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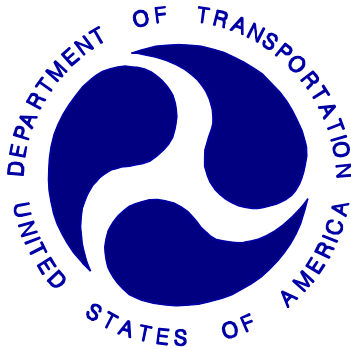
**NEW CAR ASSESSMENT PROGRAM (NCAP)  
FRONTAL BARRIER IMPACT TEST**

**GENERAL MOTORS CORPORATION  
2001 PONTIAC AZTEK  
MPV**

NHTSA NUMBER: M10114

VERIDIAN TEST NUMBER: 8602-22

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



February 9, 2001

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION  
National Highway Traffic Safety Administration  
Safety Performance Standards  
Office of Crashworthiness Standards  
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\_\_\_\_\_  
Date of Report Acceptance

\_\_\_\_\_  
COTR, New Car Assessment Program (NCAP)  
NHTSA, Office of Crashworthiness Standards

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15. <i>Supplementary Notes</i>					
16. <i>Abstract</i>  A frontal load cell barrier test of a 2001 Pontiac Aztek MPV was performed at Veridian Engineering crash test facility in Buffalo, New York, on February 9, 2001. The impact velocity was 55.84 kph and the temperature at the barrier face was 21EC. The maximum post-test vehicle crush was 490 mm. The test vehicle was equipped with 3-point restraint systems, knee bolsters, and airbags at both the driver and right outboard passenger seating positions. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appeared to comply with head, chest, and femur requirements.					
<b>ATD Position</b>	<b>HIC</b>	<b>Clip (g's)</b>	<b>Chest Disp (mm)</b>	<b>Left Femur (N)</b>	<b>Right Femur (N)</b>
<b>Driver (150)</b>	685.1	56.5	34.7	5297.5	5728.9
<b>Passenger (245)</b>	430.0	47.8	34.6	6347.2	5321.3
17. <i>Key Words</i> 56 kph Frontal Barrier Impact test New Car Assessment Program (NCAP)				18. <i>Distribution Statement</i> <u>Copies of this report are available from:</u> NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, DC 20590	
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## TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	PURPOSE AND SUMMARY OF NCAP TEST	1-1
2	OCCUPANT AND VEHICLE INFORMATION	2-1
<u>Data Sheet</u>	<u>Description</u>	
1.	CRASH TEST SUMMARY	2-1
2.	GENERAL TEST AND VEHICLE PARAMETER DATA	2-2
3.	POST IMPACT DATA	2-4
4.	TEST VEHICLE INFORMATION	2-5
5.	DUMMY POSITIONING IN VEHICLE	2-7
6.	SEAT BELT POSITIONING DATA	2-9
7.	VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY	2-10
8.	DUMMY INJURY CRITERIA VALUES	2-12
9.	SEAT BELT PERFORMANCE DATA	2-16
10.	SUMMARY OF FMVSS 212 DATA	2-17
11.	WINDSHIELD ZONE INTRUSION FMVSS 219 DATA	2-18
12.	FMVSS 301 FUEL SYSTEM INTEGRITY DATA	2-19
13.	FMVSS 310 ROLLOVER DATA	2-20
14.	VEHICLE MEASUREMENTS	2-24
15.	CAMERA DATA	2-31
16.	REFERENCE PHOTO TARGETS	2-33
17.	LOAD CELL LOCATIONS ON FIXED BARRIER	2-34
18.	POST TEST AIR BAG DATA	2-35
19.	ACCIDENT INVESTIGATION DIVISION DATA	2-36
APPENDIX A	PHOTOGRAPHS	A-1
APPENDIX B	VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA	B-1
APPENDIX C	PART 572 B\ E DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION TESTS	C-1
APPENDIX D	DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION	D-1

## SECTION 1

### PURPOSE AND SUMMARY OF TEST M10114

#### 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. DTNH22-96-D-02010. 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.

#### SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2001 Pontiac Aztek MPV at a velocity of 55.84 kph. The test was performed at Veridian Engineering on February 9, 2001. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The frontal barrier impact event was documented by 1 real-time camera and 16 high-speed cameras. 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, knee shear displacement transducers, 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. 150) and the right-front passenger (position 2) ATD (Serial No. 245) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 137 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.

The driver's HIC was 685.1. The maximum chest deceleration over 3 milliseconds was 56.5 g's and maximum chest deflection was 34.7 mm. Compressive femur loads were 5297.5 Newtons on the left and 5728.9 Newtons on the right.

The right front passenger's HIC was 430.0. Maximum chest deceleration over 3 milliseconds was 47.8 g's and maximum chest deflection was 34.6 mm. Compressive femur loads were 6347.2 Newtons on the left and 5321.3 Newtons on the right.



DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 2001 Pontiac Aztek MPV  
NHTSA No. : M10114 ; VIN: 3G7DB03E01S534224 ; Color : Black  
Engine Data: 6 cylinders; - CID; 3.4 Liters; - cc  
Placement : - Longitudinal or In-Line; X Transverse or Lateral  
Transmission Data : 4 speeds; - Manual; X Automatic; X Overdrive  
Final Drive : - Rear Wheel Drive; - Front Wheel Drive; X Four Wheel Drive  
Major Options : X A/C; X Pwr.Strg.; X Pwr. Brakes  
X Pwr. Windows; X Pwr. Door Locks; X Tilt Wheel  
Date Received : 1/30/2001 ; Odometer Reading 267 km  
Selling Dealer : Illig Chevrolet-Pontiac, Inc.  
& Address: 211 South Main Street Cattaraugus, NY 14719

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : General Motors Corporation  
Date of Manufacture 12/00  
GVWR : 2430 kg; GAWR: 1240 kg FRONT; 1190 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 300 kpa FRONT  
300 kpa REAR  
Recommended Tire Size : P215/70R16  
\* Recommended Cold Tire Pressure : 240 kpa FRONT; 240 kpa REAR  
Size of Tires on Test Vehicle: P215/70R16 ; Manufacturer: Uniroyal  
Vehicle Capacity Data :  
Type of Front Seats: - Bench; X Bucket; - Split Bench  
Number of Occupants: 2 Front; 3 Rear; 5 Total  
Vehicle Capacity Weight (VCW) = 591.0 kg  
No. of Occupants x 68 kg = 340.2 kg  
Rated Cargo/Luggage Weight (RCLW) = 250.8 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	=	<u>551.5</u>	kg	Right Rear	=	<u>368.0</u>	kg
Left Front	=	<u>545.5</u>	kg	Left Rear	=	<u>374.0</u>	kg
TOTAL FRONT	=	<u>1097.0</u>	kg	TOTAL REAR	=	<u>742.0</u>	kg
TOTAL DELIVERED WEIGHT	=	<u>1839.0</u>	kg				
% of Total Front of Vehicle Weight	=	<u>59.7</u>	%	% of Total Rear Weight	=	<u>40.3</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW)	=	<u>1839.0</u>	kg
Rated Cargo/Luggage Weight (RCLW)	=	<u>136.1</u>	kg (136.1 kg max)
Weight of 2 p.572 Dummies @ 76 each	=	<u>152.0</u>	kg
TARGET TEST WEIGHT	=	<u>2127.1</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 129 KG OF CARGO WEIGHT:

Right Front	=	<u>593.5</u>	kg	Right Rear	=	<u>464.5</u>	kg
Left Front	=	<u>587.0</u>	kg	Left Rear	=	<u>475.0</u>	kg
TOTAL FRONT	=	<u>1180.5</u>	kg	TOTAL REAR	=	<u>939.5</u>	kg
TOTAL TEST WEIGHT	=	<u>2120.0</u>	kg				
% of Total Front Weight	=	<u>55.7</u>	%	% of Total Rear Weight	=	<u>44.3</u>	%
Weight of Ballast Secured in Vehicle Trunk Area	=	<u>60</u>	kg				
Vehicle Components Removed for Weight Reduction:		<u>None</u>					

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	<u>784</u>	LF	<u>790</u>	RR	<u>820</u>	LR	<u>832</u>
FULLY LOADED :	RF	<u>775</u>	LF	<u>780</u>	RR	<u>796</u>	LR	<u>808</u>
AS TESTED :	RF	<u>777</u>	LF	<u>785</u>	RR	<u>799</u>	LR	<u>810</u>
Vehicle's Wheel Base :		<u>2750</u>	mm					
Location of Vehicle's C.G. :		<u>1219</u>	mm rearward of front wheel center.					

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual	=	<u>68.1</u>	liters
Usable Capacity Figure Furnished by COTR	=	<u>68.1</u>	liters
Test Volume Range (92 to 94% of Usable Capacity)	=	<u>62.7</u>	to <u>64.0</u> liters
ACTUAL TEST VOLUME	=	<u>63.9</u>	liters (with entire fuel system filled)
Test Fluid Type:	<u>Stoddard Solution</u>	;	Spec. Grav. = <u>0.764</u>
	Kinematic Viscosity =	<u>0.96</u>	centistokes; Color = <u>Orange</u>
Type of Fuel Pump:	Electric- <u>X</u>	;	Mechanical- <u>-</u>
Does Electric Pump operate with ignition switch "ON" & engine "OFF"		Yes- <u>X</u>	No- <u>-</u>
Details of Fuel System	<u>Tank -Left side ahead of axle; Filler - Left side over rear axle; Lines -Left frame stiffener</u>		

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°  
Test Date : February 9, 2001 Time: 11:15 Temperature: 17 °C  
Vehicle NHTSA No. : M10114  
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 = 4535 ; C/L = 4620 ; Right = 4532  
Post-Test Left = 4198 ; C/L = 4130 ; Right = 4185  
Crush Left = 337 ; C/L = 490 ; Right = 347  
AVERAGE = 391 mm

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point :

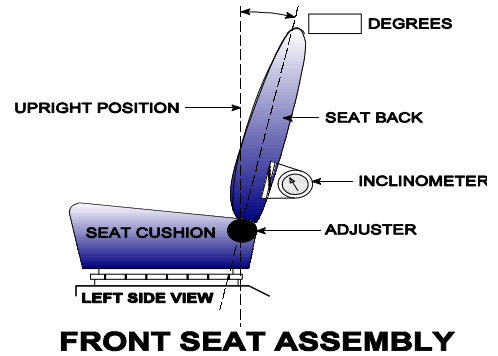
Left = 483 ; C/L = 606 ; Right = 505  
AVERAGE = 531 mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2001 Vehicle Model: Pontiac Aztek 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.



Seat back angle for driver's seat: 20.5E

Measurement instructions: Measure seat angle 200 mm down from top of seat back frame

Seat back angle for passenger's seat: 20.5E

Measurement instructions: Same as the driver's side

2. Seat Fore and Aft Positioning

Positioning of the driver's seat: There are 17 total detents; place seat in mid-position

Positioning of the passenger's seat: Same as the driver's seat

3. Fuel Tank Capacity Data

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 68.1 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 = 68.1 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 63.9 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 operate for 3 seconds when the ignition is turned on. The pump operates continuously 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 placed in mid-position. Detent 4 of 7 total.

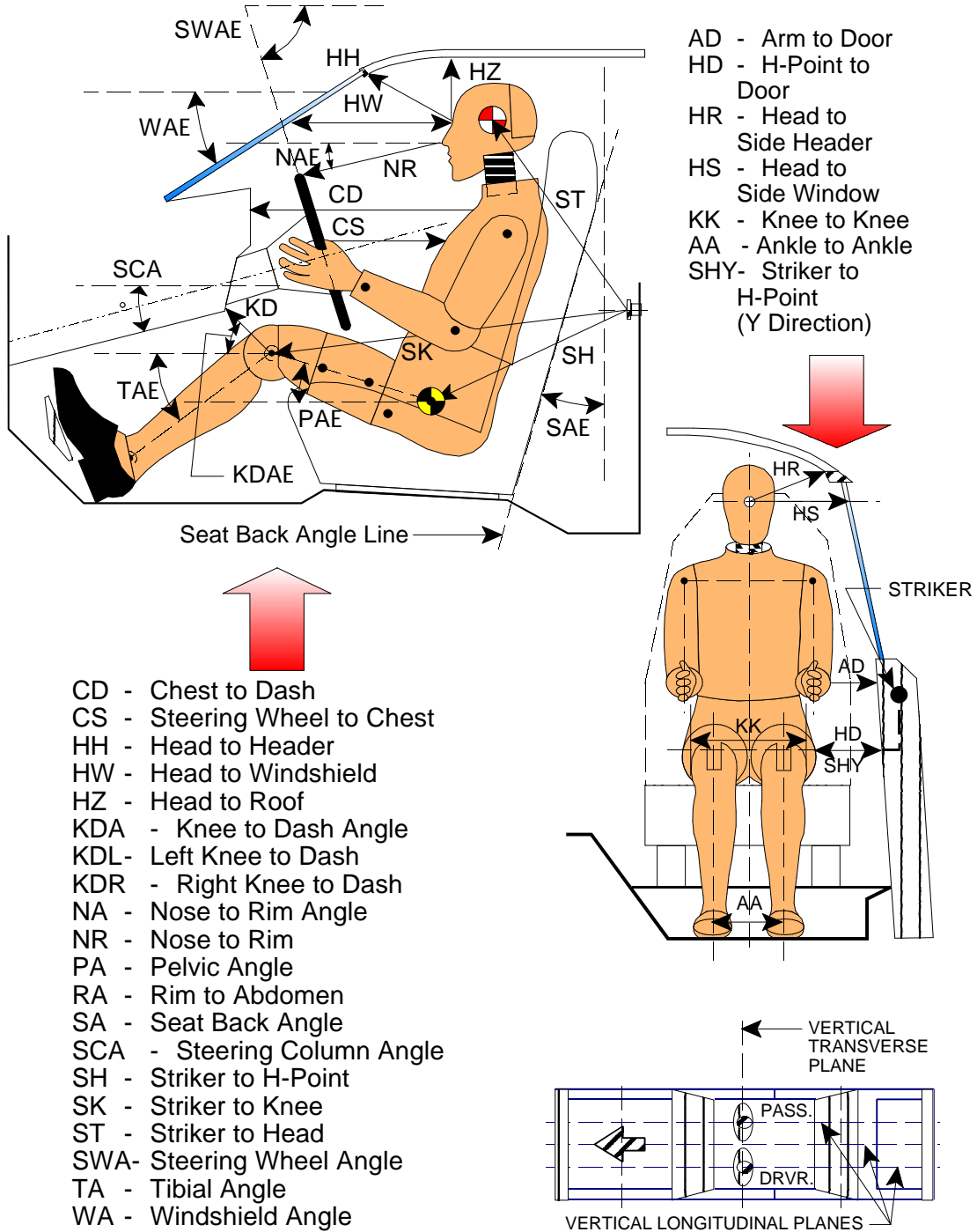
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5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: The seat anchors were placed in mid-position of 5 total detents.

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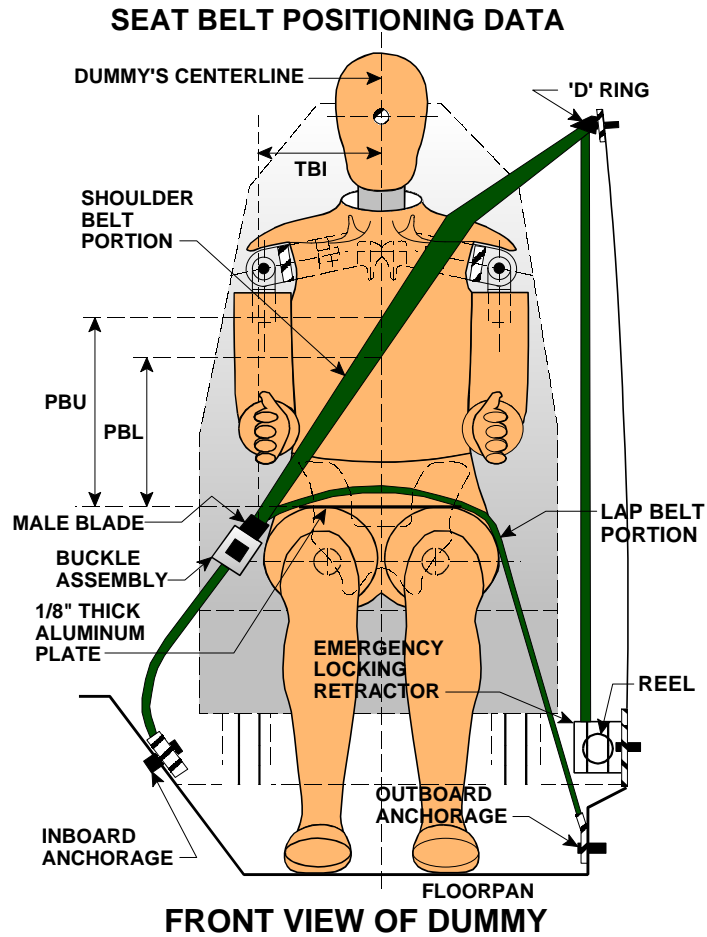
## DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



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

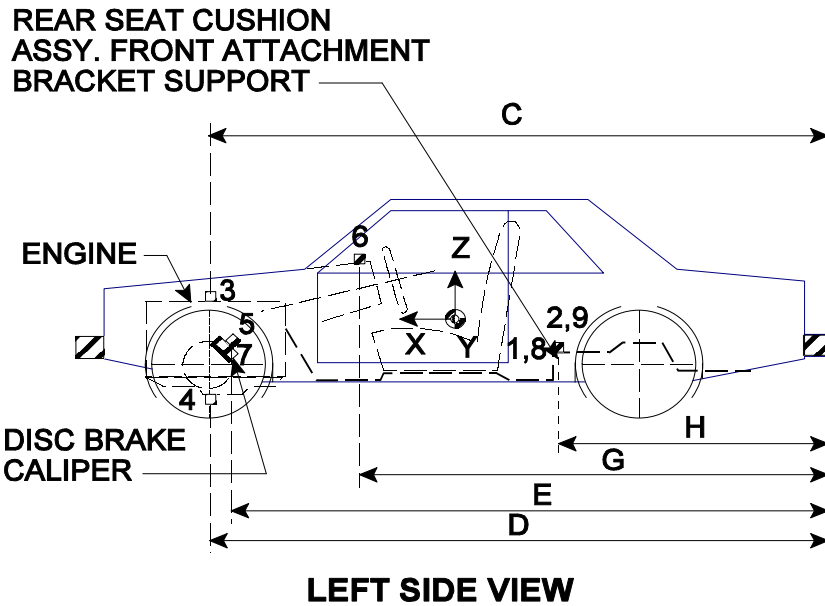
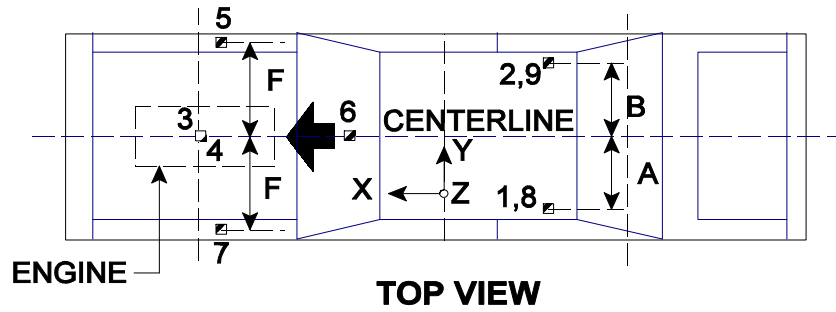
	DRIVER (Serial #150)			PASS. (Serial # 245)		
WA <sup>o</sup>	31.5 deg.			N/A		
SWA <sup>o</sup>	62 deg.			N/A		
SCA <sup>o</sup>	28 deg.			N/A		
SA <sup>o</sup>	20.5 deg.			20.5 deg.		
HZ	216			216		
HH	441			440		
HW	715			699		
HR	235			248		
NR	381	Angle	-12 deg.	N/A		
CD	523			507		
CS	285			N/A		
RA	159			N/A		
KDL	180	Angle (KDA)	12 deg.	149		
KDR	150			157	Angle (KDA)	27 deg.
PA <sup>o</sup>	21.7 deg.			24.9 deg.		
TA <sup>o</sup>	51.2 deg.			48.8 deg.		
KK	332			310		
AA	296			285		
ST	594	Angle	10 deg.	596	Angle	12 deg.
SK	618	Angle	93 deg.	634	Angle	95 deg.
SH	219	Angle	119 deg.	219	Angle	113 deg.
SHY	250			245		
HS	365			365		
HD	212			154		
AD	117			125		

Dimensions in millimeters



	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	325	325
PBL-- Top surface of alum. plate to belt lower edge	245	240
<u>LAP BELT TENSION</u>	10 N	10 N
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

### VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



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

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

DIMENSION	PRE-TEST LENGTH (mm)
A Left Rear Seat Crossmember Y	-507
B Right Rear Seat Crossmember Y	500
C Top of Engine X	3868
D Bottom of Engine X	3283
E Disc Brake Calipers X	3535
F Disc Brake Calipers Y	662
G Instrument Panel X	2903
H Rear Seat Crossmembers X	1854

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	2.4	159.9	-32.9	49.4
2	Rear Seat X-Member @ Right Side	1.6	126.1	-34.5	50.7
3	Top of Engine Block	24.9	63.6	-126.1	28.6
4	Bottom of Engine	65.6	43.8	-107.2	37.2
5	Disc Brake Caliper @ Right Side	35.6	57.7	-88.0	41.7
6	Instrument Panel	42.6	51.1	-79.8	65.9
7	Disc Brake Caliper @ Left Side	*	*	*	*
8	Rear Seat X-Member @ Left-Redundant	2.5	160.1	-34.2	50.4
9	Rear Seat X-Member @ Right-Redundant	1.7	128.4	-34.8	50.7

\* Data is clipped

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2001 Pontiac Aztek MPV

NHTSA Test No.: M10114 Test Date: February 9, 2001

DESCRIPTION	Unit	MAXIMUM VALUE							
		Driver				Passenger			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head X	g	12.2	248.3	-64.6	74.8	6.3	266.2	-47.5	78.6
Head Y	g	6.7	75.6	-6.8	120.8	2.6	37.4	-16.9	85.3
Head Z	g	14.0	50.3	-9.3	98.6	21.9	66.0	-10.1	102.7
Head Resultant	g	65.0	75.3	0.0	-48.7	53.3	77.5	0.0	-46.1
Redundant Head X	g	12.4	248.2	-65.3	74.7	6.3	266.7	-47.5	77.7
Redundant Head Y	g	6.6	75.7	-6.8	118.8	2.3	37.4	-15.8	83.6
Redundant Head Z	g	13.6	50.4	-9.2	98.6	22.6	66.9	-10.1	102.4
Redundant Head Resultant	g	65.8	75.2	0.0	-48.7	53.3	77.7	0.0	-45.5
Upper Neck Fx	N	711.5	75.9	-268.6	54.6	717.6	75.9	-220.9	152.2
Upper Neck Fy	N	150.7	74.0	-248.8	123.4	178.7	65.6	-61.0	184.0
Upper Neck Fz	N	1869.6	70.4	-213.4	110.2	753.9	57.2	-588.6	102.1
Upper Neck F Resultant	N	1946.5	76.8	1.1	-49.9	845.9	66.0	0.9	-39.0
Upper Neck Mx	N-m	10.5	179.6	-17.6	128.9	7.9	124.4	-30.4	64.5
Upper Neck My	N-m	37.3	75.8	-18.0	57.0	74.6	72.1	-11.8	236.0
Upper Neck Mz	N-m	5.1	77.0	-5.5	151.5	18.4	62.8	-5.7	158.7
Upper Neck M Resultant	N-m	40.5	75.8	0.1	-19.1	79.7	71.9	0.0	-36.4
Chest X	g	3.5	270.5	-59.8	83.6	3.5	292.3	-48.0	77.5
Chest Y	g	2.7	110.2	-5.3	57.2	4.1	52.6	-5.5	80.1
Chest Z	g	3.8	43.4	-7.8	106.6	8.5	42.0	-11.6	100.0
Chest Resultant	g	59.9	83.6	0.0	-13.7	48.4	77.5	0.0	-50.0
Redundant Chest X	g	3.5	198.7	-59.9	83.6	3.5	290.9	-48.3	77.2
Redundant Chest Y	g	2.6	110.0	-5.3	66.4	4.4	52.3	-6.1	81.3
Redundant Chest Z	g	3.7	43.3	-7.9	106.0	8.4	41.9	-12.0	99.4
Redundant Chest Resultant	g	60.0	83.6	0.0	-10.1	48.7	77.2	0.0	-4.2
Chest Displacement	mm	0.0	9.3	-34.7	65.3	0.0	-39.5	-34.6	71.6

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

Vehicle Year/Make/Model/Body Style: 2001 Pontiac Aztek MPV

NHTSA Test No.: M10114 Test Date: February 9, 2001

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Pelvic X	g	3.5	242.1	-57.6	49.4	2.1	251.7	-59.1	49.9
Pelvic Y	g	9.1	78.6	-10.4	45.6	11.1	51.4	-8.0	101.0
Pelvic Z	g	3.6	208.9	-18.0	62.3	4.7	39.3	-20.4	80.6
Pelvic Resultant	g	58.0	49.4	0.0	-44.5	60.0	49.8	0.0	-50.0
Left Femur	N	175.8	42.4	-5297.5	52.0	280.8	105.3	-6347.2	51.4
Right Femur	N	314.9	42.7	-5728.9	46.0	718.8	35.0	-5321.3	58.0
Left Knee Shear Dx	mm	0.0	33.1	-0.1	108.4	0.0	-7.0	-1.7	103.6
Right Knee Shear Dx	mm	*	*	*	*	0.2	49.8	-0.3	99.3
Left Upper Tibia Mx	N-m	12.2	38.9	-18.6	52.5	60.2	48.2	-15.0	83.4
Left Upper Tibia My	N-m	14.6	207.1	-86.2	35.5	20.5	150.9	-131.6	44.9
Left Lower Tibia Fz	N	67.0	191.1	-2154.1	35.4	134.3	152.5	-3515.4	45.1
Left Lower Tibia Mx	N-m	40.7	57.5	-6.6	38.5	48.9	45.4	-73.3	50.6
Left Lower Tibia My	N-m	10.1	42.0	-29.1	73.6	148.4	66.2	-60.9	42.3
Right Upper Tibia Mx	N-m	35.8	47.0	-40.7	60.4	50.8	39.6	-12.7	44.5
Right Upper Tibia My	N-m	29.6	150.3	-116.3	52.9	31.5	47.5	-159.9	33.6
Right Lower Tibia Fz	N	244.9	47.2	-2002.4	59.1	142.6	53.1	-5231.7	39.3
Right Lower Tibia Mx	N-m	14.6	44.5	-96.7	58.7	42.4	40.0	-29.7	43.5
Right Lower Tibia My	N-m	25.2	63.5	-67.5	46.9	237.2	59.1	-125.2	33.4
Left Foot Aft Ax	g	19.0	48.9	-81.1	35.0	32.2	58.4	-128.0	42.3
Left Foot Aft Az	g	8.8	49.4	-61.5	34.0	18.4	64.5	-129.1	46.1
Left Foot Fore Az	g	45.2	48.9	-96.9	33.6	124.1	50.4	-309.6	33.6
Right Foot Aft Ax	g	39.3	64.5	-87.8	49.0	46.3	42.6	-178.1	33.4
Right Foot Aft Az	g	8.0	83.8	-77.7	47.1	74.2	42.8	-186.5	33.0
Right Foot Fore Az	g	21.8	67.5	-141.8	46.5	267.6	42.7	-533.7	32.3
Lap Belt Load	N	2996.1	75.7	-2.3	299.9	2423.9	65.6	2.2	-50.0
Torso Belt	N	5120.4	76.4	-14.1	12.4	5336.4	74.6	-15.0	277.6

\* Did not record

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

Vehicle Year/Make/Model/Body Style: 2001 Pontiac Aztek MPV

NHTSA Test No.: M10114 Test Date: February 9, 2001

HEAD INJURY CRITERIA (HIC)				
	HIC**	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	Average Acceleration t <sub>1</sub> to t <sub>2</sub>
Position #1 - Driver	685.1	57.3	92.5	52.0
Position #2 - Passenger	430.0	60.0	94.6	43.5

\*\* HIC is as defined in FMVSS 208. The maximum time interval from t<sub>1</sub> to t<sub>2</sub> is 36 milliseconds.

CLIP SUMMARY*				
	CLIP (g's)	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	CSI
Position #1 - Driver	56.5	82.2	85.2	536.0
Position #2 - Passenger	47.8	75.6	78.6	432.3

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

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

Vehicle Year/Make/Model/Body Style: 2001 Pontiac Aztek MPV

NHTSA Test No.: M10114 Test Date: February 9, 2001

<b>HEAD INJURY CRITERIA (HIC) REDUNDANT</b>				
	HIC**	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	Average Acceleration t <sub>1</sub> to t <sub>2</sub>
Position #1 - Driver	703.2	57.4	92.5	52.6
Position #2 - Passenger	426.7	60.1	94.3	43.5

\*\* HIC is as defined in FMVSS 208. The maximum time interval from t<sub>1</sub> to t<sub>2</sub> is 36 milliseconds.

<b>CLIP SUMMARY* REDUNDANT</b>				
	CLIP (g's)	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	CSI
Position #1 - Driver	56.7	82.2	85.2	534.7
Position #2 - Passenger	48.3	75.1	78.1	446.4

\* 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:

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

Driver

Passenger

2285

2305

Shoulder belt length as measured  
on Part 572 Dummy.

880

900

Lap belt length as measured  
on Part 572 Dummy.

895

895

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.

140

125

As determined mechanically.

140

125

As determined electronically.

\*

\*\*

BELT STRETCH DATA:

Measured electronically between shoulder  
belt load cell and the "D" ring.

0 mm/50 mm

0 mm/50 mm

Measured mechanically.

3.2 mm/50 mm

2.1 mm/50 mm

\_\_\_\_\_ Dimensions in millimeters

\* Did not record

\*\* Malfunctioned

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 20 mm molding.

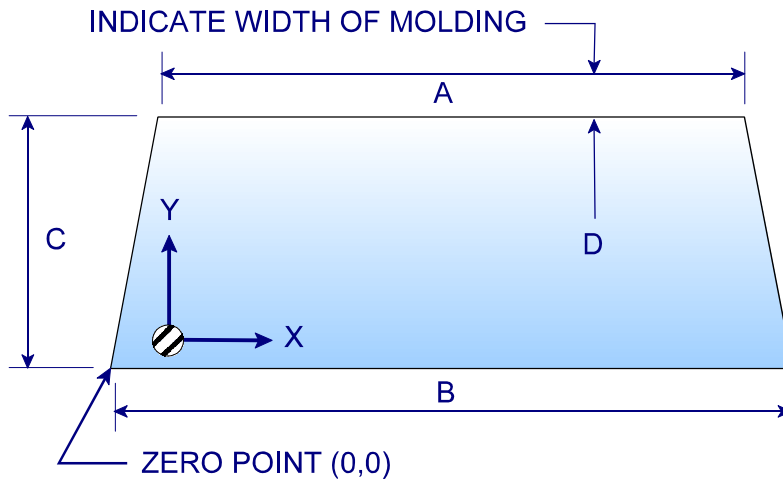
FMVSS 212 REQUIREMENTS:

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	2312.5	2312.5	100
LEFT SIDE	2312.5	2312.5	100
TOTAL	4625	4625	100

AREA OF RETENTION FAILURE:



DIMENSIONS (mm)	
A	1365
B	1570
C	845
D	20

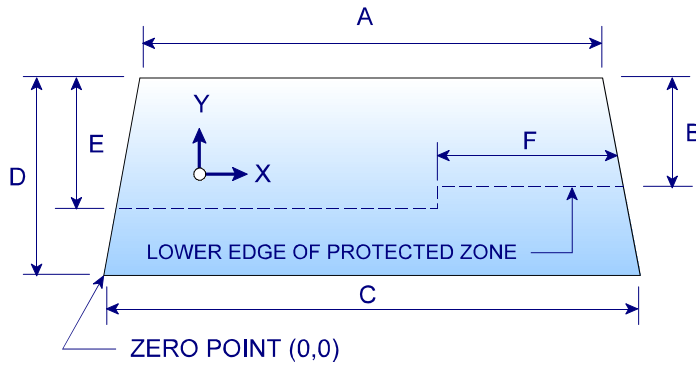
**FRONT VIEW OF WINDSHIELD**

FAILURE DETAILS: None

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

PROTECTED ZONE LOWER EDGE REQUIREMENT:

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



FMVSS 219 TEST DATA:

DIMENSIONS (mm)	
A	1365
B	580
C	1570
D	845
E	555
F	460

**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.: M10114 TEST DATE: February 9, 2001

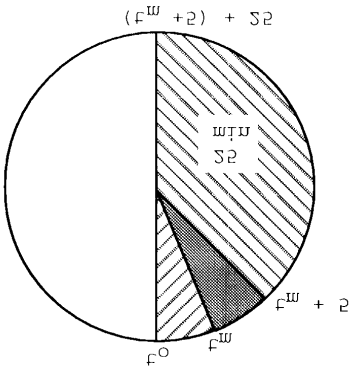
VEHICLE MAKE/MODEL: 2001 Pontiac Aztek

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

=====

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

FUEL SPILLAGE MEASUREMENT:



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

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

SOLVENT SPILLAGE DETAILS: None

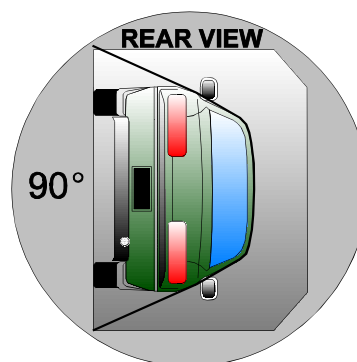
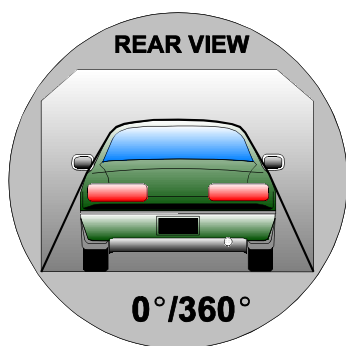
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Vehicle: 2001 Pontiac Aztek

NHTSA No. M10114

0 - 90 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u> minutes	<u>11</u> seconds
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>0</u> seconds
TOTAL	<u>6</u> minutes	<u>11</u> seconds
Next whole minute interval	<u>7</u> minutes	

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

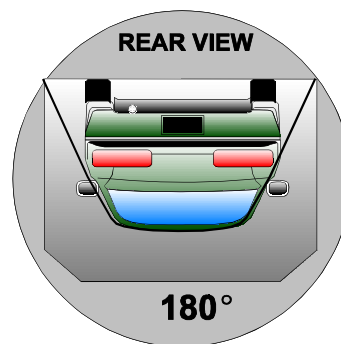
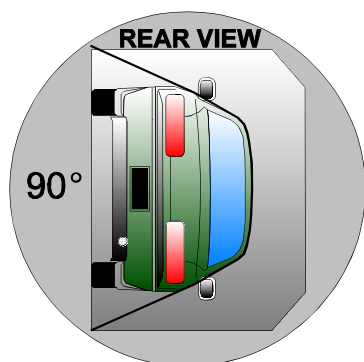
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2001 Pontiac Aztek

NHTSA No. M10114

90 - 180 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u>	minutes	<u>02</u>	seconds
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>0</u>	seconds
TOTAL	<u>6</u>	minutes	<u>2</u>	seconds
Next whole minute interval	<u>7</u>	minutes		

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

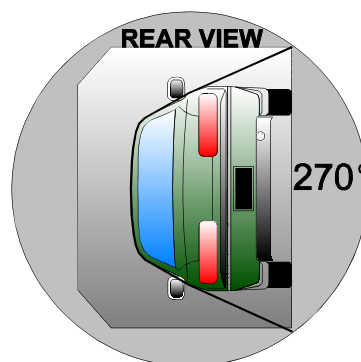
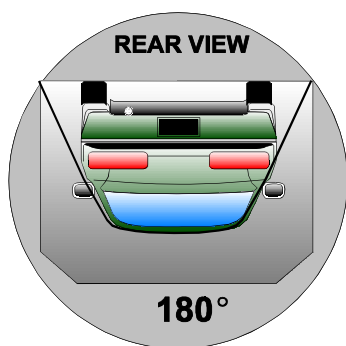
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2001 Pontiac Aztek

NHTSA No. M10114

180 - 270 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u>	minutes	<u>02</u>	seconds
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>0</u>	seconds
TOTAL	<u>6</u>	minutes	<u>2</u>	seconds
Next whole minute interval	<u>7</u>	minutes		

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

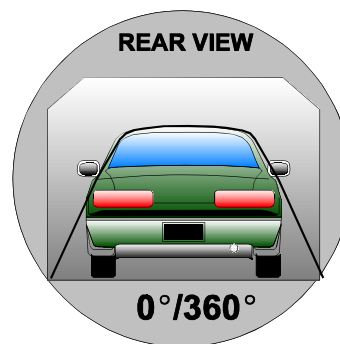
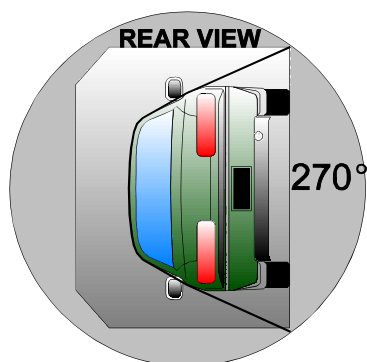
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2001 Pontiac Aztek

NHTSA No. M10114

270 - 360 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u> minutes	<u>08</u> seconds
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>0</u> seconds
TOTAL	<u>6</u> minutes	<u>8</u> seconds
Next whole minute interval	<u>7</u> minutes	

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

First 5 minutes FROM onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

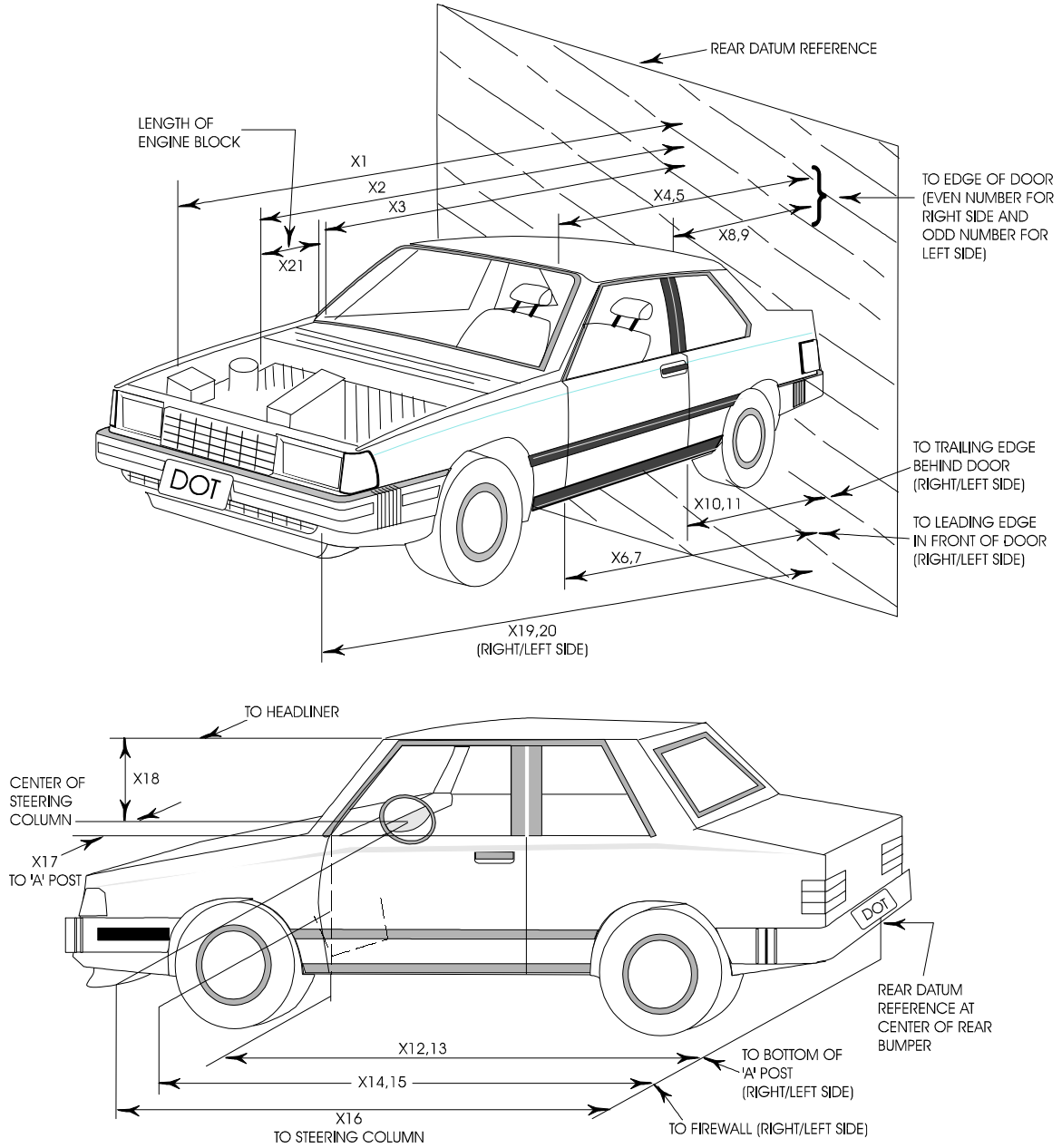
0 g	0 g	0 g	N/A
-----	-----	-----	-----

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

DATA SHEET NO. 14 TEST VEHICLE MEASUREMENTS

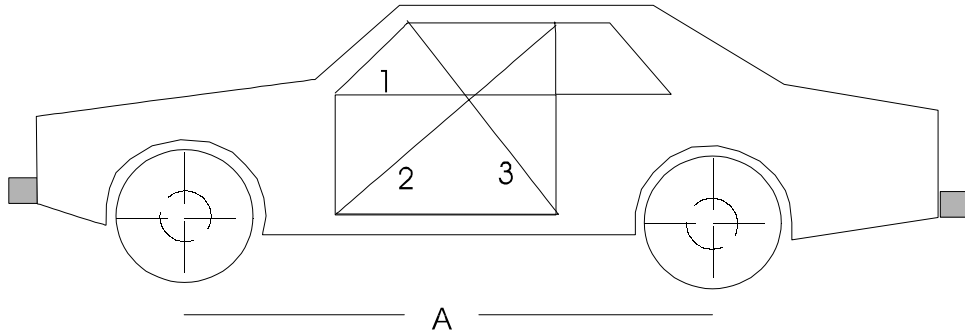


DATA SHEET NO.14      VEHICLE MEASUREMENTS (cont.)

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4620	4130	490
X2	Rear Surface of Vehicle to Front of Engine	4034	3758	276
X3	Rear Surface of Vehicle to Firewall	3812	3807	5
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3208	3216	-8
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3209	3197	12
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3159	3155	4
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3144	3120	24
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2094	2103	-9
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2085	2077	8
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2131	2135	-4
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2112	2103	9
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3378	3329	49
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3387	3318	69
X14	Rear Surface of Vehicle to Firewall, Right Side	3809	3753	56
X15	Rear Surface of Vehicle to Firewall, Left Side	3788	3741	47
X16	Rear Surface of Vehicle to Steering Column	2717	2720	-3
X17	Center of Steering Column to "A" Post	287	294	-7
X18	Center of Steering Column to Headliner	430	329	101
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4539	4220	319
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4532	4241	291
X21	Length of Engine Block	283	283	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2912	2920	-8
CD	Rear Surface of Vehicle to Center of Dash Panel	2912	2903	9
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2926	2886	40

All Dimensions in mm

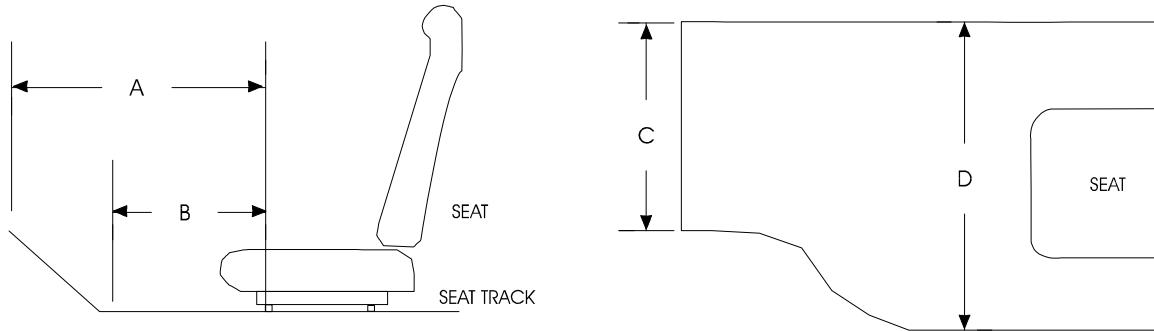
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)  
 VEHICLE INTRUSION MEASUREMENTS  
 DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1016	1562	1142	1028	1550	1150
AFTER TEST	1020	1563	1144	1021	1548	1144
DIFFERENCE	-4	-1	-2	7	2	6

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2750	2750
AFTER TEST	2643	2655
DIFFERENCE	107	95

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



**DRIVER**

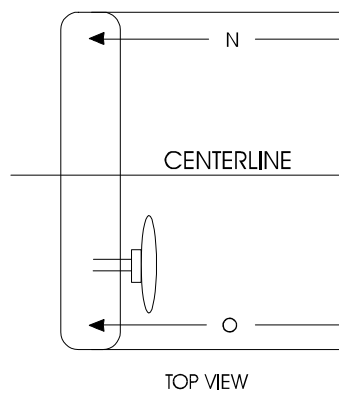
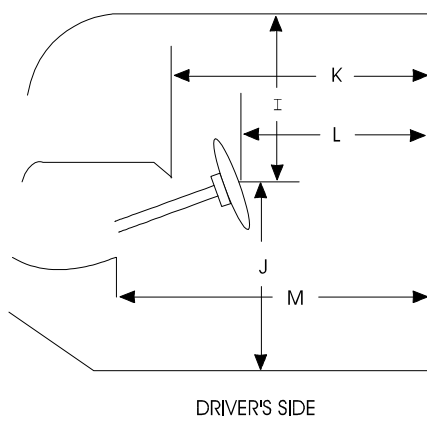
Measurement	Pre-Test	Post-Test	Difference
A	798	718	80
B	651	620	31
C	512	488	24
D	564	572	-8

**PASSENGER**

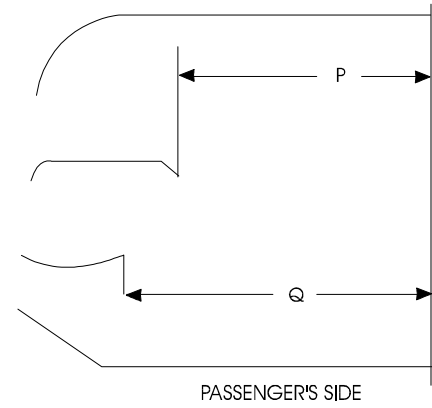
Measurement	Pre-Test	Post-Test	Difference
A	812	611	201
B	627	543	84
C	517	471	46
D	539	543	-4

Units = mm

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



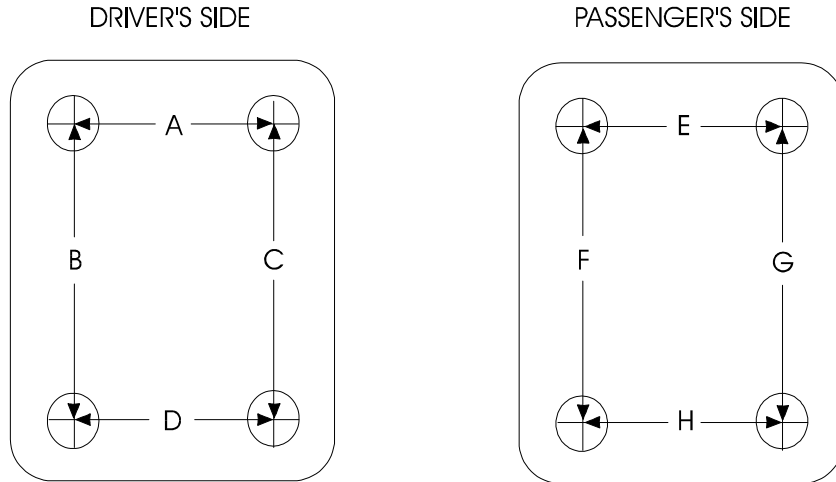
MEASUREMENTS  
FROM C-PILLAR  
BELT ANCHORAGE



Measurement	Pre-Test	Post-Test	Difference
I	430	329	101
J	720	827	-107
K	1770	1807	-37
L	1550	1586	-36
M	1751	1756	-5
N	884	849	35
O	1759	1751	8
P = K (PASS.)	922	883	39
Q = M (PASS.)	898	868	30

Units = mm

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

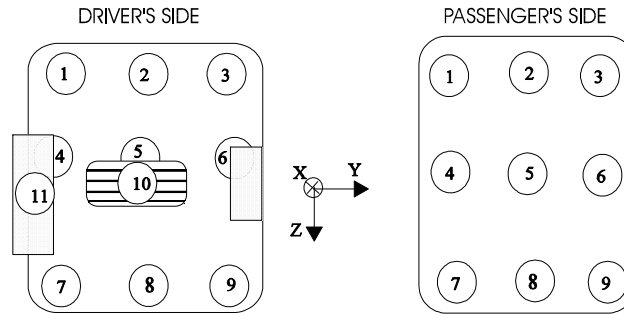


TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	100	96	4
B	250	241	9
C	225	220	5
D	150	150	0
E	100	101	-1
F	350	351	-1
G	350	344	6
H	150	153	-3

Units = mm

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



**Driver Side Toe-pan Measurements**

Toe-pan Location	X Deformation (mm)			Z Deformation (mm)		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3376	3295	81	-561	-582	-21
2	3372	3285	87	-554	-565	-11
3	3311	3283	28	-527	-559	-32
4	3307	3207	100	-481	-531	-50
5	3305	3250	55	-472	-490	-18
6	3309	3241	68	-455	-466	-11
7	3234	3171	63	-406	-445	-39
8	3225	3186	39	-403	-414	-11
9	3230	3194	36	-390	-390	0
10	3174	3023	151	-566	-678	-112
11	3229	3188	41	-521	-527	-6

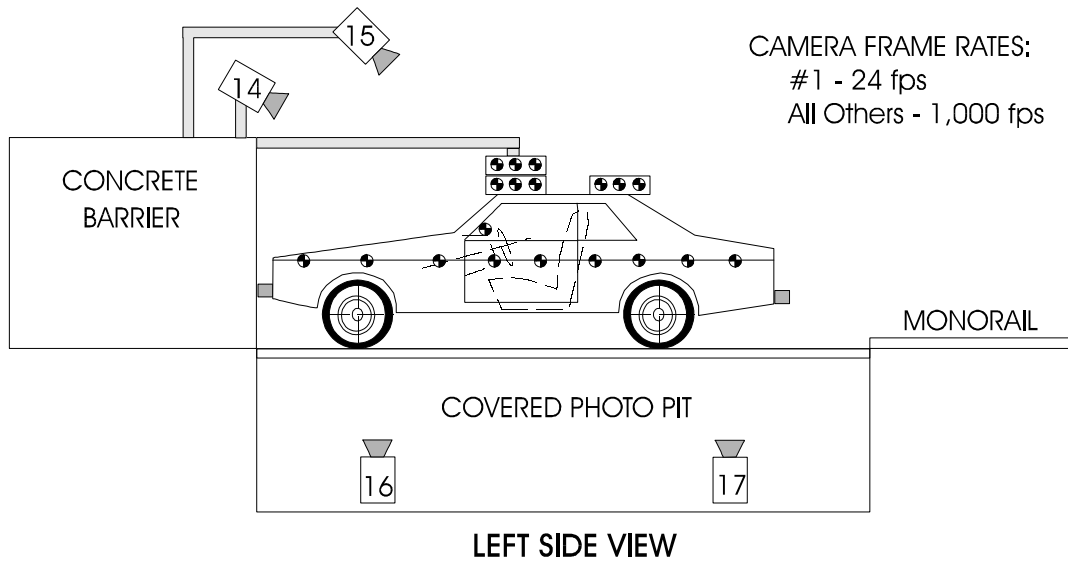
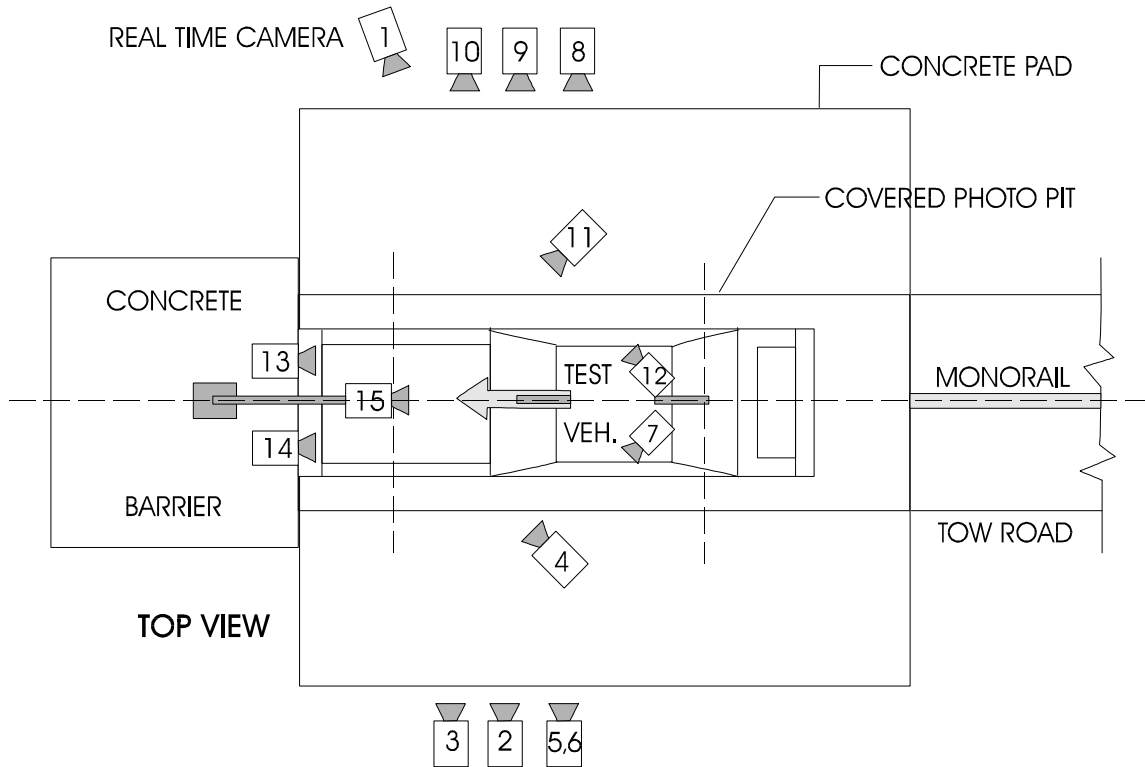
**Passenger Side Toe-pan Measurements**

Toe-pan Location	X Deformation (mm)			Z Deformation (mm)		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3357	3260	97	-556	-575	-19
2	3386	3209	177	-565	-637	-72
3	3383	3179	204	-567	-654	-87
4	3287	3225	62	-485	-528	-43
5	3292	3171	121	-483	-547	-64
6	3297	3149	148	-483	-571	-88
7	3197	3174	23	-406	-421	-15
8	3202	3141	61	-403	-436	-33
9	3219	3138	81	-409	-452	-43

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

DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

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

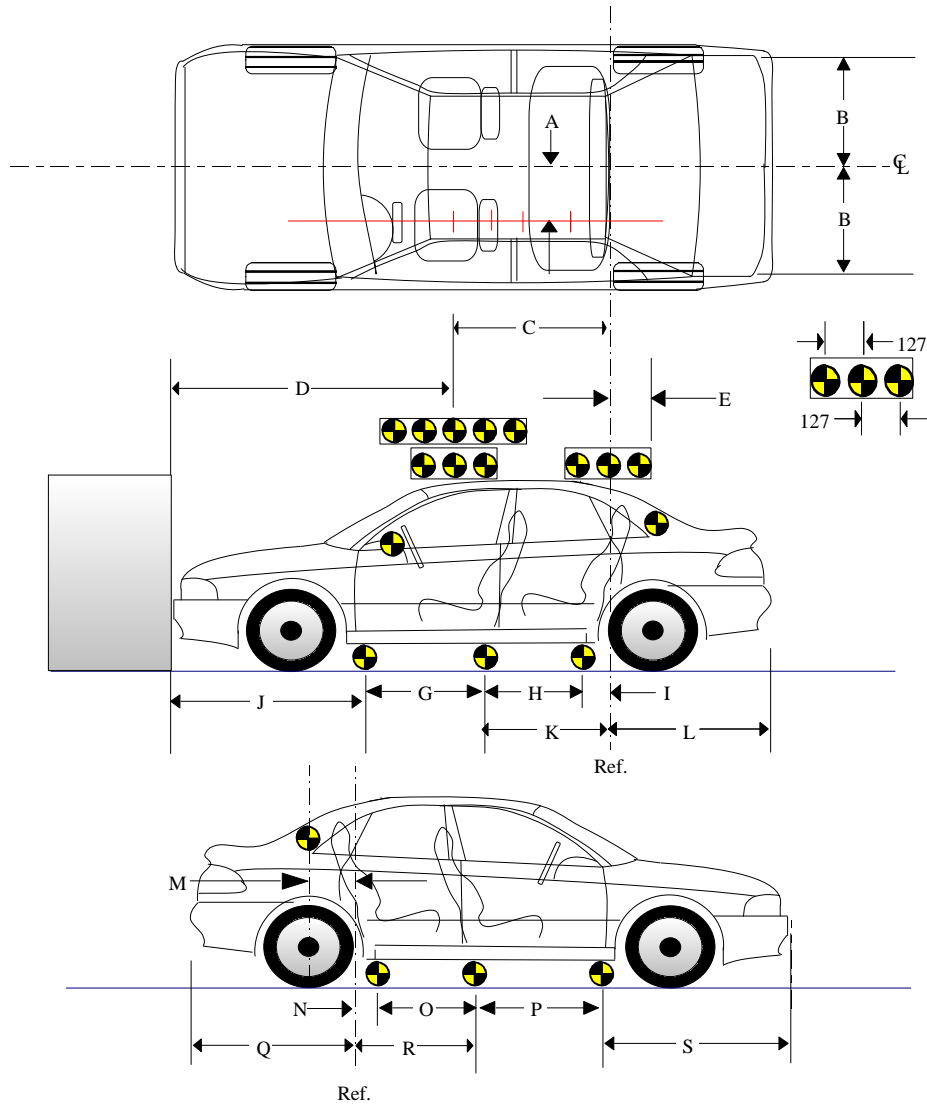




DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

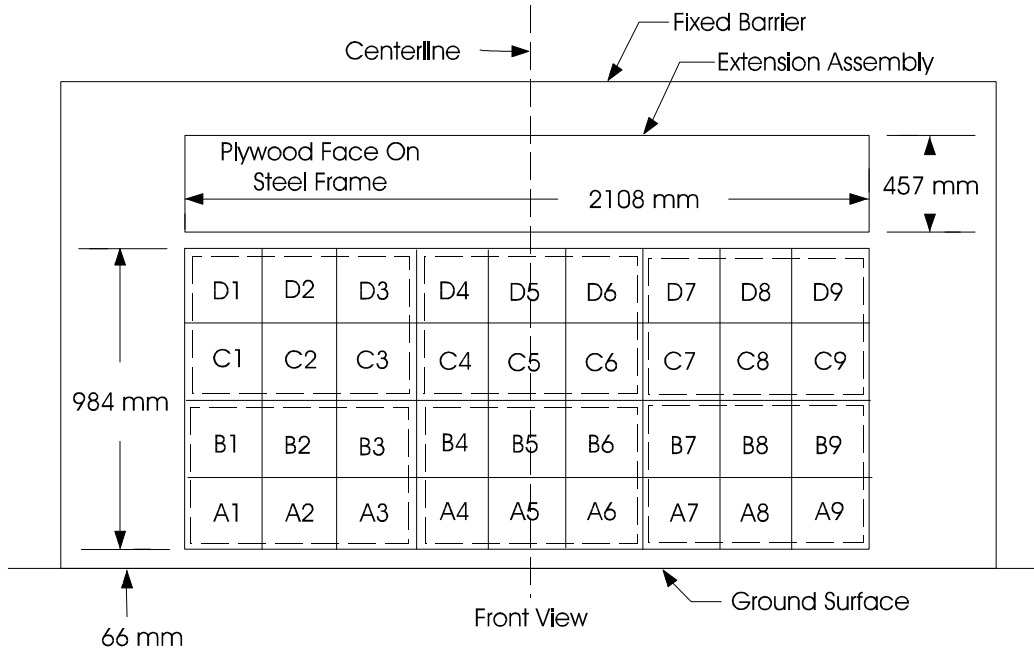
(Dimensions in millimeters)

A	405
B	628
C	1206
D	2122
E	324
F	1591
G	890
H	867
I	106
J	1501
K	973
L	1241
M	367
N	116
O	873
P	883
Q	1243
R	989
S	1491



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. :  M10114;  Test Date:  February 9, 2001;  Technician:  Patrick MacDiarmid

Vehicle Model Year/Make/Model:  2001 Pontiac Aztek

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

B. Size of vent holes: (mm<sup>2</sup>)  491  -Driver  177  -Passenger

C. Total vent area: (mm<sup>2</sup>)  982  -Driver  354  -Passenger

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

Driver:  600  -Height;  500  -Width;  200  -Depth

Passenger:  600  -Height;  525  -Width;  575  -Depth

E. Is the air bag tethered?

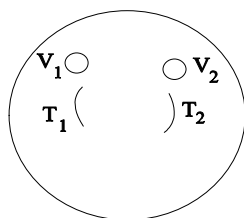
Driver:  X  -Yes;  -  -No; If yes, record length of tether-  450

Passenger:  X  -Yes;  -  -No; If yes, record length of tether-  250

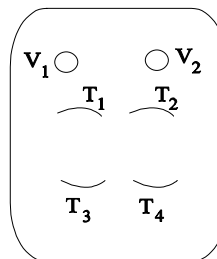
Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.

(Note: Not to scale; V<sub>n</sub> = Vent hole<sub>n</sub>, T<sub>n</sub> = Tether<sub>n</sub>).

**Driver**



**Passenger**



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

Driver:  Air bag: TRCW00107178 16866215-01 GMT250/W-32

Generator: AB7857Q6SVBQ27 7565274P2

Passenger:  Air bag: -

Generator: 14P0Z993273 T867 AL718716UJQMRC

DATA SHEET NO. 19 ACCIDENT INVESTIGATION DIVISION DATA

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Pontiac Aztek MPV

NHTSA Test No.: M10114 VIN: 3G7DB03E01S534224

Model Year: 2001 Build Date: 12/00 Test Date: February 9, 2001

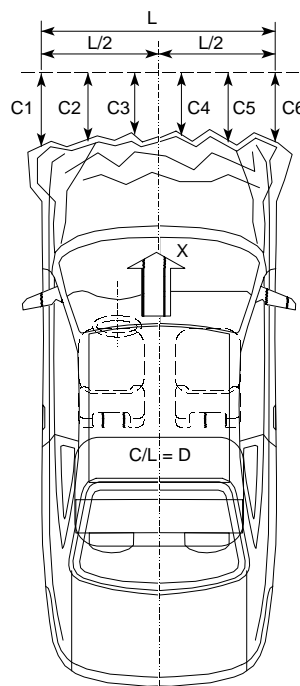
Vehicle Size Category: MPV Test Weight: 2120.0 kg

Vehicle Wheelbase: 2750 mm; Front Overhang: 962 mm; Overall Width: 1872 mm

Collision Deformation Classification (CDC) Code: 12FDEW4

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	4420	4221	199	mm
C2 =	4526	4235	291	mm
C3 =	4584	4159	425	mm
C4 =	4595	4138	457	mm
C5 =	4539	4215	324	mm
C6 =	4428	4214	214	mm



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region: L1= 1593 mm  
 L2= 797 mm  
 L5= 319 mm

**APPENDIX A**  
**PHOTOGRAPHS**

## TABLE OF PHOTOGRAPHS

<u>Figure</u>	<u>Title</u>	<u>Page</u>
A-1	LOAD CELL LOCATIONS.	A-3
A-2	PRE-TEST FRONT VIEW	A-4
A-3	POST-TEST FRONT VIEW.	A-5
A-4	PRE-TEST LEFT SIDE VIEW	A-6
A-5	POST-TEST LEFT SIDE VIEW	A-7
A-6	PRE-TEST RIGHT SIDE VIEW	A-8
A-7	POST-TEST RIGHT SIDE VIEW	A-9
A-8	PRE-TEST RIGHT FRONT THREE-QUARTER VIEW	A-10
A-9	POST-TEST RIGHT FRONT THREE-QUARTER VIEW	A-11
A-10	PRE-TEST LEFT REAR THREE-QUARTER VIEW	A-12
A-11	POST-TEST LEFT REAR THREE-QUARTER VIEW	A-13
A-12	PRE-TEST WINDSHIELD VIEW	A-14
A-13	POST-TEST WINDSHIELD VIEW	A-15
A-14	PRE-TEST ENGINE COMPARTMENT VIEW	A-16
A-15	FUEL CAP VIEW	A-17
A-16	PRE-TEST FRONT UNDERBODY VIEW	A-18
A-17	POST-TEST FRONT UNDERBODY VIEW	A-19
A-18	PRE-TEST FRONT SIDE UNDERBODY VIEW	A-20
A-19	POST-TEST FRONT SIDE UNDERBODY VIEW	A-21
A-20	PRE-TEST REAR UNDERBODY VIEW	A-22
A-21	POST-TEST REAR UNDERBODY VIEW	A-23
A-22	PRE-TEST DRIVER POSITION VIEW	A-24
A-23	POST-TEST DRIVER POSITION VIEW	A-25
A-24	PRE-TEST PASSENGER POSITION VIEW	A-26
A-25	POST-TEST PASSENGER POSITION VIEW	A-27
A-26	PRE-TEST DRIVER AND INTERIOR VIEW	A-28
A-27	POST-TEST DRIVER AND INTERIOR VIEW	A-29
A-28	PRE-TEST PASSENGER AND INTERIOR VIEW	A-30
A-29	POST-TEST PASSENGER AND INTERIOR VIEW	A-31
A-30	PRE-TEST DRIVER HEAD LOCATION	A-32
A-31	POST-TEST DRIVER HEAD LOCATION	A-33
A-32	PRE-TEST PASSENGER HEAD LOCATION	A-34
A-33	POST-TEST PASSENGER HEAD LOCATION	A-35
A-34	PRE-TEST DRIVER FLOOR PAN VIEW	A-36
A-35	POST-TEST DRIVER FLOOR PAN VIEW	A-37
A-36	PRE-TEST PASSENGER FLOOR PAN VIEW	A-38
A-37	POST-TEST PASSENGER FLOOR PAN VIEW	A-39
A-38	ROLLOVER VIEW	A-40
A-39	IMPACT VIEW	A-41



Figure A-1 LOAD CELL LOCATIONS



Figure A-2 PRE-TEST FRONT VIEW



Figure A-3 POST-TEST FRONT VIEW



Figure A-4 PRE-TEST LEFT SIDE VIEW



Figure A-5 POST-TEST LEFT SIDE VIEW



Figure A-6 PRE-TEST RIGHT SIDE VIEW



Figure A-7 POST-TEST RIGHT SIDE VIEW



Figure A-8 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-9 POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-10 PRE-TEST LEFT REAR THREE-QUARTER VIEW



Figure A-11 POST-TEST LEFT REAR THREE-QUARTER VIEW



Figure A-12 PRE-TEST WINDSHIELD VIEW



Figure A-13 POST-TEST WINDSHIELD VIEW

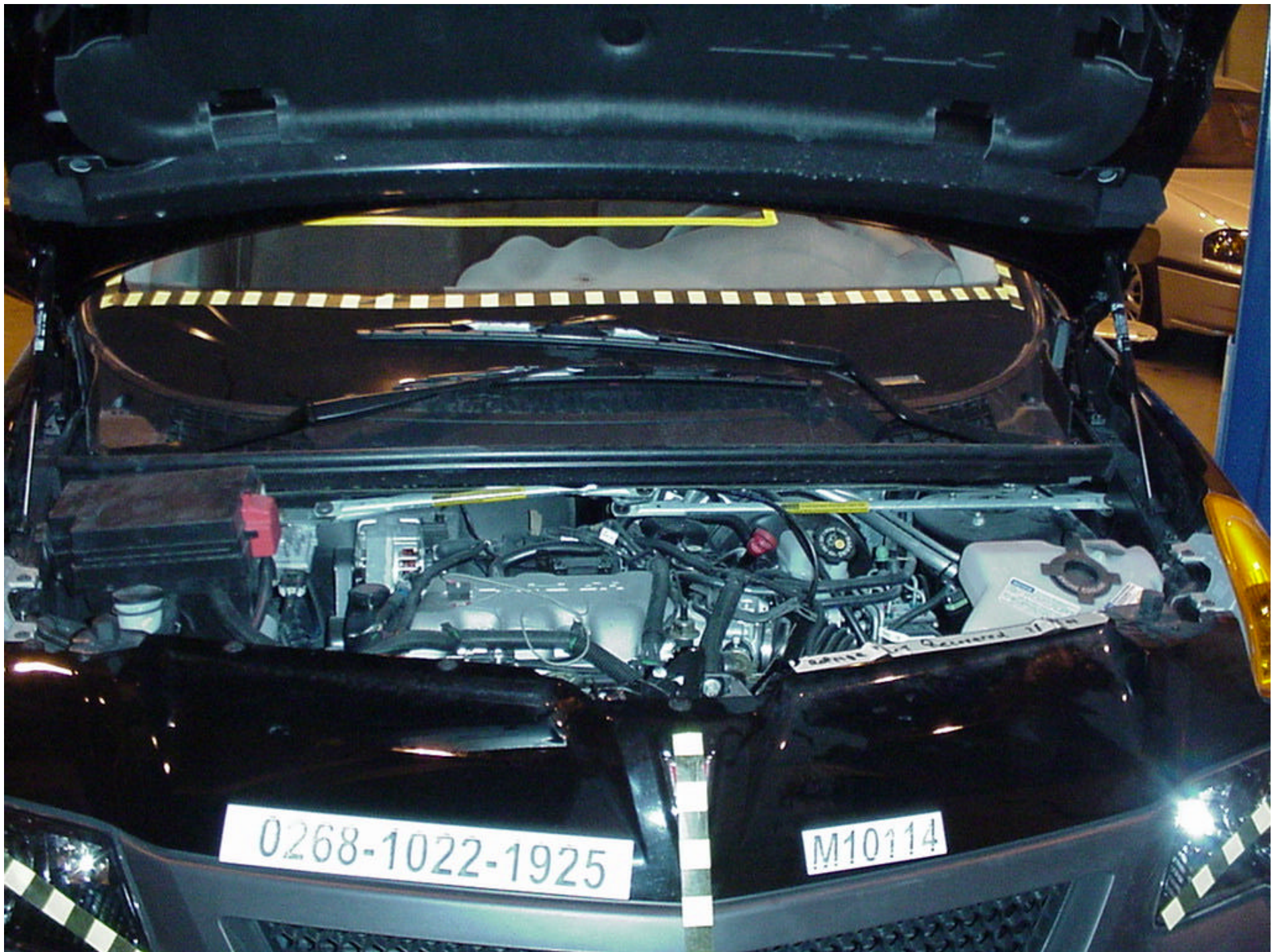


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

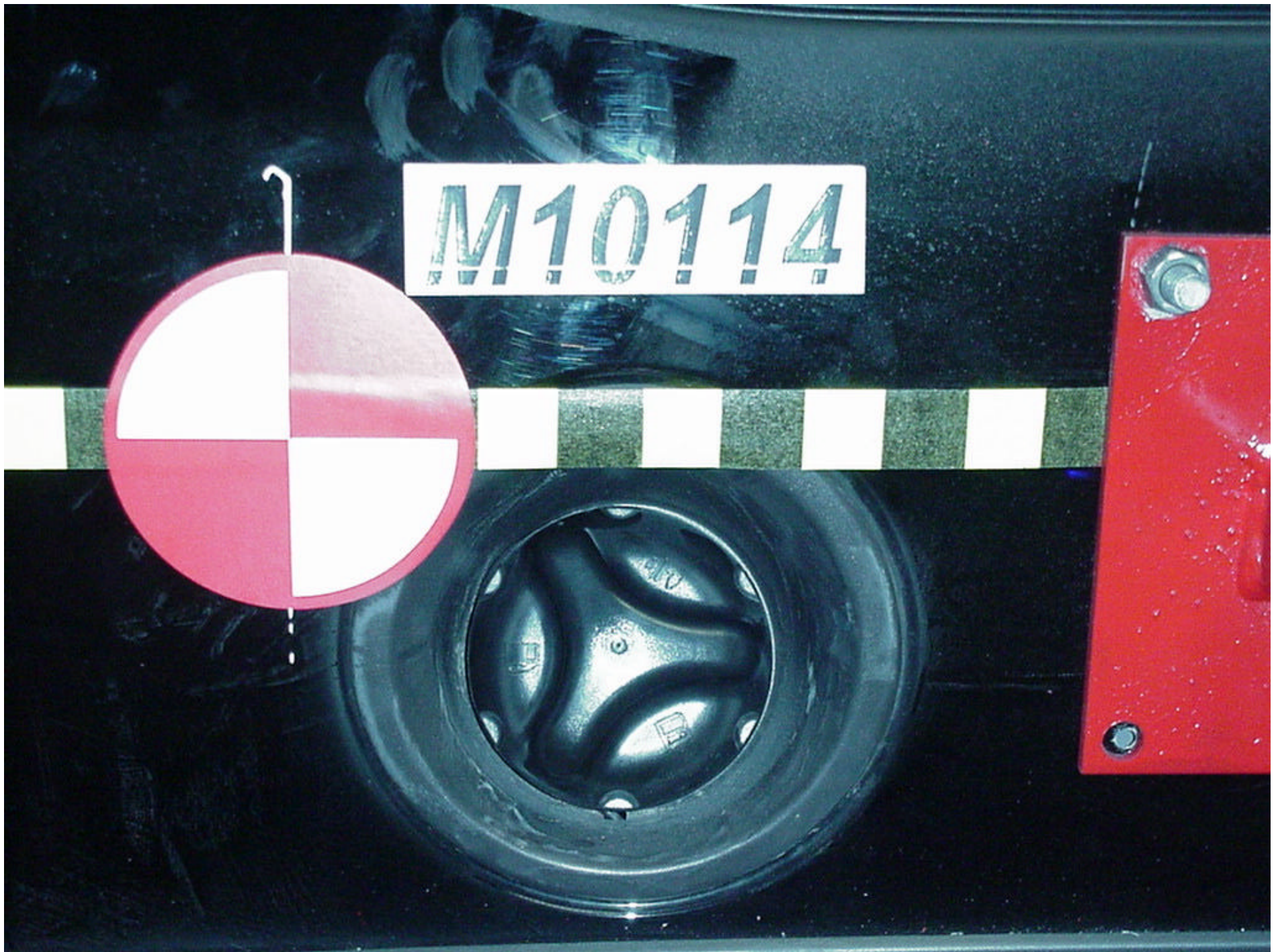


Figure A-15 FUEL CAP VIEW



A-18

8602-22

Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

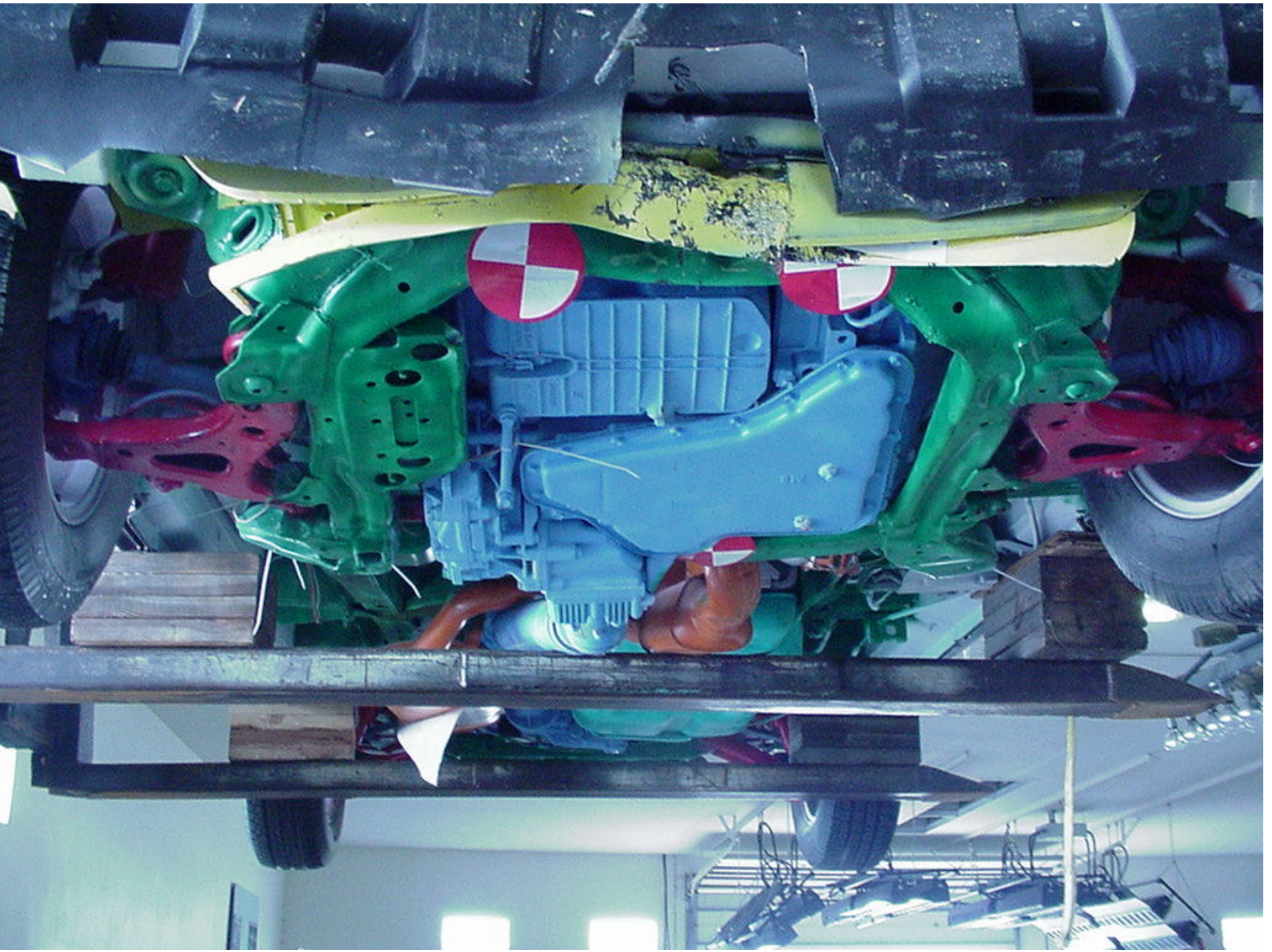
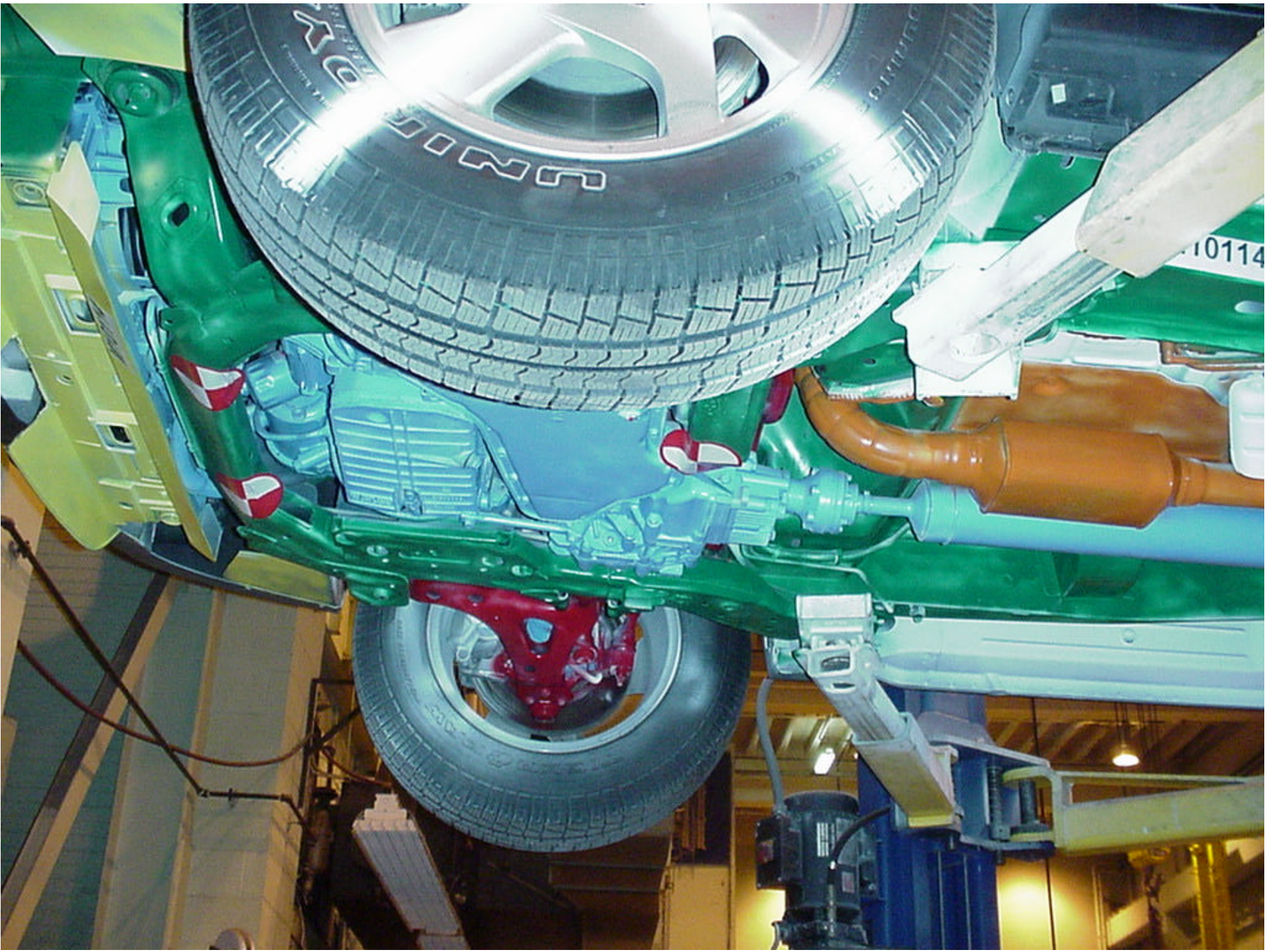


Figure A-17 POST-TEST FRONT UNDERBODY VIEW



A-20

8602-22

Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW

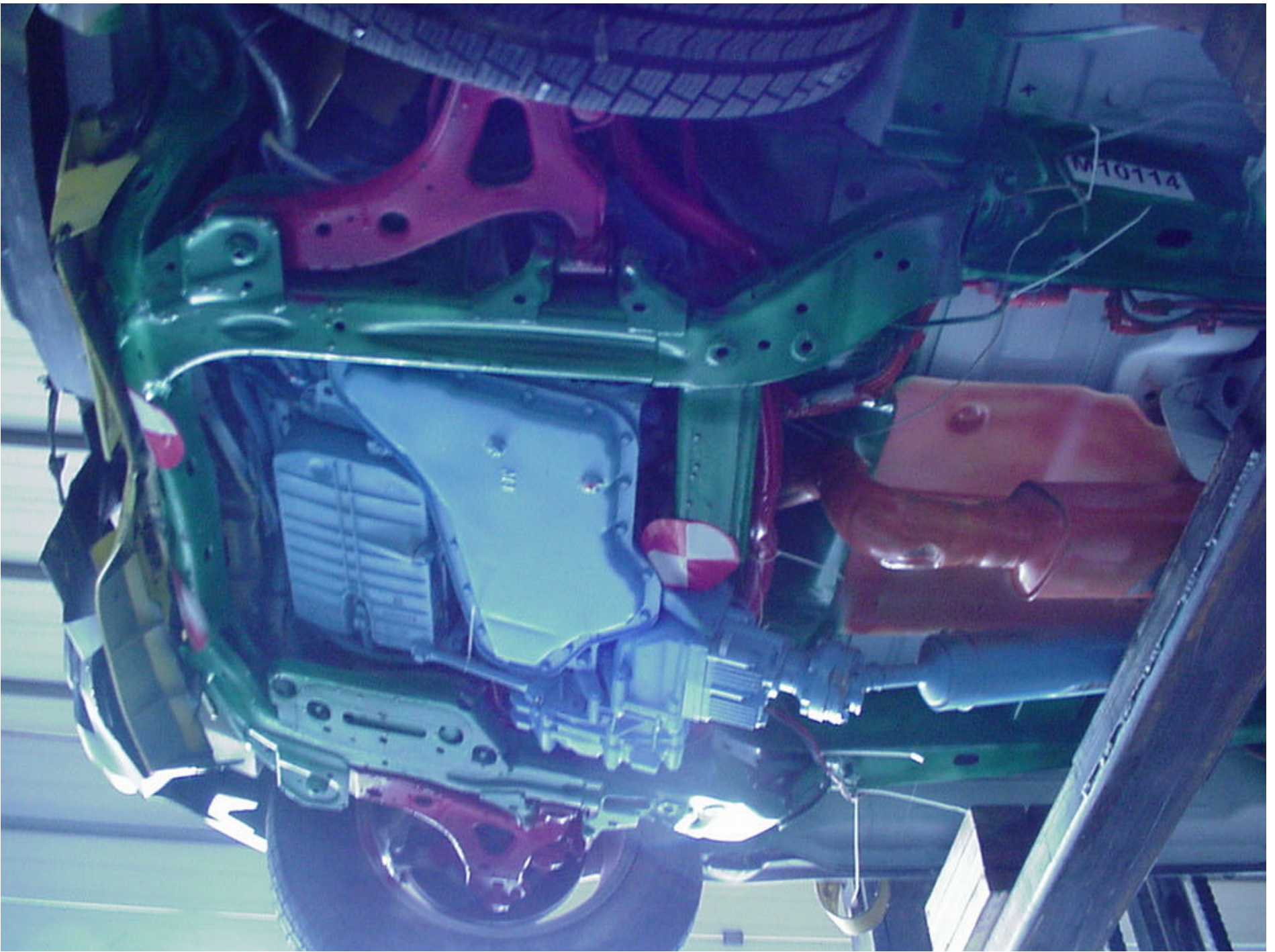


Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW



Figure A-20 PRE-TEST REAR UNDERBODY VIEW



Figure A-21 POST-TEST REAR UNDERBODY VIEW



Figure A-22 PRE-TEST DRIVER POSITION VIEW



Figure A-23 POST-TEST DRIVER POSITION VIEW



Figure A-24 PRE-TEST PASSENGER POSITION VIEW



Figure A-25 POST-TEST PASSENGER POSITION VIEW



Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW



Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW



Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW



Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW



Figure A-30 PRE-TEST DRIVER HEAD LOCATION



Figure A-31 POST-TEST DRIVER HEAD LOCATION



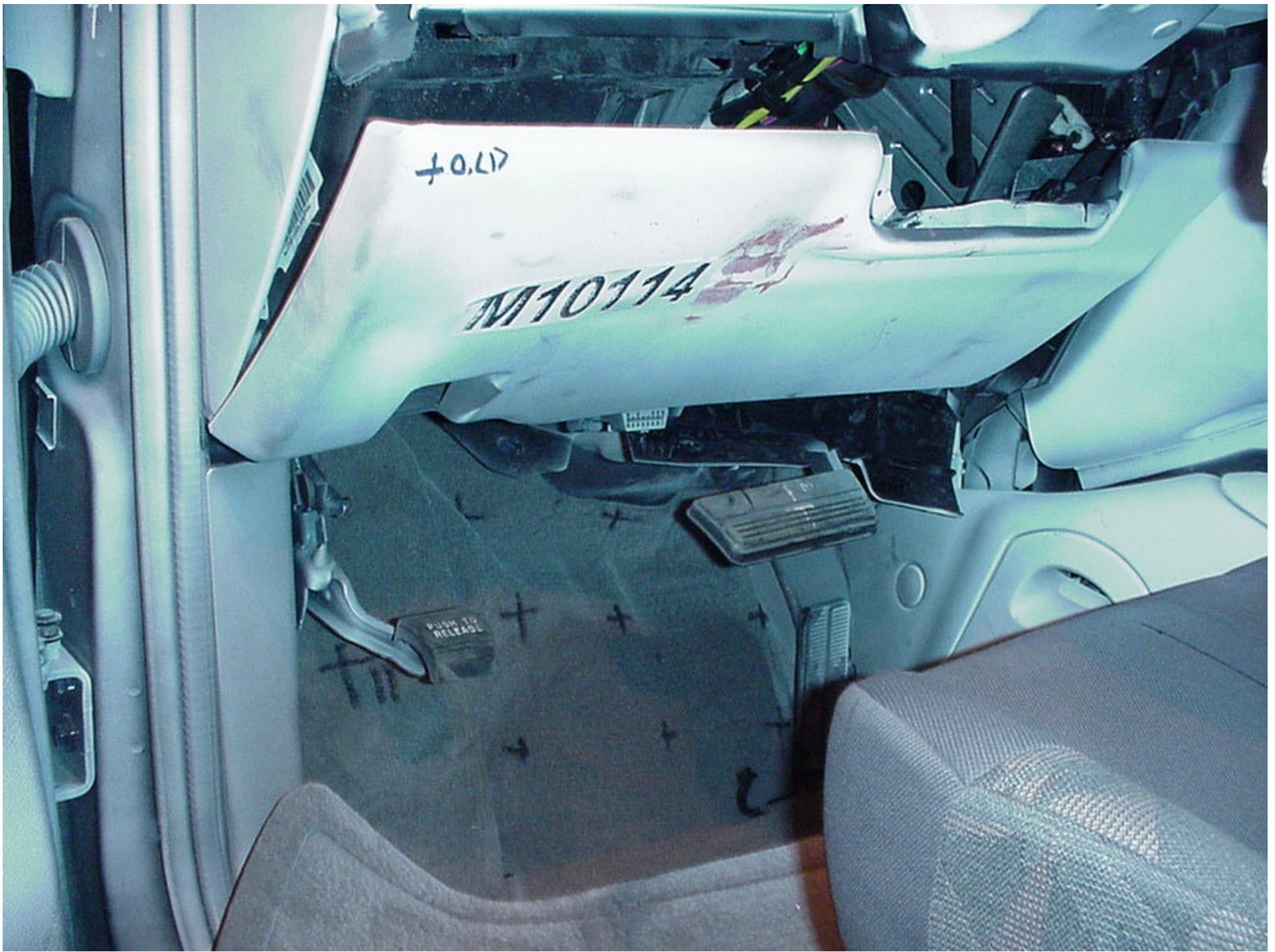
Figure A-32 PRE-TEST PASSENGER HEAD LOCATION



Figure A-33 POST-TEST PASSENGER HEAD LOCATION



Figure A-34 PRE-TEST DRIVER FLOOR PAN VIEW



A-37

8602-22

Figure A-35 POST-TEST DRIVER FLOOR PAN VIEW



Figure A-36 PRE-TEST PASSENGER FLOOR PAN VIEW



Figure A-37 POST-TEST PASSENGER FLOOR PAN VIEW

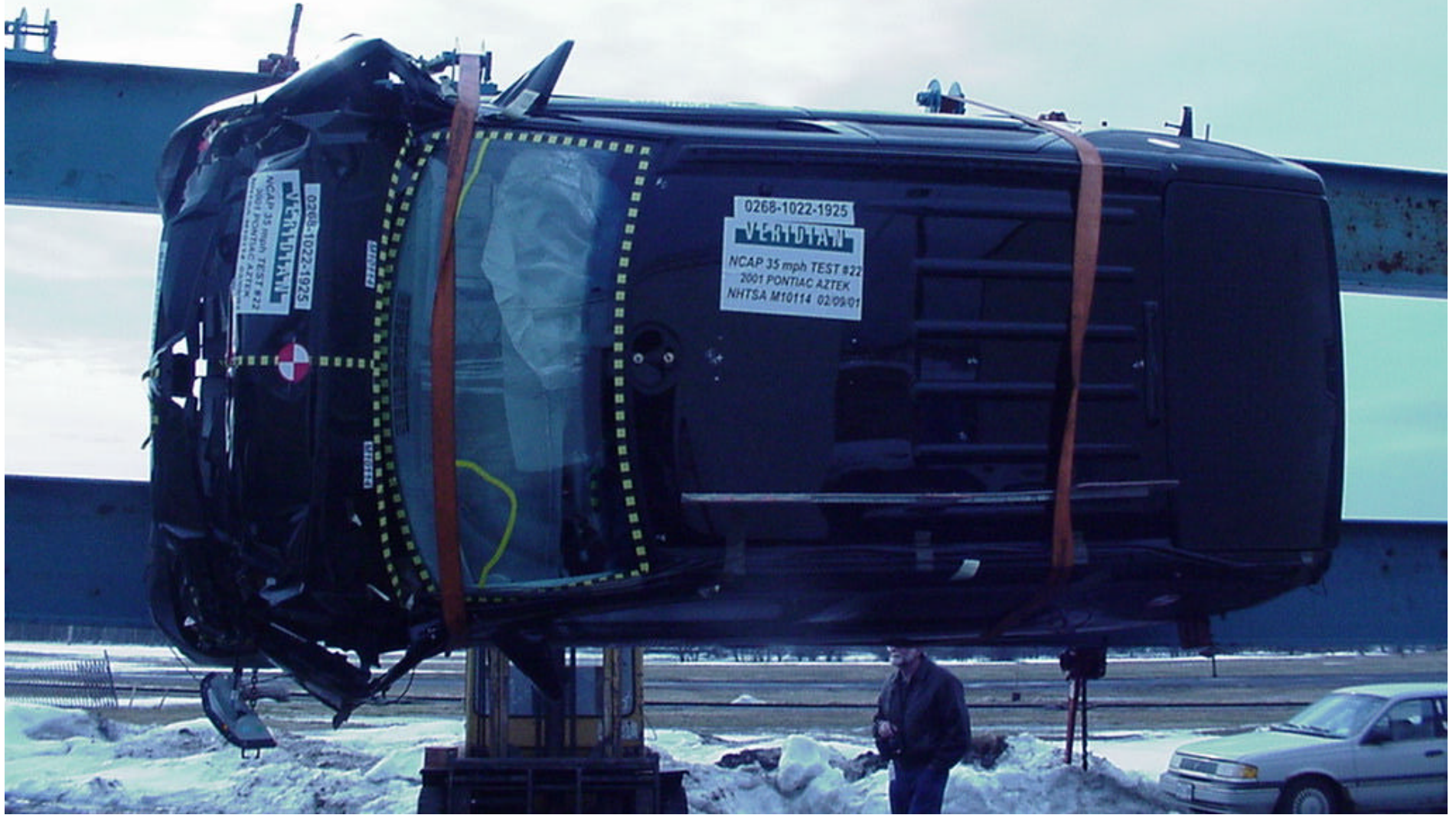


Figure A-38 ROLLOVER VIEW



Figure A-39 IMPACT VIEW

**APPENDIX B**

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

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

<b>Transducer</b>	<b>SAE Sign Convention (positive unless noted)</b>
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. M10114

<b>DATA TYPE</b>	<b>SAE FILTER CLASS (Hz)</b>
Dummy Head Accelerations	1000
Dummy Chest Accelerations	180
Dummy Chest Displacements	60
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

NCAP Test #22 - 2001 Pontiac Aztek

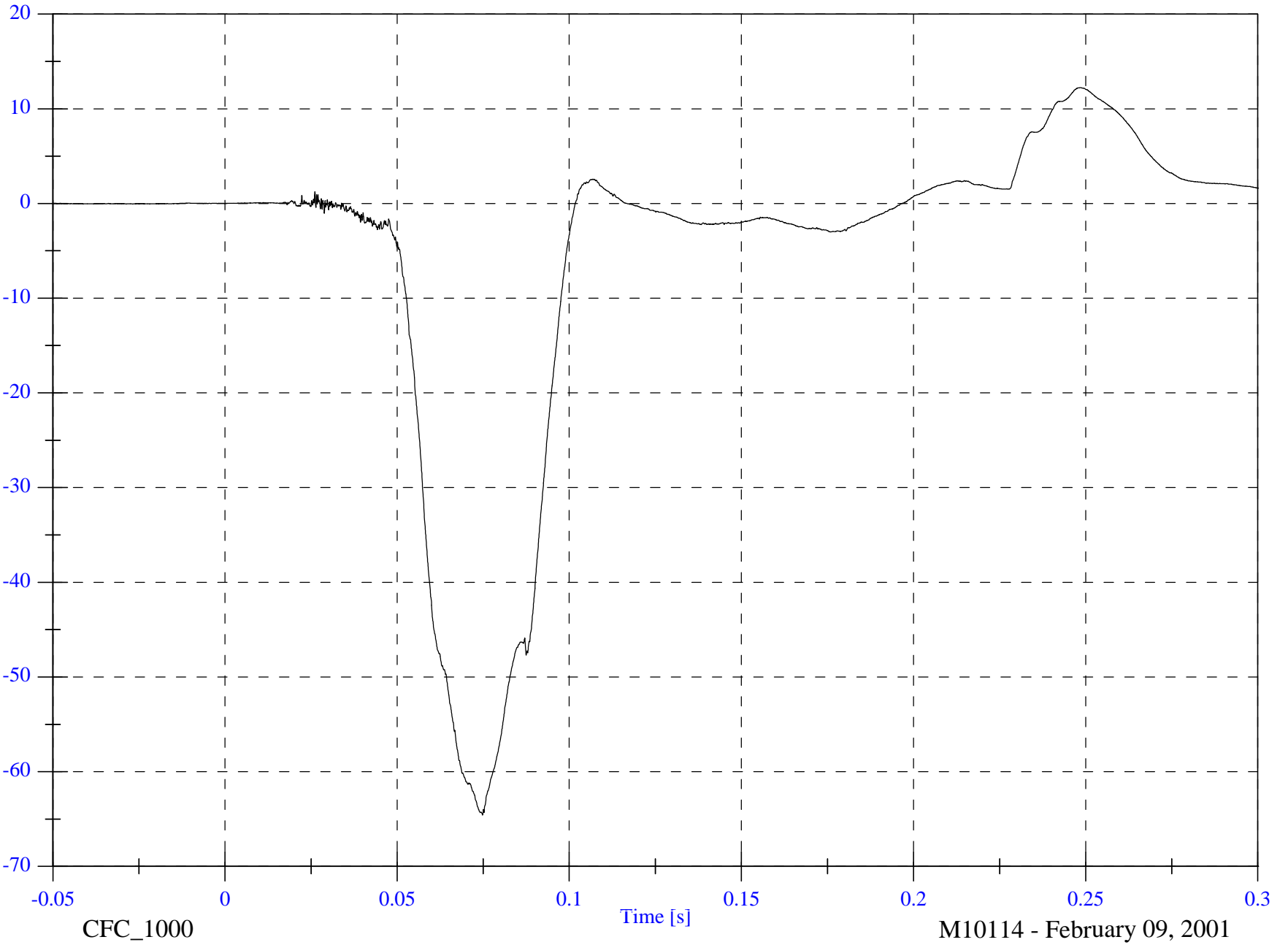
P1 Head x

Max: 12.2 [g] at 0.248 [s]

