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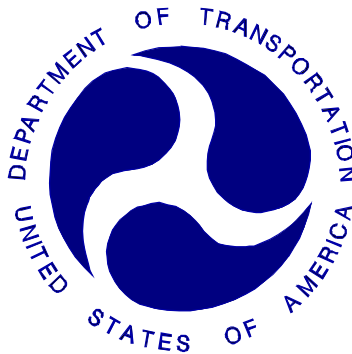
**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

DAIMLERCHRYSLER
2002 DODGE RAM 1500
4-DOOR 4X2 PICKUP

NHTSA NUMBER: M20302

VERIDIAN TEST NUMBER: 8642-NCAP-10

VERIDIAN ENGINEERING
TRANSPORTATION SCIENCES CENTER
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May 1, 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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15. <i>Supplementary Notes</i>					
16. <i>Abstract</i> A frontal load cell barrier test of a 2002 Dodge Ram 1500 4-Door 4X2 Pickup was performed at Veridian Engineering crash test facility in Buffalo, New York, on May 1, 2002. The impact velocity was 56.49 kph and the temperature at the barrier face was 21.1 °C. The maximum post-test vehicle crush was 578 mm. The test vehicle was equipped with 3-point pretensioning/load limiting restraint systems, knee bolsters, and airbags at both the driver and right outboard passenger seating positions. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appeared to comply with head, chest, and femur requirements.					
ATD Position	HIC	Clip (g's)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)
Driver (150)	656.3	45.7	40.8	3465.7	3736.6
Passenger (245)	495.0	38.9	32.4	2780.4	2265.8
17. <i>Key Words</i> 56 kph Frontal Barrier Impact test New Car Assessment Program (NCAP)				18. <i>Distribution Statement</i> <u>Copies of this report are available from:</u> NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, DC 20590	
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TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	PURPOSE AND SUMMARY OF NCAP TEST	1-1
2	OCCUPANT AND VEHICLE INFORMATION	2-1
<u>Data Sheet</u>	<u>Description</u>	
1.	CRASH TEST SUMMARY	2-1
2.	GENERAL TEST AND VEHICLE PARAMETER DATA	2-2
3.	POST IMPACT DATA	2-4
4.	TEST VEHICLE INFORMATION	2-5
5.	DUMMY POSITIONING IN VEHICLE	2-7
6.	SEAT BELT POSITIONING DATA	2-9
7.	VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY	2-10
8.	DUMMY INJURY CRITERIA VALUES	2-12
9.	SEAT BELT PERFORMANCE DATA	2-16
10.	SUMMARY OF FMVSS 212 DATA	2-17
11.	WINDSHIELD ZONE INTRUSION FMVSS 219 DATA	2-18
12.	FMVSS 301 FUEL SYSTEM INTEGRITY DATA	2-19
13.	FMVSS 301 ROLLOVER DATA	2-20
14.	VEHICLE MEASUREMENTS	2-21
15.	CAMERA DATA	2-28
16.	REFERENCE PHOTO TARGETS	2-30
17.	LOAD CELL LOCATIONS ON FIXED BARRIER	2-31
18.	POST TEST AIR BAG DATA	2-32
19.	ACCIDENT INVESTIGATION DIVISION DATA	2-33
APPENDIX A	PHOTOGRAPHS	A-1
APPENDIX B	VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA	B-1
APPENDIX C	PART 572E DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION TESTS	C-1
APPENDIX D	DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION	D-1

SECTION 1

PURPOSE AND SUMMARY OF TEST

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

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

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

Both ATDs were fully instrumented with 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. Seat belt load cells were also on the driver's and passenger's lap belts to measure dummy pelvic section loading. The driver (position 1) ATD (Serial No. 150) and the right-front passenger (position 2) ATD (Serial No.245) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The vehicle, occupant, camera and measurement data are presented in Section 2. Appendix A contains the still photograph prints. The 143 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 Dodge Ram 1500 4-Door 4X2 Pickup at a velocity of 56.49 kph. The test was performed at Veridian Engineering on May 1, 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	656.3	45.7	40.8	3465.7	3736.6	*	*
Passenger ATD	495.0	38.9	32.4	2780.4	2265.8	*	*

*Instrumentation not used in test.

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 578 mm and both the driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: Face to center of airbag, back of head to center of head restraint, upper torso to airbag, left knee to knee bolster left of the steering column and right knee to knee bolster right of the steering column. The passenger's visible contact points were as follows: Face to center of airbag, back of head to center of head restraint, upper torso to airbag left knee to left side of the glove compartment door and right knee to right side of glove compartment door.

The 2002 Dodge Ram 1500 4-Door 4X2 Pickup did not exceed the requirements of FMVSS 208, FMVSS 212, FMVSS 219, and FMVSS 301. Data pertaining to these standards are presented in the data sheets.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No.: M20302 Test Mode: 56.3 kph Frontal Barrier
 Test Date: May 1, 2002 Time: 14:32 Temperature: 21.1 °C
 Vehicle Make/Model/Body Style: 2002 Dodge Ram 1500 4-Door 4X2 Pickup
 Vehicle Test Weight: 2518.5 kg
 Vehicle/Barrier Impact Angle: 0 °
 Impact Velocity: 56.49 kph
 Maximum Static Crush: 578 mm
 Vehicle Rebound: 65 mm

<u>DUMMIES:</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Type:	<u>572E</u>	<u>572E</u>
Restraint System:	<u>Seatbelt (pretensioning/load limiting), Airbag, Knee Bolster</u>	<u>Seatbelt (pretensioning/load limiting), Airbag, Knee Bolster</u>

Number of Data Channels: 143
 Number of Cameras: 1 Real Time
 16 High Speed

DOOR OPENING DATA: Door remained closed and latched; Door opened without tools - Left Front
 Door remained closed and latched; Door opened without tools - Right Front

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>Face to center of airbag; Back of head to center of head restraint</u>	<u>Face to center of airbag; Back of head to center of head restraint</u>
Abdomen:	<u>None</u>	<u>None</u>
Chest:	<u>Airbag</u>	<u>Airbag</u>
Knees:	<u>Left knee to knee bolster left of the steering column; Right knee to knee bolster right of the steering column</u>	<u>Left knee to left quarter of the glove compartment door; Right knee to right third of glove compartment door</u>

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2002 Dodge Ram 1500 4-Door 4X2 Pickup

NHTSA No. : M20302 ; VIN: 3D7HA18N82G171119 ; Color: Red

Engine Data: 8 cylinders; - CID; 4.7 Liters; - cc

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

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

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

Major Options: X A/C; X Pwr.Strg.; X Pwr. Brakes
- Pwr. Windows; - Pwr. Door Locks; - Tilt Wheel

Safety Belt Features - Driver: X Pretensioner (shoulder); X Load Limiter; X Adj. Anchorage

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

Date Received: 4/16/02 ; Odometer Reading 311 km

Selling Dealer: Fayetteville Dodge Inc.

& Address: 5427 N. Burdick St., Fayetteville NY 13066-9669

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: DaimlerChrysler

Date of Manufacture 3-02

GVWR: 3017 kg; GAWR: 1656 kg FRONT; 1770 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load: 240 kpa FRONT
240 kpa REAR

Recommended Tire Size: P245/70R17

* Recommended Cold Tire Pressure: 241 kpa FRONT; 241 kpa REAR

Size of Tires on Test Vehicle: P245/70R17 ; Manufacturer: Michelin

Vehicle Capacity Data:

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

Number of Occupants: 3 Front; 3 Rear; 6 Total

Vehicle Capacity Weight (VCW) = 781.5 kg

No. of Occupants x 68.04 kg = 408.2 kg

Rated Cargo/Luggage Weight (RCLW) = 373.3 kg †

*Tire pressure used for test

† Maximum RCLW of 136.1 kg was used for target weight calculation.

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>624.0</u>	kg	Right Rear =	<u>479.5</u>	kg
Left Front =	<u>647.0</u>	kg	Left Rear =	<u>485.0</u>	kg
TOTAL FRONT =	<u>1271.0</u>	kg	TOTAL REAR =	<u>964.5</u>	kg
TOTAL DELIVERED WEIGHT =	<u>2235.5</u>	kg			
% of Total Front of Vehicle Weight =	<u>56.9%</u>		% of Total Rear Weight =	<u>43.1%</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW) =	<u>2235.5</u>	kg
Rated Cargo/Luggage Weight (RCLW) =	<u>136.1</u>	kg
Weight of 2 p.572 Dummies @ 76 each =	<u>152</u>	kg
TARGET TEST WEIGHT =	<u>2523.6</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 131.0 KG OF CARGO WEIGHT:

Right Front =	<u>677.0</u>	kg	Right Rear =	<u>573.0</u>	kg
Left Front =	<u>704.0</u>	kg	Left Rear =	<u>564.5</u>	kg
TOTAL FRONT =	<u>1381.0</u>	kg	TOTAL REAR =	<u>1137.5</u>	kg
TOTAL TEST WEIGHT =	<u>2518.5</u>	kg			
% of Total Front Weight =	<u>54.8%</u>	%	% of Total Rear Weight =	<u>45.2%</u>	%
Weight of Ballast Secured in Vehicle Trunk Area =	<u>0</u>	kg			
Vehicle Components Removed for Weight Reduction:	<u>Tailgate</u>				

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED:	RF	<u>890</u>	LF	<u>880</u>	RR	<u>993</u>	LR	<u>978</u>
FULLY LOADED:	RF	<u>882</u>	LF	<u>872</u>	RR	<u>962</u>	LR	<u>948</u>
AS TESTED:	RF	<u>882</u>	LF	<u>872</u>	RR	<u>964</u>	LR	<u>955</u>
Vehicle's Wheel Base:	<u>3558</u>	mm						
Location of Vehicle's C.G.:	<u>1607</u>	mm rearward of front wheel center.						

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual =	<u>98.4</u>	liters
Usable Capacity Figure Furnished by COTR =	<u>98.4</u>	liters
Test Volume Range (92 to 94% of Usable Capacity) =	<u>90.53</u>	to <u>92.5</u> liters
ACTUAL TEST VOLUME=	<u>90.9</u>	liters (with entire fuel system filled)
Test Fluid Type:	<u>Stoddard Solution</u>	; Spec. Grav. = <u>0.764</u>
Kinematic Viscosity =	<u>0.96</u>	centistokes; Color = <u>Orange</u>
Type of Fuel Pump: Electric-	<u>X</u>	; Mechanical- <u>-</u>
Does Electric Pump operate with ignition switch "ON" & engine "OFF"	Yes- <u>X</u>	No- <u>-</u>
<u>Details of Fuel System: The fuel tank is located ahead of the rear axle inboard of the left frame rail; The fuel lines are routed along the inboard side of the left frame rail; The fuel filler is located on the left side of the bed forward of the rear axle.</u>		

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test: Frontal Barrier Impact Angle: 0°
Test Date: May 1, 2002 Time: 14:32 Temperature: 21.1 °C
Vehicle NHTSA No.: M20302
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>5733</u> ; C/L = <u>5798</u> ; Right = <u>5713</u>
Post-Test	Left = <u>5289</u> ; C/L = <u>5220</u> ; Right = <u>5288</u>
Crush	Left = <u>444</u> ; C/L = <u>578</u> ; Right = <u>425</u>
AVERAGE	= <u>482</u> mm

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point:

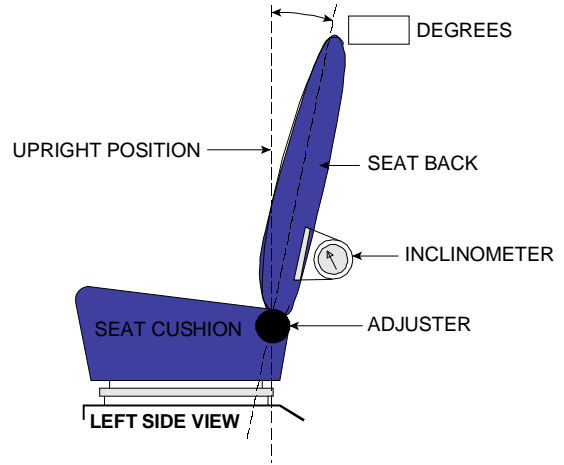
	Left = <u>58</u> ; C/L = <u>72</u> ; Right = <u>64</u>
AVERAGE	= <u>65</u> mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2002 Vehicle Model: Dodge Ram 1500 Body Style : 4-Door 4X2 Pickup

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



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat: 21 degrees

Measurement instructions: Recline seat back to 21 degrees from vertical.

Seat back angle for passenger's seat: 21 degrees

Measurement instructions: Recline seat back to 21 degrees from vertical.

2. Seat Fore and Aft Positioning

Positioning of the driver's seat: Place seat in the center of its fore and aft travel (midway between the full forward and full rearward position)

Positioning of the passenger's seat: Place seat in the center of its fore and aft travel (midway between the full forward and full rearward position)

3. Fuel Tank Capacity Data

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 98.4 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 = 98.4 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 90.9 liters

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

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

The fuel pump operates briefly and shuts off when the ignition is placed in the on position. The fuel pump runs continuously while the engine is running.

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

4. STEERING COLUMN ADJUSTMENTS:

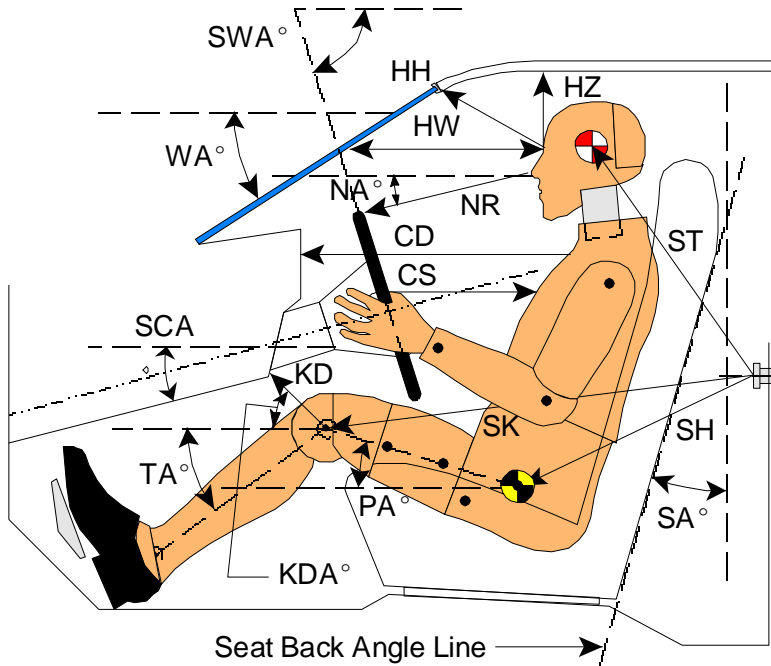
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions: Steering column was not adjustable.

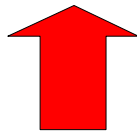
5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: Where the upper most position is detent 0 and the lower most position is detent 3, place anchorage in detent 1.

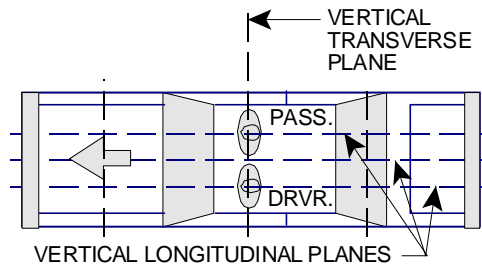
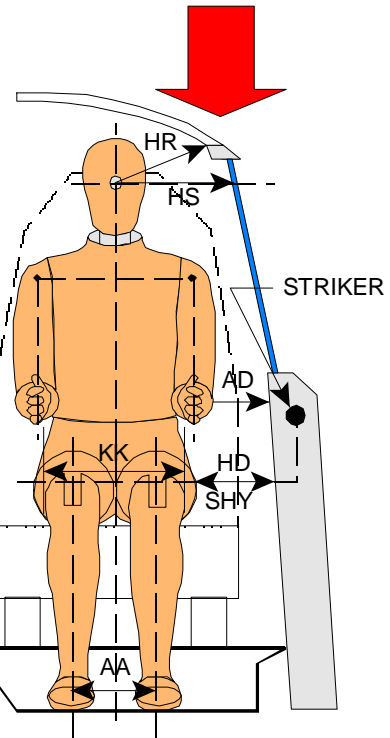
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



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



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

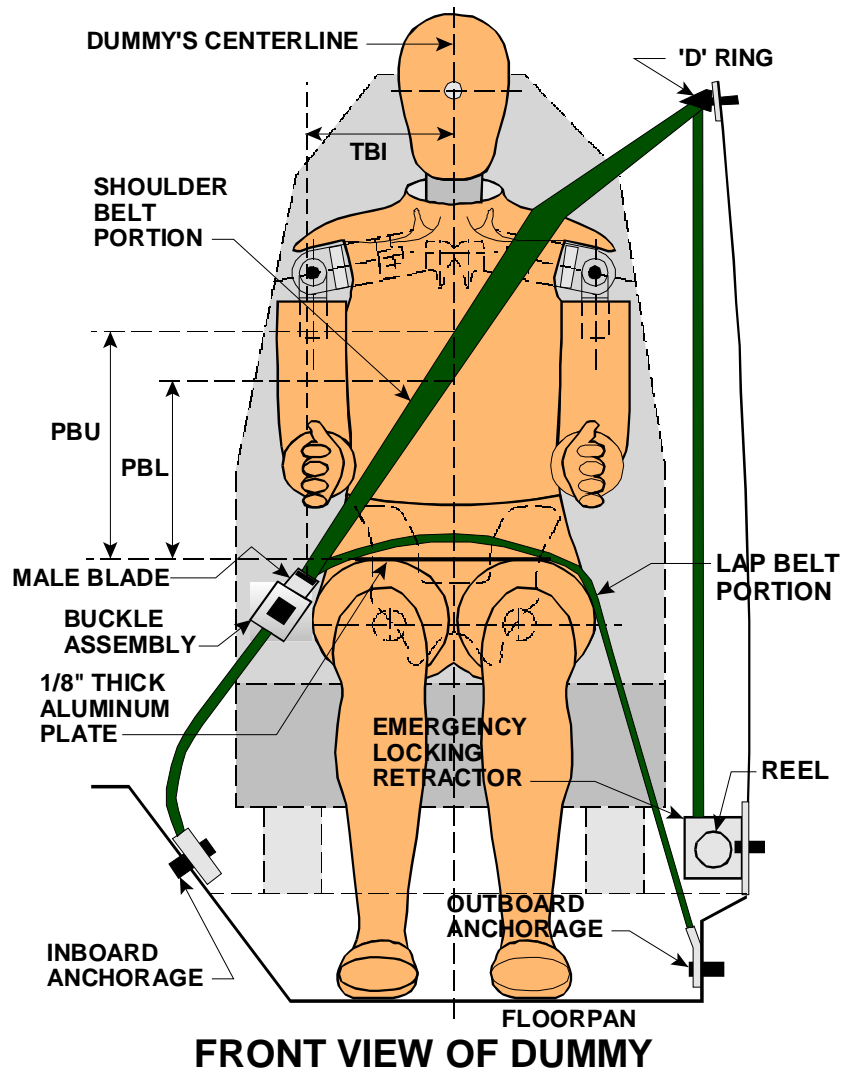


DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #150)			PASS. (Serial #245)		
WA ^o	35 deg.			N/A		
SWA ^o	61.5 deg.			N/A		
SCA ^o	28.5 deg.			N/A		
SA ^o	21 deg.			21 deg.		
HZ	236			244		
HH	445			443		
HW	723			723		
HR	194			196		
NR	451	Angle	12 deg.	N/A		
CD	560			592		
CS	346			N/A		
RA	203			N/A		
KDL	185	Angle (KDA)	34 deg.	165		
KDR	175			172	Angle (KDA)	32 deg.
PA ^o	24.8 deg.			23.5 deg.		
TA ^o	50.0 deg.			55.0 deg.		
KK	360			330		
AA	285			200		
ST	659	Angle	4 deg.	645	Angle	5 deg.
SK	605	Angle	85 deg.	614	Angle	85 deg.
SH	205	Angle	90 deg.	205	Angle	89 deg.
SHY	235			215		
HS	340			343		
HD	122			138		
AD	170			158		

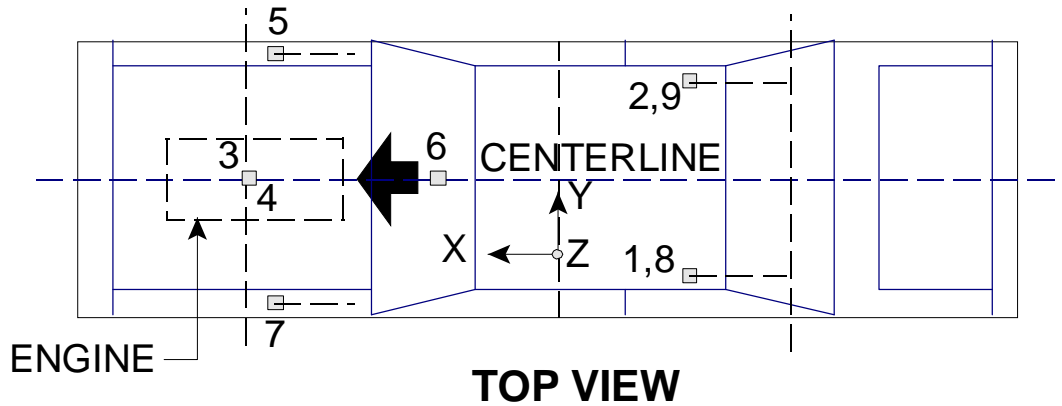
Dimensions in millimeters

SEAT BELT POSITIONING DATA

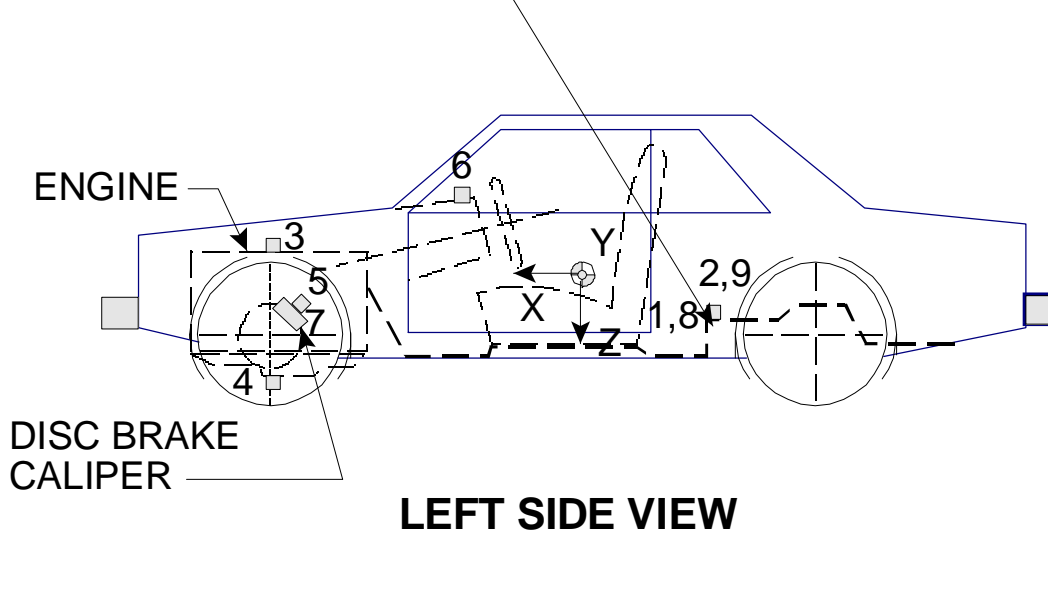


	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	348	348
PBL-- Top surface of alum. plate to belt lower edge	265	265
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

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	2653	-708	-730
2	Right Rear Seat Cross Member X	2636	715	-741
3	Top of Engine Block	4982	221	-989
4	Bottom of Engine	4883	166	-419
5	Disc Brake Caliper @ Right Side	4700	911	-496
6	Instrument Panel	3908	-17	-1036
7	Disc Brake Caliper @Left Side	4716	-869	-505
8	Left Rear Seat Cross Member Z	2653	-708	-730
9	Right Rear Seat Cross Member Z	2636	715	-741

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Left Rear Seat Cross Member X	4.7	96.1	-45.2	15.3
2	Right Rear Seat Cross Member X	2.2	102.3	-45.4	15.7
3 †	Top of Engine Block	1584.2	55.4	-70.0	46.8
4 ††	Bottom of Engine	1550.6	64.7	-123.3	56.5
5	Disc Brake Caliper @ Right Side	47.9	23.2	-103.7	29.3
6	Instrument Panel	26.0	75.8	-81.5	69.3
7	Disc Brake Caliper @Left Side	62.0	37.9	-109.6	45.0
8	Left Rear Seat Cross Member Z	12.7	80.1	-13.4	40.3
9	Right Rear Seat Cross Member Z	16.3	21.5	-16.4	29.7

† Transducer wire was cut at 50 ms, data after this time is invalid.

†† Transducer wire was cut at 60 ms, data after this time is invalid.

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2002 Dodge Ram 1500 4-Door 4X2 Pickup

NHTSA Test No.: M20302 Test Date: May 1, 2002

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head 9 Array X Arm Y	g	9.1	87.7	-6.9	59.7	5.0	75.0	-9.2	60.1
Head 9 Array X Arm Z	g	36.1	66.9	-9.4	128.4	41.5	63.9	-8.4	122.0
Head 9 Array Y Arm X	g	15.6	210.2	-54.5	78.1	16.2	237.8	-54.7	79.3
Head 9 Array Y Arm Z	g	32.7	74.6	-4.6	128.7	34.3	76.3	-0.9	21.0
Head 9 Array Z Arm X	g	25.4	211.9	-64.3	79.8	31.4	237.5	-72.8	84.6
Head 9 Array Z Arm Y	g	9.6	124.9	-7.5	75.5	5.6	232.4	-7.8	76.0
Head X	g	15.9	212.4	-57.6	77.8	16.2	237.8	-54.6	79.2
Head Y	g	6.5	94.8	-4.9	59.7	4.1	34.8	-6.3	84.6
Head Z	g	30.1	69.5	-2.3	128.5	32.2	76.1	-0.7	20.4
Head Resultant	g	62.5	77.8	-	-	62.3	76.4	-	-
Redundant Head X	g	16.3	211.7	-56.3	78.1	16.3	237.8	-52.7	76.0
Redundant Head Y	g	6.3	121.9	-5.1	59.7	5.2	34.8	-6.6	84.6
Redundant Head Z	g	29.9	69.4	-2.3	128.5	32.3	74.9	-1.3	20.4
Redundant Head Resultant	g	61.2	77.3	-	-	61.3	76.0	-	-
Upper Neck Fx	N	315.6	80.6	-538.3	114.3	331.1	84.1	-600.9	132.8
Upper Neck Fy	N	209.3	121.2	-156.4	81.4	268.9	79.6	-90.2	129.0
Upper Neck Fz	N	1803.6	69.6	-188.3	248.9	1483.0	75.7	-257.5	280.5
Upper Neck F Resultant	N	1808.9	69.6	-	-	1501.8	75.7	-	-
Upper Neck Mx	N-m	17.0	125.8	-8.6	94.4	12.2	102.3	-19.7	76.6
Upper Neck My	N-m	47.2	126.5	-17.8	236.7	51.1	123.7	-24.8	99.3
Upper Neck Mz	N-m	4.8	66.7	-13.1	106.0	10.0	92.6	-7.1	143.1
Upper Neck M Resultant	N-m	50.2	126.2	-	-	51.6	123.8	-	-
Chest X	g	4.6	243.4	-46.1	74.4	3.1	286.1	-39.6	70.0
Chest Y	g	8.7	88.7	-4.8	39.8	4.9	42.2	-7.5	86.8
Chest Z	g	13.4	40.7	-8.1	102.3	11.8	42.3	-10.7	104.3
Chest Resultant	g	47.1	74.3	-	-	40.1	66.2	-	-

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

Vehicle Year/Make/Model/Body Style: 2002 Dodge Ram 1500 4-Door 4X2 Pickup

NHTSA Test No.: M20302 Test Date: May 1, 2002

DESCRIPTION	Unit	MAXIMUM VALUE							
		Driver				Passenger			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Redundant Chest X	g	4.6	243.3	-46.2	74.4	3.0	286.0	-39.1	66.2
Redundant Chest Y	g	8.9	90.3	-4.5	39.8	5.1	42.3	-7.6	81.6
Redundant Chest Z	g	12.9	40.8	-8.1	102.3	11.2	42.3	-11.0	104.2
Redundant Chest Resultant	g	47.2	74.3	-	-	39.7	66.2	-	-
Chest Displacement	mm	0.0	-8.3	-40.8	84.4	0.0	-37.8	-32.4	80.8
Pelvic X	g	4.1	98.3	-67.0	46.2	7.2	92.7	-56.5	50.9
Pelvic Y	g	12.9	74.4	-4.8	41.2	7.8	55.5	-12.0	75.6
Pelvic Z	g	2.7	37.4	-21.0	68.1	3.0	38.9	-23.5	75.6
Pelvic Resultant	g	68.2	46.2	-	-	57.3	58.3	-	-
Left Femur	N	804.8	40.8	-3465.7	47.9	1144.5	39.1	-2780.4	59.6
Right Femur	N	1262.9	39.3	-3736.6	48.0	906.2	40.8	-2265.8	47.9
Left Knee Slider Dx	mm	0.0	57.1	-3.1	82.7	1.0	55.5	-2.2	74.4
Right Knee Slider Dx	mm	0.4	85.0	-0.2	145.5	0.4	43.4	-3.3	47.8
Left Upper Tibia Mx	N-m	29.9	42.9	-15.3	70.5	††	-	††	-
Left Upper Tibia My	N-m	69.1	64.7	-60.9	42.6	100.9	59.2	-74.4	42.0
Left Lower Tibia Fz	N	62.6	150.8	-1493.1	53.1	646.7	57.2	-1475.1	91.5
Left Lower Tibia Mx	N-m	6.8	153.8	-10.4	73.9	30.0	39.2	-36.1	58.0
Left Lower Tibia My	N-m	48.6	82.6	-24.3	54.2	40.0	93.6	-43.4	40.1
Right Upper Tibia Mx	N-m	21.8	70.0	-22.4	48.7	15.6	53.4	-37.4	60.1
Right Upper Tibia My	N-m	21.3	100.0	-127.7	67.4	70.5	44.5	-47.2	42.1
Right Lower Tibia Fz	N	401.5†	167.2	-2965.2†	67.6	125.6	211.2	-2680.4	76.4
Right Lower Tibia Mx	N-m	46.4†	68.3	-13.8†	49.5	7.7	52.6	-36.5	59.2
Right Lower Tibia My	N-m	26.2†	85.5	-59.1†	44.8	51.2	77.5	-23.8	42.6
Left Foot Aft Ax	g	27.0	83.5	-70.6	71.6	29.9	94.5	-129.4	60.6
Left Foot Aft Az	g	15.0	26.3	-32.4	81.0	36.4	37.5	-34.4	38.2
Left Foot Fore Az	g	††	-	††	-	80.2	57.6	-127.2	100.8
Right Foot Aft Ax	g	13.5	84.7	-122.4	42.2	28.7	59.3	-120.1	50.5
Right Foot Aft Az	g	2.1	152.2	-58.4	37.8	21.7	59.1	-37.8	72.0
Right Foot Fore Az	g	110.5	41.2	-118.5	45.6	67.7	59.3	-68.7	71.7
Lap Belt Load	N	7488.2	48.8	-15.8	229.7	7602.9	48.1	-16.1	299.9
Torso Belt	N	-	-	-	-	-	-	-	-

† Data is questionable, spikes were present.

†† Channel failed.

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

Vehicle Year/Make/Model/Body Style: 2002 Dodge Ram 1500 4-Door 4X2 Pickup

NHTSA Test No.: M20302 Test Date: May 1, 2002

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	656.3	62.2	95.8	52.0
Position #2 - Passenger	495.0	63.1	98.8	45.4

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

CLIP SUMMARY*				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	45.7	73.0	76.0	491.7
Position #2 - Passenger	38.9	68.6	71.6	384.1

* 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 Dodge Ram 1500 4-Door 4X2 Pickup

NHTSA Test No.: M20302 Test Date: May 1, 2002

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	635.6	62.0	95.5	51.4
Position #2 - Passenger	471.8	63.0	98.8	44.4

** 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	45.7	72.8	75.8	495.7
Position #2 - Passenger	38.5	65.2	68.2	374.6

* 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

<u>BELT LENGTH DATA:</u>	<u>Driver</u>	<u>Passenger</u>
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	1991	1970
Shoulder belt length as measured on Part 572 Dummy.	826	815
Lap belt length as measured on Part 572 Dummy.	905	895
<u>SHOULDER BELT SPOOL-OFF DATA:</u>		
As determined by film analysis.	†	†
As determined mechanically.	††	††
As determined electronically.	††	††
<u>BELT STRETCH DATA:</u>		
Measured electronically between shoulder belt load cell and the "D" ring.	††	††
Measured mechanically.	4 mm/m	4 mm/m

_____ Dimensions in millimeters

† Onboard cameras were not installed in the rear compartment area.

†† Instrumentation was not installed. Vehicle was equipped with seat belt pretensioners and data acquisition system was at capacity.

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 25 mm molding.

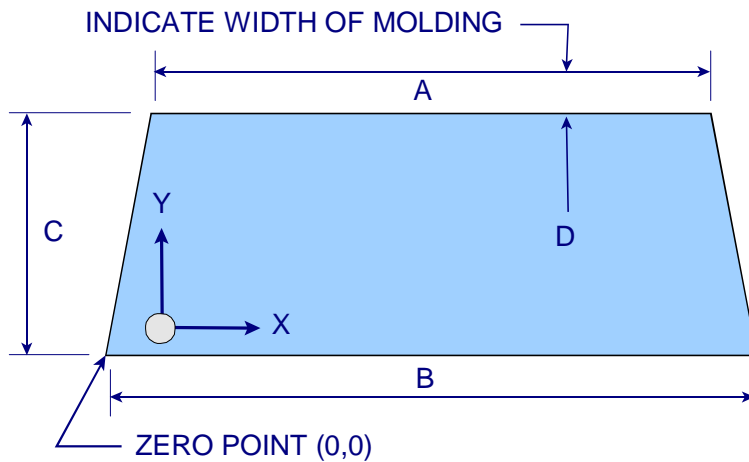
FMVSS 212 REQUIREMENTS:

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	2400	2400	100.0%
LEFT SIDE	2400	2400	100.0%
TOTAL	4800	4800	100.0%

AREA OF RETENTION FAILURE:



DIMENSIONS (mm)	
A	1400
B	1780
C	810
D	25

FRONT VIEW OF WINDSHIELD

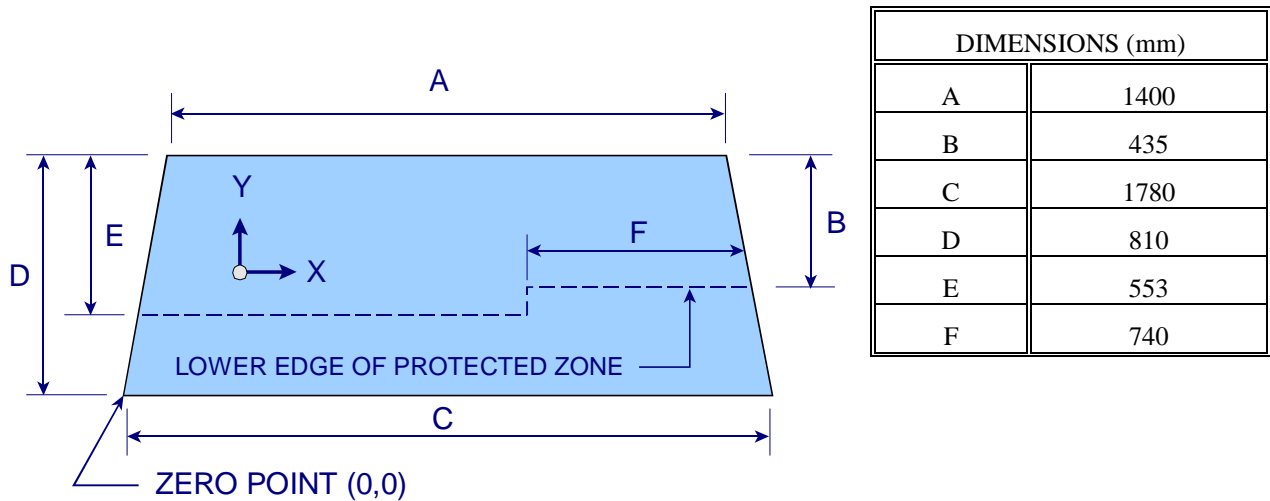
FAILURE DETAILS: None

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

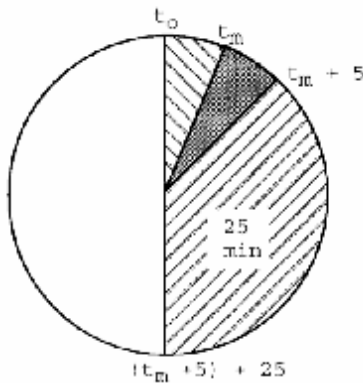
NHTSA TEST No.: M20302 TEST DATE: May 1, 2002
VEHICLE MAKE/MODEL: 2002 Dodge Ram 1500 4-Door 4X2 Pickup

The test vehicle was filled from 92% to 94% of the manufacturer'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

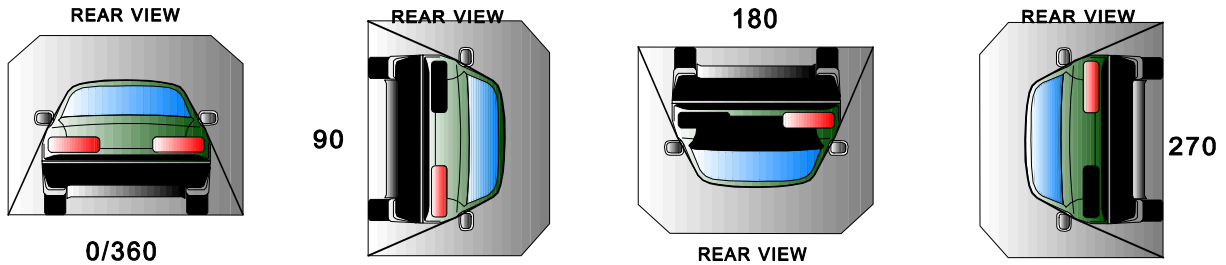
ACTUAL	MAX ALLOWED
0	28 g
0	141 g
0	28 g/min.

SOLVENT SPILLAGE DETAILS: None

DATA SHEET NO. 13 - ROLLOVER DATA

Vehicle: 2002 Dodge Ram 1500 4-Door 4X2 Pickup

NHTSA No.: M20302



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	
	1	minutes	11	seconds	5	minutes	6	minutes	11	seconds	7	minutes
0° - 90°	1	minutes	11	seconds	5	minutes	6	minutes	11	seconds	7	minutes
90° - 180°	1	minutes	5	seconds	5	minutes	6	minutes	5	seconds	7	minutes
180°-270°	1	minutes	15	seconds	5	minutes	6	minutes	15	seconds	7	minutes
270°-360°	1	minutes	6	seconds	5	minutes	6	minutes	6	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:

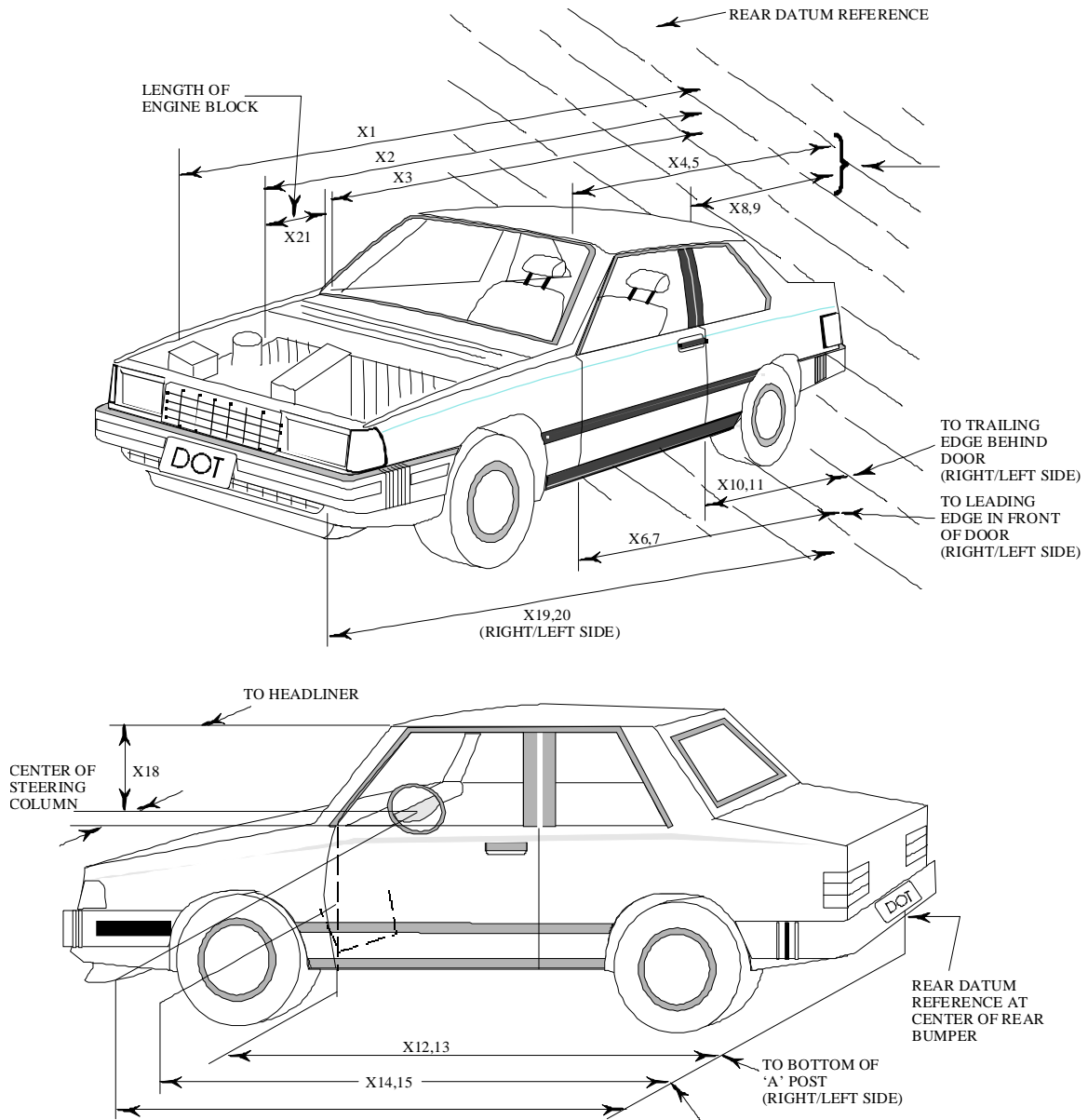
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°	0	0	0	N/A
90° - 180°	0	0	0	N/A
180°-270°	0	0	0	N/A
270°-360°	0	0	0	N/A

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

IV. SOLVENT SPILLAGE LOCATION(S):

Rollover Stage	Spillage Location
0° - 90°	-
90° - 180°	-
180°-270°	-
270°-360°	-

DATA SHEET NO. 14 TEST VEHICLE MEASUREMENTS

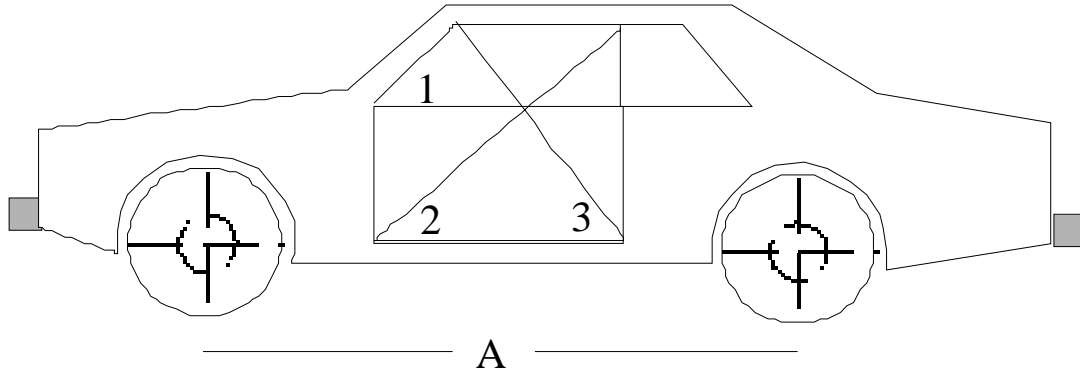


DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	5798	5220	578
X2	Rear Surface of Vehicle to Front of Engine	5017	4943	74
X3	Rear Surface of Vehicle to Firewall	4712	4649	63
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	4274	4272	2
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	4272	4274	-2
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	4192	4184	8
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	4186	4188	-2
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	3100	3100	0
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	3105	3103	2
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	3080	3082	-2
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	3088	3081	7
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	4227	4216	11
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	4228	4219	9
X14	Rear Surface of Vehicle to Firewall, Right Side	4648	4582	66
X15	Rear Surface of Vehicle to Firewall, Left Side	4667	4607	60
X16	Rear Surface of Vehicle to Steering Column	3754	3760	-6
X17	Center of Steering Column to "A" Post	243	255	-12
X18	Center of Steering Column to Headliner	468	477	-9
X19	Rear Surface of Vehicle to Right Side of Front Bumper	5713	5288	425
X20	Rear Surface of Vehicle to Left Side of Front Bumper	5733	5289	444
X21	Length of Engine Block	645	645	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3942	3965	-23
CD	Rear Surface of Vehicle to Center of Dash Panel	3953	3962	-9
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3934	3923	11

All Dimensions in mm

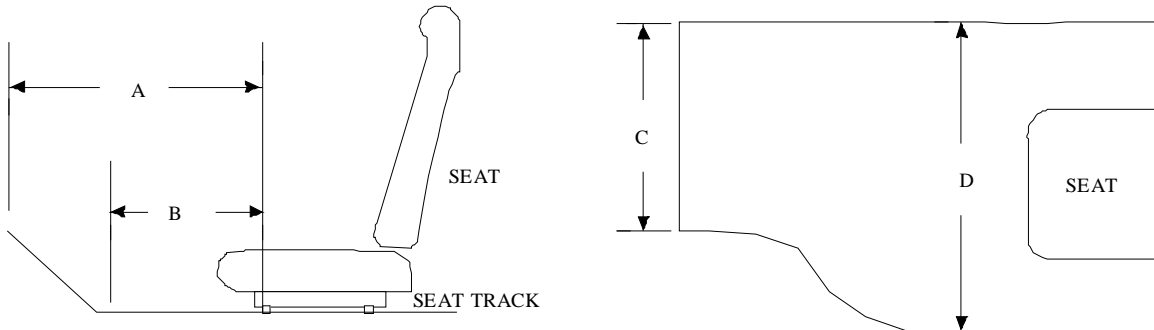
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1048	1602	1240	1045	1608	1251
AFTER TEST	1044	1607	1243	1039	1607	1245
DIFFERENCE	4	-5	-3	6	1	6

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	3558	3558
AFTER TEST	3523	3515
DIFFERENCE	35	43

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



DRIVER

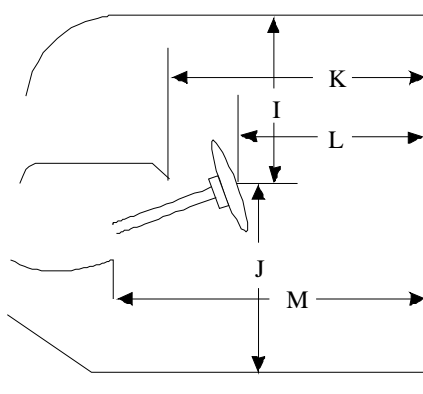
Measurement	Pre-Test	Post-Test	Difference
A	774	767	7
B	494	494	0
C	474	469	5
D	359	350	9

PASSENGER

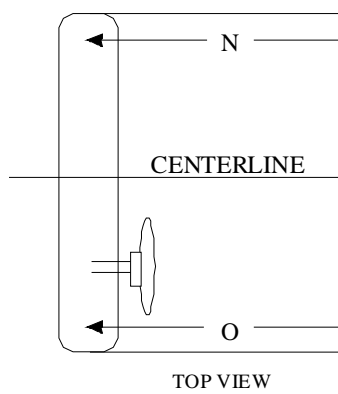
Measurement	Pre-Test	Post-Test	Difference
A	699	697	2
B	449	464	-15
C	292	281	11
D	331	337	-6

Units = mm

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

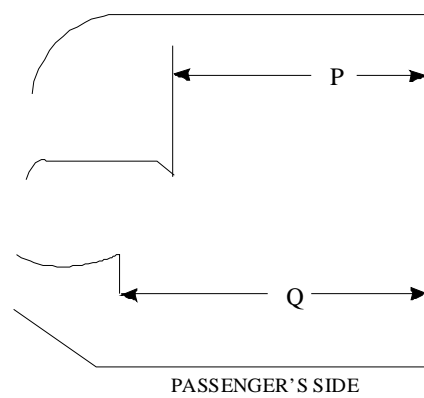


DRIVER'S SIDE



TOP VIEW

MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE

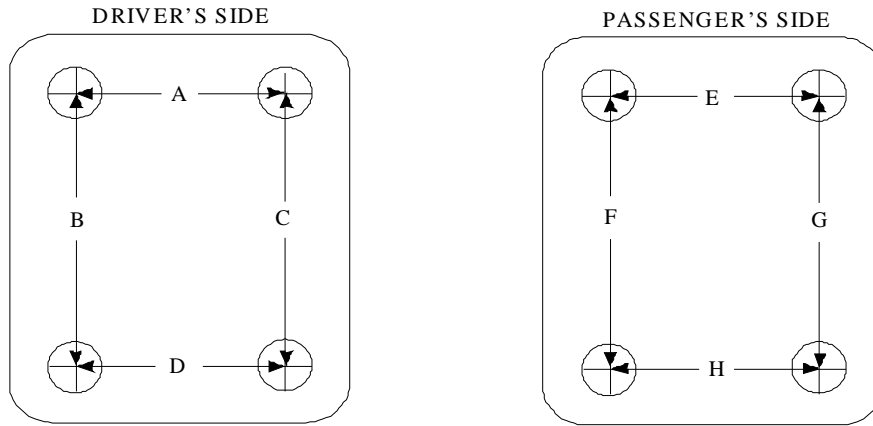


PASSENGER'S SIDE

Measurement	Pre-Test	Post-Test	Difference
I	468	477	-9
J	717	712	5
K	1607	1612	-5
L	1428	1435	-7
M	1675	1688	-13
N	1623	1644	-21
O	1608	1599	9
P = K (PASS.)	1655	1653	2
Q = M (PASS.)	1669	1690	-21

Units = mm

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

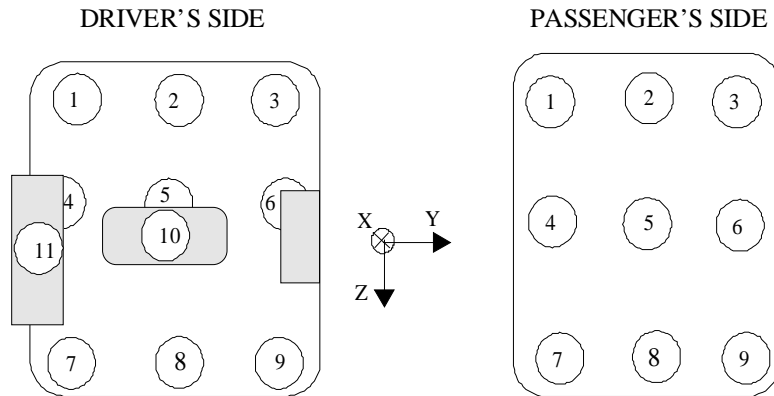


TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	474	469	5
B	416	420	-4
C	408	405	3
D	359	350	9
E	292	281	11
F	421	409	12
G	436	432	4
H	331	337	-6

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	4409	4406	3	-736	-742	6
2	4448	4444	4	-714	-725	11
3	4365	4360	5	-744	-753	9
4	4306	4304	2	-619	-627	8
5	4320	4314	6	-614	-627	13
6	4282	4275	7	-613	-622	9
7	4170	4175	-5	-548	-558	10
8	4169	4171	-2	-549	-554	5
9	4153	4157	-4	-543	-550	7
10	4175	4183	-8	-728	-734	6
11	4285	4277	8	-635	-639	4

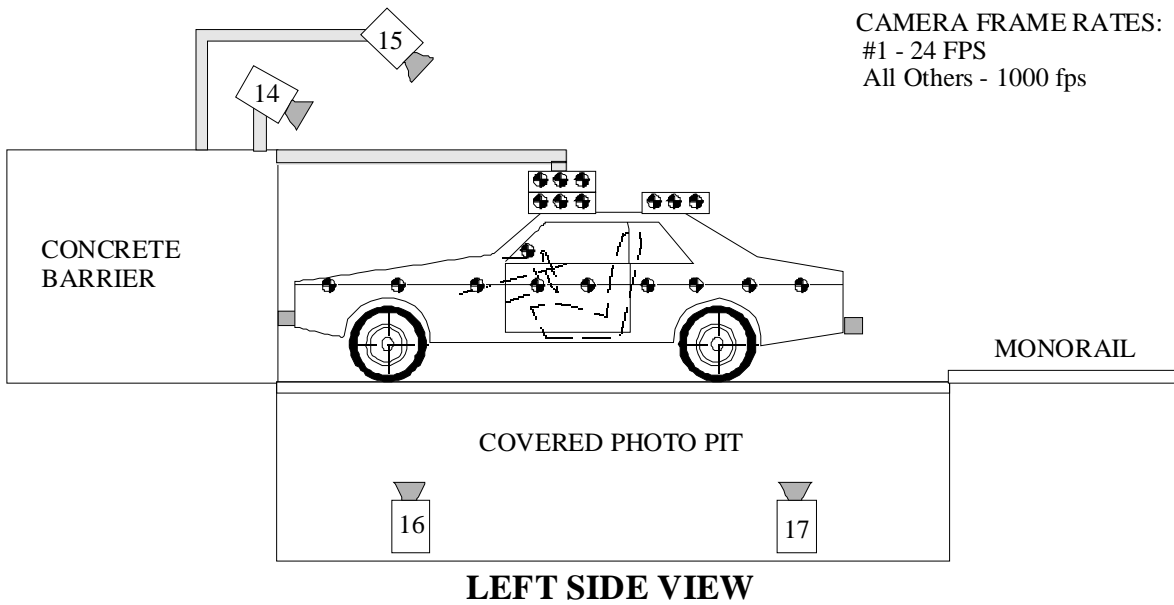
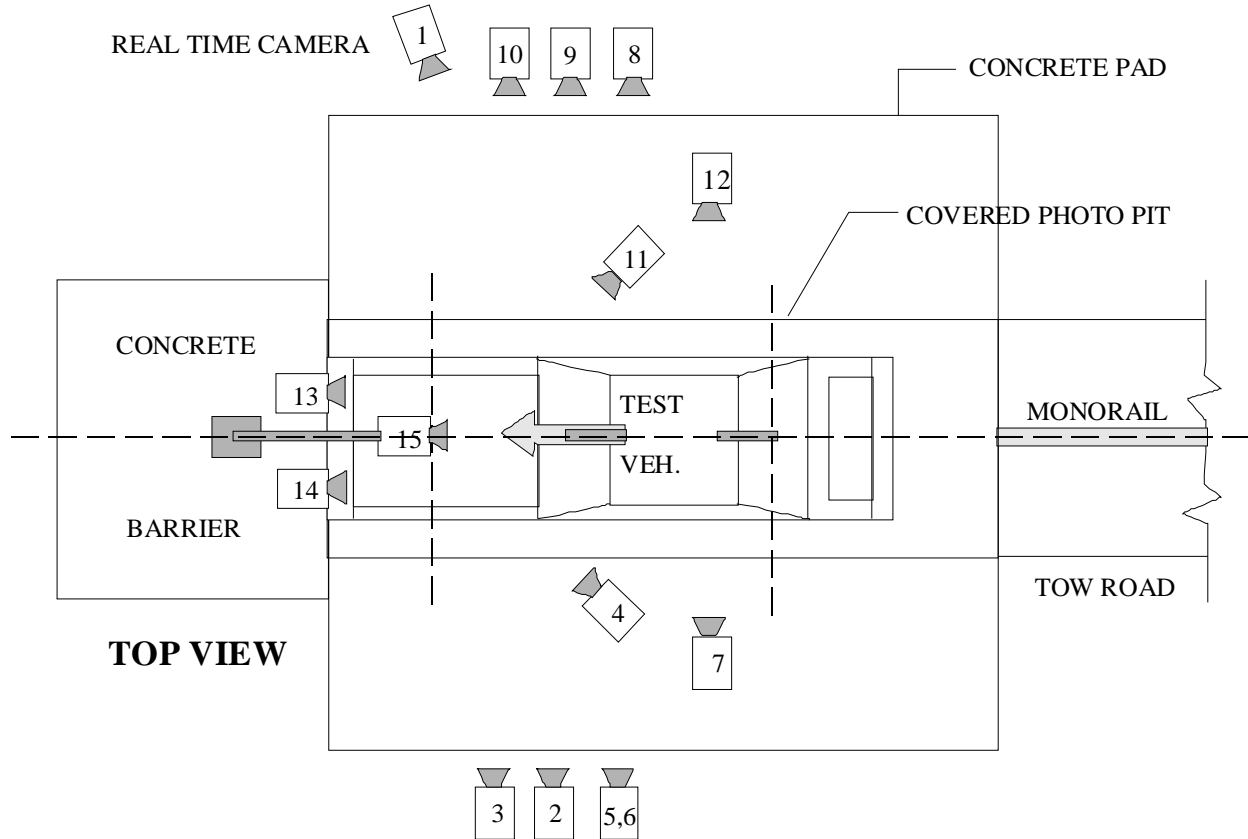
Passenger Side Toe-pan Measurements

Toe-pan Location	X Deformation (mm)			Z Deformation (mm)		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	4160	4157	3	-707	-708	1
2	4380	4376	4	-717	-725	8
3	4375	4382	-7	-717	-724	7
4	4047	4054	-7	-612	-615	3
5	4268	4264	4	-615	-618	3
6	4271	4262	9	-616	-613	-3
7	3890	3897	-7	-536	-532	-4
8	4131	4142	-11	-541	-548	7
9	4133	4131	2	-544	-546	2

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.: M20302 Vehicle: 2002 Dodge Ram 1500 4-Door 4X2 Pickup

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)*			ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	7885	1982	1075	0	7504	12.5	1015
3	Left Side View	8765	935	1215	-2	8384	25	900
4	Driver and Interior View	7925	3022	2005	-7	-	25	1030
5	Steering Column (Bottom)	9114	2360	1175	-1	8733	25	1010
6	Steering Column (Top)	9114	2360	1780	-6	8733	25	1040
7	Left Side CRS View	3350	2980	2455	-23	-	13	500
8	Overall Right Side	7935	2405	1145	-1	8351	12.5	1005
9	Right Side View	8796	1545	1176	-2	9212	25	995
10	Right Passenger View	8800	2020	1432	-2	9216	35	1000
11	Passenger and Interior View	8100	2900	1976	-5	-	25	975
12	Right Side CRS View	3415	2985	2450	-22	-	13	500
13	Passenger Front View	620	-92	1987	-26	-	13	1010
14	Driver Front View	620	-92	1987	-26	-	13	1005
15	Windshield View	0	-530	3374	-46	-	13	1000
16	Pit View of Engine	0	615	-3048	90	-	13	985
17	Pit View of Fuel Tank	0	3619	-3048	90	-	13	1005

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

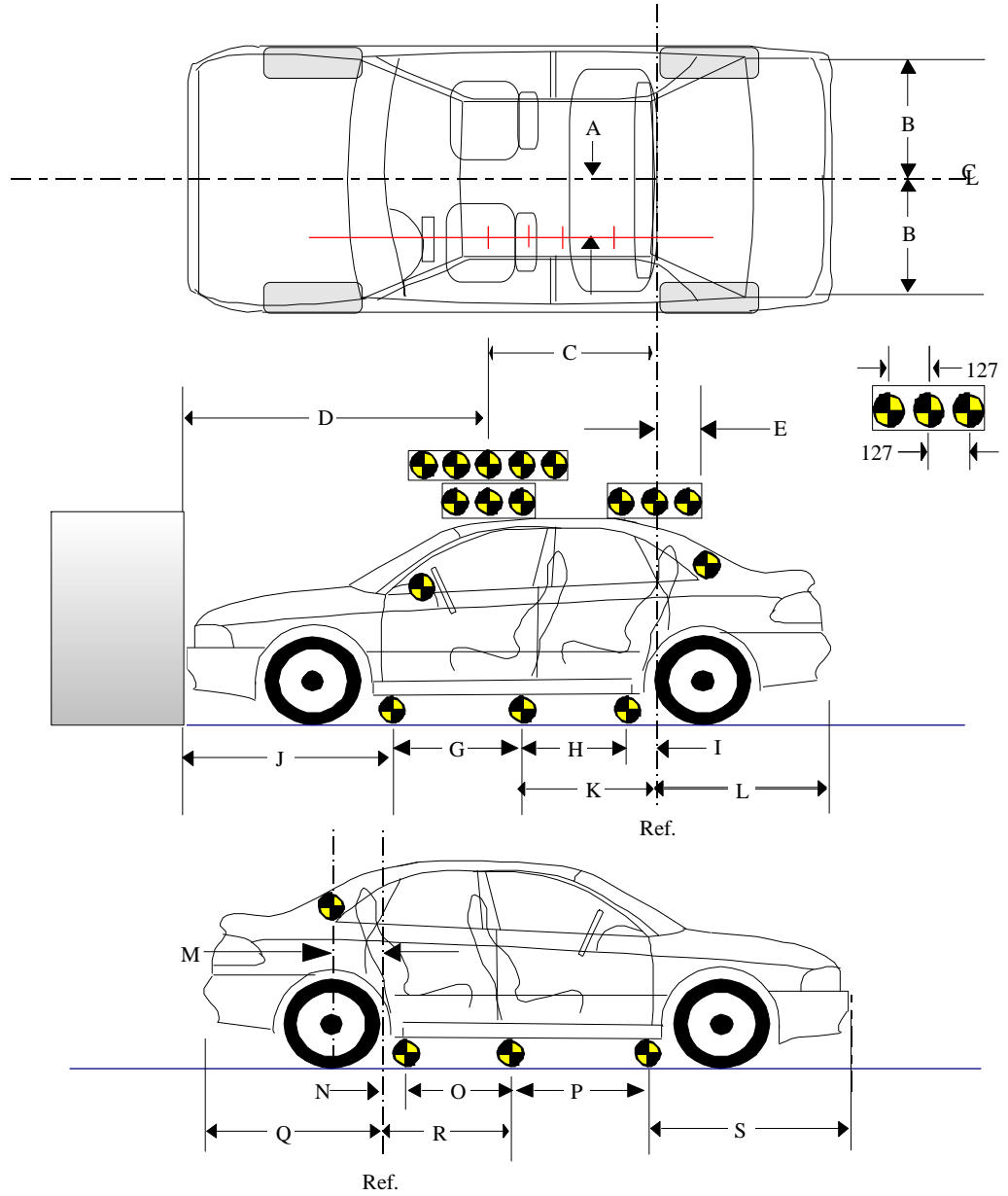
Y = film plane to impact location N.T. indicates No Timing

Z = film plane to ground

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

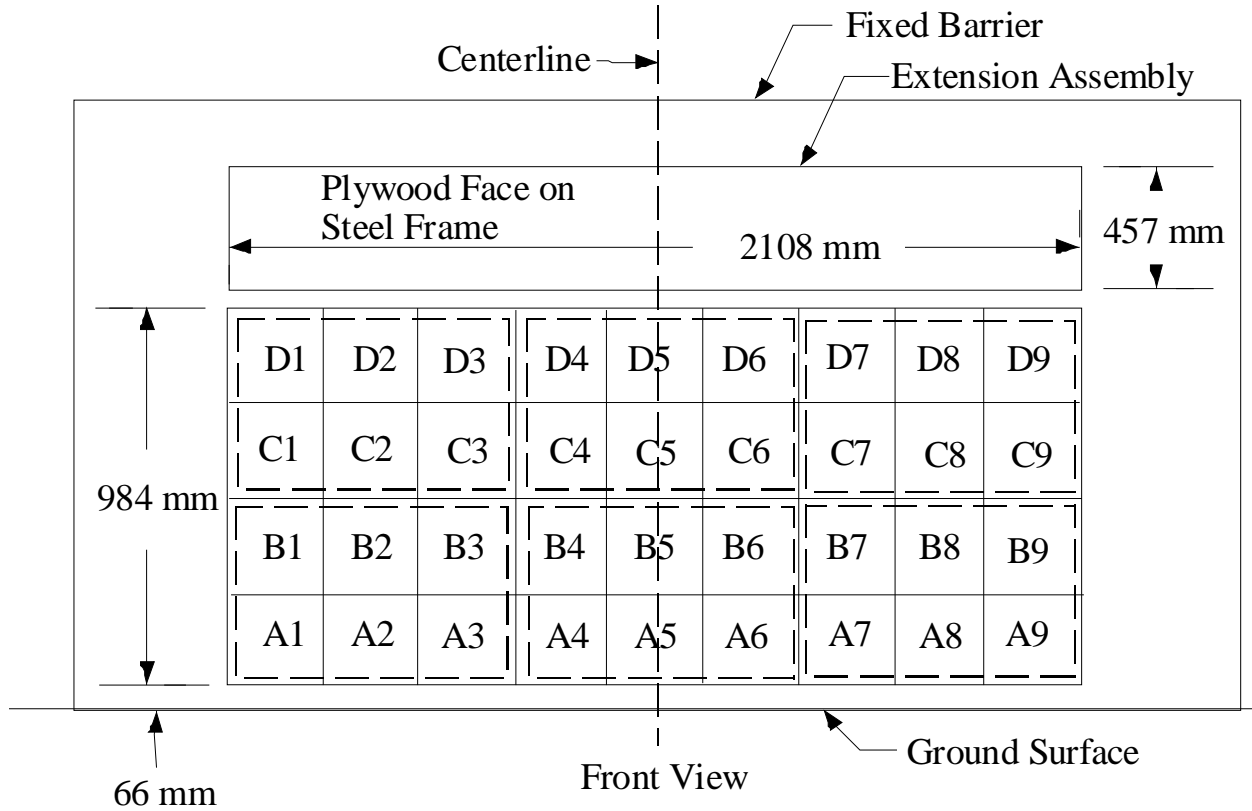
(Dimensions in millimeters)

A	492
B	797
C	1214
D	2261
E	1108
F	1601
G	1235
H	1232
I	156
J	1574
K	1388
L	1601
M	1118
N	172
O	1220
P	1231
Q	1593
R	1392
S	1583



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.: M20302; Test Date: May 1, 2002; Technician: Lawrence Q. Valvo

Vehicle Model Year/Make/Model: 2002 Dodge Ram 1500 4-Door 4X2 Pickup

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

B. Size of vent holes: (mm²) 625 -Driver 3025 -Passenger

C. Total vent area: (mm²) 1250 -Driver 6050 -Passenger

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

Driver: 660 -Height; 660 -Width; 250 -Depth

Passenger: 900 -Height; 800 -Width; 300 -Depth

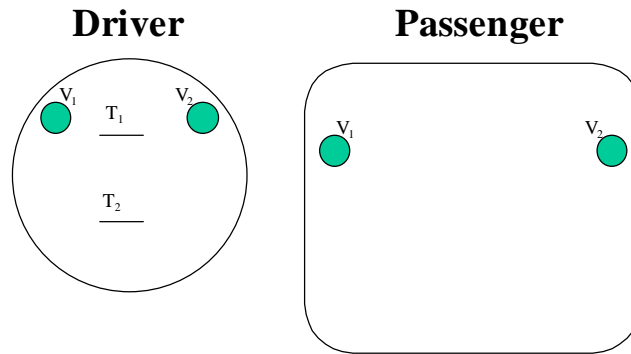
E. Is the air bag tethered?

Driver: X -Yes; - -No; If yes, record length of tether- 255

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

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

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



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

Driver: Air bag: 0007609J; 970000349; 970000361; 12 03 02 G

 Generator: P5GR77XDVAD; TDRAV0792A0607

Passenger: Air bag: 0008892-D; 970000259; 970000257; 22 02 02 G

 Generator: P5GR78XDVAC; TPAAW0642B1439

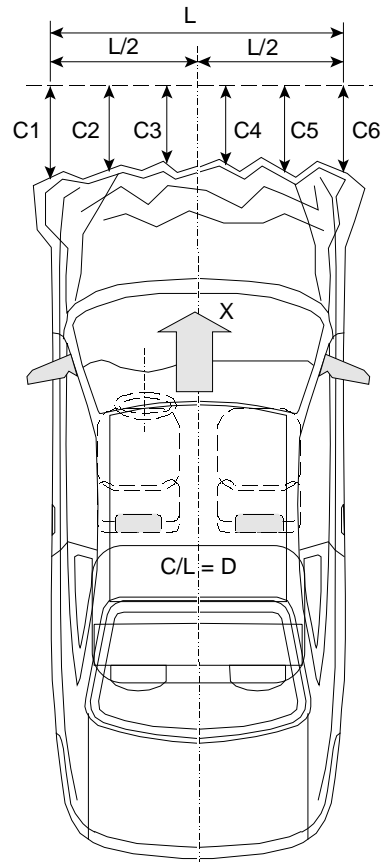
DATA SHEET NO. 19 ACCIDENT INVESTIGATION DIVISION DATA

FOR FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Dodge Ram 1500 4-Door 4X2 Pickup
 NHTSA Test No.: M20302 VIN: 3D7HA18N82G171119
 Model Year: 2002 Build Date: 3-02 Test Date: May 1, 2002
 Vehicle Size Category: Pickup Test Weight: 2518.5 kg
 Vehicle Wheelbase: 3558 mm; Front Overhang: 1032 mm; Overall Width: 2029 mm
 Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions

	PRE (mm)	POST (mm)	DIFF (mm)
C1 =	5576	5300	276
C2 =	5737	5284	453
C3 =	5791	5243	548
C4 =	5792	5244	548
C5 =	5736	5281	455
C6 =	5576	5295	281



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region: L1= 1760 mm
 L2= 880 mm
 L5= 352 mm

APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

<u>Figure</u>	<u>Title</u>	<u>Page</u>
A-1	LOAD CELL LOCATIONS.	A-3
A-2	PRE-TEST FRONT VIEW	A-4
A-3	POST-TEST FRONT VIEW.	A-5
A-4	PRE-TEST LEFT SIDE VIEW	A-6
A-5	POST-TEST LEFT SIDE VIEW	A-7
A-6	PRE-TEST RIGHT SIDE VIEW	A-8
A-7	POST-TEST RIGHT SIDE VIEW	A-9
A-8	PRE-TEST RIGHT FRONT THREE-QUARTER VIEW	A-10
A-9	POST-TEST RIGHT FRONT THREE-QUARTER VIEW	A-11
A-10	PRE-TEST LEFT REAR THREE-QUARTER VIEW	A-12
A-11	POST-TEST LEFT REAR THREE-QUARTER VIEW	A-13
A-12	PRE-TEST WINDSHIELD VIEW	A-14
A-13	POST-TEST WINDSHIELD VIEW	A-15
A-14	PRE-TEST ENGINE COMPARTMENT VIEW	A-16
A-15	FUEL CAP VIEW	A-17
A-16	PRE-TEST FRONT UNDERBODY VIEW	A-18
A-17	POST-TEST FRONT UNDERBODY VIEW	A-19
A-18	PRE-TEST FRONT SIDE UNDERBODY VIEW	A-20
A-19	POST-TEST FRONT SIDE UNDERBODY VIEW	A-21
A-20	PRE-TEST REAR UNDERBODY VIEW	A-22
A-21	POST-TEST REAR UNDERBODY VIEW	A-23
A-22	PRE-TEST DRIVER POSITION VIEW	A-24
A-23	POST-TEST DRIVER POSITION VIEW	A-25
A-24	PRE-TEST PASSENGER POSITION VIEW	A-26
A-25	POST-TEST PASSENGER POSITION VIEW	A-27
A-26	PRE-TEST DRIVER AND INTERIOR VIEW	A-28
A-27	POST-TEST DRIVER AND INTERIOR VIEW	A-29
A-28	PRE-TEST PASSENGER AND INTERIOR VIEW	A-30
A-29	POST-TEST PASSENGER AND INTERIOR VIEW	A-31
A-30	PRE-TEST DRIVER HEAD LOCATION	A-32
A-31	POST-TEST DRIVER HEAD LOCATION	A-33
A-32	PRE-TEST PASSENGER HEAD LOCATION	A-34
A-33	POST-TEST PASSENGER HEAD LOCATION	A-35
A-34	PRE-TEST DRIVER FLOOR PAN VIEW	A-36
A-35	POST-TEST DRIVER FLOOR PAN VIEW	A-37
A-36	PRE-TEST PASSENGER FLOOR PAN VIEW	A-38
A-37	POST-TEST PASSENGER FLOOR PAN VIEW	A-39
A-38	ROLLOVER VIEW	A-40
A-39	IMPACT VIEW	A-41
A-40	CERTIFICATION/TIRE PLACARD	A-42



Figure A-1: LOAD CELL LOCATIONS.



A-4

8642-NCAP-10

Figure A-2: PRE-TEST FRONT VIEW



Figure A-3: POST-TEST FRONT VIEW.



Figure A-4: PRE-TEST LEFT SIDE VIEW



A-7

8642-NCAP-10

Figure A-5: POST-TEST LEFT SIDE VIEW



A-8

8642-NCAP-10

Figure A-6: PRE-TEST RIGHT SIDE VIEW



A-9

8642-NCAP-10

M20302

Figure A-7: POST-TEST RIGHT SIDE VIEW



A-10

8642-NCAP-10

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



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



A-12

8642-NCAP-10

M20302

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



A-13

8642-NCAP-10

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



A-14

8642-NCAP-10

Figure A-12: PRE-TEST WINDSHIELD VIEW



Figure A-13: POST-TEST WINDSHIELD VIEW



A-16

8642-NCAP-10

Figure A-14: PRE-TEST ENGINE COMPARTMENT VIEW



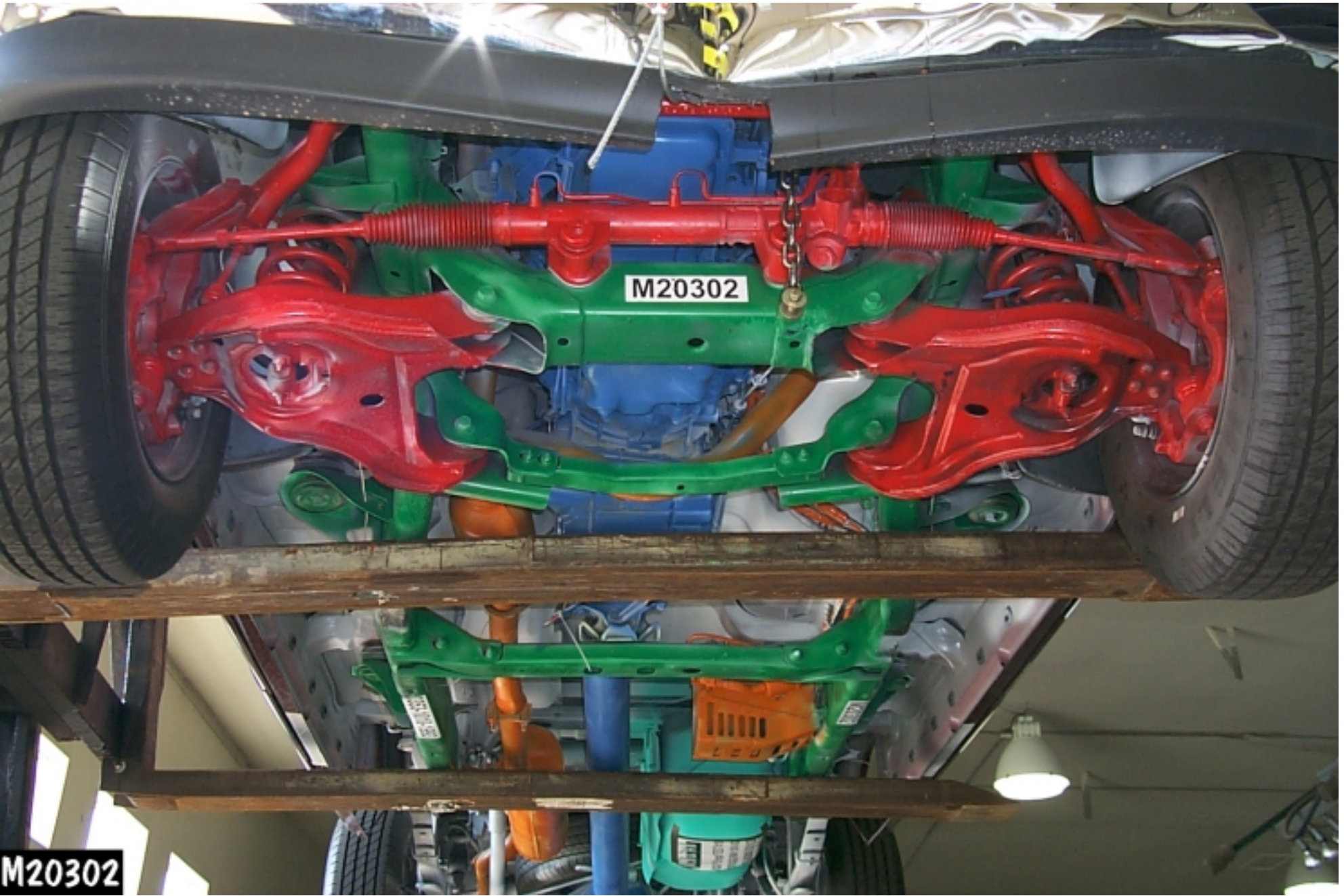
Figure A-15: FUEL CAP VIEW



A-18

8642-NCAP-10

Figure A-16: PRE-TEST FRONT UNDERBODY VIEW



A-19

8642-NCAP-10

M20302

Figure A-17: POST-TEST FRONT UNDERBODY VIEW



A-20

8642-NCAP-10

Figure A-18: PRE-TEST FRONT SIDE UNDERBODY VIEW



Figure A-19: POST-TEST FRONT SIDE UNDERBODY VIEW

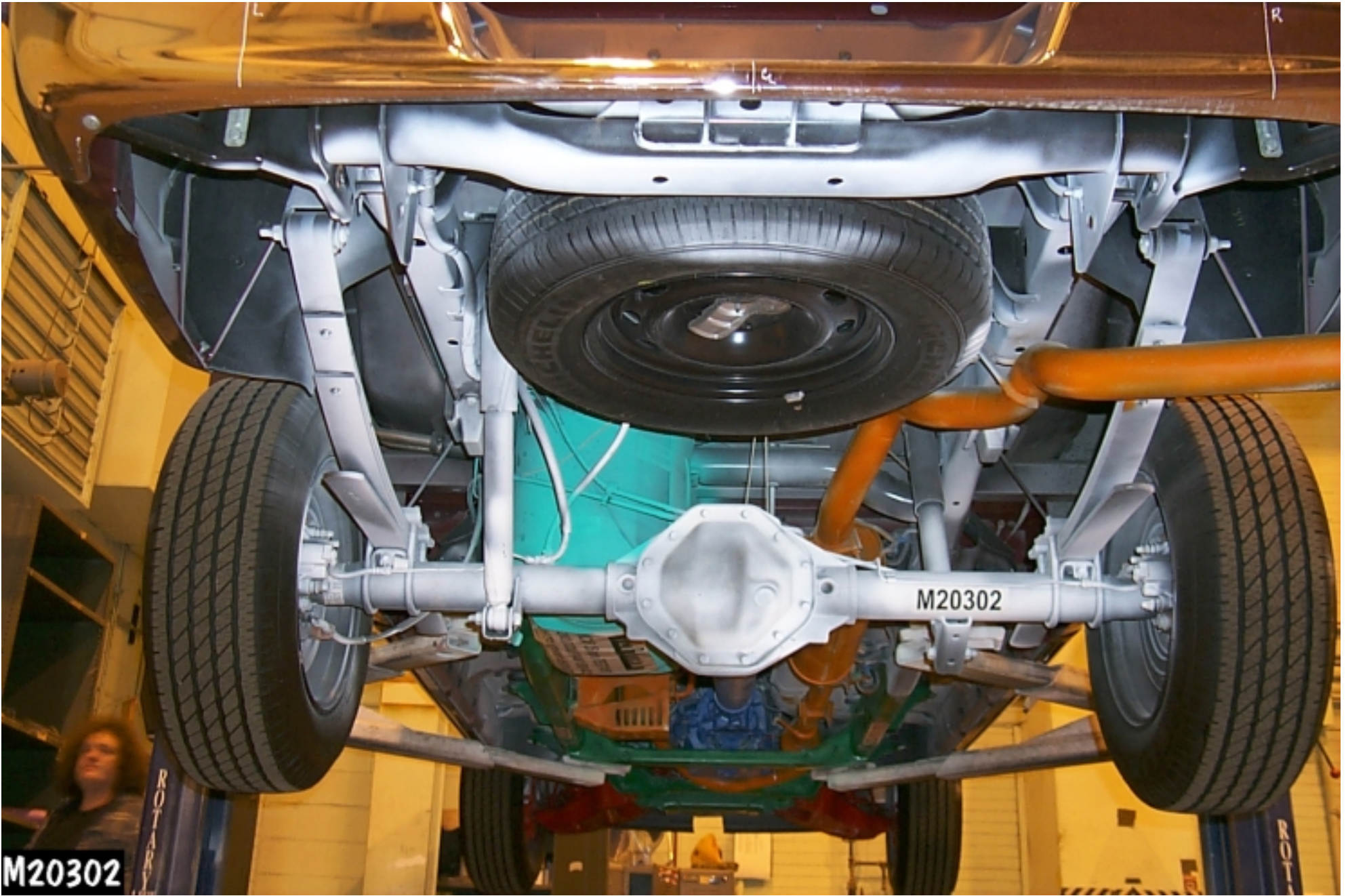
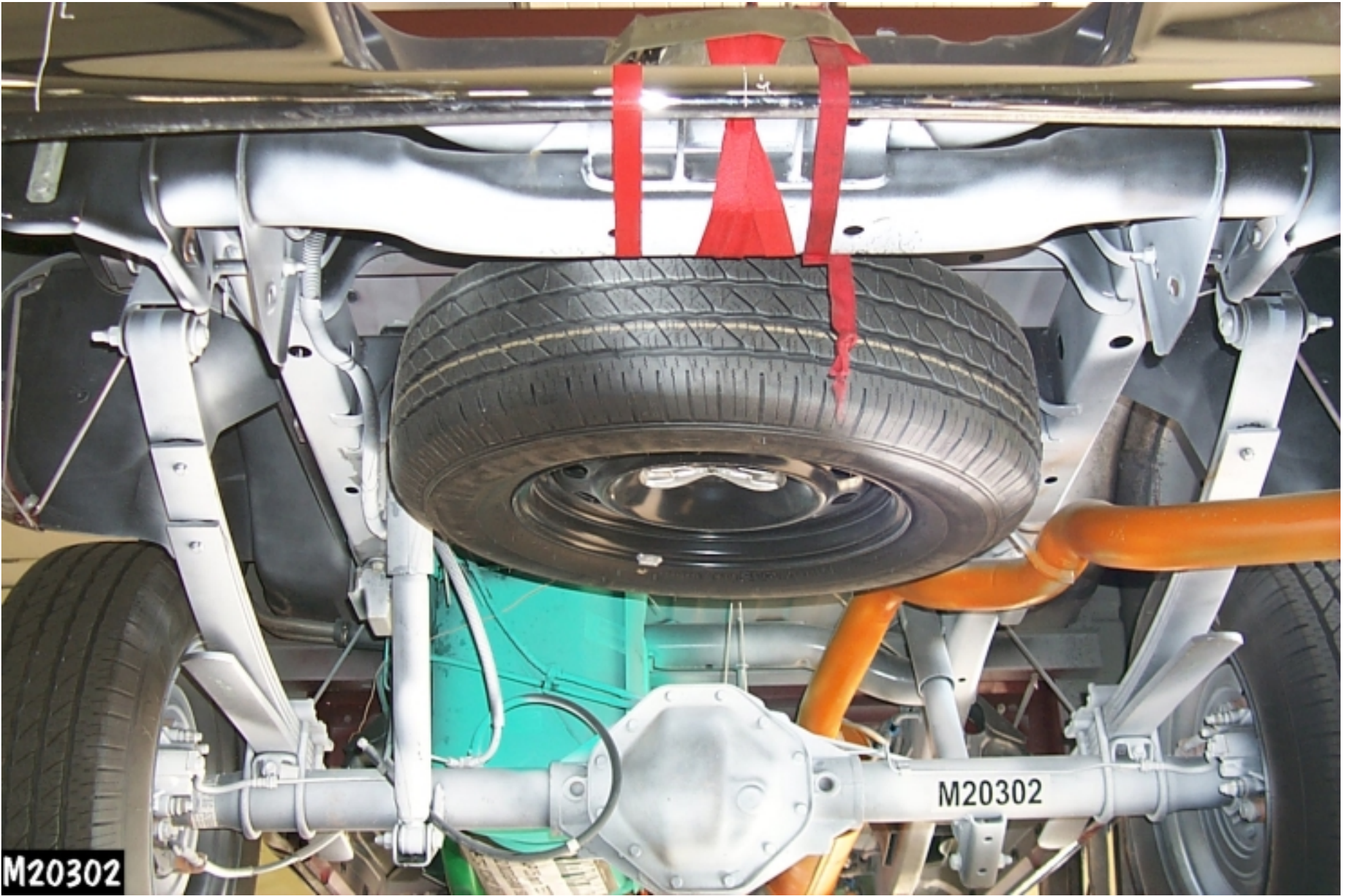


Figure A-20: PRE-TEST REAR UNDERBODY VIEW



A-23

8642-NCAP-10

Figure A-21: POST-TEST REAR UNDERBODY VIEW



A-24

8642-NCAP-10

M20302

M20302

Figure A-22: PRE-TEST DRIVER POSITION VIEW



A-25

8642-NCAP-10

M20302

Figure A-23: POST-TEST DRIVER POSITION VIEW



A-26

8642-NCAP-10

Figure A-24: PRE-TEST PASSENGER POSITION VIEW



A-27

8642-NCAP-10

Figure A-25: POST-TEST PASSENGER POSITION VIEW



Figure A-26: PRE-TEST DRIVER AND INTERIOR VIEW



M20302

Figure A-27: POST-TEST DRIVER AND INTERIOR VIEW



Figure A-28: PRE-TEST PASSENGER AND INTERIOR VIEW



A-31

8642-NCAP-10

Figure A-29: POST-TEST PASSENGER AND INTERIOR VIEW



A-32

8642-NCAP-10

Figure A-30: PRE-TEST DRIVER HEAD LOCATION



A-33

8642-NCAP-10

Figure A-31: POST-TEST DRIVER HEAD LOCATION



Figure A-32: PRE-TEST PASSENGER HEAD LOCATION



A-35

8642-NCAP-10

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



A-38

8642-NCAP-10

Figure A-36: PRE-TEST PASSENGER FLOOR PAN VIEW



A-39

8642-NCAP-10

Figure A-37: POST-TEST PASSENGER FLOOR PAN VIEW

A-40

8642-NCAP-10



Figure A-38: ROLLOVER VIEW



Figure A-39: IMPACT VIEW

MFD BY DAIMLERCHRYSLER CORPORATION

DATE OF MFR 3-02

GVWR 3017 KG (06650 LB)

GAWR FRONT	WITH TIRES	RIMS AT	COLD
1656 KG (3650 LB)	P245/70R17 BSW	17X8	241 KPA (35 PSI)
GAWR REAR	WITH TIRES	RIMS AT	COLD
1770 KG (3900 LB)	P245/70R17 BSW	17X8	241 KPA (35 PSI)

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

VIN: 3D7HA18N82G171119 TYPE: TRUCK SINGLE X DUAL



MDH: 032202 729AA PNT:PRU VEHICLE MADE IN MEXICO TRM:P9DU 4648507

M20302

Figure A-40: CERTIFICATION/TIRE 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. M20302

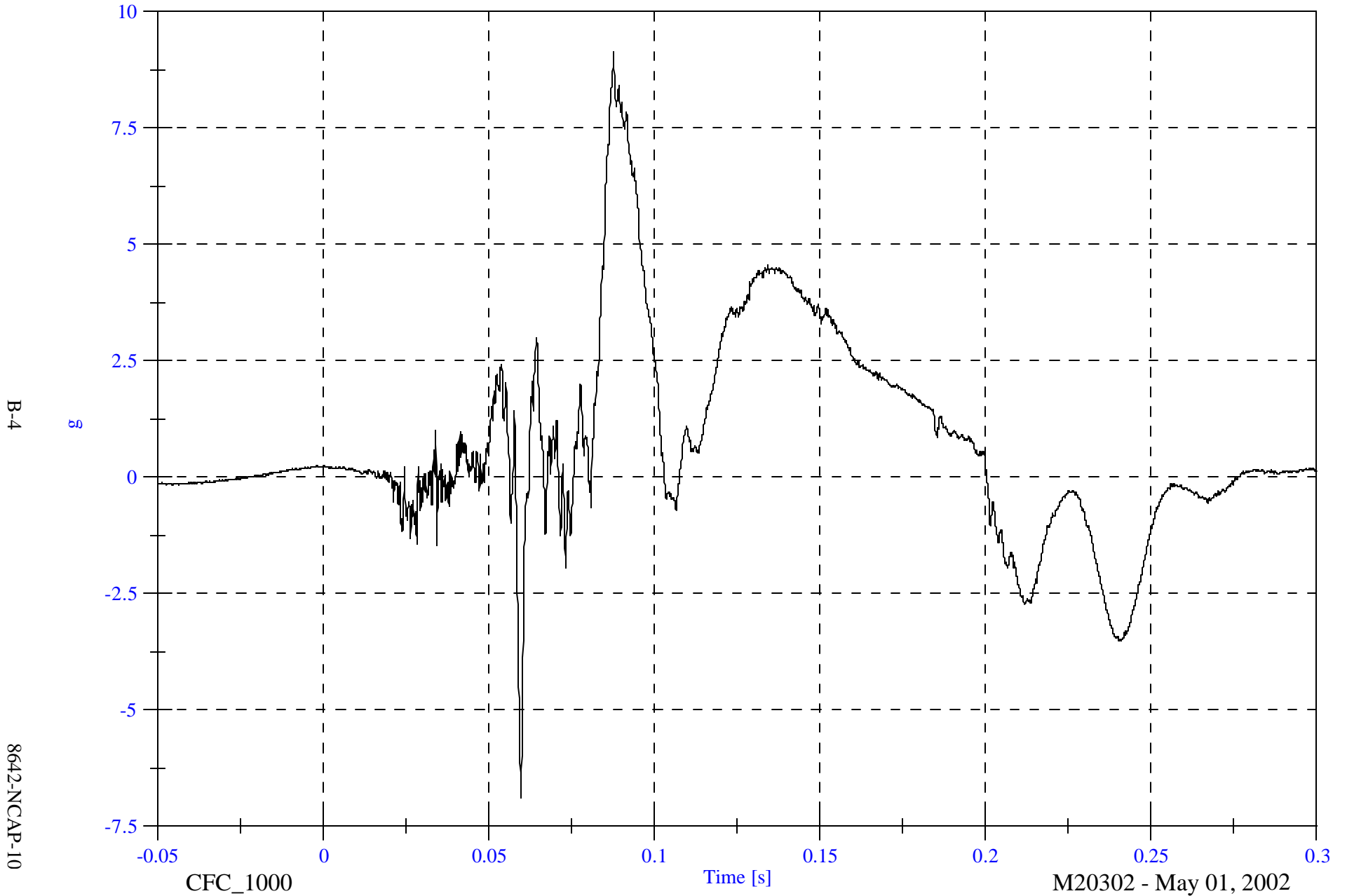
DATA TYPE	SAE FILTER CLASS (Hz)
Dummy Head Accelerations	1000
Dummy Chest Accelerations	180
Dummy Chest Displacements	600
Dummy Femur Forces	600
Dummy Belt Loads	60
Dummy Belt Displacements	180
Dummy Neck Forces	1000
Dummy Neck Moments	600
Vehicle Accelerations	60
Vehicle Velocity Integrations	180
Vehicle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

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 9.1 [g] at 0.088 [s]

P1 Head 9 Array X Arm Ay

Min: -6.9 [g] at 0.060 [s]

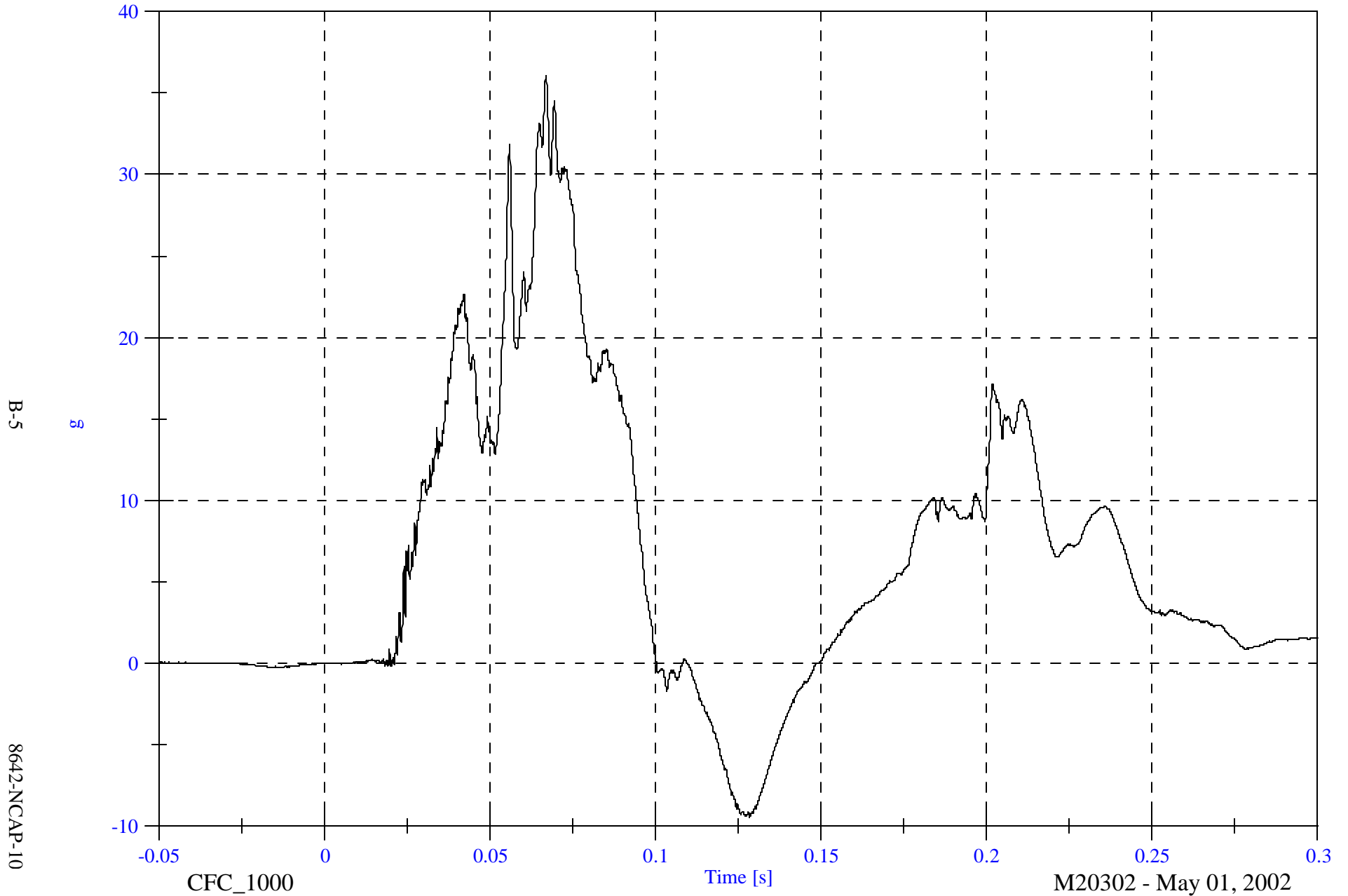


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 36.1 [g] at 0.067 [s]

P1 Head 9 Array X Arm Az

Min: -9.4 [g] at 0.128 [s]



B-5

g

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

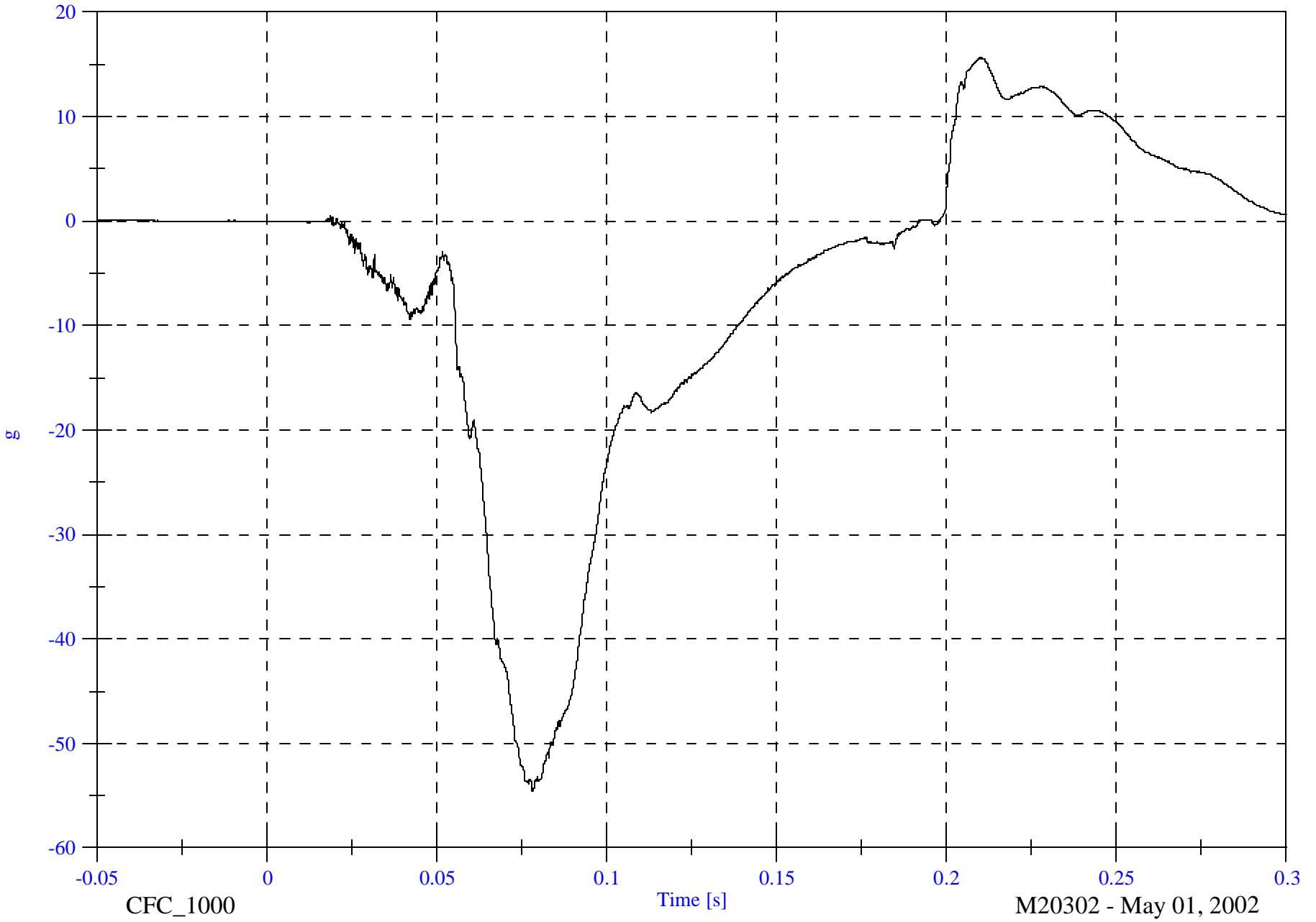
P1 Head 9 Array Y Arm Ax

Max: 15.6 [g] at 0.210 [s]

Min: -54.5 [g] at 0.078 [s]

B-6

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 32.7 [g] at 0.075 [s]

P1 Head 9 Array Y Arm Az

Min: -4.6 [g] at 0.129 [s]

B-7

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

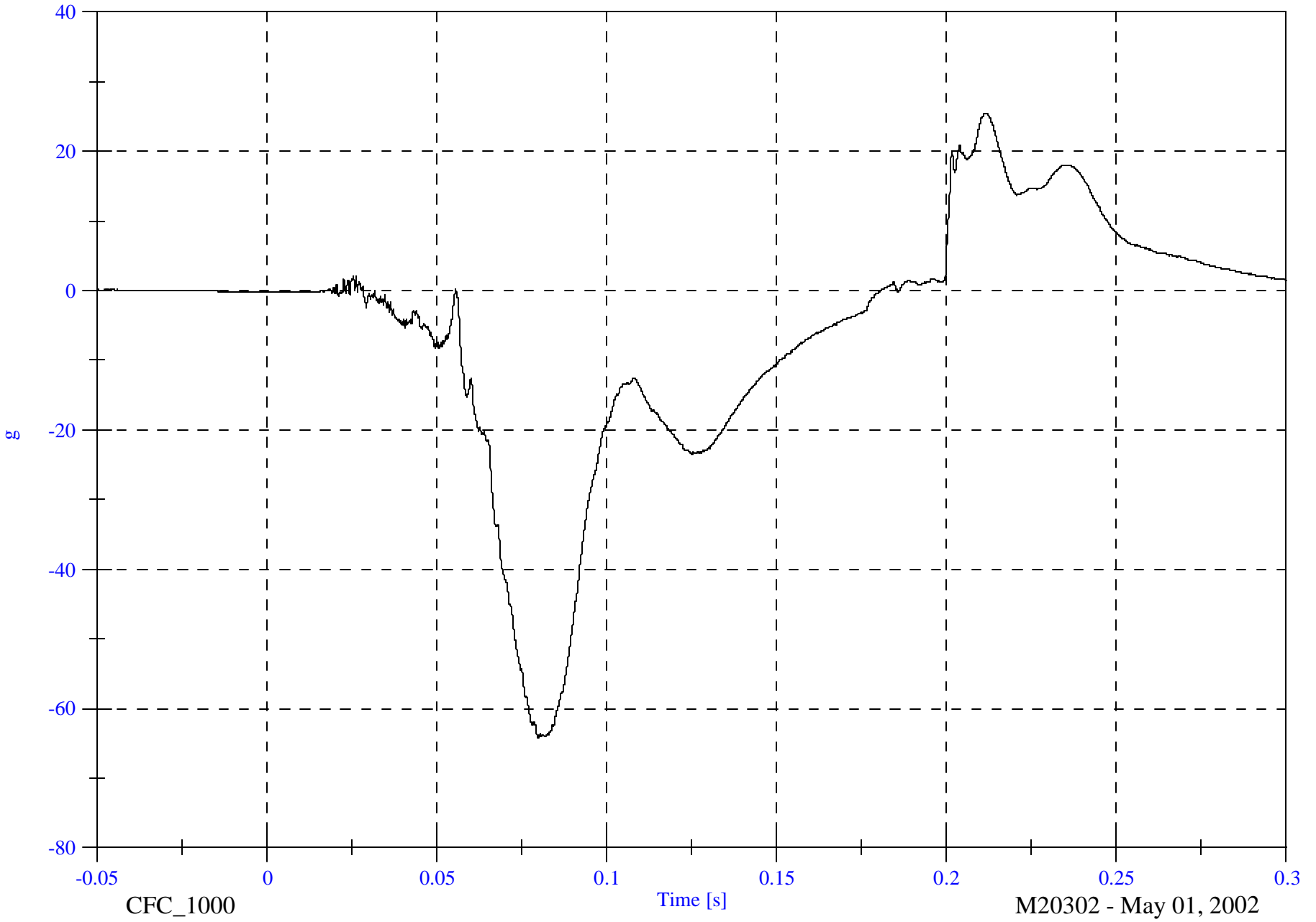
P1 Head 9 Array Z Arm Ax

Max: 25.4 [g] at 0.212 [s]

Min: -64.3 [g] at 0.080 [s]

B-8

8642-NCAP-10



CFC_1000

Time [s]

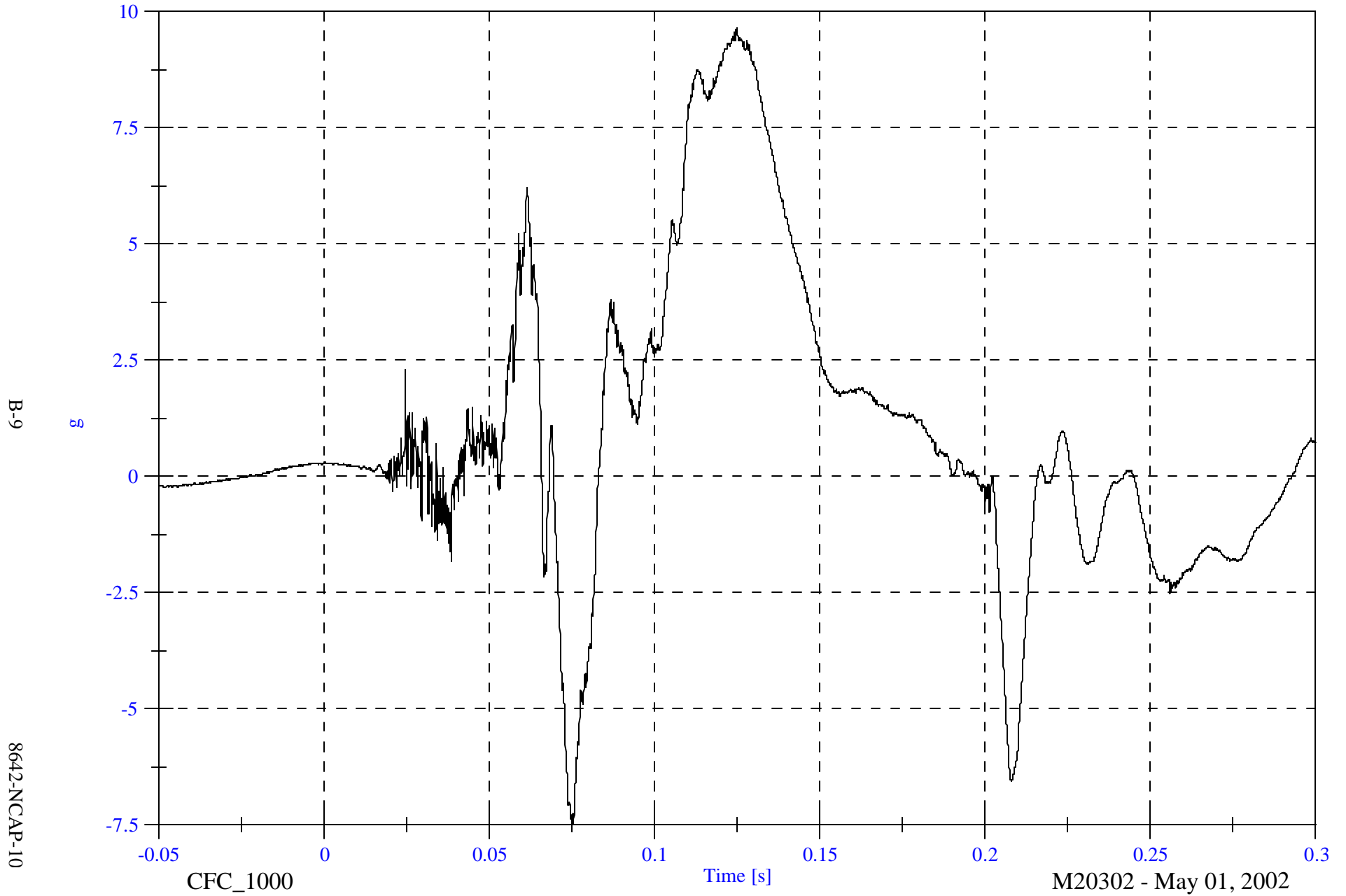
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 9.6 [g] at 0.125 [s]

P1 Head 9 Array Z Arm Ay

Min: -7.5 [g] at 0.075 [s]

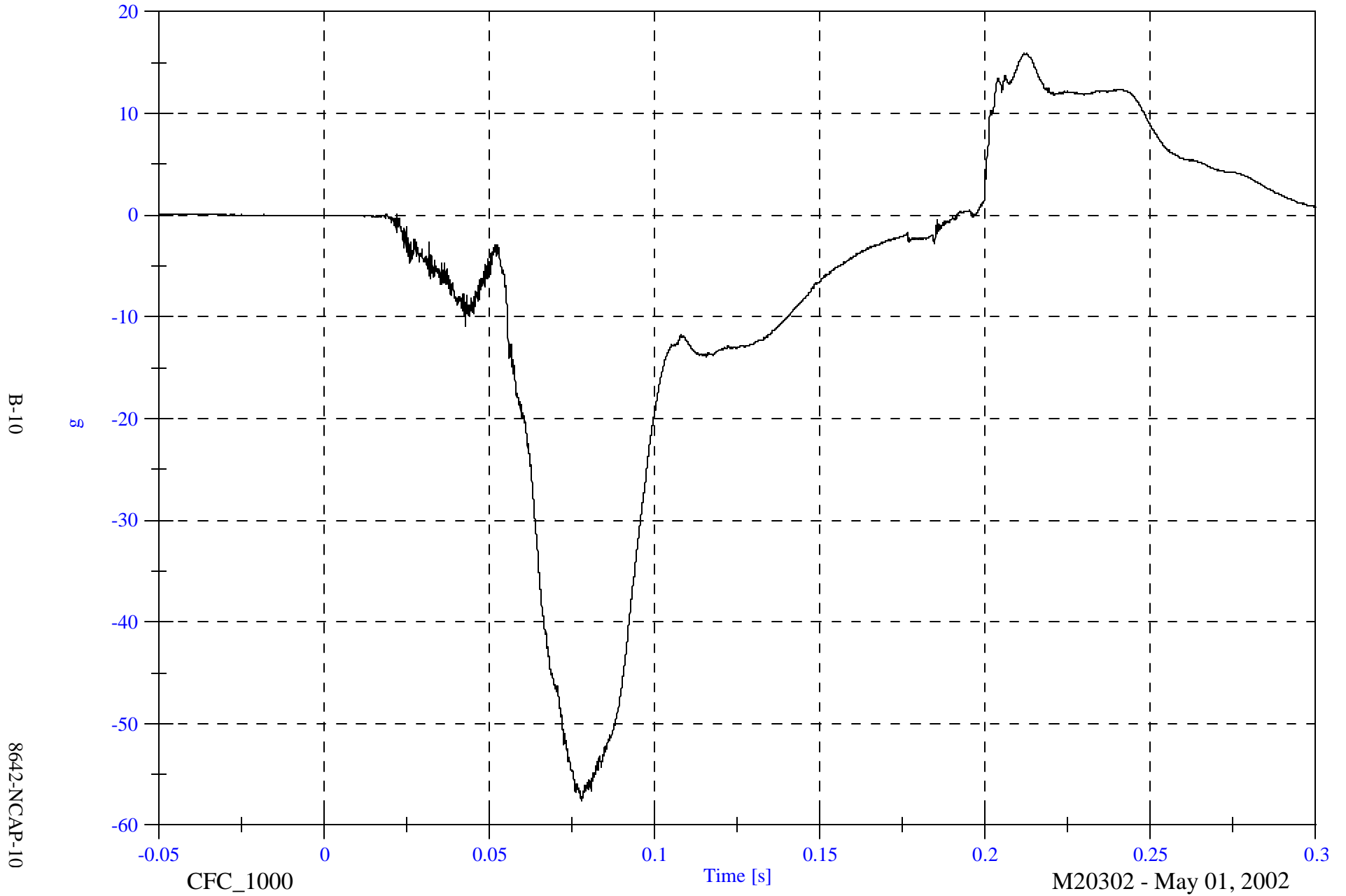


NCAP Test 10 - 2002 Dodge Ram 1500

P1 Head CG x

Max: 15.9 [g] at 0.212 [s]

Min: -57.6 [g] at 0.078 [s]

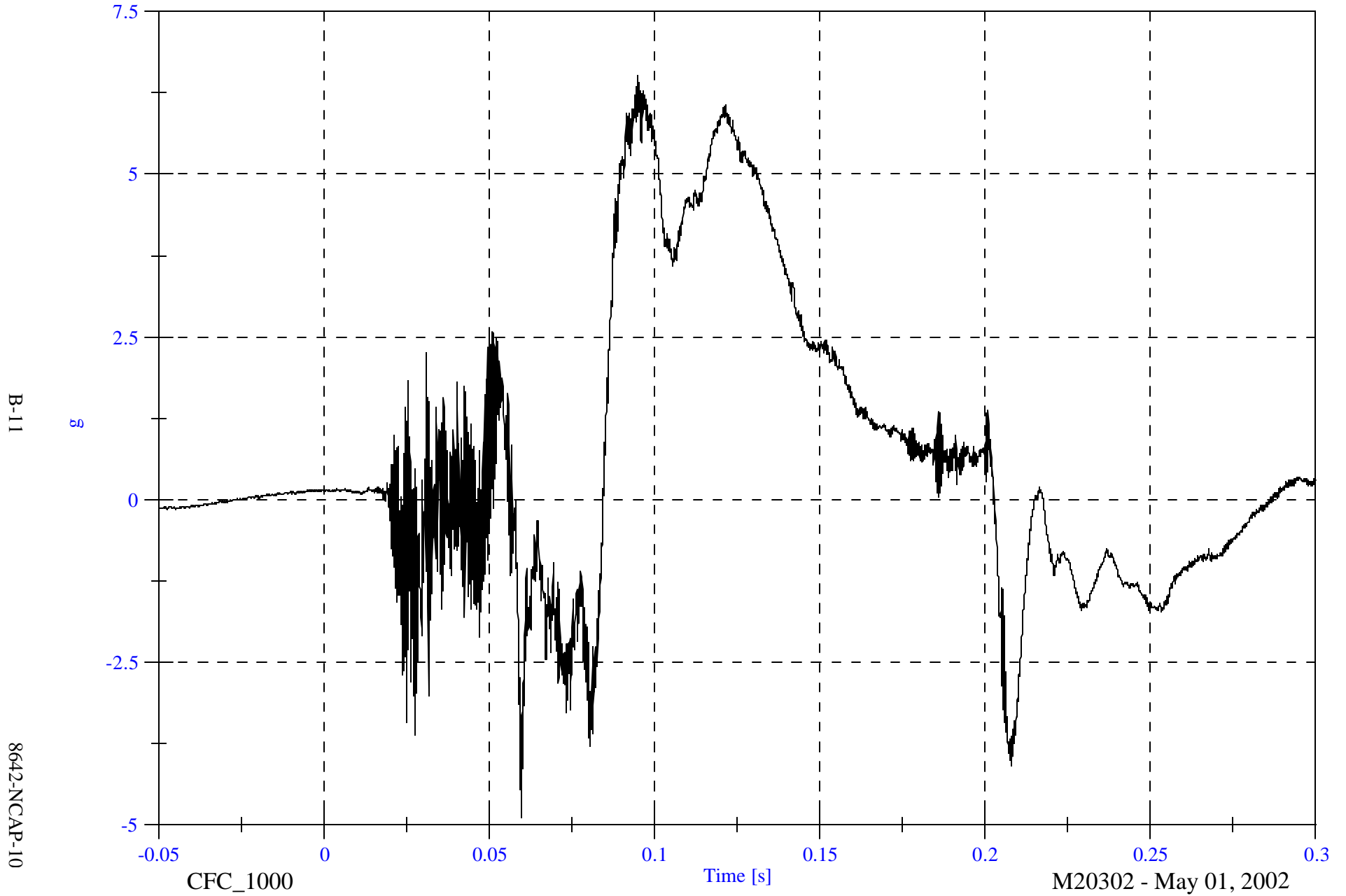


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 6.5 [g] at 0.095 [s]

Min: -4.9 [g] at 0.060 [s]

P1 Head CG y



B-11

8642-NCAP-10

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 30.1 [g] at 0.069 [s]

P1 Head CG z

Min: -2.3 [g] at 0.128 [s]

B-12

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

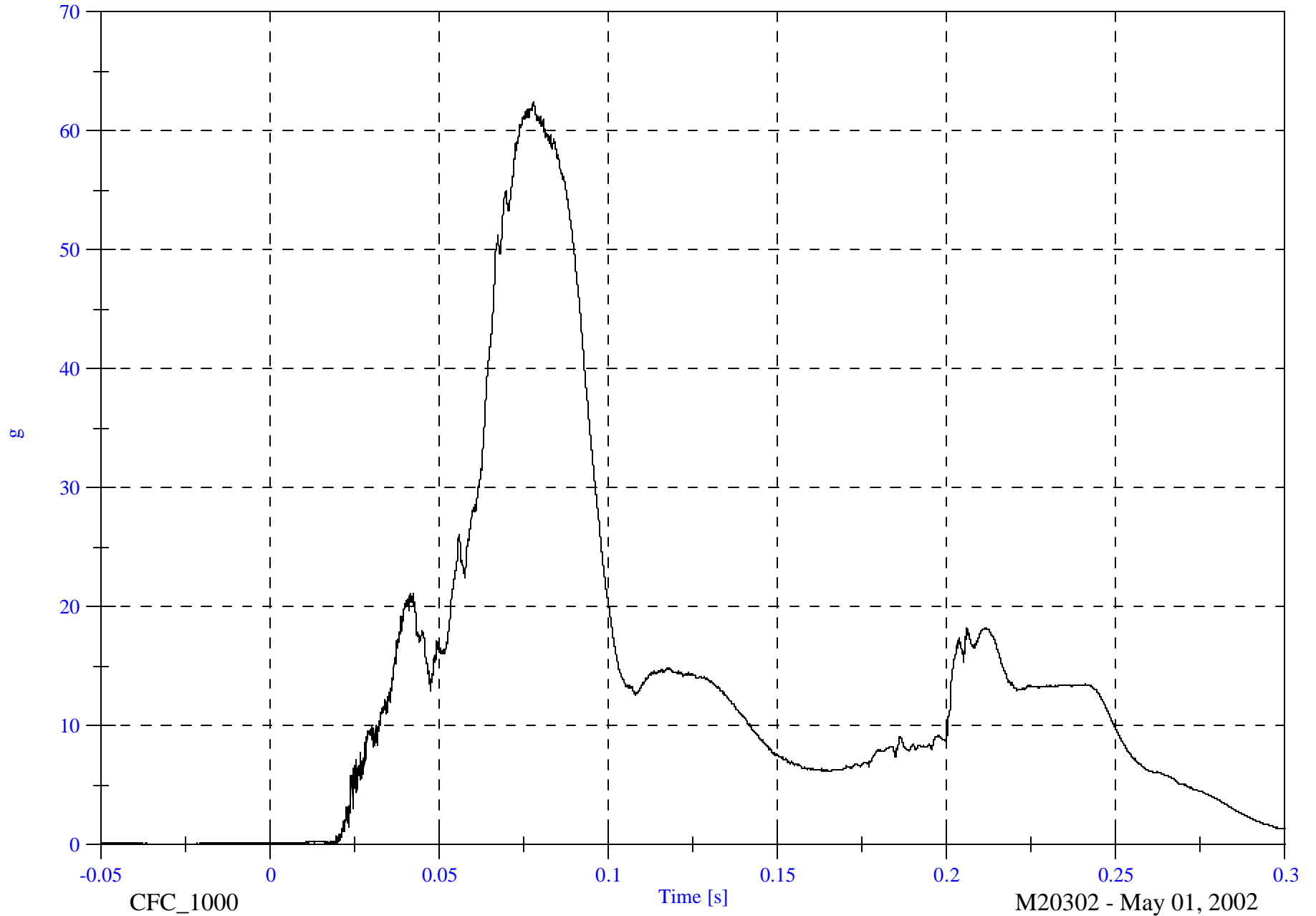
P1 Head CG Resultant

Max: 62.5 [g] at 0.078 [s]

Min: 0.0 [g] at -0.028 [s]

B-13

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

P1 Head CG Red x

Max: 16.3 [g] at 0.212 [s]

Min: -56.3 [g] at 0.078 [s]

B-14

8642-NCAP-10



CFC_1000

Time [s]

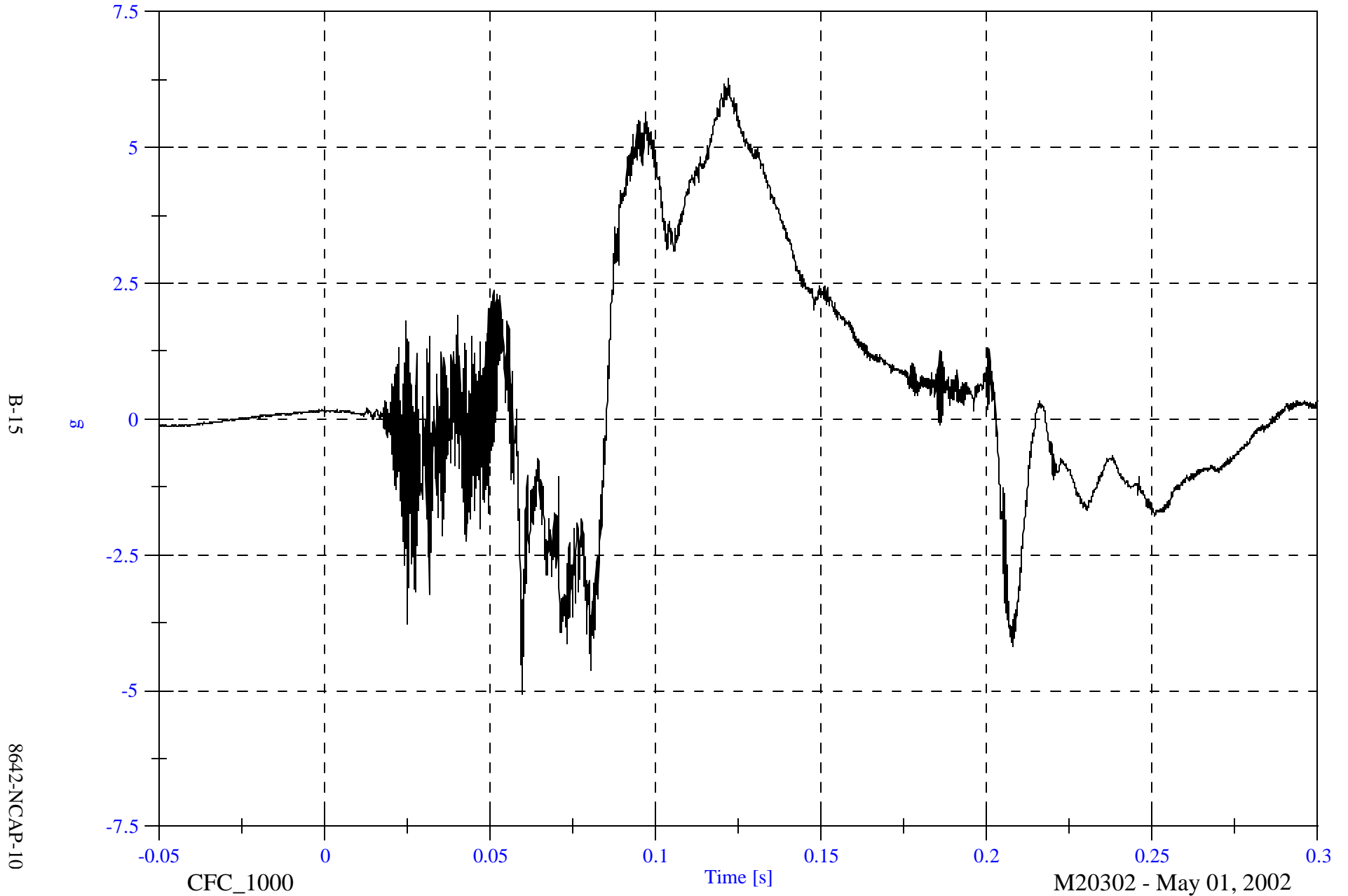
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 6.3 [g] at 0.122 [s]

Min: -5.1 [g] at 0.060 [s]

P1 Head CG Red y



B-15

8642-NCAP-10

CFC_1000

Time [s]

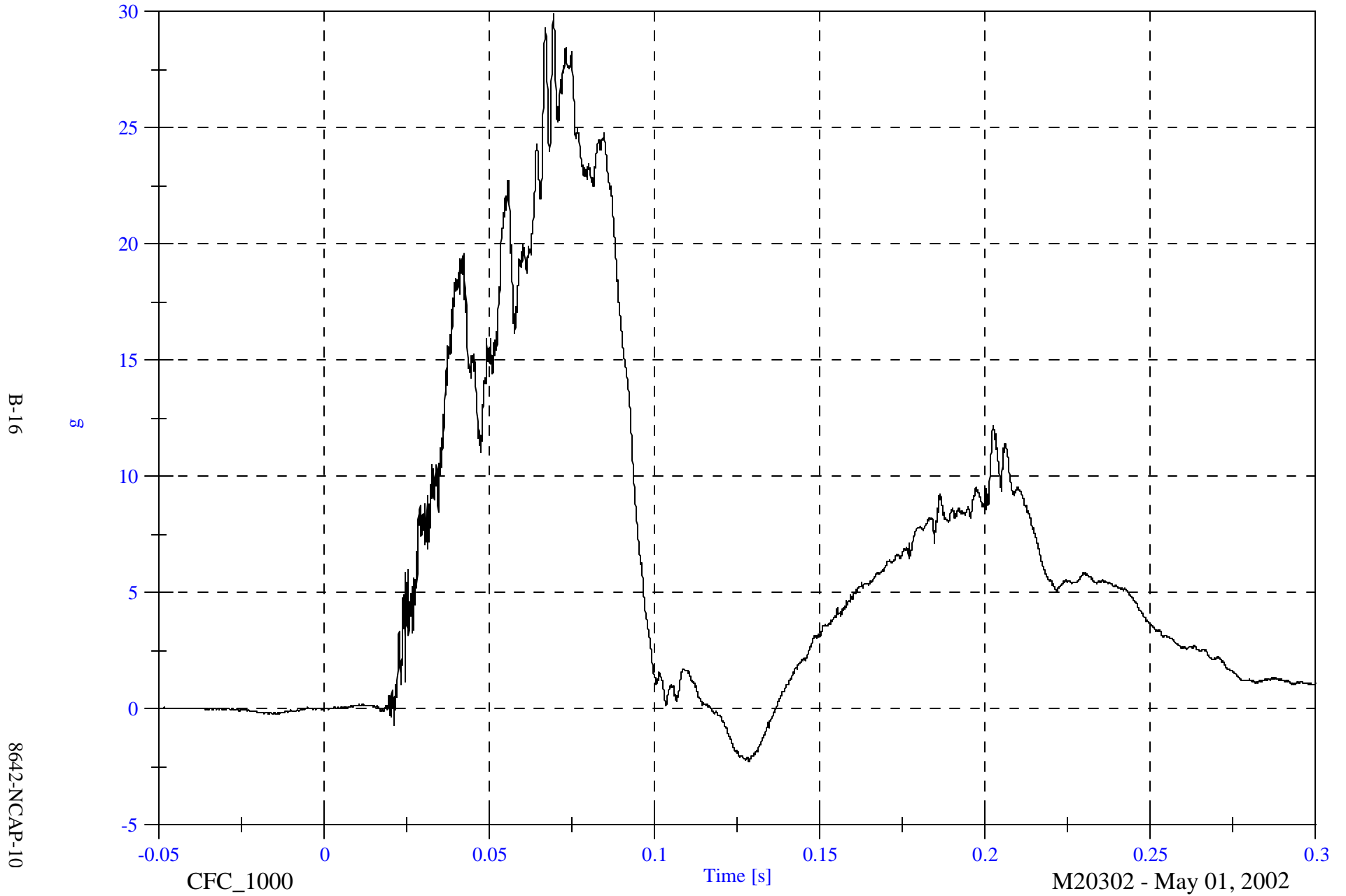
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 29.9 [g] at 0.069 [s]

P1 Head CG Red z

Min: -2.3 [g] at 0.129 [s]

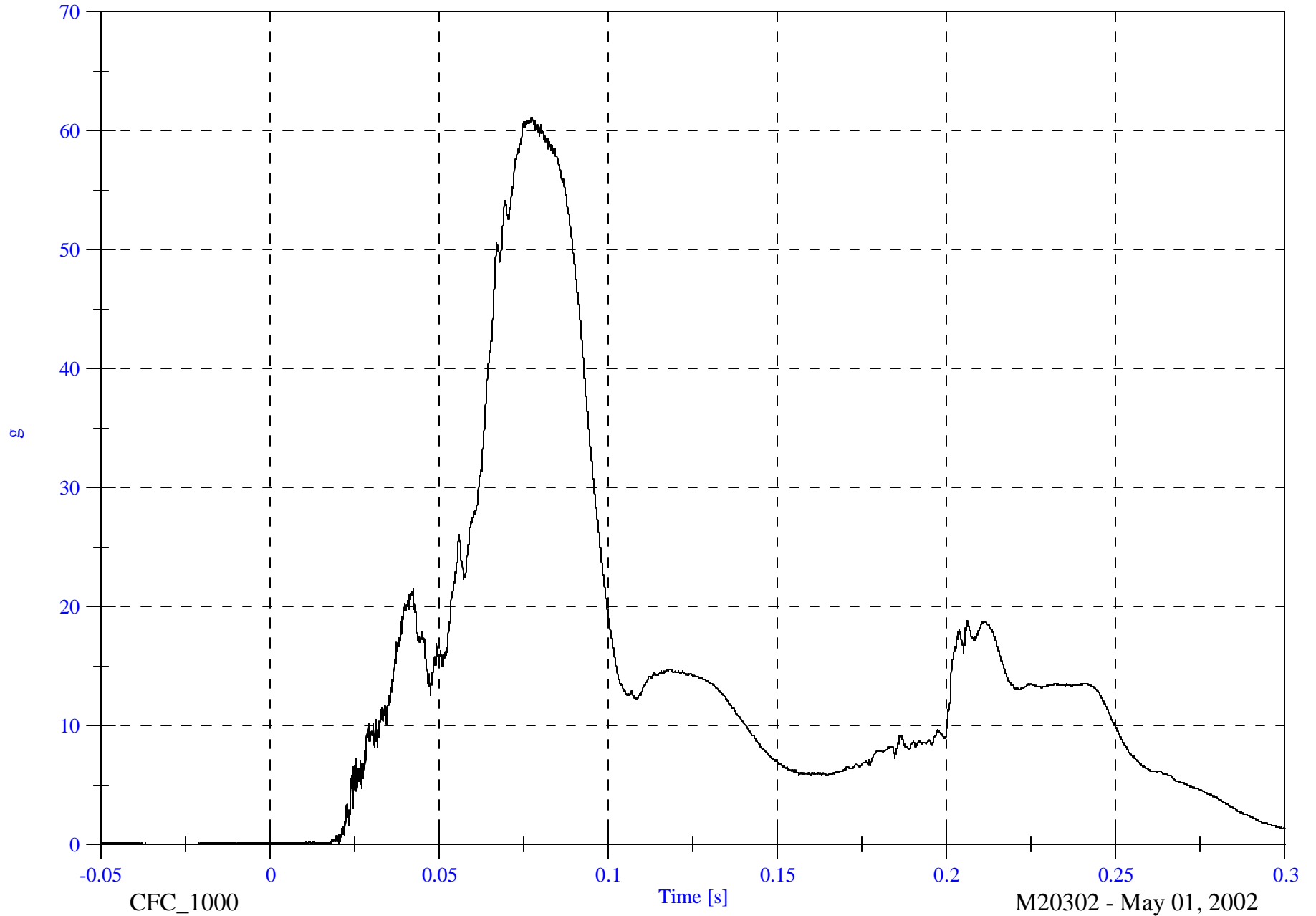


NCAP Test 10 - 2002 Dodge Ram 1500

P1 Head CG Red Resultant

Max: 61.2 [g] at 0.077 [s]

Min: 0.0 [g] at -0.028 [s]



B-17

8642-NCAP-10

CFC_1000

Time [s]

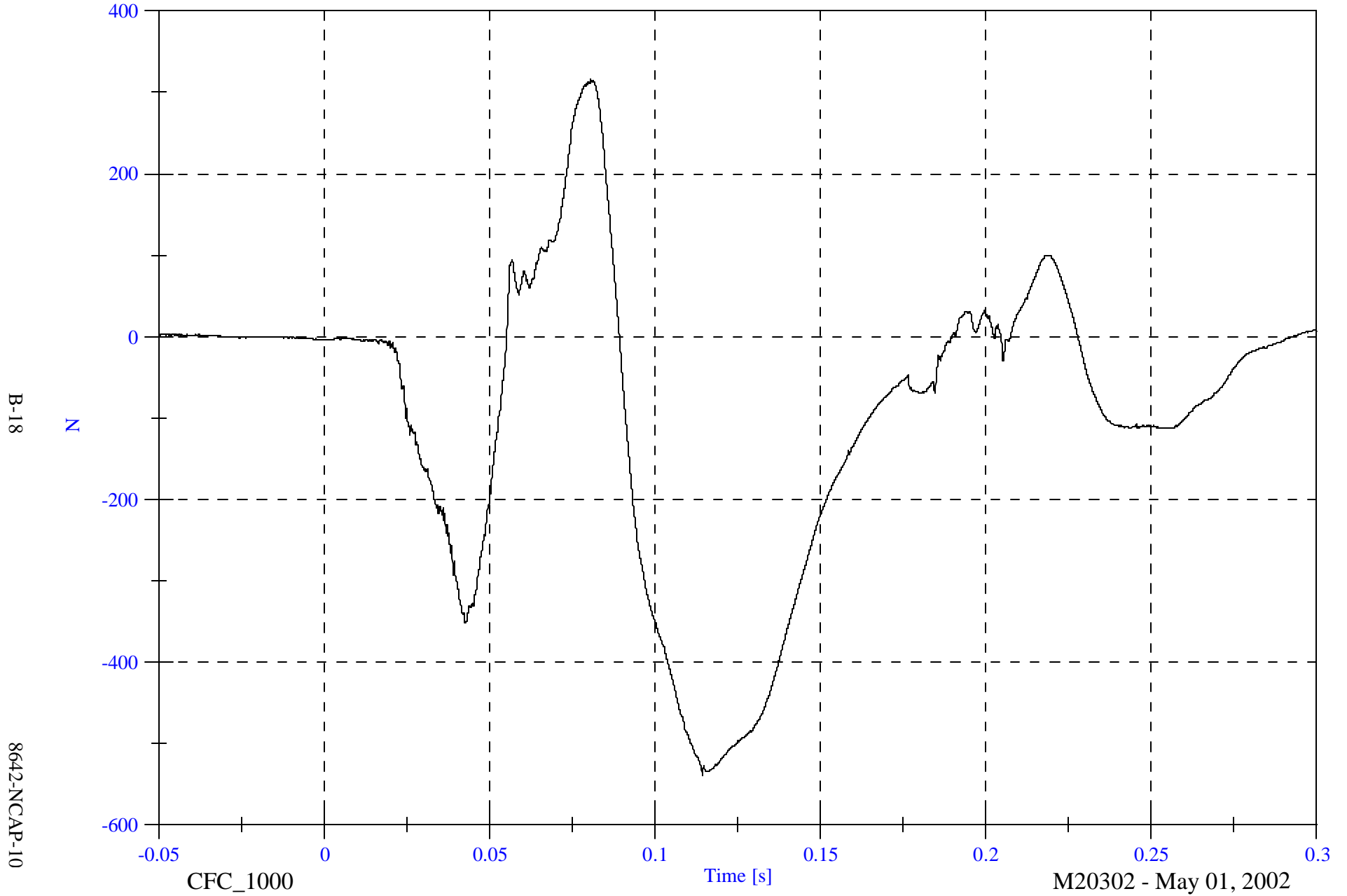
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 315.6 [N] at 0.081 [s]

