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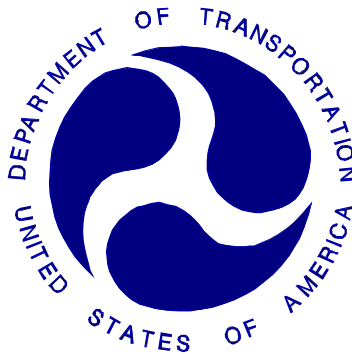
**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

HONDA MFG. OF ALABAMA, LLC
2003 HONDA ODYSSEY
MPV

NHTSA NUMBER: M35306

VERIDIAN TEST NUMBER: 8642-NCAP-26

VERIDIAN ENGINEERING
TRANSPORTATION SCIENCES CENTER
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January 10, 2003

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Rulemaking
Office of Crashworthiness Standards
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16. Abstract A frontal load cell barrier test of a 2003 Honda Odyssey MPV was performed at Veridian Engineering crash test facility in Buffalo, New York, on January 10, 2003. The impact velocity was 56.81 kph and the temperature at the barrier face was 21.1°C. The maximum post-test vehicle crush was 603 mm. The test vehicle was equipped with 3-point restraint systems with torso belt pretensioners and force limiters, 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)	320.3	41.4	32.4	2015.4	2678.4
Passenger (245)	358.0	37.1	27.1	2350.2	3347.5
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SECTION 1

PURPOSE AND SUMMARY OF TEST

1.1 PURPOSE

This 56.81 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.

1.2 TEST PROCEDURE

This 56.81 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, 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 used in one test previous to this test (M35307) where they did not exceed FMVSS 208 head, chest and femur requirements. 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 180 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 2003 Honda Odyssey MPV at a velocity of 56.81 kph. The test was performed at Veridian Engineering on January 10, 2003. 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	320.3	41.4	32.4	2015.4	2678.4	*	*
Passenger ATD	358.0	37.1	27.1	2350.2	3347.5	*	*

* Vehicle was equipped with shoulder belt pretensioners and load limiters – torso belt instrumentation was not used.

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

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

The 2003 Honda Odyssey MPV did not exceed the requirements of FMVSS 208, FMVSS 212, FMVSS 219, and FMVSS 301. Data pertaining to these standards are presented in the data sheets.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No.:	<u>M35306</u>	Test Mode:	<u>56.3 kph Frontal Barrier</u>
Test Date:	<u>January 10, 2003</u>	Time:	<u>15.33</u> Temperature: <u>21.1</u> °C
Vehicle Make/Model/Body Style:	<u>2003 Honda Odyssey MPV</u>		
Vehicle Test Weight:	<u>2178.5</u>	kg	
Vehicle/Barrier Impact Angle:	<u>0</u>	°	
Impact Velocity:	<u>56.81</u>	kph	
Maximum Static Crush:	<u>603</u>	mm	
Vehicle Rebound:	<u>391</u>	mm	
<u>DUMMIES:</u>	<u>DRIVER</u>	<u>PASSENGER</u>	
Type:	<u>572E</u>	<u>572E</u>	
Restraint System:	<u>Seatbelt with torso belt pretensioner and load limiter, Airbag, Knee Bolster</u>	<u>Seatbelt with torso belt pretensioner and load limiter, Airbag, Knee Bolster</u>	
Number of Data Channels:	<u>180</u>		
Number of Cameras:	<u>1</u>	Real Time	
	<u>16</u>	High Speed	
<u>DOOR OPENING DATA:</u>	<u>Closed, latched and operable without tools</u> - Left Front		
	<u>Closed, latched and operable without tools</u> - 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>The face to the center of the airbag; The back of the head to the center of the headrest</u>	<u>The face to the center of the airbag; The back of the head to the center of the headrest</u>	
Abdomen:	<u>None</u>	<u>None</u>	
Chest:	<u>Airbag</u>	<u>Airbag</u>	
Knees:	<u>Knee Bolster</u>	<u>Knee Bolster</u>	

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2003 Honda Odyssey MPV

NHTSA No. : M35306 ; VIN: 5FNRL18943B046993 ; Color: Silver

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

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

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

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

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

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

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

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

Date Received: January 3, 2003 ; Odometer Reading 16 km

Selling Dealer: Lia Honda

& Address: 4891 Transit Road Williamsville, NY 14221

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Honda Mfg. of Alabama, LLC

Date of Manufacture 12/02

GVWR: 2570 kg; GAWR: 1285 kg FRONT; 1290 kg REAR

DATA FROM TIRE PLACARD:

Recommended Tire Size: P225/60R16 98T

* Recommended Cold Tire Pressure: 250 kpa FRONT; 250 kpa REAR

DATA FROM TIRE SIDEWALL:

Size of Tires on Test Vehicle: P225/60R16 98T ; Manufacturer: Michelin

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

Treadwear: 460 ; Traction: A ; Temperature: A

VEHICLE CAPACITY DATA:

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

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

Vehicle Capacity Weight (VCW) = 525.25 kg

No. of Occupants x 68.04 kg = 476.28 kg

Rated Cargo/Luggage Weight (RCLW) = 48.97 kg

*Tire pressure used for test

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

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

Right Front	=	<u>564.0</u>	kg	Right Rear	=	<u>419.0</u>	kg
Left Front	=	<u>568.0</u>	kg	Left Rear	=	<u>433.0</u>	kg
TOTAL FRONT	=	<u>1132.0</u>	kg	TOTAL REAR	=	<u>852.0</u>	kg
TOTAL DELIVERED WEIGHT	=	<u>1984.0</u>	kg				
% of Total Front of Vehicle Weight	=	<u>57.1%</u>		% of Total Rear Weight	=	<u>42.9%</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW)	=	<u>1984.0</u>	kg
Rated Cargo/Luggage Weight (RCLW)	=	<u>48.97</u>	kg
Weight of 2 p.572 Dummies @ 76 each	=	<u>152</u>	kg
TARGET TEST WEIGHT	=	<u>2185.0</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 42.5 KG OF CARGO WEIGHT:

Right Front	=	<u>615.0</u>	kg	Right Rear	=	<u>460.0</u>	kg
Left Front	=	<u>599.5</u>	kg	Left Rear	=	<u>504.0</u>	kg
TOTAL FRONT	=	<u>1214.5</u>	kg	TOTAL REAR	=	<u>964.0</u>	kg
TOTAL TEST WEIGHT	=	<u>2178.5</u>	kg				
% of Total Front Weight	=	<u>55.7%</u>	%	% of Total Rear Weight	=	<u>44.3%</u>	%
Weight of Ballast Secured in Vehicle Trunk Area	=	<u>0</u>	kg				
Vehicle Components Removed for Weight Reduction:				Third Seat, Spare Tire, Side Mirrors, Rear Wiper, Eight gallons of Stoddard Solvent			

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED:	RF	<u>768</u>	LF	<u>768</u>	RR	<u>766</u>	LR	<u>767</u>
FULLY LOADED:	RF	<u>756</u>	LF	<u>757</u>	RR	<u>749</u>	LR	<u>750</u>
AS TESTED:	RF	<u>766</u>	LF	<u>760</u>	RR	<u>754</u>	LR	<u>754</u>
Vehicle's Wheel Base:		<u>3005</u>	mm					
Location of Vehicle's C.G.:		<u>1330</u>	mm rearward of front wheel center.					

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual	=	<u>75.7</u>	liters
Usable Capacity Figure Furnished by COTR	=	<u>75.7</u>	liters
Test Volume Range (92 to 94% of Usable Capacity)	=	<u>69.64</u>	to <u>71.16</u> liters
ACTUAL TEST VOLUME	=	<u>40.1*</u>	liters (with entire fuel system filled)
Test Fluid Type:	<u>Stoddard Solution</u>	; Spec. Grav. =	<u>0.764</u>
	Kinematic Viscosity =	<u>0.96</u>	centistokes; Color = <u>Orange</u>
Type of Fuel Pump:	Electric- <u>X</u>	; Mechanical- <u>-</u>	
Does Electric Pump operate with ignition switch "ON" & engine "OFF"		Yes- <u>X</u>	No- <u>-</u>
Details of Fuel System: The fuel tank is located to the left of the center ahead of the rear axle; The fuel lines run along the inside of the left frame stiffener; The fuel filler is located on the vehicle left side ahead of the rear axle.			

* Stoddard solvent was removed to achieve vehicle test weight.

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test: Frontal Barrier Impact Angle: 0°
Test Date: January 10, 2003 Time: 15.33 Temperature: 21.1 °C
Vehicle NHTSA No.: M35306
Required Impact Velocity Range: 55.5 to 57.1 kph

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

Trap No. 1 = 56.81 kph; Trap No. 2 = 56.81 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>4998</u> ; C/L = <u>5107</u> ; Right = <u>5002</u>
Post-Test	Left = <u>4487</u> ; C/L = <u>4504</u> ; Right = <u>4467</u>
Crush	Left = <u>511</u> ; C/L = <u>603</u> ; Right = <u>535</u>
AVERAGE	= <u>549.67</u> mm

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point:

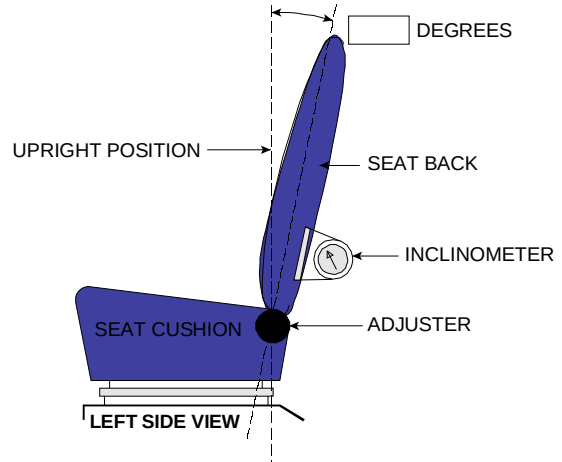
	Left = <u>412</u> ; C/L = <u>345</u> ; Right = <u>415</u>
AVERAGE	= <u>391</u> mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2003 Vehicle Model: Honda Odyssey Body Style : MPV

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



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat: 10.7

Measurement instructions: Recline the seatback to the 4th detent rearward of the most upright position (0).

Seat back angle for passenger's seat: 10.7

Measurement instructions: Same as the driver's seat

2. Seat Fore and Aft Positioning

Positioning of the driver's seat: The seat track is located 11 detents rearward of the forward-most position.

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

3. Fuel Tank Capacity Data

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 75.7 liters

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

C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 = 75.7 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 69.6 liters

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

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

When the ignition key is turned to the ON position, the pump will pressurize the system

for two seconds and maintain fuel line pressure thereafter.

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

4. STEERING COLUMN ADJUSTMENTS:

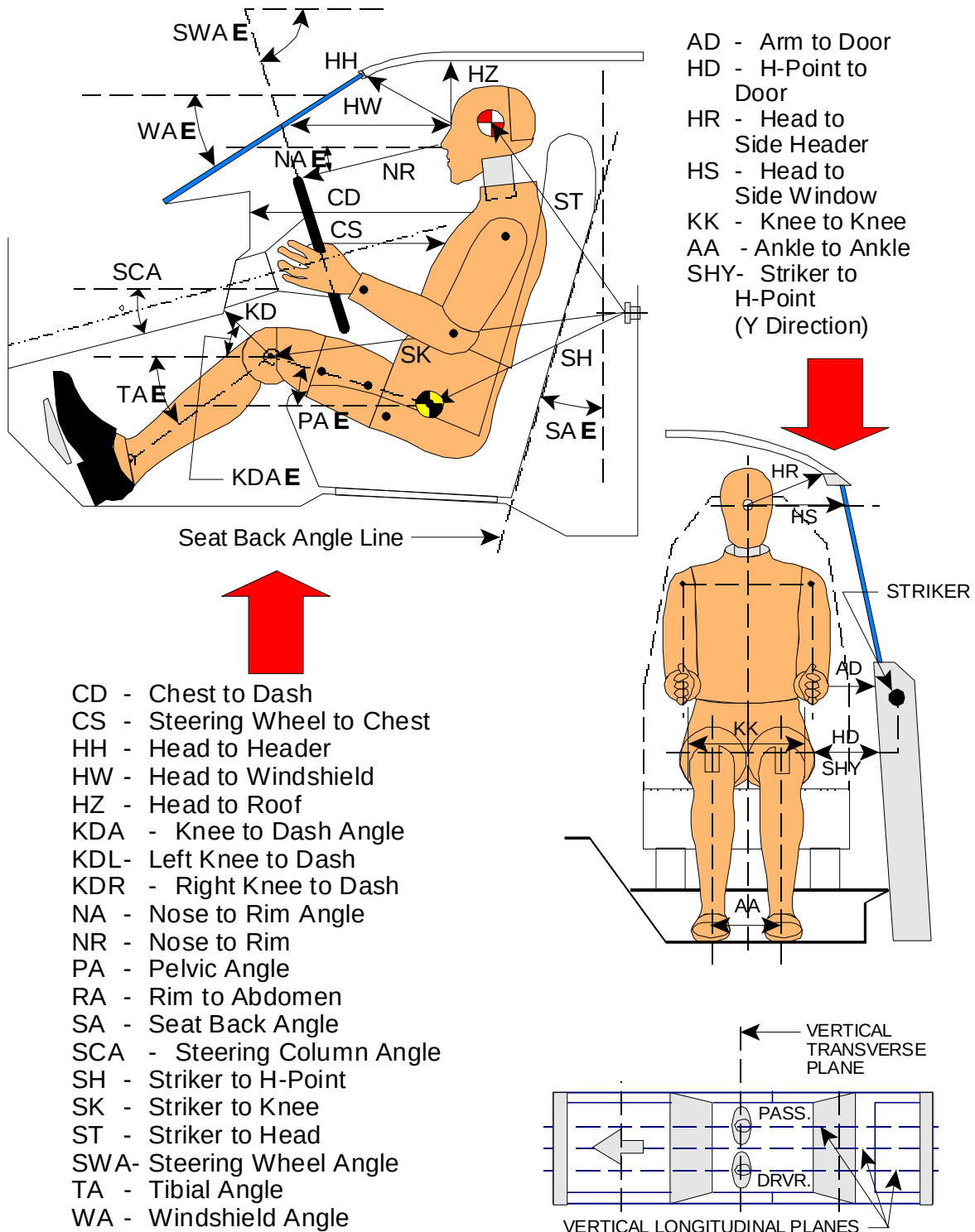
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions: The steering wheel is located in its geometric center position.

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: Anchorage are placed in the uppermost position.

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



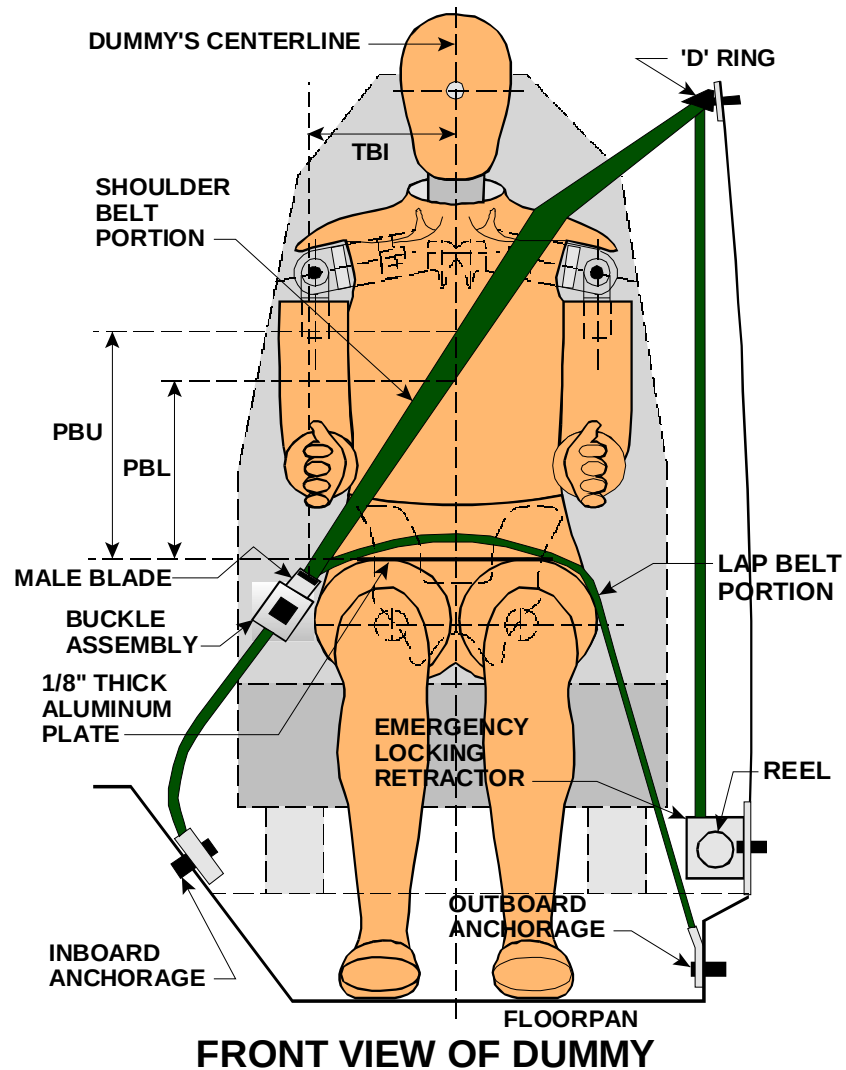
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #150)			PASS. (Serial #245)		
WA ^o	31.4 deg.			N/A		
SWA ^o	59.3 deg.			N/A		
SCA ^o	30.7 deg.			N/A		
SA ^o	10.7 deg.			10.7 deg.		
HZ	228			228		
HH	409			405		
HW	675			690		
HR	210			212		
NR	428	Angle	10 deg.	N/A		
CD	562			509		
CS	308			N/A		
RA	185			N/A		
KDL	116	Angle (KDA)	35 deg.	130		
KDR	142			125	Angle (KDA)	23 deg.
PA ^o	22.7 deg.			23.7 deg.		
TA ^o	66.1 deg.			49.8 deg.		
KK	330			250		
AA	375			220		
ST	590	Angle	11 deg.	595	Angle	13 deg.
SK	680	Angle	88 deg.	665	Angle	89 deg.
SH	290	Angle	105 deg.	282	Angle	106 deg.
SHY	243			241		
HS	331			330		
HD	139			144		
AD	122			119		

Dimensions in millimeters

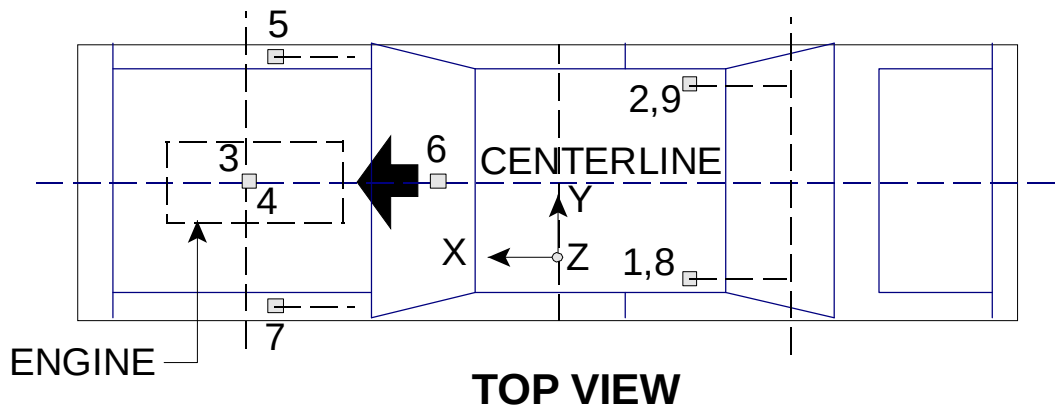
DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

SEAT BELT POSITIONING DATA

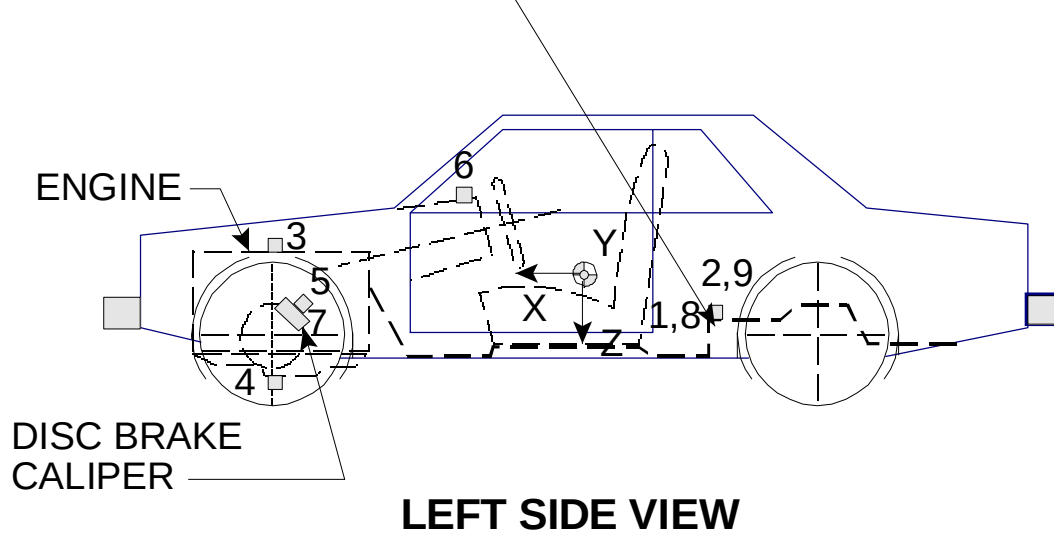


	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	360	330
PBL-- Top surface of alum. plate to belt lower edge	290	240
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

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	2282	-717	-395
2	Right Rear Seat Cross Member X	2277	700	-384
3	Top of Engine Block	4267	394	-778
4	Bottom of Engine	4342	166	-156
5	Disc Brake Caliper @ Right Side	4077	798	-468
6	Instrument Panel	3539	-19	-1147
7	Disc Brake Caliper @Left Side	4116	-777	-472
8	Left Rear Seat Cross Member Z	2282	-717	-395
9	Right Rear Seat Cross Member Z	2277	700	-384

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Left Rear Seat Cross Member X	1.7	137.9	-34.6	70.5
2	Right Rear Seat Cross Member X	2.1	121.5	-34.9	66.0
3	Top of Engine Block	57.4	55.5	-199.1	29.5
4	Bottom of Engine	*	*	*	*
5	Disc Brake Caliper @ Right Side	**	**	**	**
6	Instrument Panel	18.3	31.2	-43.1	23.6
7	Disc Brake Caliper @Left Side	***	***	***	***
8	Left Rear Seat Cross Member Z	11.9	45.3	-15.8	64.6
9	Right Rear Seat Cross Member Z	21.1	50.3	-11.4	19.8

* Not Accurate: Wire cut at 25 ms

** Not Accurate: Wire cut at 71 ms

*** Not Accurate: Wire cut at 19 ms

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2003 Honda Odyssey MPV

NHTSA Test No.: M35306 Test Date: January 10, 2003

DESCRIPTION	Unit	MAXIMUM VALUE							
		Driver				Passenger			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head 9 Array X Arm Y	g	3.3	109.8	-12.1	83.9	4.6	52.1	-14.9	62.7
Head 9 Array X Arm Z	g	21.6	47.7	-7.4	118.8	22.7	61.9	-4.9	148.0
Head 9 Array Y Arm X	g	5.7	259.0	-46.6	77.7	8.9	299.9	-48.0	84.4
Head 9 Array Y Arm Z	g	17.5	75.3	-1.7	137.3	15.7	86.8	-1.4	140.7
Head 9 Array Z Arm X	g	6.9	295.4	-43.3	85.0	17.7	299.9	-49.0	84.9
Head 9 Array Z Arm Y	g	3.4	134.0	-13.1	79.3	6.2	79.3	-5.6	62.8
Head X	g	5.8	299.9	-44.7	77.3	11.2	299.9	-50.2	84.7
Head Y	g	2.5	131.1	-12.1	86.3	3.5	68.5	-5.7	62.6
Head Z	g	15.8	47.8	-0.7	136.1	16.2	85.0	-1.4	147.1
Head Resultant	g	47.6	78.0	0.1	15.7	52.5	84.7	0.0	-49.3
Redundant Head X	g	5.9	299.9	-44.7	77.3	11.1	299.9	-49.3	84.9
Redundant Head Y	g	2.4	27.7	-12.3	87.2	2.8	72.7	-5.7	62.6
Redundant Head Z	g	15.6	71.5	-0.9	136.1	16.1	87.1	-1.4	149.4
Redundant Head Resultant	g	47.9	78.6	0.1	-15.7	51.5	84.9	0.0	-49.7
Upper Neck Fx	N	104.2	205.9	-572.4	105.6	119.3	295.8	-370.7	108.5
Upper Neck Fy	N	124.1	132.6	-93.5	90.1	218.0	82.1	-58.0	283.6
Upper Neck Fz	N	1273.2	69.6	-39.2	136.7	836.2	65.9	-53.4	150.0
Upper Neck F Resultant	N	1277.5	69.6	3.6	-50.0	900.8	65.8	2.0	-49.6
Upper Neck Mx	N-m	7.8	137.7	-12.6	107.5	8.4	92.0	-3.8	172.8
Upper Neck My	N-m	42.8	119.5	-13.5	222.9	23.7	146.7	-23.1	107.6
Upper Neck Mz	N-m	16.5	88.4	-9.6	141.7	13.3	82.0	-4.4	143.1
Upper Neck M Resultant	N-m	42.9	119.4	0.2	-21.2	24.4	107.3	0.1	-48.1
Chest X	g	3.8	261.8	-41.7	85.6	3.4	284.2	-37.4	81.9
Chest Y	g	7.0	95.6	-4.3	51.0	3.2	45.8	-5.4	75.0
Chest Z	g	5.1	45.2	-11.6	95.1	3.7	30.7	-8.8	80.9
Chest Resultant	g	43.5	85.7	0.1	-50.0	38.2	81.6	0.0	-49.2

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

Vehicle Year/Make/Model/Body Style: 2003 Honda Odyssey MPV

NHTSA Test No.: M35306 Test Date: January 10, 2003

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Redundant Chest X	g	3.7	262.5	-41.4	85.6	3.8	284.6	-37.4	81.9
Redundant Chest Y	g	7.3	95.6	-4.4	51.1	3.0	46.3	-5.1	74.9
Redundant Chest Z	g	4.7	45.2	-11.6	95.5	3.7	30.9	-8.9	80.9
Redundant Chest Resultant	g	43.3	85.7	0.1	-48.1	38.3	81.5	0.0	-50.0
Chest Displacement	mm	0.0	1.8	-32.4	83.0	0.0	-18.7	-27.1	96.5
Pelvic X	g	5.0	203.2	-40.0	65.2	*	*	*	*
Pelvic Y	g	13.2	76.4	-7.0	44.1	5.1	42.1	-4.5	106.0
Pelvic Z	g	4.2	207.1	-27.9	88.4	2.7	209.5	-20.6	82.2
Pelvic Resultant	g	44.7	60.0	0.1	-49.5	**	**	**	**
Left Femur	N	552.1	36.2	-2015.4	60.9	140.8	19.7	-2350.2	43.6
Right Femur	N	364.4	37.8	-2678.4	64.9	149.9	161.5	-3347.5	60.8
Left Upper Tibia Mx	N-m	26.0	48.5	-3.5	140.3	29.7	78.5	-26.7	59.9
Left Upper Tibia My	N-m	16.6	182.7	-74.6	46.4	140.9	43.3	-72.3	78.2
Left Lower Tibia Fz	N	79.6	143.9	-1307.9	46.2	196.9	42.6	-1925.3	70.0
Left Lower Tibia Mx	N-m	11.3	48.8	-2.7	136.1	4.7	38.5	-34.0	77.9
Left Lower Tibia My	N-m	10.4	105.6	-37.2	69.6	110.3	43.2	-2.3	18.3
Right Upper Tibia Mx	N-m	16.6	92.6	-77.1	49.1	32.2	54.5	-24.3	95.7
Right Upper Tibia My	N-m	17.6	205.8	-116.9	68.1	91.3	54.5	-45.8	78.8
Right Lower Tibia Fz	N	101.1	143.9	-4806.6	68.2	62.9	232.3	-1508.2	41.5
Right Lower Tibia Mx	N-m	70.2	51.3	-45.2	46.8	25.0	54.0	-8.6	48.7
Right Lower Tibia My	N-m	181.2	72.2	-28.9	38.2	71.8	53.9	-15.1	37.5
Left Foot Aft Ax	g	3.6	207.5	-40.8	31.2	19.1	61.4	-121.0	45.7
Left Foot Aft Az	g	13.2	59.7	-14.2	76.0	17.6	66.0	-62.9	48.7
Left Foot Fore Az	g	26.2	62.0	-29.5	39.7	104.5	45.1	-242.1	48.6
Right Foot Aft Ax	g	27.7	68.1	-105.8	49.9	10.9	75.2	-56.2	40.6
Right Foot Aft Az	g	12.1	70.4	-99.0	47.8	*	*	*	*
Right Foot Fore Az	g	55.1	62.5	-169.2	48.1	**	**	**	**
Lap Belt Load	N	4417.1	59.7	-30.8	199.2	2747.1	60.9	-14.3	283.6

* Transducer Failed

** Data is questionable

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

Vehicle Year/Make/Model/Body Style: 2003 Honda Odyssey MPV

NHTSA Test No.: M35306 Test Date: January 10, 2003

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	320.3	64.8	100.8	38.0 g
Position #2 - Passenger	358.3	65.1	101.1	39.7 g

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

CLIP SUMMARY*				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	41.4	84.2	87.2	390.5
Position #2 - Passenger	37.1	79.8	82.8	301.2

* 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: 2003 Honda Odyssey MPV

NHTSA Test No.: M35306 Test Date: January 10, 2003

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	323.0	64.6	100.6	38.1 g
Position #2 - Passenger	333.6	66.0	102.0	38.6 g

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

CLIP SUMMARY* REDUNDANT				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	41.5	84.1	87.1	391.4
Position #2 - Passenger	37.6	79.5	82.5	293.9

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

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

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

Driver

Passenger

1990

1990

Shoulder belt length as measured
on Part 572 Dummy.

880

880

Lap belt length as measured
on Part 572 Dummy.

850

850

Dimensions in millimeters

DATA SHEET NO.10 SUMMARY OF FMVSS 212 DATA

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

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

Windshield is bonded in place and covered with a 25 mm molding.