Min: -64.6 [g] at 0.075 [s]

B-4

g



8602-22

CFC\_1000

Time [s]

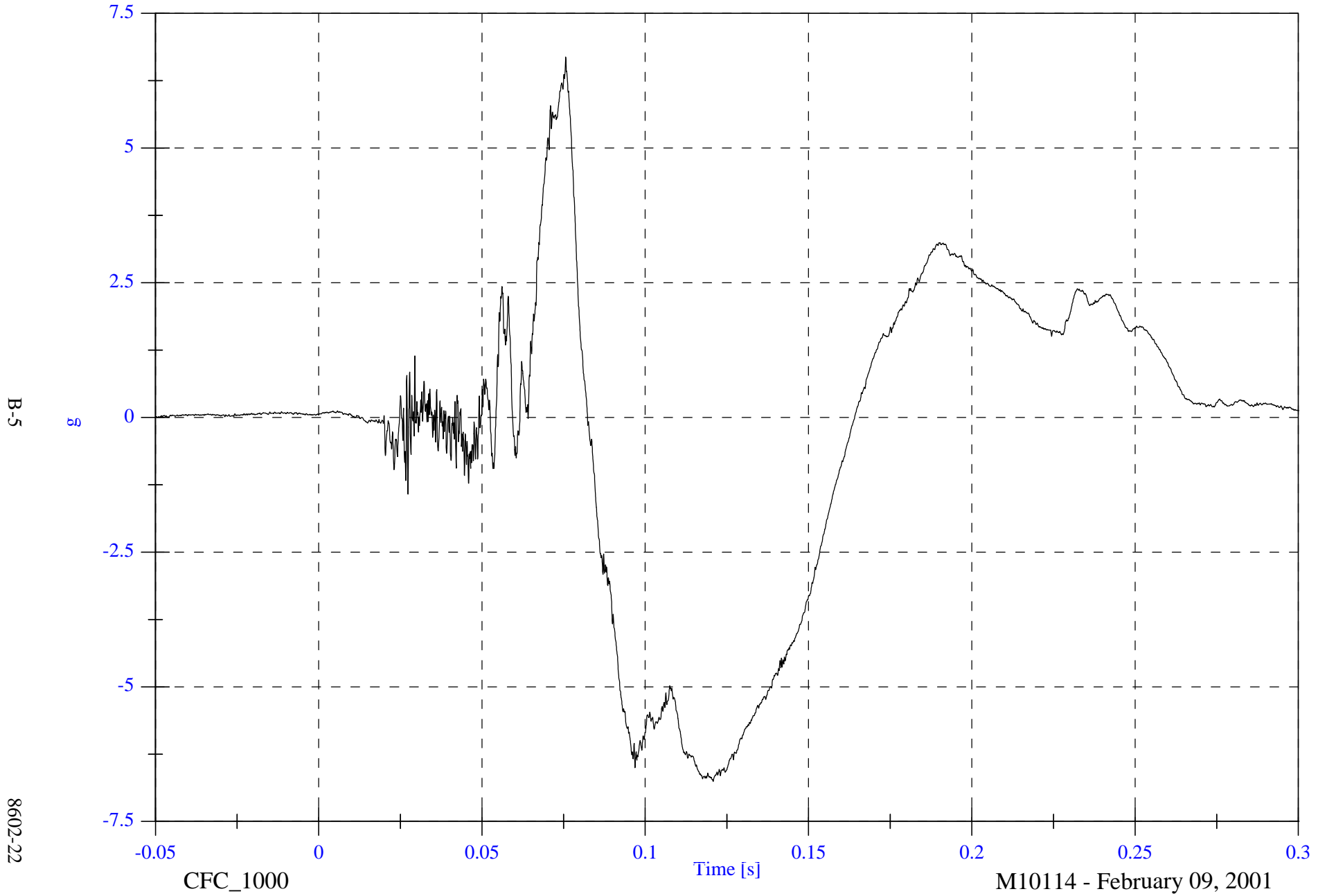
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 6.7 [g] at 0.076 [s]

Min: -6.8 [g] at 0.121 [s]

P1 Head y



B-5

8602-22

NCAP Test #22 - 2001 Pontiac Aztek

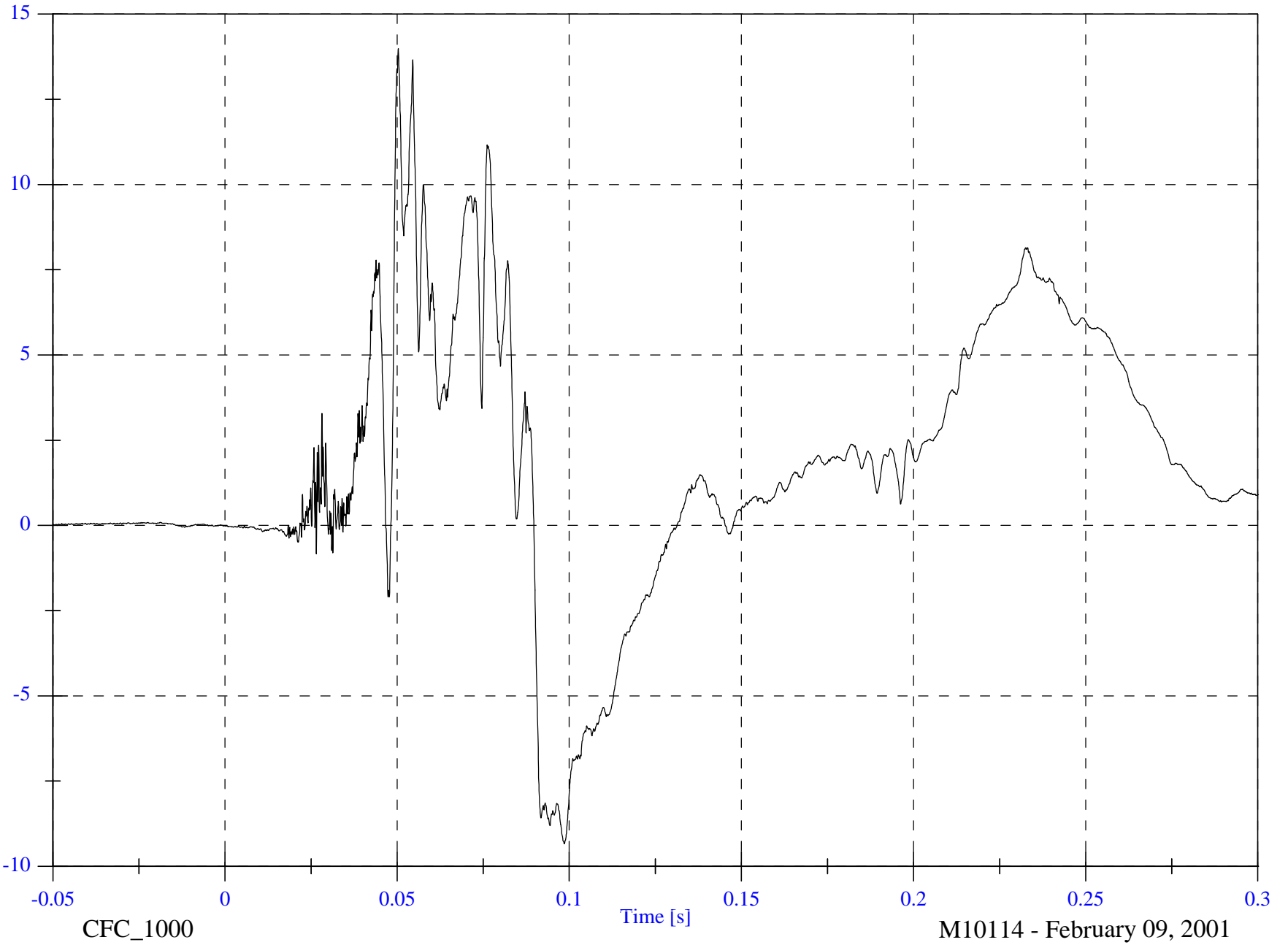
Max: 14.0 [g] at 0.050 [s]

P1 Head z

Min: -9.3 [g] at 0.099 [s]

B-6

g



8602-22

CFC\_1000

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

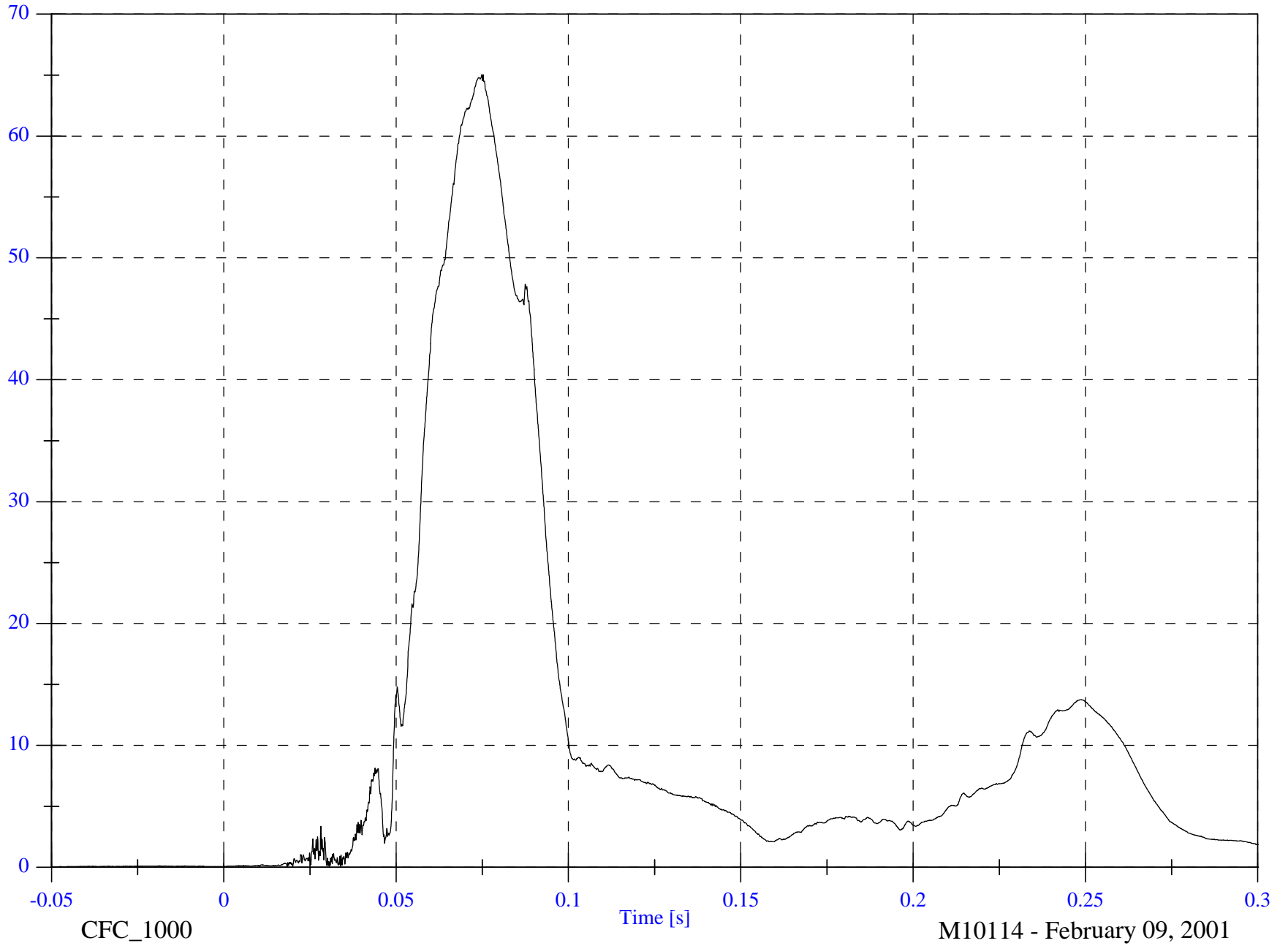
P1 Head Resultant

Max: 65.0 [g] at 0.075 [s]

Min: 0.0 [g] at -0.049 [s]

B-7

g



8602-22

CFC\_1000

Time [s]

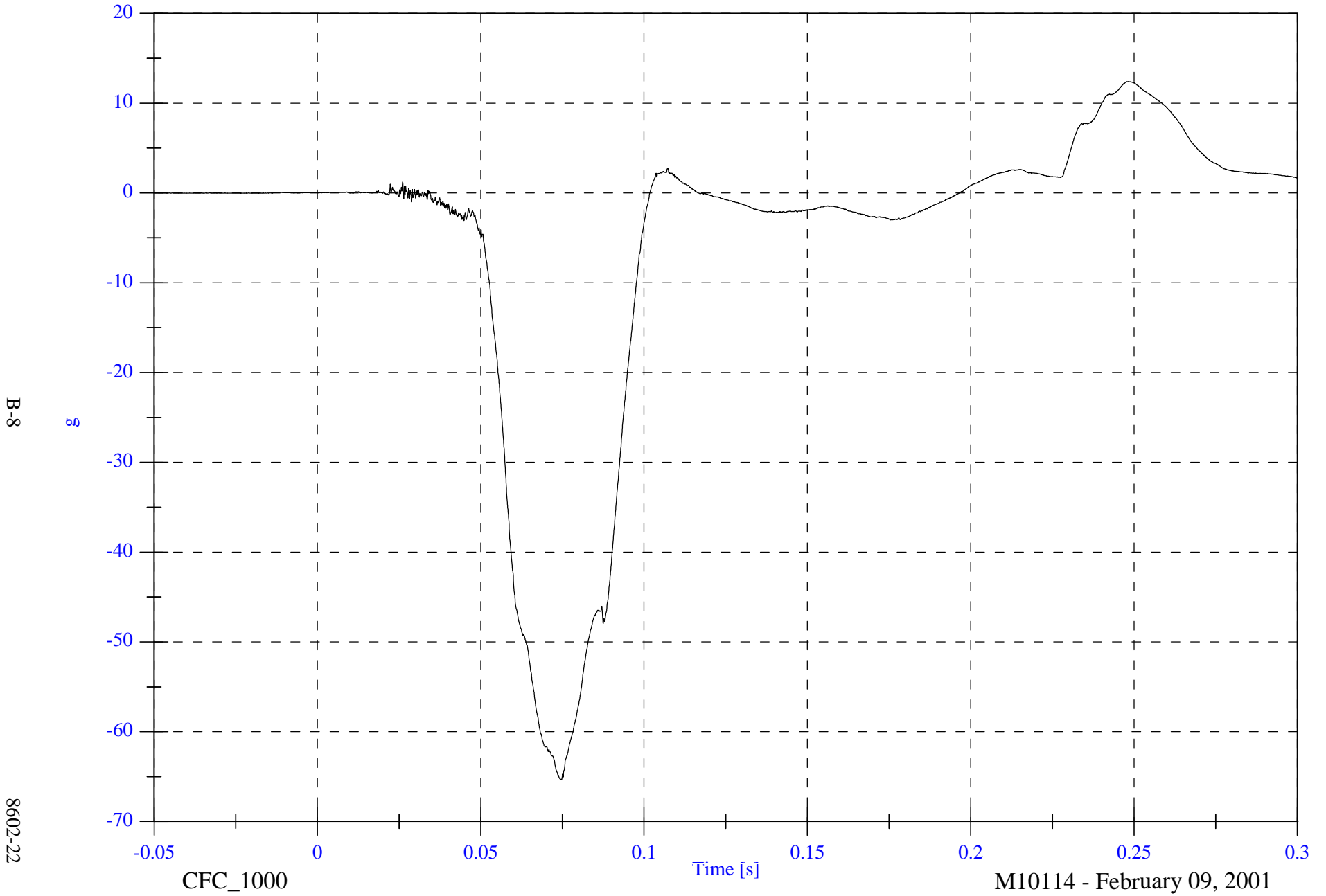
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Head Red x

Max: 12.4 [g] at 0.248 [s]

Min: -65.3 [g] at 0.075 [s]



B-8

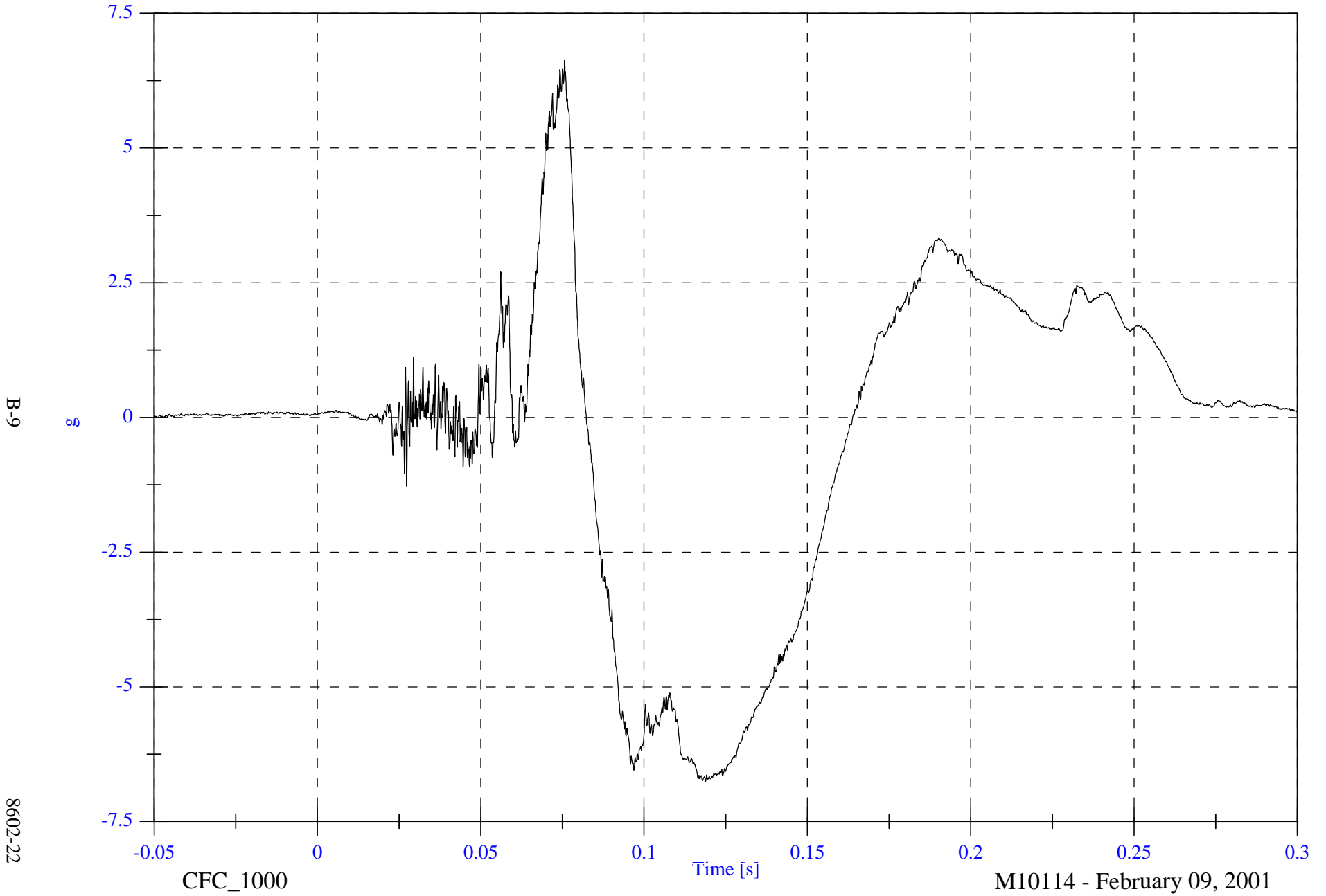
8602-22

NCAP Test #22 - 2001 Pontiac Aztek

P1 Head Red y

Max: 6.6 [g] at 0.076 [s]

Min: -6.8 [g] at 0.119 [s]



B-9

8602-22

CFC\_1000

Time [s]

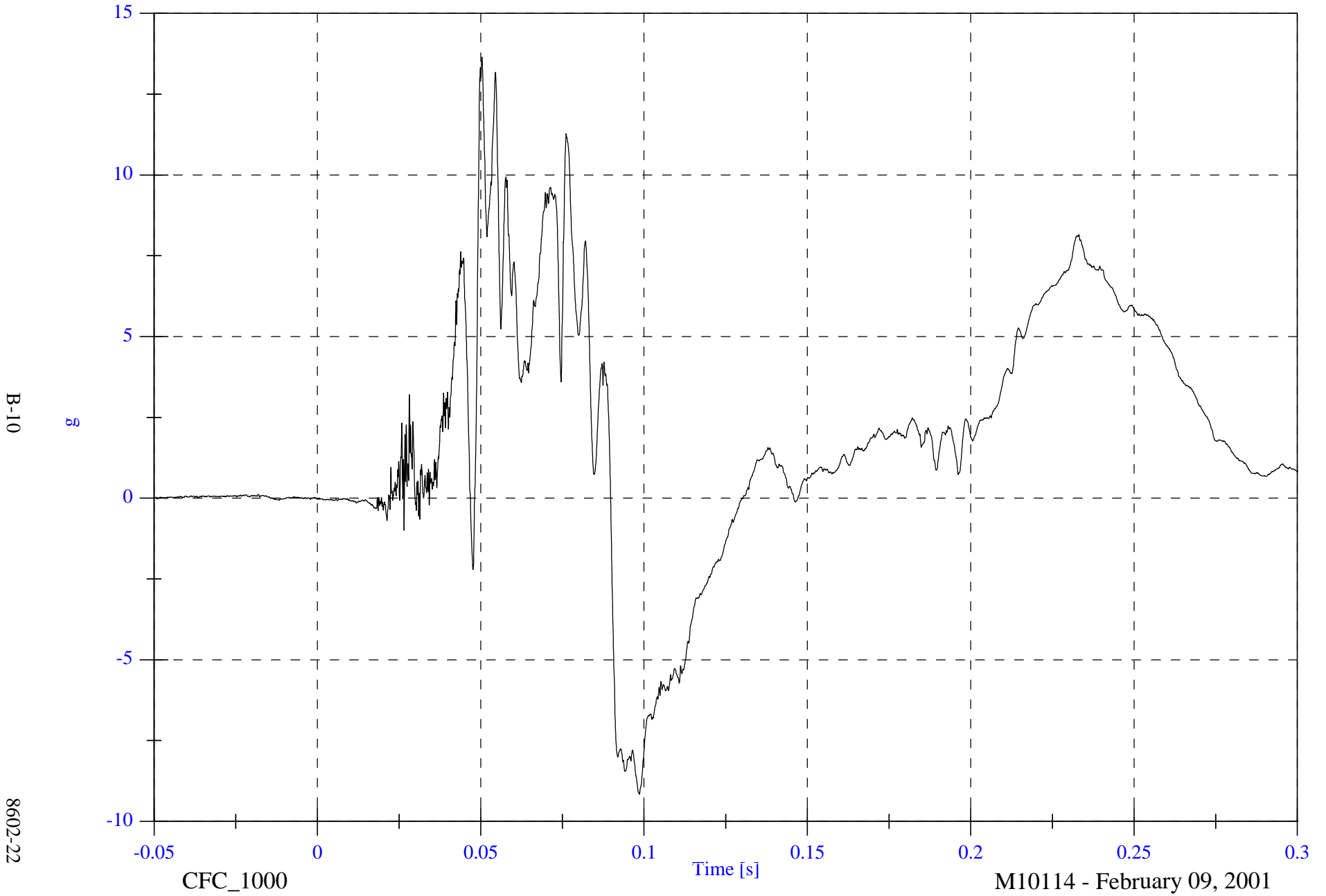
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Head Red z

Max: 13.6 [g] at 0.050 [s]

Min: -9.2 [g] at 0.099 [s]



NCAP Test #22 - 2001 Pontiac Aztek

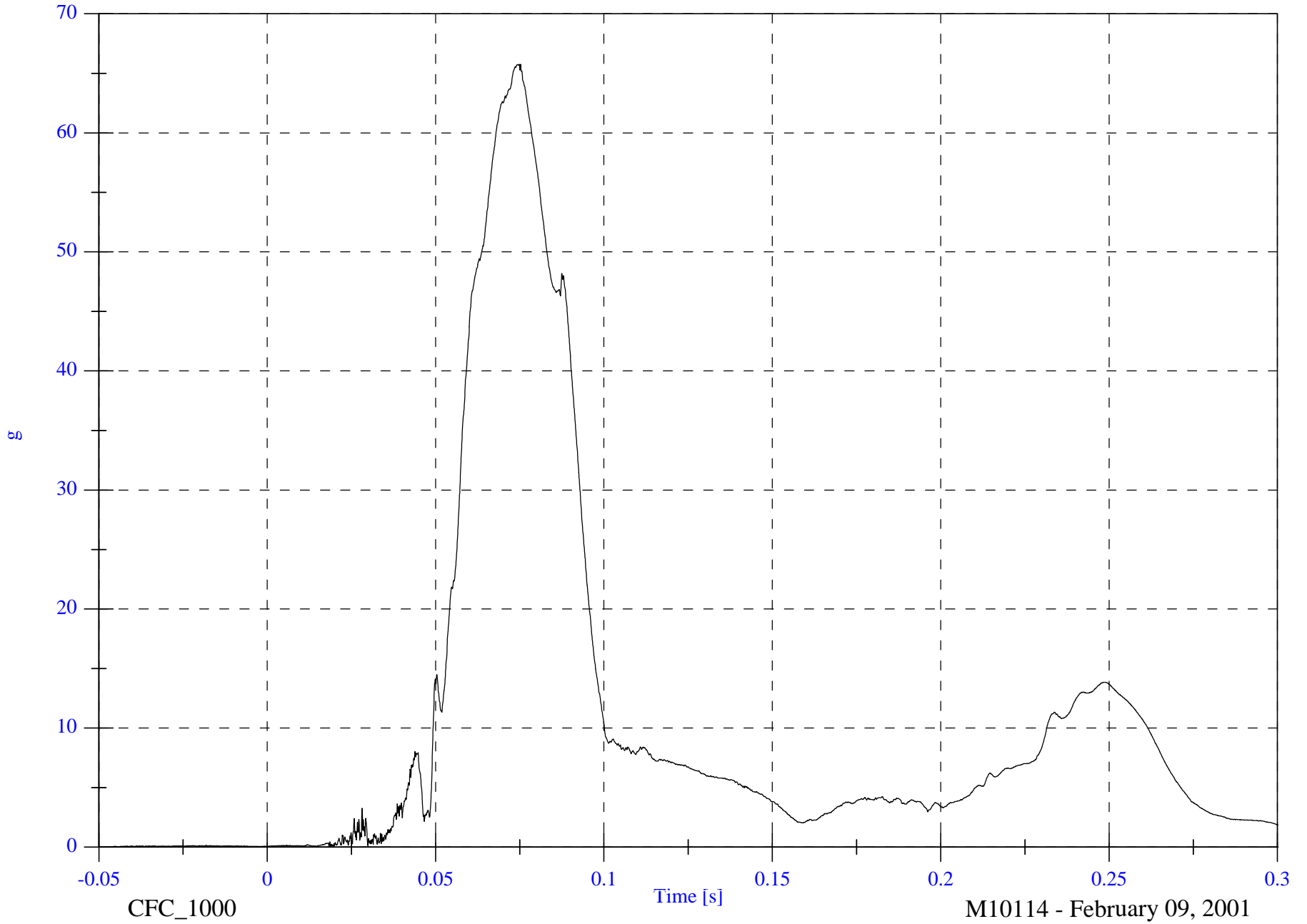
P1 Head Red Resultant

Max: 65.8 [g] at 0.075 [s]

Min: 0.0 [g] at -0.049 [s]

B-11

8602-22



CFC\_1000

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

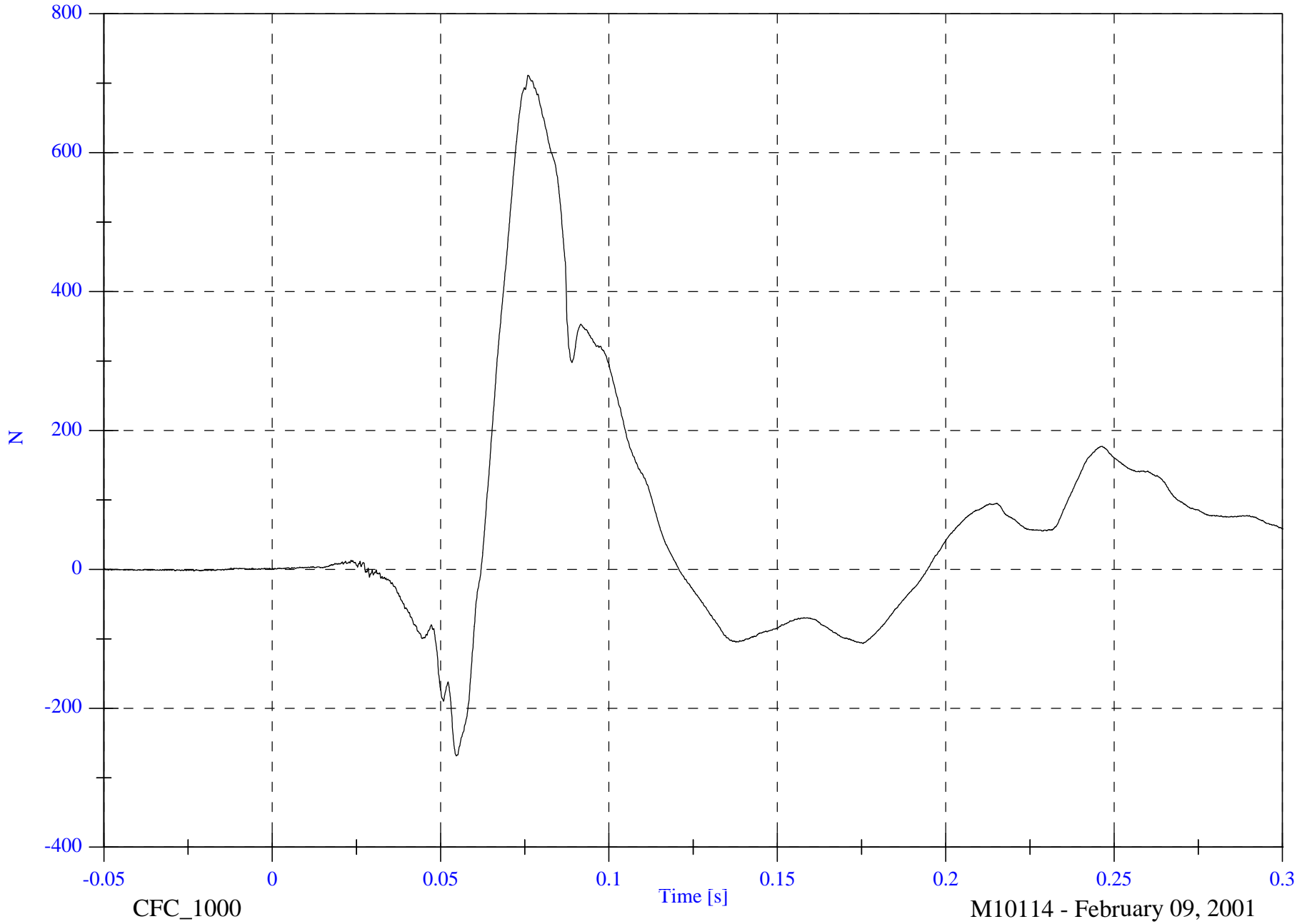
P1 Upper Neck Fx

Max: 711.5 [N] at 0.076 [s]

Min: -268.6 [N] at 0.055 [s]

B-12

8602-22



CFC\_1000

Time [s]

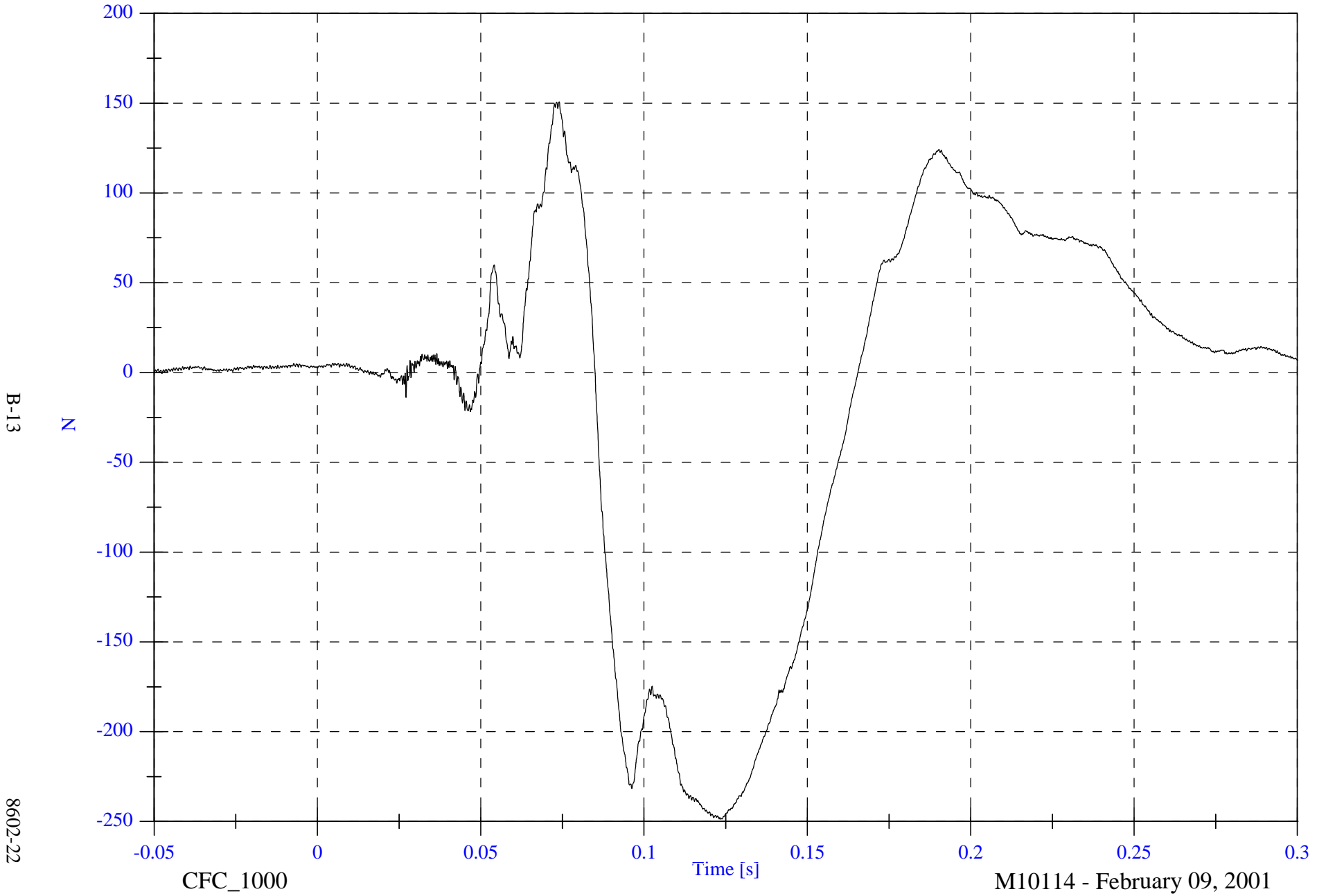
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Upper Neck Fy

Max: 150.7 [N] at 0.074 [s]

Min: -248.8 [N] at 0.123 [s]



B-13

8602-22

CFC\_1000

Time [s]

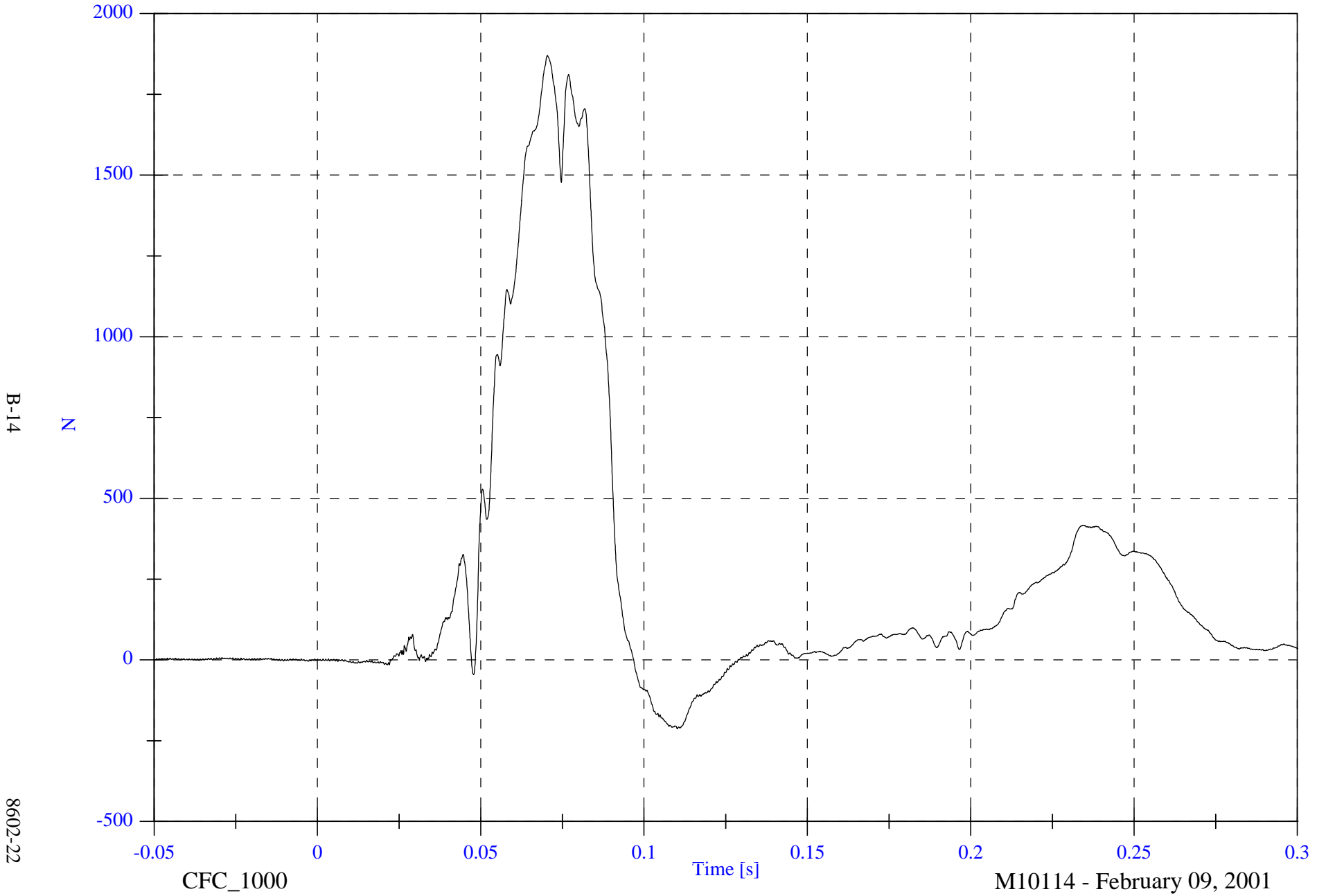
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Upper Neck Fz

Max: 1869.6 [N] at 0.070 [s]

Min: -213.4 [N] at 0.110 [s]



B-14

8602-22

CFC\_1000

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

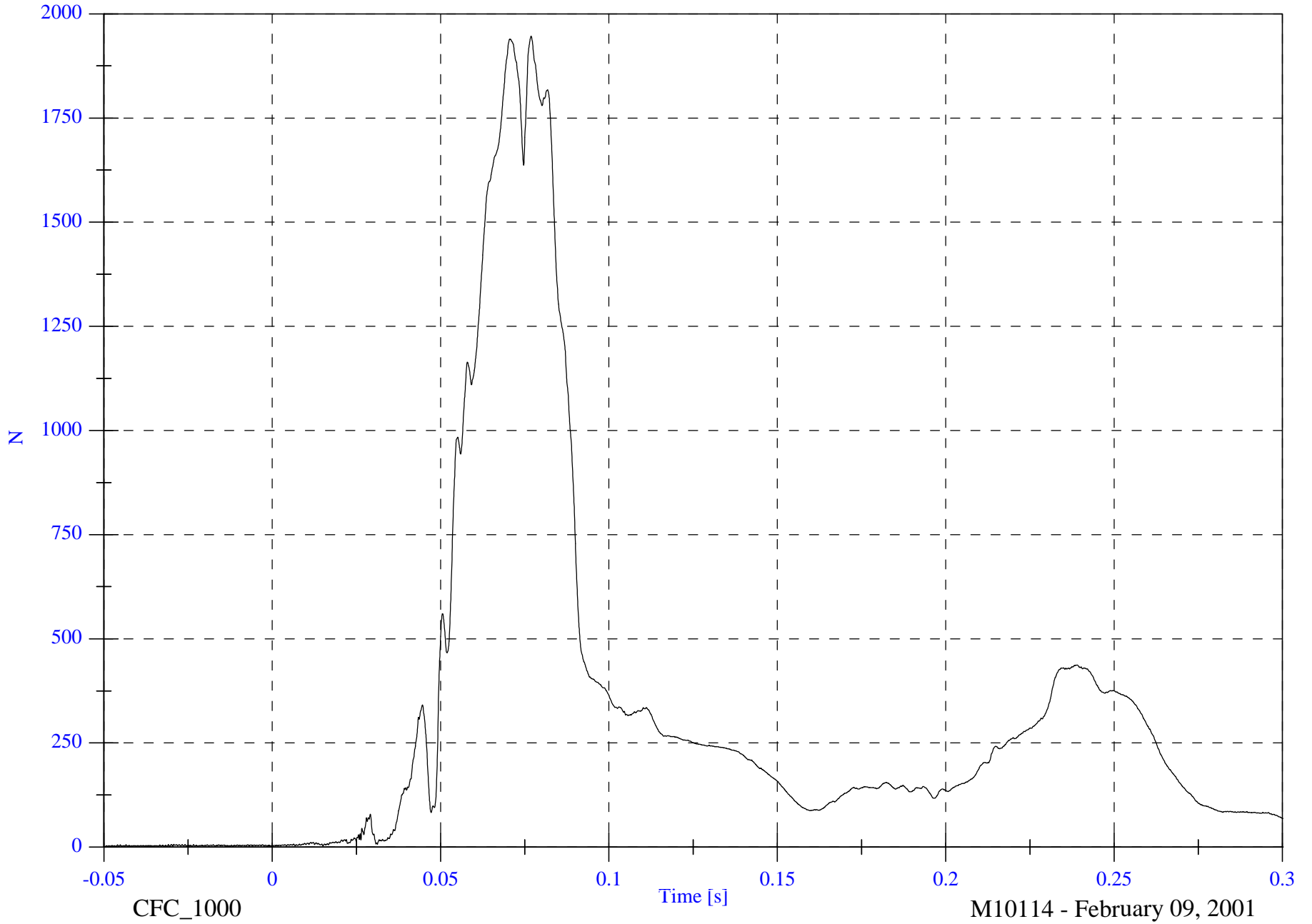
Max: 1946.5 [N] at 0.077 [s]

P1 Upper Neck F Resultant

Min: 1.1 [N] at -0.050 [s]

B-15

8602-22



NCAP Test #22 - 2001 Pontiac Aztek

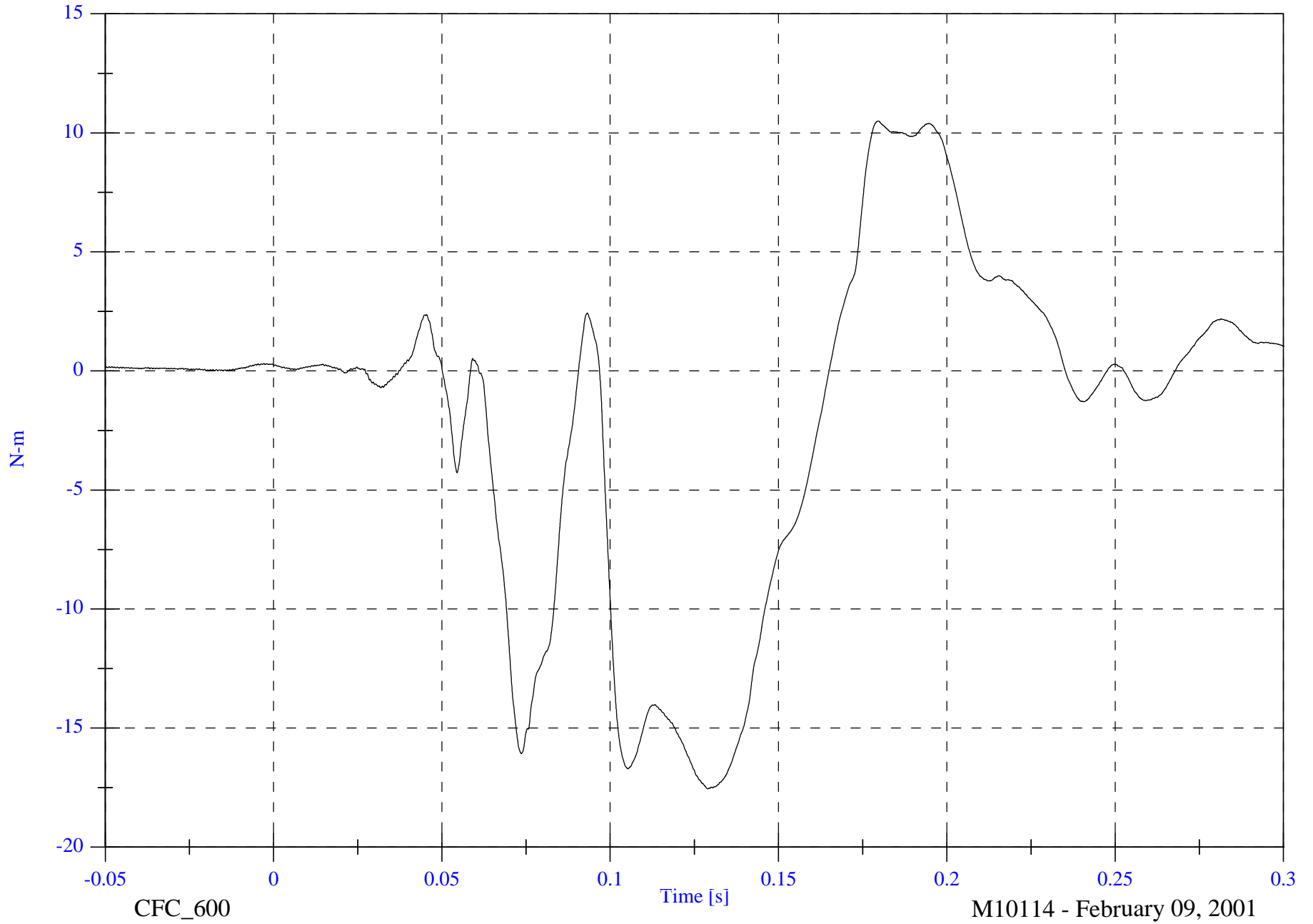
P1 Upper Neck Mx

Max: 10.5 [N-m] at 0.180 [s]

Min: -17.6 [N-m] at 0.129 [s]

B-16

8602-22



CFC\_600

Time [s]

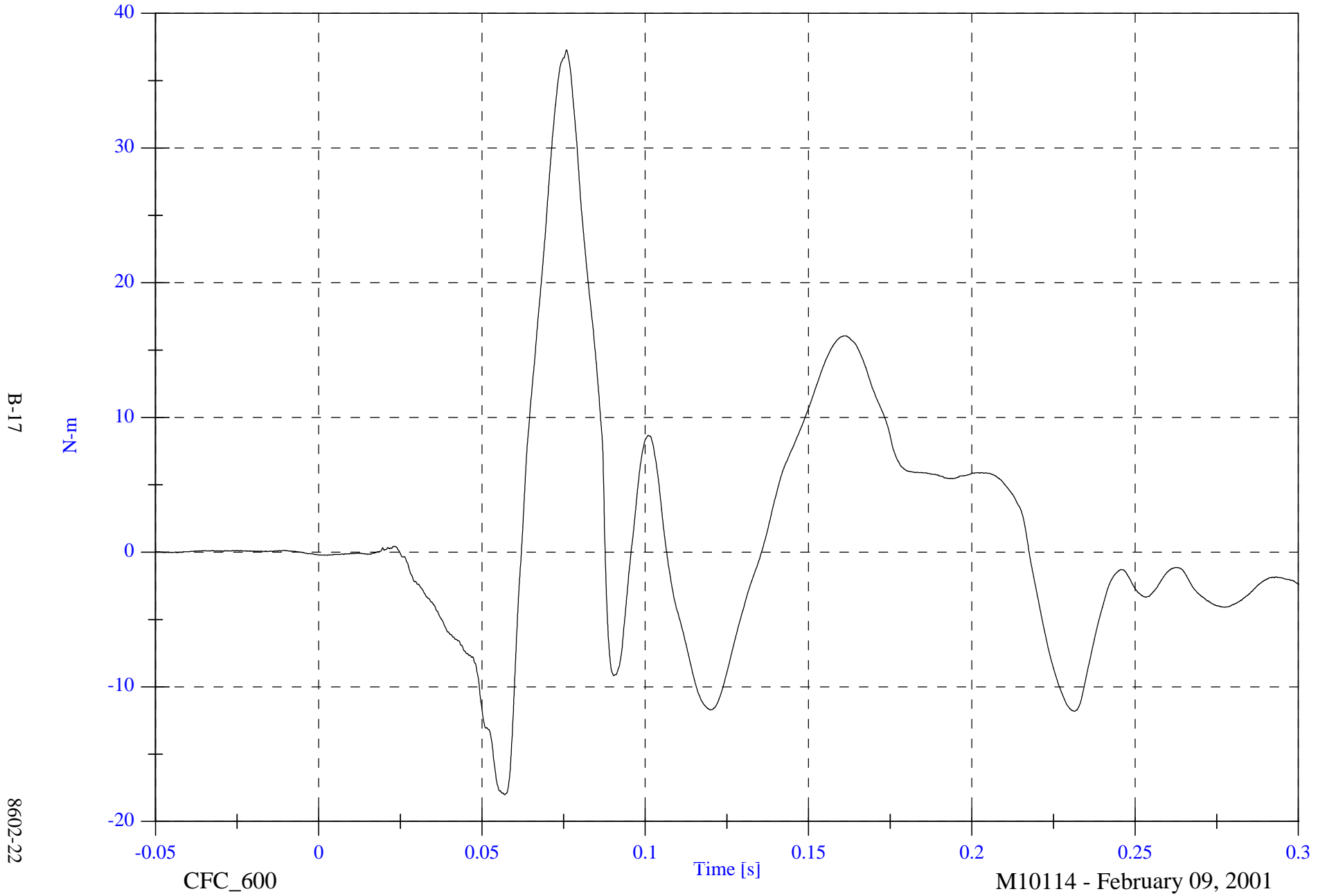
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 37.3 [N-m] at 0.076 [s]

Min: -18.0 [N-m] at 0.057 [s]

P1 Upper Neck My



B-17

8602-22

CFC\_600

Time [s]

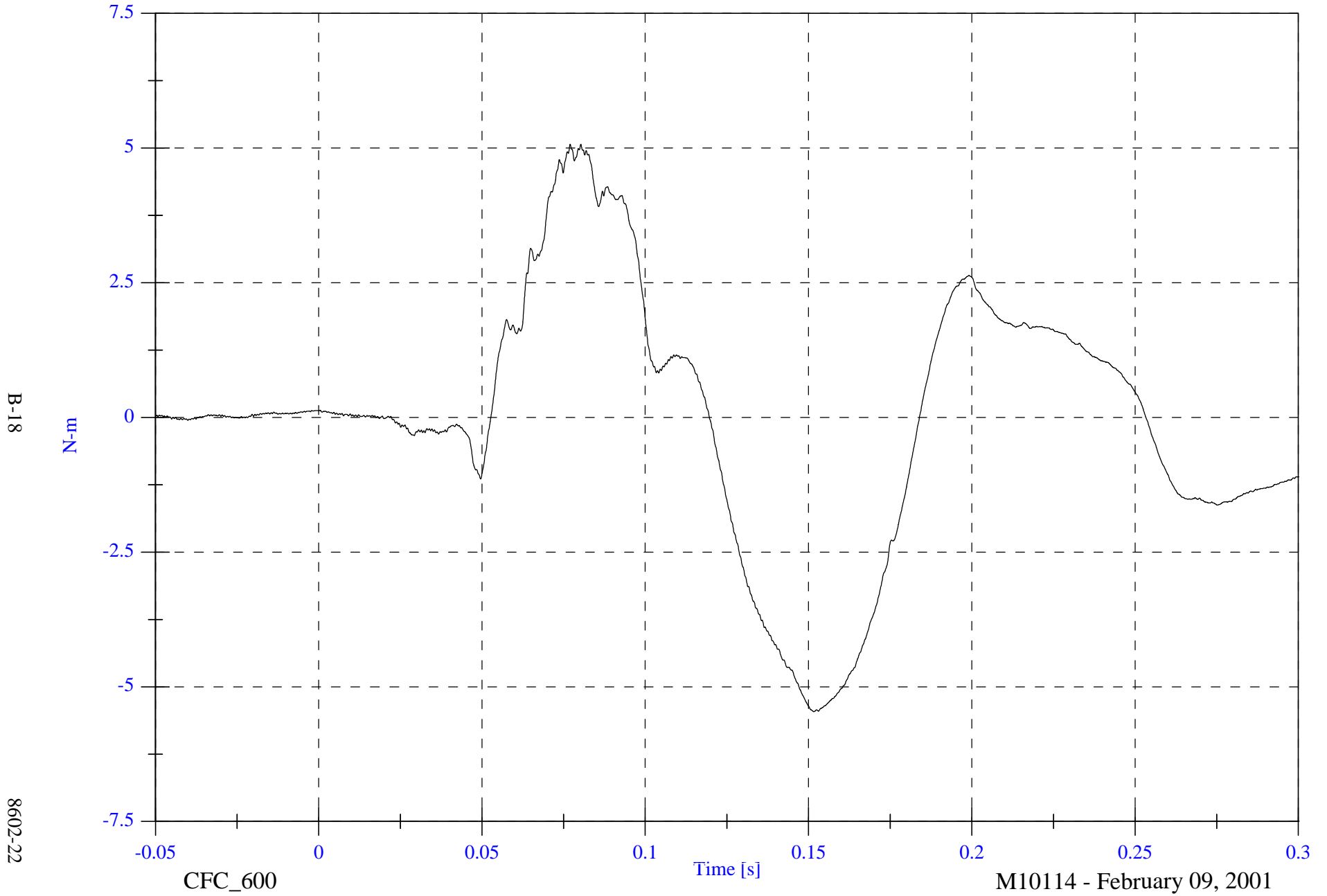
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Upper Neck Mz

Max: 5.1 [N-m] at 0.077 [s]

Min: -5.5 [N-m] at 0.152 [s]



B-18

8602-22

CFC\_600

Time [s]

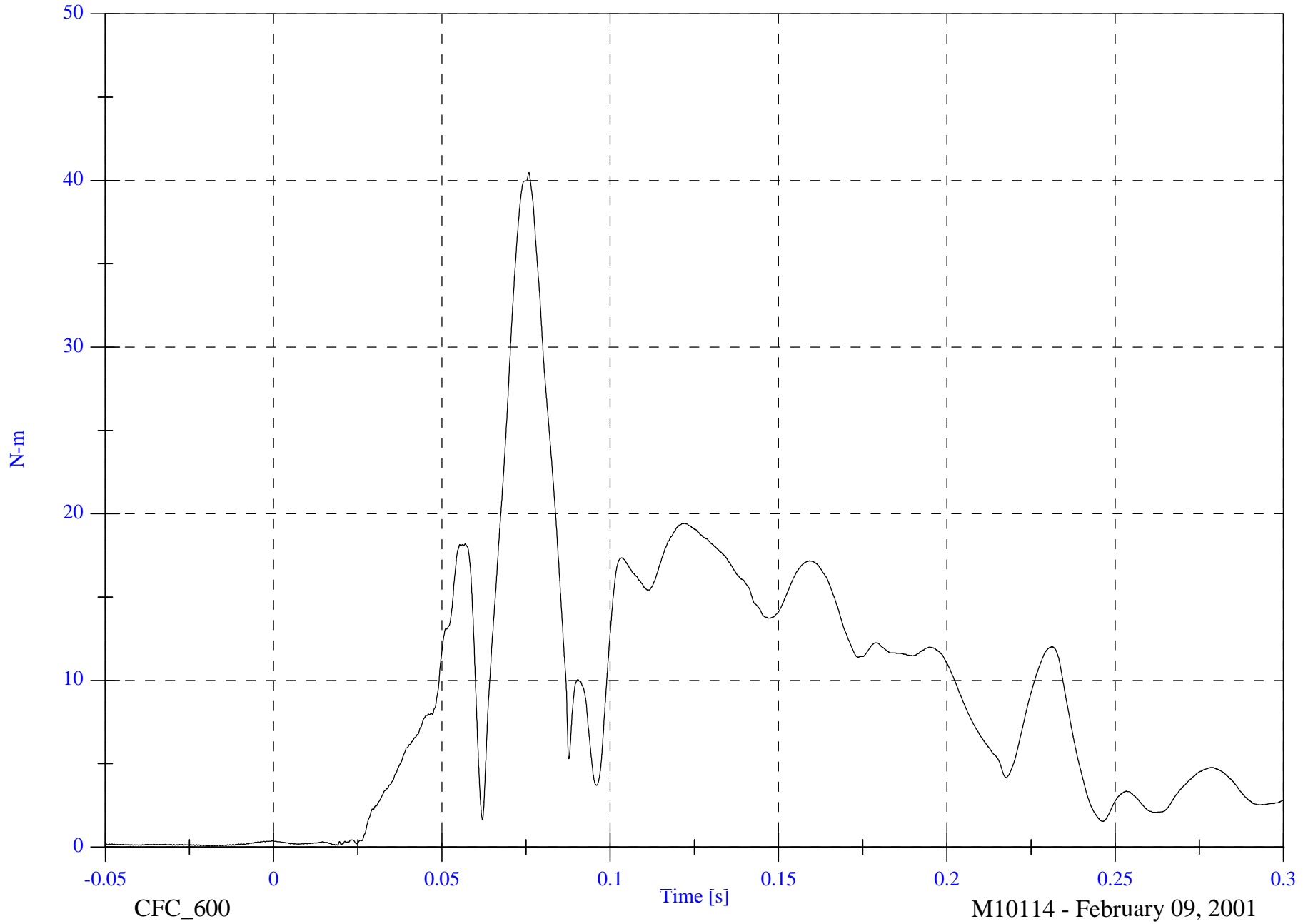
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Upper Neck M Resultant

Max: 40.5 [N-m] at 0.076 [s]

Min: 0.1 [N-m] at -0.019 [s]



B-19

8602-22

CFC\_600

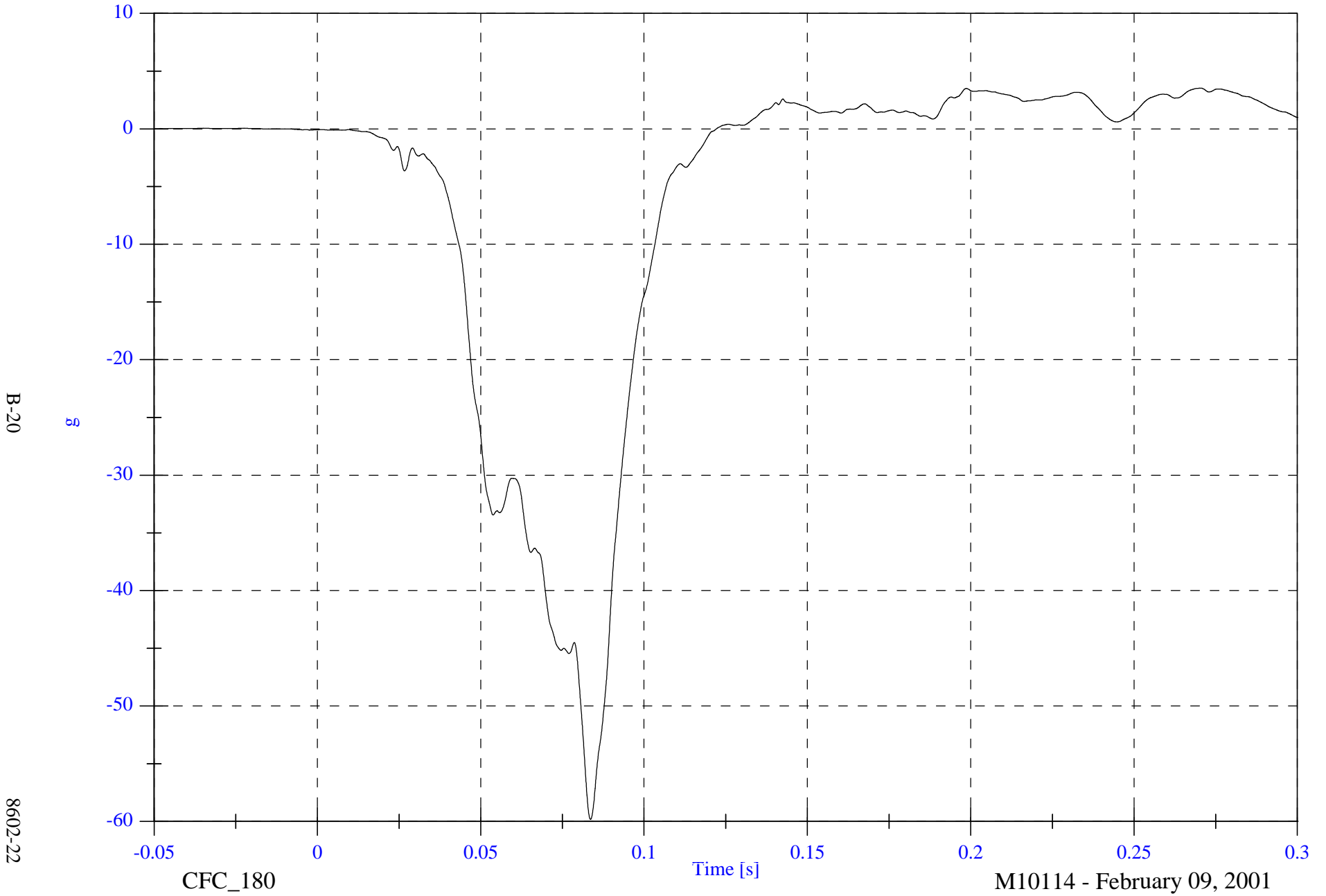
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 3.5 [g] at 0.270 [s]

Min: -59.8 [g] at 0.084 [s]

P1 Chest x



B-20

8602-22

CFC\_180

Time [s]

M10114 - February 09, 2001

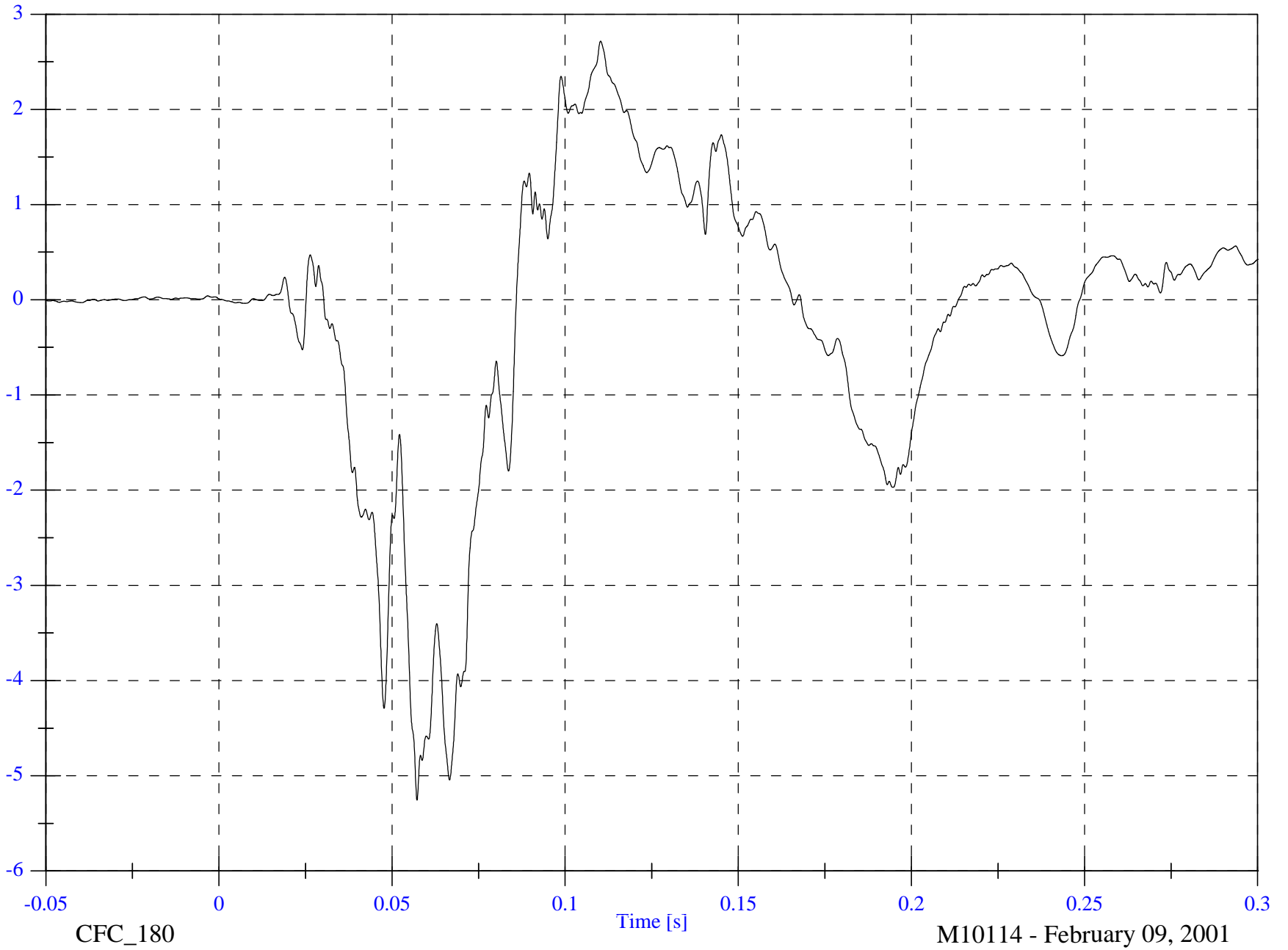
NCAP Test #22 - 2001 Pontiac Aztek

Max: 2.7 [g] at 0.110 [s]  
Min: -5.3 [g] at 0.057 [s]

P1 Chest y

B-21

g



8602-22

CFC\_180

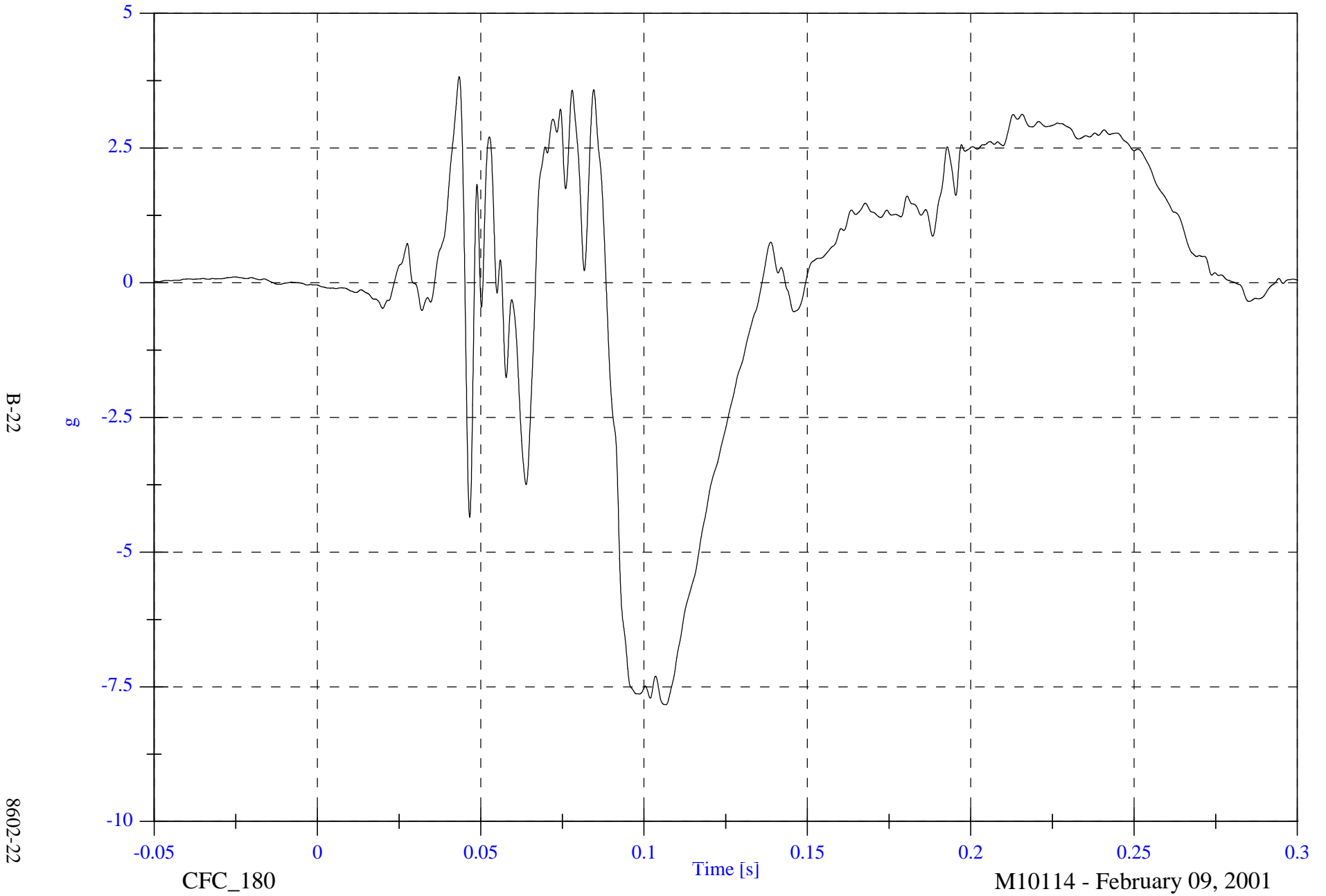
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 3.8 [g] at 0.043 [s]

Min: -7.8 [g] at 0.107 [s]

P1 Chest z

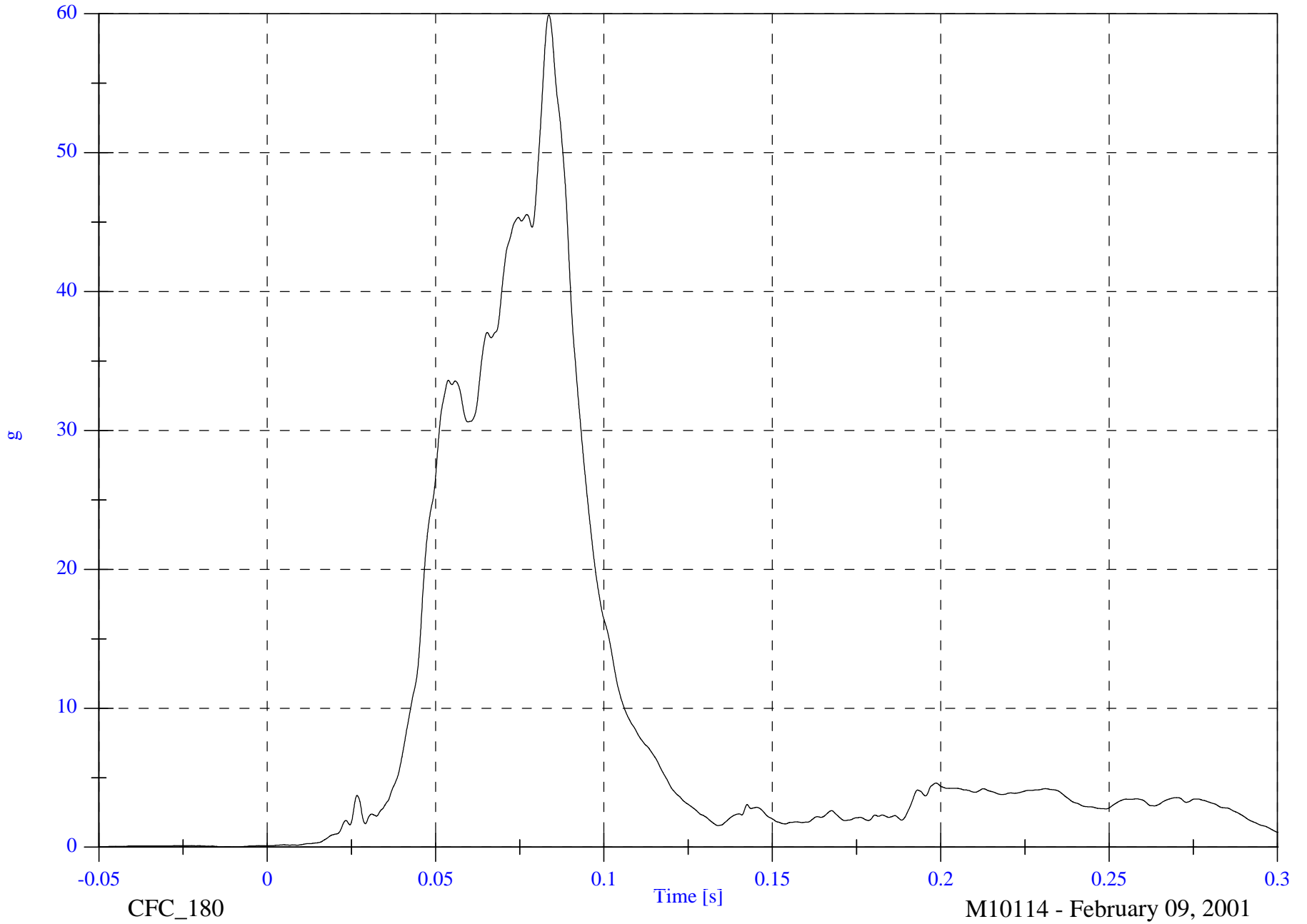


NCAP Test #22 - 2001 Pontiac Aztek

P1 Chest Resultant

Max: 59.9 [g] at 0.084 [s]

Min: 0.0 [g] at -0.014 [s]



B-23

8602-22

CFC\_180

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

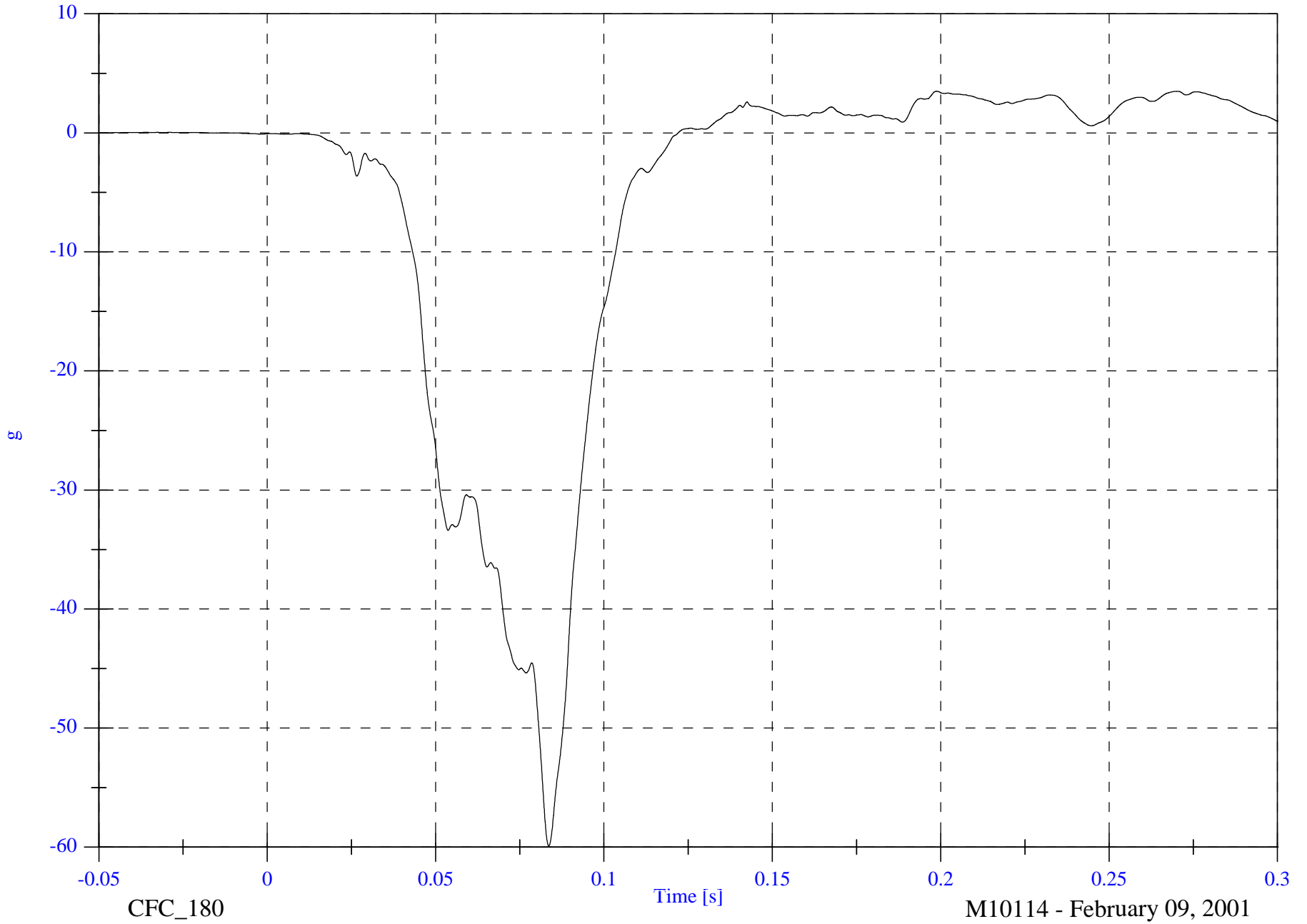
P1 Chest Red x

Max: 3.5 [g] at 0.199 [s]

Min: -59.9 [g] at 0.084 [s]

B-24

8602-22



NCAP Test #22 - 2001 Pontiac Aztek

Max: 2.6 [g] at 0.110 [s]

Min: -5.3 [g] at 0.066 [s]

P1 Chest Red y



NCAP Test #22 - 2001 Pontiac Aztek

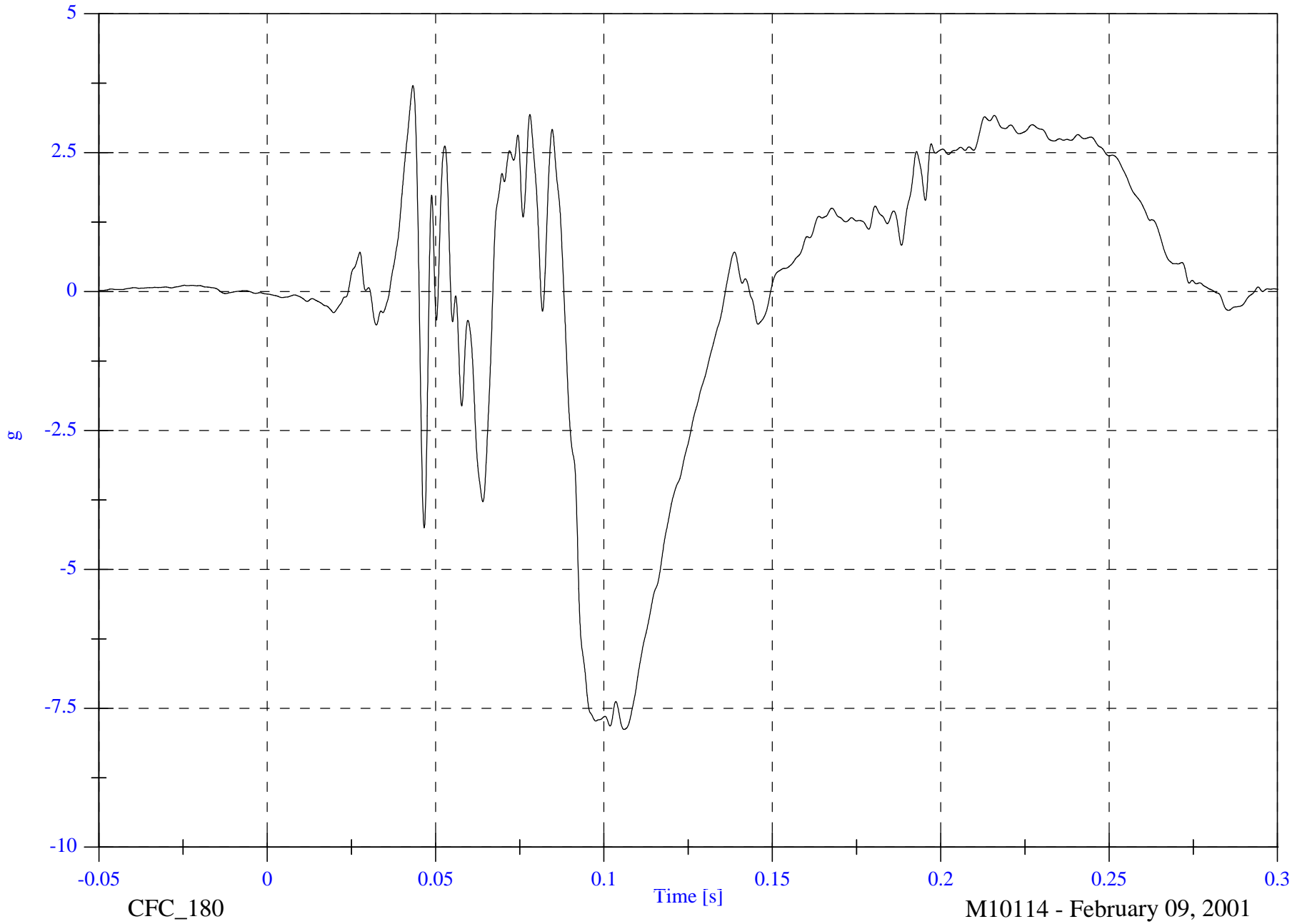
P1 Chest Red z

Max: 3.7 [g] at 0.043 [s]

Min: -7.9 [g] at 0.106 [s]

B-26

8602-22



NCAP Test #22 - 2001 Pontiac Aztek

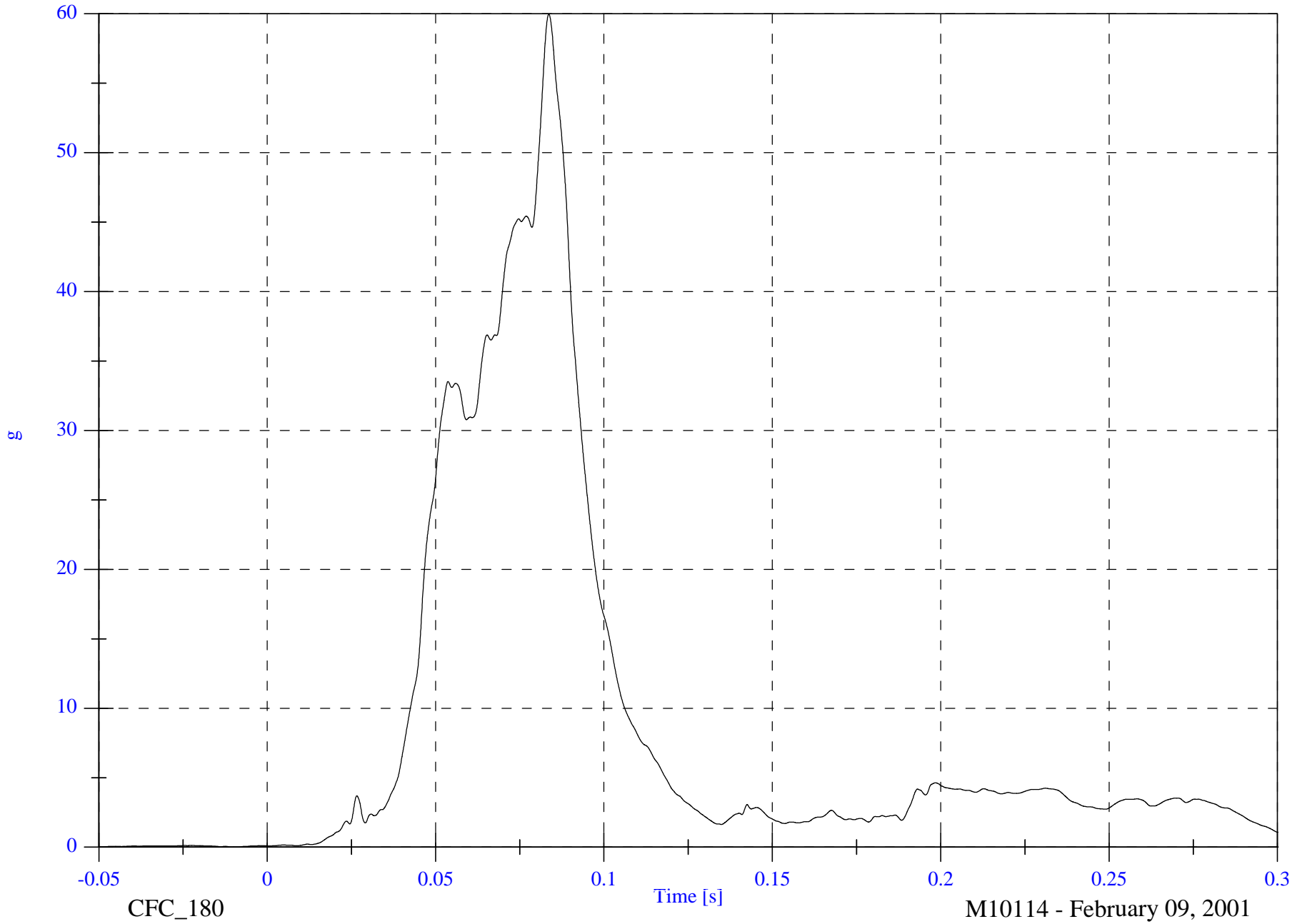
P1 Chest Red Resultant

Max: 60.0 [g] at 0.084 [s]

Min: 0.0 [g] at -0.010 [s]

B-27

8602-22



CFC\_180

Time [s]

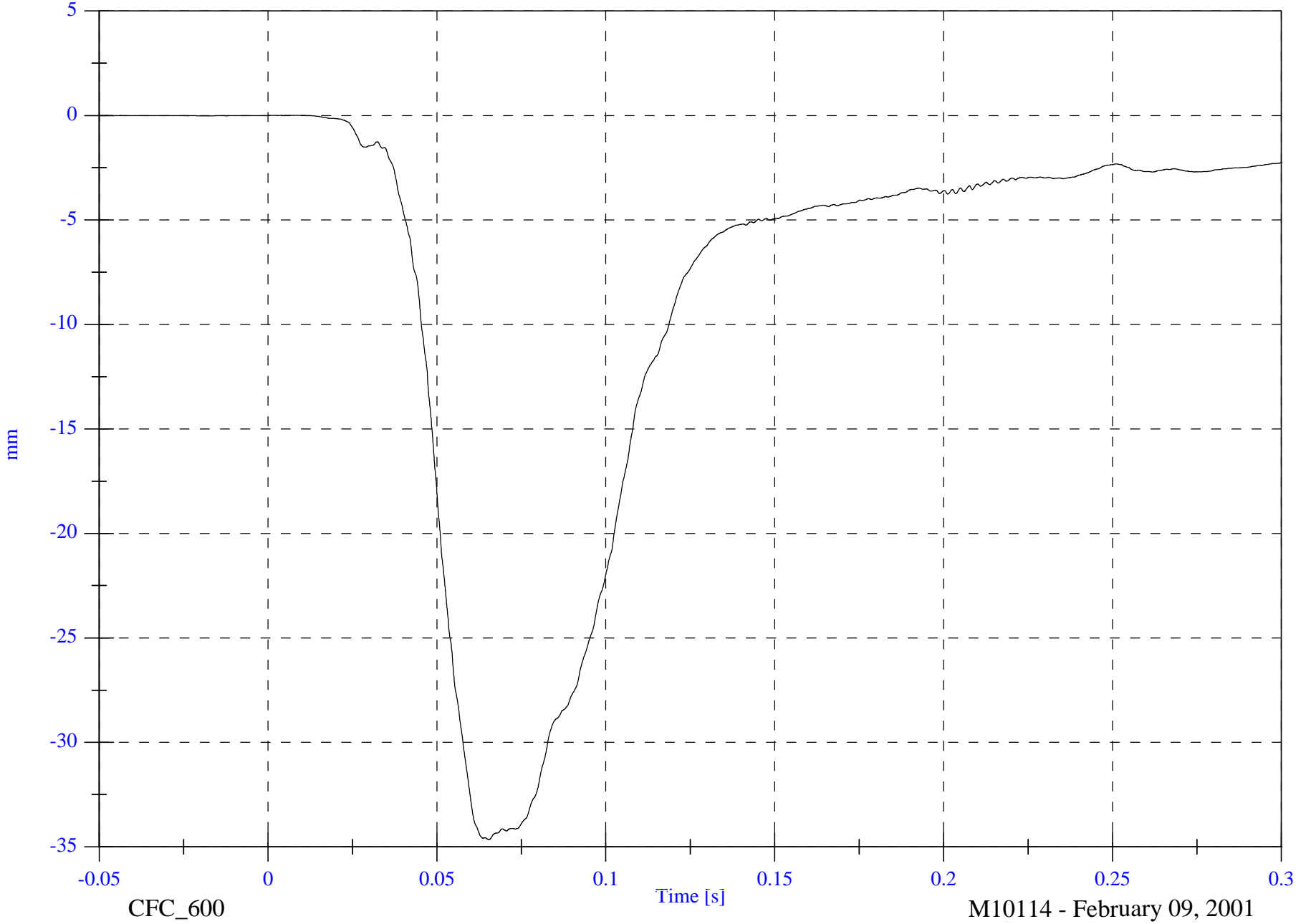
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Chest Compression

Max: 0.0 [mm] at 0.009 [s]

Min: -34.7 [mm] at 0.065 [s]



B-28

8602-22

CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

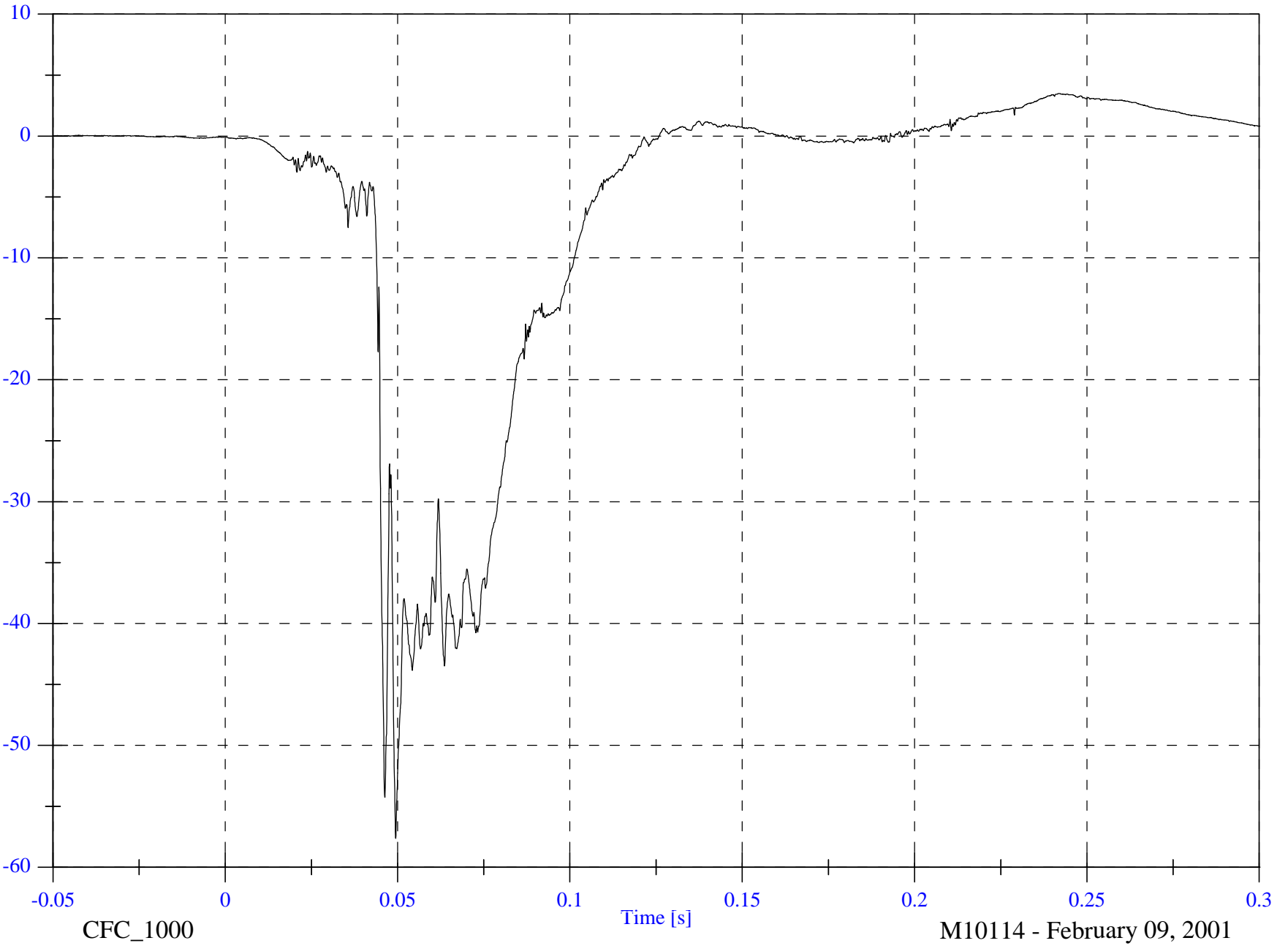
Max: 3.5 [g] at 0.242 [s]

P1 Pelvic x

Min: -57.6 [g] at 0.049 [s]

B-29

g



8602-22

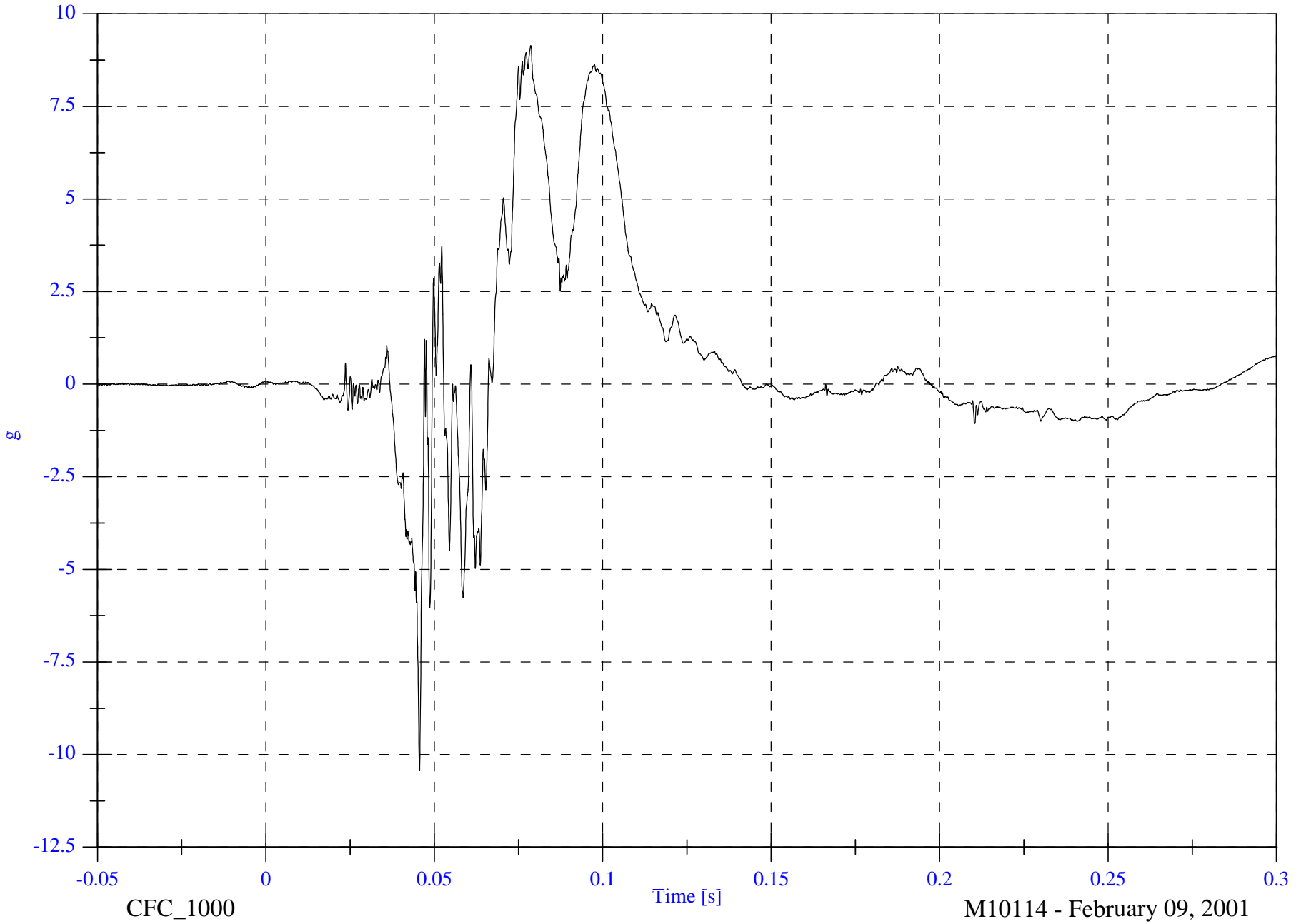
NCAP Test #22 - 2001 Pontiac Aztek

Max: 9.1 [g] at 0.079 [s]

