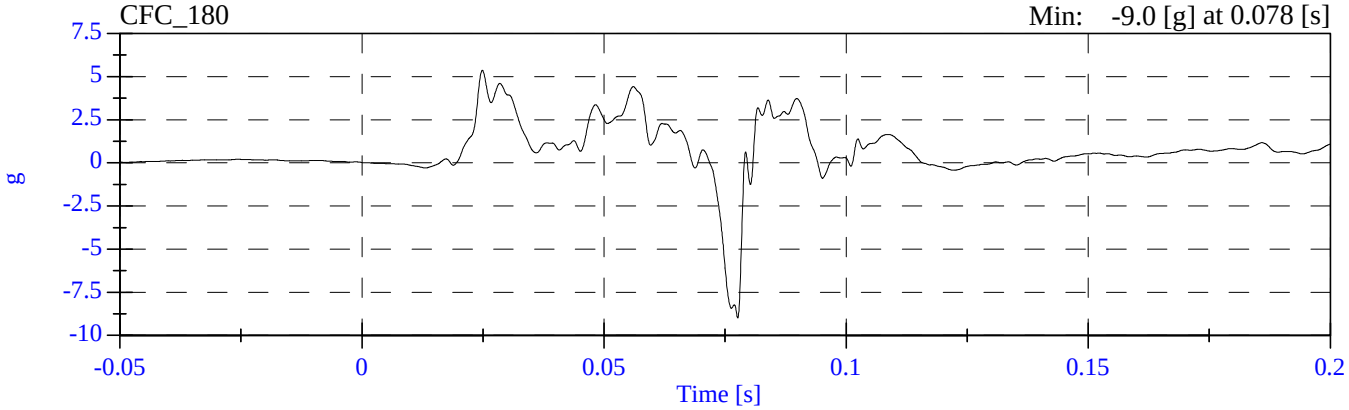
V1P2 Chest x
CFC_180
Max: 1.3 [g] at 0.156 [s]
Min: -39.5 [g] at 0.072 [s]



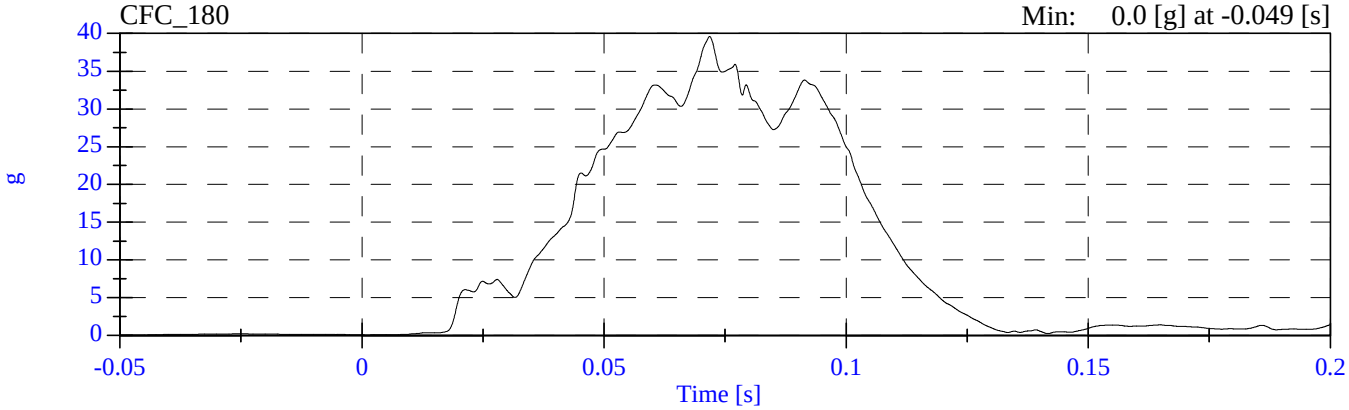
V1P2 Chest y
CFC_180
Max: 5.2 [g] at 0.048 [s]
Min: -6.7 [g] at 0.078 [s]



V1P2 Chest z
CFC_180
Max: 5.4 [g] at 0.025 [s]
Min: -9.0 [g] at 0.078 [s]



V1P2 Chest Resultant
CFC_180
Max: 39.6 [g] at 0.072 [s]
Min: 0.0 [g] at -0.049 [s]



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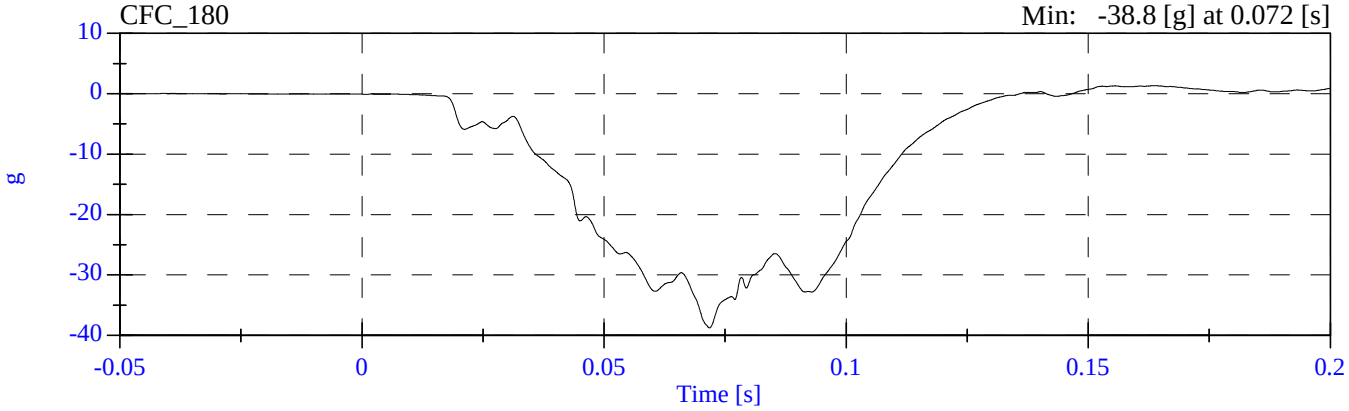
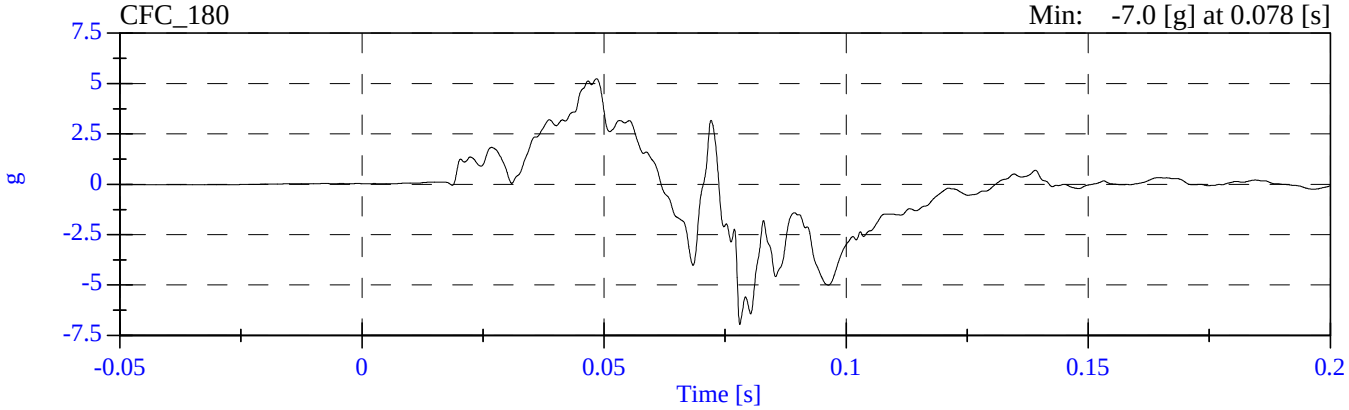
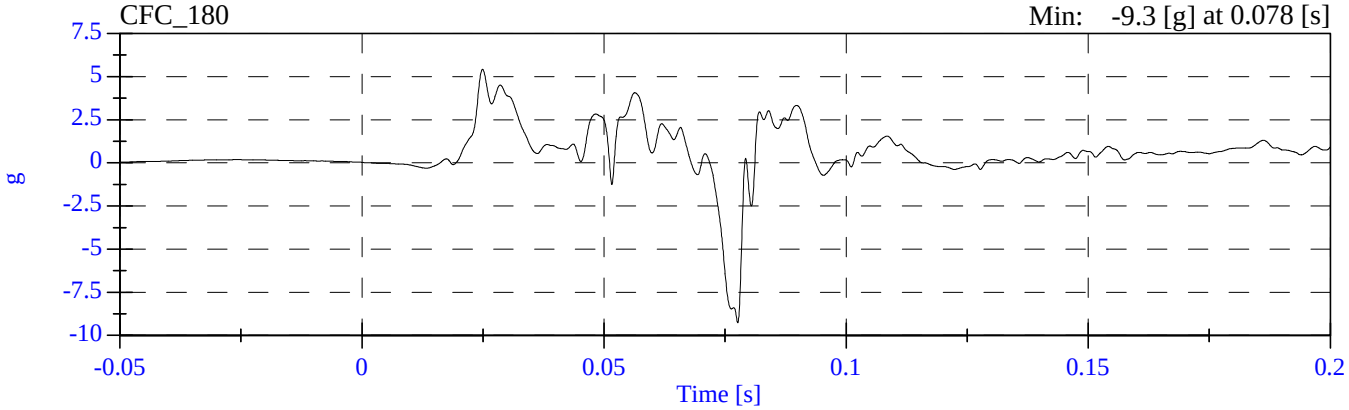
V1P2 Chest Red x
CFC_180
Max: 1.3 [g] at 0.164 [s]
Min: -38.8 [g] at 0.072 [s]



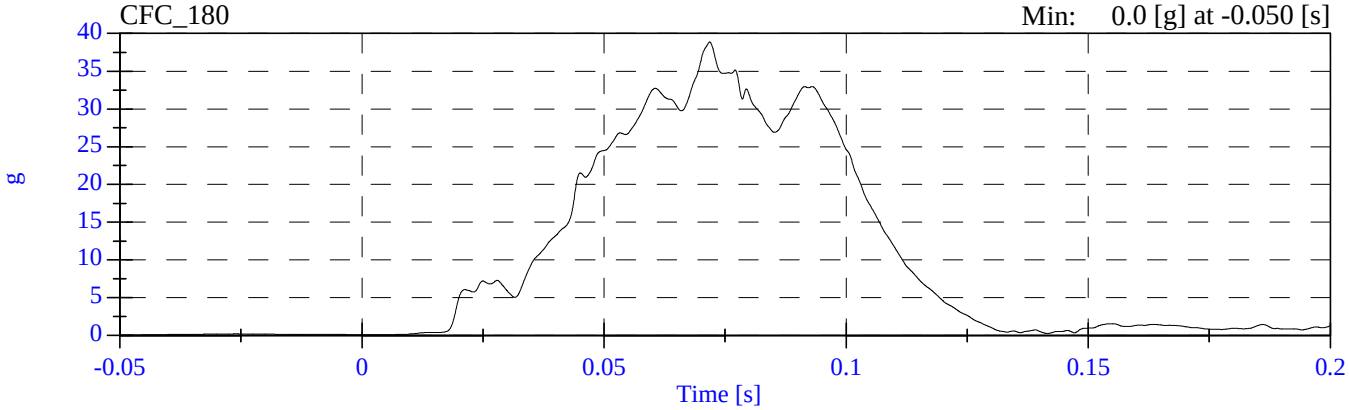
V1P2 Chest Red y
CFC_180
Max: 5.2 [g] at 0.048 [s]
Min: -7.0 [g] at 0.078 [s]



V1P2 Chest Red z
CFC_180
Max: 5.4 [g] at 0.025 [s]
Min: -9.3 [g] at 0.078 [s]



V1P2 Chest Red Resultant
CFC_180
Max: 38.9 [g] at 0.072 [s]
Min: 0.0 [g] at -0.050 [s]



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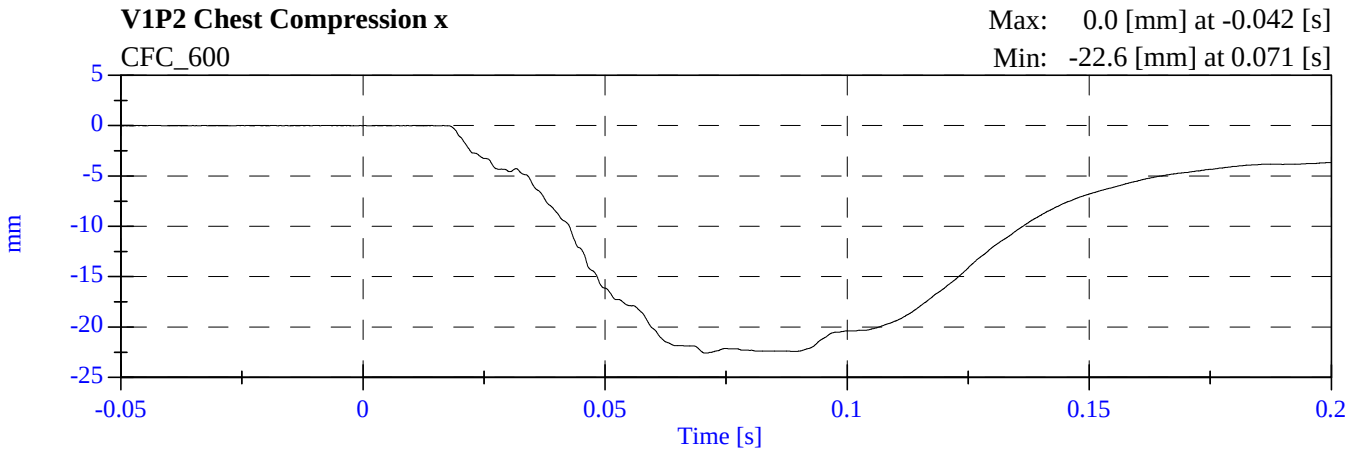

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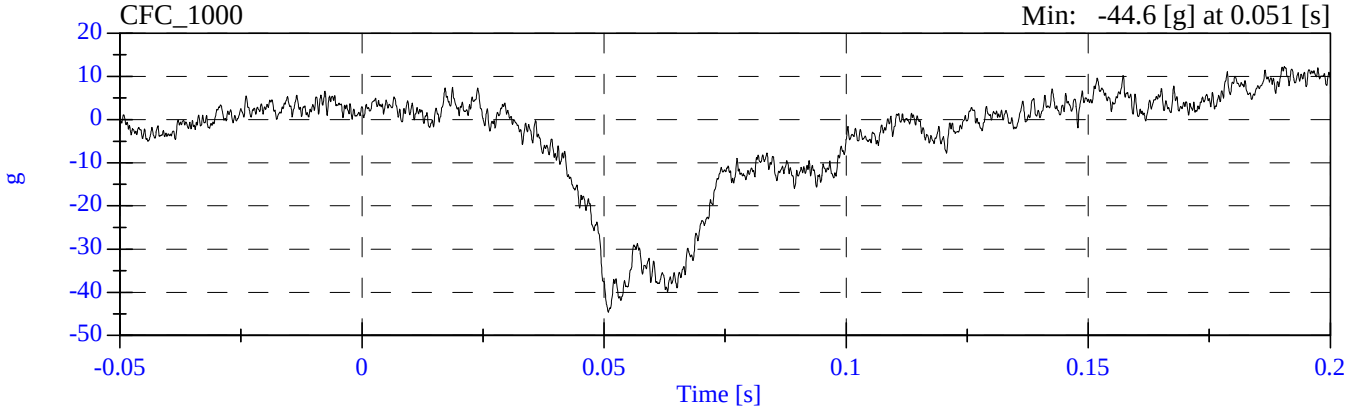
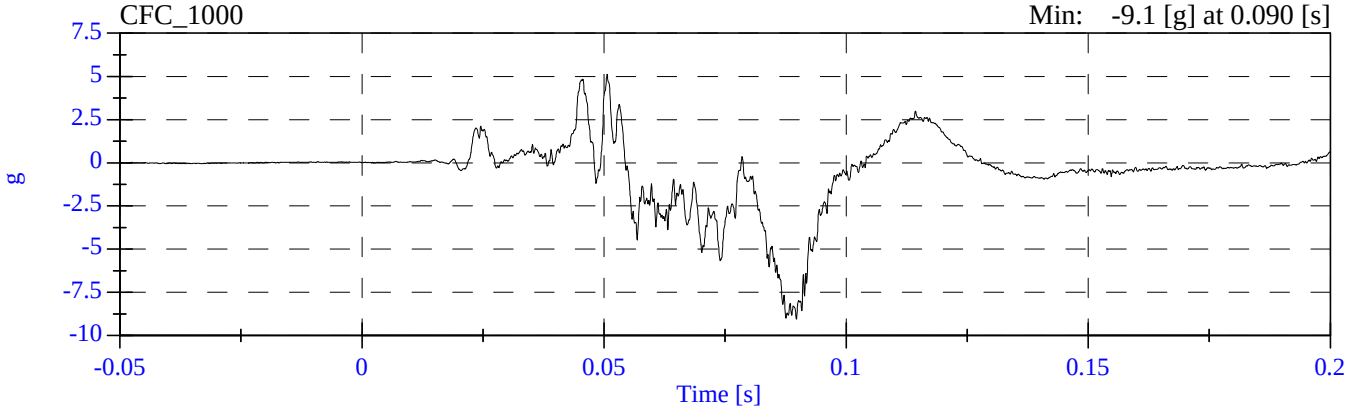
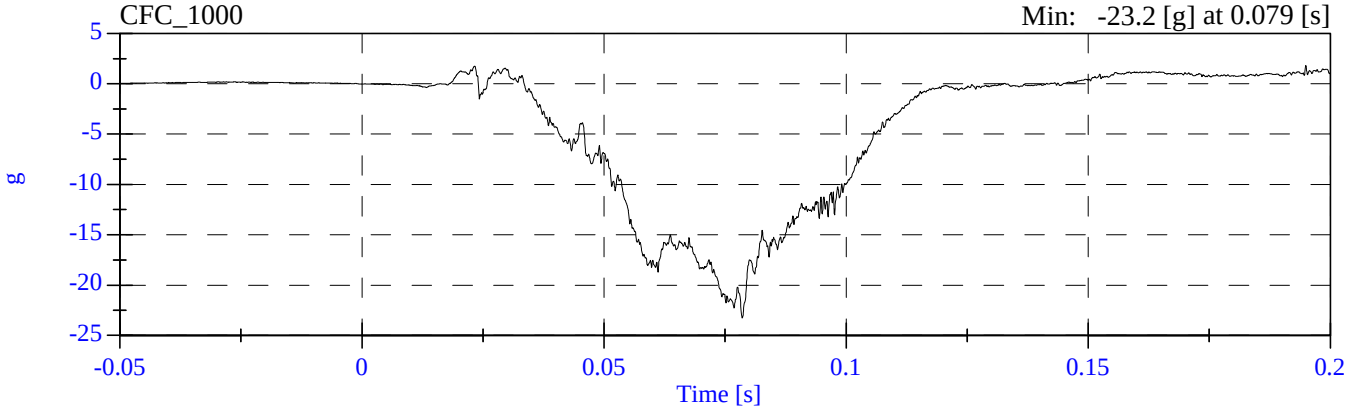
V1P2 Pelvic x
CFC_1000
Max: 12.3 [g] at 0.191 [s]
Min: -44.6 [g] at 0.051 [s]



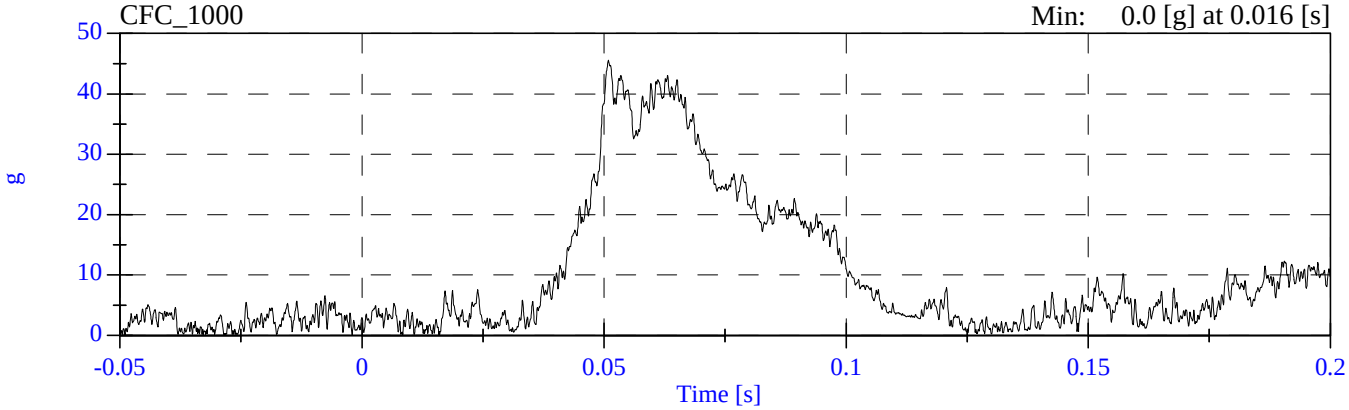
V1P2 Pelvic y
CFC_1000
Max: 5.1 [g] at 0.051 [s]
Min: -9.1 [g] at 0.090 [s]



V1P2 Pelvic z
CFC_1000
Max: 1.8 [g] at 0.195 [s]
Min: -23.2 [g] at 0.079 [s]



V1P2 Pelvic Resultant
CFC_1000
Max: 45.6 [g] at 0.051 [s]
Min: 0.0 [g] at 0.016 [s]



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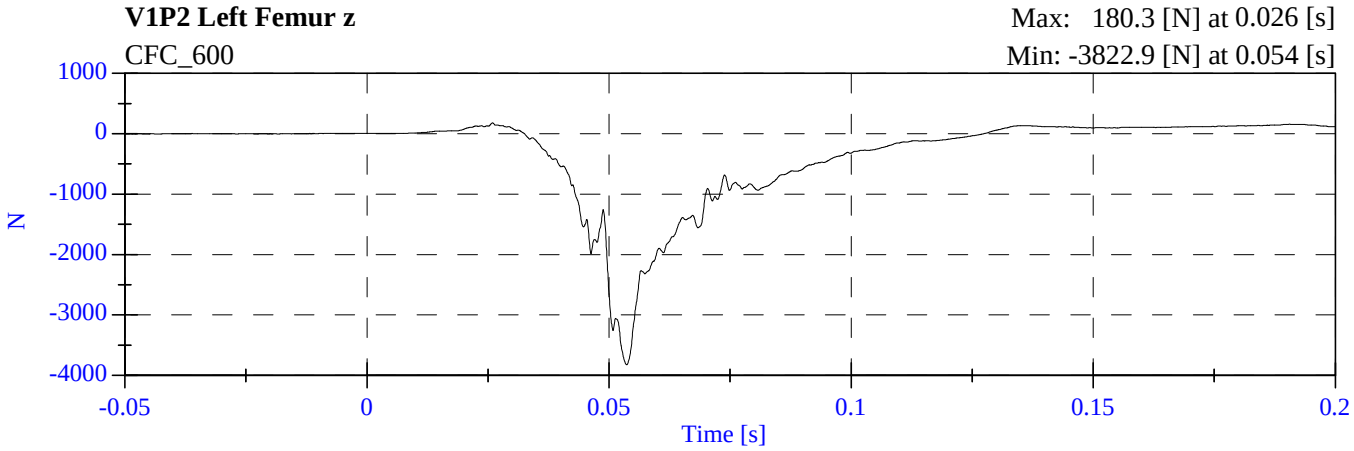

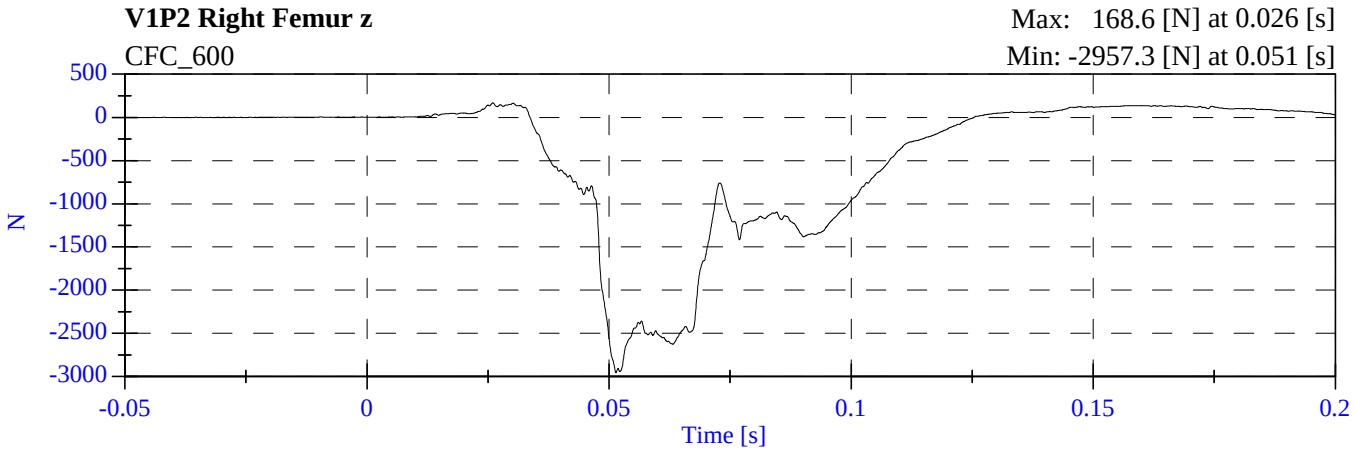

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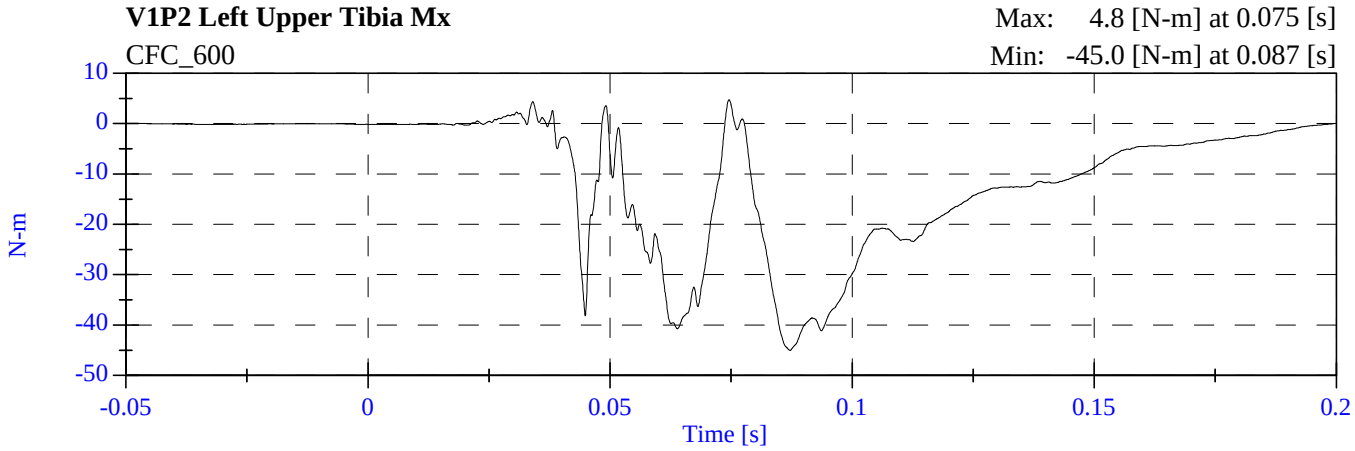

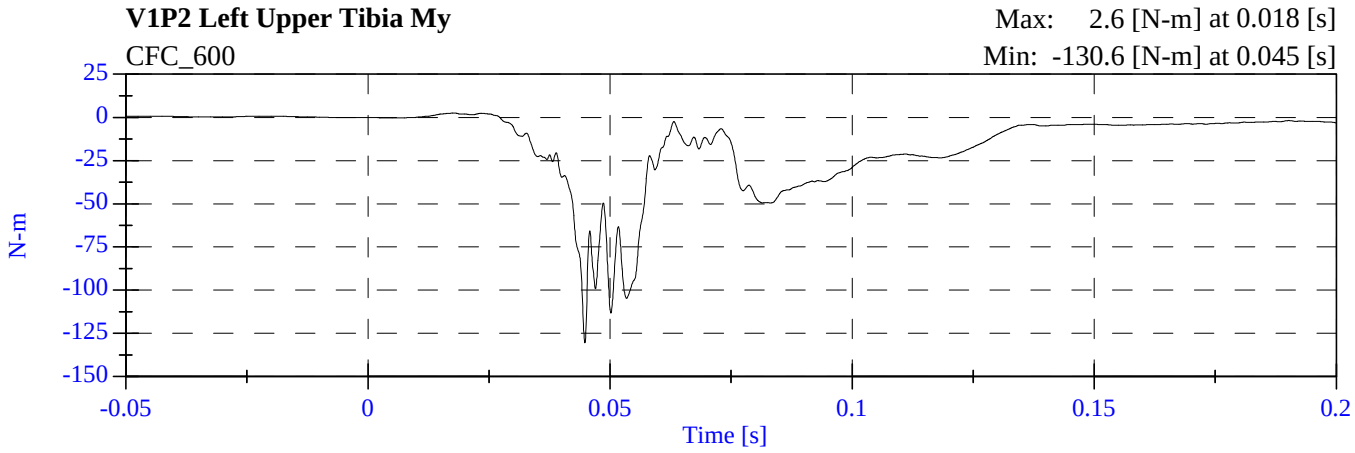

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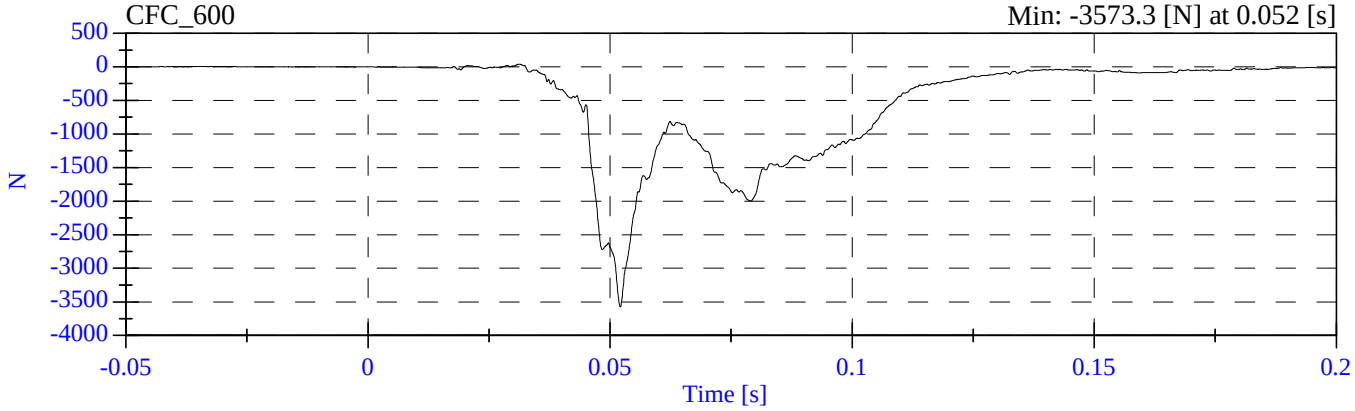
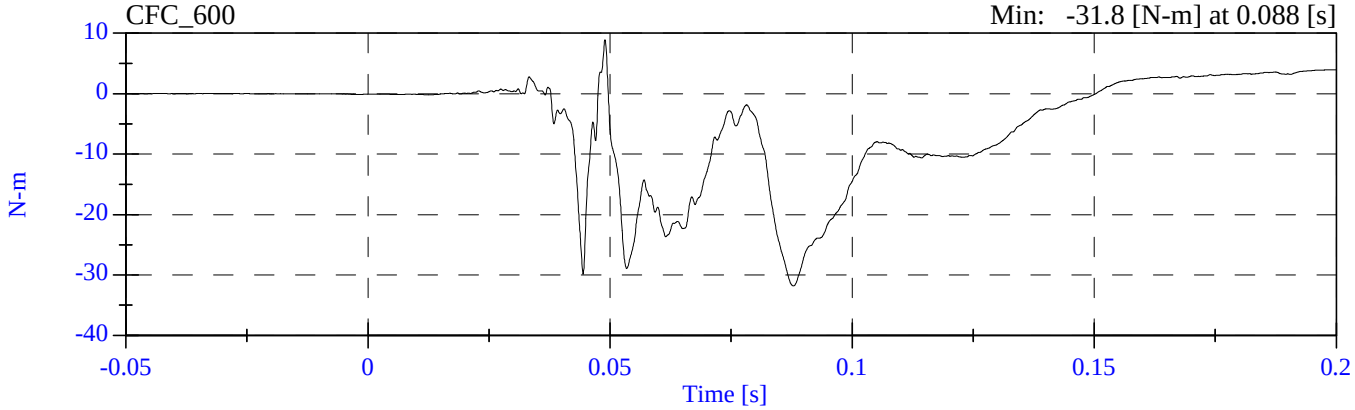
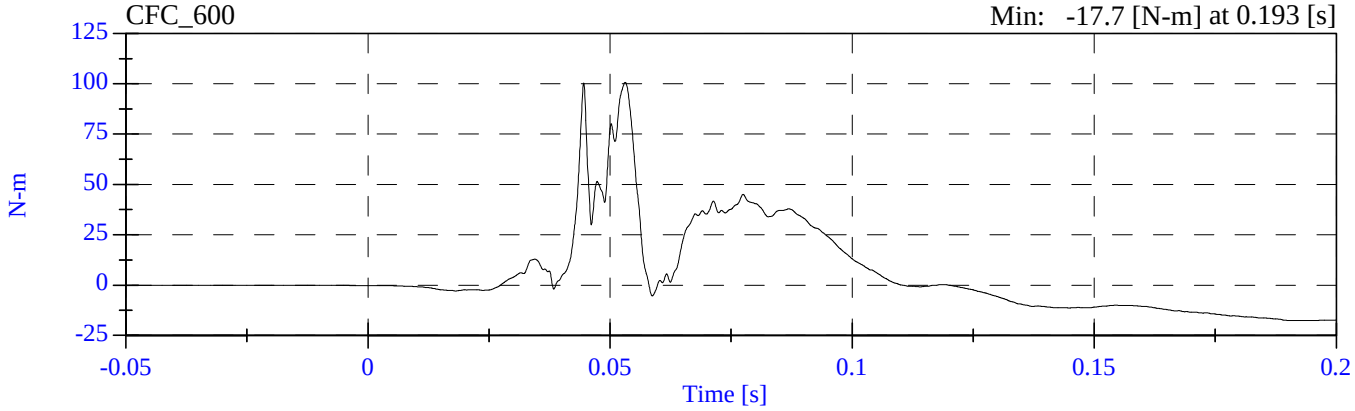
V1P2 Left Lower Tibia Fz
CFC_600
Max: 40.7 [N] at 0.031 [s]
Min: -3573.3 [N] at 0.052 [s]



V1P2 Left Lower Tibia Mx
CFC_600
Max: 8.9 [N-m] at 0.049 [s]
Min: -31.8 [N-m] at 0.088 [s]



V1P2 Left Lower Tibia My
CFC_600
Max: 100.8 [N-m] at 0.053 [s]
Min: -17.7 [N-m] at 0.193 [s]



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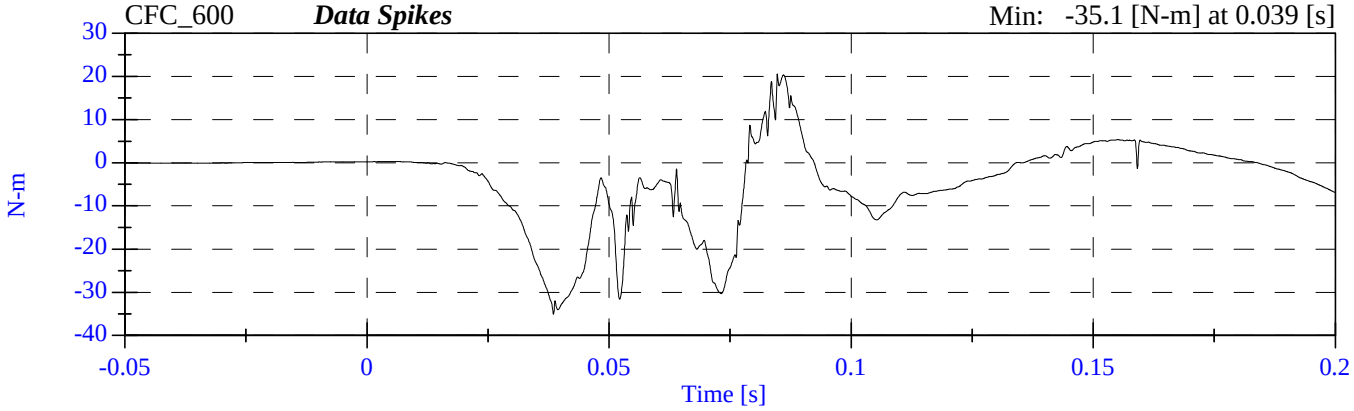
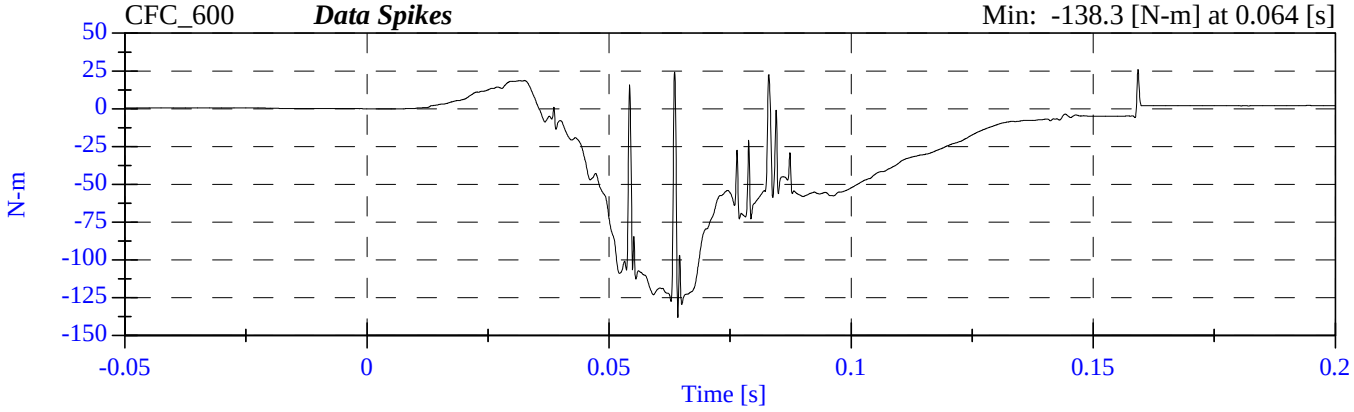
V1P2 Right Upper Tibia Mx Max: 20.6 [N-m] at 0.085 [s]
CFC_600 ***Data Spikes*** Min: -35.1 [N-m] at 0.039 [s]



V1P2 Right Upper Tibia My Max: 26.1 [N-m] at 0.159 [s]
CFC_600 ***Data Spikes*** Min: -138.3 [N-m] at 0.064 [s]



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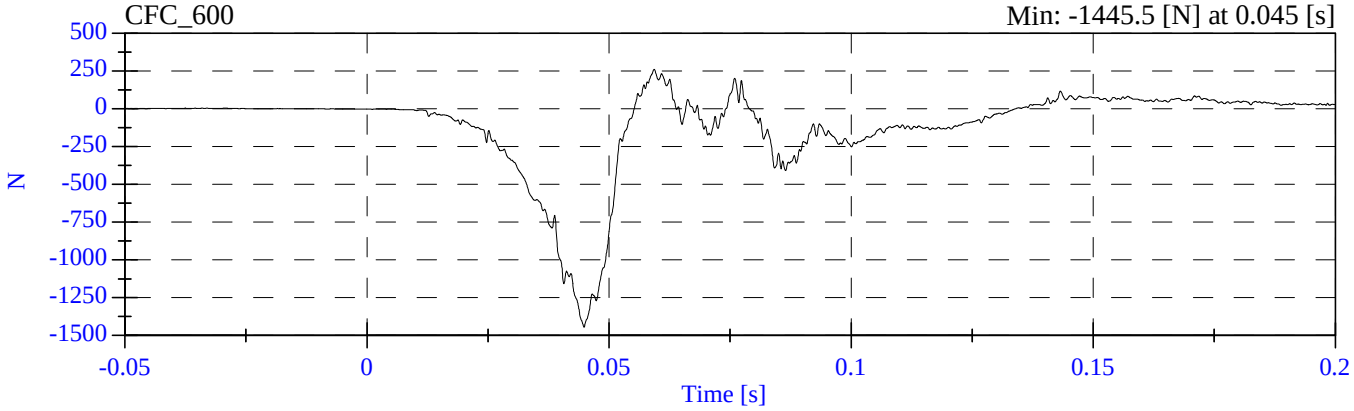
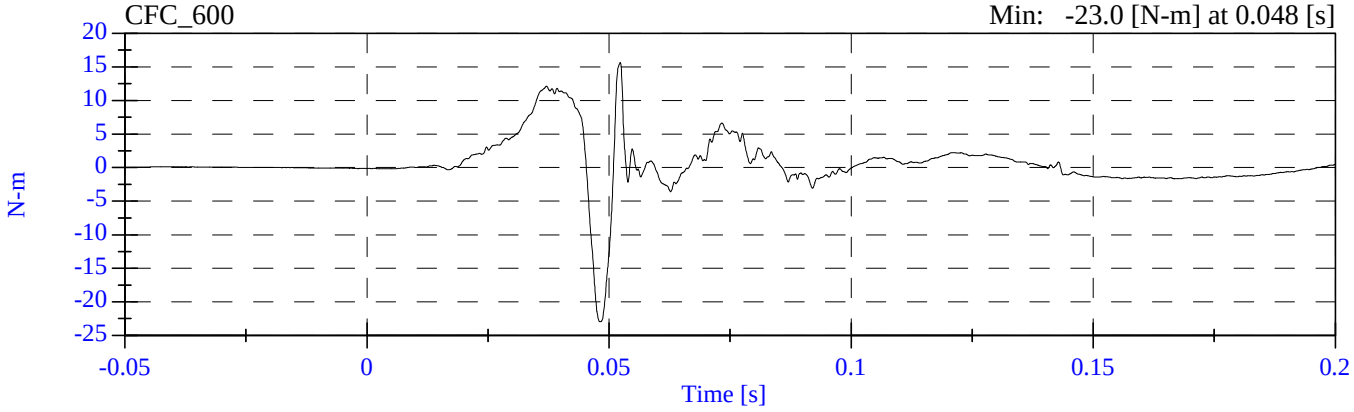
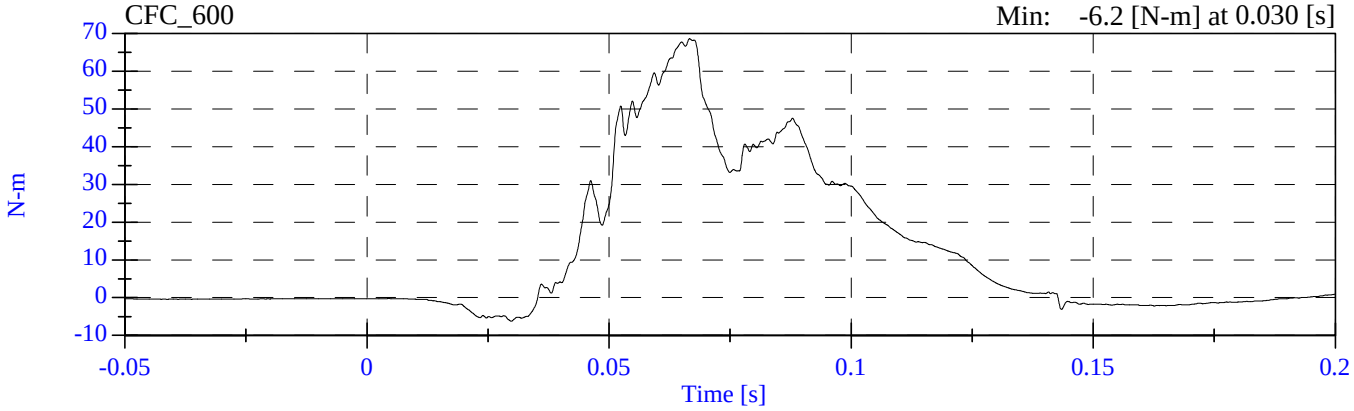
V1P2 Right Lower Tibia Fz
CFC_600
Max: 261.9 [N] at 0.059 [s]
Min: -1445.5 [N] at 0.045 [s]



V1P2 Right Lower Tibia Mx
CFC_600
Max: 15.7 [N-m] at 0.052 [s]
Min: -23.0 [N-m] at 0.048 [s]



V1P2 Right Lower Tibia My
CFC_600
Max: 68.6 [N-m] at 0.067 [s]
Min: -6.2 [N-m] at 0.030 [s]



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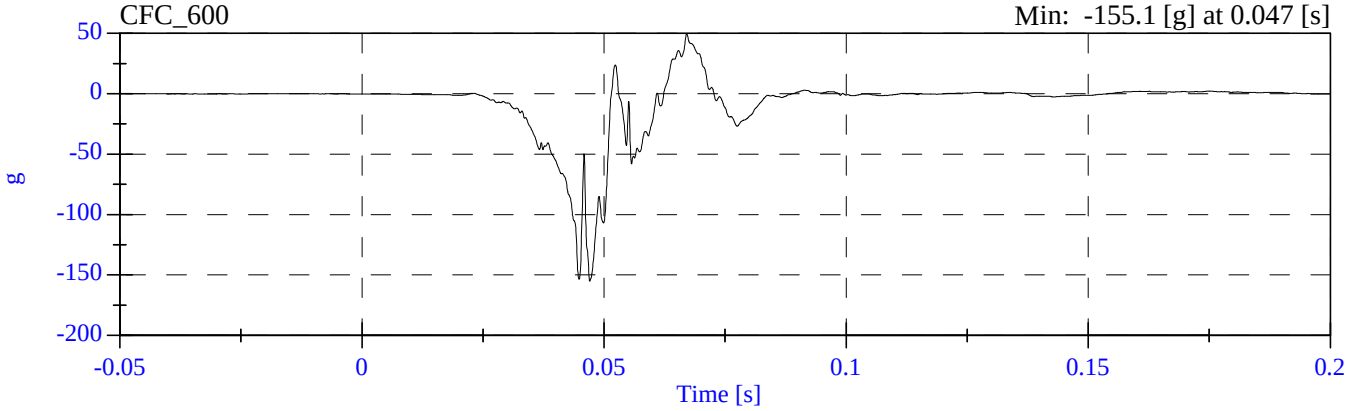
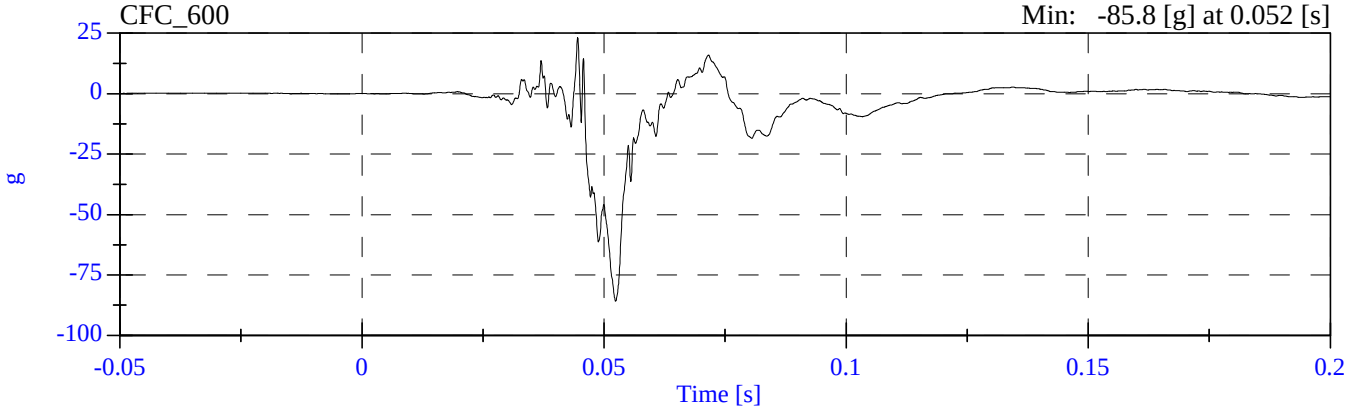
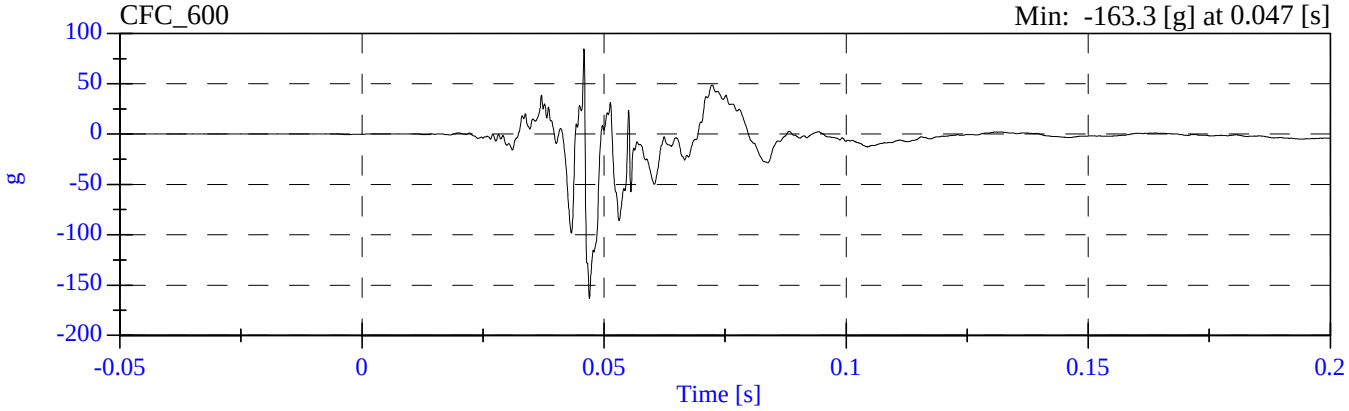
V1P2 Left Foot Aft x
CFC_600
Max: 49.6 [g] at 0.067 [s]
Min: -155.1 [g] at 0.047 [s]



V1P2 Left Foot Aft z
CFC_600
Max: 23.3 [g] at 0.045 [s]
Min: -85.8 [g] at 0.052 [s]



V1P2 Left Foot Fore z
CFC_600
Max: 84.9 [g] at 0.046 [s]
Min: -163.3 [g] at 0.047 [s]