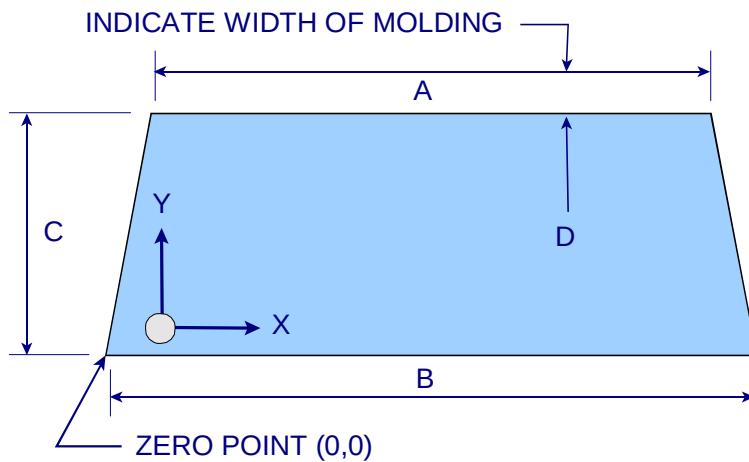
FMVSS 212 REQUIREMENTS:

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	2340	2340	100.0%
LEFT SIDE	2340	2340	100.0%
TOTAL	4680	4680	100.0%

AREA OF RETENTION FAILURE:



DIMENSIONS (mm)	
A	1290
B	1630
C	880
D	25

FRONT VIEW OF WINDSHIELD

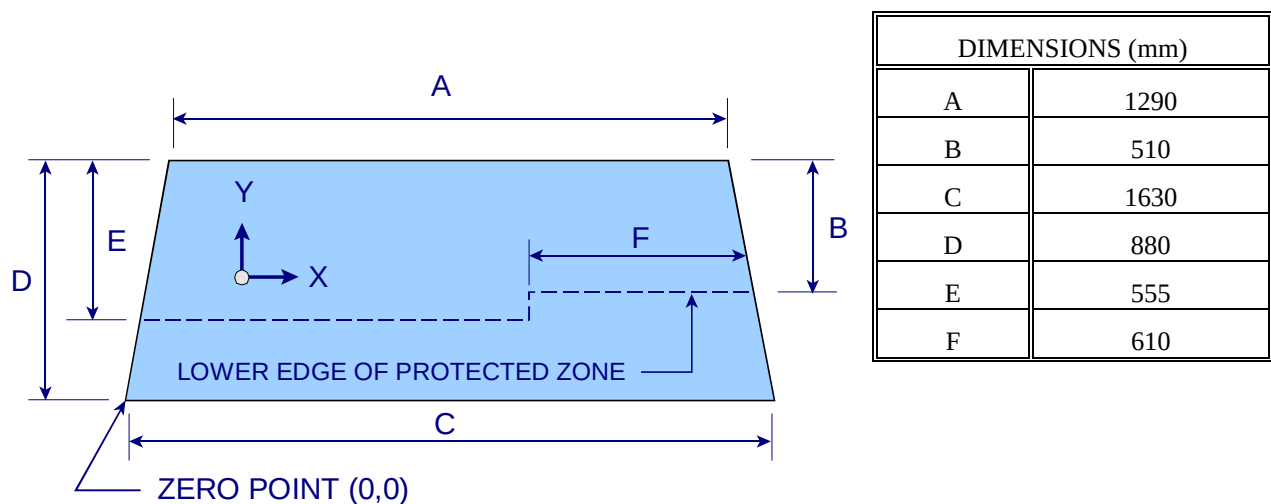
FAILURE DETAILS: None

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

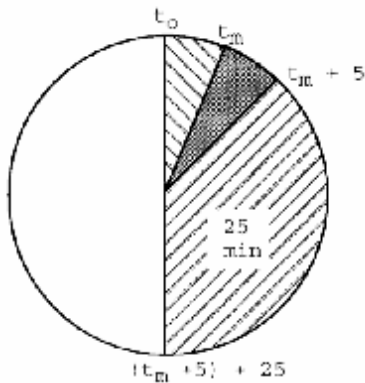
NHTSA TEST No.: M35306 TEST DATE: January 10, 2003
VEHICLE MAKE/MODEL: 2003 Honda Odyssey MPV

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

=====

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

FUEL SPILLAGE MEASUREMENT:



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

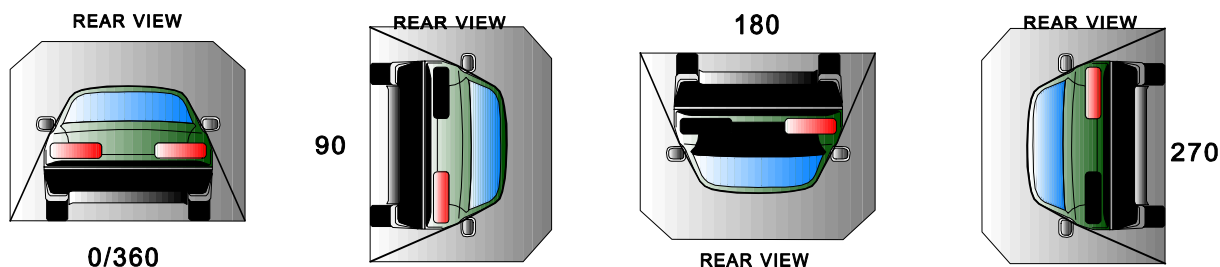
ACTUAL	MAX ALLOWED
0	28 g
0	141 g
0	28 g/min.

SOLVENT SPILLAGE DETAILS: None

DATA SHEET NO. 13 - ROLLOVER DATA

Vehicle: 2003 Honda Odyssey MPV

NHTSA No.: M35306



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	13	seconds	5	minutes	6	minutes	13	seconds	7	minutes
90° - 180°	1	minutes	11	seconds	5	minutes	6	minutes	11	seconds	7	minutes
180°-270°	1	minutes	04	seconds	5	minutes	6	minutes	4	seconds	7	minutes
270°-360°	1	minutes	10	seconds	5	minutes	6	minutes	10	seconds	7	minutes

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

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

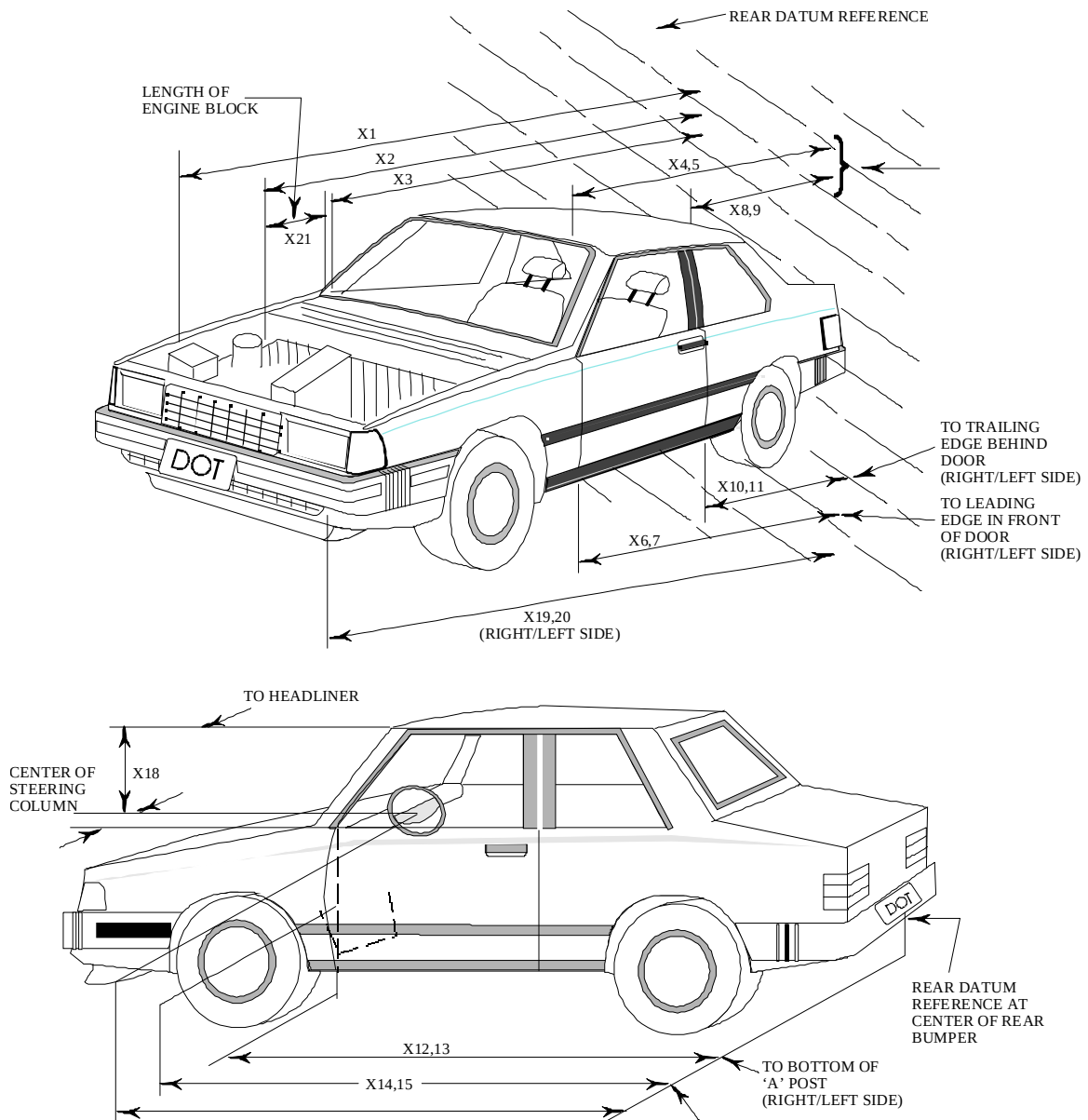
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°	0	0	0	N/A
90° - 180°	0	0	0	N/A
180°-270°	0	0	0	N/A
270°-360°	0	0	0	N/A

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

IV. SOLVENT SPILLAGE LOCATION(S):

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

DATA SHEET NO. 14 TEST VEHICLE MEASUREMENTS

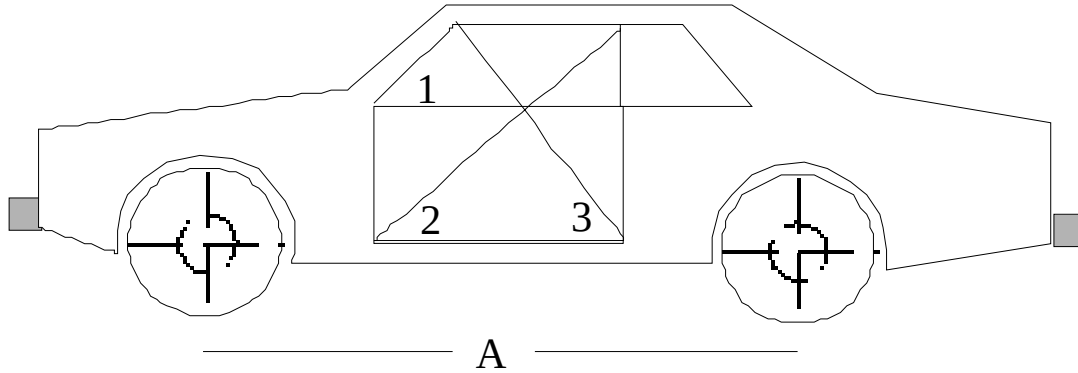


DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	5107	4504	603
X2	Rear Surface of Vehicle to Front of Engine	4634	4215	419
X3	Rear Surface of Vehicle to Firewall	4158	4152	6
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3645	3626	19
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3646	3654	-8
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3613	3600	13
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3614	3621	-7
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2553	2532	21
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2558	2558	0
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2569	2541	28
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2573	2578	-5
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3911	3867	44
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3906	3878	28
X14	Rear Surface of Vehicle to Firewall, Right Side	4189	4172	17
X15	Rear Surface of Vehicle to Firewall, Left Side	4184	4168	16
X16	Rear Surface of Vehicle to Steering Column	3235	3219	16
X17	Center of Steering Column to "A" Post	304	312	-8
X18	Center of Steering Column to Headliner	450	411	39
X19	Rear Surface of Vehicle to Right Side of Front Bumper	5002	4467	535
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4998	4487	511
X21	Length of Engine Block	457	457	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3430	3419	11
CD	Rear Surface of Vehicle to Center of Dash Panel	3514	3501	13
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3420	3434	-14

All Dimensions in mm

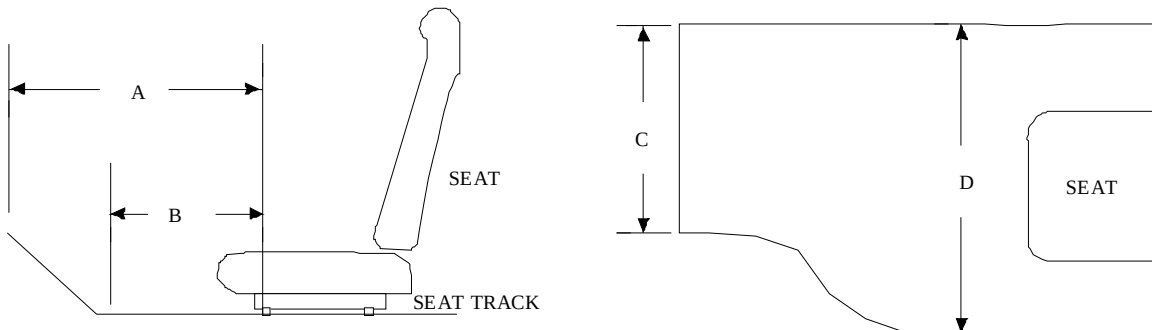
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1006	1573	1226	1011	1581	1235
AFTER TEST	1010	1576	1232	1012	1583	1242
DIFFERENCE	-4	-3	-6	-1	-2	-7

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	3005	3005
AFTER TEST	2880	2850
DIFFERENCE	125	155

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



DRIVER

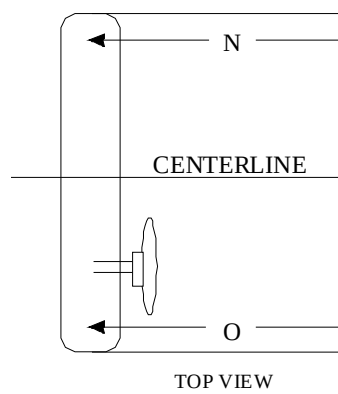
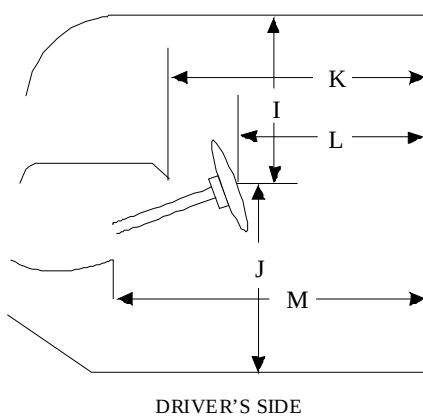
Measurement	Pre-Test	Post-Test	Difference
A	755	595	160
B	585	508	77
C	323	262	61
D	433	351	82

PASSENGER

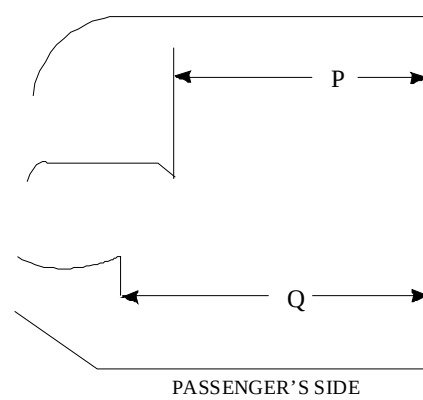
Measurement	Pre-Test	Post-Test	Difference
A	694	551	143
B	535	506	29
C	551	503	48
D	443	432	11

Units = mm

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



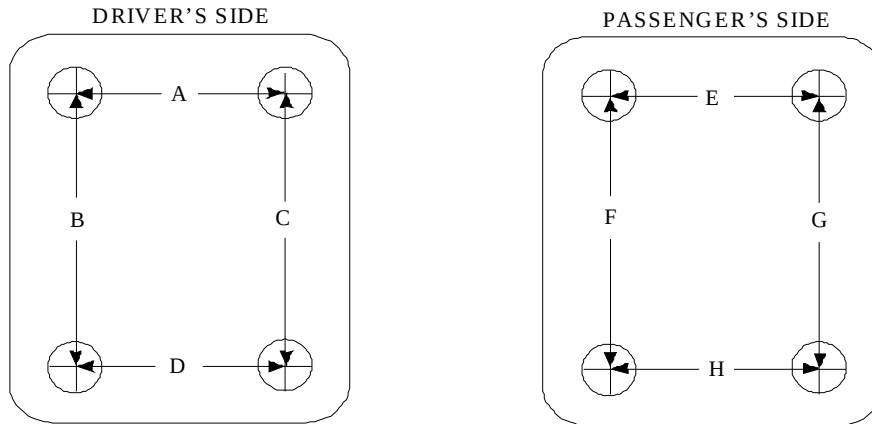
MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



Measurement	Pre-Test	Post-Test	Difference
I	450	411	39
J	729	769	-40
K	2326	2328	-2
L	2093	2076	17
M	2372	2354	18
N	2311	2322	-11
O	2277	2291	-14
P = K (PASS.)	2506	2518	-12
Q = M (PASS.)	2342	2341	1

Units = mm

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

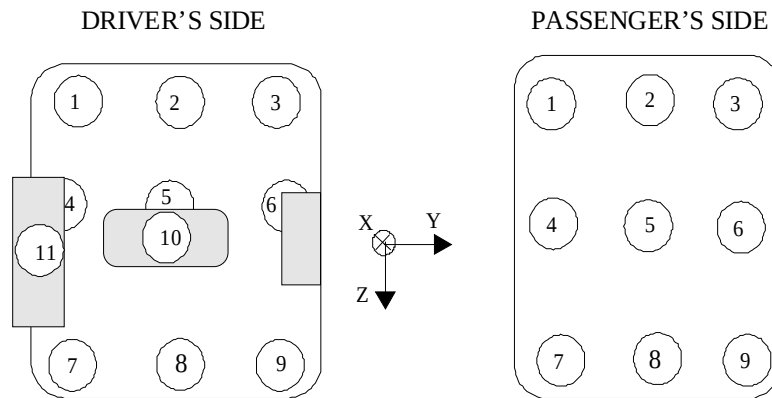


TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	323	262	61
B	440	417	23
C	397	330	67
D	433	351	82
E	551	503	47
F	409	392	16
G	311	327	-16
H	443	432	11

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	3857	3724	133	-574	-635	61
2	3918	3761	157	-536	-594	58
3	3919	3721	198	-509	-555	46
4	3774	3705	69	-502	-543	41
5	3717	3772	-55	-409	-530	121
6	3838	3723	115	-444	-496	52
7	3726	3725	1	-438	-457	19
8	3748	3674	74	-410	-471	61
9	3717	3671	46	-408	-432	24
10	3692	3616	76	-549	-595	46
11	3767	3738	29	-532	-543	11

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	3828	3580	248	-559	-576	17
2	3831	3668	163	-485	-542	57
3	3860	3757	103	-509	-540	31
4	3811	3607	204	-486	-506	20
5	3776	3679	97	-475	-465	-10
6	3766	3696	70	-470	-461	-9
7	3704	3611	93	-416	-379	-37
8	3671	3623	48	-415	-380	-35
9	3685	3647	38	-416	-375	-41

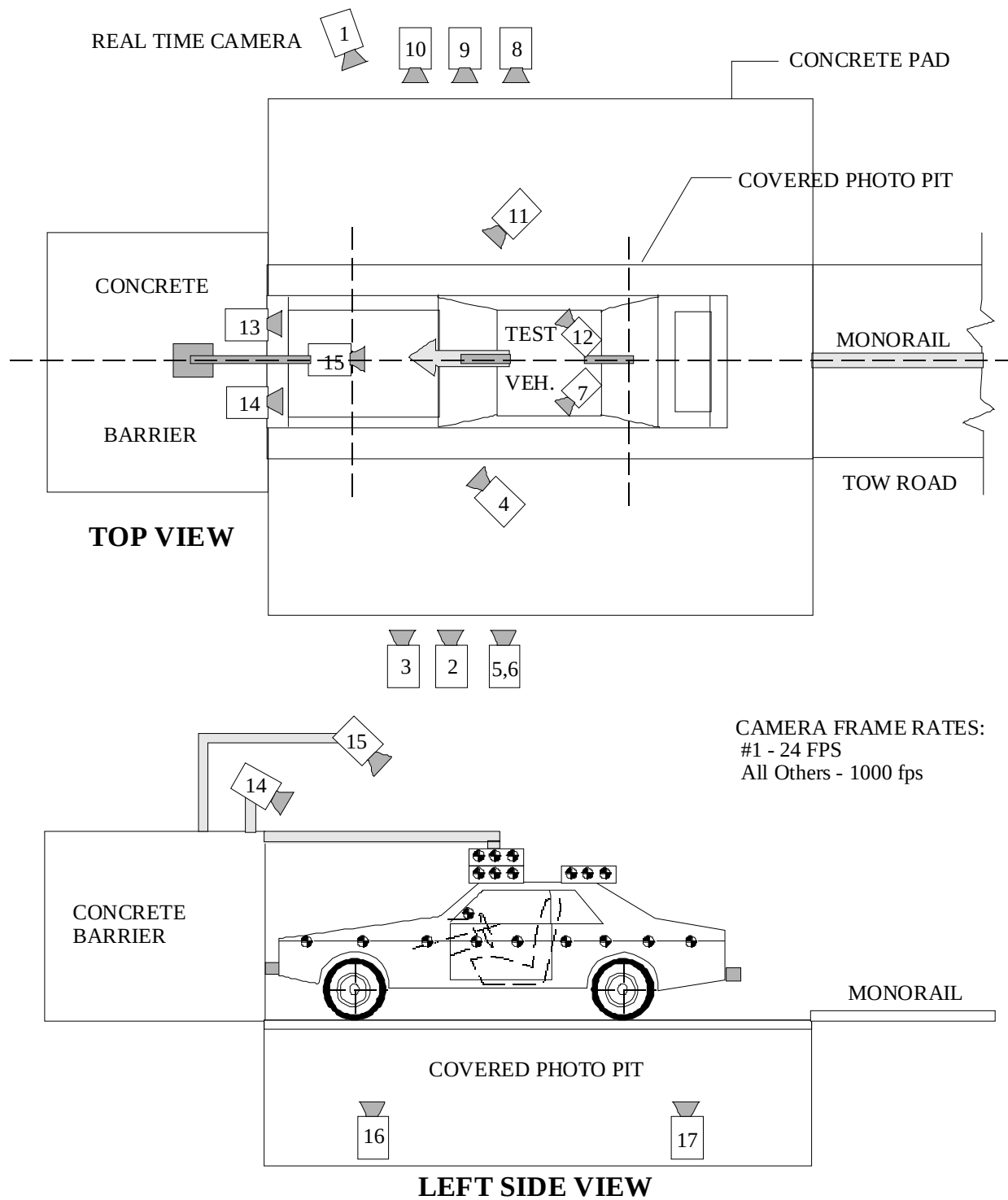
Reference: SAE: X = Rear Bumper (Positive: forward); Z = Ground (Positive: down)

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
TARGET VEHICLE STRUCTURAL MEASUREMENTS

	Elements	Pre-Test (mm)
1	Total length	5107
2	Total Width	1920
3	Bumper Top Height	600
4	Bumper Bottom Height	426
5	Longitudinal Member Top Height	630
6	Distance Between Longitudinal Members	1000
7	Longitudinal Member Width	120
8	Engine top height	778
9	Engine bottom height	260
10	Engine and gearbox width	260
11	Front bumper-engine distance	850
12	Front shock absorber fixing height	665
13	Bonnet leading edge height	990
14	Front shock absorber fixing width	810
15	Front bumper – front axle distance	1250
16	Front axle – a pillar distance	978
17	A-pillar – B pillar distance	1011
18	B-pillar – rear axle distance	1483
19	B-pillar – C Pillar distance	1148
20	Roof sill bottom height	1550
21	Roof sill top height	1675
22	Floor sill bottom height	220
23	Floor sill top height	380

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.: M35306 Vehicle: 2003 Honda Odyssey MPV

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)*			ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	7053	1719	1087	-2	6618	12.5	1015
3	Left Side View	8375	970	1162	-3	7940	25	1000
4	Driver and Interior View	7392	2644	2000	-11	-	25	1065
5	Steering Column (Bottom)	8164	2007	1177	-3	7729	25	1010
6	Steering Column (Top)	8164	2007	1777	-7	7729	25	1015
7	Left Lateral View	3658	2693	2553	-29	-	13	1030
8	Overall Right Side	7167	2079	1083	-5	7507	12.5	1030
9	Right Side View	8390	1573	1460	-4	8730	25	1025
10	Right Passenger View	8114	1709	1387	-2	8454	35	1020
11	Passenger and Interior View	7692	2579	2000	-9	-	25	1030
12	Right Lateral View	3642	2642	2568	-32	-	13	1030
13	Passenger Front View	620	-92	1987	-45	-	13	1005
14	Driver Front View	620	-92	1987	-37	-	13	1010
15	Windshield View	0	-530	3374	-52	-	13	1005
16	Pit View of Engine	0	615	-3048	90	-	13	1010
17	Pit View of Fuel Tank	0	2722	-3048	90	-	13	1050

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

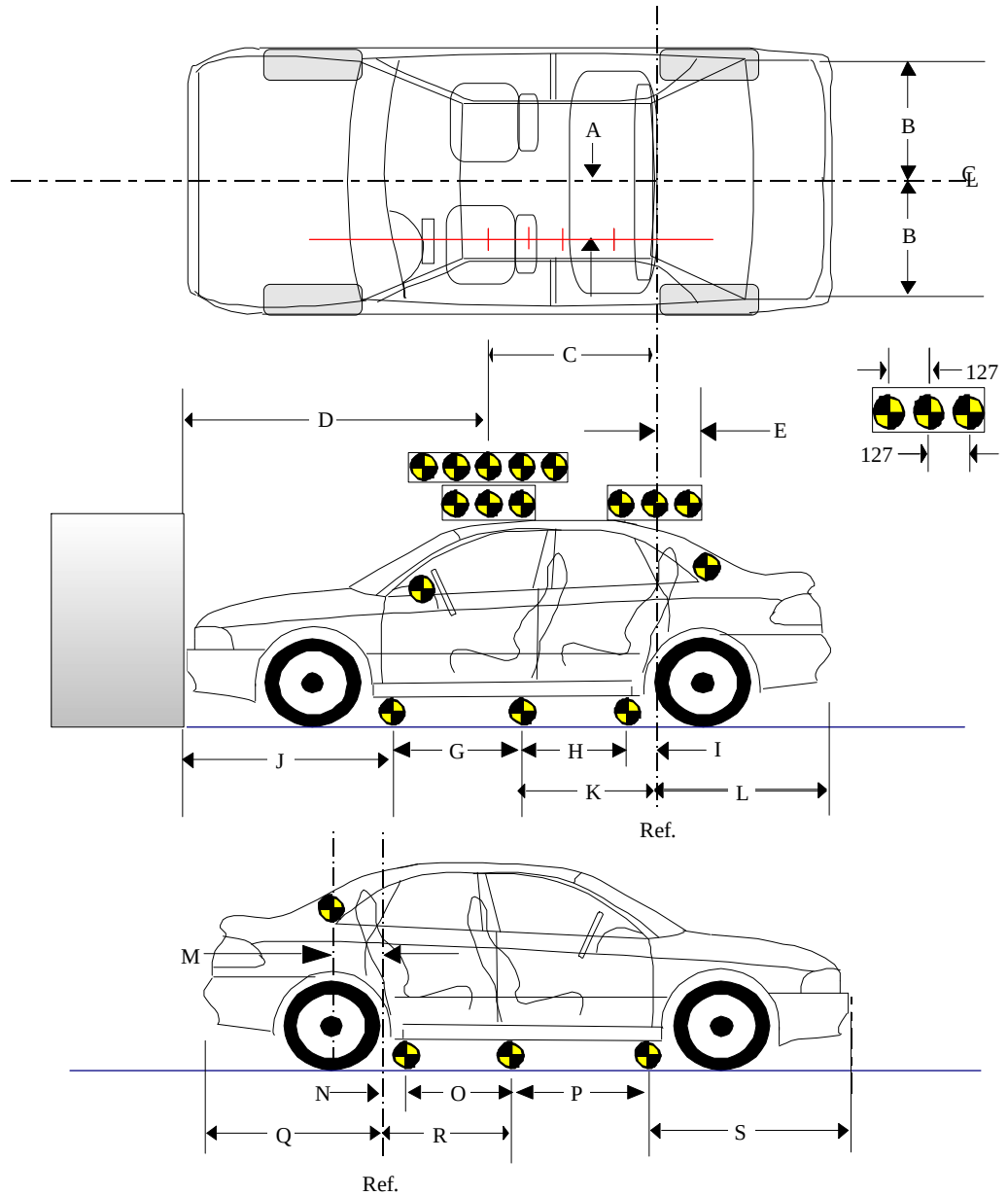
Y = film plane to impact location N.T. indicates No Timing

Z = film plane to ground

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

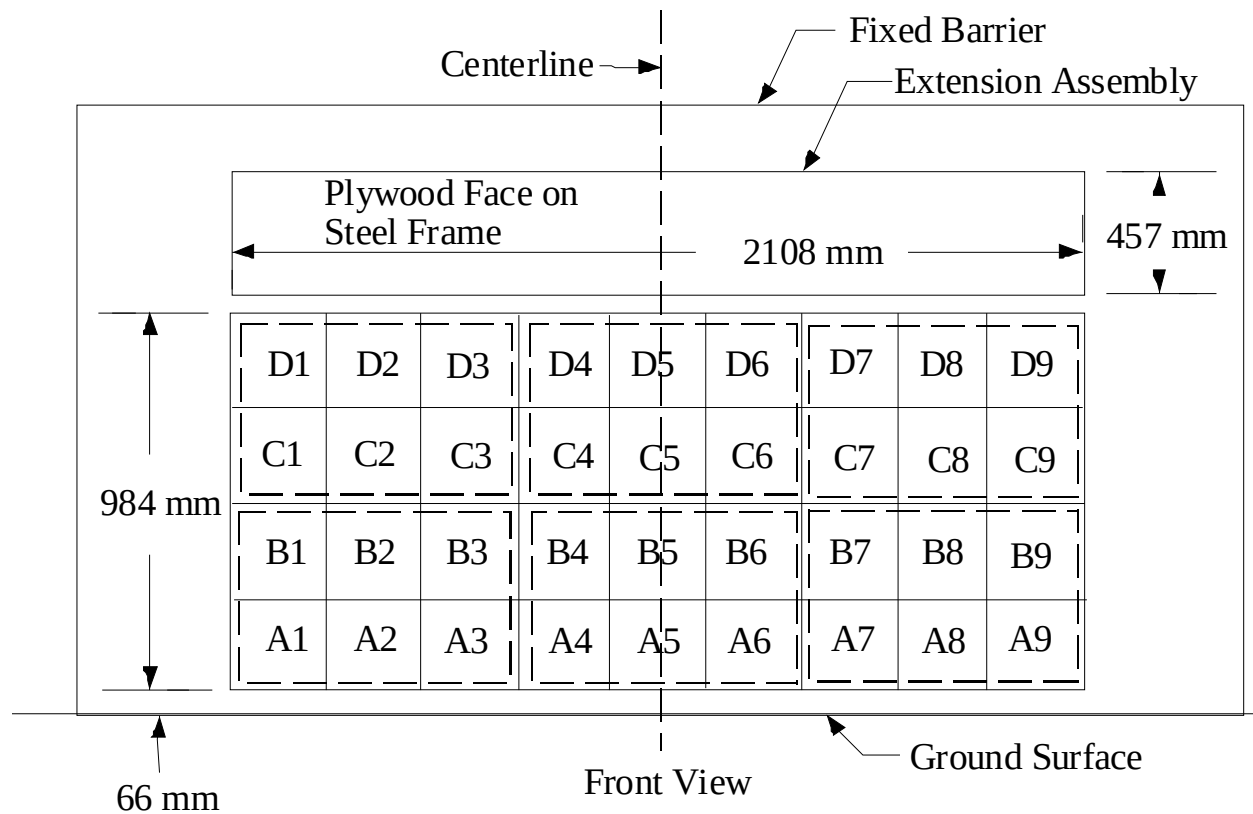
(Dimensions in millimeters)

A	416
B	775
C	1224
D	2419
E	321
F	1967
G	1019
H	1016
I	148
J	1470
K	1164
L	1454
M	344
N	148
O	1048
P	991
Q	1450
R	1196
S	1471



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.: M35306; Test Date: January 10, 2003; Technician: Patrick G. MacDiarmid, Jr.