P1 Upper Neck Fx

Min: -538.3 [N] at 0.114 [s]

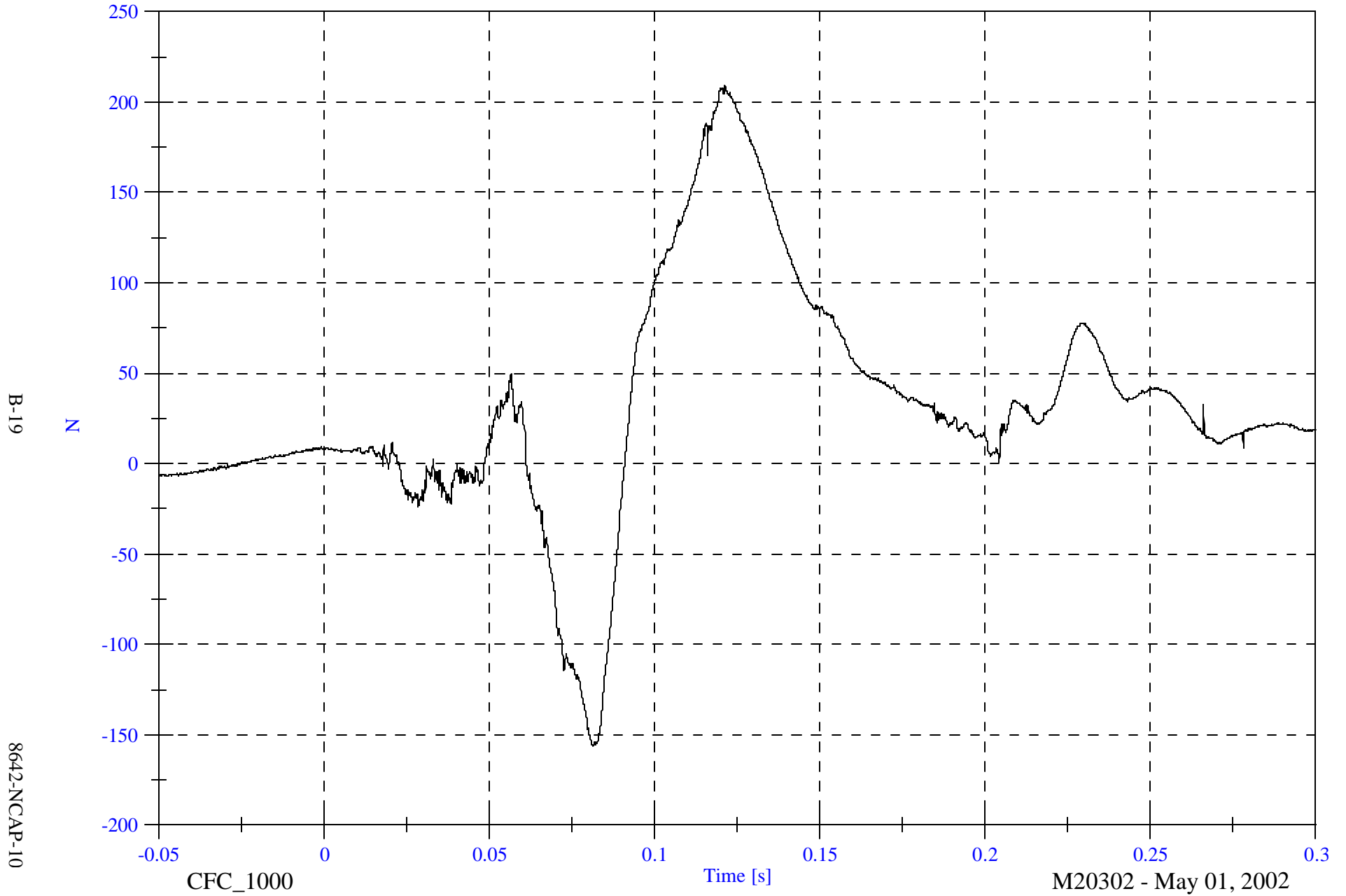


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 209.3 [N] at 0.121 [s]

Min: -156.4 [N] at 0.081 [s]

P1 Upper Neck Fy



B-19

N

8642-NCAP-10

CFC_1000

Time [s]

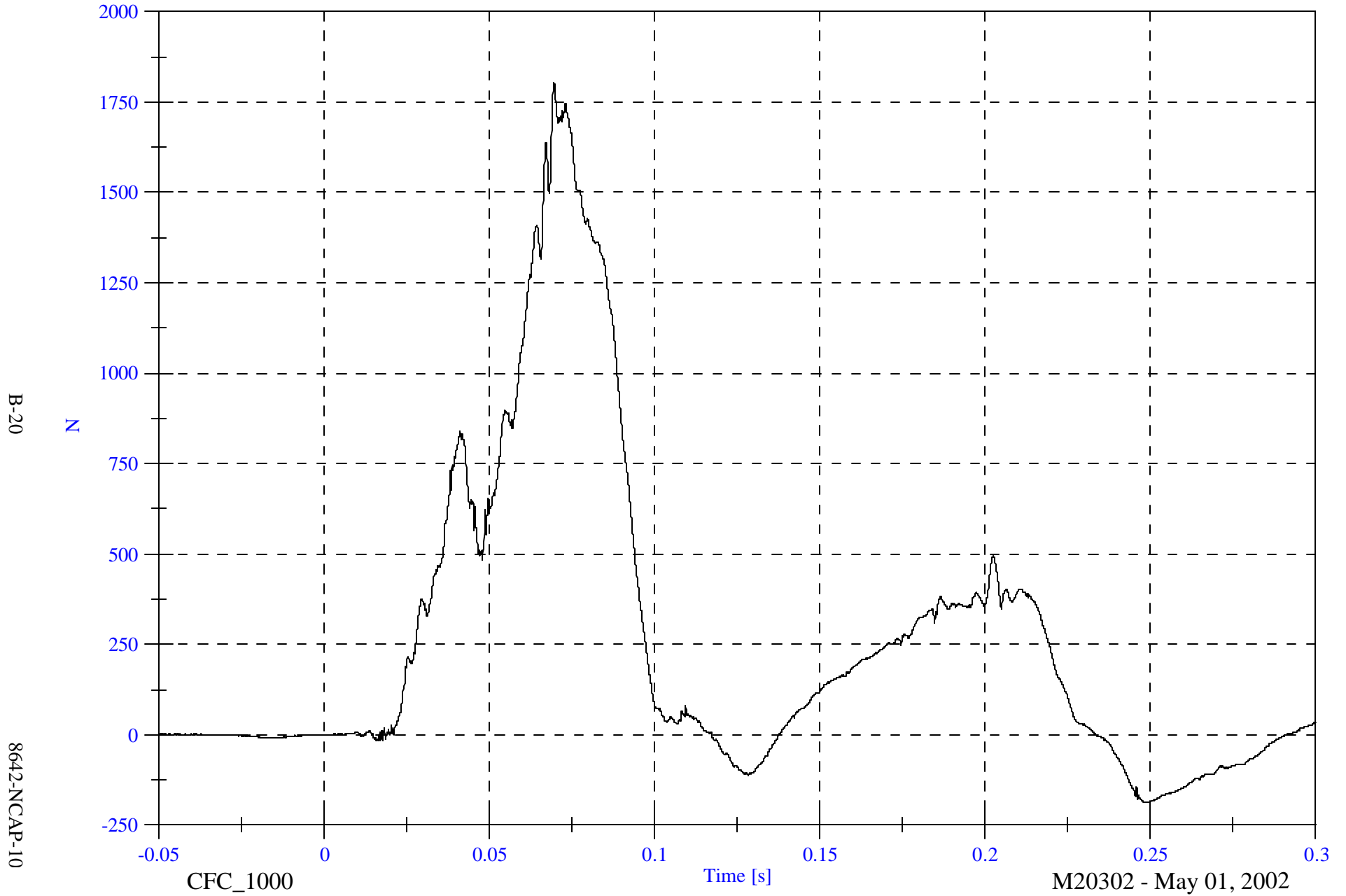
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1803.6 [N] at 0.070 [s]

P1 Upper Neck Fz

Min: -188.3 [N] at 0.249 [s]



B-20

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

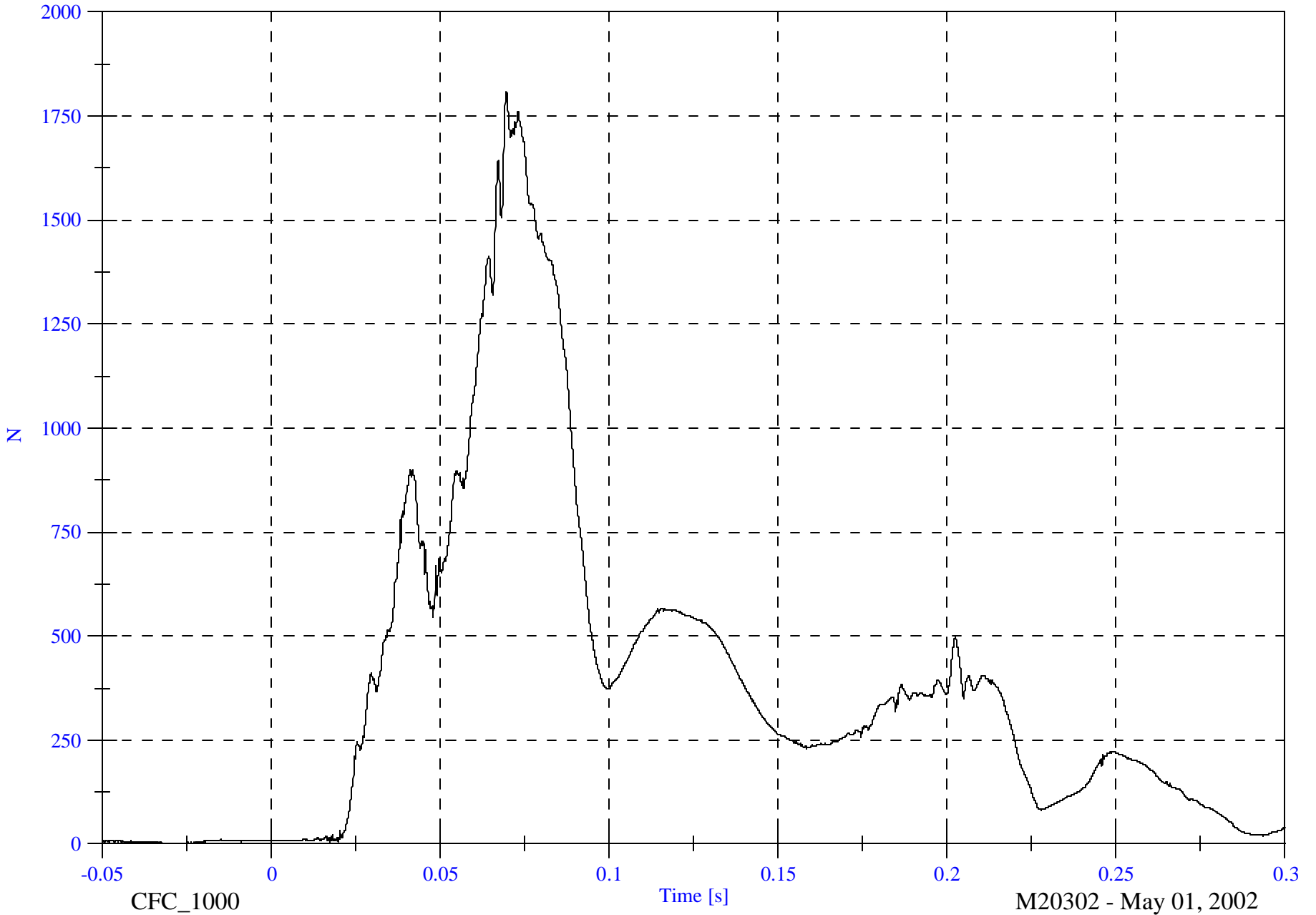
Max: 1808.9 [N] at 0.070 [s]

P1 Upper Neck F Resultant

Min: 0.7 [N] at -0.026 [s]

B-21

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

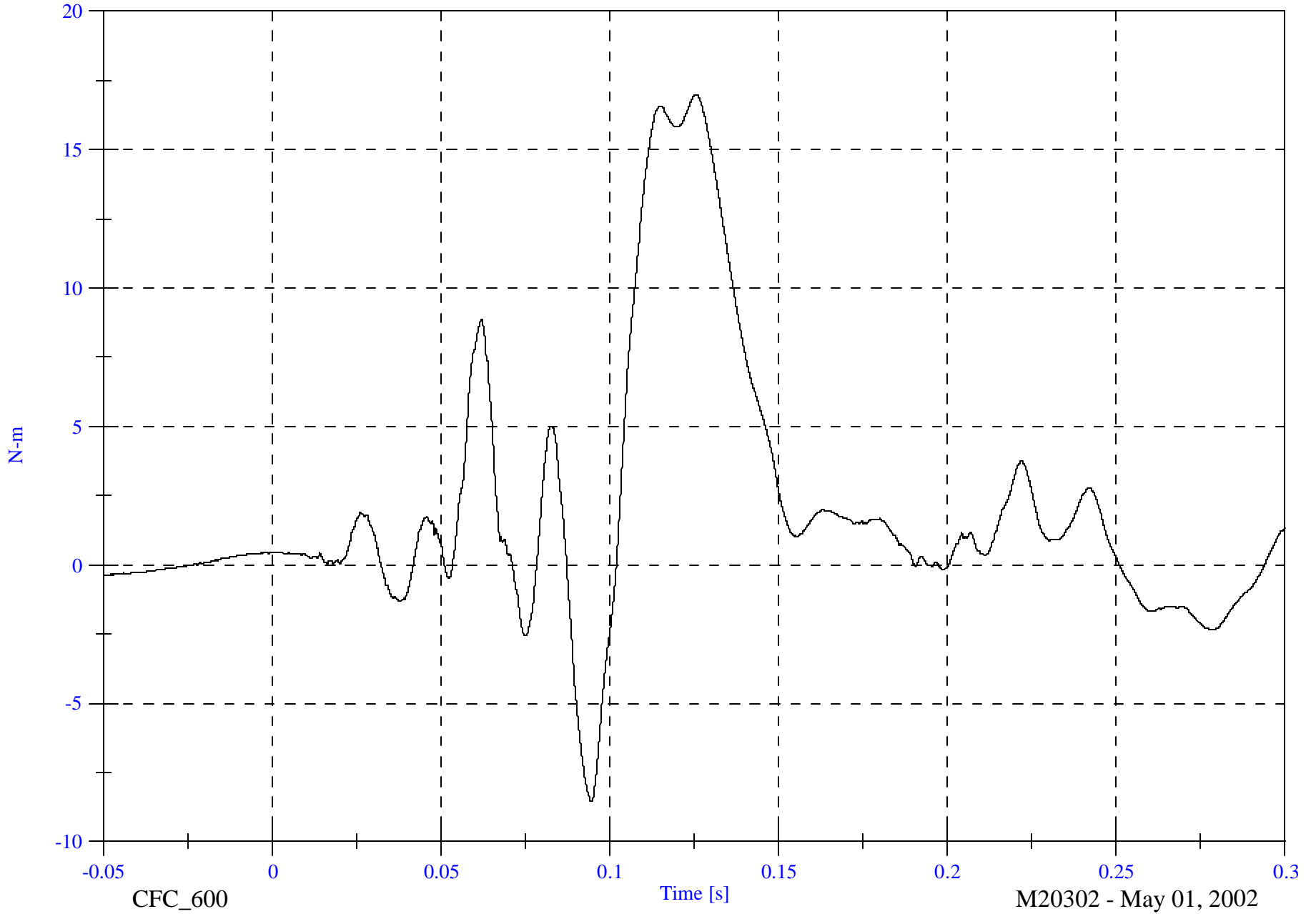
Max: 17.0 [N-m] at 0.126 [s]

P1 Upper Neck Mx

Min: -8.6 [N-m] at 0.094 [s]

B-22

8642-NCAP-10



CFC_600

Time [s]

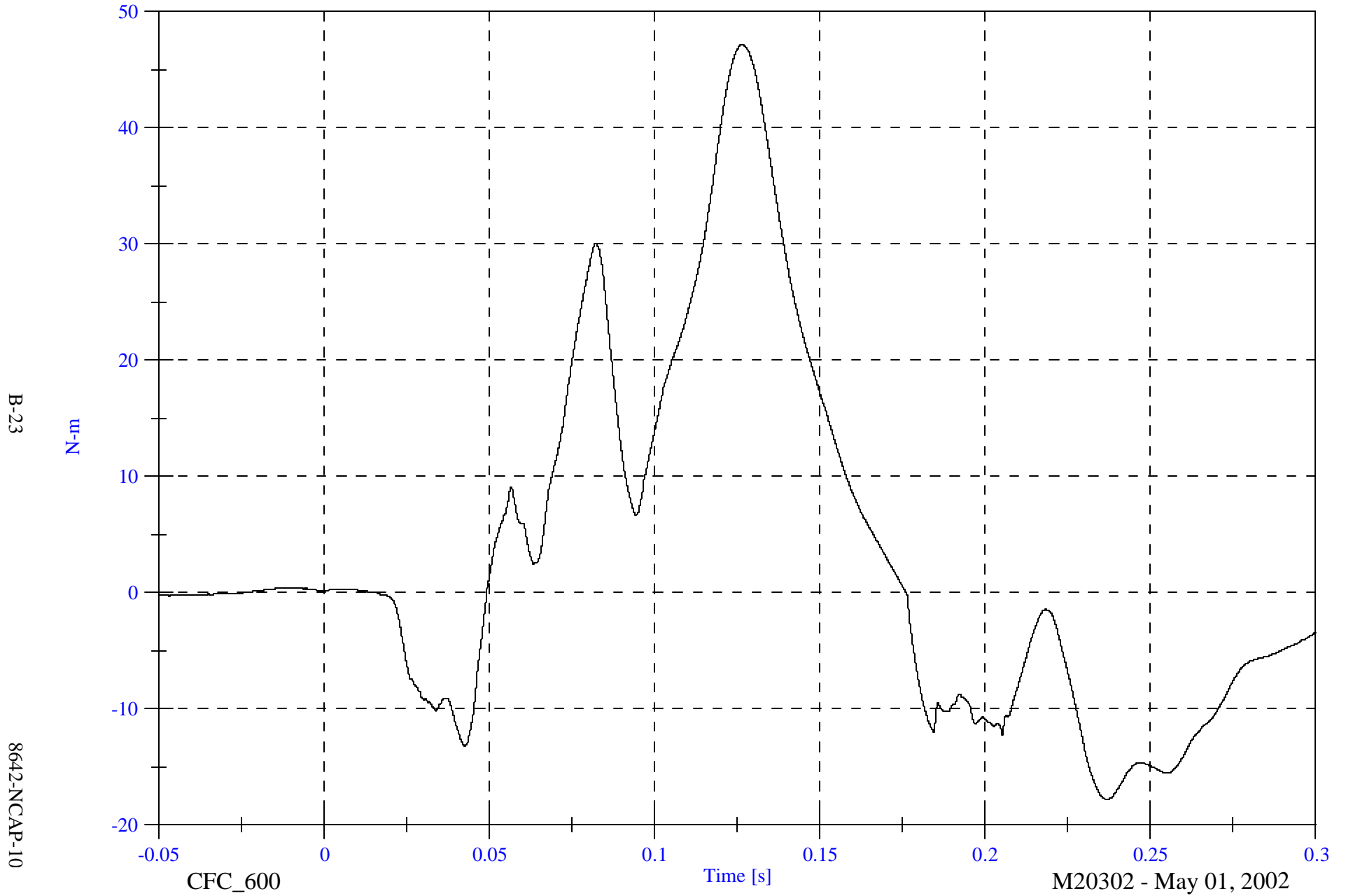
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 47.2 [N-m] at 0.127 [s]

Min: -17.8 [N-m] at 0.237 [s]

P1 Upper Neck My



B-23

8642-NCAP-10

NCAP Test 10 - 2002 Dodge Ram 1500

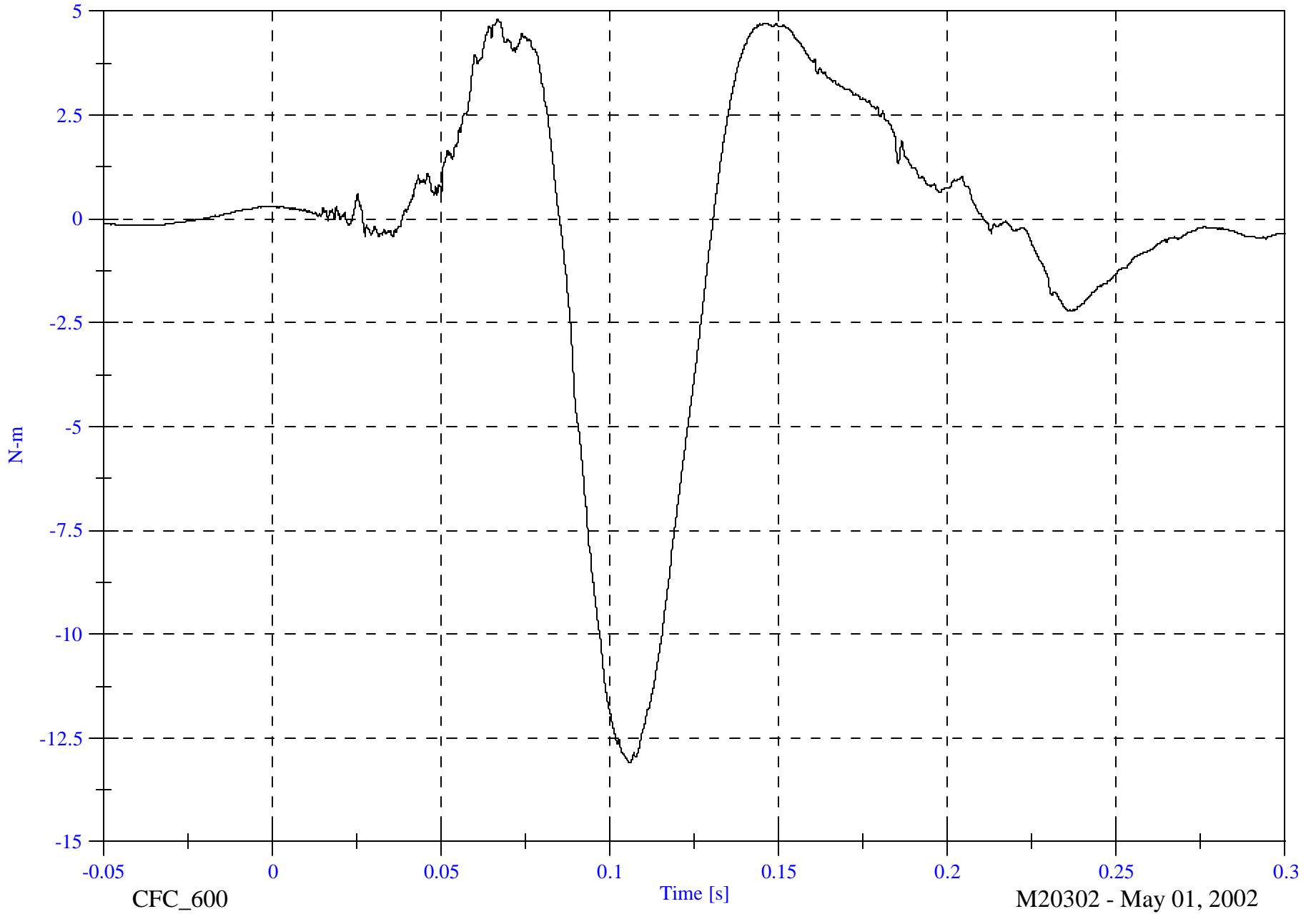
Max: 4.8 [N-m] at 0.067 [s]

P1 Upper Neck Mz

Min: -13.1 [N-m] at 0.106 [s]

B-24

8642-NCAP-10



CFC_600

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

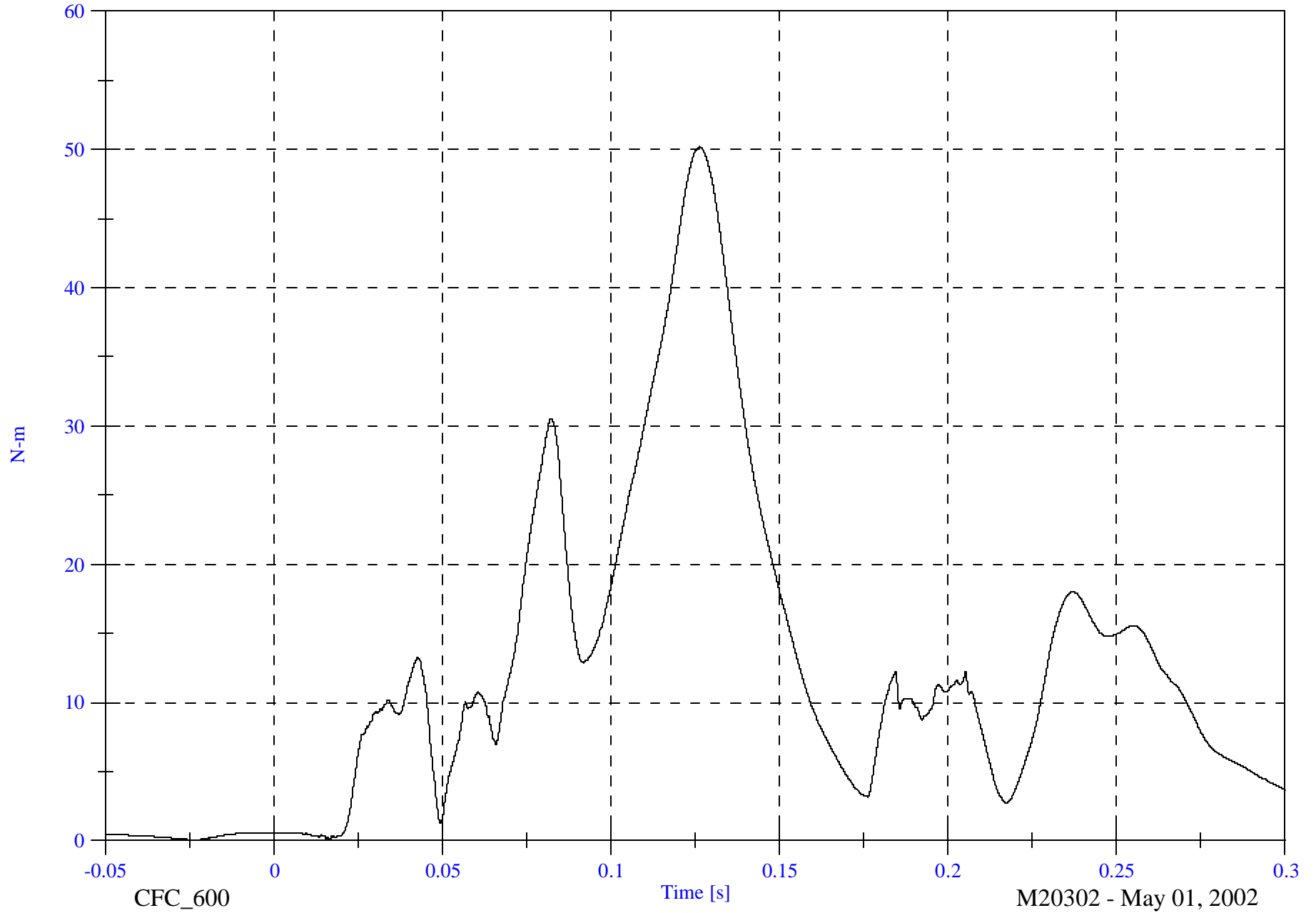
P1 Upper Neck M Resultant

Max: 50.2 [N-m] at 0.126 [s]

Min: 0.0 [N-m] at -0.024 [s]

B-25

8642-NCAP-10



CFC_600

Time [s]

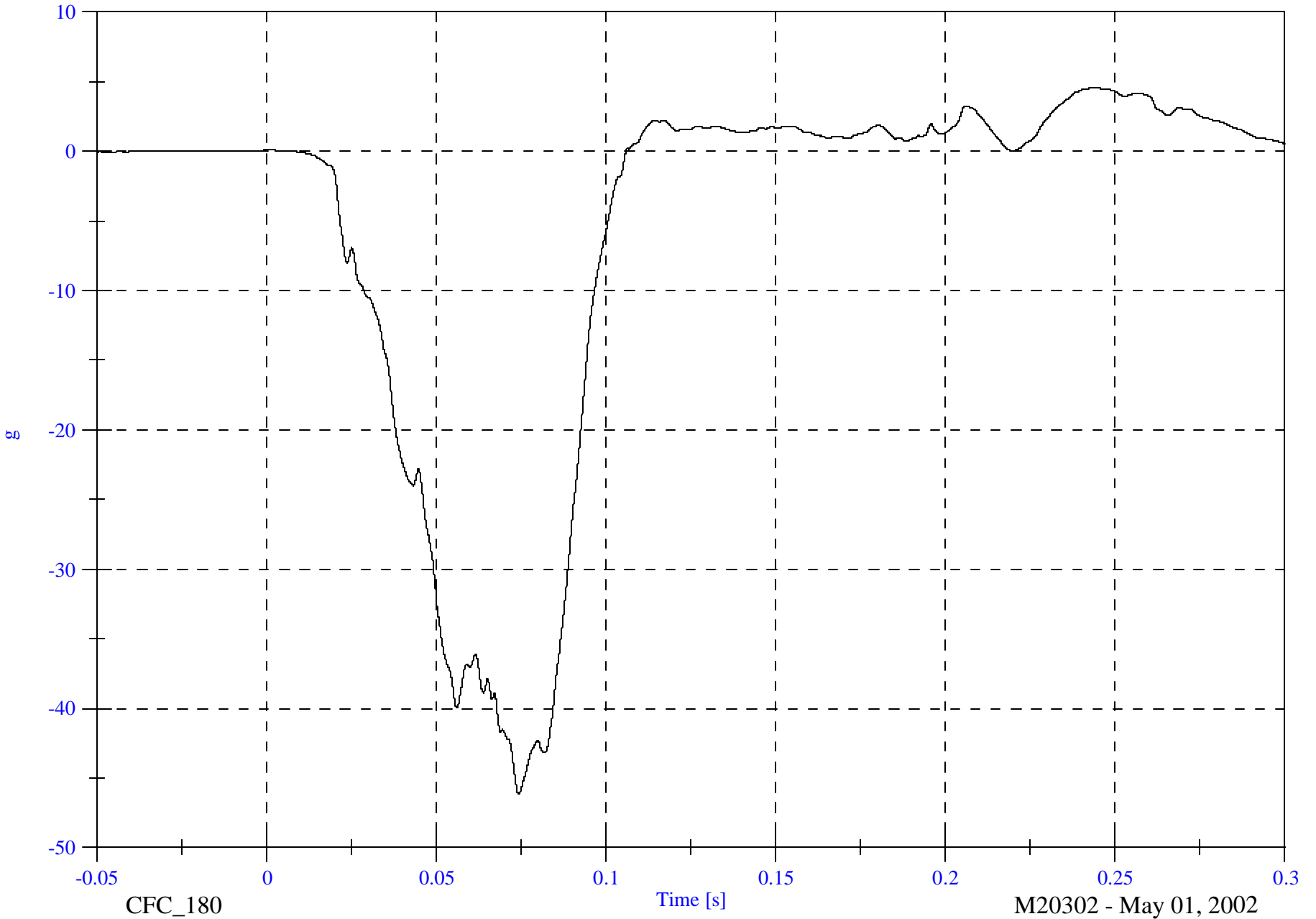
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 4.6 [g] at 0.243 [s]

P1 Chest x

Min: -46.1 [g] at 0.074 [s]



B-26

8642-NCAP-10

CFC_180

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

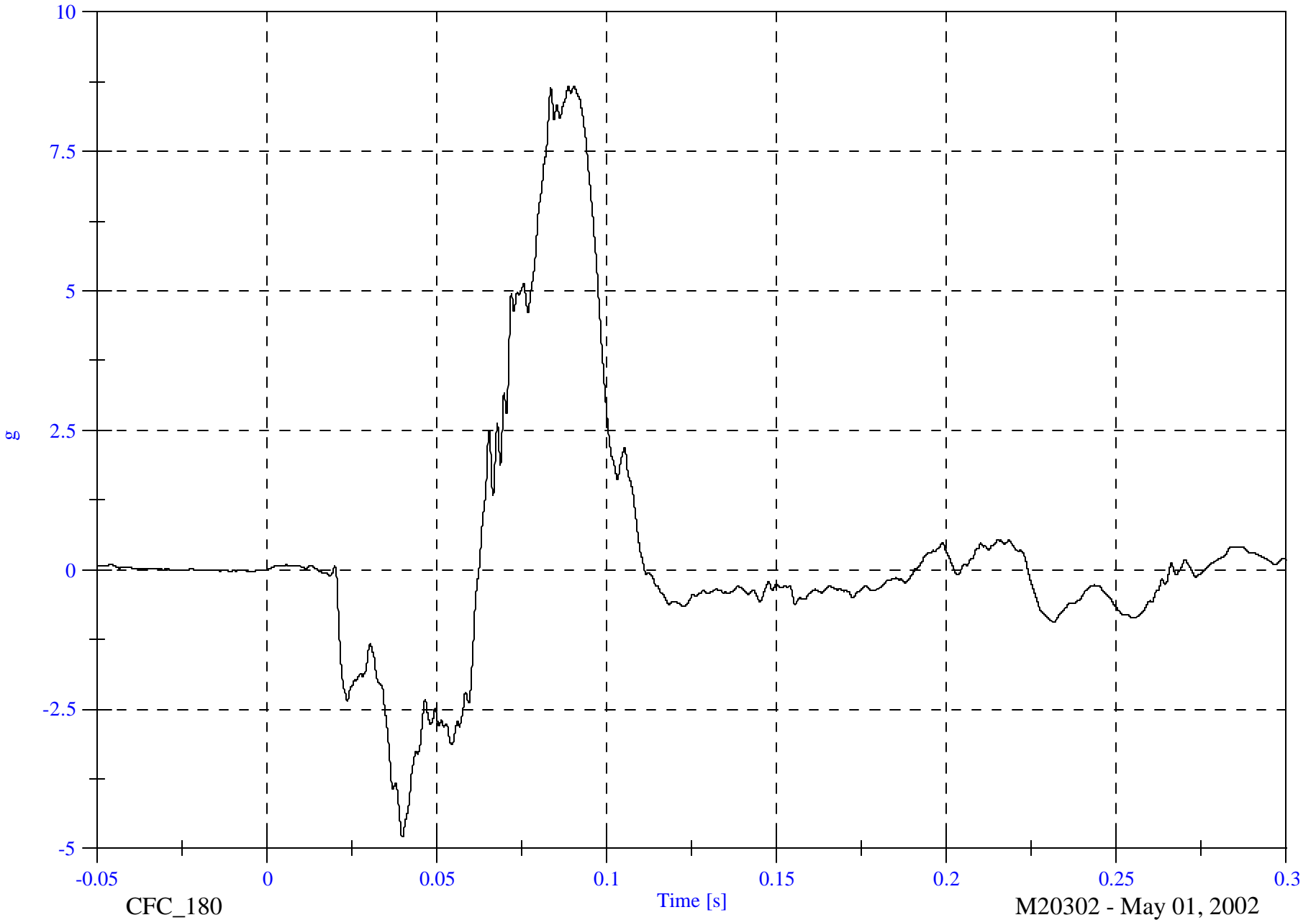
Max: 8.7 [g] at 0.089 [s]

P1 Chest y

Min: -4.8 [g] at 0.040 [s]

B-27

8642-NCAP-10



CFC_180

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 13.4 [g] at 0.041 [s]

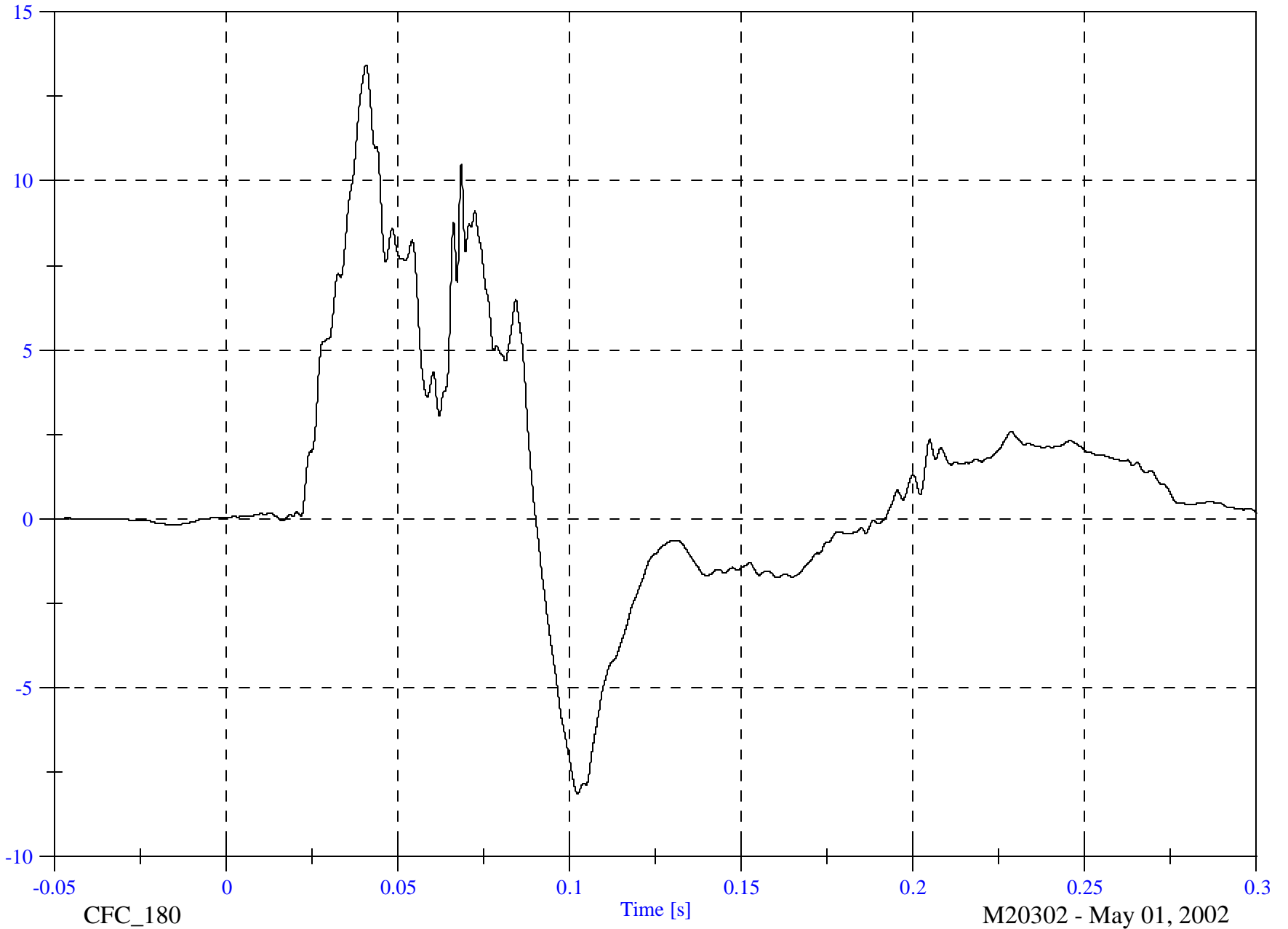
P1 Chest z

Min: -8.1 [g] at 0.102 [s]

B-28

g

8642-NCAP-10



CFC_180

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

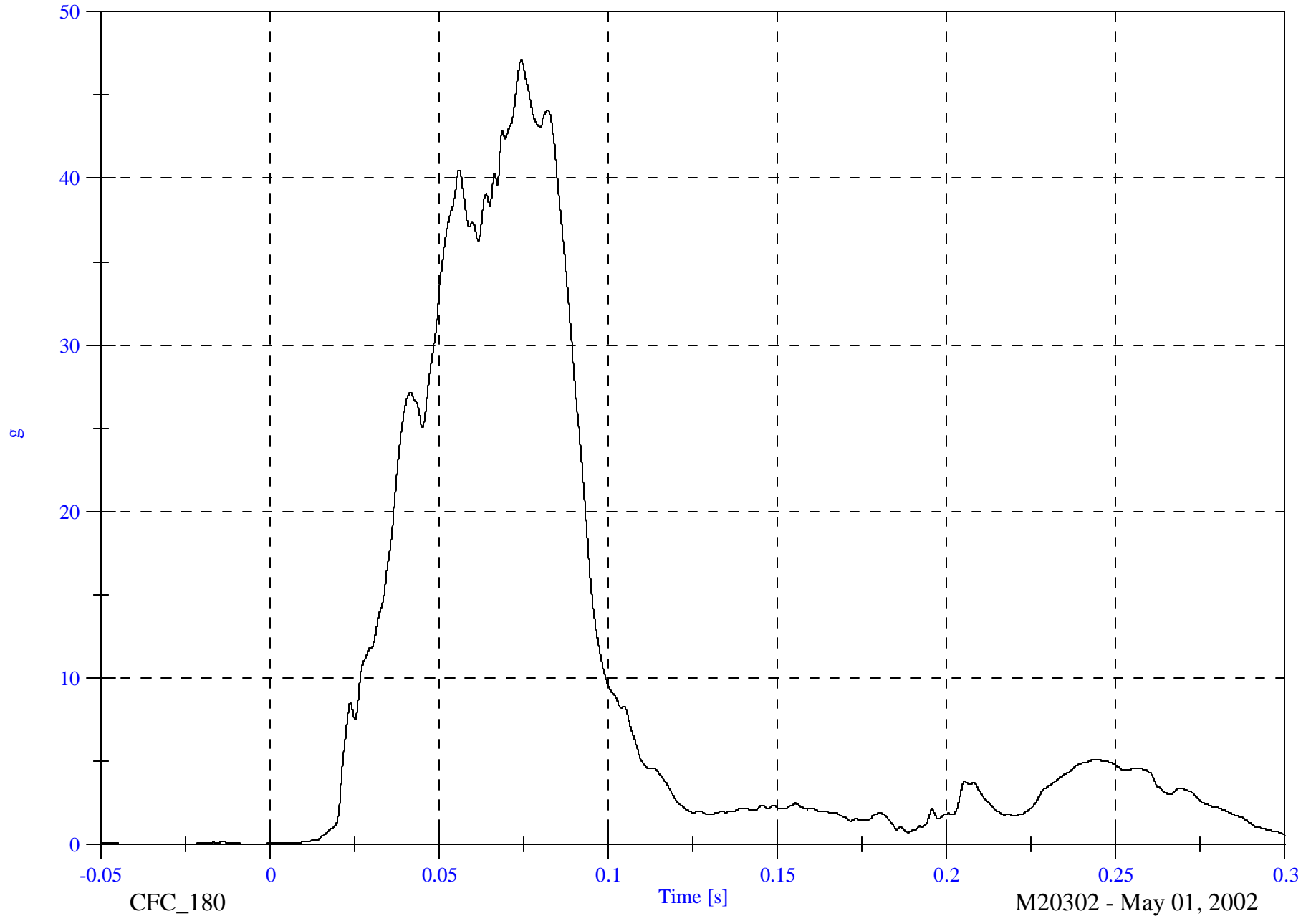
P1 Chest Resultant

Max: 47.1 [g] at 0.074 [s]

Min: 0.0 [g] at -0.036 [s]

B-29

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

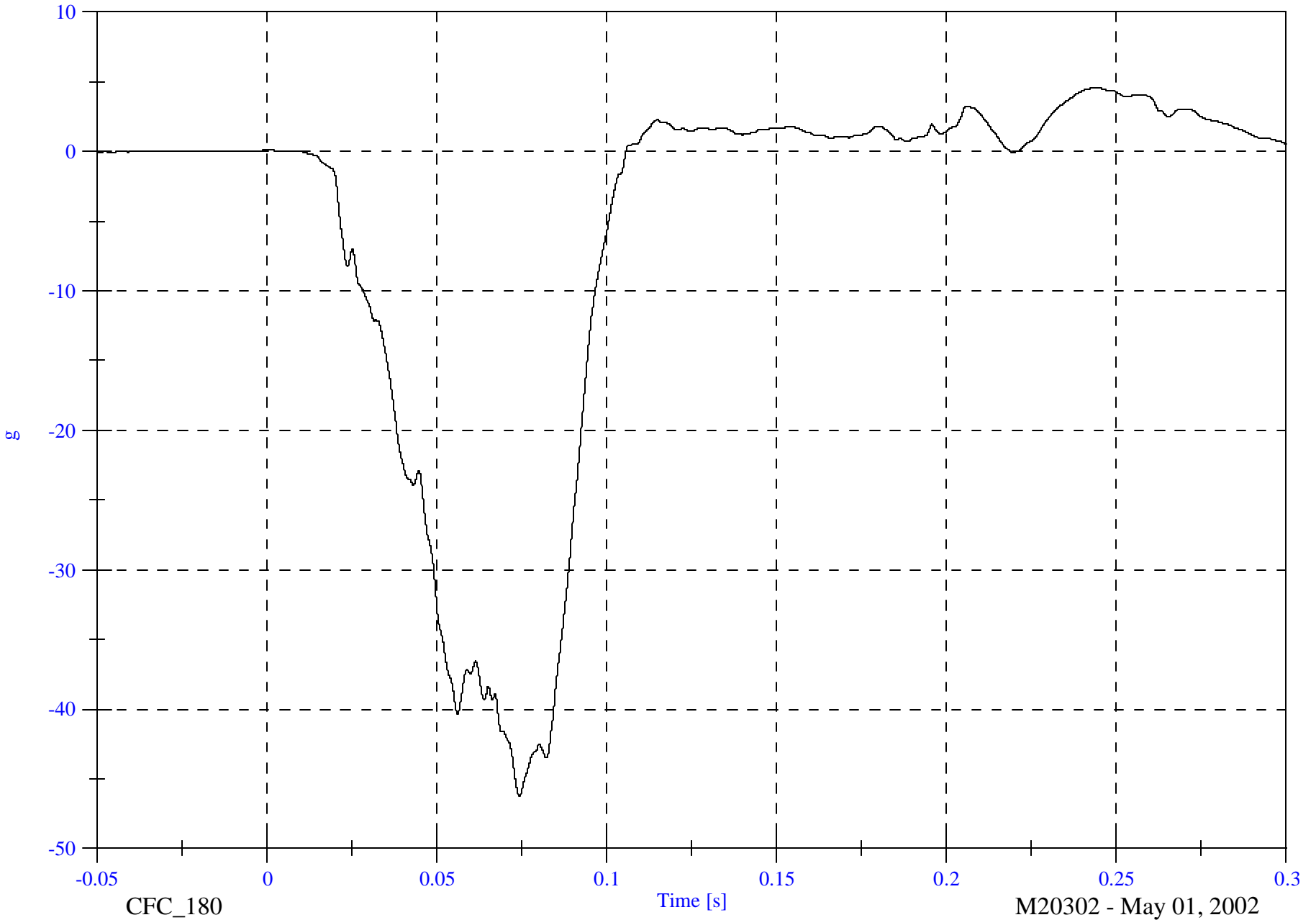
P1 Chest Red x

Max: 4.6 [g] at 0.243 [s]

Min: -46.2 [g] at 0.074 [s]

B-30

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

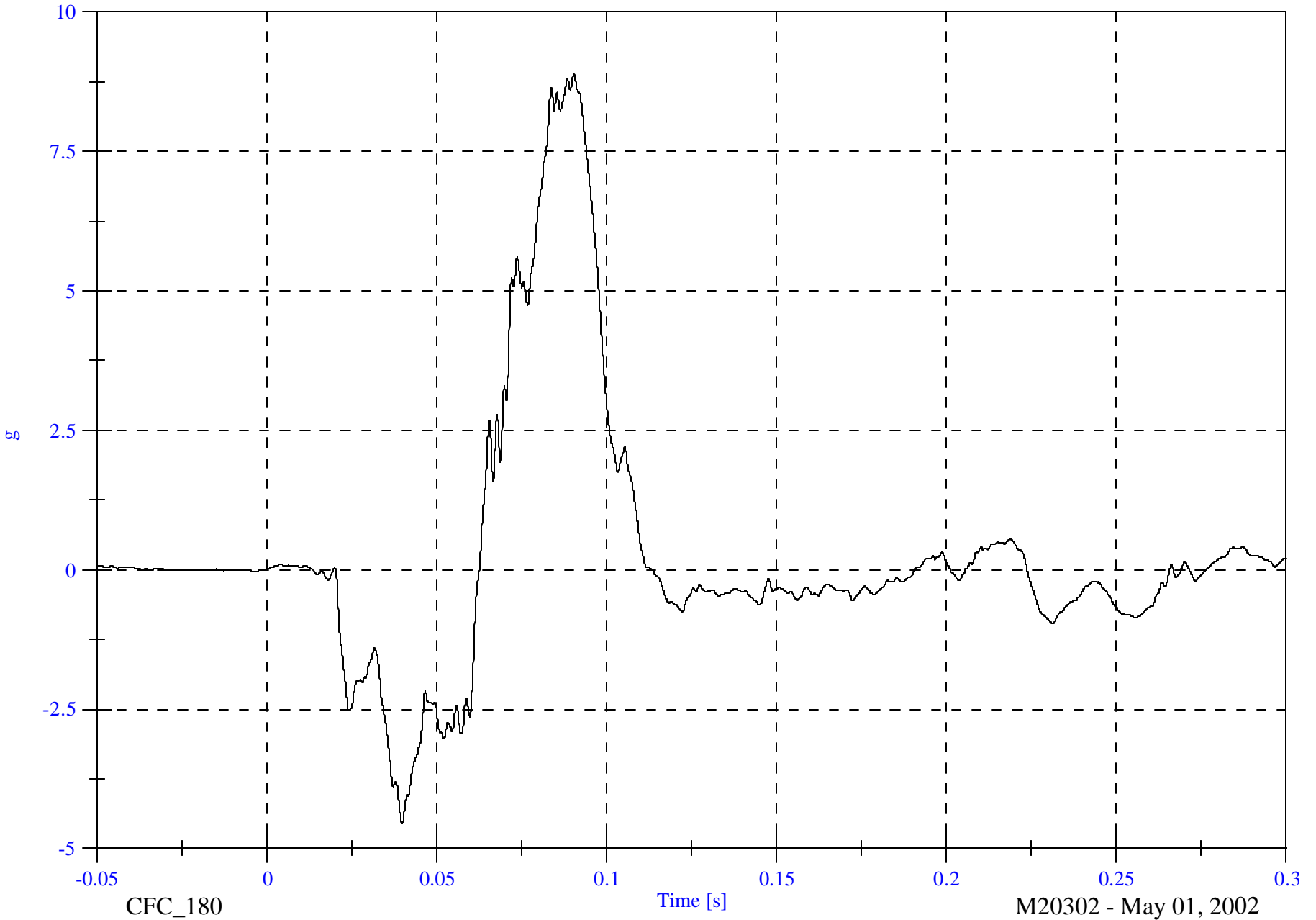
Max: 8.9 [g] at 0.090 [s]

P1 Chest Red y

Min: -4.5 [g] at 0.040 [s]

B-31

8642-NCAP-10



CFC_180

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

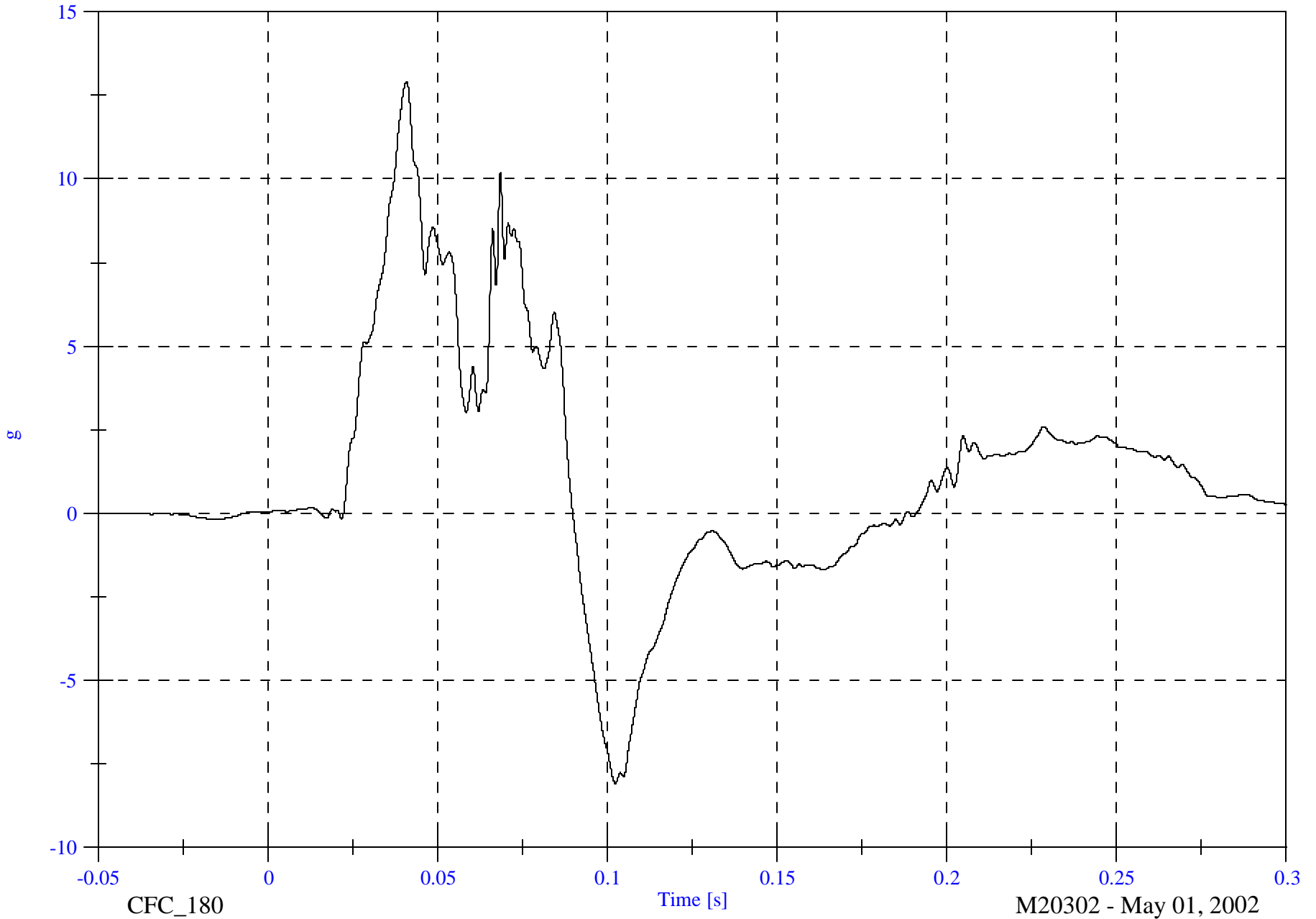
Max: 12.9 [g] at 0.041 [s]

P1 Chest Red z

Min: -8.1 [g] at 0.102 [s]

B-32

8642-NCAP-10



CFC_180

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

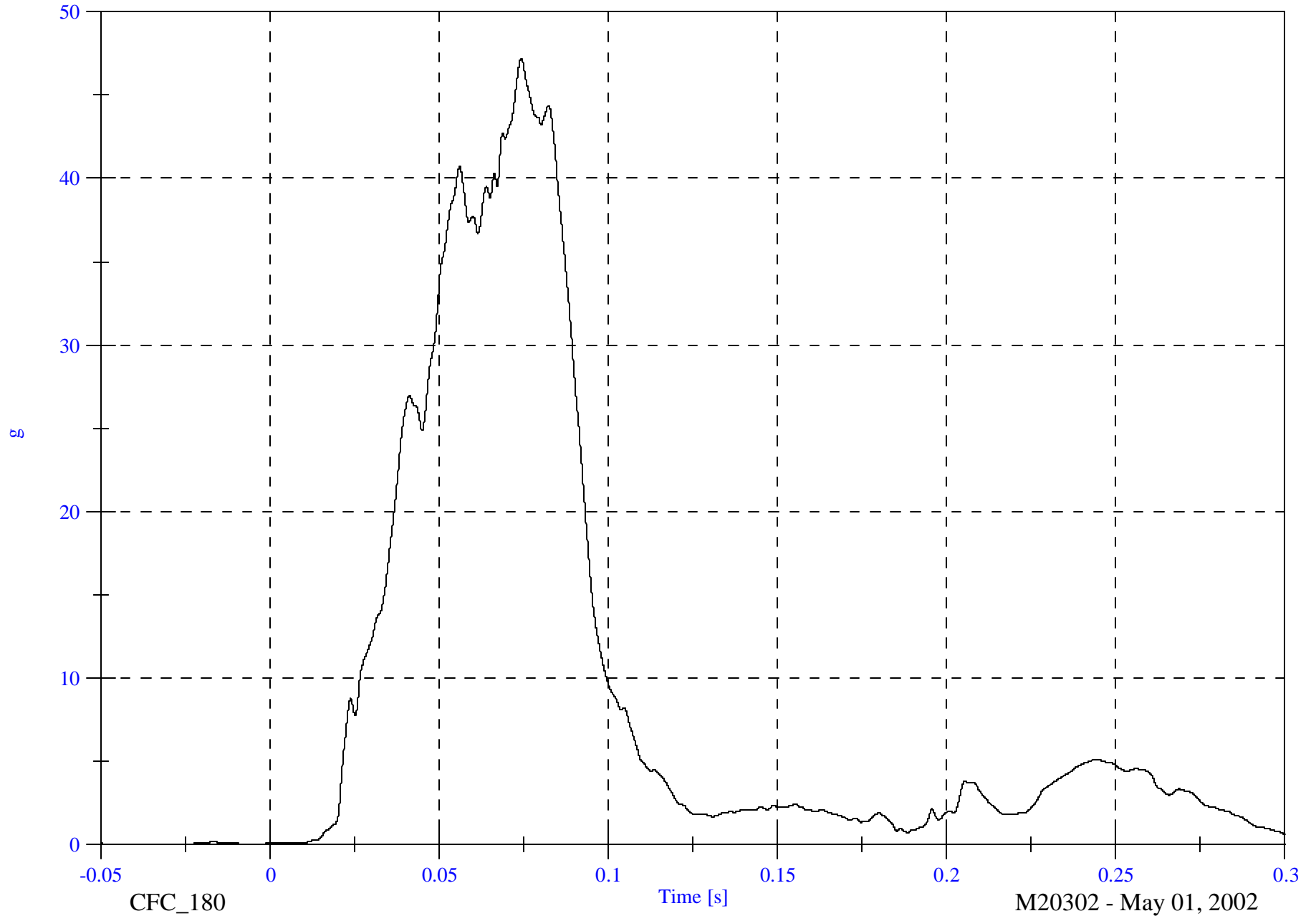
P1 Chest Red Resultant

Max: 47.2 [g] at 0.074 [s]

Min: 0.0 [g] at -0.027 [s]

B-33

8642-NCAP-10

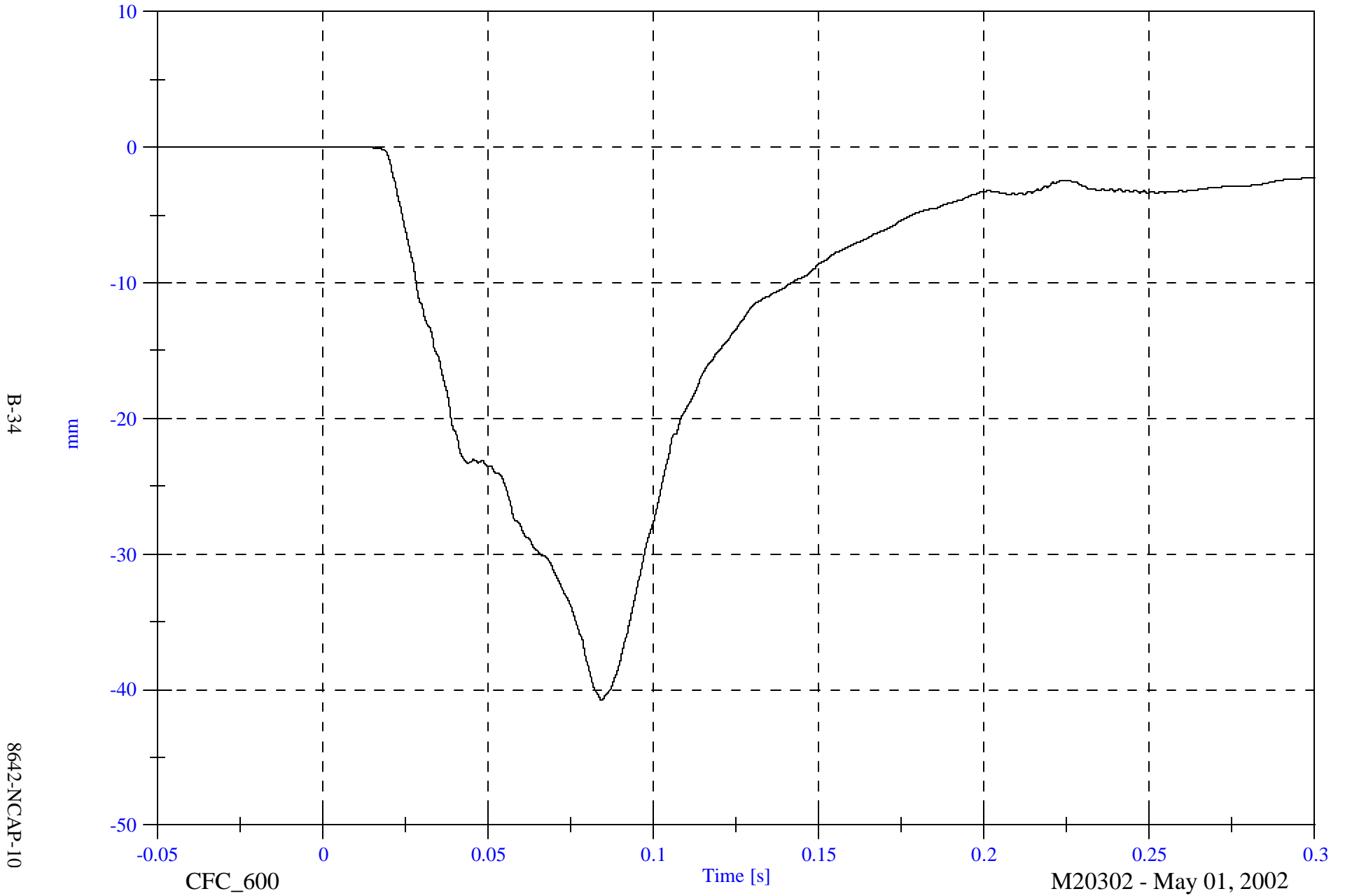


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 0.0 [mm] at -0.008 [s]

P1 Chest Compression

Min: -40.8 [mm] at 0.084 [s]



B-34

8642-NCAP-10

CFC_600

Time [s]

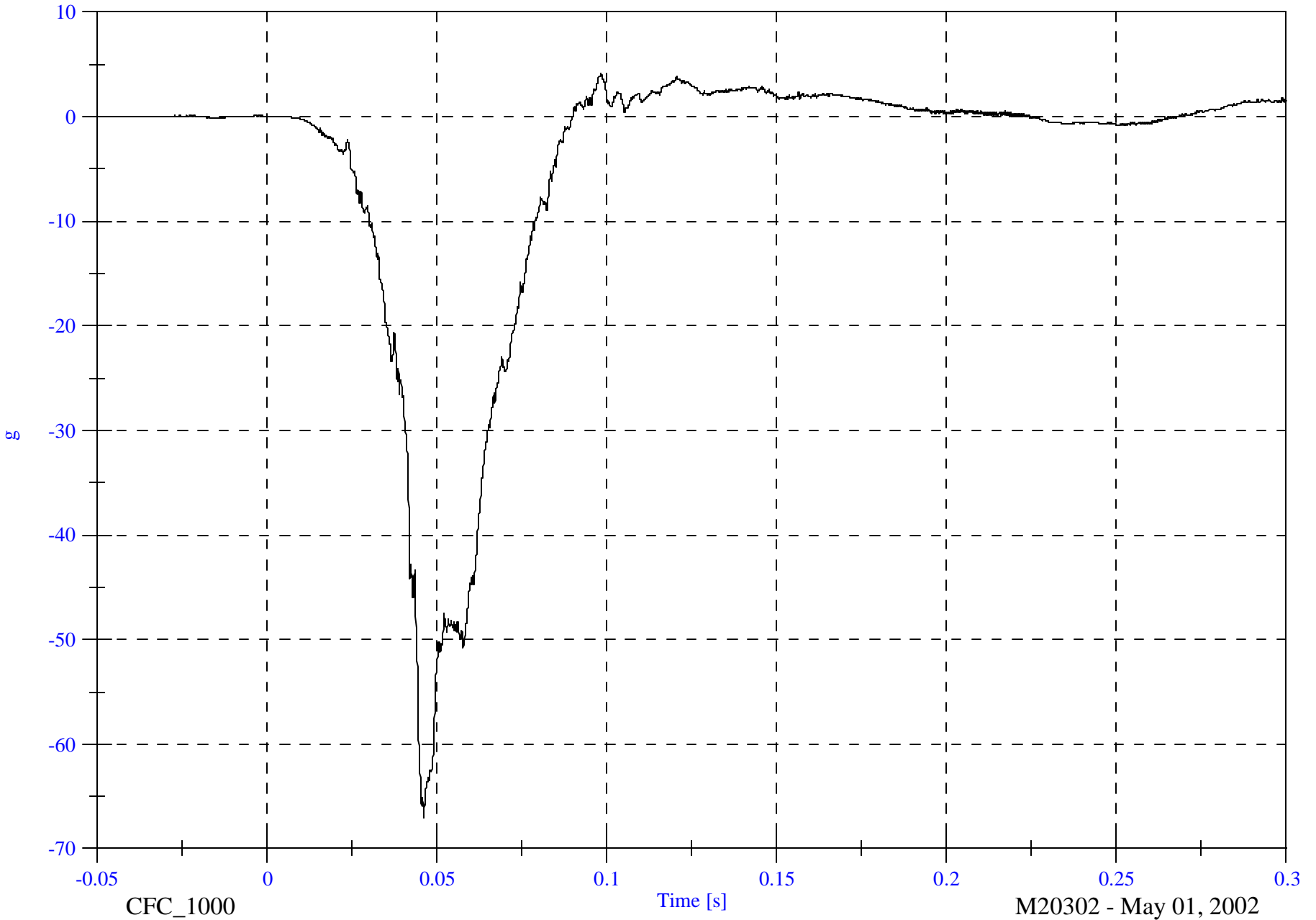
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 4.1 [g] at 0.098 [s]

Min: -67.0 [g] at 0.046 [s]

P1 Pelvic x



B-35

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 12.9 [g] at 0.074 [s]

P1 Pelvic y

Min: -4.8 [g] at 0.041 [s]

B-36

8642-NCAP-10



CFC_1000

Time [s]

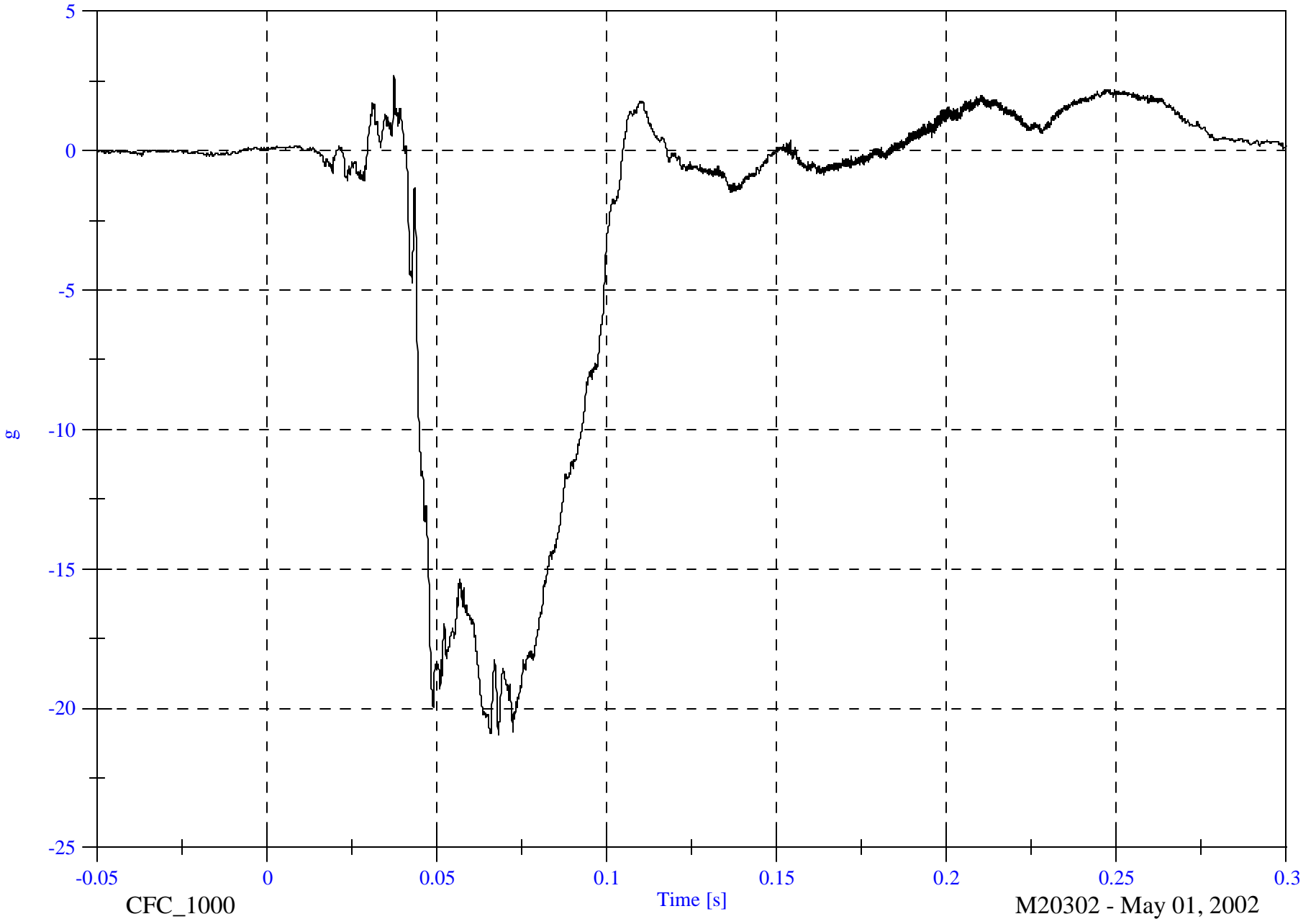
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 2.7 [g] at 0.037 [s]

P1 Pelvic z

Min: -21.0 [g] at 0.068 [s]



B-37

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

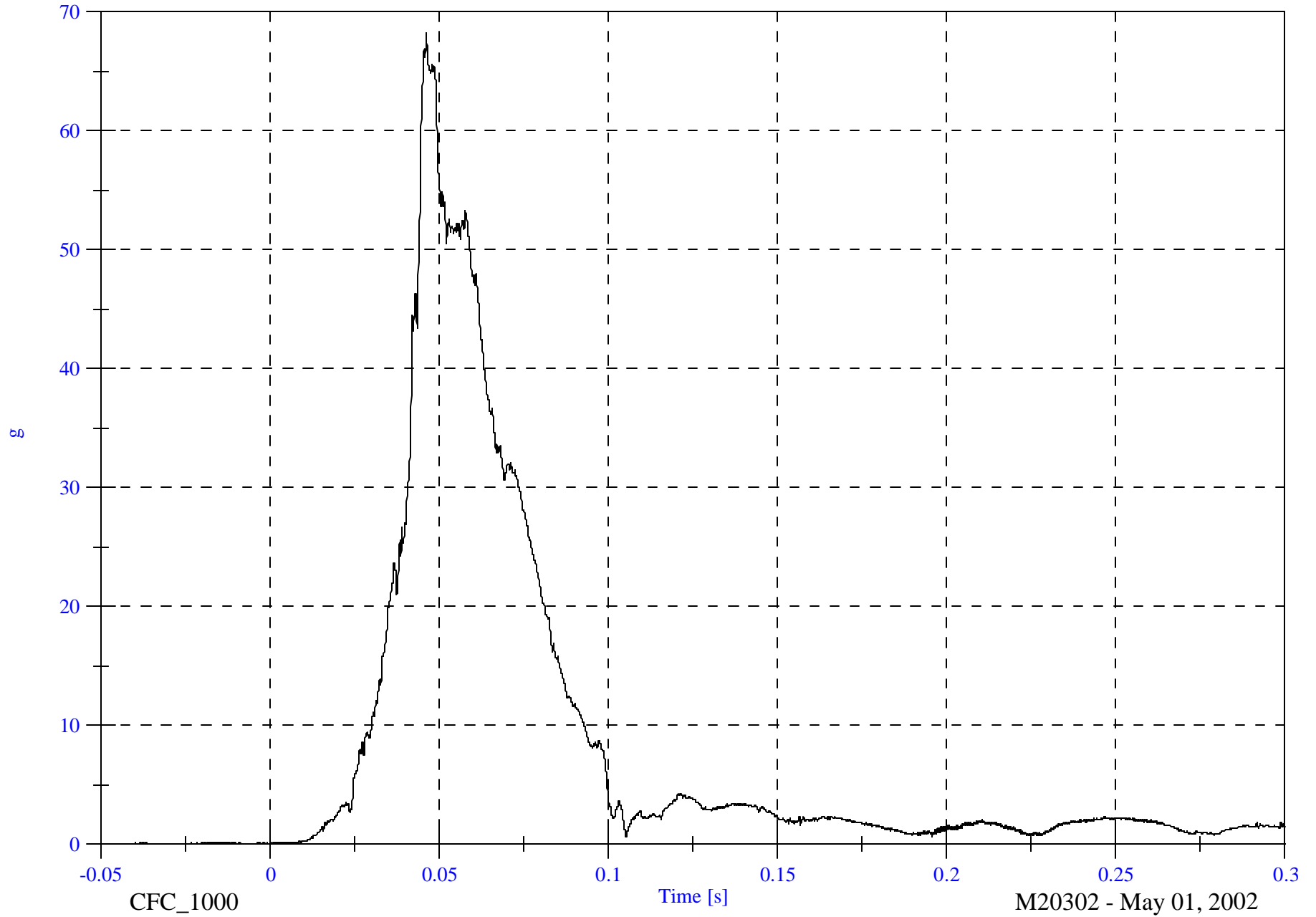
P1 Pelvic Resultant

Max: 68.2 [g] at 0.046 [s]

Min: 0.0 [g] at -0.035 [s]

B-38

8642-NCAP-10



CFC_1000

Time [s]

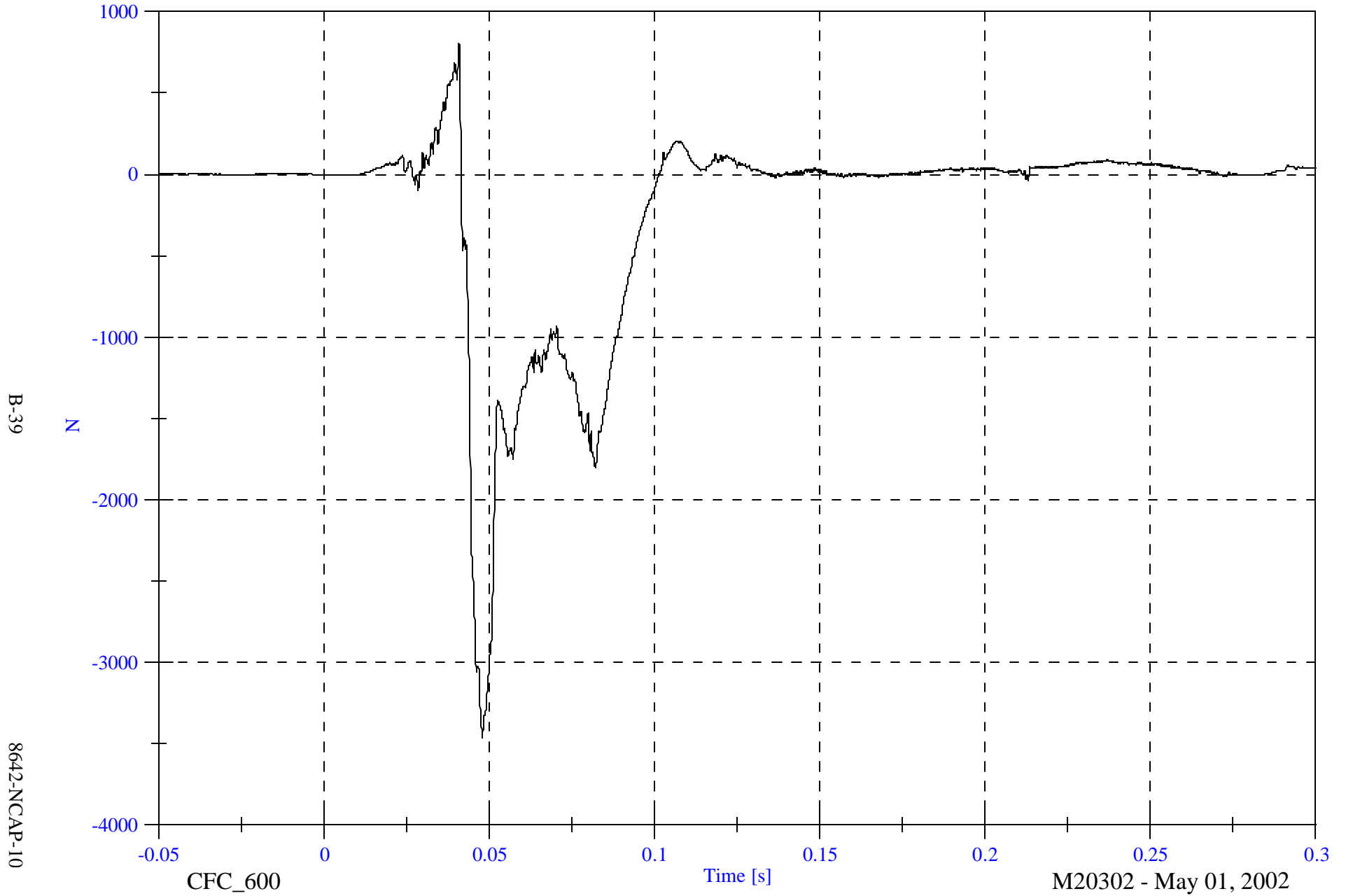
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 804.8 [N] at 0.041 [s]

Min: -3465.7 [N] at 0.048 [s]

P1 Left Femur

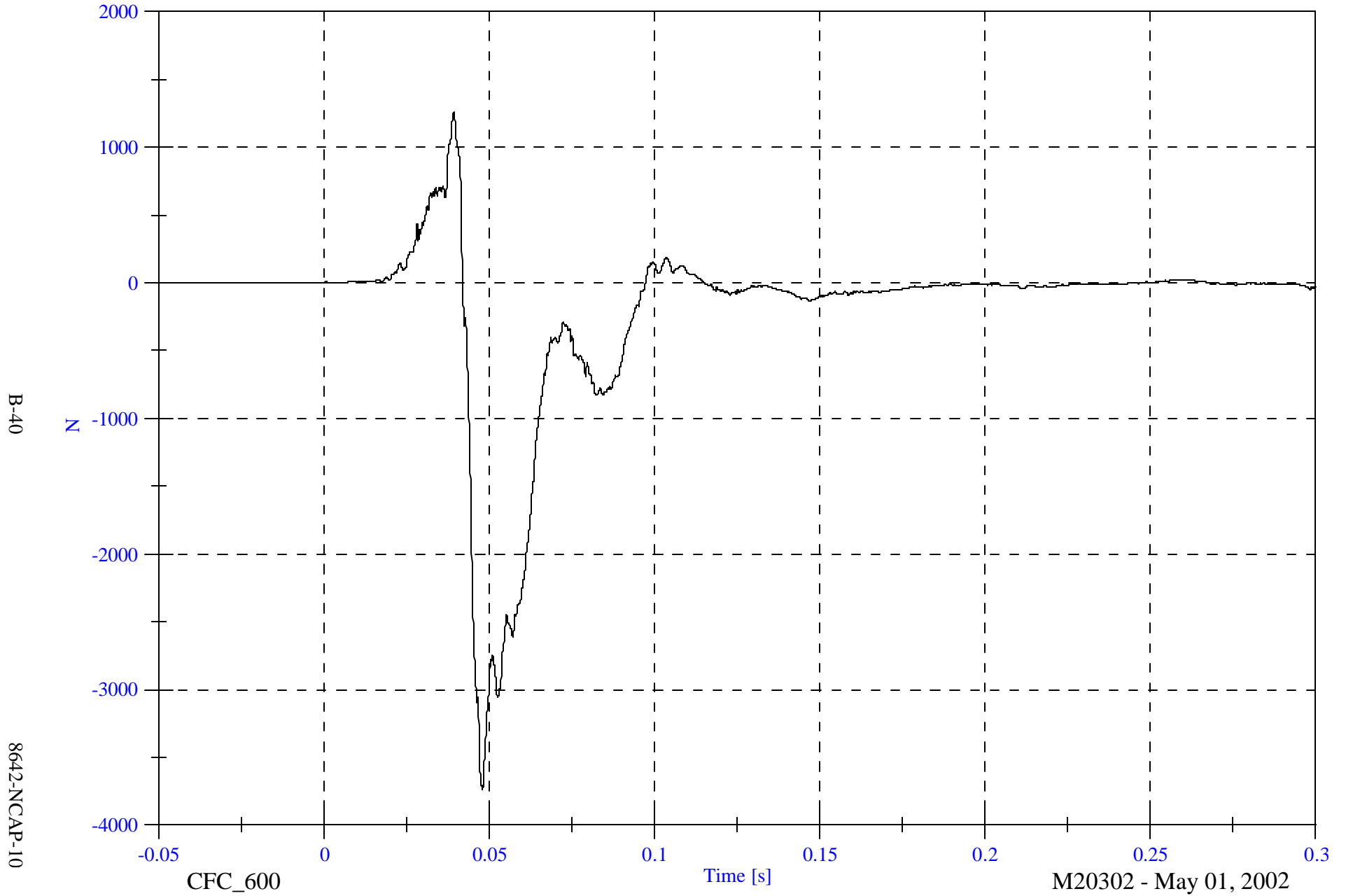


NCAP Test 10 - 2002 Dodge Ram 1500

P1 Right Femur

Max: 1262.9 [N] at 0.039 [s]

Min: -3736.6 [N] at 0.048 [s]



B-40

8642-NCAP-10

CFC_600

Time [s]

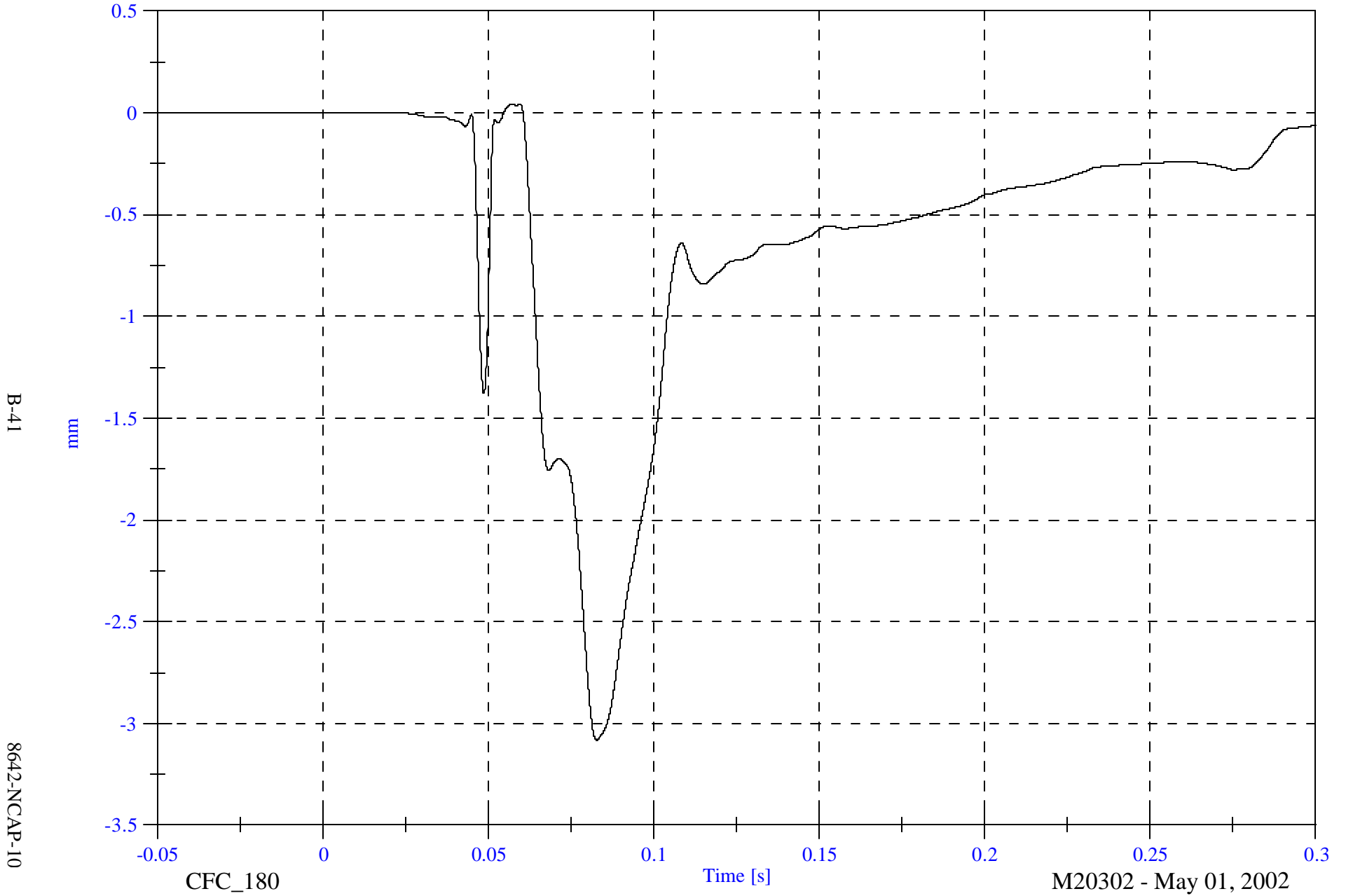
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

P1 Left Knee Shear

Max: 0.0 [mm] at 0.057 [s]

Min: -3.1 [mm] at 0.083 [s]



B-41

8642-NCAP-10

CFC_180

Time [s]

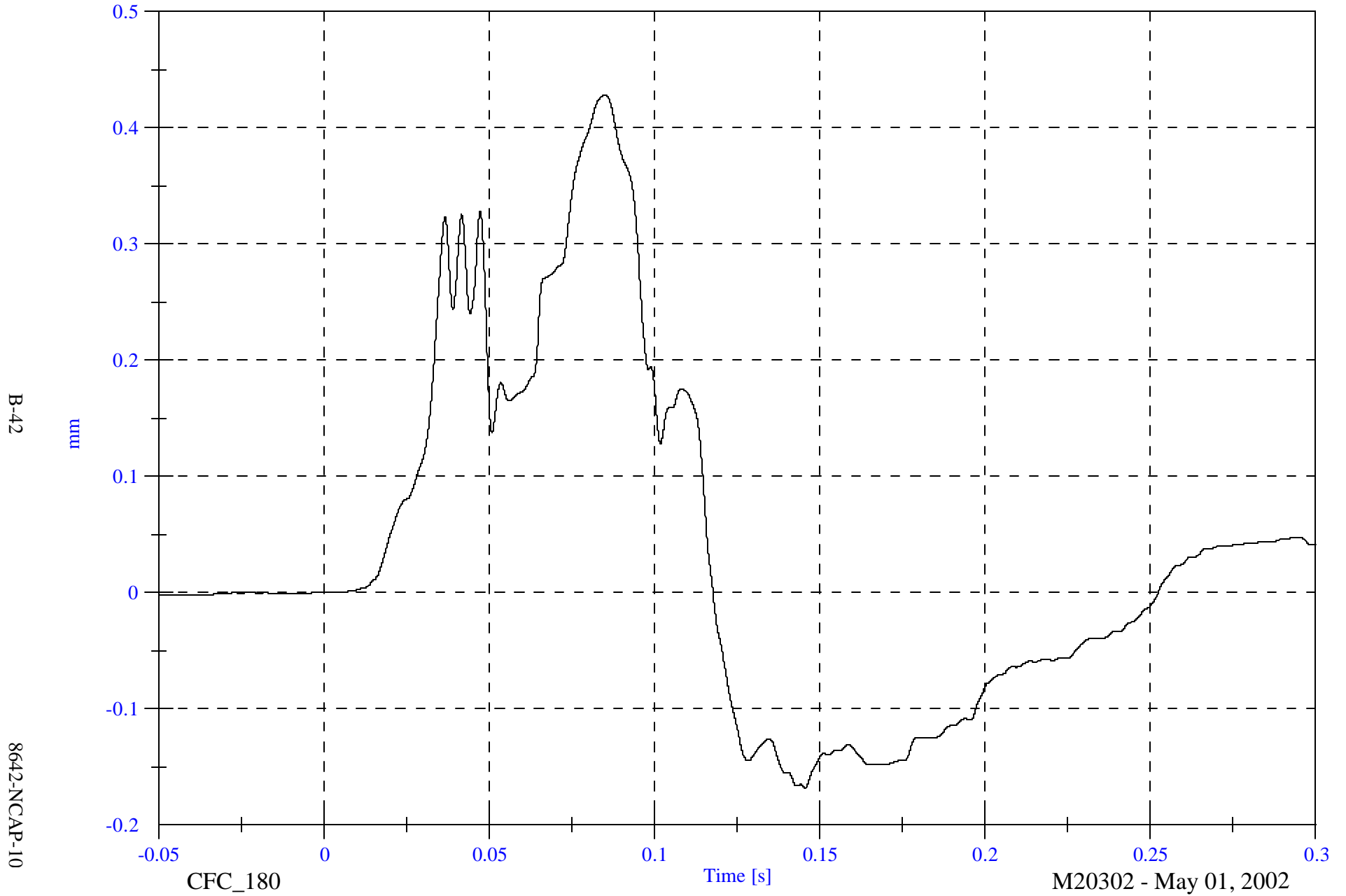
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

P1 Right Knee Shear

Max: 0.4 [mm] at 0.085 [s]

Min: -0.2 [mm] at 0.146 [s]



NCAP Test 10 - 2002 Dodge Ram 1500

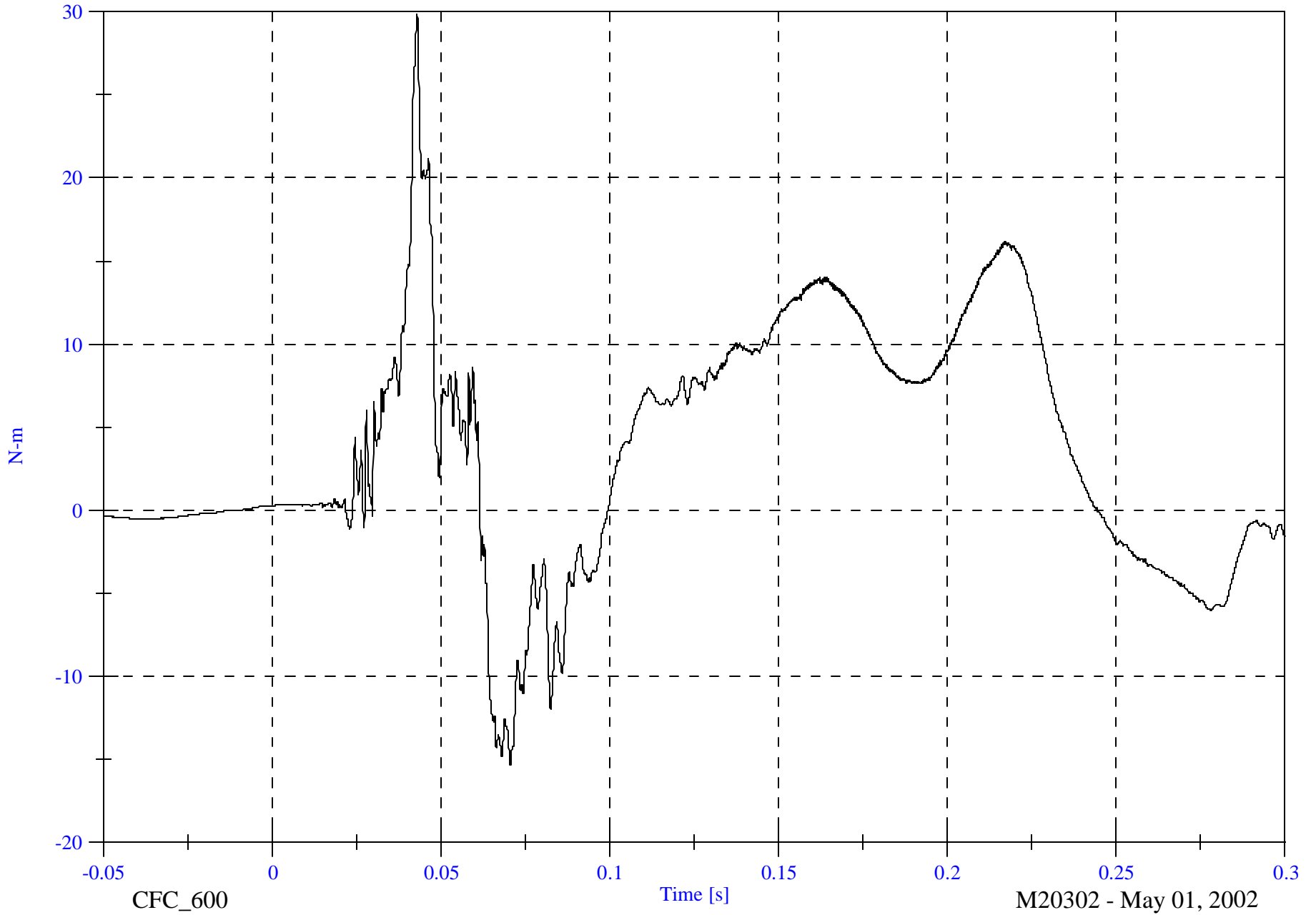
Max: 29.9 [N-m] at 0.043 [s]

P1 Left Upper Tibia Mx

Min: -15.3 [N-m] at 0.071 [s]

B-43

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

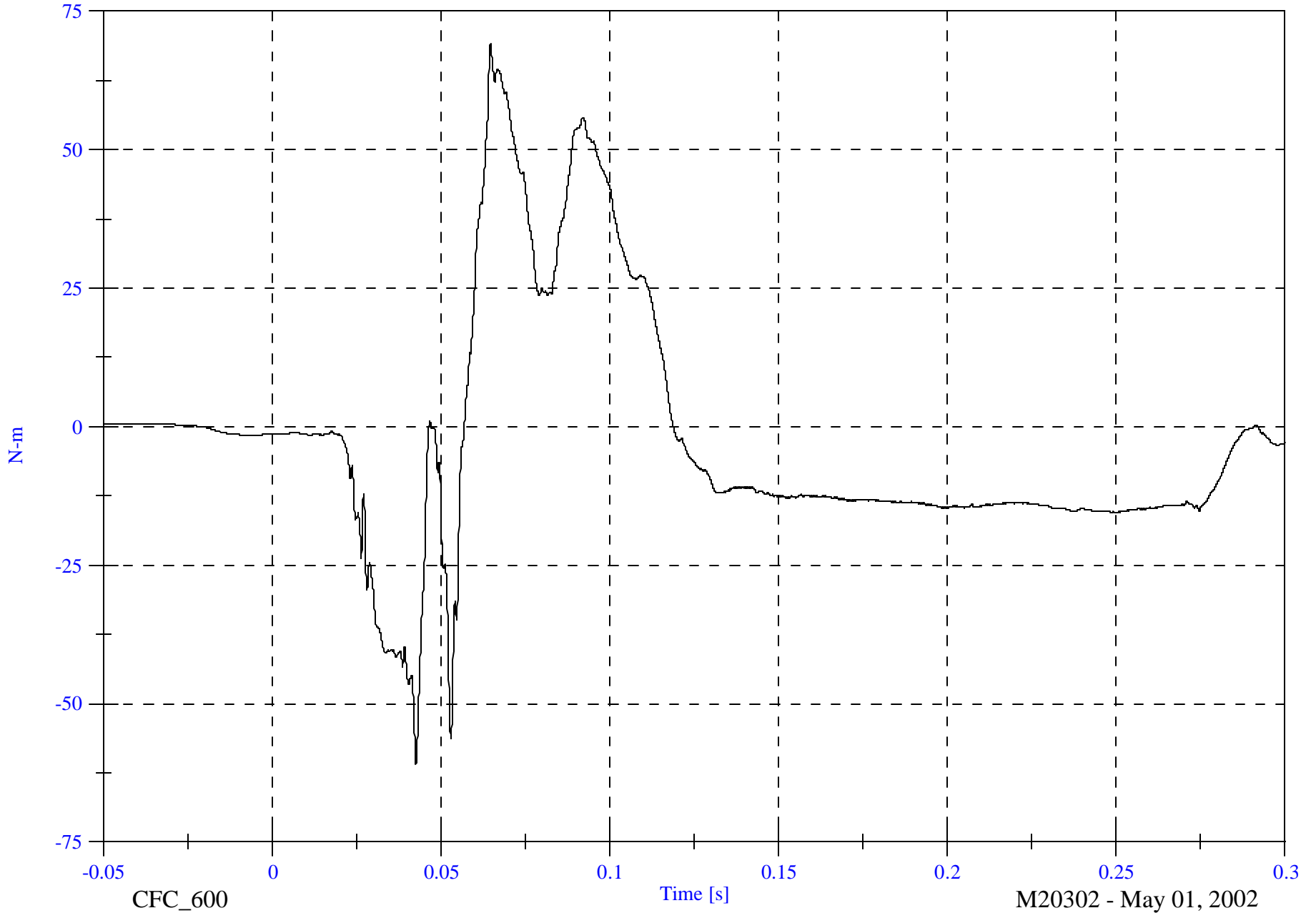
Max: 69.1 [N-m] at 0.065 [s]

Min: -60.9 [N-m] at 0.043 [s]

P1 Left Upper Tibia My

B-44

8642-NCAP-10



CFC_600

Time [s]

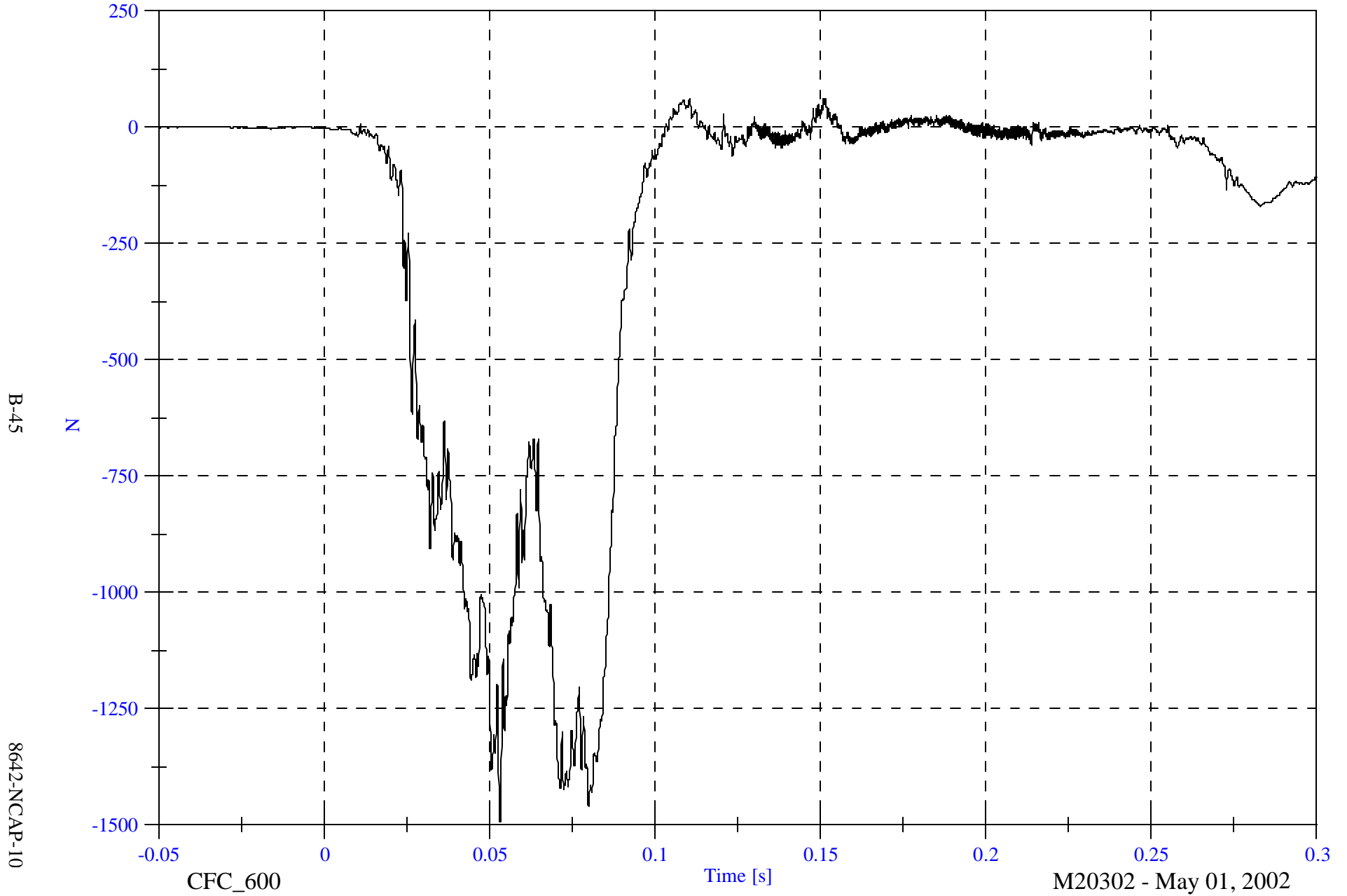
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 62.6 [N] at 0.151 [s]

Min: -1493.1 [N] at 0.053 [s]

P1 Left Lower Tibia Fz



B-45

8642-NCAP-10

CFC_600

Time [s]

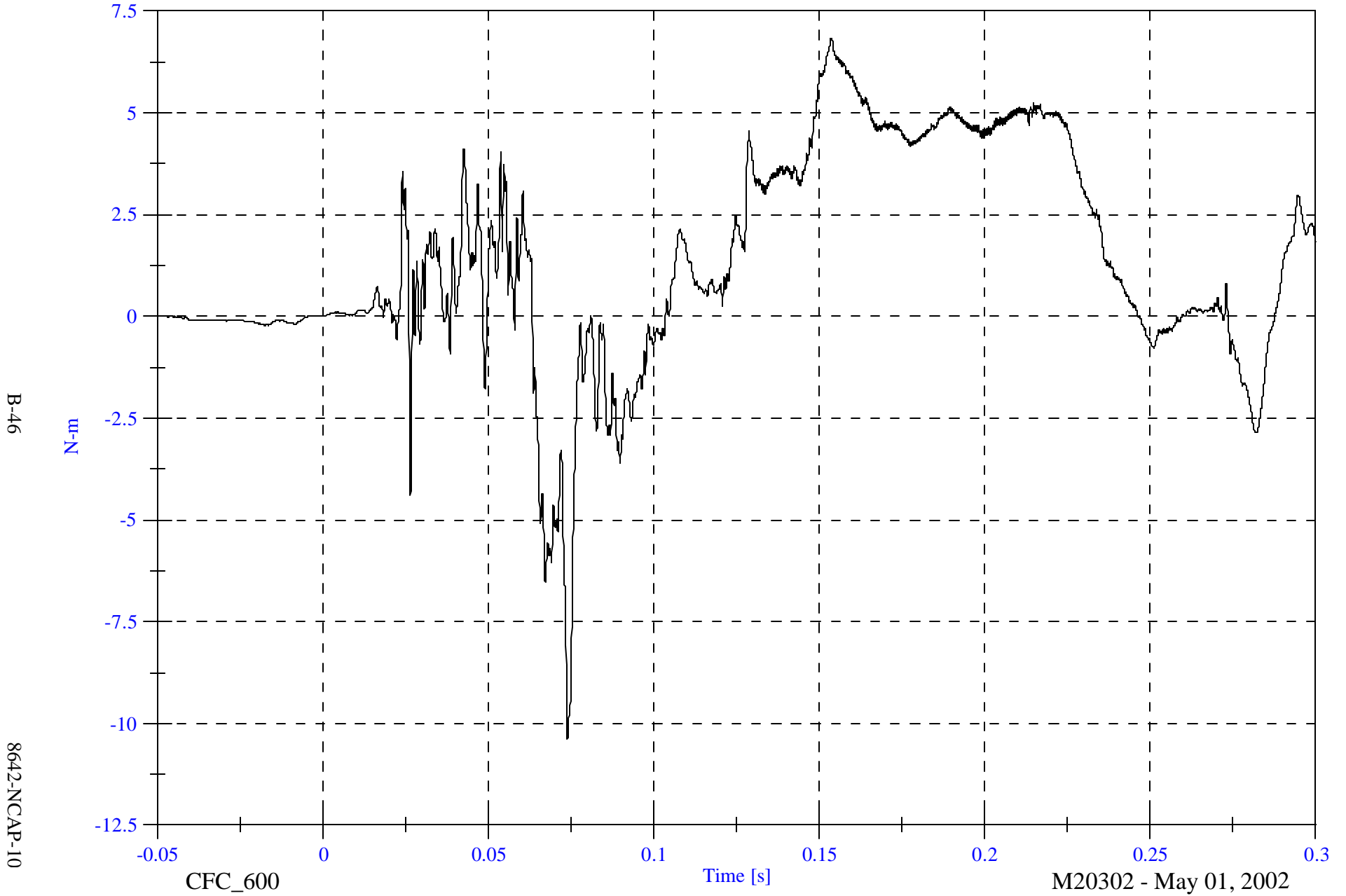
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 6.8 [N-m] at 0.154 [s]

P1 Left Lower Tibia Mx

Min: -10.4 [N-m] at 0.074 [s]



NCAP Test 10 - 2002 Dodge Ram 1500

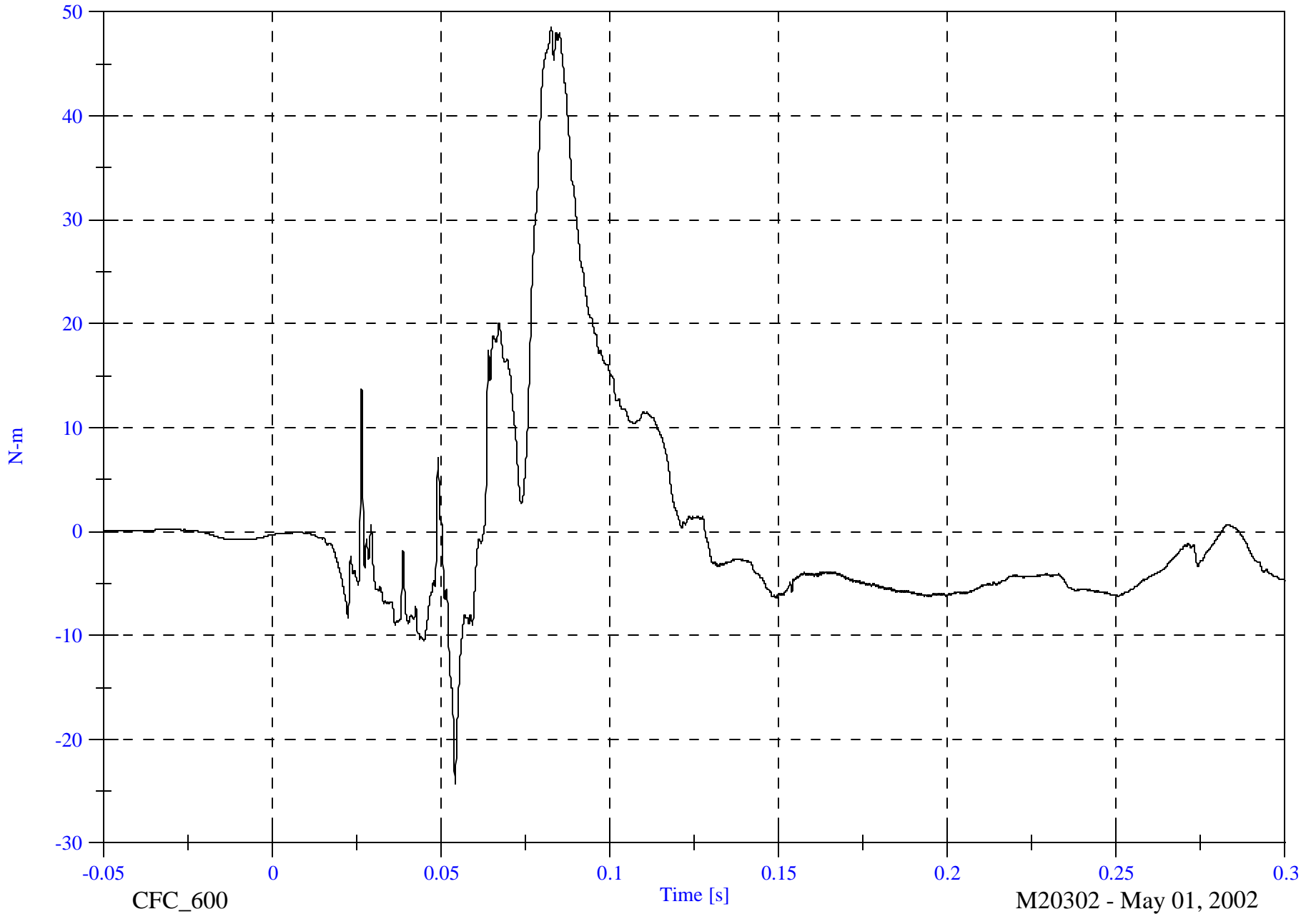
Max: 48.6 [N-m] at 0.083 [s]

Min: -24.3 [N-m] at 0.054 [s]

P1 Left Lower Tibia My

B-47

8642-NCAP-10



CFC_600

Time [s]

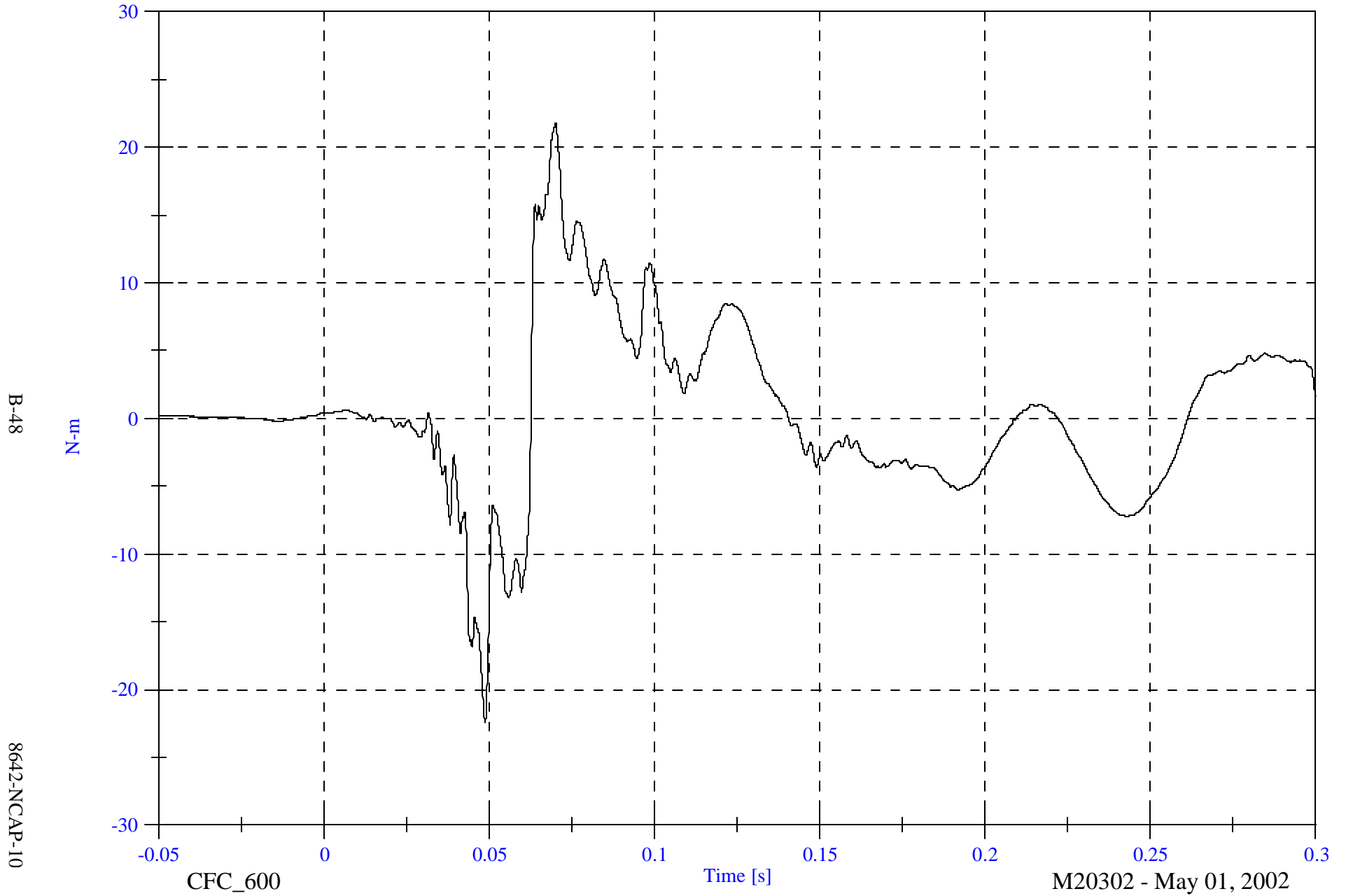
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 21.8 [N-m] at 0.070 [s]

P1 Right Upper Tibia Mx

Min: -22.4 [N-m] at 0.049 [s]

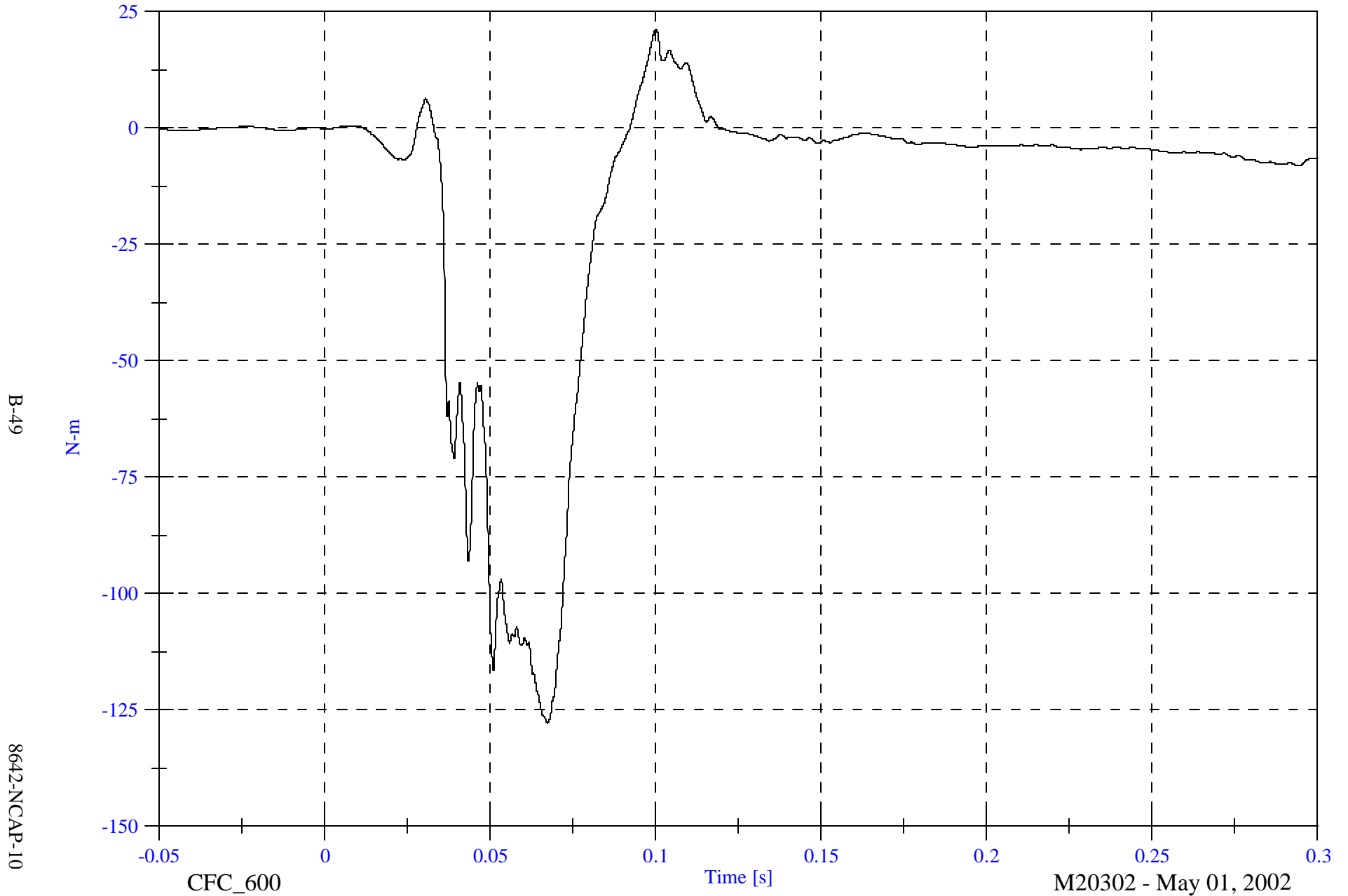


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 21.3 [N-m] at 0.100 [s]

Min: -127.7 [N-m] at 0.067 [s]

P1 Right Upper Tibia My



B-49

8642-NCAP-10

CFC_600

Time [s]

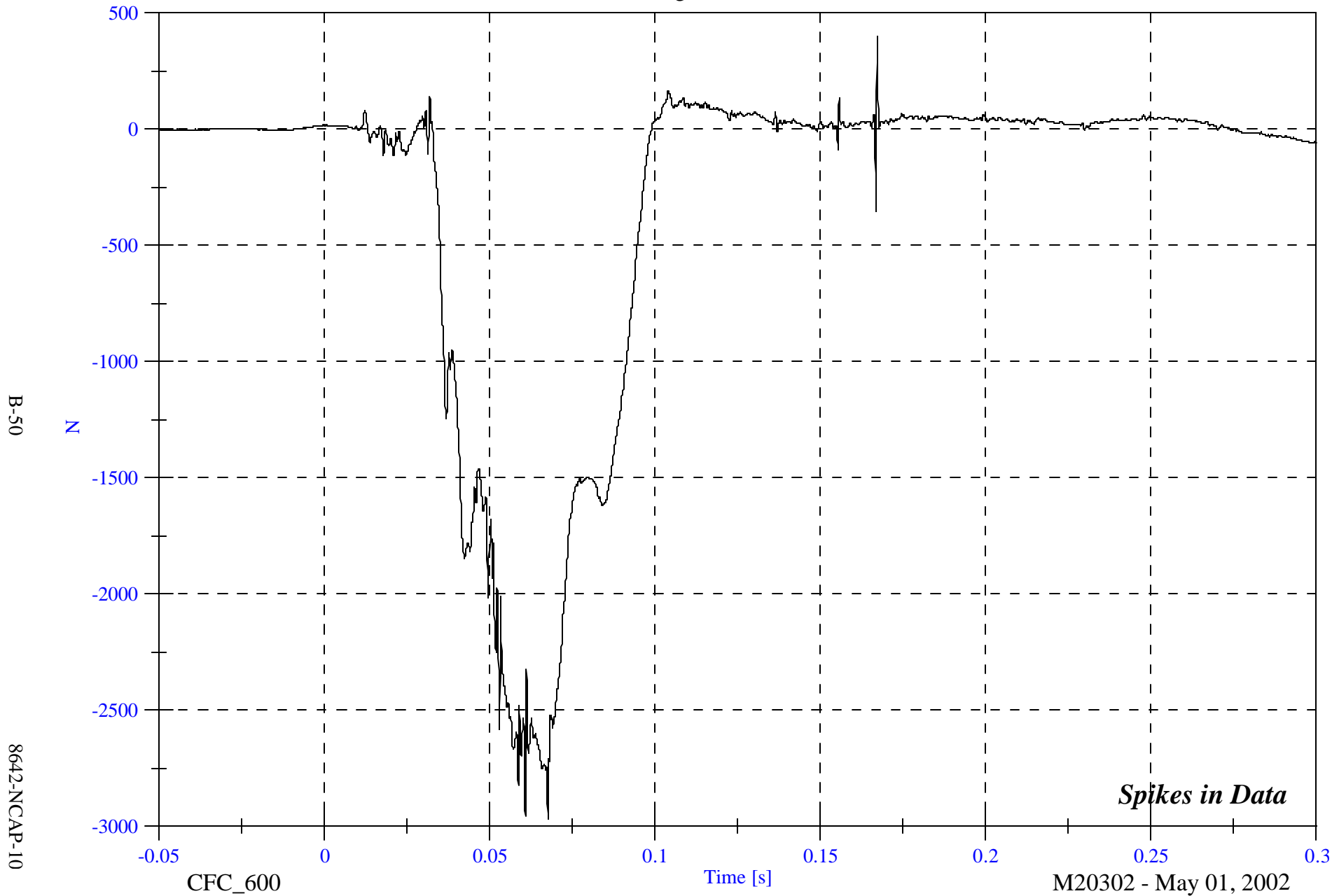
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

P1 Right Lower Tibia Fz

Max: 401.5 [N] at 0.167 [s]

Min: -2965.2 [N] at 0.068 [s]



Spikes in Data

B-50

8642-NCAP-10

CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

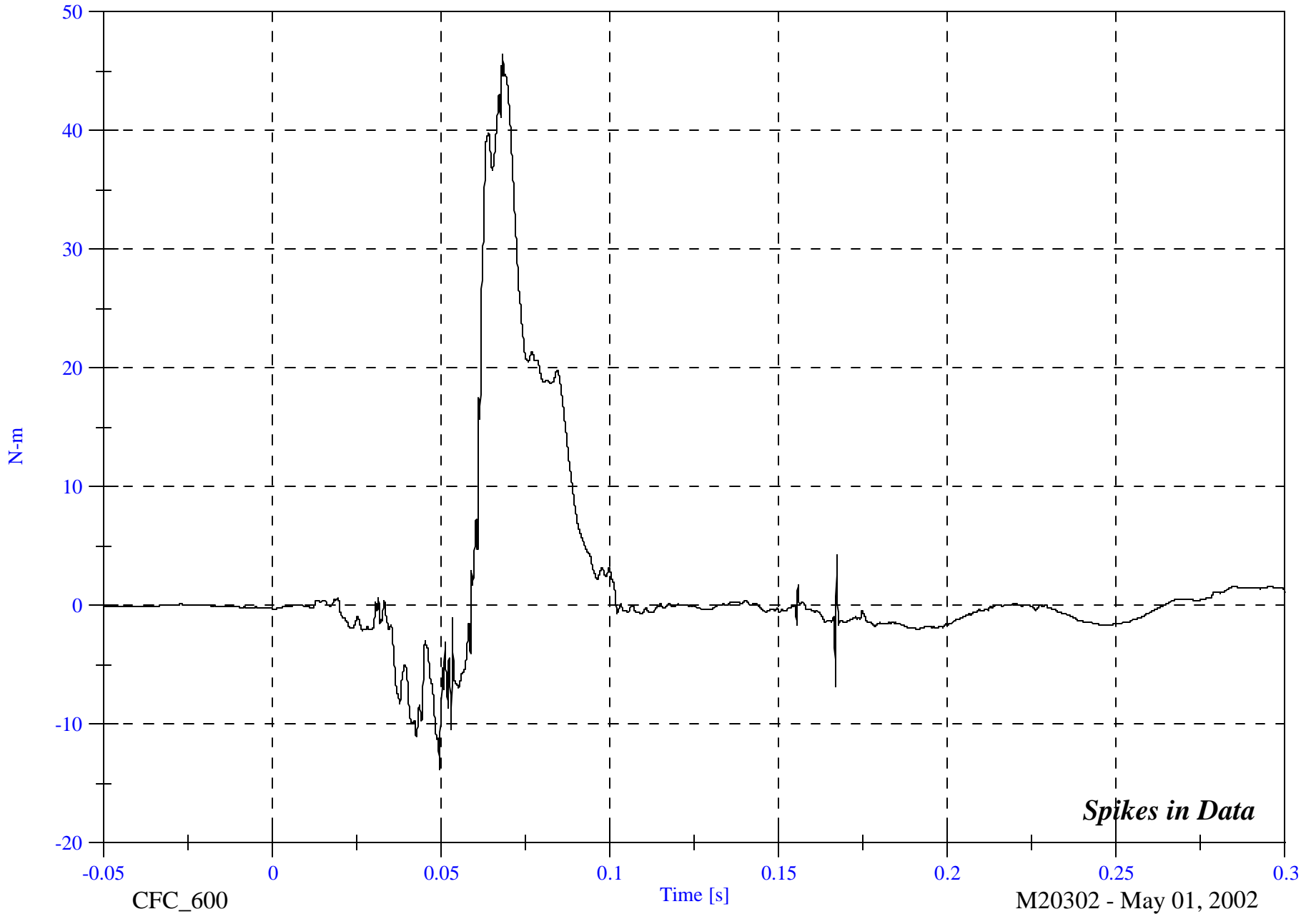
Max: 46.4 [N-m] at 0.068 [s]

P1 Right Lower Tibia Mx

Min: -13.8 [N-m] at 0.050 [s]

B-51

8642-NCAP-10



M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

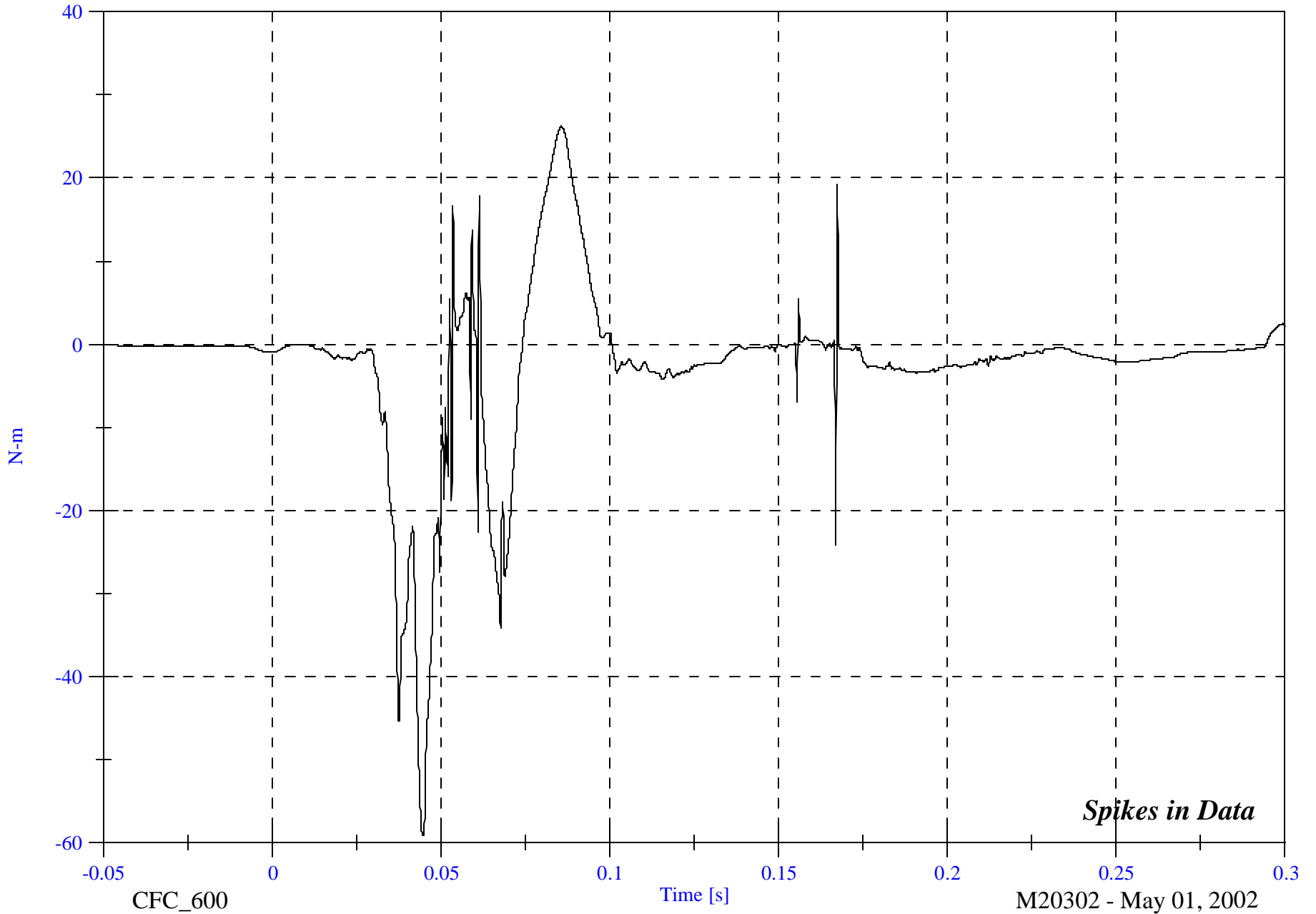
Max: 26.2 [N-m] at 0.086 [s]

P1 Right Lower Tibia My

Min: -59.1 [N-m] at 0.045 [s]

B-52

8642-NCAP-10



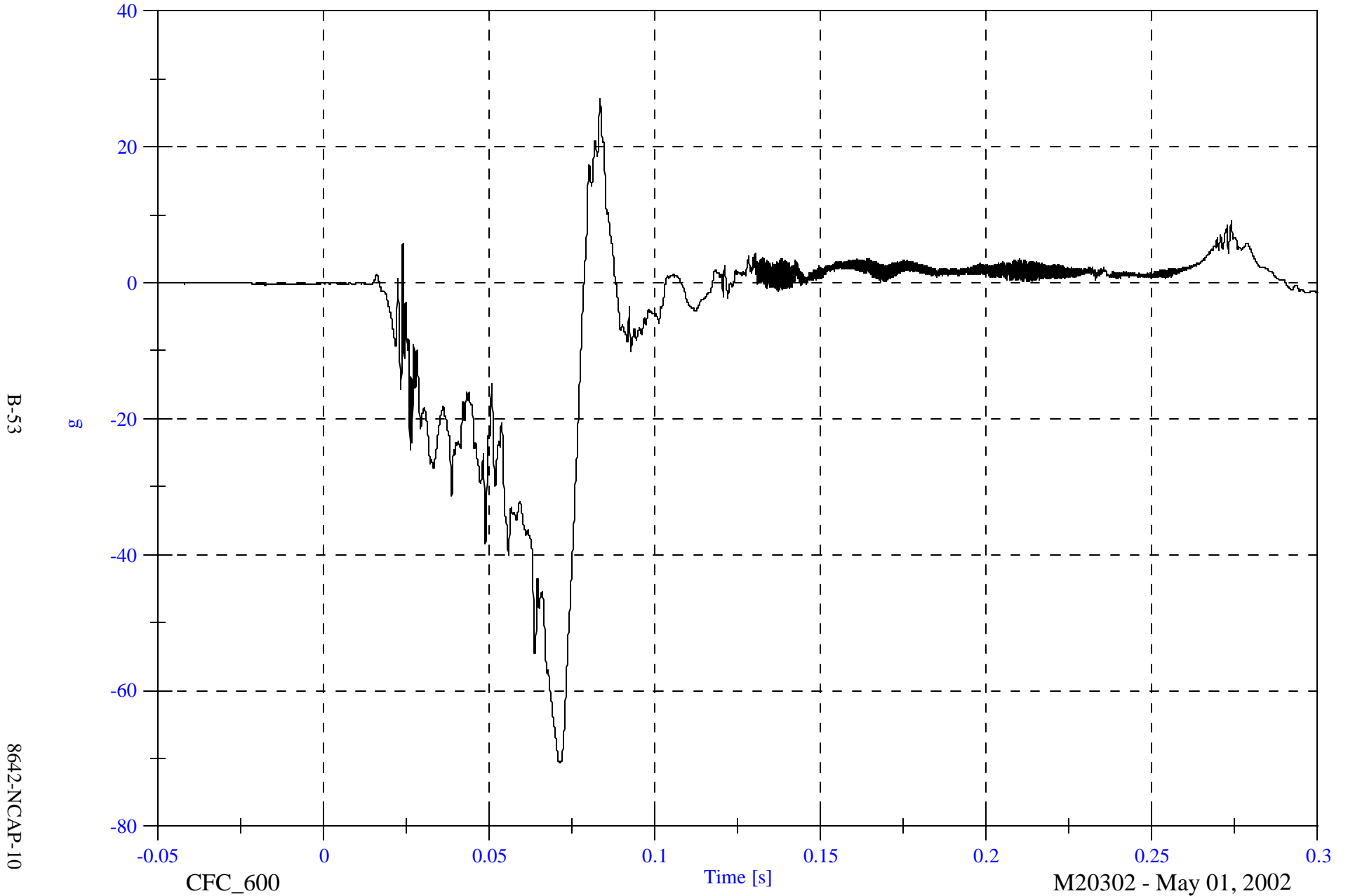
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 27.0 [g] at 0.083 [s]