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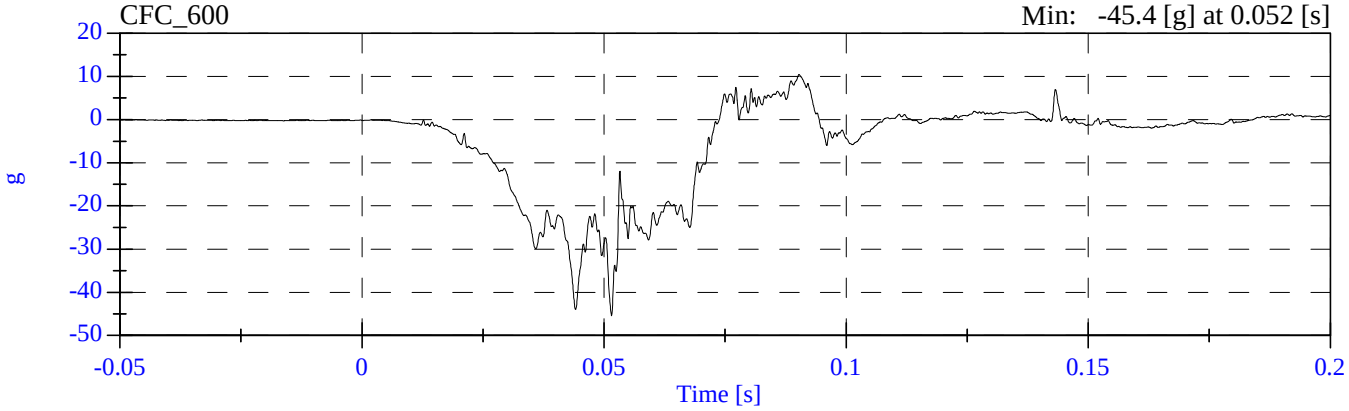
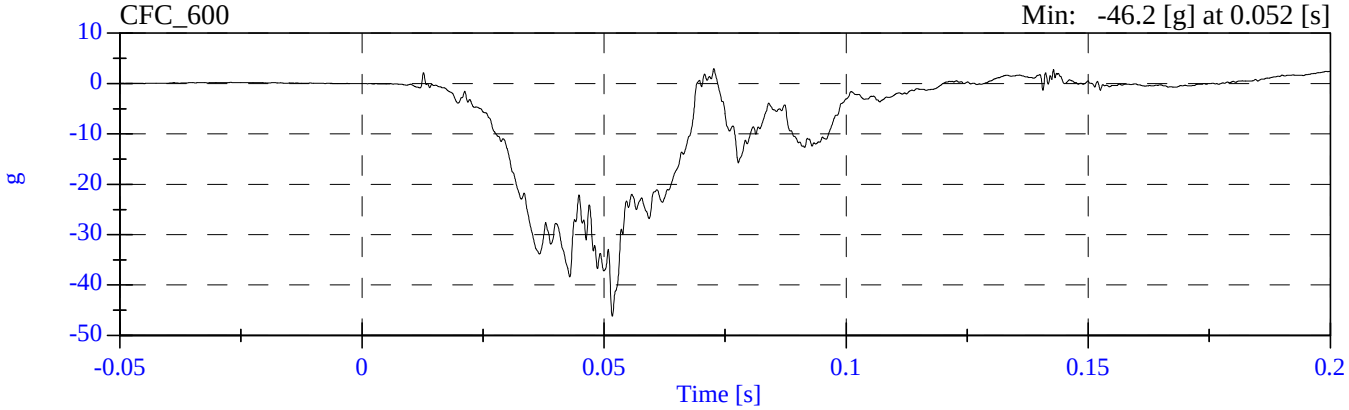
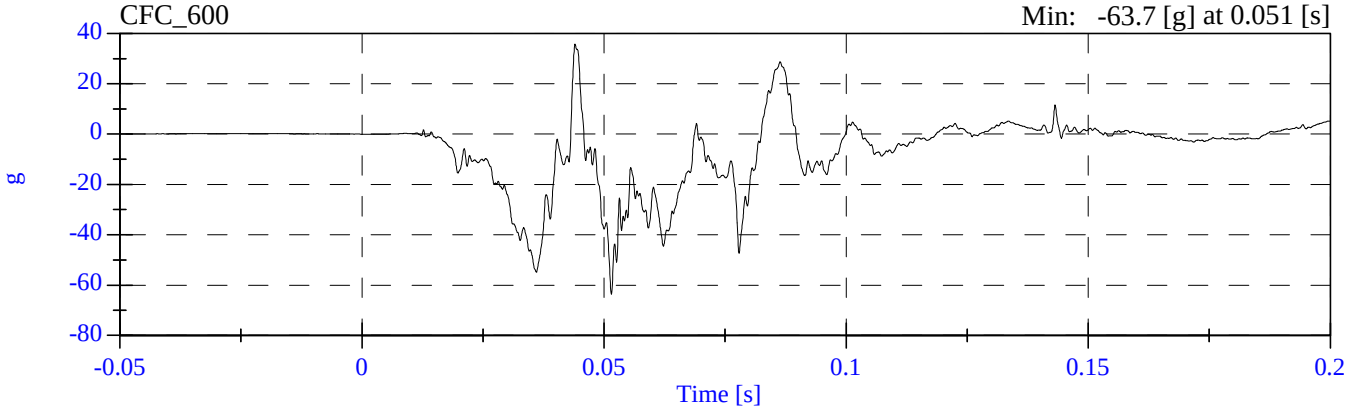
V1P2 Right Foot Aft x
CFC_600
Max: 10.5 [g] at 0.090 [s]
Min: -45.4 [g] at 0.052 [s]



V1P2 Right Foot Aft z
CFC_600
Max: 3.0 [g] at 0.073 [s]
Min: -46.2 [g] at 0.052 [s]



V1P2 Right Foot Fore z
CFC_600
Max: 35.8 [g] at 0.044 [s]
Min: -63.7 [g] at 0.051 [s]



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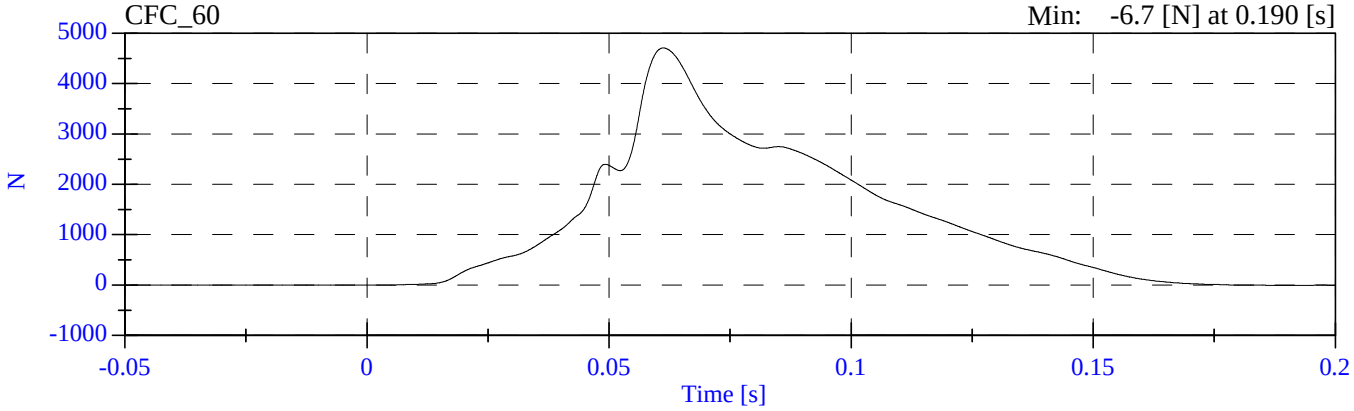
V1 RFP Lap Belt

CFC_60

Max: 4709.0 [N] at 0.061 [s]

Min: -6.7 [N] at 0.190 [s]

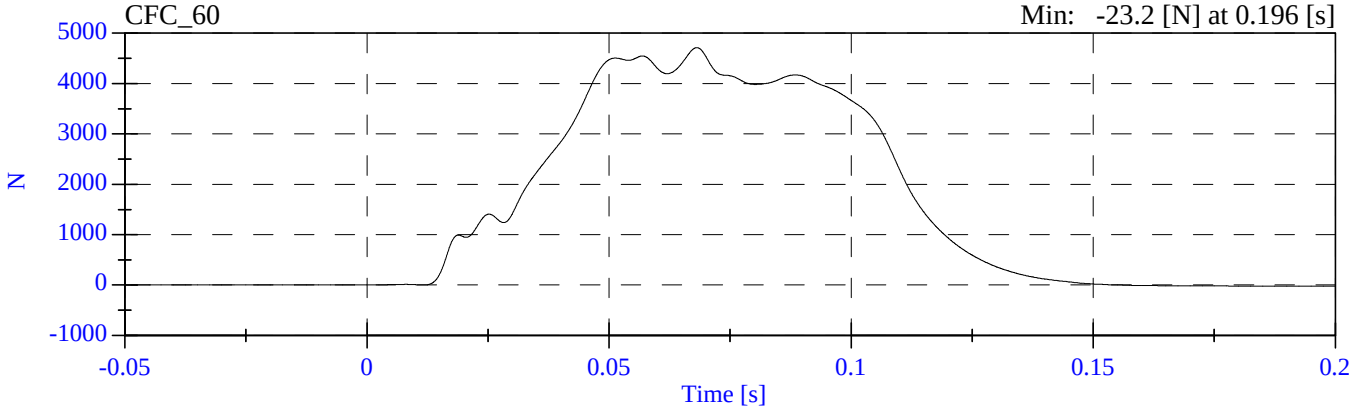


V1 RFP Torso Belt

CFC_60

Max: 4715.4 [N] at 0.068 [s]

Min: -23.2 [N] at 0.196 [s]



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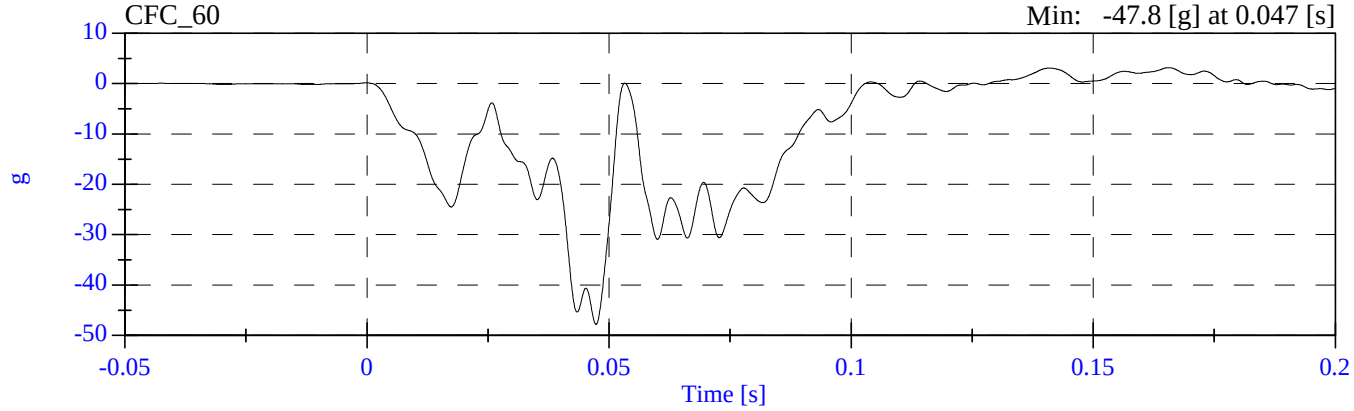
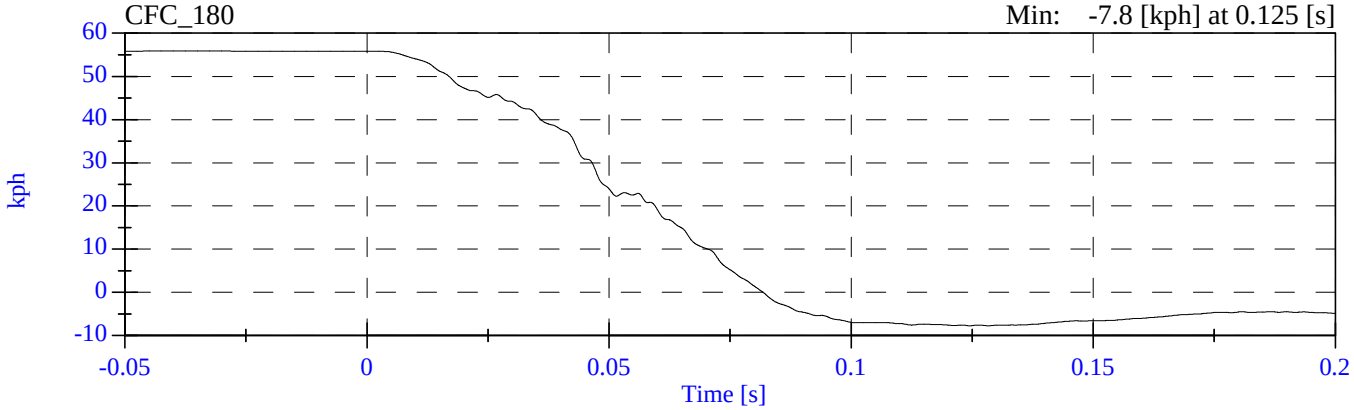
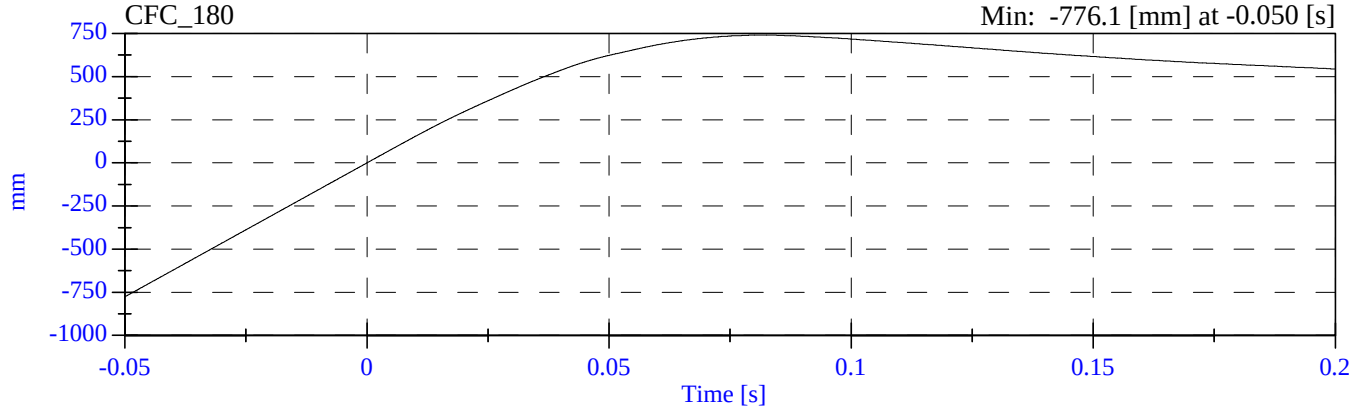
V1 Left Rear #1x
CFC_60
Max: 3.2 [g] at 0.166 [s]
Min: -47.8 [g] at 0.047 [s]



V1 Left Rear #1x Velocity
CFC_180
Max: 55.9 [kph] at -0.033 [s]
Min: -7.8 [kph] at 0.125 [s]



V1 Left Rear #1x Displacement
CFC_180
Max: 740.3 [mm] at 0.082 [s]
Min: -776.1 [mm] at -0.050 [s]



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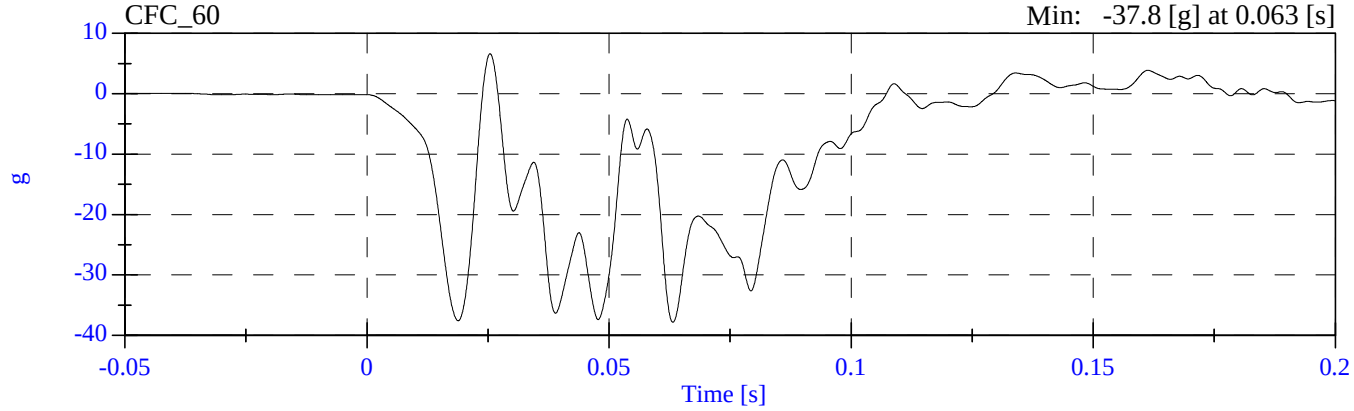
V1 Right Rear #2x

CFC_60

Max: 6.6 [g] at 0.025 [s]

Min: -37.8 [g] at 0.063 [s]

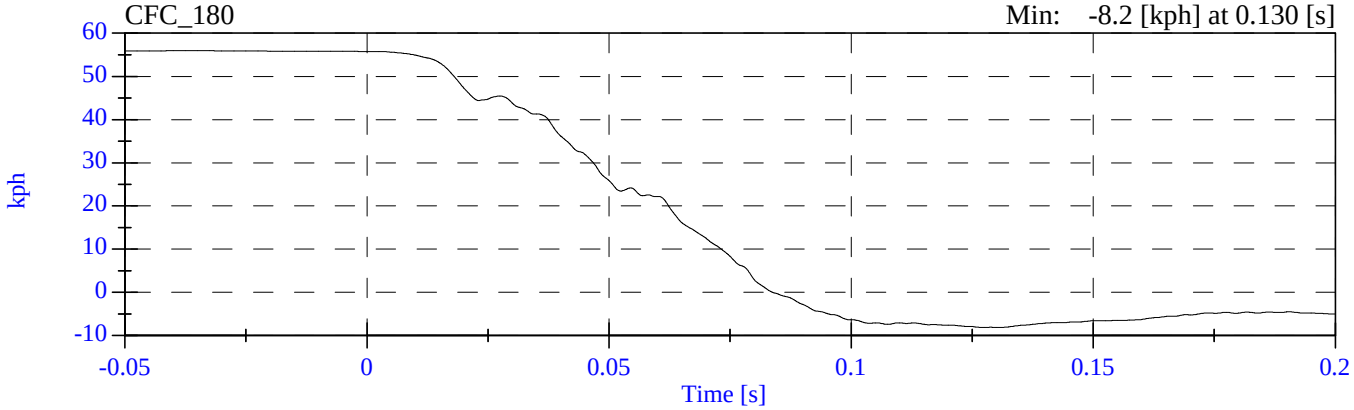


V1 Right Rear #2x Velocity

CFC_180

Max: 55.9 [kph] at -0.034 [s]

Min: -8.2 [kph] at 0.130 [s]

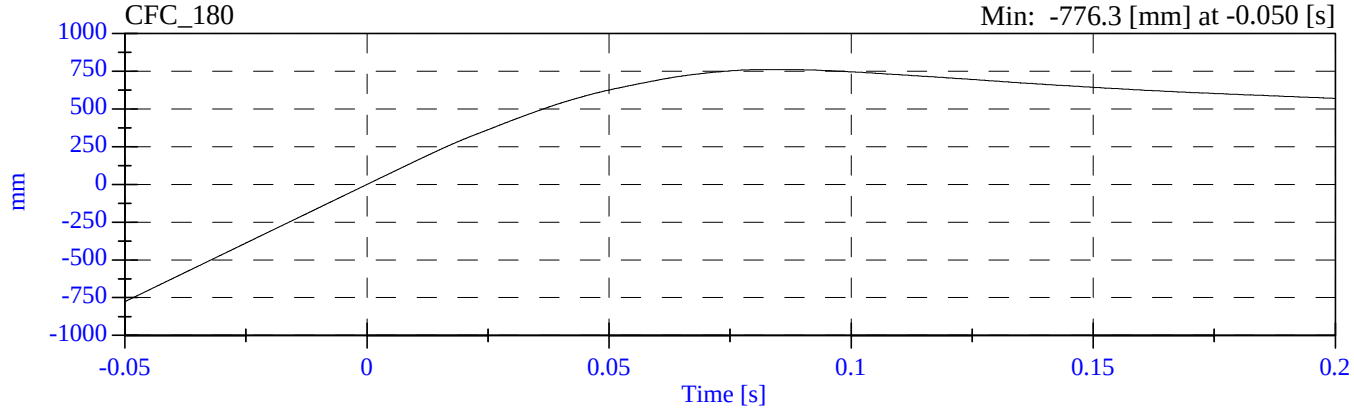


V1 Right Rear #2x Displacement

CFC_180

Max: 762.0 [mm] at 0.084 [s]

Min: -776.3 [mm] at -0.050 [s]



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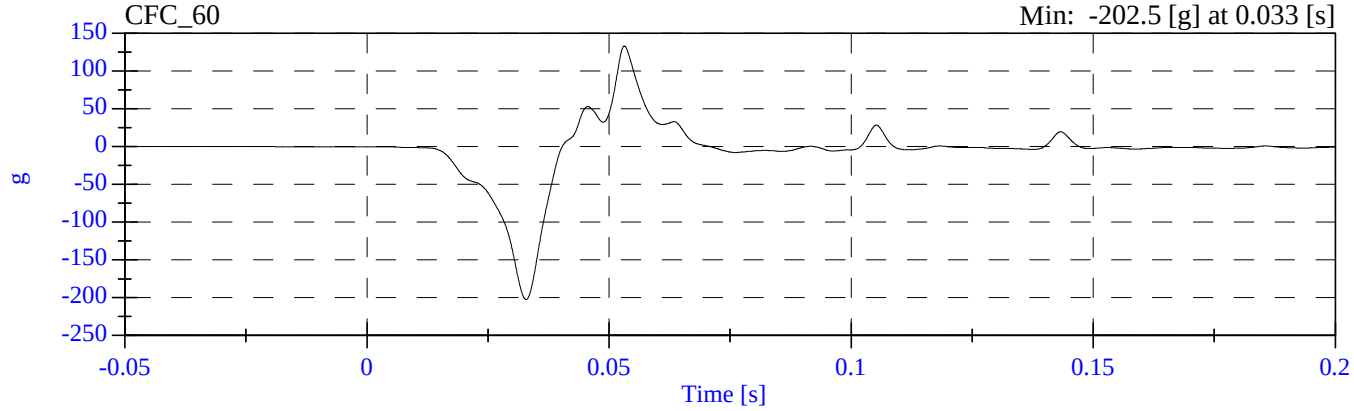
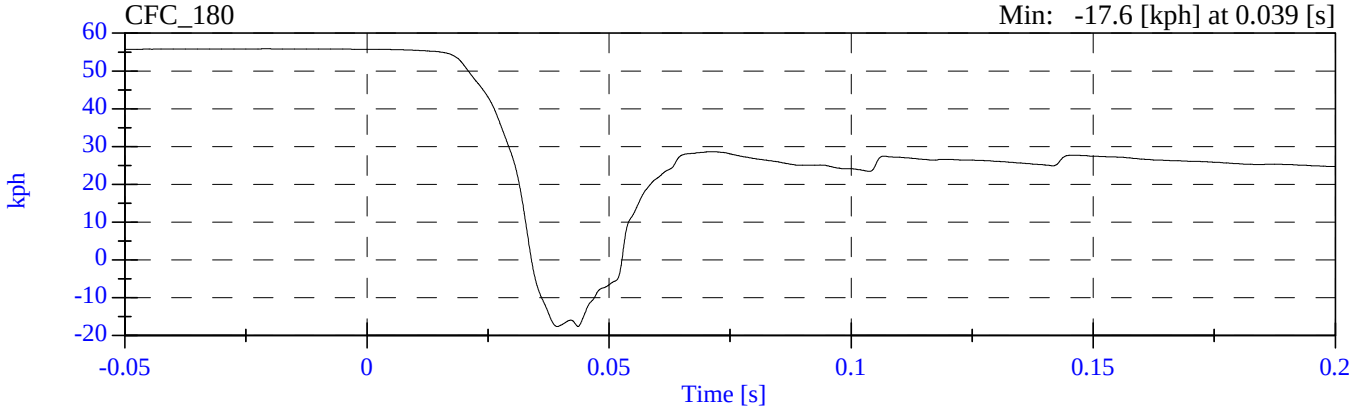
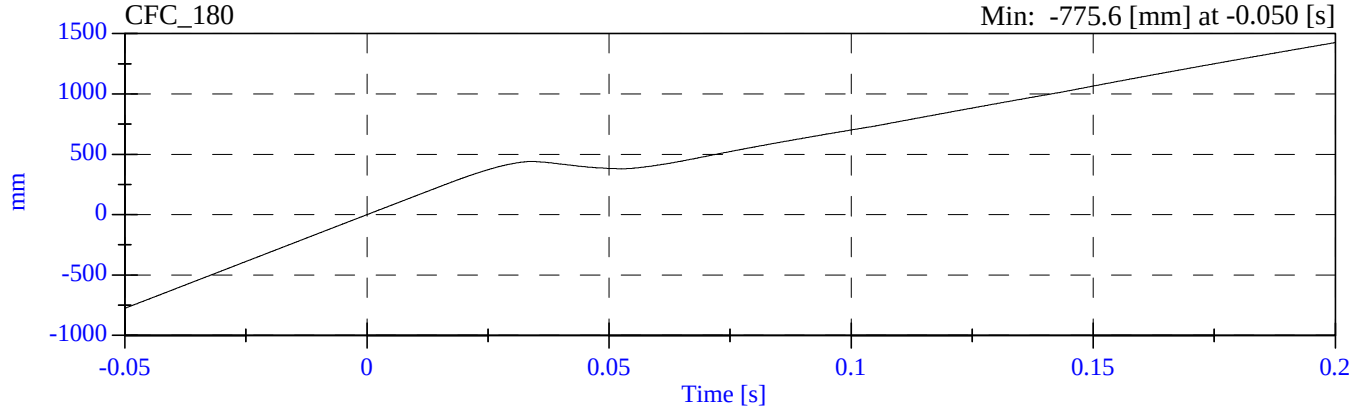
V1 Engine Top #3x
CFC_60
Max: 133.2 [g] at 0.053 [s]
Min: -202.5 [g] at 0.033 [s]



V1 Engine Top #3x Velocity
CFC_180
Max: 55.9 [kph] at -0.021 [s]
Min: -17.6 [kph] at 0.039 [s]



V1 Engine Top #3x Displacement
CFC_180
Max: 1424.7 [mm] at 0.200 [s]
Min: -775.6 [mm] at -0.050 [s]



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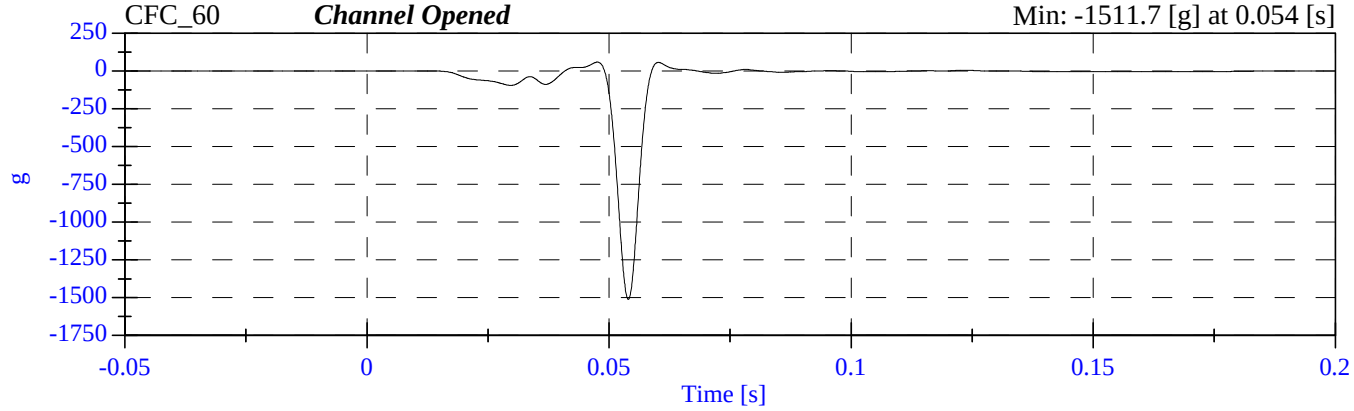
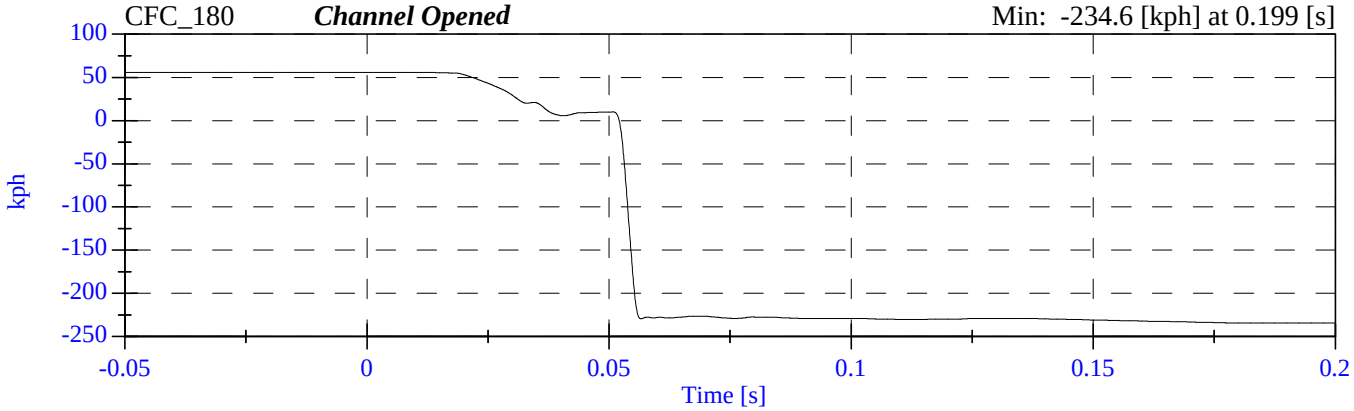
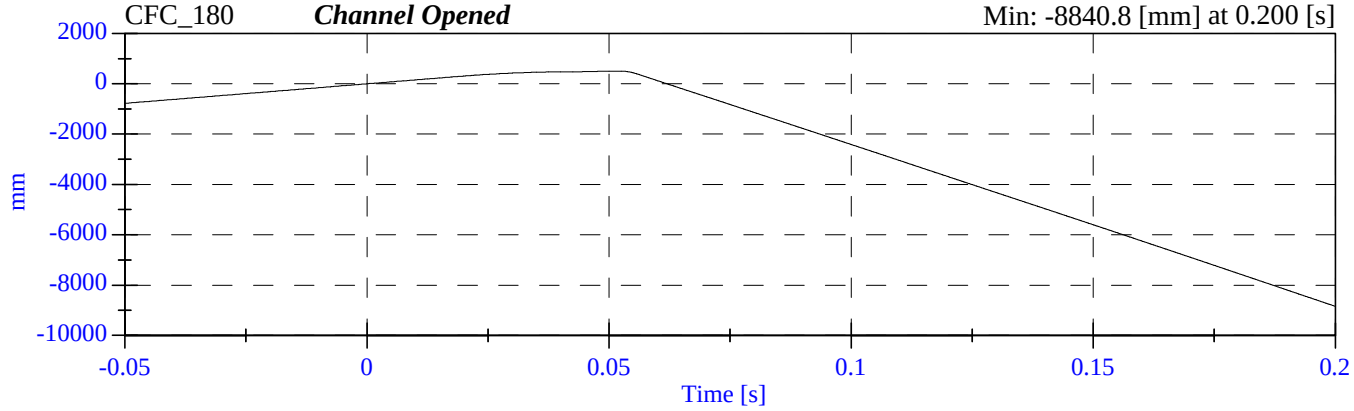
V1 Engine Bottom #4x Max: 59.0 [g] at 0.048 [s]
CFC_60 ***Channel Opened*** Min: -1511.7 [g] at 0.054 [s]



V1 Engine Bottom #4x Velocity Max: 55.9 [kph] at -0.050 [s]
CFC_180 ***Channel Opened*** Min: -234.6 [kph] at 0.199 [s]



V1 Engine Bottom #4x Displacement Max: 504.2 [mm] at 0.052 [s]
CFC_180 ***Channel Opened*** Min: -8840.8 [mm] at 0.200 [s]



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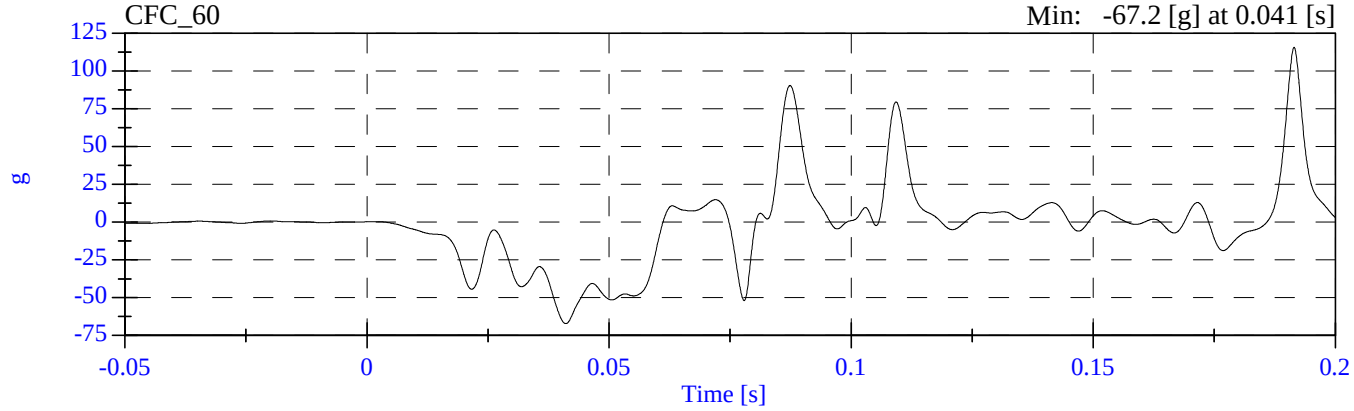
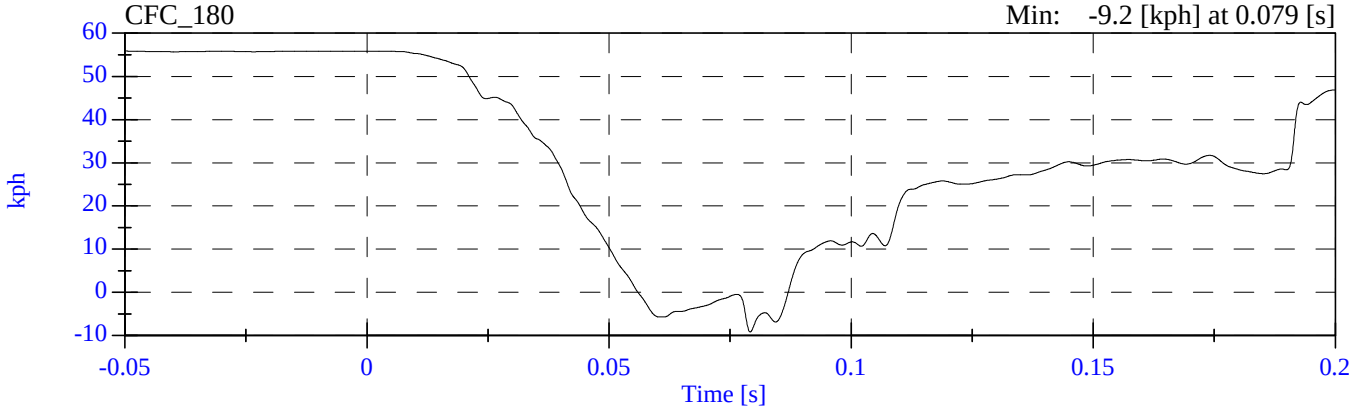
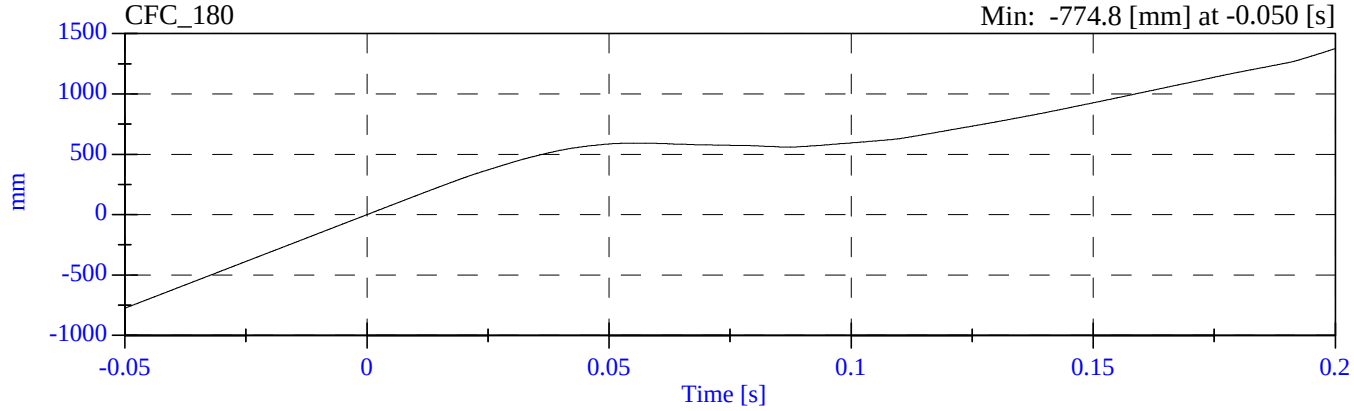
V1 Right Caliper #5x
CFC_60
Max: 115.8 [g] at 0.191 [s]
Min: -67.2 [g] at 0.041 [s]



V1 Right Caliper #5x Velocity
CFC_180
Max: 55.9 [kph] at -0.050 [s]
Min: -9.2 [kph] at 0.079 [s]



V1 Right Caliper #5x Displacement
CFC_180
Max: 1374.6 [mm] at 0.200 [s]
Min: -774.8 [mm] at -0.050 [s]



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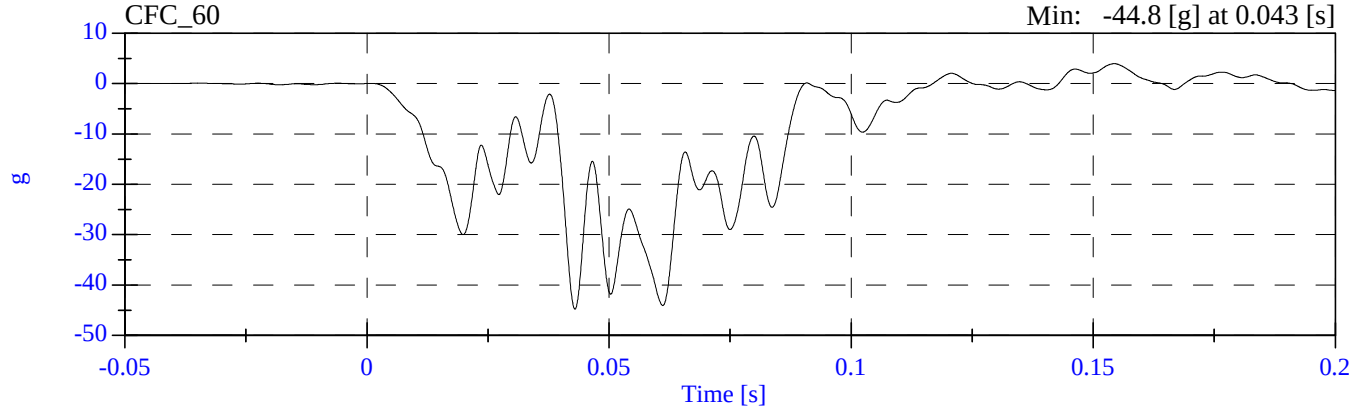
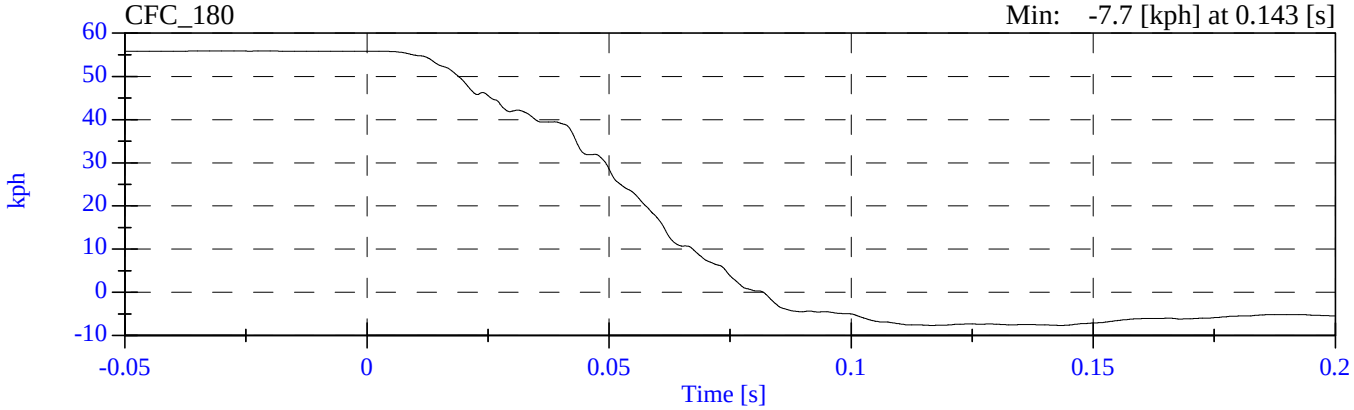
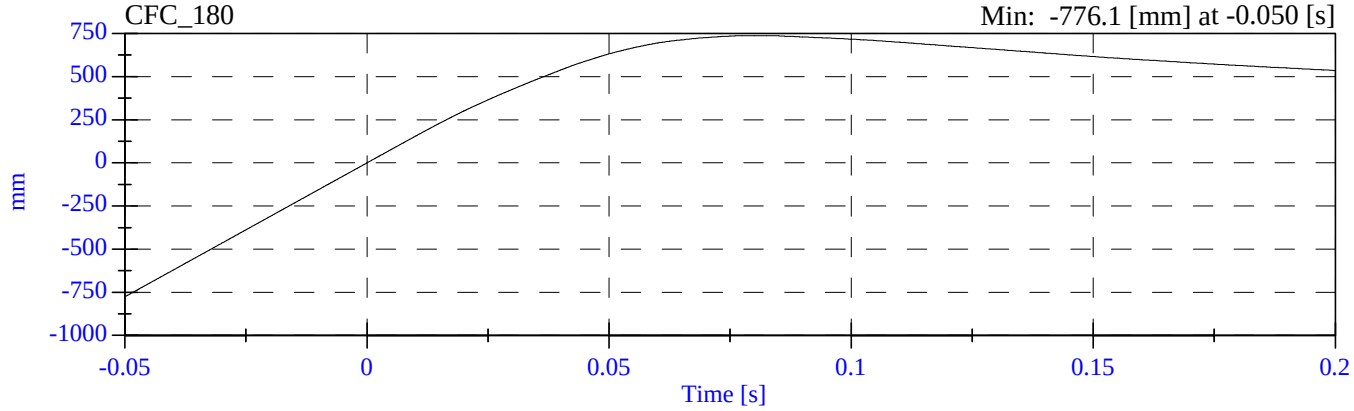
V1 Instrument Panel #6x
CFC_60
Max: 3.9 [g] at 0.154 [s]
Min: -44.8 [g] at 0.043 [s]



V1 Instrument Panel #6x Velocity
CFC_180
Max: 55.9 [kph] at -0.028 [s]
Min: -7.7 [kph] at 0.143 [s]



V1 Instrument Panel #6x Displacement
CFC_180
Max: 737.3 [mm] at 0.082 [s]
Min: -776.1 [mm] at -0.050 [s]



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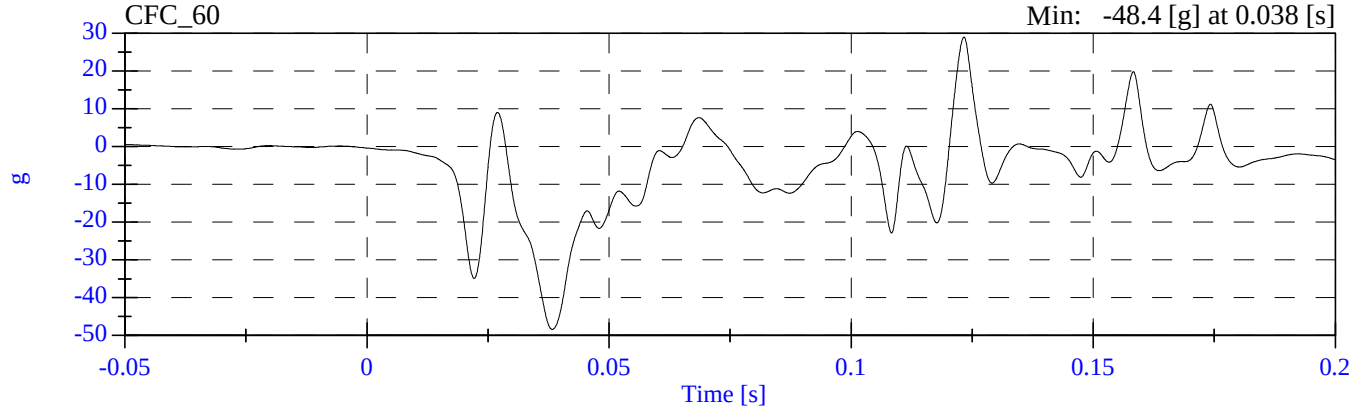
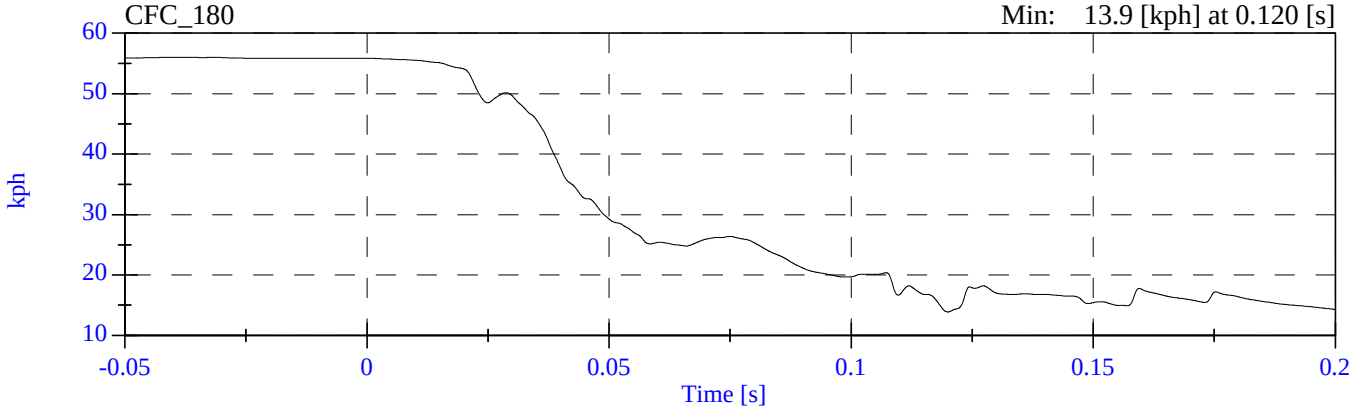
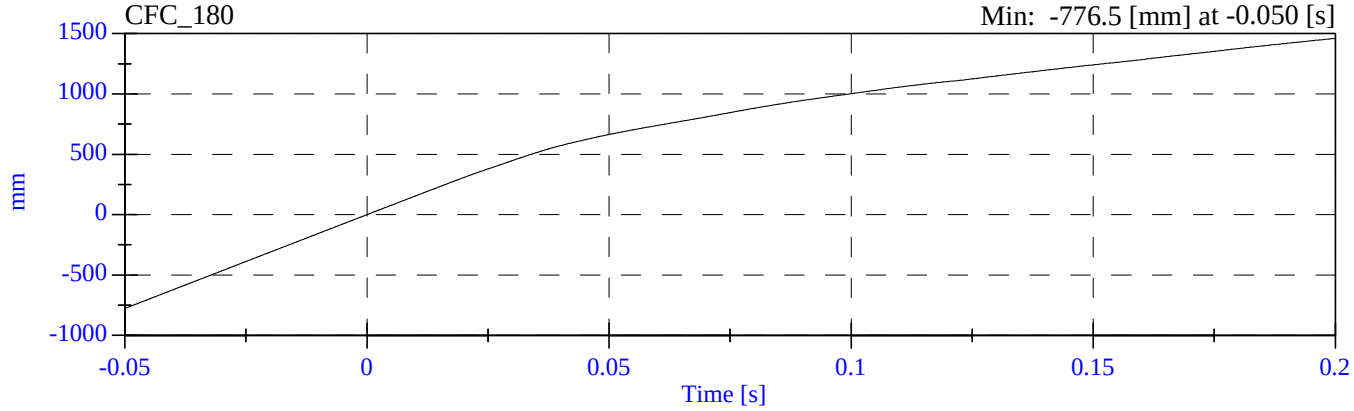
V1 Left Caliper #7x
CFC_60
Max: 29.0 [g] at 0.123 [s]
Min: -48.4 [g] at 0.038 [s]



V1 Left Caliper #7x Velocity
CFC_180
Max: 56.0 [kph] at -0.041 [s]
Min: 13.9 [kph] at 0.120 [s]



V1 Left Caliper #7x Displacement
CFC_180
Max: 1459.5 [mm] at 0.200 [s]
Min: -776.5 [mm] at -0.050 [s]



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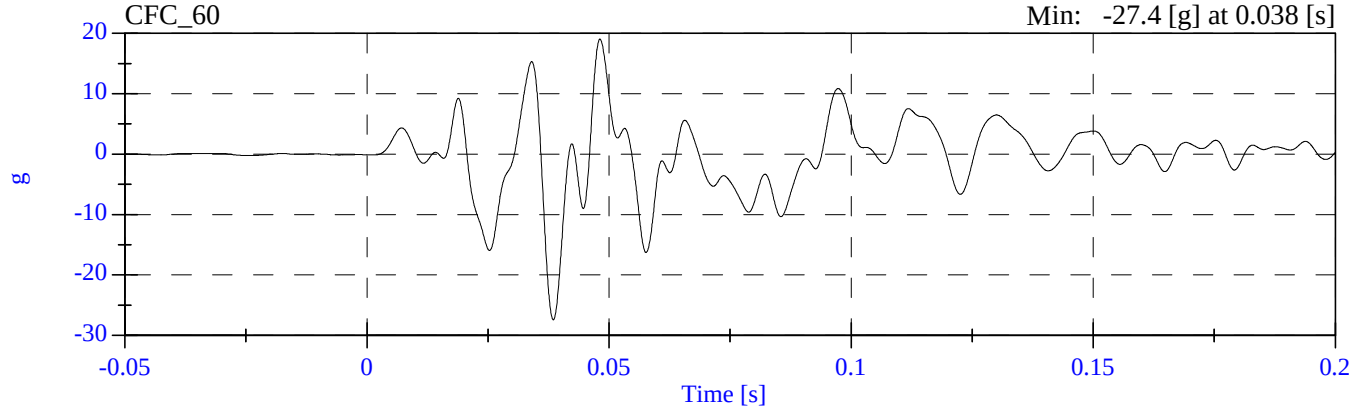
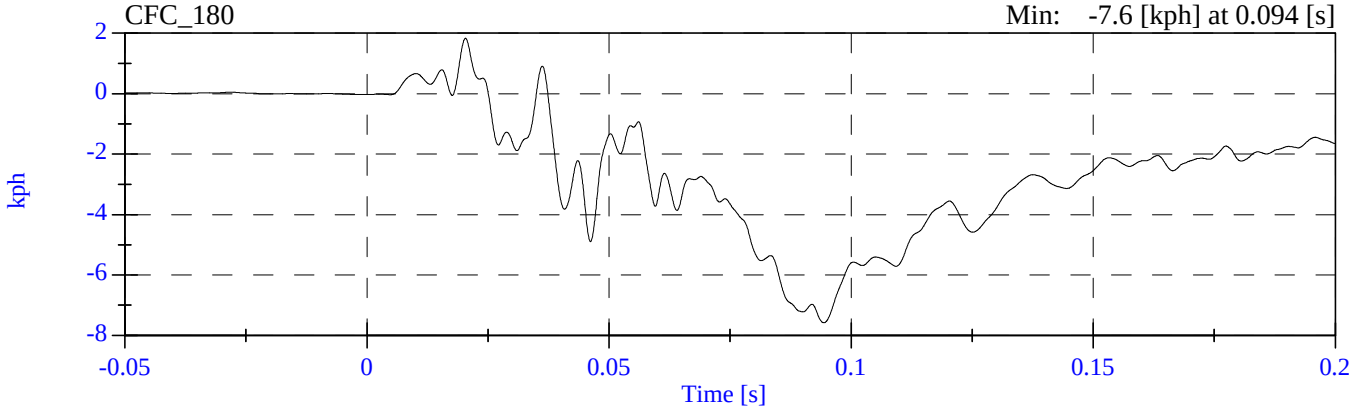
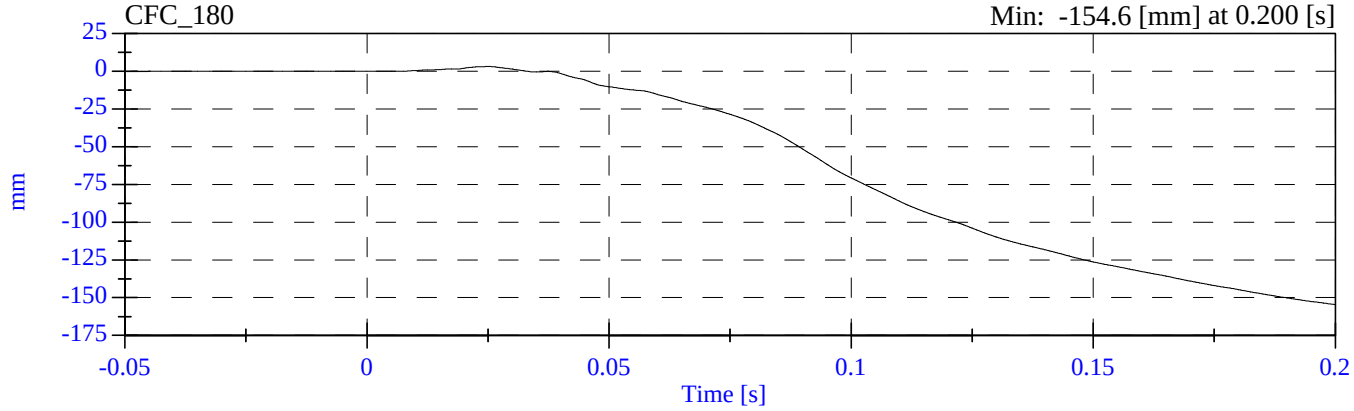
V1 Left Rear #8z
CFC_60
Max: 19.1 [g] at 0.048 [s]
Min: -27.4 [g] at 0.038 [s]



