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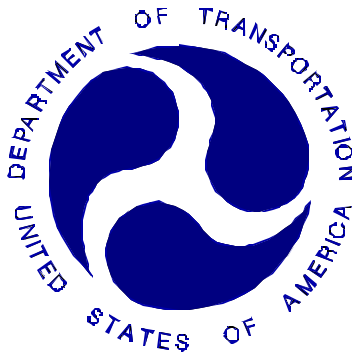
**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

GENERAL MOTORS CORPORATION
2002 CHEVROLET TRAILBLAZER
4-DOOR MPV

NHTSA NUMBER: M20107

VERIDIAN TEST NUMBER: 8642-NCAP-09

VERIDIAN ENGINEERING
TRANSPORTATION SCIENCES CENTER
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April 26, 2002

FINAL REPORT

PREPARED FOR:

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National Highway Traffic Safety Administration
Safety Performance Standards
Office of Crashworthiness Standards
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16. Abstract A frontal load cell barrier test of a 2002 Chevrolet Trailblazer 4-Door MPV was performed at Veridian Engineering crash test facility in Buffalo, New York, on April 26, 2002. The impact velocity was 56.49 kph and the temperature at the barrier face was 21°C. The maximum post-test vehicle crush was 463 mm. The test vehicle was equipped with 3-point restraint systems, adjustable head restraints, knee bolsters, and airbags at both the driver and right outboard passenger seating positions. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appeared to comply with head, chest, and femur requirements.					
ATD Position	HIC	Clip (g's)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)
Driver (061)	712.6	59.6	45.6	7292.4	6692.2
Passenger (064)	666.7	55.9	38.2	4028.4	3409.3
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SECTION 1

PURPOSE AND SUMMARY OF TEST

1.1 PURPOSE

This 56.49 kph frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-01-D-32005. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

The 56.49 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

1.2 TEST PROCEDURE

This 56.3-km/h frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) New Car Assessment Program (NCAP) Laboratory Indicant Test Procedure, dated December 1999. Data was obtained indicant of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Retention"; FMVSS 219, "Windshield Zone Intrusion (Partial)"; and FMVSS 301 "Fuel System Integrity" performance. Procedures for receiving, inspection testing and reporting of test results are described in the test procedures and are not repeated in this report.

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

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

Both ATDs were fully instrumented with nine accelerometer array head, chest and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, left and right knee sliders, and lower leg instrumentation. The driver (position 1) ATD (Serial No. 061) and the right-front passenger (position 2) ATD (Serial No.064) were used in two tests where they did not exceed FMVSS 208 head, chest and femur requirements previous to this test (M20201 and M20305). Certification details, along with instrumentation calibration data, are found in Appendix C.

The vehicle, occupant, camera and measurement data are presented in Section 2. Appendix A contains the still photograph prints. The 197 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces. Appendix C contains the dummy calibration data and Appendix D contains the transducer calibration dates.

1.3 SUMMARY OF FRONTAL BARRIER IMPACT TEST

A load cell barrier consisting of 36 load cells was impacted by a 2002 Chevrolet Trailblazer 4-Door MPV at a velocity of 56.49 kph. The test was performed at Veridian Engineering on April 26, 2002. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The occupant data is summarized below.

	HIC	Clip (g)	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)	Belt Spool (mm)	Belt Stretch (mm/50 mm)
Driver ATD	712.6	59.6	45.6	7292.4	6692.2	-	-
Passenger ATD	666.7	55.9	38.2	4028.4	3409.3	-	-

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

The maximum vehicle static crush was 463 mm and both the driver and passenger side doors remained closed and latched during the impact event and were operable after the impact without the use of tools .

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

The 2002 Chevrolet Trailblazer 4-Door MPV did not exceed the requirements of FMVSS 208, FMVSS 212, FMVSS 219, and FMVSS 301. Data pertaining to these standards are presented in the data sheets.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No.:	<u>M20107</u>	Test Mode:	<u>56.3 kph Frontal Barrier</u>
Test Date:	<u>April 26, 2002</u>	Time:	<u>13:40</u> Temperature: <u>21</u> °C
Vehicle Make/Model/Body Style:	<u>2002 Chevrolet Trailblazer 4-Door MPV</u>		
Vehicle Test Weight:	<u>2348.0</u>	kg	
Vehicle/Barrier Impact Angle:	<u>0</u>	°	
Impact Velocity:	<u>56.49</u>	kph	
Maximum Static Crush:	<u>463</u>	mm	
Vehicle Rebound:	<u>427</u>	mm	
<u>DUMMIES:</u>	<u>DRIVER</u>	<u>PASSENGER</u>	
Type:	<u>572E</u>	<u>572E</u>	
Restraint System:	<u>Seatbelt, Airbag, Knee Bolster and Adjustable Head Restraint</u>	<u>Seatbelt, Airbag, Knee Bolster and Adjustable Head Restraint</u>	
Number of Data Channels:	<u>197</u>		
Number of Cameras:	<u>1</u>	Real Time	
	<u>16</u>	High Speed	
<u>DOOR OPENING DATA:</u>	<u>Closed, latched, and operable without tools - Left Front</u>		
	<u>Closed, latched, and operable without tools - Right Front</u>		
Front Seat(s) Data:	<u>DRIVER</u>	<u>PASSENGER</u>	
Seat Track Failure: (mm of shift)	<u>0</u>	<u>0</u>	
Seat Back Failure:	<u>None</u>	<u>None</u>	
<u>VISIBLE DUMMY CONTACT POINTS:</u>	<u>DRIVER</u>	<u>PASSENGER</u>	
Head:	<u>The face to the top of the center of the airbag; The back of the head to the center of the head restraint.</u>	<u>The face to the top of the center of the airbag; The back of the head to the left of center of the head restraint.</u>	
Abdomen:	<u>None</u>	<u>None</u>	
Chest:	<u>Airbag</u>	<u>Airbag</u>	
Knees:	<u>Knee Bolster</u>	<u>Knee Bolster</u>	

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2002 Chevrolet Trailblazer 4-Door MPV

NHTSA No. : M20107 ; VIN: 1GNDT13S022415653 ; Color: Red

Engine Data: 6 cylinders; - CID; 4.2 Liters; - cc

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

Transmission Data: 4 speeds; - Manual; X Automatic; X Overdrive

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

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

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

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

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

Date Received: April 10, 2002 ; Odometer Reading 595 km

Selling Dealer: Jack McNerney Chevrolet, Inc.

& Address: PO Box 1054 Tully, NY 13159

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: General Motors Corporation

Date of Manufacture 3/02

GVWR: 2608 kg; GAWR: 1308 kg FRONT; 1452 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load: 275 kpa FRONT

275 kpa REAR

Recommended Tire Size: P245/70R16

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

Size of Tires on Test Vehicle: P245/70R16 ; Manufacturer: BF Goodrich

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) = 510 kg

No. of Occupants x 68.04 kg = 340.2 kg

Rated Cargo/Luggage Weight (RCLW) = 169.8 kg (136.1 kg maximum)

*Tire pressure used for test

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

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

Right Front =	<u>557.5</u>	kg	Right Rear =	<u>464.5</u>	kg
Left Front =	<u>565.5</u>	kg	Left Rear =	<u>481.0</u>	kg
TOTAL FRONT =	<u>1123.0</u>	kg	TOTAL REAR =	<u>945.5</u>	kg
TOTAL DELIVERED WEIGHT =	<u>2068.5</u>	kg			
% of Total Front of Vehicle Weight =	<u>54.3%</u>		% of Total Rear Weight =	<u>45.7%</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW) =	<u>2068.5</u>	kg			
Rated Cargo/Luggage Weight (RCLW) =	<u>136.1</u>	kg	(136.1 kg maximum)		
Weight of 2 p.572 Dummies @ 76 each =	<u>152</u>	kg			
TARGET TEST WEIGHT =	<u>2356.6</u>	kg			

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 127.5 KG OF CARGO WEIGHT:

Right Front =	<u>589.0</u>	kg	Right Rear =	<u>569.5</u>	kg
Left Front =	<u>600.0</u>	kg	Left Rear =	<u>589.5</u>	kg
TOTAL FRONT =	<u>1189.0</u>	kg	TOTAL REAR =	<u>1159.0</u>	kg
TOTAL TEST WEIGHT =	<u>2348.0</u>	kg			
% of Total Front Weight =	<u>50.6%</u>	%	% of Total Rear Weight =	<u>49.4%</u>	%
Weight of Ballast Secured in Vehicle Trunk Area =	<u>8</u>	kg			
Vehicle Components Removed for Weight Reduction:	<u>None</u>				

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED:	RF	<u>854</u>	LF	<u>853</u>	RR	<u>892</u>	LR	<u>881</u>
FULLY LOADED:	RF	<u>845</u>	LF	<u>845</u>	RR	<u>846</u>	LR	<u>840</u>
AS TESTED:	RF	<u>845</u>	LF	<u>845</u>	RR	<u>851</u>	LR	<u>846</u>
Vehicle's Wheel Base:		<u>2875</u>	mm					
Location of Vehicle's C.G.:		<u>1419</u>	mm rearward of front wheel center.					

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual =	<u>70.6</u>	liters			
Usable Capacity Figure Furnished by COTR =	<u>70.6</u>	liters			
Test Volume Range (92 to 94% of Usable Capacity) =	<u>64.95</u>	to	<u>66.36</u>	liters	
ACTUAL TEST VOLUME=	<u>65.3</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: The fuel tank is located to the left of center ahead of the rear axle; The fuel lines are					
Located along the left frame rail; The fuel filler is located on the left side behind the rear axle.					

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test: Frontal Barrier Impact Angle: 0°
Test Date: April 26, 2002 Time: 13:40 Temperature: 21 °C
Vehicle NHTSA No.: M20107
Required Impact Velocity Range: 55.5 to 57.1 kph

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

Trap No. 1 = 56.49 kph; Trap No. 2 = 56.49 kph
Distance from vehicle to barrier: (1) entering trap = 813 mm
(2) exiting trap = 305 mm

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

Vehicle Length:

Pre-Test	Left = <u>4829</u> ; C/L = <u>4880</u> ; Right = <u>4832</u>
Post-Test	Left = <u>4366</u> ; C/L = <u>4432</u> ; Right = <u>4440</u>
Crush	Left = <u>463</u> ; C/L = <u>448</u> ; Right = <u>392</u>
AVERAGE	= <u>434.33</u> mm

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point:

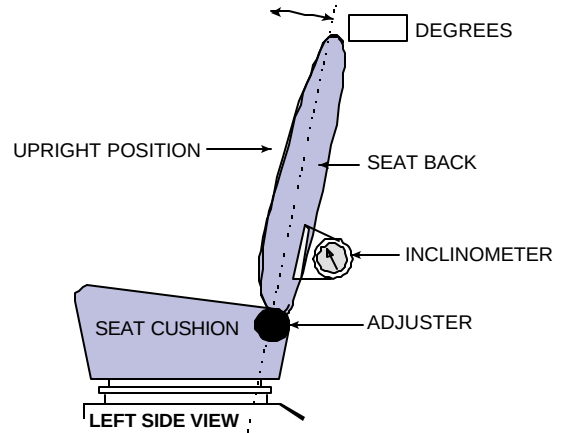
	Left = <u>483</u> ; C/L = <u>414</u> ; Right = <u>383</u>
AVERAGE	= <u>427</u> mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2002 Vehicle Model: Chevrolet Trailblazer Body Style : 4-Door MPV

1. Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat: 18.5°

Measurement instructions: Measured on seat frame 250 mm above the seat back pivot point.

Seat back angle for passenger's seat: 18.5°

Measurement instructions: The same as the driver's seat.

2. Seat Fore and Aft Positioning

Positioning of the driver's seat: The seat was placed in mid position of 220 mm total travel.

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

3. Fuel Tank Capacity Data

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 70.6 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 = 70.6 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 67.1 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.

When the ignition is placed in the ON position.

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

4. STEERING COLUMN ADJUSTMENTS:

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

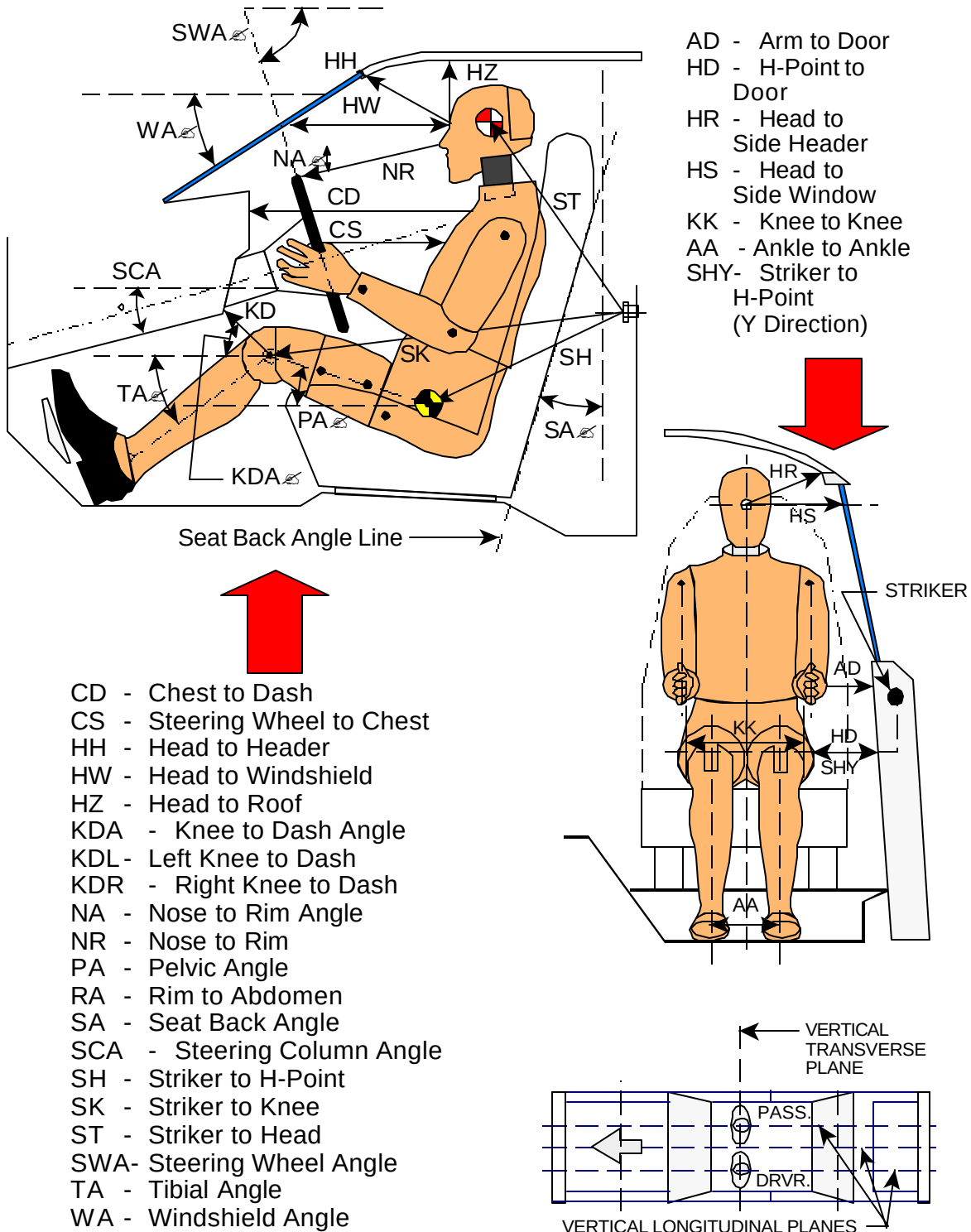
Operational Instructions: There are six total detents, with detent one as the upper most position

Place the column in detent four.

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: Not adjustable.

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



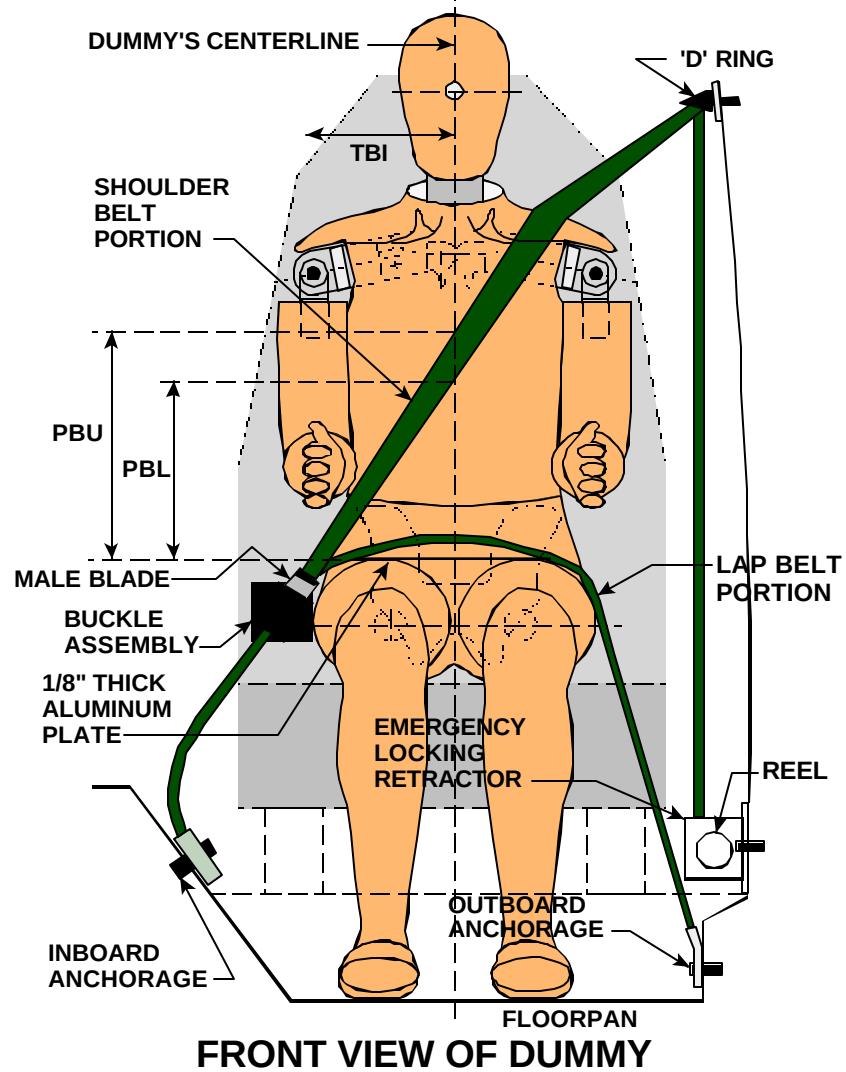
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #061)			PASS. (Serial #064)		
WA ⁰	33.1 deg.			N/A		
SWA ⁰	59.7 deg.			N/A		
SCA ⁰	20.3 deg.			N/A		
SA ⁰	18.5 deg.			18.5 deg.		
HZ	234			229		
HH	481			471		
HW	702			694		
HR	224			222		
NR	403	Angle	-14 deg.	N/A		
CD	579			509		
CS	307			N/A		
RA	200			N/A		
KDL	193	Angle (KDA)	33 deg.	163		
KDR	181			169	Angle (KDA)	38 deg.
PA ⁰	23.5 deg.			22.5 deg.		
TA ⁰	42.3 deg.			41.8 deg.		
KK	343			252		
AA	340			197		
ST	622	Angle	9 deg.	633	Angle	12 deg.
SK	685	Angle	88 deg.	692	Angle	88 deg.
SH	272	Angle	100 deg.	285	Angle	92 deg.
SHY	278			240		
HS	353			343		
HD	170			159		
AD	142			118		

Dimensions in millimeters

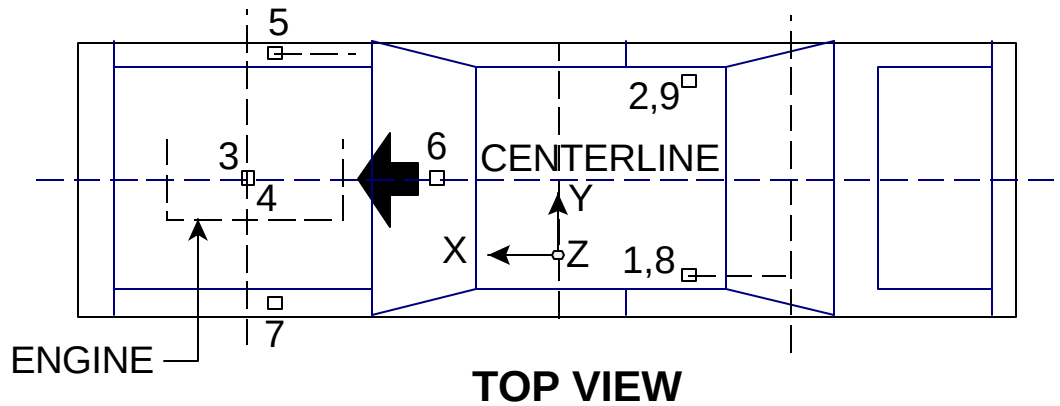
DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

SEAT BELT POSITIONING DATA

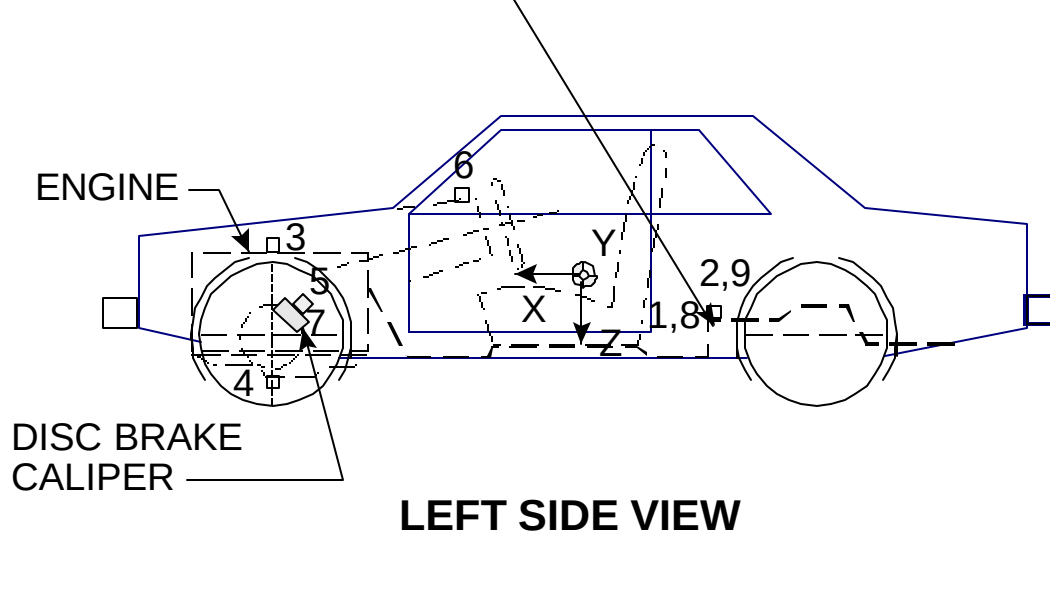


	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	345	365
PBL-- Top surface of alum. plate to belt lower edge	265	275
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



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

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

LOCATION		PRE-TEST LENGTH (mm)		
		X	Y	Z
1	Left Rear Seat Cross Member X	1878	-556	-394
2	Right Rear Seat Cross Member X	1921	506	-477
3	Top of Engine Block	4217	191	-958
4	Bottom of Engine	3731	88	-332
5	Disc Brake Caliper @ Right Side	4003	688	-520
6	Instrument Panel	2990	-2	-1049
8	Left Rear Seat Cross Member Z	1878	-556	-394
9	Right Rear Seat Cross Member Z	1921	506	-477

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Left Rear Seat Cross Member X	1.4	121.2	-43.9	37.3
2	Right Rear Seat Cross Member X	1.6	135.7	-41.1	39.2
3	Top of Engine Block	26.4	51.2	-95.1	34.0
4	Bottom of Engine	14.2	55.7	-92.4	36.5
5	Disc Brake Caliper @ Right Side	*	*	*	*
6	Instrument Panel	12.3	89.7	-75.8	29.0
8	Left Rear Seat Cross Member Z	19.3	21.2	-19.8	50.3
9	Right Rear Seat Cross Member Z	11.6	39.9	-22.2	51.0

* Wire cut at 16 ms – Data is not accurate

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2002 Chevrolet Trailblazer 4-Door MPV

NHTSA Test No.: M20107 Test Date: April 26, 2002

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head 9 Array X Arm Y	g	5.0	57.7	-15.0	69.7	7.9	216.1	-8.6	58.4
Head 9 Array X Arm Z	g	68.4	182.4	-12.1	128.3	42.1	63.7	-10.3	125.5
Head 9 Array Y Arm X	g	63.8	182.3	-59.9	82.3	22.4	220.0	-54.7	77.0
Head 9 Array Y Arm Z	g	36.0	51.5	-3.9	130.9	28.3	59.8	-1.8	124.8
Head 9 Array Z Arm X	g	127.5	182.4	-64.9	88.4	39.6	217.1	-58.4	86.7
Head 9 Array Z Arm Y	g	10.8	182.3	-20.9	90.2	9.6	215.2	-12.6	89.8
Head X	g	64.8	182.3	-61.5	83.4	*	*	*	*
Head Y	g	4.4	51.1	-11.0	87.2	5.1	215.4	-9.3	81.7
Head Z	g	36.2	51.6	-3.8	127.8	27.2	59.9	-3.2	125.8
Head Resultant	g	70.9	182.3	0.0	-48.6	*	*	*	*
Redundant Head X	g	66.6	182.3	-59.6	83.4	20.4	219.2	-55.8	78.1
Redundant Head Y	g	3.8	51.1	-11.3	85.2	5.0	215.4	-8.4	93.2
Redundant Head Z	g	34.9	51.6	-3.1	127.5	27.3	56.1	-3.1	125.0
Redundant Head Resultant	g	72.1	182.3	0.0	-49.7	60.3	78.4	0.0	-50.0
Upper Neck Fx	N	588.1	65.4	-750.9	121.6	204.0	82.7	-864.8	120.2
Upper Neck Fy	N	112.6	54.2	-251.4	101.9	161.6	61.7	-322.9	25.2
Upper Neck Fz	N	2131.4	69.2	-372.2	241.1	2182.5	74.4	-223.1	120.0
Upper Neck F Resultant	N	2182.9	69.2	2.2	-48.5	2220.5	60.0	0.7	-49.1
Upper Neck Mx	N-m	12.4	57.2	-18.2	110.9	6.3	227.0	-17.1	86.8
Upper Neck My	N-m	50.1	124.3	-38.9	243.5	68.3	124.4	-64.8	62.7
Upper Neck Mz	N-m	12.9	91.0	-7.5	137.4	9.6	90.3	-11.8	133.1
Upper Neck M Resultant	N-m	53.0	91.1	0.1	25.5	69.5	124.5	0.0	-49.9
Chest X	g	3.3	137.6	-61.1	62.2	3.3	158.9	-55.7	67.0
Chest Y	g	3.7	95.4	-5.1	49.9	1.6	46.6	-8.4	66.2
Chest Z	g	18.0	50.0	-10.0	106.1	20.1	47.8	-11.6	104.3
Chest Resultant	g	61.5	62.1	0.0	-44.6	57.3	67.0	0.0	-17.9

* Not Accurate – Data spikes

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

Vehicle Year/Make/Model/Body Style: 2002 Chevrolet Trailblazer 4-Door MPV

NHTSA Test No.: M20107 Test Date: April 26, 2002

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Redundant Chest X	g	3.5	137.5	-61.5	62.2	3.3	158.8	-56.0	66.9
Redundant Chest Y	g	3.8	92.6	-4.9	44.0	1.5	46.5	-8.6	66.1
Redundant Chest Z	g	16.8	50.0	-10.0	106.3	19.2	47.8	-11.5	104.3
Redundant Chest Resultant	g	61.7	62.1	0.0	-44.3	57.6	66.8	0.0	-18.2
Chest Displacement	mm	0.0	2.0	-45.6	66.2	0.0	21.8	-38.2	66.5
Pelvic X	g	*	*	*	*	2.4	142.8	-86.5	57.1
Pelvic Y	g	**	**	**	**	9.0	55.8	-10.6	45.5
Pelvic Z	g	3.5	234.1	-24.3	63.7	9.7	44.2	-20.8	64.3
Pelvic Resultant	g	**	**	**	**	87.3	57.1	0.0	-23.1
Left Femur	N	394.9	41.4	-7292.4	43.9	618.6	54.3	-4028.4	47.6
Right Femur	N	478.0	40.2	-6692.2	43.9	209.8	37.6	-3409.3	47.8
Left Knee Slider Dx	mm	0.1	232.4	-3.8	48.6	1.1	57.5	-8.7	47.8
Right Knee Slider Dx	mm	0.4	41.3	-3.7	51.0	0.4	63.0	-4.7	48.4
Left Upper Tibia Mx	N-m	16.8	63.1	-37.7	42.9	38.0	75.7	-58.8	54.1
Left Upper Tibia My	N-m	64.6	48.3	-71.3	35.5	87.3	45.9	-231.6	54.7
Left Lower Tibia Fz	N	384.4	52.6	-2416.6	43.8	358.6	43.5	-3872.8	50.3
Left Lower Tibia Mx	N-m	102.3	43.2	-26.4	39.4	61.5	59.7	-32.2	51.7
Left Lower Tibia My	N-m	36.9	92.2	-47.2	42.6	33.7	66.6	-99.2	55.1
Right Upper Tibia Mx	N-m	113.3	47.7	-47.0	53.8	13.7	45.3	-35.6	48.3
Right Upper Tibia My	N-m	18.9	47.4	-38.9	61.7	43.4	45.2	-130.2	54.7
Right Lower Tibia Fz	N	98.9	228.4	-3252.6	52.9	124.8	29.0	-4447.8	47.6
Right Lower Tibia Mx	N-m	70.6	47.5	-168.3	53.4	49.1	52.2	-30.4	48.2
Right Lower Tibia My	N-m	151.3	53.4	-112.8	42.9	41.3	74.4	-100.3	43.0
Left Foot Aft Ax	g	38.4	60.8	-82.7	43.3	40.0	55.2	-208.3	49.2
Left Foot Aft Az	g	68.3	42.7	-63.1	39.9	41.1	44.6	-54.0	53.9
Left Foot Fore Az	g	80.4	42.8	-112.1	43.3	101.7	44.5	-146.2	50.5
Right Foot Aft Ax	g	51.4	58.4	-227.8	43.5	18.9	57.3	-195.0	45.8
Right Foot Aft Az	g	33.1	51.4	-142.9	47.4	34.2	43.7	-66.5	50.1
Right Foot Fore Az	g	235.5	52.4	-233.4	43.6	61.4	40.4	-136.6	46.8

*Not Accurate – Wire cut at 80 ms

** Not Accurate – Wire cut at 77 ms

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

Vehicle Year/Make/Model/Body Style: 2002 Chevrolet Trailblazer 4-Door MPV

NHTSA Test No.: M20107 Test Date: April 26, 2002

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	712.6	58.6	94.6	52.3
Position #2 - Passenger	666.7*	61.3	97.3	50.9

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

* Head Ax inaccurate. The HIC was calculated using Head Redundant Ax.

CLIP SUMMARY*				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	59.6	60.8	63.8	635.4
Position #2 - Passenger	55.9	65.9	68.9	691.5

* 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: 2002 Chevrolet Trailblazer 4-Door MPV
 NHTSA Test No.: M20107 Test Date: April 26, 2002

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	695.9	58.6	94.6	51.8
Position #2 - Passenger	674.0	61.3	97.3	51.2

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

CLIP SUMMARY* REDUNDANT				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	60.2	61.0	64.0	640.7
Position #2 - Passenger	56.2	65.6	68.6	703.2

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

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

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

Driver

Passenger

1550

1590

Shoulder belt length as measured
on Part 572 Dummy.

910

930

Lap belt length as measured
on Part 572 Dummy.

640

660

Dimensions in millimeters

DATA SHEET NO.10 SUMMARY OF FMVSS 212 DATA

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

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

Windshield is bonded in place and covered with a 15 mm molding.

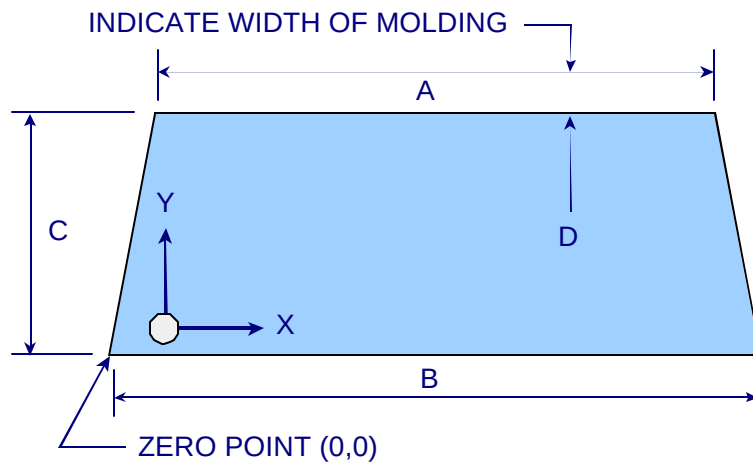
FMVSS 212 REQUIREMENTS:

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	2092.5	2092.5	100.0%
LEFT SIDE	2092.5	2092.5	100.0%
TOTAL	4185	4185	100.0%

AREA OF RETENTION FAILURE: None



DIMENSIONS (mm)	
A	1255
B	1510
C	710
D	15

FRONT VIEW OF WINDSHIELD

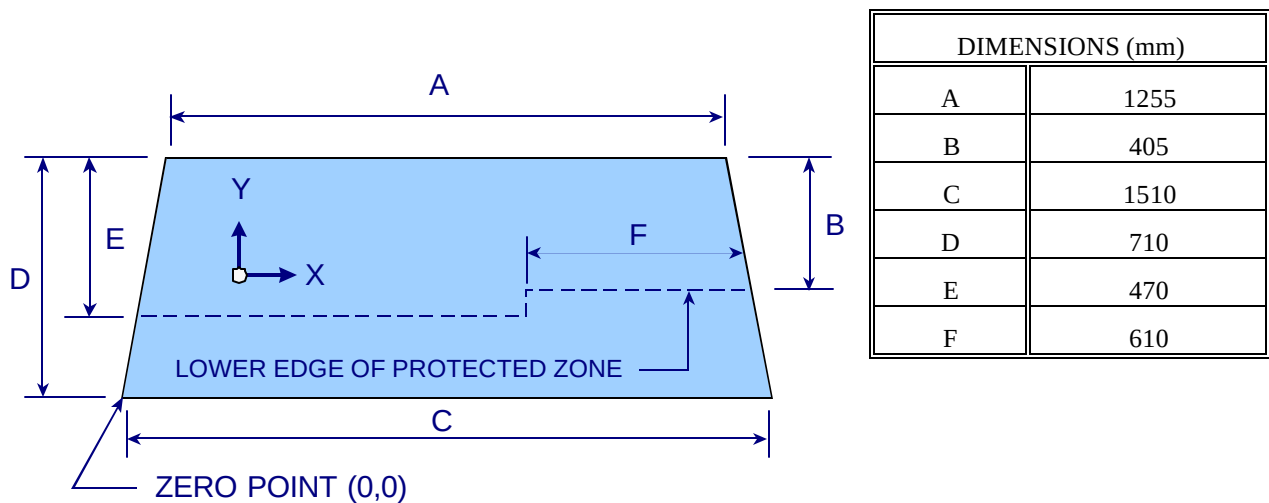
FAILURE DETAILS: None

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

PROTECTED ZONE LOWER EDGE REQUIREMENT:

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

FMVSS 219 TEST DATA:



FRONT VIEW OF WINDSHIELD

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

(Show location of penetration on the above sketch)

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

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

NHTSA TEST No.: M20107 TEST DATE: April 26, 2002

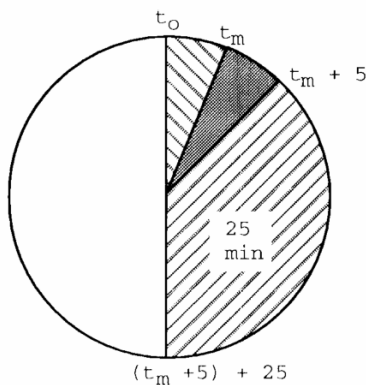
VEHICLE MAKE/MODEL: 2002 Chevrolet Trailblazer 4-Door MPV

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

=====

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

FUEL SPILLAGE MEASUREMENT:



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

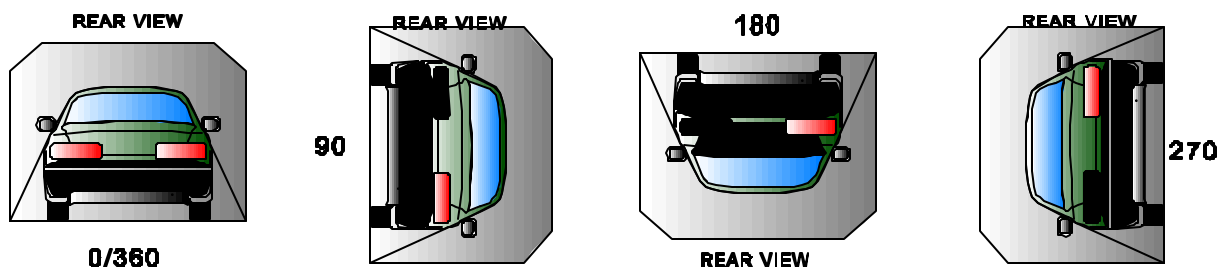
ACTUAL	MAX ALLOWED
0	28 g
0	141 g
0	28 g/min.

SOLVENT SPILLAGE DETAILS: None

DATA SHEET NO. 13 - ROLLOVER DATA

Vehicle: 2002 Chevrolet Trailblazer 4-Door MPV

NHTSA No.: M20107



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	11	seconds	5	minutes	6	minutes	11	seconds	7	minutes
90° - 180°	1	minutes	07	seconds	5	minutes	6	minutes	7	seconds	7	minutes
180°-270°	1	minutes	02	seconds	5	minutes	6	minutes	2	seconds	7	minutes
270°-360°	1	minutes	08	seconds	5	minutes	6	minutes	8	seconds	7	minutes

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

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

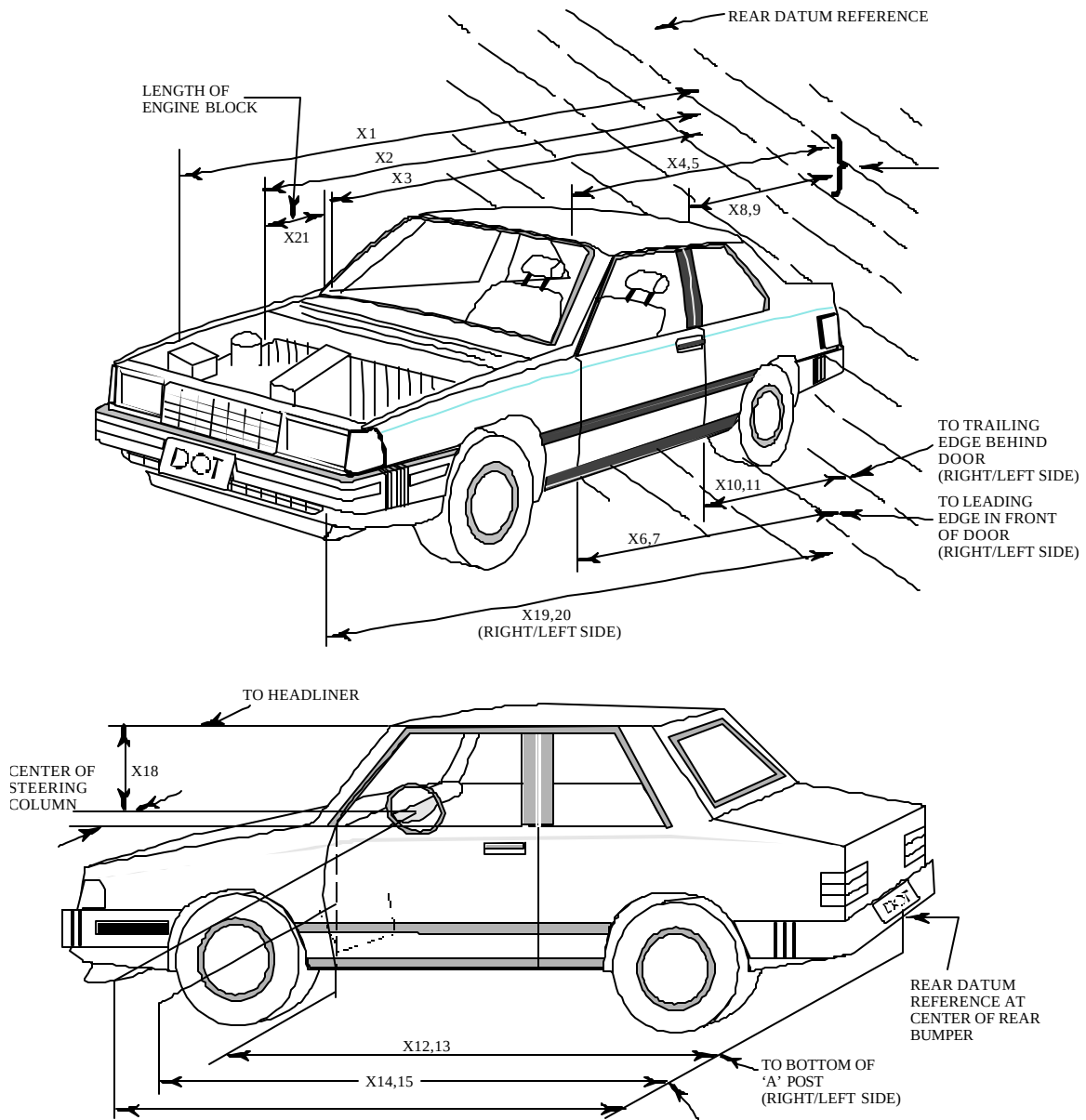
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°	0	0	0	N/A
90° - 180°	0	0	0	N/A
180°-270°	0	0	0	N/A
270°-360°	0	0	0	N/A

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

IV. SOLVENT SPILLAGE LOCATION(S):

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

DATA SHEET NO. 14 TEST VEHICLE MEASUREMENTS

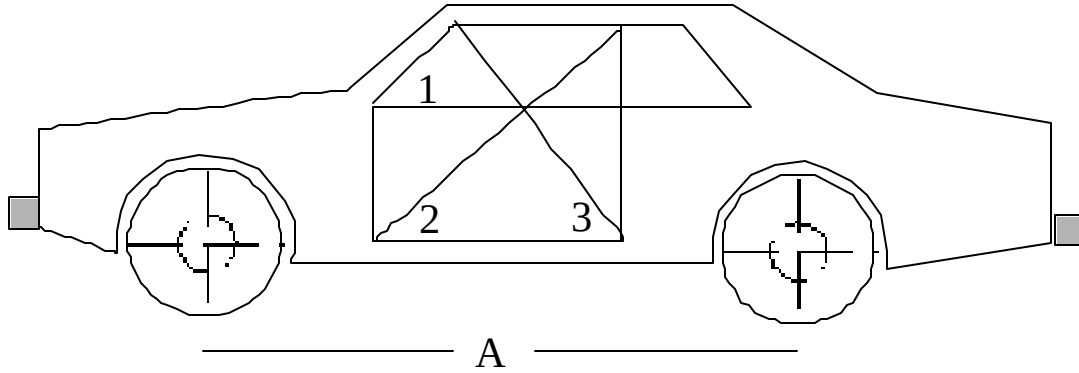


DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4880	4432	448
X2	Rear Surface of Vehicle to Front of Engine	4307	4109	198
X3	Rear Surface of Vehicle to Firewall	3773	3596	177
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3395	3383	12
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3390	3372	18
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3345	3330	15
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3336	3318	18
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2206	2194	12
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2204	2187	17
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2211	2201	10
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2208	2186	22
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3437	3423	14
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3433	3408	25
X14	Rear Surface of Vehicle to Firewall, Right Side	3729	3702	27
X15	Rear Surface of Vehicle to Firewall, Left Side	3734	3680	54
X16	Rear Surface of Vehicle to Steering Column	2840	2804	36
X17	Center of Steering Column to "A" Post	311	308	3
X18	Center of Steering Column to Headliner	458	542	-84
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4832	4440	392
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4829	4366	463
X21	Length of Engine Block	450	450	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3017	3003	14
CD	Rear Surface of Vehicle to Center of Dash Panel	3026	2980	46
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3040	2976	64

All Dimensions in mm

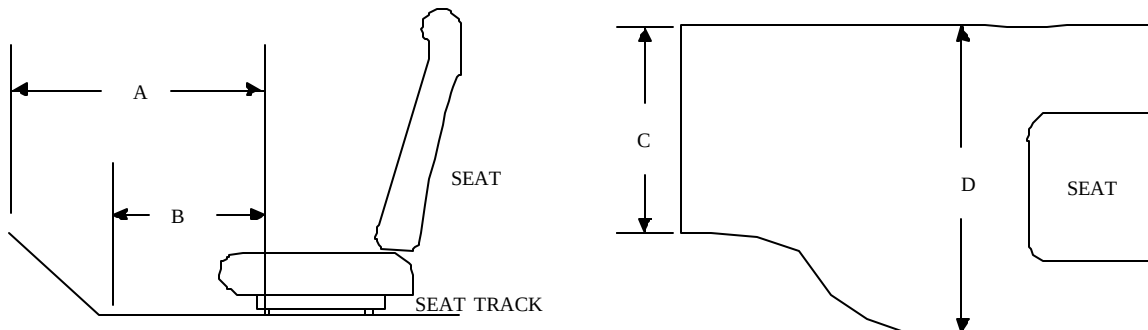
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1082	1544	1238	1080	1543	1237
AFTER TEST	1073	1543	1261	1077	1546	1261
DIFFERENCE	9	1	-23	3	-3	-24

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2875	2875
AFTER TEST	2814	2804
DIFFERENCE	61	71

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



DRIVER

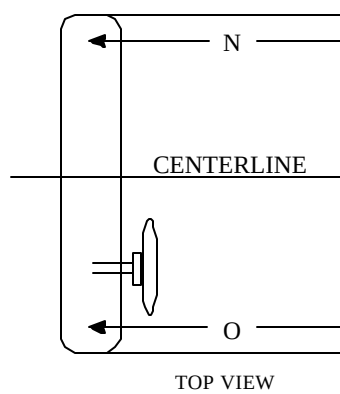
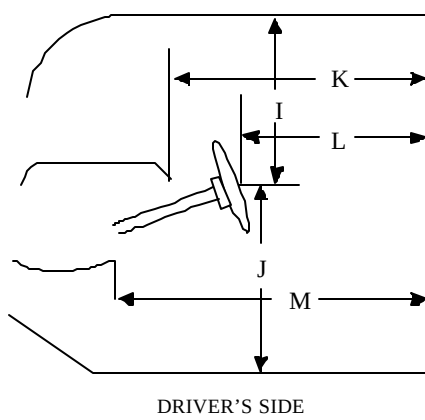
Measurement	Pre-Test	Post-Test	Difference
A	765	680	85
B	532	526	6
C	355	374	-19
D	460	444	16

PASSENGER

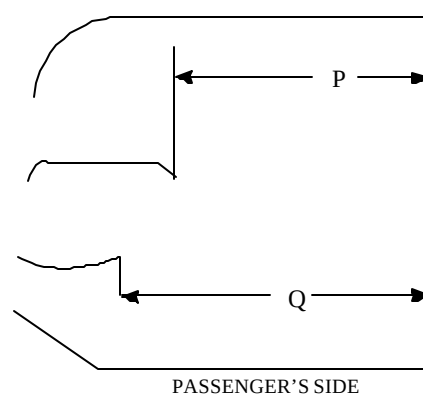
Measurement	Pre-Test	Post-Test	Difference
A	741	697	44
B	533	538	-5
C	391	382	9
D	332	324	8

Units = mm

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



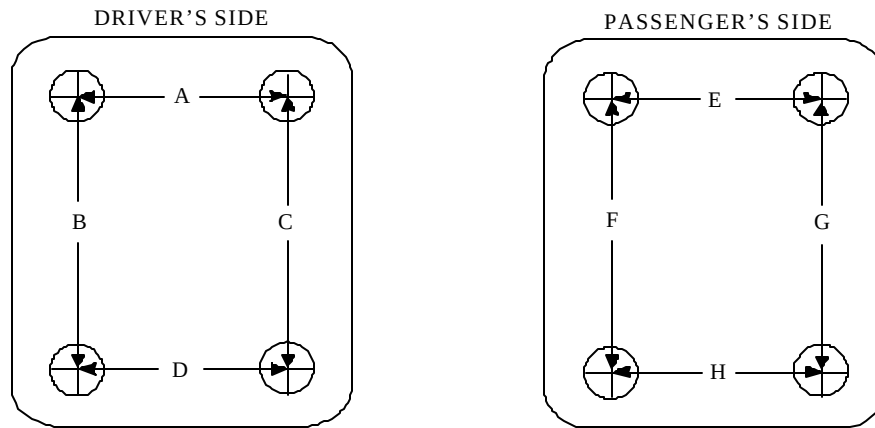
MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



Measurement	Pre-Test	Post-Test	Difference
I	458	542	-84
J	668	630	38
K	1737	1727	10
L	1532	1497	35
M	1795	1797	-2
N	1704	1693	11
O	1732	1668	64
P = K (PASS.)	1716	1694	22
Q = M (PASS.)	1811	1832	-21

Units = mm

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

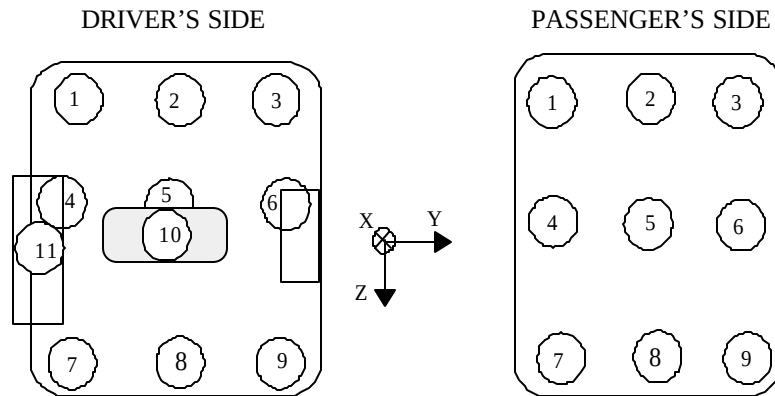


TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	355	374	-19
B	414	426	-12
C	398	324	74
D	460	444	16
E	391	382	9
F	442	442	0
G	417	412	5
H	332	324	8

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	3567	3504	63	-658	-653	-5
2	3586	3485	101	-652	-638	-14
3	3536	3429	107	-655	-656	1
4	3487	3468	19	-542	-513	-29
5	3467	3458	9	-531	-517	-14
6	3476	3422	54	-540	-534	-6
7	3350	3332	18	-471	-434	-37
8	3353	3331	22	-477	-431	-46
9	3323	3297	26	-482	-471	-11
10	3342	3189	153	-660	-737	77
11	3410	3389	21	-609	-588	-21

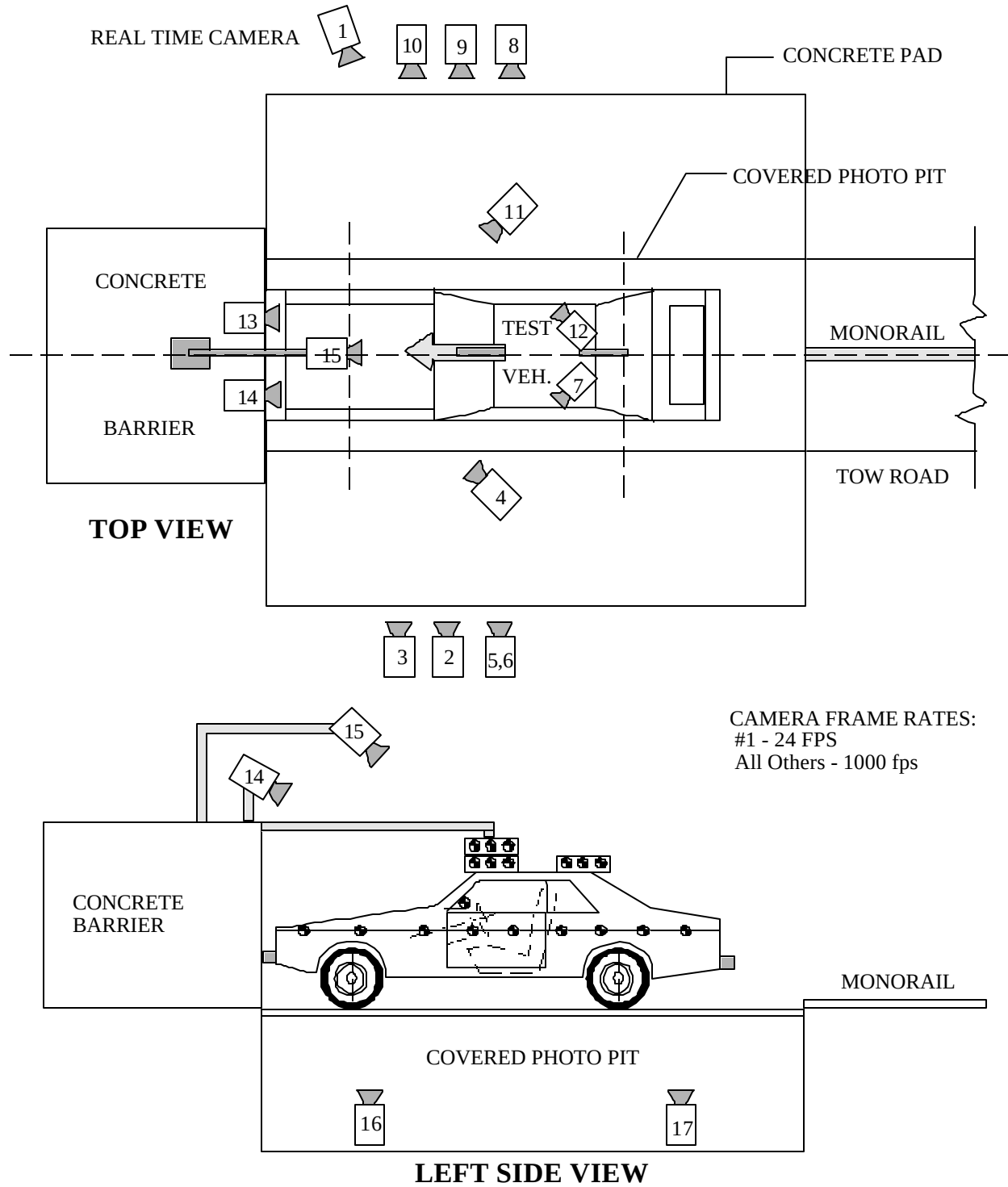
Passenger Side Toe-pan Measurements

Toe-pan Location	X Deformation (mm)			Z Deformation (mm)		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3550	3498	52	-642	-665	23
2	3554	3498	56	-651	-659	8
3	3548	3532	16	-662	-653	-9
4	3464	3441	23	-529	-534	5
5	3482	3470	12	-519	-509	-10
6	3490	3484	6	-520	-508	-12
7	3333	3322	11	-464	-436	-28
8	3346	3340	6	-459	-436	-23
9	3352	3351	1	-454	-432	-22

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

DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

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



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

NHTSA Test No.: M20107 Vehicle: 2002 Chevrolet Trailblazer 4-Door MPV

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)*			ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	6687	1692	1075	-2	6274	12.5	1010
3	Left Side View	8505	1017	1082	-5	8092	25	950
4	Driver and Interior View	7620	2671	2000	-9	-	25	1055
5	Steering Column (Bottom)	7620	1921	1177	-2	7207	25	1010
6	Steering Column (Top)	7620	1921	1777	-6	7207	25	1010
7	Left Belt	-	-	-	-	-	13	-
8	Overall Right Side	7060	1877	1081	-2	7345	12.5	1005
9	Right Side View	8669	1270	1175	-2	8954	25	1010
10	Right Passenger View	8260	1840	1371	-2	8545	35	1000
11	Passenger and Interior View	7738	2660	1993	-10	-	25	980
12	Right Belt	-	-	-	-	-	13	-
13	Passenger Front View	620	-92	1987	-30	-	13	1005
14	Driver Front View	620	-92	1987	-32	-	13	1005
15	Windshield View	0	-530	3374	-53	-	13	1005
16	Pit View of Engine	0	615	-3048	90	-	13	1005
17	Pit View of Fuel Tank	0	2287	-3048	90	-	13	1000

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

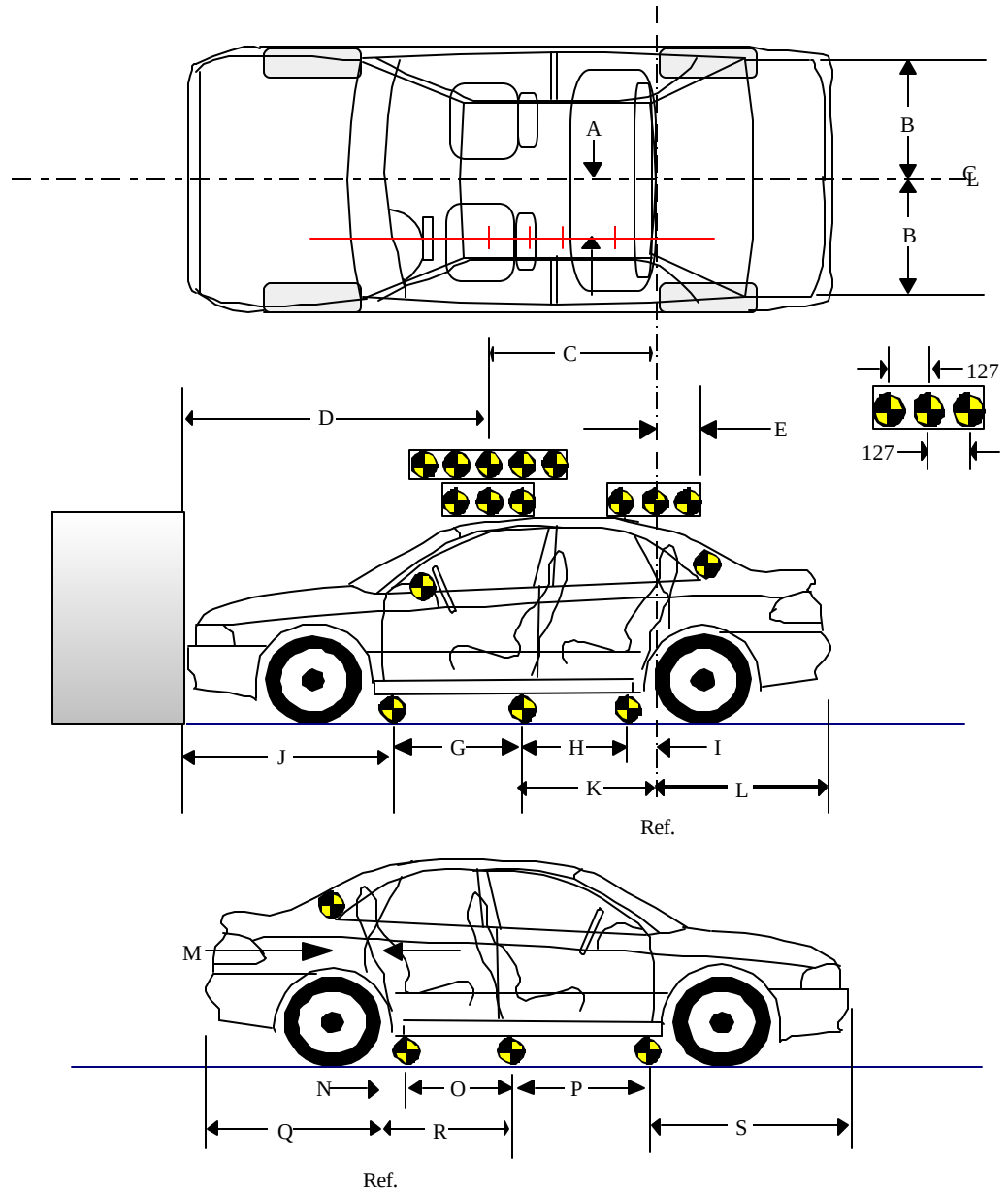
Y = film plane to impact location N.T. indicates No Timing

Z = film plane to ground

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

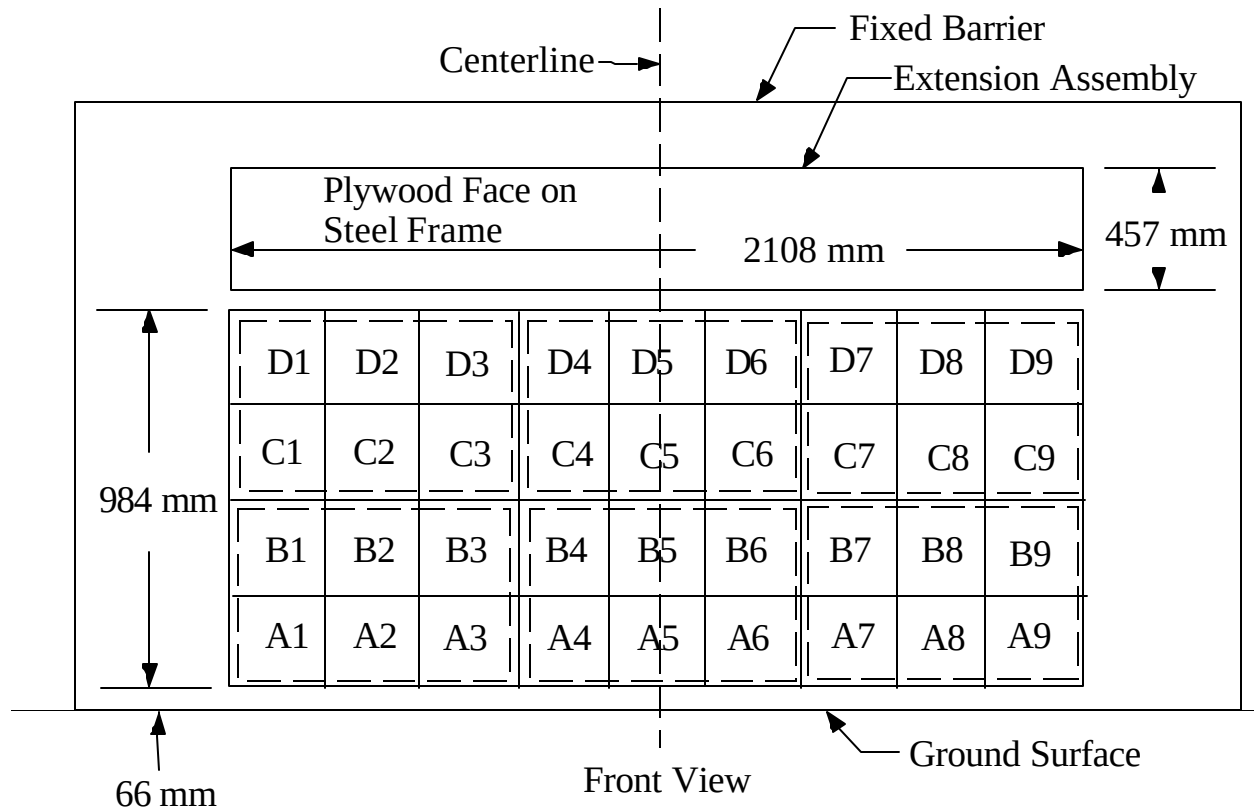
(Dimensions in millimeters)

A	361
B	698
C	1218
D	2162
E	259
F	1559
G	940
H	923
I	130
J	1398
K	1053
L	1490
M	247
N	130
O	932
P	927
Q	1490
R	1062
S	1401



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.: M20107; Test Date: April 26, 2002; Technician: Patrick MacDiarmid

Vehicle Model Year/Make/Model: 2002 Chevrolet Trailblazer 4-Door MPV

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

B. Size of vent holes: (mm²) 707 -Driver 962 -Passenger

C. Total vent area: (mm²) 1414 -Driver 1924 -Passenger

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

Driver: 700 -Height; 560 -Width; 250 -Depth

Passenger: 600 -Height; 505 -Width; 650 -Depth

E. Is the air bag tethered?

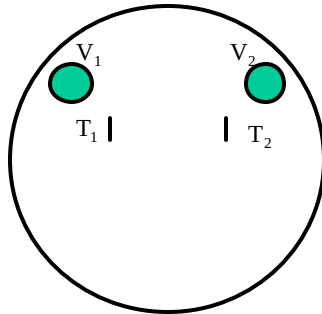
Driver: X -Yes; - -No; If yes, record length of tether- 200

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

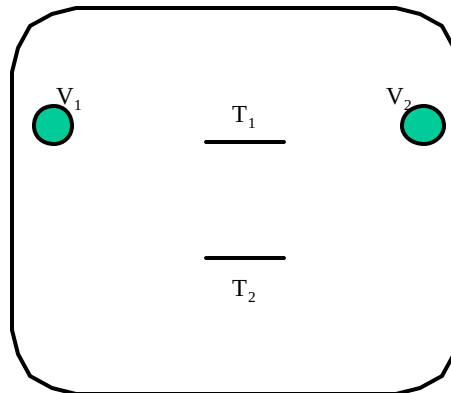
Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.

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

Driver



Passenger



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

Driver: Air bag: 312273 420d

Generator: 15168511 7DWQR 053 02 32

Passenger: Air bag: NONE

Generator: AL7542M9WAIB91 G1RN294CAHL

DATA SHEET NO. 19 ACCIDENT INVESTIGATION DIVISION DATA

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Chevrolet Trailblazer 4-Door MPV

NHTSA Test No.: M20107 VIN: 1GNDT13S022415653

Model Year: 2002 Build Date: 3/02 Test Date: April 26, 2002

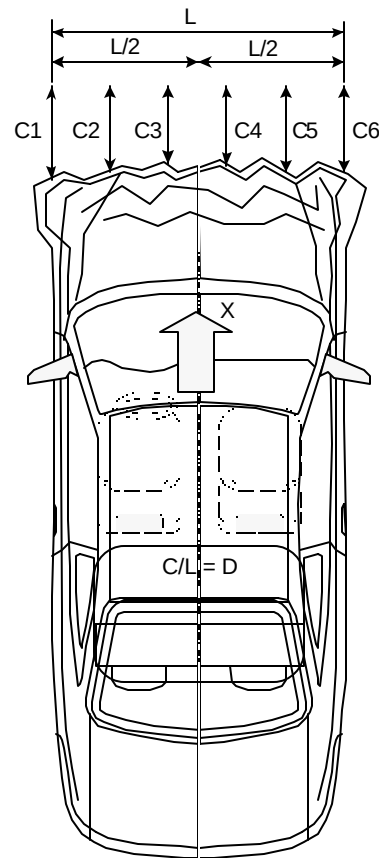
Vehicle Size Category: MPV Test Weight: 2348.0 kg

Vehicle Wheelbase: 2875 mm; Front Overhang: 889 mm; Overall Width: 1894 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions

	PRE (mm)	POST (mm)	DIFF (mm)
C1 =	4688	4389	299
C2 =	4838	4379	459
C3 =	4880	4420	460
C4 =	4875	4442	433
C5 =	4842	4444	398
C6 =	4697	4380	317



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region:

L1=	<u>1619</u>	mm
L2=	<u>809.5</u>	mm
L5=	<u>323.8</u>	mm

APPENDIX A
PHOTOGRAPHS

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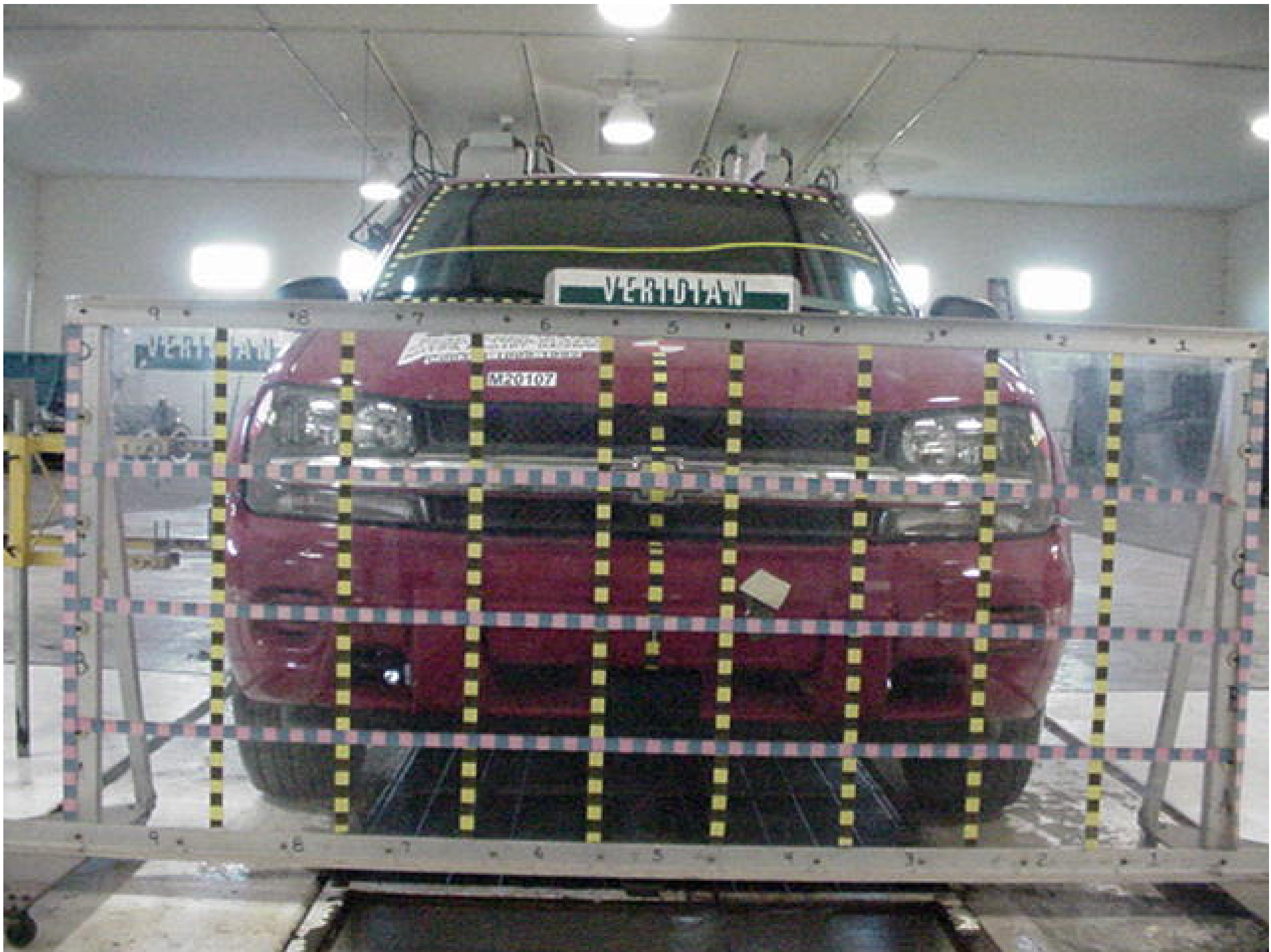


Figure A-1 LOAD CELL LOCATIONS



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
(Door remained closed and latched during the event – Opened by technicians prior to photograph)



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

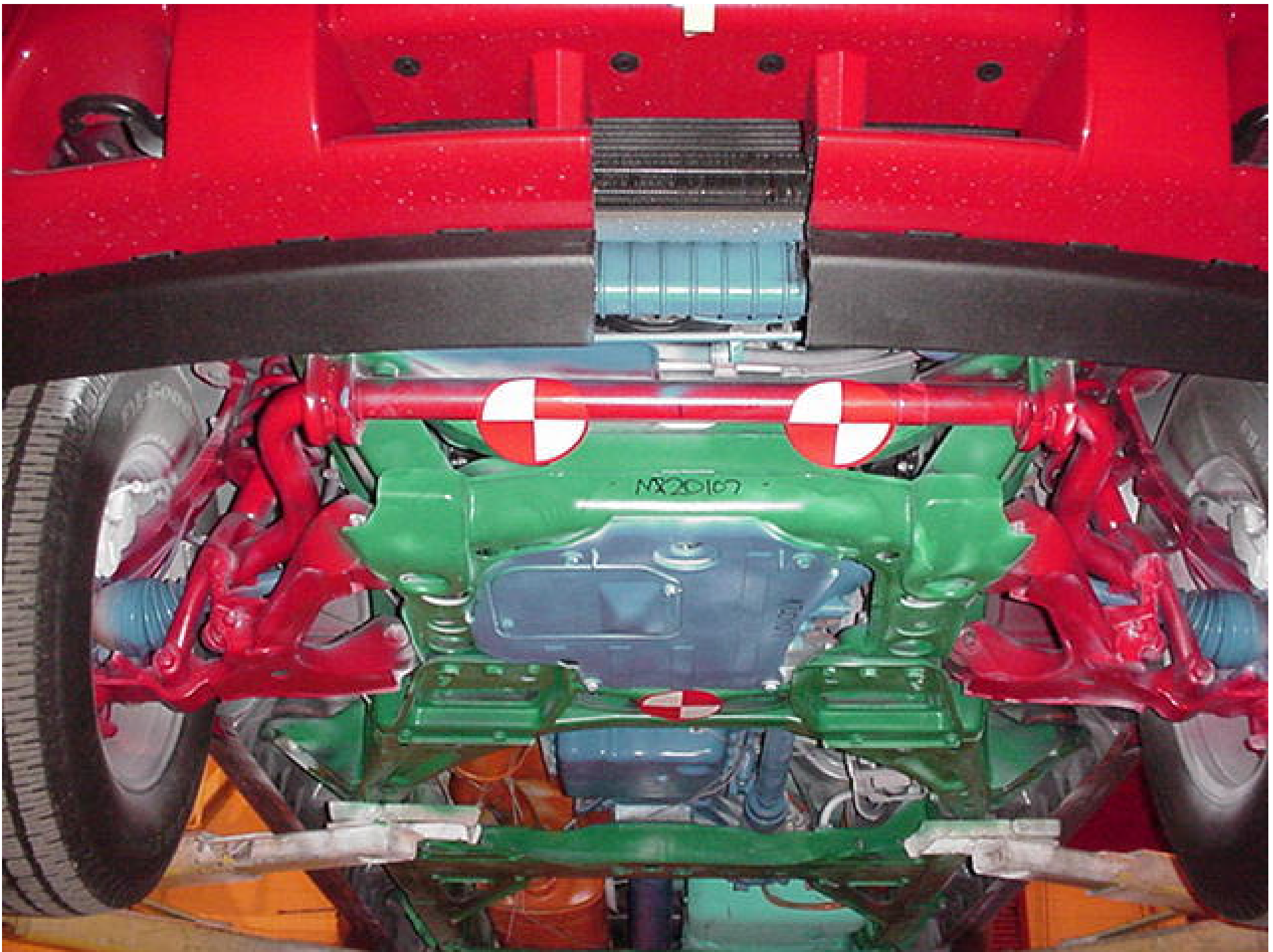


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

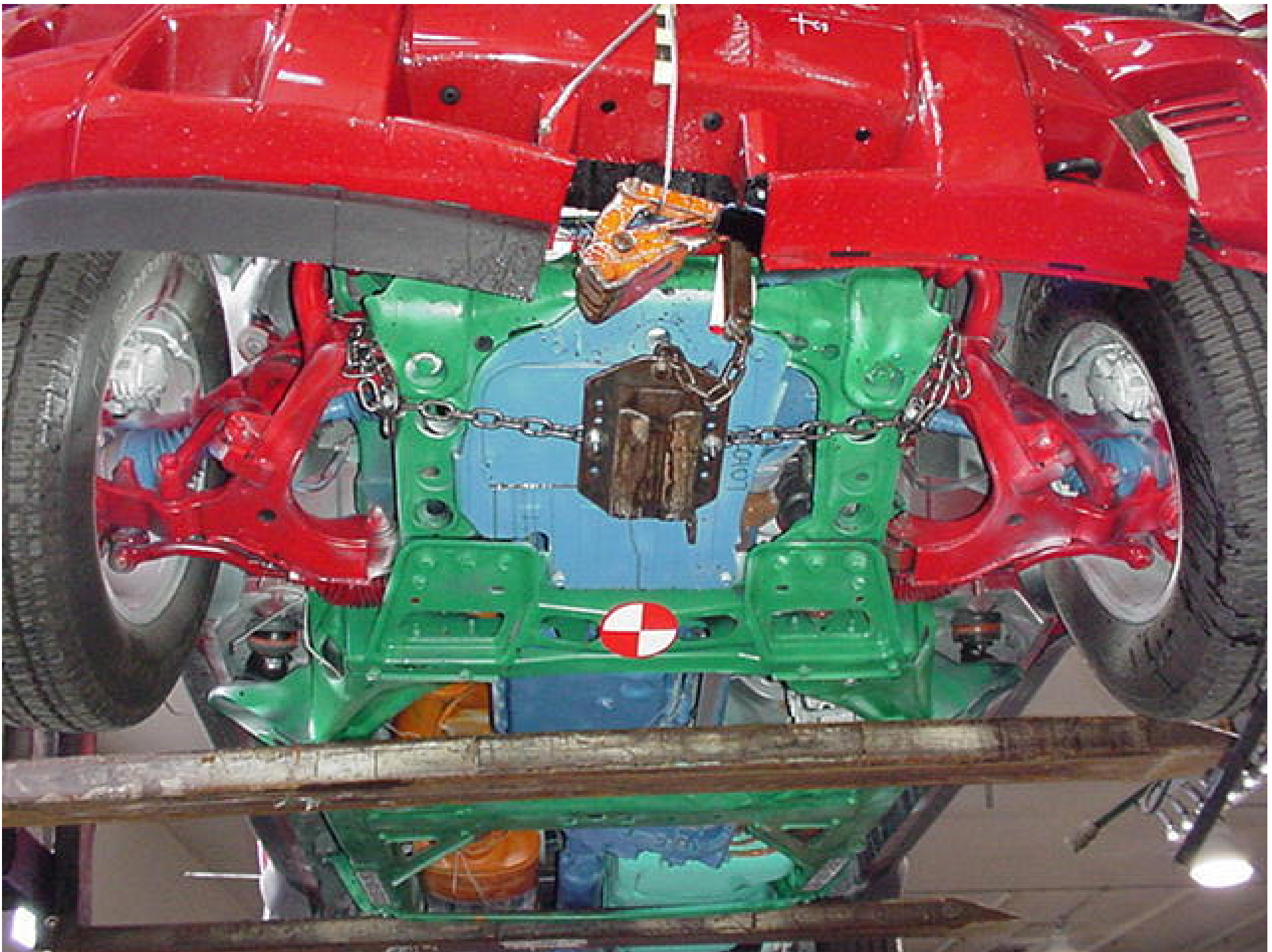


Figure A-17 POST-TEST FRONT UNDERBODY VIEW



Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW



Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

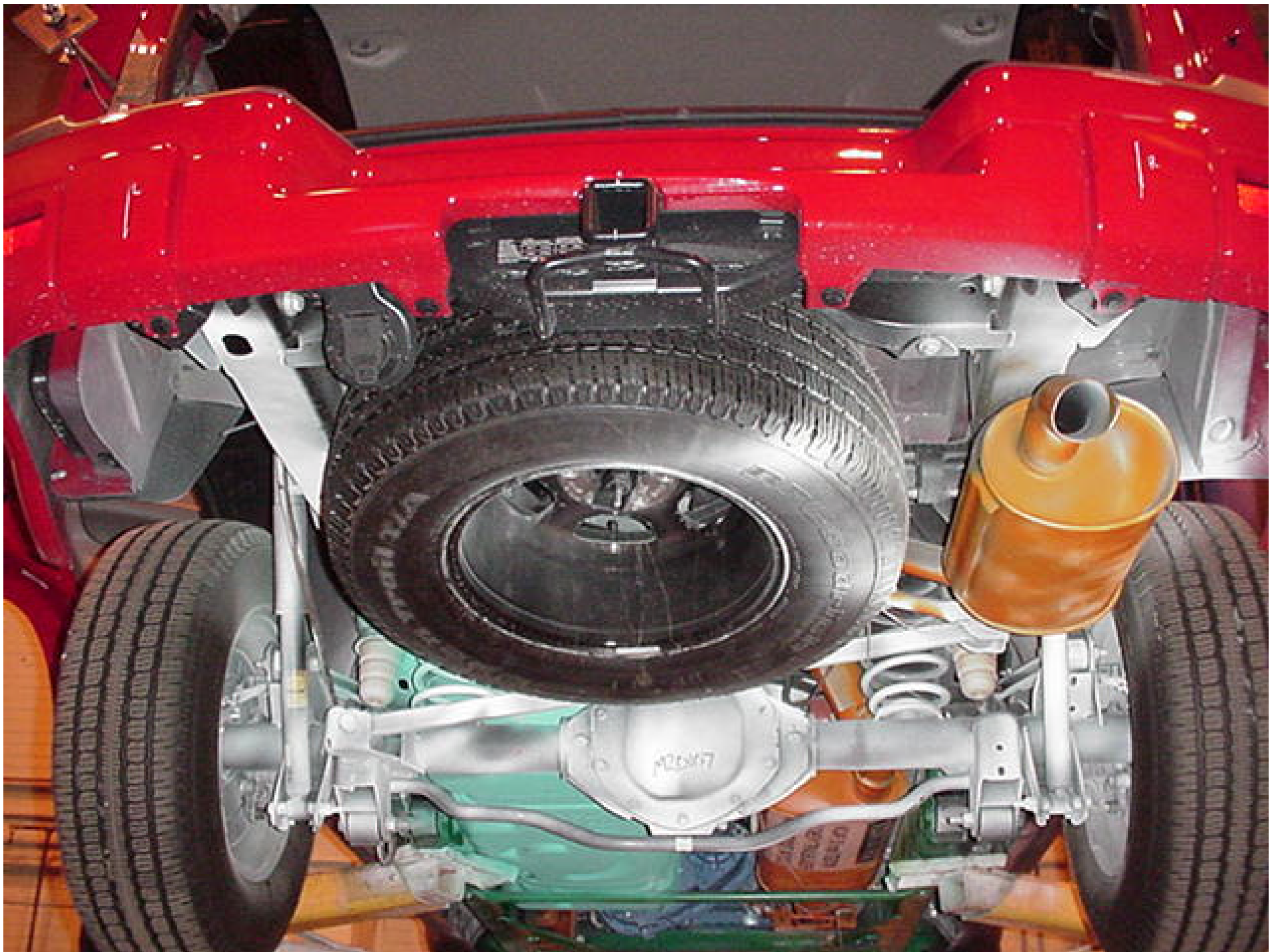


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

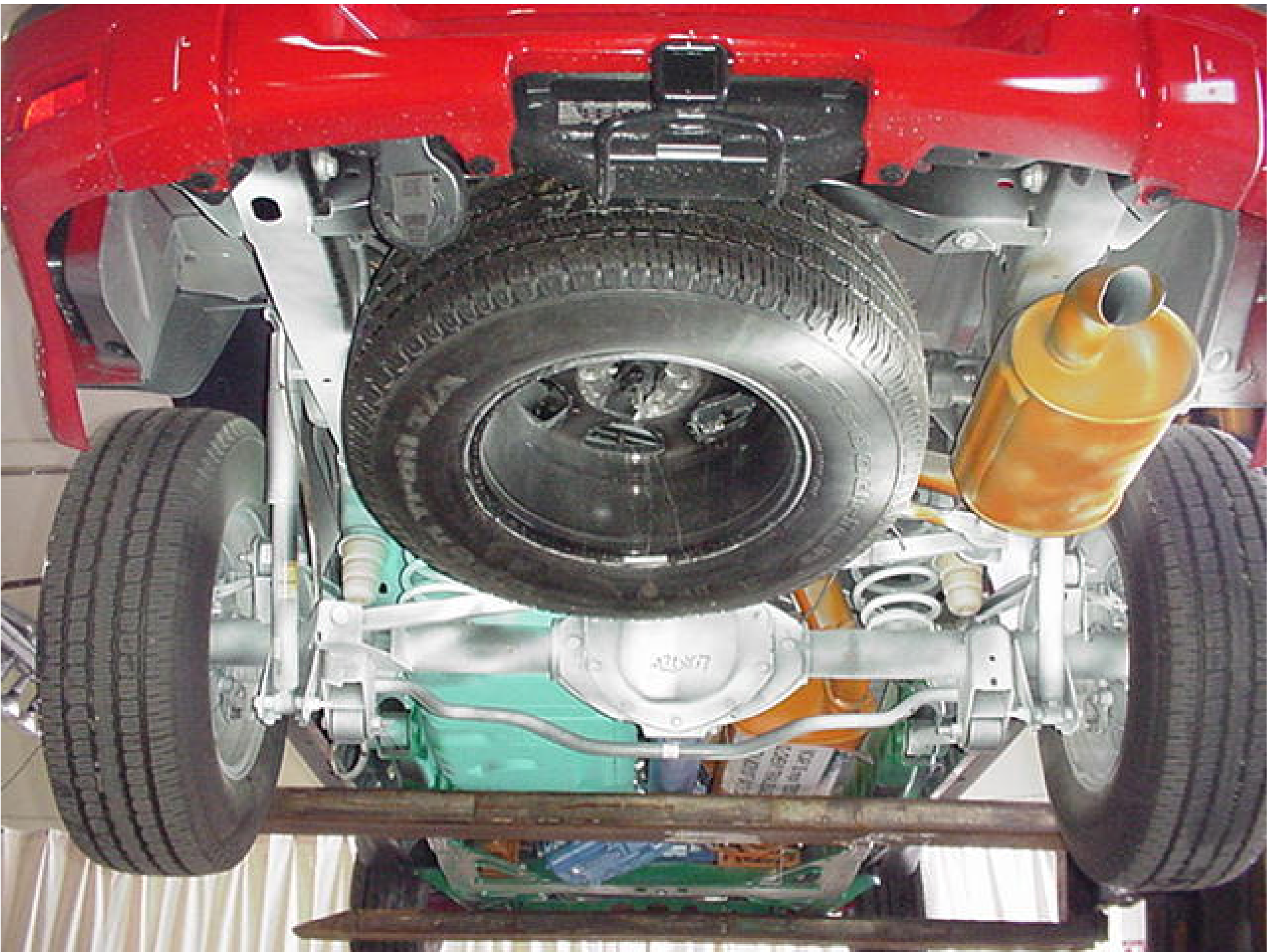


Figure A-21 POST-TEST REAR UNDERBODY VIEW



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



A-35

8642-NCAP-09

Figure A-33 POST-TEST PASSENGER HEAD LOCATION



Figure A-34 PRE-TEST DRIVER FLOOR PAN VIEW



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-39 IMPACT VIEW



MFD BY GENERAL MOTORS CORP

03/02

GVWR
2608KG(5750LB)

GAWR FRT
1338KG(2950LB)

GAWR RR
1452KG(3200LB)

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR
VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT ON
THE DATE OF MANUFACTURE SHOWN ABOVE.

1GNDT13S022415653

TYPE: M.P.V.

MODEL: T15508 PAYLOAD = 510KG(1124LB)

TPMX	TIRE SIZE	SPEED RTG	RIM	COLD TIRE PRESSURE
FRT	P245/70R16	S	16X7J	220KPA(32PSI)
RR	P245/70R16	S	16X7J	220KPA(32PSI)
SPA	P245/70R16	S	16X7J	240KPA(35PSI)

SEE OWNER'S MANUAL  FOR MORE INFORMATION.

Figure A-40 VEHICLE PLACARD

APPENDIX B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

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

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

DATA CHANNEL FILTER CLASS SUMMARY

NHTSA TEST NO.

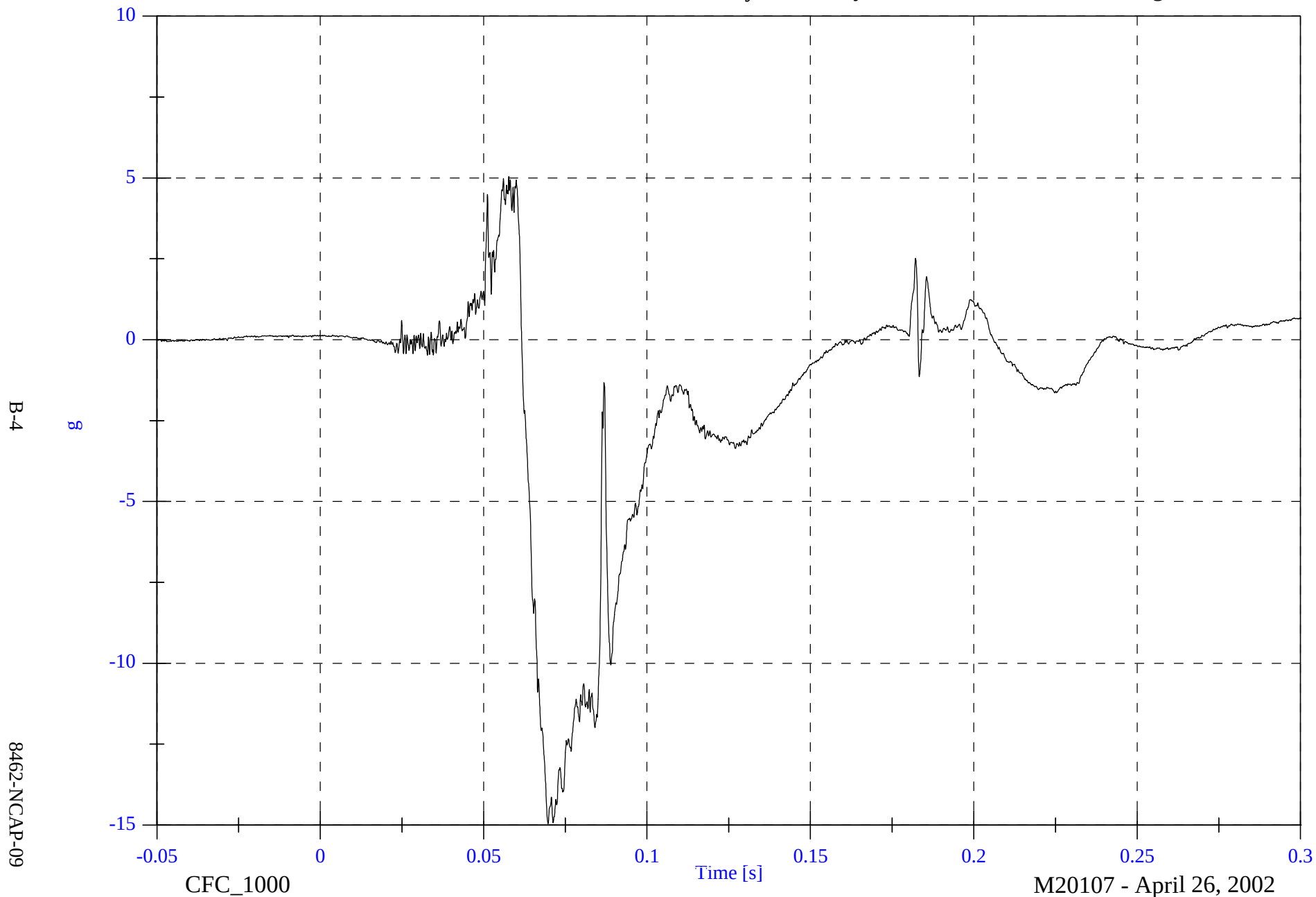
DATA TYPE	SAE FILTER CLASS (Hz)
Dummy Head Accelerations	1000
Dummy Chest Accelerations	180
Dummy Chest Displacements	60
Dummy Femur Forces	600
Dummy Belt Loads	60
Dummy Belt Displacements	180
Dummy Neck Forces	1000
Dummy Neck Moments	600
Vehicle Accelerations	60
Vehicle Velocity Integrations	180
Vehicle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

NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Head 9 Array X Arm Ay

Max: 5.0 [g] at 0.058 [s]

Min: -15.0 [g] at 0.070 [s]

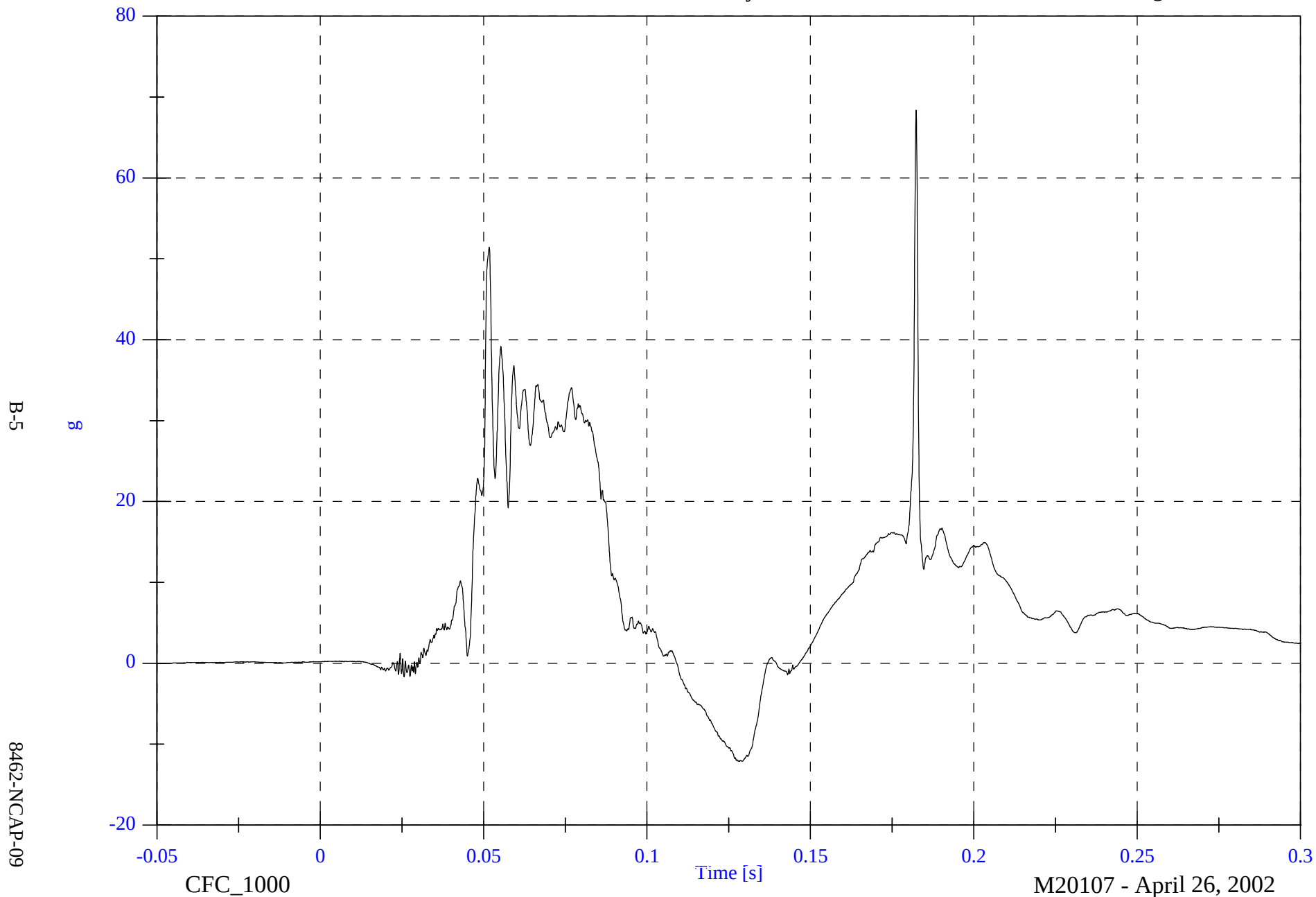


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Head 9 Array X Arm Az

Max: 68.4 [g] at 0.182 [s]

Min: -12.1 [g] at 0.128 [s]

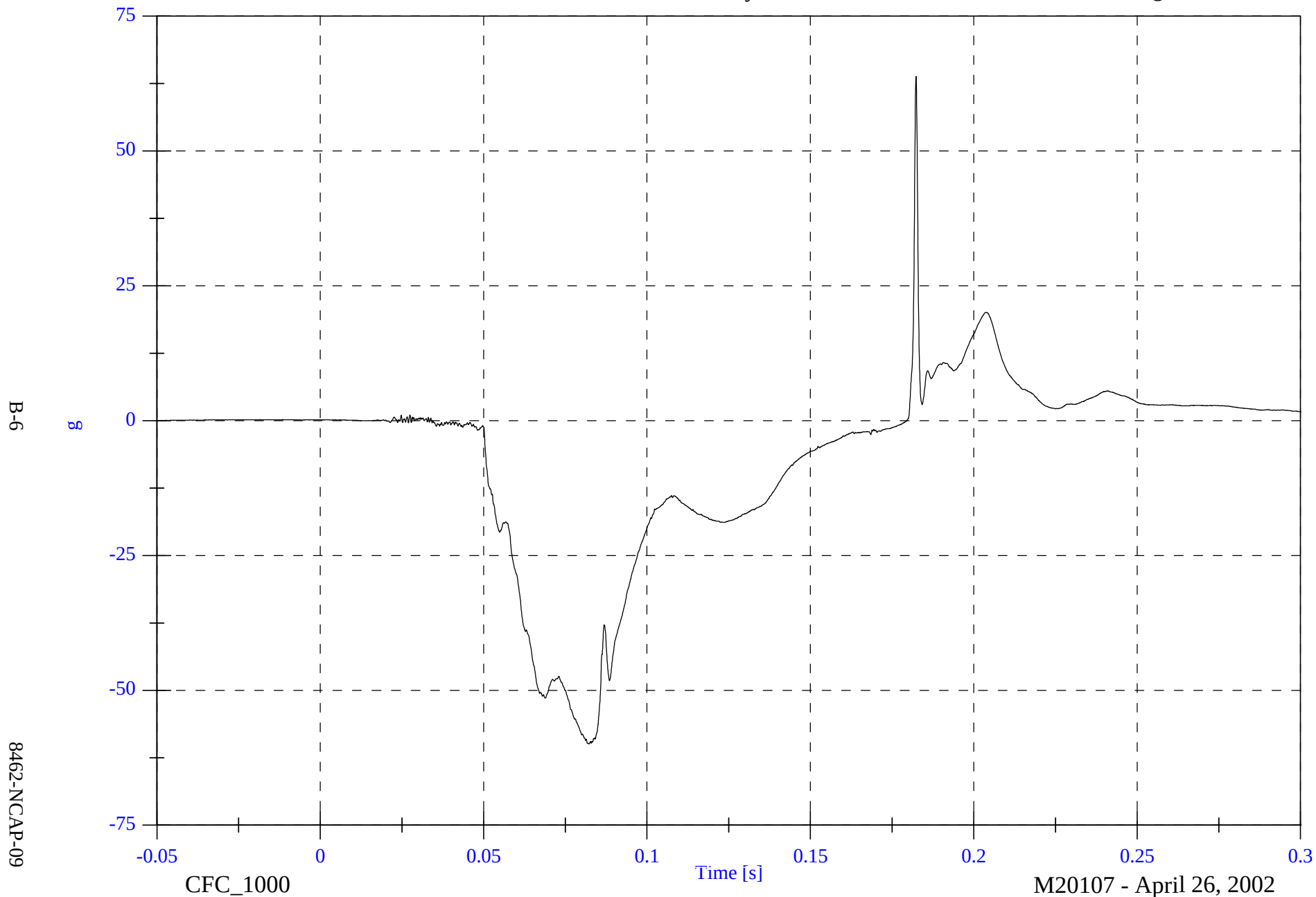


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Head 9 Array Y Arm Ax

Max: 63.8 [g] at 0.182 [s]

Min: -59.9 [g] at 0.082 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

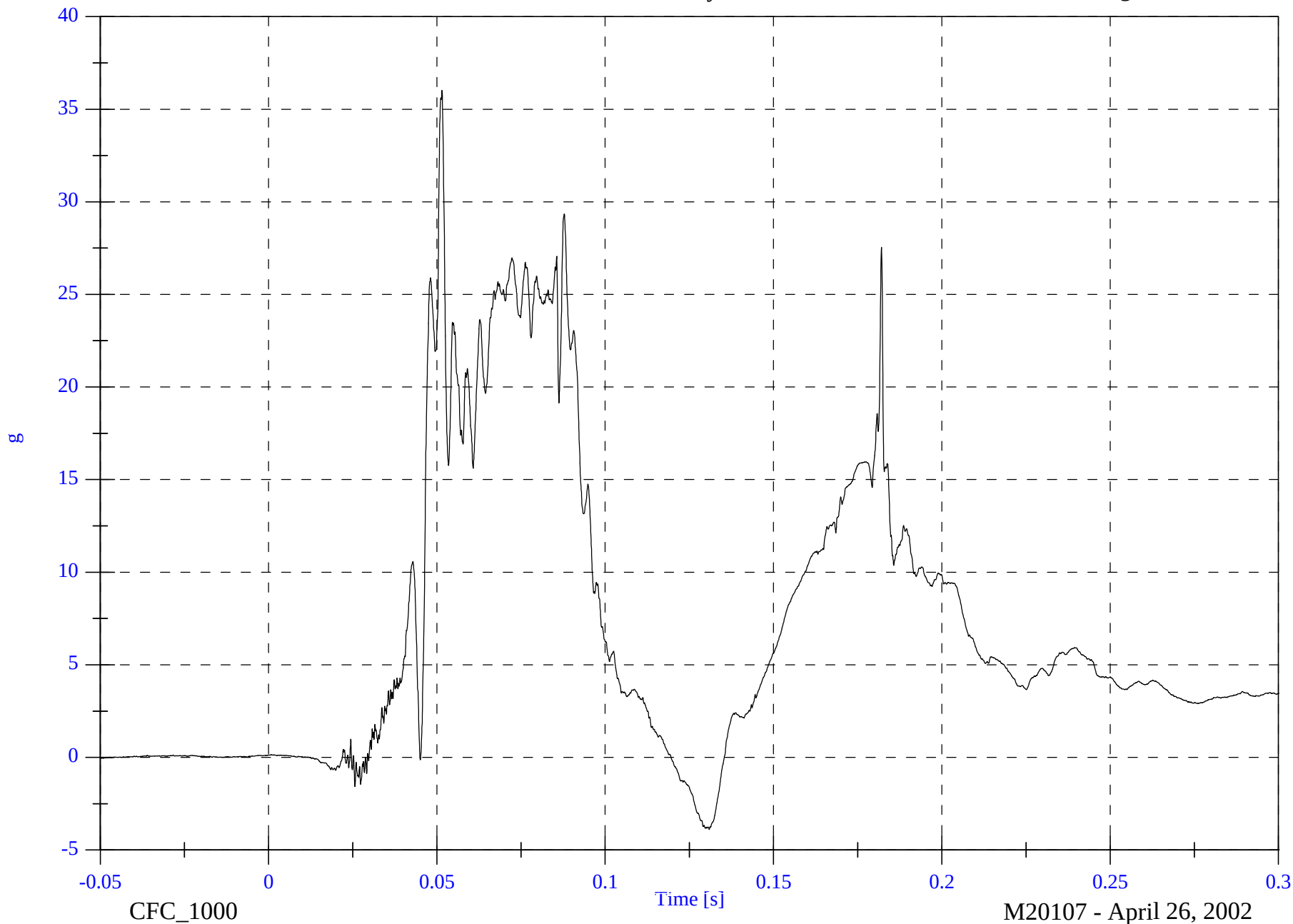
P1 Head 9 Array Y Arm Az

Max: 36.0 [g] at 0.052 [s]

Min: -3.9 [g] at 0.131 [s]

B-7

8462-NCAP-09

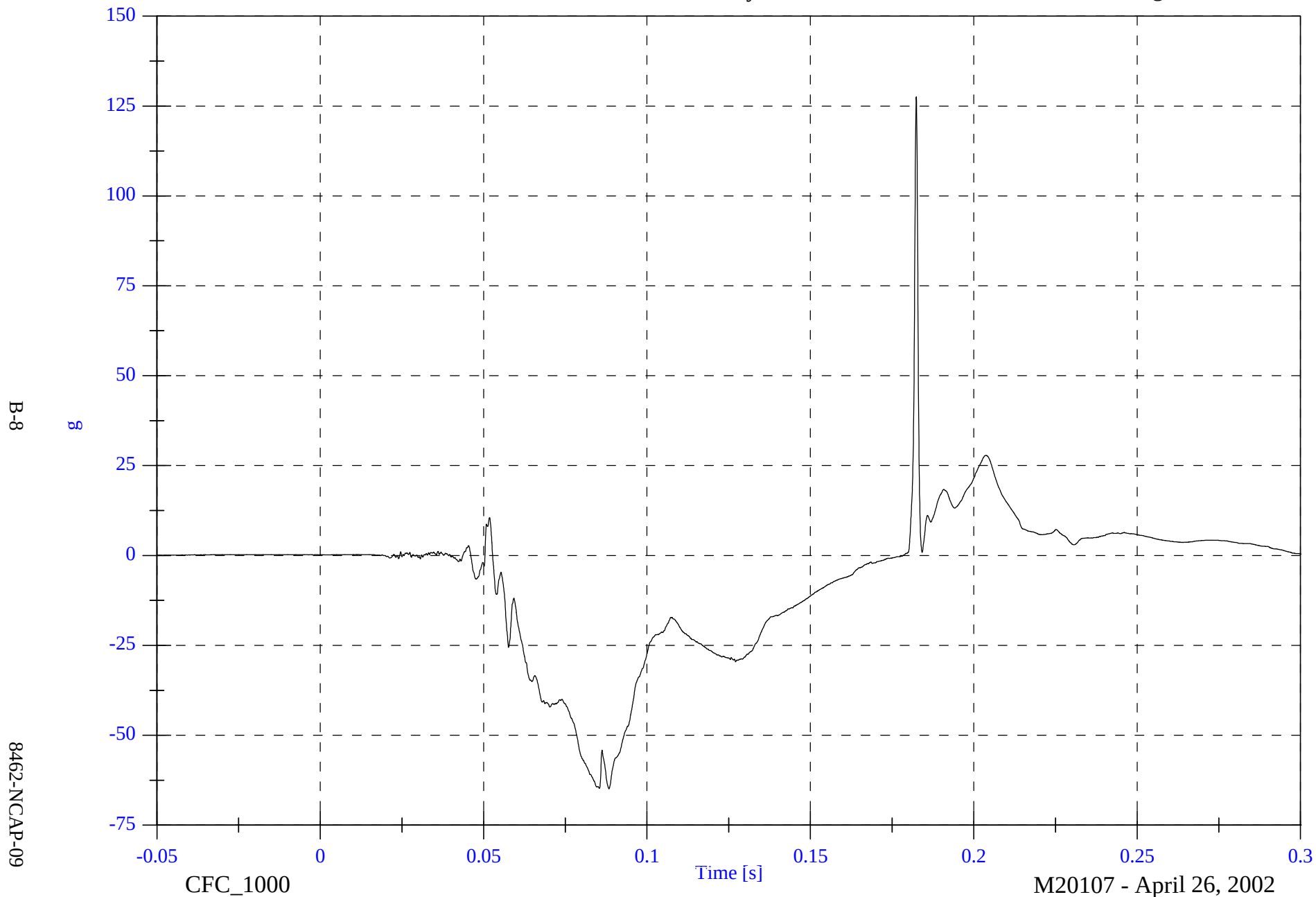


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Head 9 Array Z Arm Ax

Max: 127.5 [g] at 0.182 [s]

Min: -64.9 [g] at 0.088 [s]

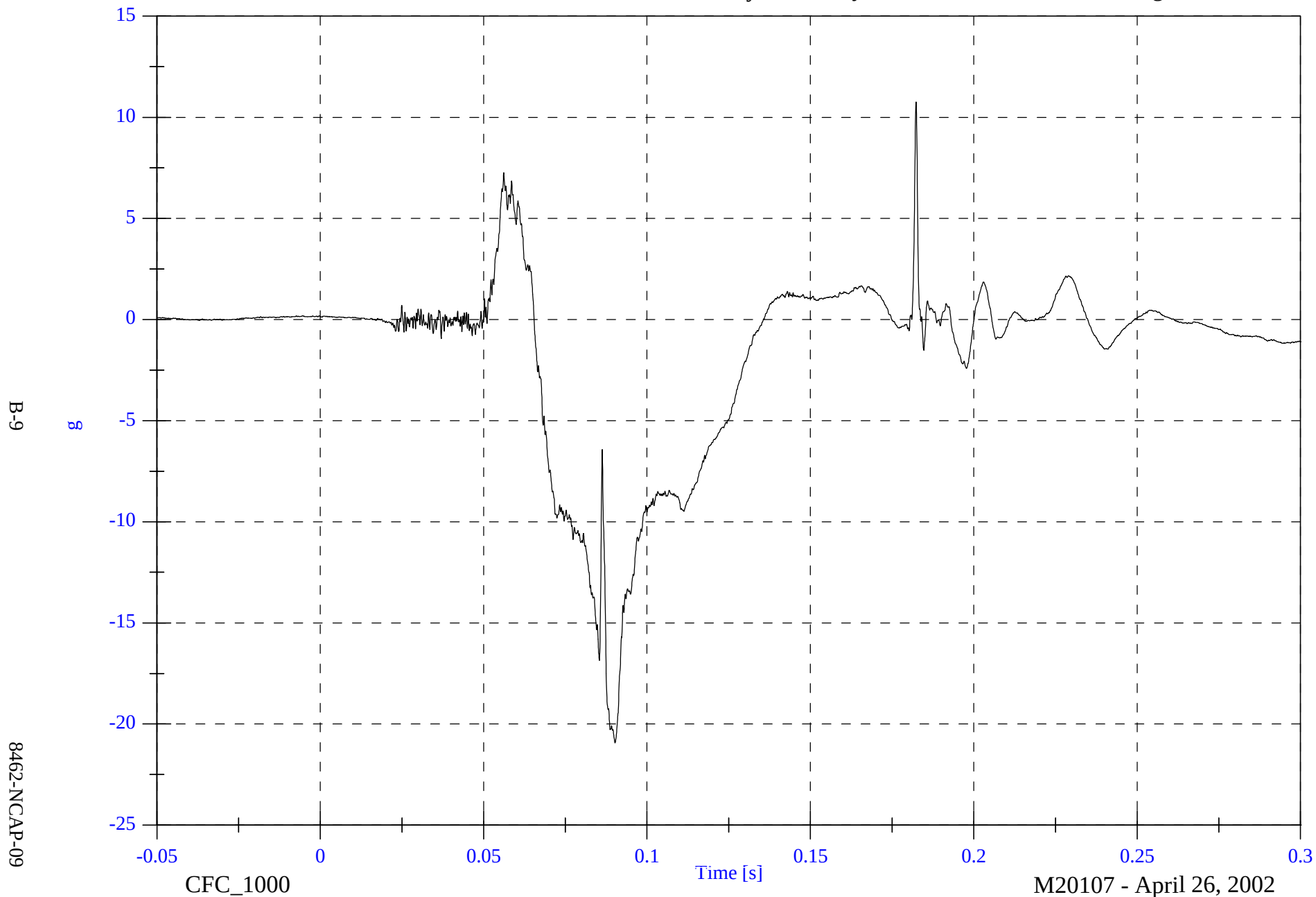


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Head 9 Array Z Arm Ay

Max: 10.8 [g] at 0.182 [s]

Min: -20.9 [g] at 0.090 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

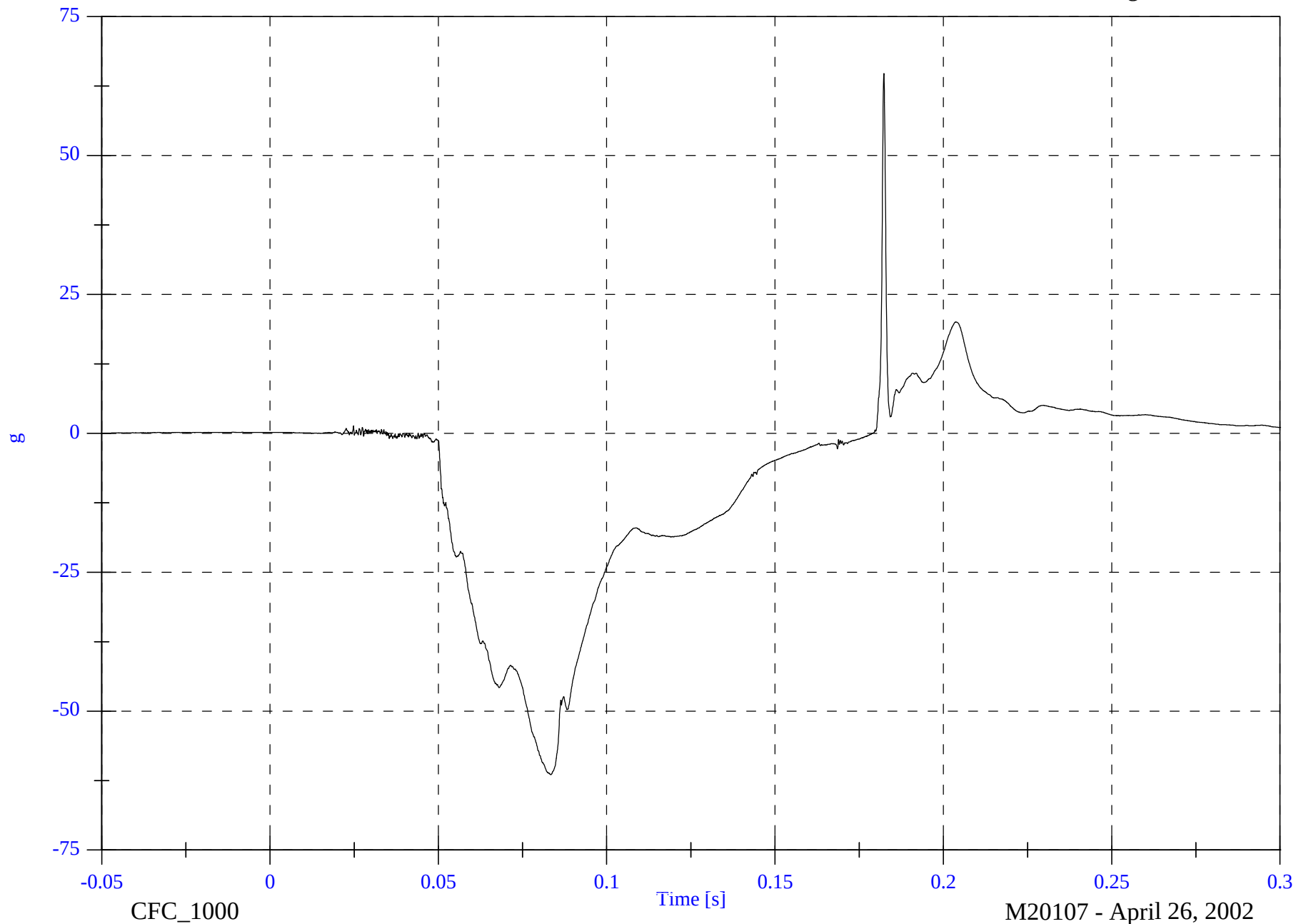
P1 Head CG x

Max: 64.8 [g] at 0.182 [s]

Min: -61.5 [g] at 0.083 [s]

B-10

8462-NCAP-09

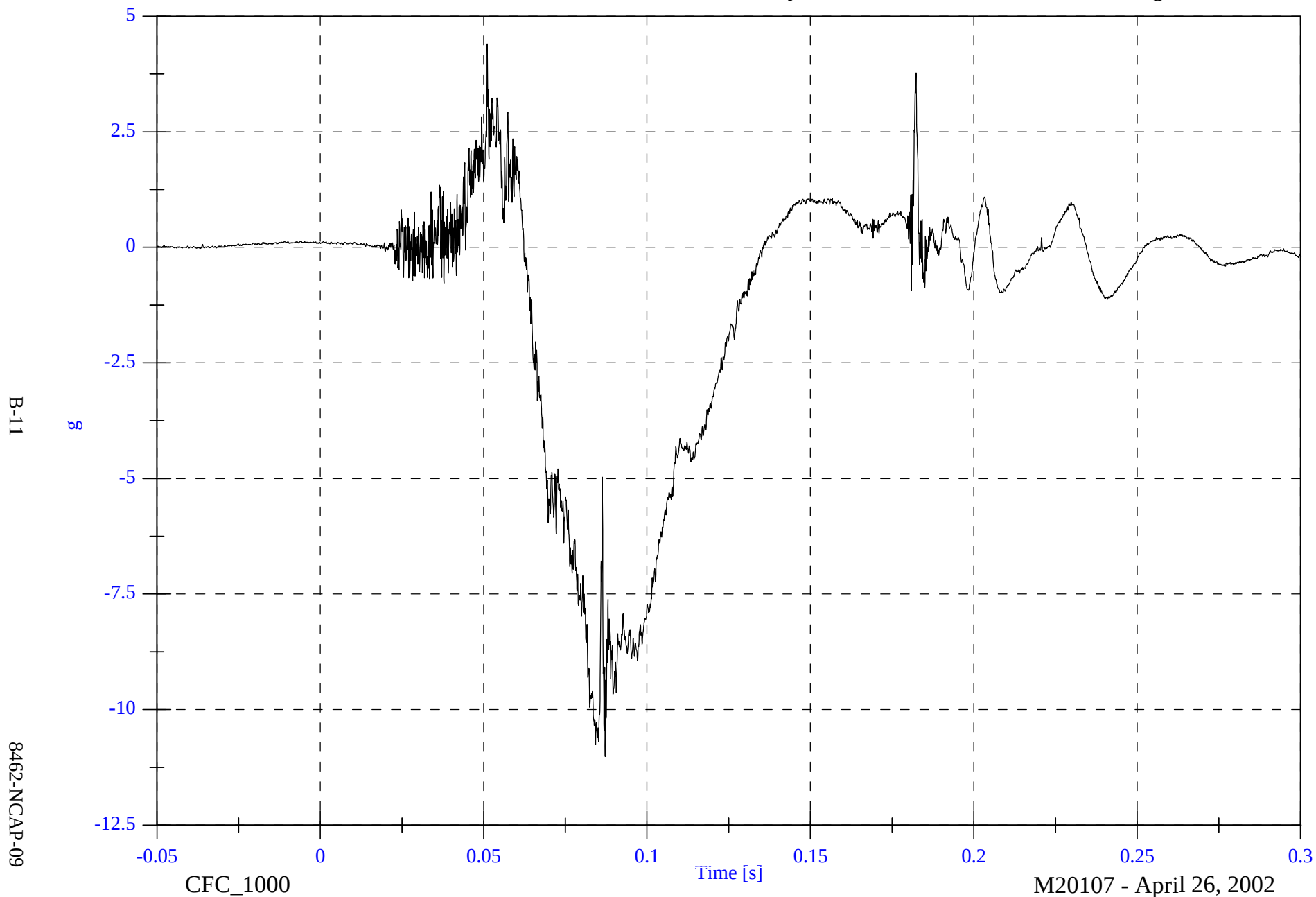


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Head CG y

Max: 4.4 [g] at 0.051 [s]

Min: -11.0 [g] at 0.087 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

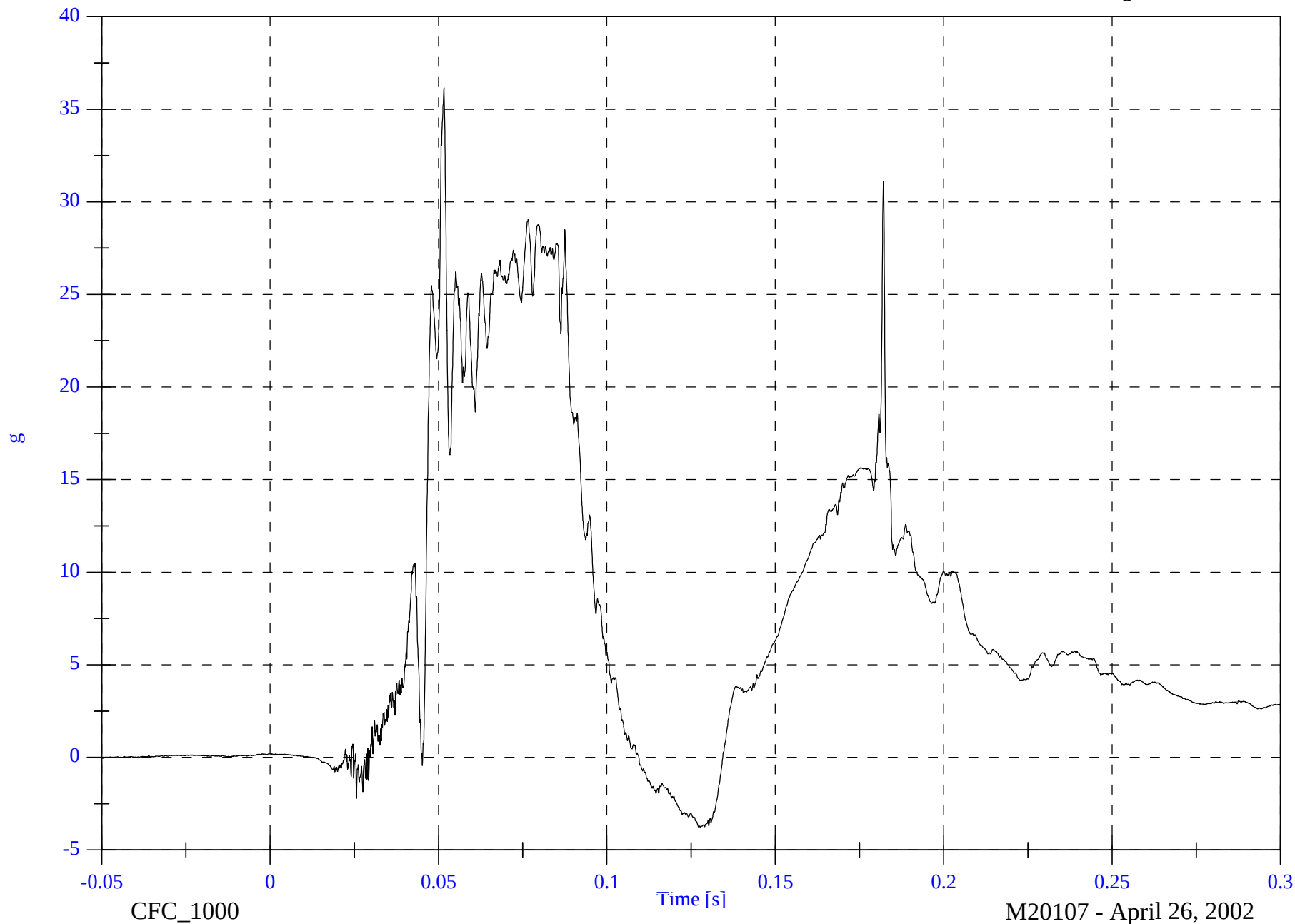
P1 Head CG z

Max: 36.2 [g] at 0.052 [s]

Min: -3.8 [g] at 0.128 [s]

B-12

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

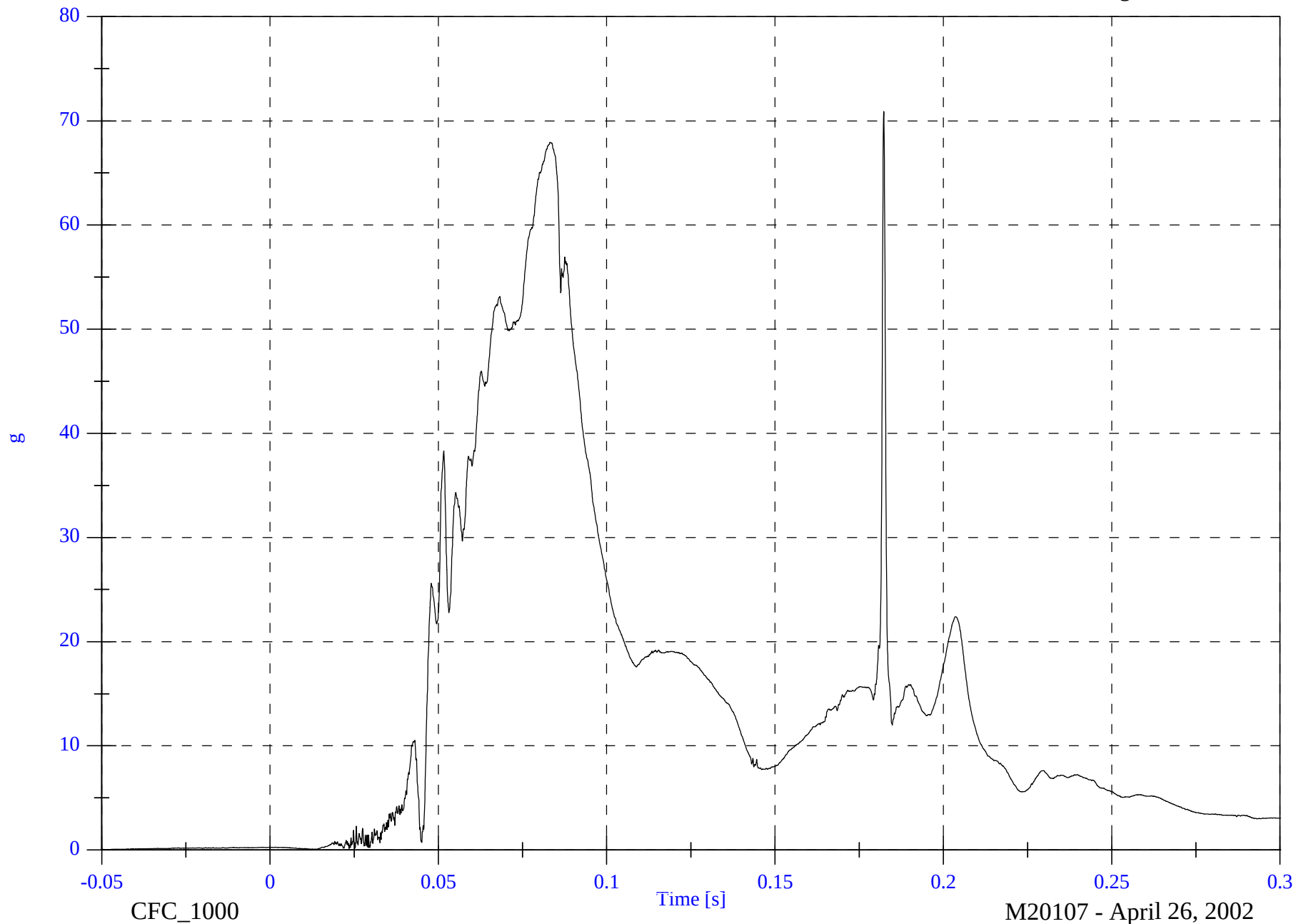
P1 Head CG Resultant

Max: 70.9 [g] at 0.182 [s]

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

B-13

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

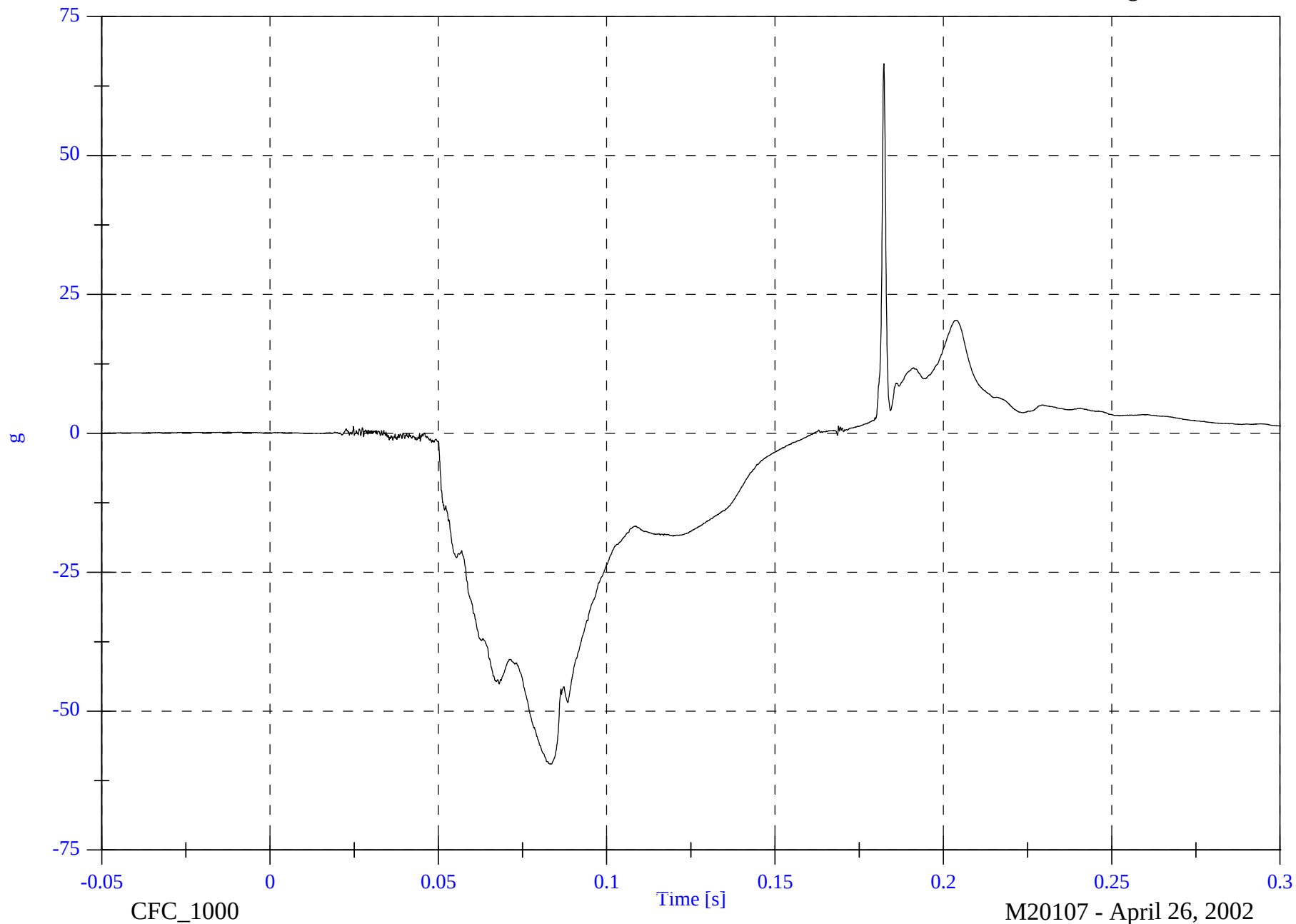
P1 Head CG Red x

Max: 66.6 [g] at 0.182 [s]

Min: -59.6 [g] at 0.083 [s]

B-14

8462-NCAP-09

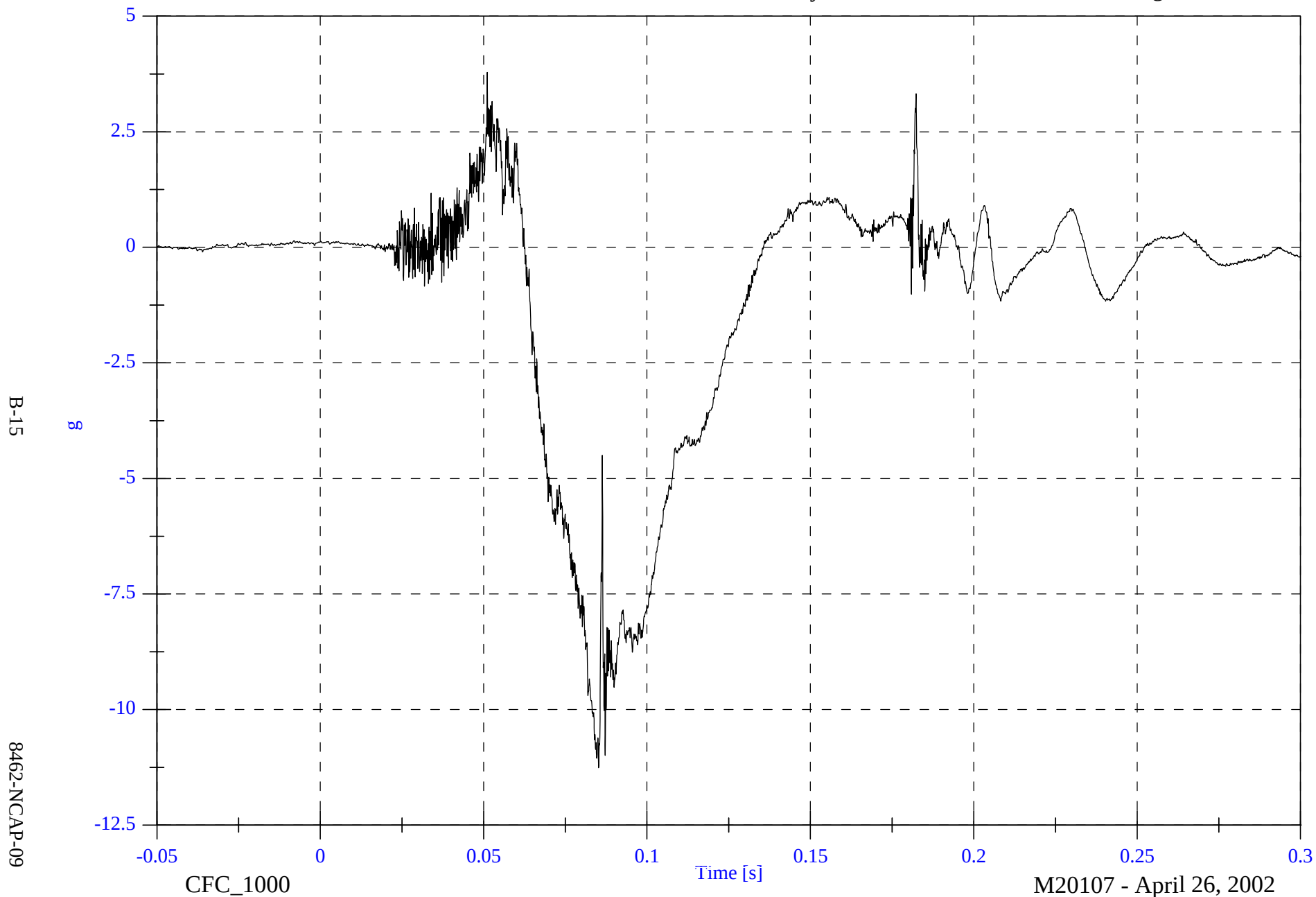


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Head CG Red y

Max: 3.8 [g] at 0.051 [s]

Min: -11.3 [g] at 0.085 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

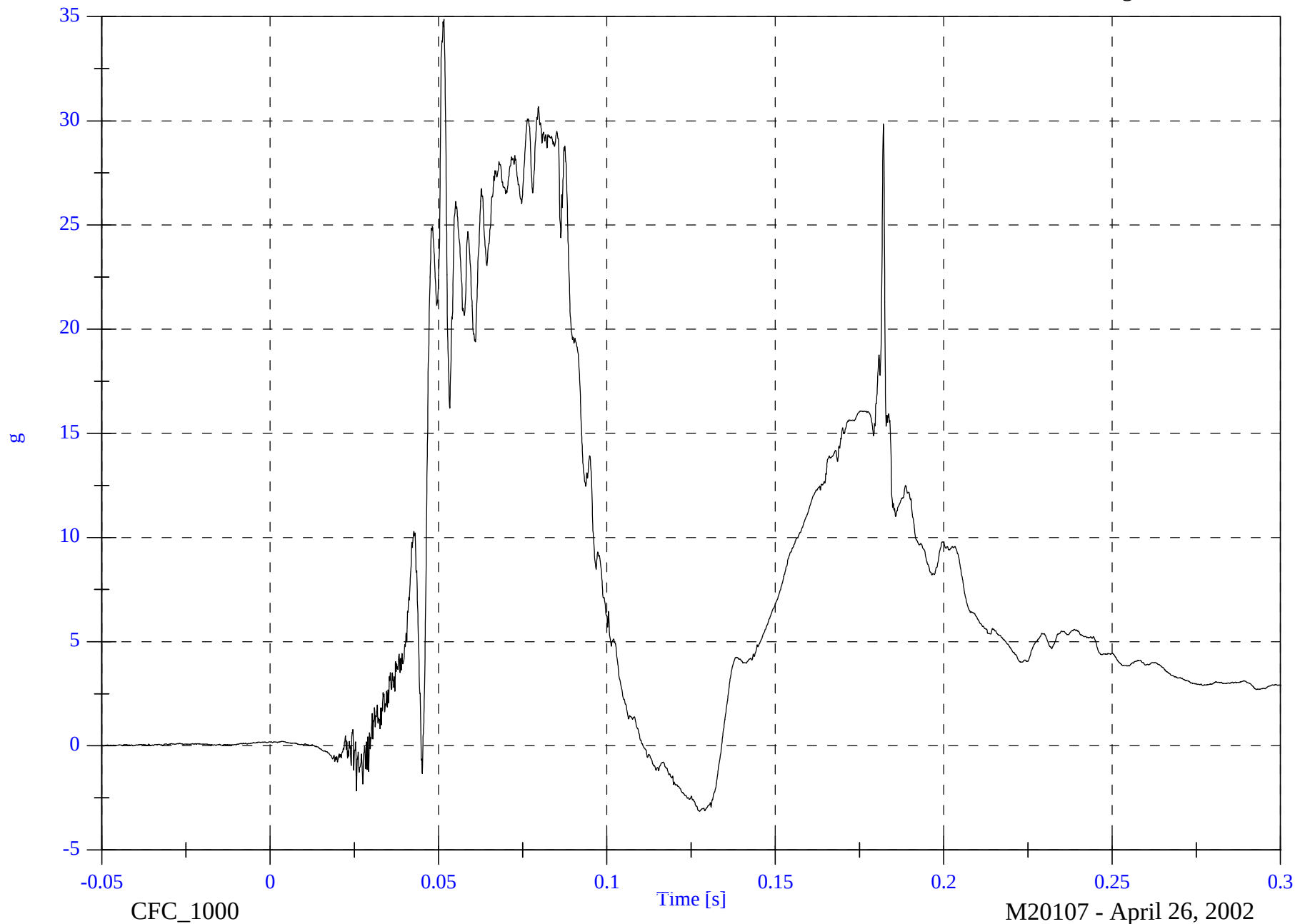
P1 Head CG Red z

Max: 34.9 [g] at 0.052 [s]