Vehicle Model Year/Make/Model: 2003 Honda Odyssey MPV

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

B. Size of vent holes: (mm²) 962.1 -Driver 3848.5 -Passenger

C. Total vent area: (mm²) 1924.2 -Driver 7697 -Passenger

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

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

Passenger: 800 -Height; 570 -Width; 600 -Depth

E. Is the air bag tethered?

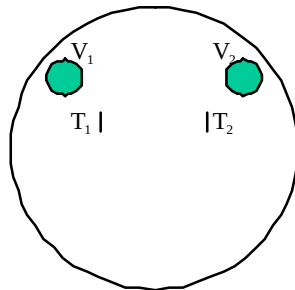
Driver: X -Yes; - -No; If yes, record length of tether- 200

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

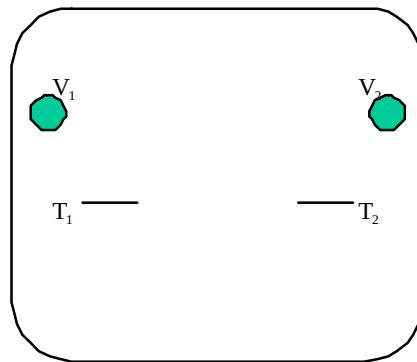
Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.

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

Driver



Passenger



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

Driver: Air bag: Honda BL 240053821 11 02-L10

Generator: P0ZN23998 MID-1202 77850-SOX-A710-M1

Passenger: Air bag: Honda 2400556 1.9 11 02

Generator: H0ZM1Z203 MID-1202 77800-SOX-A8-11-M1

DATA SHEET NO. 19 ACCIDENT INVESTIGATION DIVISION DATA

FOR FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Honda Odyssey MPV

NHTSA Test No.: M35306 VIN: 5FNRL18943B046993

Model Year: 2003 Build Date: 12/02 Test Date: January 10, 2003

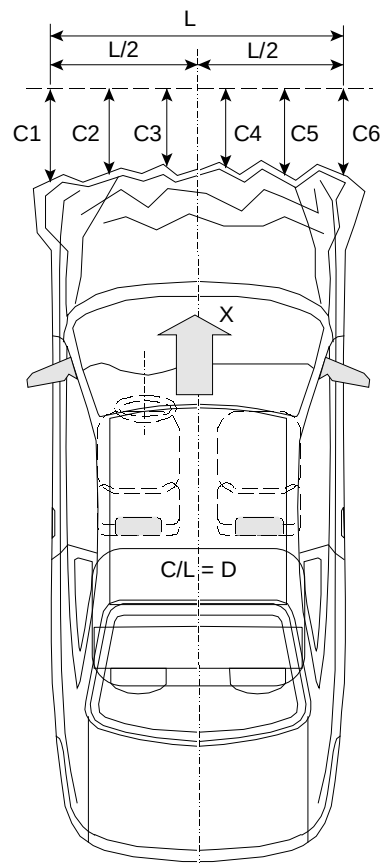
Vehicle Size Category: Special Purpose Test Weight: 2178.5 kg

Vehicle Wheelbase: 3005 mm; Front Overhang: 978 mm; Overall Width: 1920 mm

Collision Deformation Classification (CDC) Code: 12FDEW4

Crush Depth Dimensions

	PRE (mm)	POST (mm)	DIFF (mm)
C1 =	4857	4506	351
C2 =	4996	4486	510
C3 =	5081	4526	555
C4 =	5080	4505	575
C5 =	4994	4464	530
C6 =	4862	4453	409



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region:

L1=	<u>1630</u>	mm
L2=	<u>815.0</u>	mm
L5=	<u>326</u>	mm

APPENDIX A
PHOTOGRAPHS

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Figure A-1 LOAD CELL LOCATIONS

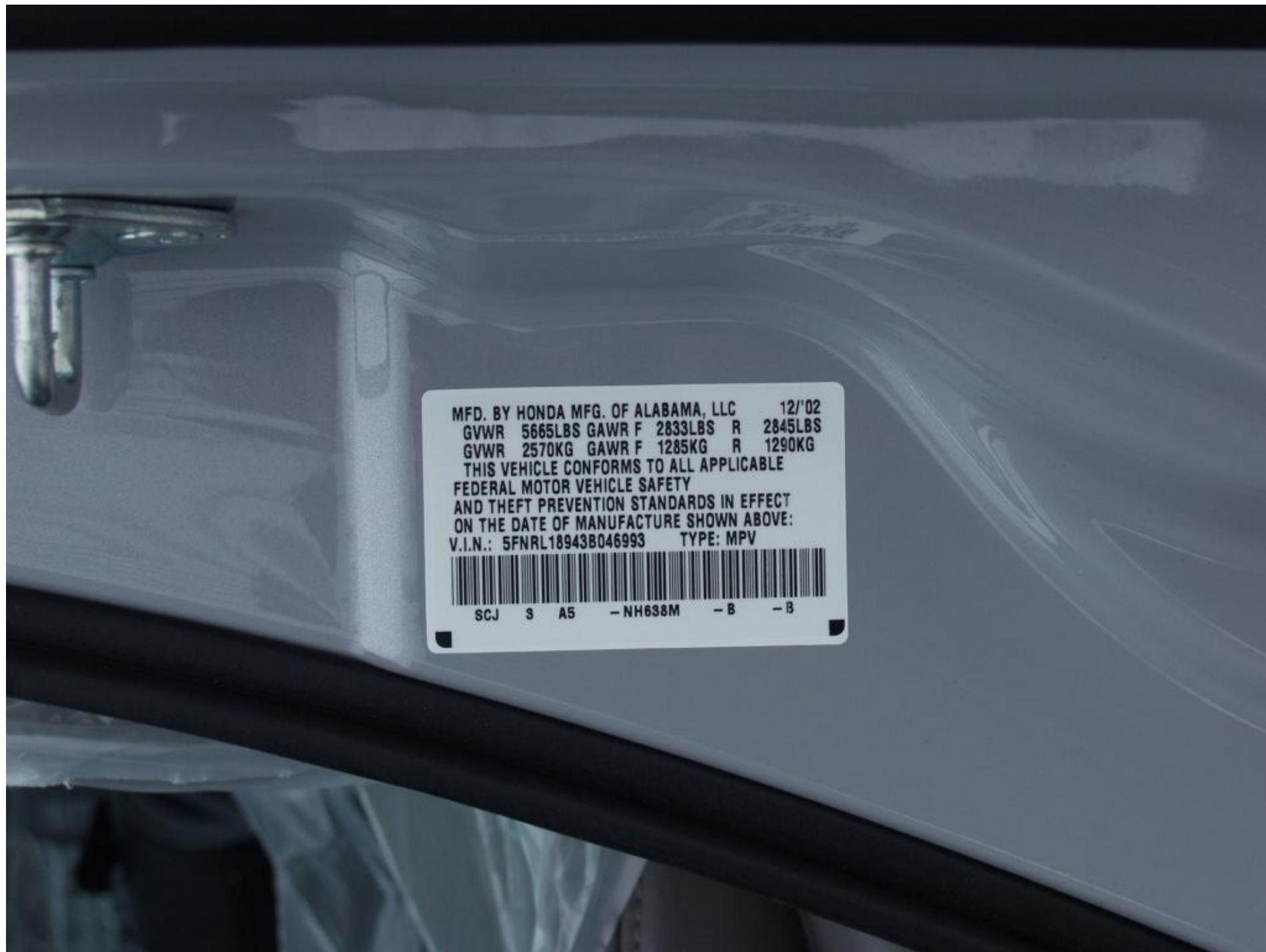


Figure A-2 VEHICLE CERTIFICATION PLACARD

TIRE INFORMATION XA0		
GVWR	5665lbs	
GAWR	FRONT	REAR
	2833lbs	2845lbs
VEHICLE CAPACITY WEIGHT	1158lbs	
TIRE SIZE	225/60R16 98T	
RIM SIZE	16x6 1/2 JJ	
COLD TIRE INFLATION PRESSURE	250kPa, 36psi	
	UP TO VEHICLE CAPACITY WEIGHT	
OPTIONAL TIRE SIZE	T135/80D16 101M	
INFLATION PRESSURE	420kPa, 60psi	
*SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION		

SIDE AIRBAG (AB)

- This car is equipped with side airbags in the driver's and passenger's seat.
- Do not lean against the door.
- See owner's manual for more information.

Figure A-3 VEHICLE TIRE PLACARD



Figure A-4 RIGHT FRONT, AS RECEIVED



Figure A-5 LEFT REAR, AS RECEIVED



Figure A-6 PRE-TEST FRONT VIEW



Figure A-7 POST-TEST FRONT VIEW



Figure A-8 PRE-TEST LEFT SIDE VIEW



Figure A-9 POST-TEST LEFT SIDE VIEW



Figure A-10 PRE-TEST RIGHT SIDE VIEW



Figure A-11 POST-TEST RIGHT SIDE VIEW



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



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



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



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



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



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



Figure A-18 PRE-TEST WINDSHIELD VIEW



Figure A-19 POST-TEST WINDSHIELDVIEW



Figure A-20 PRE-TEST ENGINE COMPARTMENT VIEW

PHOTOGRAPH NOT AVAILABLE

Figure A-21 POST-TEST ENGINE COMPARTMENT VIEW



Figure A-22 PRE-TEST FUEL CAP VIEW



Figure A-23 POST-TEST FUEL CAP VIEW

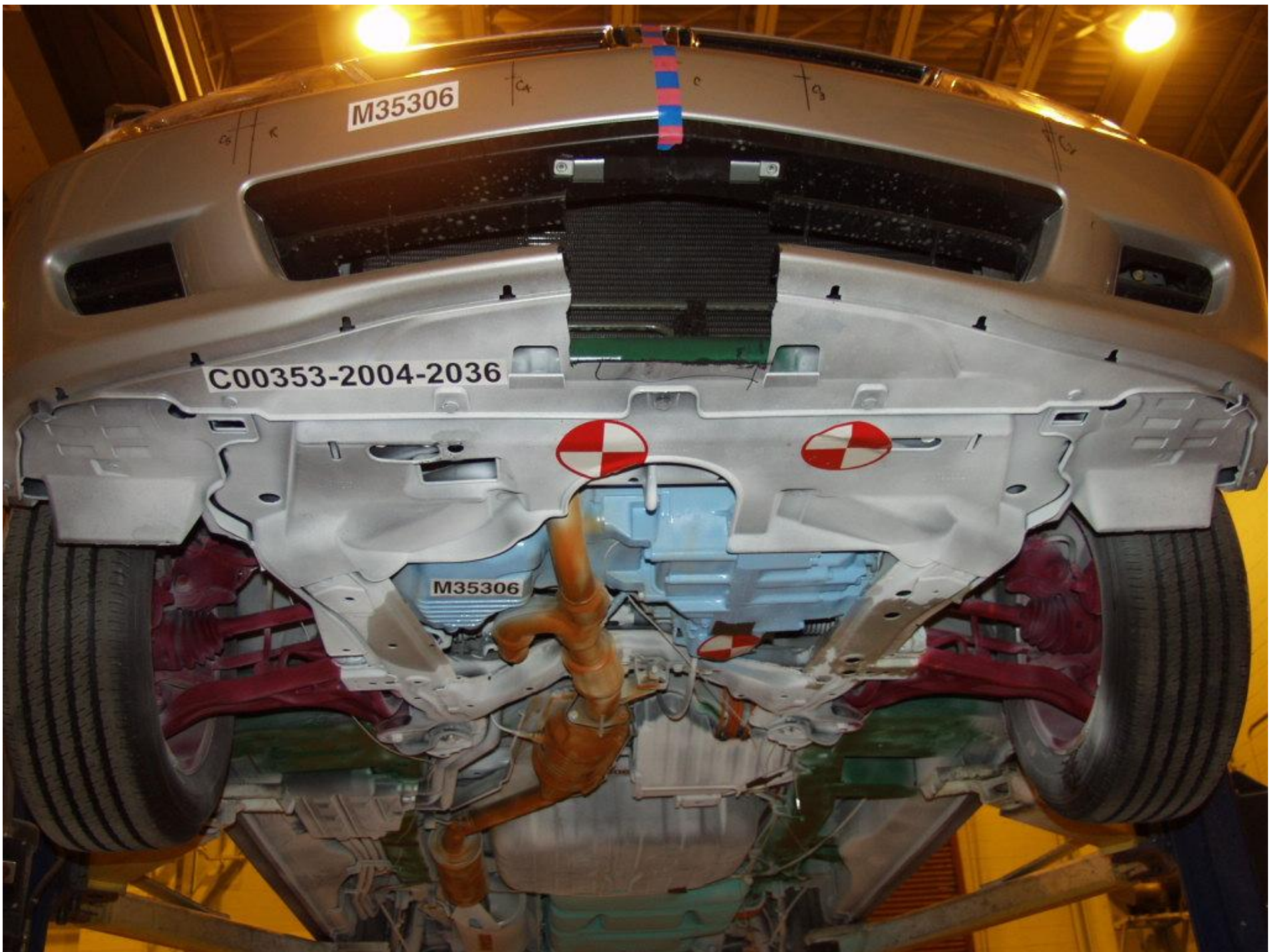


Figure A-24 PRE-TEST FRONT UNDERBODY VIEW



Figure A-25 POST-TEST FRONT UNDERBODY VIEW



Figure A-26 PRE-TEST MID UNDERBODY VIEW



Figure A-27 POST-TEST MID UNDERBODY VIEW



Figure A-28 PRE-TEST REAR UNDERBODY VIEW



Figure A-29 POST-TEST REAR UNDERBODY VIEW



Figure A-30 PRE-TEST DRIVER HEAD LOCATION



Figure A-31 POST-TEST DRIVER HEAD LOCATION



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8642-NCAP-26

Figure A-32 PRE-TEST DRIVER POSITION VIEW



Figure A-33 POST-TEST DRIVER POSITION VIEW



Figure A-34 PRE-TEST DRIVER AND INTERIOR VIEW



Figure A-35 POST-TEST DRIVER AND INTERIOR VIEW



Figure A-36 PRE-TEST DRIVER FEET VIEW



Figure A-37 POST-TEST DRIVER FEET VIEW



Figure A-38 PRE-TEST DRIVER KNEE BOLSTER VIEW



Figure A-39 POST-TEST DRIVER KNEE BOLSTER VIEW



Figure A-40 PRE-TEST DRIVER FLOOR PAN VIEW



Figure A-41 POST-TEST DRIVER FLOOR PAN VIEW



A-45

8642-NCAP-26

Figure A-42 POST-TEST DRIVER HEAD VIEW



Figure A-43 POST-TEST DRIVER CONTACT TO AIRBAG



Figure A-44 PRE-TEST PASSENGER HEAD LOCATION



Figure A-45 POST-TEST PASSENGER HEAD LOCATION



Figure A-46 PRE-TEST PASSENGER POSITION VIEW



Figure A-47 POST-TEST PASSENGER POSITION VIEW



Figure A-48 PRE-TEST PASSENGER AND INTERIOR VIEW



Figure A-49 POST-TEST PASSENGER AND INTERIOR VIEW



Figure A-50 PRE-TEST PASSENGER FEET VIEW



Figure A-51 POST-TEST PASSENGER FEET VIEW



Figure A-52 PRE-TEST PASSENGER KNEE BOLSTER VIEW



Figure A-53 POST-TEST PASSENGER KNEE BOLSTER VIEW



Figure A-54 PRE-TEST PASSENGER FLOOR PAN VIEW



Figure A-55 POST-TEST PASSENGER FLOOR PAN VIEW



Figure A-56 POST-TEST PASSENGER HEAD VIEW



Figure A-57 POST-TEST PASSENGER CONTACT TO AIRBAG



Figure A-58 ROLLOVER VIEW



Figure A-59 IMPACT VIEW

APPENDIX B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

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

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

DATA CHANNEL FILTER CLASS SUMMARY

NHTSA TEST NO.

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

TABLE OF DATA PLOTS

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
1	V1P1 Head 9 Array X Arm Ay [g, CFC_1000]	B-8
2	V1P1 Head 9 Array X Arm Az [g, CFC_1000]	B-9
3	V1P1 Head 9 Array Y Arm Ax [g, CFC_1000]	B-10
4	V1P1 Head 9 Array Y Arm Az [g, CFC_1000]	B-11
5	V1P1 Head 9 Array Z Arm Ax [g, CFC_1000]	B-12
6	V1P1 Head 9 Array Z Arm Ay [g, CFC_1000]	B-13
7	V1P1 Head CG x [g, CFC_1000]	B-14
8	V1P1 Head CG y [g, CFC_1000]	B-15
9	V1P1 Head CG z [g, CFC_1000]	B-16
10	V1P1 Head CG Resultant [g, CFC_1000]	B-17
11	V1P1 Head CG Red x [g, CFC_1000]	B-18
12	V1P1 Head CG Red y [g, CFC_1000]	B-19
13	V1P1 Head CG Red z [g, CFC_1000]	B-20
14	V1P1 Head CG Red Resultant [g, CFC_1000]	B-21
15	V1P1 Upper Neck Fx [N, CFC_1000]	B-22
16	V1P1 Upper Neck Fy [N, CFC_1000]	B-23
17	V1P1 Upper Neck Fz [N, CFC_1000]	B-24
18	V1P1 Upper Neck F Resultant [N, CFC_1000]	B-25
19	V1P1 Upper Neck Mx [N-m, CFC_600]	B-26
20	V1P1 Upper Neck My [N-m, CFC_600]	B-27
21	V1P1 Upper Neck Mz [N-m, CFC_600]	B-28
22	V1P1 Upper Neck M Resultant [N-m, CFC_600]	B-29
23	V1P1 Chest x [g, CFC_180]	B-30
24	V1P1 Chest y [g, CFC_180]	B-31
25	V1P1 Chest z [g, CFC_180]	B-32
26	V1P1 Chest Resultant [g, CFC_180]	B-33
27	V1P1 Chest Red x [g, CFC_180]	B-34
28	V1P1 Chest Red y [g, CFC_180]	B-35
29	V1P1 Chest Red z [g, CFC_180]	B-36
30	V1P1 Chest Red Resultant [g, CFC_180]	B-37
31	V1P1 Chest Compression [mm, CFC_600]	B-38
32	V1P1 Pelvic x [g, CFC_1000]	B-39
33	V1P1 Pelvic y [g, CFC_1000]	B-40
34	V1P1 Pelvic z [g, CFC_1000]	B-41
35	V1P1 Pelvic Resultant [g, CFC_1000]	B-42
36	V1P1 Left Femur [N, CFC_600]	B-43
37	V1P1 Right Femur [N, CFC_600]	B-44
38	V1P1 Left Upper Tibia Mx [N-m, CFC_600]	B-45
39	V1P1 Left upper Tibia My [N-m, CFC_600]	B-46
40	V1P1 Left Lower Tibia Fz [N, CFC_600]	B-47
41	V1P1 Left Lower Tibia Mx [N-m, CFC_600]	B-48
42	V1P1 Left Lower tibia My [N-m, CFC_600]	B-49
43	V1P1 Right Upper Tibia Mx [N-m, CFC_600]	B-50
44	V1P1 Right Upper Tibia My [N-m, CFC_600]	B-51
45	V1P1 Right Lower Tibia Fz [N, CFC_600]	B-52
46	V1P1 Right Lower tibia Mx [N-m, CFC_600]	B-53
47	V1P1 Right Lower Tibia My [N-m, CFC_600]	B-54

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
48	V1P1 Left Foot Aft Ax [g, CFC_600]	B-55
49	V1P1 Left Foot Aft Az [g, CFC_600]	B-56
50	V1P1 Left Foot Fore Az [g, CFC_600]	B-57
51	V1P1 Right Foot Aft x [g, CFC_600]	B-58
52	V1P1 Right Foot Aft z [g, CFC_600]	B-59
53	V1P1 Right Foot Fore z [g, CFC_600]	B-60
54	V1P1 Lap Belt [N, CFC_60]	B-61
55	V1P2 Head 9 Array X Arm y [g, CFC_1000]	B-62
56	V1P2 Head 9 Array X Arm z [g, CFC_1000]	B-63
57	V1P2 Head 9 Array Y Arm x [g, CFC_1000]	B-64
58	V1P2 Head 9 Array Y Arm z [g, CFC_1000]	B-65
59	V1P2 Head 9 Array Z Arm x [g, CFC_1000]	B-66
60	V1P2 Head 9 Array Z Arm y [g, CFC_1000]	B-67
61	V1P2 Head CG x [g, CFC_1000]	B-68
62	V1P2 Head CG y [g, CFC_1000]	B-69
63	V1P2 Head CG z [g, CFC_1000]	B-70
64	V1P2 Head CG Resultant [g, CFC_1000]	B-71
65	V1P2 Head CG Red x [g, CFC_1000]	B-72
66	V1P2 Head CG Red y [g, CFC_1000]	B-73
67	V1P2 Head CG Red z [g, CFC_1000]	B-74
68	V1P2 Head CG Red Resultant [g, CFC_1000]	B-75
69	V1P2 Upper Neck Fx [N, CFC_1000]	B-76
70	V1P2 Upper Neck Fy [N, CFC_1000]	B-77
71	V1P2 Upper Neck Fz [N, CFC_1000]	B-78
72	V1P2 Upper Neck F Resultant [N, CFC_1000]	B-79
73	V1P2 Upper Neck Mx [N-m, CFC_600]	B-80
74	V1P2 Upper Neck My [N-m, CFC_600]	B-81
75	V1P2 Upper Neck Mz [N-m, CFC_600]	B-82
76	V1P2 Upper Neck M Resultant [N-m, CFC_600]	B-83
77	V1P2 Chest x [g, CFC_180]	B-84
78	V1P2 Chest y [g, CFC_180]	B-85
79	V1P2 Chest z [g, CFC_180]	B-86
80	V1P2 Chest Resultant [g, CFC_180]	B-87
81	V1P2 Chest Red x [g, CFC_180]	B-88
82	V1P2 Chest Red y [g, CFC_180]	B-89
83	V1P2 Chest Red z [g, CFC_180]	B-90
84	V1P2 Chest Red Resultant [g, CFC_180]	B-91
85	V1P2 Chest Compression [mm, CFC_600]	B-92
86	V1P2 Pelvic x [g, CFC_1000]	B-93
87	V1P2 Pelvic y [g, CFC_1000]	B-94
88	V1P2 Pelvic z [g, CFC_1000]	B-95
89	V1P2 Pelvic Resultant [g, CFC_1000]	B-96
90	V1P2 Left Femur [N, CFC_600]	B-97
91	V1P2 Right Femur [N, CFC_600]	B-98
92	V1P2 Left Upper Tibia Mx [N-m, CFC_600]	B-99
93	V1P2 Left Upper Tibia My [N-m, CFC_600]	B-100
94	V1P2 Left Lower Tibia Fz [N, CFC_600]	B-101
95	V1P2 Left Lower Tibia Mx [N-m, CFC_600]	B-102

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
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97	V1P2 Right Upper Tibia Mx [N-m, CFC_600]	B-104
98	V1P2 Right Upper Tibia My [N-m, CFC_600]	B-105
99	V1P2 Right Lower Tibia Fz [N, CFC_600]	B-106
100	V1P2 Right Lower Tibia Mx [N-m, CFC_600]	B-107
101	V1P2 Right Lower Tibia My [N-m, CFC_600]	B-108
102	V1P2 Left foot Aft x [g, CFC_600]	B-109
103	V1P2 Left Foot Aft z [g, CFC_600]	B-110
104	V1P2 Left Foot Fore z [g, CFC_600]	B-111
105	V1P2 Right Foot Aft x [g, CFC_600]	B-112
106	V1P2 Right Foot Aft z [g, CFC_600]	B-113
107	V1P2 Right Foot Fore z [g, CFC_600]	B-114
108	V1P2 Lap Belt [N, CFC_60]	B-115
109	V1 Left Rear #1x [g, CFC_60]	B-116
110	V1 Left Rear #1x Velocity [kph, CFC_180]	B-117
111	V1 Left Rear #1x Displacement [mm, CFC_180]	B-118
112	V1 Right Rear #2x [g, CFC_60]	B-119
113	V1 Right Rear #2x Velocity [kph, CFC_180]	B-120
114	V1 Right Rear #2x Displacement [mm, CFC_180]	B-121
115	V1 Engine Top #3x [g, CFC_60]	B-122
116	V1 Engine Top #3x Velocity [kph, CFC_180]	B-123
117	V1 Engine Top #3x Displacement [mm, CFC_180]	B-124
118	V1 Engine Bottom #4x [g, CFC_60]	B-125
119	V1 Engine Bottom #4x Velocity [kph, CFC_180]	B-126
120	V1 Engine Bottom #4x Displacement [mm, CFC_180]	B-127
121	V1 Right Caliper #5x [g, CFC_60]	B-128
122	V1 Right Caliper #5x Velocity [kph, CFC_180]	B-129
123	V1 Right Caliper #5x Displacement [mm, CFC_180]	B-130
124	V1 Instrument Panel #6x [g, CFC_60]	B-131
125	V1 Instrument Panel #6x Velocity [kph, CFC_180]	B-132
126	V1 Instrument Panel #6x Displacement [mm, CFC_180]	B-133
127	V1 Left Caliper #7x [g, CFC_60]	B-134
128	V1 Left Caliper #7x Velocity [kph, CFC_180]	B-135
129	V1 Left Caliper #7x Displacement [mm, CFC_180]	B-136
130	V1 Left Rear #8z [g, CFC_60]	B-137
131	V1 Left Rear #8z Velocity [kph, CFC_180]	B-138
132	V1 Left Rear #8z Displacement [mm, CFC_180]	B-139
133	V1 Right Rear #9z [g, CFC_60]	B-140
134	V1 Right Rear #9z Velocity [kph, CFC_180]	B-141
135	V1 Right Rear #9z Displacement [mm, CFC_180]	B-142
136	B1 LCA1 Fx [N, CFC_60]	B-143
137	B1 LCA2 Fx [N, CFC_60]	B-144
138	B1 LCA3 Fx [N, CFC_60]	B-145
139	B1 LCA4 Fx [N, CFC_60]	B-146
140	B1 LCA5 Fx [N, CFC_60]	B-147
141	B1 LCA6 Fx [N, CFC_60]	B-148
142	B1 LCA7 Fx [N, CFC_60]	B-149
143	B1 LCA8 Fx [N, CFC_60]	B-150

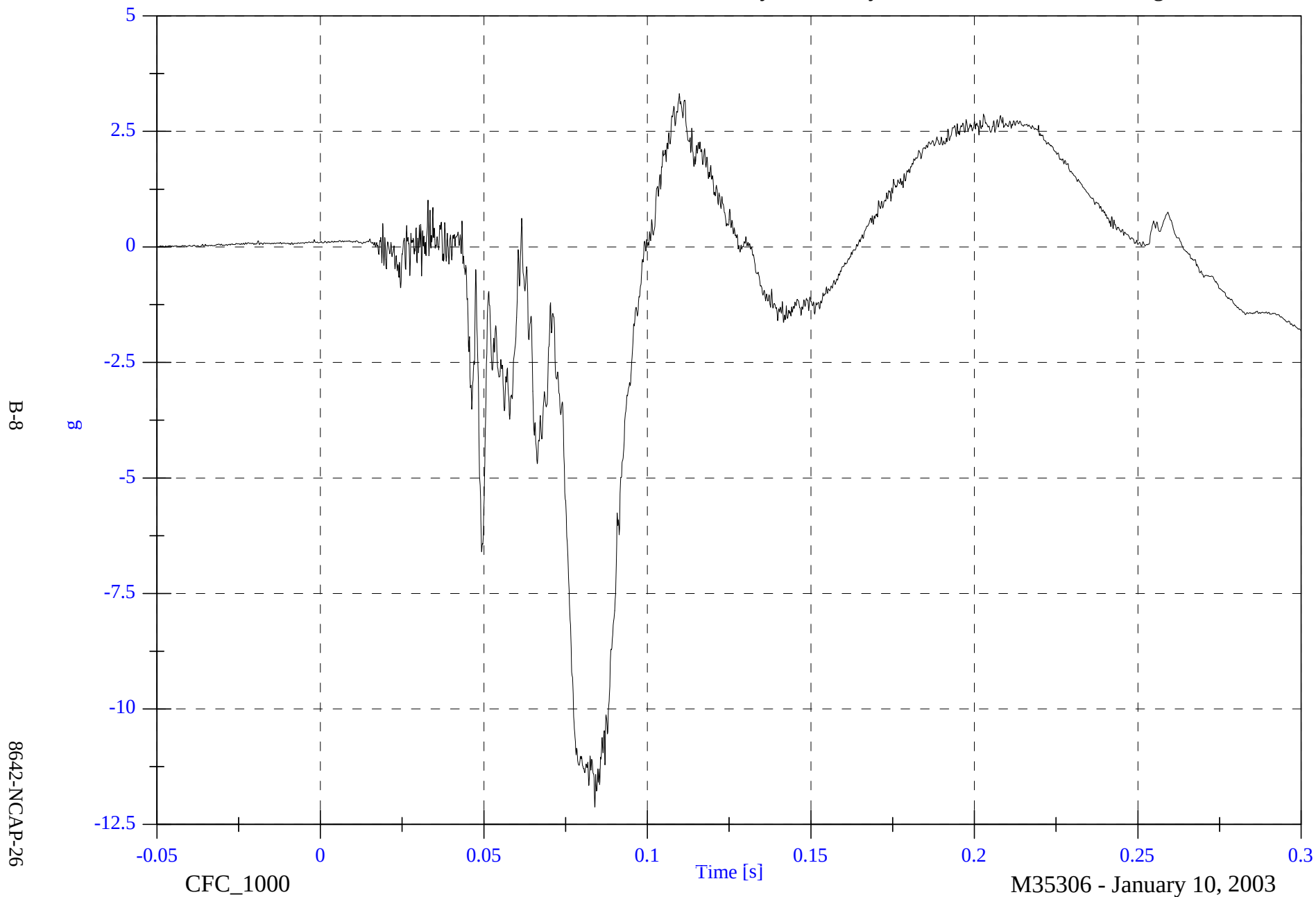
PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
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146	B1 LCB2 Fx [N, CFC_60]	B-153
147	B1 LCB3 Fx [N, CFC_60]	B-154
148	B1 LCB4 Fx [N, CFC_60]	B-155
149	B1 LCB5 Fx [N, CFC_60]	B-156
150	B1 LCB6 Fx [N, CFC_60]	B-157
151	B1 LCB7 Fx [N, CFC_60]	B-158
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163	B1 LCD1 Fx [N, CFC_60]	B-170
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2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Head 9 Array X Arm Ay