V1 Left Rear #8z Velocity
CFC_180
Max: 1.8 [kph] at 0.020 [s]
Min: -7.6 [kph] at 0.094 [s]



V1 Left Rear #8z Displacement
CFC_180
Max: 3.2 [mm] at 0.025 [s]
Min: -154.6 [mm] at 0.200 [s]



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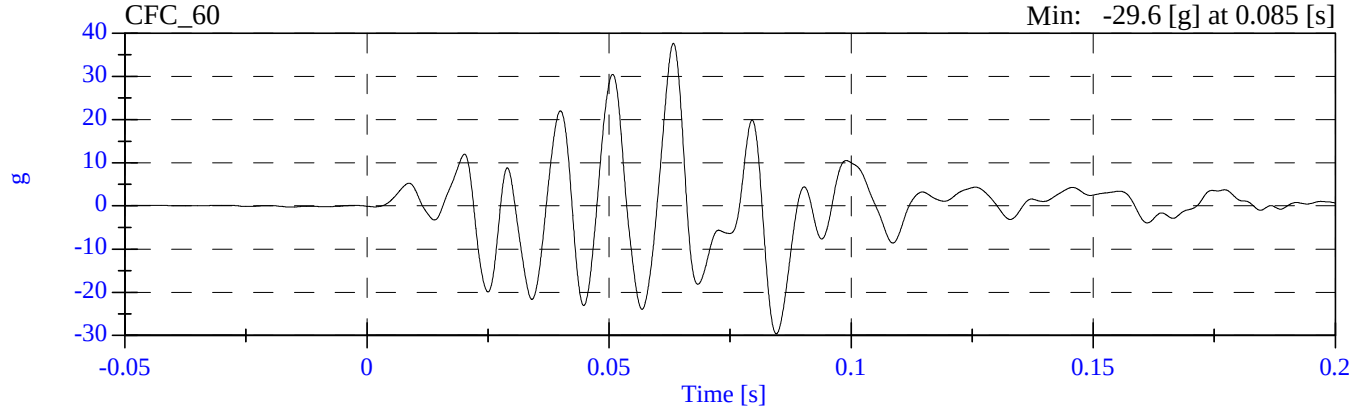
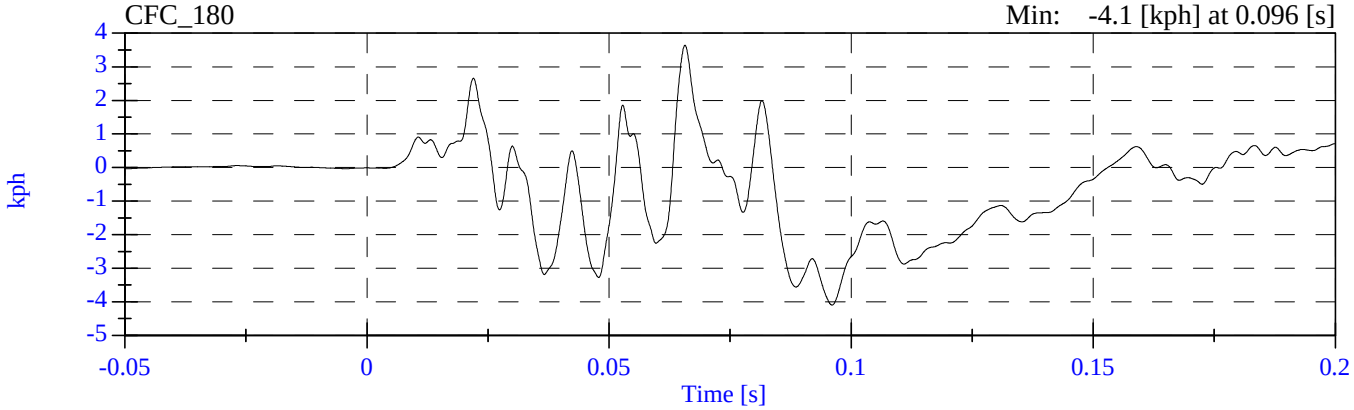
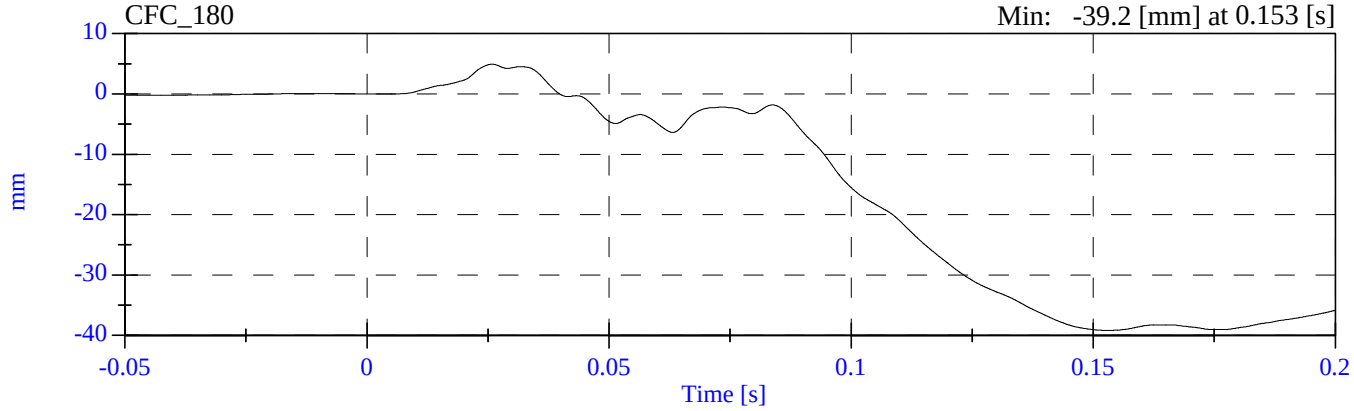
V1 Right Rear #9z
CFC_60
Max: 37.7 [g] at 0.063 [s]
Min: -29.6 [g] at 0.085 [s]



V1 Right Rear #9z Velocity
CFC_180
Max: 3.6 [kph] at 0.066 [s]
Min: -4.1 [kph] at 0.096 [s]



V1 Right Rear #9z Displacement
CFC_180
Max: 4.9 [mm] at 0.026 [s]
Min: -39.2 [mm] at 0.153 [s]



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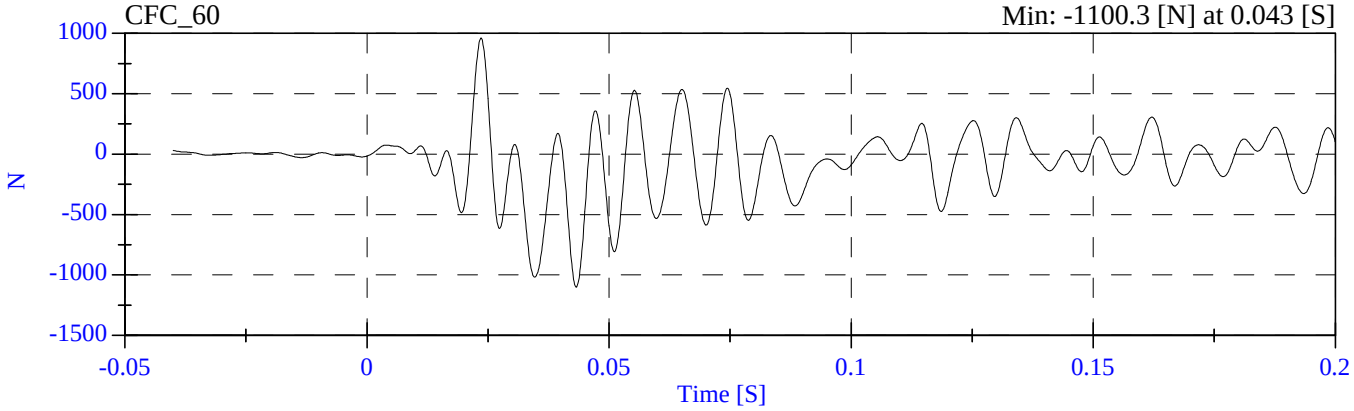
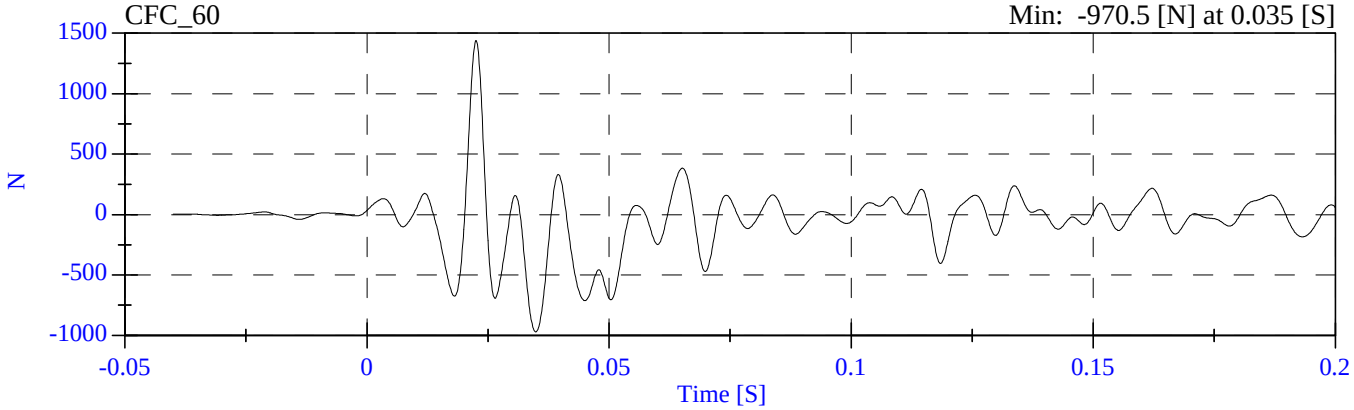
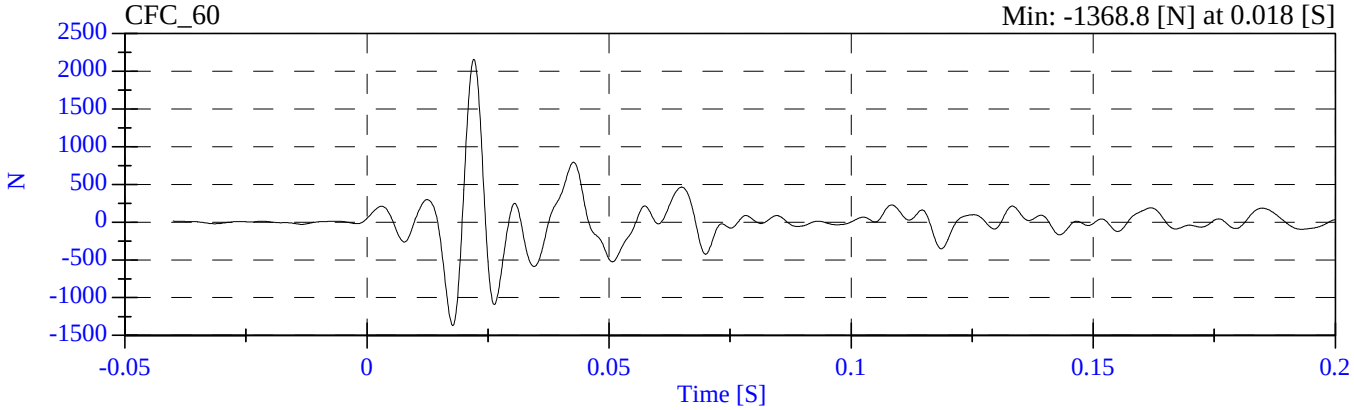
Barrier Load Cell A1 Fx
CFC_60
Max: 960.3 [N] at 0.024 [S]
Min: -1100.3 [N] at 0.043 [S]



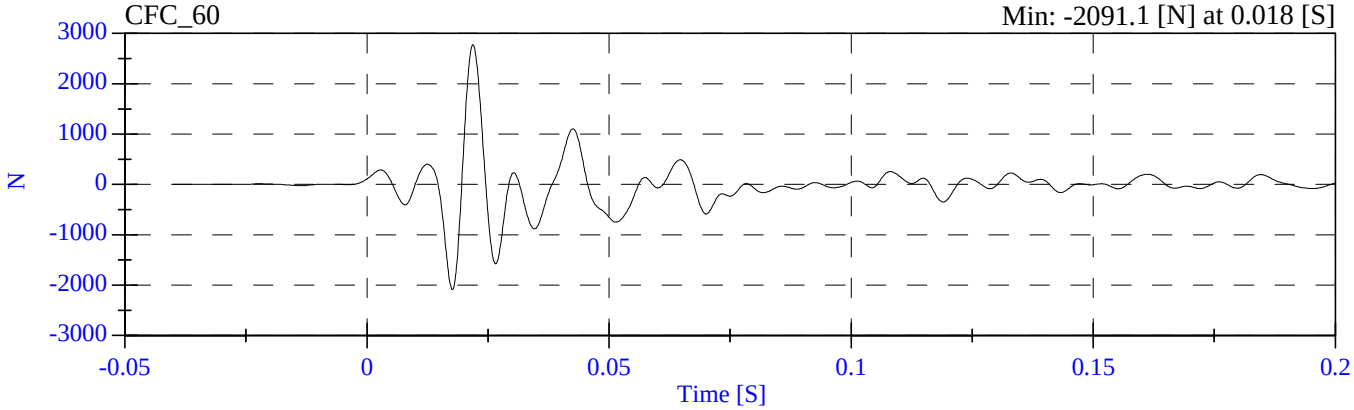
Barrier Load Cell A2 Fx
CFC_60
Max: 1439.4 [N] at 0.022 [S]
Min: -970.5 [N] at 0.035 [S]



Barrier Load Cell A3 Fx
CFC_60
Max: 2157.7 [N] at 0.022 [S]
Min: -1368.8 [N] at 0.018 [S]



Barrier Load Cell A4 Fx
CFC_60
Max: 2776.6 [N] at 0.022 [S]
Min: -2091.1 [N] at 0.018 [S]



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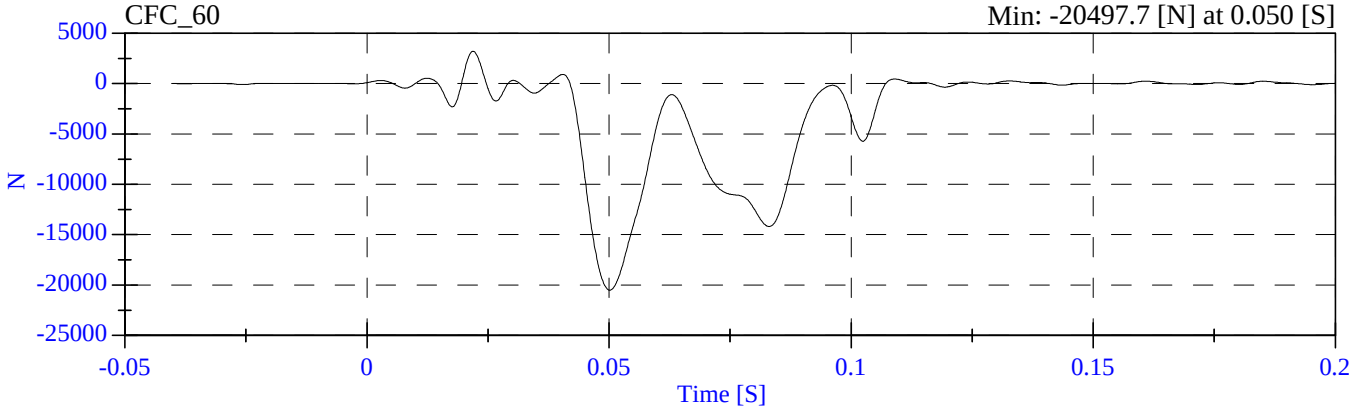
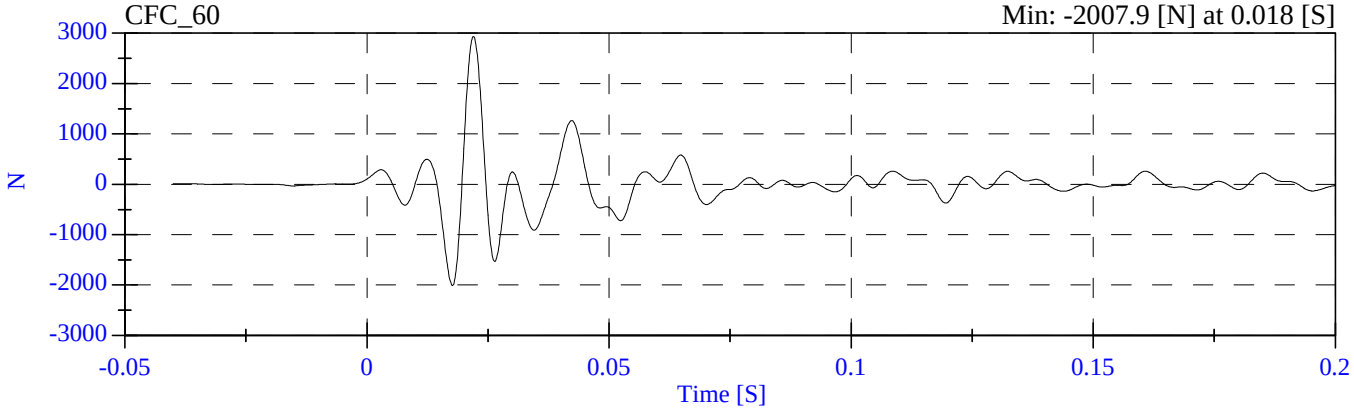
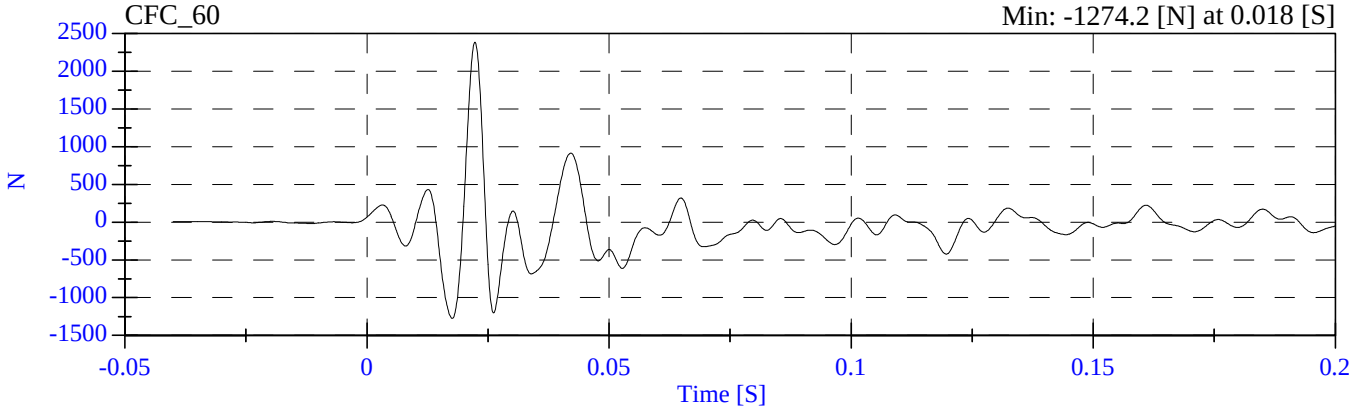
Barrier Load Cell A5 Fx
CFC_60
Max: 3222.3 [N] at 0.022 [S]
Min: -20497.7 [N] at 0.050 [S]



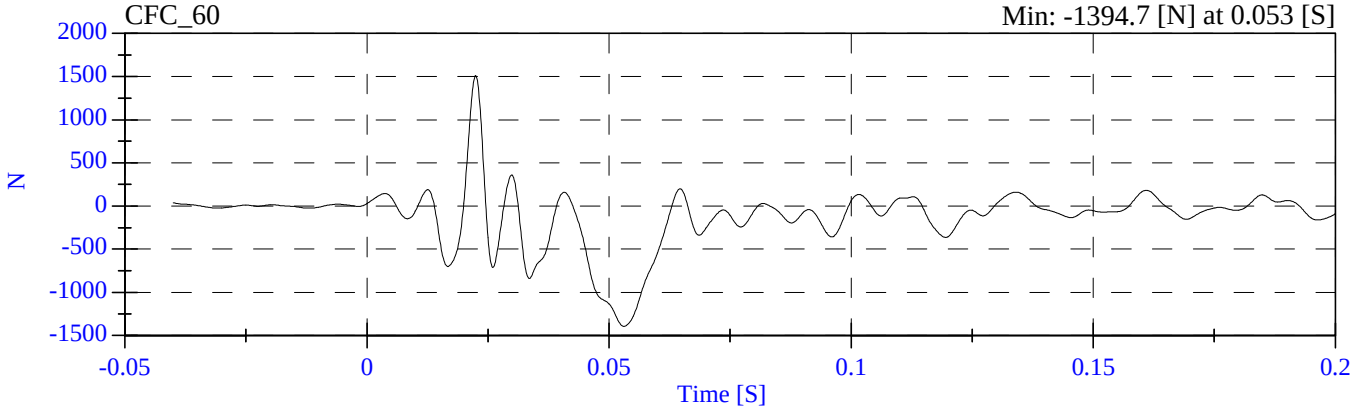
Barrier Load Cell A6 Fx
CFC_60
Max: 2936.1 [N] at 0.022 [S]
Min: -2007.9 [N] at 0.018 [S]



Barrier Load Cell A7 Fx
CFC_60
Max: 2387.7 [N] at 0.022 [S]
Min: -1274.2 [N] at 0.018 [S]



Barrier Load Cell A8 Fx
CFC_60
Max: 1511.3 [N] at 0.022 [S]
Min: -1394.7 [N] at 0.053 [S]



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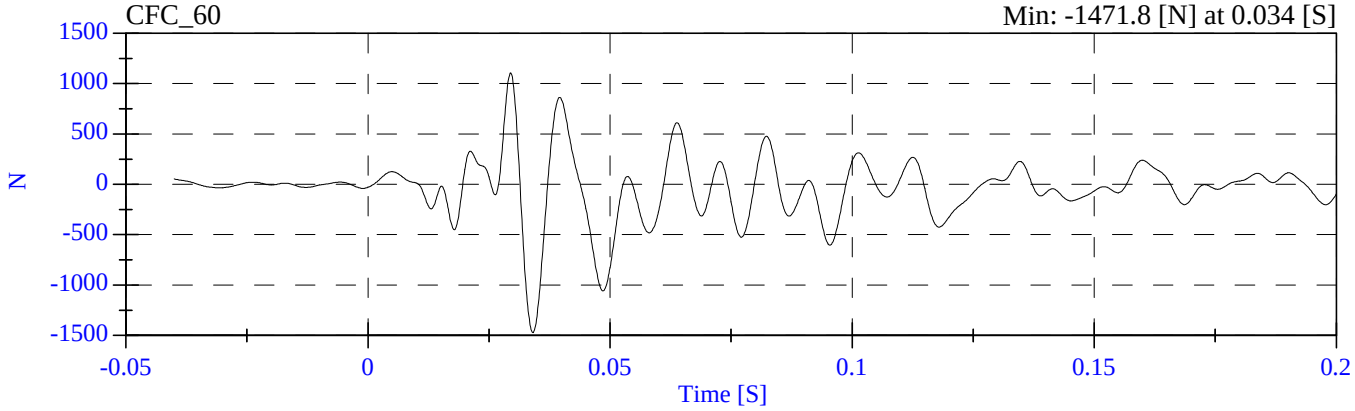
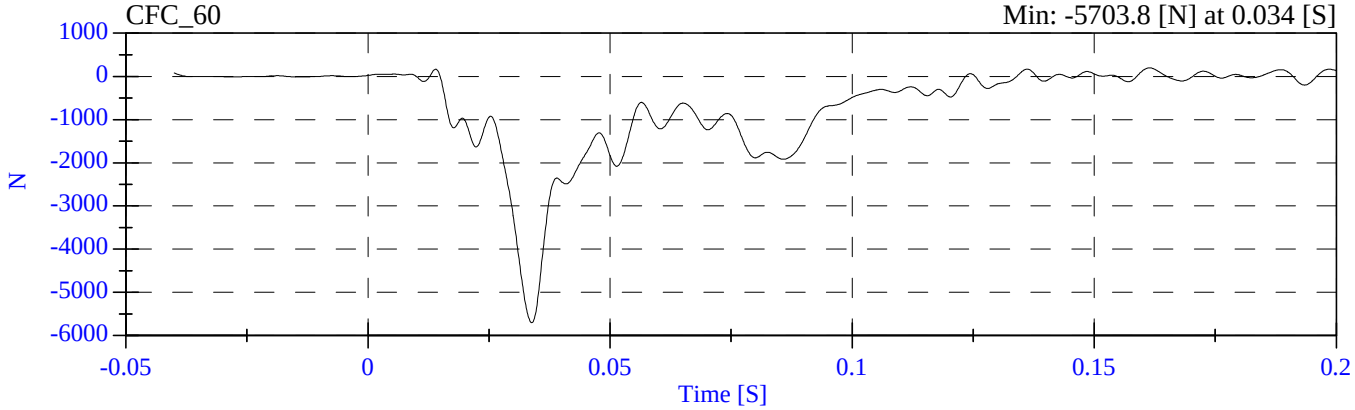
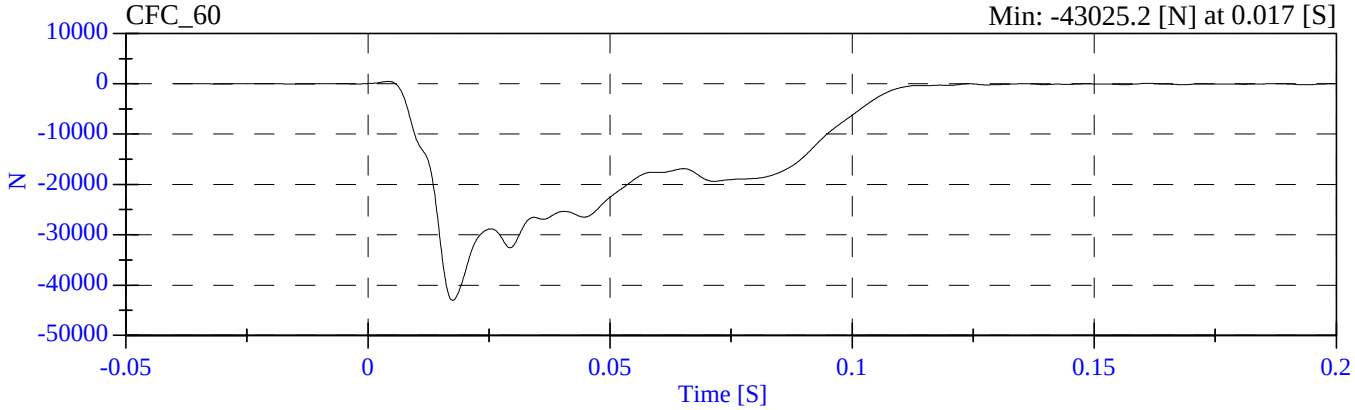
Barrier Load Cell A9 Fx
CFC_60
Max: 1105.9 [N] at 0.029 [S]
Min: -1471.8 [N] at 0.034 [S]



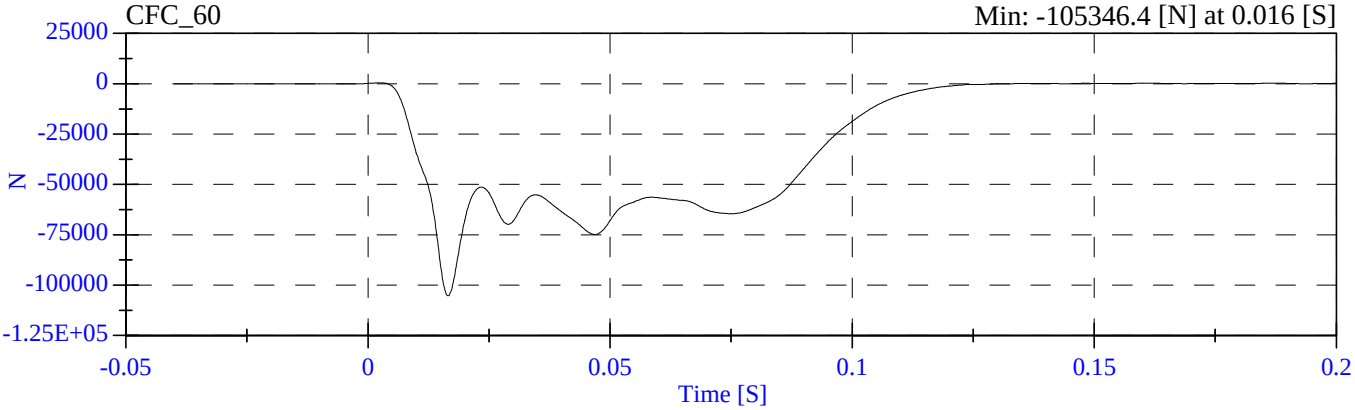
Barrier Load Cell B1 Fx
CFC_60
Max: 197.1 [N] at 0.161 [S]
Min: -5703.8 [N] at 0.034 [S]



Barrier Load Cell B2 Fx
CFC_60
Max: 474.5 [N] at 0.004 [S]
Min: -43025.2 [N] at 0.017 [S]



Barrier Load Cell B3 Fx
CFC_60
Max: 486.3 [N] at 0.003 [S]
Min: -105346.4 [N] at 0.016 [S]



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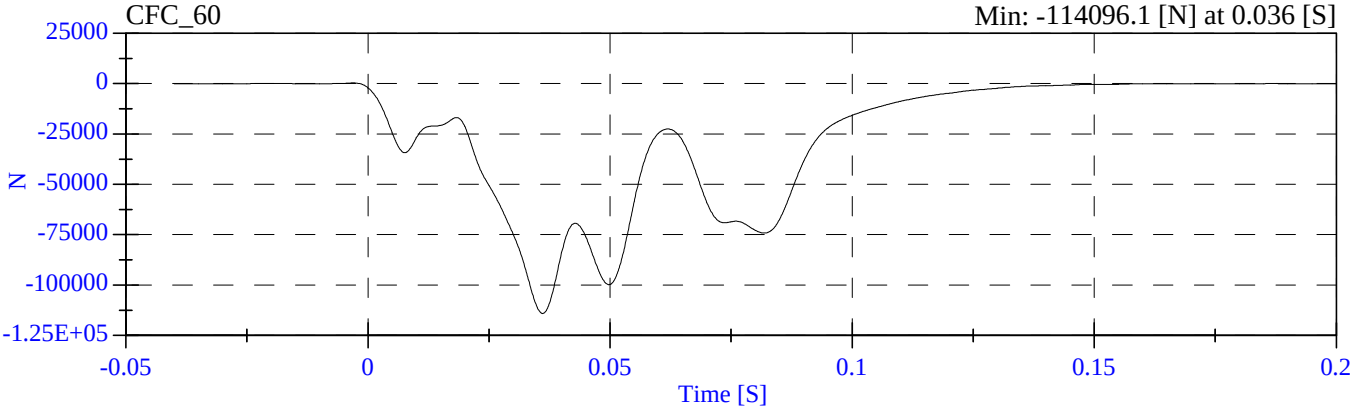
Barrier Load Cell B4 Fx

CFC_60

Max: 323.4 [N] at -0.003 [S]

Min: -114096.1 [N] at 0.036 [S]

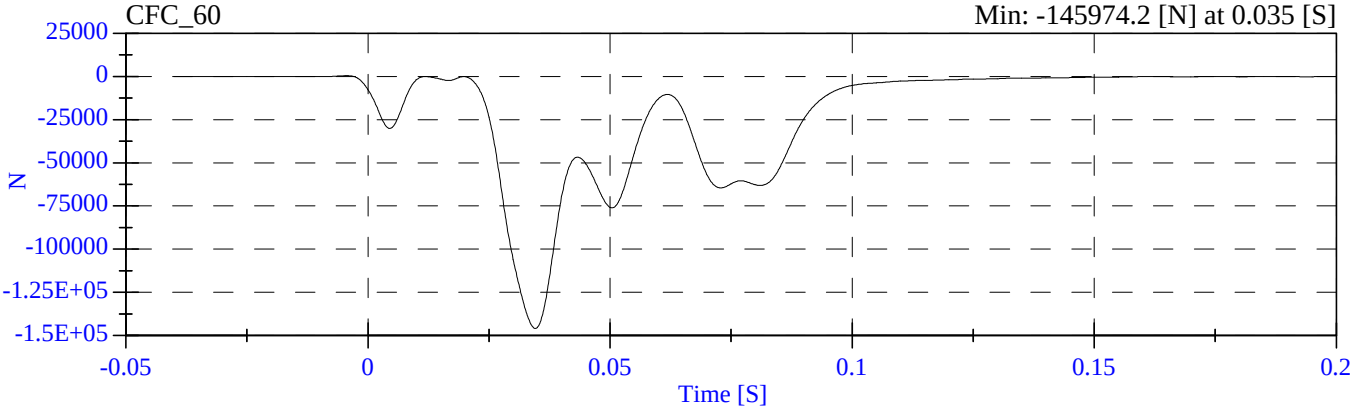


Barrier Load Cell B5 Fx

CFC_60

Max: 470.5 [N] at -0.004 [S]

Min: -145974.2 [N] at 0.035 [S]

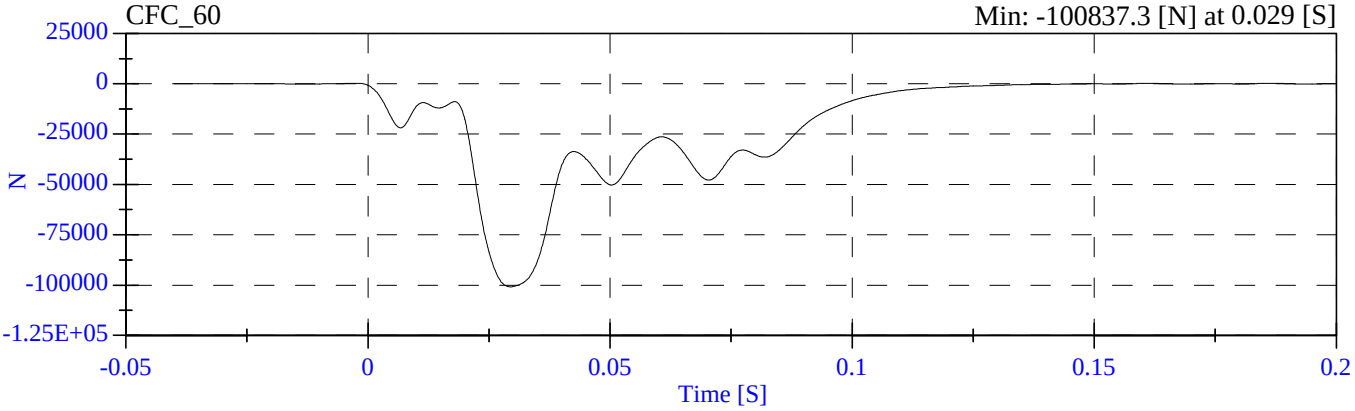


Barrier Load Cell B6 Fx

CFC_60

Max: 273.6 [N] at -0.002 [S]

Min: -100837.3 [N] at 0.029 [S]

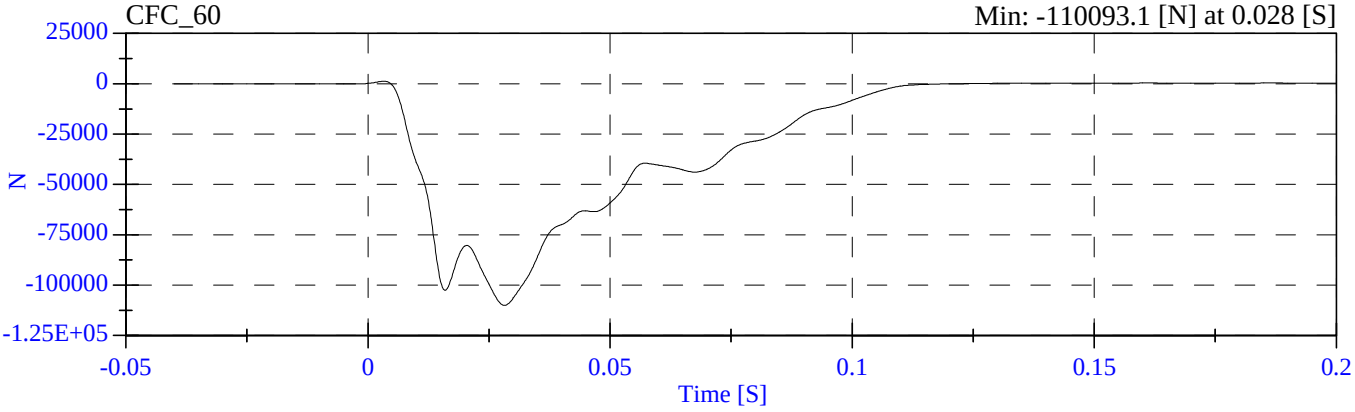


Barrier Load Cell B7 Fx

CFC_60

Max: 1284.5 [N] at 0.003 [S]

Min: -110093.1 [N] at 0.028 [S]



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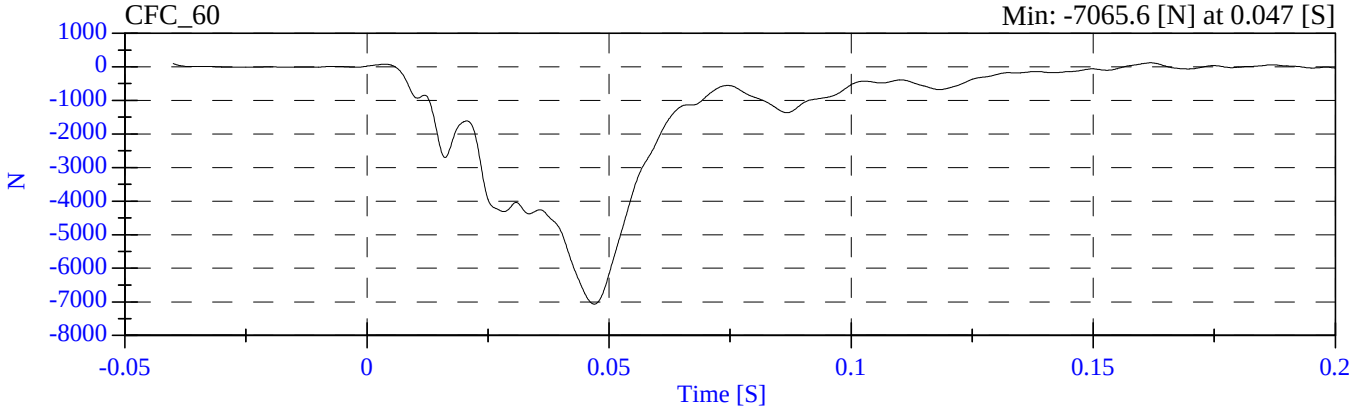
Barrier Load Cell B8 Fx

CFC_60

Max: 120.8 [N] at 0.162 [S]

Min: -7065.6 [N] at 0.047 [S]

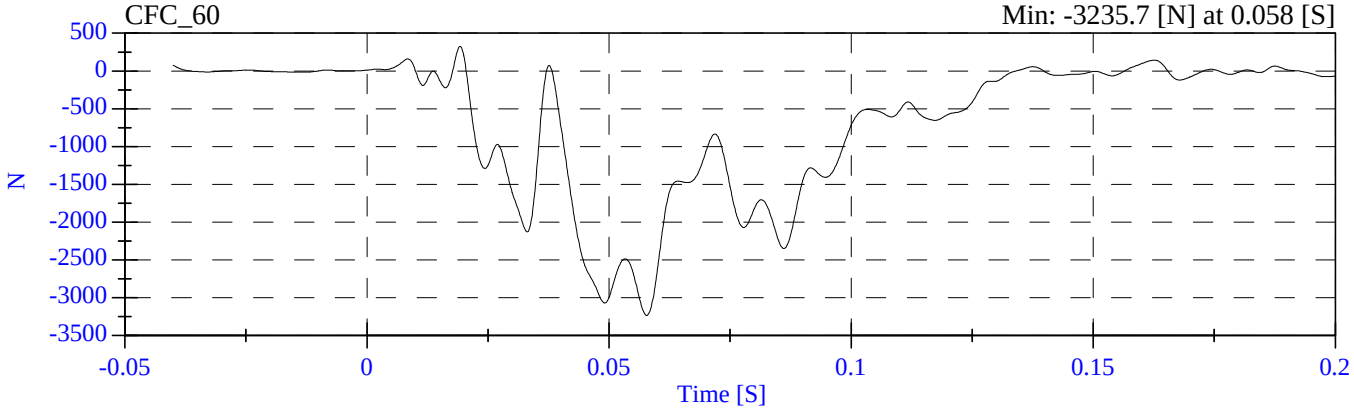


Barrier Load Cell B9 Fx

CFC_60

Max: 325.6 [N] at 0.019 [S]

Min: -3235.7 [N] at 0.058 [S]

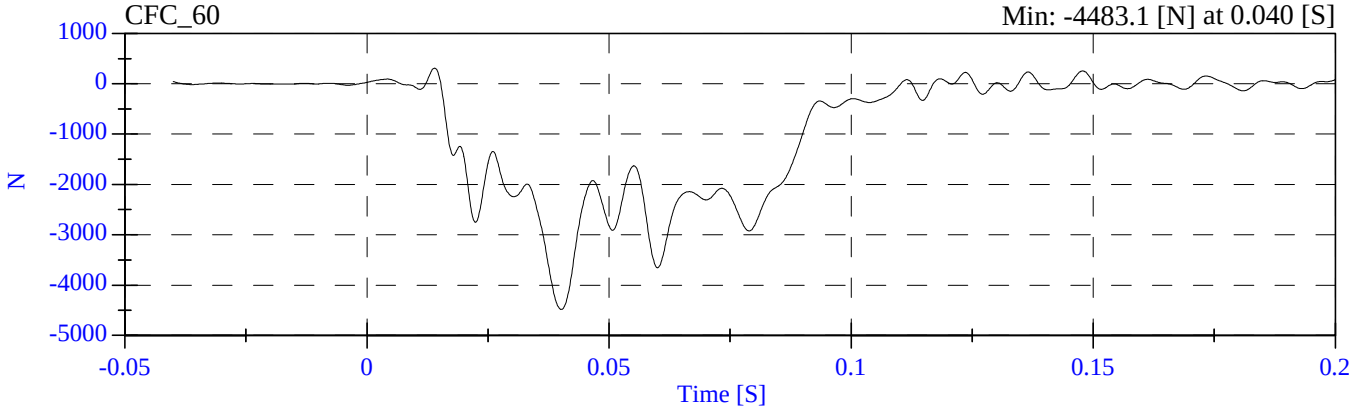


Barrier Load Cell C1 Fx

CFC_60

Max: 311.3 [N] at 0.014 [S]

Min: -4483.1 [N] at 0.040 [S]

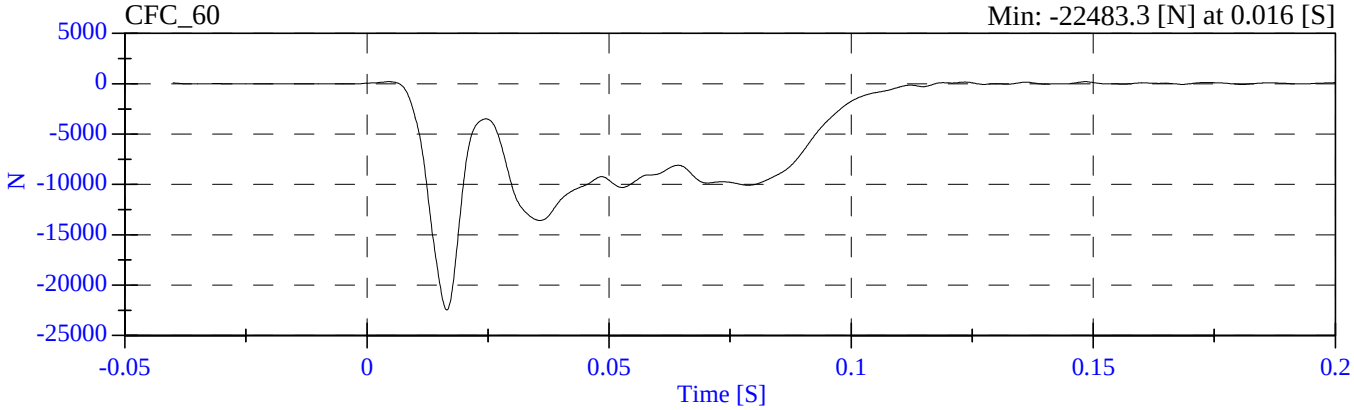


Barrier Load Cell C2 Fx

CFC_60

Max: 204.6 [N] at 0.148 [S]

Min: -22483.3 [N] at 0.016 [S]



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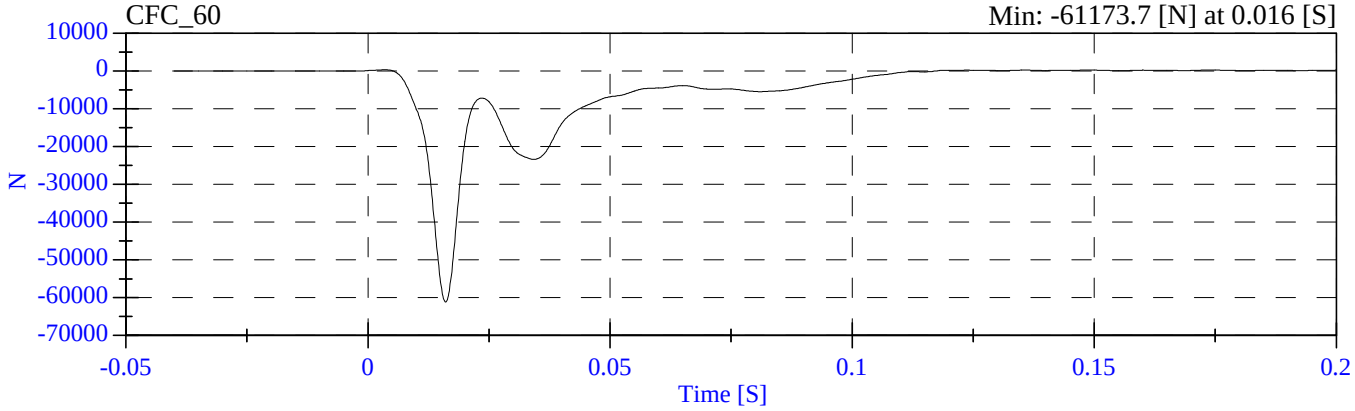
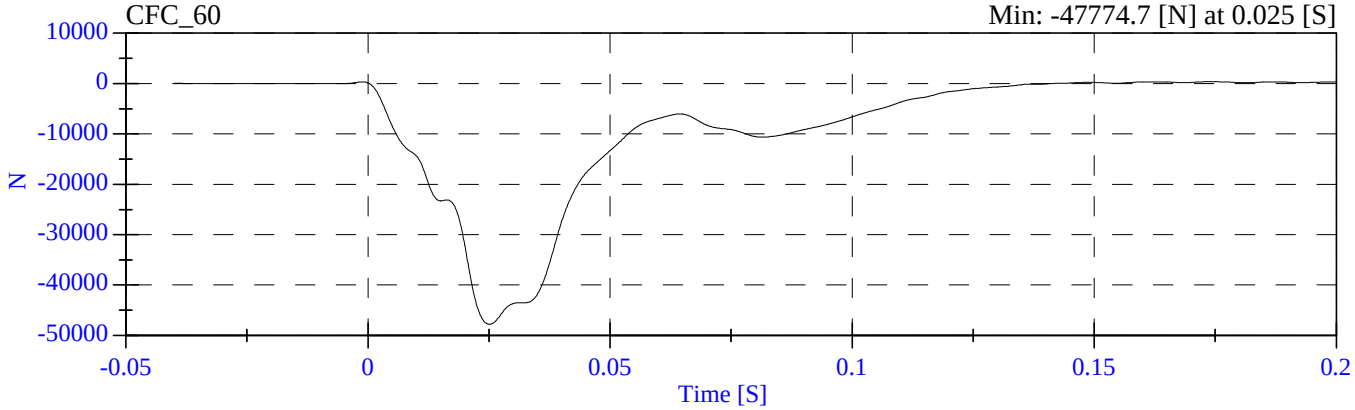
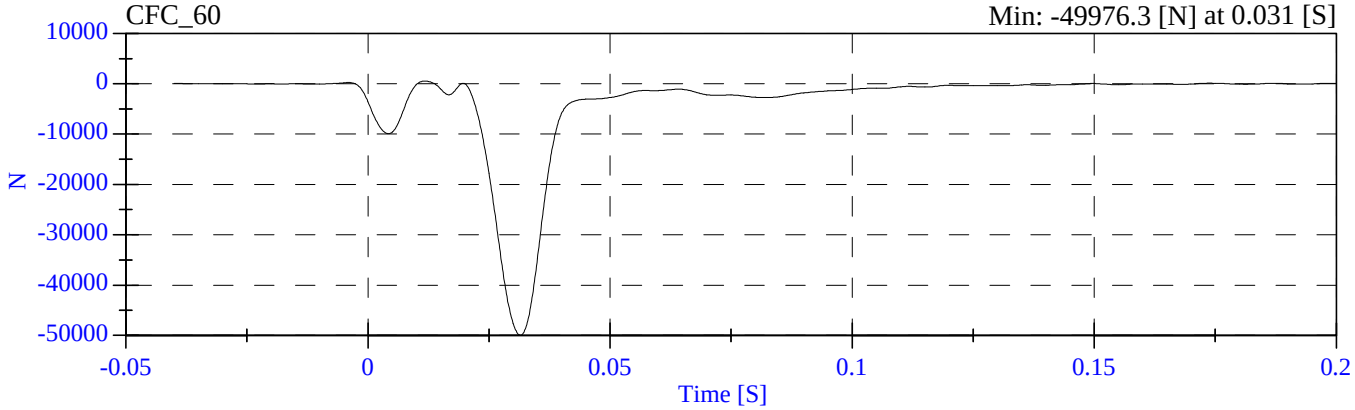
Barrier Load Cell C3 Fx
CFC_60
Max: 368.0 [N] at 0.003 [S]
Min: -61173.7 [N] at 0.016 [S]