P1 Pelvic y

Min: -10.4 [g] at 0.046 [s]

B-30



8602-22

CFC\_1000

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

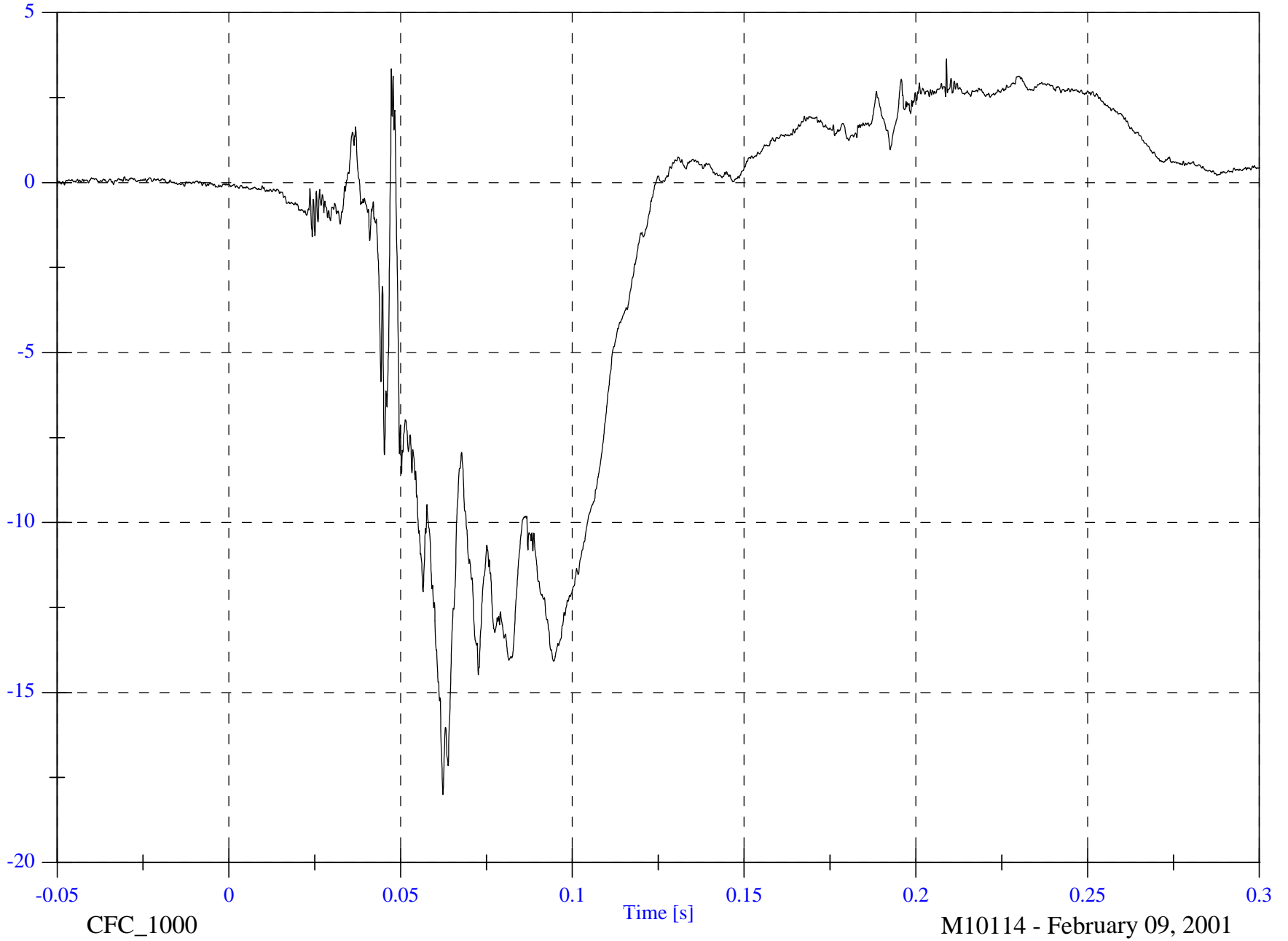
Max: 3.6 [g] at 0.209 [s]

P1 Pelvic z

Min: -18.0 [g] at 0.062 [s]

B-31

g



8602-22

CFC\_1000

Time [s]

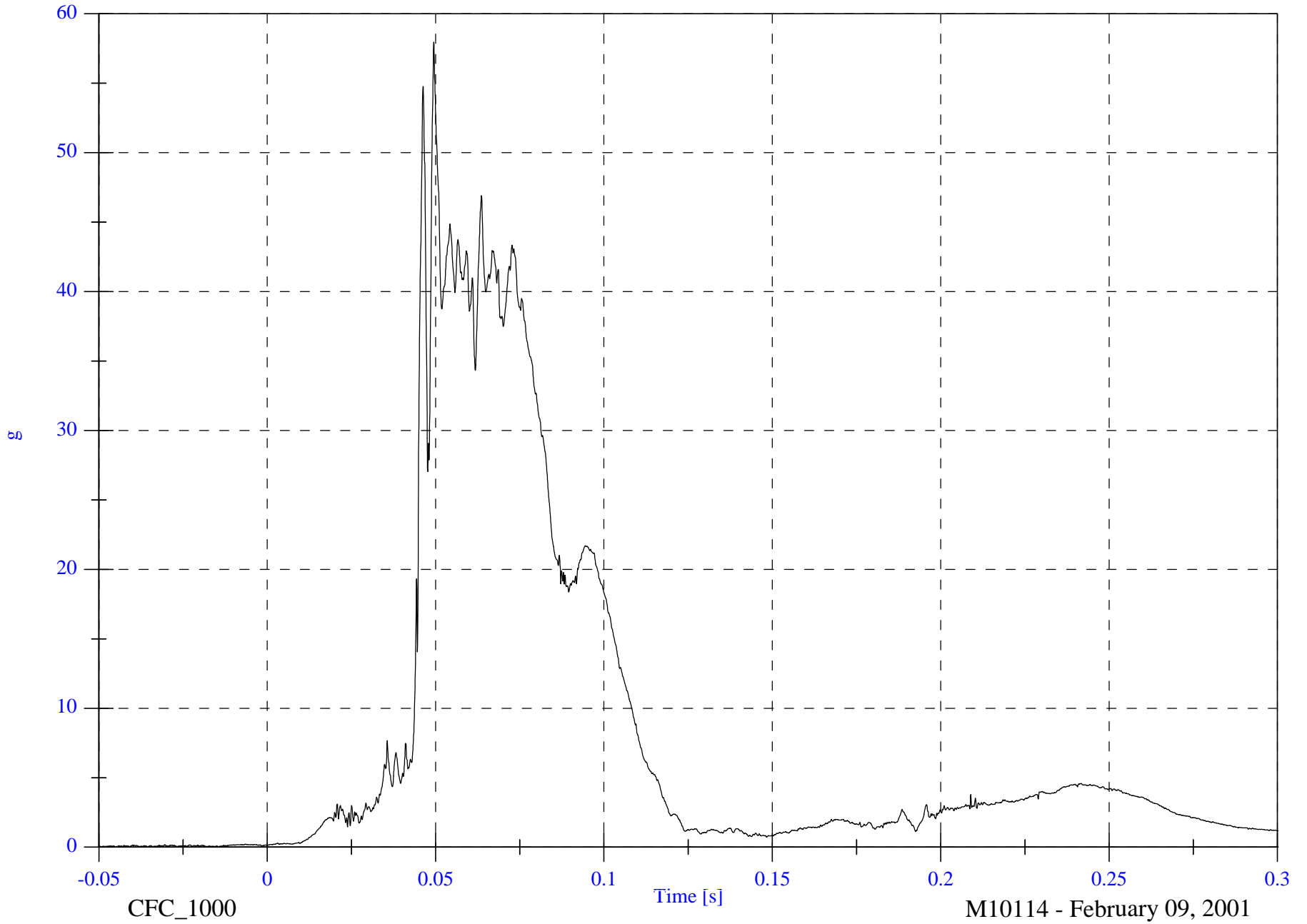
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Pelvic Resultant

Max: 58.0 [g] at 0.049 [s]

Min: 0.0 [g] at -0.045 [s]



B-32

8602-22

CFC\_1000

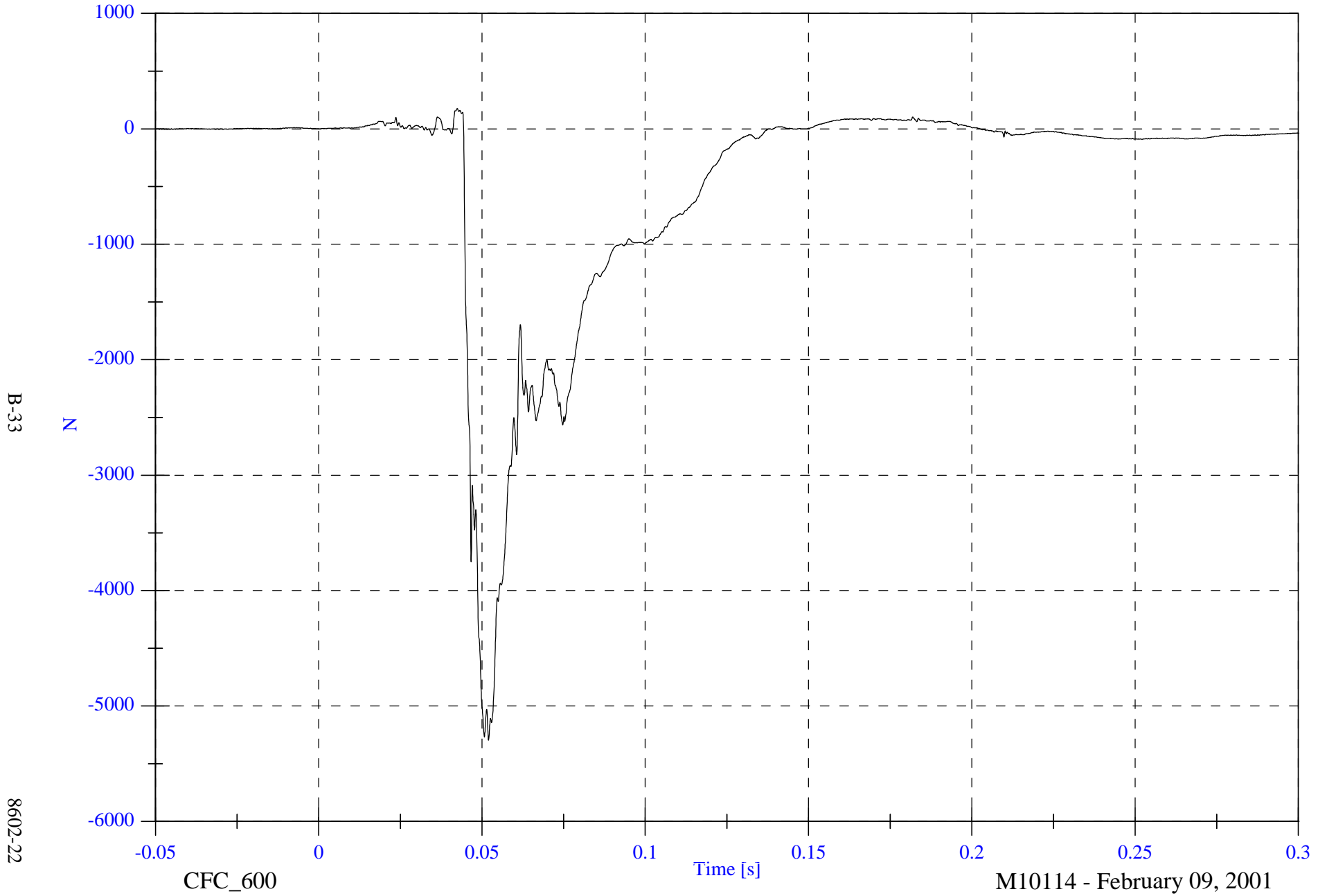
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Left Femur

Max: 175.8 [N] at 0.042 [s]

Min: -5297.5 [N] at 0.052 [s]



B-33

8602-22

CFC\_600

Time [s]

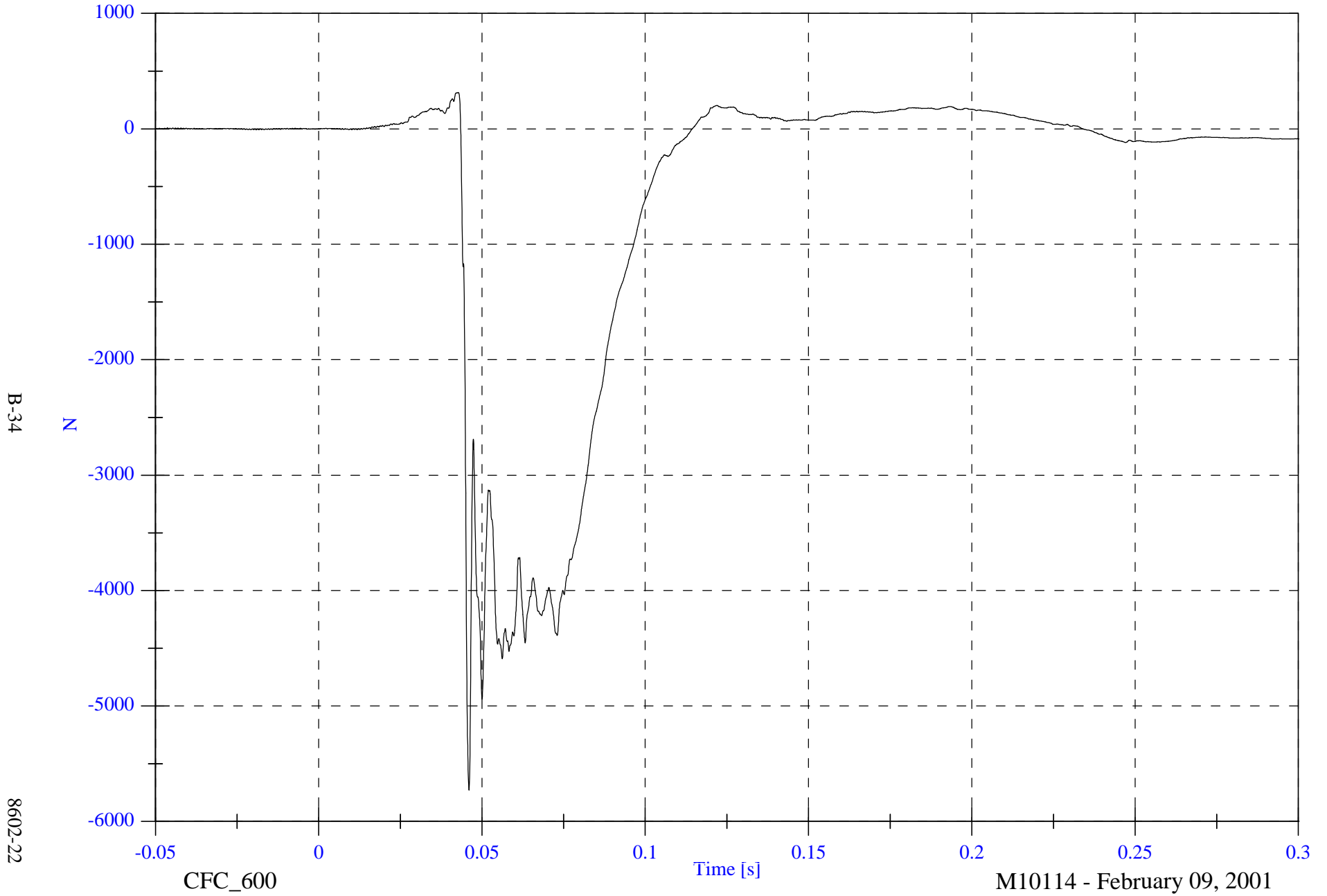
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Right Femur

Max: 314.9 [N] at 0.043 [s]

Min: -5728.9 [N] at 0.046 [s]



B-34

8602-22

CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

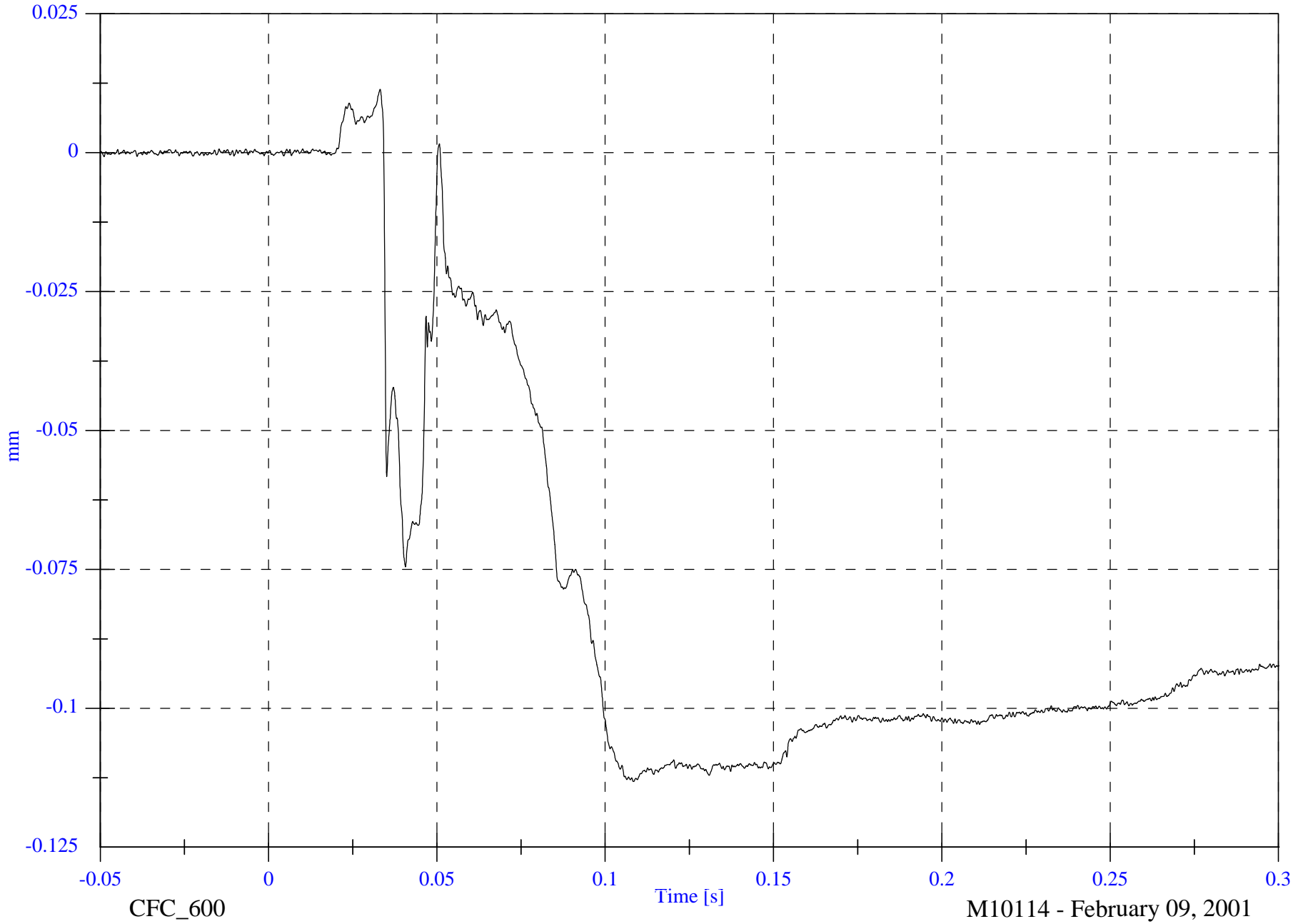
P1 Left Knee Shear

Max: 0.0 [mm] at 0.033 [s]

Min: -0.1 [mm] at 0.108 [s]

B-35

8602-22



CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

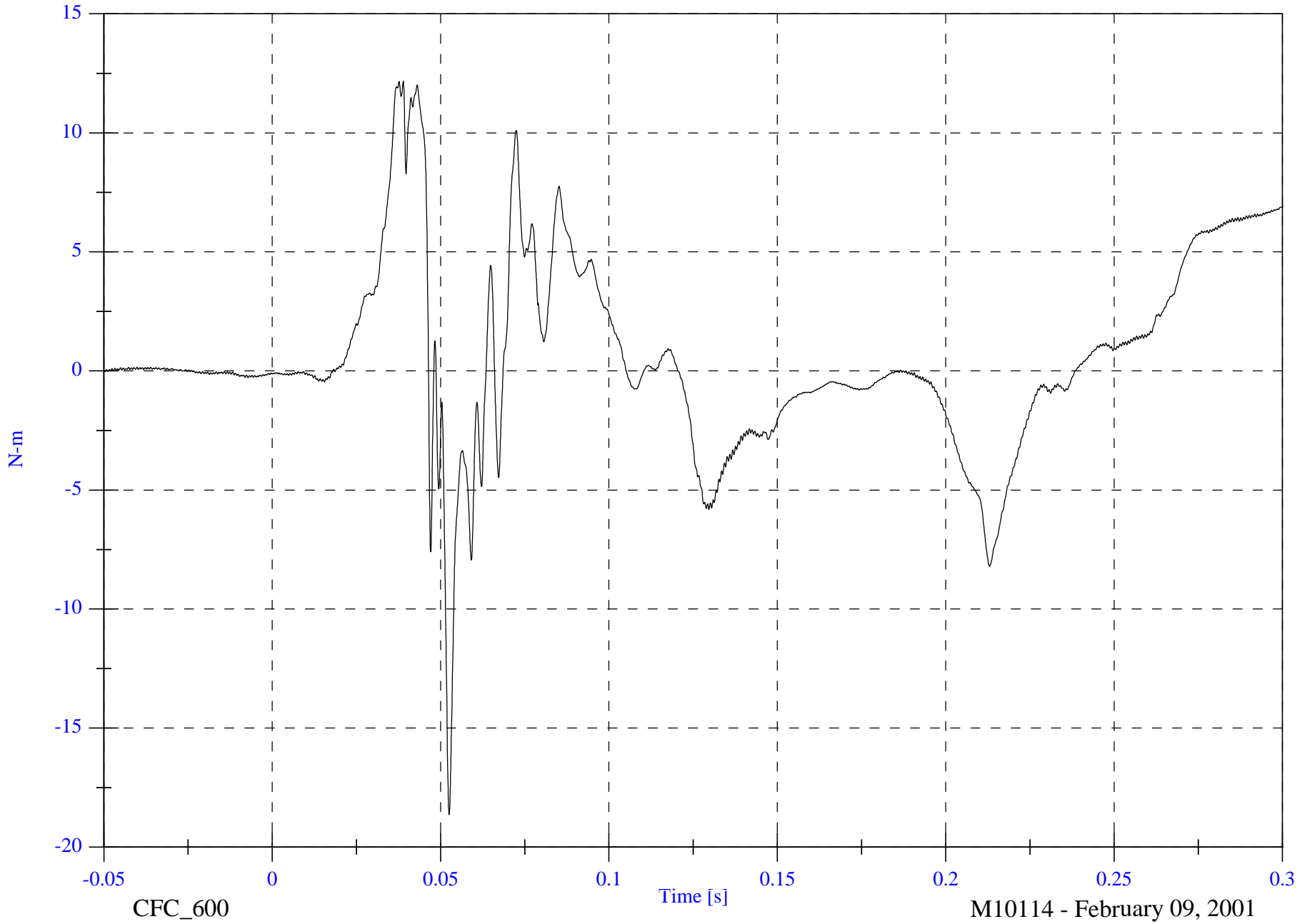
Max: 12.2 [N-m] at 0.039 [s]

P1 Left Upper Tibia Mx

Min: -18.6 [N-m] at 0.053 [s]

B-36

8602-22



M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

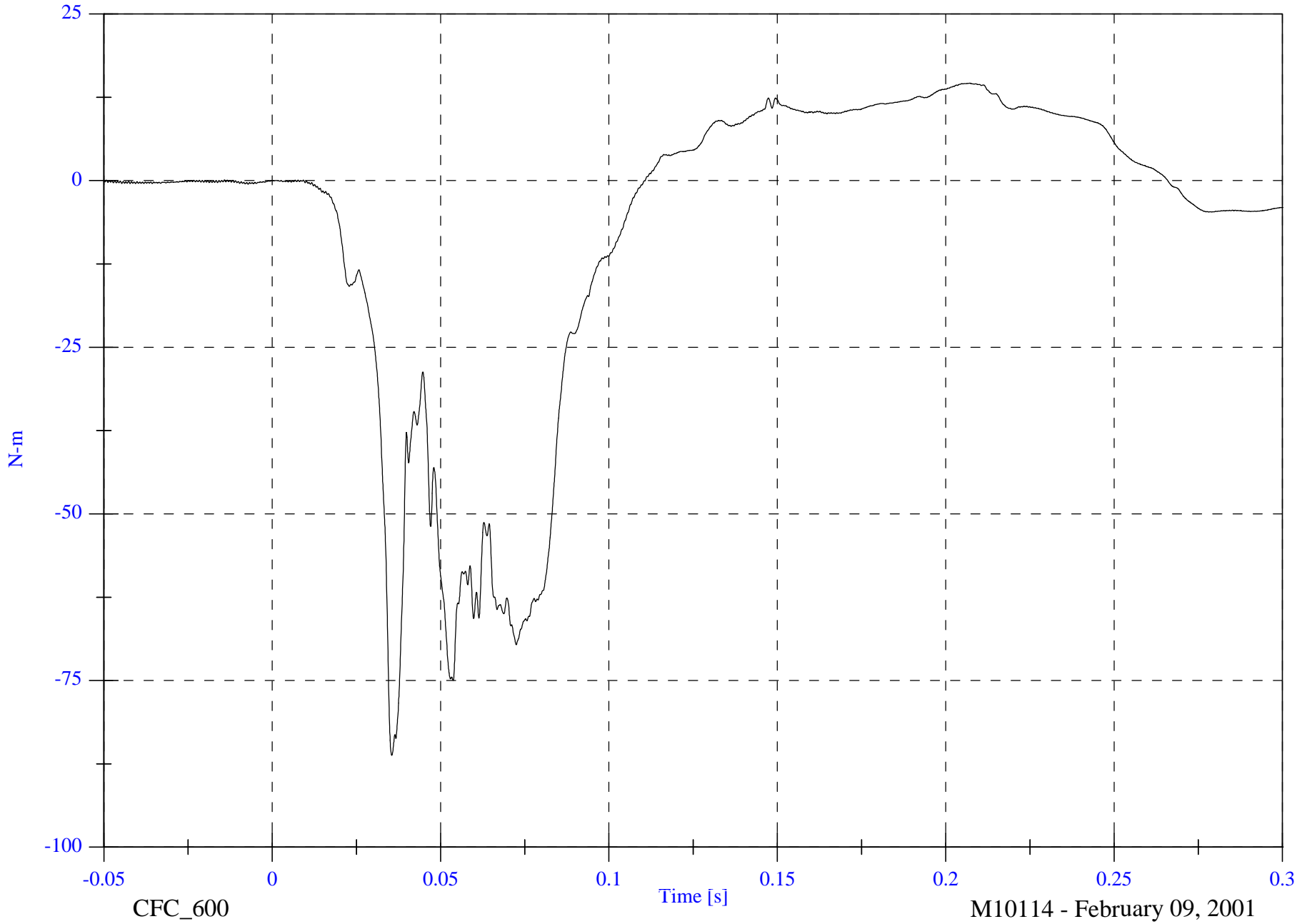
Max: 14.6 [N-m] at 0.207 [s]

P1 Left Upper Tibia My

Min: -86.2 [N-m] at 0.036 [s]

B-37

8602-22



NCAP Test #22 - 2001 Pontiac Aztek

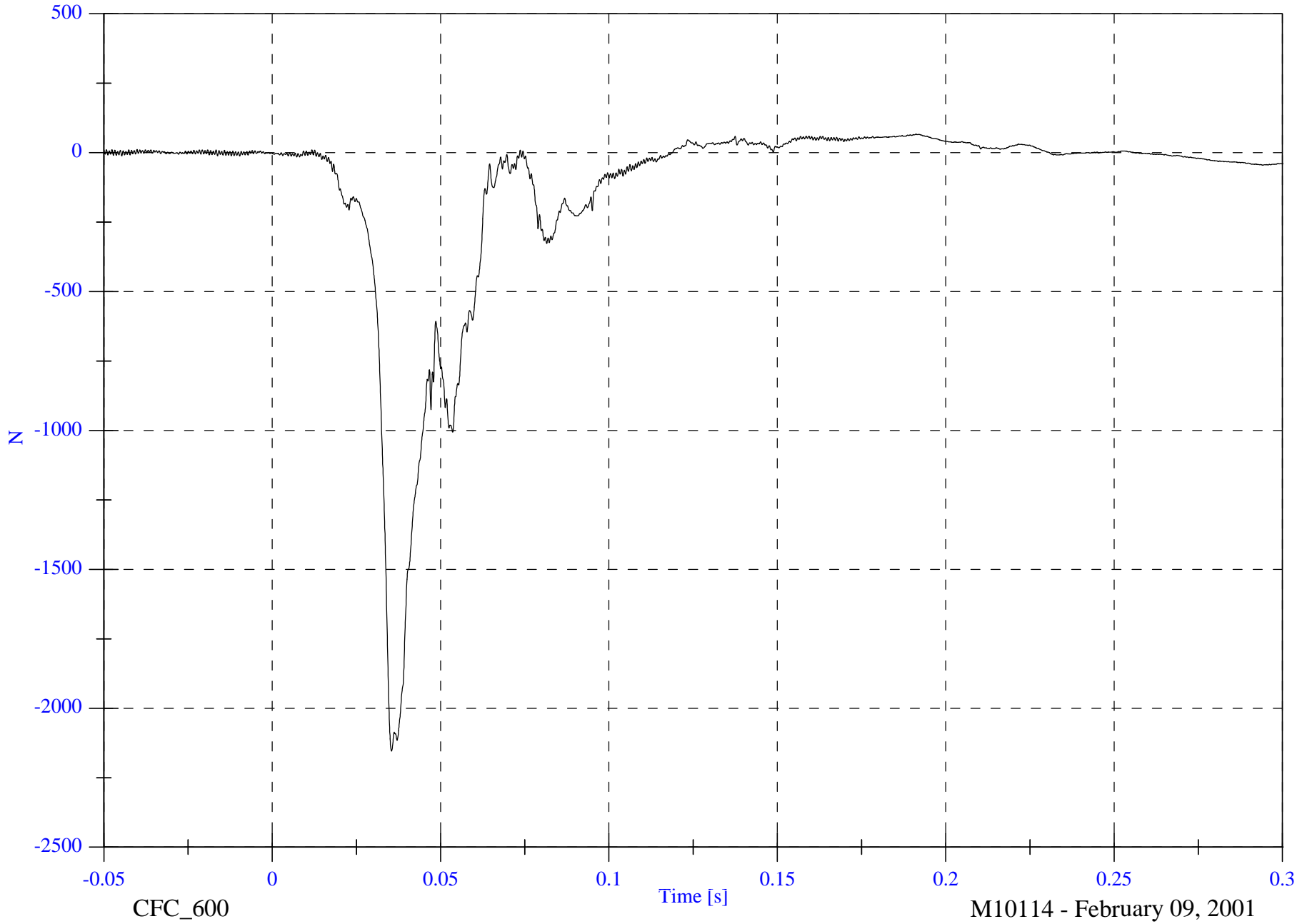
P1 Left Lower Tibia Fz

Max: 67.0 [N] at 0.191 [s]

Min: -2154.1 [N] at 0.035 [s]

B-38

8602-22



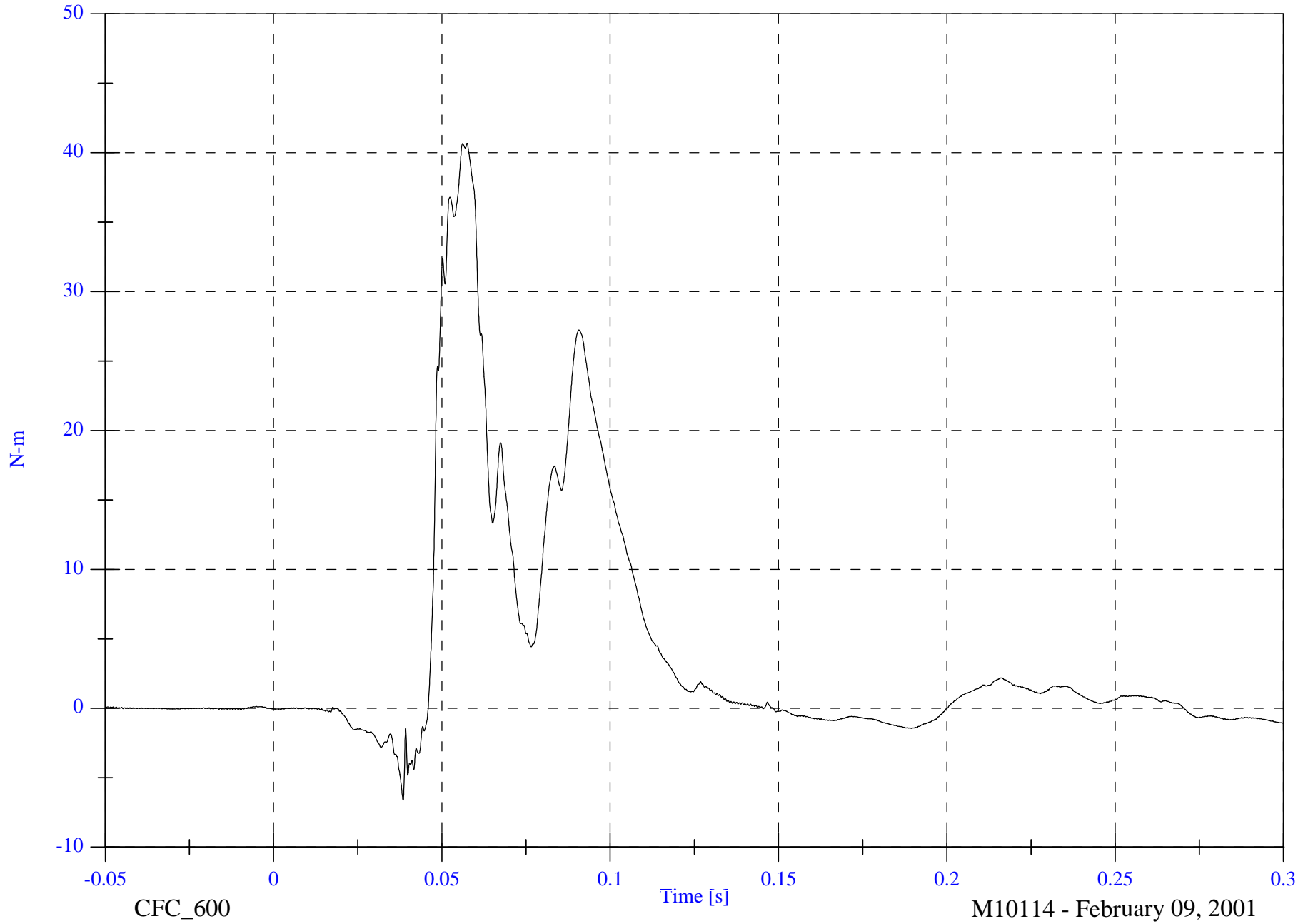
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 40.7 [N-m] at 0.057 [s]

P1 Left Lower Tibia Mx

Min: -6.6 [N-m] at 0.038 [s]



B-39

8602-22

CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

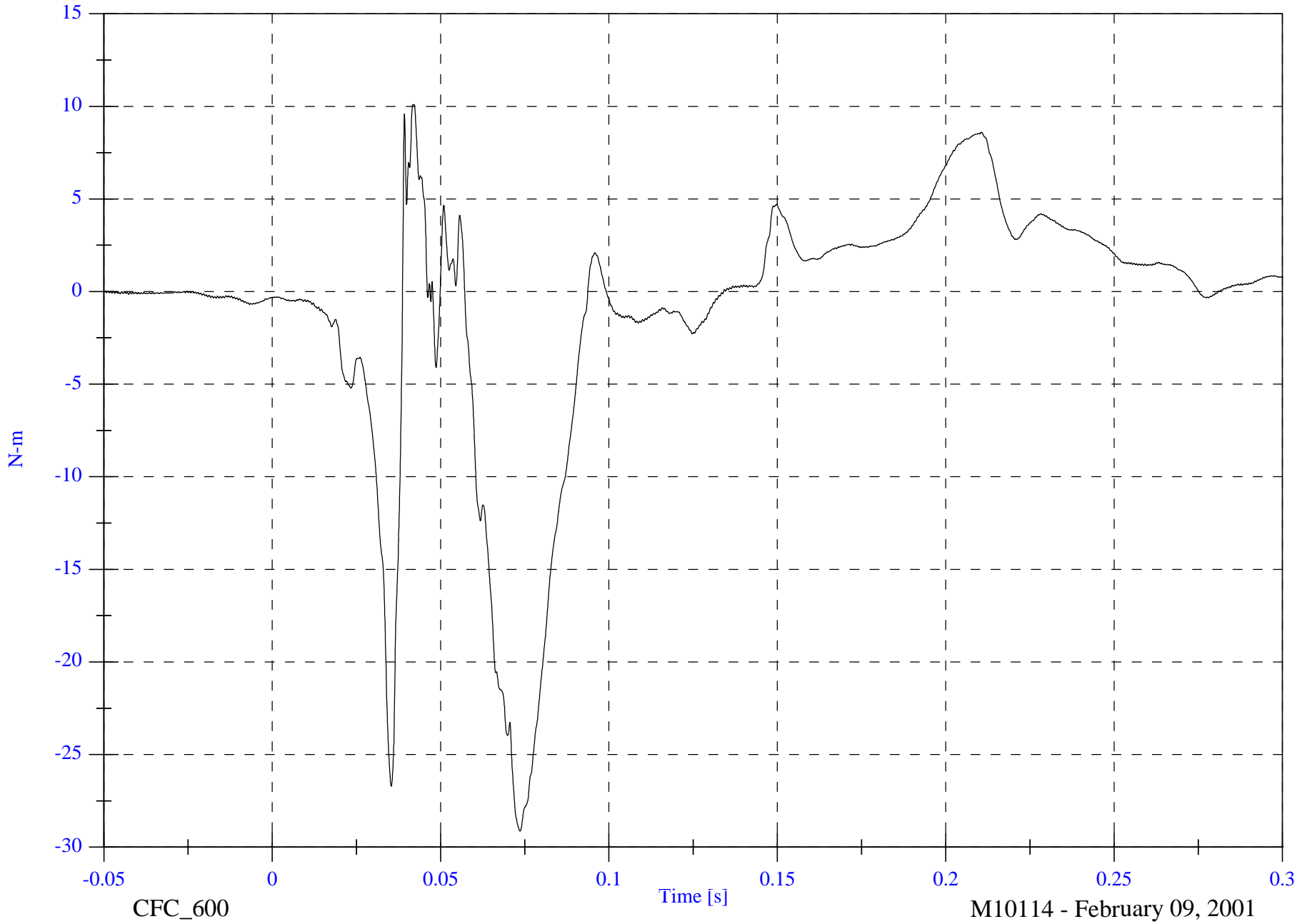
Max: 10.1 [N-m] at 0.042 [s]

Min: -29.1 [N-m] at 0.074 [s]

P1 Left Lower Tibia My

B-40

8602-22



CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

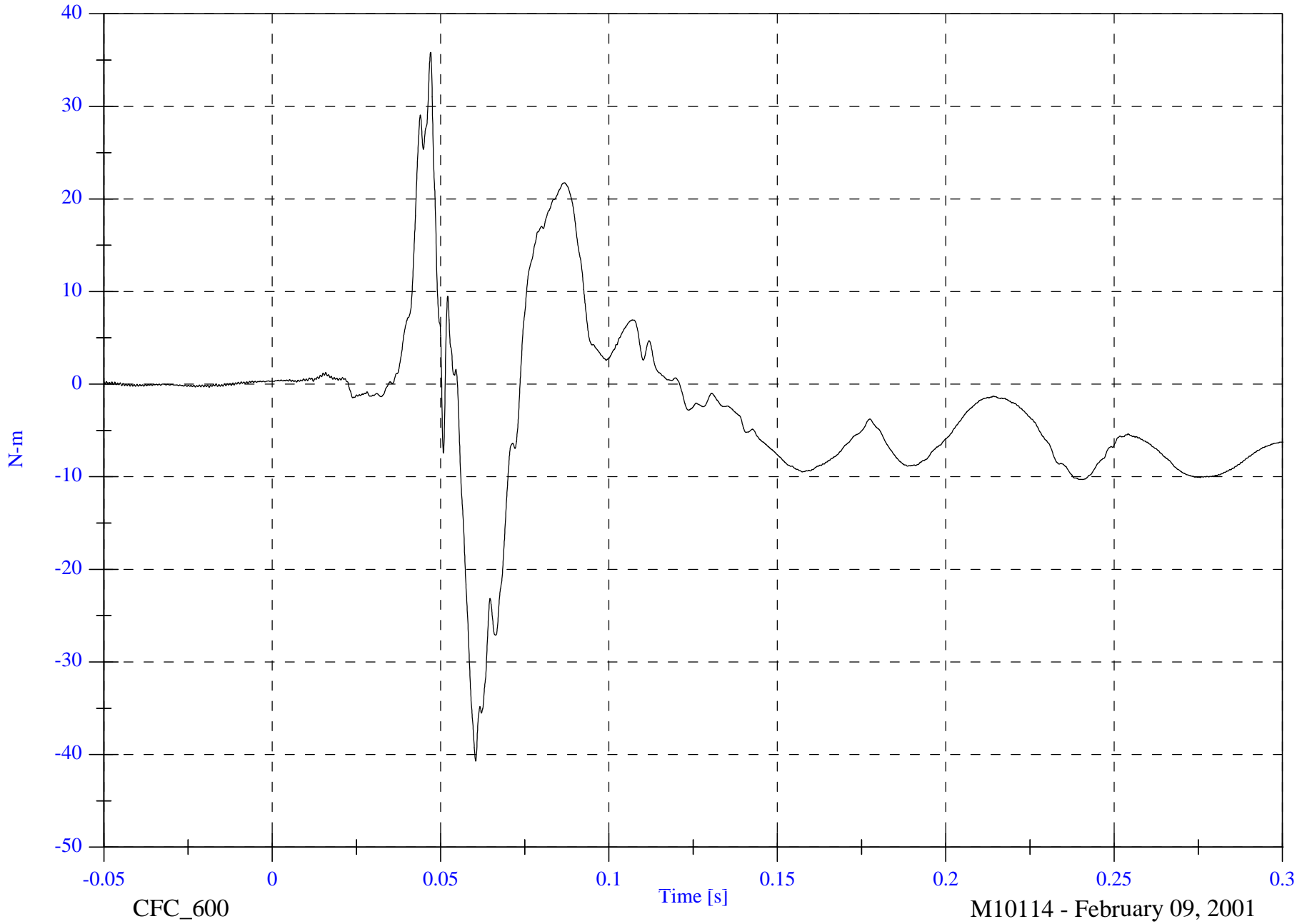
Max: 35.8 [N-m] at 0.047 [s]

P1 Right Upper Tibia Mx

Min: -40.7 [N-m] at 0.060 [s]

B-41

8602-22



CFC\_600

Time [s]

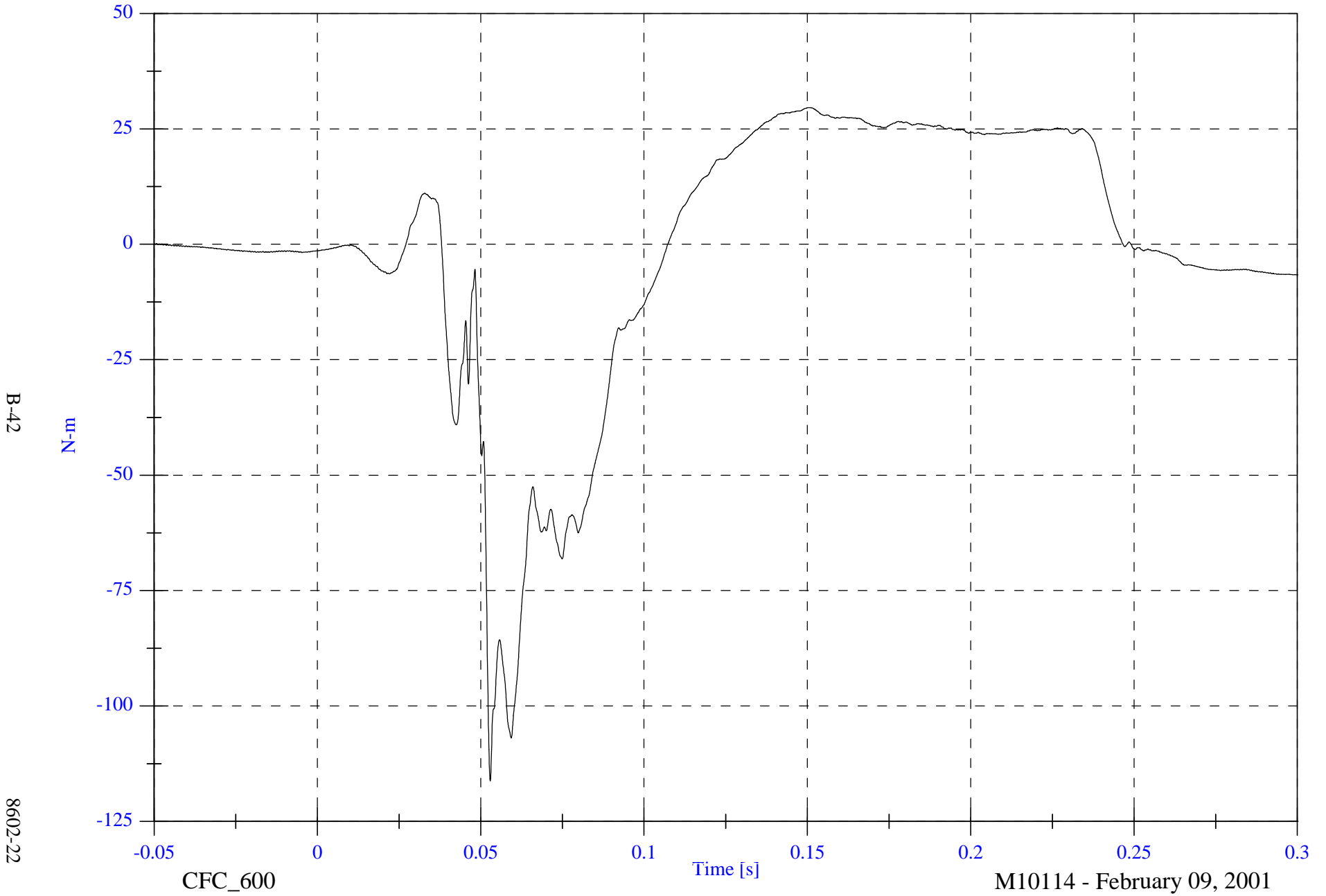
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 29.6 [N-m] at 0.150 [s]

Min: -116.3 [N-m] at 0.053 [s]

P1 Right Upper Tibia My



B-42

8602-22

CFC\_600

Time [s]

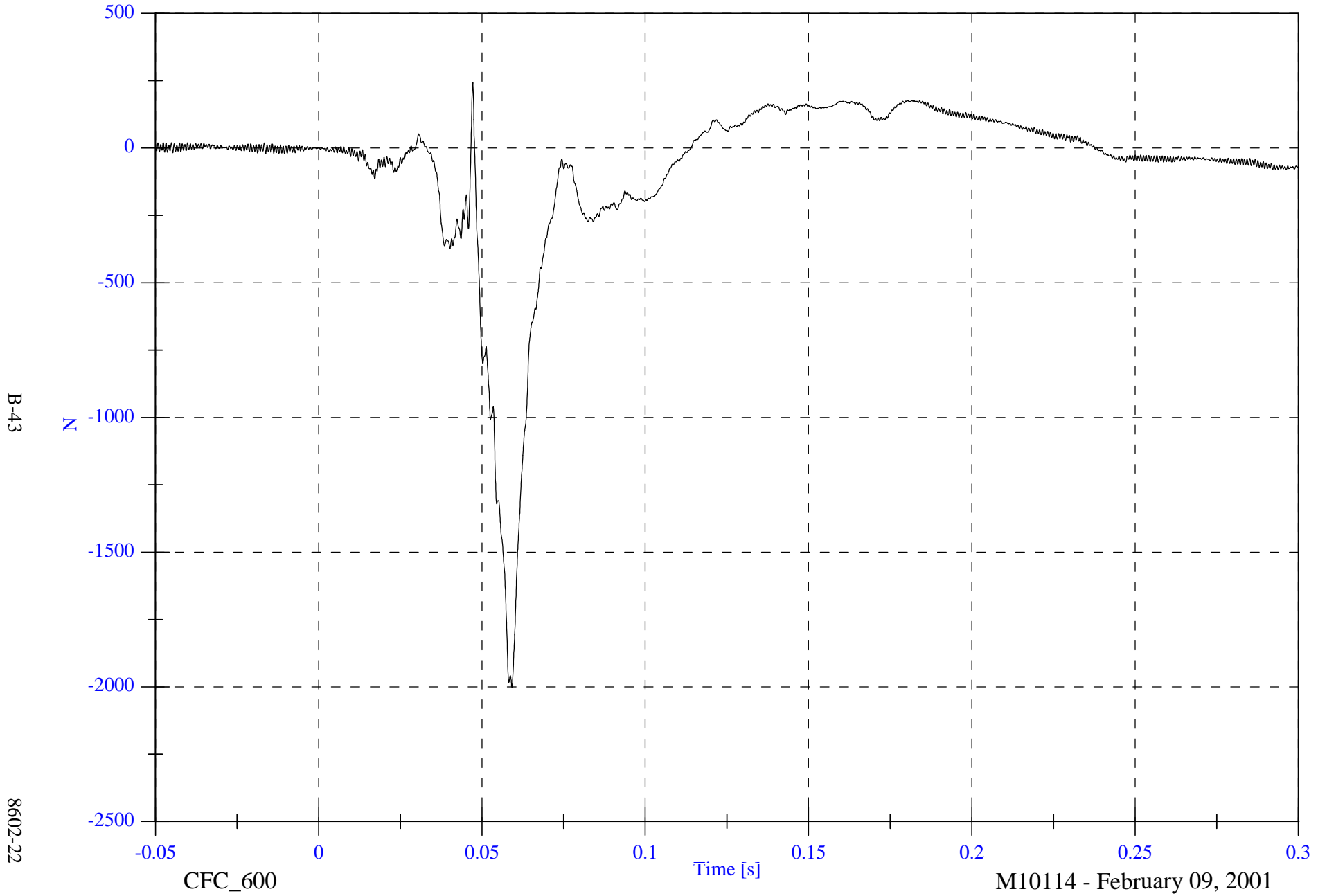
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Right Lower Tibia Fz

Max: 244.9 [N] at 0.047 [s]

Min: -2002.4 [N] at 0.059 [s]



B-43

8602-22

CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

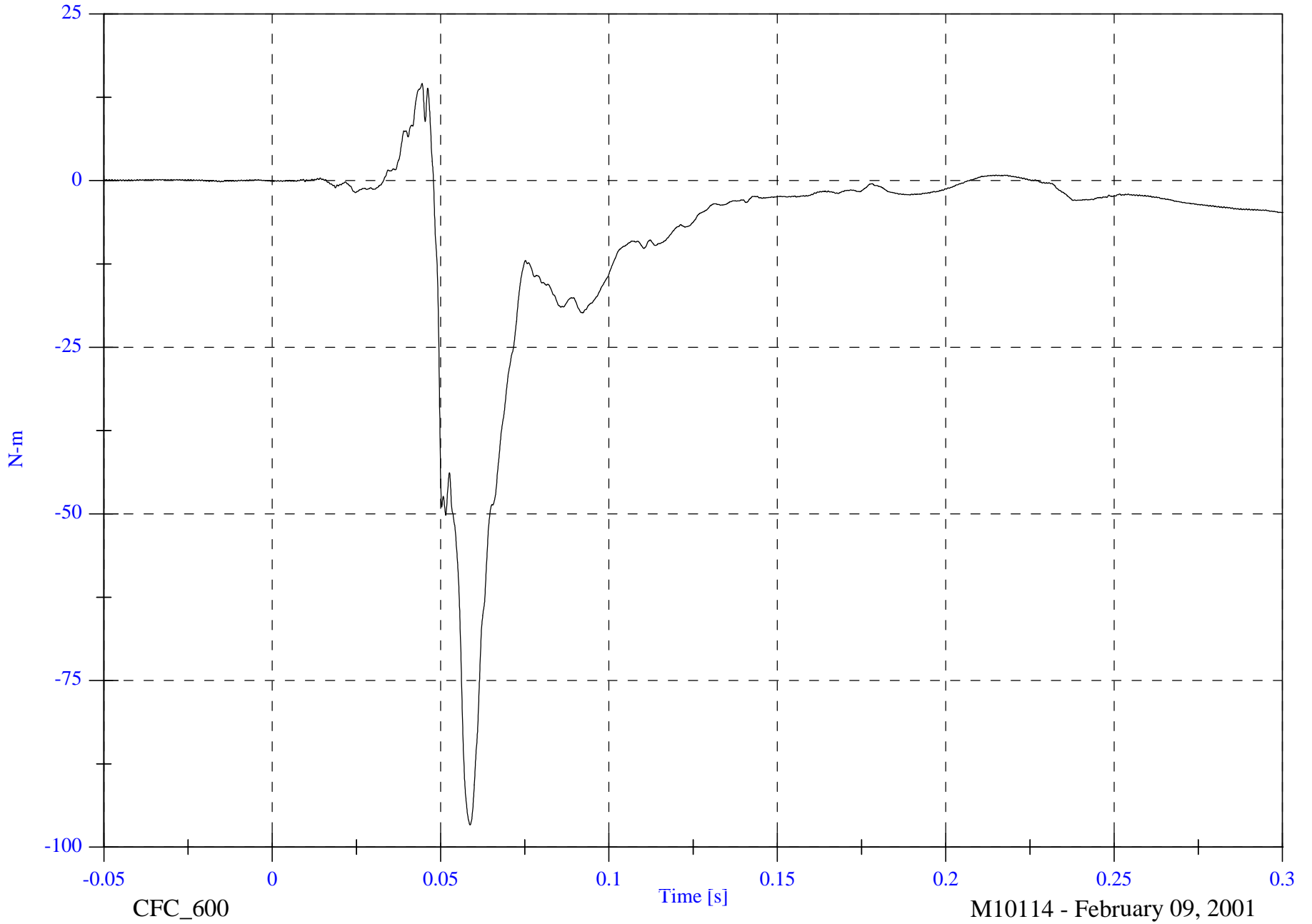
P1 Right Lower Tibia Mx

Max: 14.6 [N-m] at 0.045 [s]

Min: -96.7 [N-m] at 0.059 [s]

B-44

8602-22



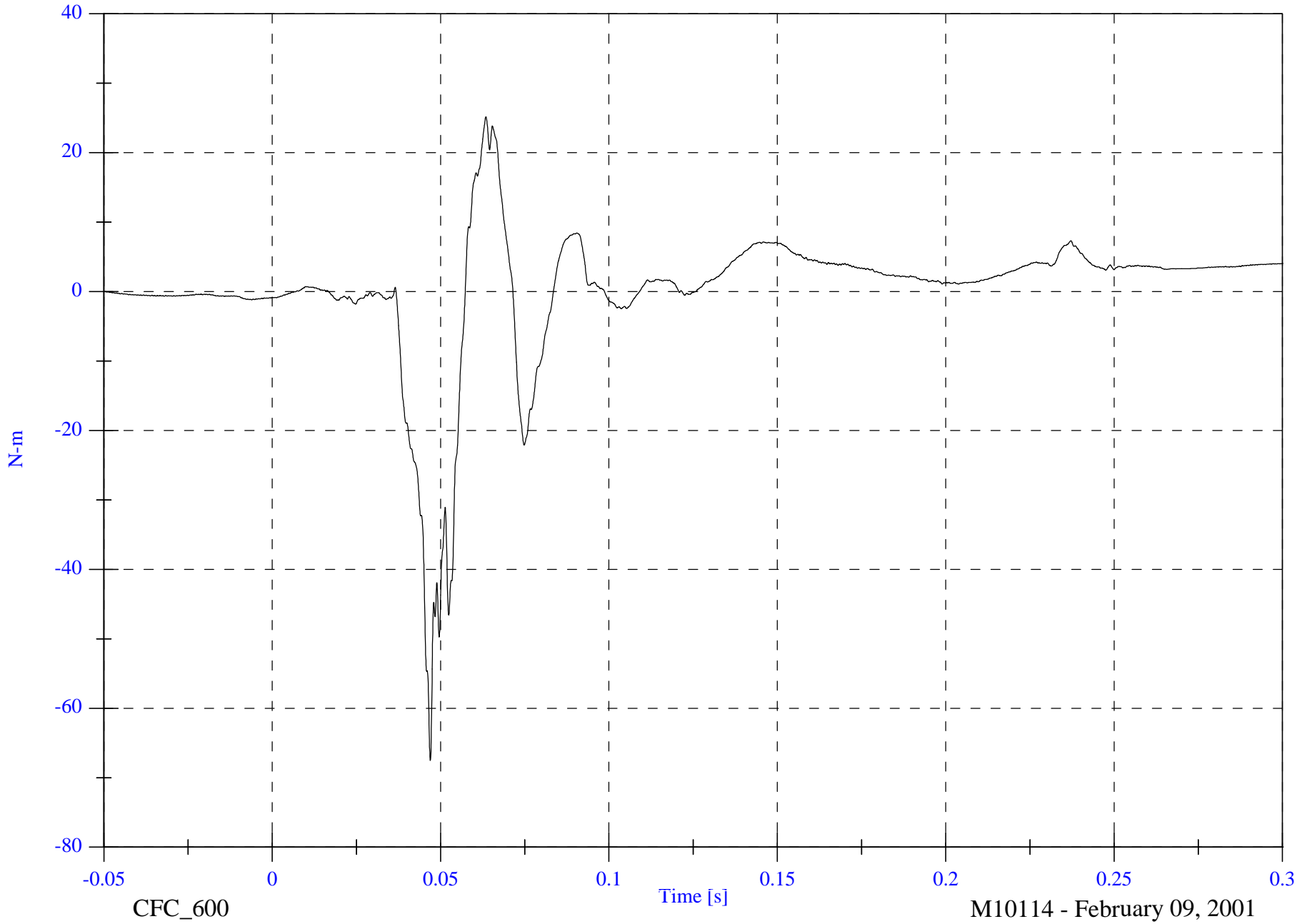
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 25.2 [N-m] at 0.063 [s]

P1 Right Lower Tibia My

Min: -67.5 [N-m] at 0.047 [s]



B-45

8602-22

CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

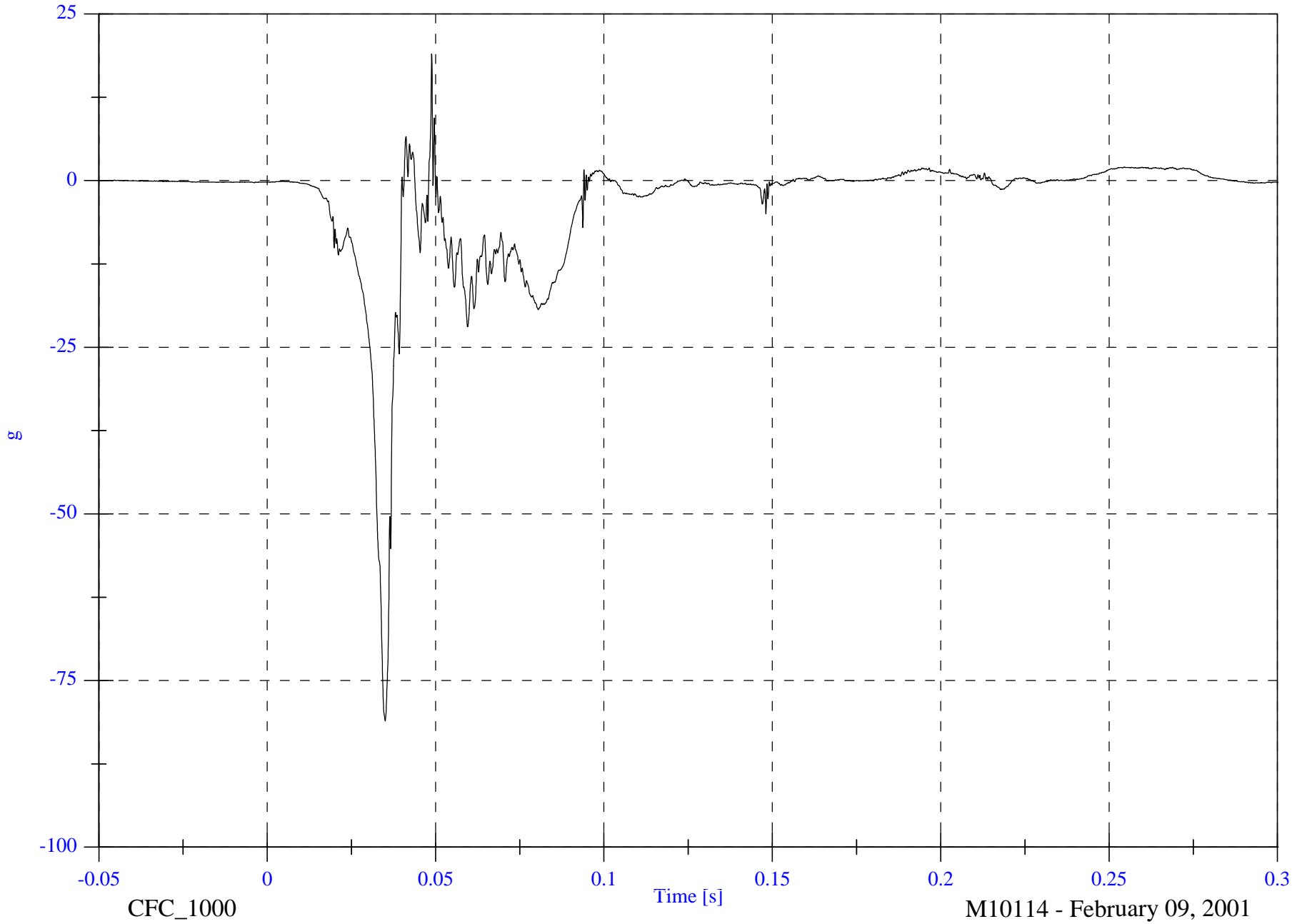
P1 Left Foot Aft x

Max: 19.0 [g] at 0.049 [s]

Min: -81.1 [g] at 0.035 [s]

B-46

8602-22



CFC\_1000

Time [s]

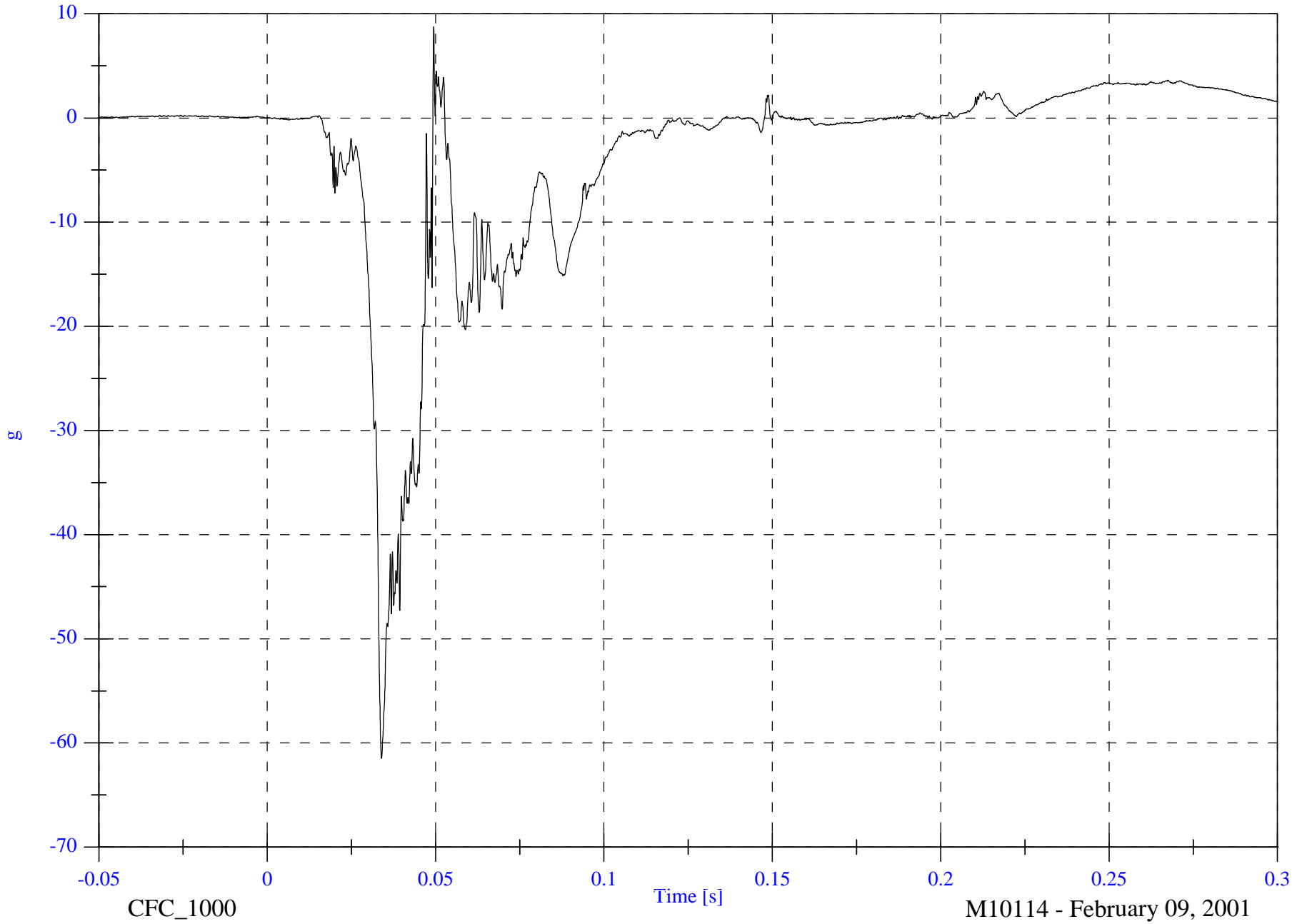
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Left Foot Aft z

Max: 8.8 [g] at 0.049 [s]

Min: -61.5 [g] at 0.034 [s]



B-47

8602-22

CFC\_1000

Time [s]

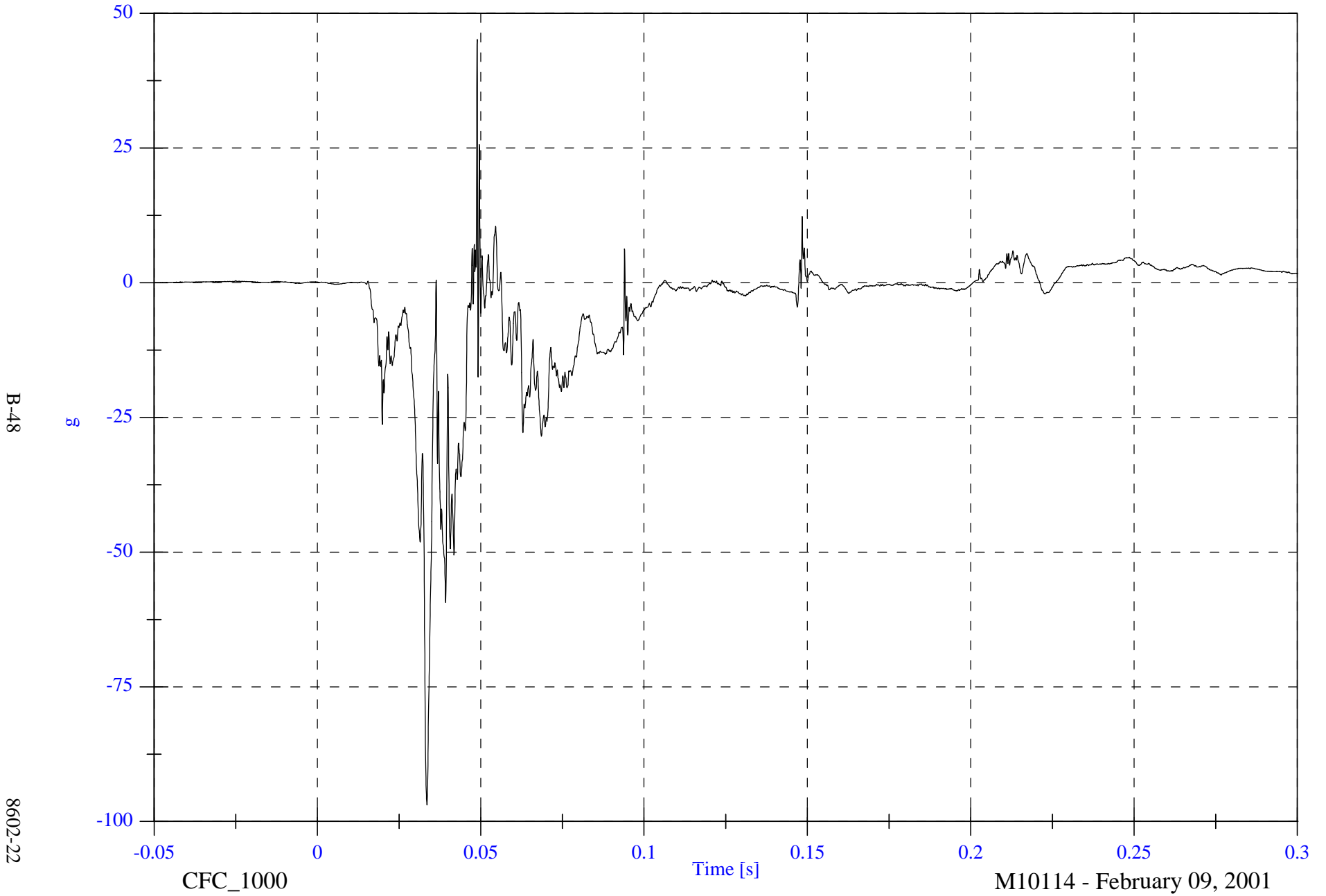
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 45.2 [g] at 0.049 [s]

Min: -96.9 [g] at 0.034 [s]

P1 Left Foot Fore z

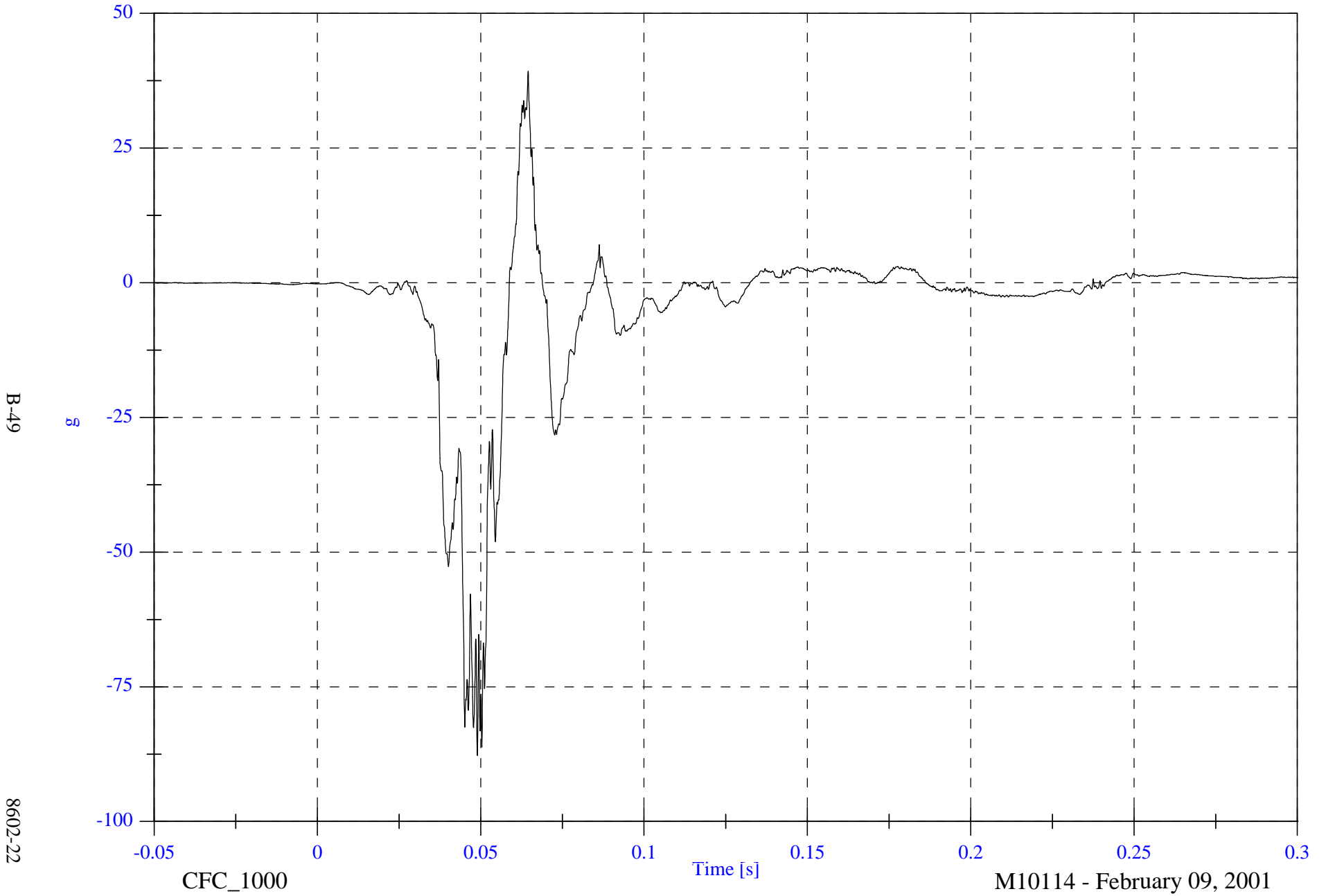


NCAP Test #22 - 2001 Pontiac Aztek

Max: 39.3 [g] at 0.065 [s]

Min: -87.8 [g] at 0.049 [s]

P1 Right Foot Aft x

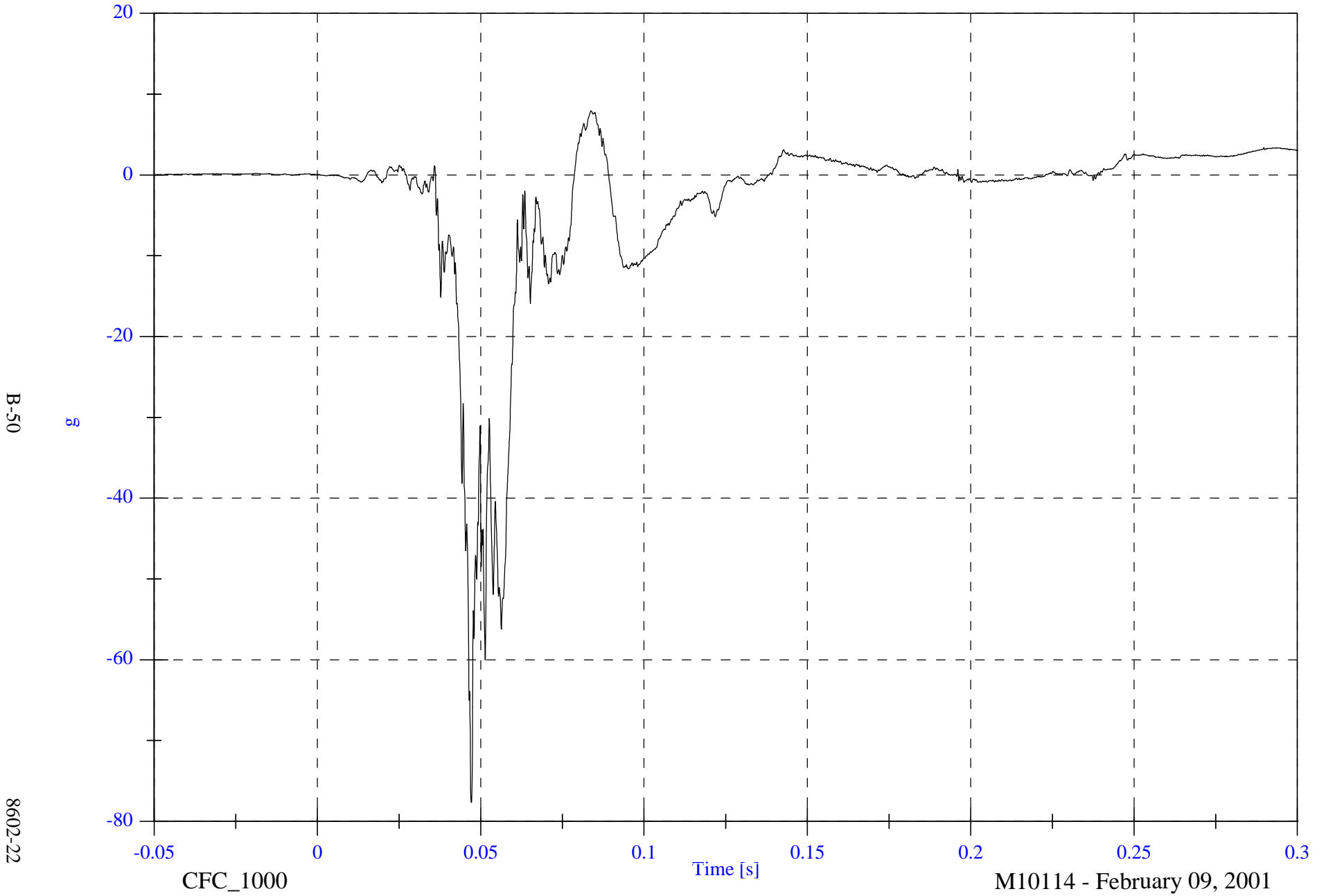


NCAP Test #22 - 2001 Pontiac Aztek

Max: 8.0 [g] at 0.084 [s]

Min: -77.7 [g] at 0.047 [s]

P1 Right Foot Aft z



B-50

g

8602-22

CFC\_1000

Time [s]

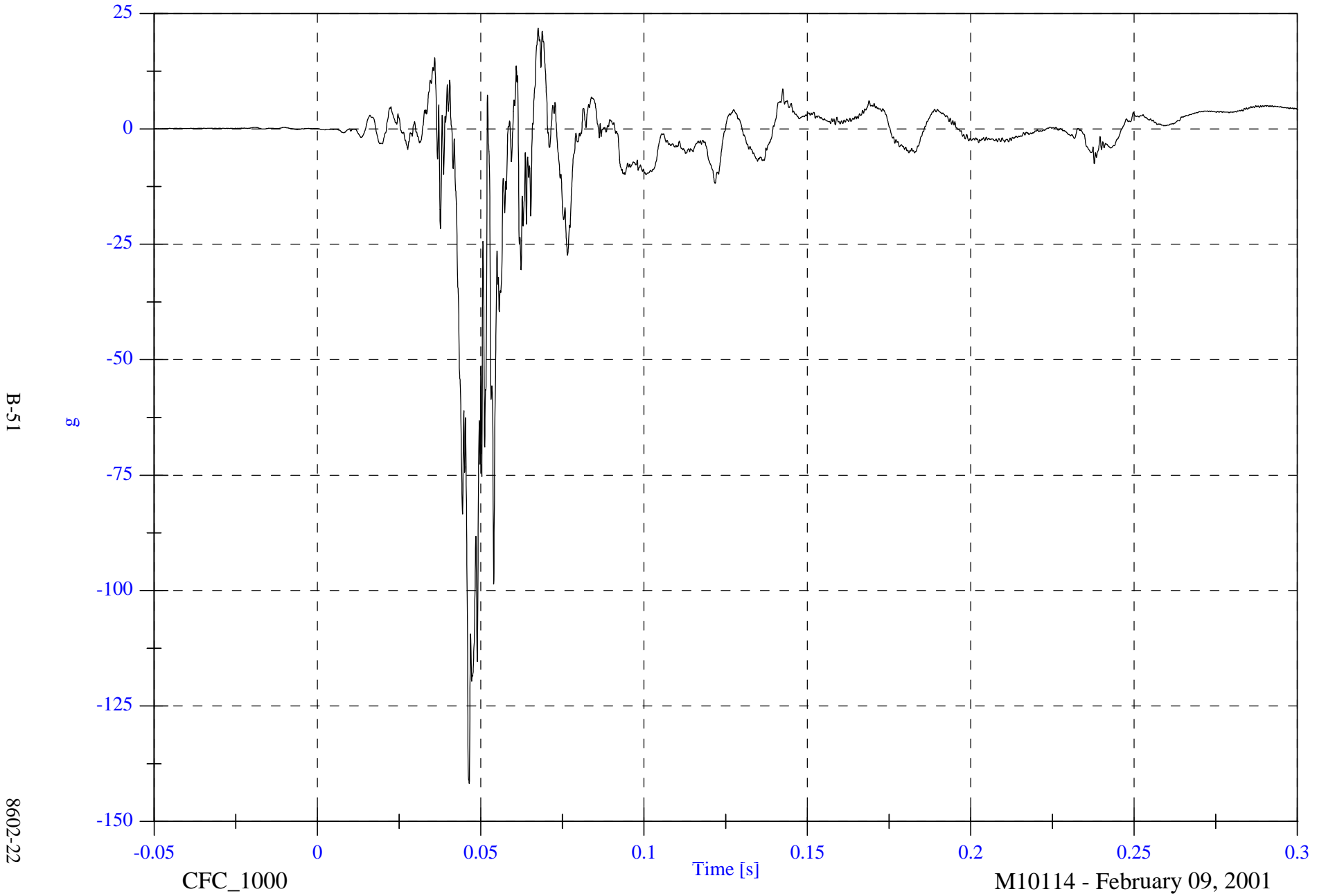
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 21.8 [g] at 0.068 [s]

Min: -141.8 [g] at 0.046 [s]

P1 Right Foot Fore z



B-51

8602-22

CFC\_1000

Time [s]

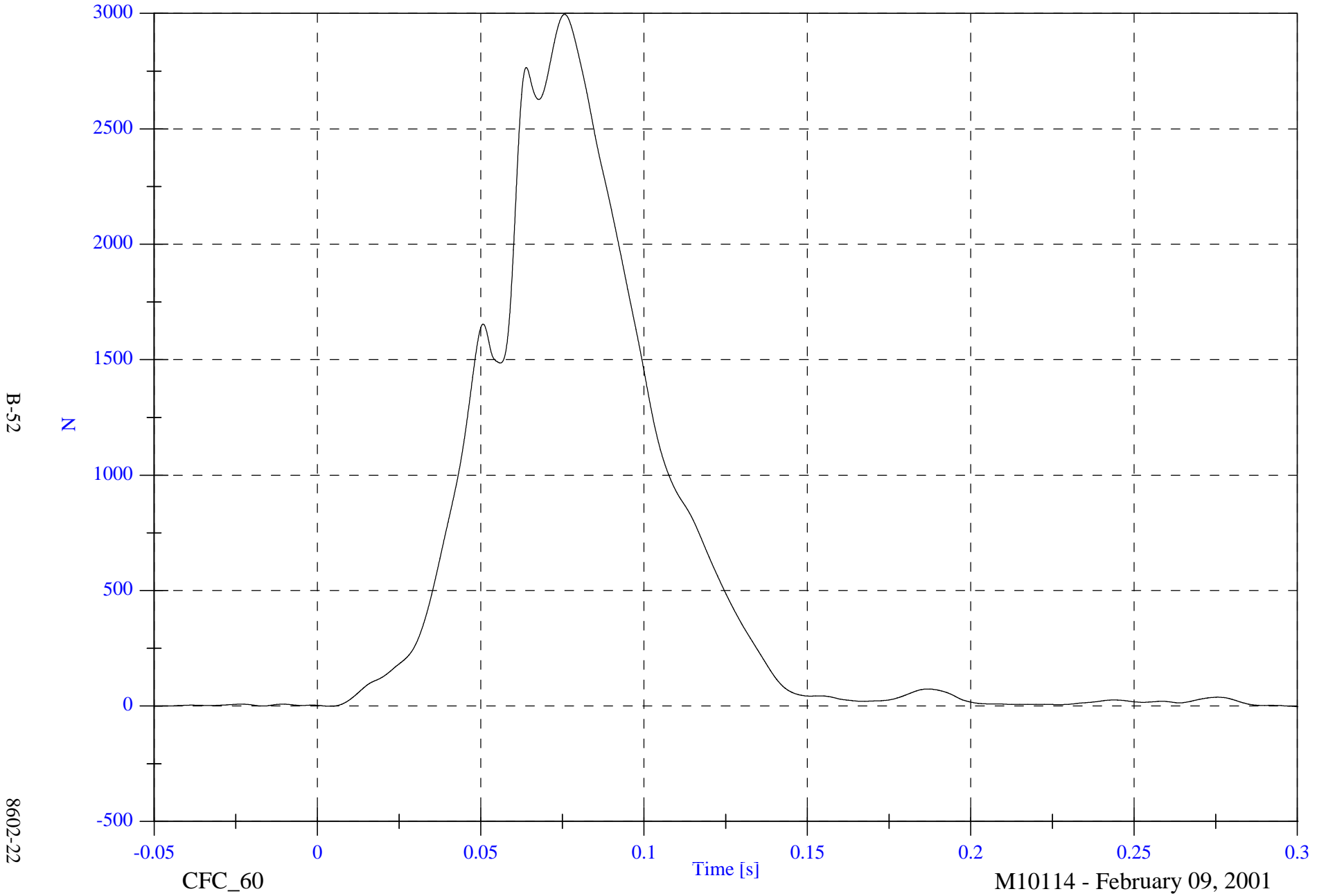
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P1 Lap Belt Force

Max: 2996.1 [N] at 0.076 [s]

Min: -2.3 [N] at 0.300 [s]



B-52

8602-22

CFC\_60

Time [s]

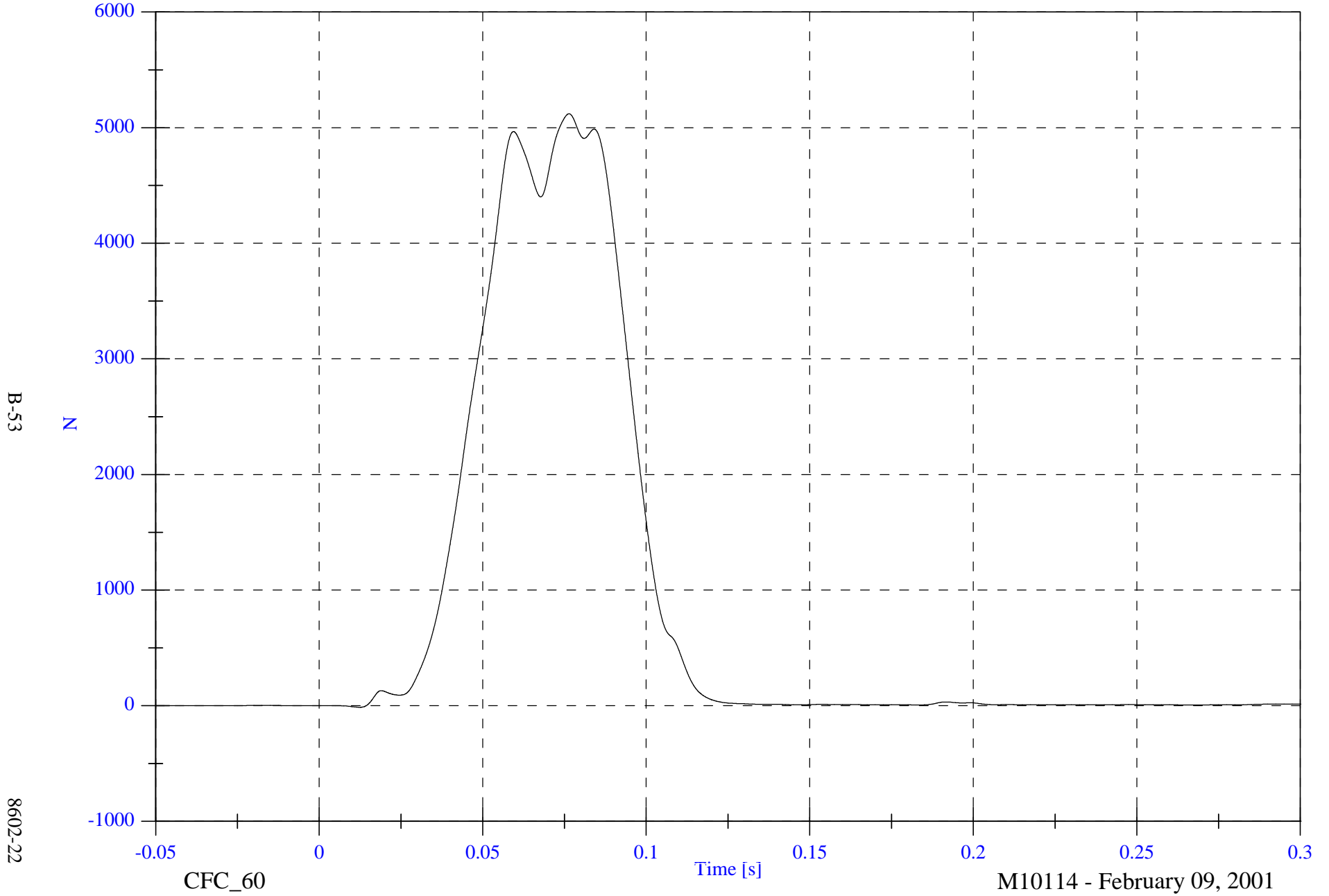
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 5120.4 [N] at 0.076 [s]

P1 Shoulder Belt Force

Min: -14.1 [N] at 0.012 [s]



B-53

8602-22

CFC\_60

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

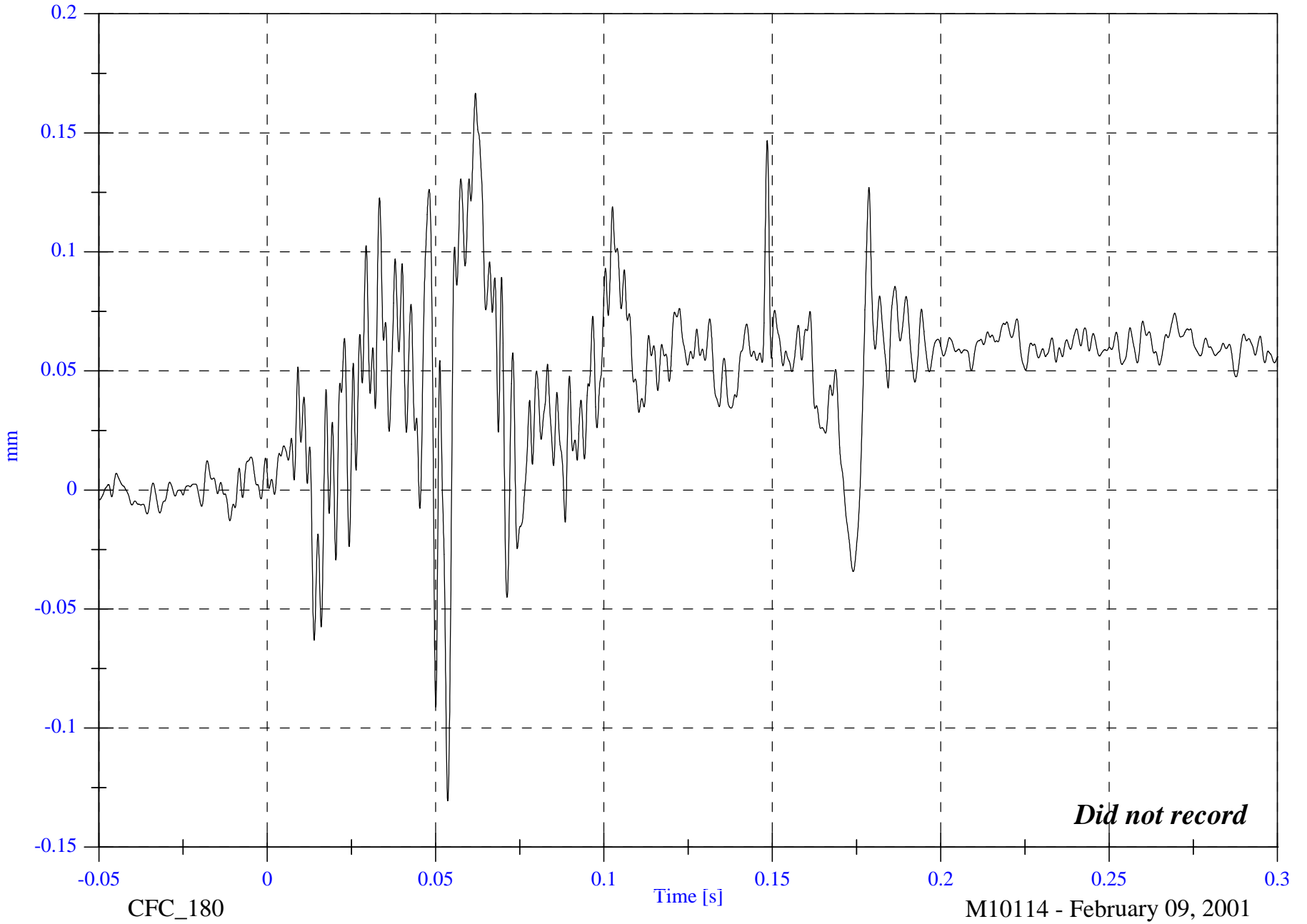
P1 Shoulder Belt Spoolout

Max: 0.2 [mm] at 0.062 [s]

Min: -0.1 [mm] at 0.054 [s]

B-54

8602-22



CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

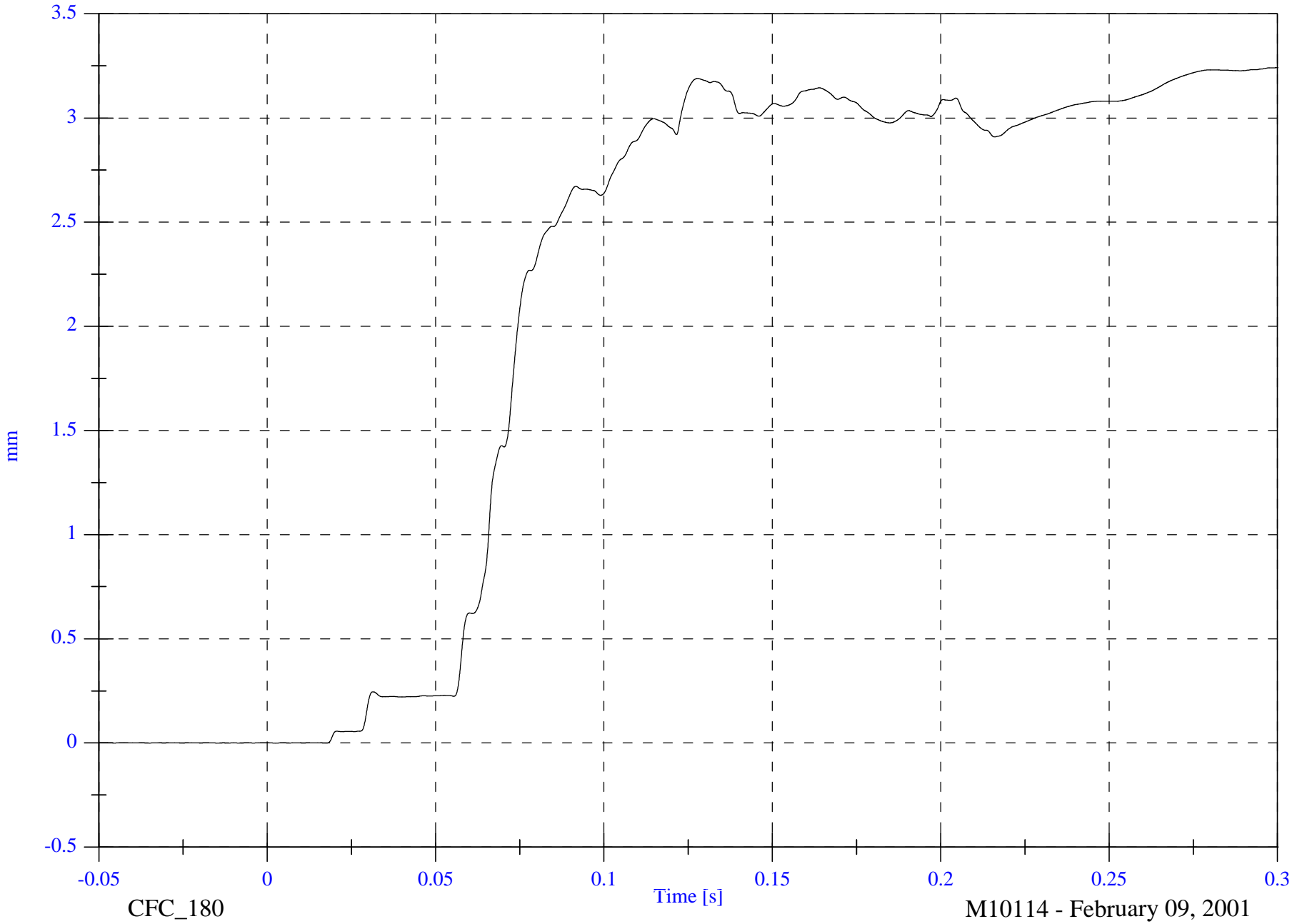
P1 Shoulder Belt Elongation

Max: 3.2 [mm] at 0.300 [s]