Max: 3.3 [g] at 0.110 [s]

Min: -12.1 [g] at 0.084 [s]

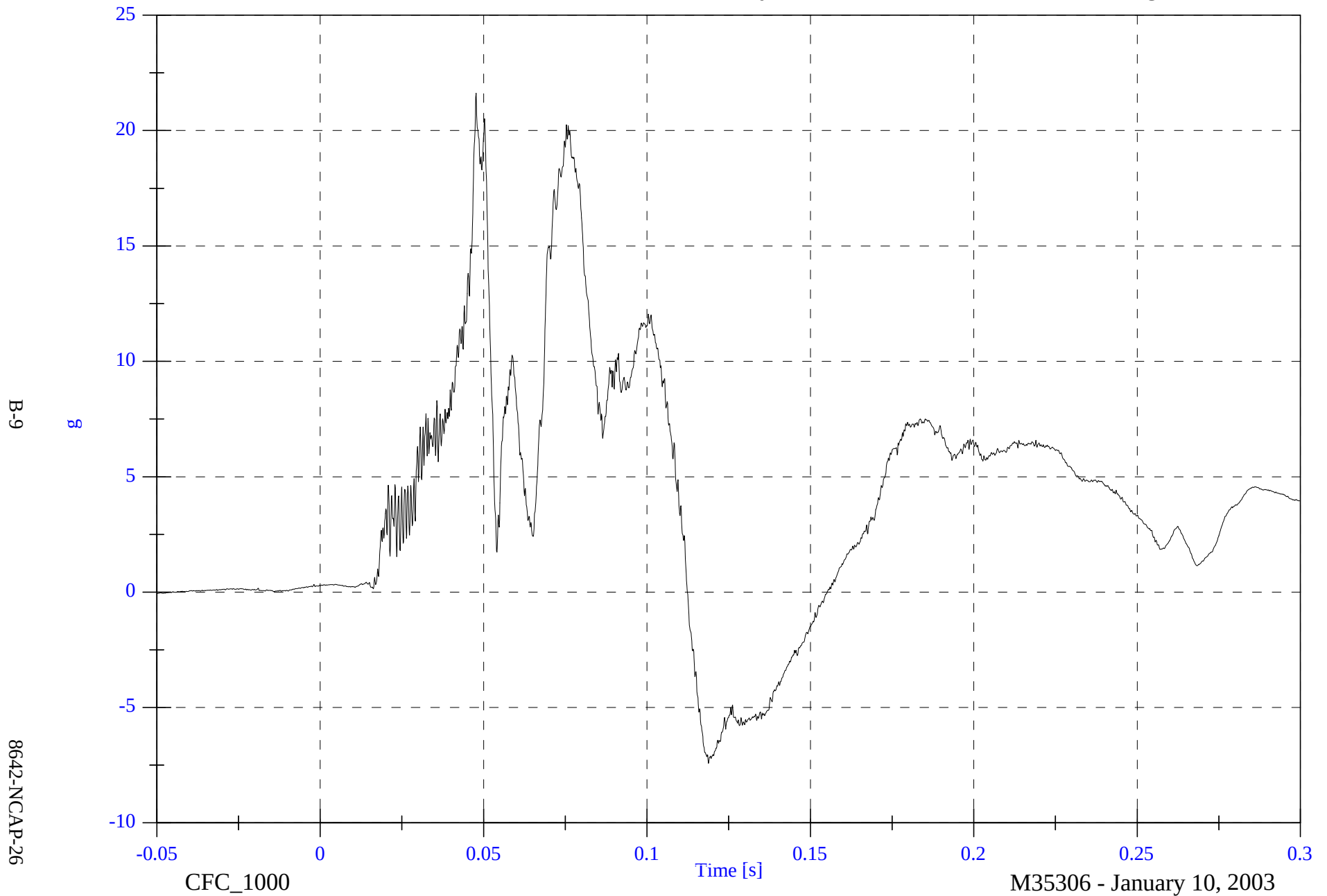


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Head 9 Array X Arm Az

Max: 21.6 [g] at 0.048 [s]

Min: -7.4 [g] at 0.119 [s]

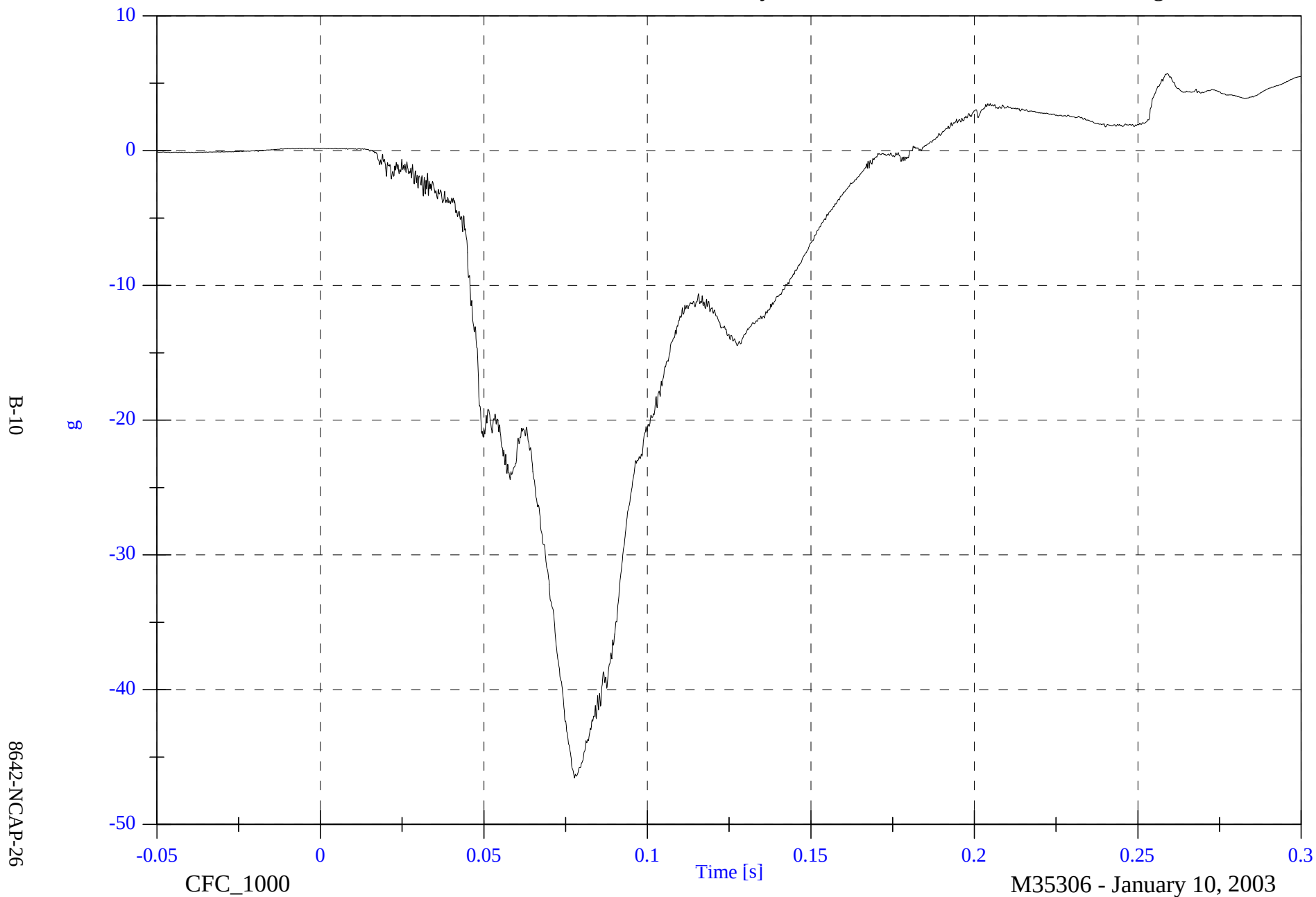


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Head 9 Array Y Arm Ax

Max: 5.7 [g] at 0.259 [s]

Min: -46.6 [g] at 0.078 [s]

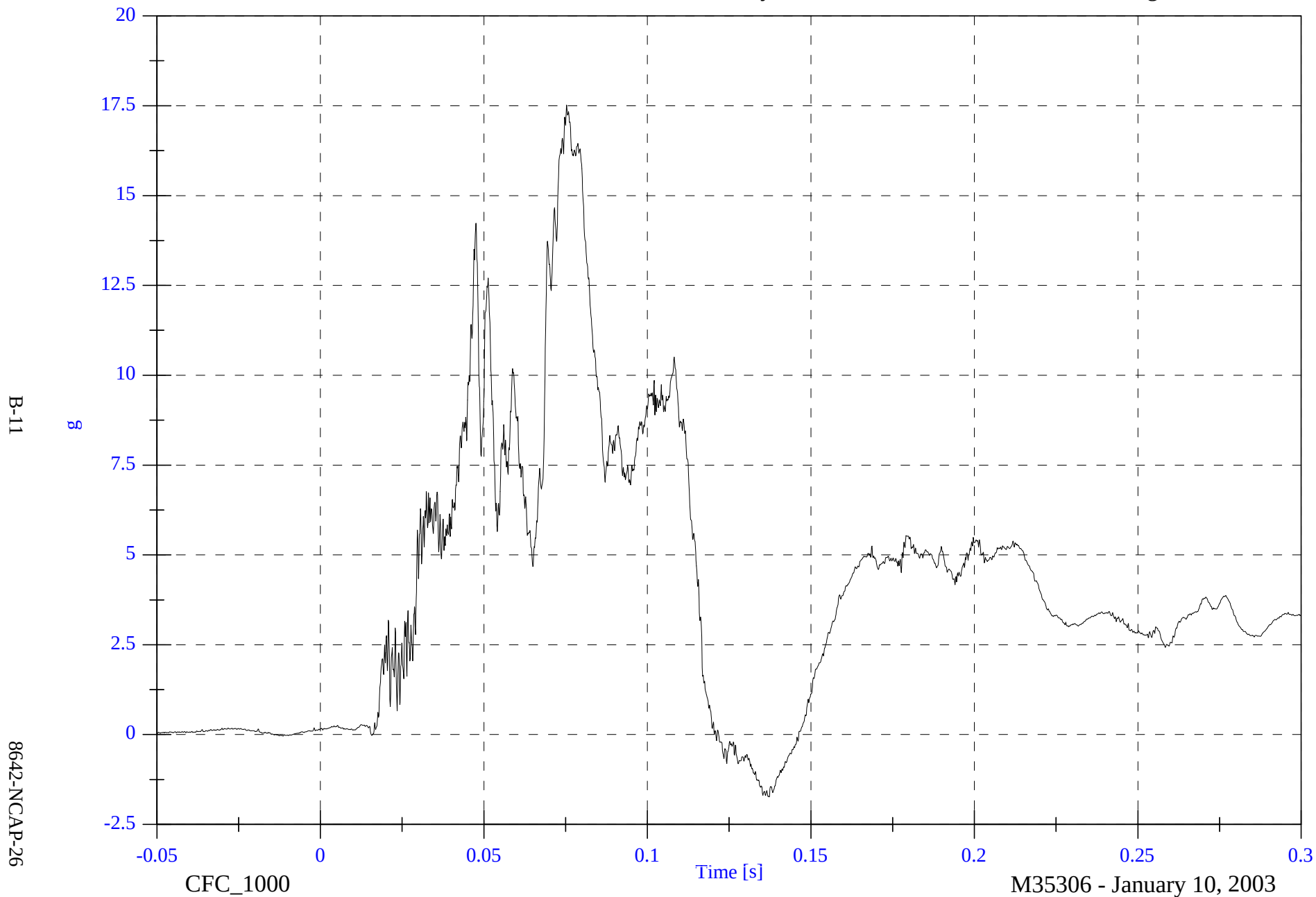


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Head 9 Array Y Arm Az

Max: 17.5 [g] at 0.075 [s]

Min: -1.7 [g] at 0.137 [s]

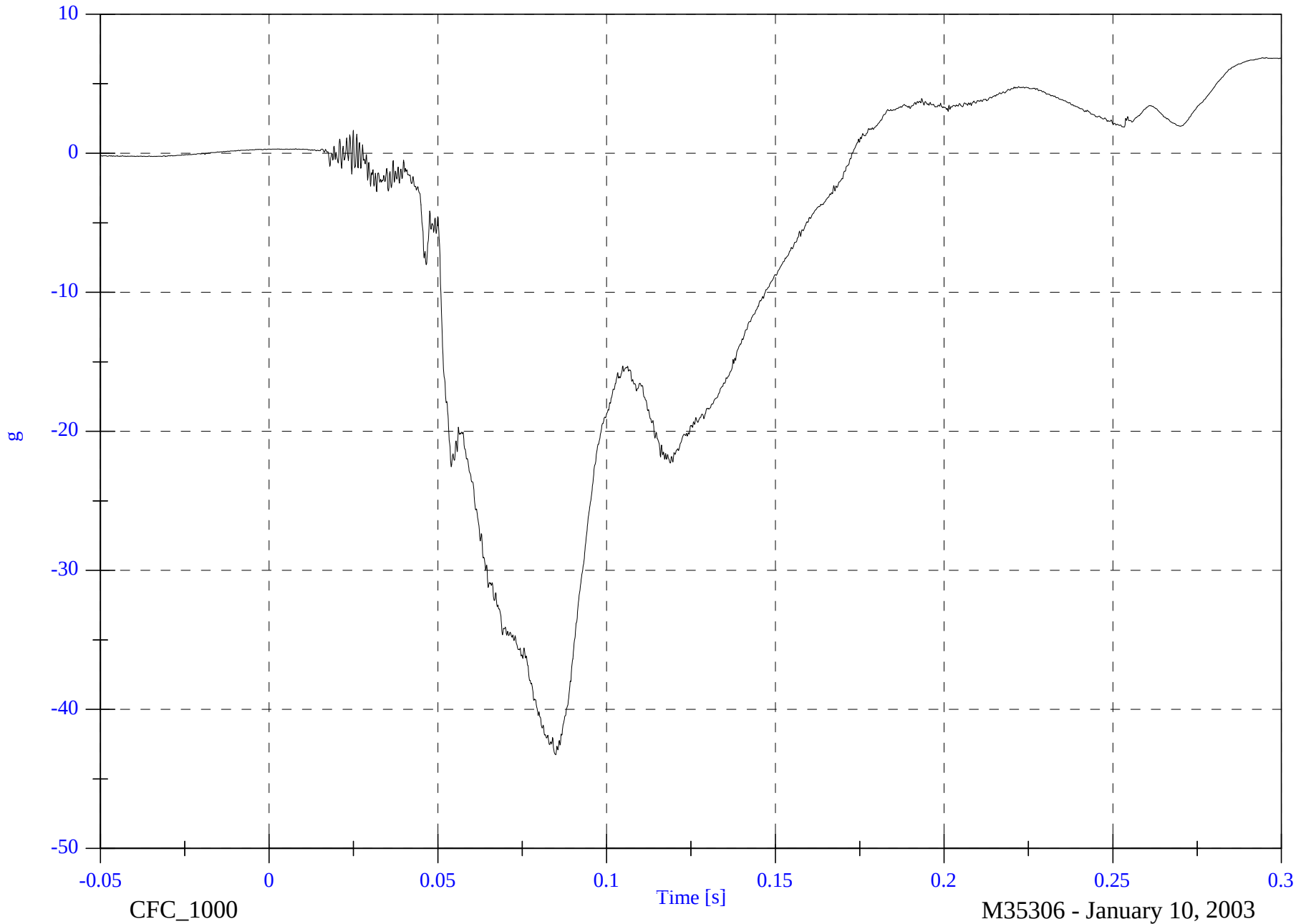


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Head 9 Array Z Arm Ax

Max: 6.9 [g] at 0.295 [s]

Min: -43.3 [g] at 0.085 [s]



B-12

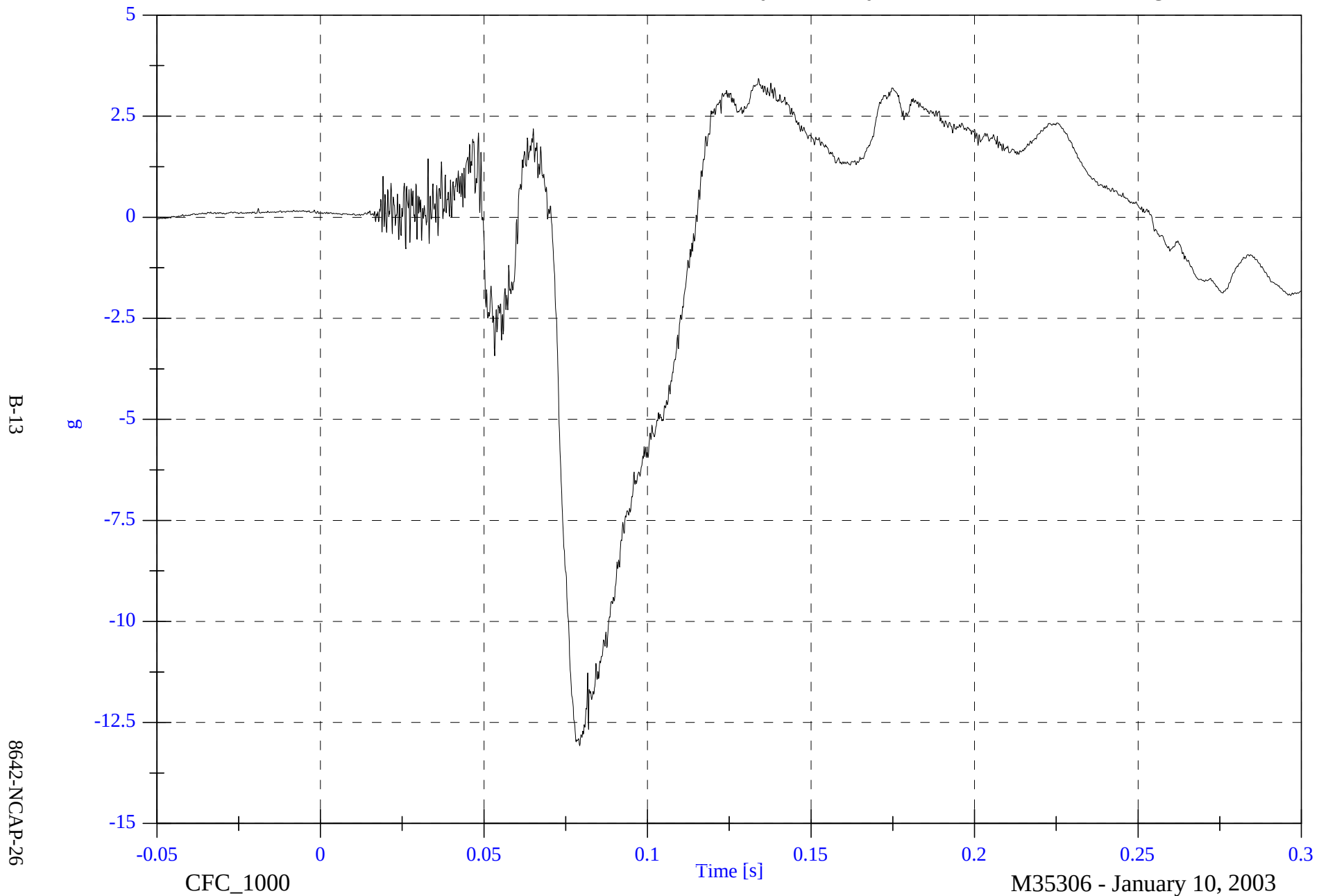
8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Head 9 Array Z Arm Ay

Max: 3.4 [g] at 0.134 [s]

Min: -13.1 [g] at 0.079 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

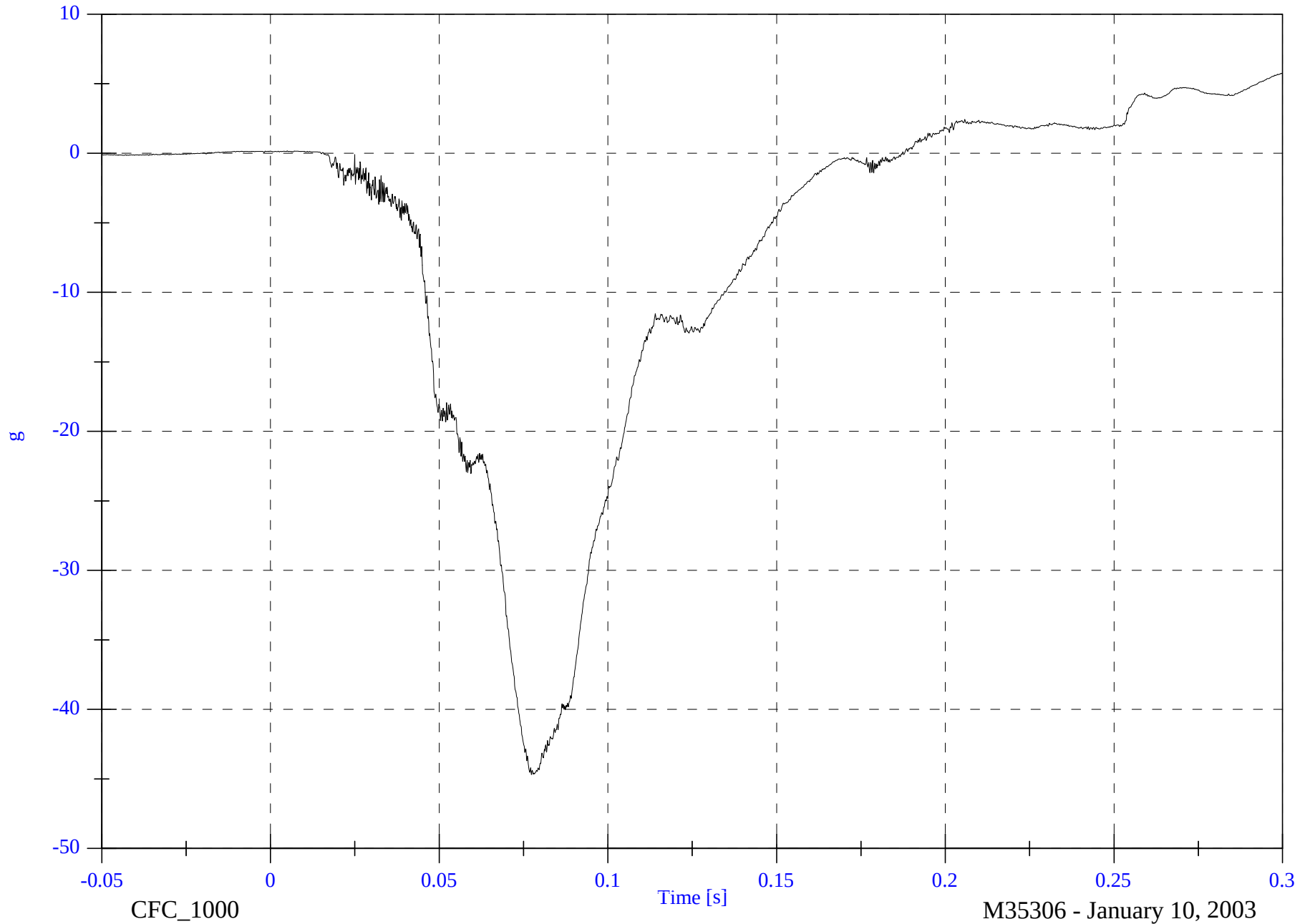
V1P1 Head CG x

Max: 5.8 [g] at 0.300 [s]

Min: -44.7 [g] at 0.077 [s]

B-14

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

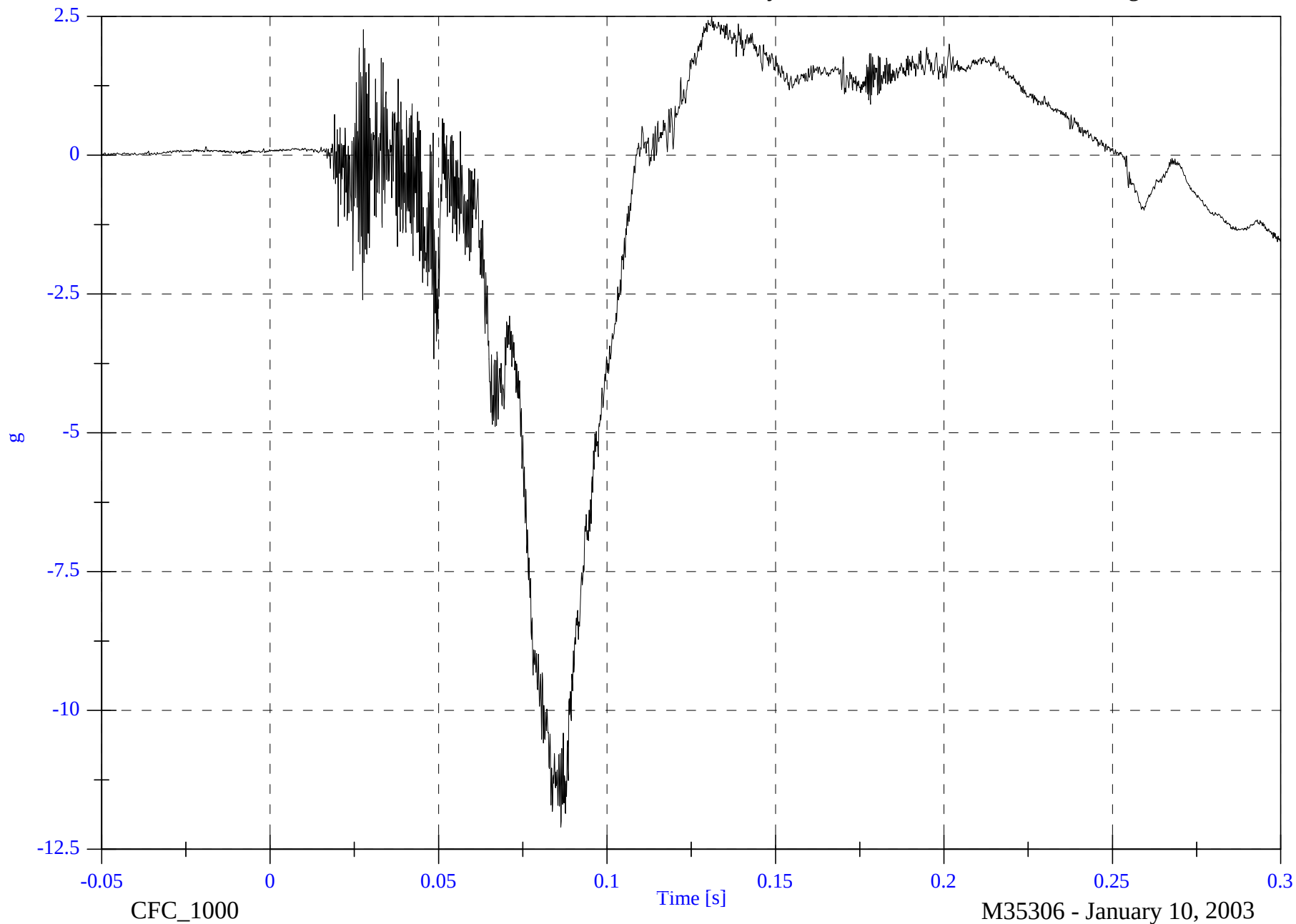
V1P1 Head CG y

Max: 2.5 [g] at 0.131 [s]

Min: -12.1 [g] at 0.086 [s]

B-15

8642-NCAP-26

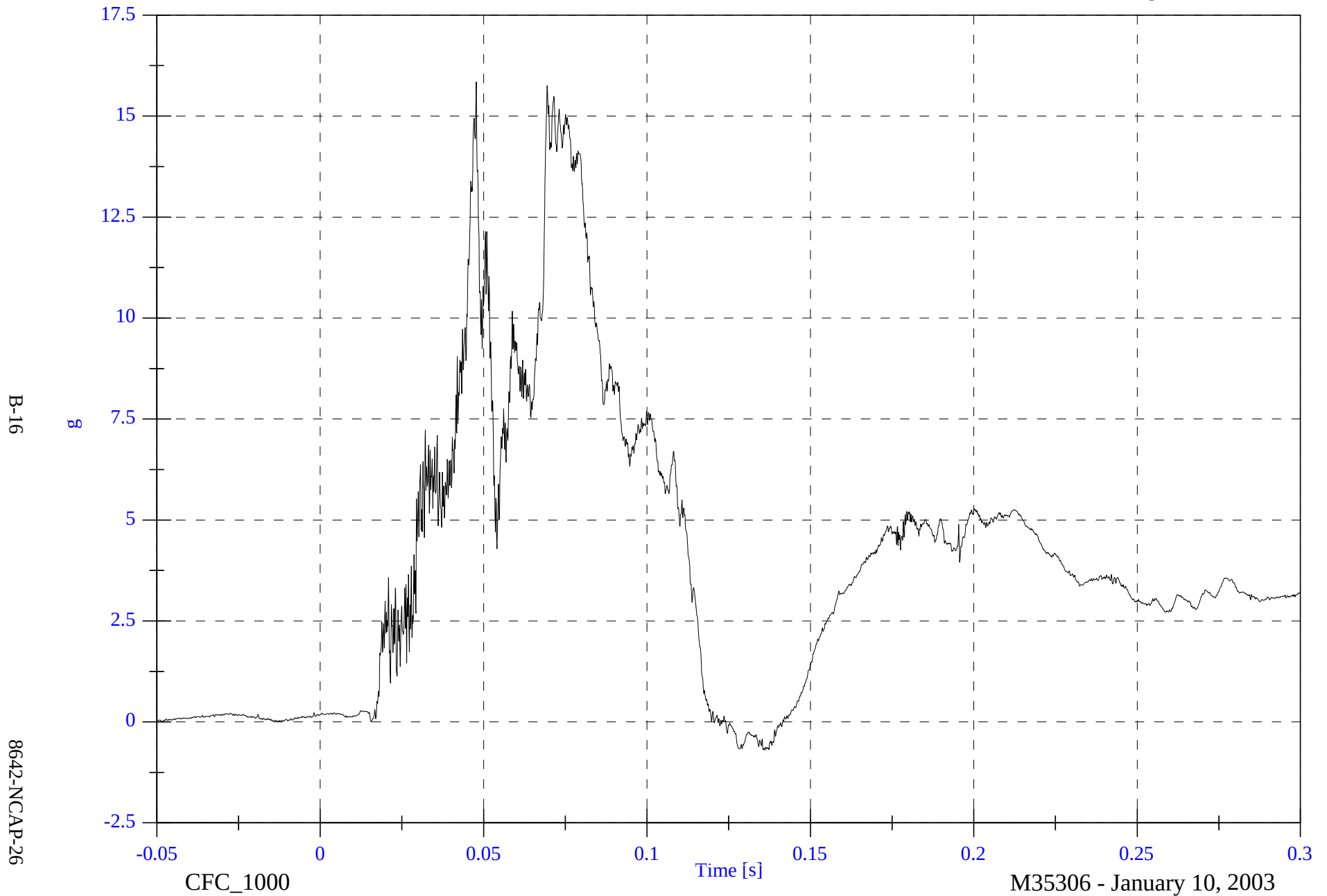


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Head CG z

Max: 15.8 [g] at 0.048 [s]