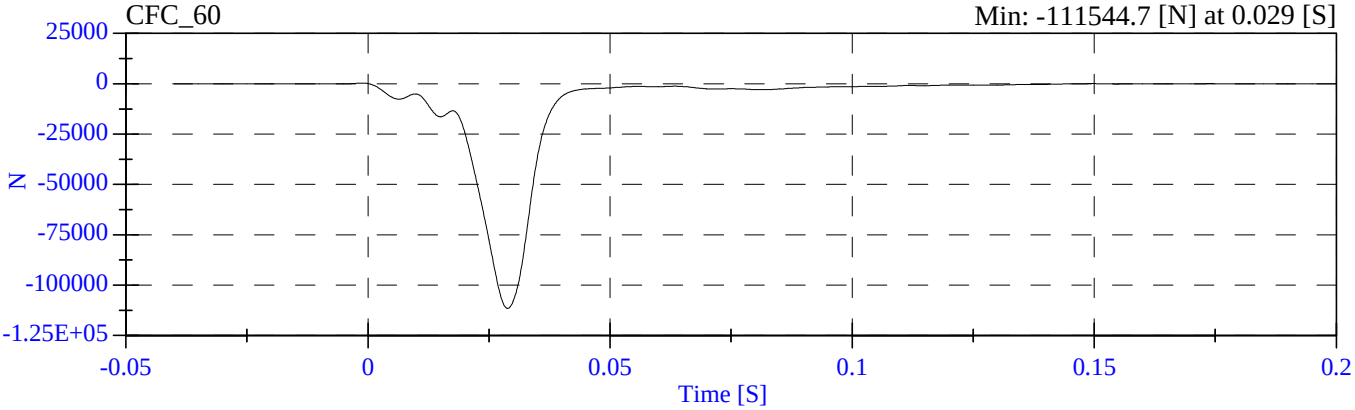
Barrier Load Cell C4 Fx
CFC_60
Max: 390.5 [N] at 0.174 [S]
Min: -47774.7 [N] at 0.025 [S]



Barrier Load Cell C5 Fx
CFC_60
Max: 531.5 [N] at 0.012 [S]
Min: -49976.3 [N] at 0.031 [S]



Barrier Load Cell C6 Fx
CFC_60
Max: 278.6 [N] at -0.001 [S]
Min: -111544.7 [N] at 0.029 [S]



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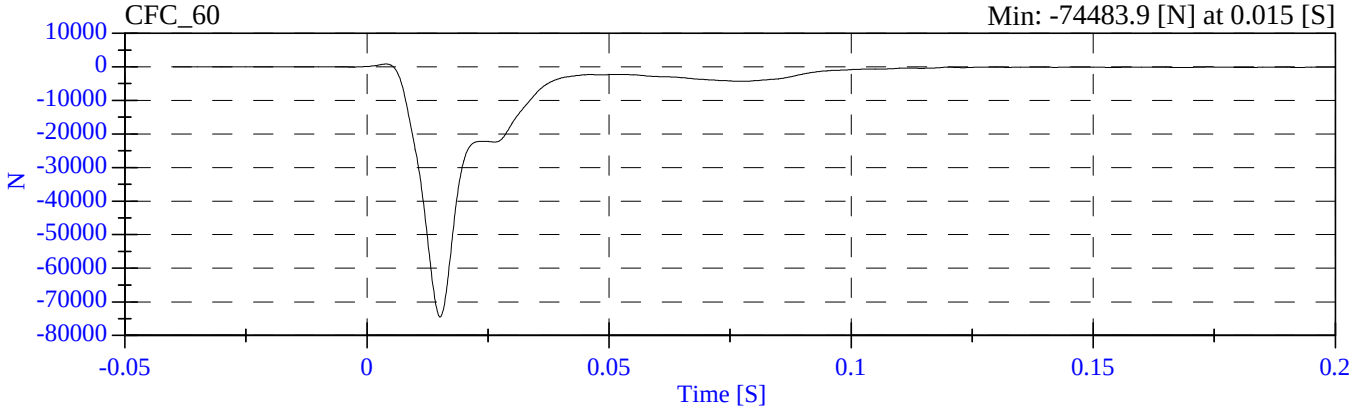
Barrier Load Cell C7 Fx

CFC_60

Max: 849.9 [N] at 0.004 [S]

Min: -74483.9 [N] at 0.015 [S]

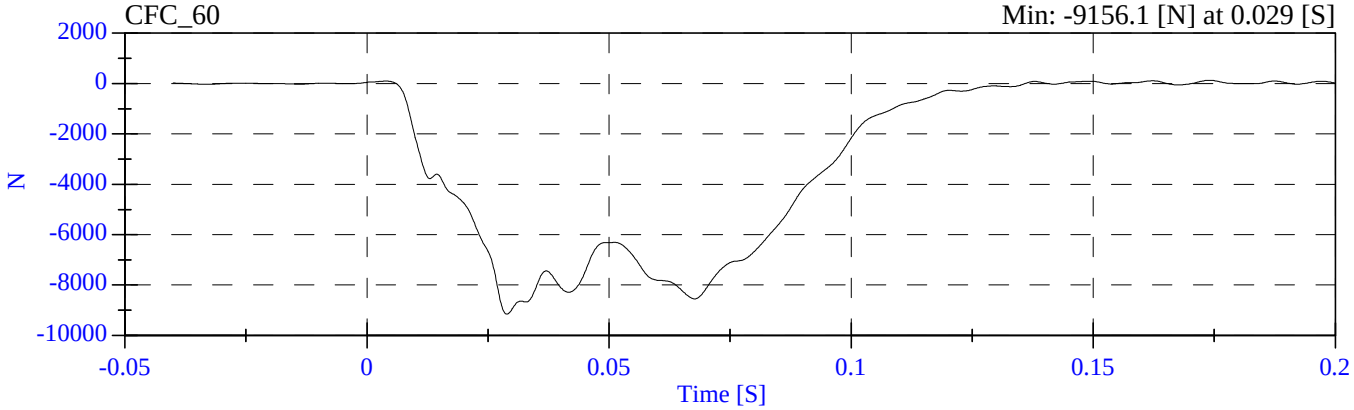


Barrier Load Cell C8 Fx

CFC_60

Max: 136.3 [N] at 0.174 [S]

Min: -9156.1 [N] at 0.029 [S]

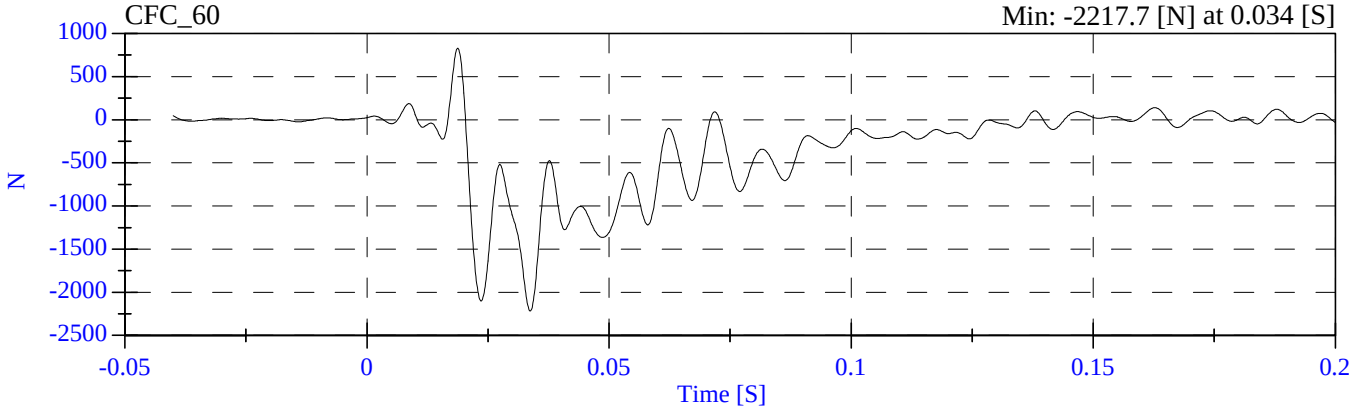


Barrier Load Cell C9 Fx

CFC_60

Max: 829.8 [N] at 0.019 [S]

Min: -2217.7 [N] at 0.034 [S]

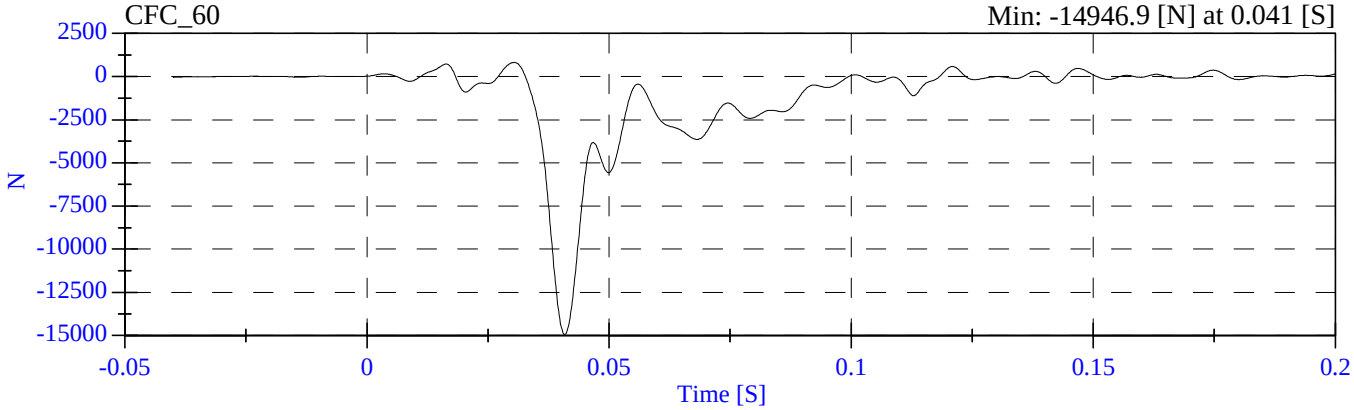


Barrier Load Cell D1 Fx

CFC_60

Max: 825.7 [N] at 0.030 [S]

Min: -14946.9 [N] at 0.041 [S]



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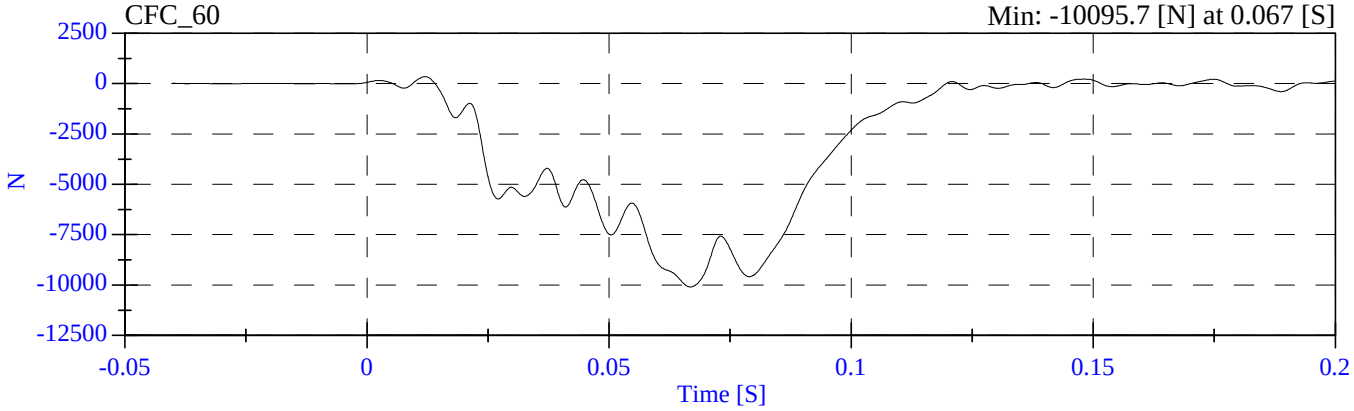
Barrier Load Cell D2 Fx

Max: 352.4 [N] at 0.012 [S]

CFC_60

Min: -10095.7 [N] at 0.067 [S]

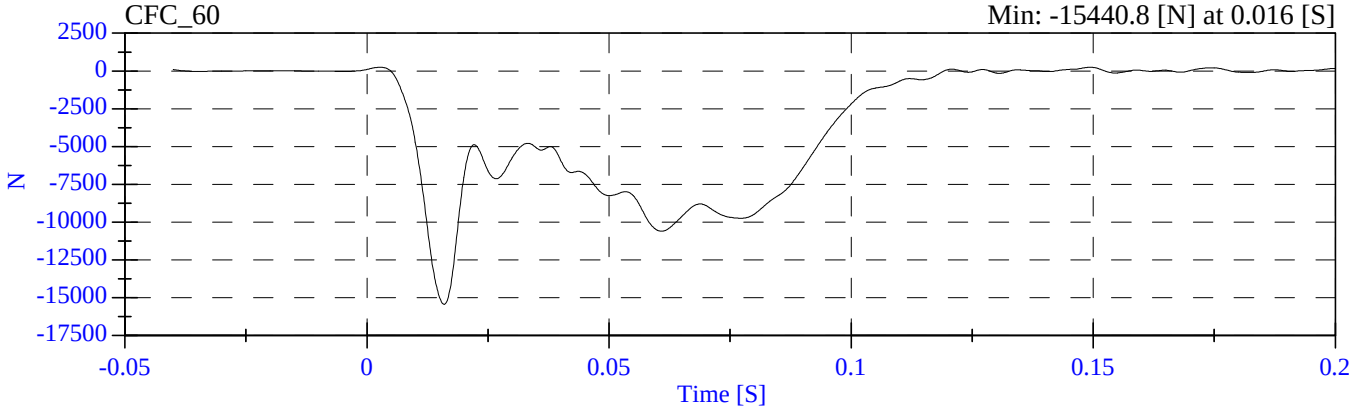


Barrier Load Cell D3 Fx

Max: 257.9 [N] at 0.149 [S]

CFC_60

Min: -15440.8 [N] at 0.016 [S]

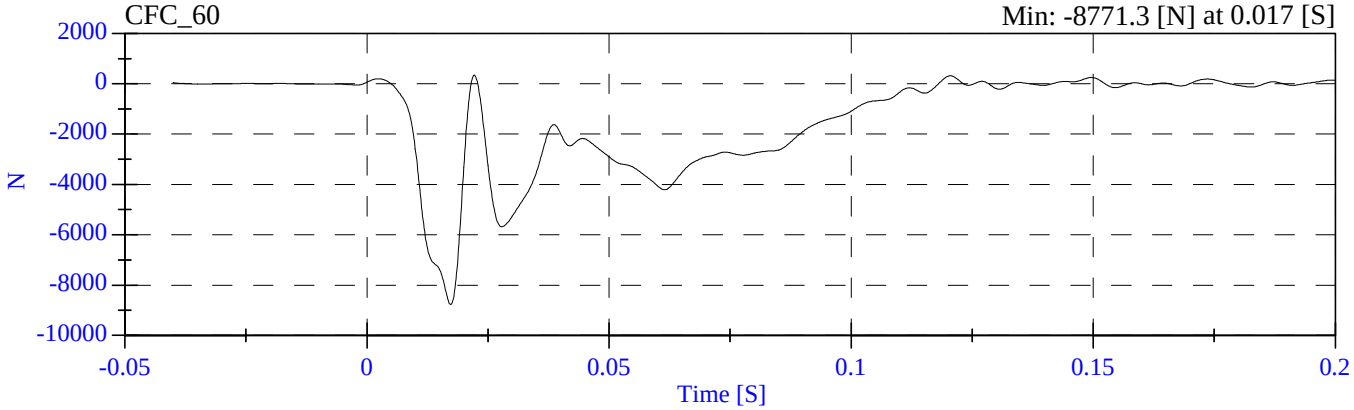


Barrier Load Cell D4 Fx

Max: 341.4 [N] at 0.022 [S]

CFC_60

Min: -8771.3 [N] at 0.017 [S]

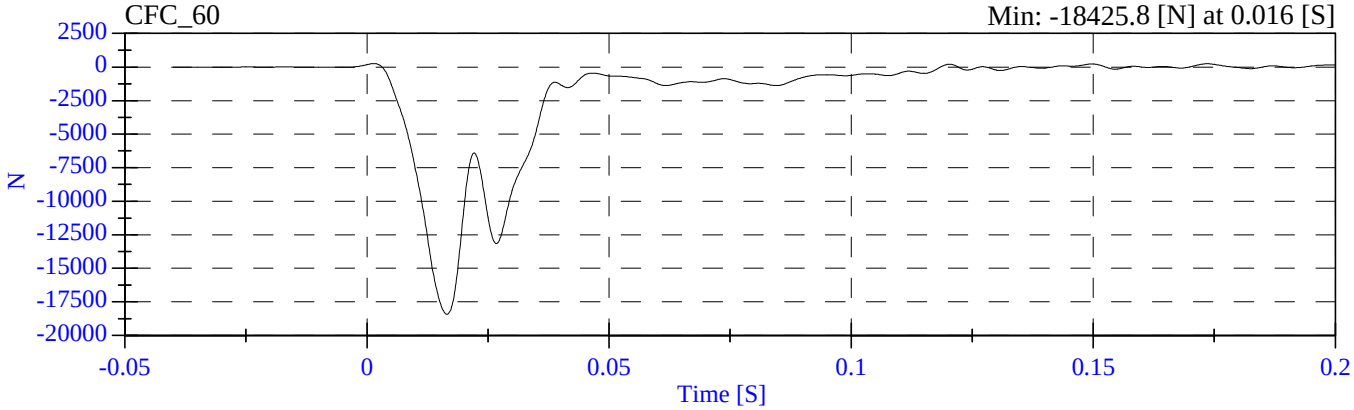


Barrier Load Cell D5 Fx

Max: 258.9 [N] at 0.001 [S]

CFC_60

Min: -18425.8 [N] at 0.016 [S]



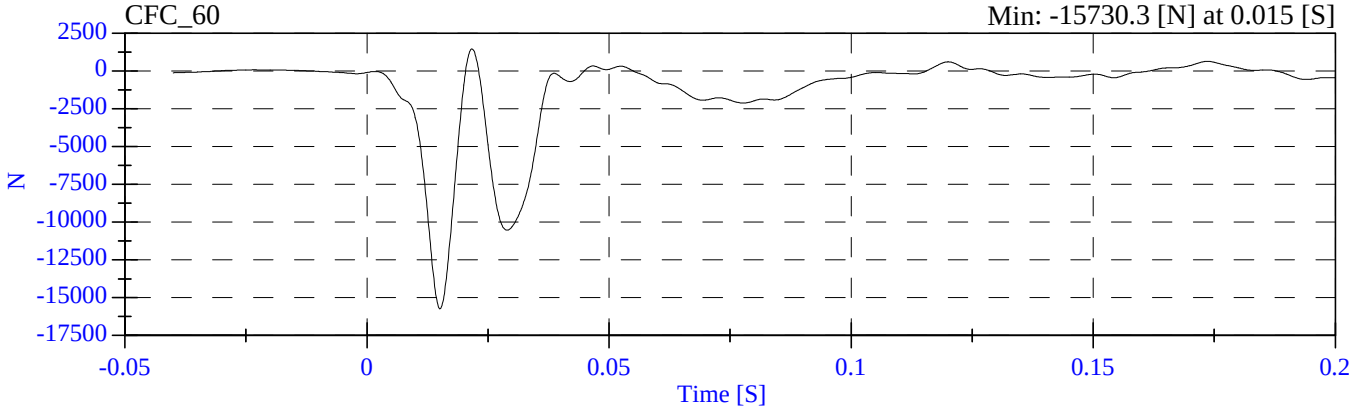
2005 NCAP Test 10 - 2005 Acura MDX
M55300 - February 24, 2004

Barrier Load Cell D6 Fx

CFC_60

Max: 1470.8 [N] at 0.022 [S]

Min: -15730.3 [N] at 0.015 [S]

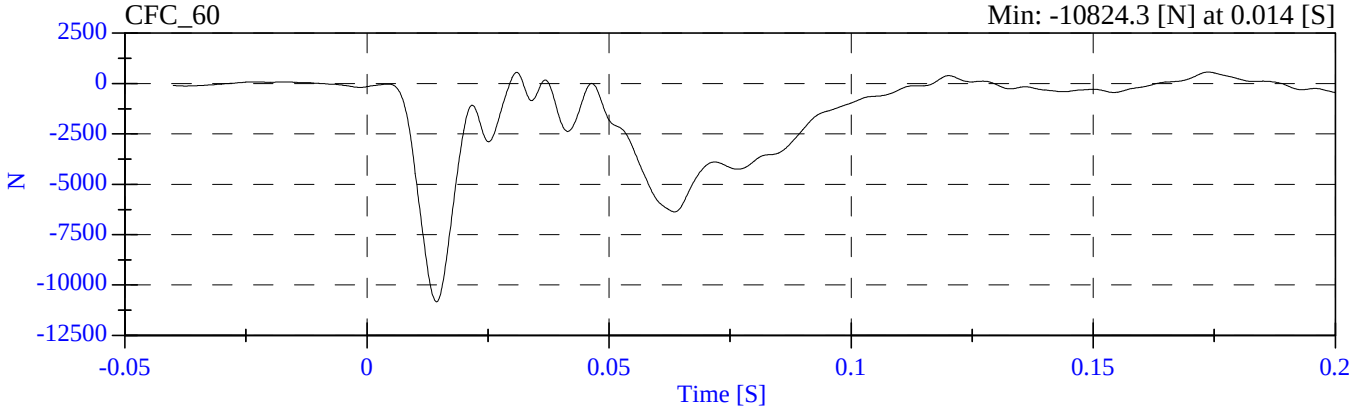


Barrier Load Cell D7 Fx

CFC_60

Max: 574.0 [N] at 0.174 [S]

Min: -10824.3 [N] at 0.014 [S]

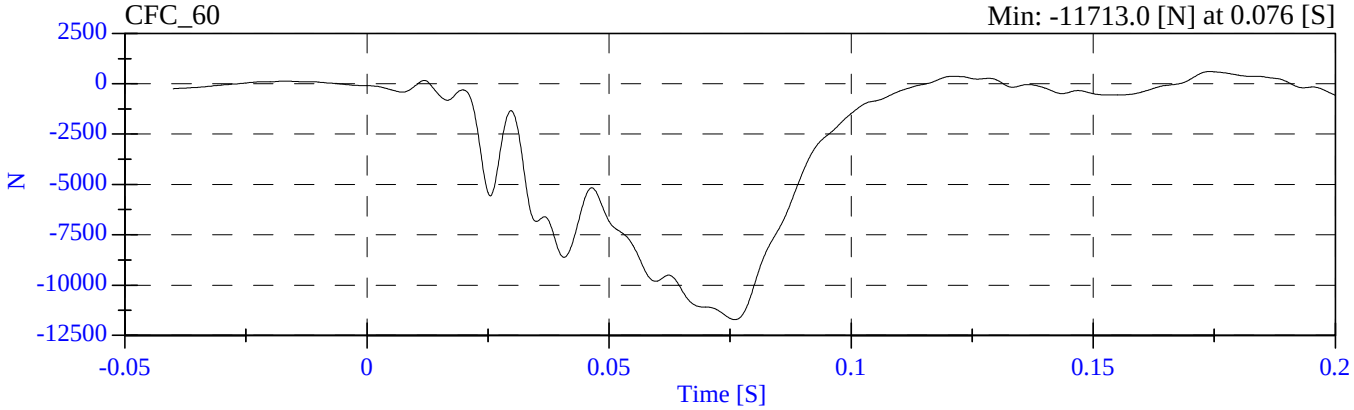


Barrier Load Cell D8 Fx

CFC_60

Max: 614.6 [N] at 0.174 [S]

Min: -11713.0 [N] at 0.076 [S]

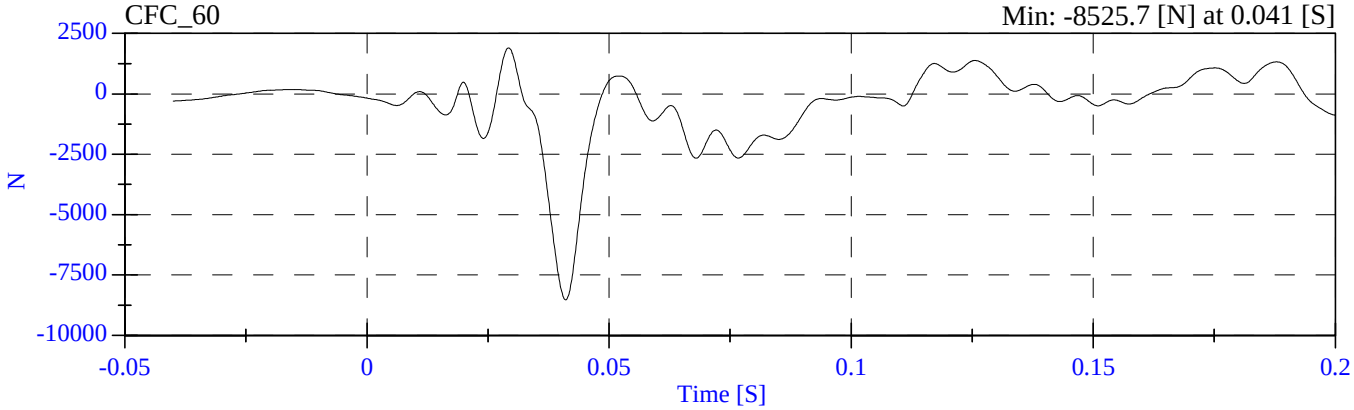


Barrier Load Cell D9 Fx

CFC_60

Max: 1904.0 [N] at 0.029 [S]

Min: -8525.7 [N] at 0.041 [S]



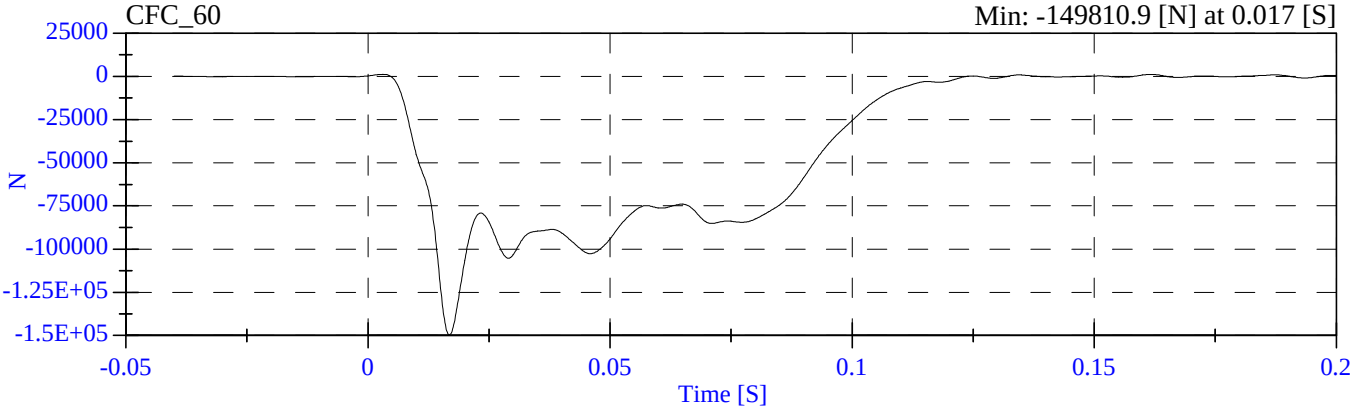
2005 NCAP Test 10 - 2005 Acura MDX
M55300 - February 24, 2004

Group 1 Load Cell Sum (A1,A2,A3,B1,B2,B3)

Max: 1265.2 [N] at 0.003 [S]

CFC_60

Min: -149810.9 [N] at 0.017 [S]

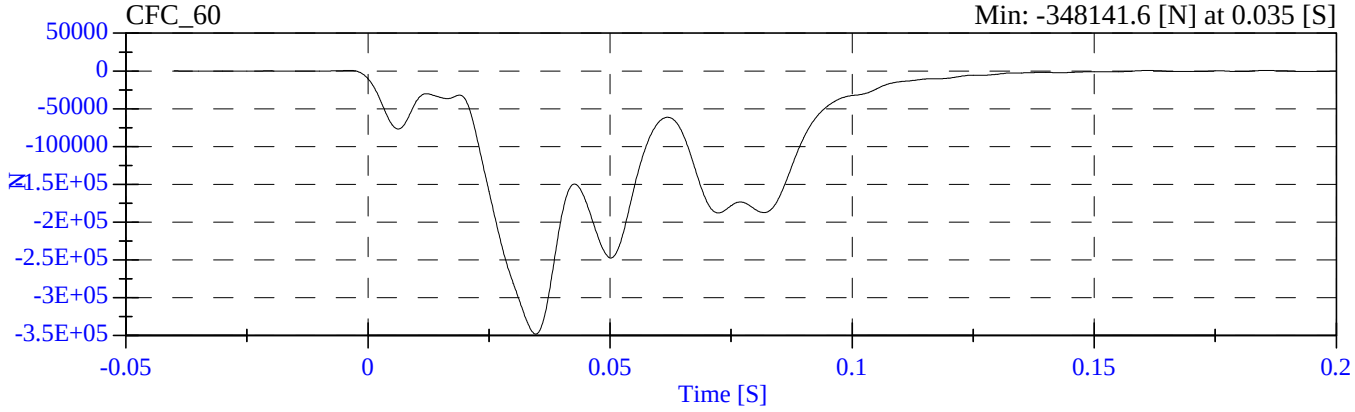


Group 2 Load Cell Sum (A4,A5,A6,B4,B5,B6)

Max: 874.9 [N] at -0.004 [S]

CFC_60

Min: -348141.6 [N] at 0.035 [S]

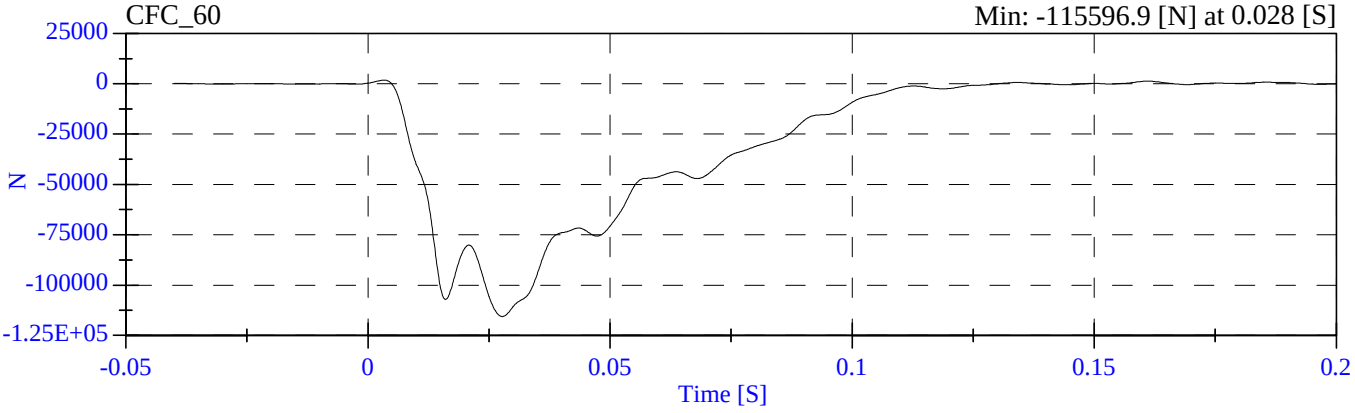


Group 3 Load Cell Sum (A7,A8,A9,B7,B8,B9)

Max: 1839.1 [N] at 0.003 [S]

CFC_60

Min: -115596.9 [N] at 0.028 [S]

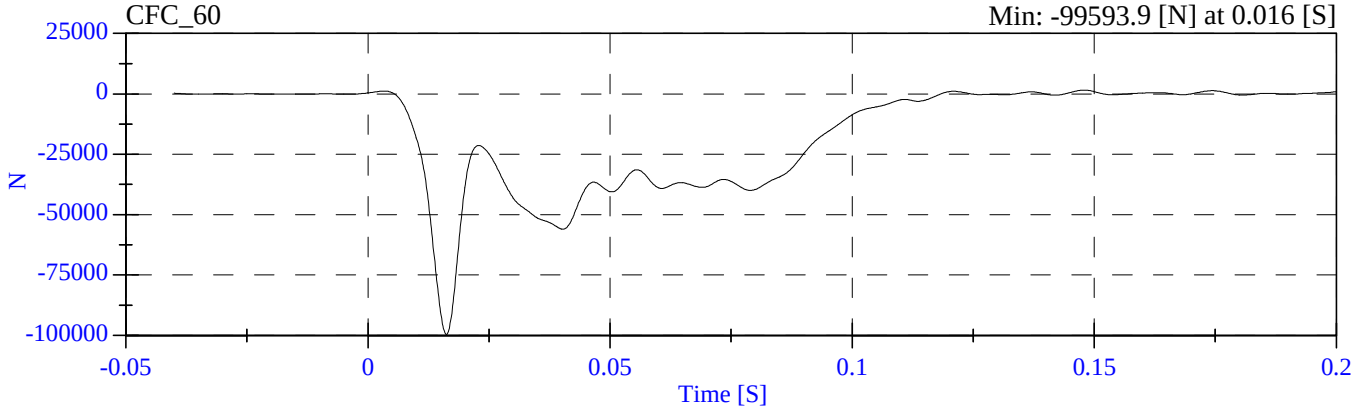


Group 4 Load Cell Sum (C1,C2,C3,D1,D2,D3)

Max: 1561.0 [N] at 0.148 [S]

CFC_60

Min: -99593.9 [N] at 0.016 [S]



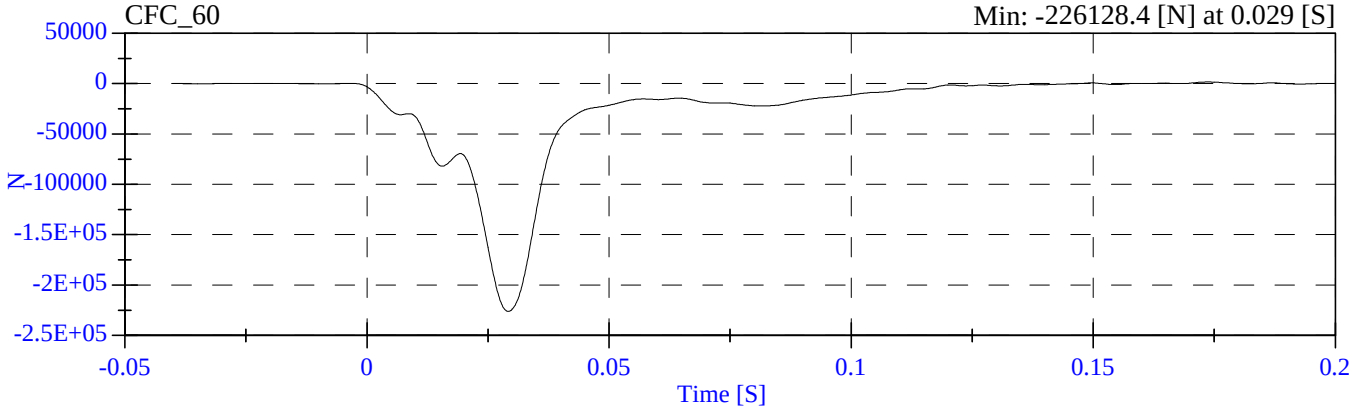
2005 NCAP Test 10 - 2005 Acura MDX
M55300 - February 24, 2004

Group 5 Load Cell Sum (C4,C5,C6,D4,D5,D6)

Max: 1667.4 [N] at 0.174 [S]

CFC_60

Min: -226128.4 [N] at 0.029 [S]

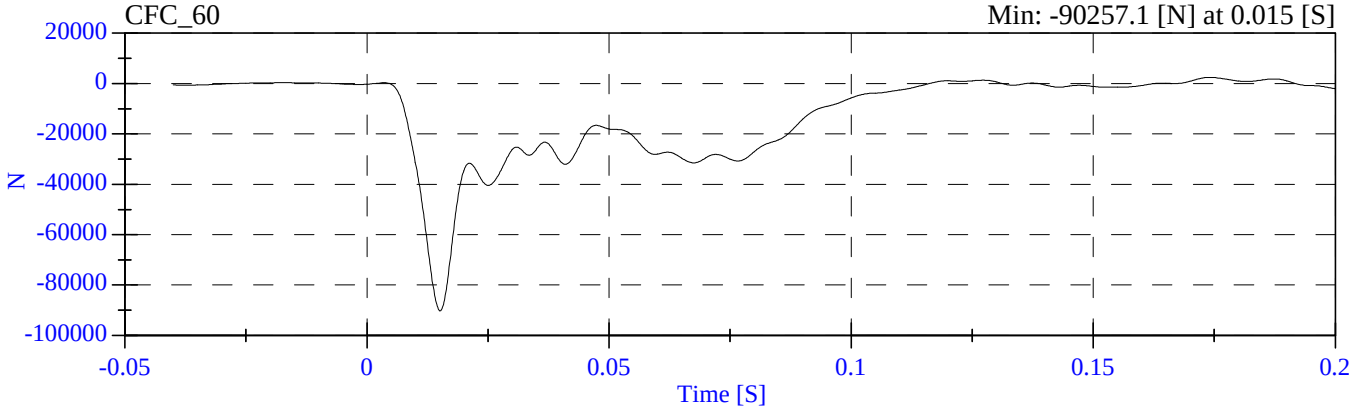


Group 6 Load Cell Sum (C7,C8,C9,D7,D8,D9)

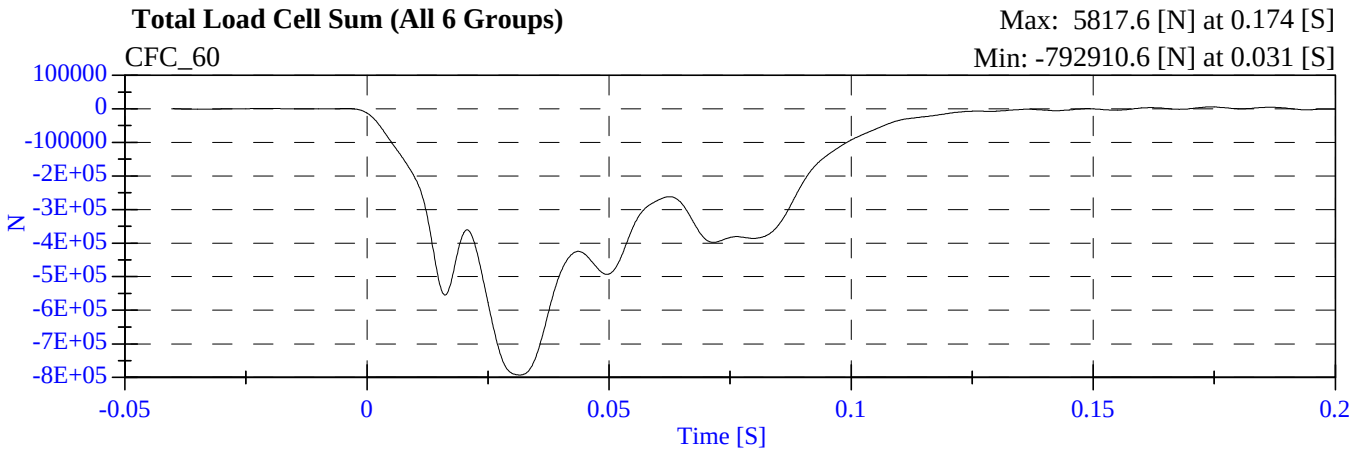
Max: 2478.1 [N] at 0.174 [S]

CFC_60

Min: -90257.1 [N] at 0.015 [S]



2005 NCAP Test 10 - 2005 Acura MDX
M55300 - February 24, 2004



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 Calspan. A summary of the test results, and Part 572 specifications are included in this Appendix.

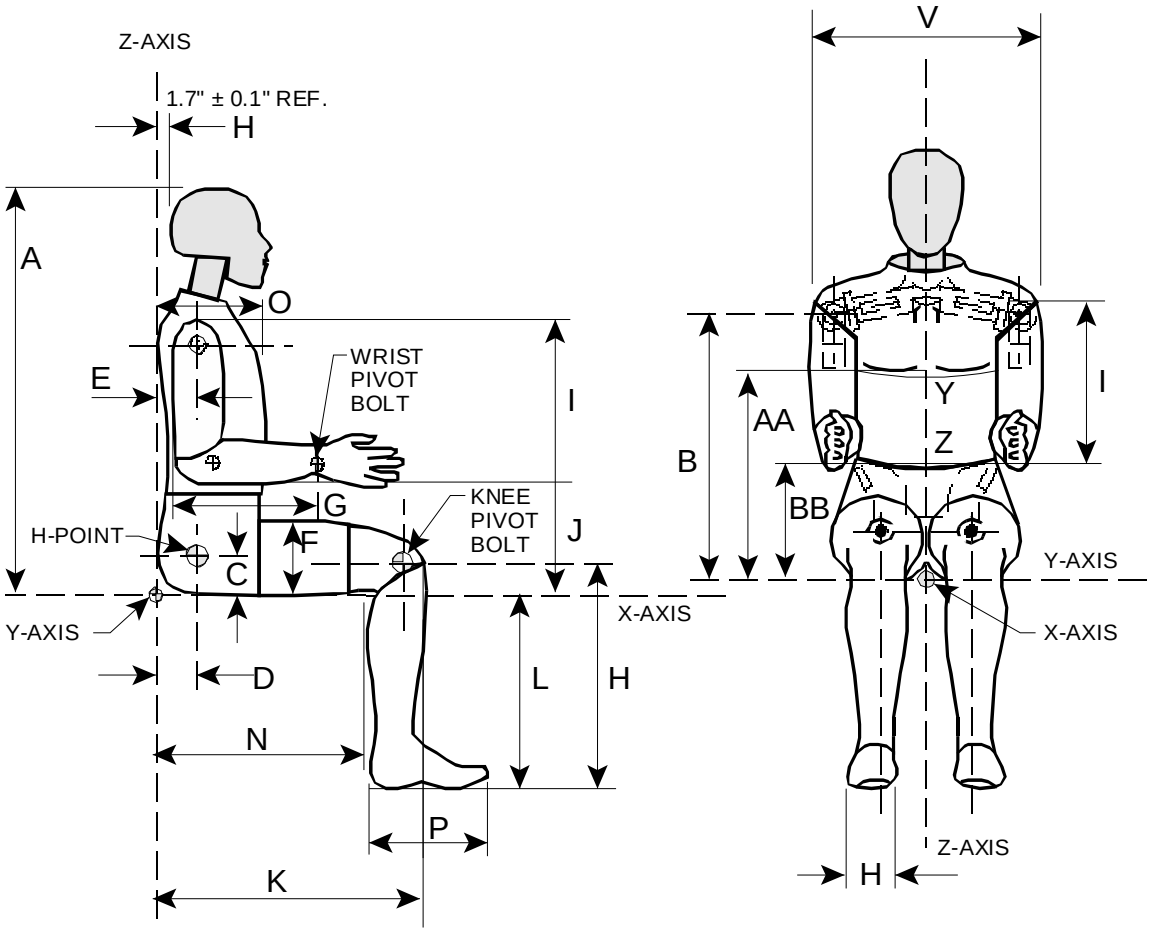
Dummy serial numbers and certification dates are:

Position No./Location	Serial No.	Completion Date
#1/Driver	061	February 21, 2005
#2/Right Front Passenger	064	February 21, 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 Indicant Testing Final Report No. 6525-V-1.

EXTERNAL DIMENSIONS SPECIFICATIONS



NOTE: Figure is referenced to the erect seated position. The curved lumbar does not allow the Hybrid III to be positioned in a perfect erect attitude. (REF: S572.31(A)(6))

PART 572E
HEAD DROP TEST

Dummy Serial Number	061
Sequential Test Number	1
Date	February 14, 2005
Workfile	061H 02-14-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70.00
Relative Humidity	10% - 70%	31.00
Peak Resultant Acceleration	225-275 G's	231.01
Peak Lateral Acceleration	15 G's Max	8.08
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	061	
Sequential Test Number	1	
Date	February 15, 2005	6 Axis Neck Transducer
Workfile	061NF1 02-15-2005	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	33.00
Impact Velocity		6.89 – 7.13 m/s	6.95
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	25.33
	20 ms	17.60 - 22.60 G's	21.72
	30 ms	12.50 - 18.50 G's	16.85
Max Pendulum G's Above 30 ms		29 G's Max	16.85
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	36.10
D Plane Rotation	Max	64 - 78 Deg	69.36
	Time	57 - 64 ms	58.10
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	105.75
	Time	47 - 58 ms	5030
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	113.70
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	98.00

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	061	
Sequential Test Number	1	
Date	February 15, 2005	6 Axis Neck Transducer
Workfile	061NE 02-15-05	

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 m/s	6.00
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.23
	20 ms	14.00 - 19.00 G's	18.30
	30 ms	11.00 - 16.00 G's	15.11
Max Pendulum G's Above 30 ms		22 G's Max	15.11
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	41.20
D Plane Rotation	Max	81 - 106 Deg	94.22
	Time	72 - 82 ms	73.70
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-76.47
	Time	65 - 79 ms	70.70
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	150.50
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	132.80

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	061
Sequential Test Number	3
Date	February 21, 2005
Workfile	061T3 02-21-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.00
Relative Humidity	10% - 70%	38.00
Pendulum Velocity	21.6 - 22.4 Ft/s	22.00
Maximum Deflection	2.50 - 2.86 in	2.73
Maximum Resistive Force	1160 - 1325 Lbs	1192.11
Internal Hysteresis	69 - 85 %	71.57

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	061
Sequential Test Number	1
Date	February 21, 2005
Workfile	061LF 02-21-05/061RF 02-21-05

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	1188.10
RIGHT KNEE		
Temperature	66 - 78 Deg F	70.00
Relative Humidity	10% - 70%	34.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1177.36

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 061
Sequential Test Number
Date February 21, 2005

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70.00
Relative Humidity			37.00
Location for Chest Circumference	AA	16.9 -17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	33.6
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.7
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.5
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.1
Elbow Rest Height	J	7.5 - 8.3 in	7.8
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.4
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number	064
Sequential Test Number	1
Date	February 14, 2005
Workfile	064H 02-14-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70.00
Relative Humidity	10% - 70%	31.00
Peak Resultant Acceleration	225-275 G's	251.59
Peak Lateral Acceleration	15 G's Max	1.86
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	064	
Sequential Test Number	5	
Date	February 17, 2005	6 Axis Neck Transducer
Workfile	064NF5 02-17-05	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70.00
Relative Humidity		10% - 70%	33.00
Impact Velocity		22.60 - 23.40 Ft/s	22.95
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.95
	20 ms	17.60 - 22.60 G's	22.10
	30 ms	12.50 - 18.50 G's	17.48
Max Pendulum G's Above 30 ms		29 G's Max	17.48
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	37.30
D Plane Rotation	Max	64 - 78 Deg	65.41
	Time	57 - 64 ms	58.10
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	95.47
	Time	47 - 58 ms	49.20
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	116.40
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.80

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	064	
Sequential Test Number	1	
Date	February 17, 2005	6 Axis Neck Transducer
Workfile	064NE 02-17-05	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70.00
Relative Humidity		10% - 70%	33.00
Impact Velocity		19.50 - 20.30 Ft/s	20.25
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.70
	20 ms	14.00 - 19.00 G's	18.46
	30 ms	11.00 - 16.00 G's	15.00
Max Pendulum G's Above 30 ms		22 G's Max	15.00
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	39.80
D Plane Rotation	Max	81 - 106 Deg	95.18
	Time	72 - 82 ms	76.80
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-63.45
	Time	65 - 79 ms	72.30
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	162.00
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	140.80

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	064
Sequential Test Number	1
Date	February 21, 2005
Workfile	064T 02-21-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.00
Relative Humidity	10% - 70%	38.00
Pendulum Velocity	21.6 - 22.4 Ft/s	22.00
Maximum Deflection	2.50 - 2.86 in	2.54
Maximum Resistive Force	1160 - 1325 Lbs	1214.60
Internal Hysteresis	69 - 85 %	76.40

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	064
Sequential Test Number	1
Date	February 21, 2005
Workfile	064LF 02-21-05/064RF 02-21-05

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70.00
Relative Humidity	10% - 70%	34.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1192.21
RIGHT KNEE		
Temperature	66 - 78 Deg F	70.00
Relative Humidity	10% - 70%	34.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1151.04

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 064
Sequential Test Number 1
Date February 21, 2005

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70.00
Relative Humidity			37.00
Location for Chest Circumference	AA	16.9 -17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	34.0
Chest Depth	O	8.4 - 9.0 in	8.6
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.3
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.2
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.4
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

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 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-P32276	19-Jan-05	20-Jul-05
	Y	ENDEVCO	AC-P32146	19-Jan-05	20-Jul-05
	Z	ENDEVCO	AC-P32217	19-Jan-05	20-Jul-05
Head	X (R)	ENDEVCO	AC-P32289	19-Jan-05	20-Jul-05
	Y (R)	ENDEVCO	AC-P32225	19-Jan-05	20-Jul-05
	Z (R)	ENDEVCO	AC-P32453	19-Jan-05	20-Jul-05
Neck Load Cell	X	DENTON	LC-1633Fx	05-Aug-04	03-Feb-05
	Y	DENTON	LC-1633Fy	05-Aug-04	03-Feb-05
	Z	DENTON	LC-1633Fz	05-Aug-04	03-Feb-05
Neck Moment	X	DENTON	LC-1633Mx	05-Aug-04	03-Feb-05
	Y	DENTON	LC-1633My	05-Aug-04	03-Feb-05
	Z	DENTON	LC-1633Mz	05-Aug-04	03-Feb-05
Chest	X	ENDEVCO	AC-P16863	19-Jan-05	20-Jul-05
	Y	ENDEVCO	AC-P17283	19-Jan-05	20-Jul-05
	Z	ENDEVCO	AC-P23640	19-Jan-05	20-Jul-05
Chest	X (R)	ENDEVCO	AC-P17235	19-Jan-05	20-Jul-05
	Y (R)	ENDEVCO	AC-P17285	19-Jan-05	20-Jul-05
	Z (R)	ENDEVCO	AC-P14393	19-Jan-05	20-Jul-05
Chest Deflection	X	SERVO	DS-061	11-Nov-04	12-May-05
Pelvic	X	ENDEVCO	AC-P23939	08-Sep-04	09-Mar-05
	Y	ENDEVCO	AC-P23999	08-Sep-04	09-Mar-05
	Z	ENDEVCO	AC-P23993	08-Sep-04	09-Mar-05

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	GSE	LC-656	05-Nov-04	06-May-05
Right Femur Load Cell	Fz	GSE	LC-657	05-Nov-04	06-May-05
Left Upper Tibia	Mx	DENTON	LC-199Mx	24-Aug-04	22-Feb-05
	My	DENTON	LC-199My	24-Aug-04	22-Feb-05
Left Lower Tibia	Fz	DENTON	LC-128Fz	23-Aug-04	21-Feb-05
	Mx	DENTON	LC-128Mx	23-Aug-04	21-Feb-05
	My	DENTON	LC-128My	23-Aug-04	21-Feb-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-AJ8C0	08-Nov-04	09-May-05
	Z	ENDEVCO	AC-J19868	08-Nov-04	09-May-05
Left Foot Front	Z	ENDEVCO	AC-J34378	08-Nov-04	09-May-05
Right Foot Rear	X	ENTRAN	AC-01G18-F15	08-Nov-04	09-May-05
	Z	ENTRAN	AC-01G18-F14	08-Nov-04	09-May-05
Right Foot Front	Z	ENTRAN	AC-00L13-F04	08-Nov-04	09-May-05
Lap Belt Load Cell		LEBOW	LC-707	01-Nov-04	02-May-05
Shoulder Belt Load Cell		First Technology	LC-170	01-Nov-04	02-May-05

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-P18524	24-Jan-05	25-Jul-05
	Y	ENDEVCO	AC-P18518	24-Jan-05	25-Jul-05
	Z	ENDEVCO	AC-P18533	24-Jan-05	25-Jul-05
Head	X (R)	ENDEVCO	AC-P18514	24-Jan-05	25-Jul-05
	Y (R)	ENDEVCO	AC-P18688	24-Jan-05	25-Jul-05
	Z (R)	ENDEVCO	AC-P18531	24-Jan-05	25-Jul-05
Neck Load Cell	X	DENTON	LC-1634Fx	05-Aug-04	03-Feb-05
	Y	DENTON	LC-1634Fy	05-Aug-04	03-Feb-05
	Z	DENTON	LC-1634Fz	05-Aug-04	03-Feb-05
Neck Moment	X	DENTON	LC-1634Mx	05-Aug-04	03-Feb-05
	Y	DENTON	LC-1634My	05-Aug-04	03-Feb-05
	Z	DENTON	LC-1634Mz	05-Aug-04	03-Feb-05
Chest	X	ENDEVCO	AC-P17141	24-Jan-05	25-Jul-05
	Y	ENDEVCO	AC-P16832	24-Jan-05	25-Jul-05
	Z	ENDEVCO	AC-P17152	24-Jan-05	25-Jul-05
Chest	X (R)	ENDEVCO	AC-P16286	24-Jan-05	25-Jul-05
	Y (R)	ENDEVCO	AC-P17242	24-Jan-05	25-Jul-05
	Z (R)	ENDEVCO	AC-P16591	24-Jan-05	25-Jul-05
Chest Deflection	X	SERVO	DS-064	11-Nov-04	12-May-05
Pelvic	X	ENDEVCO	AC-P12587	16-Aug-04	14-Feb-05
	Y	ENDEVCO	AC-P17236	16-Aug-04	14-Feb-05
	Z	ENDEVCO	AC-P16597	16-Aug-04	14-Feb-05

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	GSE	LC-653	05-Nov-04	06-May-05
Right Femur Load Cell	Fz	GSE	LC-654	05-Nov-04	06-May-05
Left Upper Tibia	Mx	DENTON	LC-264Mx	23-Aug-04	21-Feb-05
	My	DENTON	LC-264My	23-Aug-04	21-Feb-05
Left Lower Tibia	Fz	DENTON	LC-177Fz	23-Aug-04	21-Feb-05
	Mx	DENTON	LC-177Mx	23-Aug-04	21-Feb-05
	My	DENTON	LC-177My	23-Aug-04	21-Feb-05
Right Upper Tibia	Mx	DENTON	LC-265Mx	10-Aug-04	08-Feb-05
	My	DENTON	LC-265My	10-Aug-04	08-Feb-05
Right Lower Tibia	Fz	DENTON	LC-178Fz	14-Aug-04	12-Feb-05
	Mx	DENTON	LC-178Mx	14-Aug-04	12-Feb-05
	My	DENTON	LC-178My	14-Aug-04	12-Feb-05
Left Foot Rear	X	ENDEVCO	AC-P17912	27-Oct-04	27-Apr-05
	Z	ENTRAN	AC-01G18-F03	08-Nov-04	09-May-05
Left Foot Front	Z	ENTRAN	AC-01G18-F05	08-Nov-04	09-May-05
Right Foot Rear	X	ENDEVCO	AC-J36176	08-Nov-04	09-May-05
	Z	ENDEVCO	AC-J18662	08-Nov-04	09-May-05
Right Foot Front	Z	ENDEVCO	AC-J18059	08-Nov-04	09-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-9440-046	14-Dec-04	14-Jun-05
Right Rear Seat Crossmember X	GS SENSORS	AC-9440-032	14-Dec-04	14-Jun-05
Top of Engine	ICS	AC-FGP15	27-Aug-04	25-Feb-05
Bottom of Engine	ICS	AC-FGP21	20-Aug-04	18-Feb-05
Right Disc Brake Caliper	GS SENSORS	AC-9440-029	09-Jun-04	08-Dec-04
Instrument Panel	ICS	AC-FGP37	27-Aug-04	25-Feb-05
Left Disc Brake Caliper	GS SENSORS	AC-9444-038	09-Jul-04	07-Jan-05
Left Seat Rear Crossmember Z	GS SENSORS	AC-9440-023	14-Dec-04	14-Jun-05
Right Seat Rear Crossmember Z	GS SENSORS	AC-9440-017	14-Dec-04	14-Jun-05

REPORT NUMBER: CAL-05-10

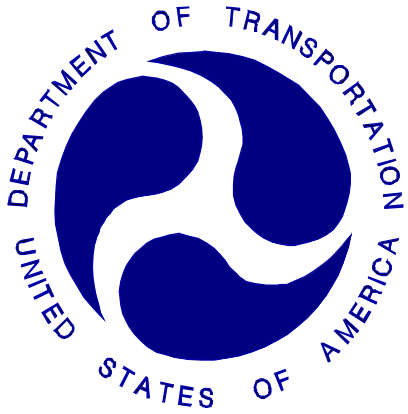
NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

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

NHTSA NUMBER: M55300

CALSPAN REPORT NUMBER: 8642-NCAP-60

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



February 24, 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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TECHNICAL REPORT STANDARD TITLE PAGE

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15. Supplementary Notes

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 Calspan Crash Test Facility in Buffalo, New York, on February 24, 2005.