Min: -0.0 [mm] at 0.018 [s]

B-55

8602-22



CFC\_180

Time [s]

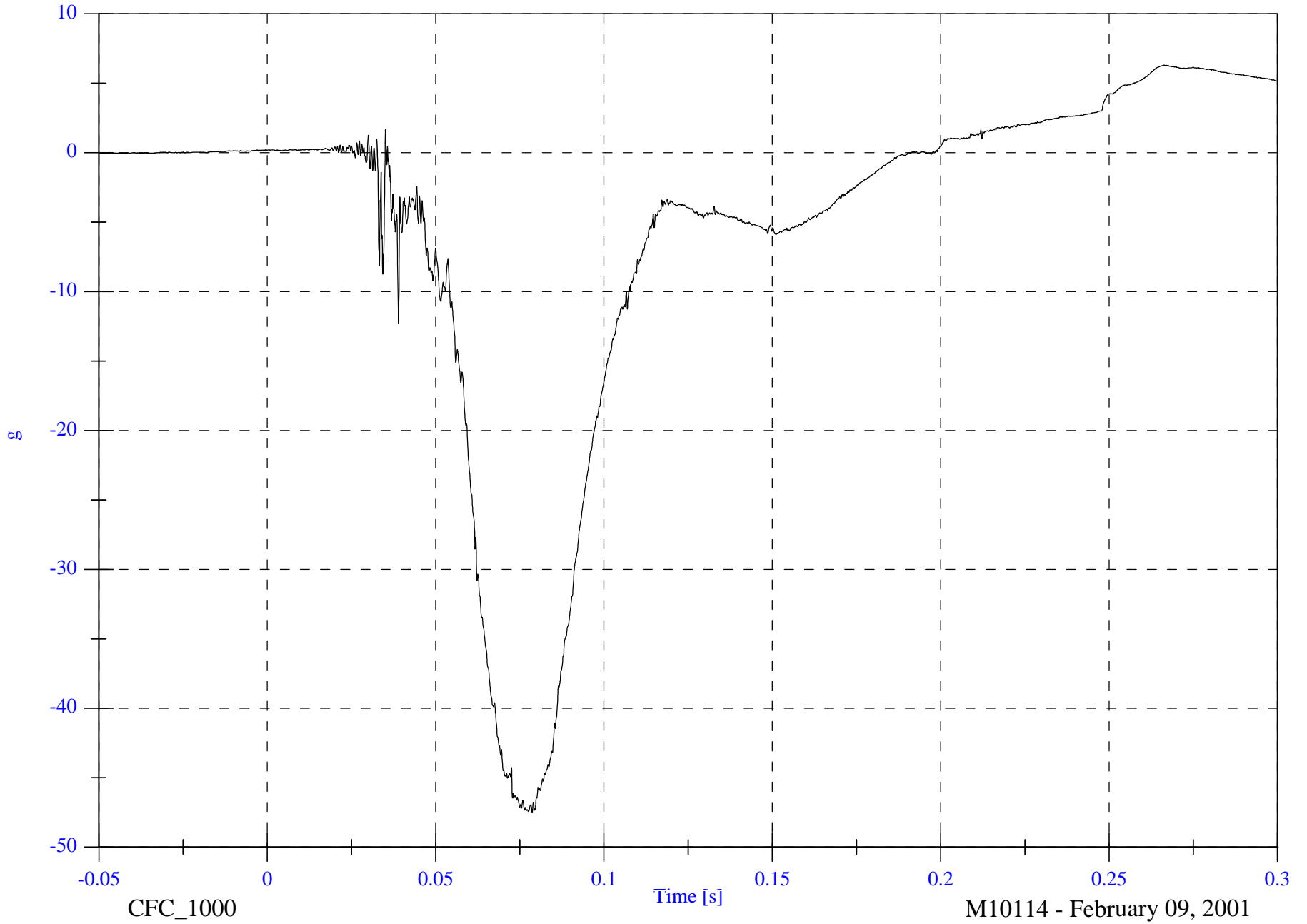
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NCAP Test #22 - 2001 Pontiac Aztek

P2 Head x

Max: 6.3 [g] at 0.266 [s]

Min: -47.5 [g] at 0.079 [s]



B-56

8602-22

CFC\_1000

Time [s]

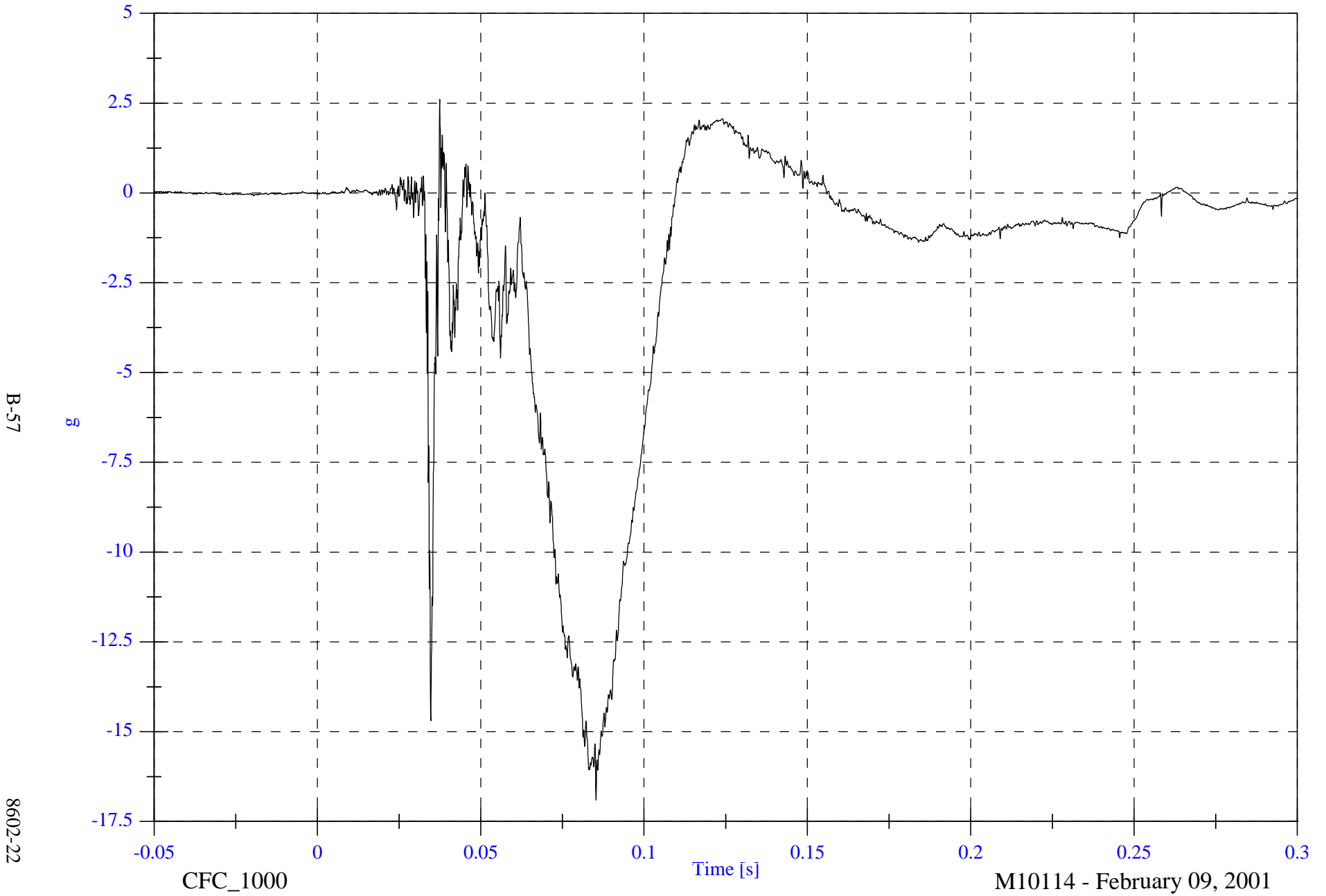
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 2.6 [g] at 0.037 [s]

Min: -16.9 [g] at 0.085 [s]

P2 Head y



B-57

8602-22

CFC\_1000

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

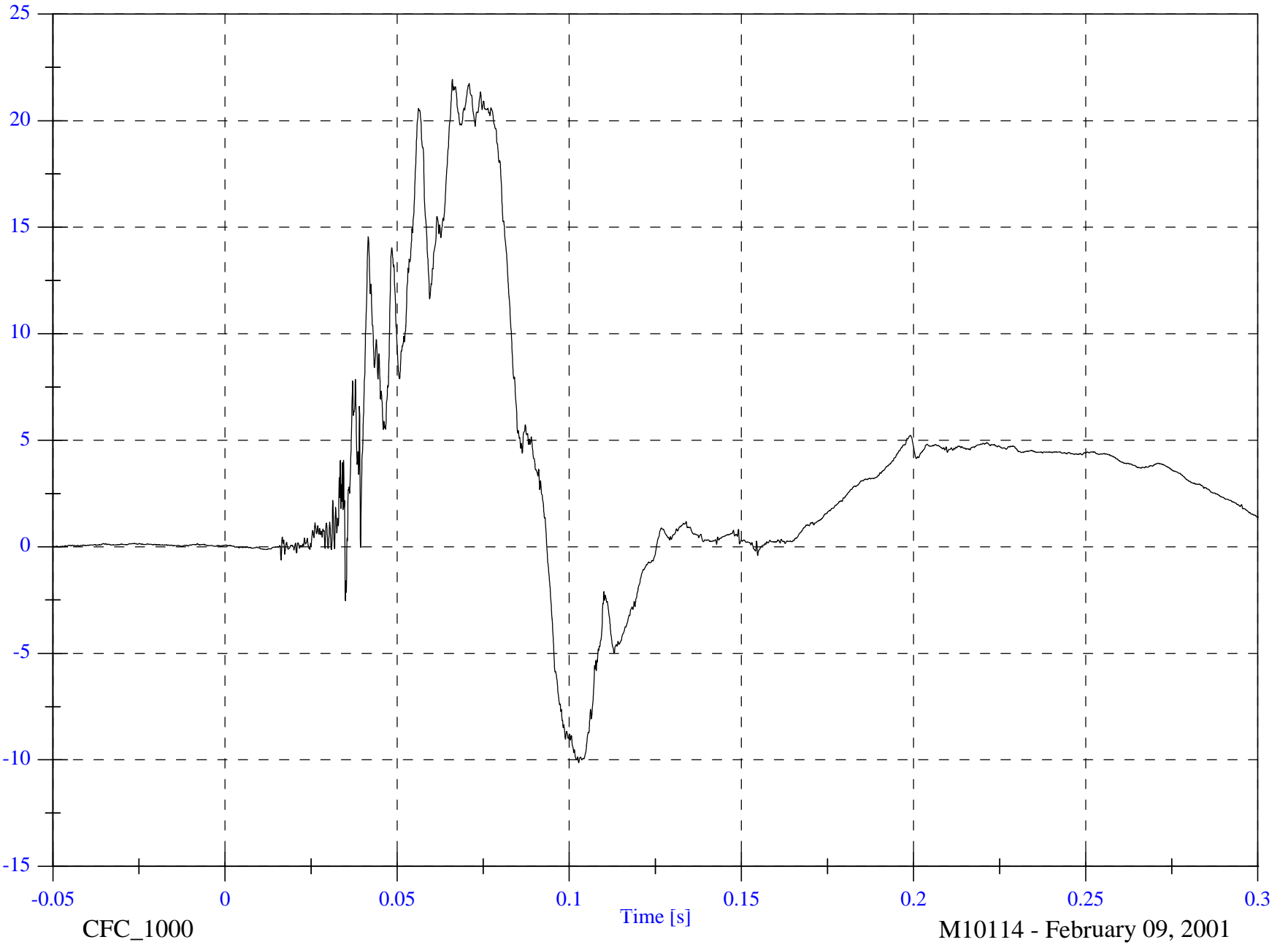
Max: 21.9 [g] at 0.066 [s]

P2 Head z

Min: -10.1 [g] at 0.103 [s]

B-58

g



8602-22

CFC\_1000

Time [s]

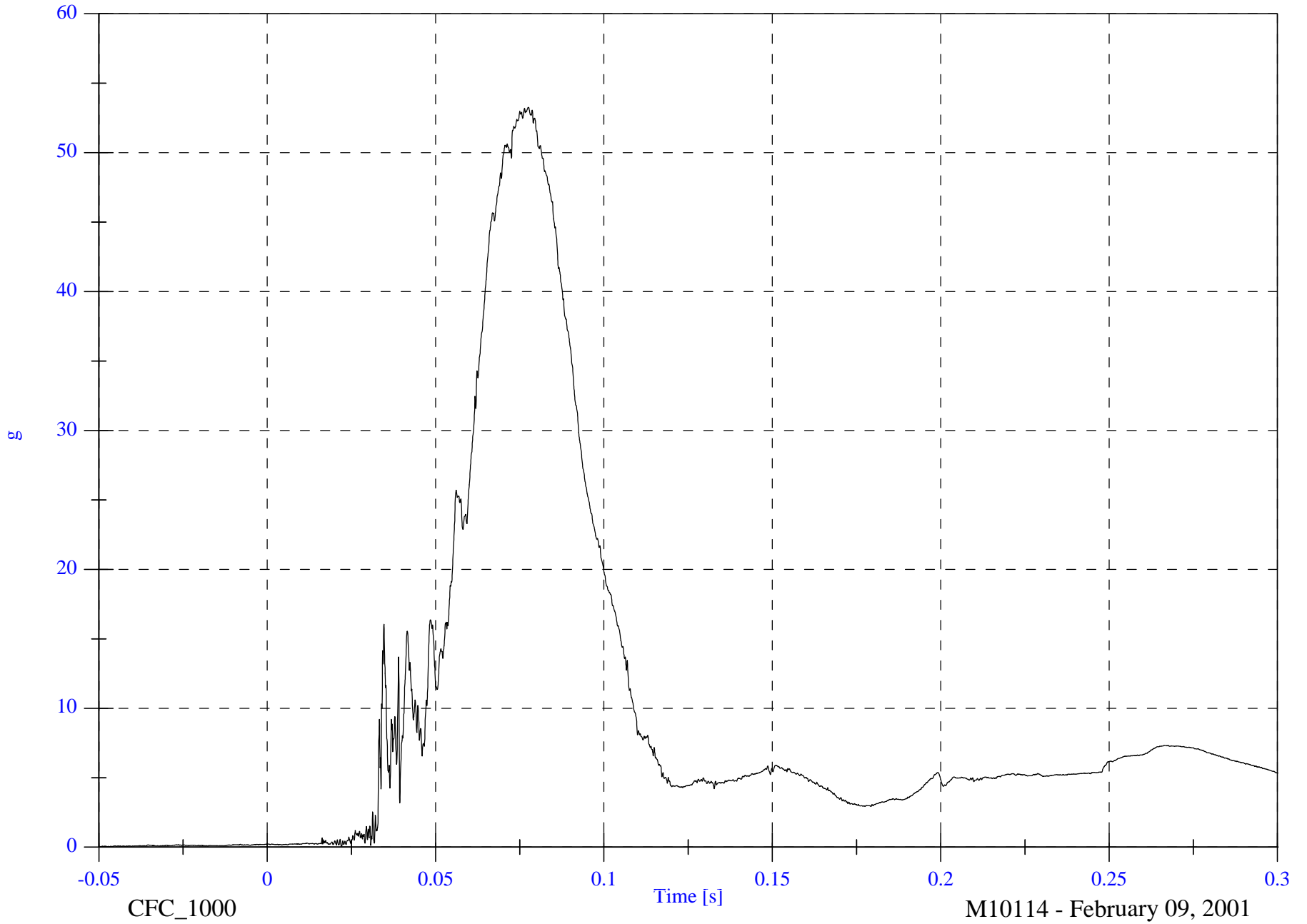
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P2 Head Resultant

Max: 53.3 [g] at 0.077 [s]

Min: 0.0 [g] at -0.046 [s]



B-59

8602-22

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

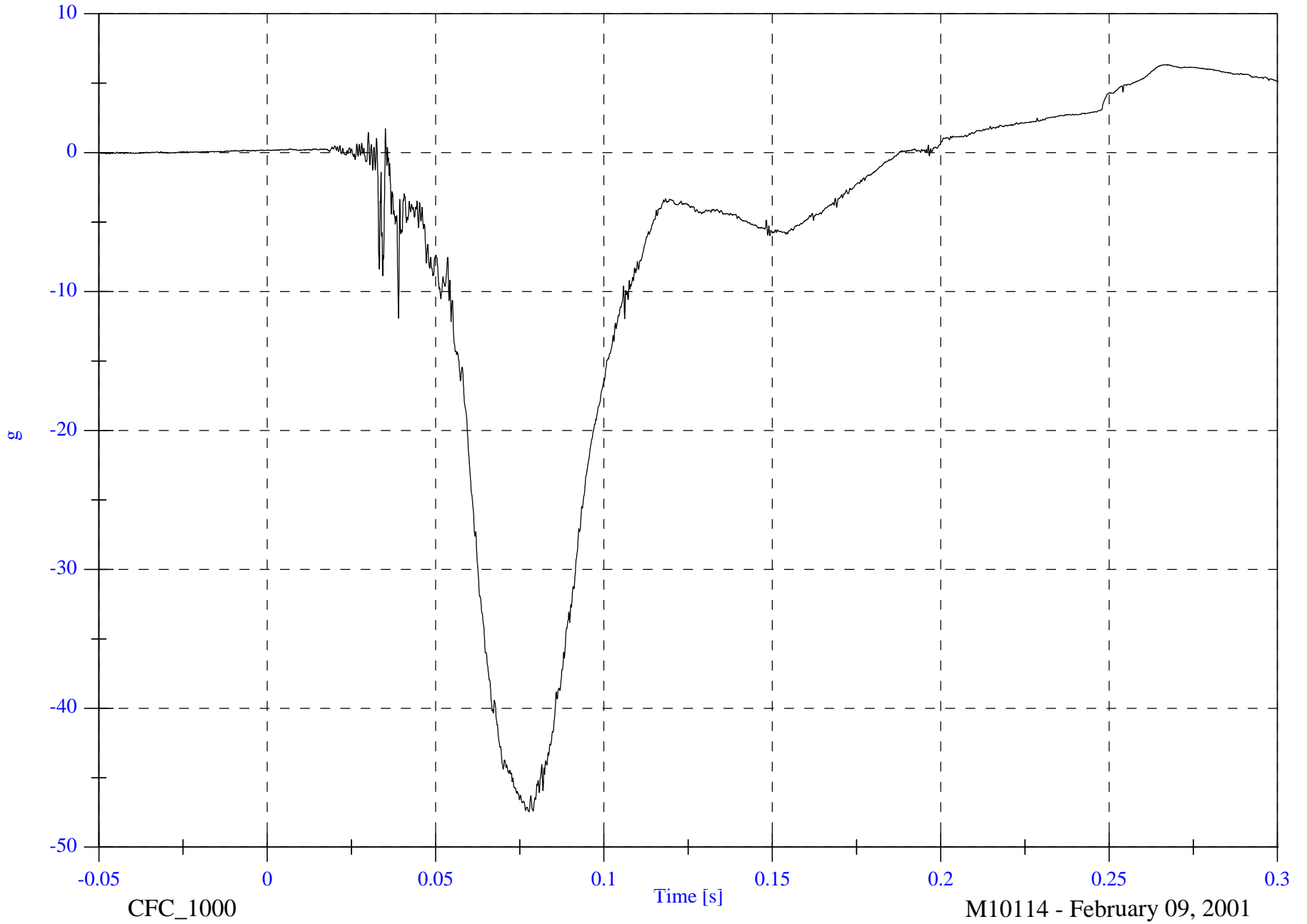
P2 Head Red x

Max: 6.3 [g] at 0.267 [s]

Min: -47.5 [g] at 0.078 [s]

B-60

8602-22



CFC\_1000

Time [s]

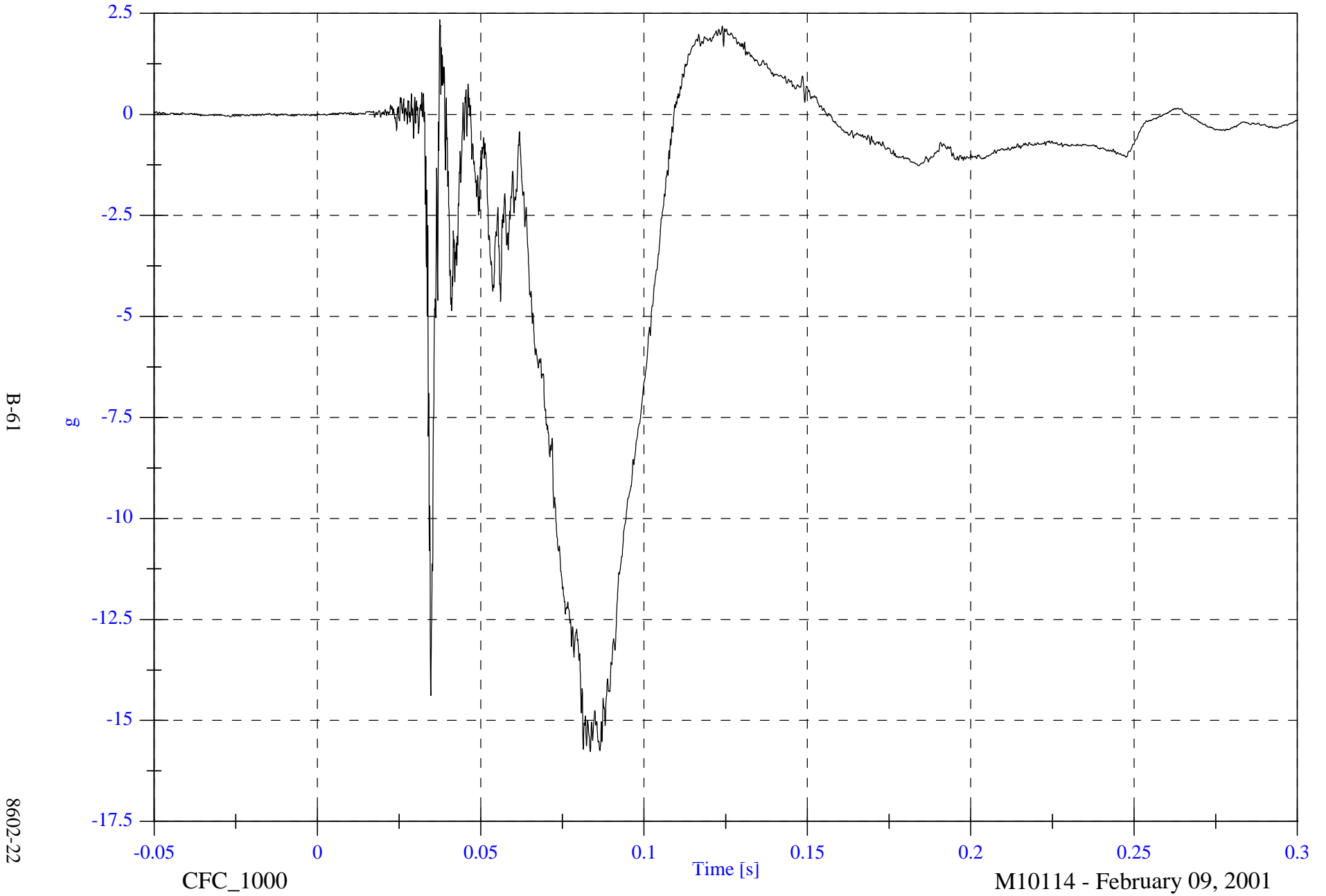
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 2.3 [g] at 0.037 [s]

Min: -15.8 [g] at 0.084 [s]

P2 Head Red y



B-61

8602-22

CFC\_1000

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 22.6 [g] at 0.067 [s]

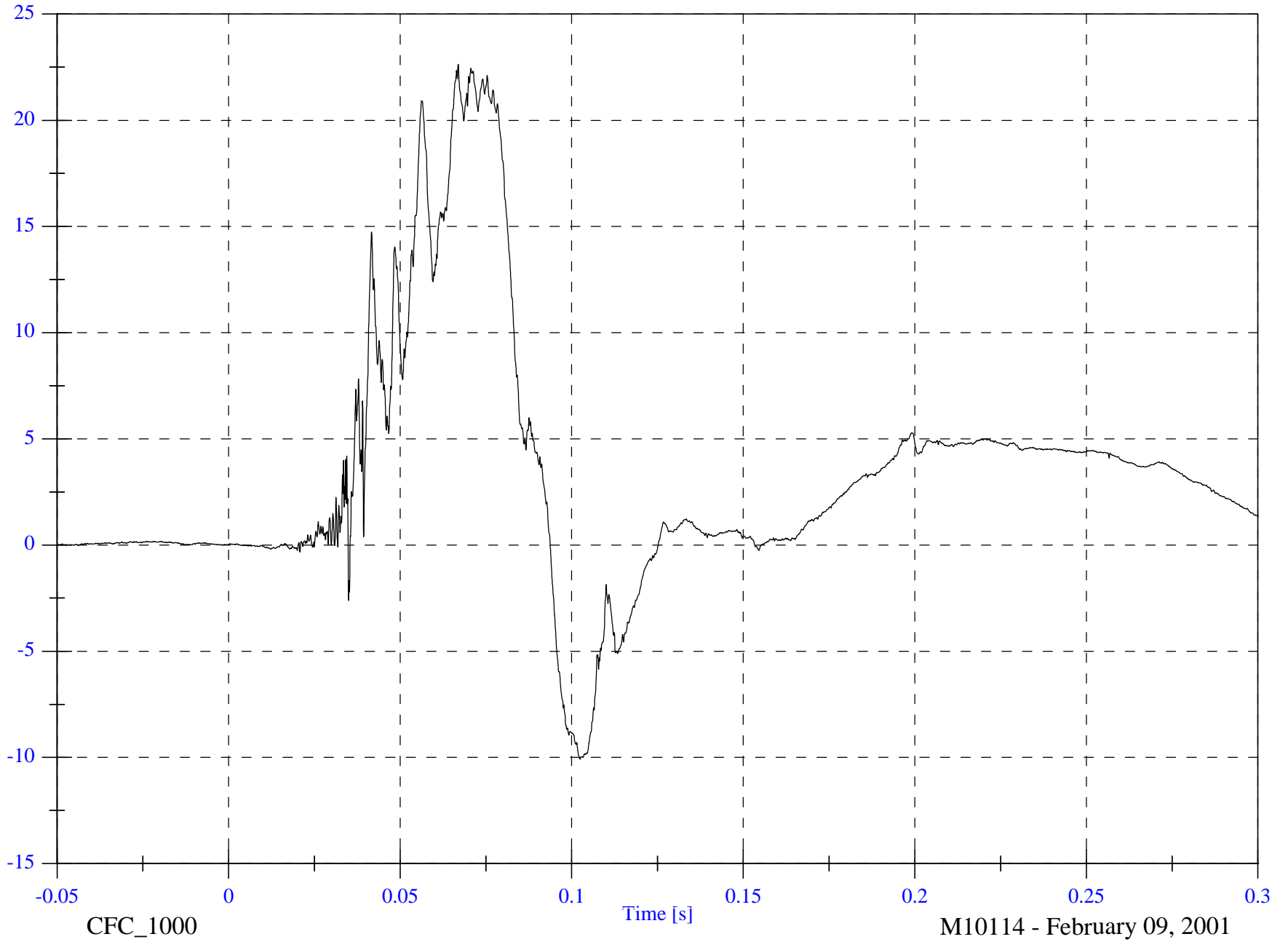
P2 Head Red z

Min: -10.1 [g] at 0.102 [s]

B-62

g

8602-22



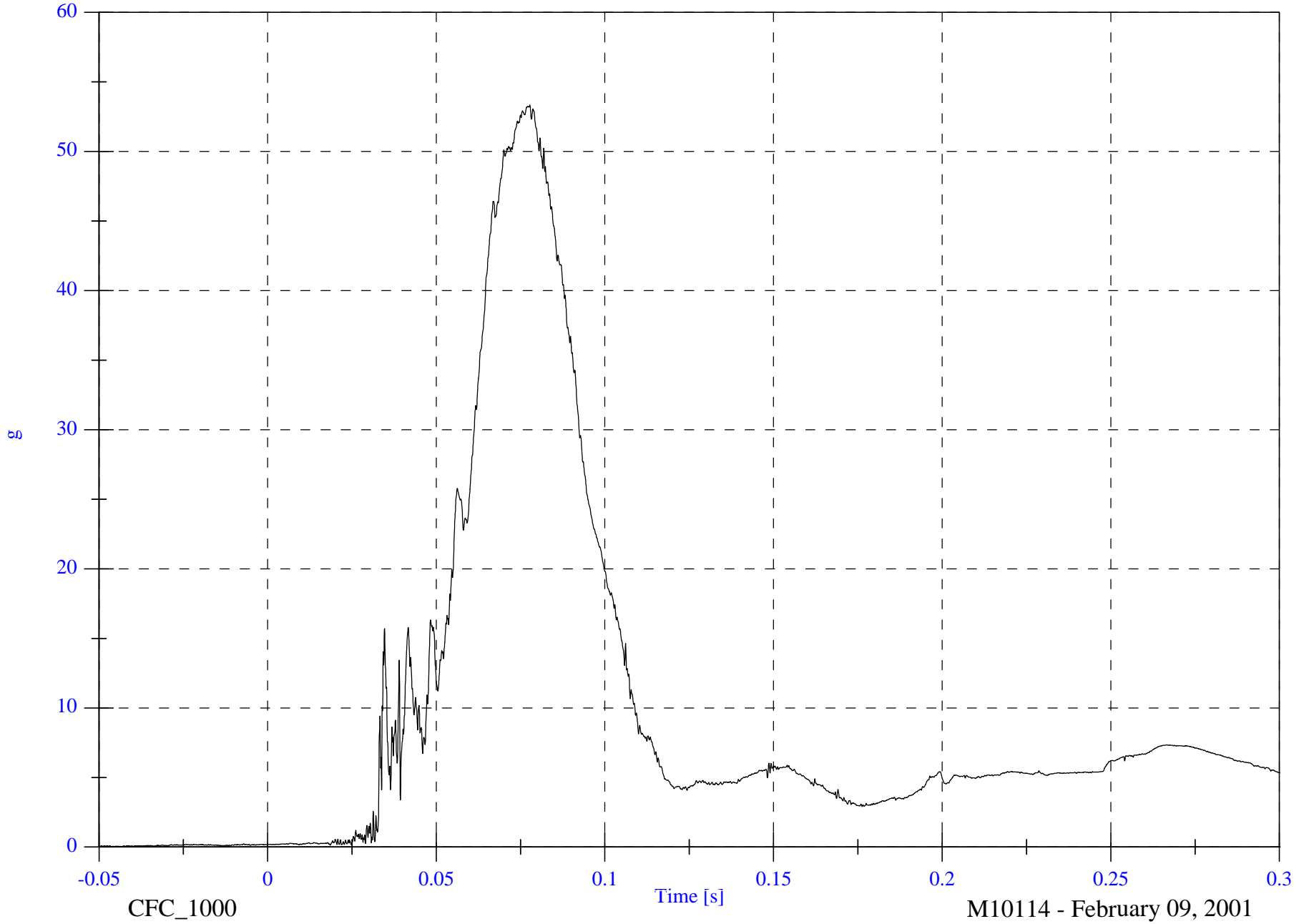
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P2 Head Red Resultant

Max: 53.3 [g] at 0.078 [s]

Min: 0.0 [g] at -0.046 [s]



B-63

8602-22

CFC\_1000

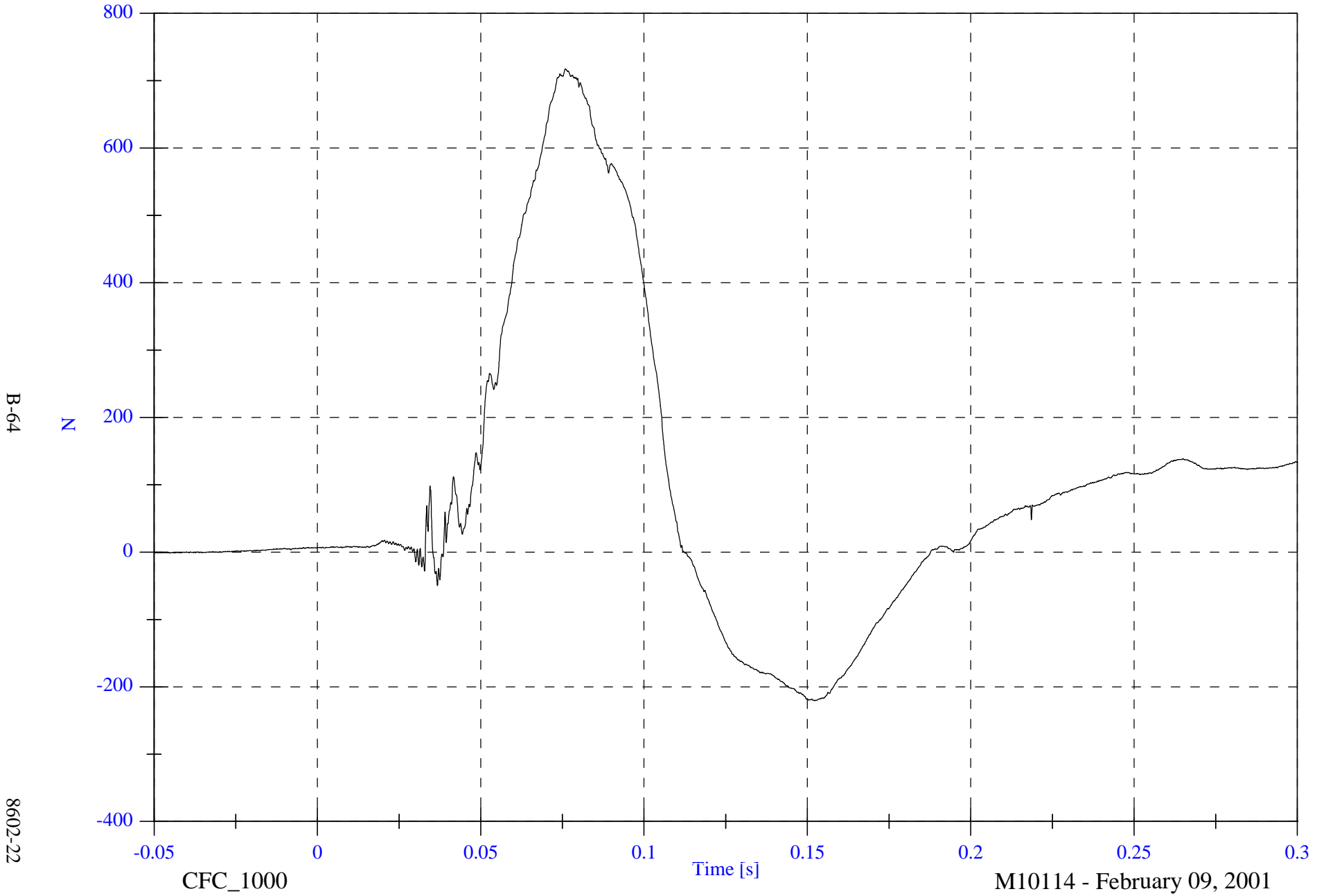
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 717.6 [N] at 0.076 [s]

Min: -220.9 [N] at 0.152 [s]

P2 Upper Neck Fx



B-64

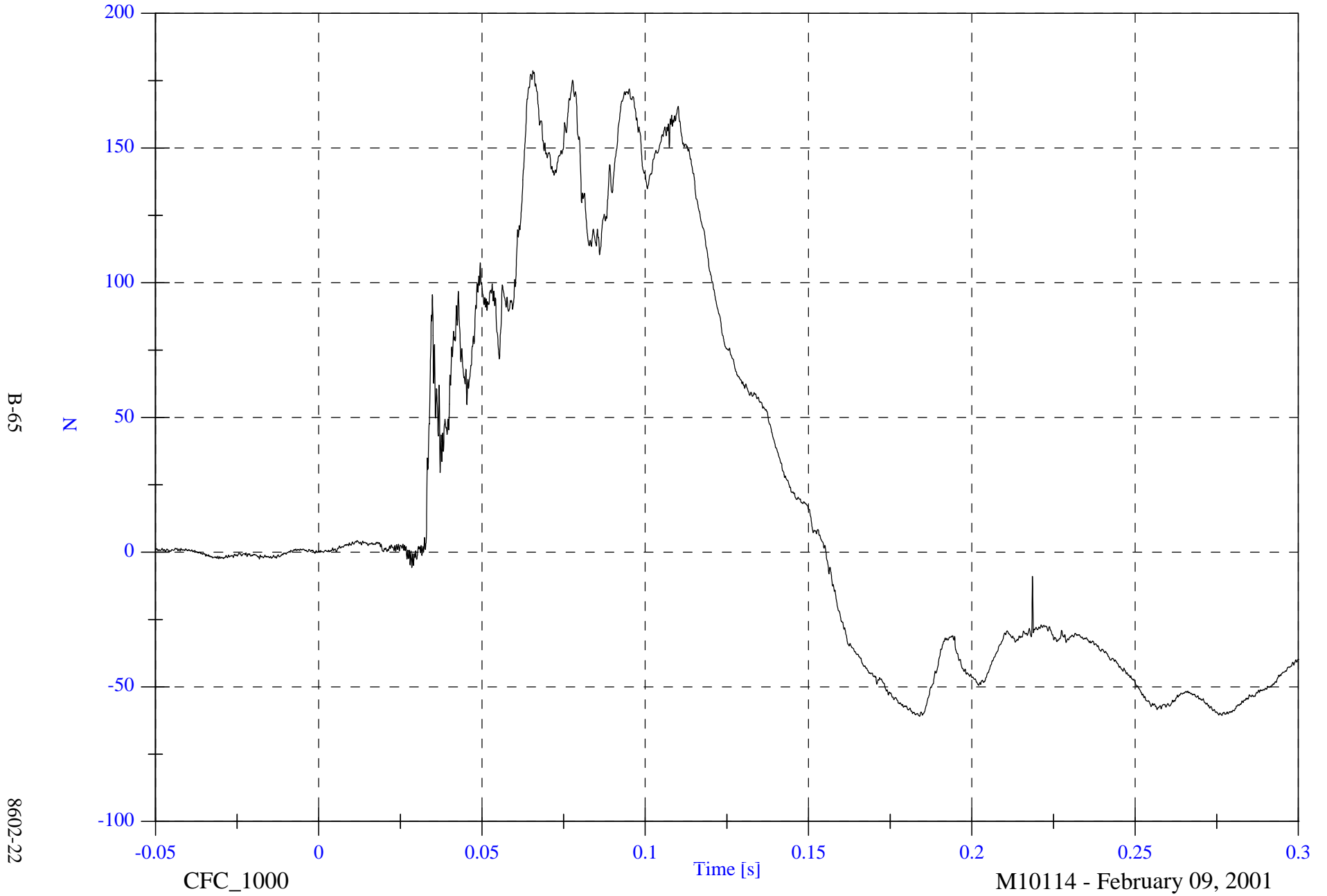
8602-22

NCAP Test #22 - 2001 Pontiac Aztek

Max: 178.7 [N] at 0.066 [s]

Min: -61.0 [N] at 0.184 [s]

P2 Upper Neck Fy



B-65

N

8602-22

CFC\_1000

Time [s]

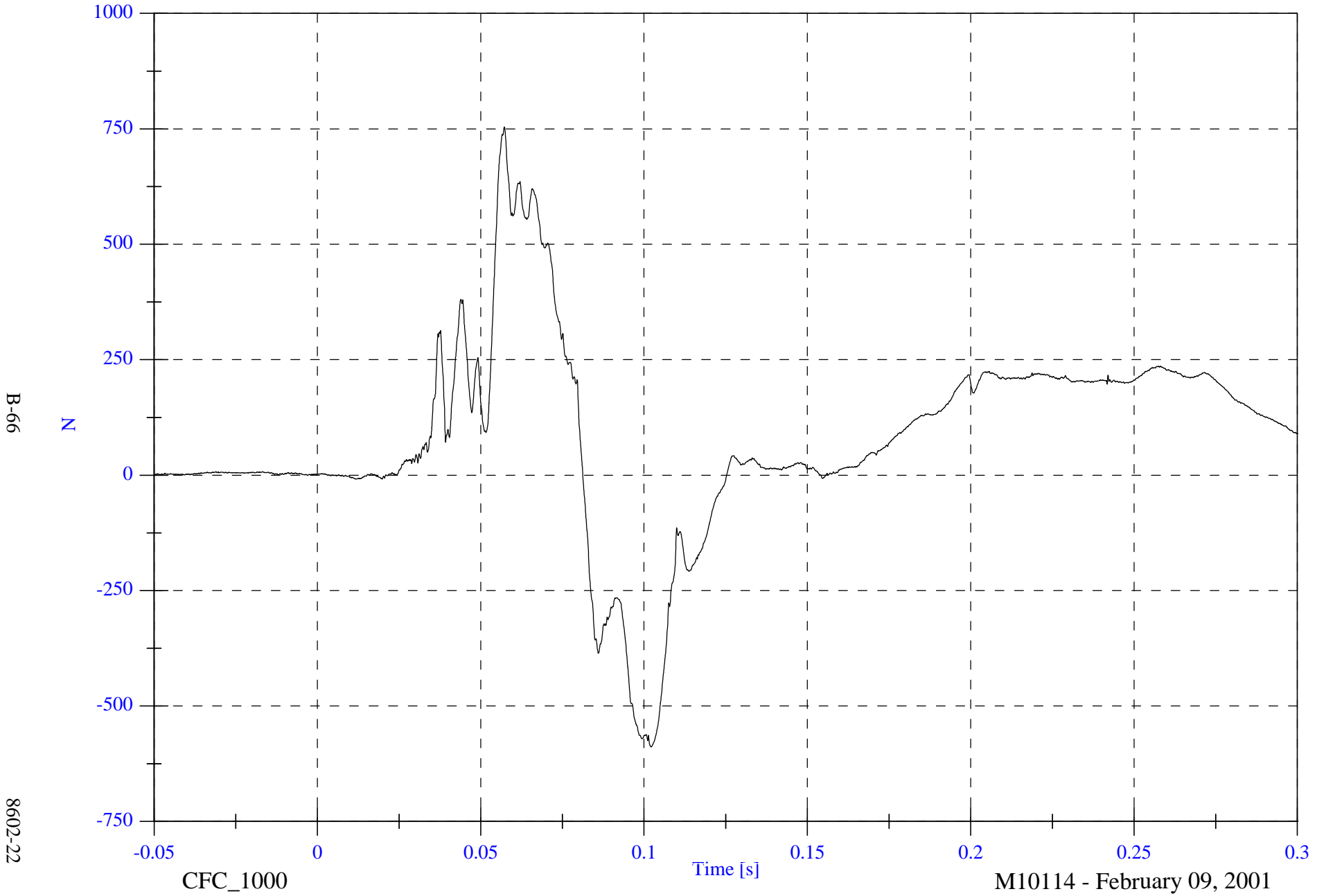
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 753.9 [N] at 0.057 [s]

P2 Upper Neck Fz

Min: -588.6 [N] at 0.102 [s]



B-66

8602-22

CFC\_1000

Time [s]

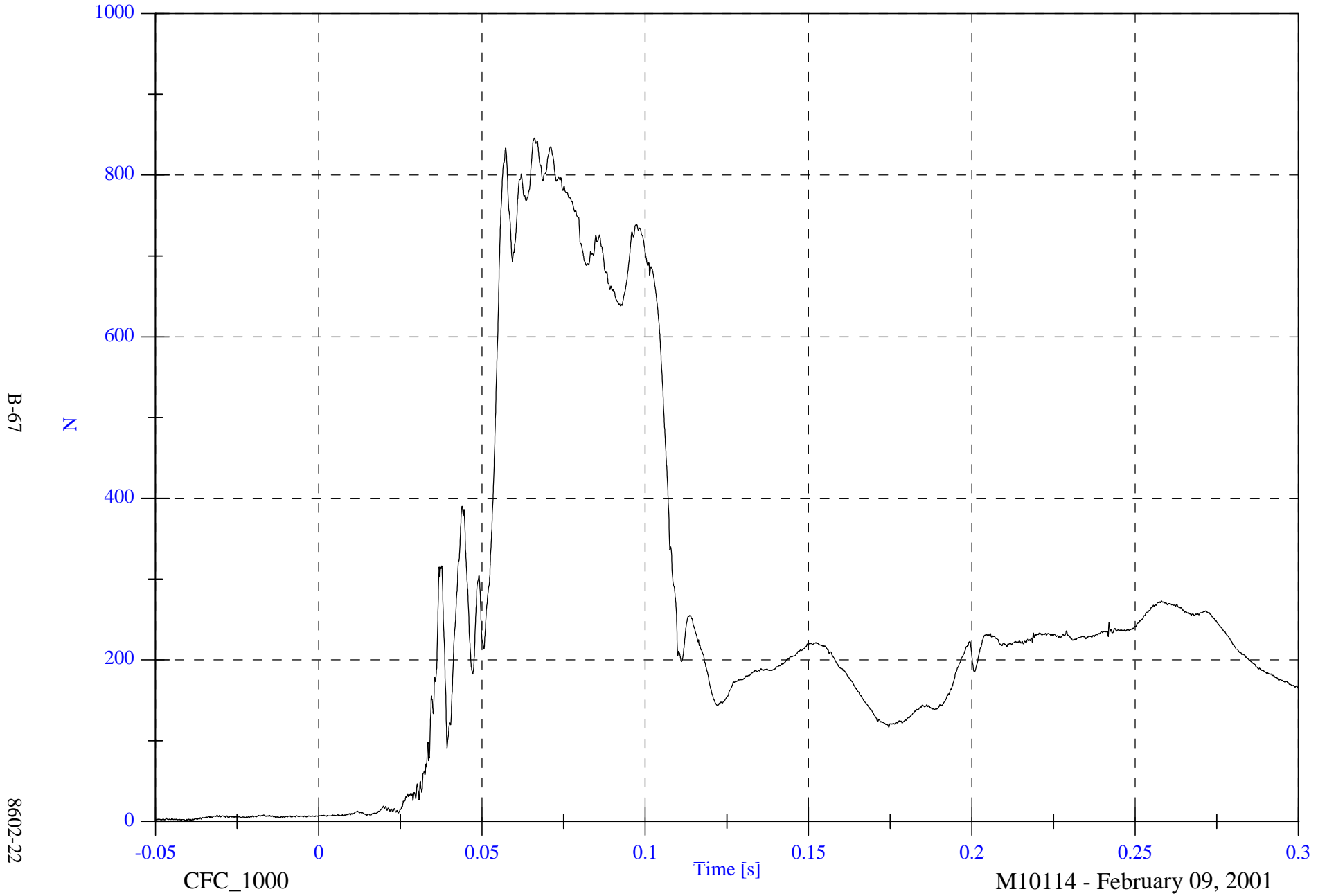
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P2 Upper Neck F Resultant

Max: 845.9 [N] at 0.066 [s]

Min: 0.9 [N] at -0.039 [s]



B-67

8602-22

CFC\_1000

Time [s]

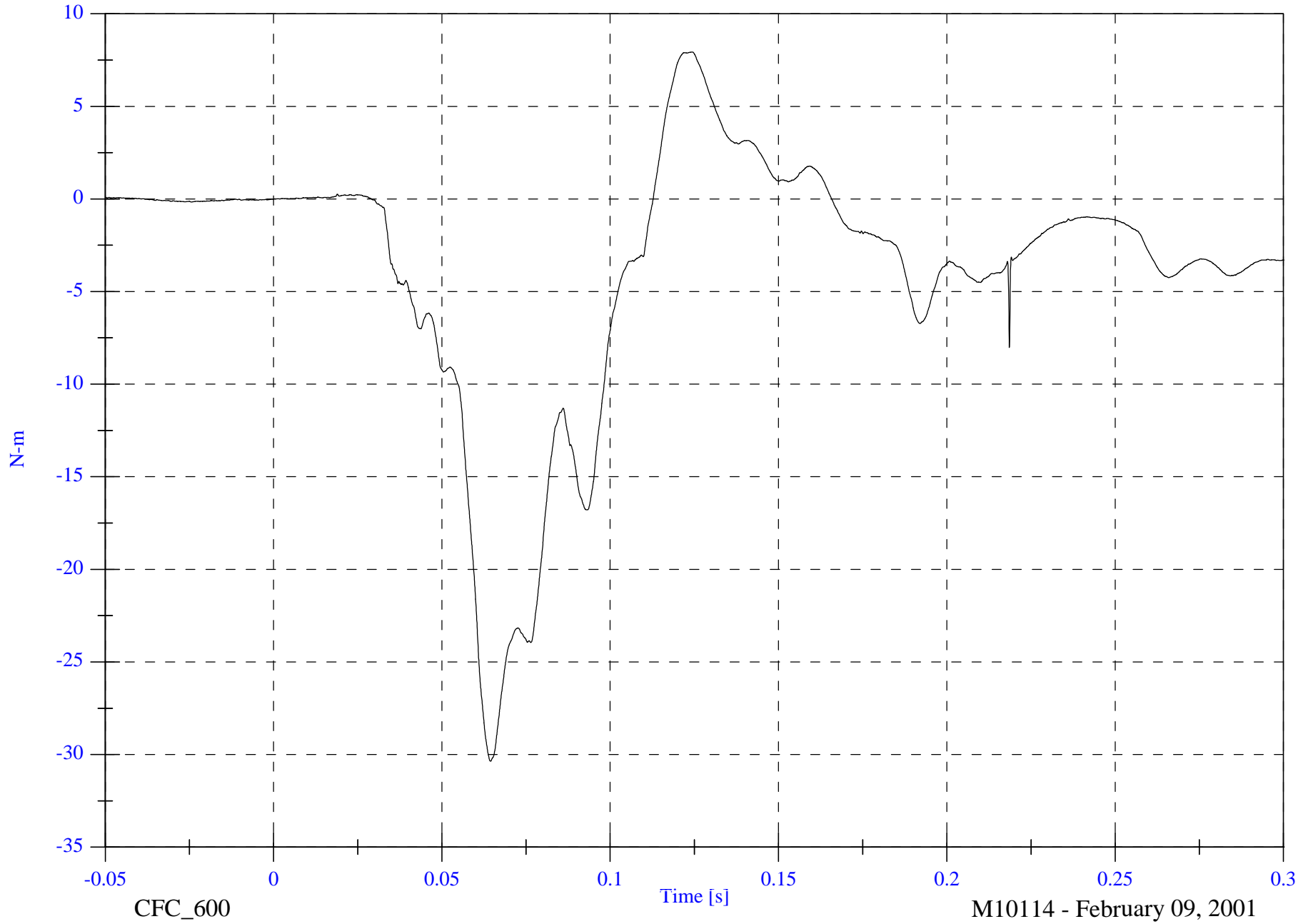
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P2 Upper Neck Mx

Max: 7.9 [N-m] at 0.124 [s]

Min: -30.4 [N-m] at 0.064 [s]



B-68

8602-22

CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

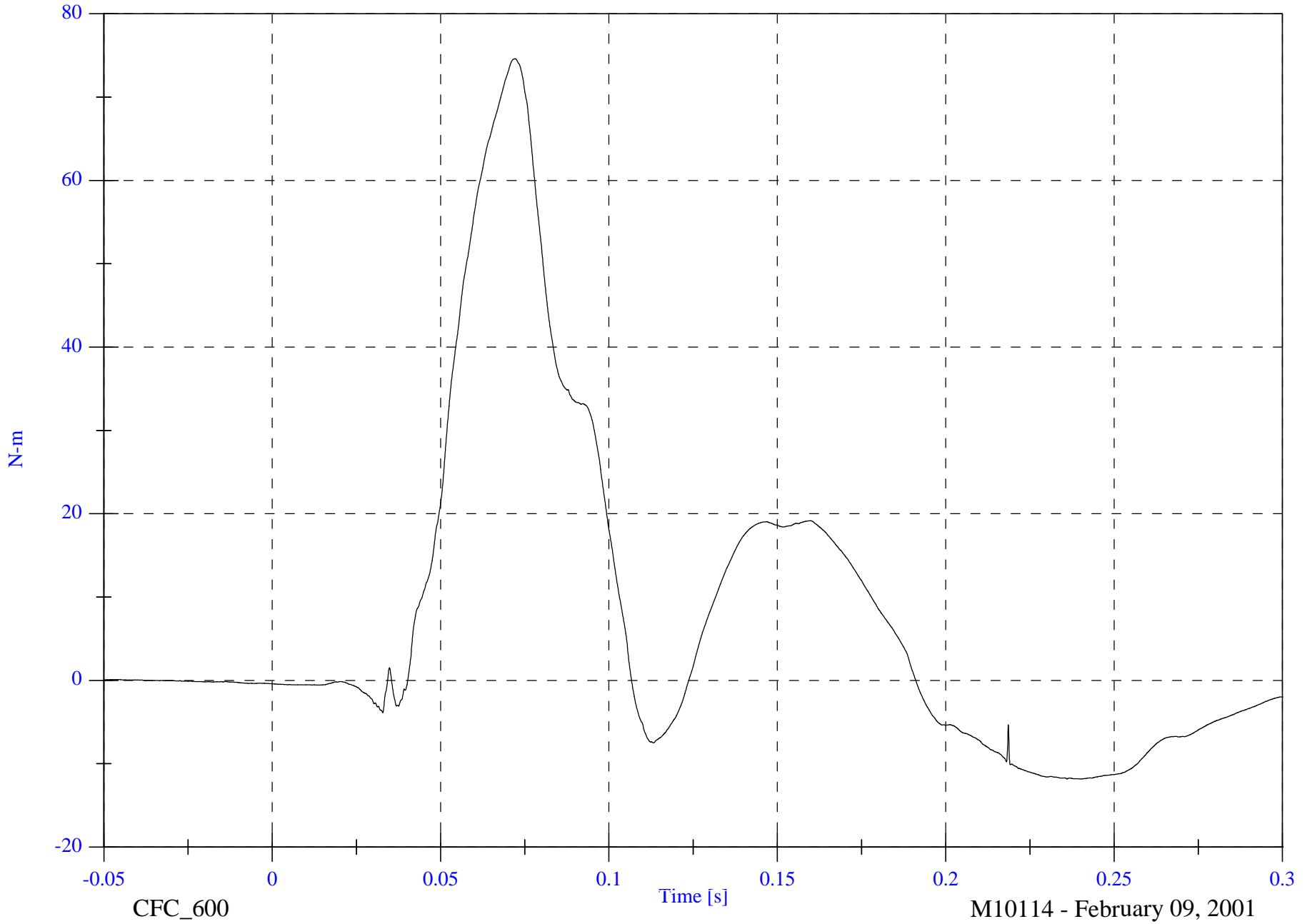
P2 Upper Neck My

Max: 74.6 [N-m] at 0.072 [s]

Min: -11.8 [N-m] at 0.236 [s]

B-69

8602-22



CFC\_600

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

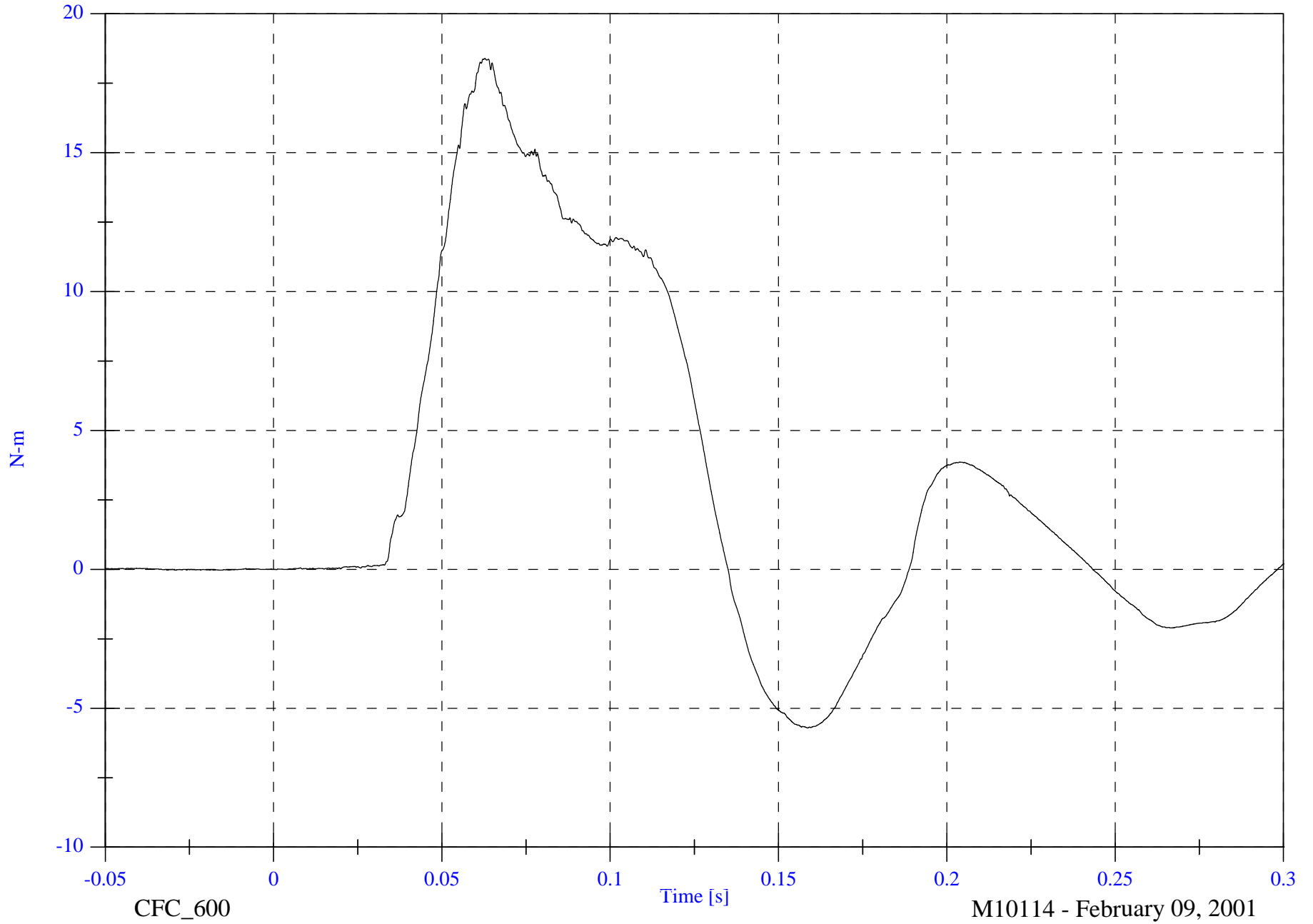
P2 Upper Neck Mz

Max: 18.4 [N-m] at 0.063 [s]

Min: -5.7 [N-m] at 0.159 [s]

B-70

8602-22



CFC\_600

Time [s]

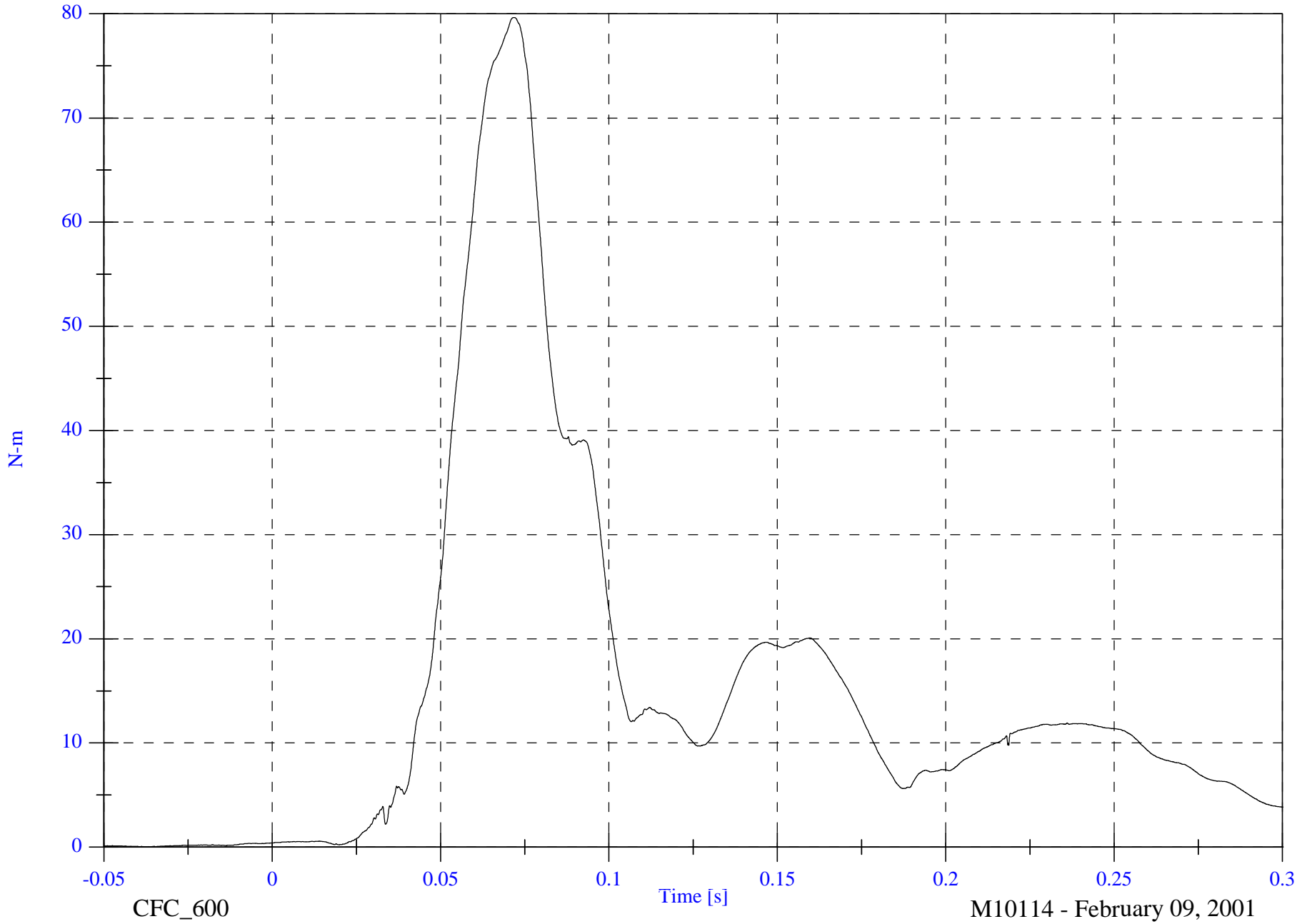
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P2 Upper Neck M Resultant

Max: 79.7 [N-m] at 0.072 [s]

Min: 0.0 [N-m] at -0.036 [s]



B-71

8602-22

CFC\_600

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 3.5 [g] at 0.292 [s]

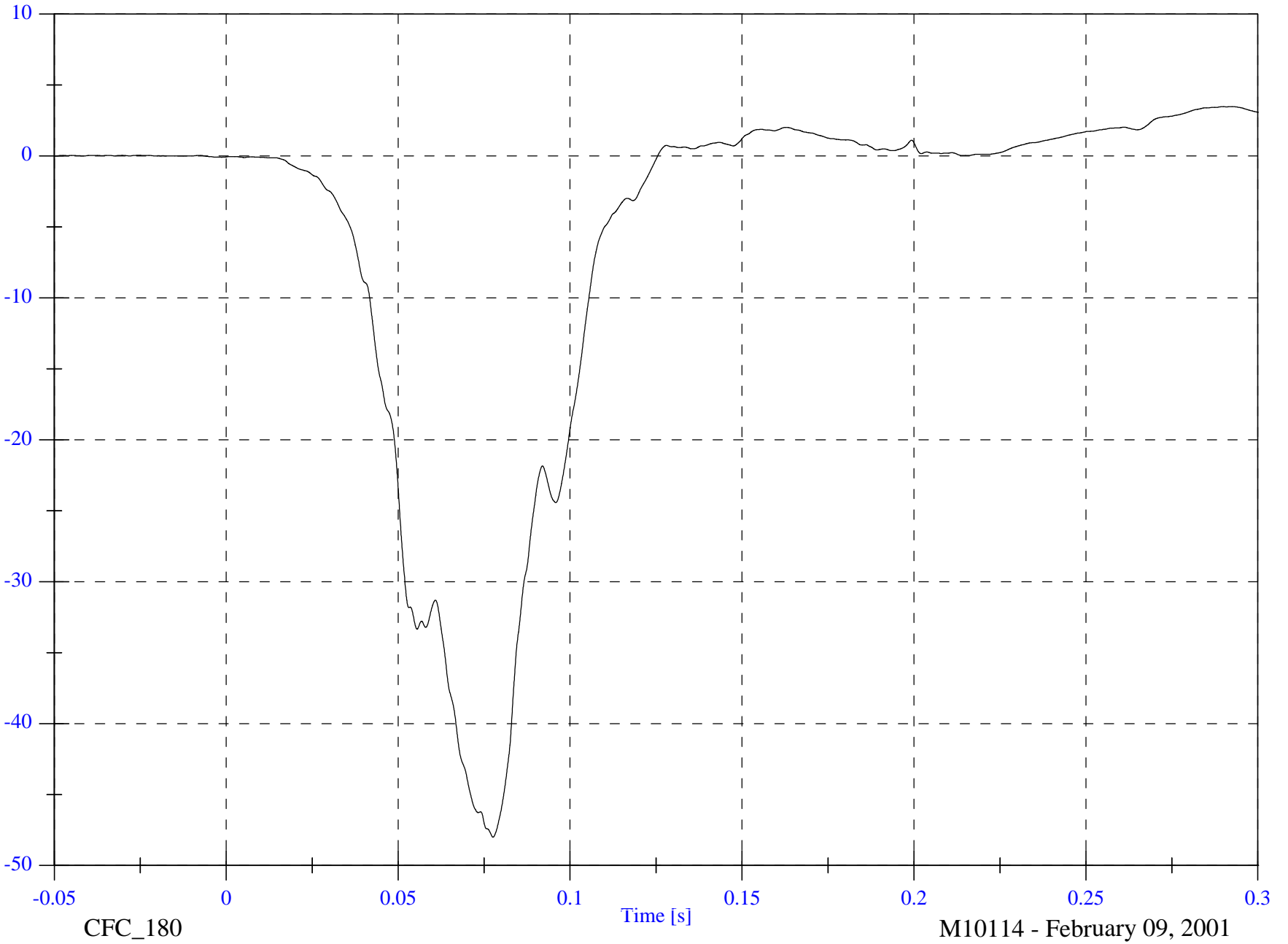
P2 Chest x

Min: -48.0 [g] at 0.078 [s]

B-72

g

8602-22



NCAP Test #22 - 2001 Pontiac Aztek

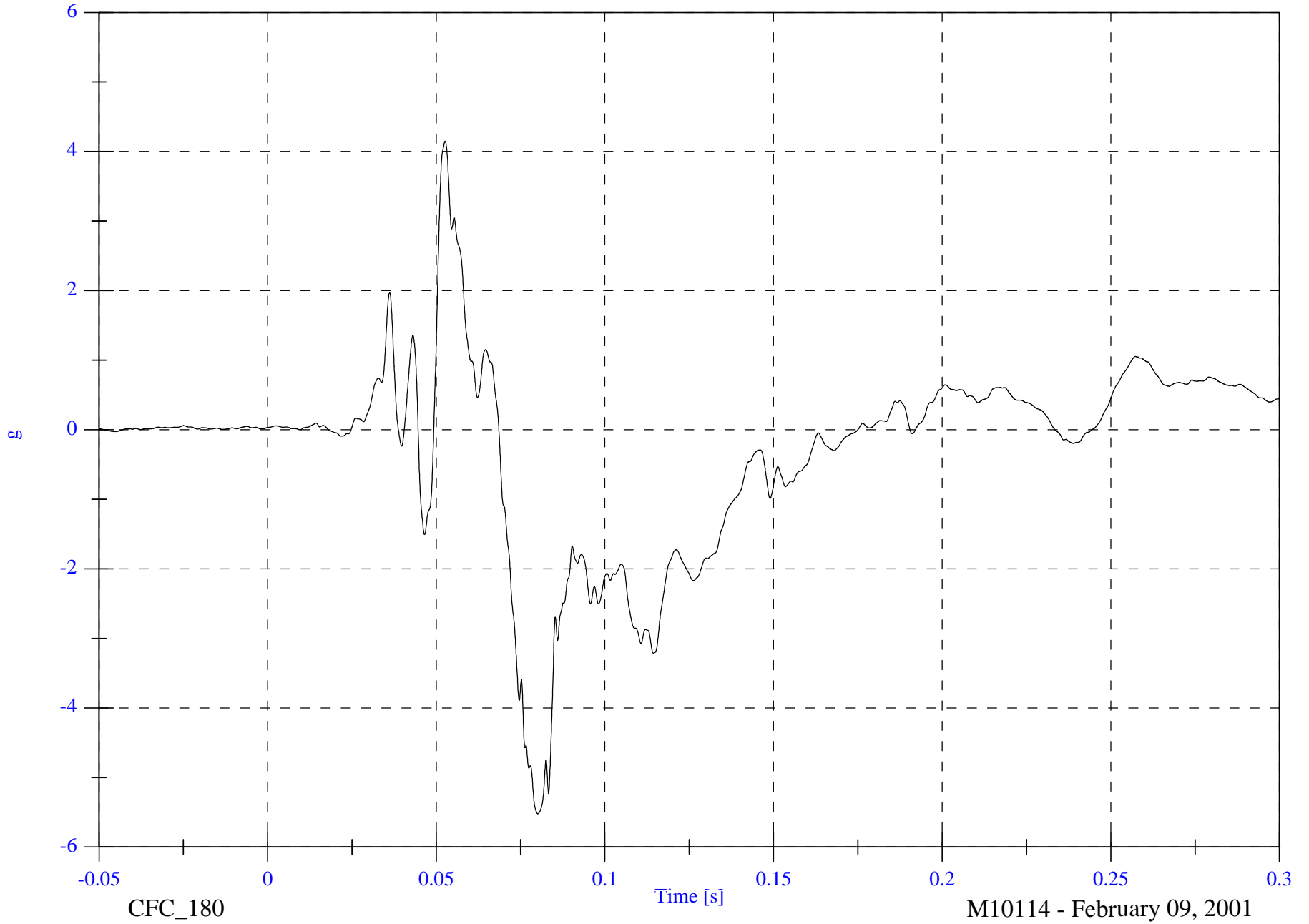
P2 Chest y

Max: 4.1 [g] at 0.053 [s]

Min: -5.5 [g] at 0.080 [s]

B-73

8602-22



CFC\_180

Time [s]

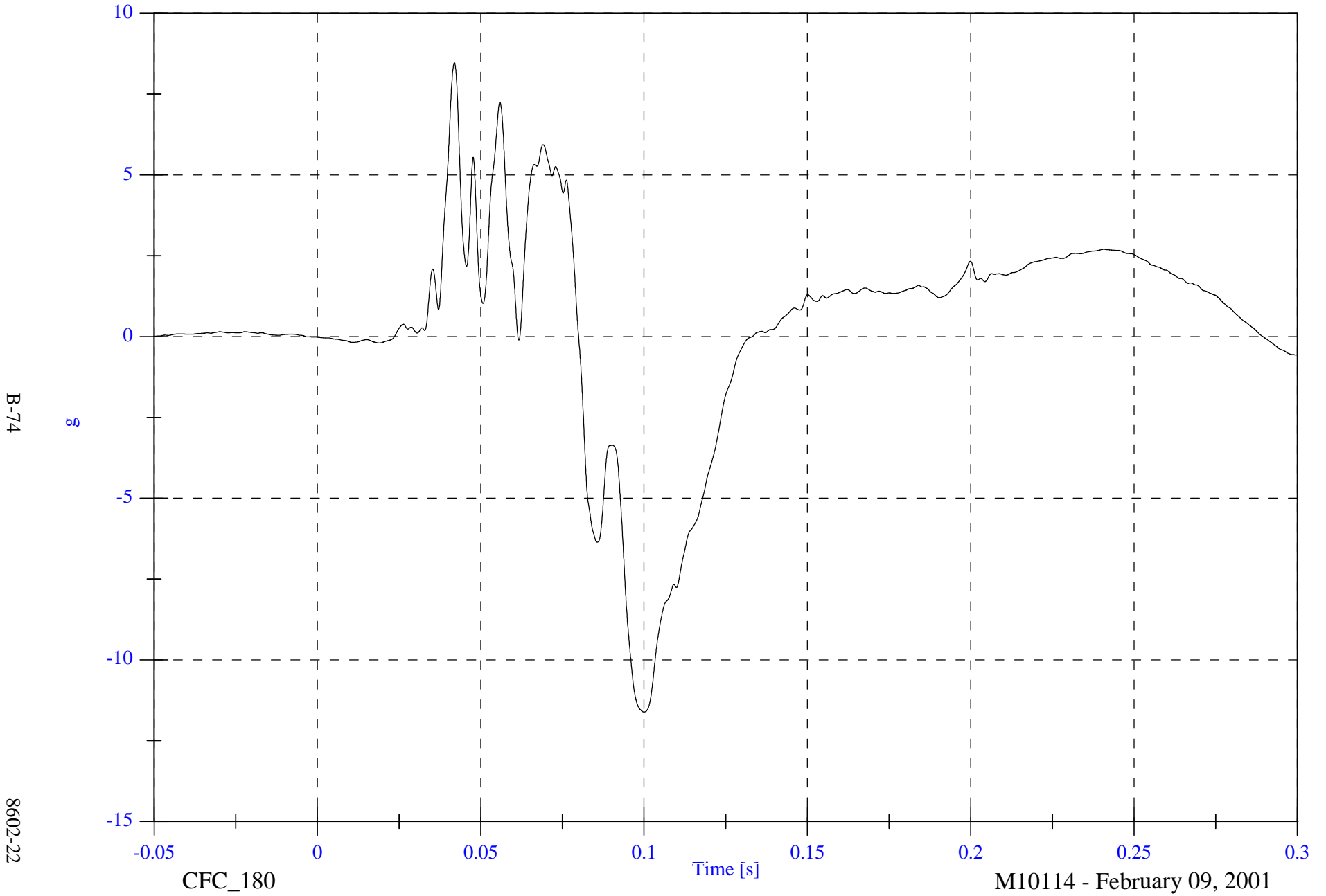
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 8.5 [g] at 0.042 [s]

Min: -11.6 [g] at 0.100 [s]

P2 Chest z



B-74

8602-22

CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P2 Chest Resultant

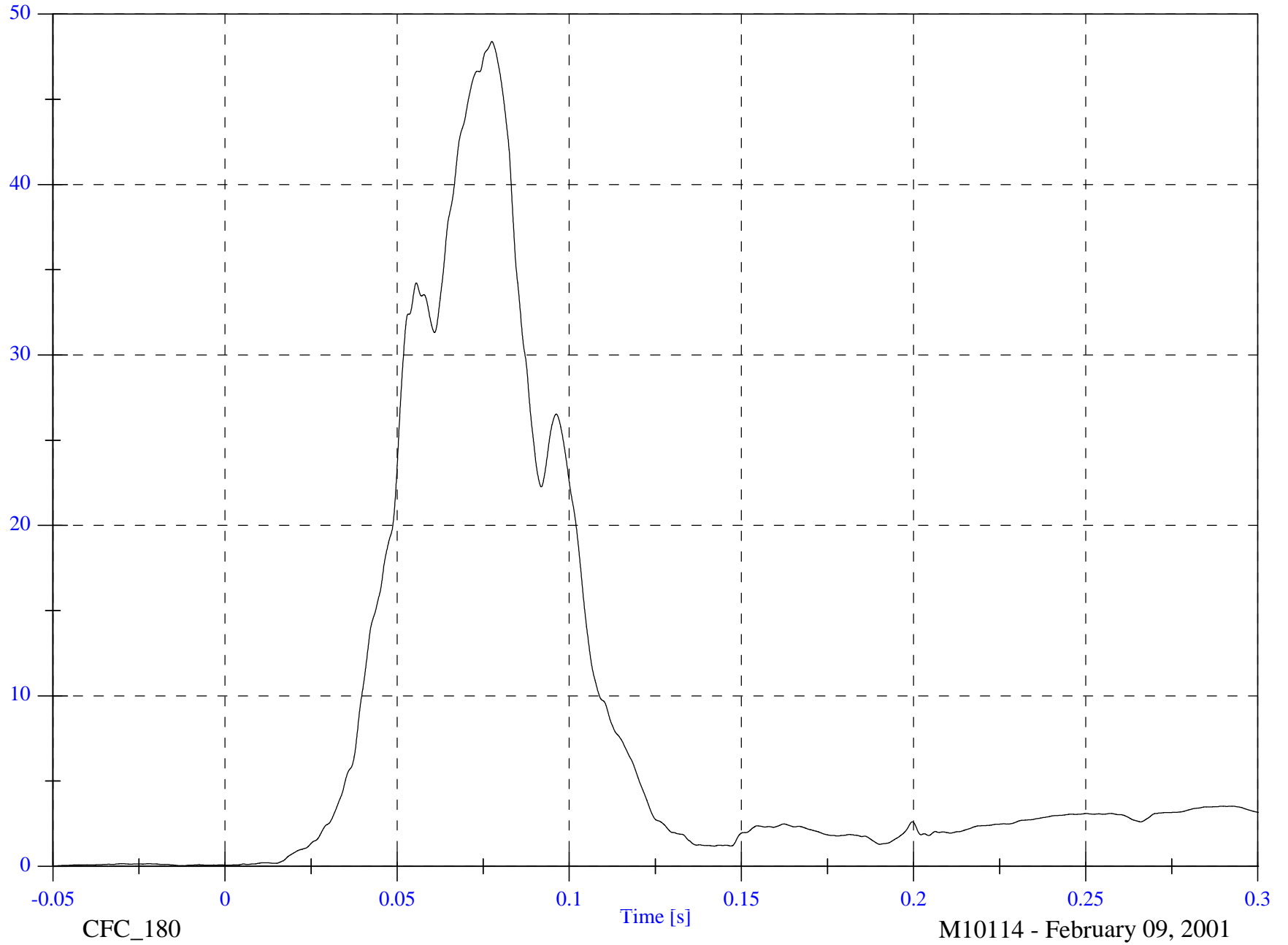
Max: 48.4 [g] at 0.078 [s]

Min: 0.0 [g] at -0.050 [s]

B-75

g

8602-22



CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

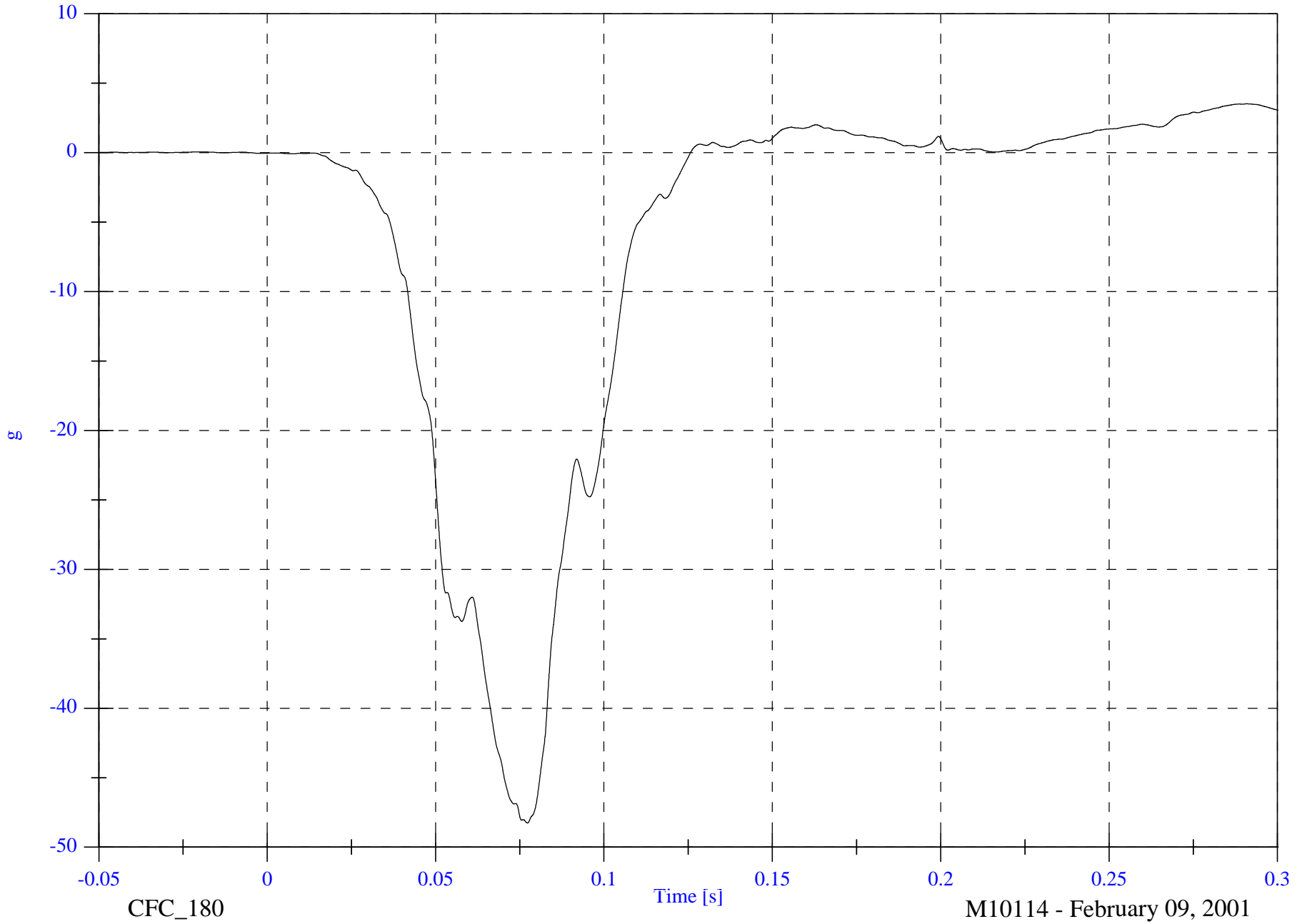
P2 Chest Red x

Max: 3.5 [g] at 0.291 [s]

Min: -48.3 [g] at 0.077 [s]

B-76

8602-22

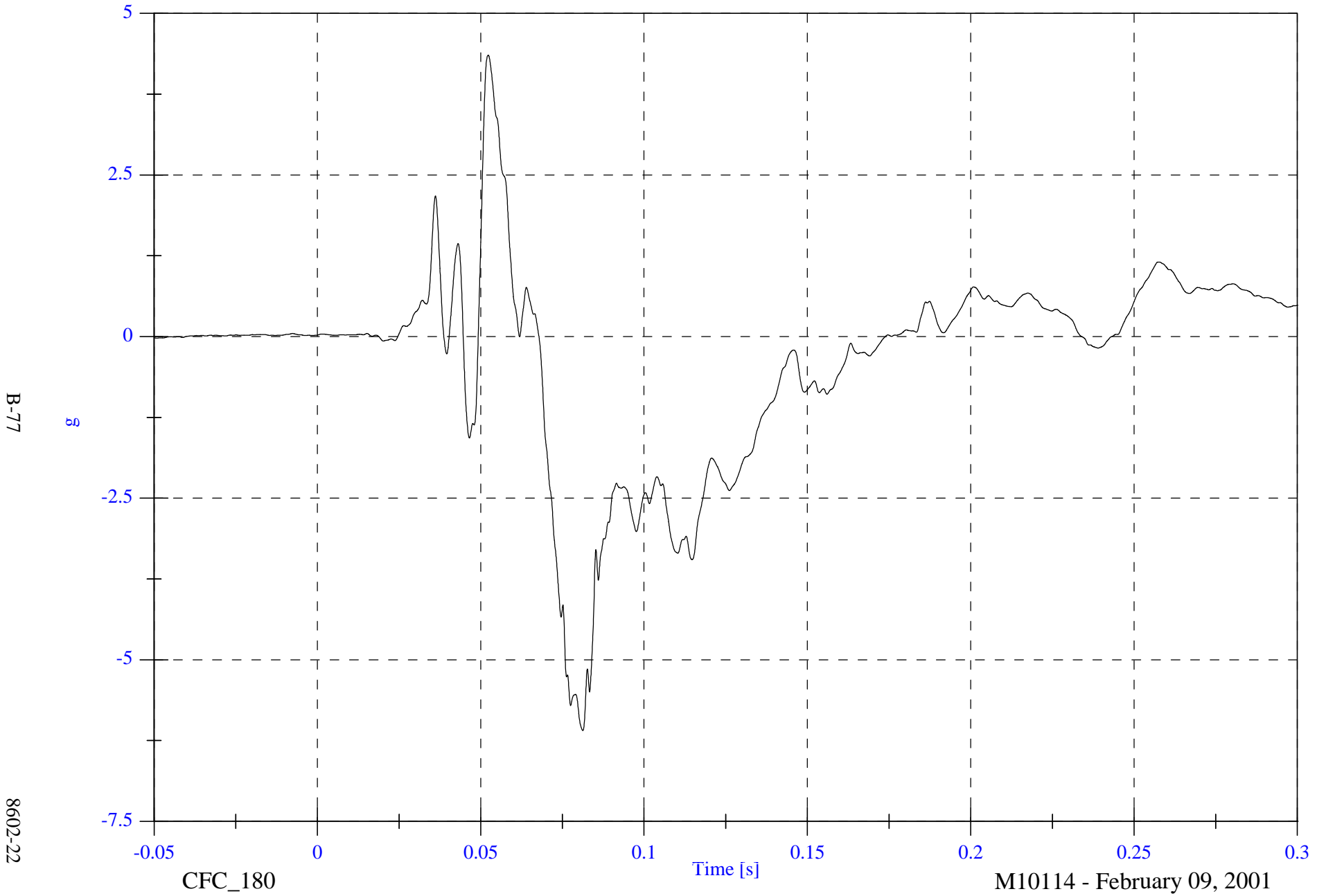


NCAP Test #22 - 2001 Pontiac Aztek

Max: 4.4 [g] at 0.052 [s]

P2 Chest Red y

Min: -6.1 [g] at 0.081 [s]



B-77

g

8602-22

CFC\_180

Time [s]

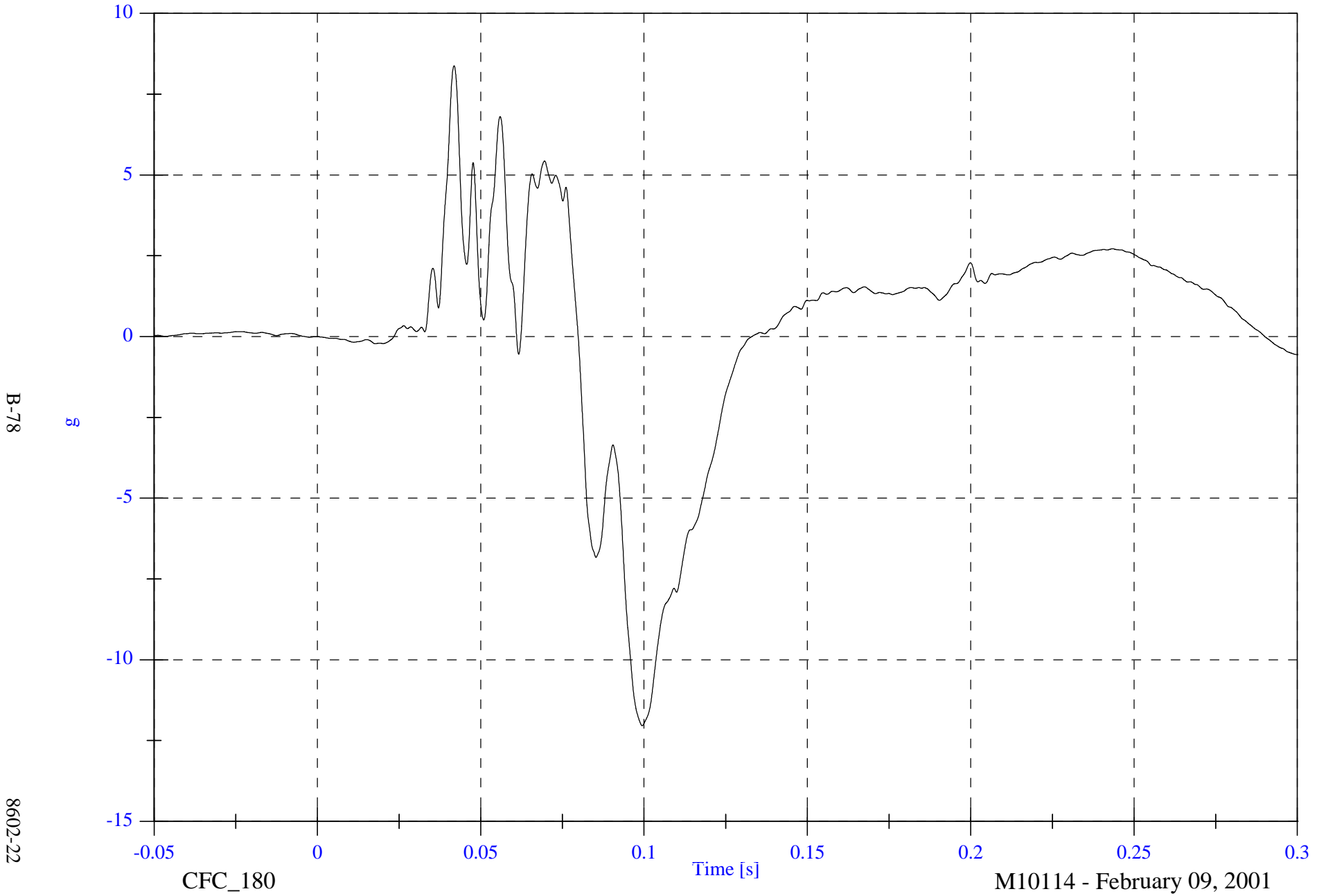
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P2 Chest Red z

Max: 8.4 [g] at 0.042 [s]

Min: -12.0 [g] at 0.099 [s]



NCAP Test #22 - 2001 Pontiac Aztek

P2 Chest Red Resultant

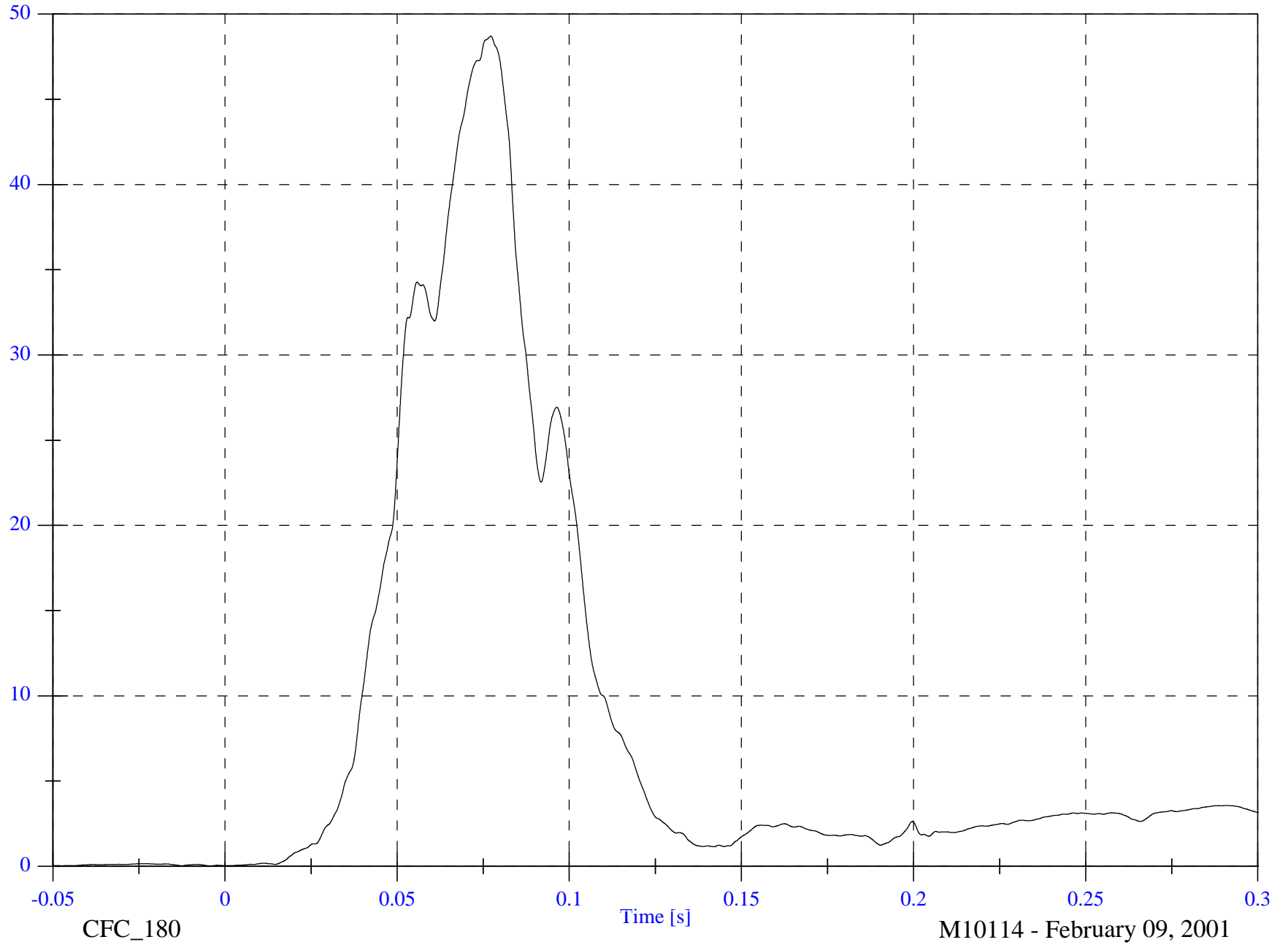
Max: 48.7 [g] at 0.077 [s]

Min: 0.0 [g] at -0.004 [s]

B-79

g

8602-22



CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

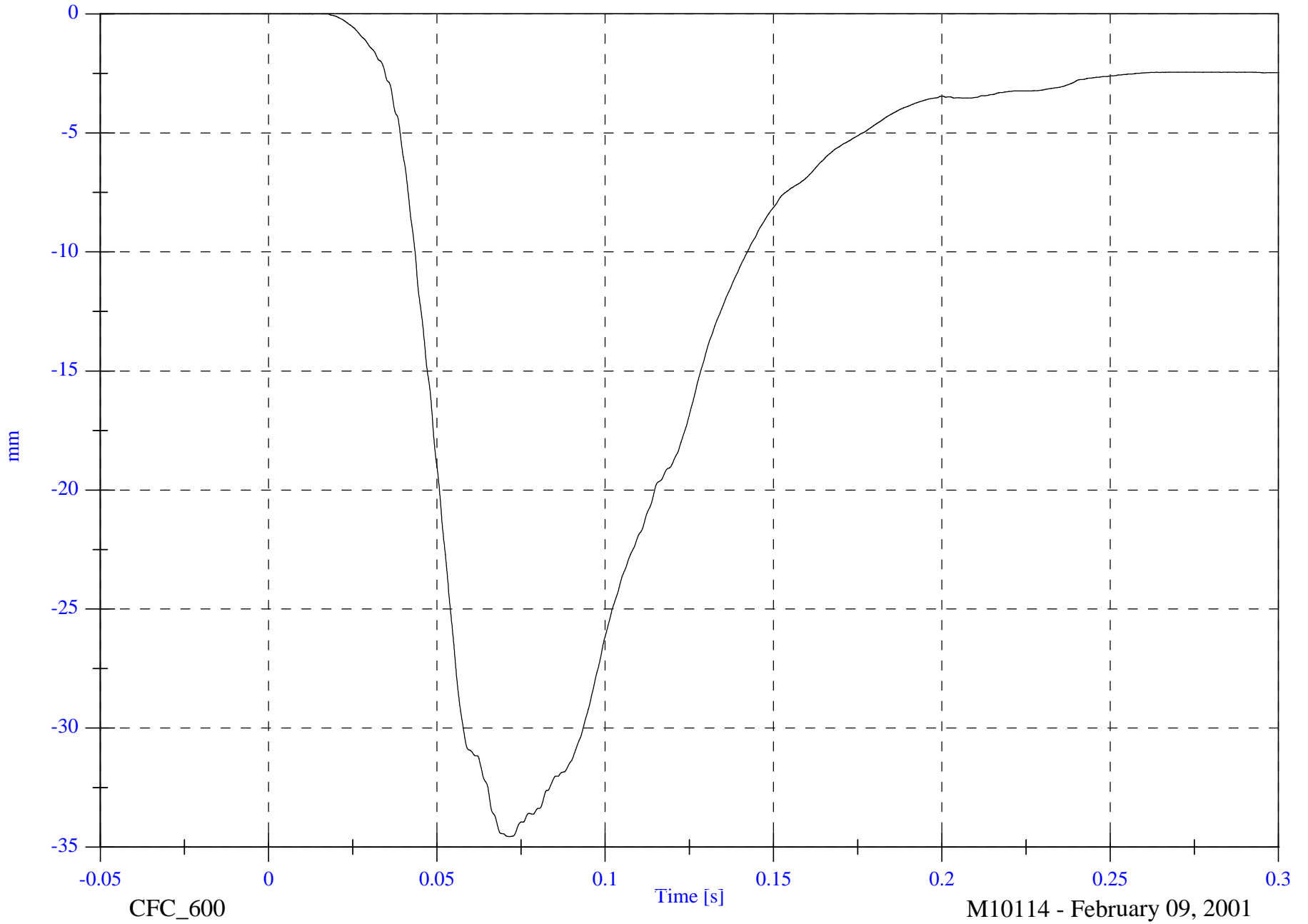
P2 Chest Compression

Max: 0.0 [mm] at -0.039 [s]