Min: -0.7 [g] at 0.136 [s]

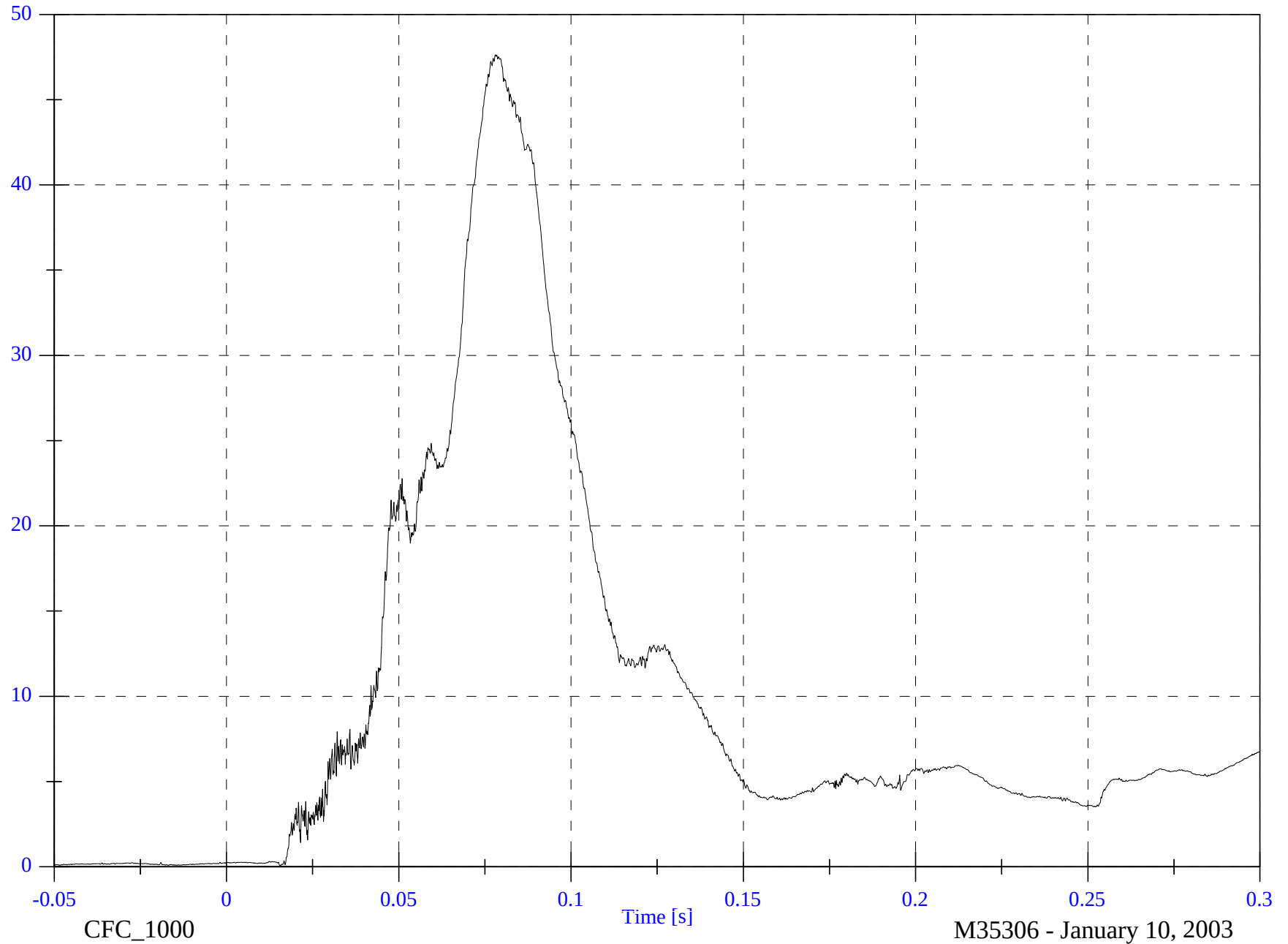


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Head CG Resultant

Max: 47.6 [g] at 0.078 [s]

Min: 0.1 [g] at 0.016 [s]



B-17

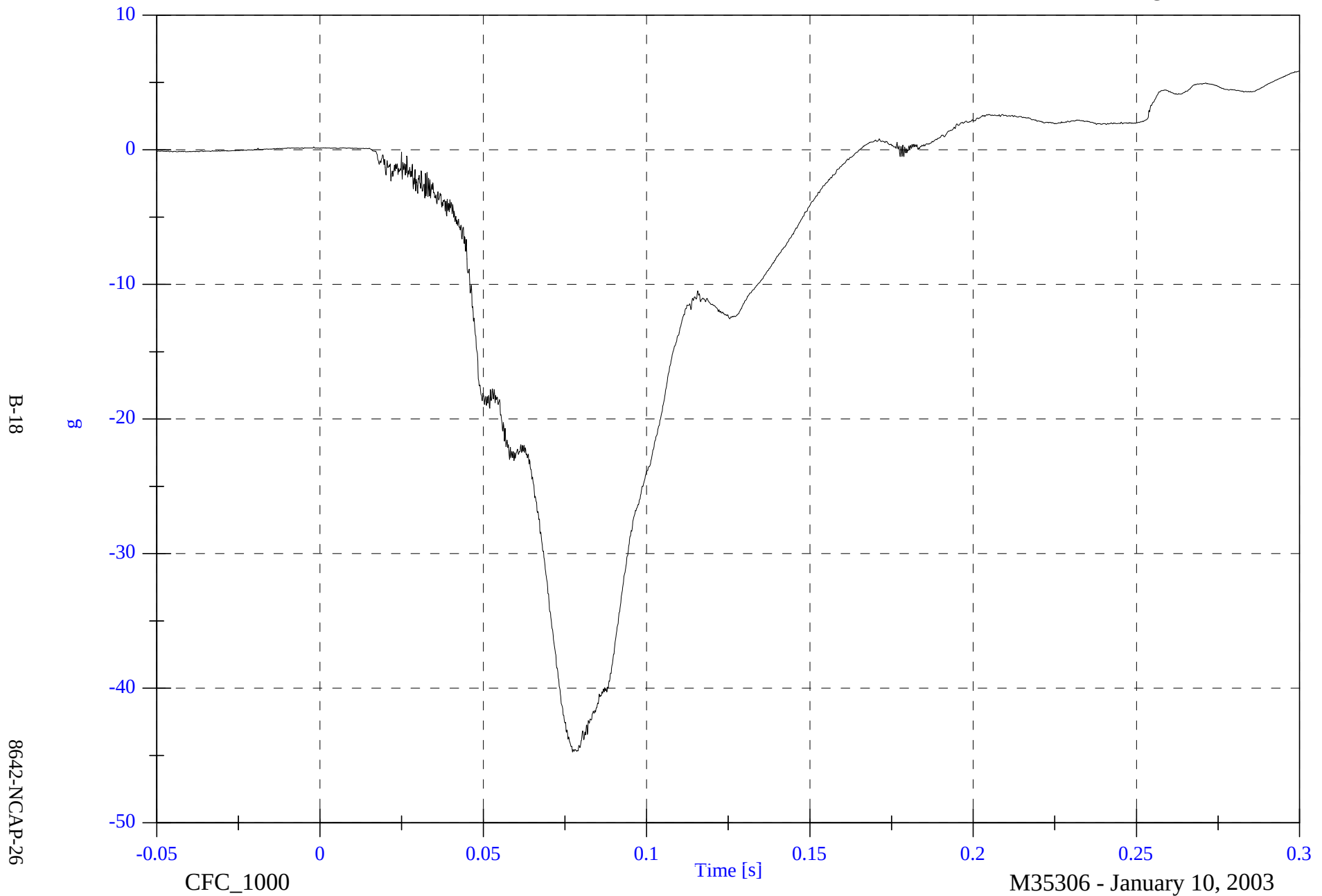
8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Head CG Red x

Max: 5.9 [g] at 0.300 [s]

Min: -44.7 [g] at 0.077 [s]

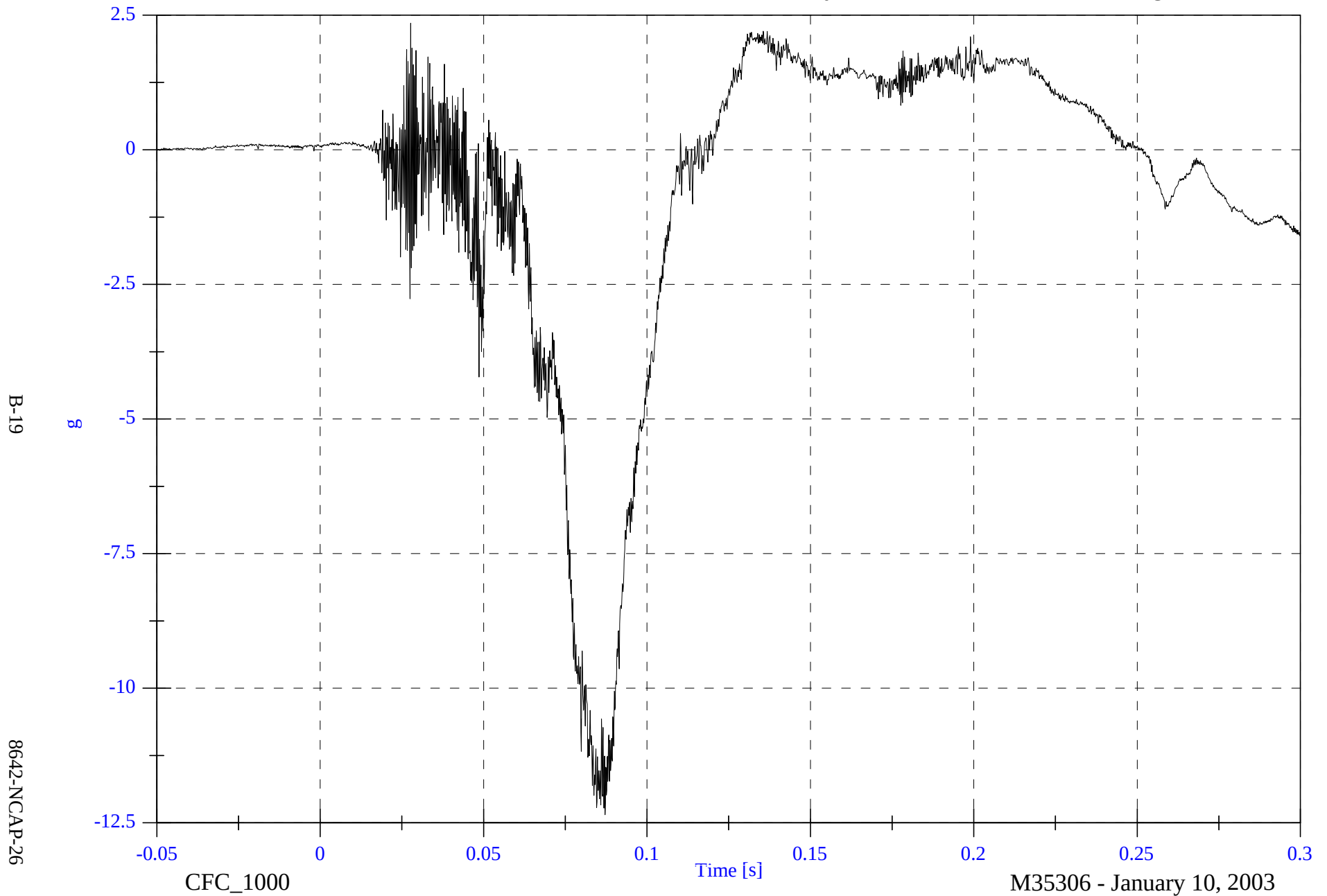


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Head CG Red y

Max: 2.4 [g] at 0.028 [s]

Min: -12.3 [g] at 0.087 [s]

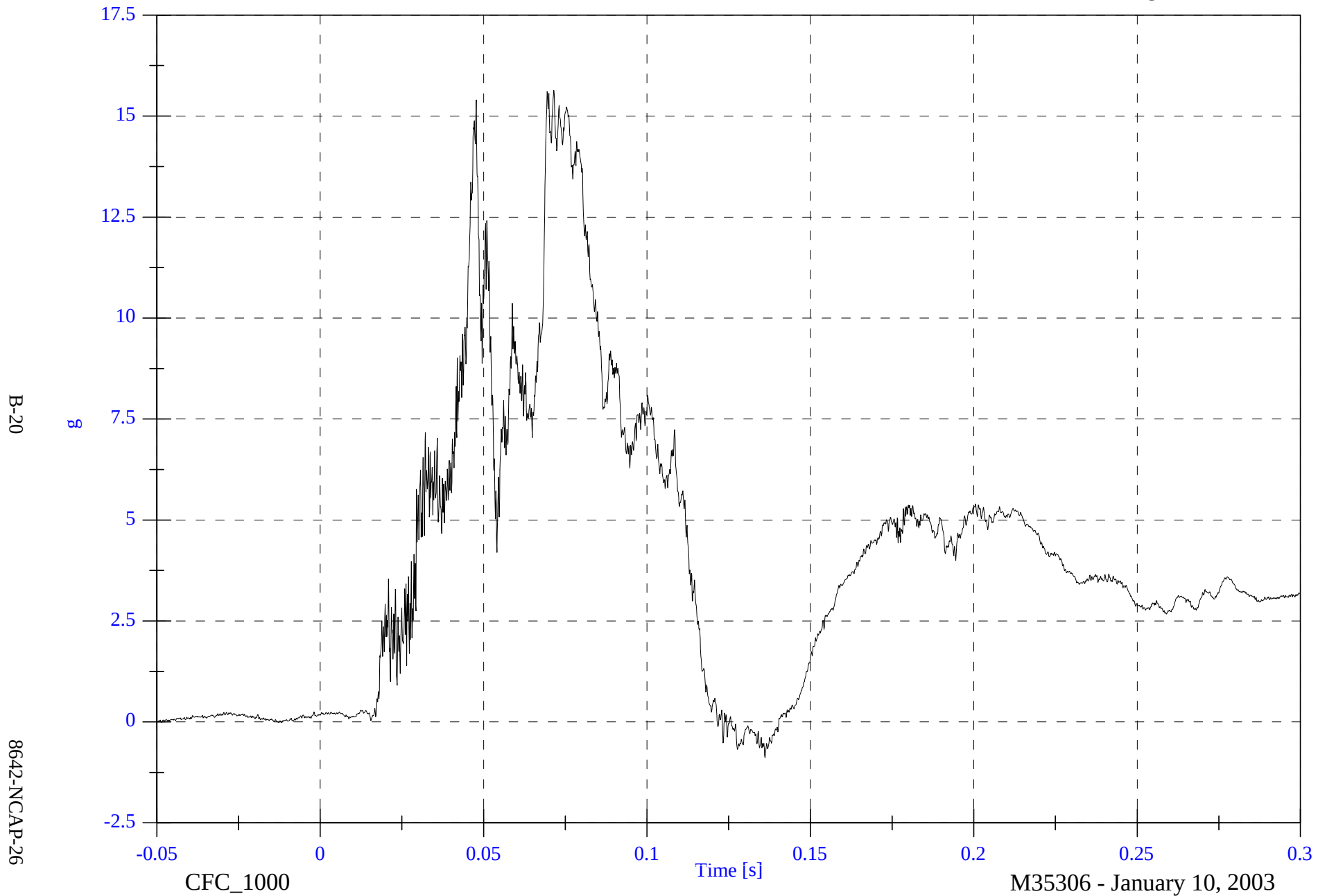


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Head CG Red z

Max: 15.6 [g] at 0.072 [s]

Min: -0.9 [g] at 0.136 [s]

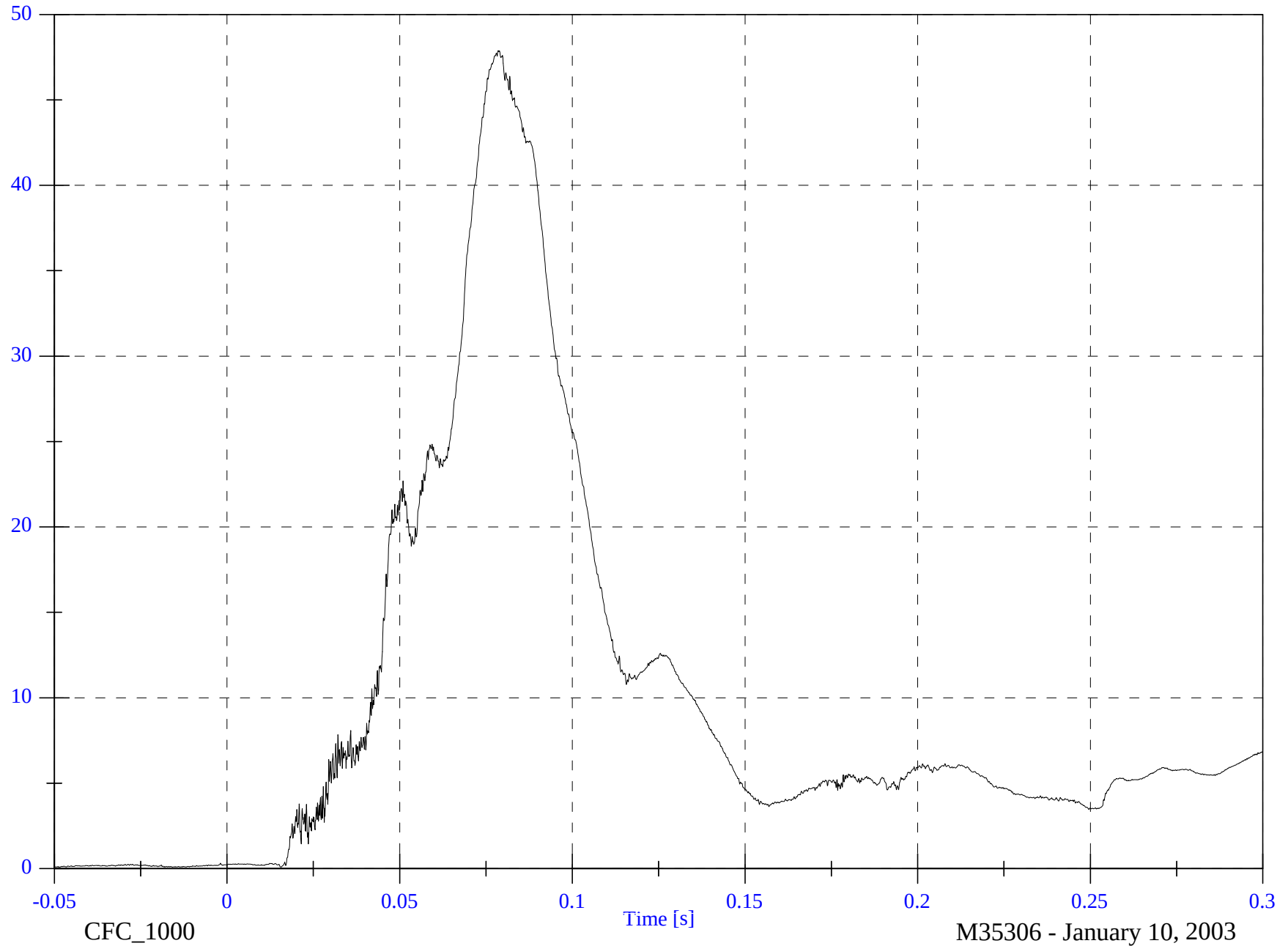


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Head CG Red Resultant

Max: 47.9 [g] at 0.079 [s]

Min: 0.1 [g] at -0.016 [s]



B-21

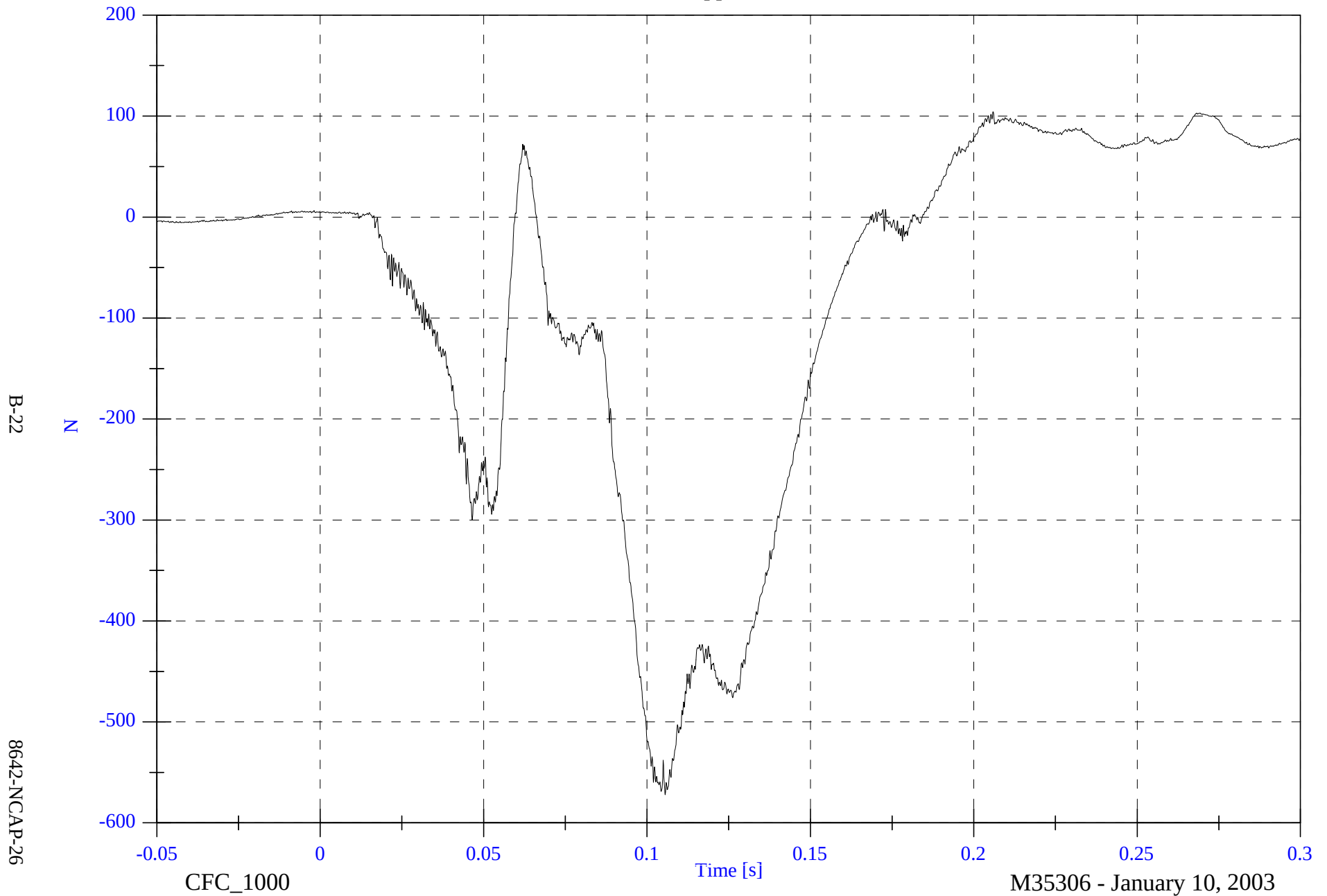
8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Upper Neck Fx

Max: 104.2 [N] at 0.206 [s]

Min: -572.4 [N] at 0.106 [s]

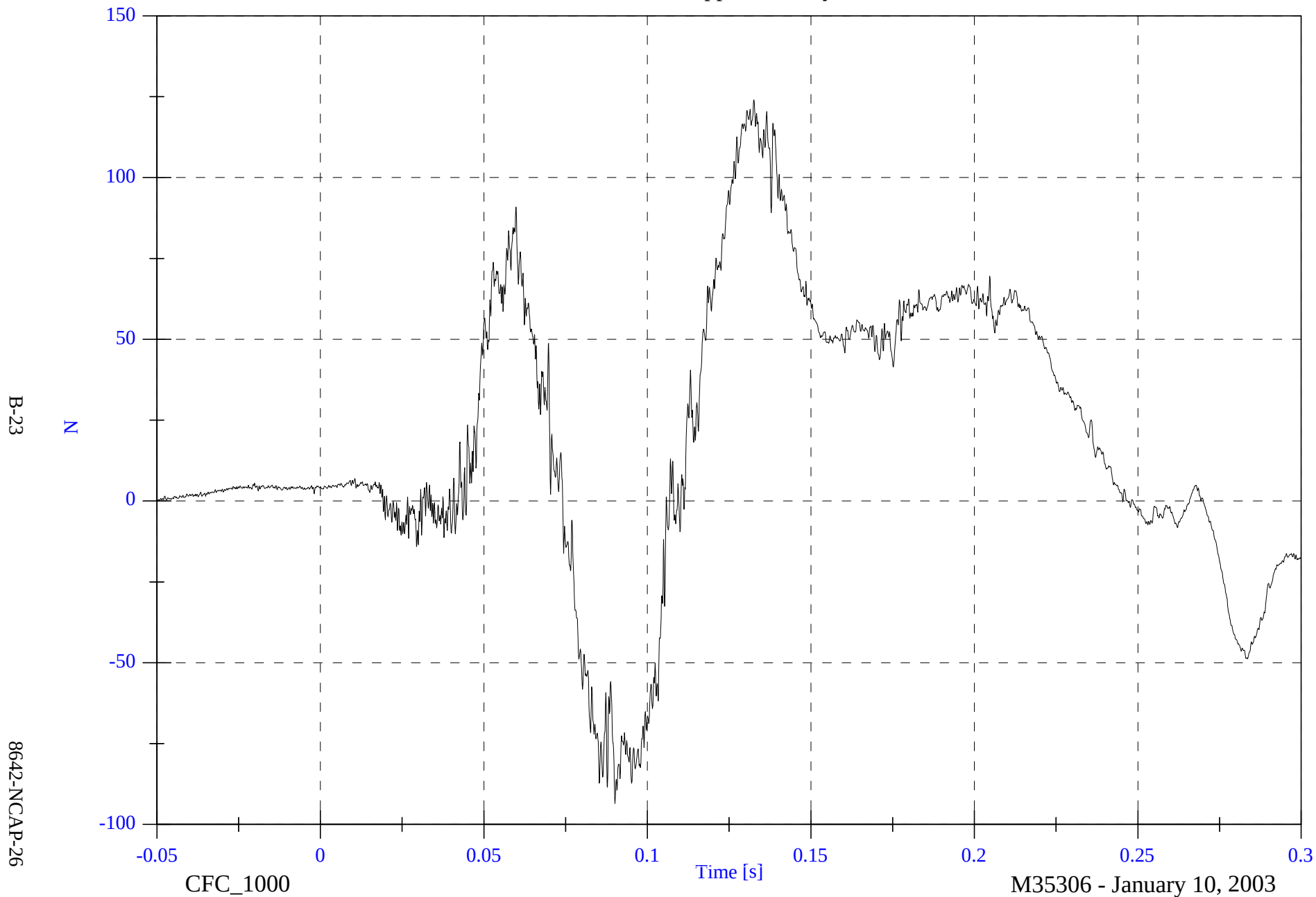


2003 NCAP Test #4 - 2003 Honda Odyssey

Max: 124.1 [N] at 0.133 [s]

Min: -93.5 [N] at 0.090 [s]

V1P1 Upper Neck Fy

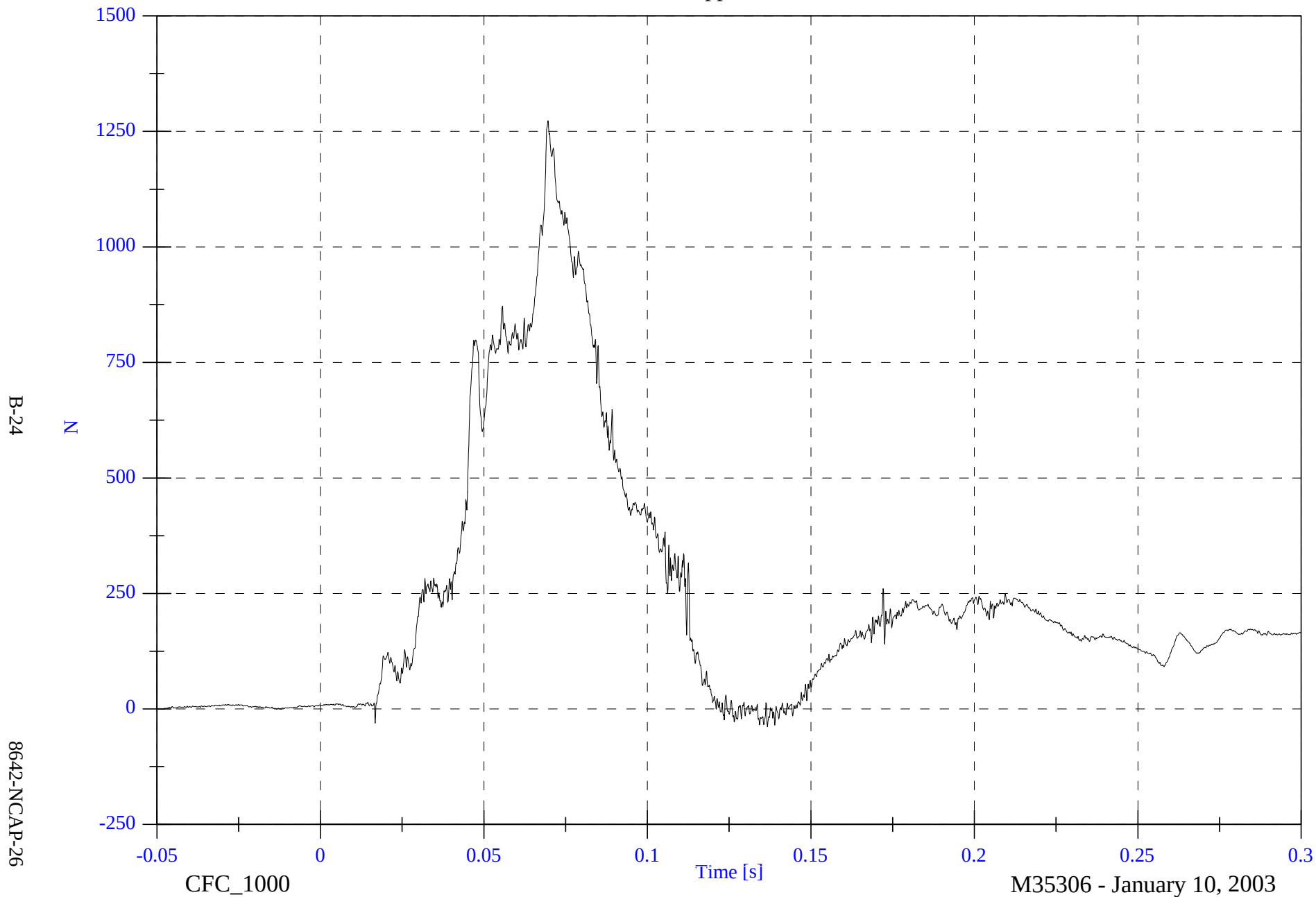


2003 NCAP Test #4 - 2003 Honda Odyssey

Max: 1273.2 [N] at 0.070 [s]