Min: -3.1 [g] at 0.128 [s]

B-16

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

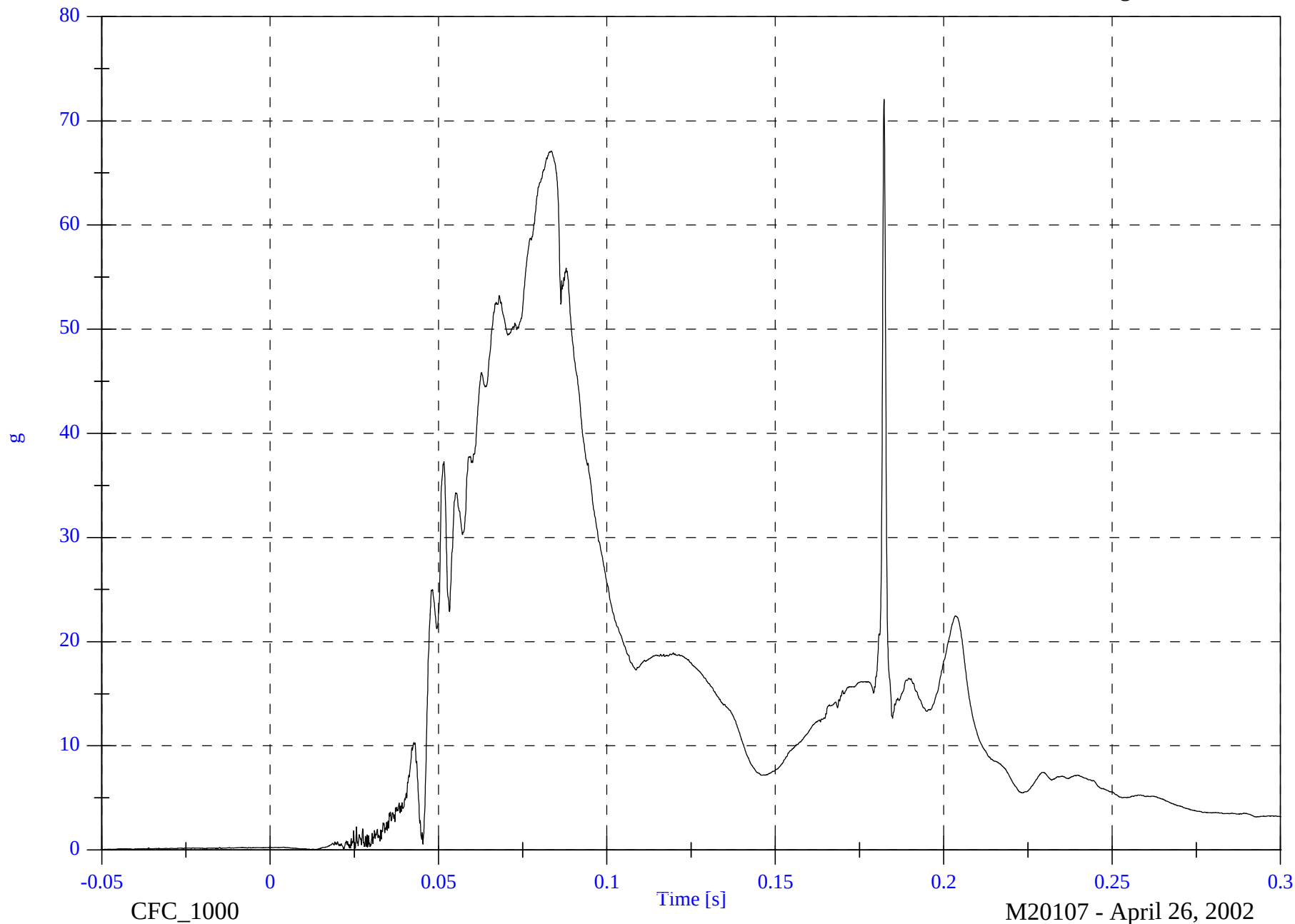
P1 Head CG Red Resultant

Max: 72.1 [g] at 0.182 [s]

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

B-17

8462-NCAP-09

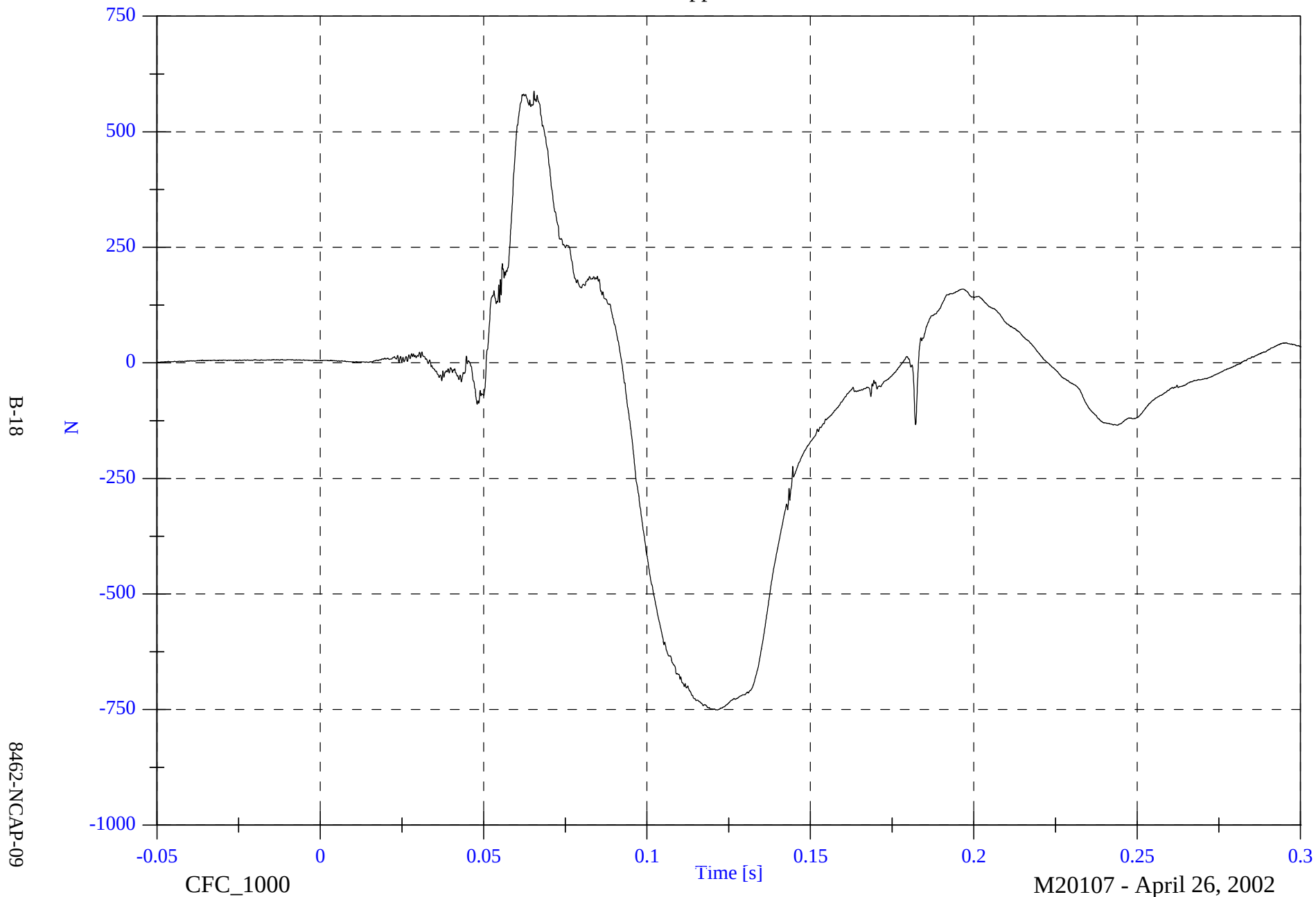


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Upper Neck Fx

Max: 588.1 [N] at 0.065 [s]

Min: -750.9 [N] at 0.122 [s]

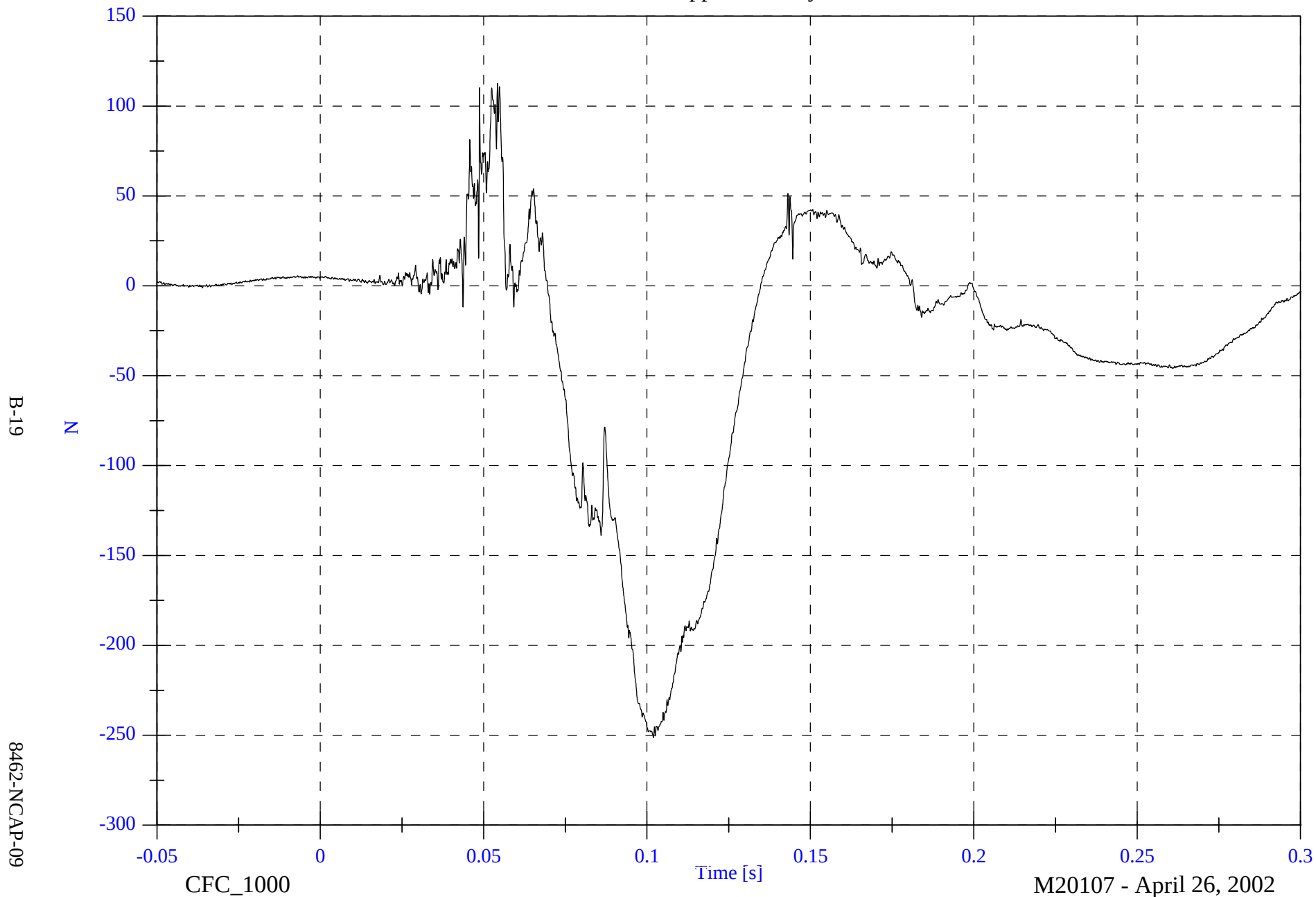


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Upper Neck Fy

Max: 112.6 [N] at 0.054 [s]

Min: -251.4 [N] at 0.102 [s]

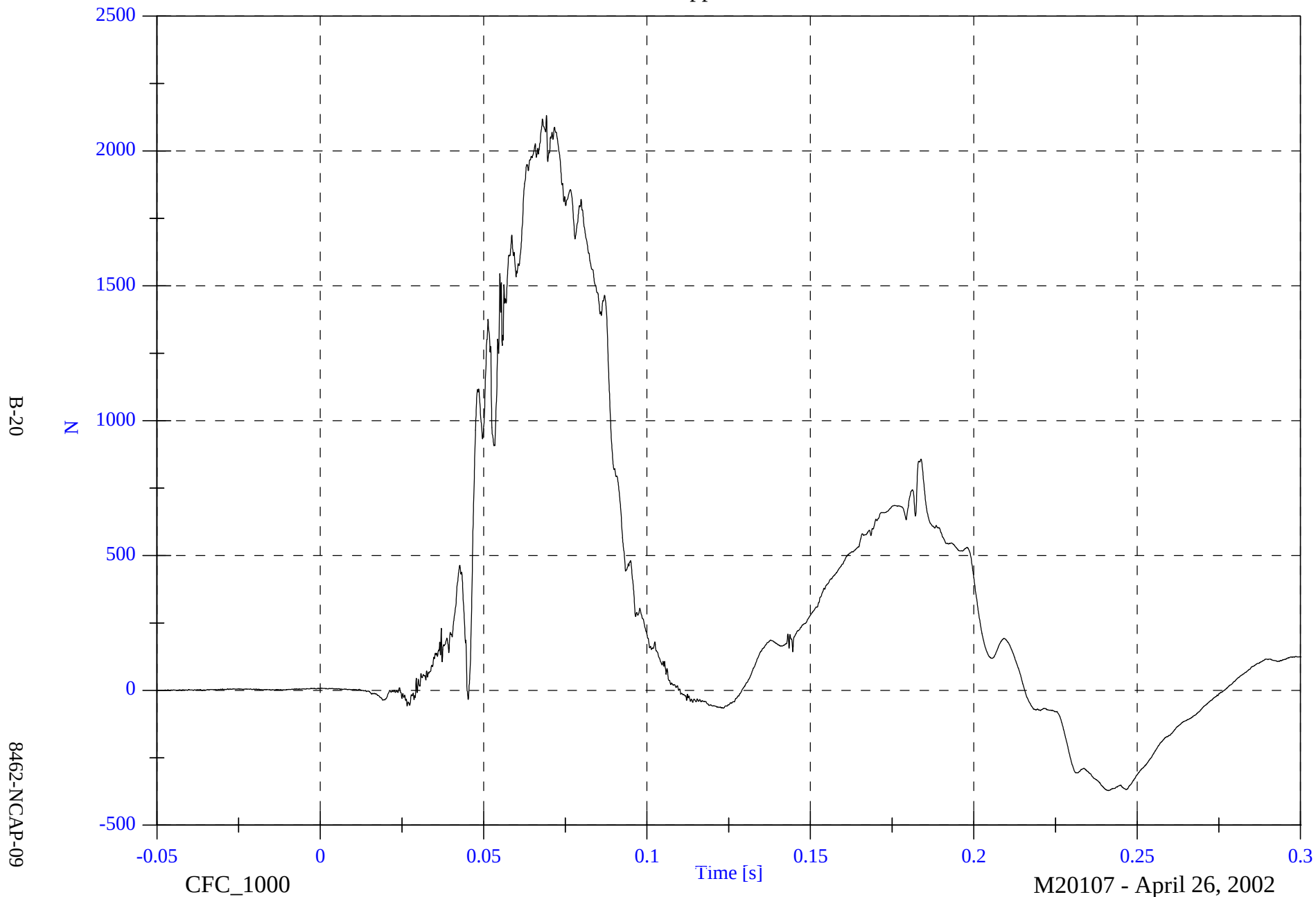


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Upper Neck Fz

Max: 2131.4 [N] at 0.069 [s]

Min: -372.2 [N] at 0.241 [s]

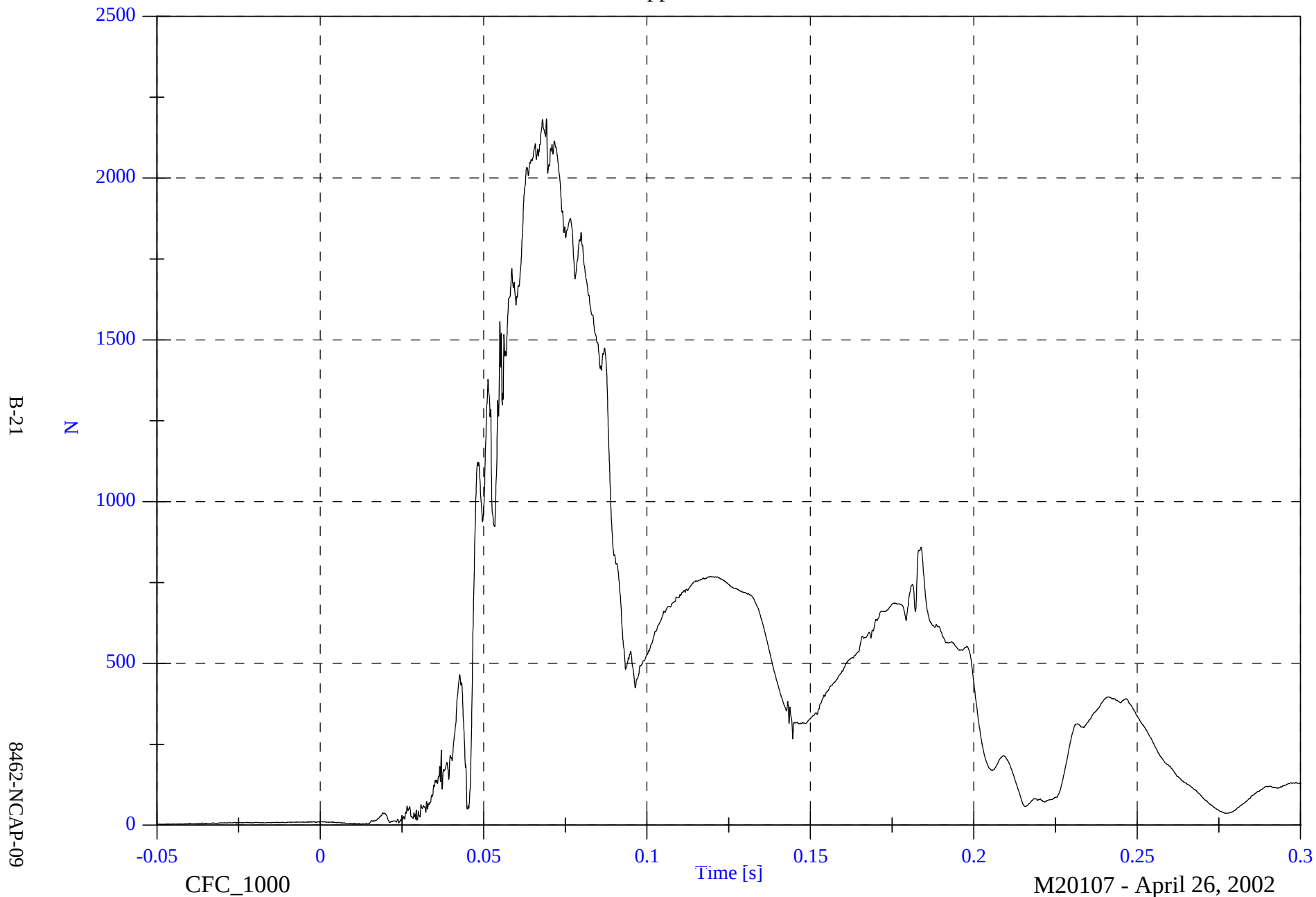


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Upper Neck F Resultant

Max: 2182.9 [N] at 0.069 [s]

Min: 2.2 [N] at -0.049 [s]

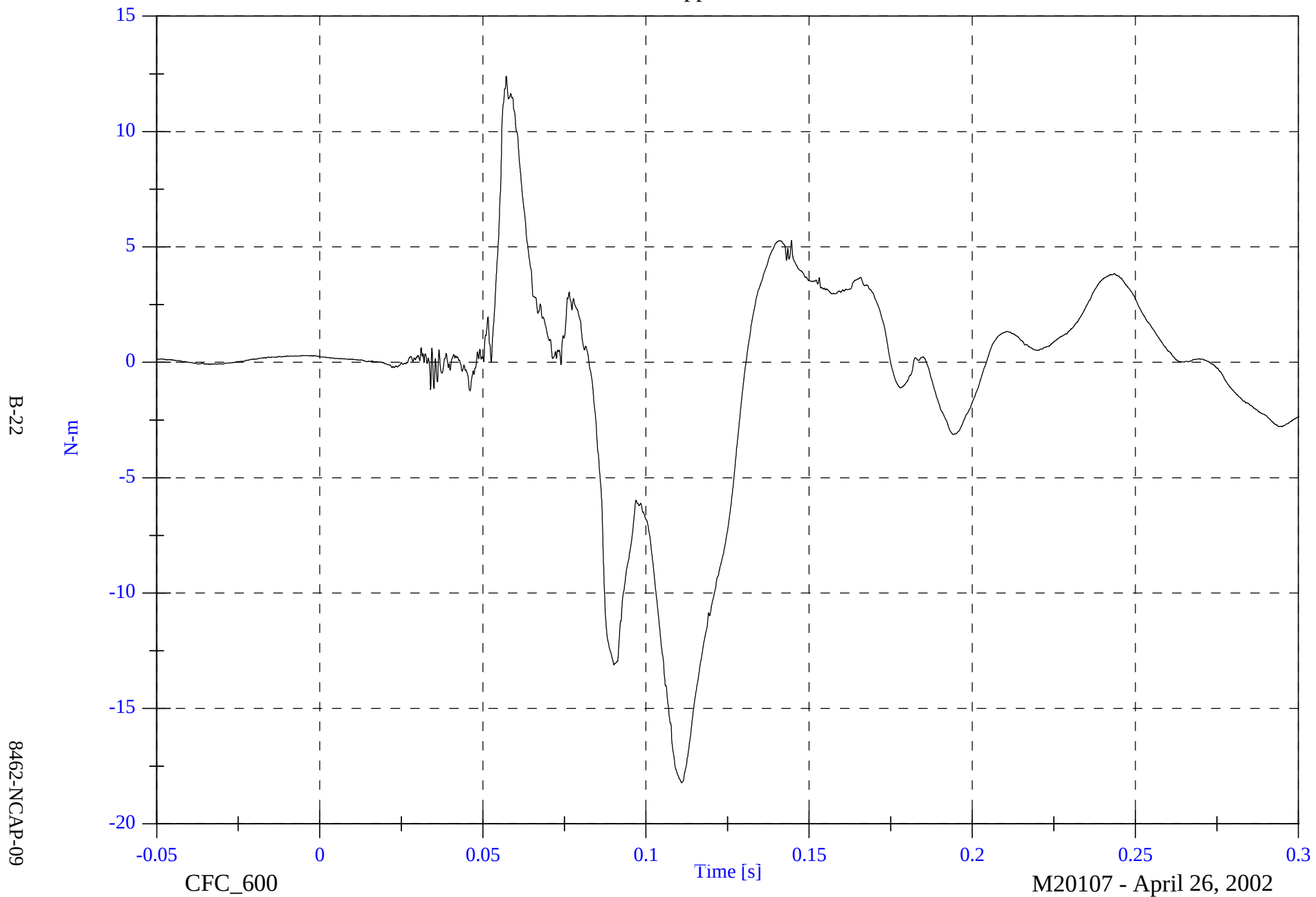


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Upper Neck Mx

Max: 12.4 [N-m] at 0.057 [s]

Min: -18.2 [N-m] at 0.111 [s]

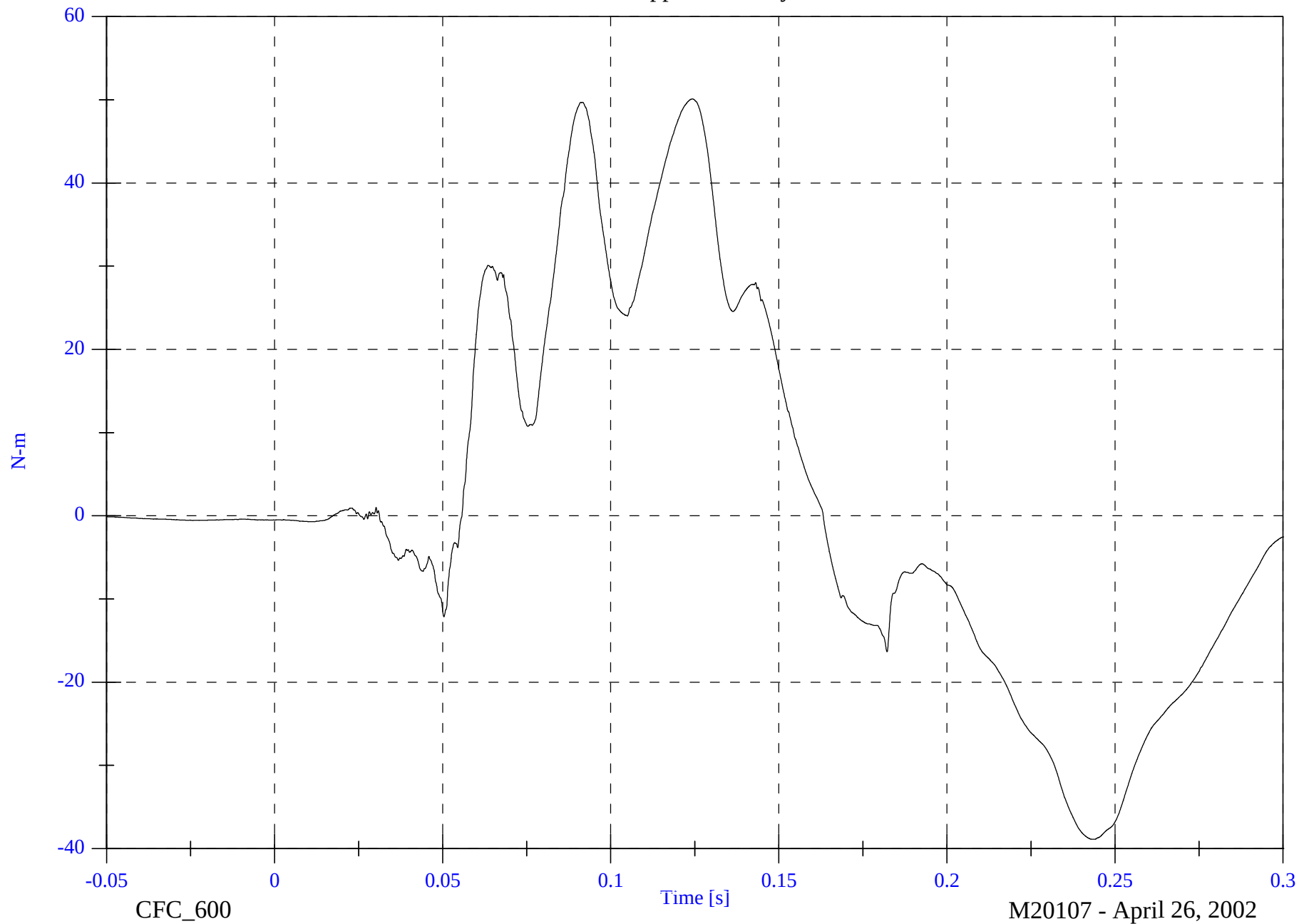


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Upper Neck My

Max: 50.1 [N-m] at 0.124 [s]

Min: -38.9 [N-m] at 0.244 [s]



B-23

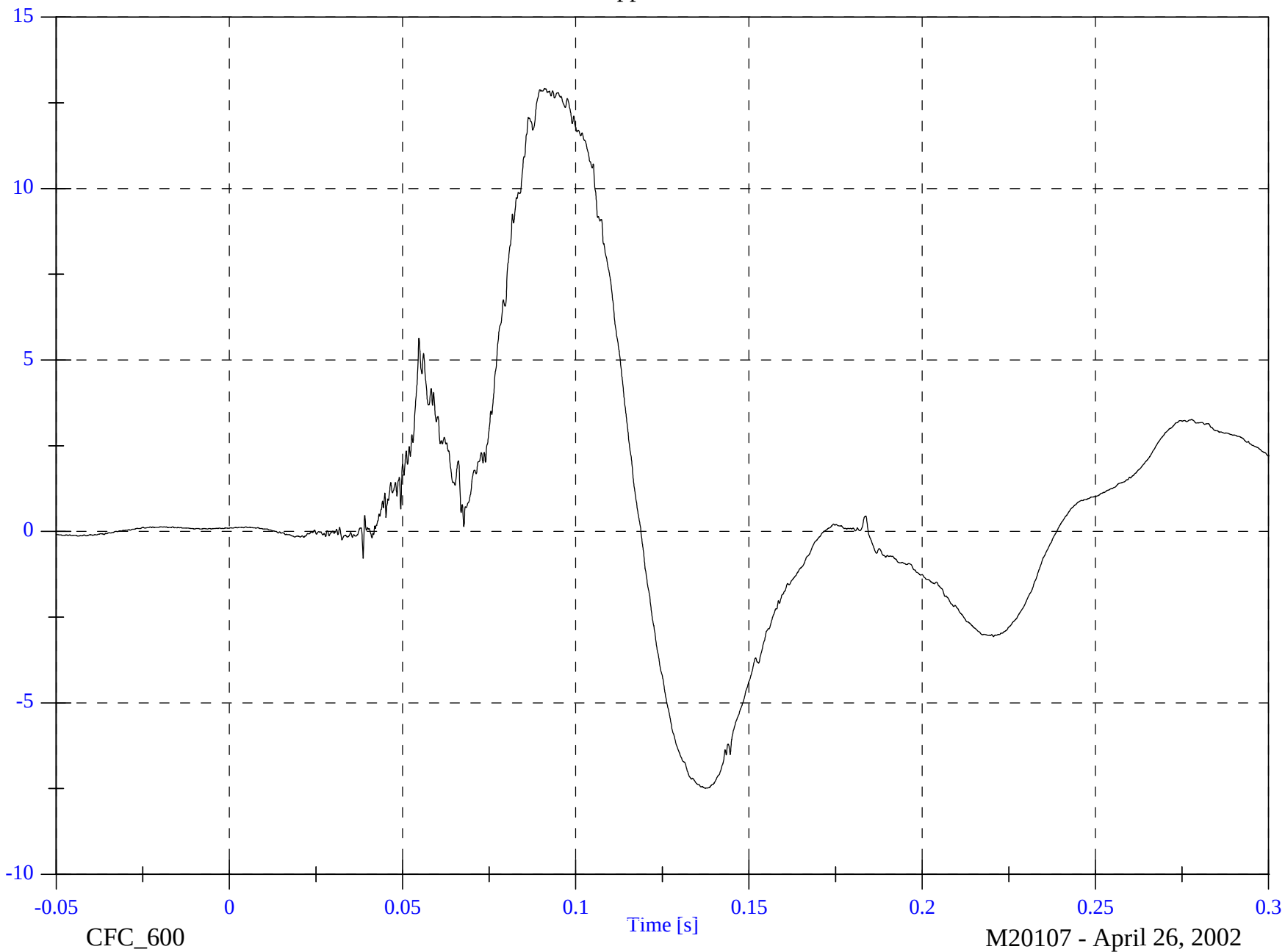
8462-NCAP-09

NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Upper Neck Mz

Max: 12.9 [N-m] at 0.091 [s]

Min: -7.5 [N-m] at 0.137 [s]



B-24

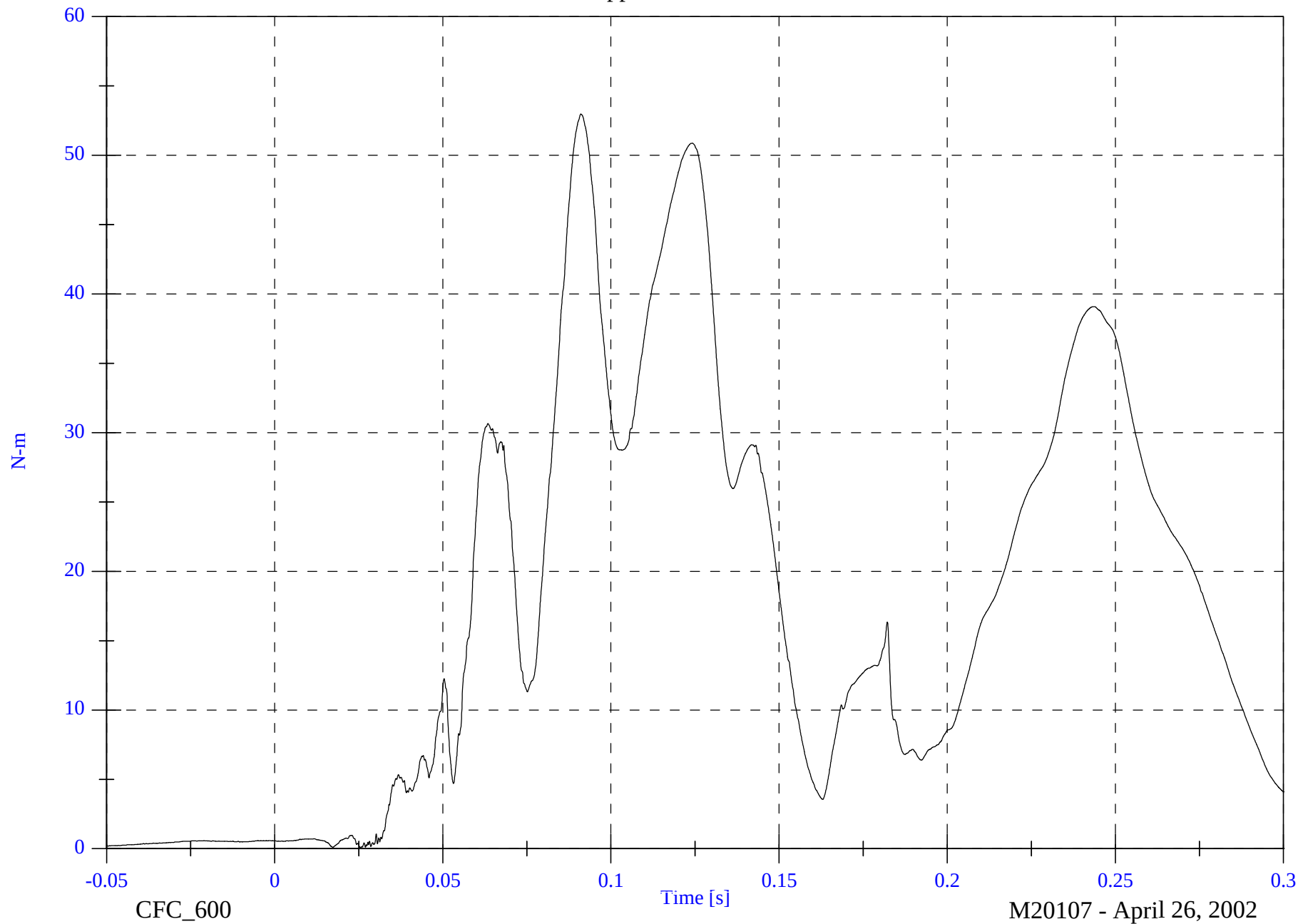
8462-NCAP-09

NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Upper Neck M Resultant

Max: 53.0 [N-m] at 0.091 [s]

Min: 0.1 [N-m] at 0.026 [s]



B-25

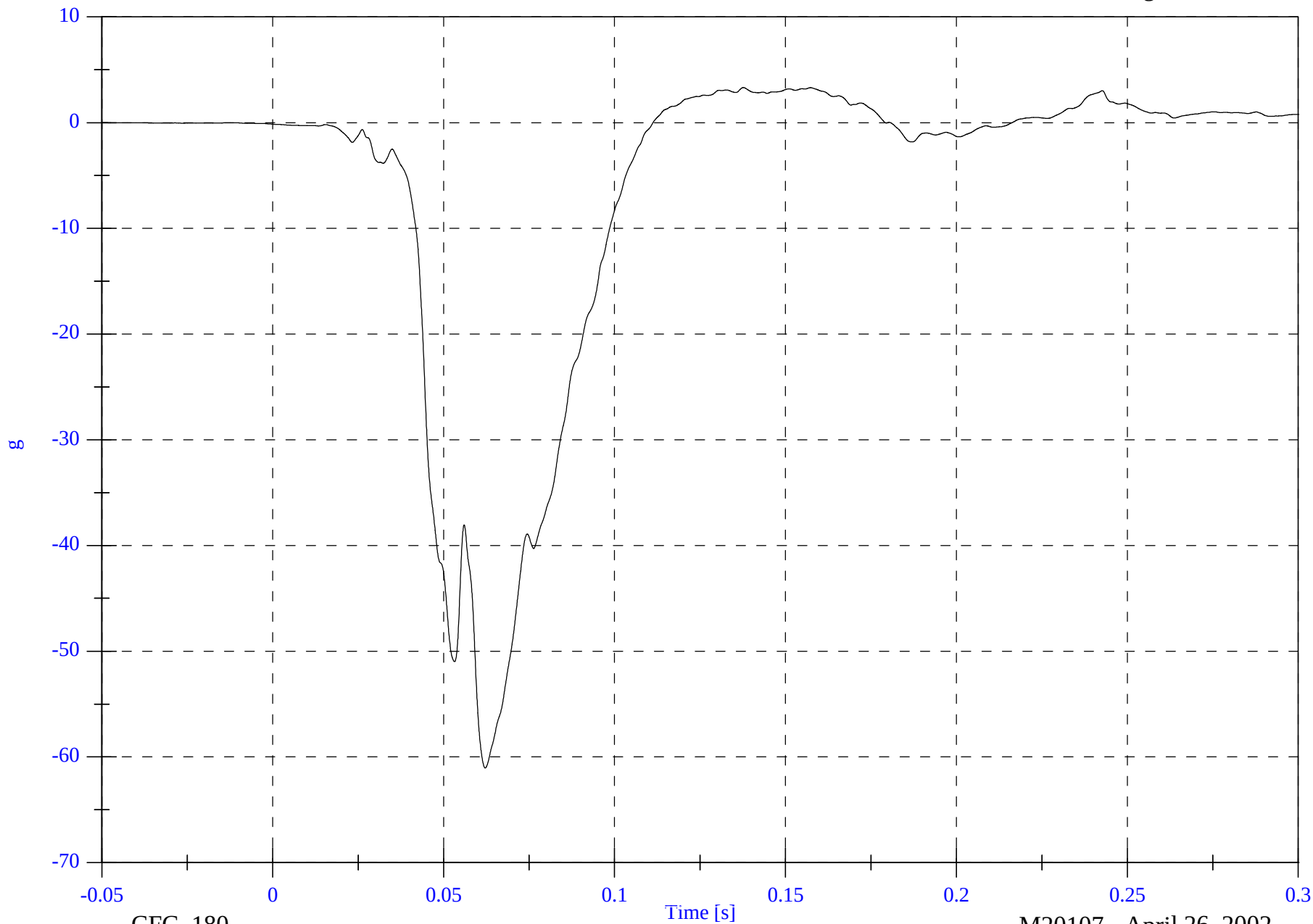
8462-NCAP-09

NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Chest x

Max: 3.3 [g] at 0.138 [s]

Min: -61.1 [g] at 0.062 [s]



B-26

8462-NCAP-09

CFC_180

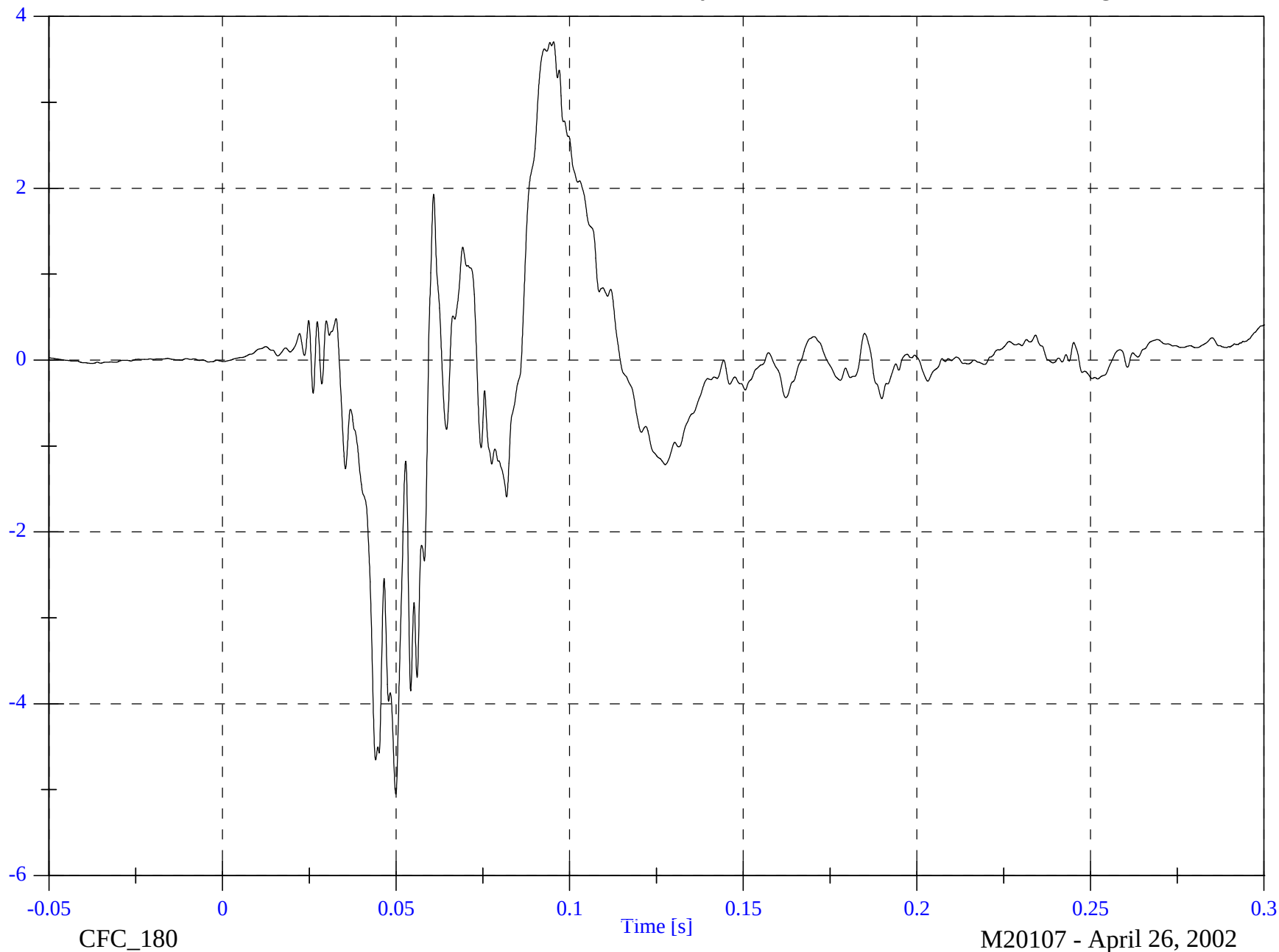
M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Chest y

Max: 3.7 [g] at 0.095 [s]

Min: -5.1 [g] at 0.050 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

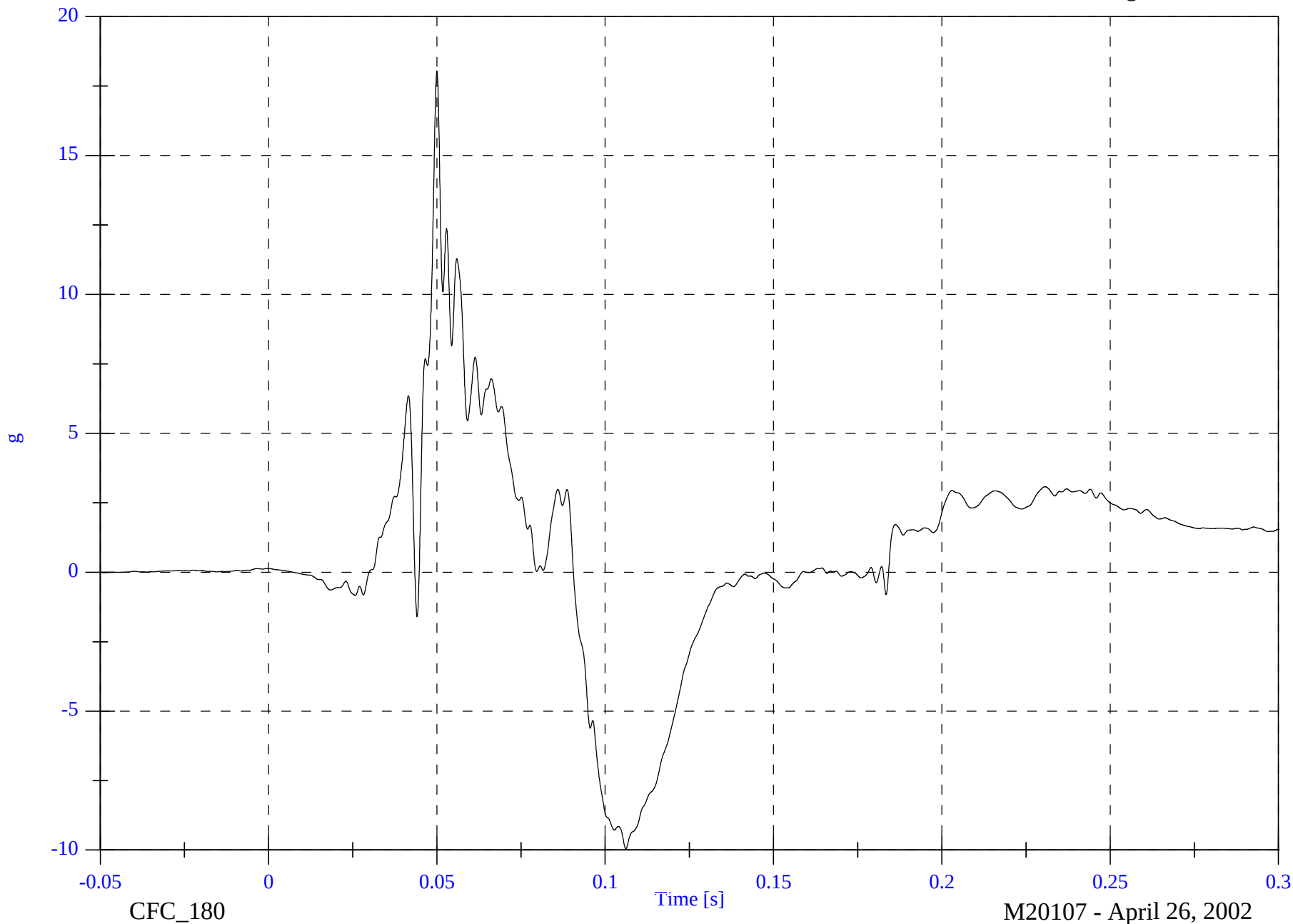
P1 Chest z

Max: 18.0 [g] at 0.050 [s]

Min: -10.0 [g] at 0.106 [s]

B-28

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

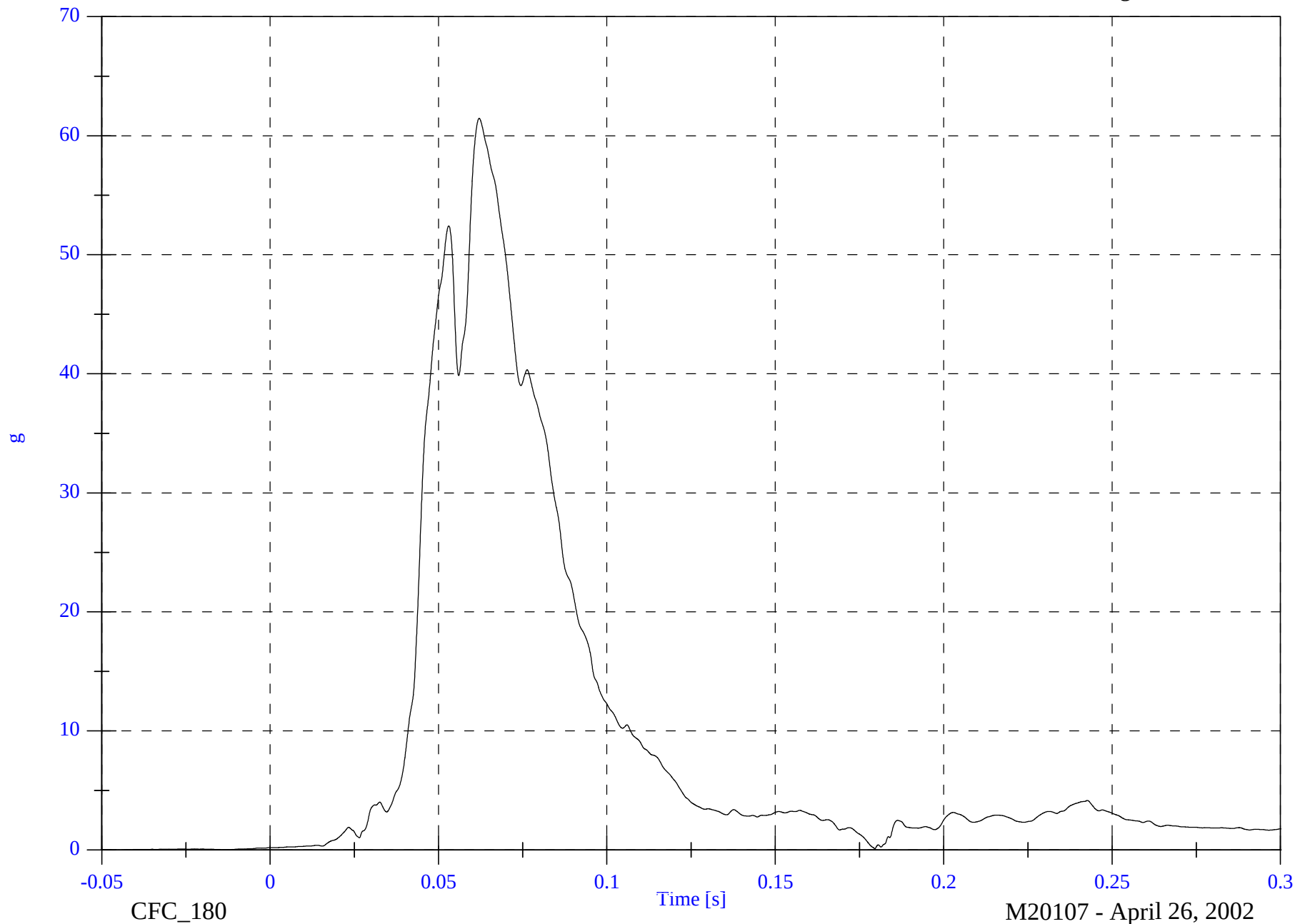
P1 Chest Resultant

Max: 61.5 [g] at 0.062 [s]

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

B-29

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

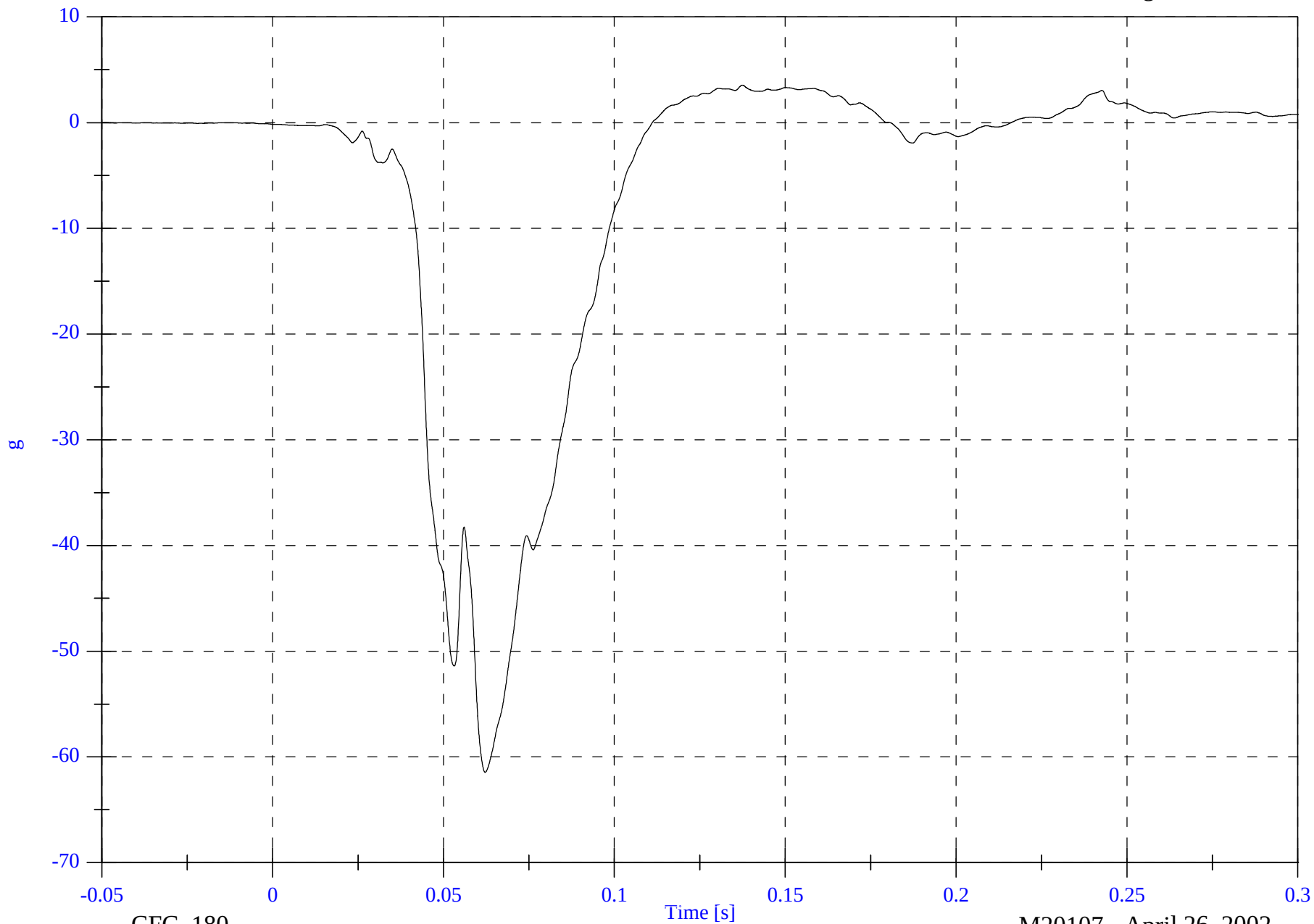
P1 Chest Red x

Max: 3.5 [g] at 0.138 [s]

Min: -61.5 [g] at 0.062 [s]

B-30

8462-NCAP-09



CFC_180

M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 3.8 [g] at 0.093 [s]

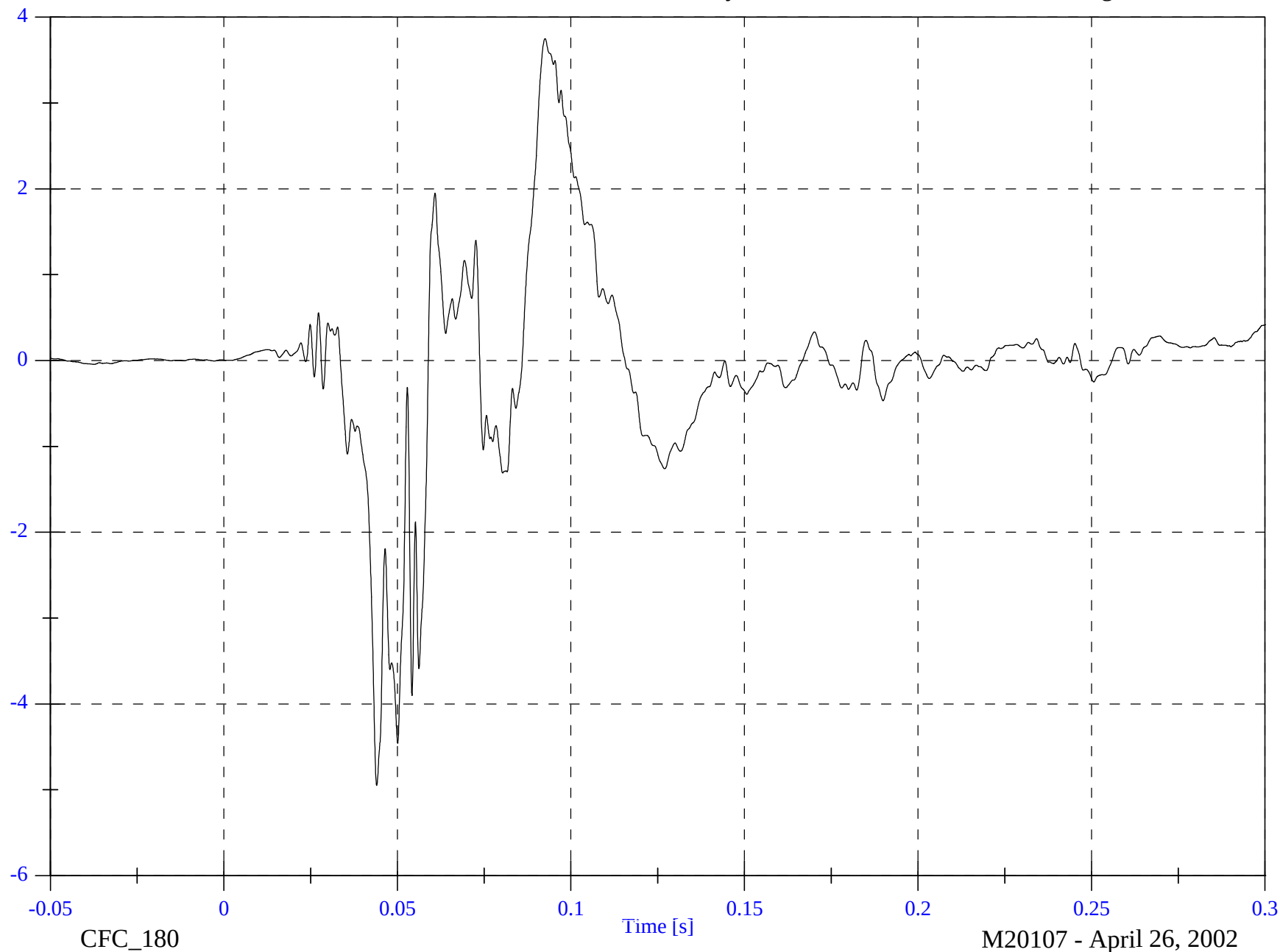
Min: -4.9 [g] at 0.044 [s]

P1 Chest Red y

B-31

8462-NCAP-09

g



-0.05

0

0.05

0.1

0.15

0.2

0.25

0.3

CFC_180

Time [s]

M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

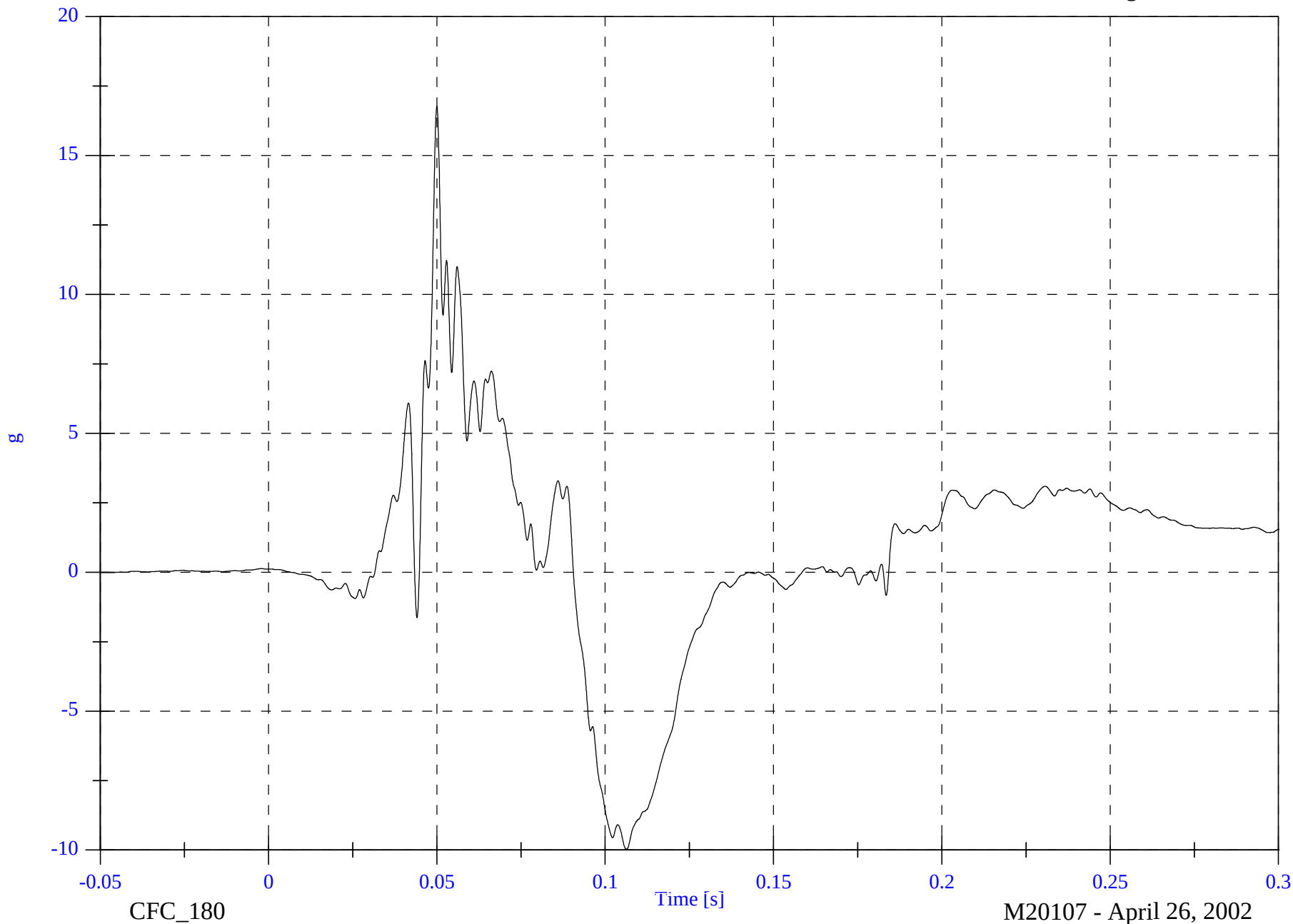
P1 Chest Red z

Max: 16.8 [g] at 0.050 [s]

Min: -10.0 [g] at 0.106 [s]

B-32

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

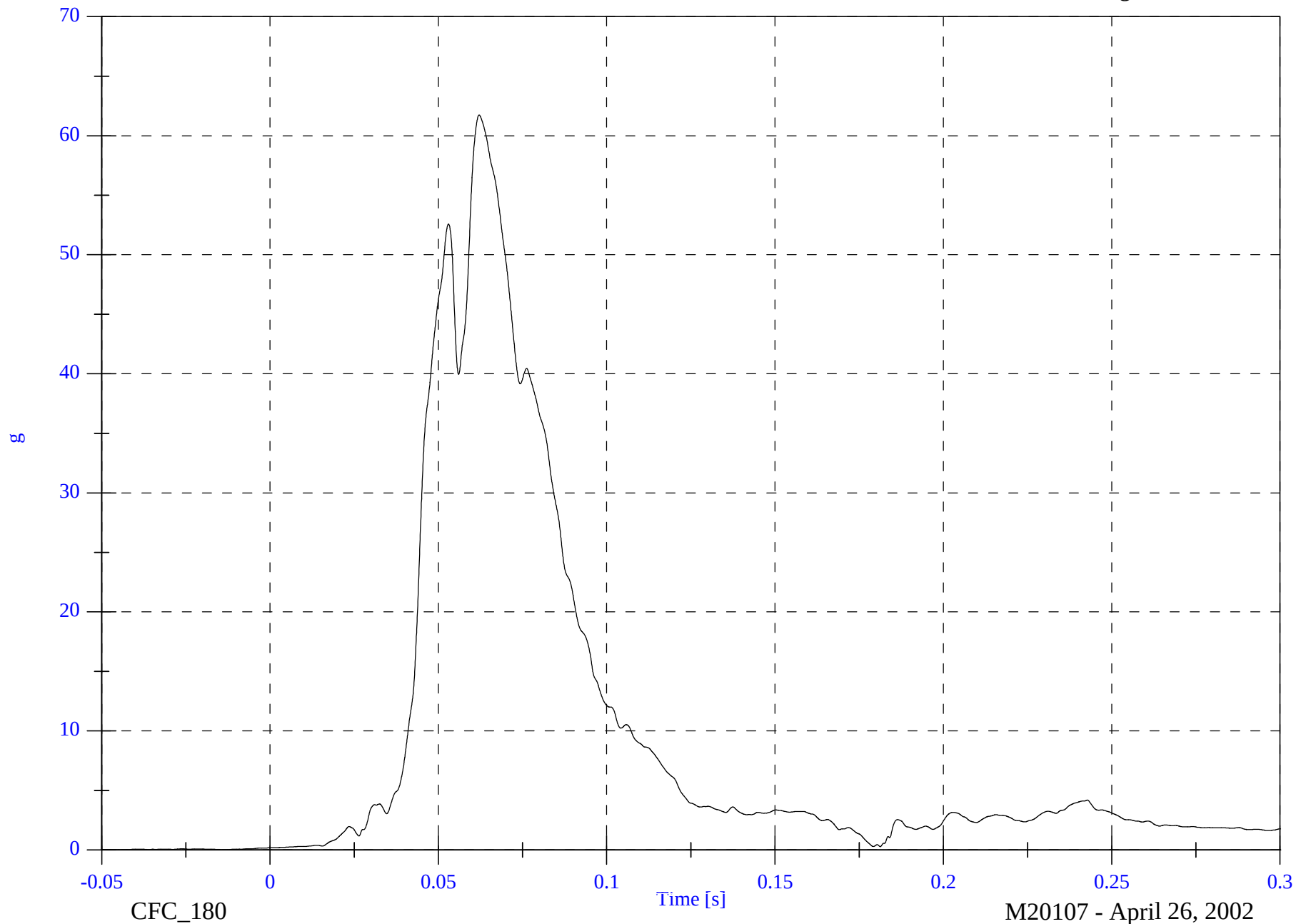
P1 Chest Red Resultant

Max: 61.7 [g] at 0.062 [s]

Min: 0.0 [g] at -0.044 [s]

B-33

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

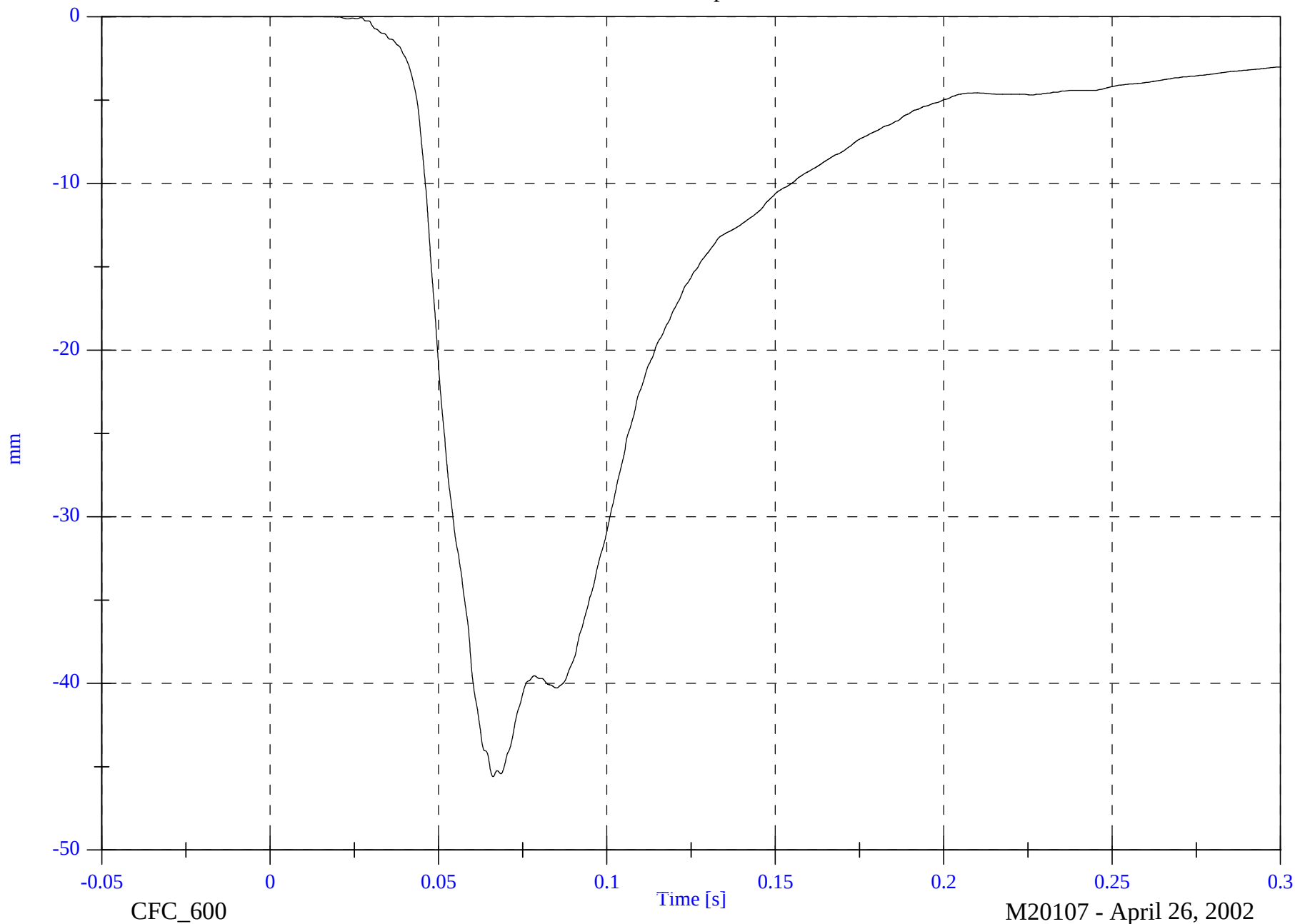
P1 Chest Compression x

Max: 0.0 [mm] at 0.002 [s]

Min: -45.6 [mm] at 0.066 [s]

B-34

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

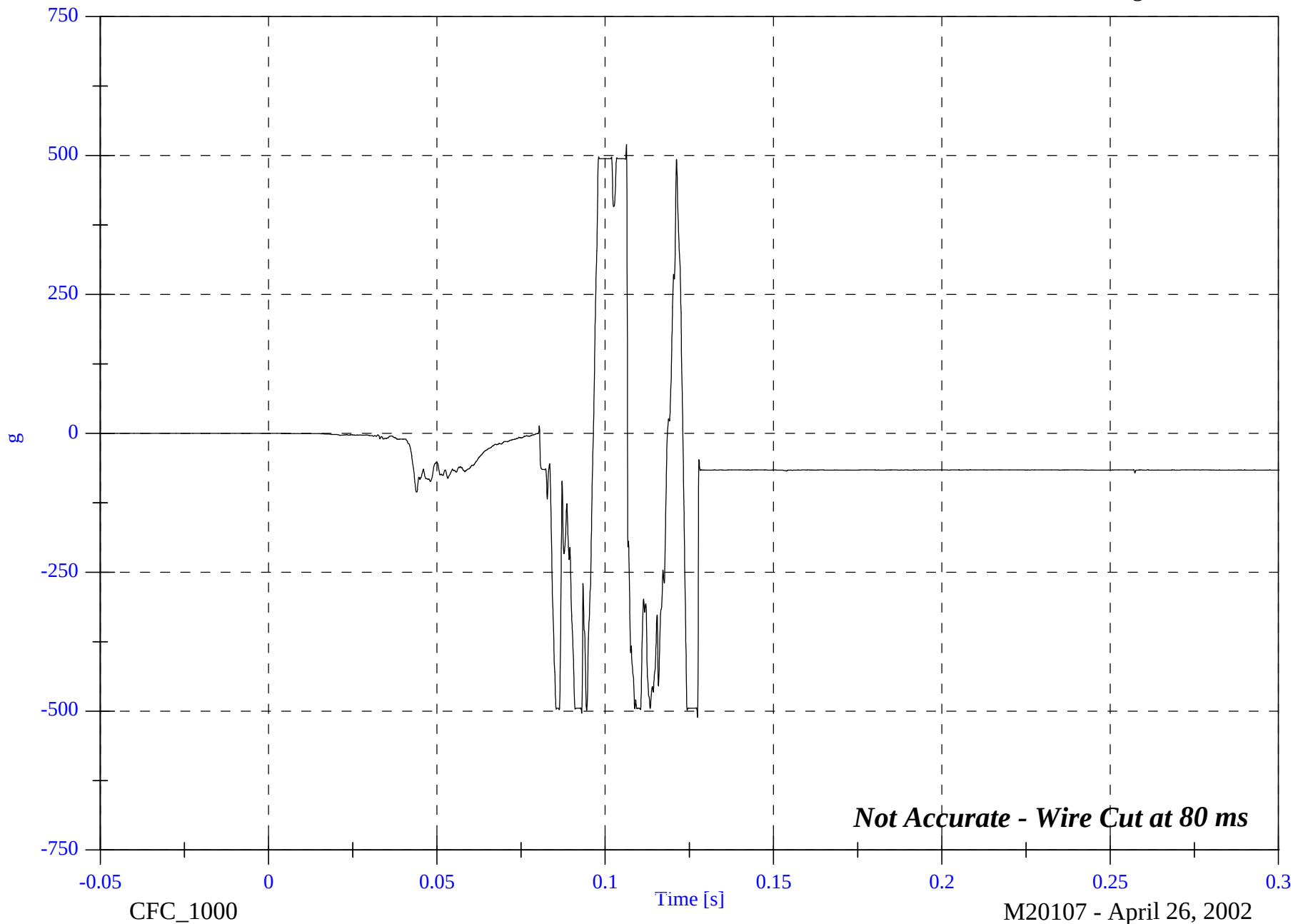
Max: 520.0 [g] at 0.106 [s]

Min: -511.3 [g] at 0.127 [s]

P1 Pelvic x

B-35

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

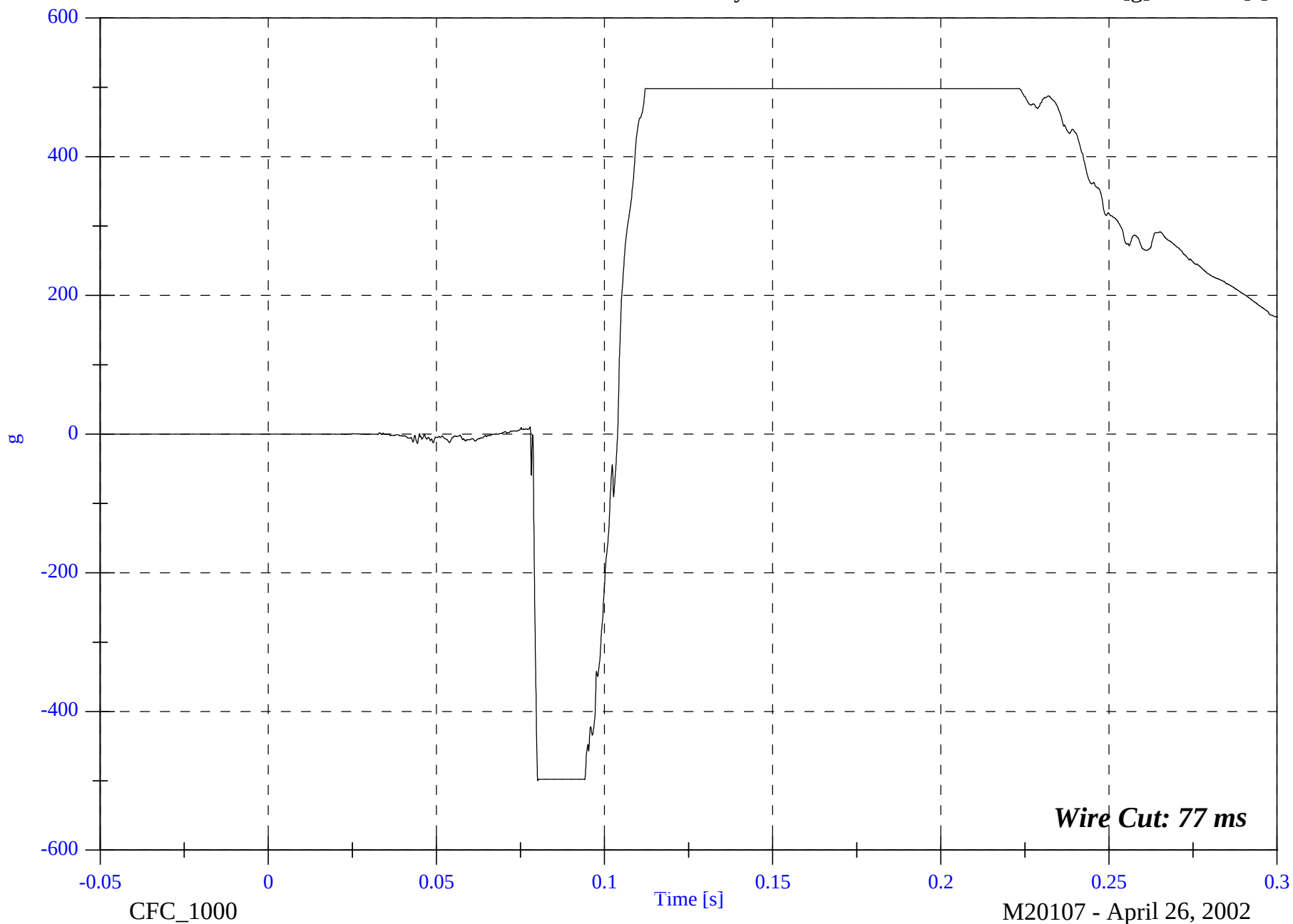
Max: 498.6 [g] at 0.112 [s]

Min: -499.8 [g] at 0.080 [s]

P1 Pelvic y

B-36

8462-NCAP-09



Wire Cut: 77 ms

M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

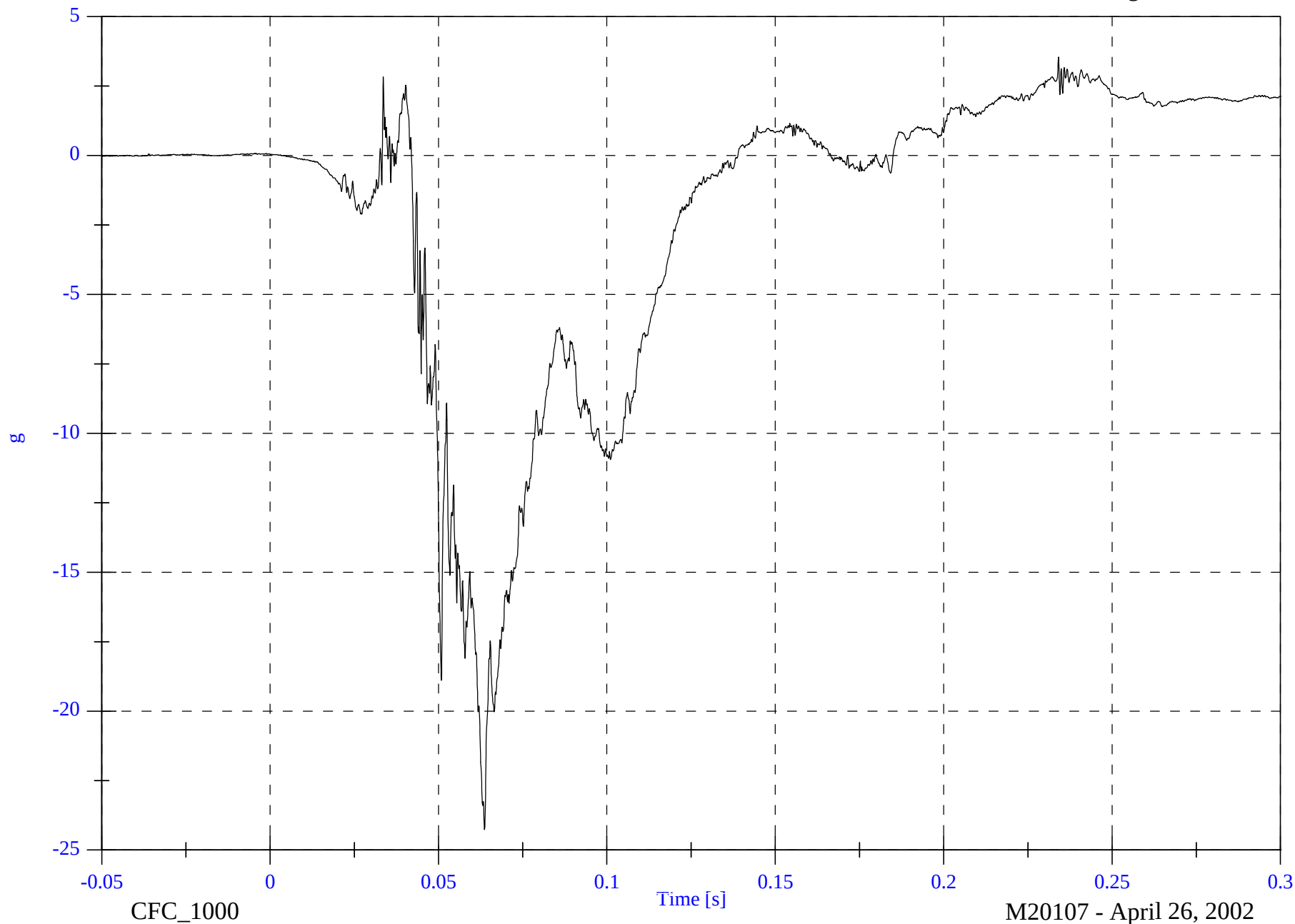
P1 Pelvic z

Max: 3.5 [g] at 0.234 [s]

Min: -24.3 [g] at 0.064 [s]

B-37

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

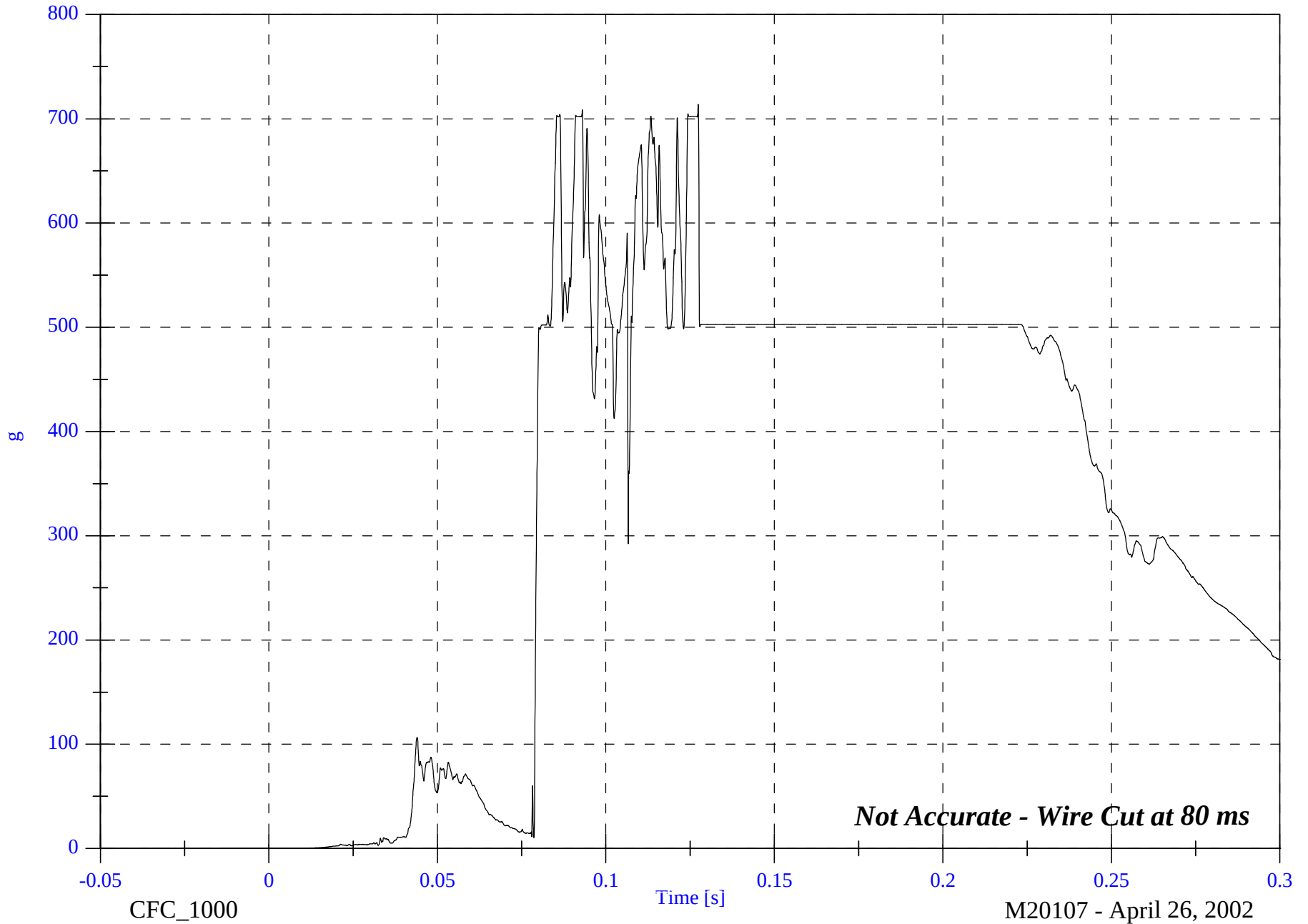
P1 Pelvic Resultant

Max: 714.0 [g] at 0.127 [s]

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

B-38

8462-NCAP-09

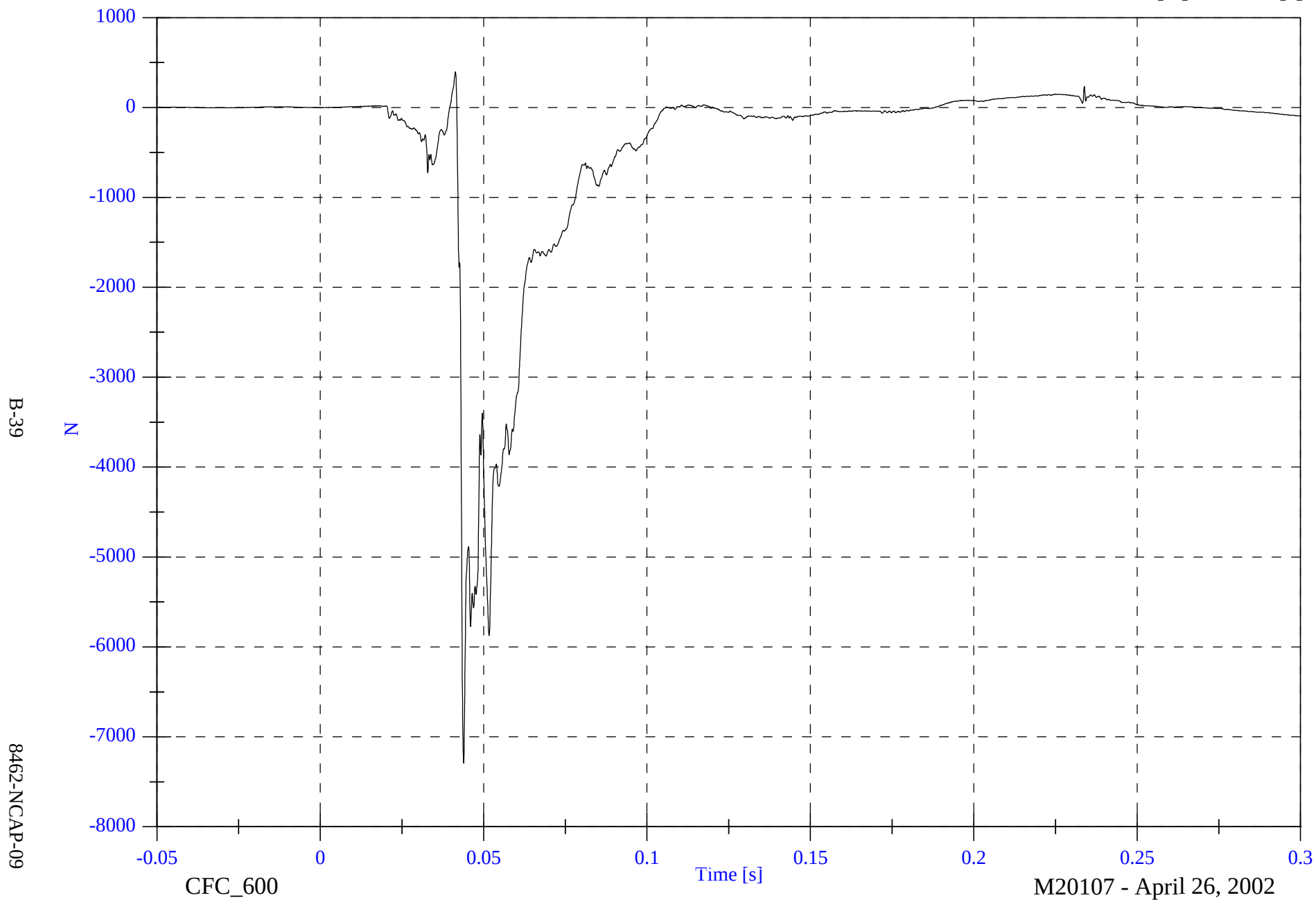


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Left Femur z

Max: 394.9 [N] at 0.041 [s]

Min: -7292.4 [N] at 0.044 [s]

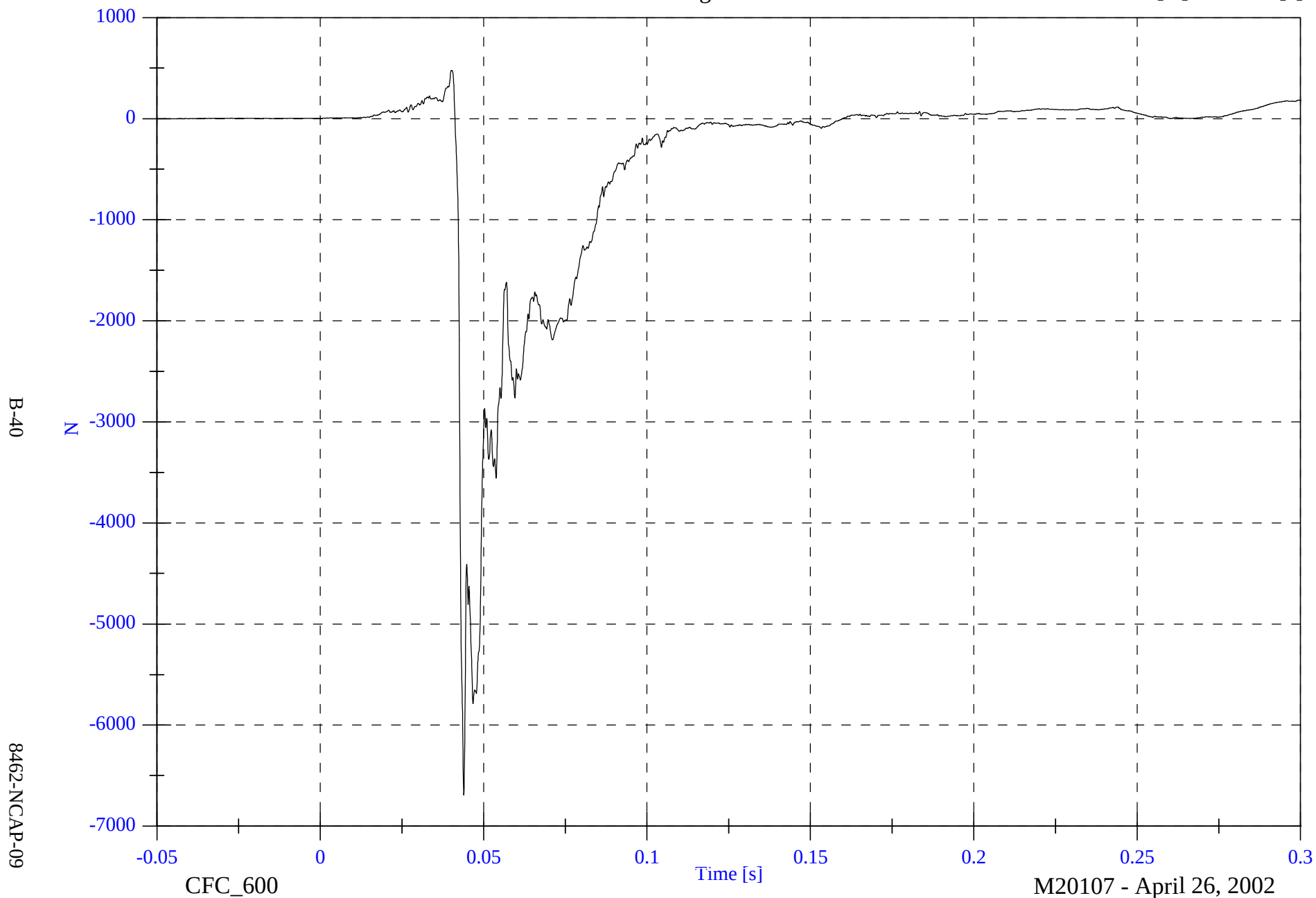


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Right Femur z

Max: 478.0 [N] at 0.040 [s]

Min: -6692.2 [N] at 0.044 [s]

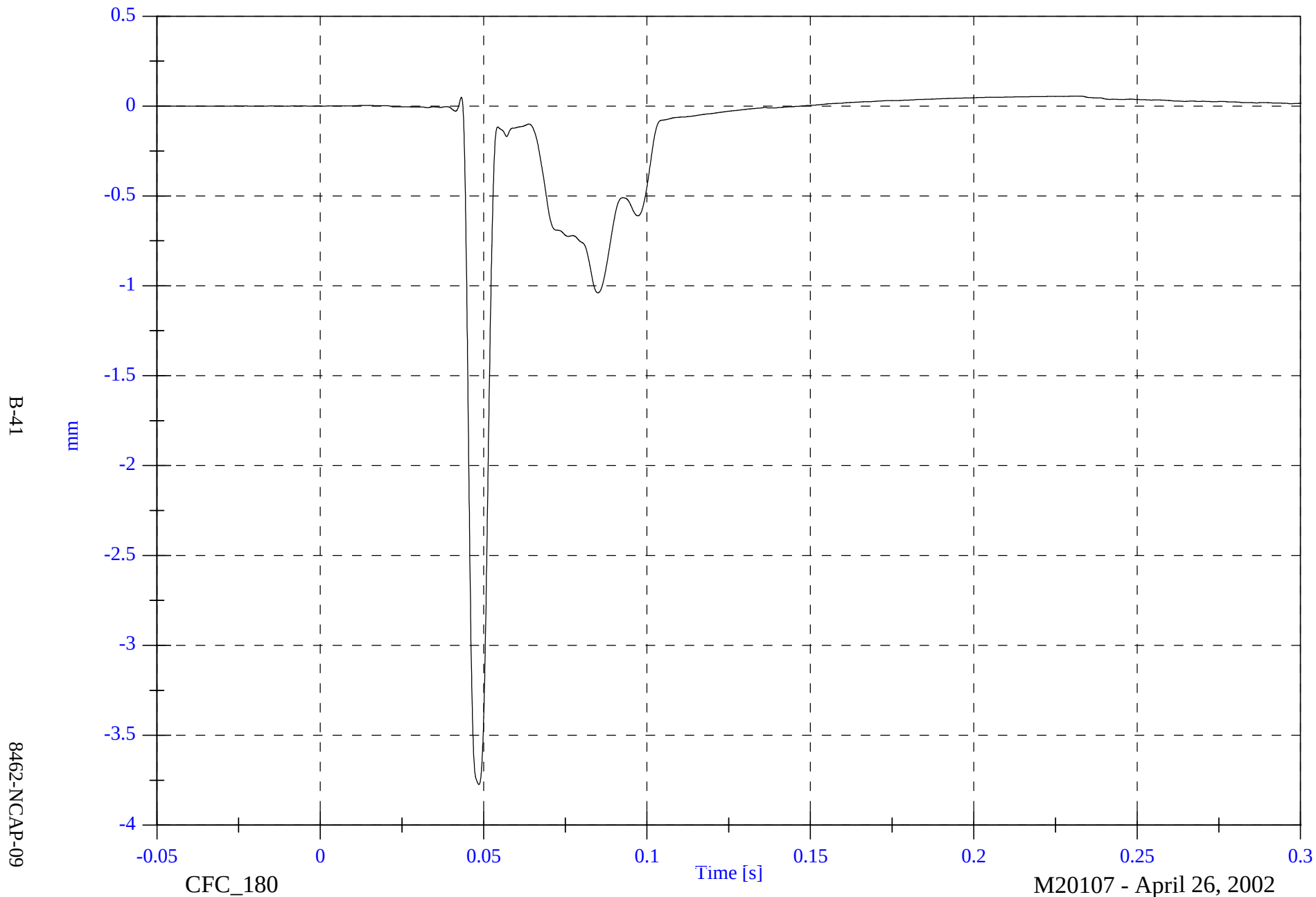


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Left Knee Shear

Max: 0.1 [mm] at 0.232 [s]

Min: -3.8 [mm] at 0.049 [s]

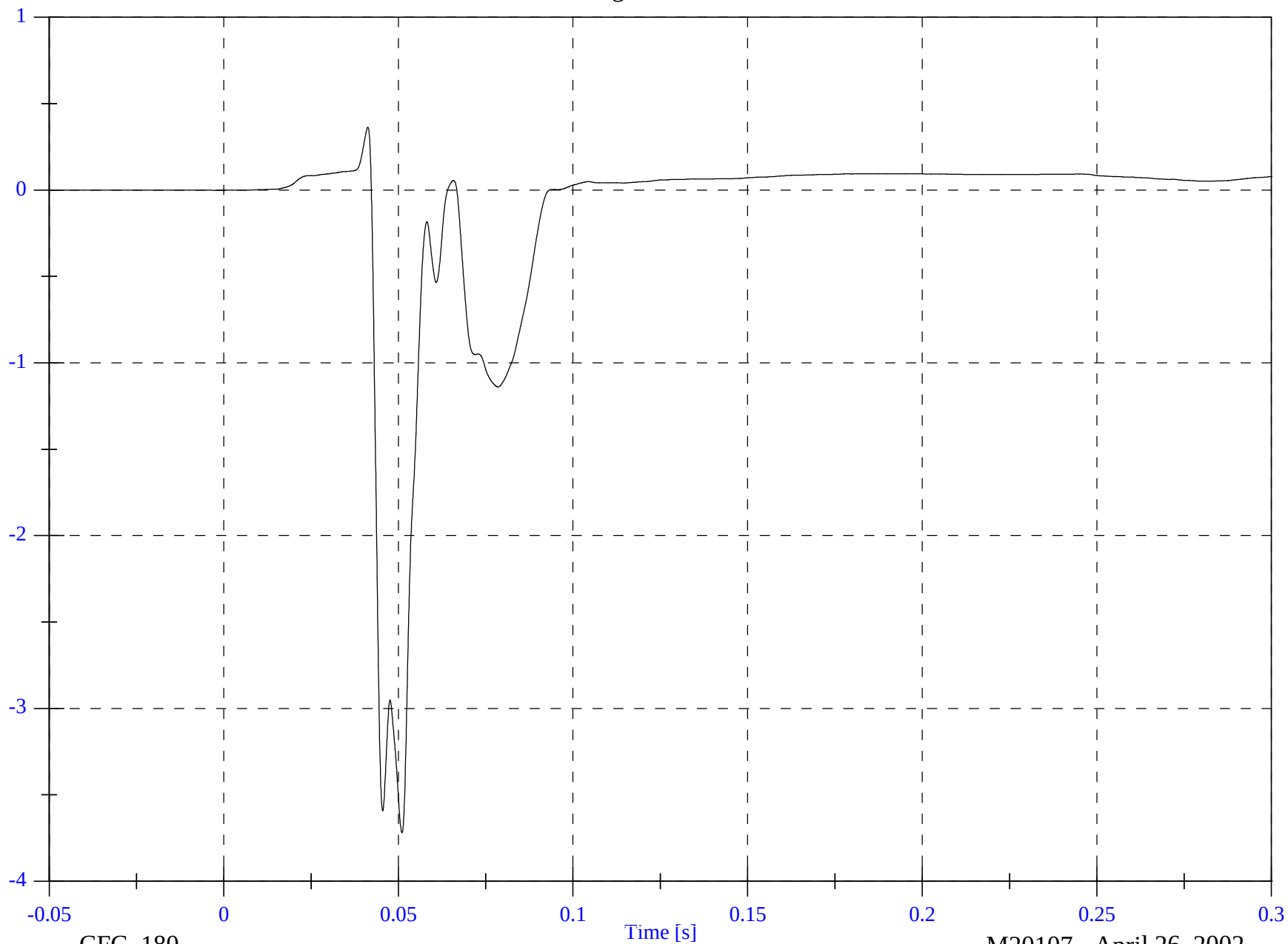


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Right Knee Shear

Max: 0.4 [mm] at 0.041 [s]

Min: -3.7 [mm] at 0.051 [s]



B-42

8462-NCAP-09

CFC_180

M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

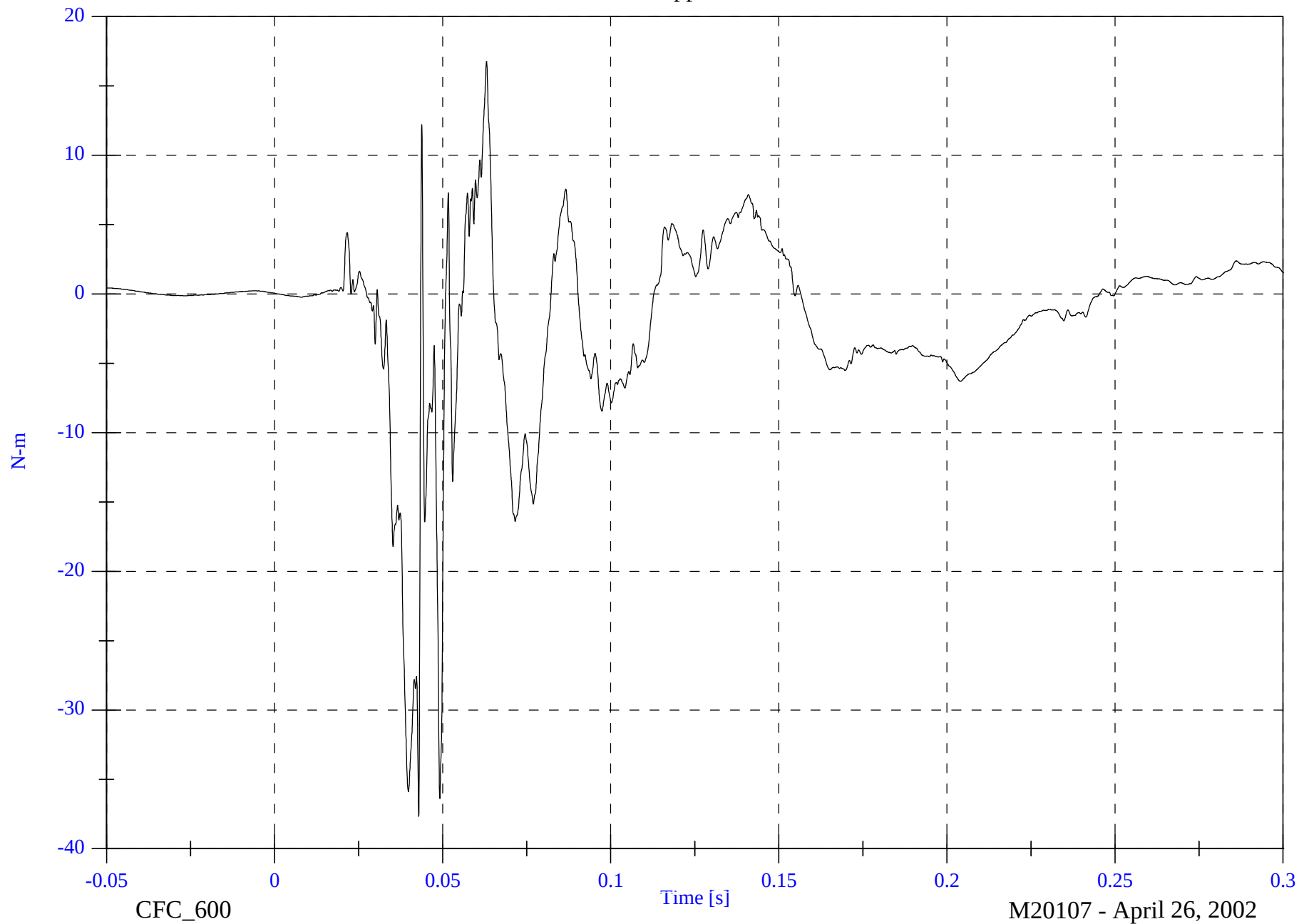
P1 Left Upper Tibia Mx

Max: 16.8 [N-m] at 0.063 [s]

Min: -37.7 [N-m] at 0.043 [s]

B-43

8462-NCAP-09

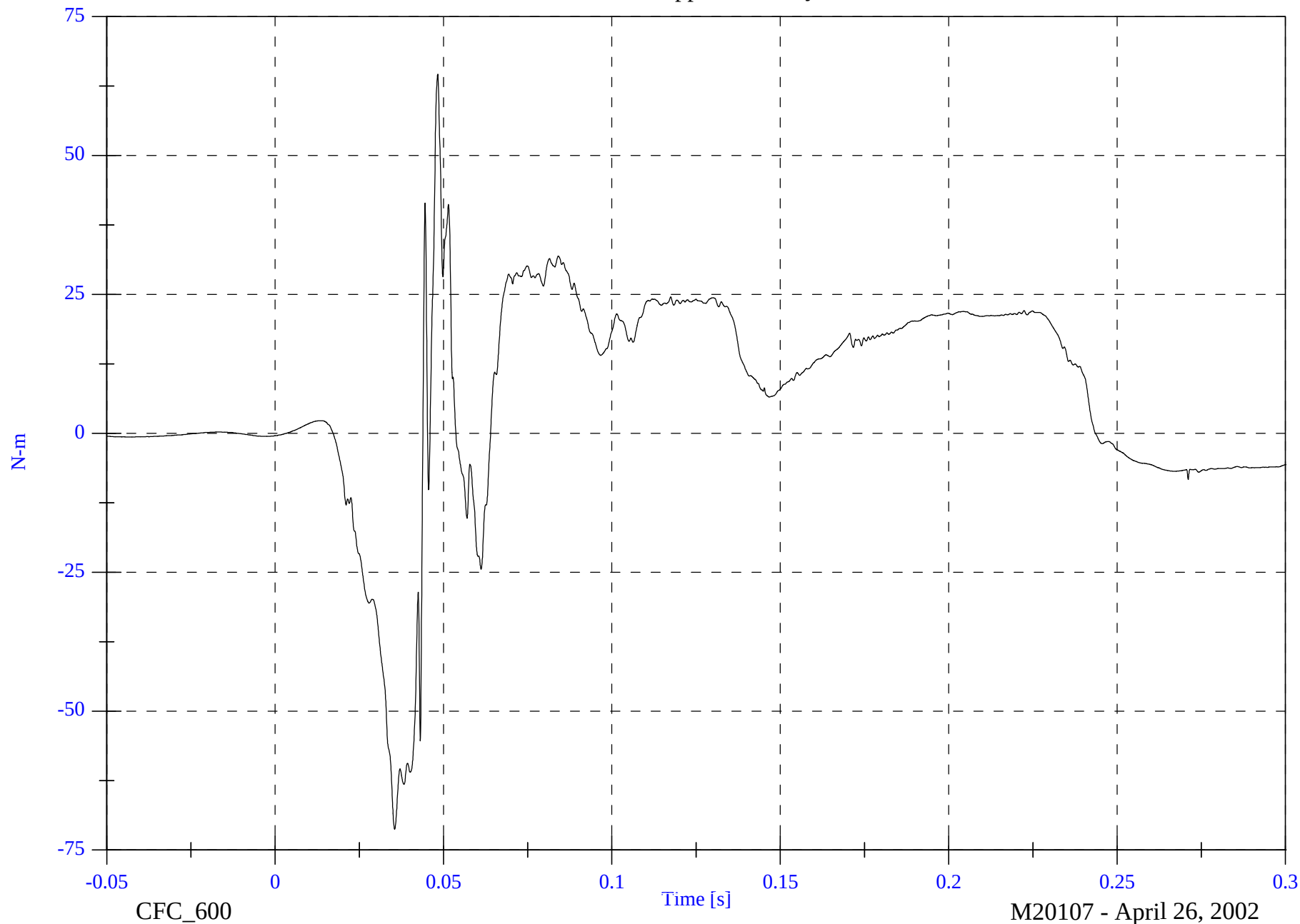


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Left Upper Tibia My

Max: 64.6 [N-m] at 0.048 [s]

Min: -71.3 [N-m] at 0.036 [s]



B-44

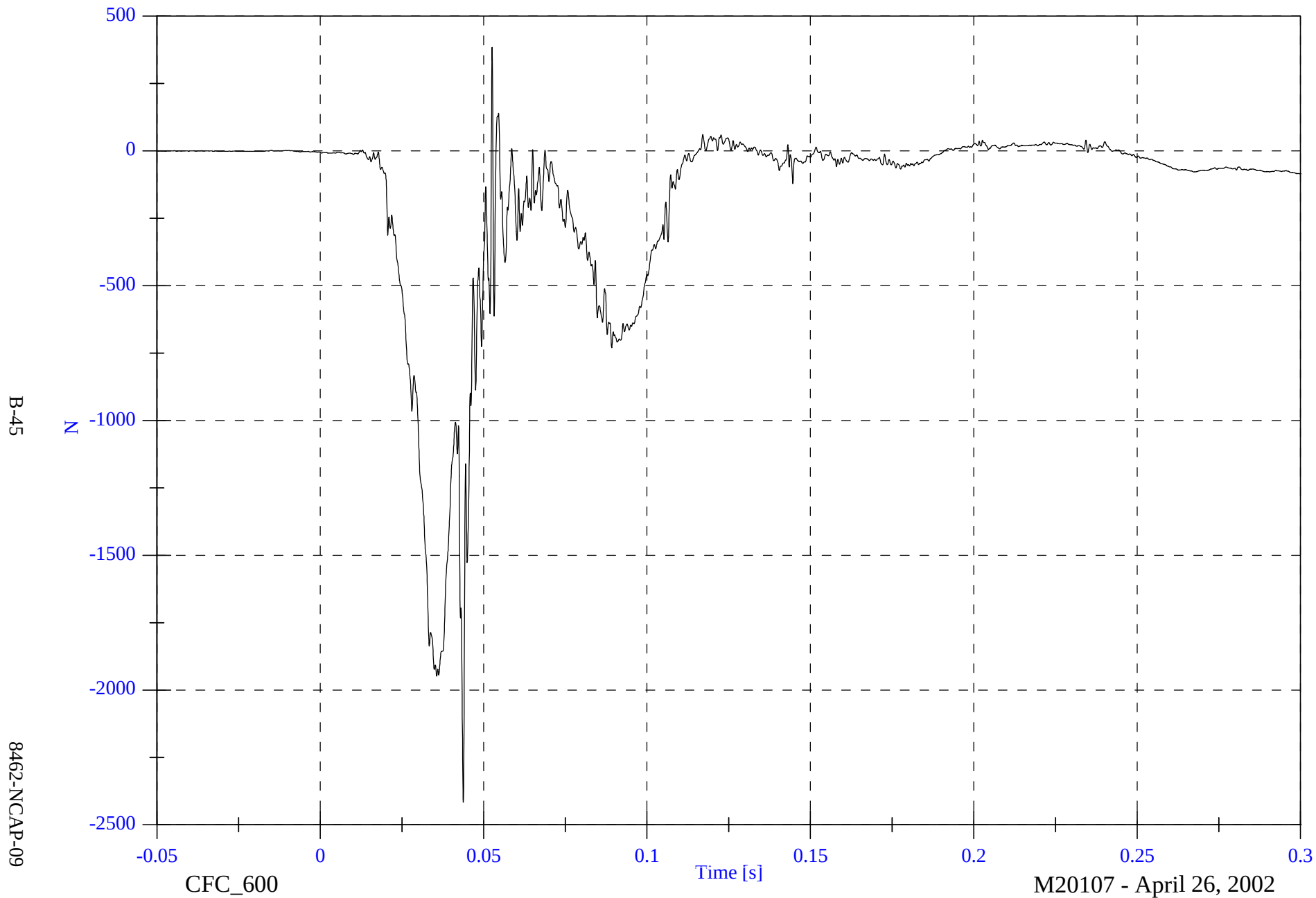
8462-NCAP-09

NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Left Lower Tibia Fz

Max: 384.4 [N] at 0.053 [s]

Min: -2416.6 [N] at 0.044 [s]

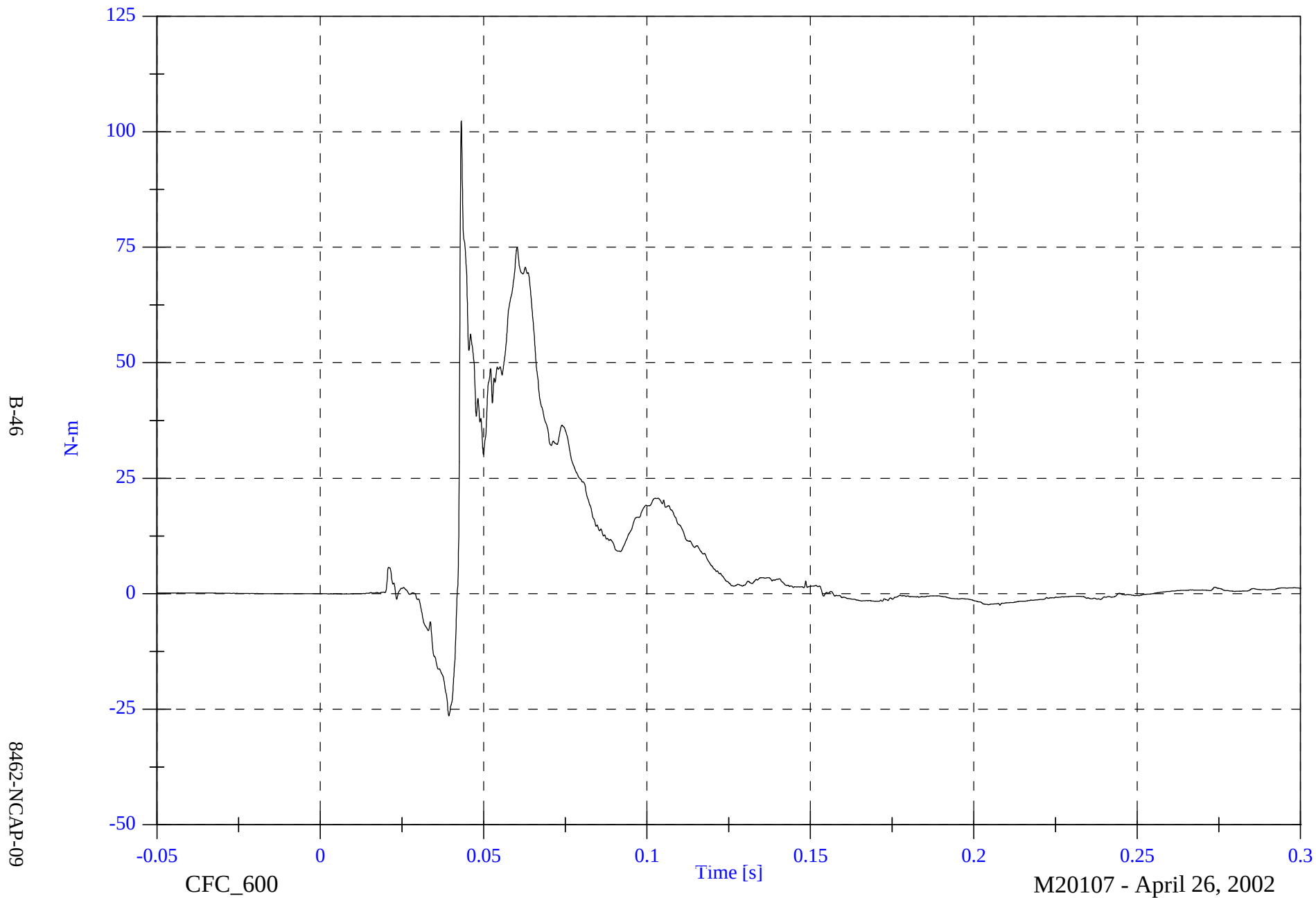


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Left Lower Tibia Mx

Max: 102.3 [N-m] at 0.043 [s]

Min: -26.4 [N-m] at 0.039 [s]

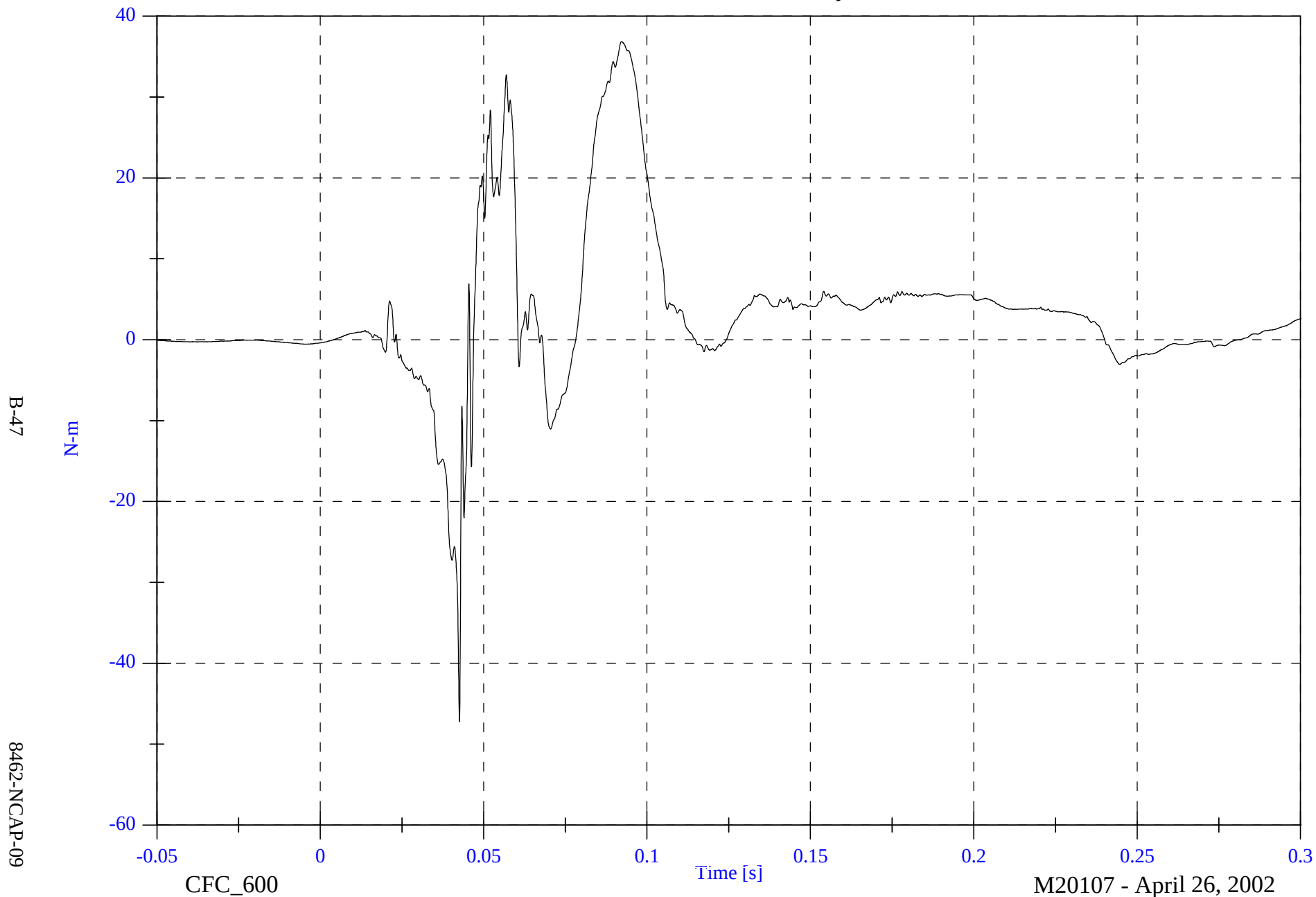


NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 36.9 [N-m] at 0.092 [s]

Min: -47.2 [N-m] at 0.043 [s]

P1 Left Lower Tibia My

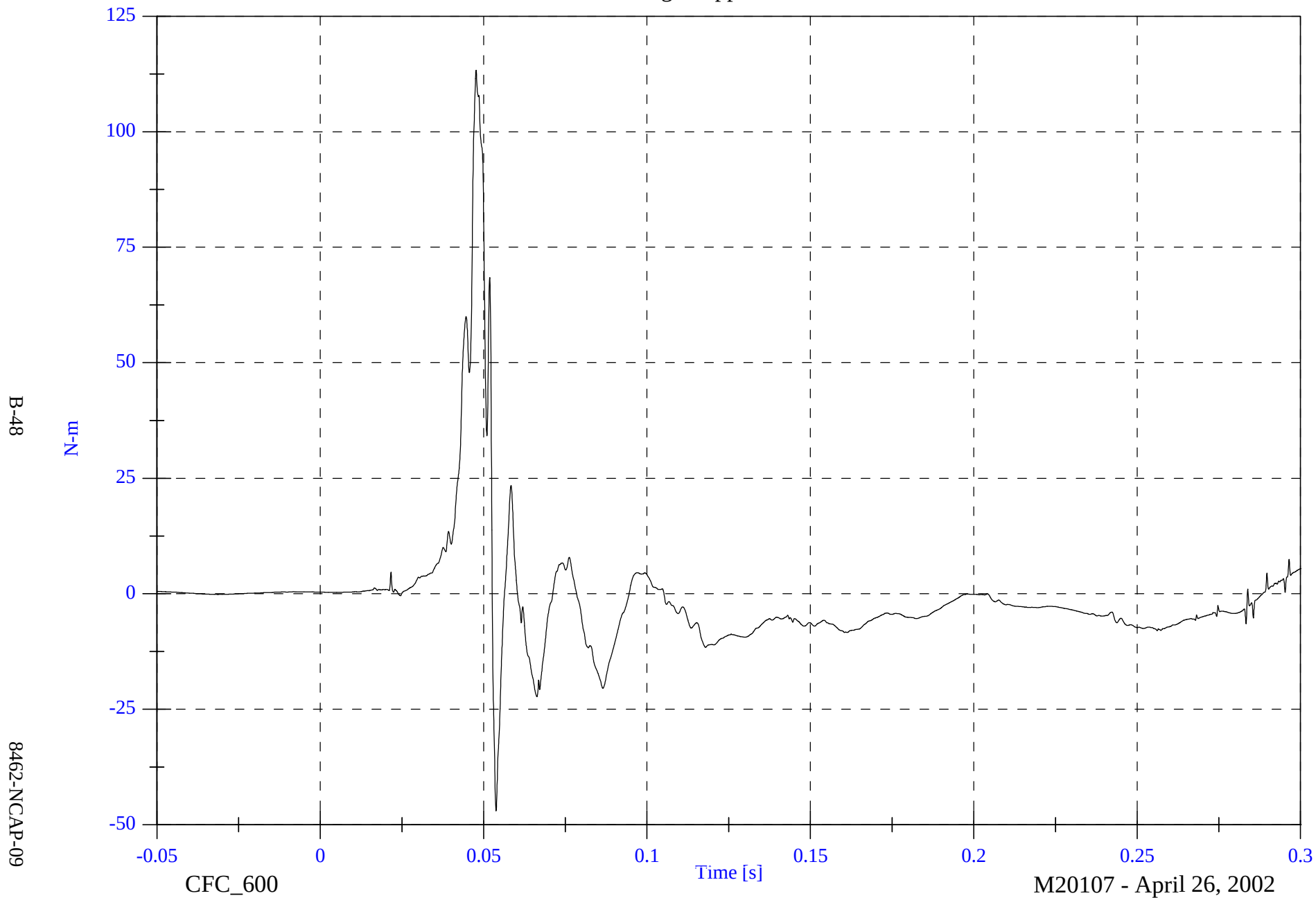


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Right Upper Tibia Mx

Max: 113.3 [N-m] at 0.048 [s]

Min: -47.0 [N-m] at 0.054 [s]

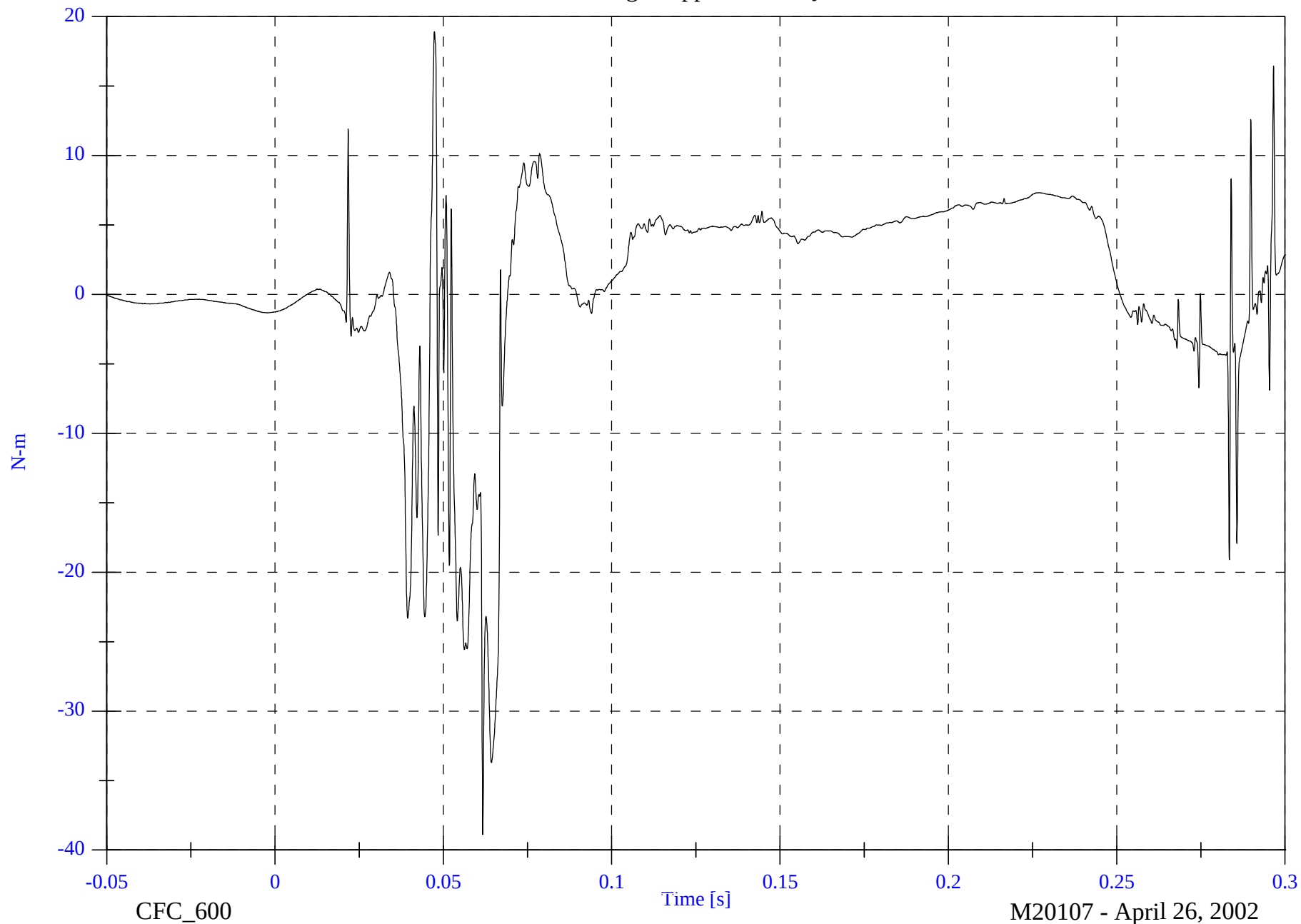


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Right Upper Tibia My

Max: 18.9 [N-m] at 0.047 [s]

Min: -38.9 [N-m] at 0.062 [s]



B-49

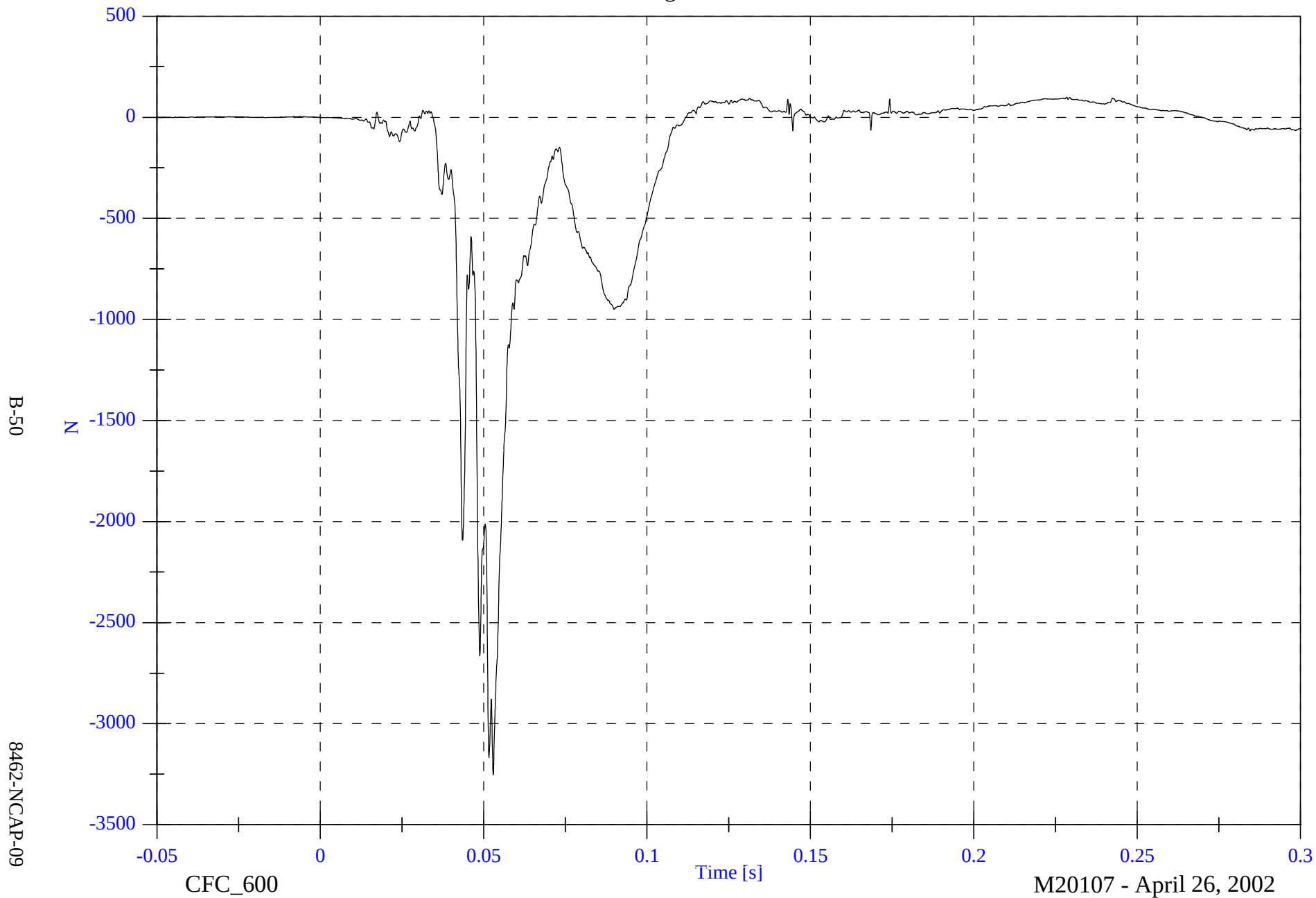
8462-NCAP-09

NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Right Lower Tibia Fz

Max: 98.9 [N] at 0.228 [s]

Min: -3252.6 [N] at 0.053 [s]

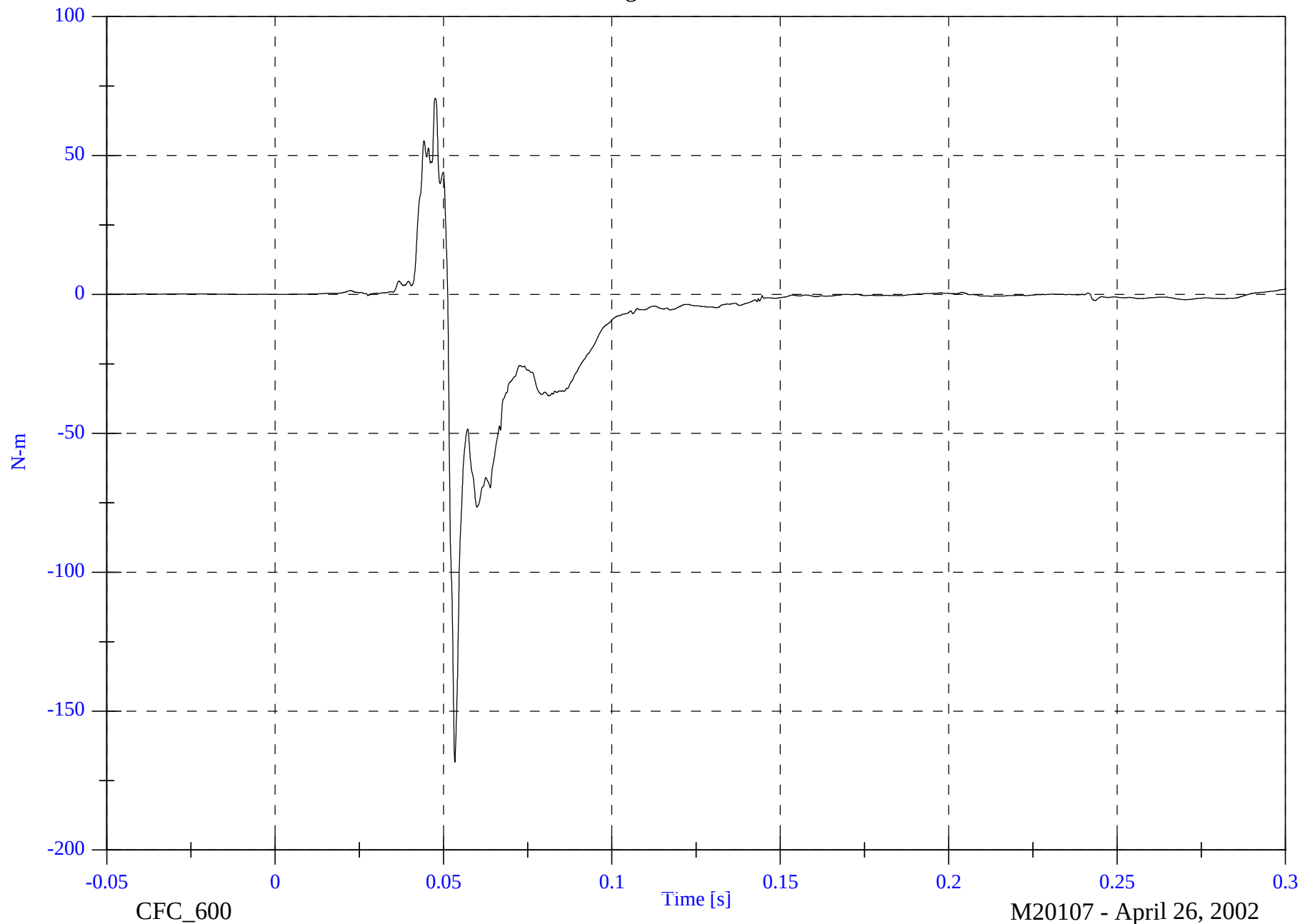


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Right Lower Tibia Mx

Max: 70.6 [N-m] at 0.048 [s]

Min: -168.3 [N-m] at 0.053 [s]



B-51

8462-NCAP-09

CFC_600

Time [s]