Min: -34.6 [mm] at 0.072 [s]

B-80

8602-22



CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

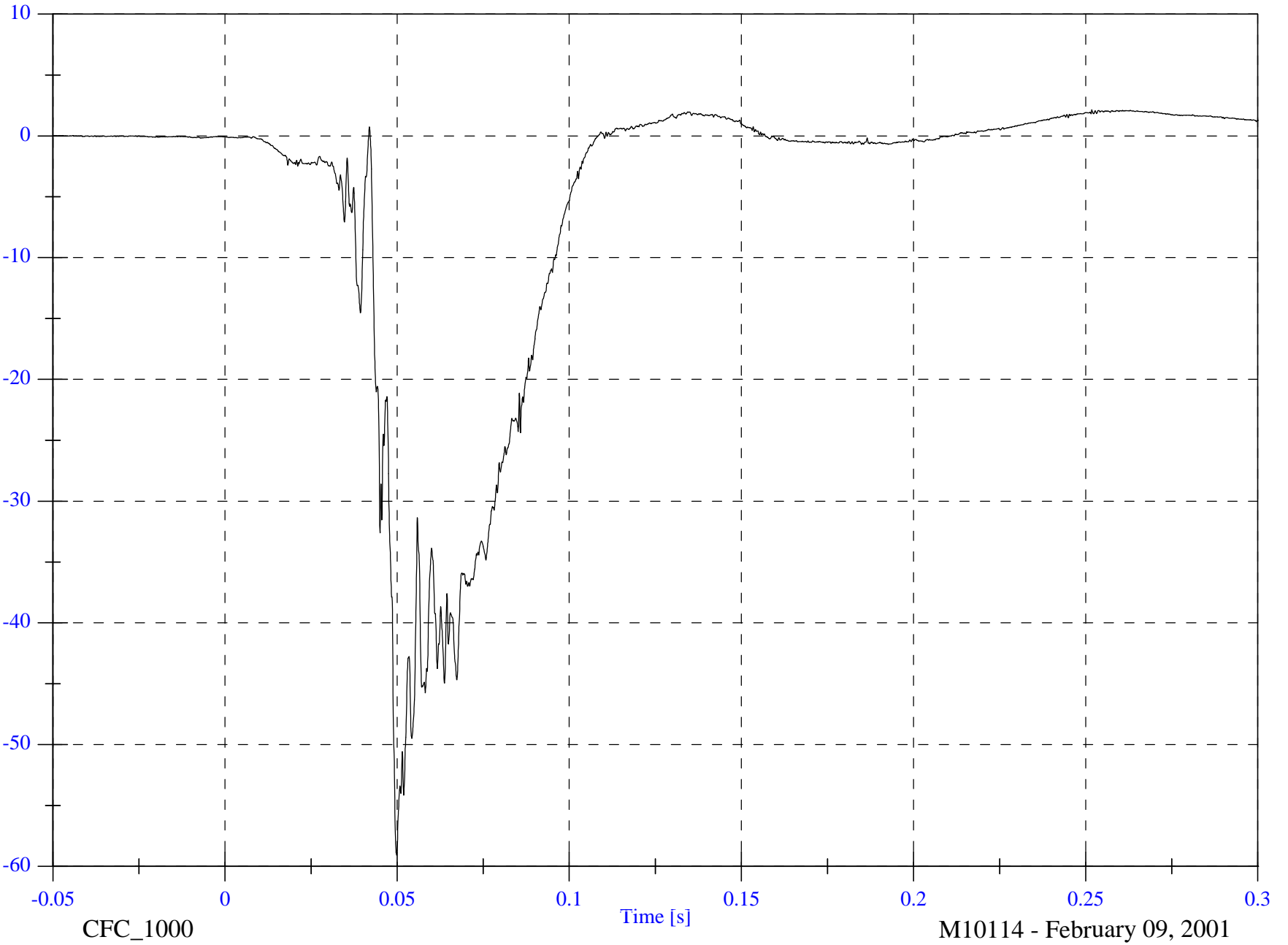
Max: 2.1 [g] at 0.252 [s]

P2 Pelvic x

Min: -59.1 [g] at 0.050 [s]

B-81

g



8602-22

CFC\_1000

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

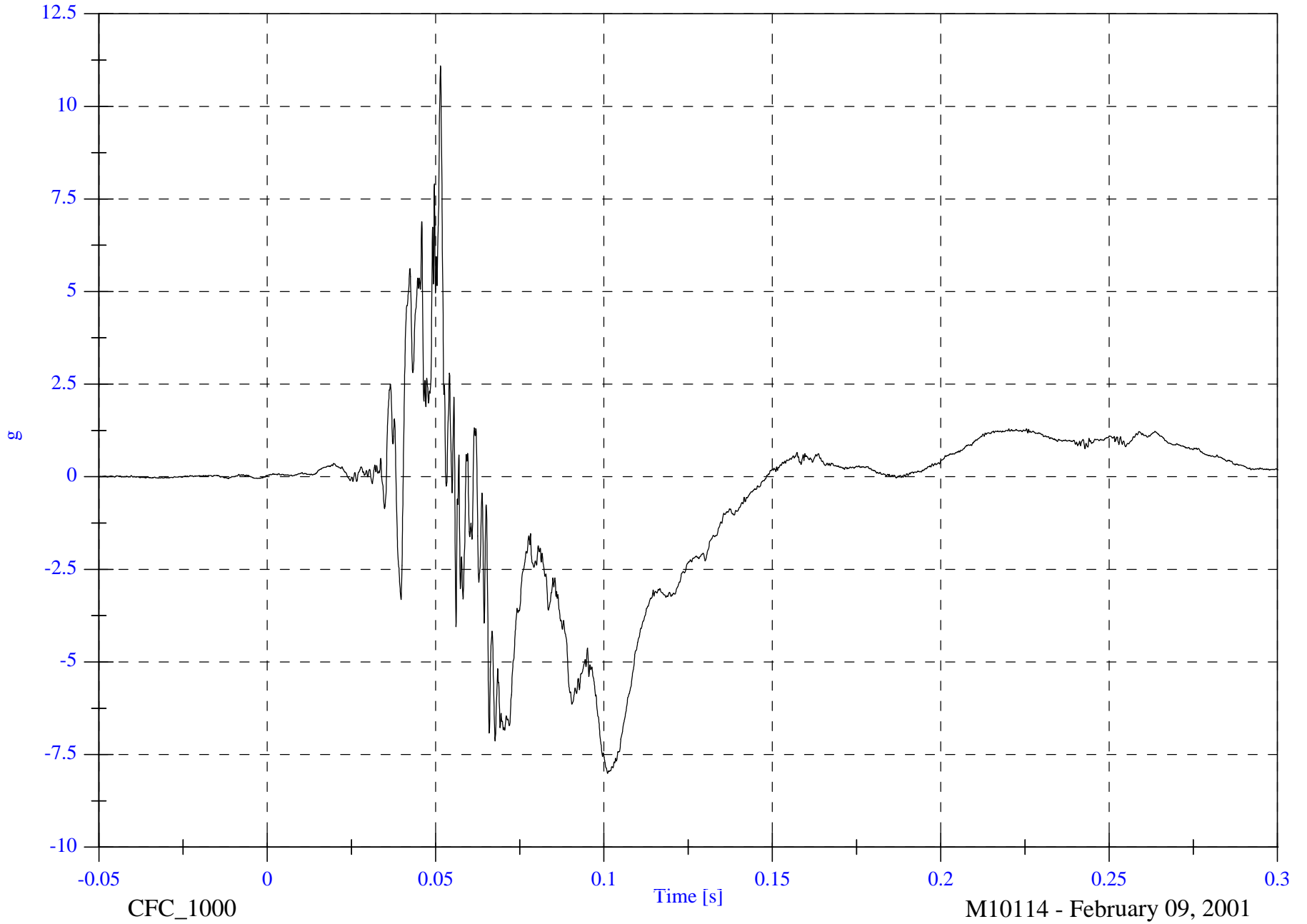
P2 Pelvic y

Max: 11.1 [g] at 0.051 [s]

Min: -8.0 [g] at 0.101 [s]

B-82

8602-22



CFC\_1000

Time [s]

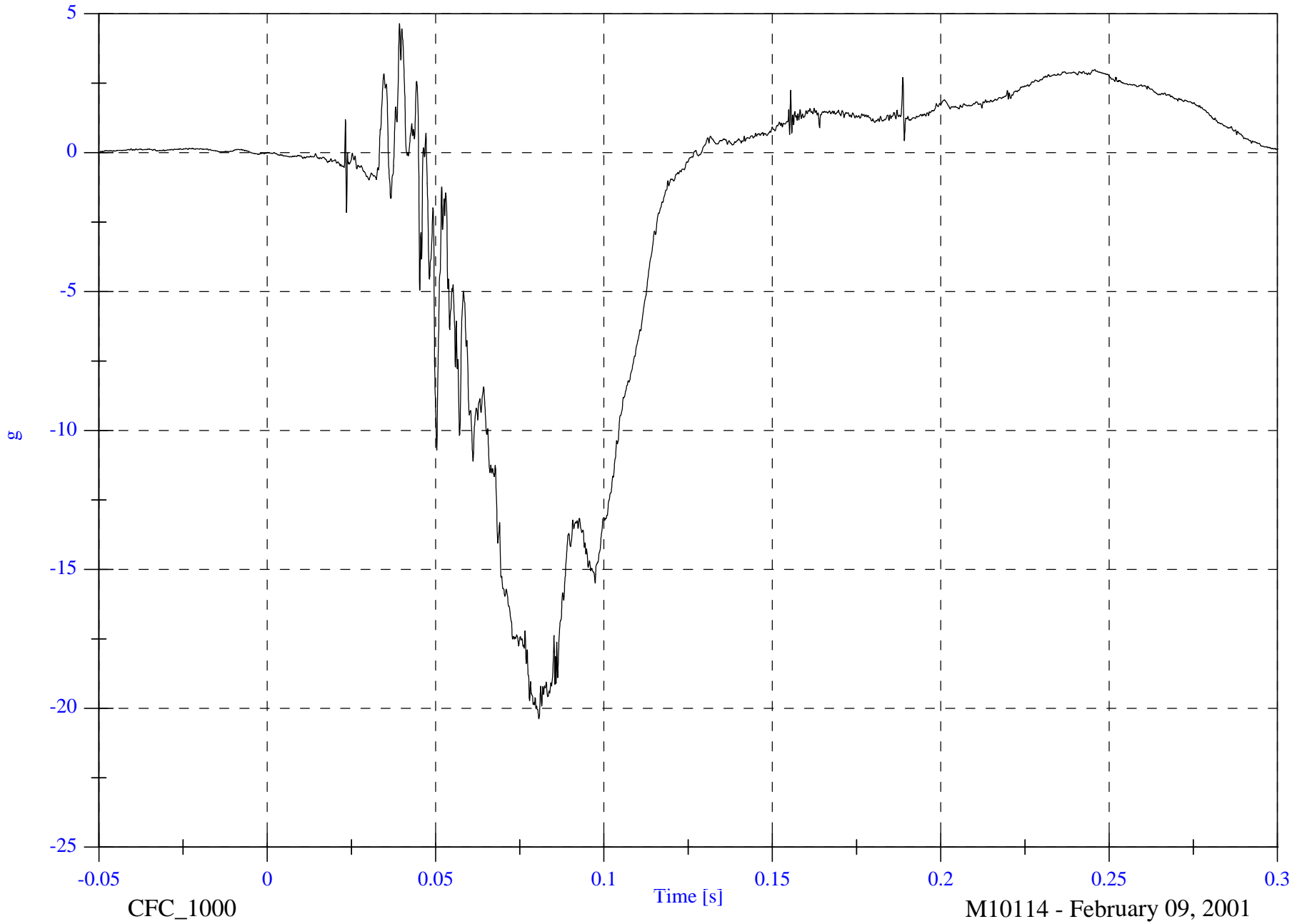
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 4.7 [g] at 0.039 [s]

Min: -20.4 [g] at 0.081 [s]

P2 Pelvic z



B-83

8602-22

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

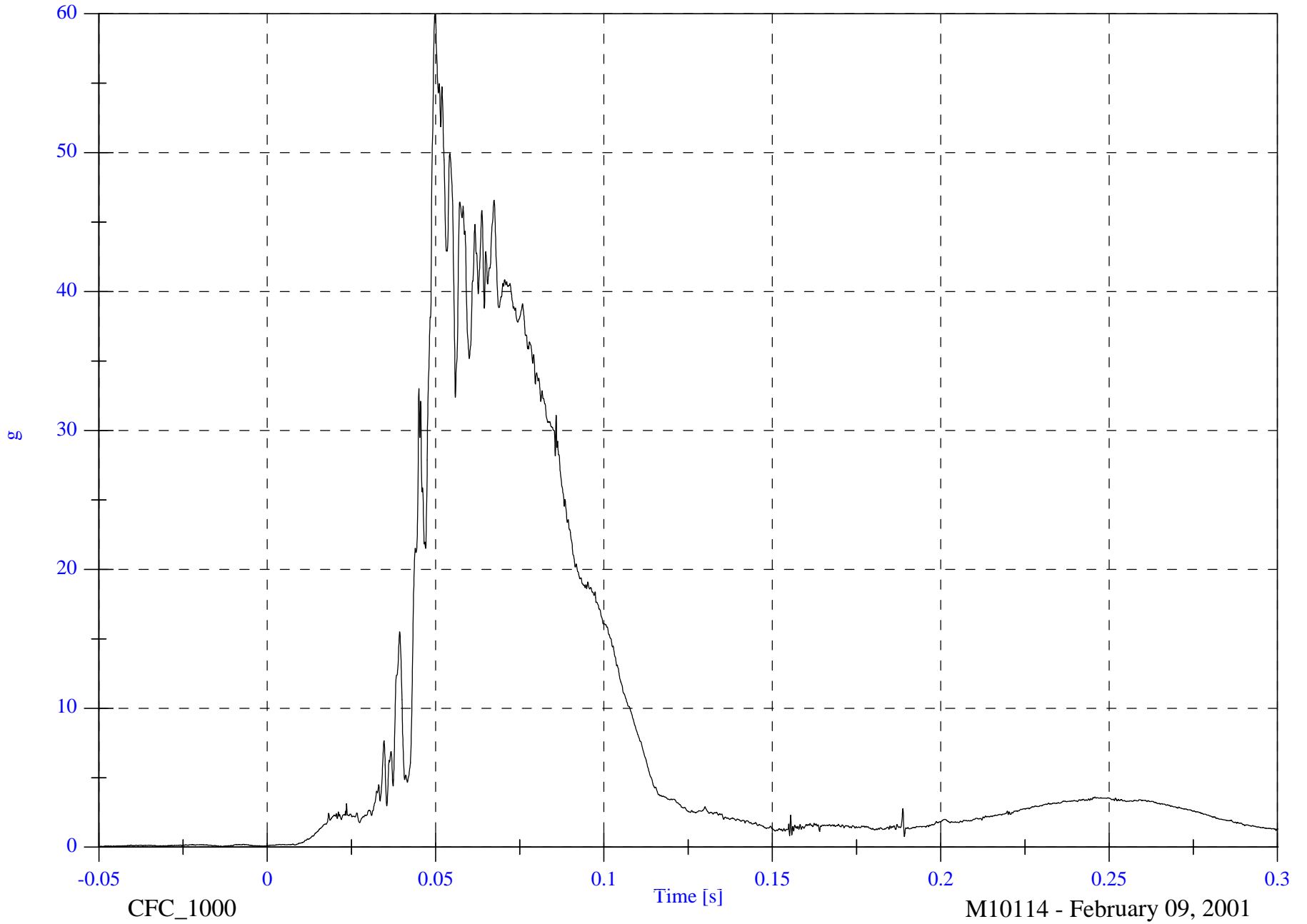
P2 Pelvic Resultant

Max: 60.0 [g] at 0.050 [s]

Min: 0.0 [g] at -0.050 [s]

B-84

8602-22

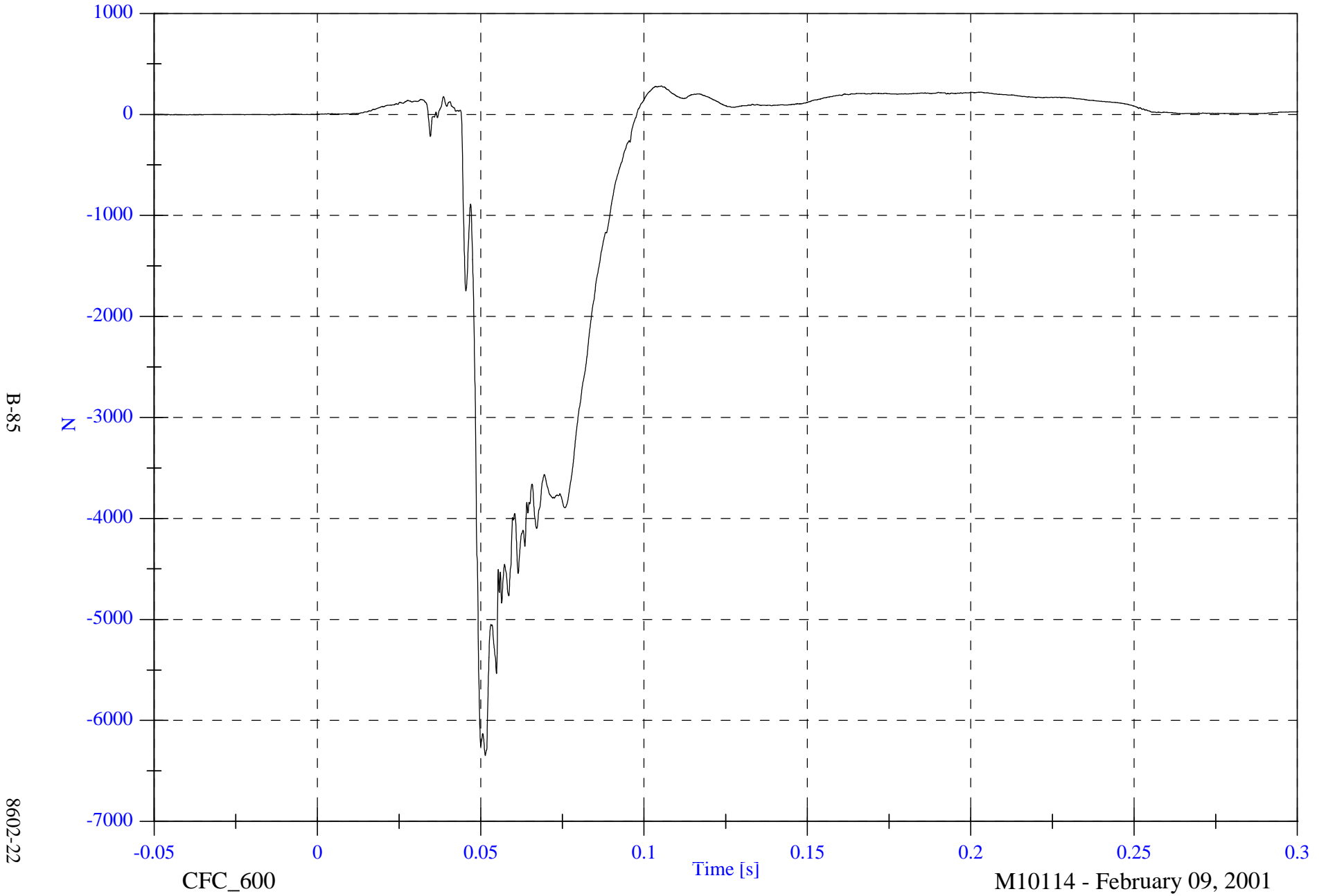


NCAP Test #22 - 2001 Pontiac Aztek

P2 Left Femur

Max: 280.8 [N] at 0.105 [s]

Min: -6347.2 [N] at 0.051 [s]



B-85

8602-22

CFC\_600

Time [s]

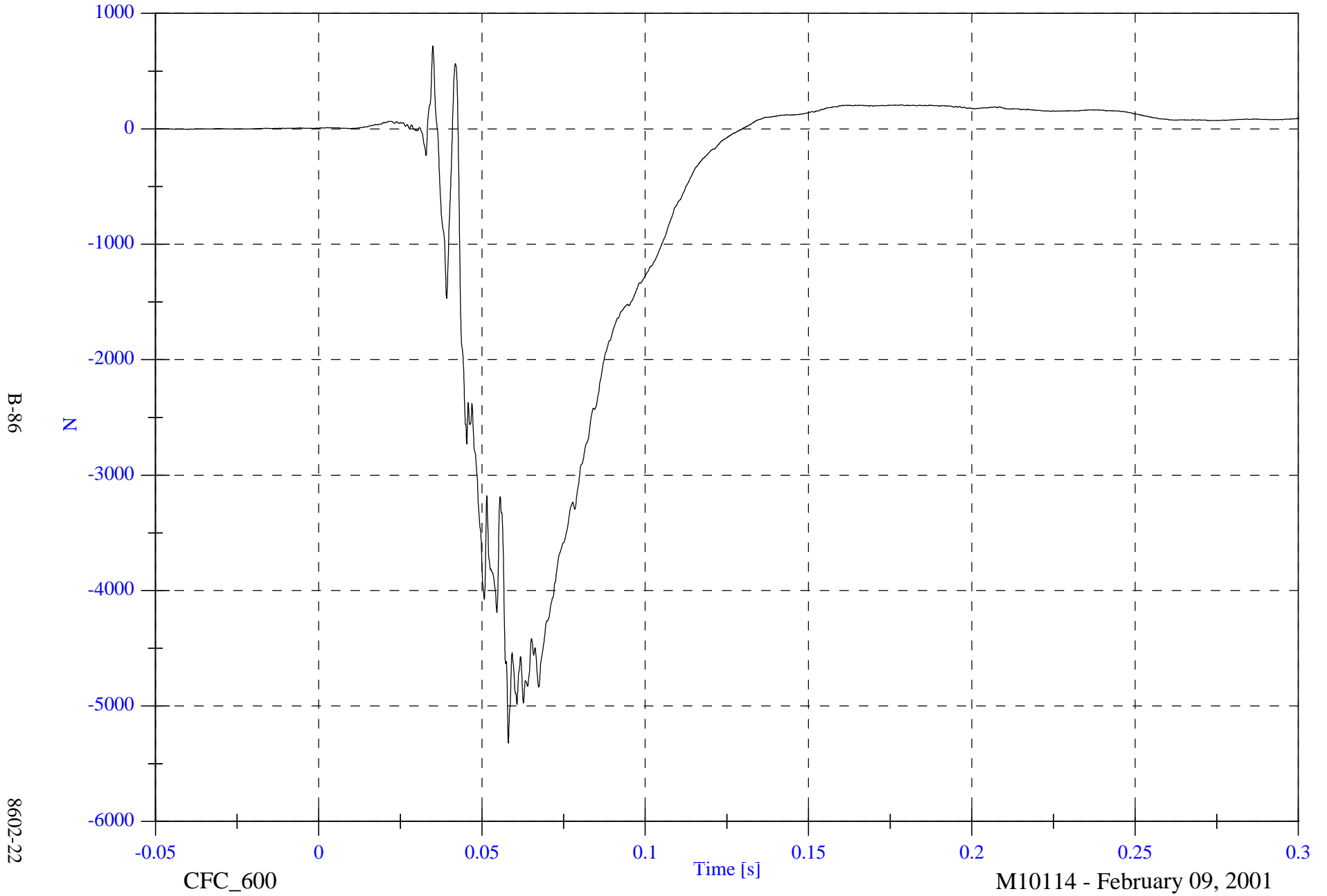
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P2 Right Femur

Max: 718.8 [N] at 0.035 [s]

Min: -5321.3 [N] at 0.058 [s]



B-86

8602-22

CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

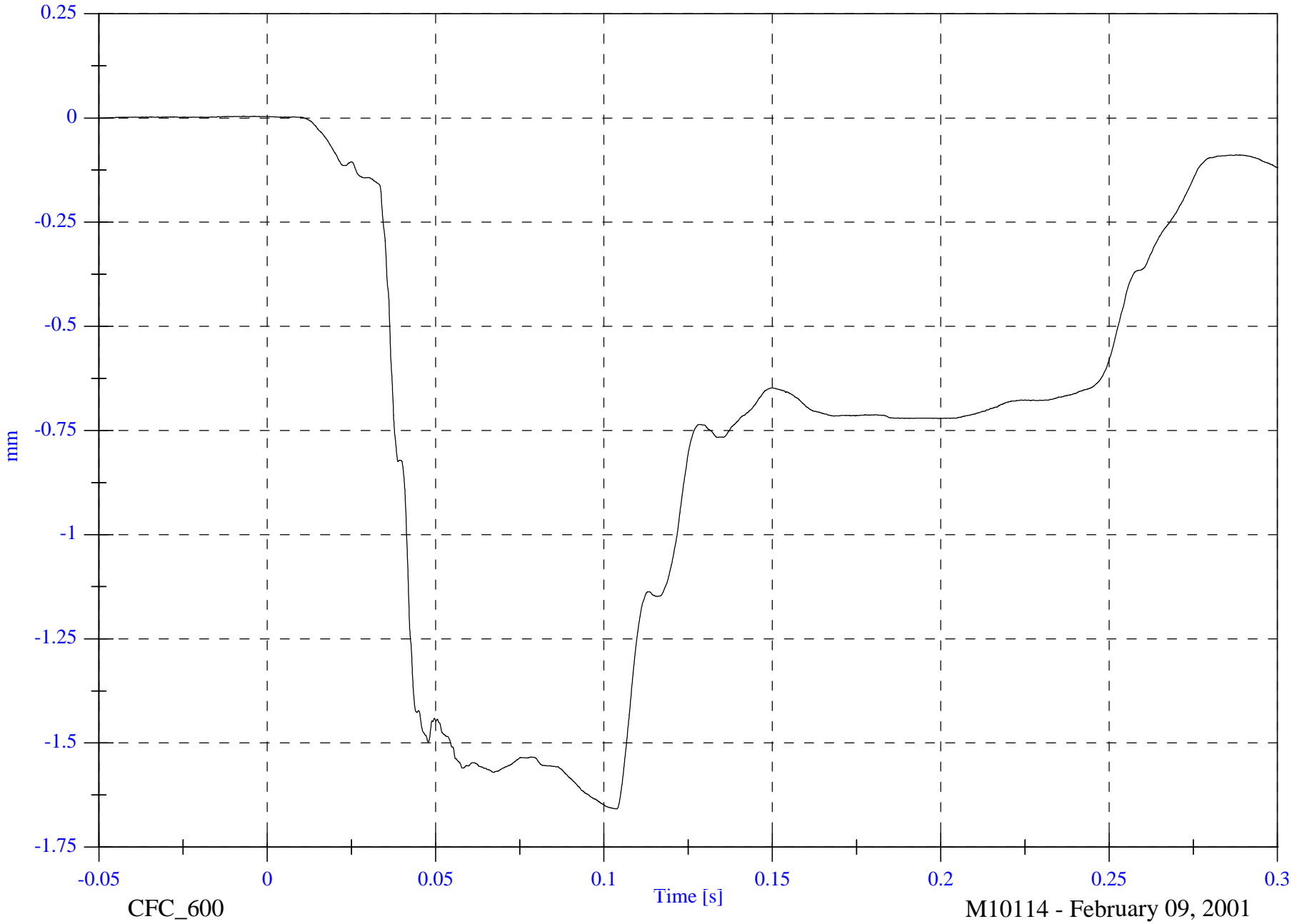
P2 Left Knee Shear

Max: 0.0 [mm] at -0.007 [s]

Min: -1.7 [mm] at 0.104 [s]

B-87

8602-22



CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

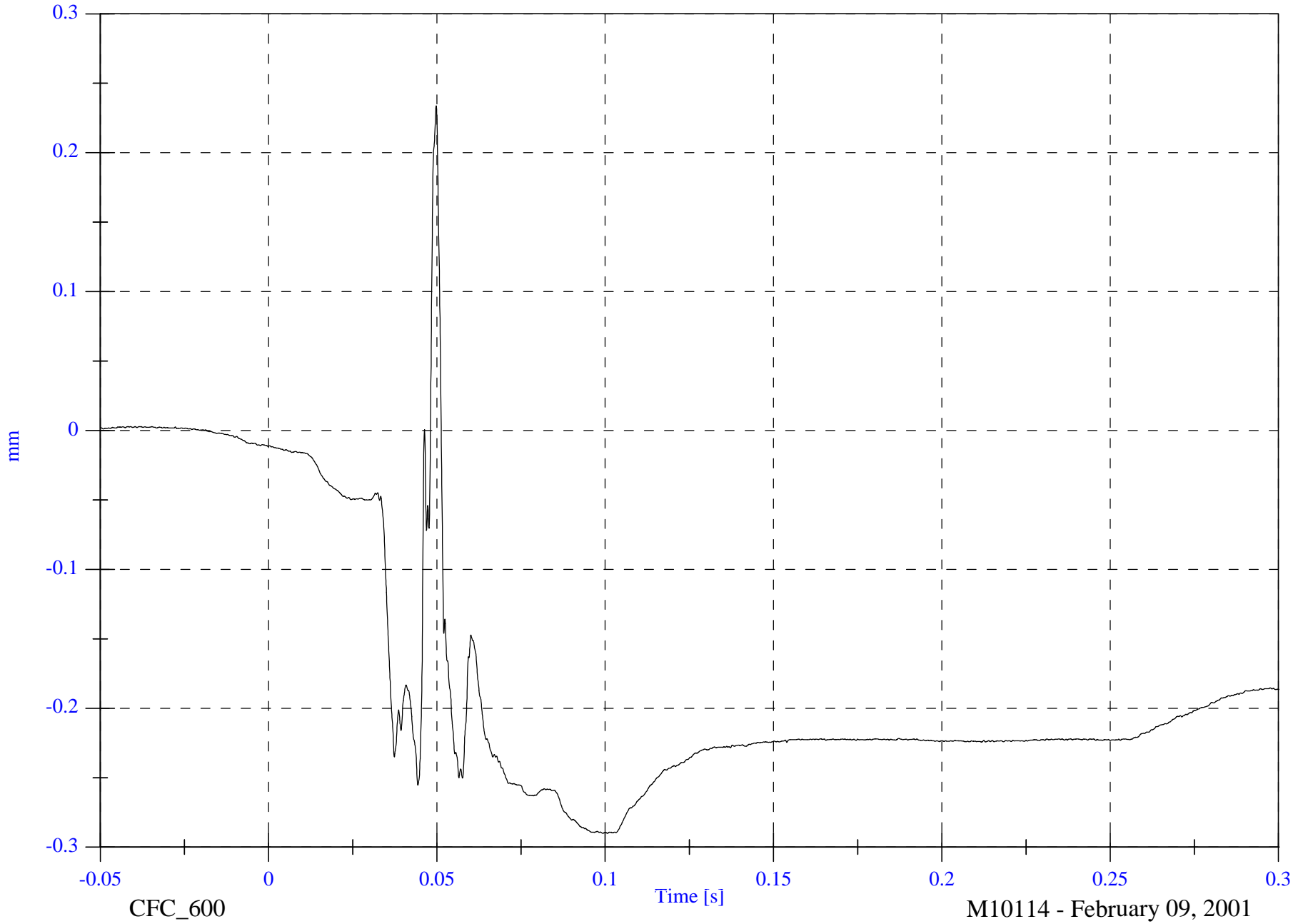
P2 Right Knee Shear

Max: 0.2 [mm] at 0.050 [s]

Min: -0.3 [mm] at 0.099 [s]

B-88

8602-22



CFC\_600

Time [s]

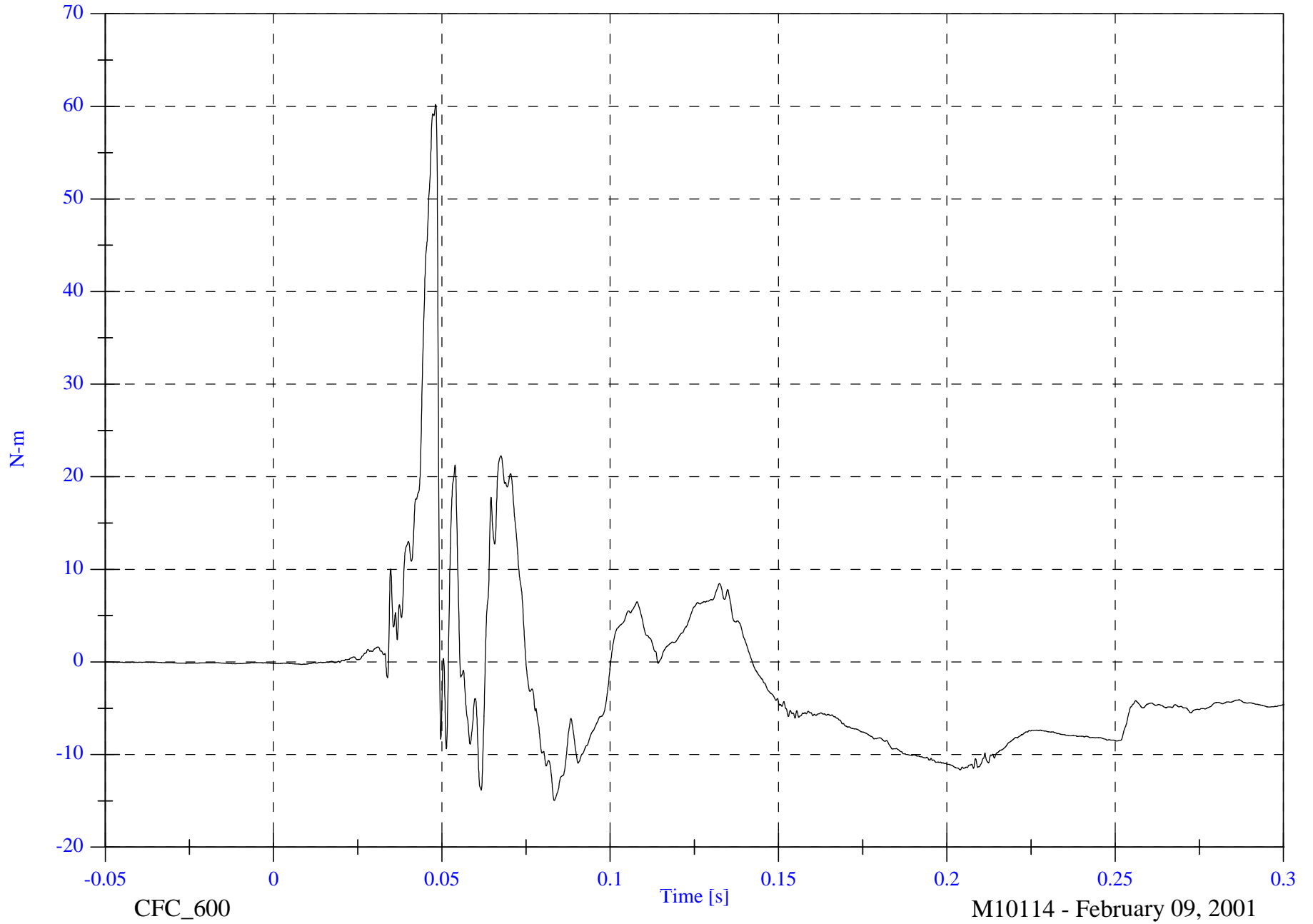
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 60.2 [N-m] at 0.048 [s]

P2 Left Upper Tibia Mx

Min: -15.0 [N-m] at 0.083 [s]



B-89

8602-22

CFC\_600

Time [s]

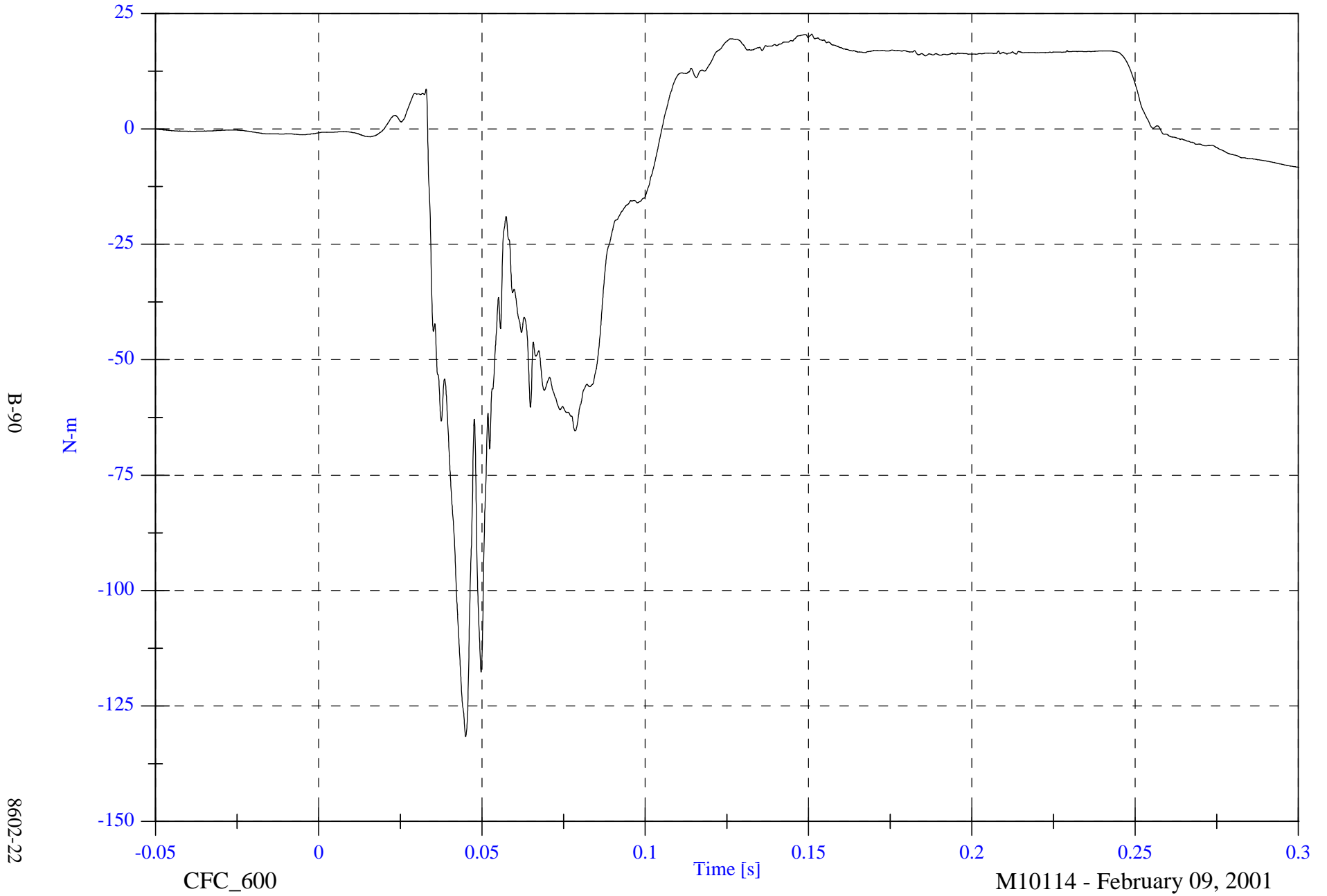
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 20.5 [N-m] at 0.151 [s]

Min: -131.6 [N-m] at 0.045 [s]

P2 Left Upper Tibia My



B-90

8602-22

CFC\_600

Time [s]

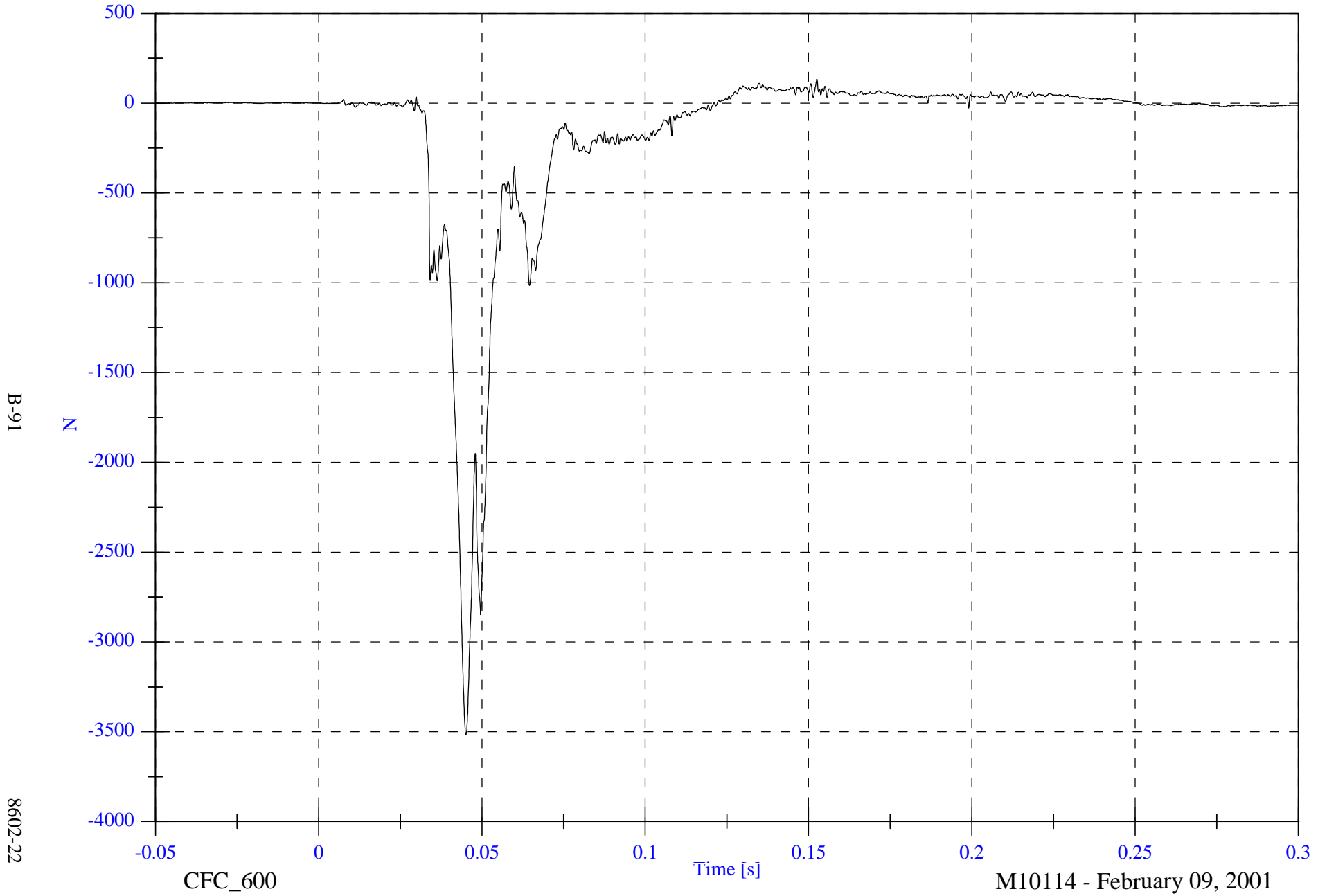
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

P2 Left Lower Tibia Fz

Max: 134.3 [N] at 0.153 [s]

Min: -3515.4 [N] at 0.045 [s]



B-91

8602-22

CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

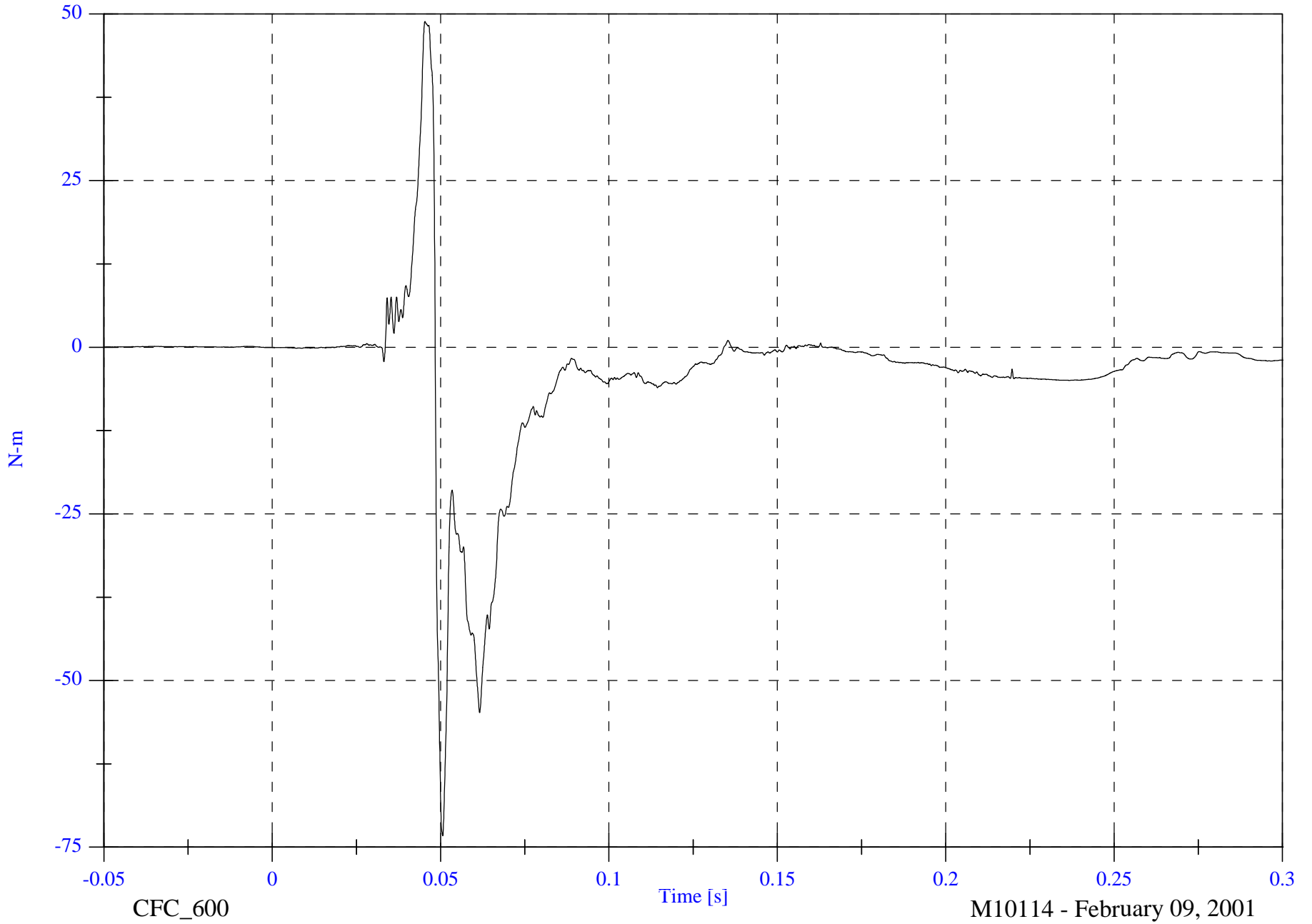
Max: 48.9 [N-m] at 0.045 [s]

P2 Left Lower Tibia Mx

Min: -73.3 [N-m] at 0.051 [s]

B-92

8602-22



M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

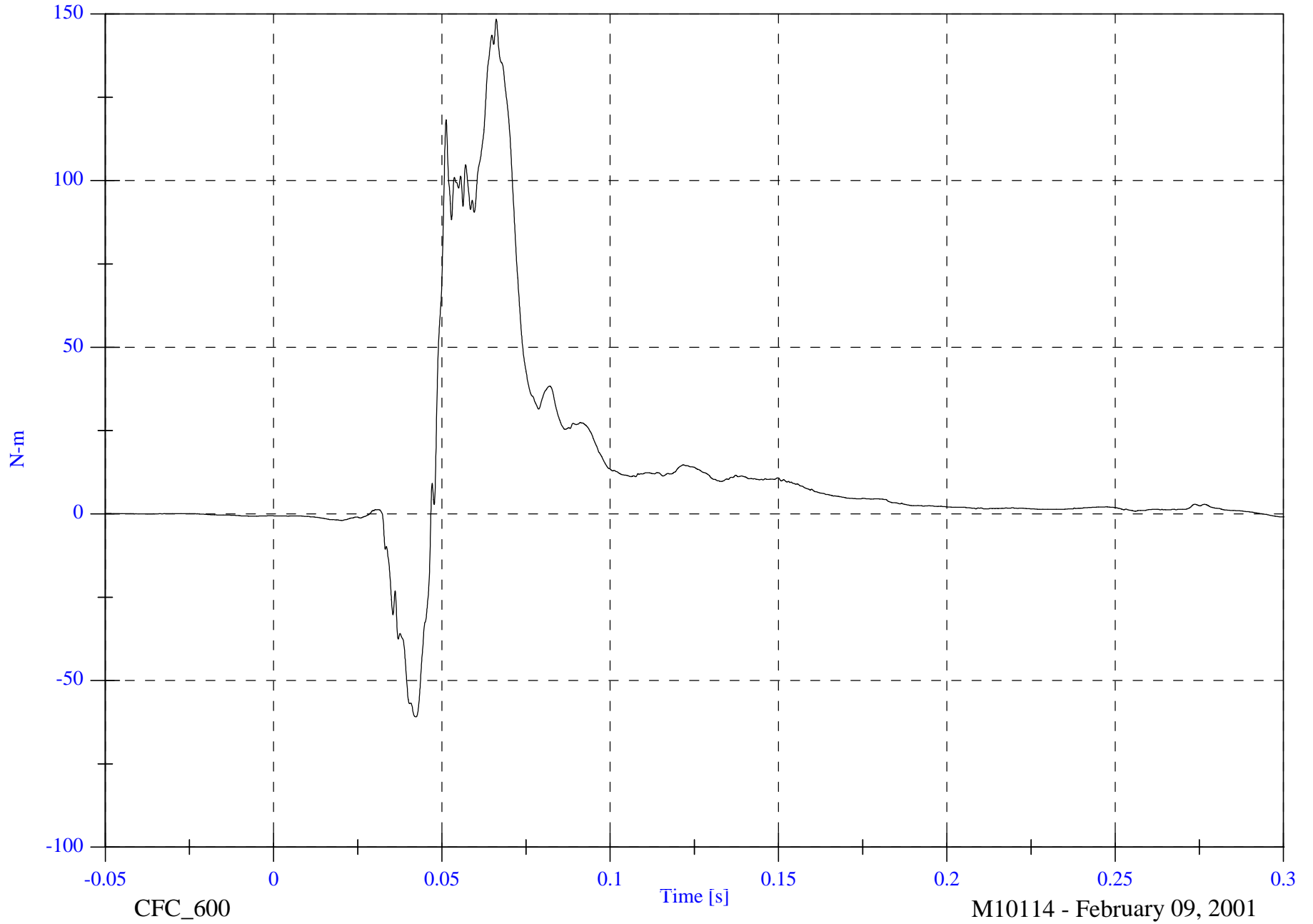
Max: 148.4 [N-m] at 0.066 [s]

P2 Left Lower Tibia My

Min: -60.9 [N-m] at 0.042 [s]

B-93

8602-22



CFC\_600

Time [s]

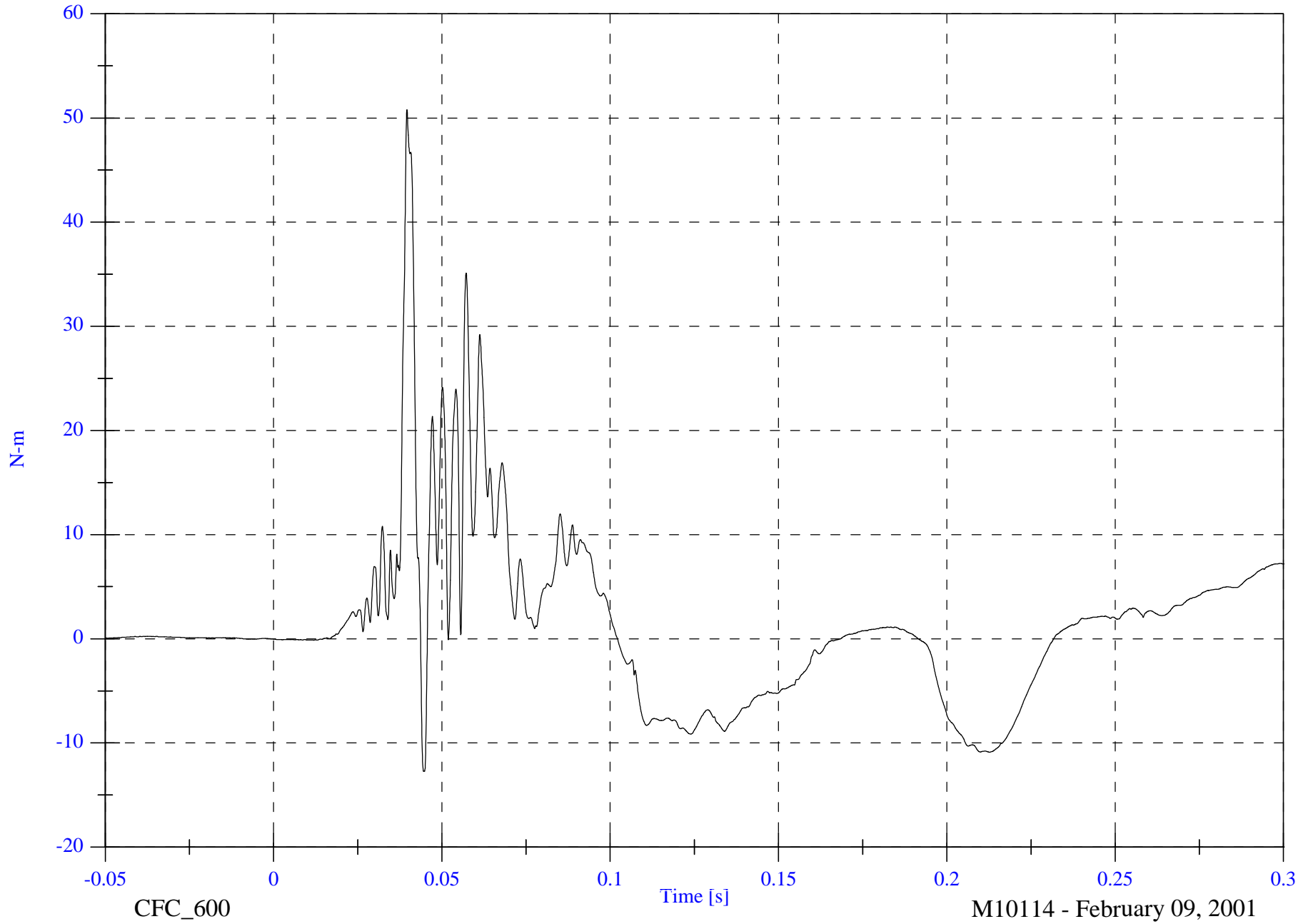
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 50.8 [N-m] at 0.040 [s]

P2 Right Upper Tibia Mx

Min: -12.7 [N-m] at 0.045 [s]



B-94

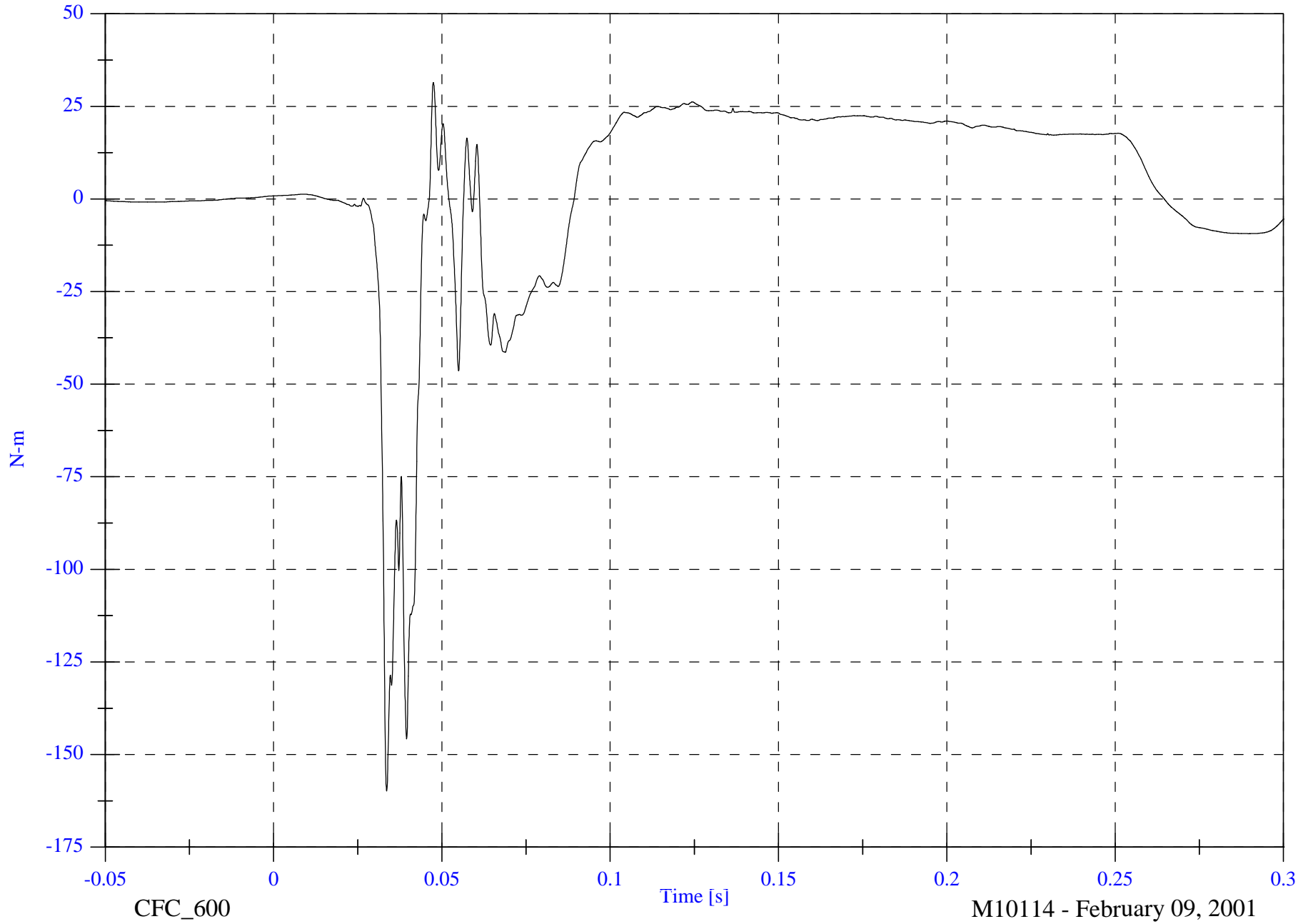
8602-22

NCAP Test #22 - 2001 Pontiac Aztek

Max: 31.5 [N-m] at 0.047 [s]

Min: -159.9 [N-m] at 0.034 [s]

P2 Right Upper Tibia My



B-95

8602-22

CFC\_600

Time [s]

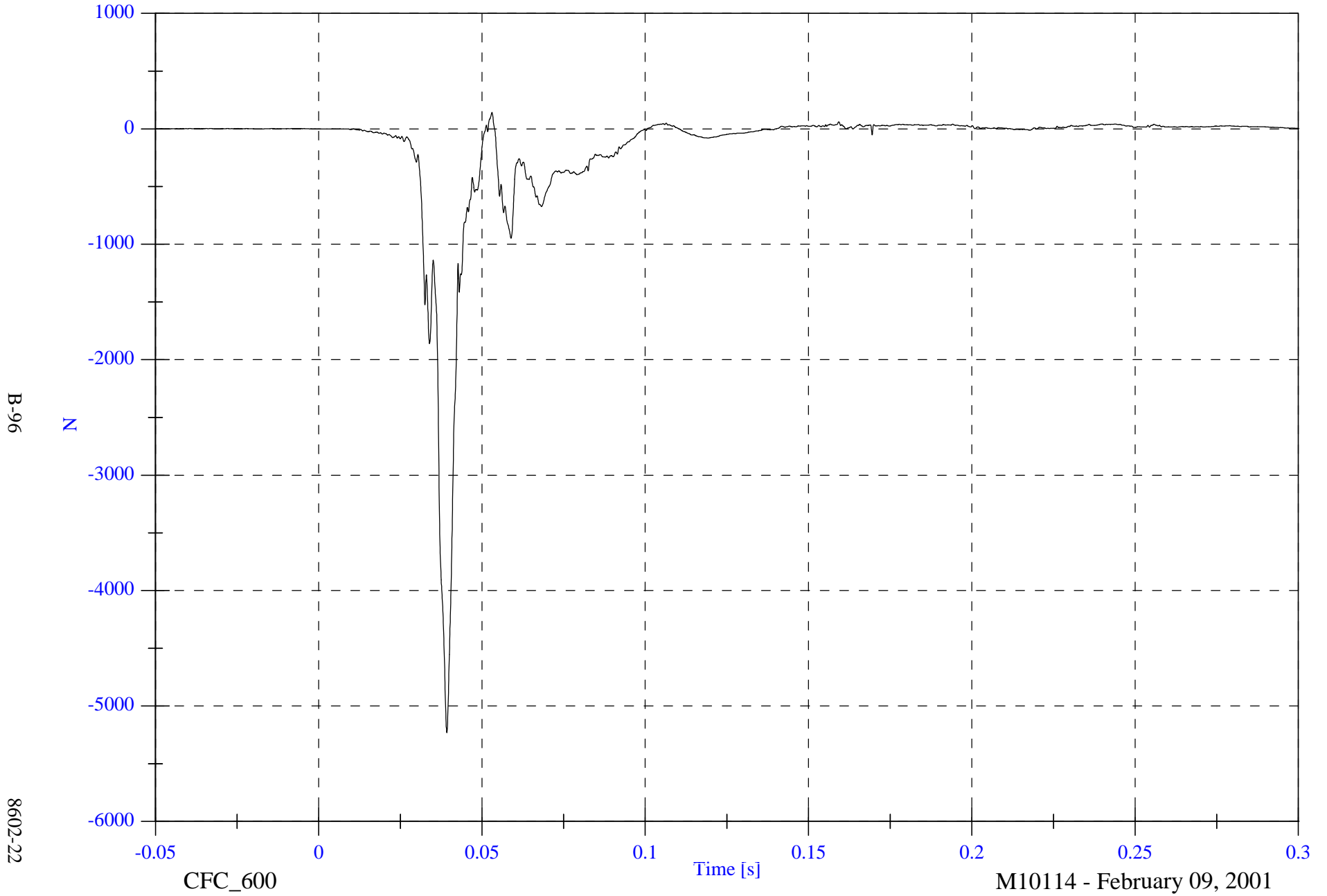
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 142.6 [N] at 0.053 [s]

P2 Right Lower Tibia Fz

Min: -5231.7 [N] at 0.039 [s]



B-96

8602-22

CFC\_600

Time [s]

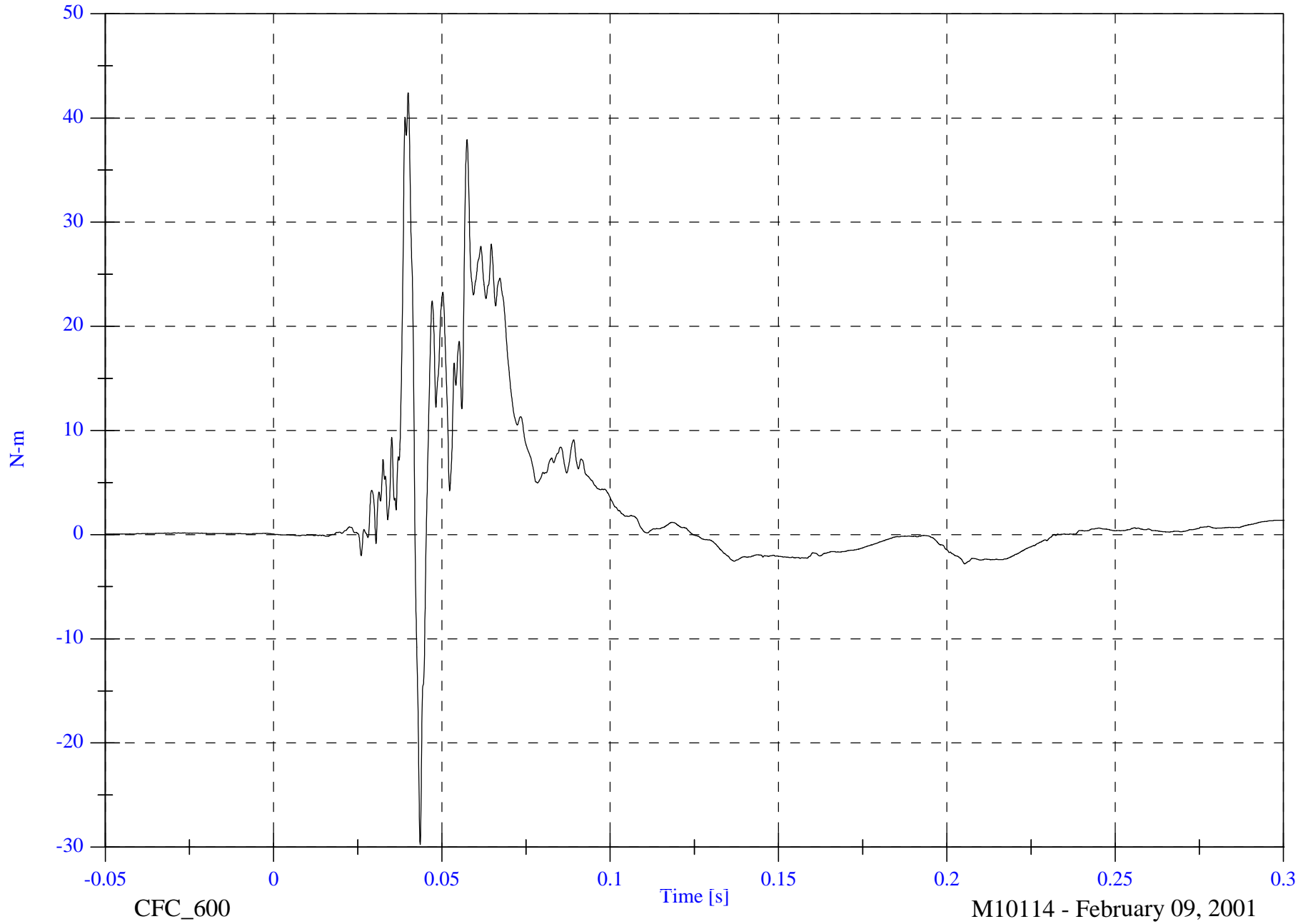
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 42.4 [N-m] at 0.040 [s]

P2 Right Lower Tibia Mx

Min: -29.7 [N-m] at 0.044 [s]



B-97

8602-22

CFC\_600

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

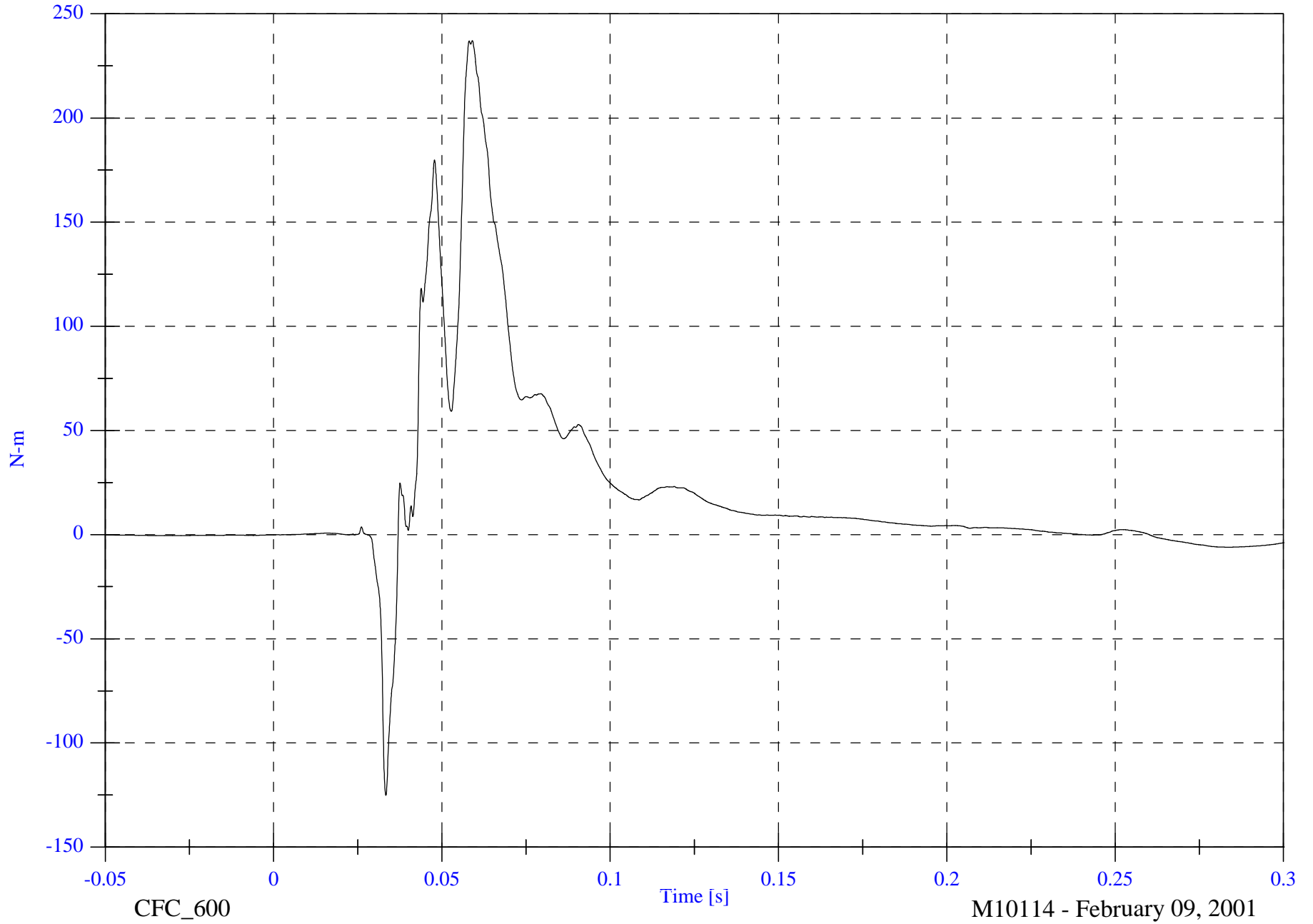
Max: 237.2 [N-m] at 0.059 [s]

P2 Right Lower Tibia My

Min: -125.2 [N-m] at 0.033 [s]

B-98

8602-22



M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

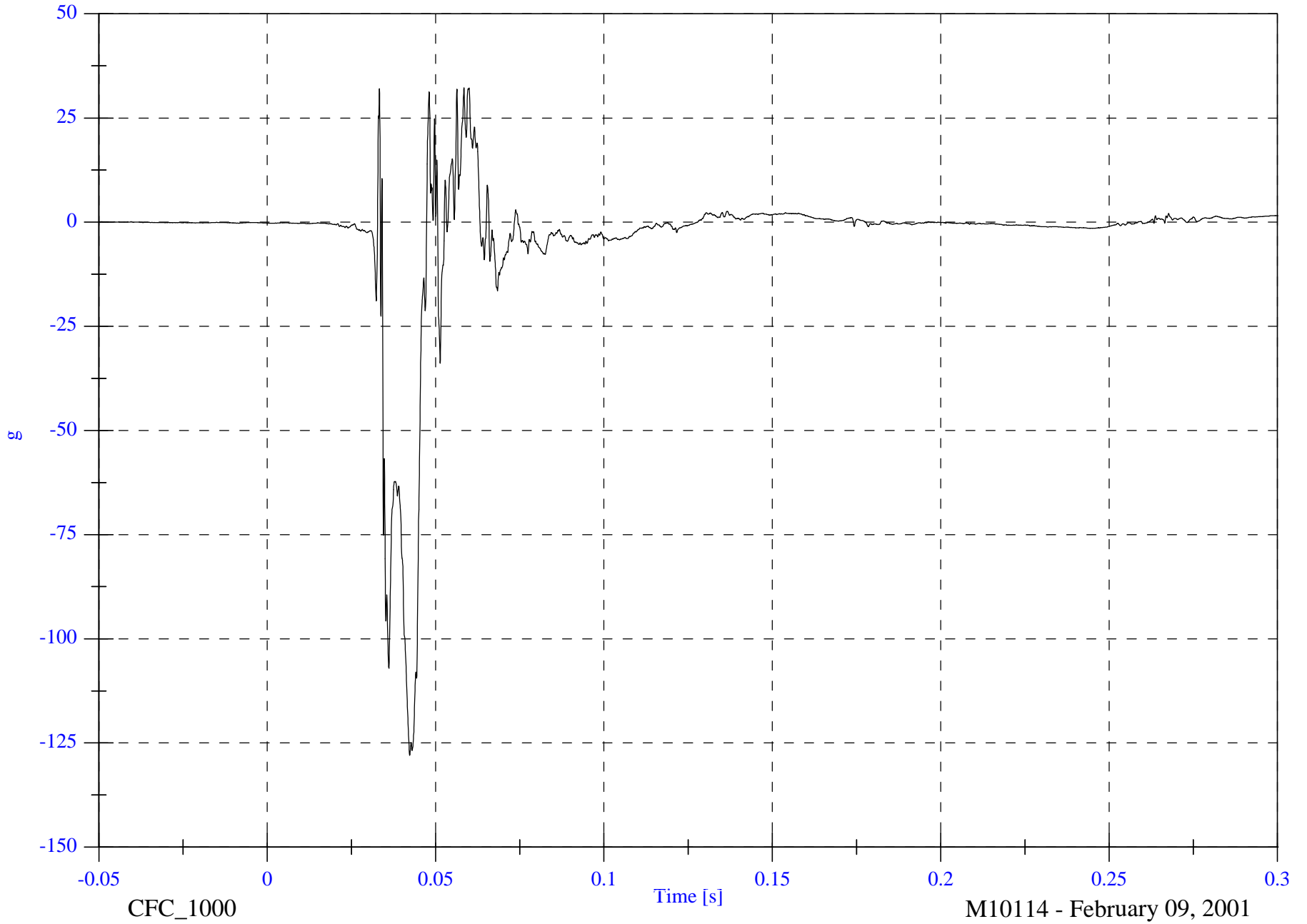
P2 Left Foot Aft x

Max: 32.2 [g] at 0.058 [s]

Min: -128.0 [g] at 0.042 [s]

B-99

8602-22

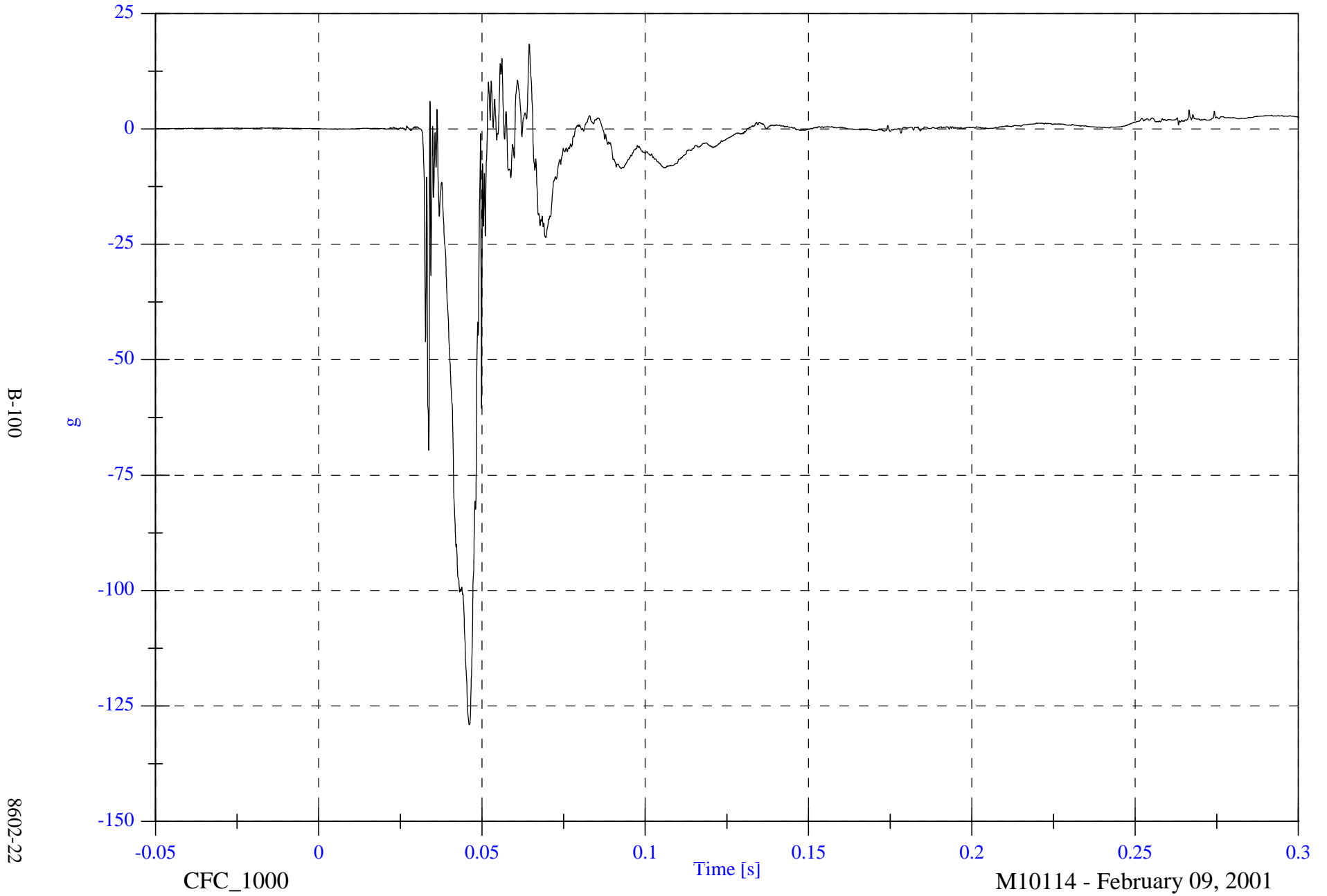


NCAP Test #22 - 2001 Pontiac Aztek

P2 Left Foot Aft z

Max: 18.4 [g] at 0.064 [s]

Min: -129.1 [g] at 0.046 [s]

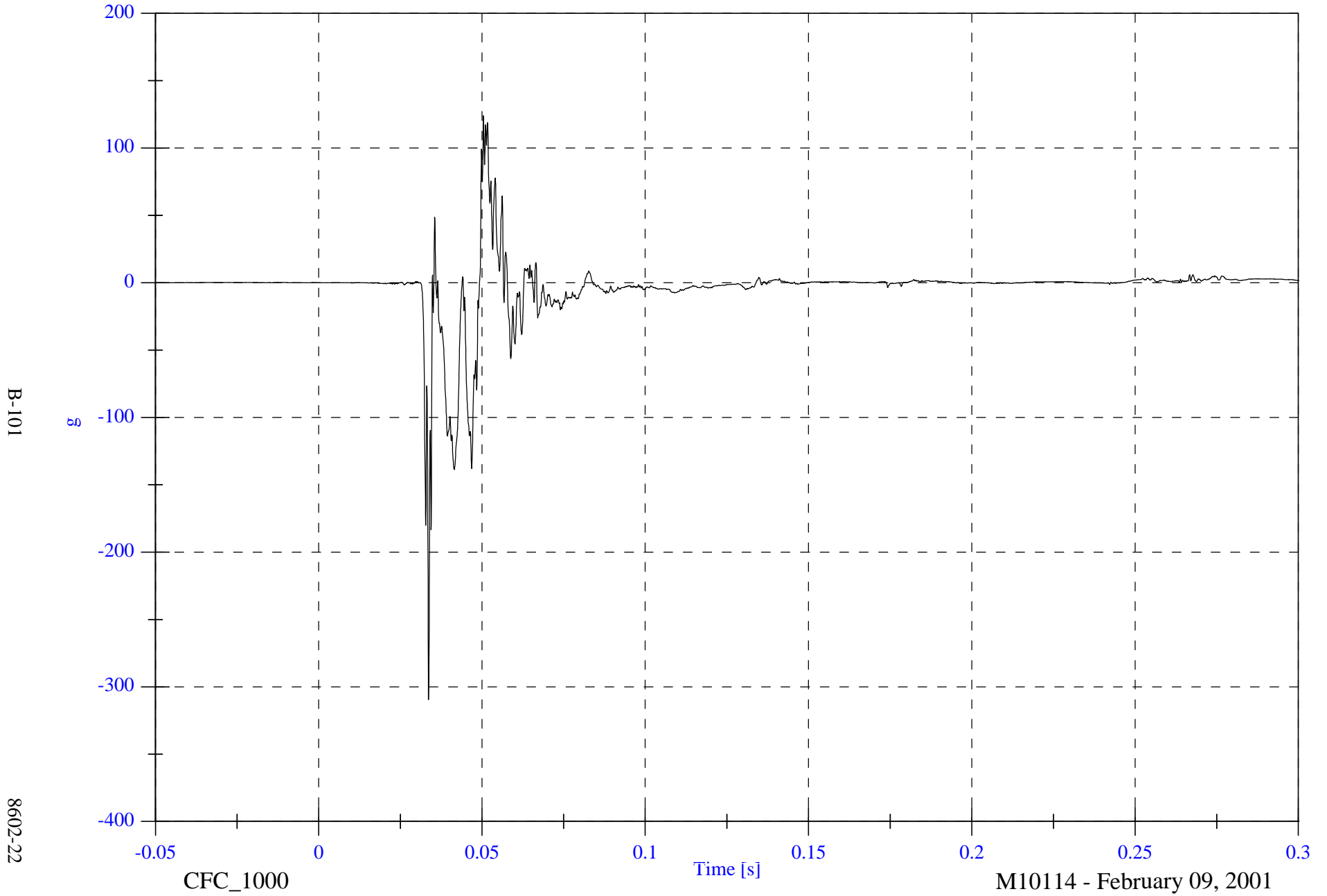


NCAP Test #22 - 2001 Pontiac Aztek

Max: 124.1 [g] at 0.050 [s]

Min: -309.6 [g] at 0.034 [s]

P2 Left Foot Fore z



B-101

8602-22

CFC\_1000

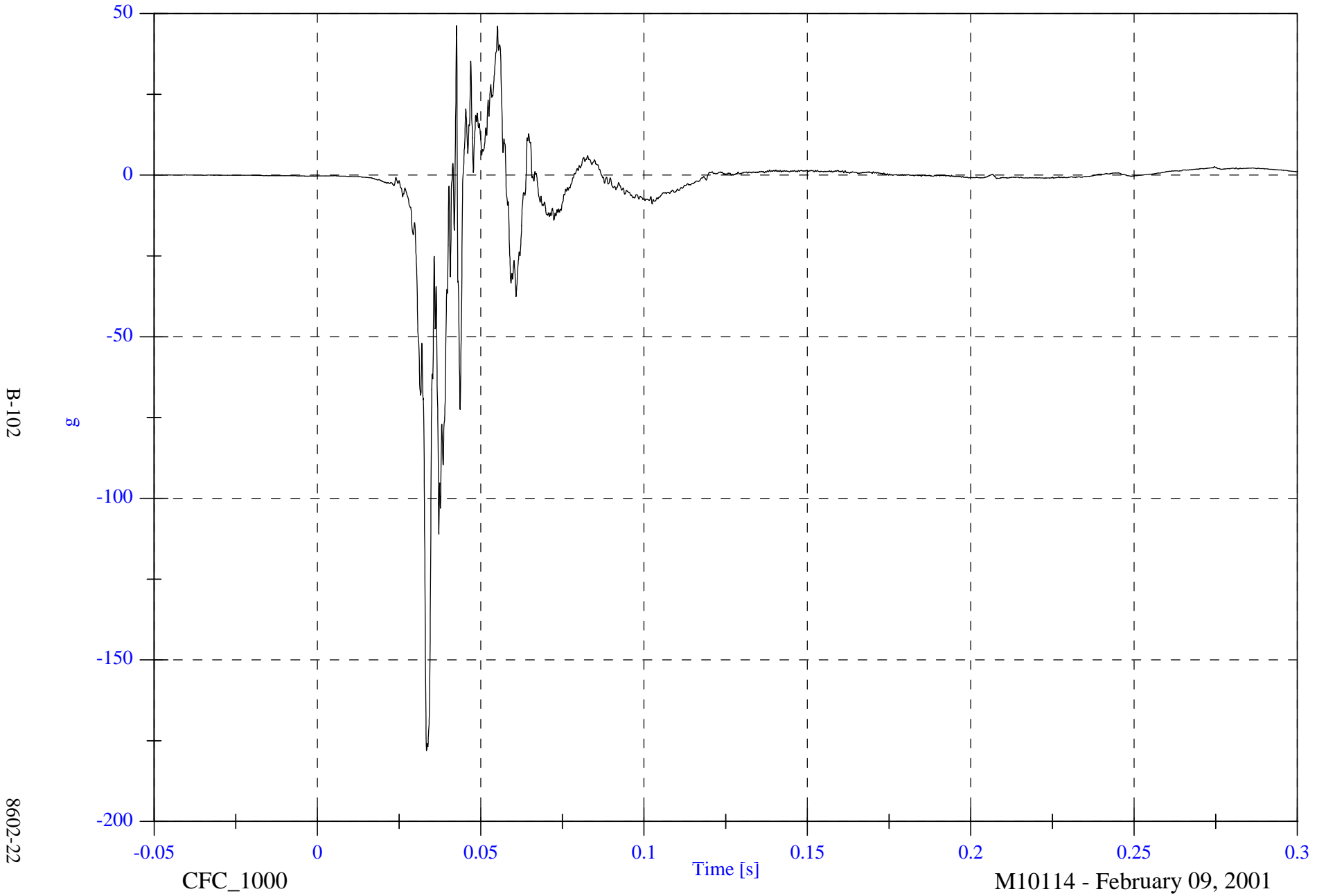
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 46.3 [g] at 0.043 [s]

Min: -178.1 [g] at 0.033 [s]

P2 Right Foot Aft x



NCAP Test #22 - 2001 Pontiac Aztek

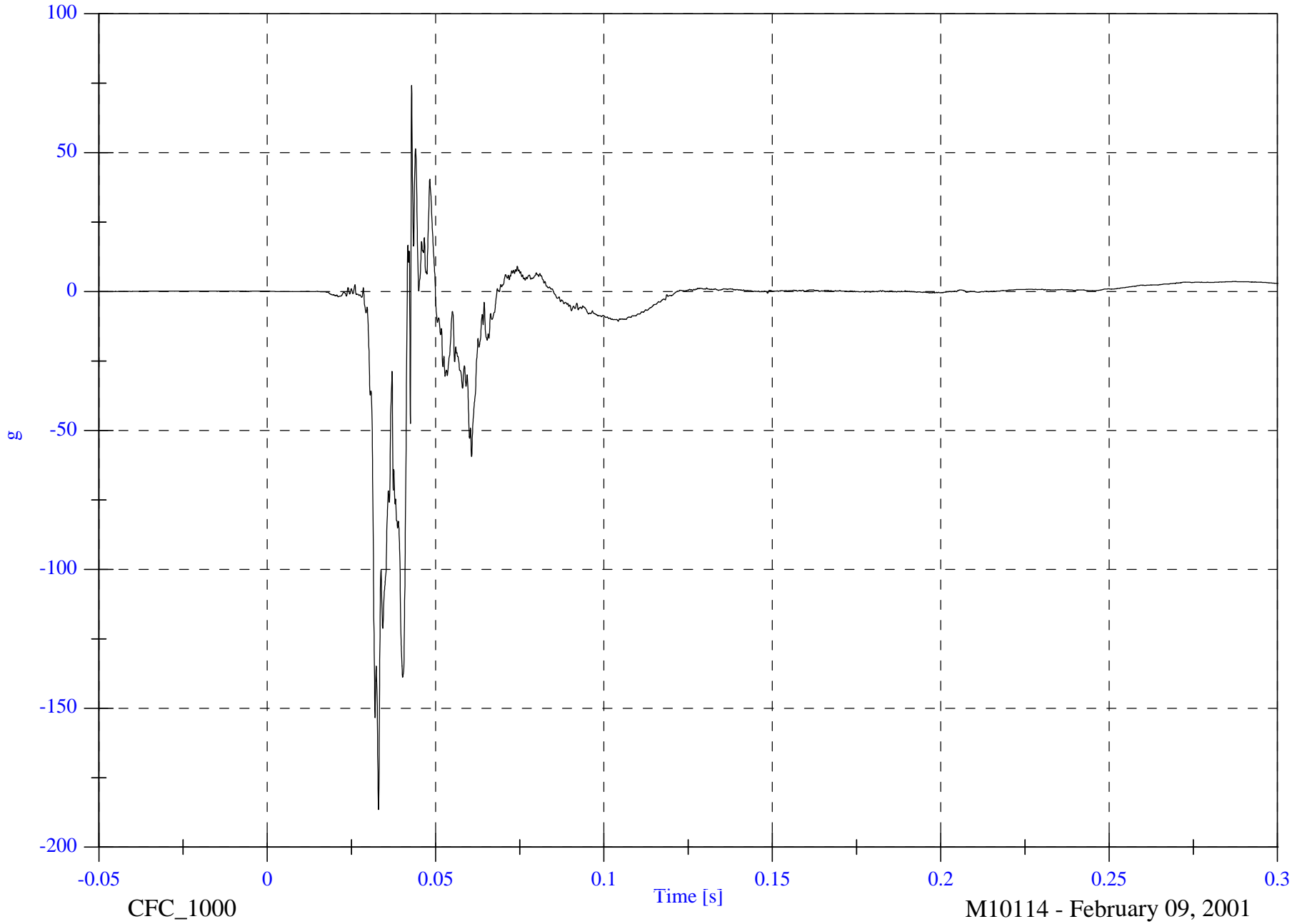
P2 Right Foot Aft z

Max: 74.2 [g] at 0.043 [s]

Min: -186.5 [g] at 0.033 [s]

B-103

8602-22



CFC\_1000

Time [s]

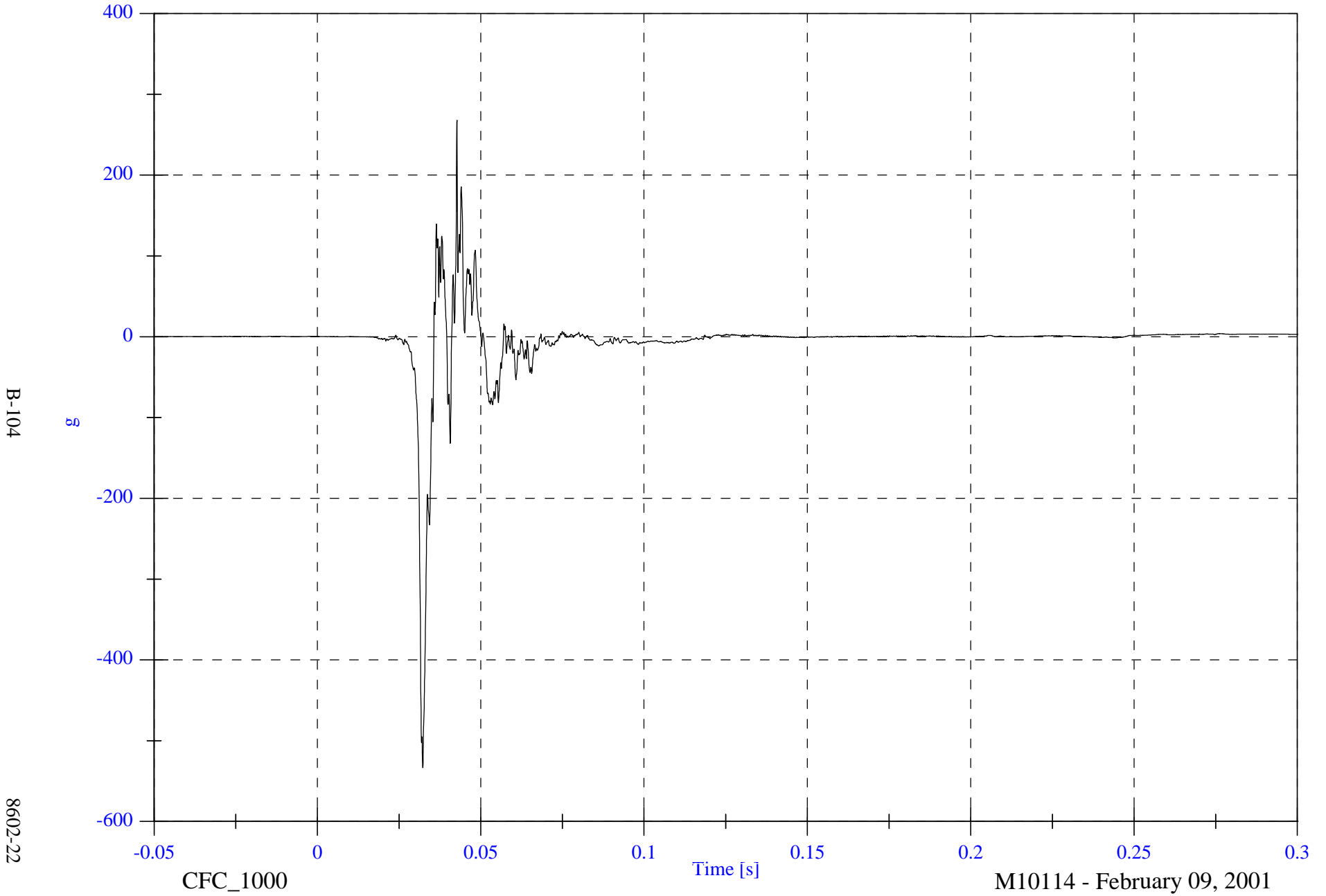
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 267.6 [g] at 0.043 [s]

Min: -533.7 [g] at 0.032 [s]

P2 Right Foot Fore z

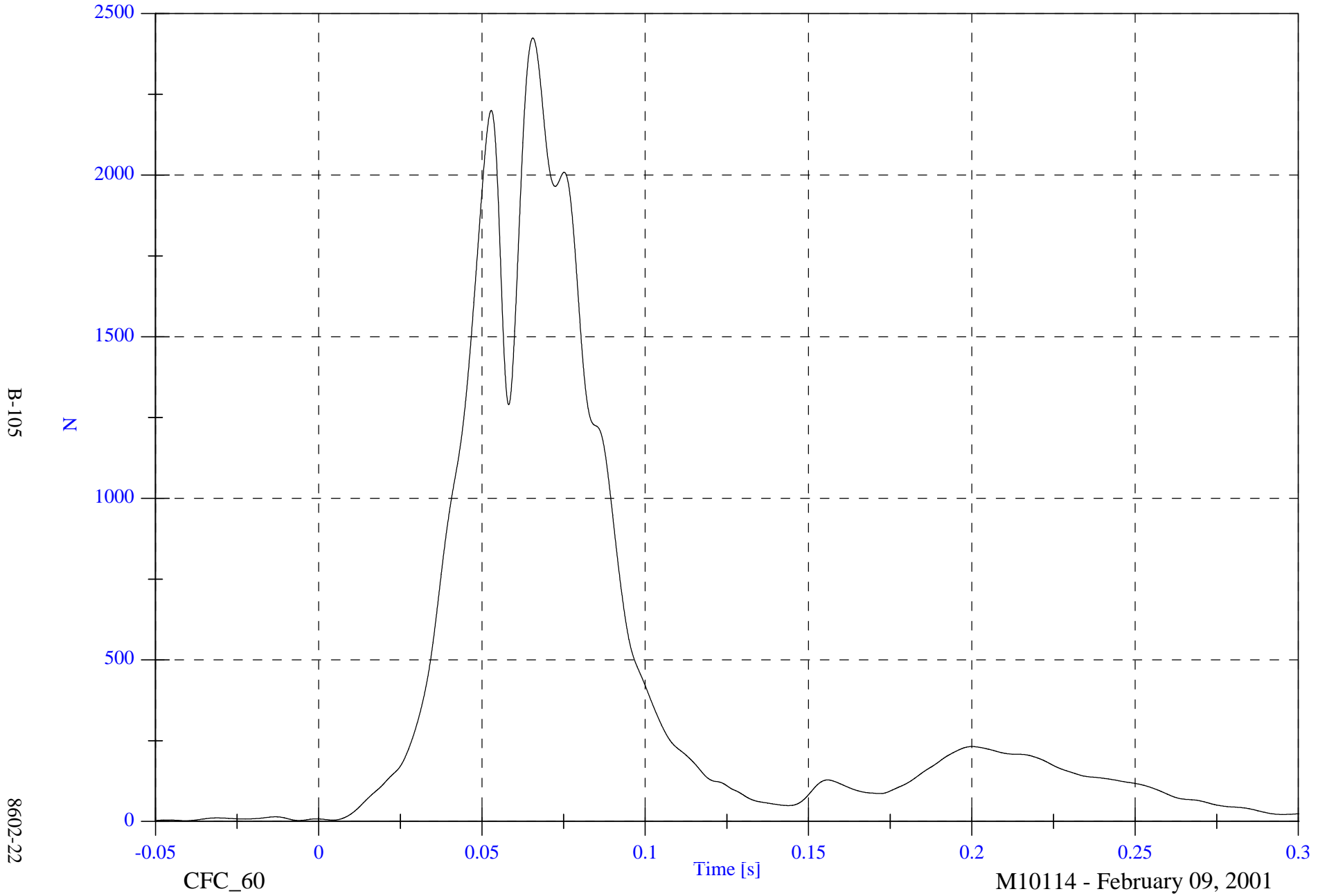


NCAP Test #22 - 2001 Pontiac Aztek

P2 Lap Belt Force

Max: 2423.9 [N] at 0.066 [s]

Min: 2.2 [N] at -0.050 [s]