Min: -39.2 [N] at 0.137 [s]

V1P1 Upper Neck Fz

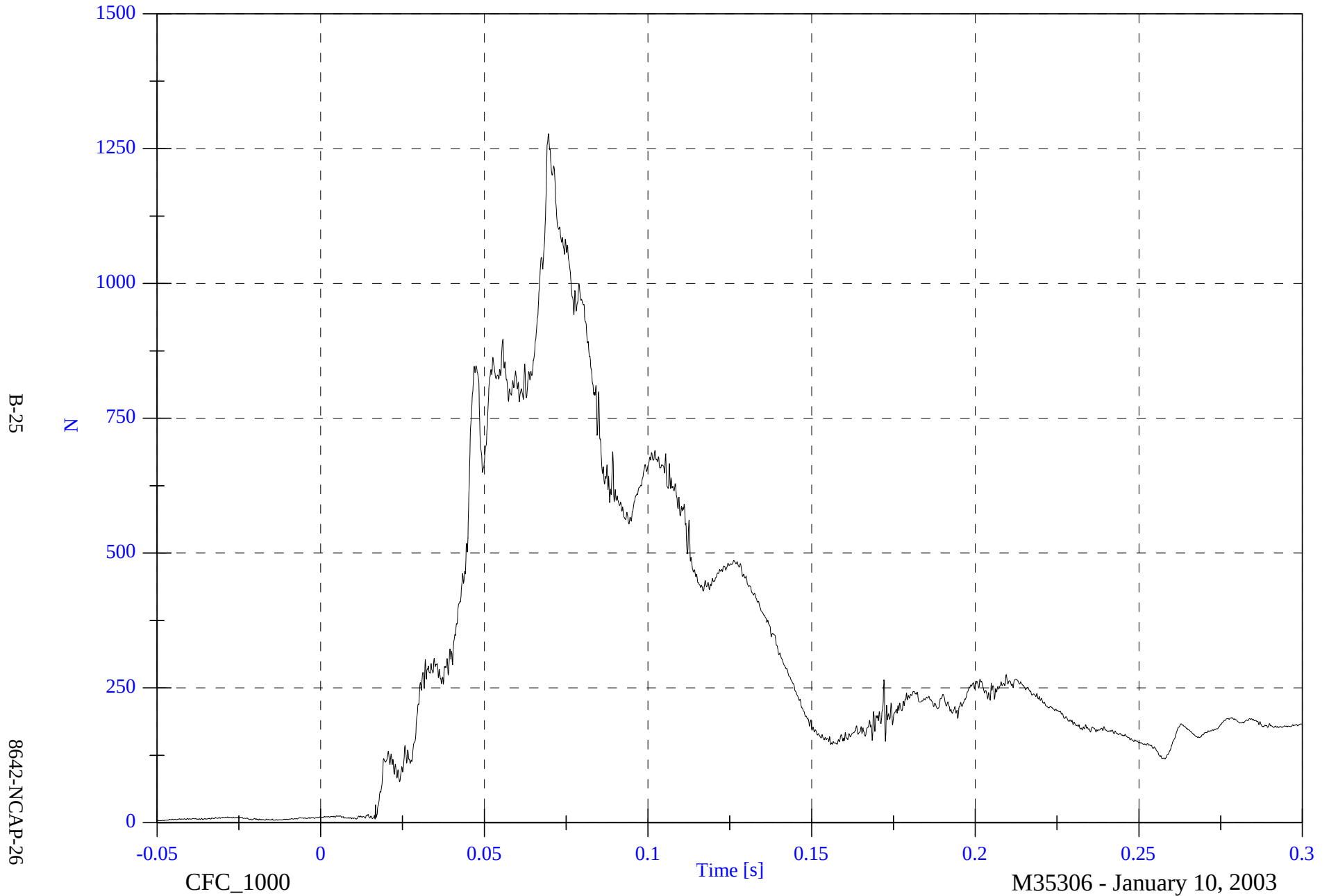


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Upper Neck F Resultant

Max: 1277.5 [N] at 0.070 [s]

Min: 3.6 [N] at -0.050 [s]

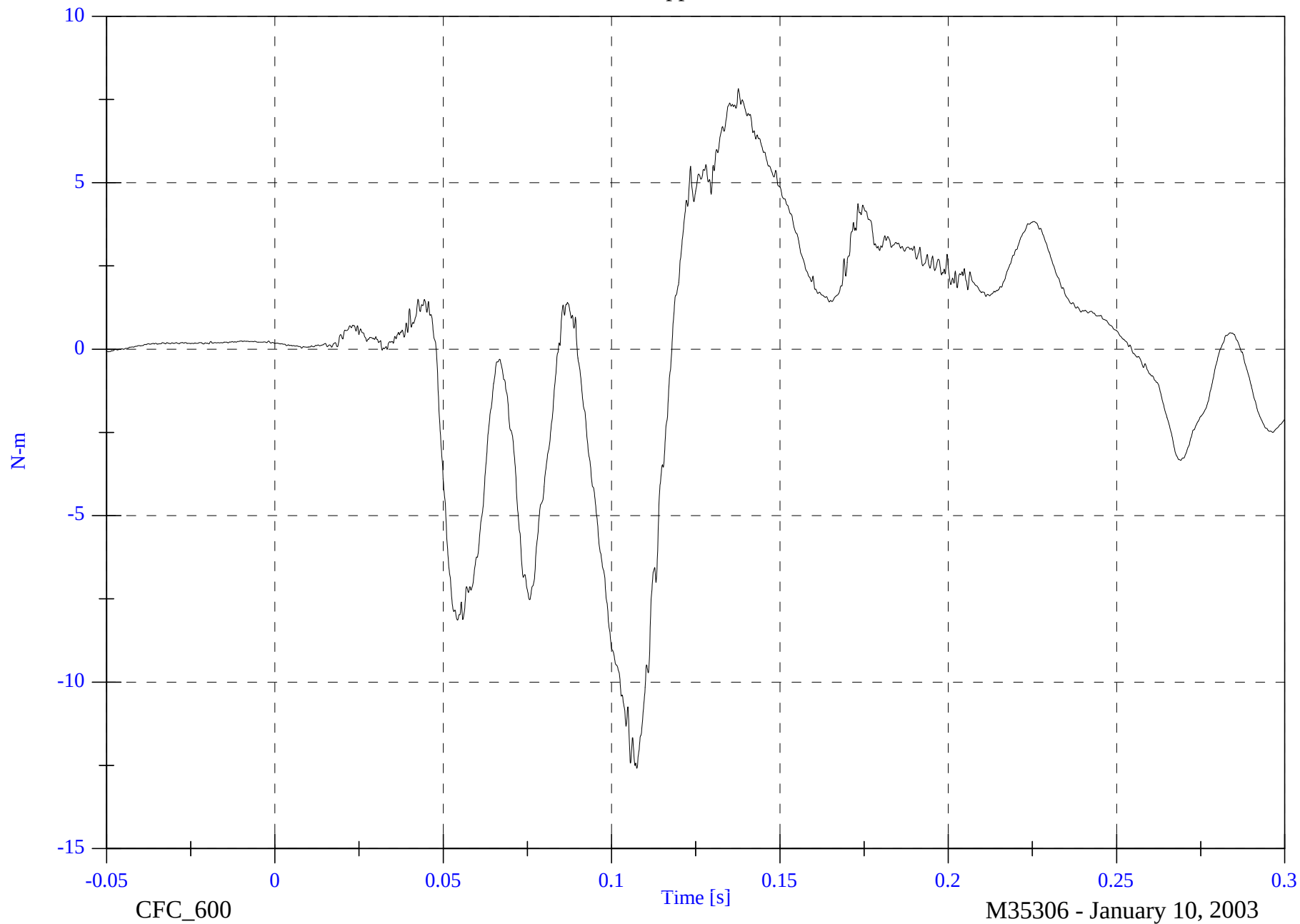


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Upper Neck Mx

Max: 7.8 [N-m] at 0.138 [s]

Min: -12.6 [N-m] at 0.107 [s]



B-26

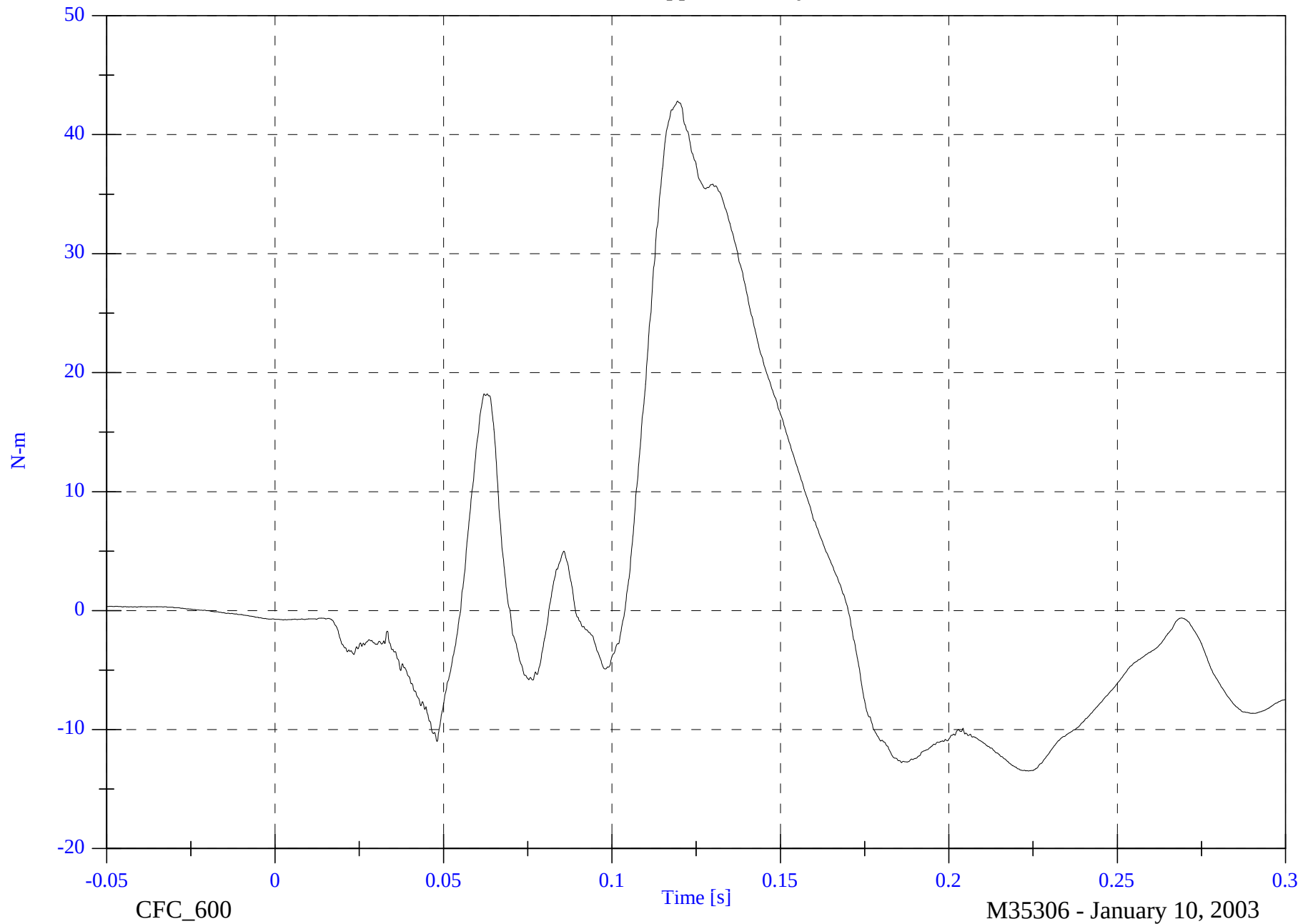
8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Upper Neck My

Max: 42.8 [N-m] at 0.119 [s]

Min: -13.5 [N-m] at 0.223 [s]



B-27

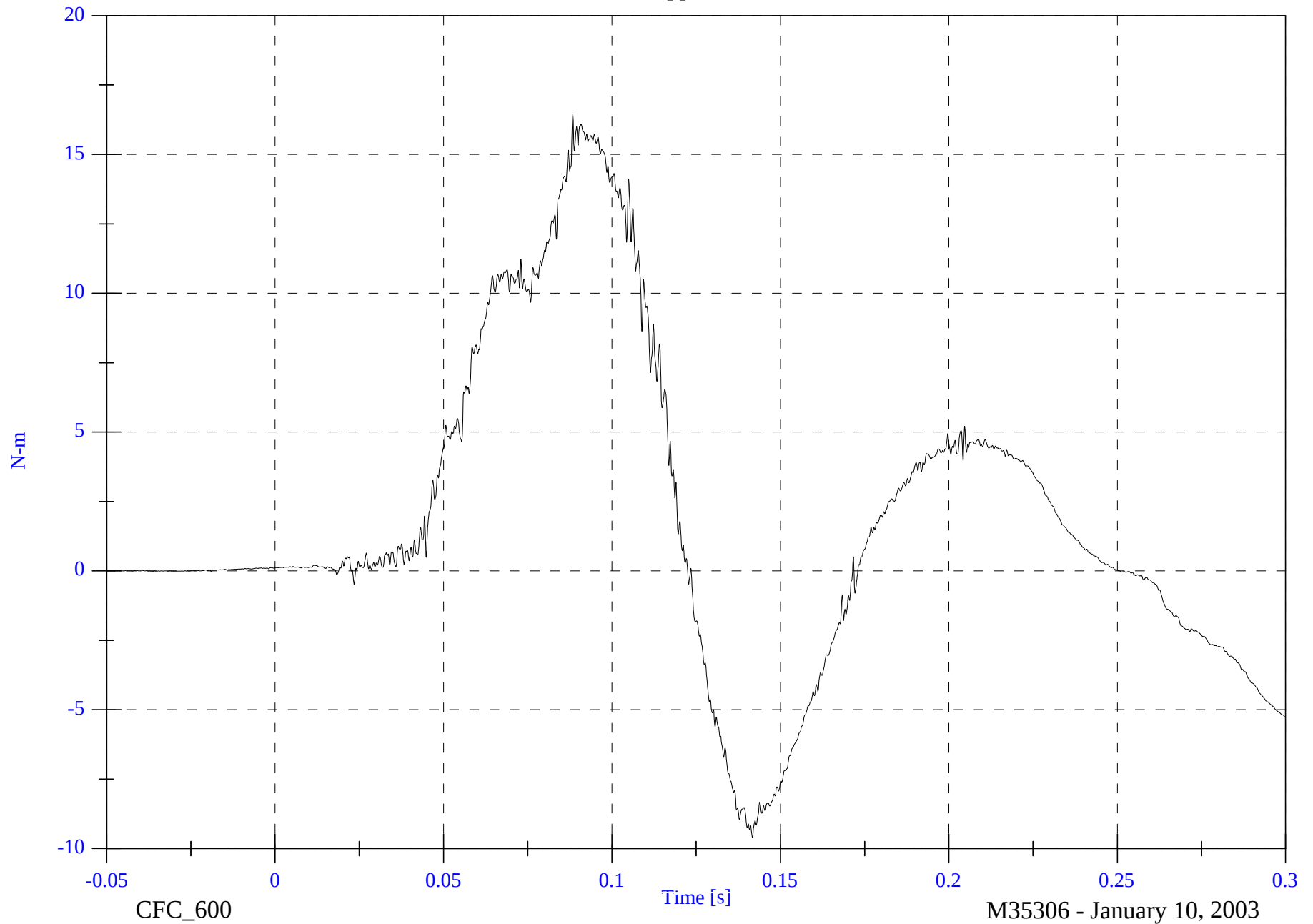
8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Upper Neck Mz

Max: 16.5 [N-m] at 0.088 [s]

Min: -9.6 [N-m] at 0.142 [s]



B-28

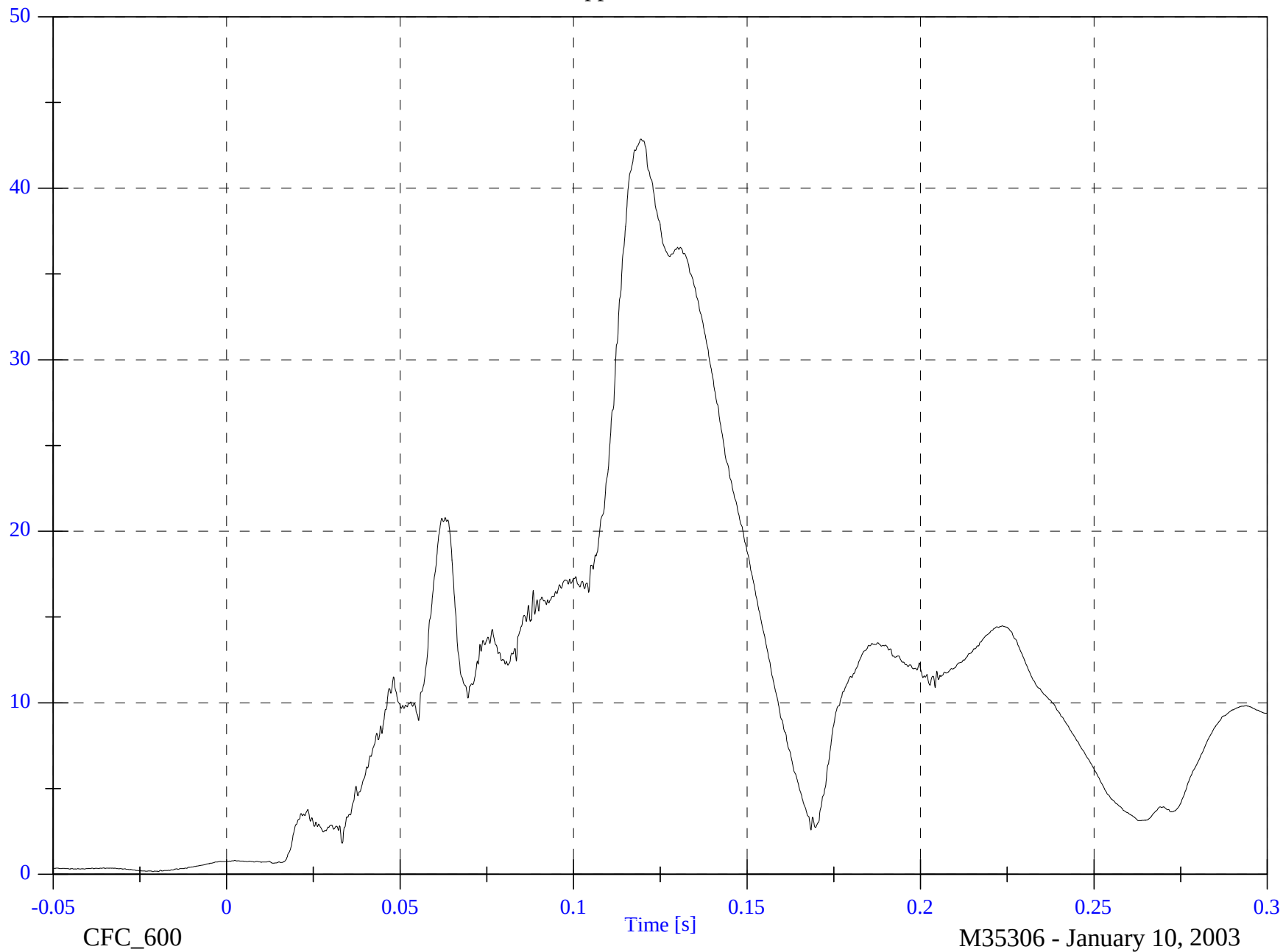
8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Upper Neck M Resultant

Max: 42.9 [N-m] at 0.119 [s]

Min: 0.2 [N-m] at -0.021 [s]



B-29

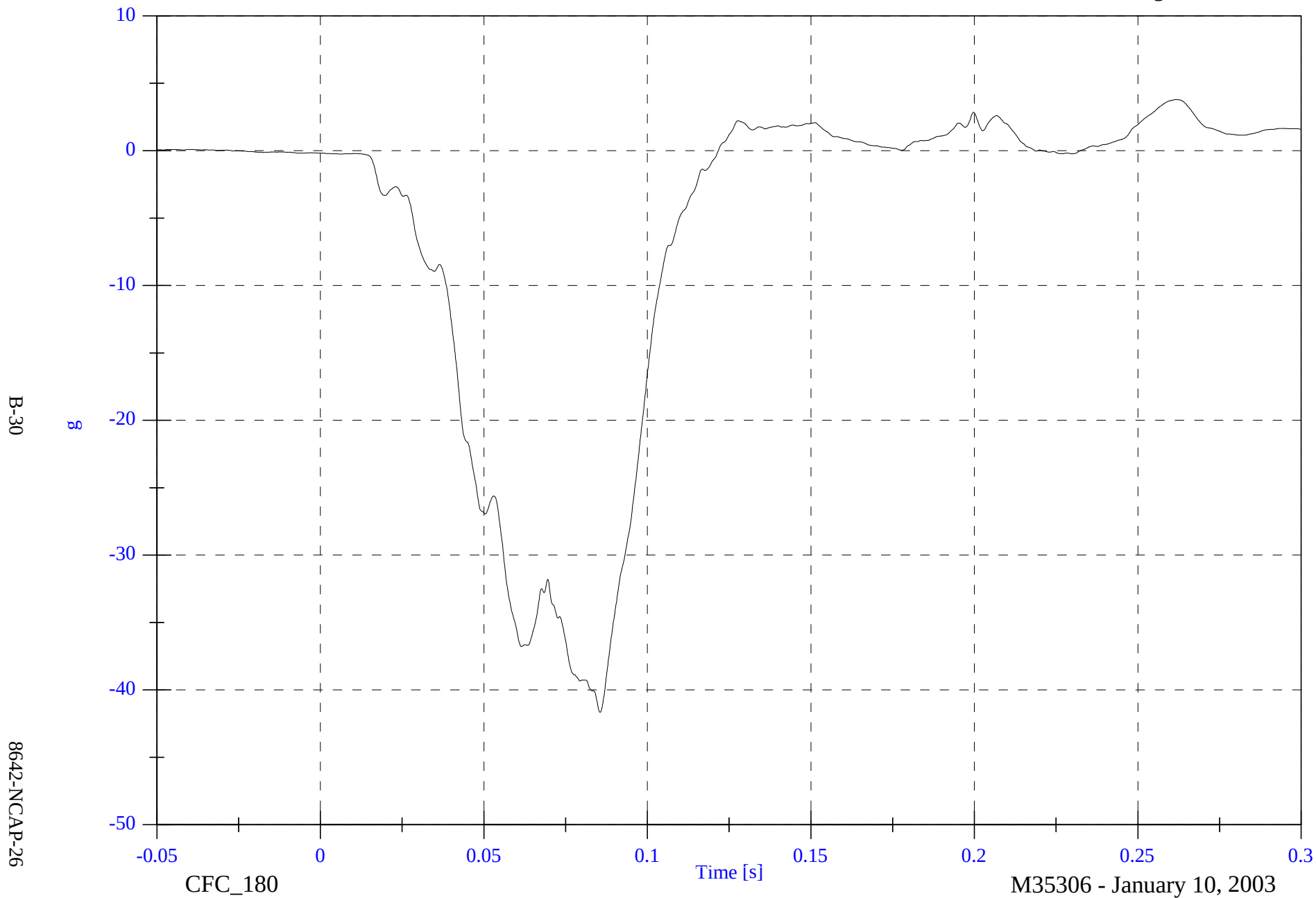
8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Chest x

Max: 3.8 [g] at 0.262 [s]

Min: -41.7 [g] at 0.086 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

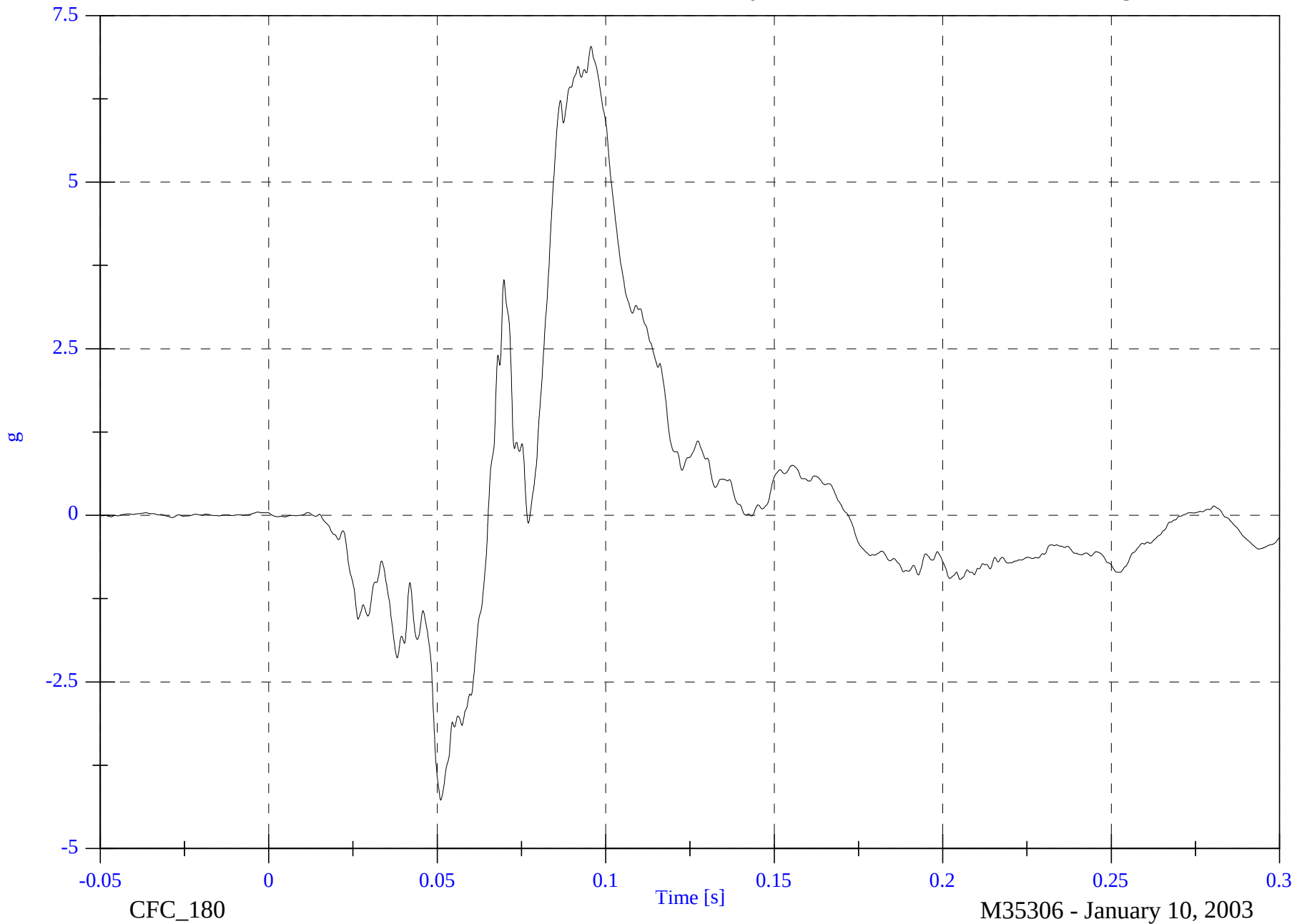
V1P1 Chest y

Max: 7.0 [g] at 0.096 [s]

Min: -4.3 [g] at 0.051 [s]

B-31

8642-NCAP-26

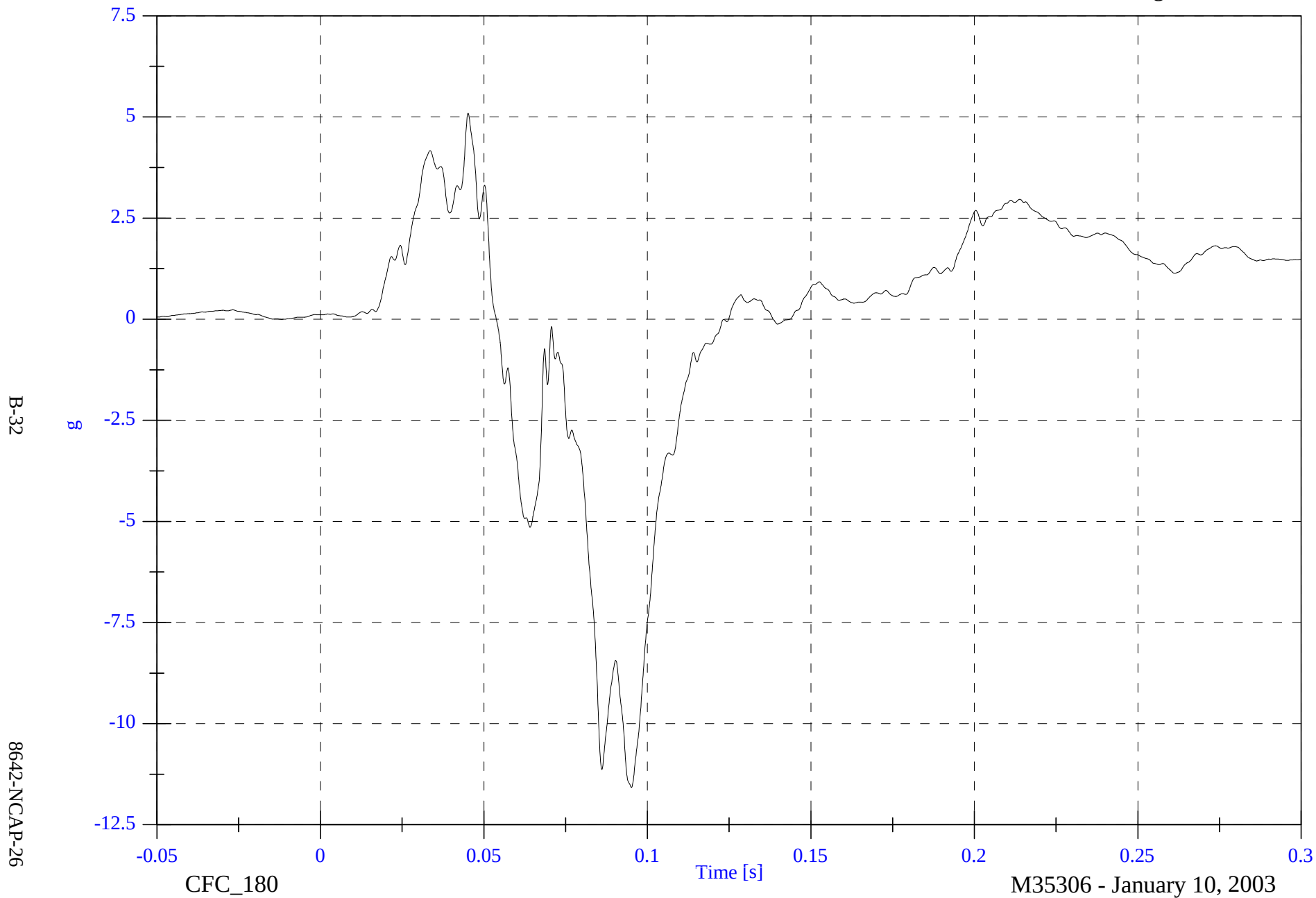


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Chest z

Max: 5.1 [g] at 0.045 [s]