Min: -70.6 [g] at 0.072 [s]

P1 Left Foot Aft x



NCAP Test 10 - 2002 Dodge Ram 1500

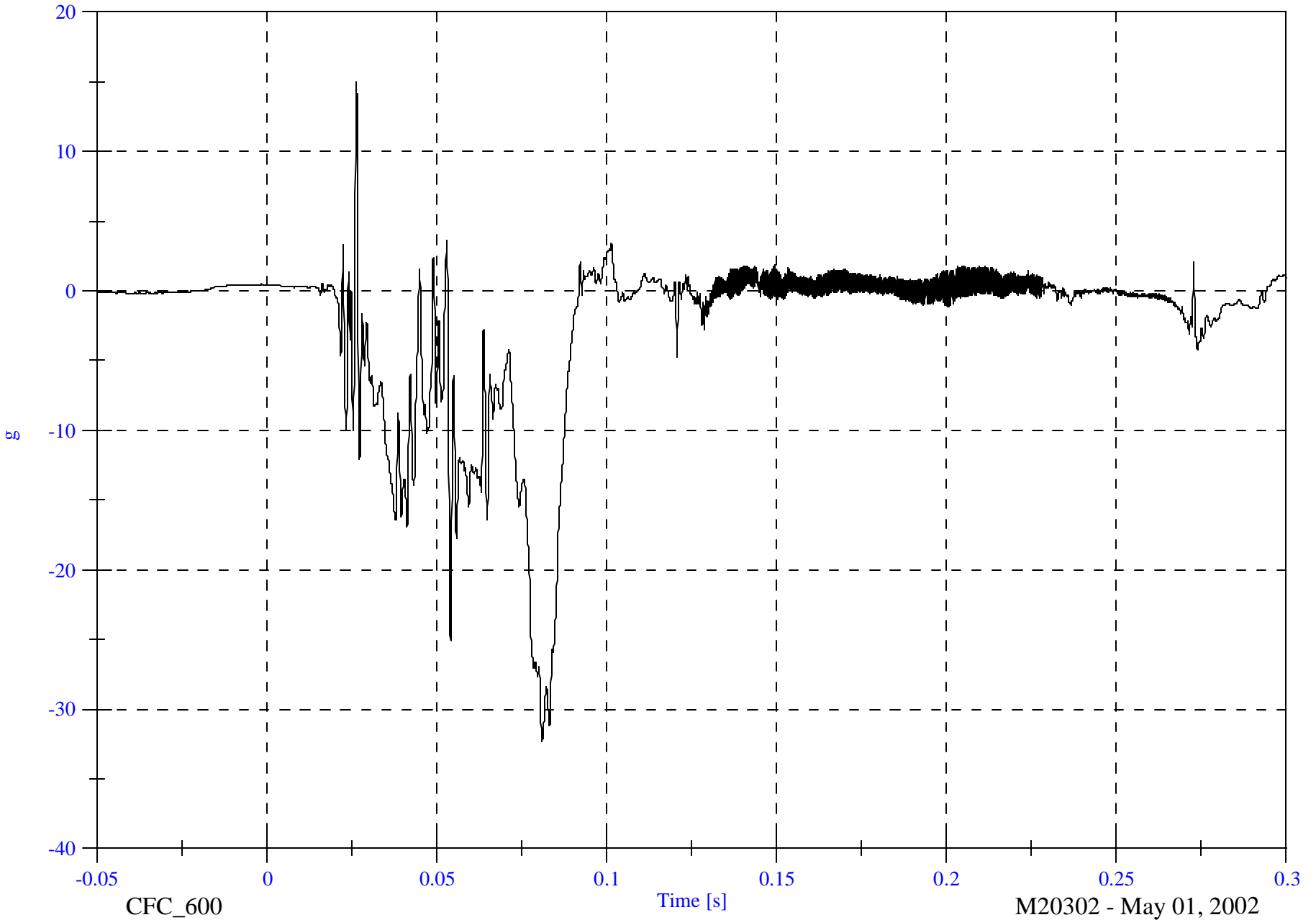
Max: 15.0 [g] at 0.026 [s]

P1 Left Foot Aft z

Min: -32.4 [g] at 0.081 [s]

B-54

8642-NCAP-10



CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 38.9 [g] at 0.084 [s]

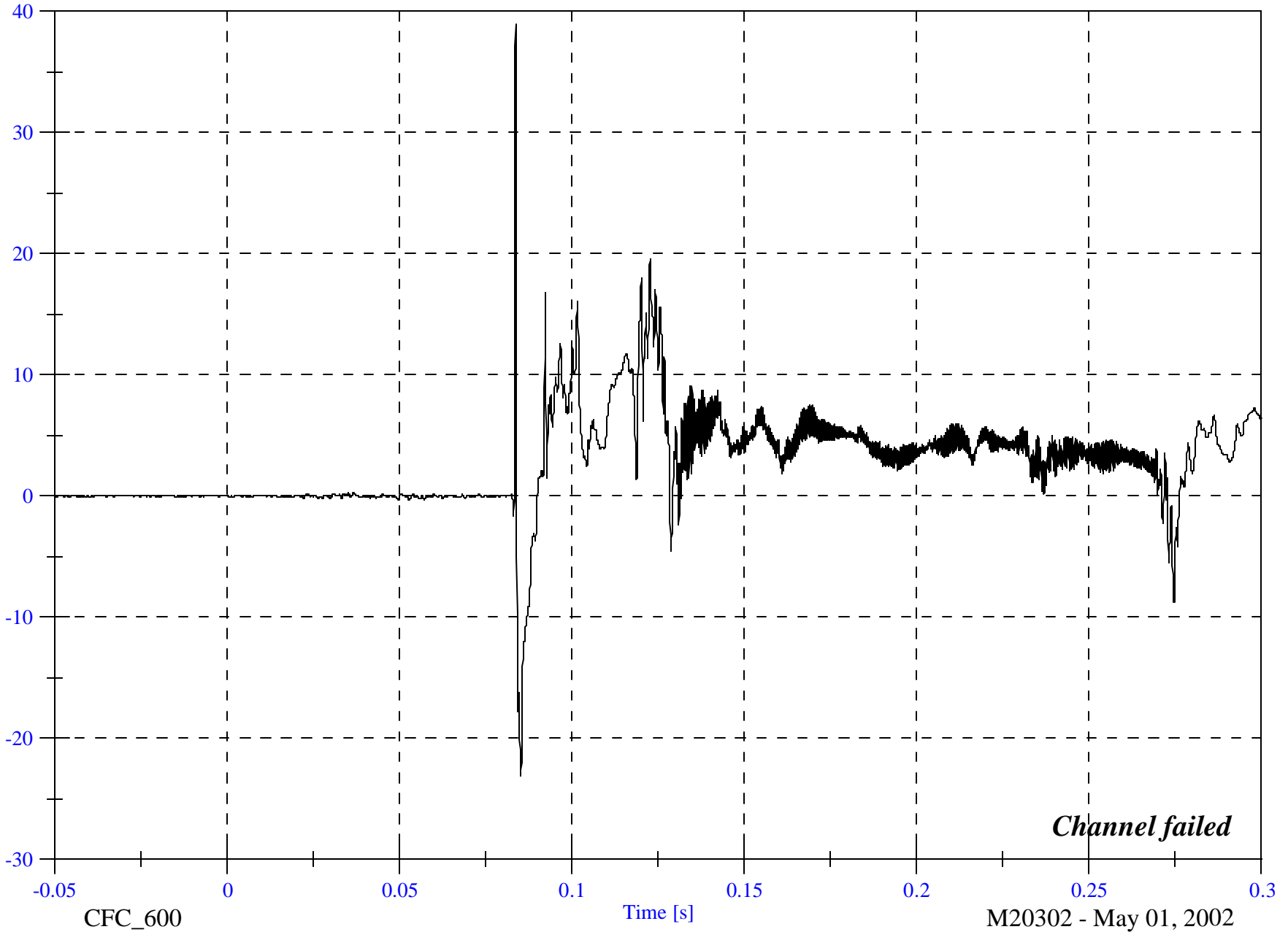
Min: -23.1 [g] at 0.085 [s]

P1 Left Foot Fore z

B-55

g

8642-NCAP-10



CFC_600

Time [s]

M20302 - May 01, 2002

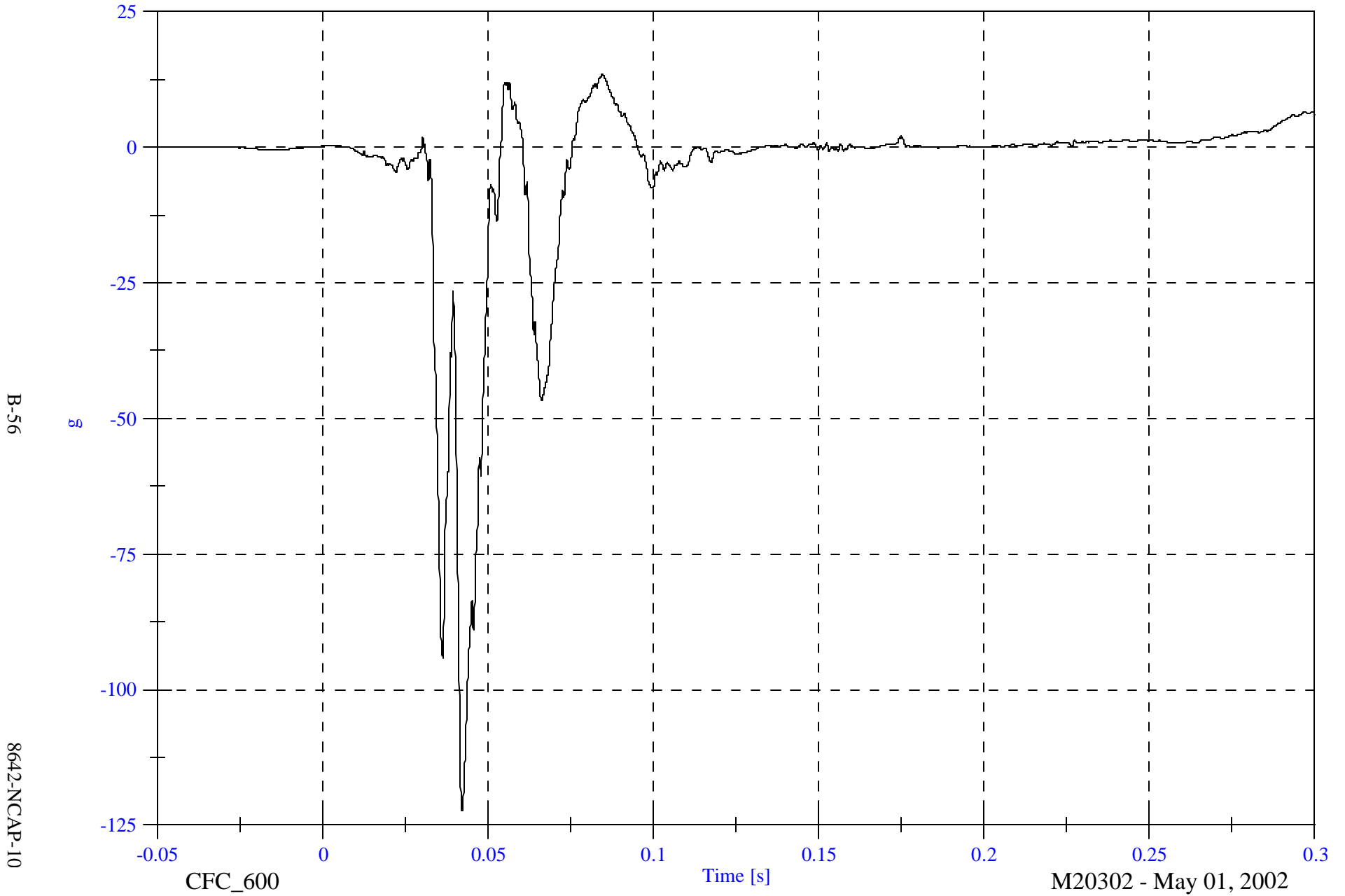
Channel failed

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 13.5 [g] at 0.085 [s]

Min: -122.4 [g] at 0.042 [s]

P1 Right Foot Aft x

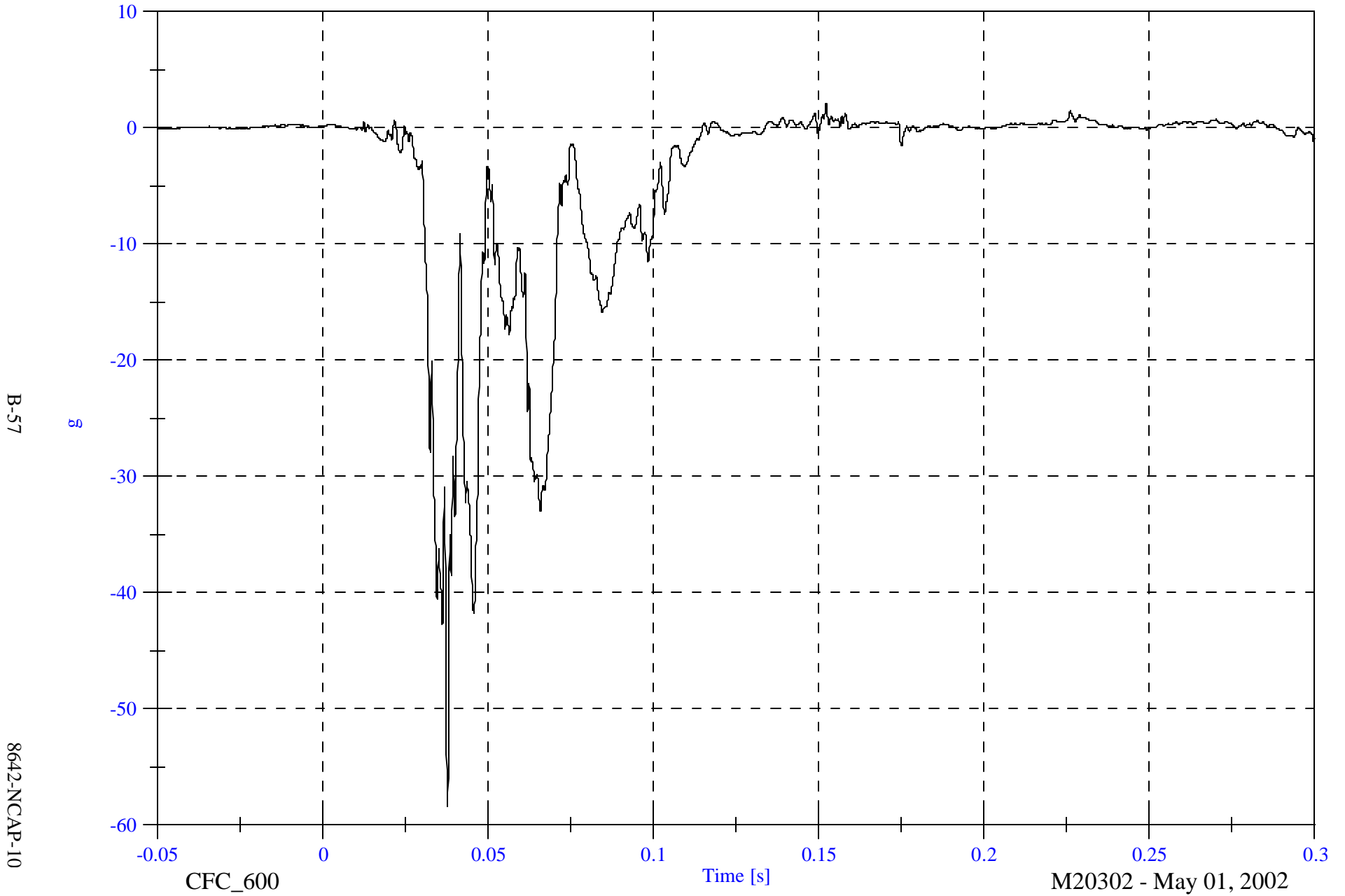


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 2.1 [g] at 0.152 [s]

Min: -58.4 [g] at 0.038 [s]

P1 Right Foot Aft z

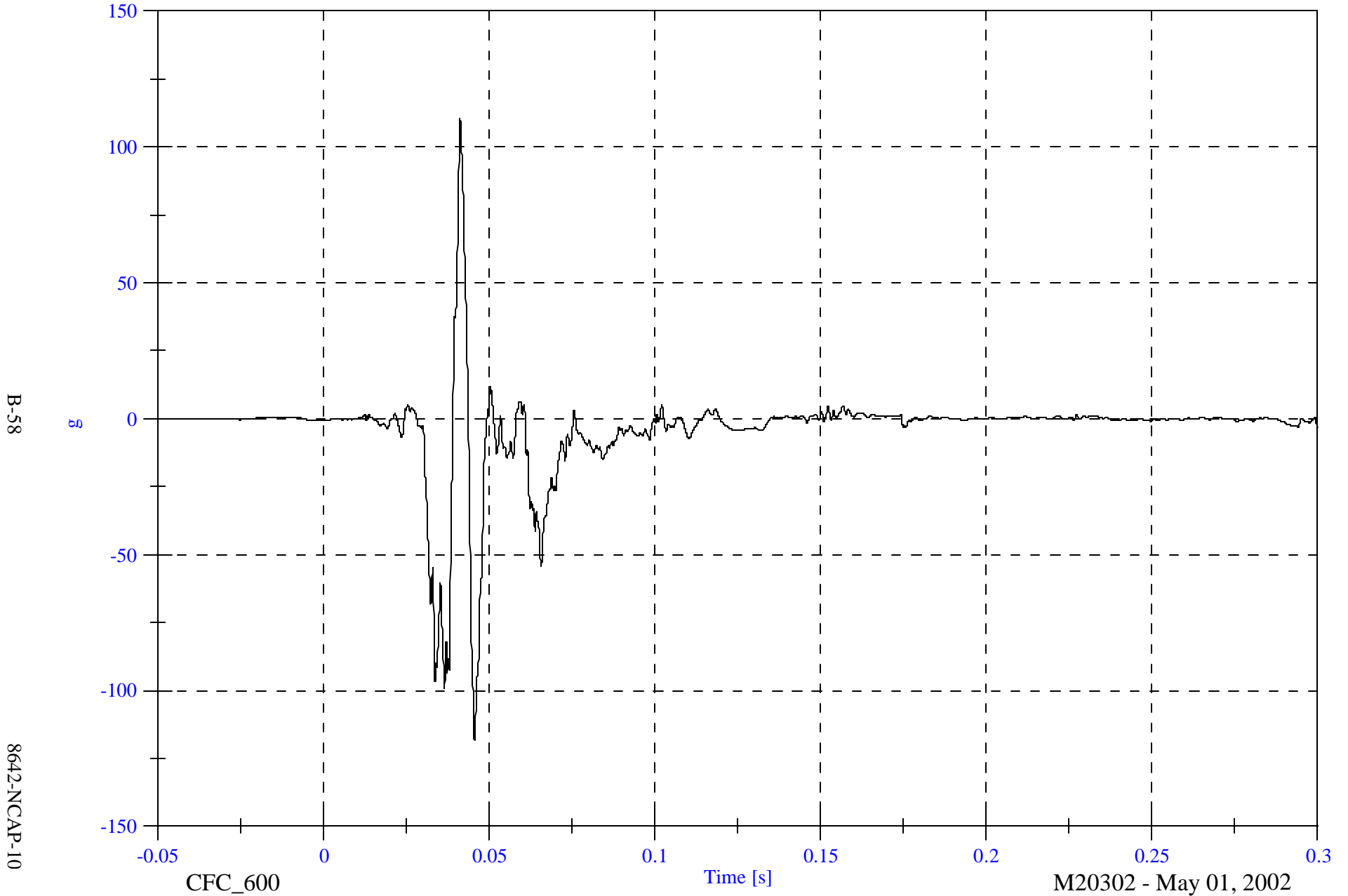


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 110.5 [g] at 0.041 [s]

Min: -118.5 [g] at 0.046 [s]

P1 Right Foot Fore z



B-58

8642-NCAP-10

CFC_600

Time [s]

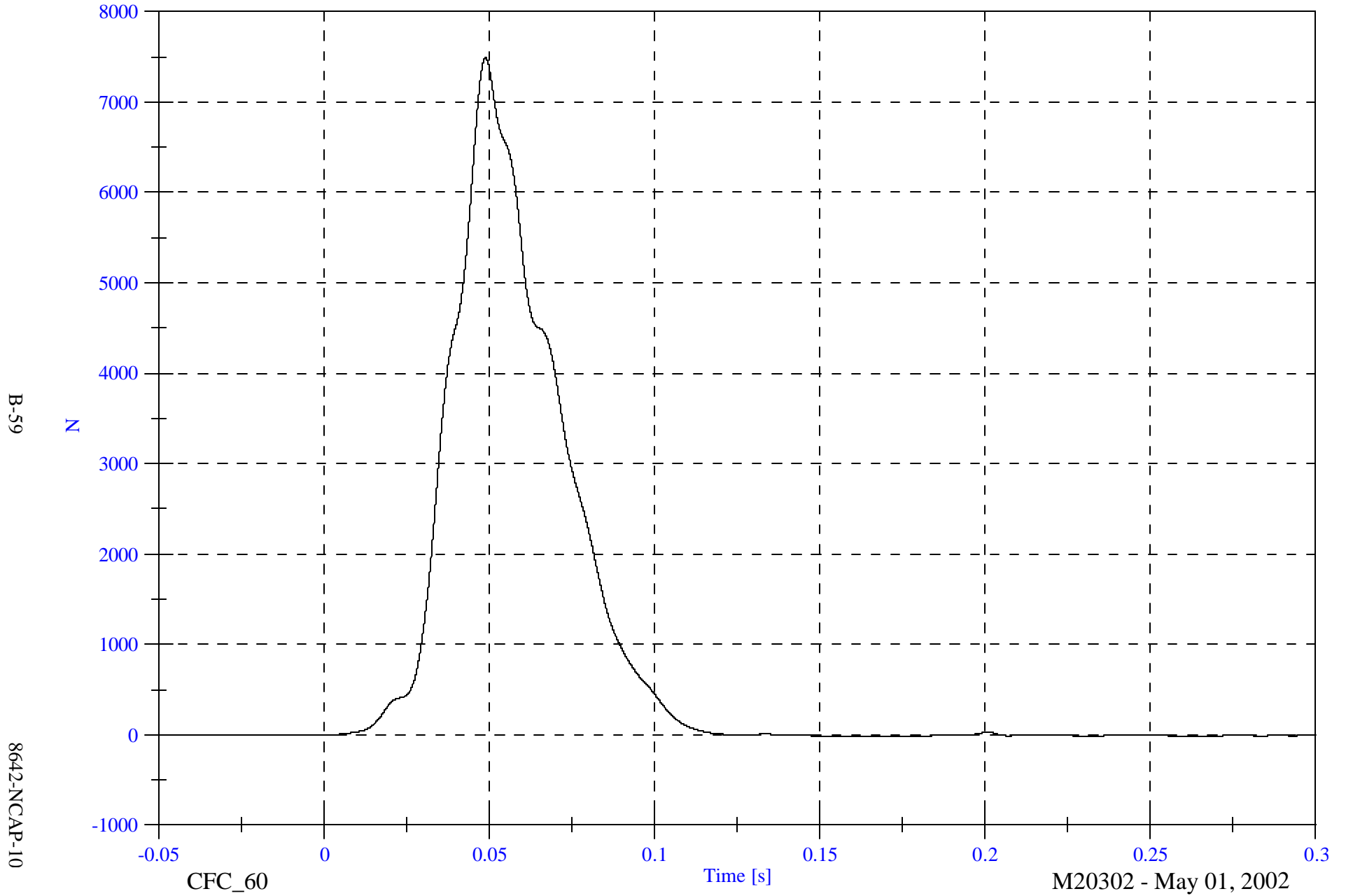
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

P1 Lap Belt

Max: 7488.2 [N] at 0.049 [s]

Min: -15.8 [N] at 0.230 [s]



B-59

8642-NCAP-10

CFC_60

Time [s]

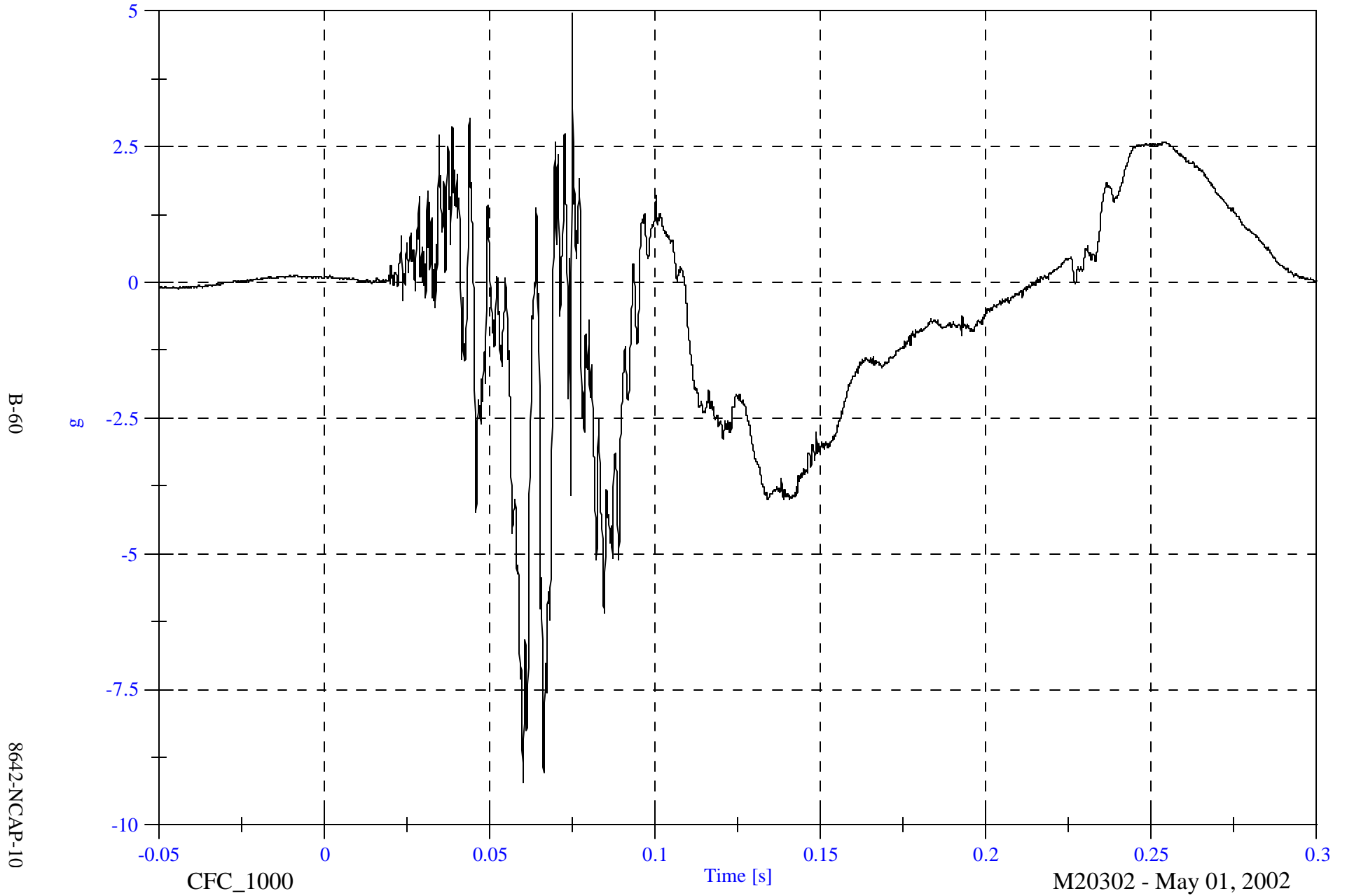
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

P2 Head 9 Array X Arm Ay

Max: 5.0 [g] at 0.075 [s]

Min: -9.2 [g] at 0.060 [s]



NCAP Test 10 - 2002 Dodge Ram 1500

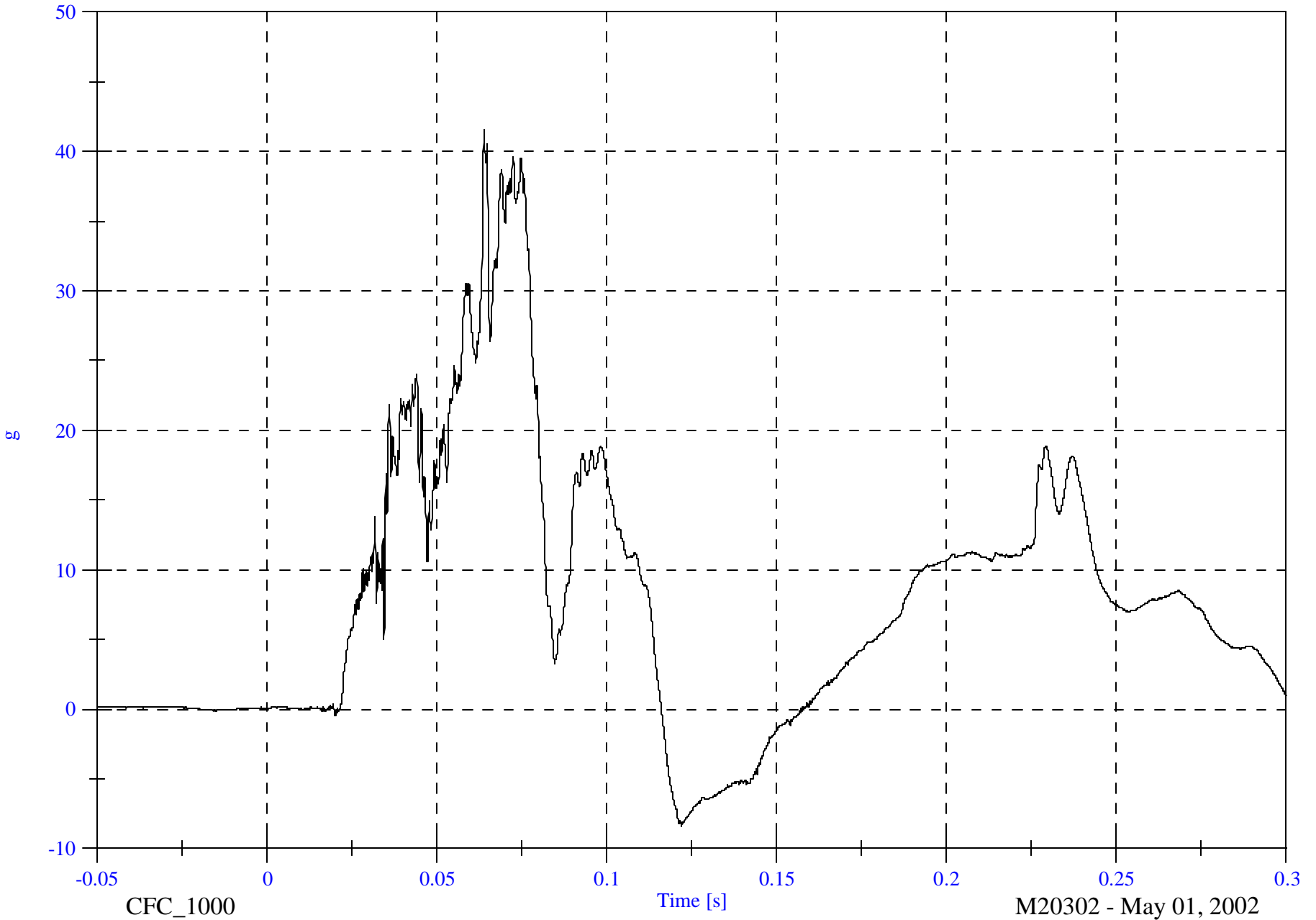
Max: 41.5 [g] at 0.064 [s]

P2 Head 9 Array X Arm Az

Min: -8.4 [g] at 0.122 [s]

B-61

8642-NCAP-10



CFC_1000

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

P2 Head 9 Array Y Arm Ax

Max: 16.2 [g] at 0.238 [s]

Min: -54.7 [g] at 0.079 [s]

B-62

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 34.3 [g] at 0.076 [s]

P2 Head 9 Array Y Arm Az

Min: -0.9 [g] at 0.021 [s]

B-63

8642-NCAP-10



CFC_1000

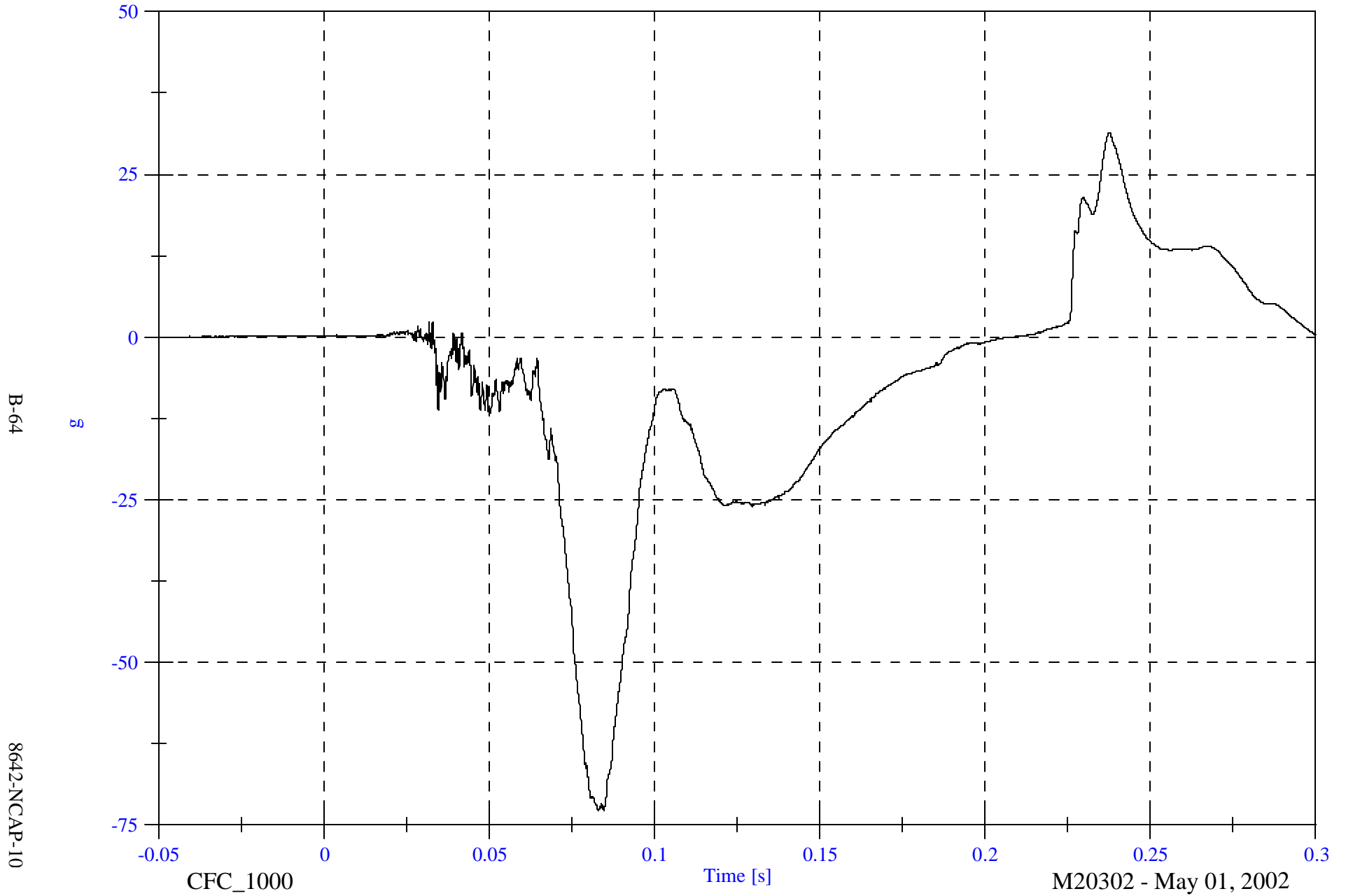
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

P2 Head 9 Array Z Arm Ax

Max: 31.4 [g] at 0.238 [s]

Min: -72.8 [g] at 0.085 [s]

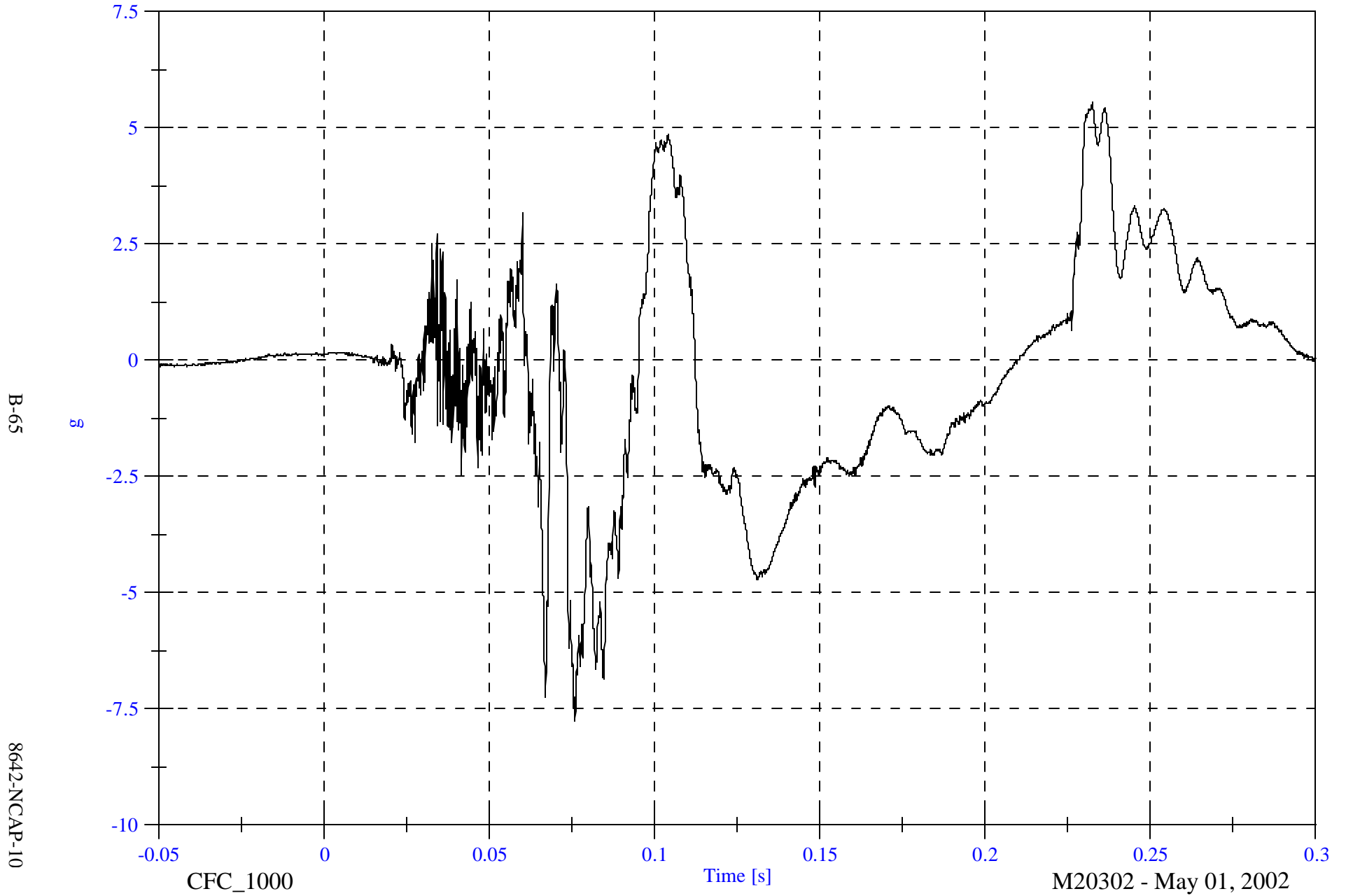


NCAP Test 10 - 2002 Dodge Ram 1500

P2 Head 9 Array Z Arm Ay

Max: 5.6 [g] at 0.232 [s]

Min: -7.8 [g] at 0.076 [s]



B-65

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

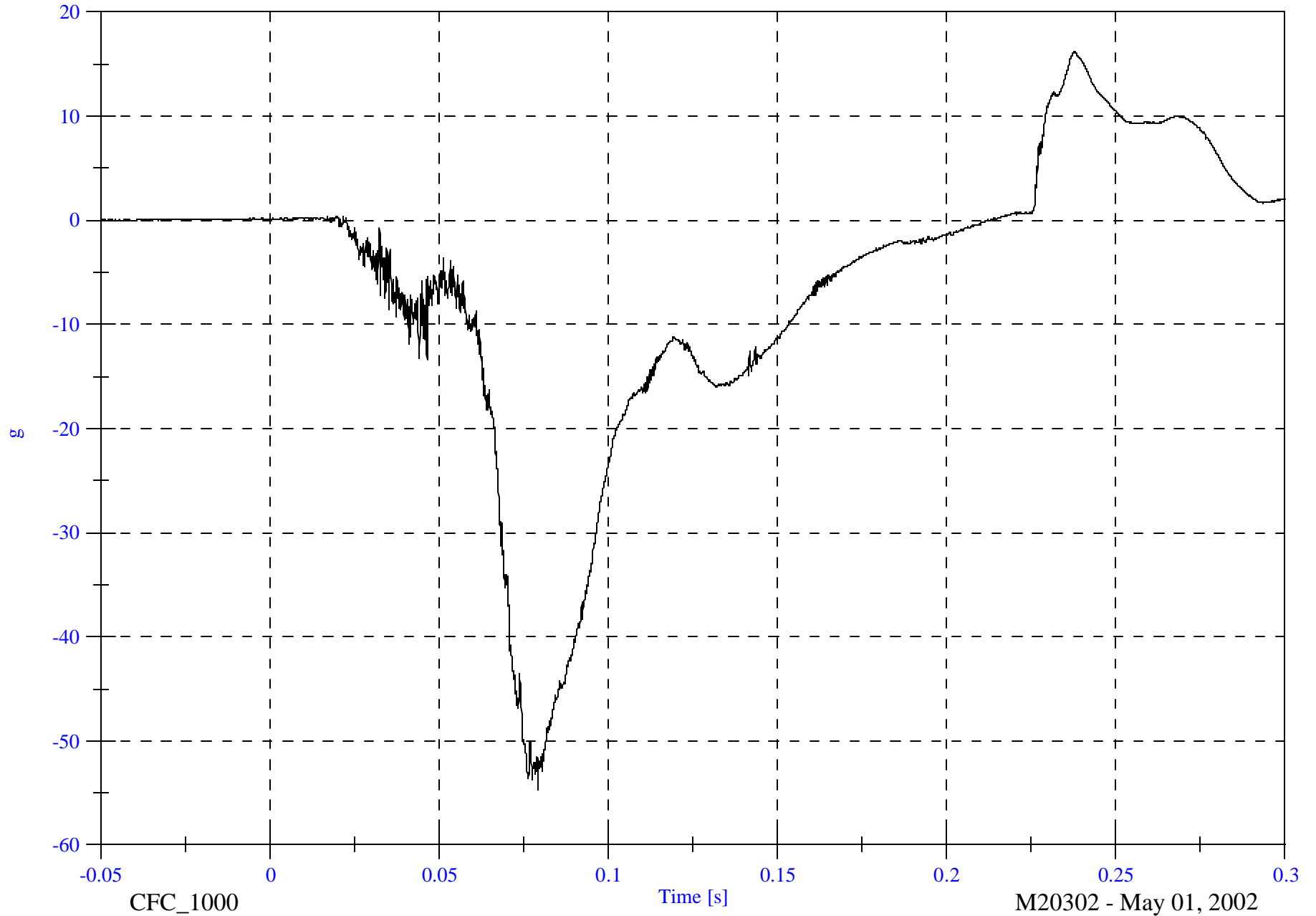
P2 Head CG x

Max: 16.2 [g] at 0.238 [s]

Min: -54.6 [g] at 0.079 [s]

B-66

8642-NCAP-10



CFC_1000

Time [s]

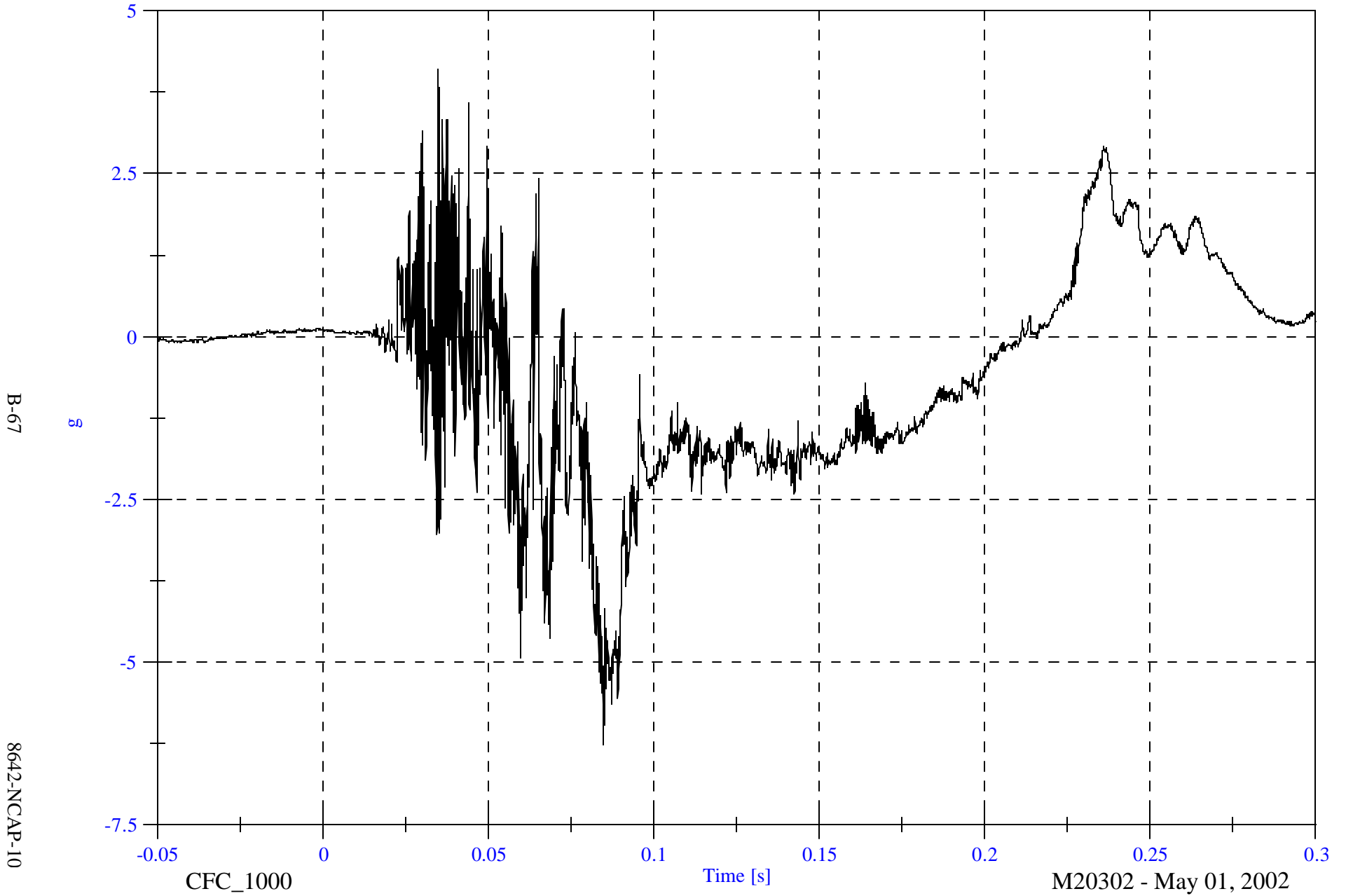
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 4.1 [g] at 0.035 [s]

P2 Head CG y

Min: -6.3 [g] at 0.085 [s]



B-67

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

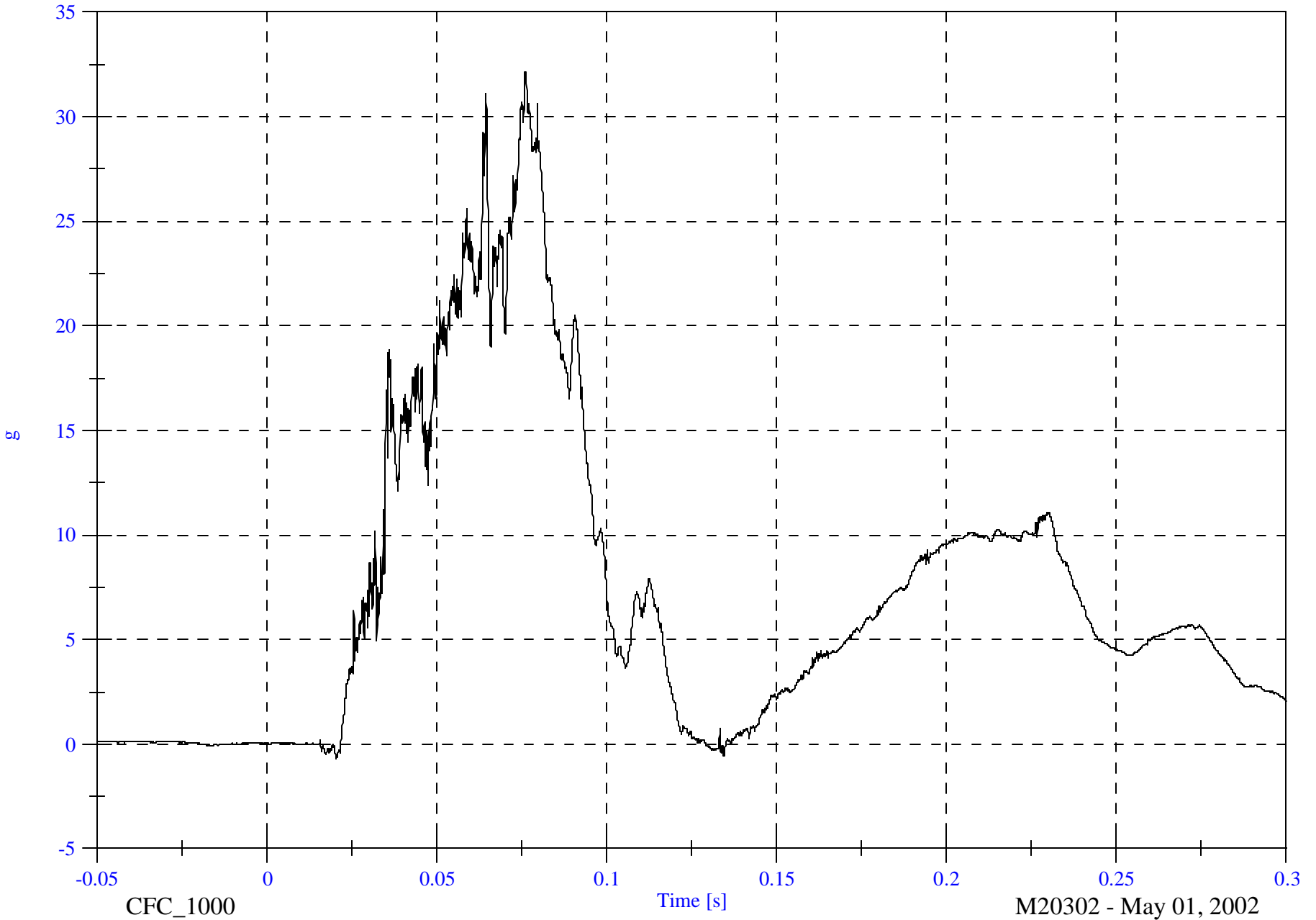
Max: 32.2 [g] at 0.076 [s]

P2 Head CG z

Min: -0.7 [g] at 0.020 [s]

B-68

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

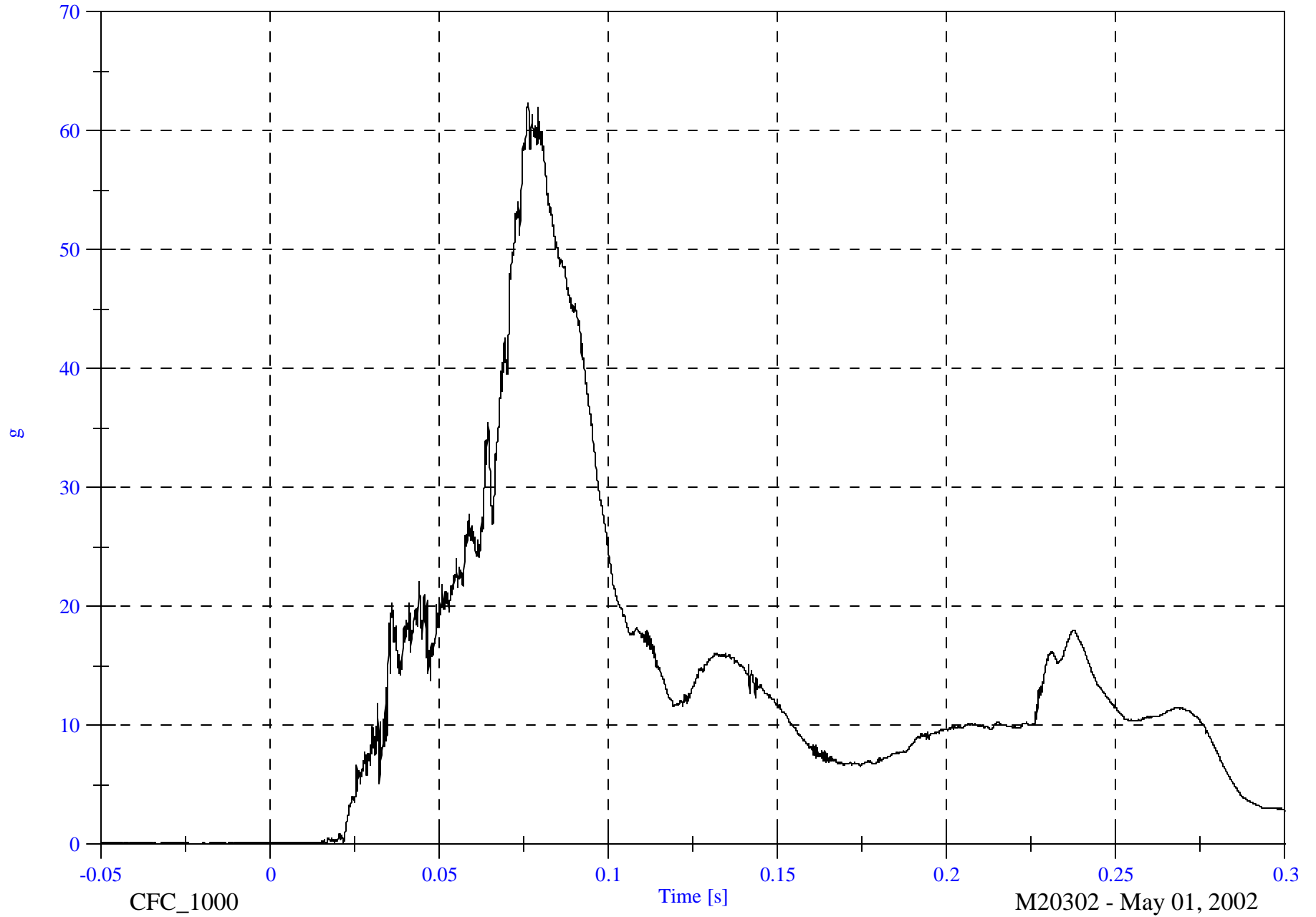
P2 Head CG Resultant

Max: 62.3 [g] at 0.076 [s]

Min: 0.1 [g] at -0.024 [s]

B-69

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

P2 Head CG Red x

Max: 16.3 [g] at 0.238 [s]

Min: -52.7 [g] at 0.076 [s]



B-70

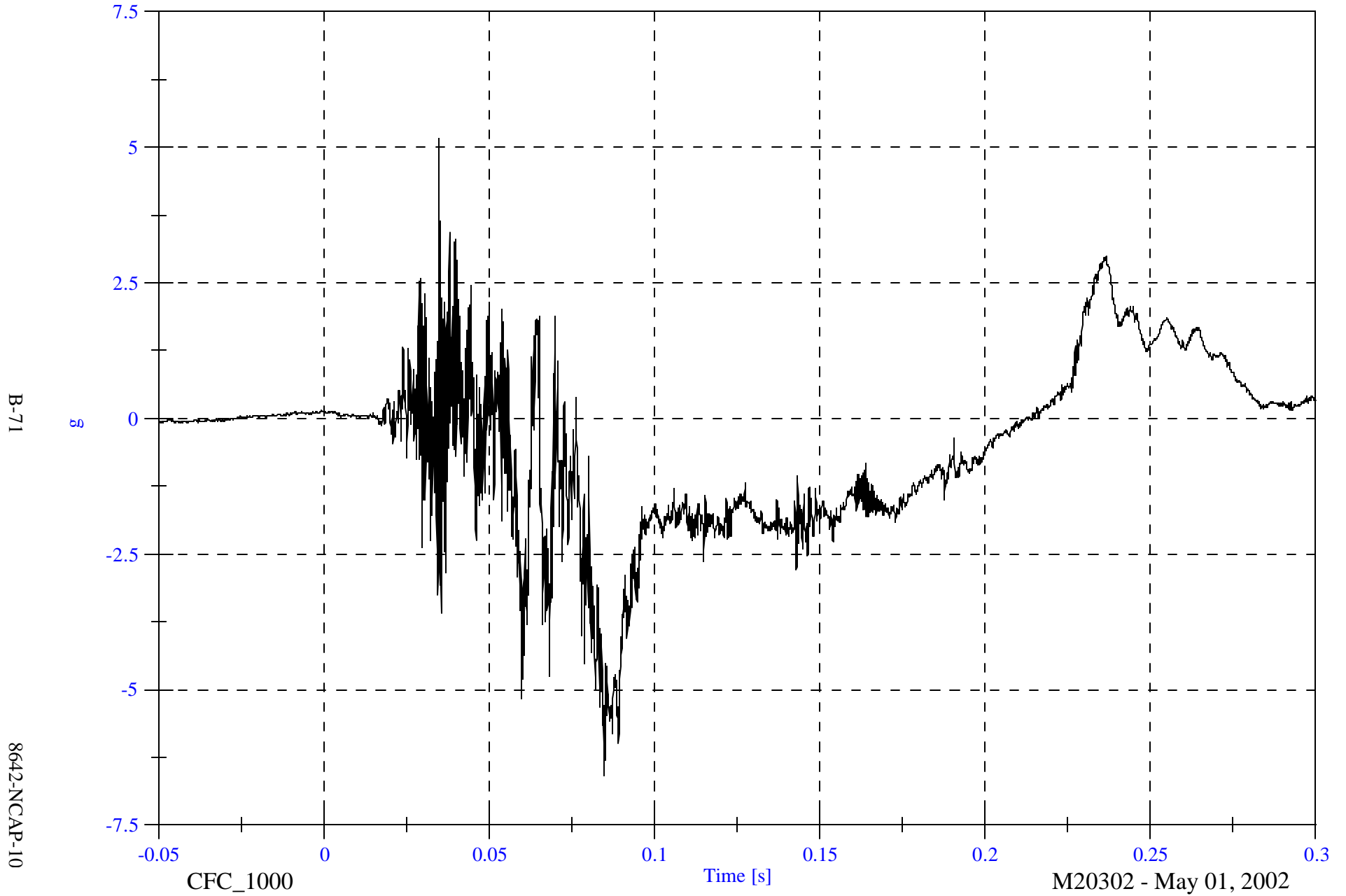
8642-NCAP-10

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 5.2 [g] at 0.035 [s]

Min: -6.6 [g] at 0.085 [s]

P2 Head CG Red y



B-71

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 32.3 [g] at 0.075 [s]

P2 Head CG Red z

Min: -1.3 [g] at 0.020 [s]

B-72

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 61.3 [g] at 0.076 [s]

P2 Head CG Red Resultant

Min: 0.1 [g] at 0.016 [s]

B-73

8642-NCAP-10



CFC_1000

Time [s]

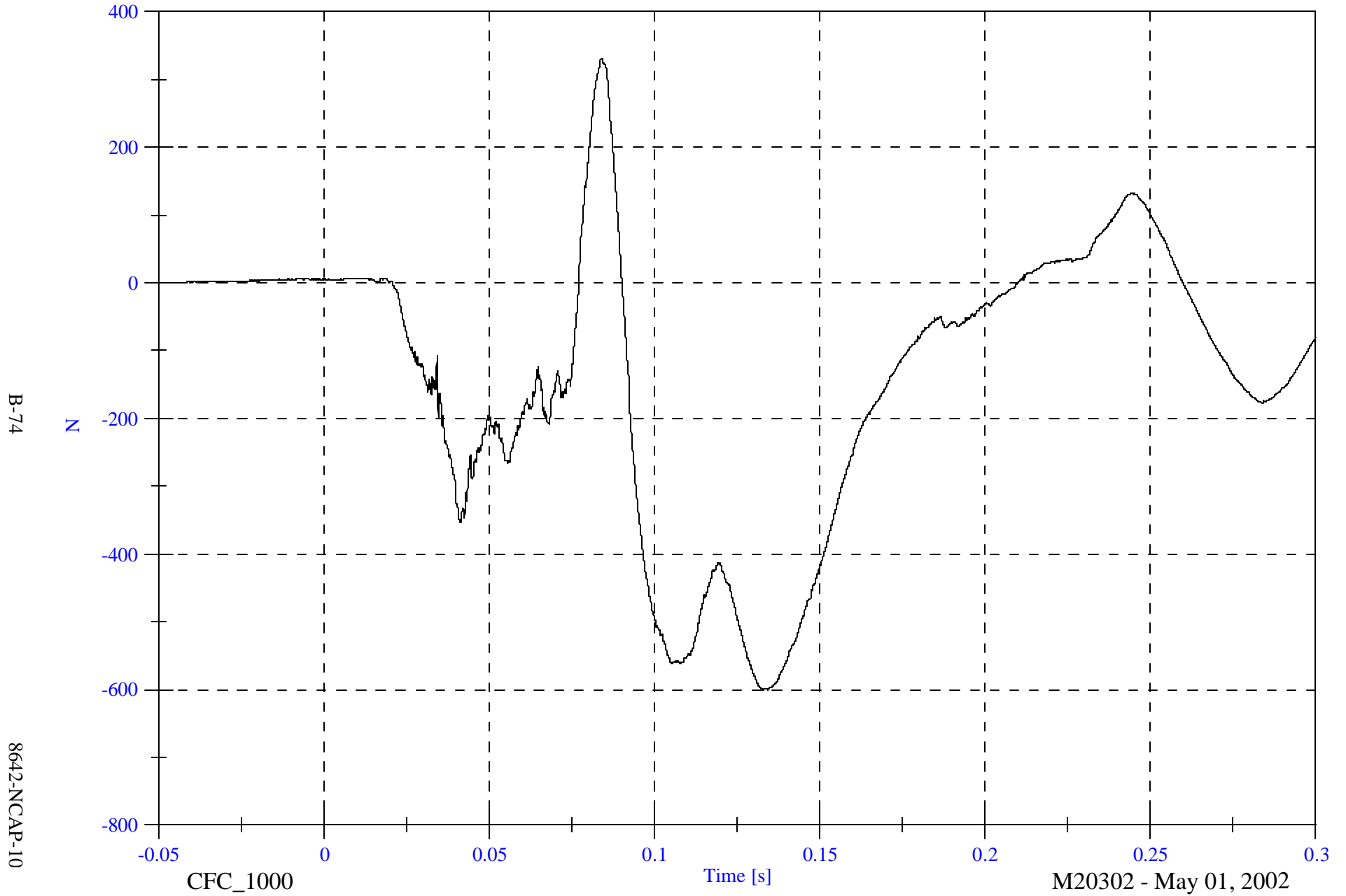
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 331.1 [N] at 0.084 [s]

Min: -600.9 [N] at 0.133 [s]

P2 Upper Neck Fx



B-74

N

8642-NCAP-10

CFC_1000

Time [s]

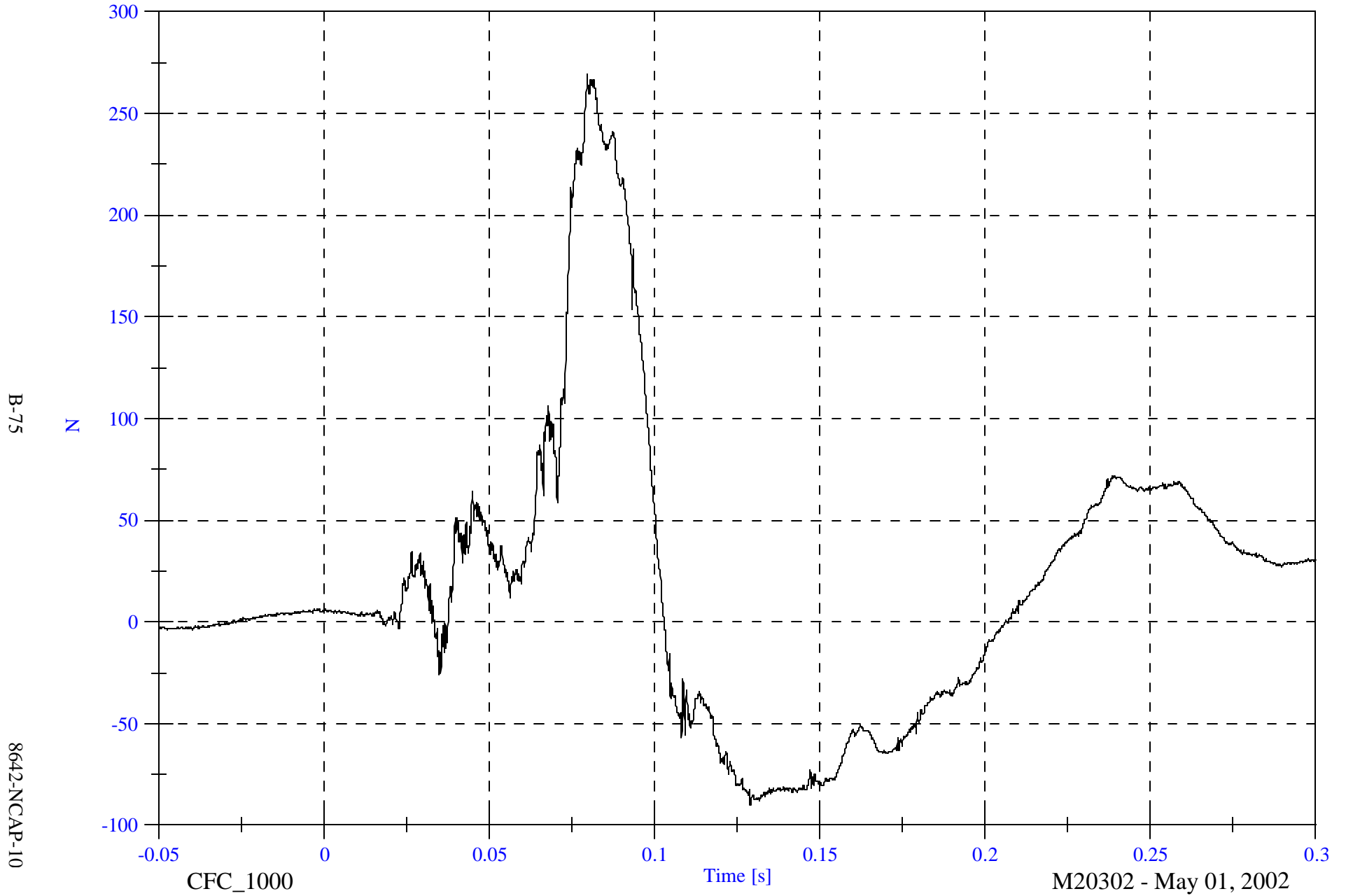
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 268.9 [N] at 0.080 [s]

P2 Upper Neck Fy

Min: -90.2 [N] at 0.129 [s]



B-75

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1483.0 [N] at 0.076 [s]

P2 Upper Neck Fz

Min: -257.5 [N] at 0.280 [s]

B-76

8642-NCAP-10



CFC_1000

Time [s]

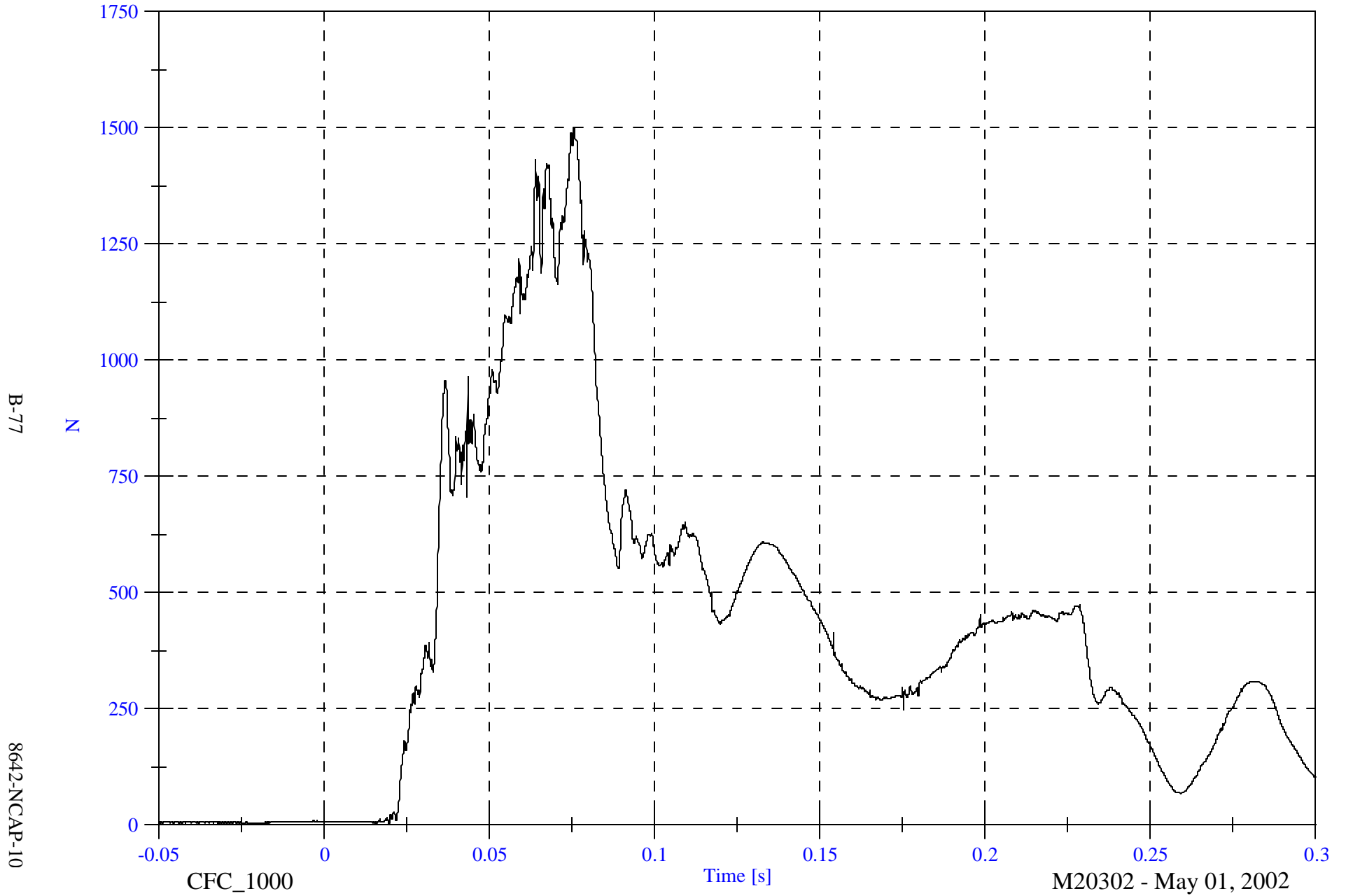
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1501.8 [N] at 0.076 [s]

P2 Upper Neck F Resultant

Min: 2.2 [N] at 0.019 [s]



B-77

8642-NCAP-10

CFC_1000

Time [s]

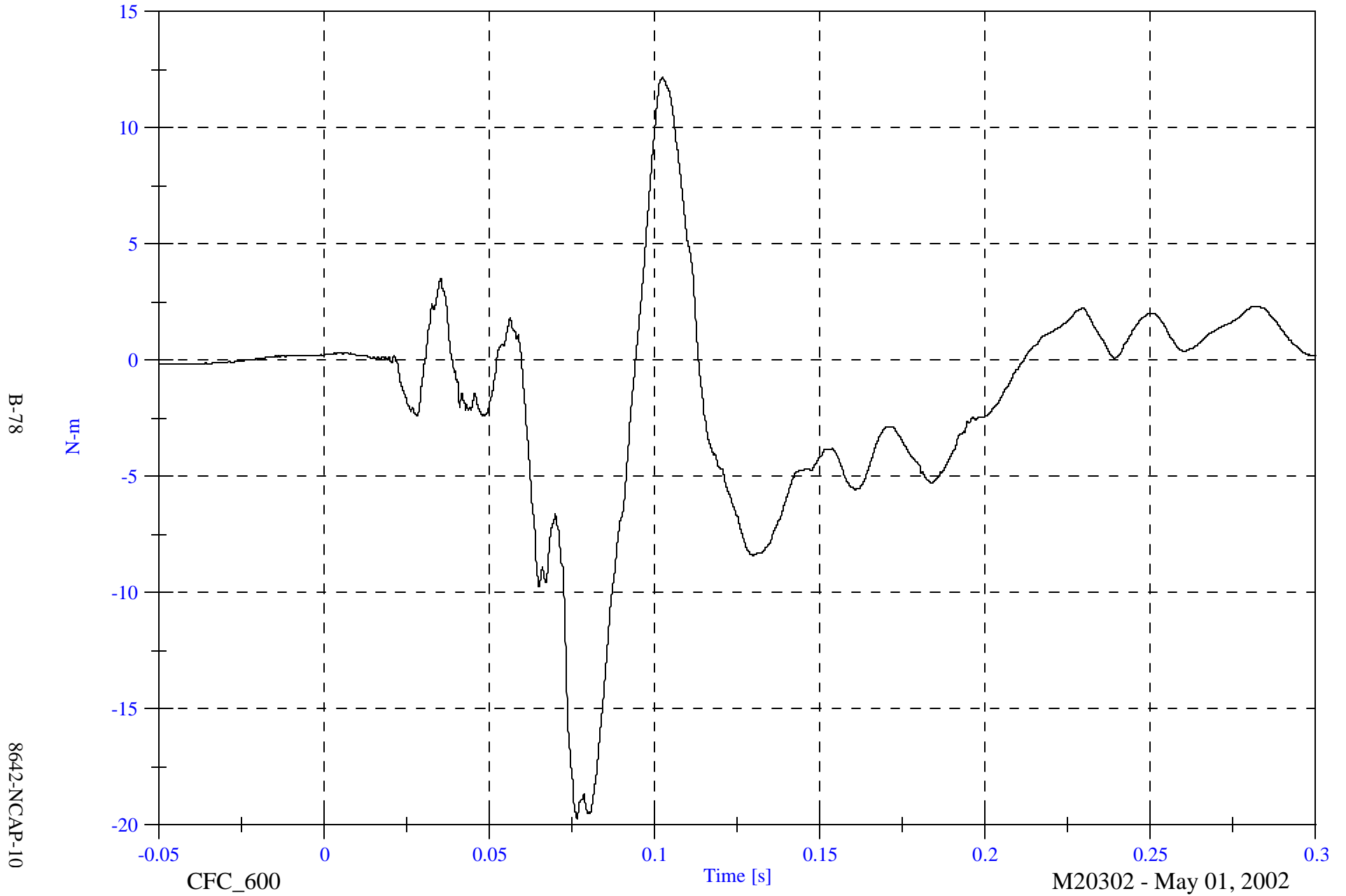
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 12.2 [N-m] at 0.102 [s]

Min: -19.7 [N-m] at 0.077 [s]

P2 Upper Neck Mx



B-78

8642-NCAP-10

CFC_600

Time [s]

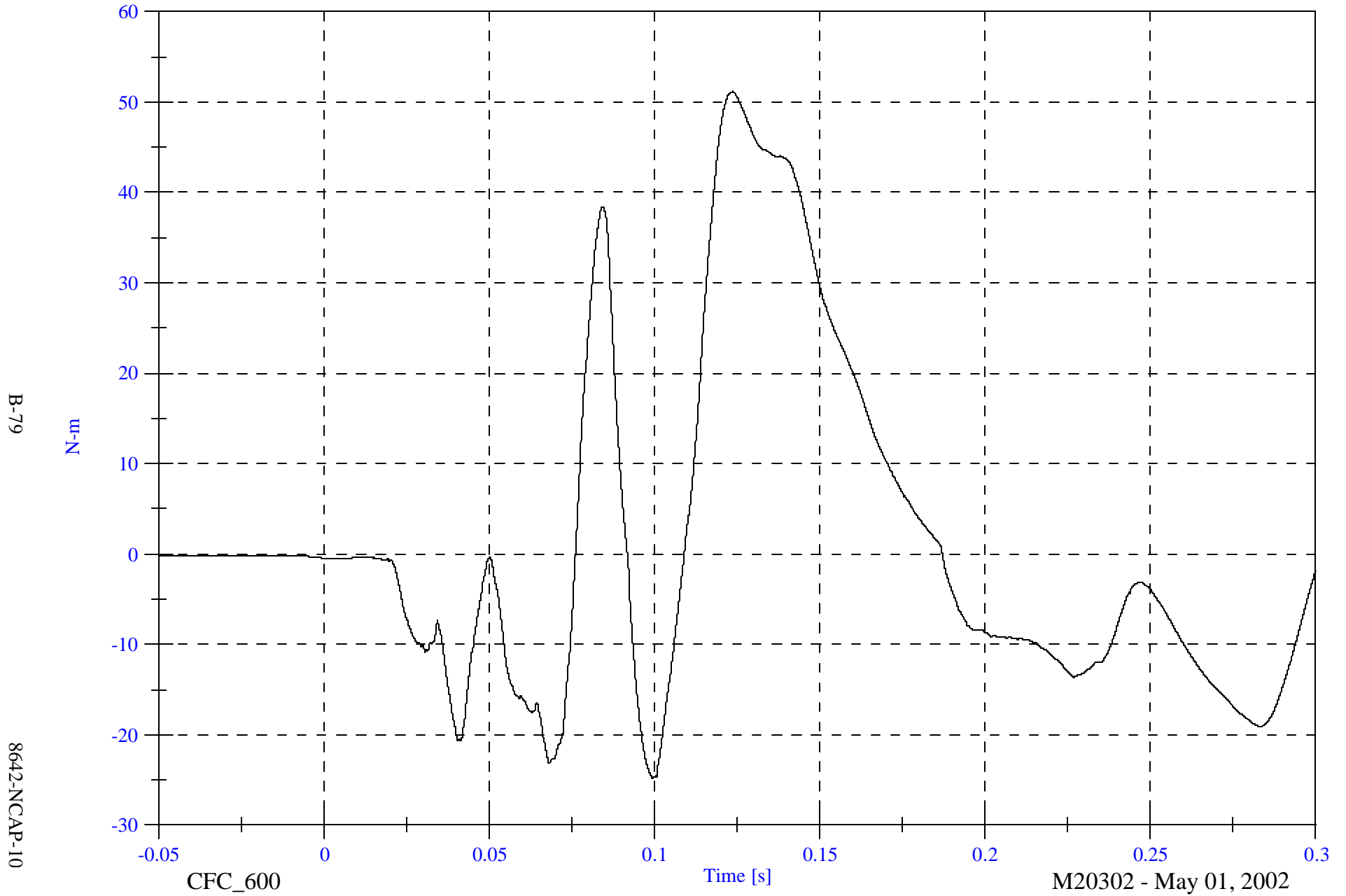
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

P2 Upper Neck My

Max: 51.1 [N-m] at 0.124 [s]

Min: -24.8 [N-m] at 0.099 [s]

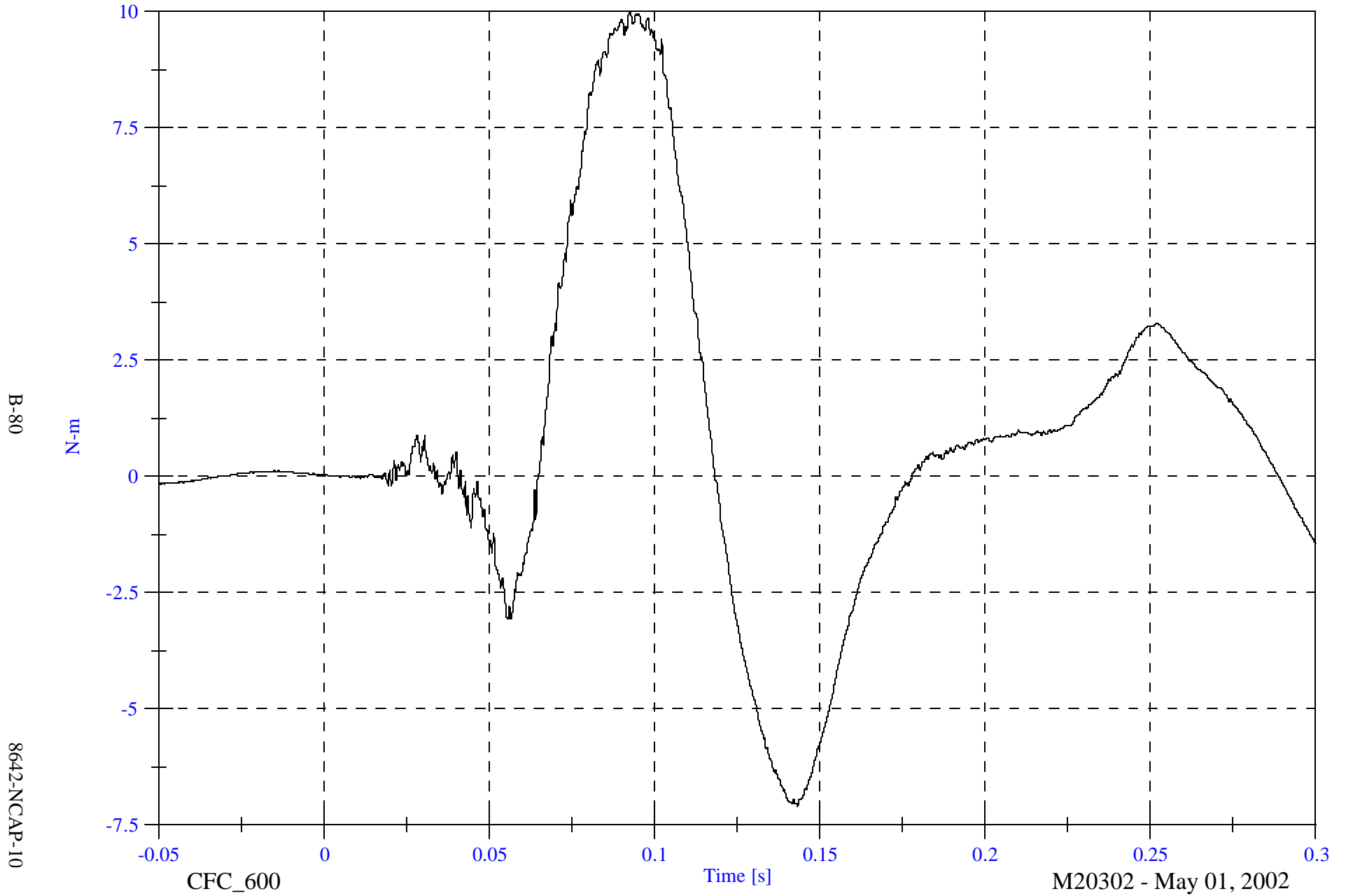


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 10.0 [N-m] at 0.093 [s]

Min: -7.1 [N-m] at 0.143 [s]

P2 Upper Neck Mz



B-80

8642-NCAP-10

CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

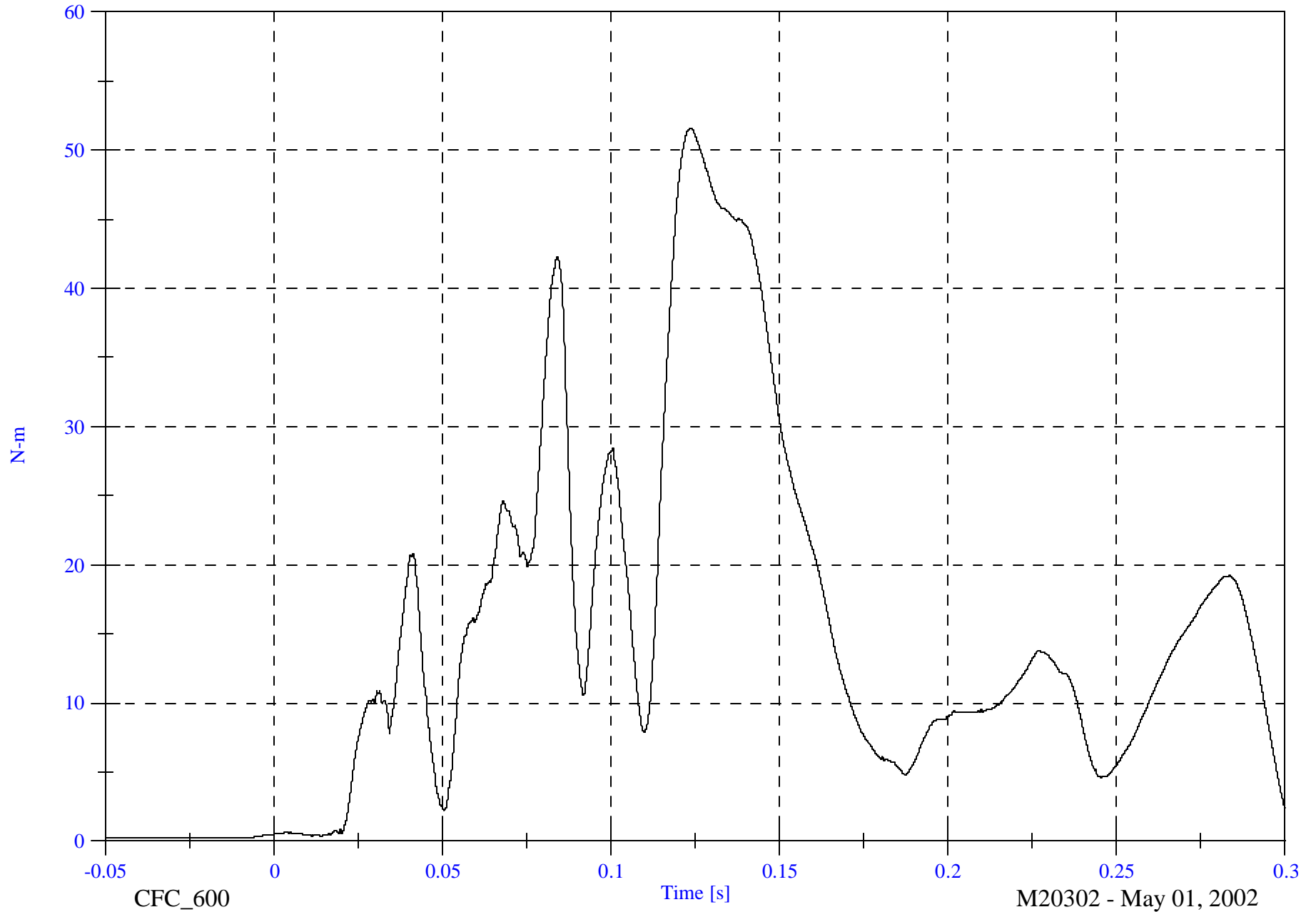
P2 Upper Neck M Resultant

Max: 51.6 [N-m] at 0.124 [s]

Min: 0.2 [N-m] at -0.018 [s]

B-81

8642-NCAP-10

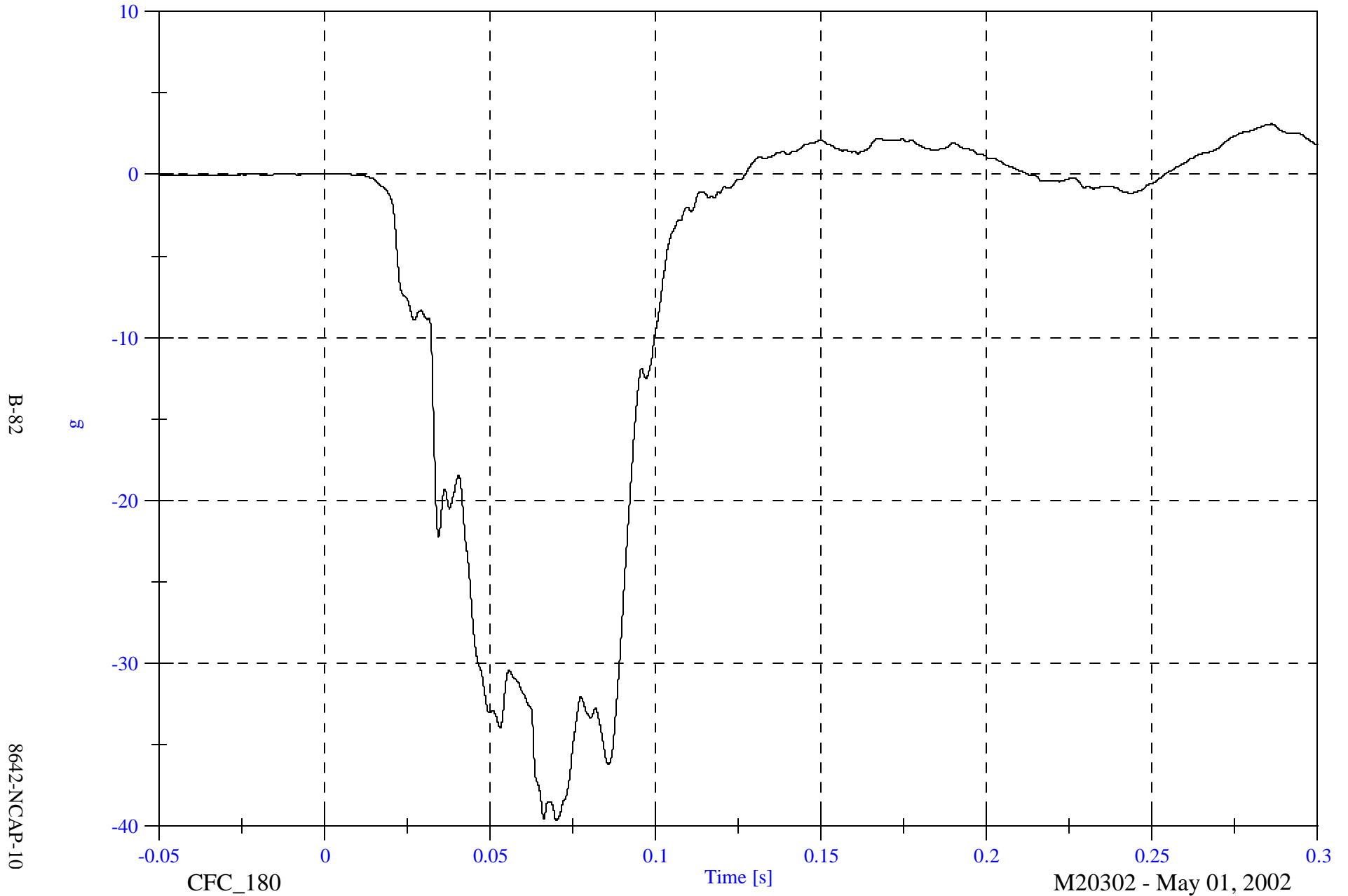


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 3.1 [g] at 0.286 [s]

P2 Chest x

Min: -39.6 [g] at 0.070 [s]

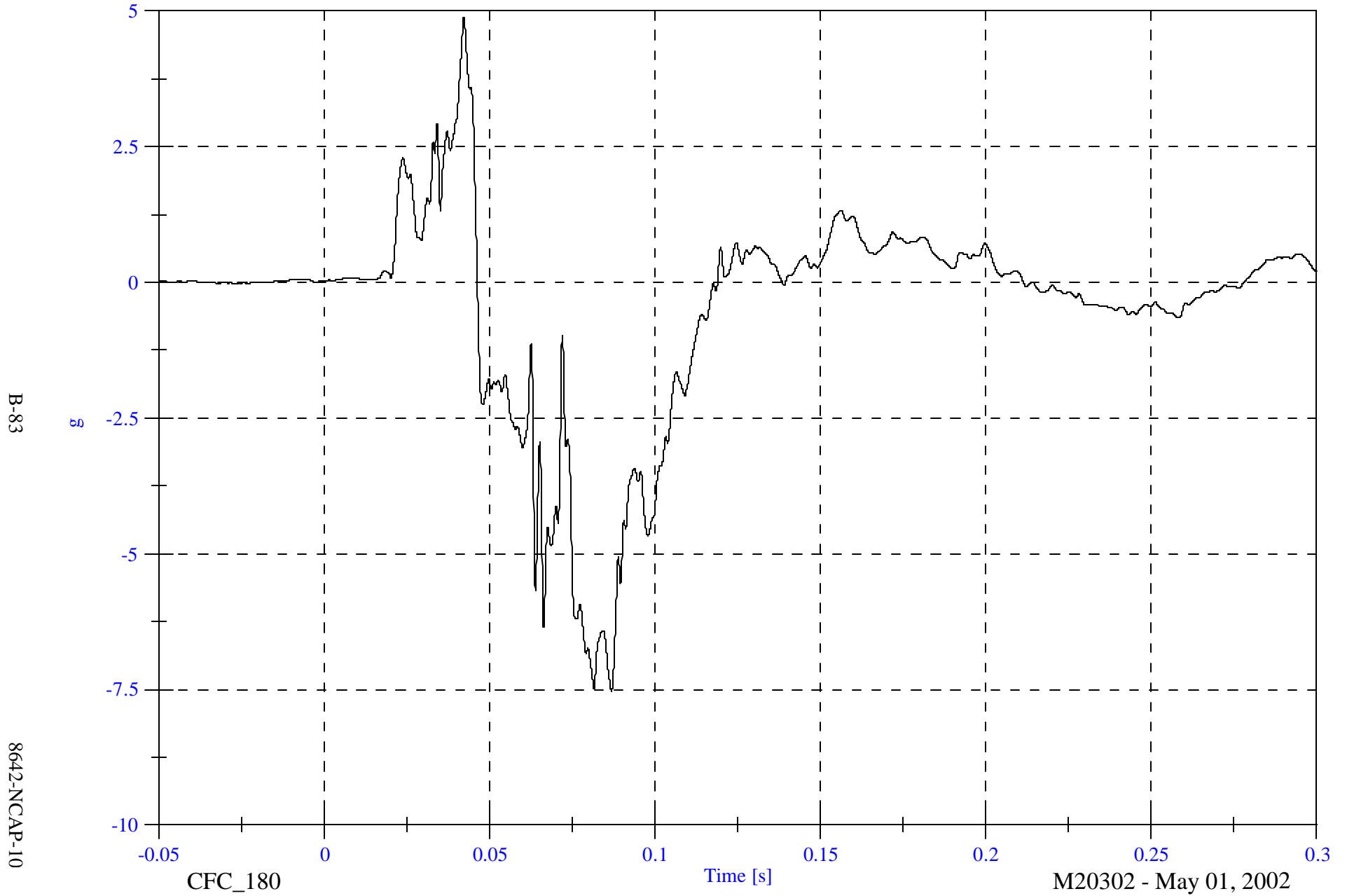


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 4.9 [g] at 0.042 [s]

P2 Chest y

Min: -7.5 [g] at 0.087 [s]



B-83

8642-NCAP-10

CFC_180

Time [s]

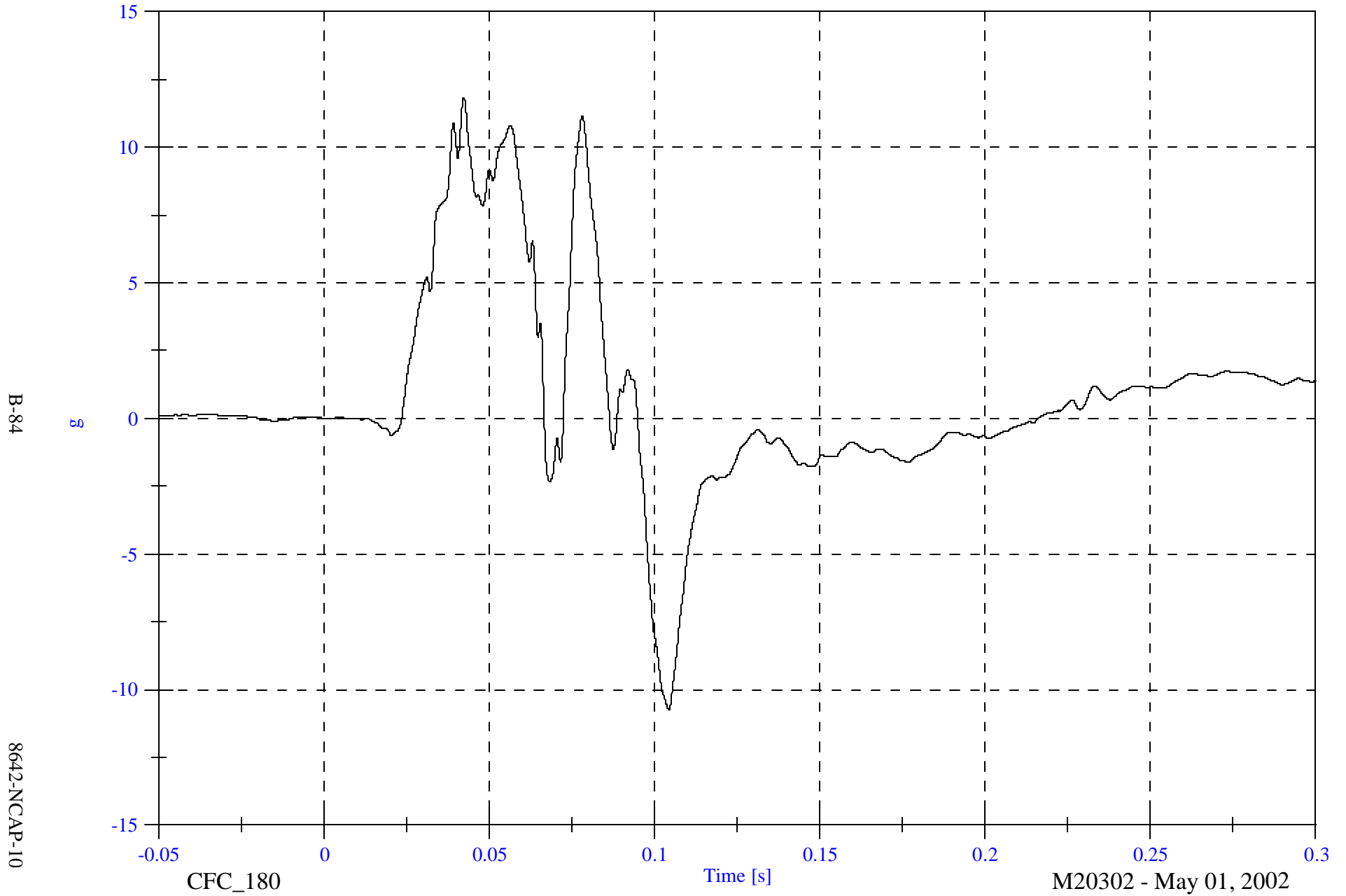
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 11.8 [g] at 0.042 [s]

P2 Chest z

Min: -10.7 [g] at 0.104 [s]



B-84

8642-NCAP-10

CFC_180

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

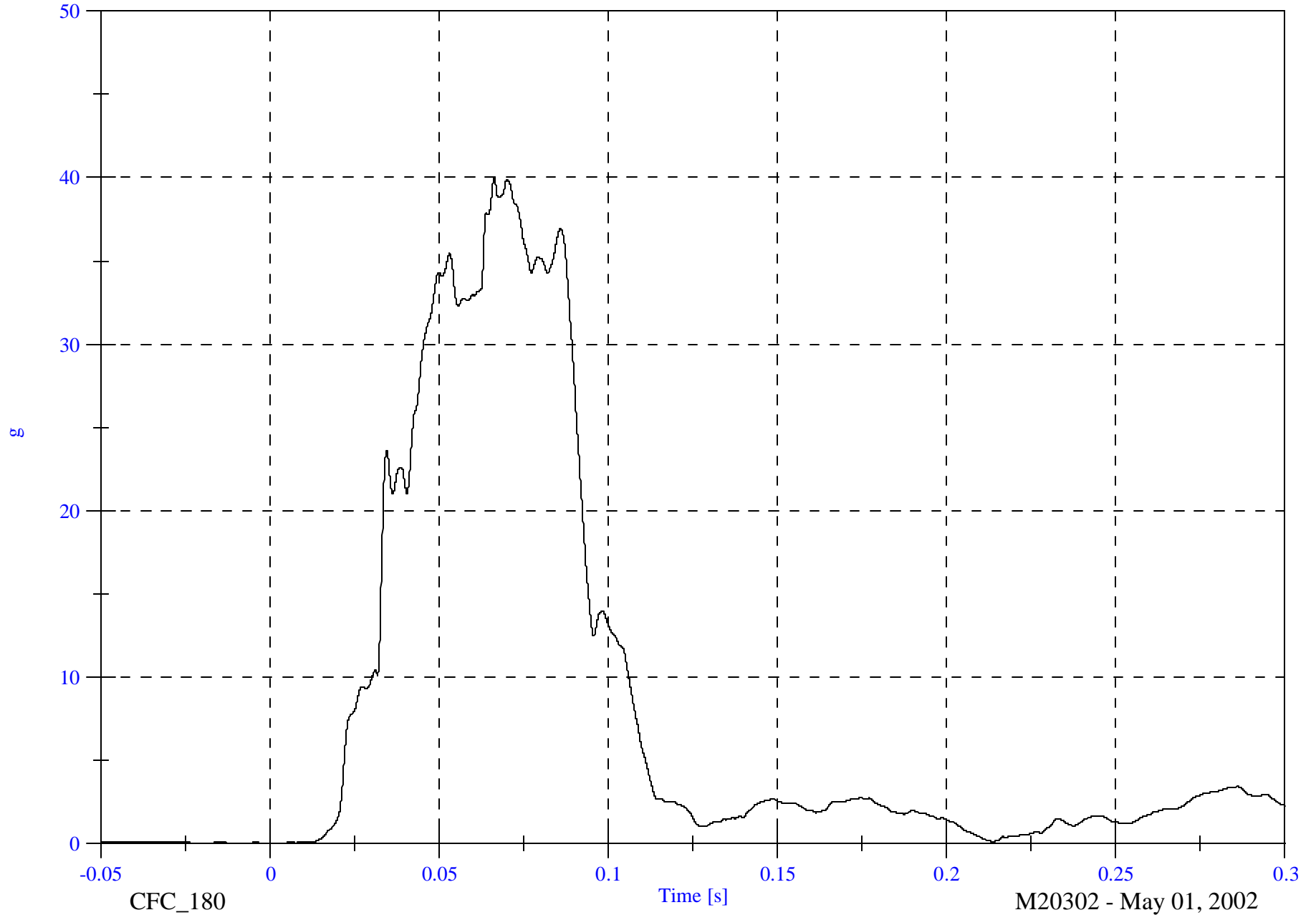
P2 Chest Resultant

Max: 40.1 [g] at 0.066 [s]

Min: 0.0 [g] at -0.020 [s]

B-85

8642-NCAP-10



CFC_180

Time [s]

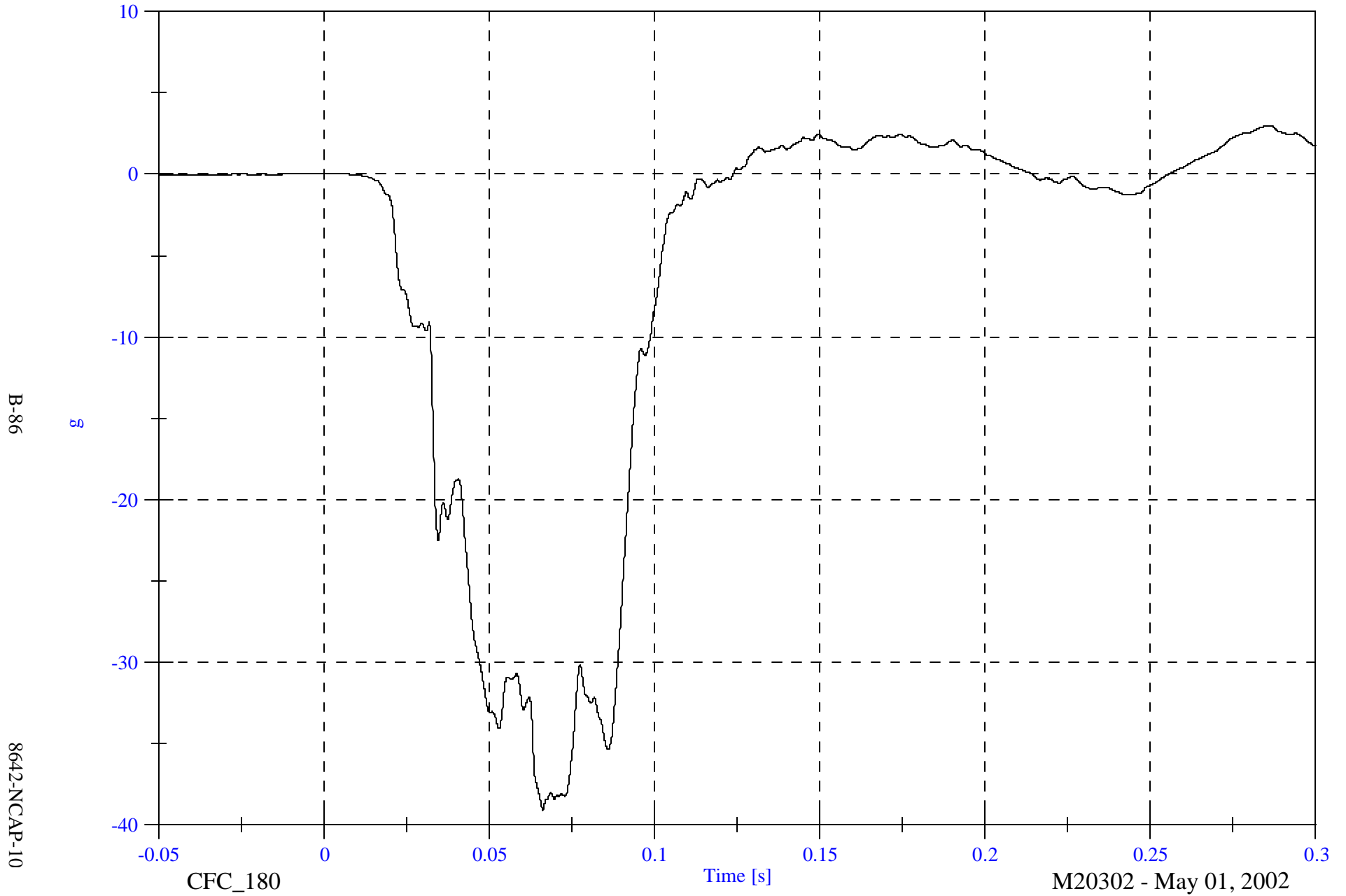
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 3.0 [g] at 0.286 [s]

P2 Chest Red x

Min: -39.1 [g] at 0.066 [s]



B-86

8642-NCAP-10

CFC_180

Time [s]

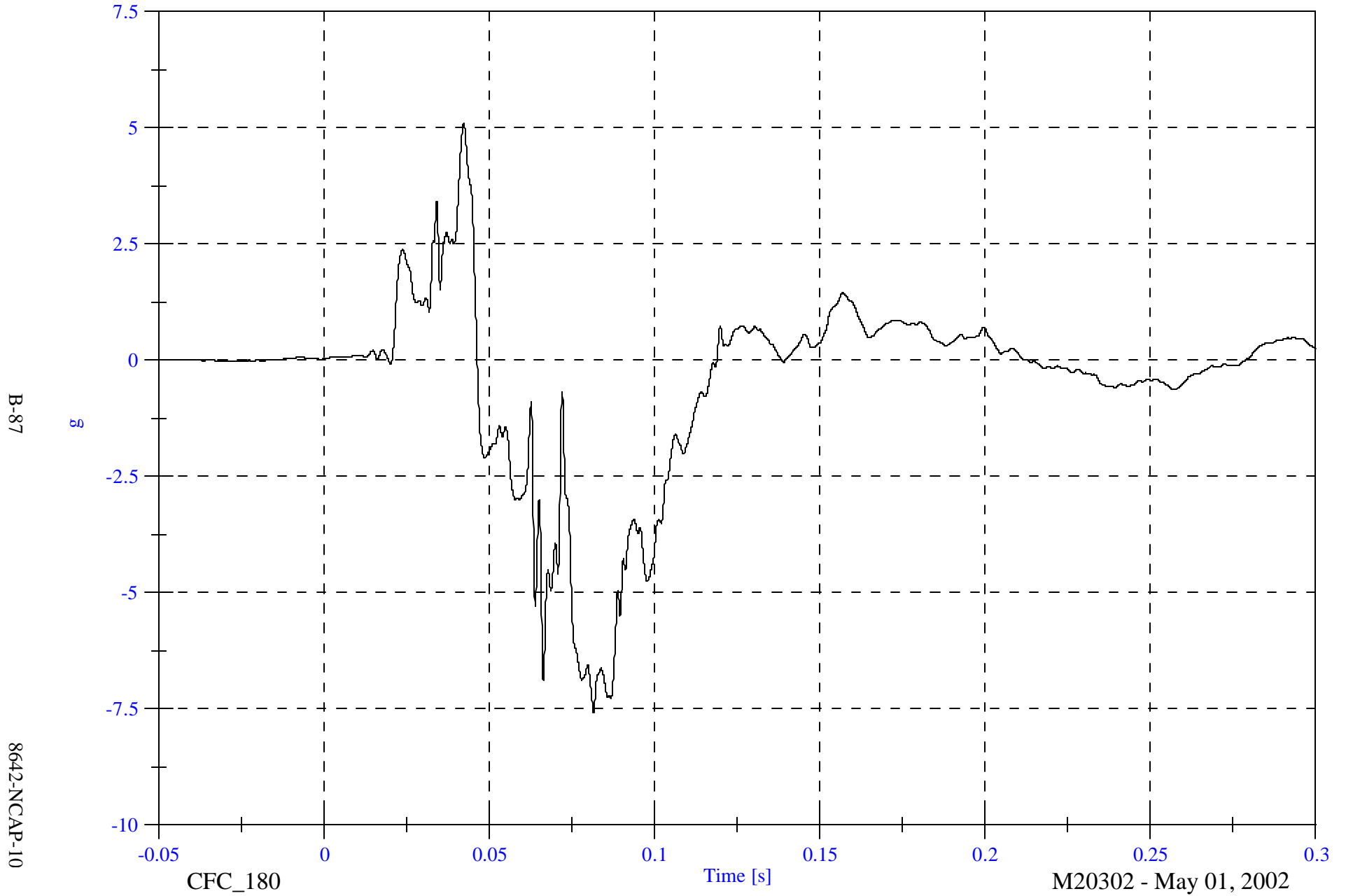
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

P2 Chest Red y

Max: 5.1 [g] at 0.042 [s]

Min: -7.6 [g] at 0.082 [s]



NCAP Test 10 - 2002 Dodge Ram 1500

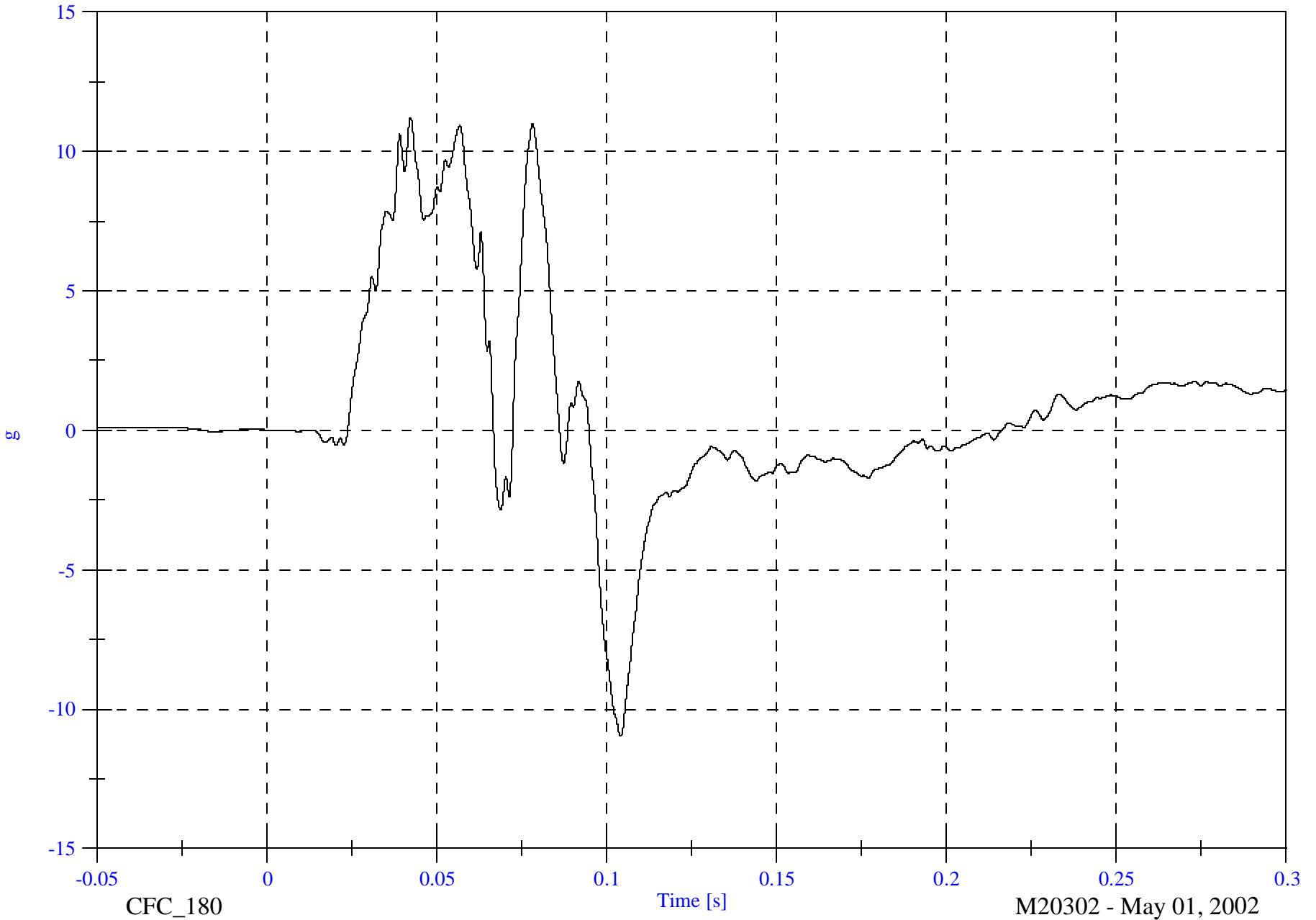
P2 Chest Red z

Max: 11.2 [g] at 0.042 [s]

Min: -11.0 [g] at 0.104 [s]

B-88

8642-NCAP-10



CFC_180

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

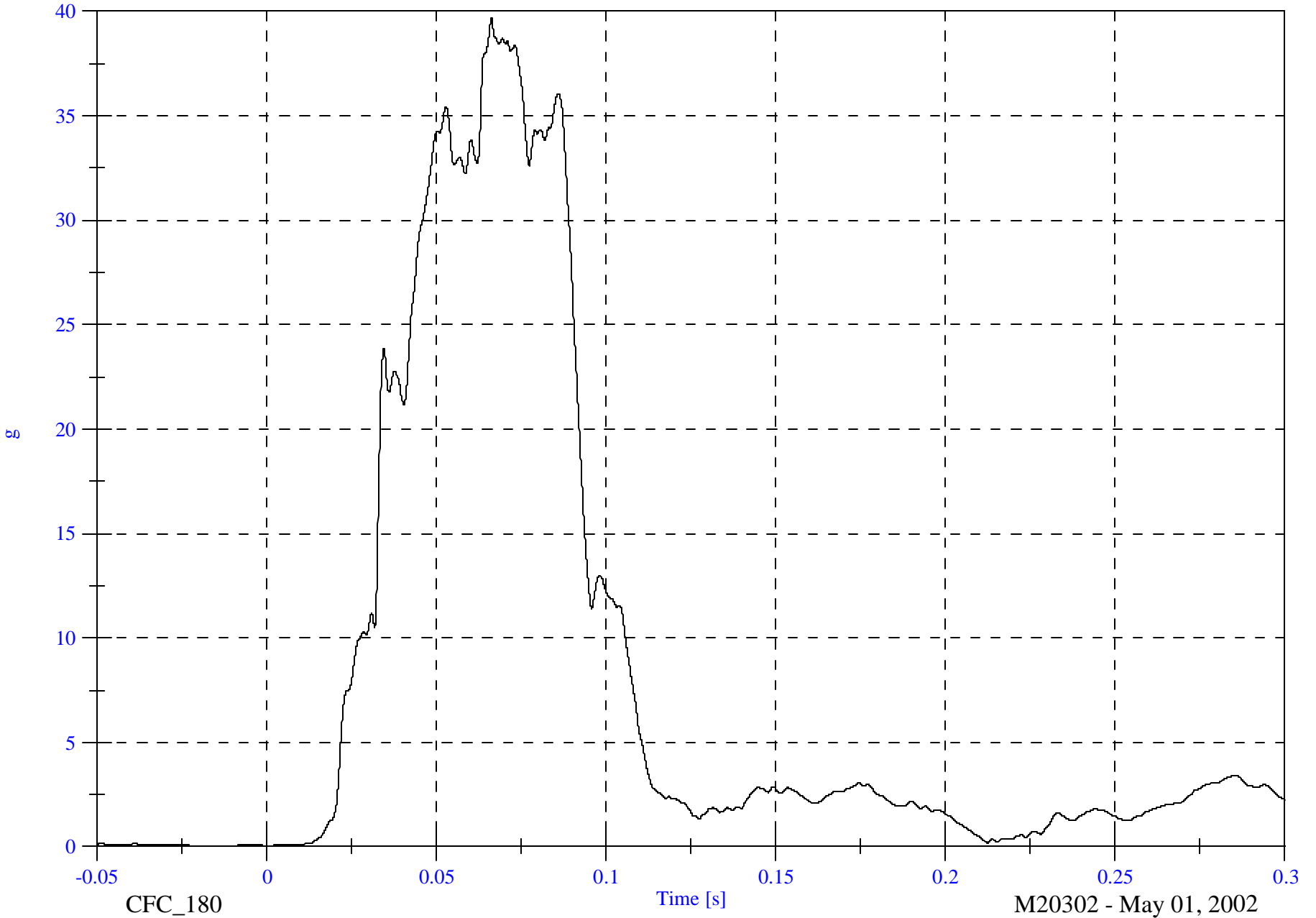
P2 Chest Red Resultant

Max: 39.7 [g] at 0.066 [s]

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

B-89

8642-NCAP-10

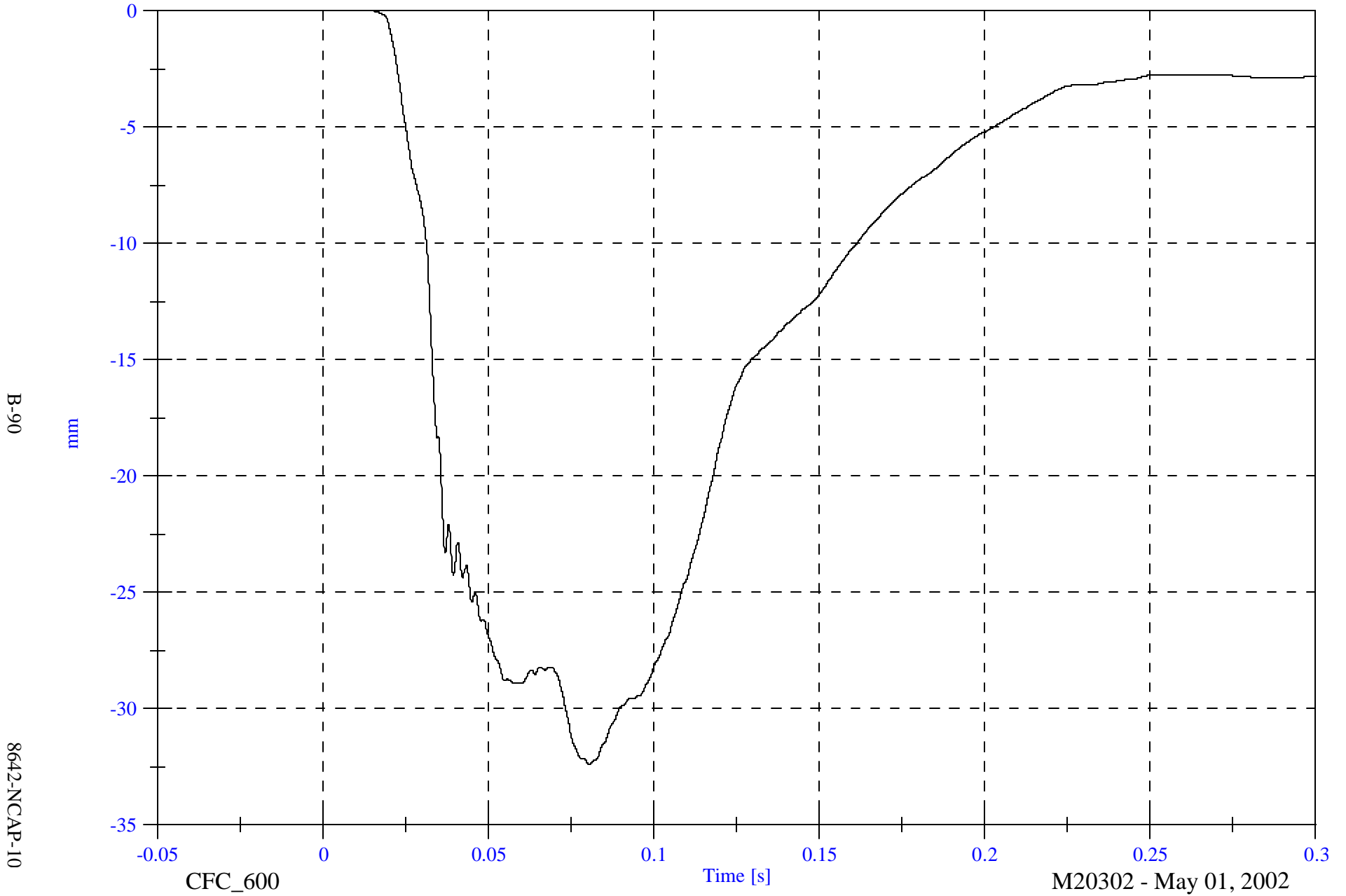


NCAP Test 10 - 2002 Dodge Ram 1500

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

P2 Chest Compression

Min: -32.4 [mm] at 0.081 [s]



B-90

8642-NCAP-10

CFC_600

Time [s]

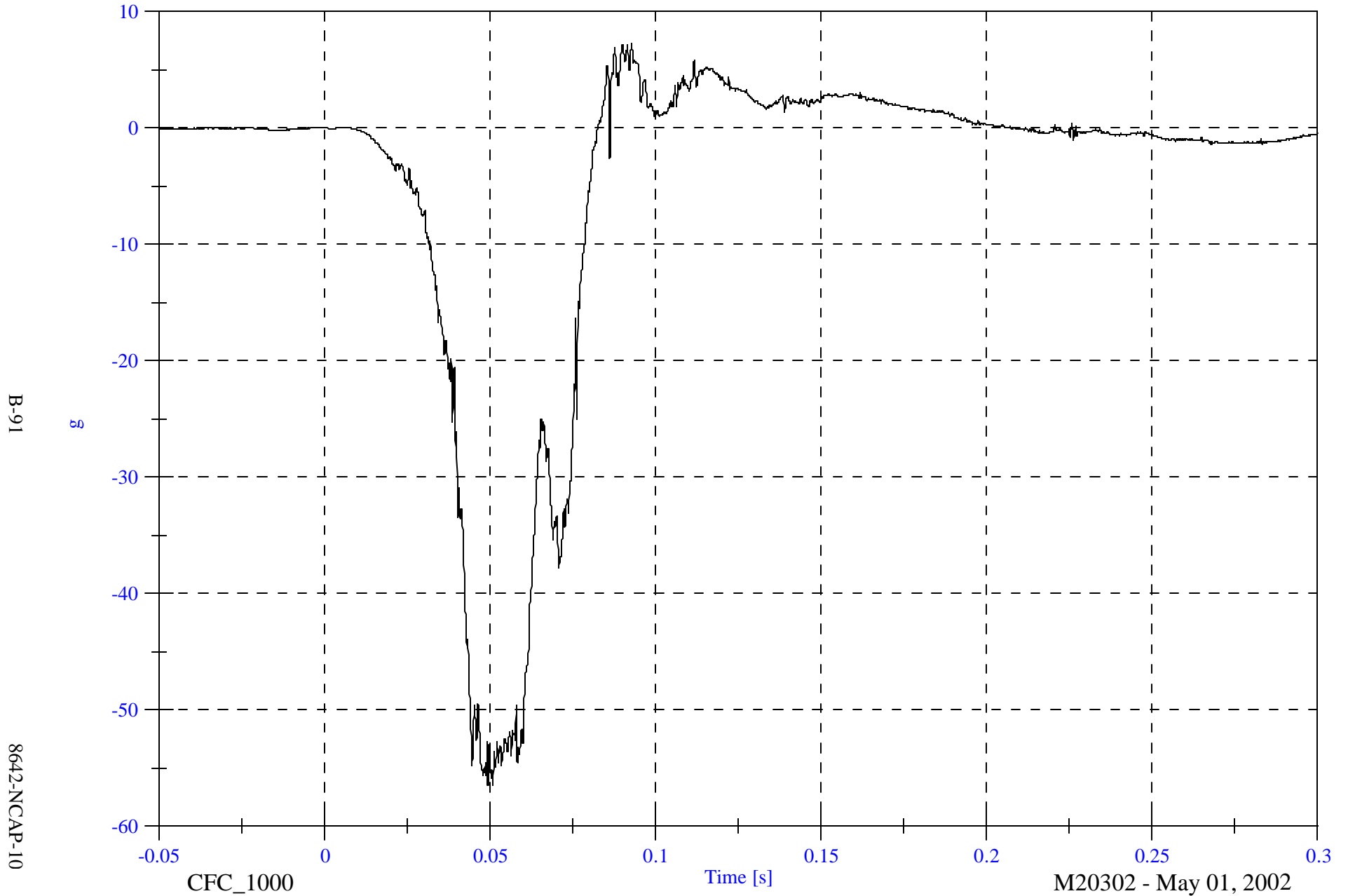
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 7.2 [g] at 0.093 [s]

Min: -56.5 [g] at 0.051 [s]

P2 Pelvic x

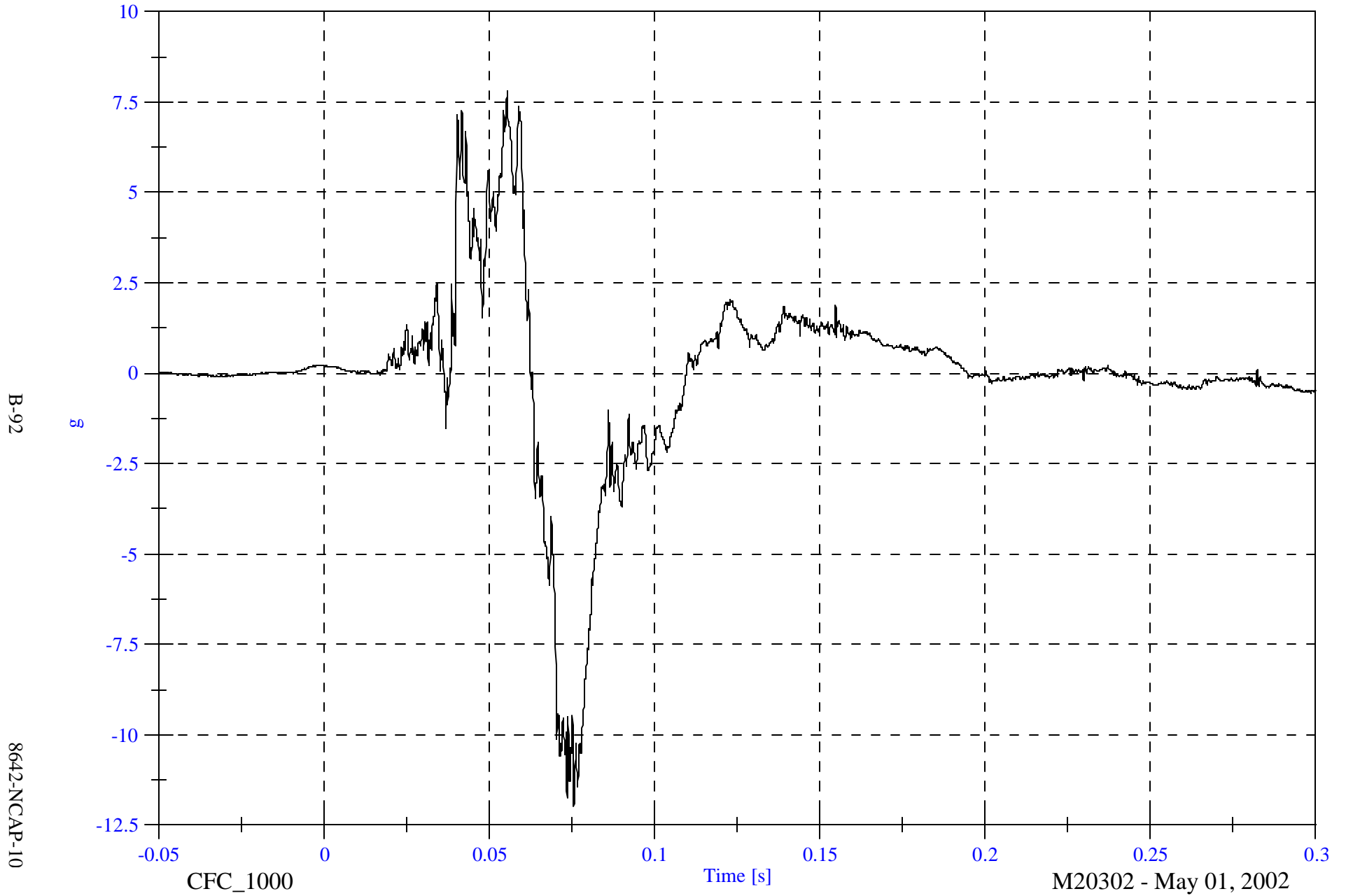


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 7.8 [g] at 0.055 [s]

P2 Pelvic y

Min: -12.0 [g] at 0.076 [s]



B-92

8642-NCAP-10

CFC_1000

Time [s]

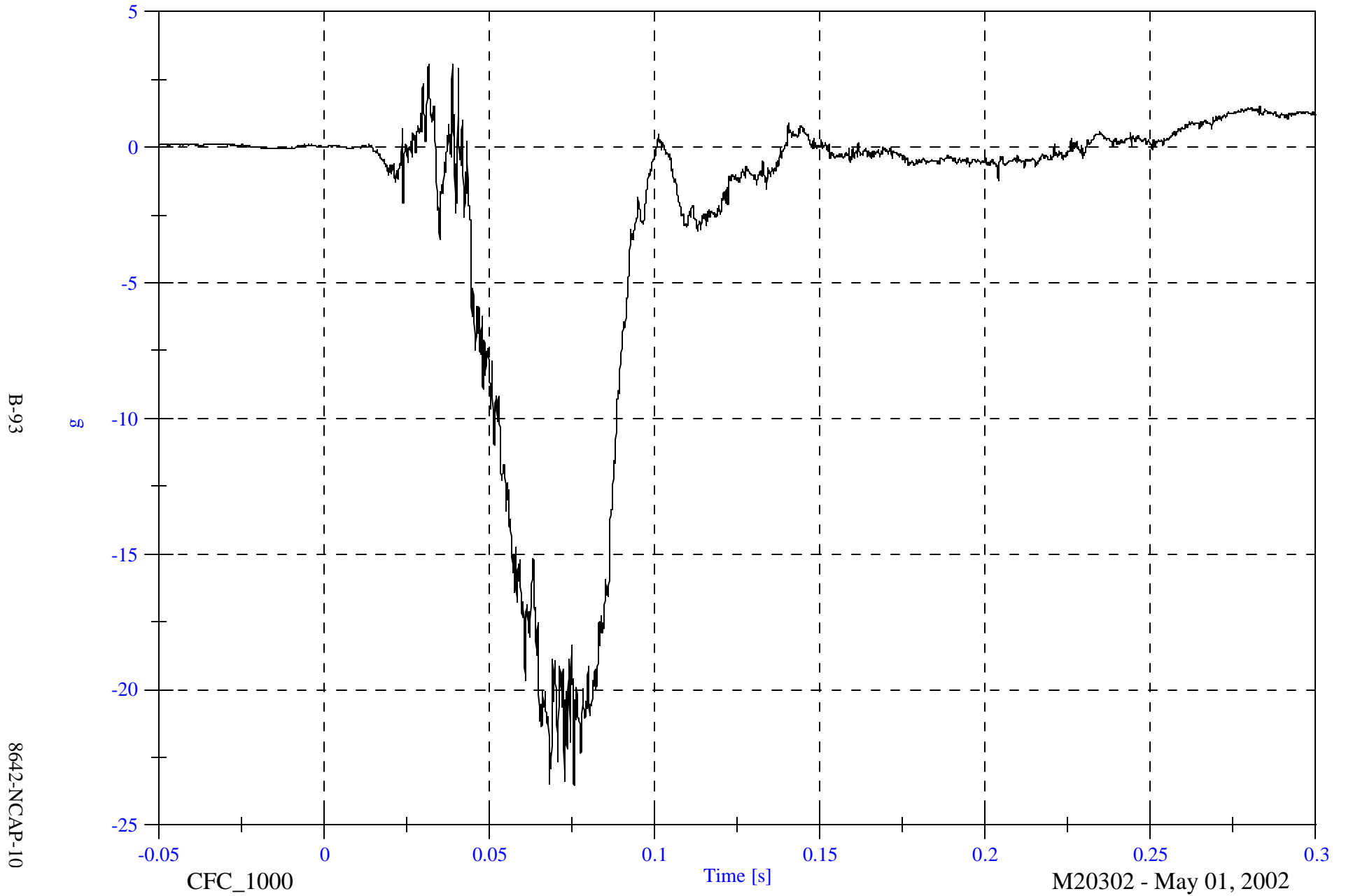
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 3.0 [g] at 0.039 [s]