ATD Position	HIC 15	HIC 36	Clip (3 ms)
P3 (Right Rear) (040)	365.2	607.4	42.6
P4 (Left Rear) (186)	597.7	909.6	57.3

17. Key Words New Car Assessment Program (NCAP)	18. Distribution Statement Copies of this report are available from: 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

19. Security Classification of Report UNCLASSIFIED	20. Security Classification of Page UNCLASSIFIED	21. No. of Pages 94	22. Price

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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 55.84 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 365.2, the 36 ms HIC was 607.4 and the maximum chest deceleration over 3 ms was 42.6 g's. The left rear child dummy's HIC (15 ms) was 597.7, the 36 ms HIC was 909.6 and the maximum chest deceleration over 3 ms was 57.3 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	Closed, Latched and Operable without tools

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. M55300

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Delivered Weight of Vehicle with Maximum Fluids = 2031.0 kg (A)

AS TESTED WEIGHT OF VEHICLE

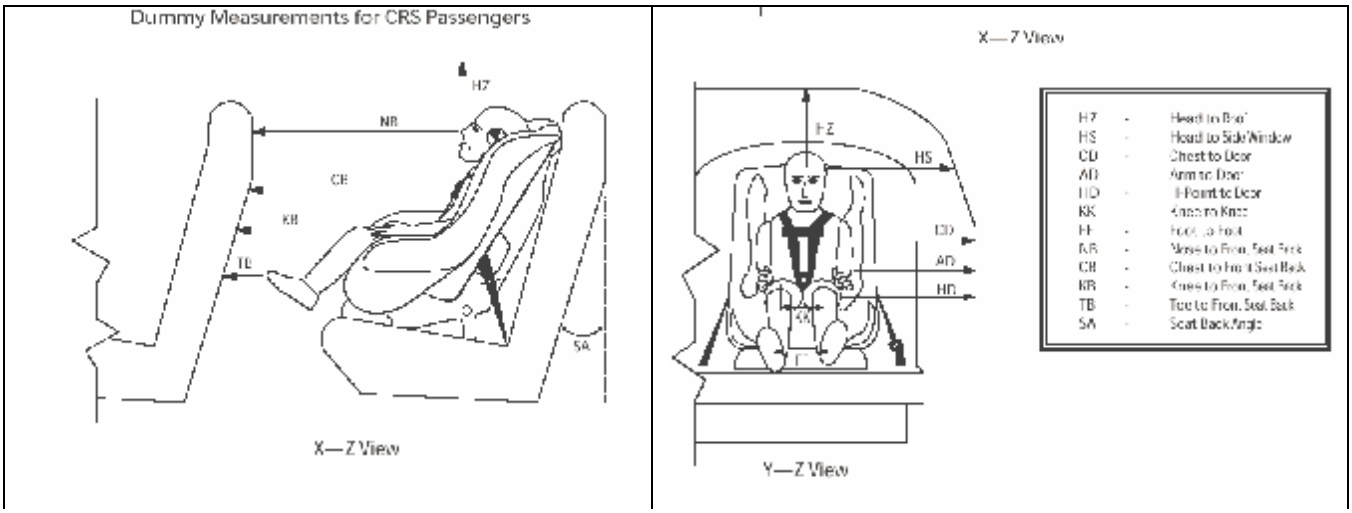
(2 P572E + 1 P572P w/ CRS + 1 P572N w/ CRS +CARGO + EQUIPMENT & INSTRUMENTATION):

Left Front	=	621.0	kg	Left Rear	=	515.5	kg
Right Front	=	609.0	kg	Right Rear	=	479.5	kg
TOTAL FRONT	=	1230.0	kg	TOTAL REAR	=	995.0	kg
TOTAL TEST WEIGHT	=	2225.0	kg				

DATA SHEET NO. 3

CHILD DUMMY POSITIONING IN VEHICLE

CRS: Evenflo Vangaurd V forward facing LATCH and Graco TurboBooster NHTSA No. M55300



Measurement	(mm)	(mm)
	P3 CRS (040)	P4 CRS (186)
SA	30	30
HS	434	413
CD	370	365
AD	235	210
HD	302	257
HZ	392	335
NB	620	640
CB	593	582
KK	90	95
FF	115	95
KB – LEFT	435	420
KB – RIGHT	435	410
TB – LEFT	135	140
TB – RIGHT	140	140
Top Tether Anchor to CRS		
Angle	-	N/A
Length	610	N/A
X	0	N/A
Y	0	N/A
Z	-610	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. M55300

		MAXIMUM VALUE							
		Position #3				Position #4			
DESCRIPTION	**Unit**	**Pos**	**msec**	**Neg**	**msec**	**Pos**	**msec**	**Neg**	**msec**
Head X	**g**	111.1	186.5	-26.3	91.0	1.6	30.1	-23.9	73.3
Head Y	**g**	2.8	78.9	-10.2	186.8	2.3	171.6	-7.4	67.0
Head Z	**g**	55.9	89.7	-6.8	49.2	71.7	83.0	-4.6	43.6
Head Resultant	**g**	116.4	186.5	0.1	-25.0	73.9	80.1	0.0	-35.7
Upper Neck Fx	**N**	64.4	183.4	-444.3	76.6	31.8	35.9	-552.7	74.0
Upper Neck Fy	**N**	62.6	79.7	-20.3	164.8	35.3	141.1	-128.6	98.7
Upper Neck Fz	**N**	1890.3	90.3	-159.9	49.0	2308.7	80.0	-172.1	36.7
Upper Neck F Resultant	**N**	1927.4	90.3	1.4	-22.7	2360.8	80.0	0.5	-40.1
Upper Neck Mx	**N-m**	2.6	70.4	-2.4	166.3	8.1	122.3	-12.8	88.7
Upper Neck My	**N-m**	9.3	86.2	-7.0	64.8	26.1	115.7	-28.8	64.7
Upper Neck Mz	**N-m**	1.4	106.1	-1.3	174.0	4.8	112.7	-2.4	66.6
Upper Neck M Resultant	**N-m**	9.3	86.2	0.0	28.5	29.5	64.7	0.1	-35.9
Lower Neck Fx	**N**	-	-	-	-	12.5	38.5	-1804.4	85.8
Lower Neck Fy	**N**	-	-	-	-	156.4	113.1	-424.9	86.6
Lower Neck Fz	**N**	-	-	-	-	1880.9	79.6	-290.1	122.3
Lower Neck F Resultant	**N**	-	-	-	-	2551.4	79.8	0.9	-27.6
Lower Neck Mx	**N-m**	-	-	-	-	4.6	142.4	-54.2	85.9
Lower Neck My	**N-m**	-	-	-	-	122.1	113.9	-3.1	199.9
Lower Neck Mz	**N-m**	-	-	-	-	31.5	114.4	-8.7	85.5
Lower Neck M Resultant	**N-m**	-	-	-	-	126.4	114.0	0.2	-15.1
Chest X	**g**	13.0	181.2	-31.3	87.8	4.2	179.9	-52.5	62.7
Chest Y	**g**	6.6	82.7	-2.3	193.5	5.4	81.4	-13.4	60.3
Chest Z	**g**	15.9	99.5	-34.5	66.3	15.5	89.1	-29.7	64.5
Chest Resultant	**g**	44.3	65.5	0.1	-25.3	58.6	62.2	0.0	-34.6
Chest Displacement	**g**	0.1	26.3	-18.9	116.7	0.0	-48.8	-27.6	71.9

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES (CONTINUED)

CRS: Evenflo Vangaurd V forward facing LATCH and Graco TurboBooster NHTSA No. M55300

		MAXIMUM VALUE							
		Position #3				Position #4			
DESCRIPTION	**Unit**	**Pos**	**msec**	**Neg**	**msec**	**Pos**	**msec**	**Neg**	**msec**
Pelvic X	**g**	7.2	153.2	-48.0	73.7	10.2	167.9	-48.7	54.8
Pelvic Y	**g**	8.9	64.0	-4.1	56.4	12.5	103.5	-12.7	55.6
Pelvic Z	**g**	23.7	190.4	-35.0	74.0	4.7	178.3	-31.5	79.0
Pelvic Resultant	**g**	59.4	74.0	0.1	-41.1	56.3	56.6	0.0	-33.3
Lap Belt Load	N	-	-	-	-	4099.4	62.0	-4.5	143.1
Torso Belt Load	N	-	-	-	-	5421.8	83.8	-1.5	-43.3
Latch Belt Load	N	4814.0	71.6	-164.2	146.7	-	-	-	-
Tether Belt Load	N	554.9	73.8	-23.5	31.4	-	-	-	-

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES (CONTINUED)

CRS: Evenflo Vangaurd V forward facing LATCH and Graco TurboBooster NHTSA No. M55300

	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	365.2	183.3	189.3	82.3 g	607.4	78.5	114.5	49.1 g
Position #4 - Left	597.7	74.8	89.8	69.2 g	909.6	64.0	100.0	57.7 g

	CLIP SUMMARY*			
	CLIP (g's)	t_1 (msec)	t_2 (msec)	CSI
Position #3 - Right	42.6	64.1	67.1	422.2
Position #4 - Left	57.3	60.0	63.0	459.7

* 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. M55300

		MAXIMUM VALUE			
DESCRIPTION	**Unit**	**Positive**	**Time (ms)**	**Negative**	**Time (ms)**
P3 CRS X	**g**	27.5	197.7	-54.9	55.2
P3 CRS Y	**g**	10.4	60.4	-8.9	185.1
P3 CRS Z	**g**	46.3	190.3	-44.1	195.2
P3 CRS Resultant	**g**	56.4	54.7	0.0	-37.5
P4 CRS X	**g**	36.1	154.6	-56.7	49.3
P4 CRS Y	**g**	14.5	108.6	-13.1	199.9
P4 CRS Z	**g**	25.0	167.5	-30.7	54.2
P4 CRS Resultant	**g**	58.9	49.1	0.0	-32.2

DATA SHEET NO. 5

CRS PERFORMANCE DATA (CONTINUED)

CRS: Evenflo Vangaurd V forward facing LATCH and Graco TurboBooster NHTSA No. M55300

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

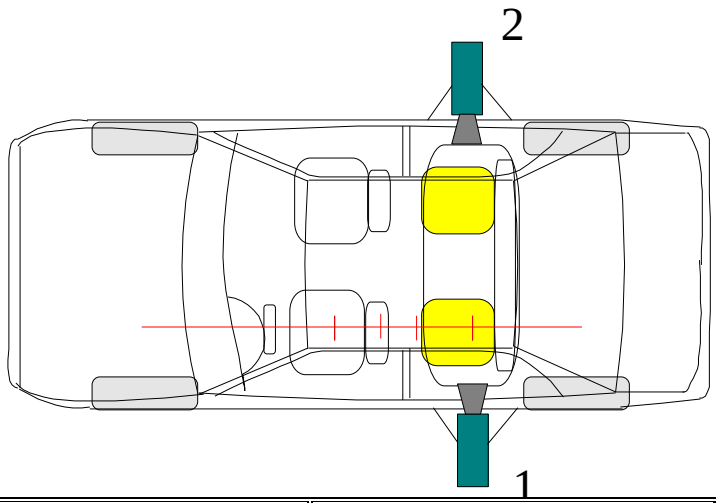
POSITION #4 CRS POST-TEST INSPECTION (Serial No. JJ 1008042008628 100804)

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	Yes	Lower cushion fabric holders pulled out of restraint base
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. M55300



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Left side CRS lateral view	3254	2540	2307	-32	28	500
2	Right side CRS lateral view	3111	2540	2268	-32	28	500

* Reference (from point of impact); all measurements accurate to within ±6 mm.
X = + Forward
Y = + To Right
Z = + Down

SECTION 3

PHOTOGRAPHS

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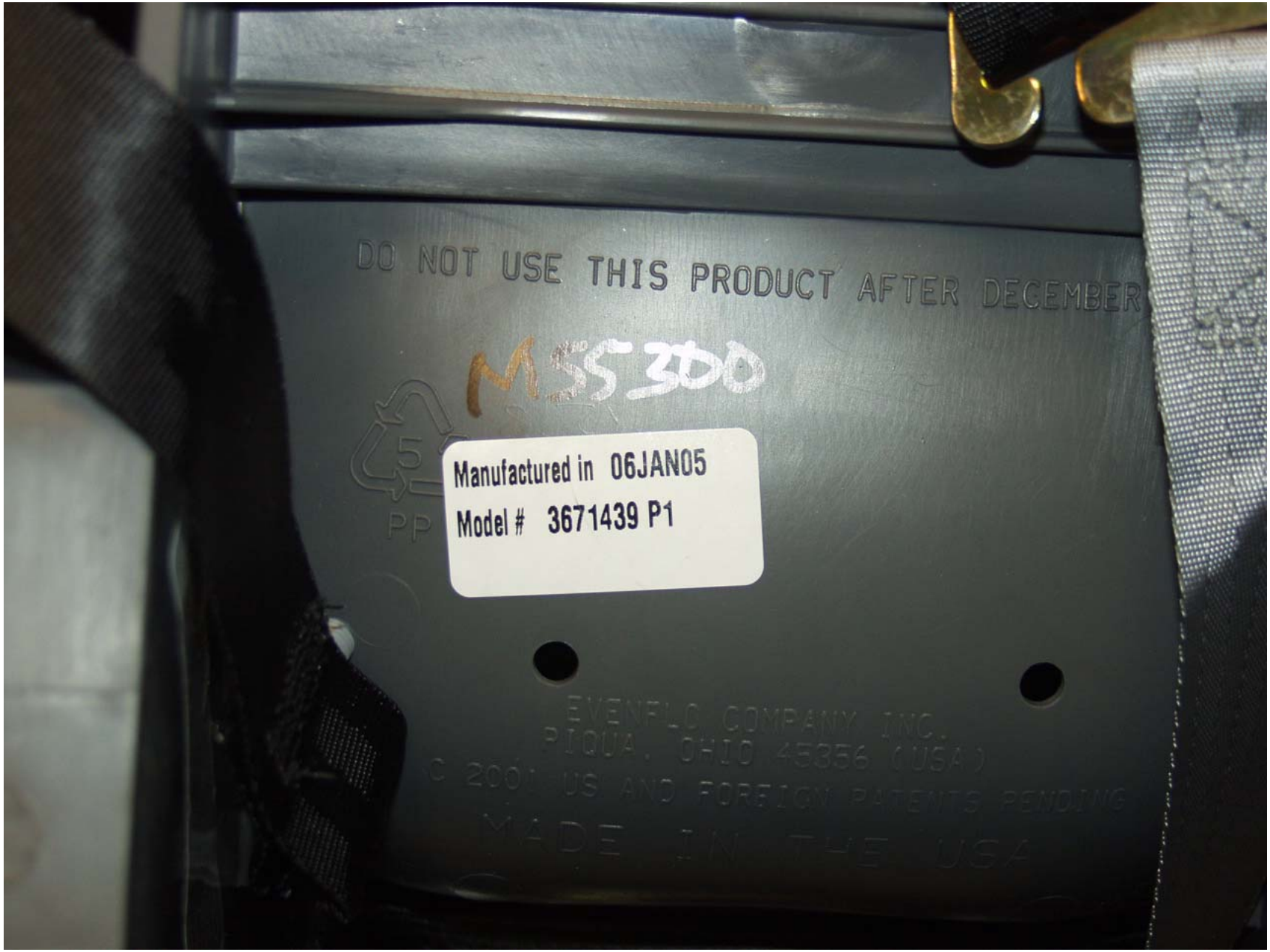

Figure 3-1 CLOSE-UP VIEW OF POSITION 3 CRS LABEL

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

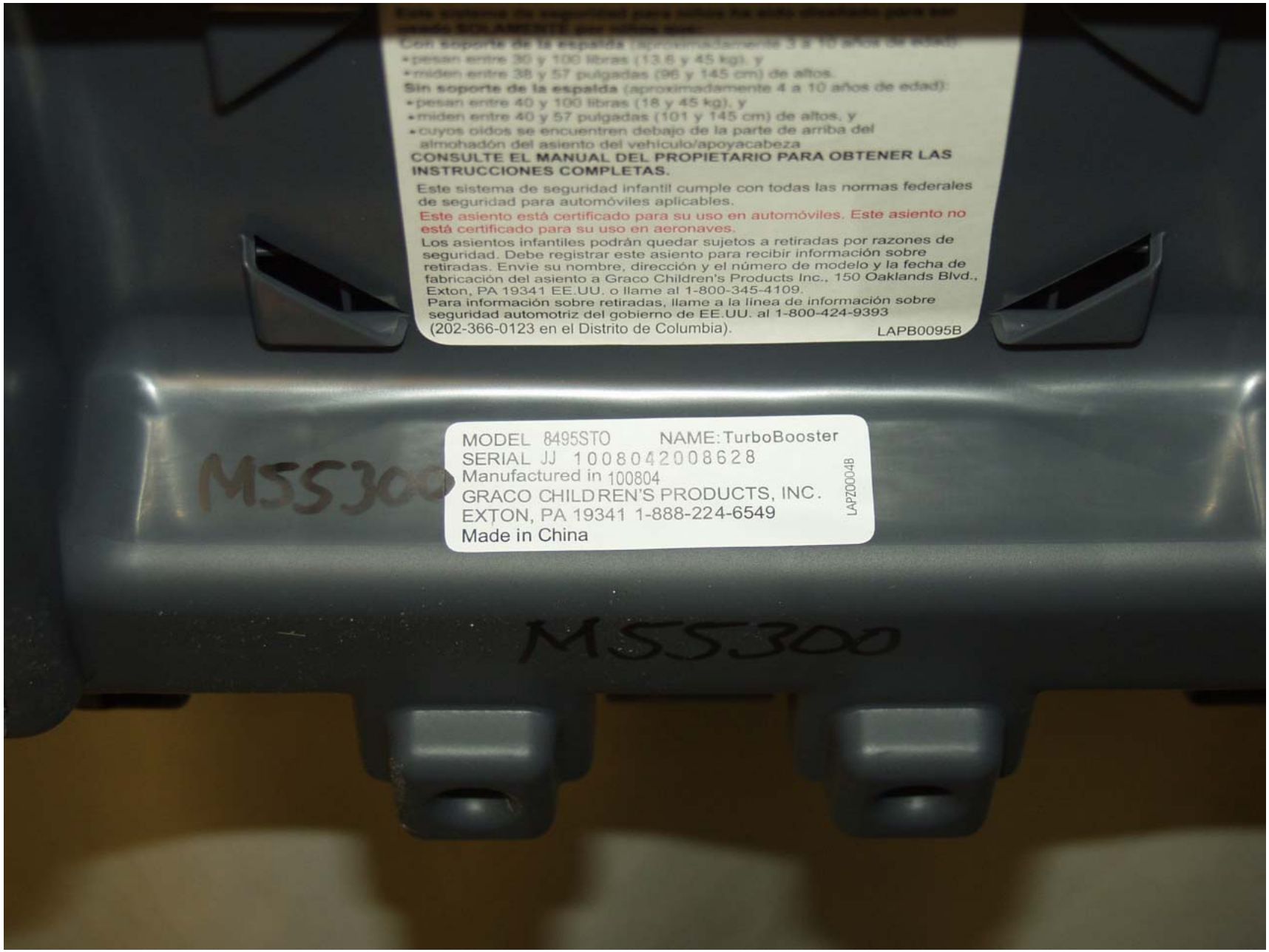

Figure 3-10 CLOSE-UP VIEW OF POSITION 4 CRS LABEL

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

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

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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

TABLE OF DATA PLOTS

TABLE OF DATA PLOTS (Continued)

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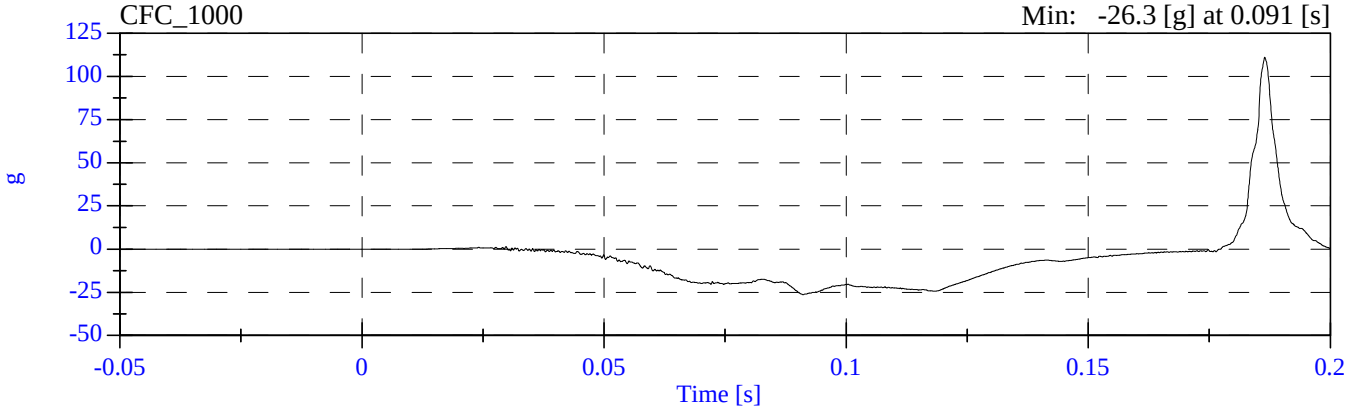
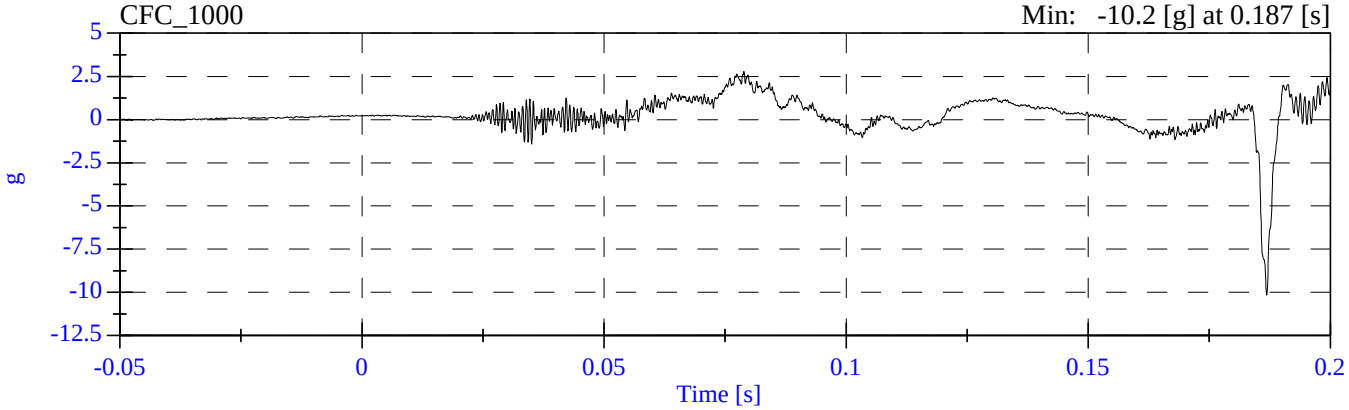
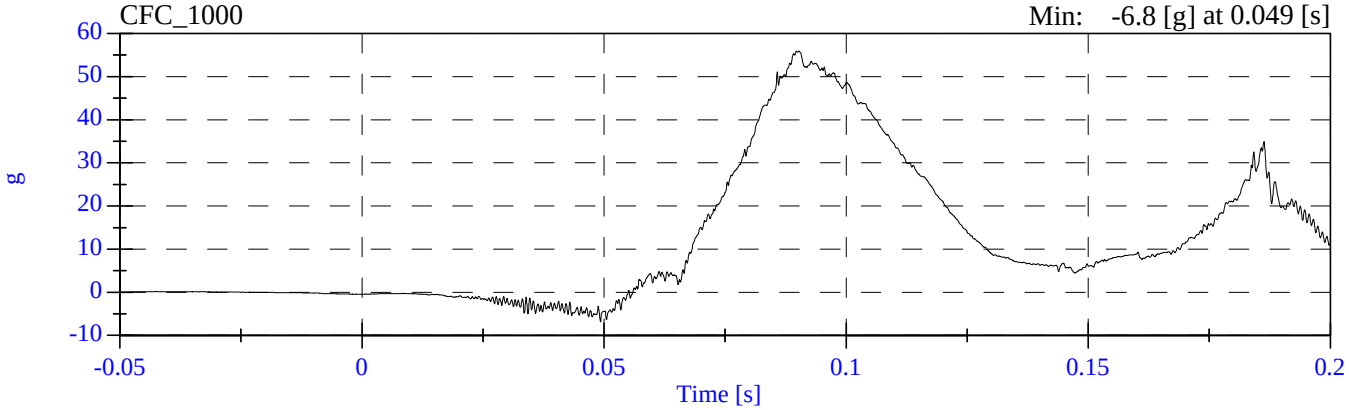
V1P3 Head x
CFC_1000
Max: 111.1 [g] at 0.186 [s]
Min: -26.3 [g] at 0.091 [s]



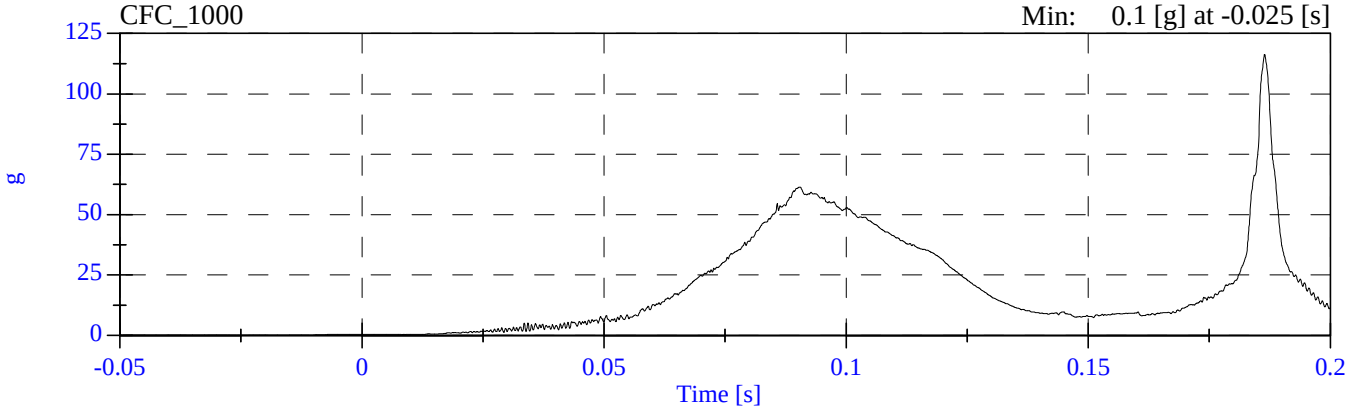
V1P3 Head y
CFC_1000
Max: 2.8 [g] at 0.079 [s]
Min: -10.2 [g] at 0.187 [s]



V1P3 Head z
CFC_1000
Max: 55.9 [g] at 0.090 [s]
Min: -6.8 [g] at 0.049 [s]



V1P3 Head Resultant
CFC_1000
Max: 116.4 [g] at 0.186 [s]
Min: 0.1 [g] at -0.025 [s]



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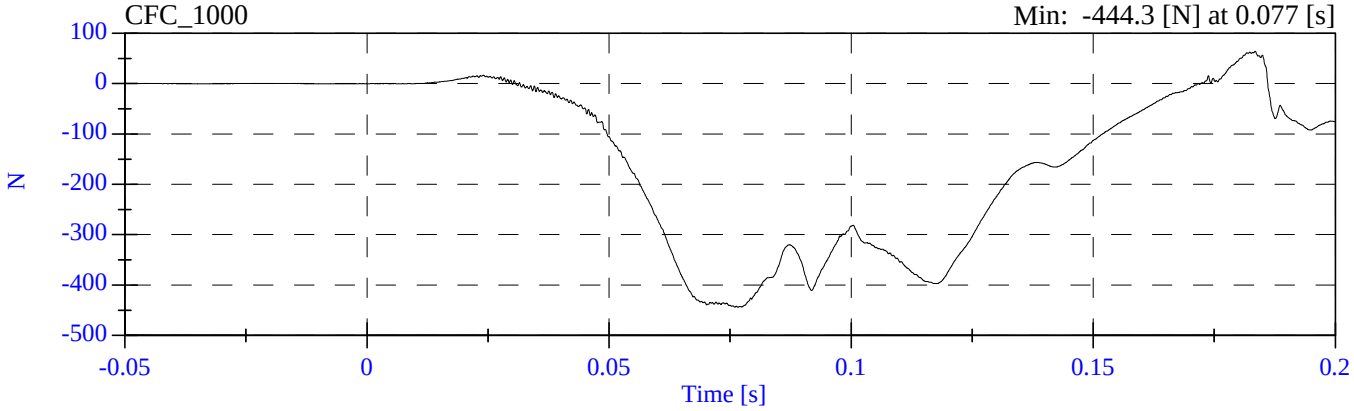
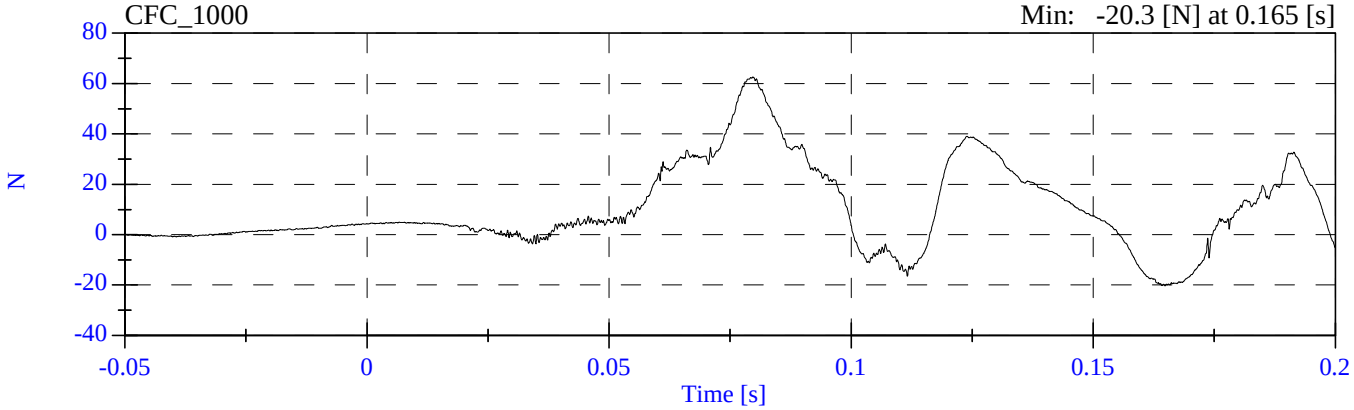
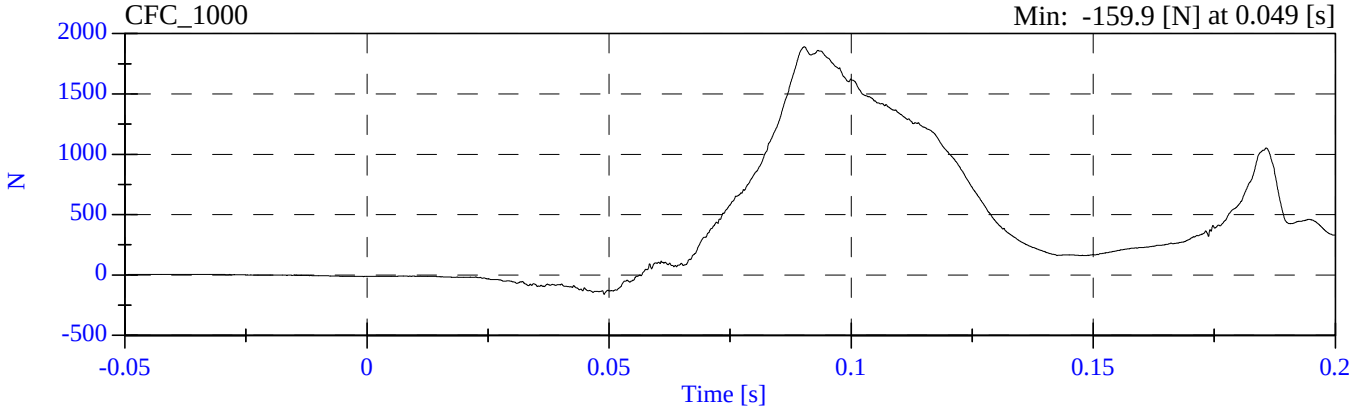
V1P3 Upper Neck Fx
CFC_1000
Max: 64.4 [N] at 0.183 [s]
Min: -444.3 [N] at 0.077 [s]



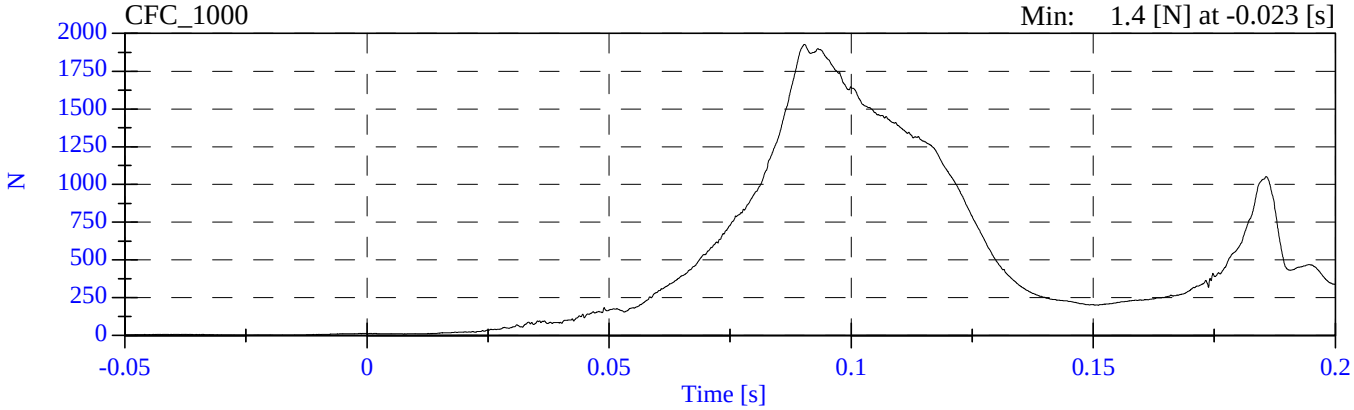
V1P3 Upper Neck Fy
CFC_1000
Max: 62.6 [N] at 0.080 [s]
Min: -20.3 [N] at 0.165 [s]



V1P3 Upper Neck Fz
CFC_1000
Max: 1890.3 [N] at 0.090 [s]
Min: -159.9 [N] at 0.049 [s]



V1P3 Upper Neck F Resultant
CFC_1000
Max: 1927.4 [N] at 0.090 [s]
Min: 1.4 [N] at -0.023 [s]



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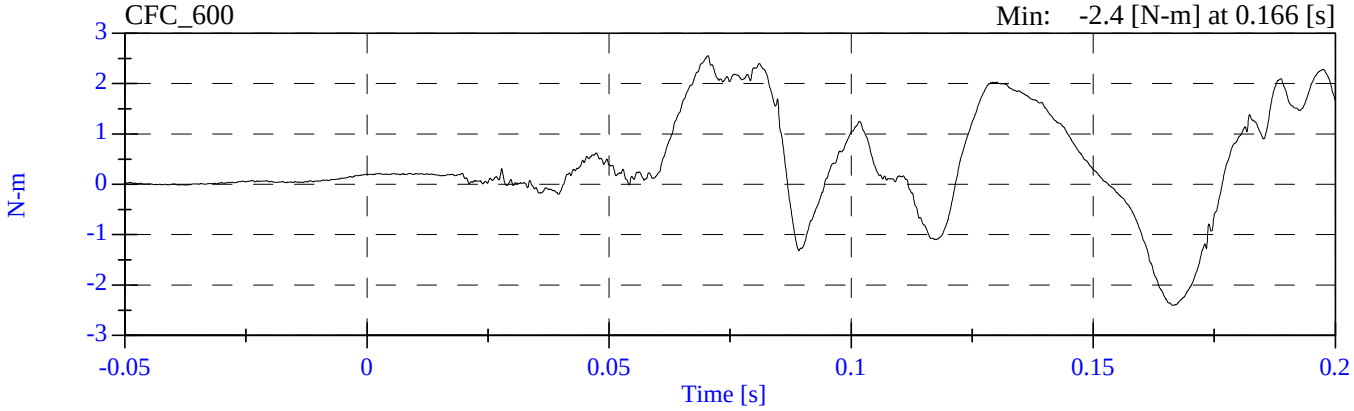
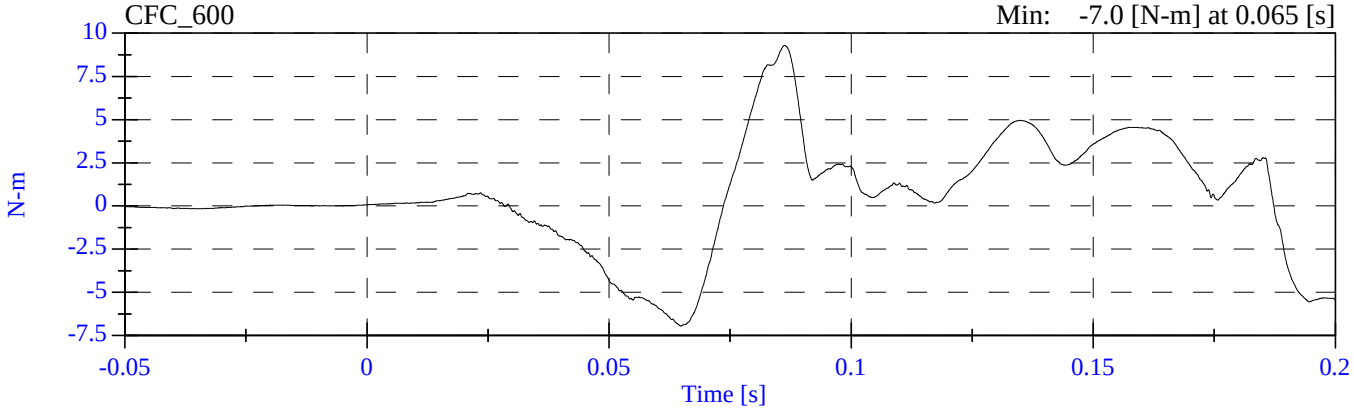
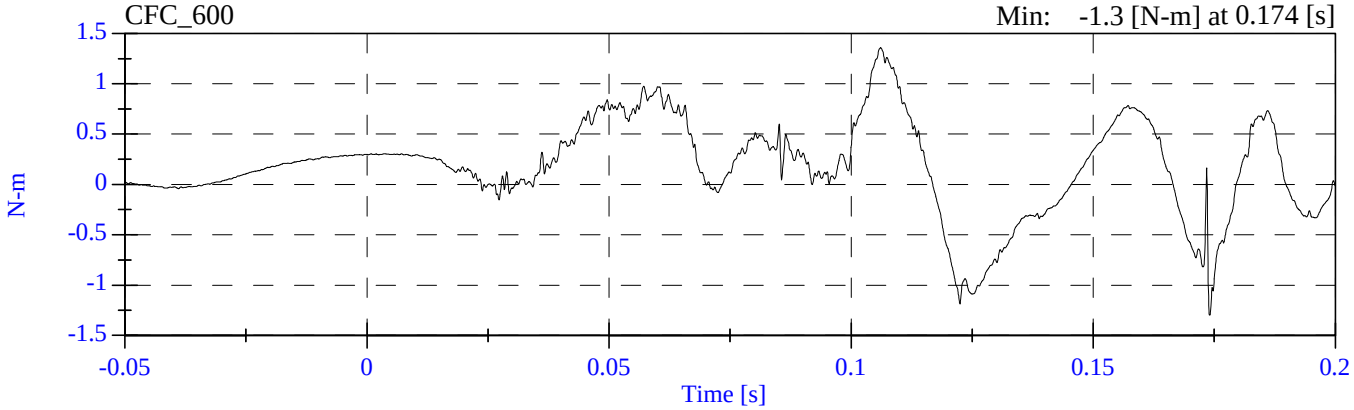
V1P3 Upper Neck Mx
CFC_600
Max: 2.6 [N-m] at 0.070 [s]
Min: -2.4 [N-m] at 0.166 [s]



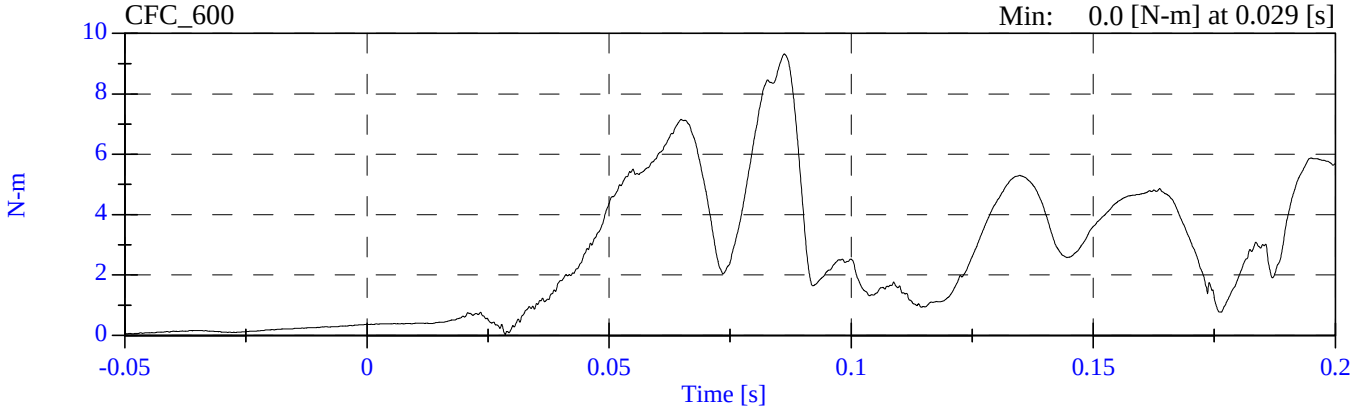
V1P3 Upper Neck My
CFC_600
Max: 9.3 [N-m] at 0.086 [s]
Min: -7.0 [N-m] at 0.065 [s]



V1P3 Upper Neck Mz
CFC_600
Max: 1.4 [N-m] at 0.106 [s]
Min: -1.3 [N-m] at 0.174 [s]



V1P3 Upper Neck M Resultant
CFC_600
Max: 9.3 [N-m] at 0.086 [s]
Min: 0.0 [N-m] at 0.029 [s]



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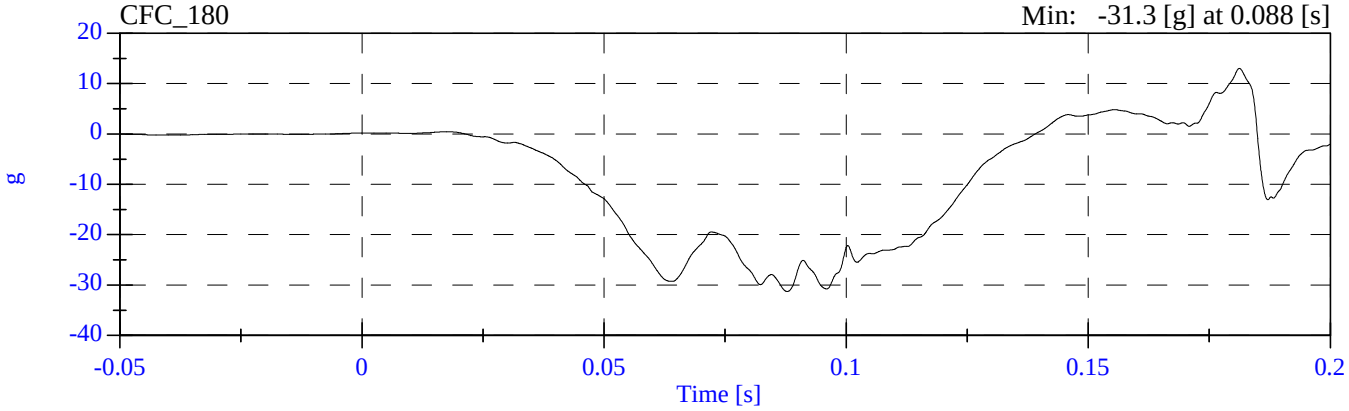
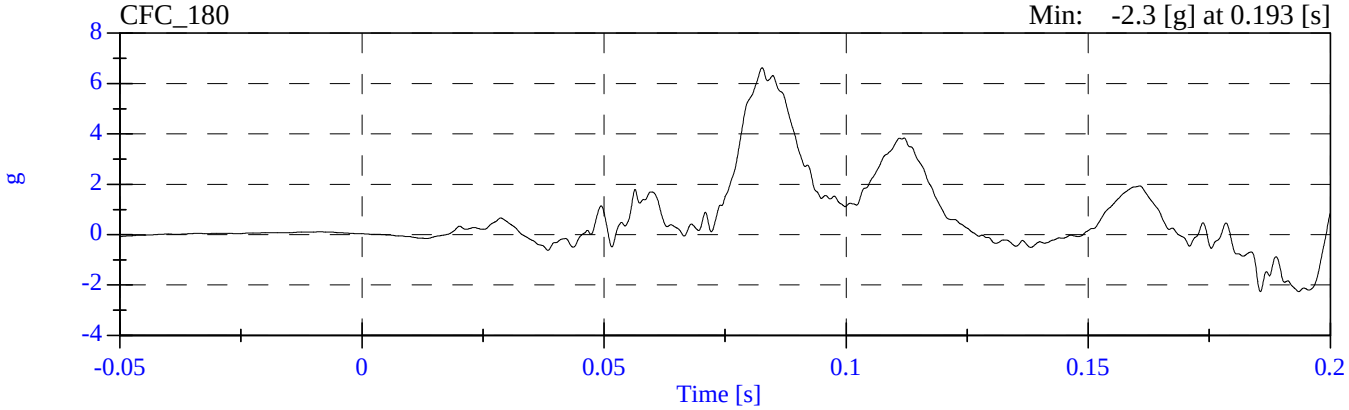
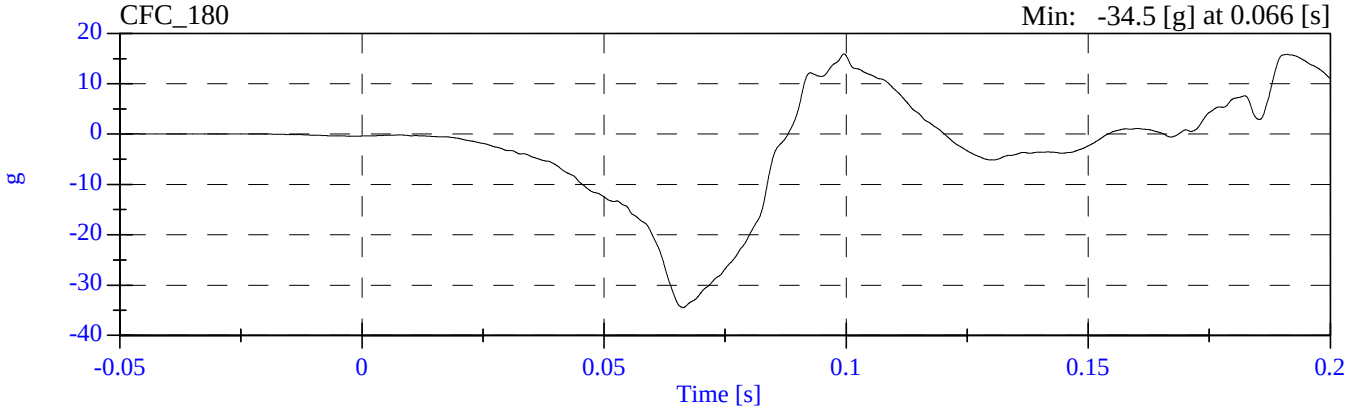
V1P3 Chest x
CFC_180
Max: 13.0 [g] at 0.181 [s]
Min: -31.3 [g] at 0.088 [s]