Min: -11.6 [g] at 0.095 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

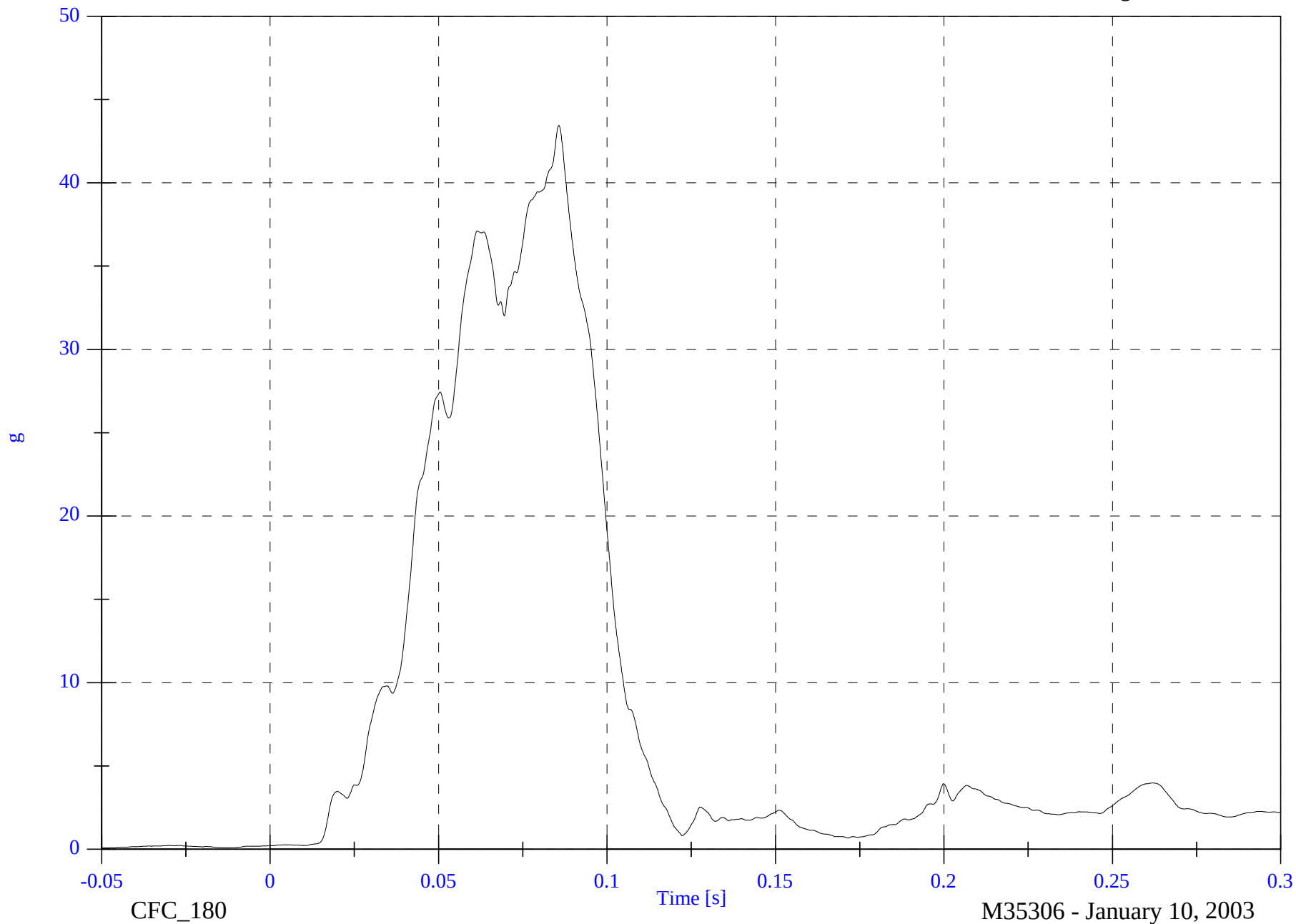
V1P1 Chest Resultant

Max: 43.5 [g] at 0.086 [s]

Min: 0.1 [g] at -0.050 [s]

B-33

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

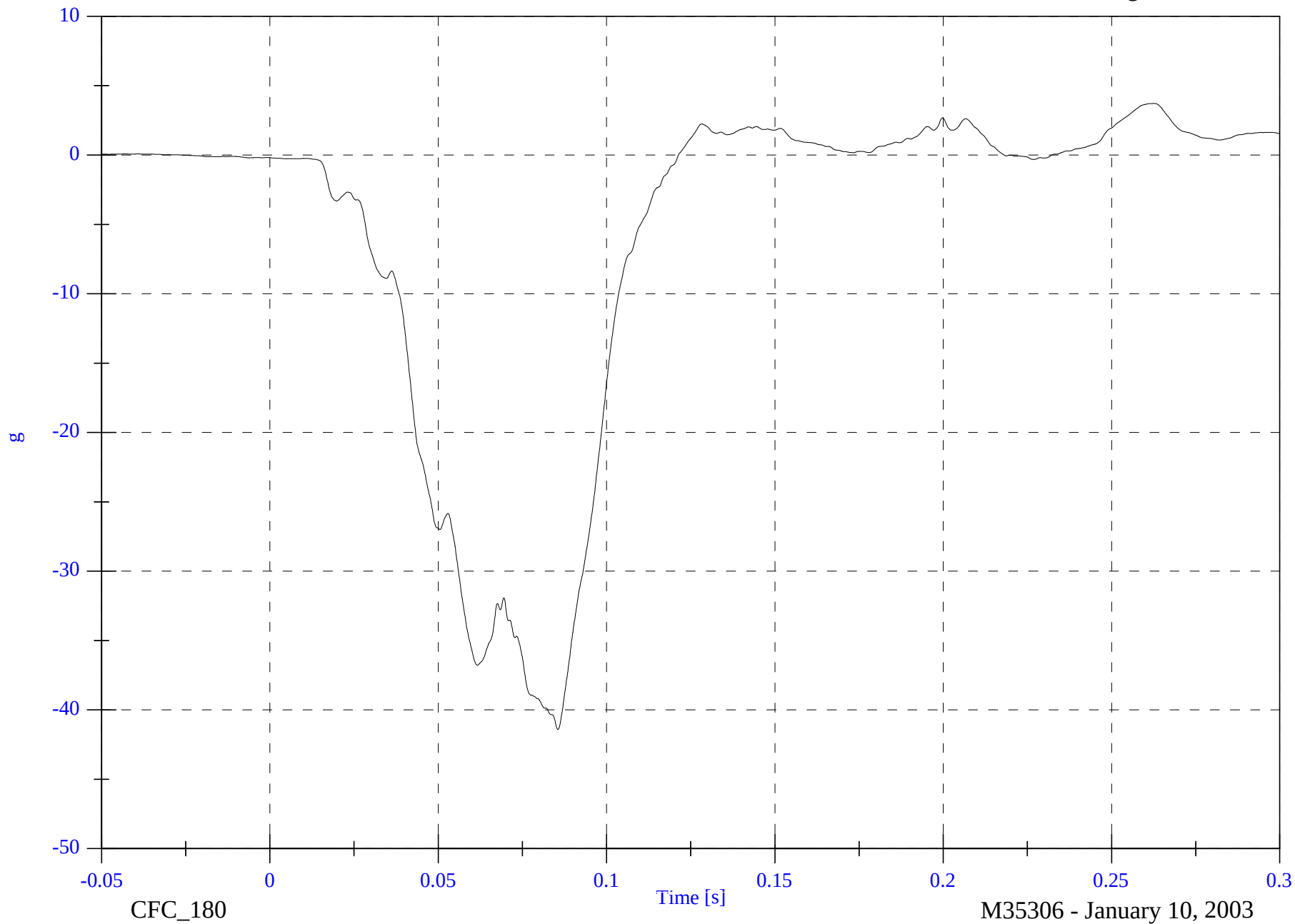
V1P1 Chest Red x

Max: 3.7 [g] at 0.262 [s]

Min: -41.4 [g] at 0.086 [s]

B-34

8642-NCAP-26

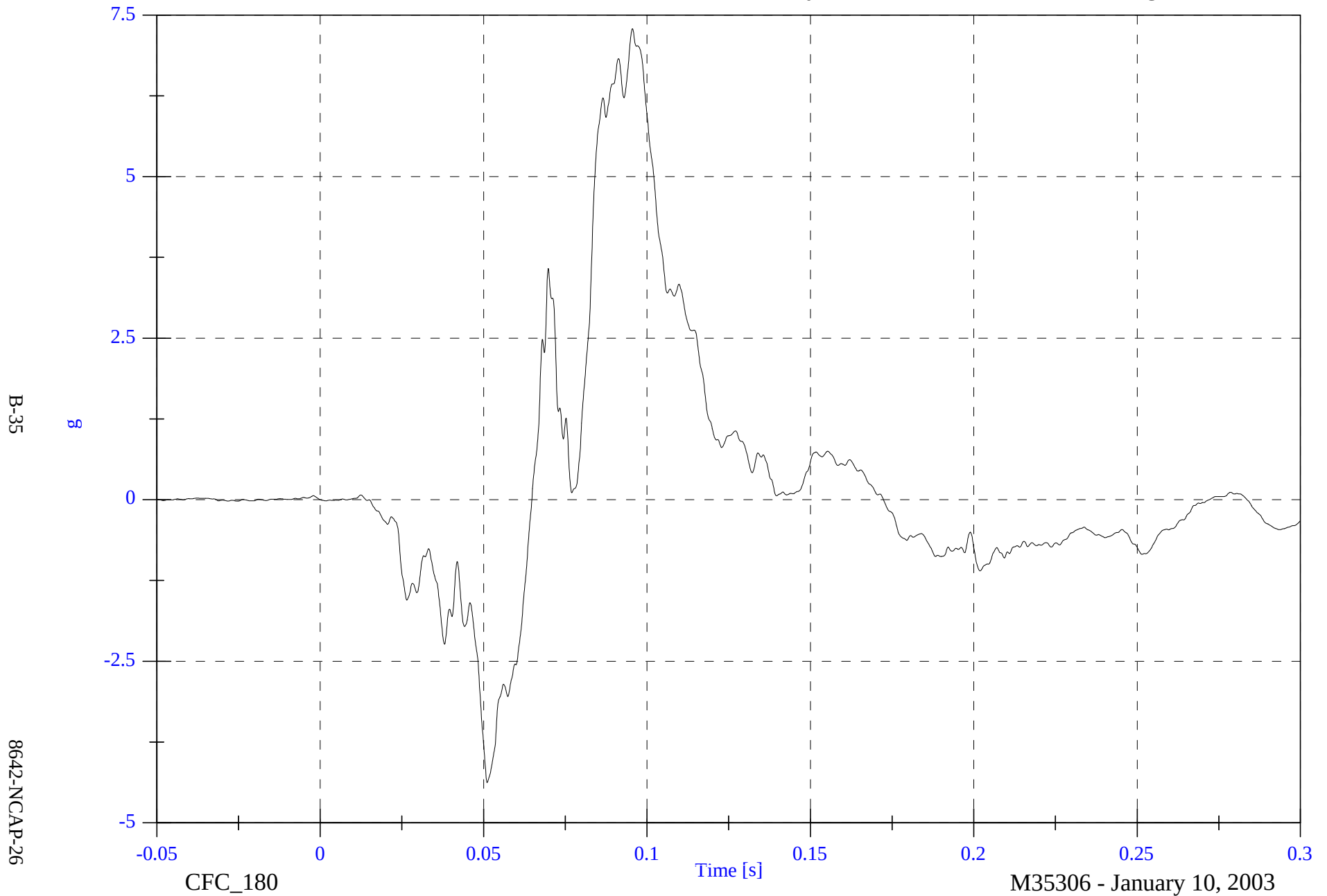


2003 NCAP Test #4 - 2003 Honda Odyssey

Max: 7.3 [g] at 0.096 [s]

Min: -4.4 [g] at 0.051 [s]

V1P1 Chest Red y

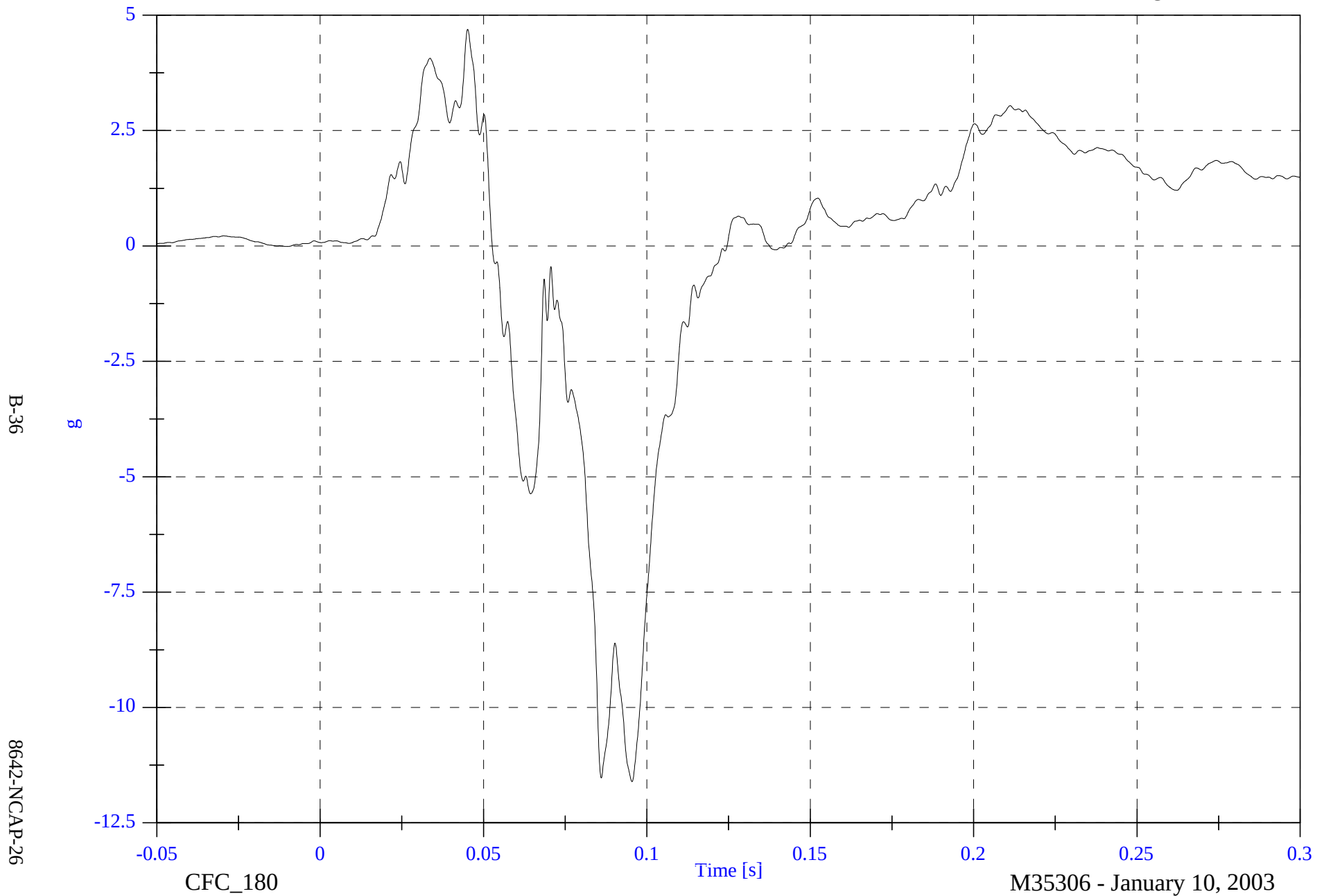


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Chest Red z

Max: 4.7 [g] at 0.045 [s]

Min: -11.6 [g] at 0.095 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

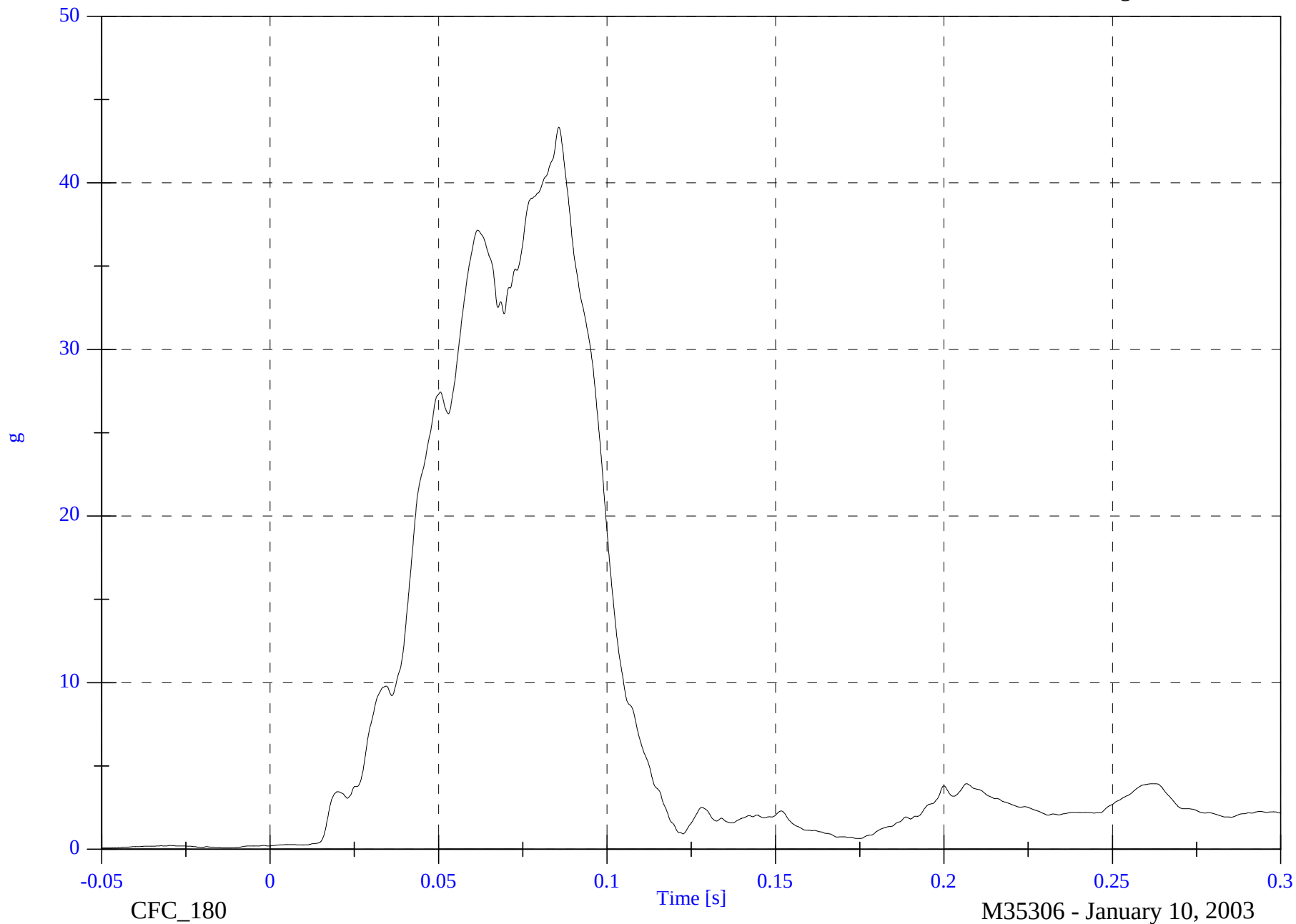
V1P1 Chest Red Resultant

Max: 43.3 [g] at 0.086 [s]

Min: 0.1 [g] at -0.048 [s]

B-37

8642-NCAP-26

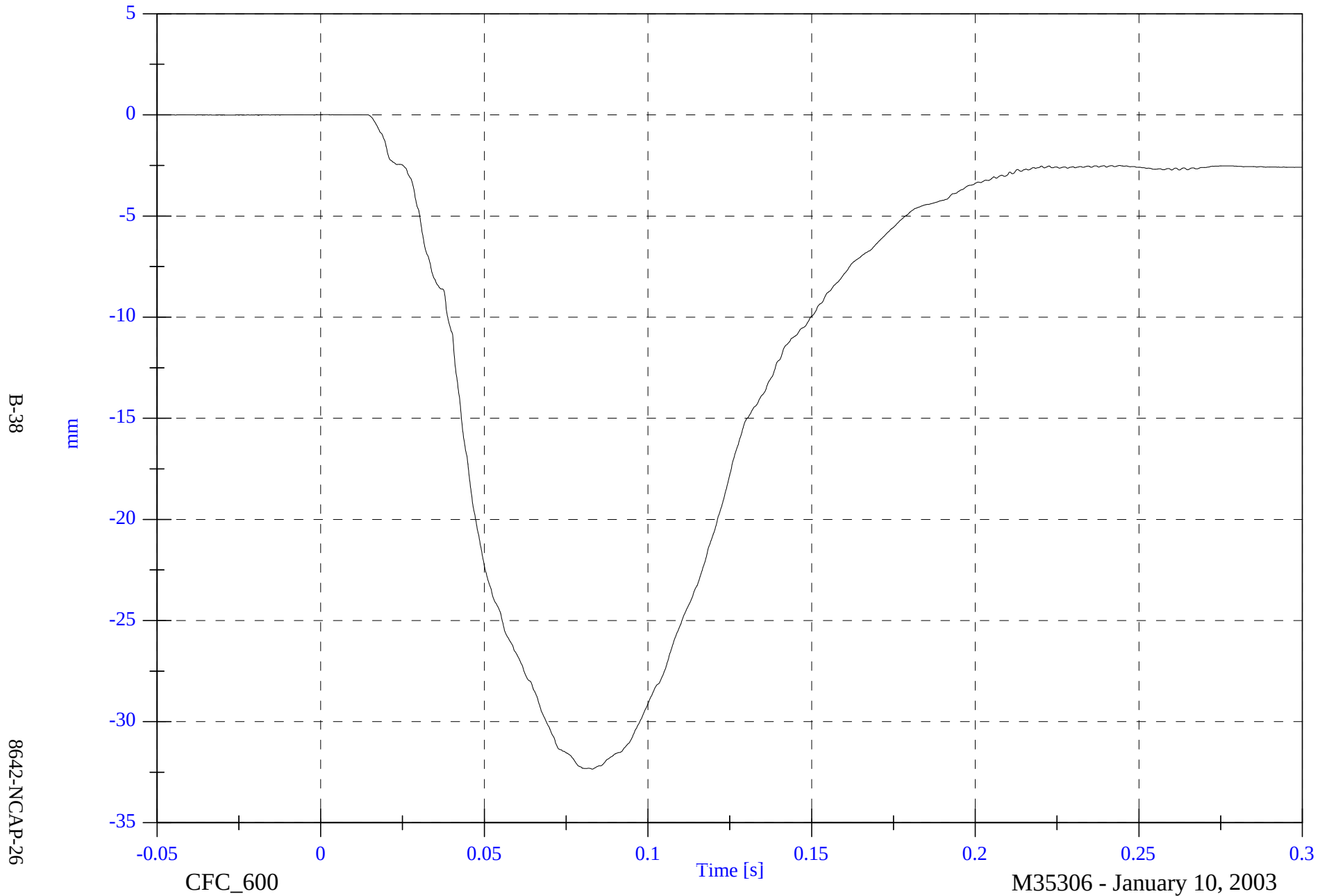


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Chest Compression

Max: 0.0 [mm] at 0.002 [s]

Min: -32.4 [mm] at 0.083 [s]

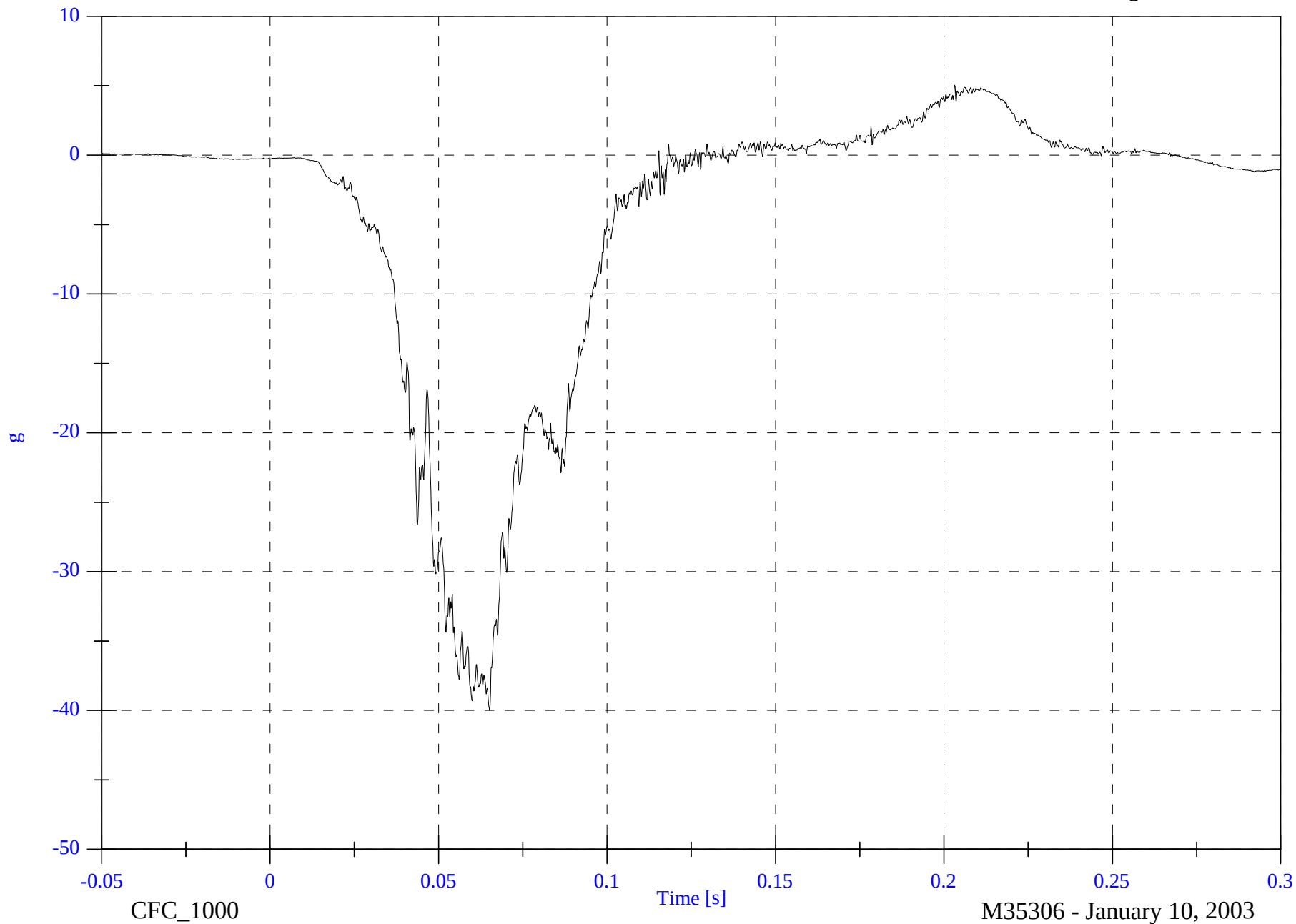


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Pelvic x

Max: 5.0 [g] at 0.203 [s]

Min: -40.0 [g] at 0.065 [s]



B-39

8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

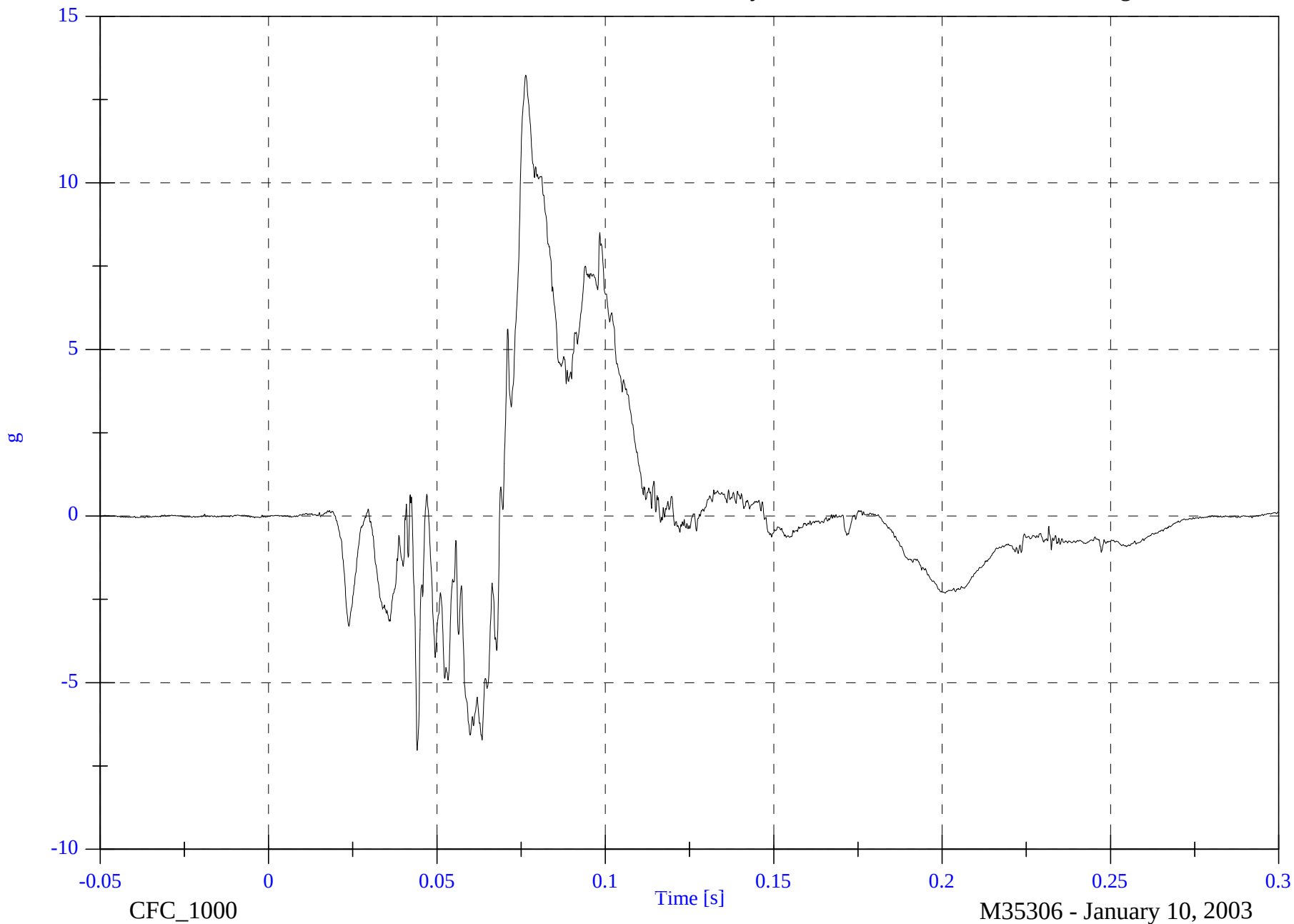
V1P1 Pelvic y

Max: 13.2 [g] at 0.076 [s]