P2 Pelvic z

Min: -23.5 [g] at 0.076 [s]



NCAP Test 10 - 2002 Dodge Ram 1500

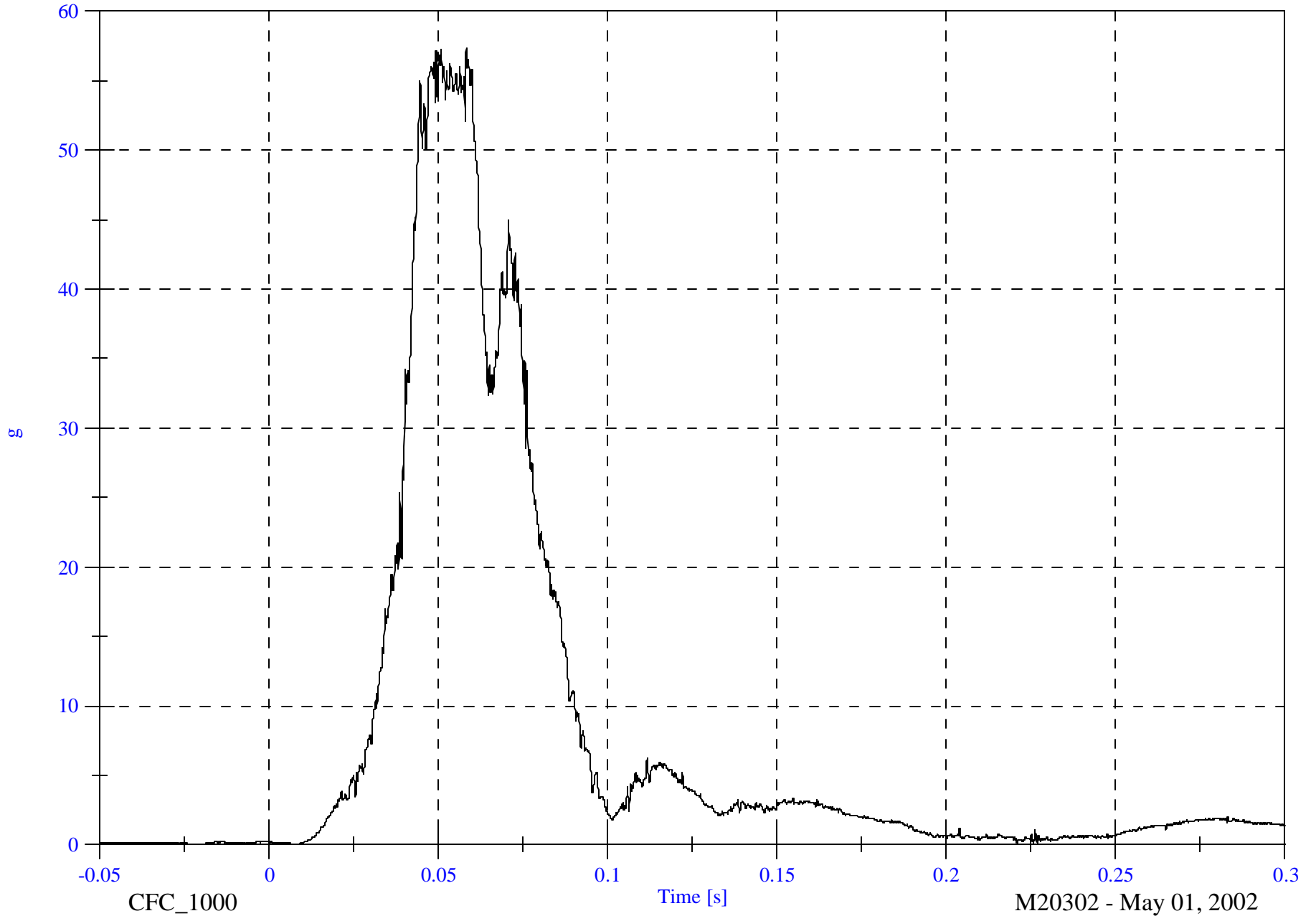
P2 Pelvic Resultant

Max: 57.3 [g] at 0.058 [s]

Min: 0.0 [g] at -0.021 [s]

B-94

8642-NCAP-10



CFC_1000

Time [s]

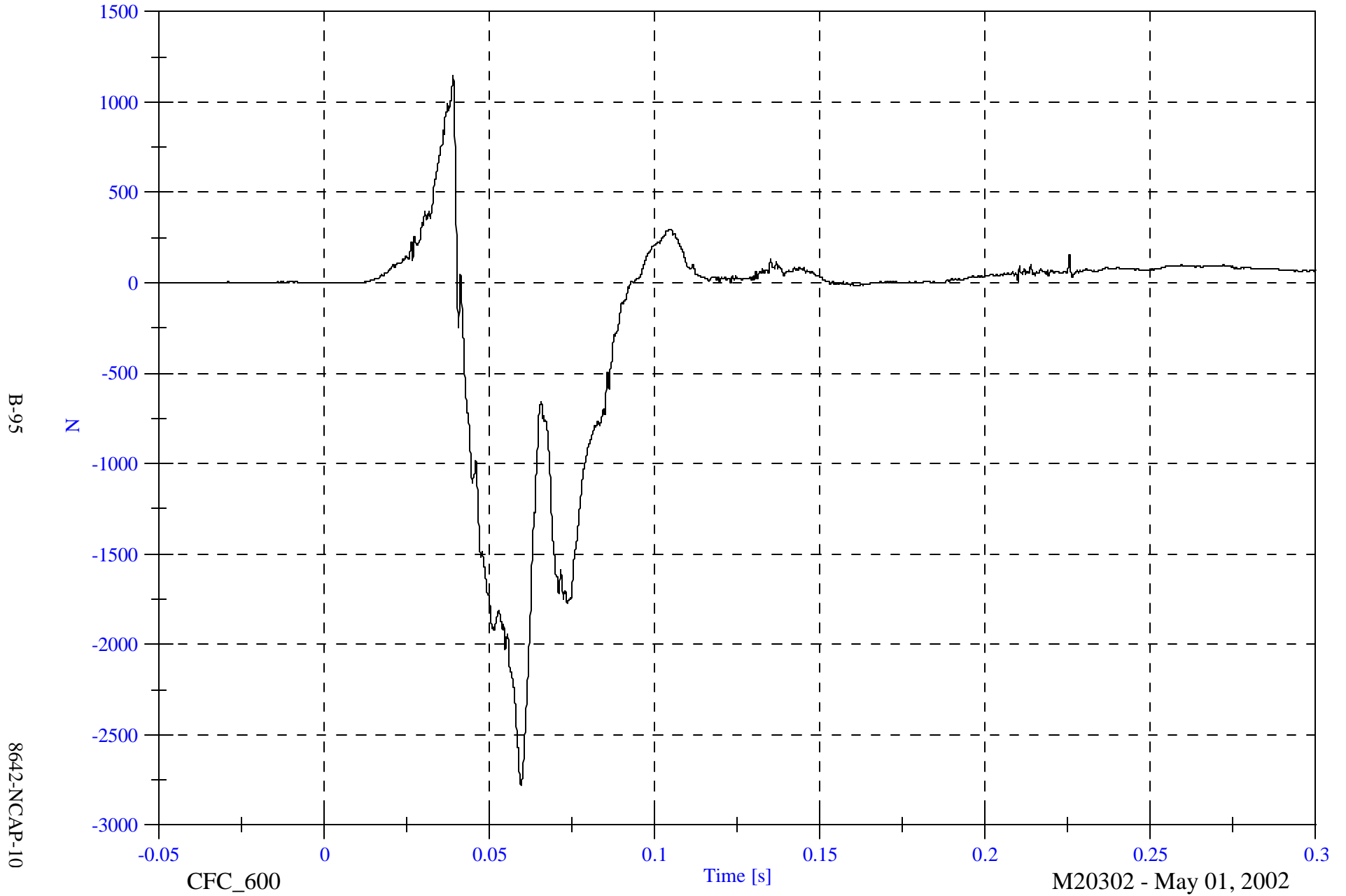
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1144.5 [N] at 0.039 [s]

P2 Left Femur

Min: -2780.4 [N] at 0.060 [s]

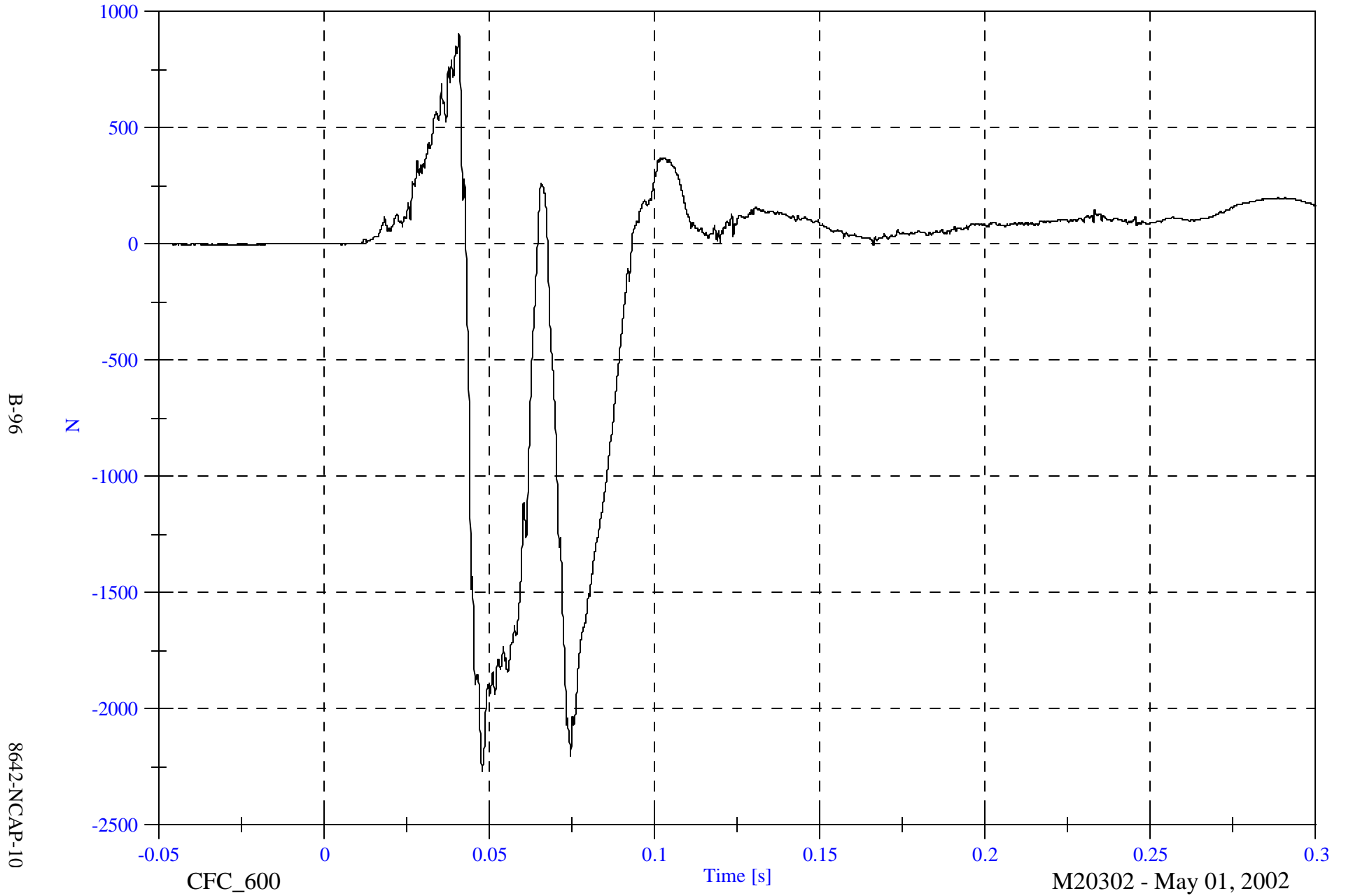


NCAP Test 10 - 2002 Dodge Ram 1500

P2 Right Femur

Max: 906.2 [N] at 0.041 [s]

Min: -2265.8 [N] at 0.048 [s]

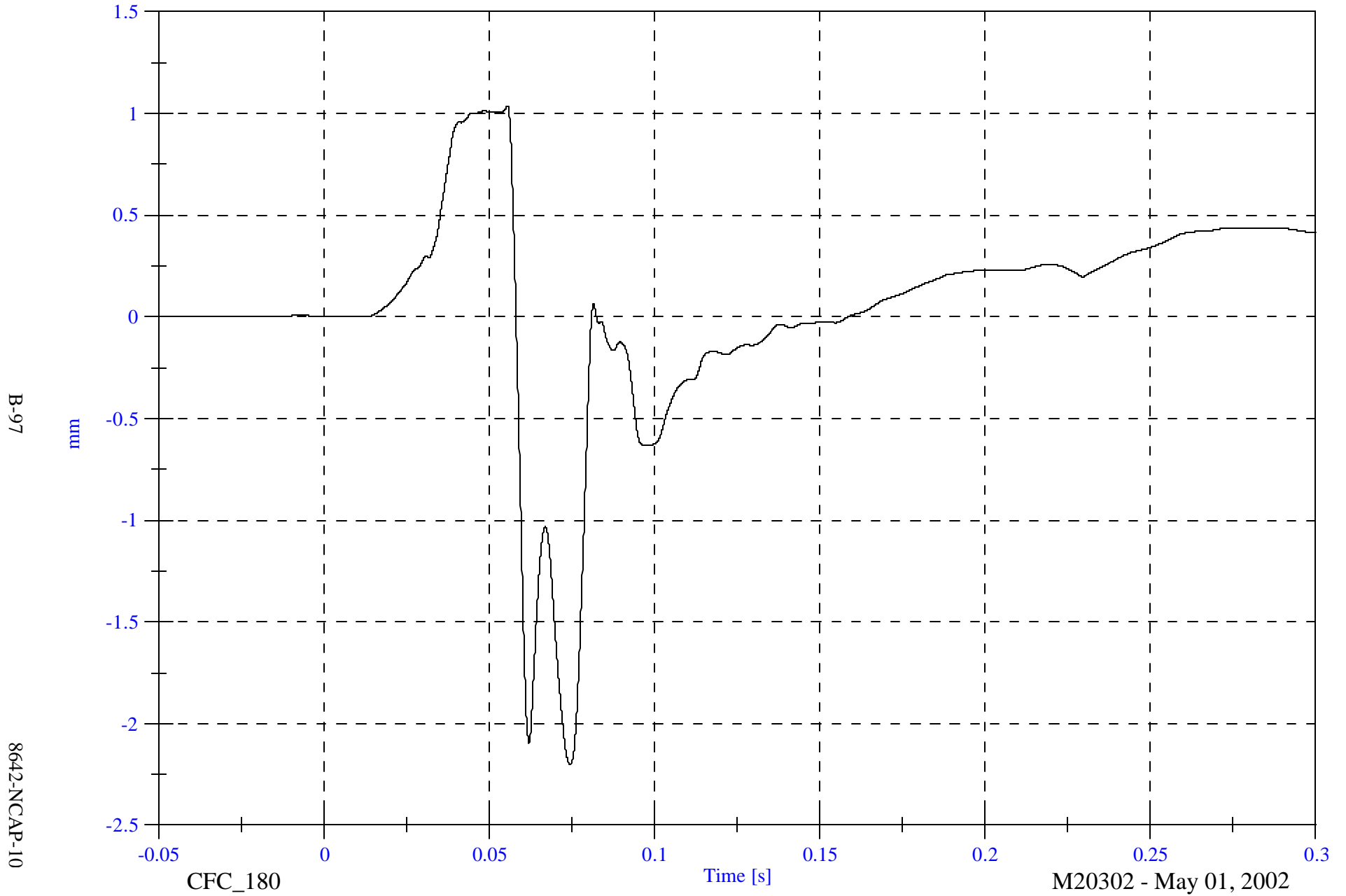


NCAP Test 10 - 2002 Dodge Ram 1500

P2 Left Knee Shear

Max: 1.0 [mm] at 0.055 [s]

Min: -2.2 [mm] at 0.074 [s]



B-97

8642-NCAP-10

CFC_180

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

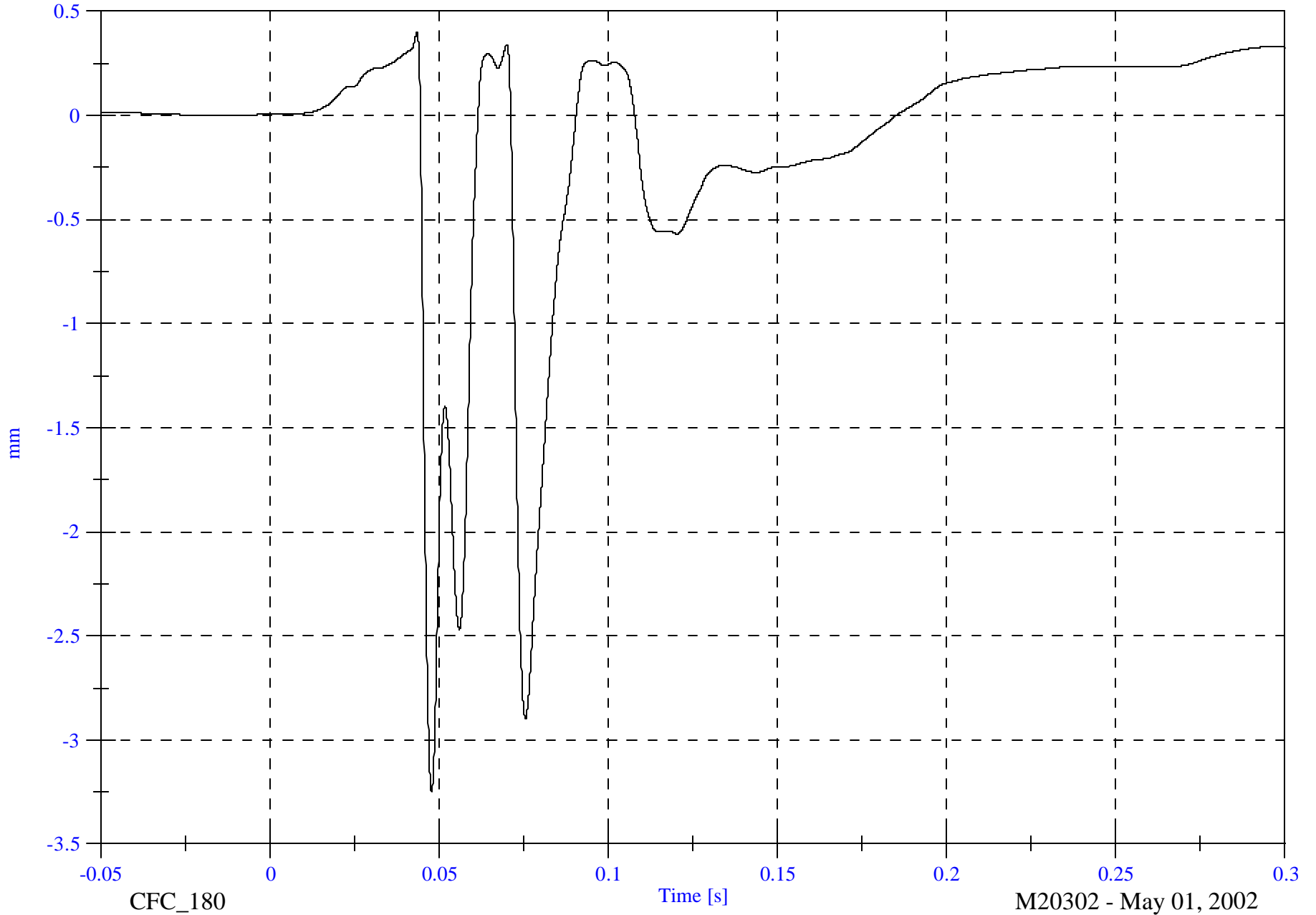
P2 Right Knee Shear

Max: 0.4 [mm] at 0.043 [s]

Min: -3.3 [mm] at 0.048 [s]

B-98

8642-NCAP-10



CFC_180

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

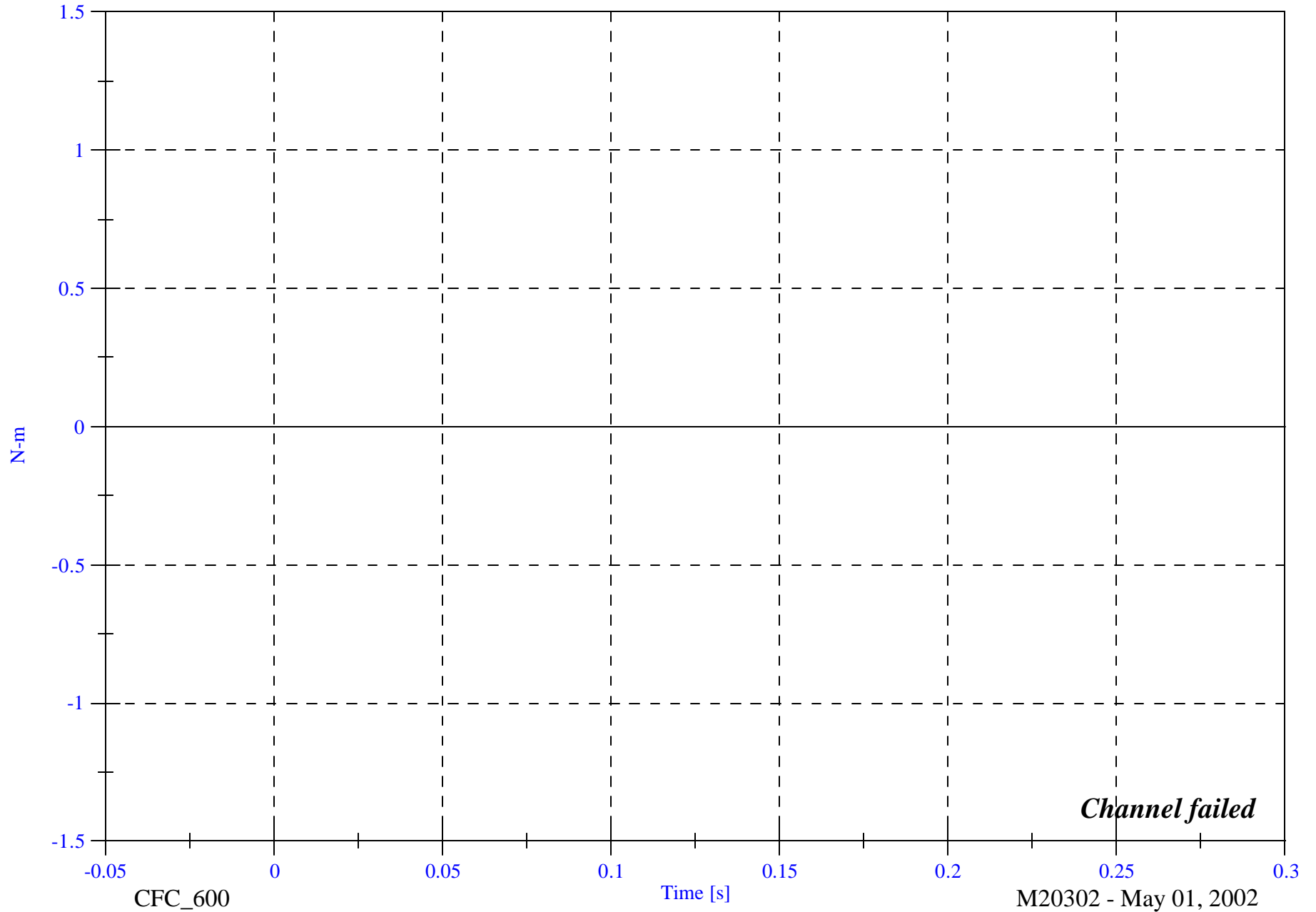
Max: 0.0 [N-m] at -0.050 [s]

P2 Left Upper Tibia Mx

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

B-99

8642-NCAP-10



CFC_600

Time [s]

M20302 - May 01, 2002

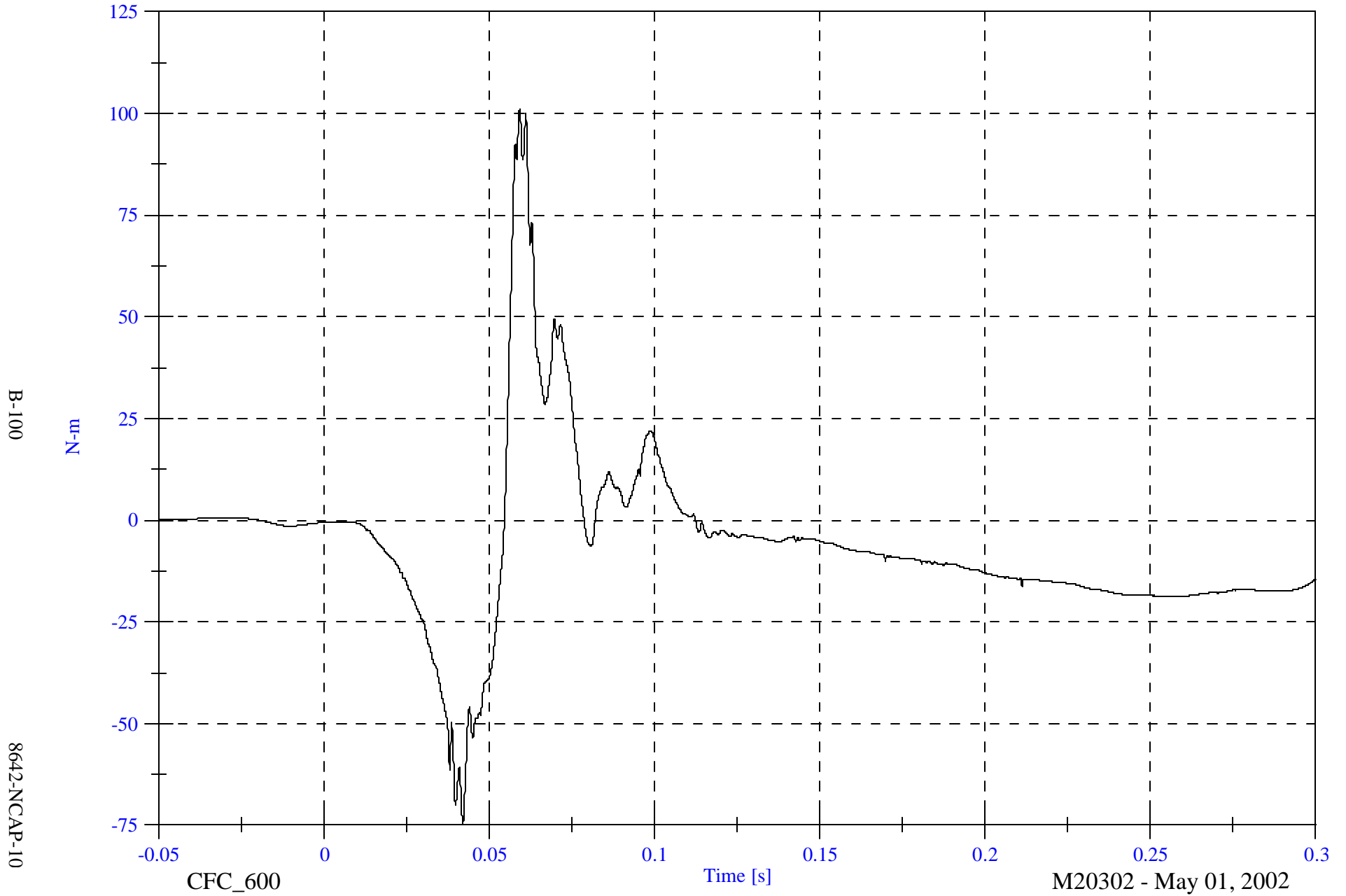
Channel failed

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 100.9 [N-m] at 0.059 [s]

P2 Left Upper Tibia My

Min: -74.4 [N-m] at 0.042 [s]



B-100

8642-NCAP-10

CFC_600

Time [s]

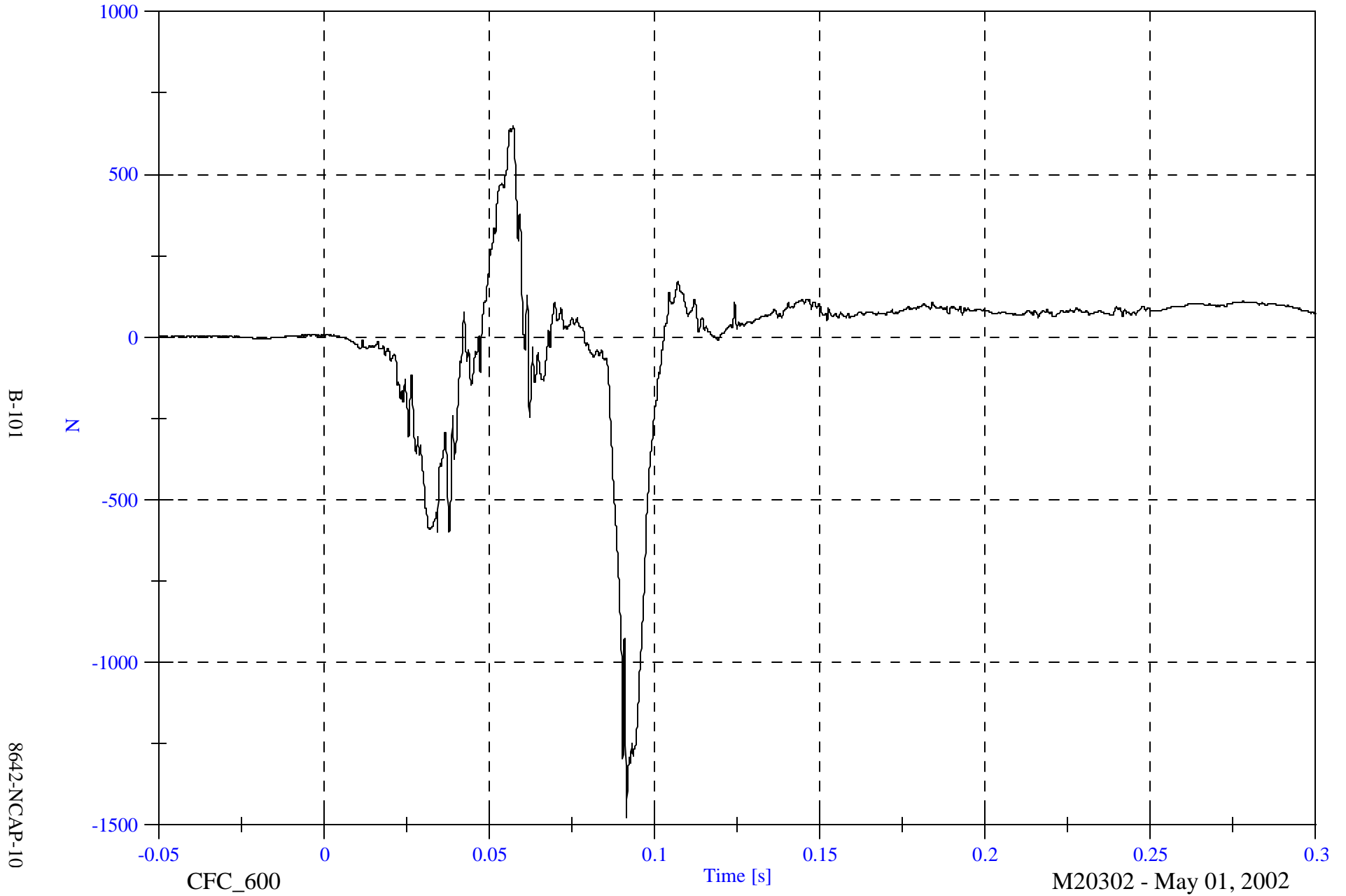
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 646.7 [N] at 0.057 [s]

Min: -1475.1 [N] at 0.092 [s]

P2 Left Lower Tibia Fz



NCAP Test 10 - 2002 Dodge Ram 1500

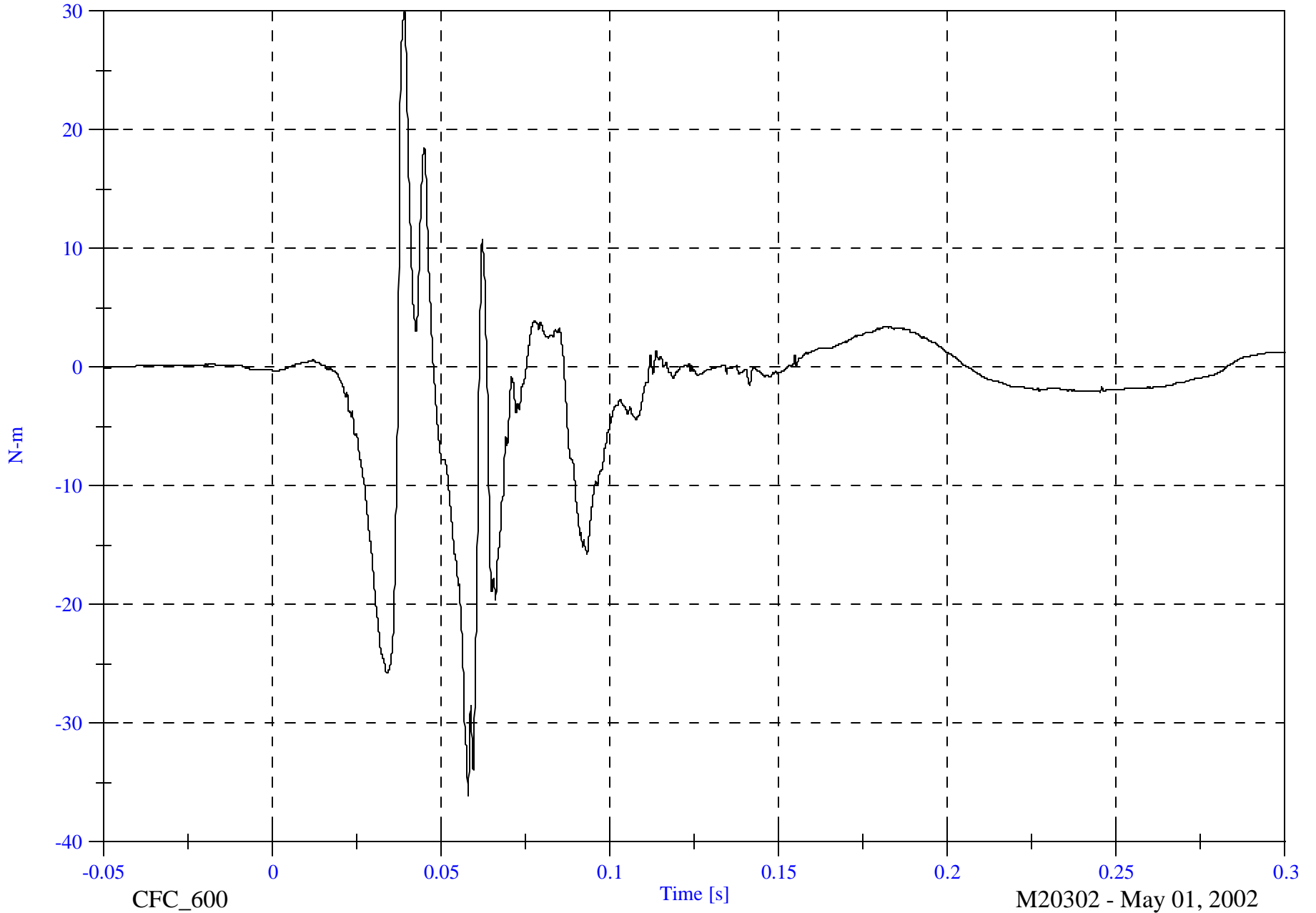
Max: 30.0 [N-m] at 0.039 [s]

P2 Left Lower Tibia Mx

Min: -36.1 [N-m] at 0.058 [s]

B-102

8642-NCAP-10



CFC_600

Time [s]

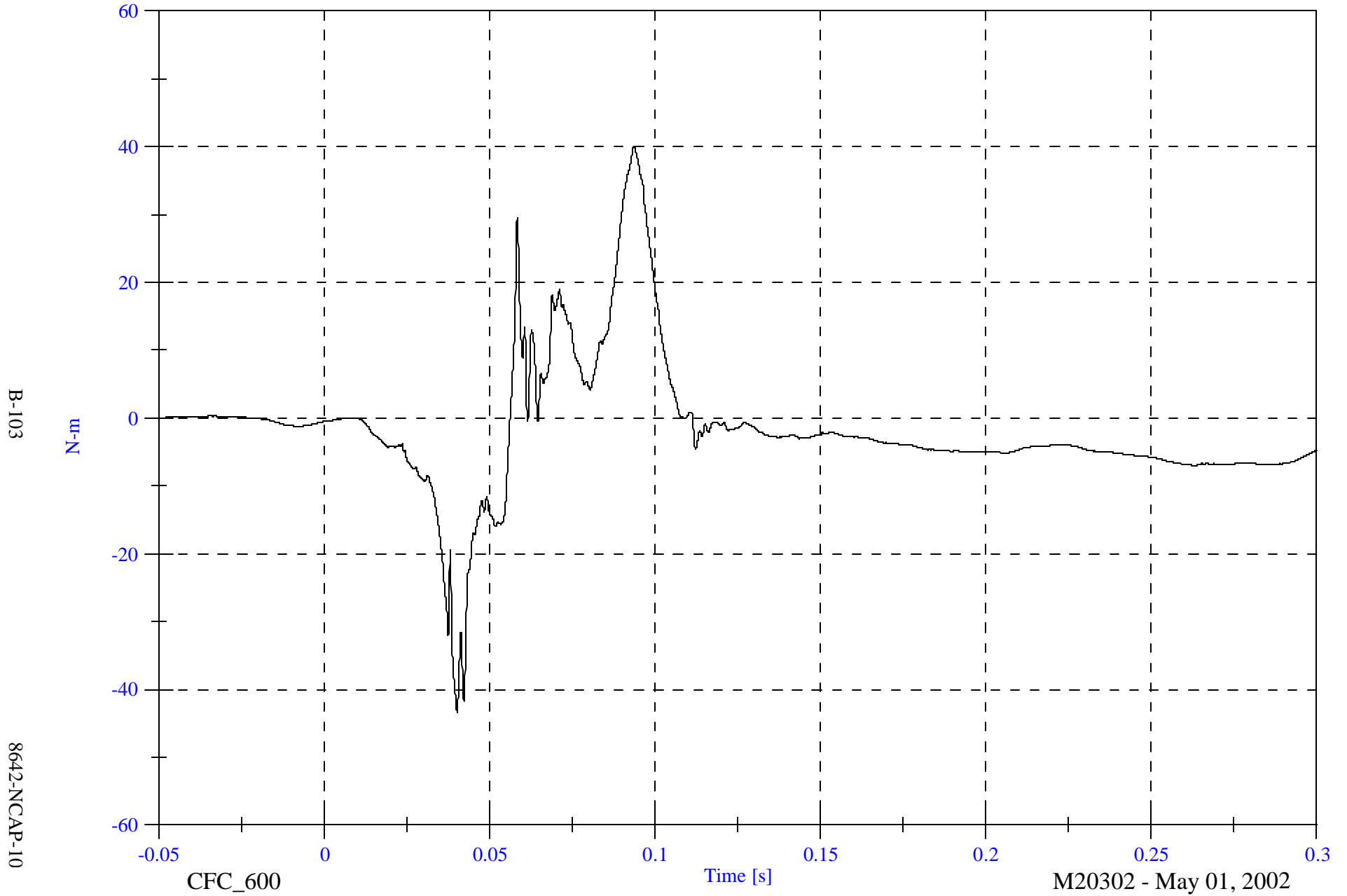
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 40.0 [N-m] at 0.094 [s]

Min: -43.4 [N-m] at 0.040 [s]

P2 Left Lower Tibia My

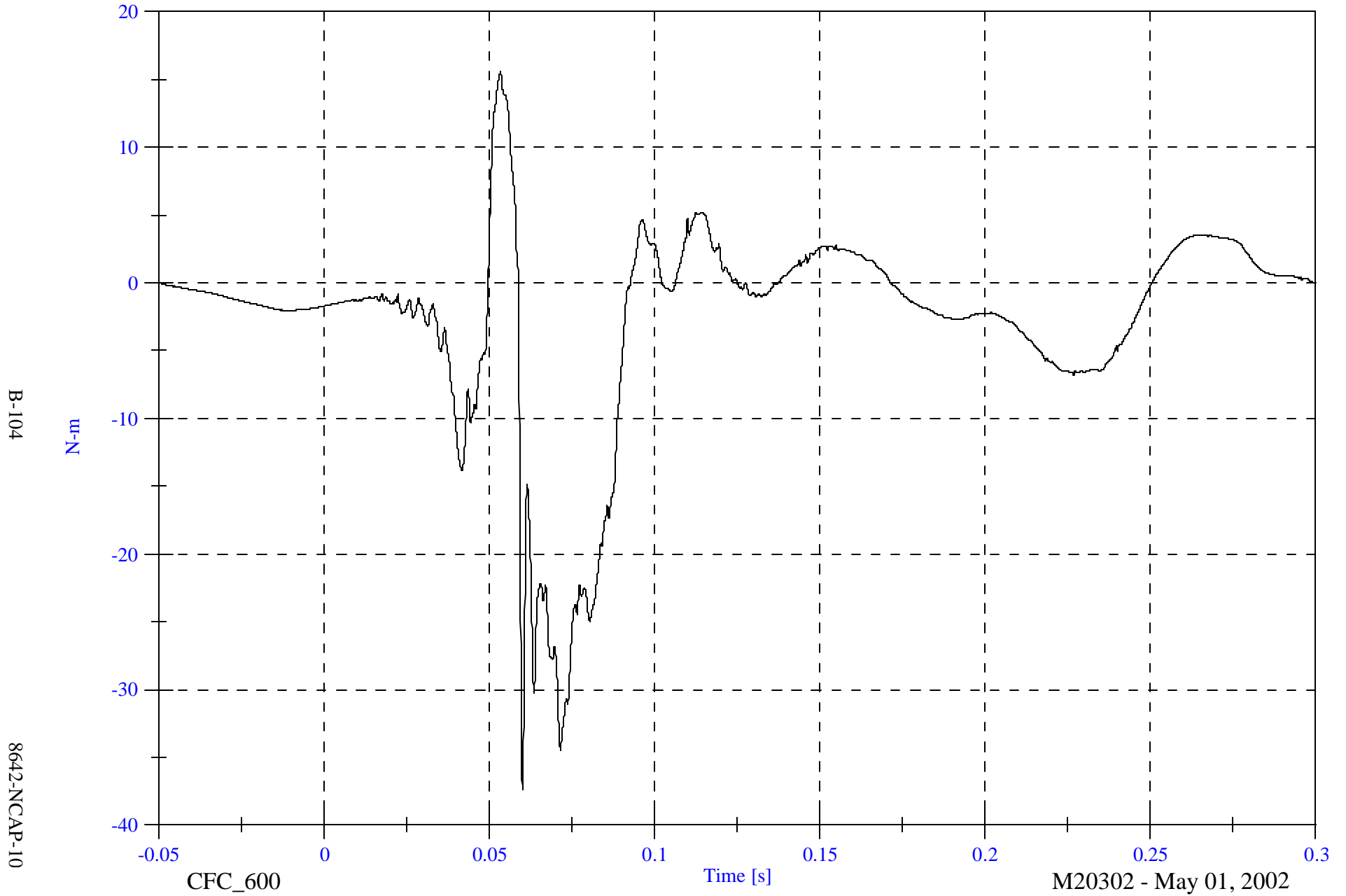


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 15.6 [N-m] at 0.053 [s]

P2 Right Upper Tibia Mx

Min: -37.4 [N-m] at 0.060 [s]



NCAP Test 10 - 2002 Dodge Ram 1500

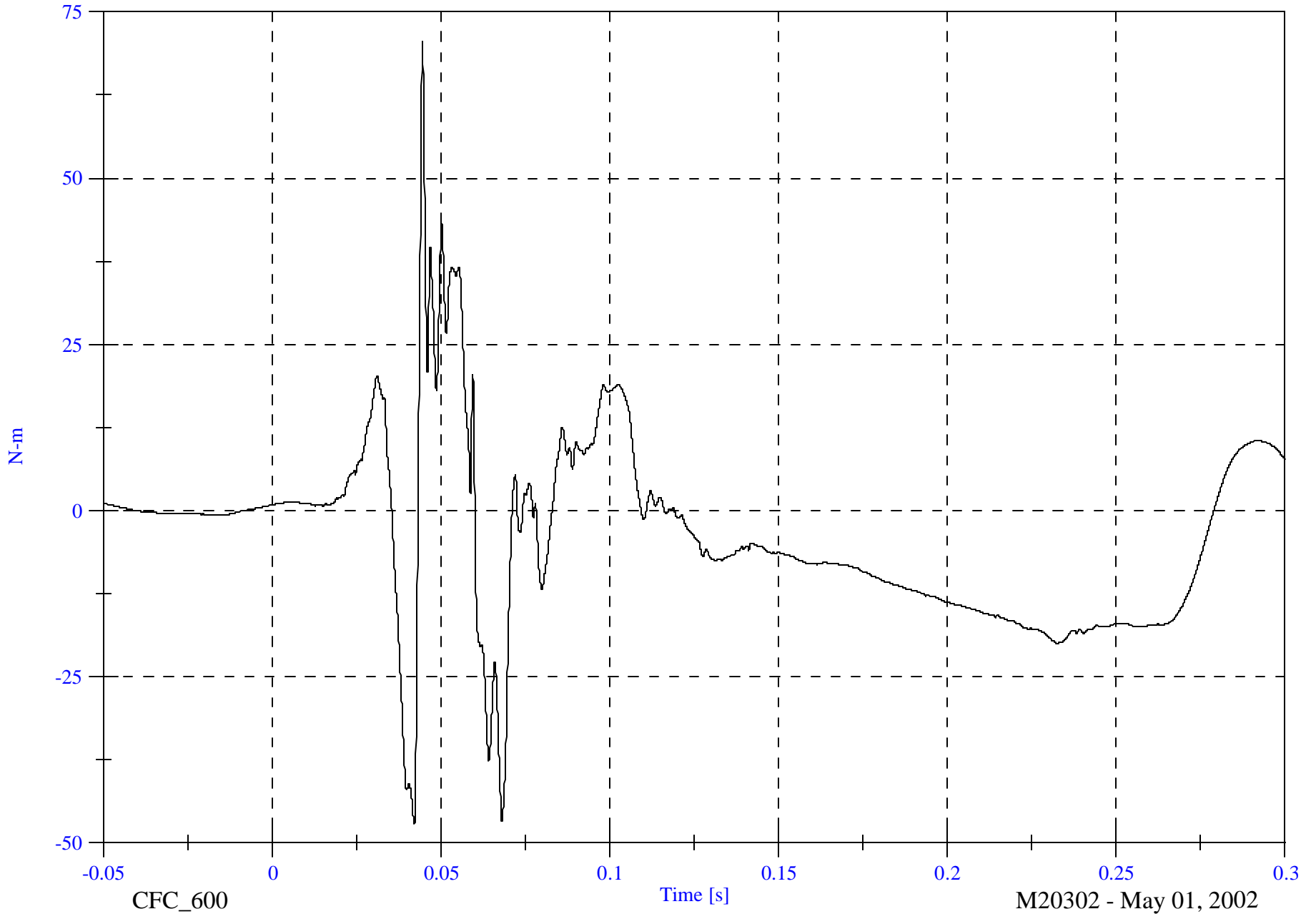
P2 Right Upper Tibia My

Max: 70.5 [N-m] at 0.044 [s]

Min: -47.2 [N-m] at 0.042 [s]

B-105

8642-NCAP-10



CFC_600

Time [s]

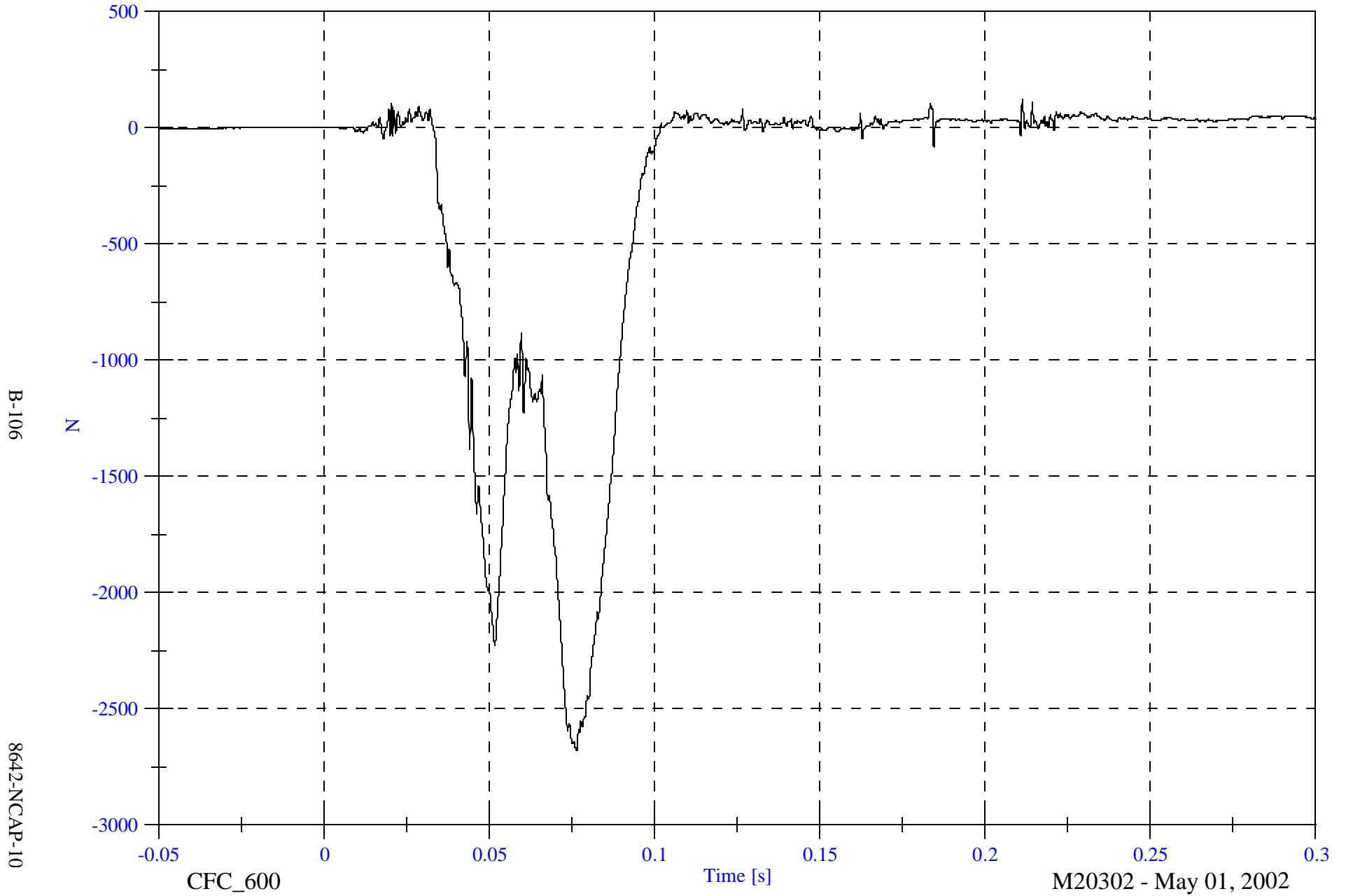
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

P2 Right Lower Tibia Fz

Max: 125.6 [N] at 0.211 [s]

Min: -2680.4 [N] at 0.076 [s]

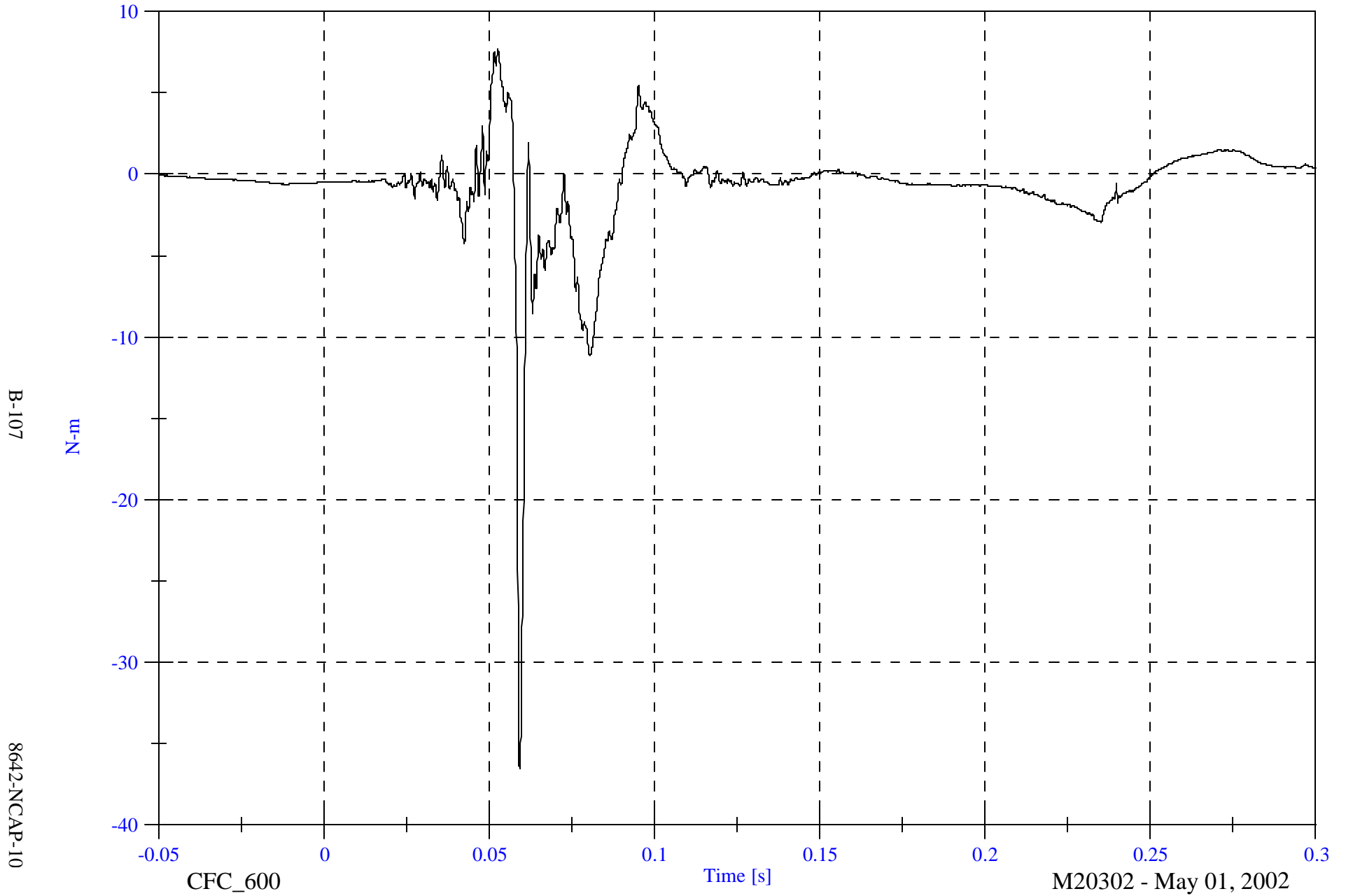


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 7.7 [N-m] at 0.053 [s]

P2 Right Lower Tibia Mx

Min: -36.5 [N-m] at 0.059 [s]



B-107

8642-NCAP-10

CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

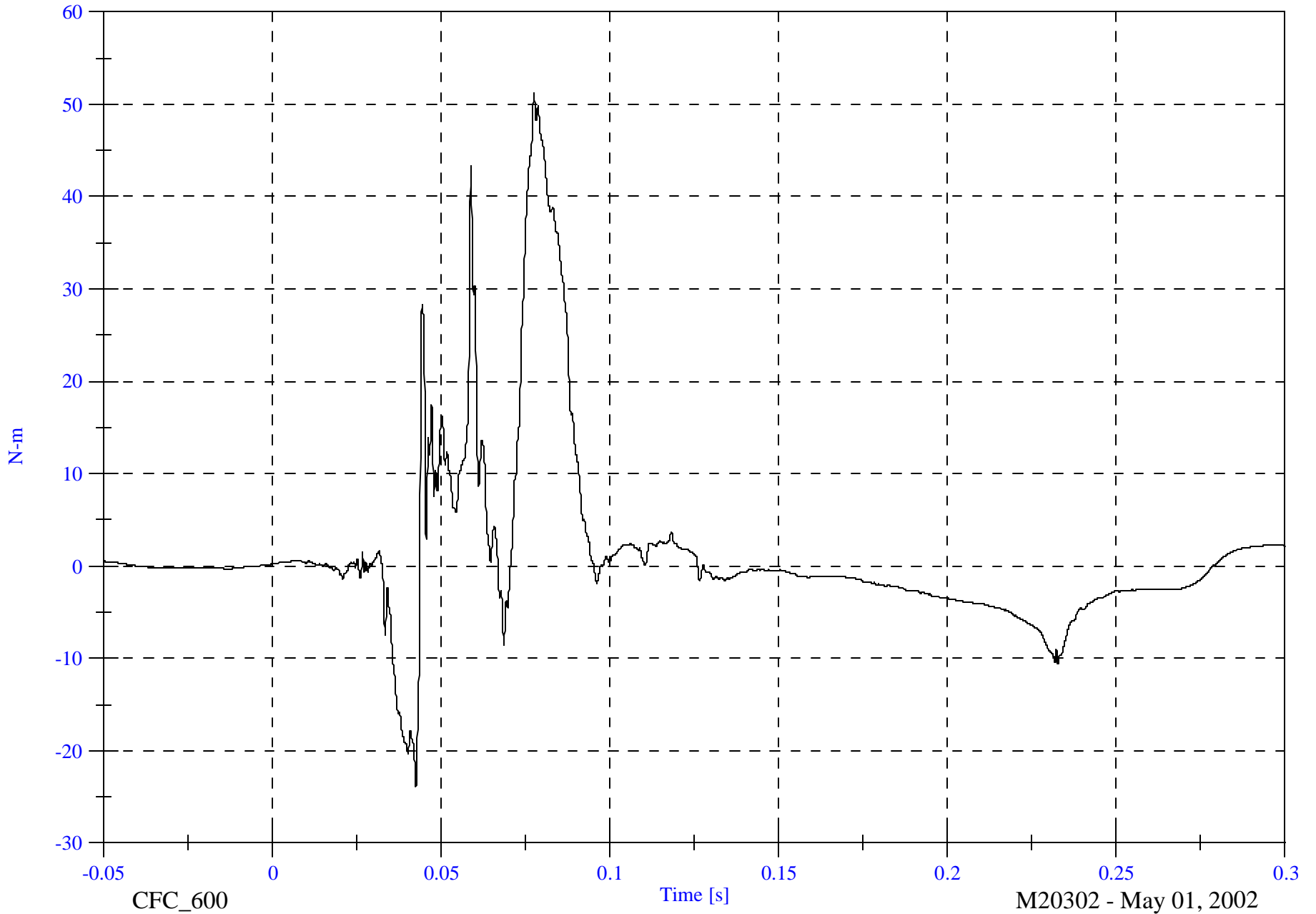
Max: 51.2 [N-m] at 0.078 [s]

P2 Right Lower Tibia My

Min: -23.8 [N-m] at 0.043 [s]

B-108

8642-NCAP-10



CFC_600

Time [s]

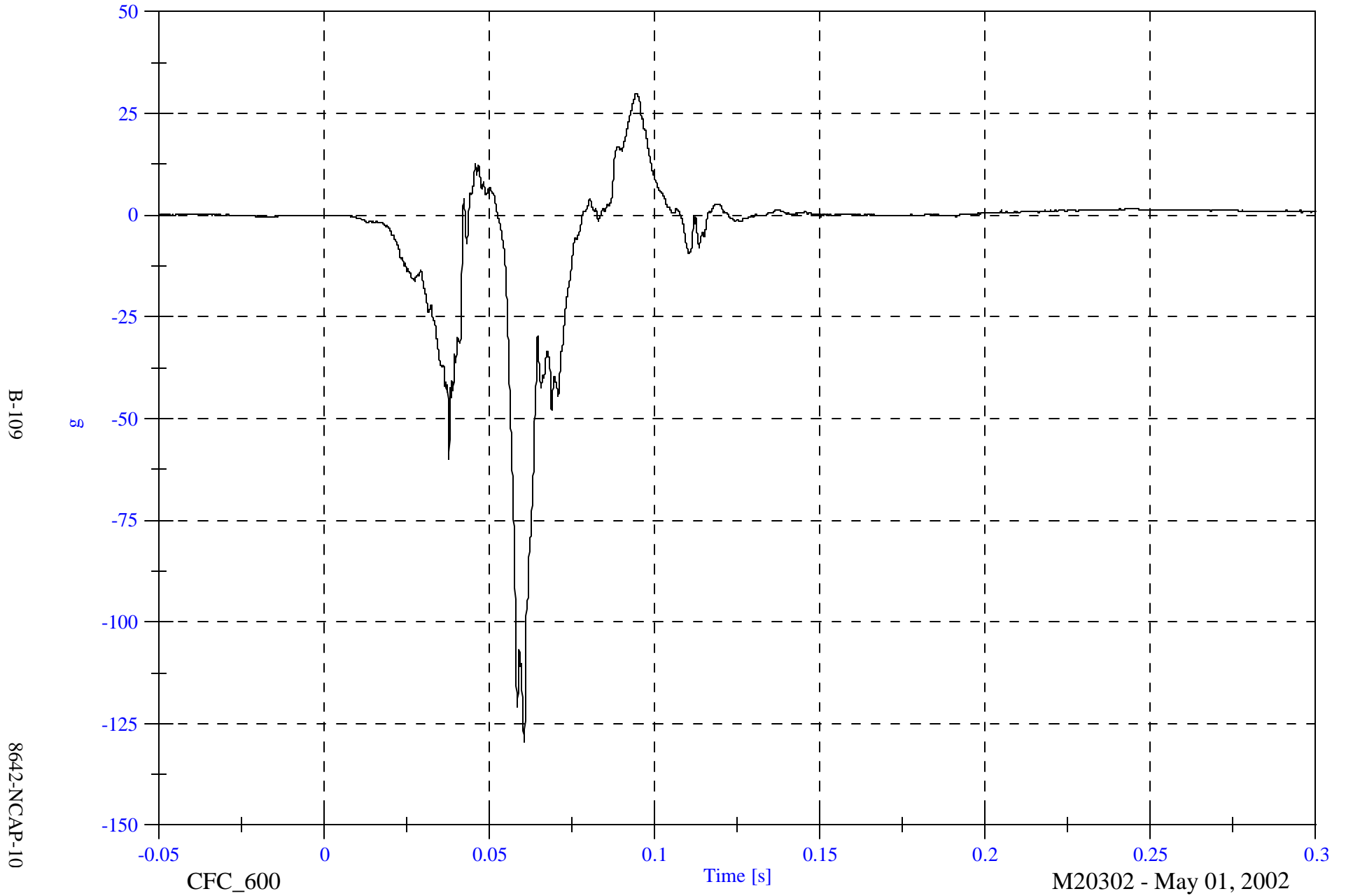
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 29.9 [g] at 0.094 [s]

Min: -129.4 [g] at 0.061 [s]

P2 Left Foot Aft x

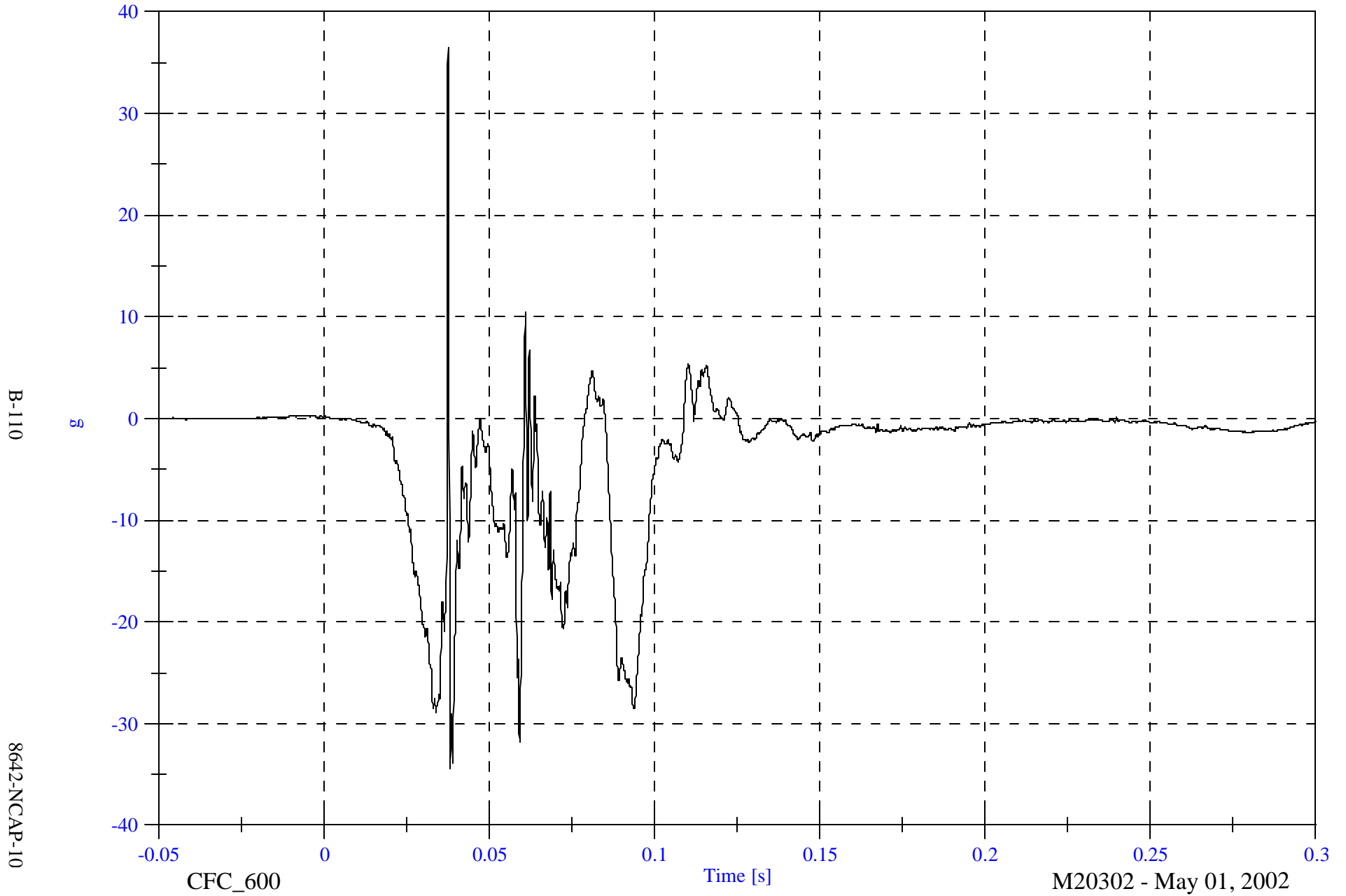


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 36.4 [g] at 0.038 [s]

P2 Left Foot Aft z

Min: -34.4 [g] at 0.038 [s]

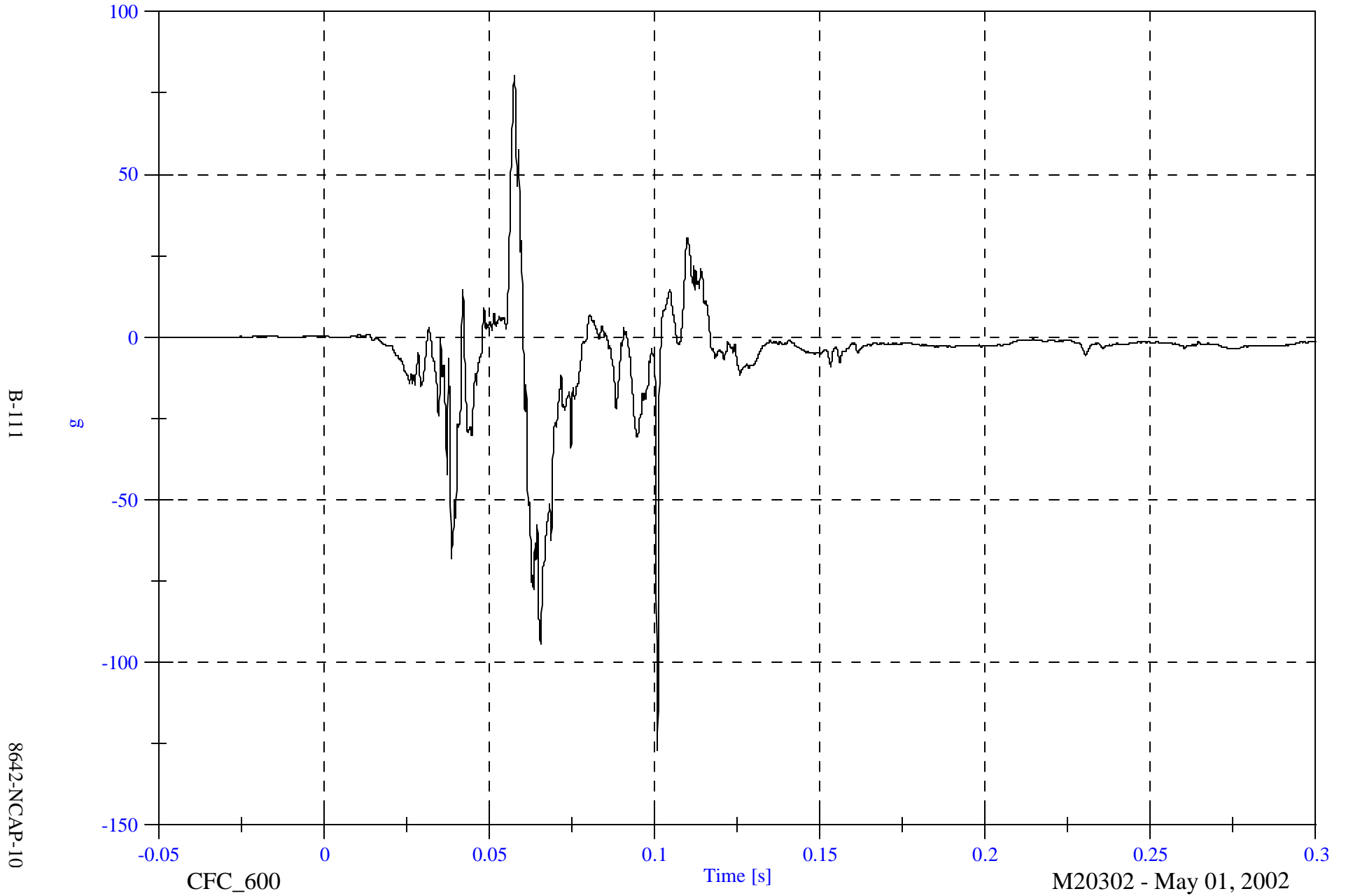


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 80.2 [g] at 0.058 [s]

Min: -127.2 [g] at 0.101 [s]

P2 Left Foot Fore z

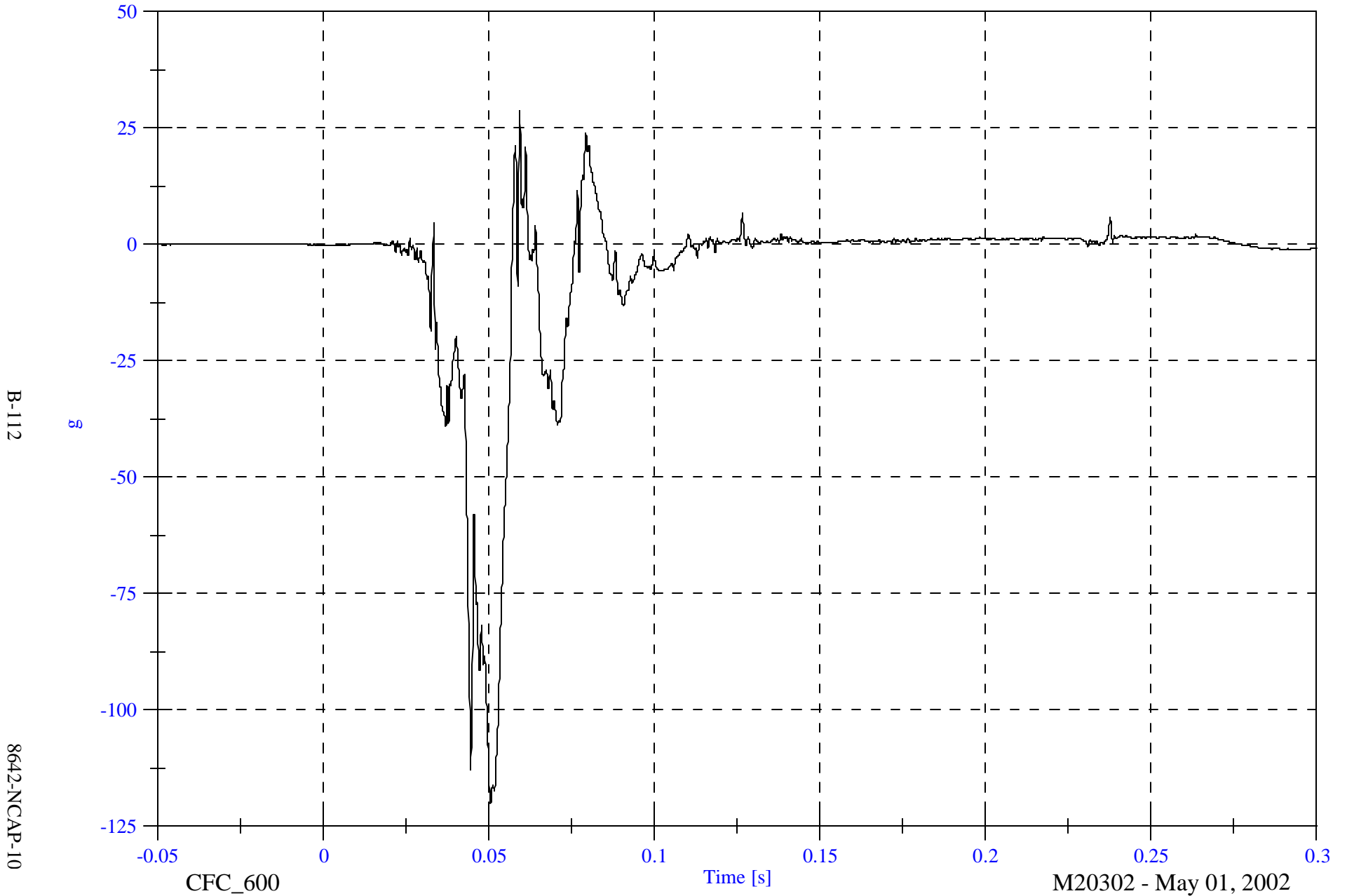


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 28.7 [g] at 0.059 [s]

Min: -120.1 [g] at 0.051 [s]

P2 Right Foot Aft x



B-112

8642-NCAP-10

CFC_600

Time [s]

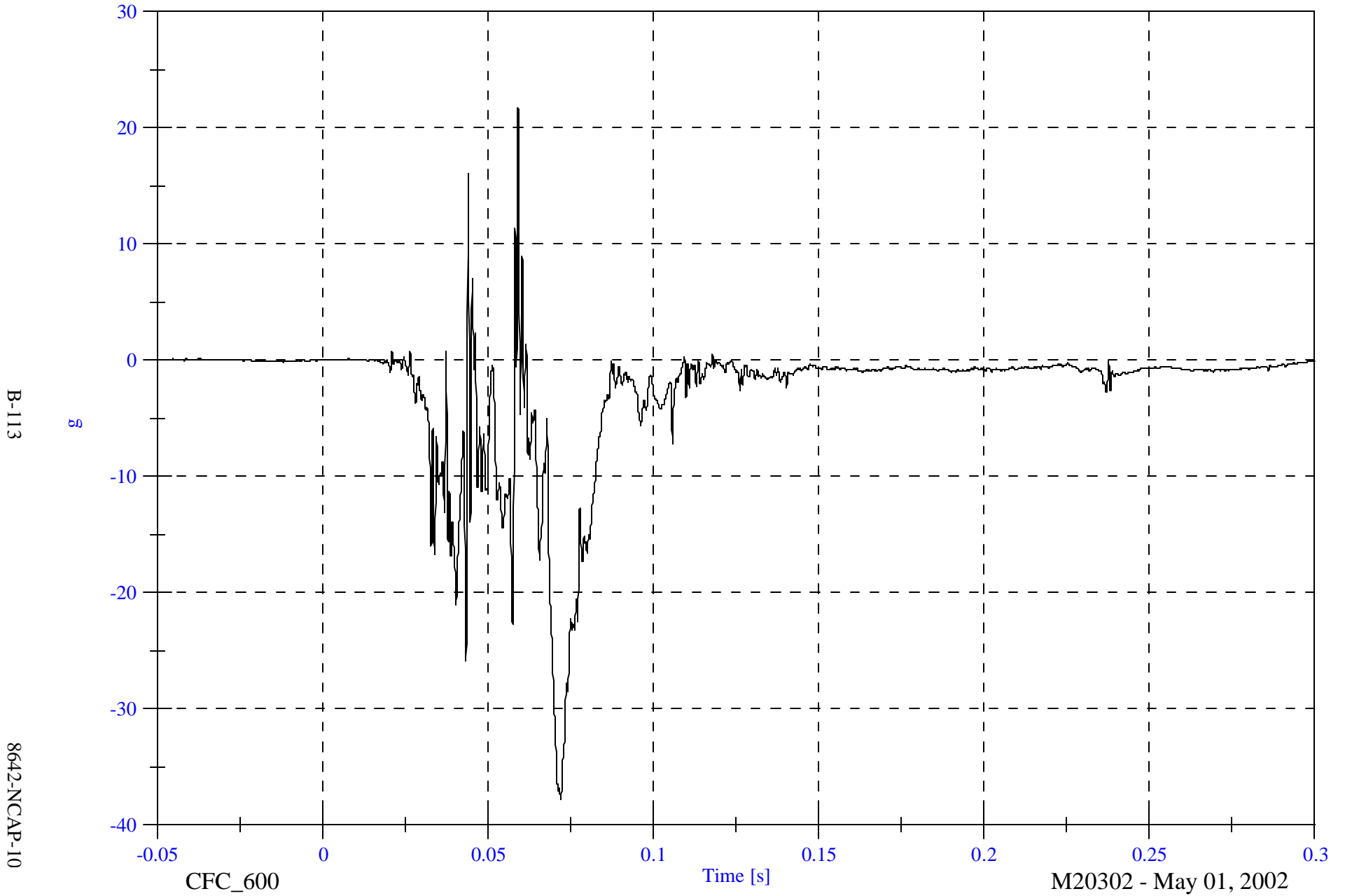
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 21.7 [g] at 0.059 [s]

P2 Right Foot Aft z

Min: -37.8 [g] at 0.072 [s]



B-113

8642-NCAP-10

CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

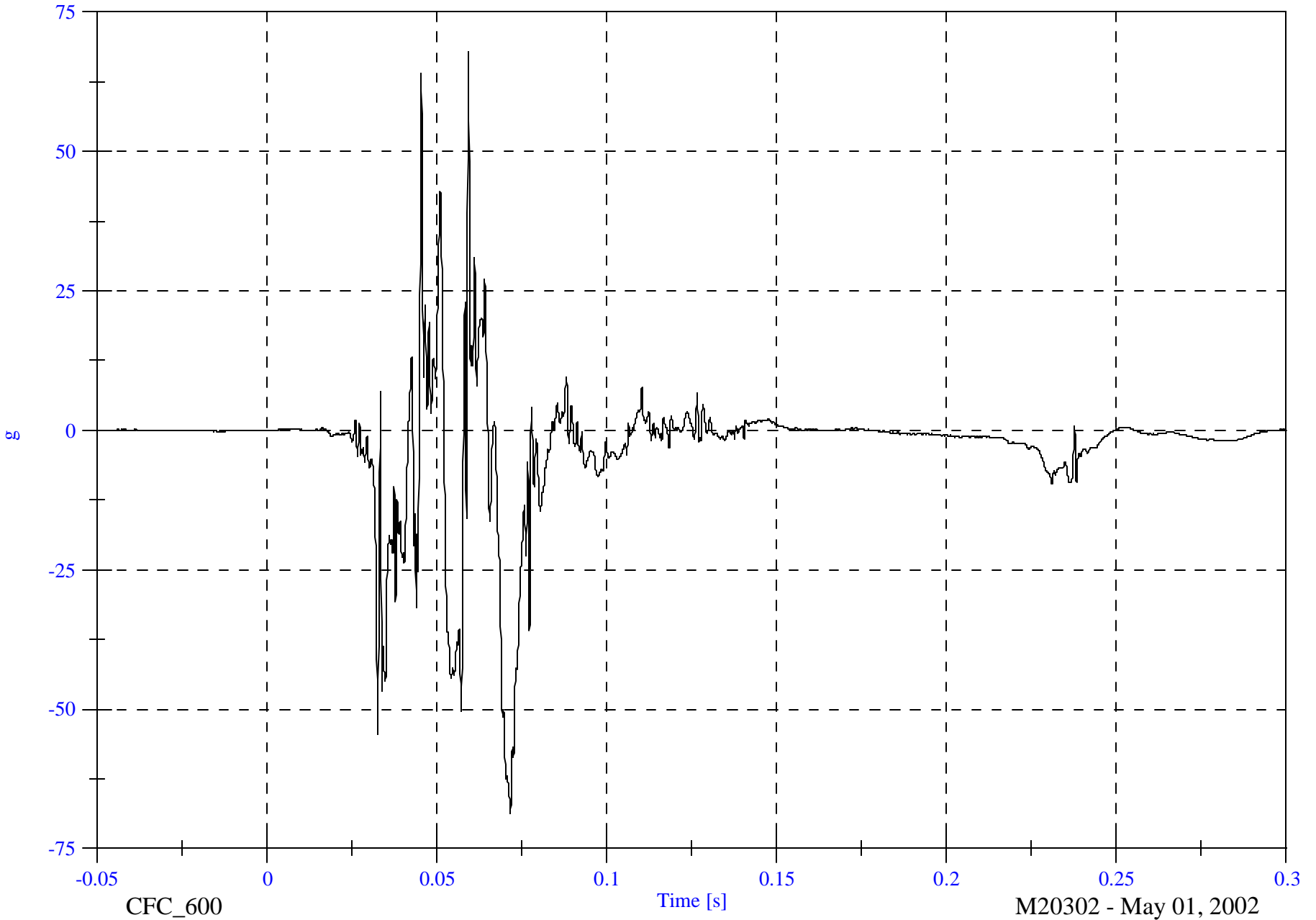
Max: 67.7 [g] at 0.059 [s]

Min: -68.7 [g] at 0.072 [s]

P2 Right Foot Fore z

B-114

8642-NCAP-10

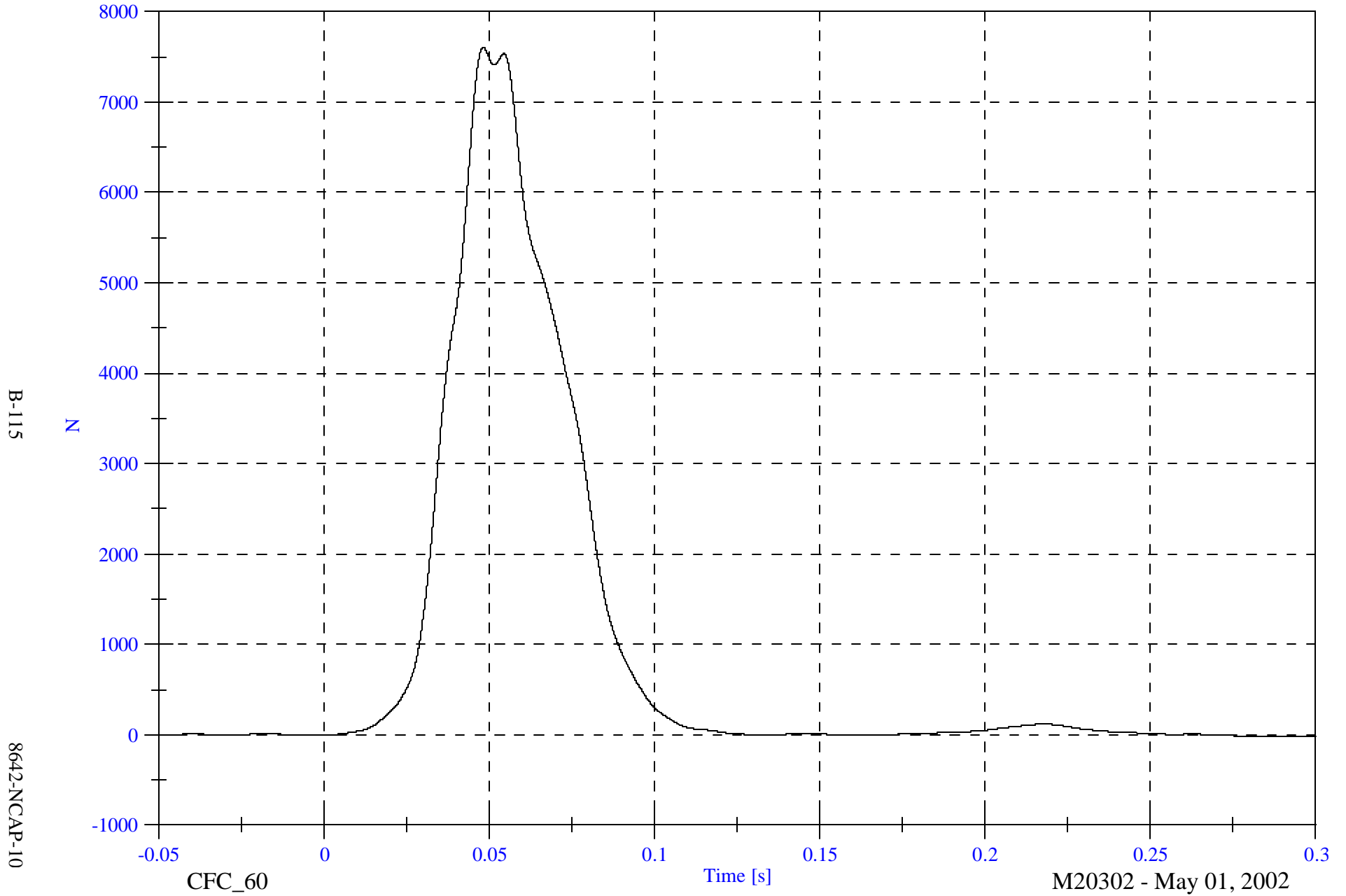


NCAP Test 10 - 2002 Dodge Ram 1500

P2 Lap Belt

Max: 7602.9 [N] at 0.048 [s]

Min: -16.1 [N] at 0.300 [s]



B-115

8642-NCAP-10

CFC_60

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

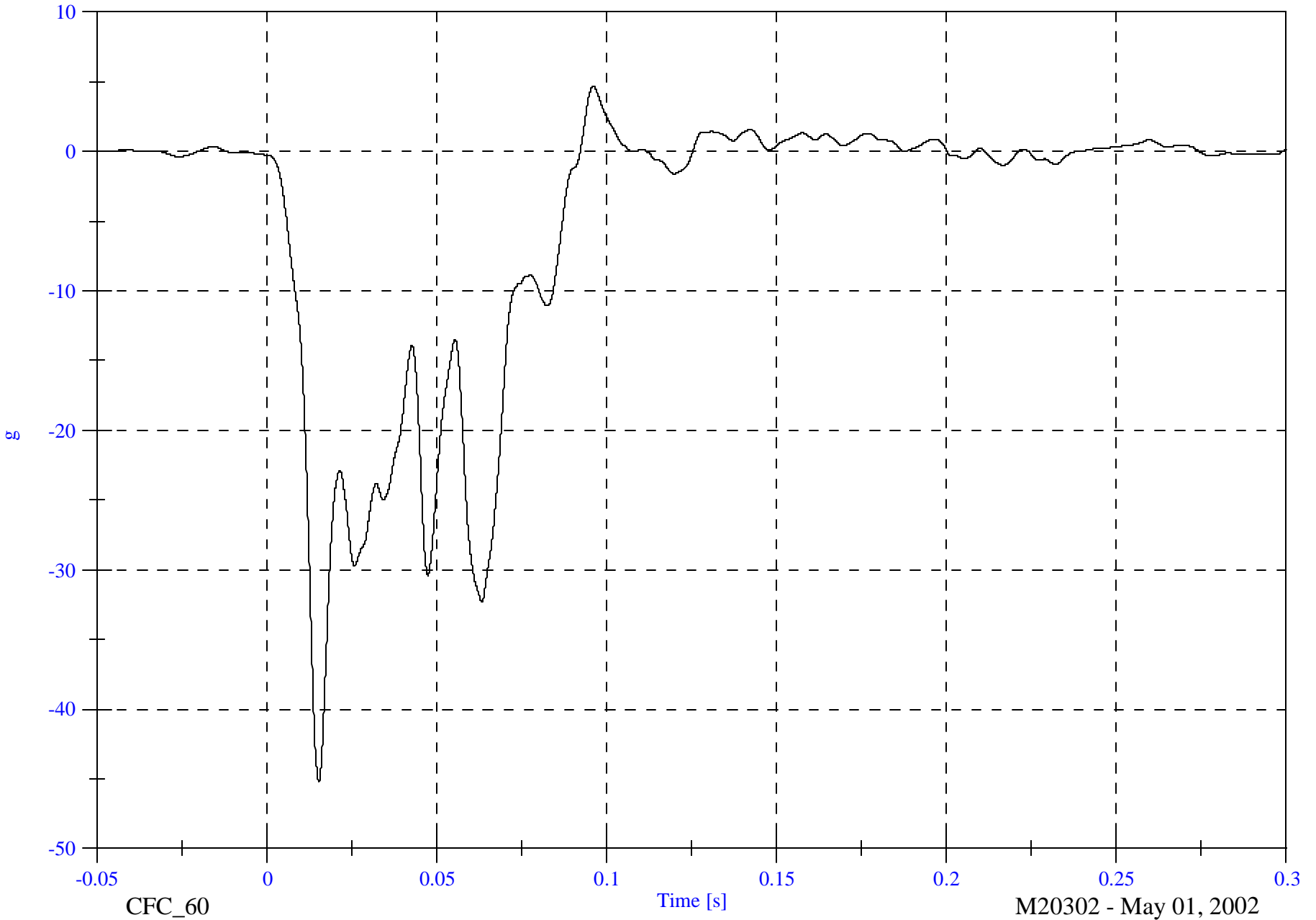
Max: 4.7 [g] at 0.096 [s]

Left Rear #1x

Min: -45.2 [g] at 0.015 [s]

B-116

8642-NCAP-10



CFC_60

Time [s]

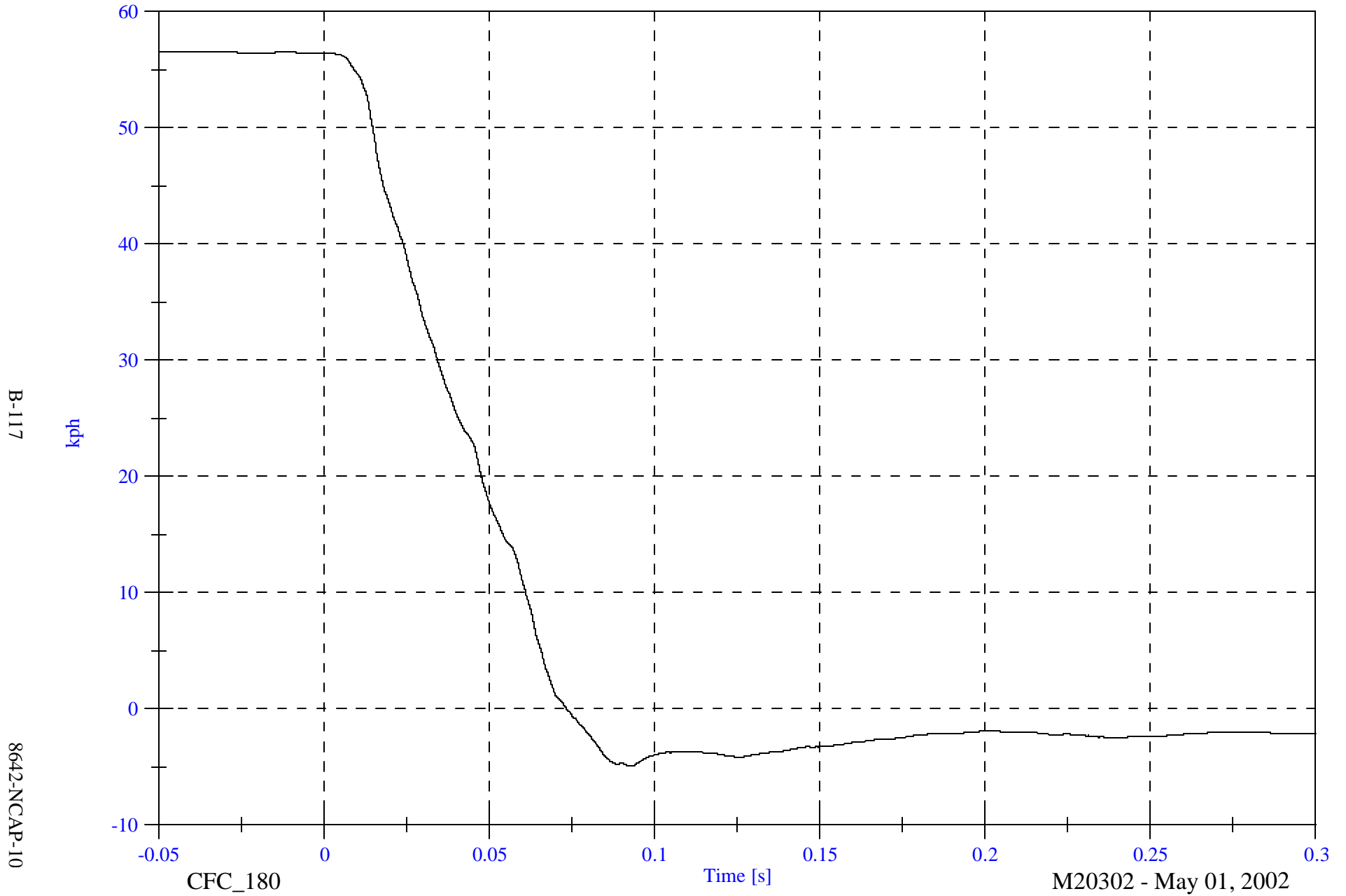
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 56.5 [kph] at -0.038 [s]

Min: -4.9 [kph] at 0.093 [s]

Left Rear #1x Velocity



B-117

8642-NCAP-10

CFC_180

Time [s]

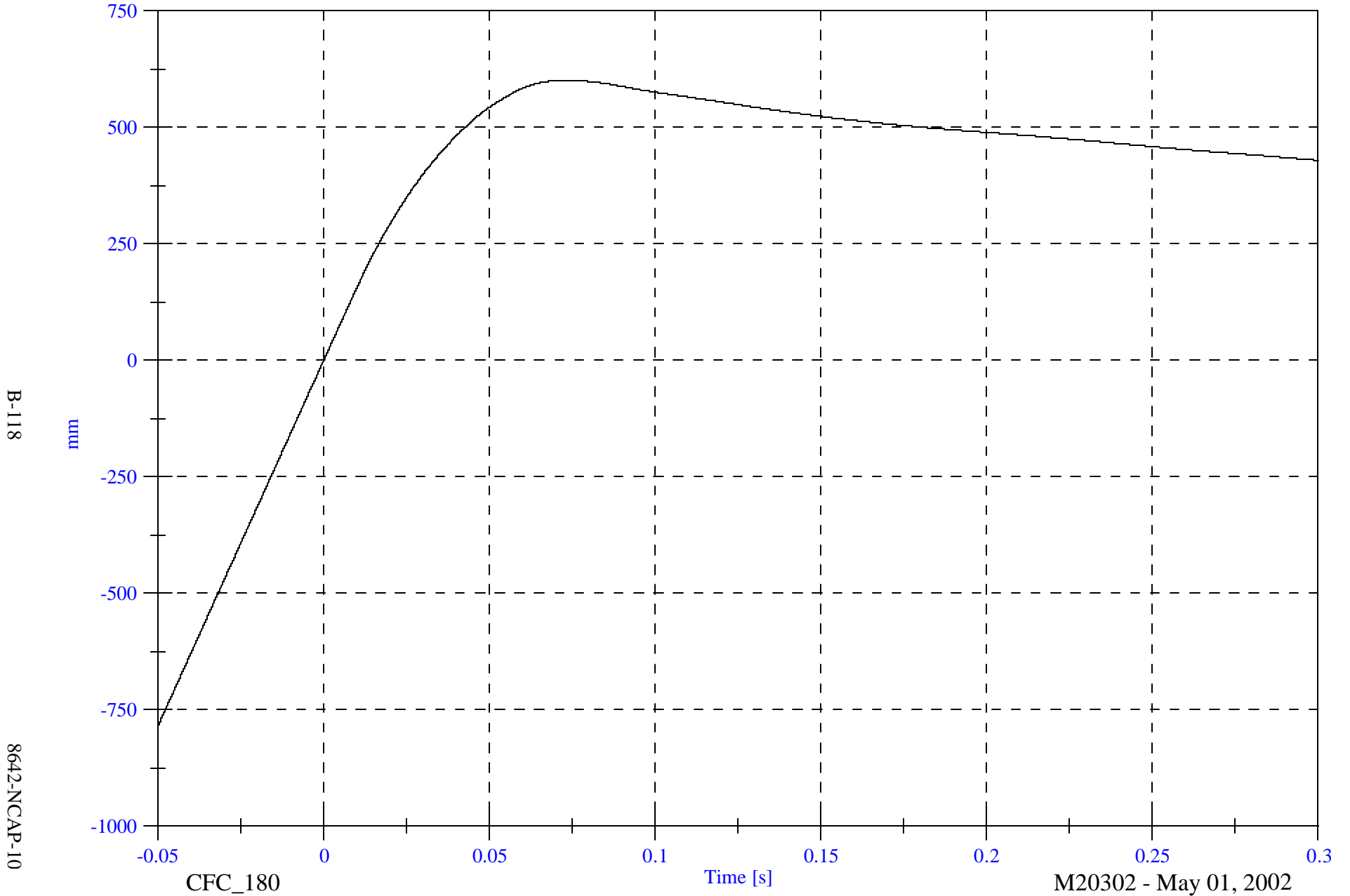
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Left Rear #1x Displacement

Max: 600.7 [mm] at 0.073 [s]

Min: -784.6 [mm] at -0.050 [s]



B-118

8642-NCAP-10

CFC_180

Time [s]

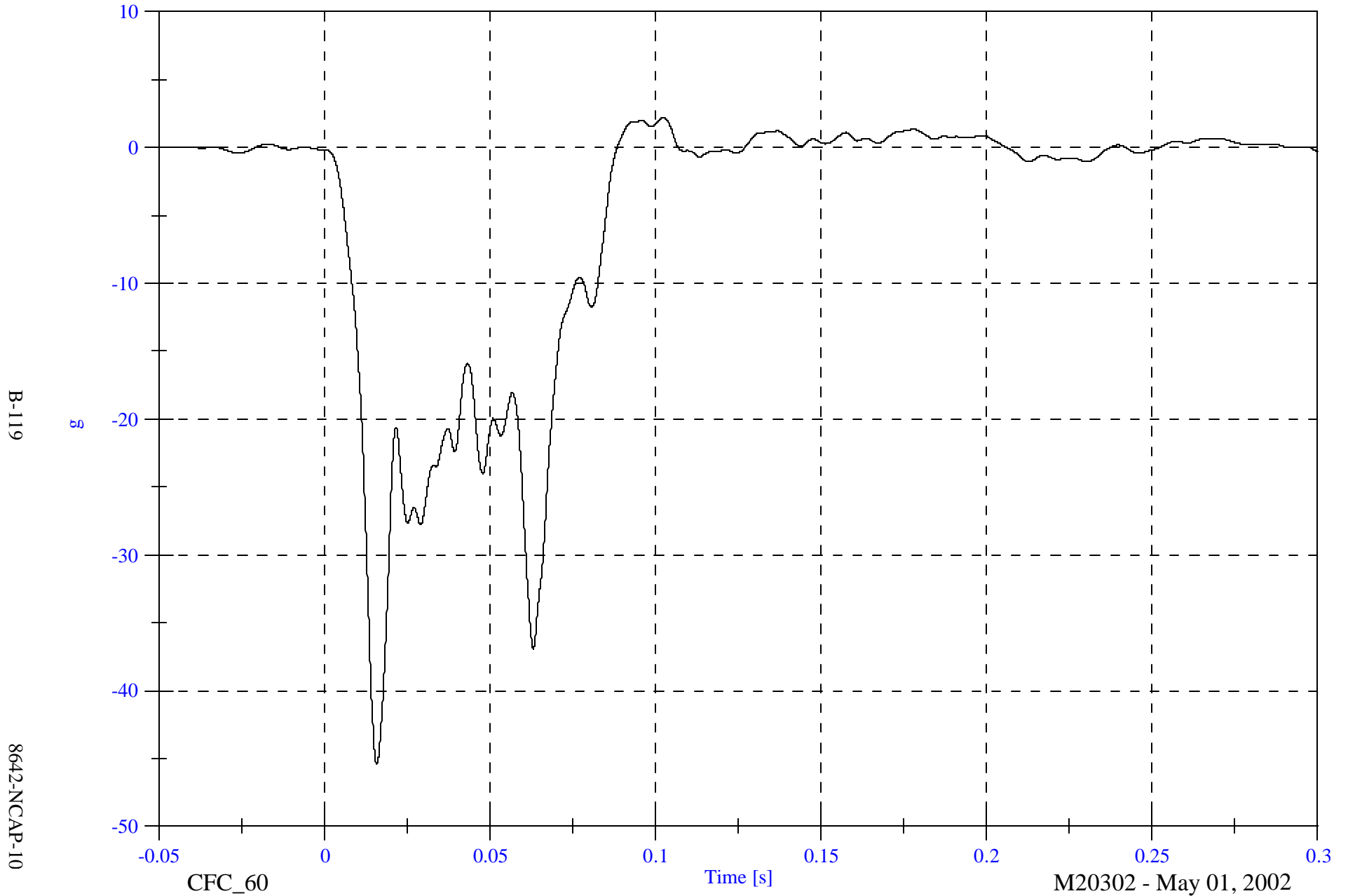
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 2.2 [g] at 0.102 [s]

Right Rear #2x

Min: -45.4 [g] at 0.016 [s]



NCAP Test 10 - 2002 Dodge Ram 1500

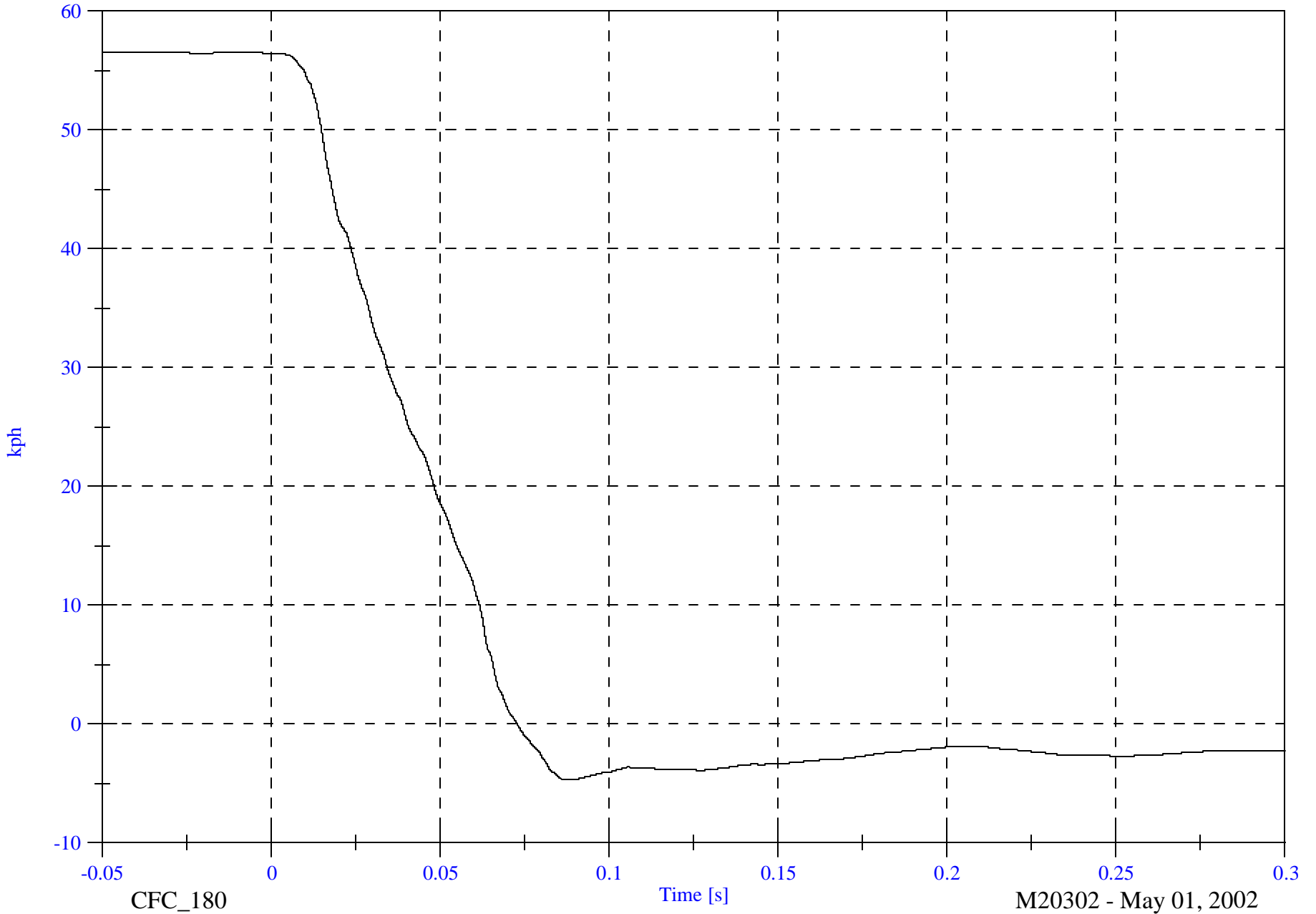
Max: 56.6 [kph] at -0.039 [s]

Right Rear #2x Velocity

Min: -4.6 [kph] at 0.088 [s]

B-120

8642-NCAP-10



CFC_180

Time [s]

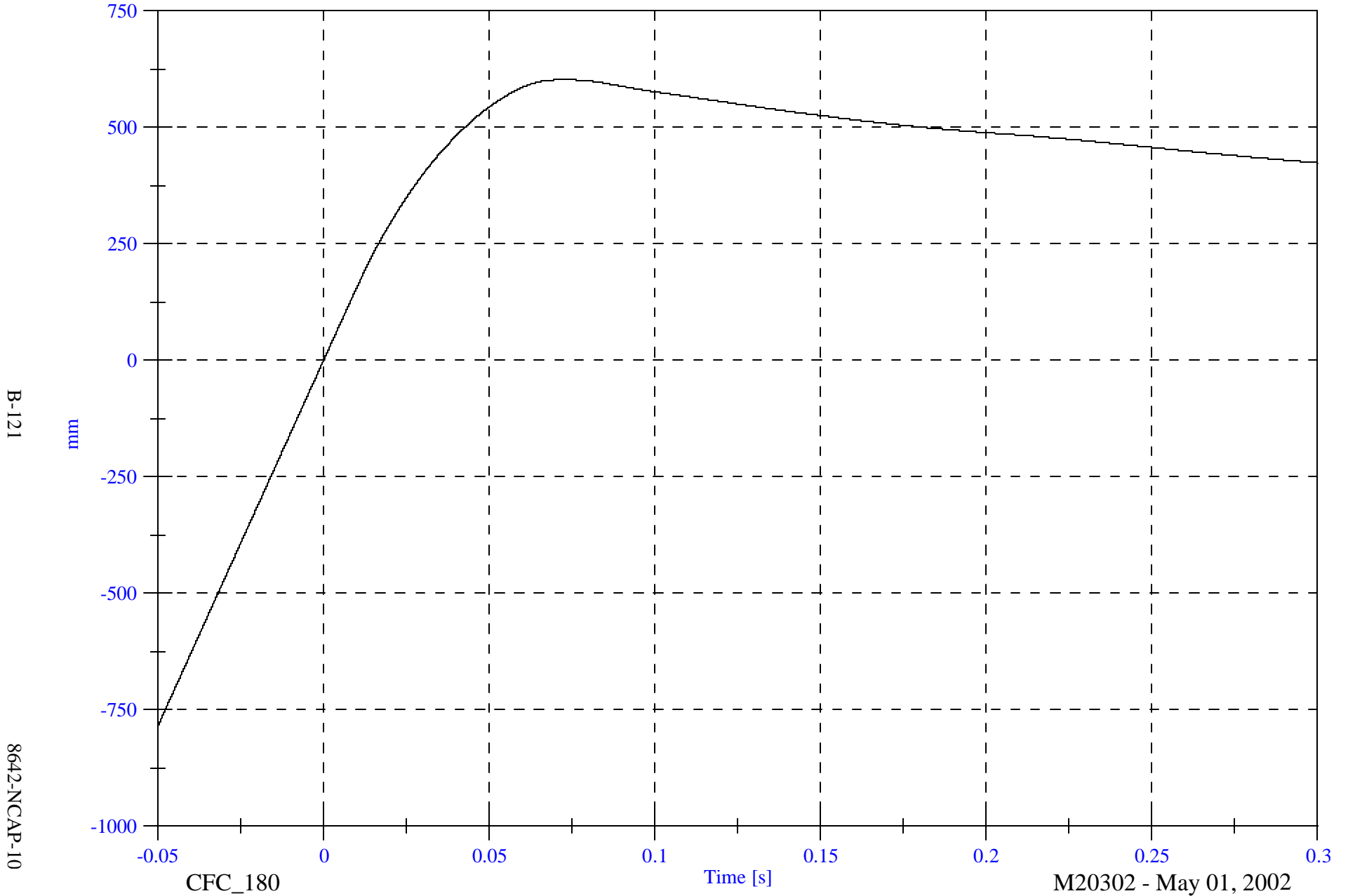
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 602.7 [mm] at 0.073 [s]

Min: -785.0 [mm] at -0.050 [s]

Right Rear #2x Displacement



B-121

8642-NCAP-10

CFC_180

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

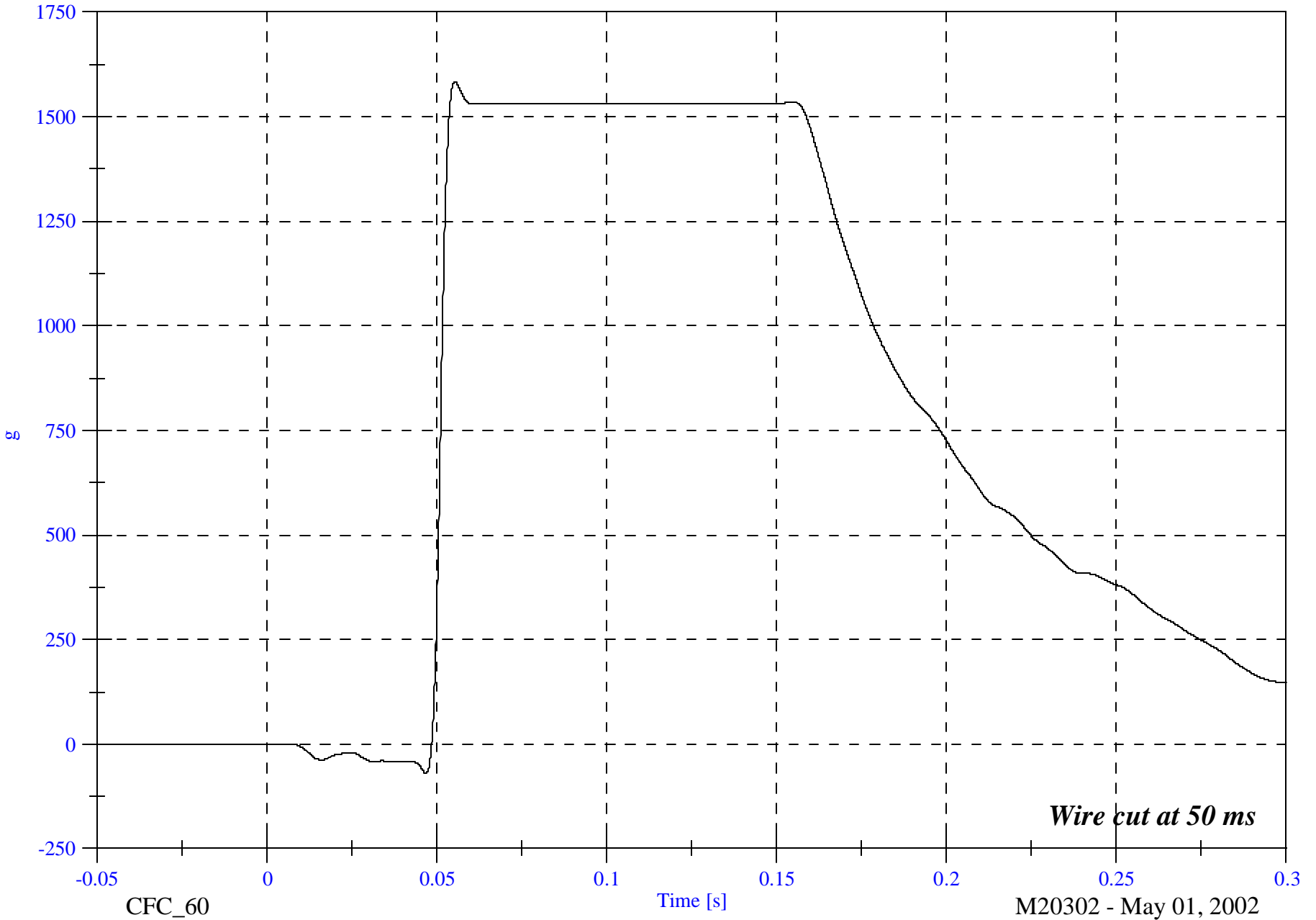
Max: 1584.2 [g] at 0.055 [s]

Engine Top #3x

Min: -70.0 [g] at 0.047 [s]

B-122

8642-NCAP-10



Wire cut at 50 ms

CFC_60

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

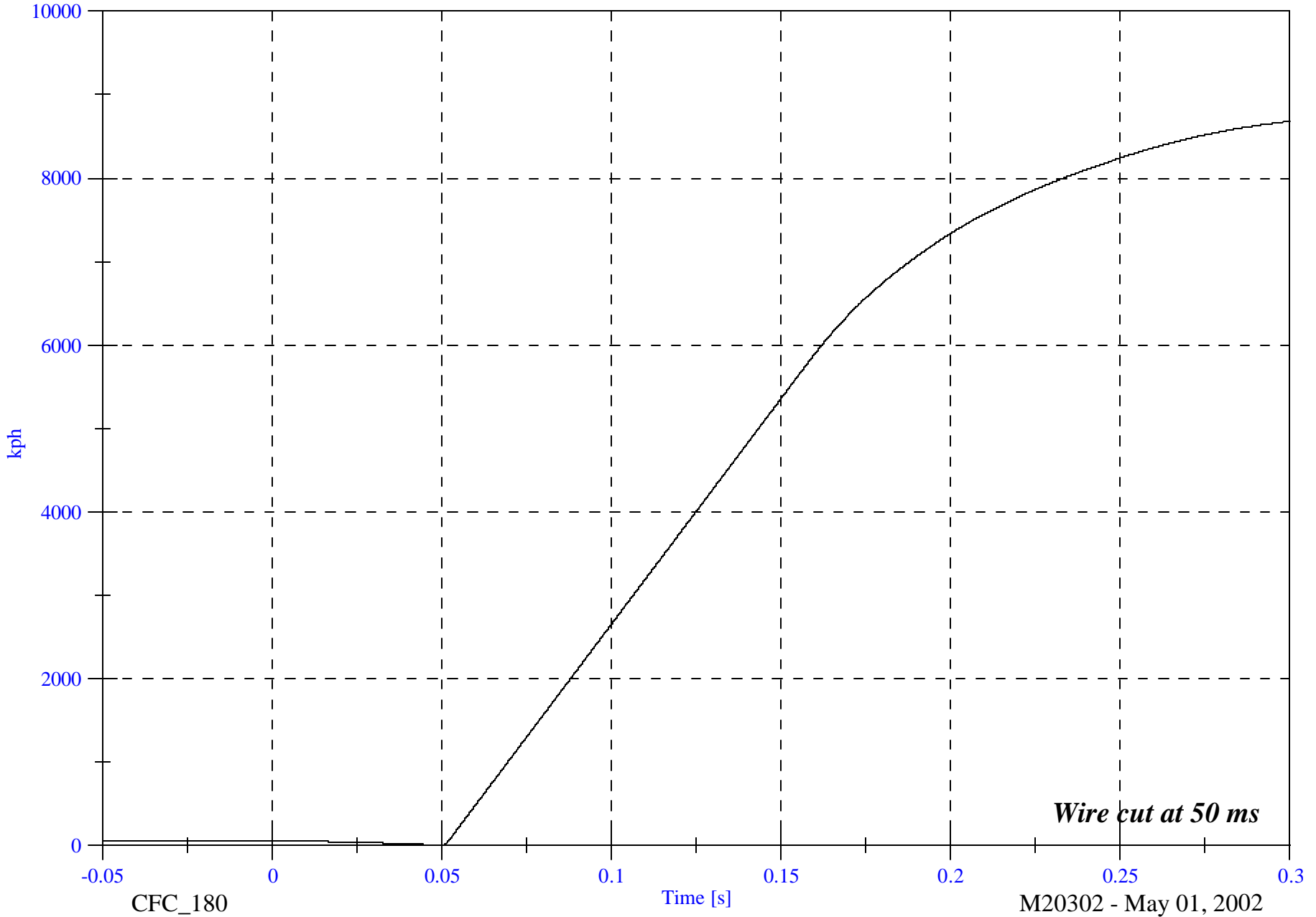
Max: 8683.0 [kph] at 0.300 [s]

Engine Top #3x Velocity

Min: 9.3 [kph] at 0.050 [s]

B-123

8642-NCAP-10



Wire cut at 50 ms

CFC_180

Time [s]

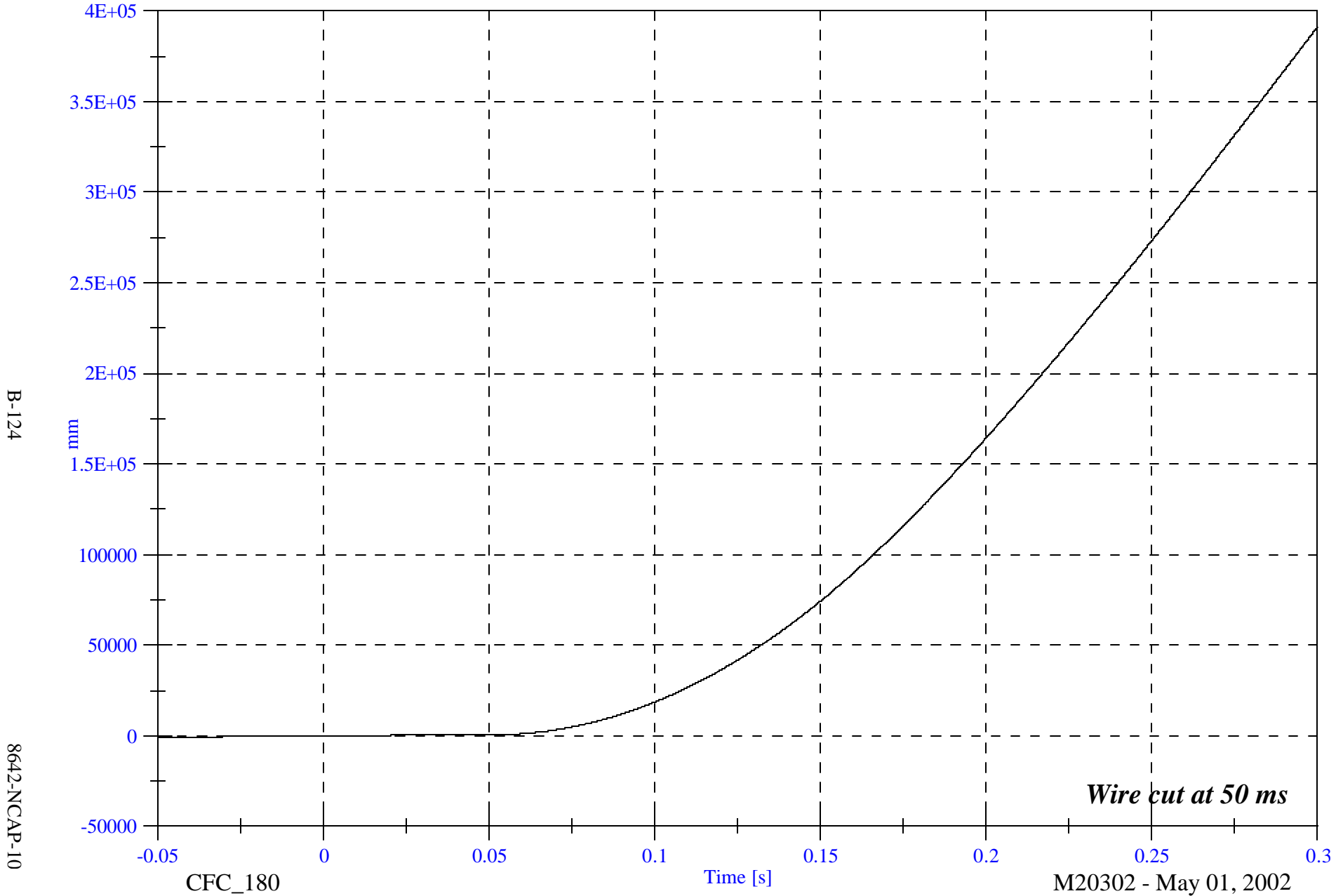
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 391260.9 [mm] at 0.300 [s]

Engine Top #3x Displacement

Min: -784.4 [mm] at -0.050 [s]



B-124

8642-NCAP-10

CFC_180

Time [s]

M20302 - May 01, 2002

Wire cut at 50 ms

NCAP Test 10 - 2002 Dodge Ram 1500

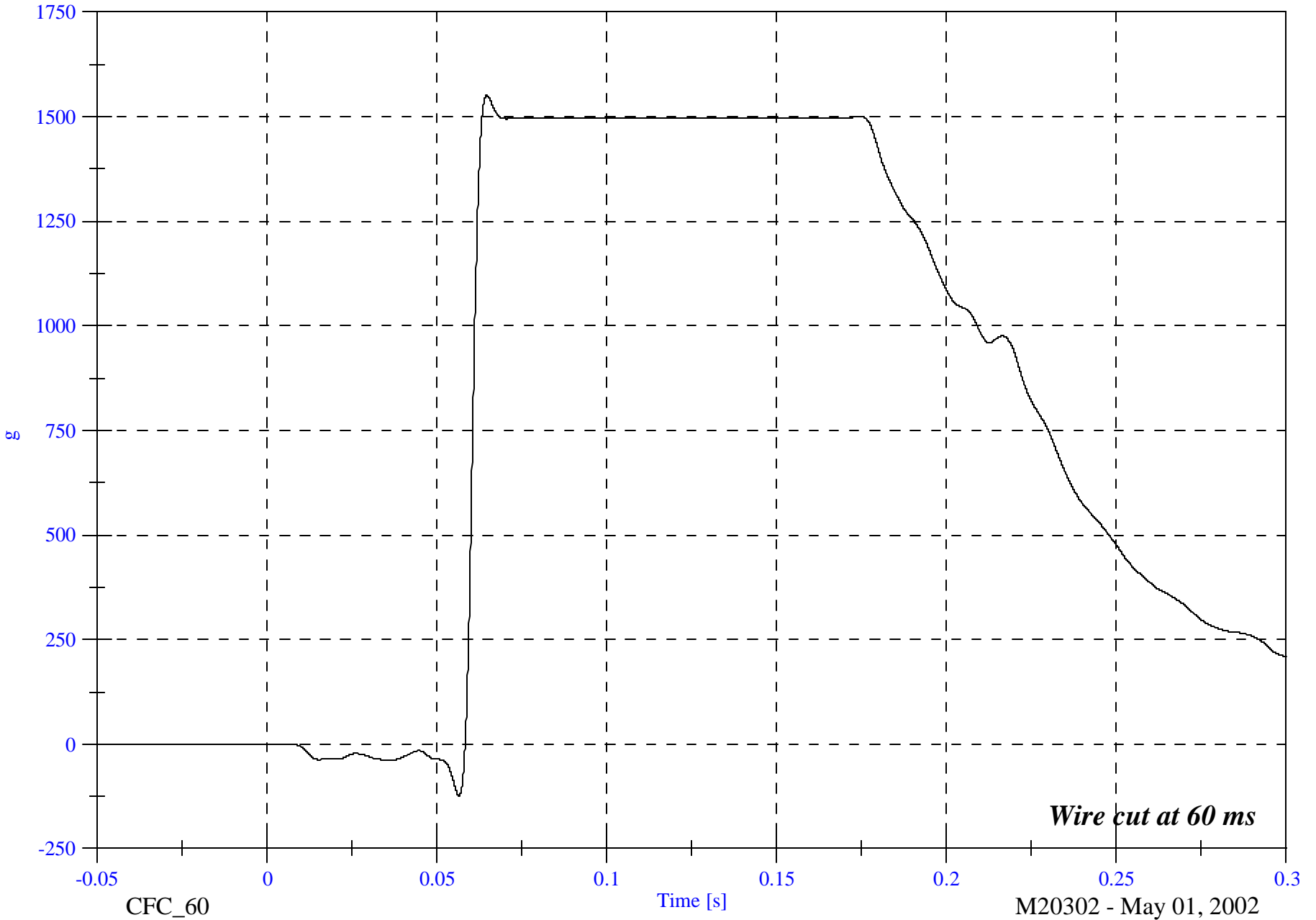
Engine Bottom #4x

Max: 1550.6 [g] at 0.065 [s]

Min: -123.3 [g] at 0.057 [s]

B-125

8642-NCAP-10



Wire cut at 60 ms

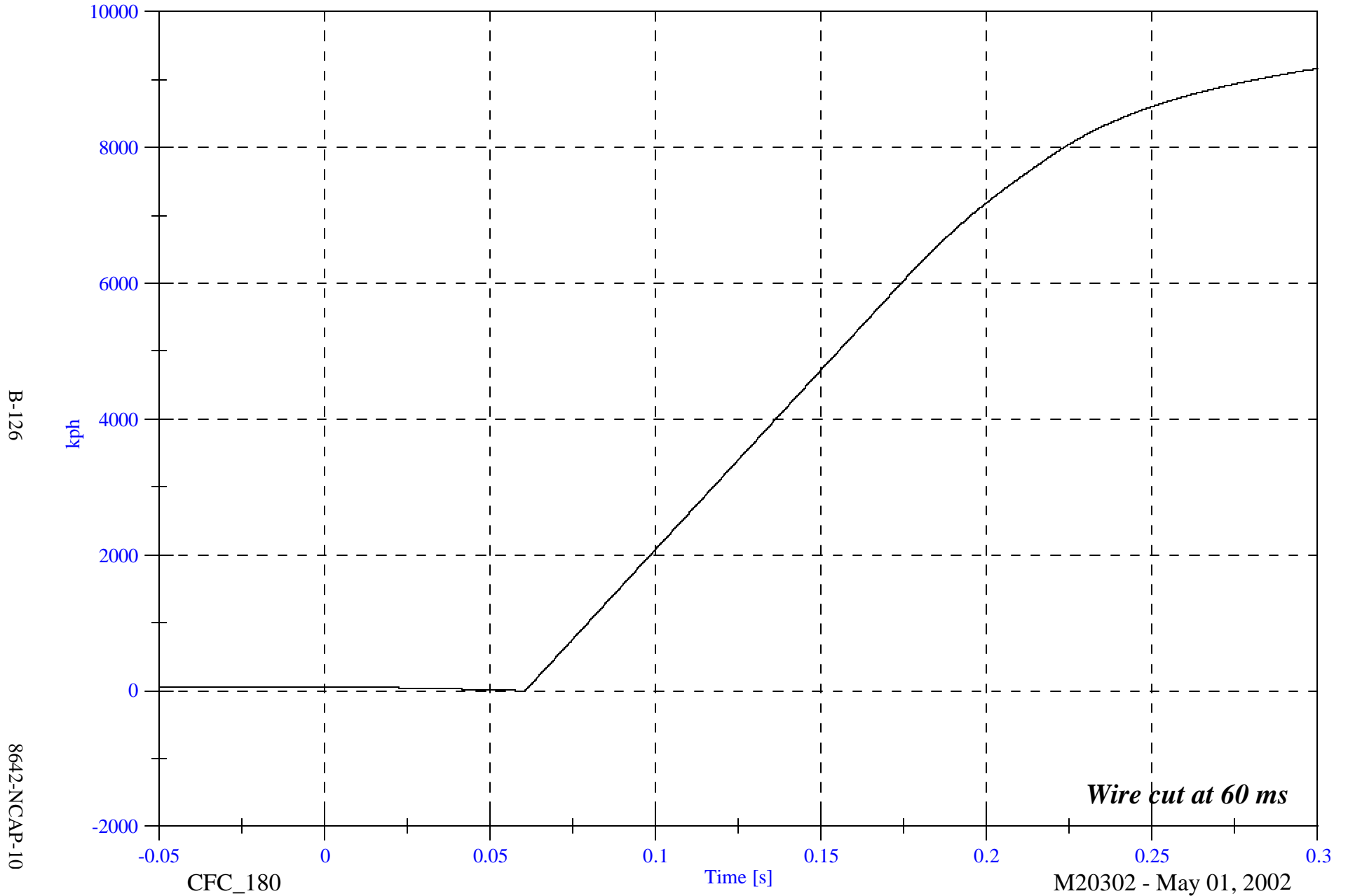
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 9160.6 [kph] at 0.300 [s]

Engine Bottom #4x Velocity

Min: -8.3 [kph] at 0.060 [s]



B-126

8642-NCAP-10

CFC_180

Time [s]

M20302 - May 01, 2002

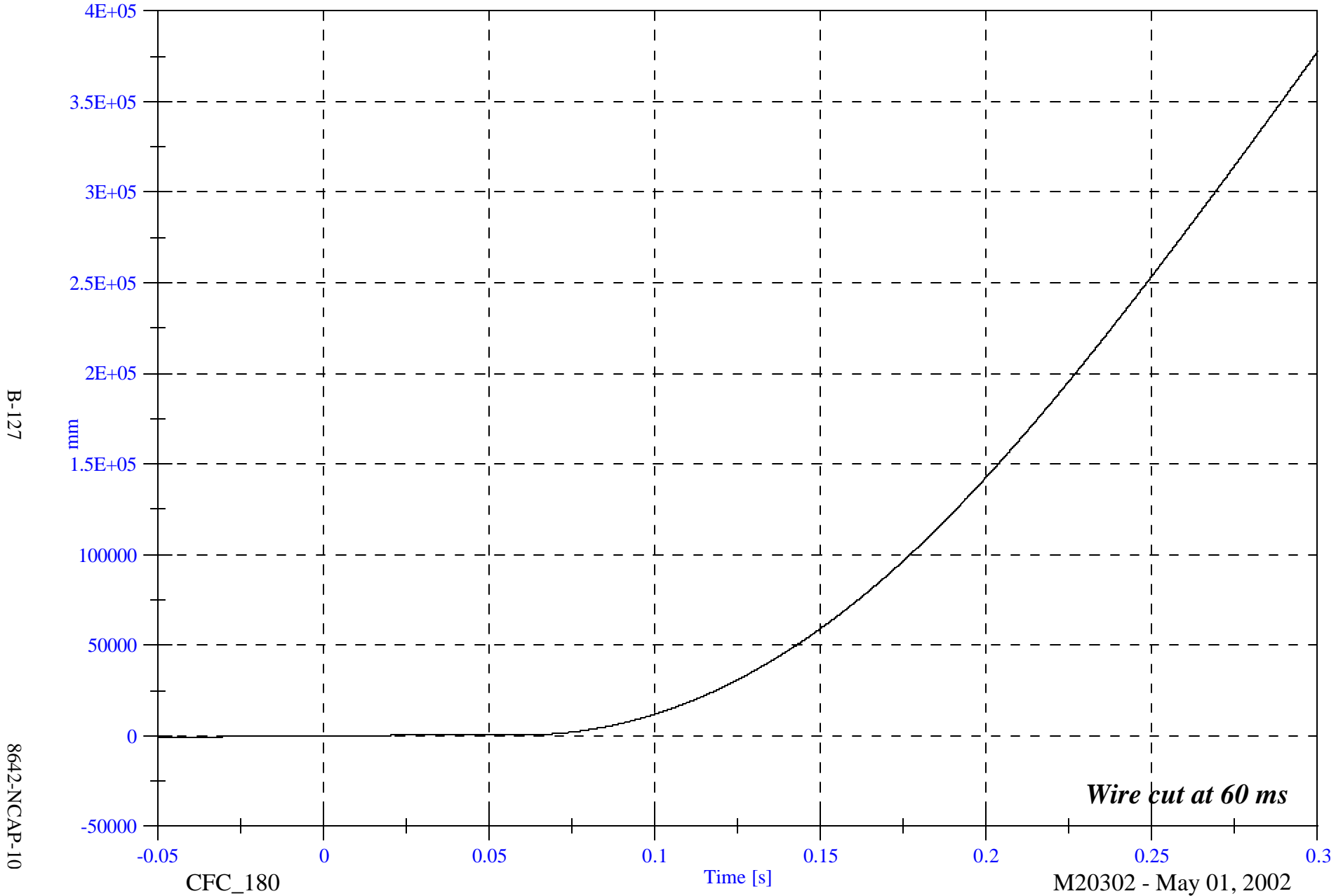
Wire cut at 60 ms

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 377448.9 [mm] at 0.300 [s]