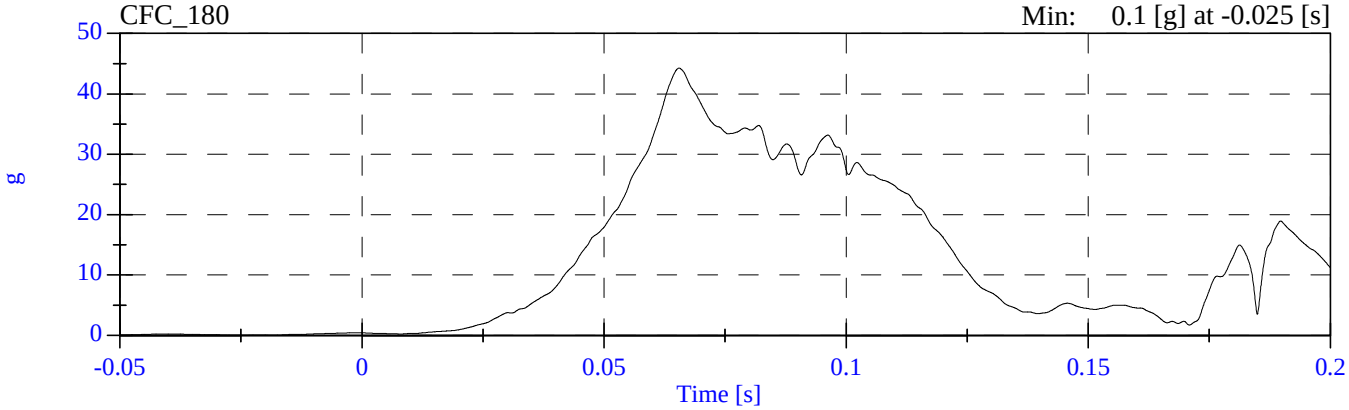
V1P3 Chest y
CFC_180
Max: 6.6 [g] at 0.083 [s]
Min: -2.3 [g] at 0.193 [s]



V1P3 Chest z
CFC_180
Max: 15.9 [g] at 0.100 [s]
Min: -34.5 [g] at 0.066 [s]



V1P3 Chest Resultant
CFC_180
Max: 44.3 [g] at 0.065 [s]
Min: 0.1 [g] at -0.025 [s]



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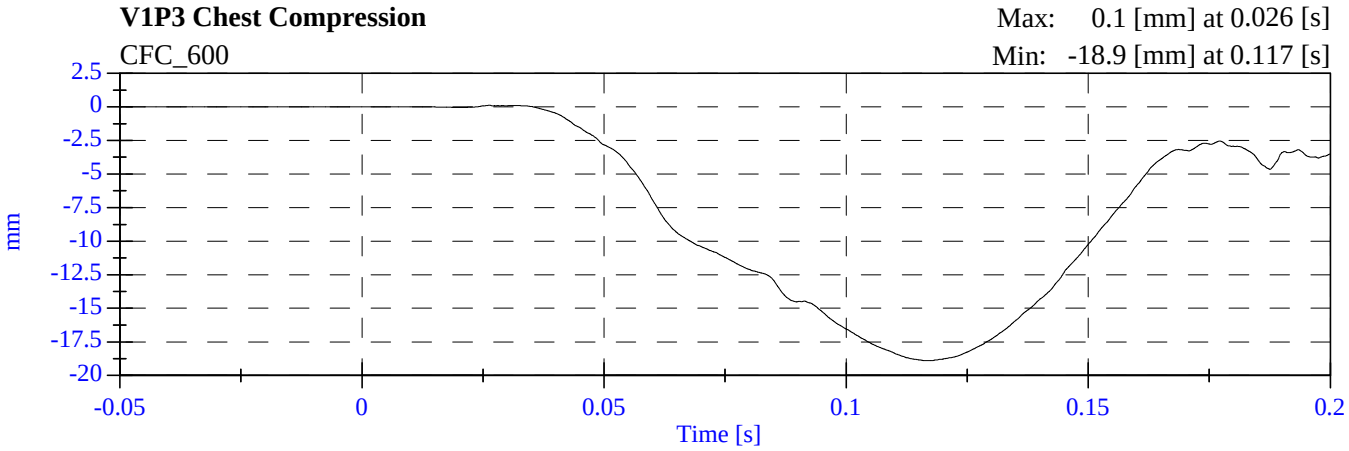

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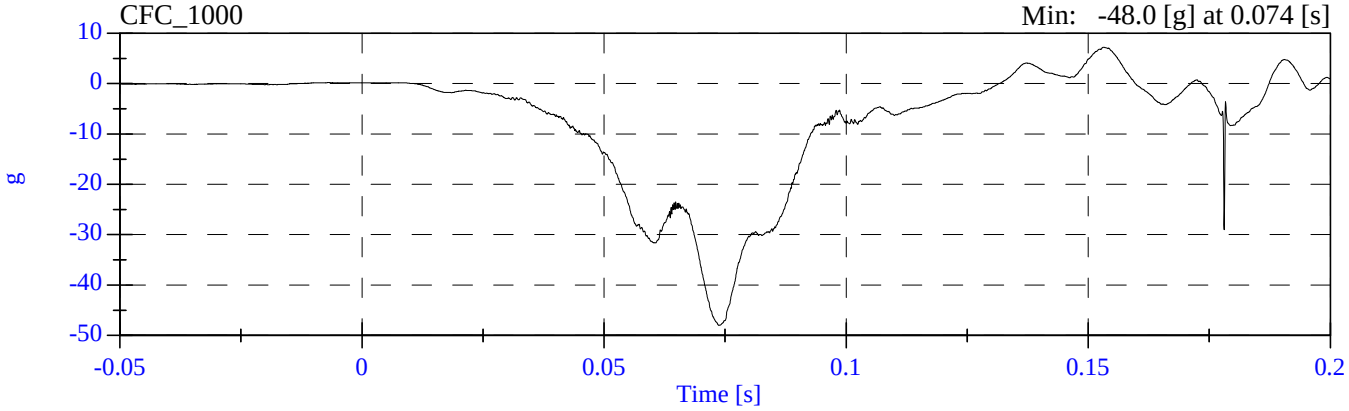
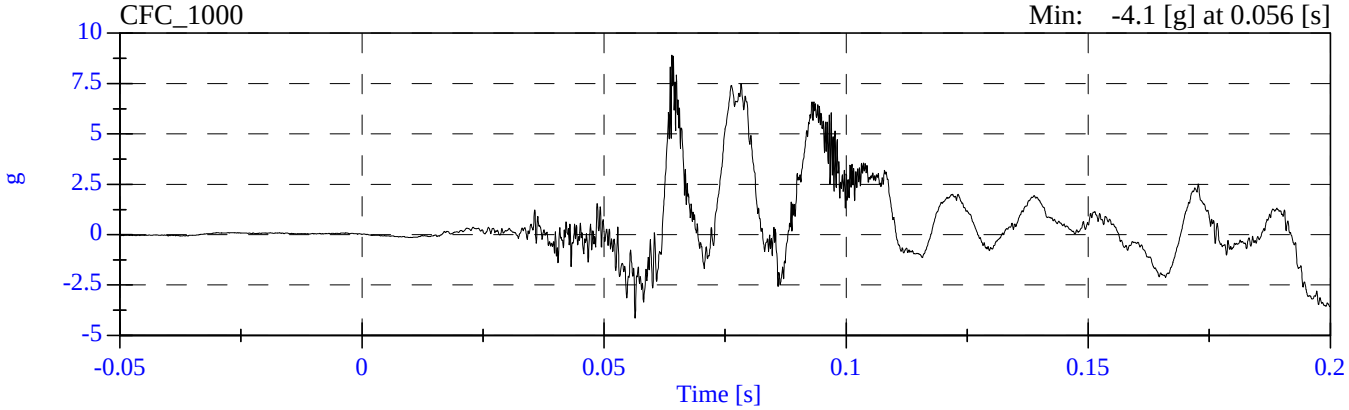
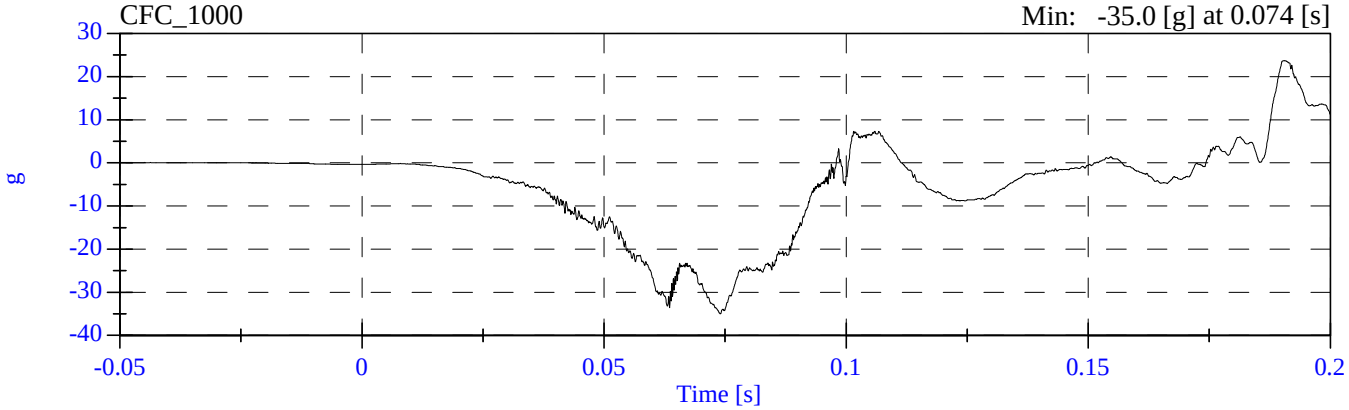
V1P3 Pelvic x
CFC_1000
Max: 7.2 [g] at 0.153 [s]
Min: -48.0 [g] at 0.074 [s]



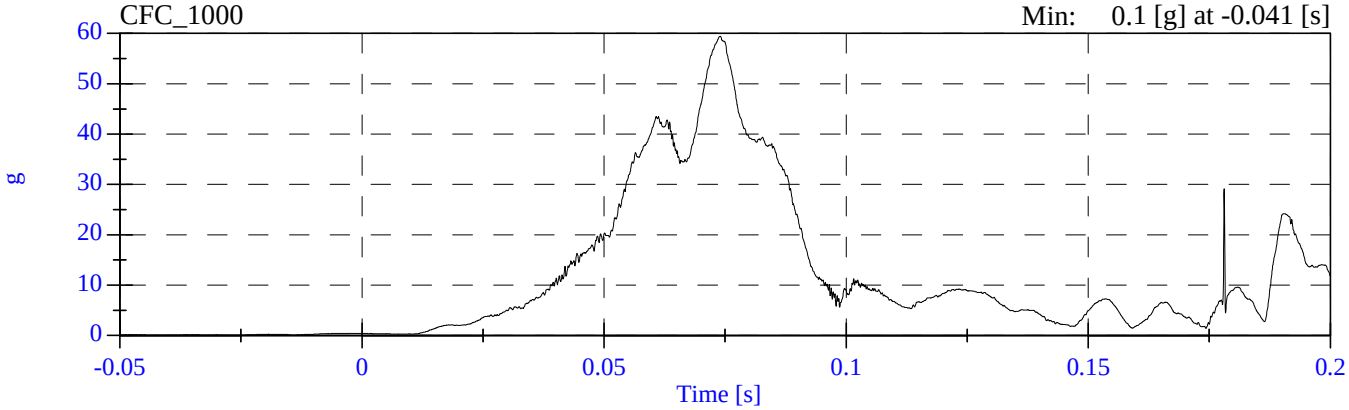
V1P3 Pelvic y
CFC_1000
Max: 8.9 [g] at 0.064 [s]
Min: -4.1 [g] at 0.056 [s]



V1P3 Pelvic z
CFC_1000
Max: 23.7 [g] at 0.190 [s]
Min: -35.0 [g] at 0.074 [s]



V1P3 Pelvic Resultant
CFC_1000
Max: 59.4 [g] at 0.074 [s]
Min: 0.1 [g] at -0.041 [s]



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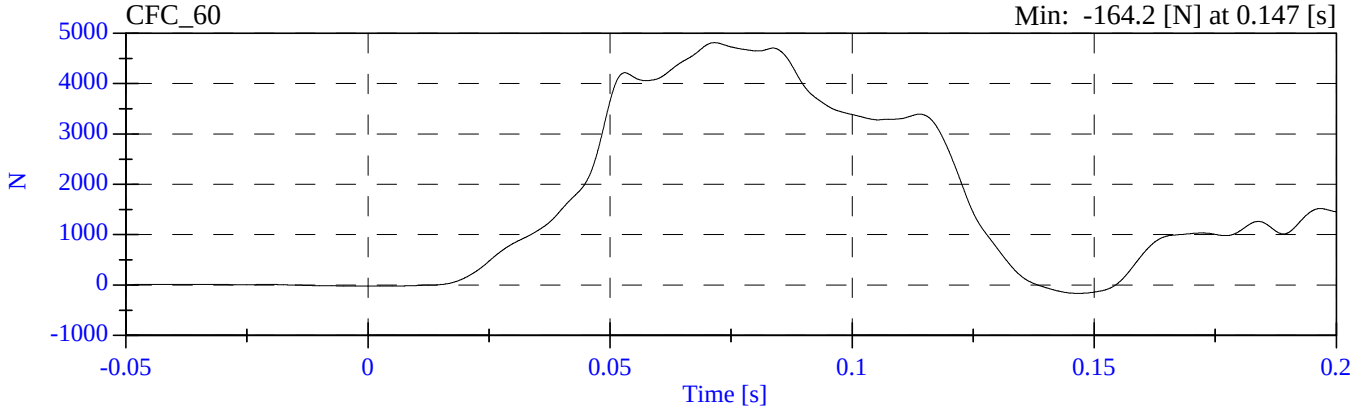
V1P3 Latch Belt

CFC_60

Max: 4814.0 [N] at 0.072 [s]

Min: -164.2 [N] at 0.147 [s]

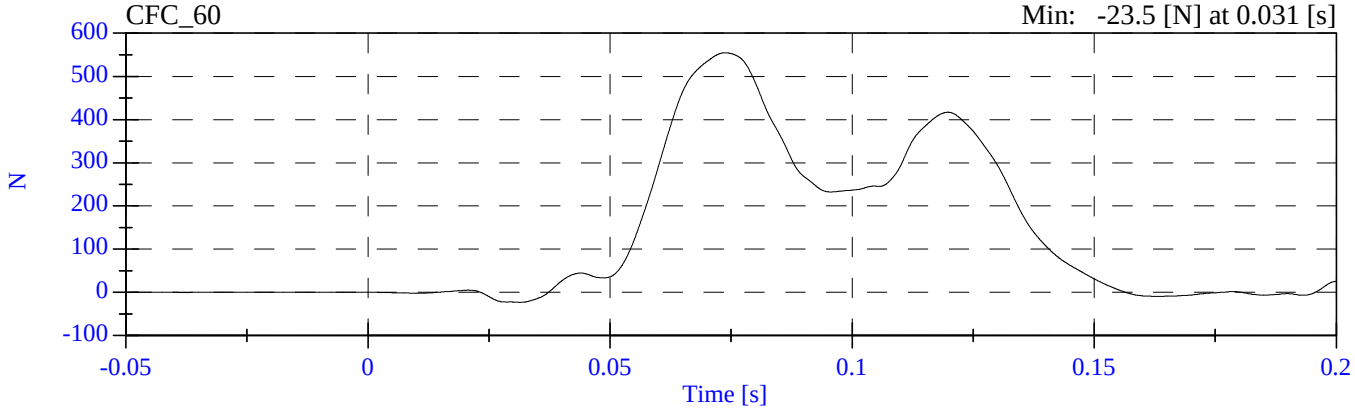


V1P3 Tether Belt

CFC_60

Max: 554.9 [N] at 0.074 [s]

Min: -23.5 [N] at 0.031 [s]



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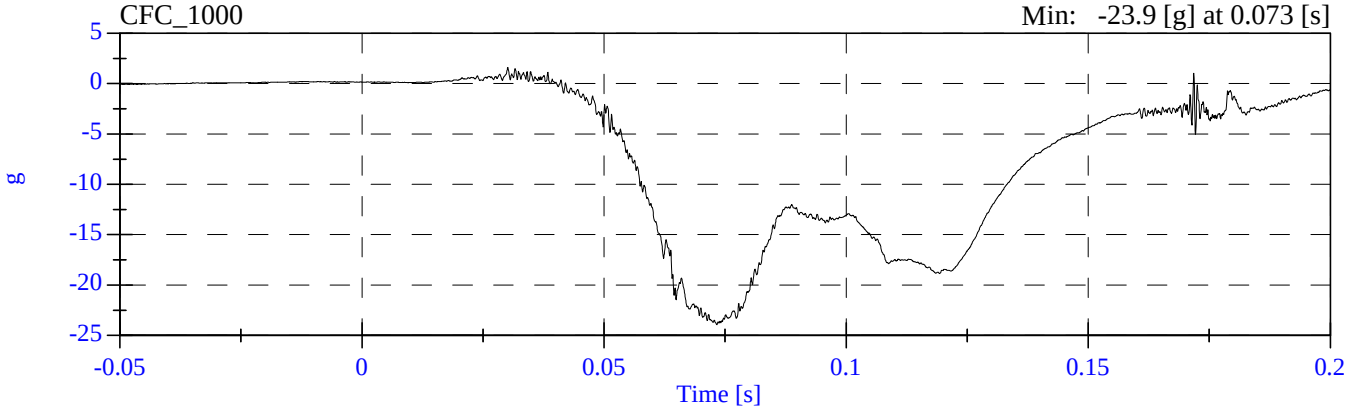
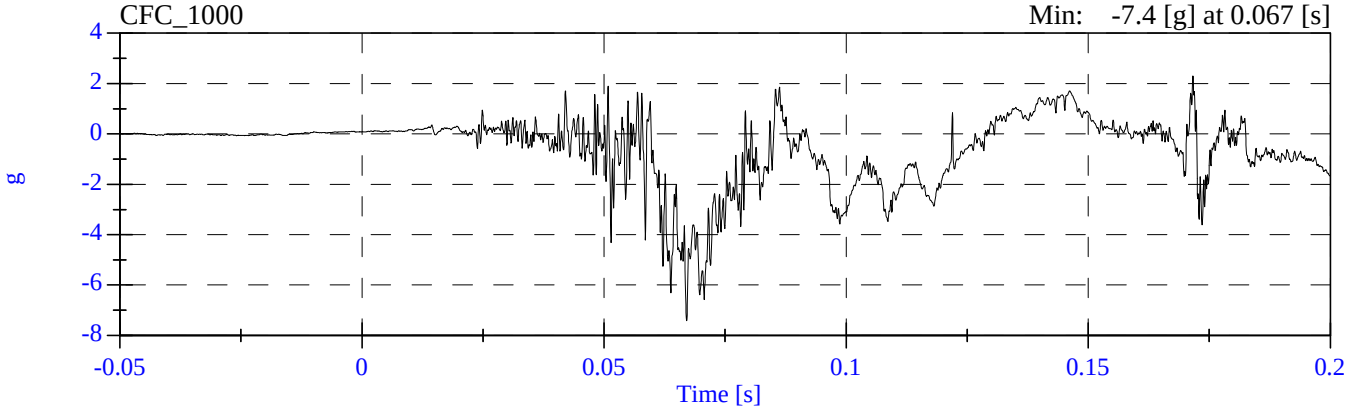
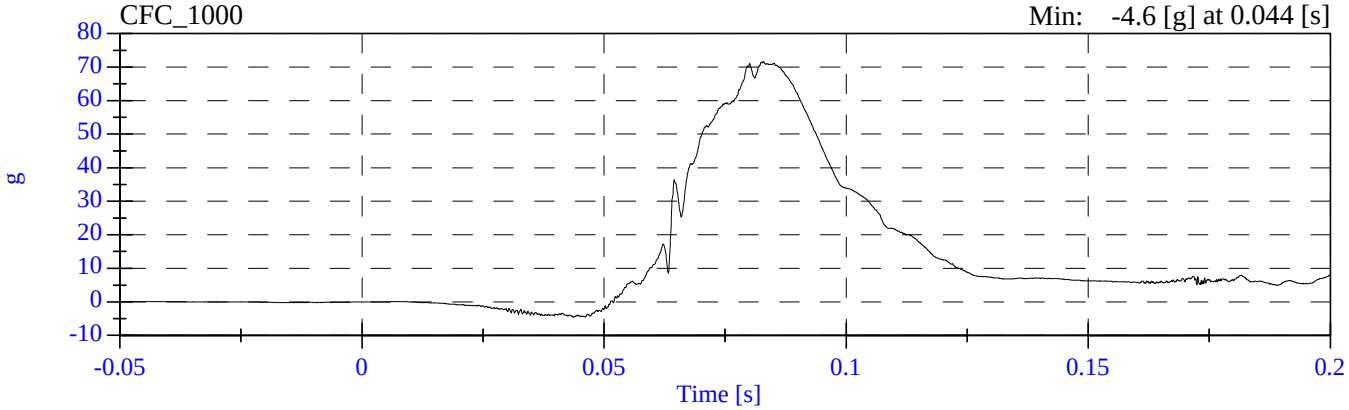
V1P4 Head x
CFC_1000
Max: 1.6 [g] at 0.030 [s]
Min: -23.9 [g] at 0.073 [s]



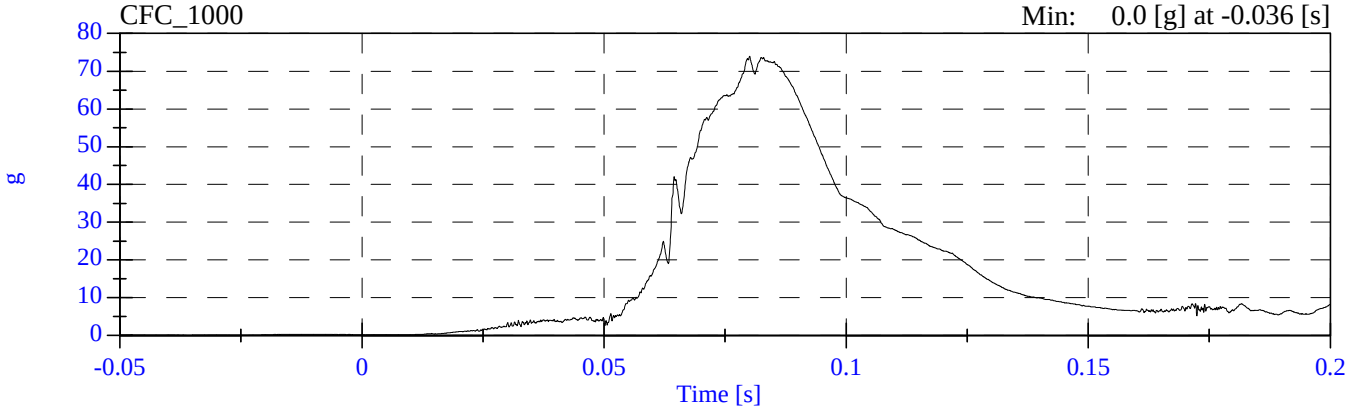
V1P4 Head y
CFC_1000
Max: 2.3 [g] at 0.172 [s]
Min: -7.4 [g] at 0.067 [s]



V1P4 Head z
CFC_1000
Max: 71.7 [g] at 0.083 [s]
Min: -4.6 [g] at 0.044 [s]



V1P4 Head Resultant
CFC_1000
Max: 73.9 [g] at 0.080 [s]
Min: 0.0 [g] at -0.036 [s]



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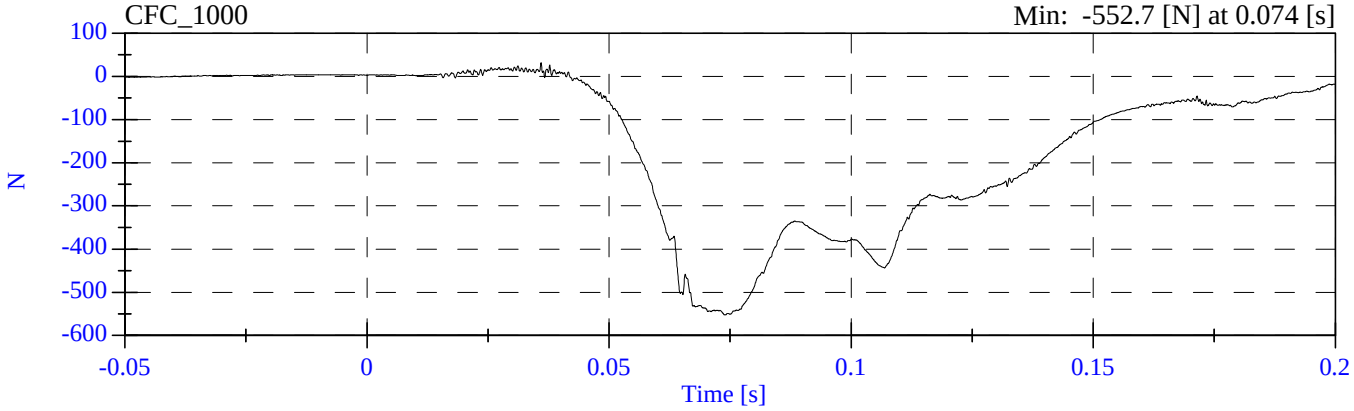
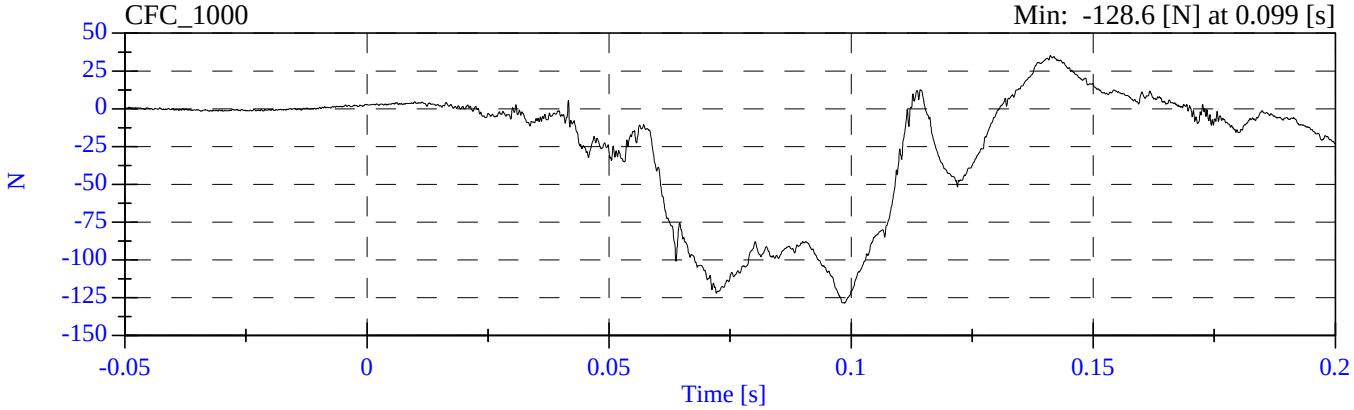
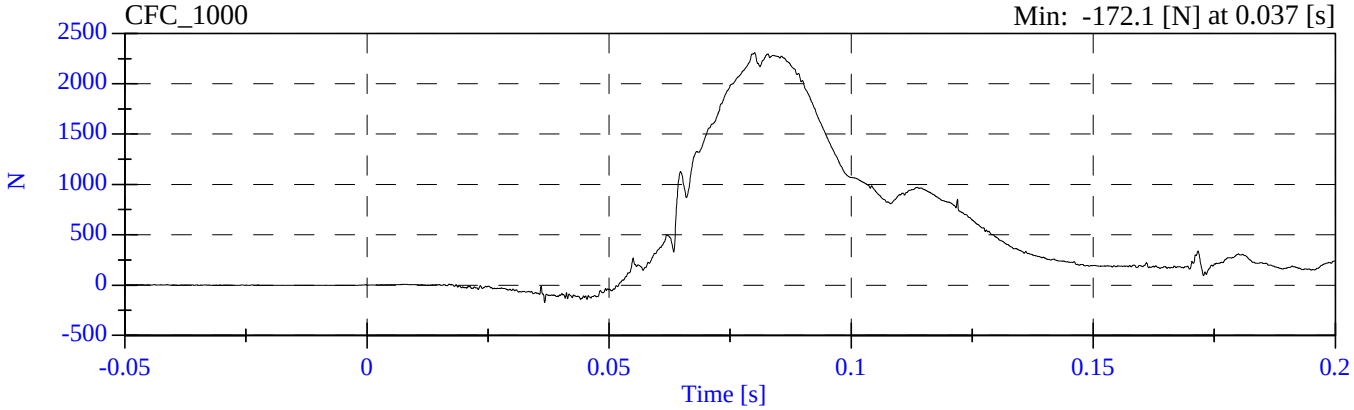
V1P4 Upper Neck Fx
CFC_1000
Max: 31.8 [N] at 0.036 [s]
Min: -552.7 [N] at 0.074 [s]



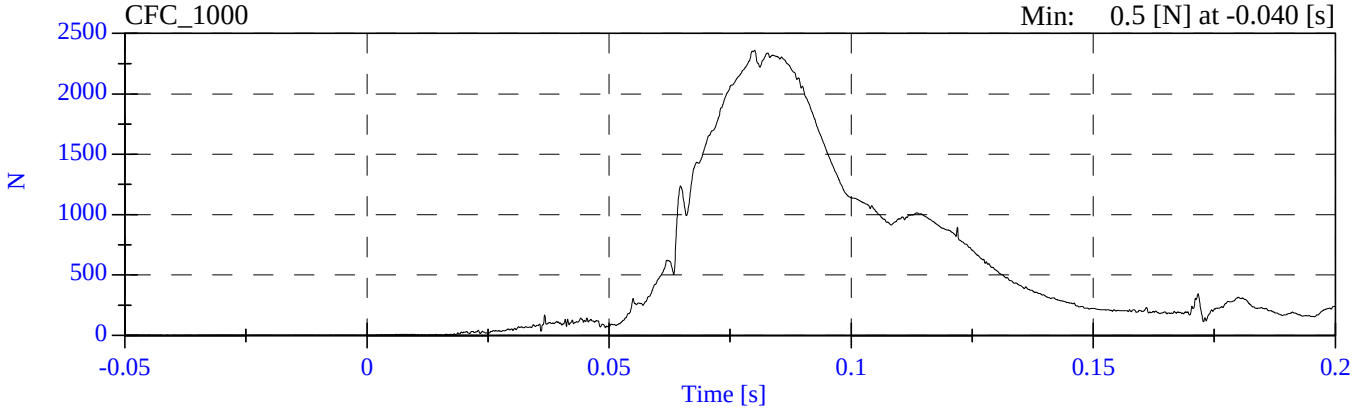
V1P4 Upper Neck Fy
CFC_1000
Max: 35.3 [N] at 0.141 [s]
Min: -128.6 [N] at 0.099 [s]



V1P4 Upper Neck Fz
CFC_1000
Max: 2308.7 [N] at 0.080 [s]
Min: -172.1 [N] at 0.037 [s]



V1P4 Upper Neck F Resultant
CFC_1000
Max: 2360.8 [N] at 0.080 [s]
Min: 0.5 [N] at -0.040 [s]



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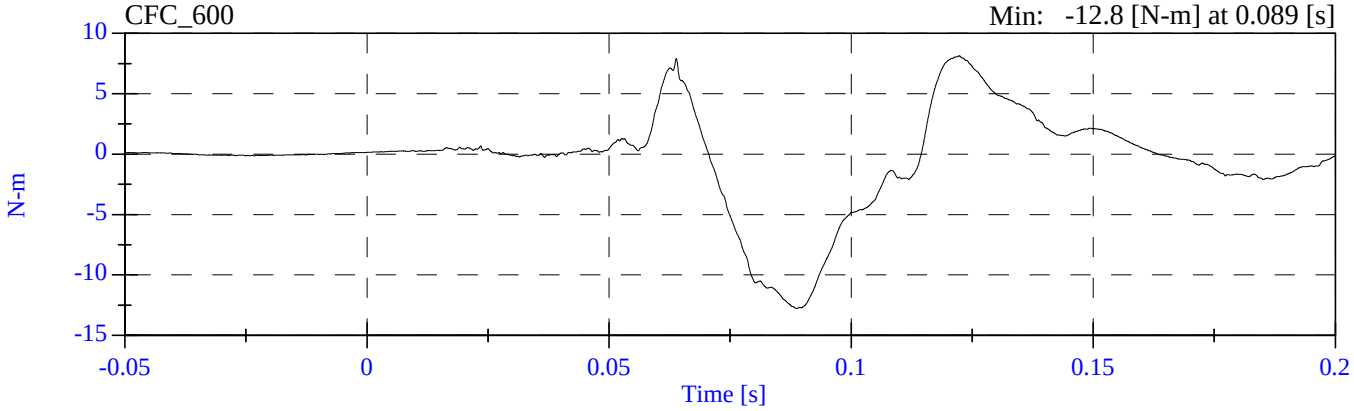
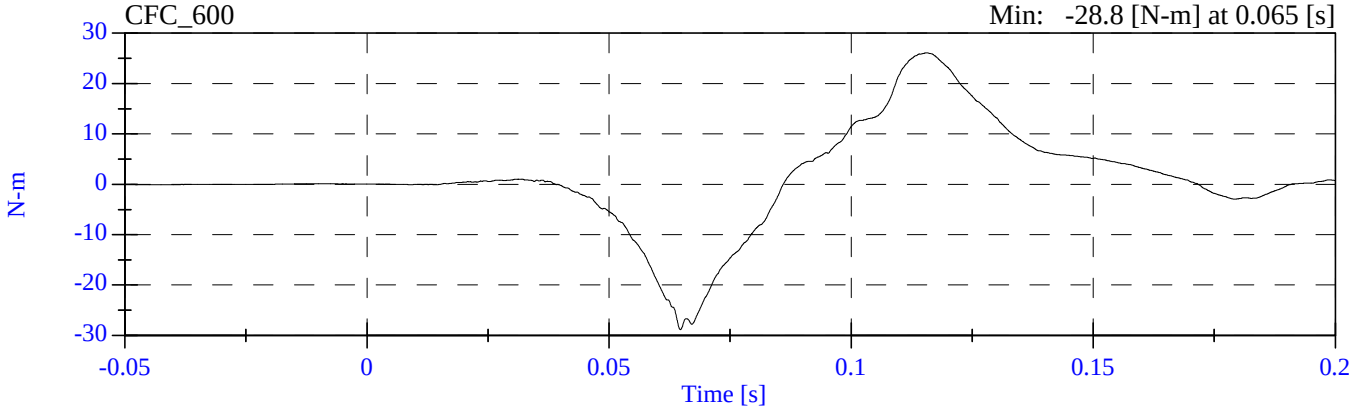
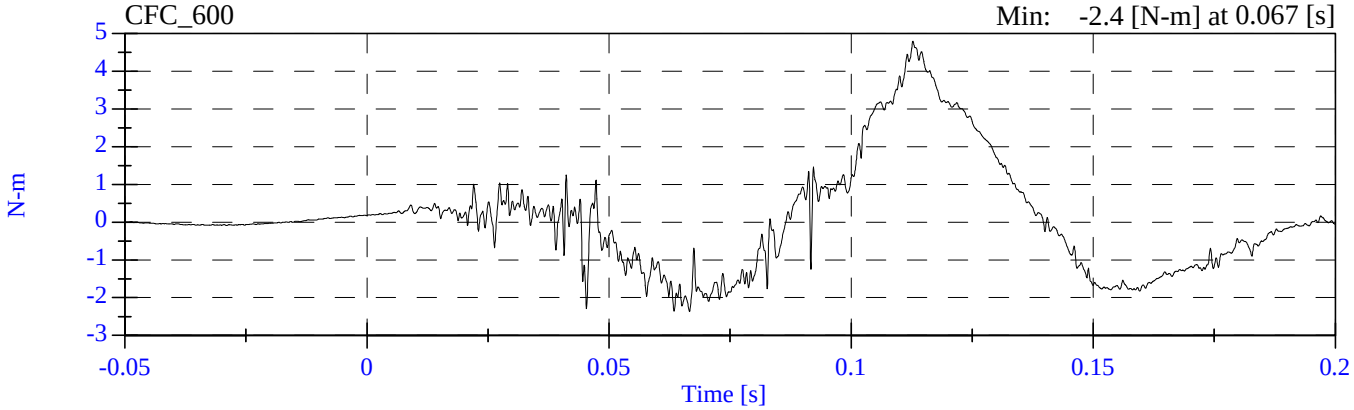
V1P4 Upper Neck Mx
CFC_600
Max: 8.1 [N-m] at 0.122 [s]
Min: -12.8 [N-m] at 0.089 [s]



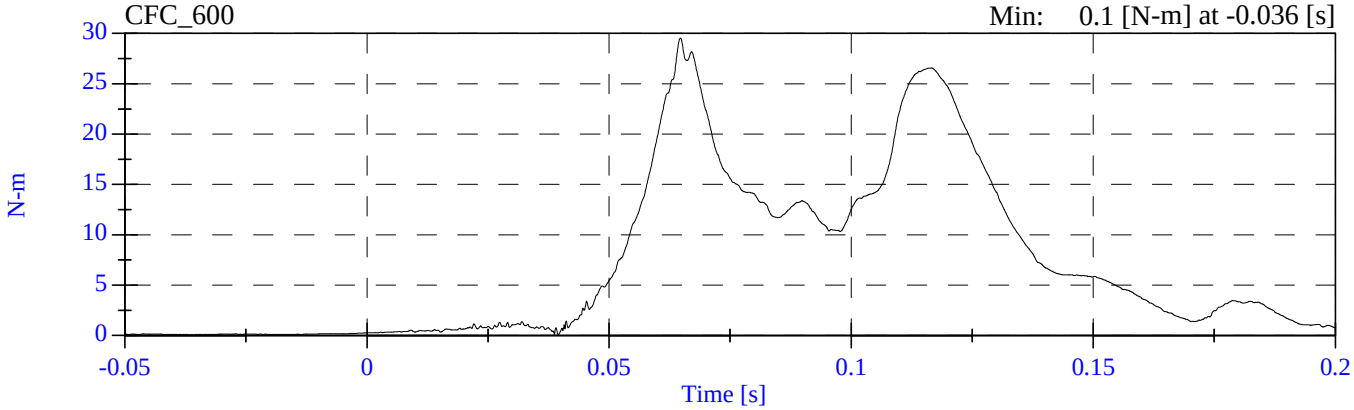
V1P4 Upper Neck My
CFC_600
Max: 26.1 [N-m] at 0.116 [s]
Min: -28.8 [N-m] at 0.065 [s]



V1P4 Upper Neck Mz
CFC_600
Max: 4.8 [N-m] at 0.113 [s]
Min: -2.4 [N-m] at 0.067 [s]



V1P4 Upper Neck M Resultant
CFC_600
Max: 29.5 [N-m] at 0.065 [s]
Min: 0.1 [N-m] at -0.036 [s]



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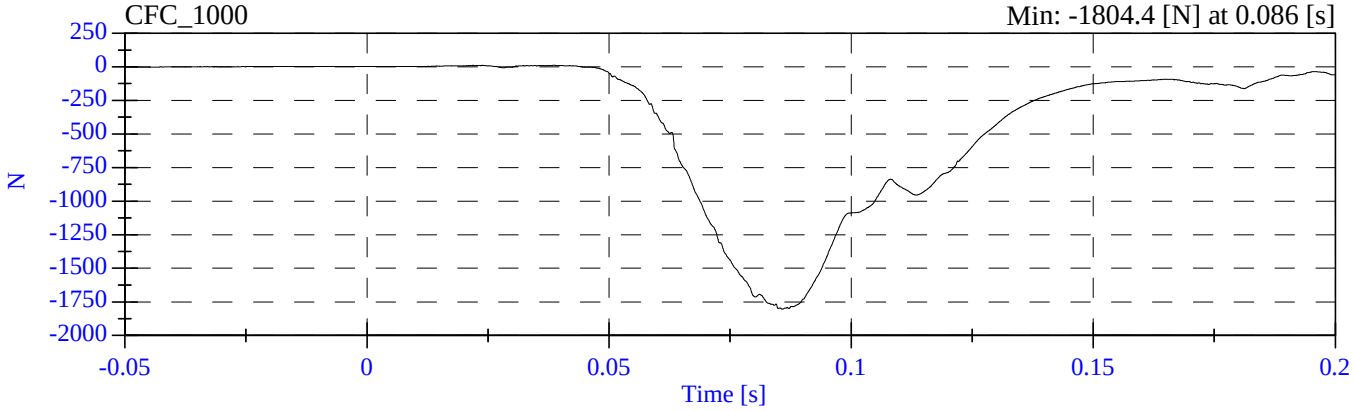
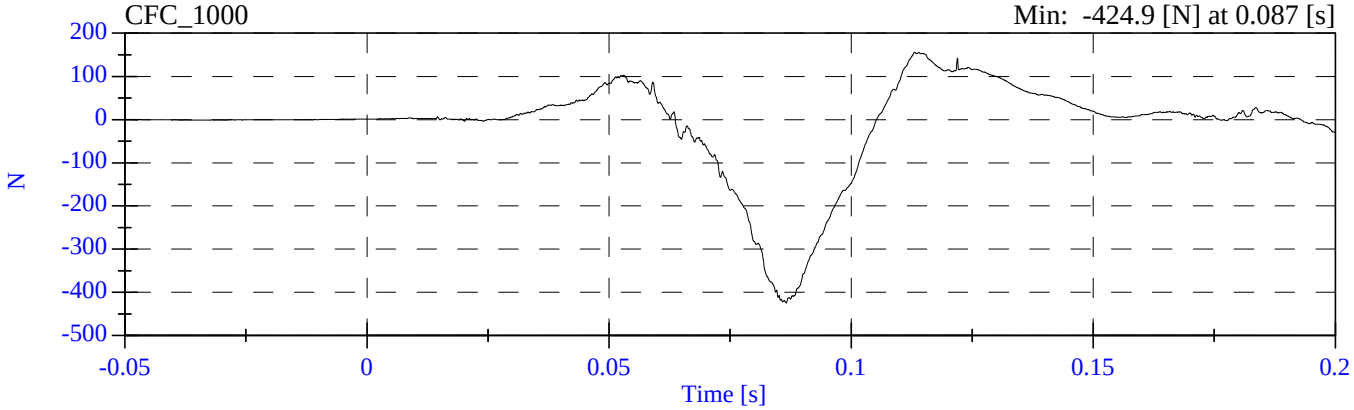
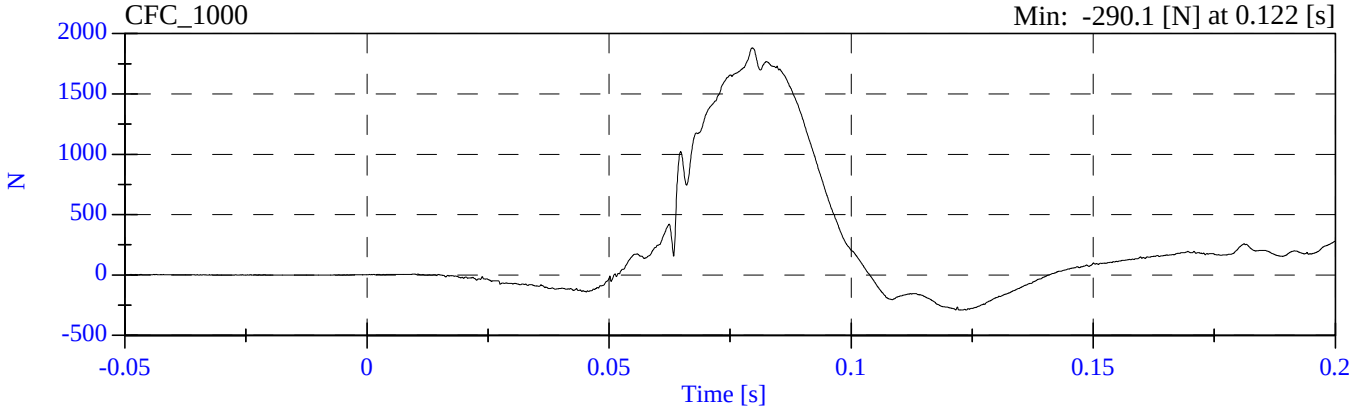
V1P4 Lower Neck Fx
CFC_1000
Max: 12.5 [N] at 0.038 [s]
Min: -1804.4 [N] at 0.086 [s]



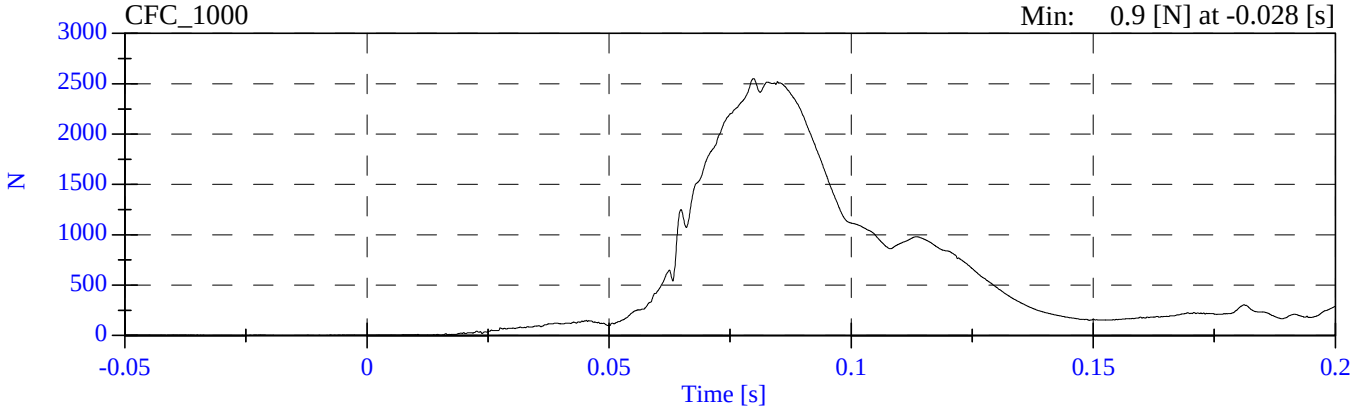
V1P4 Lower Neck Fy
CFC_1000
Max: 156.4 [N] at 0.113 [s]
Min: -424.9 [N] at 0.087 [s]



V1P4 Lower Neck Fz
CFC_1000
Max: 1880.9 [N] at 0.080 [s]
Min: -290.1 [N] at 0.122 [s]



V1P4 Lower Neck F Resultant
CFC_1000
Max: 2551.4 [N] at 0.080 [s]
Min: 0.9 [N] at -0.028 [s]



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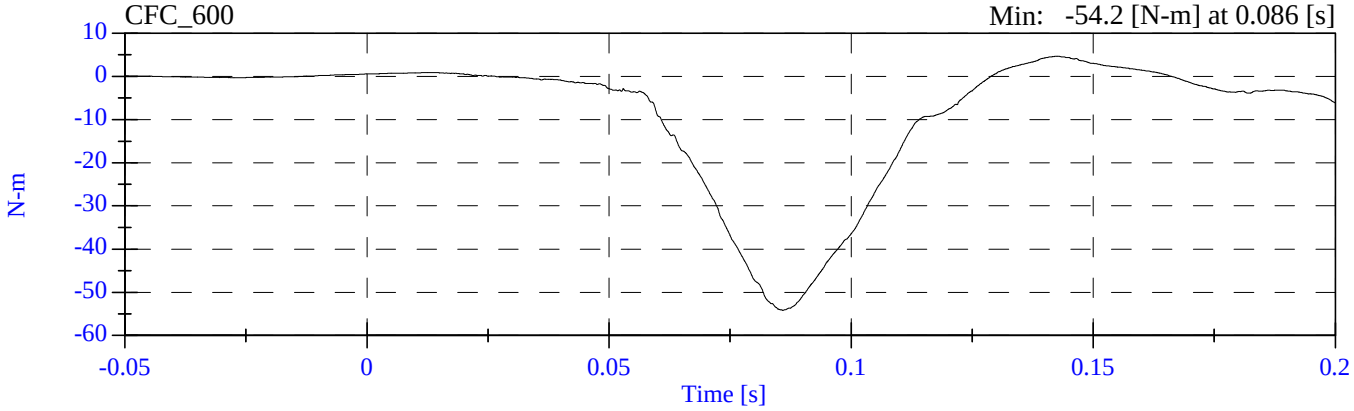
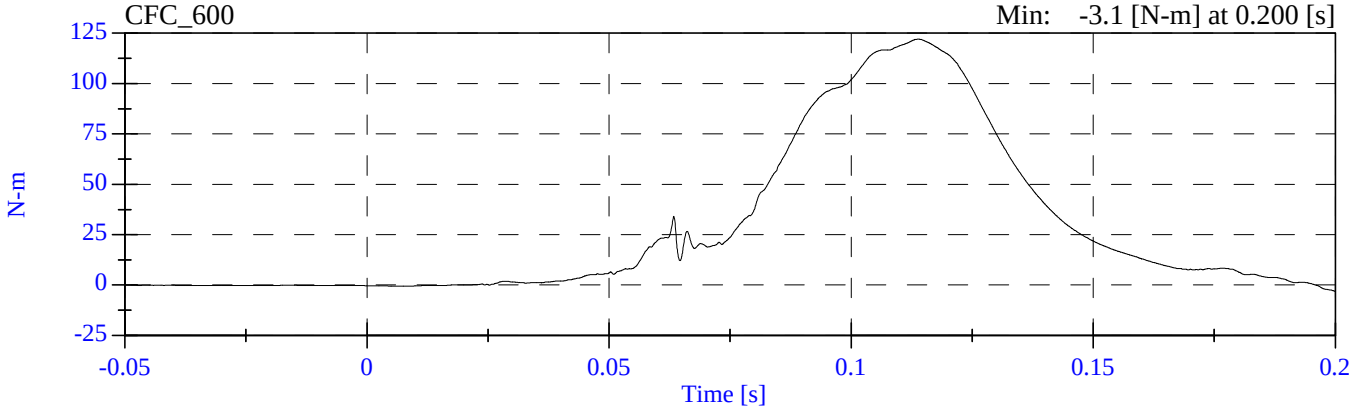
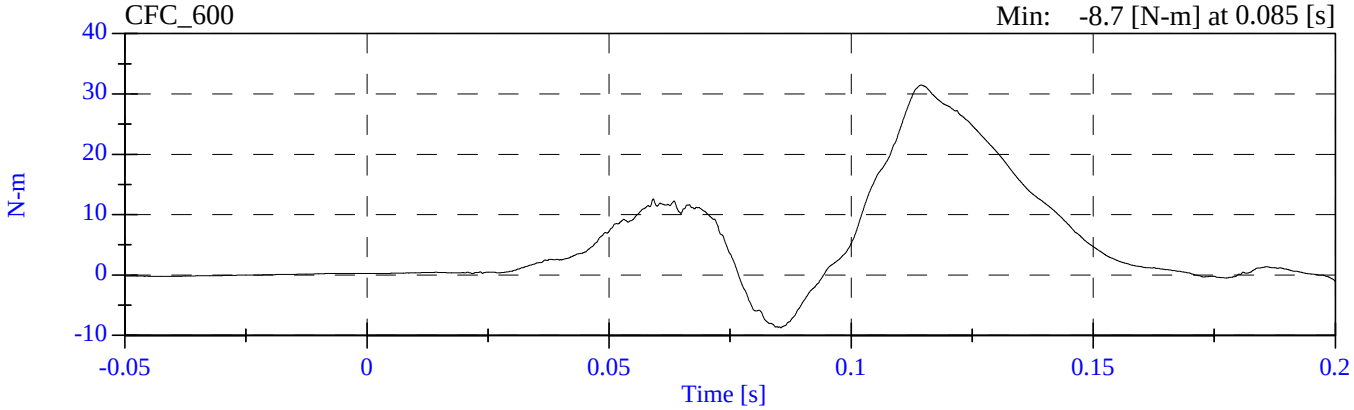
V1P4 Lower Neck Mx
CFC_600
Max: 4.6 [N-m] at 0.142 [s]
Min: -54.2 [N-m] at 0.086 [s]