B-105

8602-22

CFC\_60

Time [s]

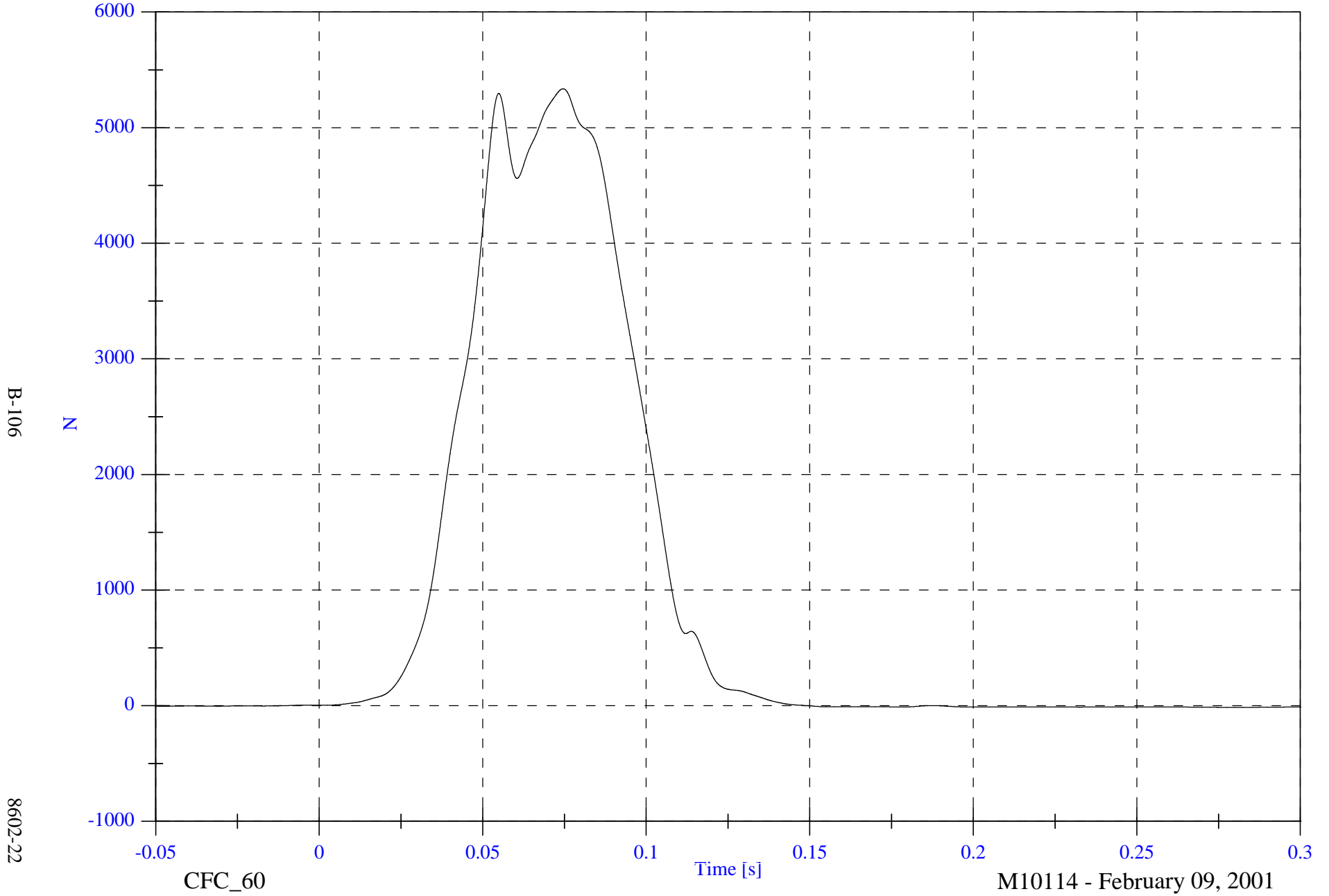
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 5336.4 [N] at 0.075 [s]

P2 Shoulder Belt Force

Min: -15.0 [N] at 0.278 [s]



B-106

8602-22

CFC\_60

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

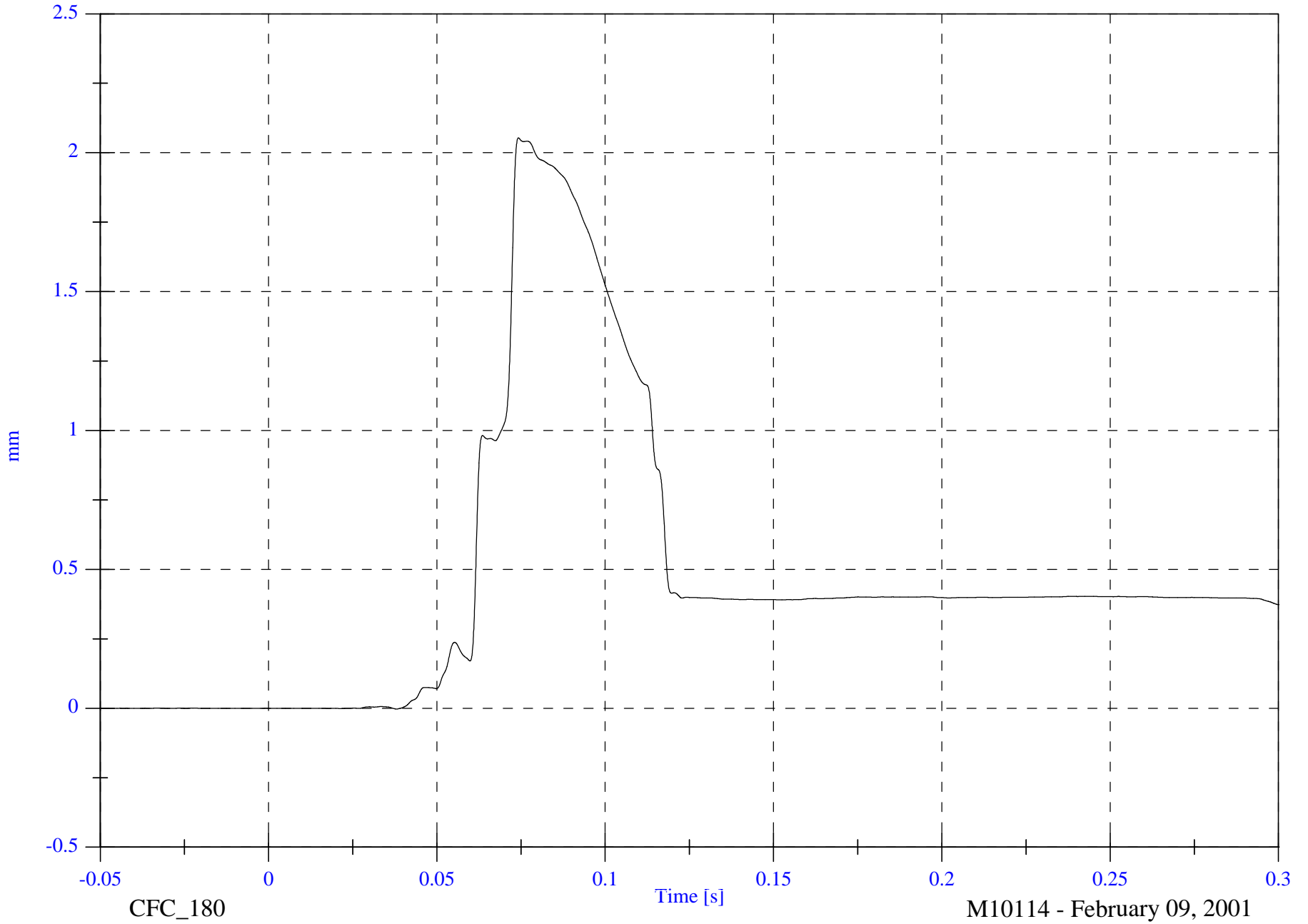
P2 Shoulder Belt Elongation

Max: 2.1 [mm] at 0.074 [s]

Min: -0.0 [mm] at 0.038 [s]

B-107

8602-22



CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

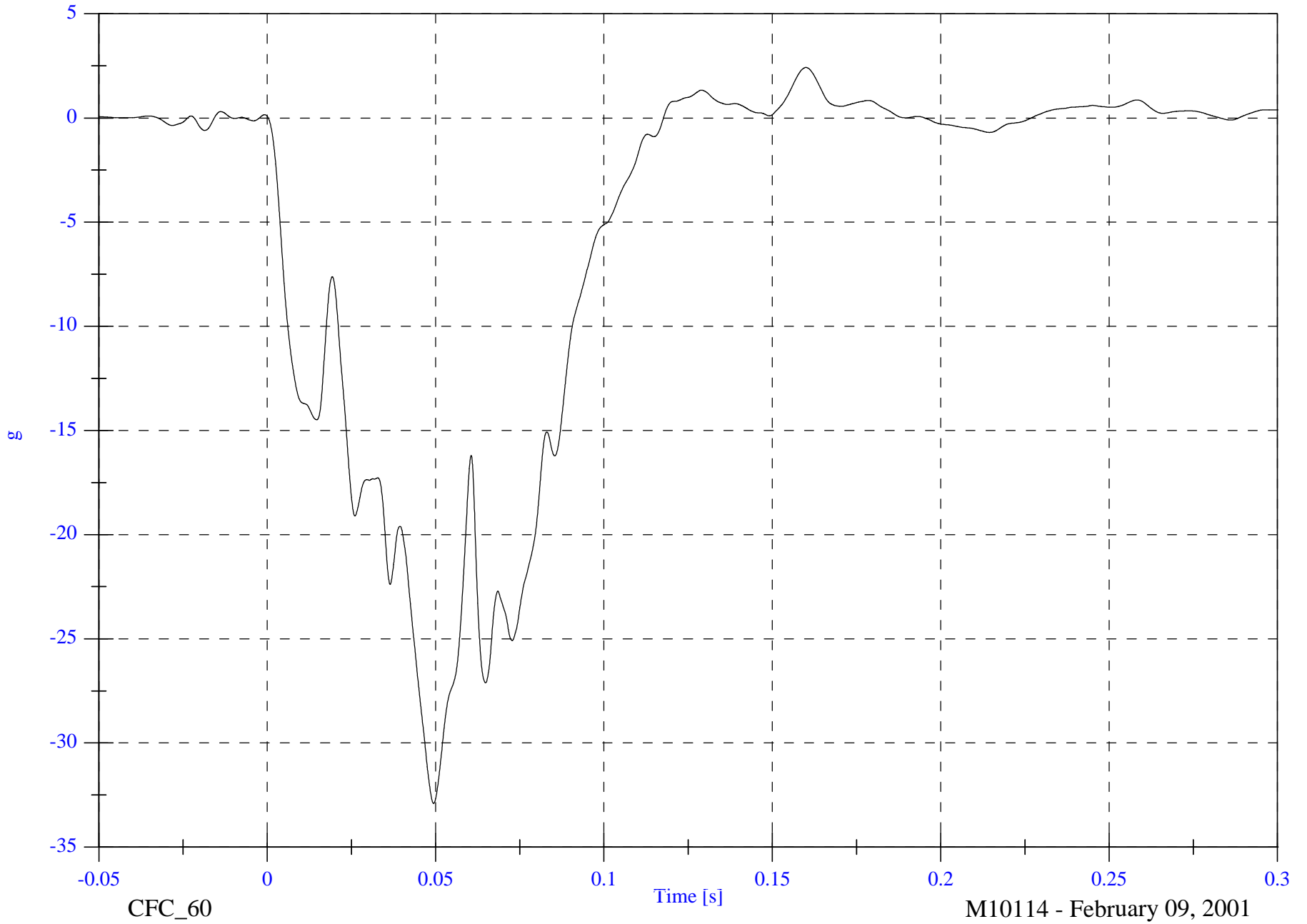
Left Rear #1x

Max: 2.4 [g] at 0.160 [s]

Min: -32.9 [g] at 0.049 [s]

B-108

8602-22



CFC\_60

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

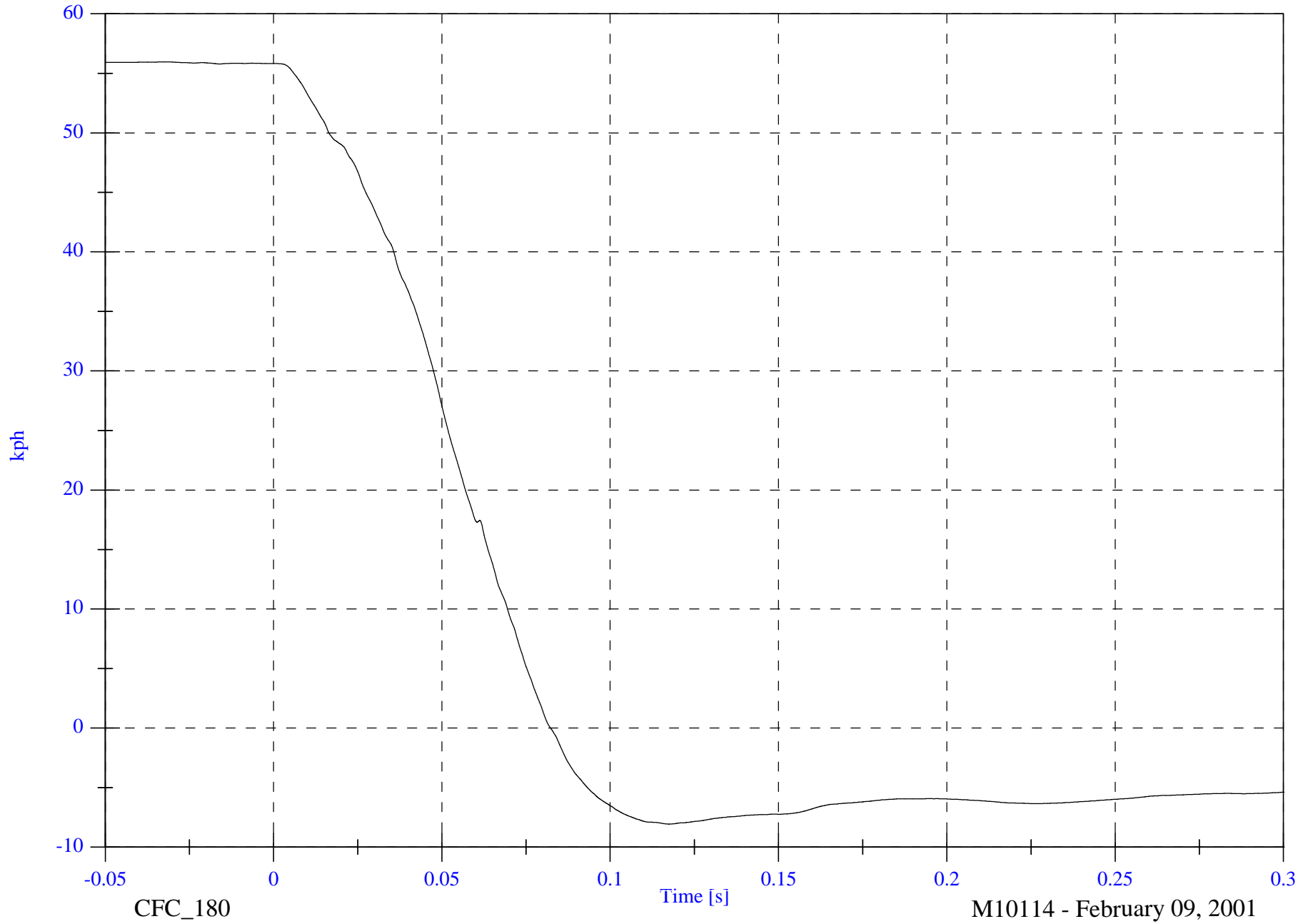
Max: 56.0 [kph] at -0.032 [s]

Left Rear #1x Velocity

Min: -8.1 [kph] at 0.118 [s]

B-109

8602-22



CFC\_180

Time [s]

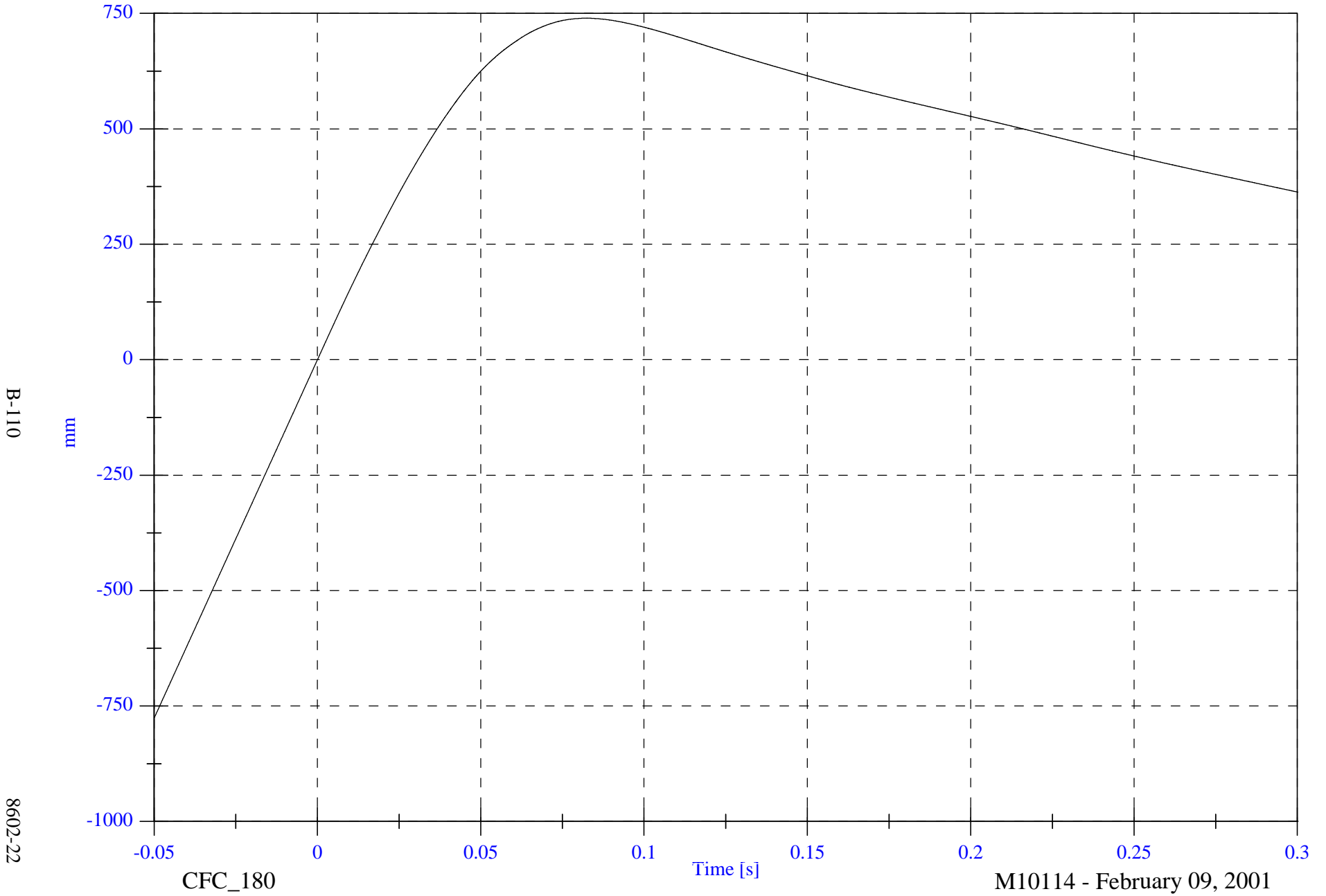
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 739.5 [mm] at 0.082 [s]

Min: -776.2 [mm] at -0.050 [s]

Left Rear #1x Displacement



B-110

8602-22

CFC\_180

Time [s]

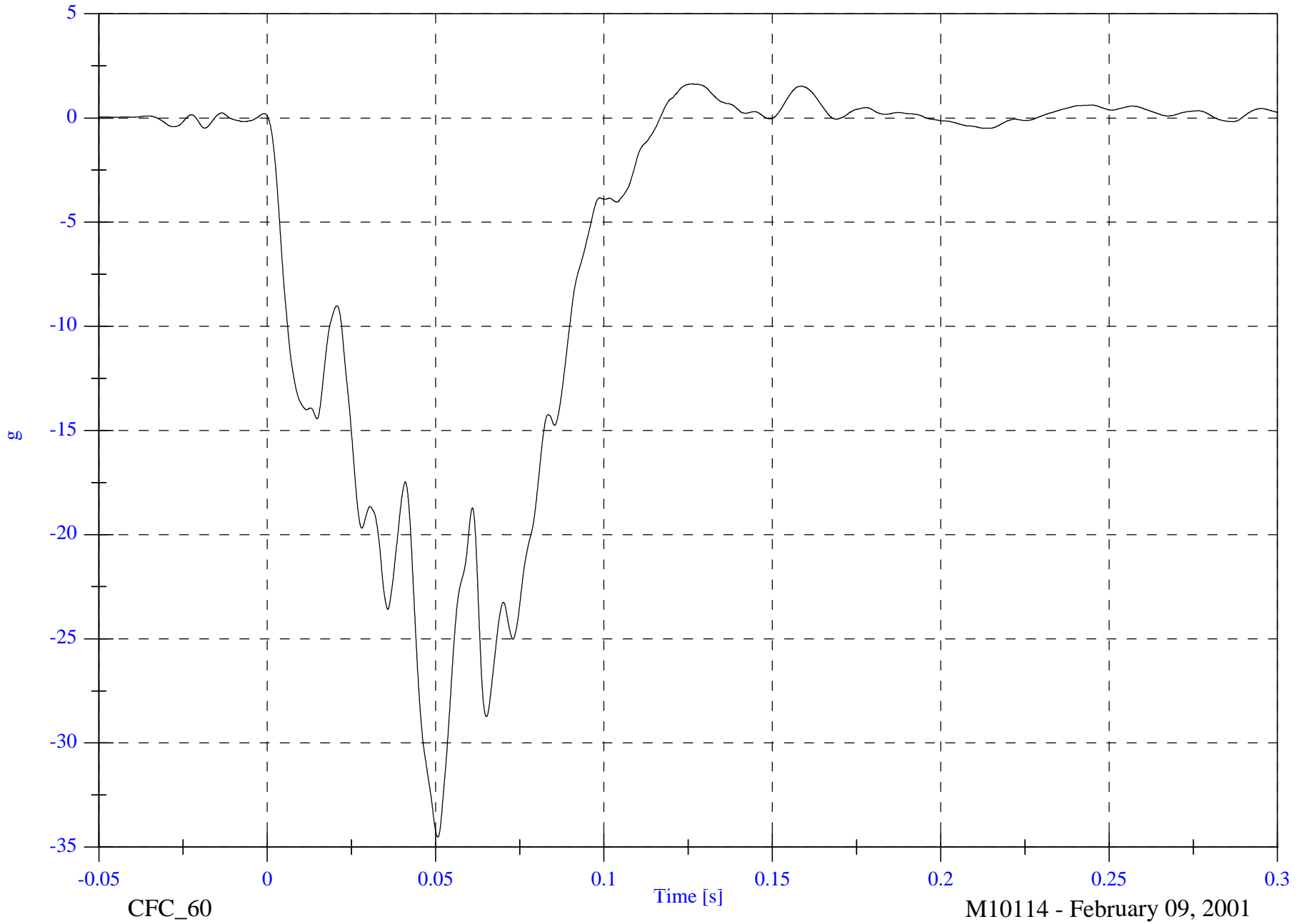
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Right Rear #2x

Max: 1.6 [g] at 0.126 [s]

Min: -34.5 [g] at 0.051 [s]



B-111

8602-22

CFC\_60

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

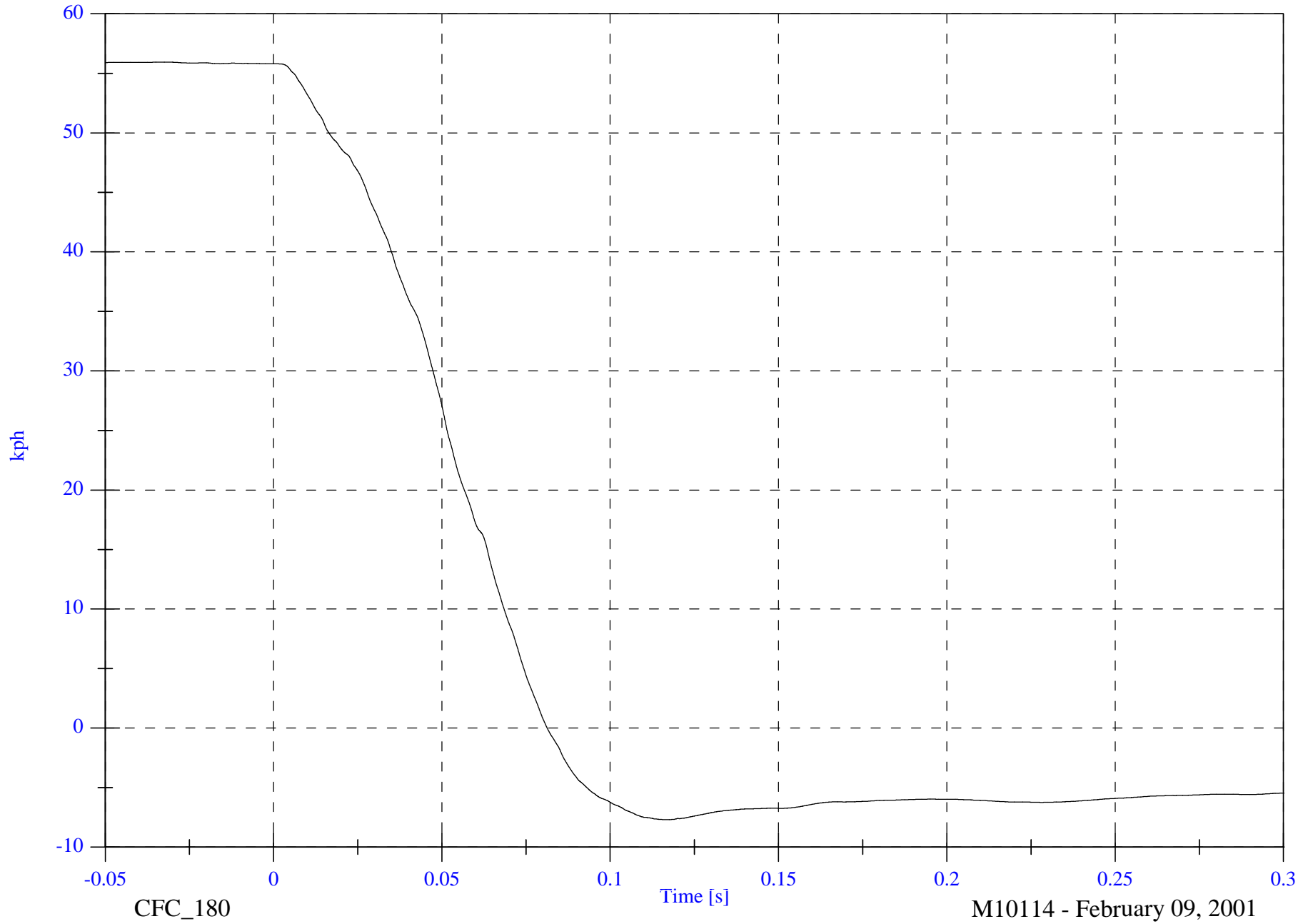
Max: 55.9 [kph] at -0.033 [s]

Right Rear #2x Velocity

Min: -7.7 [kph] at 0.116 [s]

B-112

8602-22



CFC\_180

Time [s]

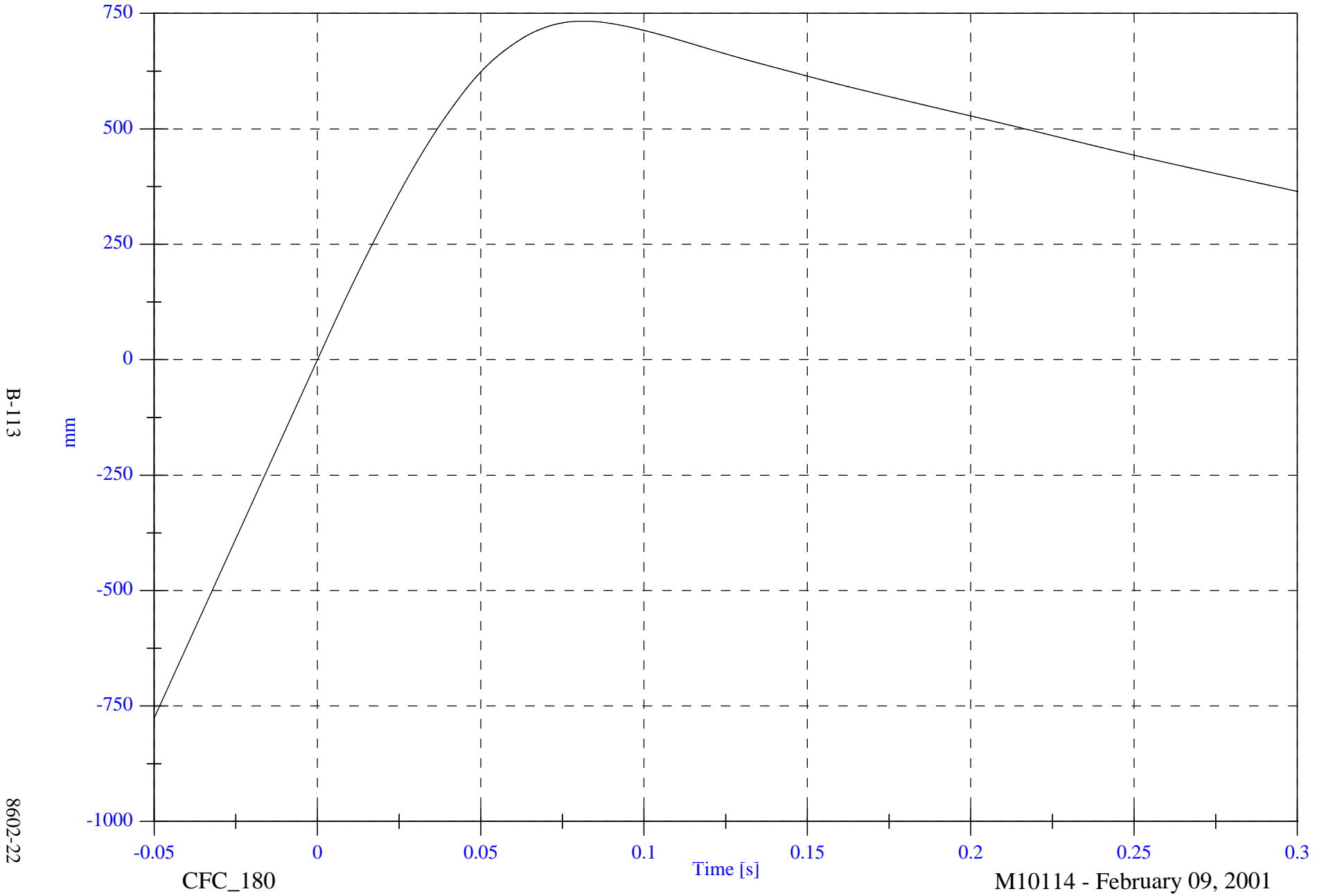
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 733.3 [mm] at 0.081 [s]

Min: -776.1 [mm] at -0.050 [s]

Right Rear #2x Displacement



B-113

8602-22

CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

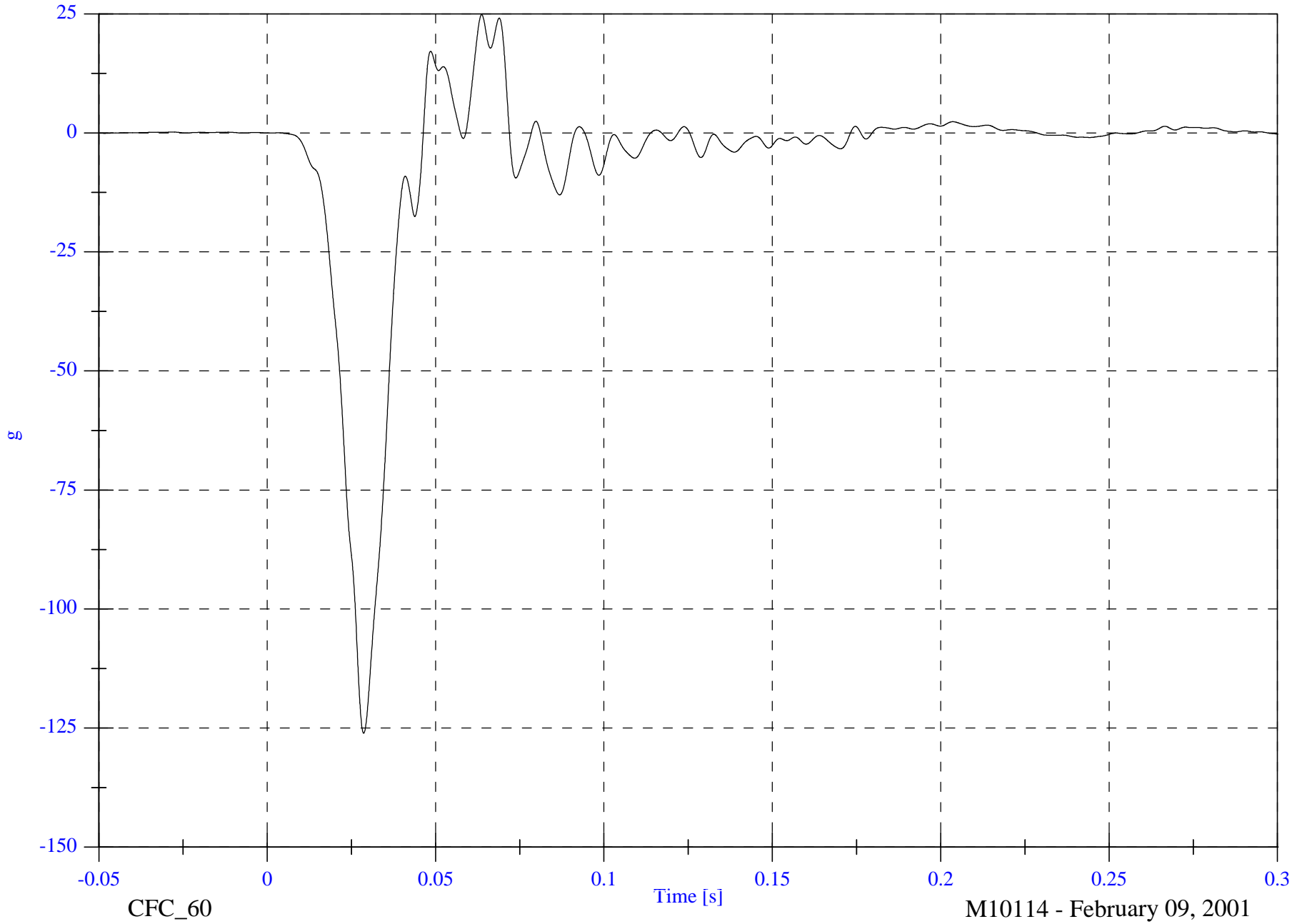
Engine Top #3x

Max: 24.9 [g] at 0.064 [s]

Min: -126.1 [g] at 0.029 [s]

B-114

8602-22



CFC\_60

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

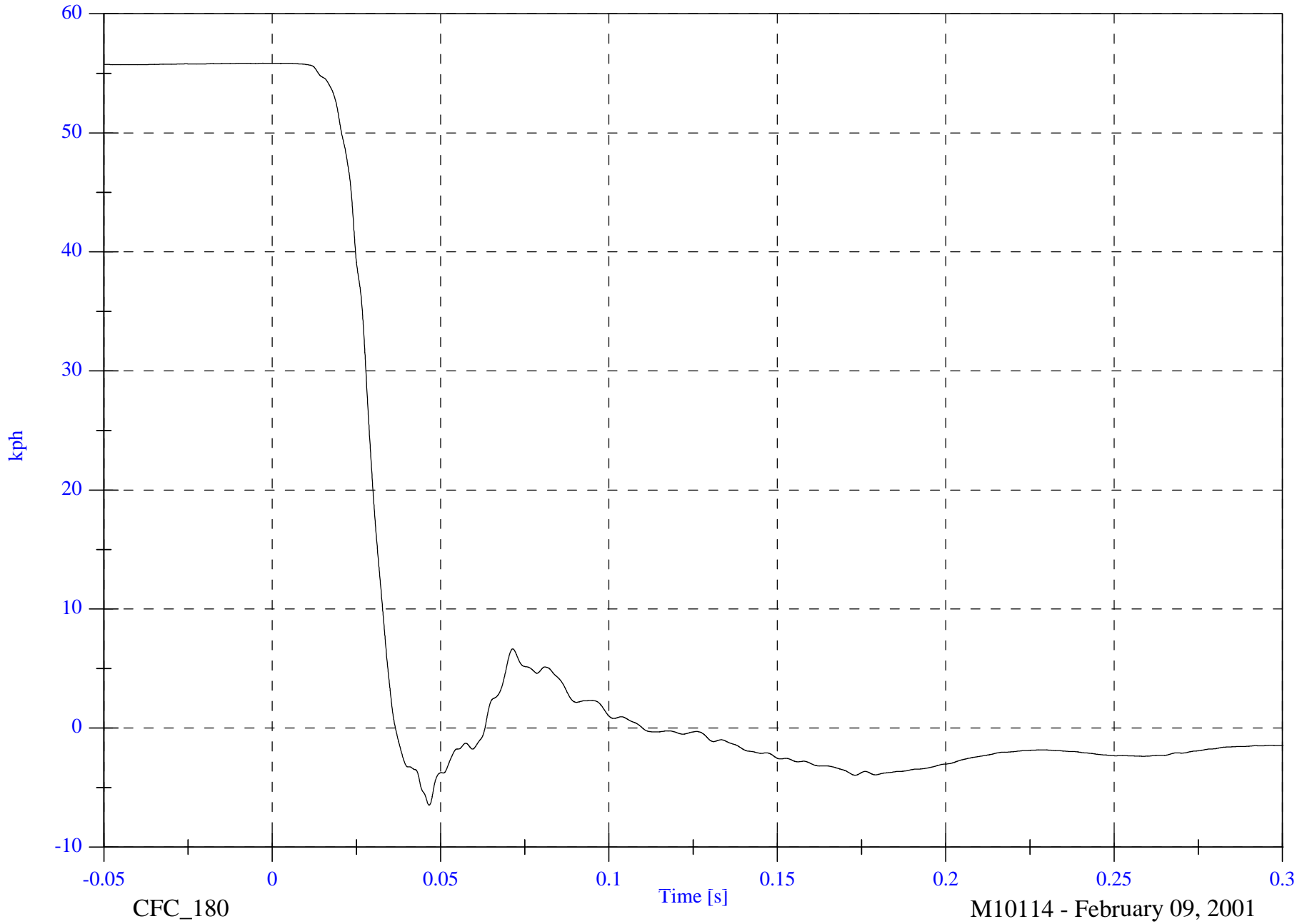
Max: 55.9 [kph] at -0.003 [s]

Engine Top #3x Velocity

Min: -6.5 [kph] at 0.047 [s]

B-115

8602-22



CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

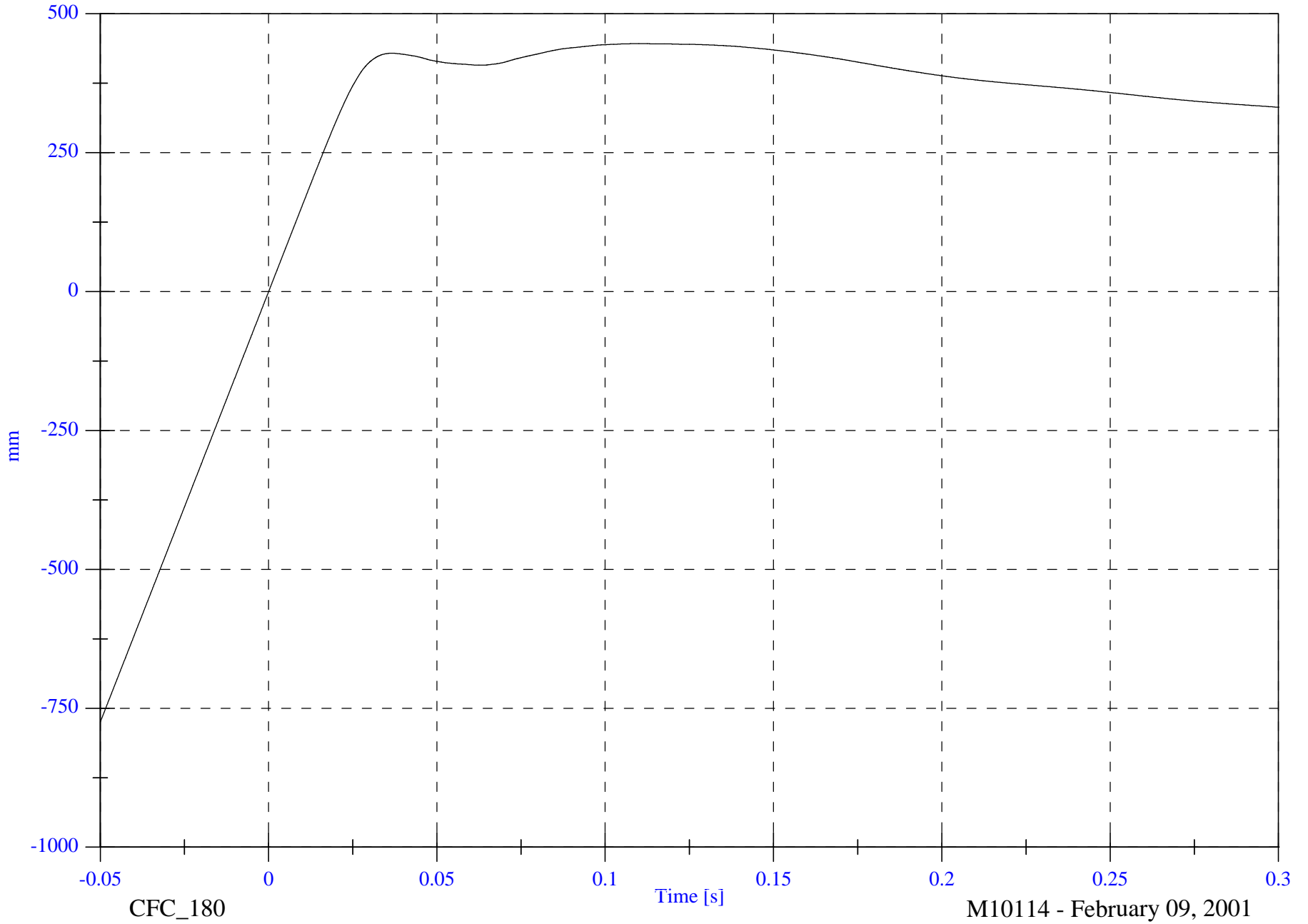
Max: 446.4 [mm] at 0.110 [s]

Engine Top #3x Displacement

Min: -774.8 [mm] at -0.050 [s]

B-116

8602-22



CFC\_180

Time [s]

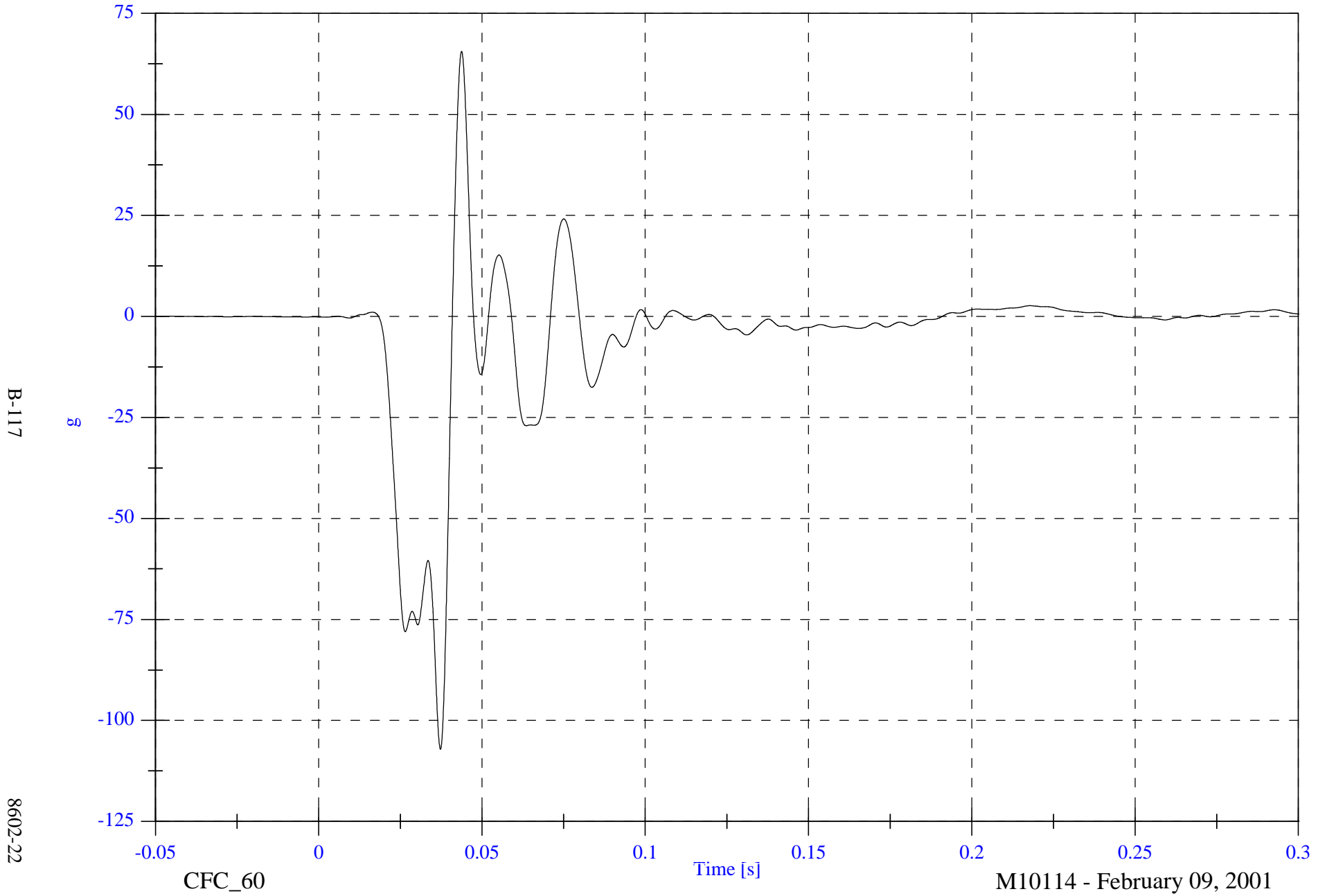
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Engine Bottom #4x

Max: 65.6 [g] at 0.044 [s]

Min: -107.2 [g] at 0.037 [s]



B-117

8602-22

CFC\_60

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

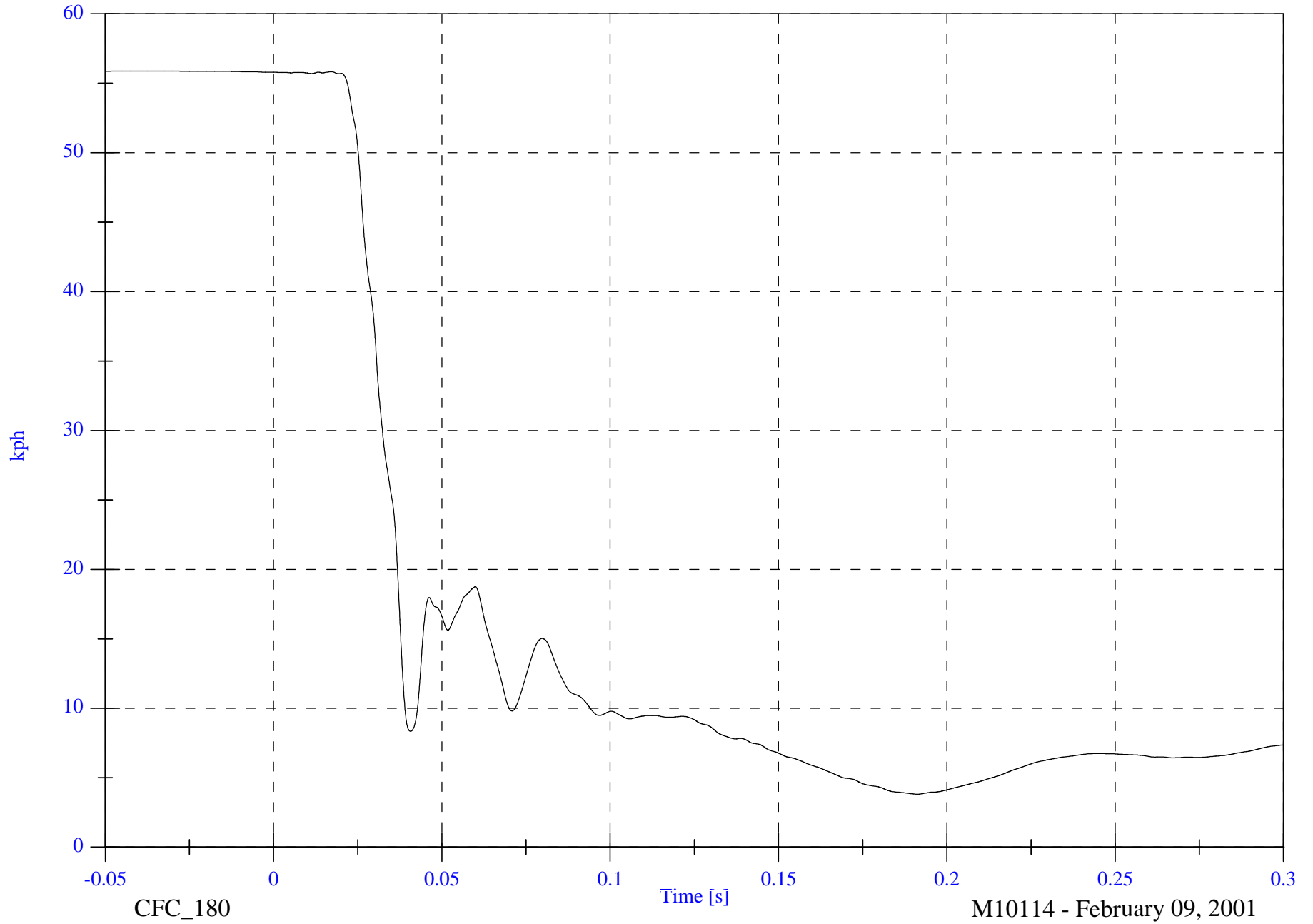
Max: 55.9 [kph] at -0.029 [s]

Engine Bottom #4x Velocity

Min: 3.8 [kph] at 0.191 [s]

B-118

8602-22



CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

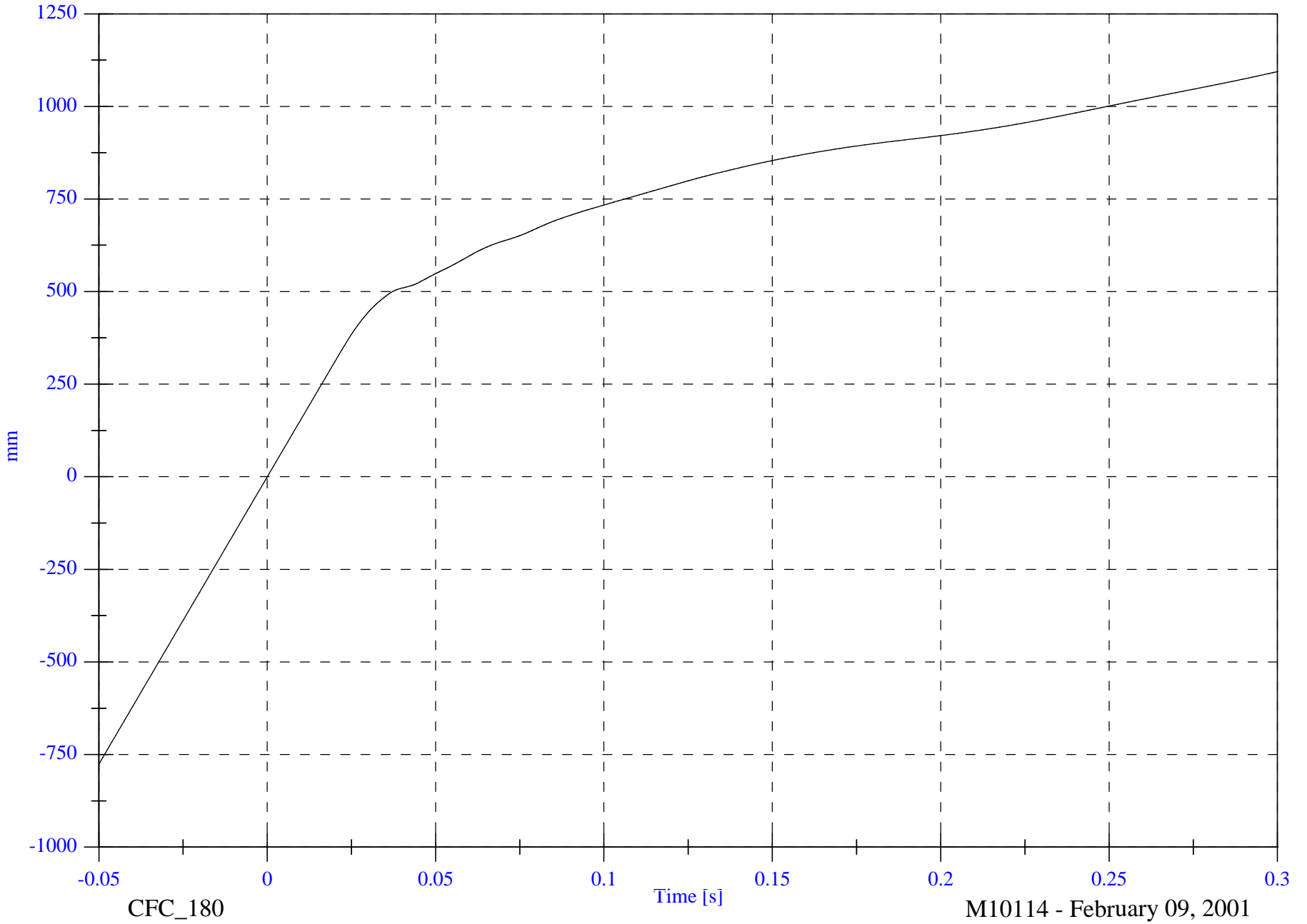
Engine Bottom #4x Displacement

Max: 1093.9 [mm] at 0.300 [s]

Min: -775.8 [mm] at -0.050 [s]

B-119

8602-22



CFC\_180

Time [s]

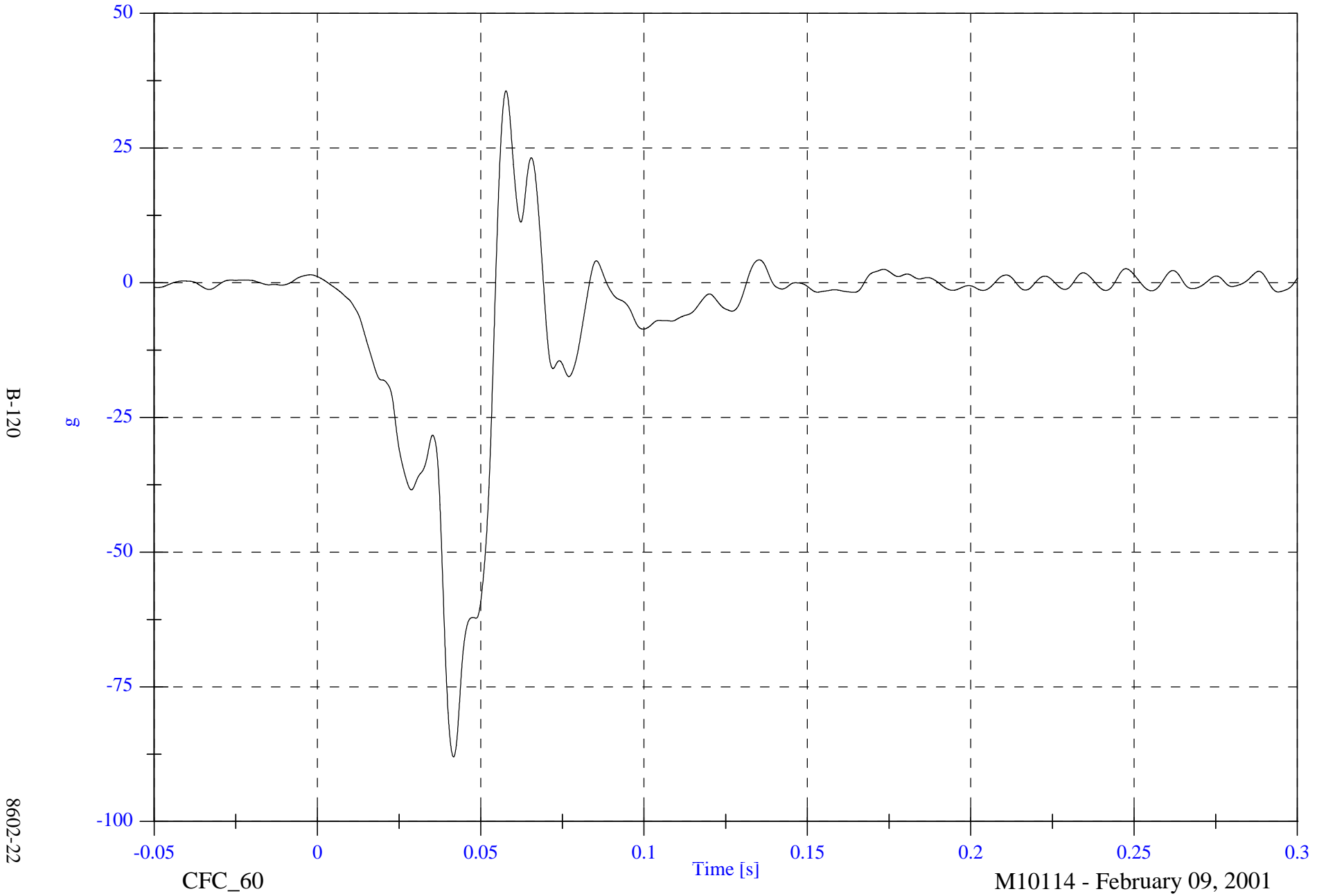
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Right Caliper #5x

Max: 35.6 [g] at 0.058 [s]

Min: -88.0 [g] at 0.042 [s]



NCAP Test #22 - 2001 Pontiac Aztek

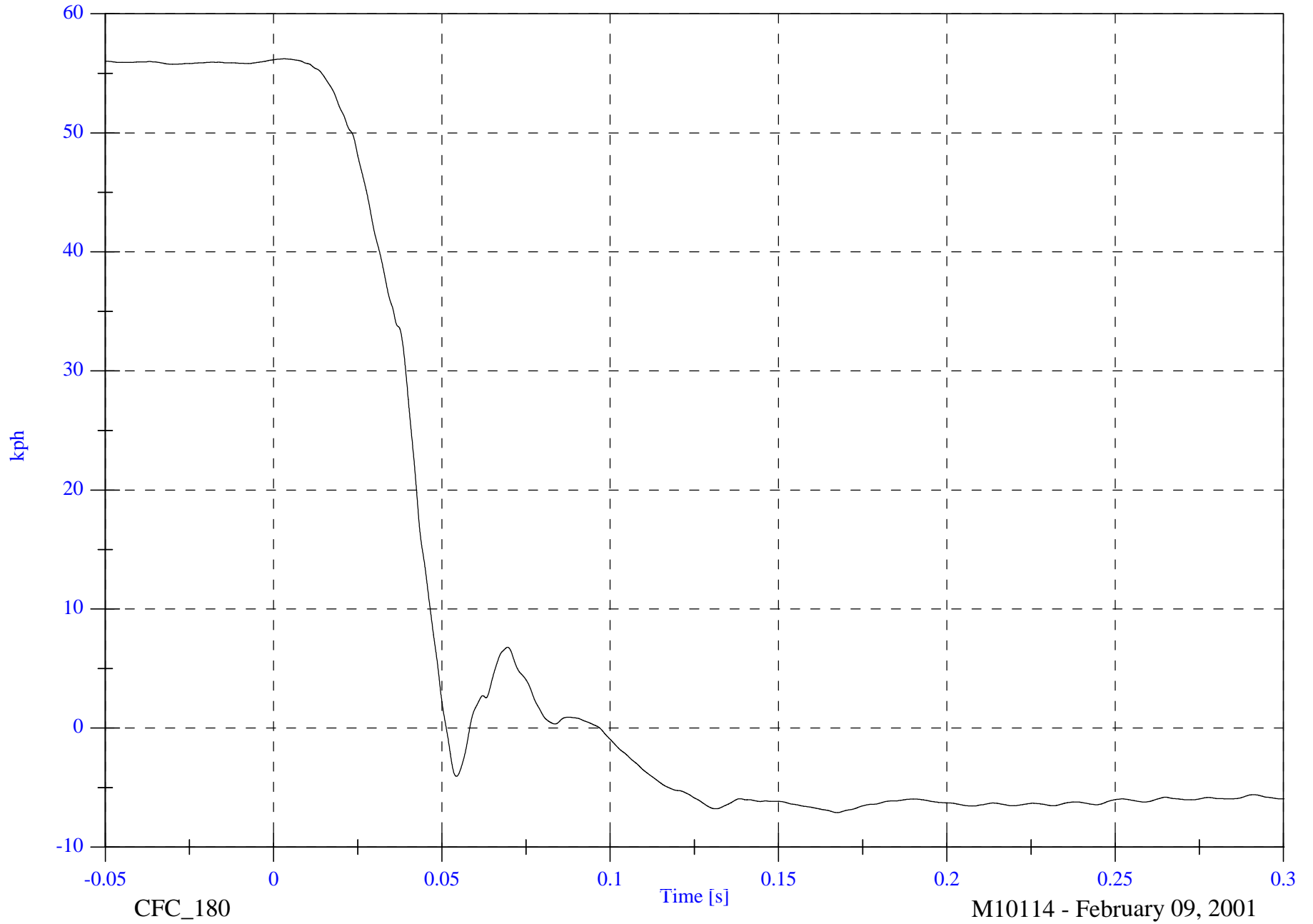
Right Caliper #5x Velocity

Max: 56.2 [kph] at 0.003 [s]

Min: -7.1 [kph] at 0.167 [s]

B-121

8602-22



CFC\_180

Time [s]

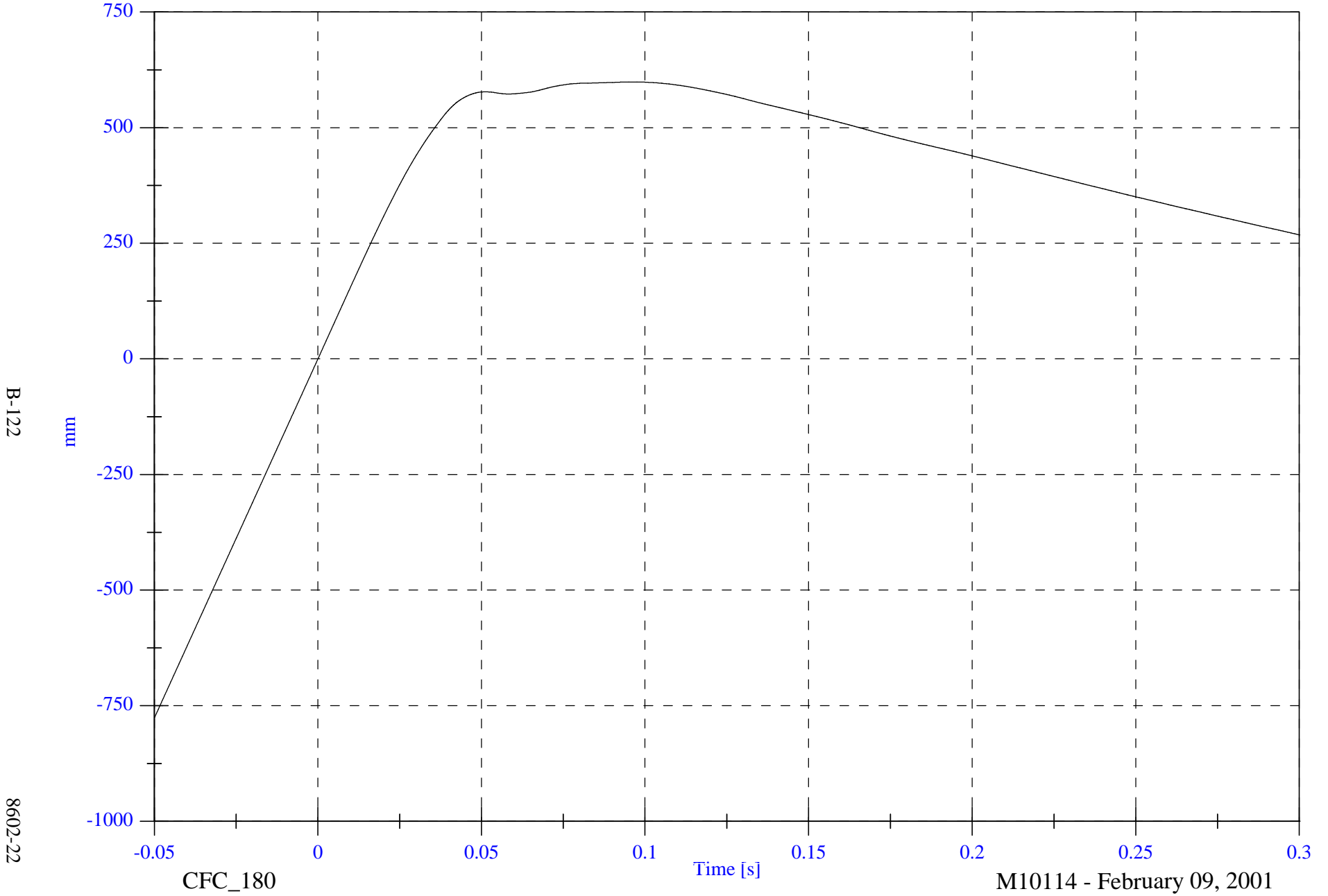
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Right Caliper #5x Displacement

Max: 598.8 [mm] at 0.097 [s]

Min: -776.5 [mm] at -0.050 [s]



B-122

8602-22

CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

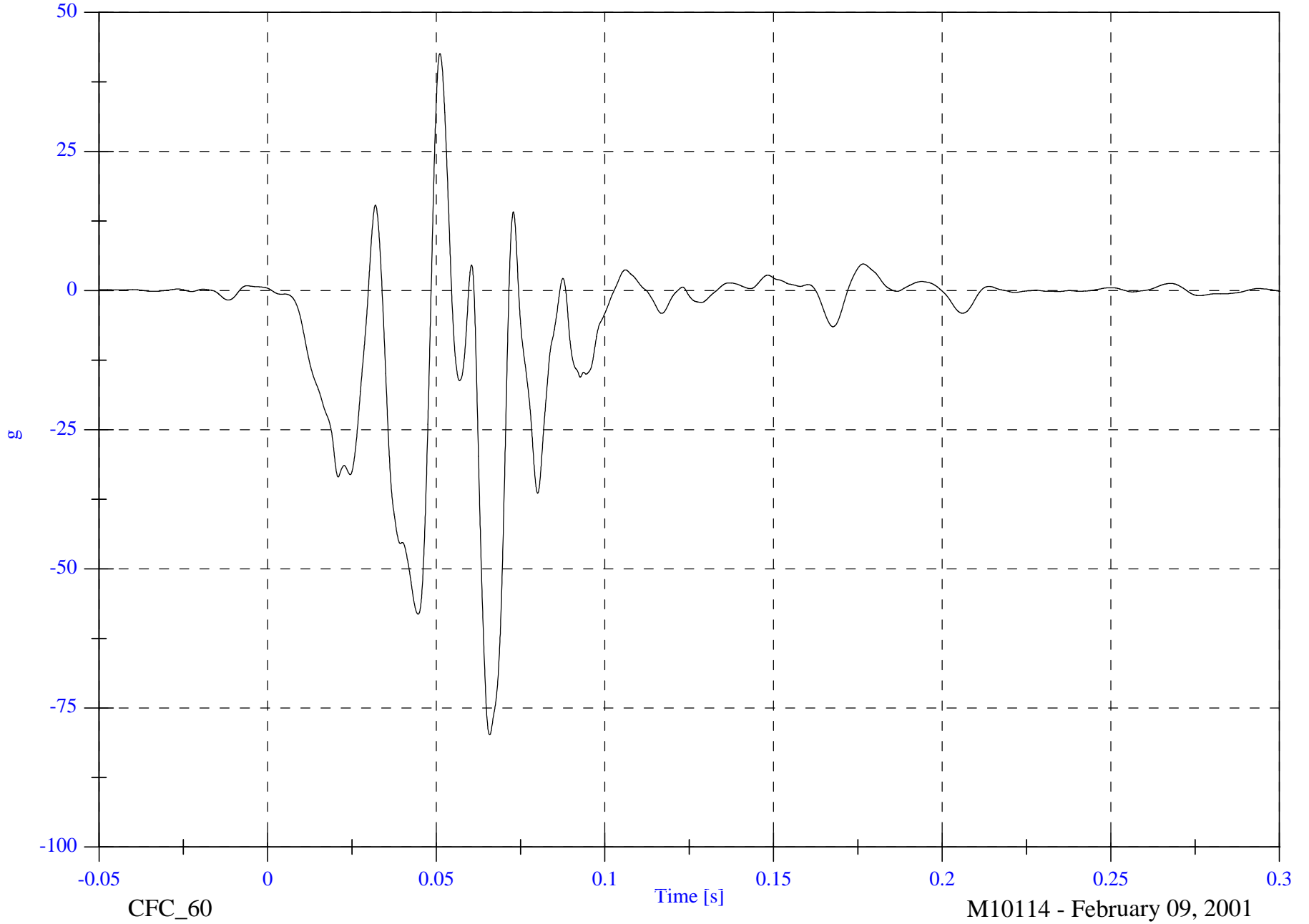
Instrument Panel #6x

Max: 42.6 [g] at 0.051 [s]

Min: -79.8 [g] at 0.066 [s]

B-123

8602-22



CFC\_60

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

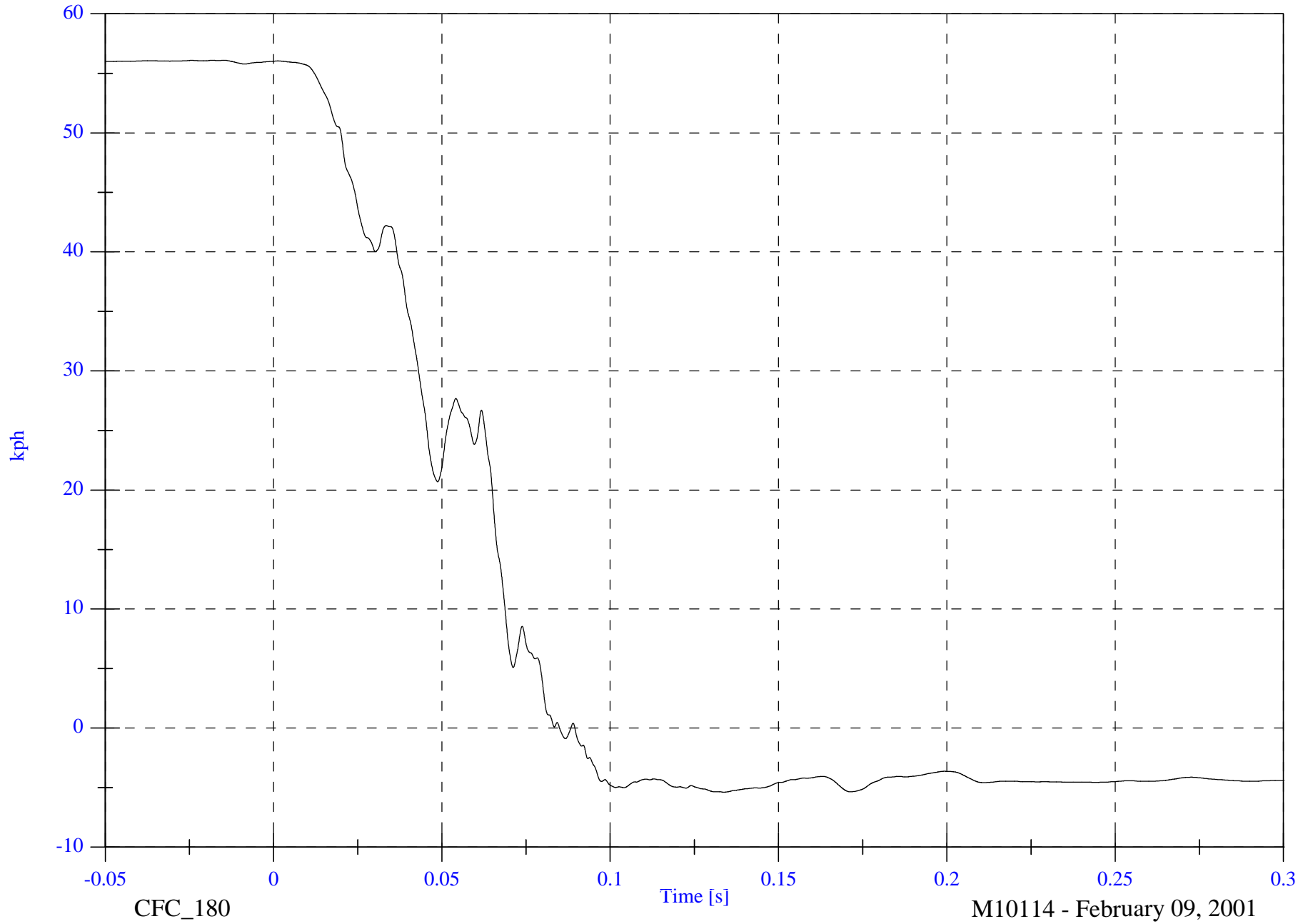
Instrument Panel #6x Velocity

Max: 56.1 [kph] at -0.015 [s]

Min: -5.4 [kph] at 0.134 [s]

B-124

8602-22



CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

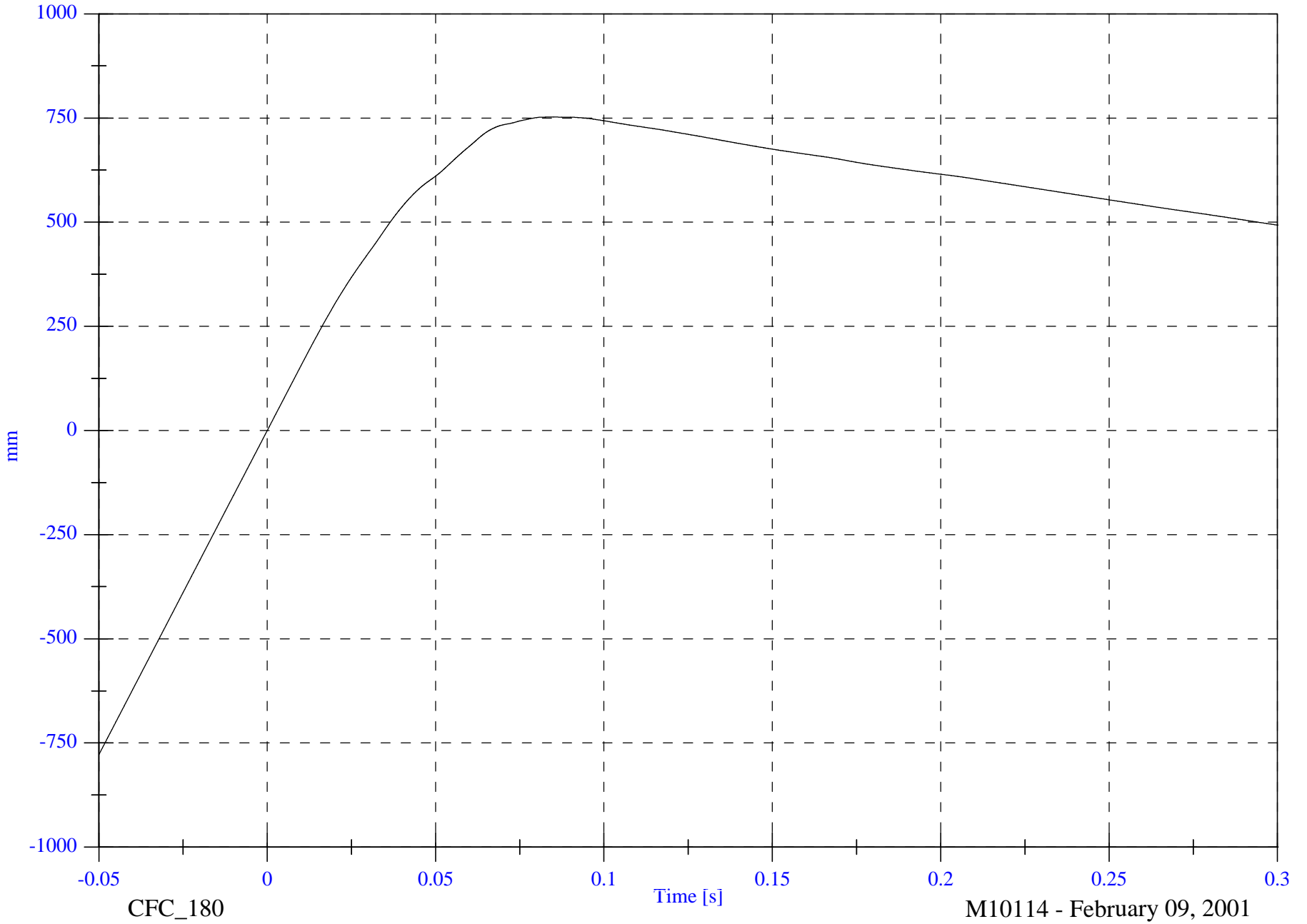
Max: 752.4 [mm] at 0.085 [s]

Instrument Panel #6x Displacement

Min: -777.9 [mm] at -0.050 [s]

B-125

8602-22



CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 289.0 [g] at 0.101 [s]

Min: -463.7 [g] at 0.051 [s]

Left Caliper #7x



B-126

8602-22

CFC\_60

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

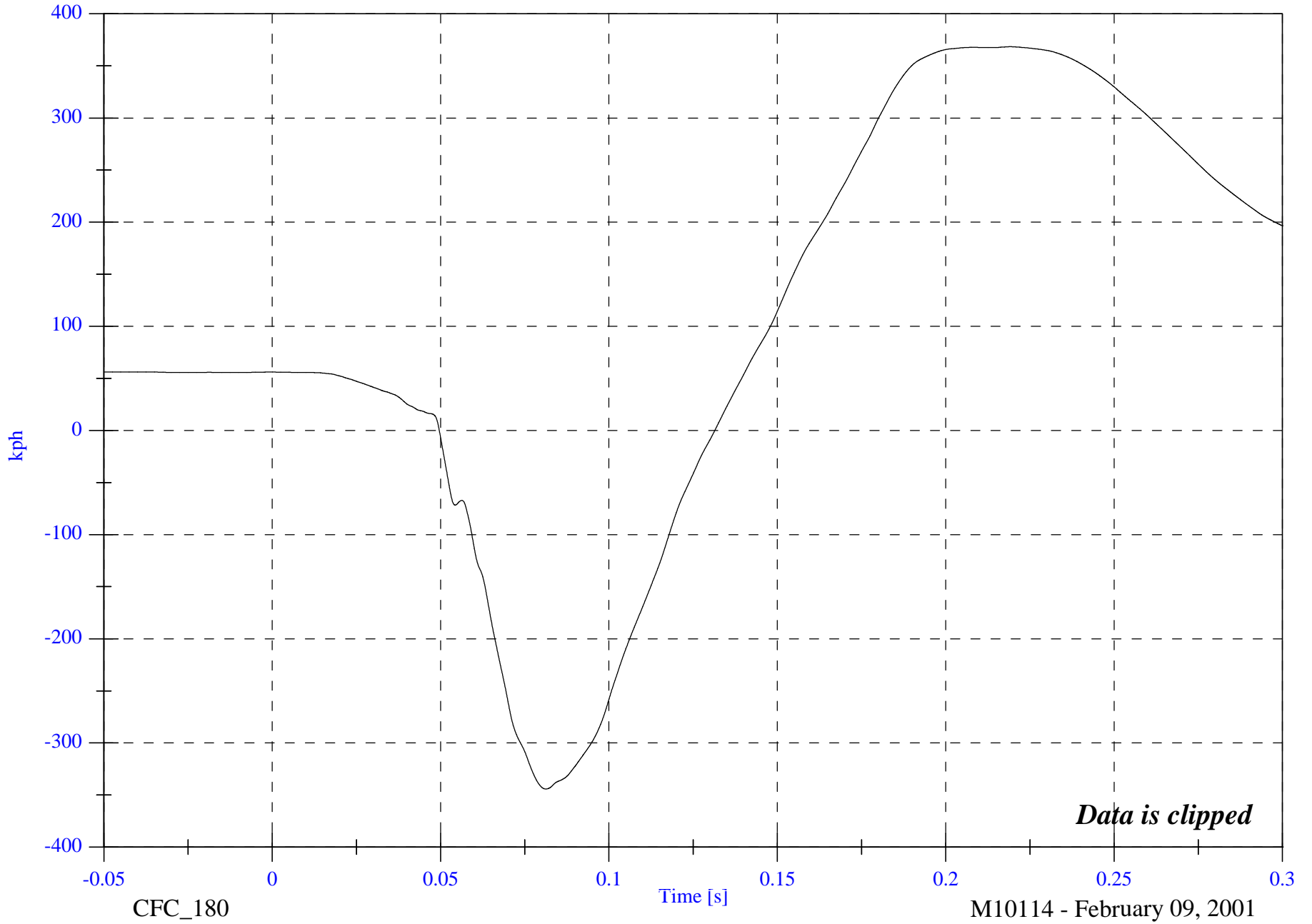
Left Caliper #7x Velocity

Max: 368.4 [kph] at 0.219 [s]

Min: -344.2 [kph] at 0.081 [s]

B-127

8602-22



*Data is clipped*

CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

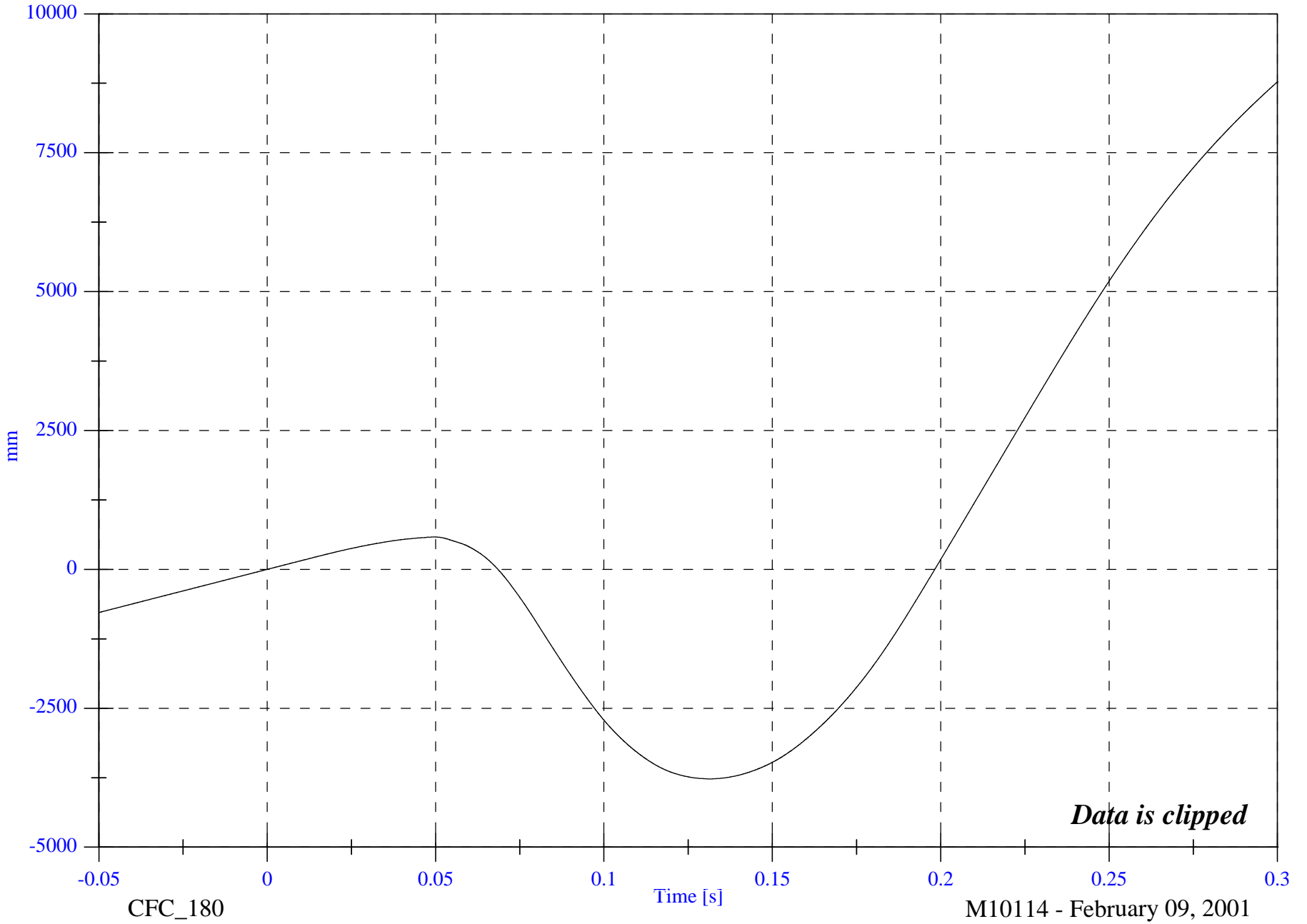
Left Caliper #7x Displacement

Max: 8774.9 [mm] at 0.300 [s]

Min: -3771.1 [mm] at 0.131 [s]

B-128

8602-22



*Data is clipped*

CFC\_180

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

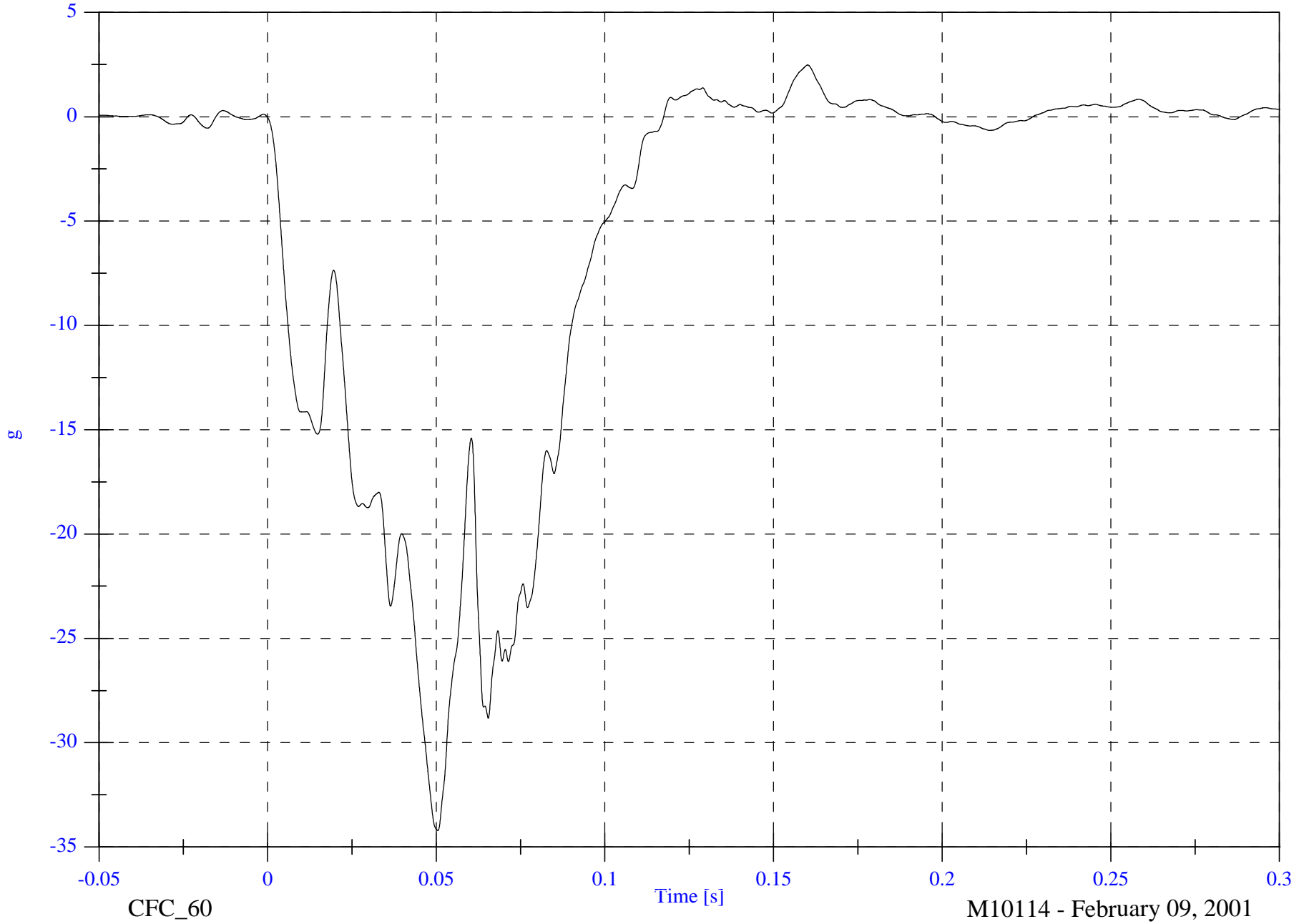
Left Rear Red #8x

Max: 2.5 [g] at 0.160 [s]

Min: -34.2 [g] at 0.050 [s]

B-129

8602-22



CFC\_60

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

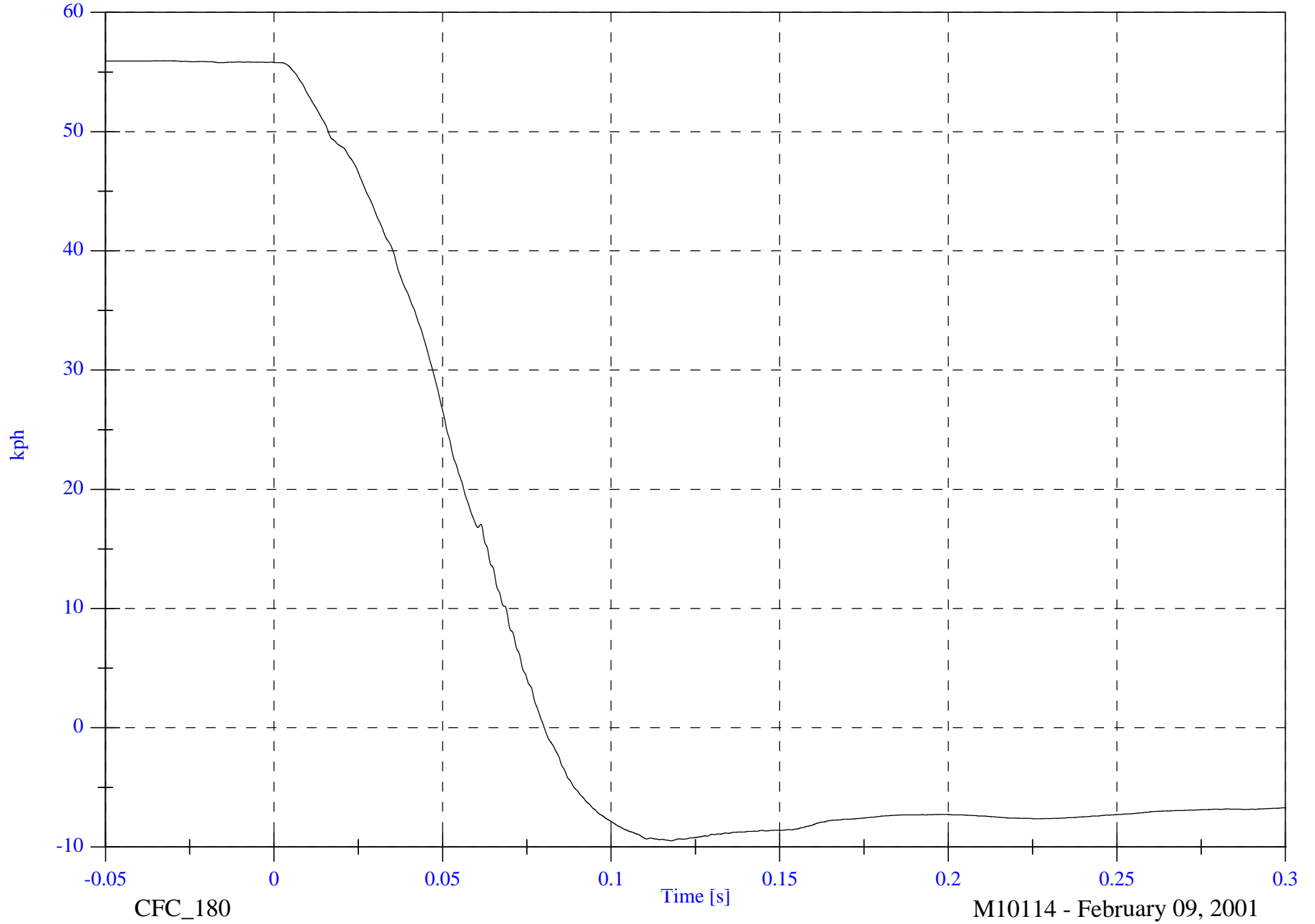
Max: 55.9 [kph] at -0.032 [s]

Left Rear Red #8x Velocity

Min: -9.5 [kph] at 0.118 [s]

B-130

8602-22



CFC\_180

Time [s]

M10114 - February 09, 2001

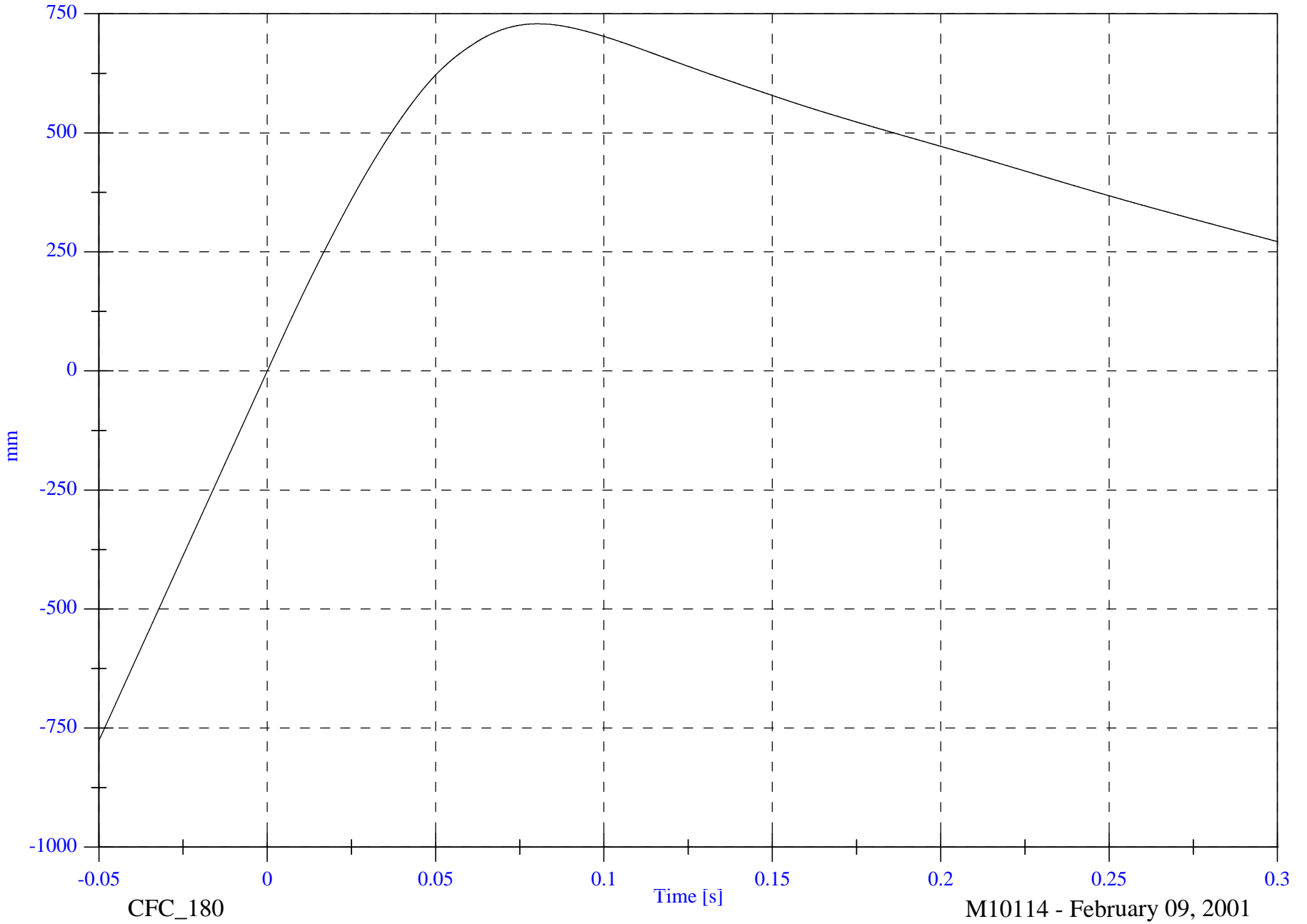
NCAP Test #22 - 2001 Pontiac Aztek

Max: 729.1 [mm] at 0.080 [s]

Left Rear Red #8x Displacement

Min: -776.1 [mm] at -0.050 [s]