Engine Bottom #4x Displacement

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



B-127

8642-NCAP-10

CFC_180

Time [s]

M20302 - May 01, 2002

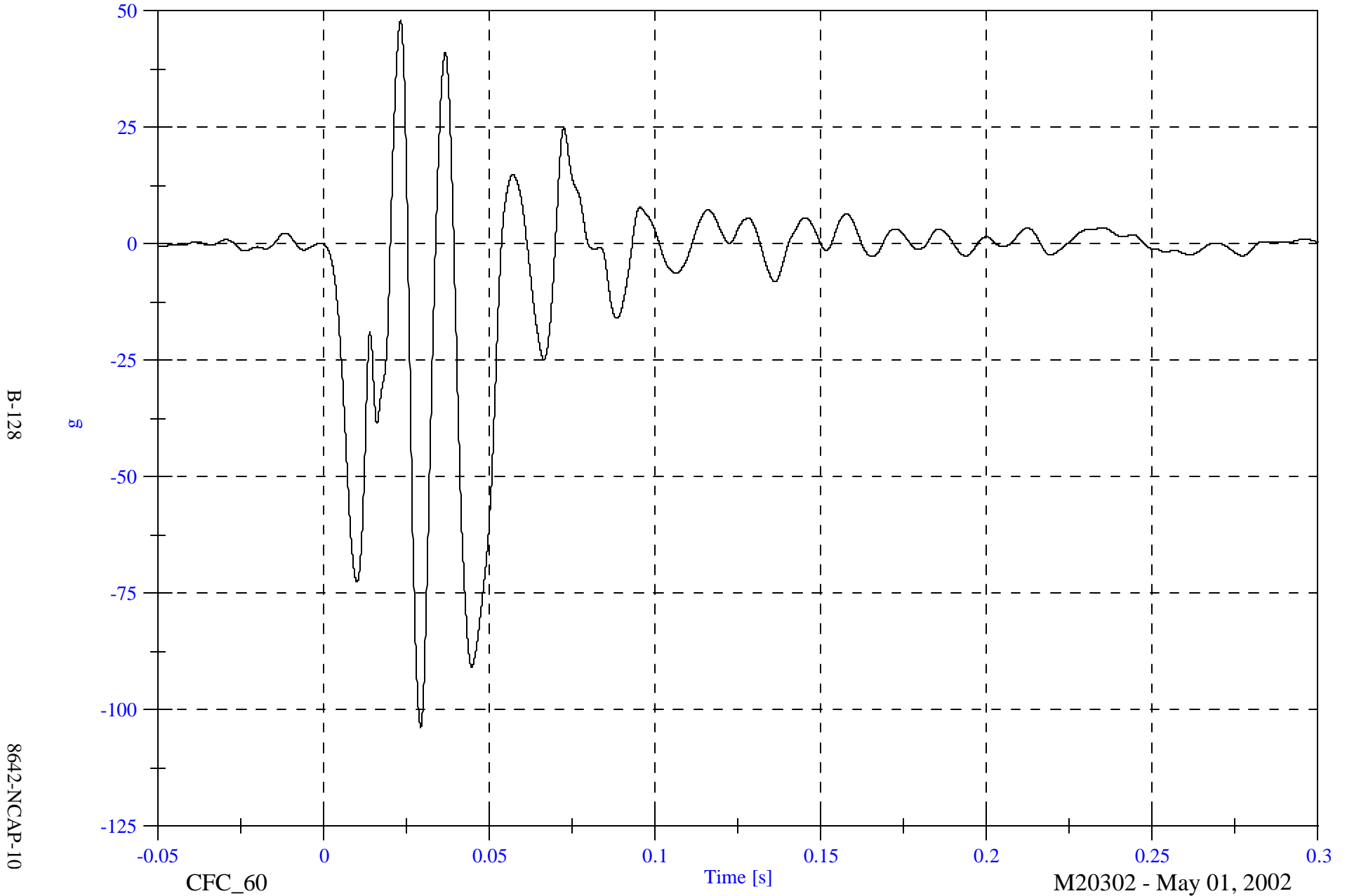
Wire cut at 60 ms

NCAP Test 10 - 2002 Dodge Ram 1500

Right Caliper #5x

Max: 47.9 [g] at 0.023 [s]

Min: -103.7 [g] at 0.029 [s]



NCAP Test 10 - 2002 Dodge Ram 1500

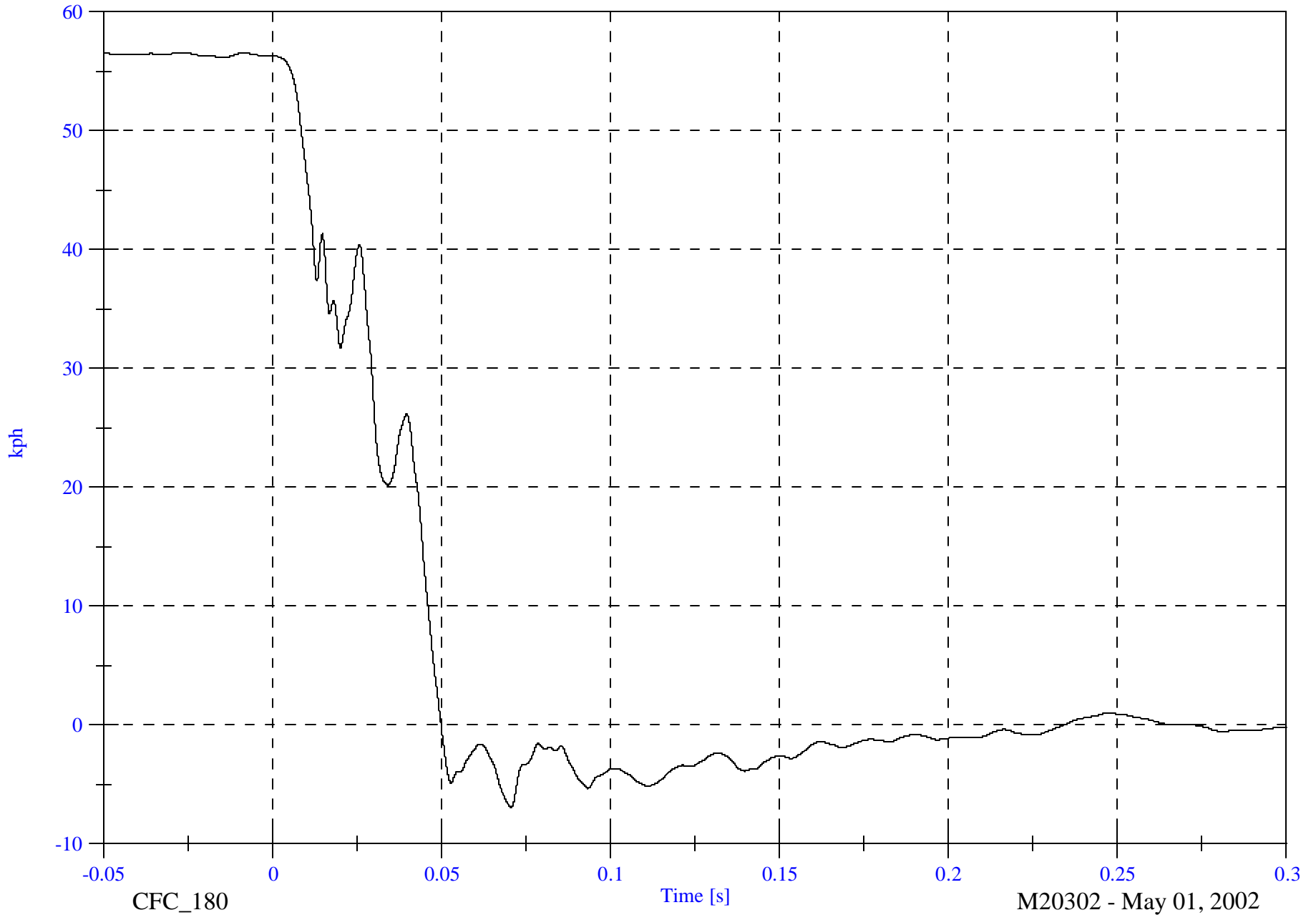
Max: 56.6 [kph] at -0.027 [s]

Right Caliper #5x Velocity

Min: -6.9 [kph] at 0.071 [s]

B-129

8642-NCAP-10



CFC_180

Time [s]

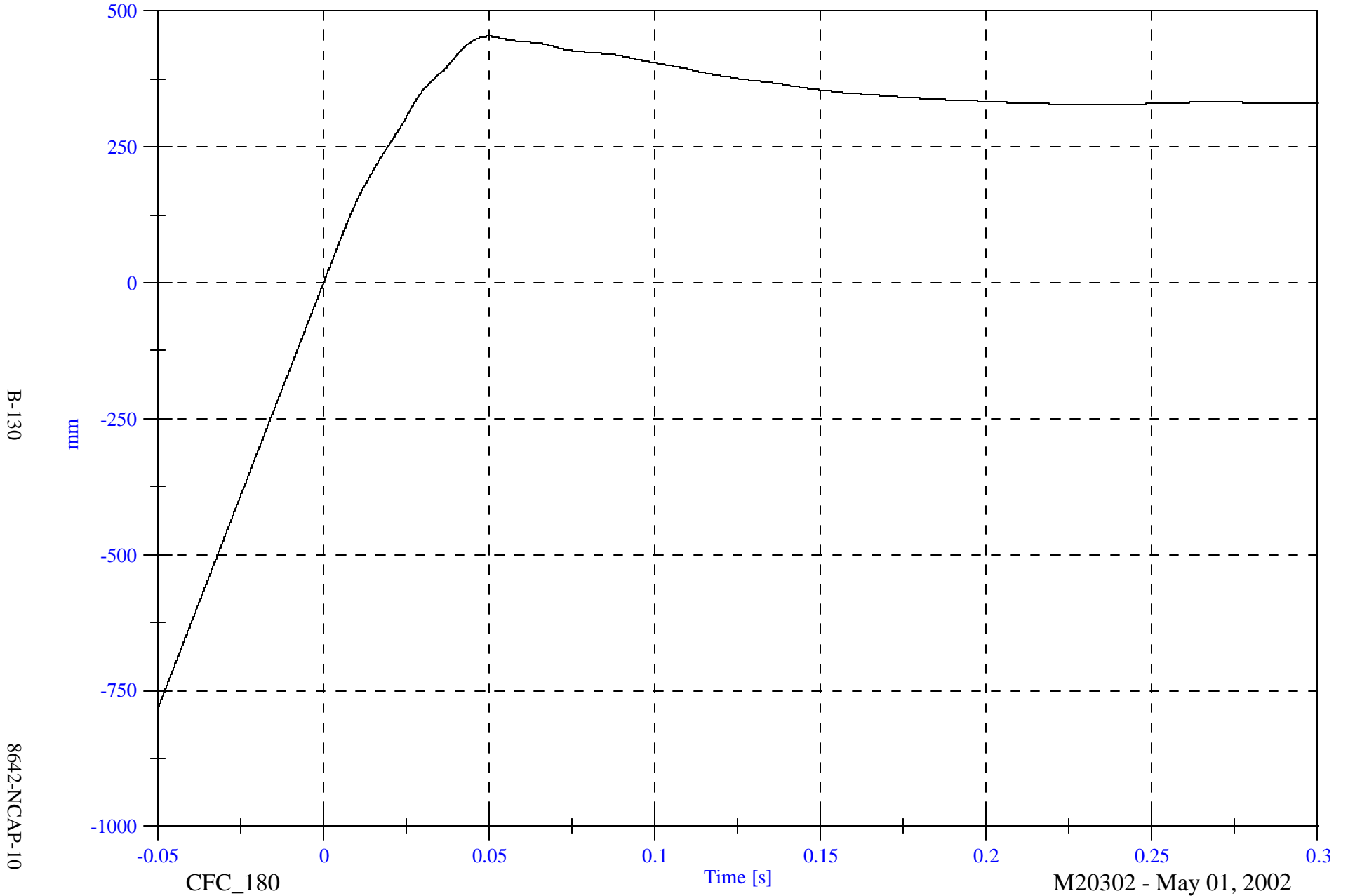
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 453.2 [mm] at 0.050 [s]

Right Caliper #5x Displacement

Min: -783.5 [mm] at -0.050 [s]



B-130

8642-NCAP-10

CFC_180

Time [s]

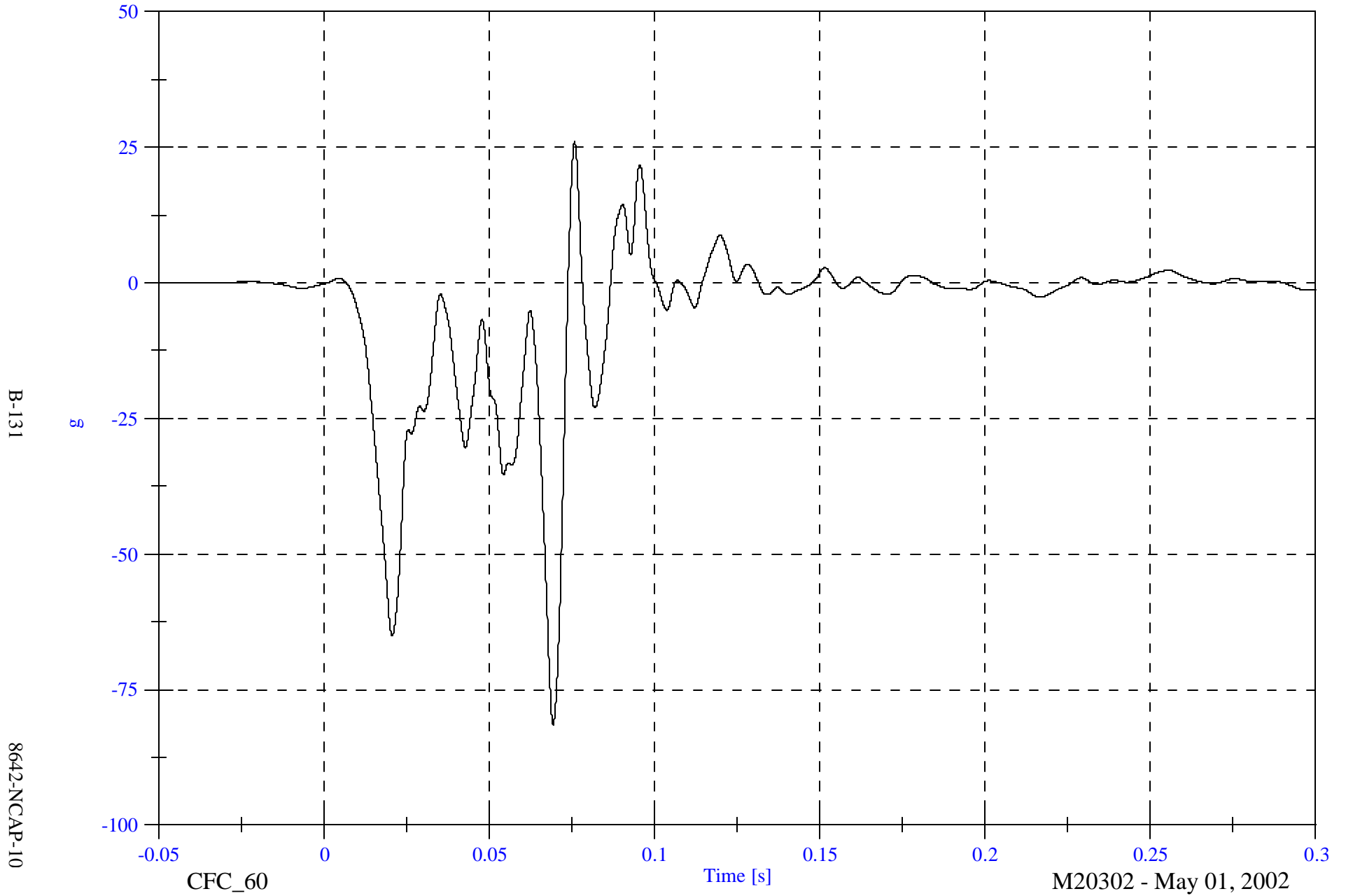
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 26.0 [g] at 0.076 [s]

Instrument Panel #6x

Min: -81.5 [g] at 0.069 [s]



NCAP Test 10 - 2002 Dodge Ram 1500

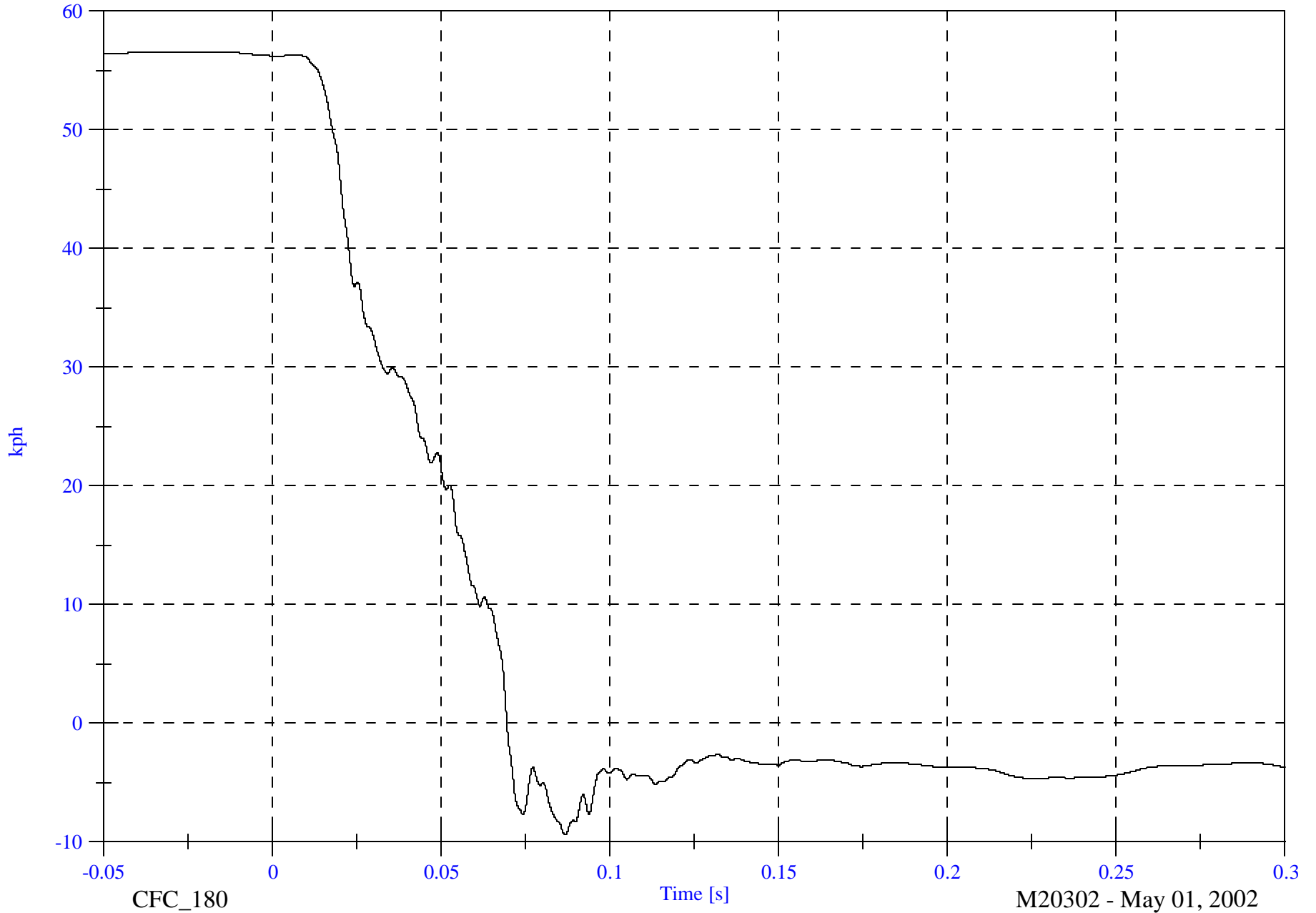
Instrument Panel #6x Velocity

Max: 56.6 [kph] at -0.019 [s]

Min: -9.4 [kph] at 0.087 [s]

B-132

8642-NCAP-10



CFC_180

Time [s]

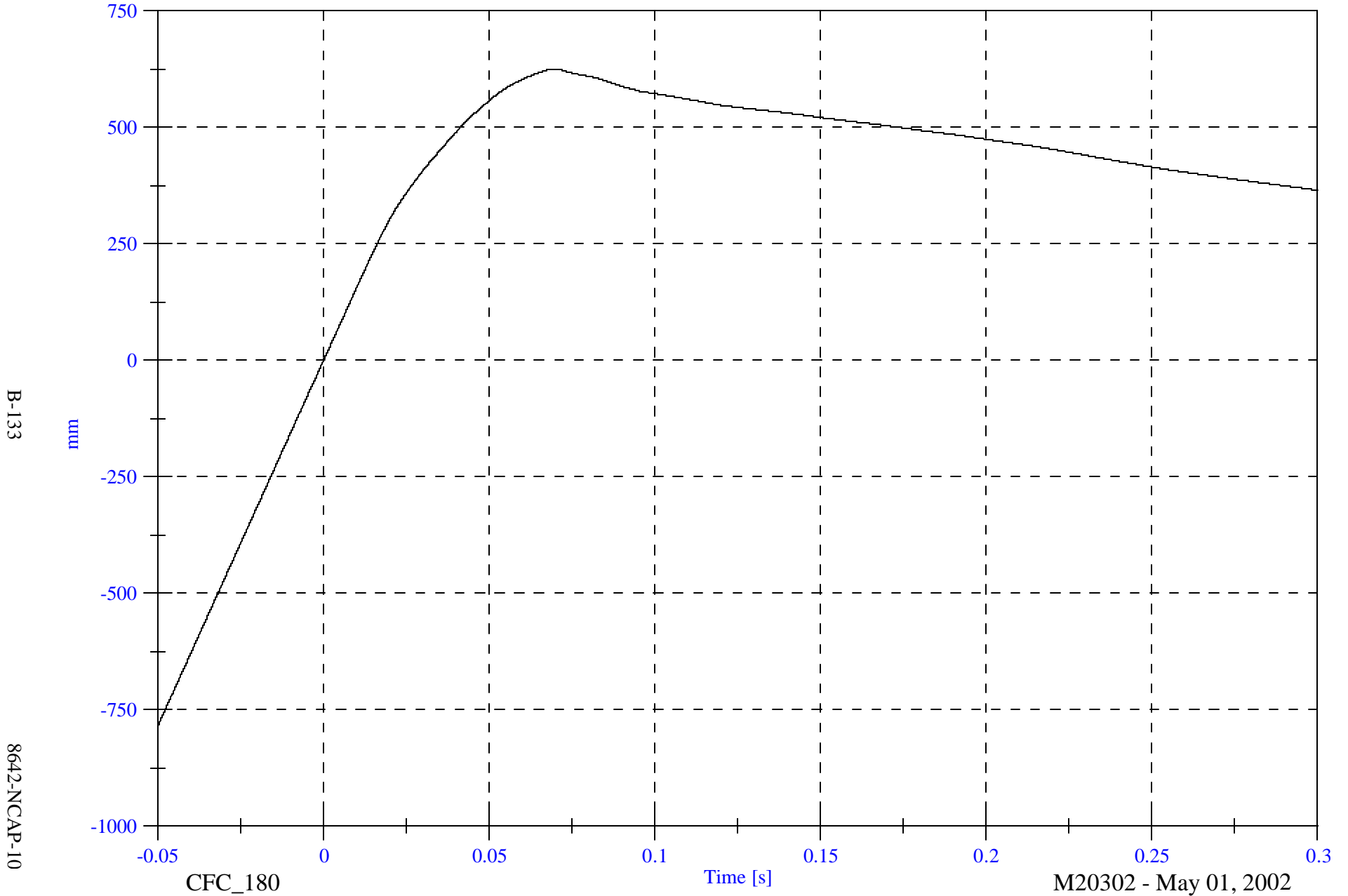
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 624.9 [mm] at 0.069 [s]

Instrument Panel #6x Displacement

Min: -784.4 [mm] at -0.050 [s]



B-133

8642-NCAP-10

CFC_180

Time [s]

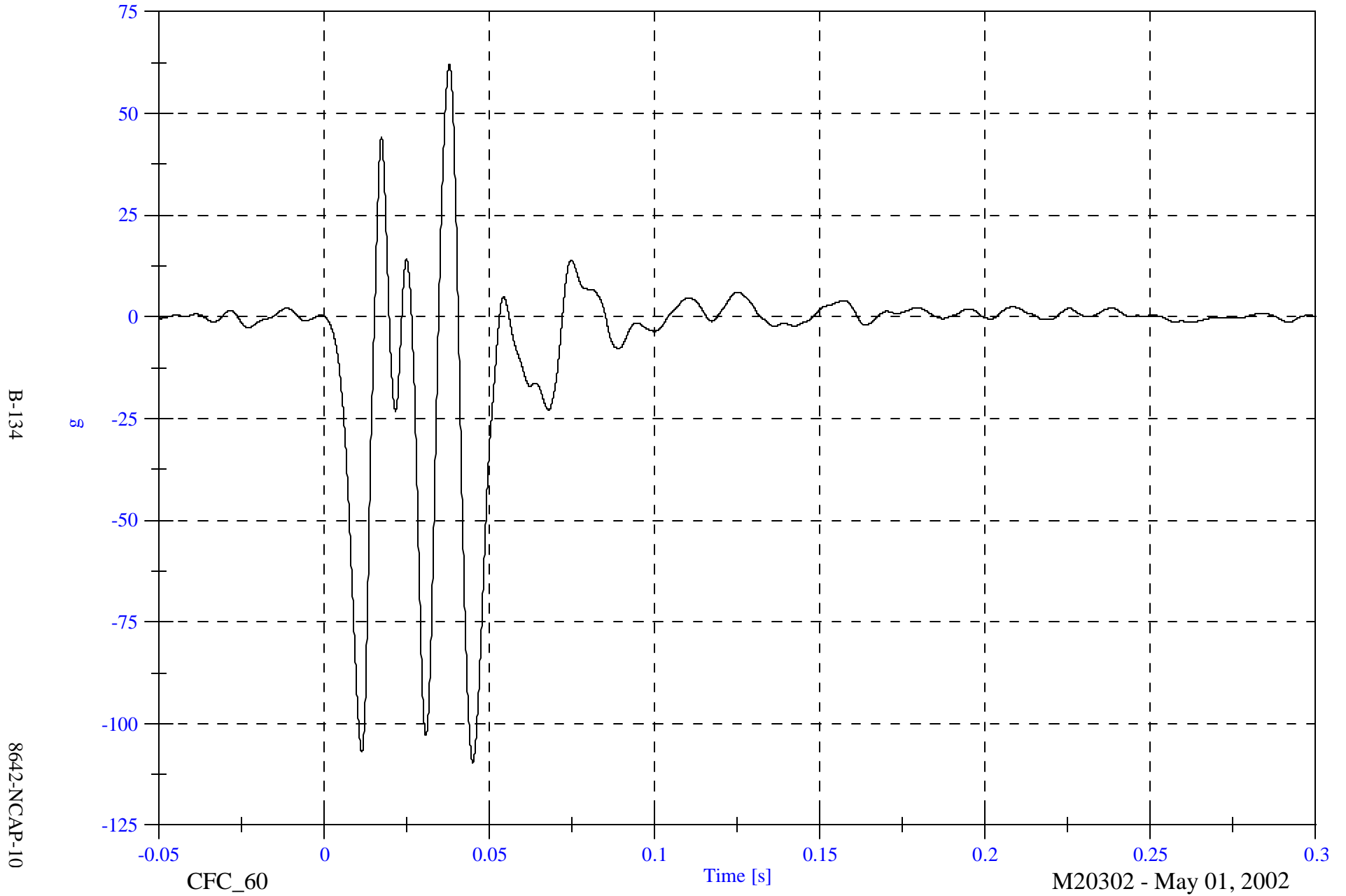
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Left Caliper #7x

Max: 62.0 [g] at 0.038 [s]

Min: -109.6 [g] at 0.045 [s]



B-134

8642-NCAP-10

CFC_60

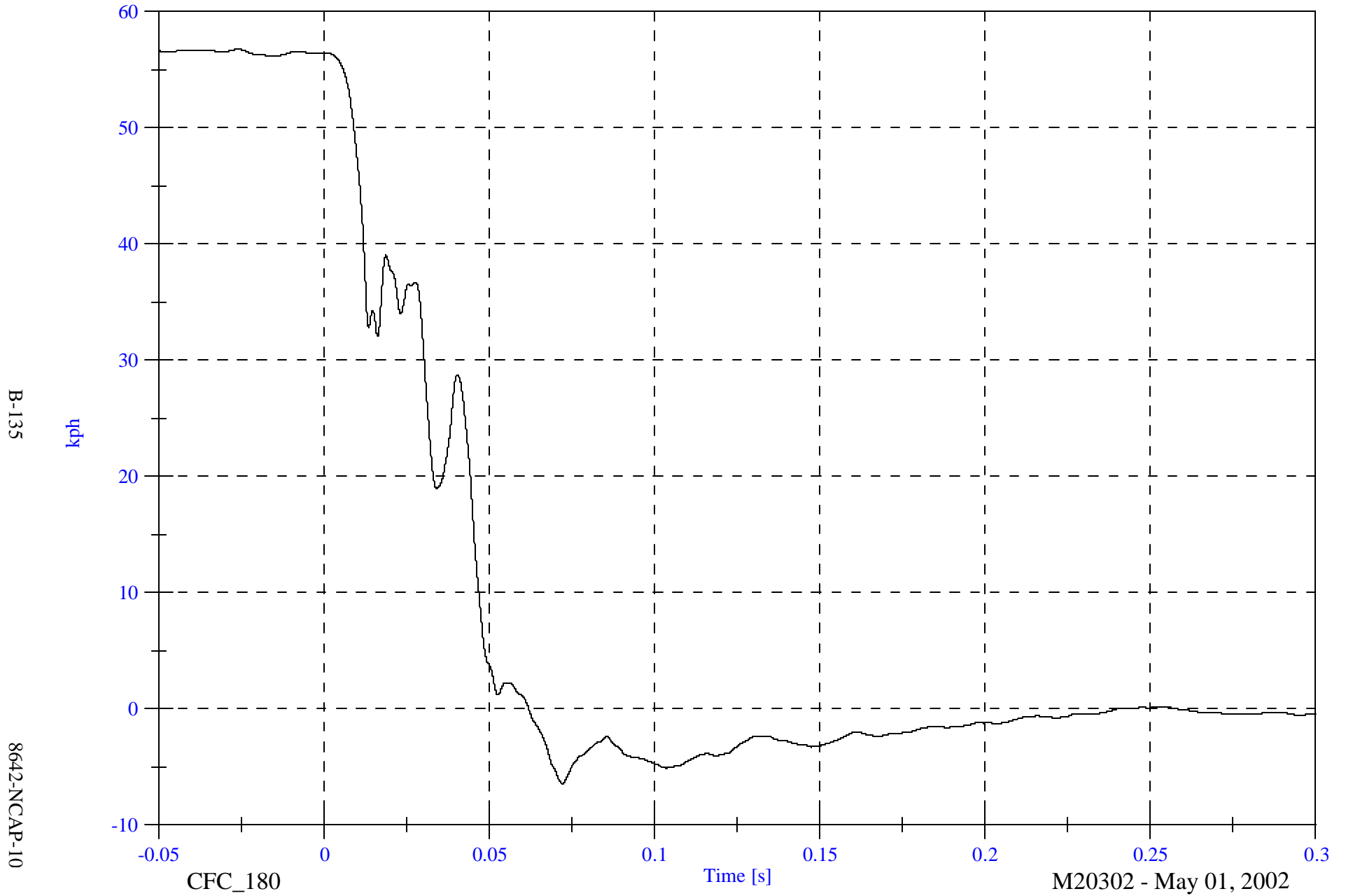
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 56.8 [kph] at -0.026 [s]

Left Caliper #7x Velocity

Min: -6.4 [kph] at 0.072 [s]



B-135

8642-NCAP-10

CFC_180

Time [s]

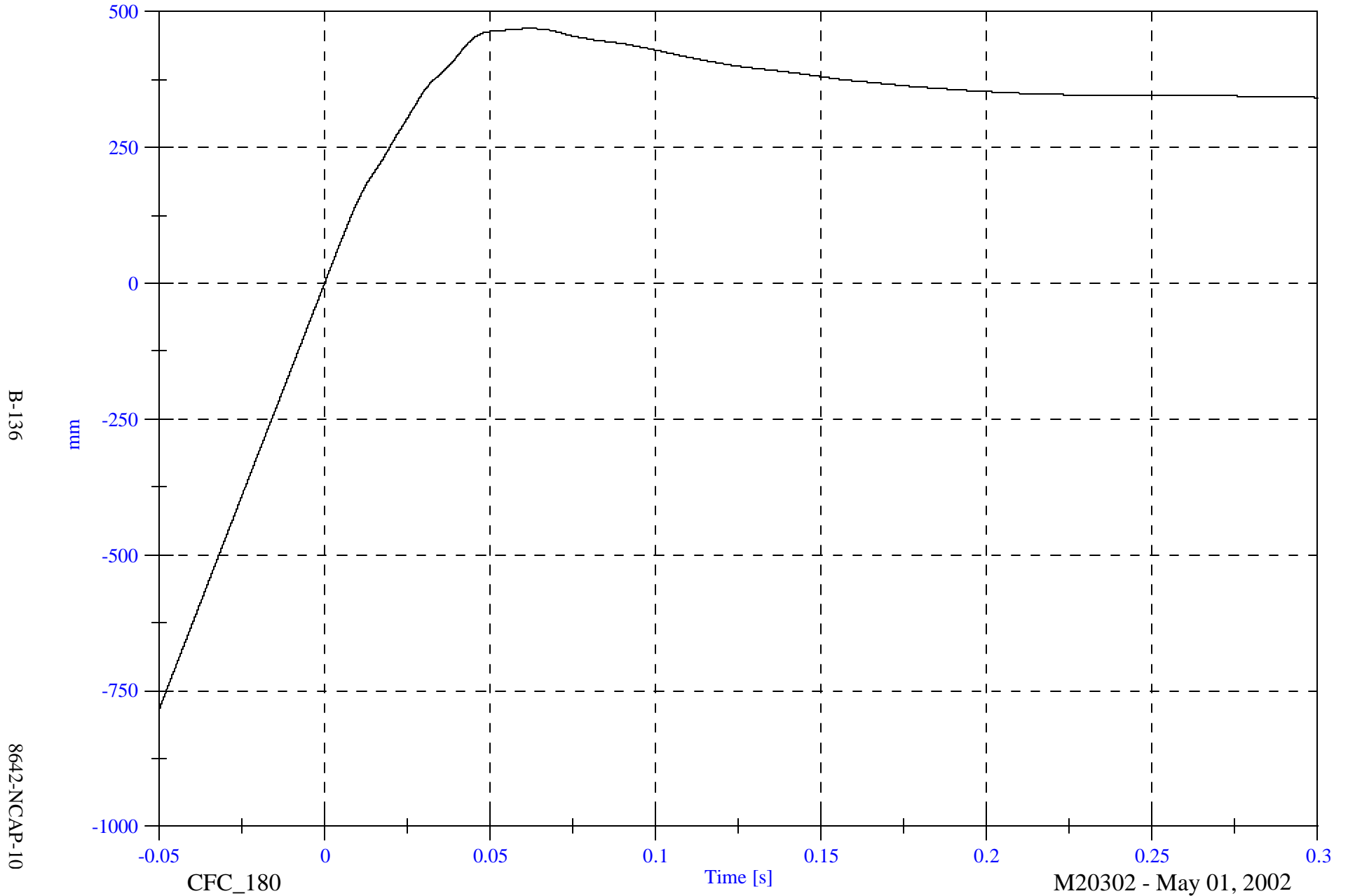
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Left Caliper #7x Displacement

Max: 469.1 [mm] at 0.062 [s]

Min: -784.9 [mm] at -0.050 [s]



B-136

8642-NCAP-10

CFC_180

Time [s]

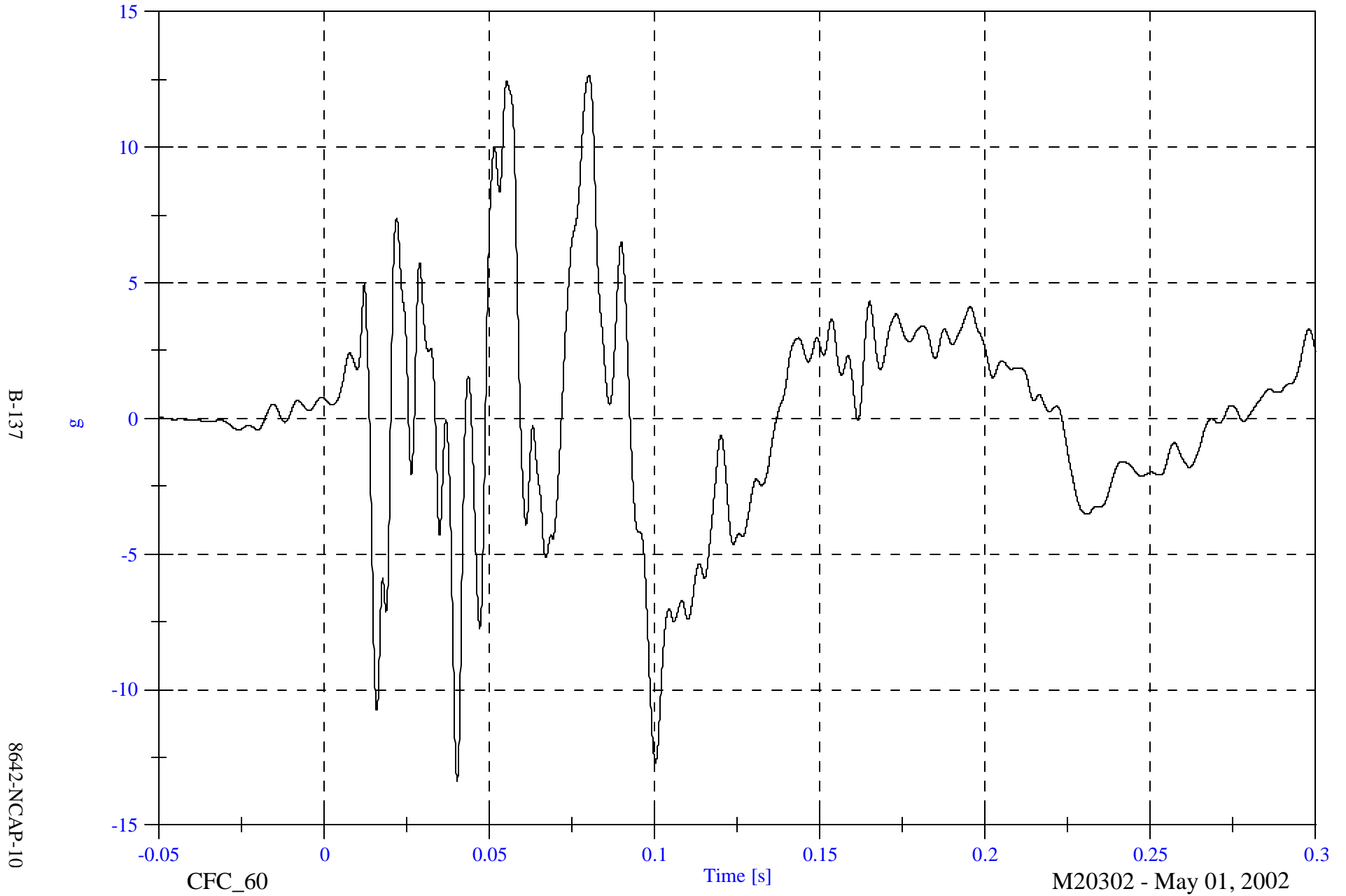
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 12.7 [g] at 0.080 [s]

Left Rear #8z

Min: -13.4 [g] at 0.040 [s]



NCAP Test 10 - 2002 Dodge Ram 1500

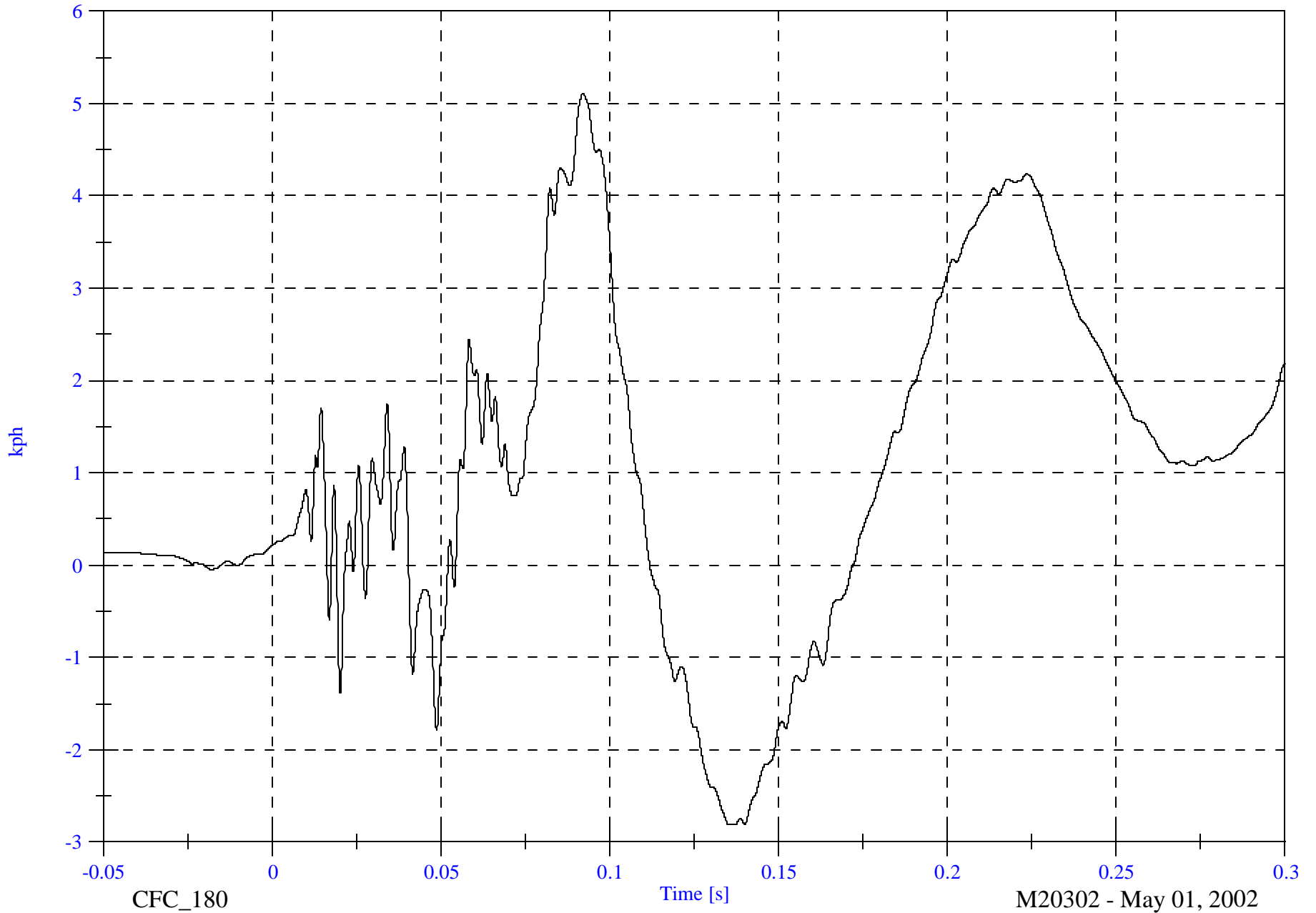
Max: 5.1 [kph] at 0.092 [s]

Left Rear #8z Velocity

Min: -2.8 [kph] at 0.135 [s]

B-138

8642-NCAP-10



CFC_180

Time [s]

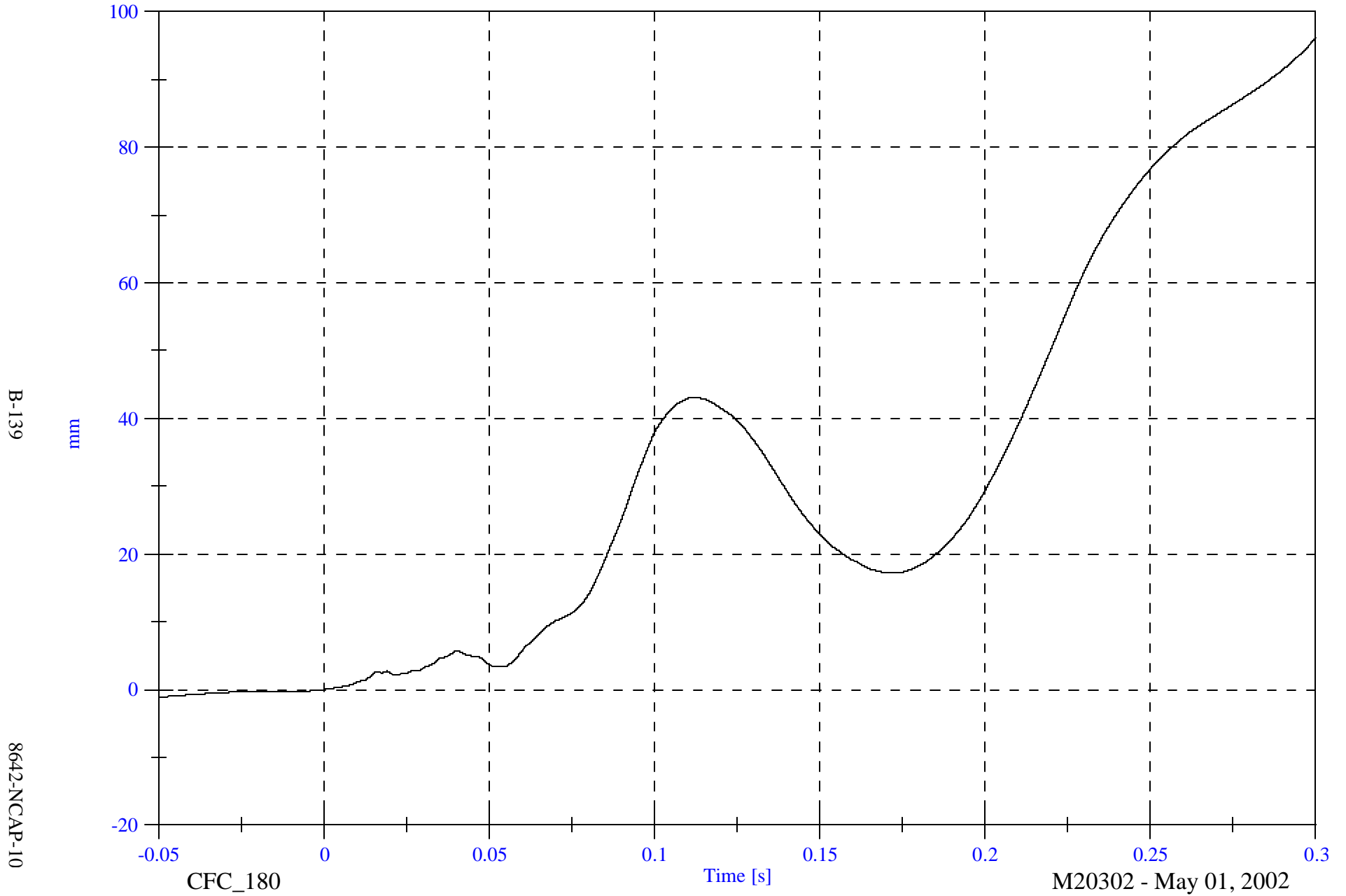
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Left Rear #8z Displacement

Max: 96.2 [mm] at 0.300 [s]

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



B-139

8642-NCAP-10

CFC_180

Time [s]

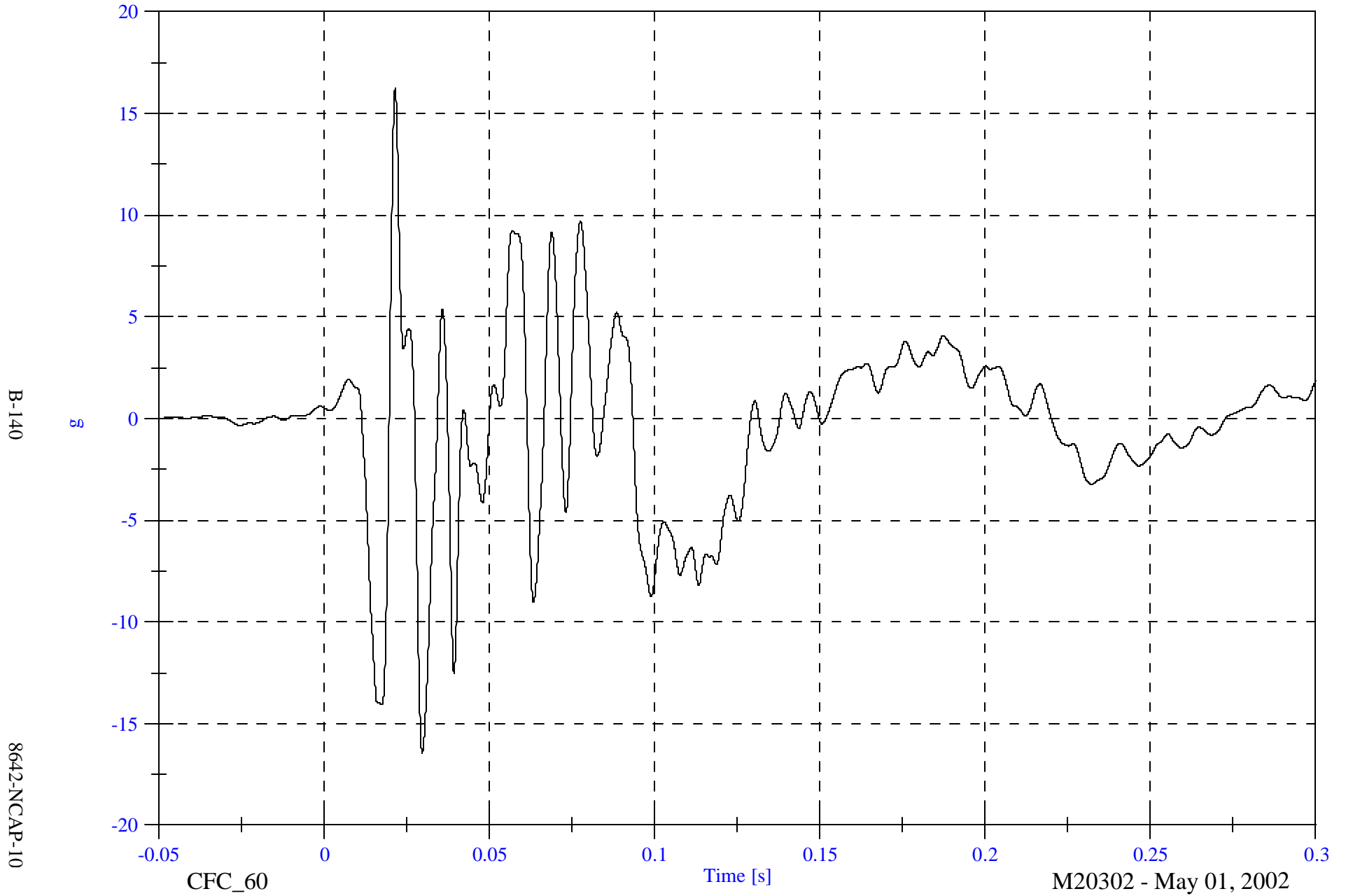
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Right Rear #9z

Max: 16.3 [g] at 0.022 [s]

Min: -16.4 [g] at 0.030 [s]

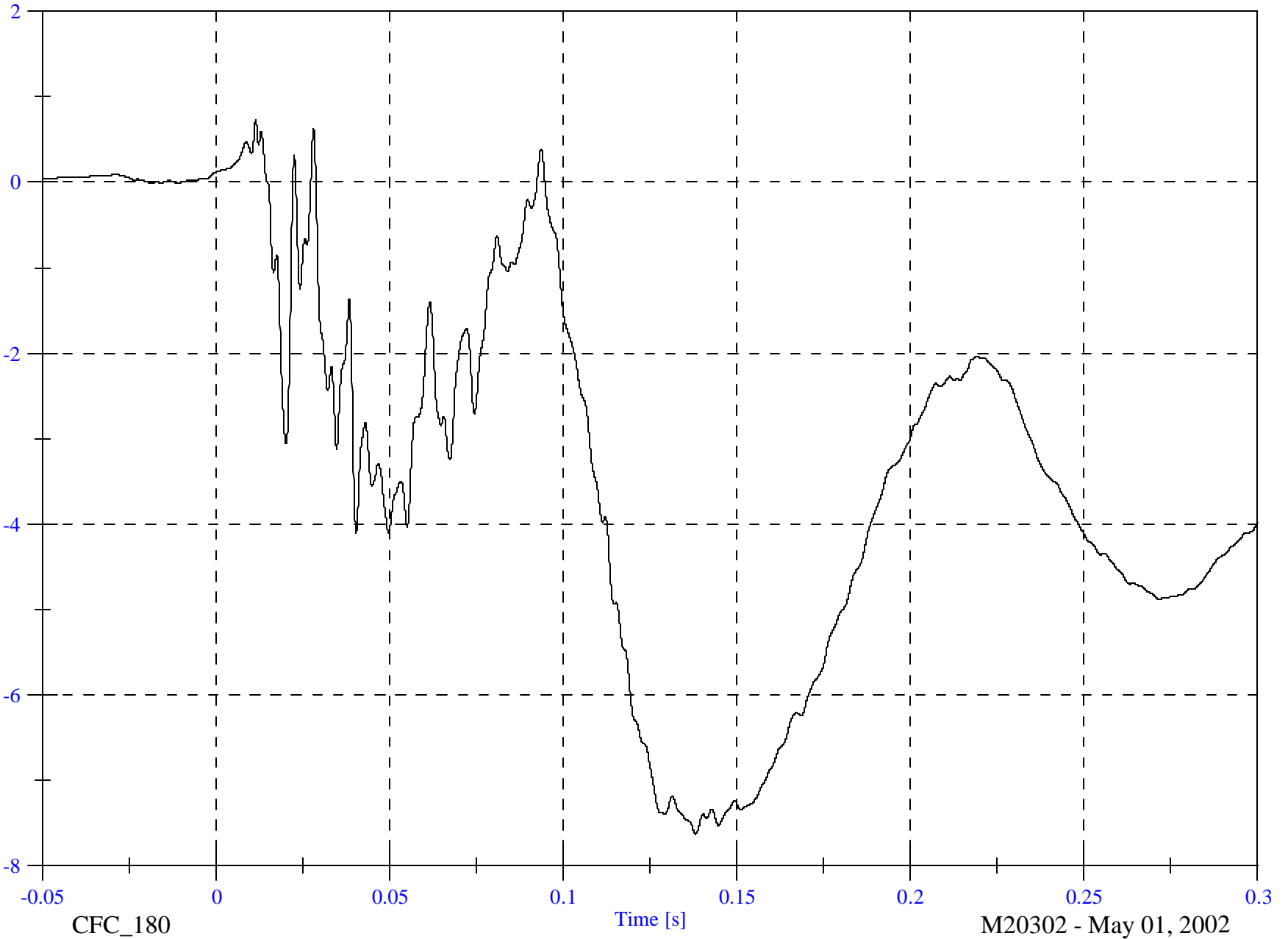


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 0.7 [kph] at 0.011 [s]

Right Rear #9z Velocity

Min: -7.6 [kph] at 0.138 [s]



B-141

8642-NCAP-10

CFC_180

Time [s]

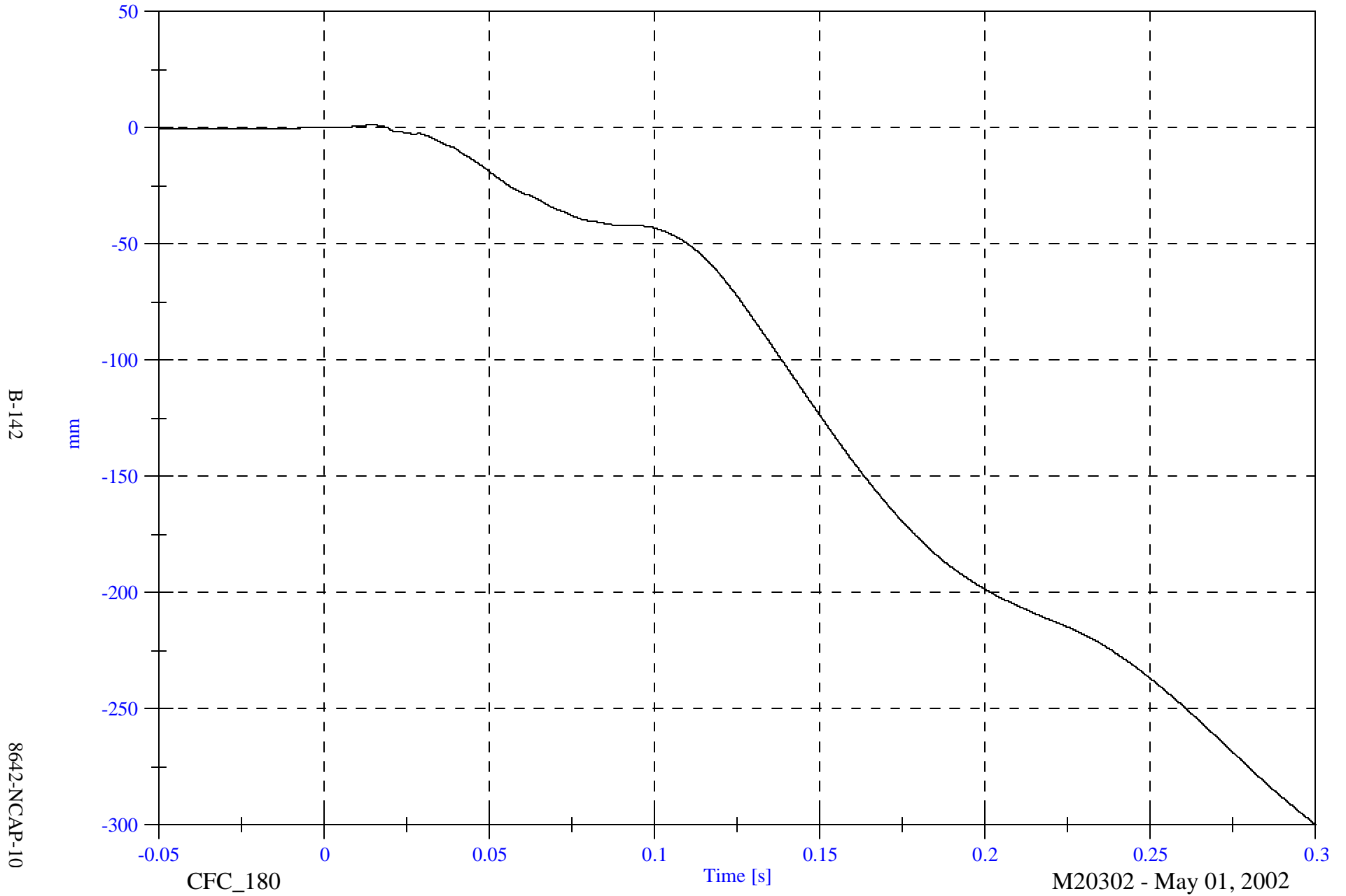
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Right Rear #9z Displacement

Max: 1.3 [mm] at 0.015 [s]

Min: -299.8 [mm] at 0.300 [s]



B-142

8642-NCAP-10

CFC_180

Time [s]

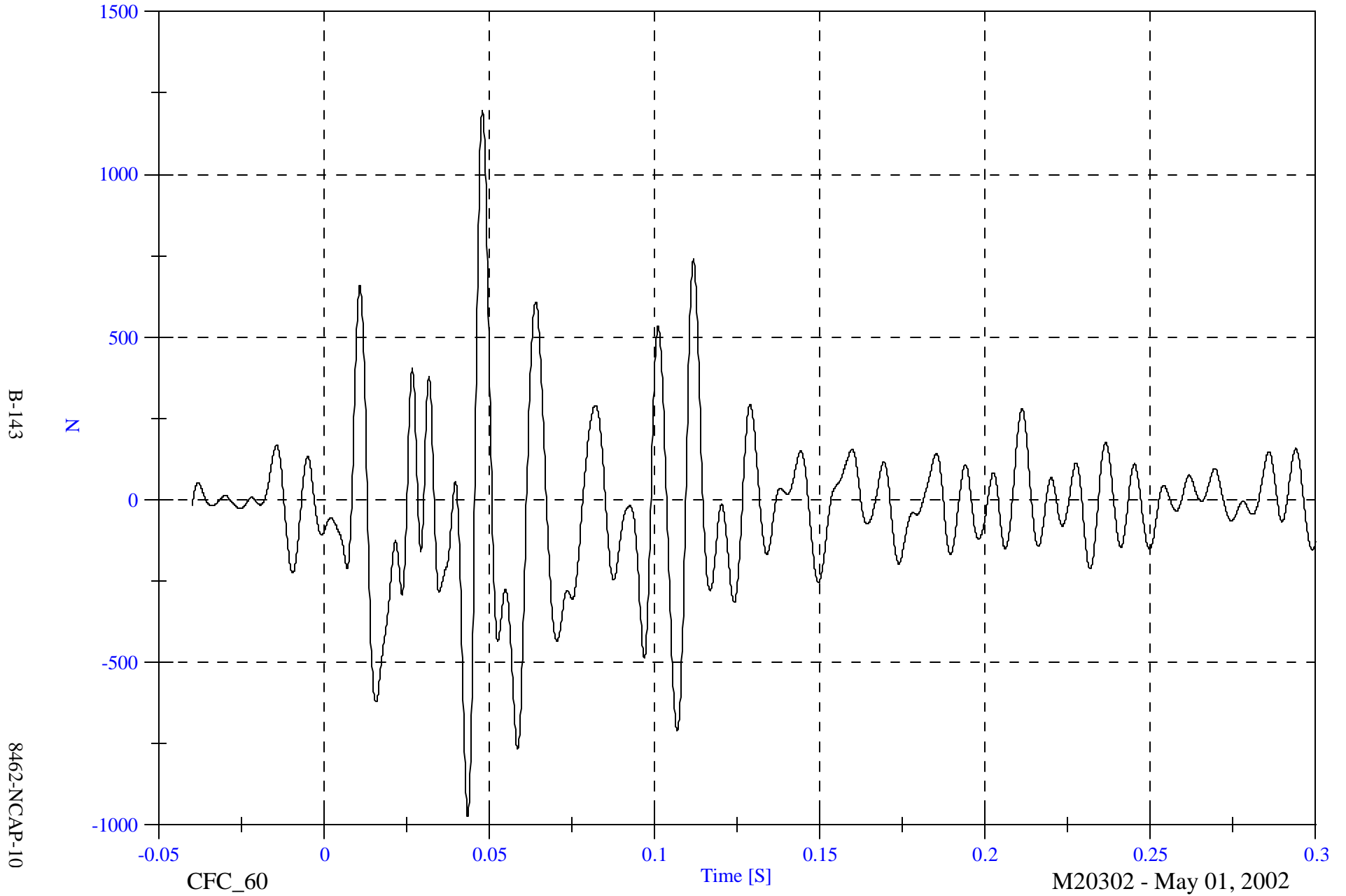
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1194.2 [N] at 0.048 [S]

Barrier Load Cell A1 Fx

Min: -971.9 [N] at 0.043 [S]

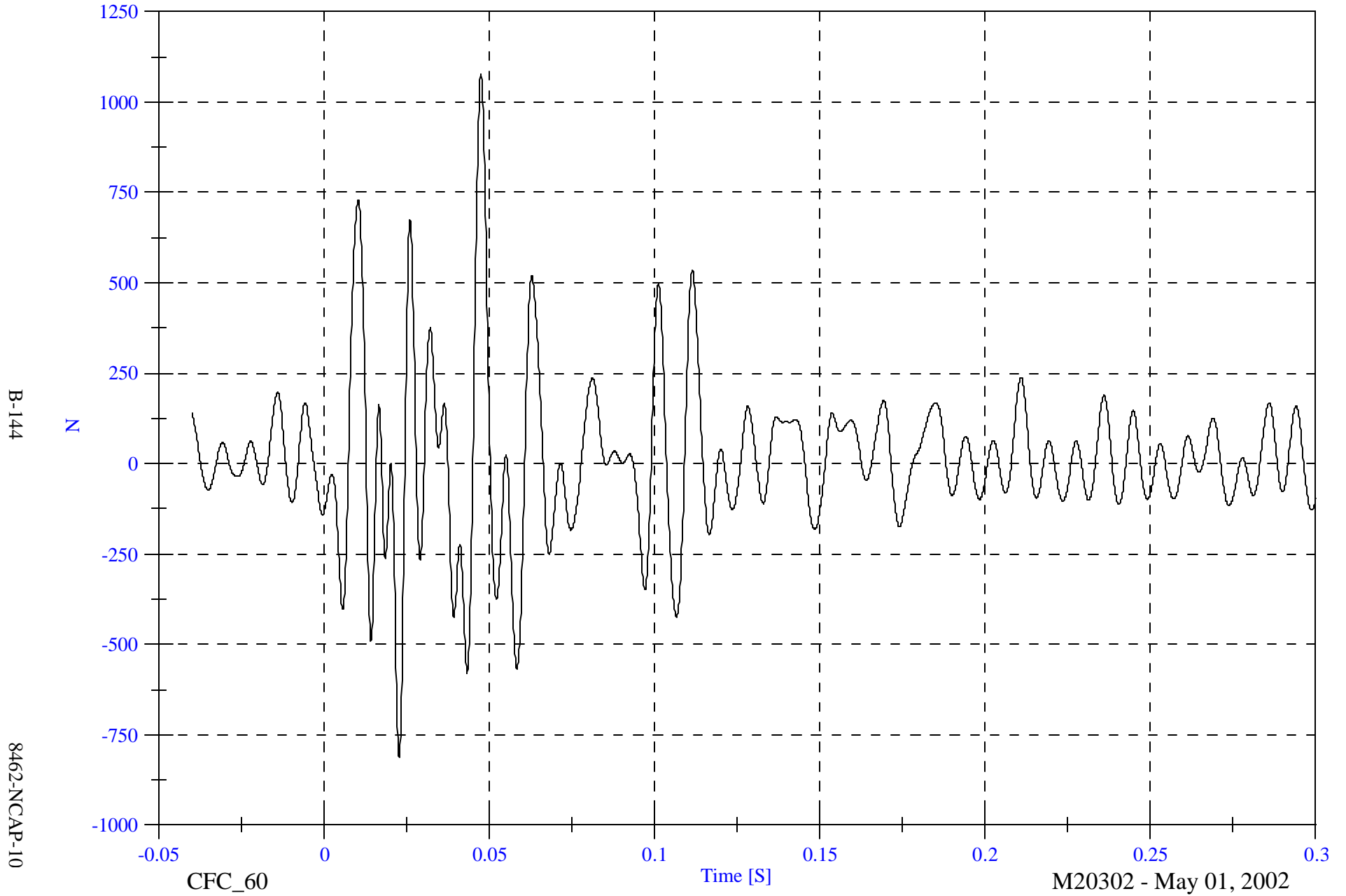


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1077.0 [N] at 0.047 [S]

Barrier Load Cell A2 Fx

Min: -811.8 [N] at 0.023 [S]



B-144

8462-NCAP-10

CFC_60

Time [S]

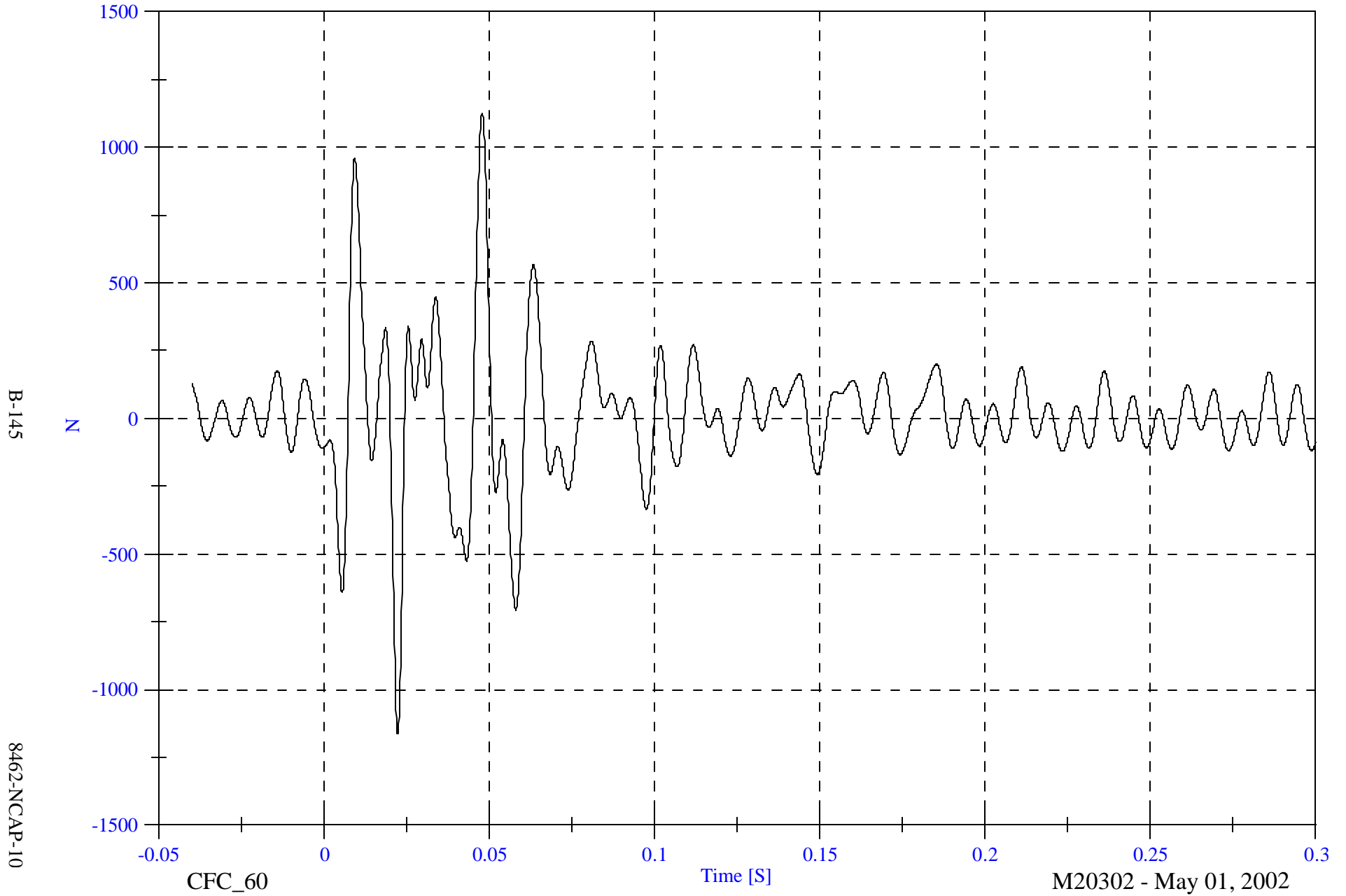
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1126.4 [N] at 0.048 [S]

Barrier Load Cell A3 Fx

Min: -1164.4 [N] at 0.022 [S]

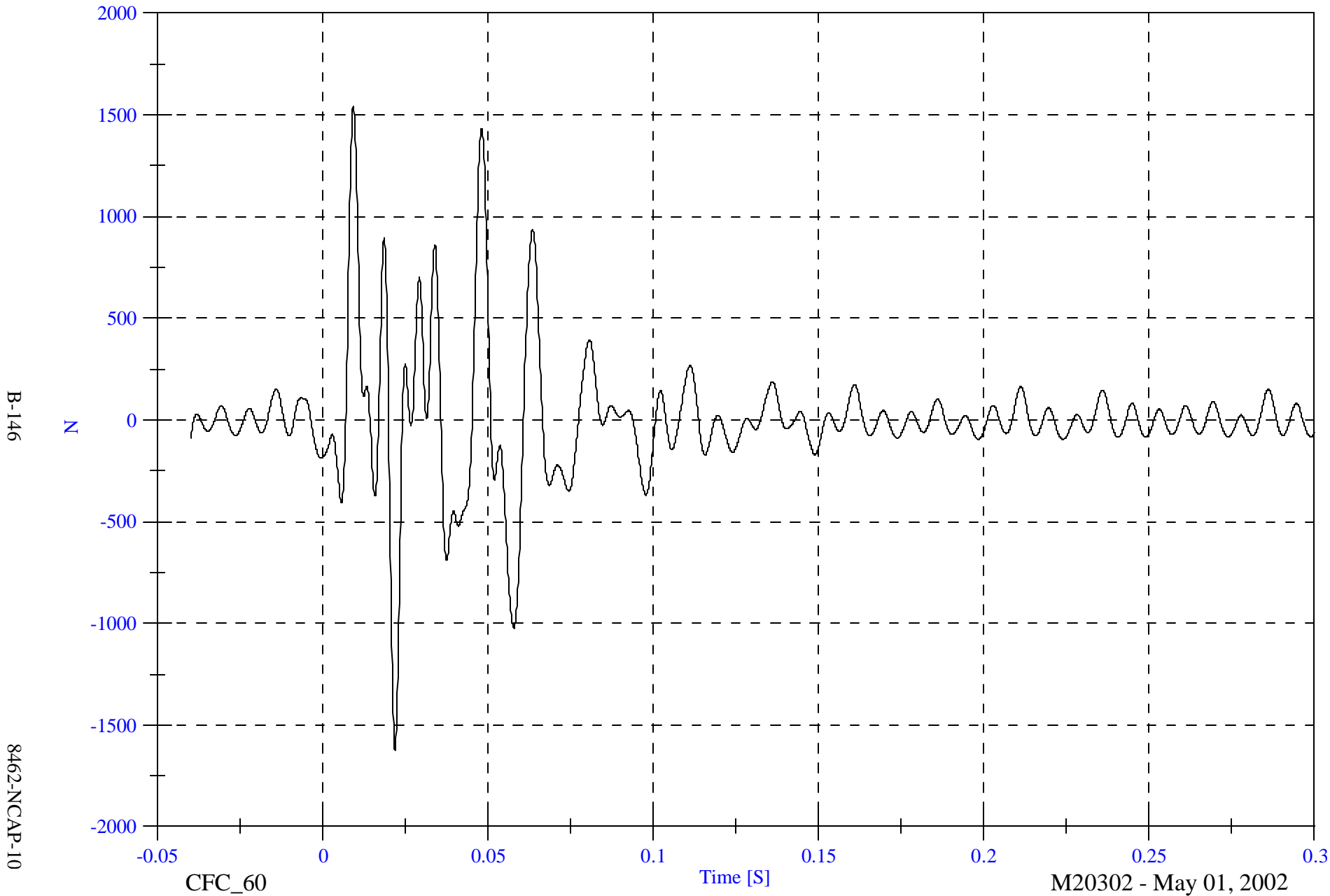


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1540.0 [N] at 0.009 [S]

Barrier Load Cell A4 Fx

Min: -1623.1 [N] at 0.022 [S]



B-146

8462-NCAP-10

CFC_60

Time [S]

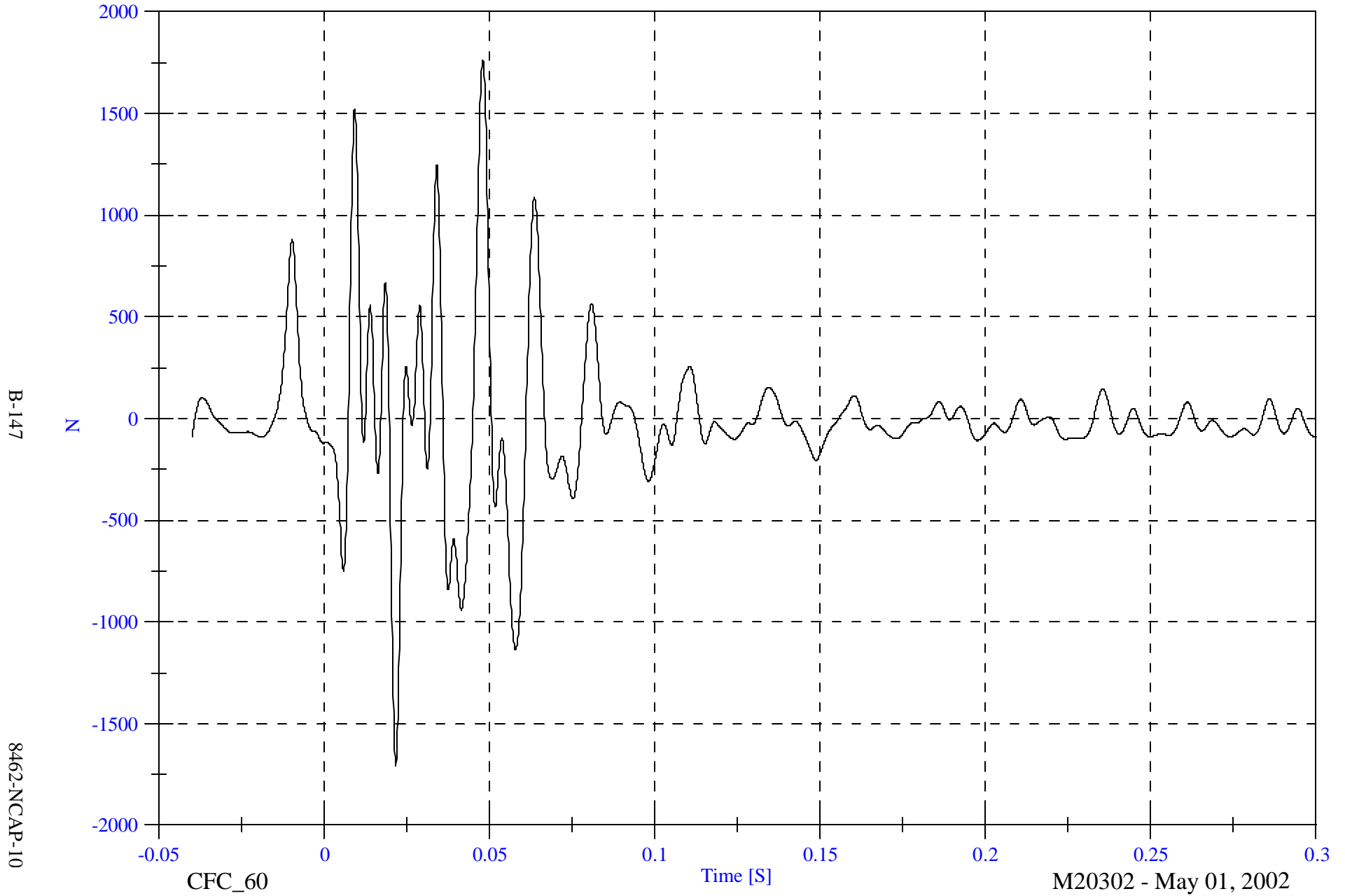
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell A5 Fx

Max: 1758.8 [N] at 0.048 [S]

Min: -1710.5 [N] at 0.022 [S]

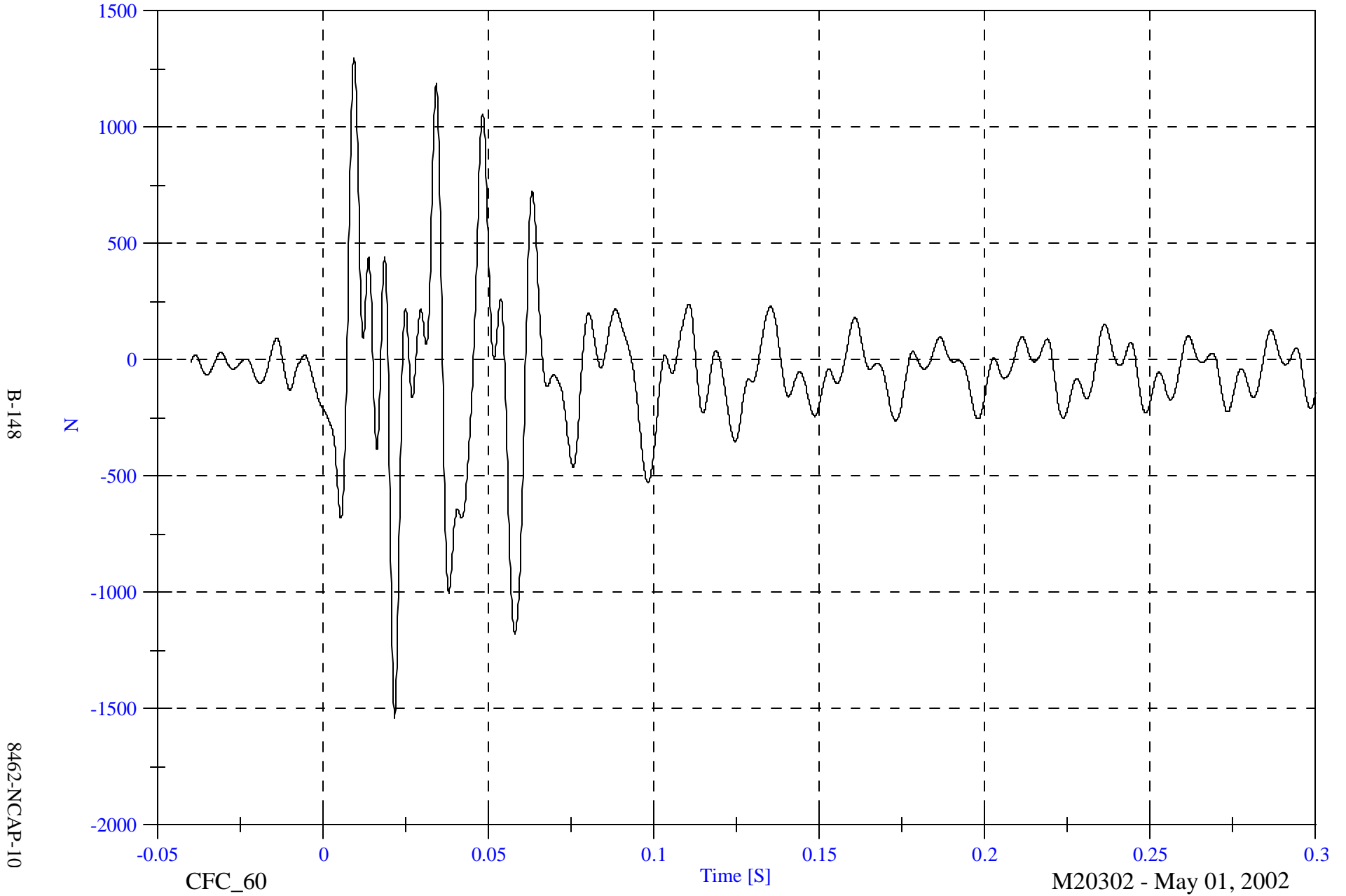


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1295.0 [N] at 0.009 [S]

Barrier Load Cell A6 Fx

Min: -1538.7 [N] at 0.022 [S]

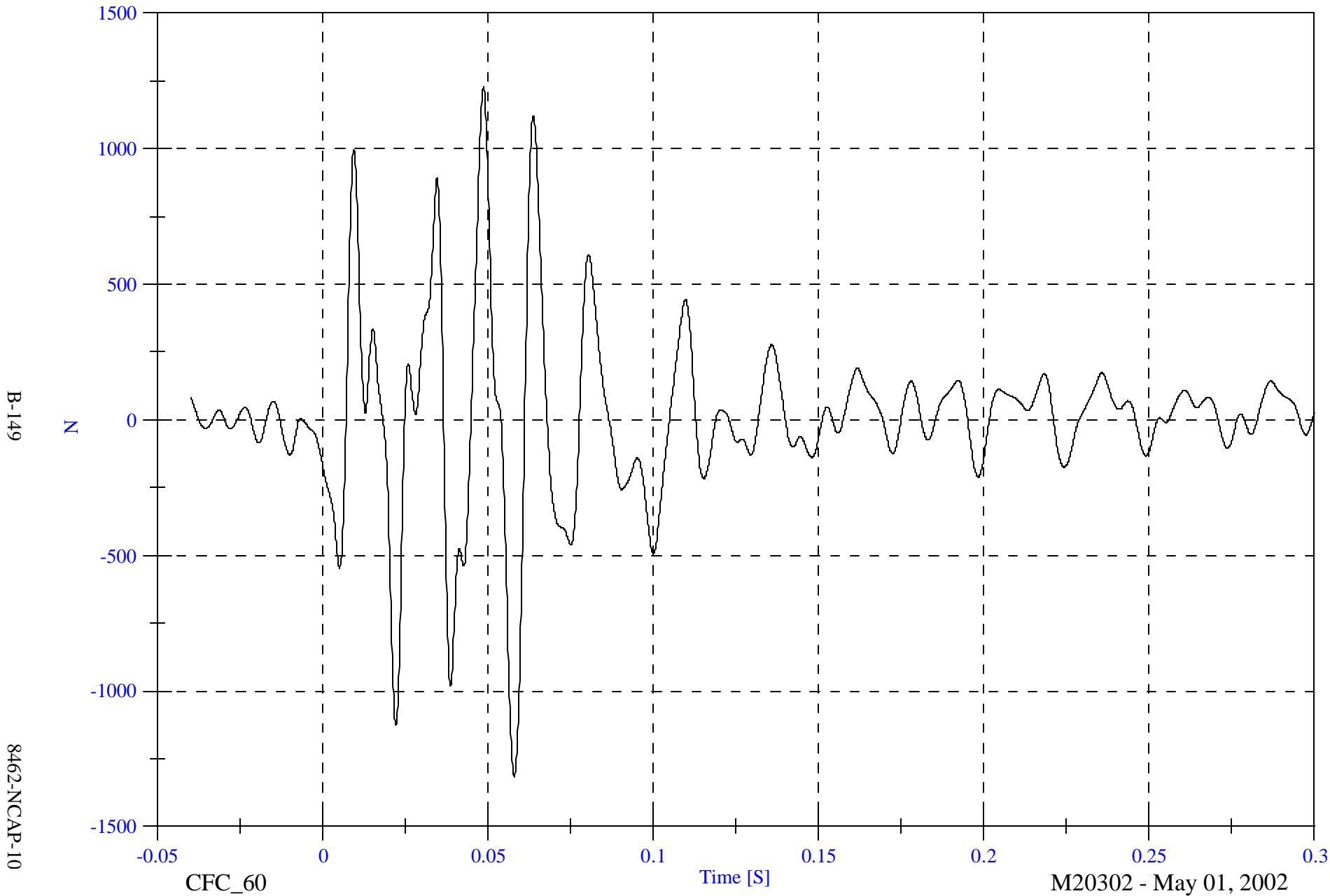


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1226.4 [N] at 0.049 [S]

Barrier Load Cell A7 Fx

Min: -1317.6 [N] at 0.058 [S]

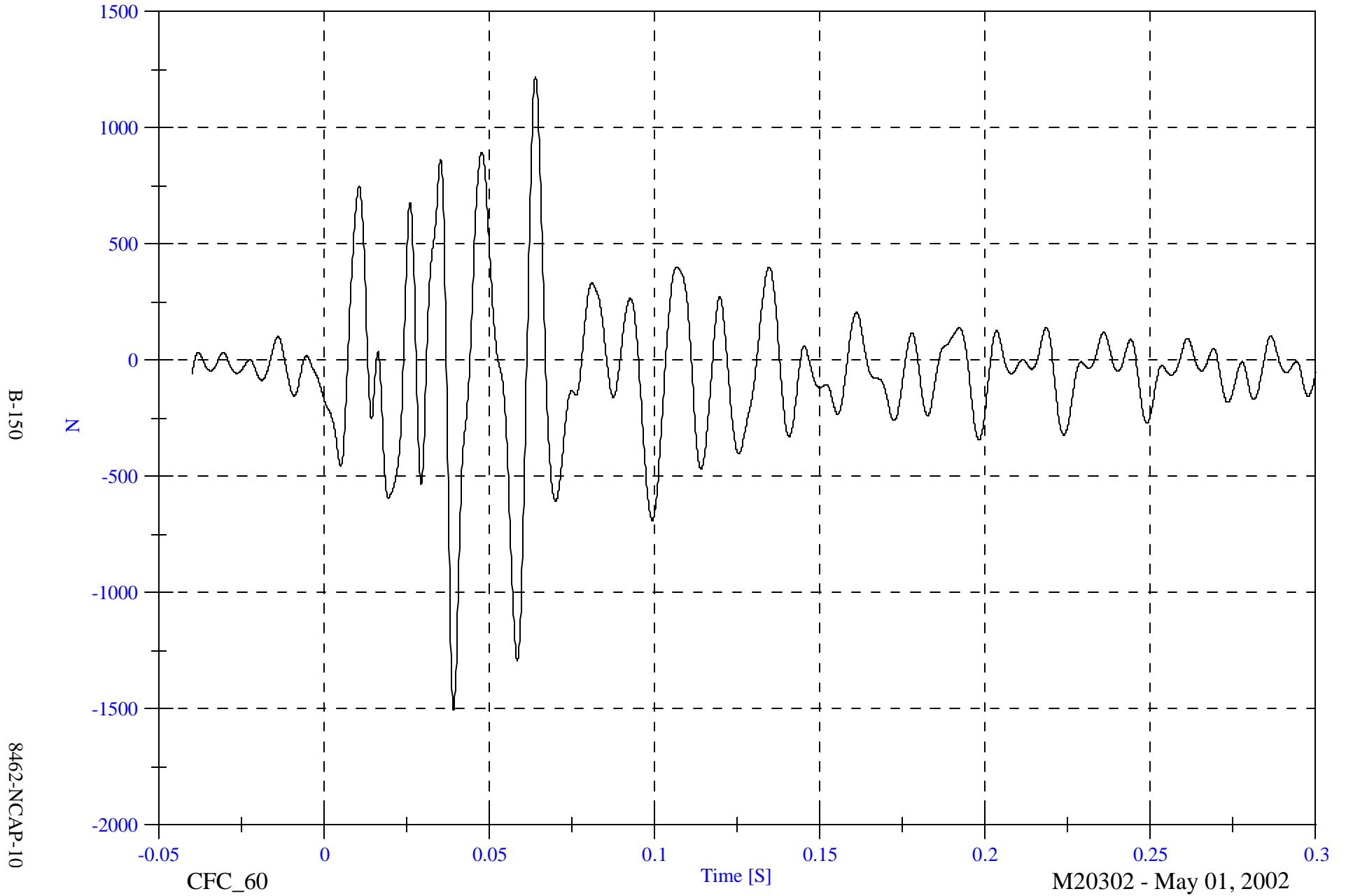


NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell A8 Fx

Max: 1219.5 [N] at 0.064 [S]

Min: -1505.7 [N] at 0.039 [S]

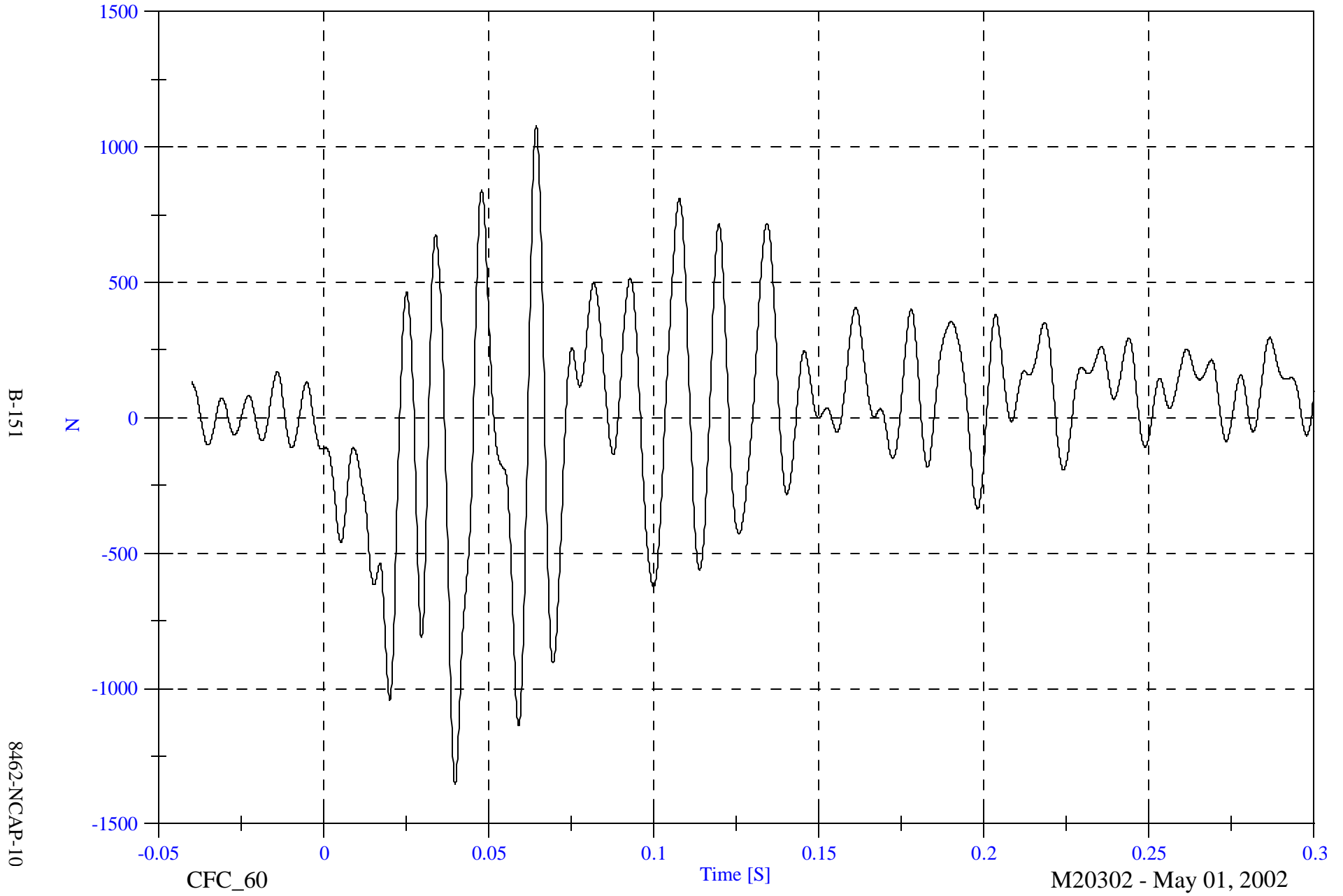


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1077.4 [N] at 0.064 [S]

Barrier Load Cell A9 Fx

Min: -1351.6 [N] at 0.040 [S]



B-151

N

8462-NCAP-10

CFC_60

Time [S]

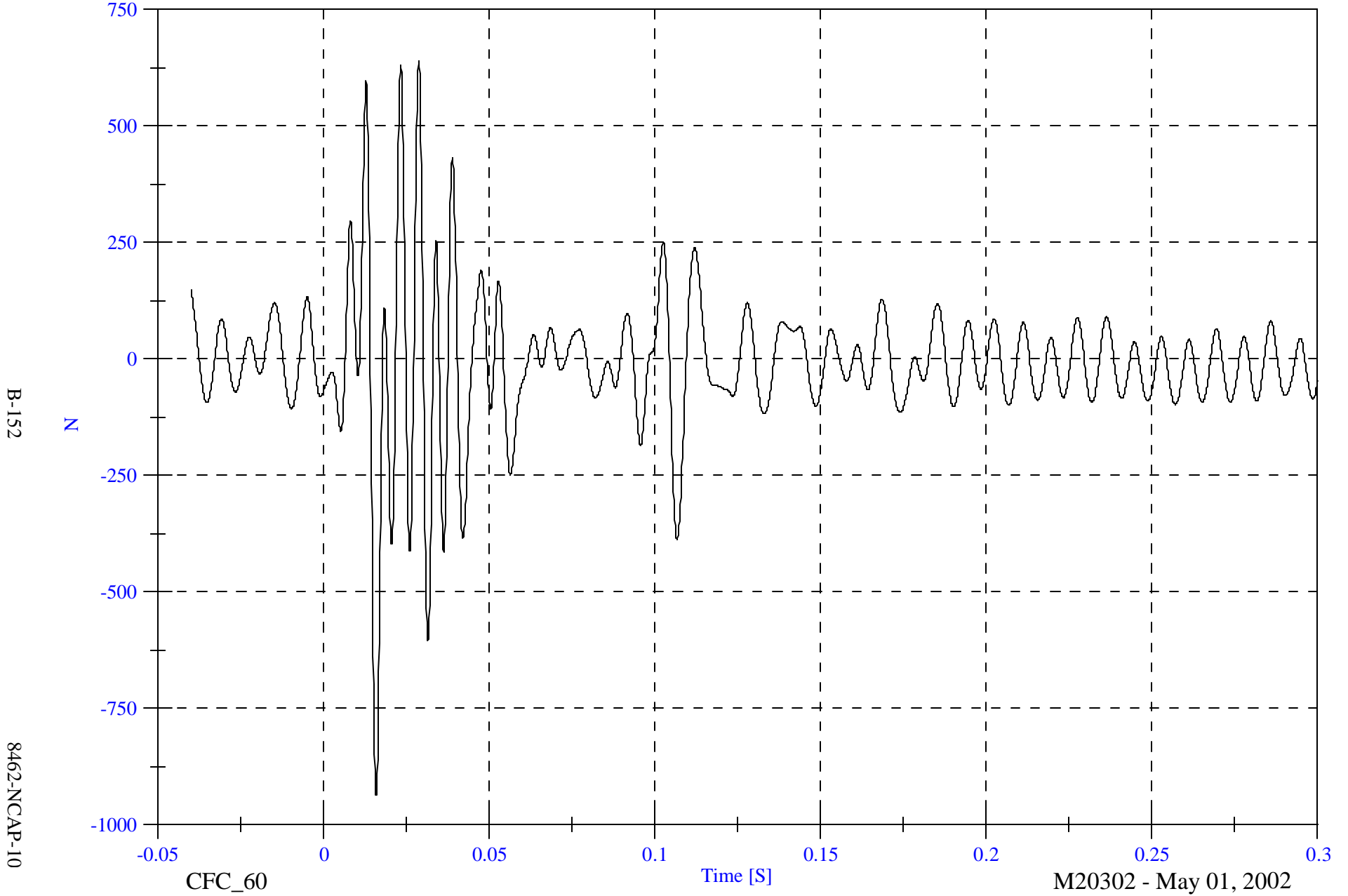
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 639.8 [N] at 0.029 [S]

Barrier Load Cell B1 Fx

Min: -936.8 [N] at 0.016 [S]

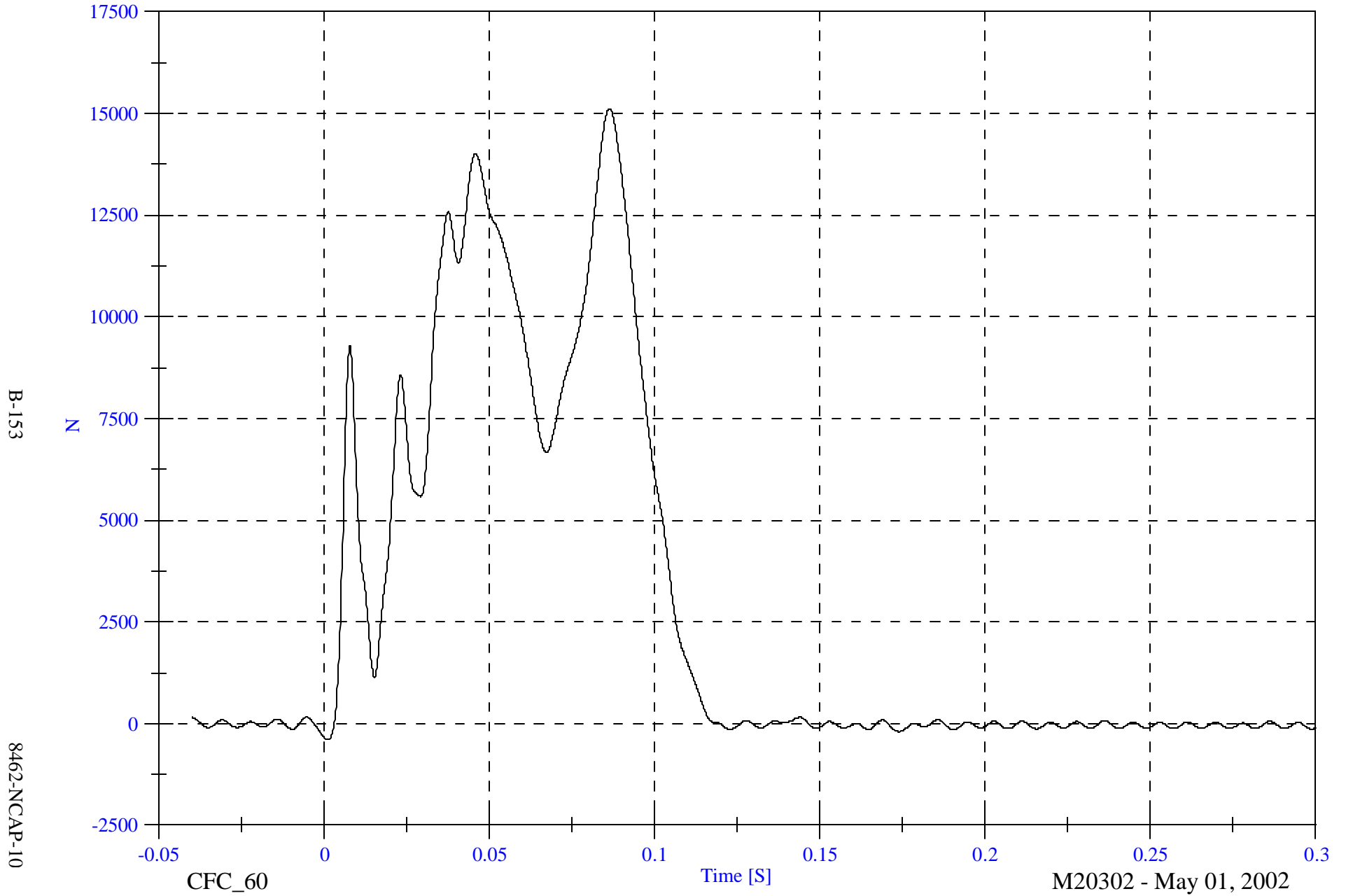


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 15118.0 [N] at 0.086 [S]

Barrier Load Cell B2 Fx

Min: -402.5 [N] at 0.001 [S]

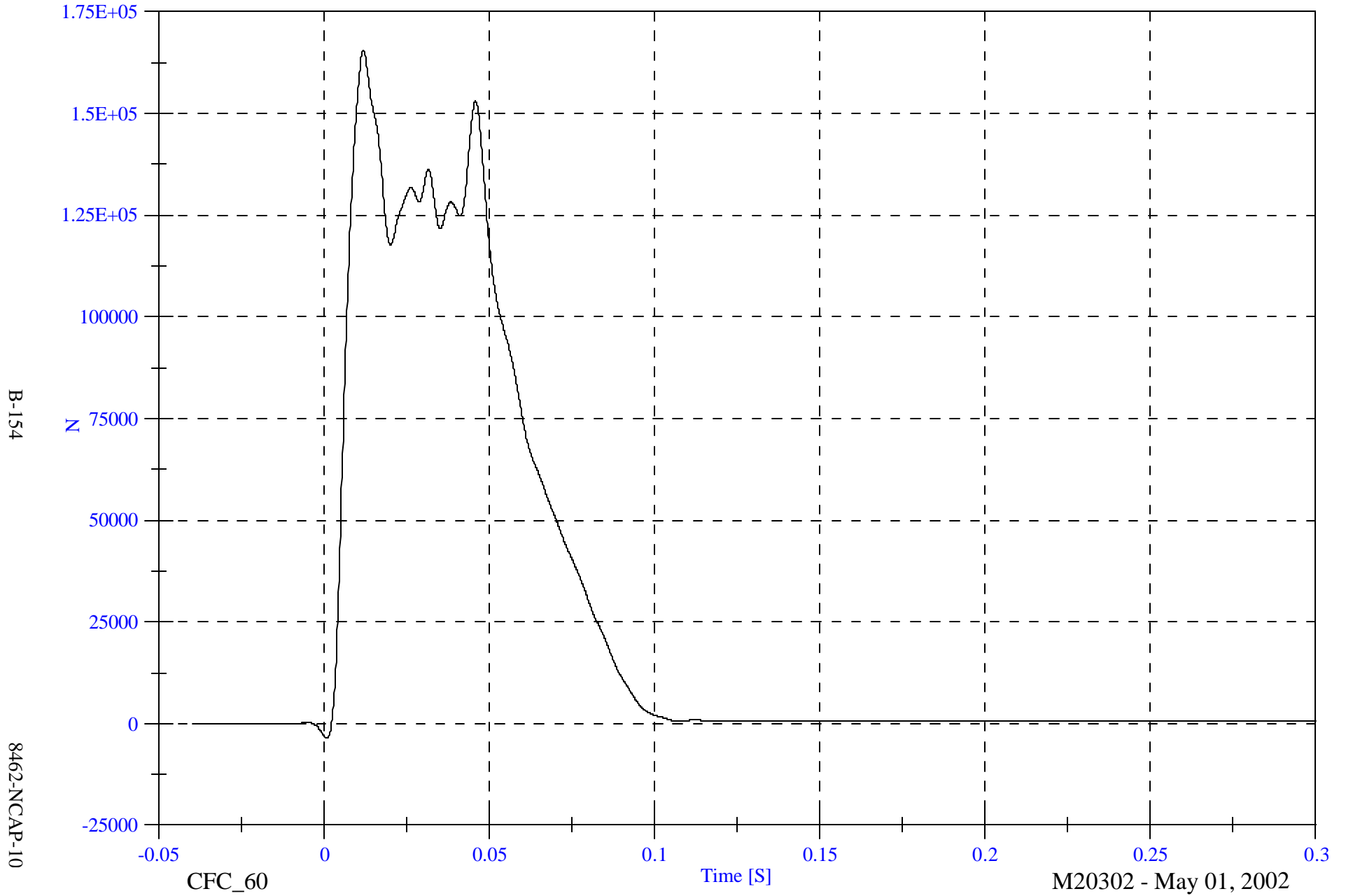


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 165410.9 [N] at 0.012 [S]

Barrier Load Cell B3 Fx

Min: -3598.1 [N] at 0.001 [S]

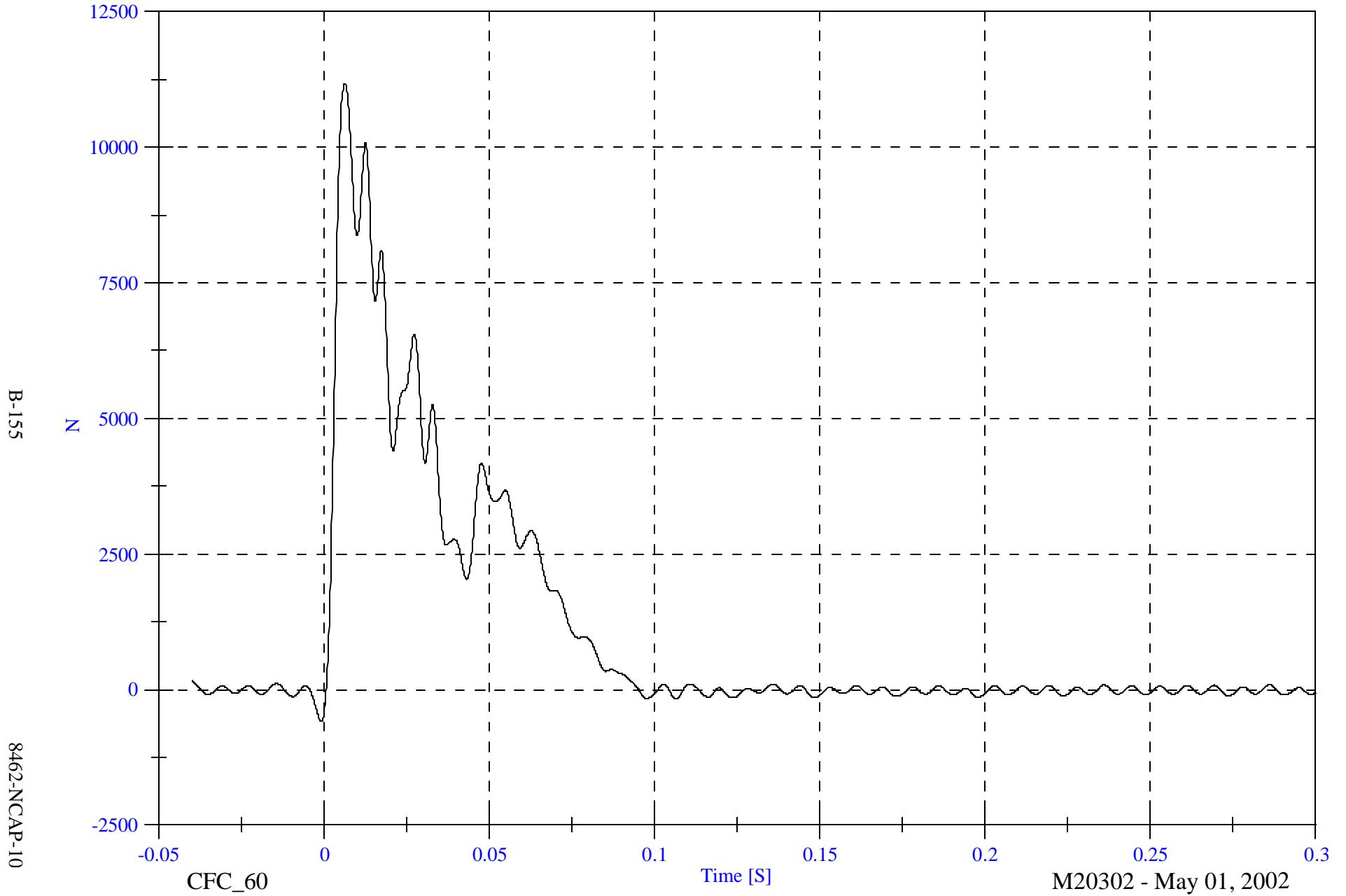


NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell B4 Fx

Max: 11178.6 [N] at 0.006 [S]

Min: -587.5 [N] at -0.001 [S]

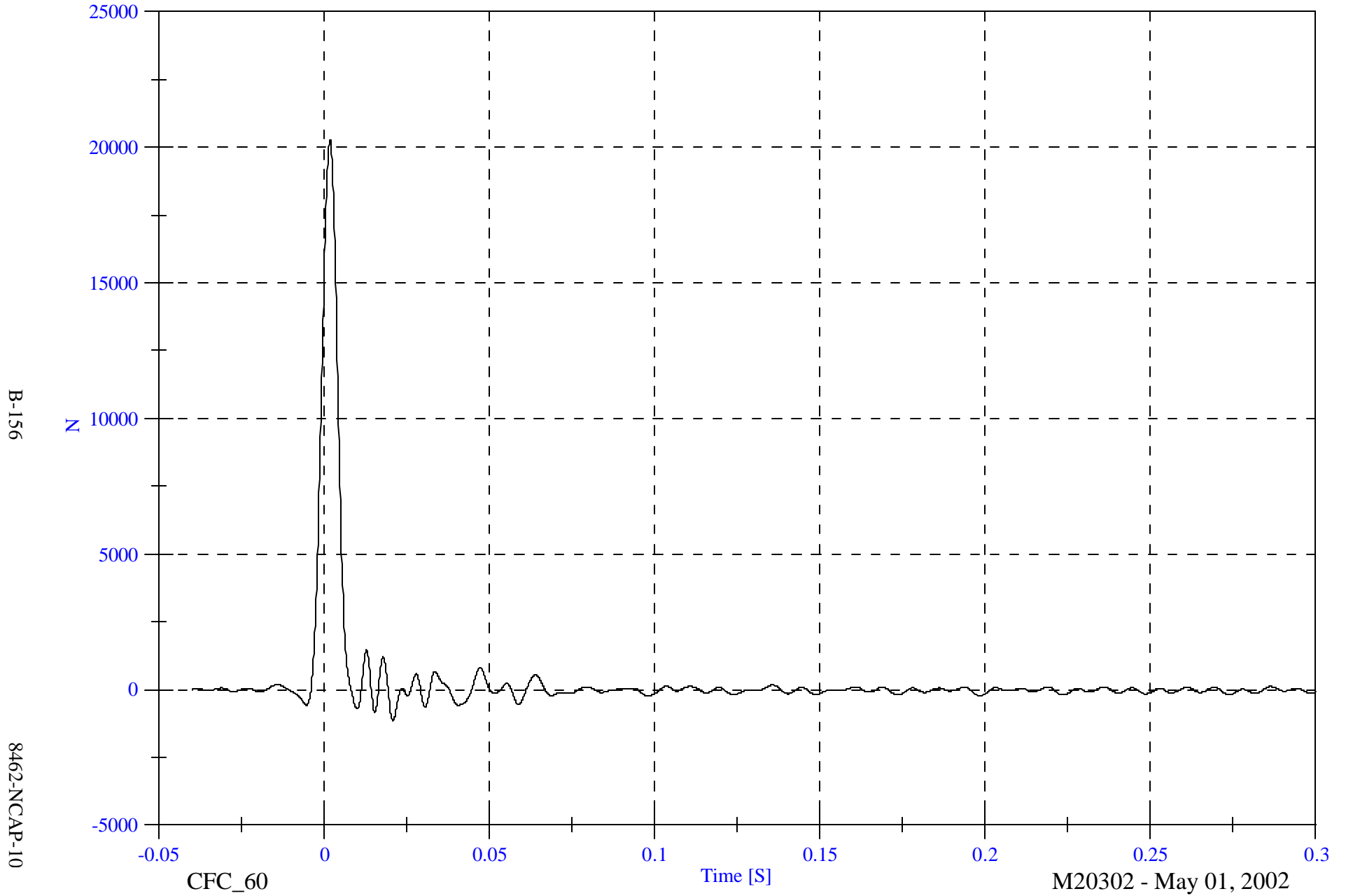


NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell B5 Fx

Max: 20286.3 [N] at 0.002 [S]

Min: -1135.5 [N] at 0.021 [S]



B-156

8462-NCAP-10

CFC_60

Time [S]

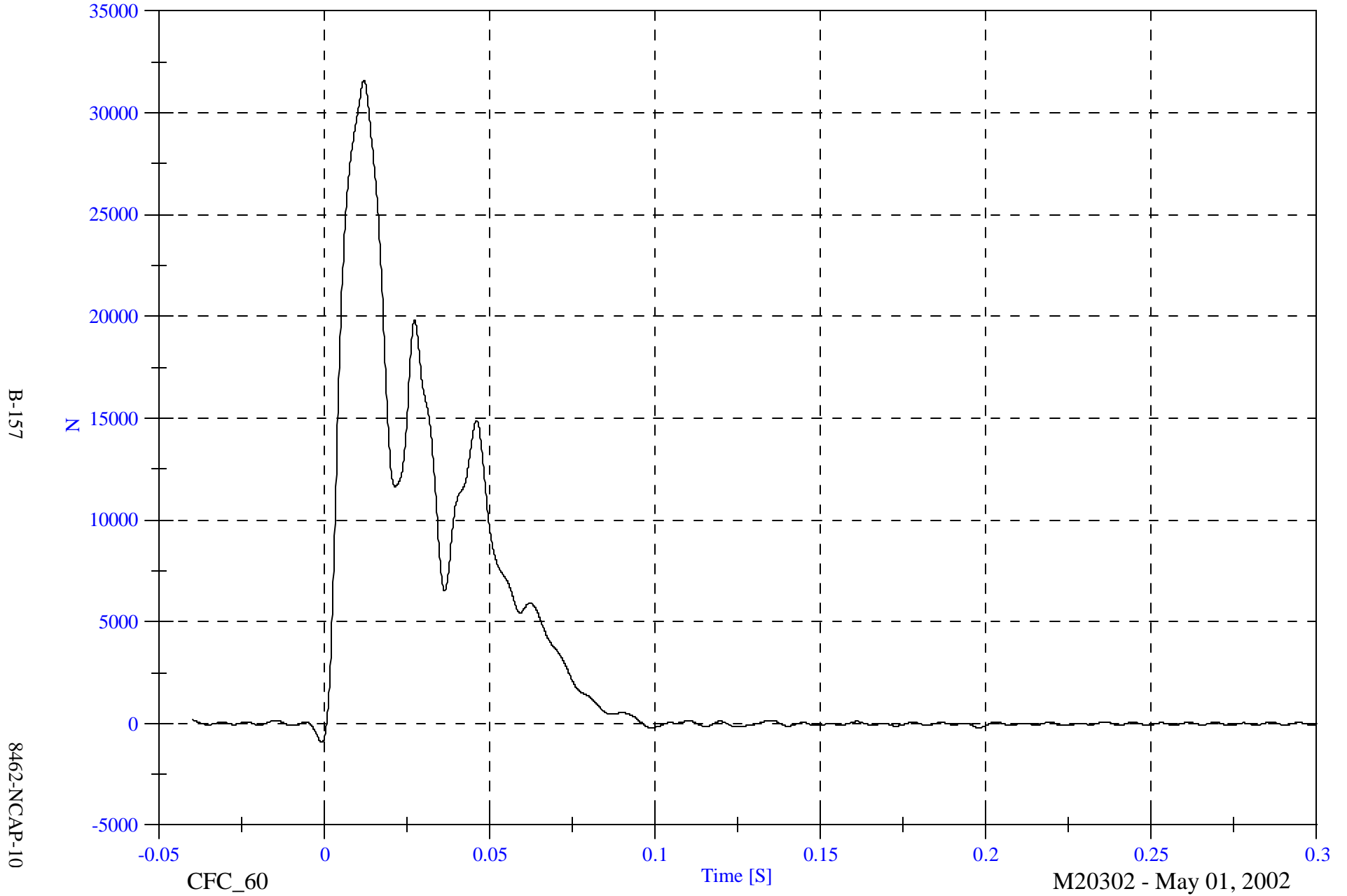
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell B6 Fx

Max: 31577.0 [N] at 0.012 [S]

Min: -938.3 [N] at -0.001 [S]

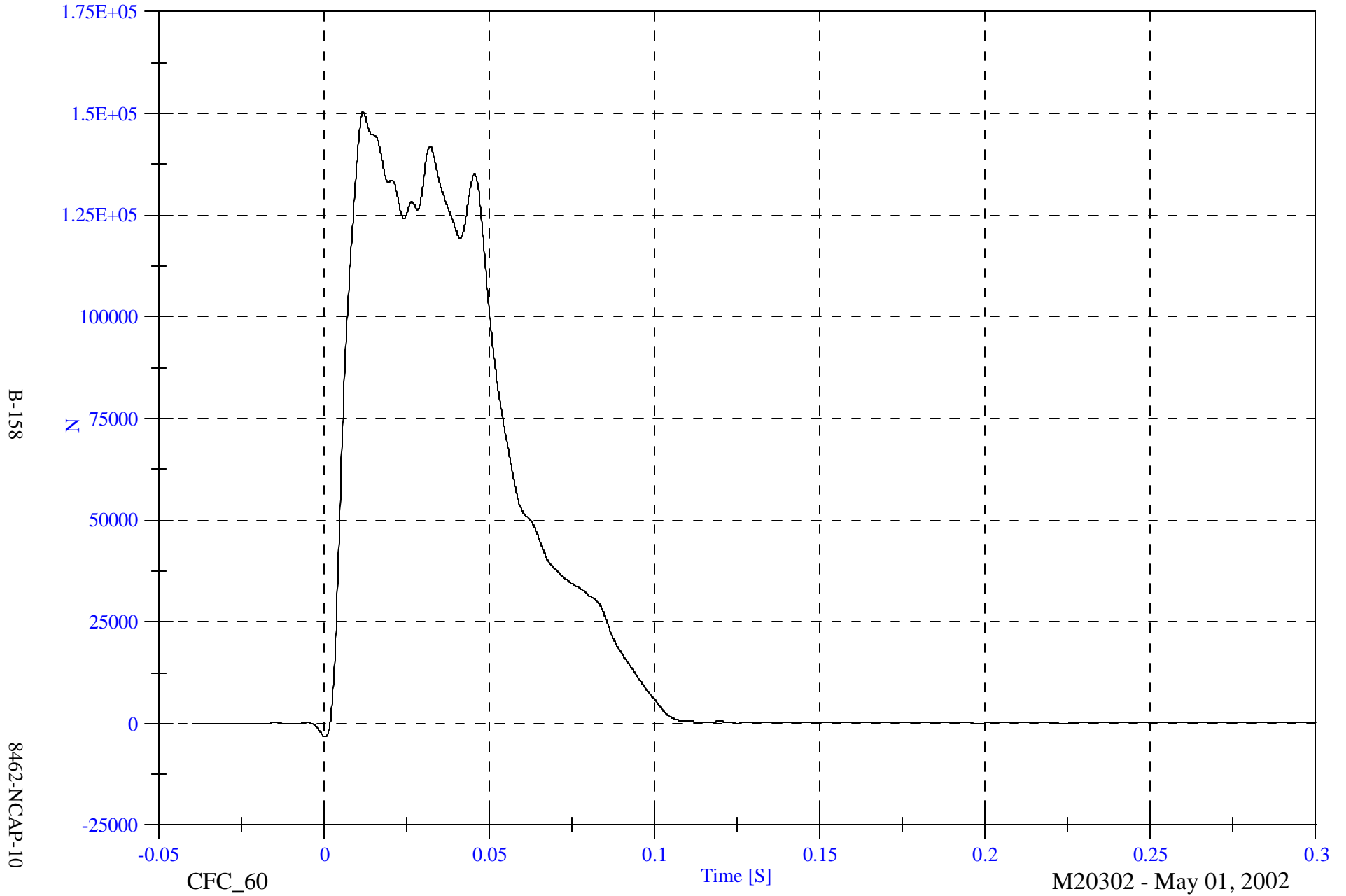


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 150331.5 [N] at 0.012 [S]

Barrier Load Cell B7 Fx

Min: -3329.7 [N] at 0.000 [S]

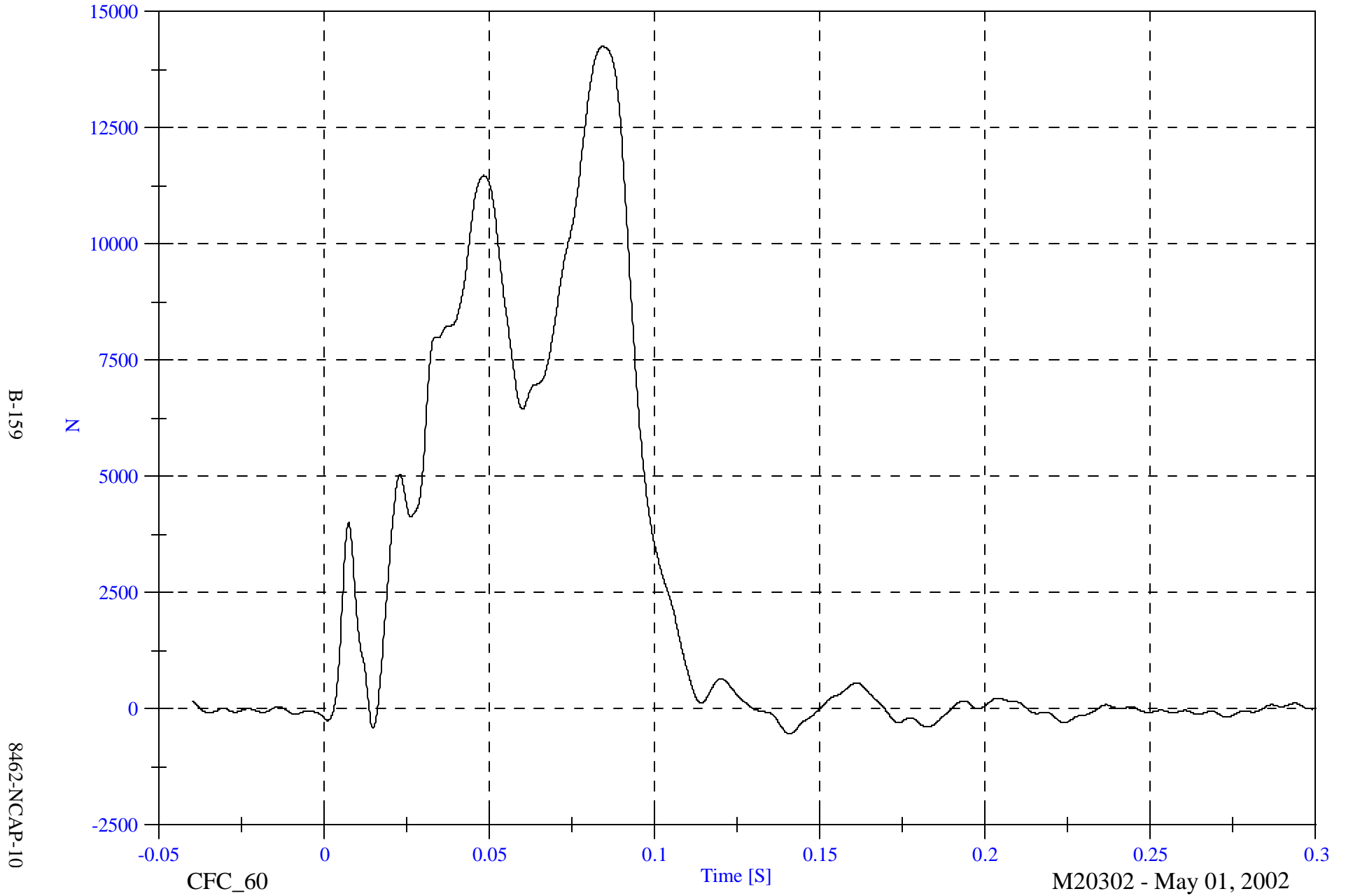


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 14249.1 [N] at 0.084 [S]

Barrier Load Cell B8 Fx

Min: -532.7 [N] at 0.141 [S]

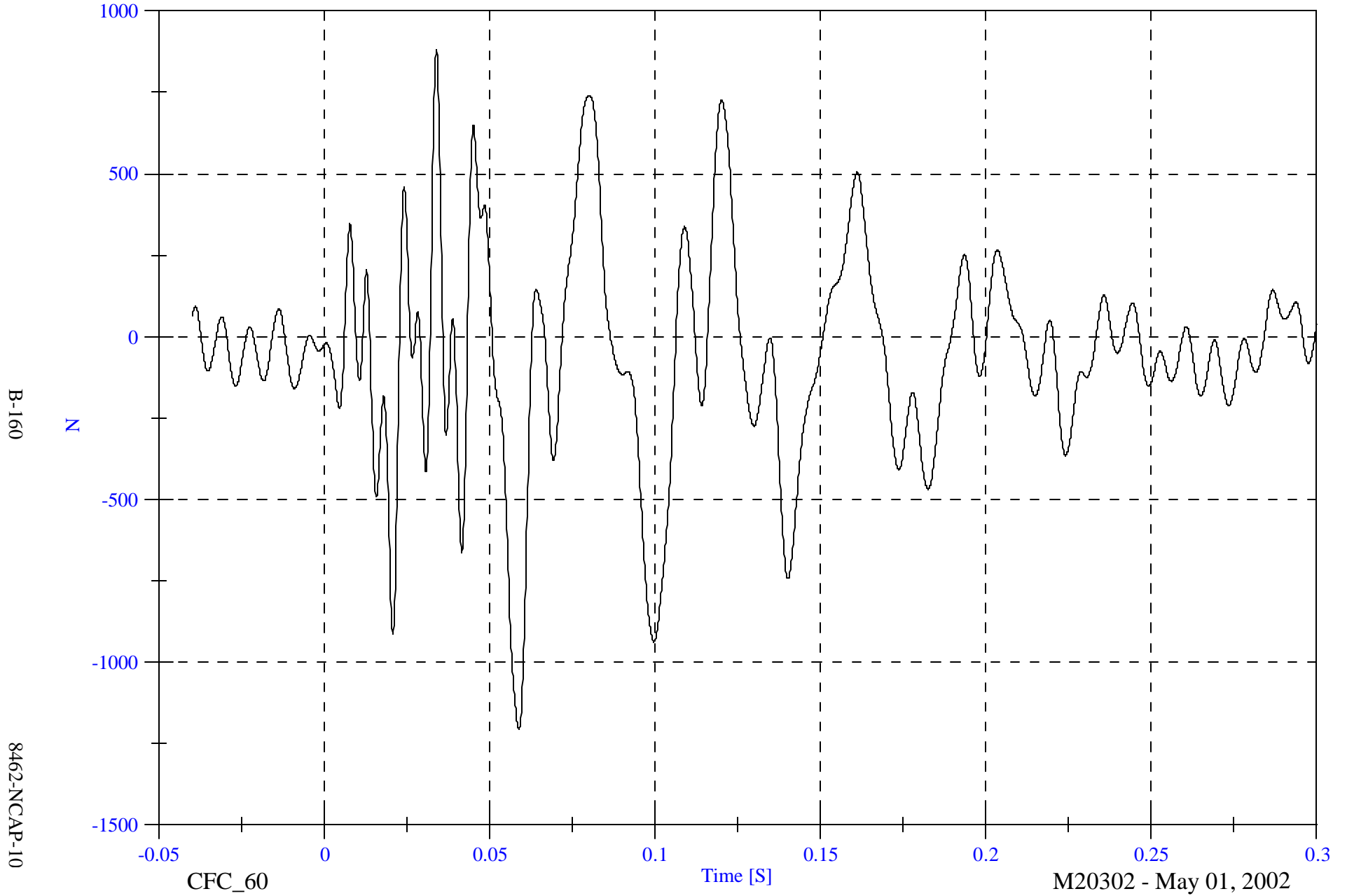


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 880.0 [N] at 0.034 [S]

Barrier Load Cell B9 Fx

Min: -1204.6 [N] at 0.059 [S]

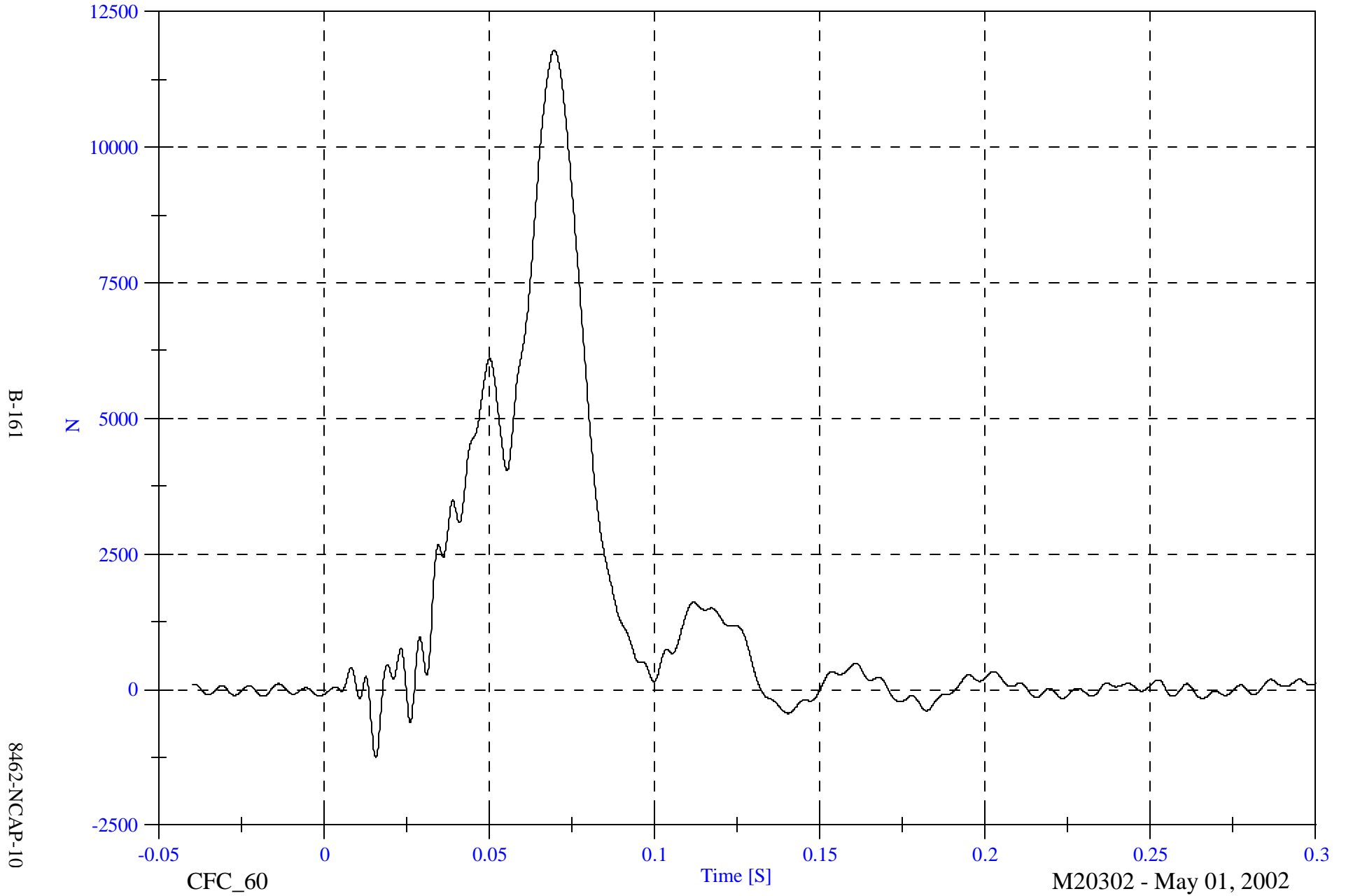


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 11790.7 [N] at 0.070 [S]

Barrier Load Cell C1 Fx

Min: -1241.5 [N] at 0.016 [S]