M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

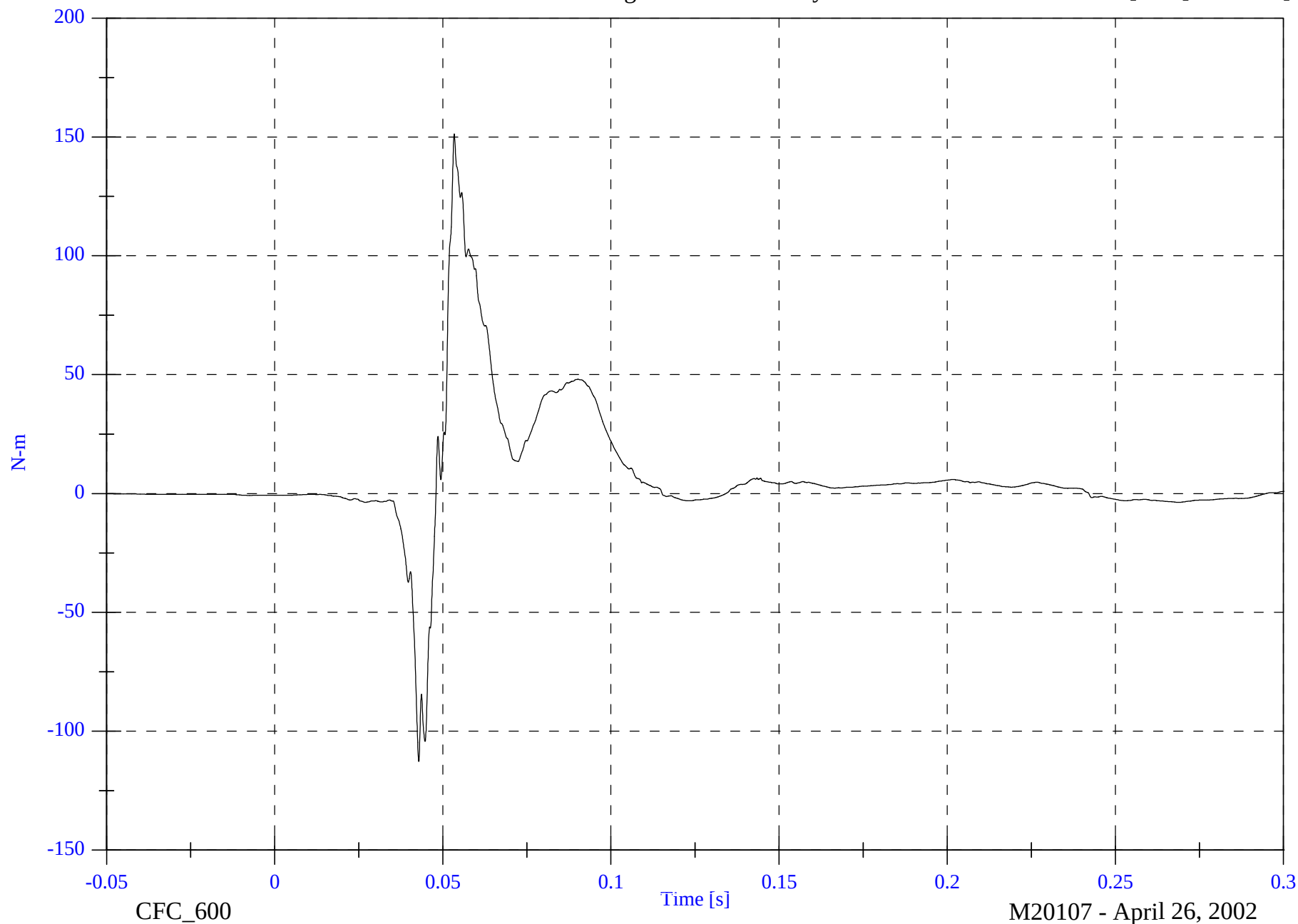
P1 Right Lower Tibia My

Max: 151.3 [N-m] at 0.053 [s]

Min: -112.8 [N-m] at 0.043 [s]

B-52

8462-NCAP-09

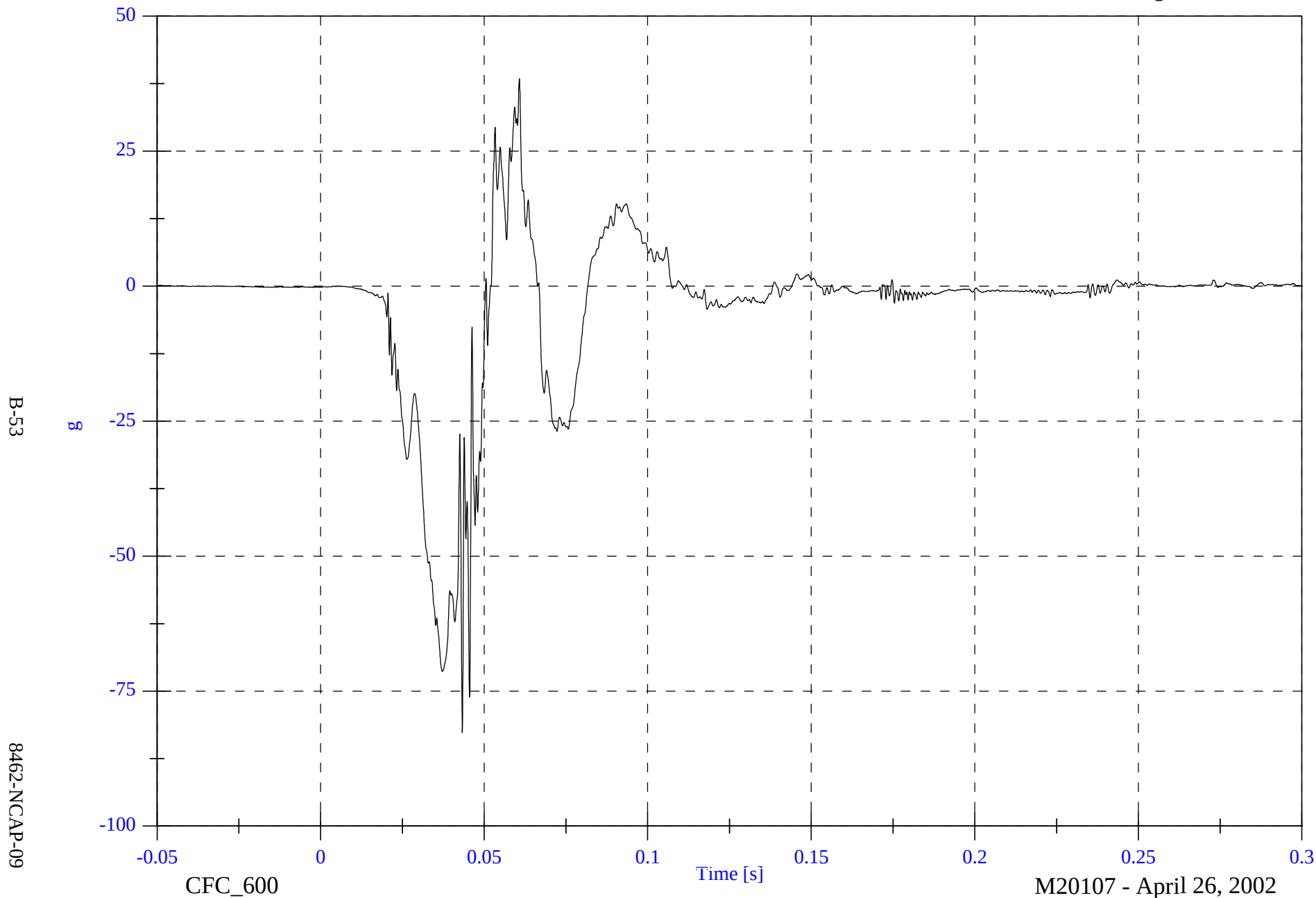


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Left Foot Aft x

Max: 38.4 [g] at 0.061 [s]

Min: -82.7 [g] at 0.043 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

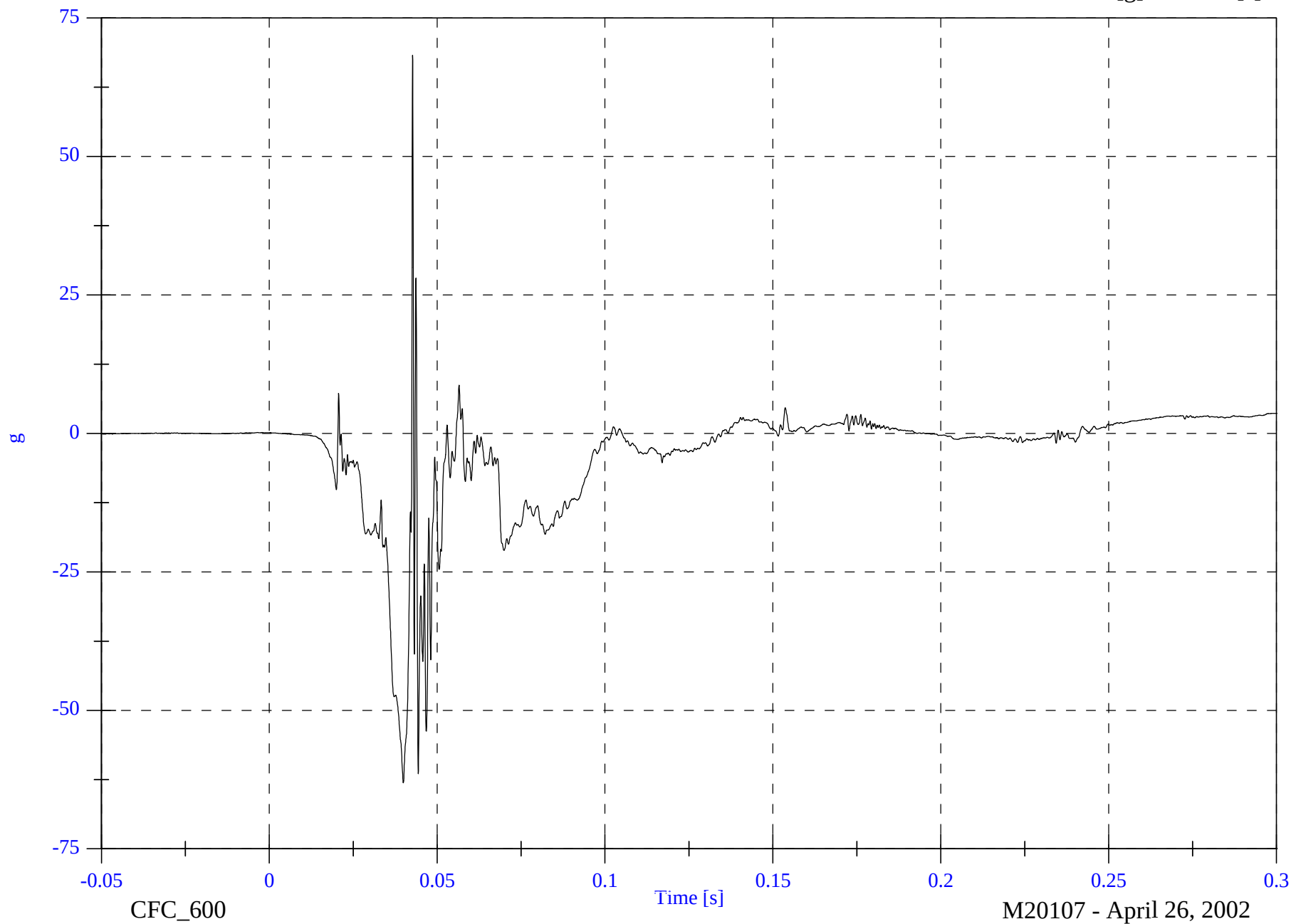
P1 Left Foot Aft z

Max: 68.3 [g] at 0.043 [s]

Min: -63.1 [g] at 0.040 [s]

B-54

8462-NCAP-09

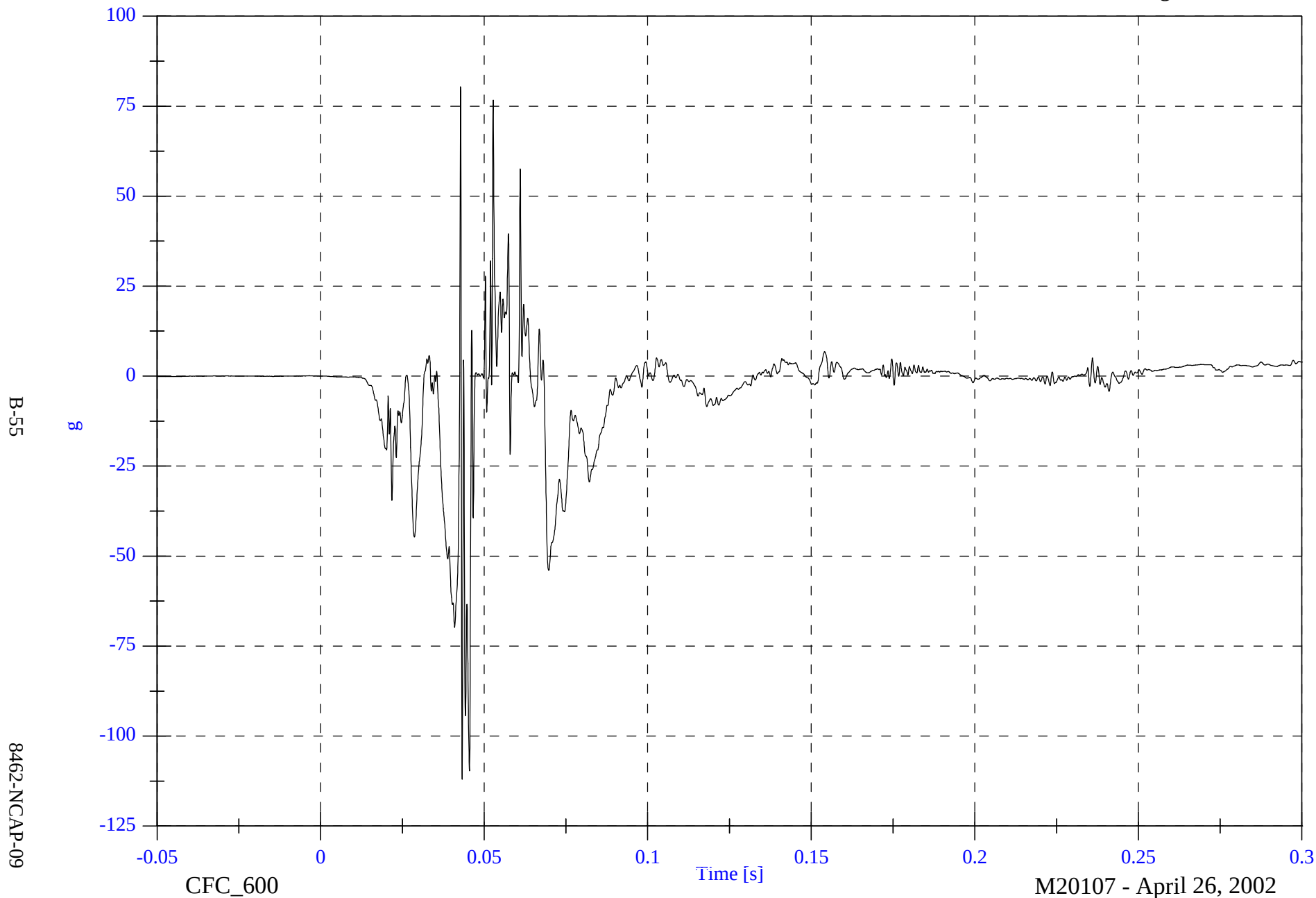


NCAP Test #9 - 2002 Chevrolet Trailblazer

P1 Left Foot Fore z

Max: 80.4 [g] at 0.043 [s]

Min: -112.1 [g] at 0.043 [s]

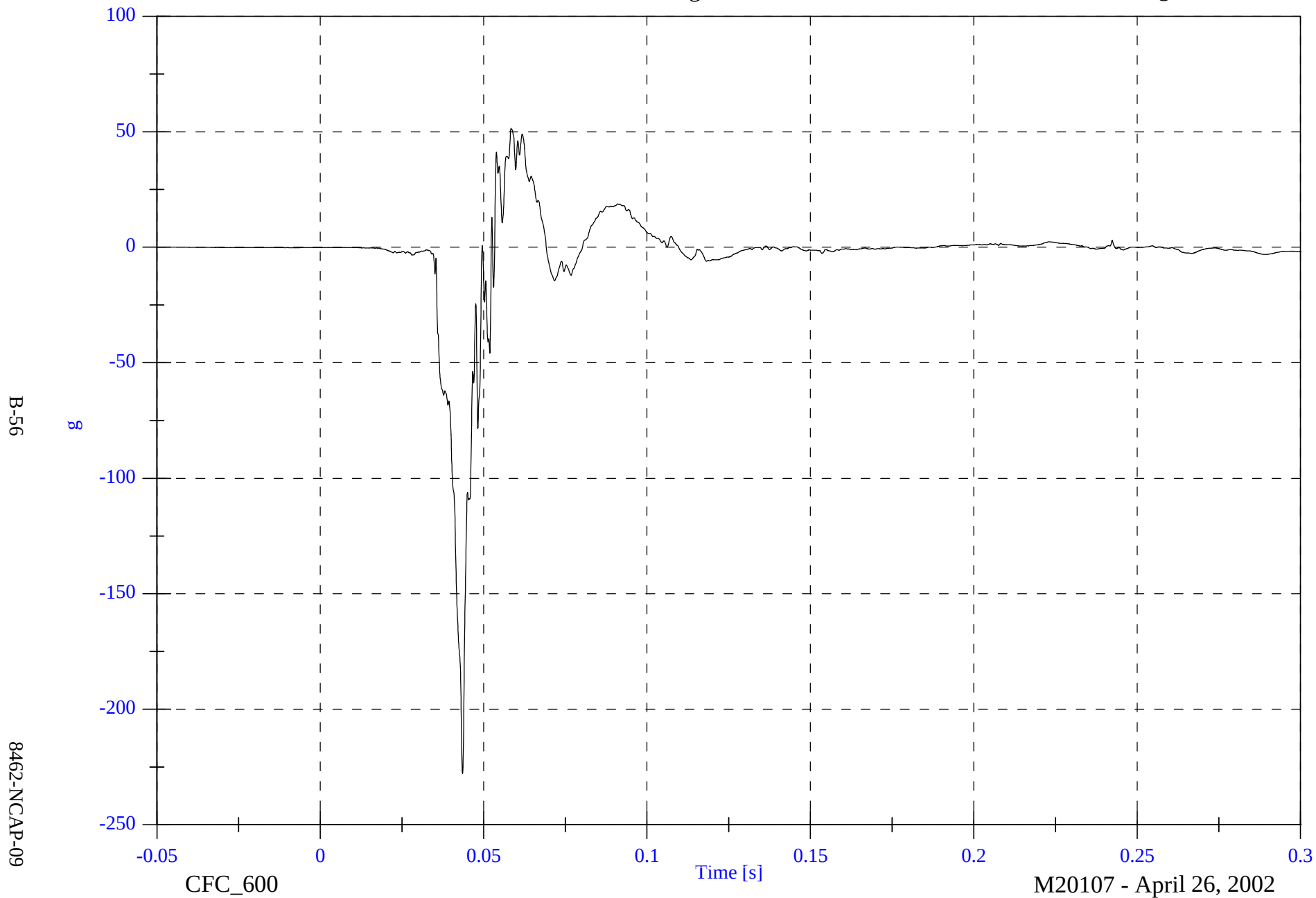


NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 51.4 [g] at 0.058 [s]

Min: -227.8 [g] at 0.044 [s]

P1 Right Foot Aft x



NCAP Test #9 - 2002 Chevrolet Trailblazer

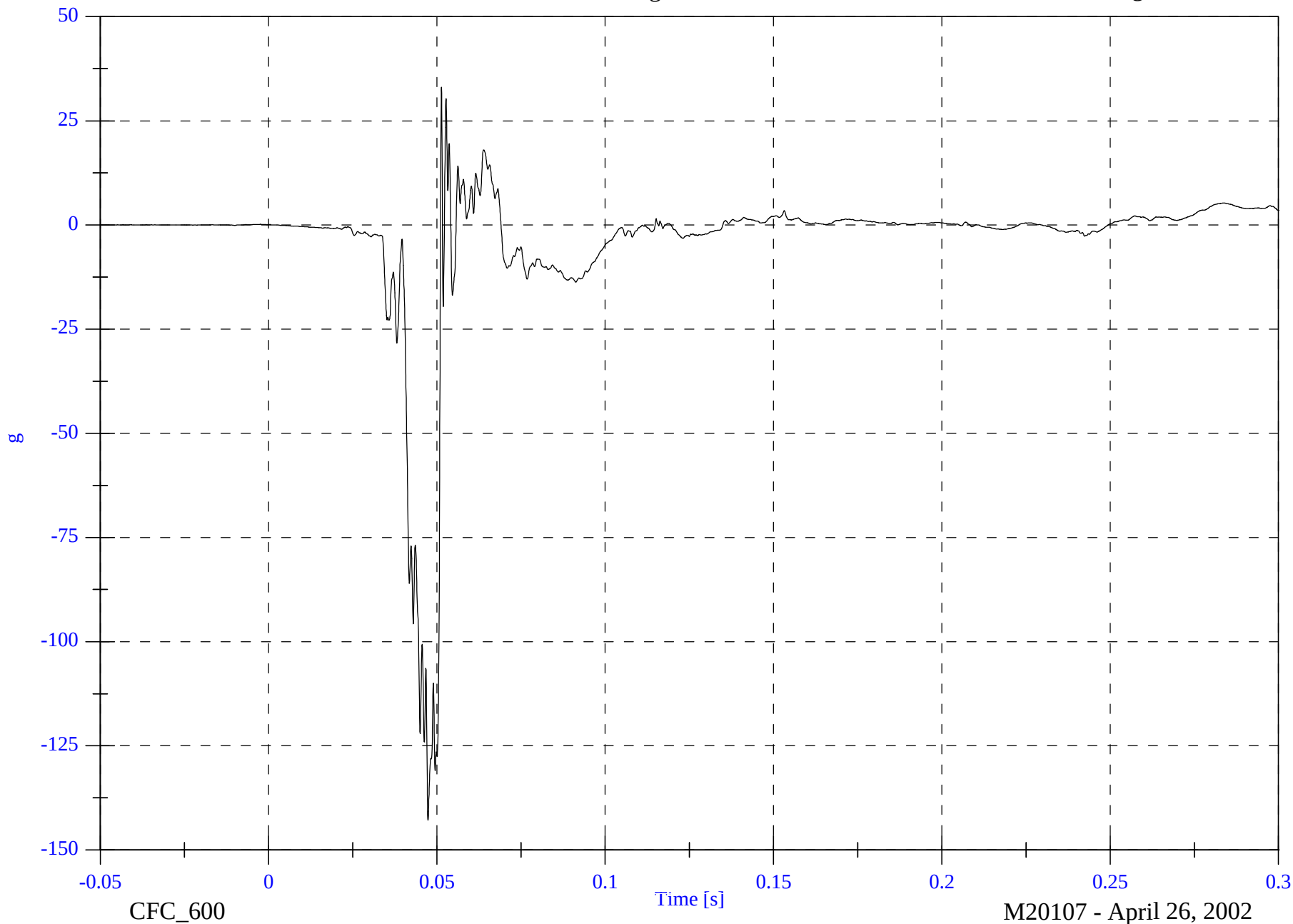
P1 Right Foot Aft z

Max: 33.1 [g] at 0.051 [s]

Min: -142.9 [g] at 0.047 [s]

B-57

8462-NCAP-09

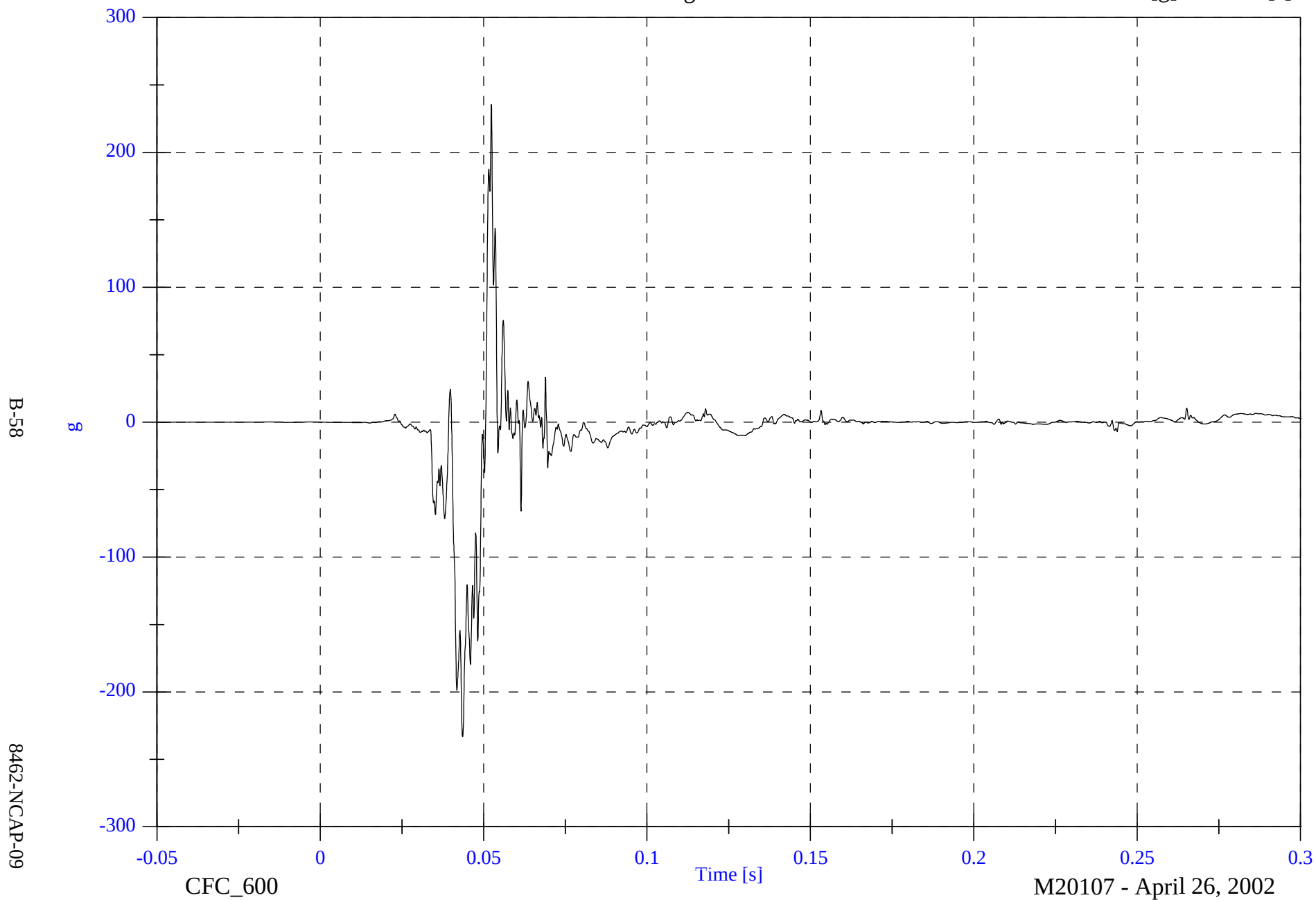


NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 235.5 [g] at 0.052 [s]

Min: -233.4 [g] at 0.044 [s]

P1 Right Foot Fore z



NCAP Test #9 - 2002 Chevrolet Trailblazer

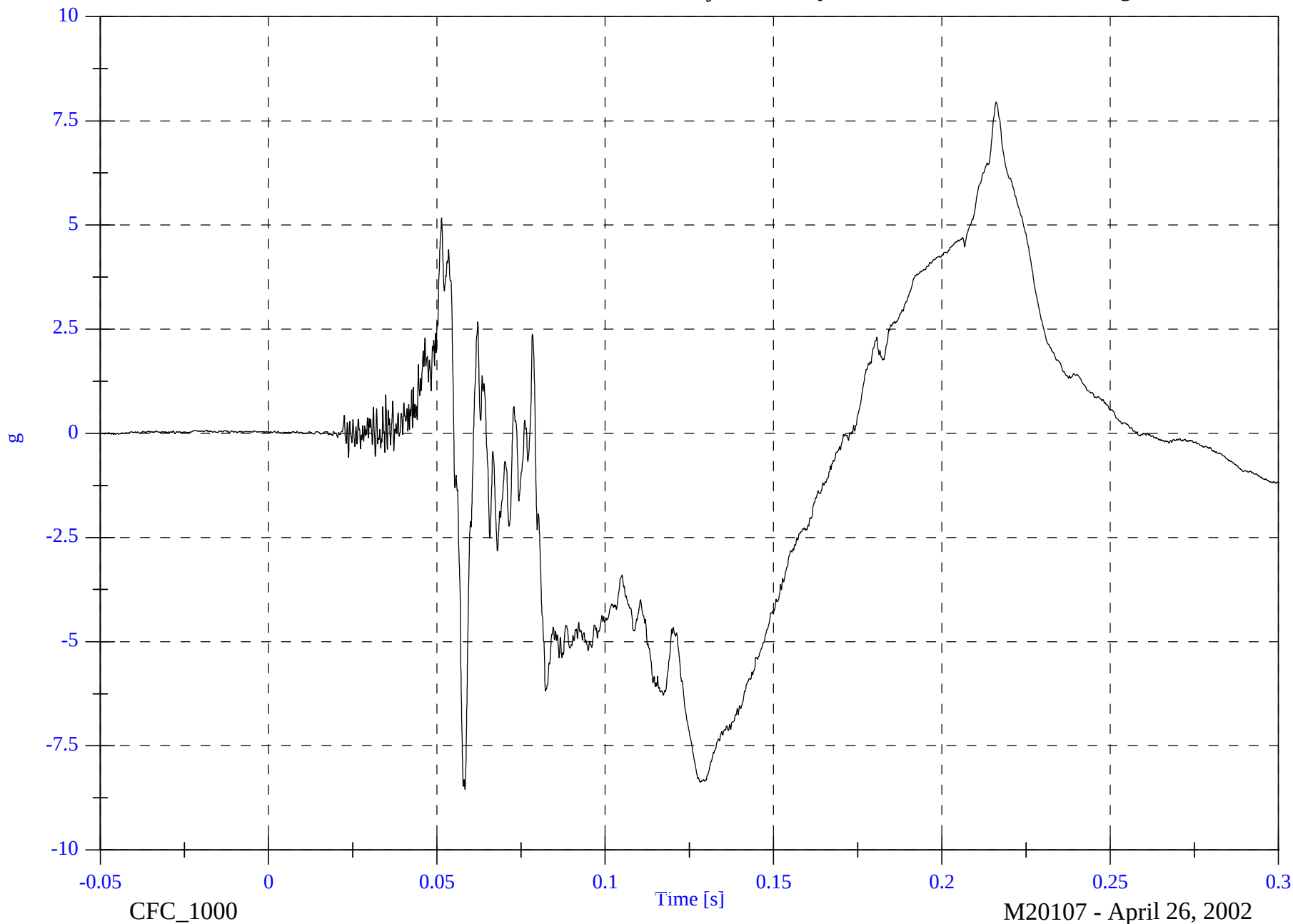
P2 Head 9 Array X Arm Ay

Max: 7.9 [g] at 0.216 [s]

Min: -8.6 [g] at 0.058 [s]

B-59

8462-NCAP-09

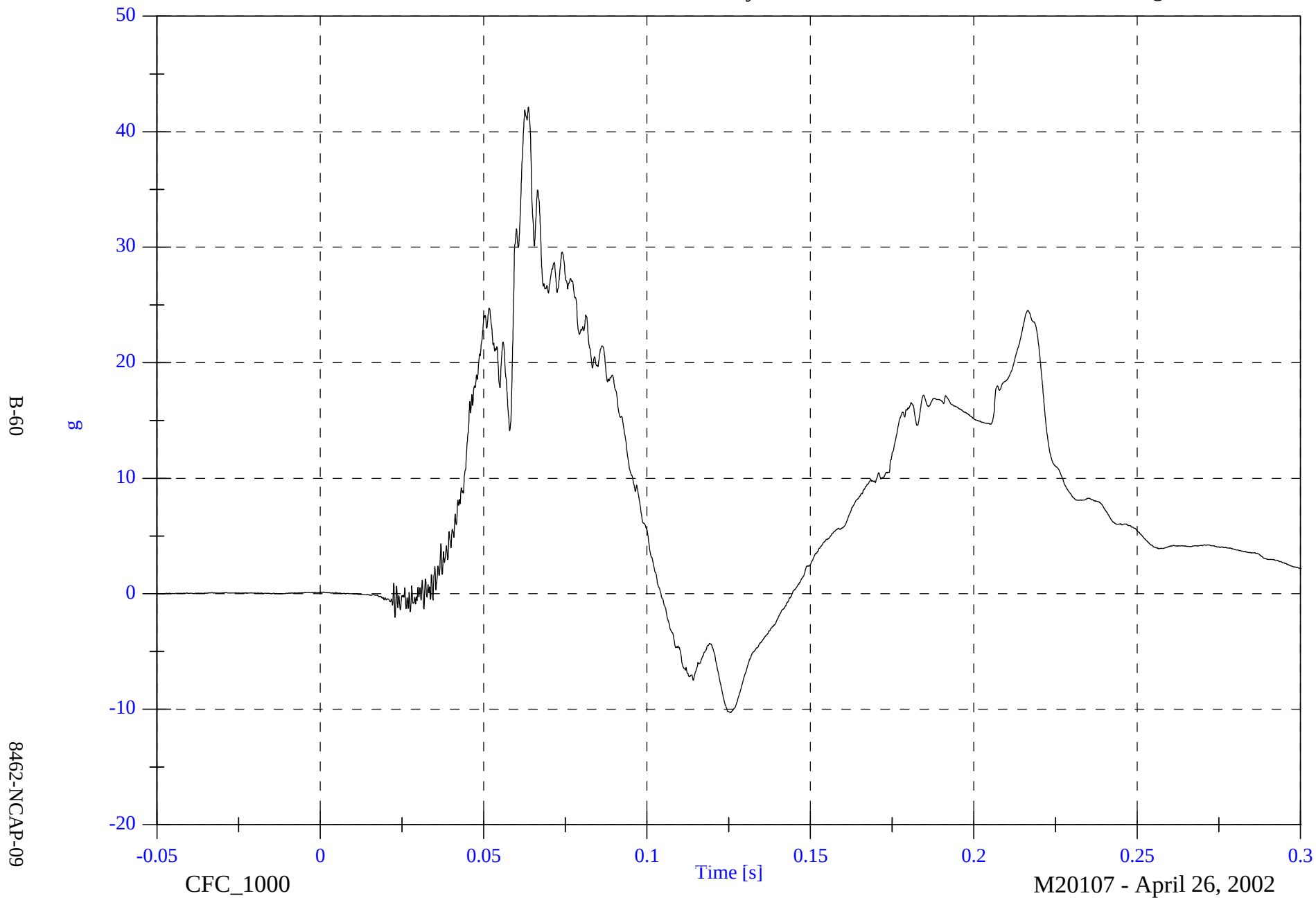


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Head 9 Array X Arm Az

Max: 42.1 [g] at 0.064 [s]

Min: -10.3 [g] at 0.126 [s]

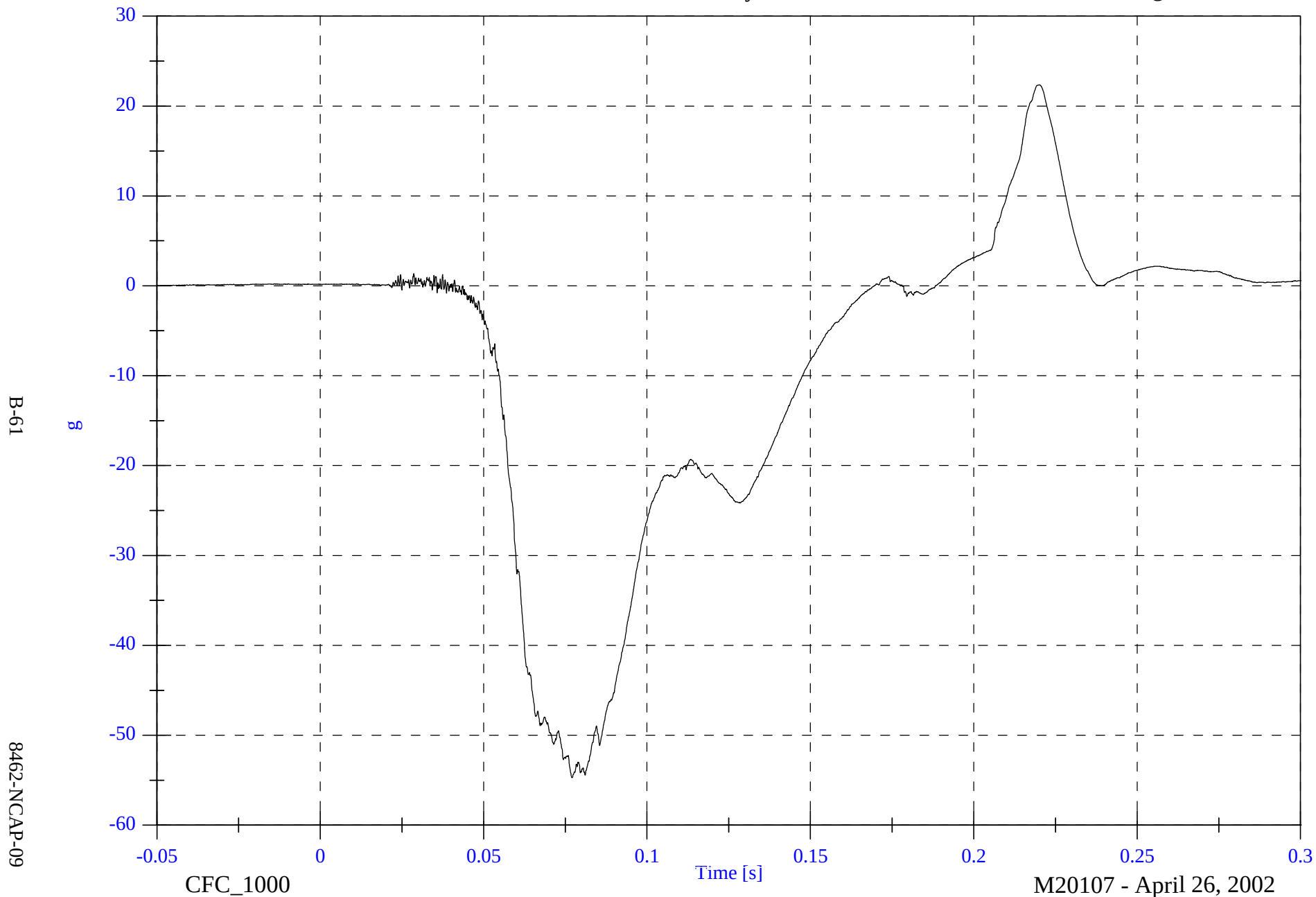


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Head 9 Array Y Arm Ax

Max: 22.4 [g] at 0.220 [s]

Min: -54.7 [g] at 0.077 [s]

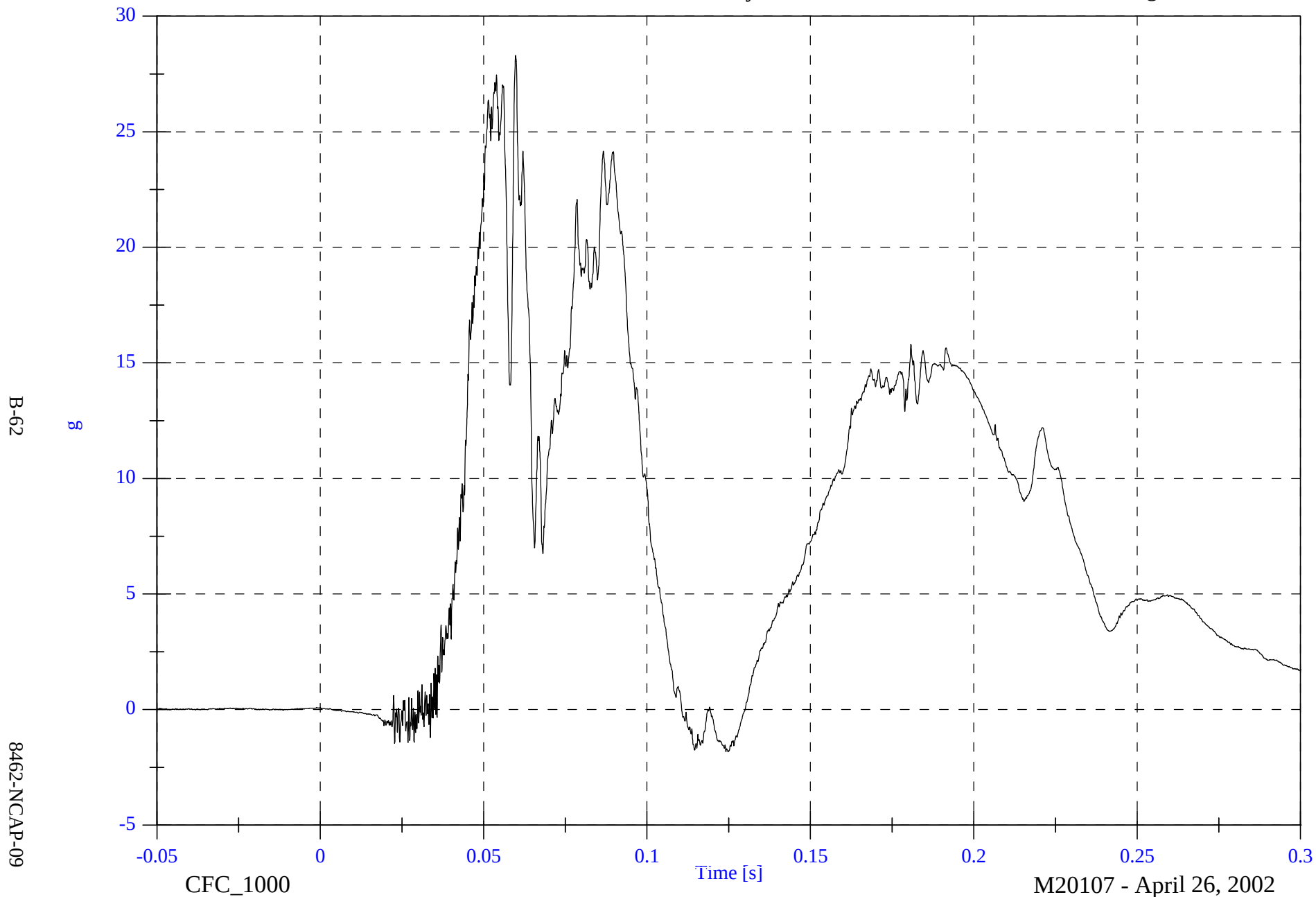


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Head 9 Array Y Arm Az

Max: 28.3 [g] at 0.060 [s]

Min: -1.8 [g] at 0.125 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

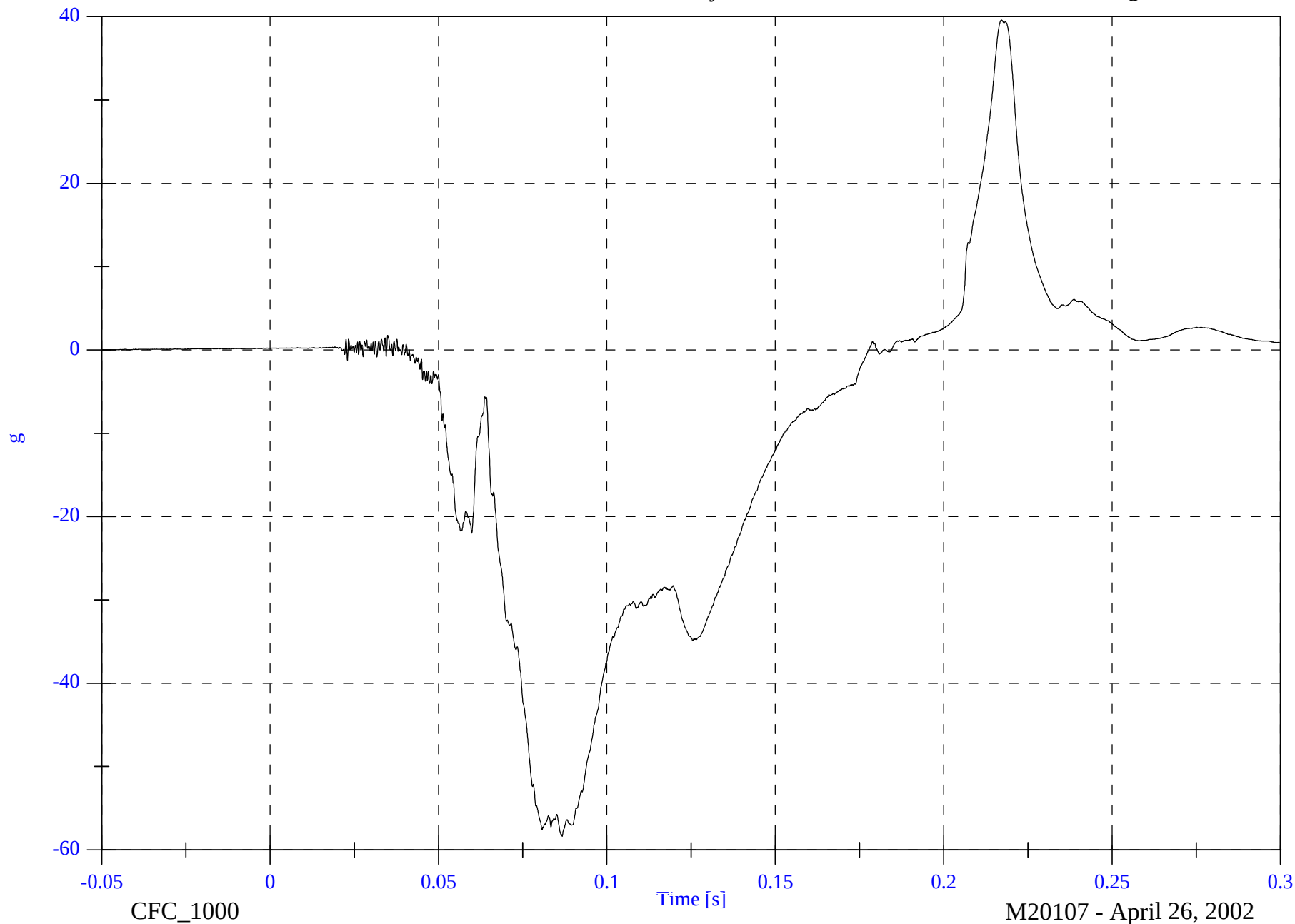
P2 Head 9 Array Z Arm Ax

Max: 39.6 [g] at 0.217 [s]

Min: -58.4 [g] at 0.087 [s]

B-63

8462-NCAP-09

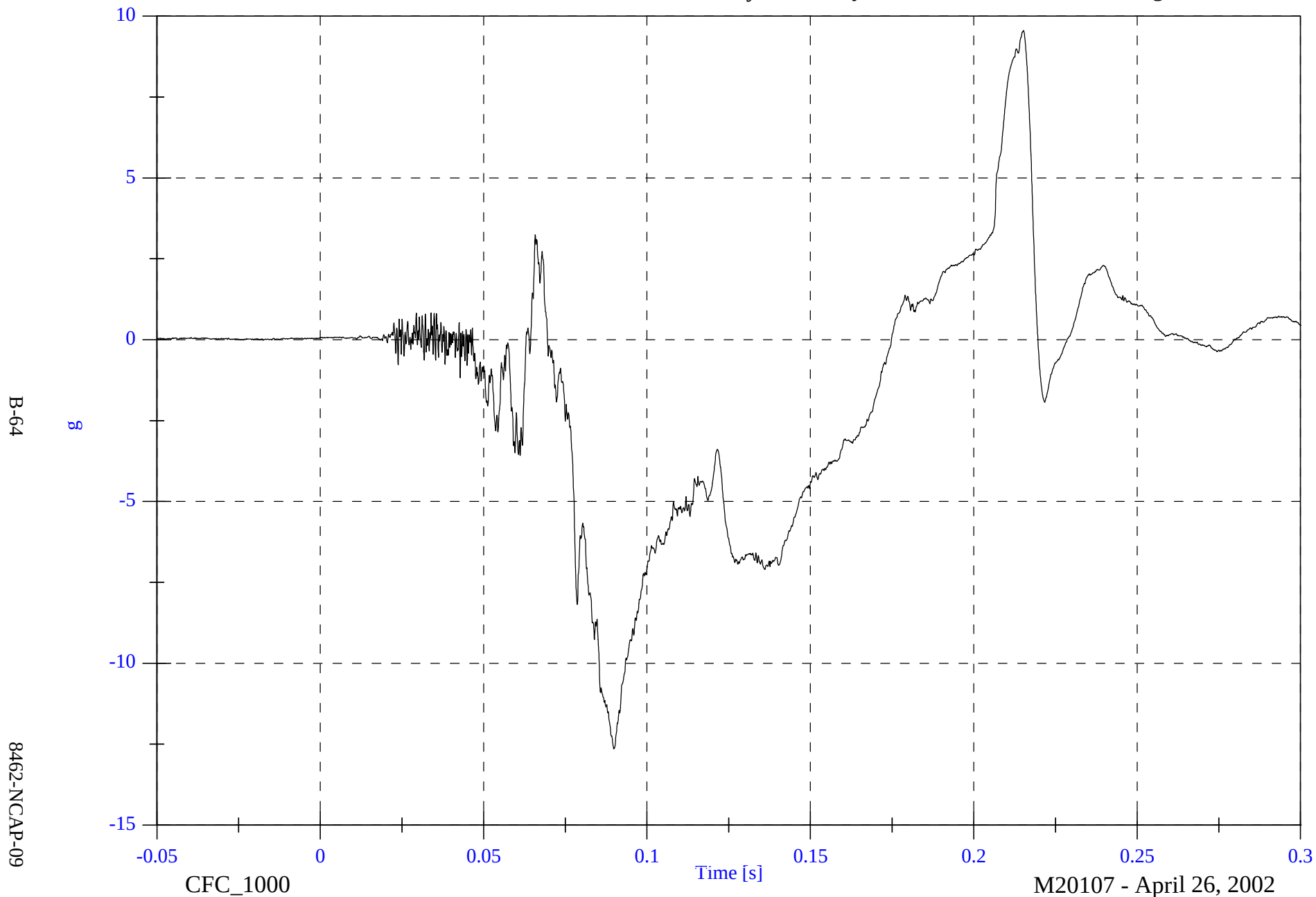


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Head 9 Array Z Arm Ay

Max: 9.6 [g] at 0.215 [s]

Min: -12.6 [g] at 0.090 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

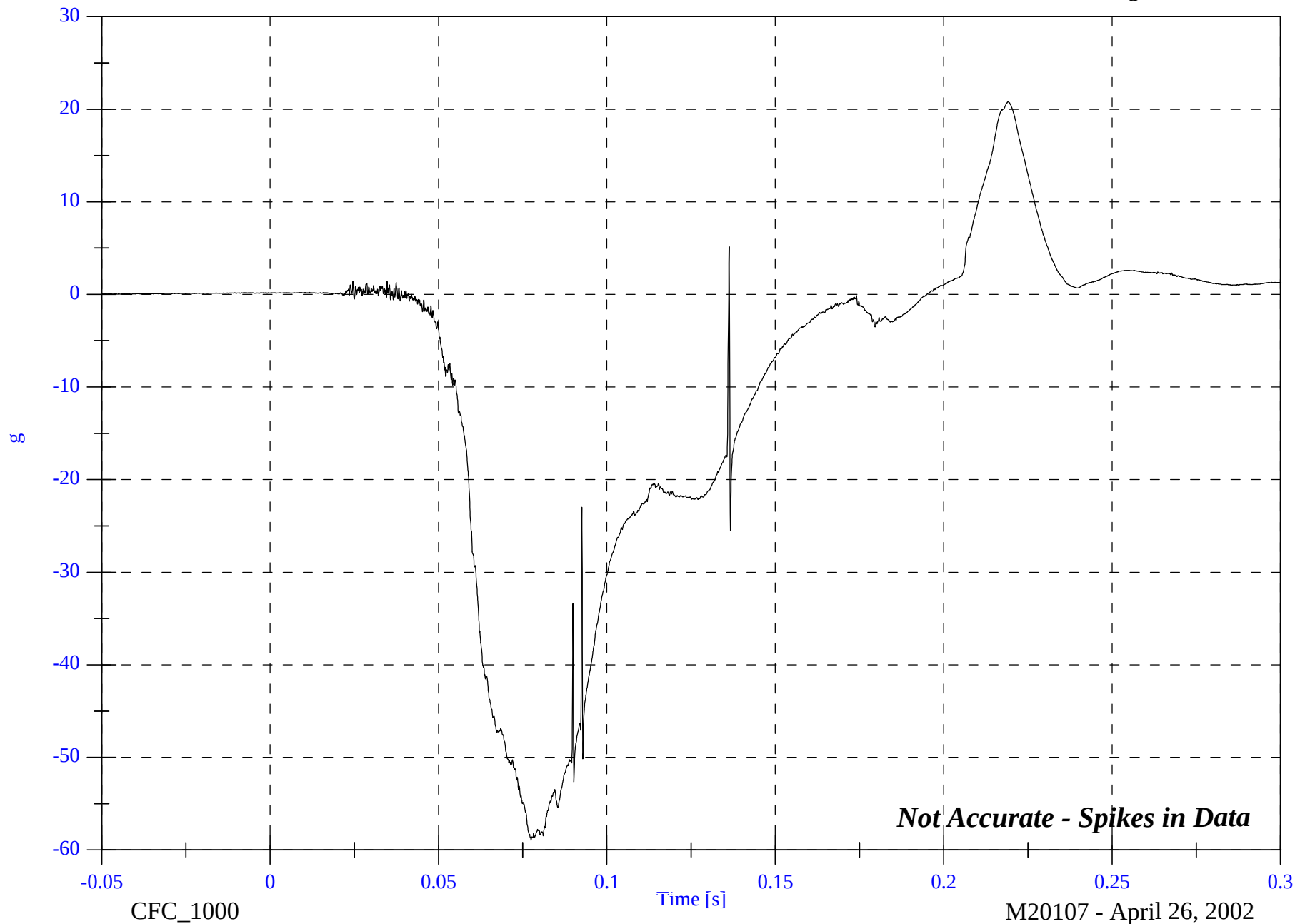
P2 Head CG x

Max: 20.8 [g] at 0.219 [s]

Min: -58.9 [g] at 0.077 [s]

B-65

8462-NCAP-09

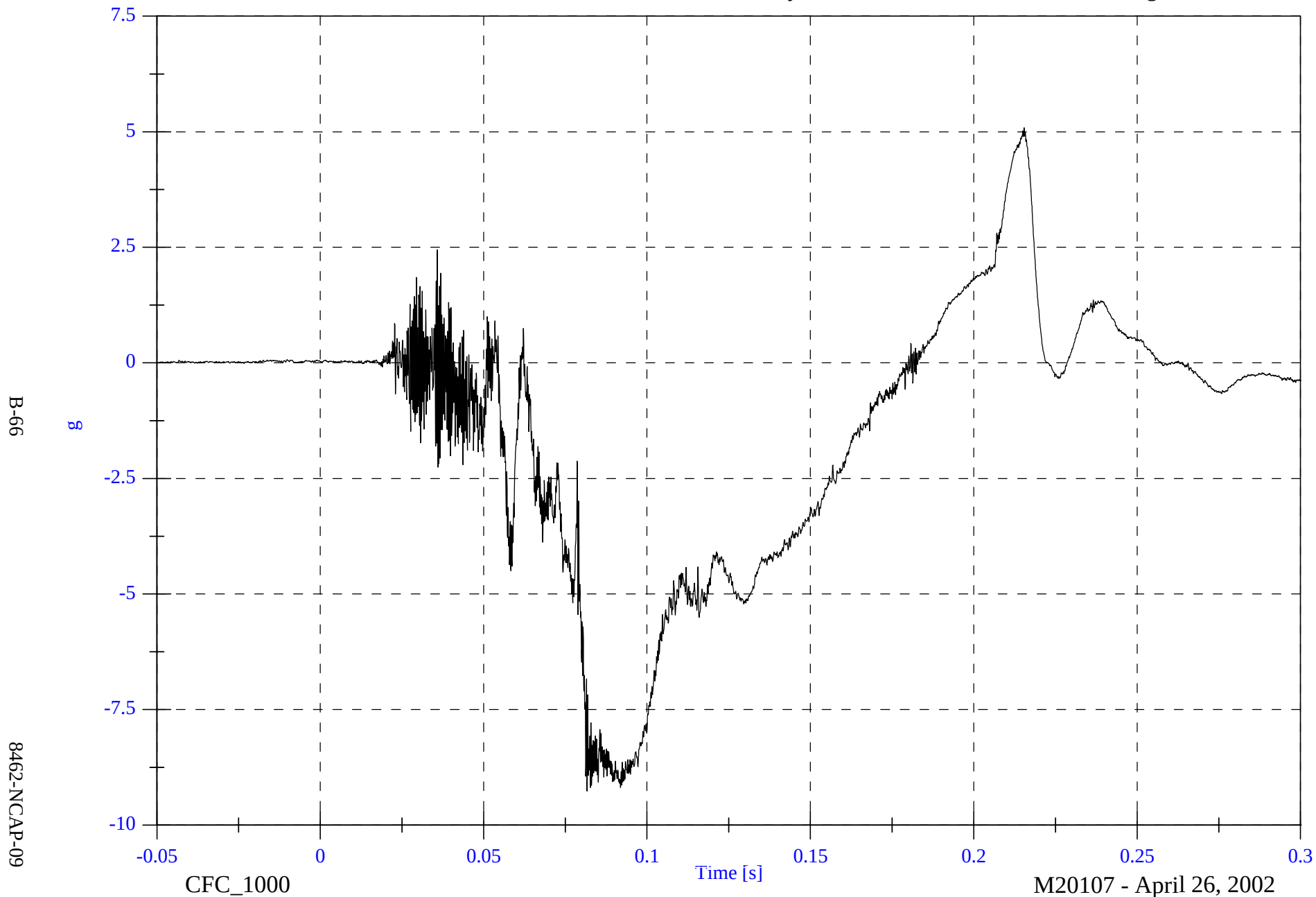


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Head CG y

Max: 5.1 [g] at 0.215 [s]

Min: -9.3 [g] at 0.082 [s]

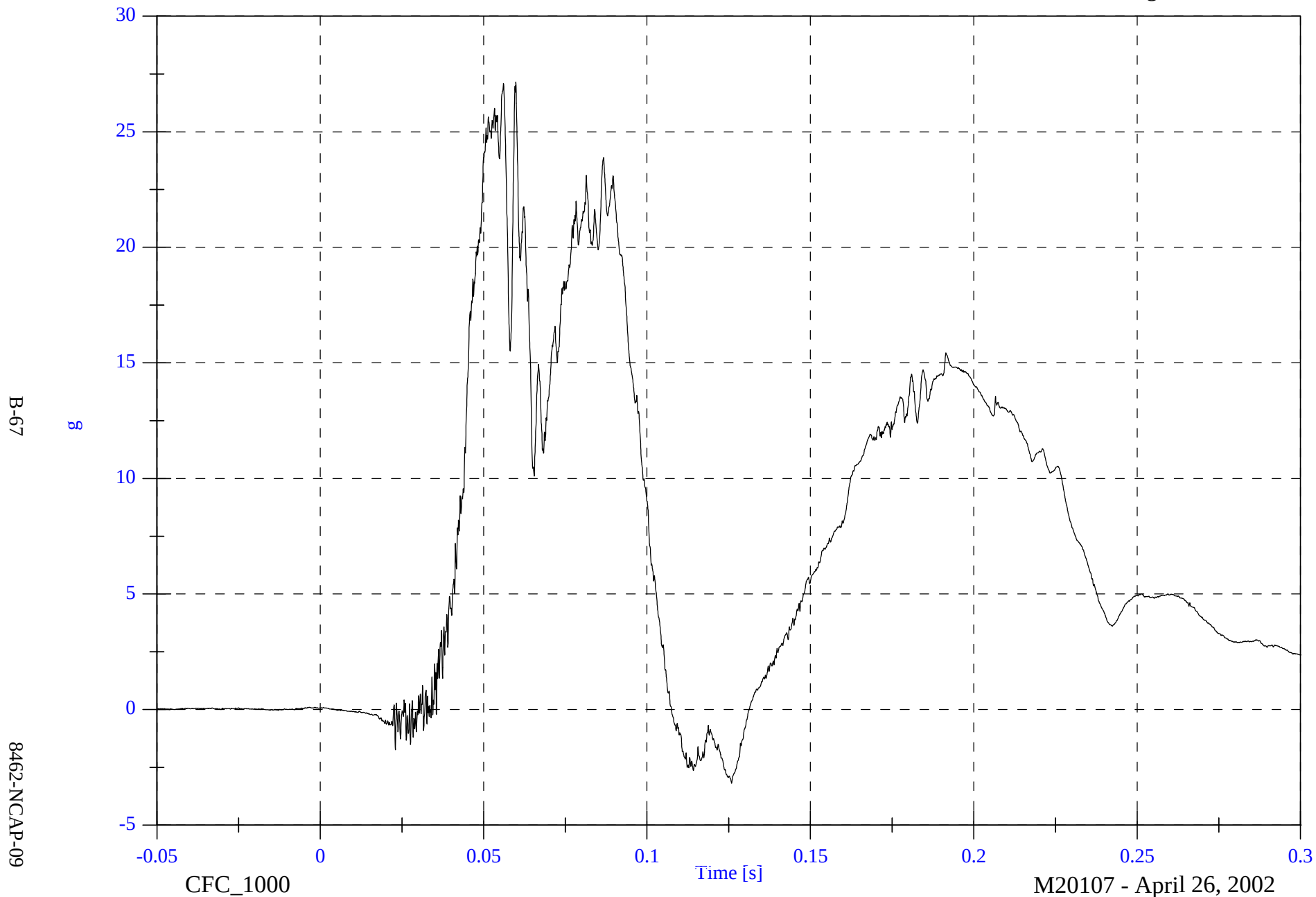


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Head CG z

Max: 27.2 [g] at 0.060 [s]

Min: -3.2 [g] at 0.126 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

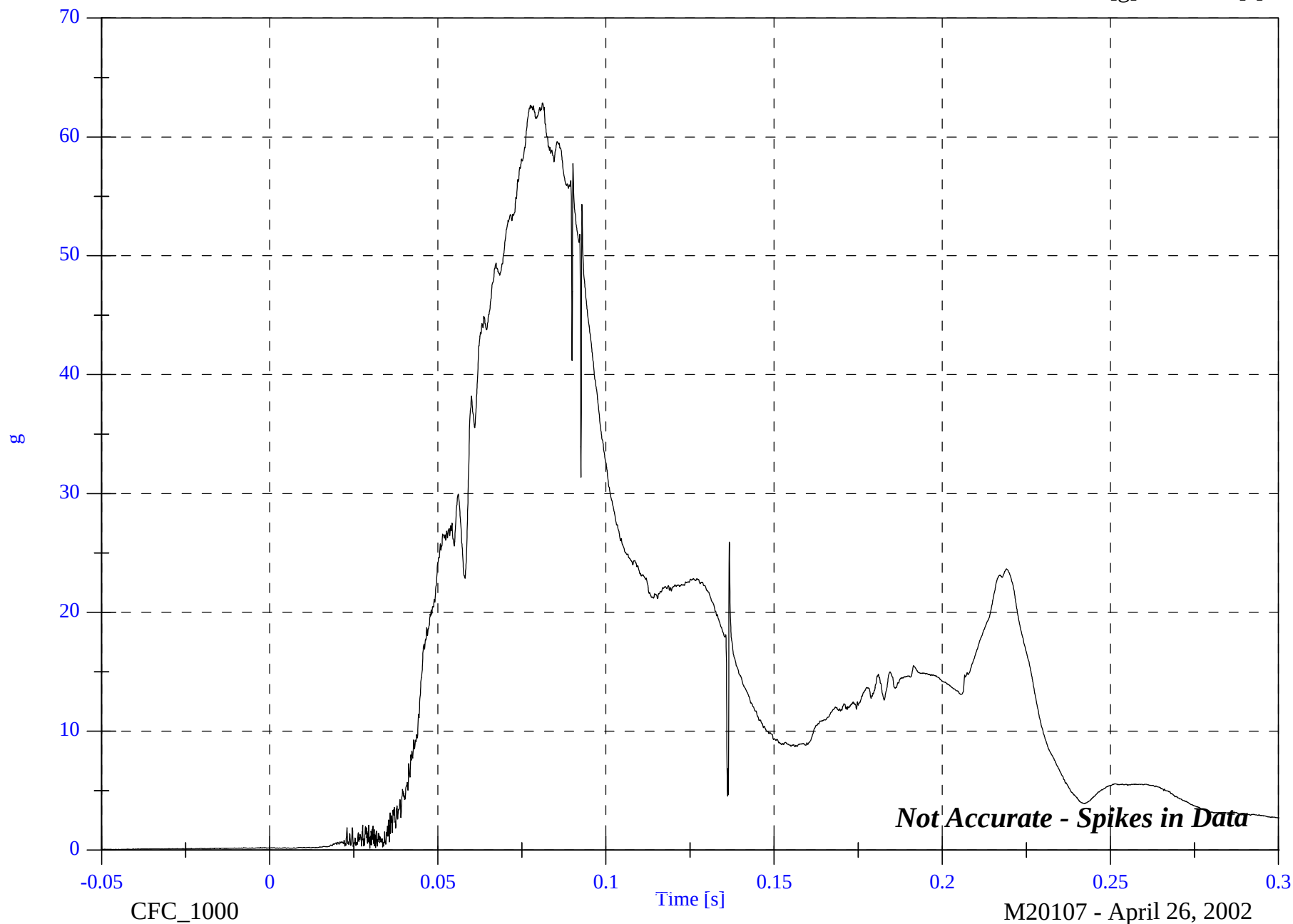
P2 Head CG Resultant

Max: 62.9 [g] at 0.081 [s]

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

B-68

8462-NCAP-09

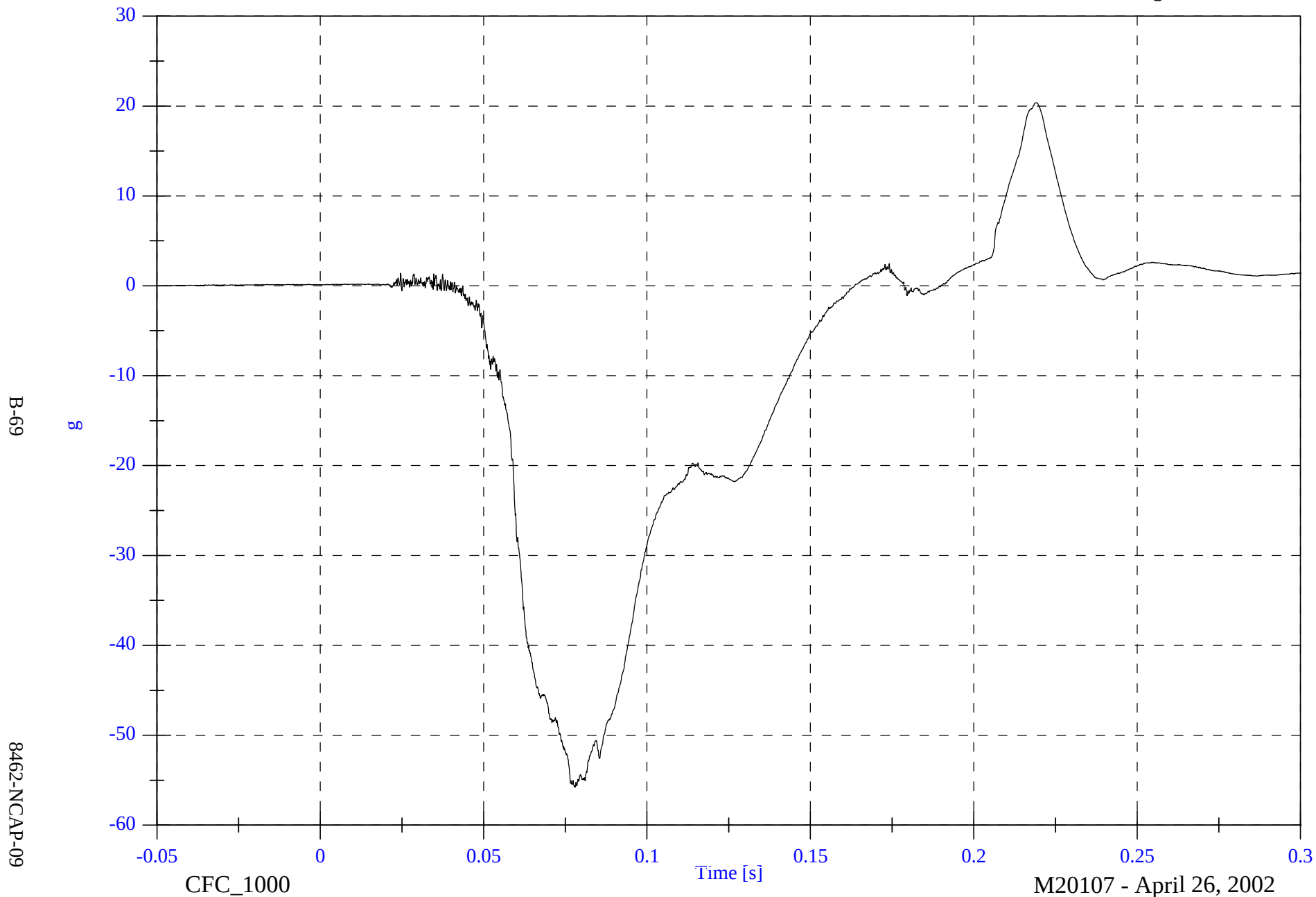


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Head CG Red x

Max: 20.4 [g] at 0.219 [s]

Min: -55.8 [g] at 0.078 [s]

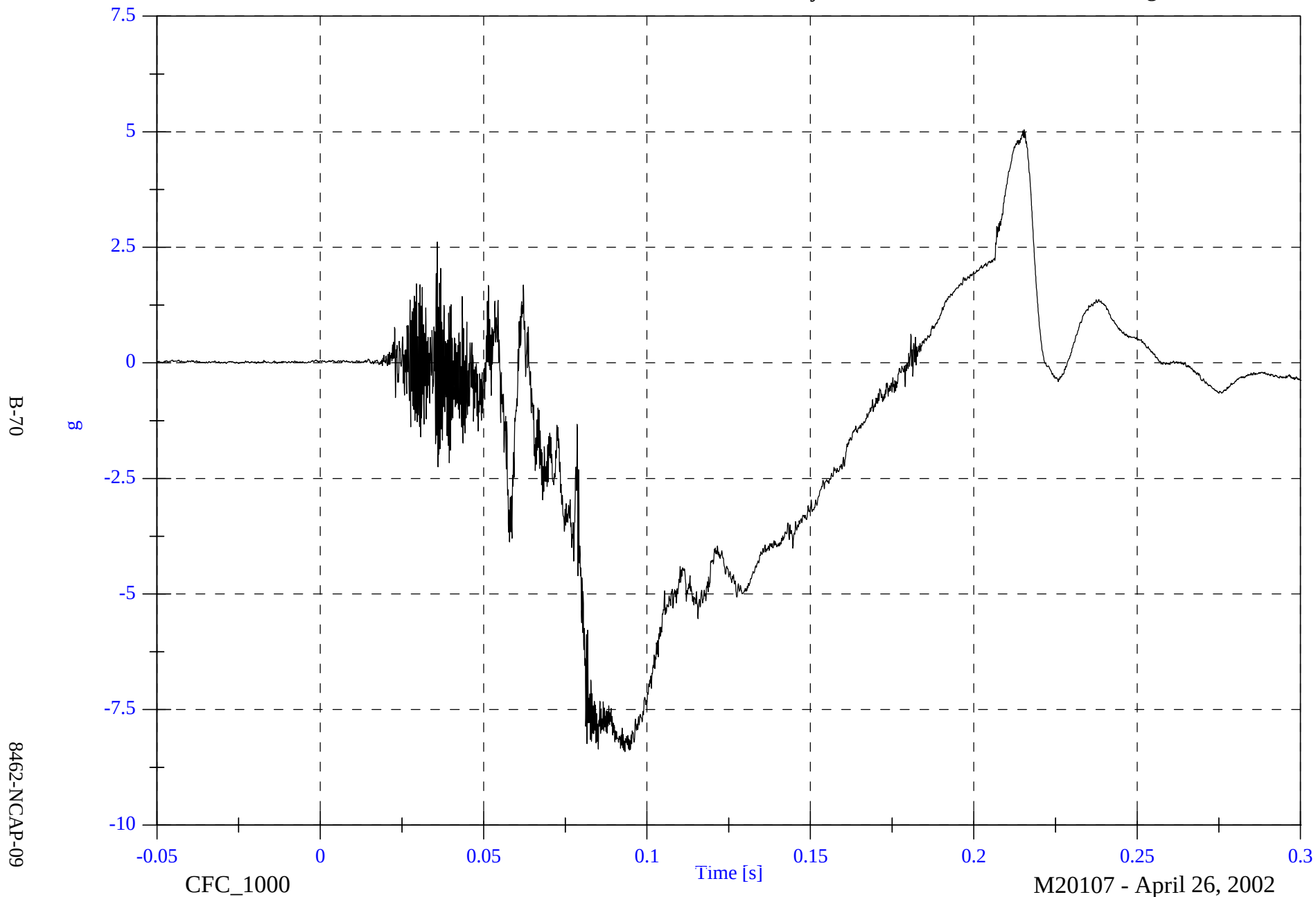


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Head CG Red y

Max: 5.0 [g] at 0.215 [s]

Min: -8.4 [g] at 0.093 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

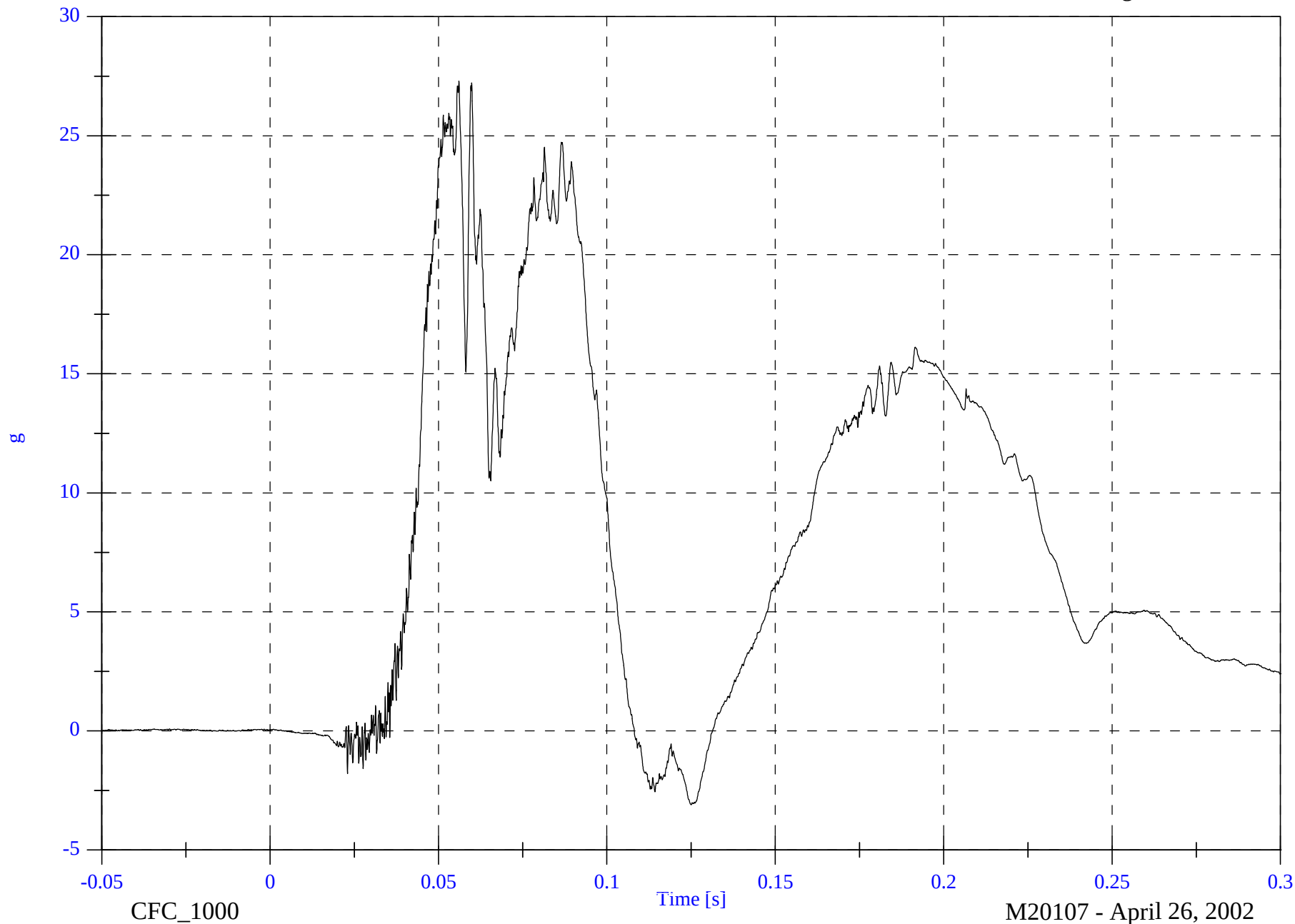
P2 Head CG Red z

Max: 27.3 [g] at 0.056 [s]

Min: -3.1 [g] at 0.125 [s]

B-71

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

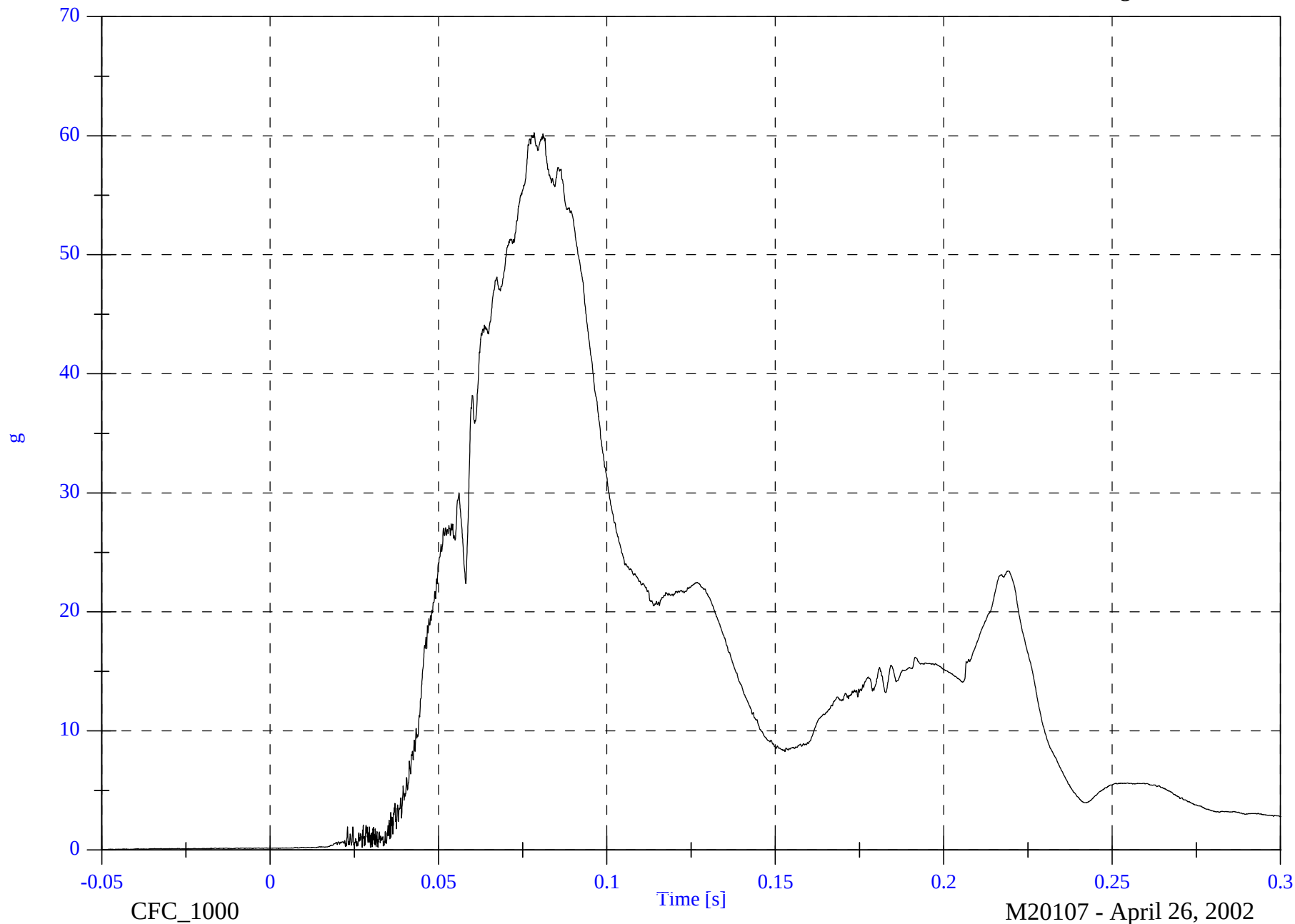
P2 Head CG Red Resultant

Max: 60.3 [g] at 0.078 [s]

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

B-72

8462-NCAP-09

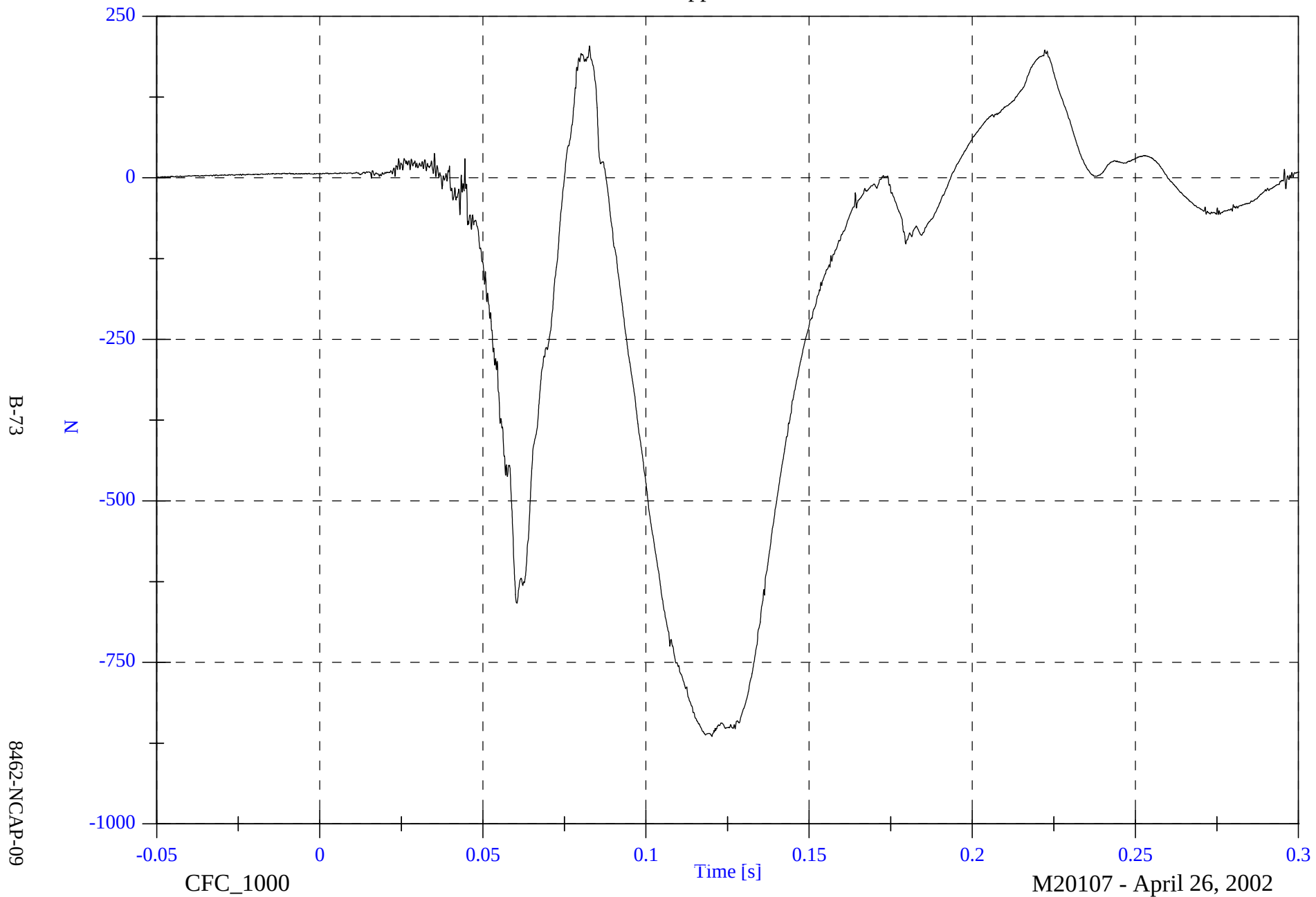


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Upper Neck Fx

Max: 204.0 [N] at 0.083 [s]

Min: -864.8 [N] at 0.120 [s]

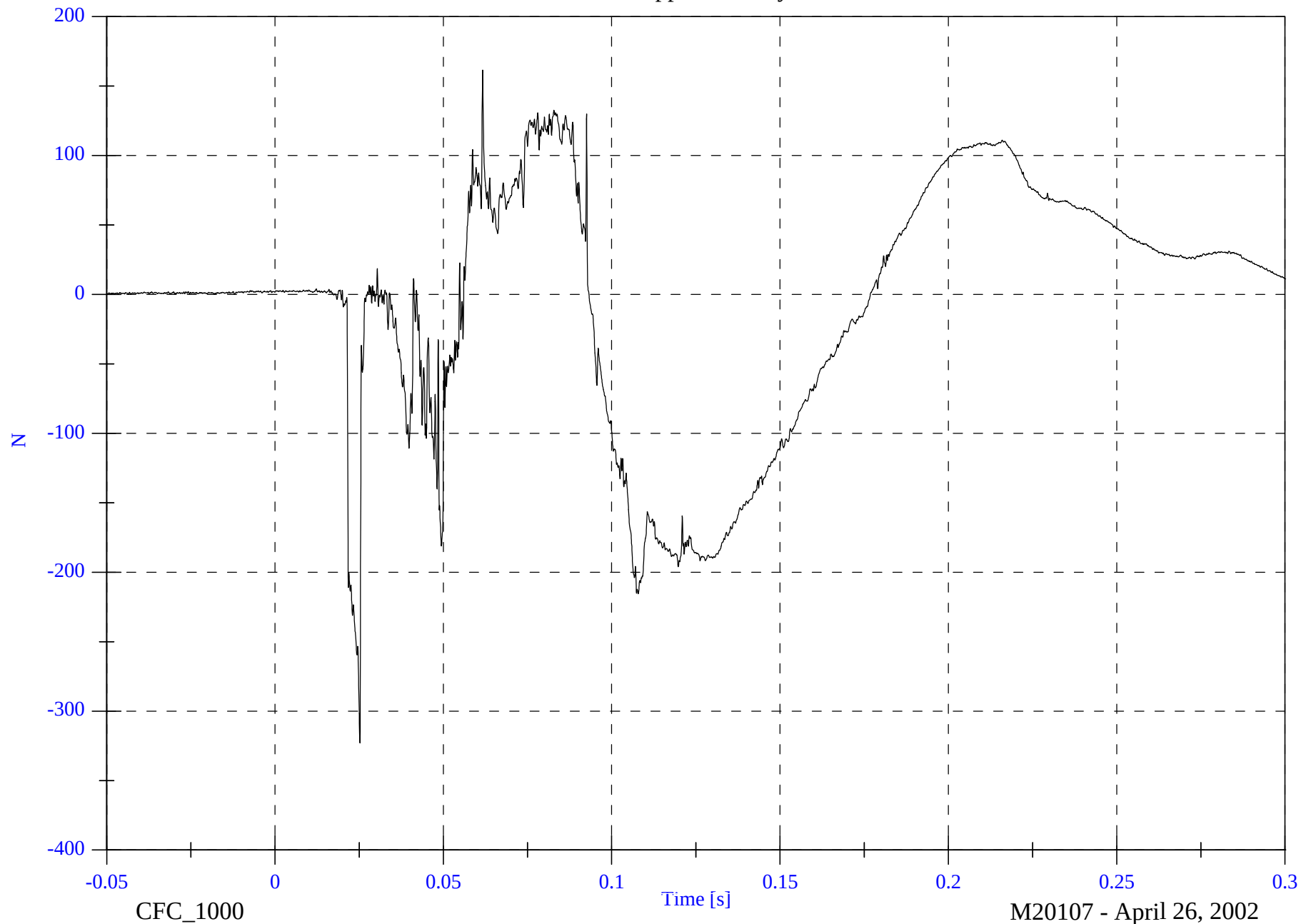


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Upper Neck Fy

Max: 161.6 [N] at 0.062 [s]

Min: -322.9 [N] at 0.025 [s]



B-74

8462-NCAP-09

CFC_1000

Time [s]

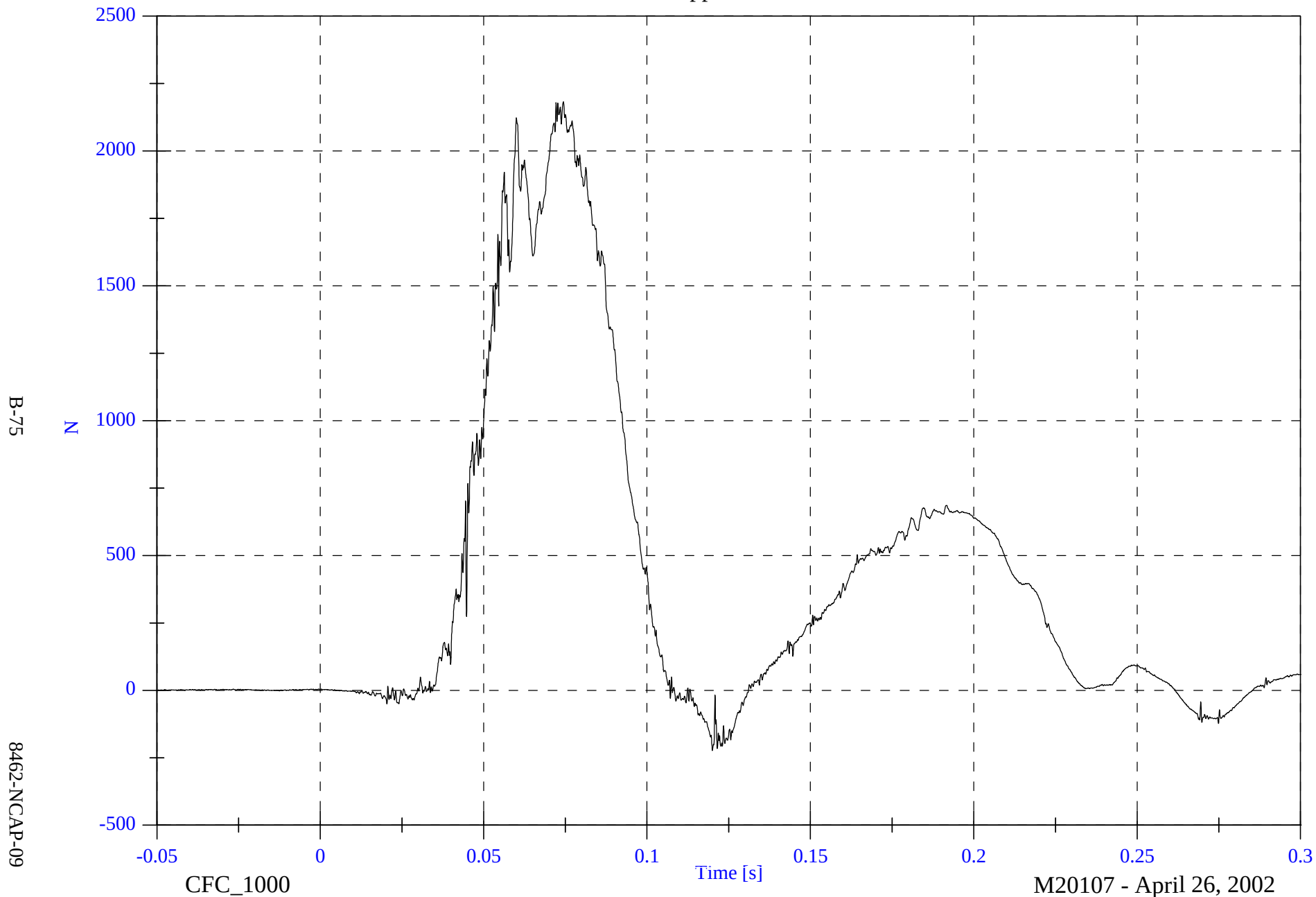
M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Upper Neck Fz

Max: 2182.5 [N] at 0.074 [s]

Min: -223.1 [N] at 0.120 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

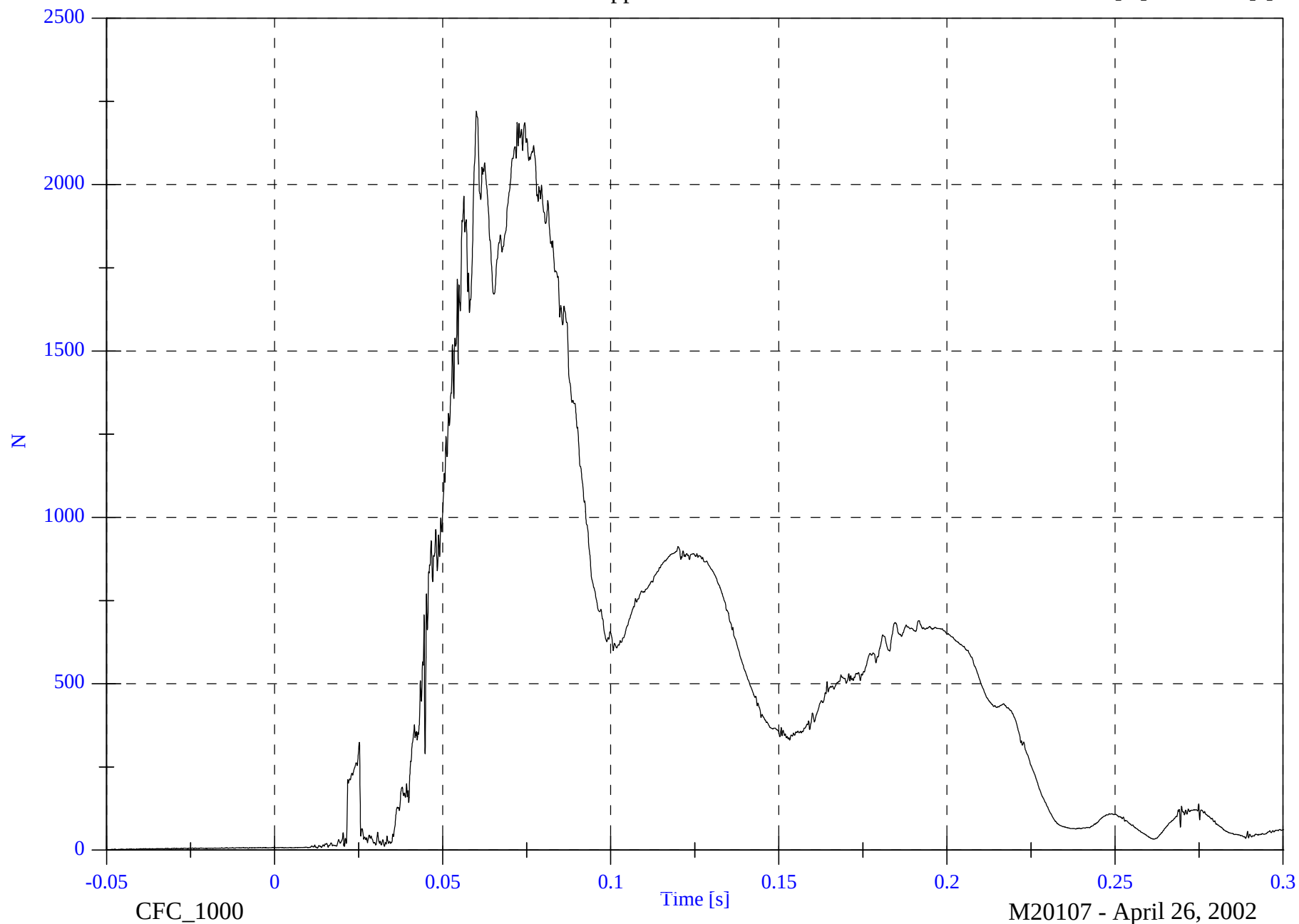
P2 Upper Neck F Resultant

Max: 2220.5 [N] at 0.060 [s]

Min: 0.7 [N] at -0.049 [s]

B-76

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

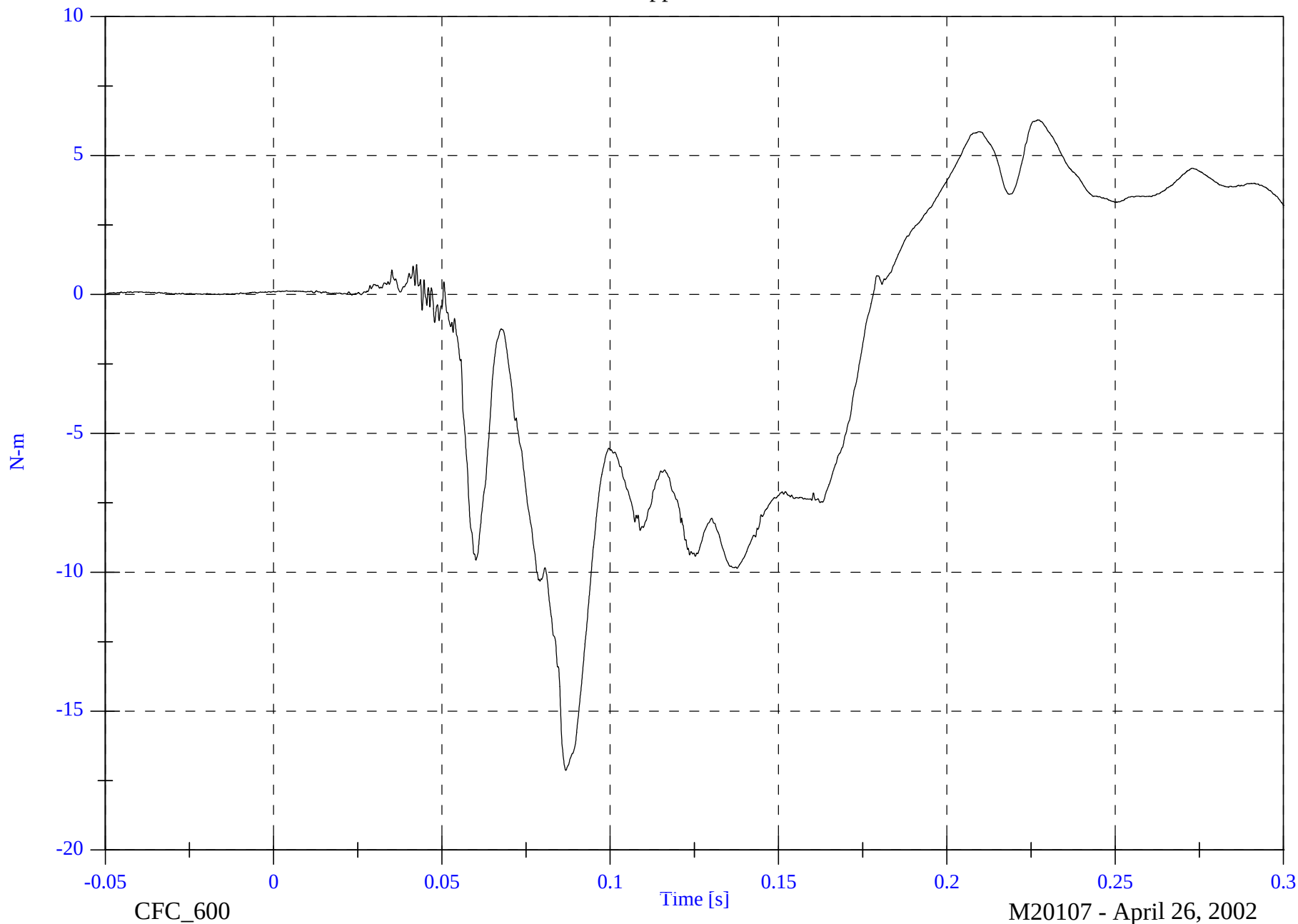
P2 Upper Neck Mx

Max: 6.3 [N-m] at 0.227 [s]

Min: -17.1 [N-m] at 0.087 [s]

B-77

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

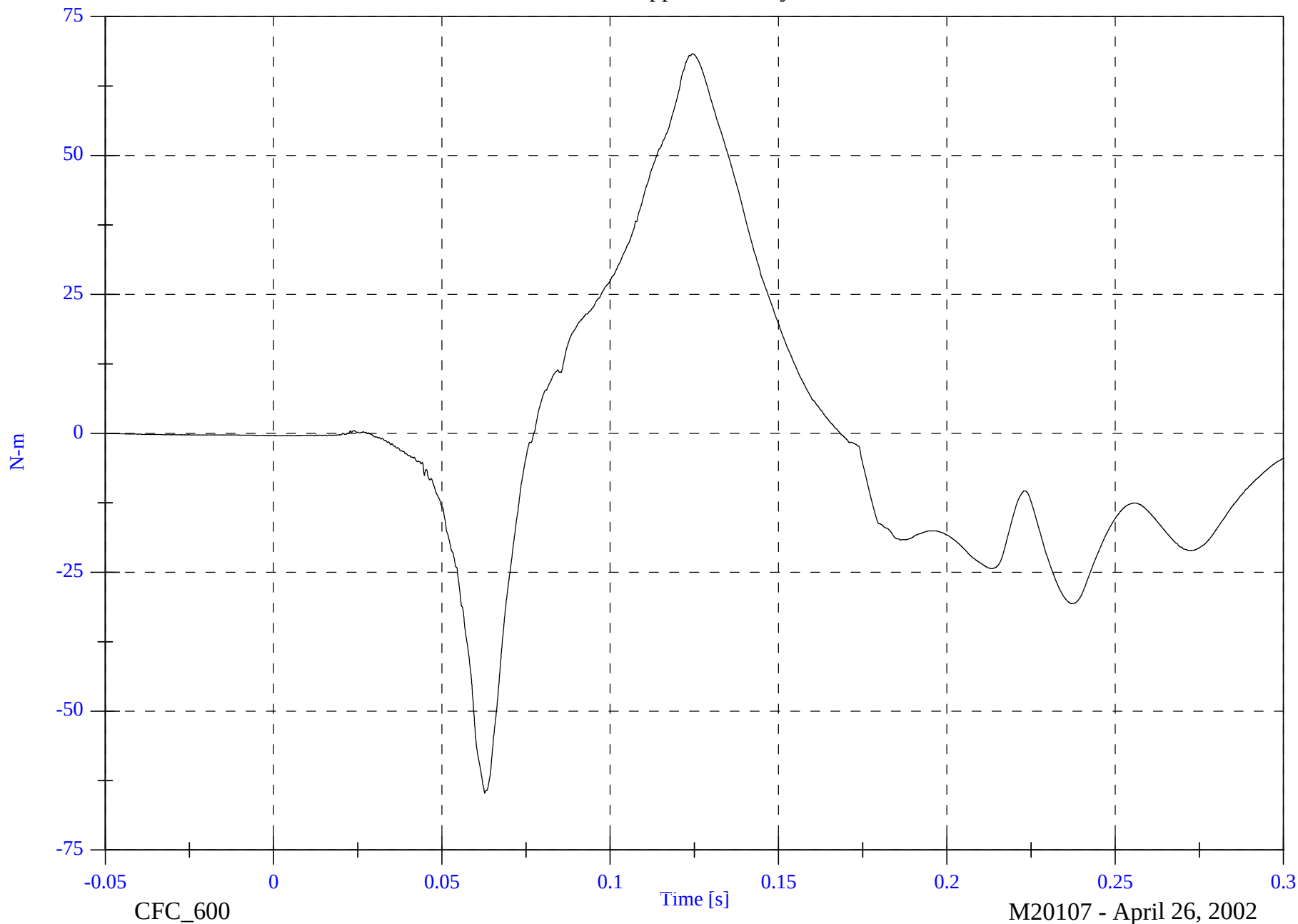
P2 Upper Neck My

Max: 68.3 [N-m] at 0.124 [s]

Min: -64.8 [N-m] at 0.063 [s]

B-78

8462-NCAP-09

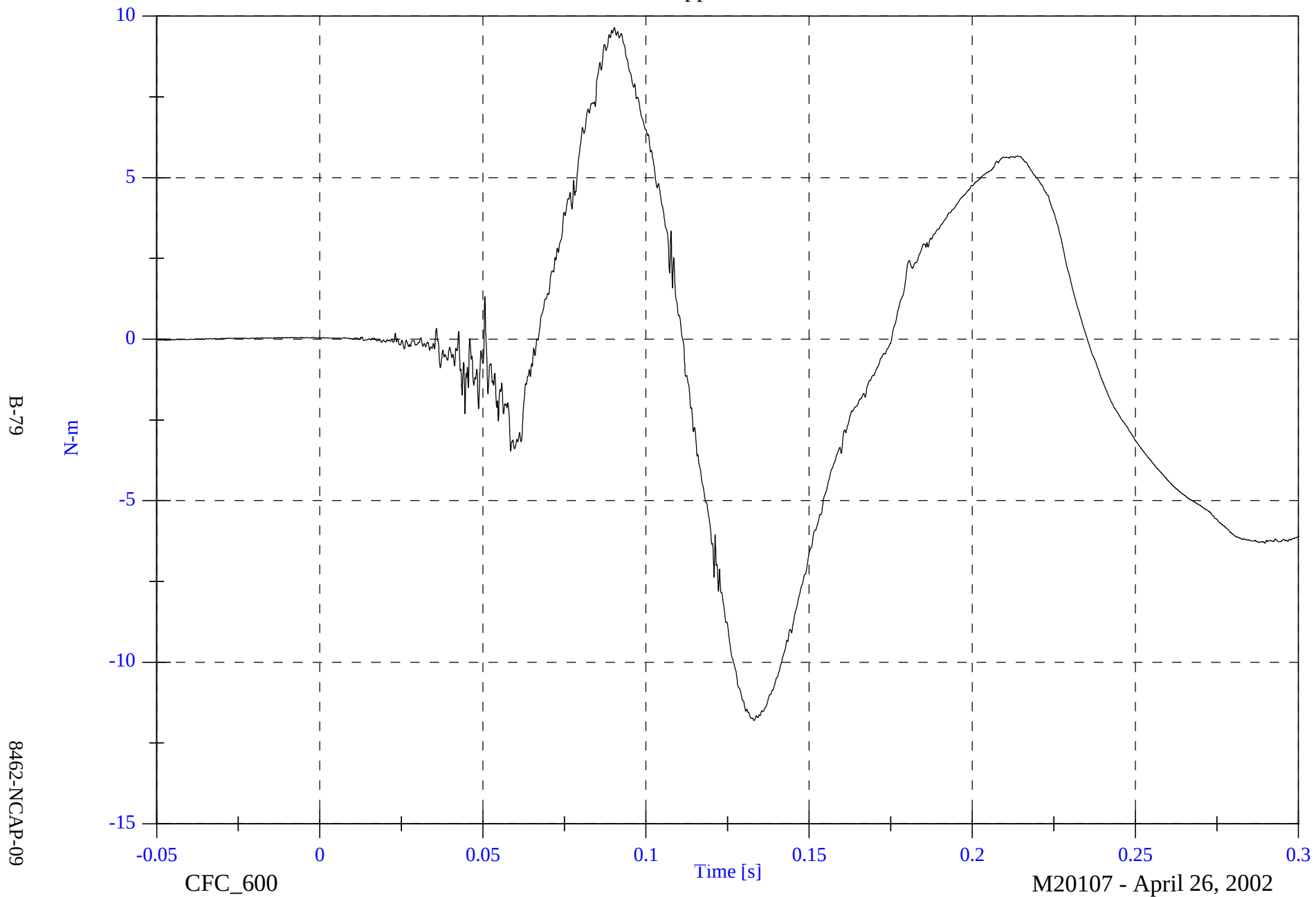


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Upper Neck Mz

Max: 9.6 [N-m] at 0.090 [s]

Min: -11.8 [N-m] at 0.133 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

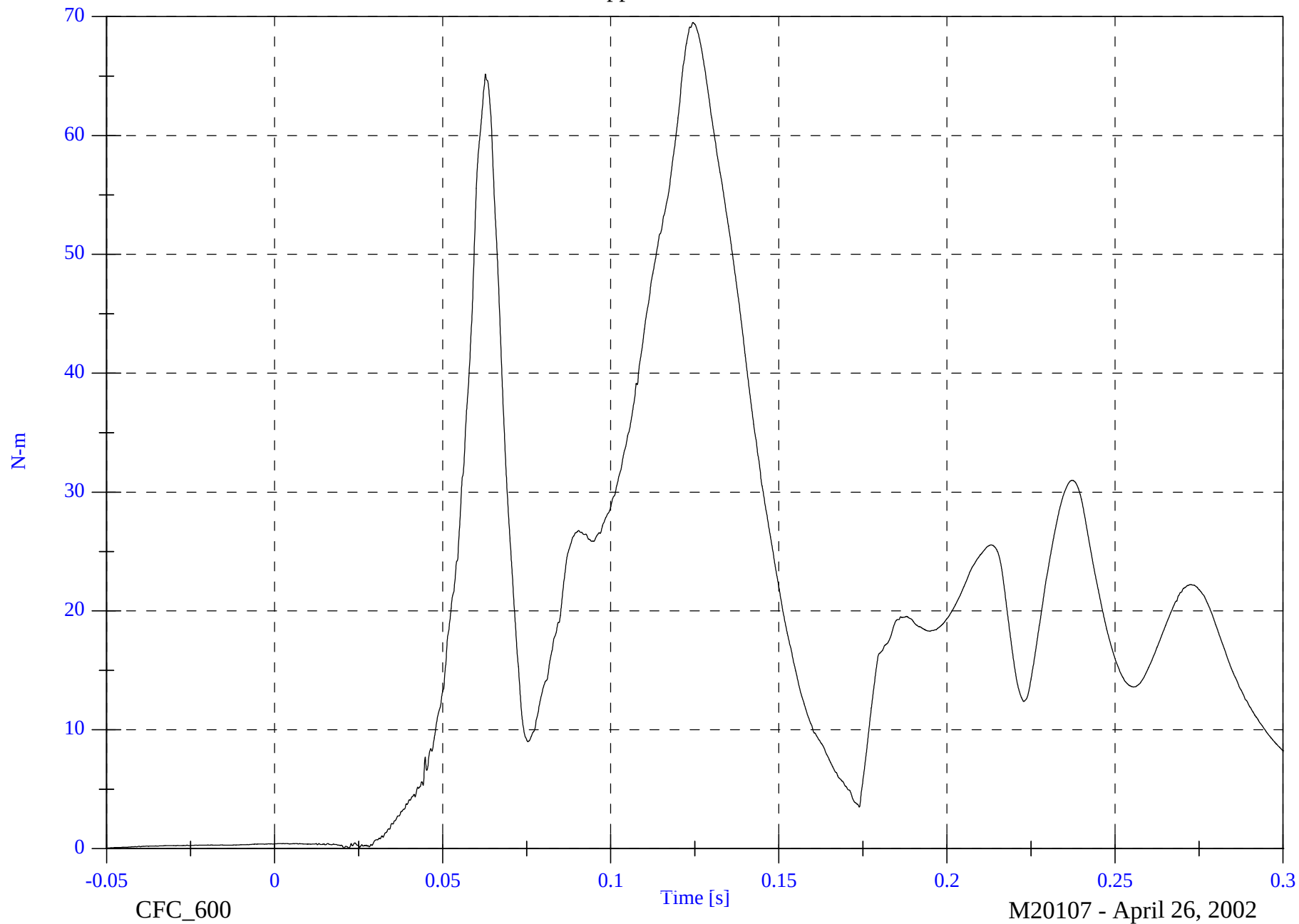
P2 Upper Neck M Resultant

Max: 69.5 [N-m] at 0.124 [s]

Min: 0.0 [N-m] at -0.050 [s]

B-80

8462-NCAP-09

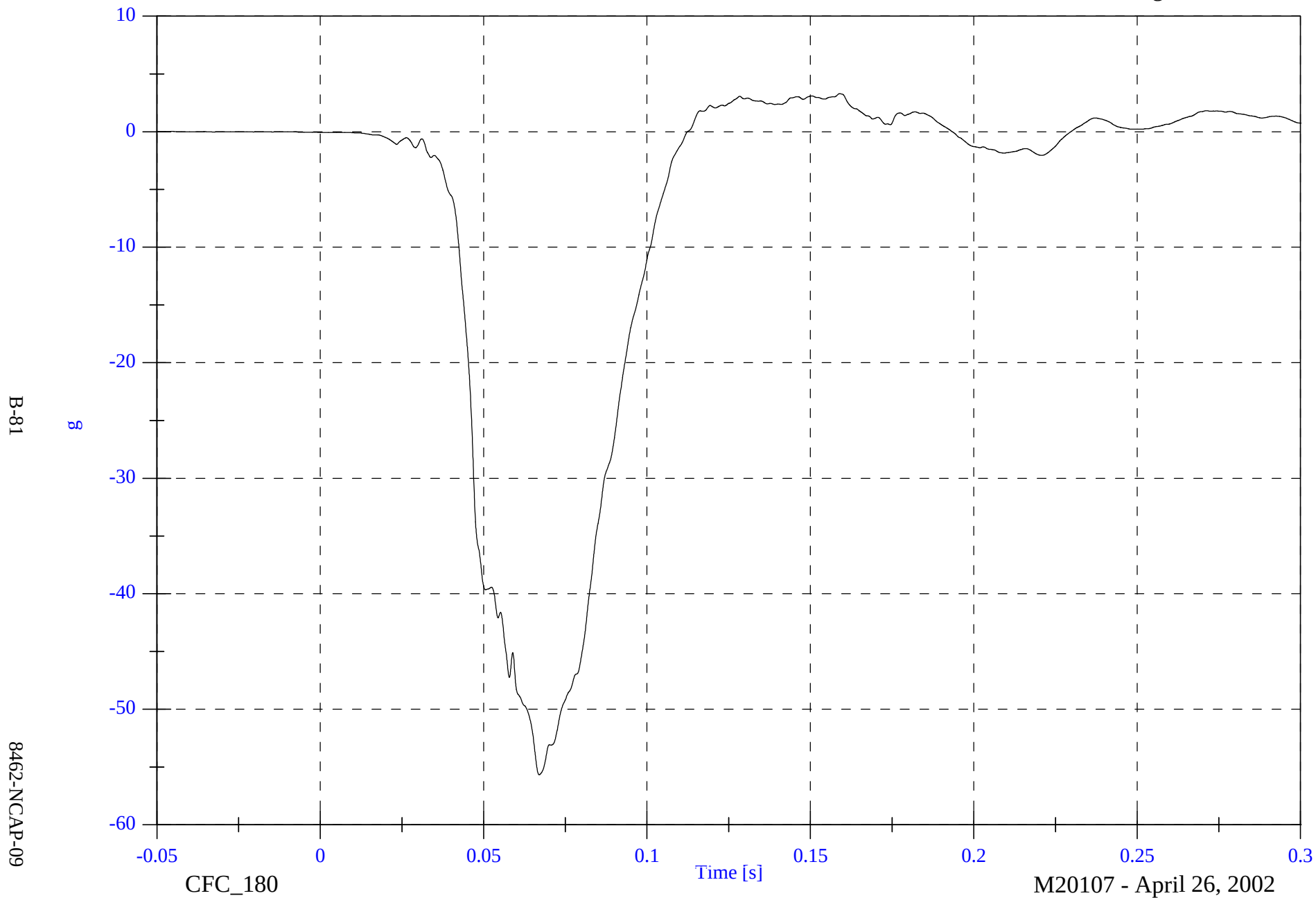


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Chest x

Max: 3.3 [g] at 0.159 [s]

Min: -55.7 [g] at 0.067 [s]

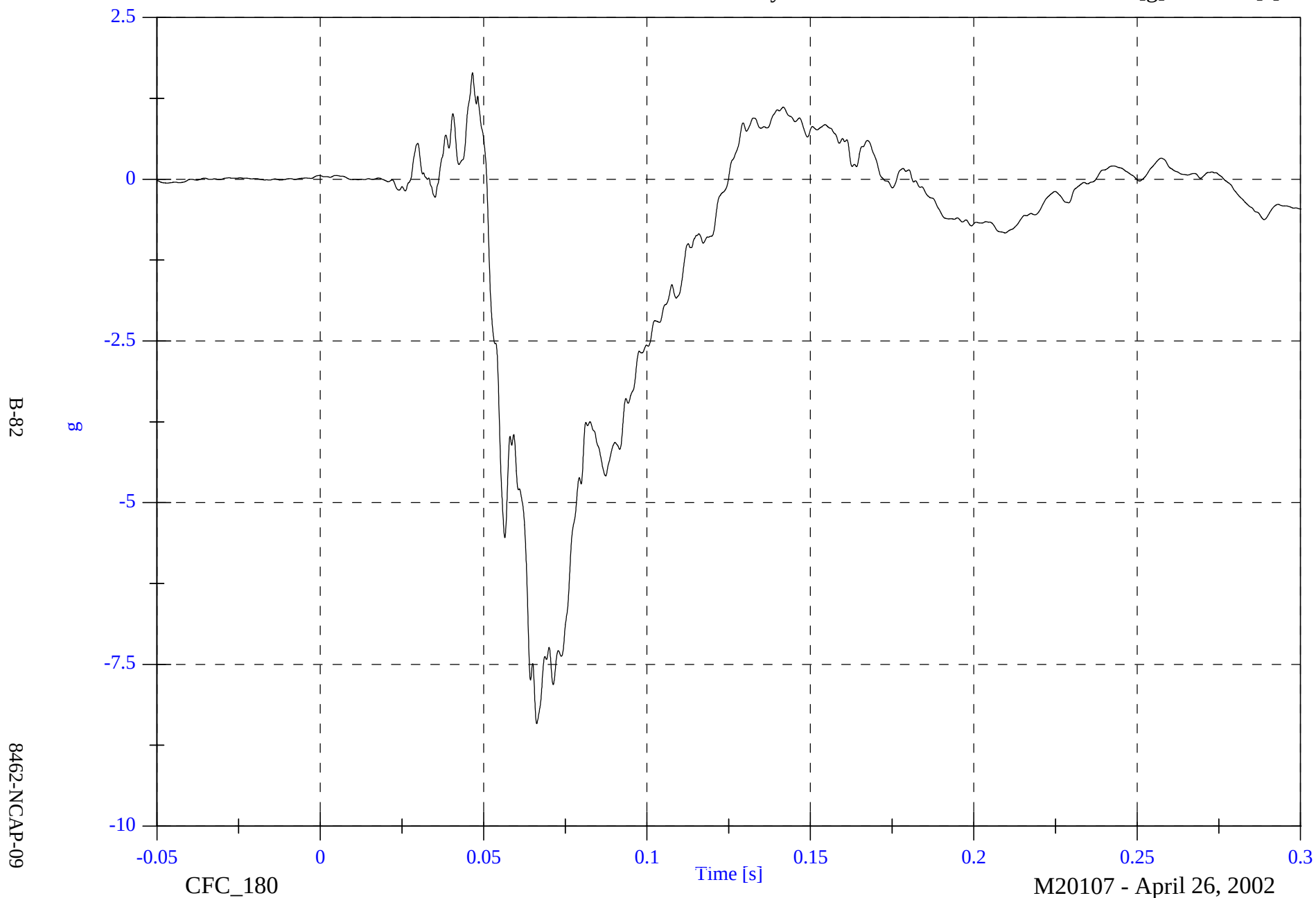


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Chest y

Max: 1.6 [g] at 0.047 [s]

Min: -8.4 [g] at 0.066 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

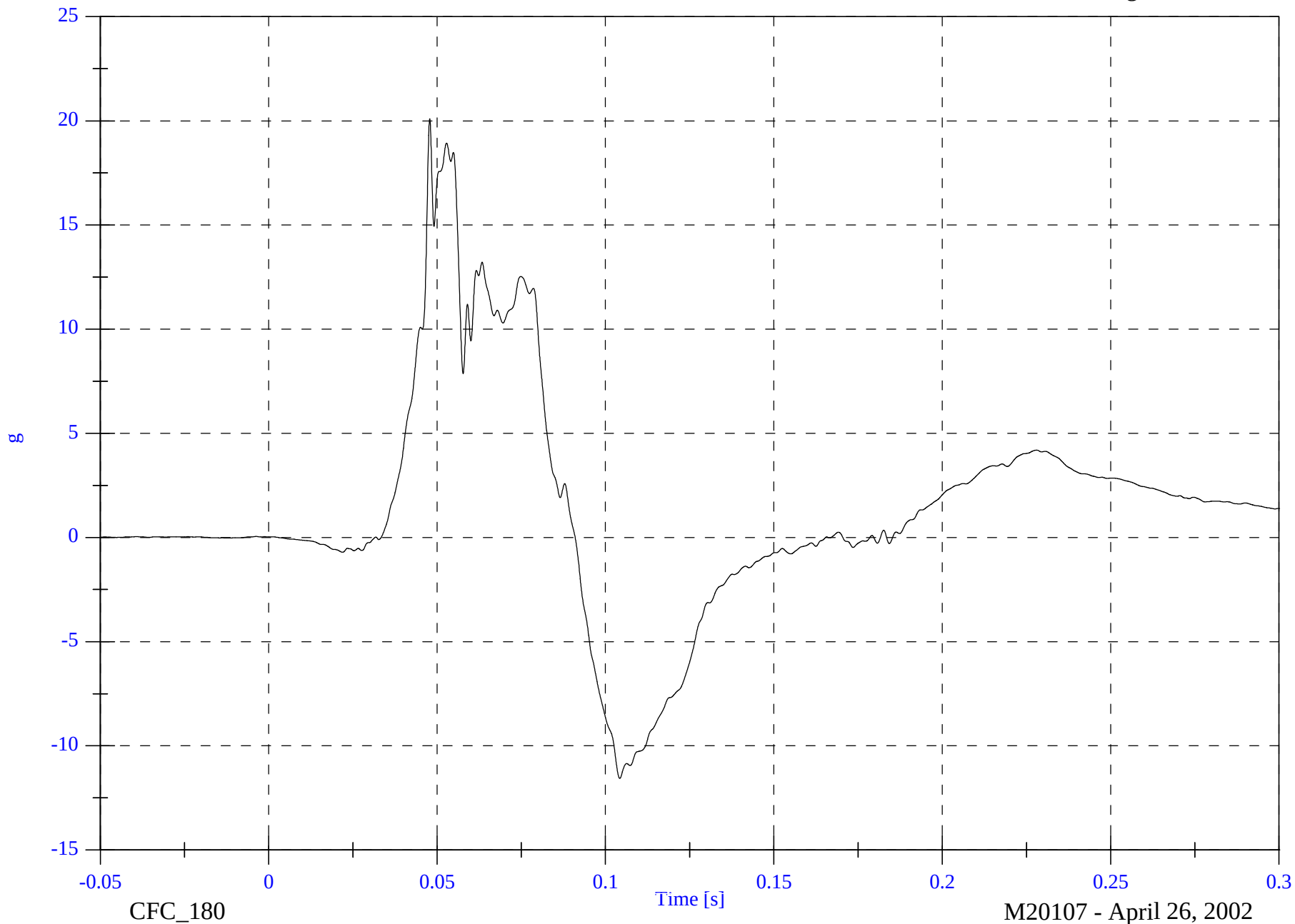
P2 Chest z

Max: 20.1 [g] at 0.048 [s]

Min: -11.6 [g] at 0.104 [s]

B-83

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

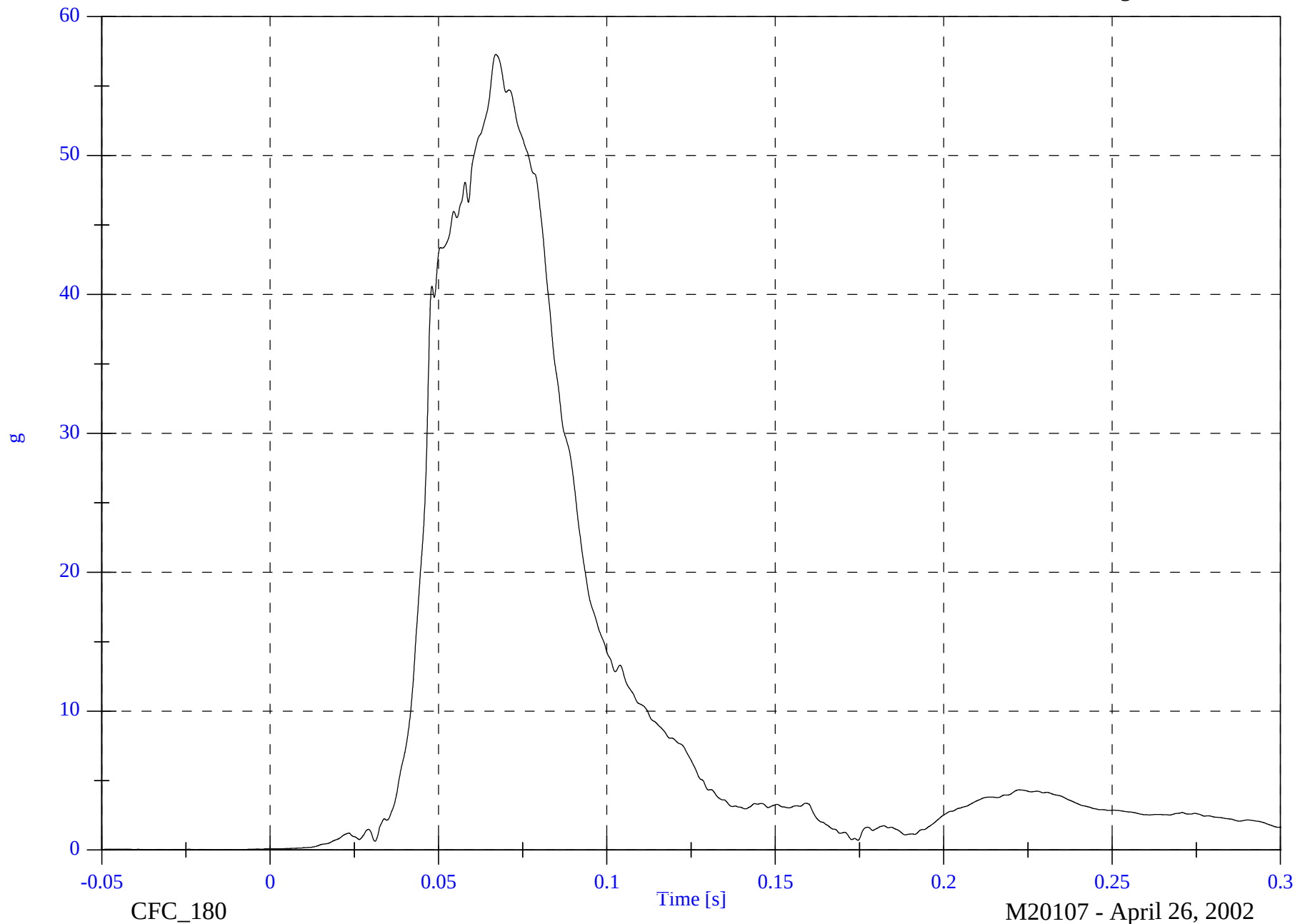
P2 Chest Resultant

Max: 57.3 [g] at 0.067 [s]

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

B-84

8462-NCAP-09

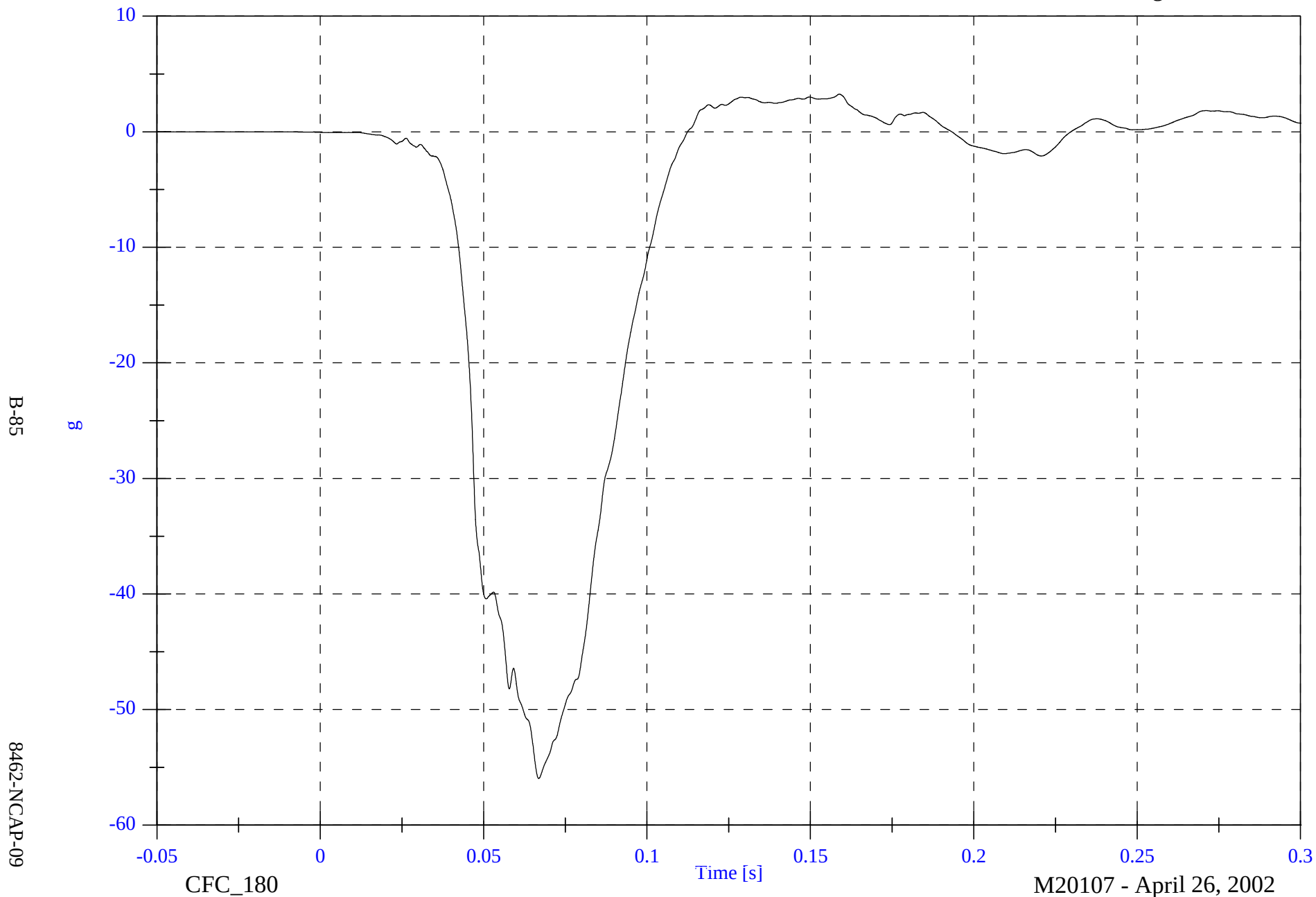


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Chest Red x

Max: 3.3 [g] at 0.159 [s]

Min: -56.0 [g] at 0.067 [s]

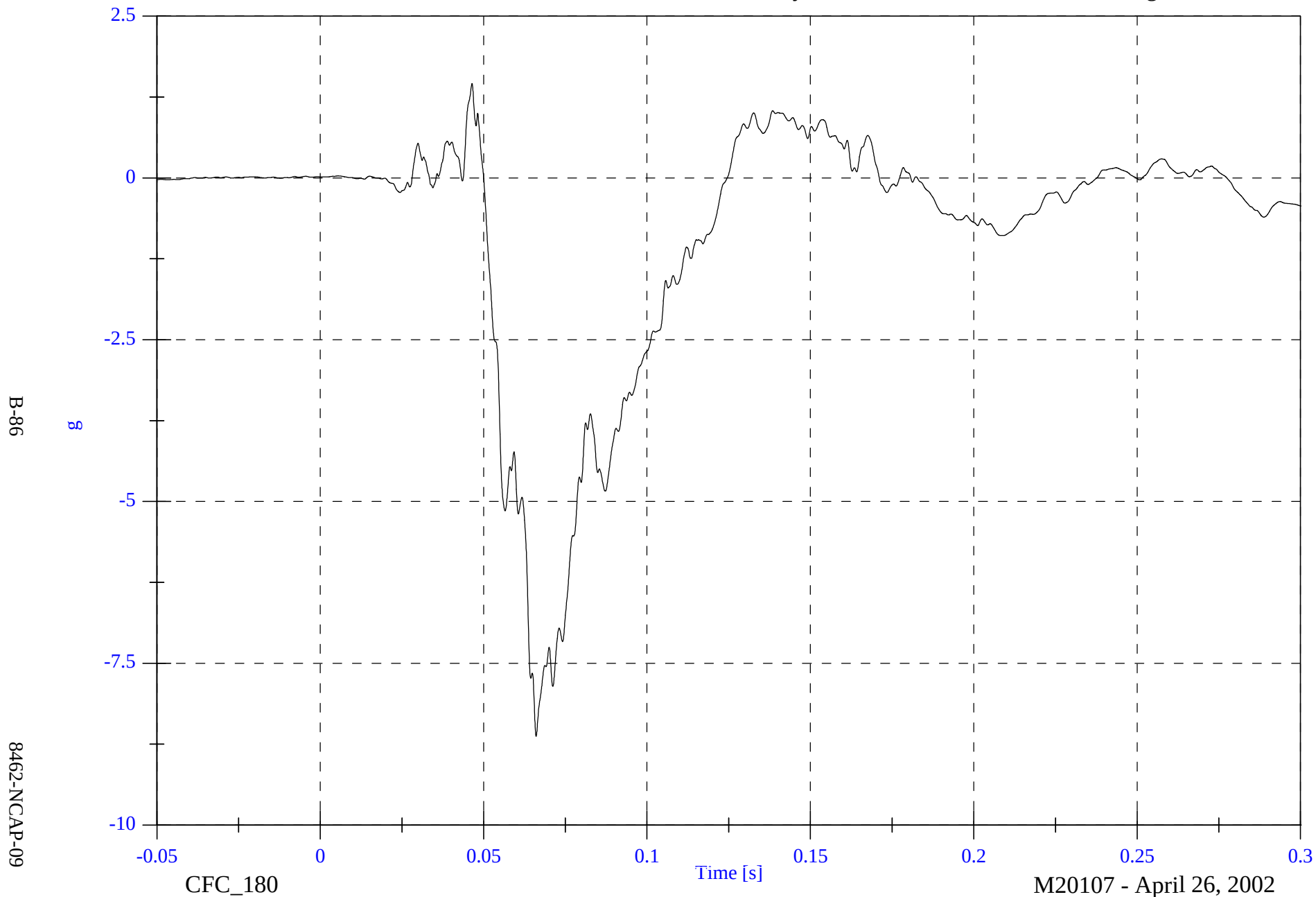


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Chest Red y

Max: 1.5 [g] at 0.046 [s]

Min: -8.6 [g] at 0.066 [s]

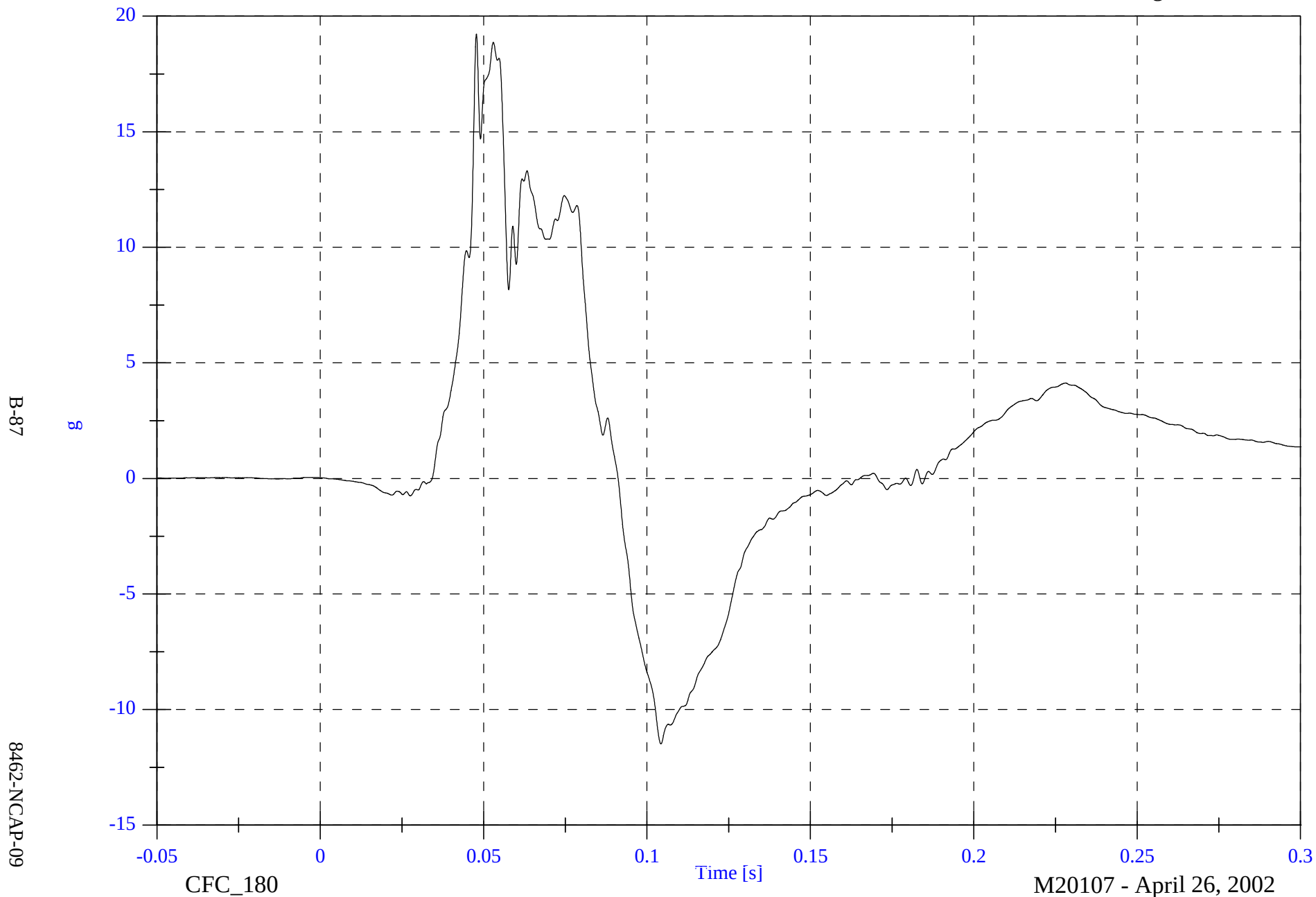


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Chest Red z

Max: 19.2 [g] at 0.048 [s]