B-131



8602-22

CFC\_180

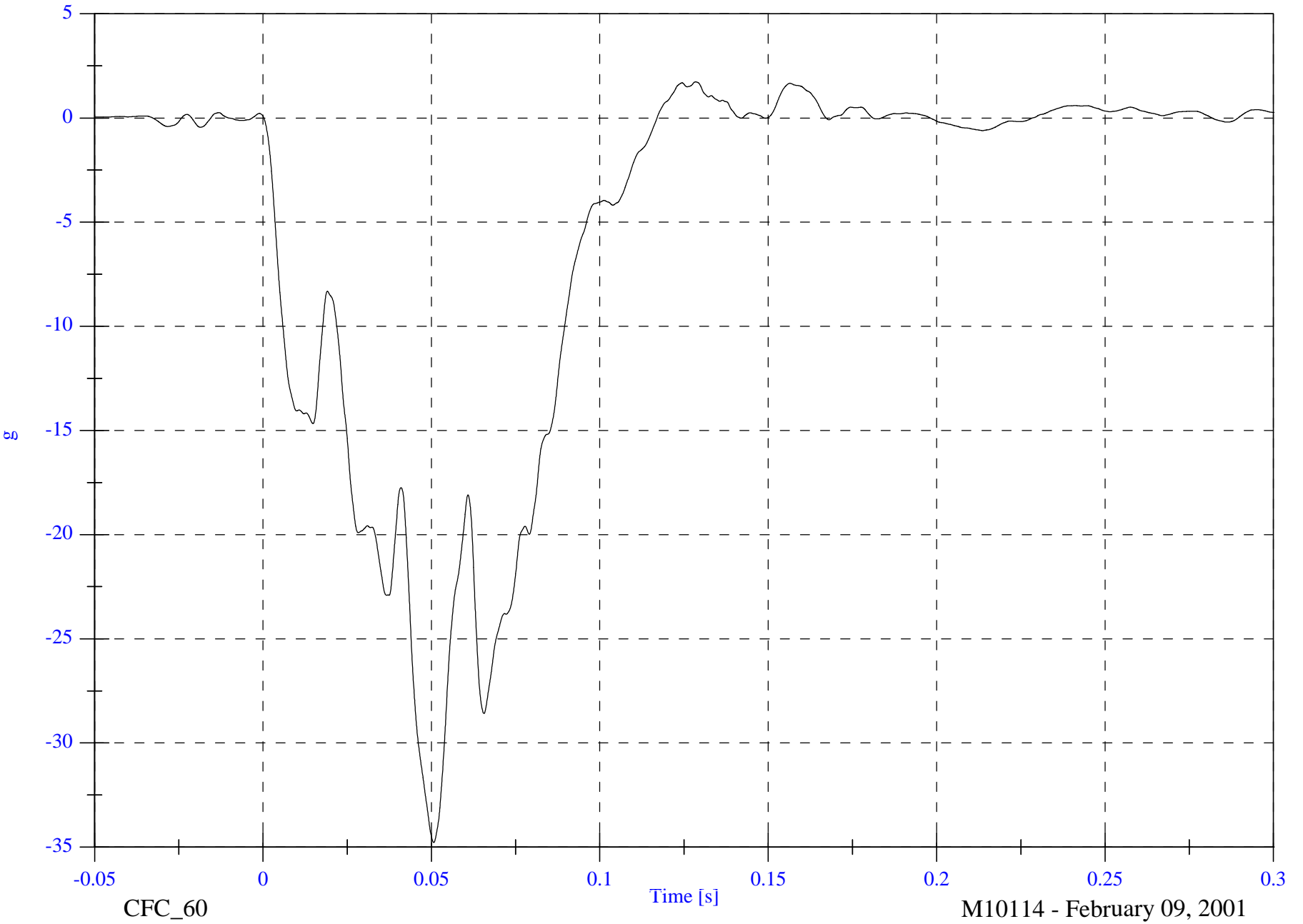
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Right Rear Red #9x

Max: 1.7 [g] at 0.128 [s]

Min: -34.8 [g] at 0.051 [s]



B-132

8602-22

CFC\_60

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

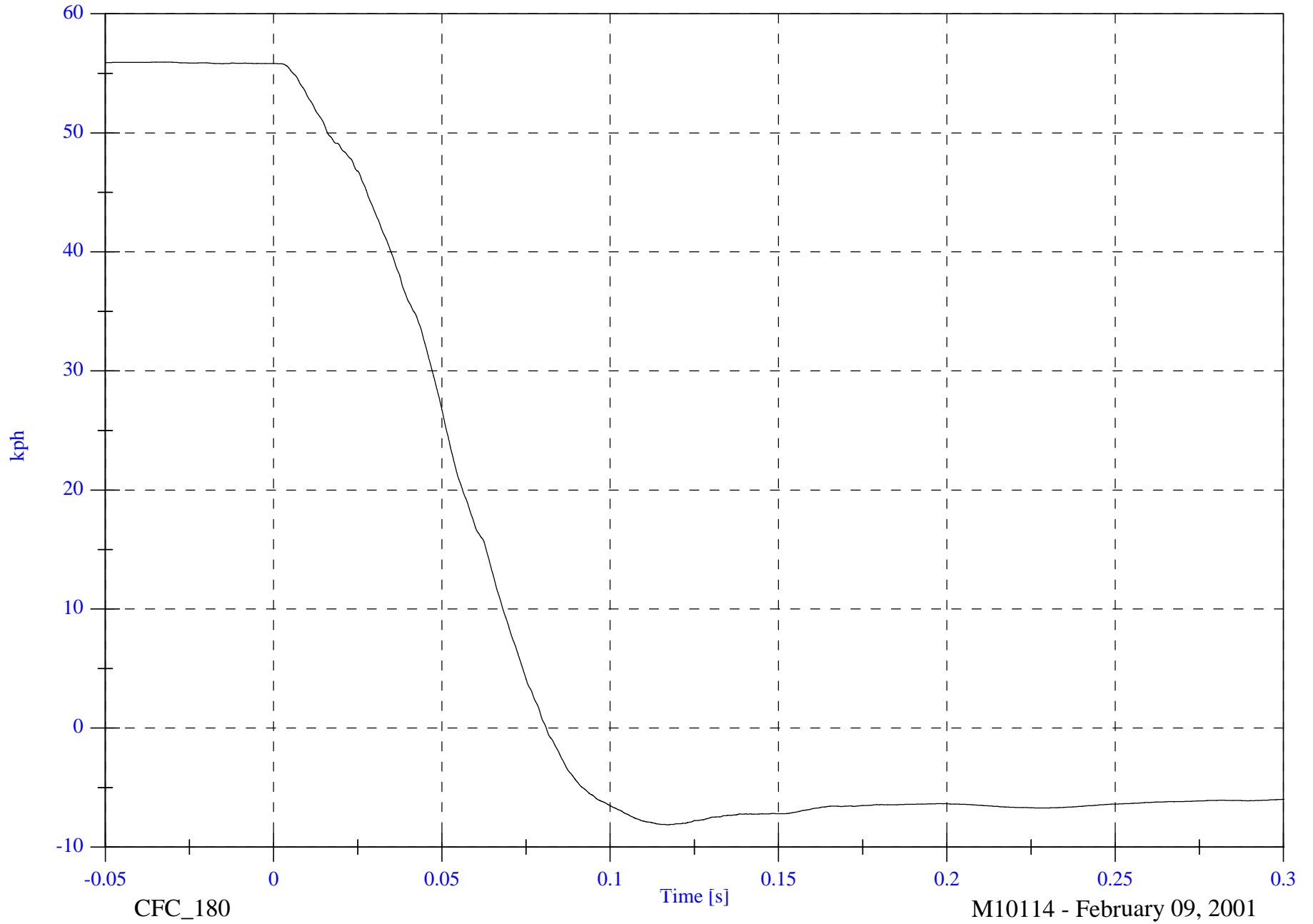
Max: 55.9 [kph] at -0.033 [s]

Right Rear Red #9x Velocity

Min: -8.1 [kph] at 0.117 [s]

B-133

8602-22



CFC\_180

Time [s]

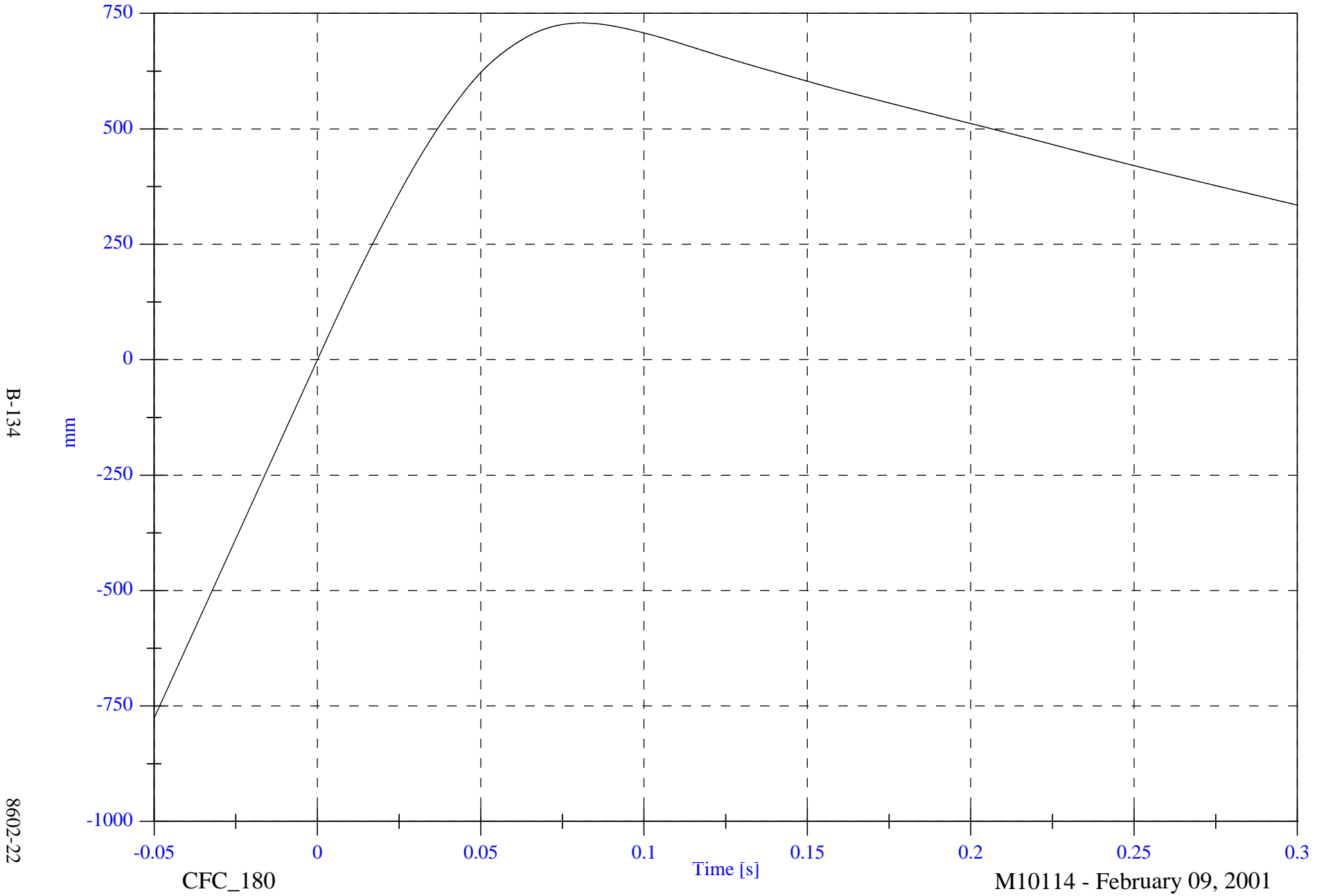
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 729.4 [mm] at 0.081 [s]

Min: -776.2 [mm] at -0.050 [s]

Right Rear Red #9x Displacement



B-134

8602-22

CFC\_180

Time [s]

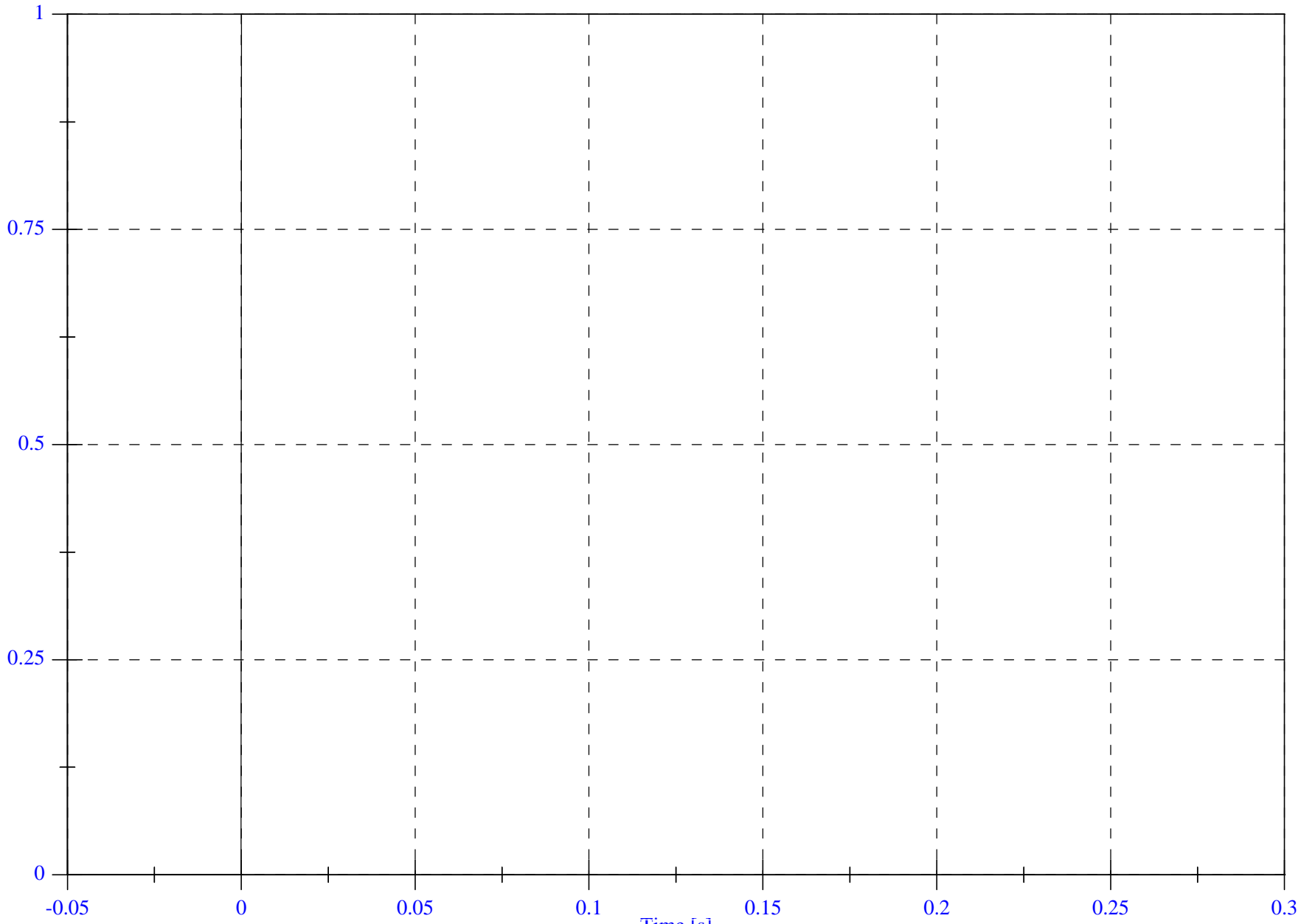
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 1.0 [] at 0.000 [s]

Min: 0.0 [] at -0.050 [s]

Contact Time



B-135

8602-22

20000.0

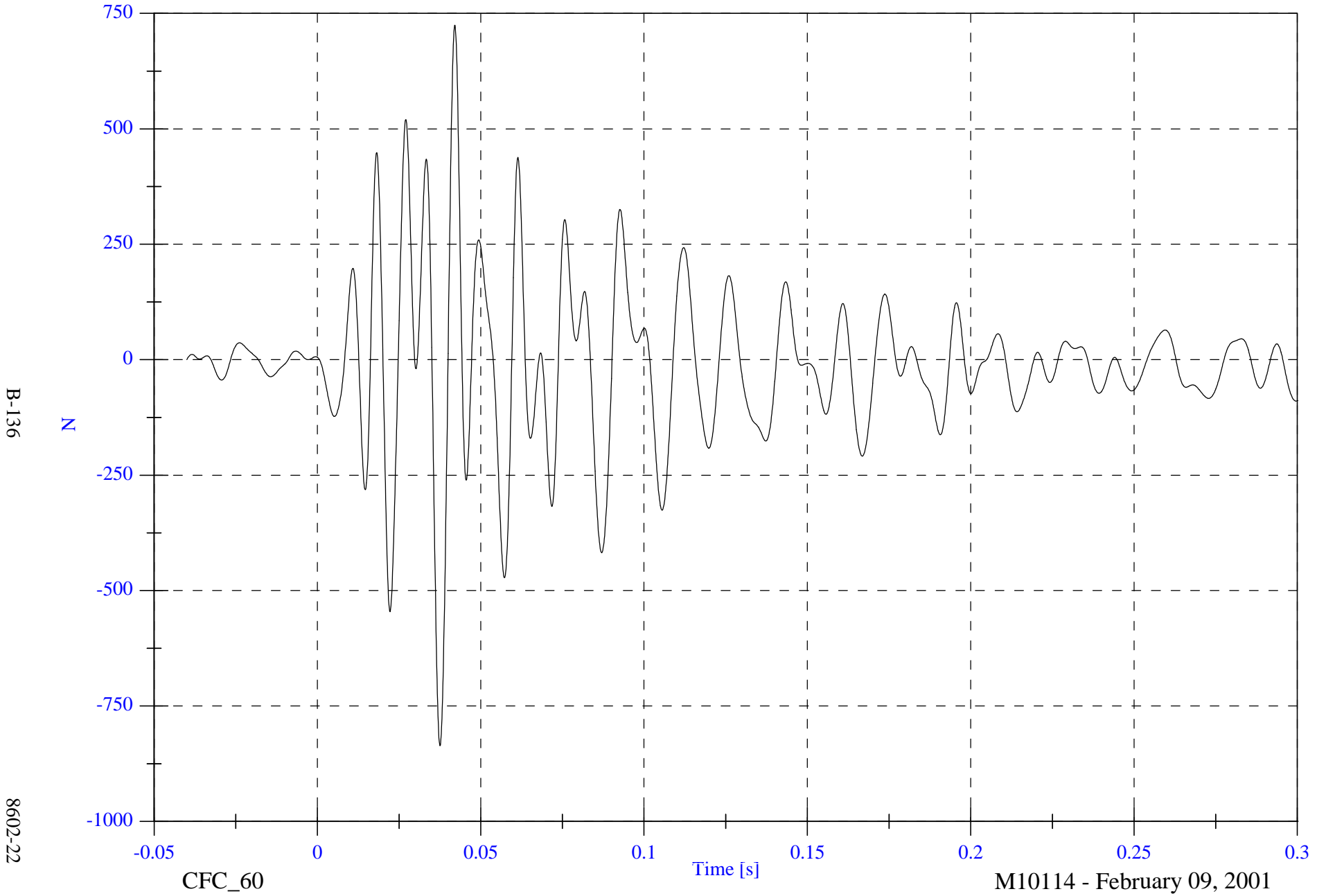
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 724.4 [N] at 0.042 [s]

Barrier Load Cell A1 Fx

Min: -836.1 [N] at 0.037 [s]



B-136

8602-22

CFC\_60

Time [s]

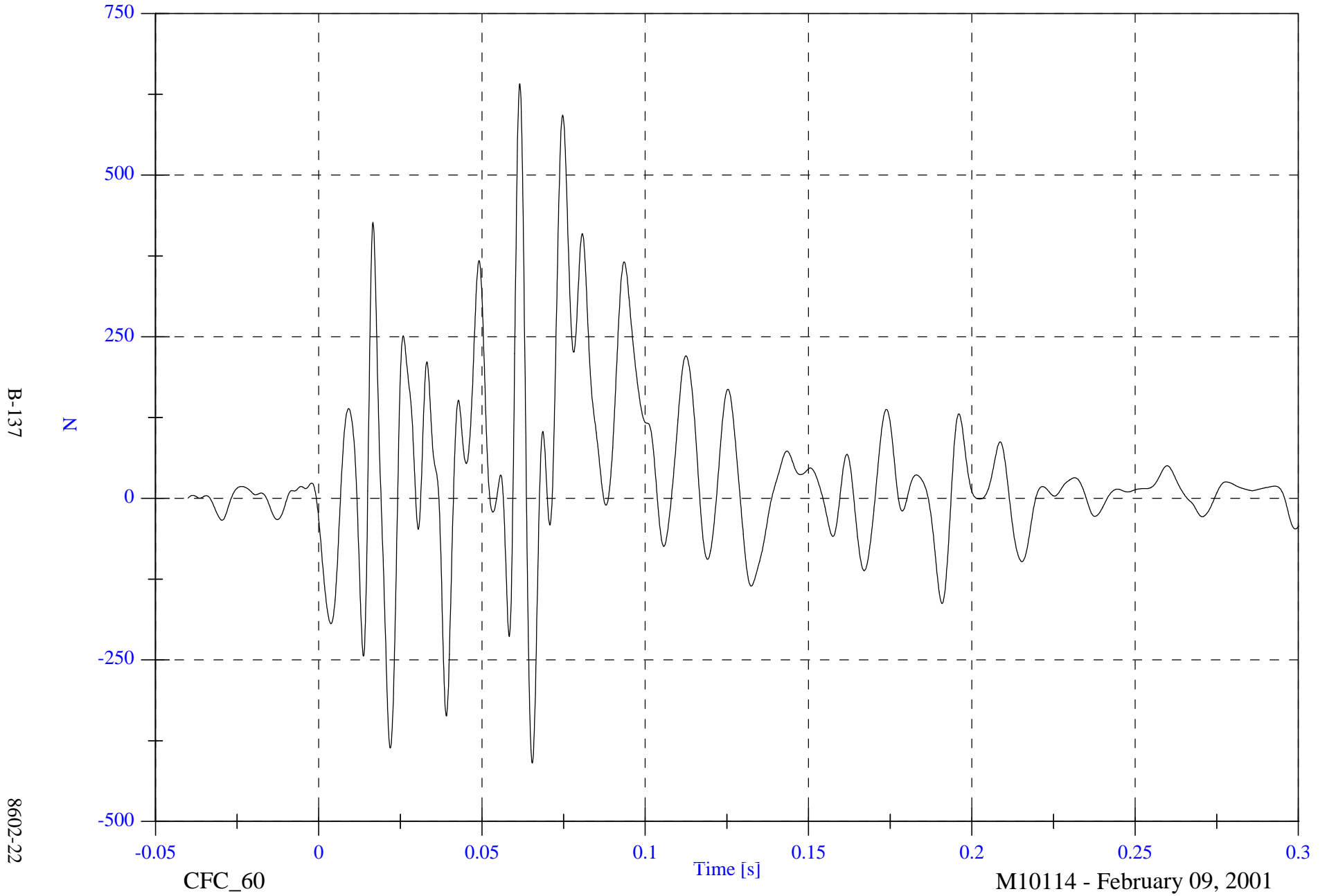
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 641.1 [N] at 0.062 [s]

Barrier Load Cell A2 Fx

Min: -409.8 [N] at 0.065 [s]



B-137

8602-22

CFC\_60

Time [s]

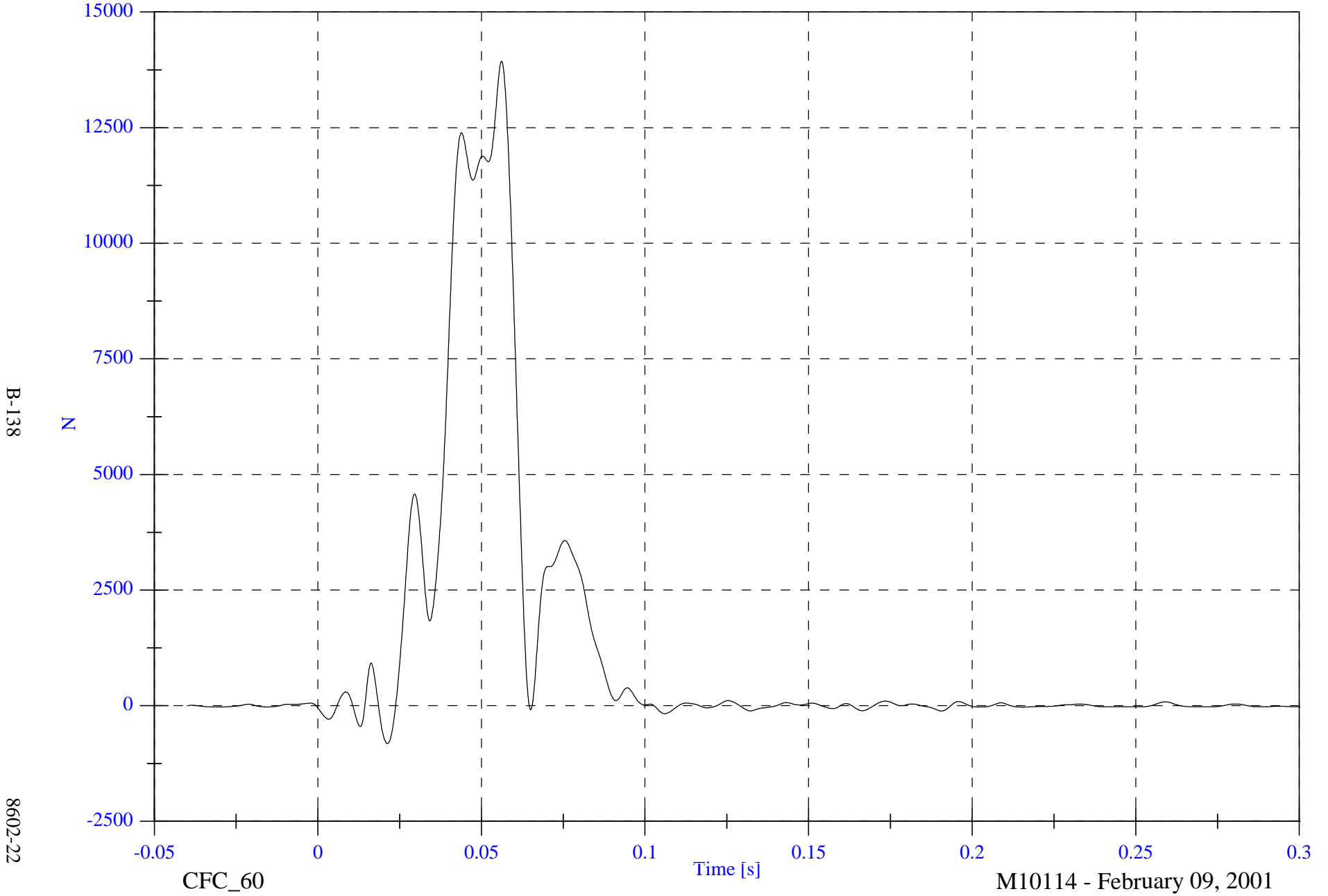
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell A3 Fx

Max: 13936.7 [N] at 0.056 [s]

Min: -820.3 [N] at 0.021 [s]



B-138

8602-22

CFC\_60

Time [s]

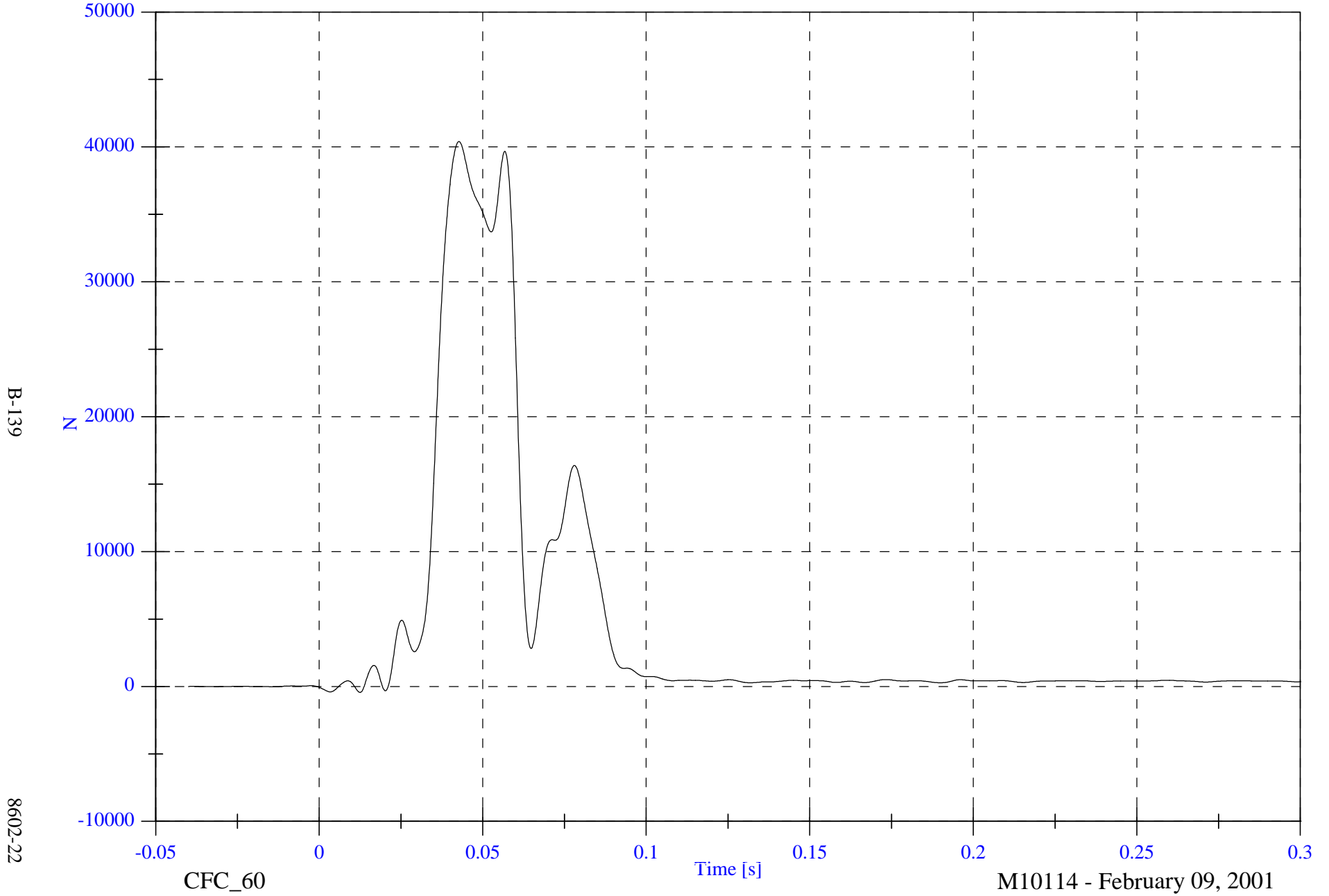
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell A4 Fx

Max: 40402.1 [N] at 0.043 [s]

Min: -444.6 [N] at 0.012 [s]



B-139

8602-22

CFC\_60

Time [s]

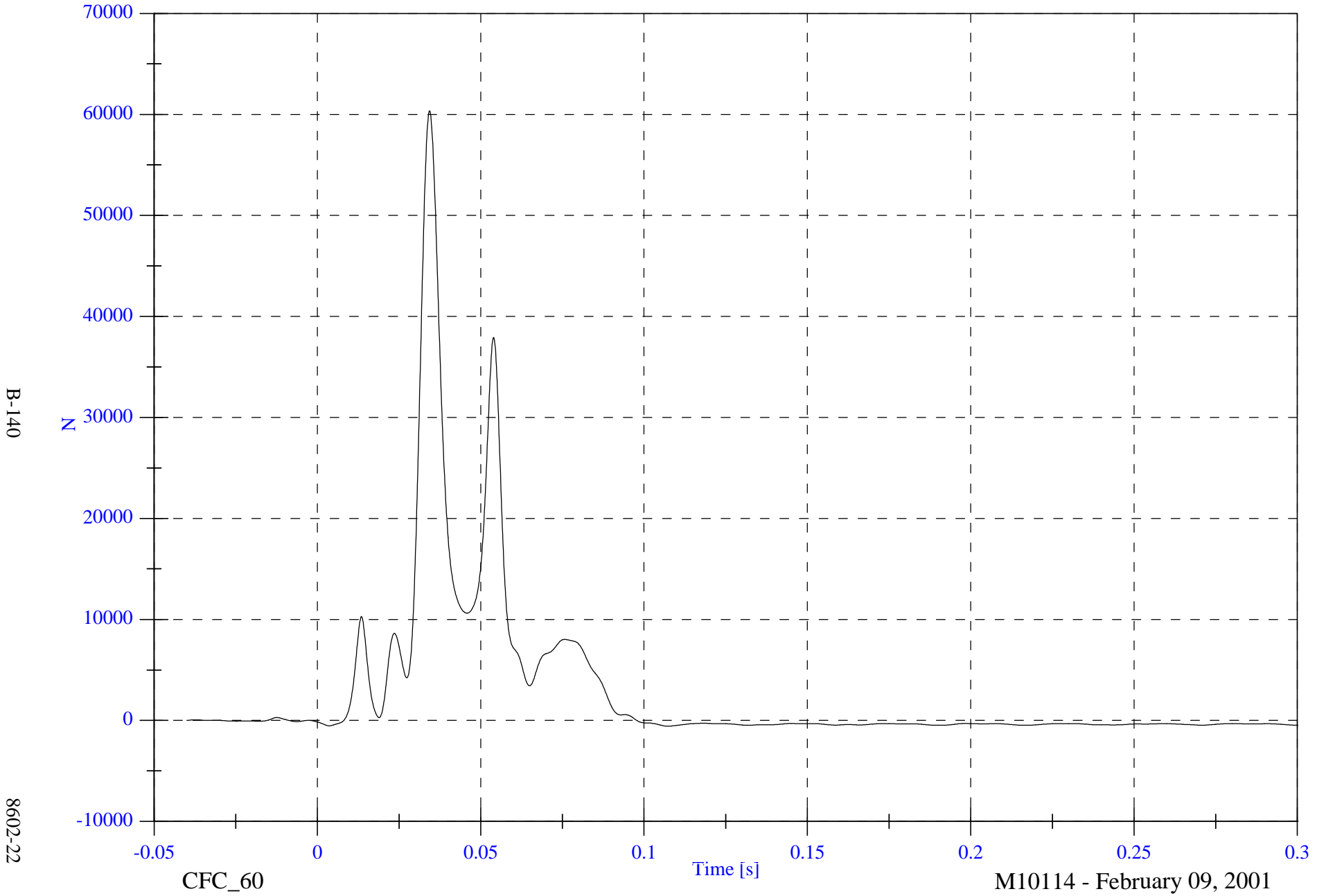
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell A5 Fx

Max: 60368.2 [N] at 0.034 [s]

Min: -565.5 [N] at 0.107 [s]



B-140

8602-22

CFC\_60

Time [s]

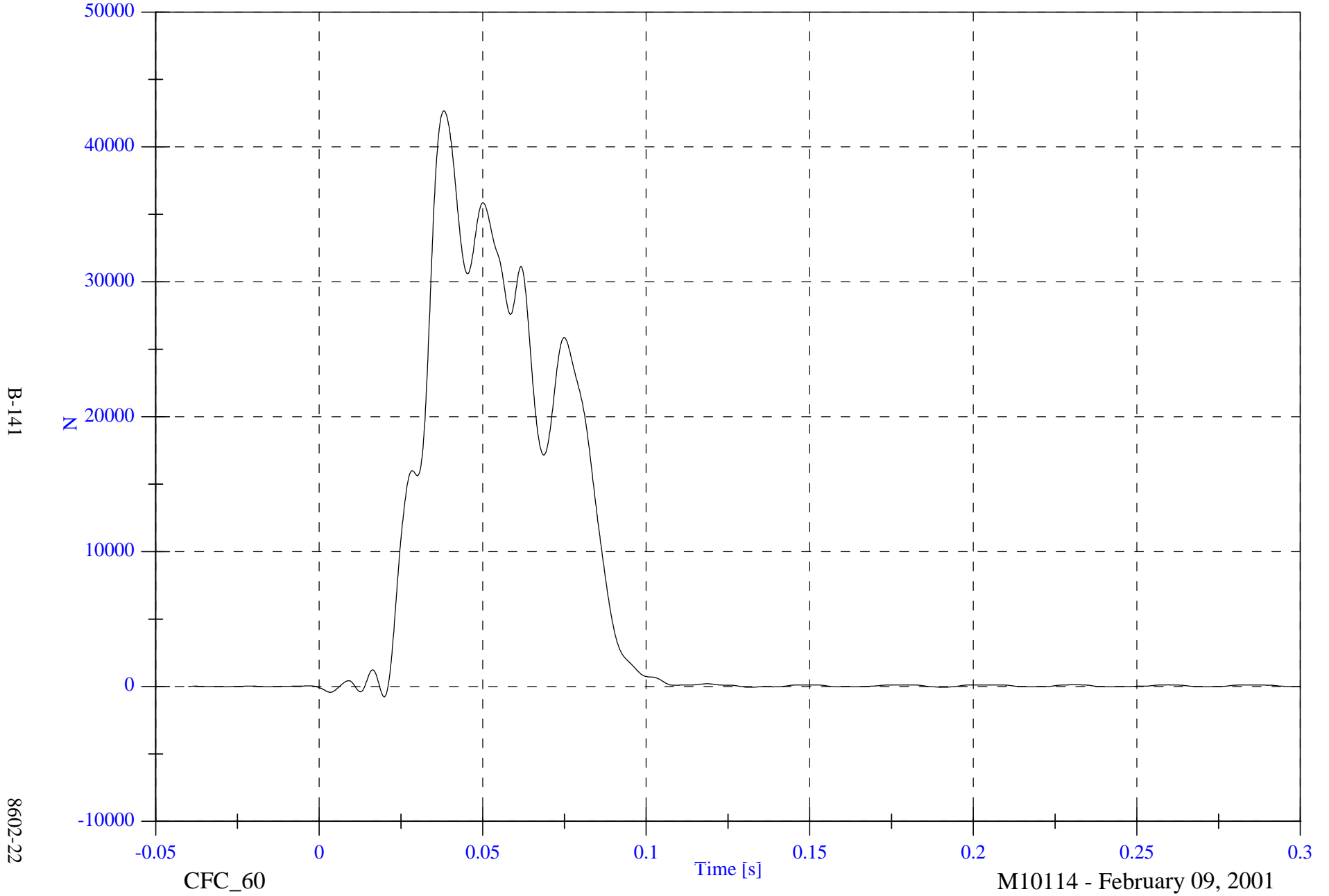
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell A6 Fx

Max: 42673.9 [N] at 0.038 [s]

Min: -771.1 [N] at 0.020 [s]



B-141

8602-22

CFC\_60

Time [s]

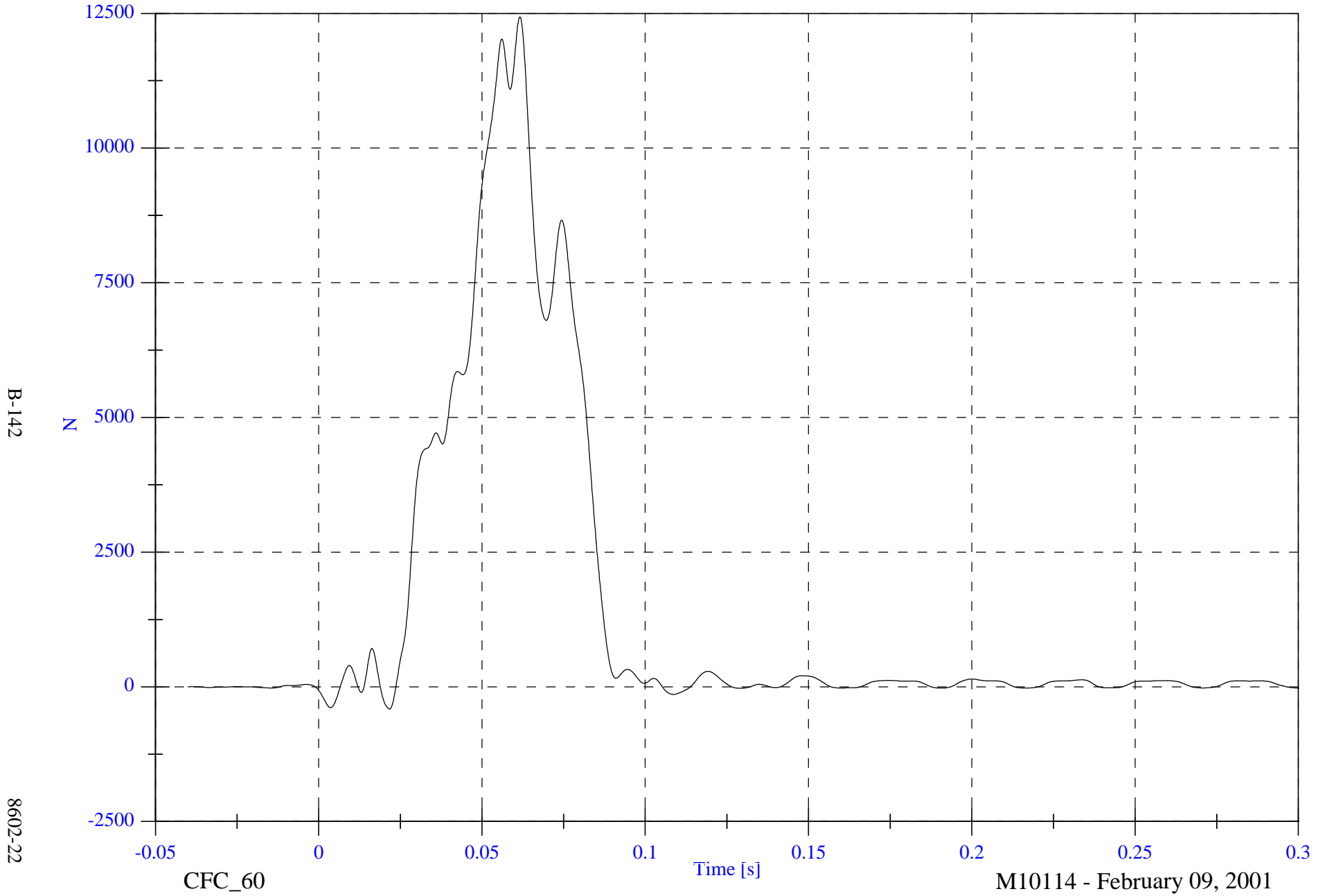
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell A7 Fx

Max: 12434.4 [N] at 0.062 [s]

Min: -413.4 [N] at 0.022 [s]



B-142

8602-22

CFC\_60

Time [s]

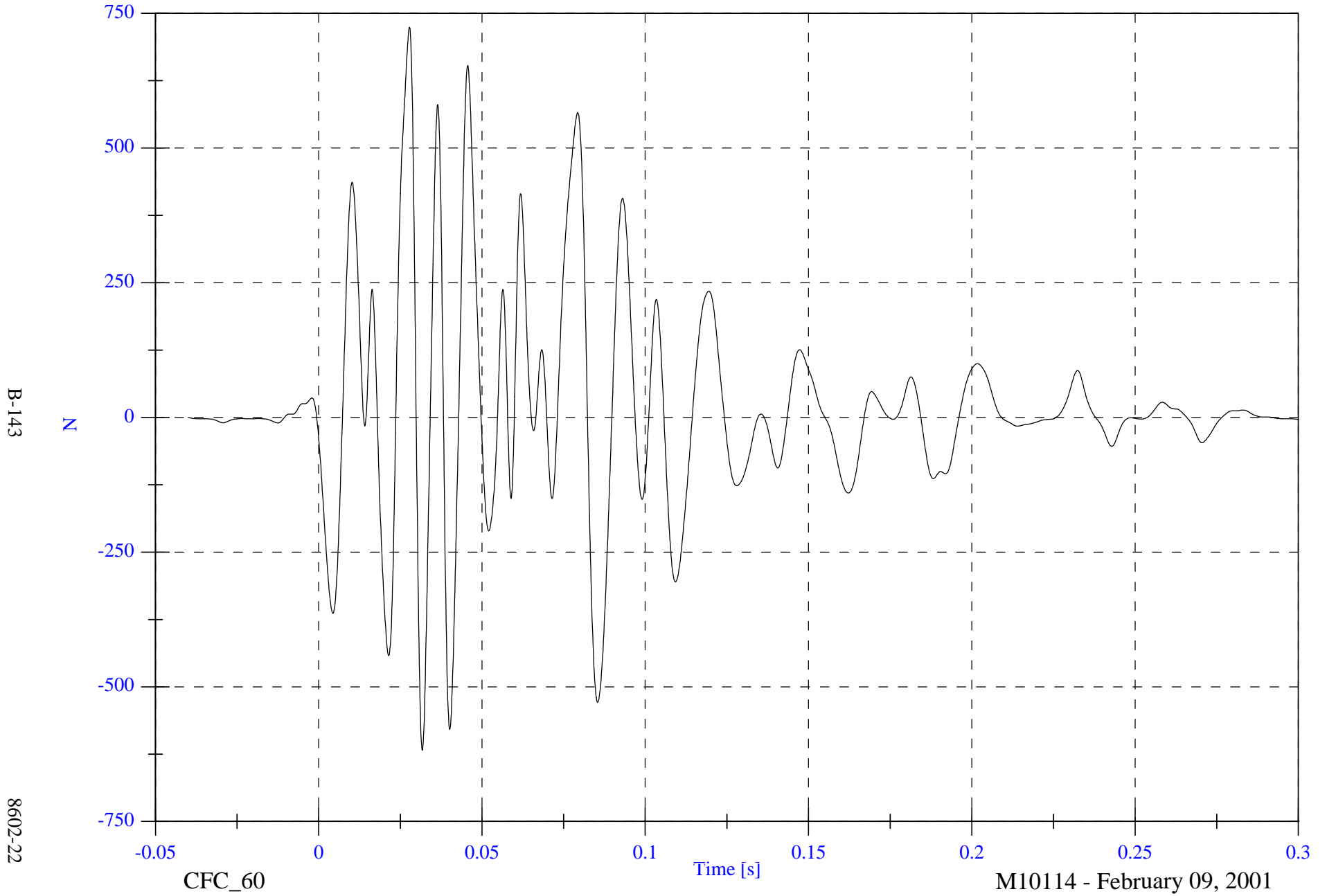
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 724.5 [N] at 0.028 [s]

Barrier Load Cell A8 Fx

Min: -618.1 [N] at 0.032 [s]

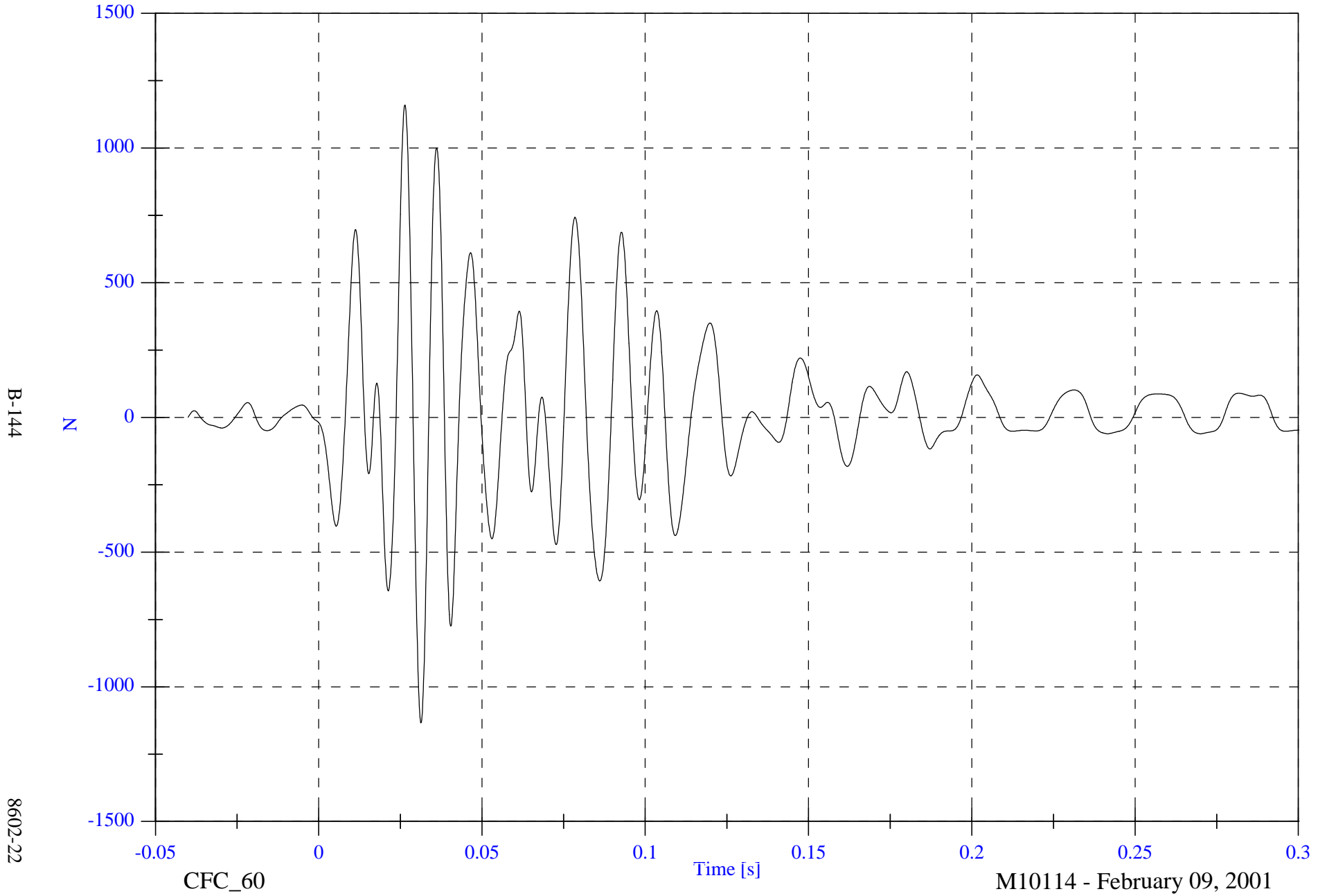


NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell A9 Fx

Max: 1160.5 [N] at 0.026 [s]

Min: -1134.9 [N] at 0.031 [s]



B-144

8602-22

CFC\_60

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 2883.4 [N] at 0.071 [s]

Barrier Load Cell B1 Fx

Min: -89.3 [N] at 0.012 [s]

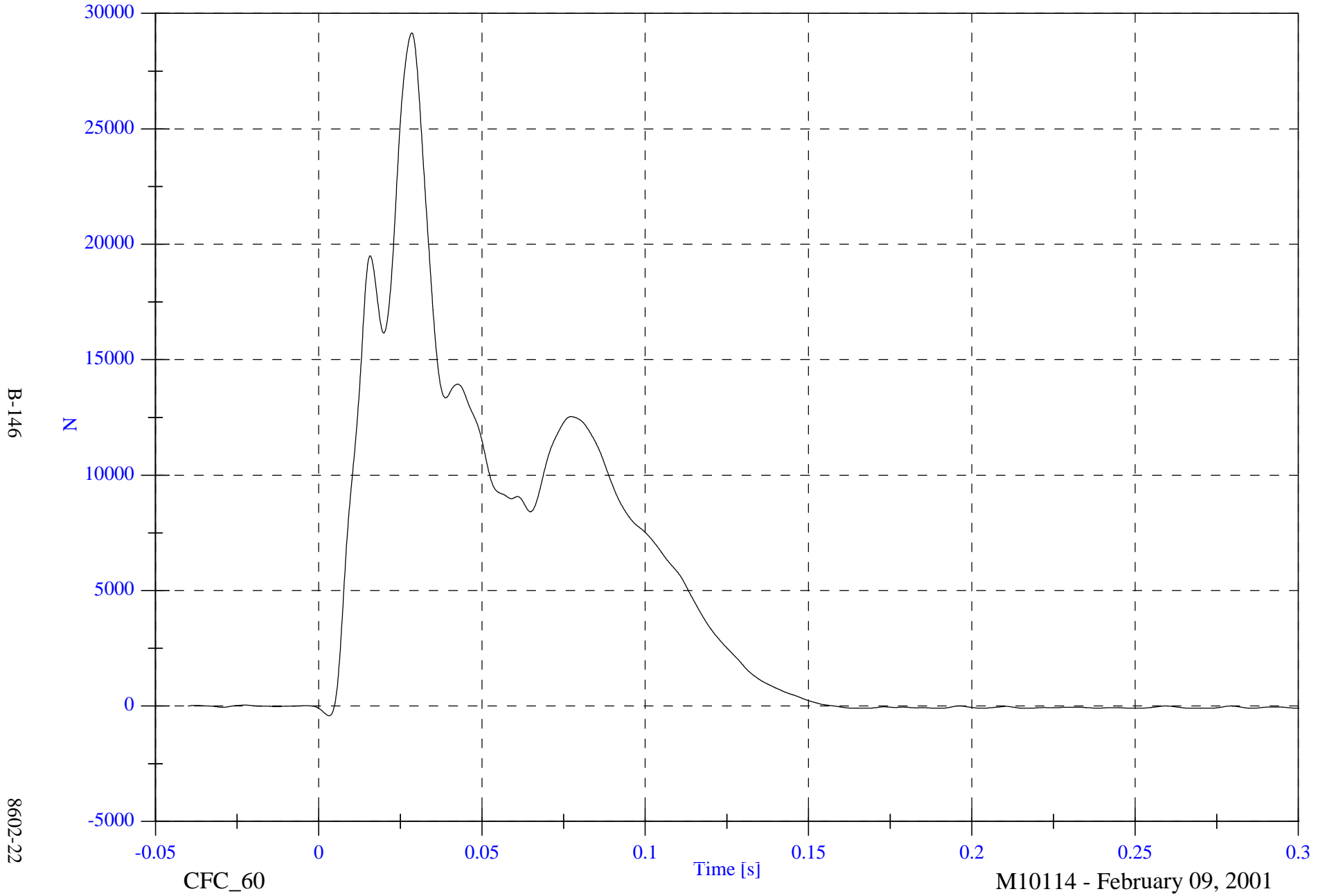


NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell B2 Fx

Max: 29152.9 [N] at 0.028 [s]

Min: -422.3 [N] at 0.003 [s]



B-146

8602-22

CFC\_60

Time [s]

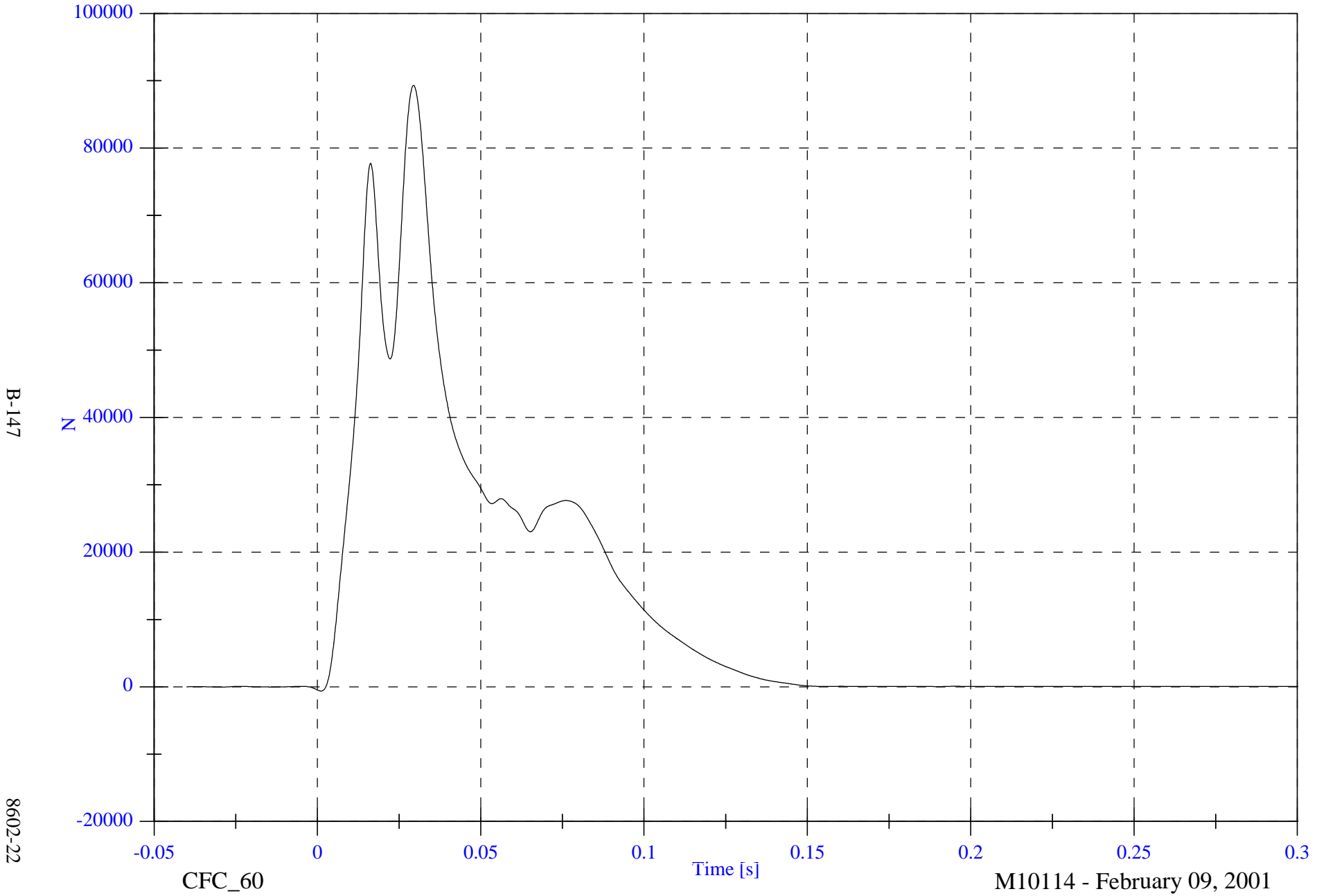
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell B3 Fx

Max: 89324.5 [N] at 0.029 [s]

Min: -631.8 [N] at 0.001 [s]



B-147

8602-22

CFC\_60

Time [s]

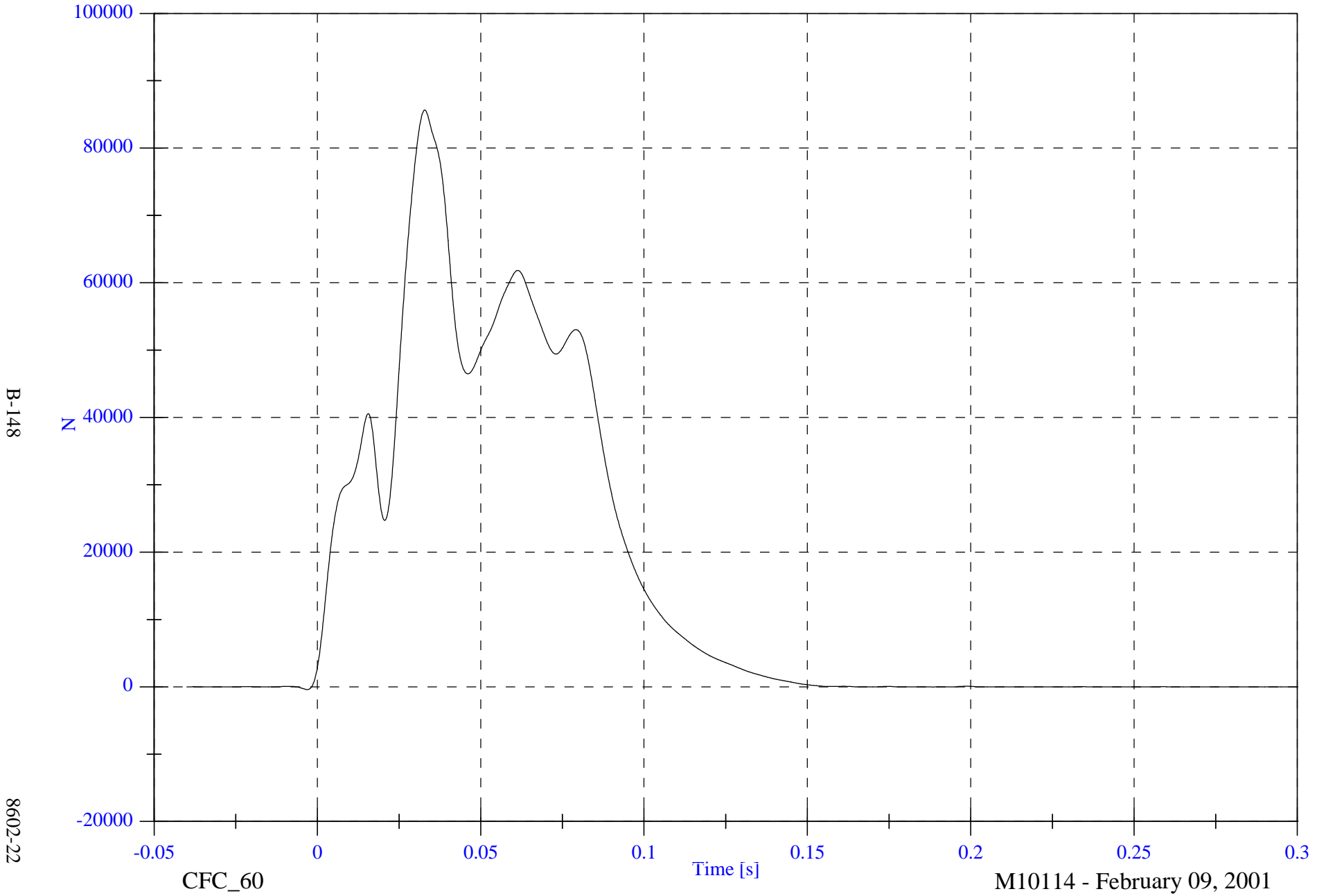
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell B4 Fx

Max: 85651.1 [N] at 0.033 [s]

Min: -405.4 [N] at -0.003 [s]



B-148

8602-22

CFC\_60

Time [s]

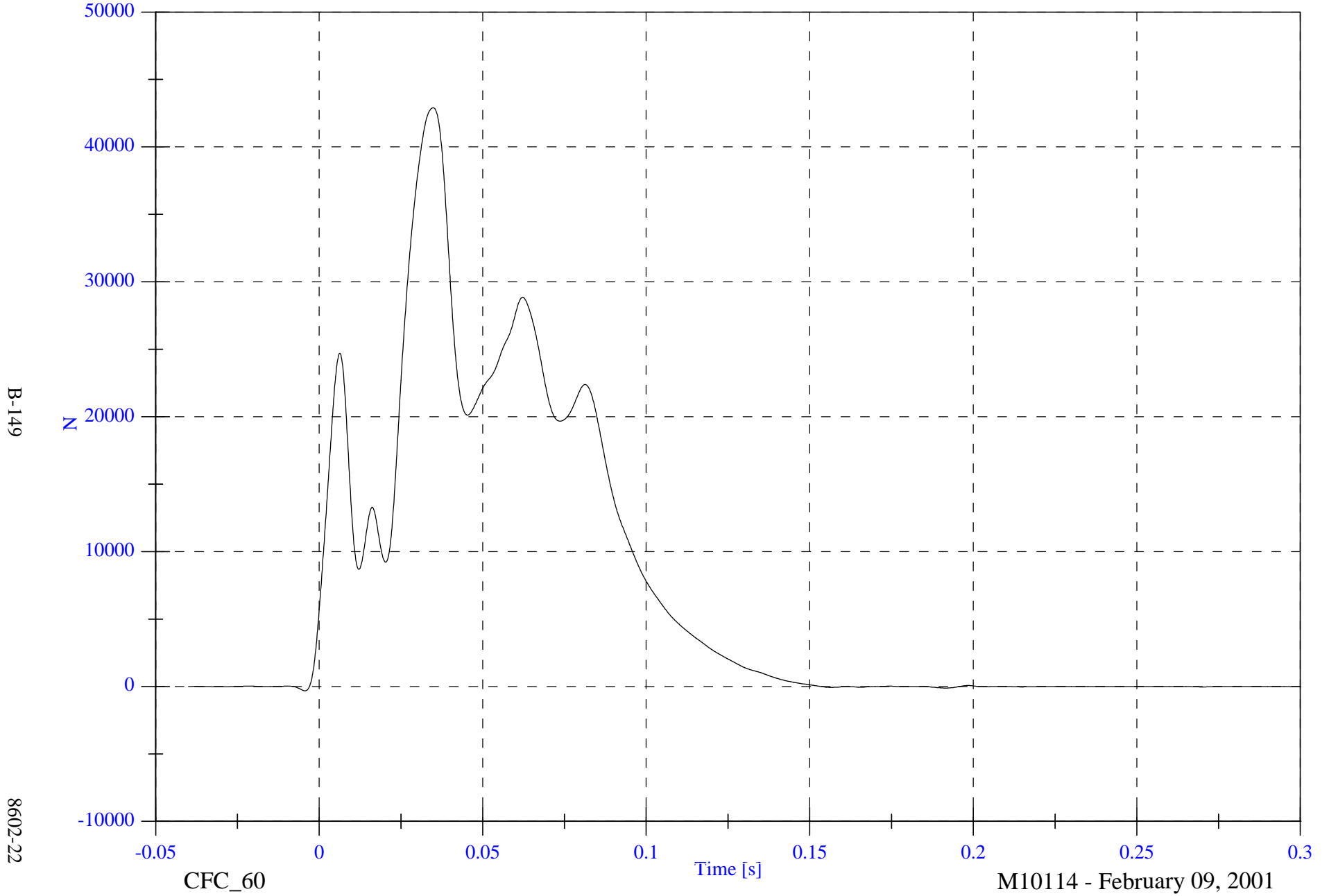
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell B5 Fx

Max: 42906.2 [N] at 0.035 [s]

Min: -322.4 [N] at -0.004 [s]



B-149

8602-22

CFC\_60

Time [s]

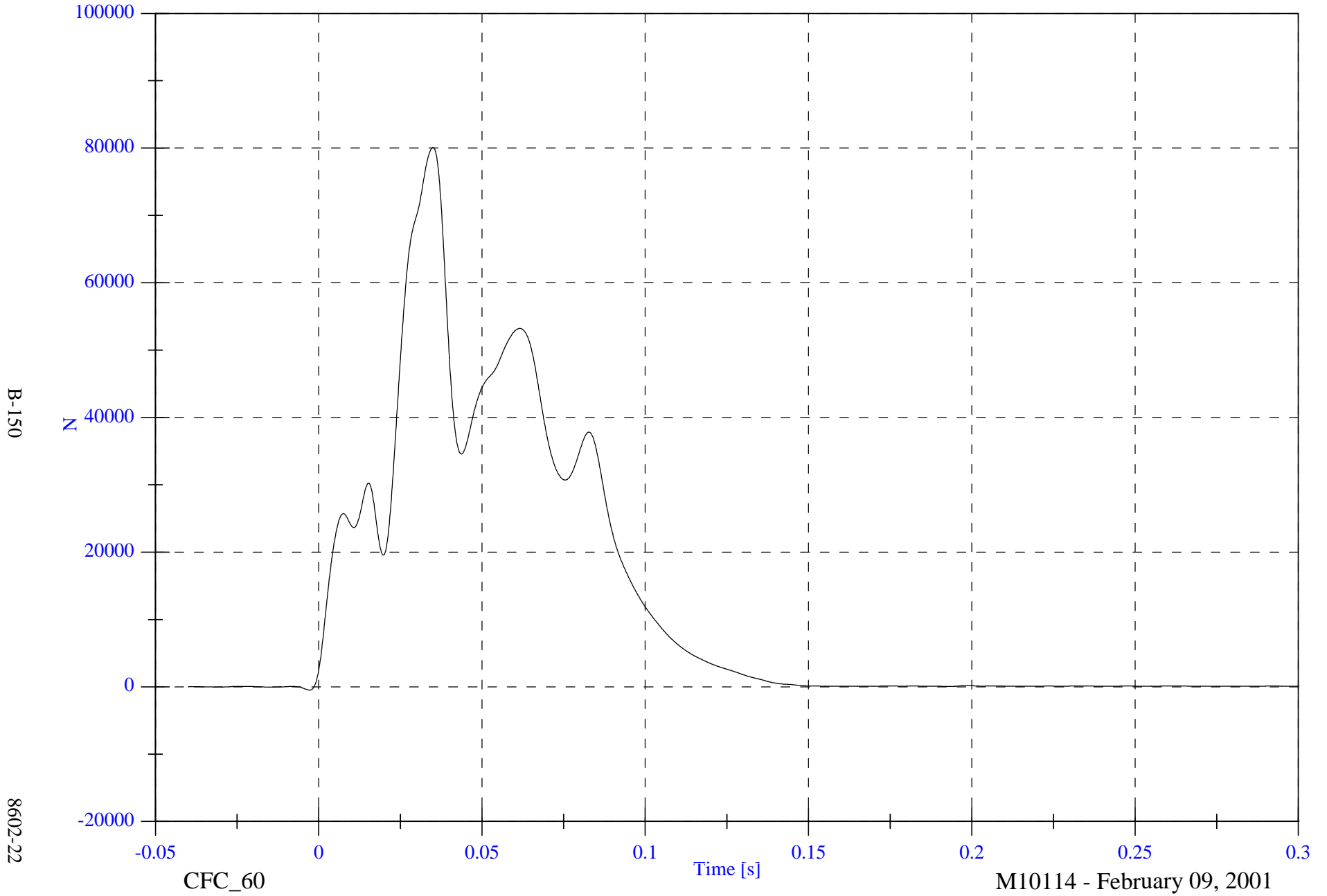
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell B6 Fx

Max: 80100.7 [N] at 0.035 [s]

Min: -495.0 [N] at -0.003 [s]



B-150

8602-22

CFC\_60

Time [s]

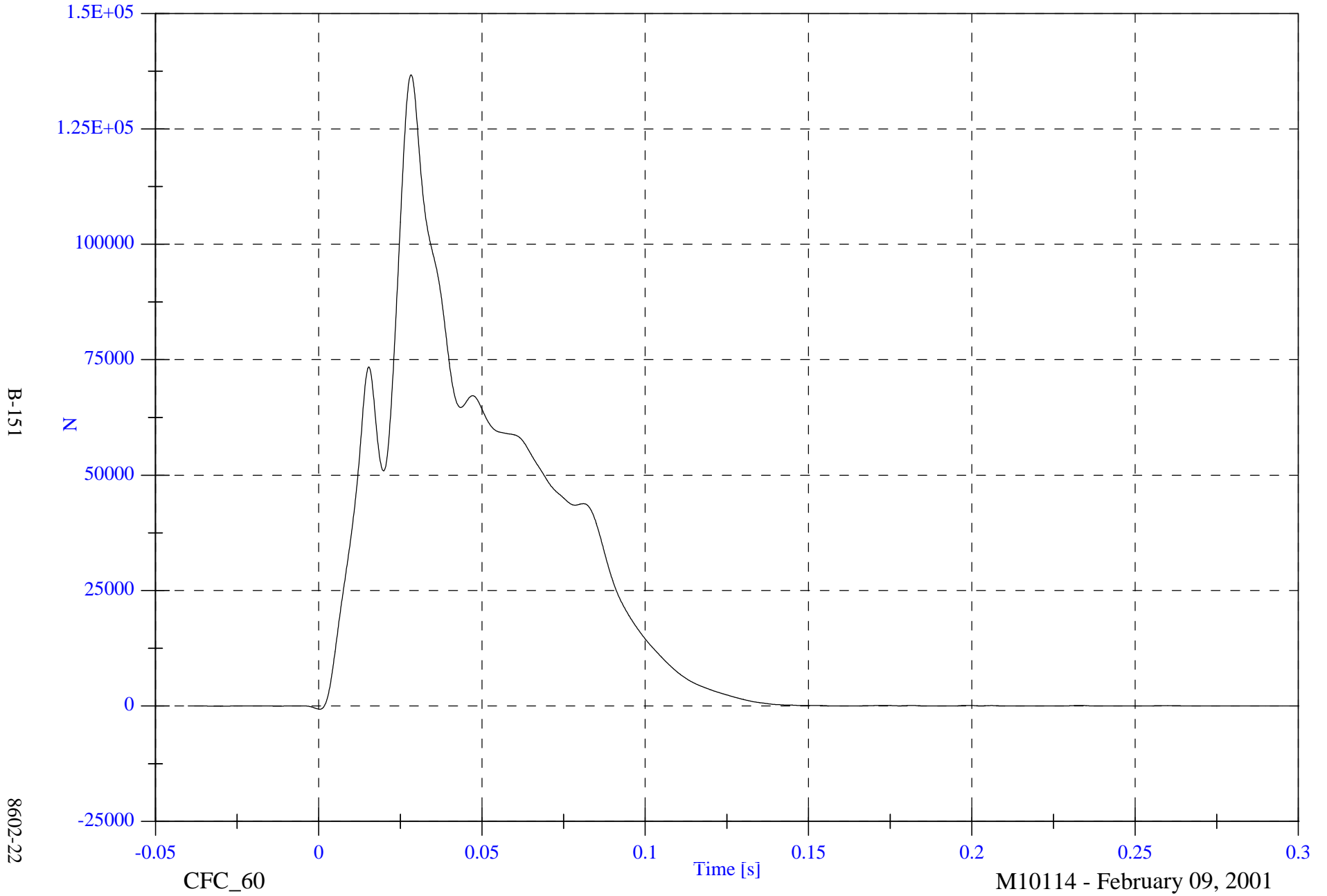
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell B7 Fx

Max: 136698.0 [N] at 0.028 [s]

Min: -695.3 [N] at 0.000 [s]



B-151

8602-22

CFC\_60

Time [s]

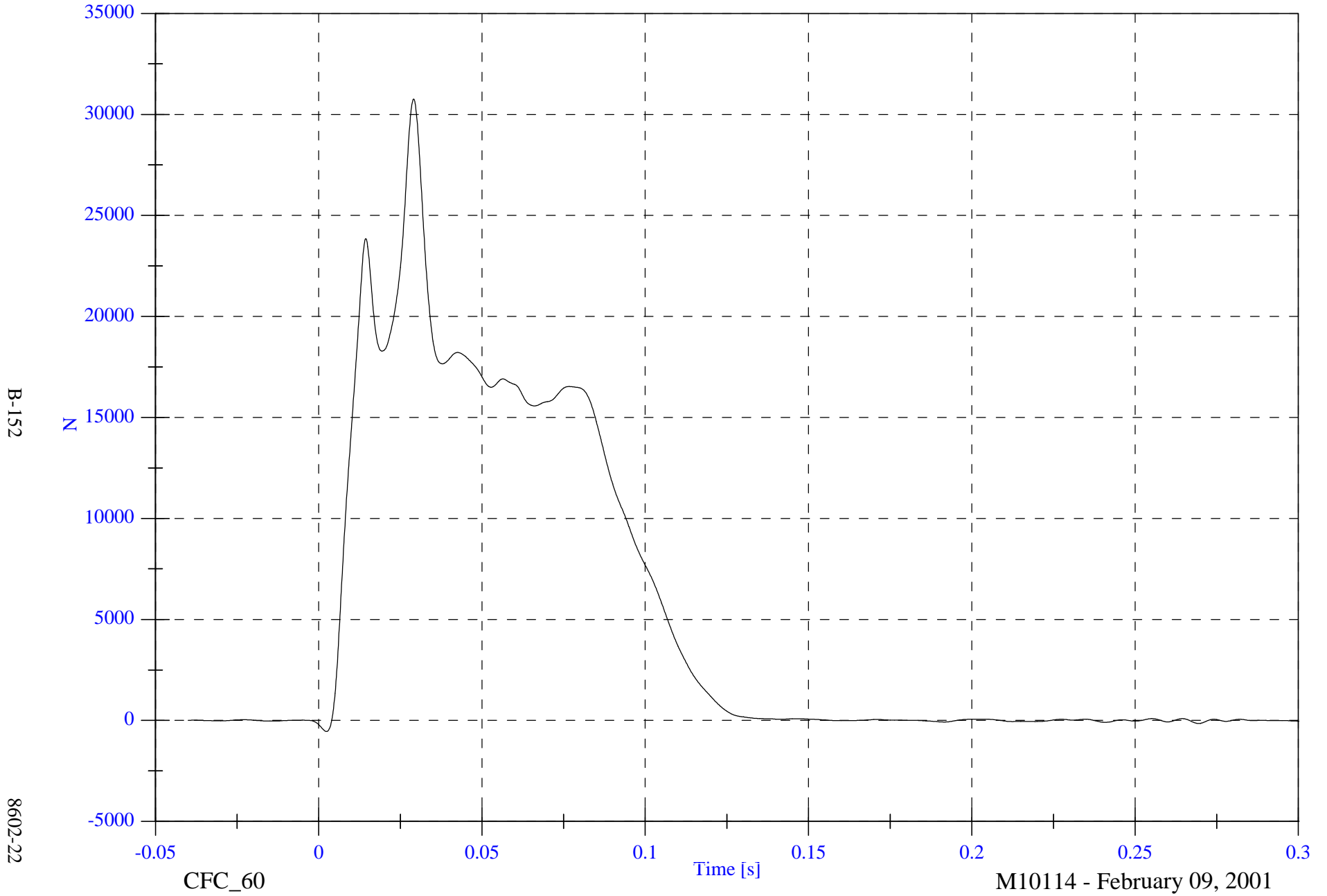
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell B8 Fx

Max: 30762.3 [N] at 0.029 [s]

Min: -547.7 [N] at 0.002 [s]



B-152

8602-22

CFC\_60

Time [s]

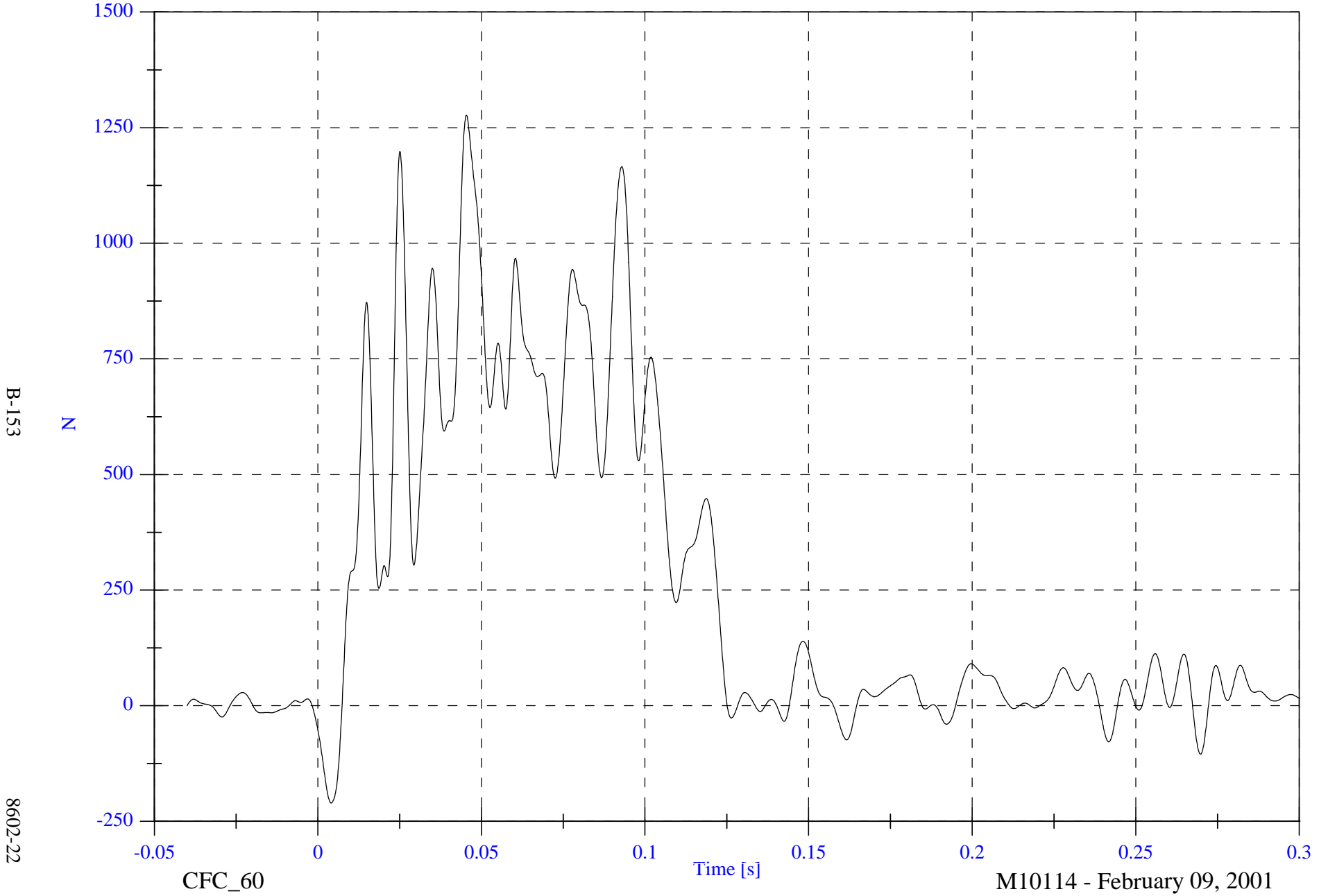
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 1276.9 [N] at 0.045 [s]

Barrier Load Cell B9 Fx

Min: -210.4 [N] at 0.004 [s]



NCAP Test #22 - 2001 Pontiac Aztek

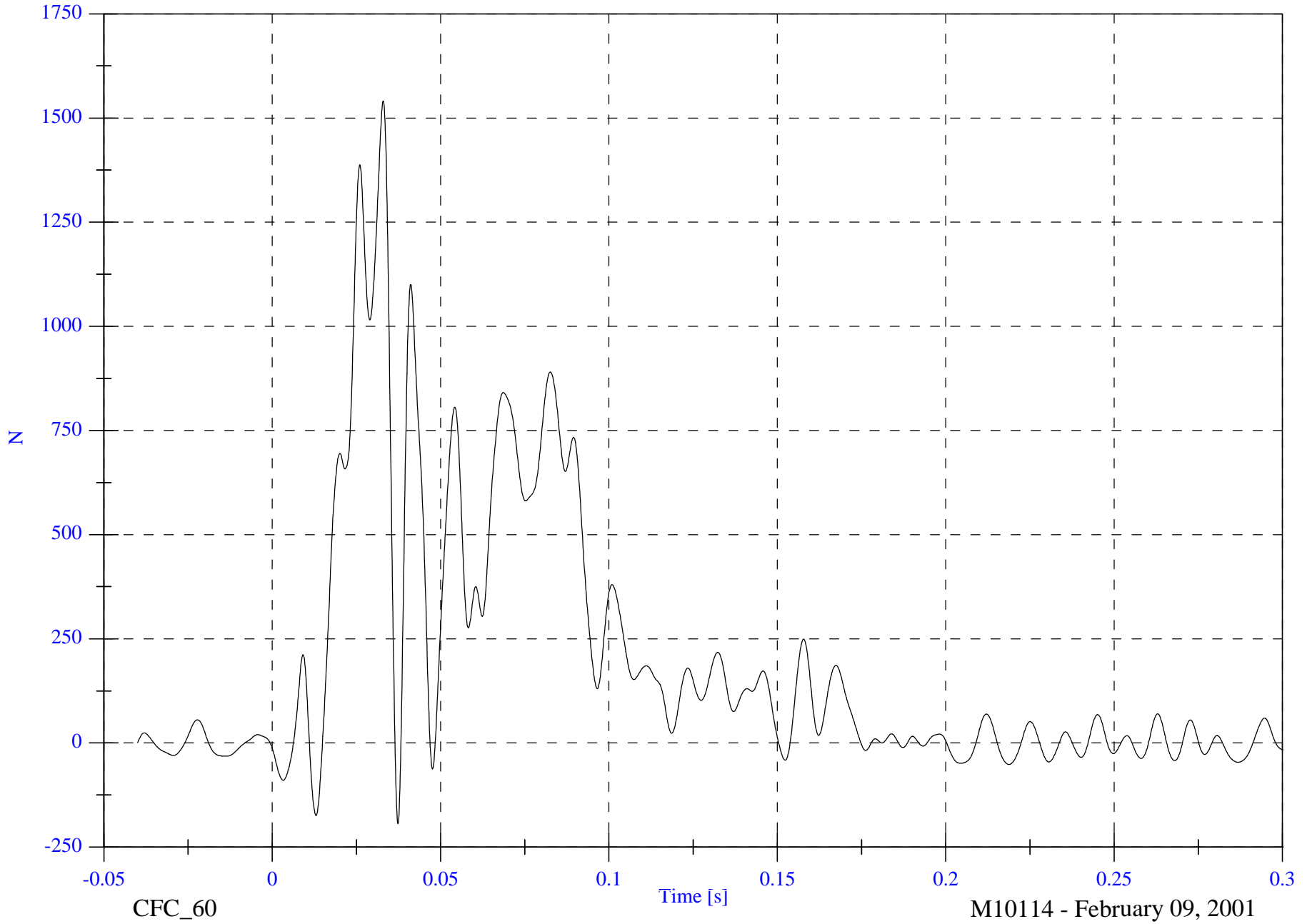
Max: 1540.8 [N] at 0.033 [s]

Barrier Load Cell C1 Fx

Min: -193.6 [N] at 0.037 [s]

B-154

8602-22



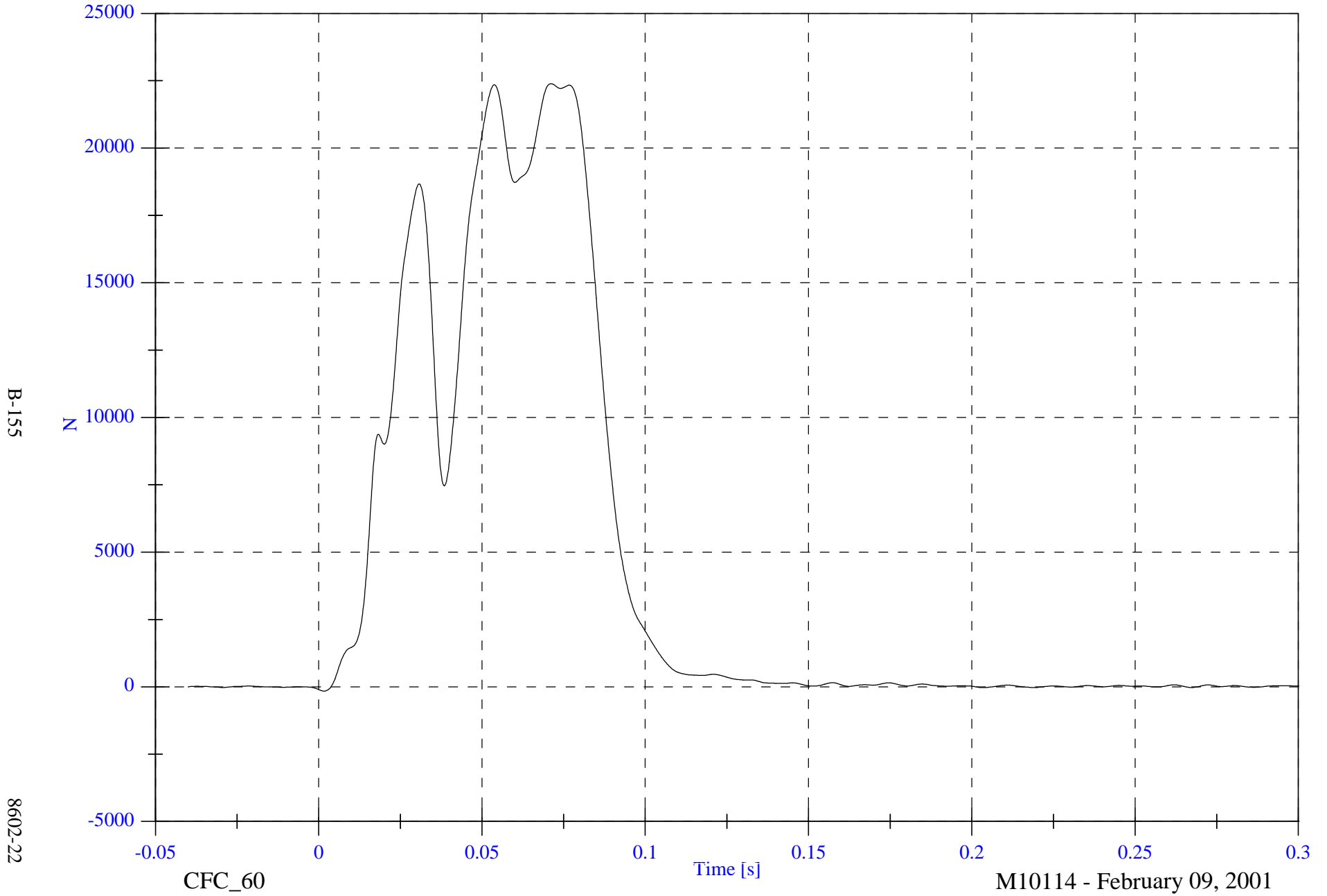
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell C2 Fx

Max: 22388.3 [N] at 0.071 [s]

Min: -158.4 [N] at 0.002 [s]



B-155

8602-22

CFC\_60

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

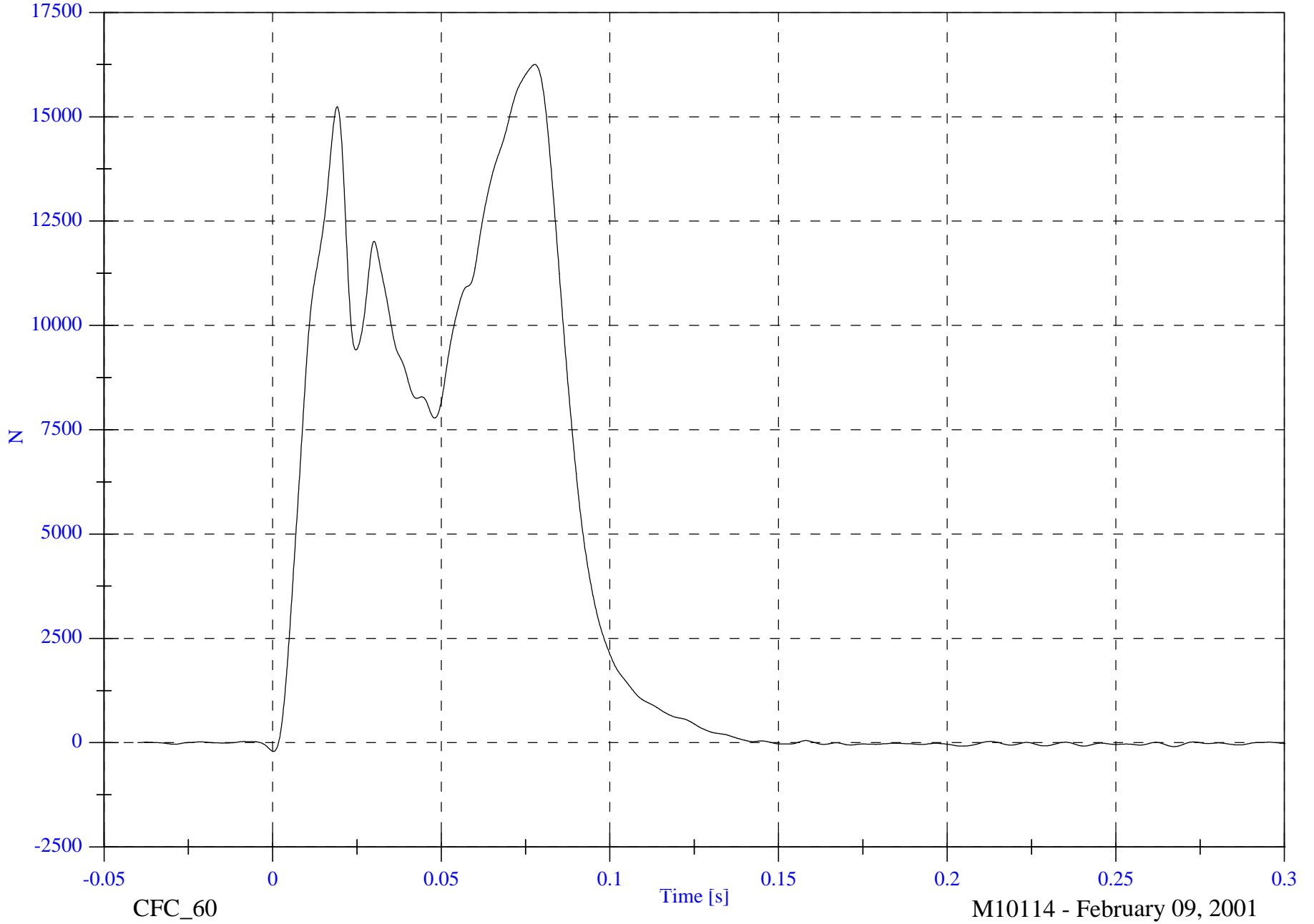
Barrier Load Cell C3 Fx

Max: 16251.6 [N] at 0.078 [s]

Min: -210.1 [N] at 0.000 [s]

B-156

8602-22

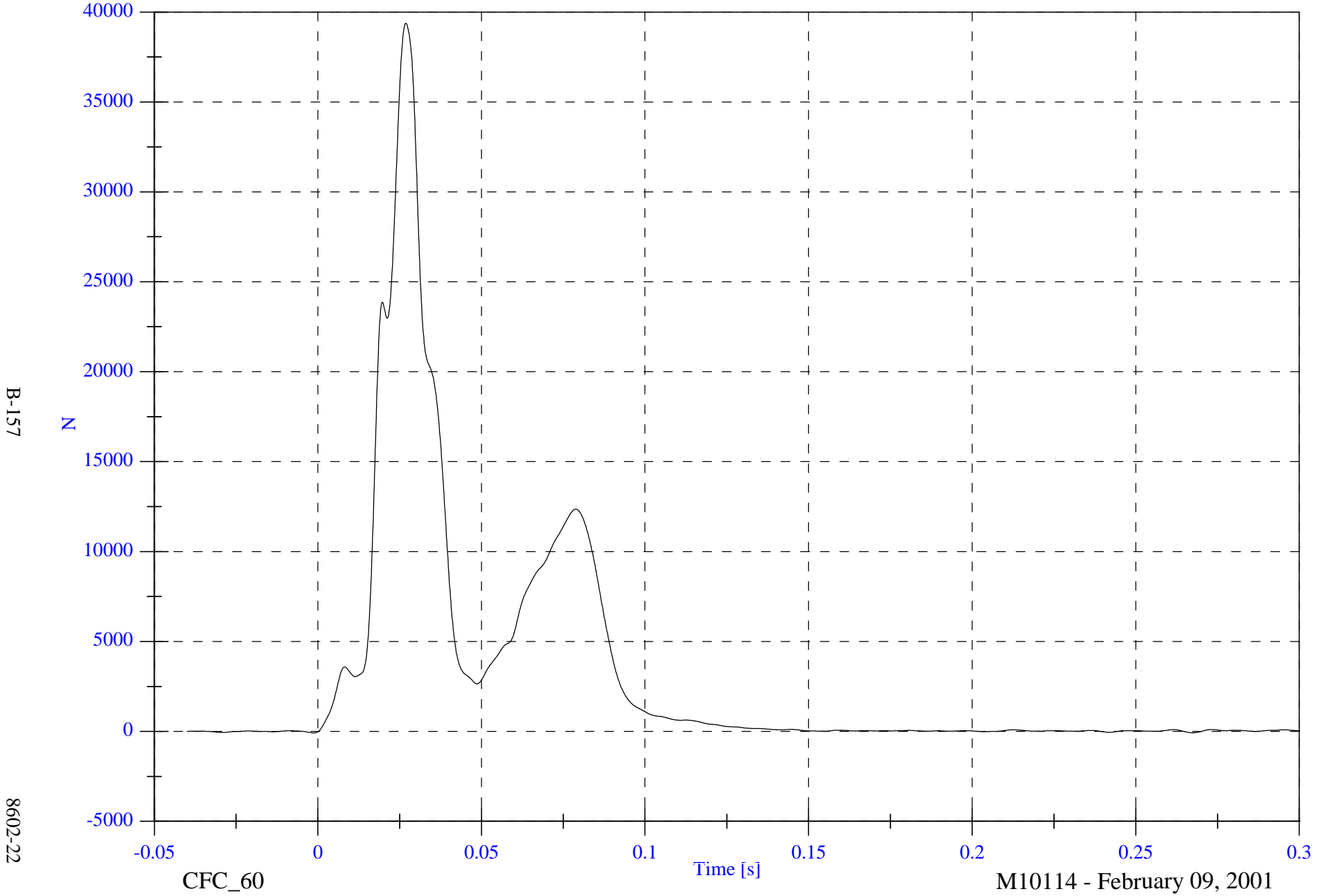


NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell C4 Fx

Max: 39379.7 [N] at 0.027 [s]

Min: -82.7 [N] at -0.001 [s]



B-157

8602-22

CFC\_60

Time [s]