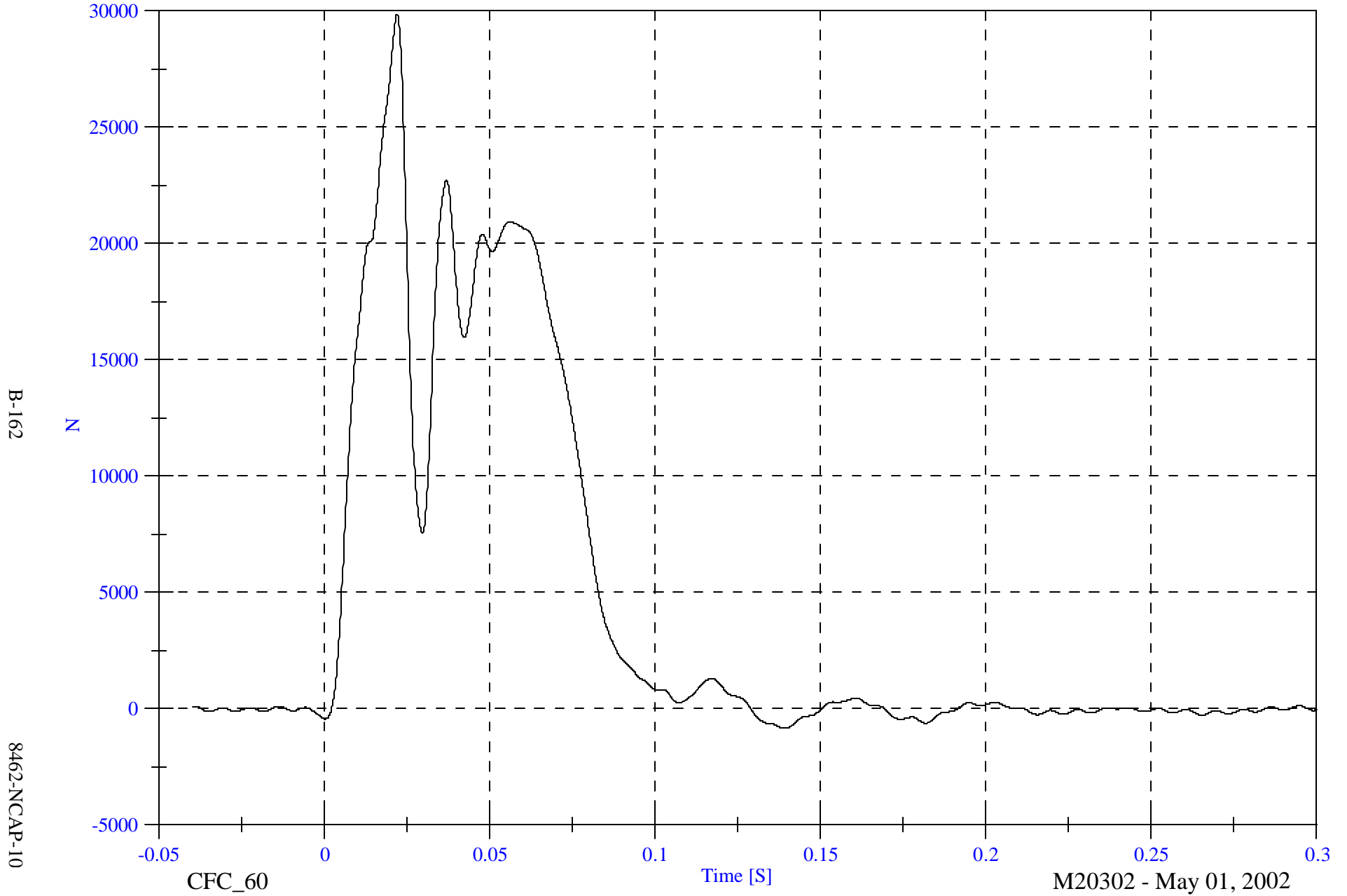


NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell C2 Fx

Max: 29865.2 [N] at 0.022 [S]

Min: -844.6 [N] at 0.139 [S]

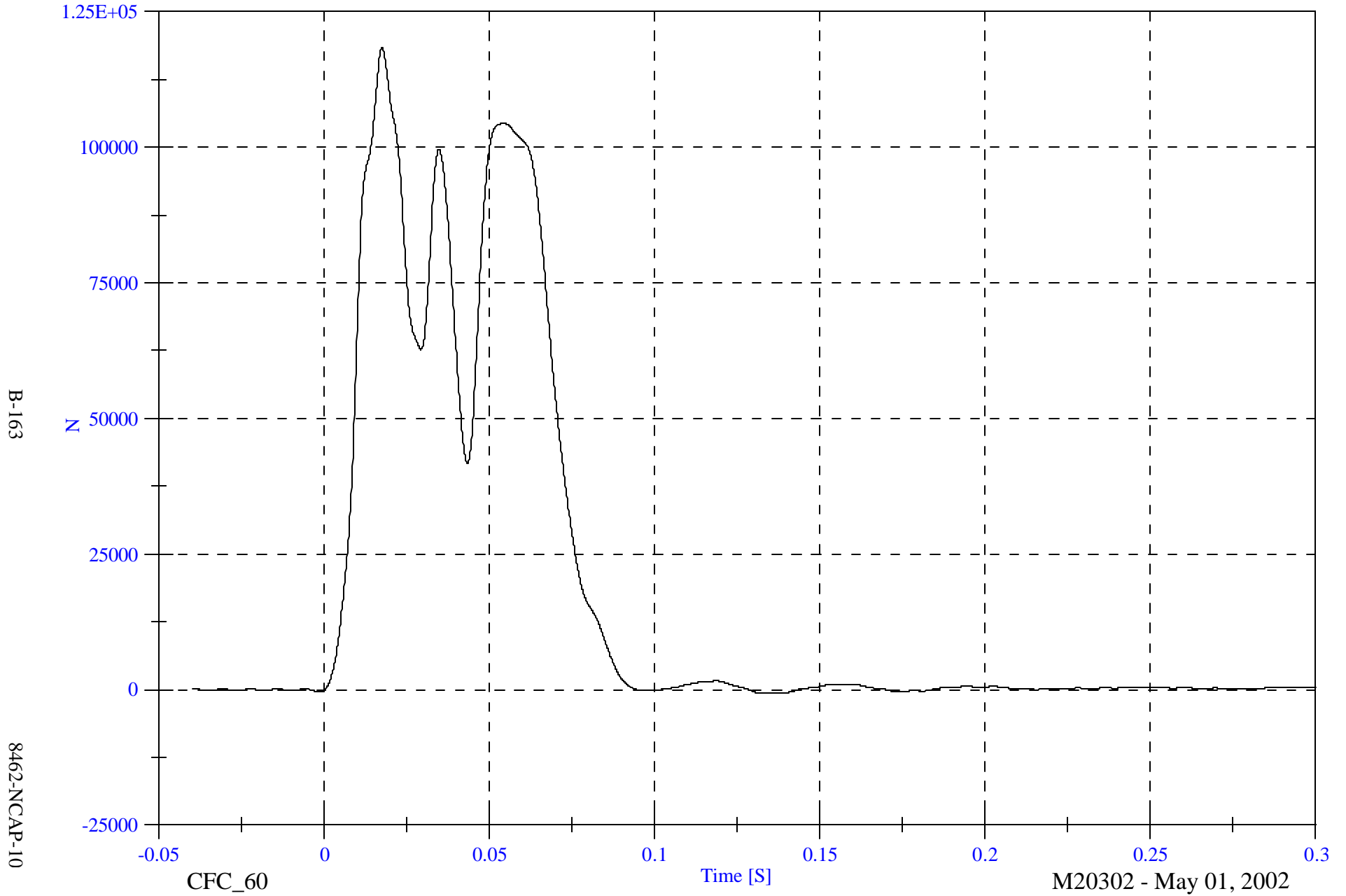


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 118393.9 [N] at 0.018 [S]

Barrier Load Cell C3 Fx

Min: -712.3 [N] at 0.133 [S]



B-163

8462-NCAP-10

CFC_60

Time [S]

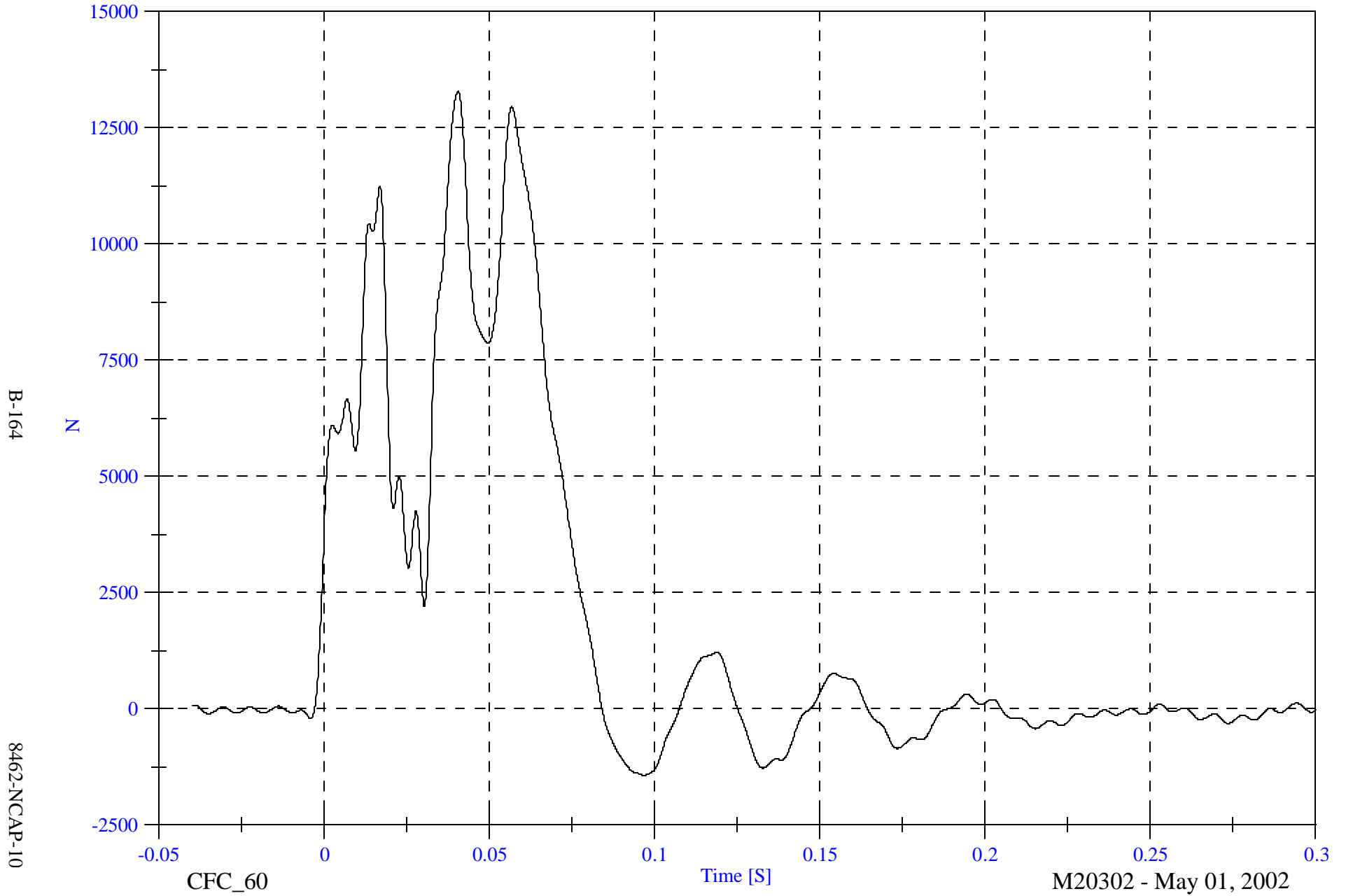
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 13278.9 [N] at 0.040 [S]

Barrier Load Cell C4 Fx

Min: -1424.0 [N] at 0.097 [S]



B-164

8462-NCAP-10

CFC_60

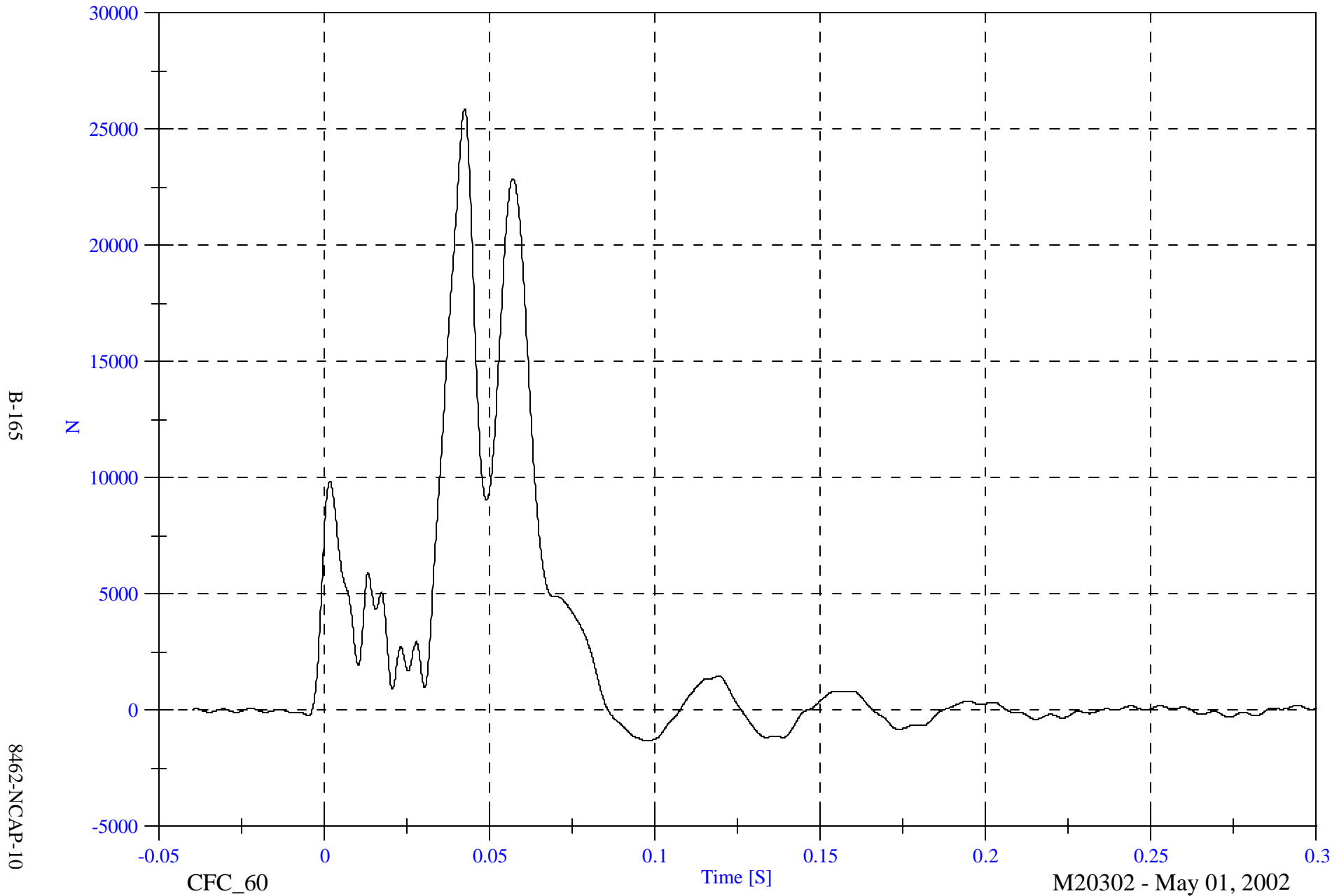
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell C5 Fx

Max: 25870.1 [N] at 0.042 [S]

Min: -1327.3 [N] at 0.097 [S]

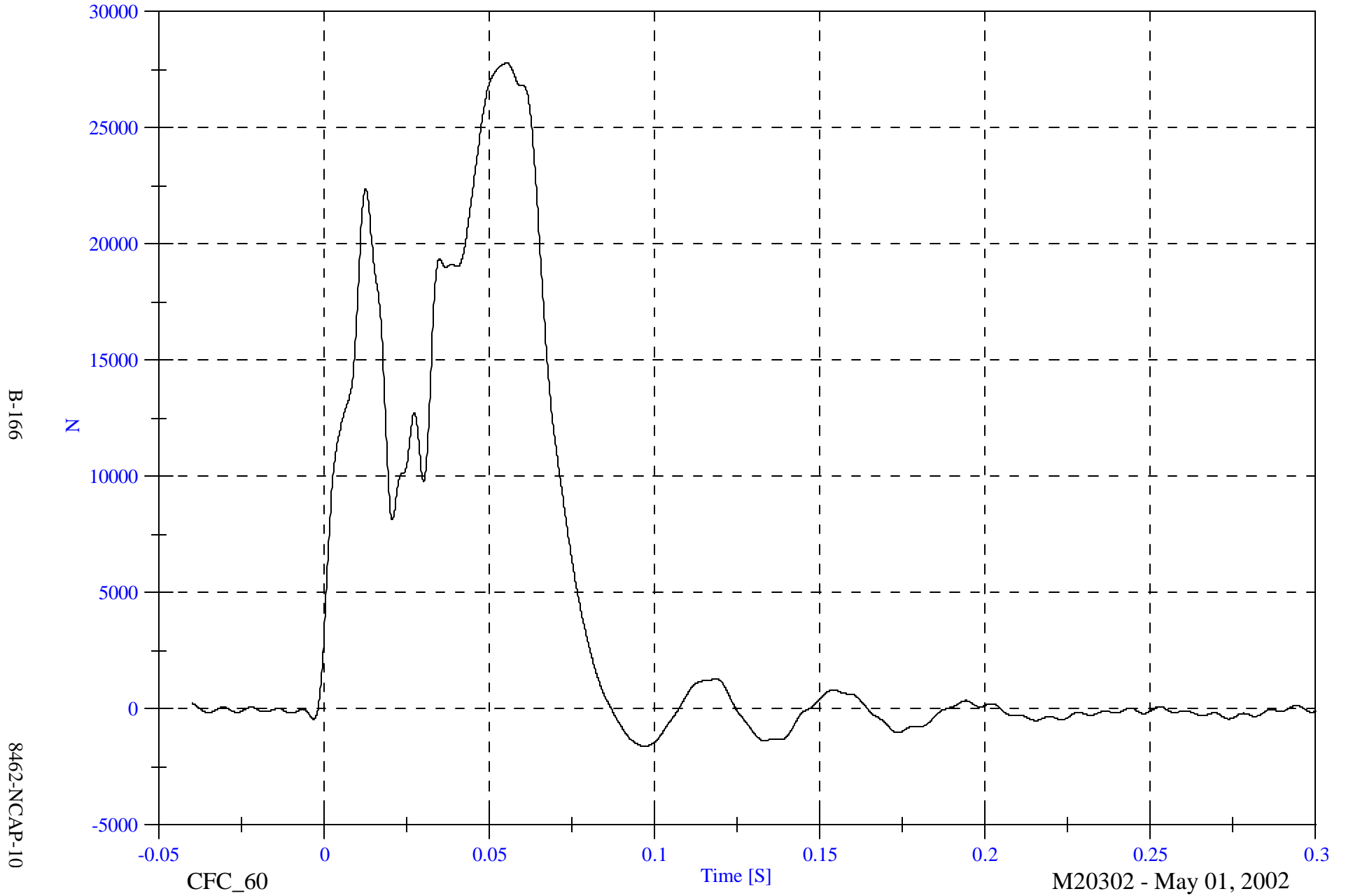


NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell C6 Fx

Max: 27782.5 [N] at 0.055 [S]

Min: -1632.4 [N] at 0.097 [S]



B-166

8462-NCAP-10

CFC_60

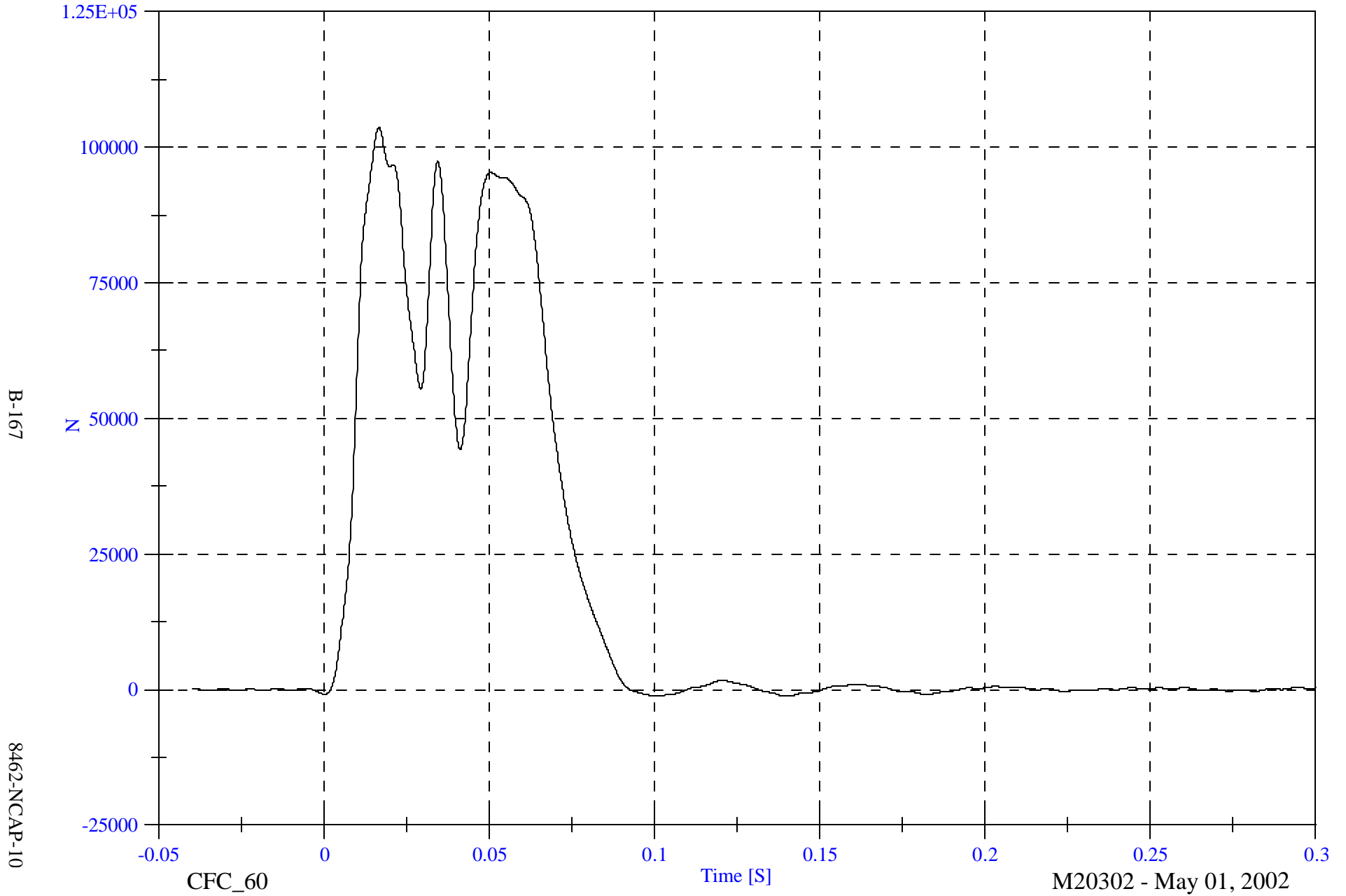
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell C7 Fx

Max: 103640.1 [N] at 0.017 [S]

Min: -1227.2 [N] at 0.140 [S]



B-167

8462-NCAP-10

CFC_60

Time [S]

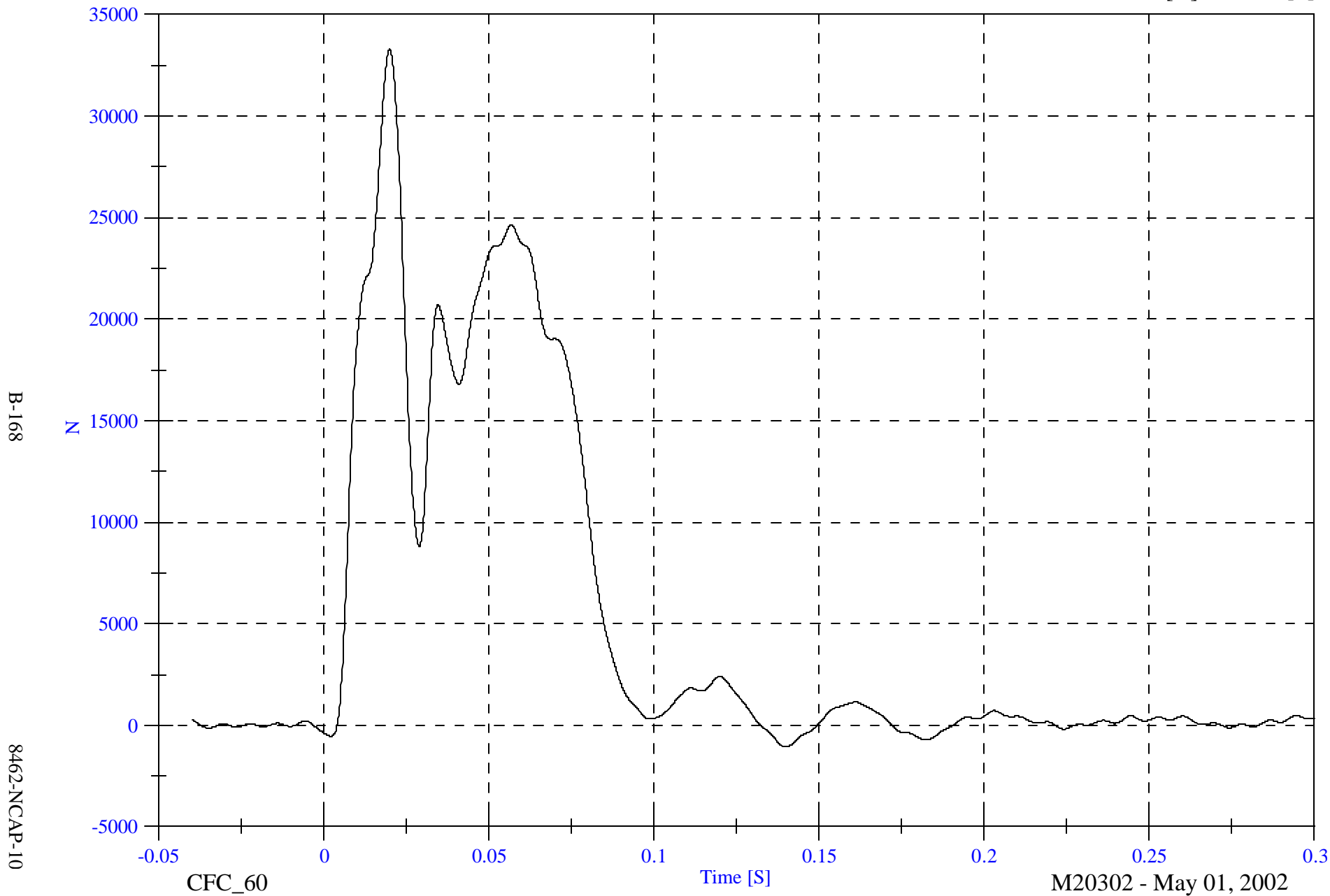
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell C8 Fx

Max: 33297.4 [N] at 0.020 [S]

Min: -1081.6 [N] at 0.140 [S]



B-168

8462-NCAP-10

CFC_60

Time [S]

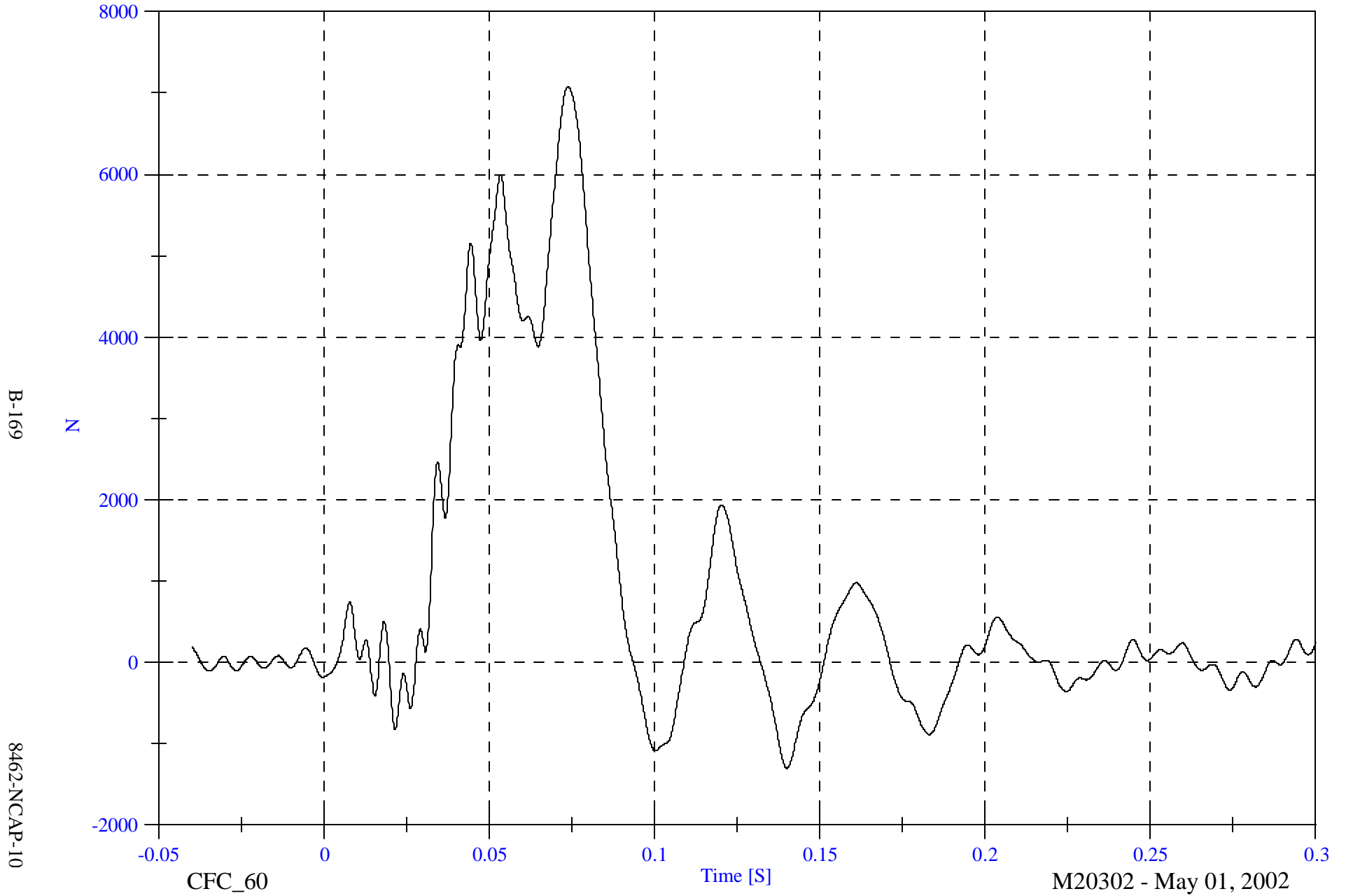
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 7077.5 [N] at 0.074 [S]

Barrier Load Cell C9 Fx

Min: -1298.4 [N] at 0.140 [S]



B-169

8462-NCAP-10

CFC_60

Time [S]

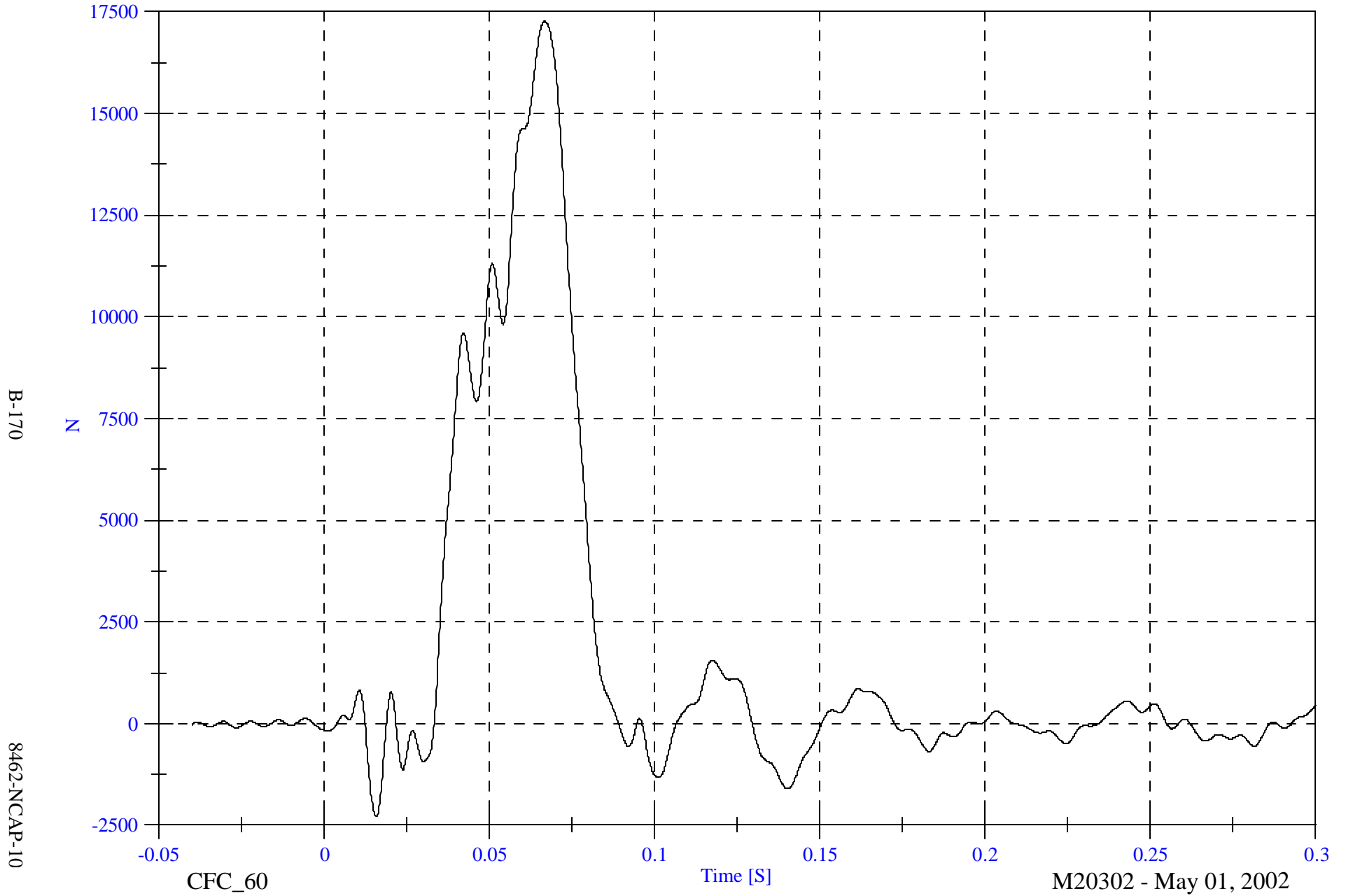
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell D1 Fx

Max: 17265.6 [N] at 0.067 [S]

Min: -2291.5 [N] at 0.016 [S]

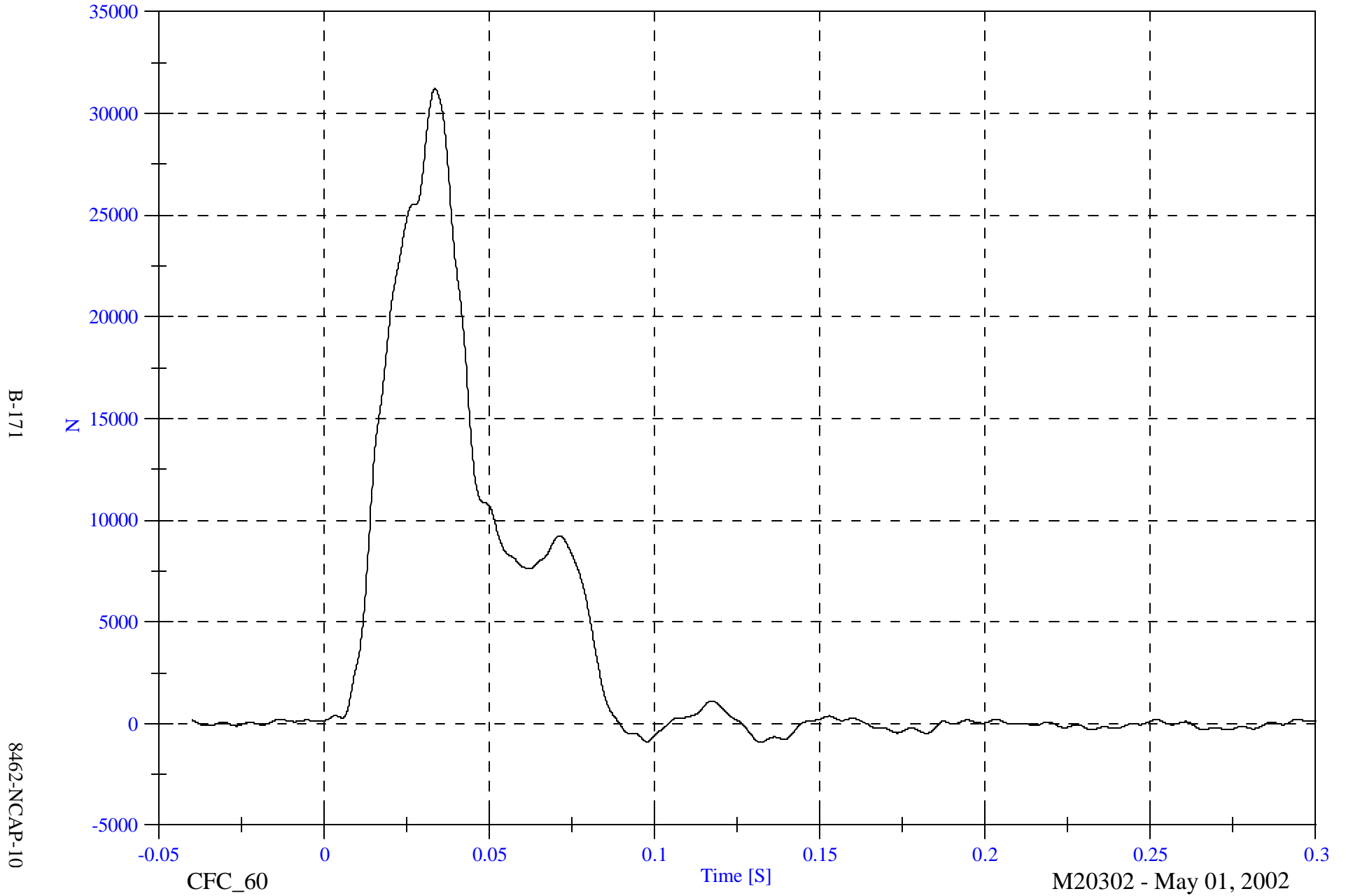


NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell D2 Fx

Max: 31202.0 [N] at 0.033 [S]

Min: -918.4 [N] at 0.132 [S]



B-171

8462-NCAP-10

CFC_60

Time [S]

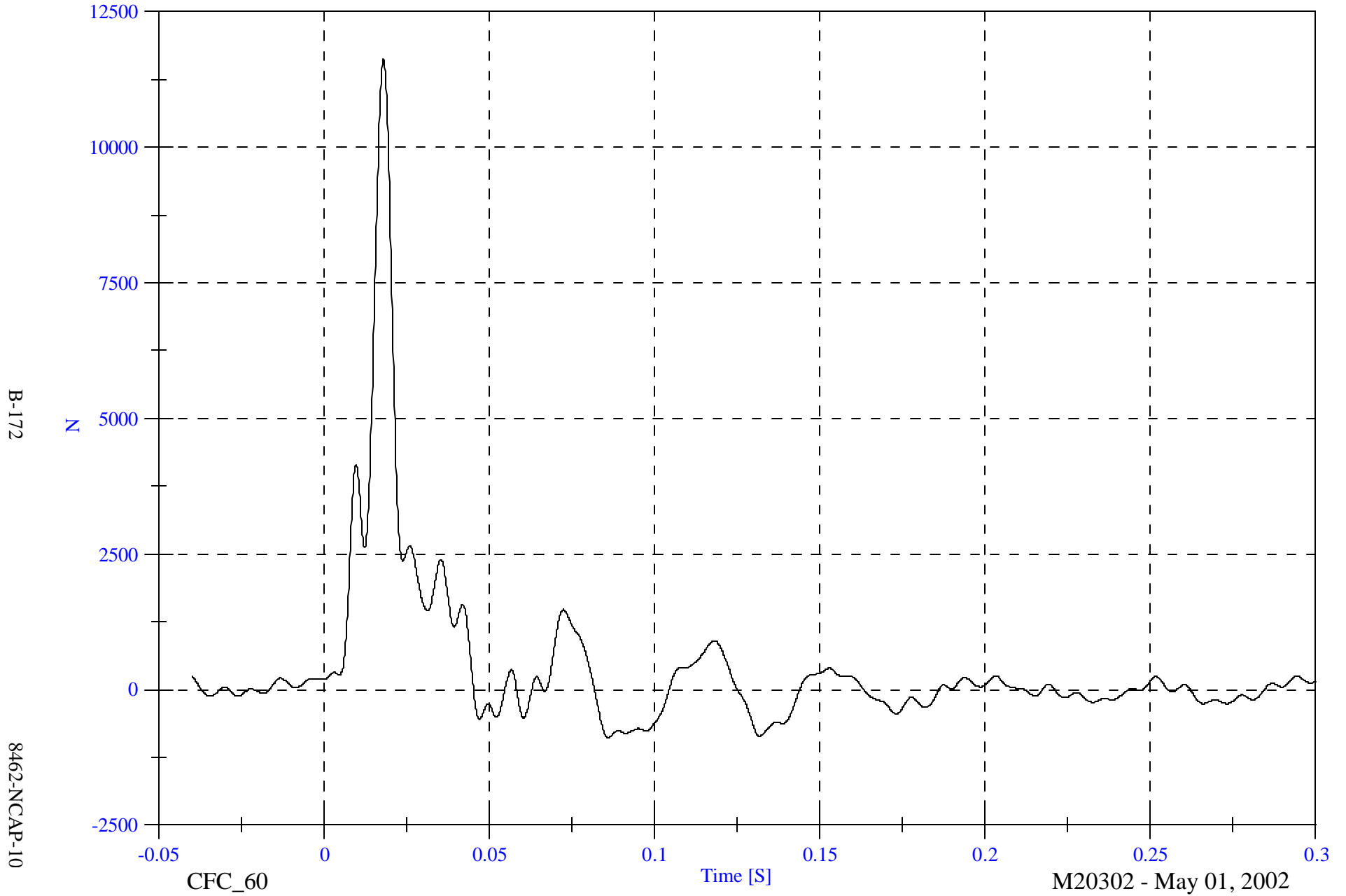
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell D3 Fx

Max: 11628.7 [N] at 0.018 [S]

Min: -888.1 [N] at 0.086 [S]

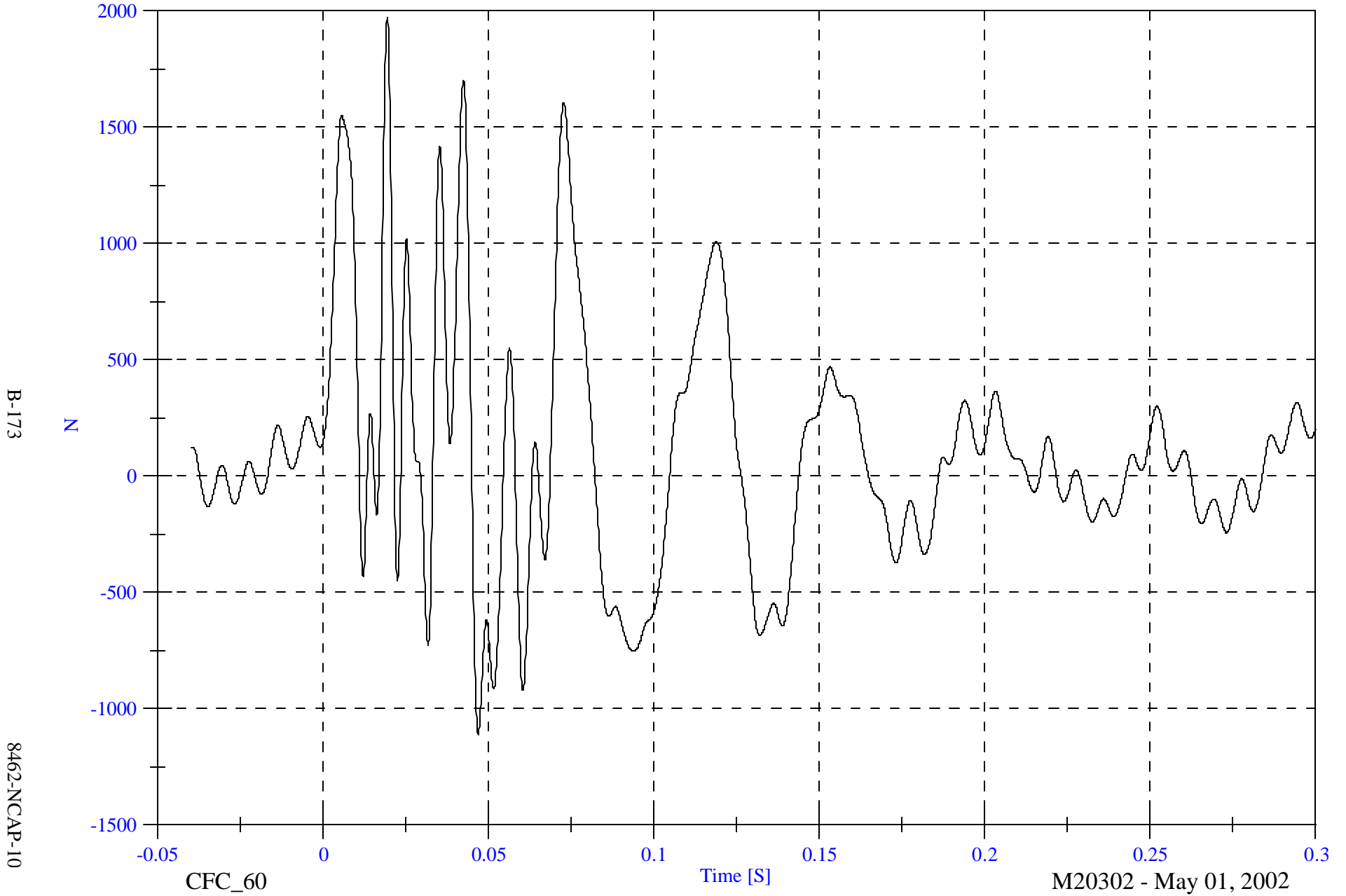


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1974.4 [N] at 0.019 [S]

Barrier Load Cell D4 Fx

Min: -1111.7 [N] at 0.047 [S]

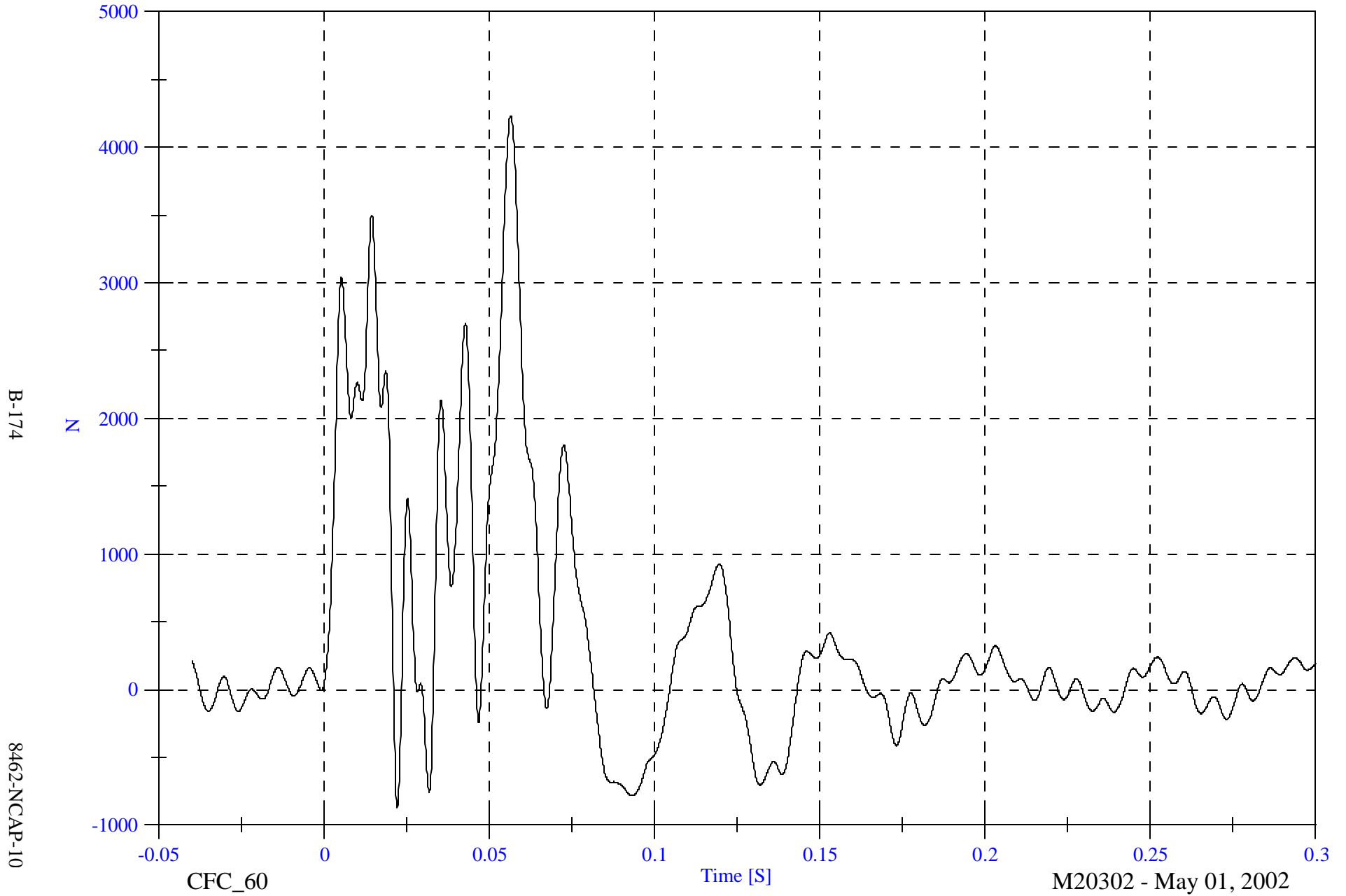


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 4231.8 [N] at 0.056 [S]

Barrier Load Cell D5 Fx

Min: -867.1 [N] at 0.022 [S]



B-174

8462-NCAP-10

CFC_60

Time [S]

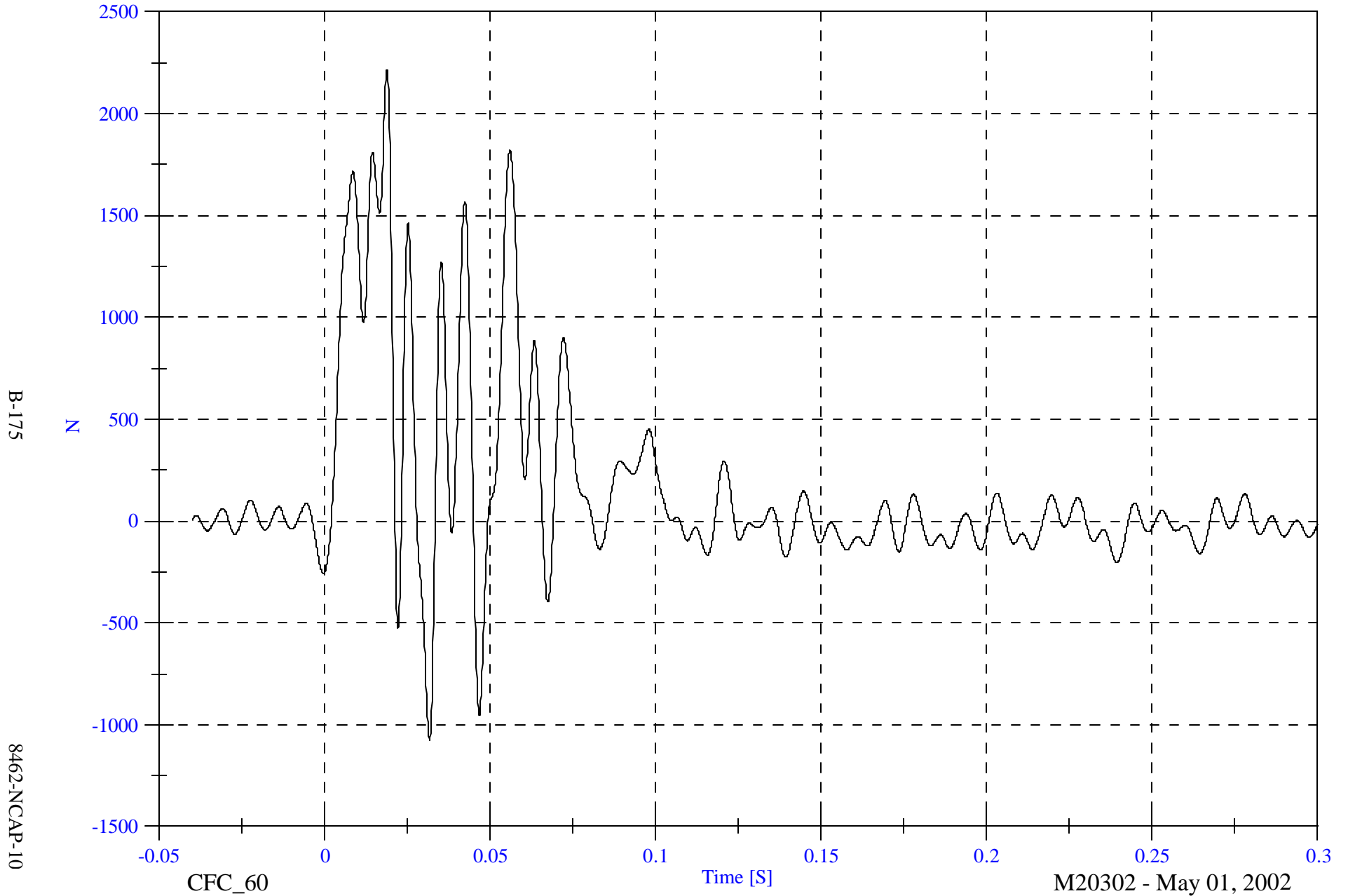
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 2214.8 [N] at 0.019 [S]

Barrier Load Cell D6 Fx

Min: -1074.3 [N] at 0.032 [S]



B-175

8462-NCAP-10

CFC_60

Time [S]

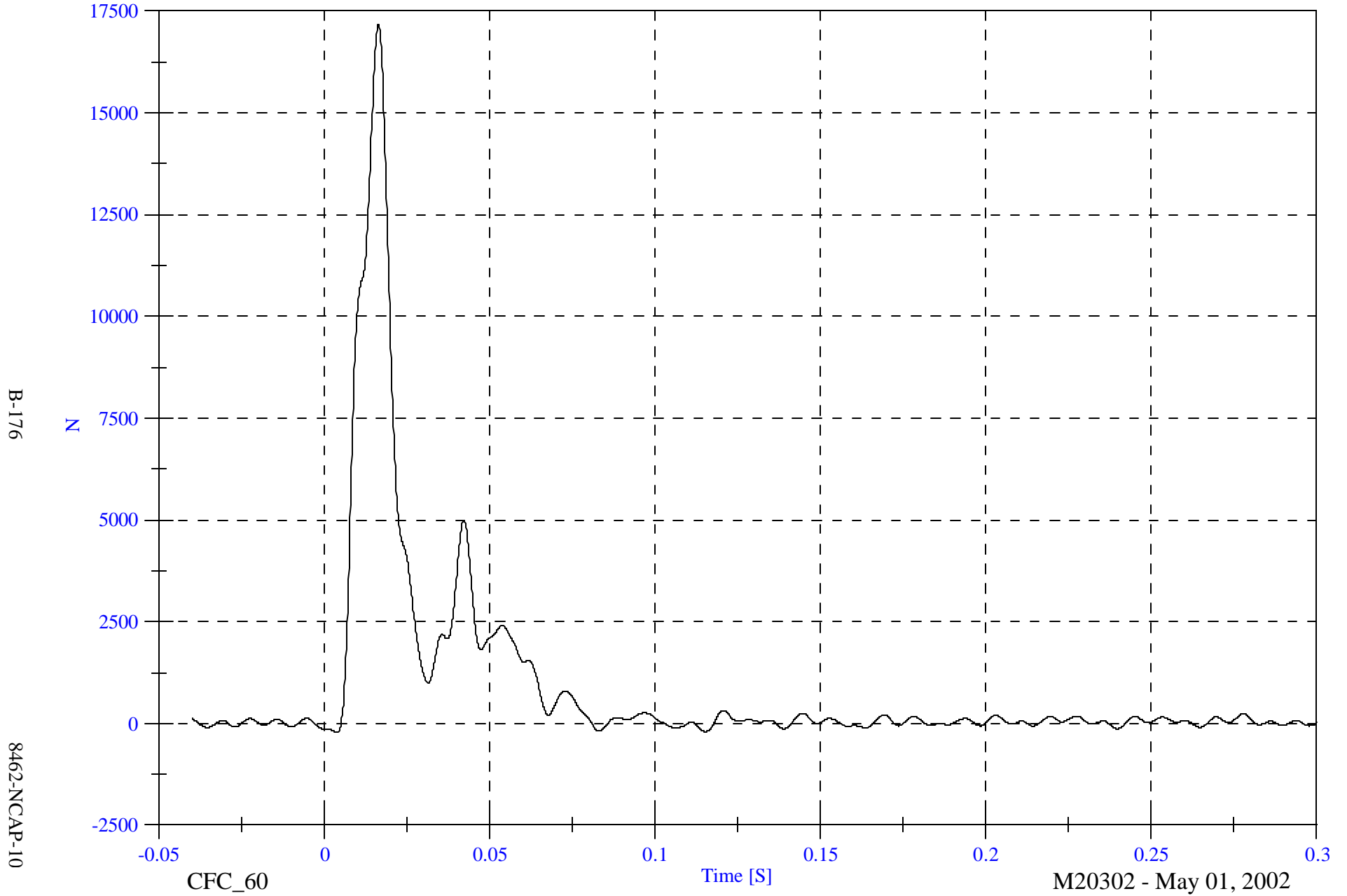
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell D7 Fx

Max: 17177.1 [N] at 0.016 [S]

Min: -227.3 [N] at 0.004 [S]



B-176

8462-NCAP-10

CFC_60

Time [S]

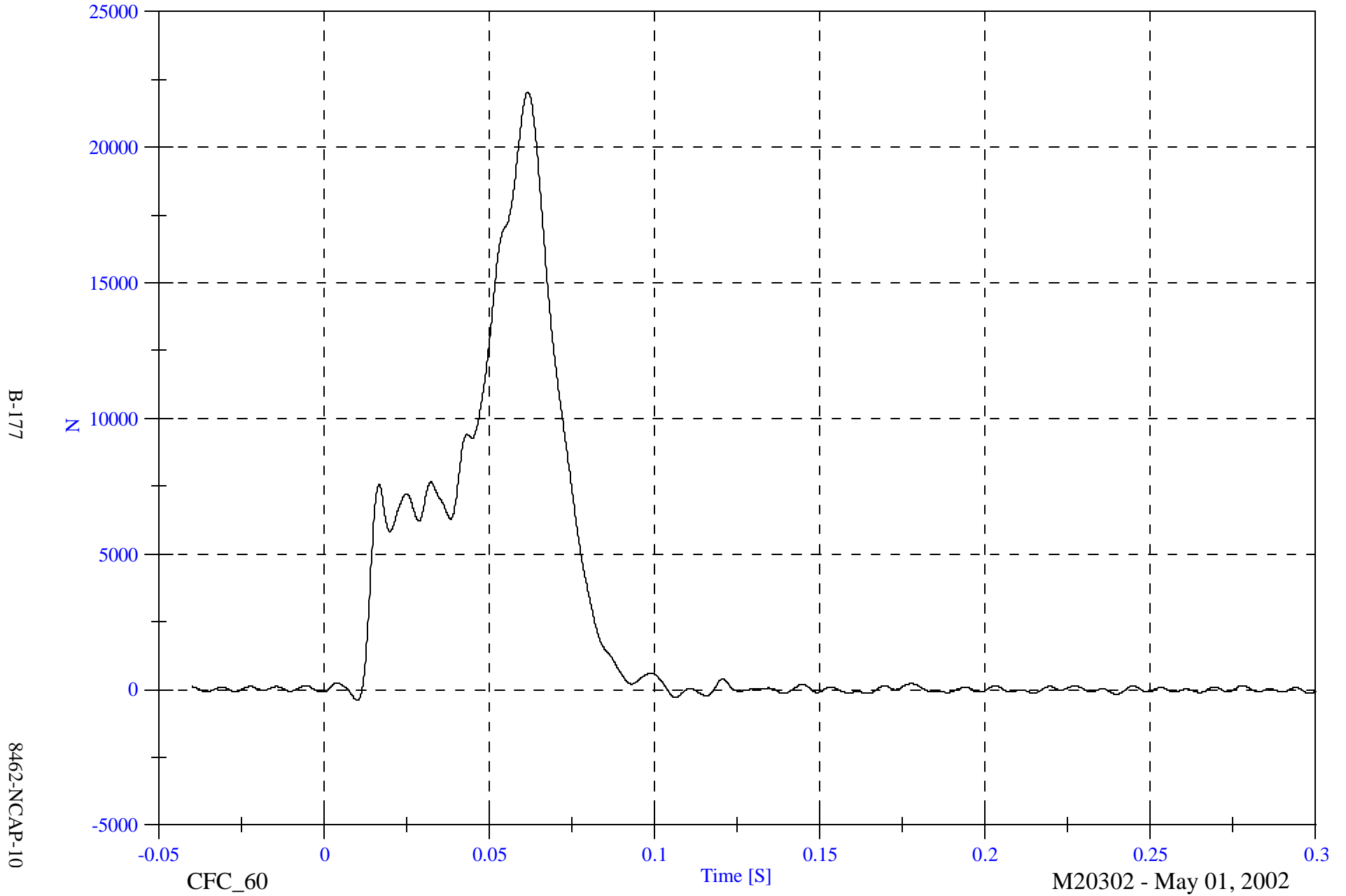
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell D8 Fx

Max: 22031.1 [N] at 0.062 [S]

Min: -391.0 [N] at 0.010 [S]



B-177

8462-NCAP-10

CFC_60

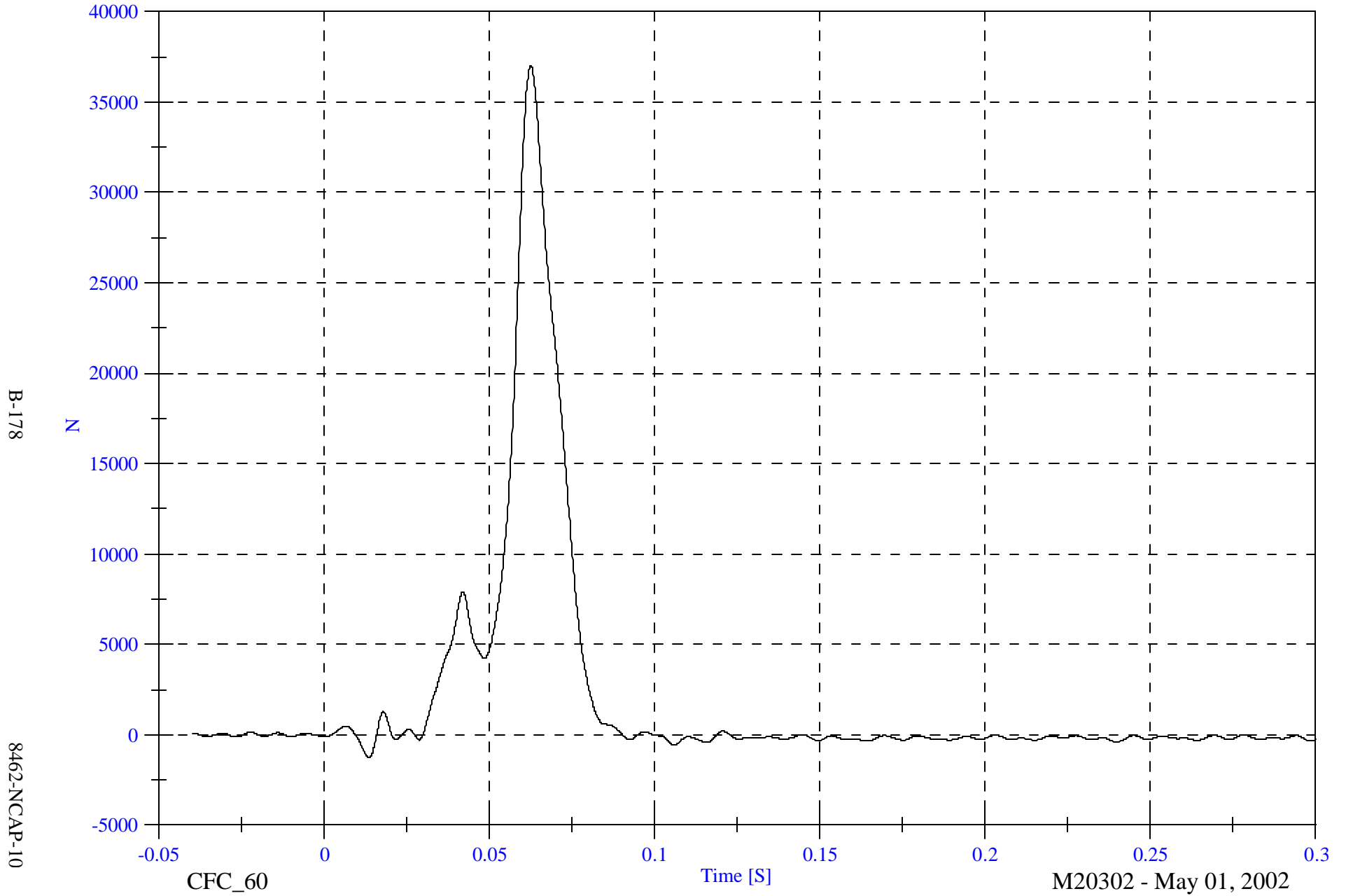
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Barrier Load Cell D9 Fx

Max: 37021.9 [N] at 0.062 [S]

Min: -1272.3 [N] at 0.014 [S]



B-178

8462-NCAP-10

CFC_60

Time [S]

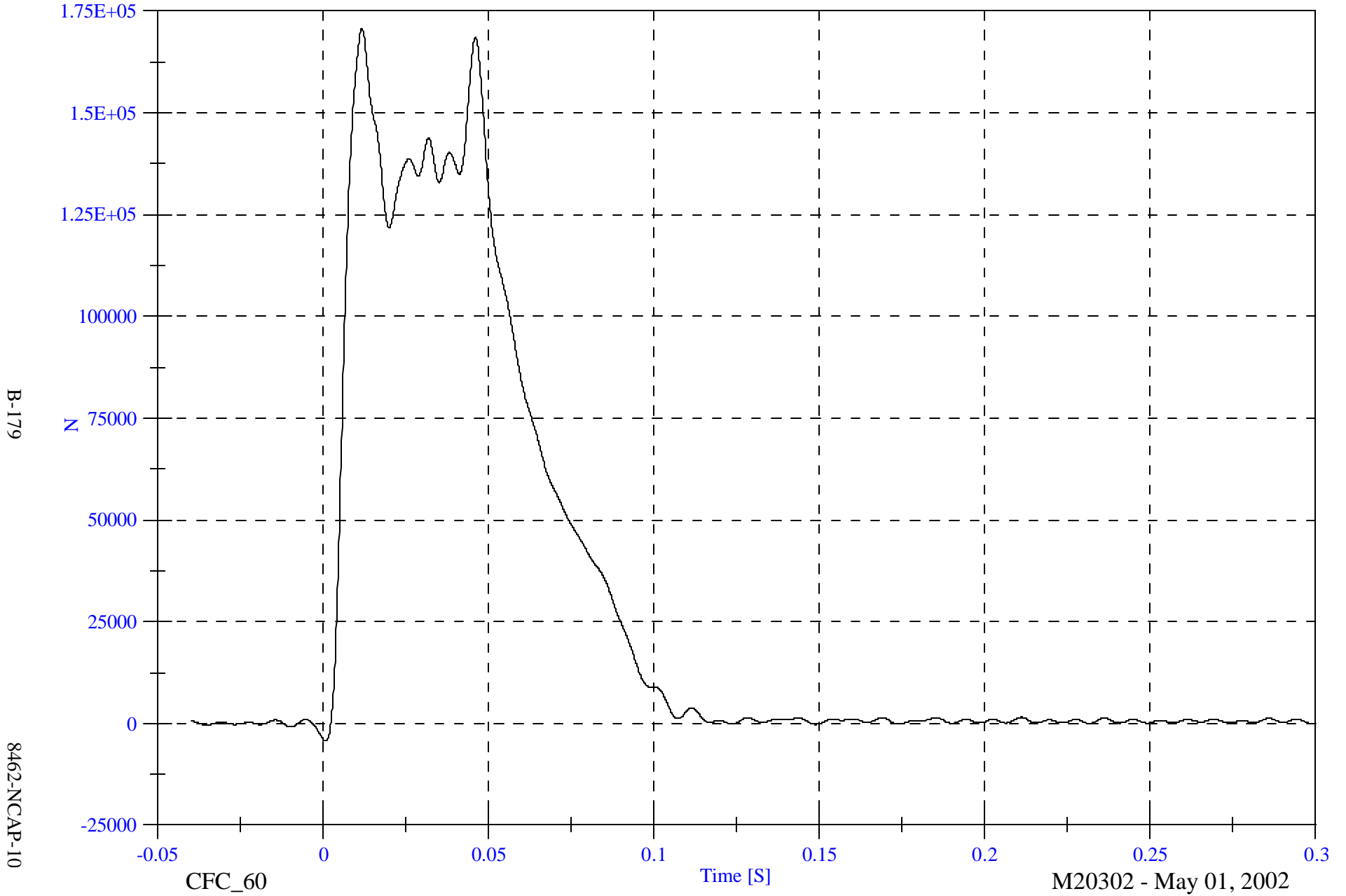
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 170630.6 [N] at 0.012 [S]

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

Min: -4315.8 [N] at 0.001 [S]

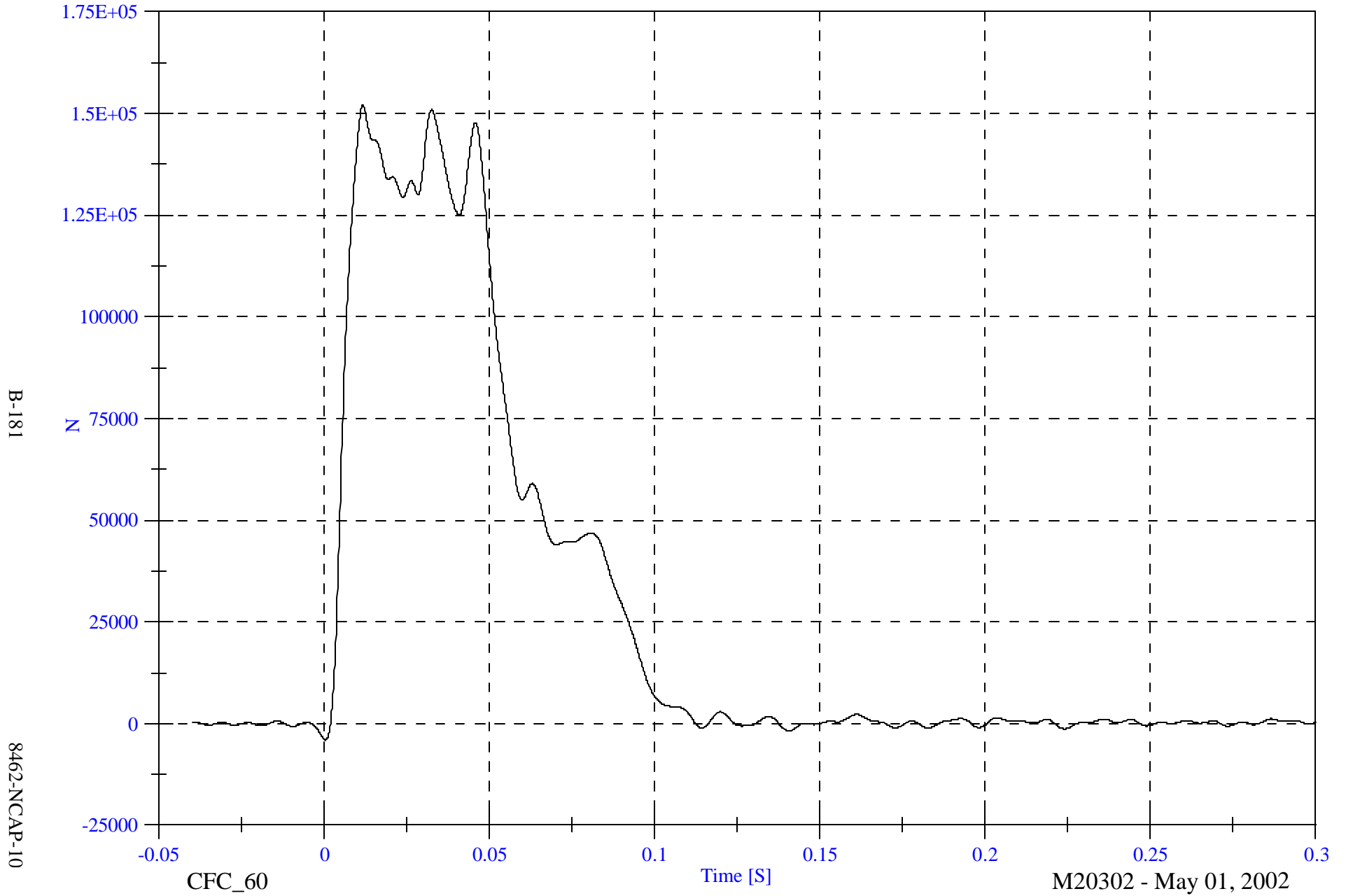


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 151995.0 [N] at 0.012 [S]

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

Min: -4061.7 [N] at 0.000 [S]



B-181

8462-NCAP-10

CFC_60

Time [S]

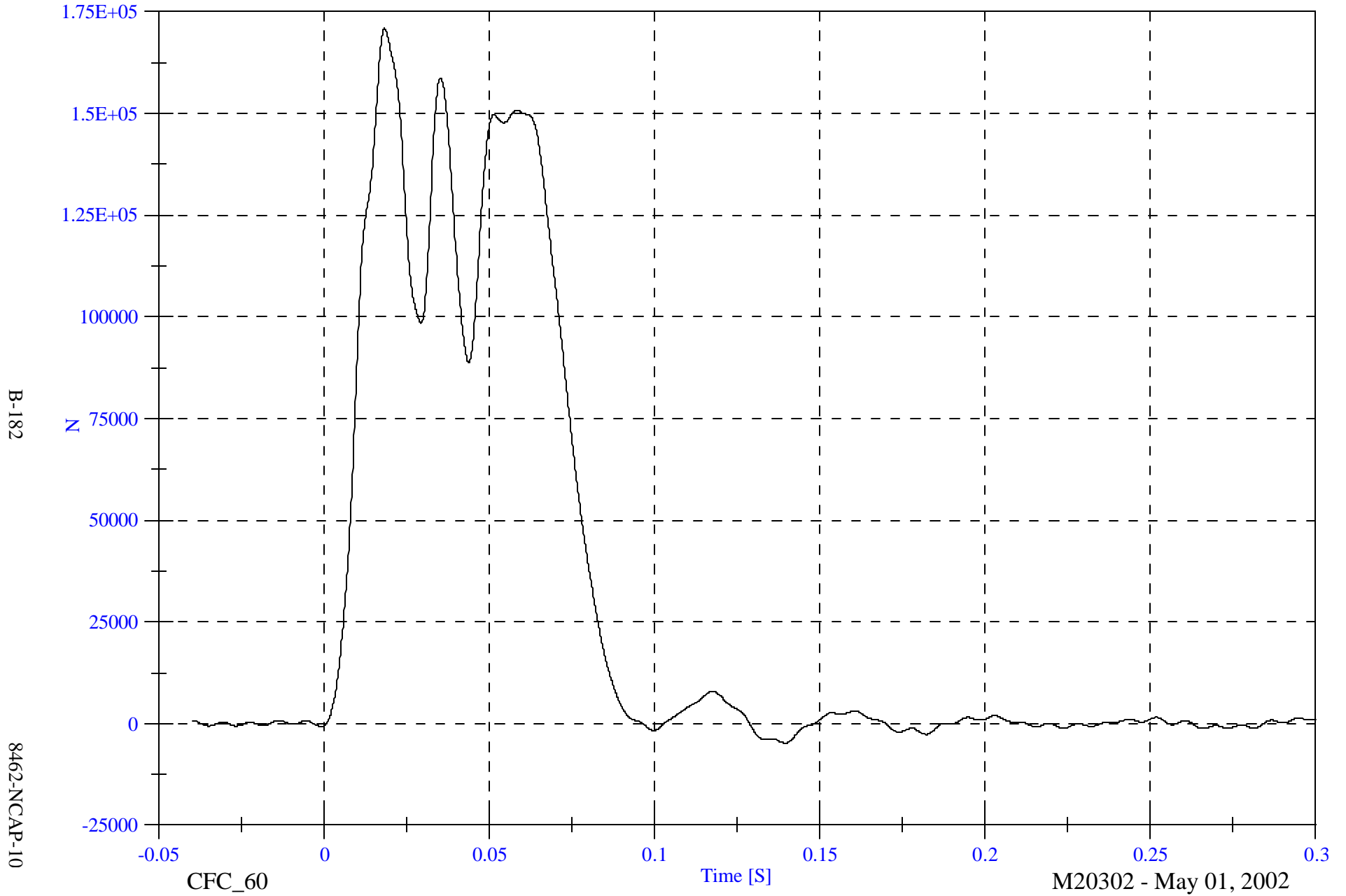
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 170830.9 [N] at 0.018 [S]

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

Min: -4801.5 [N] at 0.139 [S]



B-182

8462-NCAP-10

CFC_60

Time [S]

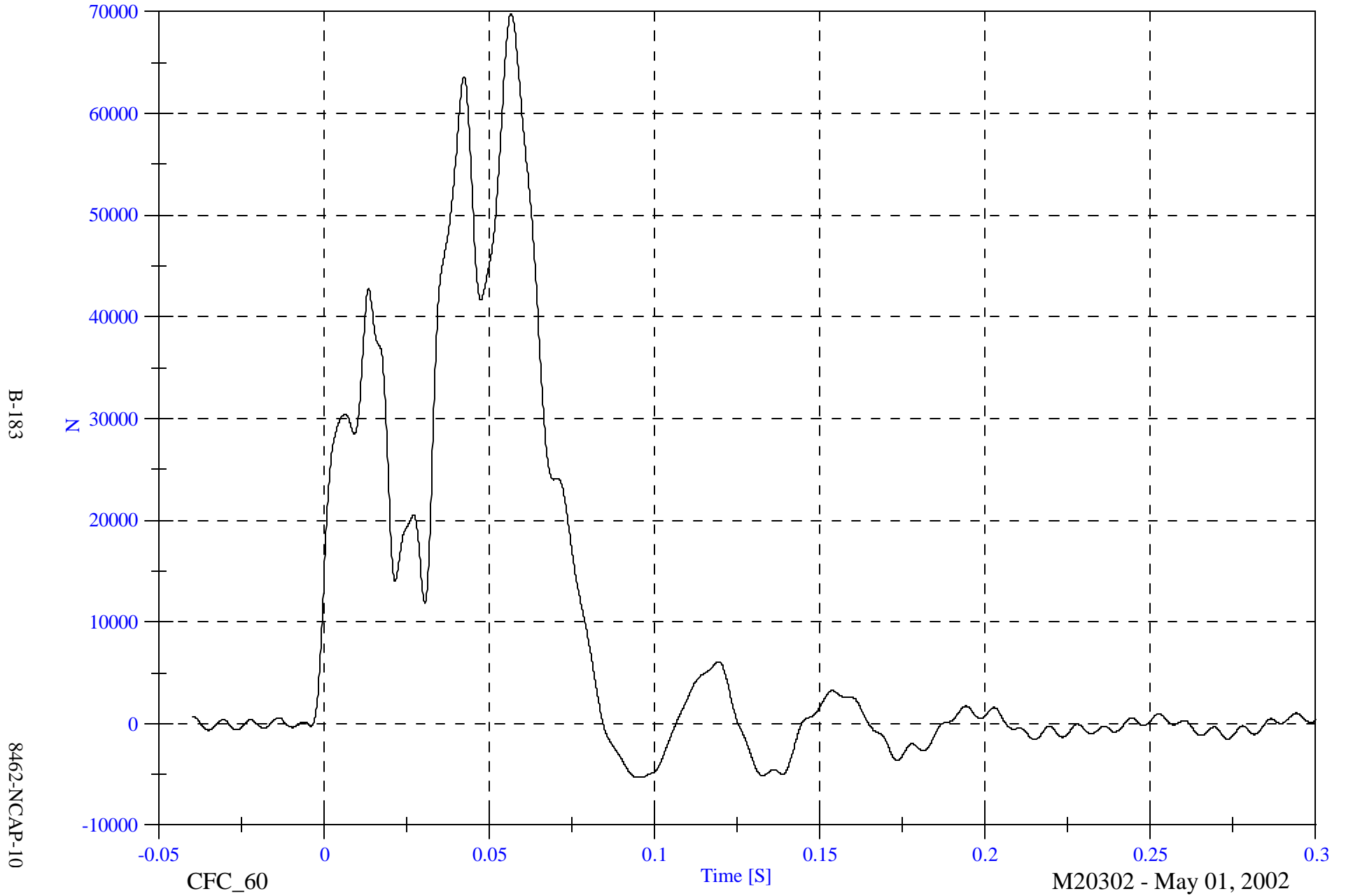
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 69818.5 [N] at 0.057 [S]

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

Min: -5311.9 [N] at 0.096 [S]



B-183

8462-NCAP-10

CFC_60

Time [S]

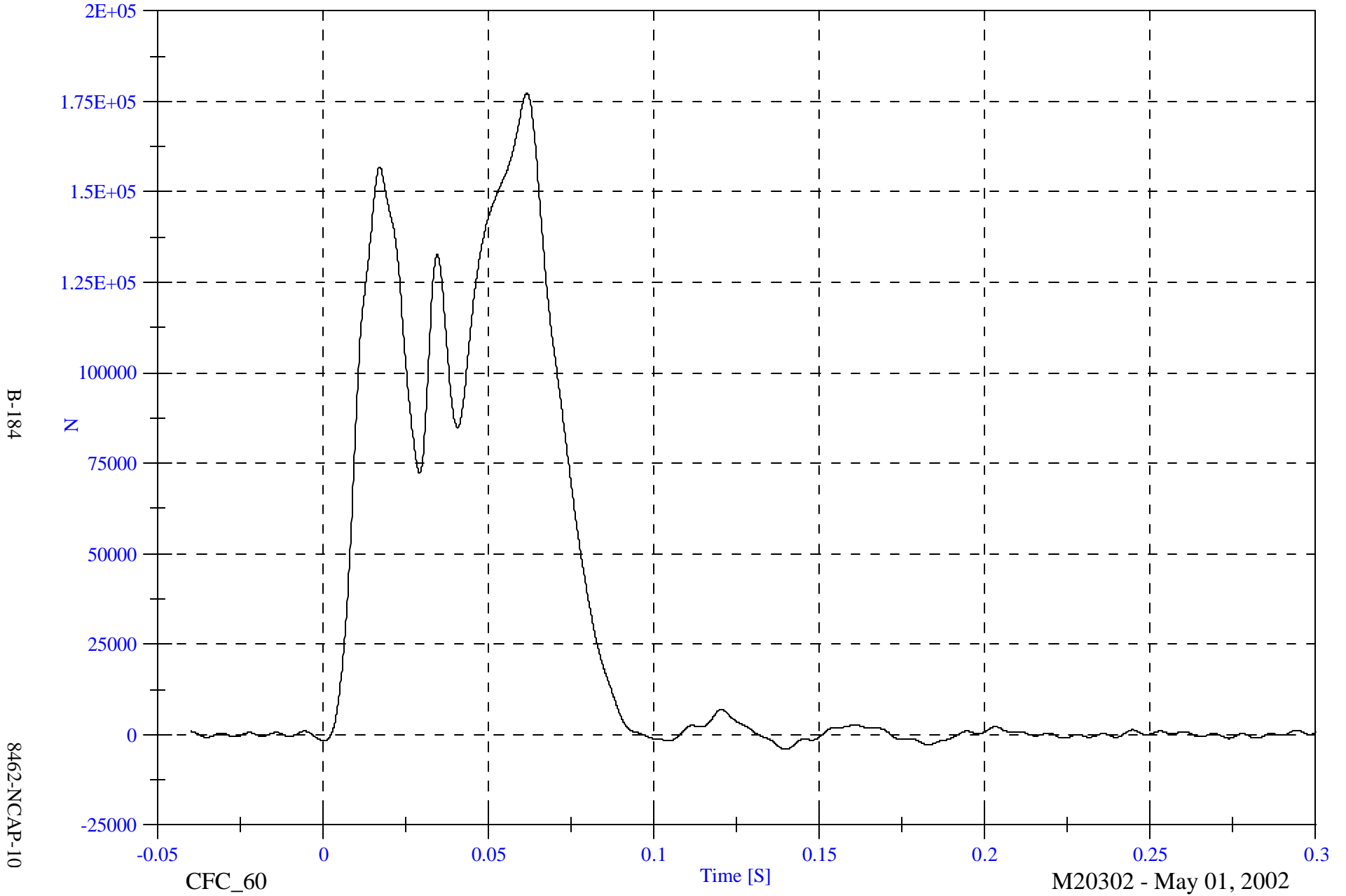
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 177225.6 [N] at 0.062 [S]

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

Min: -4064.8 [N] at 0.140 [S]

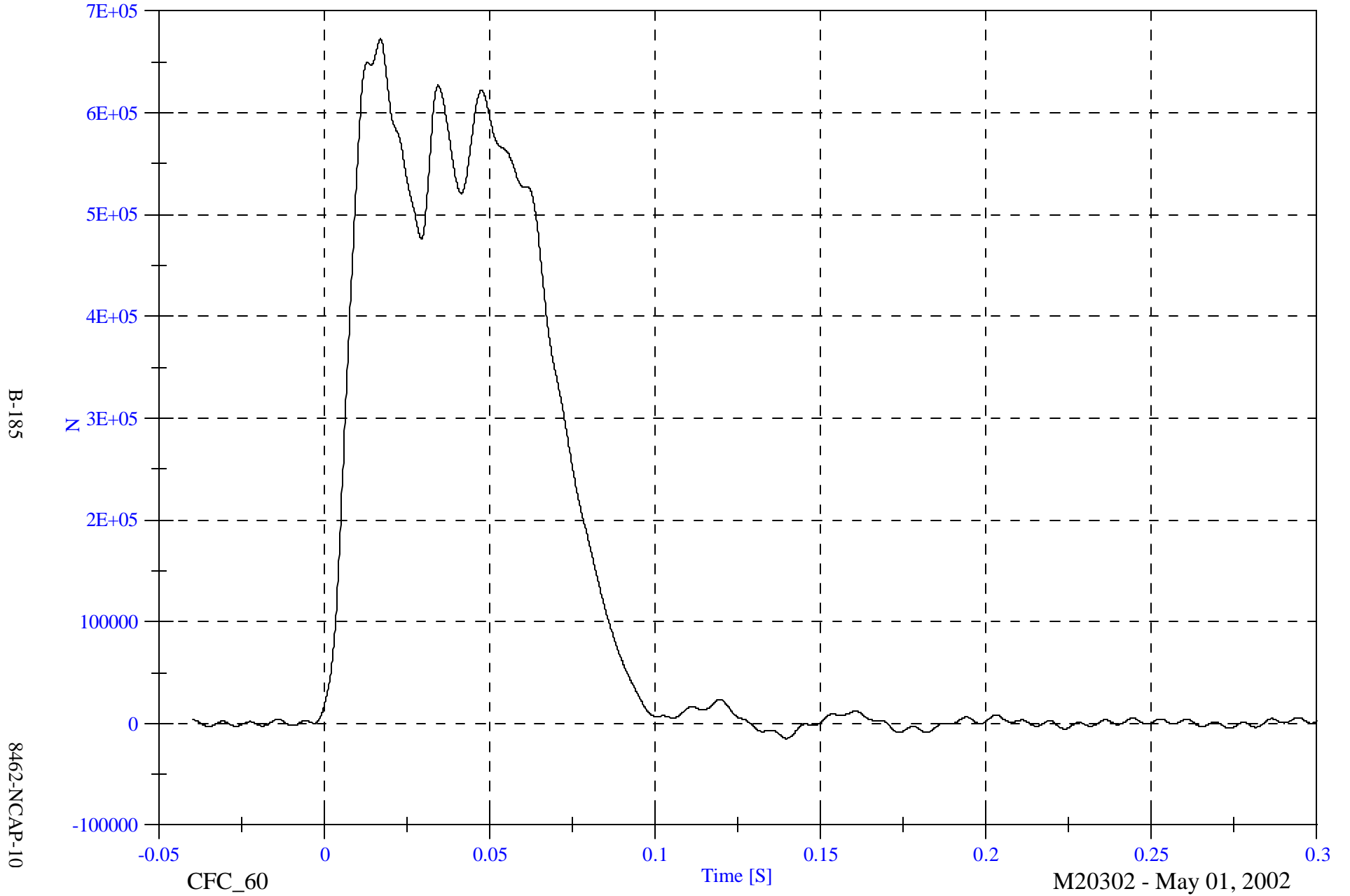


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 672393.4 [N] at 0.017 [S]

Total Load Cell Sum (All 6 Groups)

Min: -14847.3 [N] at 0.140 [S]



B-185

8462-NCAP-10

CFC_60

Time [S]

M20302 - May 01, 2002

APPENDIX C

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

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

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

Dummy serial numbers and certification dates are:

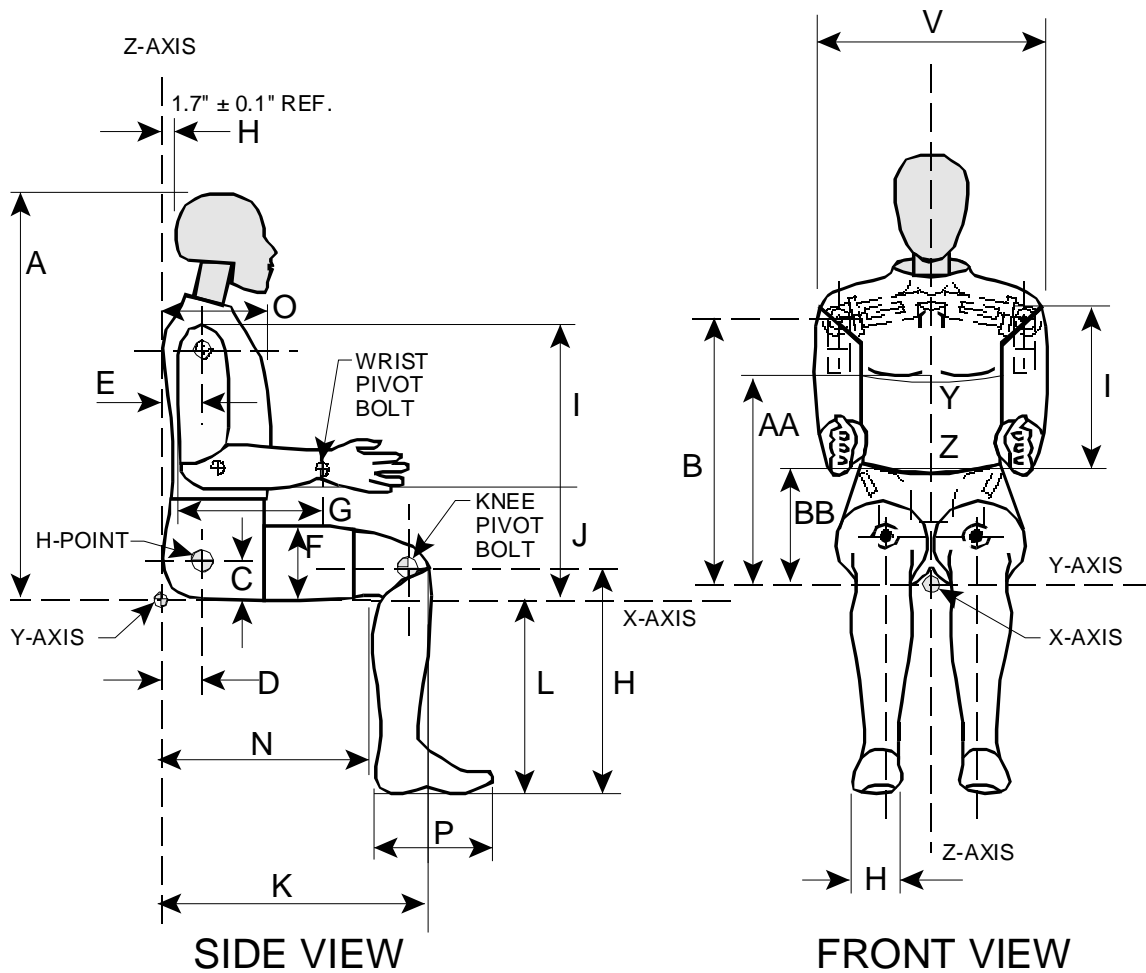
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	150	April 24, 2002
#2/Right Front Passenger	245	April 24, 2002

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 Indicant Testing Final Report No. 6525-V-1.

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS
SPECIFICATIONS



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

PART 572E
HEAD DROP TEST

Dummy Serial Number 150
Sequential Test Number 1
Date April 22, 2002
Workfile 150H2

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	71.0
Relative Humidity	10% - 70%	45.0
Peak Resultant Acceleration	225-275 G's	252.70
Peak Lateral Acceleration	15 G's Max	1.19
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	150	
Sequential Test Number	1	
Date	April 23, 2002	6 Axis Neck Transducer
Workfile	150Flx	

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	72.0
Relative Humidity	10% - 70%	45.0
Impact Velocity	22.60 - 23.40 Ft/s	23.12
Pendulum Deceleration	10 ms	22.50 - 27.50 G's
	20 ms	17.60 - 22.60 G's
	30 ms	12.50 - 18.50 G's
Max Pendulum G's Above 30 ms	29 G's Max	14.22
Deceleration - Time Curve Decay Time to 5 G's	34 - 42 ms	41.90
D Plane Rotation	Max	64 - 78 Deg
	Time	57 - 64 ms
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs
	Time	47 - 58 ms
Rotation Angle - Time Curve Decay Time to Zero	113 - 128 ms	113.90
Positive Moment - Time Curve Decay Time to Zero	97 - 107 ms	97.90

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	150	
Sequential Test Number	1	
Date	April 23, 2002	6 Axis Neck Transducer
Workfile	150Ext	

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	72.0
Relative Humidity	10% - 70%	45.0
Impact Velocity	19.50 - 20.30 Ft/s	19.80
Pendulum Deceleration	10 ms	17.20 - 21.20 G's
	20 ms	14.00 - 19.00 G's
	30 ms	11.00 - 16.00 G's
Max Pendulum G's Above 30 ms	22 G's Max	14.90
Deceleration - Time Curve Decay Time to 5 G's	38 - 46 ms	39.70
D Plane Rotation	Max	81 - 106 Deg
	Time	72 - 82 ms
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs
	Time	65 - 79 ms
Rotation Angle - Time Curve Decay Time to Zero	147 - 174 ms	153.30
Positive Moment - Time Curve Decay Time to Zero	120 - 148 ms	148.00

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 150
Sequential Test Number 1
Date April 24, 2002
Workfile 150T

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0
Relative Humidity	10% - 70%	17.0
Pendulum Velocity	21.6 - 22.4 Ft/s	22.12
Maximum Deflection	2.50 - 2.86 in	2.51
Maximum Resistive Force	1160 - 1325 Lbs	1320.51
Internal Hysteresis	69 - 85 %	70.15

Remarks:

Laboratory Technician:

_____ B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 150
 Sequential Test Number 1
 Date April 29, 2002
 Workfile 150LF/150RF

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	74.0
Relative Humidity	10% - 70%	35.0
Probe Velocity	6.8 - 7.0 Ft/s	6.90
Peak Knee Impact Force	1060 - 1300 Lbs	1158.79
RIGHT KNEE		
Temperature	66 - 78 Deg F	74.0
Relative Humidity	10% - 70%	35.0
Probe Velocity	6.8 - 7.0 Ft/s	6.90
Peak Knee Impact Force	1060 - 1300 Lbs	1245.87

Remarks:

Laboratory Technician:

_____ B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 150
 Sequential Test Number 1
 Date April 24, 2002

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			20
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	34.0
Chest Depth	O	8.4 - 9.0 in	8.4
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	34.7
Thigh Clearance	F	5.5 - 6.1 in	5.8
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.5
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.1
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.5

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 245
Sequential Test Number 1
Date April 22, 2002
Workfile 245H

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	71.0
Relative Humidity	10% - 70%	45.0
Peak Resultant Acceleration	225-275 G's	259.15
Peak Lateral Acceleration	15 G's Max	13.53
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	245	
Sequential Test Number	1	
Date	April 24, 2002	6 Axis Neck Transducer
Workfile	245Flx	

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	72.0
Relative Humidity	10% - 70%	40.0
Impact Velocity	22.60 - 23.40 Ft/s	23.06
Pendulum Deceleration	10 ms	22.50 - 27.50 G's
	20 ms	17.60 - 22.60 G's
	30 ms	12.50 - 18.50 G's
Max Pendulum G's Above 30 ms	29 G's Max	15.77
Deceleration - Time Curve Decay Time to 5 G's	34 - 42 ms	36.80
D Plane Rotation	Max	64 - 78 Deg
	Time	57 - 64 ms
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs
	Time	47 - 58 ms
Rotation Angle - Time Curve Decay Time to Zero	113 - 128 ms	124.10
Positive Moment - Time Curve Decay Time to Zero	97 - 107 ms	101.70

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	245	
Sequential Test Number	1	
Date	April 24, 2002	6 Axis Neck Transducer
Workfile	245Ext	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	72.0
Relative Humidity		10% - 70%	40.0
Impact Velocity		19.50 - 20.30 Ft/s	19.90
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.66
	20 ms	14.00 - 19.00 G's	16.96
	30 ms	11.00 - 16.00 G's	13.41
Max Pendulum G's Above 30 ms		22 G's Max	13.41
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	44.20
D Plane Rotation	Max	81 - 106 Deg	100.59
	Time	72 - 82 ms	80.30
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-39.30
	Time	65 - 79 ms	76.40
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	167.40
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	126.90

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 245
Sequential Test Number 1
Date April 24, 2002
Workfile 245T

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0
Relative Humidity	10% - 70%	17.0
Pendulum Velocity	21.6 - 22.4 Ft/s	22.01
Maximum Deflection	2.50 - 2.86 in	2.51
Maximum Resistive Force	1160 - 1325 Lbs	1303.81
Internal Hysteresis	69 - 85 %	71.74

Remarks:

Laboratory Technician:

_____ B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 245
 Sequential Test Number 1
 Date April 29, 2002
 Workfile 245LF/245RF

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	74.0
Relative Humidity	10% - 70%	35.0
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1184.93
RIGHT KNEE		
Temperature	66 - 78 Deg F	74.0
Relative Humidity	10% - 70%	35.0
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1150.56

Remarks:

Laboratory Technician:

_____ B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 245
 Sequential Test Number 1
 Date April 24, 2002

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			20
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	33.8
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	34.7
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.5
Popliteal Height	L	16.9 - 17.9 in	17.5
Knee Pivot Height	M	19.1 - 19.7 in	19.6
Foot Length	P	9.9 - 10.5 in	10.2
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.1
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

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 150)	Manufacturer	Serial #	Calibration		
			Last	Next	
Head 9 Array	X Arm Y	ENDEVCO	AC-P17531	03/25/02	09/23/02
	X Arm Z	ENDEVCO	AC-P14965	03/25/02	09/23/02
	Y Arm X	ENDEVCO	AC-P17563	03/25/02	09/23/02
	Y Arm Z	ENDEVCO	AC-P18551	03/25/02	09/23/02
	Z Arm X	ENDEVCO	AC-P17539	03/25/02	09/23/02
	Z Arm Y	ENDEVCO	AC-P18718	03/25/02	09/23/02
Head	X	ENDEVCO	AC-P16832	03/26/02	09/24/02
	Y	ENDEVCO	AC-P16591	03/26/02	09/24/02
	Z	ENDEVCO	AC-P16286	03/26/02	09/24/02
Head	X (R)	ENDEVCO	AC-P17141	03/26/02	09/24/02
	Y (R)	ENDEVCO	AC-P17242	03/26/02	09/24/02
	Z (R)	ENDEVCO	AC-P17152	03/26/02	09/24/02
Neck Load Cell	X	DENTON	LC-269FX	01/17/02	07/18/02
	Y	DENTON	LC-269FY	01/17/02	07/18/02
	Z	DENTON	LC-269FZ	01/17/02	07/18/02
Neck Moment	X	DENTON	LC-269MX	01/17/02	07/18/02
	Y	DENTON	LC-269MY	01/17/02	07/18/02
	Z	DENTON	LC-269MZ	01/17/02	07/18/02
Chest	X	ENDEVCO	AC-P17235	04/04/02	10/03/02
	Y	ENDEVCO	AC-P14393	04/04/02	10/03/02
	Z	ENDEVCO	AC-P17285	04/04/02	10/03/02
Chest	X (R)	ENDEVCO	AC-P16863	04/04/02	10/03/02
	Y (R)	ENDEVCO	AC-P17248	04/04/02	10/03/02
	Z (R)	ENDEVCO	AC-P17283	04/04/02	10/03/02
Chest Deflection	X	SERVO	DS-150	03/22/02	09/20/02
Pelvic	X	ENDEVCO	AC-J30041	03/25/02	09/23/02
	Y	ENDEVCO	AC-P13355	03/25/02	09/23/02
	Z	ENDEVCO	AC-P13329	03/25/02	09/23/02

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 150)	Manufacturer	Serial #	Calibration	
			Last	Next
Left Femur Load Cell Fz	GSE	LC-418	01/24/02	07/25/02
Right Femur Load Cell Fz	GSE	LC-419	01/24/02	07/25/02
Left Knee Shear Dx	SPACEAGE CONTROL	DS-821	12/07/01	06/07/02
Right Knee Shear Dx	SPACEAGE CONTROL	DS-817	12/07/01	06/07/02
Left Upper Tibia	Mx	DENTON	LC-016MX	04/08/02
	My	DENTON	LC-016MY	04/08/02
Left Lower Tibia	Fz	DENTON	LC-123FZ	04/08/02
	Mx	DENTON	LC-123MX	04/08/02
	My	DENTON	LC-123MY	04/08/02
Right Upper Tibia	Mx	DENTON	LC-023MX	04/08/02
	My	DENTON	LC-023MY	04/08/02
Right Lower Tibia	Fz	DENTON	LC-111FZ	04/08/02
	Mx	DENTON	LC-111MX	04/08/02
	My	DENTON	LC-111MY	04/08/02
Left Foot Rear	X	ENDEVCO	AC-P19343	04/04/02
	Z	ENDEVCO	AC-P16583	04/04/02
Left Foot Front	Z	ENDEVCO	AC-P18728	04/04/02
Right Foot Rear	X	ENDEVCO	AC-P18628	04/04/02
	Z	ENDEVCO	AC-P18741	04/04/02
Right Foot Front	Z	ENDEVCO	AC-P16587	04/04/02
Lap Belt Load Cell	LEBOW	LC-706	02/12/02	08/13/02
Shoulder Belt Load Cell	-	-	-	-
Belt Stretch Transducer	-	-	-	-

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 245)	Manufacturer	Serial #	Calibration		
			Last	Next	
Head 9 Array	X Arm Y	ENDEVCO	AC-P18558	03/21/02	09/19/02
	X Arm Z	ENDEVCO	AC-P19212	03/21/02	09/19/02
	Y Arm X	ENDEVCO	AC-P19197	03/21/02	09/19/02
	Y Arm Z	ENDEVCO	AC-P18738	03/21/02	09/19/02
	Z Arm X	ENDEVCO	AC-P19217	03/21/02	09/19/02
	Z Arm Y	ENDEVCO	AC-P18739	03/21/02	09/19/02
Head	X	ENDEVCO	AC-J32184	03/22/02	09/20/02
	Y	ENDEVCO	AC-J32185	03/22/02	09/20/02
	Z	ENDEVCO	AC-J31011	03/22/02	09/20/02
Head	X (R)	ENDEVCO	AC-J31020	03/24/02	09/22/02
	Y (R)	ENDEVCO	AC-J31101	03/22/02	09/20/02
	Z (R)	ENDEVCO	AC-J31059	03/22/02	09/20/02
Neck Load Cell	X	DENTON	LC-076FX	01/17/02	07/18/02
	Y	DENTON	LC-076FY	01/17/02	07/18/02
	Z	DENTON	LC-076FZ	01/17/02	07/18/02
Neck Moment	X	DENTON	LC-076MX	01/17/02	07/18/02
	Y	DENTON	LC-076MY	01/17/02	07/18/02
	Z	DENTON	LC-076MZ	01/17/02	07/18/02
Chest	X	ENDEVCO	AC-J34019	03/21/02	09/19/02
	Y	ENDEVCO	AC-J33018	03/21/02	09/19/02
	Z	ENDEVCO	AC-J32783	03/21/02	09/19/02
Chest	X (R)	ENDEVCO	AC-J31066	03/21/02	09/19/02
	Y (R)	ENDEVCO	AC-P16979	03/21/02	09/19/02
	Z (R)	ENDEVCO	AC-J31022	03/21/02	09/19/02
Chest Deflection	X	SERVO	DS-245	03/22/02	09/20/02
Pelvic	X	ENDEVCO	AC-J31034	03/21/02	09/19/02
	Y	ENDEVCO	AC-P17258	03/21/02	09/19/02
	Z	ENDEVCO	AC-J31010	03/21/02	09/19/02

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 245)	Manufacturer	Serial #	Calibration		
			Last	Next	
Left Femur Load Cell	Fz	GSE	LC-551	01/24/02	07/25/02
Right Femur Load Cell	Fz	GSE	LC-951	01/24/02	07/25/02
Left Knee Shear	Dx	SPACEAGE CONTROL	DS-819	12/07/01	06/07/02
Right Knee Shear	Dx	SPACEAGE CONTROL	DS-815	12/07/01	06/07/02
Left Upper Tibia	Mx	DENTON	LC-045MX	04/08/02	10/07/02
	My	DENTON	LC-045MY	04/08/02	10/07/02
Left Lower Tibia	Fz	DENTON	LC-125FZ	04/08/02	10/07/02
	Mx	DENTON	LC-125MX	04/08/02	10/07/02
	My	DENTON	LC-125MY	04/08/02	10/07/02
Right Upper Tibia	Mx	DENTON	LC-038MX	04/08/02	10/07/02
	My	DENTON	LC-038MY	04/08/02	10/07/02
Right Lower Tibia	Fz	DENTON	LC-124FZ	04/08/02	10/07/02
	Mx	DENTON	LC-124MX	04/08/02	10/07/02
	My	DENTON	LC-124MY	04/08/02	10/07/02
Left Foot Rear	X	ENDEVCO	AC-J30491	03/21/02	09/19/02
	Z	ENDEVCO	AC-J31026	03/21/02	09/19/02
Left Foot Front	Z	ENDEVCO	AC-J32831	03/21/02	09/19/02
Right Foot Rear	X	ENDEVCO	AC-J33376	03/21/02	09/19/02
	Z	ENDEVCO	AC-J32832	03/21/02	09/19/02
Right Foot Front	Z	ENDEVCO	AC-J31095	03/21/02	09/19/02
Lap Belt Load Cell		LEBOW	LC-707	02/12/02	08/13/02
Shoulder Belt Load Cell		-	-	-	-
Belt Stretch Transducer		-	-	-	-

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(Six Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	ICS	AC-X83	01/15/02	07/16/02
Right Rear Seat Crossmember X	ICS	AC-X86	04/25/02	10/24/02
Top of Engine	ENDEVCO	AC-B10955	02/11/02	08/12/02
Bottom of Engine	ENDEVCO	AC-P16665	01/15/02	07/16/02
Right Disc Brake Caliper	ENDEVCO	AC-P23288	04/25/02	10/24/02
Instrument Panel	ENDEVCO	AC-P17247	02/26/02	08/27/02
Left Disc Brake Caliper	ENDEVCO	AC-P23276	04/25/02	10/24/02
Left Seat Rear Crossmember Z	ICS	AC-D61	04/04/02	10/03/02
Right Seat Rear Crossmember Z	ICS	AC-D82	04/04/02	10/03/02

REPORT NUMBER: CAL-02-10

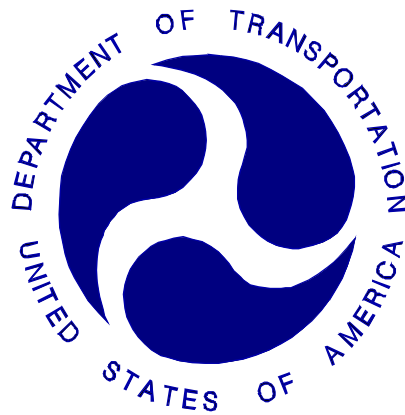
**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

COSCO SAFETY FIRST FORERUNNER
FORWARD FACING AND REARWARD FACING CONFIGURATIONS
SECURED WITH VEHICLE ELR/LOCKING LATCH PLATE 3-POINT BELTS

NHTSA NUMBER: M20302

VERIDIAN ENGINEERING TEST NUMBER: 8642-NCAP-10

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



May 1, 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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Accepted By:

Acceptance Date:

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4. Title and Subtitle Final Report of Cosco Safety First Forerunner Secured with Vehicle ELR/Locking Latch Plate 3-Point Belts NHTSA No.: M20302		5. Report Date May 1, 2002	
		6. Performing Organization Code CAL	
7. Author(s) Lawrence Q. Valvo, Project Engineer David J. Travale, Program Manager		8. Performing Organization Report No. 8642-NCAP-10	
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		14. Sponsoring Agency Code NPS-10	
15. Supplementary Notes			
16. Abstract A frontal load cell barrier test was conducted on the subject CRS (Cosco Safety First Forerunner Secured with Vehicle ELR/Locking Latch Plate 3-Point Belts) 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 May 1, 2002.			
17. Key Words New Car Assessment Program (NCAP)		18. Distribution Statement <u>Copies of this report are available from:</u> National Highway Traffic Safety Administration Technical Reference Division Room 5108 (NAD-52) 400 Seventh St., S.W. Washington, D.C. 20590 Telephone No. (202) 366-4946 ATTN: Robert Hornicle	
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TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	PURPOSE AND SUMMARY OF NCAP TEST	1-1
2	DATA SHEETS	2-1
	Data Sheet 1 – Crash Test Summary	2-1
	Data Sheet 2 – CRS Parameter Data	2-2
	Data Sheet 3 – CRS Dummy Positioning in Vehicle	2-3
	Data Sheet 4 – CRS Dummy Injury Criteria Values	2-5
	Data Sheet 5 – CRS Performance Data	2-7
	Data Sheet 6 – CRS Camera Data	2-8
3	PHOTOGRAPHS	3-1
4	CHILD DUMMY RESPONSE AND CRS DATA TRACES	4-1
5	CHILD DUMMY CALIBRATION INFORMATION	5-1
6	TEST EQUIPMENT LIST AND CALIBRATION INFORMATION	6-1

SECTION 1

PURPOSE AND SUMMARY OF TEST M20302

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. Part 572 R dummies (CRABIs) also contained a redundant head z accelerometer, upper and lower neck six axis loadcells and a lower lumbar six axis loadcell. Part 572 P dummies also contained a redundant head z accelerometer, upper and lower neck six axis loadcells and a chest displacement transducer.

The right rear (Position 3) child dummy (serial no. 093) and left rear (Position 4) child dummy (serial no. 042) were calibrated previous to this test series. Child dummy certification information is found in section 5.

The right rear child dummy's HIC was 849.1, maximum chest deceleration over 3 ms was 52.3 g's. The left rear child dummy's HIC was 833.0, maximum chest deceleration over 3 ms was 53.7 g's.

SECTION 2
DATA SHEET NO. 1
CRASH TEST SUMMARY

TEST DUMMY INFORMATION:

DESCRIPTION	Position #3 CRS	Position #4 CRS
ATD Type/Serial No.	CRABI (P572 R) / 093	3 Year Old Hybrid III (P572 P) / 042
Restraint System:	Cosco Safety First Forerunner Secured with Vehicle ELR/Locking Latch Plate 3-Point Belts	Cosco Safety First Forerunner Secured with Vehicle ELR/Locking Latch Plate 3-Point Belts

Number of Data Channels _____ 51
Number of Cameras: _____ 1 _____ Real Time
_____ 2 _____ High Speed

POST TEST DOOR OPENING

DESCRIPTION	FRONT	REAR
Left Side Doors	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Right Side Doors	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Hatch/Other Door	-	-

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 head to upper portion of CRS seat back	Chin to chest; Back of head to upper portion of CRS seat back
Upper Torso Contact:	None	None
Lower Torso Contact:	None	None
Left Knee Contact:	None	None
Right Knee Contact:	None	None
Right Knee Contact:	Feet to P3 seat back	Feet to back of P1 seat back

DATA SHEET NO. 2

CRS PARAMETER DATA

CRS: Cosco Safety First Forerunner Secured with Vehicle ELR/Locking Latch Plate 3-Point Belts NHTSA No. M20302

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Delivered Weight of Vehicle with Maximum Fluids = 2235.5 kg (A)

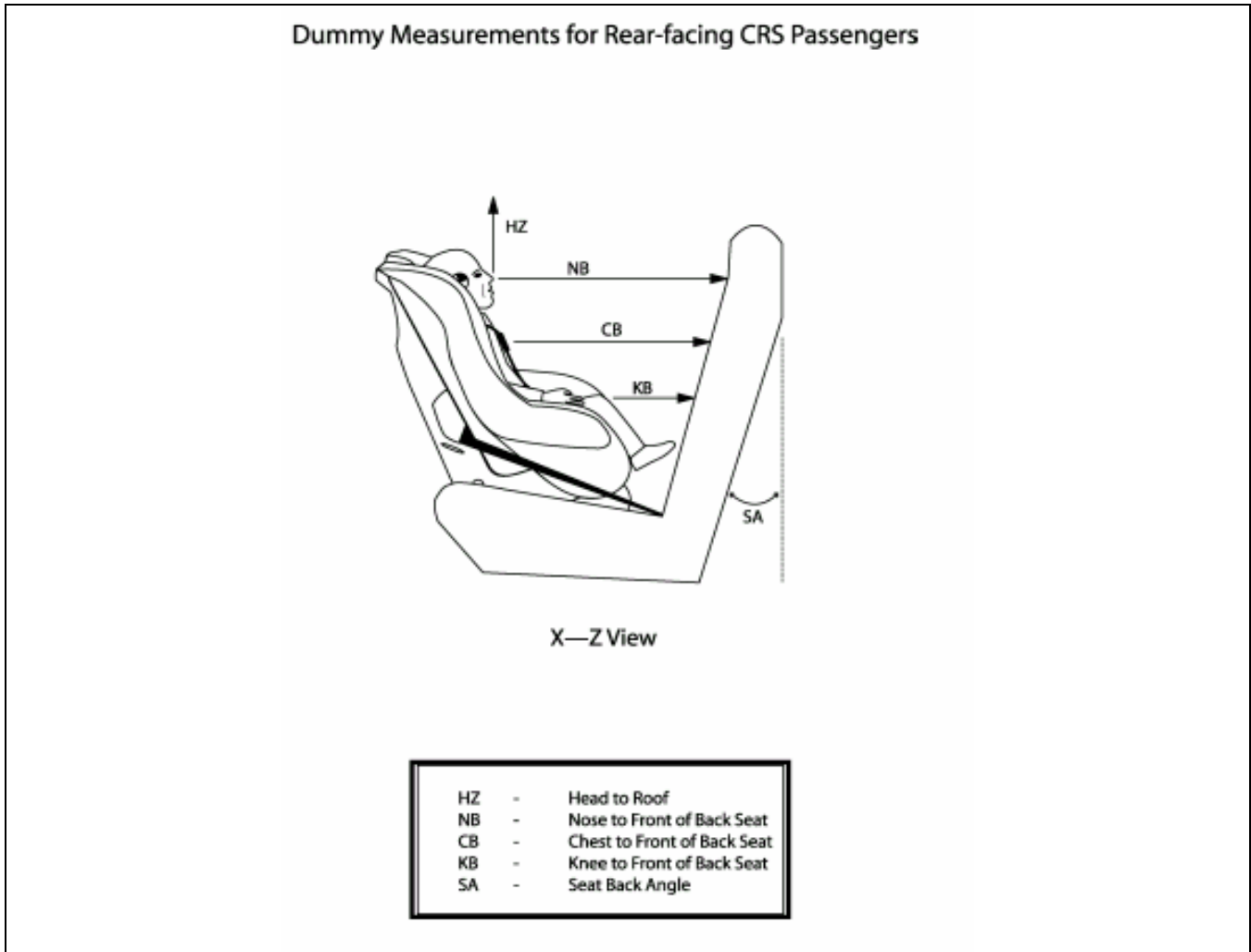
AS TESTED WEIGHT OF VEHICLE (2 ATDs + 2 CRABI w/ CRS +CARGO + EQUIPMENT & INSTRUMENTATION):

Left Front	=	<u>704.0</u>	kg	Left Rear	=	<u>564.5</u>	kg
Right Front	=	<u>677.0</u>	kg	Right Rear	=	<u>573.0</u>	kg
TOTAL FRONT	=	<u>1381.0</u>	kg	TOTAL REAR	=	<u>1137.5</u>	kg
TOTAL TEST WEIGHT =		<u>2518.5</u>	kg				

DATA SHEET NO. 3

CHILD DUMMY POSITIONING IN VEHICLE

CRS: Cosco Safety First Forerunner Secured with Vehicle ELR/Locking Latch Plate 3-Point Belts NHTSA No. M20302



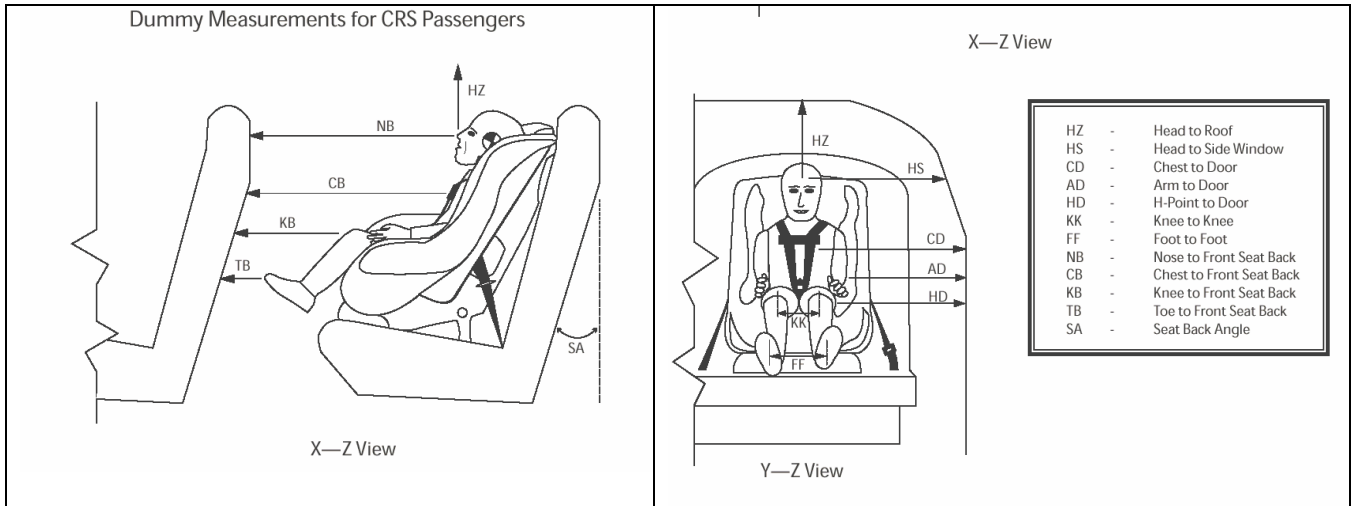
Measurement	Pre-Test (mm)	Post Test (mm)
	P3 CRS (093)	P3 CRS (093)
SA	19°	18°
HZ	501	505
NB	478	491
CB	380	375
KB – LEFT	180	185
KB – RIGHT	175	166

All dimensions in mm (unless noted)
 P3 – Right Rear Passenger (CRS #1)

DATA SHEET NO. 3

CHILD DUMMY POSITIONING IN VEHICLE (CONTINUED)

CRS: Cosco Safety First Forerunner Secured with Vehicle ELR/Locking Latch Plate 3-Point Belts NHTSA No. M20302



Measurement	Pre-Test (mm)	Post Test (mm)
	P4 CRS (093)	P4 CRS (093)
SA	19°	18°
HS	458	443
CD	415	375
AD	285	213
HD	313	259
HZ	422	424
NB	500	495
CB	475	483
KK	157	133
FF	175	128
KB – LEFT	285	310
KB – RIGHT	290	328
TB – LEFT	20	47
TB – RIGHT	23	44

All dimensions in mm (unless noted)

P4 – Left Rear Passenger (CRS #2)

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES

CRS: Cosco Safety First Forerunner Secured with Vehicle ELR/Locking Latch Plate 3-Point Belts NHTSA No. M20302

DESCRIPTION	Unit	MAXIMUM VALUE							
		Position #3				Position #4			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head X	g	103.3	46.2	-6.2	146.2	26.3	204.7	-50.9	85.9
Head Y	g	6.9	94.1	-6.0	46.9	4.1	93.5	-31.4	85.8
Head Z	g	49.6	46.2	-20.3	139.8	77.6	75.0	-5.5	137.1
Head Resultant	g	114.7	46.2	-	-	89.6	85.7	-	-
Redundant Head Z	g	44.6	33.7	-25.7	139.8	118.5	85.7	-16.5	201.6
Upper Neck Fx	N	53.4	57.8	-200.4	46.0	876.6	94.9	-25.1	247.8
Upper Neck Fy	N	73.0	91.7	-102.3	60.1	81.3	123.1	-59.1	103.2
Upper Neck Fz	N	1515.0	45.6	-530.4	140.4	2013.0	75.1	-61.7	270.8
Upper Neck F Resultant	N	1528.1	45.6	-	-	2166.0	92.1	-	-
Upper Neck Mx	N-m	7.9†	208.0	-8.5†	147.8	4.0	174.6	-9.5	129.6
Upper Neck My	N-m	6.5†	172.0	-5.0†	45.8	4.8	273.5	-27.7	215.8
Upper Neck Mz	N-m	3.0†	96.8	-2.4†	184.7	2.7	222.4	-4.3	126.5
Upper Neck M Resultant	N-m	9.4†	208.0	-	-	27.8	215.8	-	-
Lower Neck Fx	N	481.8	46.5	-57.5	146.6	1483.9	92.7	-137.1	203.6
Lower Neck Fy	N	72.1	92.5	-59.0	57.9	318.8	63.6	-77.2	203.8
Lower Neck Fz	N	1602.2	45.7	-617.5	139.8	1591.8	74.7	-284.8	125.5
Lower Neck F Resultant	N	1670.0	45.7	-	-	1933.1	75.0	-	-
Lower Neck Mx	N-m	4.5	93.0	-3.7	61.6	7.0	186.1	-15.3	125.5
Lower Neck My	N-m	11.9	180.9	-13.1	46.3	151.7	92.8	-13.1	203.7
Lower Neck Mz	N-m	0.6	157.8	-1.0	58.8	4.9	126.0	-6.3	84.9
Lower Neck M Resultant	N-m	13.2	46.3	-	-	151.9	92.8	-	-
Chest X	g	49.7	44.6	-11.0	139.7	9.9	215.7	-44.0	60.9
Chest Y	g	7.7	63.4	-6.5	45.7	9.3	88.9	-5.3	115.3
Chest Z	g	26.0	34.5	-21.0	138.6	34.6	90.7	-32.0	60.6
Chest Resultant	g	54.5	44.8	-	-	54.6	60.8	-	-
Chest Displacement	mm	-	-	-	-	0.0	11.5	-28.0	94.3
Lumbar Fx	N	186.9	144.3	-154.1	48.0	-	-	-	-
Lumbar Fy	N	28.6	72.6	-35.5	148.5	-	-	-	-
Lumbar Fz	N	185.7	48.6	-518.7	139.7	-	-	-	-
Lumbar F Resultant	N	546.5	139.7	-	-	-	-	-	-
Lumbar Mx	N-m	0.9	139.8	-1.5	43.9	-	-	-	-
Lumbar My	N-m	5.0	35.4	-8.2	140.3	-	-	-	-
Lumbar Mz	N-m	0.3	127.5	-0.7	45.2	-	-	-	-
Lumbar M Resultant	N-m	8.2	140.3	-	-	-	-	-	-
Pelvic X	g	34.0	35.8	-8.3	144.3	27.6	122.1	-58.3	52.9
Pelvic Y	g	9.5	58.8	-5.1	137.6	10.2	92.7	-9.6	221.7
Pelvic Z	g	42.7	31.5	-23.8	134.0	19.2	89.7	-49.2	74.1
Pelvic Resultant	g	52.4	32.7	-	-	70.5	56.0	-	-

† Not Accurate - Spikes in data due to faulty transducer

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES (CONTINUED)

CRS: Cosco Safety First Forerunner Secured with Vehicle ELR/Locking Latch Plate 3-Point Belts NHTSA No. M20302

	HEAD INJURY CRITERIA (HIC15)			
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration (g's) t ₁ to t ₂
Position #3 - Right	849.1	40.9	52.6	88.1
Position #4 - Left	833.0	71.8	86.8	79.0

** 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	52.3	43.6	46.6	490.9
Position #4 - Left	53.7	59.5	62.5	638.9

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

Position 3 Neck Injury Summary (CRABI 12 month old (P572 R) – In Position)

Nij V10	Nij	Time (ms)	Z Force (N)	X Force (N)	Y Moment (N-m)
Ntf	0.76†	49.9	1107.4	-86.8	0.0†
Nte	1.26†	45.7	1512.6	-199.4	-3.8†
Ncf	0.39†	139.9	-528.3	-90.3	1.2†
Nce	0.23†	144.2	-338.6	-116.5	0.0†

Peak Tension (CFC1000) 1516.34 N

Peak Compression (CFC1000) 530.79 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 (3 Year Old Hybrid III (P572 P) – In Position)

Nij V10	Nij	Time (ms)	Z Force (N)	X Force (N)	Y Moment (N-m)
Ntf	0.89	84.8	1953.7	472.3	3.5
Nte	1.29	75.0	2009.5	586.5	-12.9
Ncf	0.10	273	-60.6	-20.3	4.8
Nce	0.90	216.3	-2.4	382.4	-26.9

Peak Tension (CFC1000) 2013.01 N

Peak Compression (CFC1000) 61.75 N

Critical Values

Nij Intercepts				Peak Limits	
Tension (CVt)	2340 N	Extension (mCVe)	30 N-m	Tension	1430 N
Compression (CVc)	2120 N	Flexion (mCVf)	68 N-m	Compression	-1380 N

Condyle Offset -0.0000

† Not Accurate - Spikes in data due to faulty transducer

DATA SHEET NO. 5

CRS PERFORMANCE DATA

CRS: Cosco Safety First Forerunner Secured with Vehicle ELR/Locking Latch Plate 3-Point Belts NHTSA No. M20302

POSITION #3 CRS POST-TEST INSPECTION (Model No. 02925BRD)

LOCATION	DAMAGE	REMARKS
Upper Tether Strap	N/A	-
Upper Tether Buckle	N/A	-
Upper Tether Hook	N/A	-
Vehicle Upper Tether Anchor	N/A	-
Lower Anchor Strap	N/A	-
Lower Anchor Buckle	N/A	-
Lower Anchor Hooks	N/A	-
Vehicle Lower CRS Anchors	N/A	-
Five Point Harness Connections	NO	-
Cracks on CRS	NO	-
Fabric Tears on CRS	NO	-
Vehicle Seat Structure	NO	-
Vehicle Seat Fabric Tears	NO	-
Vehicle Seat Belt Assembly	NO	-
Child Dummy	NO	-

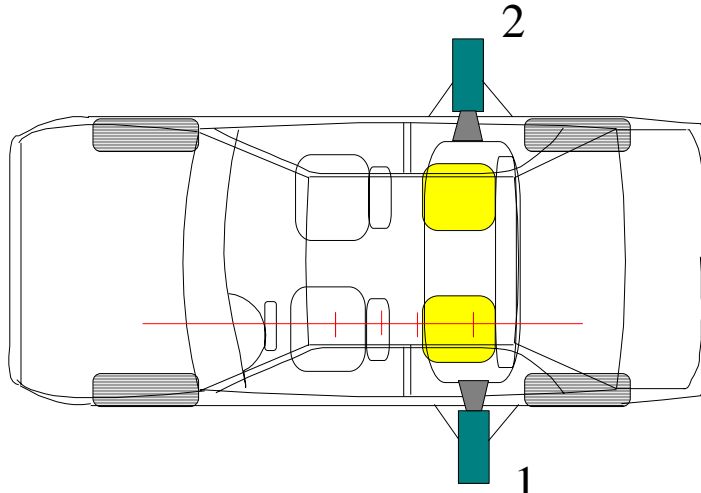
POSITION #4 CRS POST-TEST INSPECTION (Model No. 02925BRD)

LOCATION	DAMAGE	REMARKS
Upper Tether Strap	NO	-
Upper Tether Buckle	NO	-
Upper Tether Hook	NO	-
Vehicle Upper Tether Anchor	NO	-
Lower Anchor Strap	N/A	-
Lower Anchor Buckle	N/A	-
Lower Anchor Hooks	N/A	-
Vehicle Lower CRS Anchors	N/A	-
Five Point Harness Connections	NO	-
Cracks on CRS	NO	-
Fabric Tears on CRS	NO	-
Vehicle Seat Structure	NO	-
Vehicle Seat Fabric Tears	NO	-
Vehicle Seat Belt Assembly	NO	-
Child Dummy	NO	-

DATA SHEET NO. 6

CRS CAMERA DATA

CRS: Cosco Safety First Forerunner Secured with Vehicle ELR/Locking Latch Plate 3-Point Belts NHTSA No. M20302



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Left side CRS lateral view	3350	2980	2455	-23	13	500
2	Right side CRS lateral view	3415	2985	2450	-22	13	500

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

- X = + Forward
- Y = + To Right
- Z = + Down

SECTION 3

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

<u>Figure</u>	<u>Photograph Title</u>	<u>Page</u>
Figure 3- 1	CLOSE-UP VIEW OF POSITION 3 CRS LABEL	3- 3
Figure 3- 2	PRE-TEST FRONTAL VIEW OF POSITION 3 CRS	3- 4
Figure 3- 3	POST-TEST FRONTAL VIEW OF POSITION 3 CRS	3- 5
Figure 3- 4	PRE-TEST REAR VIEW OF POSITION 3 CRS	3- 6
Figure 3- 5	POST-TEST REAR VIEW OF POSITION 3 CRS	3- 7
Figure 3- 6	PRE-TEST LEFT SIDE VIEW OF POSITION 3 CRS	3- 8
Figure 3- 7	POST-TEST LEFT SIDE VIEW OF POSITION 3 CRS	3- 9
Figure 3- 8	PRE-TEST RIGHT SIDE VIEW OF POSITION 3 CRS	3- 10
Figure 3- 9	POST-TEST RIGHT SIDE VIEW OF POSITION 3 CRS	3- 11
Figure 3- 10	CLOSE-UP VIEW OF POSITION 4 CRS LABEL	3- 12
Figure 3- 11	PRE-TEST FRONTAL VIEW OF POSITION 4 CRS	3- 13
Figure 3- 12	POST-TEST FRONTAL VIEW OF POSITION 4 CRS	3- 14
Figure 3- 13	PRE-TEST REAR VIEW OF POSITION 4 CRS	3- 15
Figure 3- 14	POST-TEST REAR VIEW OF POSITION 4 CRS	3- 16
Figure 3- 15	PRE-TEST LEFT SIDE VIEW OF POSITION 4 CRS	3- 17
Figure 3- 16	POST-TEST LEFT SIDE VIEW OF POSITION 4 CRS	3- 18
Figure 3- 17	PRE-TEST RIGHT SIDE VIEW OF POSITION 4 CRS	3- 19
Figure 3- 18	POST-TEST RIGHT SIDE VIEW OF POSITION 4 CRS	3- 20
Figure 3- 19	PRE-TEST POSITION 3 LEFT SIDE VIEW	3- 21
Figure 3- 20	POST-TEST POSITION 3 LEFT SIDE VIEW	3- 22
Figure 3- 21	PRE-TEST POSITION 4 LEFT SIDE VIEW	3- 23
Figure 3- 22	POST-TEST POSITION 4 LEFT SIDE VIEW	3- 24
Figure 3- 23	PRE-TEST POSITION 3 RIGHT SIDE VIEW	3- 25
Figure 3- 24	POST-TEST POSITION 3 RIGHT SIDE VIEW	3- 26
Figure 3- 25	PRE-TEST POSITION 4 RIGHT SIDE VIEW	3- 27
Figure 3- 26	POST-TEST POSITION 4 RIGHT SIDE VIEW	3- 28
Figure 3- 27	PRE-TEST POSITION 3 REAR VIEW	3- 29
Figure 3- 28	POST-TEST POSITION 3 REAR VIEW	3- 30
Figure 3- 29	PRE-TEST POSITION 4 REAR VIEW	3- 31
Figure 3- 30	POST-TEST POSITION 4 REAR VIEW	3- 32



Forward-facing
lap belt here



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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



Forward-facing
lap belt here



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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