Min: -11.5 [g] at 0.104 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

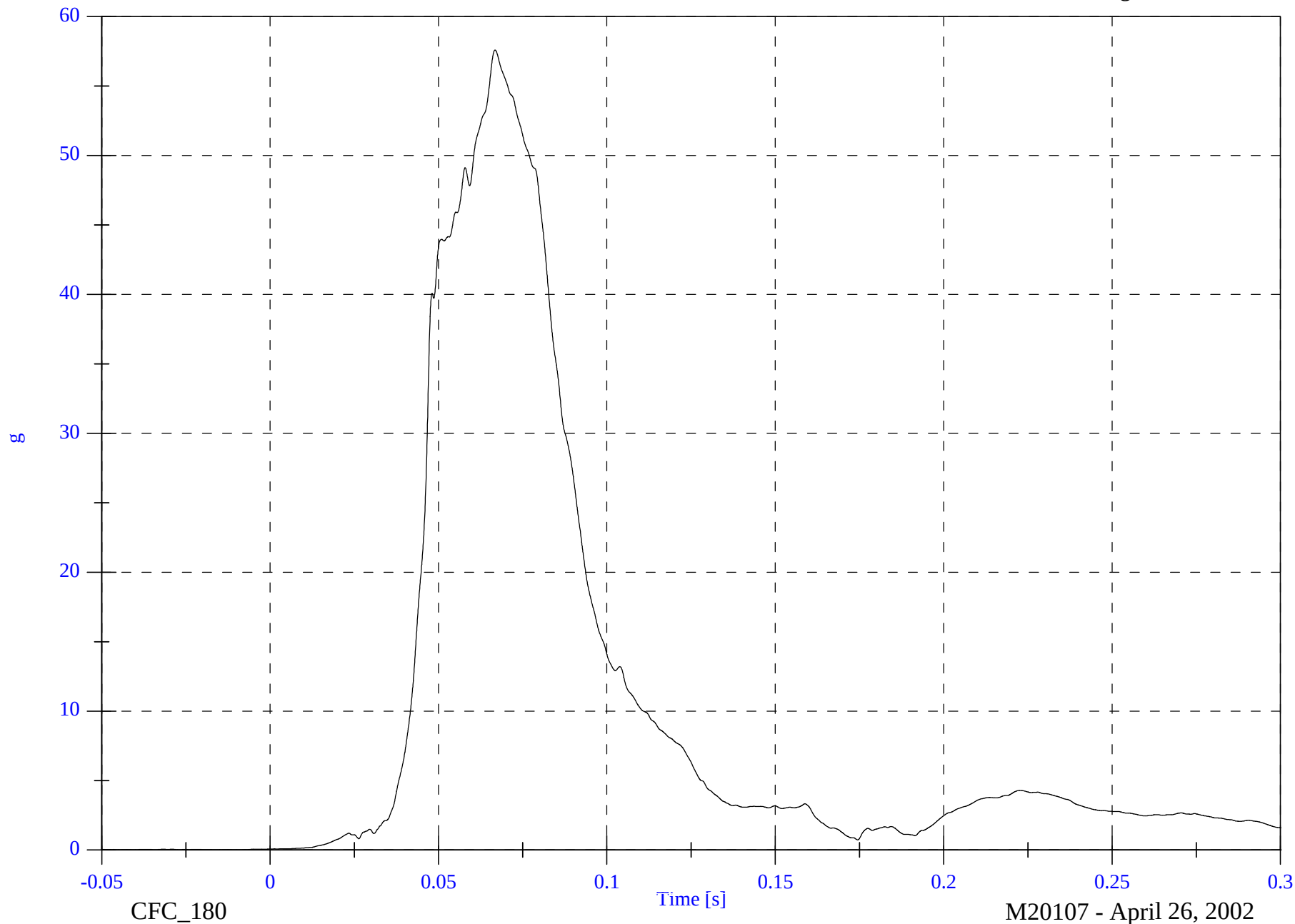
P2 Chest Red Resultant

Max: 57.6 [g] at 0.067 [s]

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

B-88

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

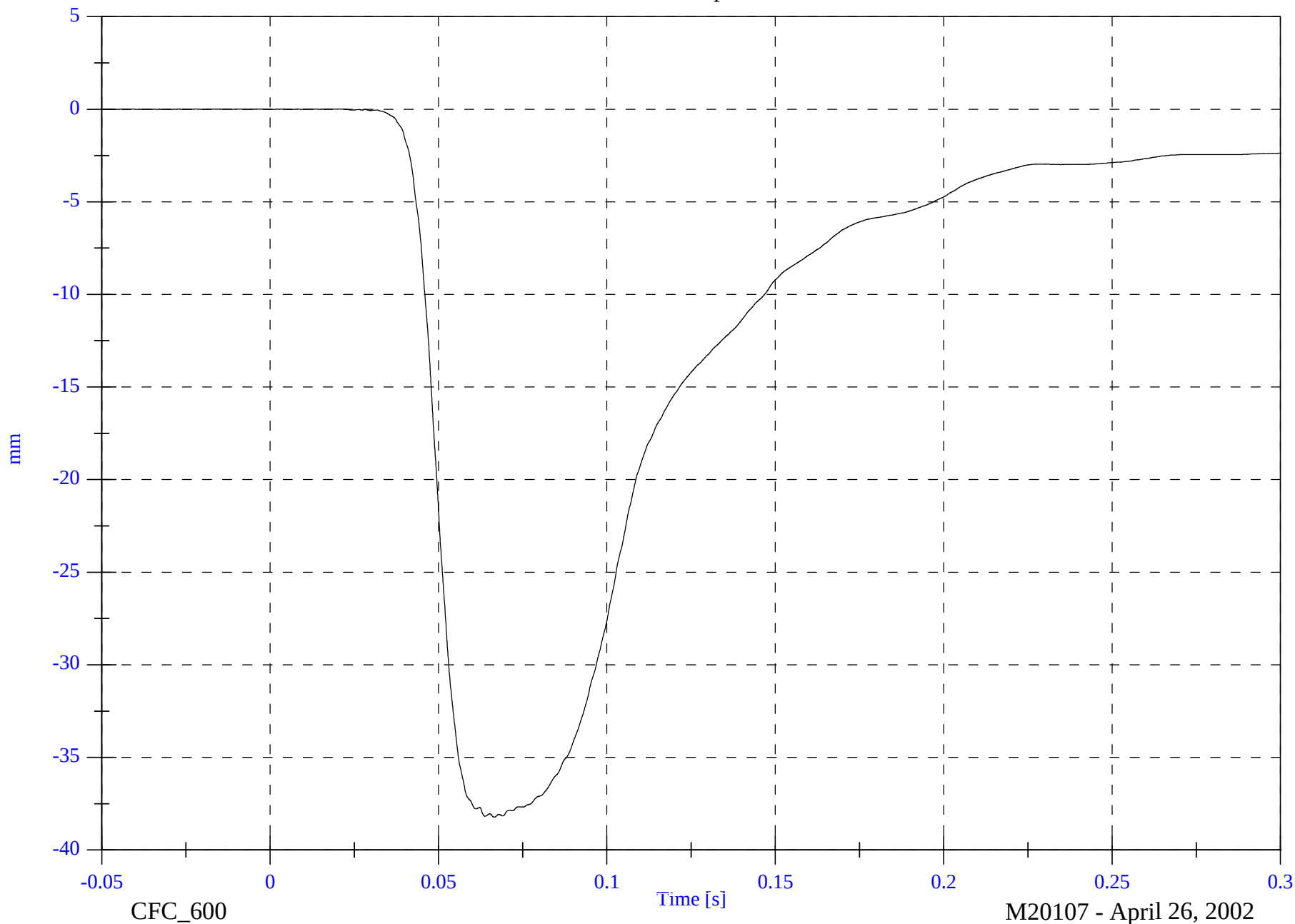
P2 Chest Compression x

Max: 0.0 [mm] at 0.022 [s]

Min: -38.2 [mm] at 0.066 [s]

B-89

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

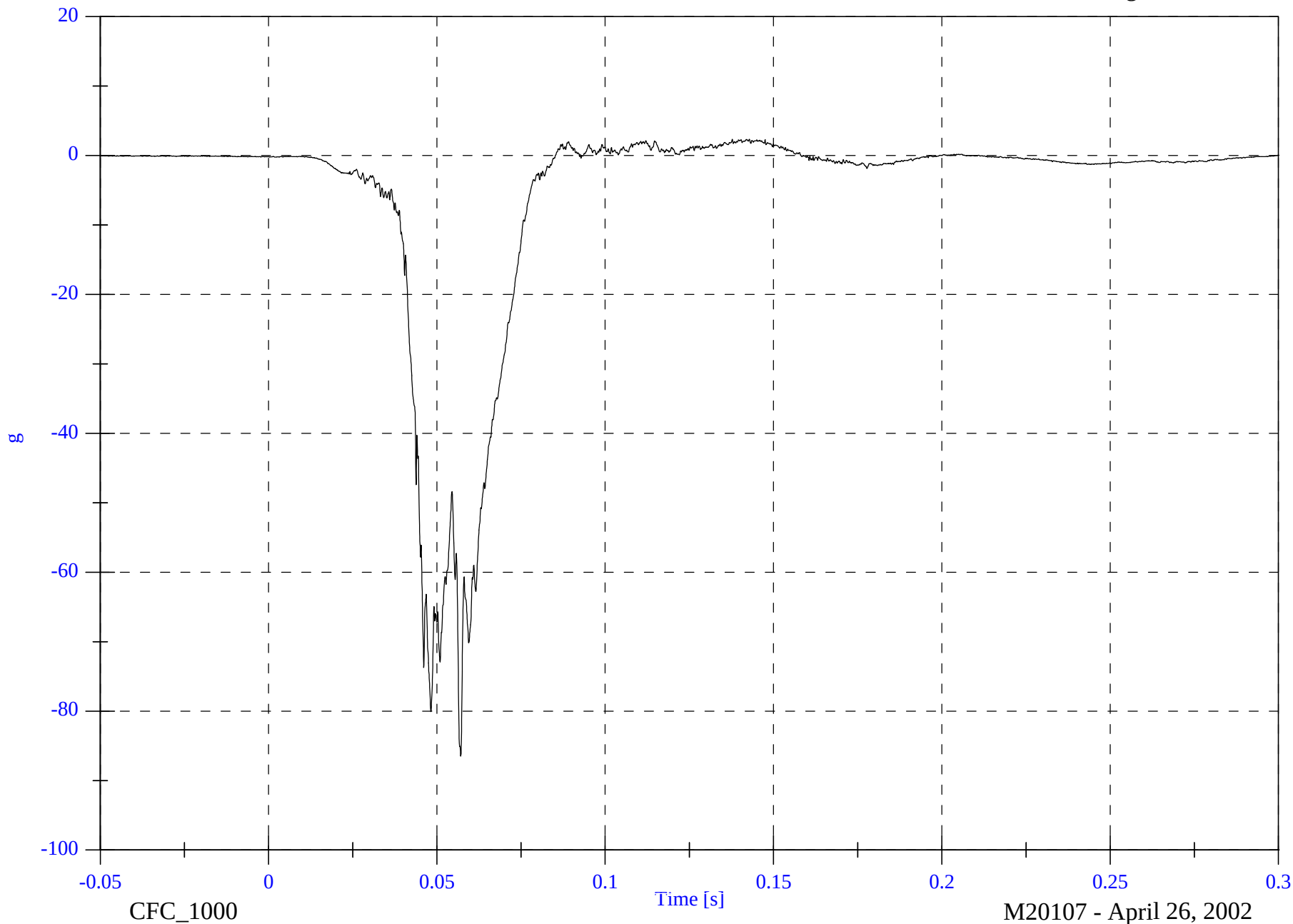
P2 Pelvic x

Max: 2.4 [g] at 0.143 [s]

Min: -86.5 [g] at 0.057 [s]

B-90

8462-NCAP-09

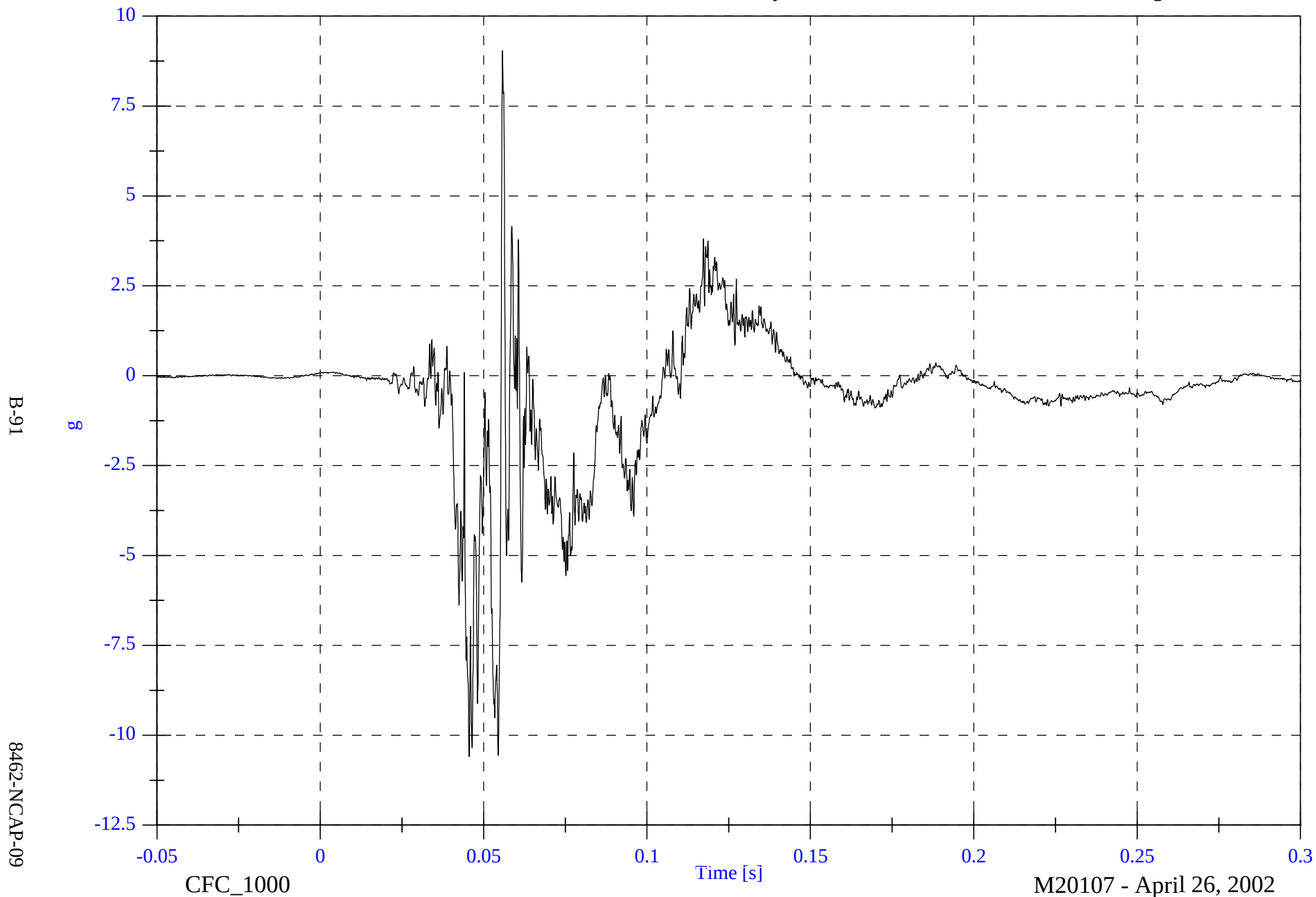


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Pelvic y

Max: 9.0 [g] at 0.056 [s]

Min: -10.6 [g] at 0.046 [s]

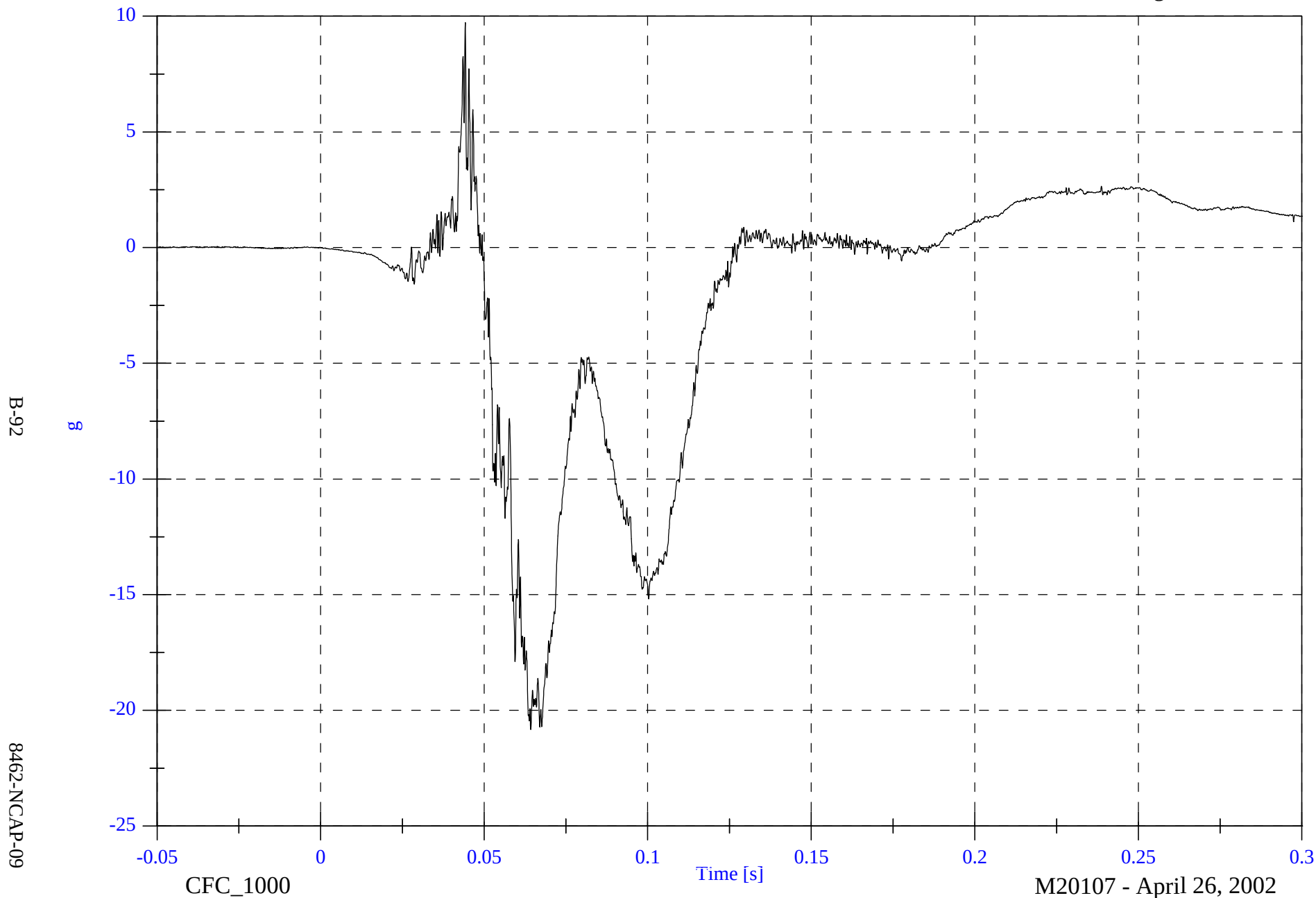


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Pelvic z

Max: 9.7 [g] at 0.044 [s]

Min: -20.8 [g] at 0.064 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

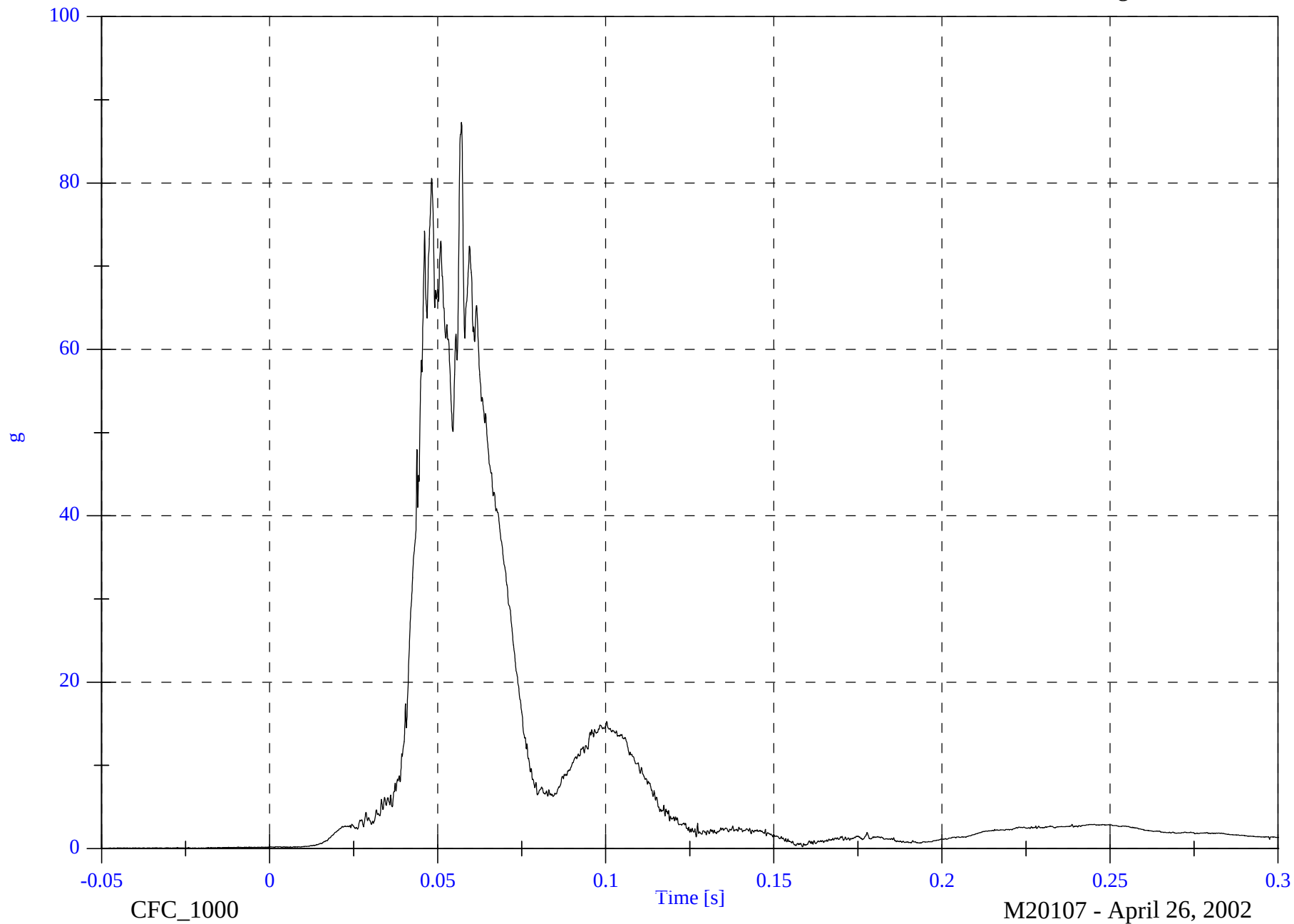
P2 Pelvic Resultant

Max: 87.3 [g] at 0.057 [s]

Min: 0.0 [g] at -0.023 [s]

B-93

8462-NCAP-09

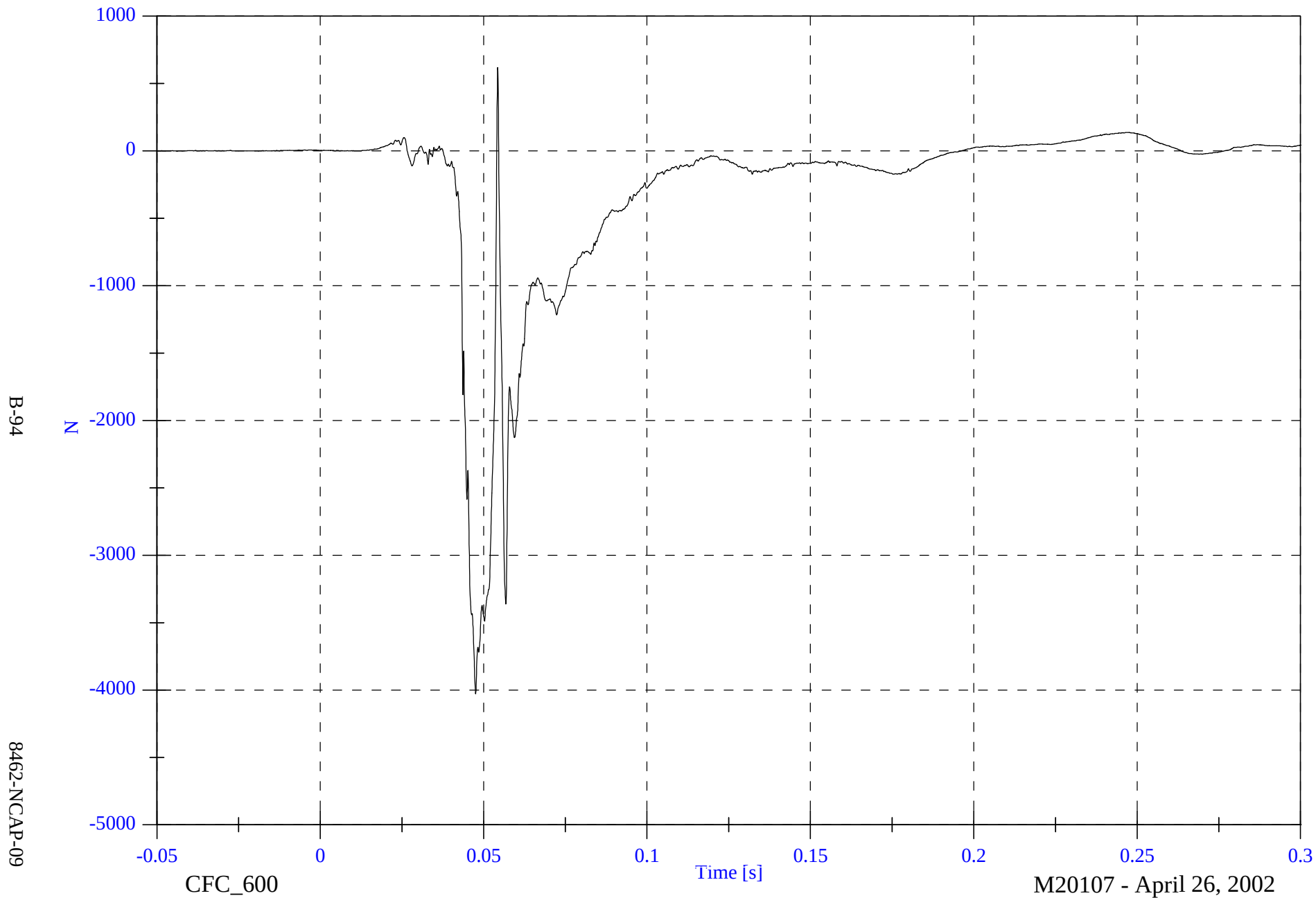


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Left Femur z

Max: 618.6 [N] at 0.054 [s]

Min: -4028.4 [N] at 0.048 [s]

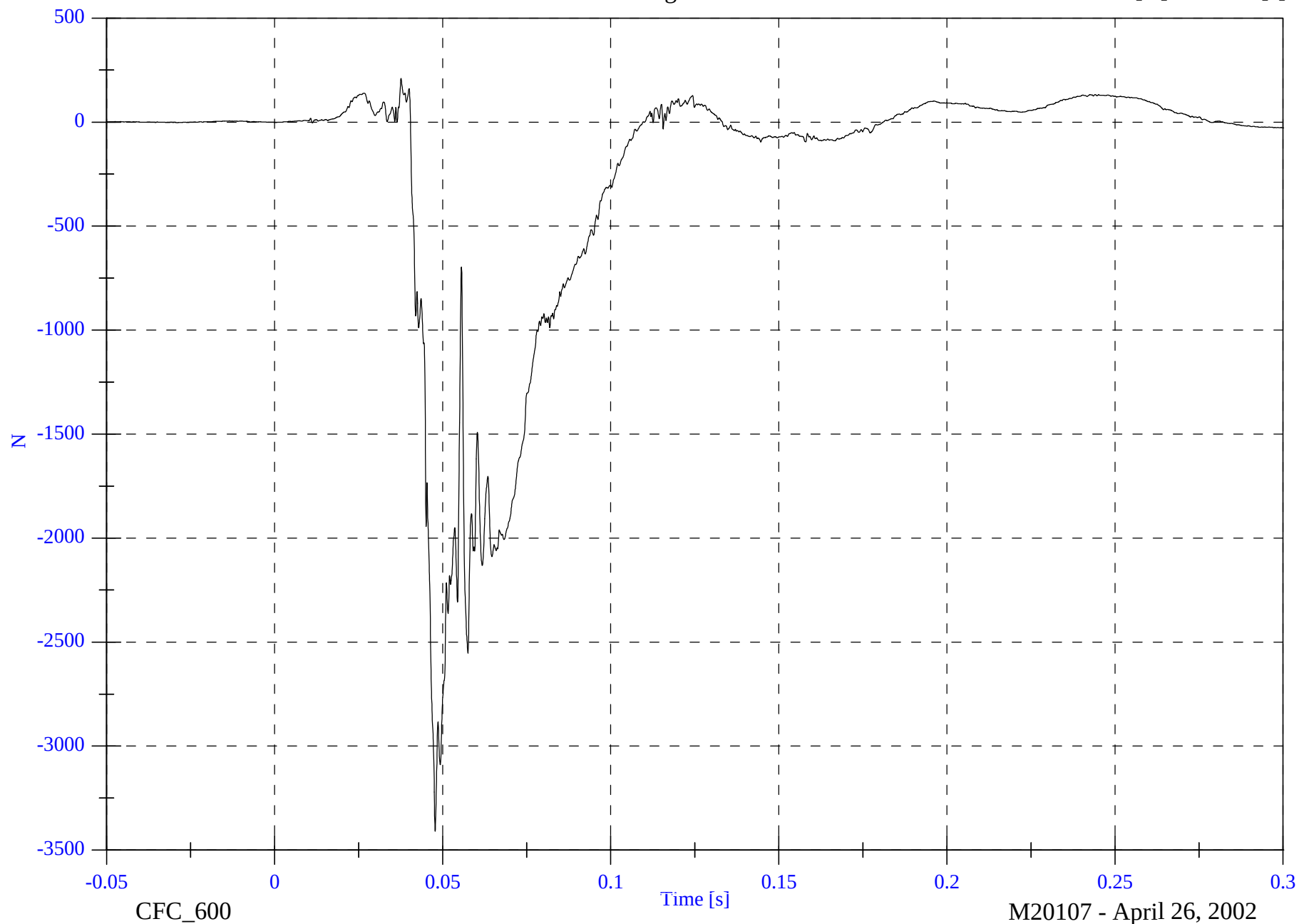


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Right Femur z

Max: 209.8 [N] at 0.038 [s]

Min: -3409.3 [N] at 0.048 [s]

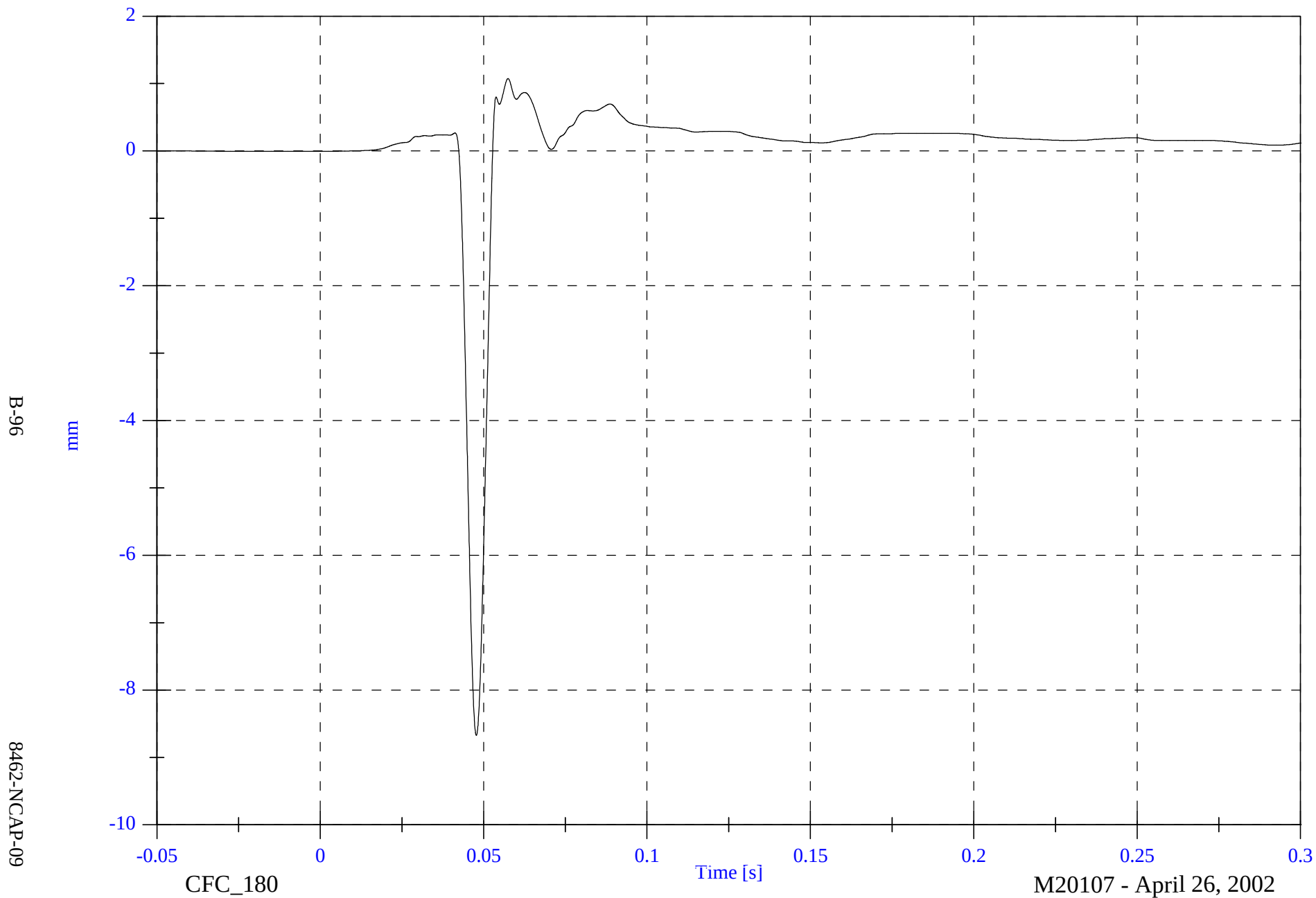


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Left Knee Shear

Max: 1.1 [mm] at 0.057 [s]

Min: -8.7 [mm] at 0.048 [s]

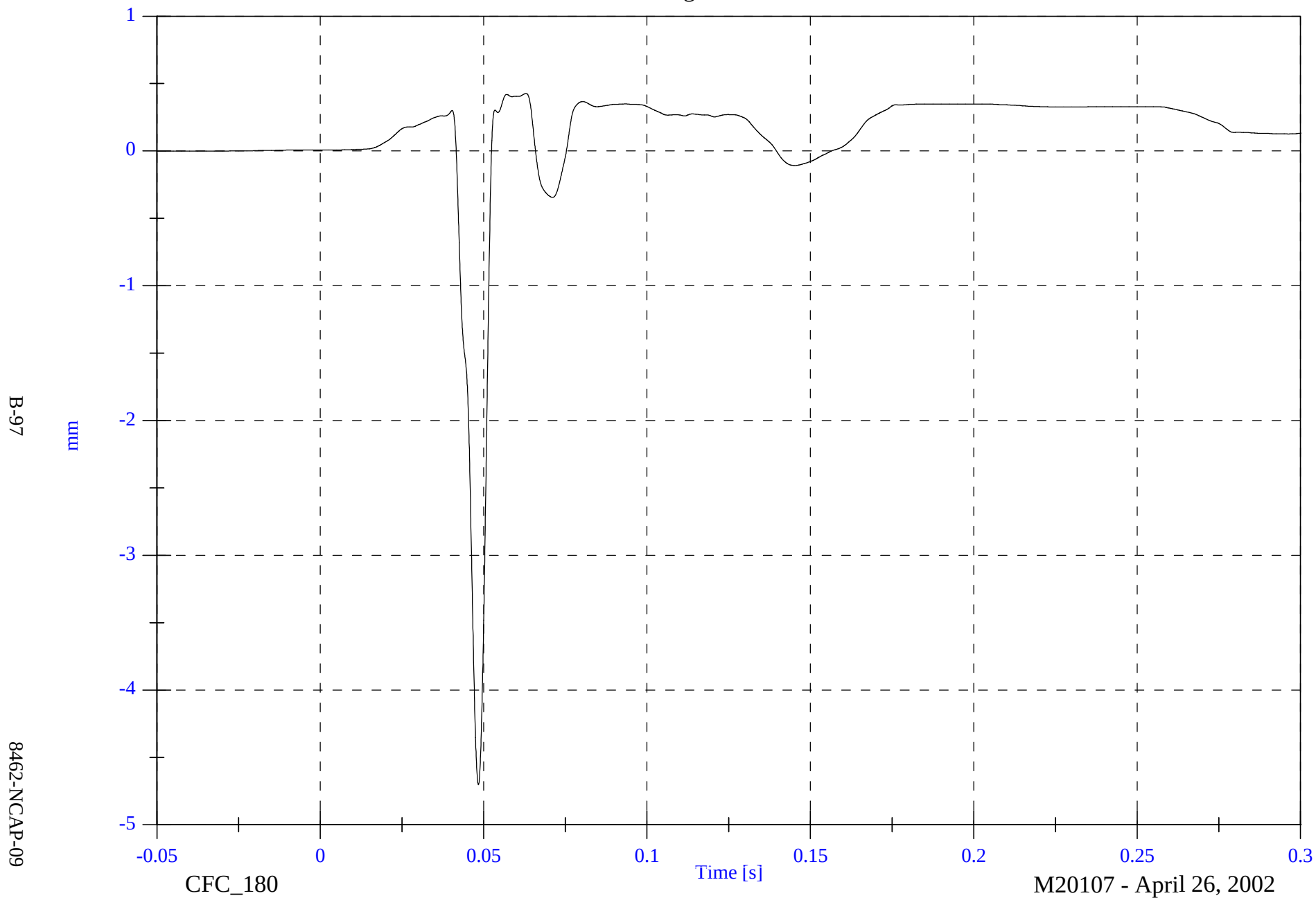


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Right Knee Shear

Max: 0.4 [mm] at 0.063 [s]

Min: -4.7 [mm] at 0.048 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

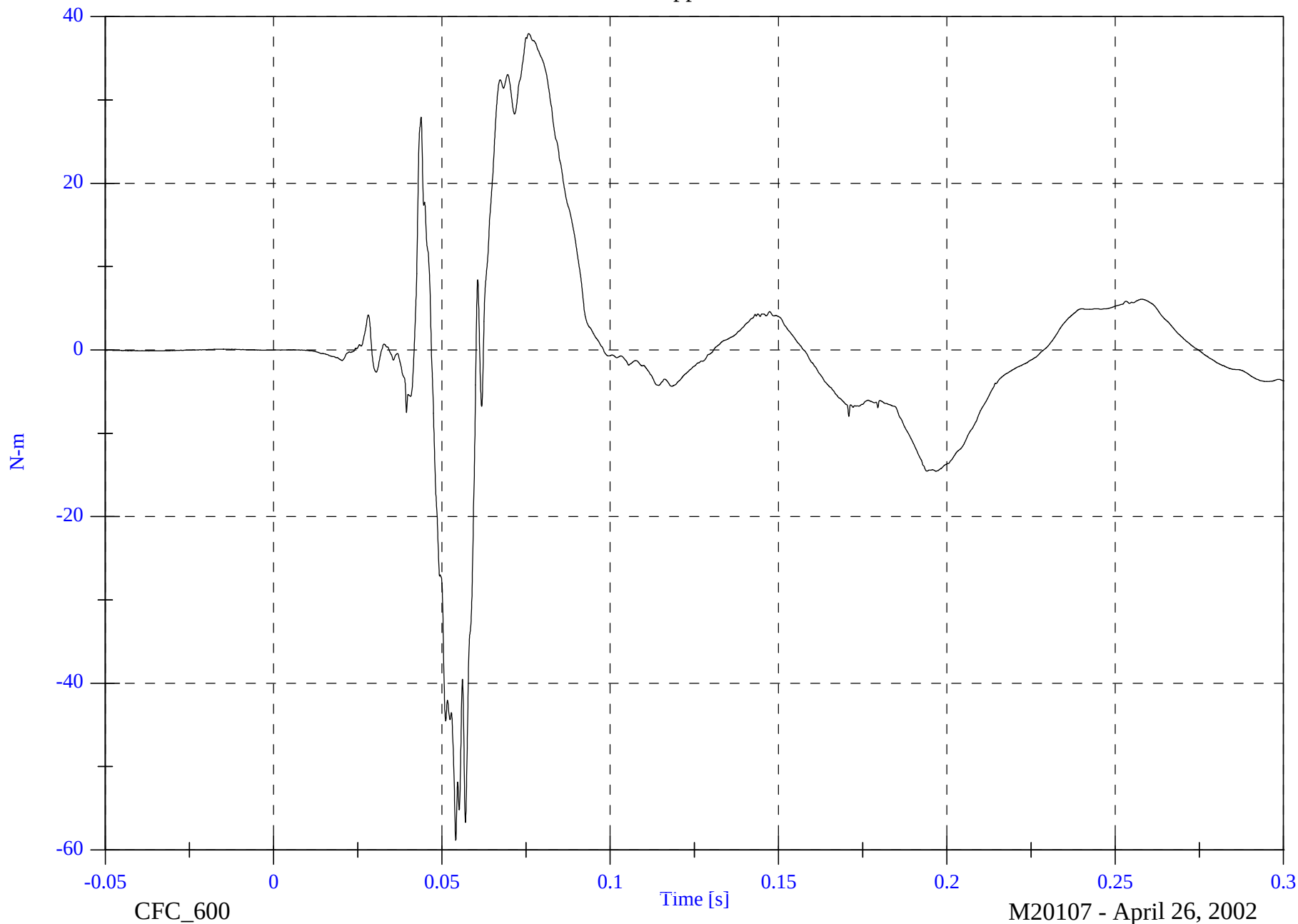
P2 Left Upper Tibia Mx

Max: 38.0 [N-m] at 0.076 [s]

Min: -58.8 [N-m] at 0.054 [s]

B-98

8462-NCAP-09

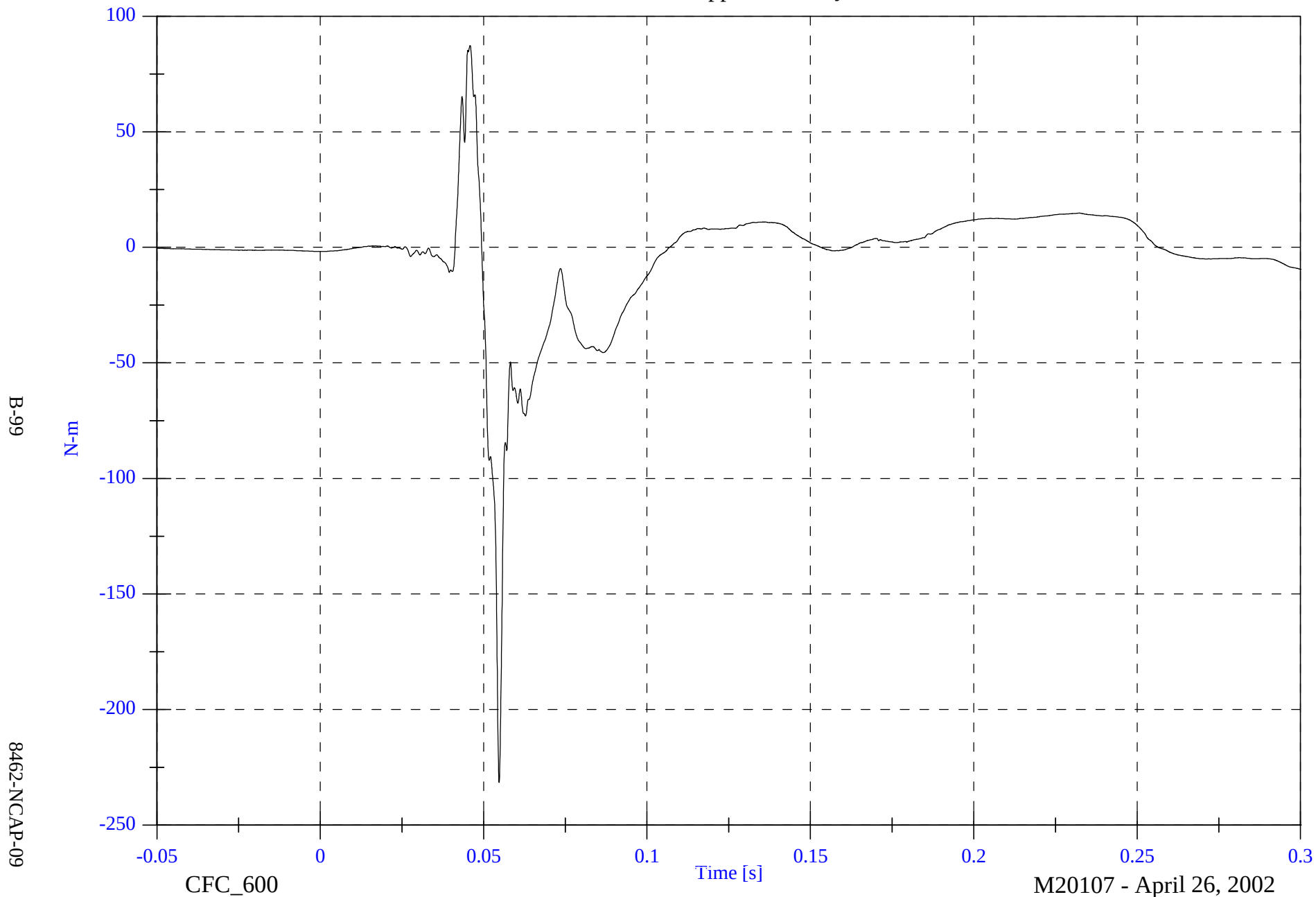


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Left Upper Tibia My

Max: 87.3 [N-m] at 0.046 [s]

Min: -231.6 [N-m] at 0.055 [s]

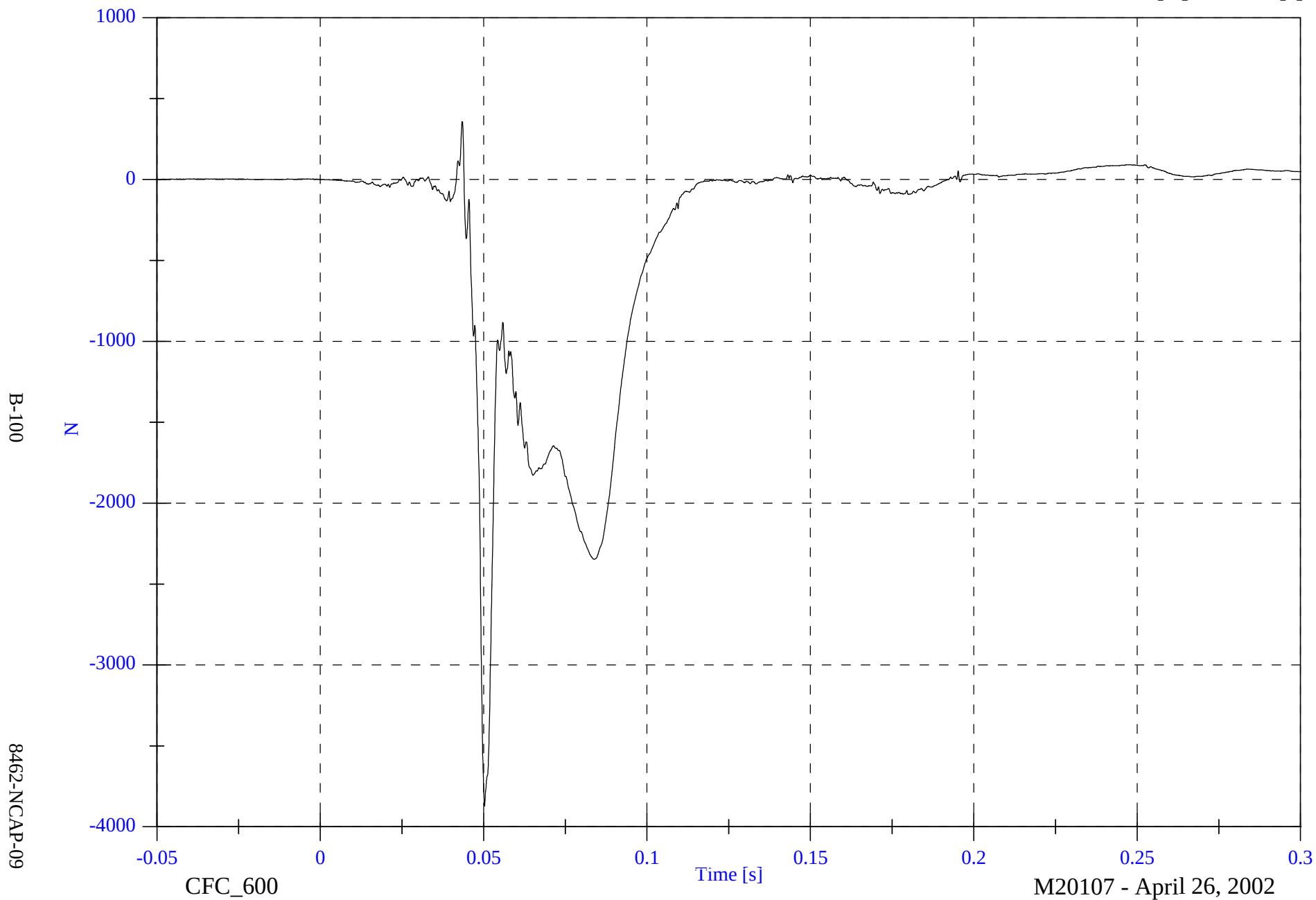


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Left Lower Tibia Fz

Max: 358.6 [N] at 0.043 [s]

Min: -3872.8 [N] at 0.050 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

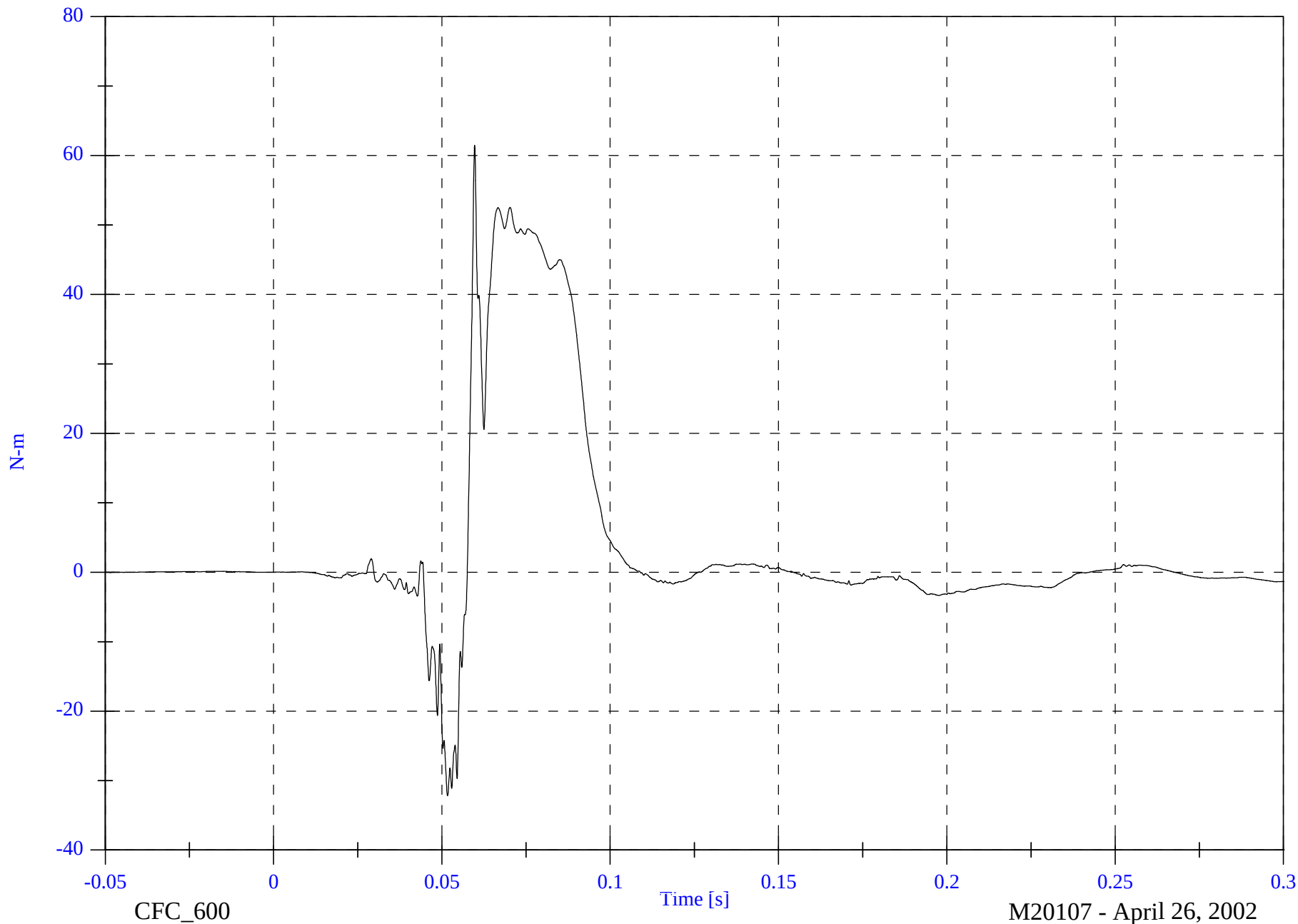
P2 Left Lower Tibia Mx

Max: 61.5 [N-m] at 0.060 [s]

Min: -32.2 [N-m] at 0.052 [s]

B-101

8462-NCAP-09

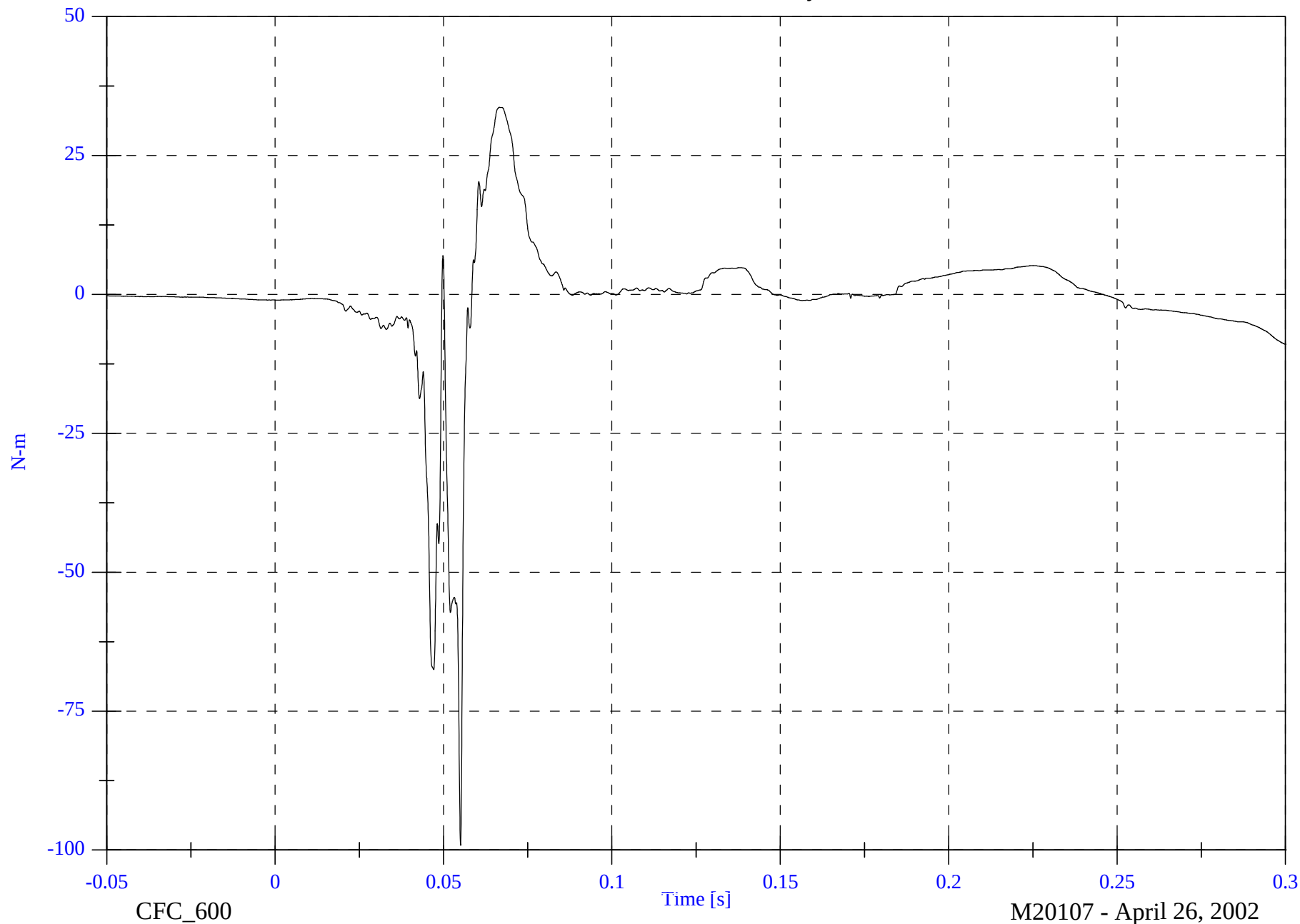


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Left Lower Tibia My

Max: 33.7 [N-m] at 0.067 [s]

Min: -99.2 [N-m] at 0.055 [s]



B-102

8462-NCAP-09

CFC_600

Time [s]

M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

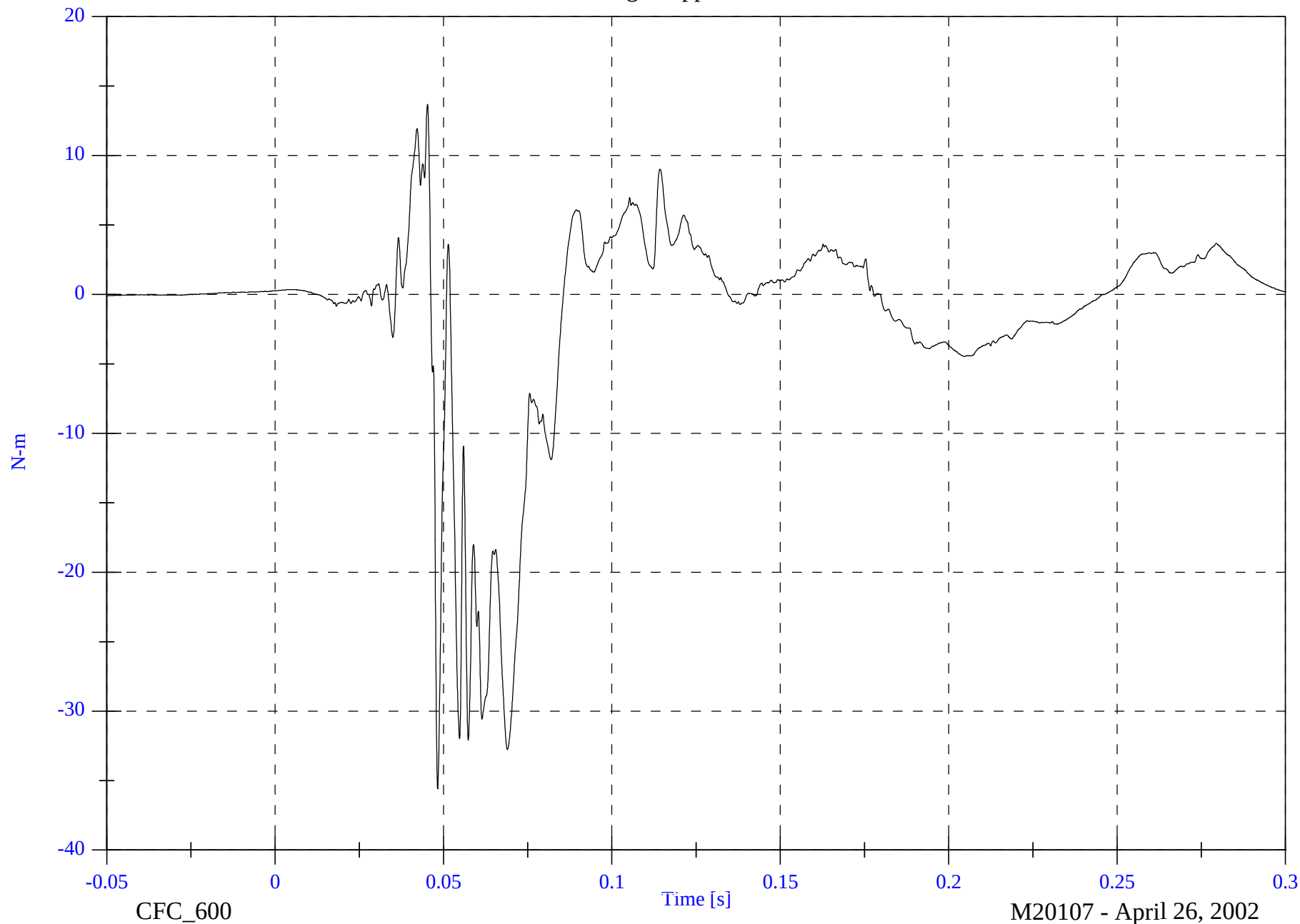
P2 Right Upper Tibia Mx

Max: 13.7 [N-m] at 0.045 [s]

Min: -35.6 [N-m] at 0.048 [s]

B-103

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

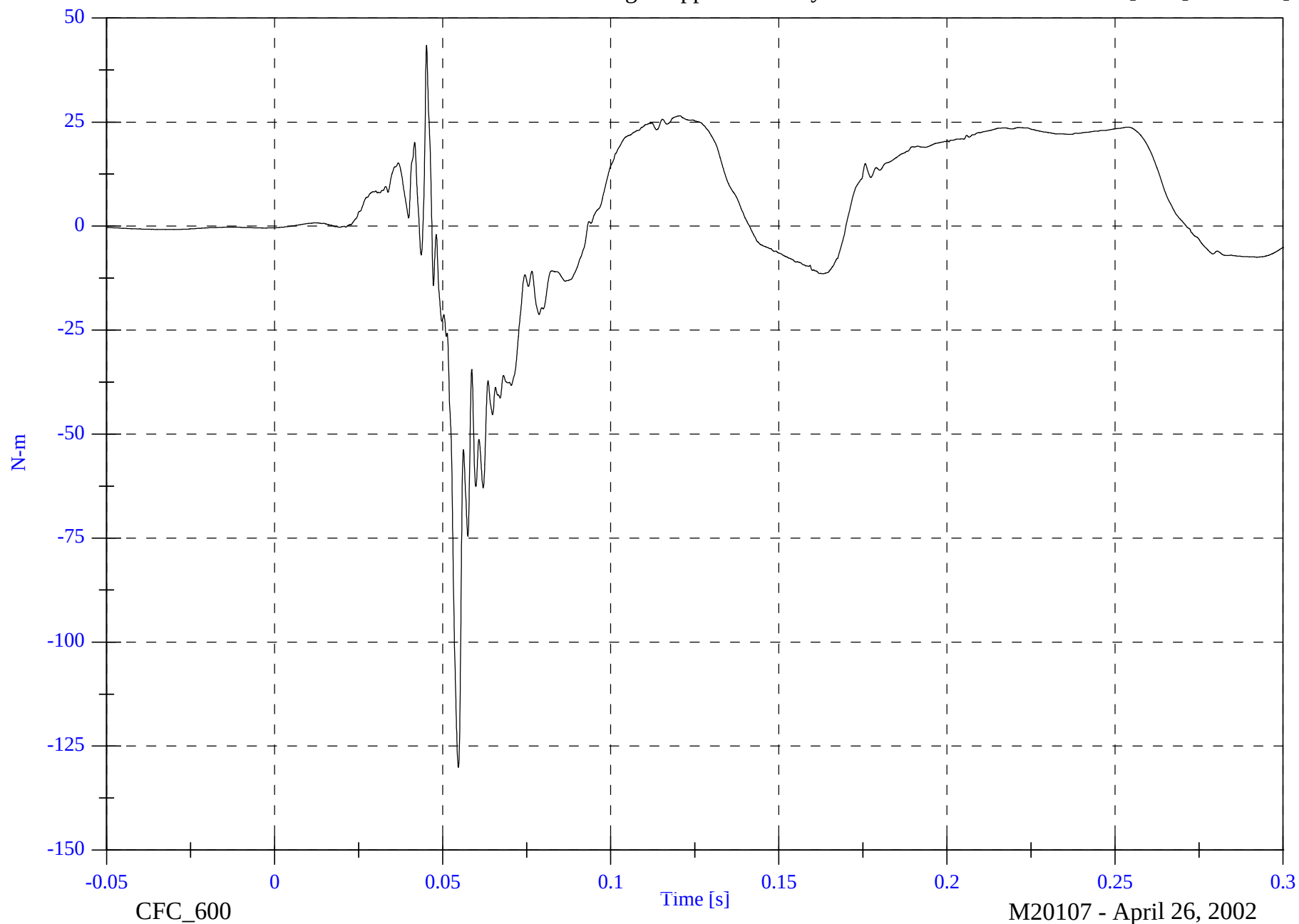
P2 Right Upper Tibia My

Max: 43.4 [N-m] at 0.045 [s]

Min: -130.2 [N-m] at 0.055 [s]

B-104

8462-NCAP-09



CFC_600

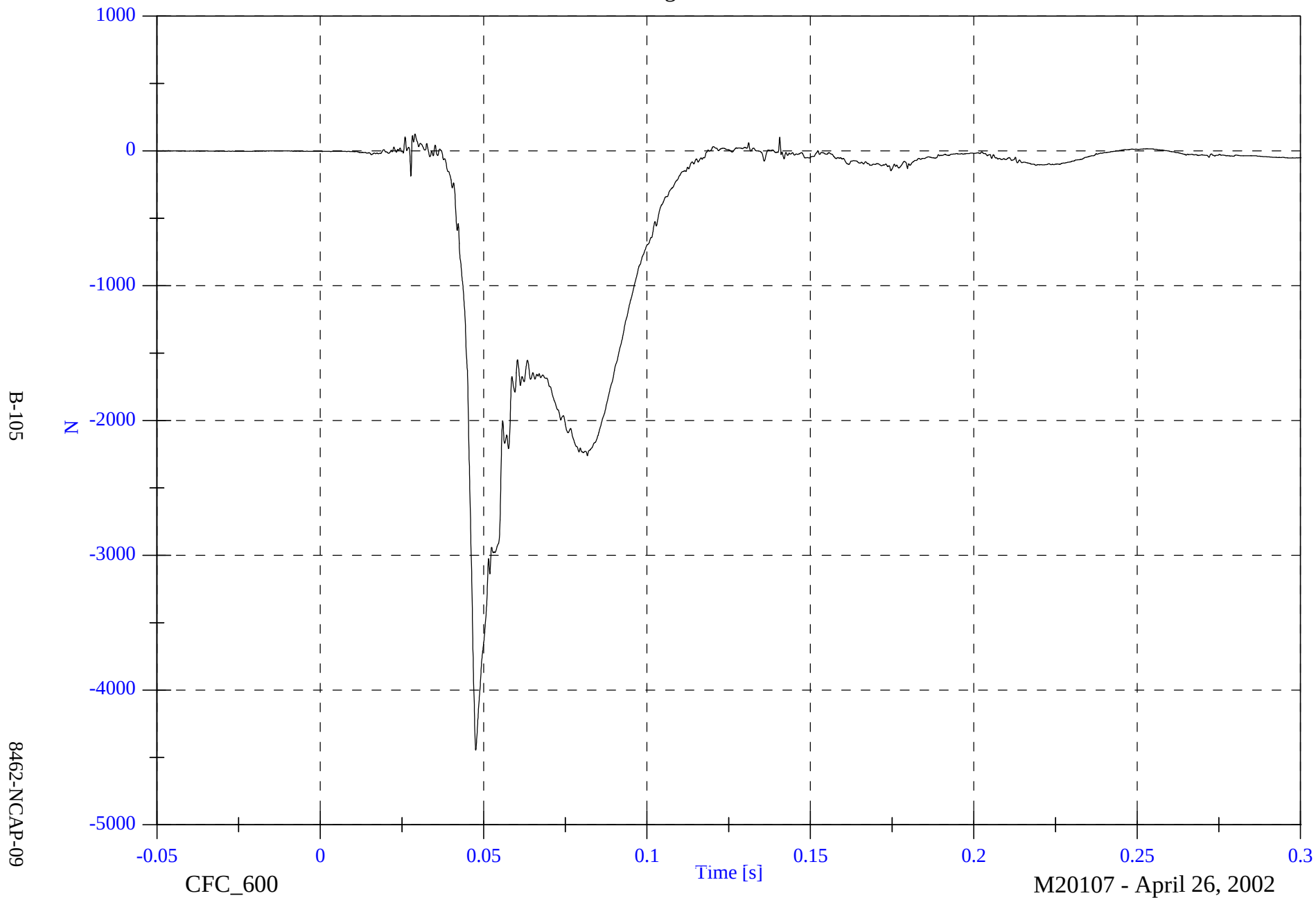
M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 124.8 [N] at 0.029 [s]

P2 Right Lower Tibia Fz

Min: -4447.8 [N] at 0.048 [s]

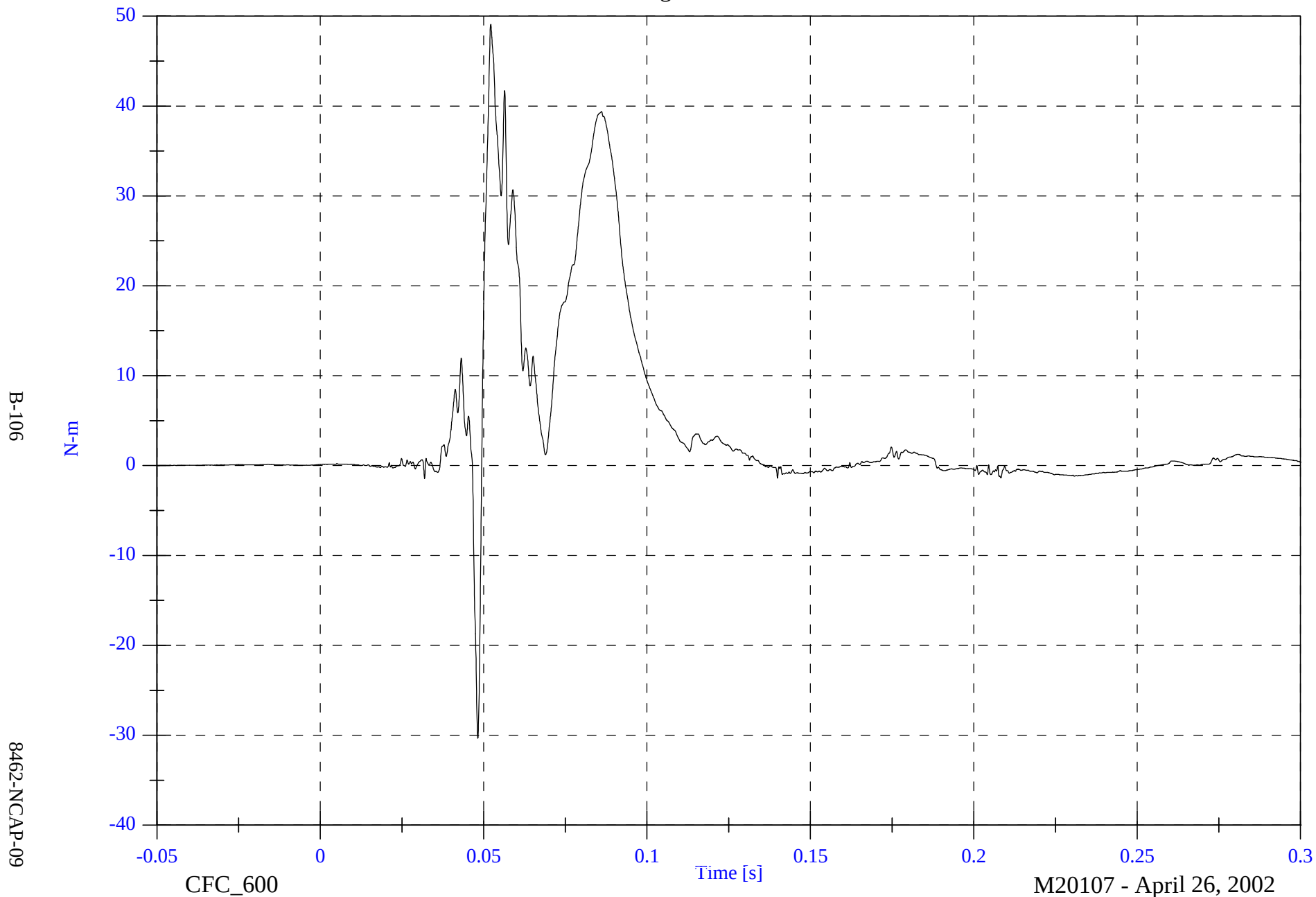


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Right Lower Tibia Mx

Max: 49.1 [N-m] at 0.052 [s]

Min: -30.4 [N-m] at 0.048 [s]

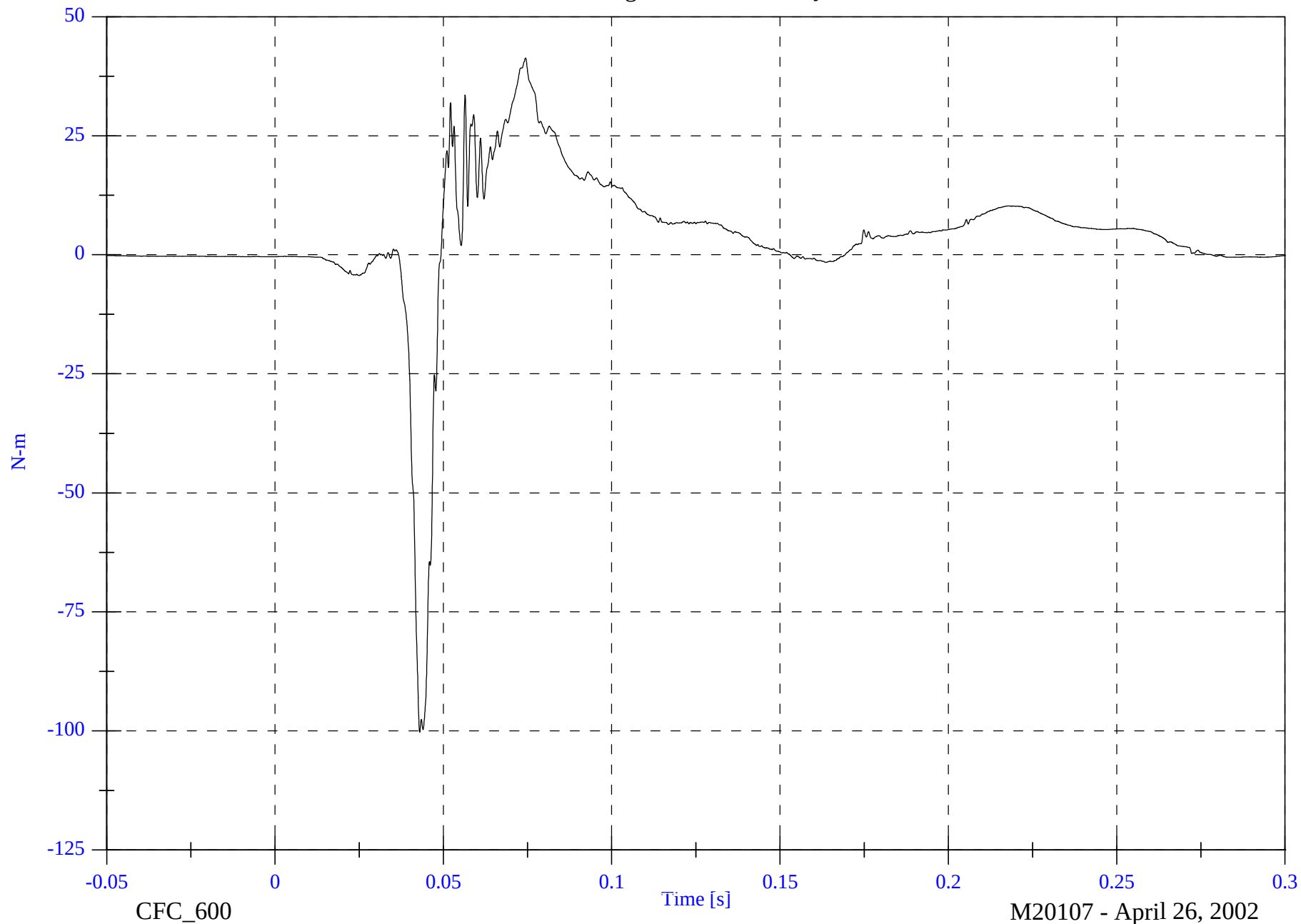


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Right Lower Tibia My

Max: 41.3 [N-m] at 0.074 [s]

Min: -100.3 [N-m] at 0.043 [s]



B-107

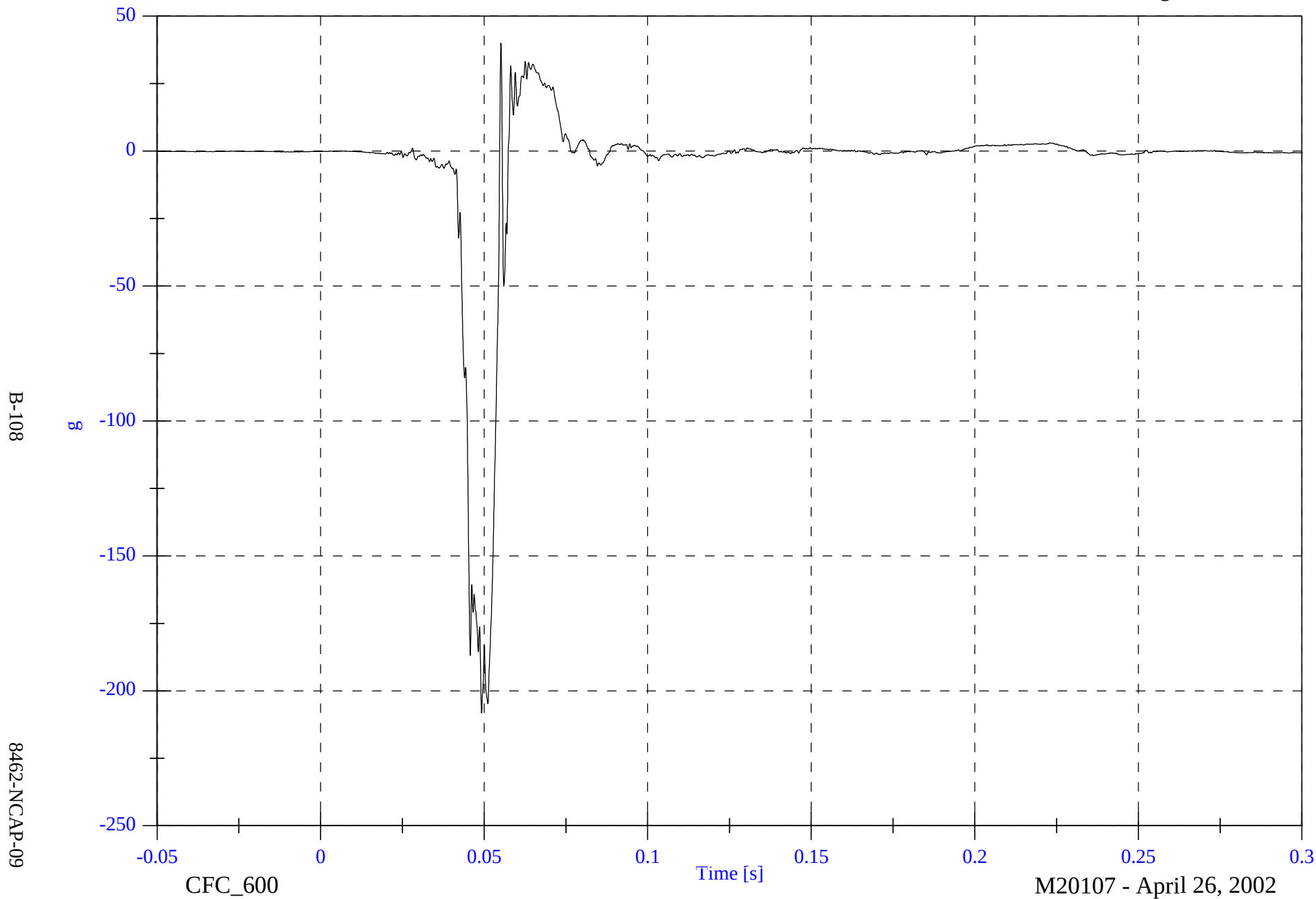
8462-NCAP-09

NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 40.0 [g] at 0.055 [s]

Min: -208.3 [g] at 0.049 [s]

P2 Left Foot Aft x



NCAP Test #9 - 2002 Chevrolet Trailblazer

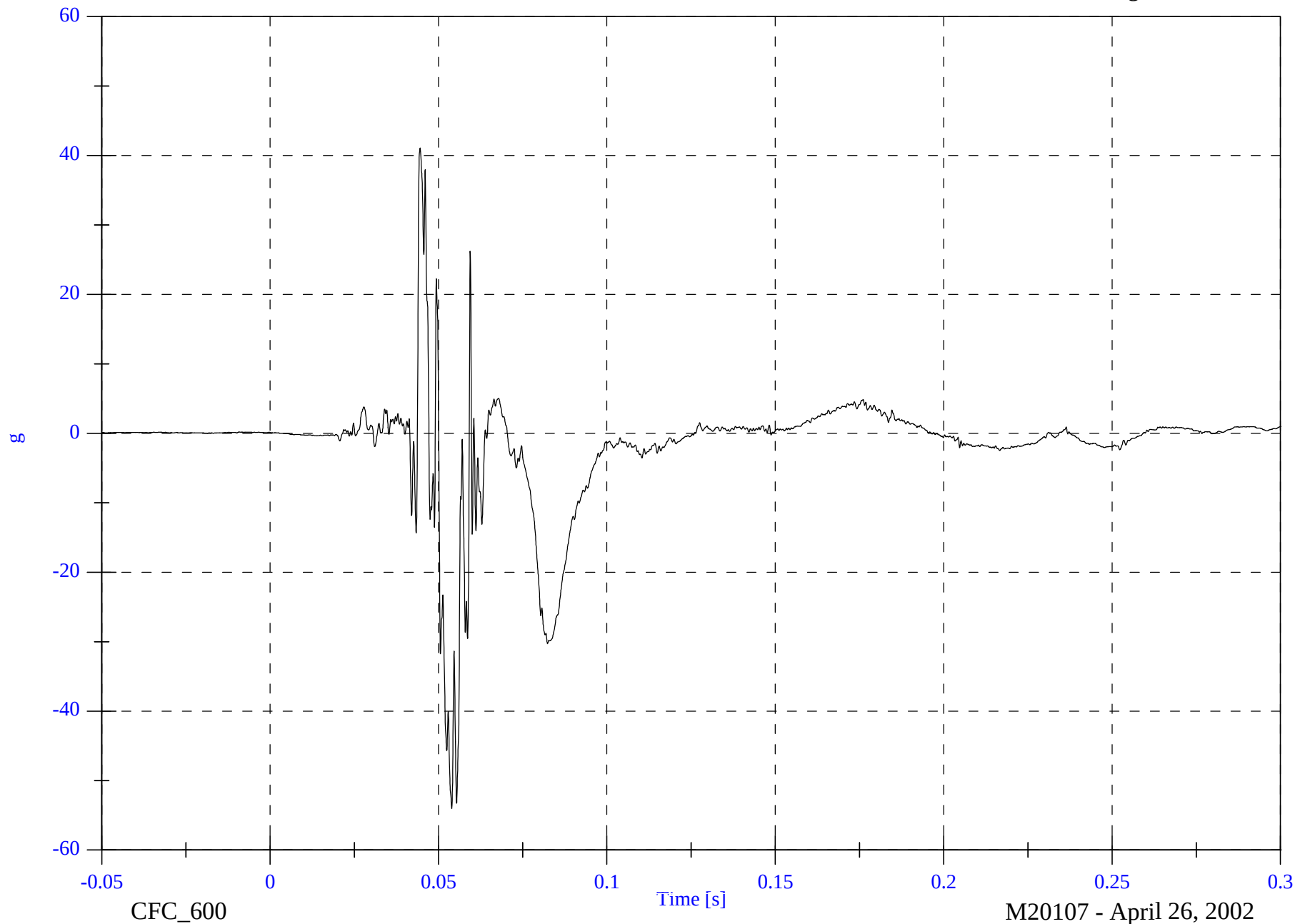
P2 Left Foot Aft z

Max: 41.1 [g] at 0.045 [s]

Min: -54.0 [g] at 0.054 [s]

B-109

8462-NCAP-09

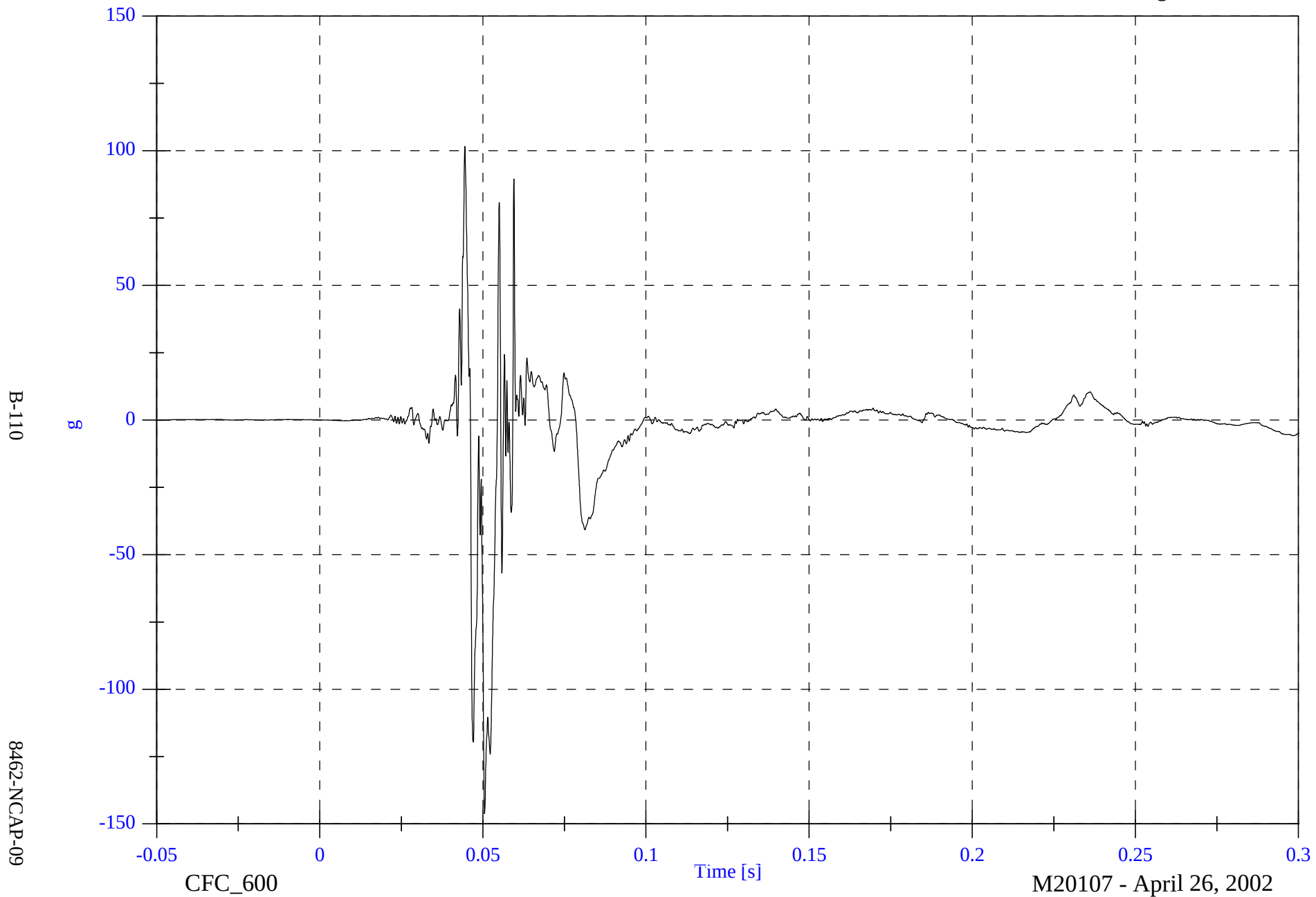


NCAP Test #9 - 2002 Chevrolet Trailblazer

P2 Left Foot Fore z

Max: 101.7 [g] at 0.044 [s]

Min: -146.2 [g] at 0.051 [s]

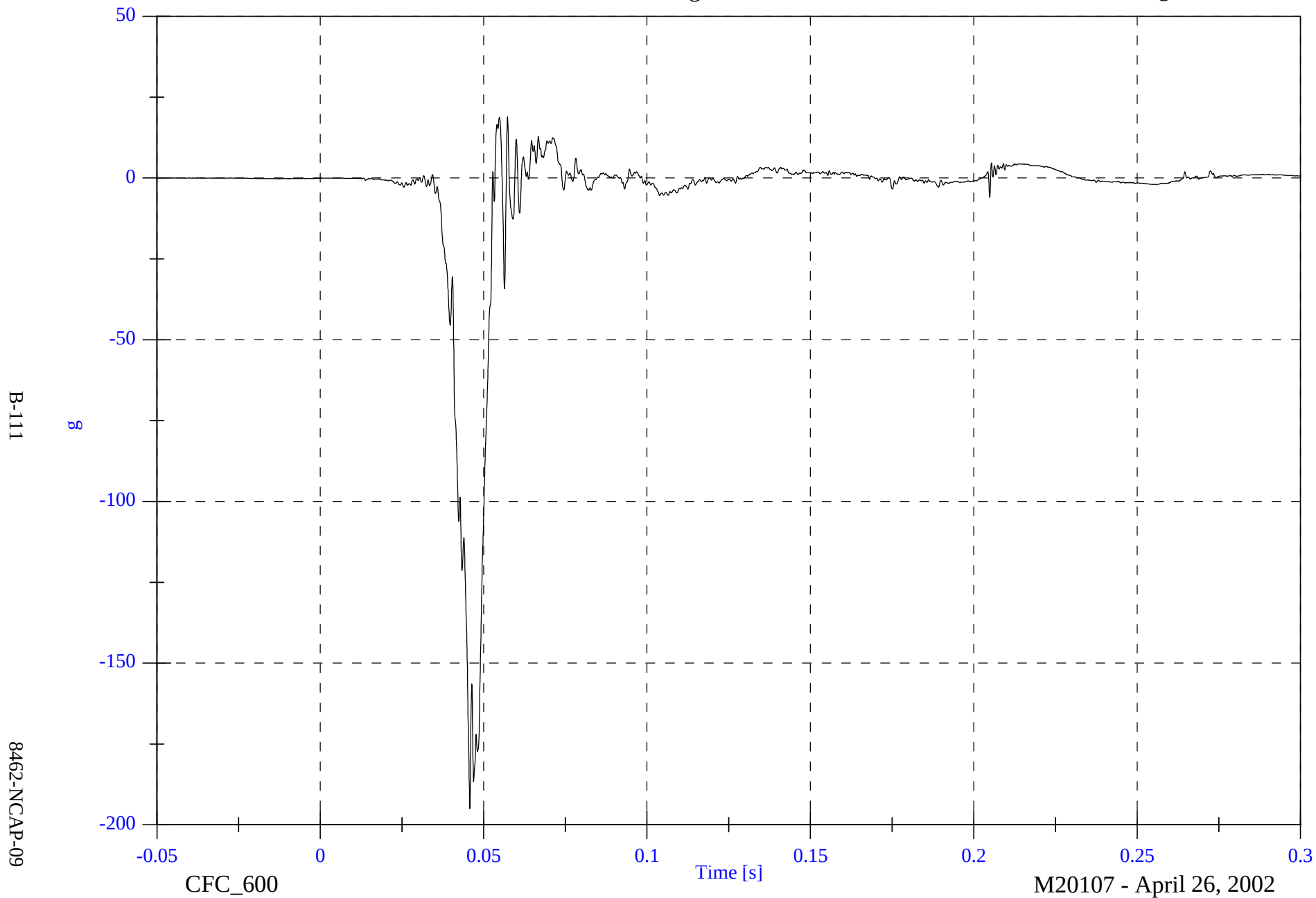


NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 18.9 [g] at 0.057 [s]

Min: -195.0 [g] at 0.046 [s]

P2 Right Foot Aft x



NCAP Test #9 - 2002 Chevrolet Trailblazer

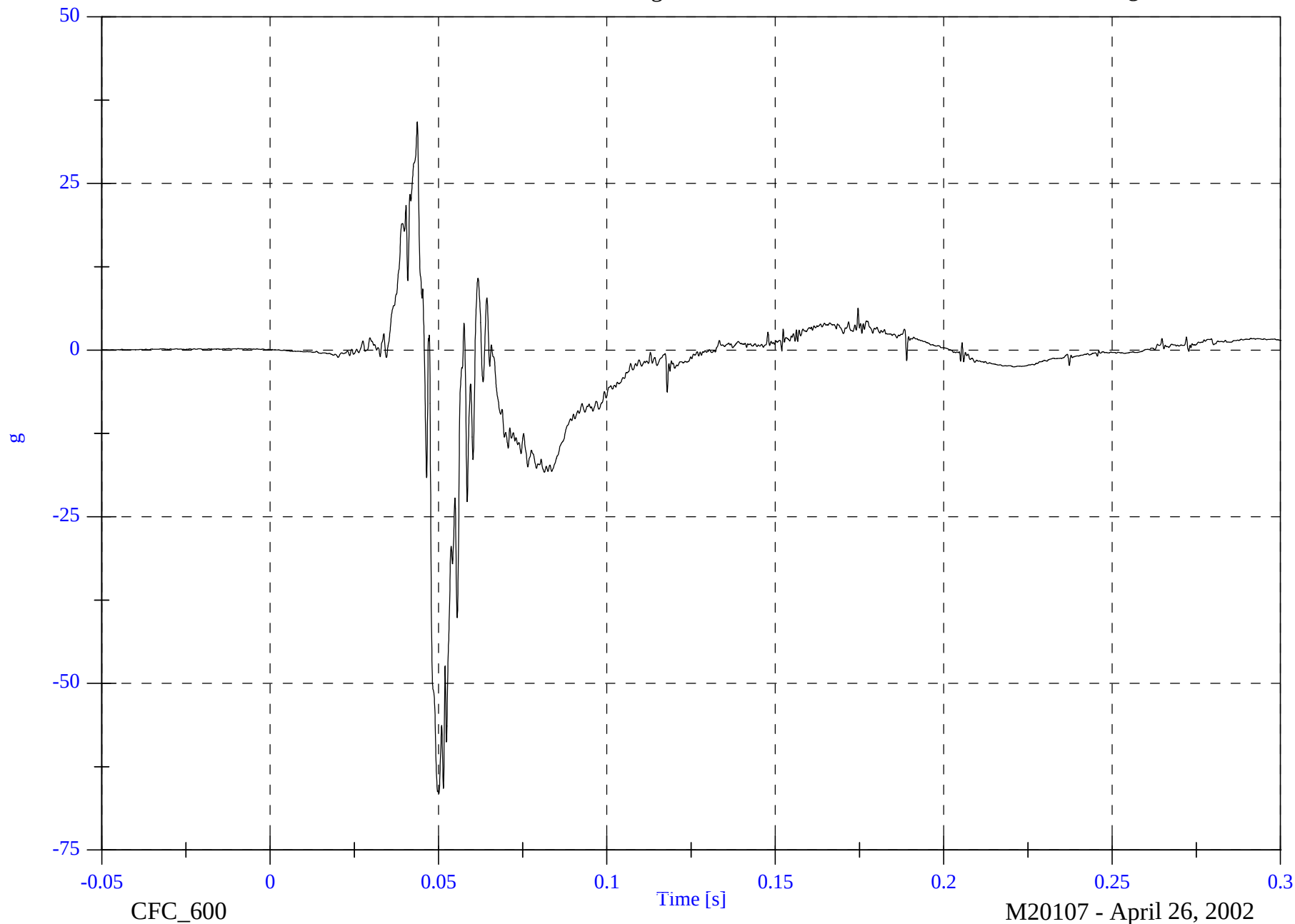
P2 Right Foot Aft z

Max: 34.2 [g] at 0.044 [s]

Min: -66.5 [g] at 0.050 [s]

B-112

8462-NCAP-09

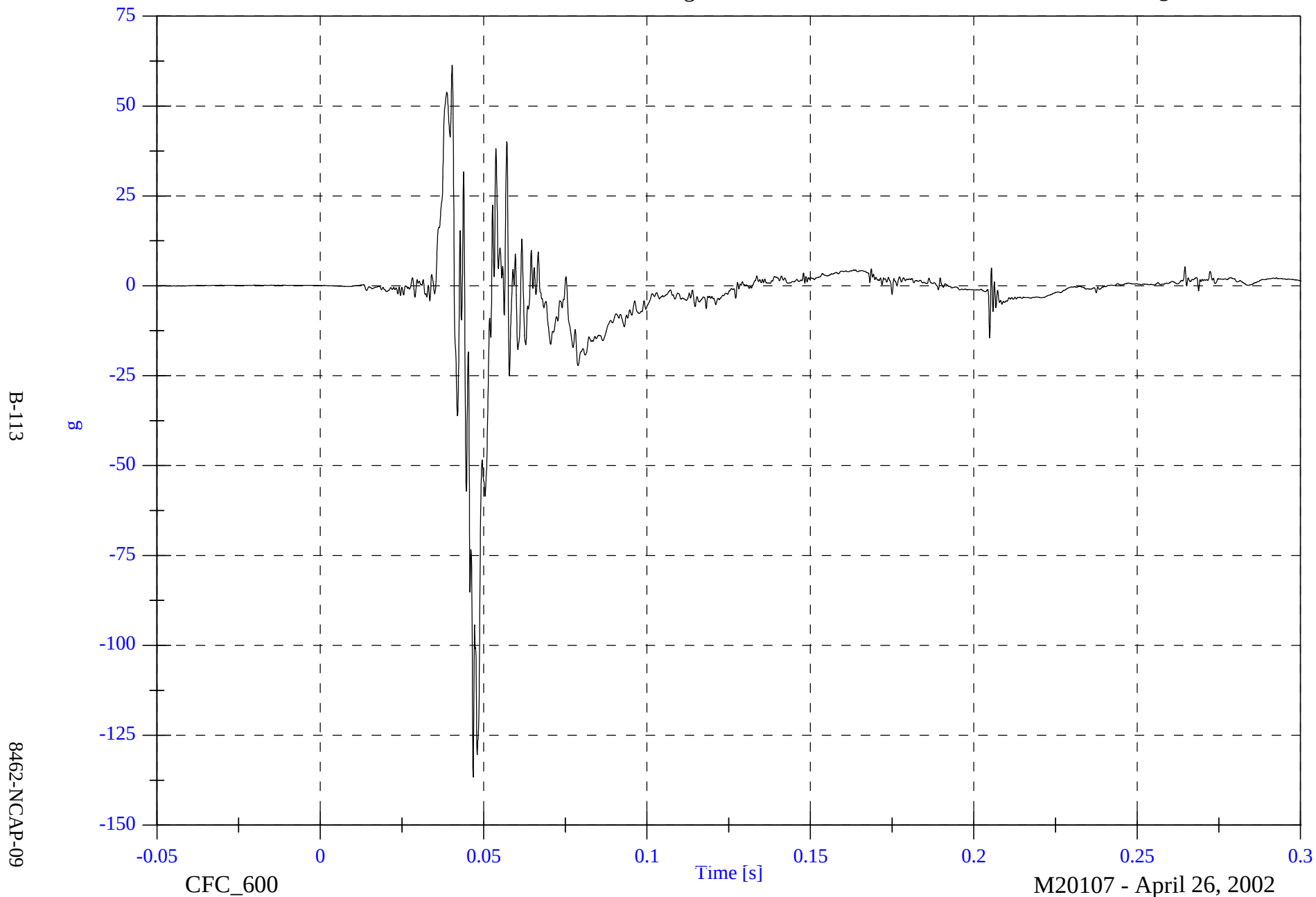


NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 61.4 [g] at 0.040 [s]

P2 Right Foot Fore z

Min: -136.6 [g] at 0.047 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

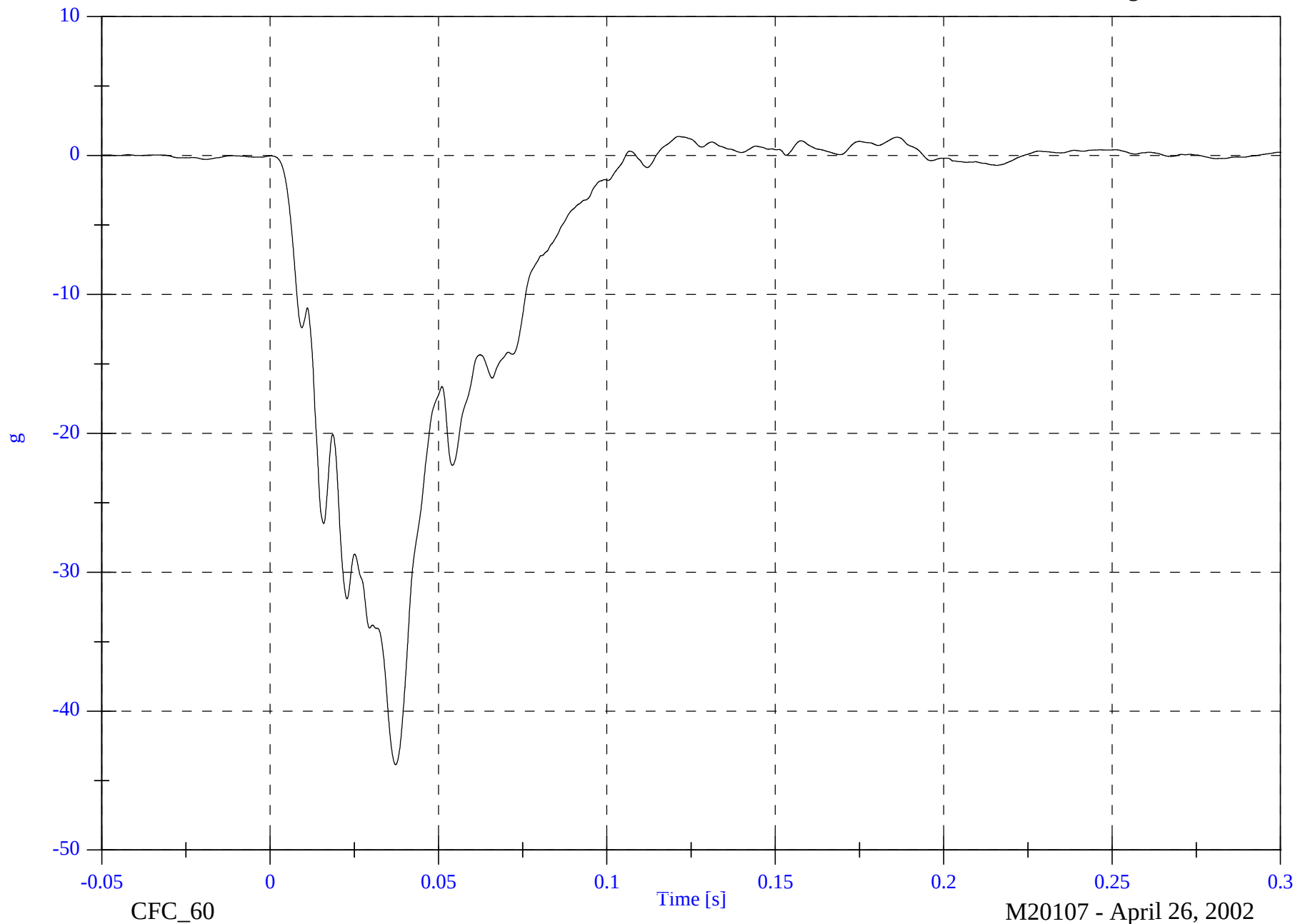
Left Rear #1x

Max: 1.4 [g] at 0.121 [s]

Min: -43.9 [g] at 0.037 [s]

B-114

8462-NCAP-09

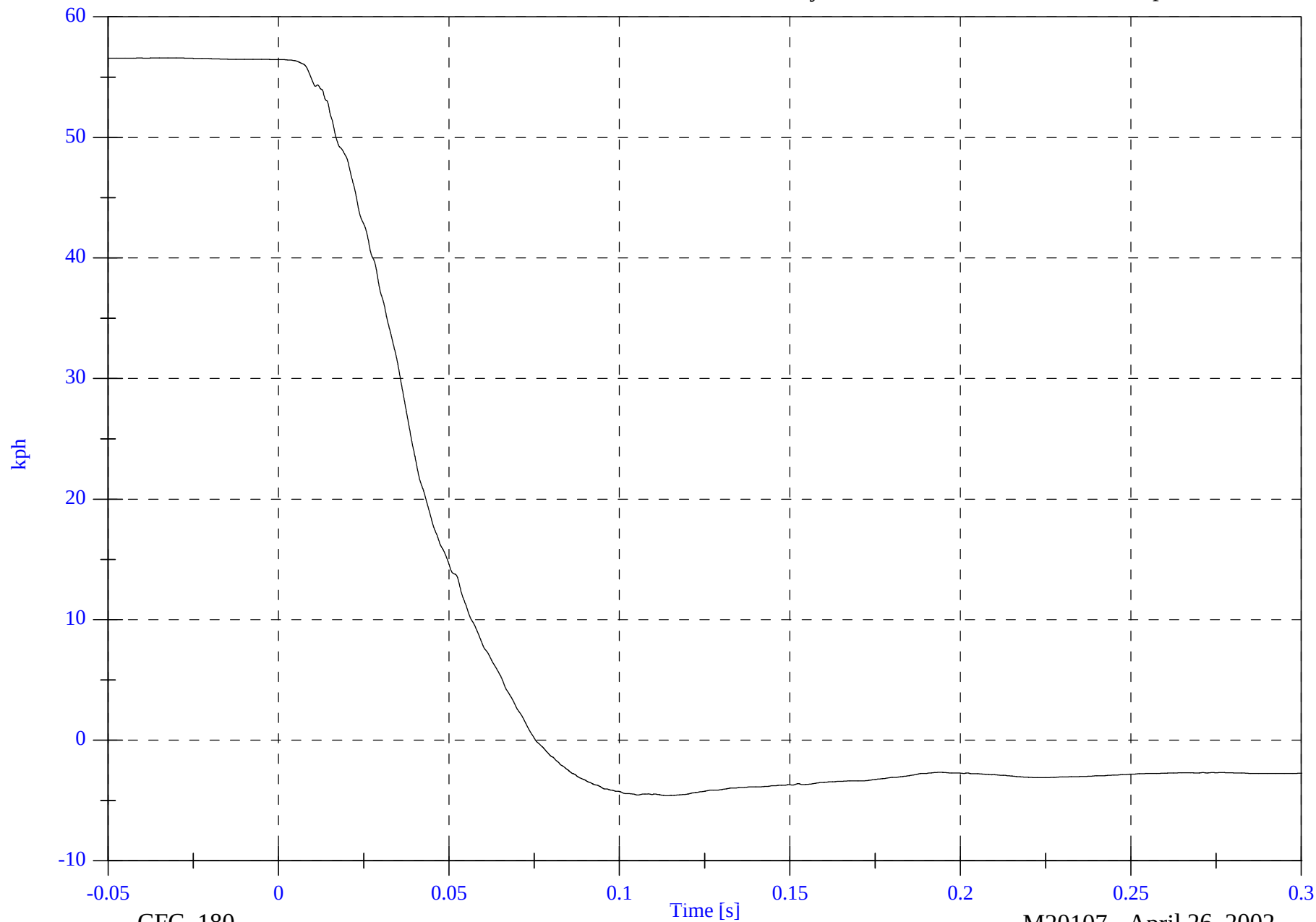


NCAP Test #9 - 2002 Chevrolet Trailblazer

Left Rear #1x Velocity

Max: 56.6 [kph] at -0.029 [s]

Min: -4.6 [kph] at 0.114 [s]



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8462-NCAP-09

CFC_180

M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

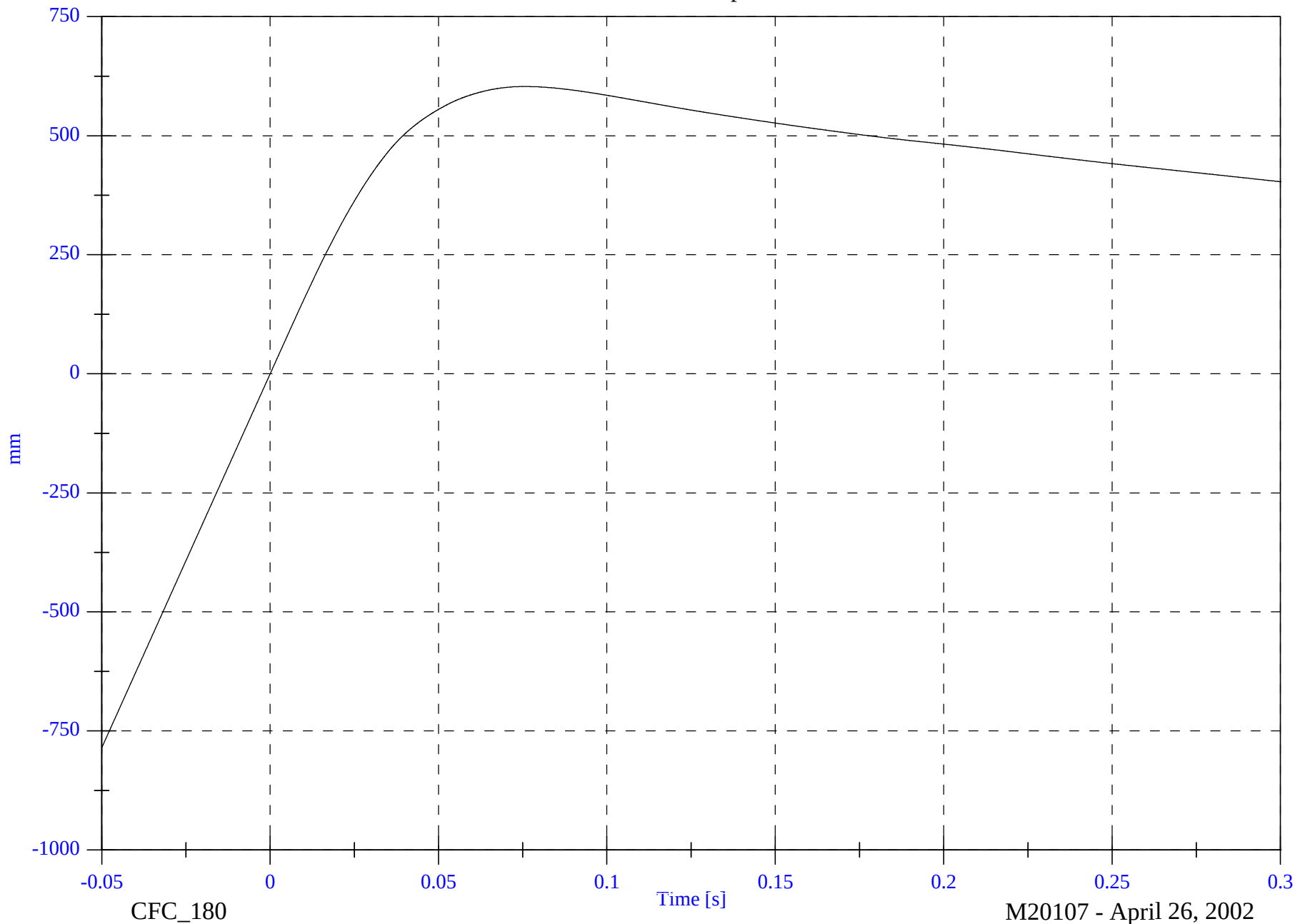
Left Rear #1x Displacement

Max: 603.4 [mm] at 0.075 [s]

Min: -785.3 [mm] at -0.050 [s]

B-116

8462-NCAP-09

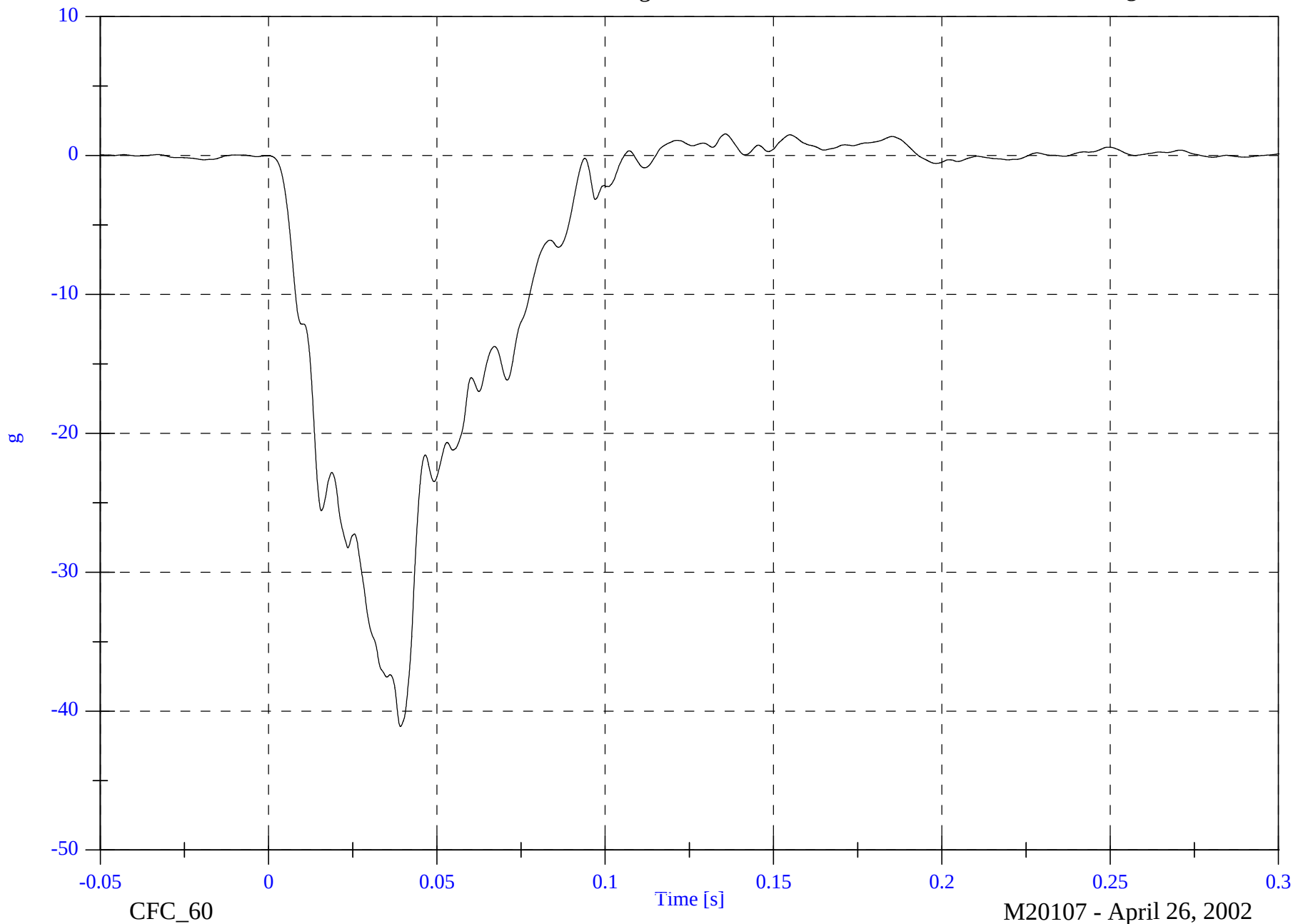


NCAP Test #9 - 2002 Chevrolet Trailblazer

Right Rear #2x

Max: 1.6 [g] at 0.136 [s]

Min: -41.1 [g] at 0.039 [s]



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8462-NCAP-09

NCAP Test #9 - 2002 Chevrolet Trailblazer

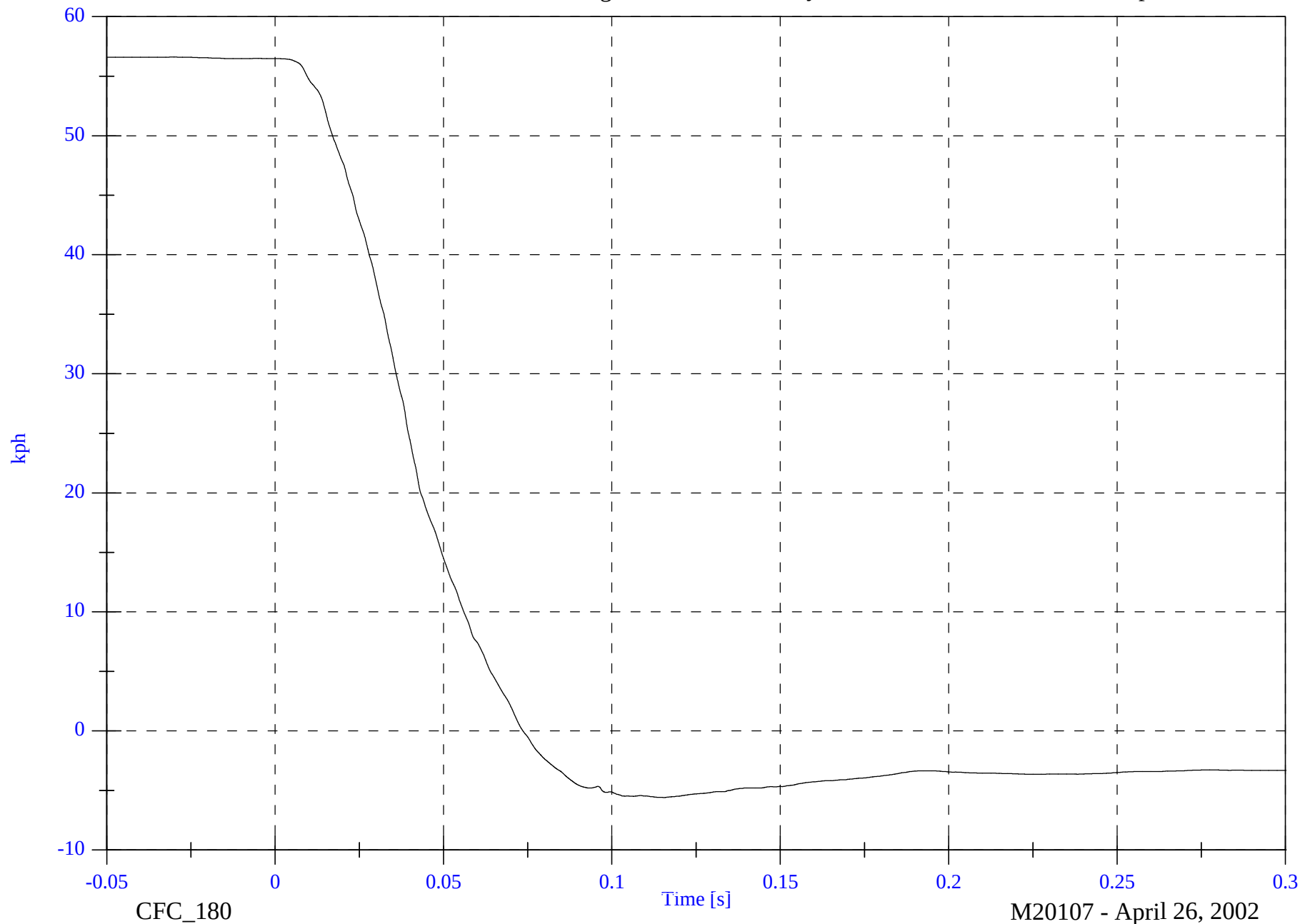
Right Rear #2x Velocity

Max: 56.6 [kph] at -0.030 [s]

Min: -5.6 [kph] at 0.115 [s]

B-118

8462-NCAP-09

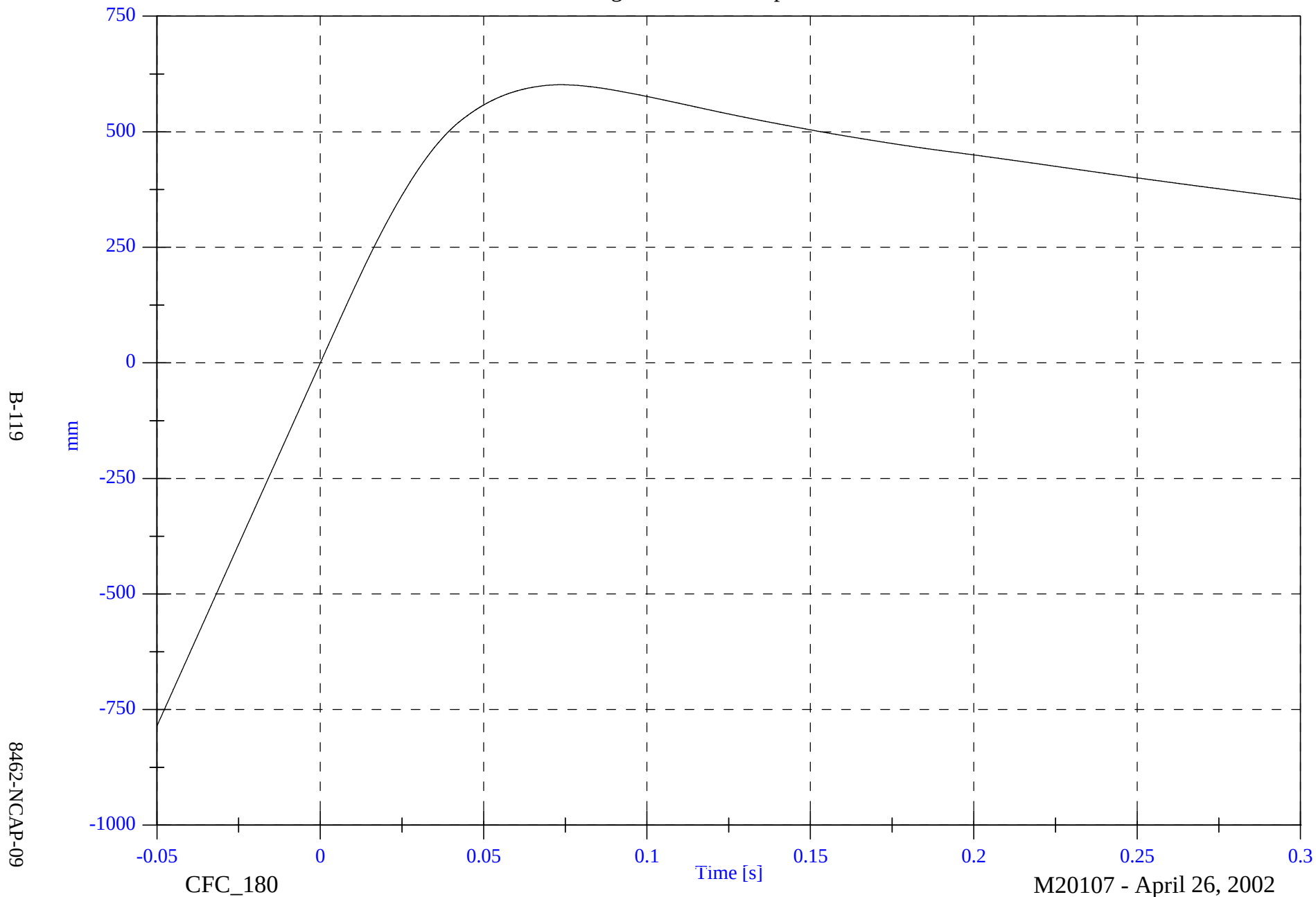


NCAP Test #9 - 2002 Chevrolet Trailblazer

Right Rear #2x Displacement

Max: 601.7 [mm] at 0.074 [s]

Min: -785.5 [mm] at -0.050 [s]

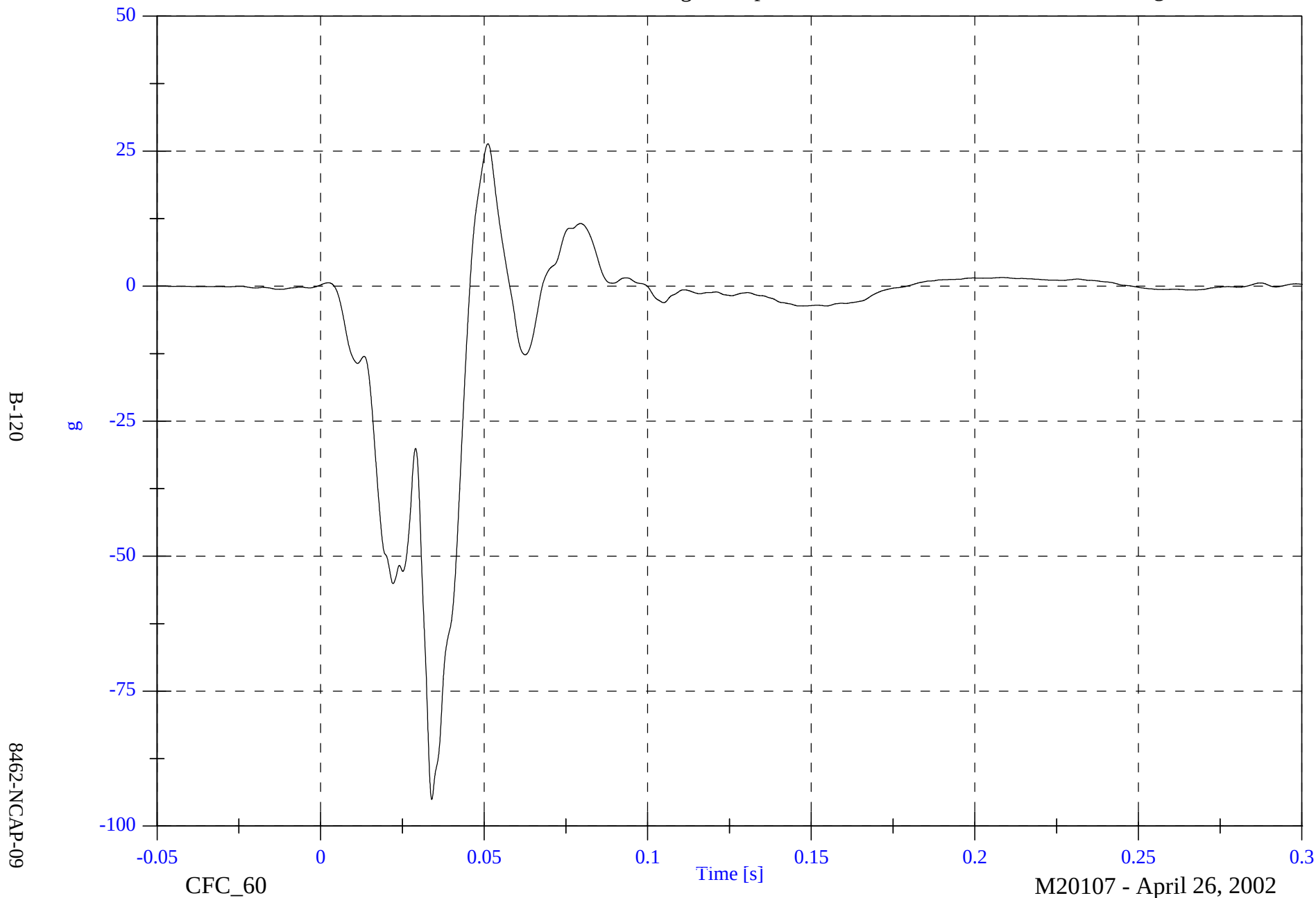


NCAP Test #9 - 2002 Chevrolet Trailblazer

Engine Top #3x

Max: 26.4 [g] at 0.051 [s]

Min: -95.1 [g] at 0.034 [s]

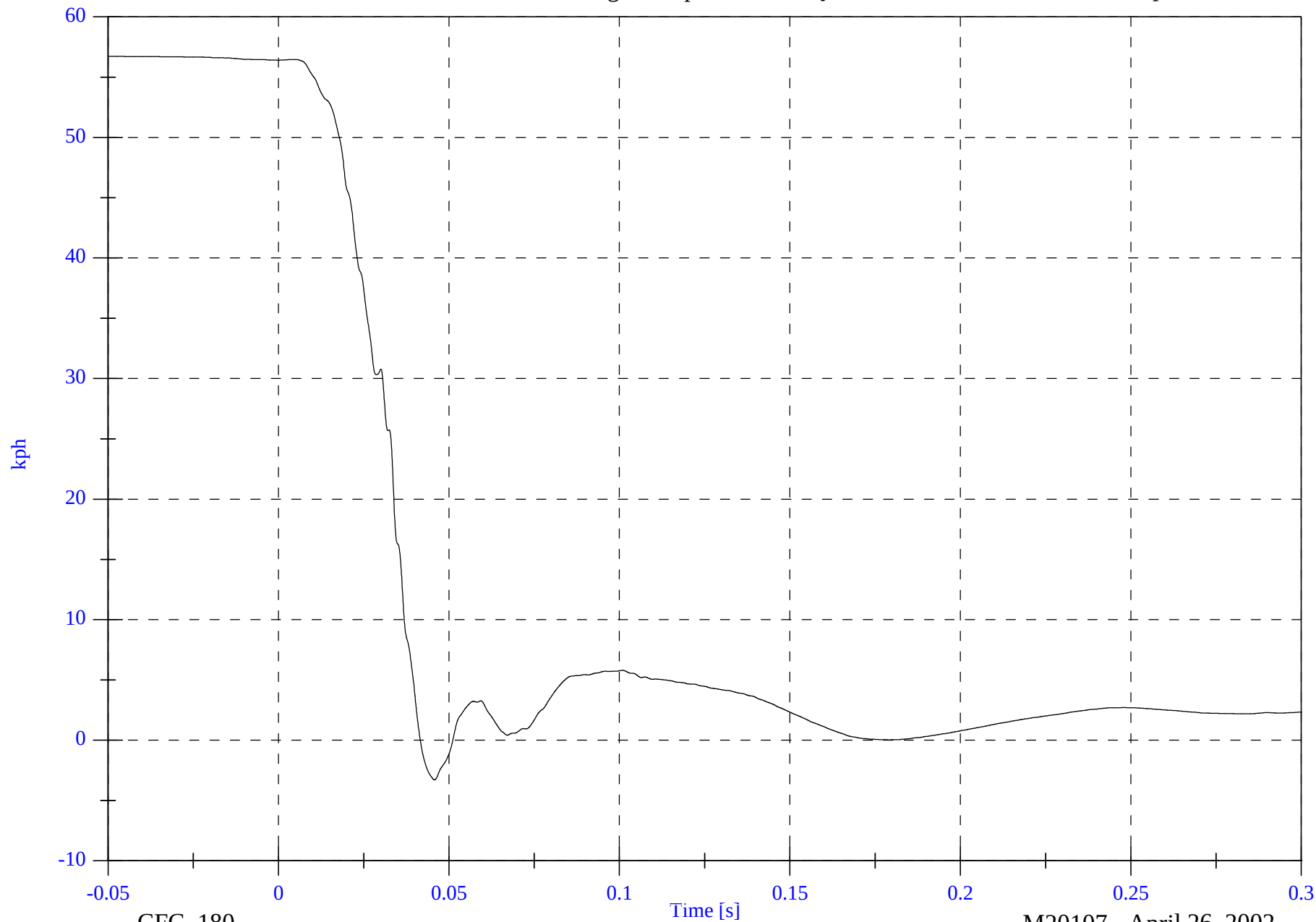


NCAP Test #9 - 2002 Chevrolet Trailblazer

Engine Top #3x Velocity

Max: 56.7 [kph] at -0.046 [s]

Min: -3.3 [kph] at 0.046 [s]



B-121

8462-NCAP-09

CFC_180

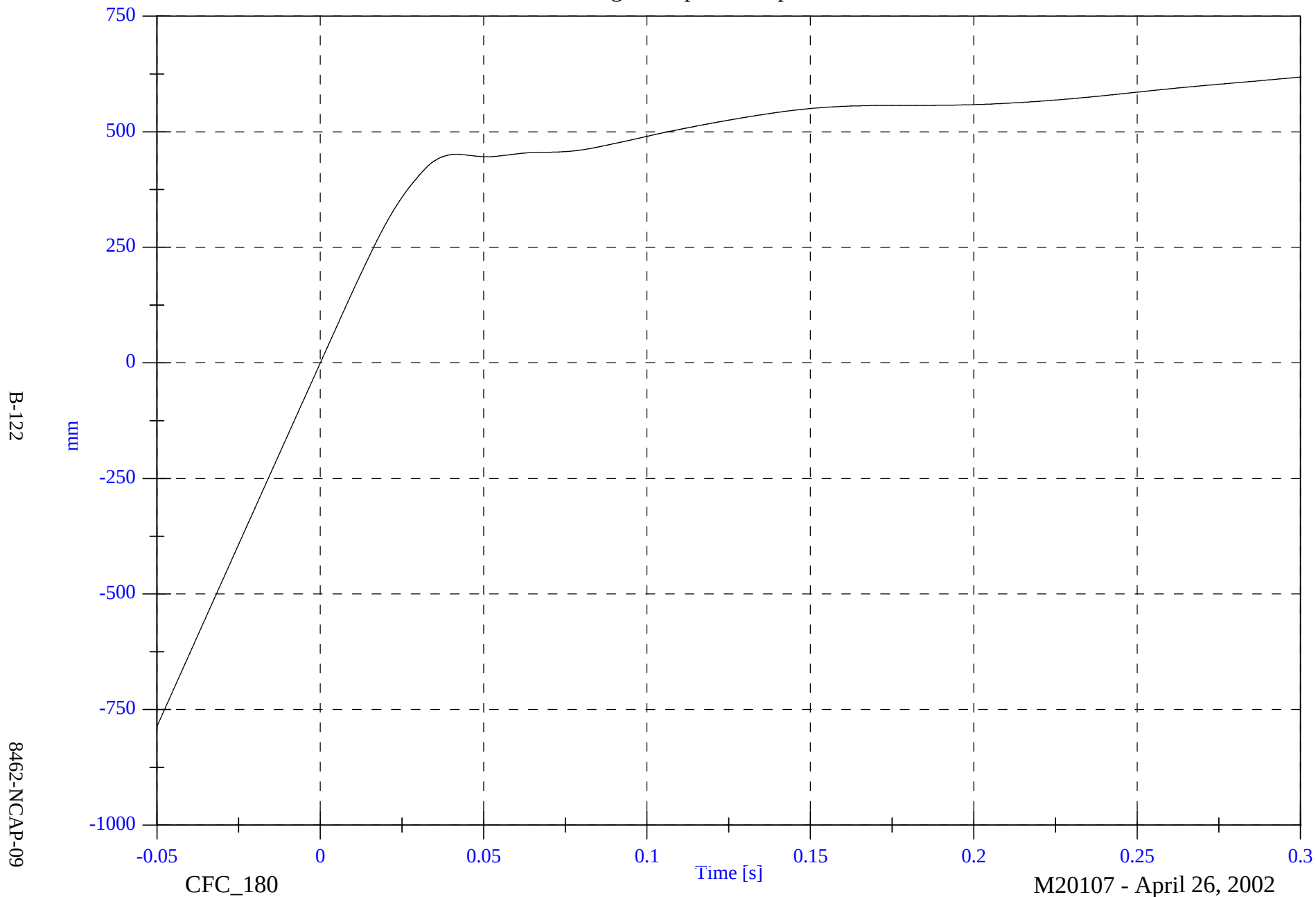
M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

Engine Top #3x Displacement

Max: 618.3 [mm] at 0.300 [s]

Min: -786.4 [mm] at -0.050 [s]