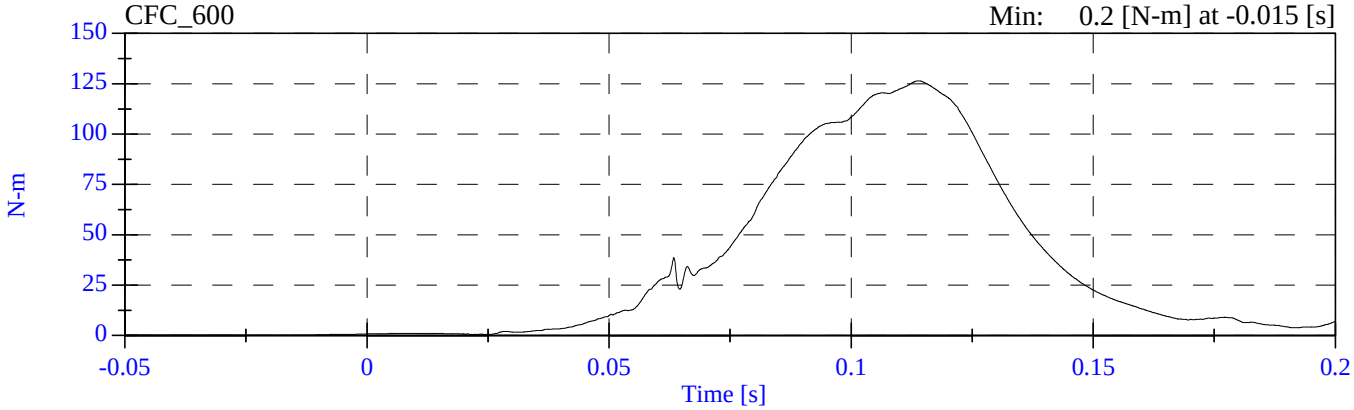
V1P4 Lower Neck My
CFC_600
Max: 122.1 [N-m] at 0.114 [s]
Min: -3.1 [N-m] at 0.200 [s]



V1P4 Lower Neck Mz
CFC_600
Max: 31.5 [N-m] at 0.114 [s]
Min: -8.7 [N-m] at 0.085 [s]

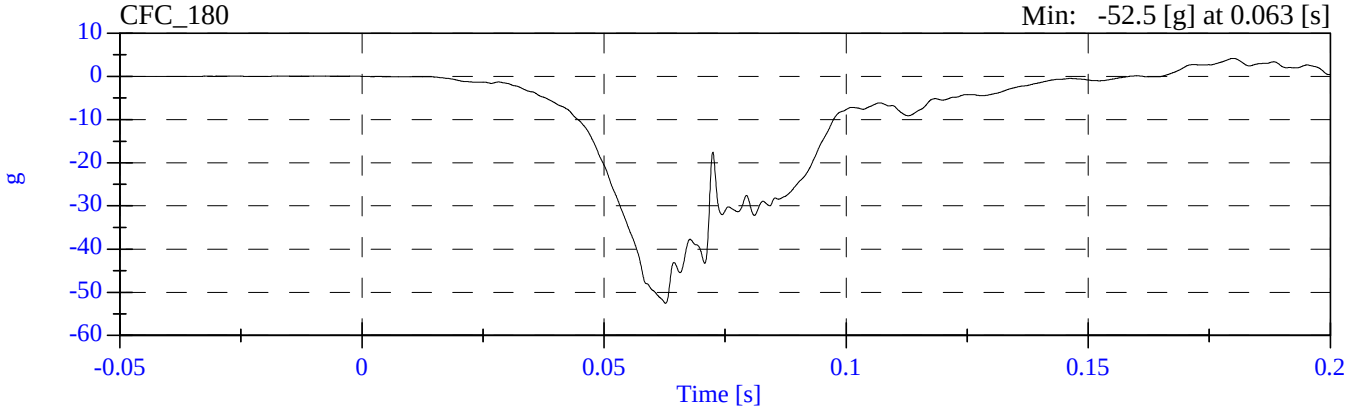


V1P4 Lower Neck M Resultant
CFC_600
Max: 126.4 [N-m] at 0.114 [s]
Min: 0.2 [N-m] at -0.015 [s]

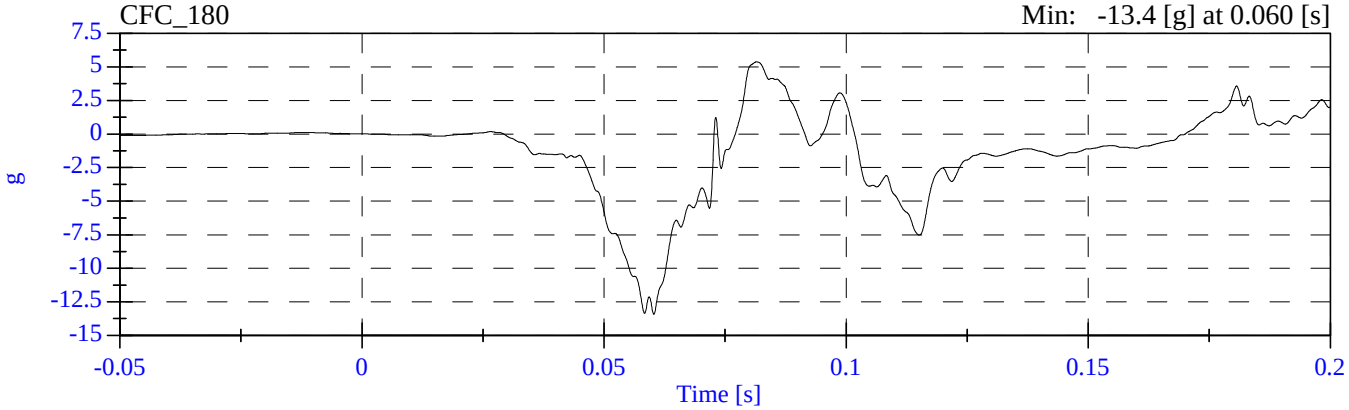


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

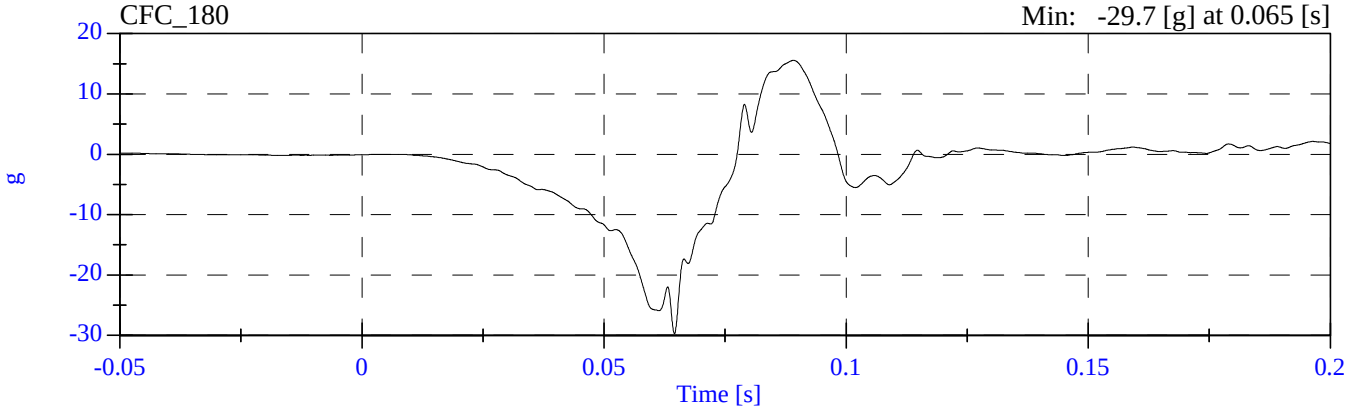
V1P4 Chest x
CFC_180
Max: 4.2 [g] at 0.180 [s]
Min: -52.5 [g] at 0.063 [s]



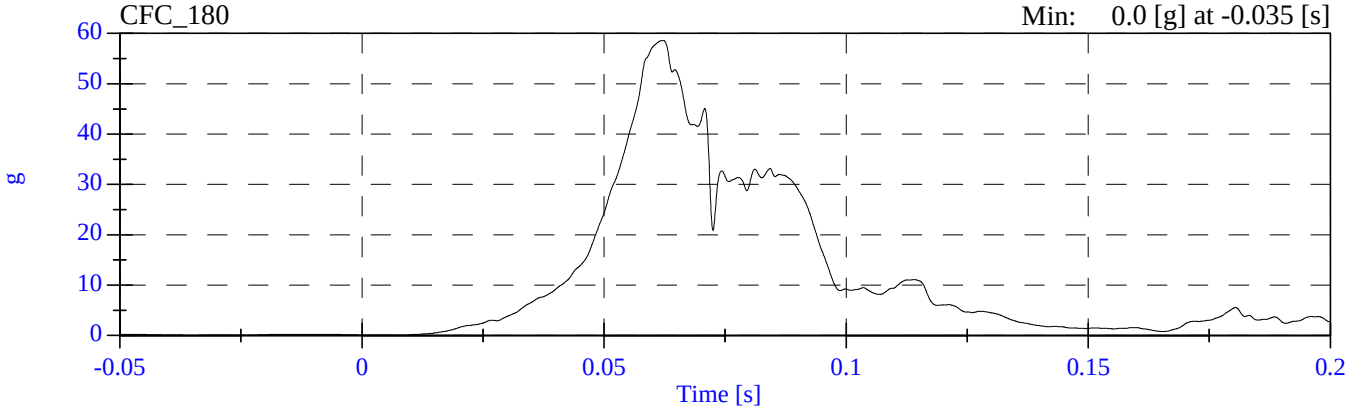
V1P4 Chest y
CFC_180
Max: 5.4 [g] at 0.081 [s]
Min: -13.4 [g] at 0.060 [s]



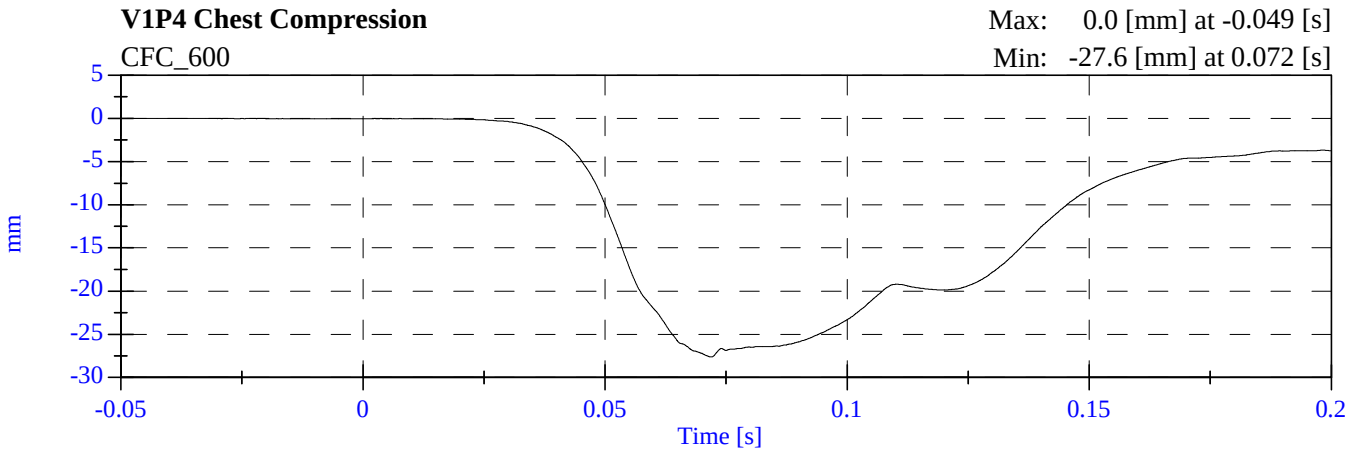
V1P4 Chest z
CFC_180
Max: 15.5 [g] at 0.089 [s]
Min: -29.7 [g] at 0.065 [s]



V1P4 Chest Resultant
CFC_180
Max: 58.6 [g] at 0.062 [s]
Min: 0.0 [g] at -0.035 [s]

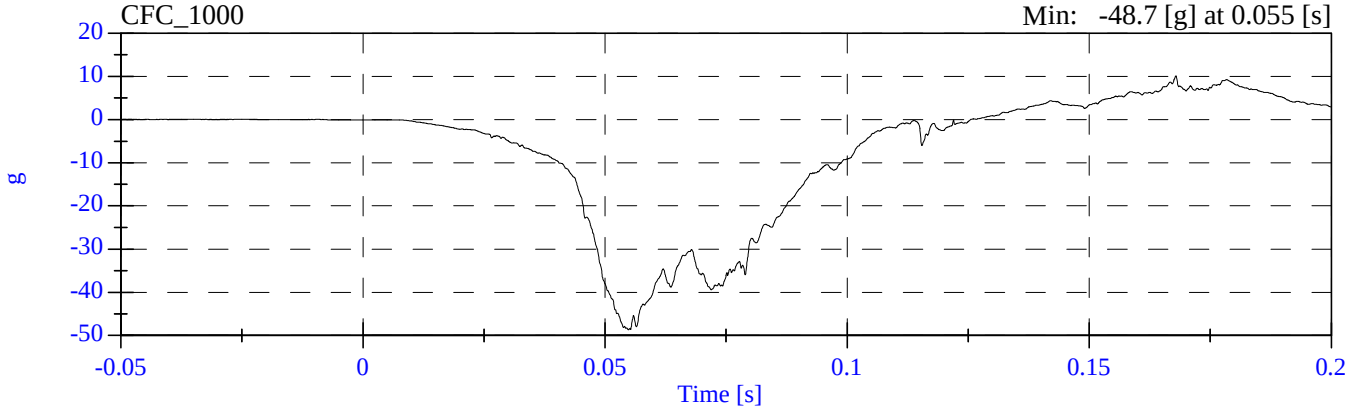


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

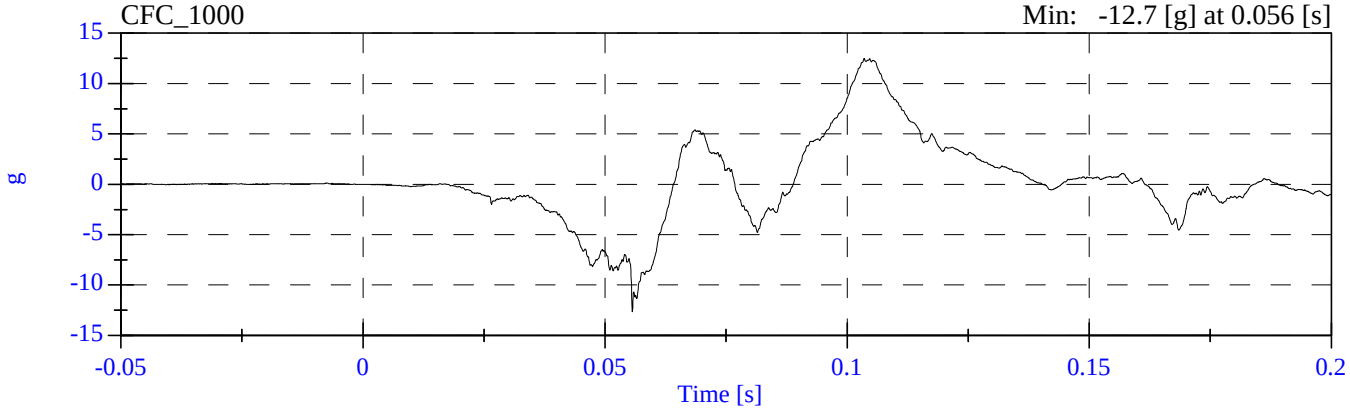


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

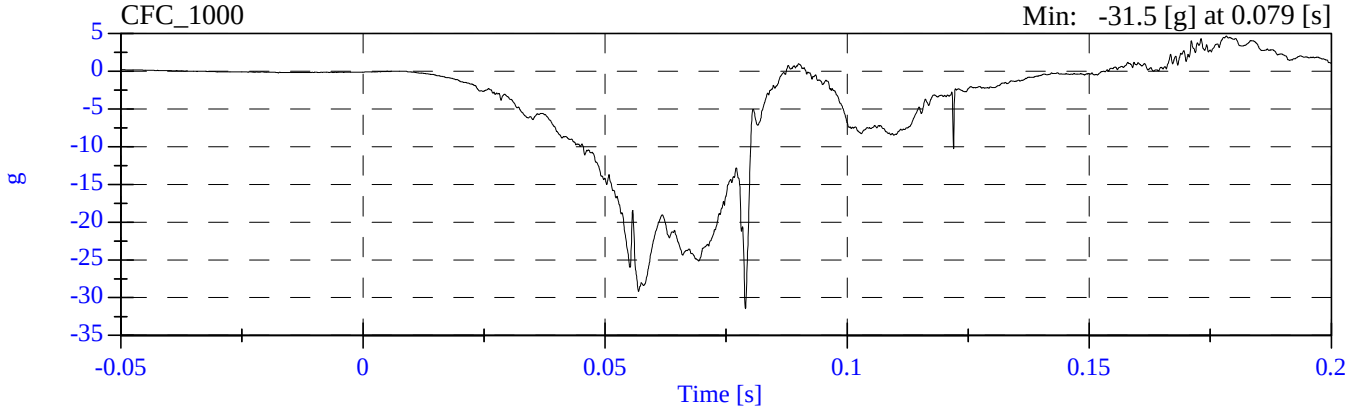
V1P4 Pelvic x
CFC_1000
Max: 10.2 [g] at 0.168 [s]
Min: -48.7 [g] at 0.055 [s]



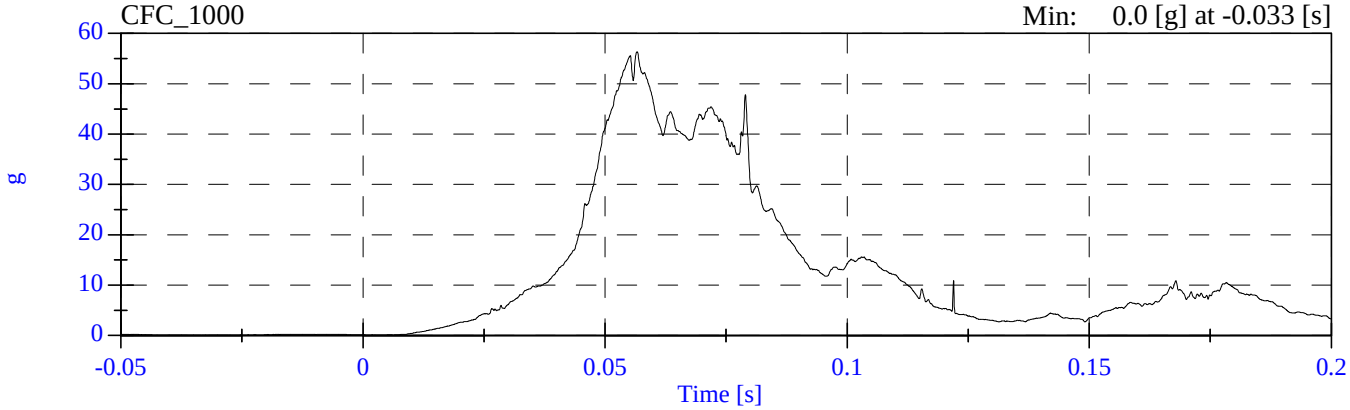
V1P4 Pelvic y
CFC_1000
Max: 12.5 [g] at 0.103 [s]
Min: -12.7 [g] at 0.056 [s]



V1P4 Pelvic z
CFC_1000
Max: 4.7 [g] at 0.178 [s]
Min: -31.5 [g] at 0.079 [s]

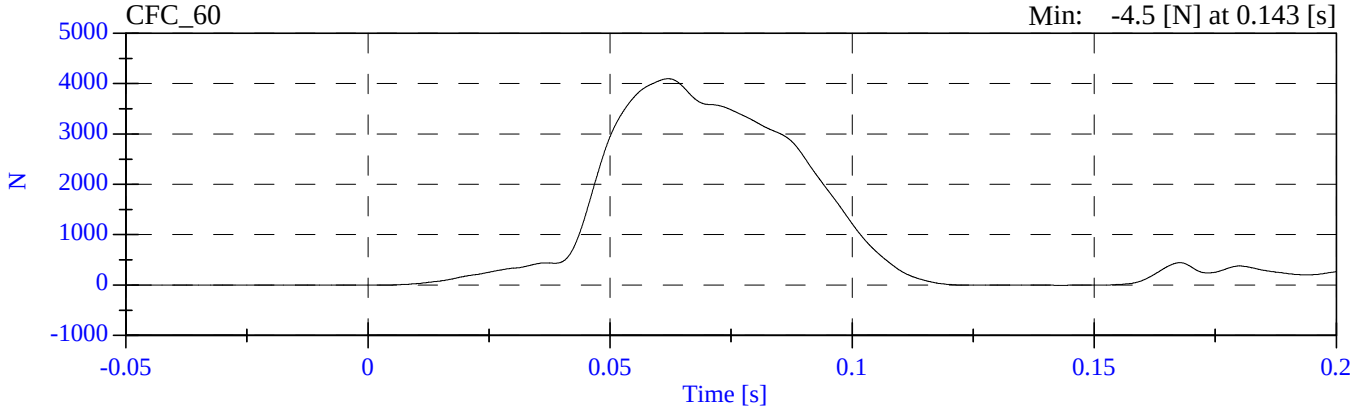


V1P4 Pelvic Resultant
CFC_1000
Max: 56.3 [g] at 0.057 [s]
Min: 0.0 [g] at -0.033 [s]

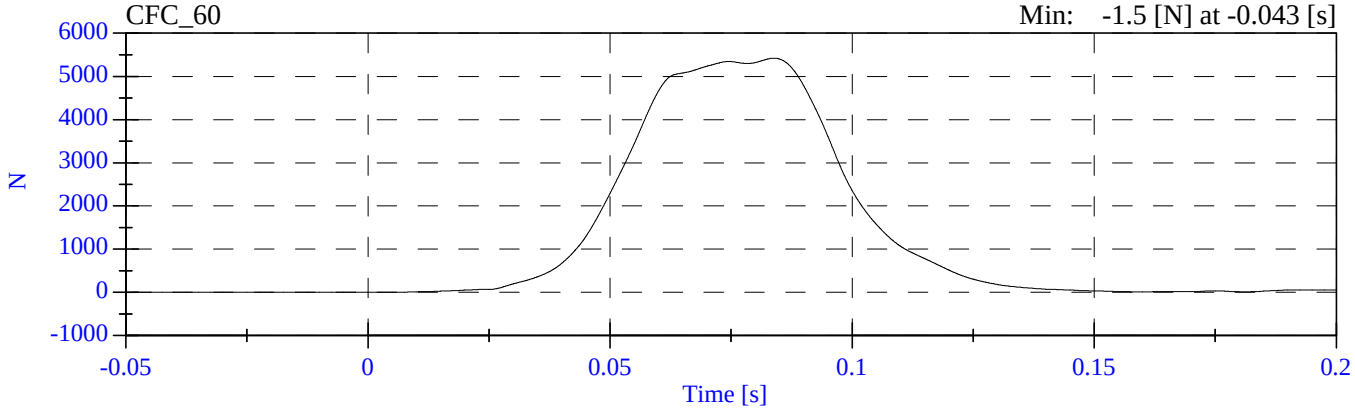


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

V1P4 Lap Belt
CFC_60
Max: 4099.4 [N] at 0.062 [s]
Min: -4.5 [N] at 0.143 [s]

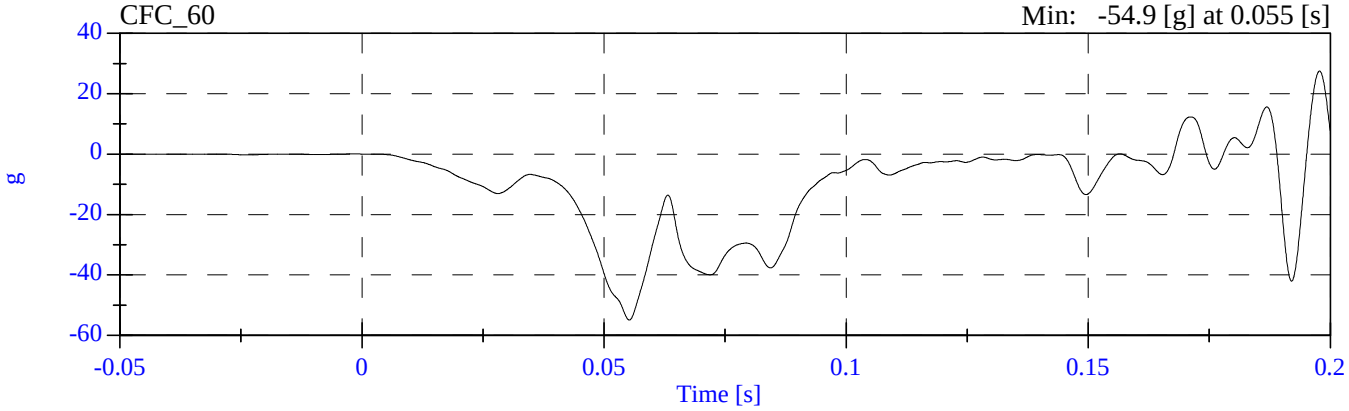


V1P4 Shoulder Belt
CFC_60
Max: 5421.8 [N] at 0.084 [s]
Min: -1.5 [N] at -0.043 [s]

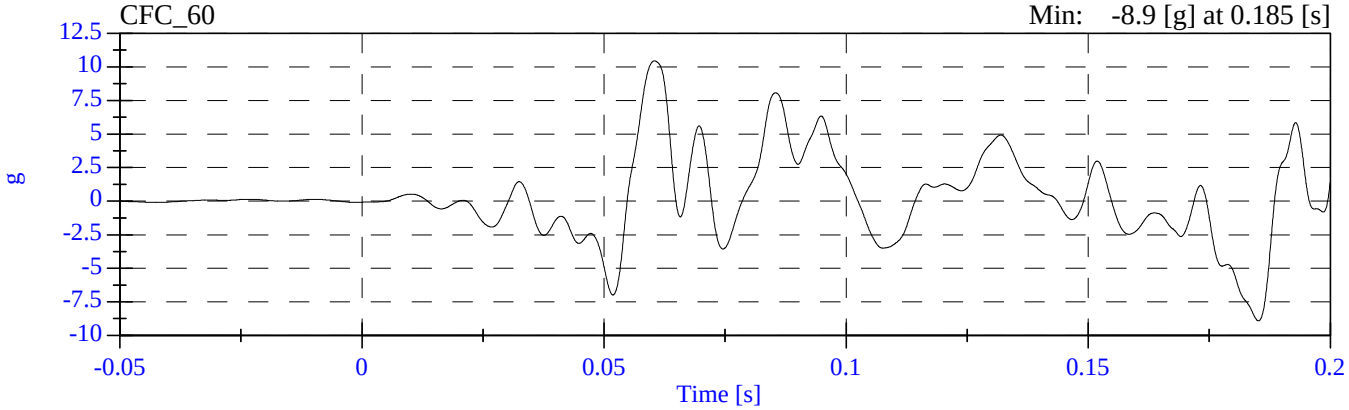


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

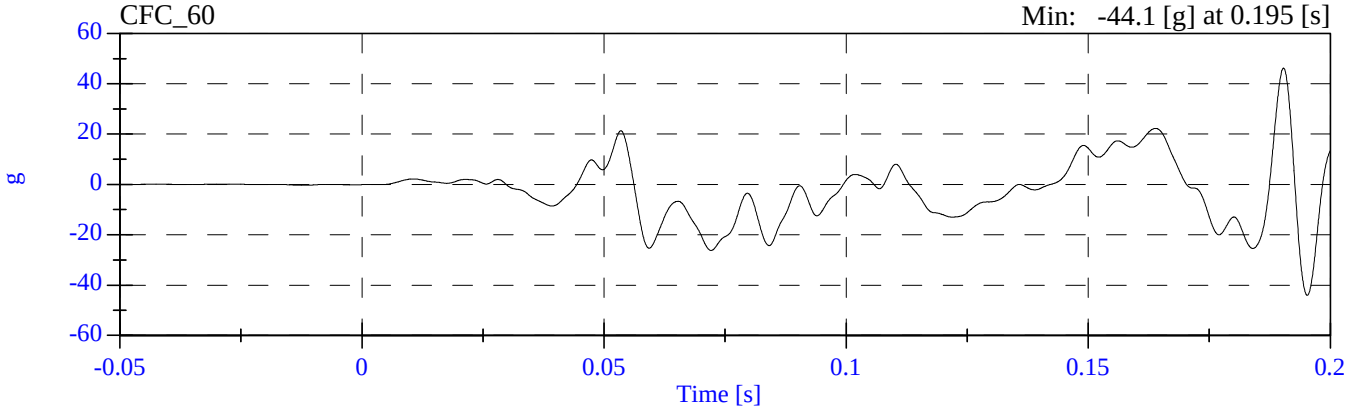
V1P3 CRS x
CFC_60
Max: 27.5 [g] at 0.198 [s]
Min: -54.9 [g] at 0.055 [s]



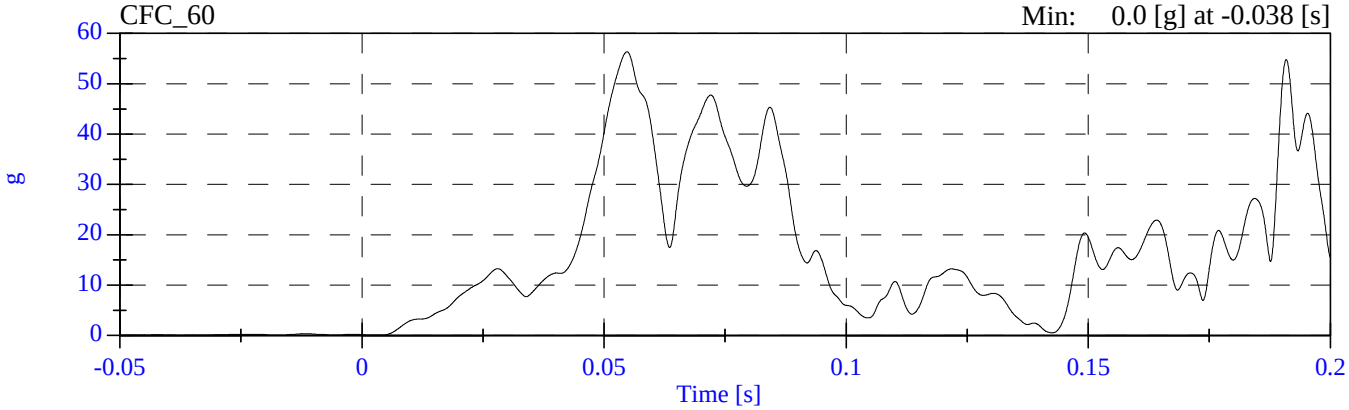
V1P3 CRS y
CFC_60
Max: 10.4 [g] at 0.060 [s]
Min: -8.9 [g] at 0.185 [s]



V1P3 CRS z
CFC_60
Max: 46.3 [g] at 0.190 [s]
Min: -44.1 [g] at 0.195 [s]

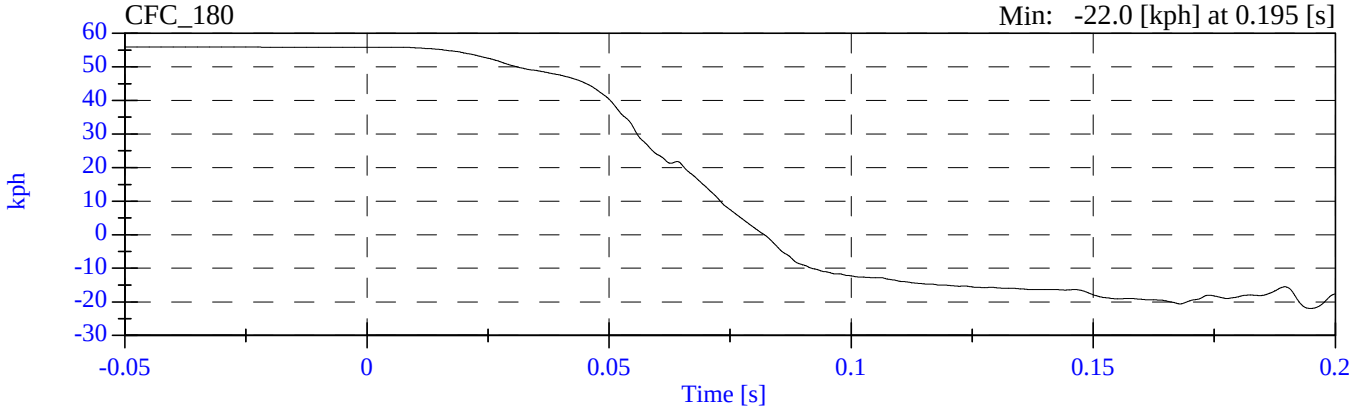


V1P3 CRS Resultant
CFC_60
Max: 56.4 [g] at 0.055 [s]
Min: 0.0 [g] at -0.038 [s]

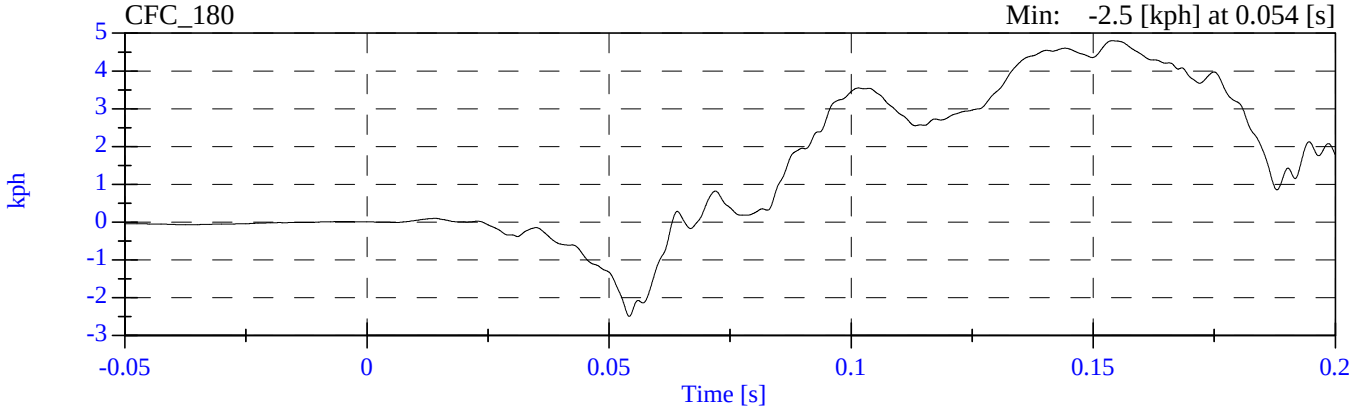


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

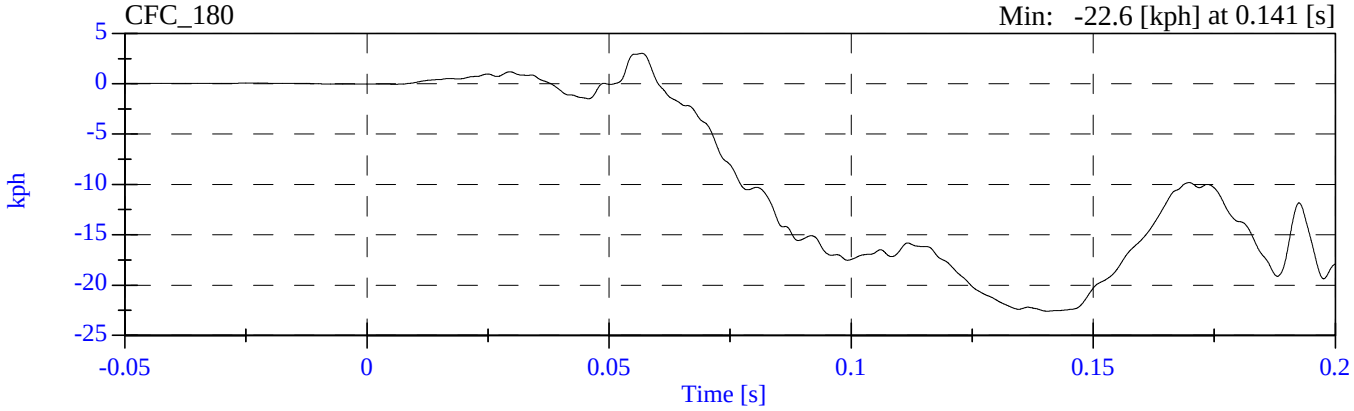
V1P3 CRS x Velocity
CFC_180
Max: 55.9 [kph] at -0.050 [s]
Min: -22.0 [kph] at 0.195 [s]



V1P3 CRS y Velocity
CFC_180
Max: 4.8 [kph] at 0.154 [s]
Min: -2.5 [kph] at 0.054 [s]

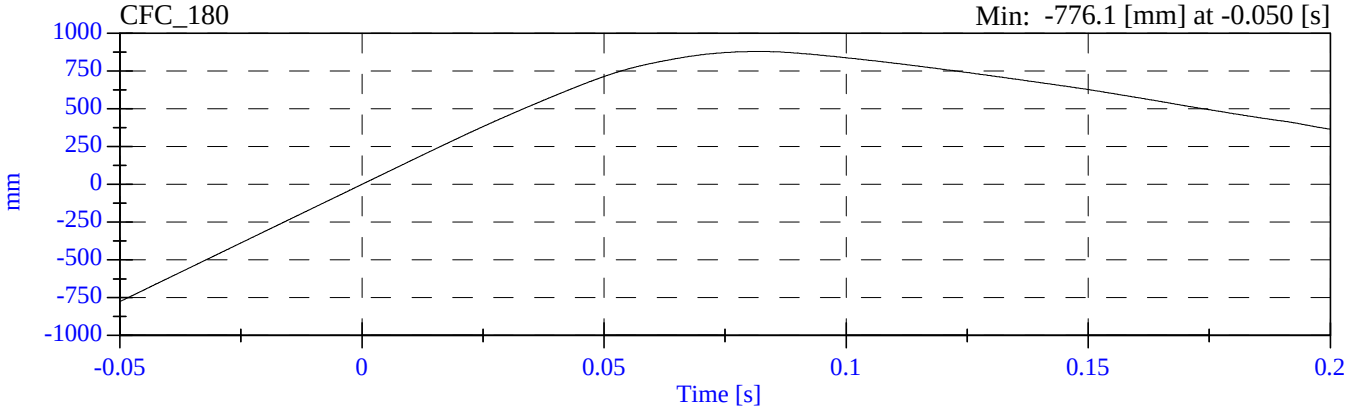


V1P3 CRS z Velocity
CFC_180
Max: 3.0 [kph] at 0.057 [s]
Min: -22.6 [kph] at 0.141 [s]

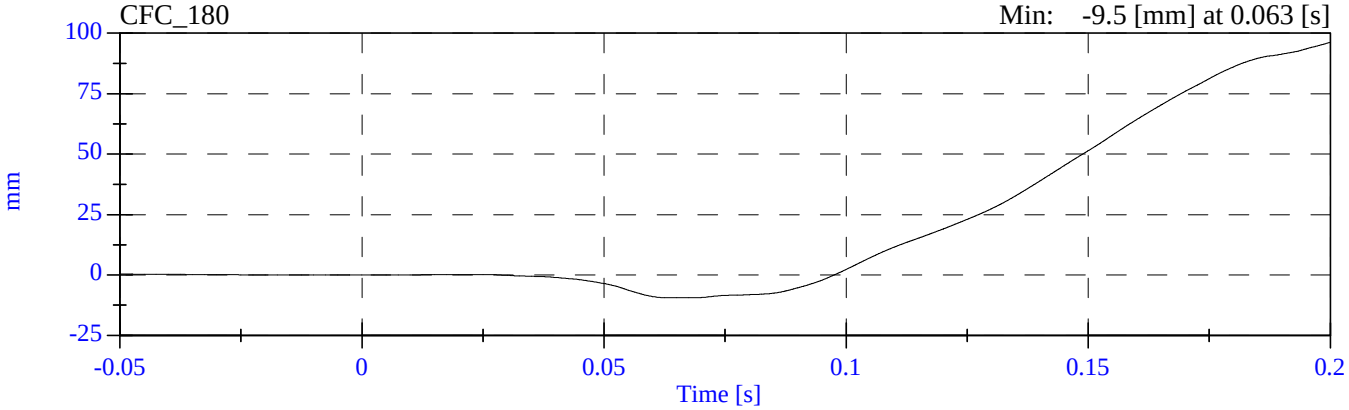


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

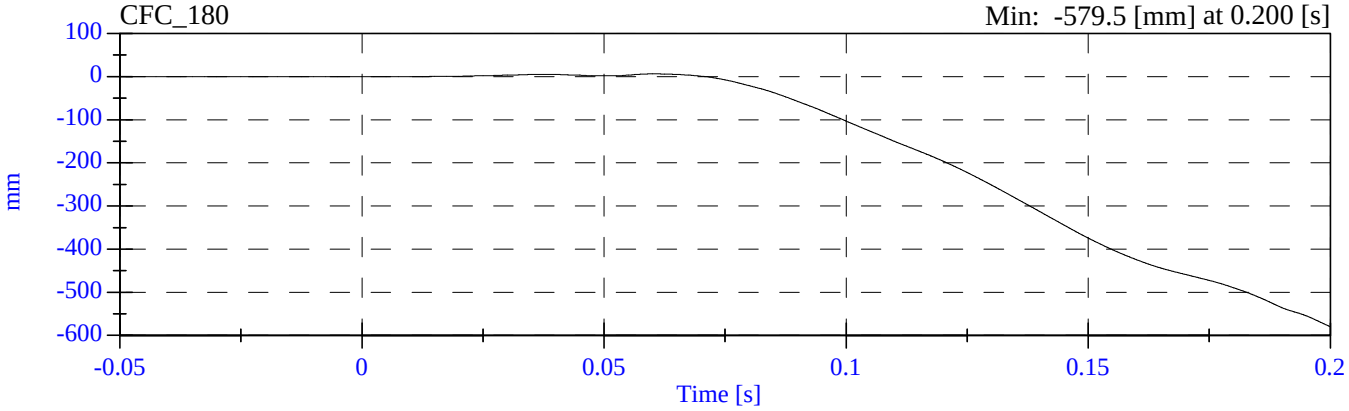
V1P3 CRS x Displacement
CFC_180
Max: 879.4 [mm] at 0.082 [s]
Min: -776.1 [mm] at -0.050 [s]



V1P3 CRS y Displacement
CFC_180
Max: 96.2 [mm] at 0.200 [s]
Min: -9.5 [mm] at 0.063 [s]

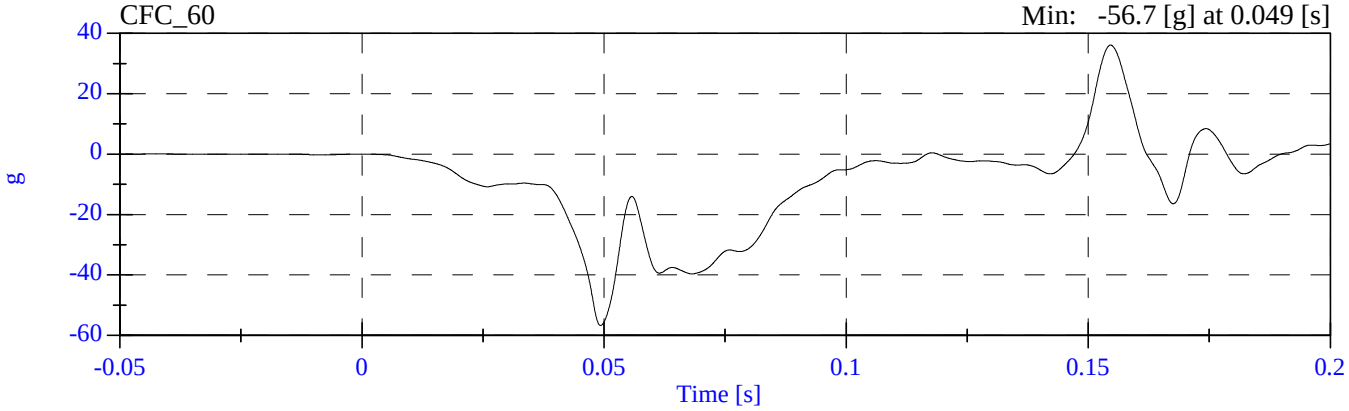


V1P3 CRS z Displacement
CFC_180
Max: 6.6 [mm] at 0.060 [s]
Min: -579.5 [mm] at 0.200 [s]

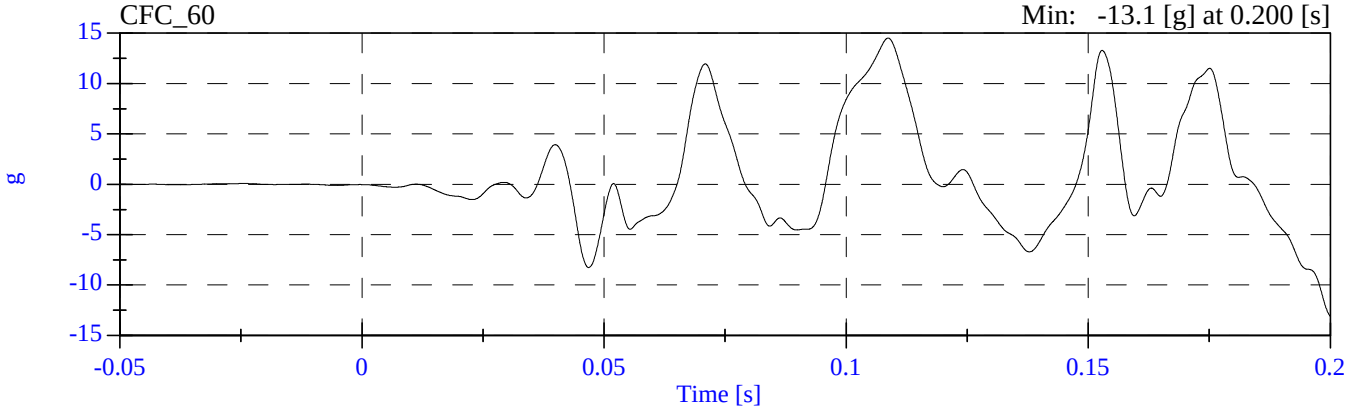


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

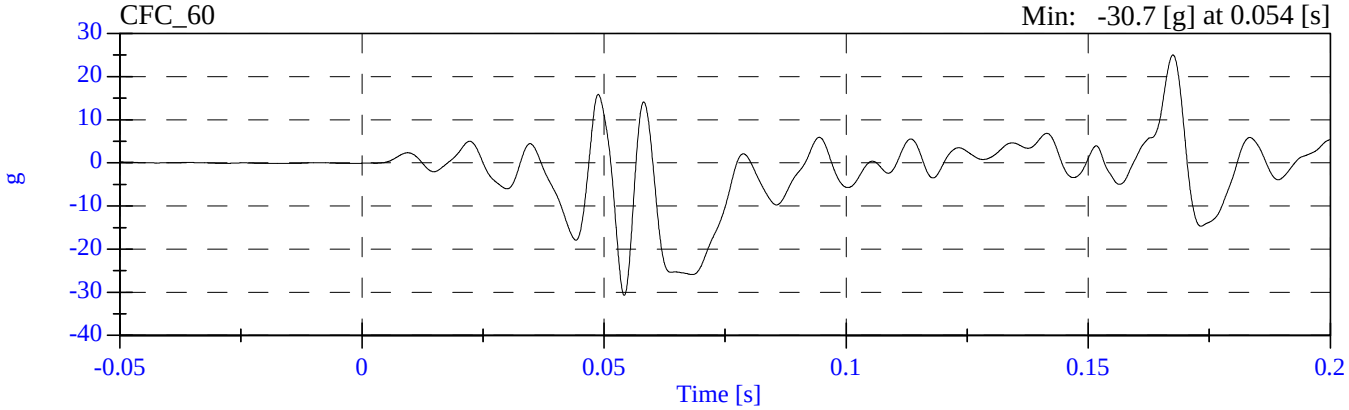
V1P4 CRS Ax
CFC_60
Max: 36.1 [g] at 0.155 [s]
Min: -56.7 [g] at 0.049 [s]



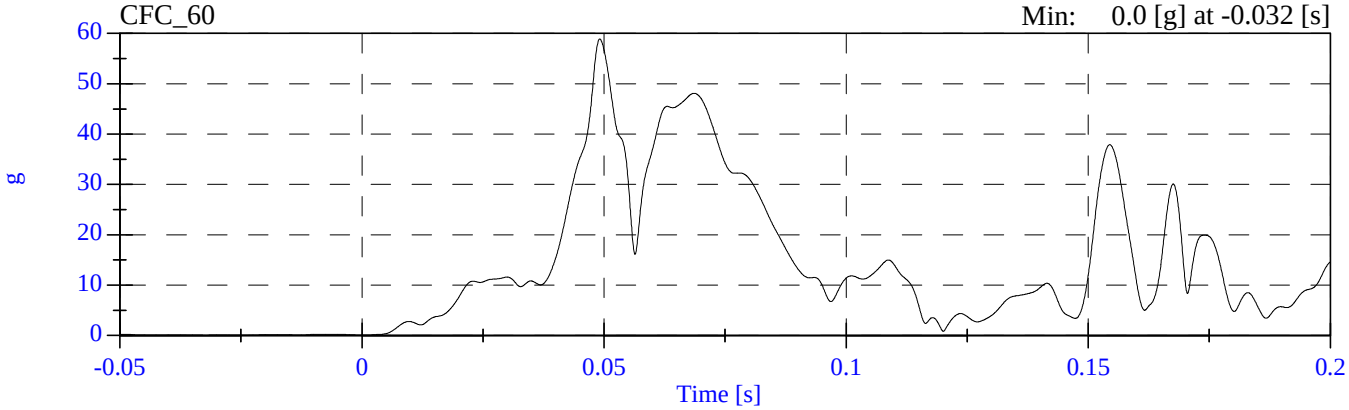
V1P4 CRS Ay
CFC_60
Max: 14.5 [g] at 0.109 [s]
Min: -13.1 [g] at 0.200 [s]



V1P4 CRS Az
CFC_60
Max: 25.0 [g] at 0.167 [s]
Min: -30.7 [g] at 0.054 [s]

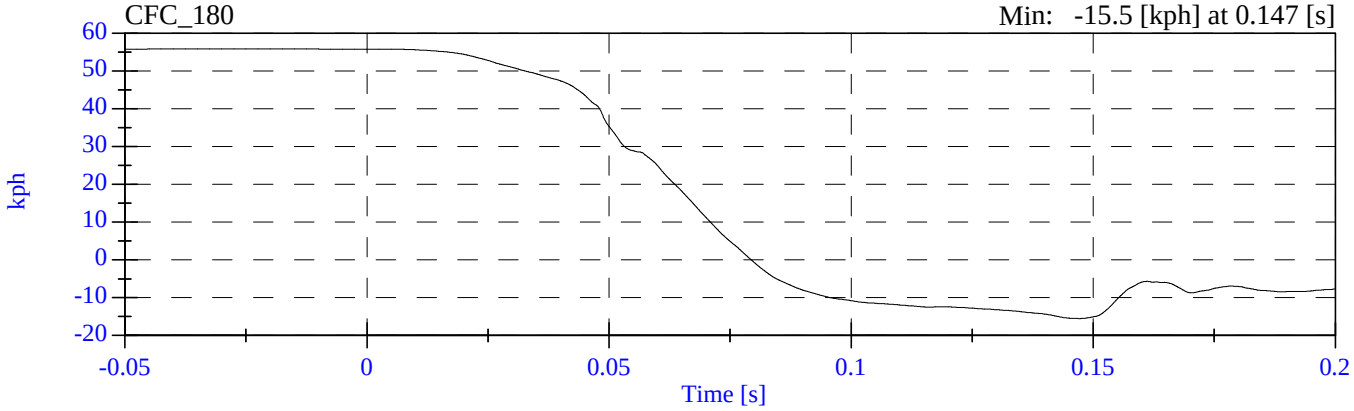


V1P4 CRS A Resultant
CFC_60
Max: 58.9 [g] at 0.049 [s]
Min: 0.0 [g] at -0.032 [s]