M20302



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

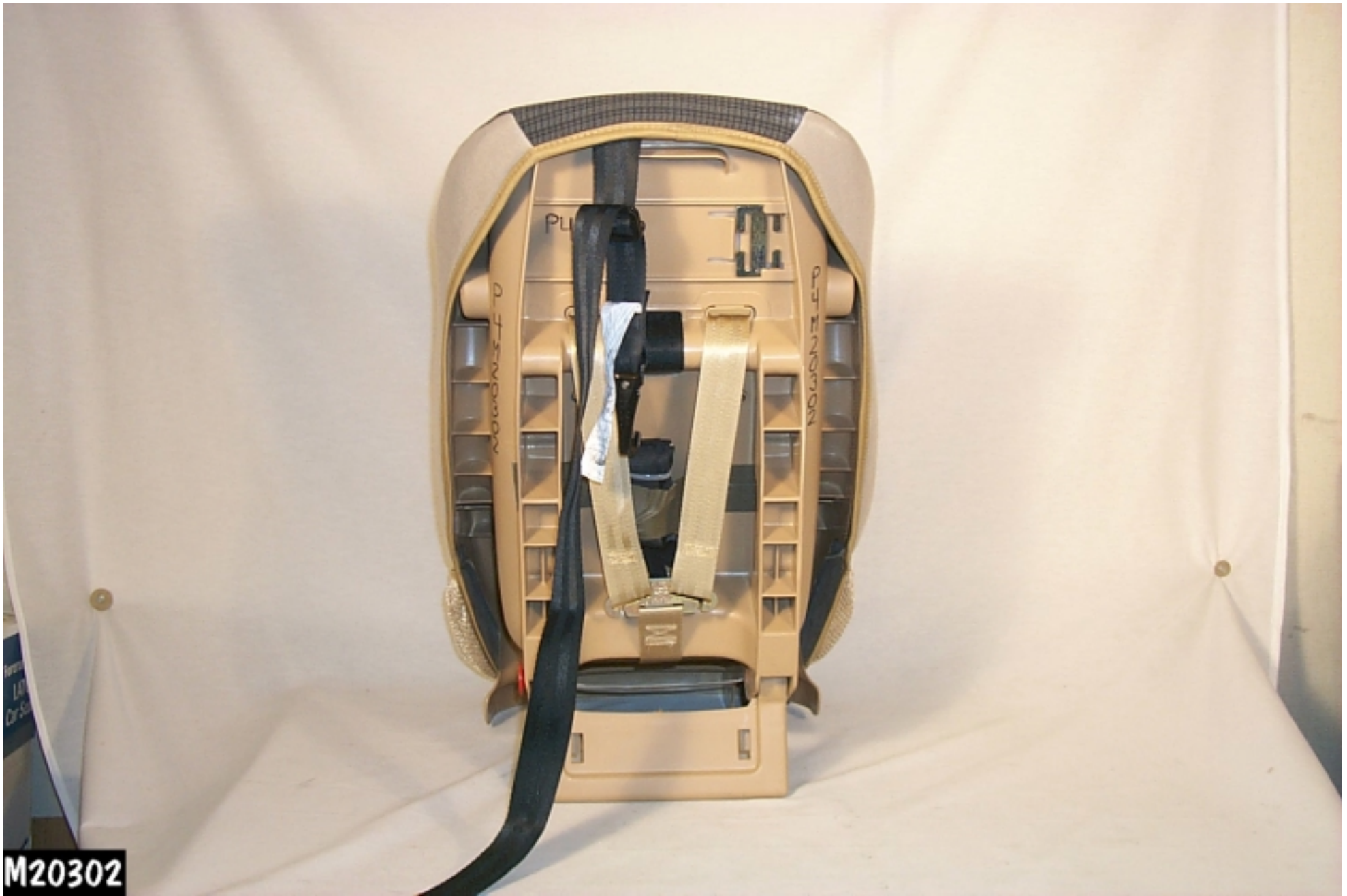


Figure 3-14: POST-TEST REAR VIEW OF POSITION 4 CRS



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

M20302



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



3-21

8642-NCAP-10

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



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



3-23

8642-NCAP-10

M20302

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



3-24

8642-NCAP-10

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



3-27

8642-NCAP-10

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



3-31

8642-NCAP-10

Figure 3-29: PRE-TEST POSITION 4 FRONT VIEW



3-32

8642-NCAP-10

Figure 3-30: POST-TEST POSITION 4 FRONT VIEW

SECTION 4

CHILD DUMMY RESPONSE AND CRS DATA TRACES

TABLE OF DATA PLOTS

PLOT	PLOT NAME [UNITS, FILTER CLASS]	PAGE
1	P3 Head x [g, CFC_1000]	4-4
2	P3 Head y [g, CFC_1000]	4-5
3	P3 Head z [g, CFC_1000]	4-6
4	P3 Head Resultant [g, CFC_1000]	4-7
5	P3 Head Red z [g, CFC_1000]	4-8
6	P3 Upper Neck Fx [N, CFC_1000]	4-9
7	P3 Upper Neck Fy [N, CFC_1000]	4-10
8	P3 Upper Neck Fz [N, CFC_1000]	4-11
9	P3 Upper Neck F Resultant [N, CFC_1000]	4-12
10	P3 Upper Neck Mx [N-m, CFC_600]	4-13
11	P3 Upper Neck My [N-m, CFC_600]	4-14
12	P3 Upper Neck Mz [N-m, CFC_600]	4-15
13	P3 Upper Neck M Resultant [N-m, CFC_600]	4-16
14	P3 Lower Neck Fx [N, CFC_1000]	4-17
15	P3 Lower Neck Fy [N, CFC_1000]	4-18
16	P3 Lower Neck Fz [N, CFC_1000]	4-19
17	P3 Lower Neck F Resultant [N, CFC_1000]	4-20
18	P3 Lower Neck Mx [N-m, CFC_600]	4-21
19	P3 Lower Neck My [N-m, CFC_600]	4-22
20	P3 Lower Neck Mz [N-m, CFC_600]	4-23
21	P3 Lower Neck M Resultant [N-m, CFC_600]	4-24
22	P3 Chest x [g, CFC_180]	4-25
23	P3 Chest y [g, CFC_180]	4-26
24	P3 Chest z [g, CFC_180]	4-27
25	P3 Chest Resultant [g, CFC_180]	4-28
26	P3 Lumbar Fx [N, CFC_1000]	4-29
27	P3 Lumbar Fy [N, CFC_1000]	4-30
28	P3 Lumbar Fz [N, CFC_1000]	4-31
29	P3 Lumbar F Resultant [N, CFC_1000]	4-32
30	P3 Lumbar Mx [N-m, CFC_1000]	4-33
31	P3 Lumbar My [N-m, CFC_1000]	4-34
32	P3 Lumbar Mz [N-m, CFC_1000]	4-35
33	P3 Lumbar M Resultant [N-m, CFC_1000]	4-36
34	P3 Pelvic x [g, CFC_1000]	4-37
35	P3 Pelvic y [g, CFC_1000]	4-38
36	P3 Pelvic z [g, CFC_1000]	4-39
37	P3 Pelvic Resultant [g, CFC_1000]	4-40
38	P4 Head x [g, CFC_1000]	4-41
39	P4 Head y [g, CFC_1000]	4-42
40	P4 Head z [g, CFC_1000]	4-43
41	P4 Head Resultant [g, CFC_1000]	4-44
42	P4 Head Red z [g, CFC_1000]	4-45
43	P4 Upper Neck Fx [N, CFC_1000]	4-46
44	P4 Upper Neck Fy [N, CFC_1000]	4-47
45	P4 Upper Neck Fz [N, CFC_1000]	4-48
46	P4 Upper Neck F Resultant [N, CFC_1000]	4-49
47	P4 Upper Neck Mx [N-m, CFC_600]	4-50

48	P4 Upper Neck My [N-m, CFC_600]	4-51
49	P4 Upper Neck Mz [N-m, CFC_600]	4-52
50	P4 Upper Neck M Resultant [N-m, CFC_600]	4-53
51	P4 Lower Neck Fx [N, CFC_1000]	4-54
52	P4 Lower Neck Fy [N, CFC_1000]	4-55
53	P4 Lower Neck Fz [N, CFC_1000]	4-56
54	P4 Lower Neck F Resultant [N, CFC_1000]	4-57
55	P4 Lower Neck Mx [N-m, CFC_600]	4-58
56	P4 Lower Neck My [N-m, CFC_600]	4-59
57	P4 Lower Neck Mz [N-m, CFC_600]	4-60
58	P4 Lower Neck M Resultant [N-m, CFC_600]	4-61
59	P4 Chest x [g, CFC_180]	4-62
60	P4 Chest y [g, CFC_180]	4-63
61	P4 Chest z [g, CFC_180]	4-64
62	P4 Chest Resultant [g, CFC_180]	4-65
63	P4 Chest Compression [mm, CFC_600]	4-66
64	P4 Pelvic x [g, CFC_1000]	4-67
65	P4 Pelvic y [g, CFC_1000]	4-68
66	P4 Pelvic z [g, CFC_1000]	4-69
67	P4 Pelvic Resultant [g, CFC_1000]	4-70

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 103.3 [g] at 0.046 [s]

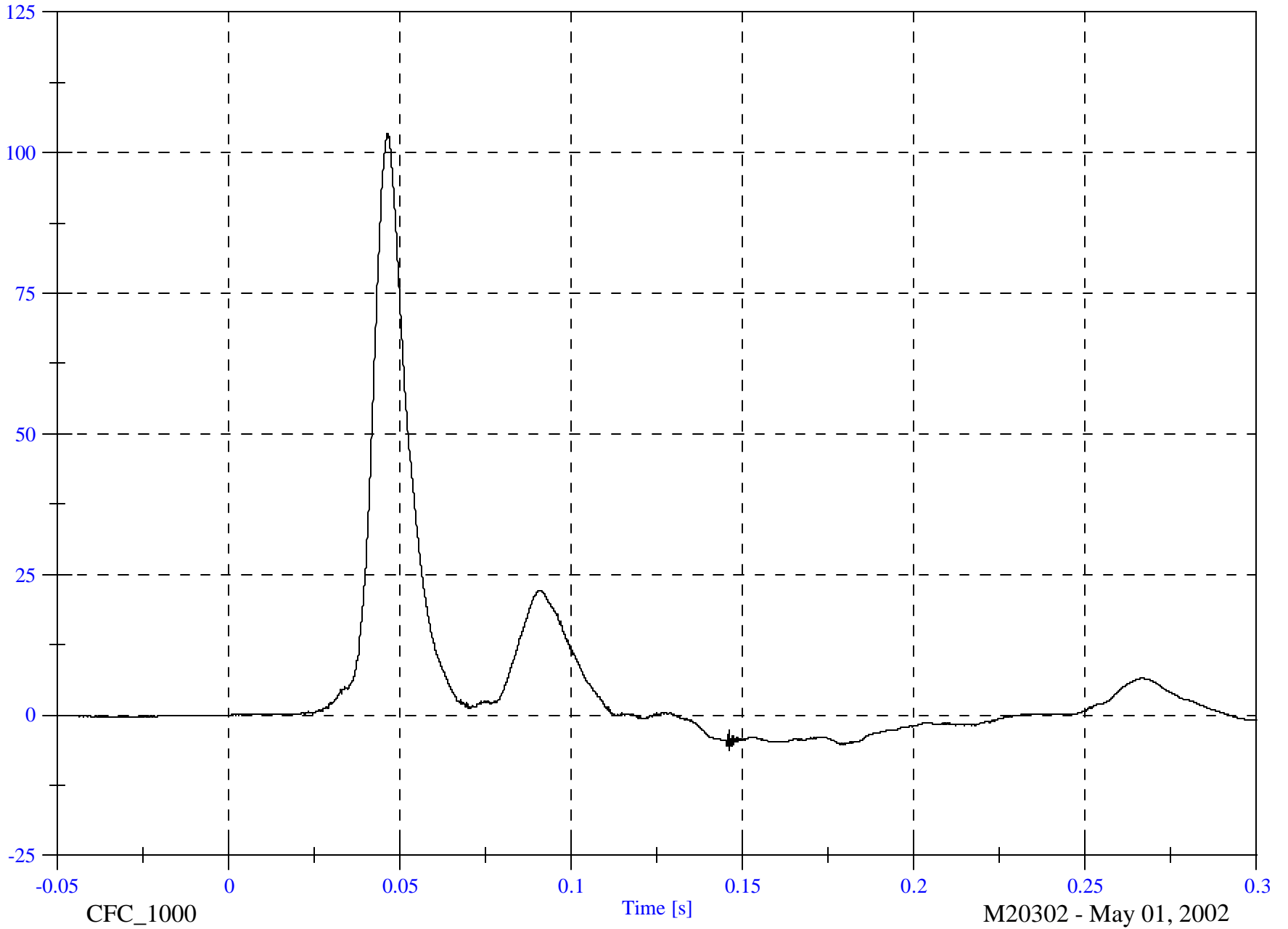
P3 Head x

Min: -6.2 [g] at 0.146 [s]

4-4

g

8642-NCAP-10



CFC_1000

Time [s]

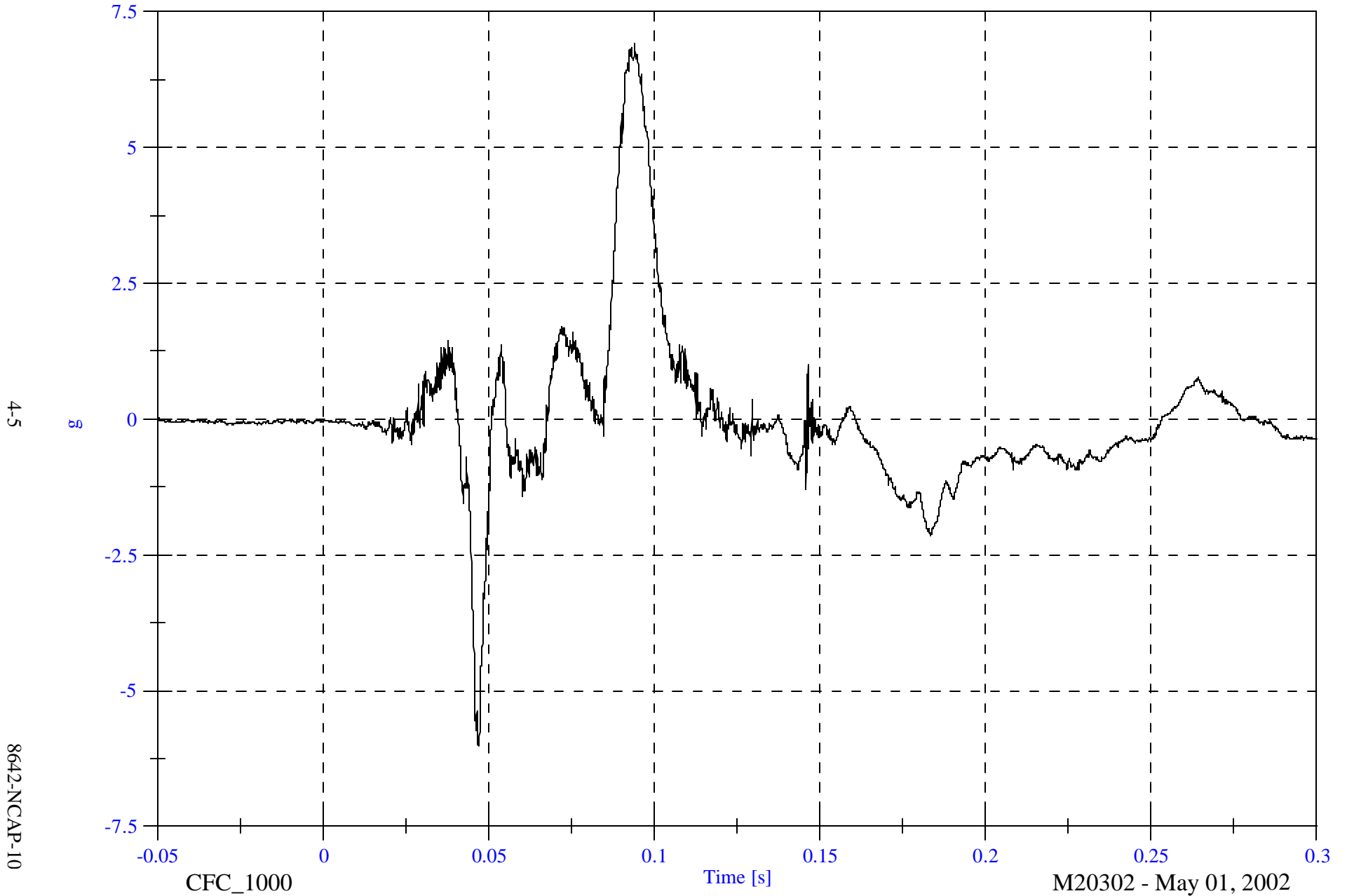
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 6.9 [g] at 0.094 [s]

P3 Head y

Min: -6.0 [g] at 0.047 [s]



4-5

86

8642-NCAP-10

CFC_1000

Time [s]

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NCAP Test 10 - 2002 Dodge Ram 1500

Max: 49.6 [g] at 0.046 [s]

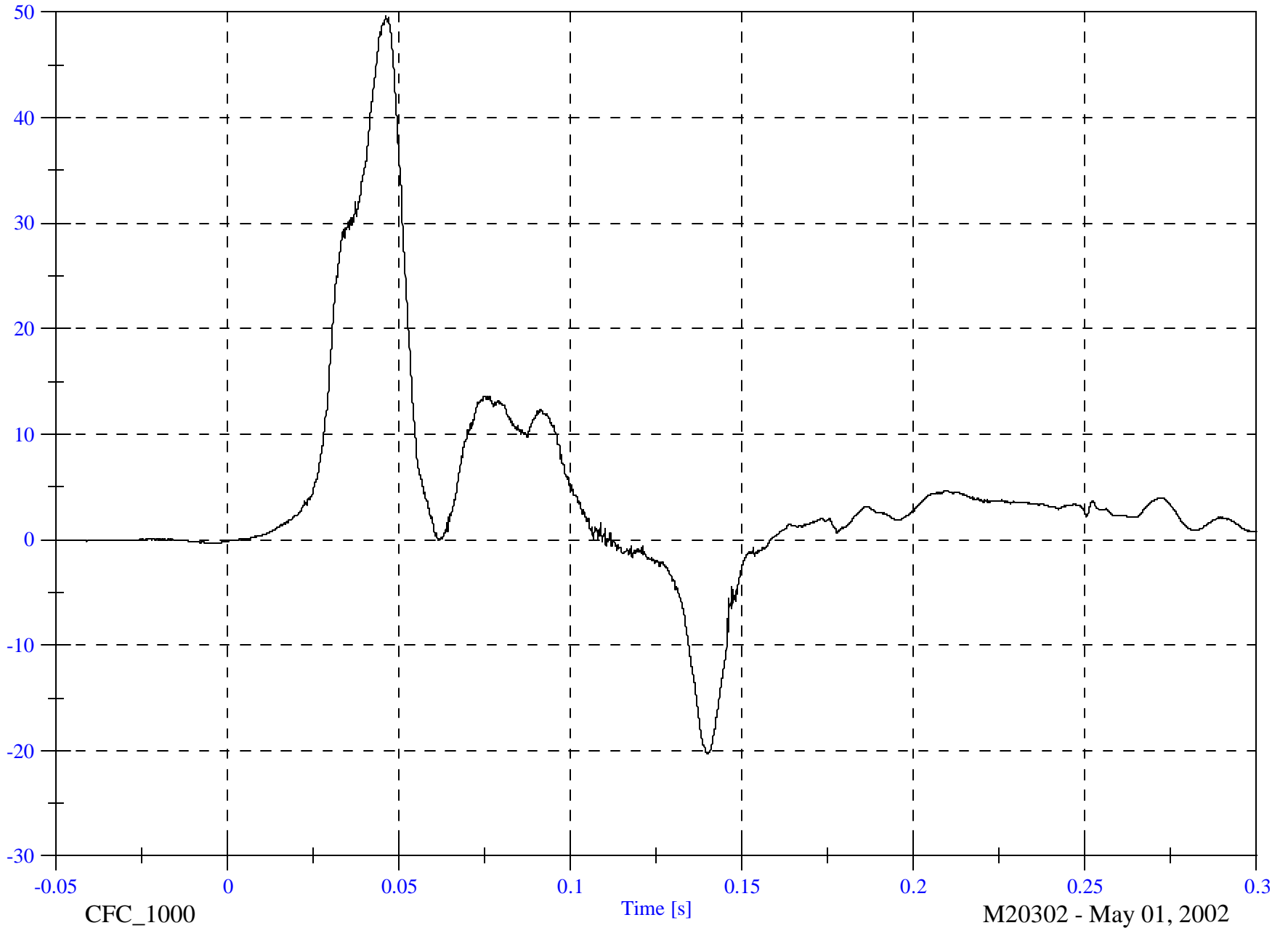
P3 Head z

Min: -20.3 [g] at 0.140 [s]

4-6

g

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

P3 Head Resultant

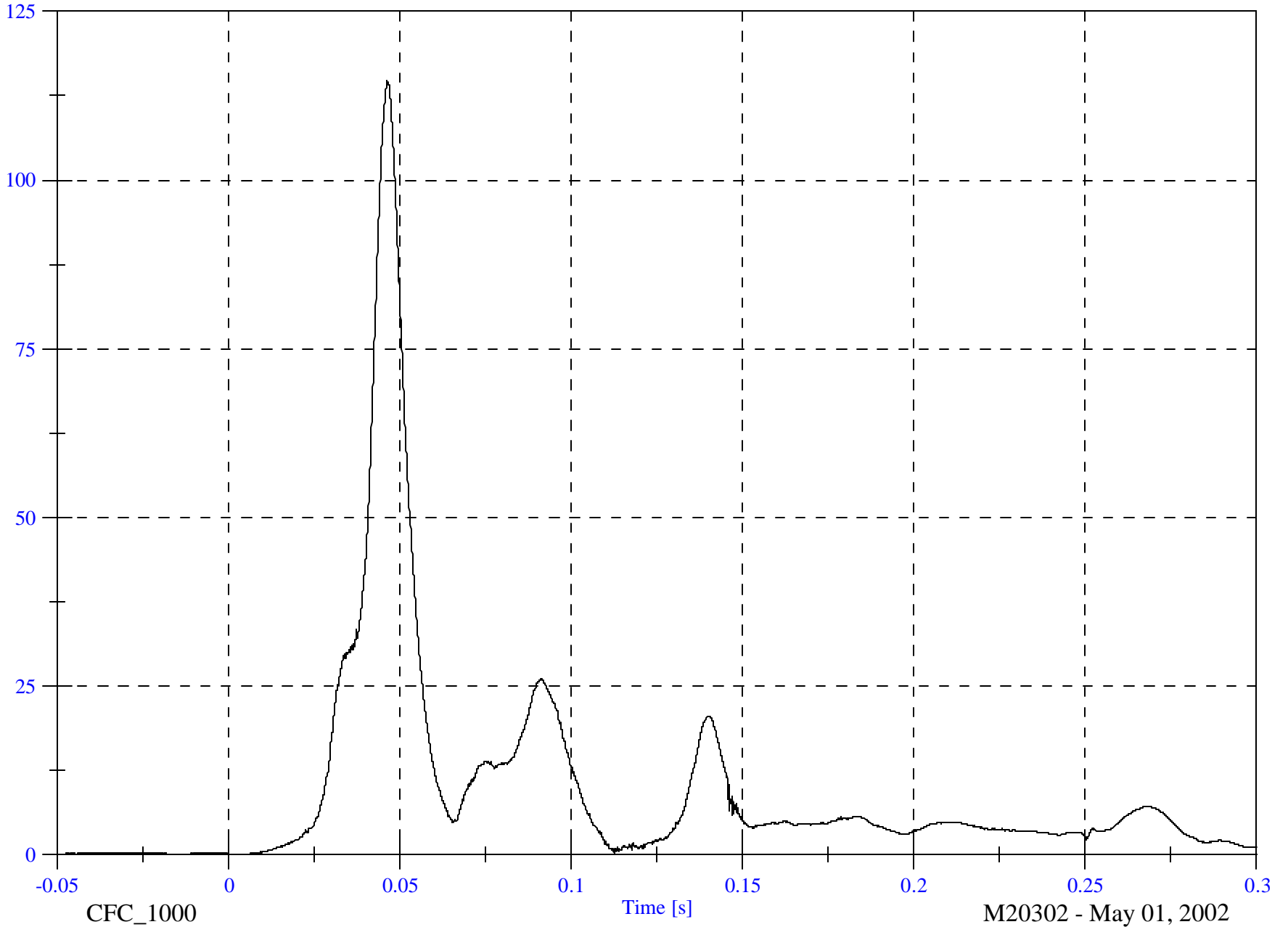
Max: 114.7 [g] at 0.046 [s]

Min: 0.0 [g] at 0.003 [s]

4-7

g

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

Max: 44.6 [g] at 0.034 [s]

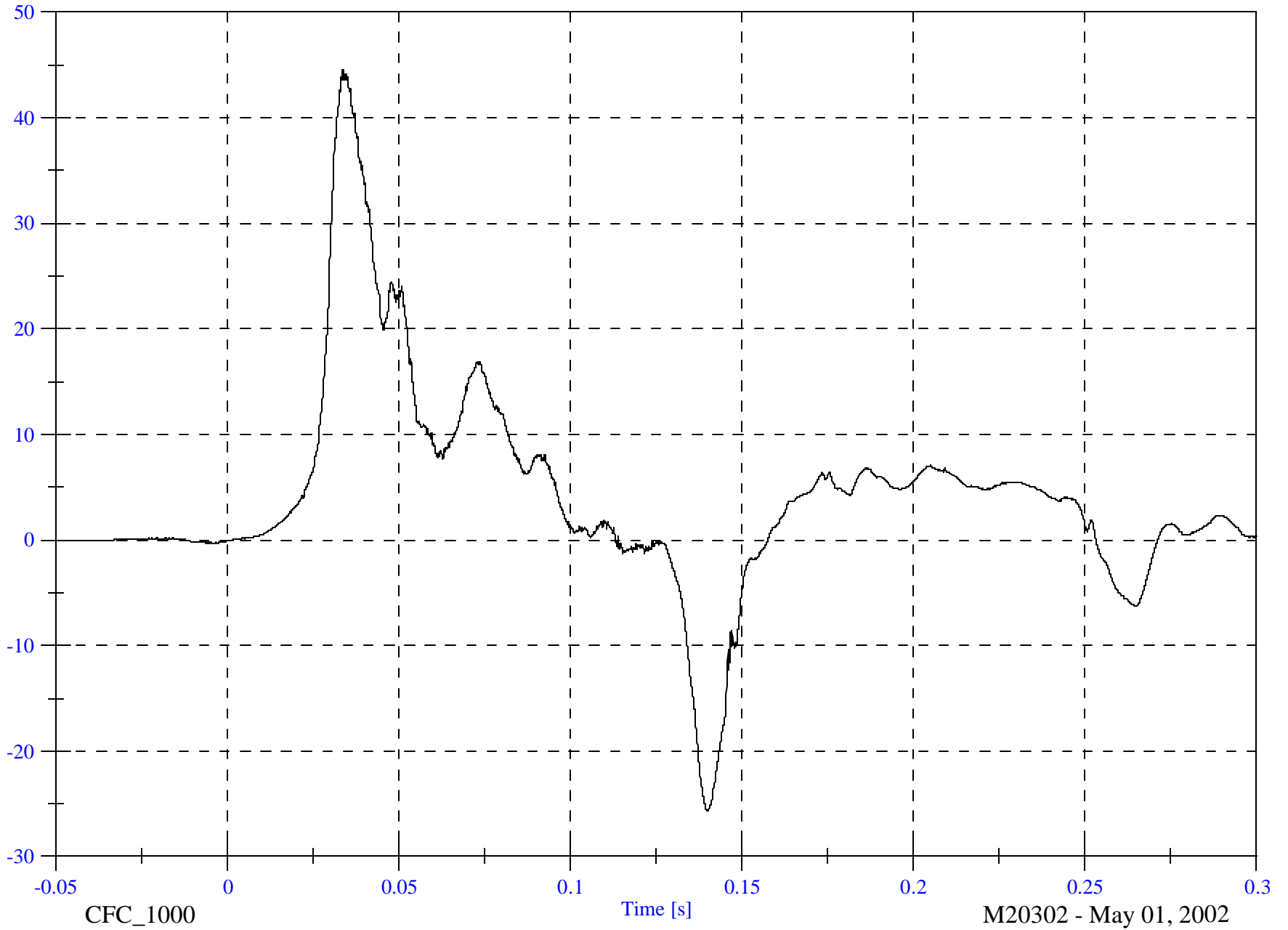
P3 Head Red z

Min: -25.7 [g] at 0.140 [s]

4-8

g

8642-NCAP-10



CFC_1000

Time [s]

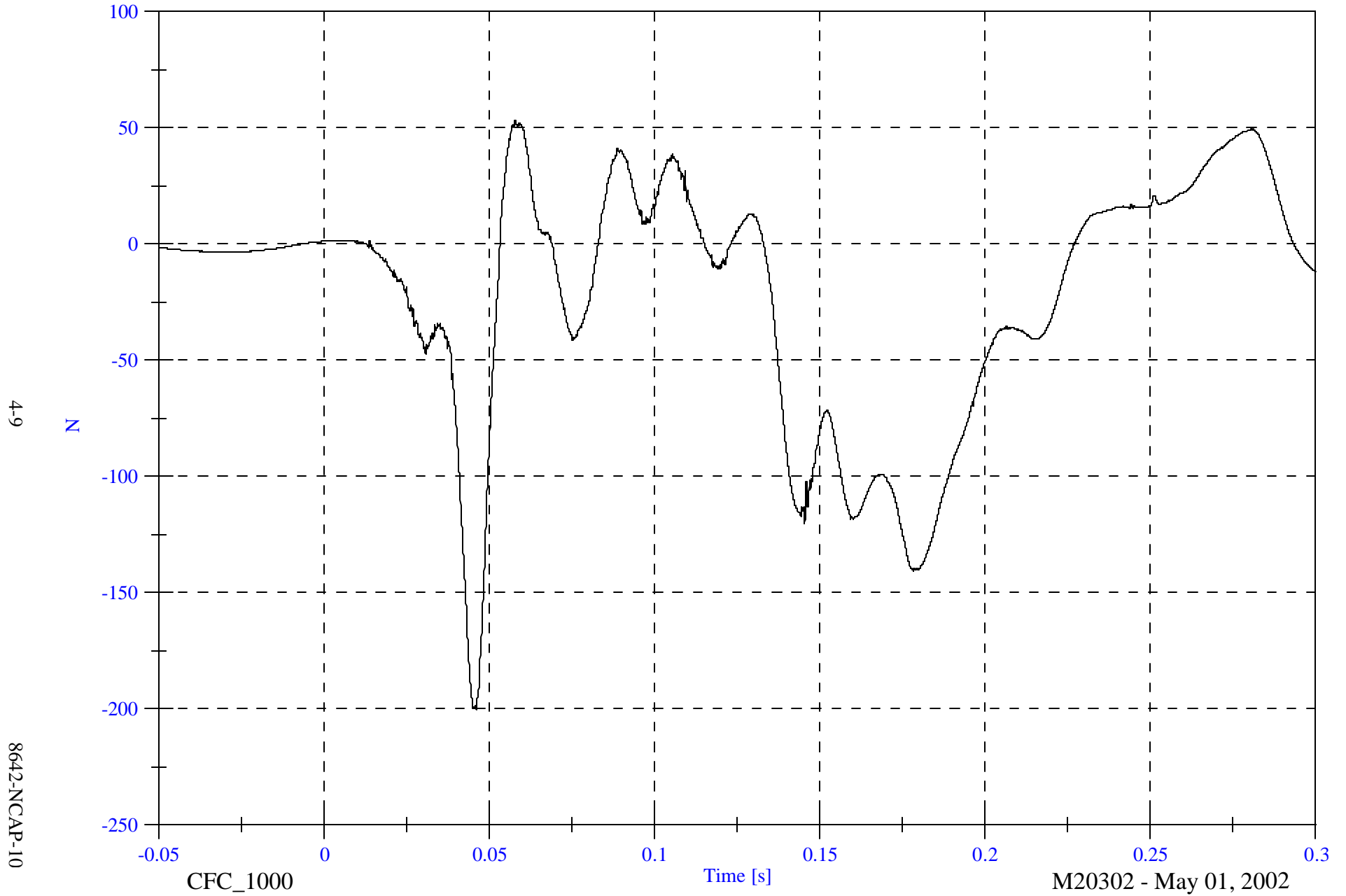
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 53.4 [N] at 0.058 [s]

Min: -200.4 [N] at 0.046 [s]

P3 Upper Neck Fx

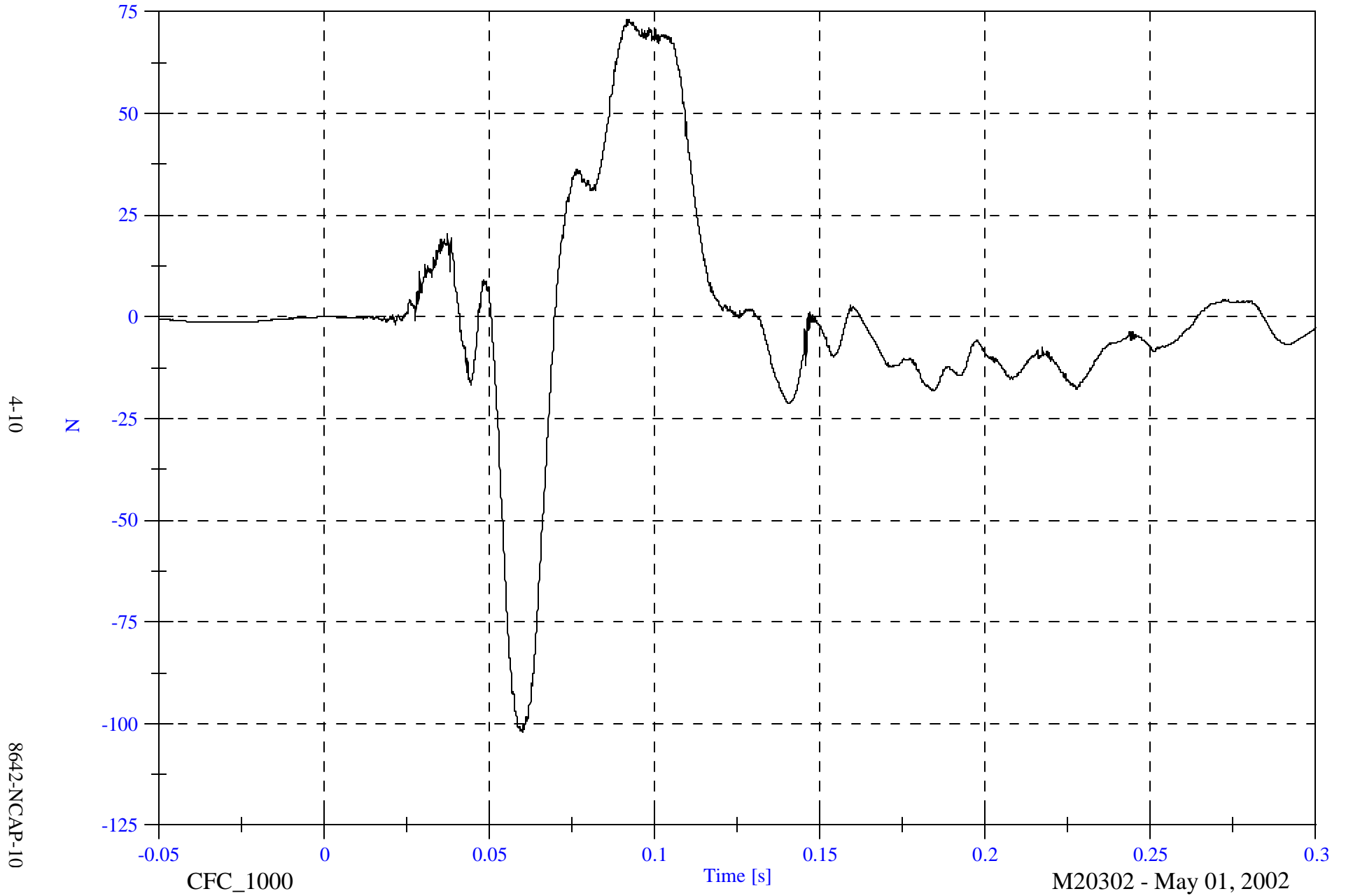


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Max: 73.0 [N] at 0.092 [s]

Min: -102.3 [N] at 0.060 [s]

P3 Upper Neck Fy



NCAP Test 10 - 2002 Dodge Ram 1500

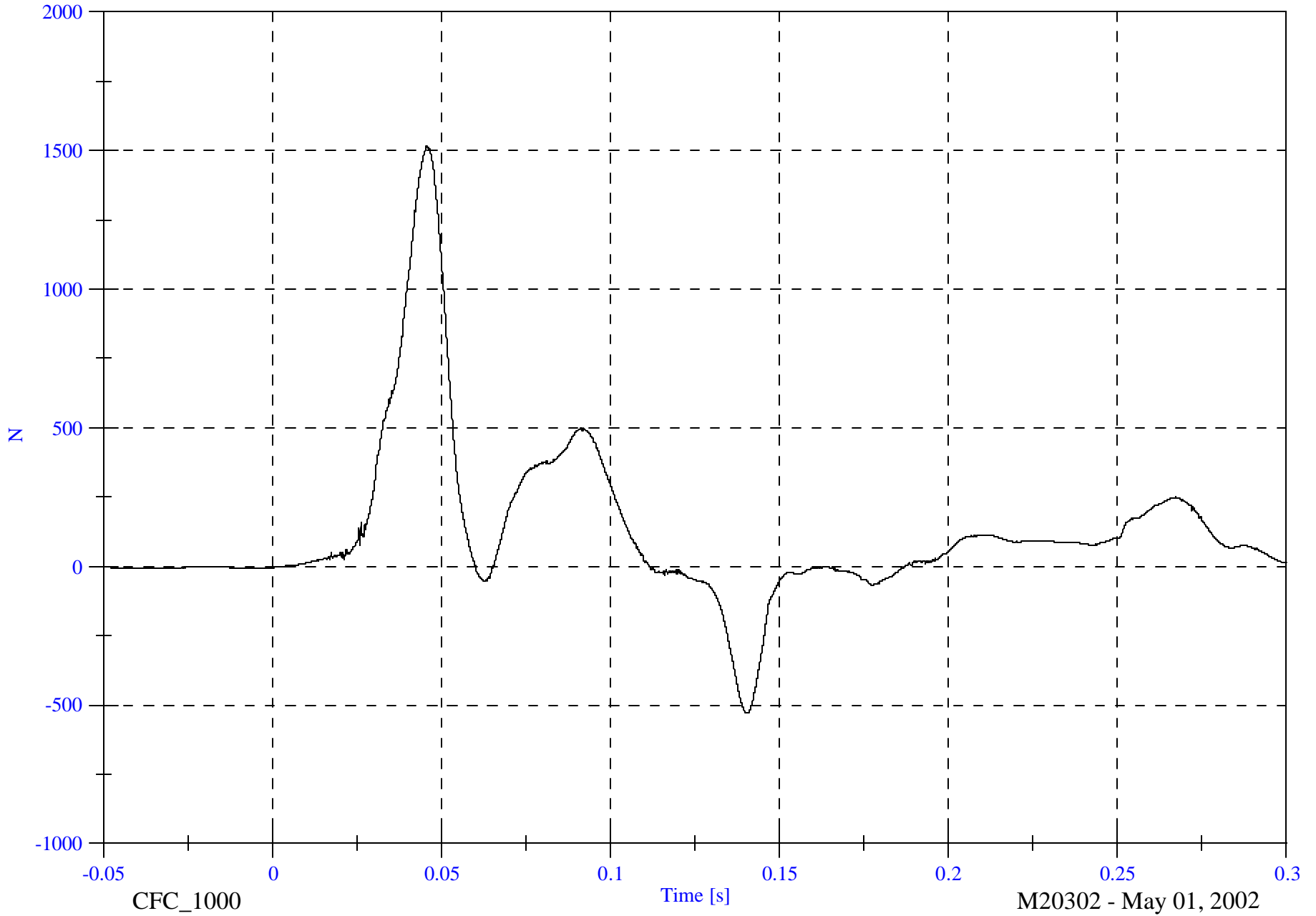
Max: 1515.0 [N] at 0.046 [s]

P3 Upper Neck Fz

Min: -530.4 [N] at 0.140 [s]

4-11

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

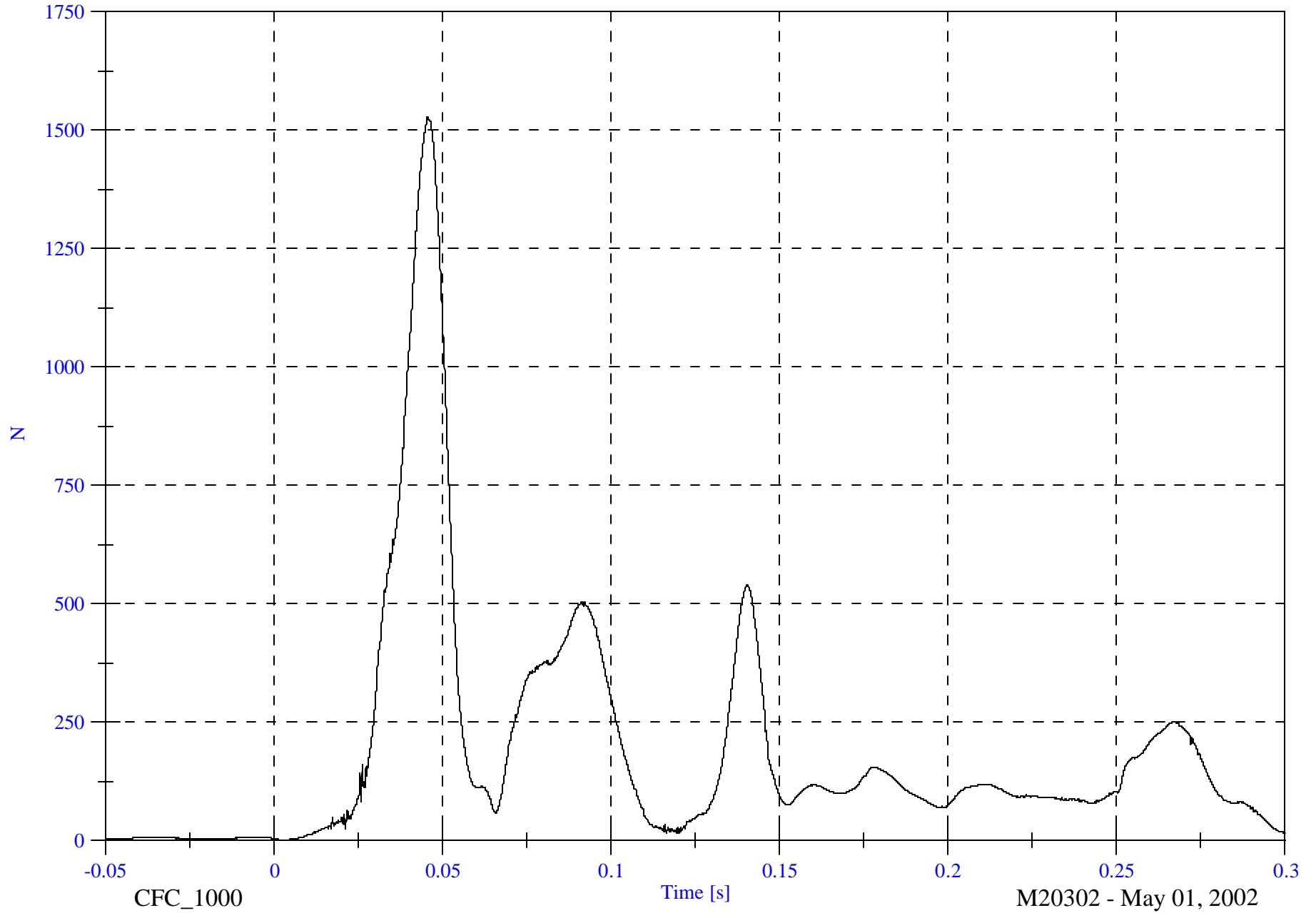
Max: 1528.1 [N] at 0.046 [s]

P3 Upper Neck F Resultant

Min: 1.4 [N] at 0.003 [s]

4-12

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

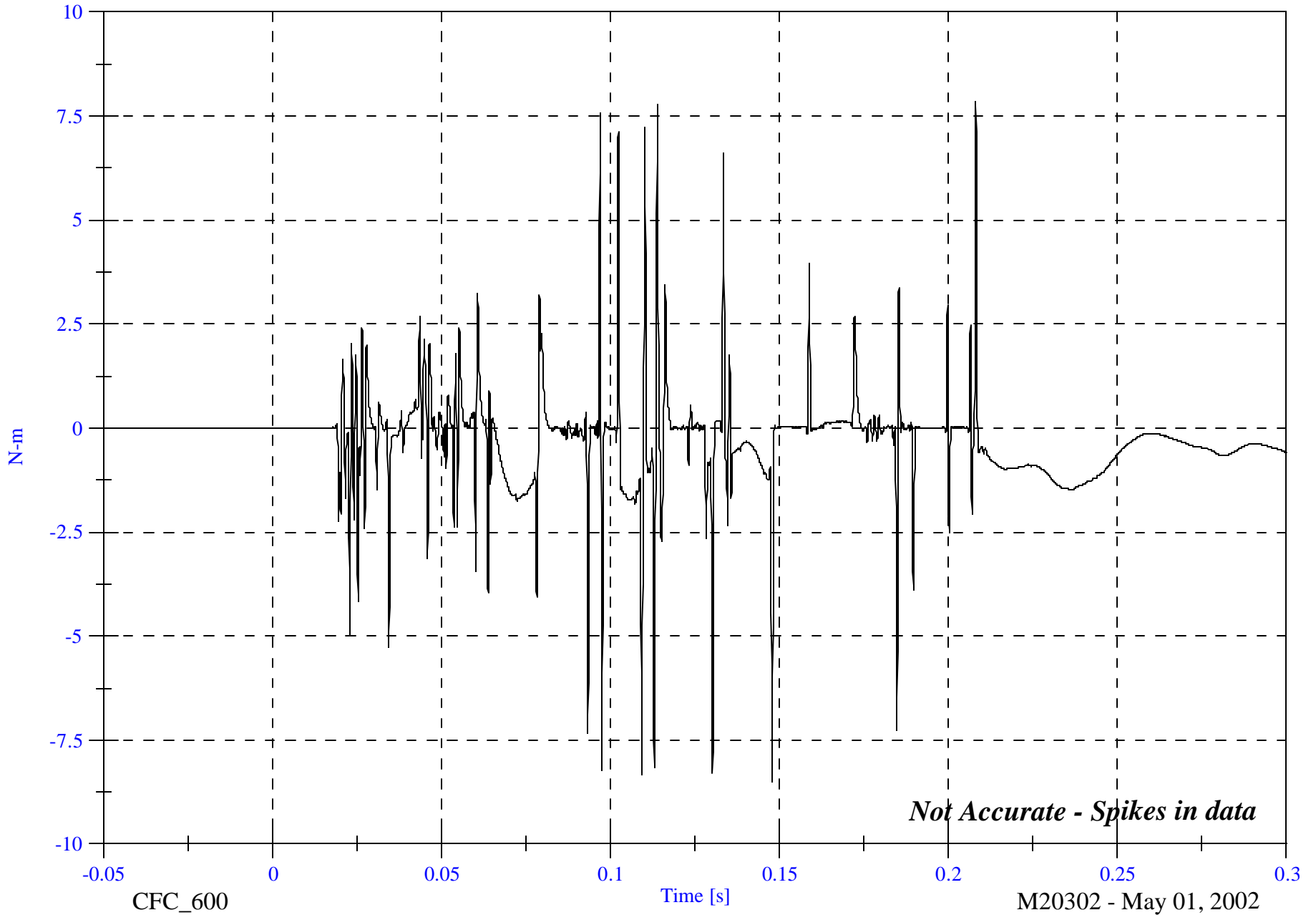
Max: 7.9 [N-m] at 0.208 [s]

P3 Upper Neck Mx

Min: -8.5 [N-m] at 0.148 [s]

4-13

8642-NCAP-10



Not Accurate - Spikes in data

CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

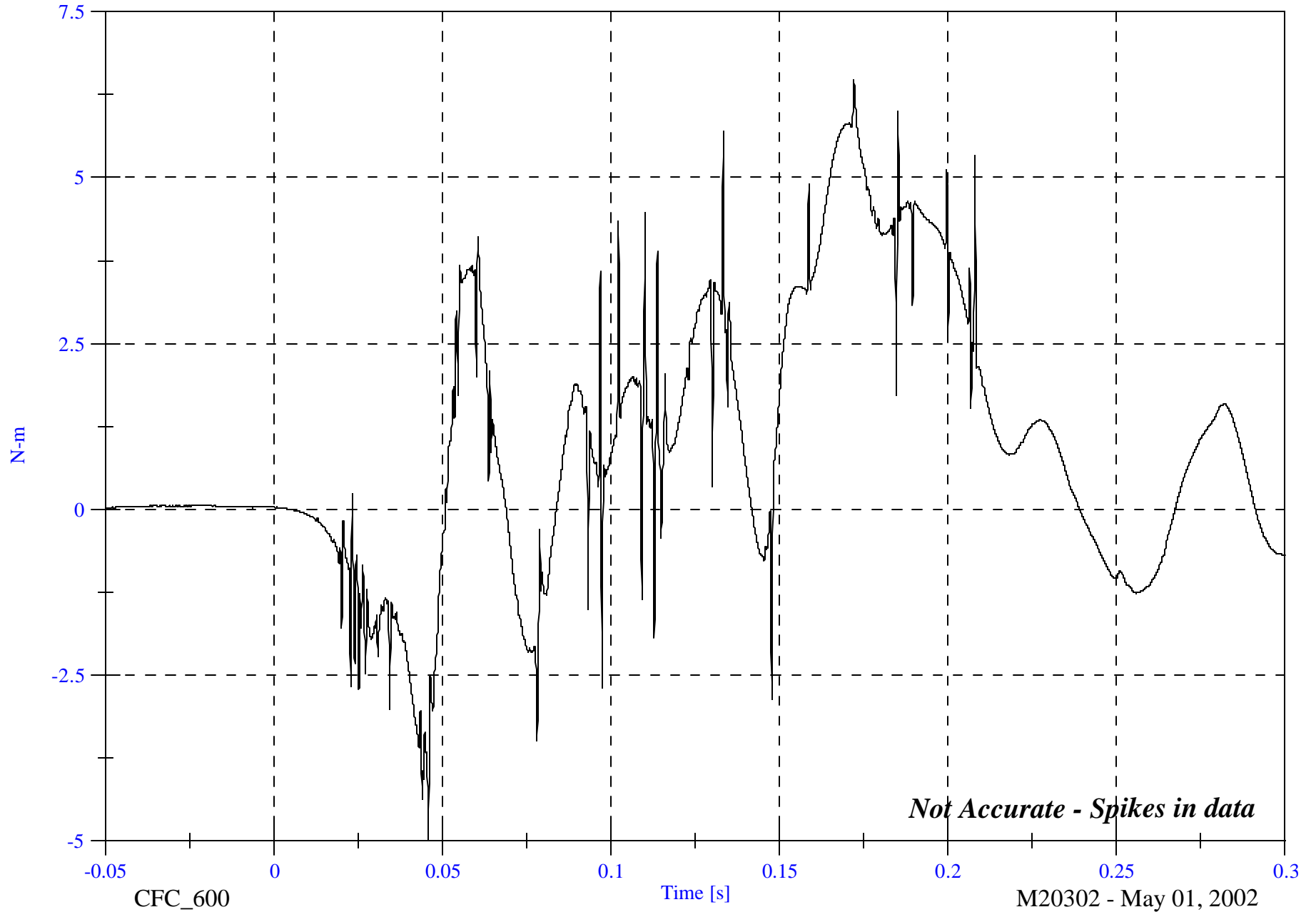
Max: 6.5 [N-m] at 0.172 [s]

P3 Upper Neck My

Min: -5.0 [N-m] at 0.046 [s]

4-14

8642-NCAP-10



Not Accurate - Spikes in data

CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

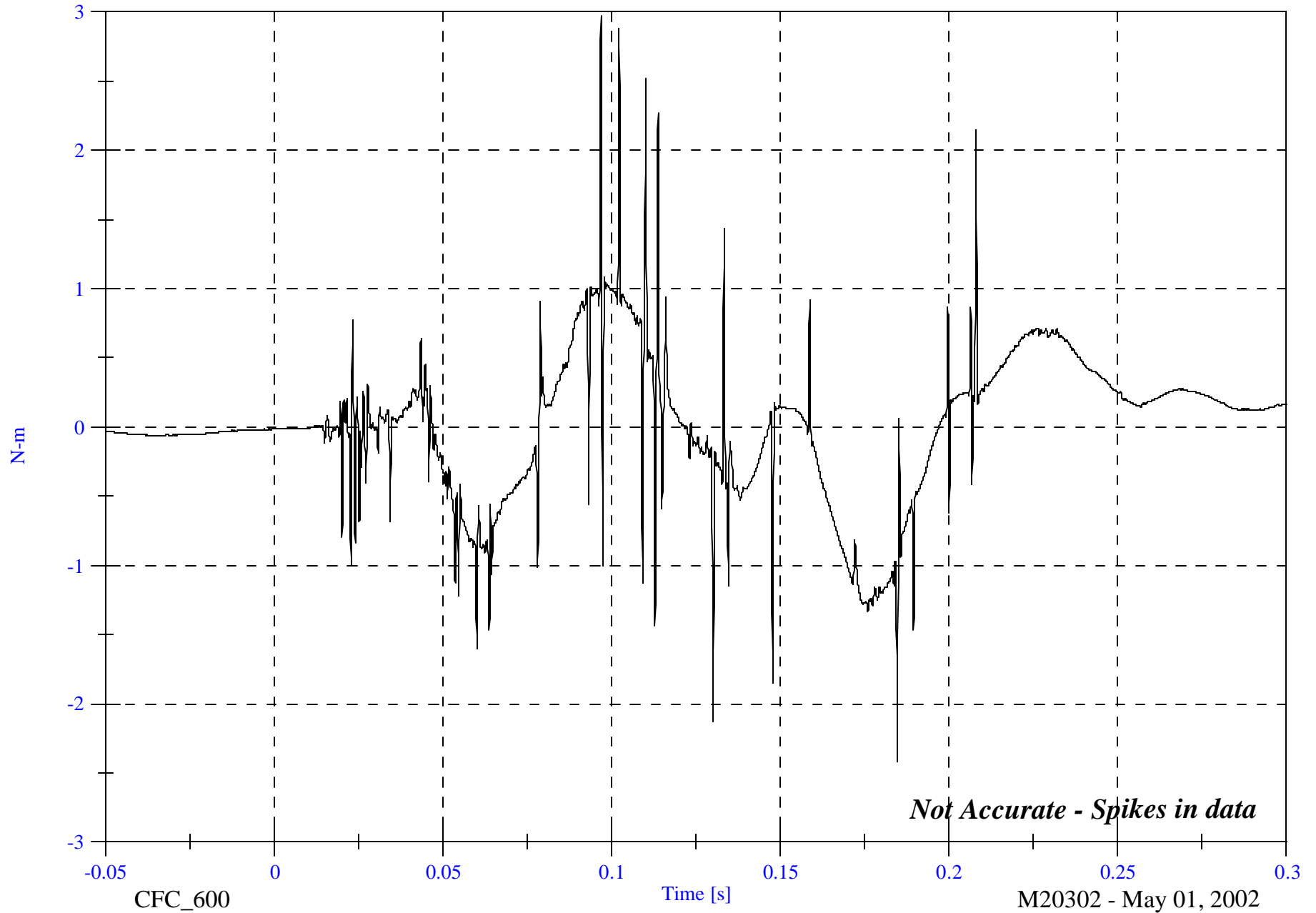
Max: 3.0 [N-m] at 0.097 [s]

P3 Upper Neck Mz

Min: -2.4 [N-m] at 0.185 [s]

4-15

8642-NCAP-10



Not Accurate - Spikes in data

CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

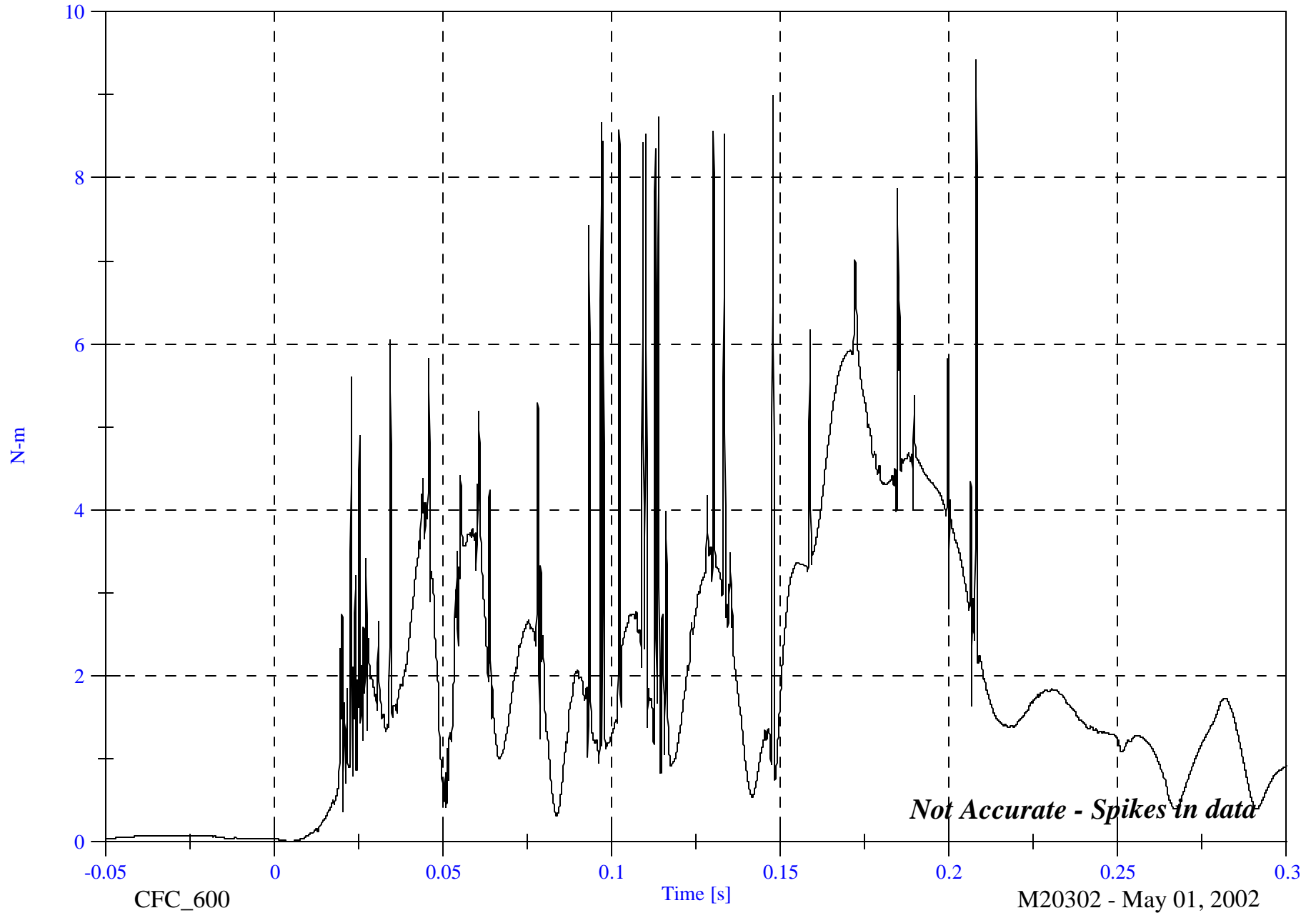
P3 Upper Neck M Resultant

Max: 9.4 [N-m] at 0.208 [s]

Min: 0.0 [N-m] at 0.005 [s]

4-16

8642-NCAP-10



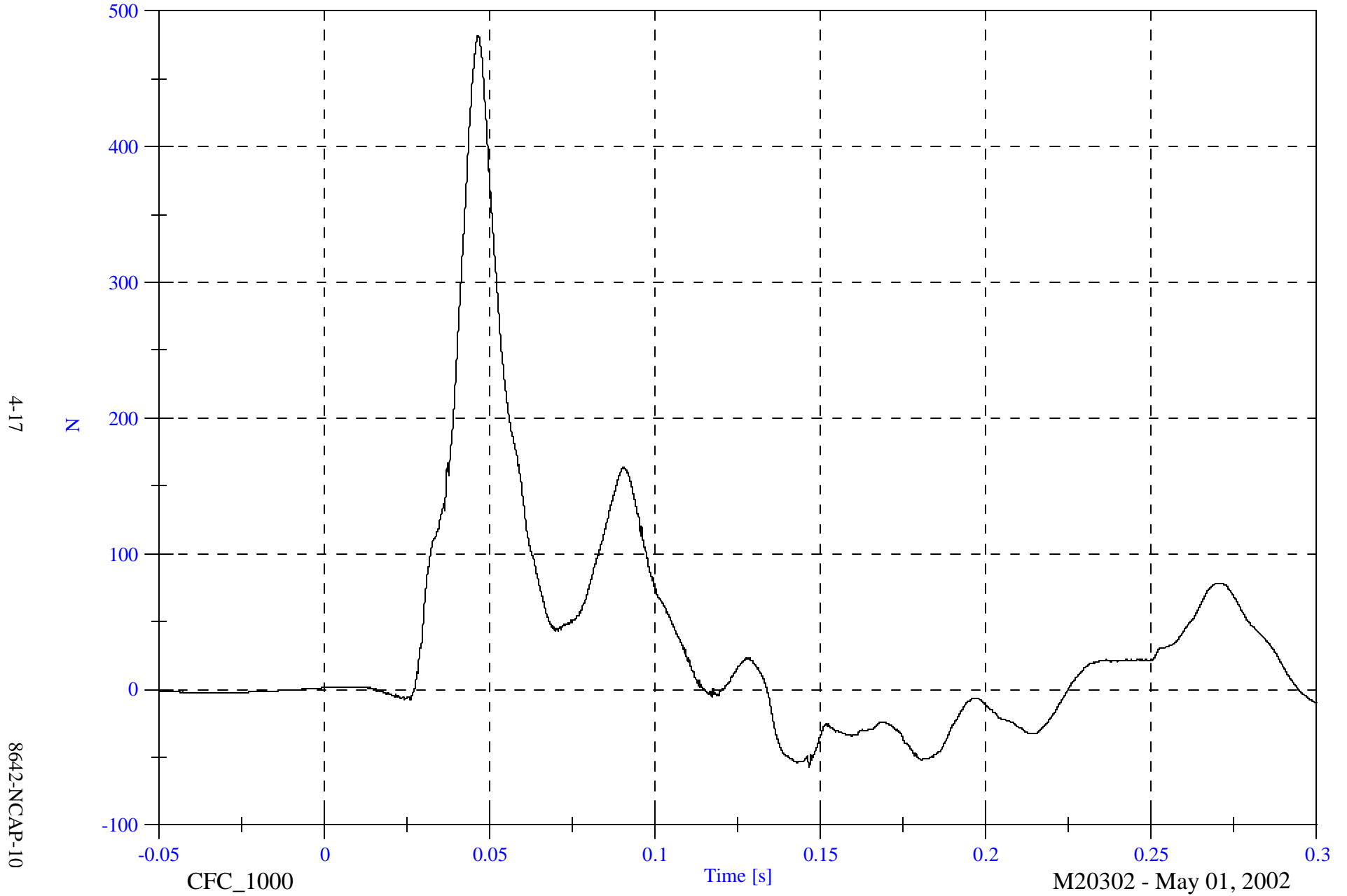
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P3 Lower Neck Fx

Max: 481.8 [N] at 0.046 [s]

Min: -57.5 [N] at 0.147 [s]



4-17

8642-NCAP-10

CFC_1000

Time [s]

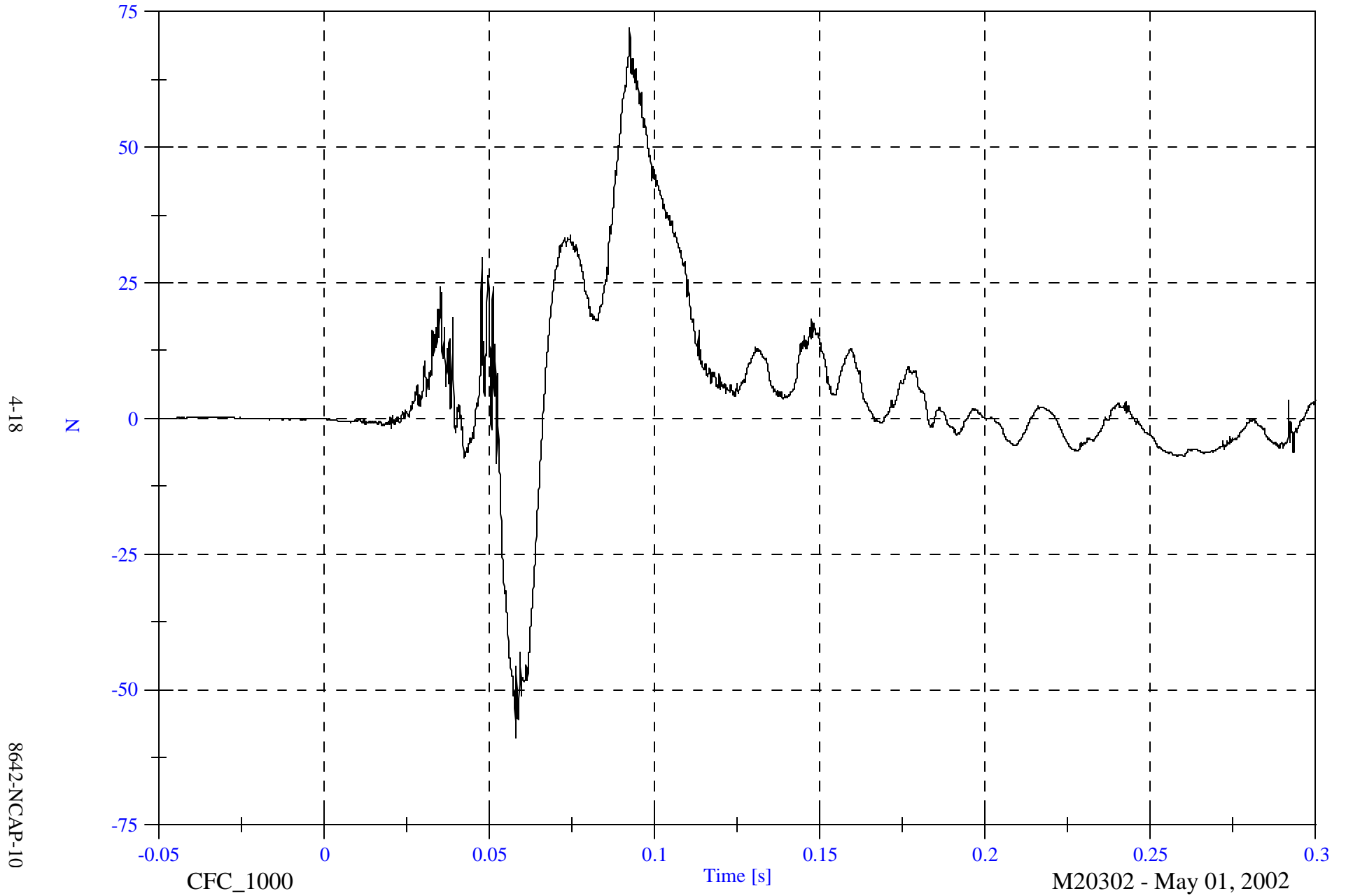
M20302 - May 01, 2002

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Max: 72.1 [N] at 0.092 [s]

Min: -59.0 [N] at 0.058 [s]

P3 Lower Neck Fy

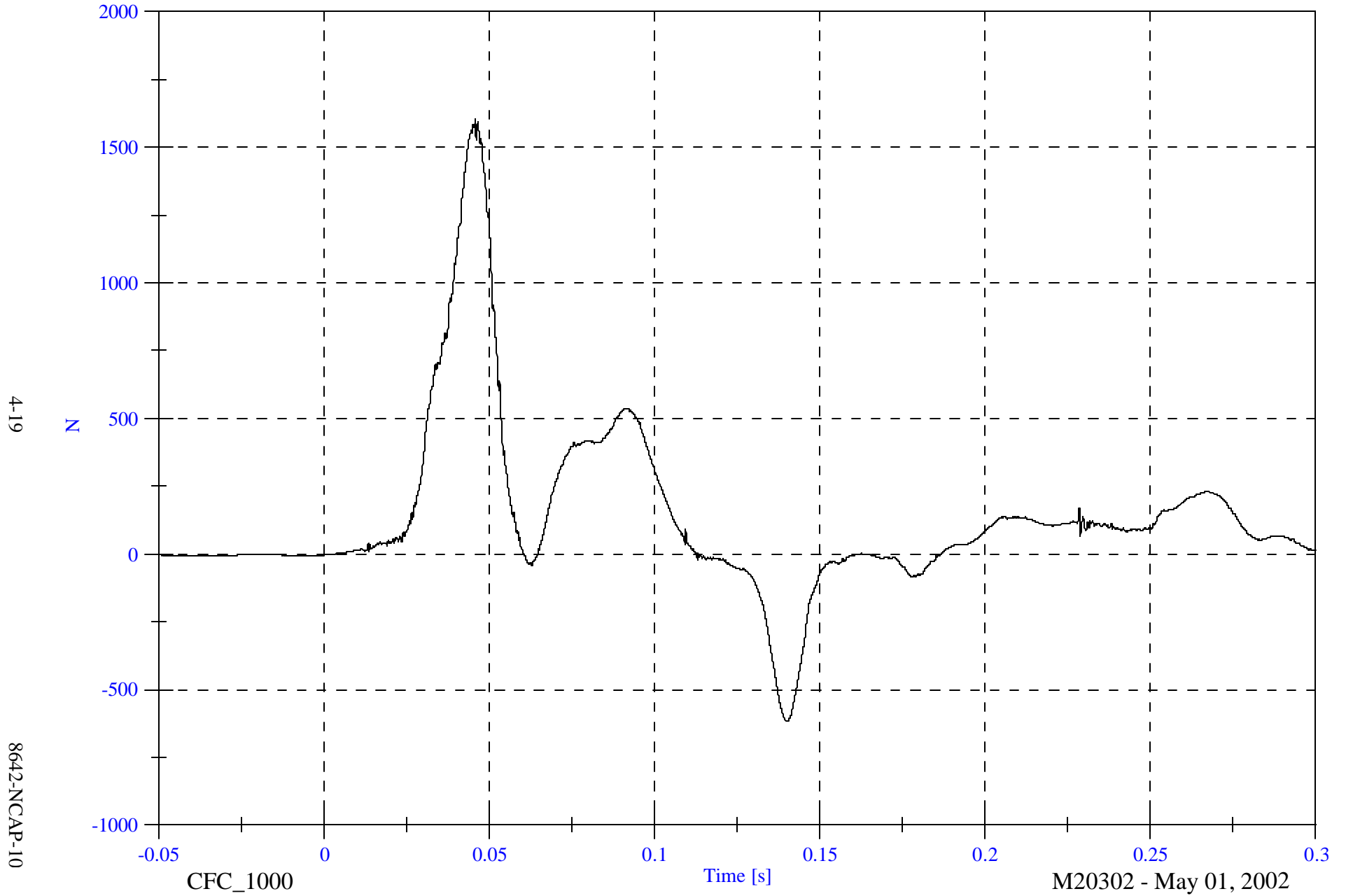


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Max: 1602.2 [N] at 0.046 [s]

P3 Lower Neck Fz

Min: -617.5 [N] at 0.140 [s]



4-19

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

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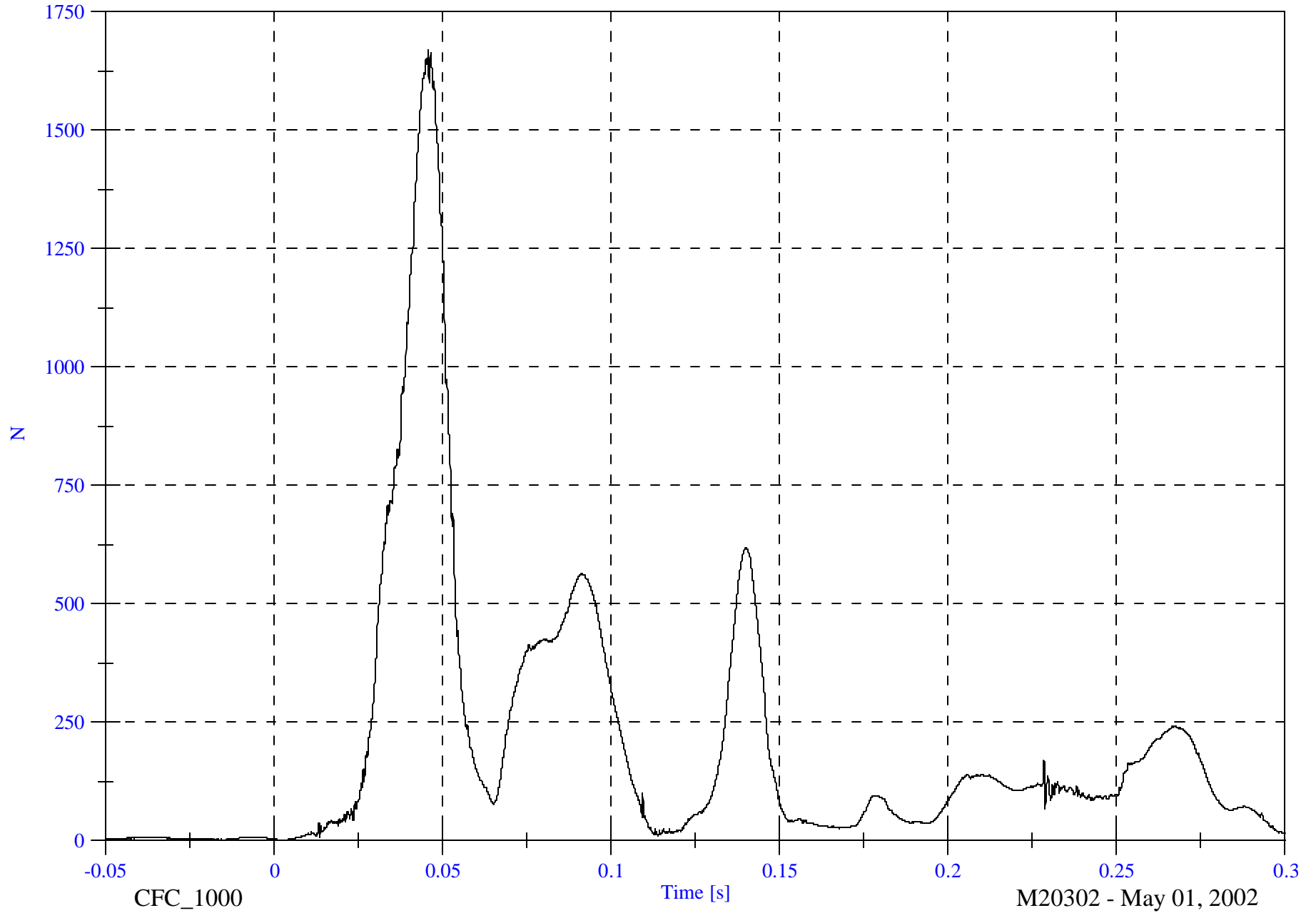
P3 Lower Neck F Resultant

Max: 1670.0 [N] at 0.046 [s]

Min: 1.6 [N] at 0.003 [s]

4-20

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

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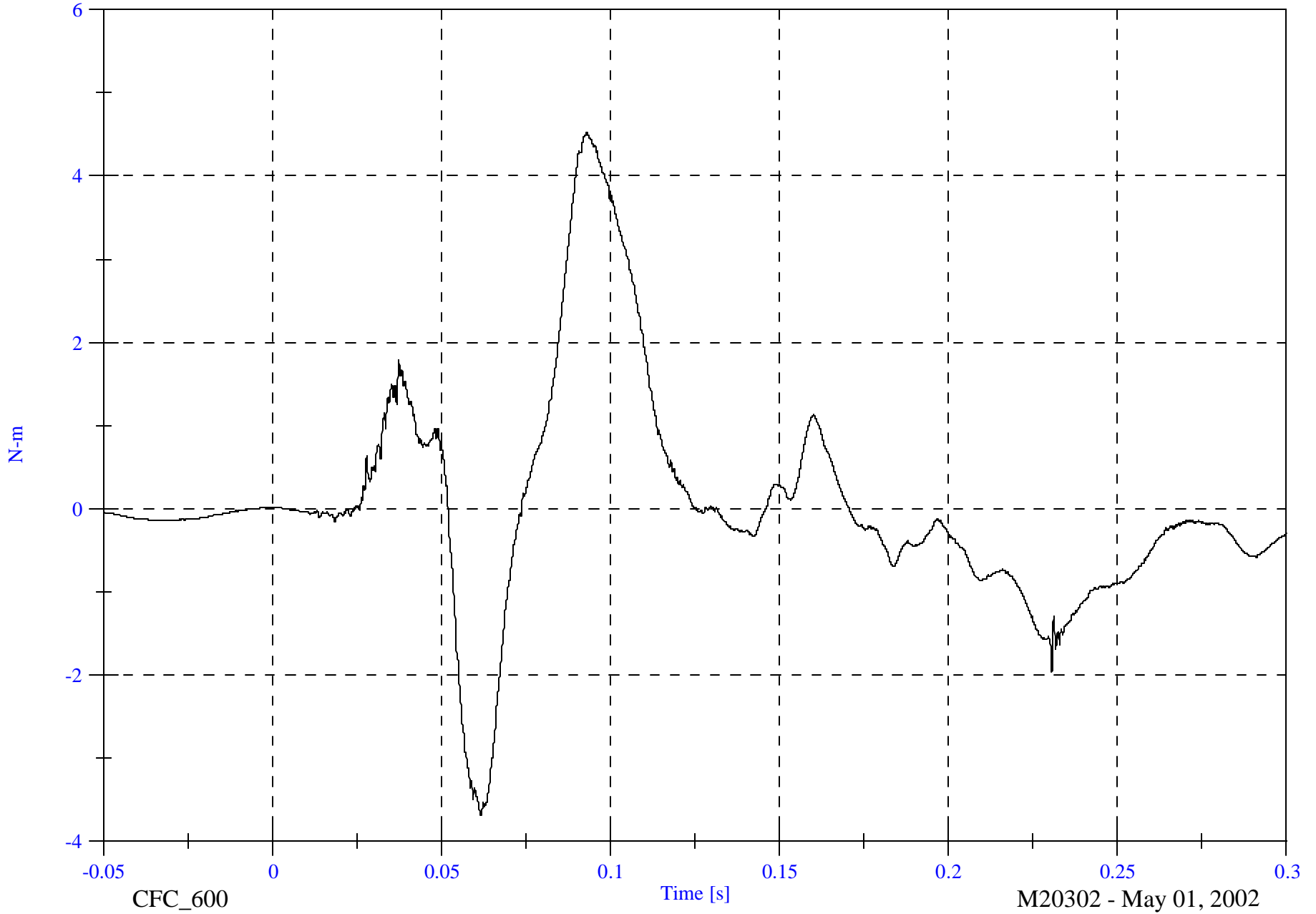
P3 Lower Neck Mx

Max: 4.5 [N-m] at 0.093 [s]

Min: -3.7 [N-m] at 0.062 [s]

4-21

8642-NCAP-10



CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

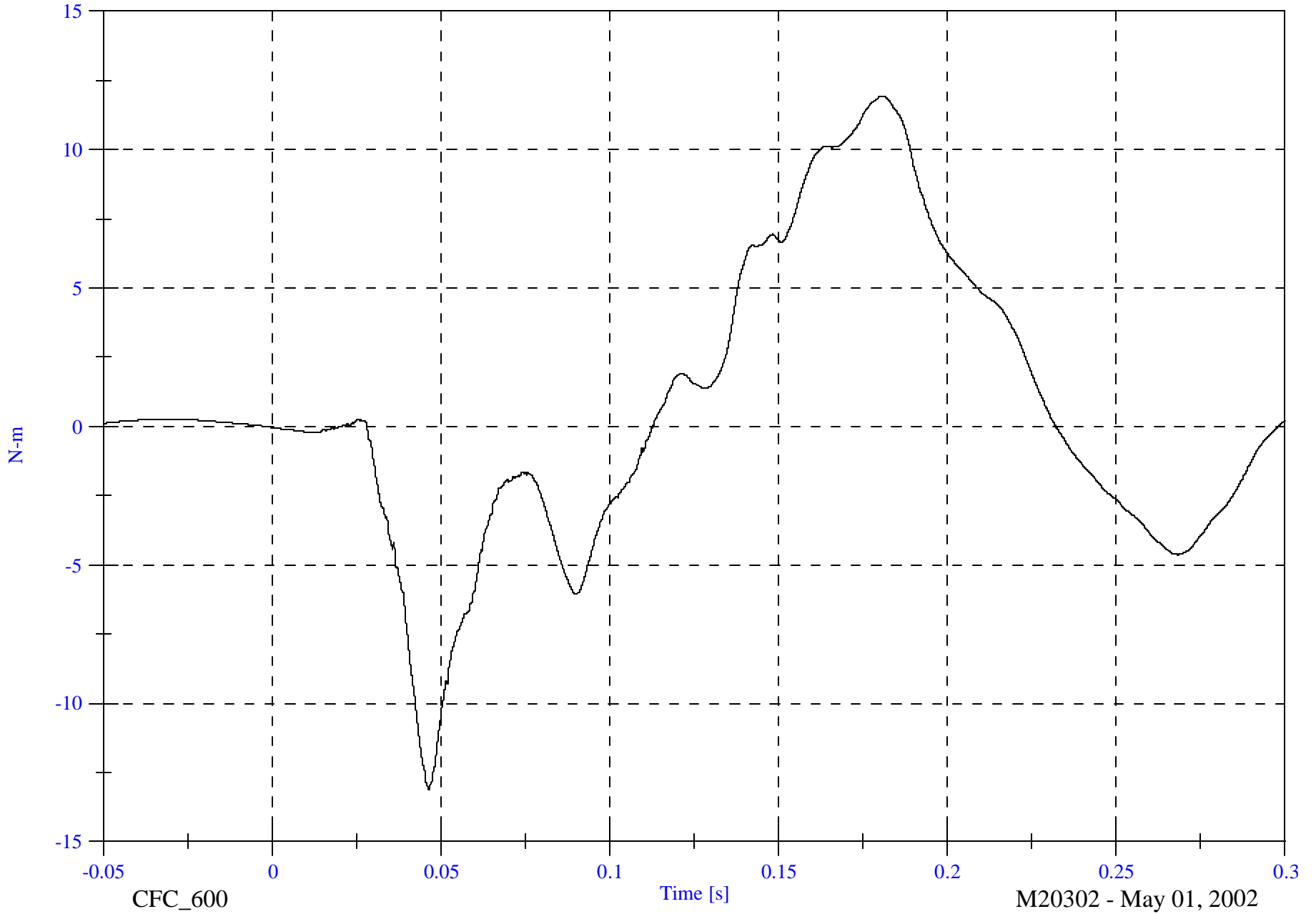
P3 Lower Neck My

Max: 11.9 [N-m] at 0.181 [s]

Min: -13.1 [N-m] at 0.046 [s]

4-22

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

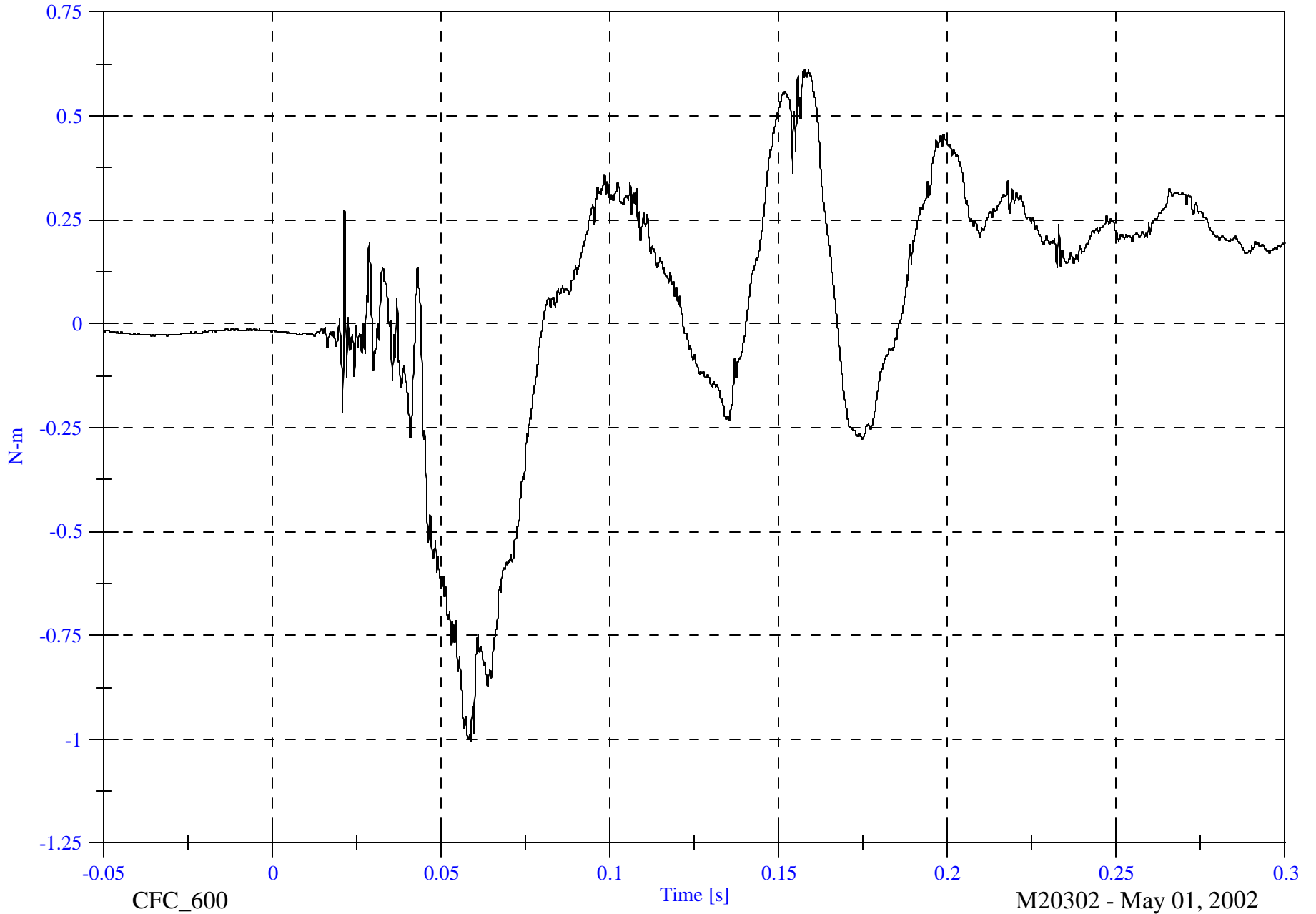
Max: 0.6 [N-m] at 0.158 [s]

P3 Lower Neck Mz

Min: -1.0 [N-m] at 0.059 [s]

4-23

8642-NCAP-10



CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

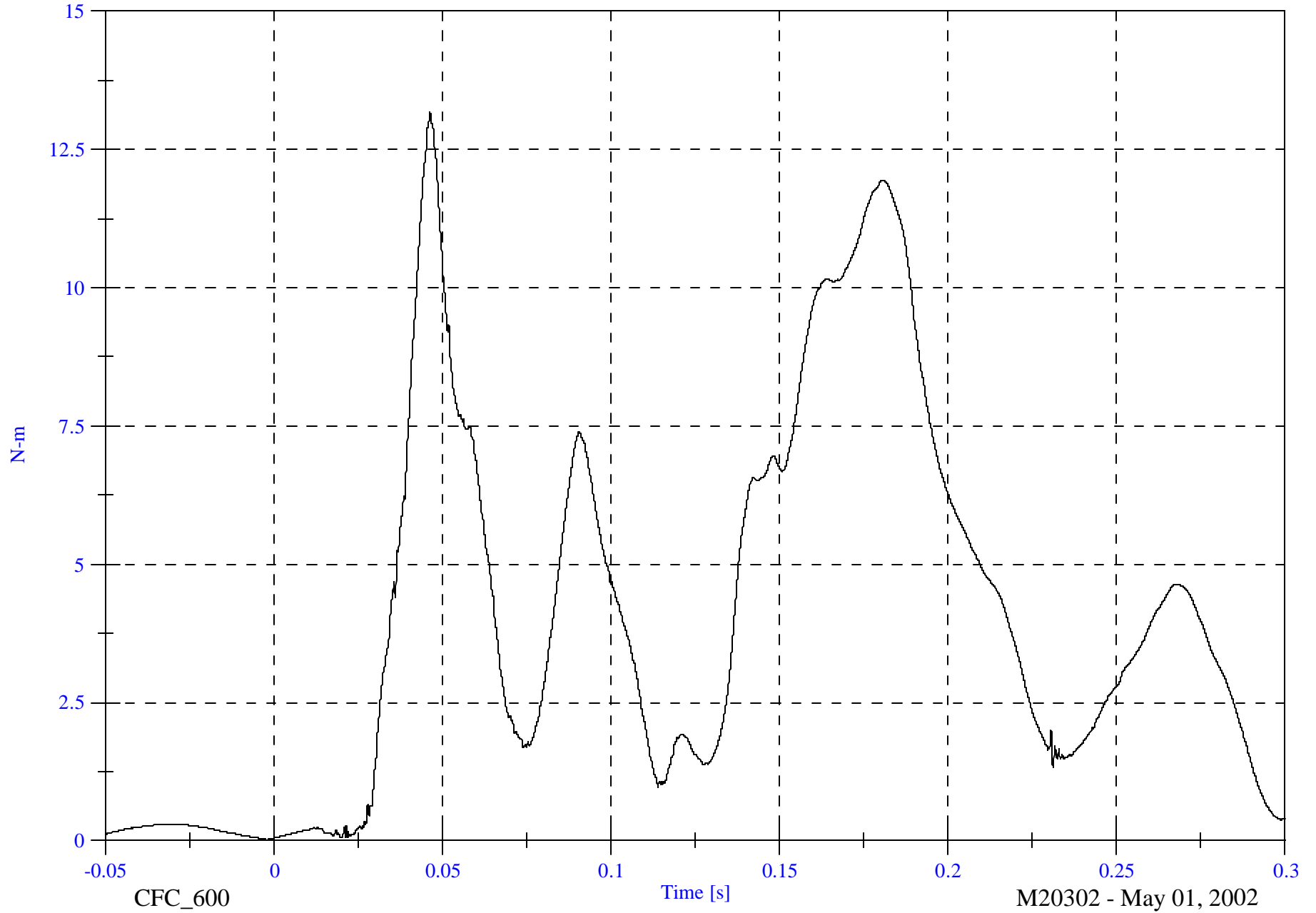
P3 Lower Neck M Resultant

Max: 13.2 [N-m] at 0.046 [s]

Min: 0.0 [N-m] at -0.002 [s]

4-24

8642-NCAP-10



CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 49.7 [g] at 0.045 [s]

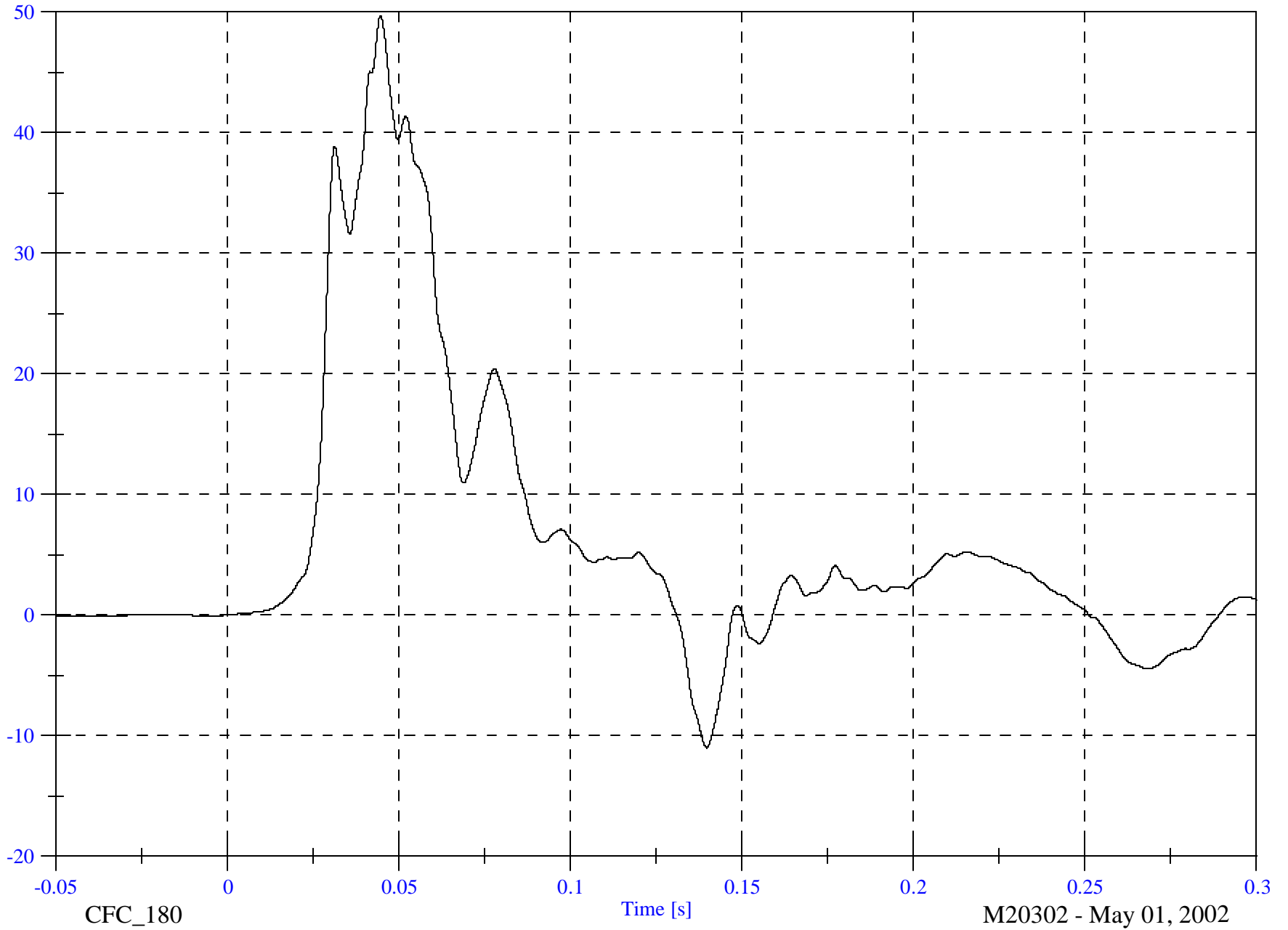
P3 Chest x

Min: -11.0 [g] at 0.140 [s]

4-25

g

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

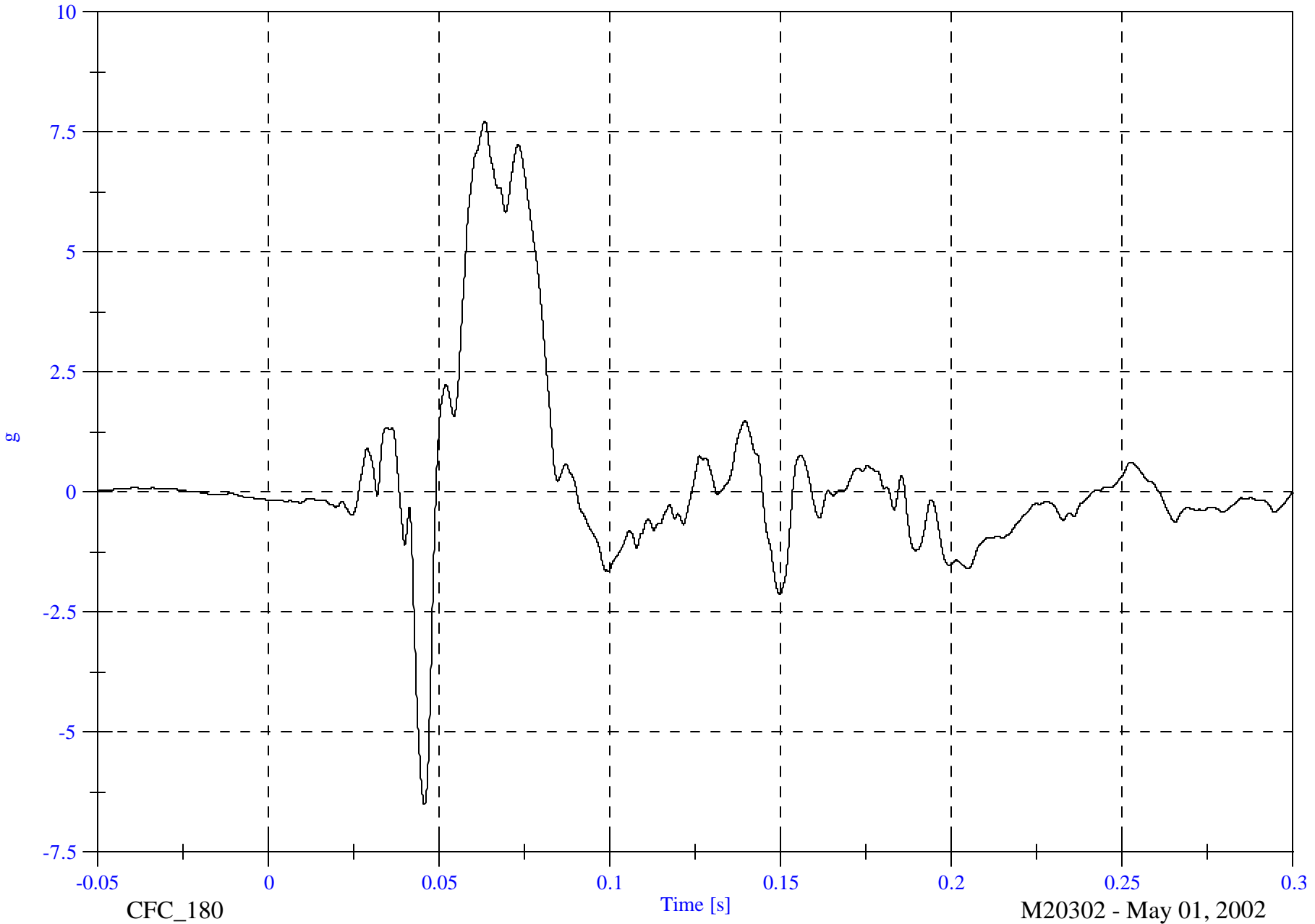
Max: 7.7 [g] at 0.063 [s]

P3 Chest y

Min: -6.5 [g] at 0.046 [s]

4-26

8642-NCAP-10



CFC_180

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

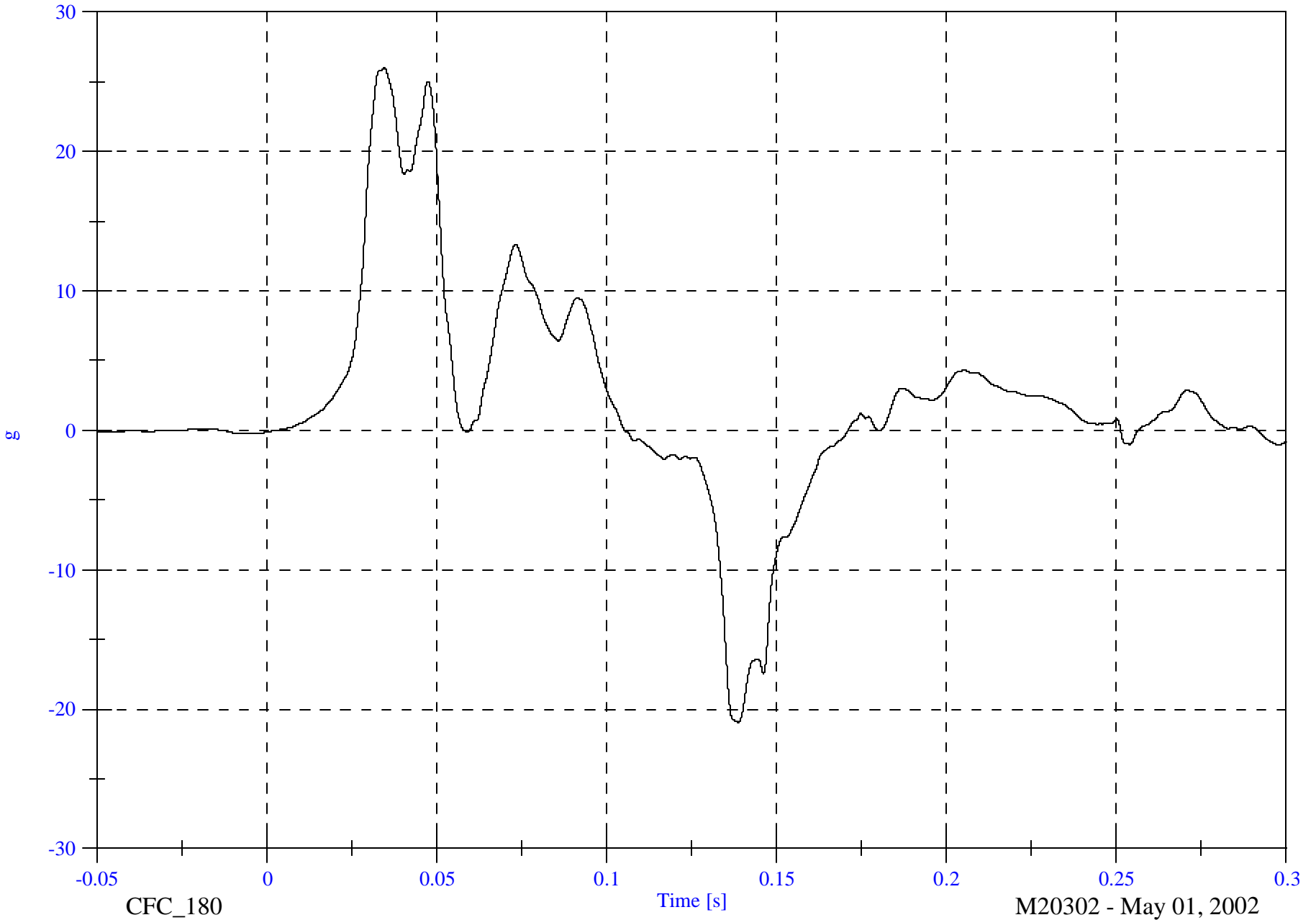
Max: 26.0 [g] at 0.034 [s]

P3 Chest z

Min: -21.0 [g] at 0.139 [s]

4-27

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

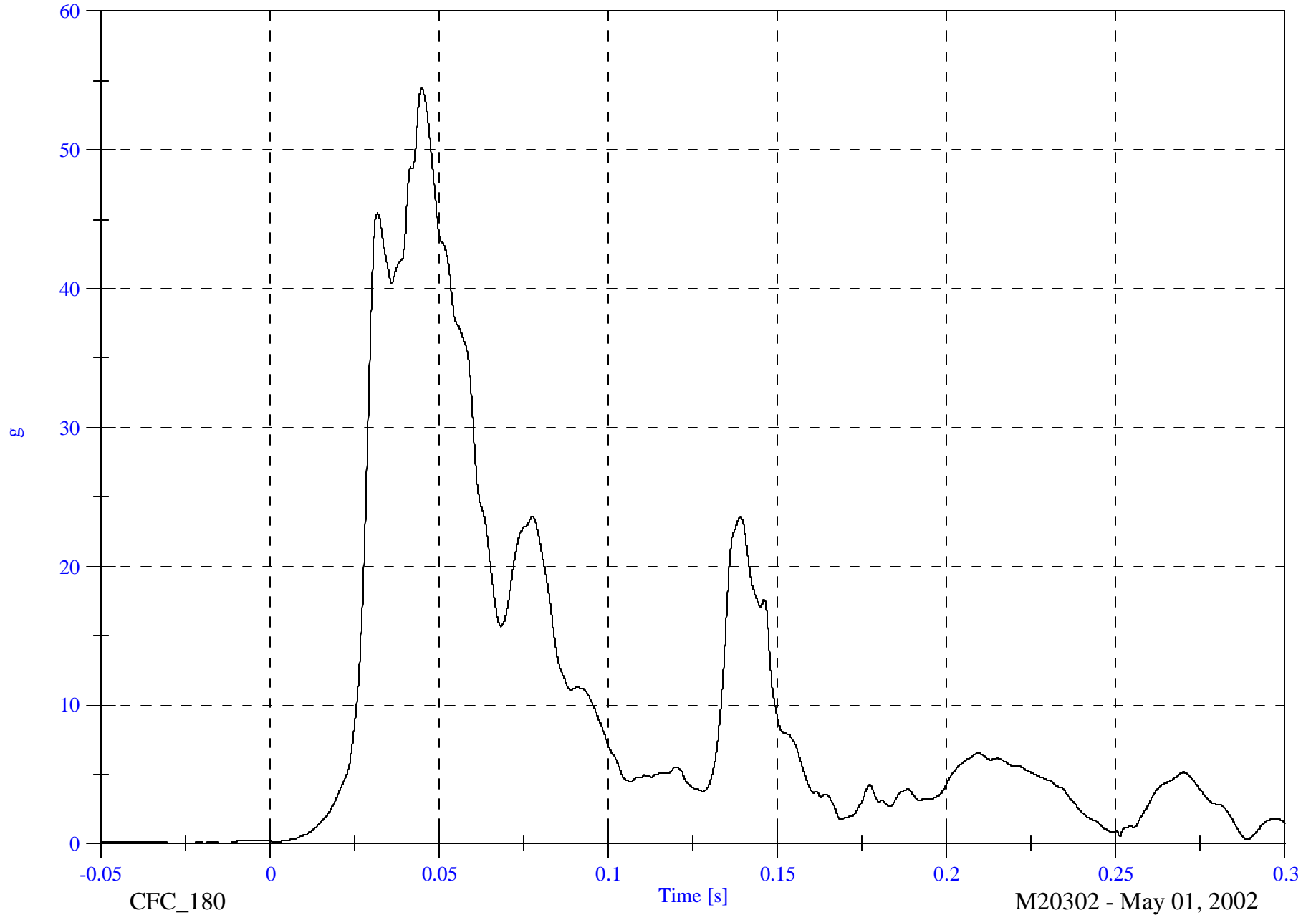
P3 Chest Resultant

Max: 54.5 [g] at 0.045 [s]

Min: 0.0 [g] at -0.025 [s]

4-28

8642-NCAP-10

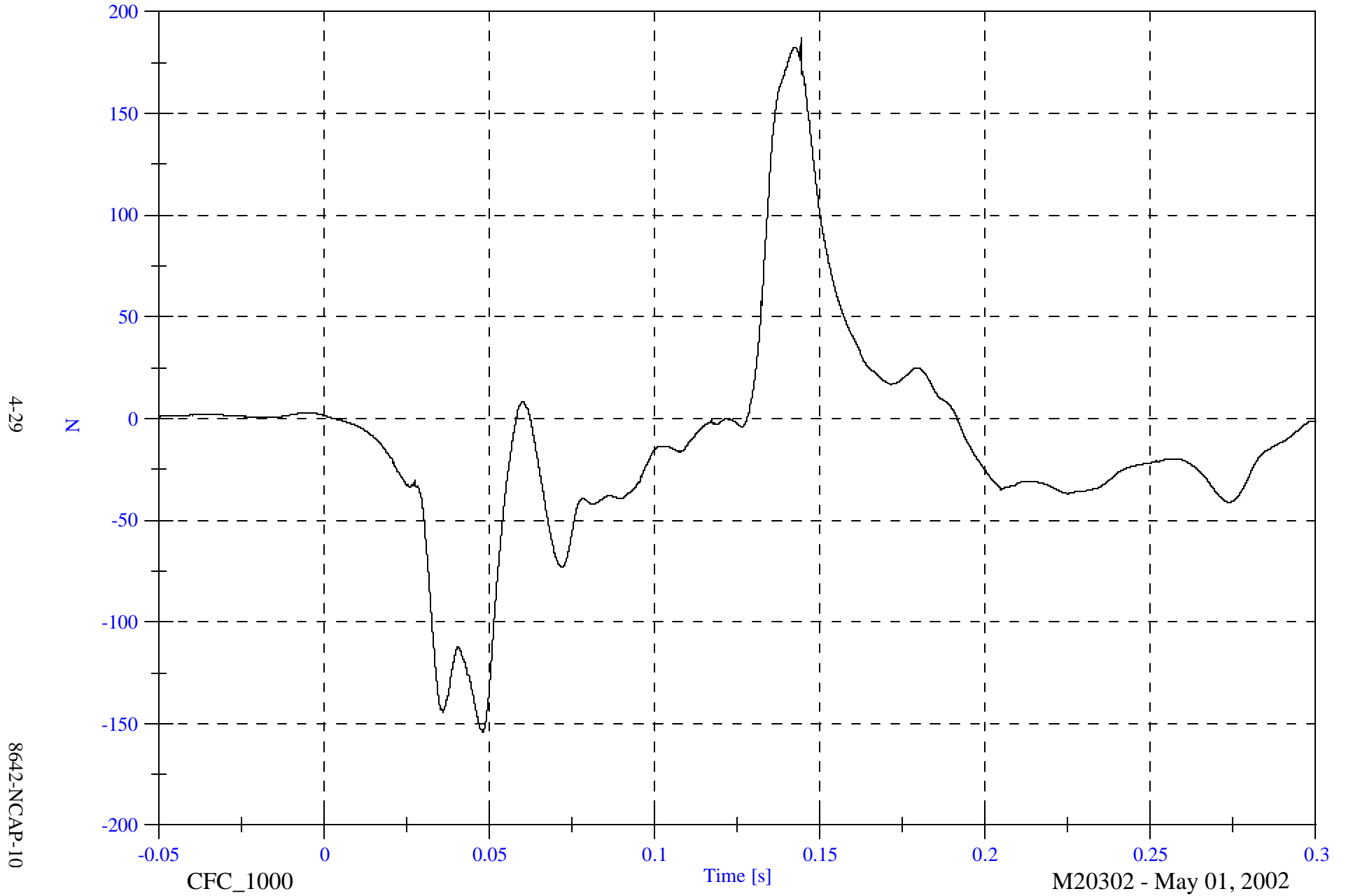


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 186.9 [N] at 0.144 [s]

Min: -154.1 [N] at 0.048 [s]

P3 Lumbar Fx



4-29

8642-NCAP-10

CFC_1000

Time [s]

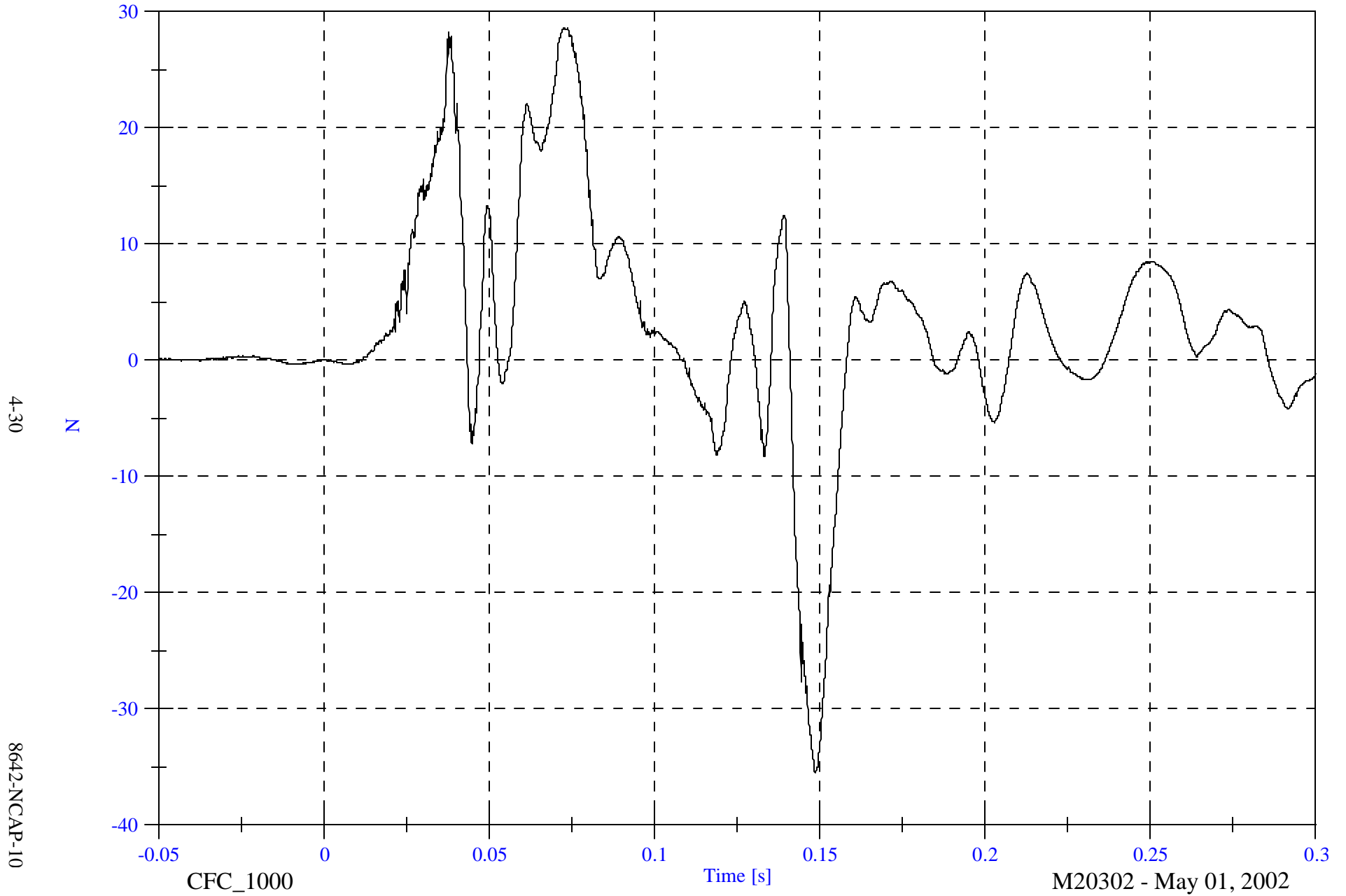
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 28.6 [N] at 0.073 [s]

P3 Lumbar Fy

Min: -35.5 [N] at 0.148 [s]



4-30

N

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

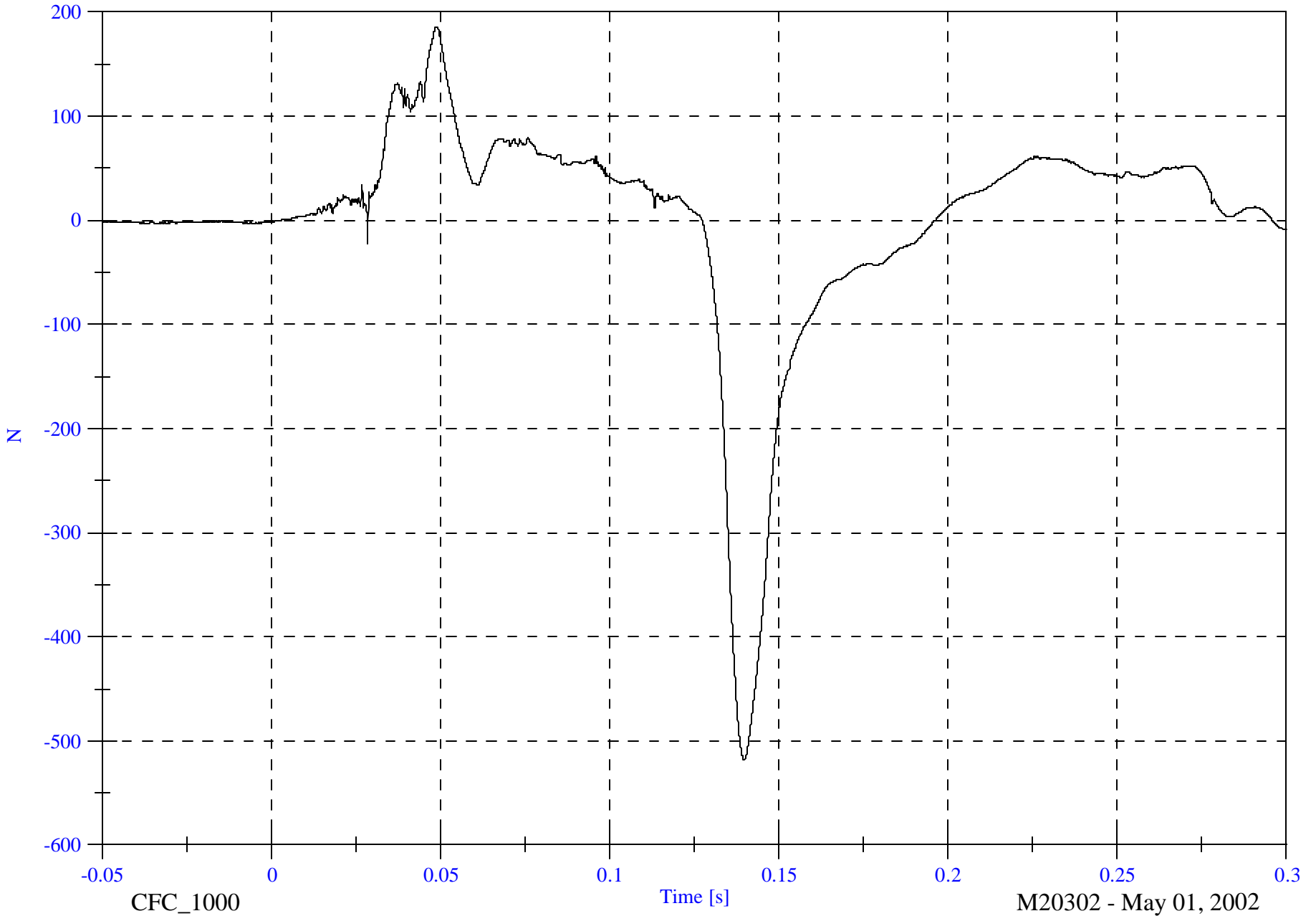
P3 Lumbar Fz

Max: 185.7 [N] at 0.049 [s]

Min: -518.7 [N] at 0.140 [s]

4-31

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

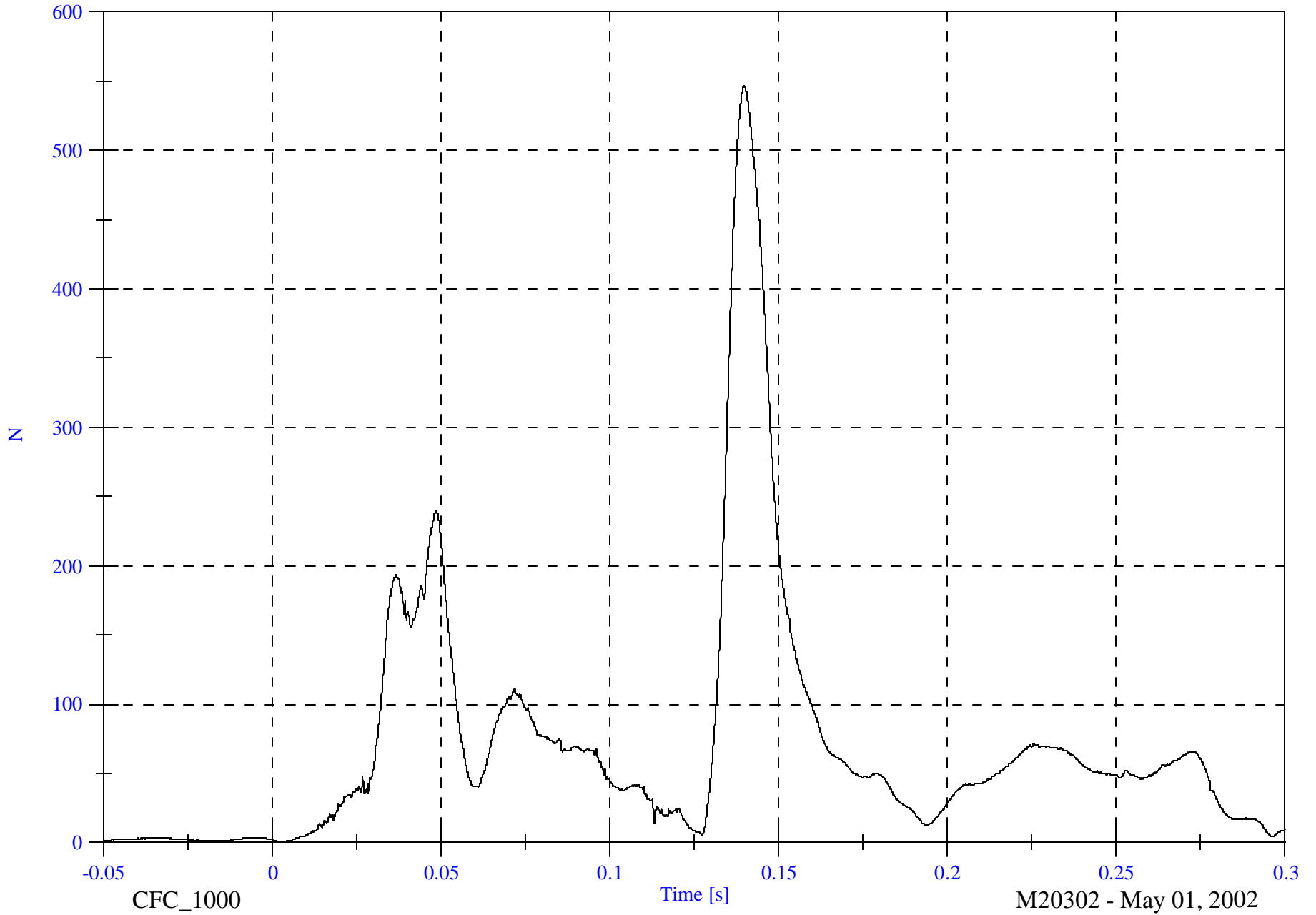
P3 Lumbar F Resultant

Max: 546.5 [N] at 0.140 [s]

Min: 0.1 [N] at 0.003 [s]

4-32

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

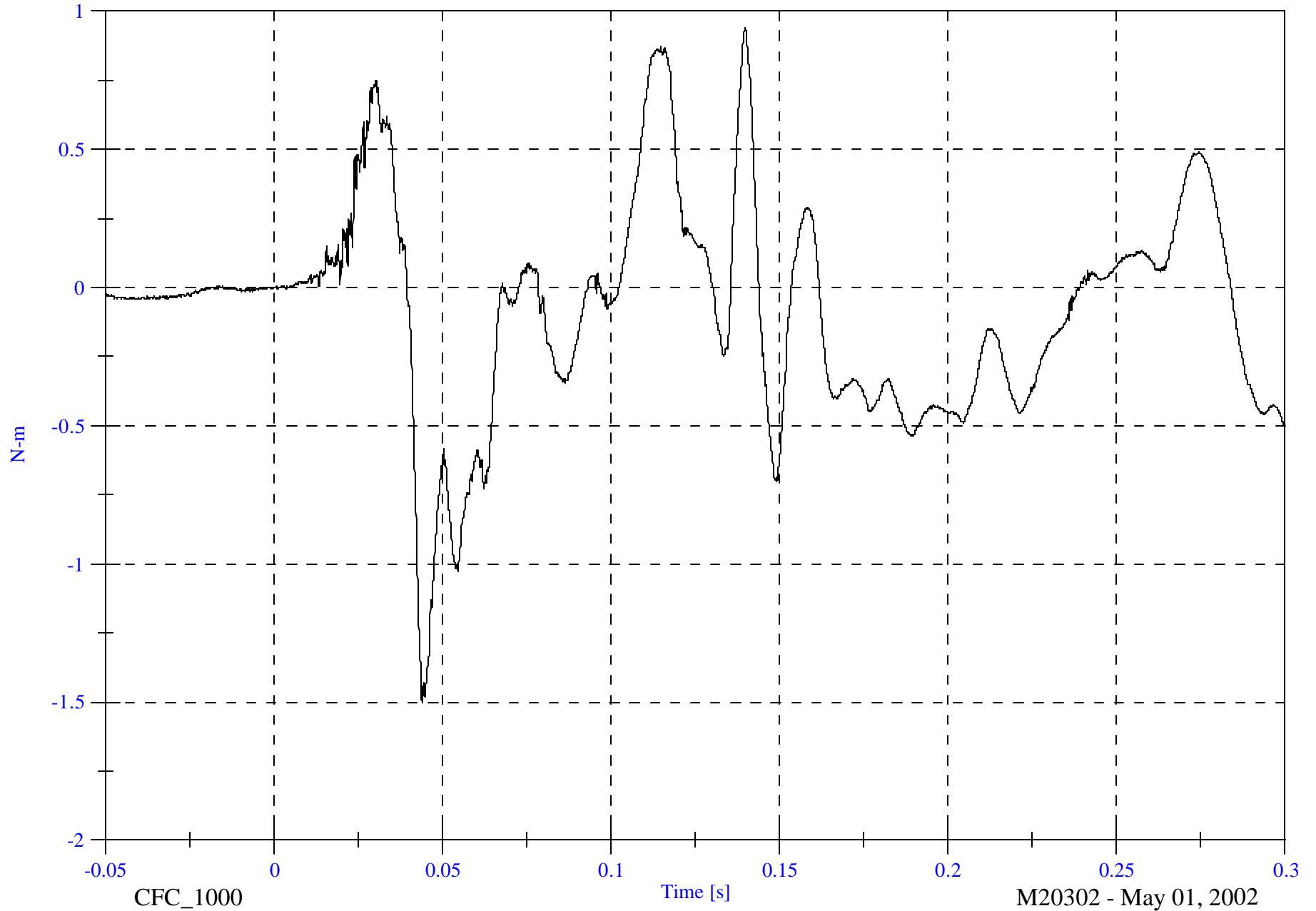
Max: 0.9 [N-m] at 0.140 [s]

Min: -1.5 [N-m] at 0.044 [s]

P3 Lumbar Mx

4-33

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

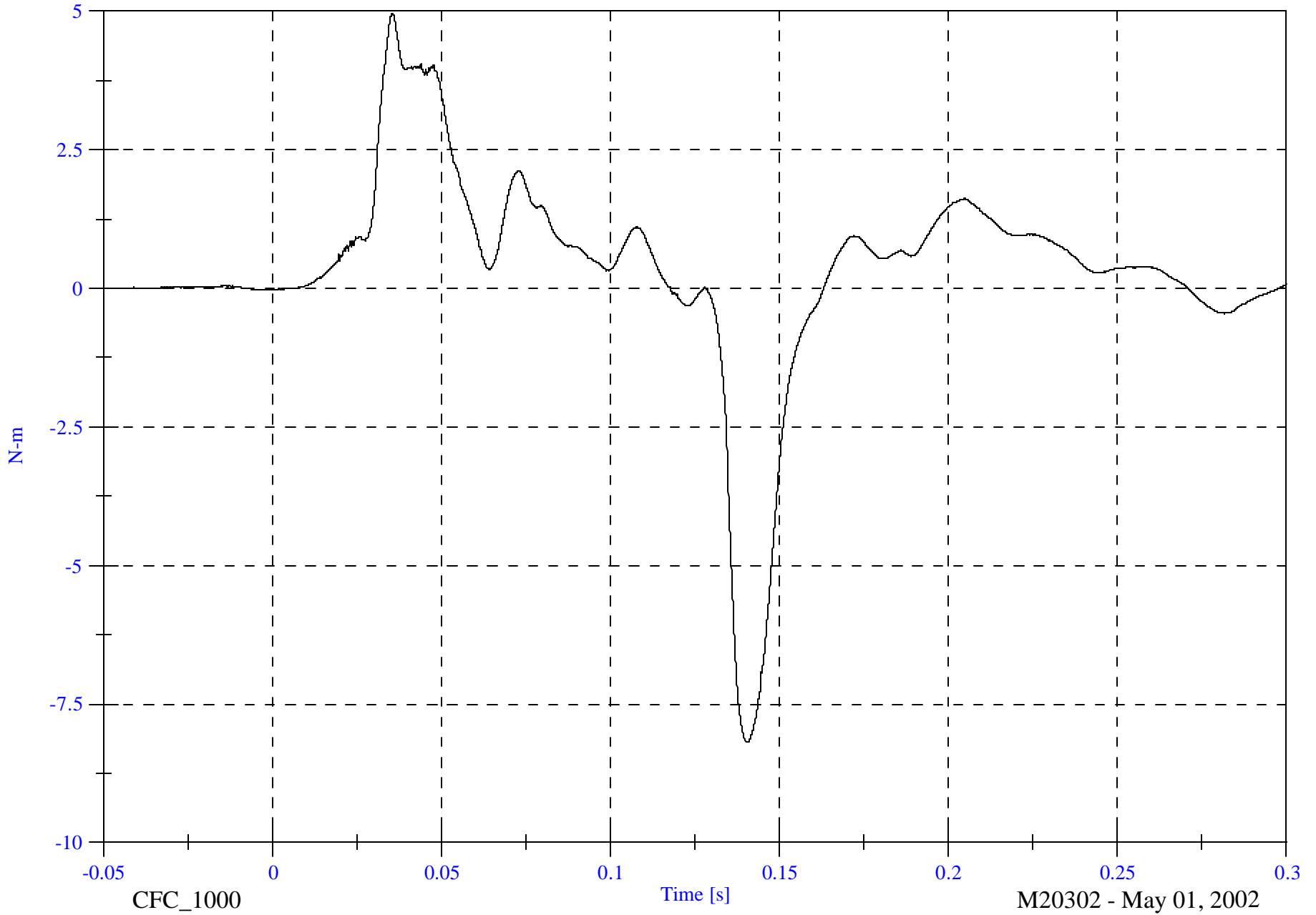
Max: 5.0 [N-m] at 0.035 [s]

P3 Lumbar My

Min: -8.2 [N-m] at 0.140 [s]

4-34

8642-NCAP-10

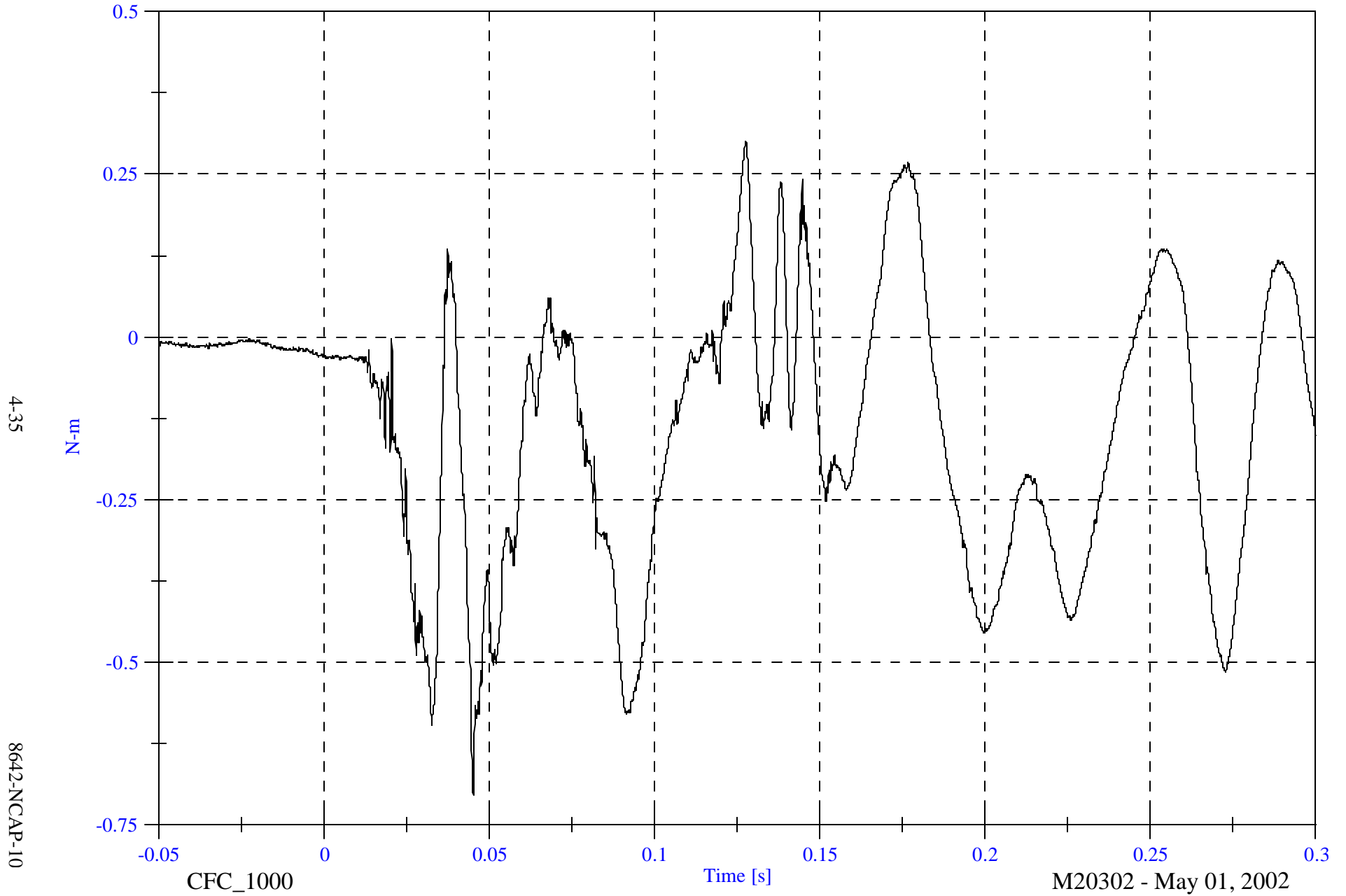


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Max: 0.3 [N-m] at 0.128 [s]

P3 Lumbar Mz

Min: -0.7 [N-m] at 0.045 [s]