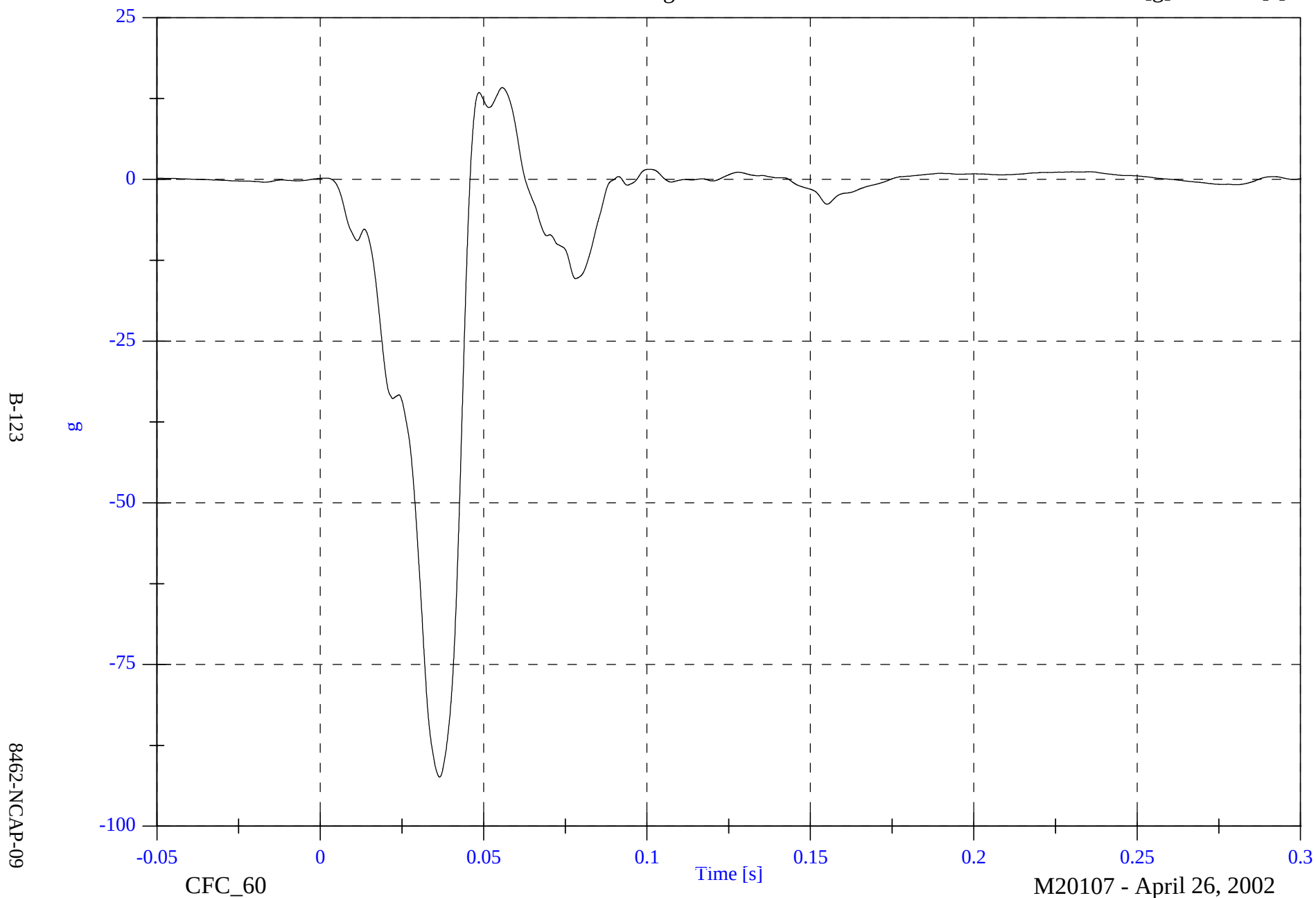


NCAP Test #9 - 2002 Chevrolet Trailblazer

Engine Bottom #4x

Max: 14.2 [g] at 0.056 [s]

Min: -92.4 [g] at 0.037 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

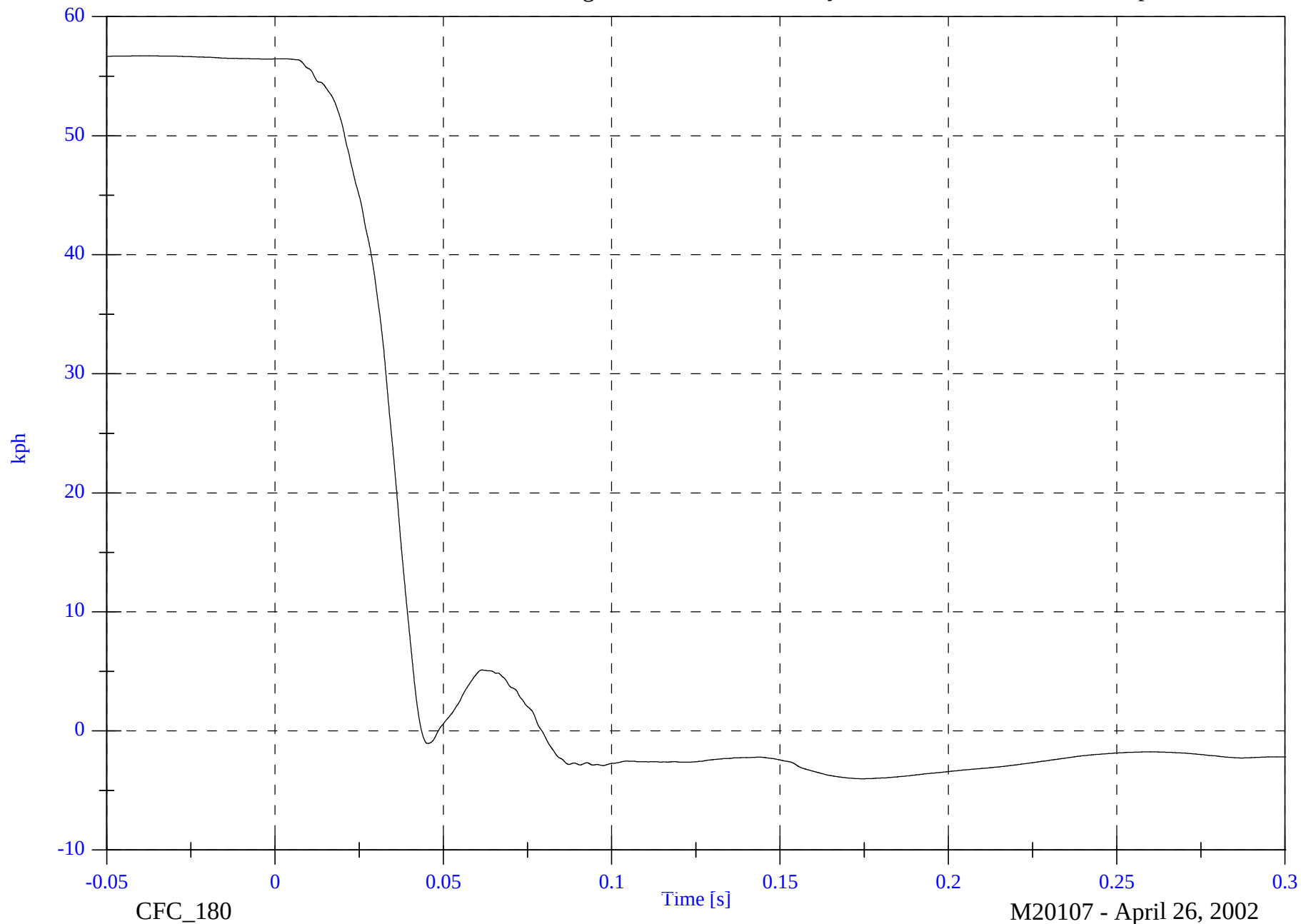
Engine Bottom #4x Velocity

Max: 56.7 [kph] at -0.039 [s]

Min: -4.0 [kph] at 0.174 [s]

B-124

8462-NCAP-09

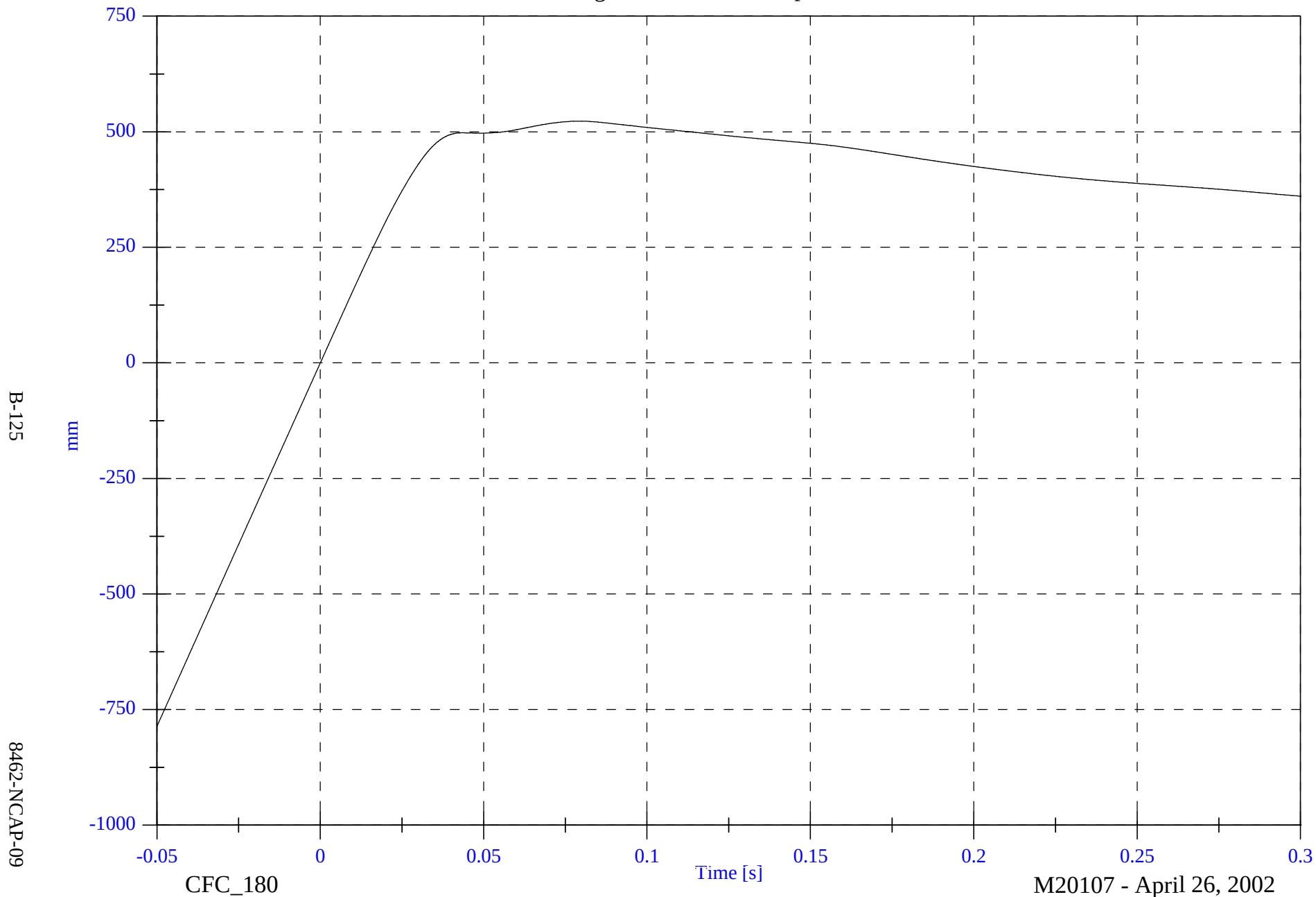


NCAP Test #9 - 2002 Chevrolet Trailblazer

Engine Bottom #4x Displacement

Max: 523.0 [mm] at 0.079 [s]

Min: -786.1 [mm] at -0.050 [s]

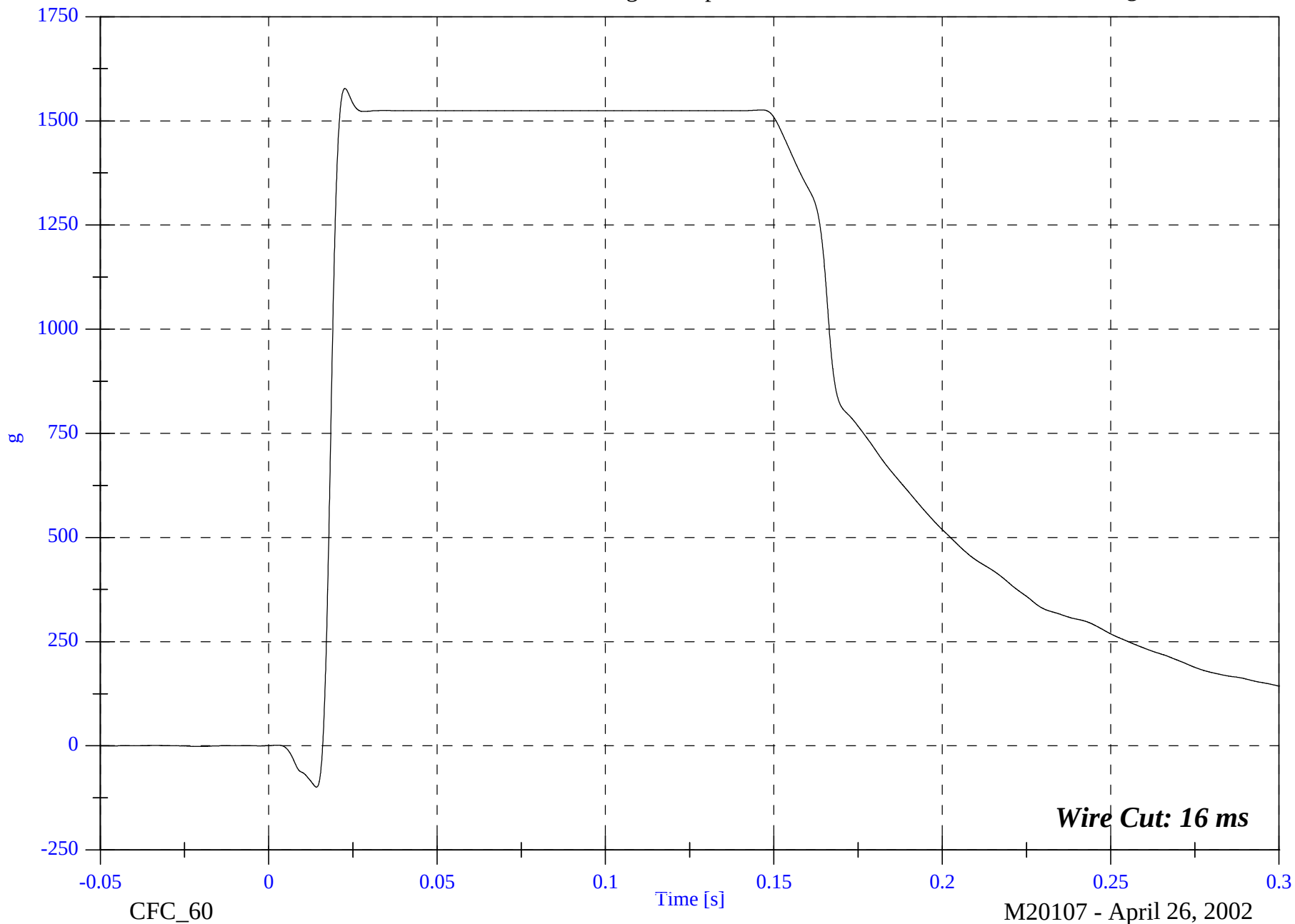


NCAP Test #9 - 2002 Chevrolet Trailblazer

Right Caliper #5x

Max: 1577.7 [g] at 0.023 [s]

Min: -99.2 [g] at 0.014 [s]



B-126

8462-NCAP-09

Wire Cut: 16 ms

CFC_60

Time [s]

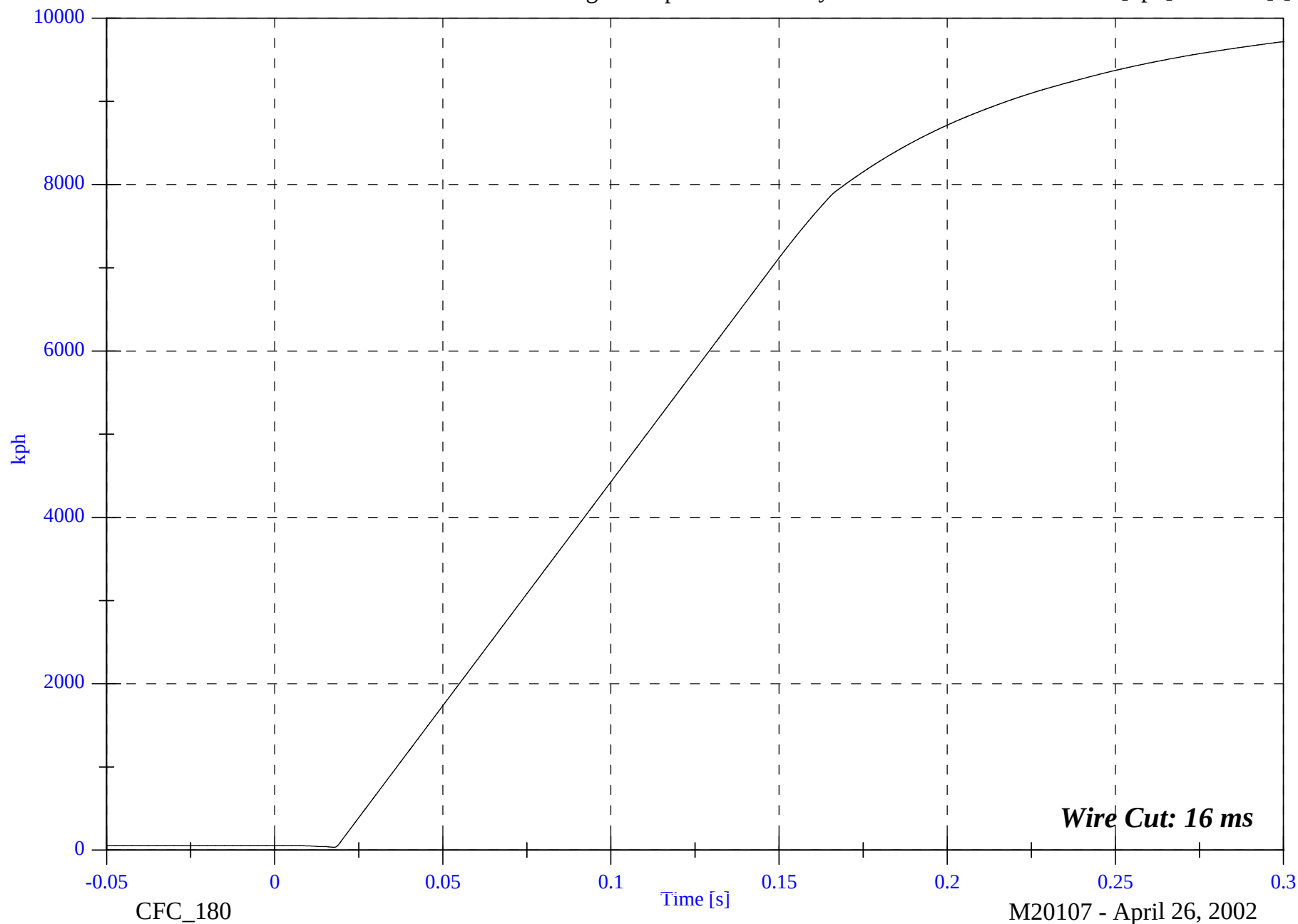
M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

Right Caliper #5x Velocity

Max: 9716.9 [kph] at 0.300 [s]

Min: 33.6 [kph] at 0.018 [s]



B-127

8462-NCAP-09

CFC_180

Time [s]

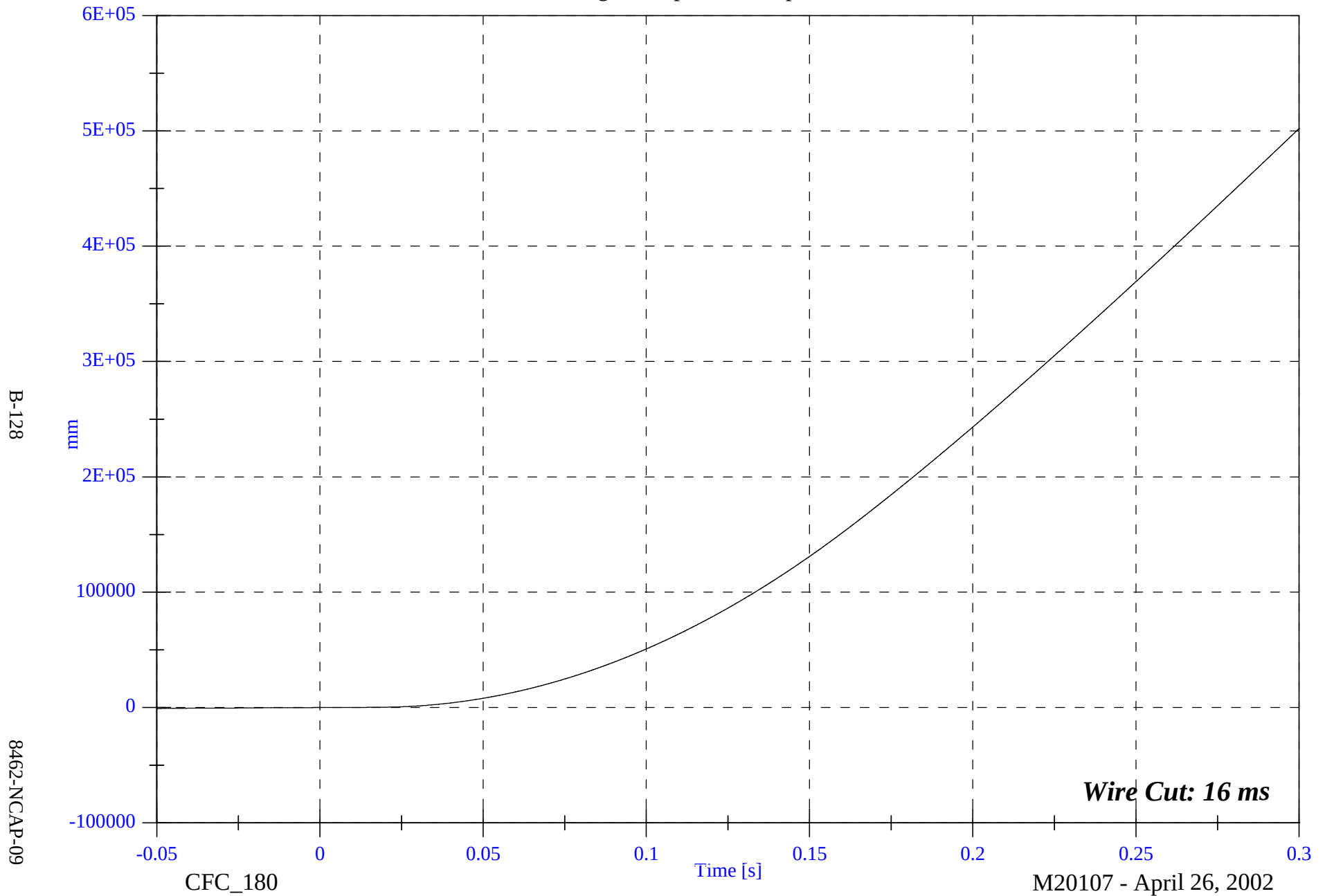
M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

Right Caliper #5x Displacement

Max: 501946.0 [mm] at 0.300 [s]

Min: -786.1 [mm] at -0.050 [s]

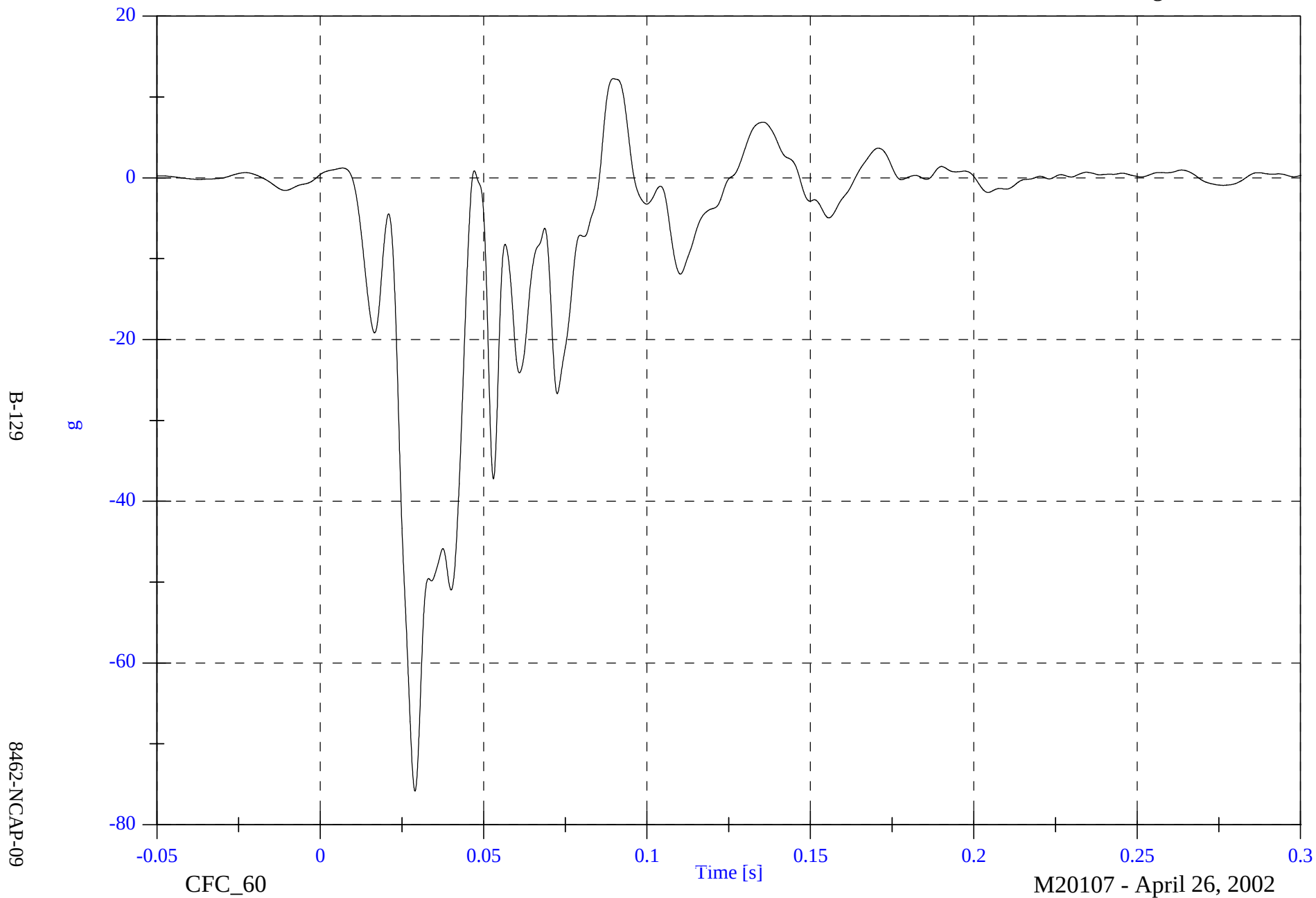


NCAP Test #9 - 2002 Chevrolet Trailblazer

Instrument Panel #6x

Max: 12.3 [g] at 0.090 [s]

Min: -75.8 [g] at 0.029 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

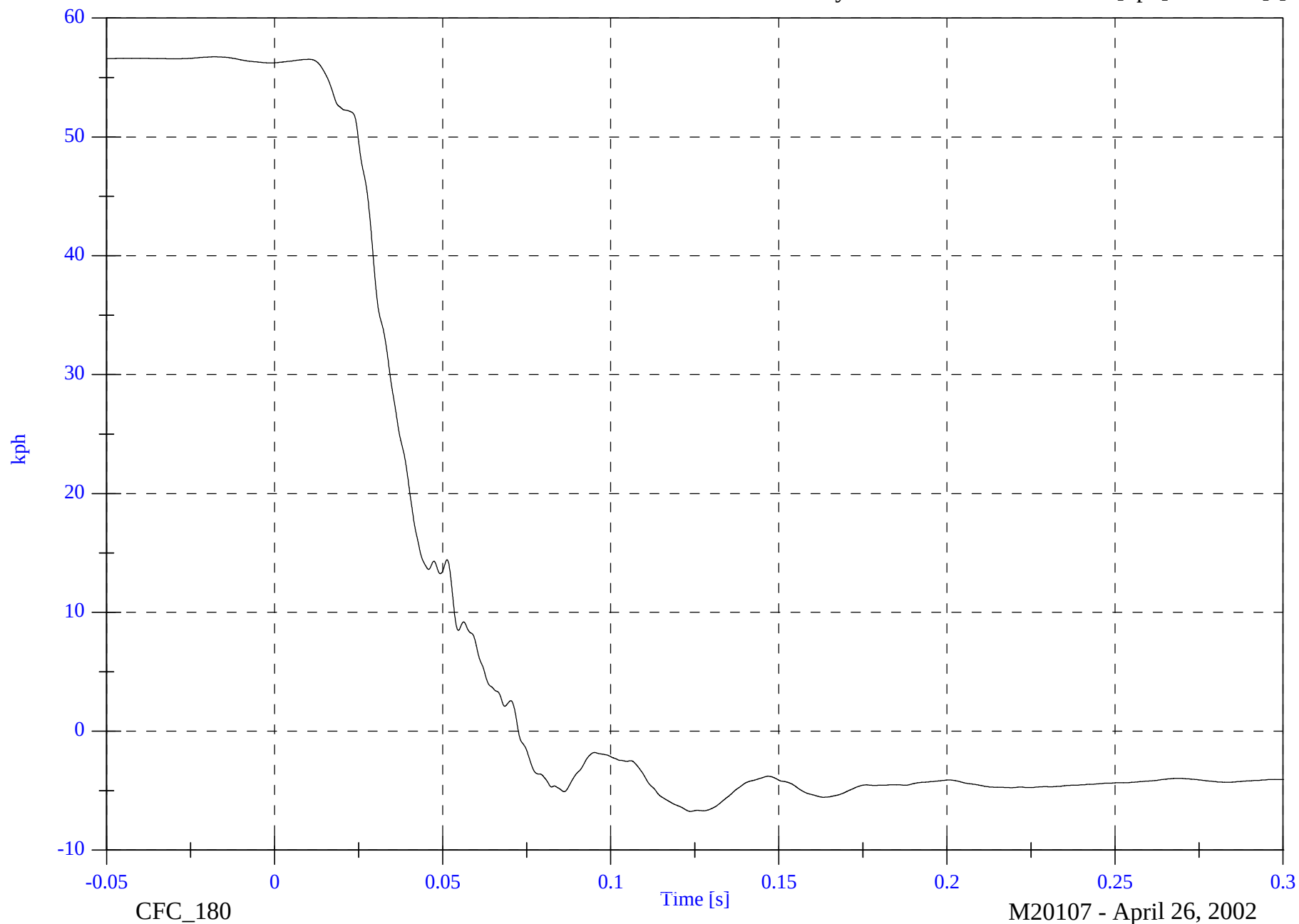
Instrument Panel #6x Velocity

Max: 56.7 [kph] at -0.018 [s]

Min: -6.7 [kph] at 0.124 [s]

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NCAP Test #9 - 2002 Chevrolet Trailblazer

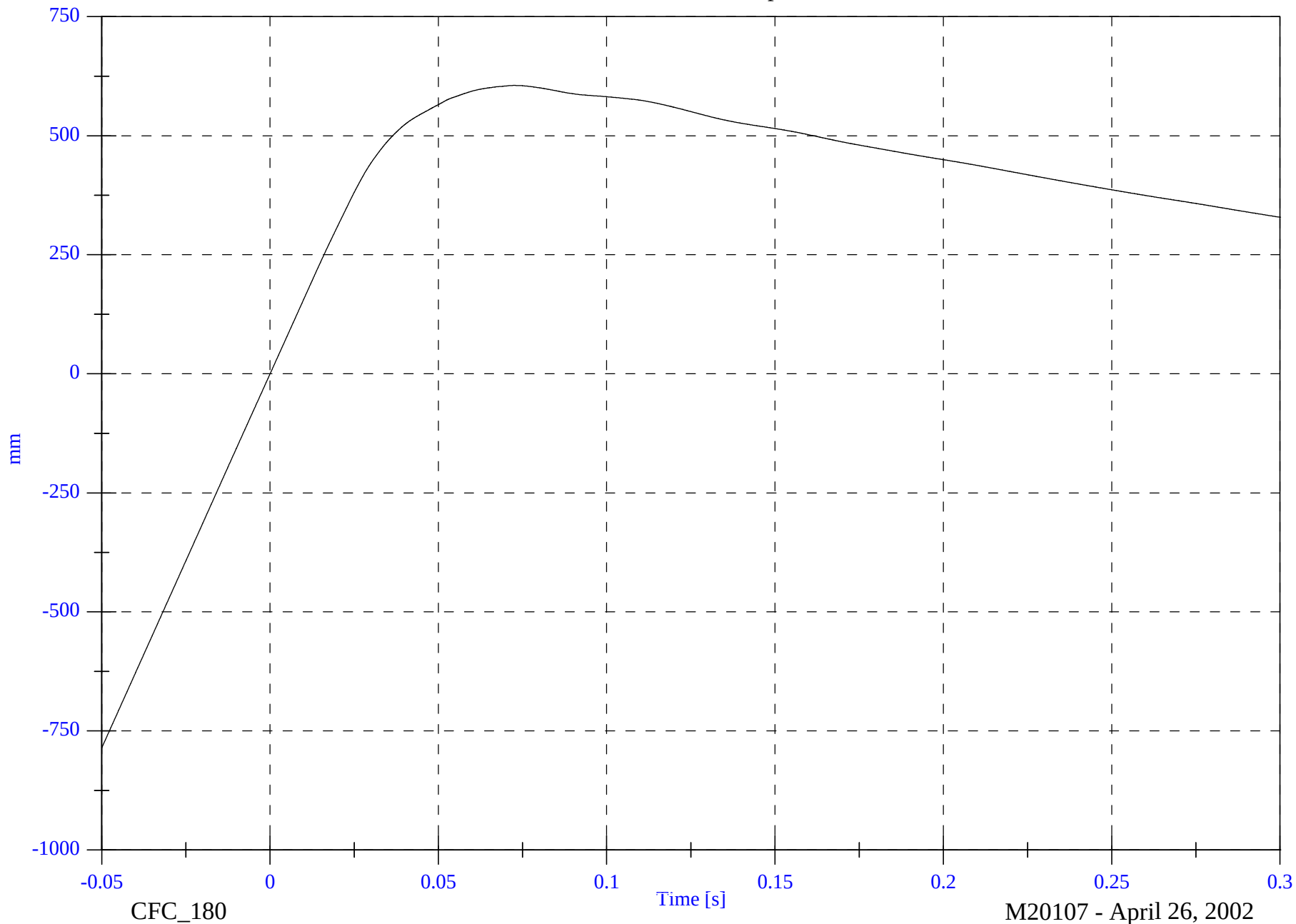
Instrument Panel #6x Displacement

Max: 605.7 [mm] at 0.073 [s]

Min: -785.6 [mm] at -0.050 [s]

B-131

8462-NCAP-09



CFC_180

M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

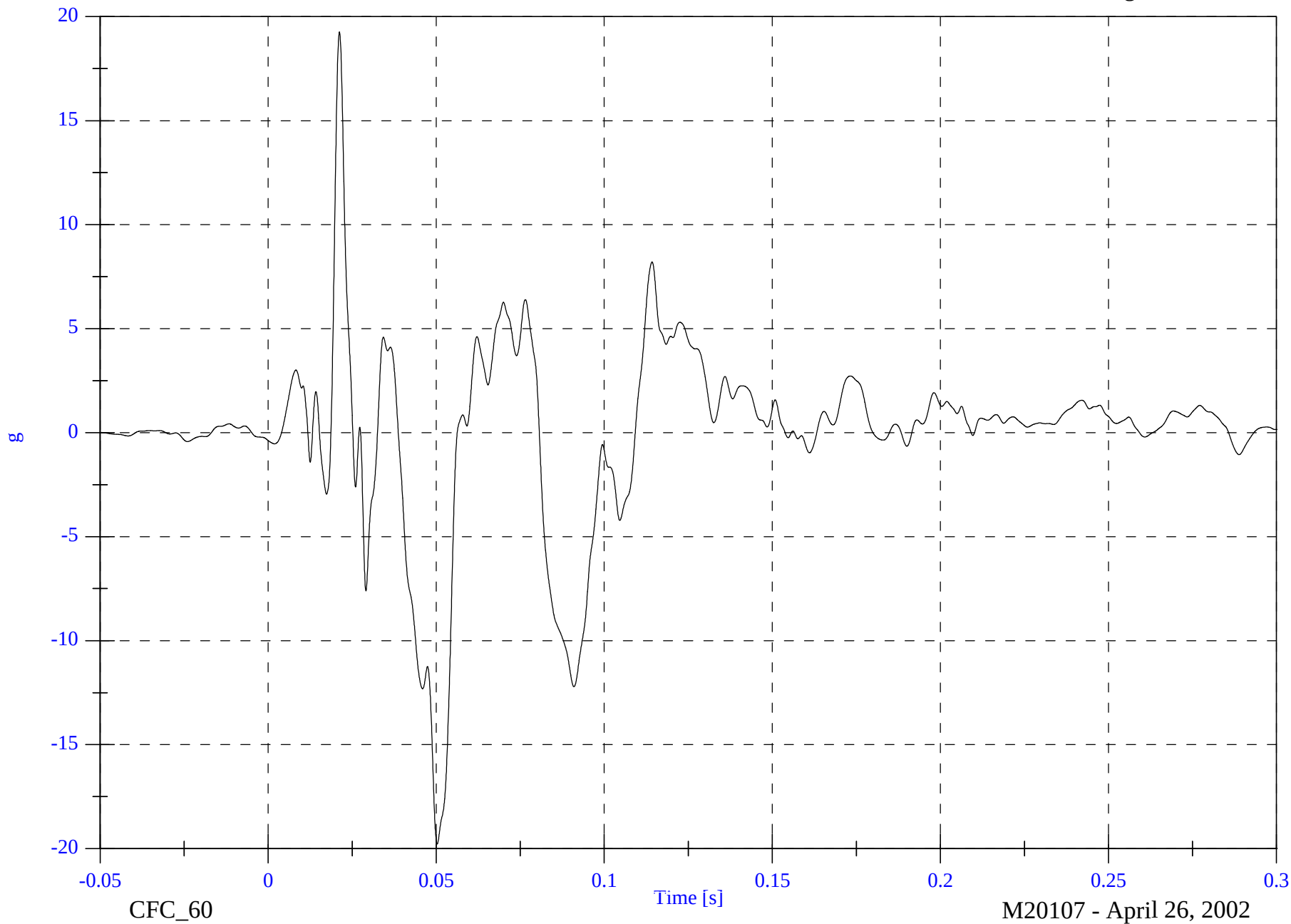
Left Rear #8z

Max: 19.3 [g] at 0.021 [s]

Min: -19.8 [g] at 0.050 [s]

B-132

8462-NCAP-09

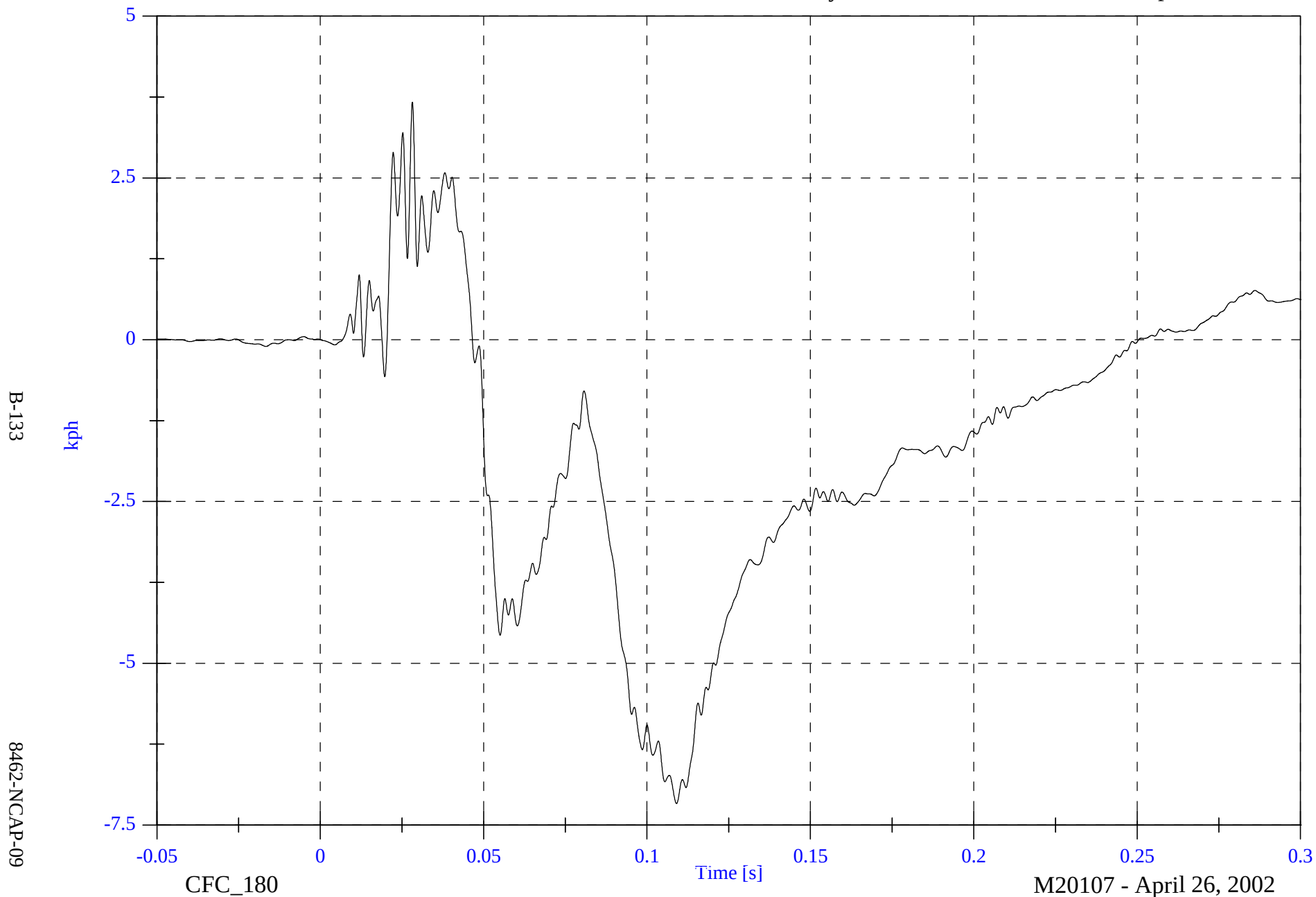


NCAP Test #9 - 2002 Chevrolet Trailblazer

Left Rear #8z Velocity

Max: 3.7 [kph] at 0.028 [s]

Min: -7.2 [kph] at 0.109 [s]

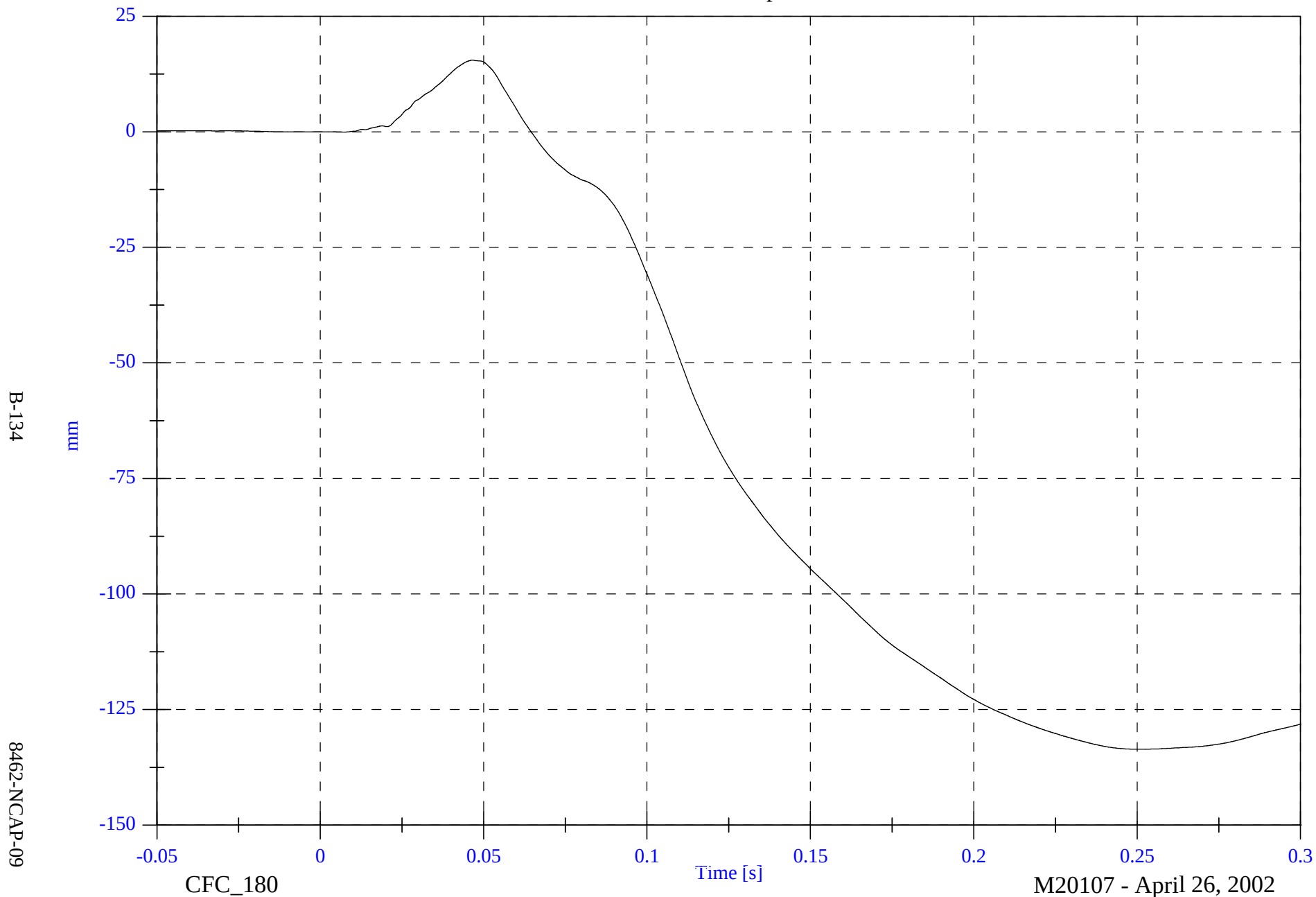


NCAP Test #9 - 2002 Chevrolet Trailblazer

Left Rear #8z Displacement

Max: 15.5 [mm] at 0.047 [s]

Min: -133.6 [mm] at 0.250 [s]

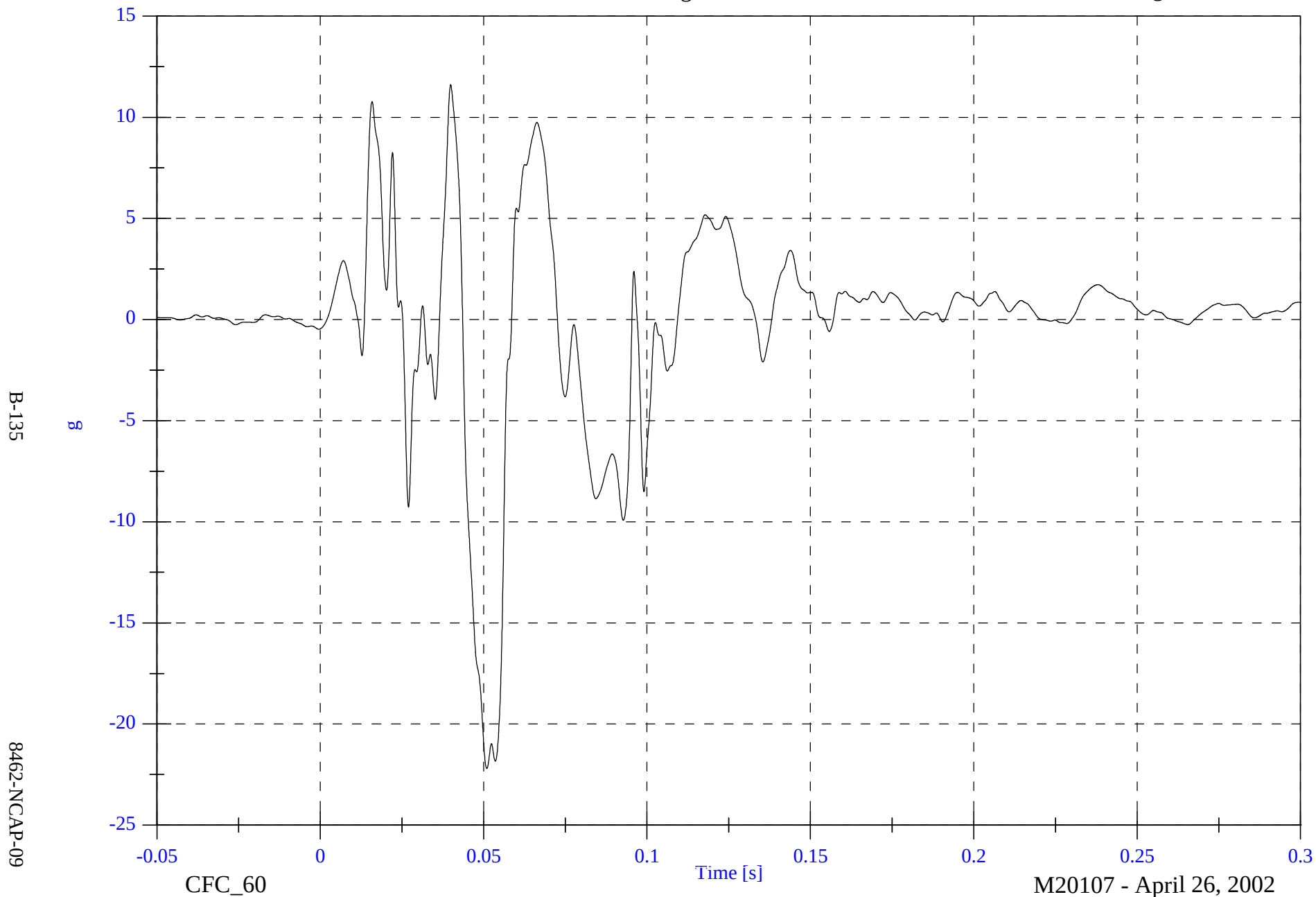


NCAP Test #9 - 2002 Chevrolet Trailblazer

Right Rear #9z

Max: 11.6 [g] at 0.040 [s]

Min: -22.2 [g] at 0.051 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

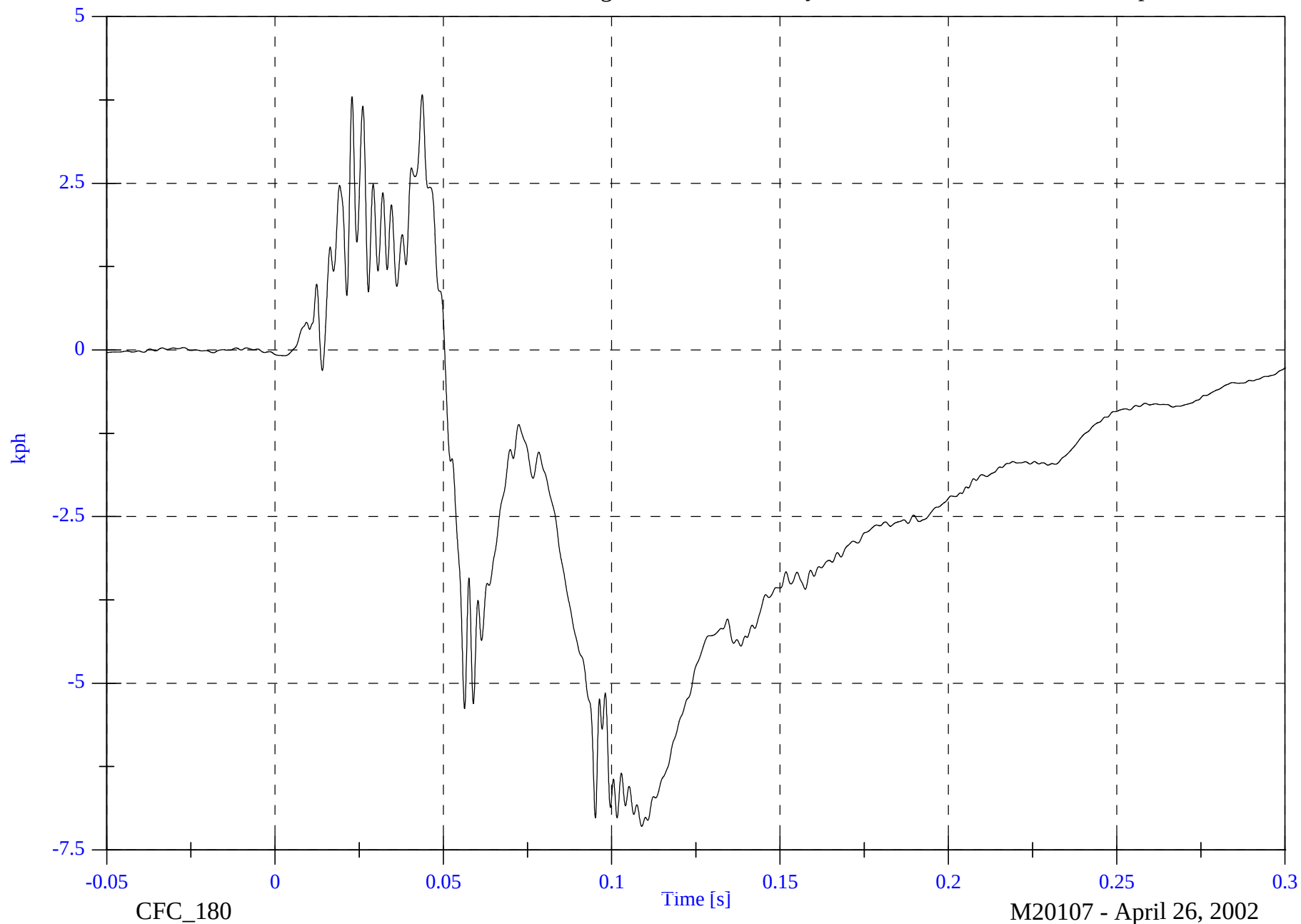
Right Rear #9z Velocity

Max: 3.8 [kph] at 0.044 [s]

Min: -7.1 [kph] at 0.109 [s]

B-136

8462-NCAP-09

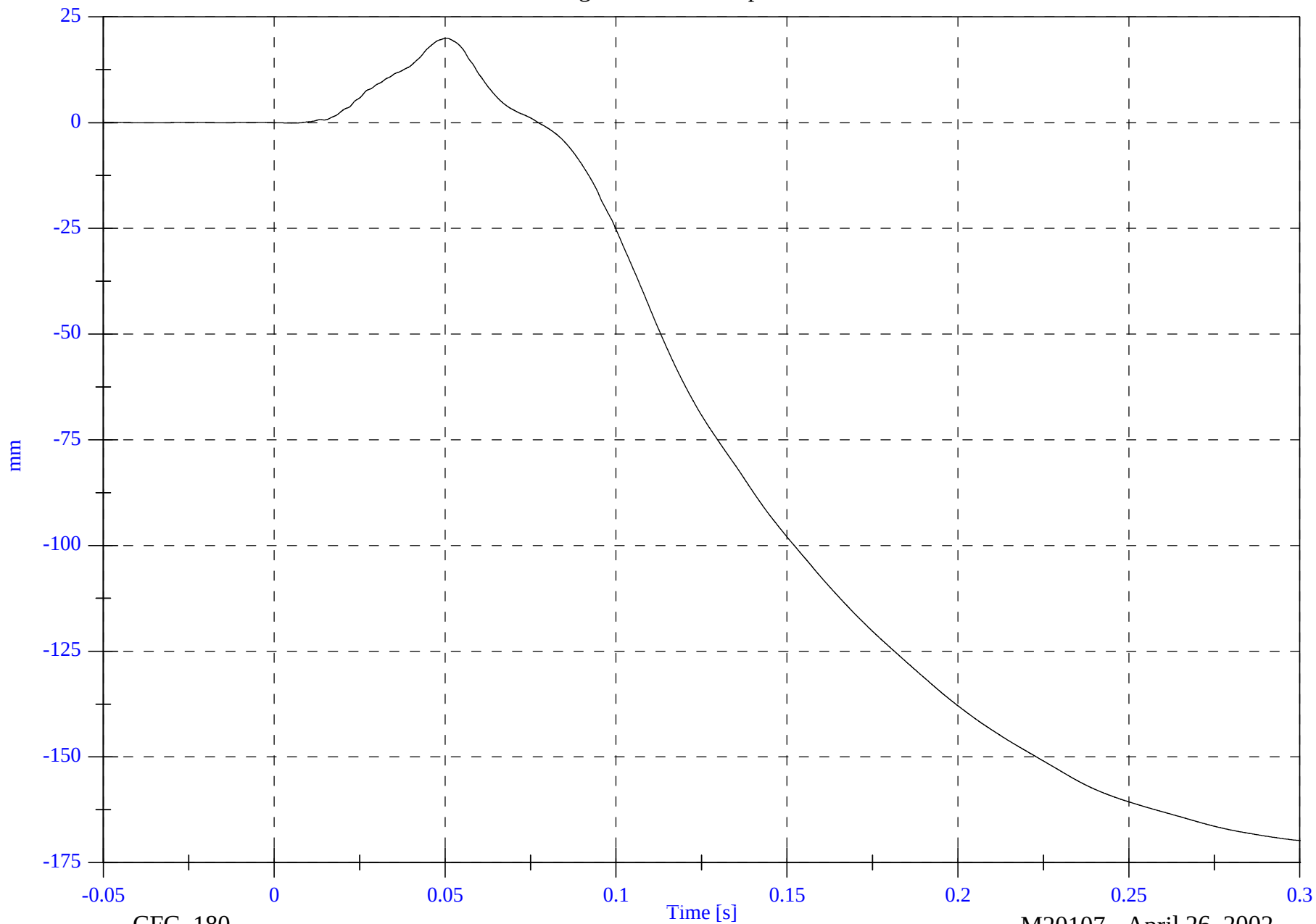


NCAP Test #9 - 2002 Chevrolet Trailblazer

Right Rear #9z Displacement

Max: 20.0 [mm] at 0.050 [s]

Min: -169.8 [mm] at 0.300 [s]



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CFC_180

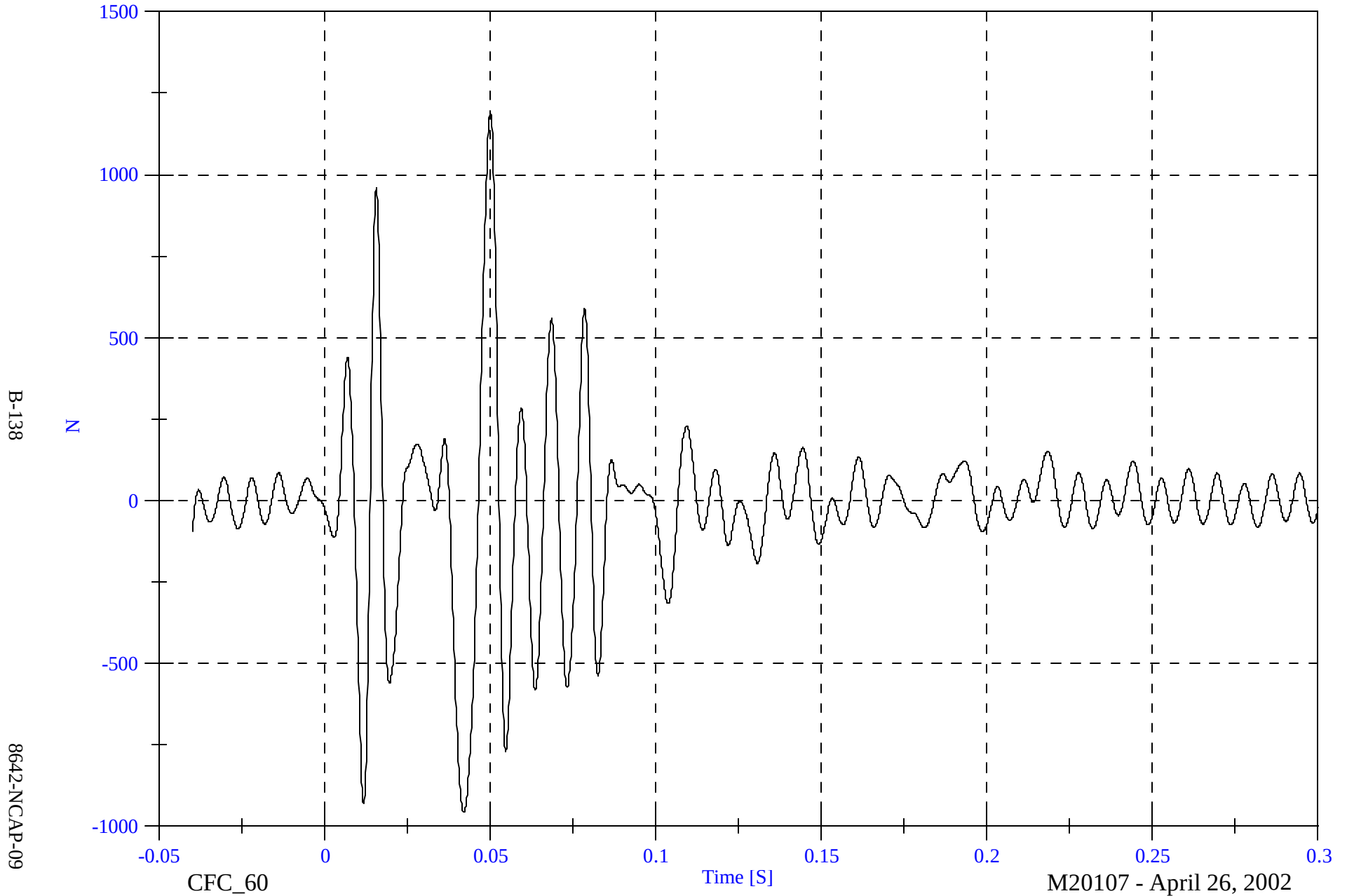
M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 1189.6 [N] at 0.050 [S]

Barrier Load Cell A1 Fx

Min: -956.2 [N] at 0.042 [S]

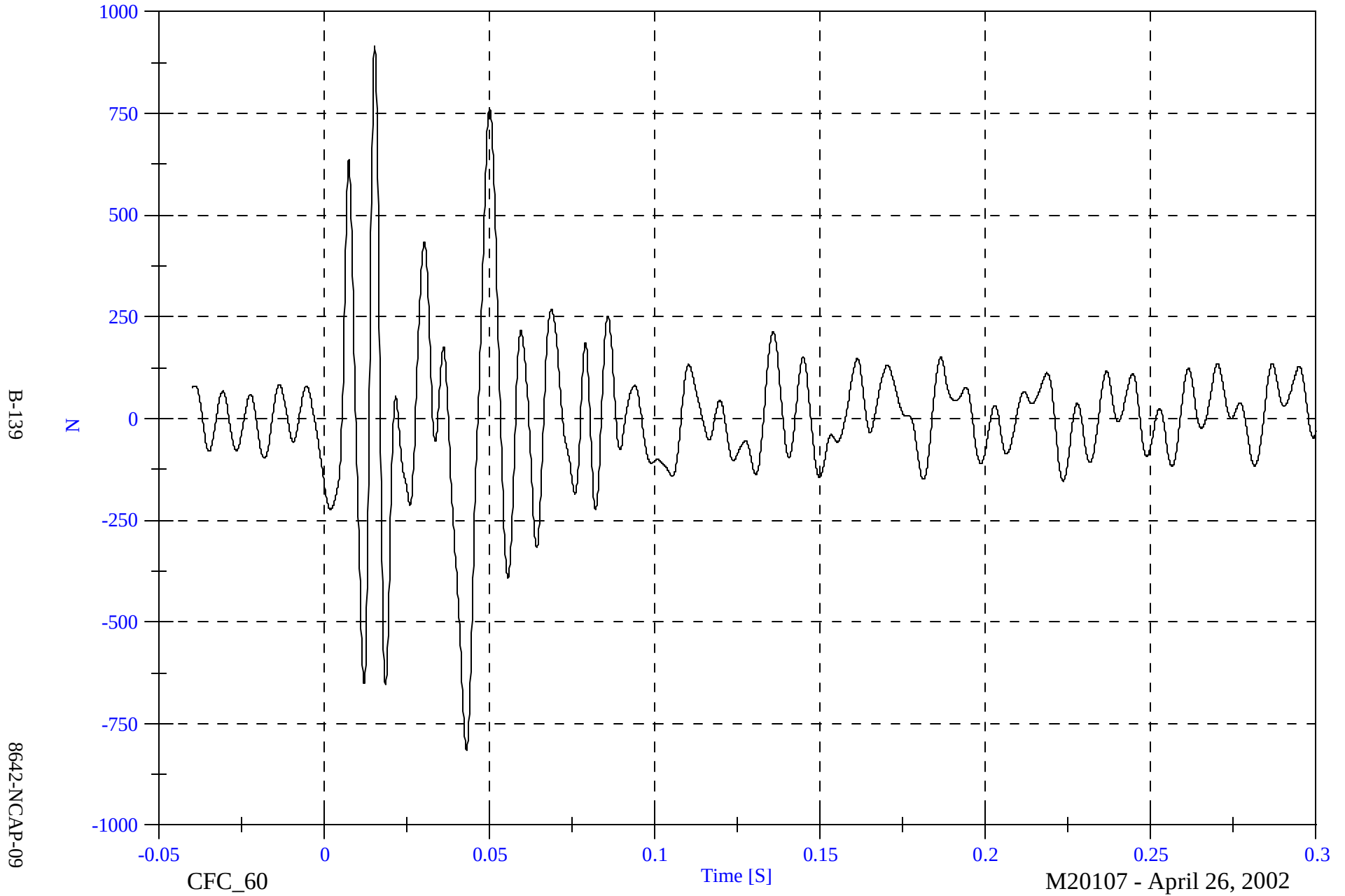


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell A2 Fx

Max: 916.1 [N] at 0.015 [S]

Min: -816.5 [N] at 0.043 [S]

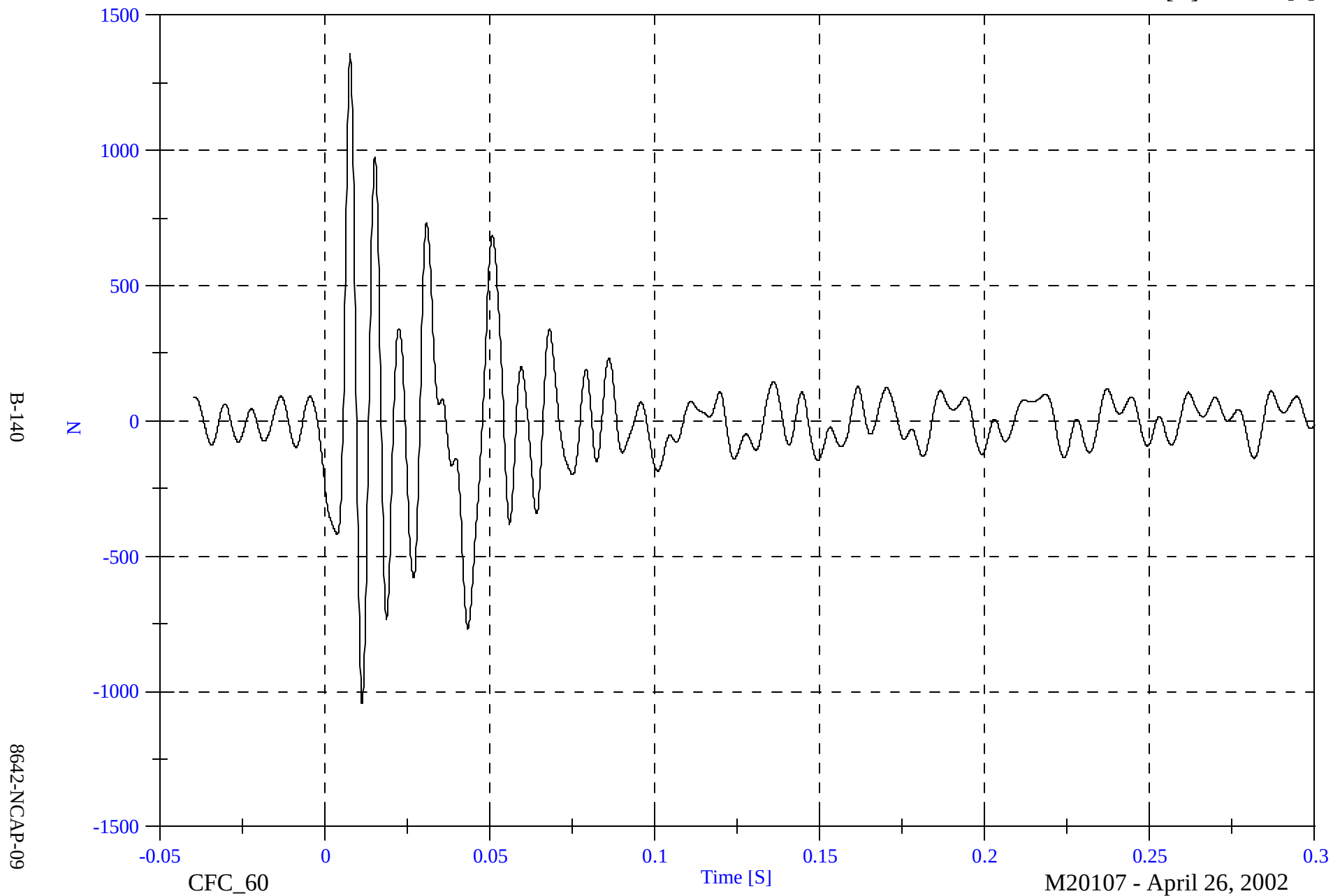


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell A3 Fx

Max: 1356.9 [N] at 0.008 [S]

Min: -1043.4 [N] at 0.011 [S]



NCAP Test #9 - 2002 Chevrolet Trailblazer

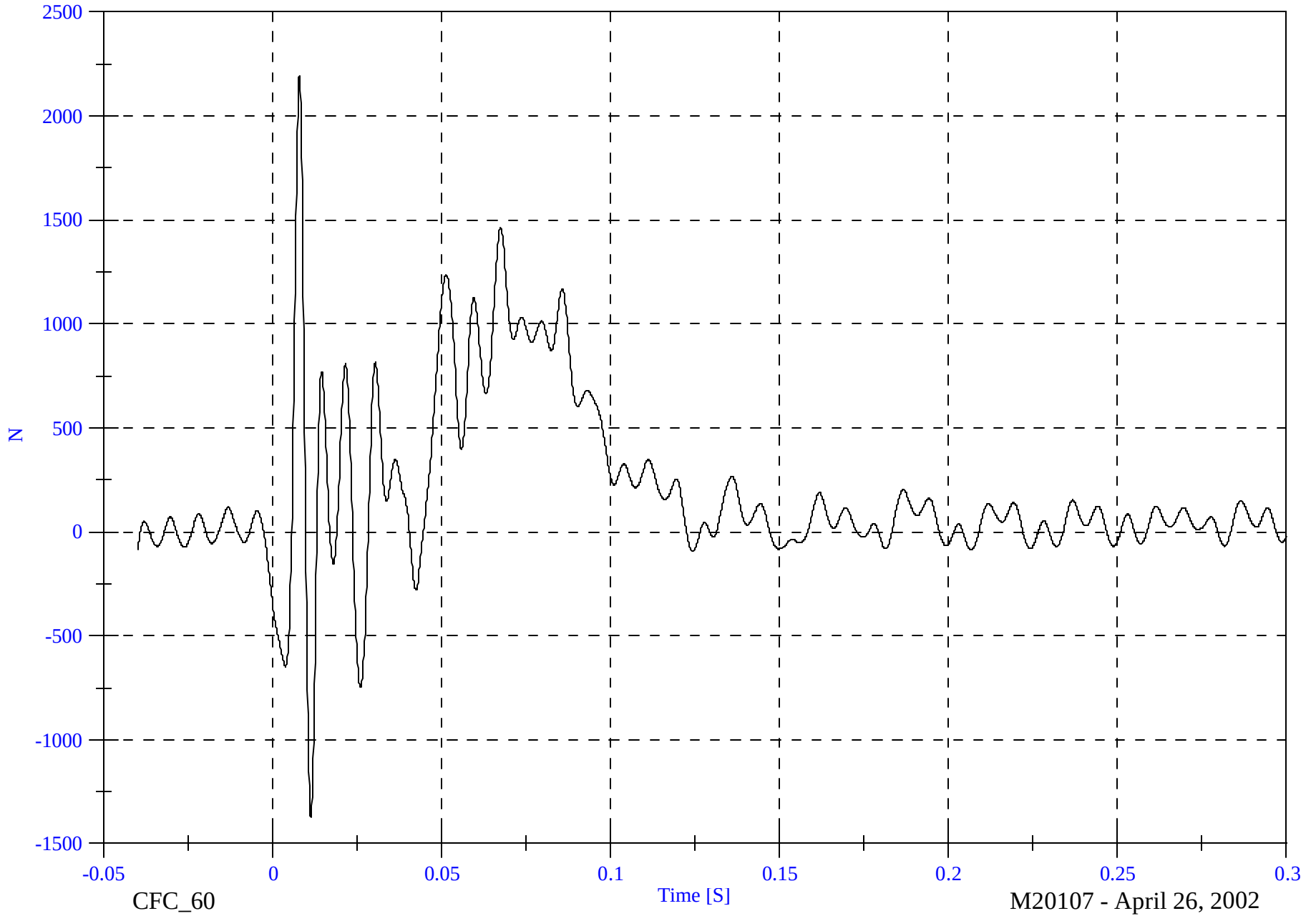
Barrier Load Cell A4 Fx

Max: 2191.5 [N] at 0.008 [S]

Min: -1375.7 [N] at 0.011 [S]

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8642-NCAP-09

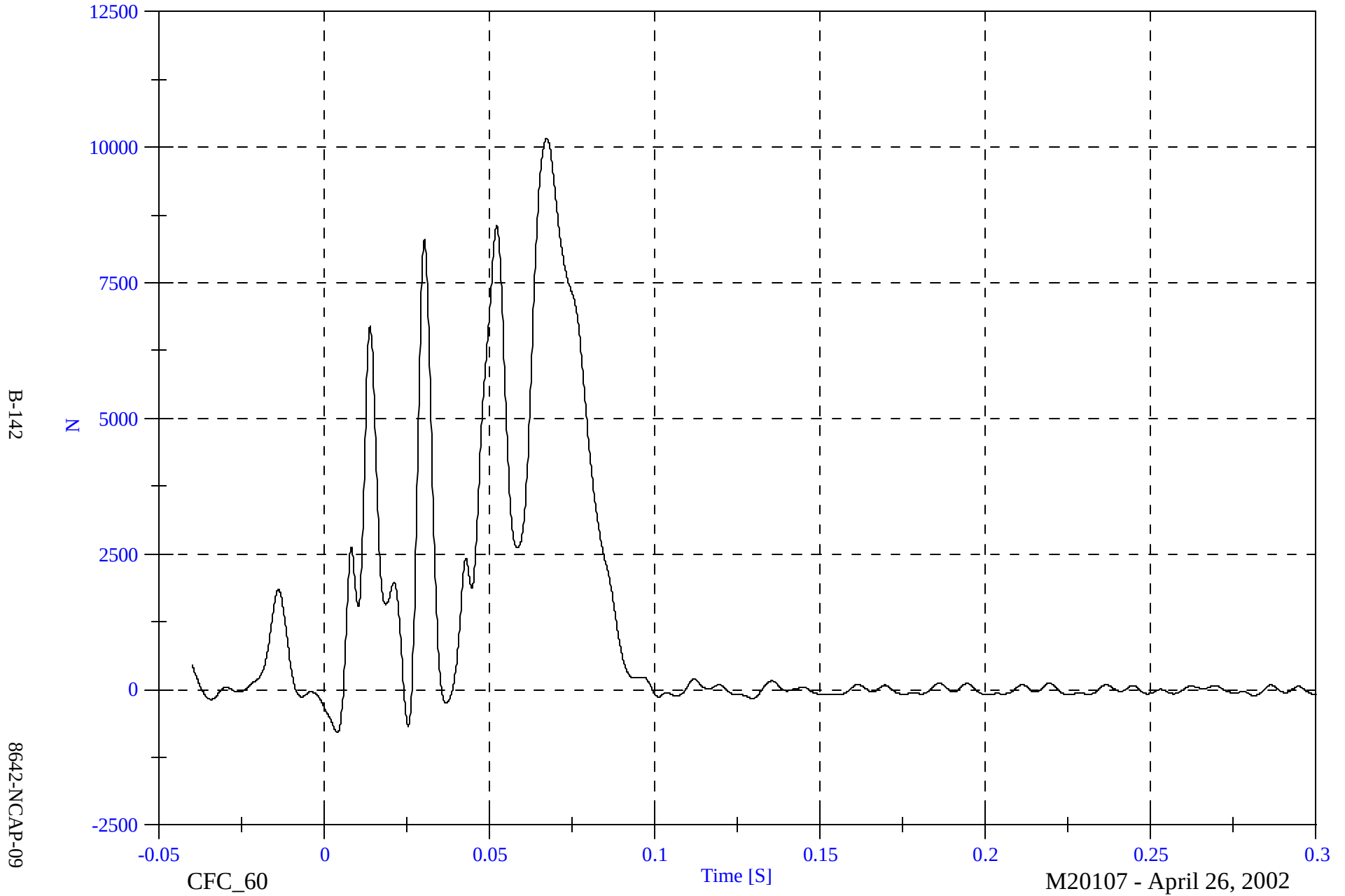


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell A5 Fx

Max: 10163.3 [N] at 0.067 [S]

Min: -795.6 [N] at 0.004 [S]

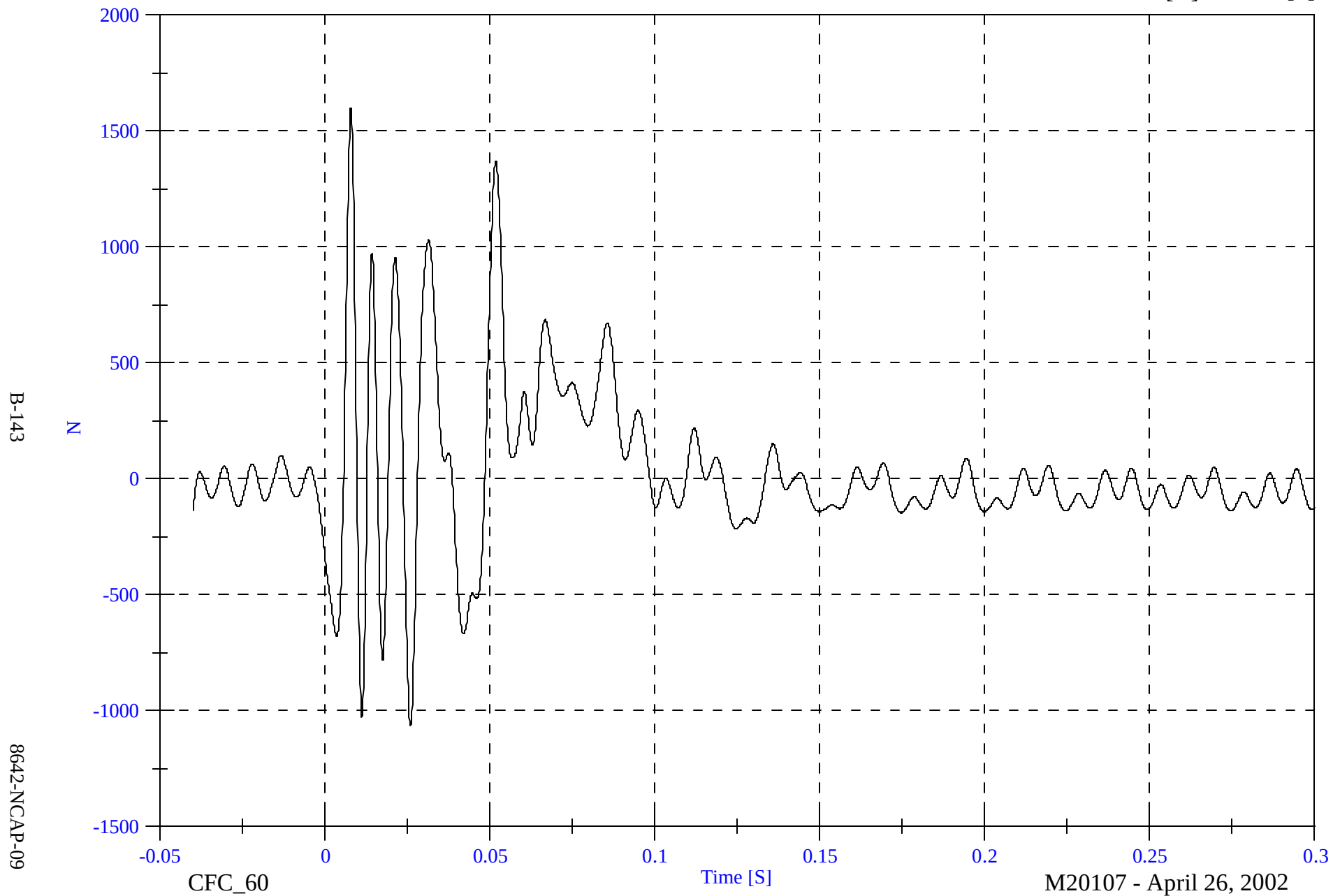


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell A6 Fx

Max: 1598.7 [N] at 0.008 [S]

Min: -1065.8 [N] at 0.026 [S]

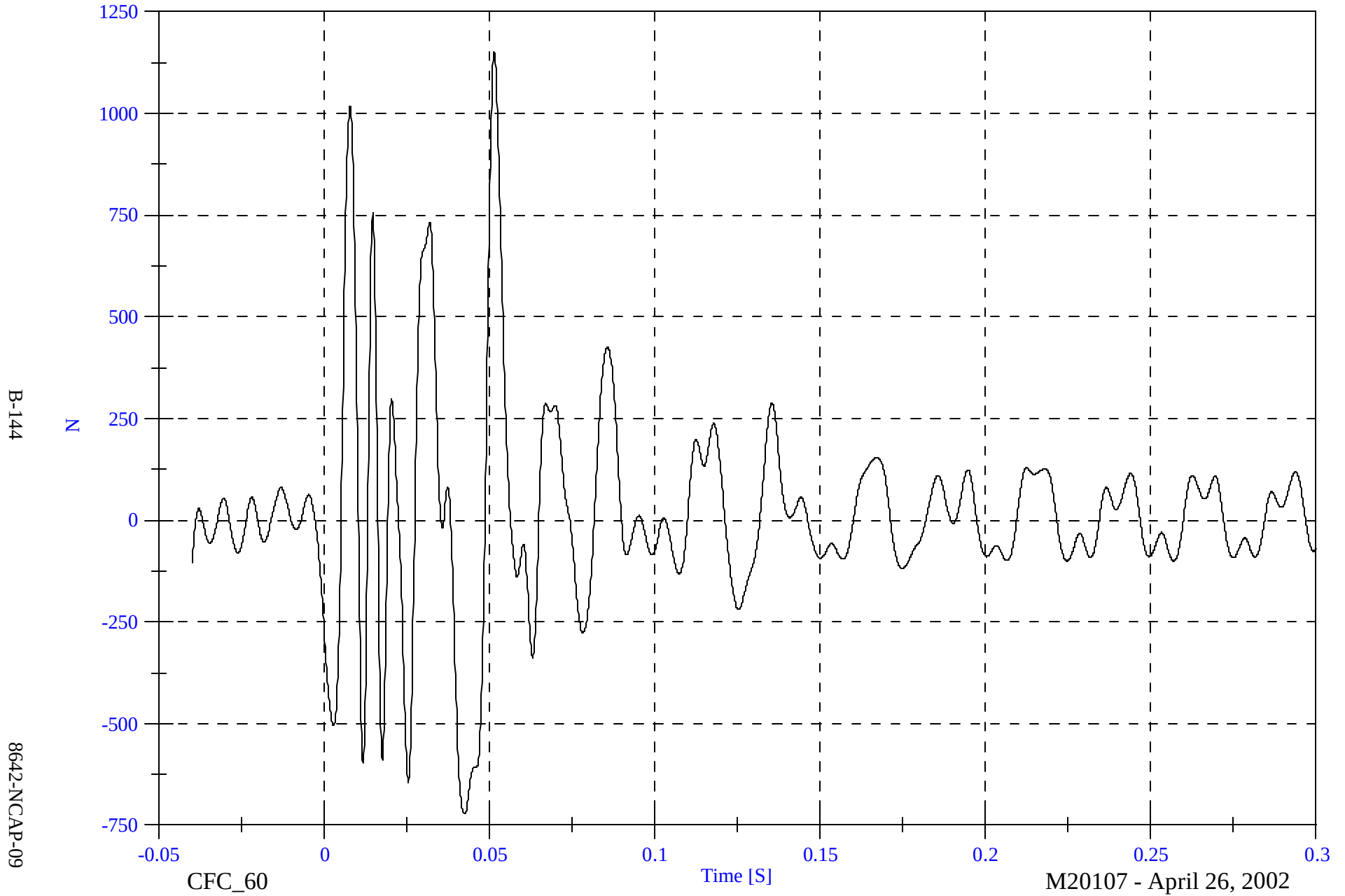


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell A7 Fx

Max: 1149.7 [N] at 0.051 [S]

Min: -721.9 [N] at 0.043 [S]

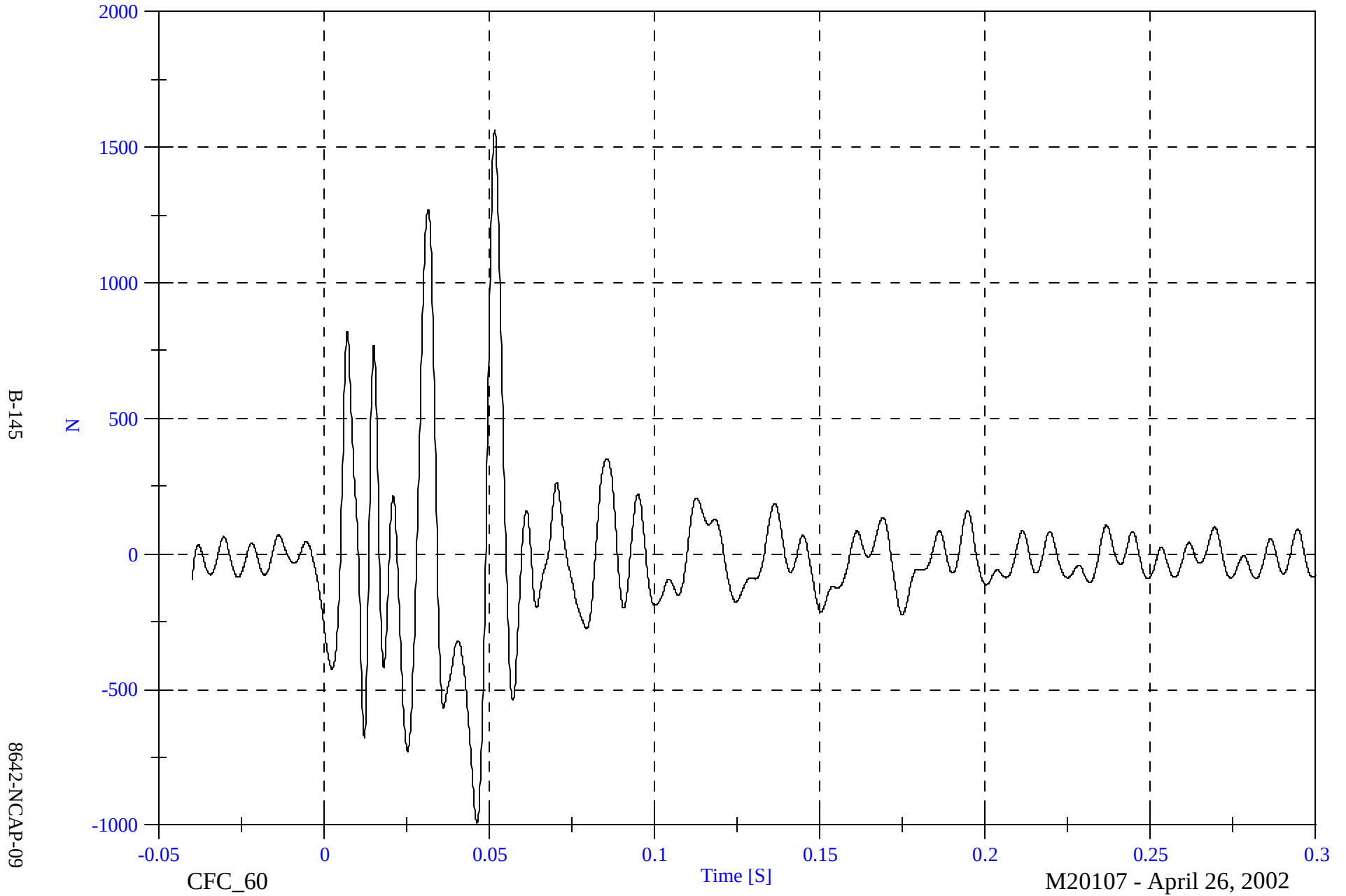


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell A8 Fx

Max: 1561.4 [N] at 0.052 [S]

Min: -990.4 [N] at 0.046 [S]

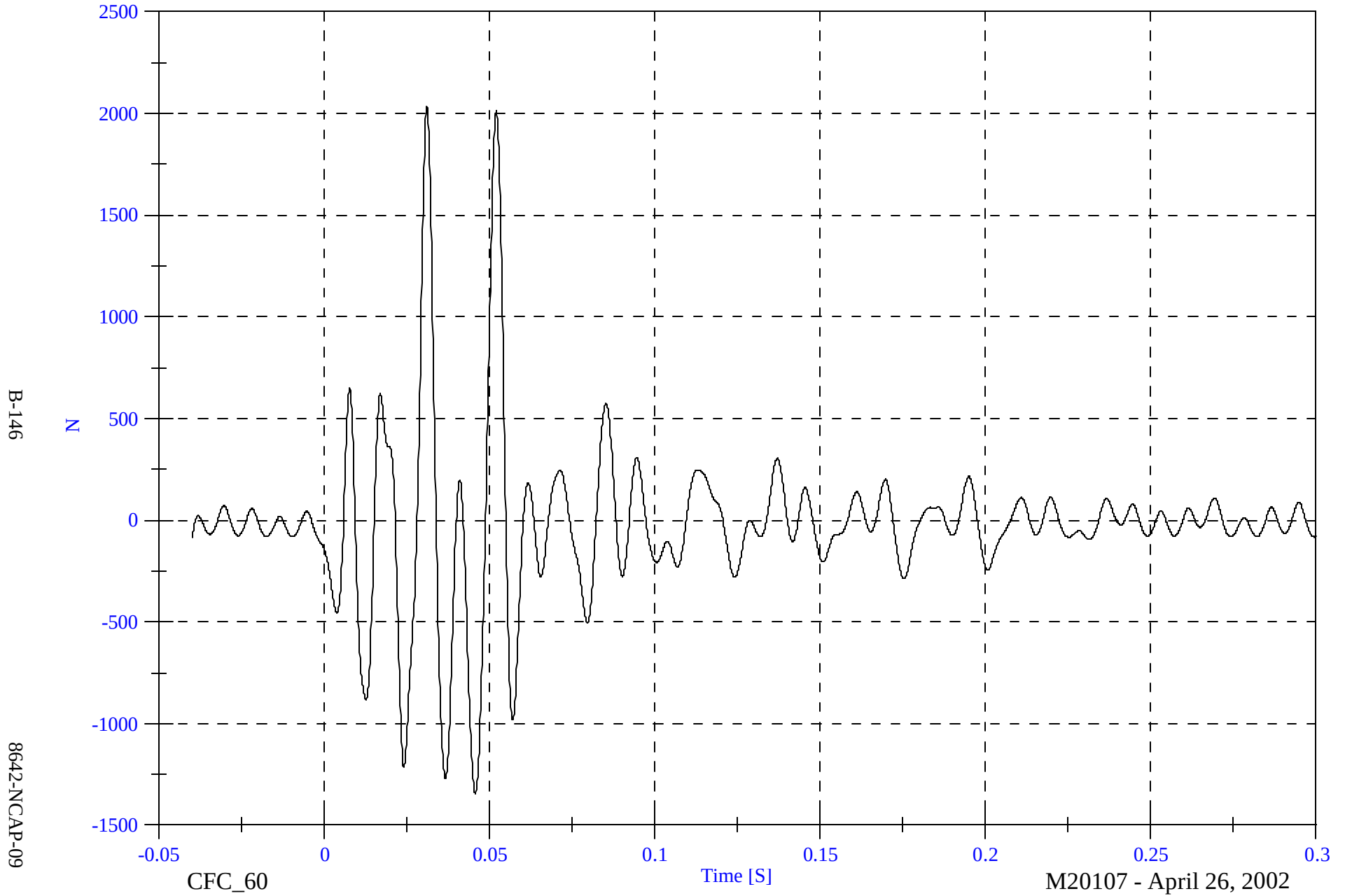


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell A9 Fx

Max: 2031.7 [N] at 0.031 [S]

Min: -1342.9 [N] at 0.046 [S]

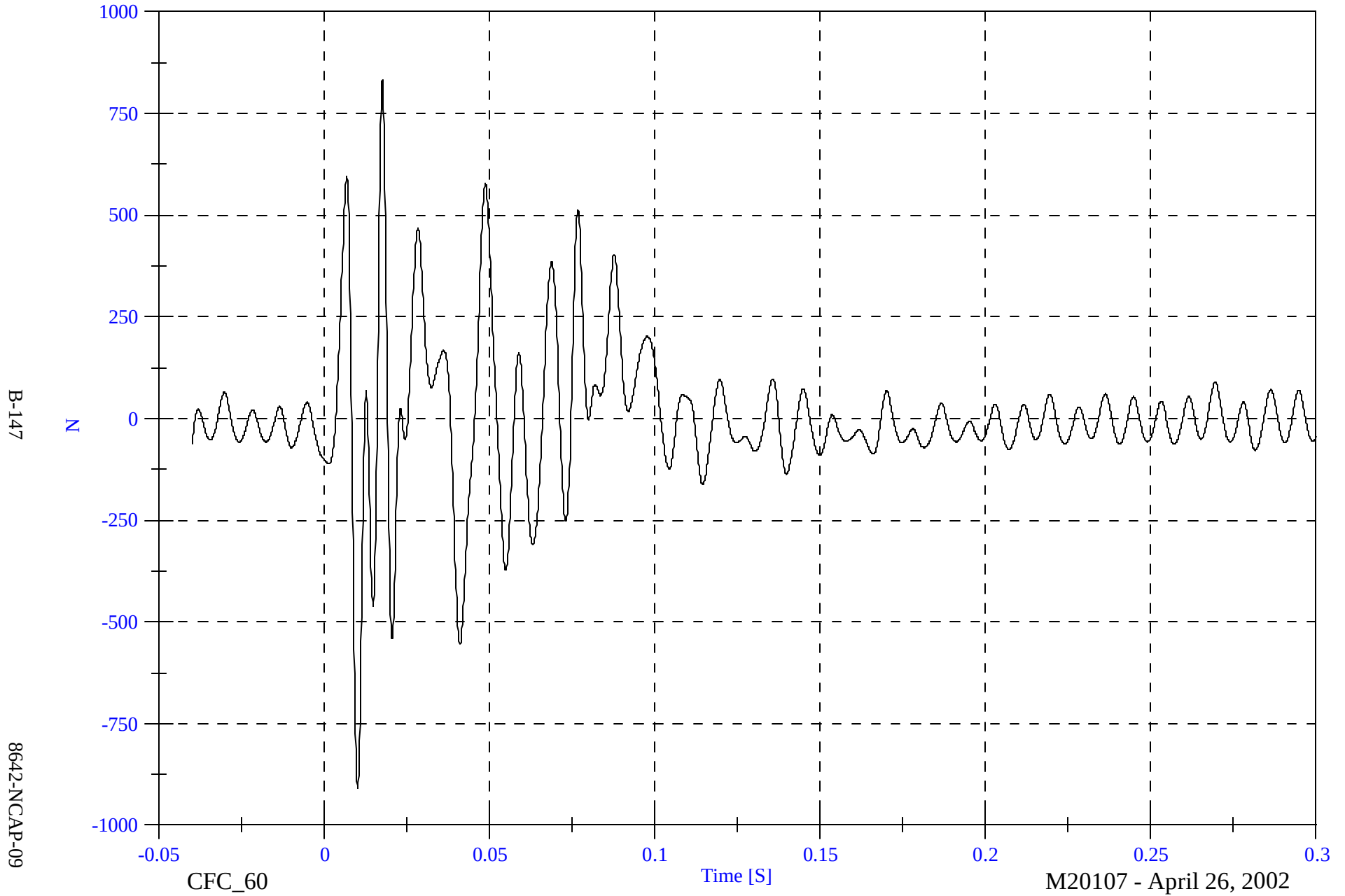


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell B1 Fx

Max: 833.0 [N] at 0.018 [S]

Min: -908.3 [N] at 0.010 [S]

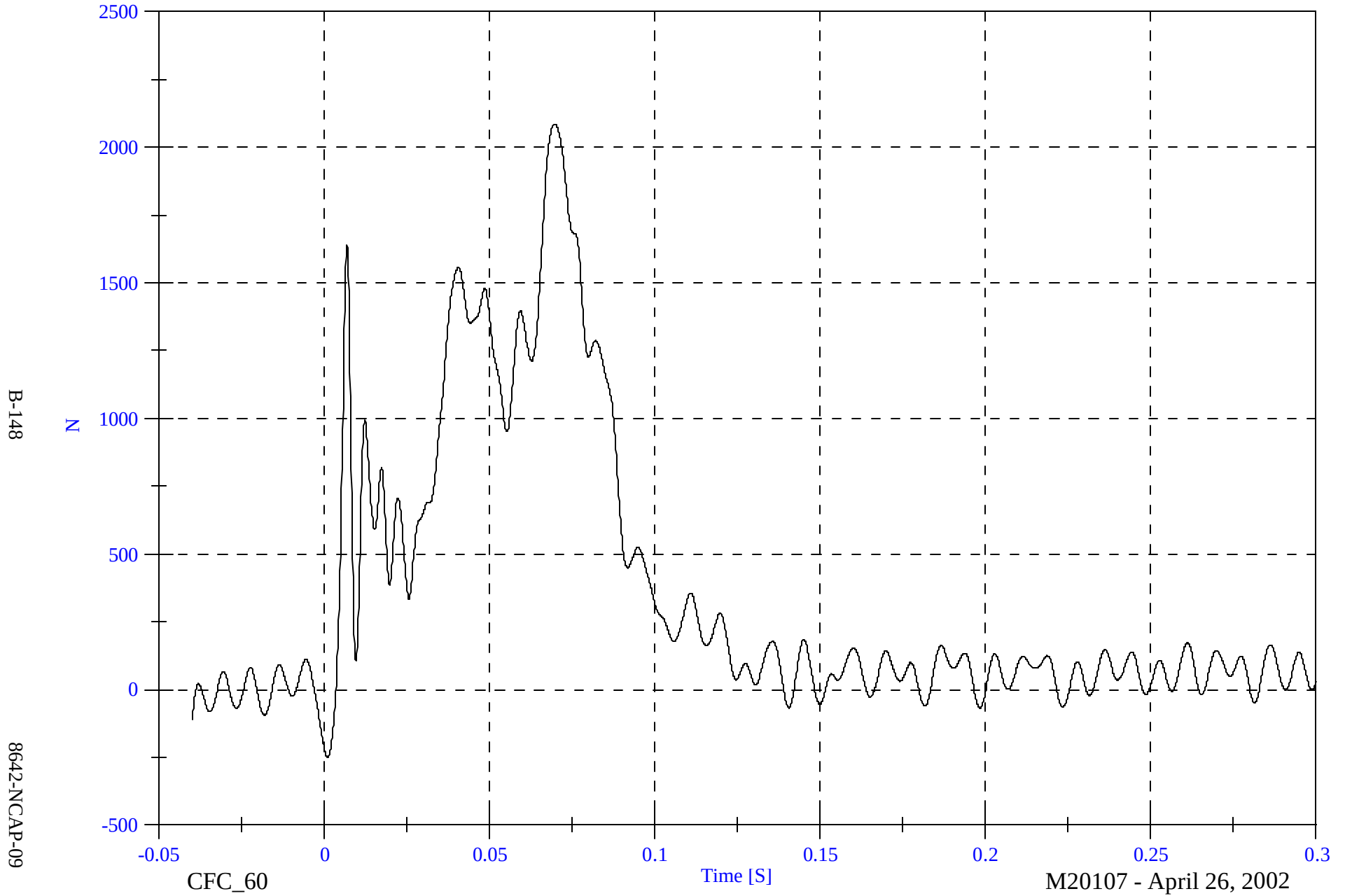


NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 2084.6 [N] at 0.070 [S]

Barrier Load Cell B2 Fx

Min: -249.3 [N] at 0.001 [S]

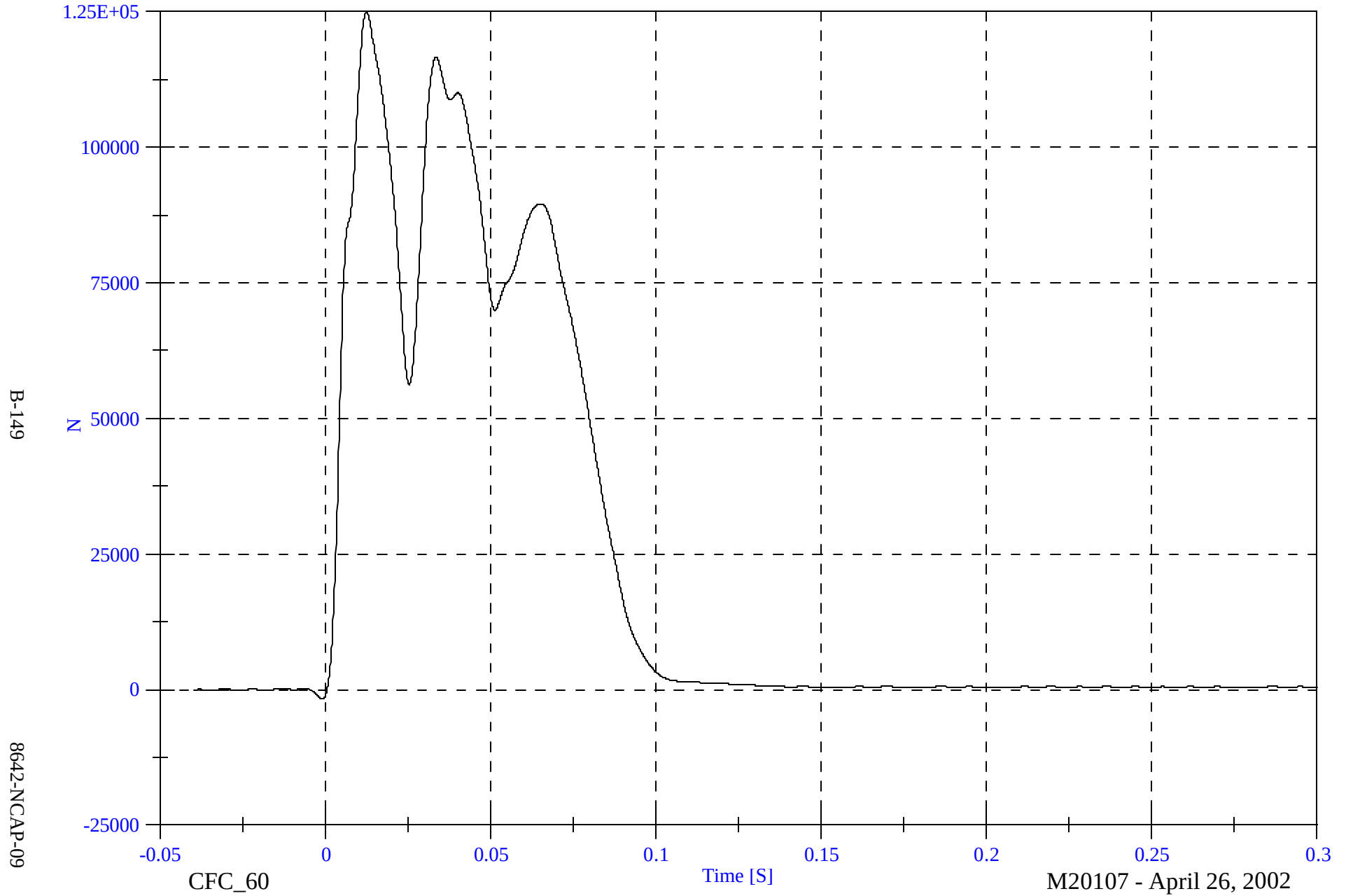


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell B3 Fx

Max: 124940.6 [N] at 0.012 [S]

Min: -1730.8 [N] at -0.001 [S]

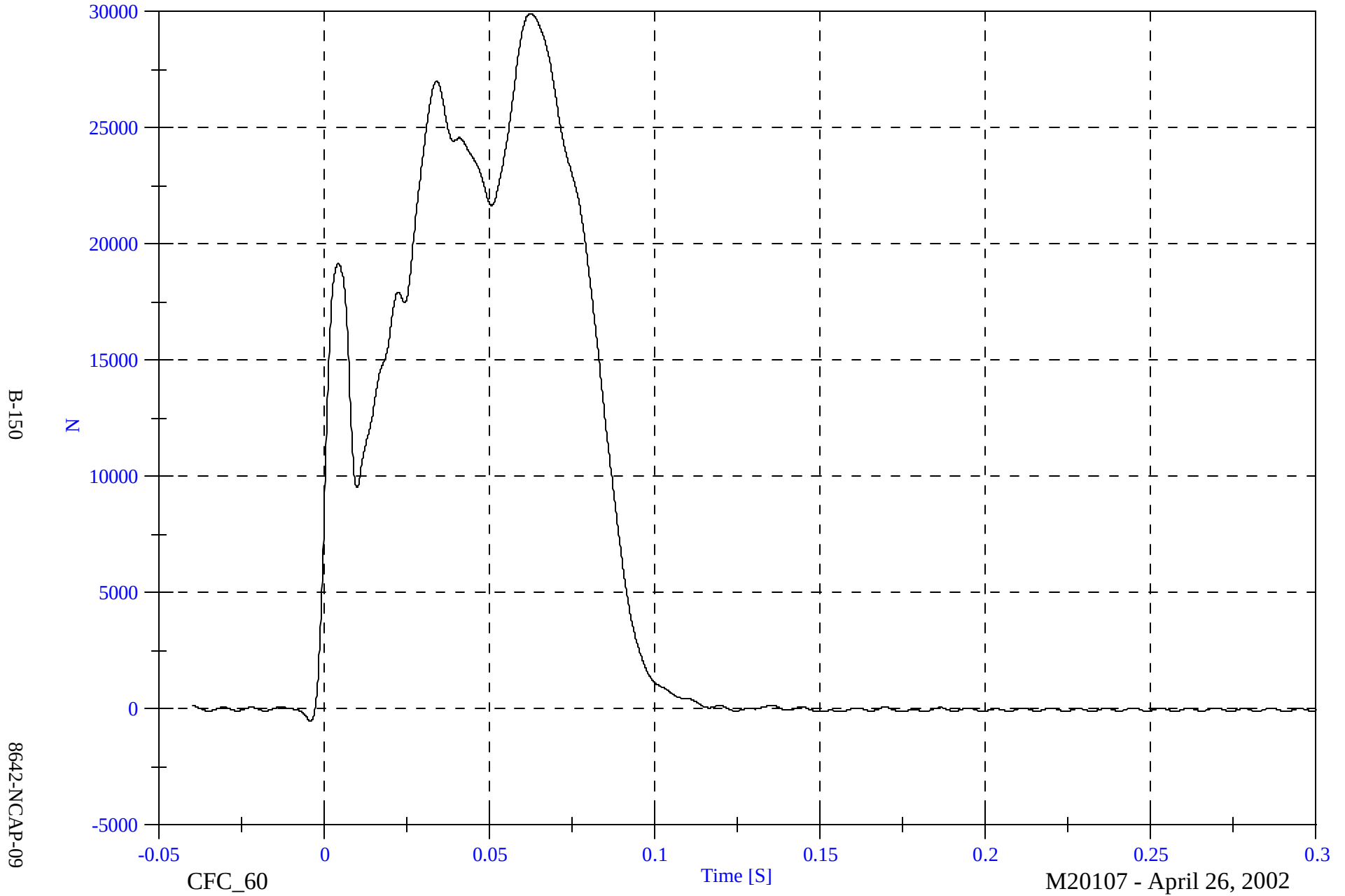


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell B4 Fx

Max: 29911.1 [N] at 0.062 [S]

Min: -533.0 [N] at -0.004 [S]

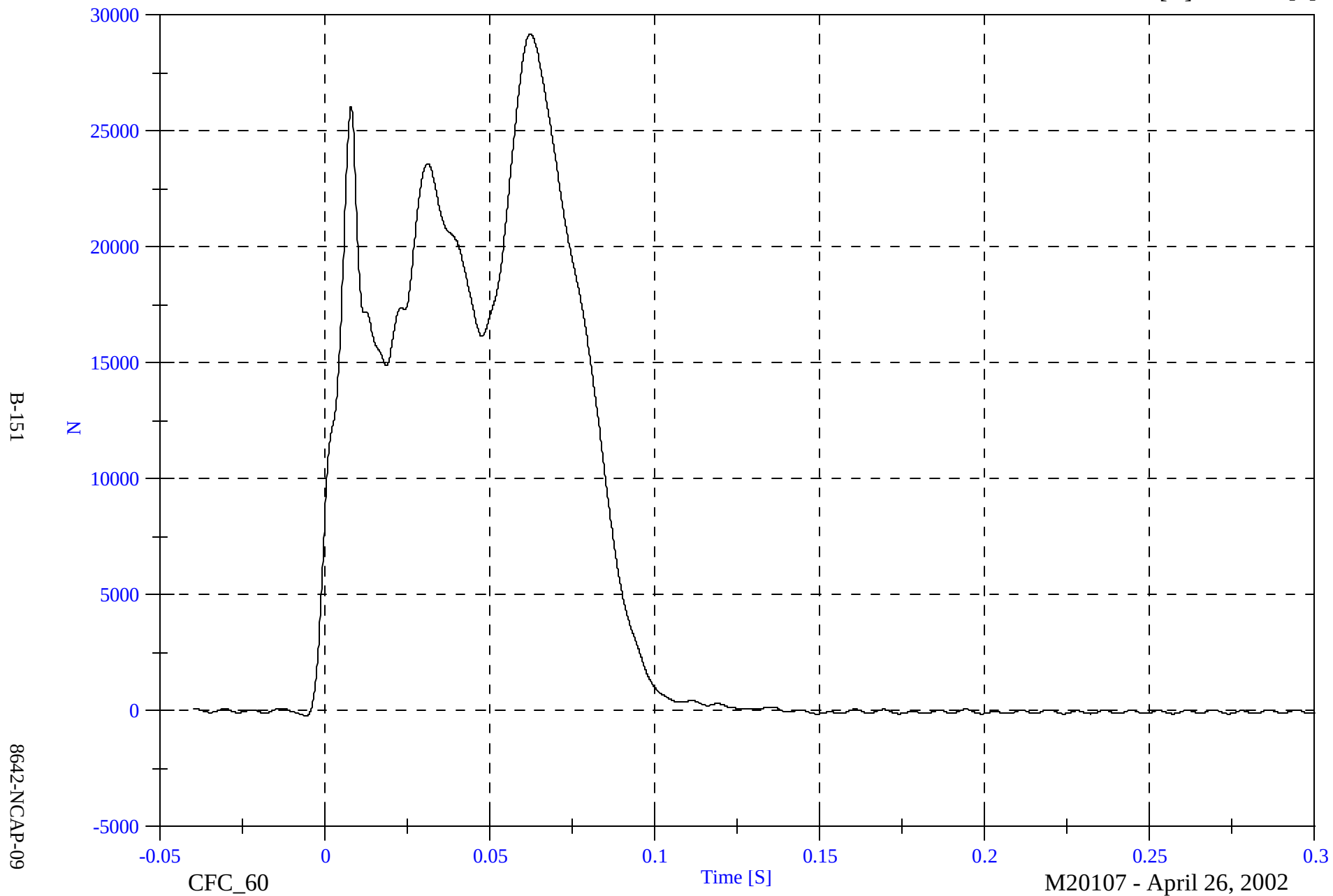


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell B5 Fx

Max: 29198.4 [N] at 0.062 [S]

Min: -203.2 [N] at -0.006 [S]

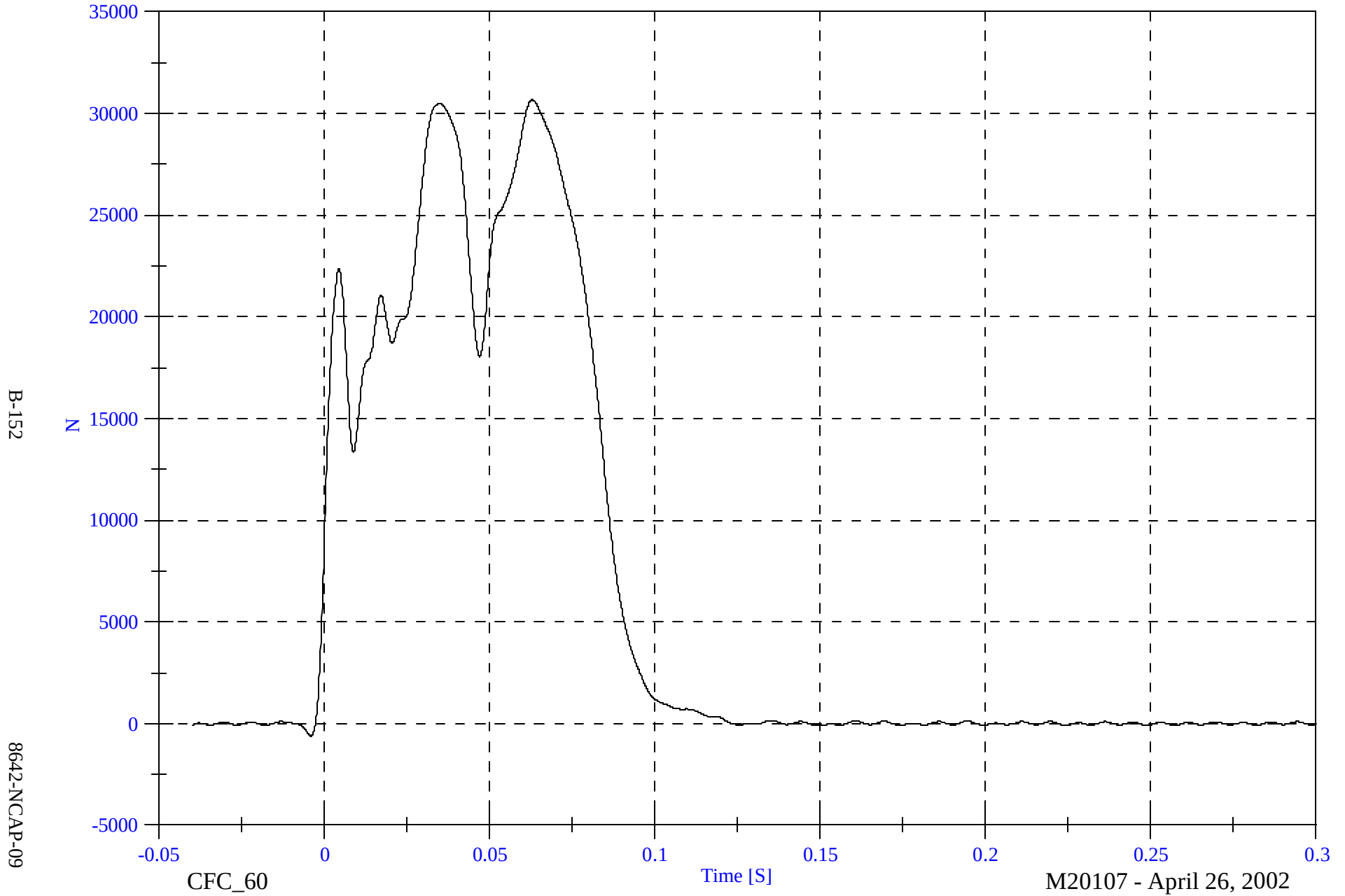


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell B6 Fx

Max: 30670.8 [N] at 0.063 [S]

Min: -606.8 [N] at -0.004 [S]

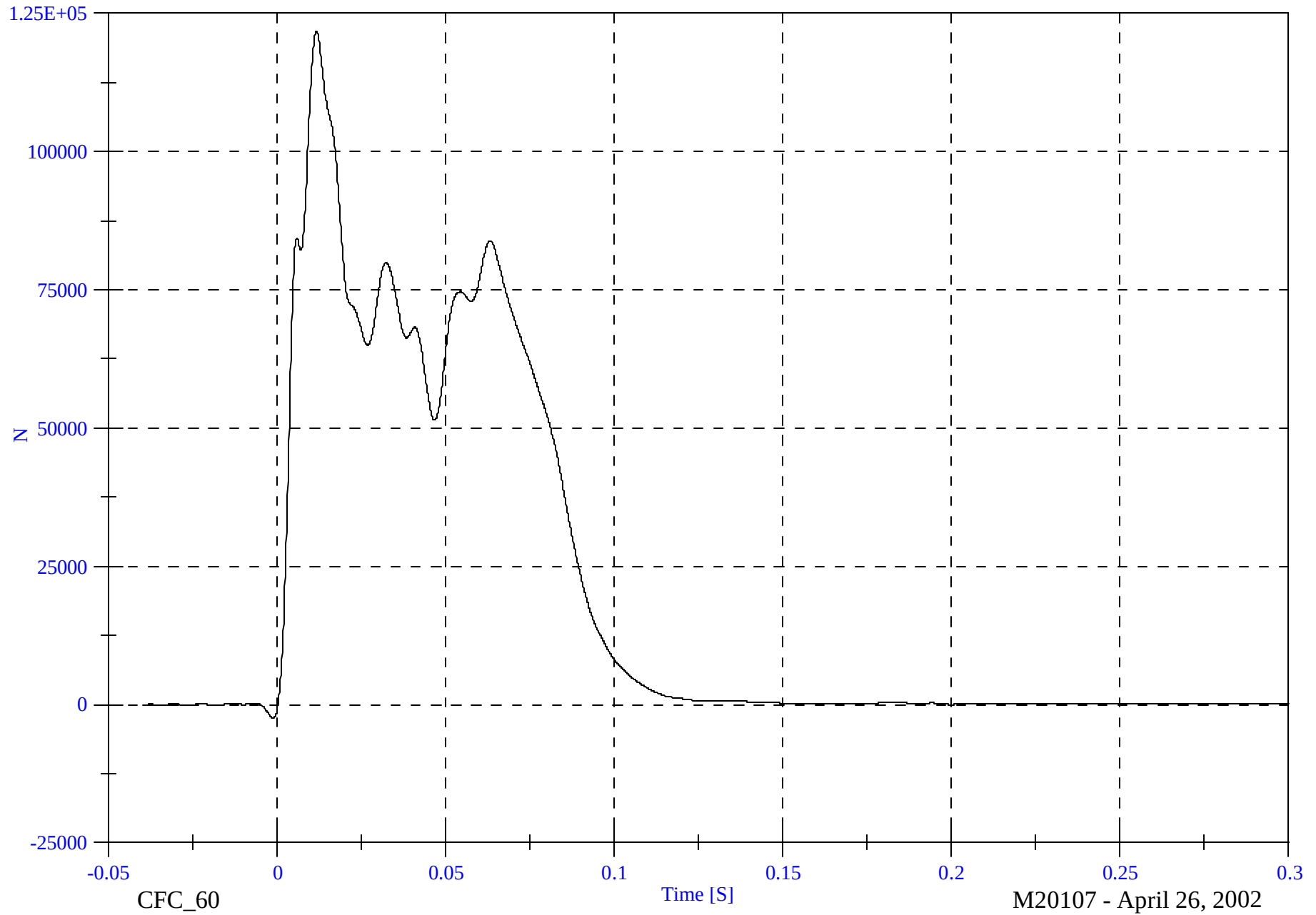


NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 121711.0 [N] at 0.012 [S]

Min: -2476.0 [N] at -0.001 [S]

Barrier Load Cell B7 Fx



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CFC_60

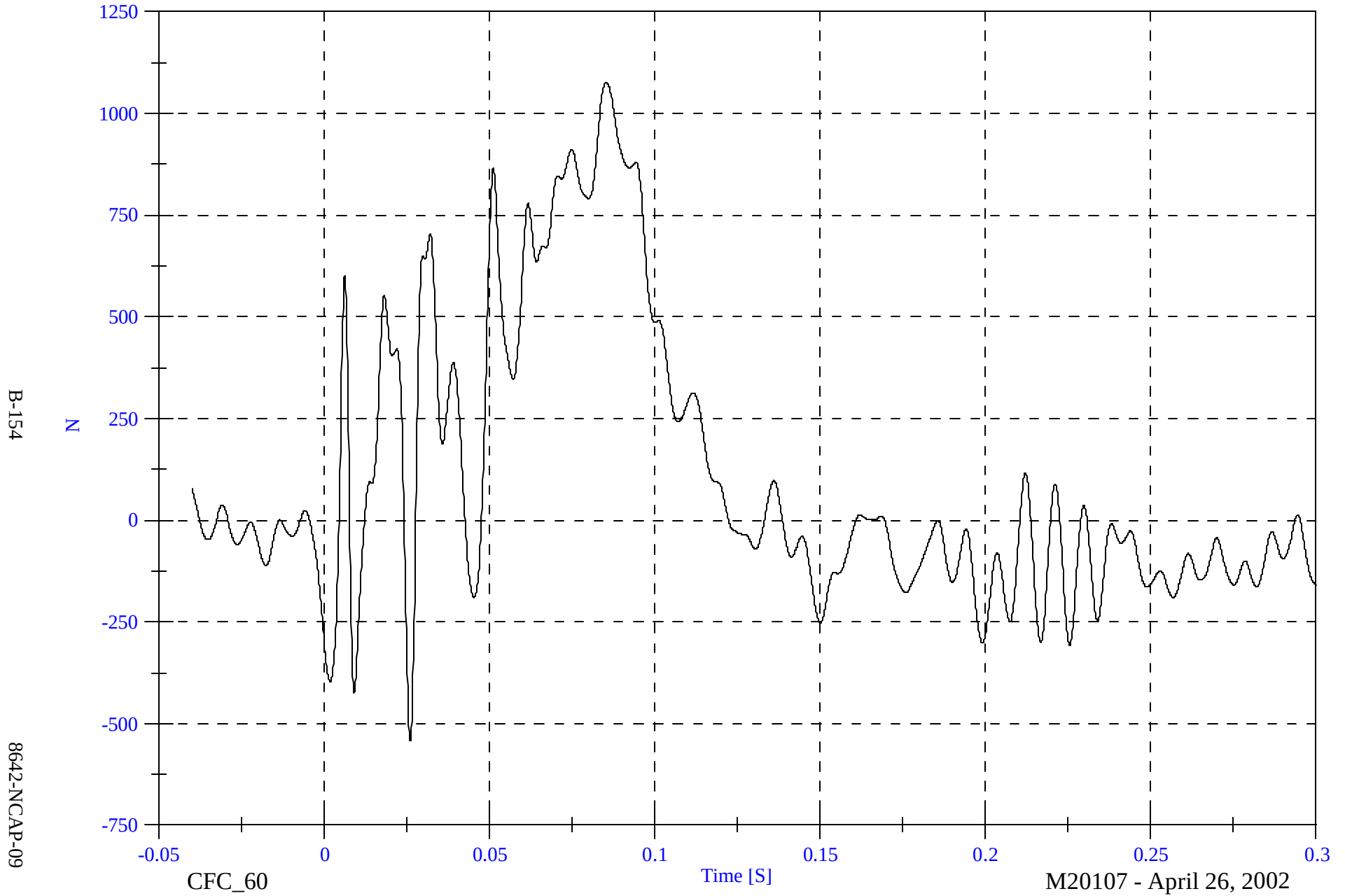
M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 1075.5 [N] at 0.085 [S]

Barrier Load Cell B8 Fx

Min: -541.6 [N] at 0.026 [S]

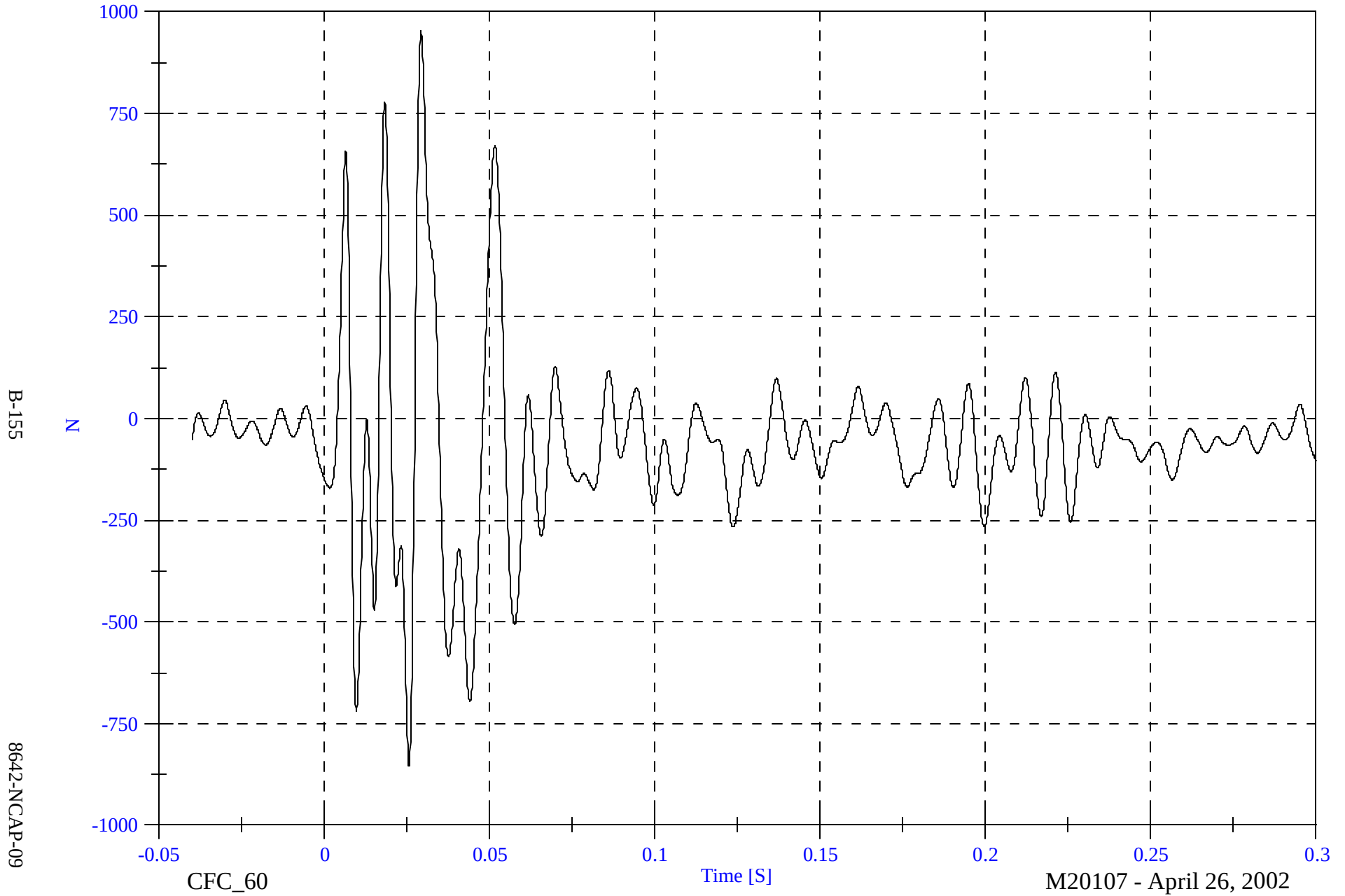


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell B9 Fx

Max: 951.7 [N] at 0.029 [S]

Min: -853.6 [N] at 0.026 [S]

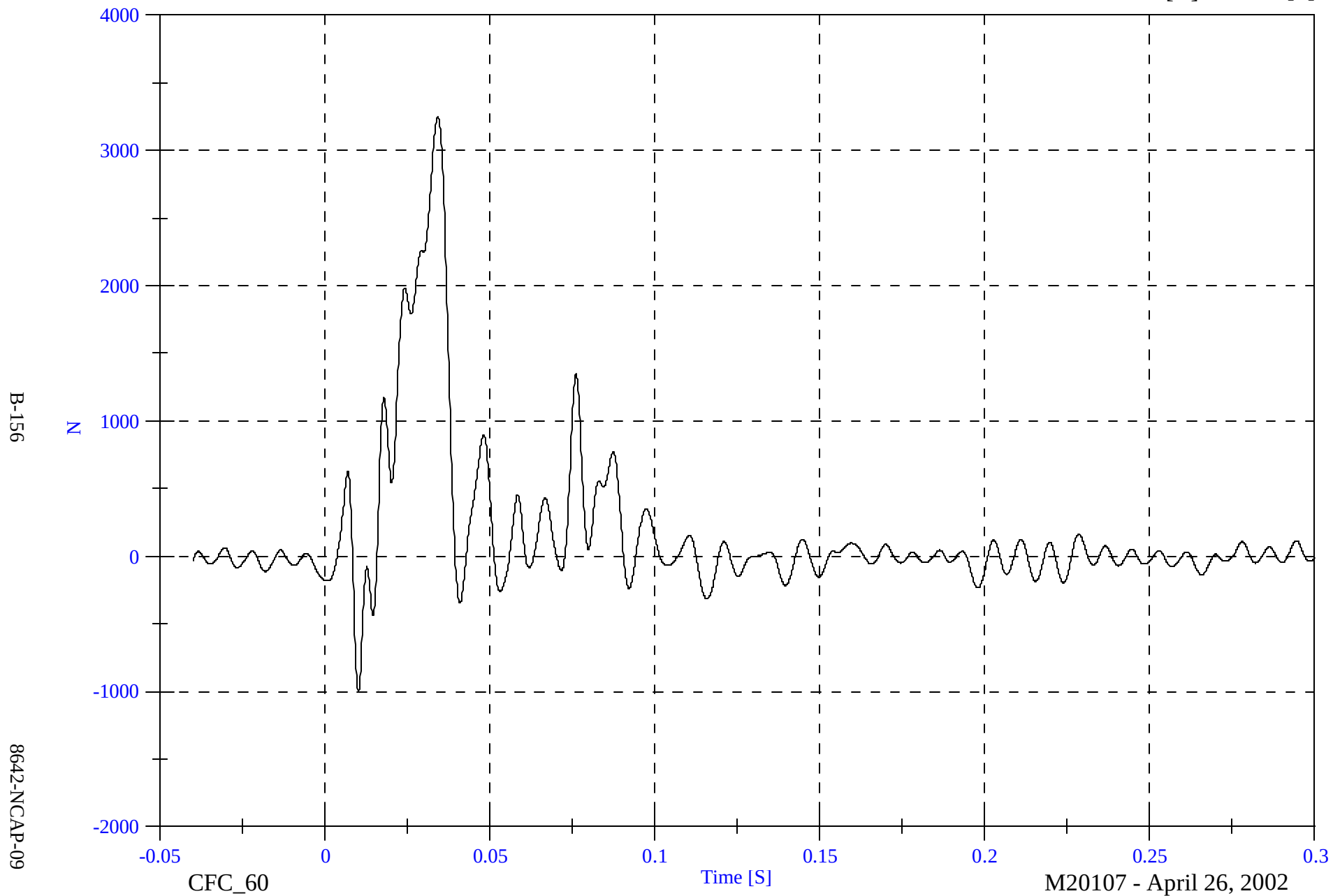


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell C1 Fx

Max: 3249.8 [N] at 0.034 [S]

Min: -1002.2 [N] at 0.010 [S]

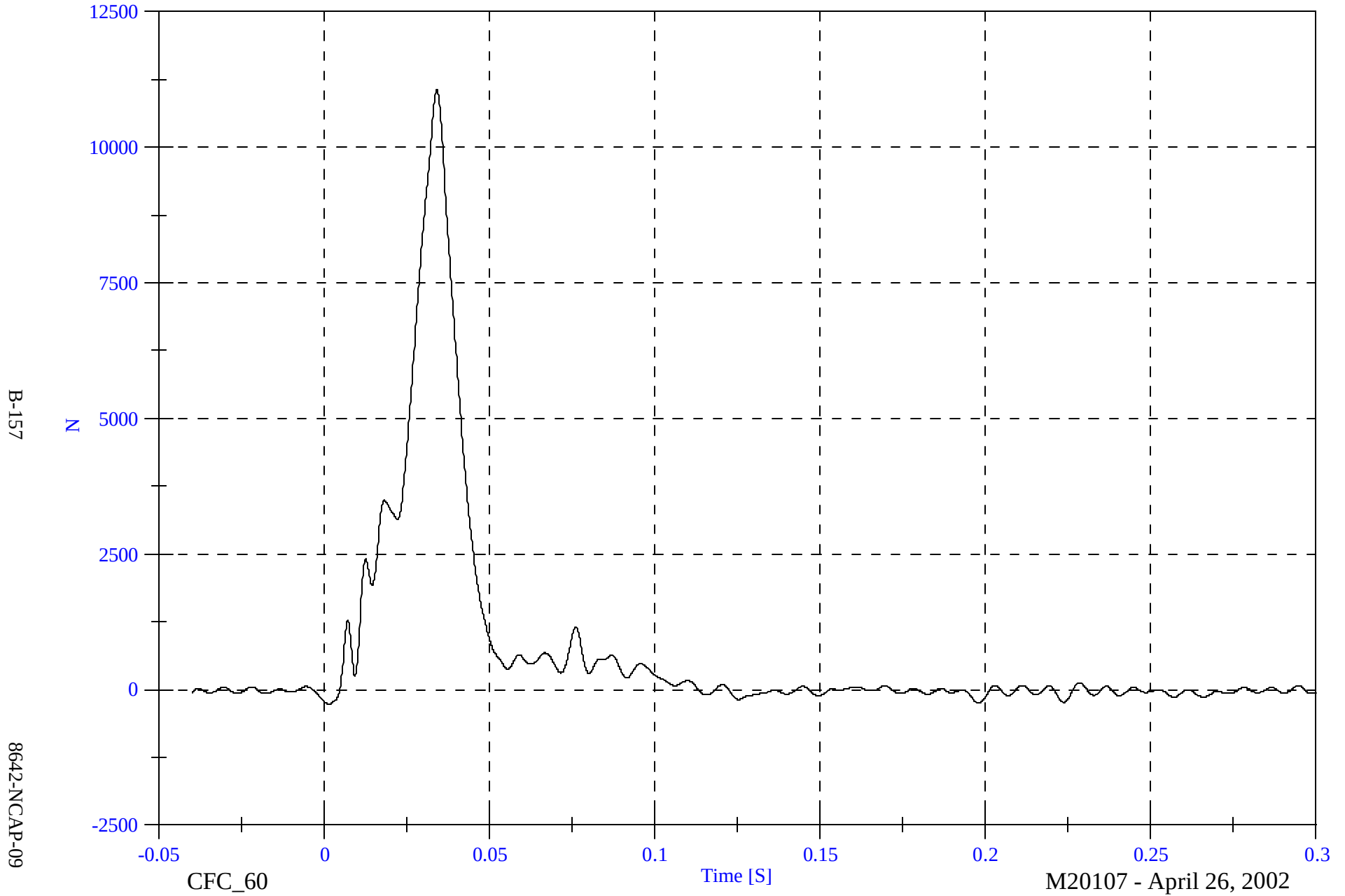


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell C2 Fx

Max: 11062.5 [N] at 0.034 [S]

Min: -269.4 [N] at 0.001 [S]