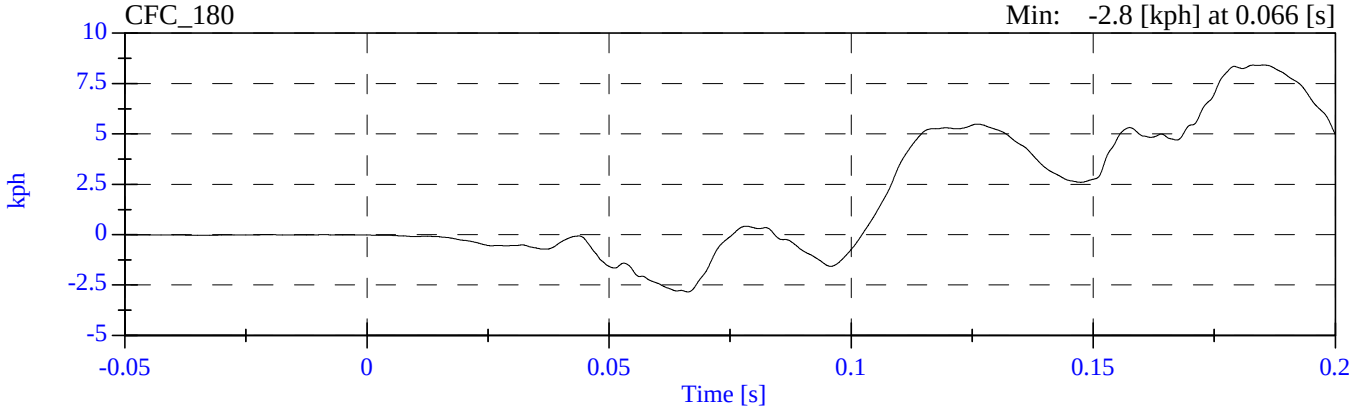


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

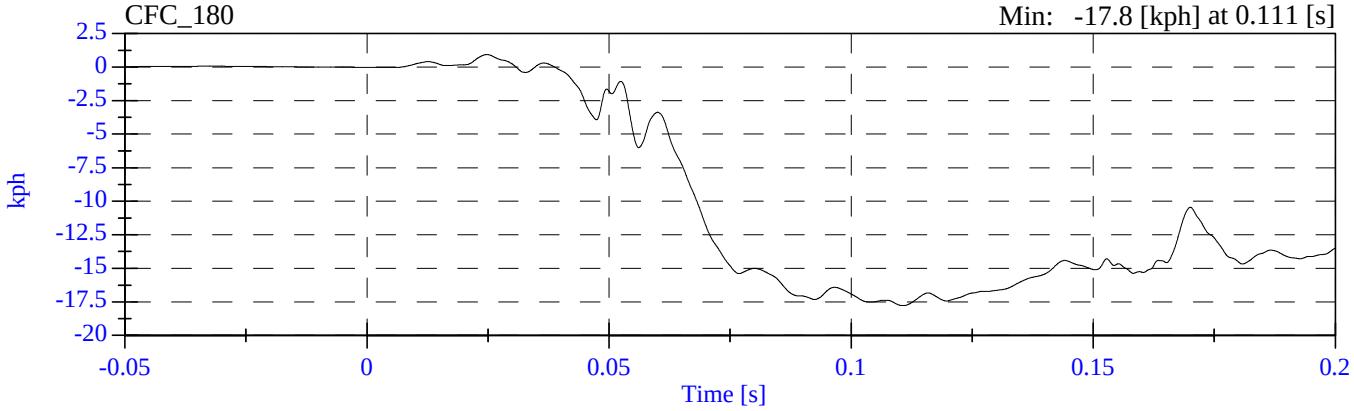
V1P4 CRS Ax Velocity
CFC_180
Max: 55.9 [kph] at -0.026 [s]
Min: -15.5 [kph] at 0.147 [s]



V1P4 CRS Ay Velocity
CFC_180
Max: 8.4 [kph] at 0.185 [s]
Min: -2.8 [kph] at 0.066 [s]

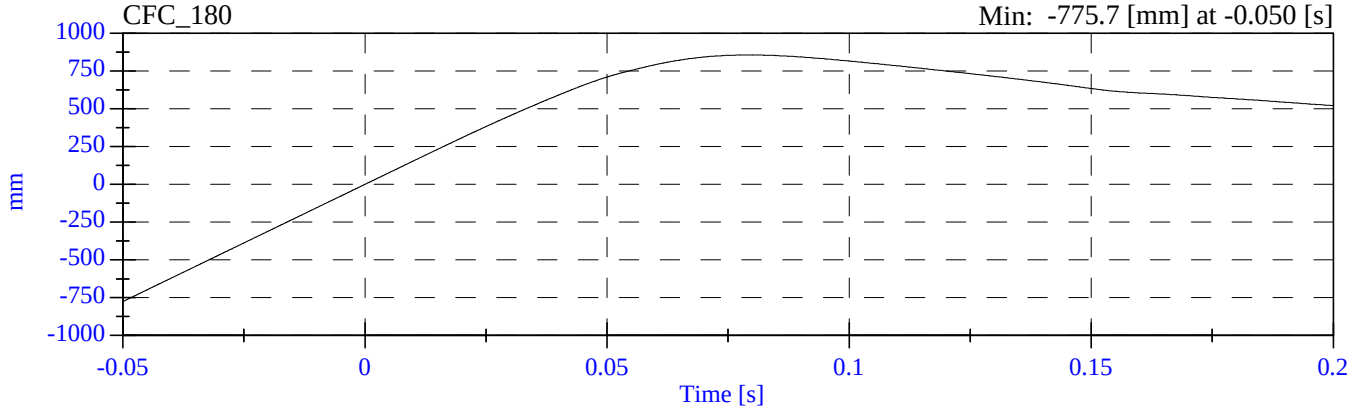


V1P4 CRS Az Velocity
CFC_180
Max: 0.9 [kph] at 0.025 [s]
Min: -17.8 [kph] at 0.111 [s]

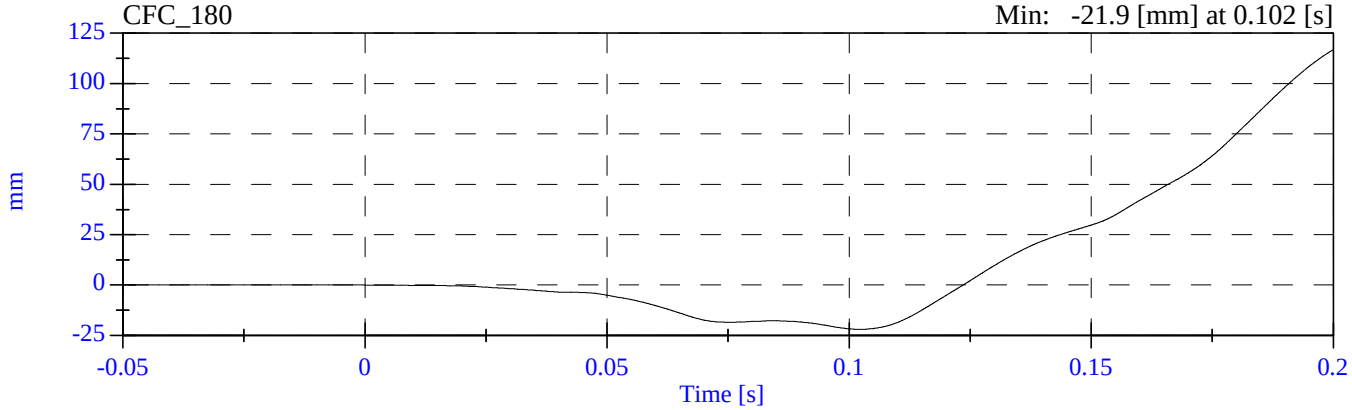


2005 NCAP Test 10 2005 Acura MDX
M55300 - February 24, 2005

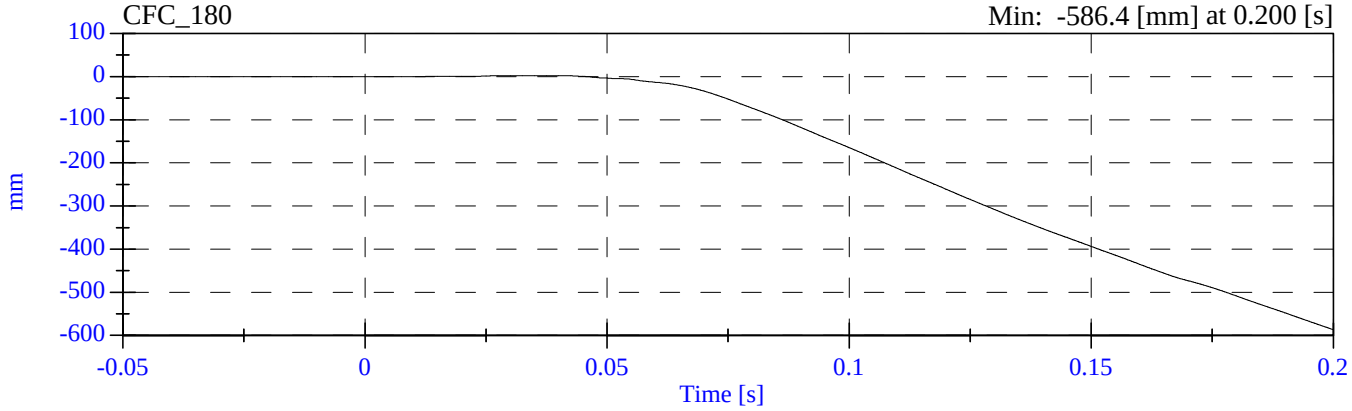
V1P4 CRS Ax Displacement
CFC_180
Max: 856.9 [mm] at 0.079 [s]
Min: -775.7 [mm] at -0.050 [s]



V1P4 CRS Ay Displacement
CFC_180
Max: 116.8 [mm] at 0.200 [s]
Min: -21.9 [mm] at 0.102 [s]



V1P4 CRS Az Displacement
CFC_180
Max: 2.3 [mm] at 0.031 [s]
Min: -586.4 [mm] at 0.200 [s]



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

TRC

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

08.05.2004 12:11:50 614

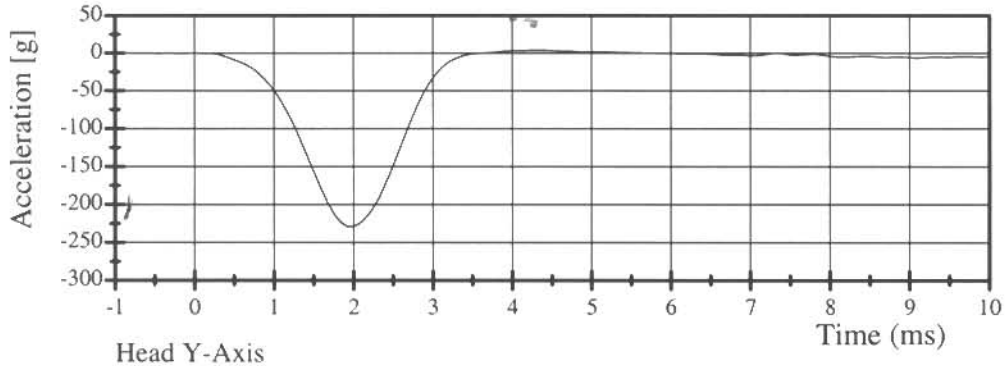
Transportation Research Center Inc.

572P Head Drop Test

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

Test Date 08/05/2004

Head X-Axis

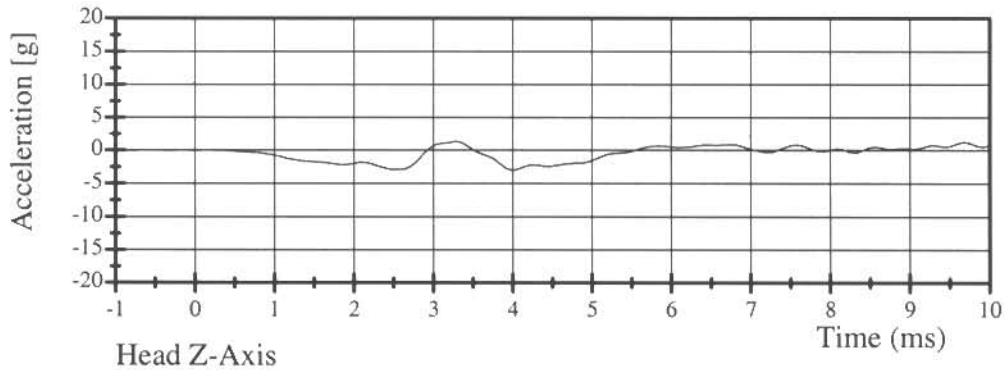


Filter Class: 1000

Max: 4.1 g at 4.3 ms

Min: -228.8 g at 2.0 ms

Head Y-Axis

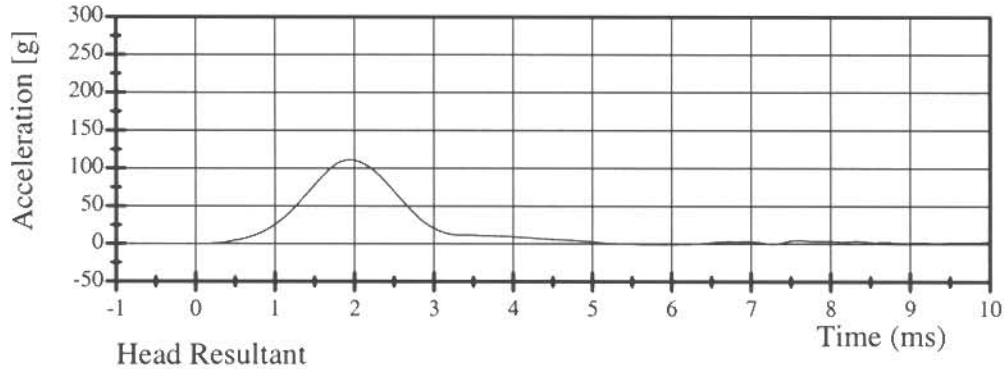


Filter Class: 1000

Max: 1.3 g at 3.3 ms

Min: -3.0 g at 4.0 ms

Head Z-Axis

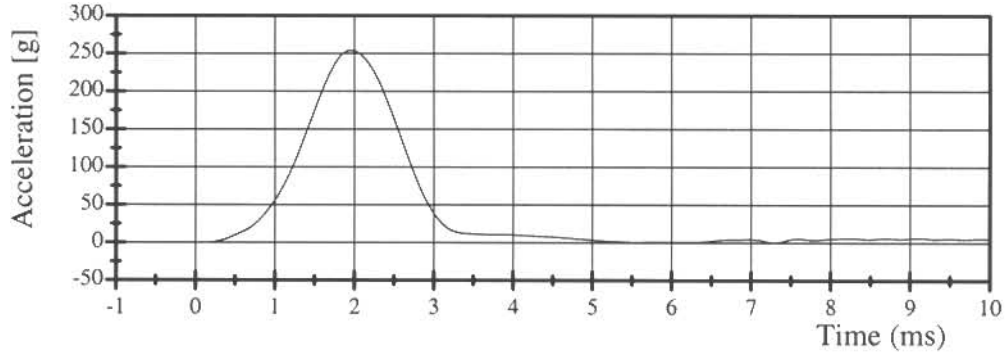


Filter Class: 1000

Max: 111.2 g at 1.9 ms

Min: -0.8 g at 5.9 ms

Head Resultant



Filter Class: 1000

Max: 254.1 g at 1.9 ms

Min: 0.0 g at 1.4 ms

08.05.2004 12:11:51 614

TRC

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

08.06.2004 08:32:35 647

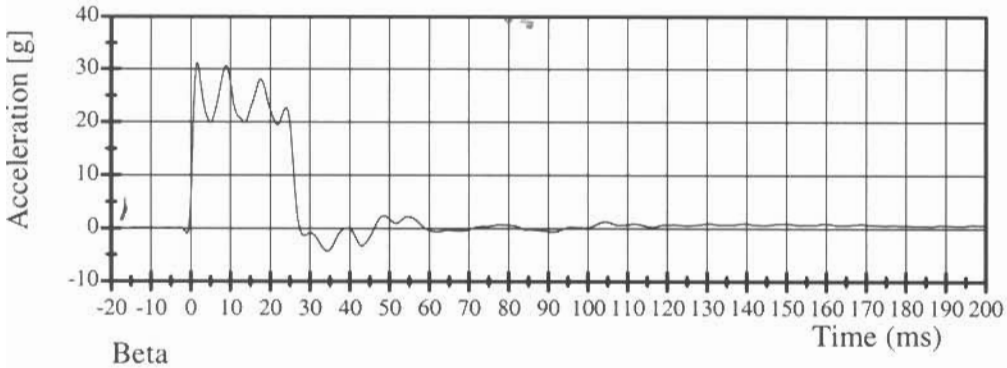
Transportation Research Center Inc.

572P Neck Flexion Test

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

Test Date 08/06/2004

Pendulum Deceleration

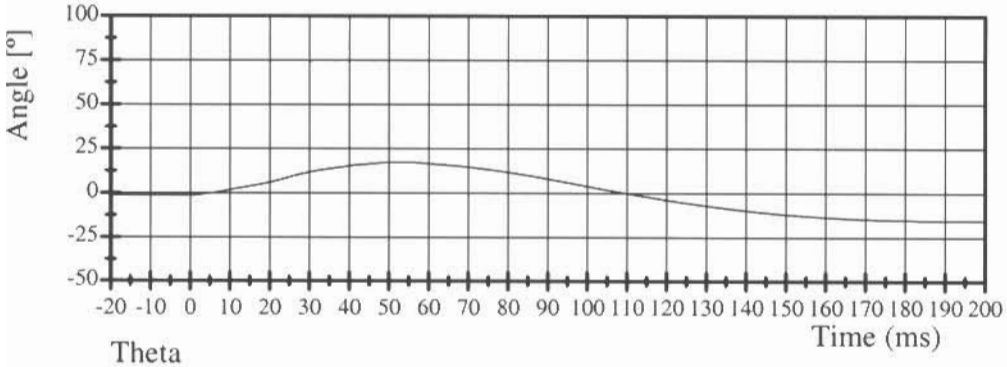


Filter Class: 180

Max: 31.2 g at 1.7 ms

Min: -4.3 g at 34.4 ms

Beta

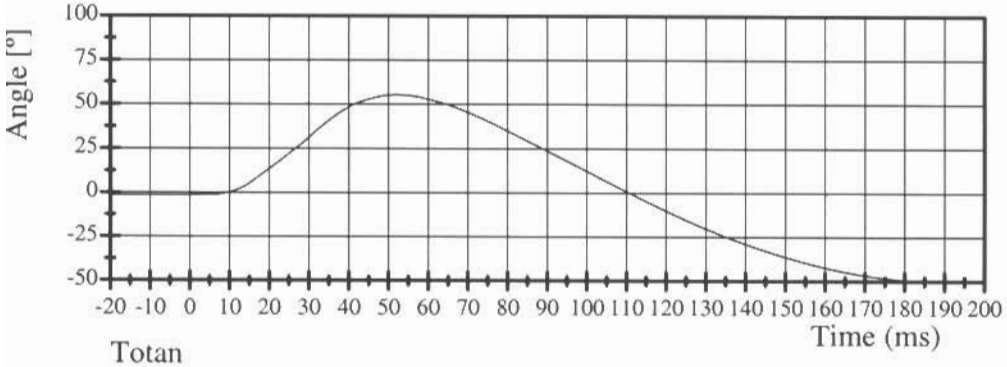


Filter Class: 60

Max: 17.4 ° at 52.0 ms

Min: -15.4 ° at 192.4 ms

Theta

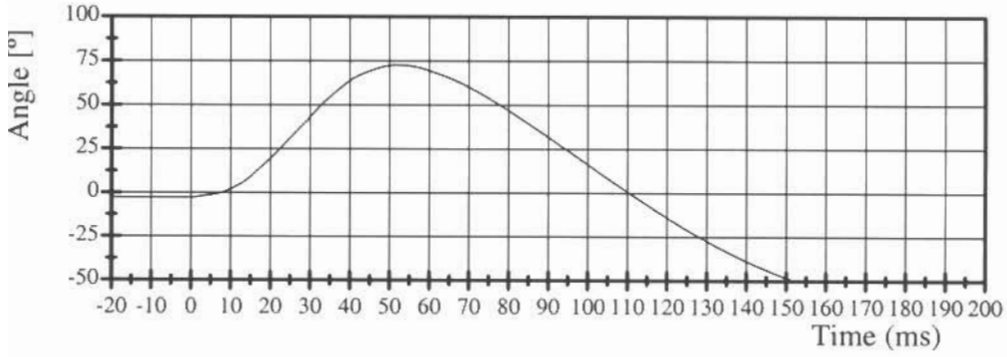


Filter Class: 60

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

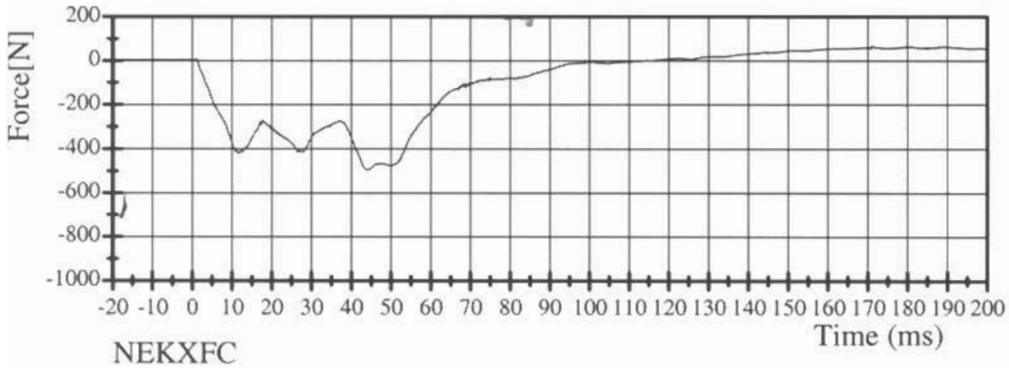
Transportation Research Center Inc.

572P Neck Flexion Test

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

Test Date 08/06/2004

NEKXF

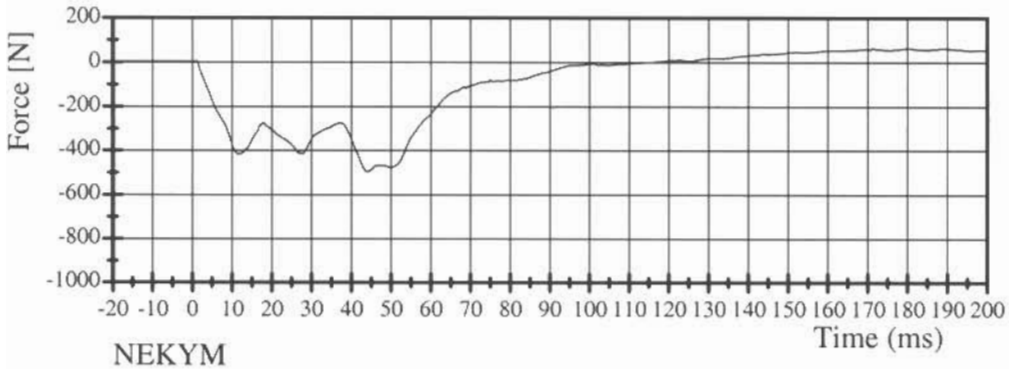


Filter Class: 1000

Max: 66.6 N at 171.1 ms

Min: -494.8 N at 43.8 ms

NEKXFC

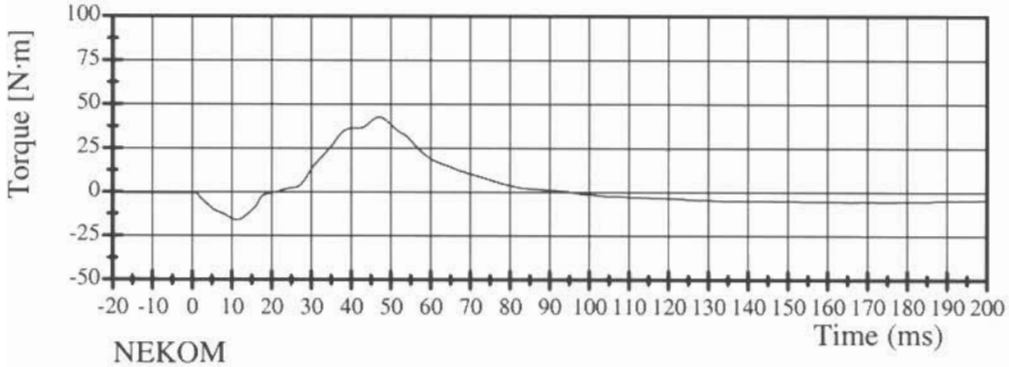


Filter Class: 600

Max: 64.4 N at 171.2 ms

Min: -494.5 N at 43.9 ms

NEKYM

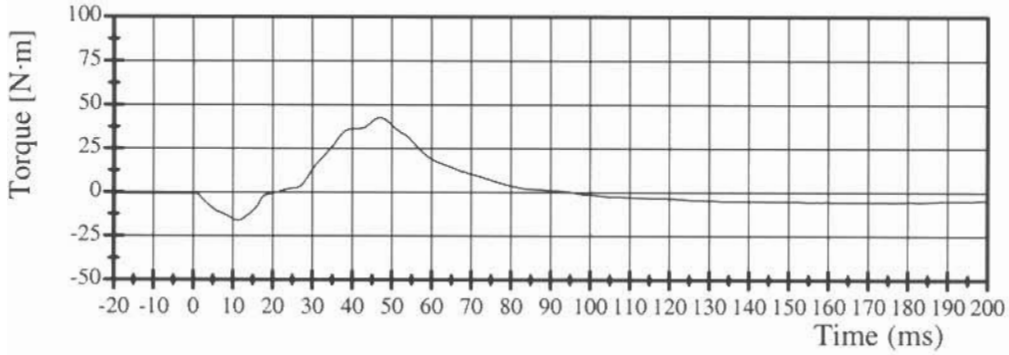


Filter Class: 600

Max: 42.7 N·m at 46.8 ms

Min: -16.0 N·m at 11.6 ms

NEKOM



Filter Class: 600

Max: 42.7 N·m at 46.8 ms

Min: -16.0 N·m at 11.6 ms

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

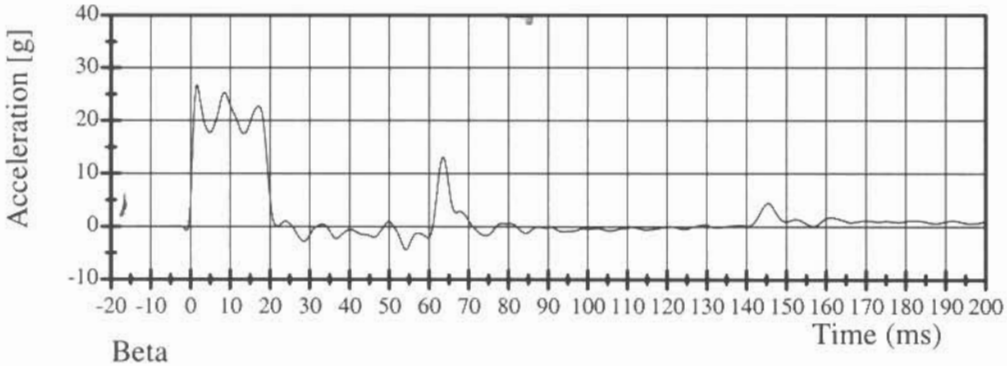
Transportation Research Center Inc.

572P Neck Extension Test

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

Test Date 08/06/2004

Pendulum Deceleration

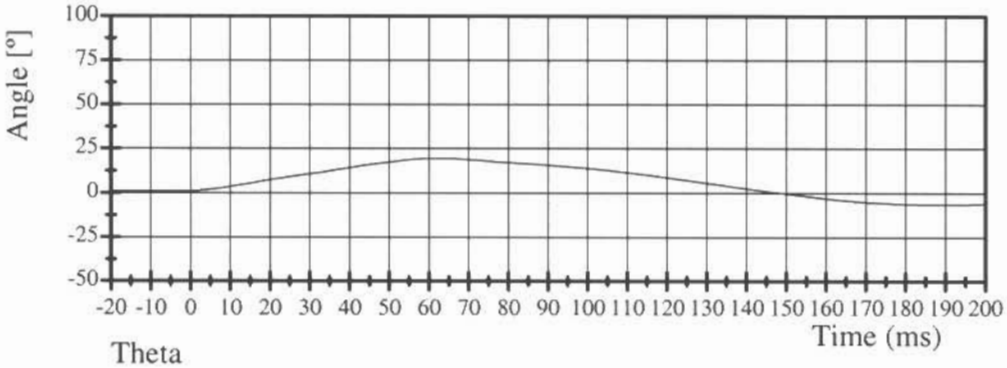


Filter Class: 180

Max: 26.7 g at 1.6 ms

Min: -4.3 g at 54.2 ms

Beta

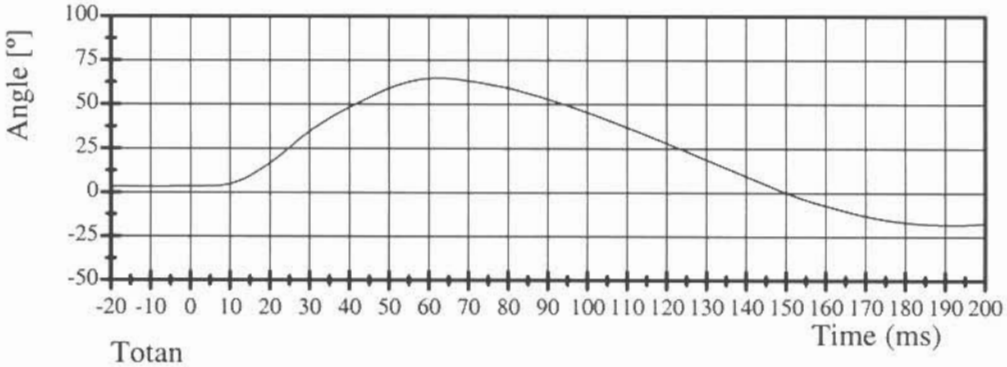


Filter Class: 60

Max: 19.4 ° at 64.2 ms

Min: -6.4 ° at 187.2 ms

Theta

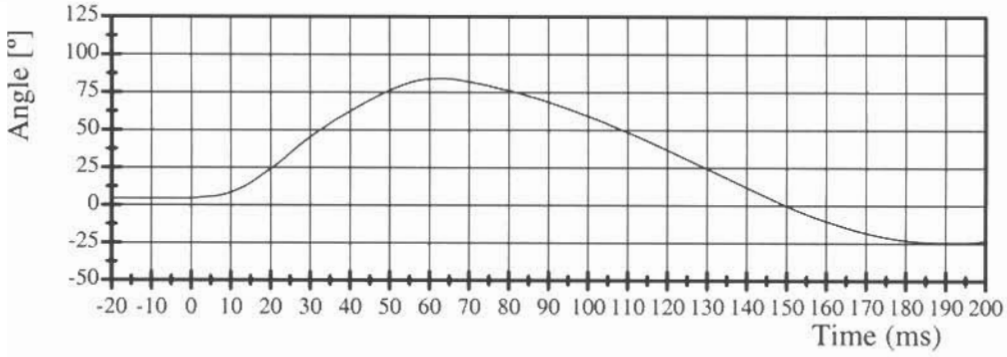


Filter Class: 60

Max: 64.8 ° at 62.9 ms

Min: -18.0 ° at 192.1 ms

Totan



Filter Class: 60

Max: 84.2 ° at 63.3 ms

Min: -24.4 ° at 190.8 ms

08.06.2004 10:06:42 1000

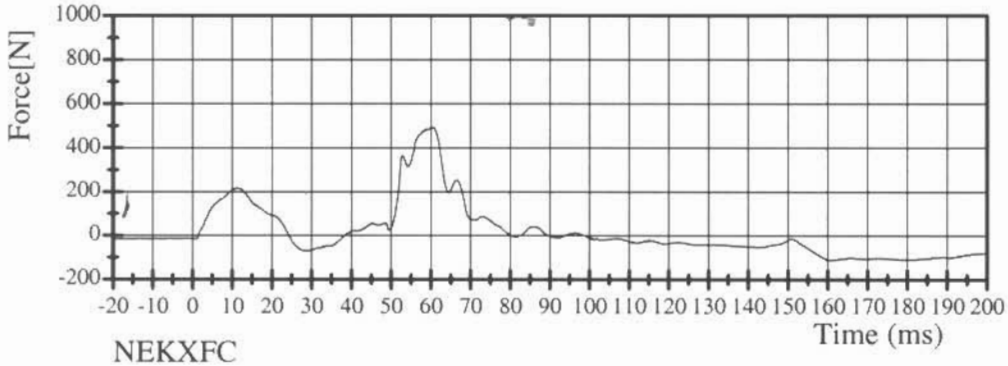
Transportation Research Center Inc.

572P Neck Extension Test

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

Test Date 08/06/2004

NEKXF

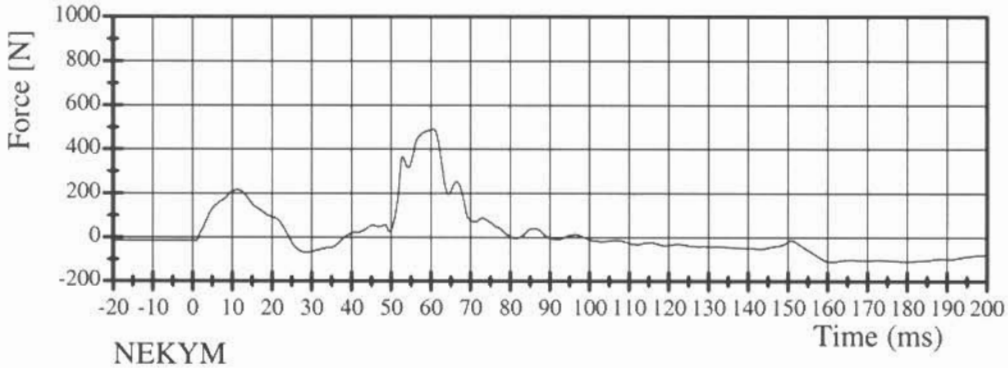


Filter Class: 1000

Max: 491.8 N at 60.8 ms

Min: -111.4 N at 161.0 ms

NEKXFC

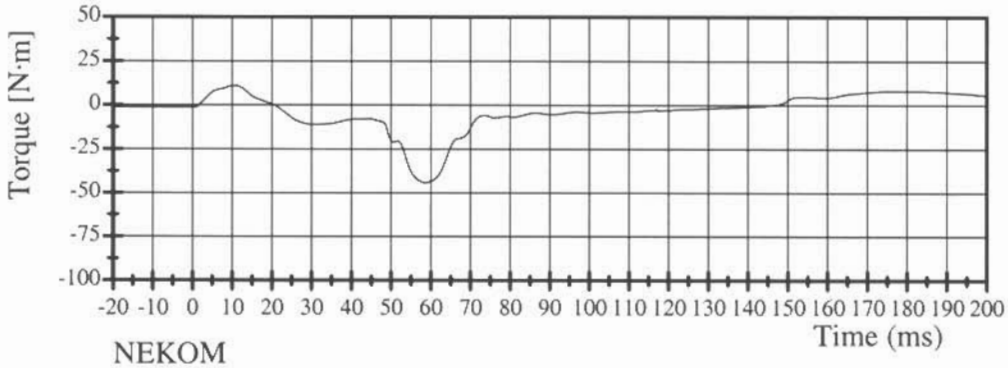


Filter Class: 600

Max: 491.8 N at 60.6 ms

Min: -111.3 N at 161.0 ms

NEKYM

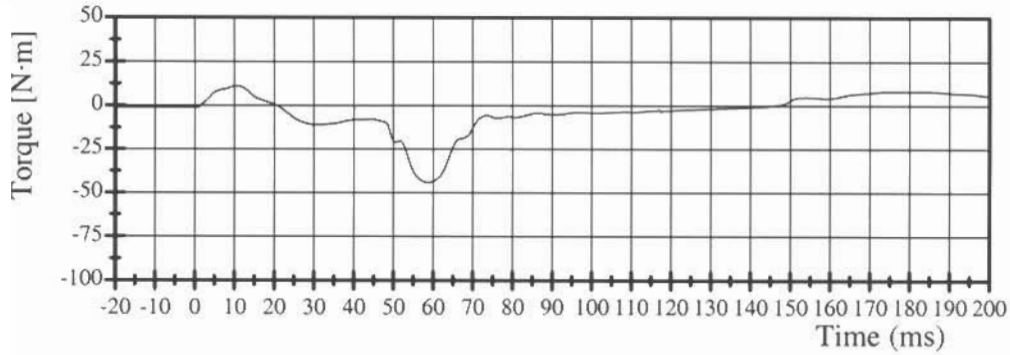


Filter Class: 600

Max: 11.1 N·m at 10.4 ms

Min: -44.2 N·m at 58.6 ms

NEKOM



Filter Class: 600

Max: 11.1 N·m at 10.4 ms

Min: -44.2 N·m at 58.6 ms

08.06.2004 10:06:43 1000

Transportation Research Center Inc.

572P Thorax Test

HIII 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

08.05.2004 08:26:26 1040

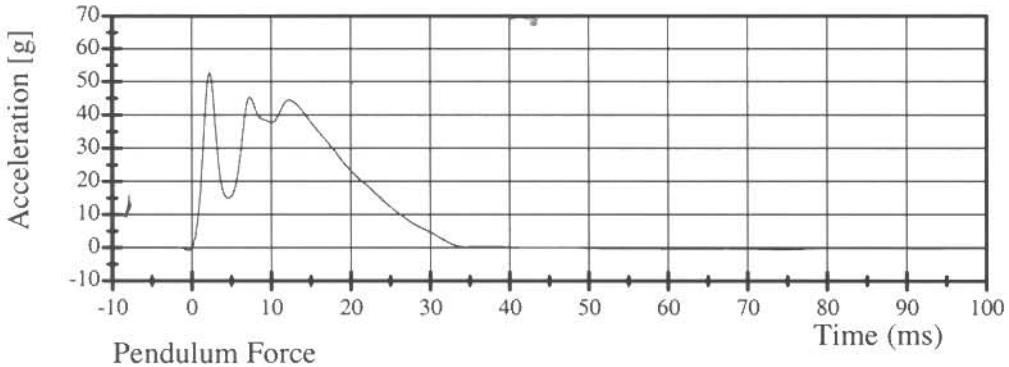
Transportation Research Center Inc.

572P Thorax Test

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

Test Date 08/05/2004

Pendulum Deceleration

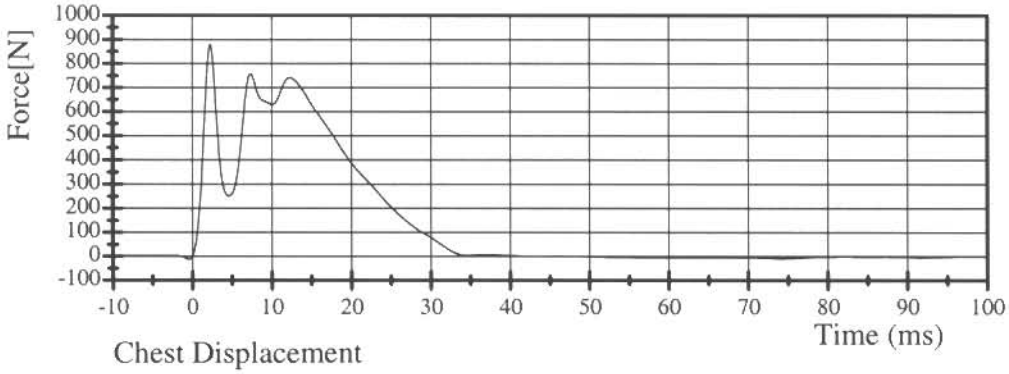


Filter Class: 180

Max: 52.8 g at 2.2 ms

Min: -0.7 g at -0.4 ms

Pendulum Force

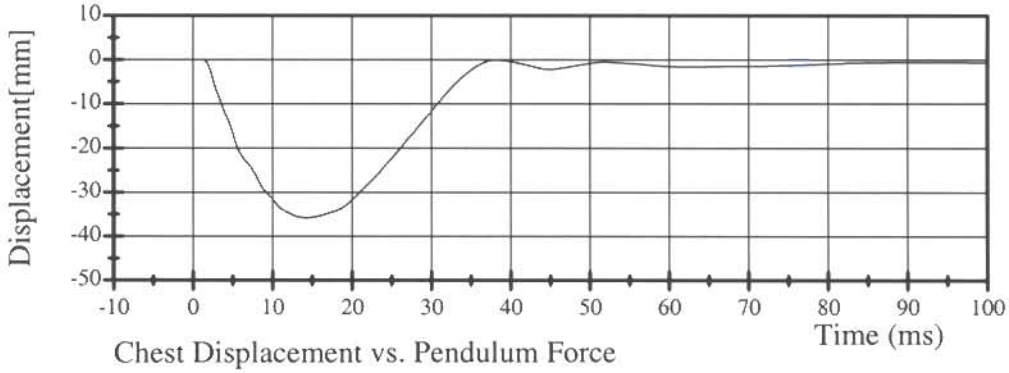


Filter Class: 180

Max: 880.2 N at 2.2 ms

Min: -11.7 N at -0.4 ms

Chest Displacement

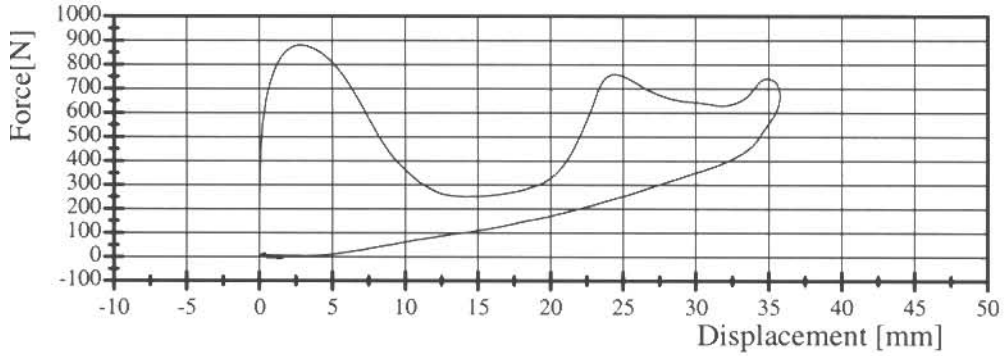


Filter Class: 600

Max: 0.0 mm at -80.0 ms

Min: -35.8 mm at 14.3 ms

Chest Displacement vs. Pendulum Force



08.05.2004 08:26:27 1040

TRANSPORTATION RESEARCH CENTER INC.

TORSO FLEXION TEST

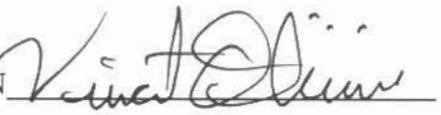
HYBRID III THREE-YEAR-OLD

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 UNSUPPORRTED 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 

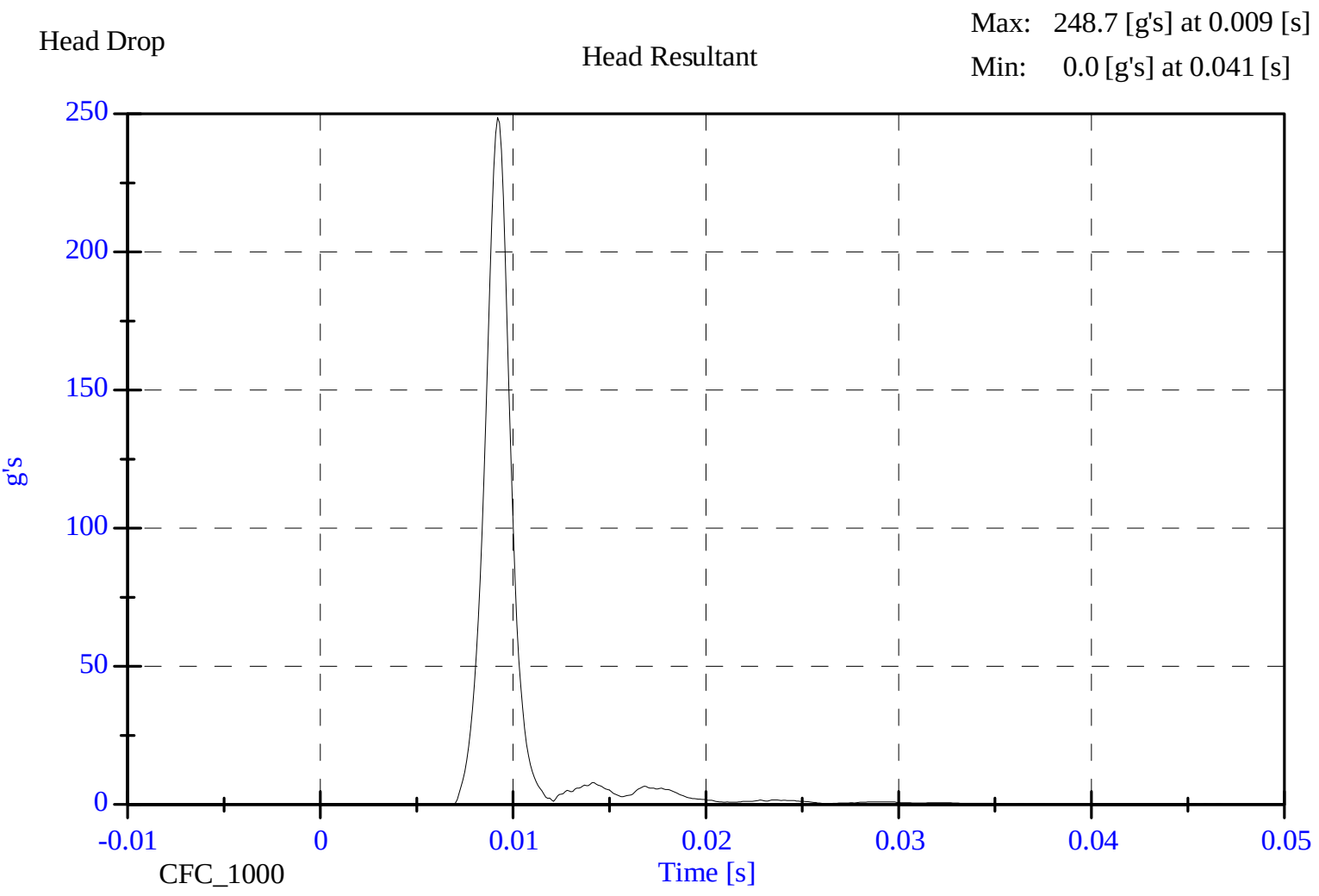
Head Drop

Part 572N Head Drop | Calibration Date: February 3, 2005

Serial No: 186 | Work File: 186H2 02-03-05

----------**TEST RESULTS**----------

TEST CONDITION	PARAMETERS	RESULTS	STATUS
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



Neck Extension

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

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

TEST CONDITION	PARAMETERS	RESULTS	STATUS
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
----------MOMENT ABOUT THE OCCIPITAL CONDYLE----------			
Max Occipital Moment:	-24.00--19.00 N-m	-19.22 N-m	Passed
Occiptal 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----------

TEST CONDITION	PARAMETERS	RESULTS	STATUS
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
----------MOMENT ABOUT THE OCCIPITAL CONDYLE----------			
Max Occipital Moment:	27.00- 33.00 N-m	30.11 N-m	Passed
Occiptal 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**----------

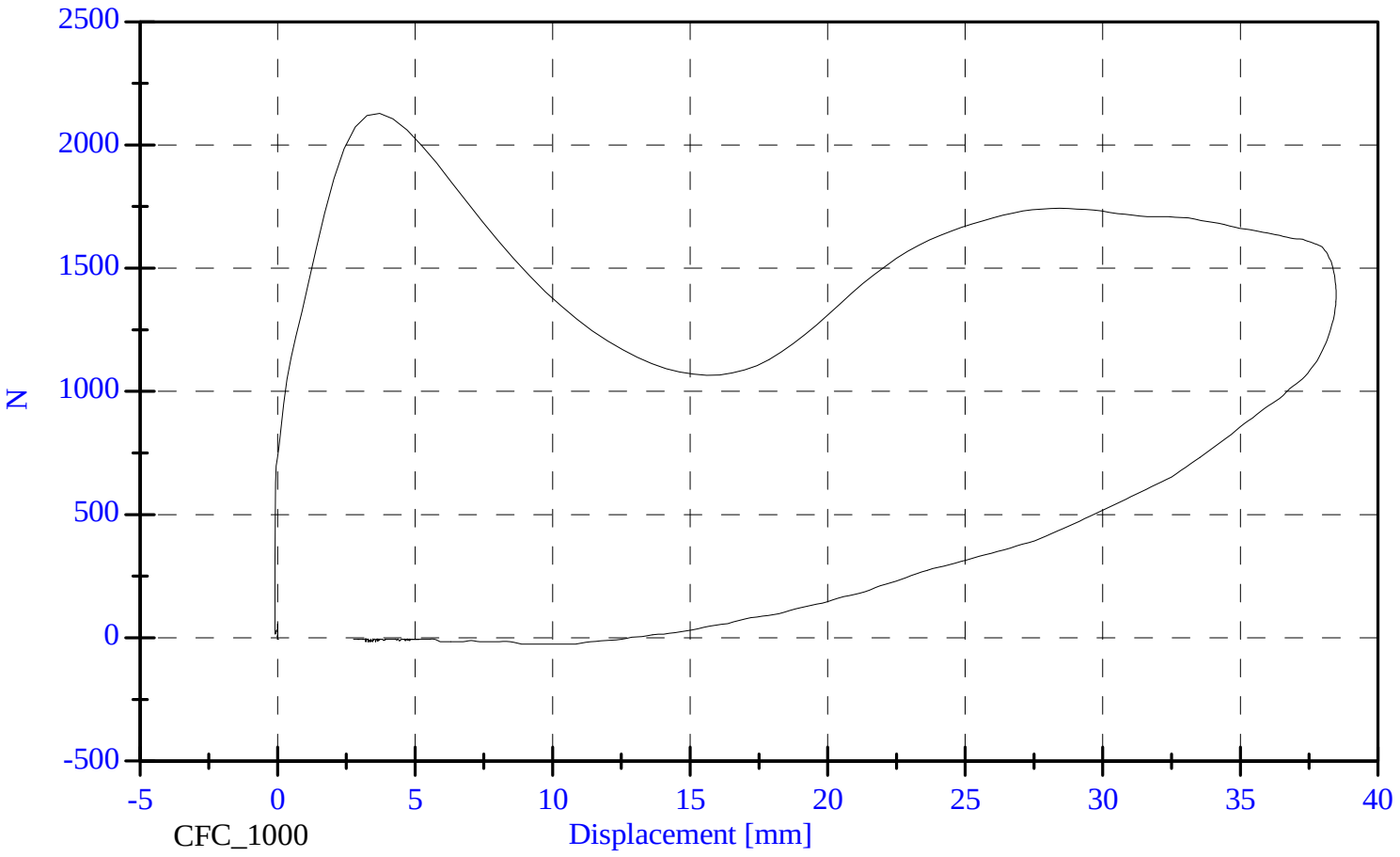
TEST CONDITION	PARAMETERS	RESULTS	STATUS
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Pendulum Velocity:	6.59- 6.83 m/s	6.71 m/s	Passed
Maximum Deflection:	38.00-46.00 mm	38.48 mm	Passed
Maximum Res. Force:	1150.00-1380.00 N	1167.99 N	Passed
Internal Hysteresis:	65-85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



CFC_1000

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
LATCH BELT LOAD	LC-706	LEBOW	01-Nov-04
TETHER BELT LOAD	LC-711	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-156	First Technology	01-Nov-04

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

CRS INSTRUMENTATION

	CRS Accelerometers		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
P3 CRS AX	AC-P24011	ENDEVCO	08-Sep-04
P3 CRS AY	AC-P23161	ENDEVCO	08-Sep-04
P3 CRS AZ	AC-P19111	ENDEVCO	08-Sep-04
P4 CRS AX	AC-J32143	ENDEVCO	07-Jan-05
P4 CRS AY	AC-J32838	ENDEVCO	07-Jan-05
P4 CRS AZ	AC-P23358	ENDEVCO	02-Dec-04