NCAP Test 10 - 2002 Dodge Ram 1500

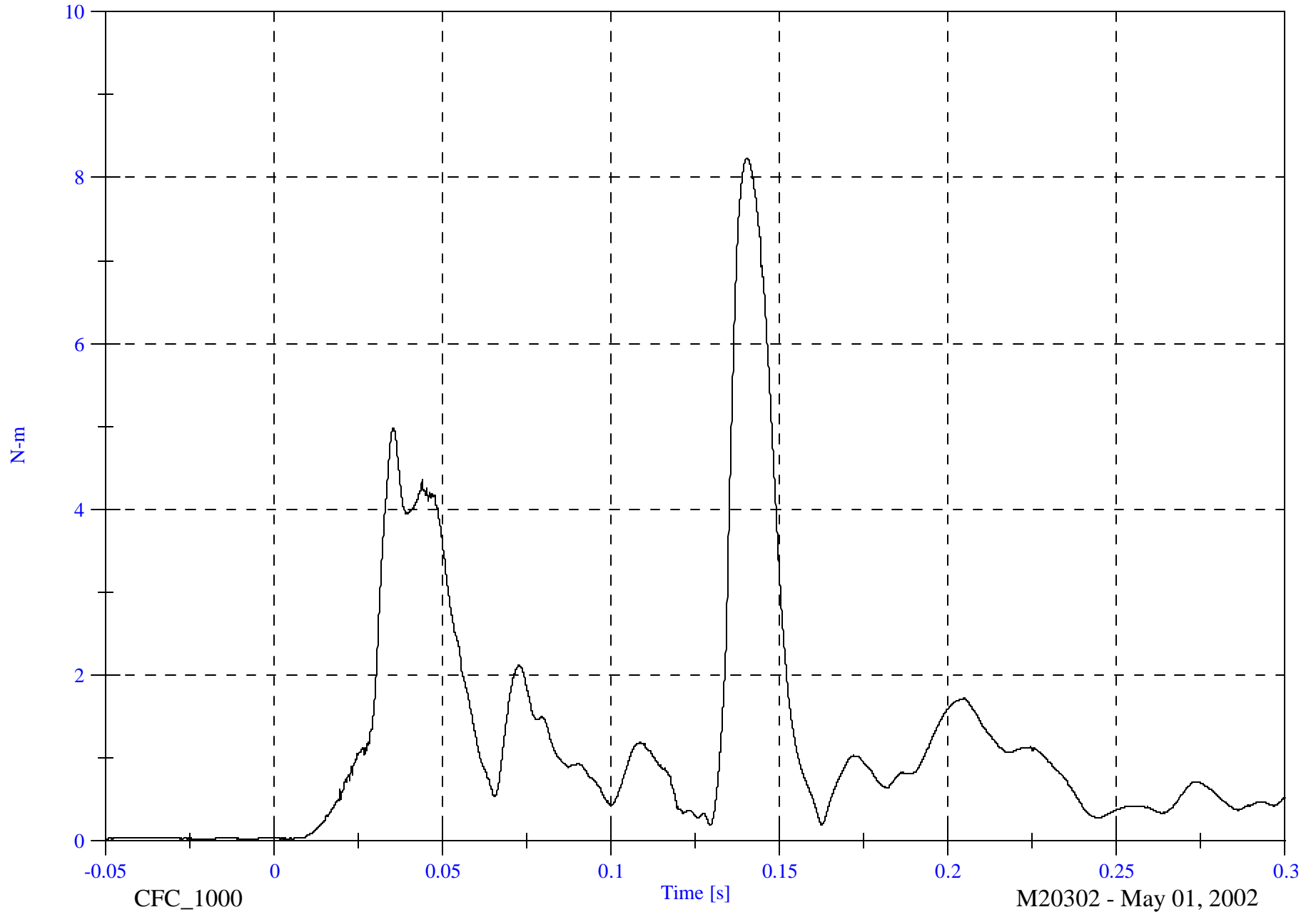
P3 Lumbar M Resultant

Max: 8.2 [N-m] at 0.140 [s]

Min: 0.0 [N-m] at -0.007 [s]

4-36

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 34.0 [g] at 0.036 [s]

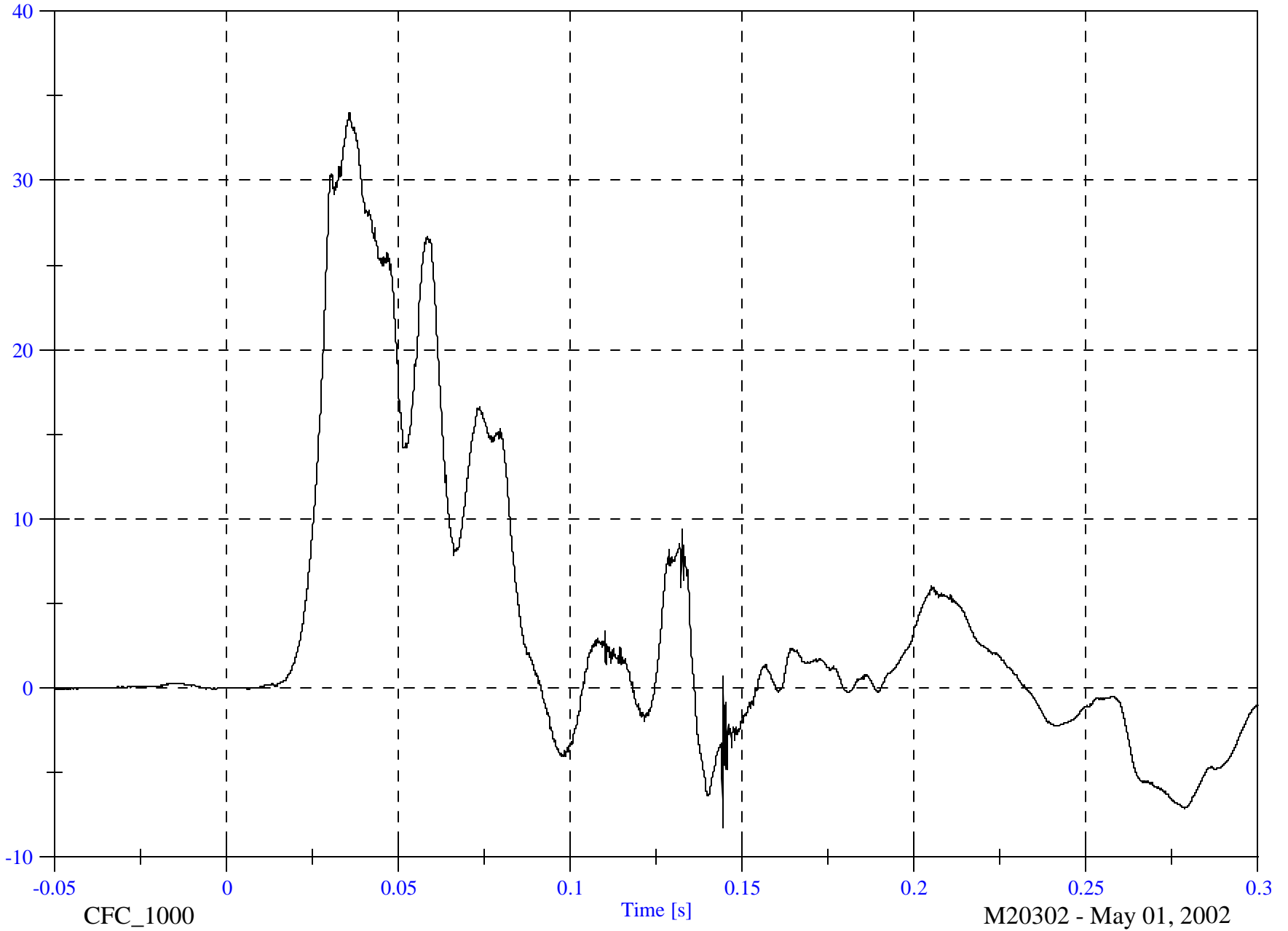
P3 Pelvic x

Min: -8.3 [g] at 0.144 [s]

4-37

g

8642-NCAP-10



M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 9.5 [g] at 0.059 [s]

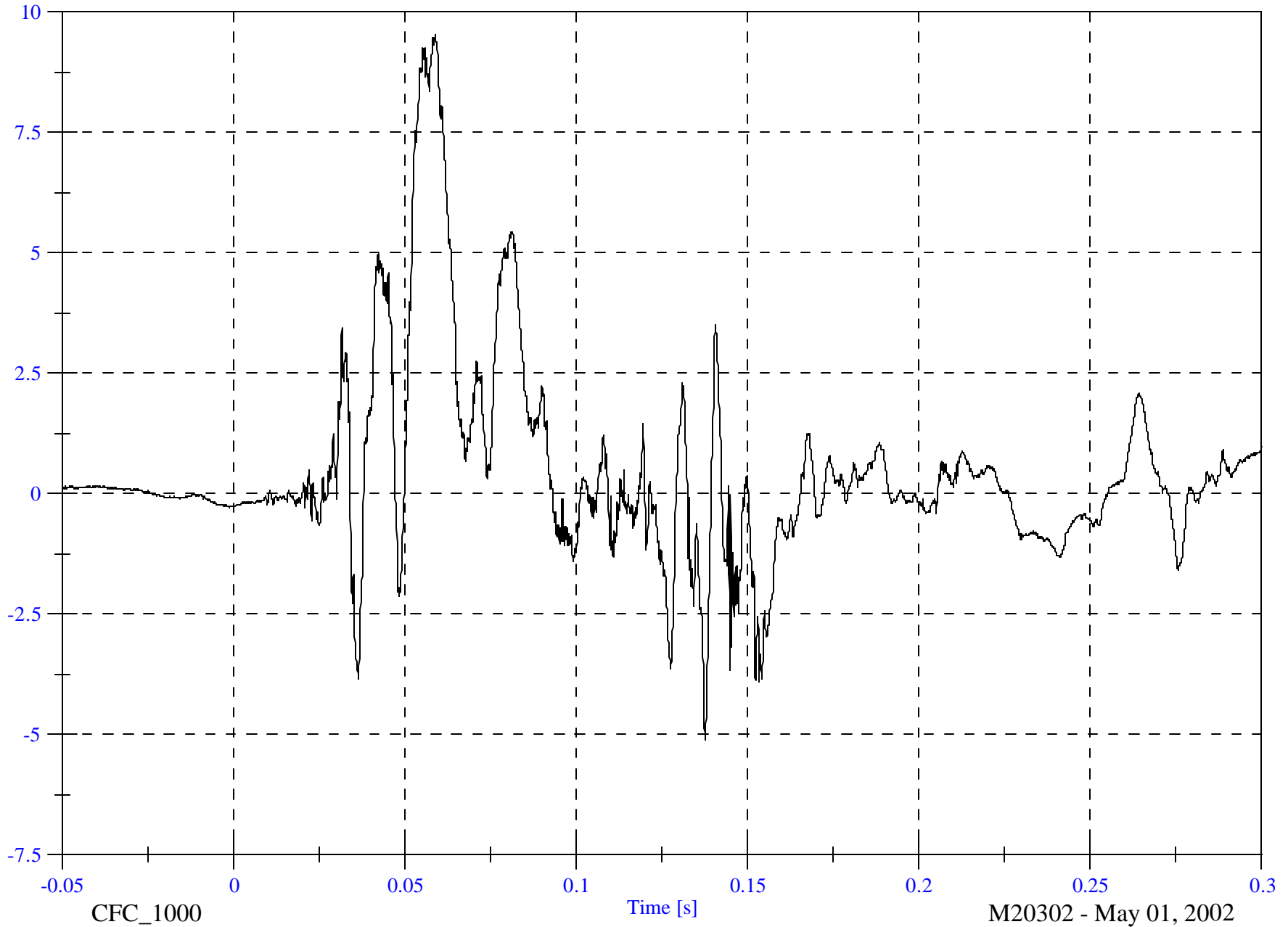
P3 Pelvic y

Min: -5.1 [g] at 0.138 [s]

4-38

g

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 42.7 [g] at 0.032 [s]

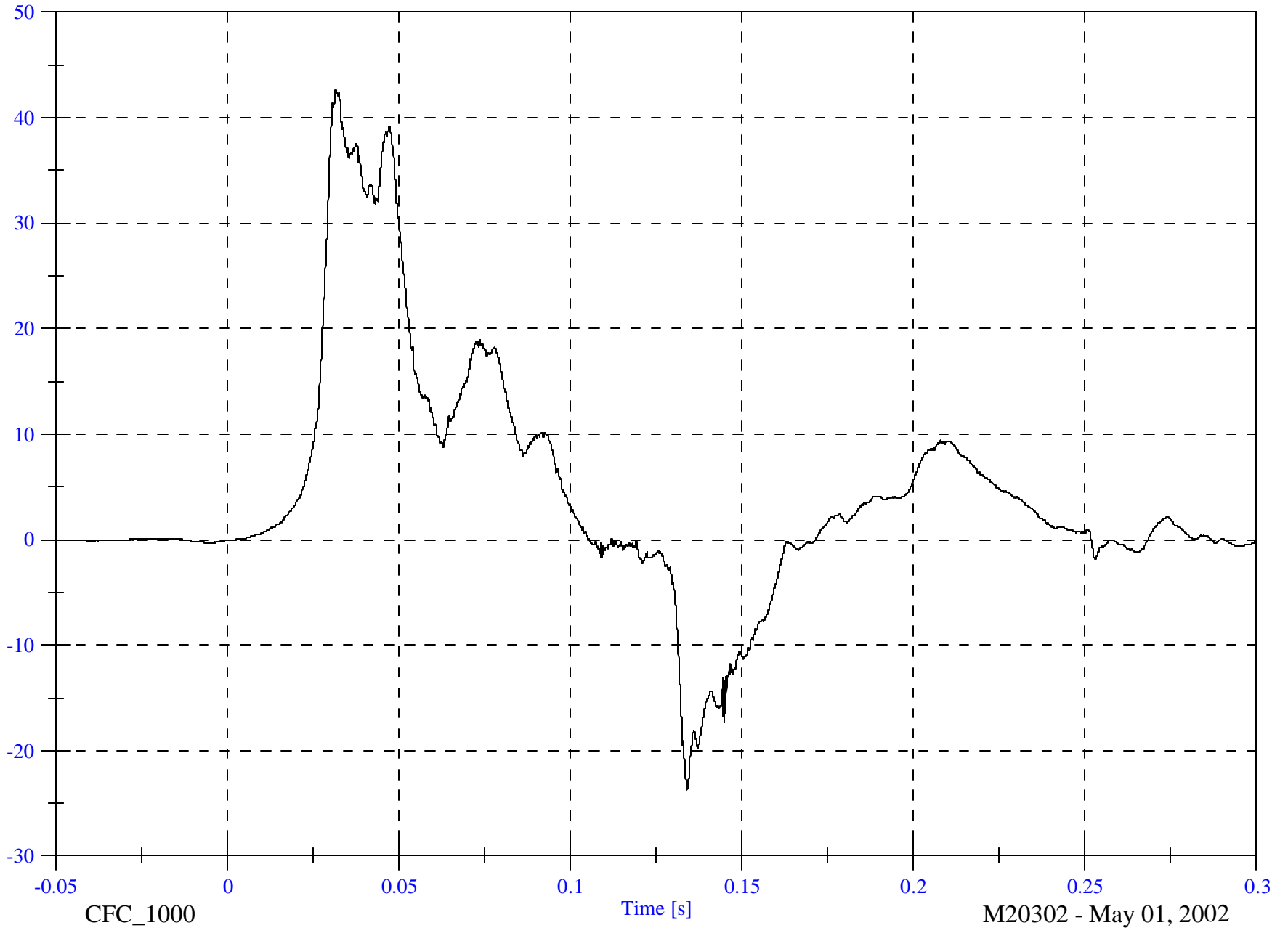
P3 Pelvic z

Min: -23.8 [g] at 0.134 [s]

4-39

g

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

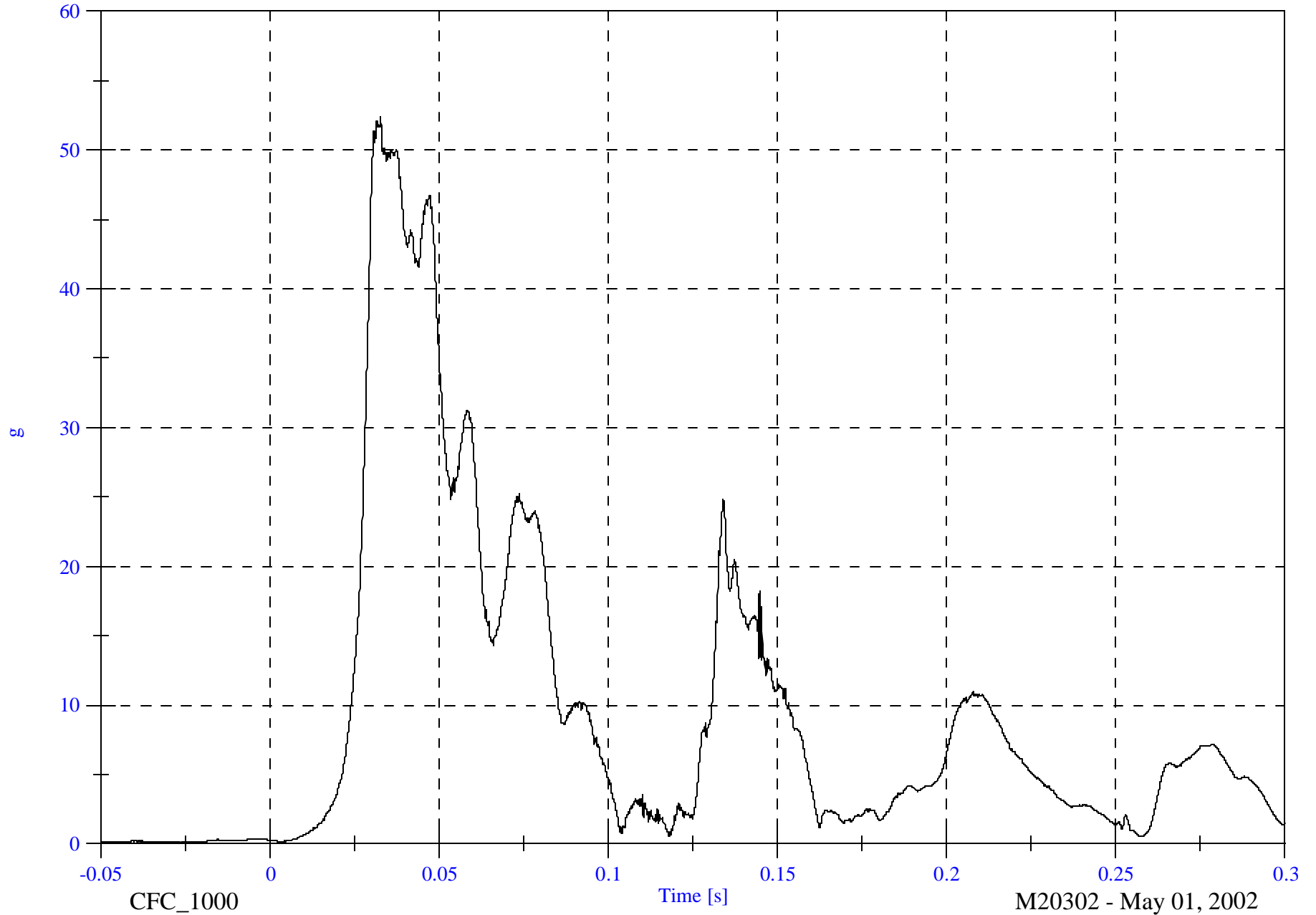
P3 Pelvic Resultant

Max: 52.4 [g] at 0.033 [s]

Min: 0.1 [g] at -0.030 [s]

4-40

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

Max: 26.3 [g] at 0.205 [s]

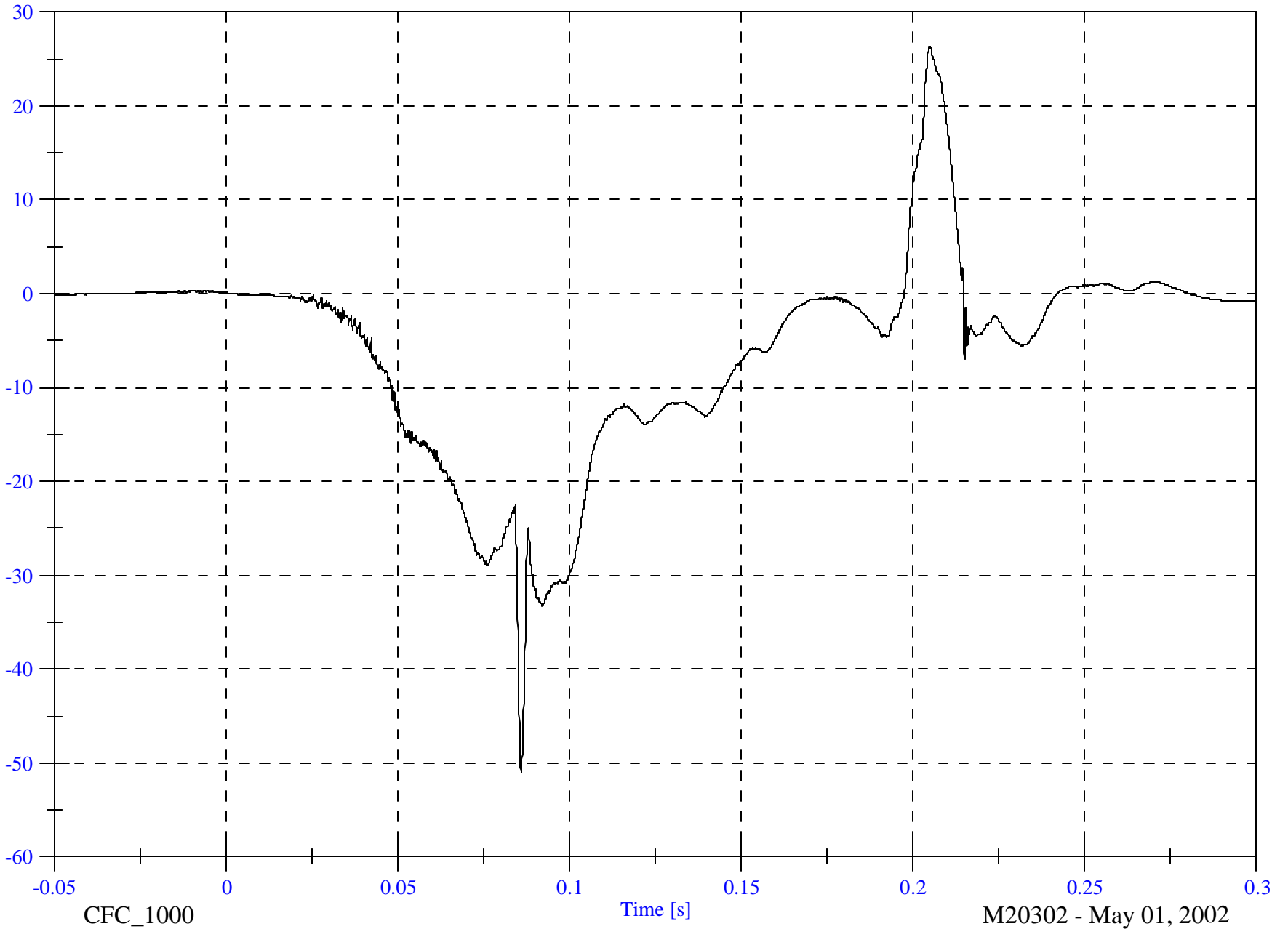
P4 Head x

Min: -50.9 [g] at 0.086 [s]

4-41

g

8642-NCAP-10

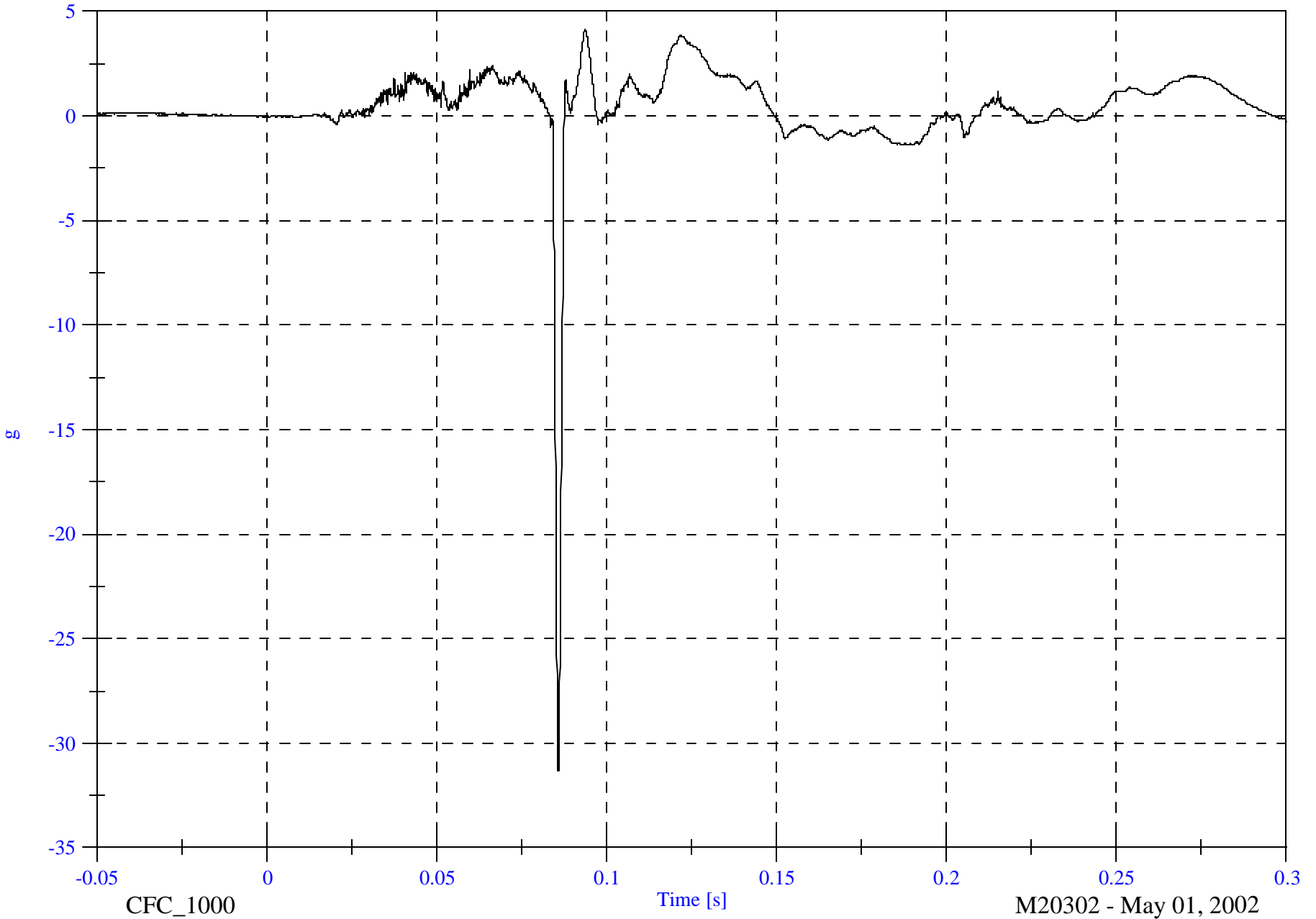


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 4.1 [g] at 0.094 [s]

Min: -31.4 [g] at 0.086 [s]

P4 Head y



4-42

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 77.6 [g] at 0.075 [s]

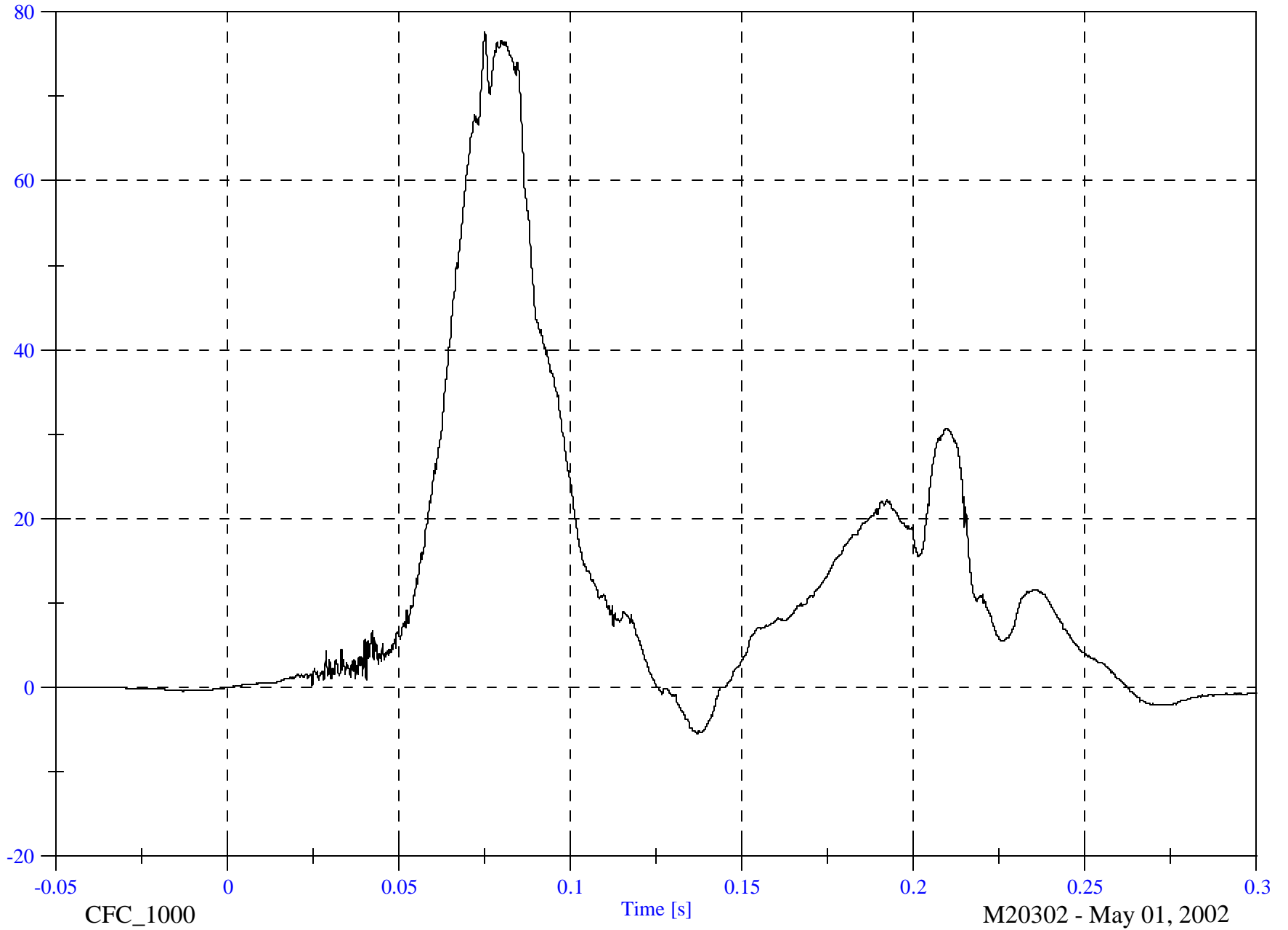
P4 Head z

Min: -5.5 [g] at 0.137 [s]

4-43

g

8642-NCAP-10



M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

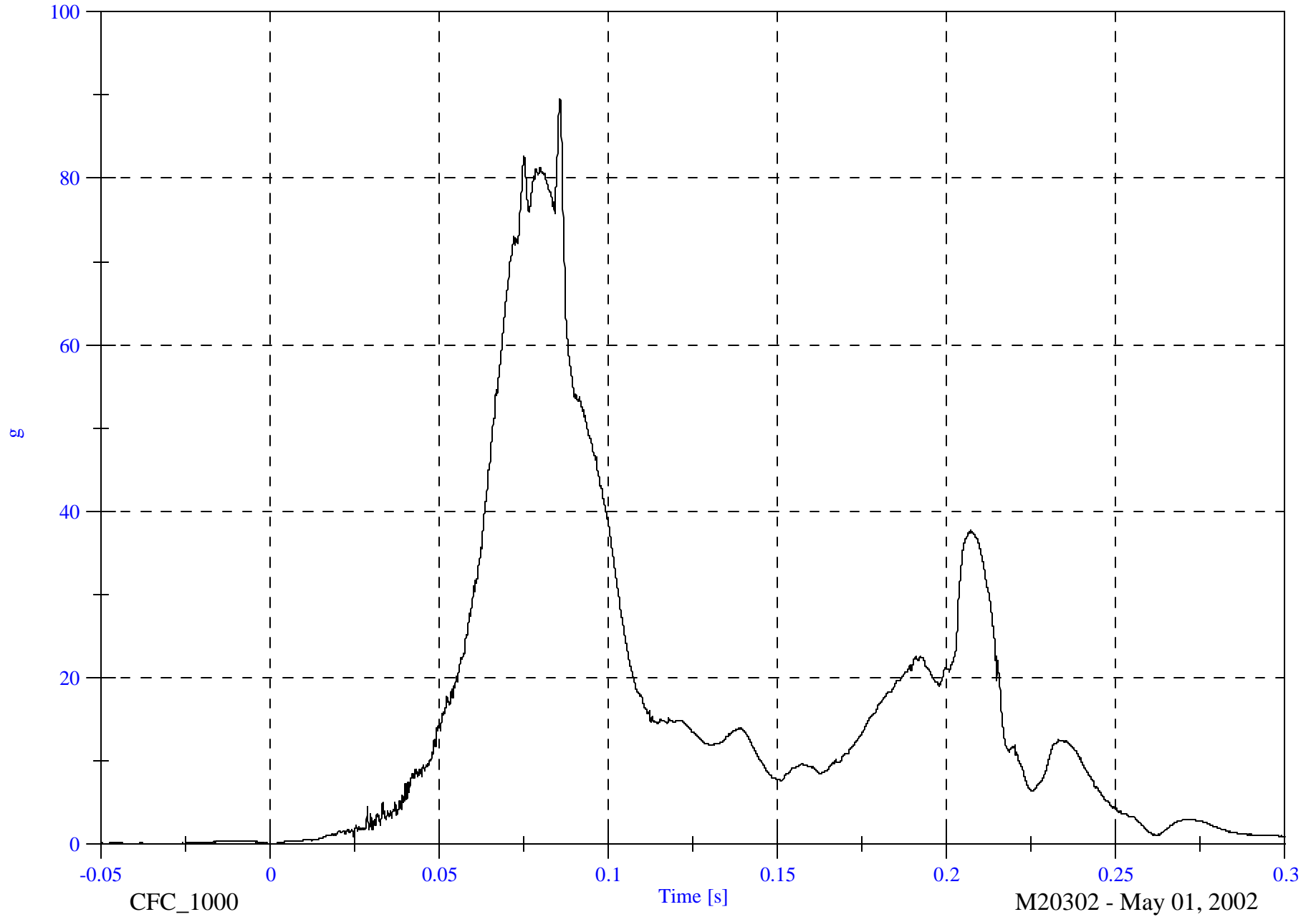
P4 Head Resultant

Max: 89.6 [g] at 0.086 [s]

Min: 0.1 [g] at 0.001 [s]

4-44

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

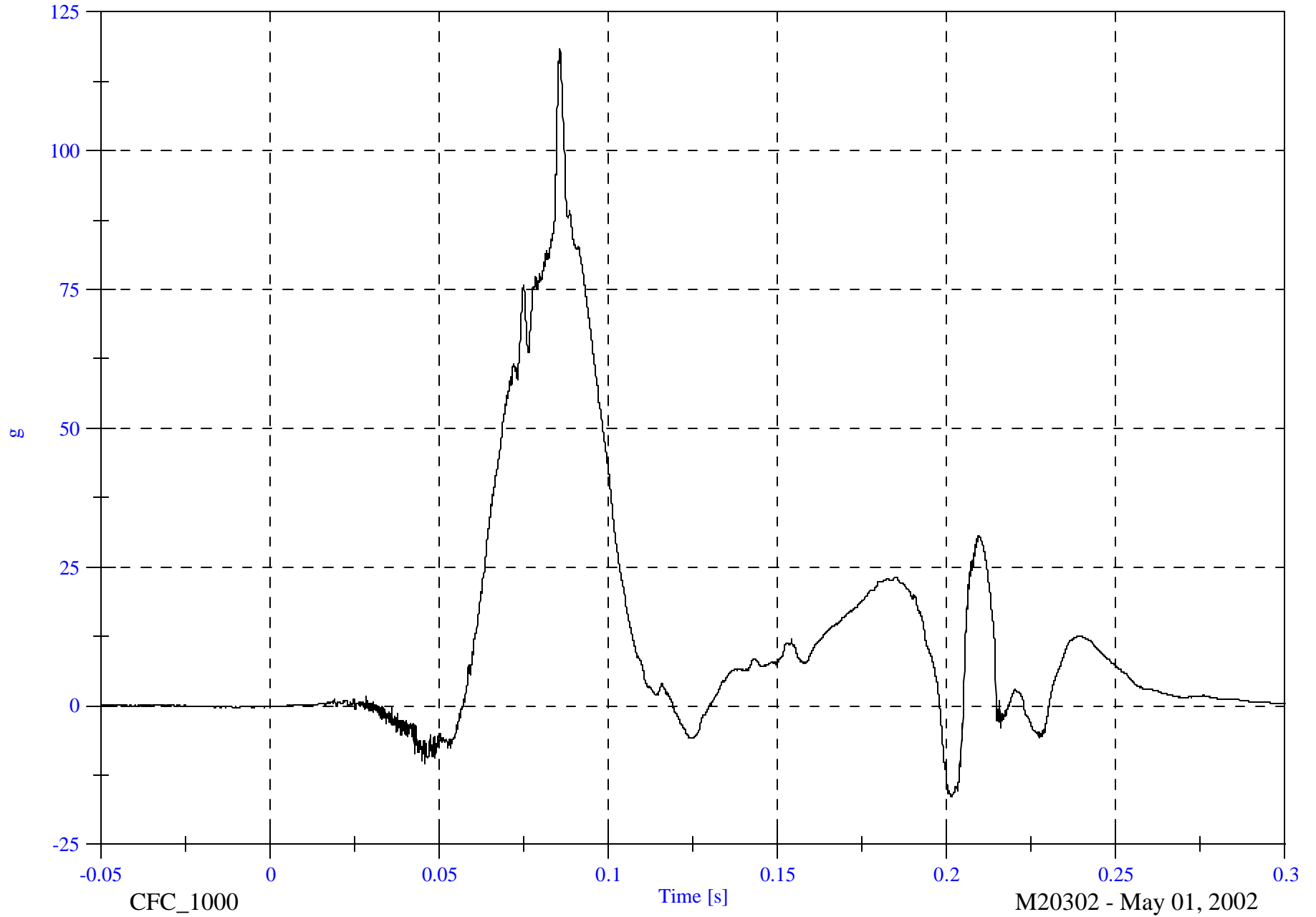
Max: 118.5 [g] at 0.086 [s]

P4 Head Red z

Min: -16.5 [g] at 0.202 [s]

4-45

8642-NCAP-10

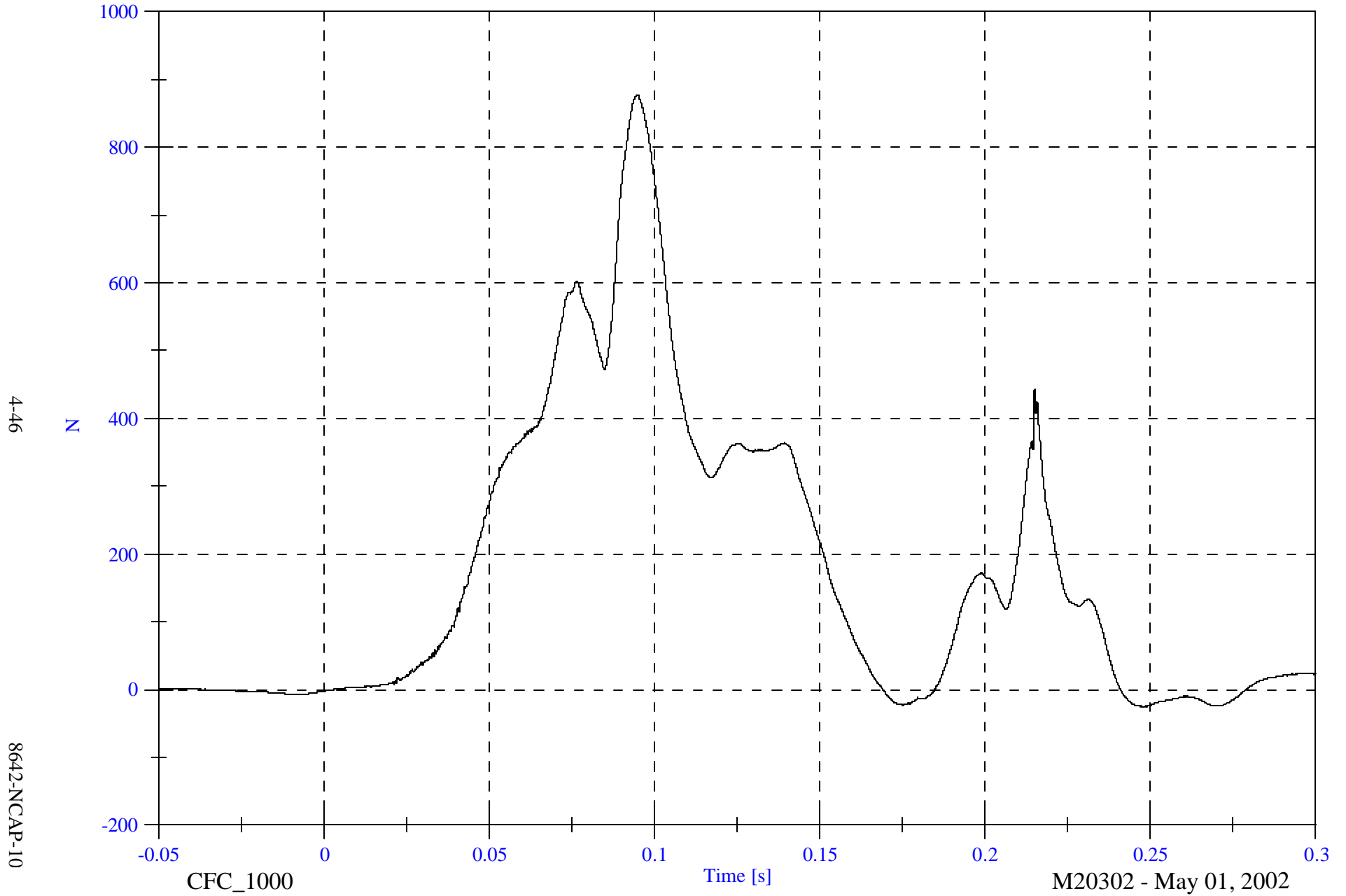


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 876.6 [N] at 0.095 [s]

Min: -25.1 [N] at 0.248 [s]

P4 Upper Neck Fx



4-46

8642-NCAP-10

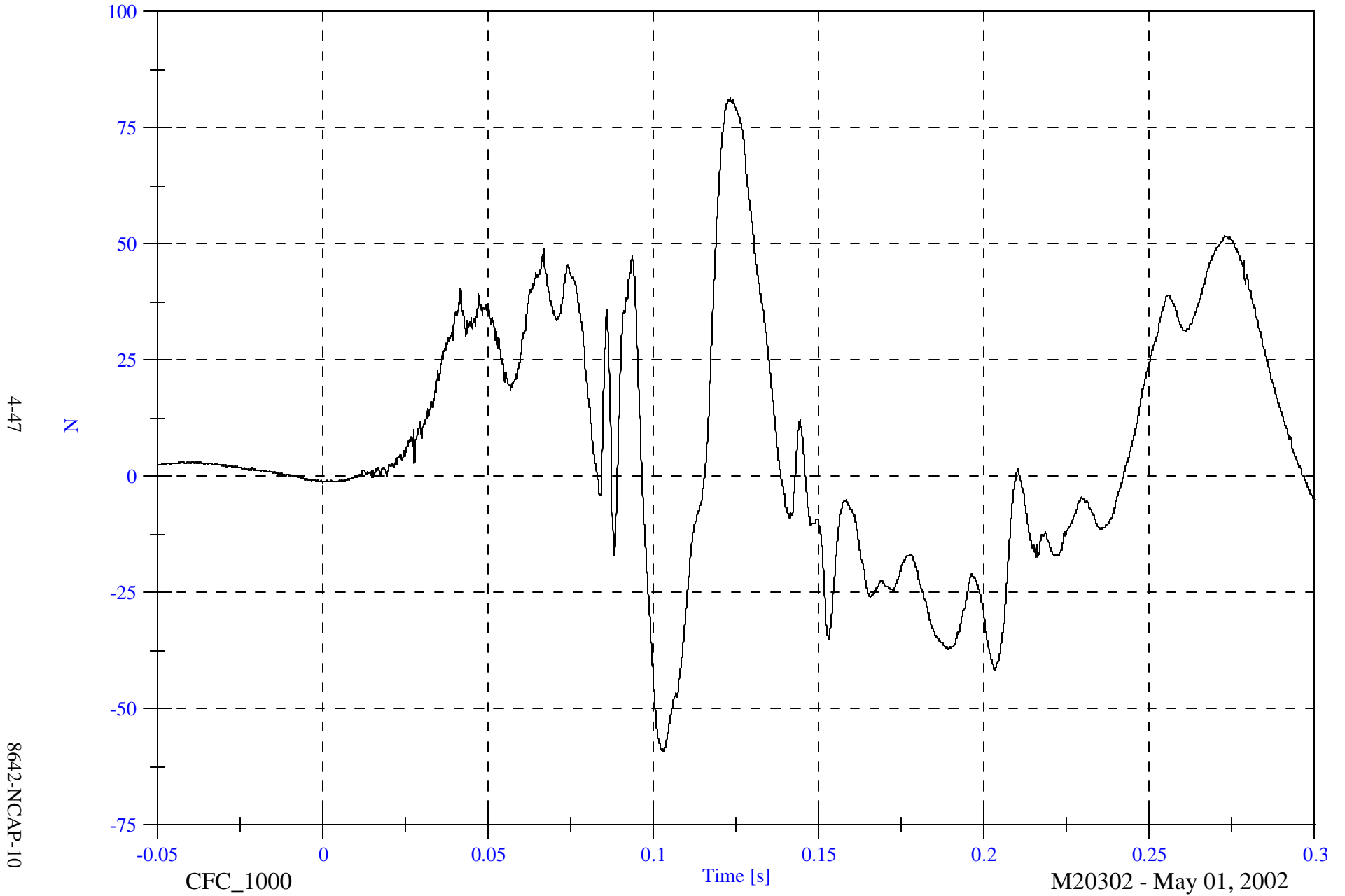
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

P4 Upper Neck Fy

Max: 81.3 [N] at 0.123 [s]

Min: -59.1 [N] at 0.103 [s]



4-47

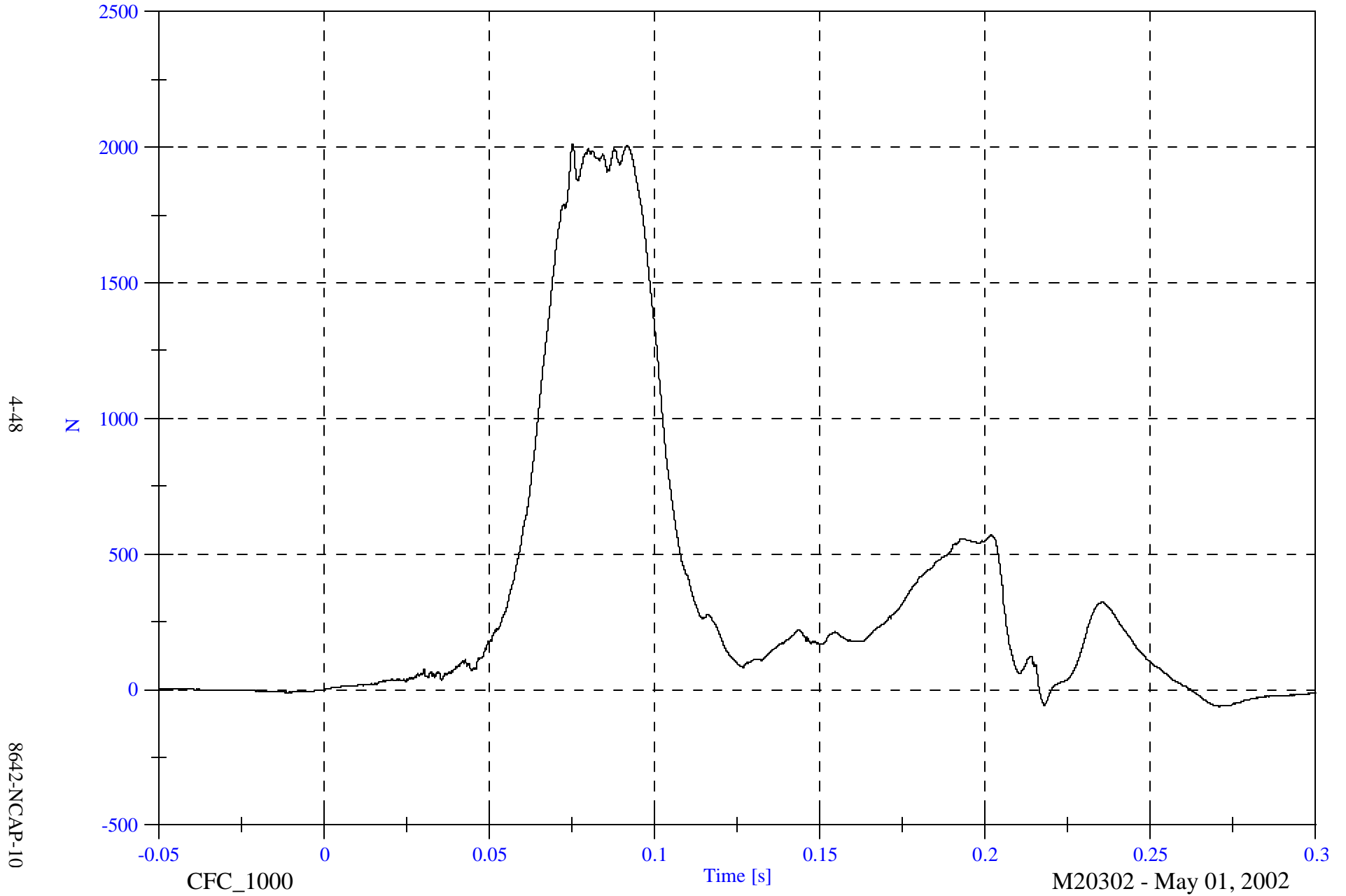
8642-NCAP-10

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 2013.0 [N] at 0.075 [s]

P4 Upper Neck Fz

Min: -61.7 [N] at 0.271 [s]



4-48

8642-NCAP-10

CFC_1000

Time [s]

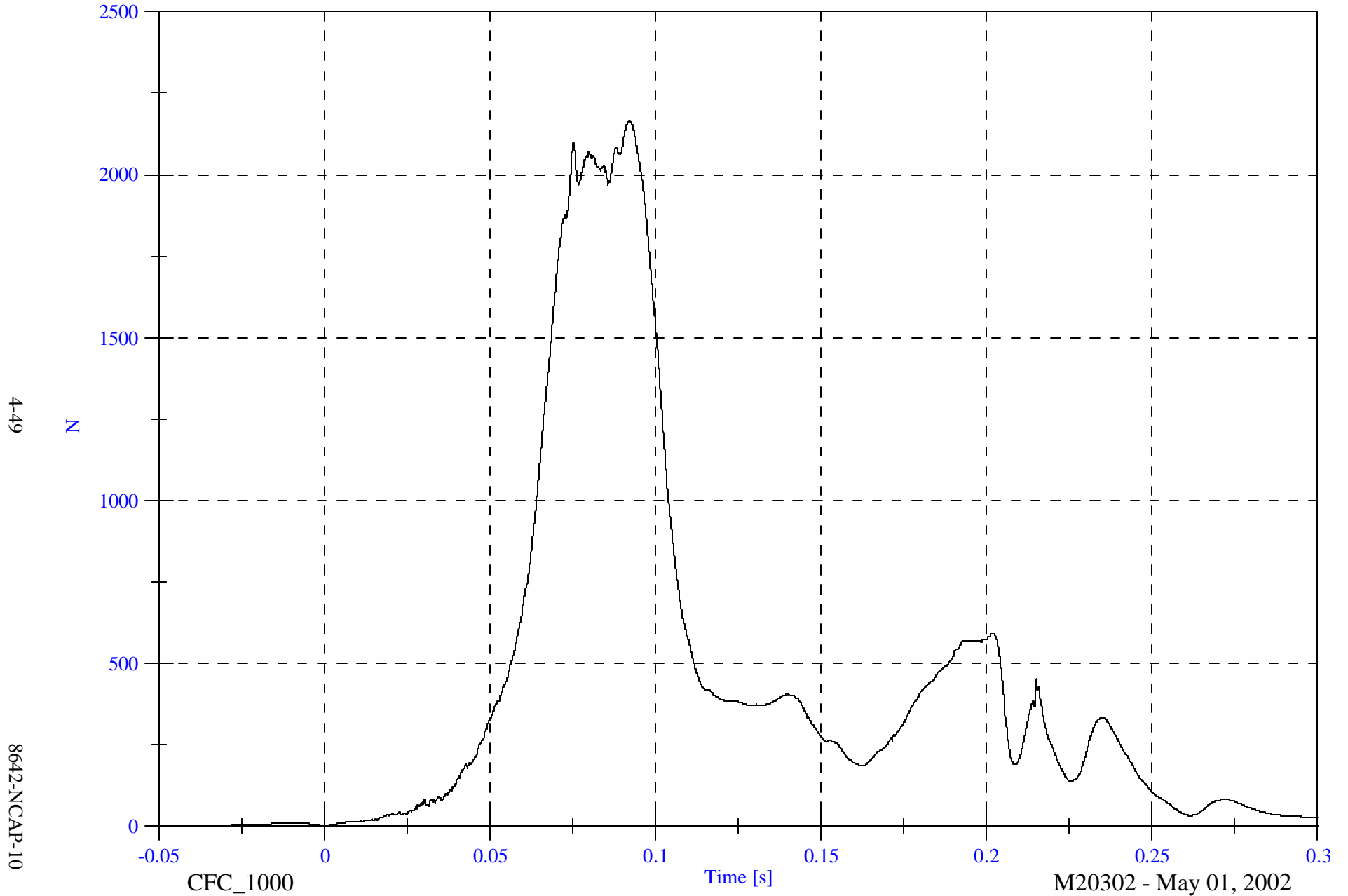
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 2166.0 [N] at 0.092 [s]

P4 Upper Neck F Resultant

Min: 2.3 [N] at -0.000 [s]



4-49

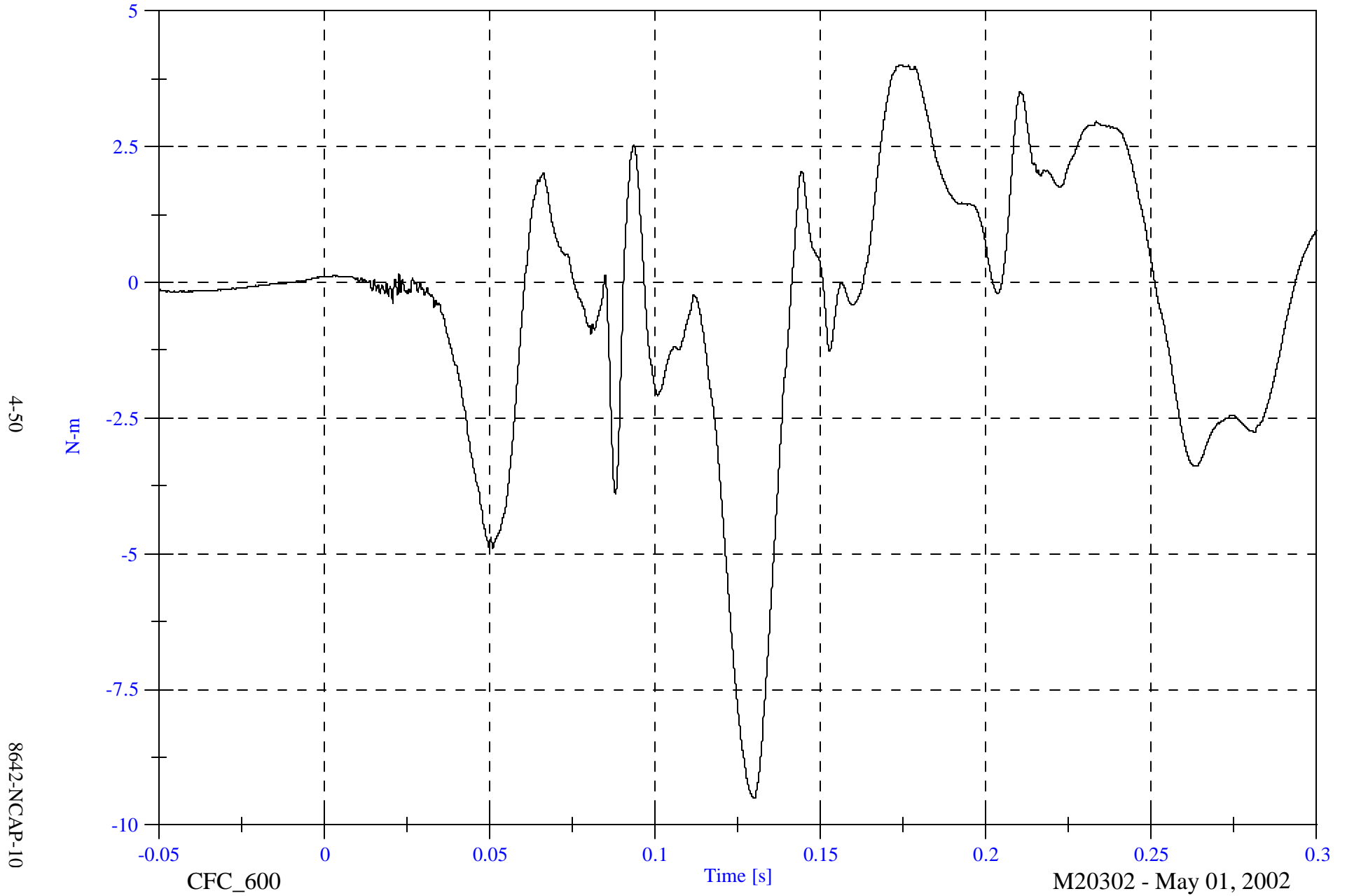
8642-NCAP-10

NCAP Test 10 - 2002 Dodge Ram 1500

P4 Upper Neck Mx

Max: 4.0 [N-m] at 0.175 [s]

Min: -9.5 [N-m] at 0.130 [s]



4-50

8642-NCAP-10

CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

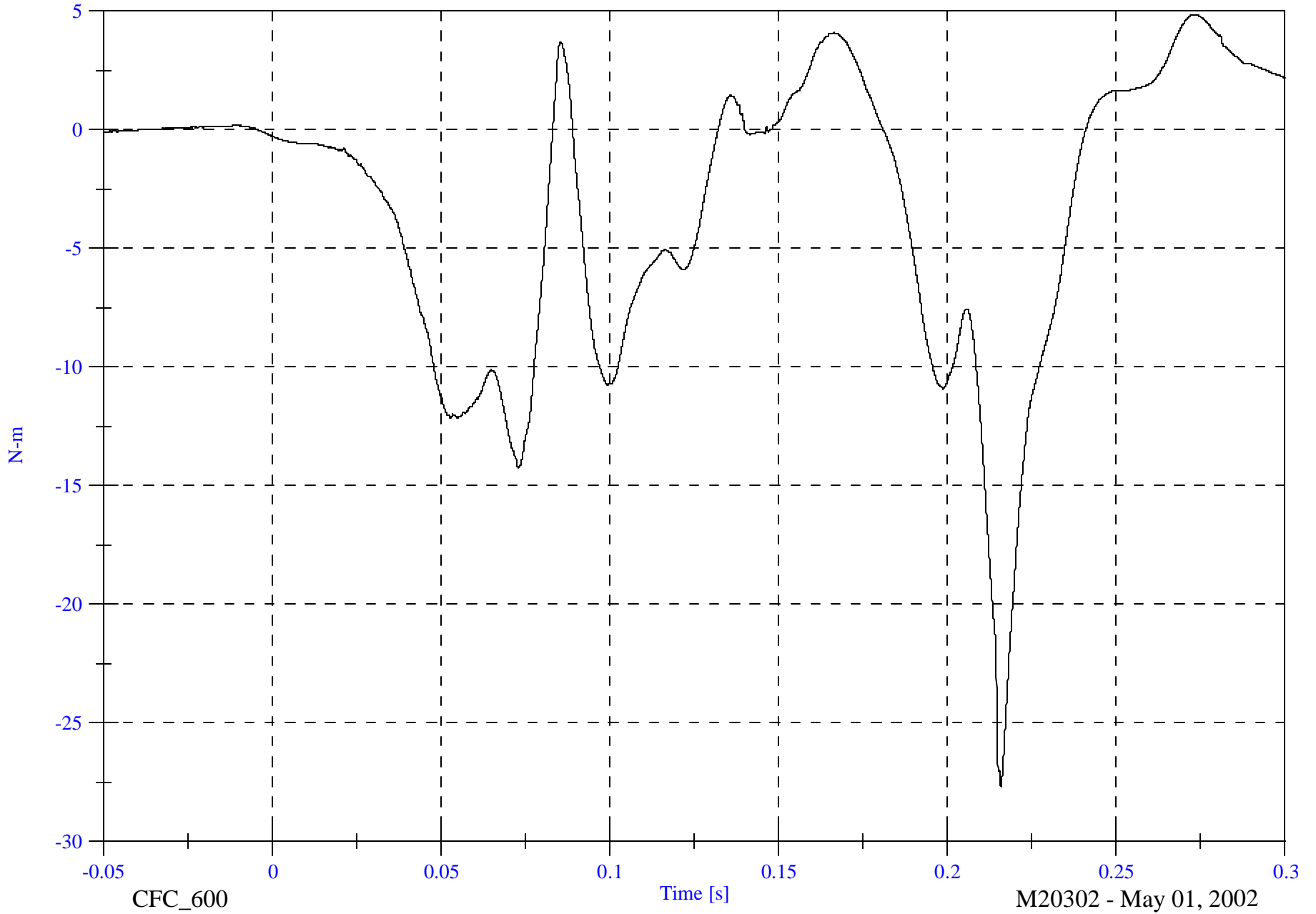
P4 Upper Neck My

Max: 4.8 [N-m] at 0.273 [s]

Min: -27.7 [N-m] at 0.216 [s]

4-51

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

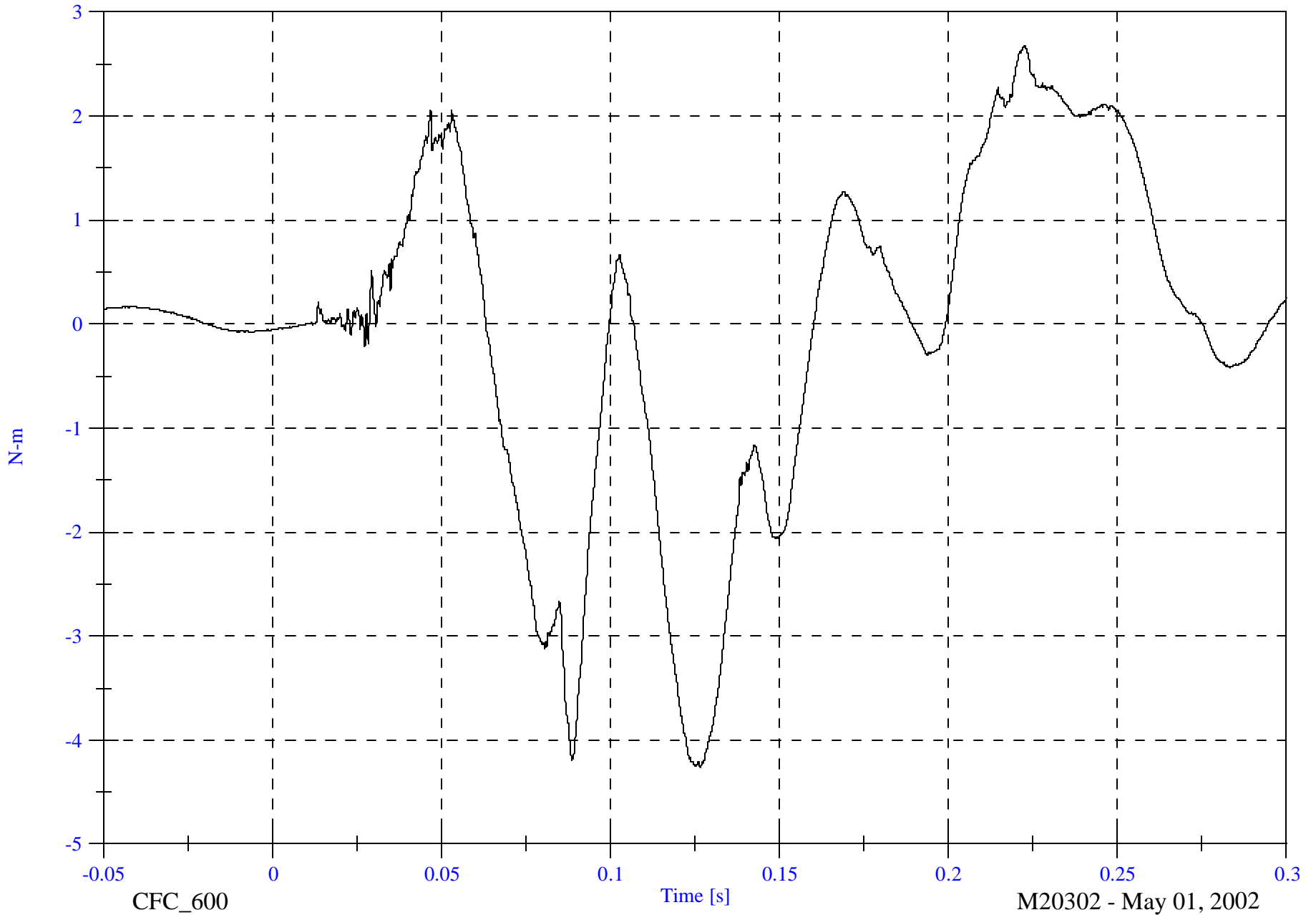
P4 Upper Neck Mz

Max: 2.7 [N-m] at 0.222 [s]

Min: -4.3 [N-m] at 0.127 [s]

4-52

8642-NCAP-10



CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

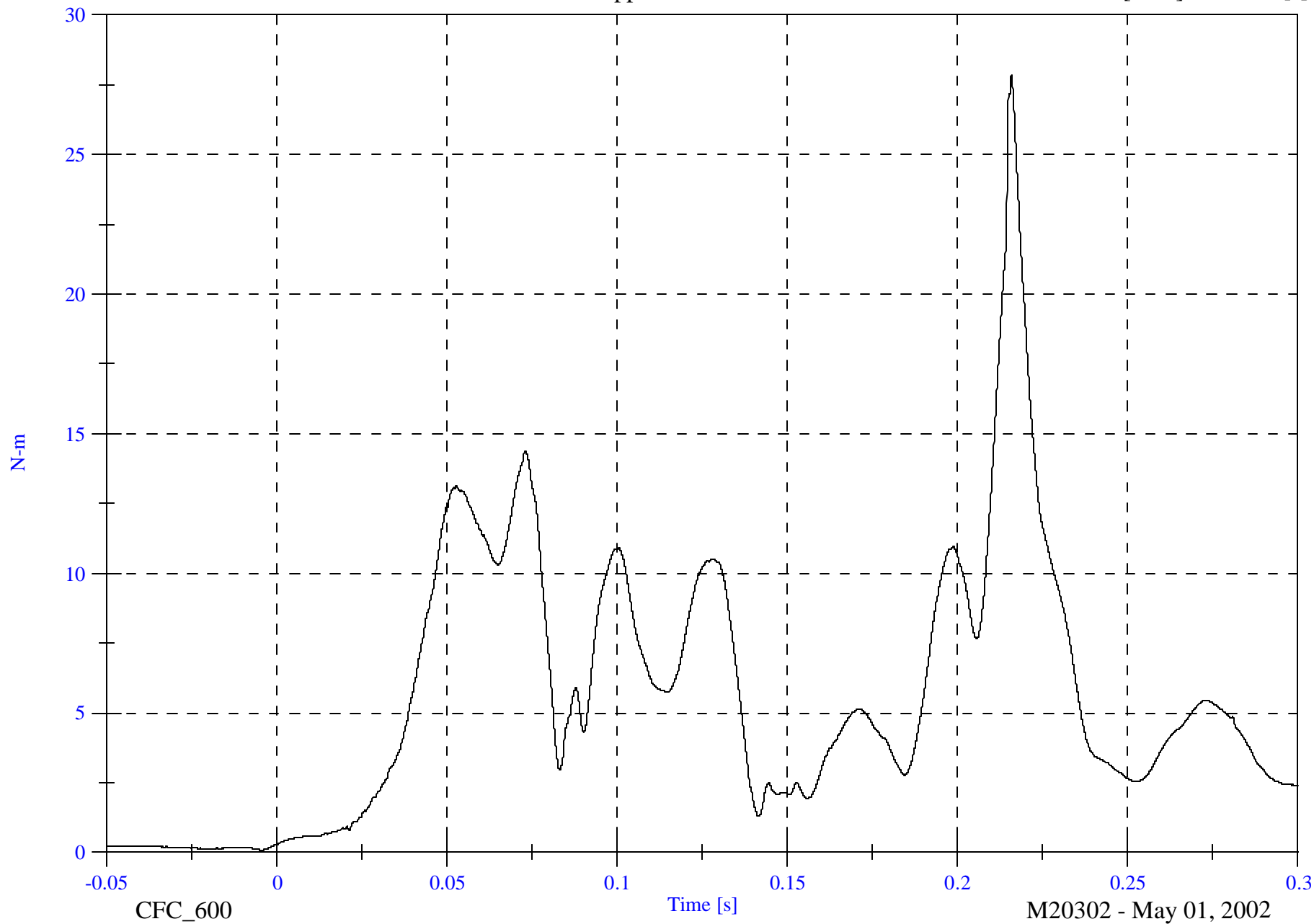
P4 Upper Neck M Resultant

Max: 27.8 [N-m] at 0.216 [s]

Min: 0.1 [N-m] at -0.004 [s]

4-53

8642-NCAP-10

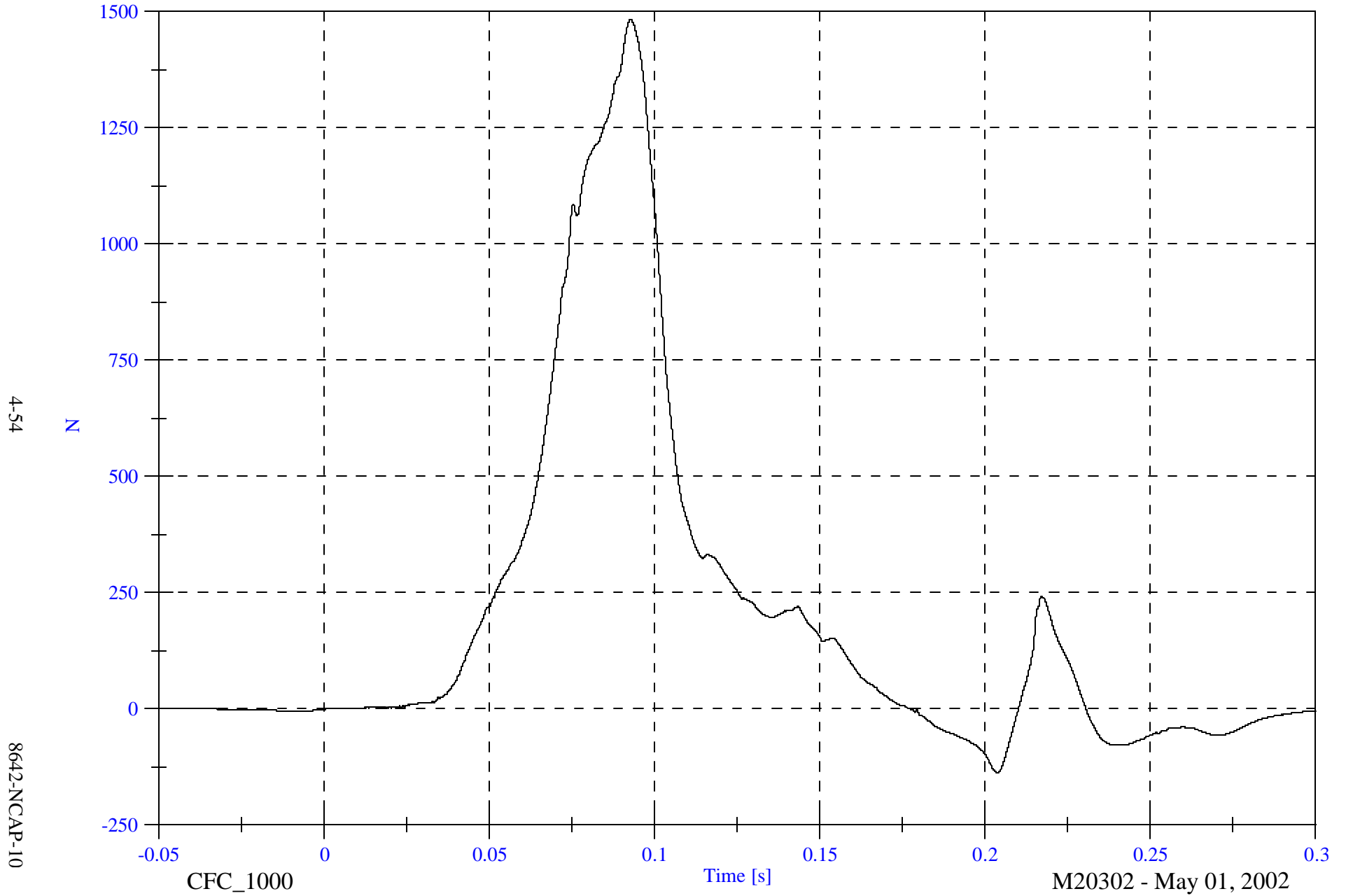


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1483.9 [N] at 0.093 [s]

P4 Lower Neck Fx

Min: -137.1 [N] at 0.204 [s]



4-54

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

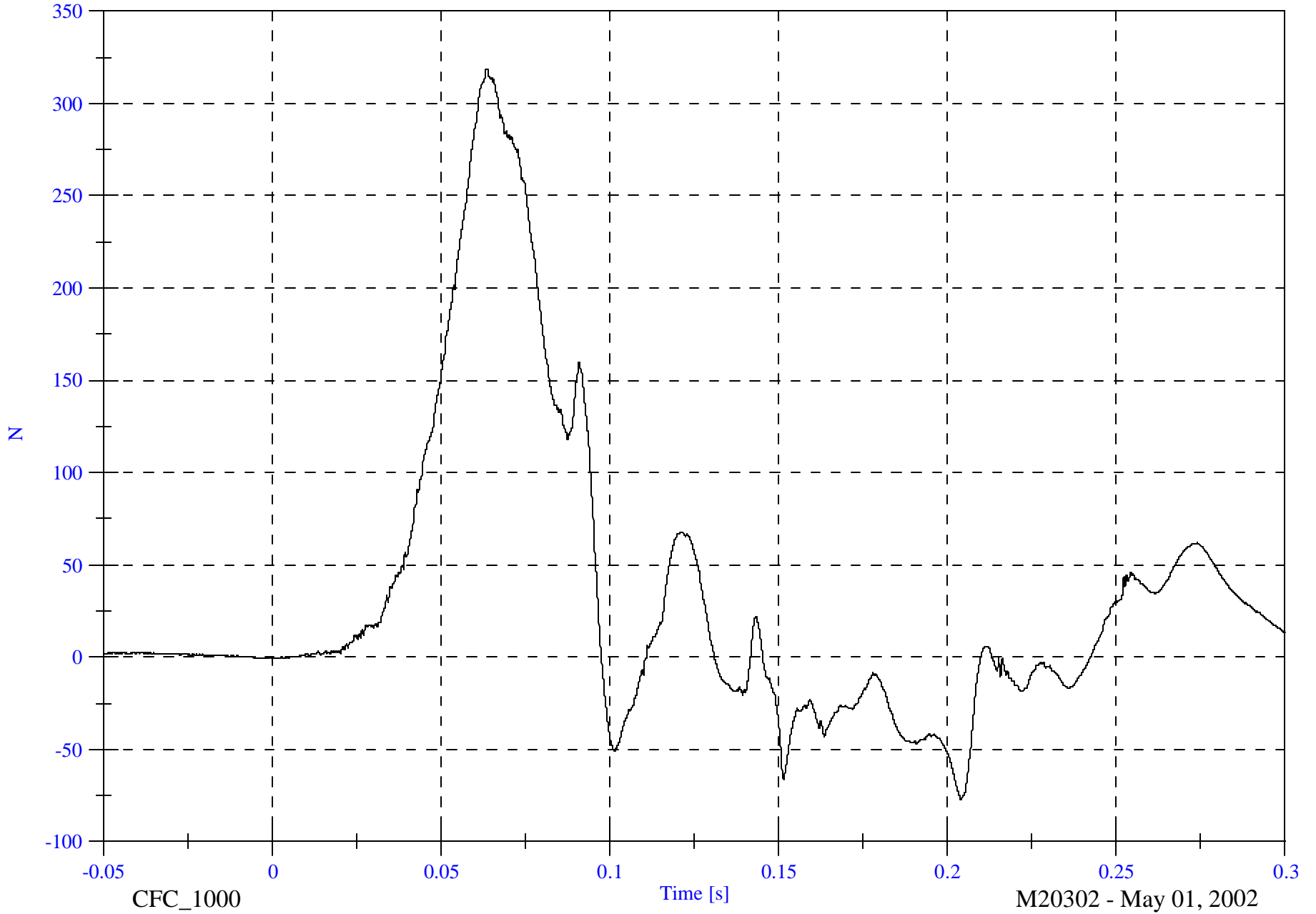
P4 Lower Neck Fy

Max: 318.8 [N] at 0.064 [s]

Min: -77.2 [N] at 0.204 [s]

4-55

8642-NCAP-10

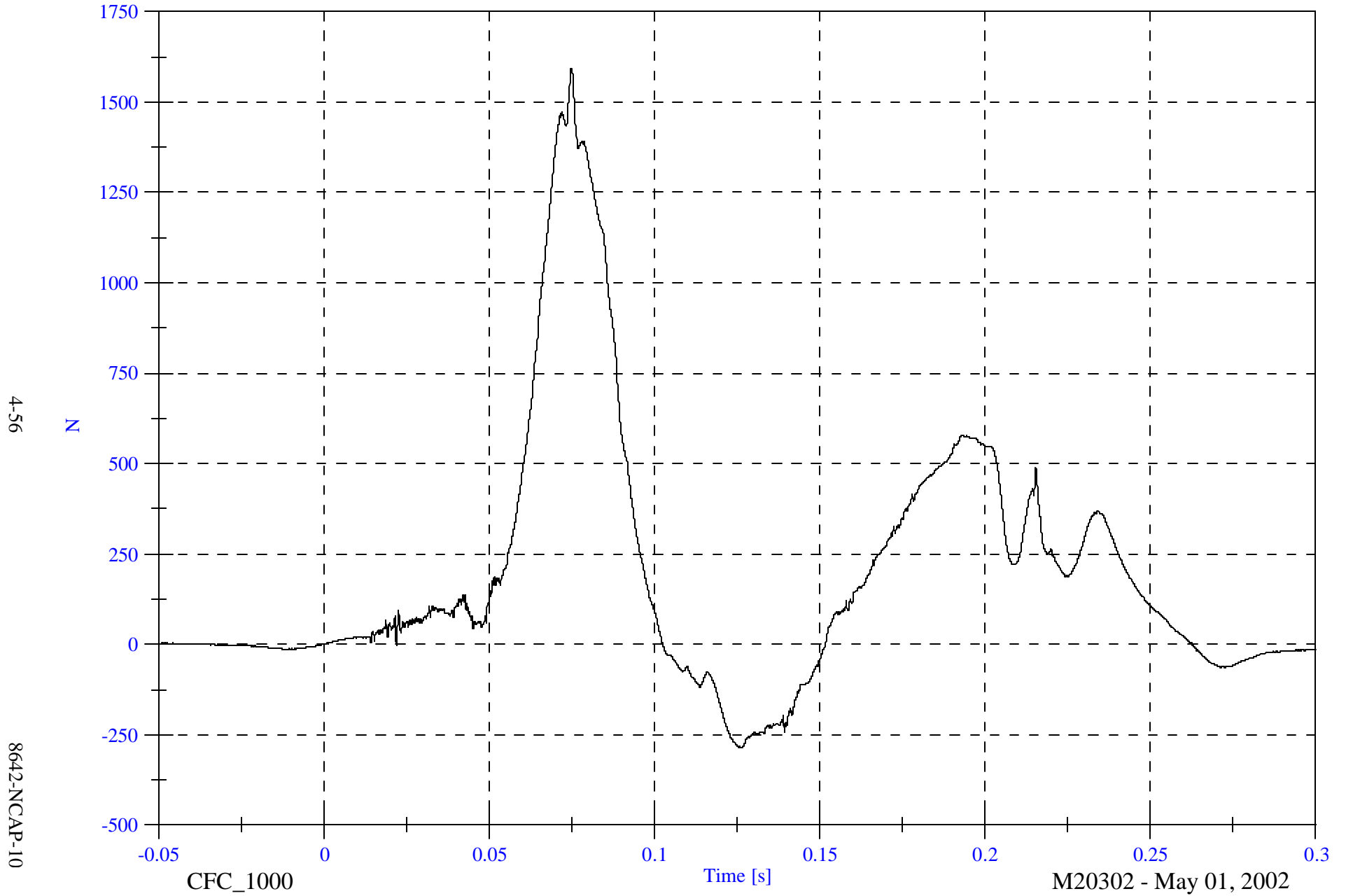


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 1591.8 [N] at 0.075 [s]

P4 Lower Neck Fz

Min: -284.8 [N] at 0.126 [s]



4-56

N

8642-NCAP-10

CFC_1000

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

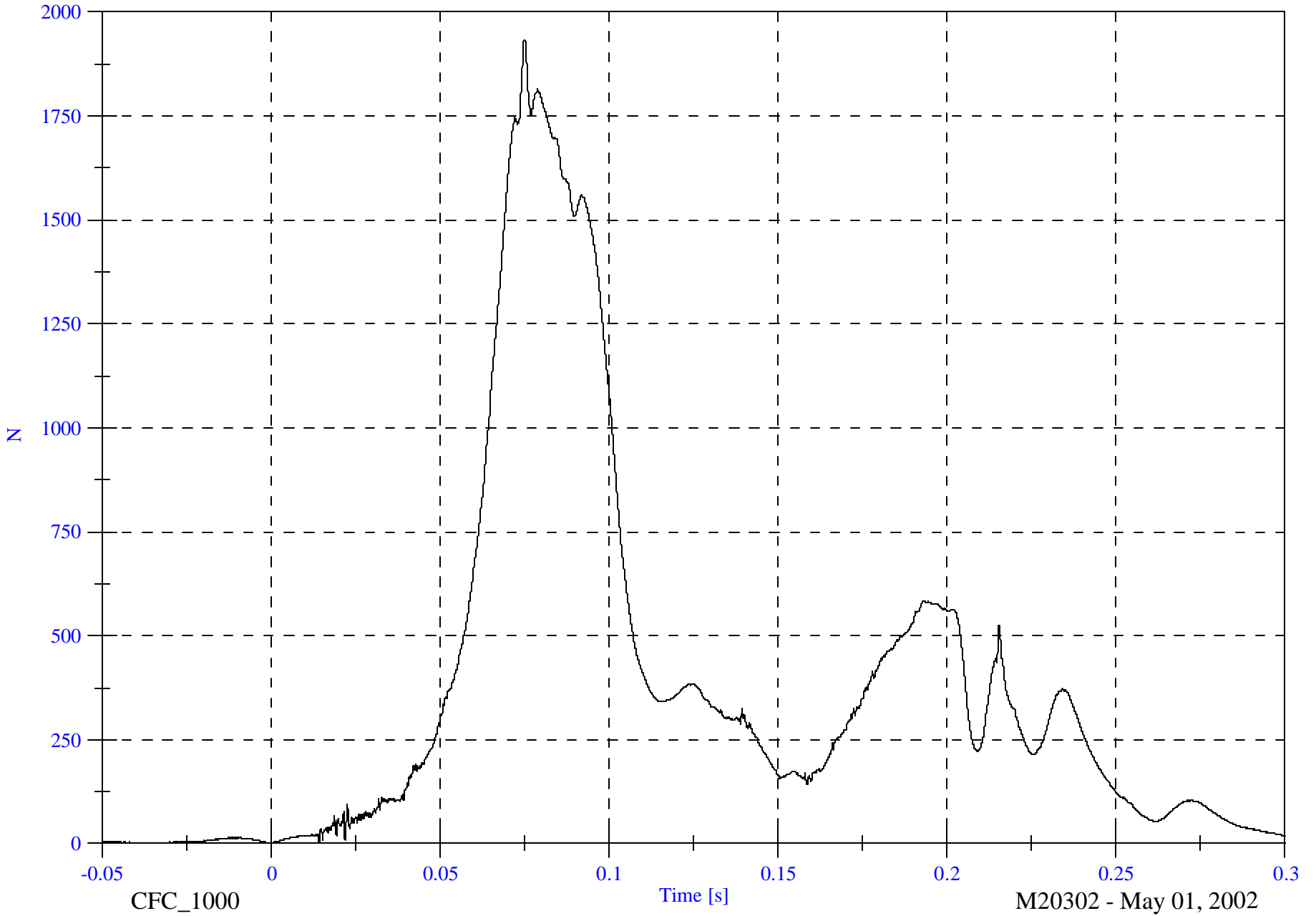
Max: 1933.1 [N] at 0.075 [s]

P4 Lower Neck F Resultant

Min: 0.9 [N] at 0.000 [s]

4-57

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

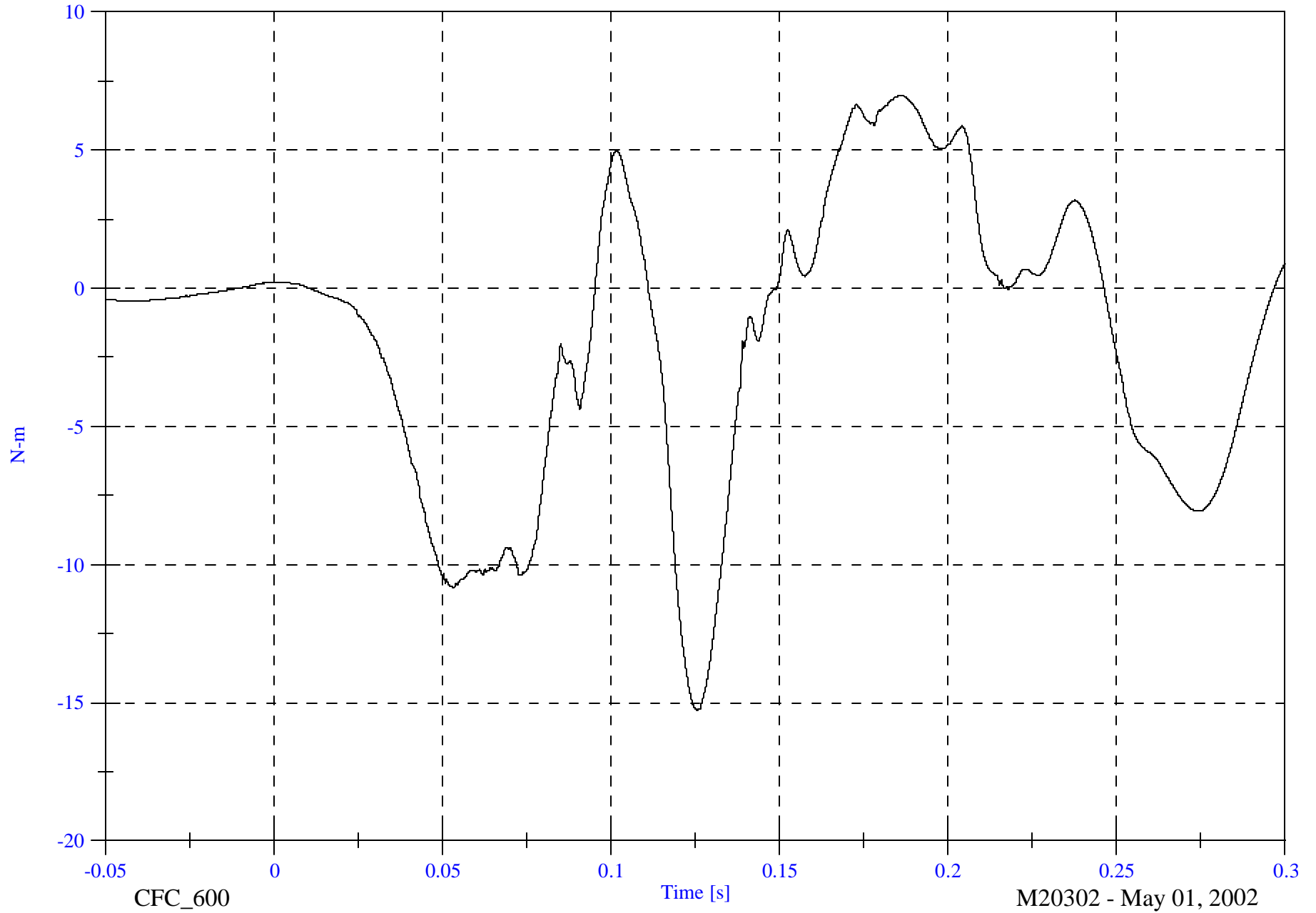
P4 Lower Neck Mx

Max: 7.0 [N-m] at 0.186 [s]

Min: -15.3 [N-m] at 0.125 [s]

4-58

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

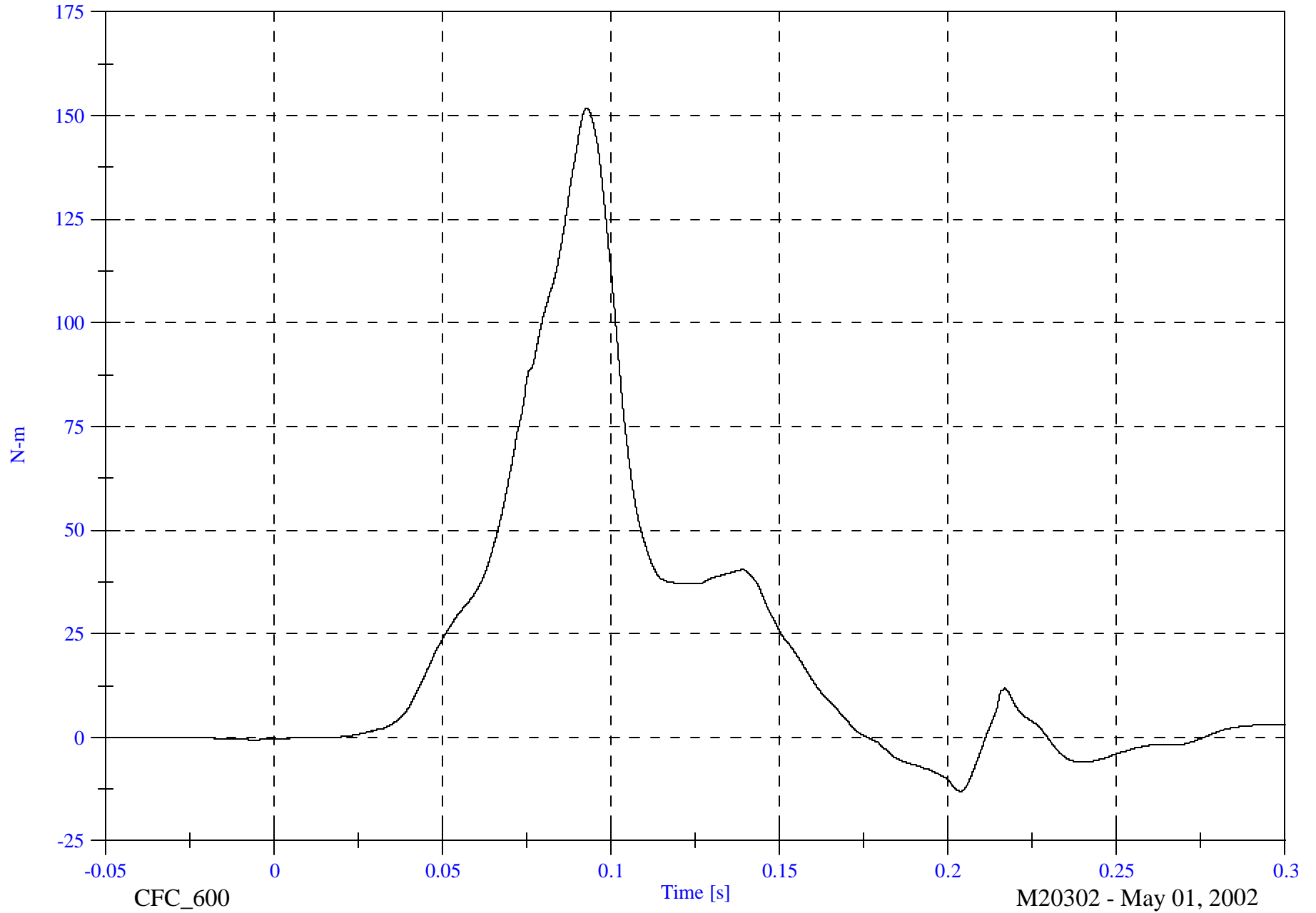
P4 Lower Neck My

Max: 151.7 [N-m] at 0.093 [s]

Min: -13.1 [N-m] at 0.204 [s]

4-59

8642-NCAP-10

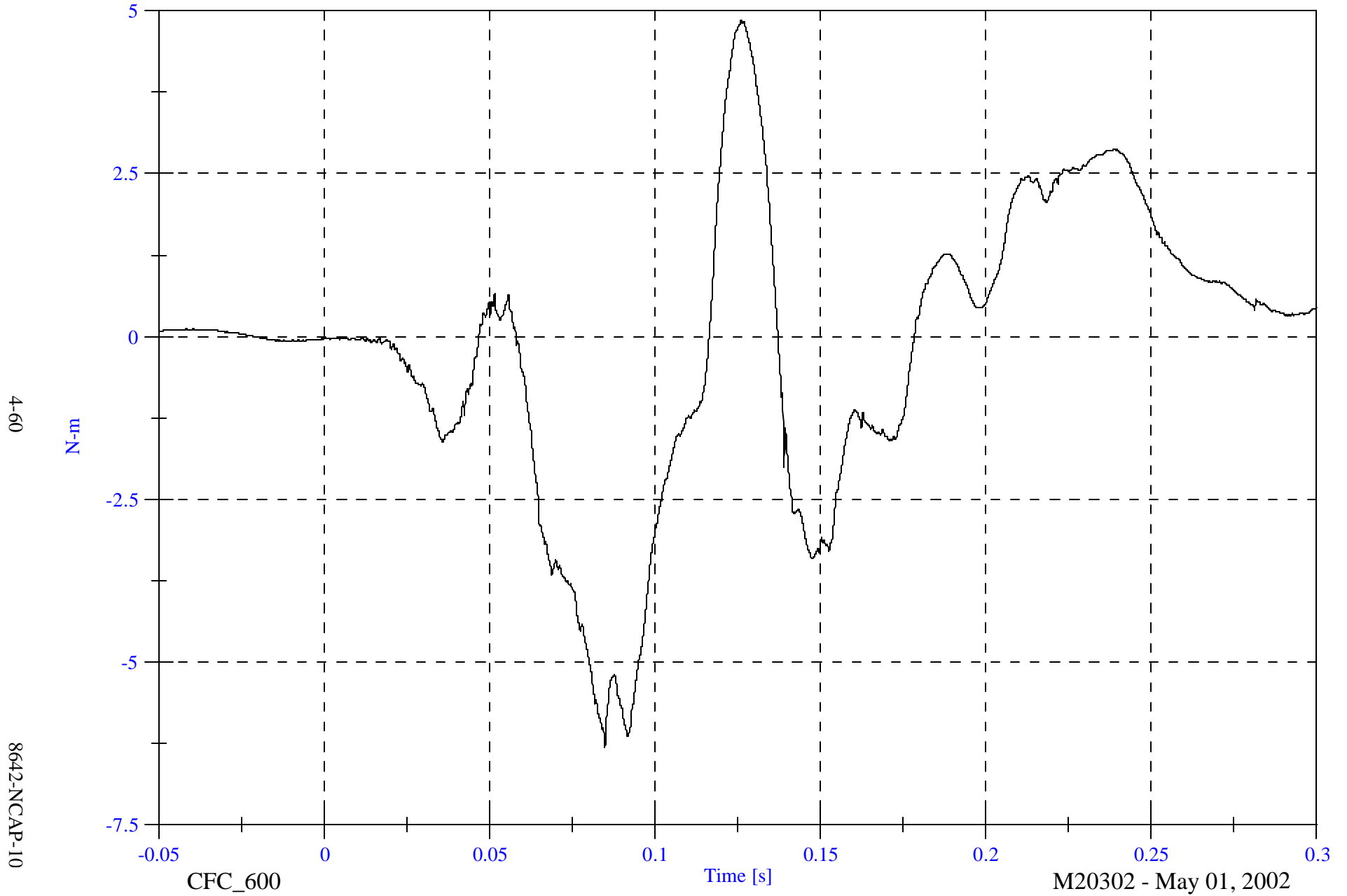


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 4.9 [N-m] at 0.126 [s]

P4 Lower Neck Mz

Min: -6.3 [N-m] at 0.085 [s]



4-60

N-m

8642-NCAP-10

CFC_600

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

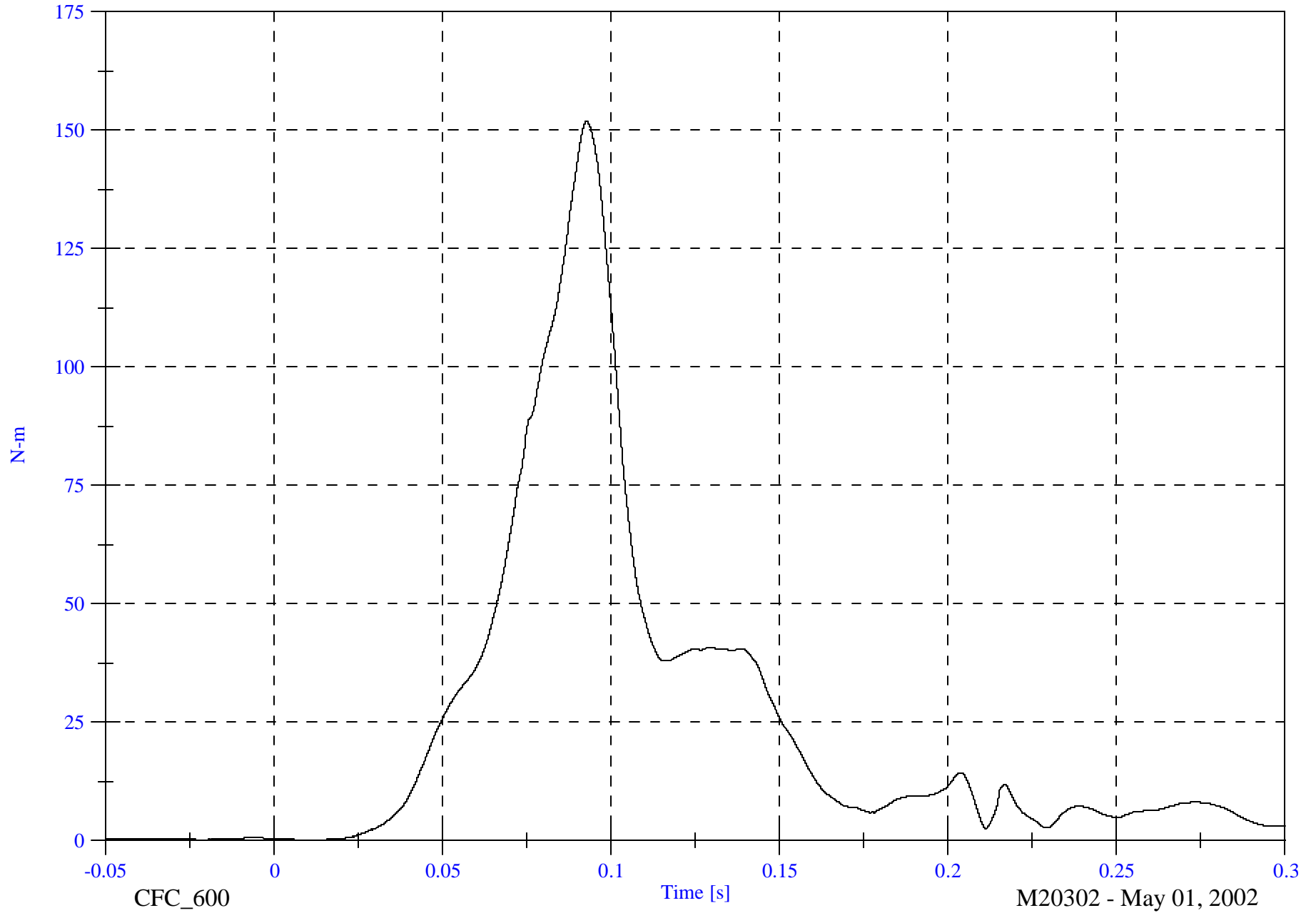
P4 Lower Neck M Resultant

Max: 151.9 [N-m] at 0.093 [s]

Min: 0.1 [N-m] at 0.012 [s]

4-61

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

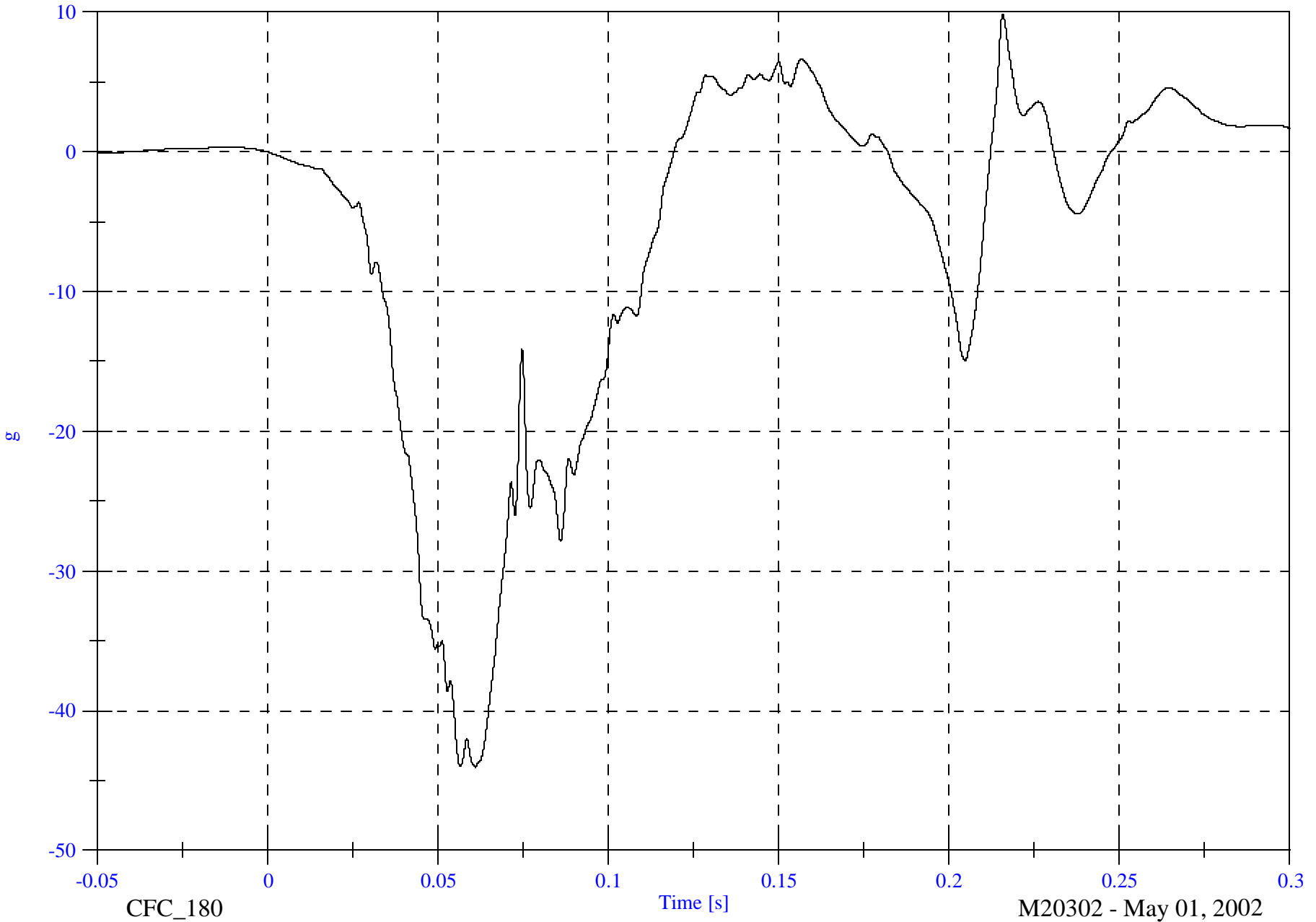
P4 Chest x

Max: 9.9 [g] at 0.216 [s]

Min: -44.0 [g] at 0.061 [s]

4-62

8642-NCAP-10



CFC_180

Time [s]

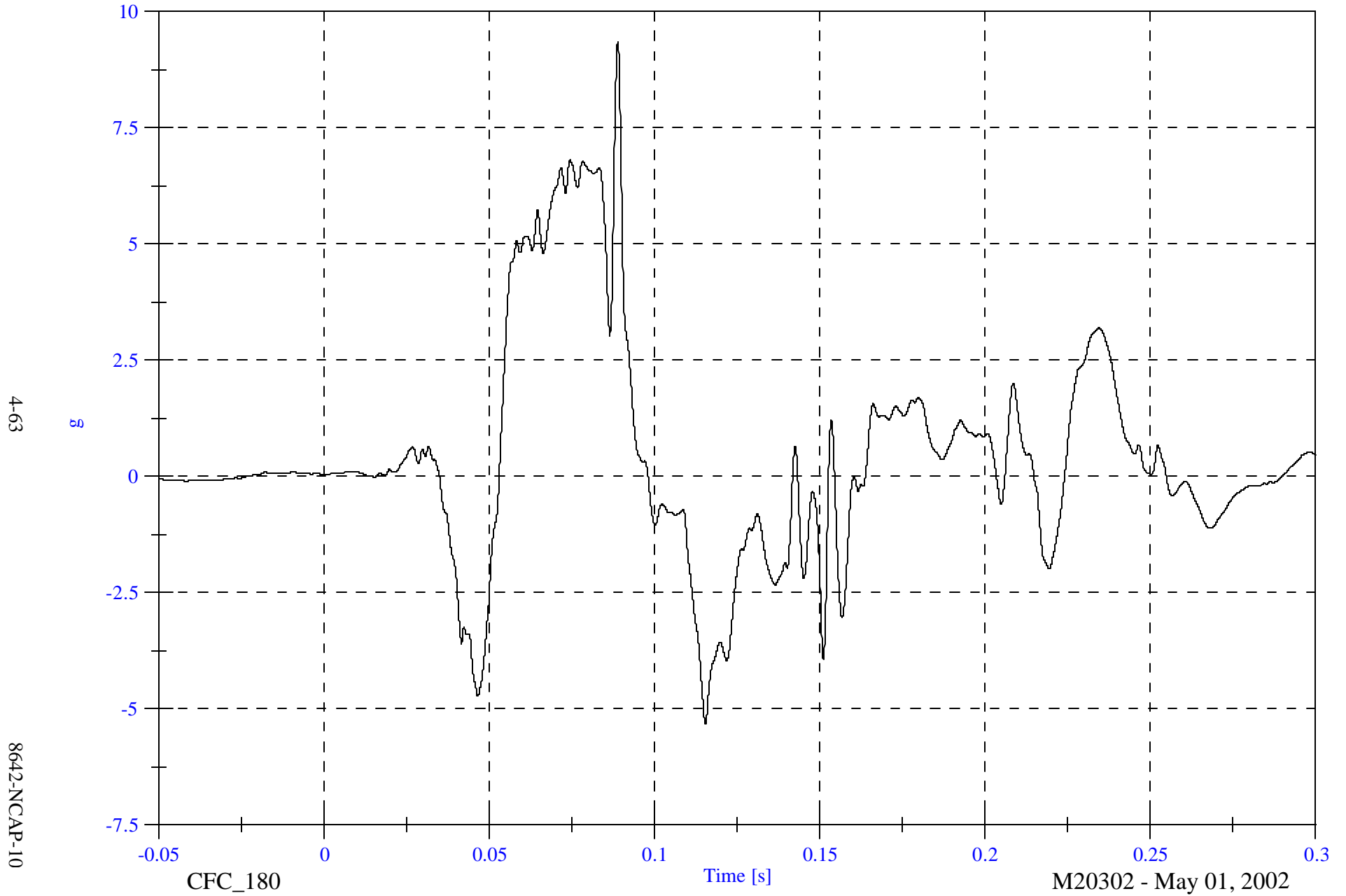
M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

Max: 9.3 [g] at 0.089 [s]

P4 Chest y

Min: -5.3 [g] at 0.115 [s]



NCAP Test 10 - 2002 Dodge Ram 1500

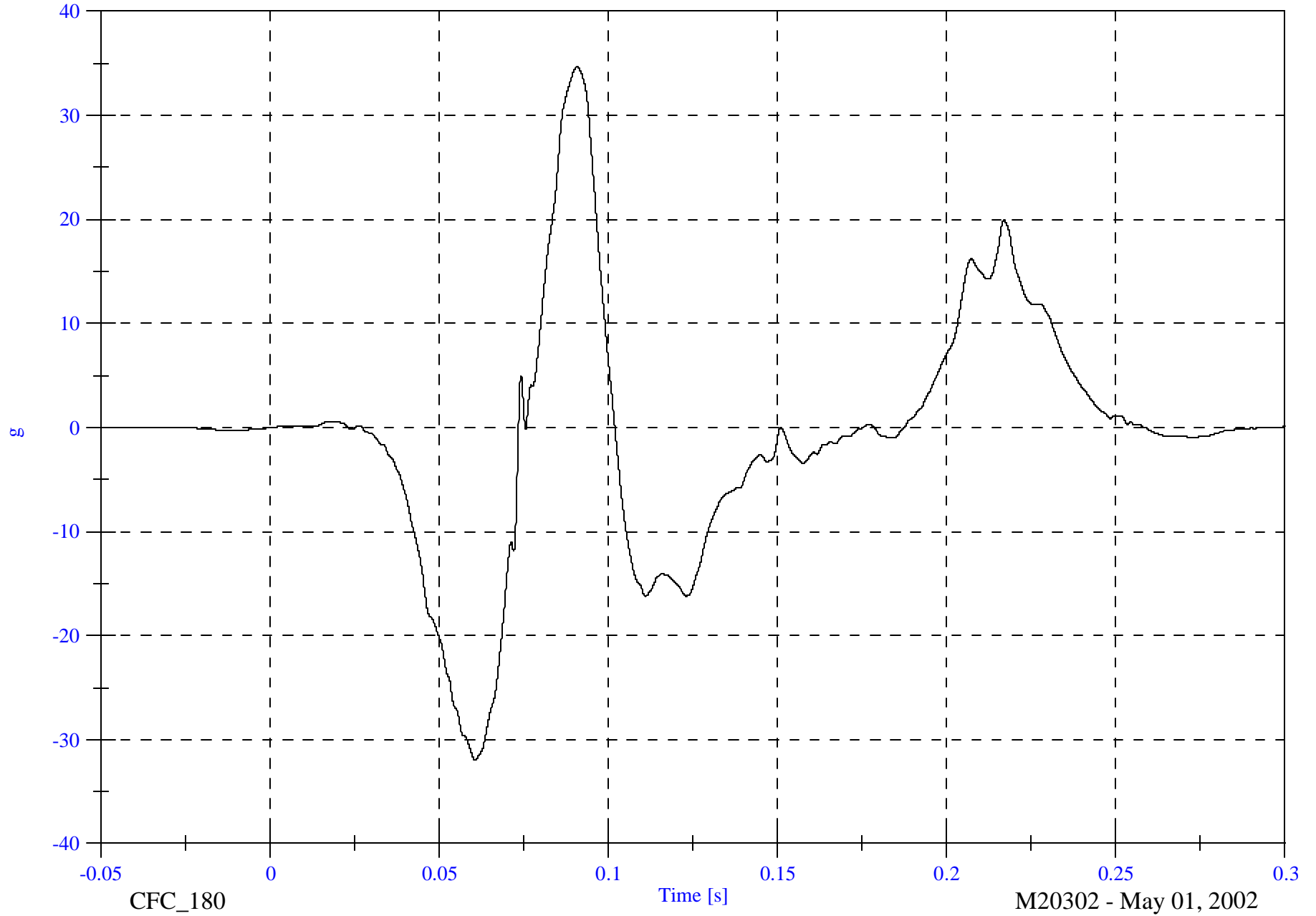
P4 Chest z

Max: 34.6 [g] at 0.091 [s]

Min: -32.0 [g] at 0.061 [s]

4-64

8642-NCAP-10



CFC_180

Time [s]

M20302 - May 01, 2002

NCAP Test 10 - 2002 Dodge Ram 1500

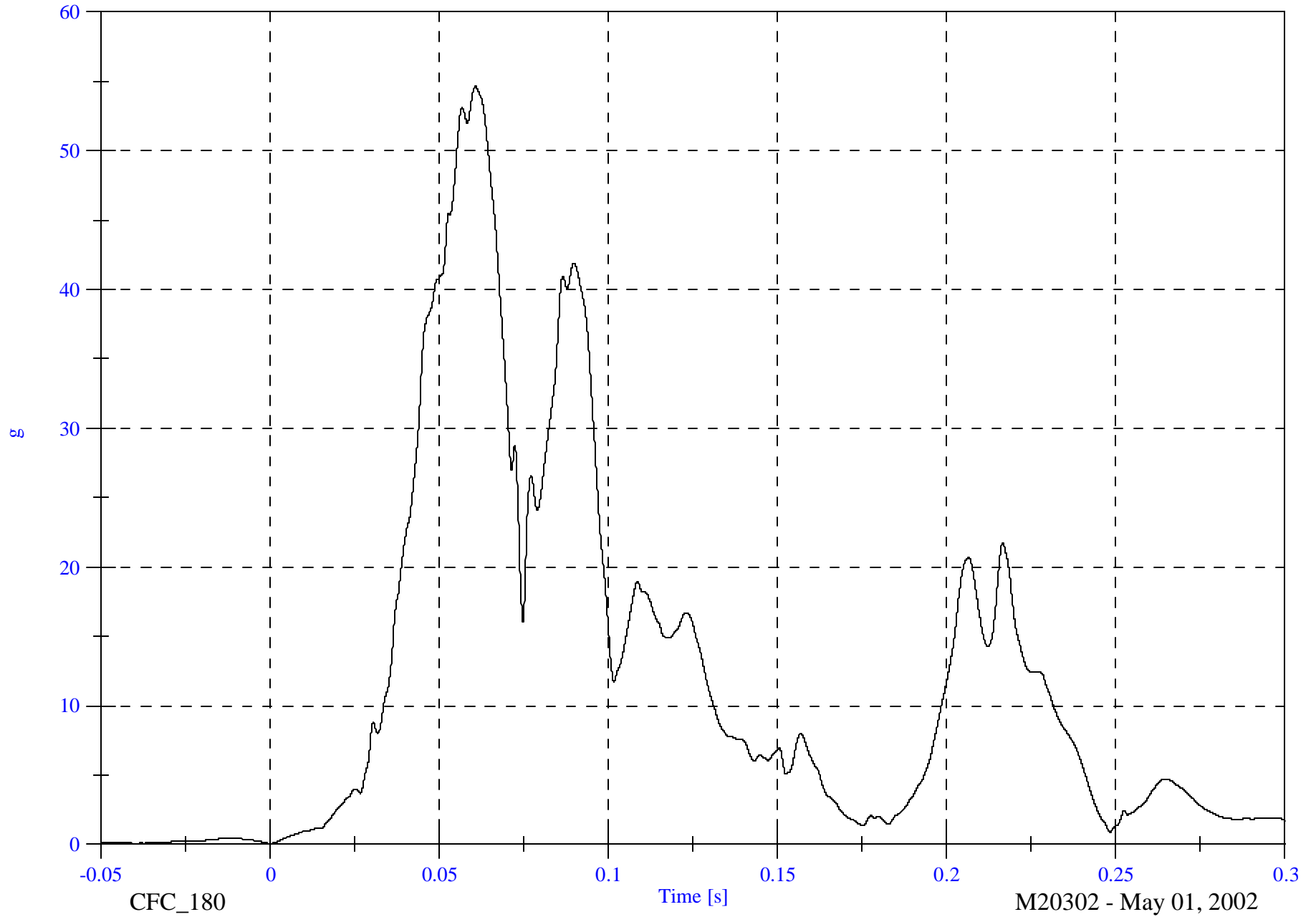
P4 Chest Resultant

Max: 54.6 [g] at 0.061 [s]

Min: 0.1 [g] at 0.000 [s]

4-65

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

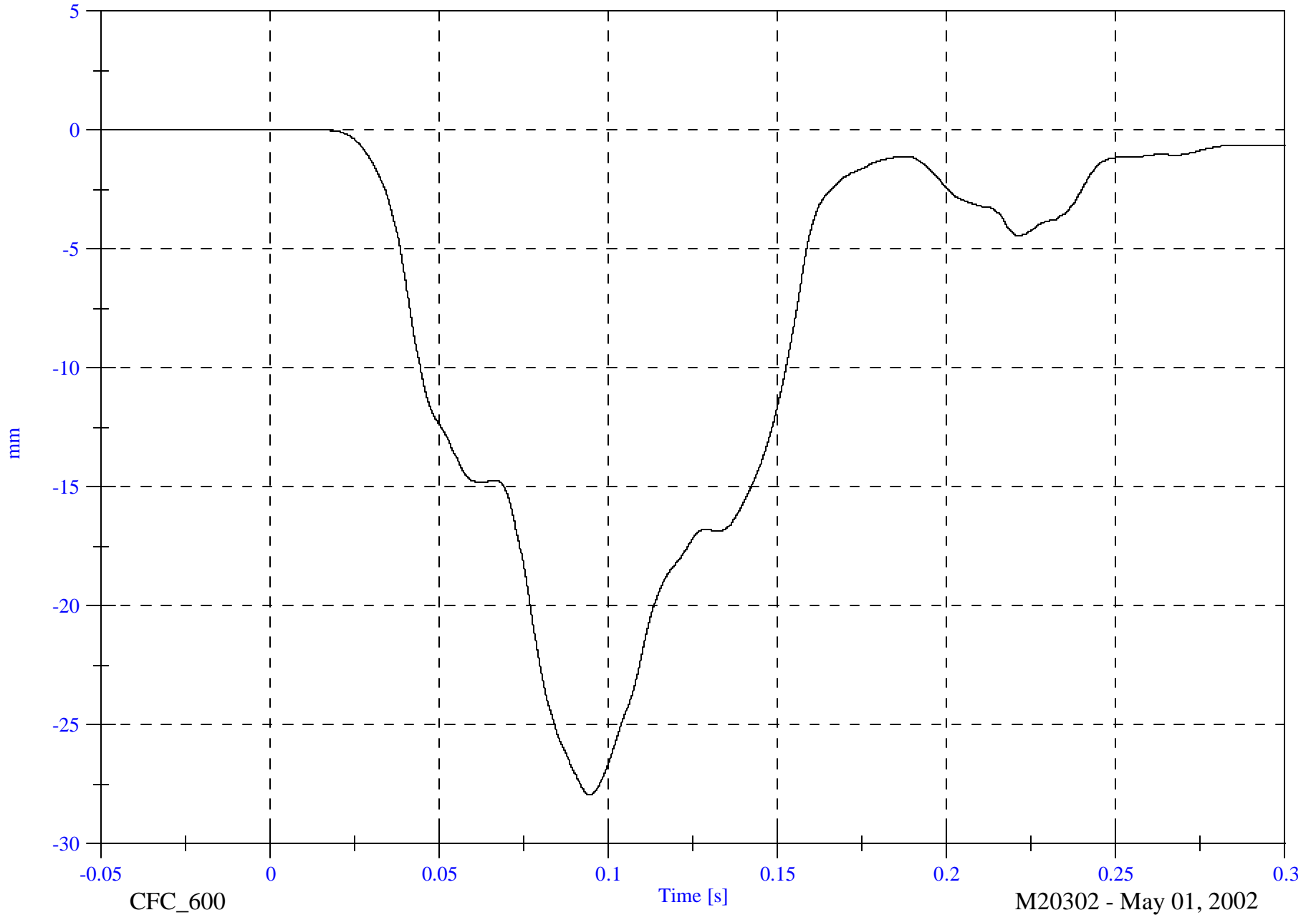
P4 Chest Compression

Max: 0.0 [mm] at 0.012 [s]

Min: -28.0 [mm] at 0.094 [s]

4-66

8642-NCAP-10

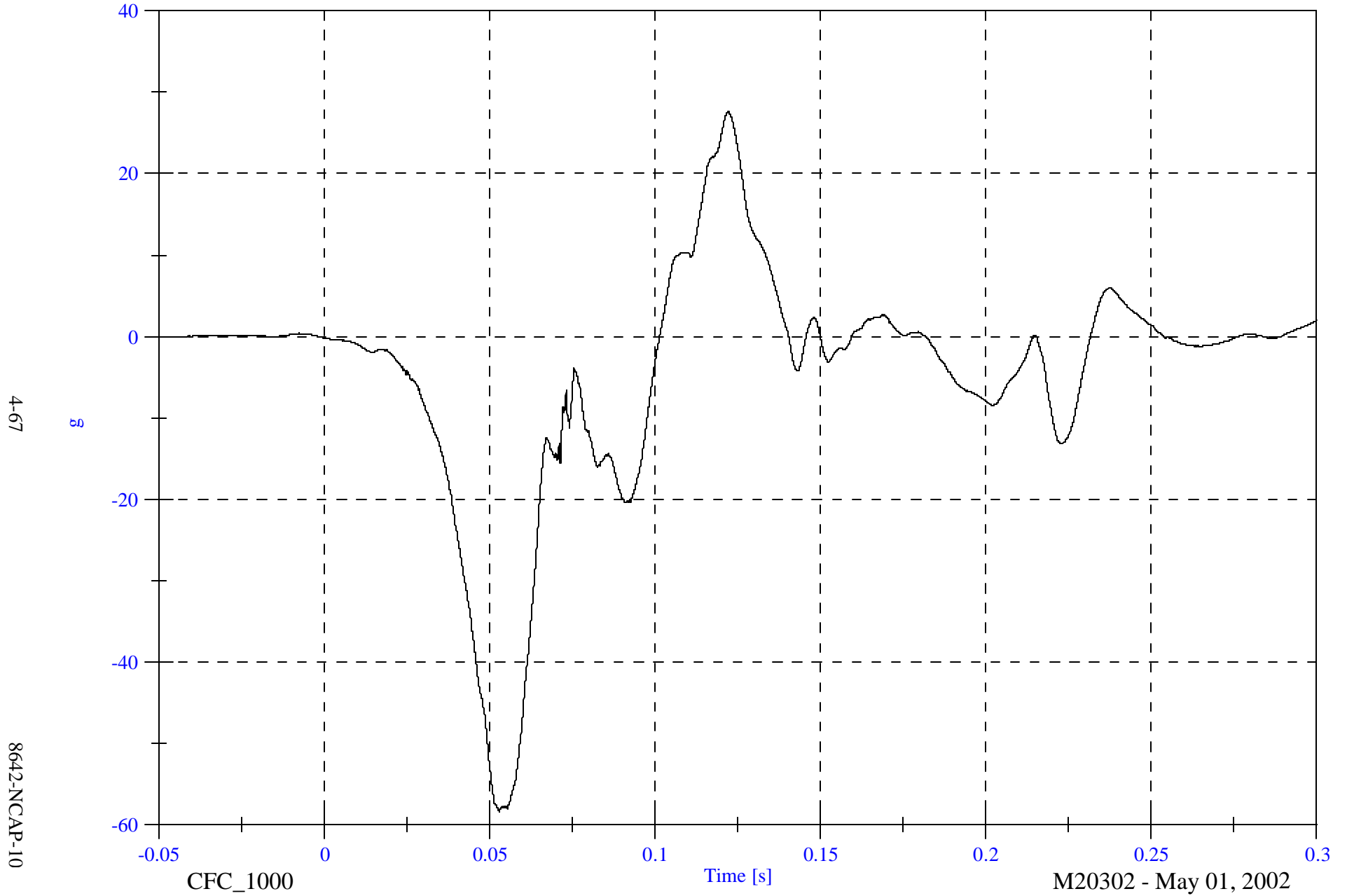


NCAP Test 10 - 2002 Dodge Ram 1500

Max: 27.6 [g] at 0.122 [s]

Min: -58.3 [g] at 0.053 [s]

P4 Pelvic x



NCAP Test 10 - 2002 Dodge Ram 1500

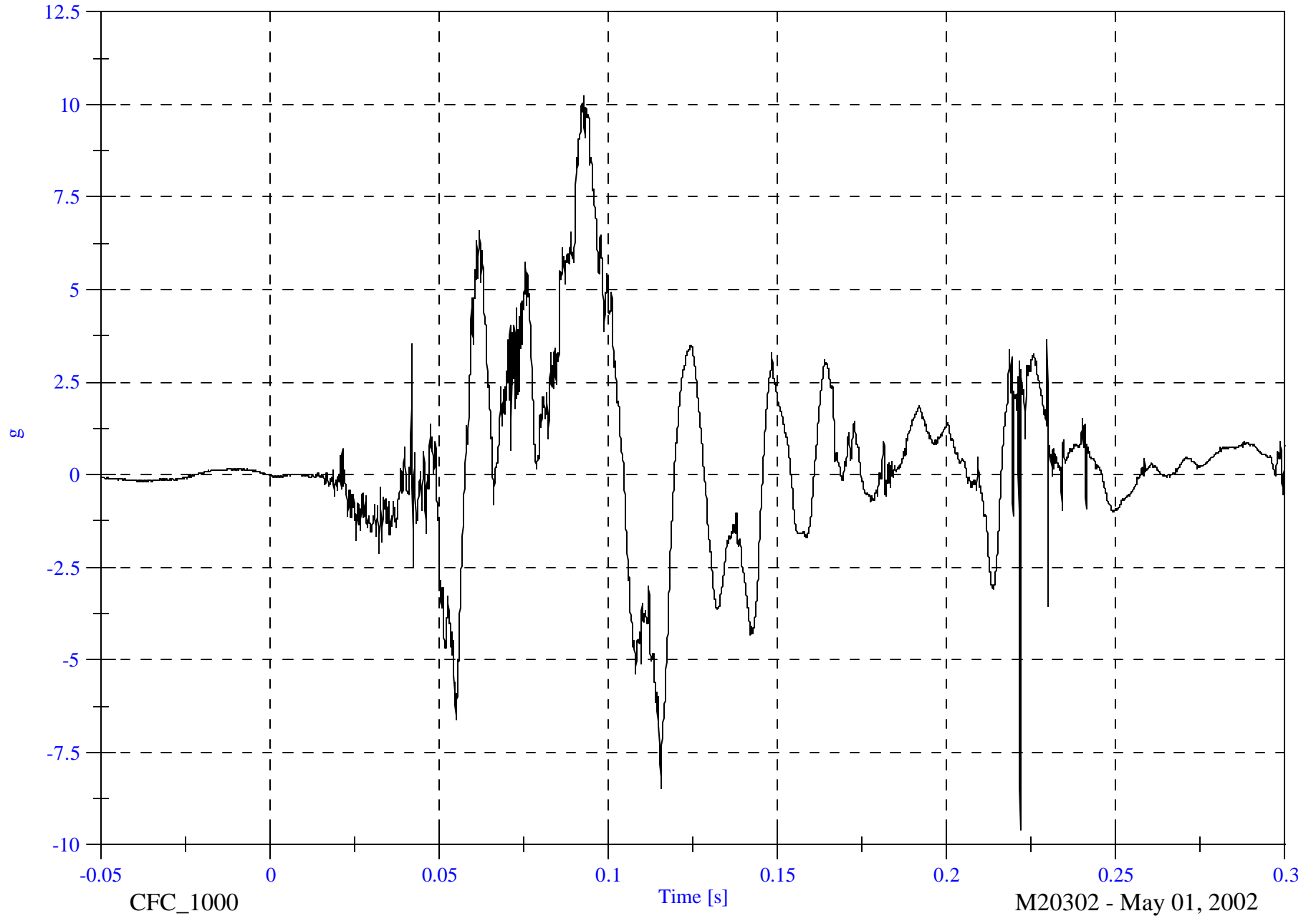
Max: 10.2 [g] at 0.093 [s]

P4 Pelvic y

Min: -9.6 [g] at 0.222 [s]

4-68

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

Max: 19.2 [g] at 0.090 [s]

P4 Pelvic z

Min: -49.2 [g] at 0.074 [s]

4-69

g

8642-NCAP-10



NCAP Test 10 - 2002 Dodge Ram 1500

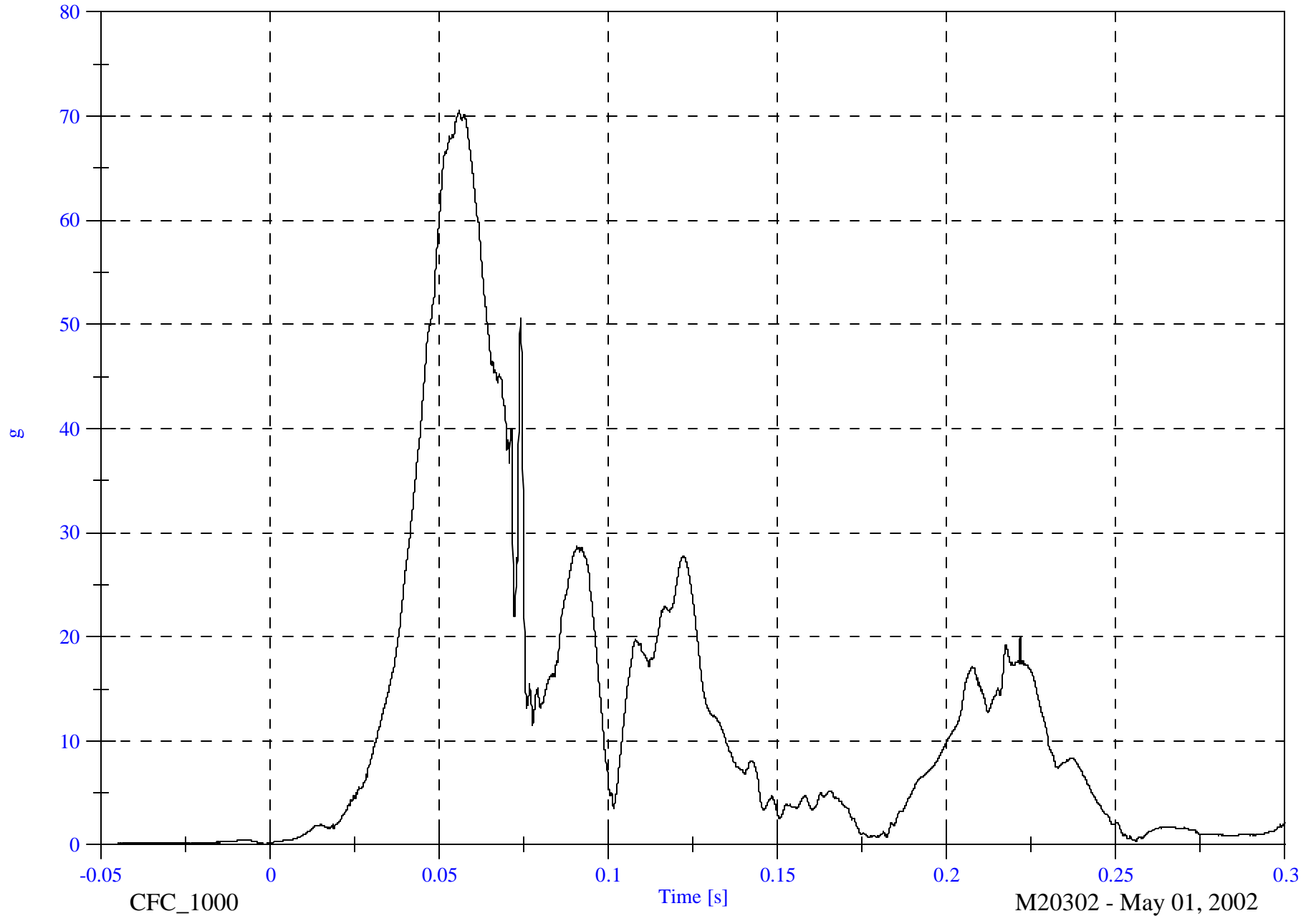
P4 Pelvic Resultant

Max: 70.5 [g] at 0.056 [s]

Min: 0.1 [g] at -0.049 [s]

4-70

8642-NCAP-10



CFC_1000

Time [s]

M20302 - May 01, 2002

SECTION 5

CHILD DUMMY CALIBRATION INFORMATION

SECTION 6

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

P572 R INSTRUMENTATION

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

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

P572 P INSTRUMENTATION

	POSITION #4 (LEFT) SERIAL NO.: 042		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	ENTRAN	AC-98H10-F10	12/27/01
HEAD AY	ENTRAN	AC-98H10-F12	12/26/01
HEAD AZ	ENDEVCO	AC-AJ4L1	12/27/01
HEAD RAZ	ENDEVCO	AC-ADAT0	12/27/01
UPPER NECK FX	DENTON	LC-213-FX	01/07/02
UPPER NECK FY	DENTON	LC-213-FY	01/07/02
UPPER NECK FZ	DENTON	LC-213-FZ	01/07/02
UPPER NECK MX	DENTON	LC-213-MX	01/07/02
UPPER NECK MY	DENTON	LC-213-MY	01/07/02
UPPER NECK MZ	DENTON	LC-213-MZ	01/07/02
LOWER NECK FX	DENTON	LC-215-FX	01/05/02
LOWER NECK FY	DENTON	LC-215-FY	01/05/02
LOWER NECK FZ	DENTON	LC-215-FZ	01/05/02
LOWER NECK MX	DENTON	LC-215-MX	01/05/02
LOWER NECK MY	DENTON	LC-215-MY	01/05/02
LOWER NECK MZ	DENTON	LC-215-MZ	01/05/02
CHEST AX	ENDEVCO	AC-P23138	11/24/01
CHEST AY	ENDEVCO	AC-P19253	11/24/01
CHEST AZ	ENDEVCO	AC-P21392	11/24/01
CHEST DX	SERVO	DS-042	01/04/02
PELVIS AX	ENDEVCO	AC-BE95J	12/27/01
PELVIS AY	ENDEVCO	AC-DE54J	12/27/01
PELVIS AZ	ENTRAN	AC-99H12-F30	12/27/01
TETHER	-	-	-