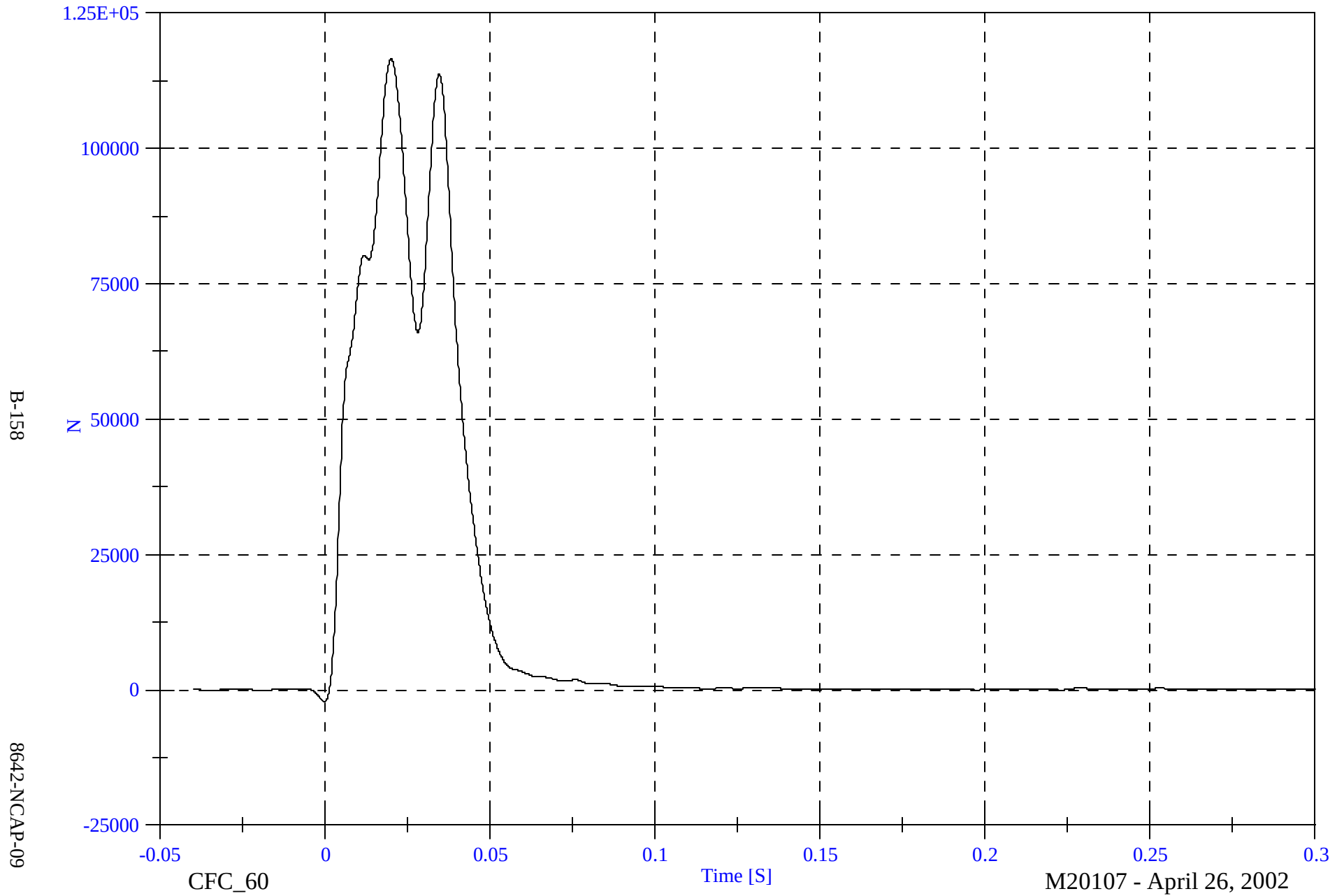


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell C3 Fx

Max: 116528.6 [N] at 0.020 [S]

Min: -2163.6 [N] at -0.000 [S]

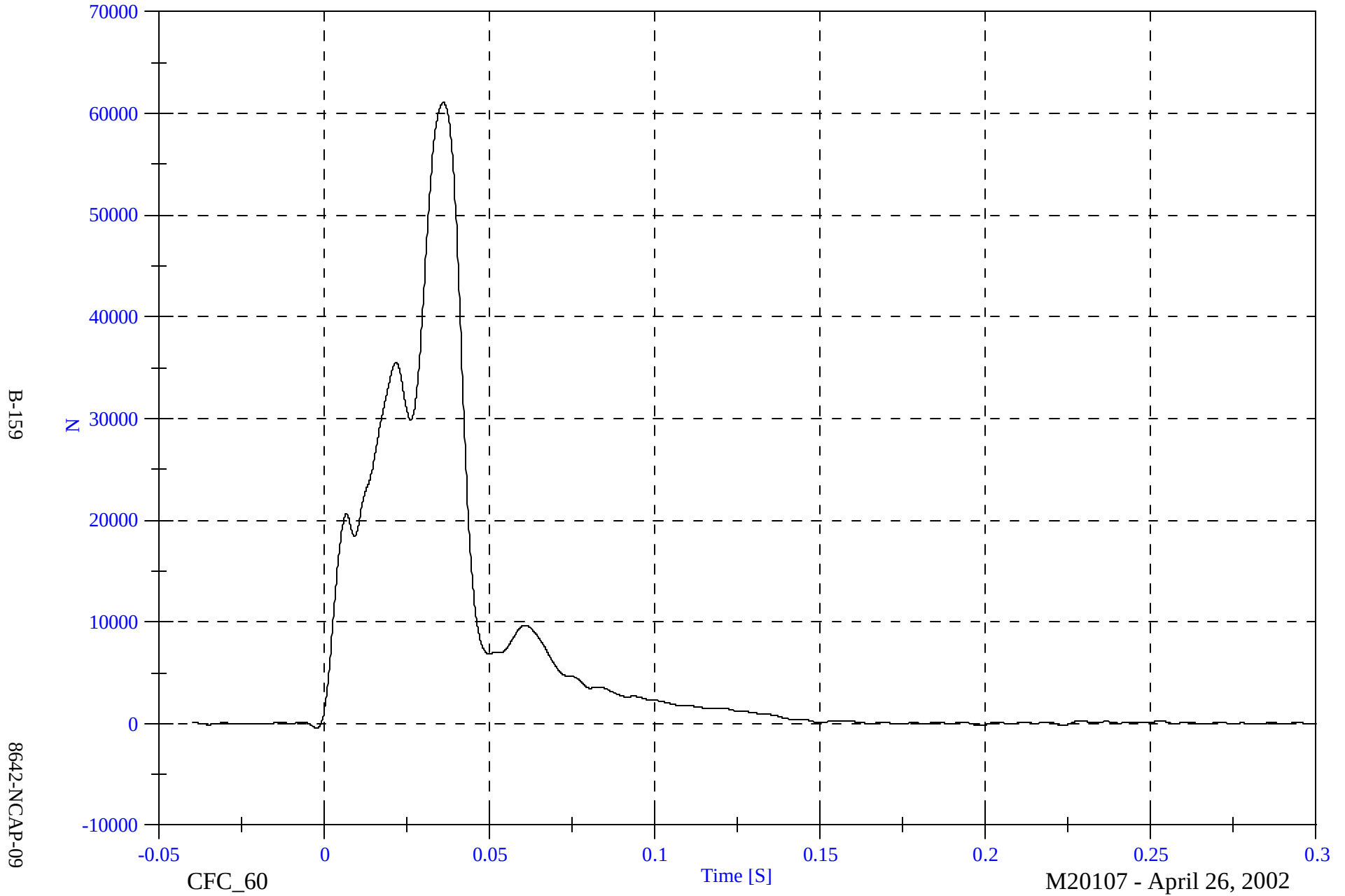


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell C4 Fx

Max: 61060.7 [N] at 0.036 [S]

Min: -427.2 [N] at -0.002 [S]

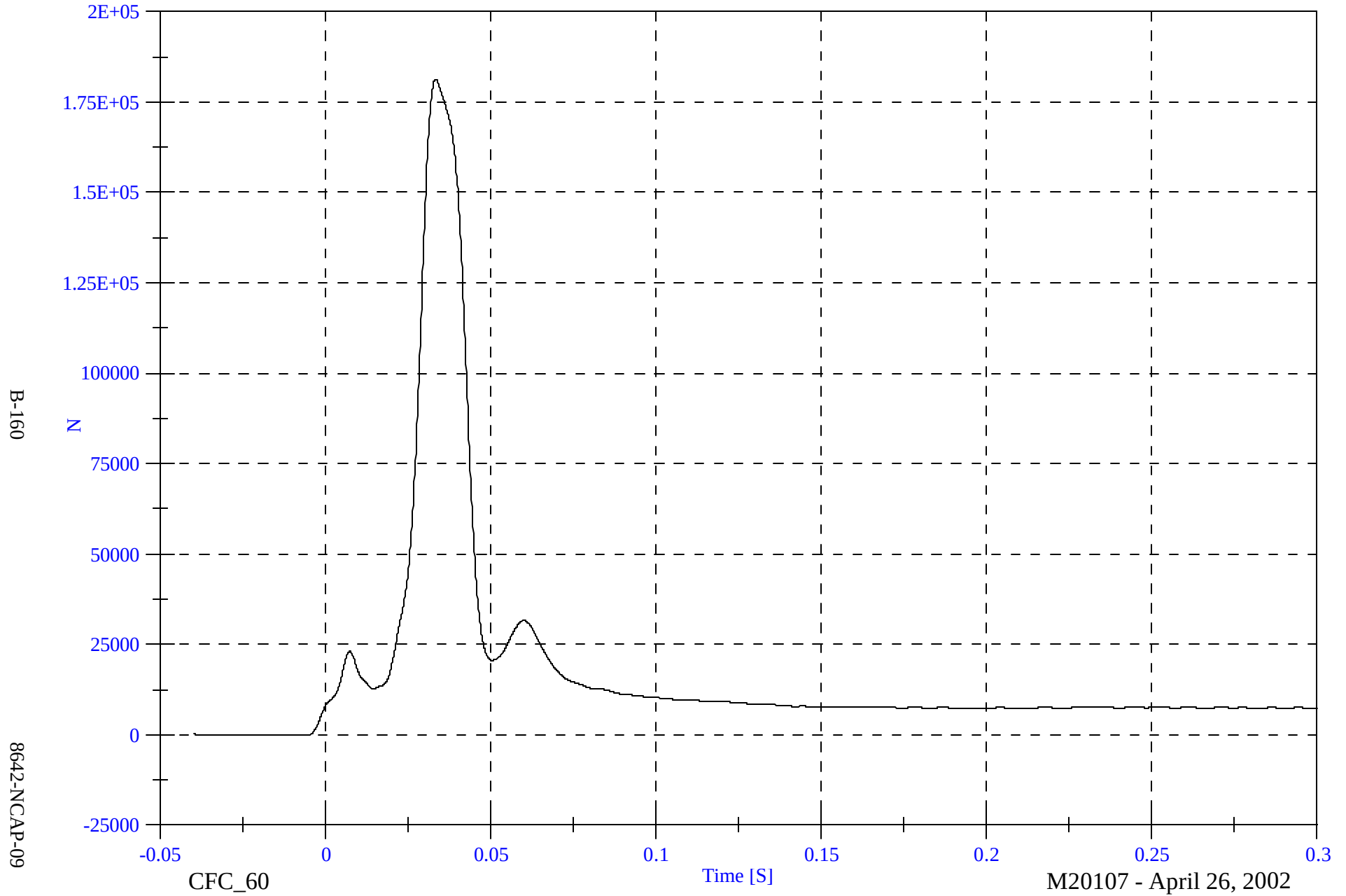


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell C5 Fx

Max: 181288.2 [N] at 0.033 [S]

Min: -194.9 [N] at -0.006 [S]

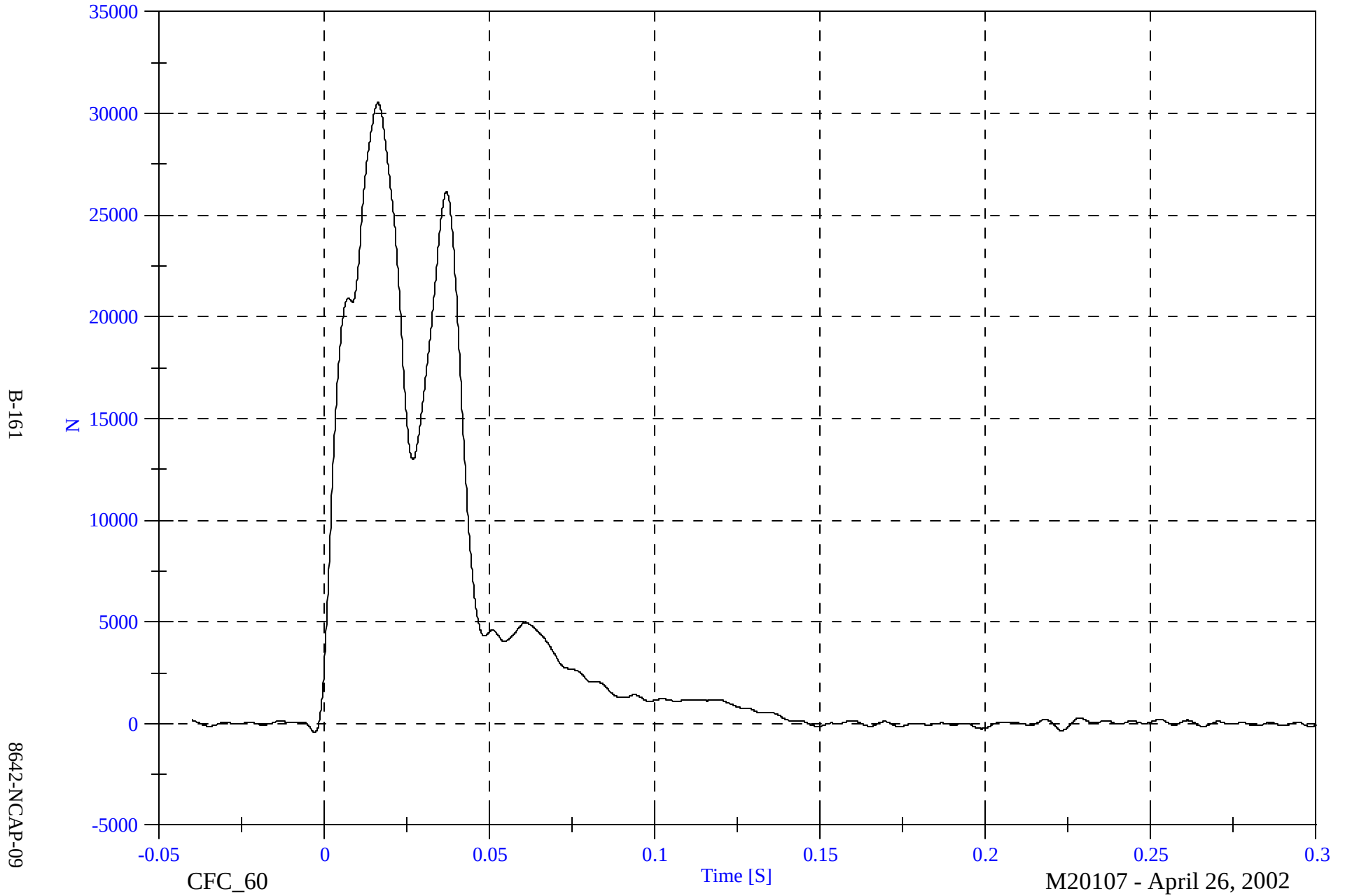


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell C6 Fx

Max: 30530.5 [N] at 0.016 [S]

Min: -417.7 [N] at -0.003 [S]

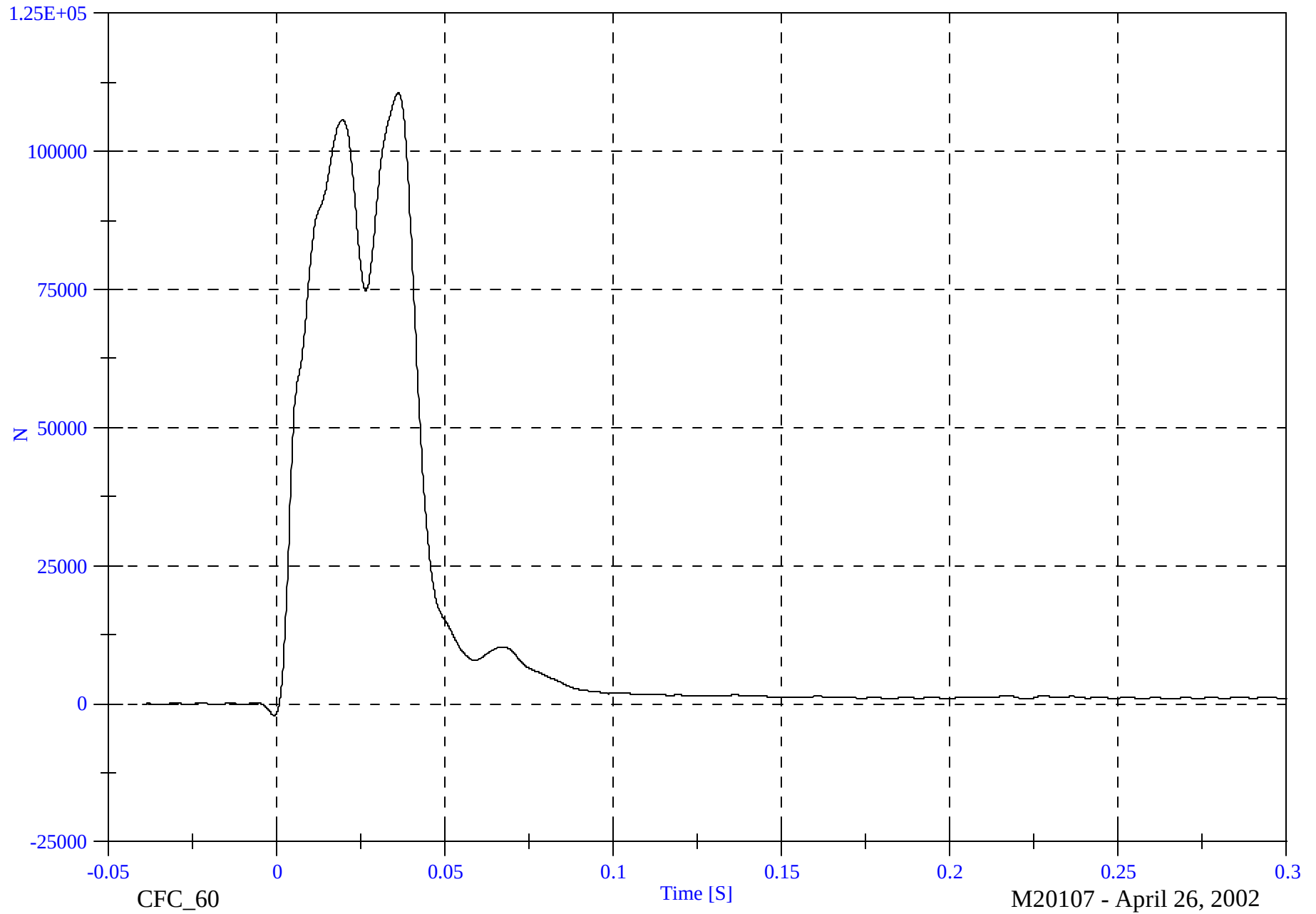


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell C7 Fx

Max: 110589.4 [N] at 0.036 [S]

Min: -2121.0 [N] at -0.001 [S]



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CFC_60

Time [S]

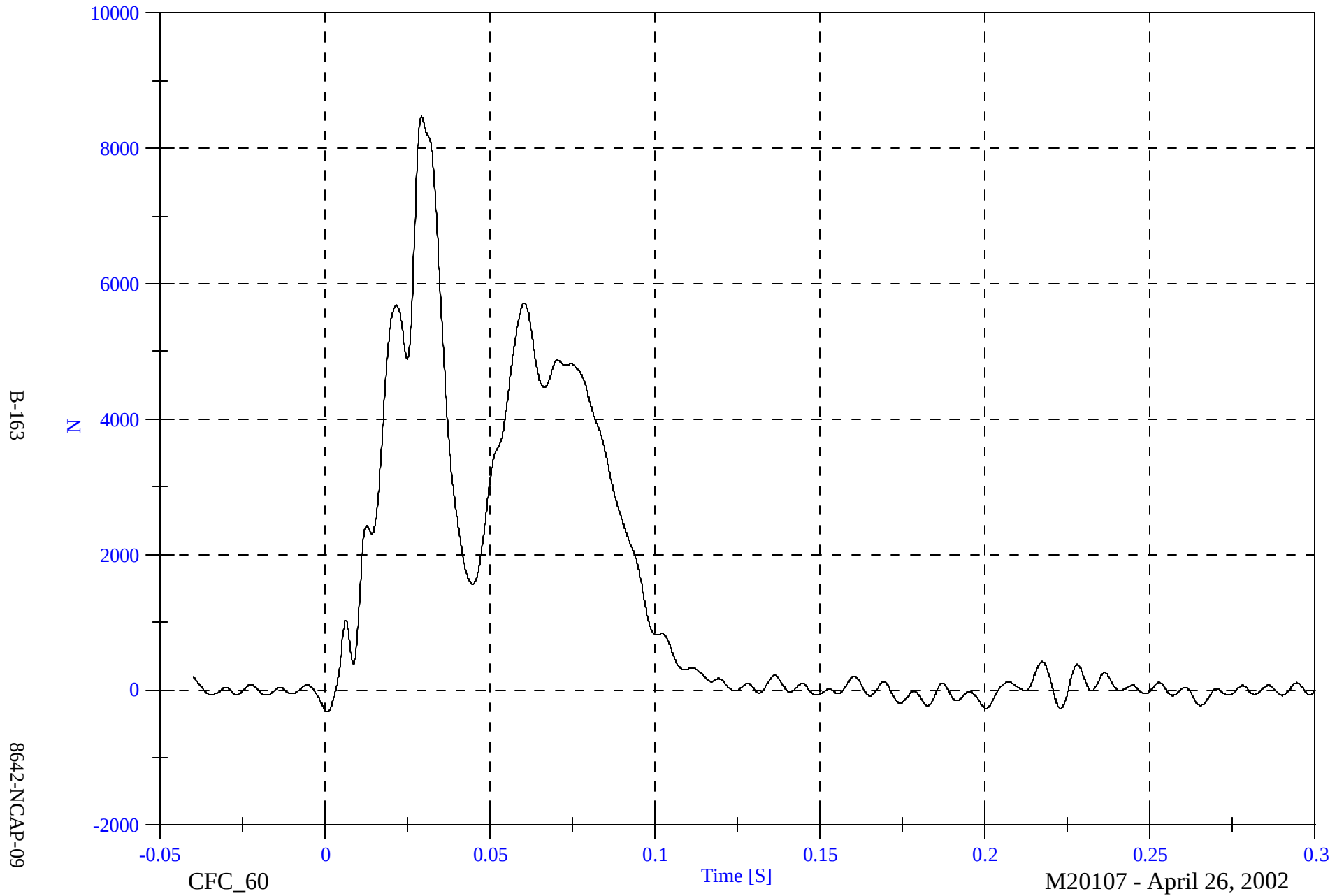
M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell C8 Fx

Max: 8473.5 [N] at 0.029 [S]

Min: -325.6 [N] at 0.001 [S]

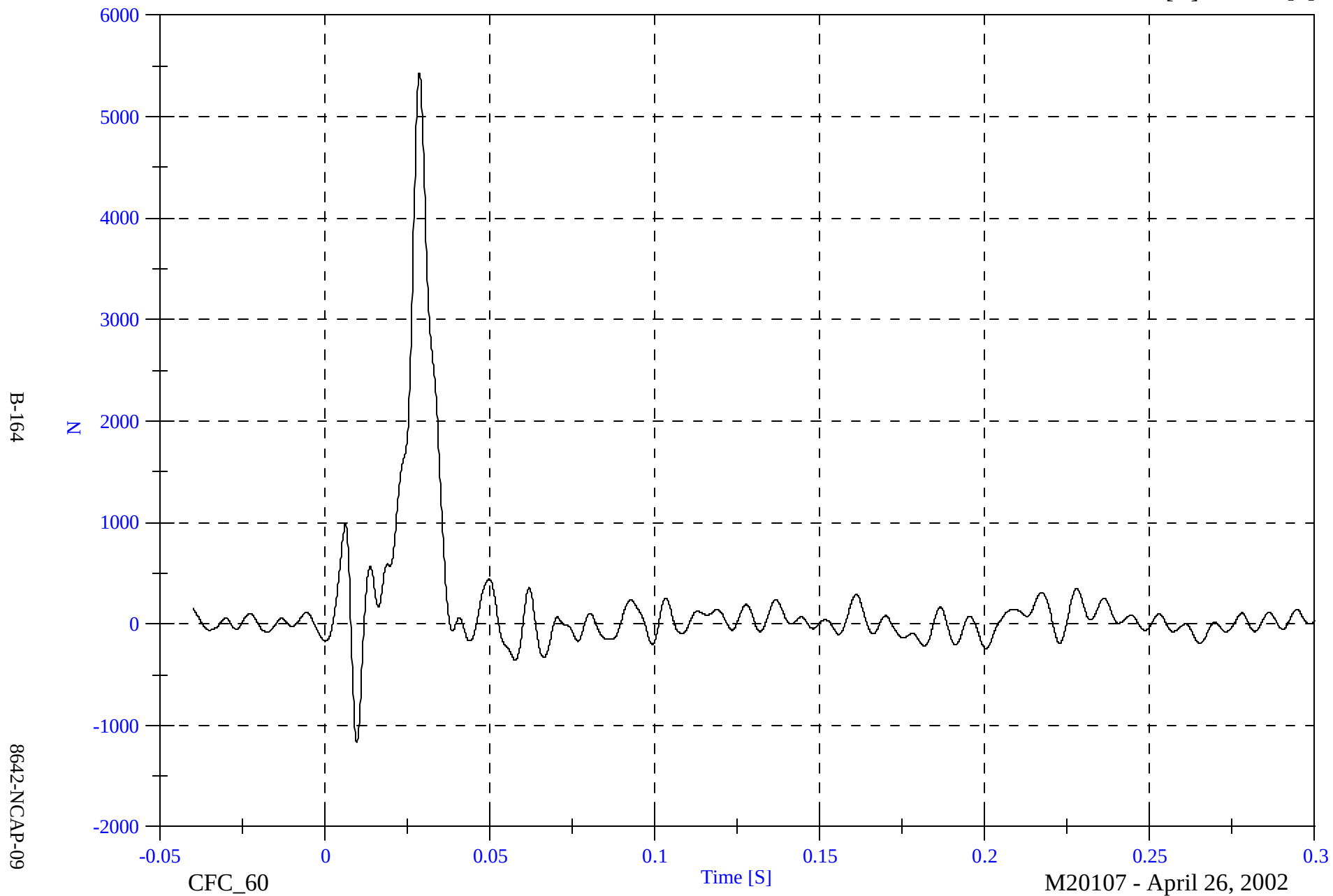


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell C9 Fx

Max: 5430.8 [N] at 0.029 [S]

Min: -1172.5 [N] at 0.010 [S]

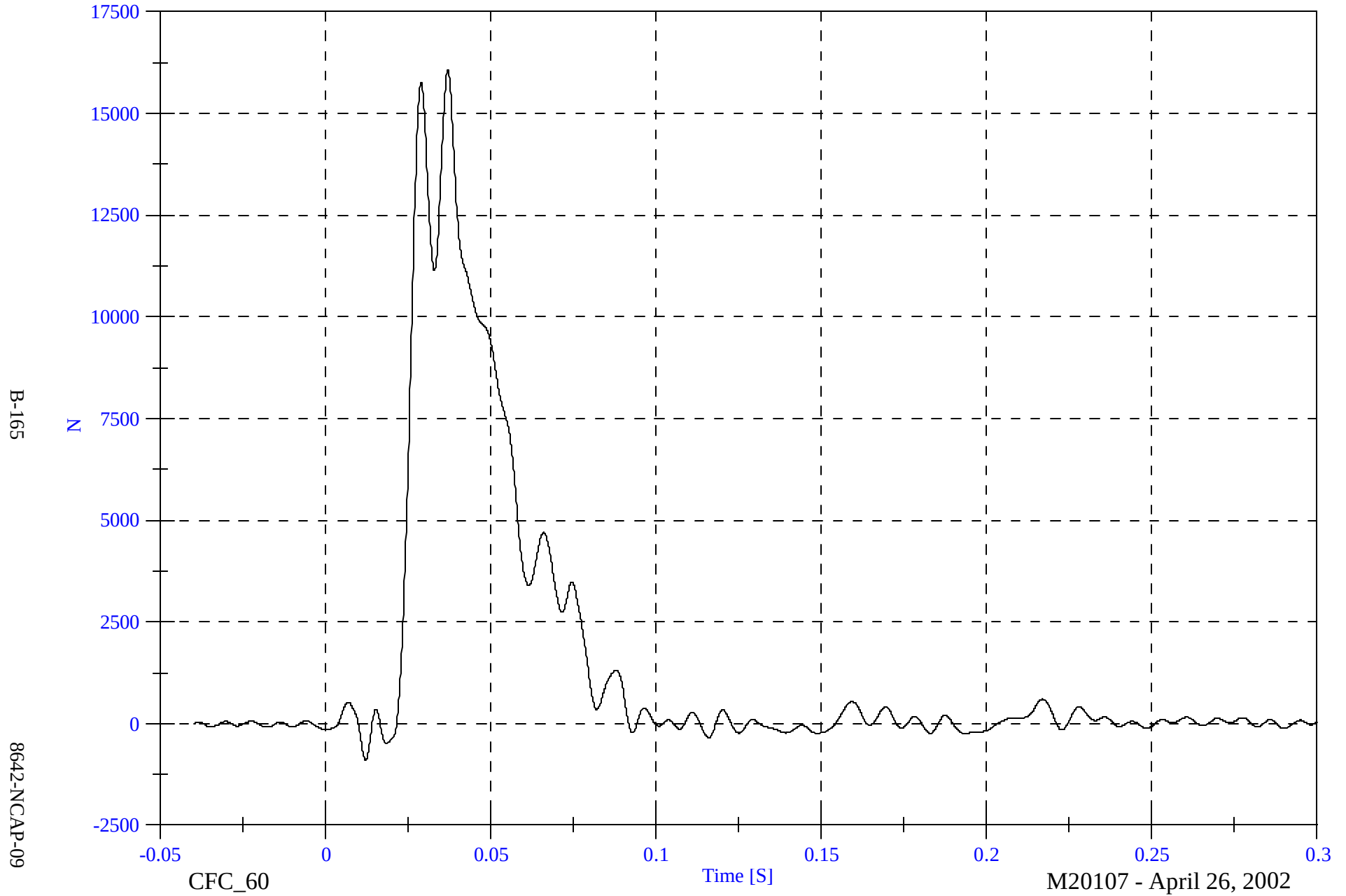


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell D1 Fx

Max: 16061.4 [N] at 0.037 [S]

Min: -897.7 [N] at 0.012 [S]

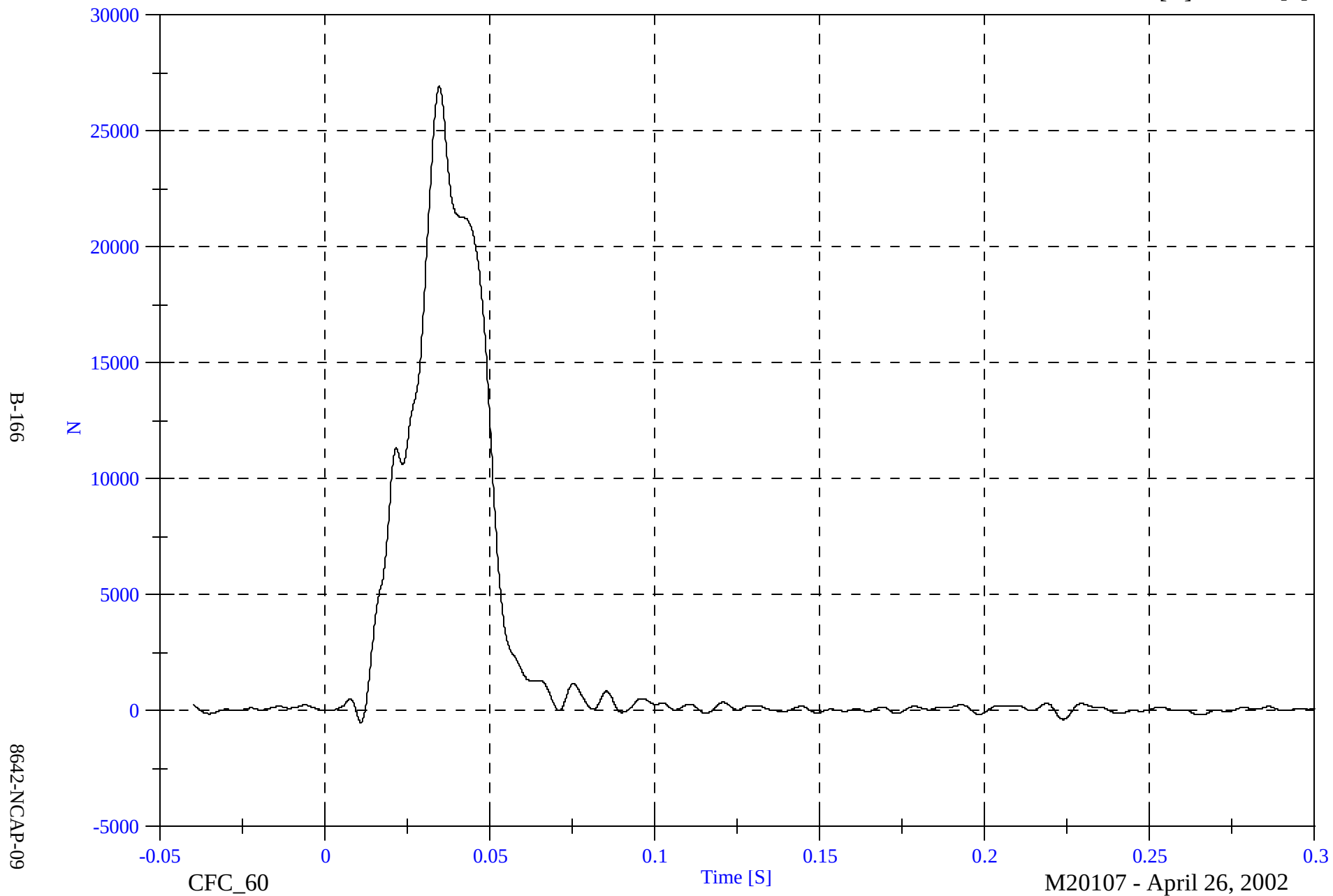


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell D2 Fx

Max: 26936.3 [N] at 0.035 [S]

Min: -509.5 [N] at 0.011 [S]

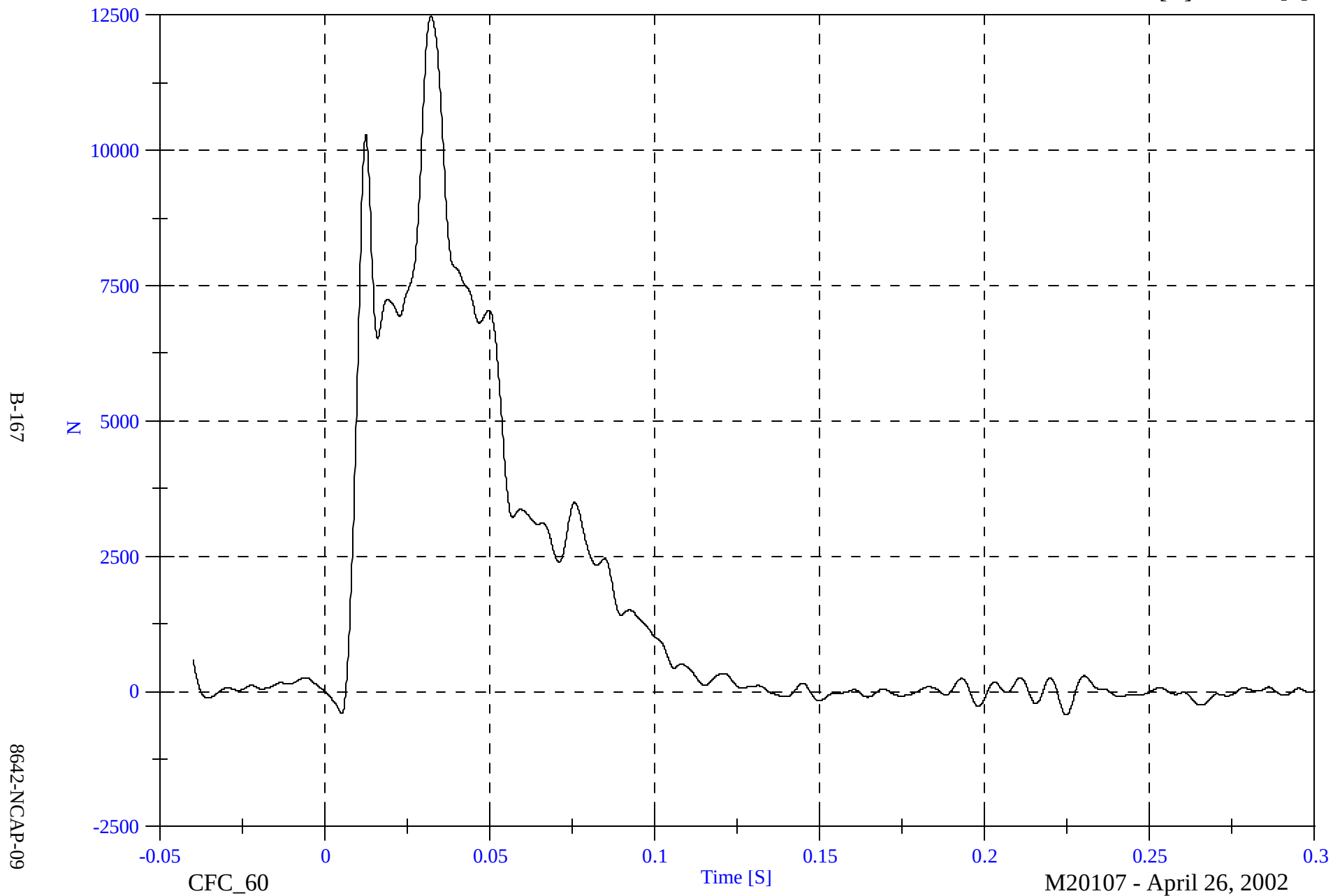


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell D3 Fx

Max: 12476.2 [N] at 0.032 [S]

Min: -433.4 [N] at 0.225 [S]

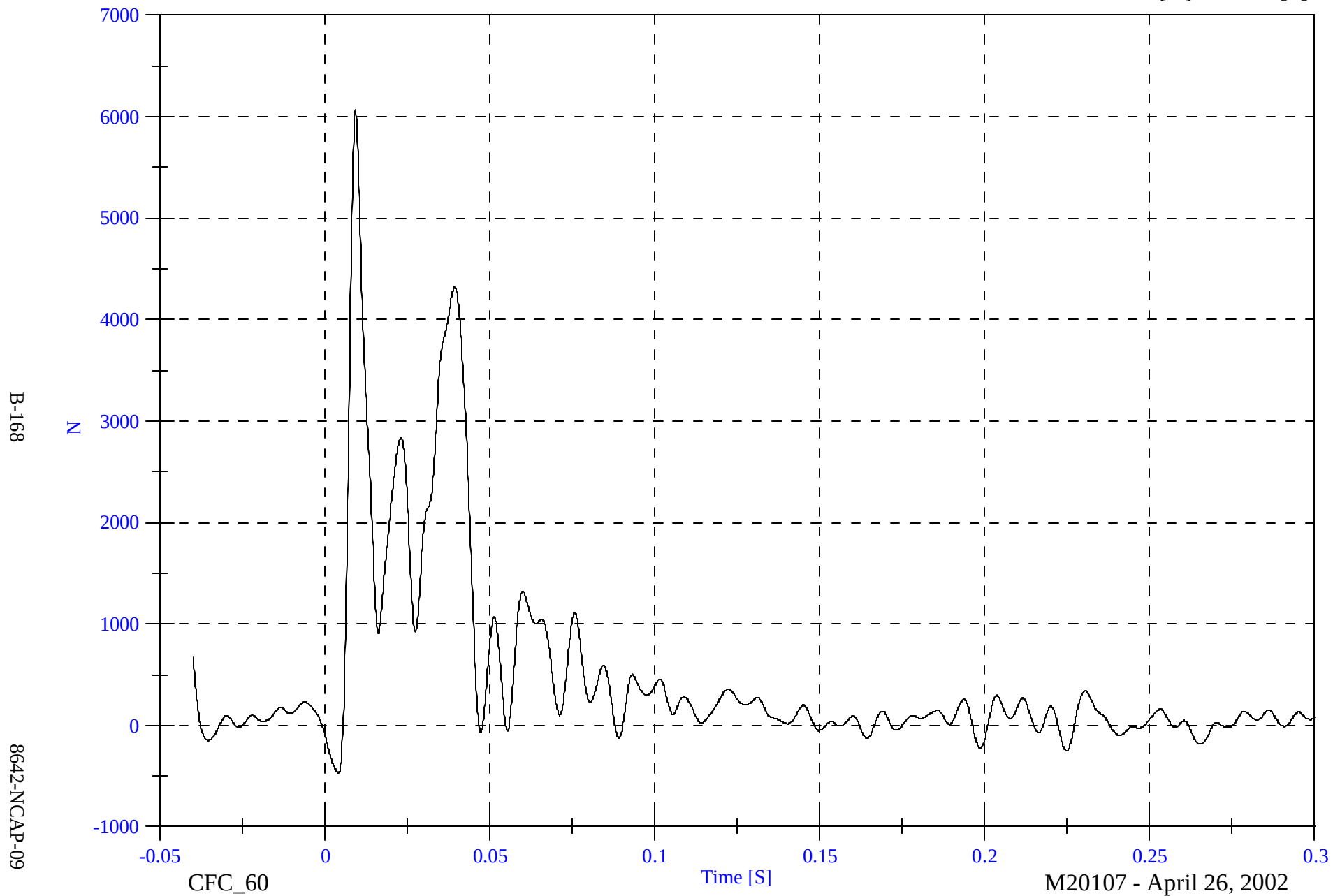


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell D4 Fx

Max: 6067.0 [N] at 0.009 [S]

Min: -474.8 [N] at 0.004 [S]

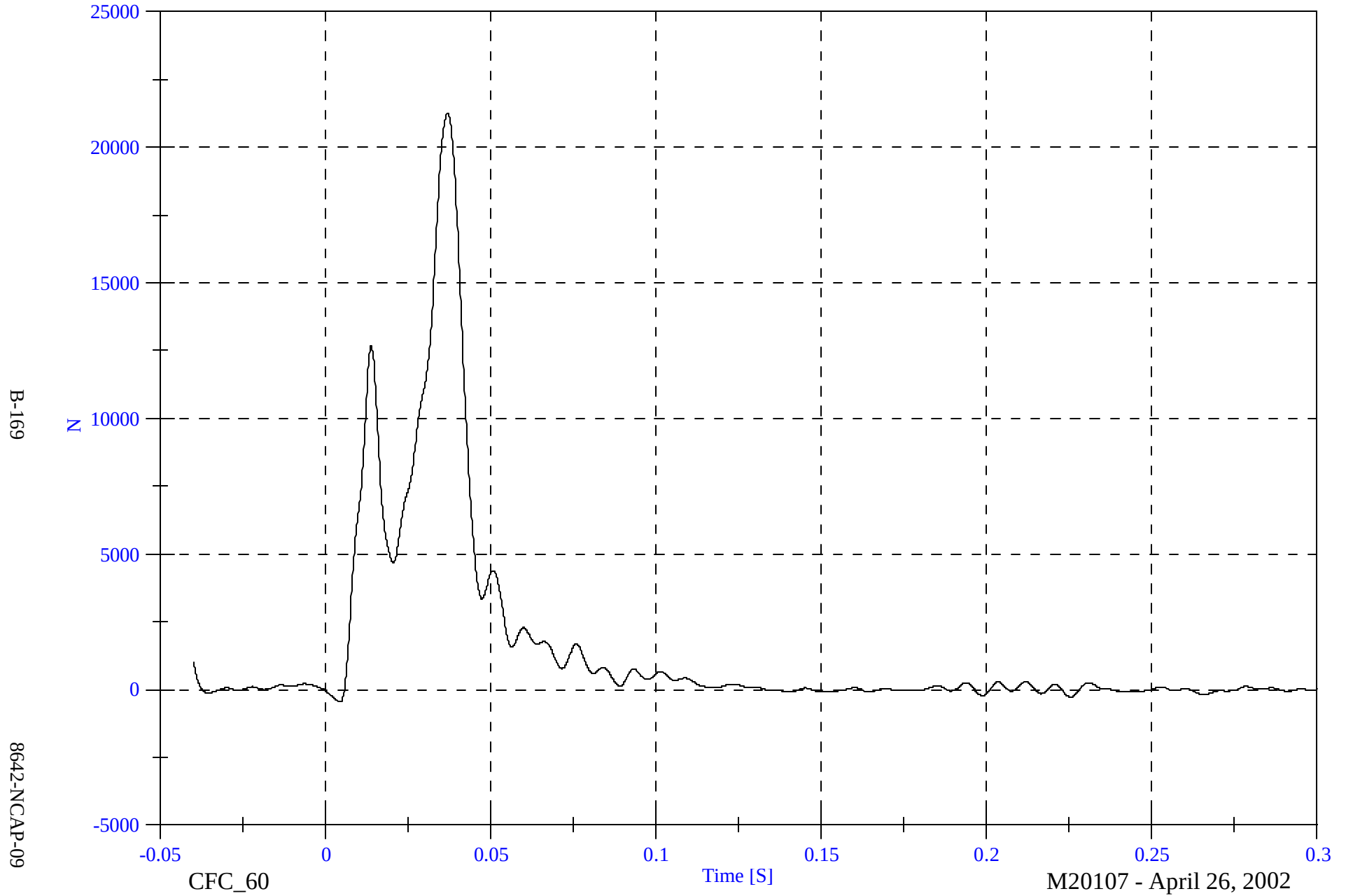


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell D5 Fx

Max: 21246.3 [N] at 0.037 [S]

Min: -459.1 [N] at 0.004 [S]

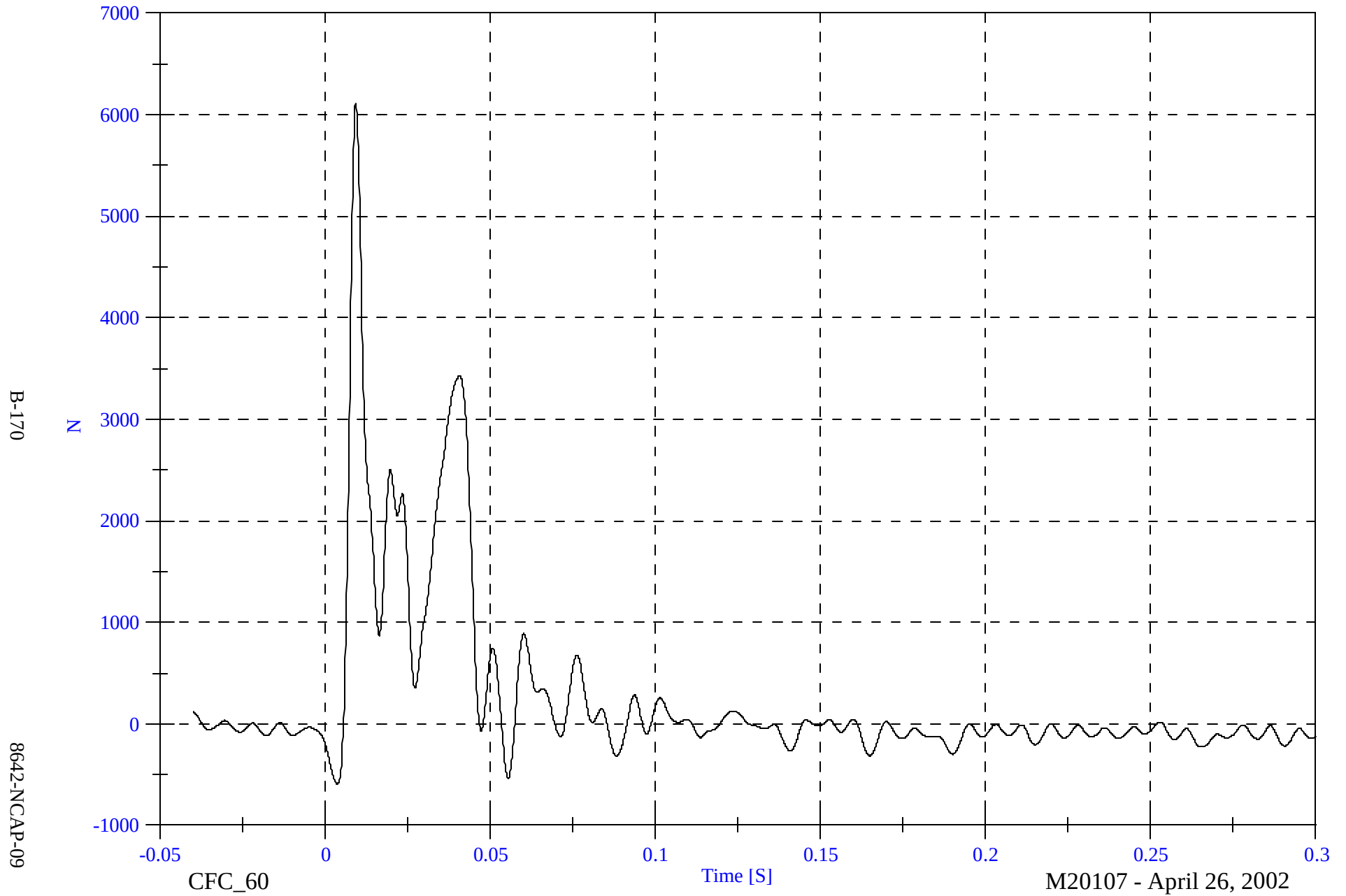


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell D6 Fx

Max: 6107.7 [N] at 0.009 [S]

Min: -592.3 [N] at 0.004 [S]

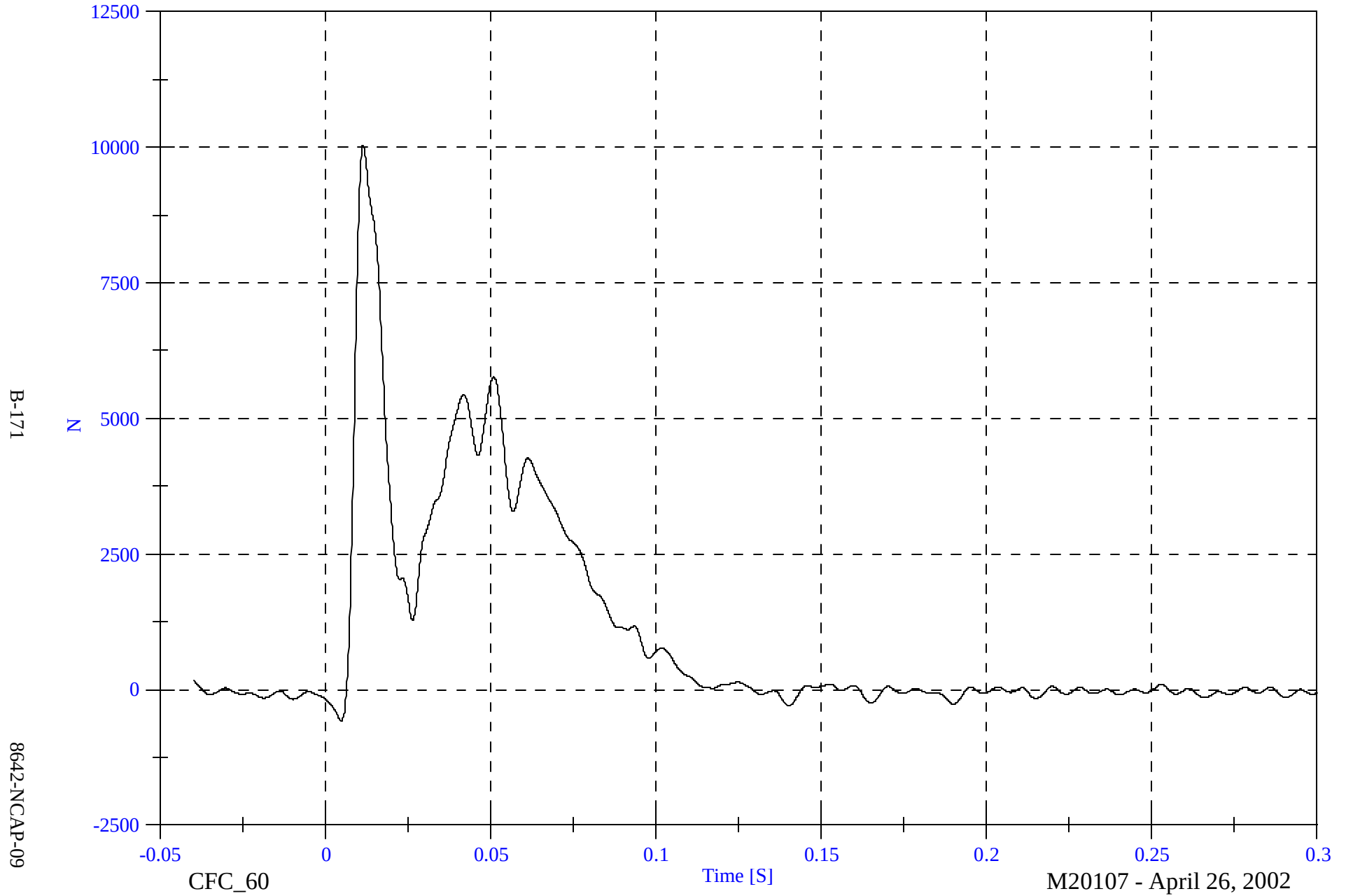


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell D7 Fx

Max: 10041.6 [N] at 0.011 [S]

Min: -580.0 [N] at 0.005 [S]

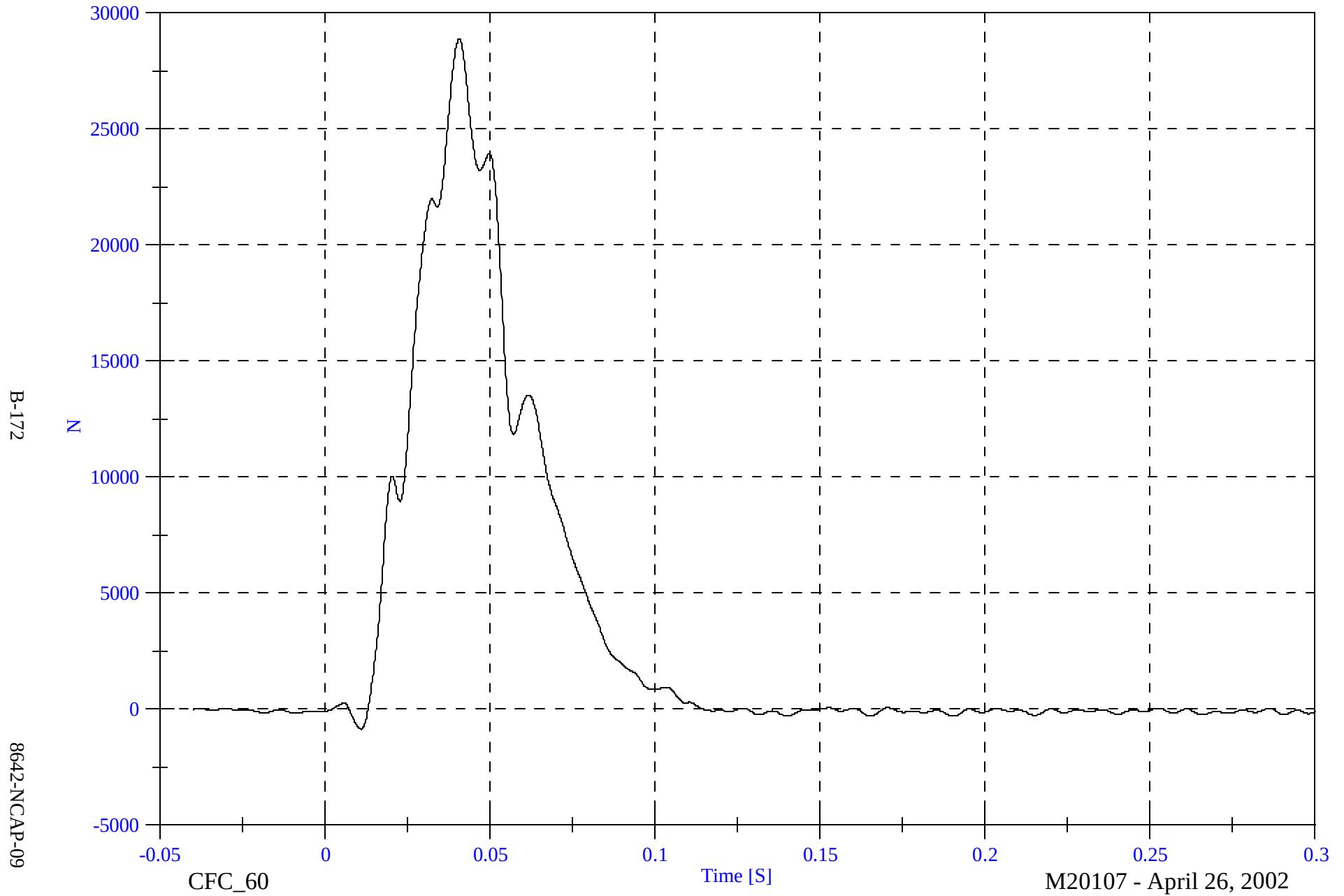


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell D8 Fx

Max: 28894.8 [N] at 0.041 [S]

Min: -861.7 [N] at 0.011 [S]

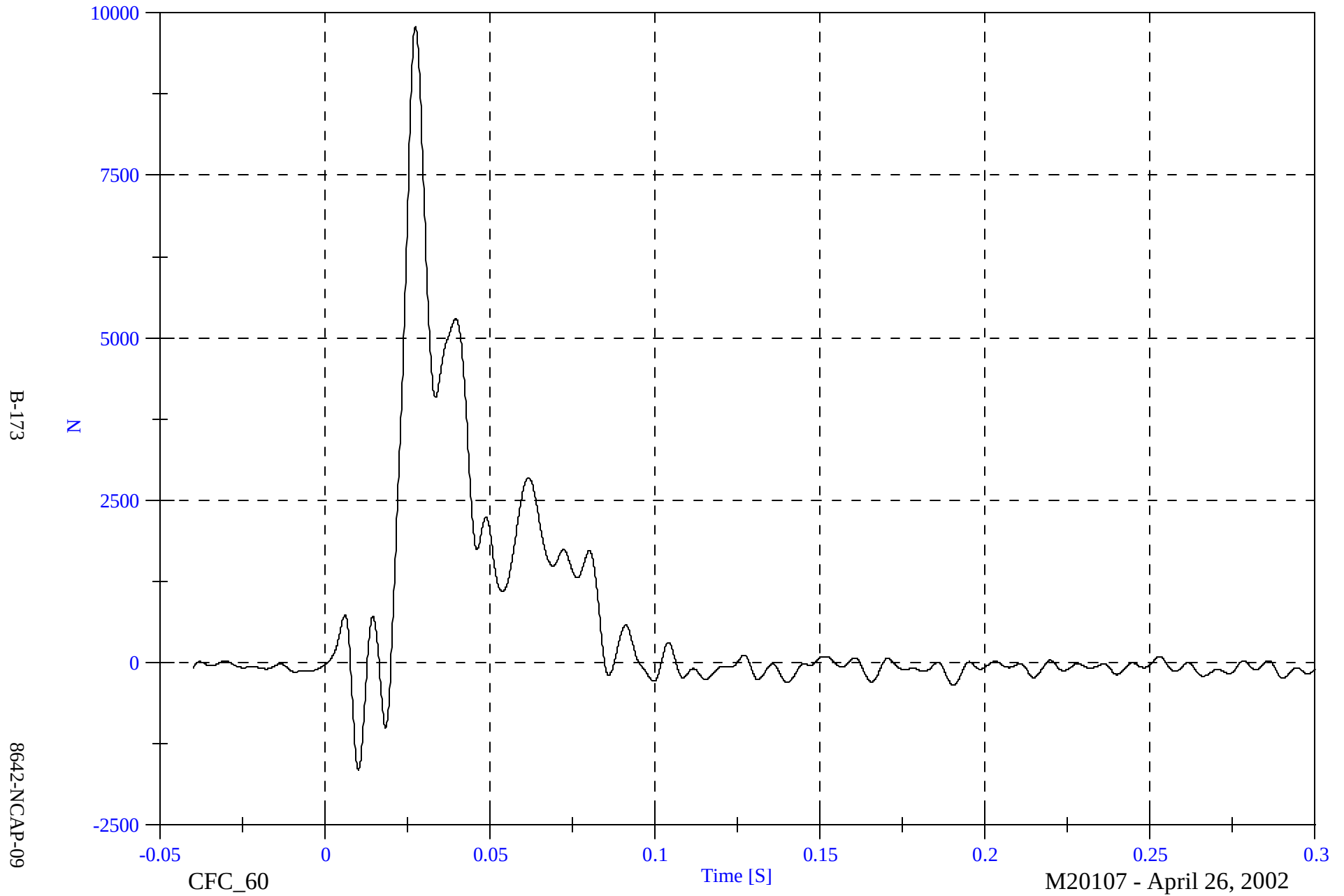


NCAP Test #9 - 2002 Chevrolet Trailblazer

Barrier Load Cell D9 Fx

Max: 9797.8 [N] at 0.027 [S]

Min: -1641.5 [N] at 0.010 [S]

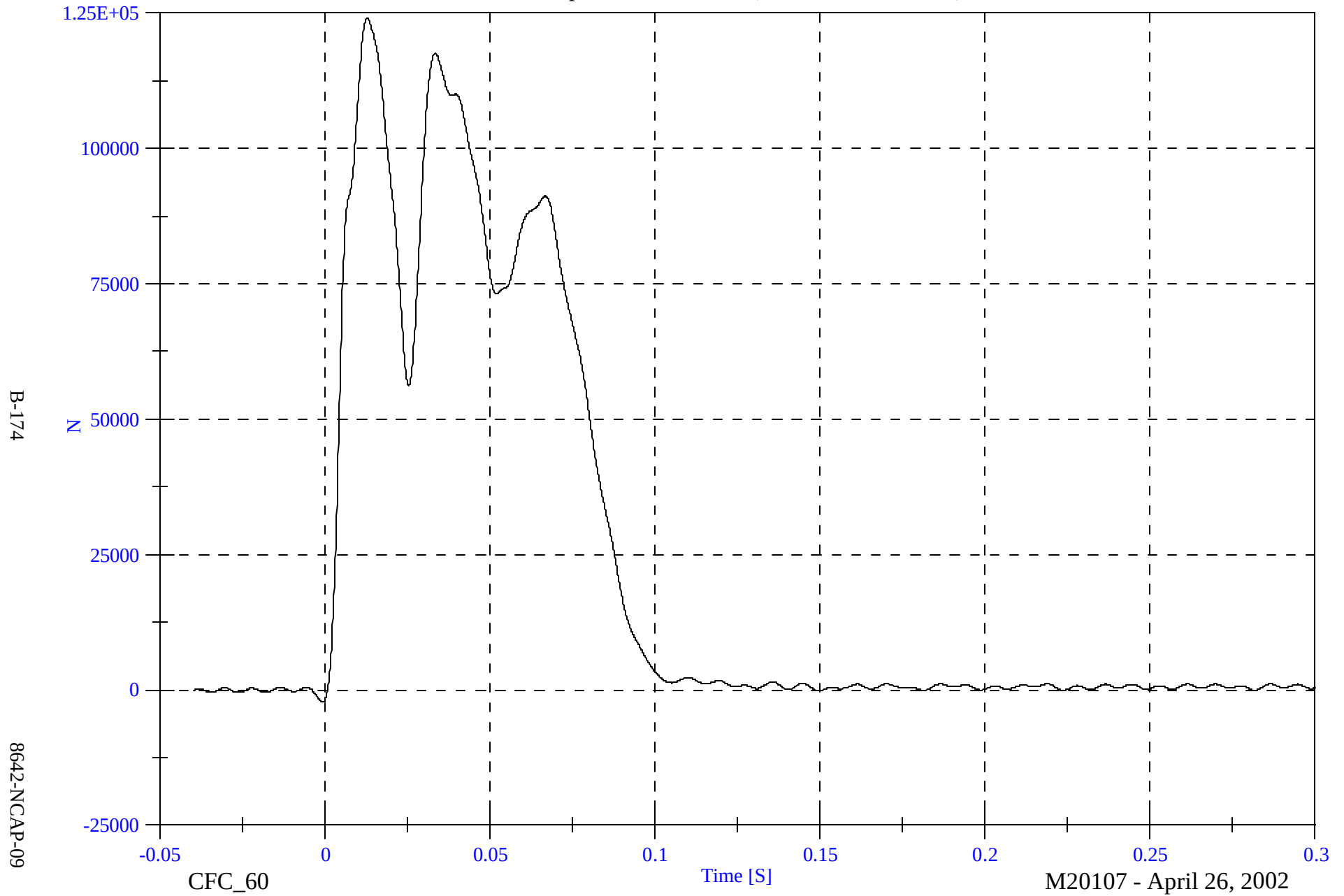


NCAP Test #9 - 2002 Chevrolet Trailblazer

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

Max: 124063.1 [N] at 0.013 [S]

Min: -2244.3 [N] at -0.001 [S]

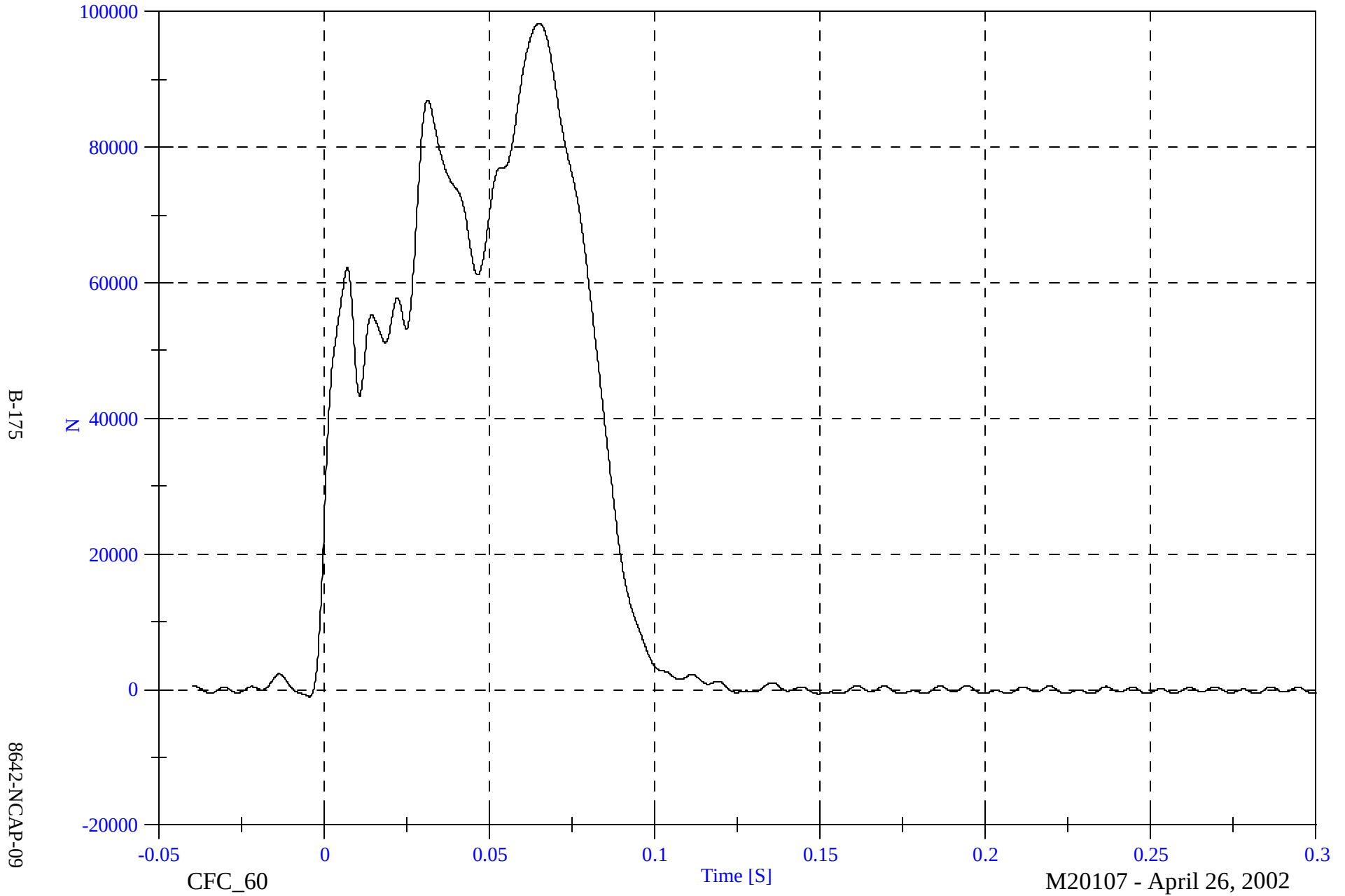


NCAP Test #9 - 2002 Chevrolet Trailblazer

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

Max: 98271.4 [N] at 0.065 [S]

Min: -1019.3 [N] at -0.005 [S]

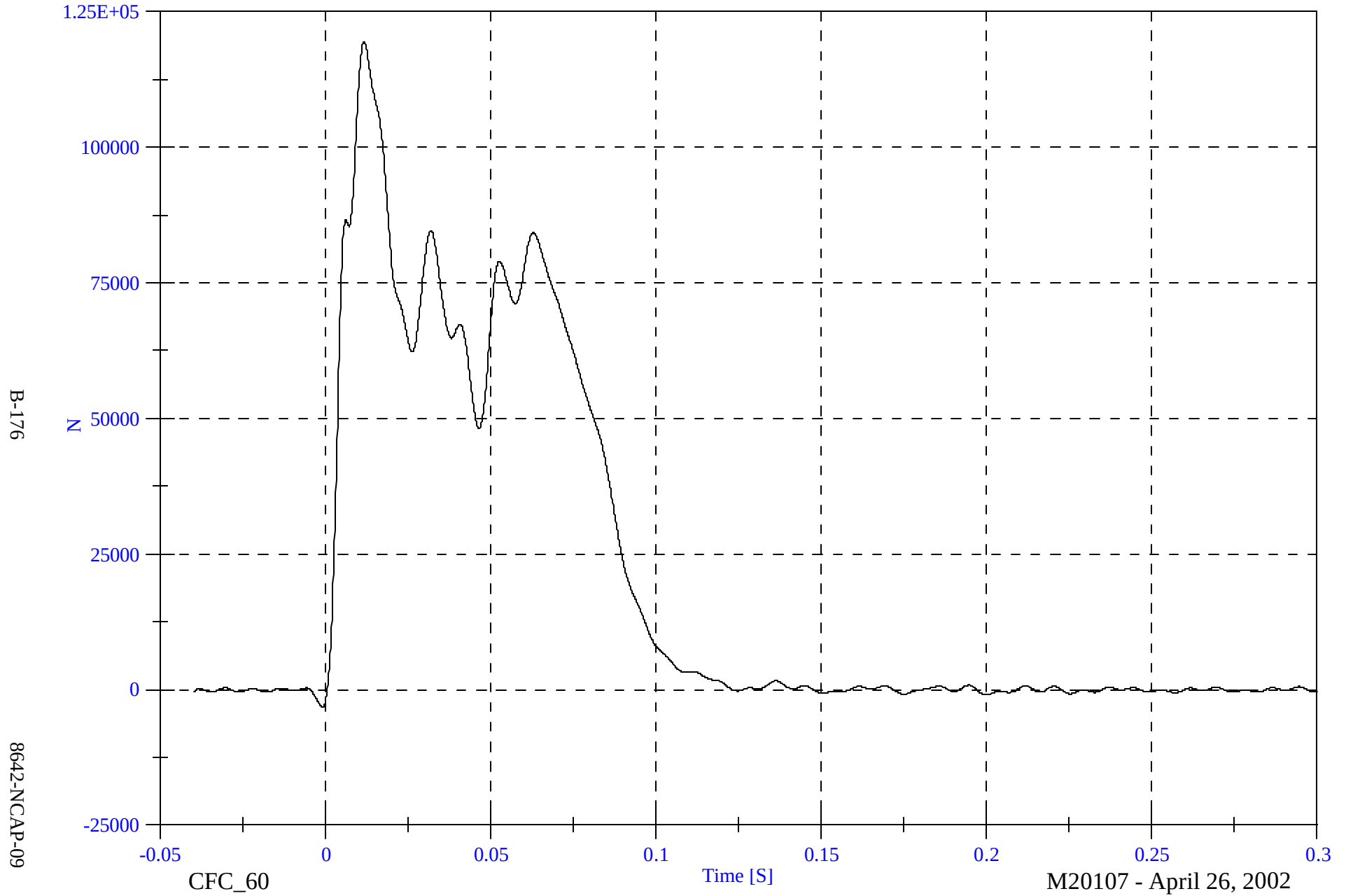


NCAP Test #9 - 2002 Chevrolet Trailblazer

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

Max: 119418.2 [N] at 0.012 [S]

Min: -3221.3 [N] at -0.001 [S]

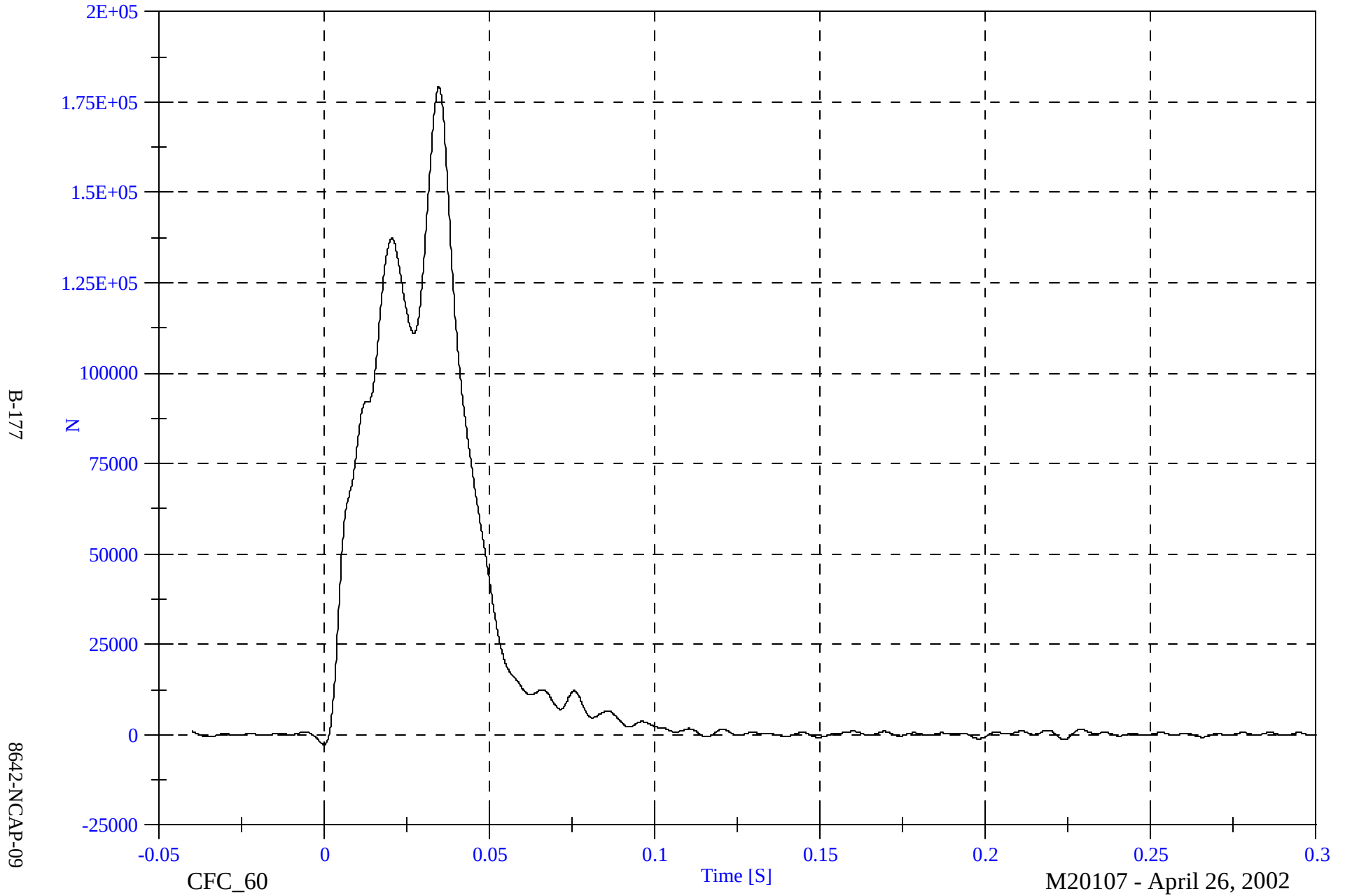


NCAP Test #9 - 2002 Chevrolet Trailblazer

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

Max: 179270.7 [N] at 0.035 [S]

Min: -2699.9 [N] at 0.000 [S]

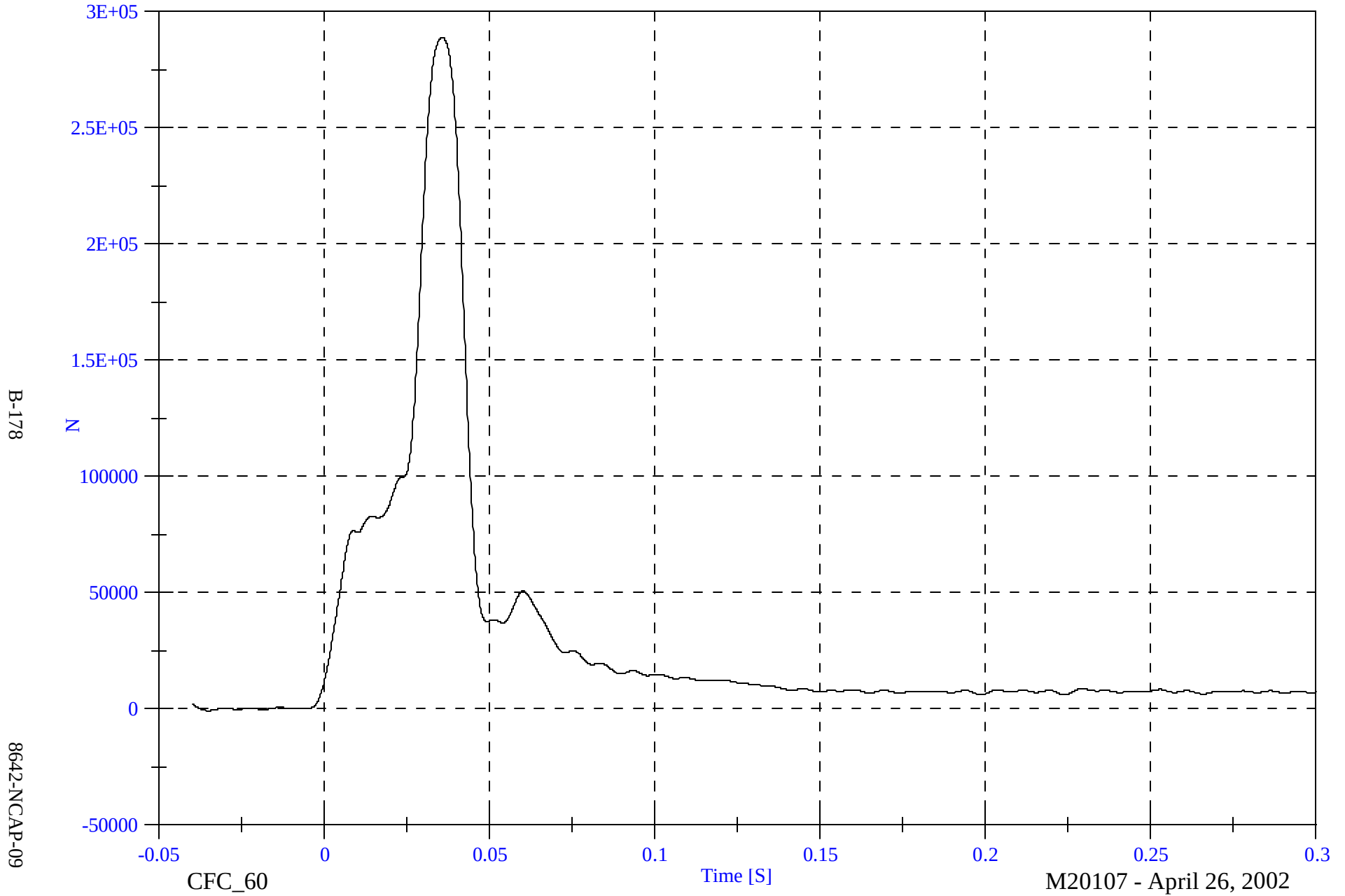


NCAP Test #9 - 2002 Chevrolet Trailblazer

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

Max: 288947.7 [N] at 0.036 [S]

Min: -680.9 [N] at -0.035 [S]

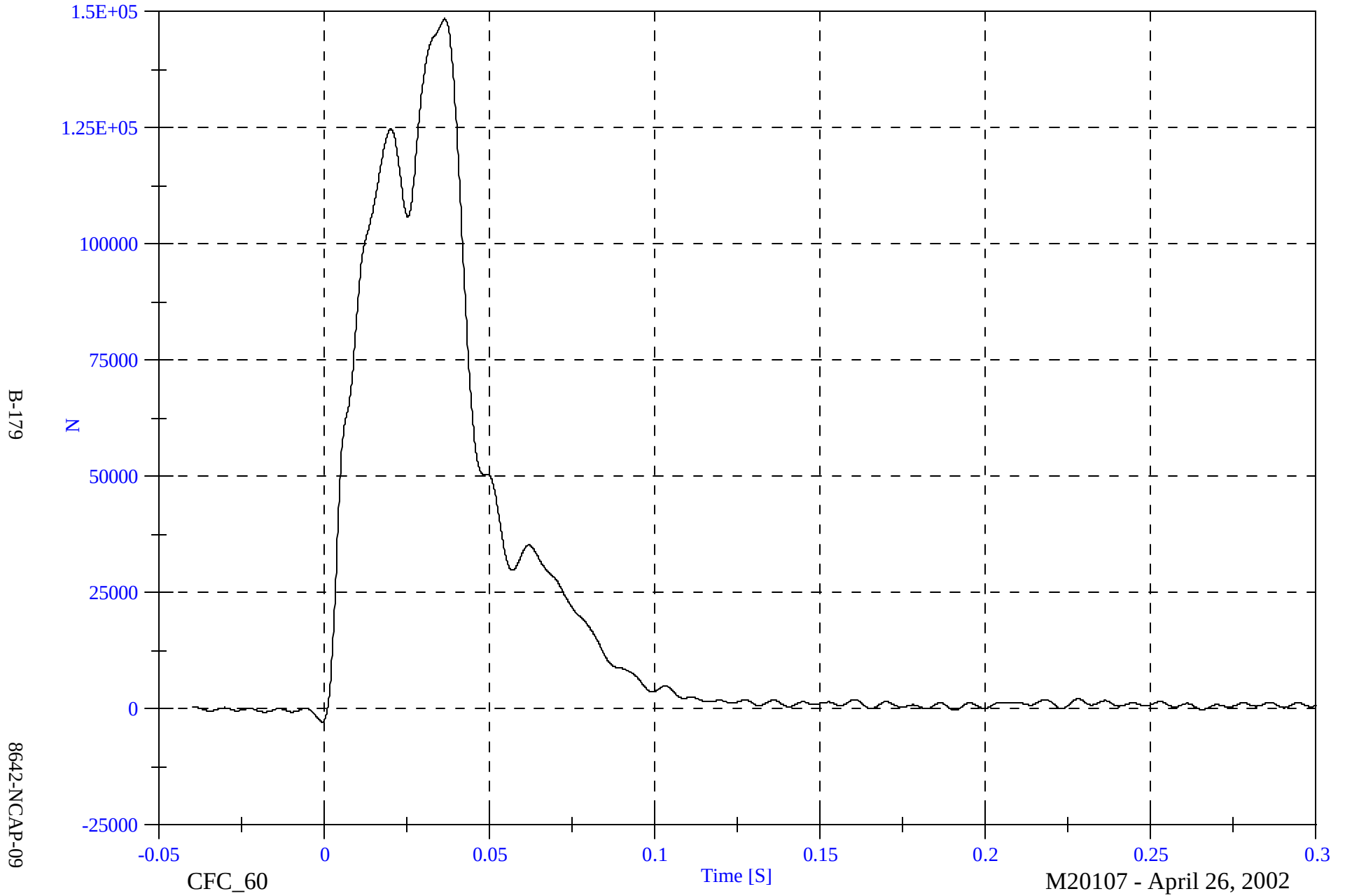


NCAP Test #9 - 2002 Chevrolet Trailblazer

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

Max: 148428.9 [N] at 0.037 [S]

Min: -2798.7 [N] at -0.001 [S]

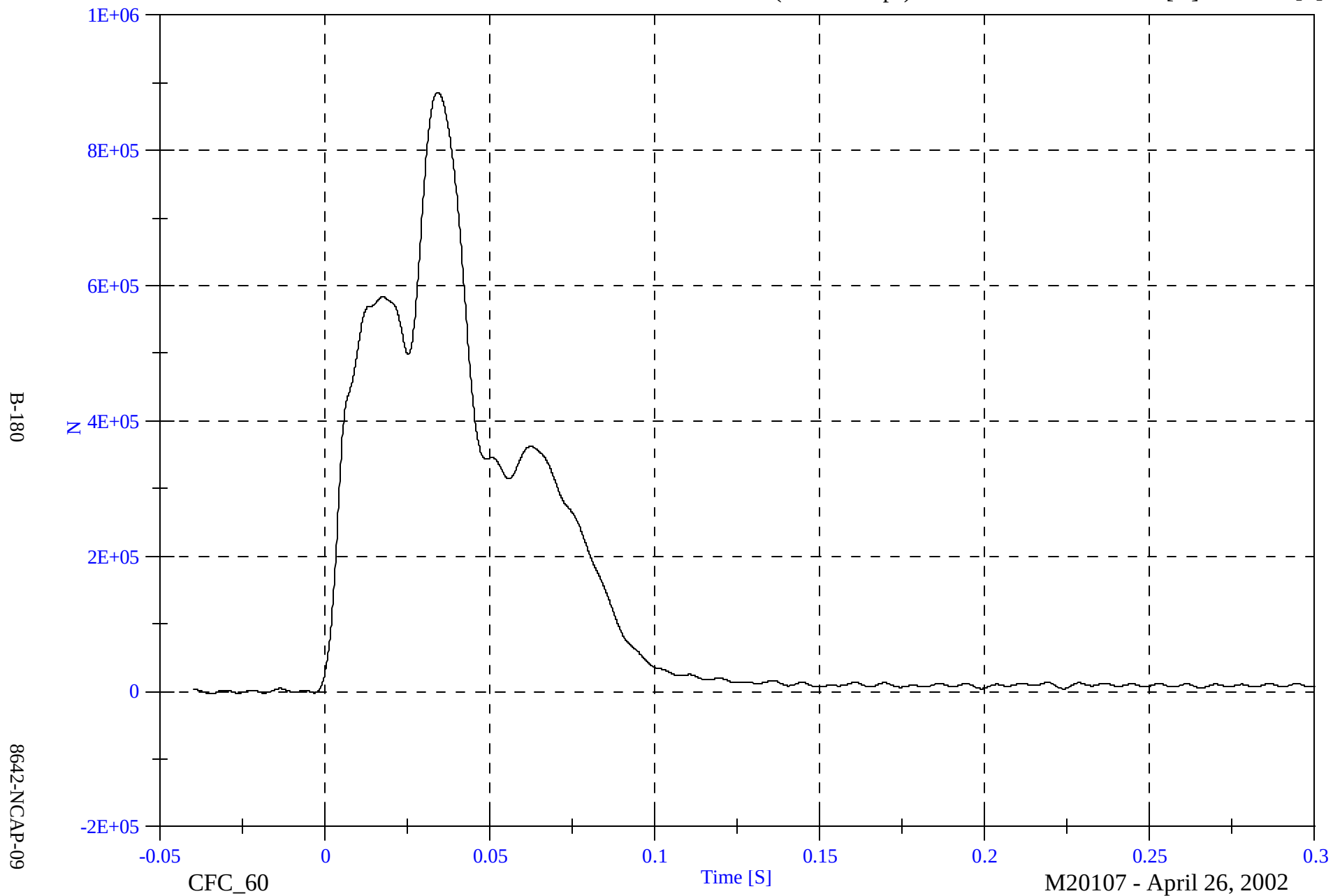


NCAP Test #9 - 2002 Chevrolet Trailblazer

Max: 885654.8 [N] at 0.034 [S]

Total Load Cell Sum (All 6 Groups)

Min: -2893.0 [N] at -0.035 [S]



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:

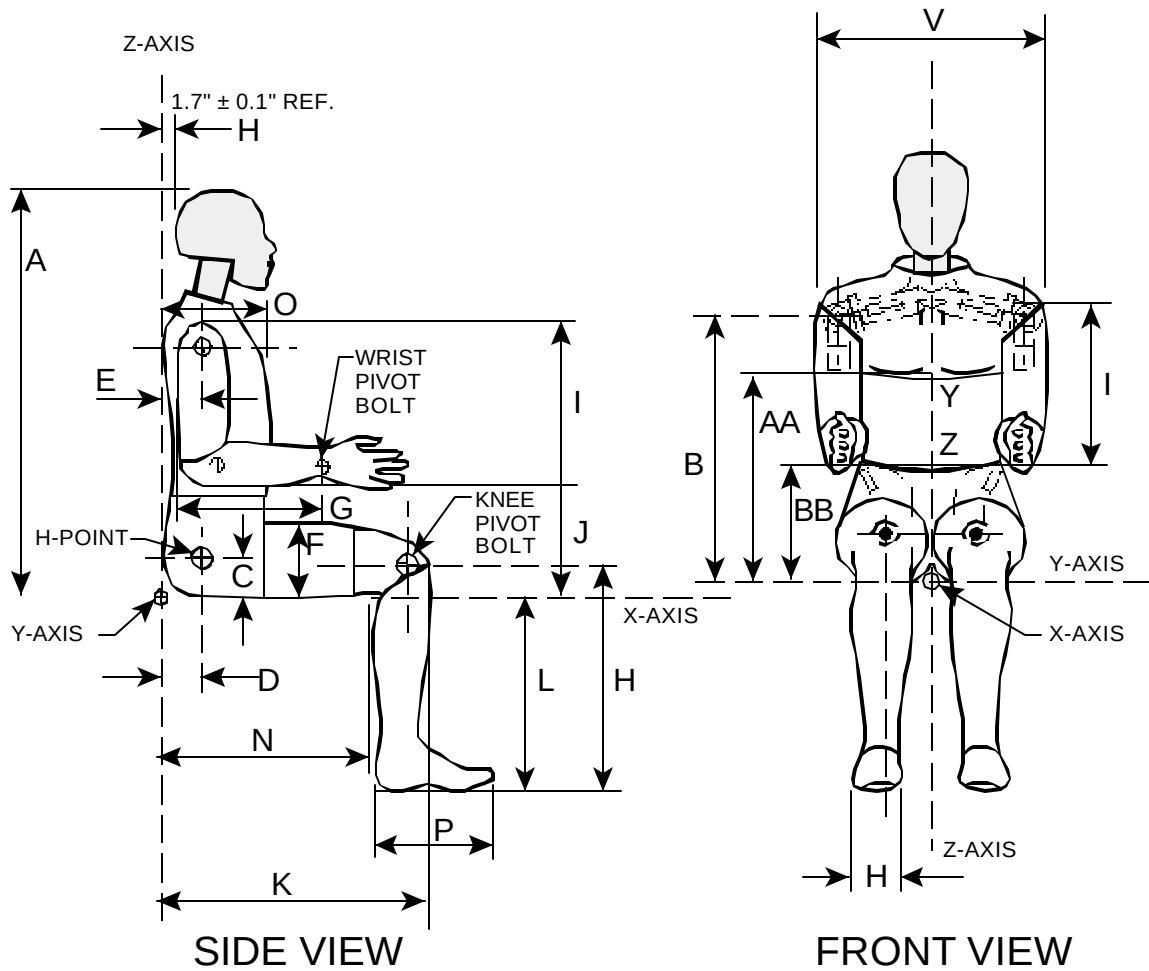
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	061	February 26, 2002
#2/Right Front Passenger	064	February 26, 2002

Electronic Test Equipment

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

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 061
Sequential Test Number 1
Date February 4, 2002
Workfile 061H 2-04-02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70.0
Relative Humidity	10% - 70%	29.00
Peak Resultant Acceleration	225-275 G's	257.30
Peak Lateral Acceleration	15 G's Max	3.61
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	061	
Sequential Test Number	4	
Date	February 20, 2002	6 Axis Neck Transducer
Workfile	061Flx4 2-20-02	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70.00
Relative Humidity		10% - 70%	30.00
Impact Velocity		22.60 - 23.40 Ft/s	23.07
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.78
	20 ms	17.60 - 22.60 G's	21.27
	30 ms	12.50 - 18.50 G's	15.88
Max Pendulum G's Above 30 ms		29 G's Max	15.88
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	36.60
D Plane Rotation	Max	64 - 78 Deg	67.14
	Time	57 - 64 ms	59.10
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	79.19
	Time	47 - 58 ms	49.40
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	115.30
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.20

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	061	
Sequential Test Number	1	
Date	February 21, 2002	6 Axis Neck Transducer
Workfile	061Extra 2-21-02	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	69.00
Relative Humidity		10% - 70%	31.00
Impact Velocity		19.50 - 20.30 Ft/s	19.72
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	17.56
	20 ms	14.00 - 19.00 G's	17.29
	30 ms	11.00 - 16.00 G's	13.66
Max Pendulum G's Above 30 ms		22 G's Max	13.66
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	44.40
D Plane Rotation	Max	81 - 106 Deg	87.55
	Time	72 - 82 ms	80.30
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-46.14
	Time	65 - 79 ms	74.30
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	159.20
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	143.90

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 061
Sequential Test Number 1
Date February 26, 2002
Workfile 061T 2-25-02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0
Relative Humidity	10% - 70%	29.00
Pendulum Velocity	21.6 - 22.4 Ft/s	21.81
Maximum Deflection	2.50 - 2.86 in	2.52
Maximum Resistive Force	1160 - 1325 Lbs	1281.62
Internal Hysteresis	69 - 85 %	76.88

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 061
Sequential Test Number 1
Date February 26, 2002
Workfile 061RF 2-26-02/061LF 2-26-02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	69.0
Relative Humidity	10% - 70%	28.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1157.96
RIGHT KNEE		
Temperature	66 - 78 Deg F	69.0
Relative Humidity	10% - 70%	28.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1269.68

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 061
Sequential Test Number 1
Date February 26, 2002

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			29
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	33.5
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	34.9
Thigh Clearance	F	5.5 - 6.1 in	6.1
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.5
Popliteal Height	L	16.9 - 17.9 in	17.7
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.5
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.1
Elbow Rest Height	J	7.5 - 8.3 in	7.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.3
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 064
Sequential Test Number 1
Date February 4, 2002
Workfile 064H 2-04-02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70.0
Relative Humidity	10% - 70%	29.00
Peak Resultant Acceleration	225-275 G's	245.67
Peak Lateral Acceleration	15 G's Max	7.34
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	064	
Sequential Test Number	1	
Date	February 21, 2002	6 Axis Neck Transducer
Workfile	064Flxz 2-21-02	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70.00
Relative Humidity		10% - 70%	30.00
Impact Velocity		22.60 - 23.40 Ft/s	23.13
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.42
	20 ms	17.60 - 22.60 G's	20.82
	30 ms	12.50 - 18.50 G's	16.12
Max Pendulum G's Above 30 ms		29 G's Max	16.12
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	41.30
D Plane Rotation	Max	64 - 78 Deg	65.57
	Time	57 - 64 ms	59.50
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	79.39
	Time	47 - 58 ms	52.90
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	113.30
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	101.30

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	064	
Sequential Test Number	2	
Date	February 21, 2002	6 Axis Neck Transducer
Workfile	064Extb 2-21-02	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	69.00
Relative Humidity		10% - 70%	31.00
Impact Velocity		19.50 - 20.30 Ft/s	19.58
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.54
	20 ms	14.00 - 19.00 G's	15.68
	30 ms	11.00 - 16.00 G's	11.74
Max Pendulum G's Above 30 ms		22 G's Max	11.74
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	46.00
D Plane Rotation	Max	81 - 106 Deg	88.91
	Time	72 - 82 ms	77.40
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-49.62
	Time	65 - 79 ms	71.50
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	154.90
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	137.10

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 064
Sequential Test Number 1
Date February 26, 2002
Workfile 064T 2-26-02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0
Relative Humidity	10% - 70%	29.00
Pendulum Velocity	21.6 - 22.4 Ft/s	21.86
Maximum Deflection	2.50 - 2.86 in	2.55
Maximum Resistive Force	1160 - 1325 Lbs	1277.17
Internal Hysteresis	69 - 85 %	75.96

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 064
Sequential Test Number 1
Date February 26, 2002
Workfile 064LF 2-26-02/064RF 2-26-02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	69.0
Relative Humidity	10% - 70%	28.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1233.90
RIGHT KNEE		
Temperature	66 - 78 Deg F	69.0
Relative Humidity	10% - 70%	28.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1244.41

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 064
Sequential Test Number 1
Date February 26, 2002

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70.0
Relative Humidity			29.0
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	33.6
Chest Depth	O	8.4 - 9.0 in	8.6
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.2
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.3
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician:

B. Swiecicki

APPENDIX D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Head 9 Array	X Arm Y	ENTRAN	AC-01G18-F06	21-Jan-02	27-Jul-02
	X Arm Z	ENTRAN	AC-00L13-F39	22-Jan-02	22-Jul-02
	Y Arm X	ENTRAN	AC-00L13-F14	21-Jan-02	27-Jul-02
	Y Arm Z	ENTRAN	AC-01G18-F16	22-Jan-02	22-Jul-02
	Z Arm X	ENTRAN	AC-00L13-F72	21-Jan-02	27-Jul-02
	Z Arm Y	ENTRAN	AC-01G18-F12	21-Jan-02	27-Jul-02
Head	X	ENTRAN	AC-00L13-F04	22-Jan-02	22-Jul-02
	Y	ENTRAN	AC-01G18-F15	21-Jan-02	27-Jul-02
	Z	ENTRAN	AC-01G18-F14	22-Jan-02	22-Jul-02
Head	X (R)	ENTRAN	AC-01G18-F20	21-Jan-02	27-Jul-02
	Y (R)	ENTRAN	AC-01G18-F05	22-Jan-02	22-Jul-02
	Z (R)	ENTRAN	AC-00L13-F16	21-Jan-02	27-Jul-02
Neck Load Cell	X	DENTON	LC-205Fx	22-Jan-02	22-Jul-02
	Y	DENTON	LC-205Fy	22-Jan-02	22-Jul-02
	Z	DENTON	LC-205Fz	22-Jan-02	22-Jul-02
Neck Moment	X	DENTON	LC-205Mx	22-Jan-02	22-Jul-02
	Y	DENTON	LC-205My	22-Jan-02	22-Jul-02
	Z	DENTON	LC-205Mz	22-Jan-02	22-Jul-02
Chest	X	ENDEVCO	AC-P21373	14-Mar-02	14-Sep-02
	Y	ENDEVCO	AC-P22639	14-Mar-02	14-Sep-02
	Z	ENDEVCO	AC-P21297	14-Mar-02	14-Sep-02
Chest	X (R)	ENDEVCO	AC-P21171	14-Mar-02	14-Sep-02
	Y (R)	ENDEVCO	AC-P23136	14-Mar-02	14-Sep-02
	Z (R)	ENDEVCO	AC-P23128	14-Mar-02	14-Sep-02
Chest Deflection	X	SERVO	DS-061	14-Mar-02	14-Sep-02
Pelvic	X	ENDEVCO	AC-P21441	14-Mar-02	14-Sep-02
	Y	ENDEVCO	AC-P19246	14-Mar-02	14-Sep-02
	Z	ENDEVCO	AC-P21516	14-Mar-02	14-Sep-02

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	GSE	LC-659	12-Feb-02	12-Aug-02
Right Femur Load Cell	Fz	GSE	LC-723	12-Feb-02	12-Aug-02
Left Knee Shear	Dx	SpaceAge Control	DS-821	07-Dec-01	07-Jun-02
Right Knee Shear	Dx	SpaceAge Control	DS-817	07-Dec-01	07-Jun-02
Left Upper Tibia	Mx	DENTON	LC-016Mx	08-Apr-02	08-Oct-02
	My	DENTON	LC-016My	08-Apr-02	08-Oct-02
Left Lower Tibia	Fz	DENTON	LC-123Fz	08-Apr-02	08-Oct-02
	Mx	DENTON	LC-123Mx	08-Apr-02	08-Oct-02
	My	DENTON	LC-123My	08-Apr-02	08-Oct-02
Right Upper Tibia	Mx	DENTON	LC-023Mx	08-Apr-02	08-Oct-02
	My	DENTON	LC-023My	08-Apr-02	08-Oct-02
Right Lower Tibia	Fz	DENTON	LC-111Fz	08-Apr-02	08-Oct-02
	Mx	DENTON	LC-111Mx	08-Apr-02	08-Oct-02
	My	DENTON	LC-111My	08-Apr-02	08-Oct-02
Left Foot Rear	X	ENDEVCO	AC-P19343	04-Apr-02	04-Oct-02
	Z	ENDEVCO	AC-P16583	04-Apr-02	04-Oct-02
Left Foot Front	Z	ENDEVCO	AC-P18728	04-Apr-02	04-Oct-02
Right Foot Rear	X	ENDEVCO	AC-P18628	04-Apr-02	04-Oct-02
	Z	ENDEVCO	AC-P18741	04-Apr-02	04-Oct-02
Right Foot Front	Z	ENDEVCO	AC-P16587	04-Apr-02	04-Oct-02

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Head 9 Array	X Arm Y	ENTRAN	AC-01G18-F08	22-Jan-02	22-Jul-02
	X Arm Z	ENTRAN	AC-00L20-A13	22-Jan-02	22-Jul-02
	Y Arm X	ENTRAN	AC-00L20-A08	21-Jan-02	27-Jul-02
	Y Arm Z	ENTRAN	AC-01G18-F13	22-Jan-02	22-Jul-02
	Z Arm X	ENTRAN	AC-01J02-F18	22-Jan-02	22-Jul-02
	Z Arm Y	ENTRAN	AC-01G25-N11	21-Jan-02	27-Jul-02
Head	X	ENTRAN	AC-01G18-F18	22-Jan-02	22-Jul-02
	Y	ENTRAN	AC-01G18-F07	21-Jan-02	27-Jul-02
	Z	ENTRAN	AC-01G18-F10	21-Jan-02	27-Jul-02
Head	X (R)	ENTRAN	AC-01J02-F09	21-Jan-02	27-Jul-02
	Y (R)	ENTRAN	AC-01G18-F03	22-Jan-02	22-Jul-02
	Z (R)	ENTRAN	AC-01G18-F09	22-Jan-02	22-Jul-02
Neck Load Cell	X	DENTON	LC-440Fx	22-Jan-02	22-Jul-02
	Y	DENTON	LC-440Fy	22-Jan-02	22-Jul-02
	Z	DENTON	LC-440Fz	22-Jan-02	22-Jul-02
Neck Moment	X	DENTON	LC-440Mx	22-Jan-02	22-Jul-02
	Y	DENTON	LC-440My	22-Jan-02	22-Jul-02
	Z	DENTON	LC-440Mz	22-Jan-02	22-Jul-02
Chest	X	ENDEVCO	AC-P23155	15-Mar-02	15-Sep-02
	Y	ENDEVCO	AC-P23358	15-Mar-02	15-Sep-02
	Z	ENDEVCO	AC-P23282	15-Mar-02	15-Sep-02
Chest	X (R)	ENDEVCO	AC-P21484	15-Mar-02	15-Sep-02
	Y (R)	ENDEVCO	AC-P16951	15-Mar-02	15-Sep-02
	Z (R)	ENDEVCO	AC-P21399	15-Mar-02	15-Sep-02
Chest Deflection	X	SERVO	DS-064	20-Mar-02	20-Sep-02
Pelvic	X	ENDEVCO	AC-P23174	15-Mar-02	15-Sep-02
	Y	ENDEVCO	AC-P23164	15-Mar-02	15-Sep-02
	Z	ENDEVCO	AC-P23137	15-Mar-02	15-Sep-02

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	GSE	LC-954	12-Feb-02	12-Aug-02
Right Femur Load Cell	Fz	GSE	LC-955	12-Feb-02	12-Aug-02
Left Knee Shear	Dx	SpaceAge Control	DS-819	07-Dec-01	07-Jun-02
Right Knee Shear	Dx	SpaceAge Control	DS-815	07-Dec-01	07-Jun-02
Left Upper Tibia	Mx	DENTON	LC-045Mx	08-Apr-02	08-Oct-02
	My	DENTON	LC-045My	08-Apr-02	08-Oct-02
Left Lower Tibia	Fz	DENTON	LC-125Fz	08-Apr-02	08-Oct-02
	Mx	DENTON	LC-125Mx	08-Apr-02	08-Oct-02
	My	DENTON	LC-125My	08-Apr-02	08-Oct-02
Right Upper Tibia	Mx	DENTON	LC-038Mx	08-Apr-02	08-Oct-02
	My	DENTON	LC-038My	08-Apr-02	08-Oct-02
Right Lower Tibia	Fz	DENTON	LC-124Fz	08-Apr-02	08-Oct-02
	Mx	DENTON	LC-124Mx	08-Apr-02	08-Oct-02
	My	DENTON	LC-124My	08-Apr-02	08-Oct-02
Left Foot Rear	X	ENDEVCO	AC-J30491	21-Mar-02	27-Sep-02
	Z	ENDEVCO	AC-J31026	21-Mar-02	27-Sep-02
Left Foot Front	Z	ENDEVCO	AC-J32831	21-Mar-02	27-Sep-02
Right Foot Rear	X	ENDEVCO	AC-J33376	21-Mar-02	27-Sep-02
	Z	ENDEVCO	AC-J32832	21-Mar-02	27-Sep-02
Right Foot Front	Z	ENDEVCO	AC-J31095	21-Mar-02	27-Sep-02

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(Six Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	ICS	AC-X83	15-Jan-02	15-Jul-02
Right Rear Seat Crossmember X	ICS	AC-X86	30-Oct-01	30-Apr-02
Top of Engine	ENDEVCO	AC-B10955	11-Feb-02	17-Aug-02
Bottom of Engine	ENDEVCO	AC-J32186	11-Feb-02	17-Aug-02
Right Disc Brake Caliper	ENDEVCO	AC-P18682	27-Feb-02	27-Aug-02
Instrument Panel	ENDEVCO	AC-P18532	27-Feb-02	27-Aug-02
Left Seat Rear Crossmember Z	ICS	AC-D61	04-Apr-02	04-Oct-02
Right Seat Rear Crossmember Z	ICS	AC-D82	04-Apr-02	04-Oct-02

REPORT NUMBER: CAL-02-09

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

SAFETY FIRST FORERUNNER LATCH
GRACO SNUGRIDE DX5 8474

NHTSA NUMBER: M20107

VERIDIAN ENGINEERING TEST NUMBER: 8642-NCAP-09

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



April 26, 2002

FINAL REPORT

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Performance Standards
Office of Crashworthiness Standards
Mail Code: NPS-10
400 Seventh Street, SW, Room No. 5313
Washington, DC 20590

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TECHNICAL REPORT STANDARD TITLE PAGE

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16. Abstract A frontal load cell barrier test was conducted on the subject CRS Safety First Forerunner Latch and GRACO SnugRide DX5 8474 in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the determination of CRS crashworthiness. This test was conducted at the Veridian Engineering Crash Test Facility in Buffalo, New York, on April 26, 2002.					
17. Key Words New Car Assessment Program (NCAP)				18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Reference Division Room 5108 (NAD-52) 400 Seventh St., S.W. Washington, D.C. 20590 Telephone No. (202) 366-4946 ATTN: Robert Hornicle	
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SECTION 1

PURPOSE AND SUMMARY OF TEST M20107

The purpose of this test was to obtain CRS performance data in a frontal impact NCAP condition.

The 56.49 kph NCAP frontal impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) NCAP Laboratory Test Procedure.

SUMMARY

Both child dummies were instrumented with head, chest, and pelvic triaxial accelerometers. In addition, redundant head z acceleration, and upper and lower six axial neck and lumbar spine force and moment and load cell sensors were utilized.

The right rear (Position 3) child dummy (serial no. 093) and left rear (Position 4) child dummy (serial no. 017) were calibrated previous to this test. Child dummy certification information is found in section 5.

The right rear child dummy's HIC was 312.3, maximum chest deceleration over 3 ms was 44.6 g's. The left rear child dummy's HIC was 356.2. The maximum chest deceleration over 3 ms is not available.

The Position 4 CRABI exceeded the manufacturer's recommended weight for the child restraint (CRS). The NHTSA COTR and CRS manufacturer were informed of the test condition prior to the impact. At the request of the COTR, the vehicle was tested in this configuration.

SECTION 2
DATA SHEET NO. 1
CRASH TEST SUMMARY

TEST DUMMY INFORMATION:

DESCRIPTION	Position #3 CRS	Position #4 CRS
ATD Type/Serial No.	CRABI/093	CRABI/017
Restraint System:	Safety First Forerunner Latch	GRACO Snugride DX5 8474 with vehicle ALR

Number of Data Channels 56
Number of Cameras: 1 Real Time
2 High Speed

POST TEST DOOR OPENING

DESCRIPTION	FRONT	REAR
Left Side Doors	Remained Latched, Closed and Operable	Remained Latched, Closed and Operable
Right Side Doors	Remained Latched, Closed and Operable	Remained Latched, Closed and Operable
Hatch/Other Door	-	Remained Latched, Closed and Operable

POST TEST SEAT DATA

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

VISIBLE DUMMY CONTACT POINTS

	Position #3 CRS	Position #4 CRS
Head Contact:	Top of the head to the child safety restraint.	Top of the head to the rear seat back, back of the head to the child safety restraint.
Upper Torso Contact:	None	None
Lower Torso Contact:	None	None
Left Knee Contact:	None	None
Right Knee Contact:	None	None

DATA SHEET NO. 2

CRS PARAMETER DATA

CRS: Safety First Forerunner Latch, GRACO Snugride DX5 8474

NHTSA No. M20107

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Delivered Weight of Vehicle with Maximum Fluids = 2068.5 kg (A)

AS TESTED WEIGHT OF VEHICLE (2 ATDs + 2 CRABI w/ CRS +CARGO + EQUIPMENT & INSTRUMENTATION):

Left Front	=	<u>600.0</u>	kg	Left Rear	=	<u>589.5</u>	kg
Right Front	=	<u>589.0</u>	kg	Right Rear	=	<u>569.5</u>	kg
TOTAL FRONT	=	<u>1189.0</u>	kg	TOTAL REAR	=	<u>1159.0</u>	kg
TOTAL TEST WEIGHT =		<u>2348.0</u>	kg				

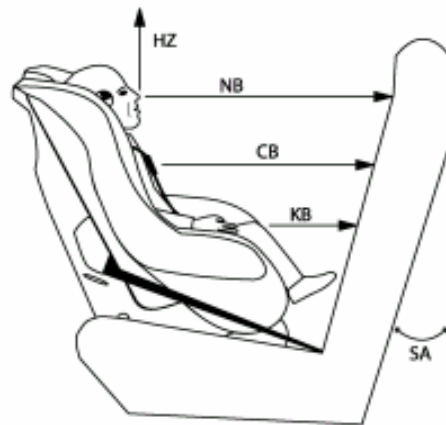
DATA SHEET NO. 3

CHILD DUMMY POSITIONING IN VEHICLE

CRS: Safety First Forerunner Latch, GRACO Snugride DX5 8474

NHTSA No. M20107

Dummy Measurements for Rear-facing CRS Passengers



X—Z View

HZ	-	Head to Roof
NB	-	Nose to Front of Back Seat
CB	-	Chest to Front of Back Seat
KB	-	Knee to Front of Back Seat
SA	-	Seat Back Angle

Measurement	Pre-Test (mm)		Post Test (mm)	
	P3 CRS (093)	P4 CRS (017)	P3 CRS (093)	P4 CRS (017)
SA	-15°	-15°	5°	5°
HZ	460	411	465	482
NB	513	533	405	443
CB	451	398	328	363
KB – LEFT	190	200	163	210
KB – RIGHT	202	193	163	185

All dimensions in mm (unless noted)

P3 – Right Rear Passenger (CRS #1)

P4 – Left Rear Passenger (CRS #2)

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES

CRS: Safety First Forerunner Latch, GRACO Snugride DX5 8474

NHTSA No. M20107

DESCRIPTION	Unit	MAXIMUM VALUE							
		Position #3				Position #4			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head X	g	49.7	78.7	-5.6	231.5	61.3	83.7	-12.8	292.7
Head Y	g	1.3	105.6	-14.1	75.6	24.4	85.6	-5.6	48.7
Head Z	g	44.9	55.4	-4.2	117.4	50.3	61.4	-7.3	101.5
Head Resultant	g	65.7	55.3	0.0	-33.7	68.2	83.7	0.0	-39.4
Redundant Head Z	g	39.1	40.9	-4.8	282.0	50.2	61.3	-5.7	110.2
Upper Neck Fx	N	90.5	73.3	-266.5	49.9	65.7	87.7	-280.6	58.1
Upper Neck Fy	N	45.9	98.9	-128.3	79.4	123.7	84.9	-49.5	151.8
Upper Neck Fz	N	1237.3	54.9	-101.5	282.2	1352.2	61.6	-242.1	100.5
Upper Neck F Resultant	N	1255.1	54.8	1.7	-45.2	1375.5	61.6	0.5	-36.3
Upper Neck Mx	N-m	*	*	*	*	7.9	99.1	-4.9	141.3
Upper Neck My	N-m	5.6	252.0	-9.0	48.3	7.8	94.9	-8.9	57.6
Upper Neck Mz	N-m	1.6	123.6	-1.3	75.4	3.0	88.9	-2.7	151.3
Upper Neck M Resultant	N-m	*	*	*	*	10.9	98.5	0.0	-35.4
Lower Neck Fx	N	368.3	74.4	-127.9	231.1	271.6	87.7	-126.0	287.2
Lower Neck Fy	N	34.5	97.5	-120.9	78.9	175.1	79.5	-100.0	100.6
Lower Neck Fz	N	1342.4	54.8	-107.4	282.0	1477.4	61.4	-226.3	100.4
Lower Neck F Resultant	N	1377.7	54.8	1.1	-40.0	1478.1	61.4	0.2	-35.6
Lower Neck Mx	N-m	3.3	202.8	-5.7	78.1	8.4	97.3	-7.0	144.5
Lower Neck My	N-m	9.2	258.9	-12.4	74.4	6.2	274.7	-9.7	86.9
Lower Neck Mz	N-m	1.4	120.3	-1.0	72.3	1.3	89.6	-2.2	151.1
Lower Neck M Resultant	N-m	13.5	74.5	0.1	-50.0	12.4	86.4	0.0	-34.2
Chest X	g	45.5	64.6	-8.5	281.7	41.3	92.6	-6.1	292.0
Chest Y	g	11.1	81.1	-9.9	63.0	11.6	65.3	-10.3	97.6
Chest Z	g	28.4	42.9	-7.3	281.3	**	**	**	**
Chest Resultant	g	46.2	64.4	0.0	-39.7	**	**	**	**
Lumbar Fx	N	53.5	178.8	-155.5	87.6	1.3	-7.7	-362.0	64.8
Lumbar Fy	N	34.5	176.1	-28.8	122.0	9.5	149.6	-53.3	99.7
Lumbar Fz	N	148.0	56.4	-138.5	282.4	308.1	73.0	-47.6	295.5
Lumbar F Resultant	N	211.3	56.2	0.3	-12.1	468.9	65.8	0.1	-37.5
Lumbar Mx	N-m	2.3	187.1	-1.4	280.6	0.3	86.2	-2.4	100.5
Lumbar My	N-m	4.5	88.6	-1.4	176.7	10.8	111.5	0.0	-26.9
Lumbar Mz	N-m	1.2	236.1	-0.9	259.1	0.6	54.7	-2.5	101.8
Lumbar M Resultant	N-m	4.5	88.7	0.0	-50.0	10.9	111.5	0.0	-41.6
Pelvic X	g	44.6	64.8	-8.7	203.2	25.4	54.5	-8.8	206.5
Pelvic Y	g	12.2	89.1	-14.9	63.8	9.6	49.7	-6.5	83.0
Pelvic Z	g	39.3	47.5	-7.5	278.7	47.6	46.2	-4.9	118.8
Pelvic Resultant	g	51.3	63.8	0.0	-32.6	51.5	44.6	0.0	-41.6

* Not Accurate – Did not record properly; **Not accurate – Sensor malfunctioned

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES (CONTINUED)

CRS: Safety First Forerunner Latch, GRACO Snugride DX5 8474

NHTSA No. M20107

	HEAD INJURY CRITERIA (HIC15)			
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration (g's) t ₁ to t ₂
Position #3 - Right	312.3	72.6	87.6	53.4
Position #4 - Left	356.2	73.6	88.6	56.3

** HIC is as defined in FMVSS 208. The maximum time interval from t₁ to t₂ is 15 milliseconds.

	CLIP SUMMARY*			
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #3 - Right	44.6	63.4	66.4	466.1
Position #4 - Left	**	**	**	**

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration. **Chest Z data is not accurate – Clip could not be calculated for this position.

Position 3 Neck Injury Summary (CRABI – In Position)

Nij V10	Nij	Time (ms)	Z Force (N)	X Force (N)	Y Moment (N-m)
Ntf	0.6	78.0	862.6	-9.6	0.0
Nte	1.2	49.6	1109.1	-266.2	-7.2
Ncf	0.2	253.8	-28.2	-78.5	6.0
Nce	0.0	-5.9	-3.3	-4.1	0.0

Peak Tension (CFC1000) 1239.96 N

Peak Compression (CFC1000) 101.54 N

Critical Values

Nij Intercepts				Peak Limits	
Tension (CVt)	1460 N	Extension (mCVe)	17 N-m	Tension	780 N
Compression (CVc)	1460 N	Flexion (mCVf)	43 N-m	Compression	-960 N

Condyle Offset -0.0058

Position 4 Neck Injury Summary (CRABI – In Position)

Nij V10	Nij	Time (ms)	Z Force (N)	X Force (N)	Y Moment (N-m)
Ntf	0.5	82.0	685.8	-51.0	0.0
Nte	1.3	57.4	1272.9	-278.9	-7.2
Ncf	0.3	99.8	-238.9	1.7	7.2
Nce	0.0	21.2	-1.6	-0.8	-0.3

Peak Tension (CFC1000) N

Peak Compression (CFC1000) N

Critical Values

Nij Intercepts				Peak Limits	
Tension (CVt)	1460 N	Extension (mCVe)	17 N-m	Tension	780 N
Compression (CVc)	1460 N	Flexion (mCVf)	43 N-m	Compression	-960 N

Condyle Offset -0.0058

DATA SHEET NO. 5**CRS PERFORMANCE DATA**CRS: Safety First Forerunner Latch, GRACO Snugride DX5 8474NHTSA No. M20107**POSITION #3 CRS POST-TEST INSPECTION (Model No. 02925BRD)**

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

POSITION #4 CRS POST-TEST INSPECTION (Model No. 8446VIN)

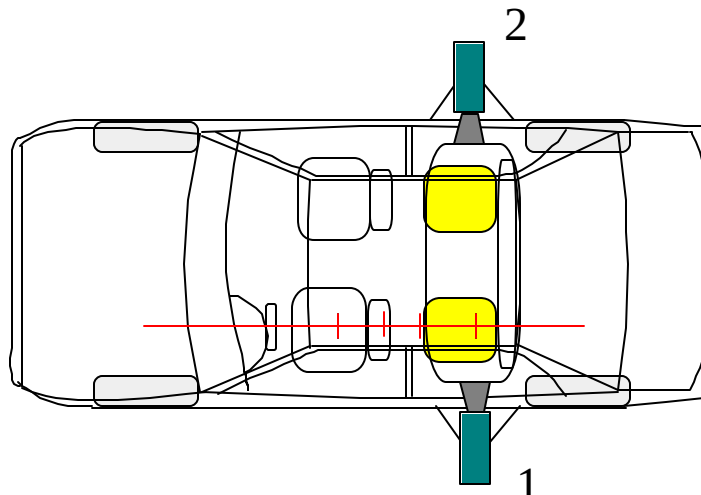
LOCATION	DAMAGE	REMARKS
Upper Tether Strap	N/A	N/A
Upper Tether Buckle	N/A	N/A
Upper Tether Hook	N/A	N/A
Vehicle Upper Tether Anchor	N/A	N/A
Lower Anchor Strap	N/A	N/A
Lower Anchor Buckle	N/A	N/A
Lower Anchor Hooks	N/A	N/A
Vehicle Lower CRS Anchors	N/A	N/A
Five Point Harness Connections	No	None
Cracks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

DATA SHEET NO. 6

CRS CAMERA DATA

CRS: Safety First Forerunner Latch

NHTSA No. M20107



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Left side CRS lateral view	3360	2370	2490	-29	25	1020
2	Right side CRS lateral view	3345	2387	2365	-28	25	1005

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

X = + Forward

Y = + To Right

Z = + Down

SECTION 3

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



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



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



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



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



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



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



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



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

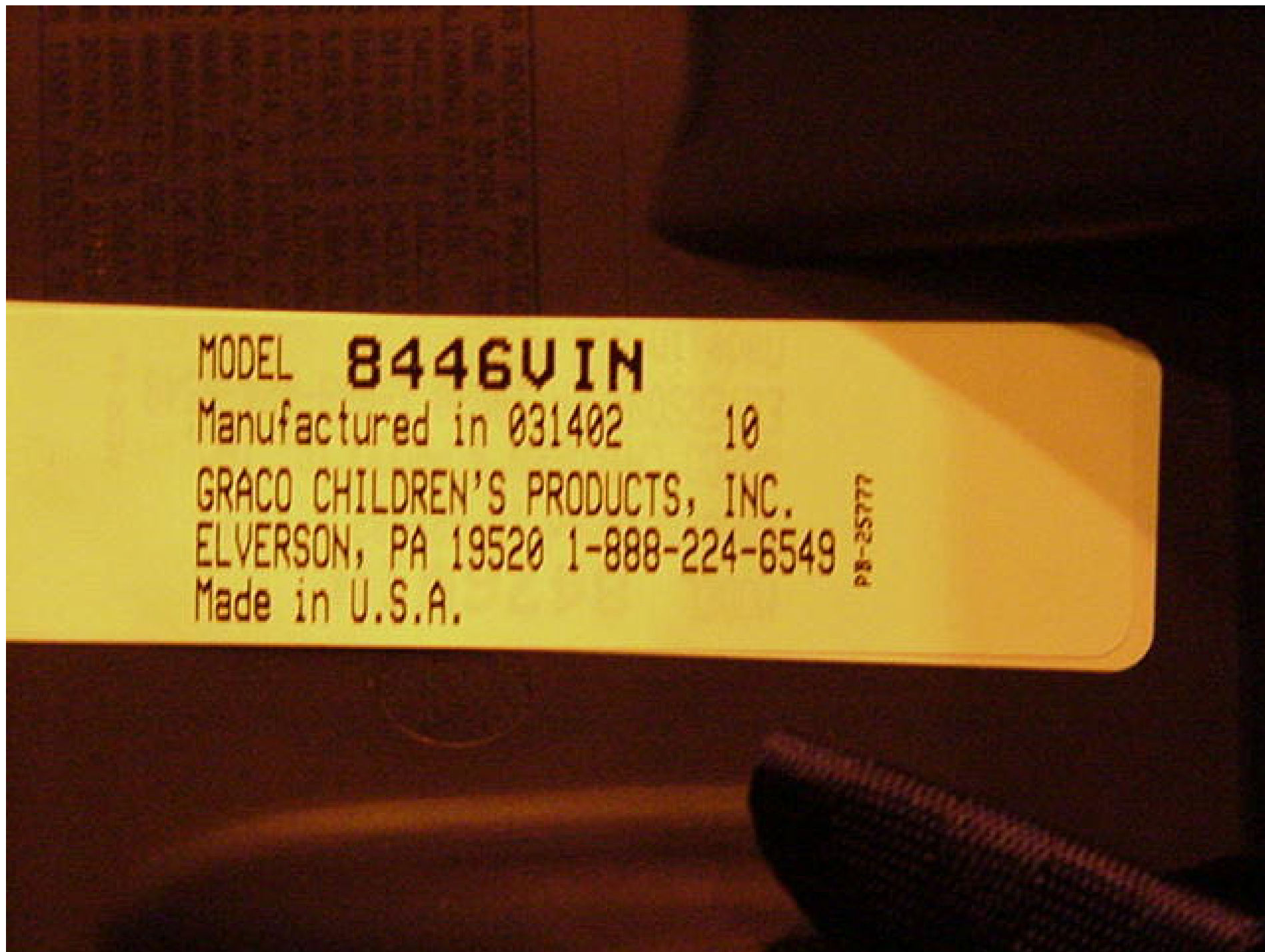


Figure 3-10 CLOSE-UP VIEW OF POSITION 4 CRS LABEL



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



Figure 3-27 PRE-TEST POSITION 3 REAR VIEW



Figure 3-28 POST-TEST POSITION 3 REAR VIEW



Figure 3-29 PRE-TEST POSITION 4 REAR VIEW



Figure 3-30 POST-TEST POSITION 4 REAR VIEW

SECTION 4

CHILD DUMMY RESPONSE AND CRS DATA TRACES

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NCAP Test #9 - 2002 Chevrolet Trailblazer

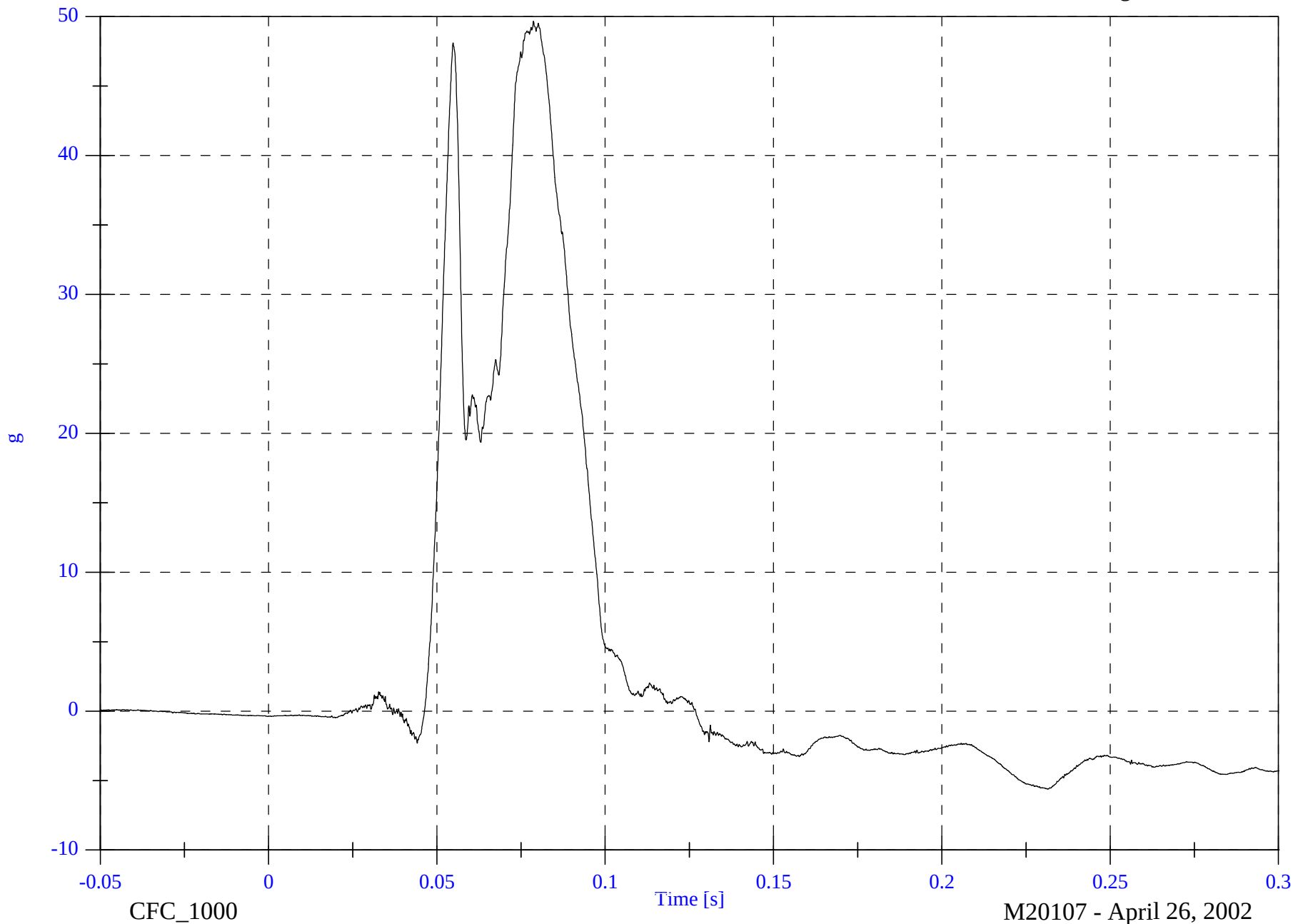
P3 Head x

Max: 49.7 [g] at 0.079 [s]

Min: -5.6 [g] at 0.232 [s]

4-4

8462-NCAP-09

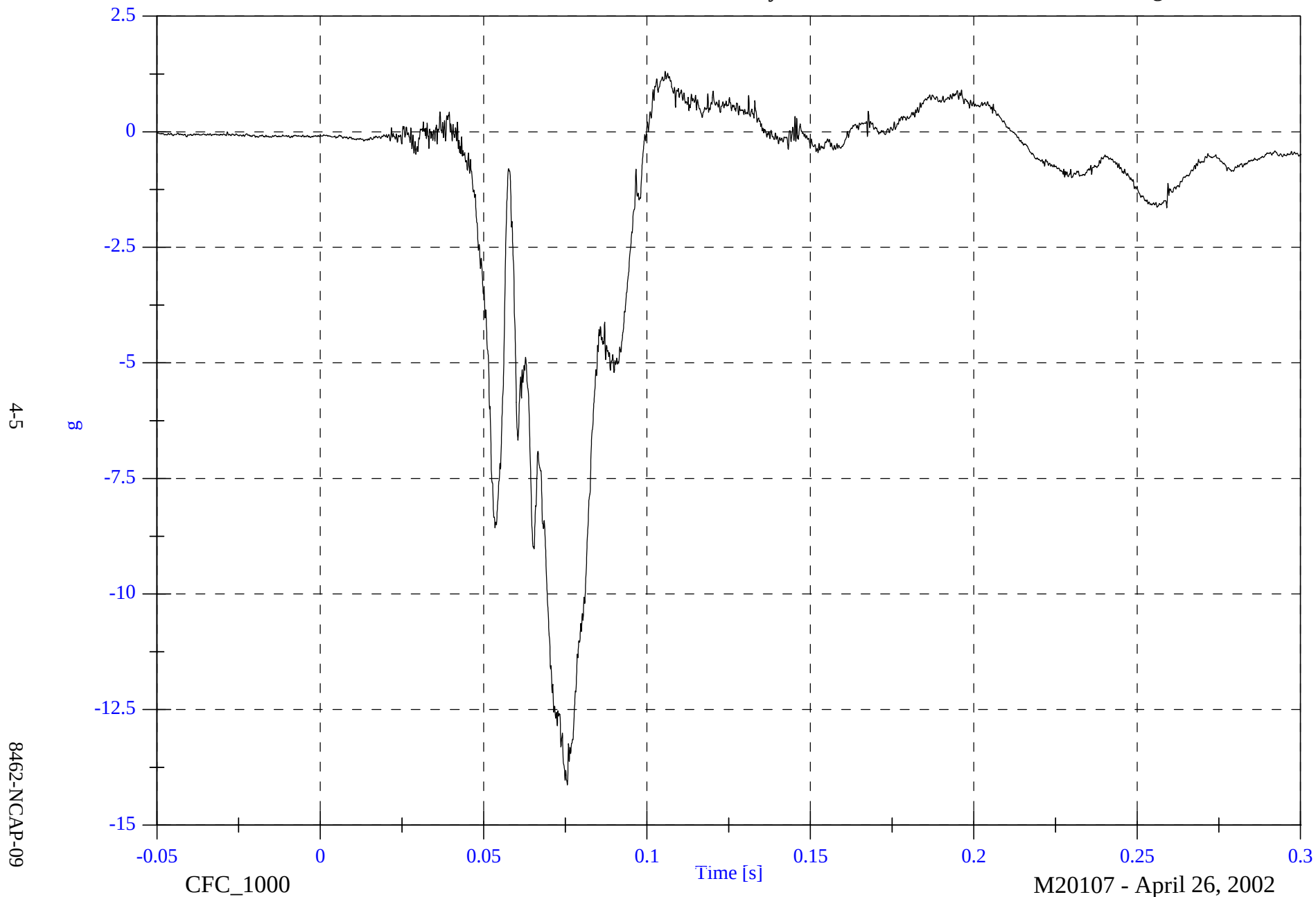


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Head y

Max: 1.3 [g] at 0.106 [s]

Min: -14.1 [g] at 0.076 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

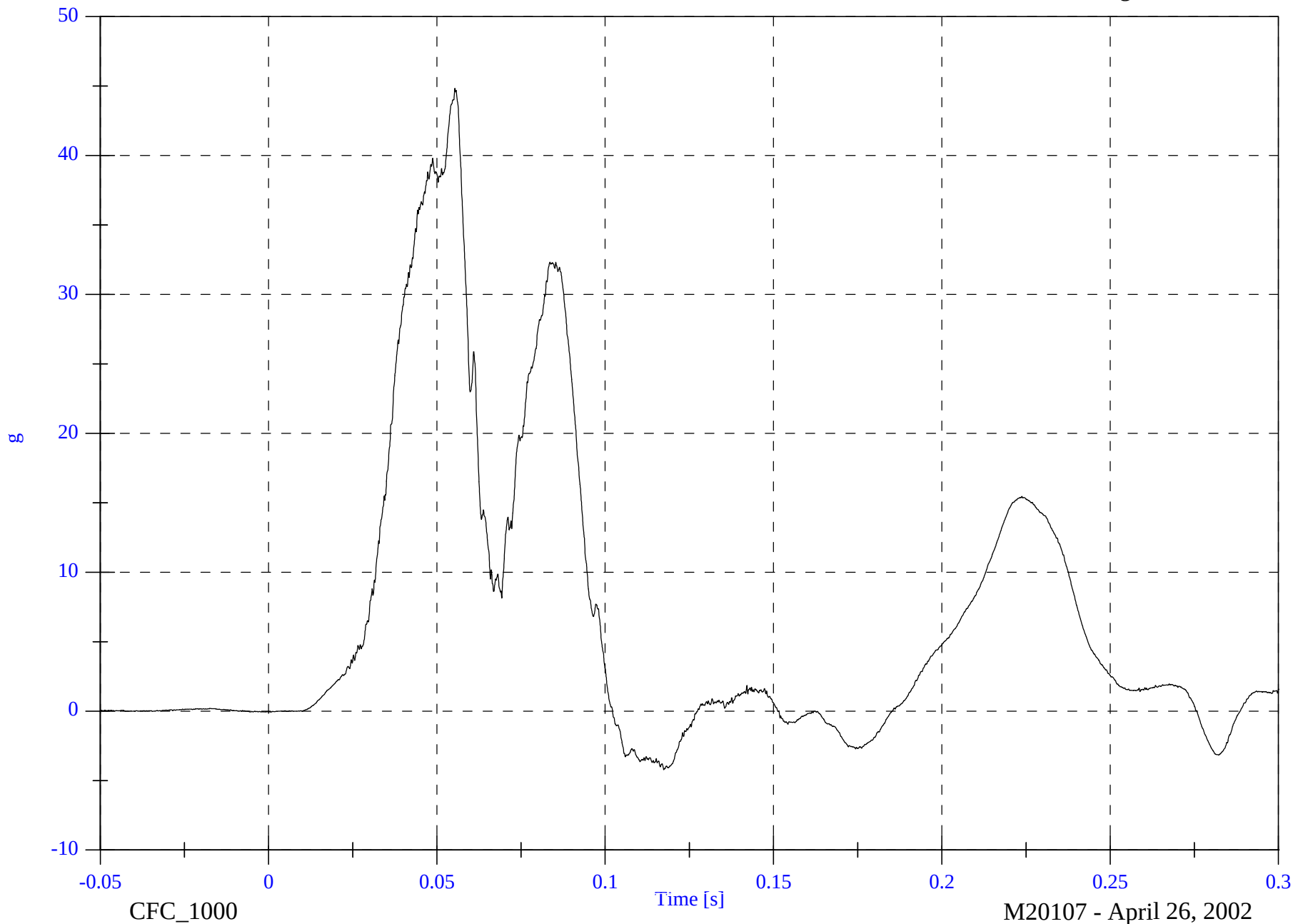
P3 Head z

Max: 44.9 [g] at 0.055 [s]

Min: -4.2 [g] at 0.117 [s]