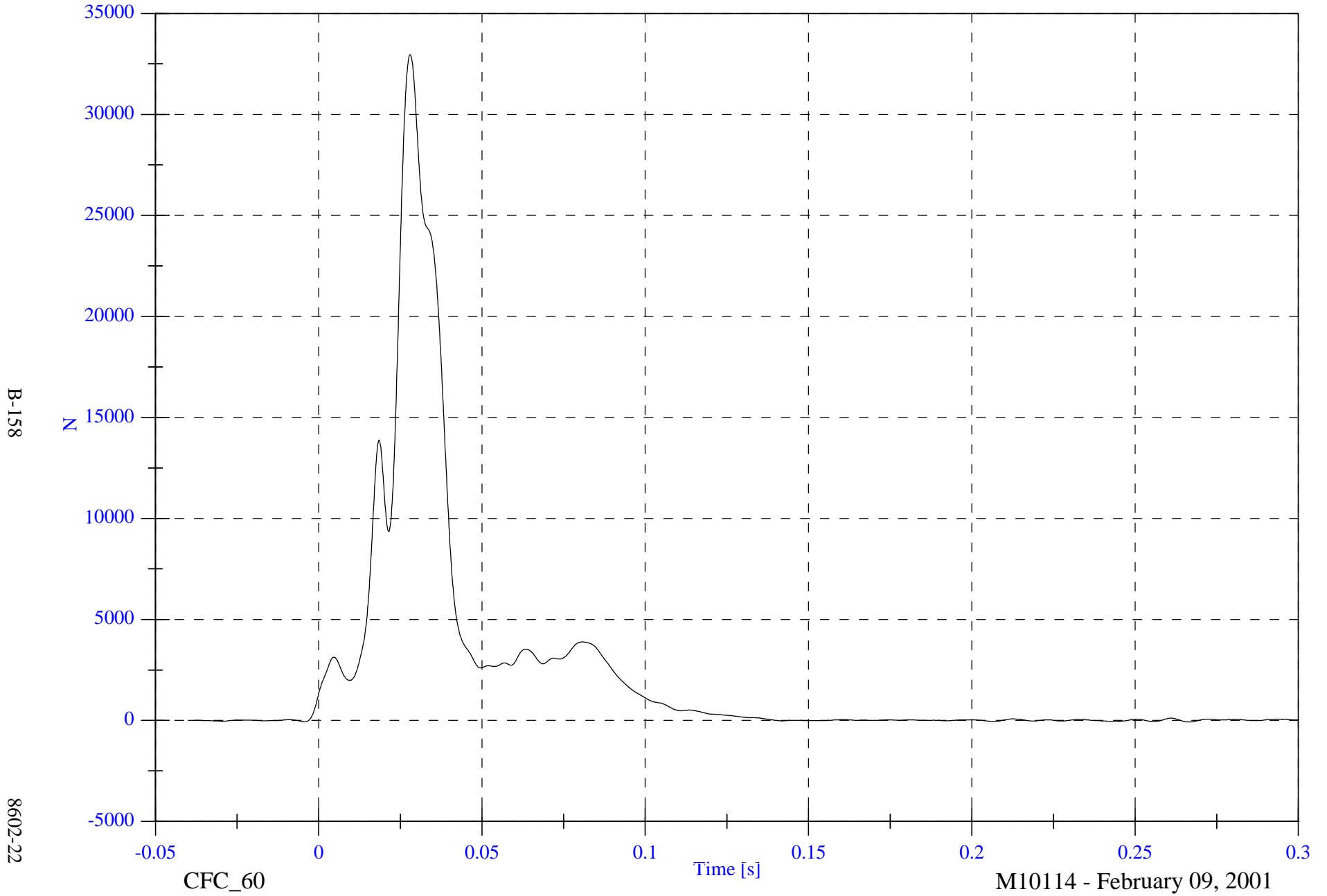
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell C5 Fx

Max: 32964.6 [N] at 0.028 [s]

Min: -78.0 [N] at 0.266 [s]



B-158

8602-22

CFC\_60

Time [s]

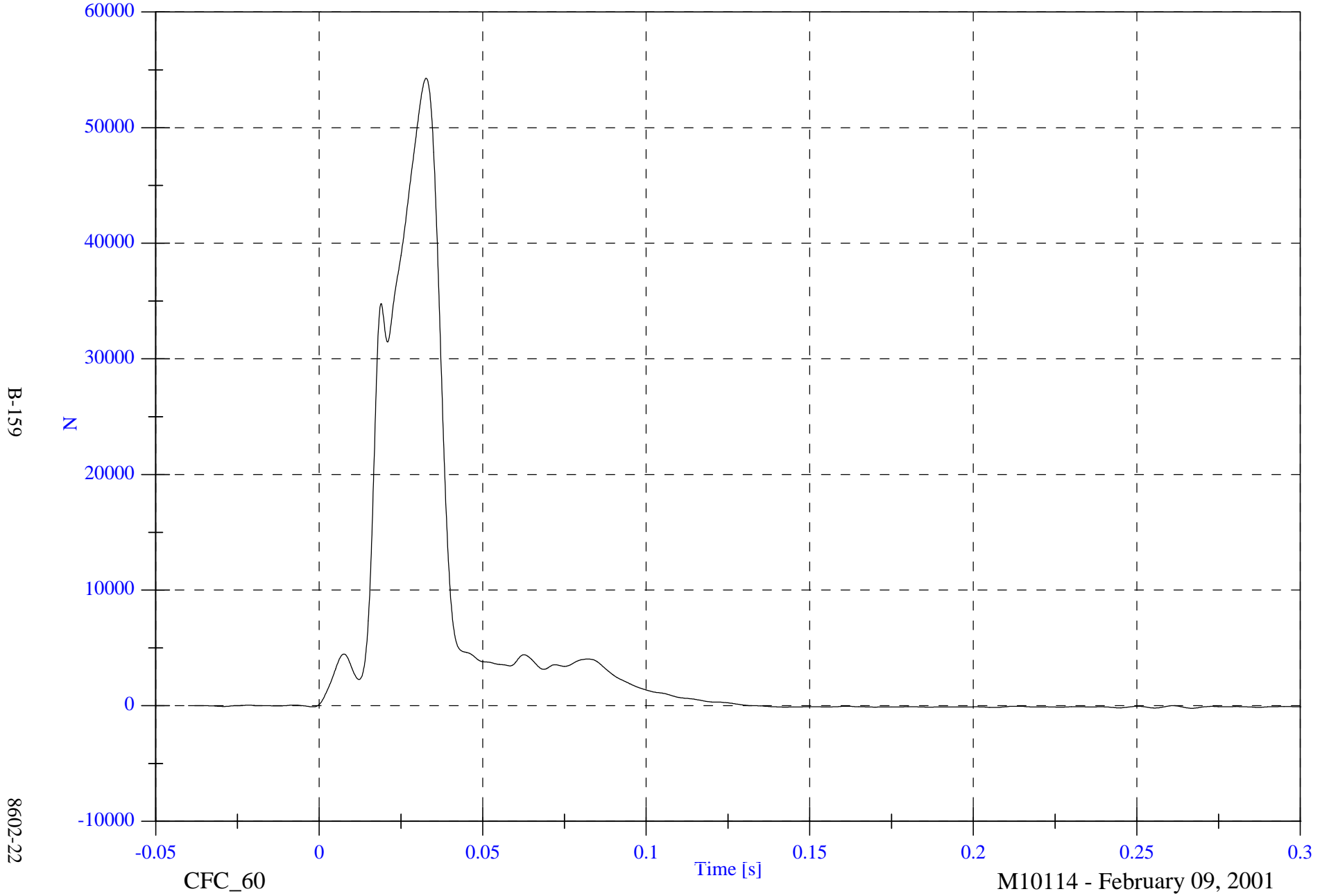
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell C6 Fx

Max: 54277.5 [N] at 0.033 [s]

Min: -214.6 [N] at 0.267 [s]



B-159

8602-22

CFC\_60

Time [s]

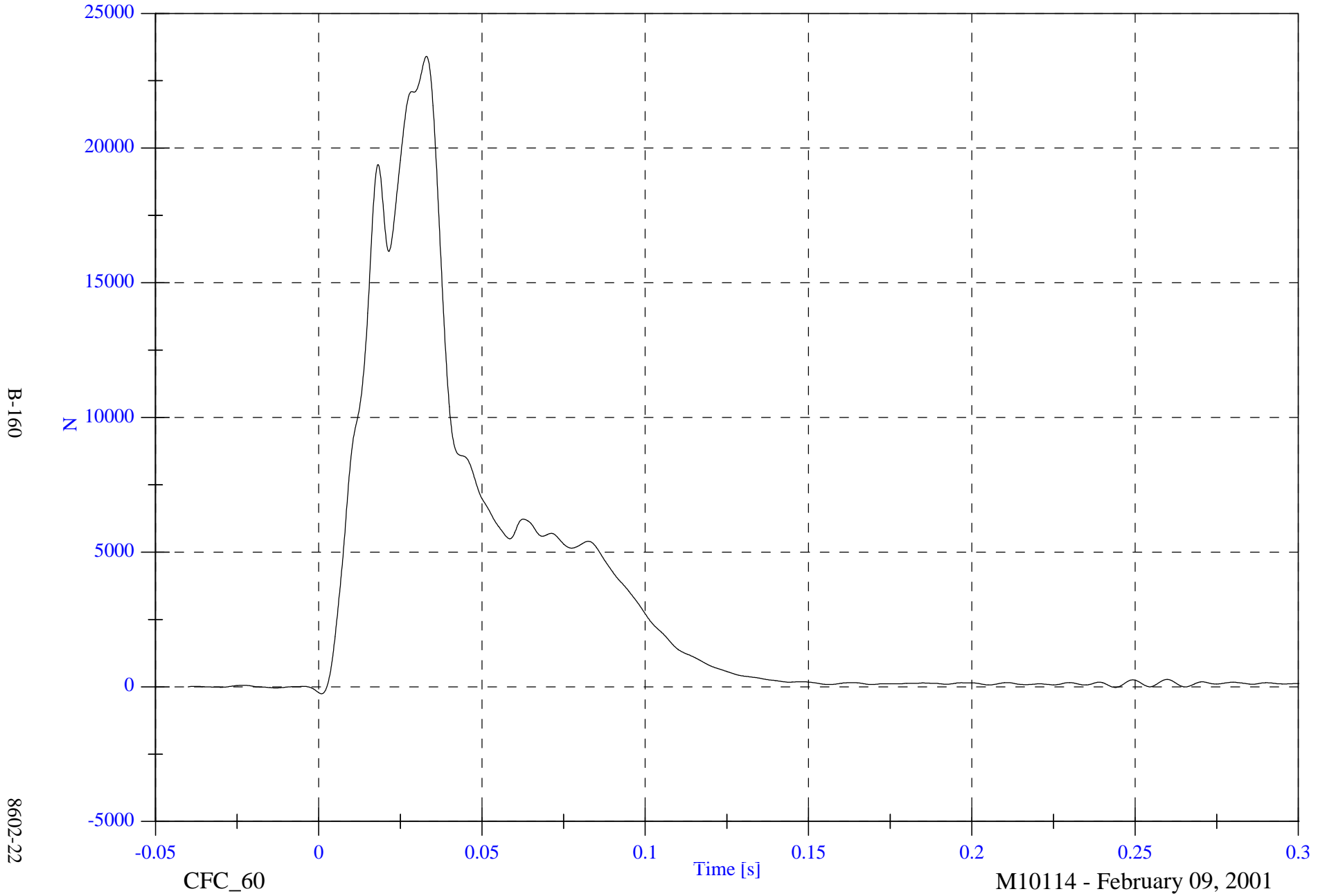
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell C7 Fx

Max: 23404.4 [N] at 0.033 [s]

Min: -257.7 [N] at 0.001 [s]



B-160

8602-22

CFC\_60

Time [s]

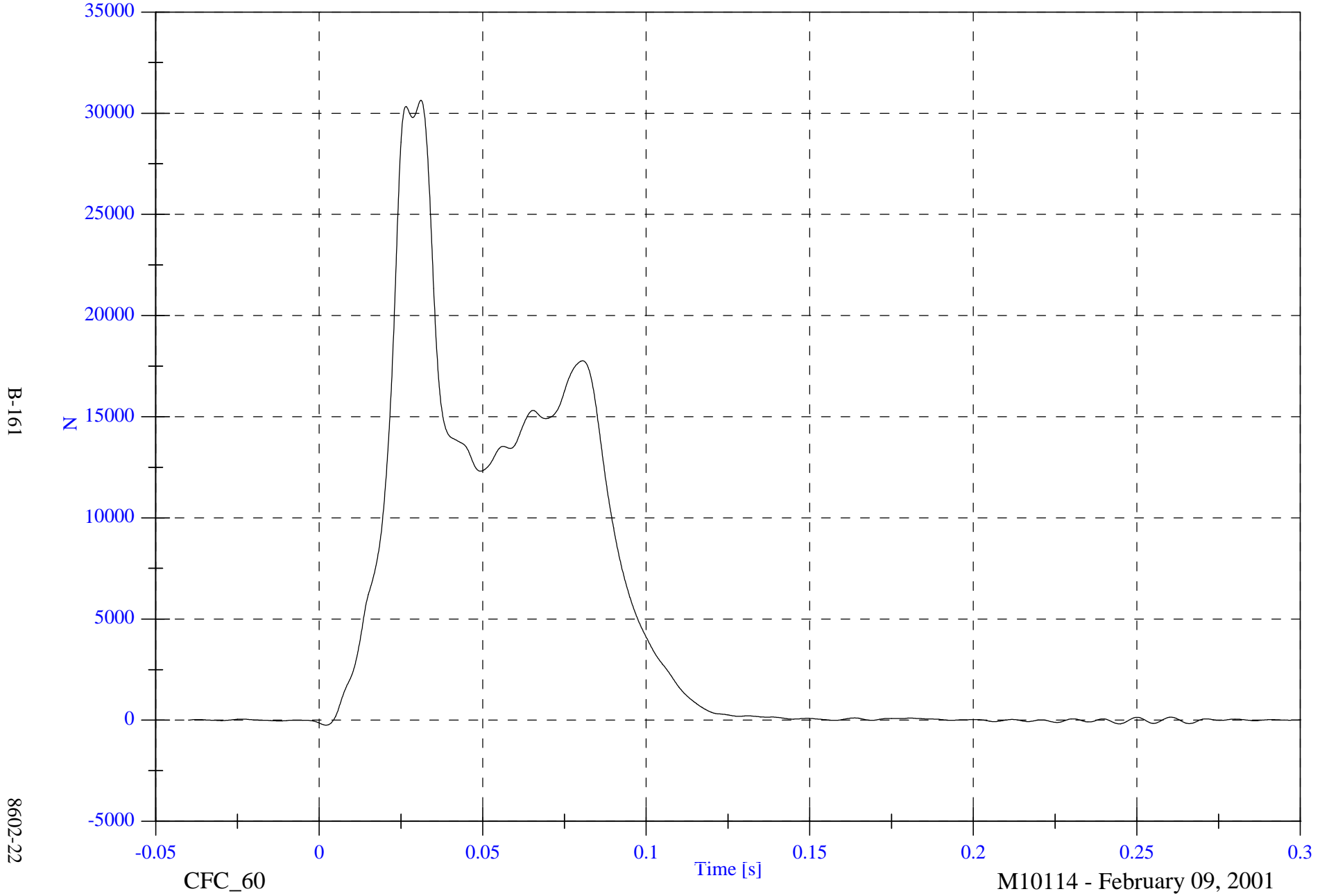
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 30644.0 [N] at 0.031 [s]

Barrier Load Cell C8 Fx

Min: -248.3 [N] at 0.002 [s]



B-161

8602-22

CFC\_60

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

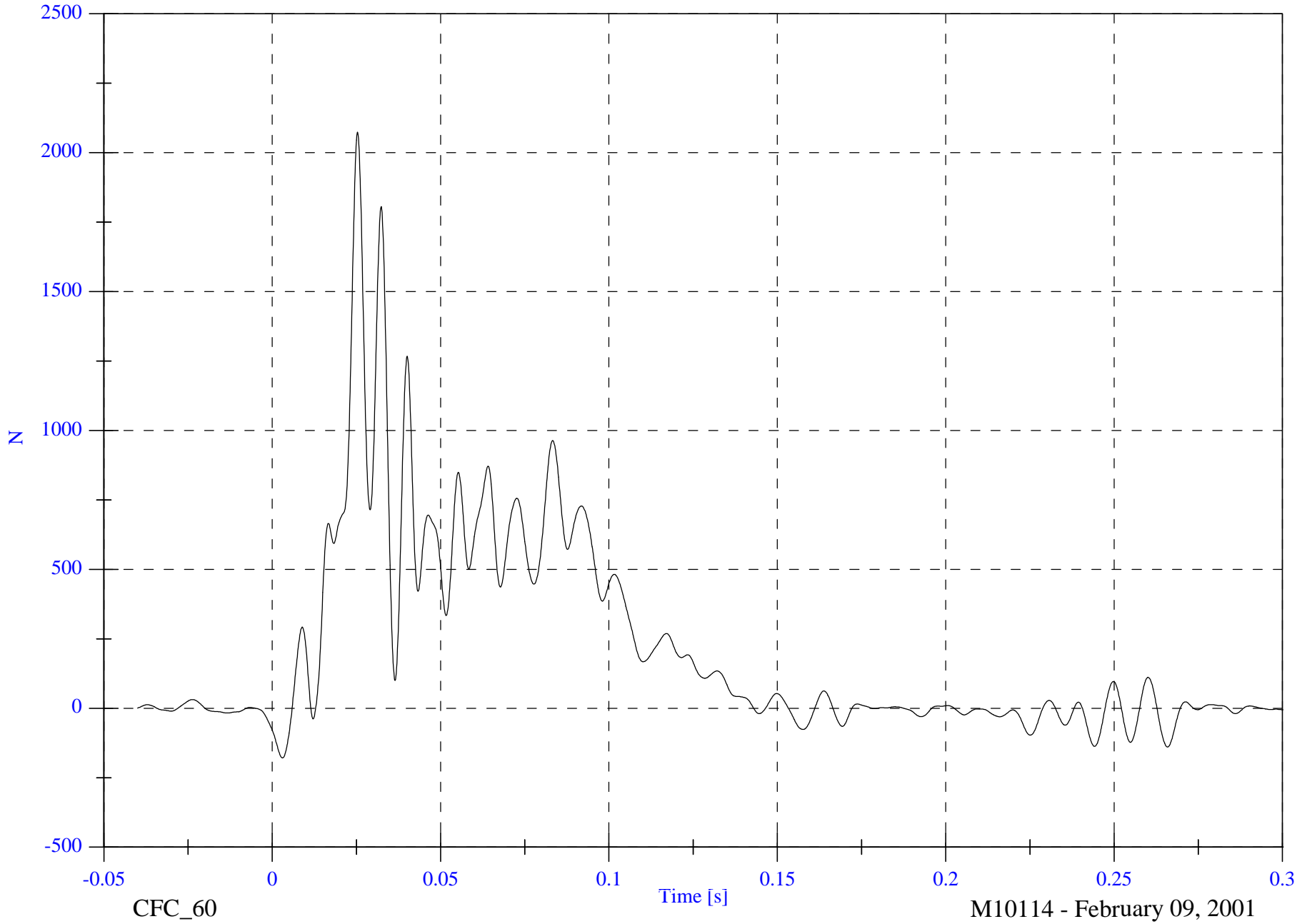
Max: 2074.7 [N] at 0.025 [s]

Barrier Load Cell C9 Fx

Min: -179.0 [N] at 0.003 [s]

B-162

8602-22



NCAP Test #22 - 2001 Pontiac Aztek

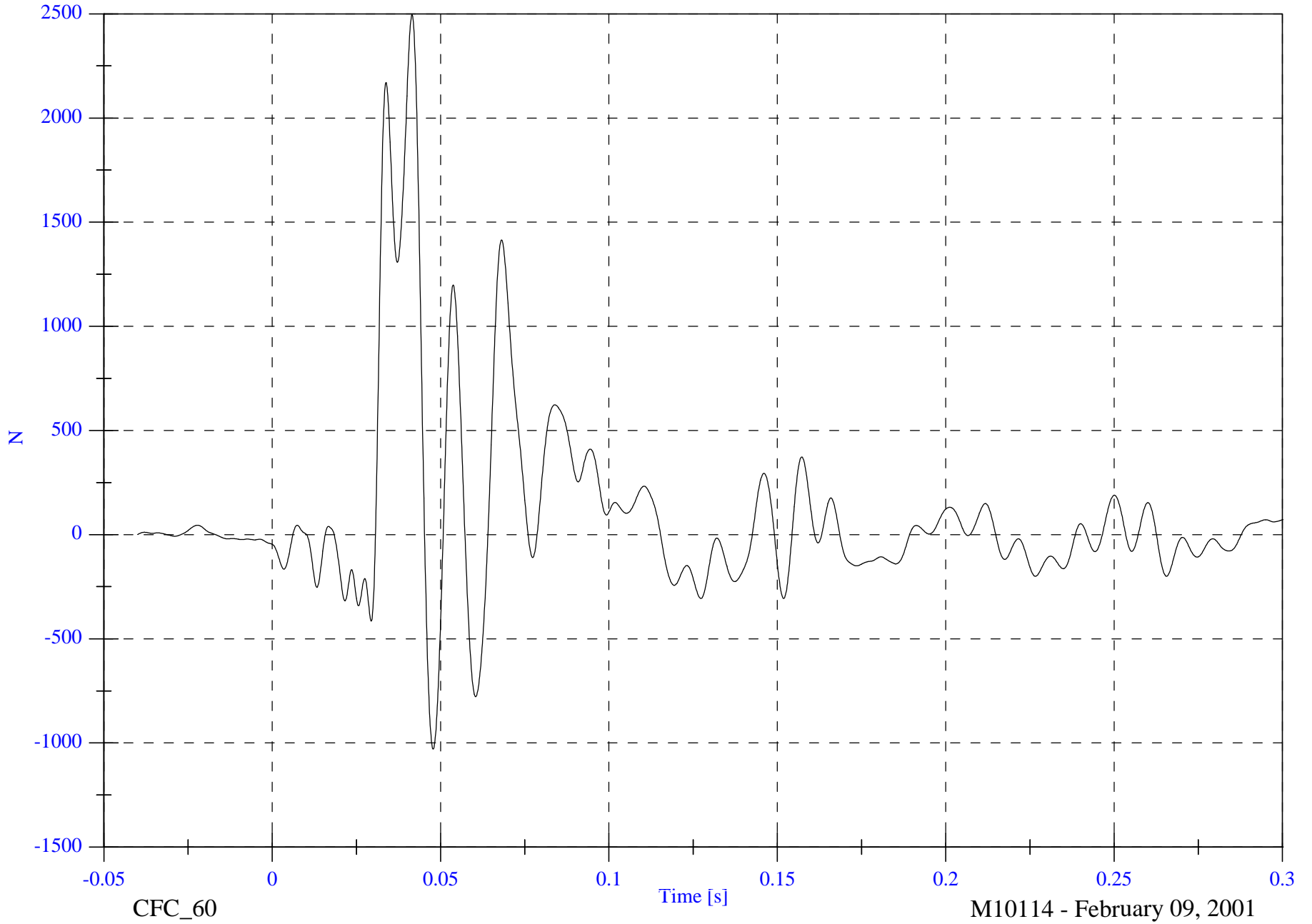
Max: 2496.3 [N] at 0.041 [s]

Barrier Load Cell D1 Fx

Min: -1029.4 [N] at 0.048 [s]

B-163

8602-22

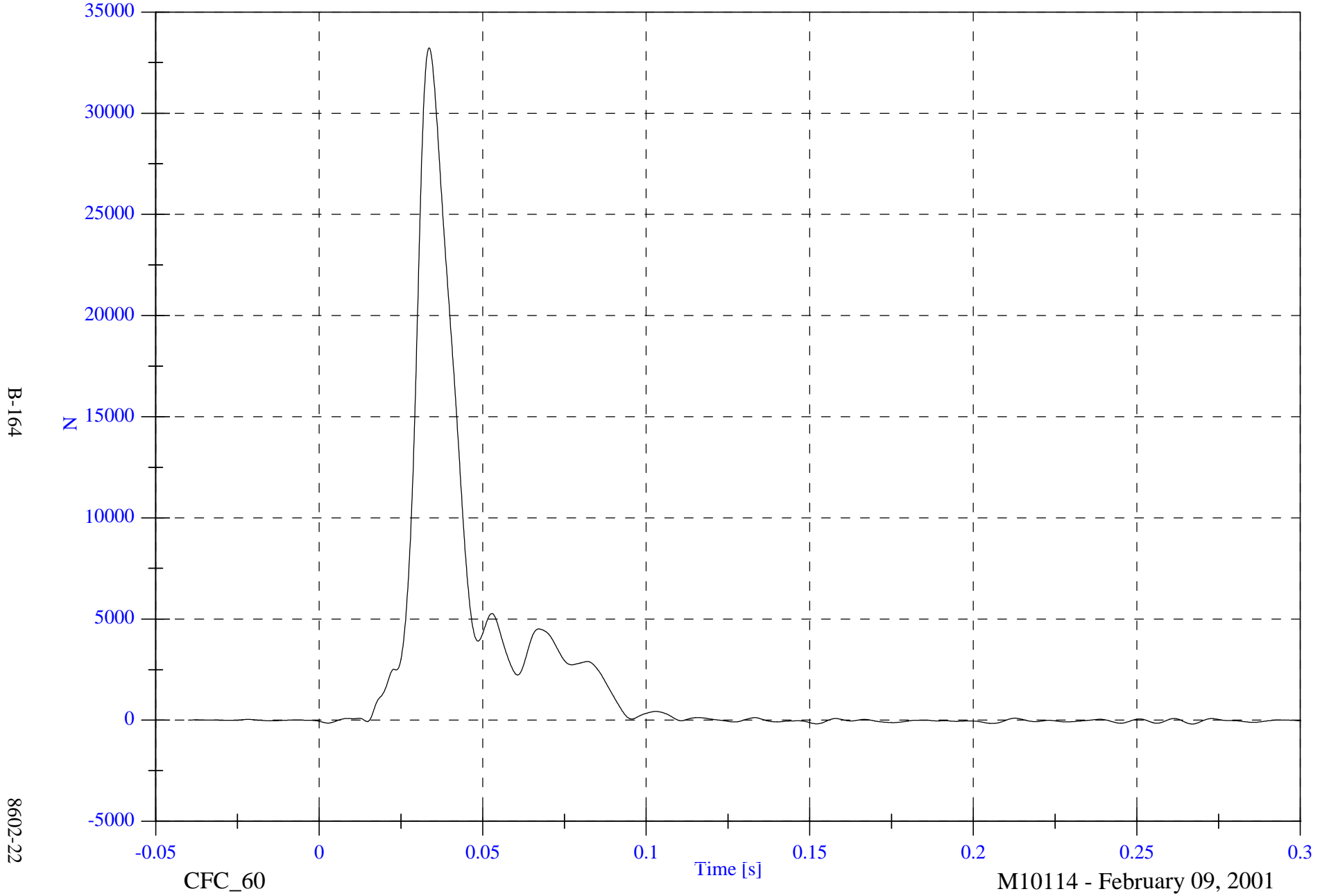


NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell D2 Fx

Max: 33229.1 [N] at 0.034 [s]

Min: -190.5 [N] at 0.267 [s]



B-164

8602-22

CFC\_60

Time [s]

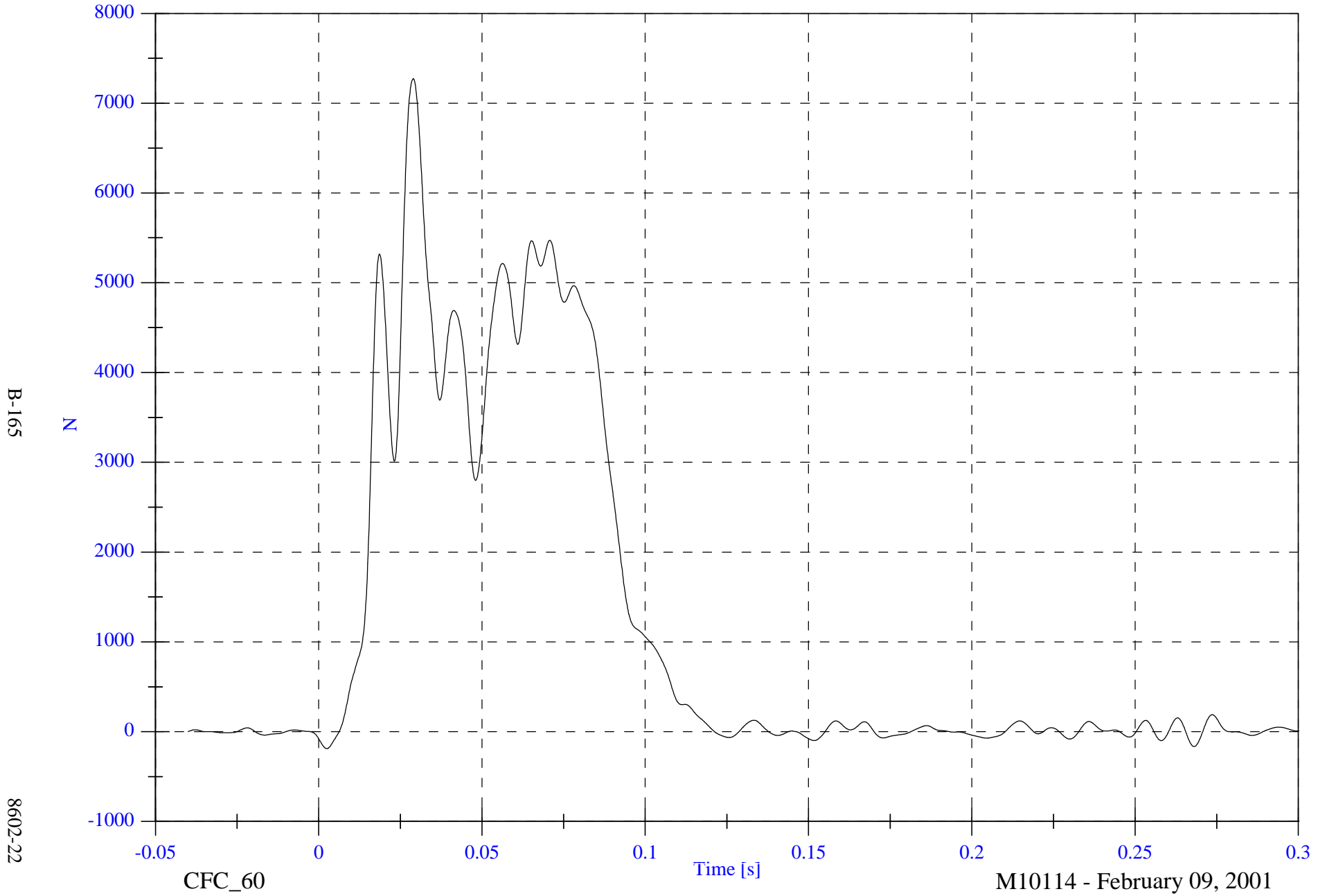
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell D3 Fx

Max: 7273.2 [N] at 0.029 [s]

Min: -189.4 [N] at 0.002 [s]



B-165

8602-22

CFC\_60

Time [s]

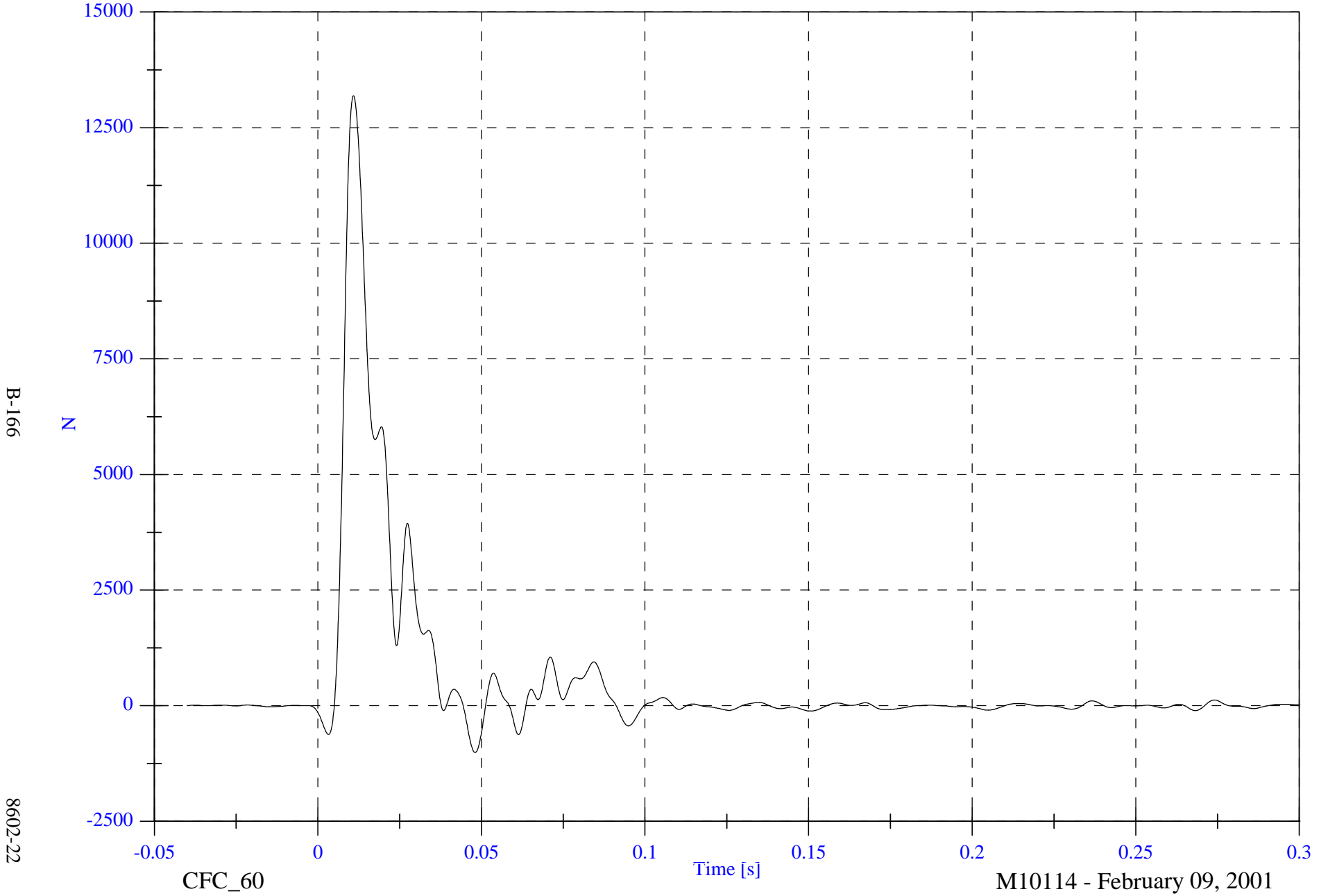
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell D4 Fx

Max: 13192.3 [N] at 0.011 [s]

Min: -1013.0 [N] at 0.048 [s]



B-166

8602-22

CFC\_60

Time [s]

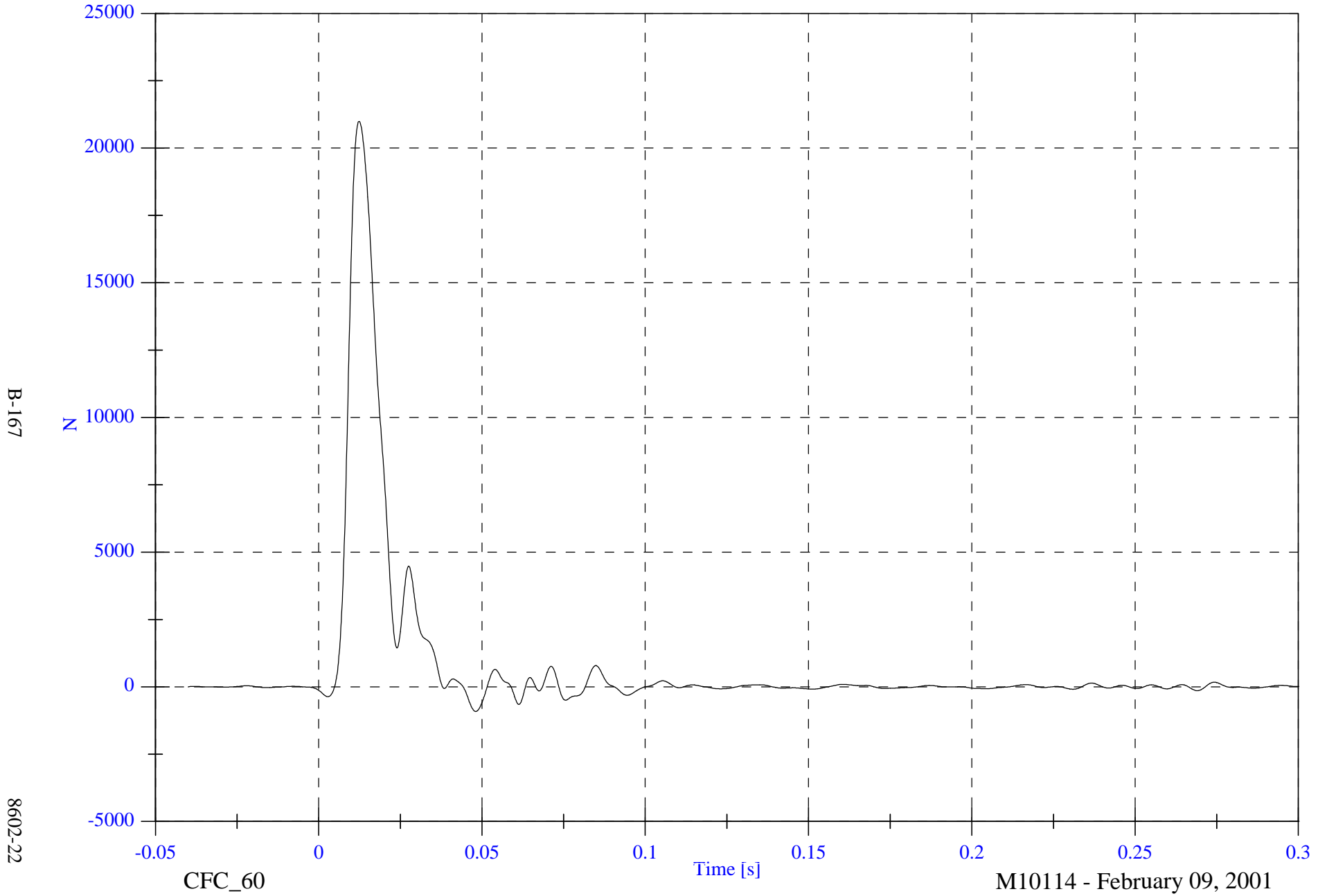
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell D5 Fx

Max: 20995.0 [N] at 0.012 [s]

Min: -916.5 [N] at 0.048 [s]



B-167

8602-22

CFC\_60

Time [s]

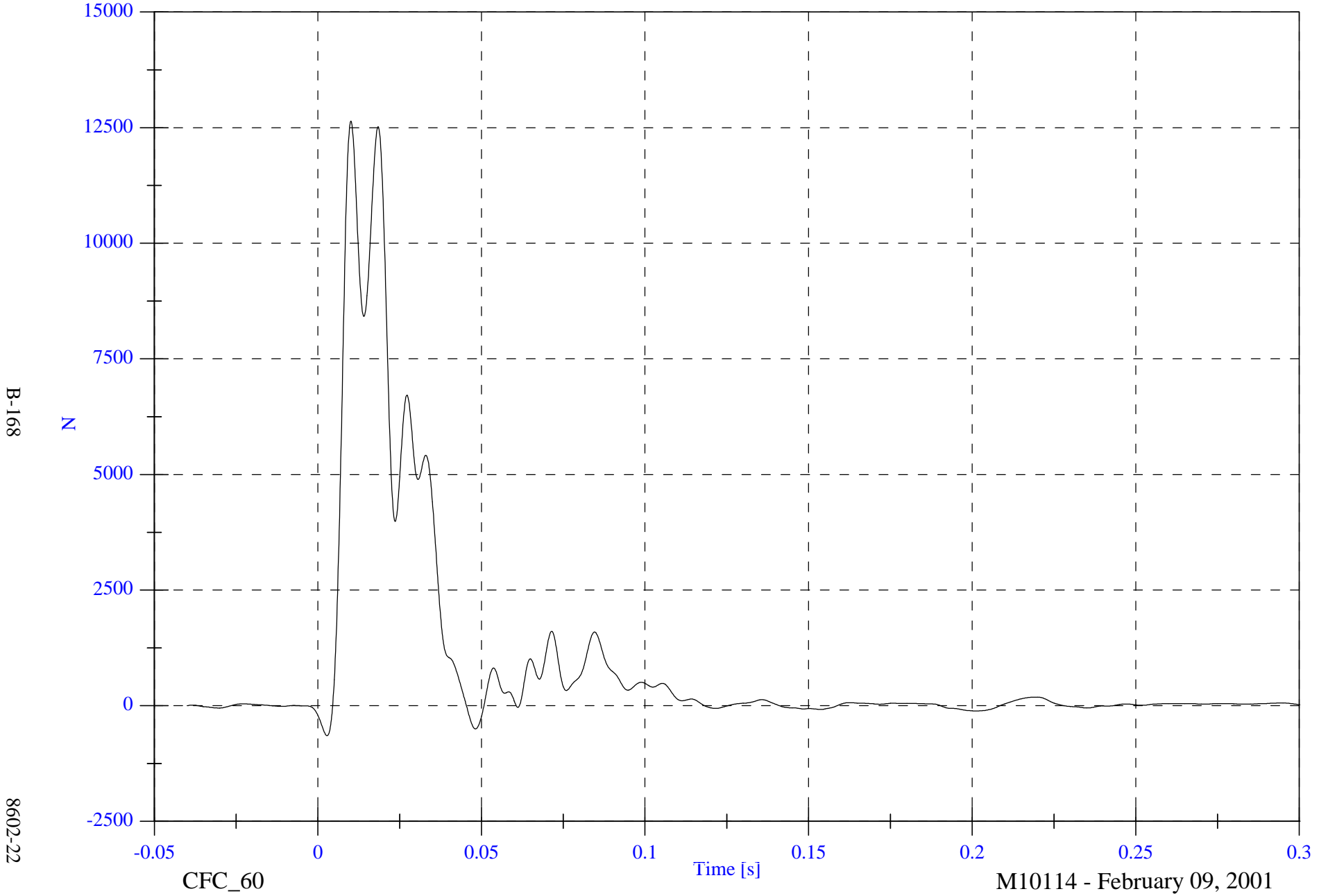
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell D6 Fx

Max: 12642.4 [N] at 0.010 [s]

Min: -649.8 [N] at 0.003 [s]



B-168

8602-22

CFC\_60

Time [s]

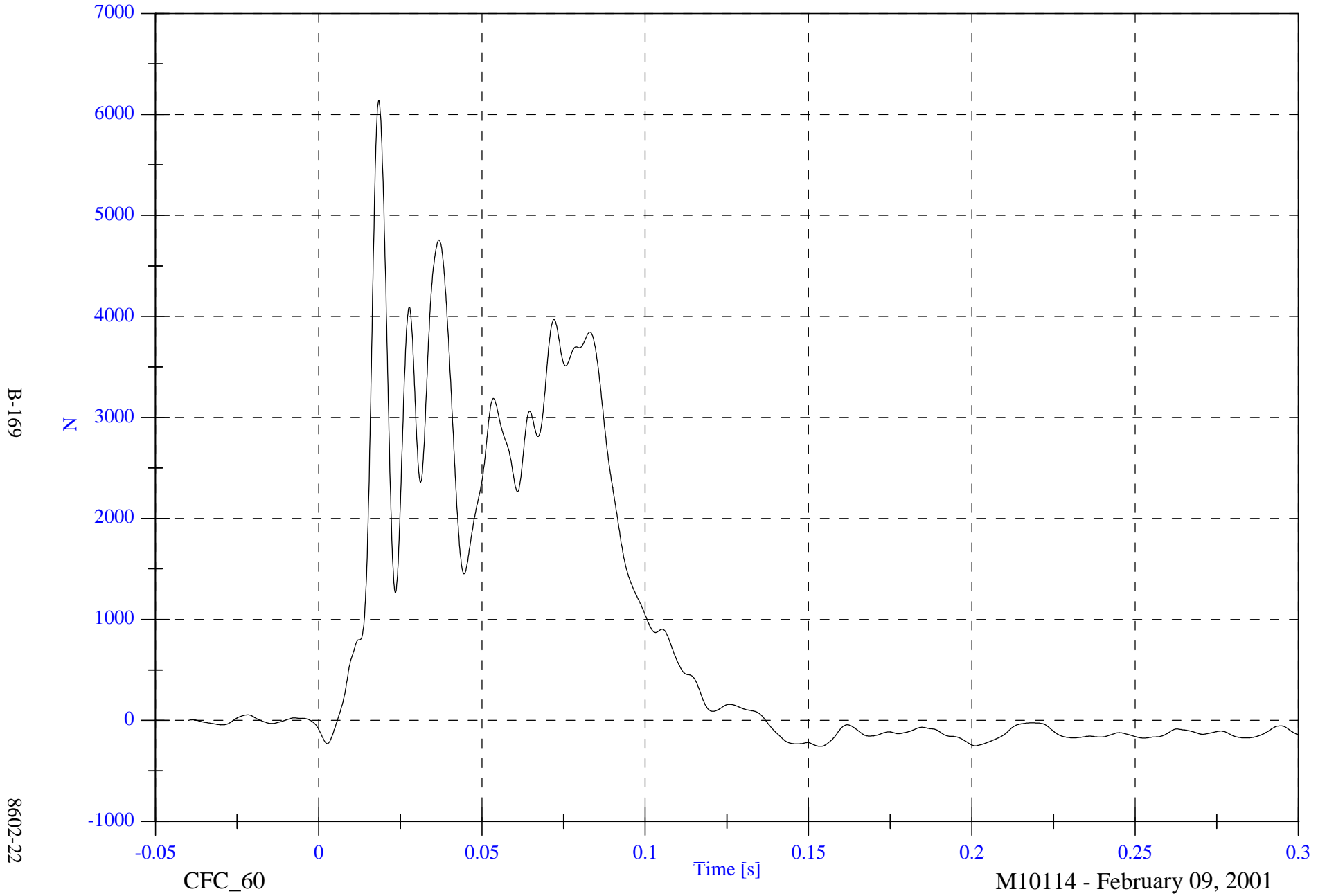
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell D7 Fx

Max: 6136.5 [N] at 0.018 [s]

Min: -256.0 [N] at 0.154 [s]



B-169

8602-22

CFC\_60

Time [s]

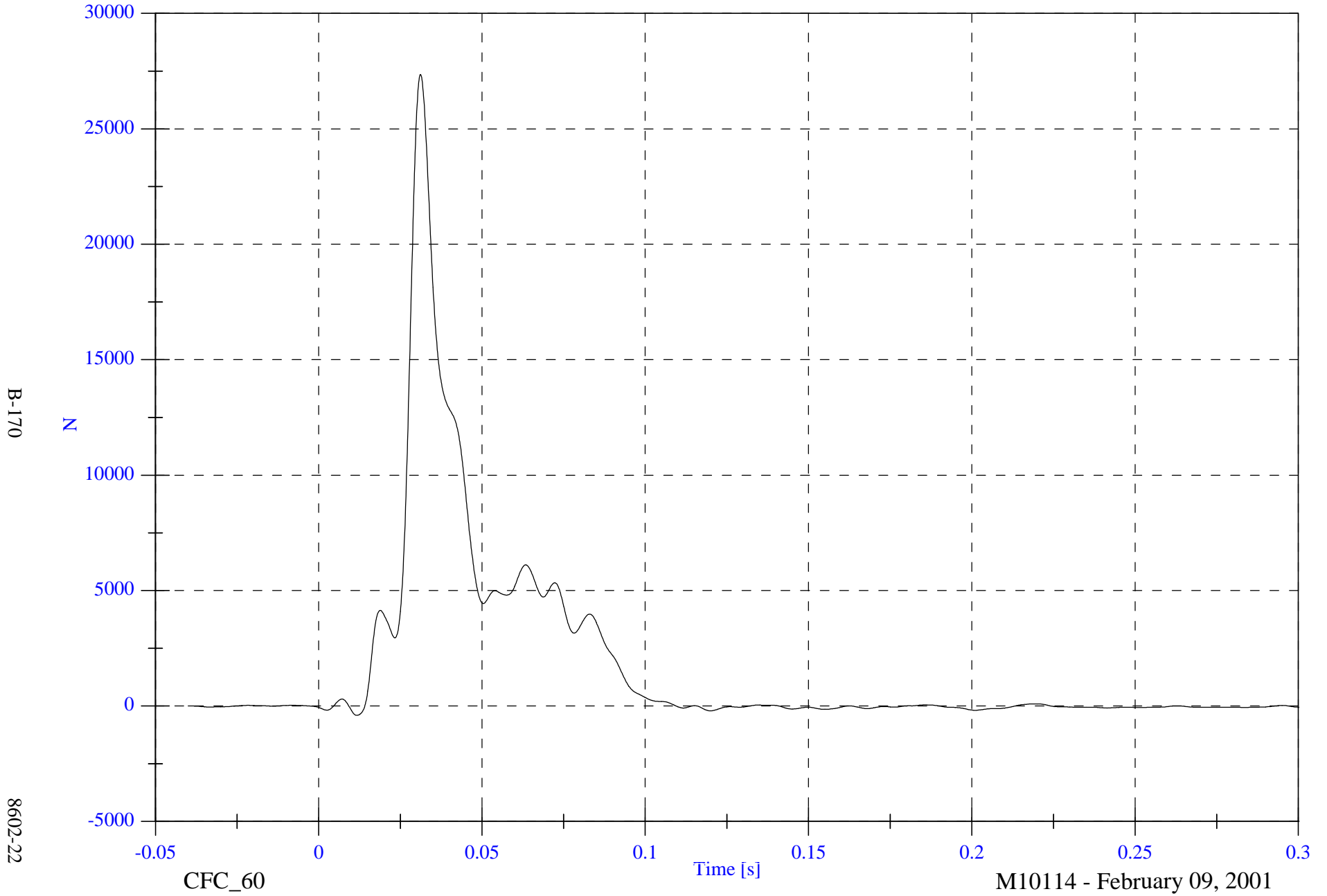
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell D8 Fx

Max: 27358.9 [N] at 0.031 [s]

Min: -405.4 [N] at 0.012 [s]



B-170

8602-22

CFC\_60

Time [s]

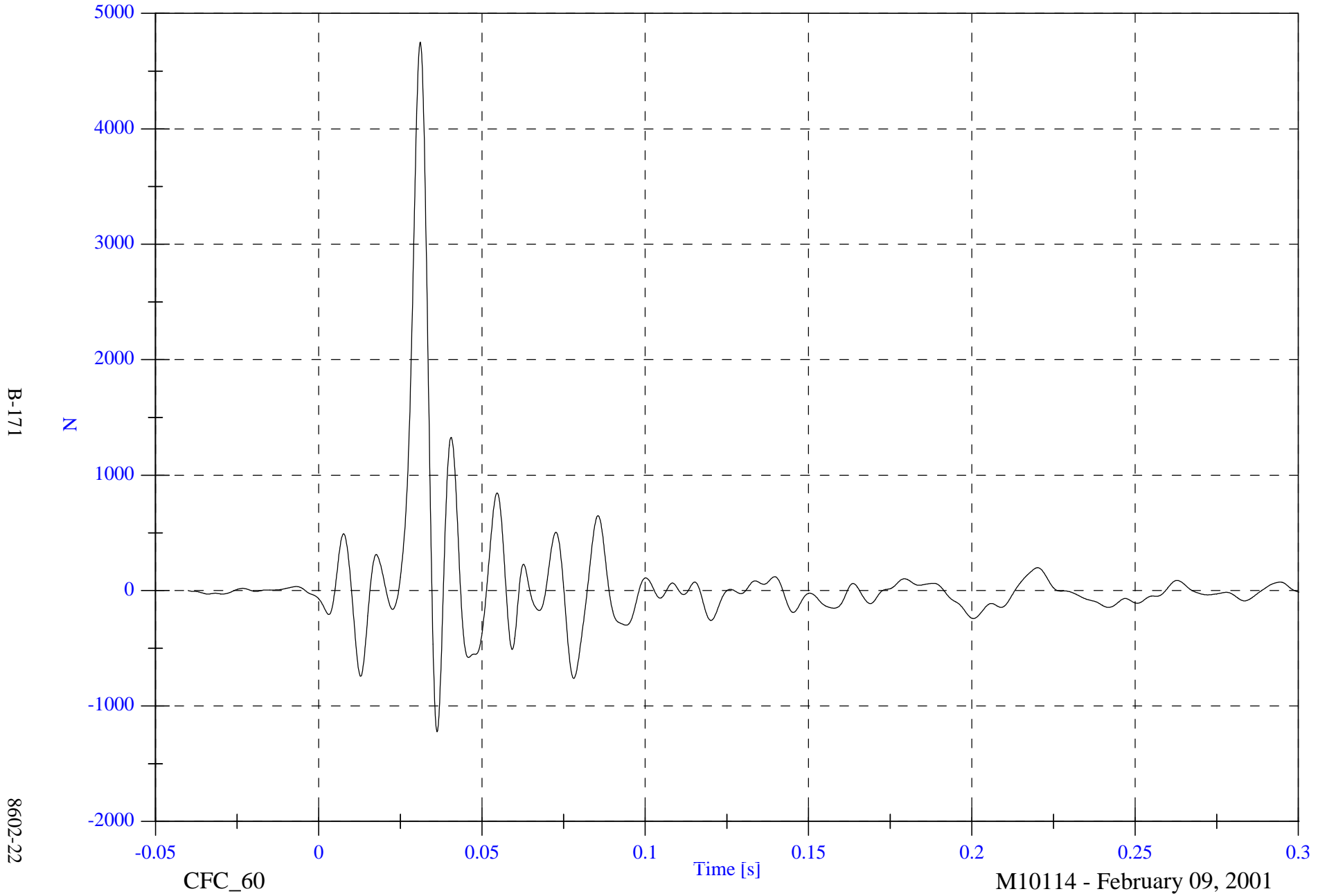
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Barrier Load Cell D9 Fx

Max: 4750.7 [N] at 0.031 [s]

Min: -1223.8 [N] at 0.036 [s]

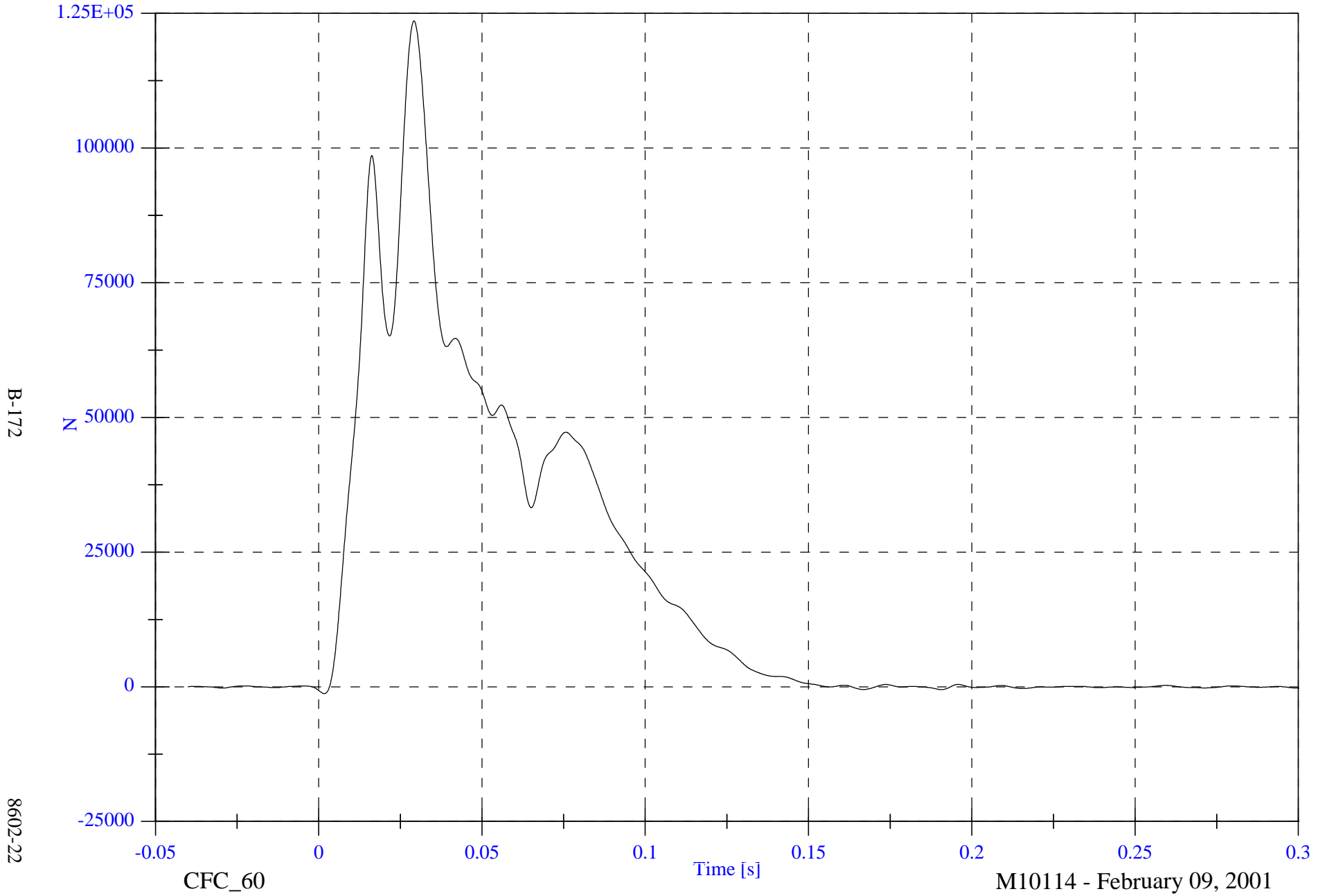


NCAP Test #22 - 2001 Pontiac Aztek

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

Max: 123604.7 [N] at 0.029 [s]

Min: -1267.0 [N] at 0.002 [s]



B-172

8602-22

CFC\_60

Time [s]

M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

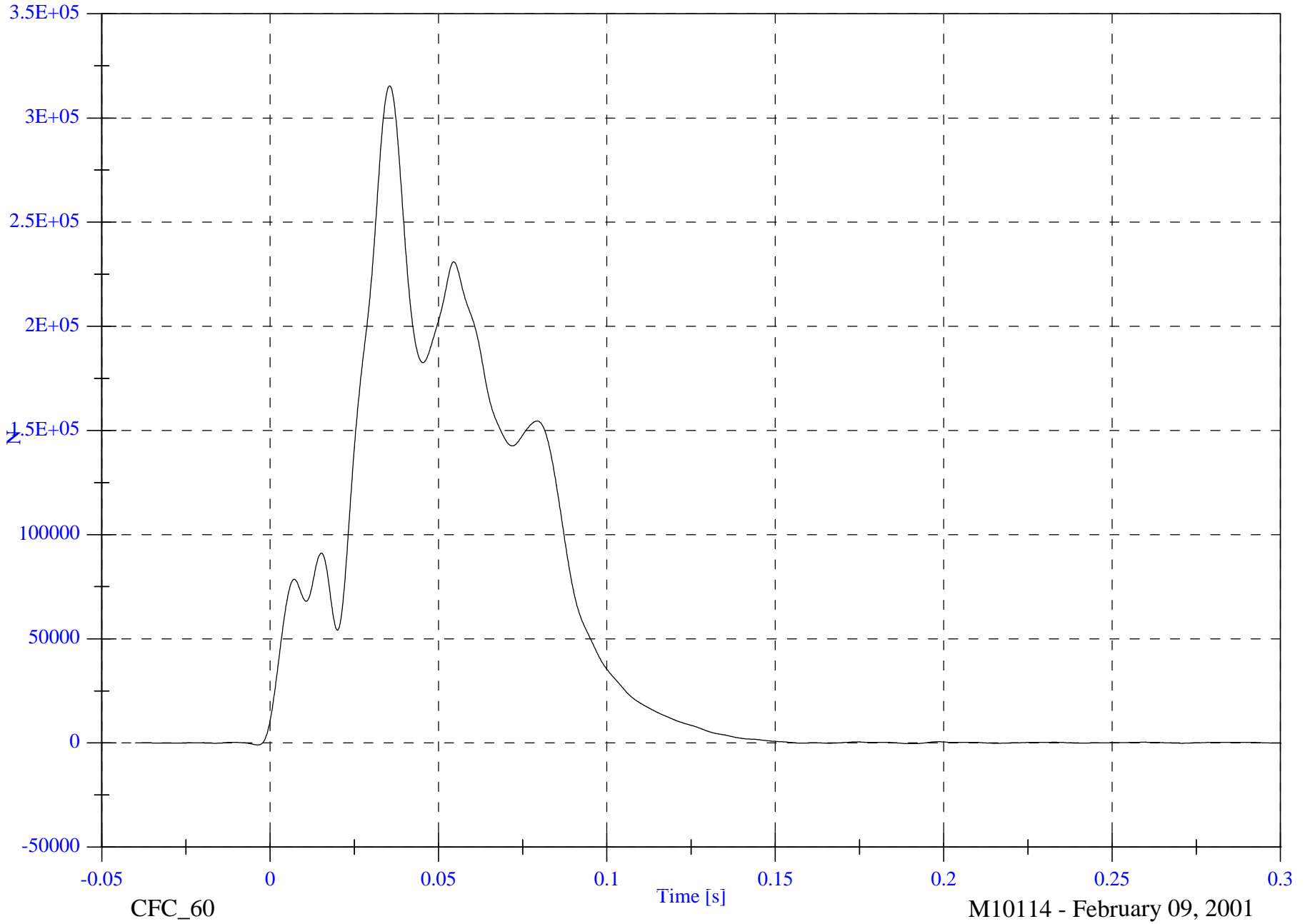
Group 2 Load Cell Sum (A4,A5,A6,B4,B5,B6)

Max: 315448.3 [N] at 0.035 [s]

Min: -977.6 [N] at -0.004 [s]

B-173

8602-22

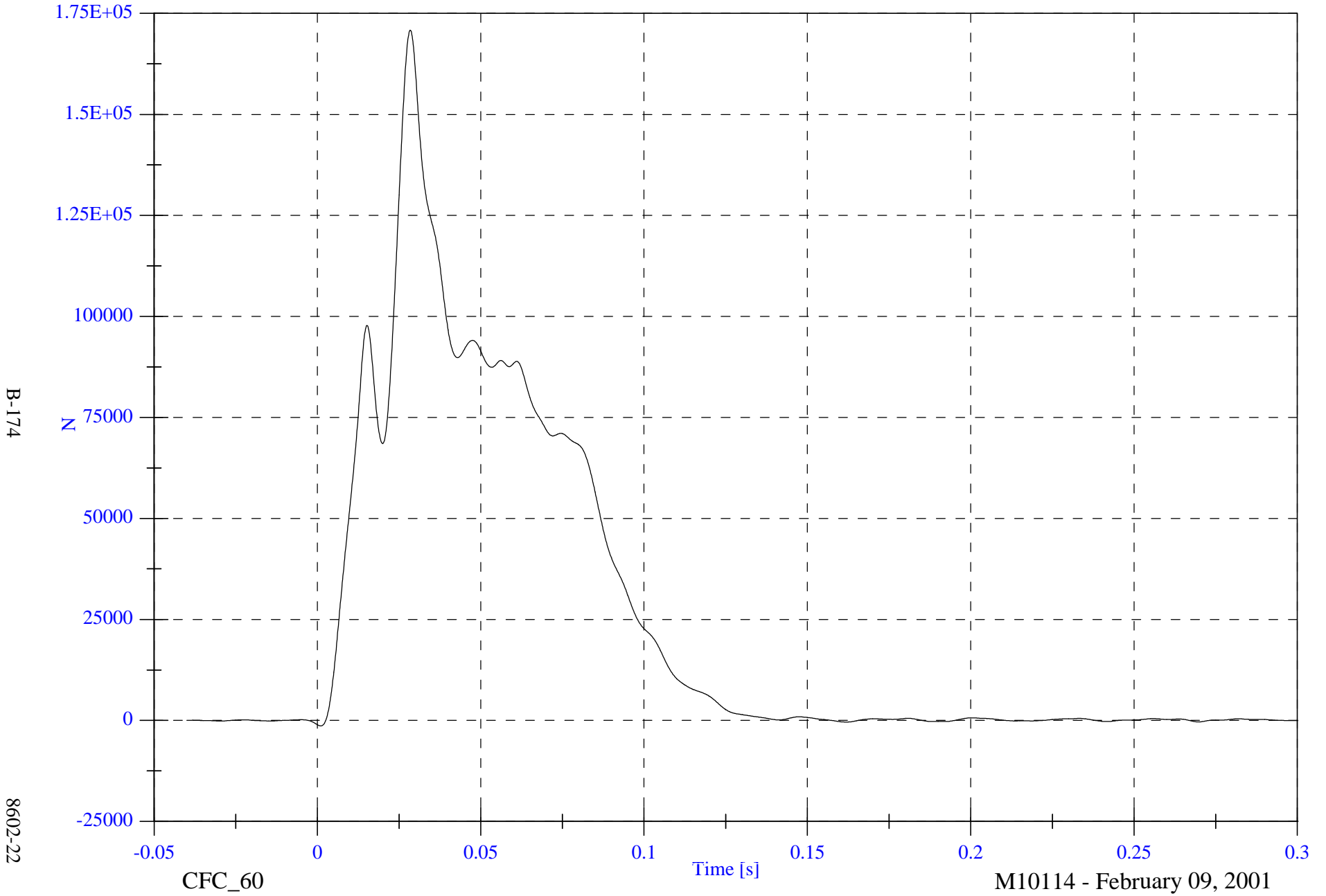


NCAP Test #22 - 2001 Pontiac Aztek

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

Max: 170870.3 [N] at 0.028 [s]

Min: -1359.5 [N] at 0.001 [s]



B-174

8602-22

CFC\_60

Time [s]

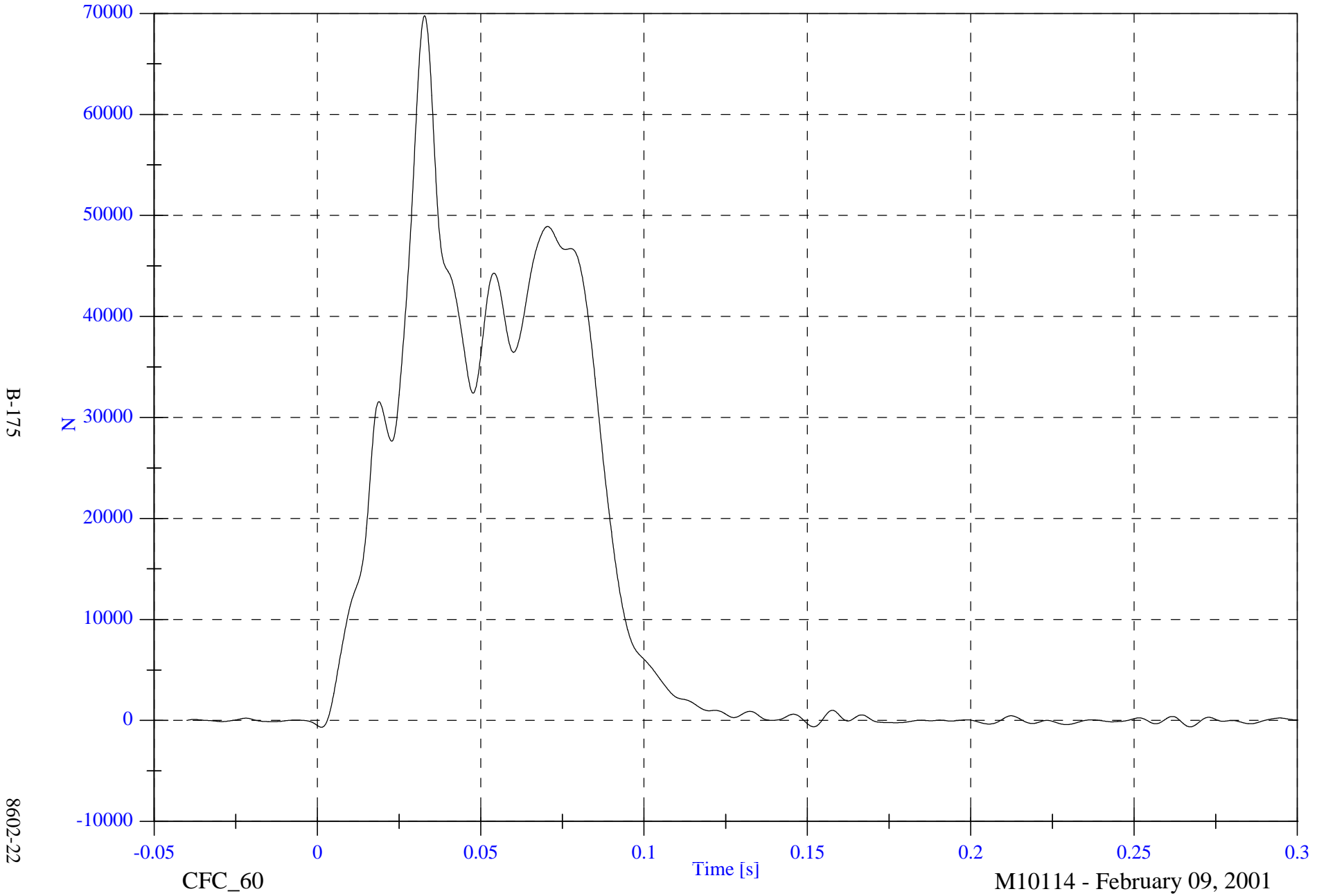
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

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

Max: 69772.7 [N] at 0.033 [s]

Min: -671.1 [N] at 0.001 [s]



B-175

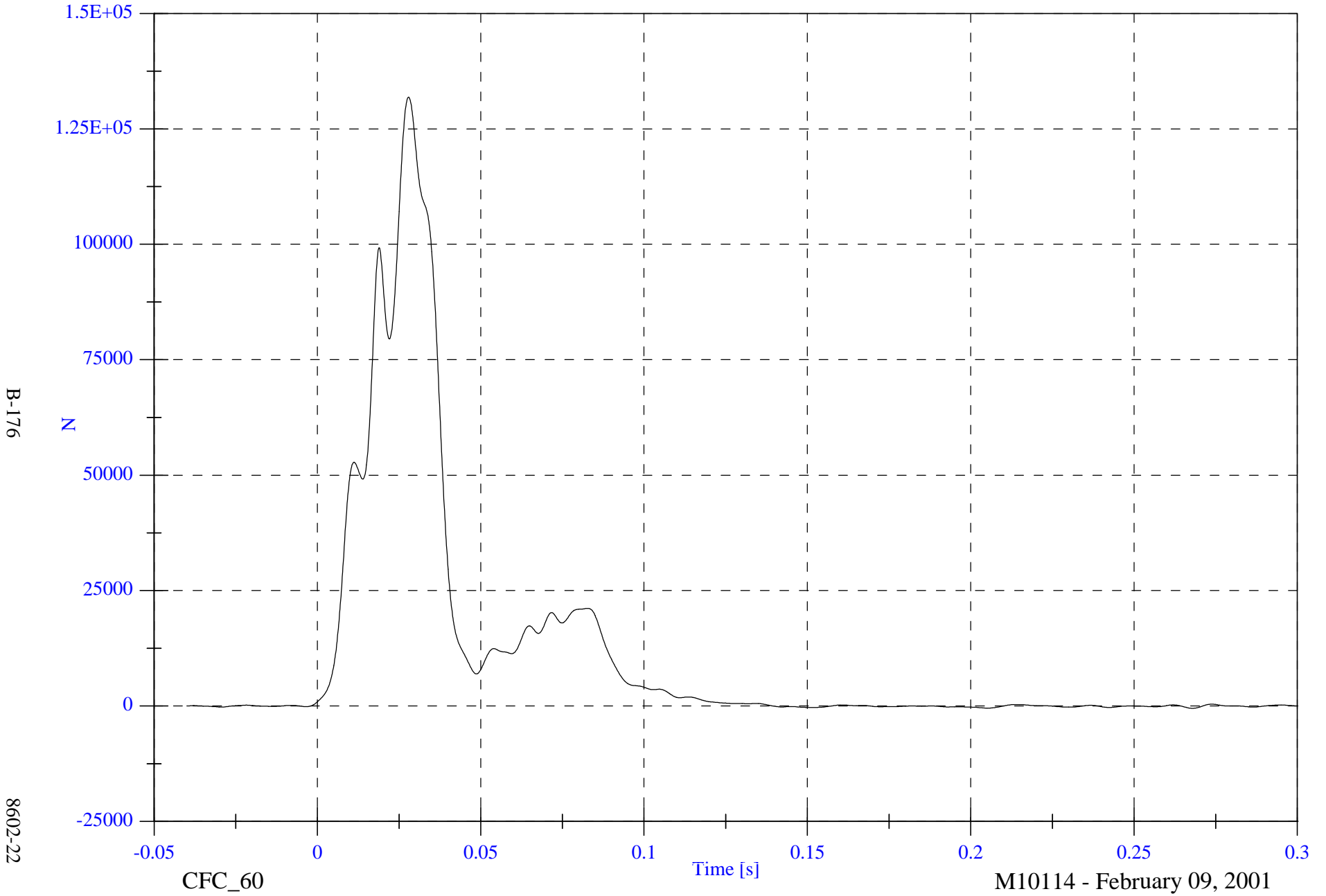
8602-22

NCAP Test #22 - 2001 Pontiac Aztek

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

Max: 131874.7 [N] at 0.028 [s]

Min: -509.2 [N] at 0.268 [s]



B-176

8602-22

CFC\_60

Time [s]

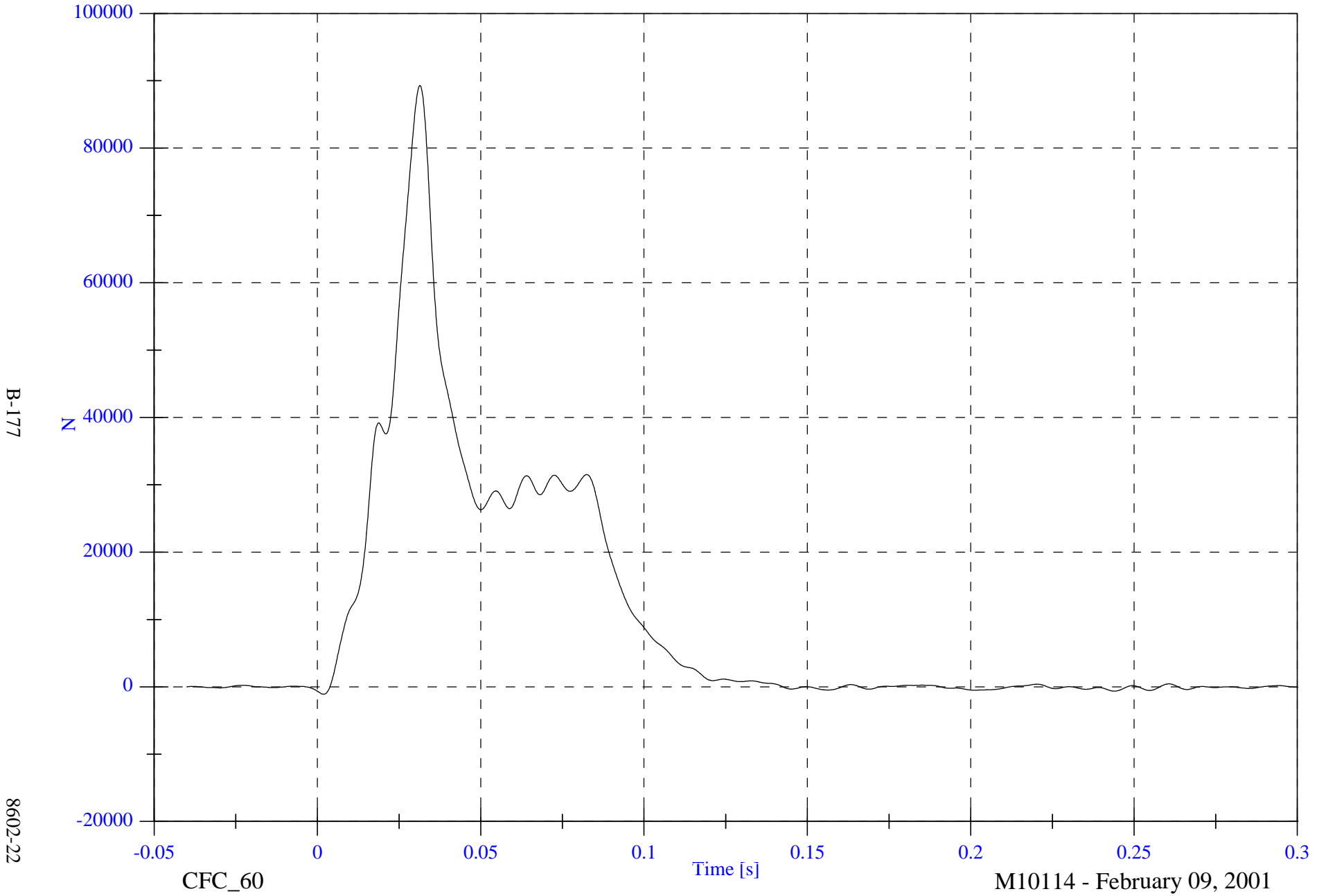
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

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

Max: 89290.9 [N] at 0.031 [s]

Min: -1108.3 [N] at 0.002 [s]



B-177

8602-22

CFC\_60

Time [s]

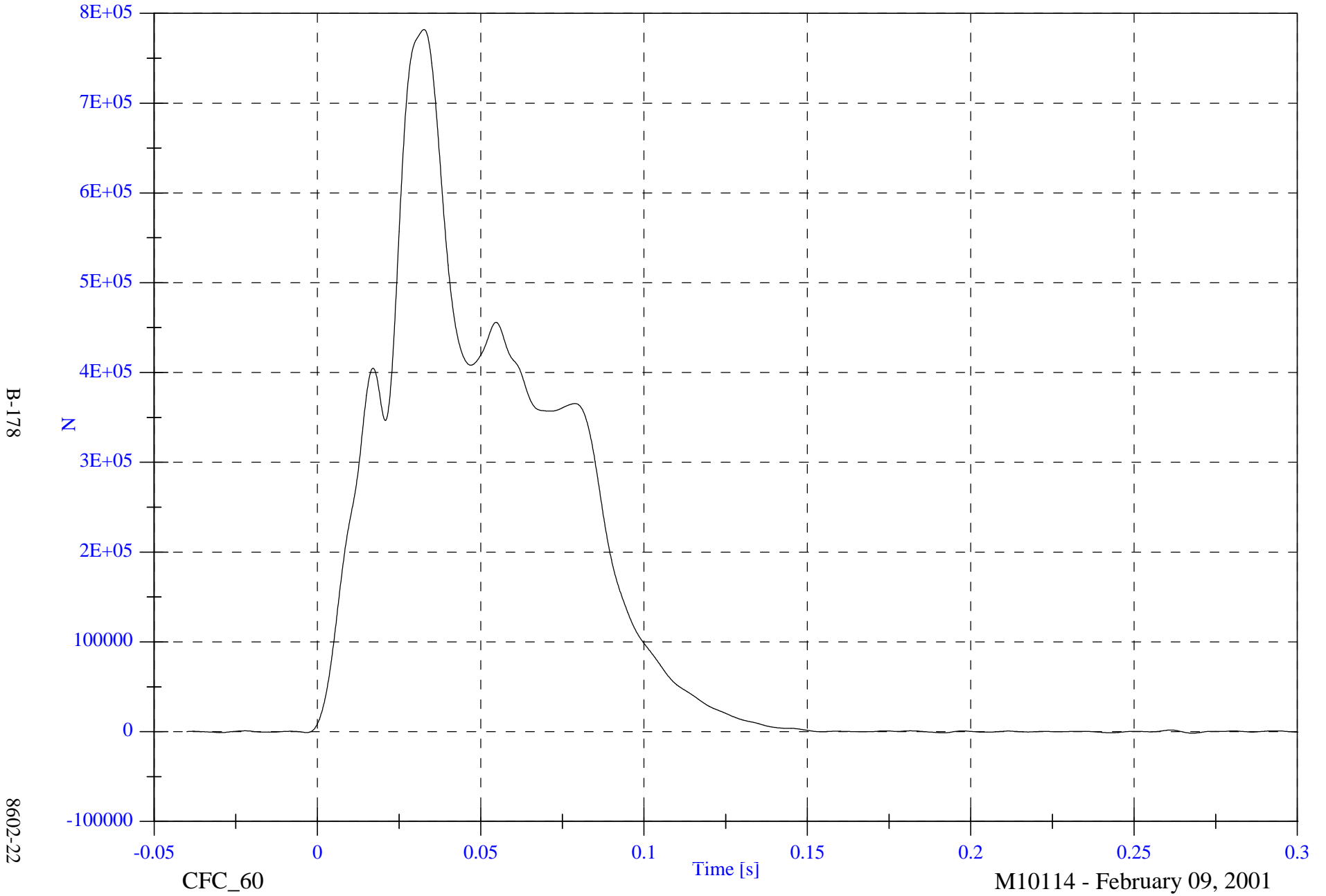
M10114 - February 09, 2001

NCAP Test #22 - 2001 Pontiac Aztek

Max: 782118.5 [N] at 0.033 [s]

Total Load Cell Sum (All 6 Groups)

Min: -1736.4 [N] at 0.268 [s]



B-178

8602-22

CFC\_60

Time [s]

M10114 - February 09, 2001

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

Dummy serial numbers and certification dates are:

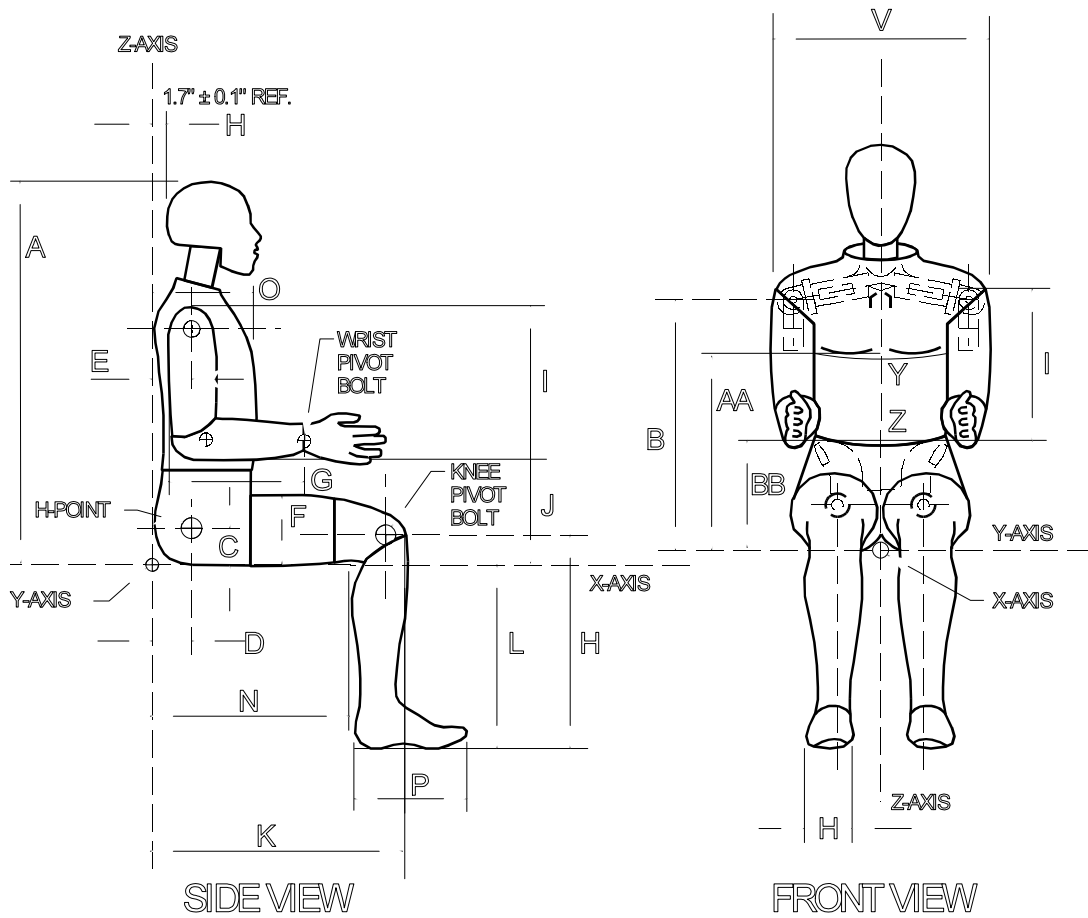
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	150	February 6, 2001
#2/Right Front Passenger	245	February 6, 2001

#### 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.

DUMMY CONFIGURATION DIMENSIONS

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 150  
Sequential Test Number 2  
Date February 2, 2001  
Workfile 150201.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	71.0
Relative Humidity	10% - 70%	31.0
Peak Resultant Acceleration	225-275 G's	250.33
Peak Lateral Acceleration	15 G's Max	14.21
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E  
NECK FLEXION TEST

Dummy Serial Number	150	
Sequential Test Number	2	
Date	February 5, 2001	6 Axis Neck Transducer
Workfile	150201.nfl	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71.0
Relative Humidity		10% - 70%	31.0
Impact Velocity		22.60 - 23.40 Ft/s	22.76
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.56
	20 ms	17.60 - 22.60 G's	19.04
	30 ms	12.50 - 18.50 G's	14.03
Max Pendulum G's Above 30 ms		29 G's Max	14.03
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.62
D Plane Rotation	Max	64 - 78 Deg	77.70
	Time	57 - 64 ms	57.25
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	78.12
	Time	47 - 58 ms	54.12
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	126.12
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	101.00

Remarks:

Laboratory Technician: B. Swiecicki



PART 572E  
THORAX IMPACT TEST

Dummy Serial Number 150  
Sequential Test Number 2  
Date February 6, 2001  
Workfile 150201.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0
Relative Humidity	10% - 70%	32.0
Pendulum Velocity	21.6 - 22.4 Ft/s	21.9
Maximum Deflection	2.50 - 2.86 in	2.56
Maximum Resistive Force	1160 - 1325 Lbs	1211.57
Internal Hysteresis	69 - 85 %	71.64

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E  
KNEE IMPACT TEST

Dummy Serial Number            150  
 Sequential Test Number        2  
 Date                                 February 6, 2001  
 Workfile                            150201.lf / 150201.rf

TEST PARAMETER	SPECIFICATION	TEST RESULTS
<b>LEFT KNEE</b>		
Temperature	66 - 78 Deg F	70.0
Relative Humidity	10% - 70%	32.0
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1192.47
<b>RIGHT KNEE</b>		
Temperature	66 - 78 Deg F	70.0
Relative Humidity	10% - 70%	32.0
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1162.92

Remarks:

Laboratory Technician:           B. Swiecicki

PART 572E  
EXTERNAL DIMENSIONS

Dummy Serial Number            150  
 Sequential Test Number        2  
 Date                                    February 6, 2001

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			31
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	39.1
Waist Circumference	Z	32.9 - 34.1 in	34.0
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	5.7
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
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	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.1
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.5

Remarks:

Laboratory Technician:           B. Swiecicki

PART 572E  
HEAD DROP TEST

Dummy Serial Number 245  
Sequential Test Number 2  
Date February 2, 2001  
Workfile 245201.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	71.0
Relative Humidity	10% - 70%	31.0
Peak Resultant Acceleration	225-275 G's	257.60
Peak Lateral Acceleration	15 G's Max	9.61
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E  
NECK FLEXION TEST

Dummy Serial Number	245	
Sequential Test Number	2	
Date	February 5, 2001	6 Axis Neck Transducer
Workfile	245201.nfl	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71.0
Relative Humidity		10% - 70%	31.0
Impact Velocity		22.60 - 23.40 Ft/s	22.82
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.51
	20 ms	17.60 - 22.60 G's	19.01
	30 ms	12.50 - 18.50 G's	14.71
Max Pendulum G's Above 30 ms		29 G's Max	14.71
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	42.00
D Plane Rotation	Max	64 - 78 Deg	75.85
	Time	57 - 64 ms	58.75
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	72.16
	Time	47 - 58 ms	56.62
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	126.00
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	102.50

Remarks:

Laboratory Technician:     B. Swiecicki



PART 572E  
THORAX IMPACT TEST

Dummy Serial Number 245  
Sequential Test Number 2  
Date February 6, 2001  
Workfile 245201.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0
Relative Humidity	10% - 70%	32.0
Pendulum Velocity	21.6 - 22.4 Ft/s	21.9
Maximum Deflection	2.50 - 2.86 in	2.52
Maximum Resistive Force	1160 - 1325 Lbs	1297.78
Internal Hysteresis	69 - 85 %	71.47

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E  
KNEE IMPACT TEST

Dummy Serial Number            245  
 Sequential Test Number         2  
 Date                                 February 6, 2001  
 Workfile                            245201.lf / 245201.rf

TEST PARAMETER	SPECIFICATION	TEST RESULTS
<b>LEFT KNEE</b>		
Temperature	66 - 78 Deg F	70.0
Relative Humidity	10% - 70%	32.0
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1164.79
<b>RIGHT KNEE</b>		
Temperature	66 - 78 Deg F	70.0
Relative Humidity	10% - 70%	32.0
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1151.0

Remarks:

Laboratory Technician:           B. Swiecicki

PART 572E  
EXTERNAL DIMENSIONS

Dummy Serial Number            245  
 Sequential Test Number         2  
 Date                                    February 6, 2001

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			31
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	39.1
Waist Circumference	Z	32.9 - 34.1 in	33.7
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	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.3
Popliteal Height	L	16.9 - 17.9 in	17.5
Knee Pivot Height	M	19.1 - 19.7 in	19.2
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	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
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

( 6 Month Calibration Minimum )

DRIVER DUMMY (S/N 150)	Manufacturer	Serial #	Calibration		
			Last	Next	
Head	X	ENDEVCO	AC-P16832	20-Sep-00	20-Mar-01
	Y	ENDEVCO	AC-P16591	20-Sep-00	20-Mar-01
	Z	ENDEVCO	AC-P17286	21-Nov-00	21-May-01
Head	X (R)	ENDEVCO	AC-P17141	20-Sep-00	20-Mar-01
	Y (R)	ENDEVCO	AC-P17242	20-Sep-00	20-Mar-01
	Z (R)	ENDEVCO	AC-P17265	20-Sep-00	20-Mar-01
Neck Load Cell	X	DENTON	LC-269Fx	16-Nov-00	16-May-01
	Y	DENTON	LC-269Fy	16-Nov-00	16-May-01
	Z	DENTON	LC-269Fz	16-Nov-00	16-May-01
Neck Moment	X	DENTON	LC-269Mx	16-Nov-00	16-May-01
	Y	DENTON	LC-269My	16-Nov-00	16-May-01
	Z	DENTON	LC-269Mz	16-Nov-00	16-May-01
Chest	X	ENDEVCO	AC-P17235	15-Sep-00	15-Mar-01
	Y	ENDEVCO	AC-P14393	20-Sep-00	20-Mar-01
	Z	ENDEVCO	AC-P17285	20-Sep-00	20-Mar-01
Chest	X (R)	ENDEVCO	AC-P16863	13-Sep-00	13-Mar-01
	Y (R)	ENDEVCO	AC-P17248	20-Sep-00	20-Mar-01
	Z (R)	ENDEVCO	AC-P17283	20-Sep-00	20-Mar-01
Chest Deflection Gauge	SERVO	DS-150	16-Nov-00	16-May-01	
Pelvic	X	ENDEVCO	AC-J30041	04-Aug-00	04-Feb-01
	Y	ENDEVCO	AC-P13355	16-Nov-00	16-May-01
	Z	ENDEVCO	AC-P13329	16-Nov-00	16-May-01

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

( 6 Month Calibration Minimum )

DRIVER DUMMY (S/N 150)	Manufacturer	Serial #	Calibration		
			Last	Next	
Left Femur Load Cell	GSE	LC-418	20-Nov-00	20-May-01	
Right Femur Load Cell	GSE	LC-420	20-Nov-00	20-May-01	
Left Knee Shear	SpaceAge Control	DS-821	02-Feb-01	02-Aug-01	
Left Upper Tibia	Mx	DENTON	LC-045Mx	04-Nov-00	04-May-01
	My	DENTON	LC-045My	04-Nov-00	04-May-01
Left Lower Tibia	Fz	DENTON	LC-125Fz	04-Nov-00	04-May-01
	Mx	DENTON	LC-125Mx	04-Nov-00	04-May-01
	My	DENTON	LC-125My	04-Nov-00	04-May-01
Right Upper Tibia	Mx	DENTON	LC-038Mx	09-Nov-00	09-May-01
	My	DENTON	LC-038My	09-Nov-00	09-May-01
Right Lower Tibia	Fz	DENTON	LC-124Fz	09-Nov-00	09-May-01
	Mx	DENTON	LC-124Mx	09-Nov-00	09-May-01
	My	DENTON	LC-124My	09-Nov-00	09-May-01
Left Foot Rear	X	ENDEVCO	AC-P16951	02-Oct-00	02-Apr-01
	Z	ENDEVCO	AC-P17152	02-Oct-00	02-Apr-01
Left Foot Front	Z	ENDEVCO	AC-P16975	02-Oct-00	02-Apr-01
Right Foot Rear	X	ENDEVCO	AC-J31042	07-Nov-00	07-May-01
	Z	ENDEVCO	AC-J32176	07-Nov-00	07-May-01
Right Foot Front	Z	ENDEVCO	AC-J31009	08-Nov-00	08-May-01
Lap Belt Load Cells	LEBOW	LC-706	01-Dec-00	01-Jun-01	
Shoulder Belt Load Cells	LEBOW	LC-707	01-Dec-00	01-Jun-01	
Shoulder Belt Spool Out	PATRIOT	DS-M98	17-Nov-00	17-May-01	
Belt Stretch Transducer	CAL	DS-E5	07-Aug-00	07-Feb-01	

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

( 6 Month Calibration Minimum )

PASSENGER DUMMY (S/N 245)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-J32184	04-Dec-00	04-Jun-01
	Y	ENDEVCO	AC-J32185	04-Dec-00	04-Jun-01
	Z	ENDEVCO	AC-J31011	04-Dec-00	04-Jun-01
Head	X (R)	ENDEVCO	AC-J31020	04-Dec-00	04-Jun-01
	Y (R)	ENDEVCO	AC-J31101	04-Dec-00	04-Jun-01
	Z (R)	ENDEVCO	AC-J31059	04-Dec-00	04-Jun-01
Neck Load Cell	X	DENTON	LC-076Fx	28-Aug-00	28-Feb-01
	Y	DENTON	LC-076Fy	28-Aug-00	28-Feb-01
	Z	DENTON	LC-076Fz	28-Aug-00	28-Feb-01
Neck Moment	X	DENTON	LC-076Mx	28-Aug-00	28-Feb-01
	Y	DENTON	LC-076My	28-Aug-00	28-Feb-01
	Z	DENTON	LC-076Mz	28-Aug-00	28-Feb-01
Chest	X	ENDEVCO	AC-J34019	04-Dec-00	04-Jun-01
	Y	ENDEVCO	AC-J33018	04-Dec-00	04-Jun-01
	Z	ENDEVCO	AC-J32783	04-Dec-00	04-Jun-01
Chest	X (R)	ENDEVCO	AC-J31066	04-Dec-00	04-Jun-01
	Y (R)	ENDEVCO	AC-P16979	15-Sep-00	15-Mar-01
	Z (R)	ENDEVCO	AC-J31022	04-Dec-00	04-Jun-01
Chest Deflection Gauge		SERVO	DS-245	05-Dec-00	05-Jun-01
Pelvic	X	ENDEVCO	AC-J31034	03-Dec-00	03-Jun-01
	Y	ENDEVCO	AC-P17258	15-Sep-00	15-Mar-01
	Z	ENDEVCO	AC-J31010	03-Dec-00	03-Jun-01

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

( 6 Month Calibration Minimum )

PASSENGER DUMMY (S/N 245)	Manufacturer	Serial #	Calibration		
			Last	Next	
Left Femur Load Cell	GSE	LC-551	20-Nov-00	20-May-01	
Right Femur Load Cell	GSE	LC-951	20-Nov-00	20-May-01	
Left Knee Shear	SpaceAge Control	DS-819	02-Feb-01	02-Aug-01	
Right Knee Shear	SpaceAge Control	DS-815	02-Feb-01	02-Aug-01	
Left Upper Tibia	Mx	DENTON	LC-016Mx	09-Nov-00	09-May-01
	My	DENTON	LC-016My	09-Nov-00	09-May-01
Left Lower Tibia	Fz	DENTON	LC-123Fz	09-Nov-00	09-May-01
	Mx	DENTON	LC-123Mx	09-Nov-00	09-May-01
	My	DENTON	LC-123My	09-Nov-00	09-May-01
Right Upper Tibia	Mx	DENTON	LC-023Mx	09-Nov-00	09-May-01
	My	DENTON	LC-023My	09-Nov-00	09-May-01
Right Lower Tibia	Fz	DENTON	LC-111Fz	09-Nov-00	09-May-01
	Mx	DENTON	LC-111Mx	09-Nov-00	09-May-01
	My	DENTON	LC-111My	09-Nov-00	09-May-01
Left Foot Rear	X	ENDEVCO	AC-J30491	12-Jan-01	12-Jul-01
	Z	ENDEVCO	AC-J31026	22-Jan-01	22-Jul-01
Left Foot Front	Z	ENDEVCO	AC-J32831	22-Jan-01	22-Jul-01
Right Foot Rear	X	ENDEVCO	AC-J33376	22-Jan-01	22-Jul-01
	Z	ENDEVCO	AC-J32832	22-Jan-01	22-Jul-01
Right Foot Front	Z	ENDEVCO	AC-J31095	12-Jan-01	12-Jul-01
Lap Belt Load Cells	LEBOW	LC-711	01-Dec-00	01-Jun-01	
Shoulder Belt Load Cells	LEBOW	LC-712	01-Dec-00	01-Jun-01	
Belt Stretch Transducer	CAL	DS-E6	08-Aug-00	08-Feb-01	

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

( 6 Month Calibration Minimum )

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember	ICS	AC-D77	14-Aug-00	14-Feb-01
Right Rear Seat Crossmember	ICS	AC-Y05	25-Aug-00	25-Feb-01
Top of Engine	ICS	AC-D36	14-Aug-00	14-Feb-01
Bottom of Engine	ENDEVCO	AC-AA35	10-Dec-00	10-Jun-01
Right Disc Brake Caliper	ENDEVCO	AC-J32174	05-Sep-00	05-Mar-01
Instrument Panel	ENDEVCO	AC-A14261	15-Nov-00	15-May-01
Left Disc Brake Caliper	ENDEVCO	AC-APBB6	10-Dec-00	10-Jun-01
Left Seat Rear Crossmember (R)	ICS	AC-D80	11-Aug-00	11-Feb-01
Right Seat Rear Crossmember (R)	ICS	AC-D30	11-Aug-00	11-Feb-01