4-6

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

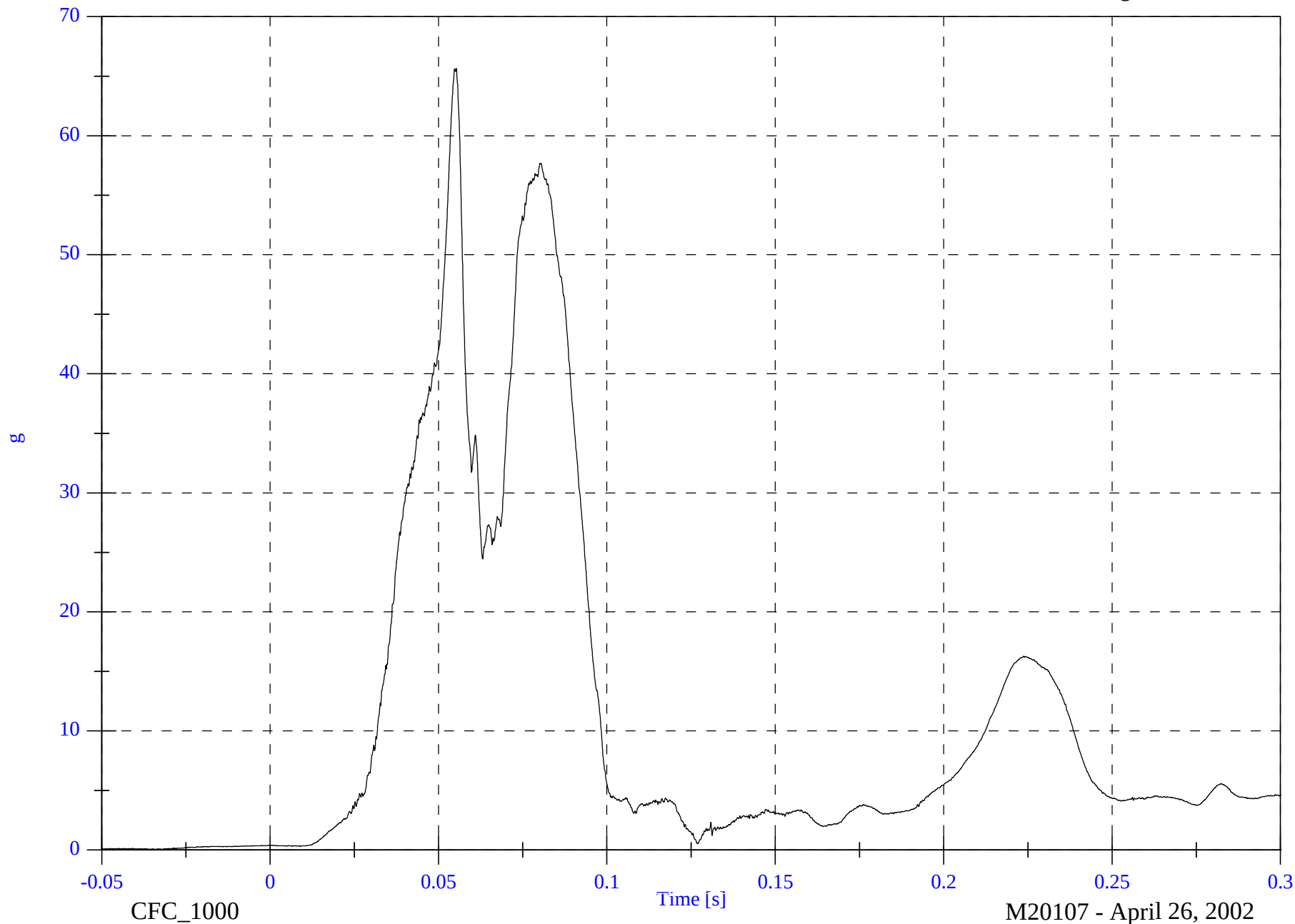
P3 Head Resultant

Max: 65.7 [g] at 0.055 [s]

Min: 0.0 [g] at -0.034 [s]

4-7

8462-NCAP-09

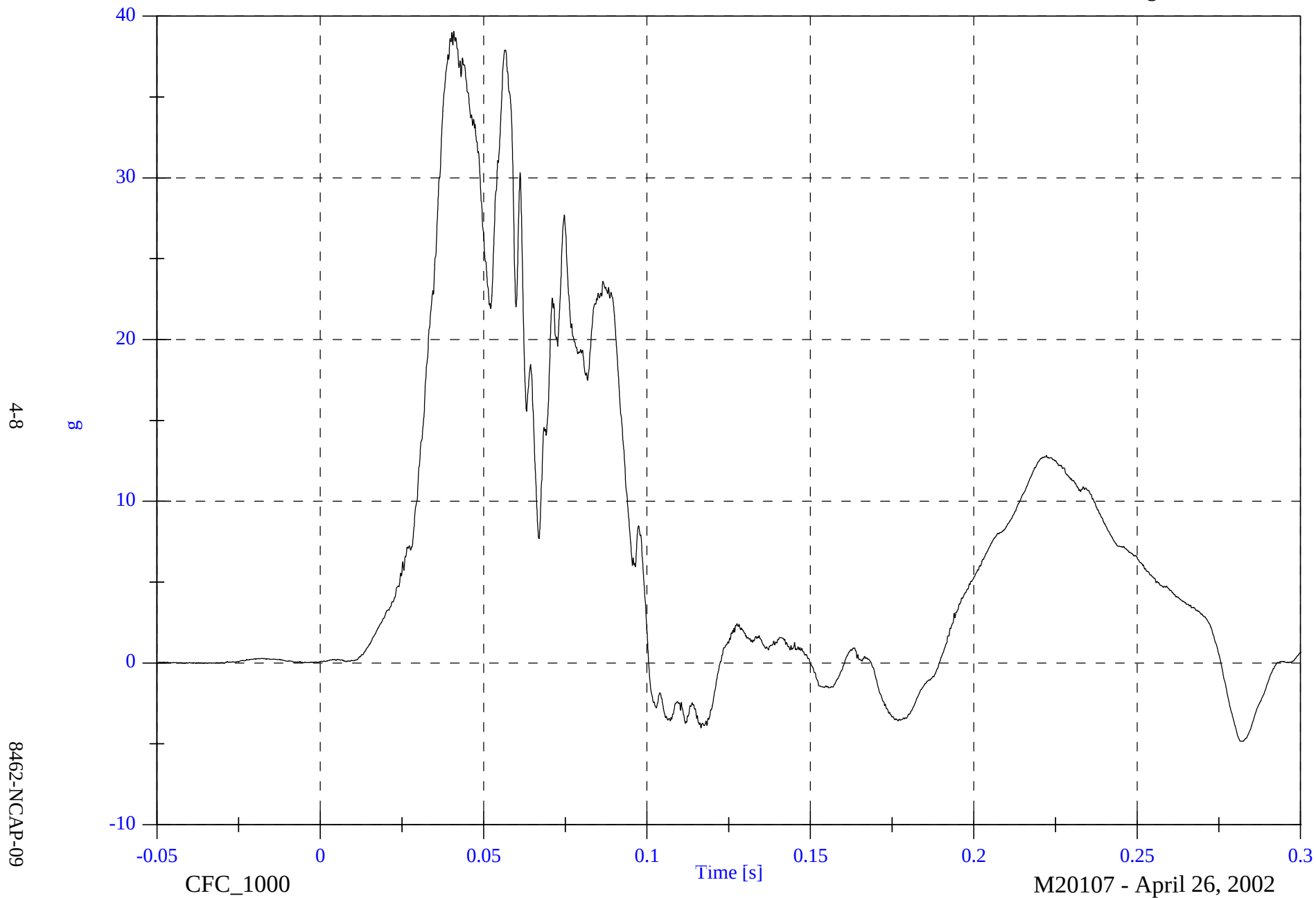


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Max: 39.1 [g] at 0.041 [s]

Min: -4.8 [g] at 0.282 [s]

P3 Head Red z

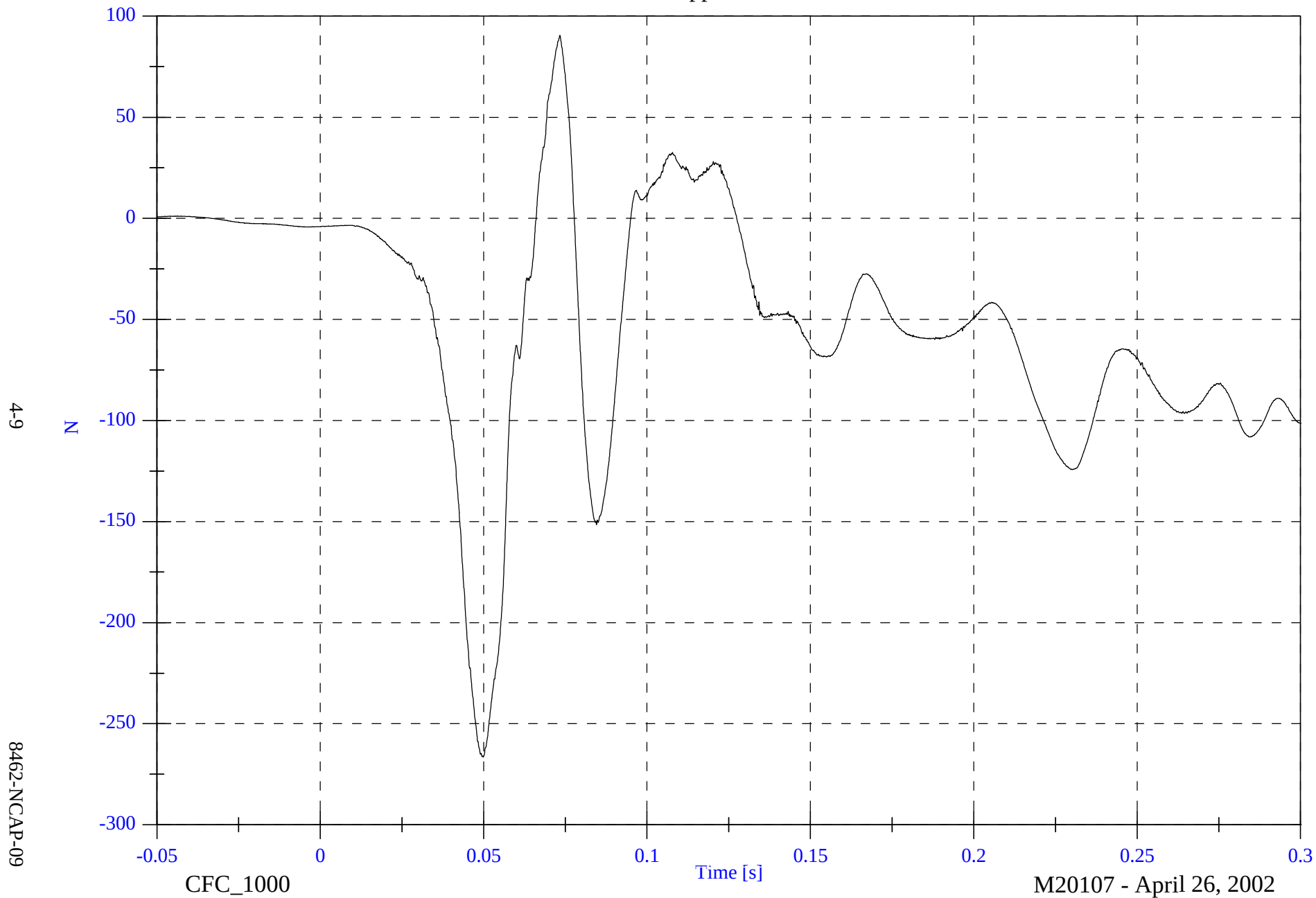


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Upper Neck Fx

Max: 90.5 [N] at 0.073 [s]

Min: -266.5 [N] at 0.050 [s]

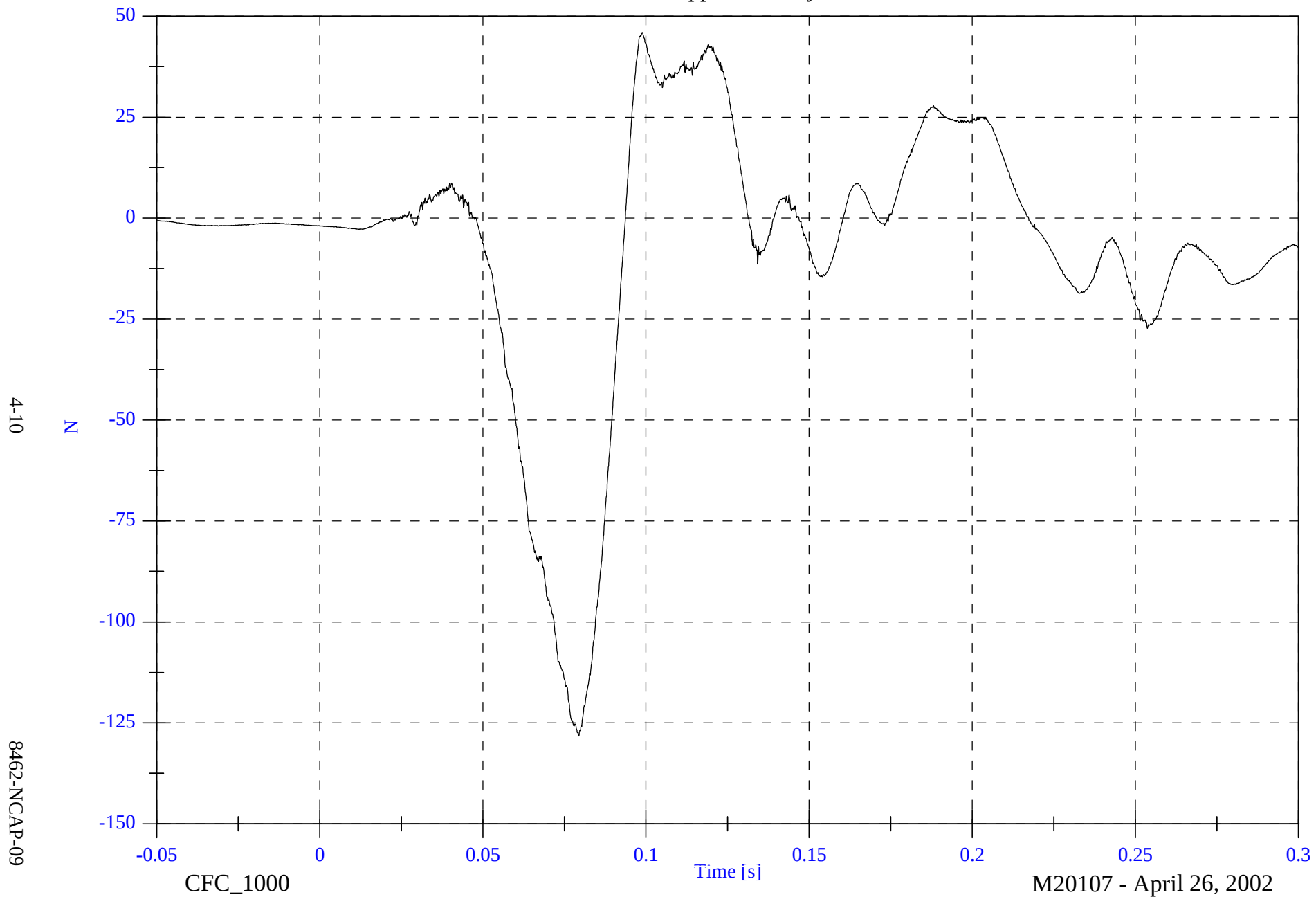


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Upper Neck Fy

Max: 45.9 [N] at 0.099 [s]

Min: -128.3 [N] at 0.079 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

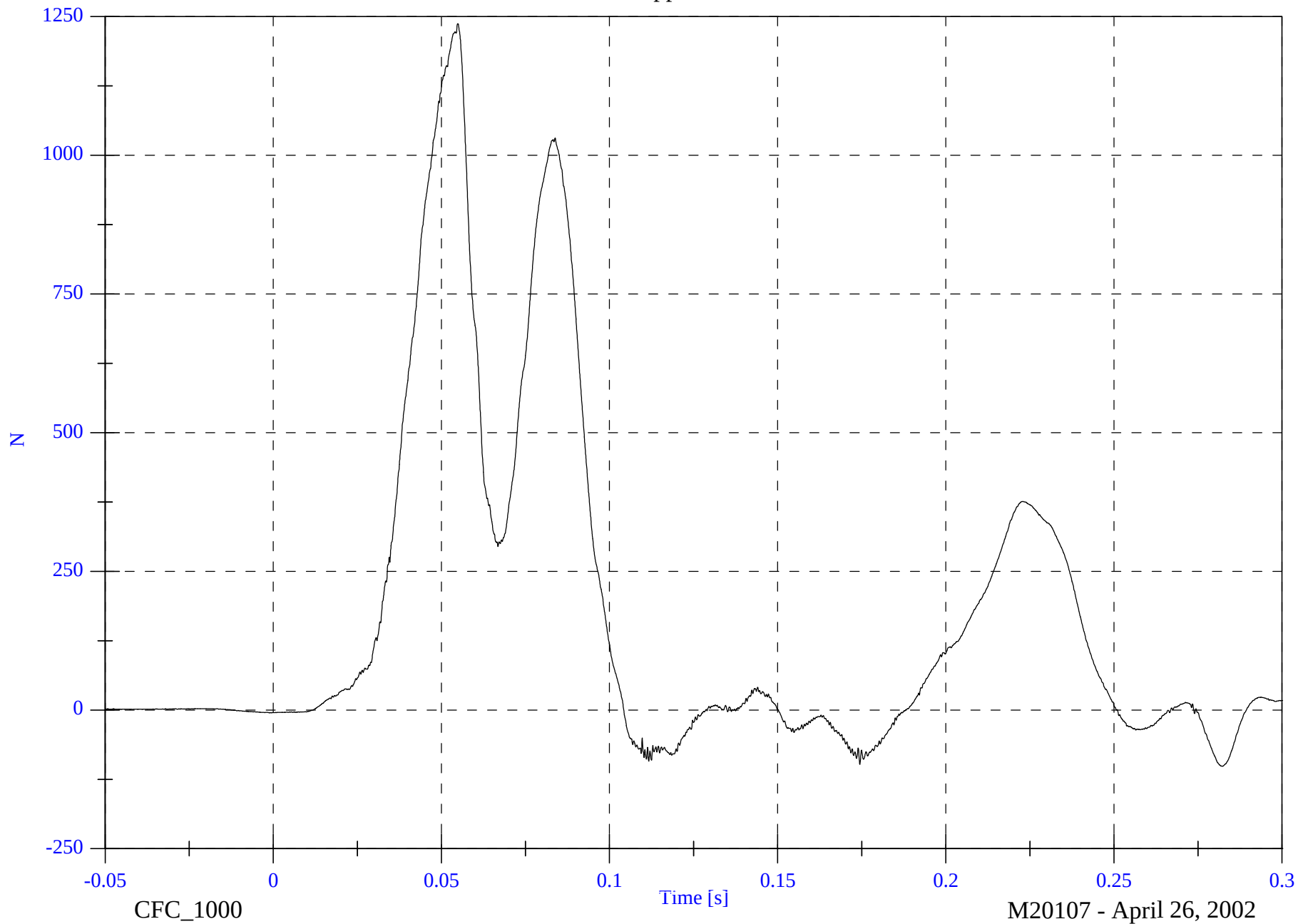
P3 Upper Neck Fz

Max: 1237.3 [N] at 0.055 [s]

Min: -101.5 [N] at 0.282 [s]

4-11

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

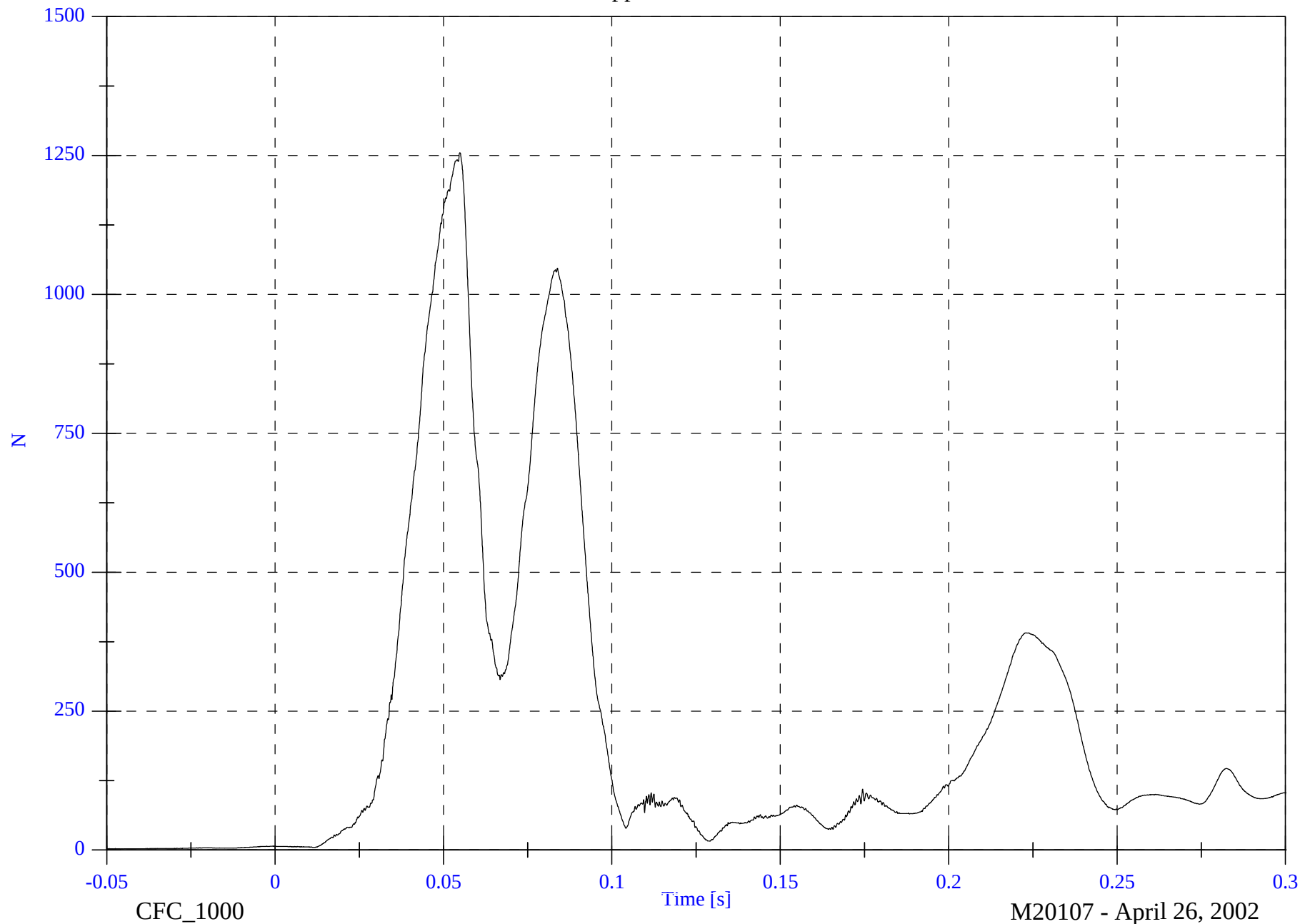
P3 Upper Neck F Resultant

Max: 1255.1 [N] at 0.055 [s]

Min: 1.7 [N] at -0.045 [s]

4-12

8462-NCAP-09

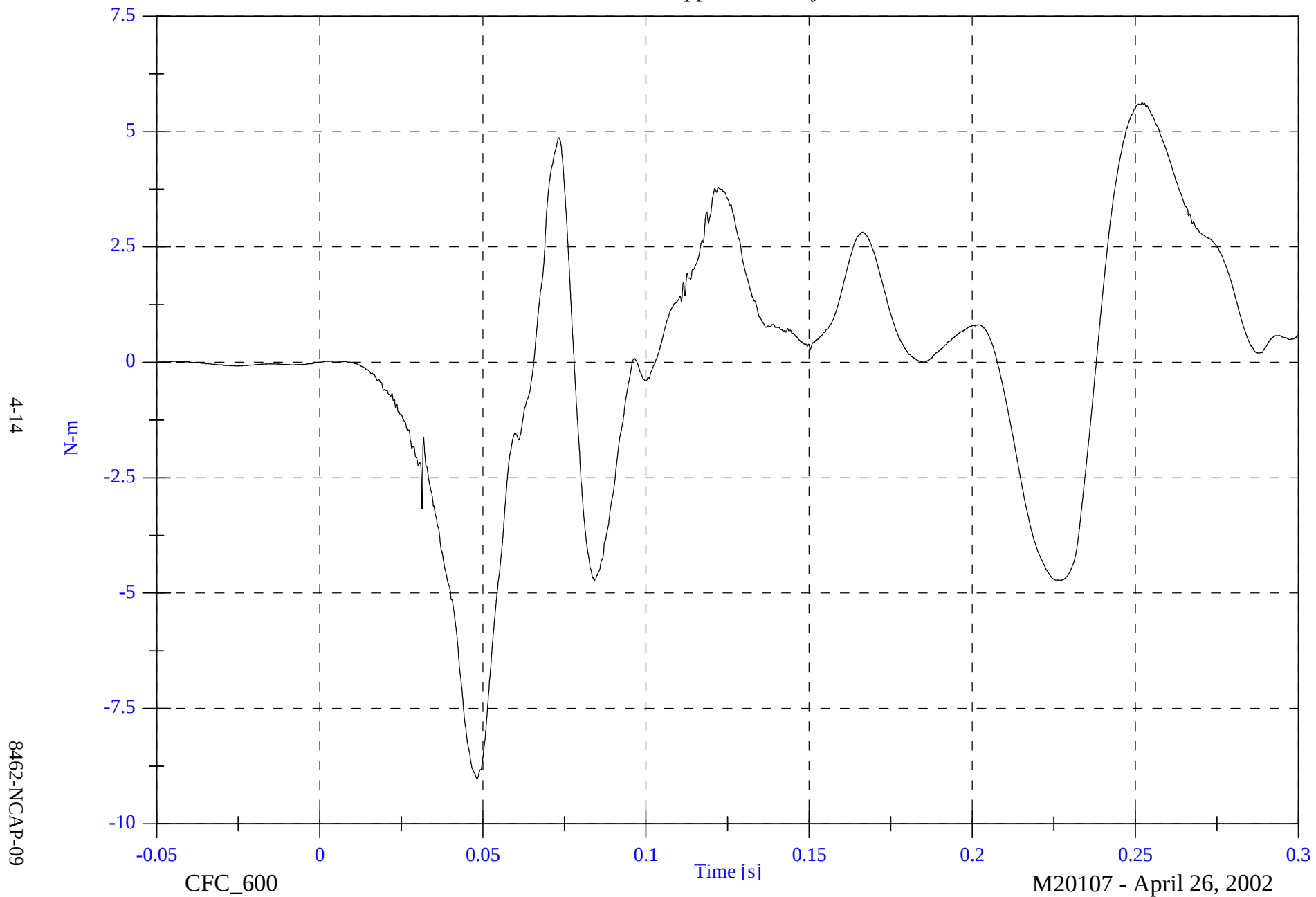


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Upper Neck My

Max: 5.6 [N-m] at 0.252 [s]

Min: -9.0 [N-m] at 0.048 [s]

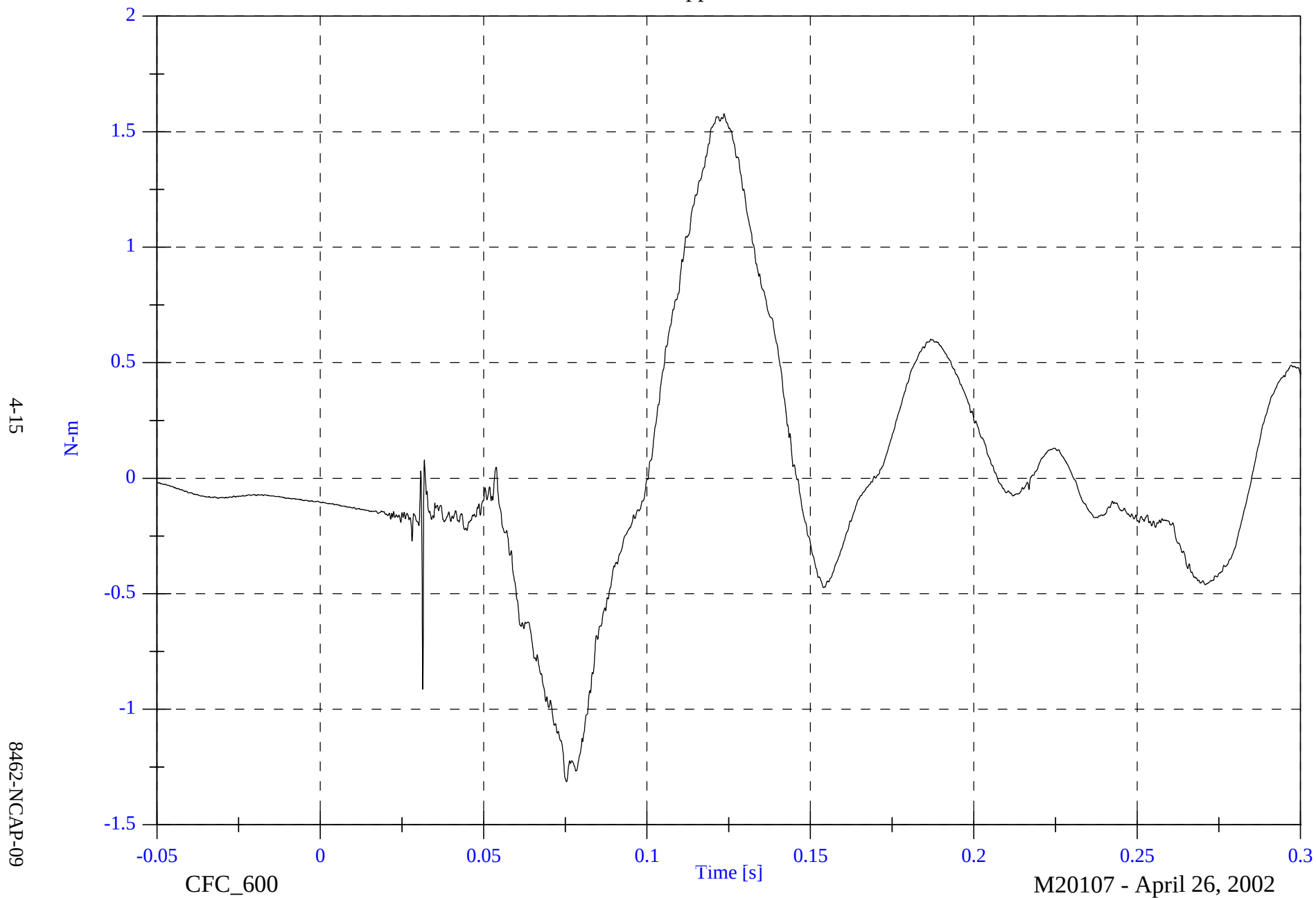


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Upper Neck Mz

Max: 1.6 [N-m] at 0.124 [s]

Min: -1.3 [N-m] at 0.075 [s]

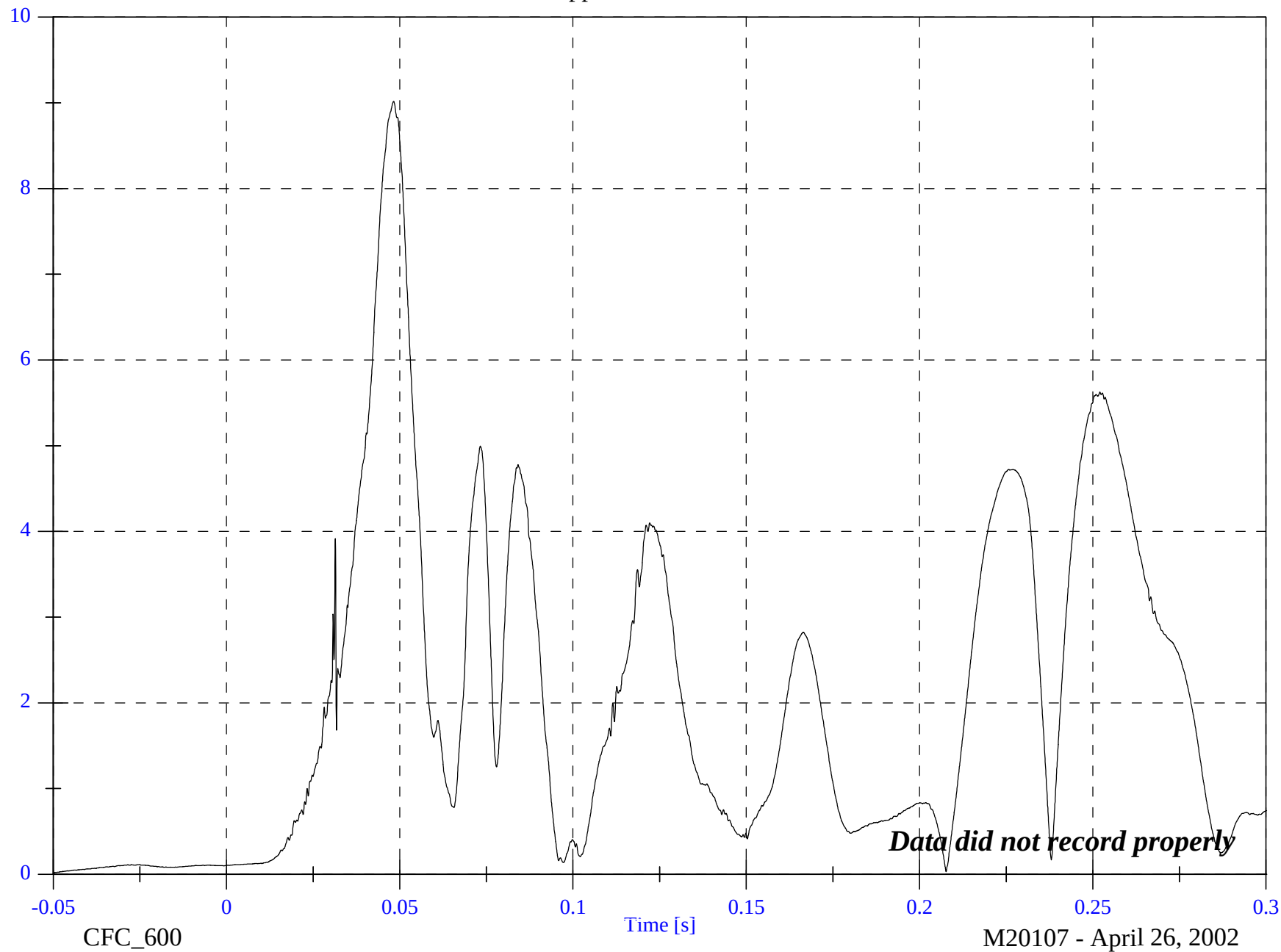


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Upper Neck M Resultant

Max: 9.0 [N-m] at 0.048 [s]

Min: 0.0 [N-m] at -0.050 [s]



4-16

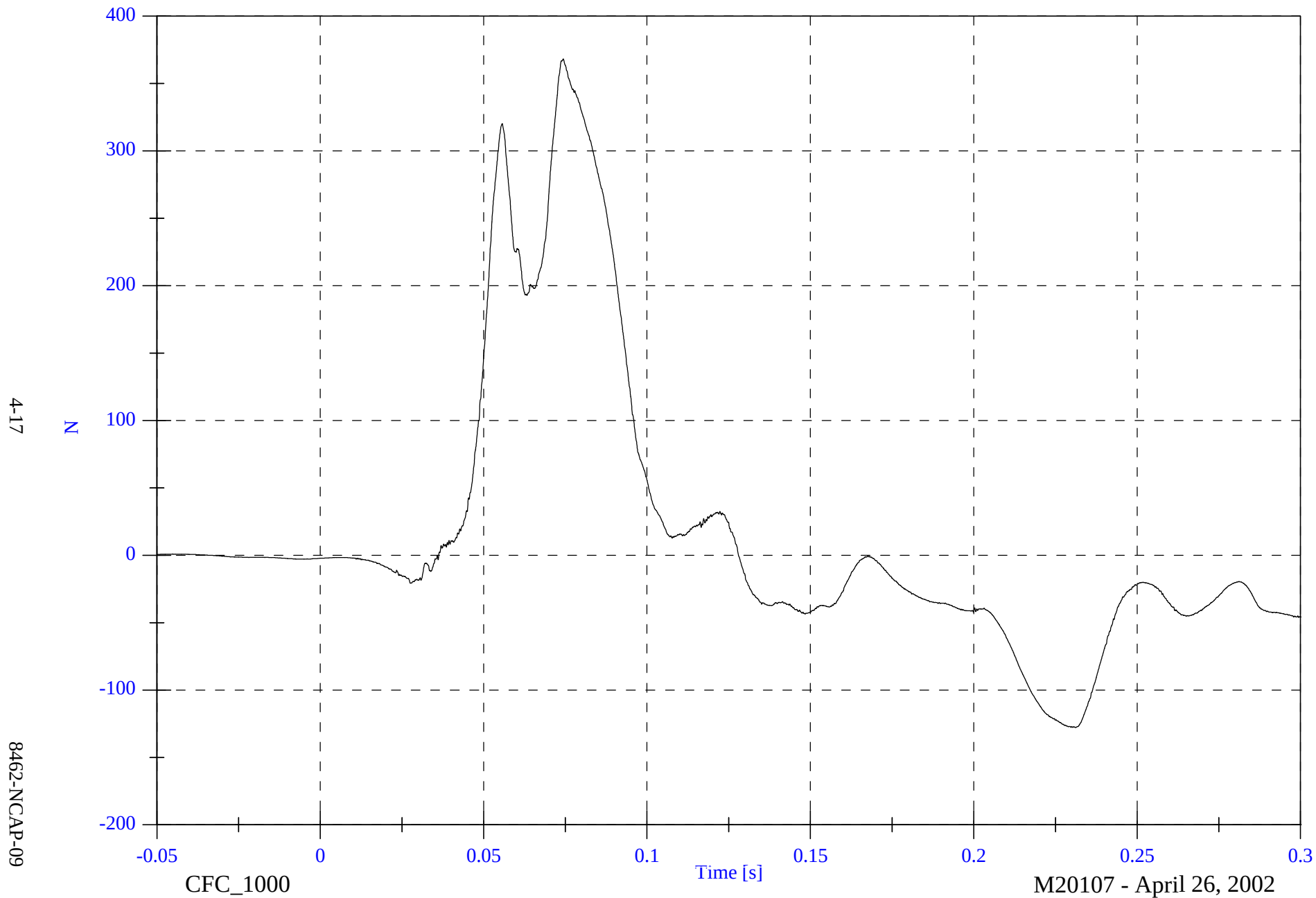
8462-NCAP-09

NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Lower Neck Fx

Max: 368.3 [N] at 0.074 [s]

Min: -127.9 [N] at 0.231 [s]

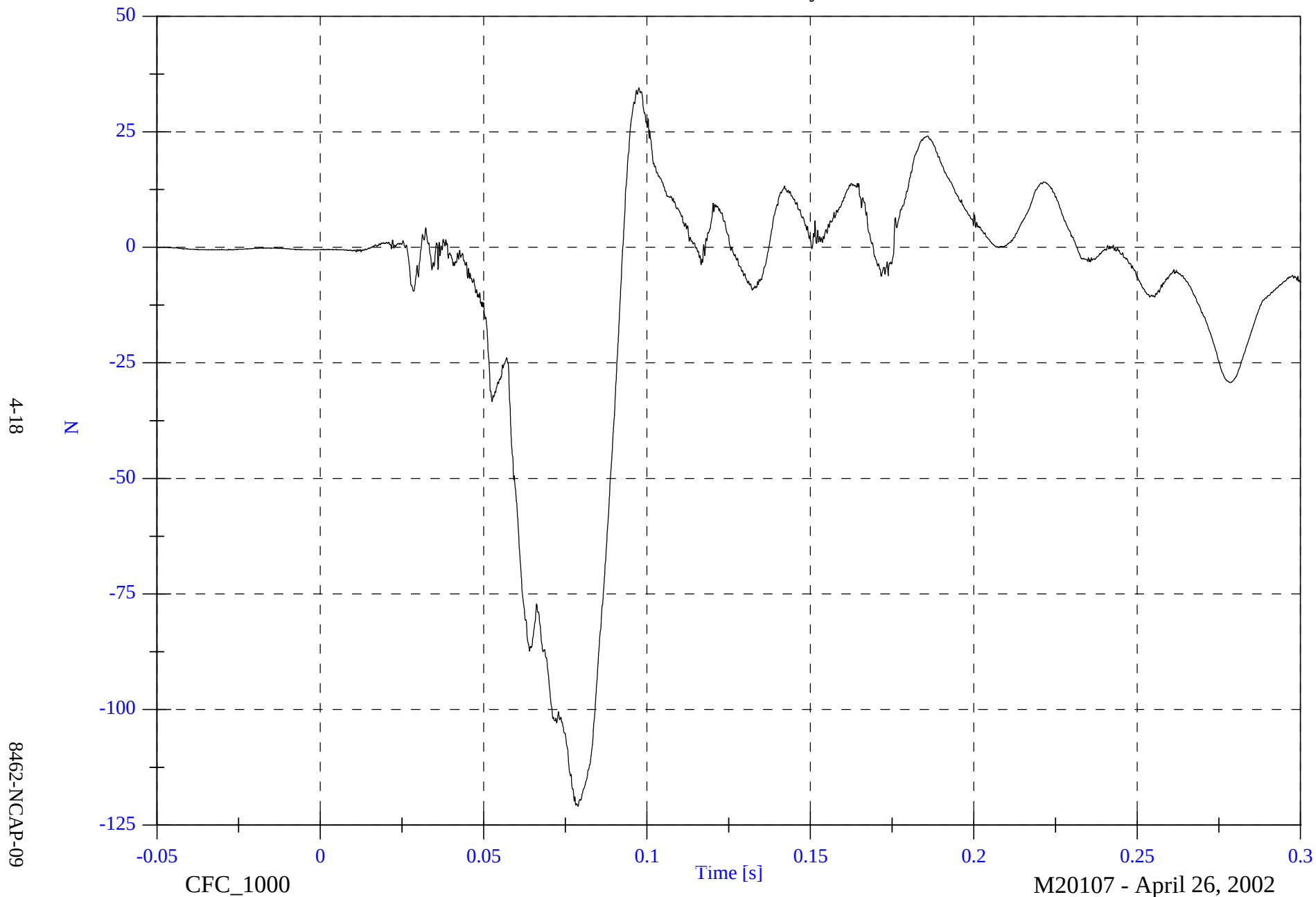


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Lower Neck Fy

Max: 34.5 [N] at 0.098 [s]

Min: -120.9 [N] at 0.079 [s]

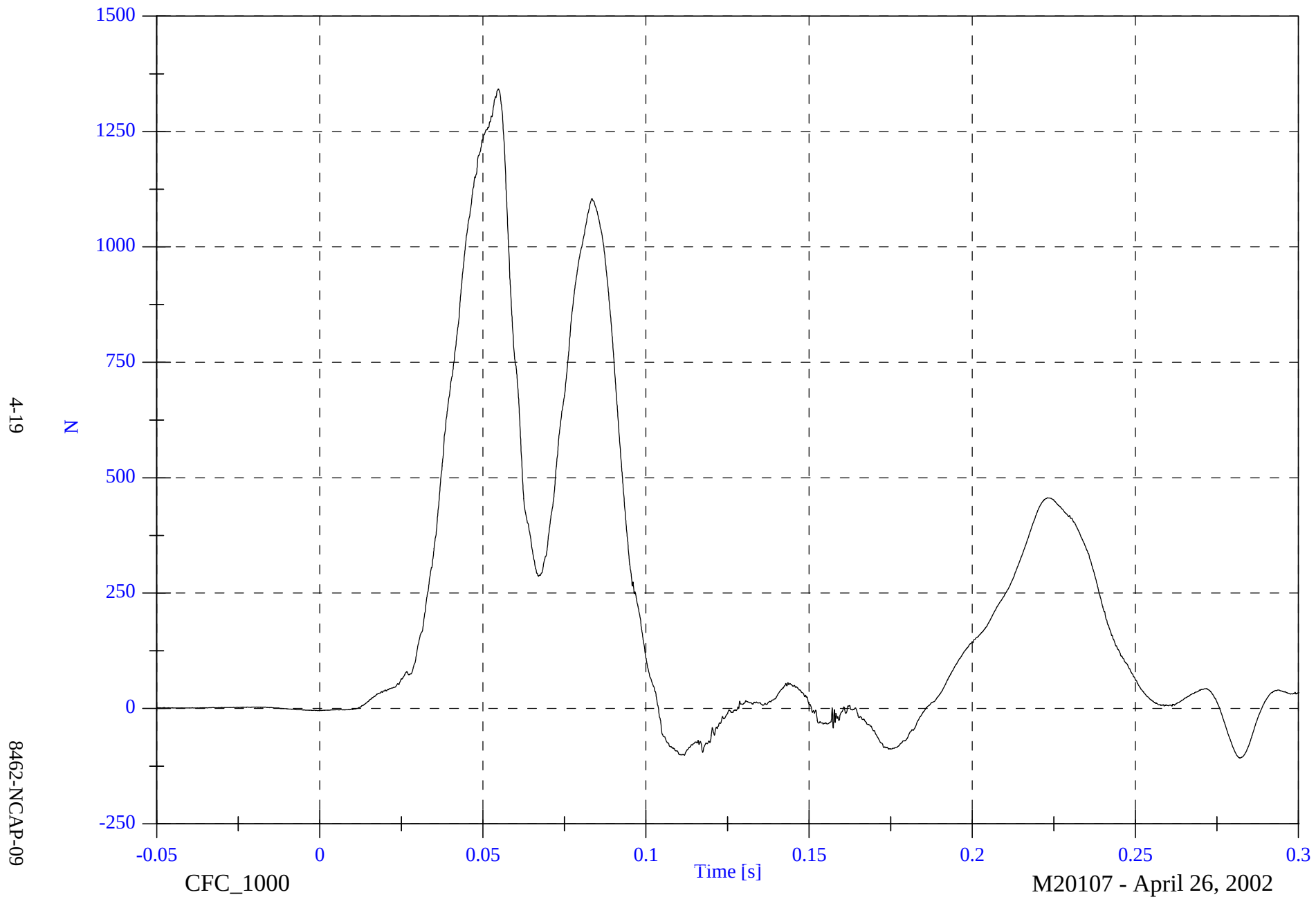


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Lower Neck Fz

Max: 1342.4 [N] at 0.055 [s]

Min: -107.4 [N] at 0.282 [s]

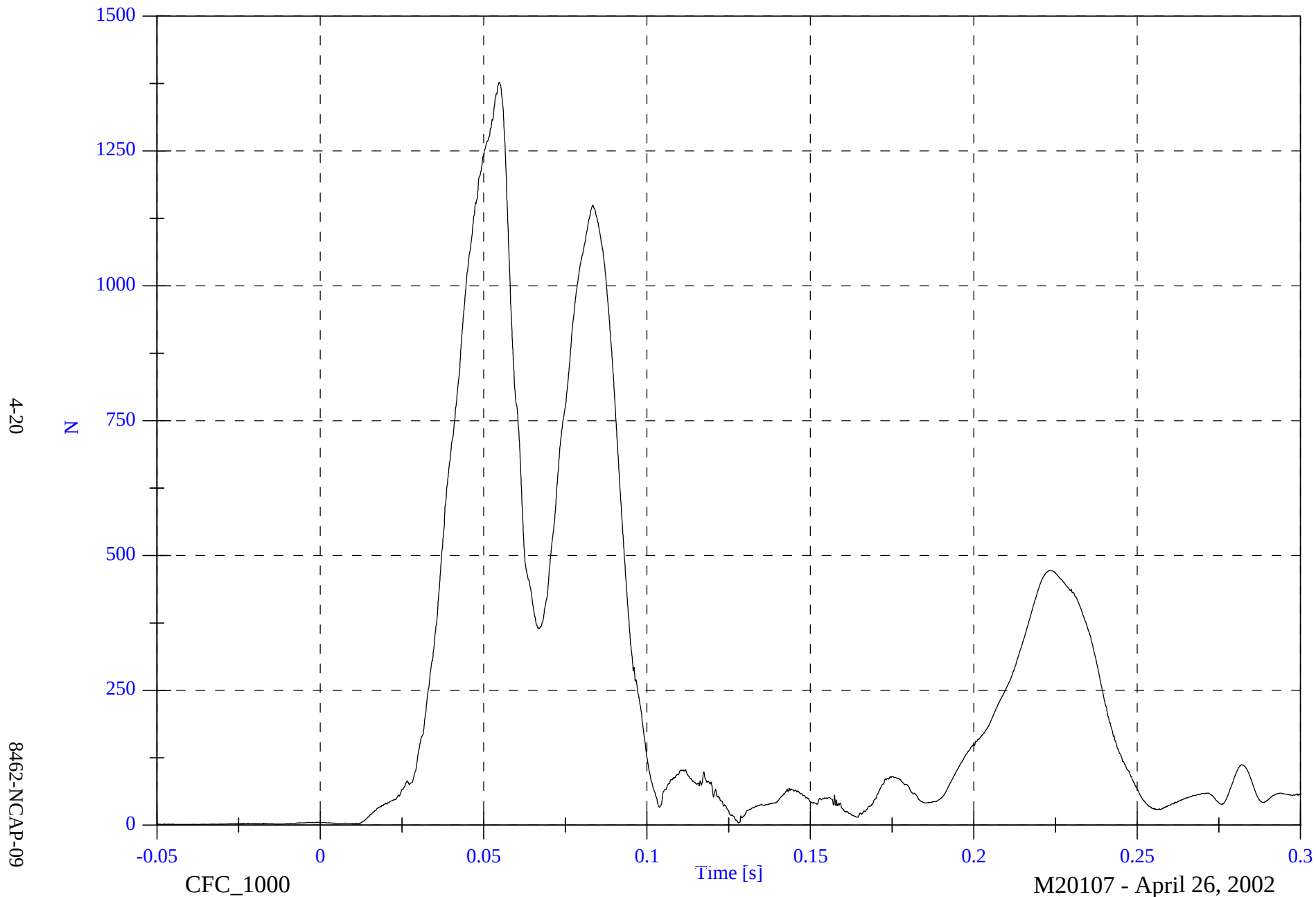


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Lower Neck F Resultant

Max: 1377.7 [N] at 0.055 [s]

Min: 1.1 [N] at -0.040 [s]

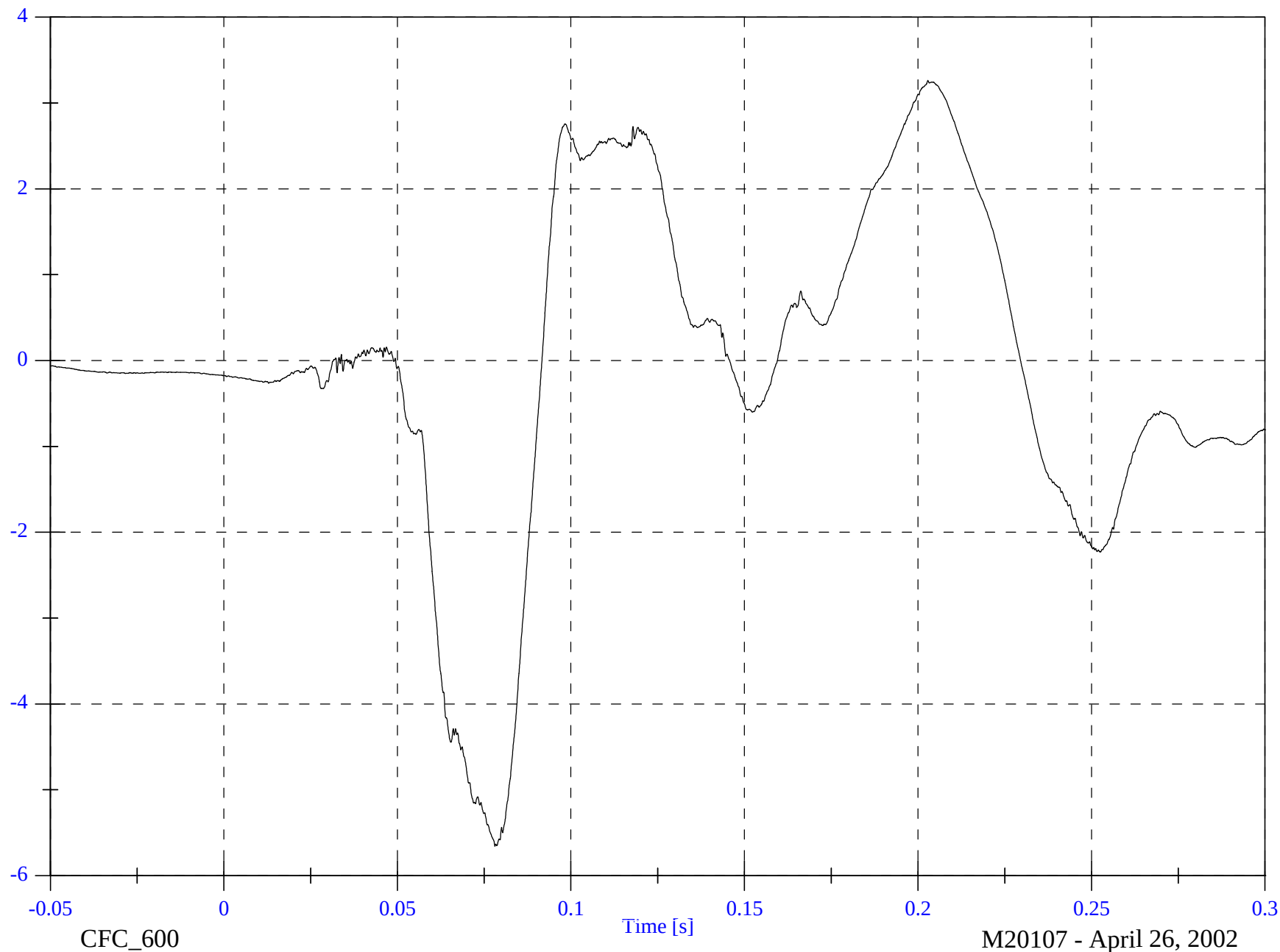


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Lower Neck Mx

Max: 3.3 [N-m] at 0.203 [s]

Min: -5.7 [N-m] at 0.078 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

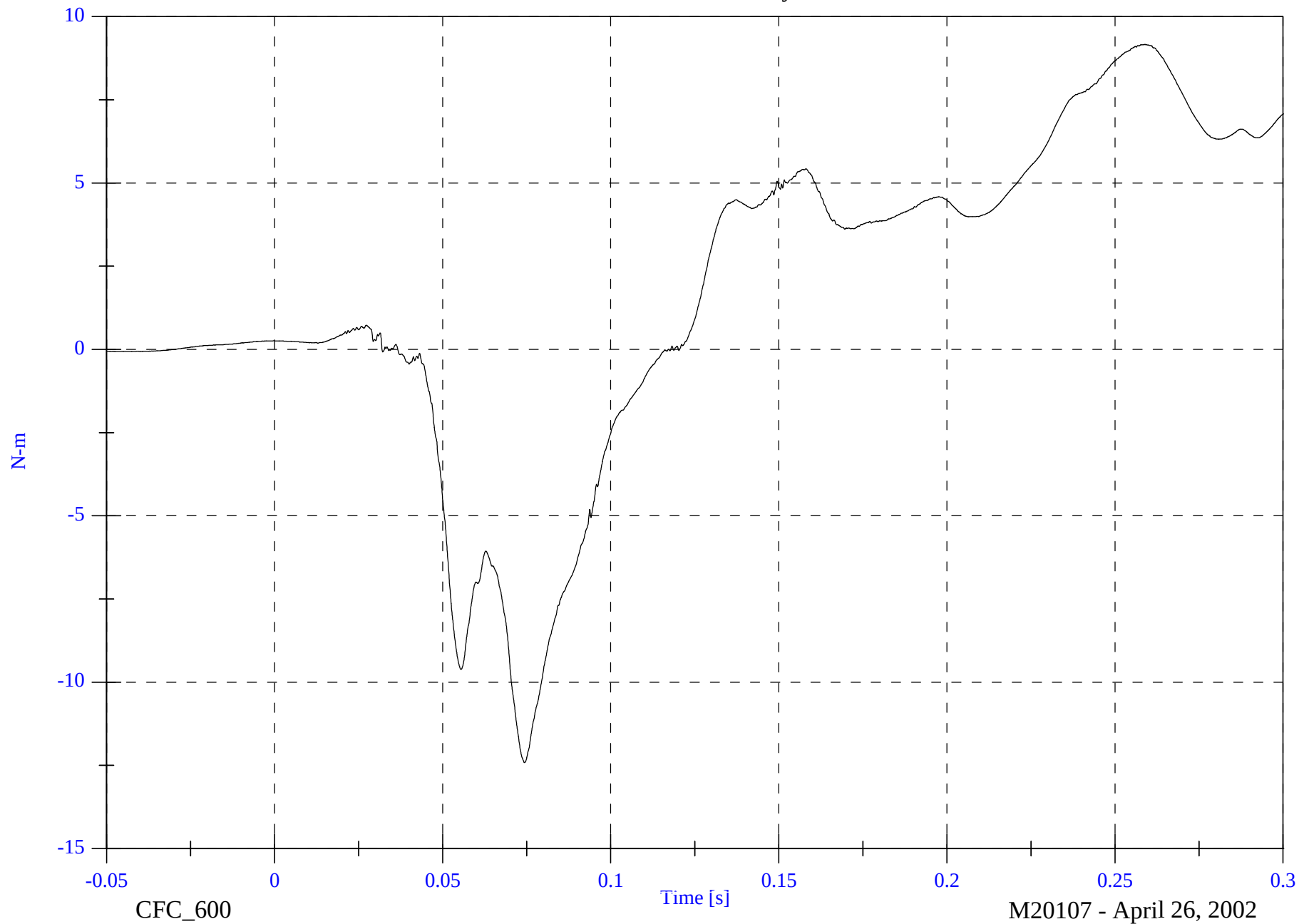
P3 Lower Neck My

Max: 9.2 [N-m] at 0.259 [s]

Min: -12.4 [N-m] at 0.074 [s]

4-22

8462-NCAP-09

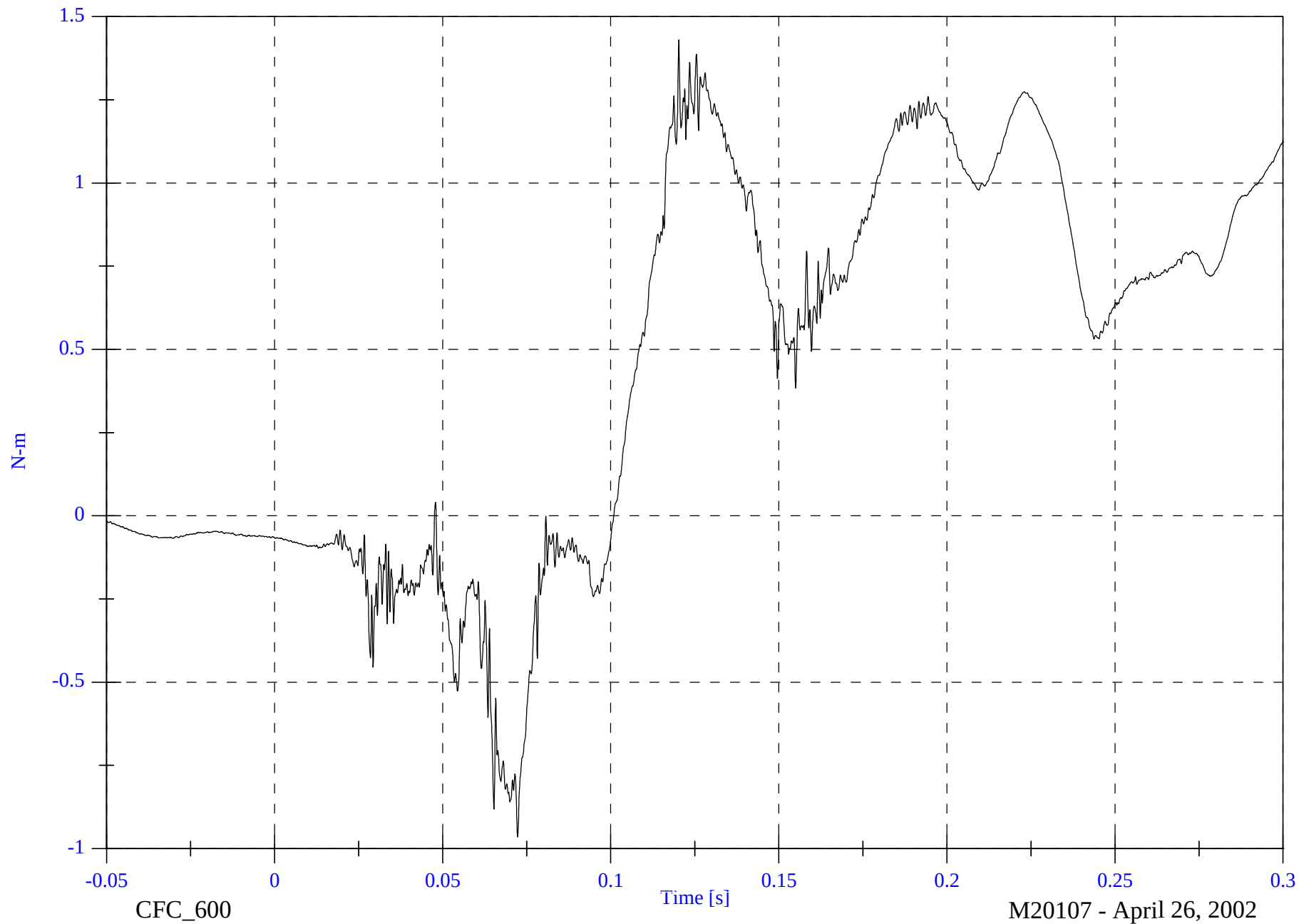


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Lower Neck Mz

Max: 1.4 [N-m] at 0.120 [s]

Min: -1.0 [N-m] at 0.072 [s]



4-23

8462-NCAP-09

NCAP Test #9 - 2002 Chevrolet Trailblazer

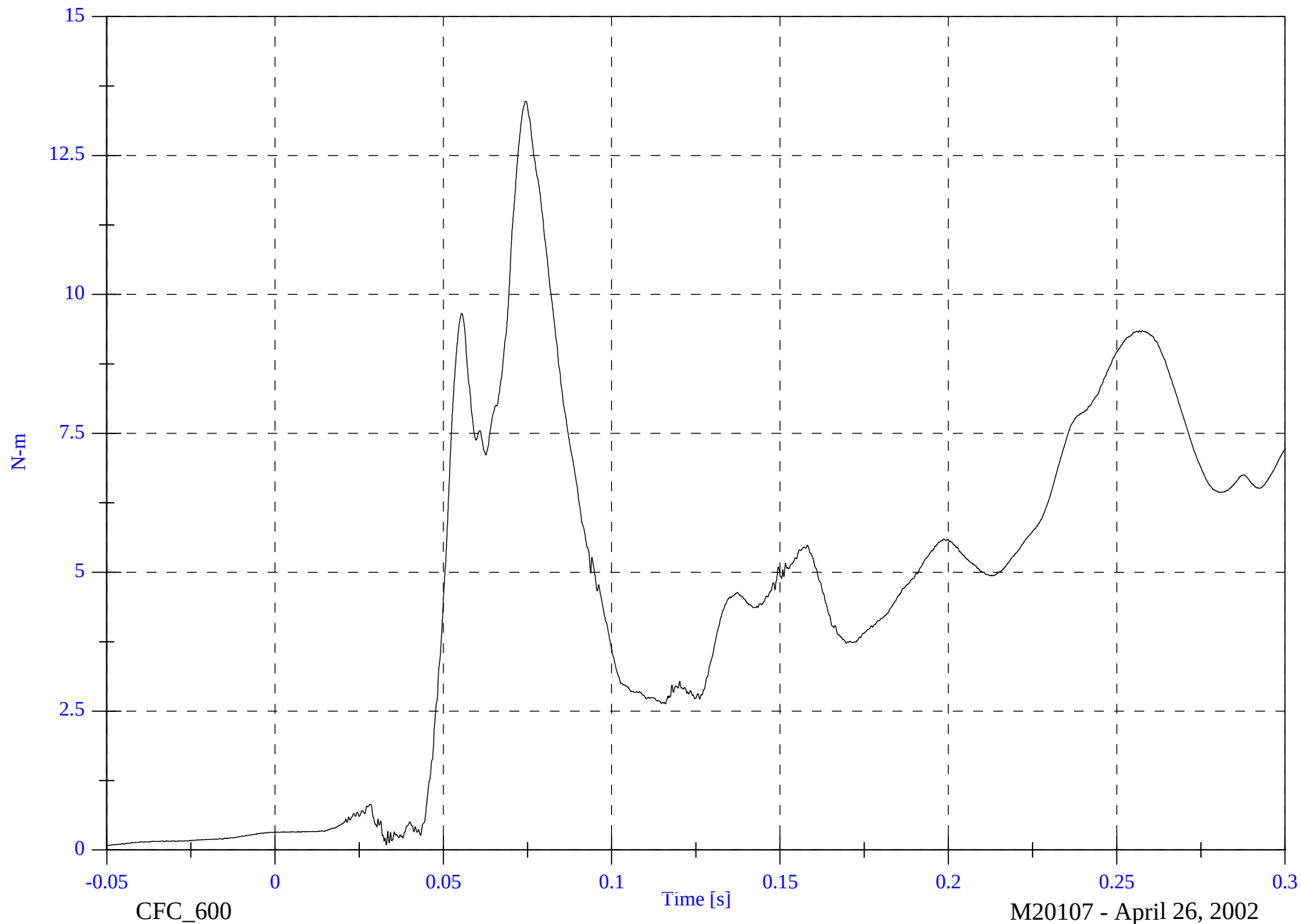
P3 Lower Neck M Resultant

Max: 13.5 [N-m] at 0.074 [s]

Min: 0.1 [N-m] at -0.050 [s]

4-24

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

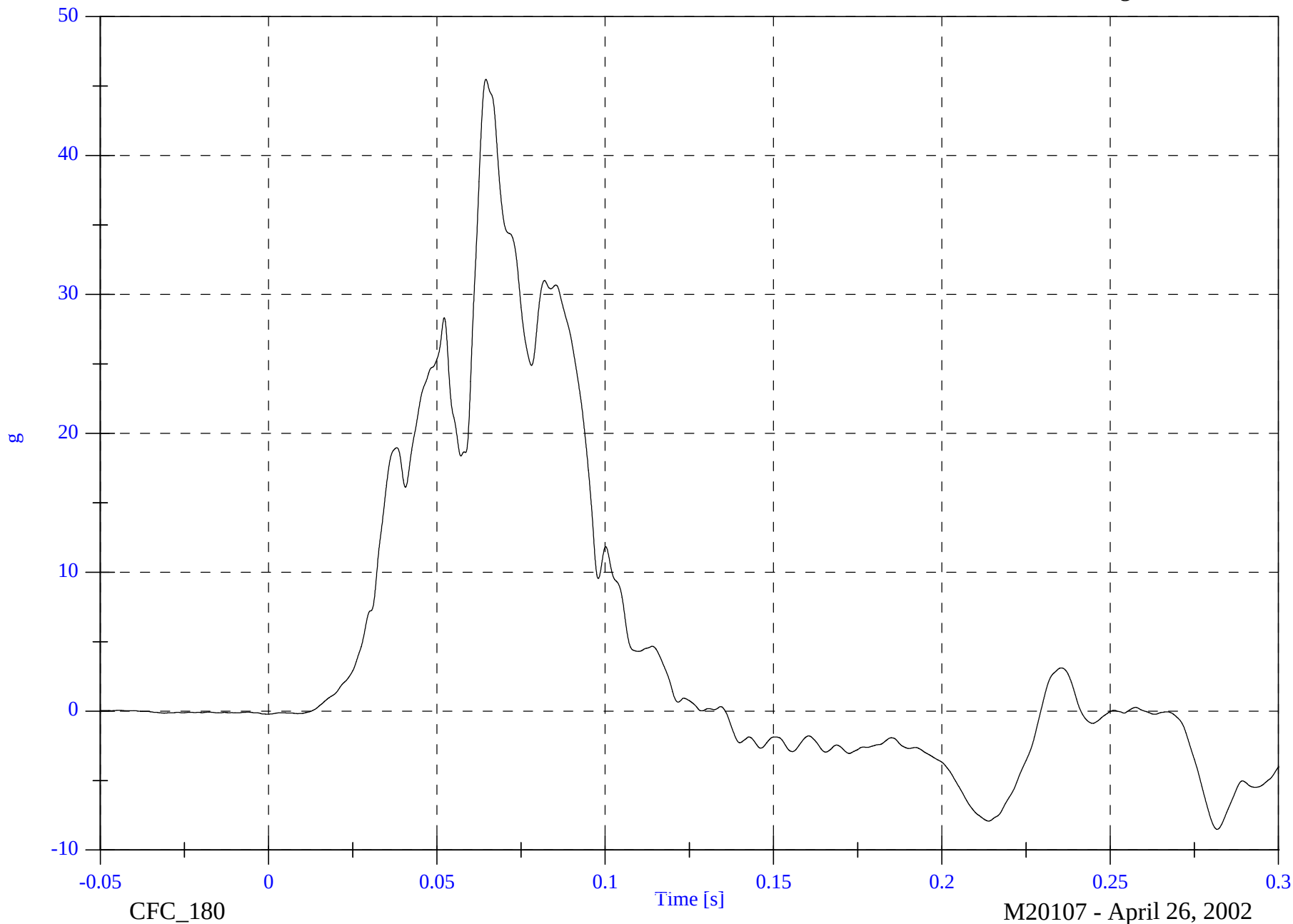
P3 Chest x

Max: 45.5 [g] at 0.065 [s]

Min: -8.5 [g] at 0.282 [s]

4-25

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Chest y

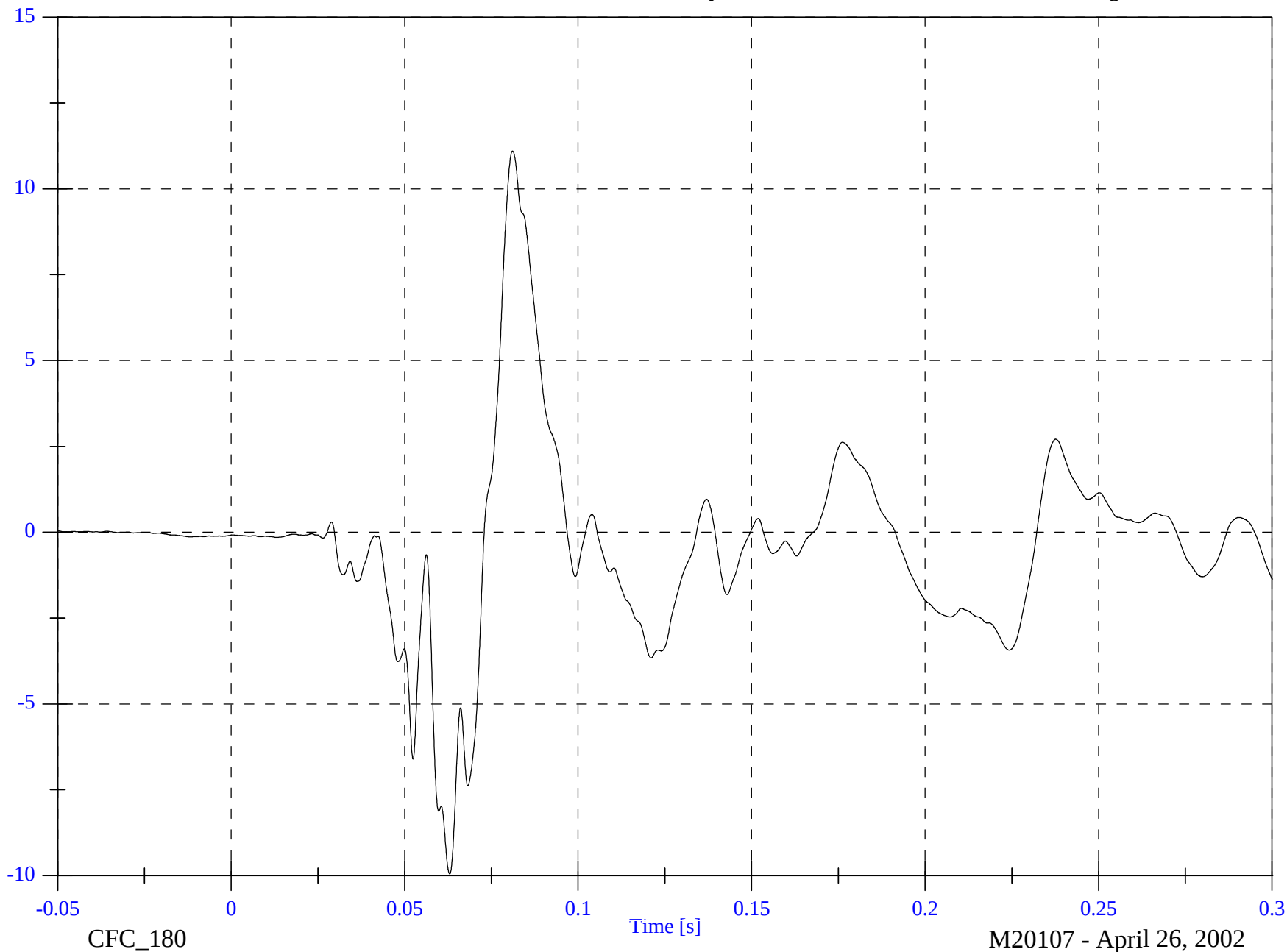
Max: 11.1 [g] at 0.081 [s]

Min: -9.9 [g] at 0.063 [s]

4-26

8462-NCAP-09

g



NCAP Test #9 - 2002 Chevrolet Trailblazer

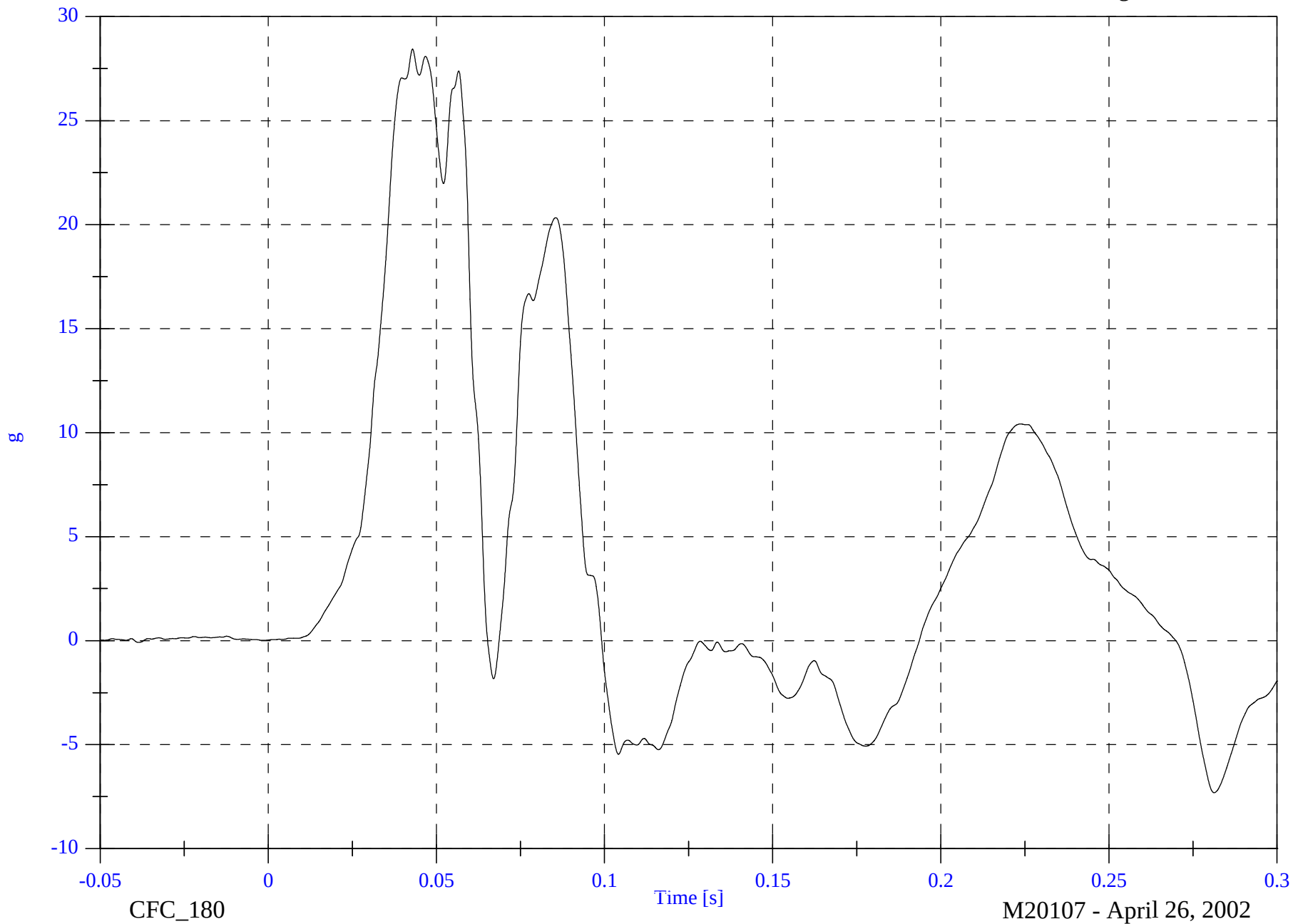
P3 Chest z

Max: 28.4 [g] at 0.043 [s]

Min: -7.3 [g] at 0.281 [s]

4-27

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

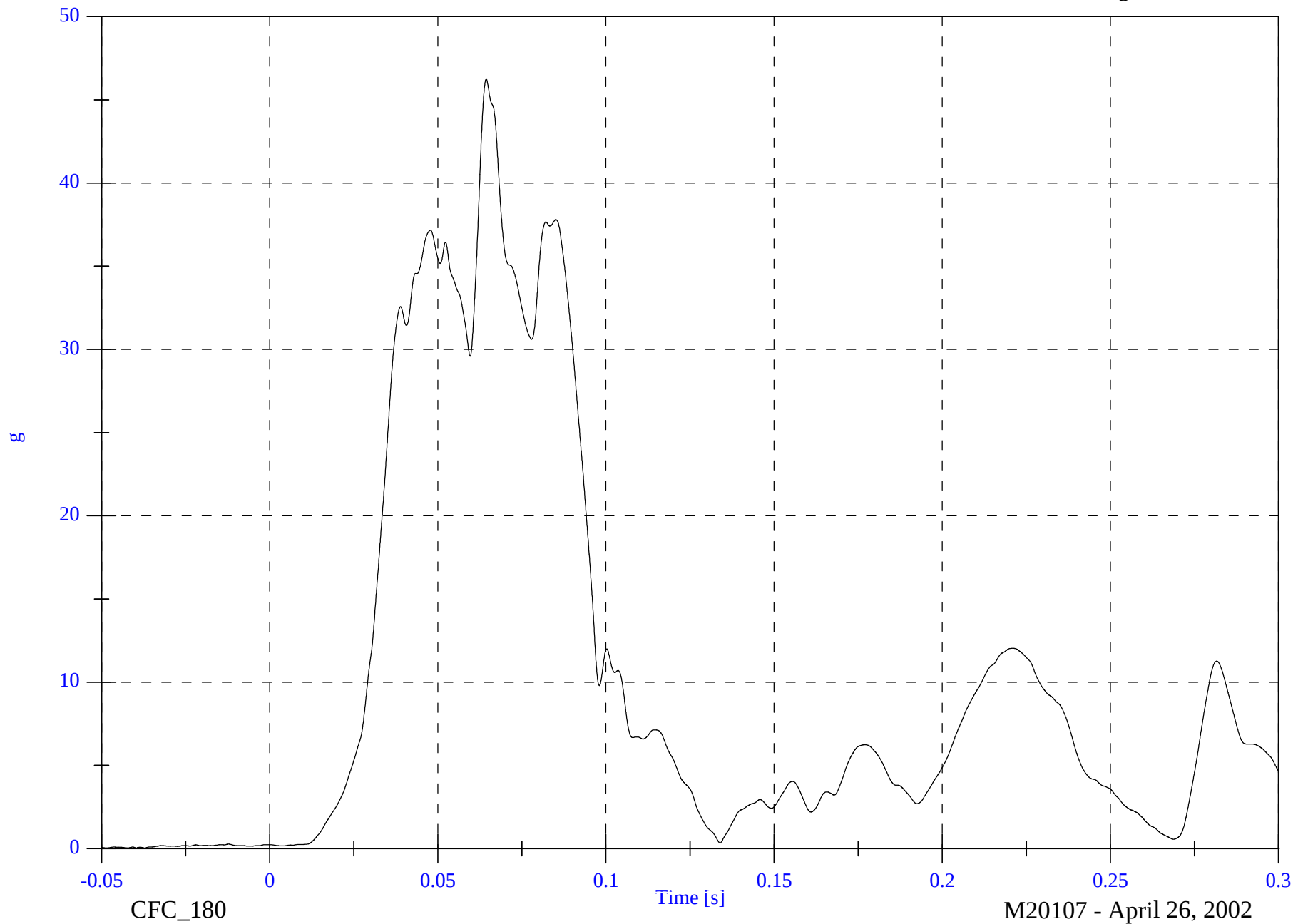
P3 Chest Resultant

Max: 46.2 [g] at 0.064 [s]

Min: 0.0 [g] at -0.040 [s]

4-28

8462-NCAP-09

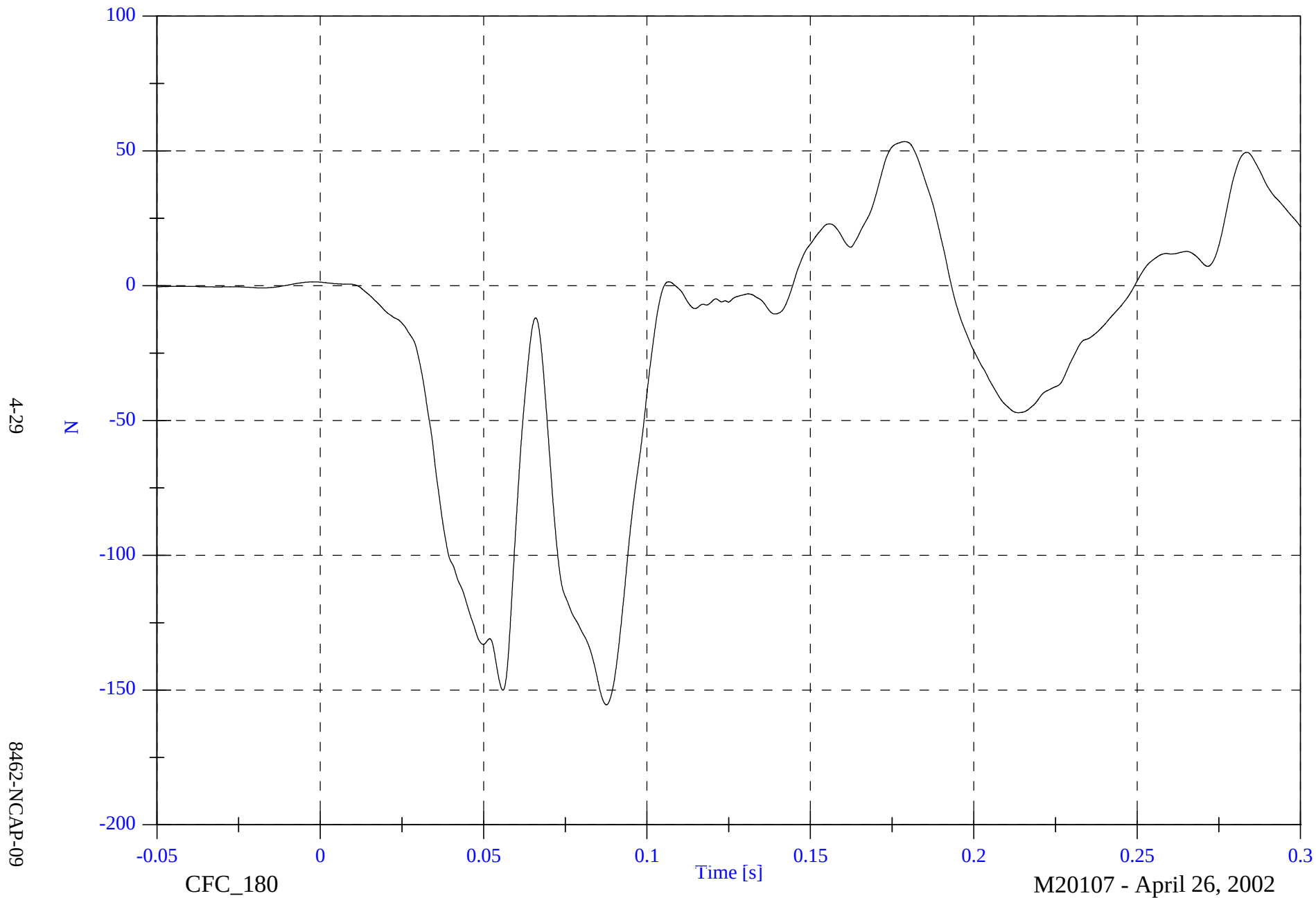


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Lumbar Fx

Max: 53.5 [N] at 0.179 [s]

Min: -155.5 [N] at 0.088 [s]

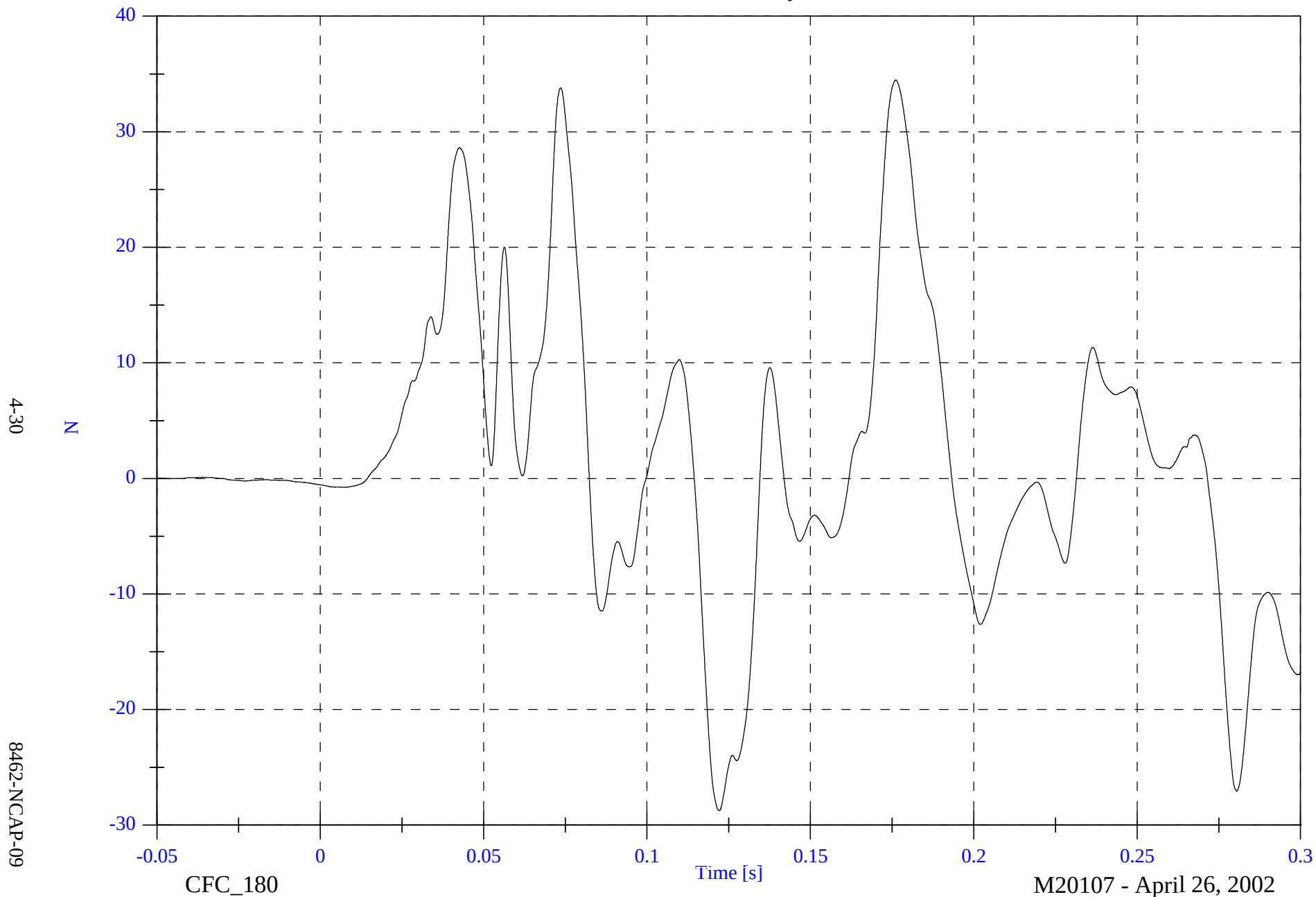


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Lumbar Fy

Max: 34.5 [N] at 0.176 [s]

Min: -28.8 [N] at 0.122 [s]

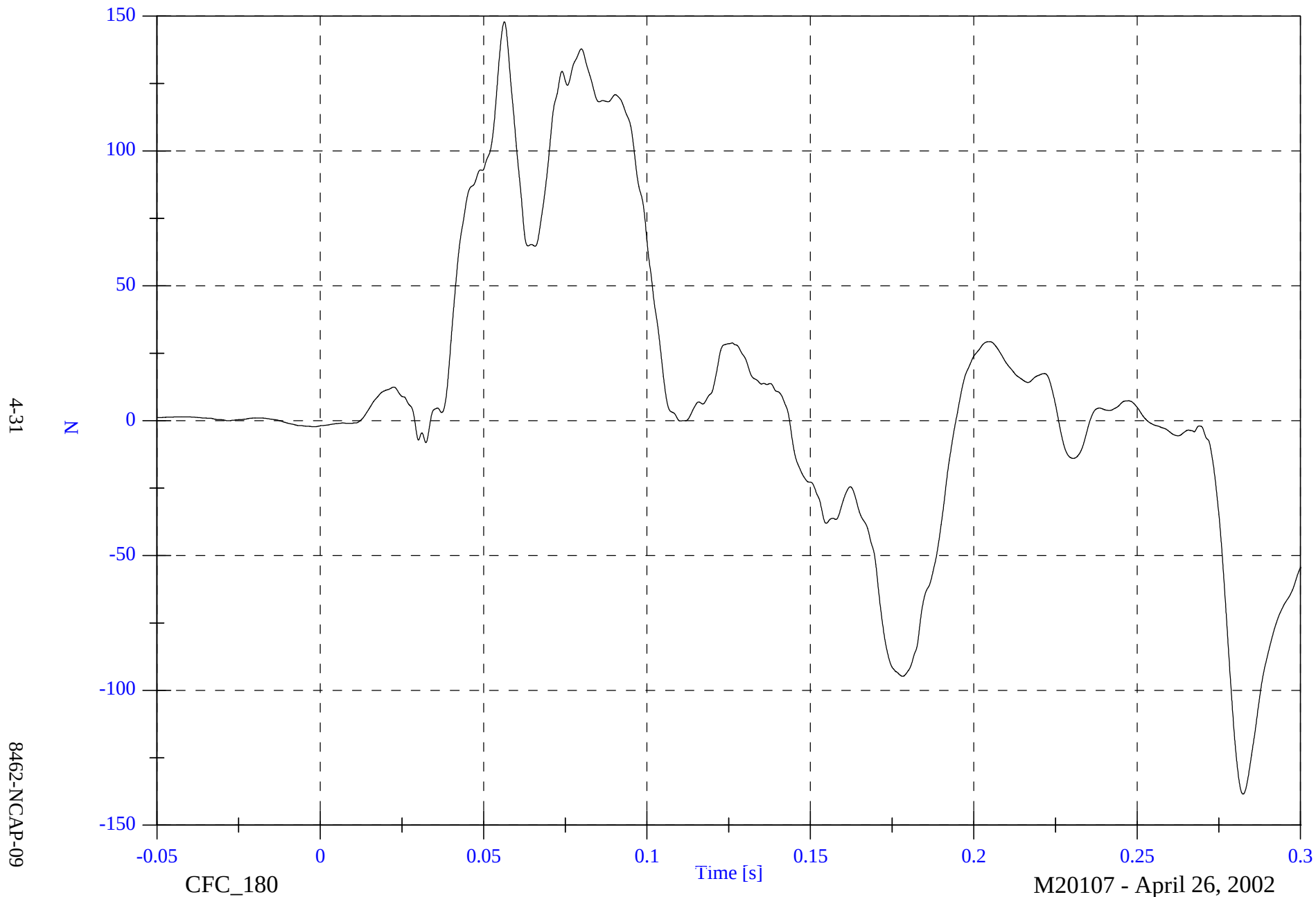


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Lumbar Fz

Max: 148.0 [N] at 0.056 [s]

Min: -138.5 [N] at 0.282 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

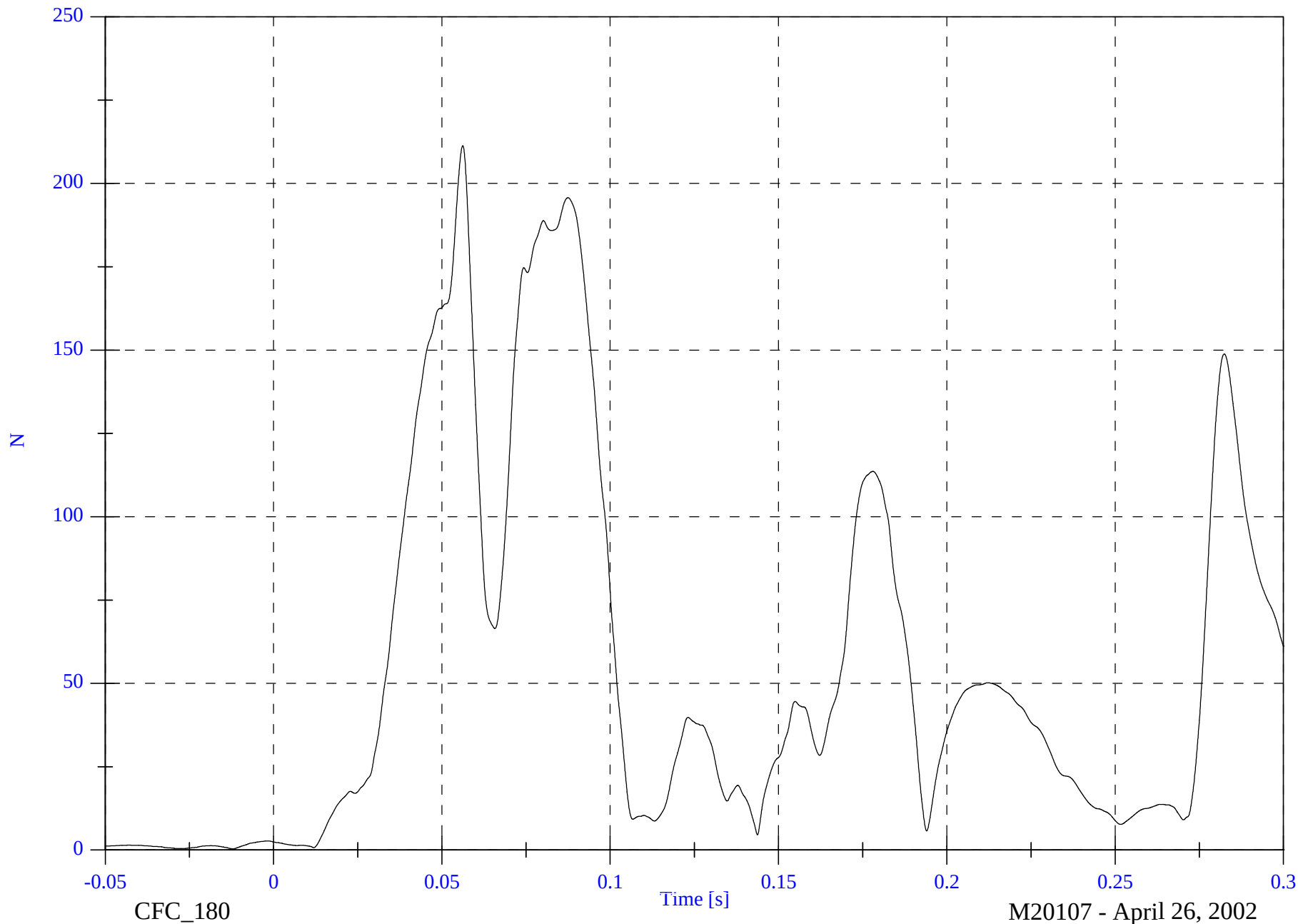
P3 Lumbar F Resultant

Max: 211.3 [N] at 0.056 [s]

Min: 0.3 [N] at -0.012 [s]

4-32

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

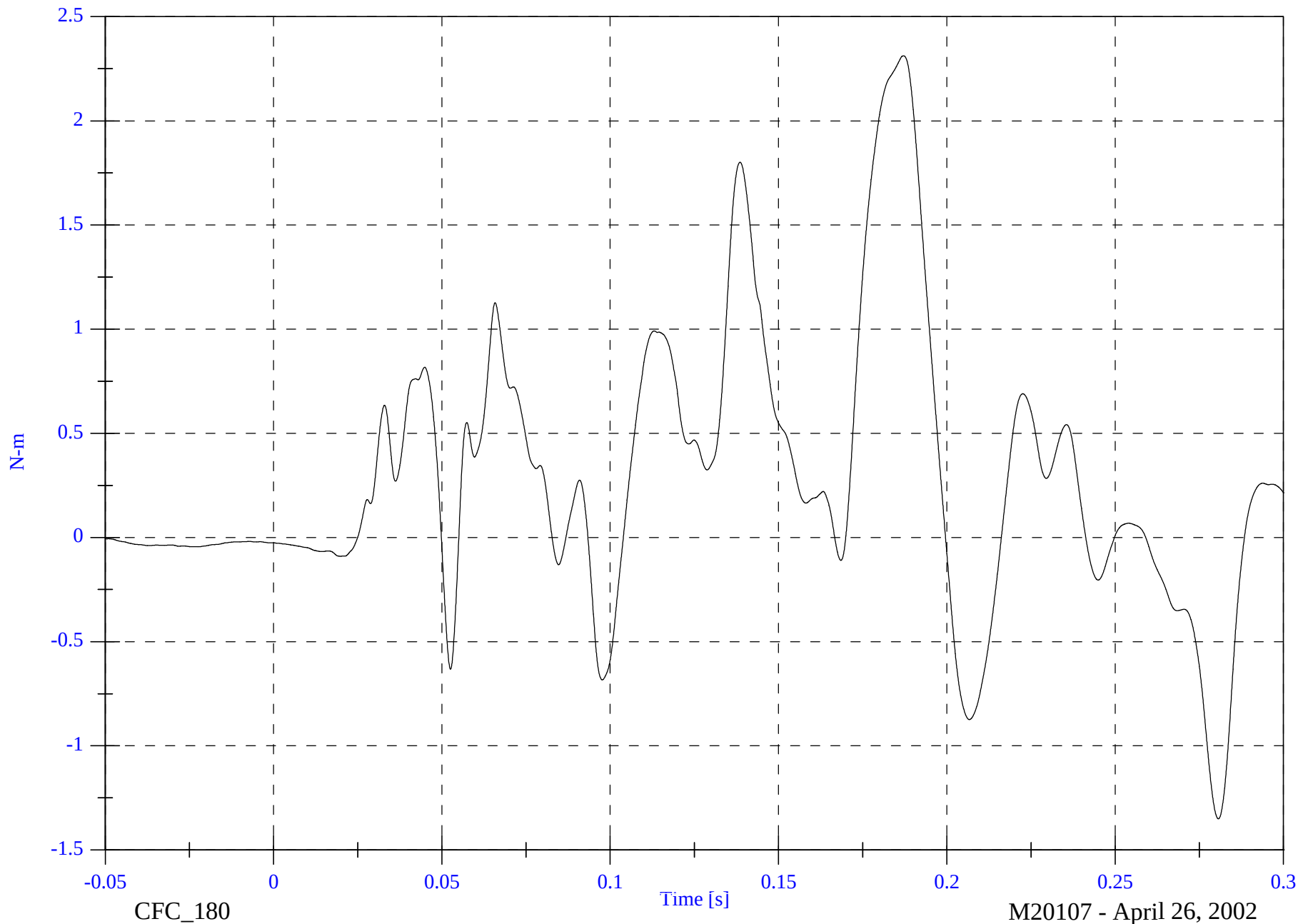
P3 Lumbar Mx

Max: 2.3 [N-m] at 0.187 [s]

Min: -1.4 [N-m] at 0.281 [s]

4-33

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

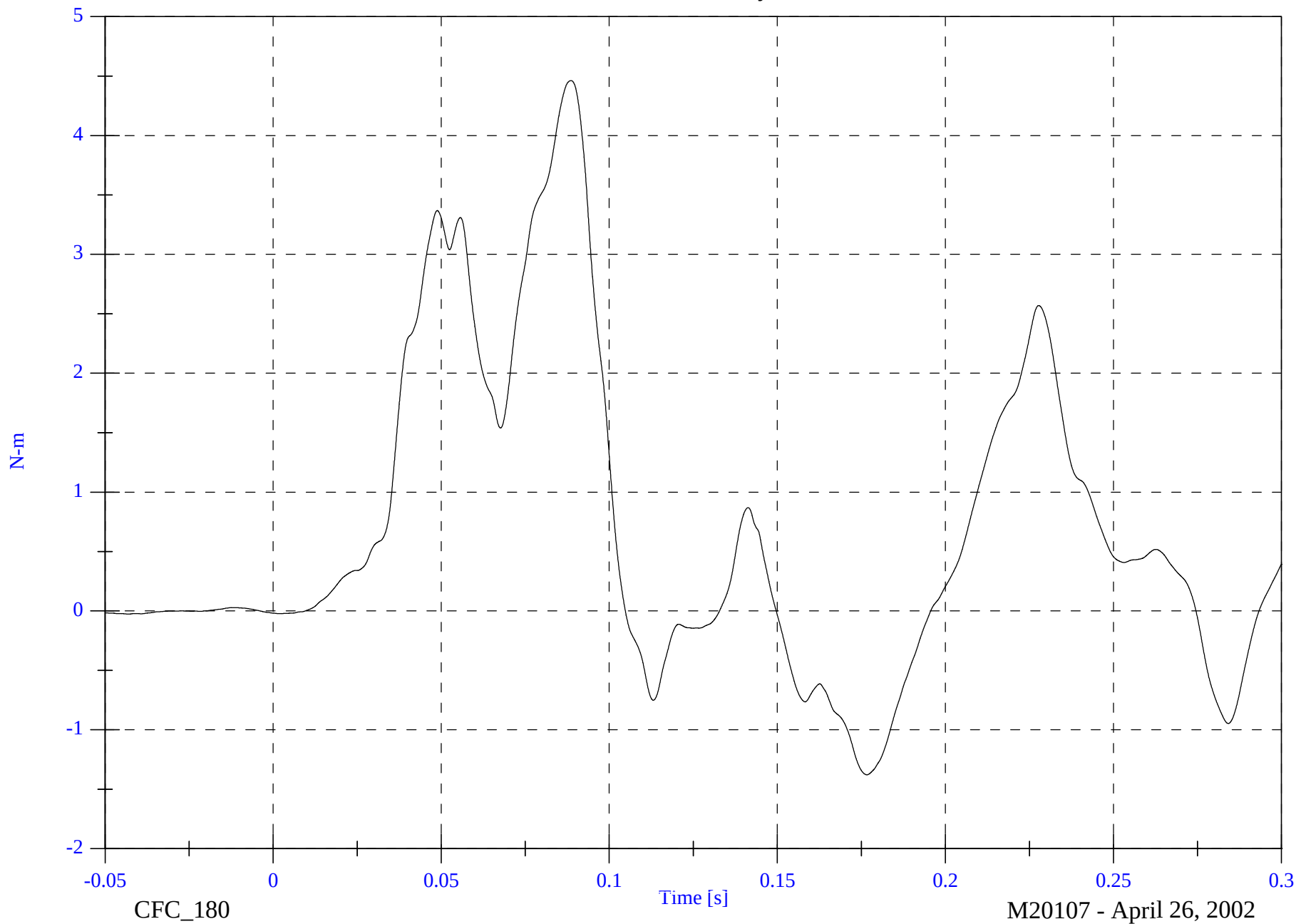
P3 Lumbar My

Max: 4.5 [N-m] at 0.089 [s]

Min: -1.4 [N-m] at 0.177 [s]

4-34

8462-NCAP-09

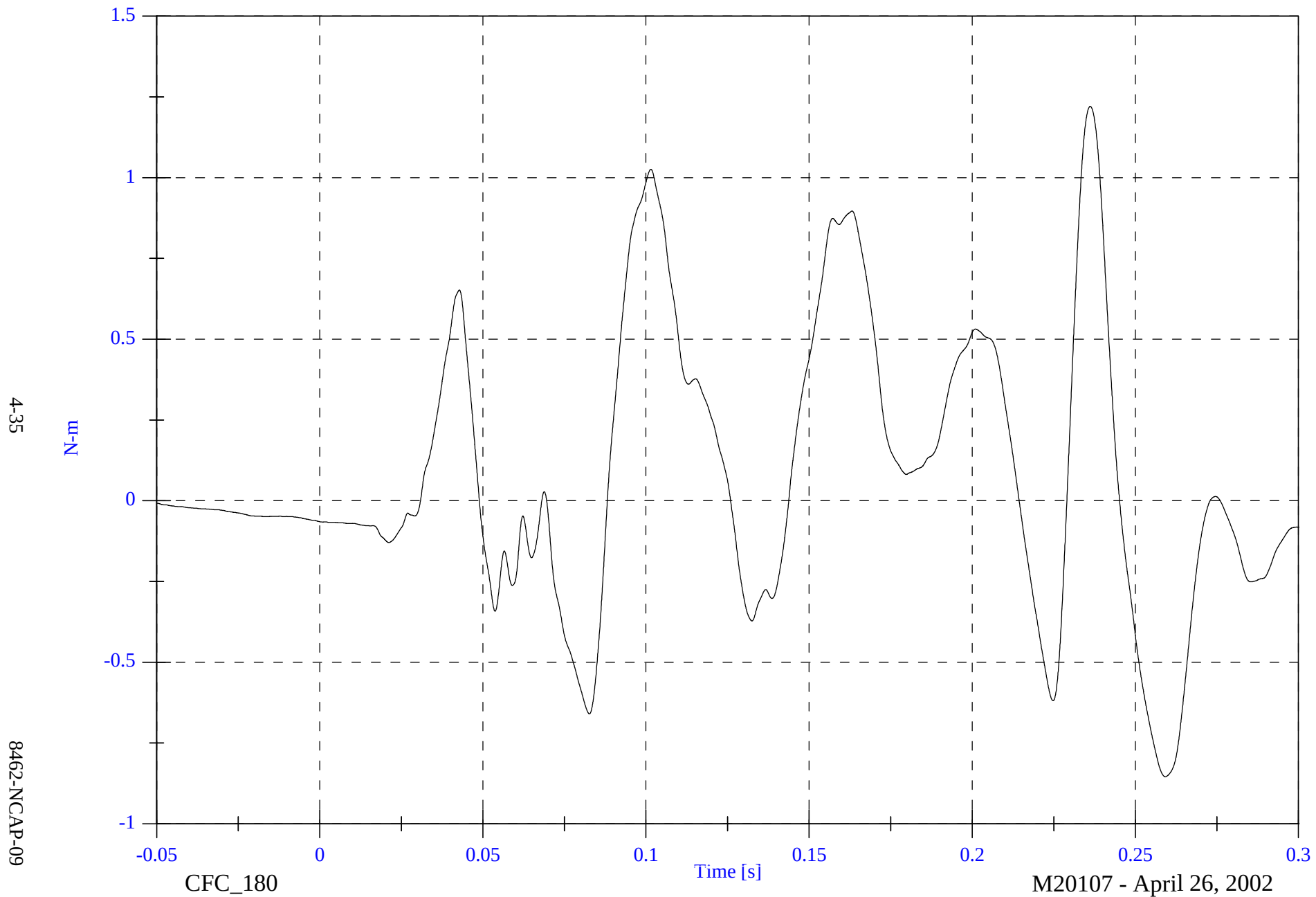


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Lumbar Mz

Max: 1.2 [N-m] at 0.236 [s]

Min: -0.9 [N-m] at 0.259 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

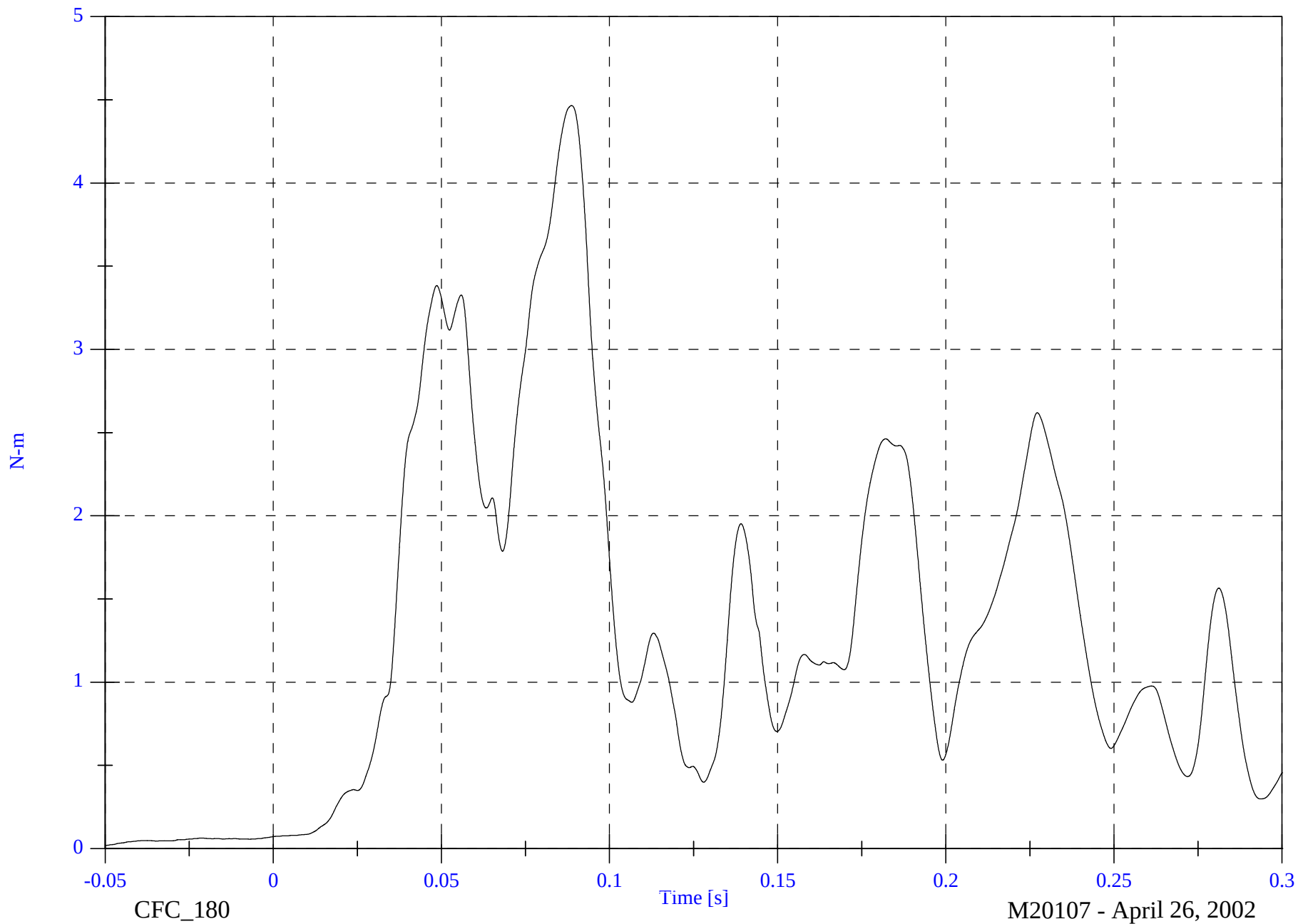
P3 Lumbar M Resultant

Max: 4.5 [N-m] at 0.089 [s]

Min: 0.0 [N-m] at -0.050 [s]

4-36

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

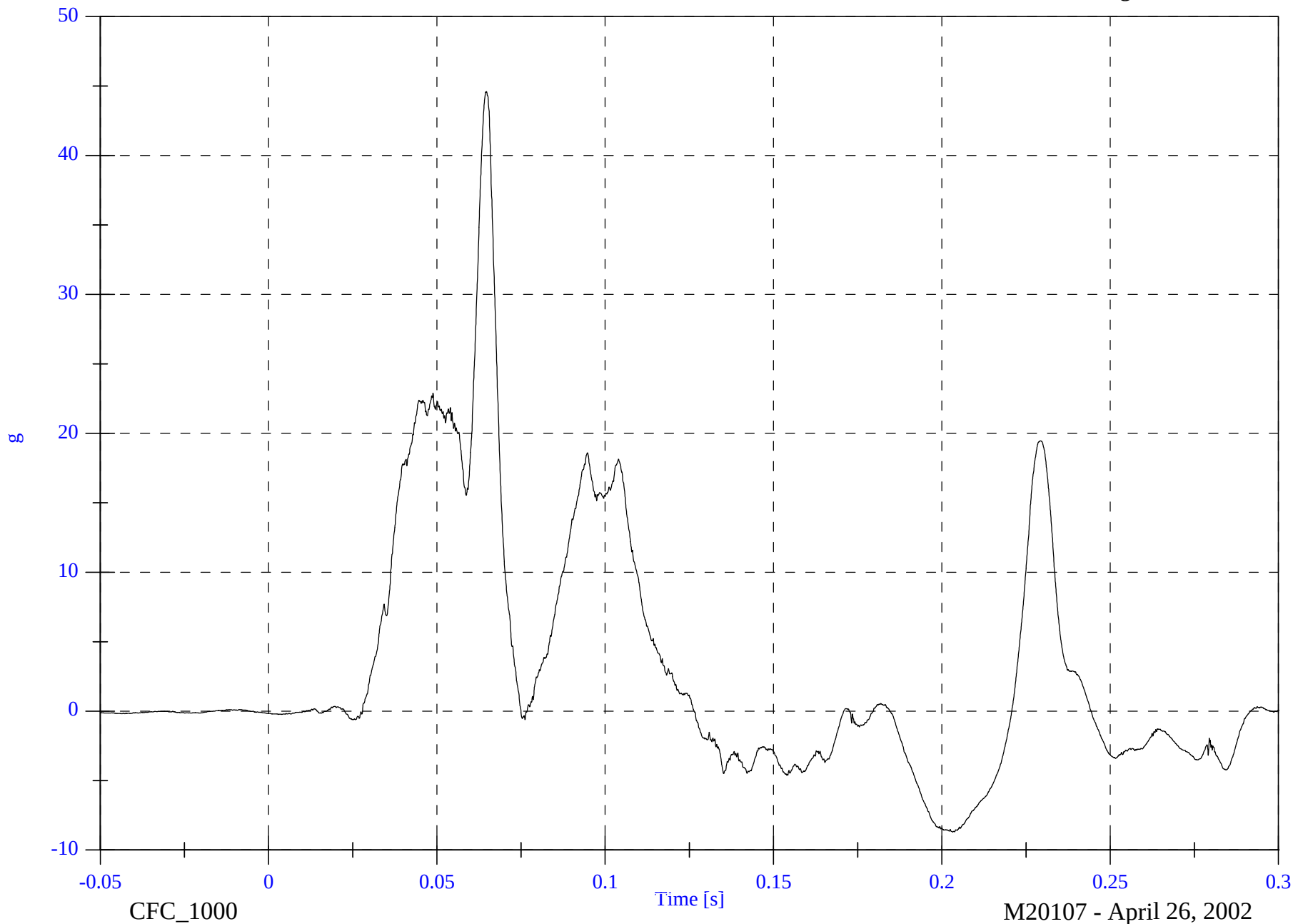
P3 Pelvic x

Max: 44.6 [g] at 0.065 [s]

Min: -8.7 [g] at 0.203 [s]

4-37

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

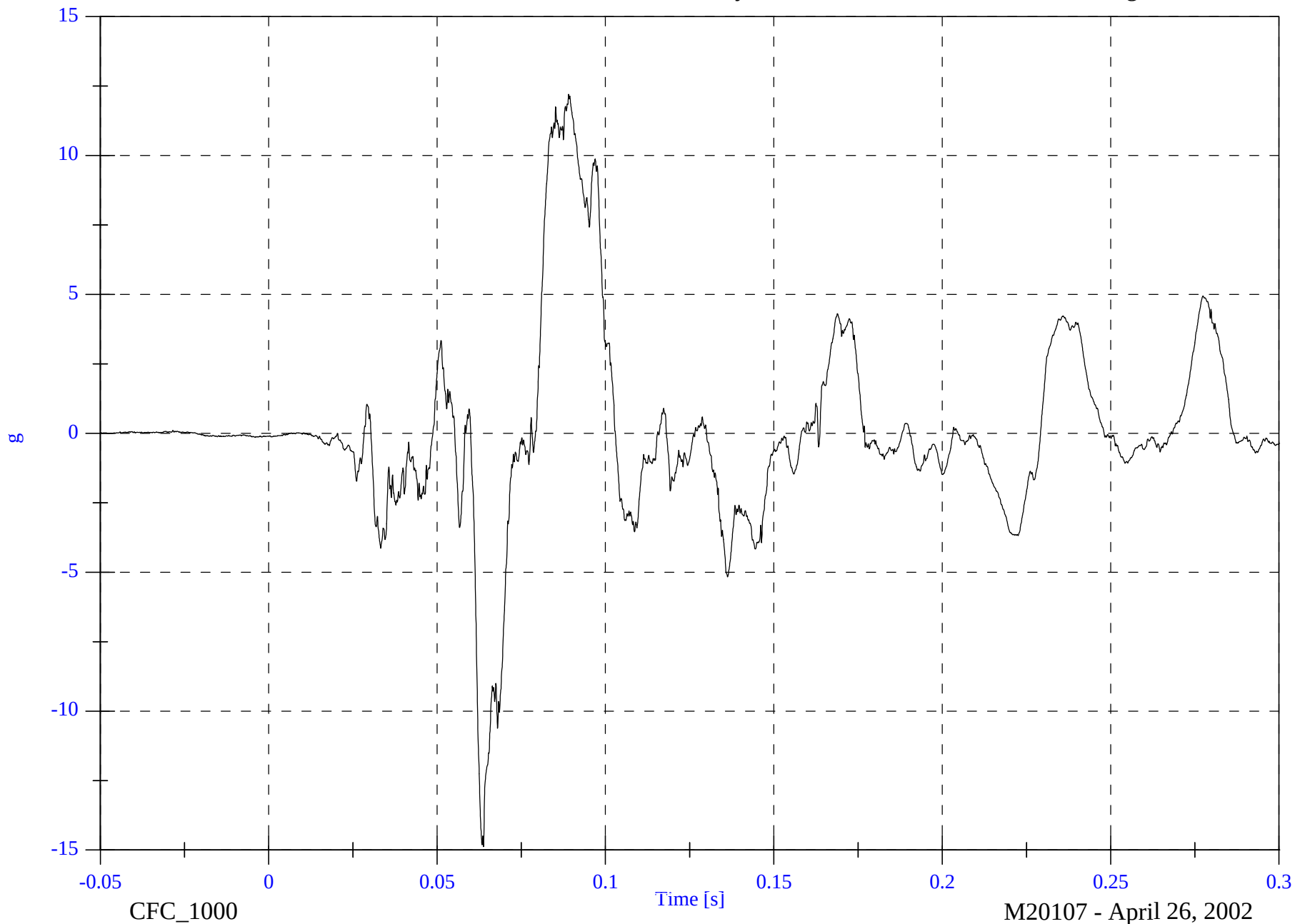
P3 Pelvic y

Max: 12.2 [g] at 0.089 [s]

Min: -14.9 [g] at 0.064 [s]

4-38

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

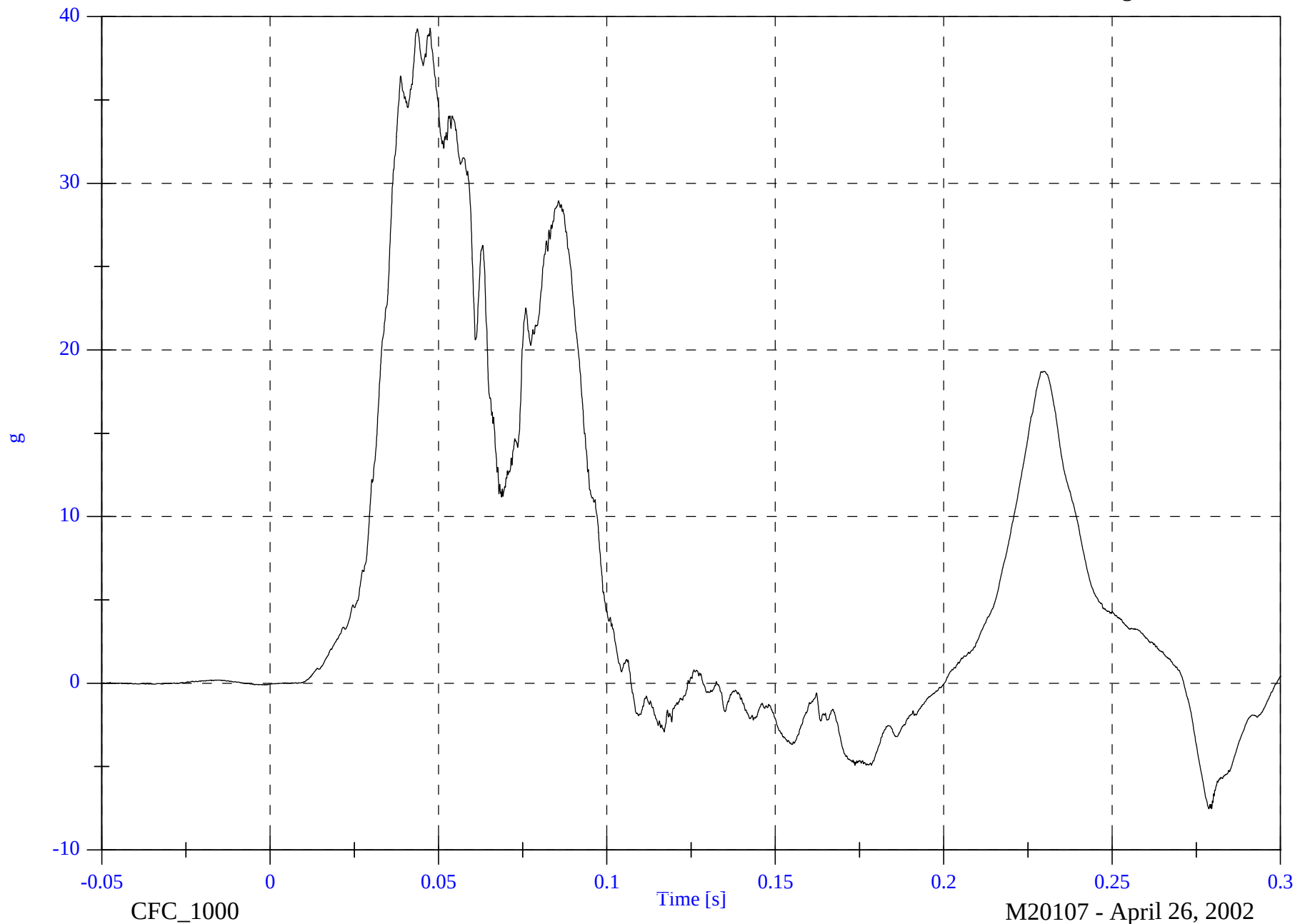
P3 Pelvic z

Max: 39.3 [g] at 0.048 [s]

Min: -7.5 [g] at 0.279 [s]

4-39

8462-NCAP-09

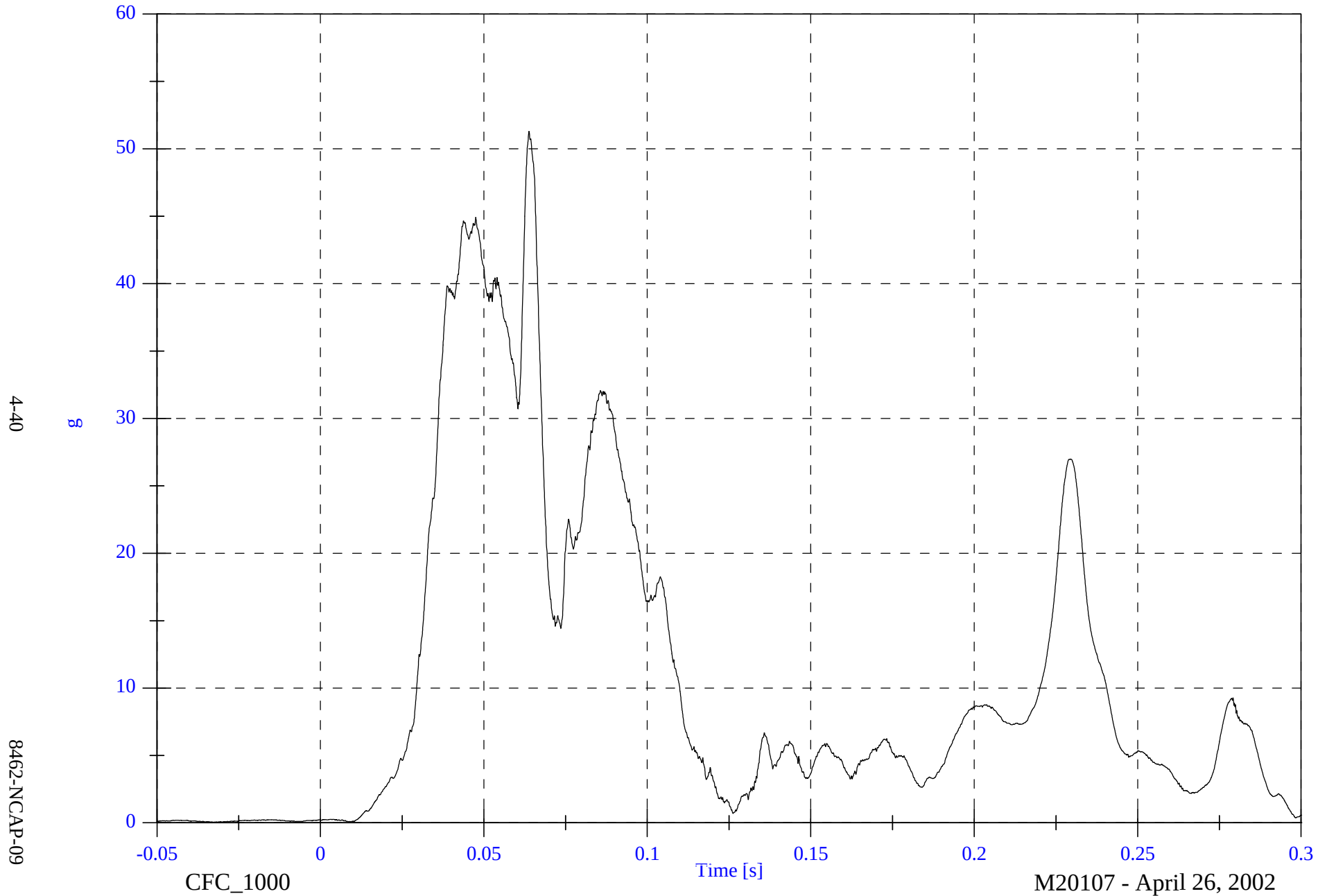


NCAP Test #9 - 2002 Chevrolet Trailblazer

P3 Pelvic Resultant

Max: 51.3 [g] at 0.064 [s]

Min: 0.0 [g] at -0.033 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

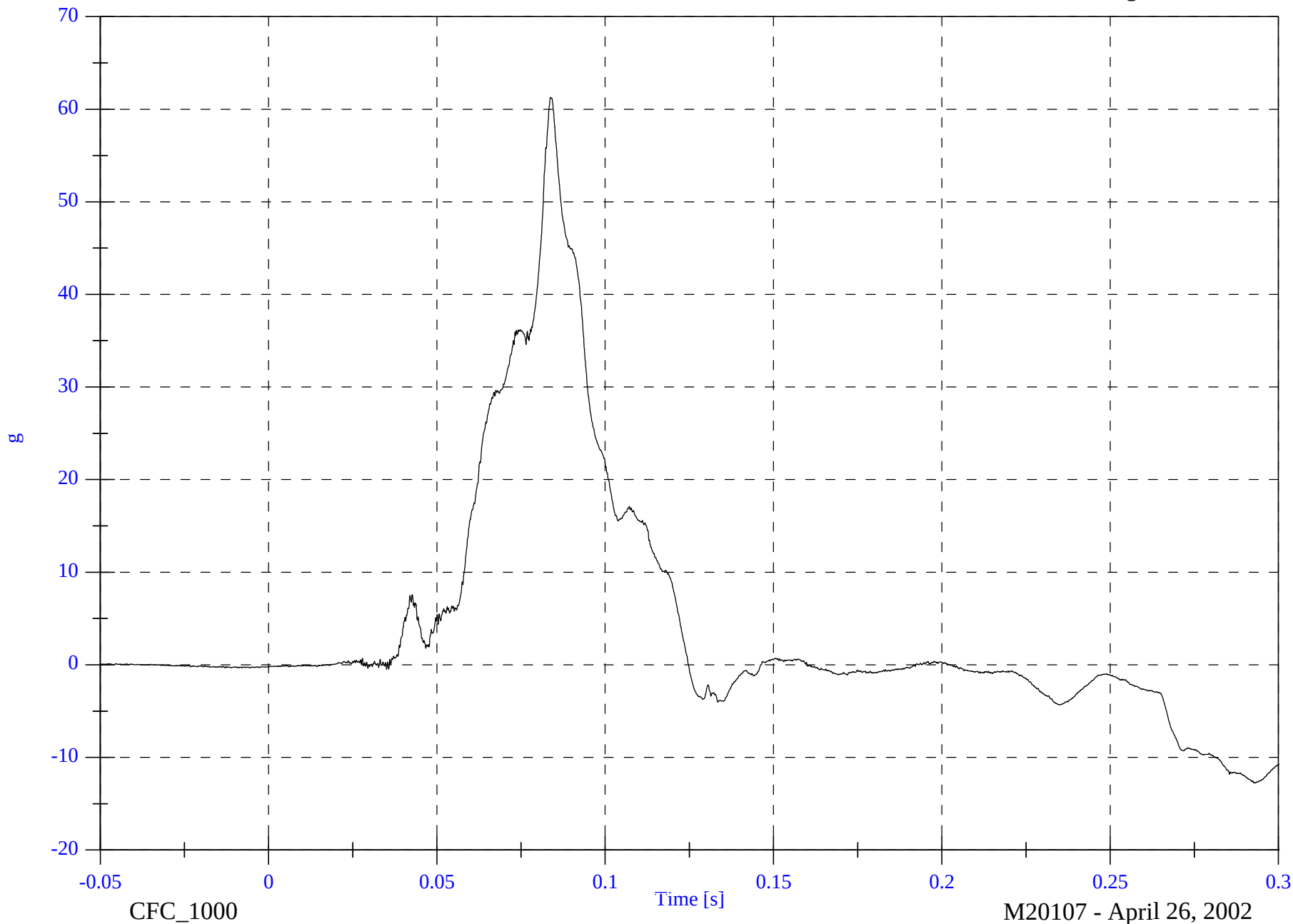
P4 Head x

Max: 61.3 [g] at 0.084 [s]

Min: -12.8 [g] at 0.293 [s]

4-41

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

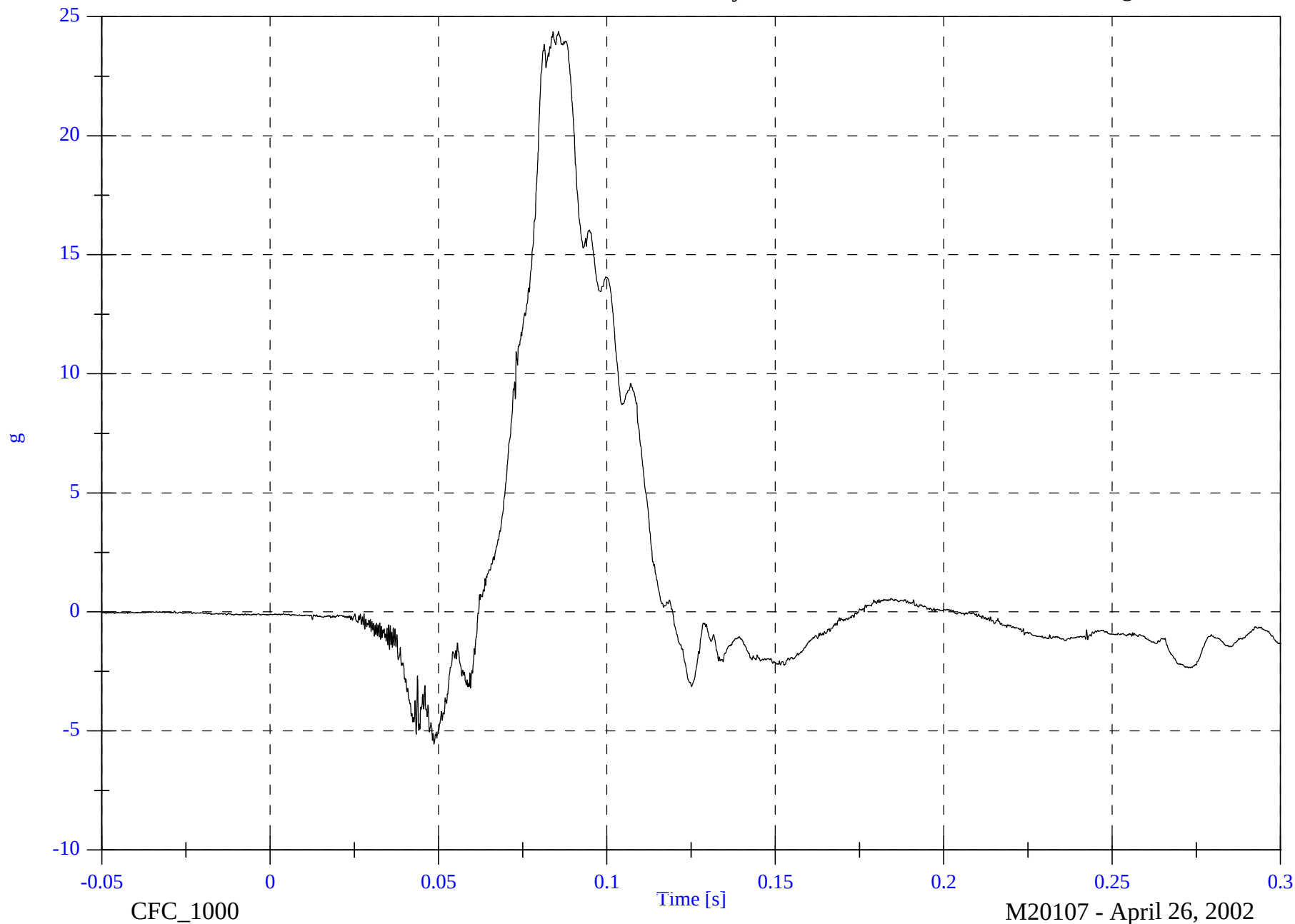
P4 Head y

Max: 24.4 [g] at 0.086 [s]

Min: -5.6 [g] at 0.049 [s]

4-42

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

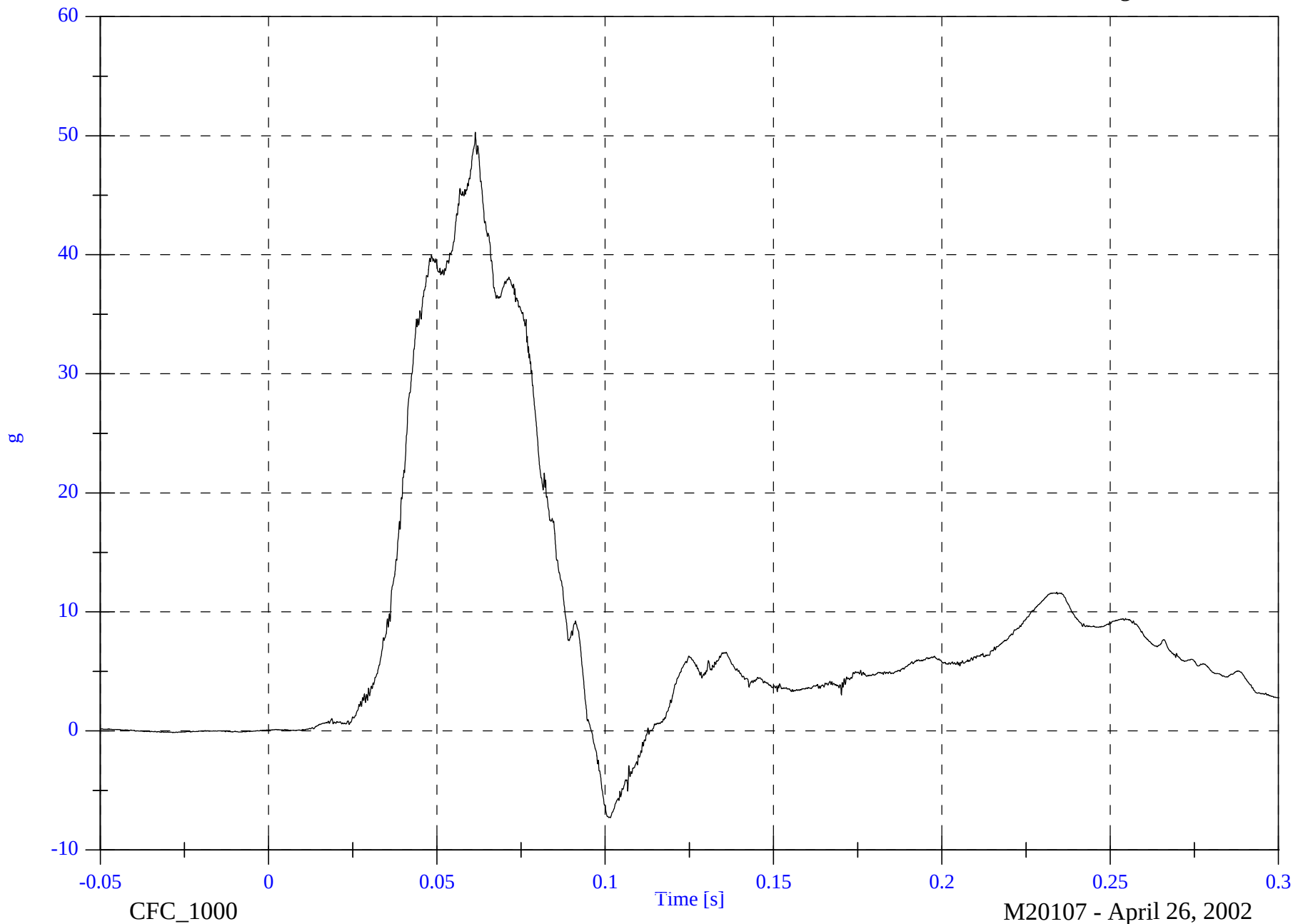
P4 Head z

Max: 50.3 [g] at 0.061 [s]

Min: -7.3 [g] at 0.102 [s]

4-43

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

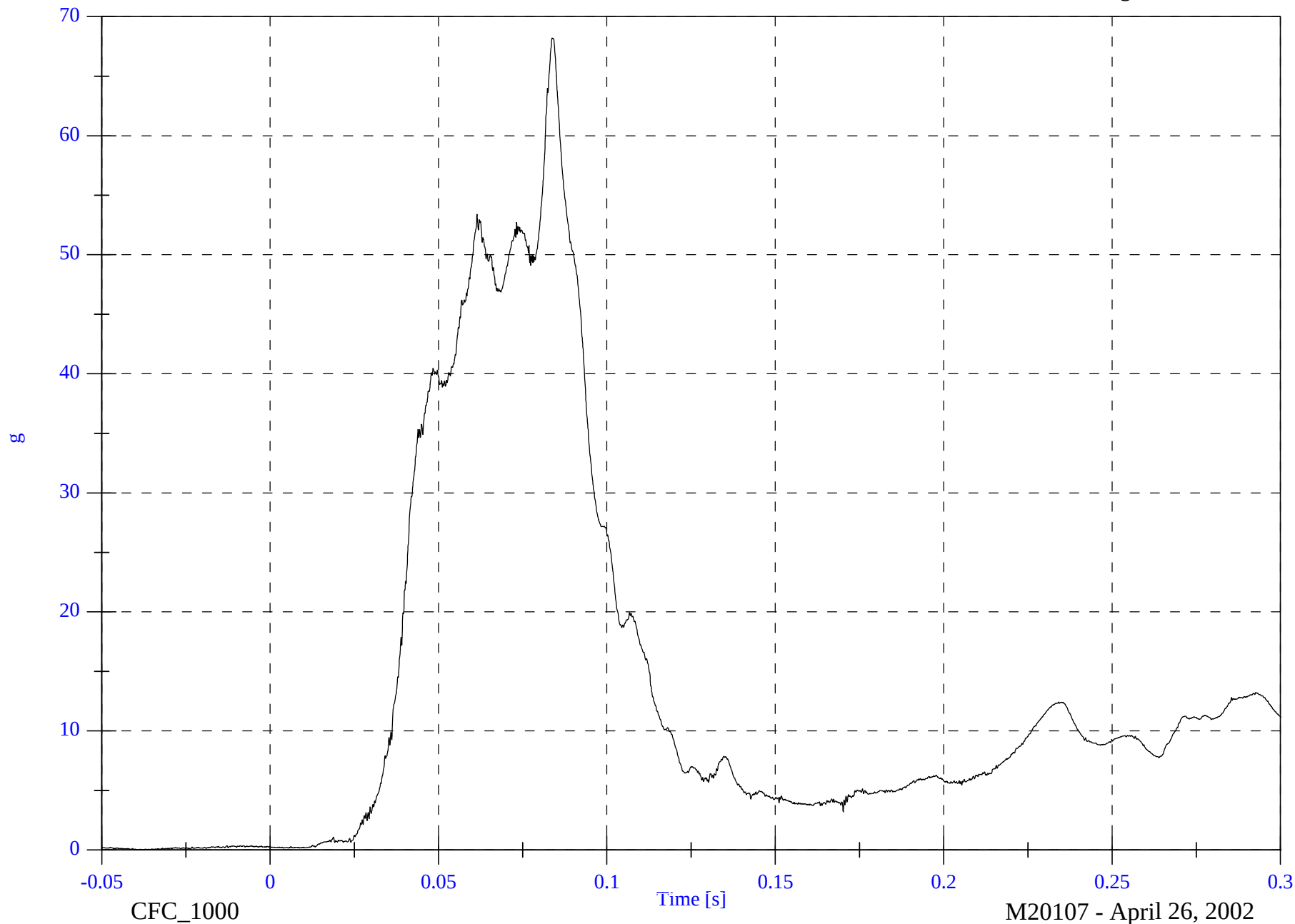
P4 Head Resultant

Max: 68.2 [g] at 0.084 [s]

Min: 0.0 [g] at -0.039 [s]

4-44

8462-NCAP-09

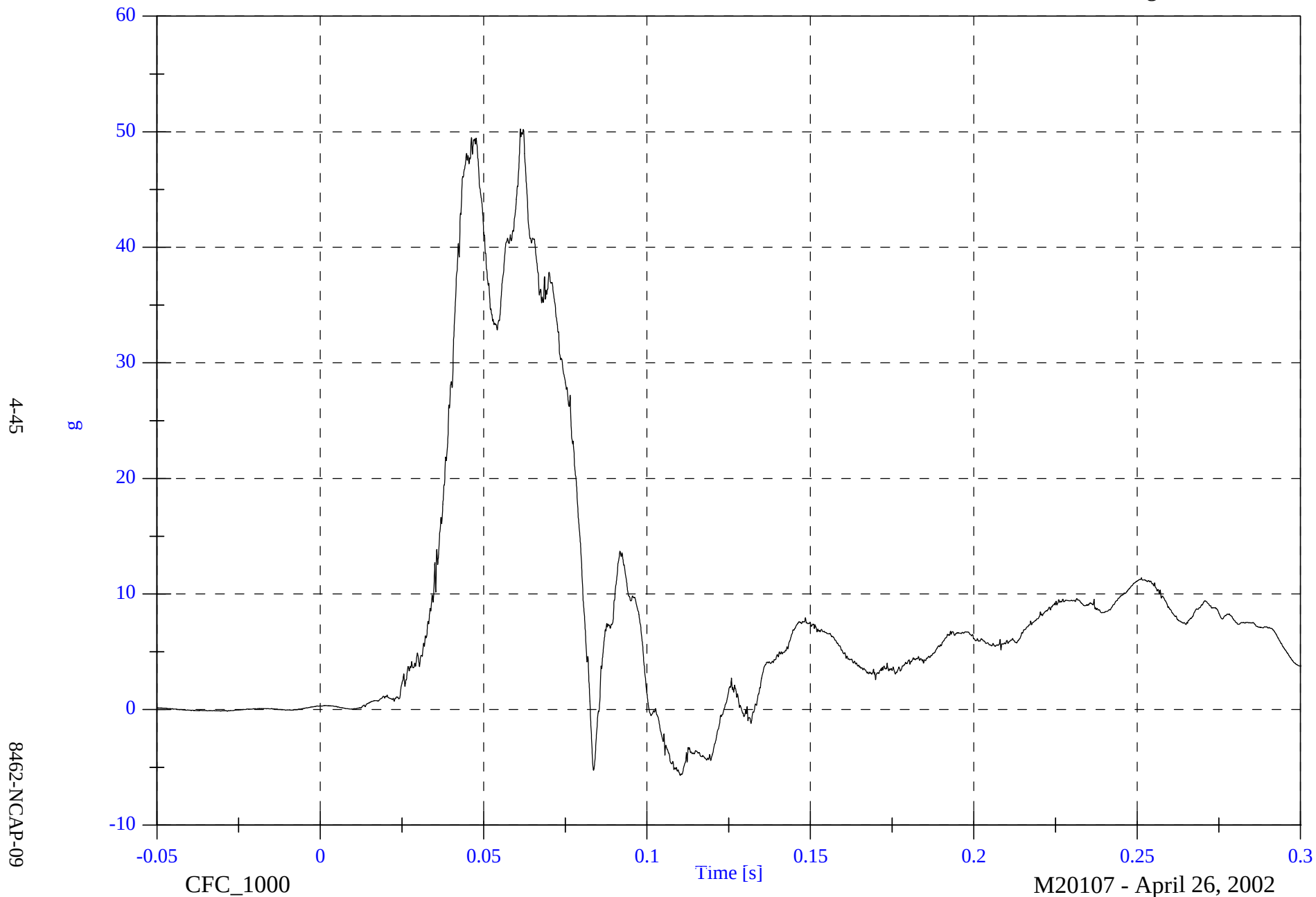


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Head Red z

Max: 50.2 [g] at 0.061 [s]

Min: -5.7 [g] at 0.110 [s]

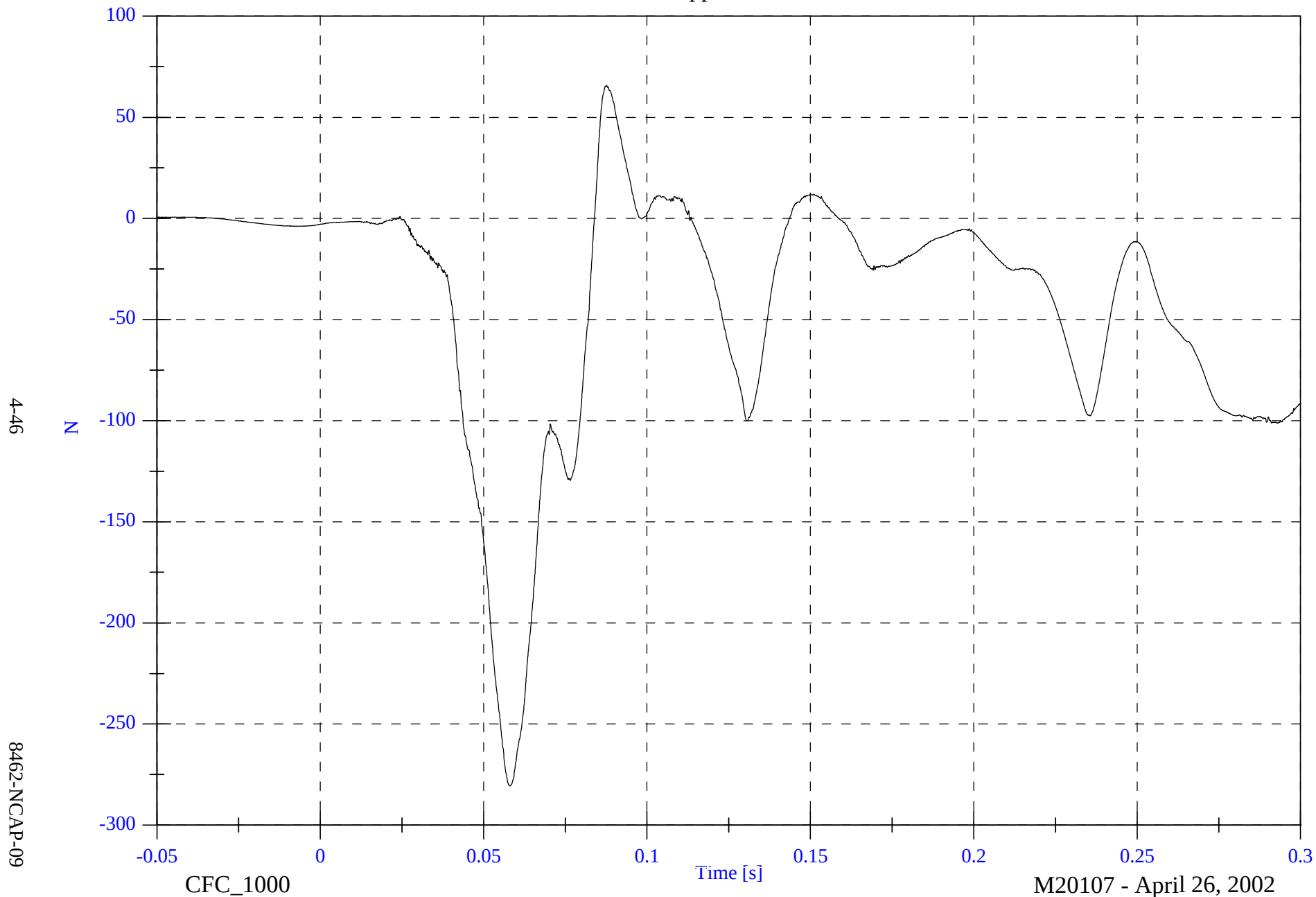


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Upper Neck Fx

Max: 65.7 [N] at 0.088 [s]

Min: -280.6 [N] at 0.058 [s]

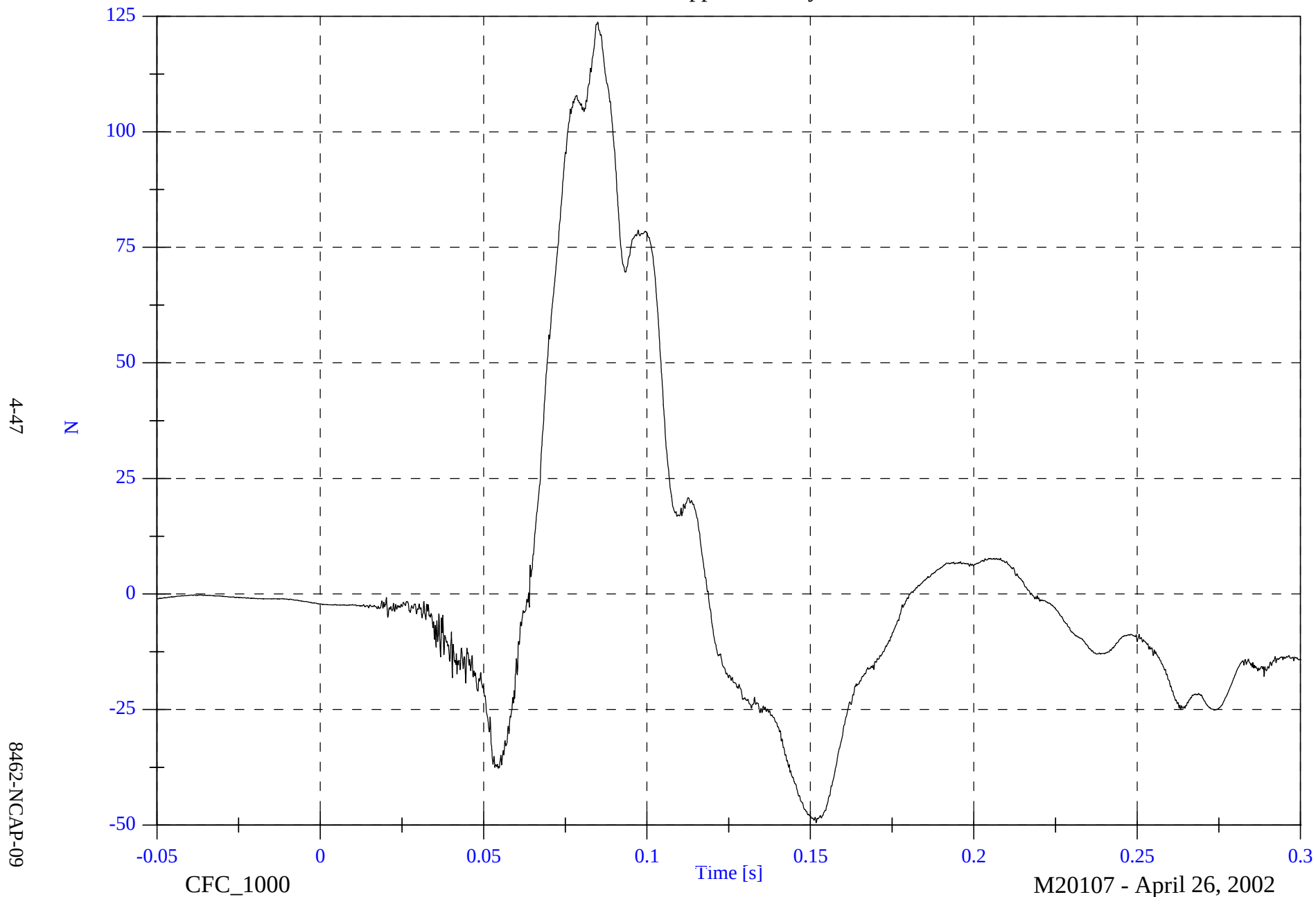


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Upper Neck Fy

Max: 123.7 [N] at 0.085 [s]

Min: -49.5 [N] at 0.152 [s]

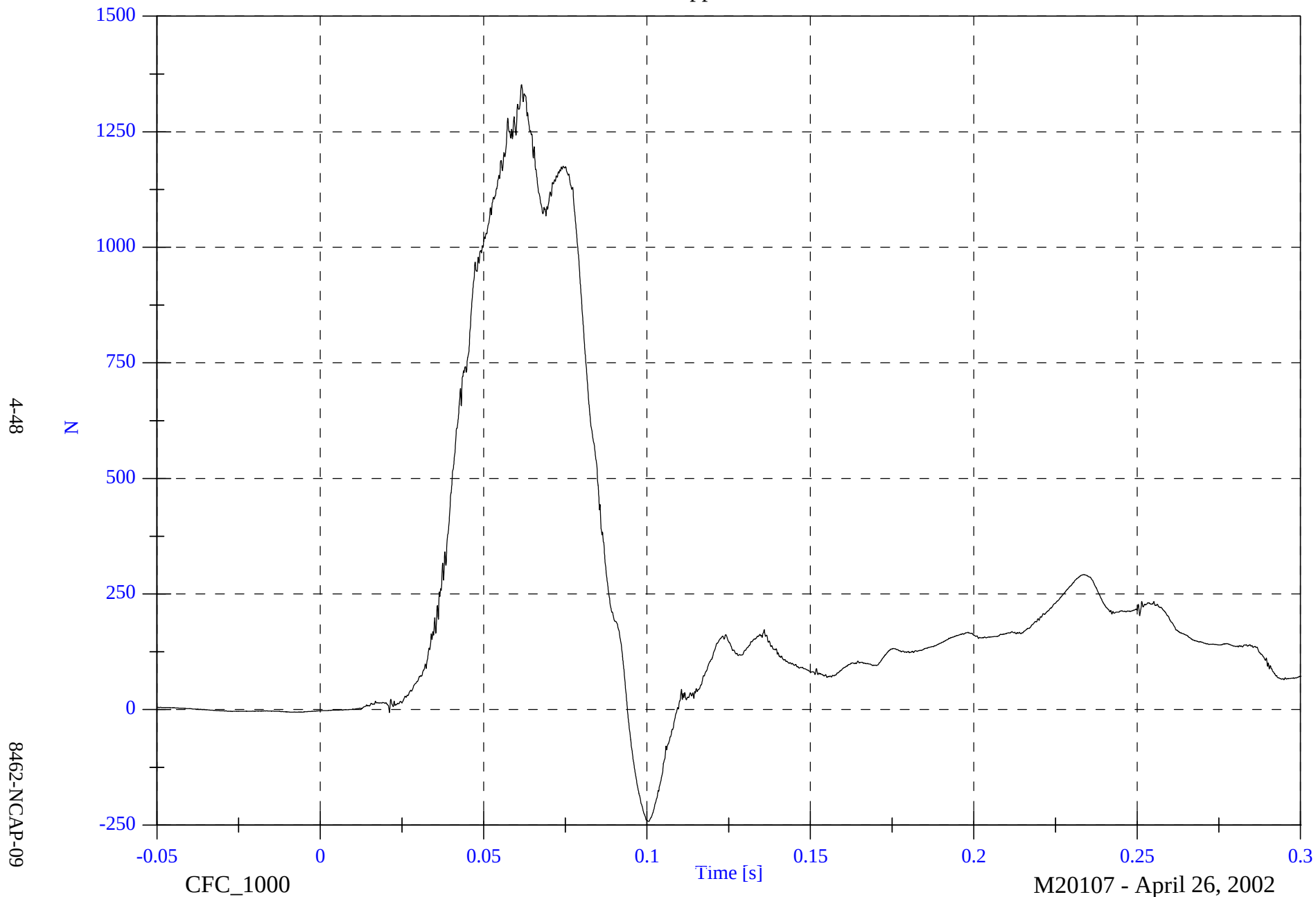


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Upper Neck Fz

Max: 1352.2 [N] at 0.062 [s]

Min: -242.1 [N] at 0.101 [s]

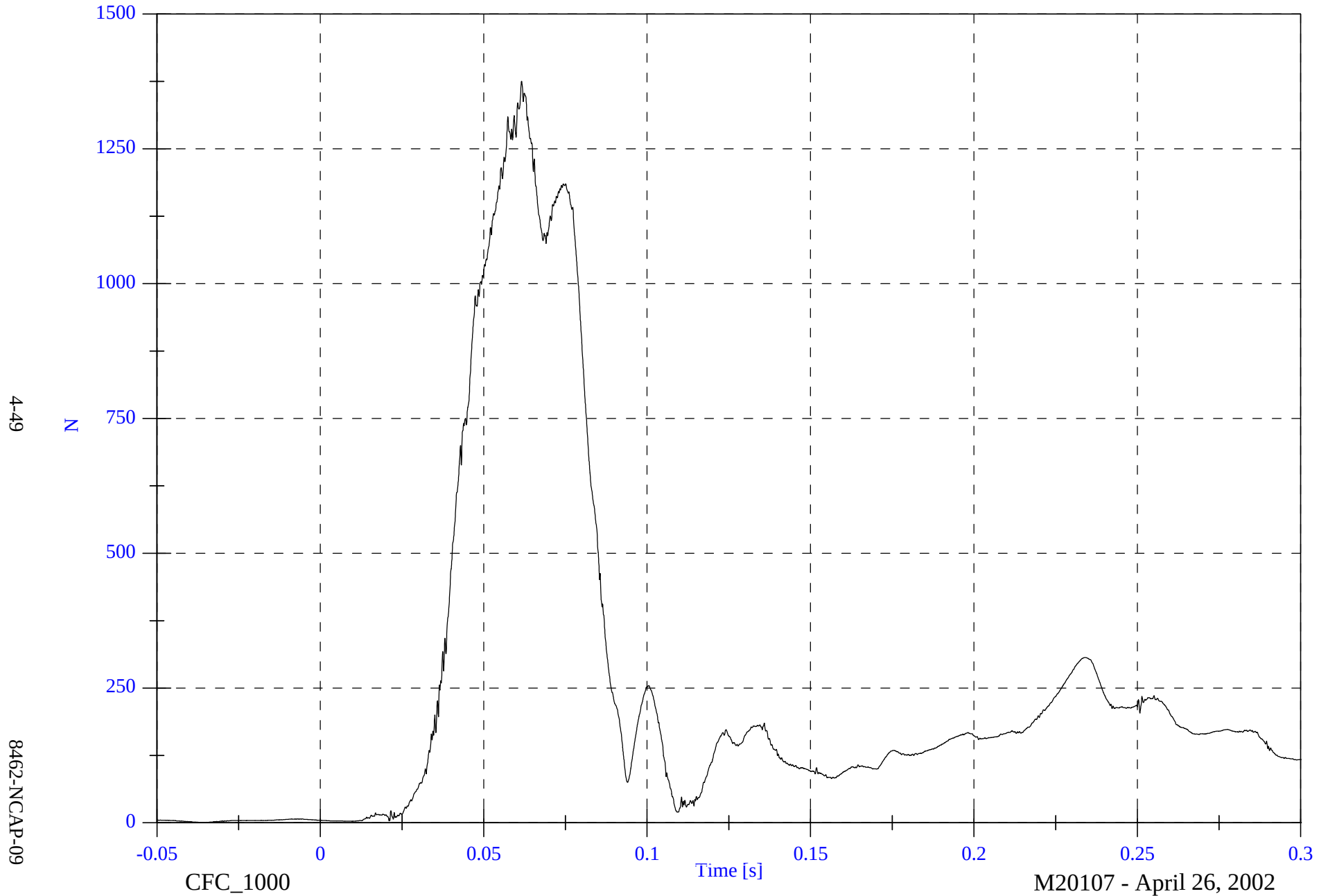


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Upper Neck F Resultant

Max: 1375.5 [N] at 0.062 [s]

Min: 0.5 [N] at -0.036 [s]

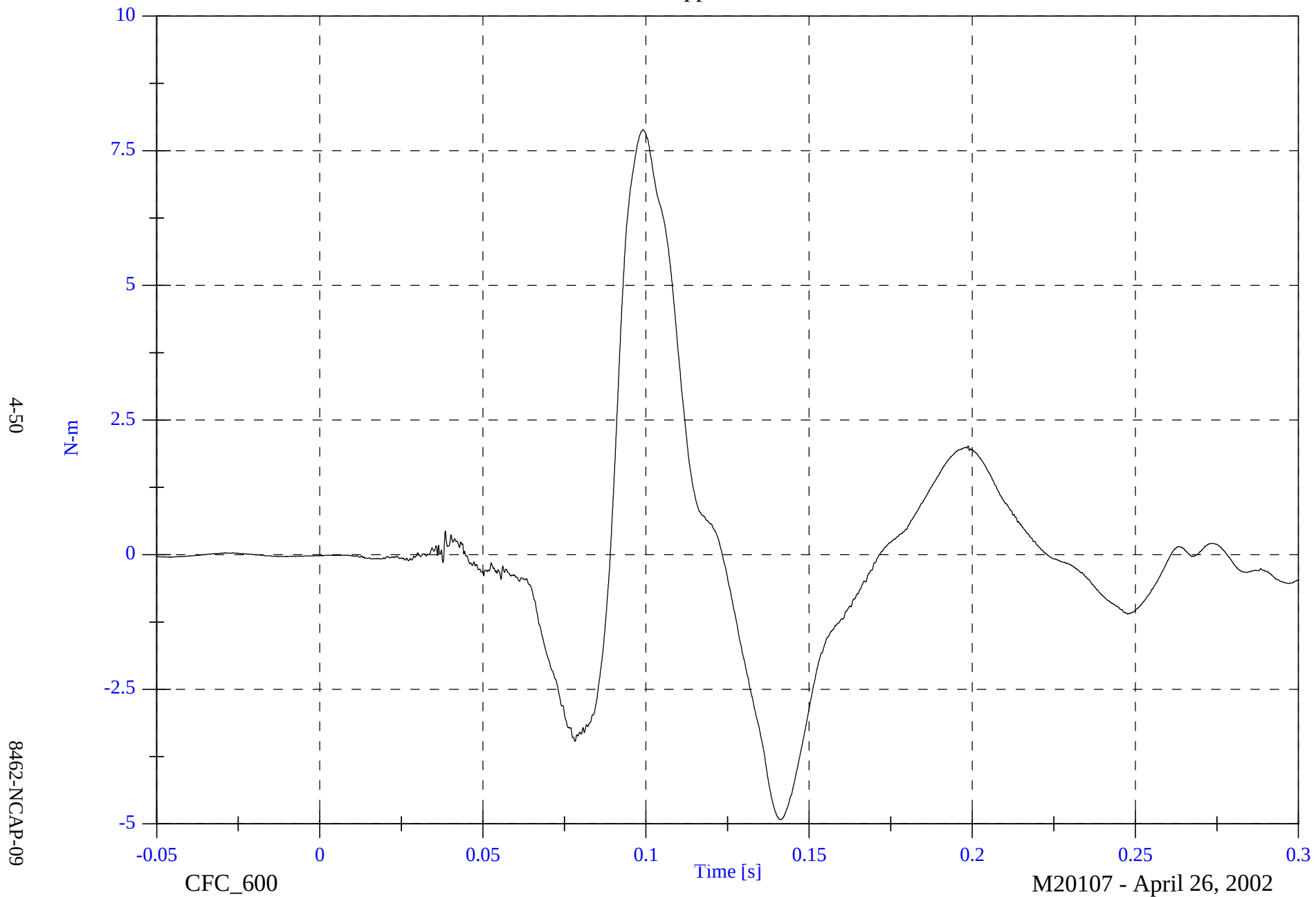


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Upper Neck Mx

Max: 7.9 [N-m] at 0.099 [s]

Min: -4.9 [N-m] at 0.141 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

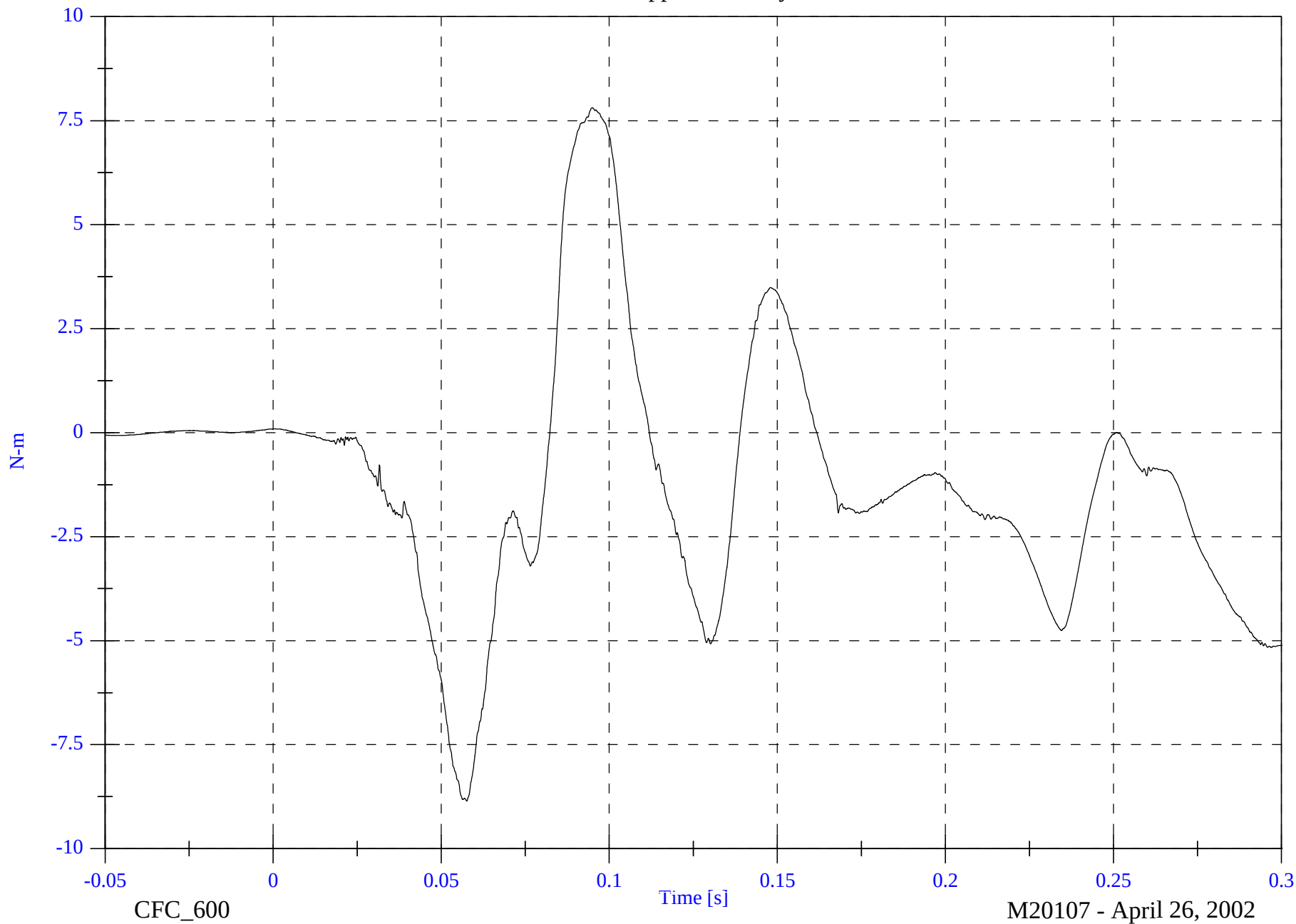
P4 Upper Neck My

Max: 7.8 [N-m] at 0.095 [s]

Min: -8.9 [N-m] at 0.058 [s]

4-51

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

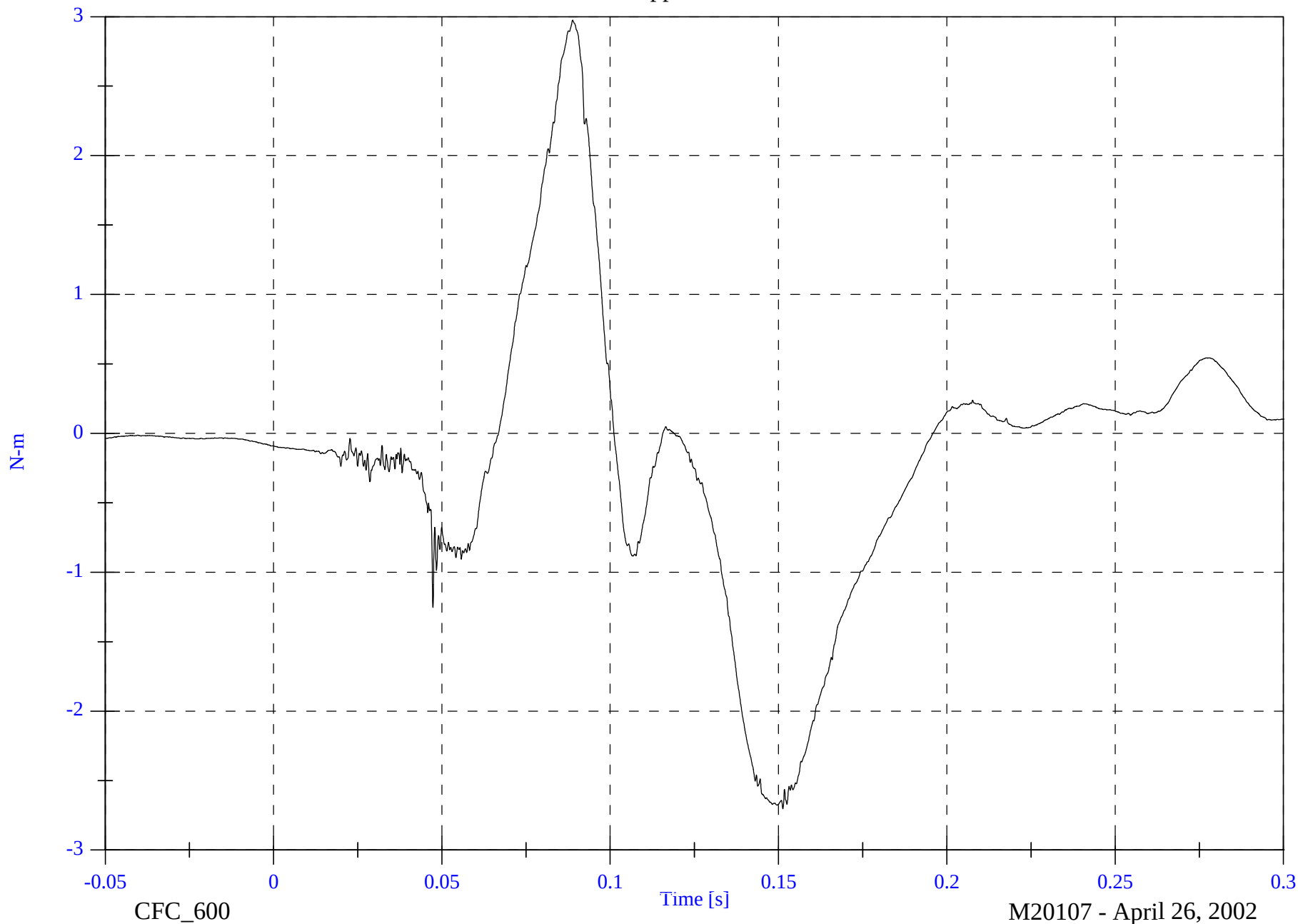
P4 Upper Neck Mz

Max: 3.0 [N-m] at 0.089 [s]

Min: -2.7 [N-m] at 0.151 [s]

4-52

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

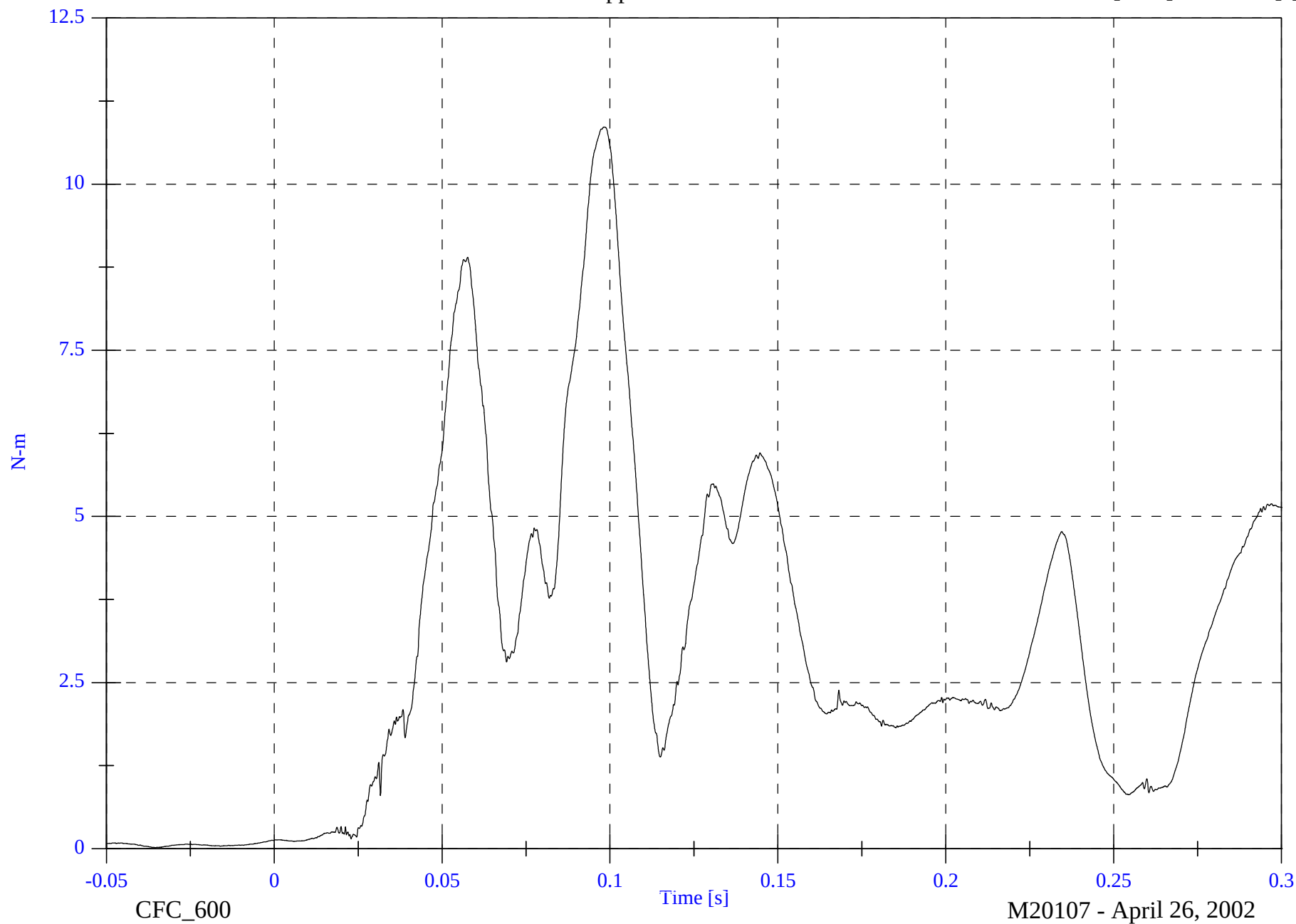
P4 Upper Neck M Resultant

Max: 10.9 [N-m] at 0.098 [s]

Min: 0.0 [N-m] at -0.035 [s]

4-53

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

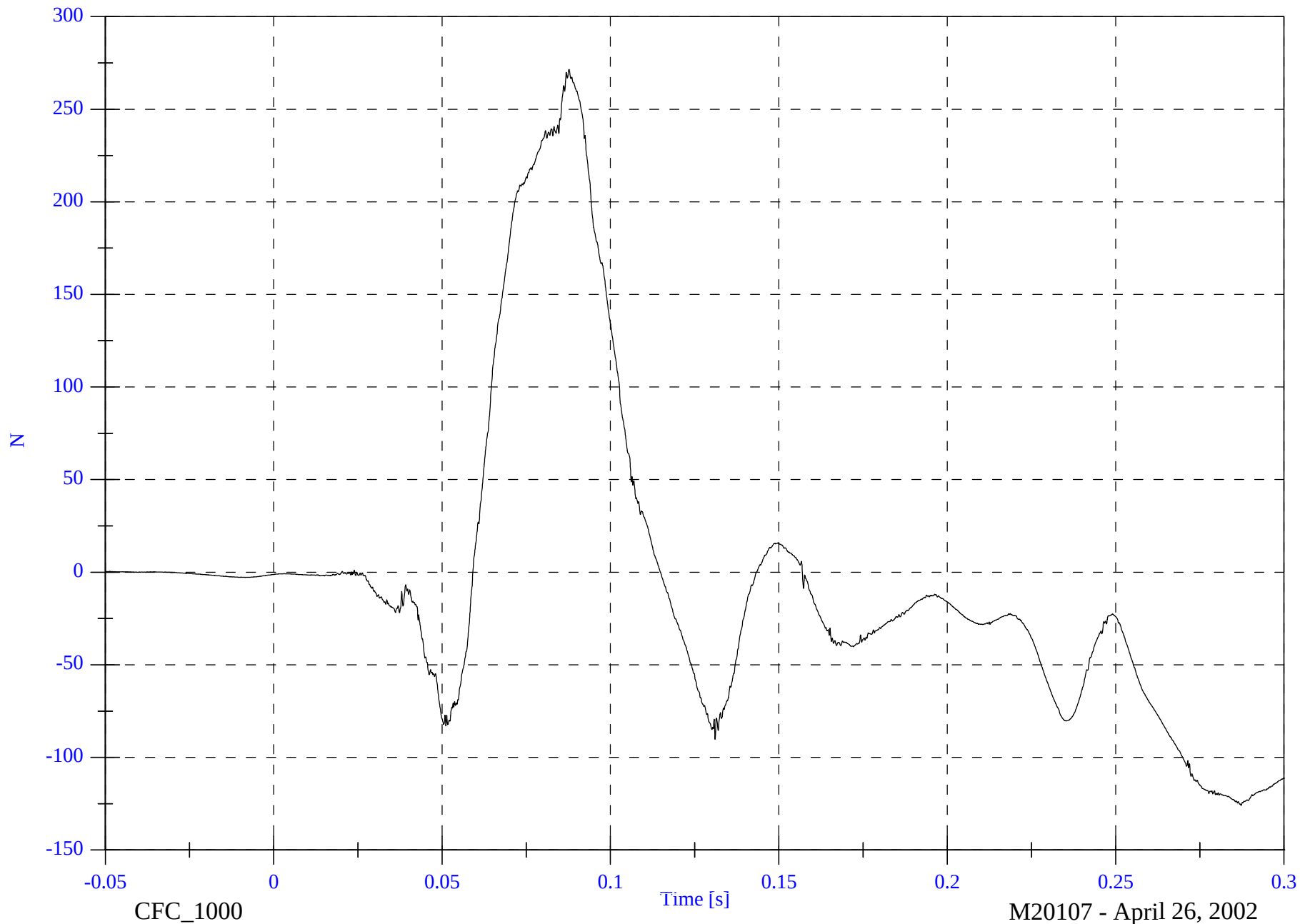
P4 Lower Neck Fx

Max: 271.6 [N] at 0.088 [s]

Min: -126.0 [N] at 0.287 [s]

4-54

8462-NCAP-09

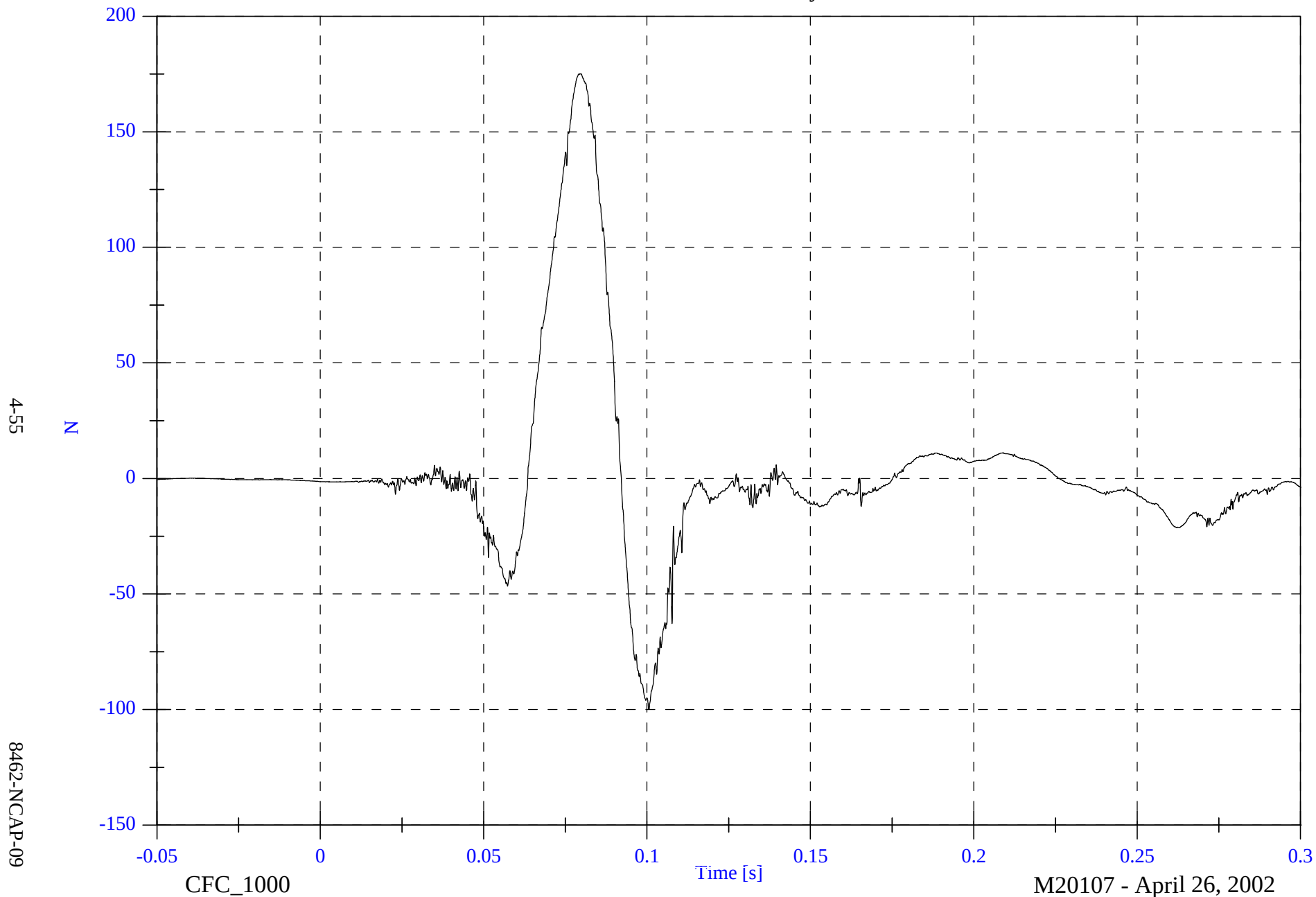


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Lower Neck Fy

Max: 175.1 [N] at 0.080 [s]

Min: -100.0 [N] at 0.101 [s]

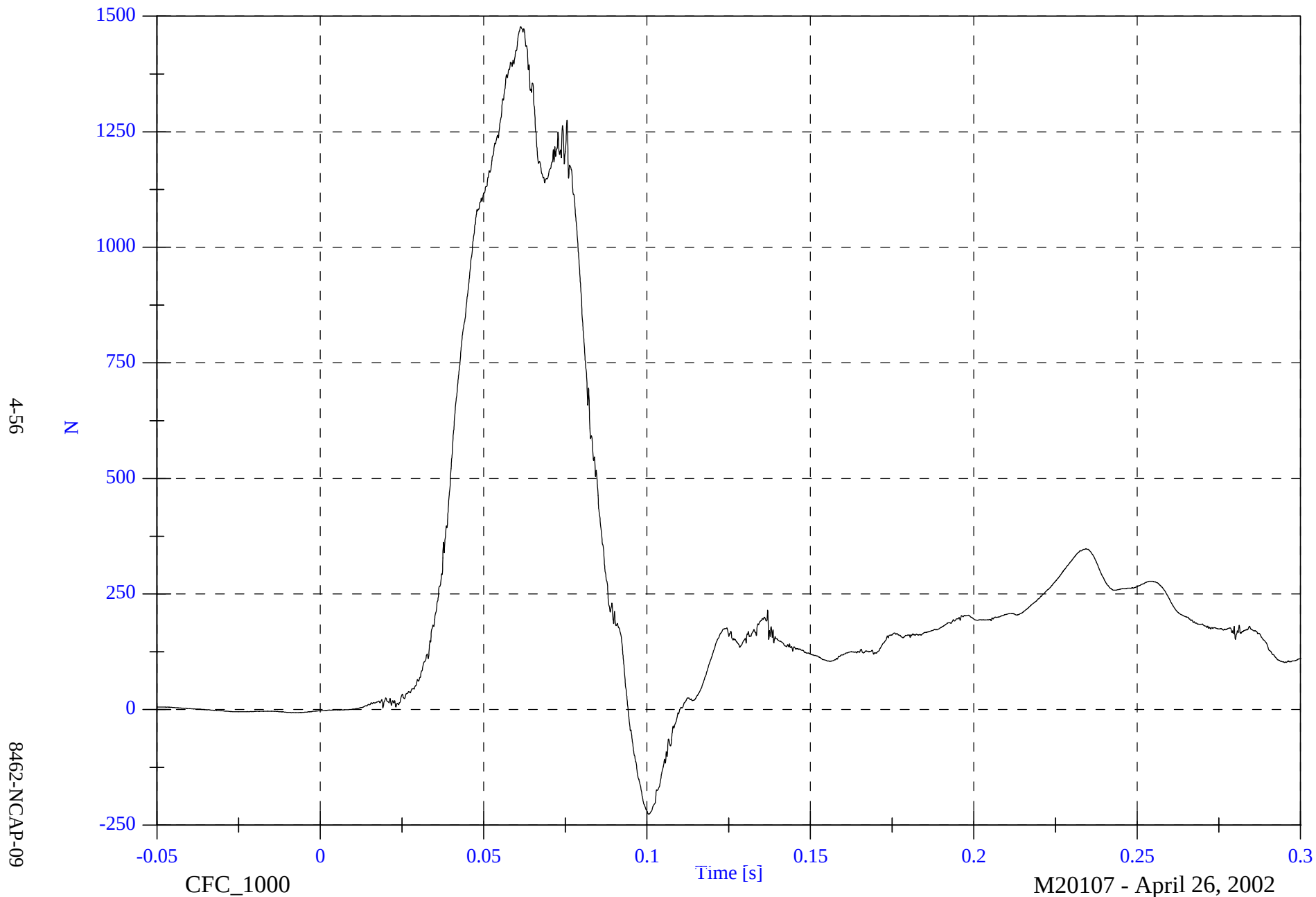


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Lower Neck Fz

Max: 1477.4 [N] at 0.061 [s]

Min: -226.3 [N] at 0.100 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

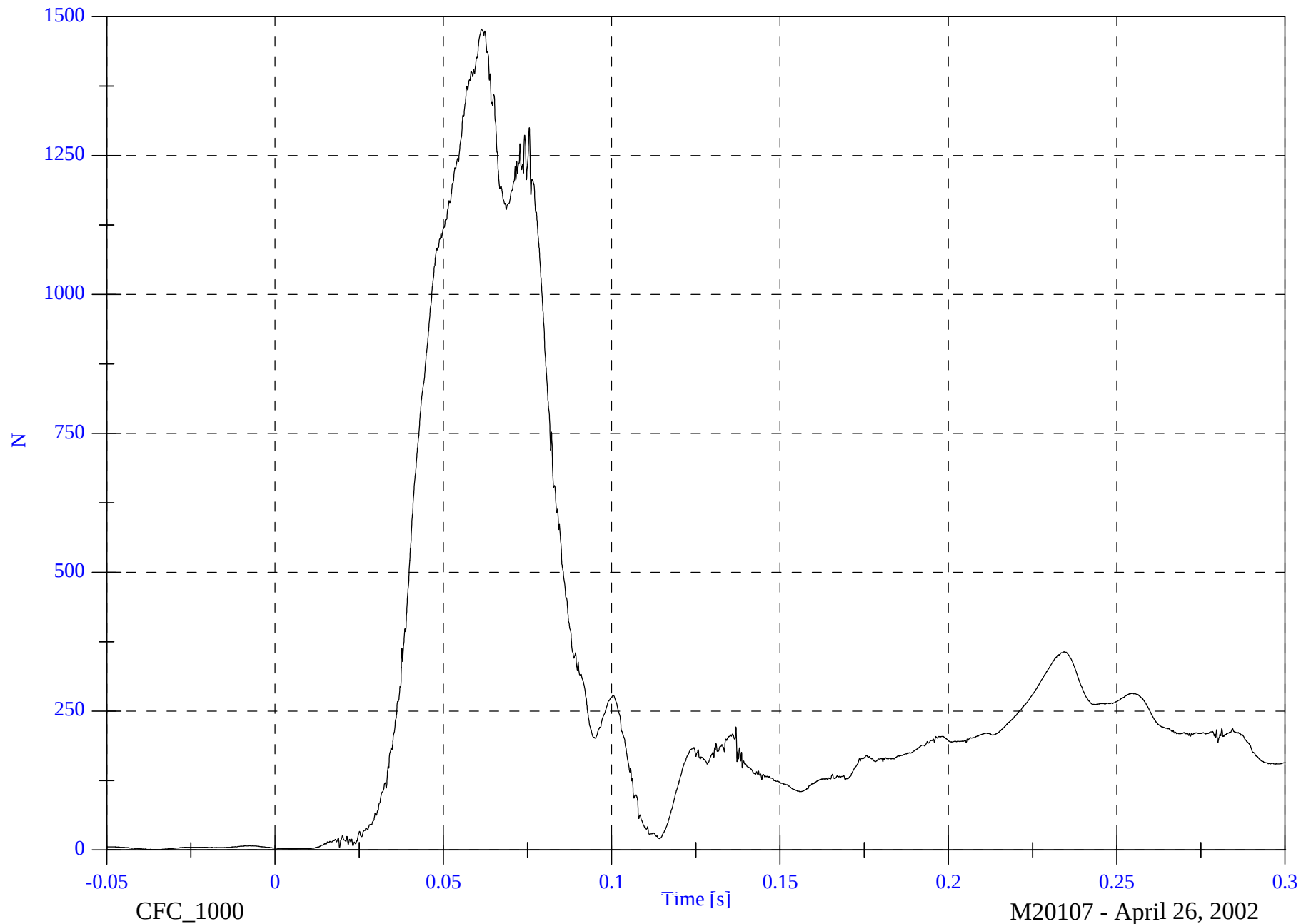
P4 Lower Neck F Resultant

Max: 1478.1 [N] at 0.061 [s]

Min: 0.2 [N] at -0.036 [s]

4-57

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Lower Neck Mx

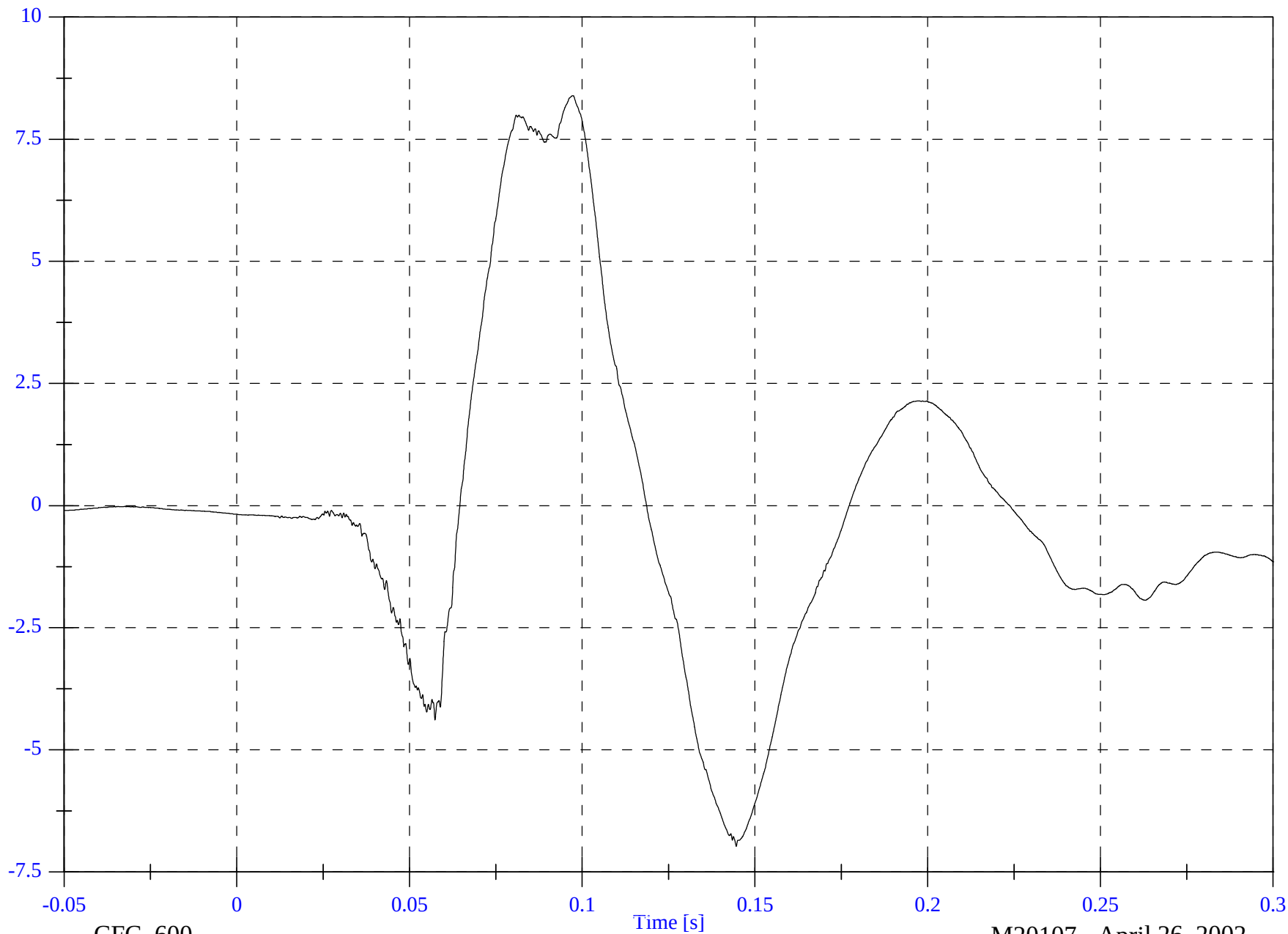
Max: 8.4 [N-m] at 0.097 [s]

Min: -7.0 [N-m] at 0.145 [s]

4-58

N-m

8462-NCAP-09



CFC_600

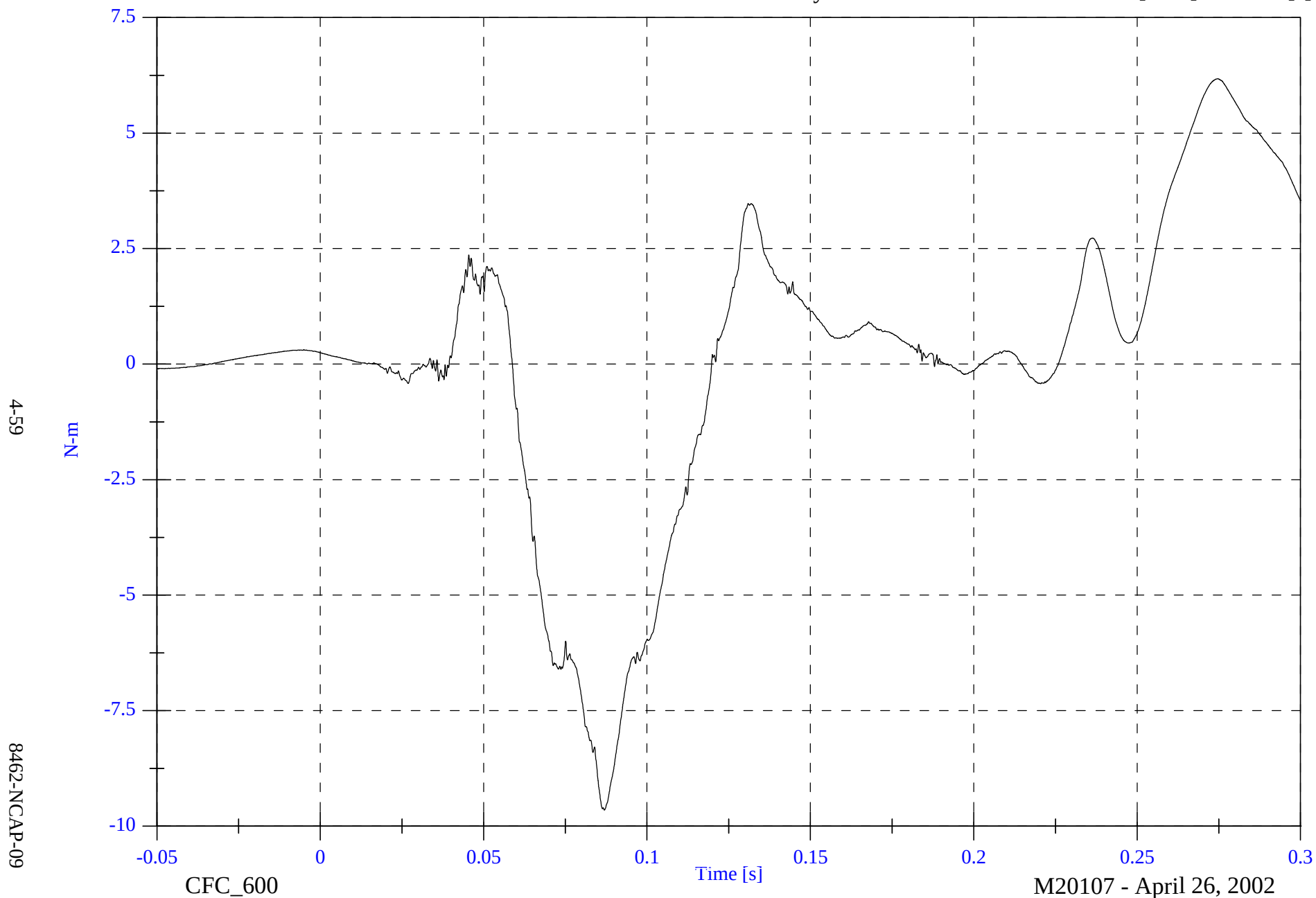
M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Lower Neck My

Max: 6.2 [N-m] at 0.275 [s]

Min: -9.7 [N-m] at 0.087 [s]

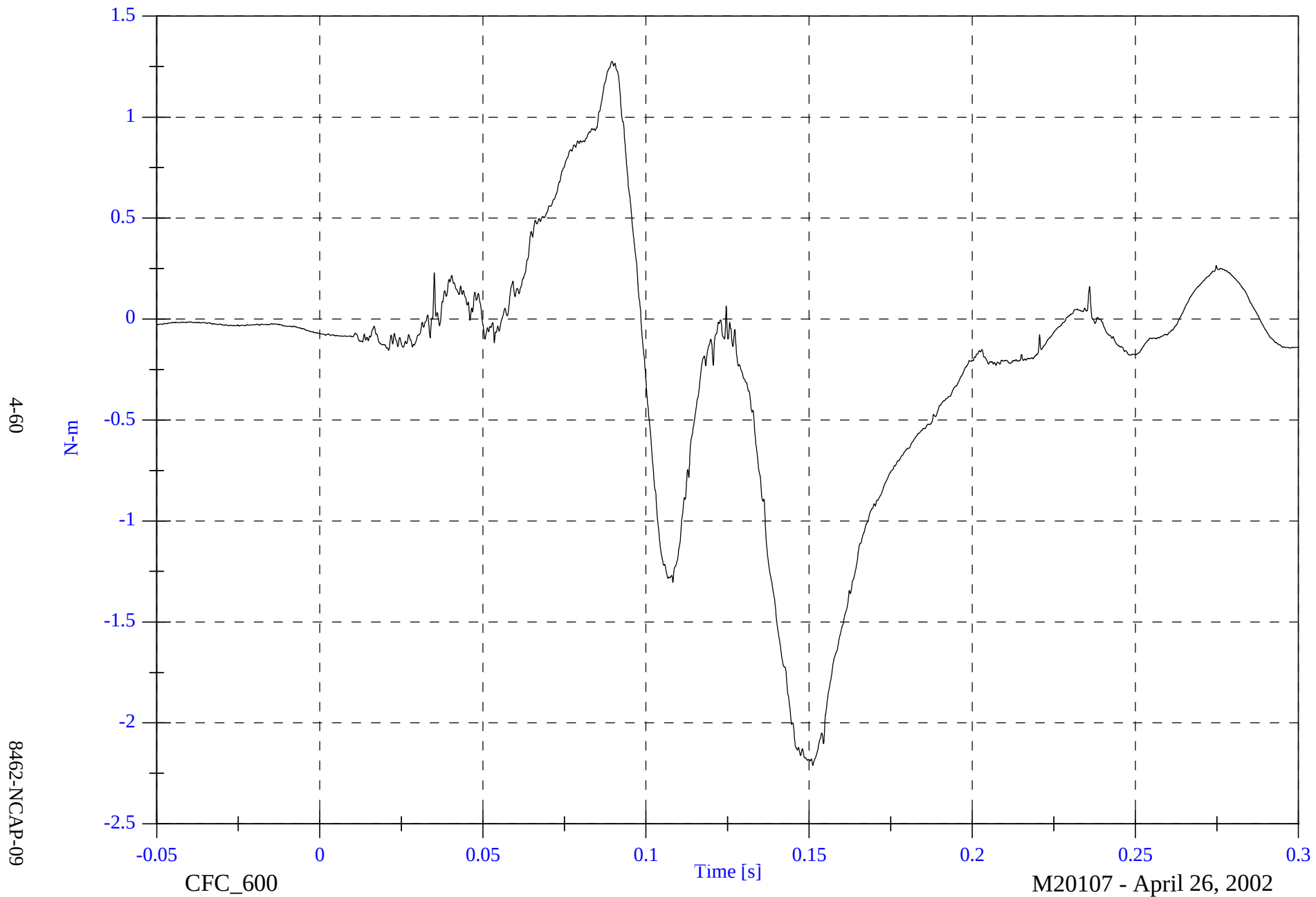


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Lower Neck Mz

Max: 1.3 [N-m] at 0.090 [s]

Min: -2.2 [N-m] at 0.151 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

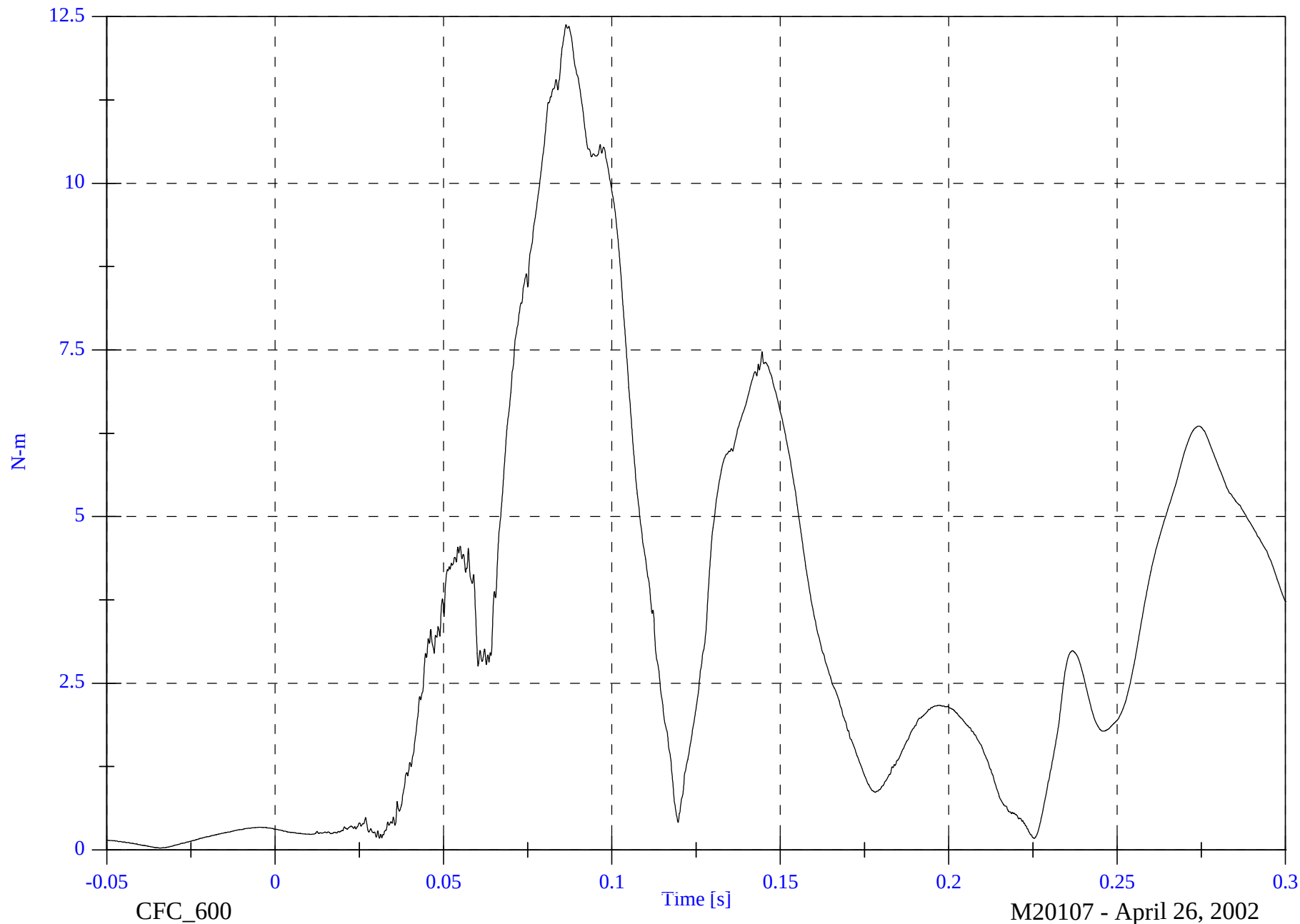
P4 Lower Neck M Resultant

Max: 12.4 [N-m] at 0.086 [s]

Min: 0.0 [N-m] at -0.034 [s]

4-61

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

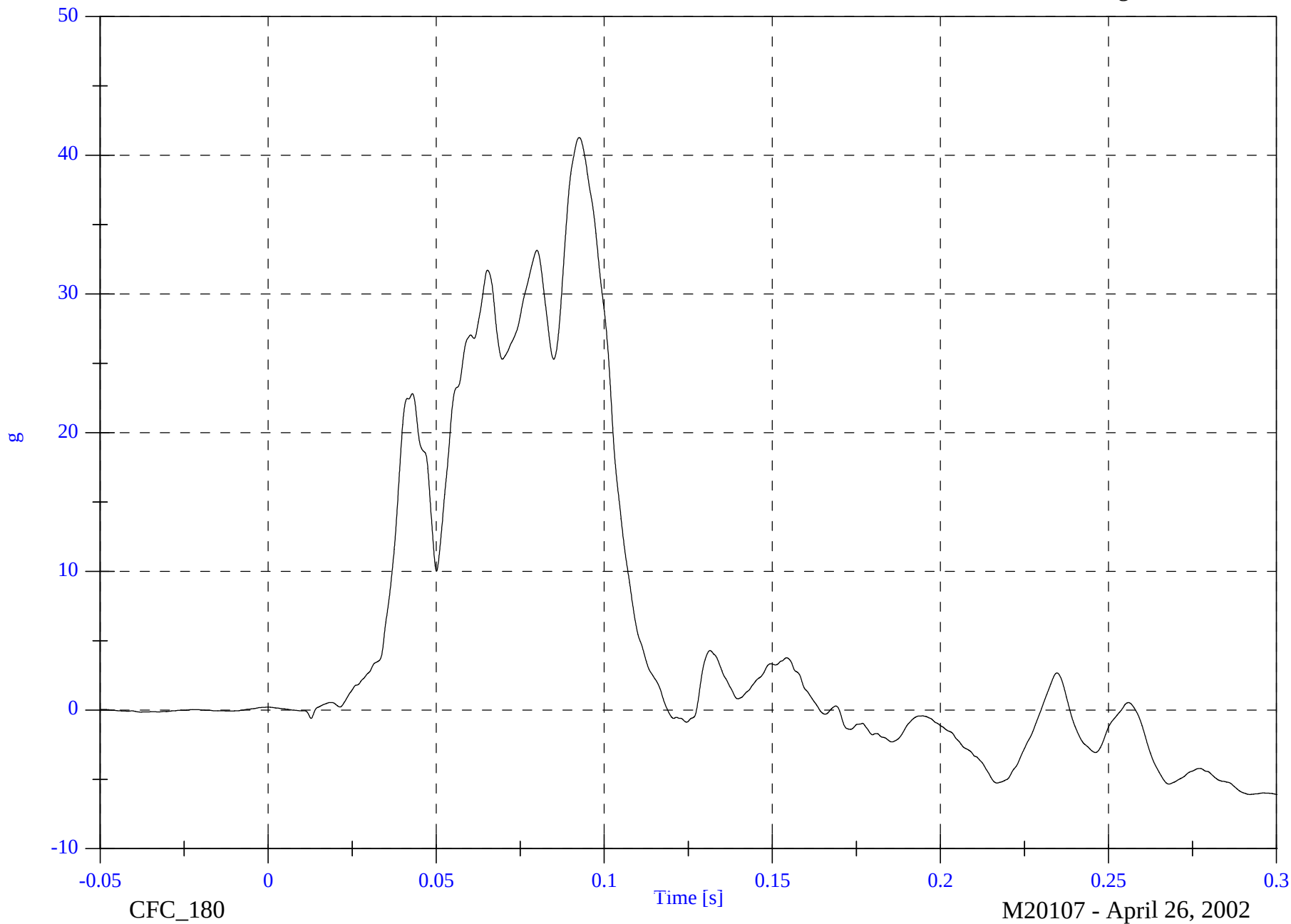
P4 Chest x

Max: 41.3 [g] at 0.093 [s]

Min: -6.1 [g] at 0.292 [s]

4-62

8462-NCAP-09

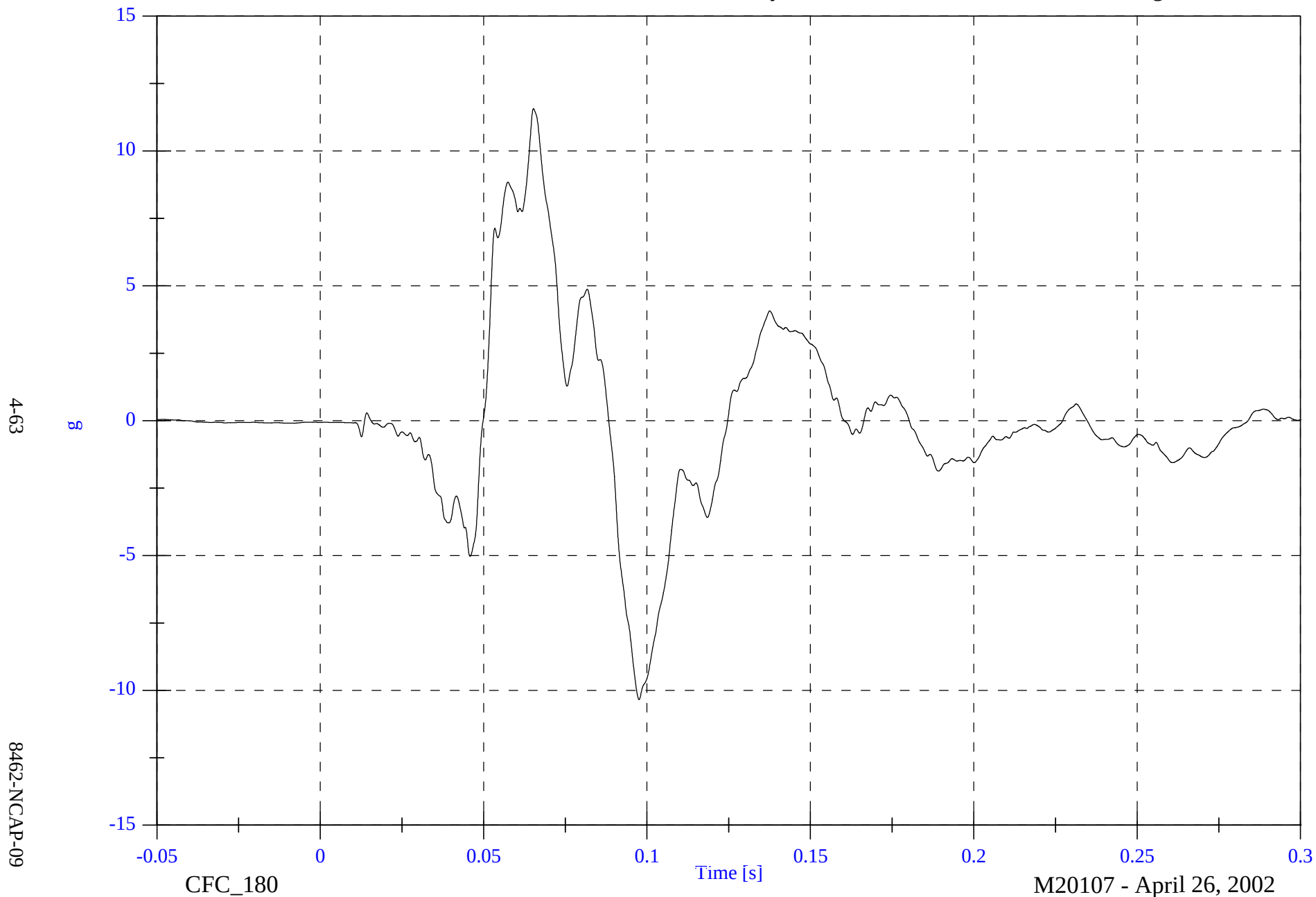


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Chest y

Max: 11.6 [g] at 0.065 [s]

Min: -10.3 [g] at 0.098 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

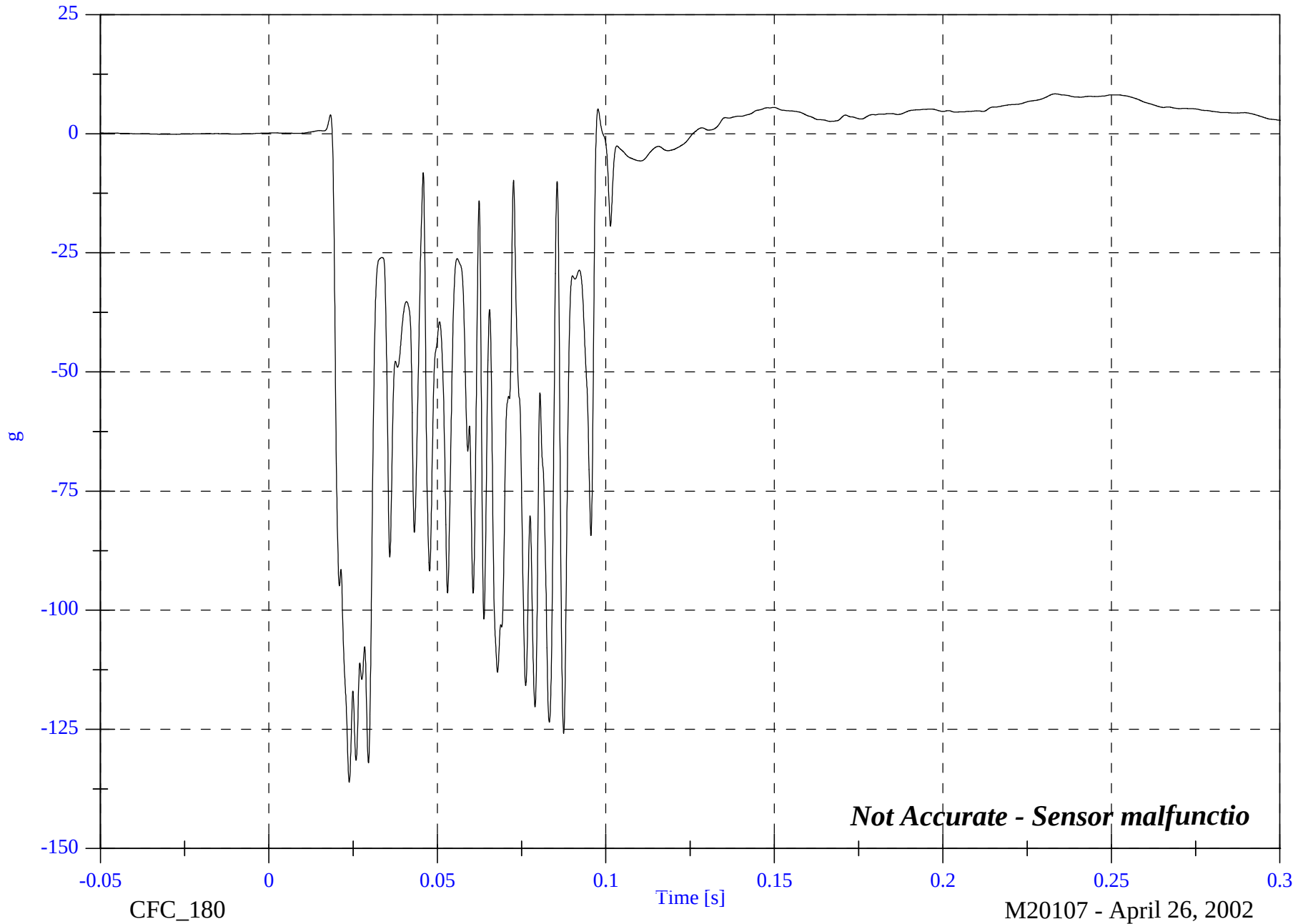
P4 Chest z

Max: 8.4 [g] at 0.233 [s]

Min: -136.1 [g] at 0.024 [s]

4-64

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

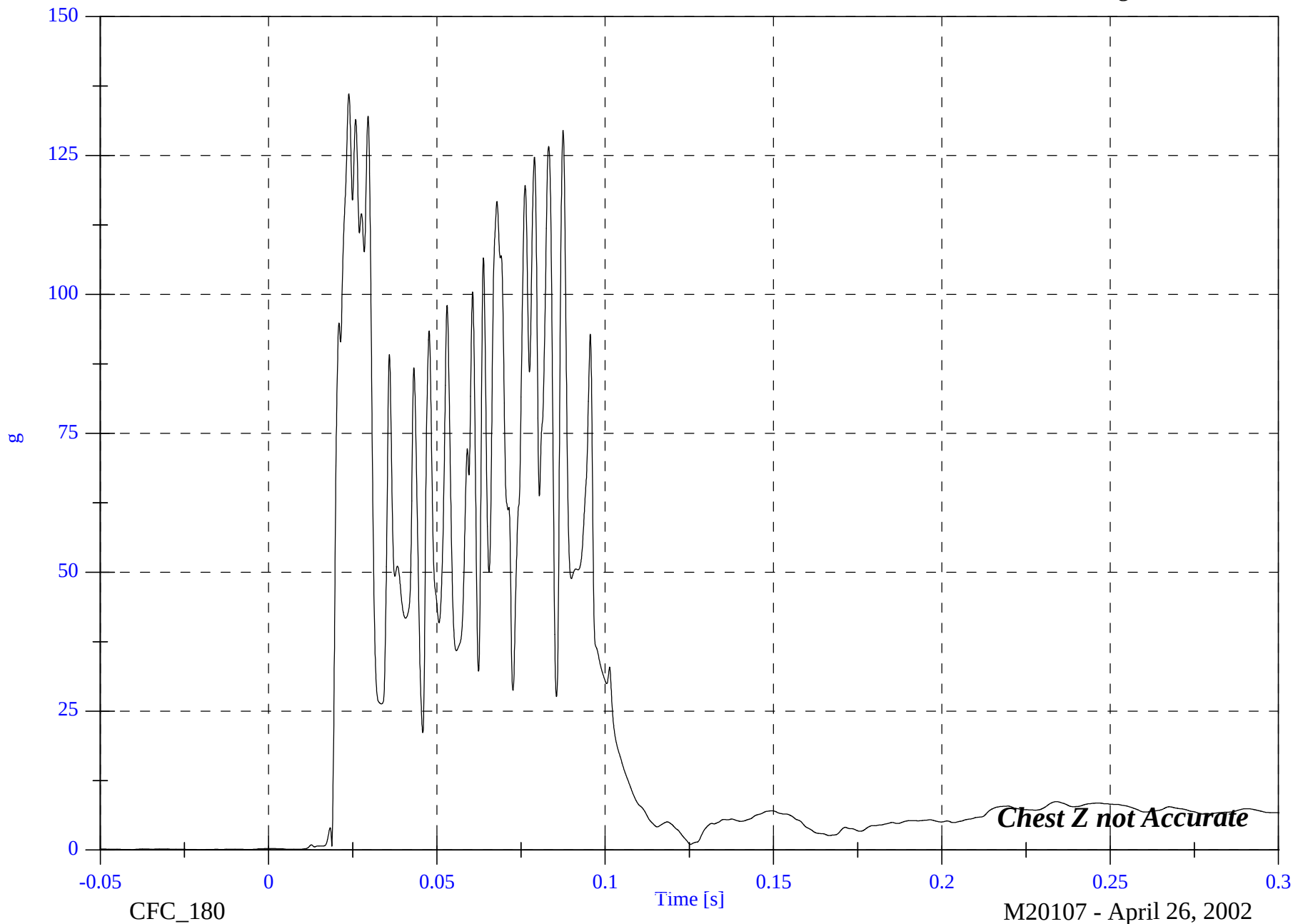
P4 Chest Resultant

Max: 136.1 [g] at 0.024 [s]

Min: 0.1 [g] at -0.020 [s]

4-65

8462-NCAP-09

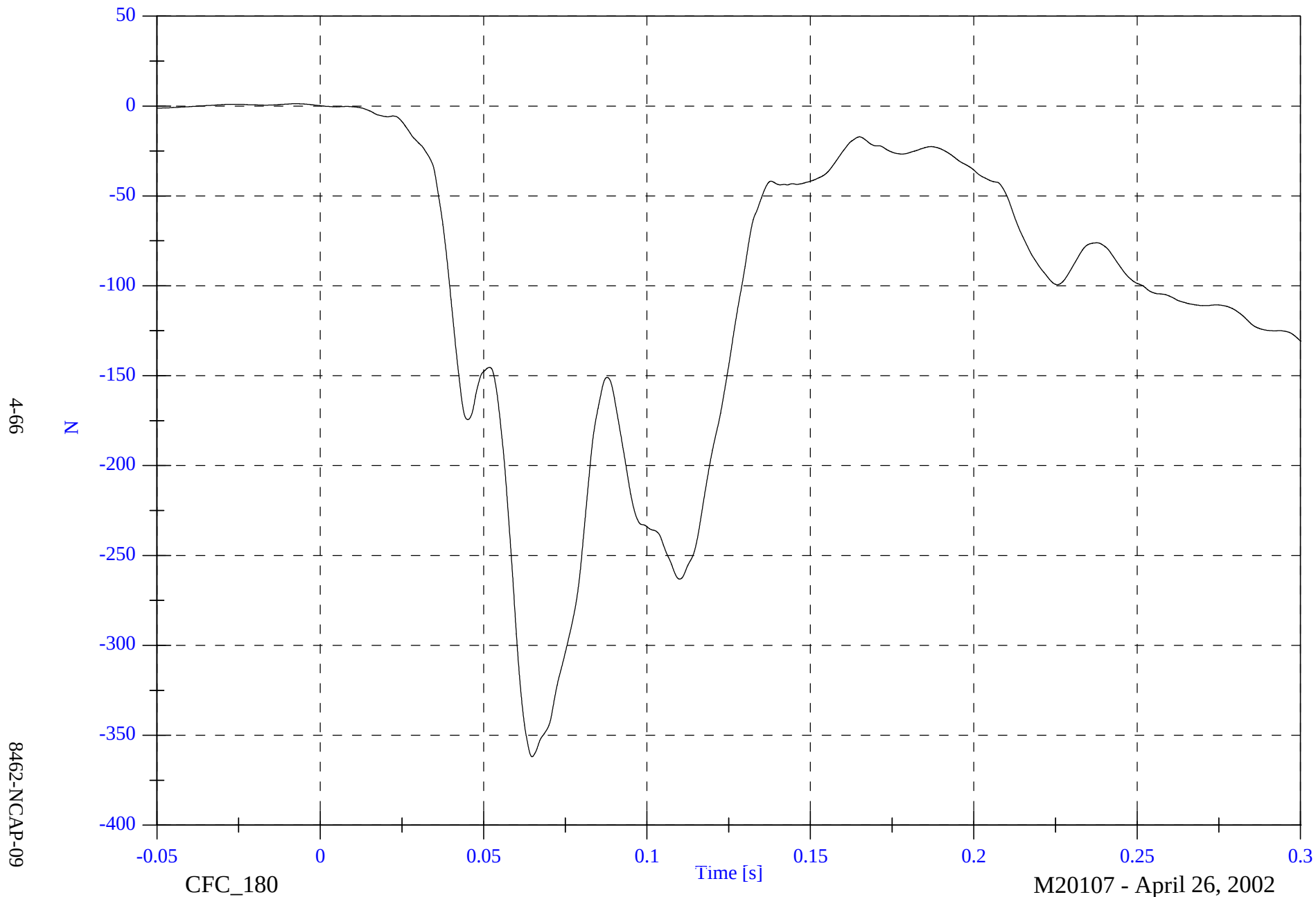


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Lumbar Fx

Max: 1.3 [N] at -0.008 [s]

Min: -362.0 [N] at 0.065 [s]

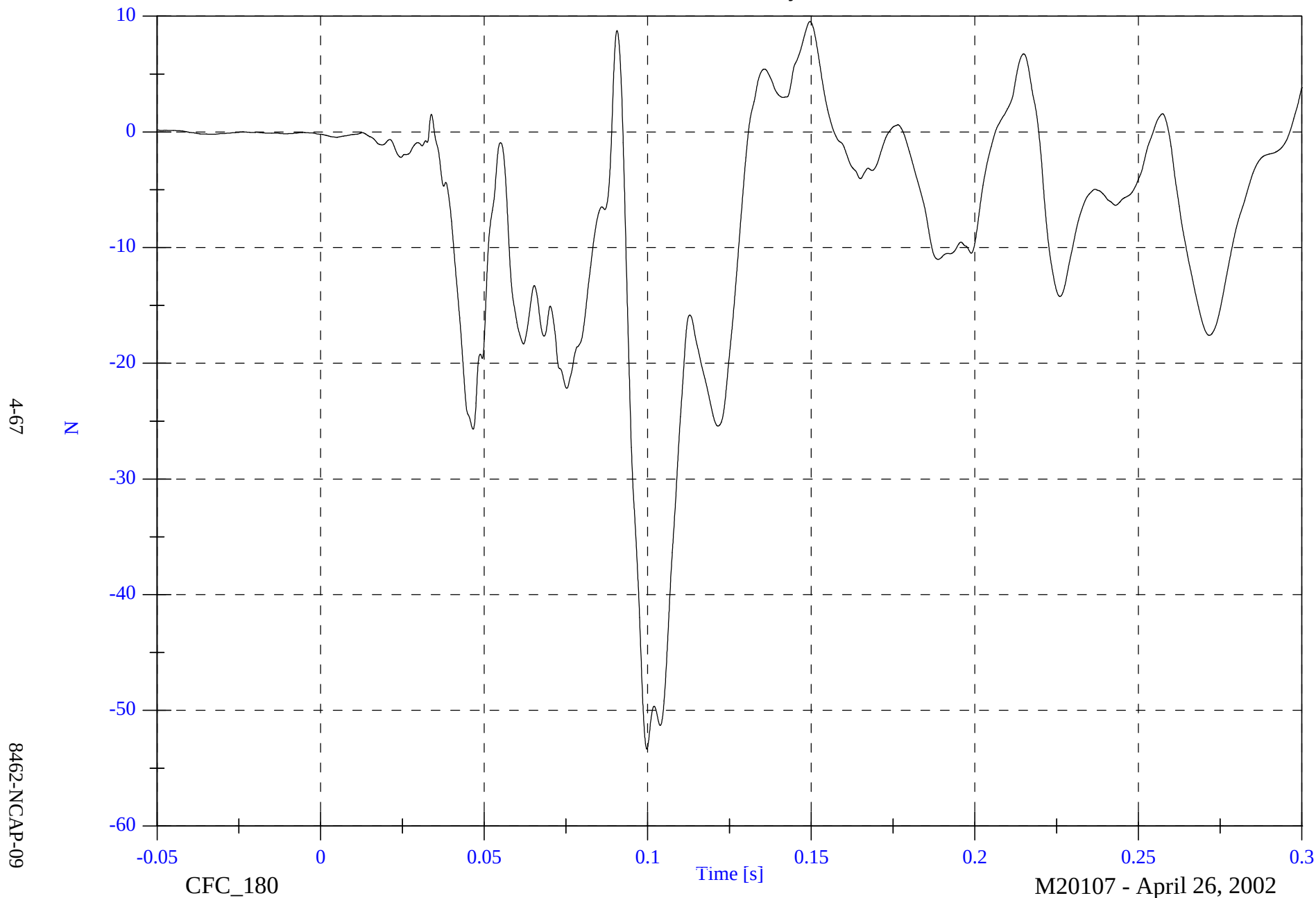


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Lumbar Fy

Max: 9.5 [N] at 0.150 [s]

Min: -53.3 [N] at 0.100 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

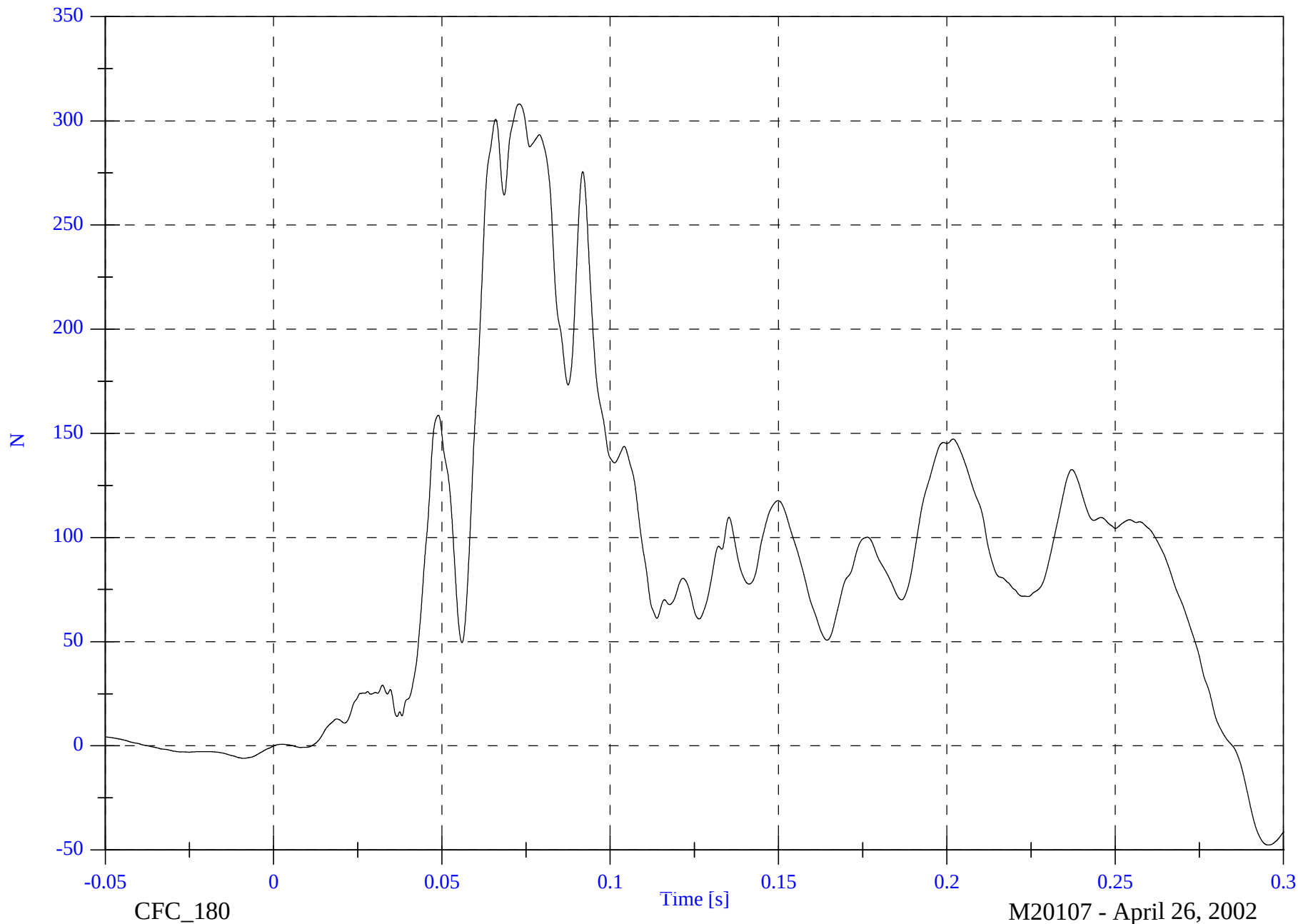
P4 Lumbar Fz

Max: 308.1 [N] at 0.073 [s]

Min: -47.6 [N] at 0.295 [s]

4-68

8462-NCAP-09

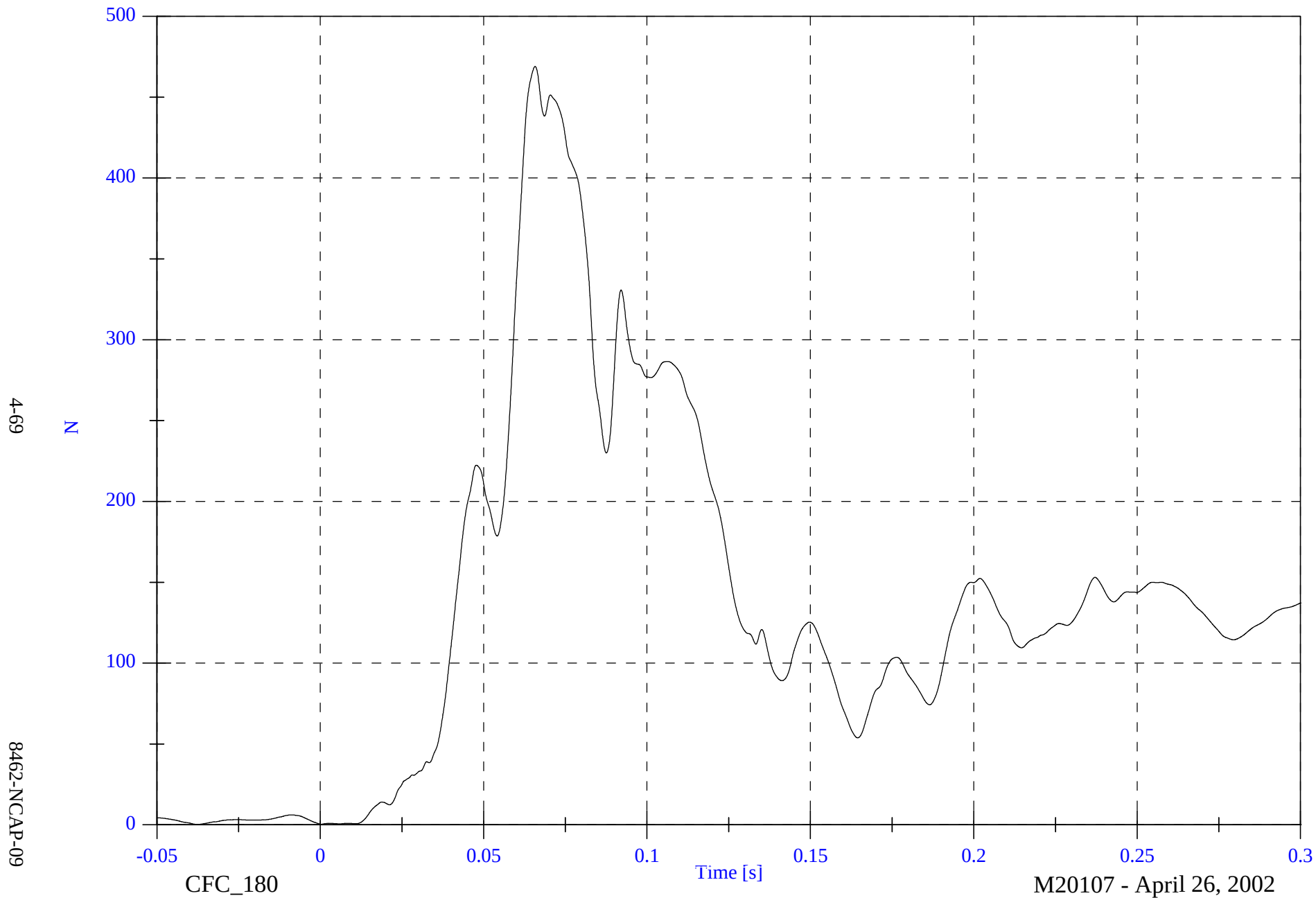


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Lumbar F Resultant

Max: 468.9 [N] at 0.066 [s]

Min: 0.1 [N] at -0.037 [s]

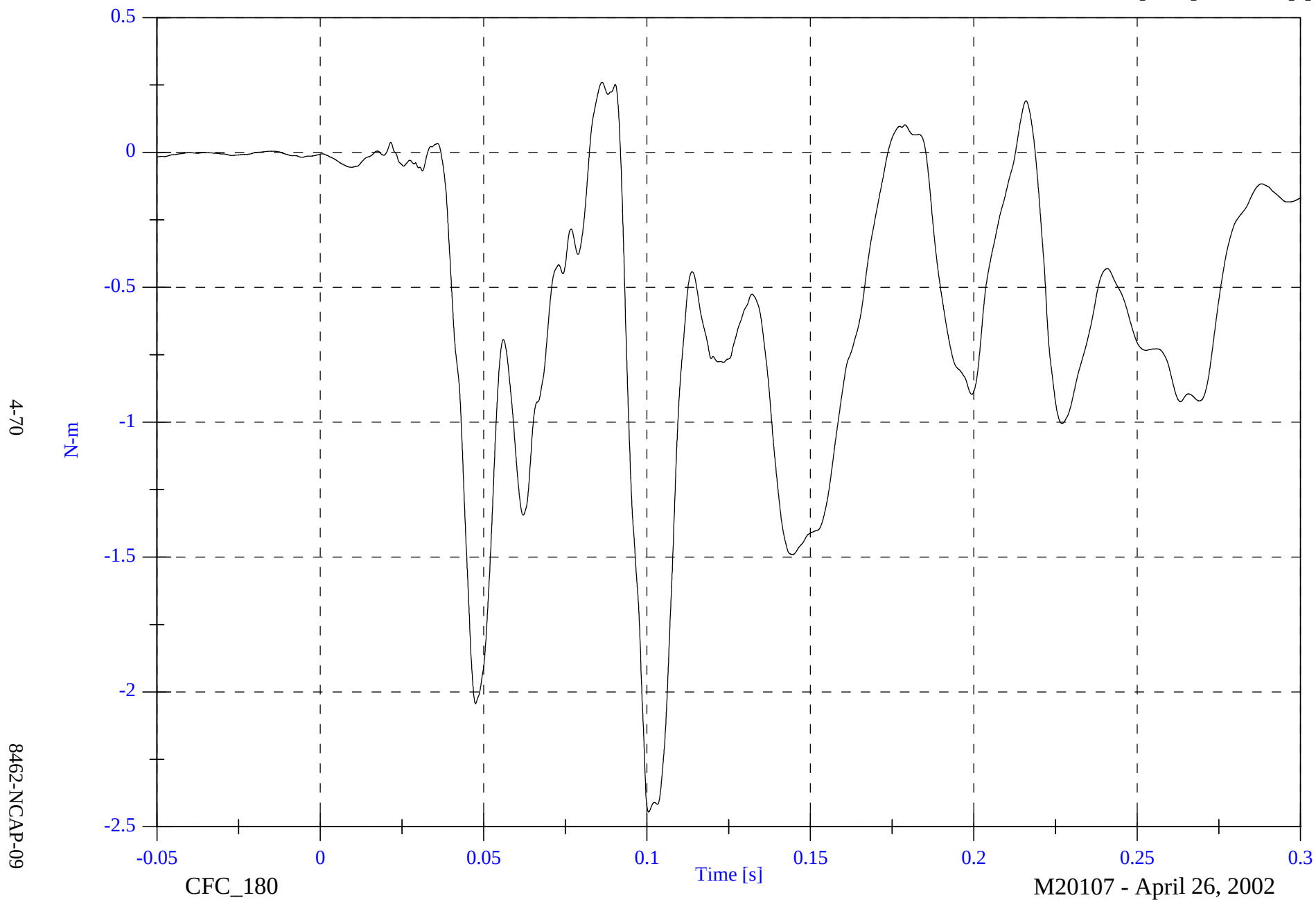


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Lumbar Mx

Max: 0.3 [N-m] at 0.086 [s]

Min: -2.4 [N-m] at 0.101 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

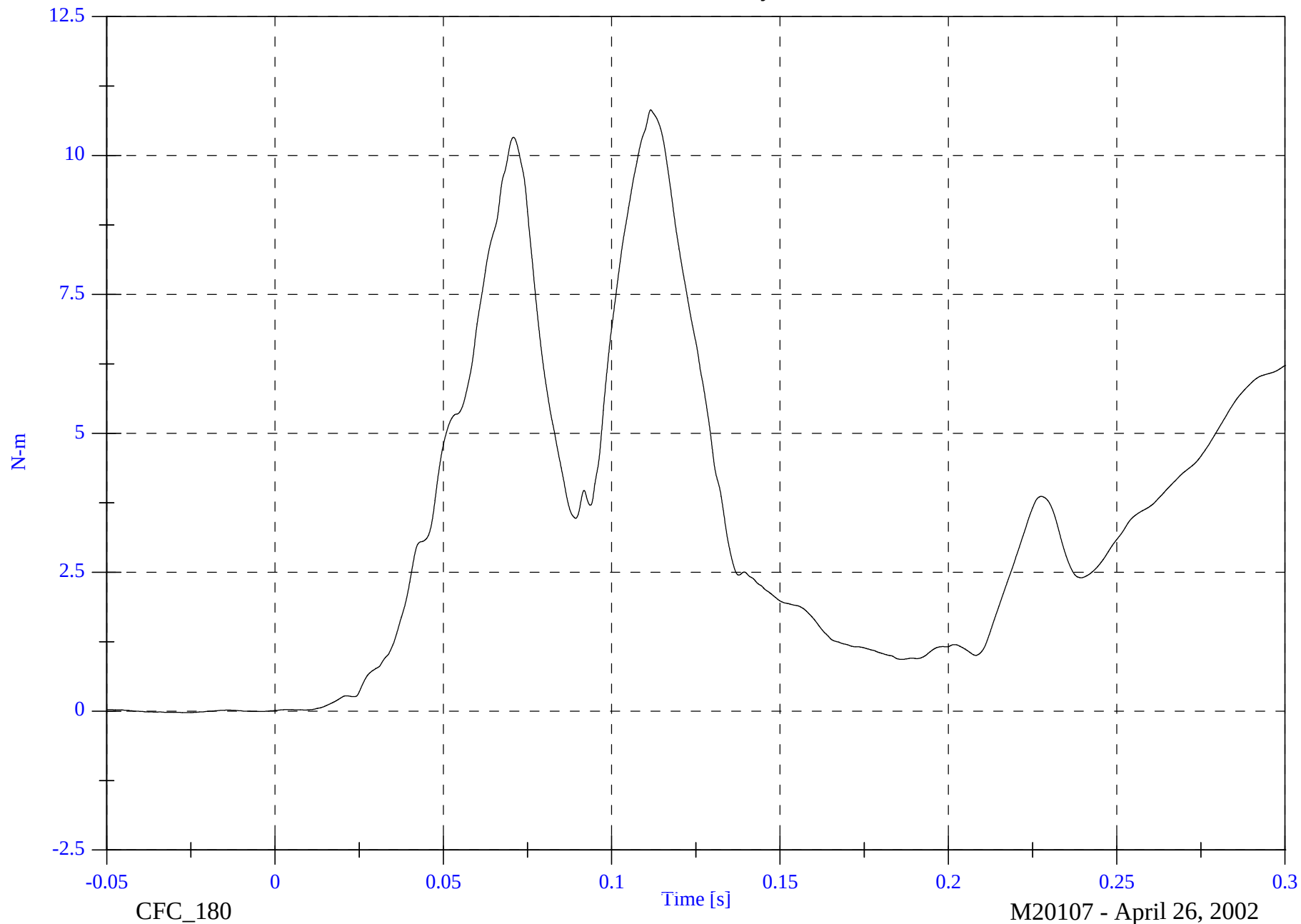
P4 Lumbar My

Max: 10.8 [N-m] at 0.112 [s]

Min: -0.0 [N-m] at -0.027 [s]

4-71

8462-NCAP-09



NCAP Test #9 - 2002 Chevrolet Trailblazer

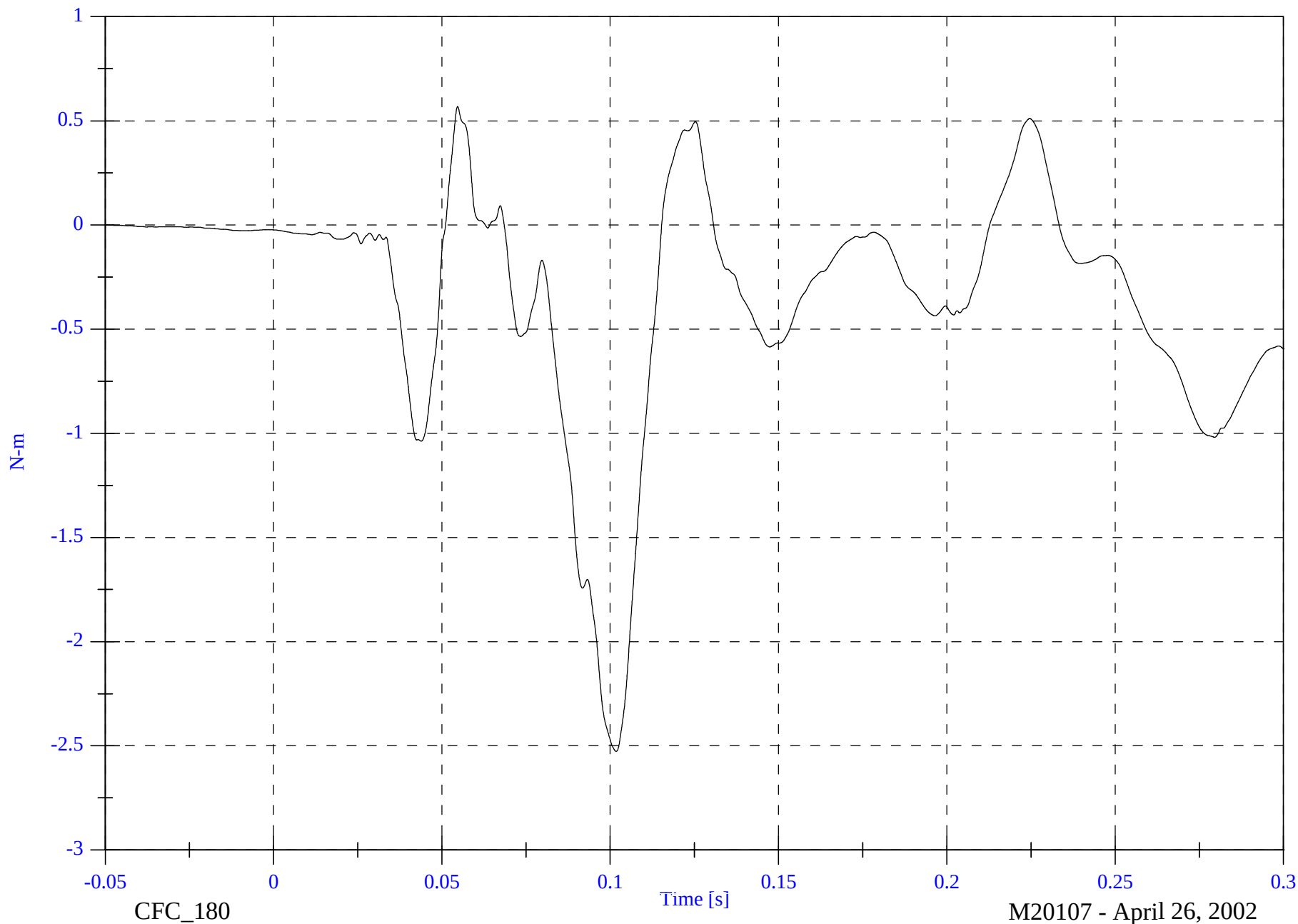
P4 Lumbar Mz

Max: 0.6 [N-m] at 0.055 [s]

Min: -2.5 [N-m] at 0.102 [s]

4-72

8462-NCAP-09



CFC_180

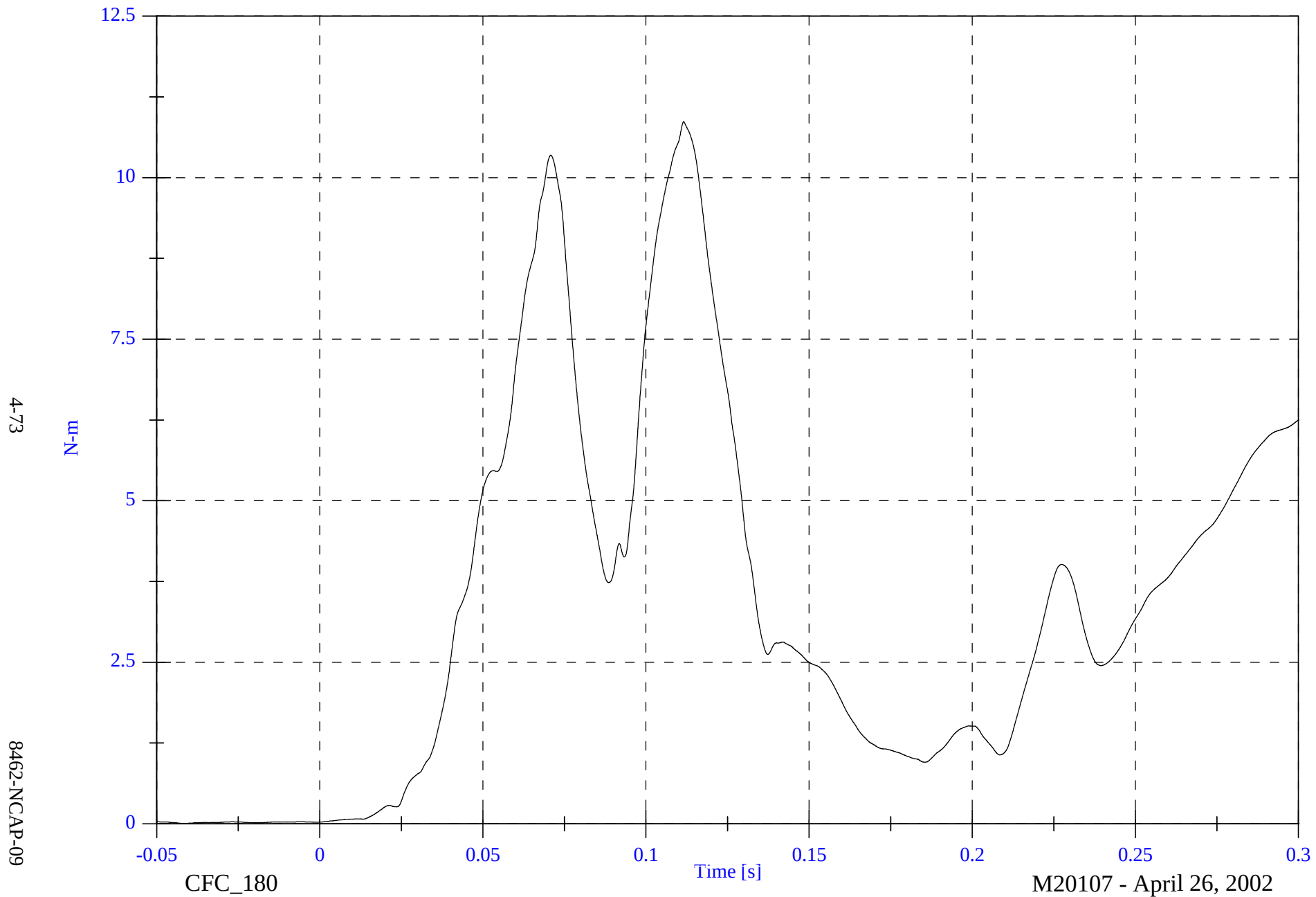
M20107 - April 26, 2002

NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Lumbar M Resultant

Max: 10.9 [N-m] at 0.111 [s]

Min: 0.0 [N-m] at -0.042 [s]

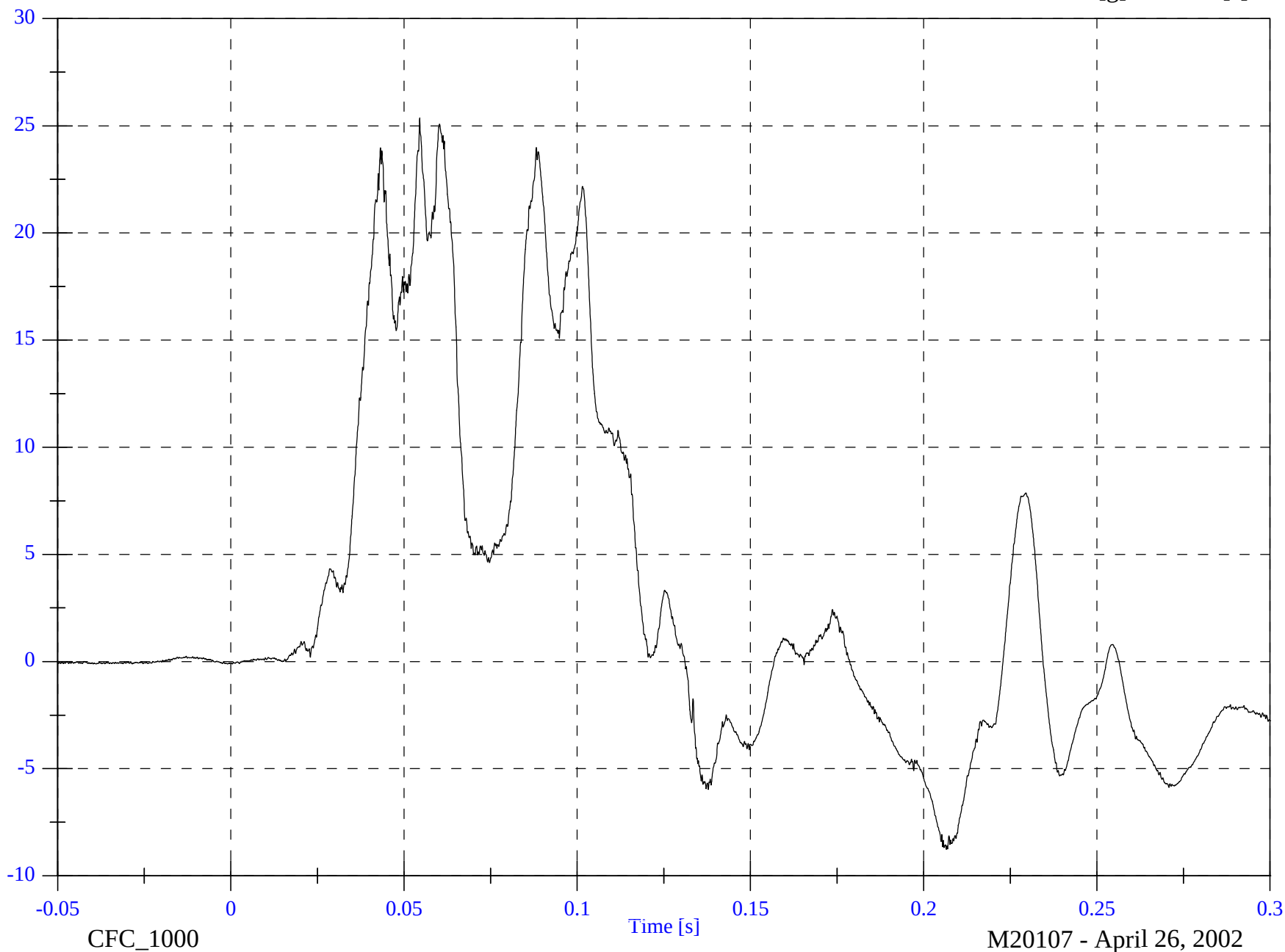


NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Pelvic x

Max: 25.4 [g] at 0.055 [s]

Min: -8.8 [g] at 0.207 [s]



4-74

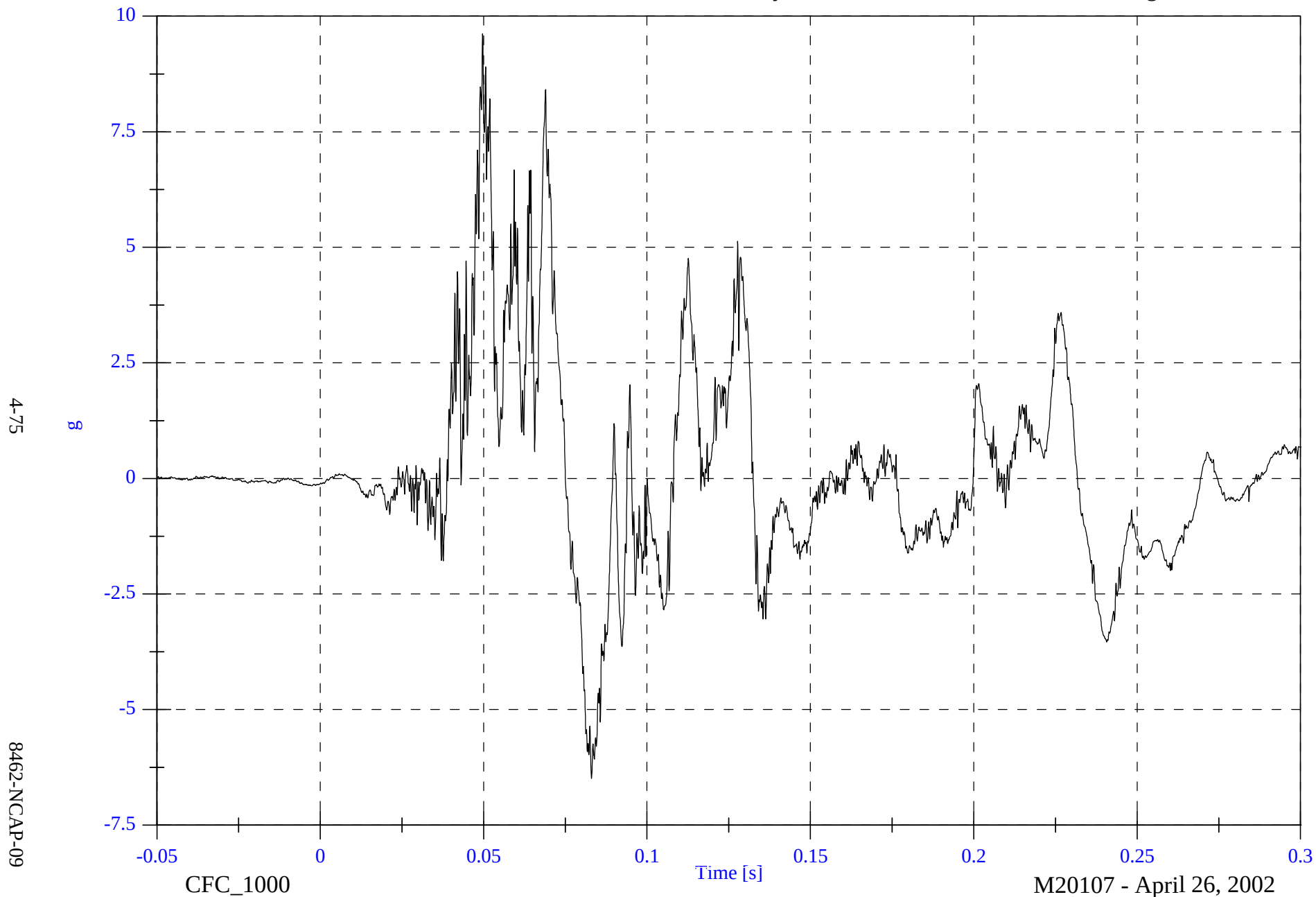
8462-NCAP-09

NCAP Test #9 - 2002 Chevrolet Trailblazer

P4 Pelvic y

Max: 9.6 [g] at 0.050 [s]

Min: -6.5 [g] at 0.083 [s]



NCAP Test #9 - 2002 Chevrolet Trailblazer

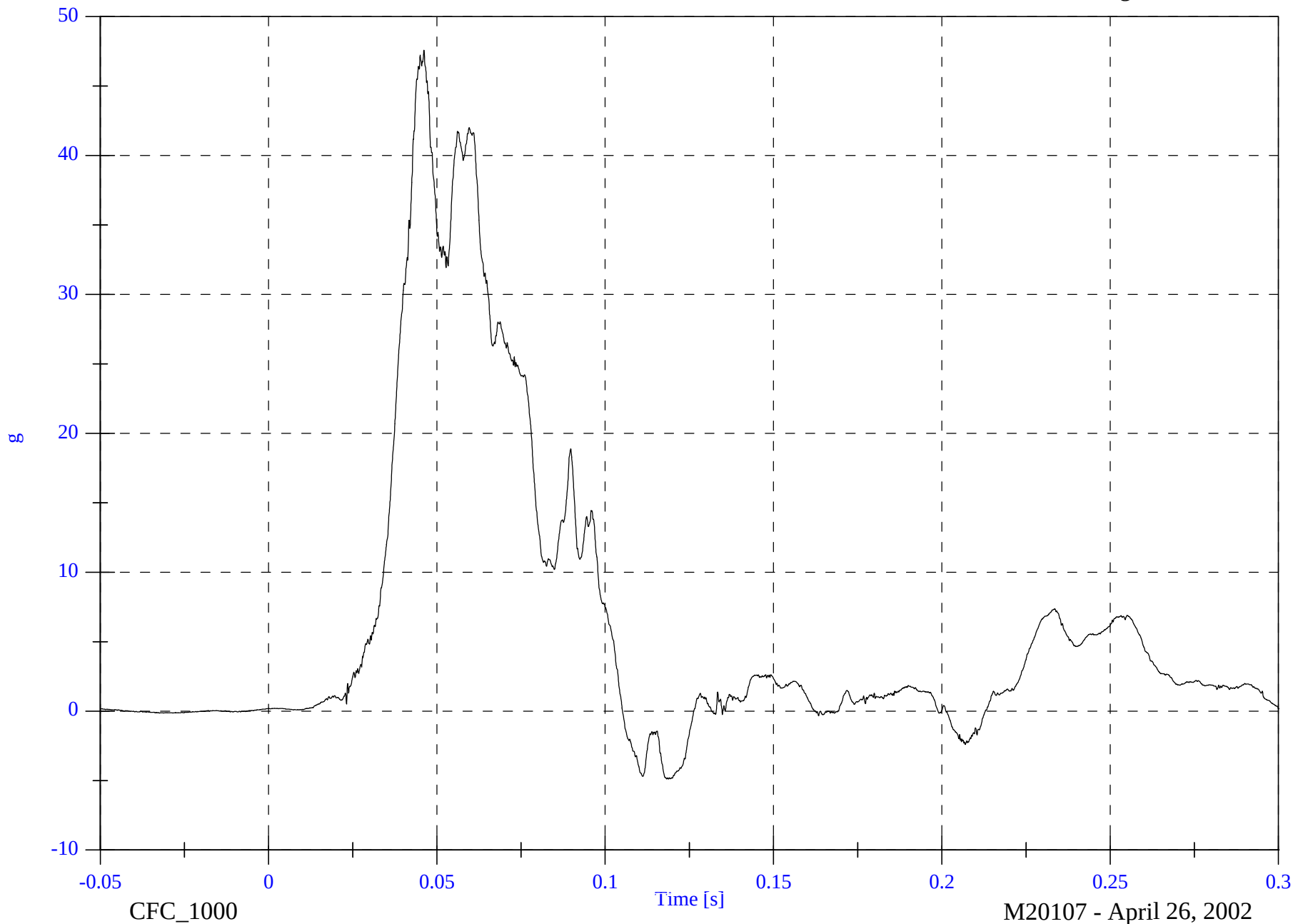
P4 Pelvic z

Max: 47.6 [g] at 0.046 [s]

Min: -4.9 [g] at 0.119 [s]

4-76

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NCAP Test #9 - 2002 Chevrolet Trailblazer

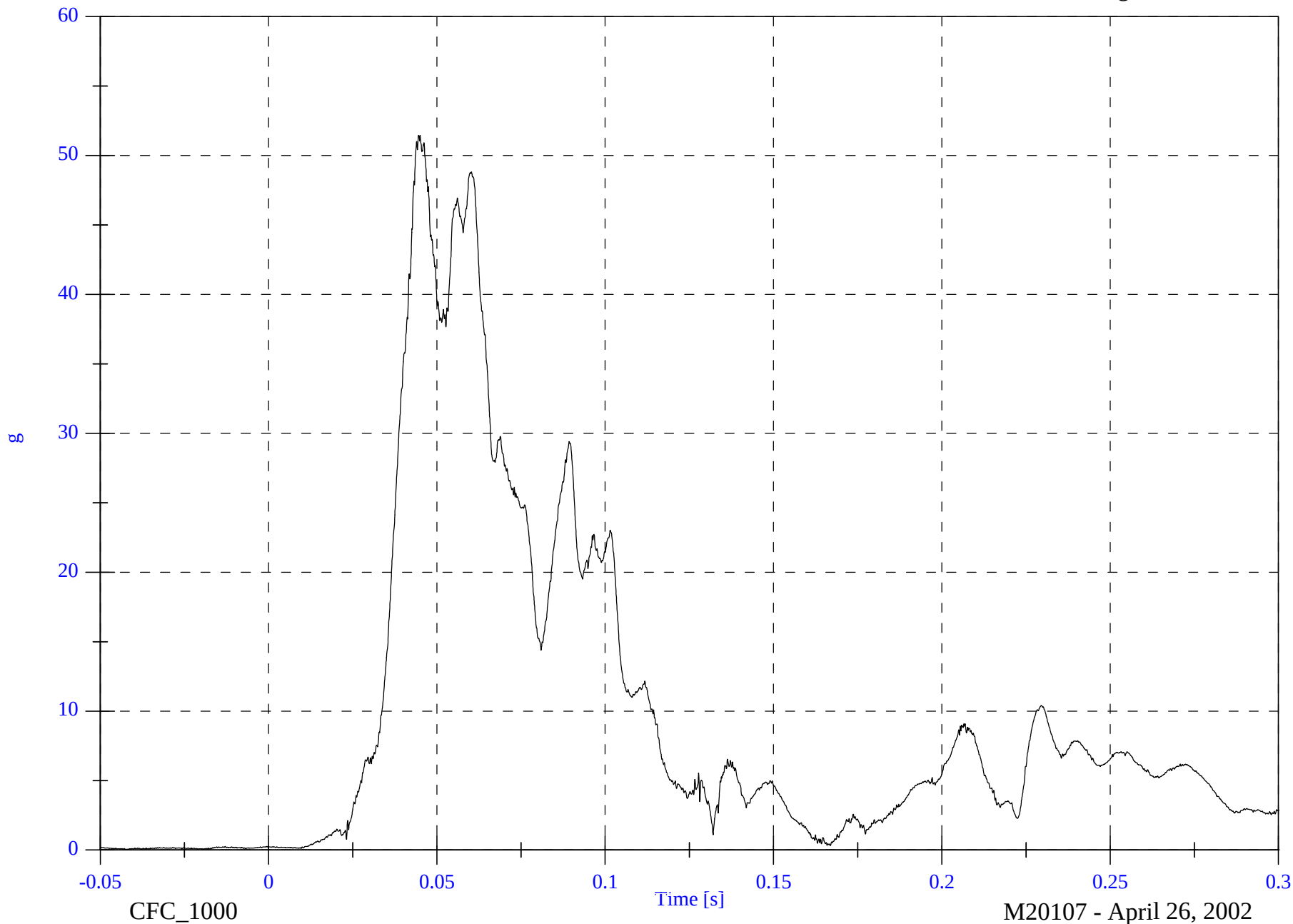
P4 Pelvic Resultant

Max: 51.5 [g] at 0.045 [s]

Min: 0.0 [g] at -0.042 [s]

4-77

8462-NCAP-09



SECTION 5

CHILD DUMMY CALIBRATION INFORMATION

Child dummies certified by VRTC prior to test program
Certification details can be found in bound report

SECTION 6

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

P572R INSTRUMENTATION

	POSITION #3 (RIGHT) SERIAL NO.: 093		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-B02A25-N05	ENTRAN	08-Feb-02
HEAD AY	AC-B02A18-N13	ENTRAN	08-Feb-02
HEAD AZ	AC-B02A18-N03	ENTRAN	11-Feb-02
HEAD RAZ	AC-B02A25-N01	ENTRAN	08-Feb-02
UPPER NECK FX	LC-282-FX	DENTON	15-Jan-02
UPPER NECK FY	LC-282-FY	DENTON	15-Jan-02
UPPER NECK FZ	LC-282-FZ	DENTON	15-Jan-02
UPPER NECK MX	LC-282-MX	DENTON	15-Jan-02
UPPER NECK MY	LC-282-MY	DENTON	15-Jan-02
UPPER NECK MZ	LC-282-MZ	DENTON	15-Jan-02
LOWER NECK FX	LC-279-FX	DENTON	15-Jan-02
LOWER NECK FY	LC-279-FY	DENTON	15-Jan-02
LOWER NECK FZ	LC-279-FZ	DENTON	15-Jan-02
LOWER NECK MX	LC-279-MX	DENTON	15-Jan-02
LOWER NECK MY	LC-279-MY	DENTON	15-Jan-02
LOWER NECK MZ	LC-279-MZ	DENTON	15-Jan-02
CHEST AX	AC-B02A 09-F05	ENTRAN	08-Feb-02
CHEST AY	AC-02A16-A13	ENTRAN	30-Jan-02
CHEST AZ	AC-B02A09-F04	ENTRAN	08-Feb-02
LUMBAR FX	LC-211-FX	DENTON	05-Jan-02
LUMBAR FY	LC-211-FY	DENTON	05-Jan-02
LUMBAR FZ	LC-211-FZ	DENTON	05-Jan-02
LUMBAR MX	LC-211-MX	DENTON	05-Jan-02
LUMBAR MY	LC-211-MY	DENTON	05-Jan-02
LUMBAR MZ	LC-211-MZ	DENTON	05-Jan-02
PELVIS AX	AC-02A18-N03	ENTRAN	01-Feb-02
PELVIS AY	AC-B02A25-N04	ENTRAN	08-Feb-02
PELVIS AZ	AC-B02A18-N14	ENTRAN	08-Feb-02

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

P572R INSTRUMENTATION

	POSITION #4 (LEFT) SERIAL NO.: 017		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P16194	ENDEVCO	14-Jan-02
HEAD AY	AC-P16428	ENDEVCO	14-Jan-02
HEAD AZ	AC-P16517	ENDEVCO	14-Jan-02
HEAD RAZ	AC-99H30-Z07	ENTRAN	14-Jan-02
UPPER NECK FX	LC-277-FX	DENTON	14-Jan-02
UPPER NECK FY	LC-277-FY	DENTON	14-Jan-02
UPPER NECK FZ	LC-277-FZ	DENTON	14-Jan-02
UPPER NECK MX	LC-277-MX	DENTON	14-Jan-02
UPPER NECK MY	LC-277-MY	DENTON	14-Jan-02
UPPER NECK MZ	LC-277-MZ	DENTON	14-Jan-02
LOWER NECK FX	LC-280-FX	DENTON	15-Jan-02
LOWER NECK FY	LC-280-FY	DENTON	16-Jan-02
LOWER NECK FZ	LC-280-FZ	DENTON	15-Jan-02
LOWER NECK MX	LC-280-MX	DENTON	15-Jan-02
LOWER NECK MY	LC-280-MY	DENTON	15-Jan-02
LOWER NECK MZ	LC-280-MZ	DENTON	15-Jan-02
CHEST AX	AC-J27467	ENDEVCO	14-Jan-02
CHEST AY	AC-AJ4Y5	ENDEVCO	14-Jan-02
CHEST AZ	AC-P17559	ENDEVCO	14-Jan-02
LUMBAR FX	LC-283-FX	DENTON	16-Jan-02
LUMBAR FY	LC-283-FY	DENTON	16-Jan-02
LUMBAR FZ	LC-283-FZ	DENTON	16-Jan-02
LUMBAR MX	LC-283-MX	DENTON	16-Jan-02
LUMBAR MY	LC-283-MY	DENTON	16-Jan-02
LUMBAR MZ	LC-283-MZ	DENTON	16-Jan-02
PELVIS AX	AC-P15856	ENDEVCO	14-Jan-02
PELVIS AY	AC-J27496	ENDEVCO	14-Jan-02
PELVIS AZ	AC-P15638	ENDEVCO	14-Jan-02