Min: -7.0 [g] at 0.044 [s]

B-40

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

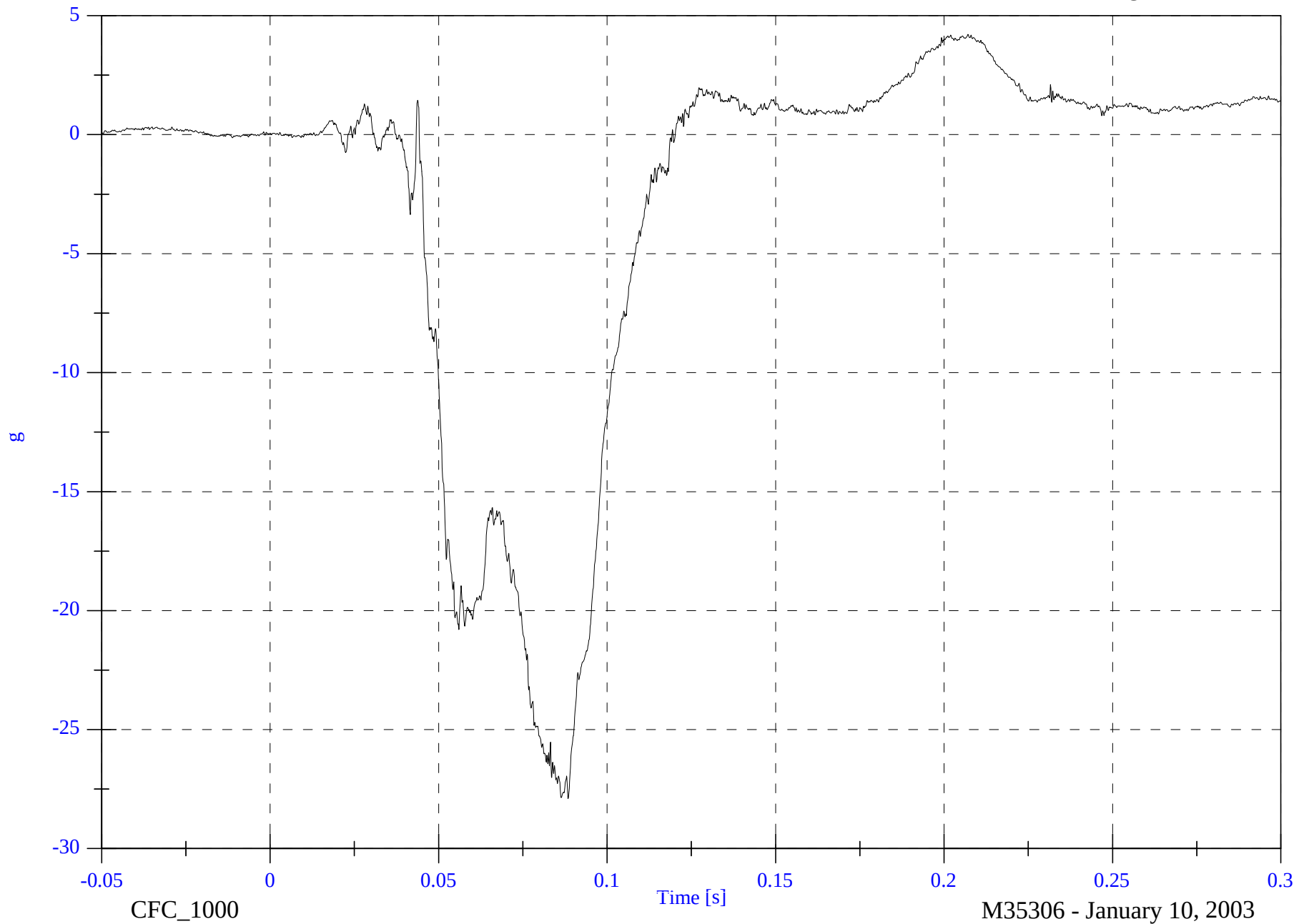
V1P1 Pelvic z

Max: 4.2 [g] at 0.207 [s]

Min: -27.9 [g] at 0.088 [s]

B-41

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

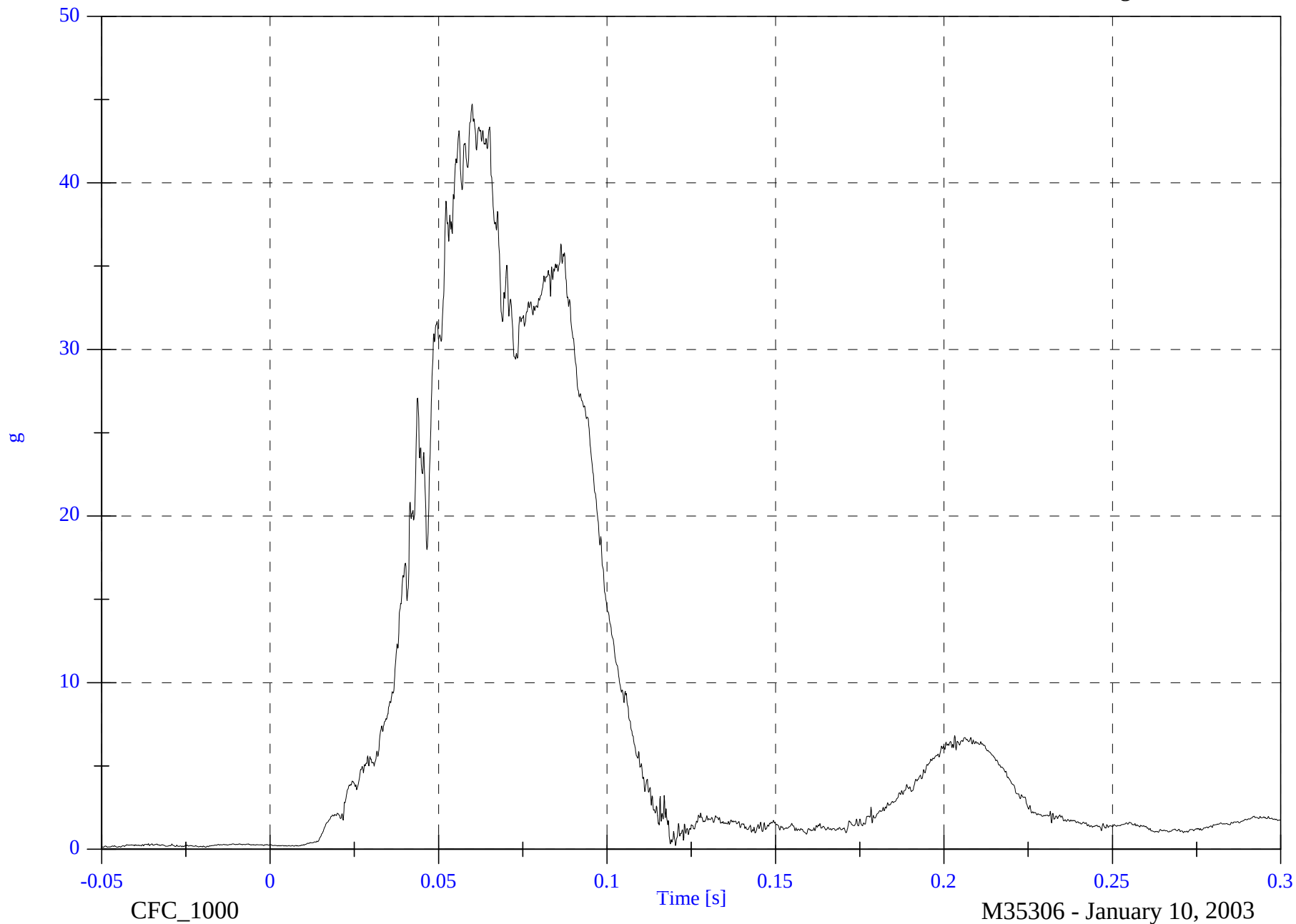
V1P1 Pelvic Resultant

Max: 44.7 [g] at 0.060 [s]

Min: 0.1 [g] at -0.050 [s]

B-42

8642-NCAP-26

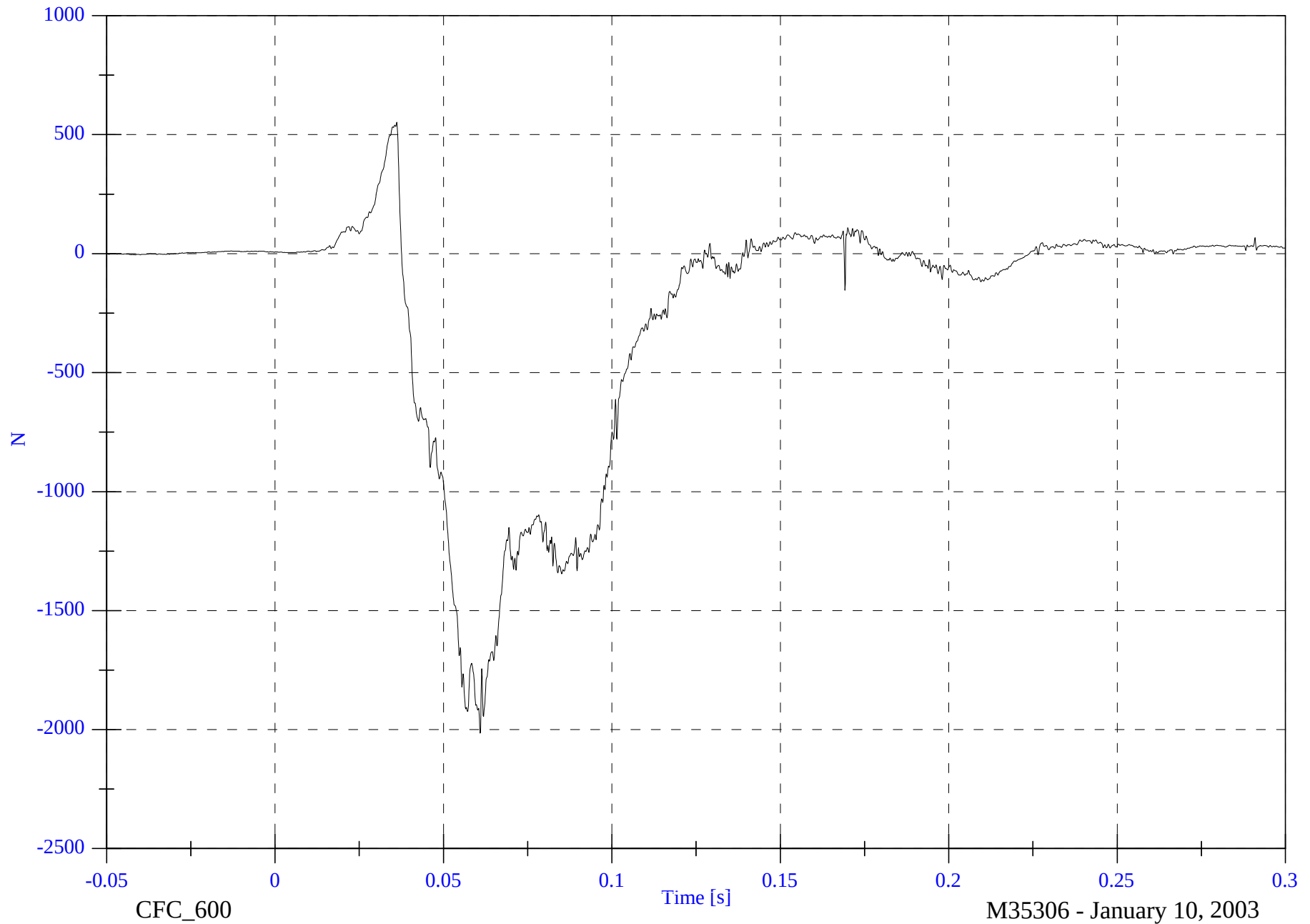


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Left Femur

Max: 552.1 [N] at 0.036 [s]

Min: -2015.4 [N] at 0.061 [s]

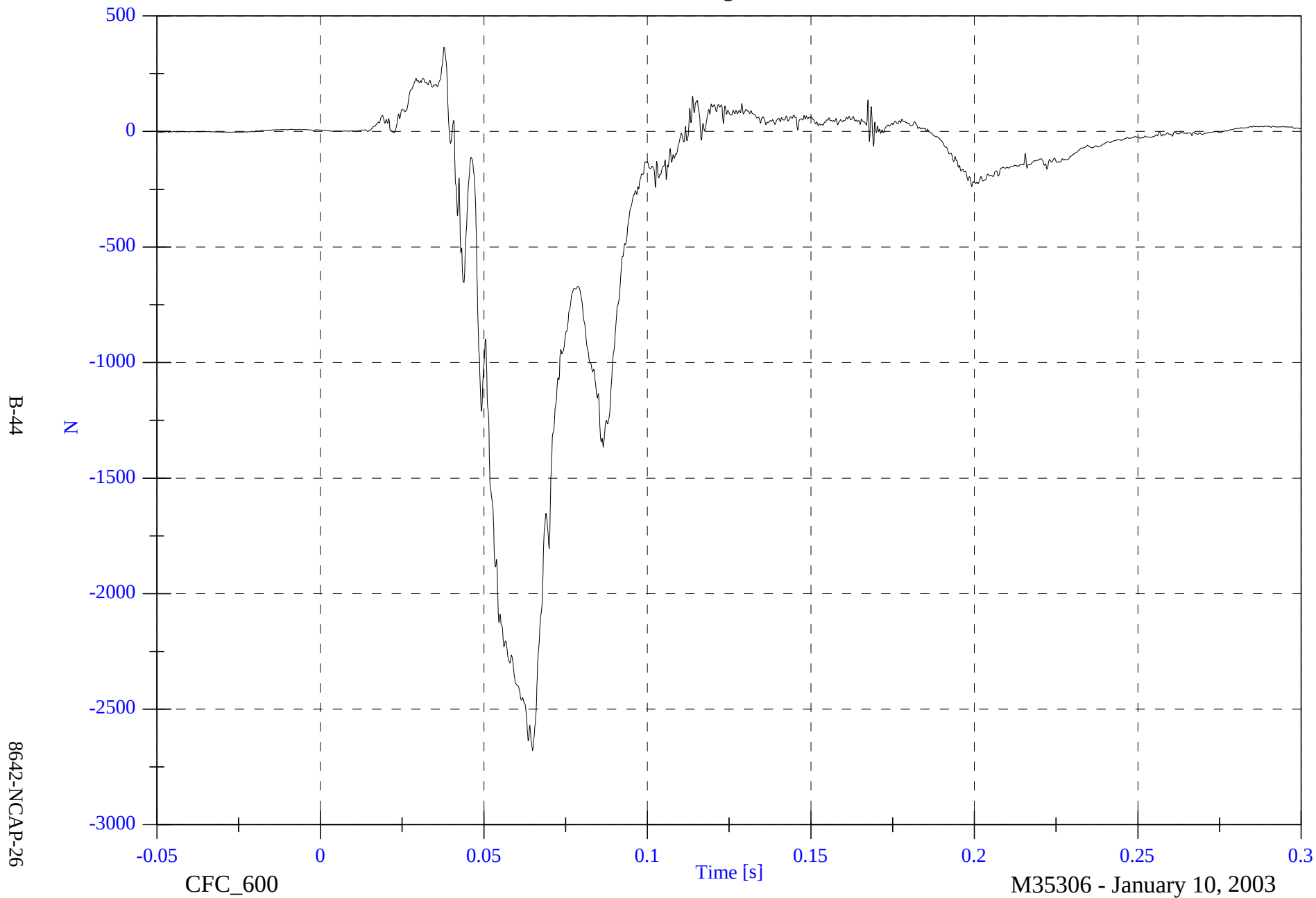


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Right Femur

Max: 364.4 [N] at 0.038 [s]

Min: -2678.4 [N] at 0.065 [s]

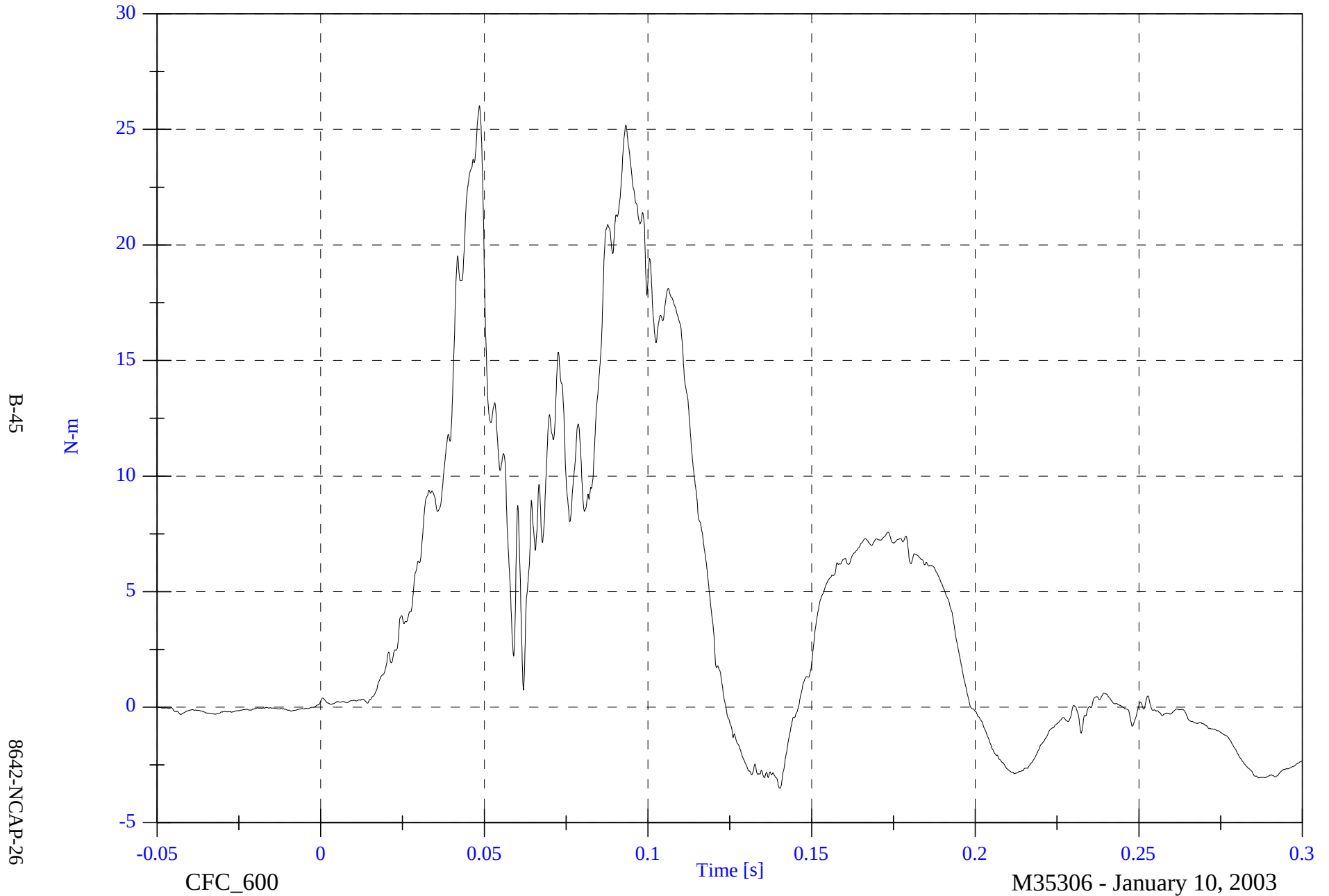


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Left Upper Tibia Mx

Max: 26.0 [N-m] at 0.048 [s]

Min: -3.5 [N-m] at 0.140 [s]

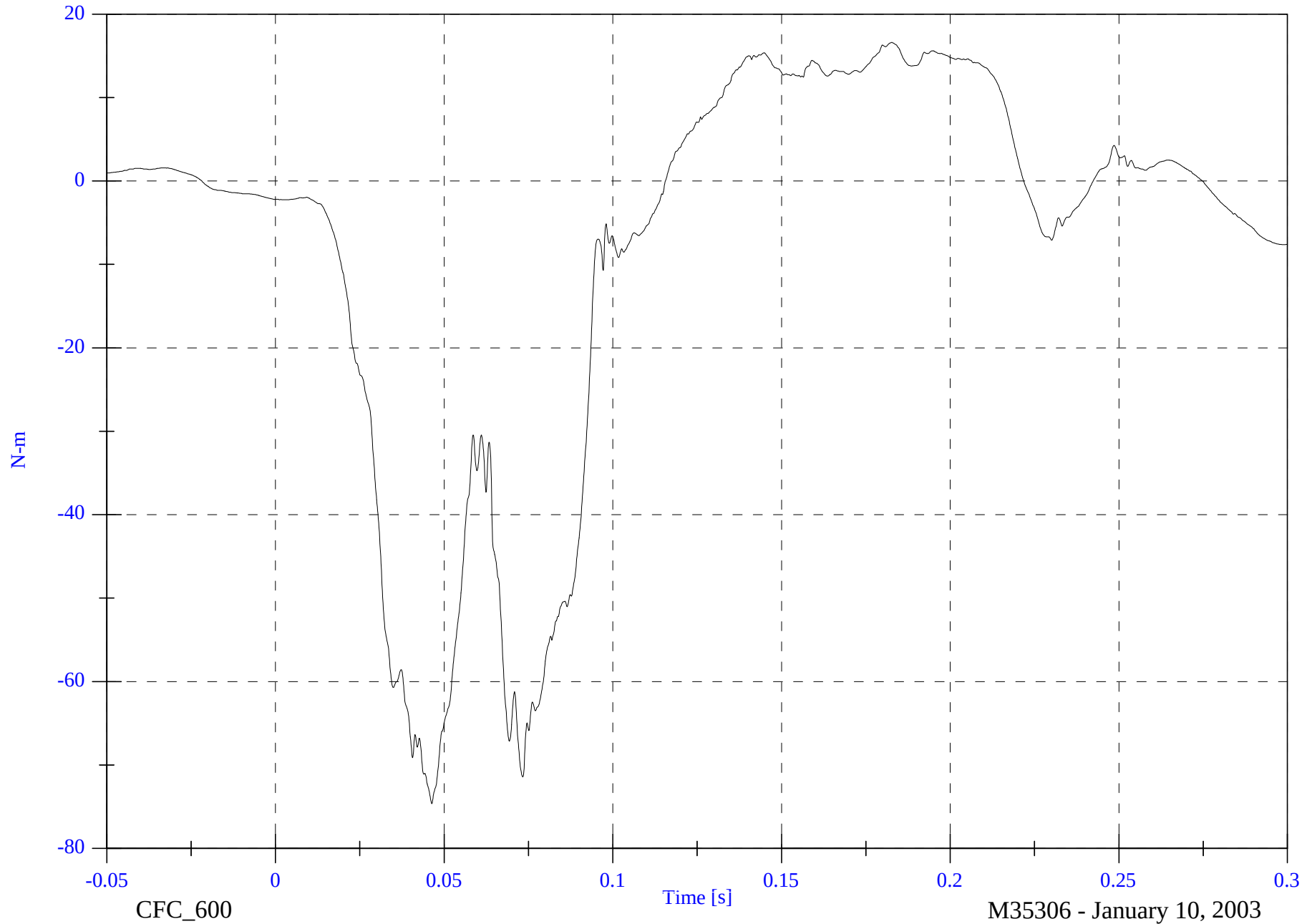


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Left upper Tibia My

Max: 16.6 [N-m] at 0.183 [s]

Min: -74.6 [N-m] at 0.046 [s]



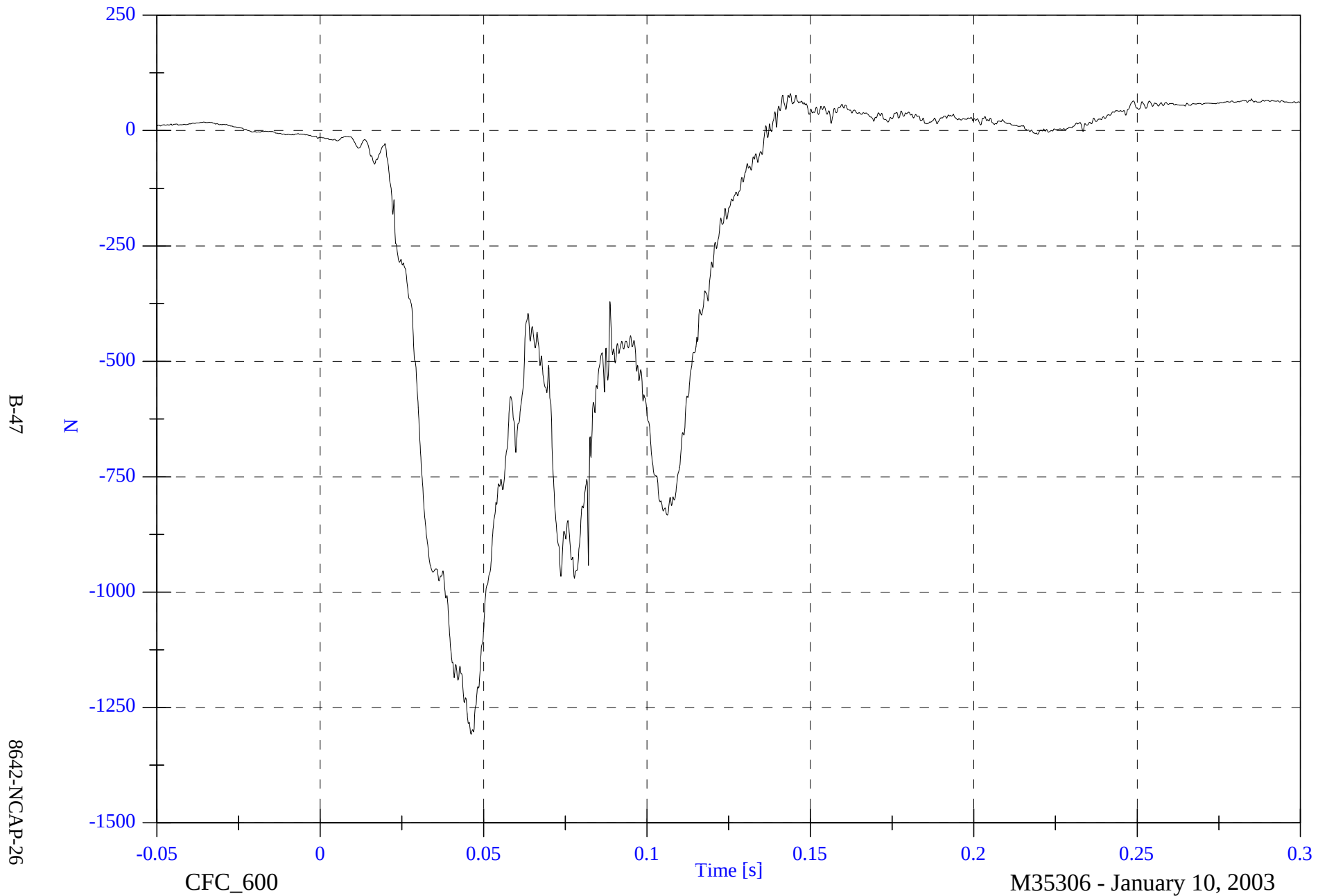
B-46

8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Left Lower Tibia Fz

Max: 79.6 [N] at 0.144 [s]
Min: -1307.9 [N] at 0.046 [s]

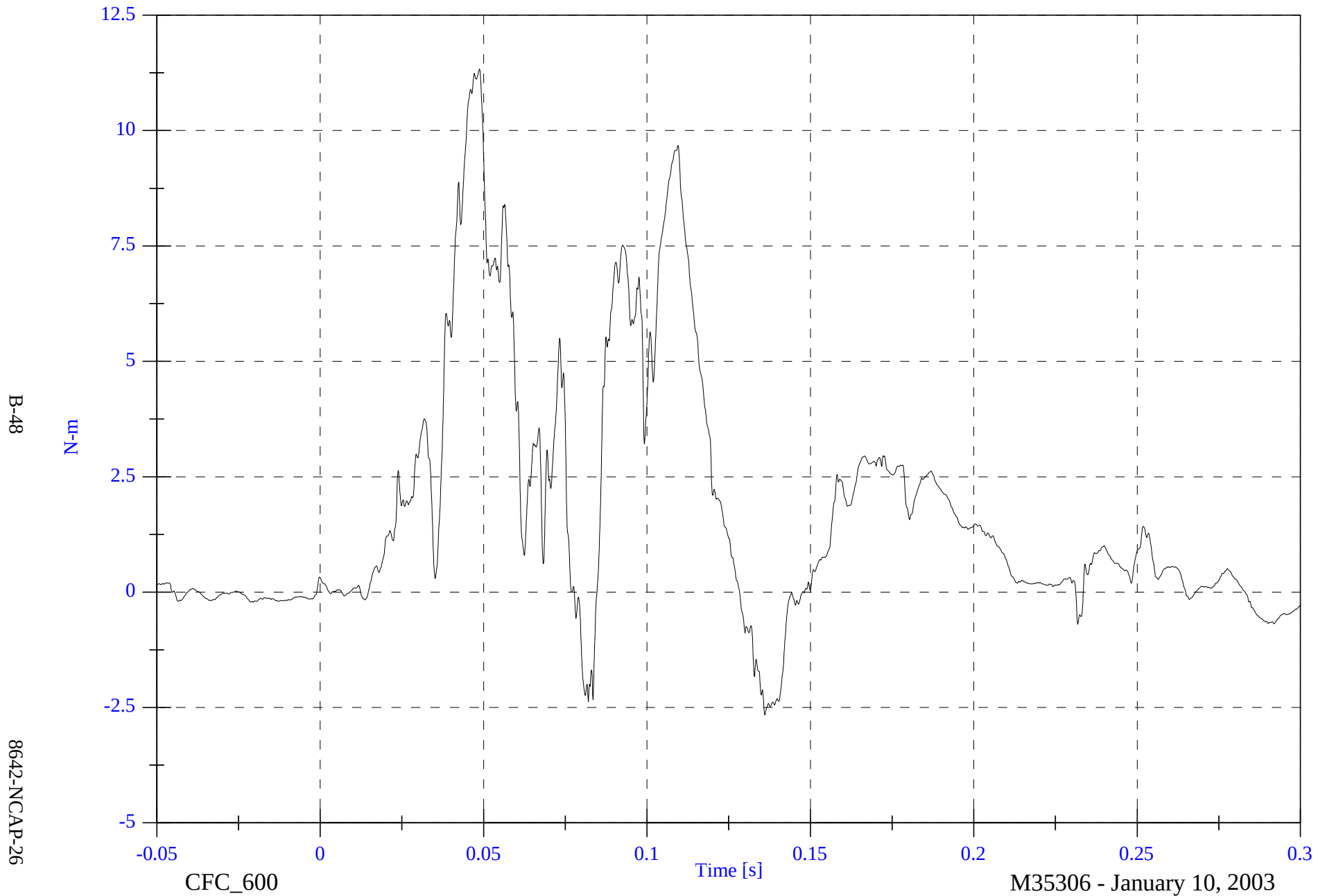


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Left Lower Tibia Mx

Max: 11.3 [N-m] at 0.049 [s]

Min: -2.7 [N-m] at 0.136 [s]

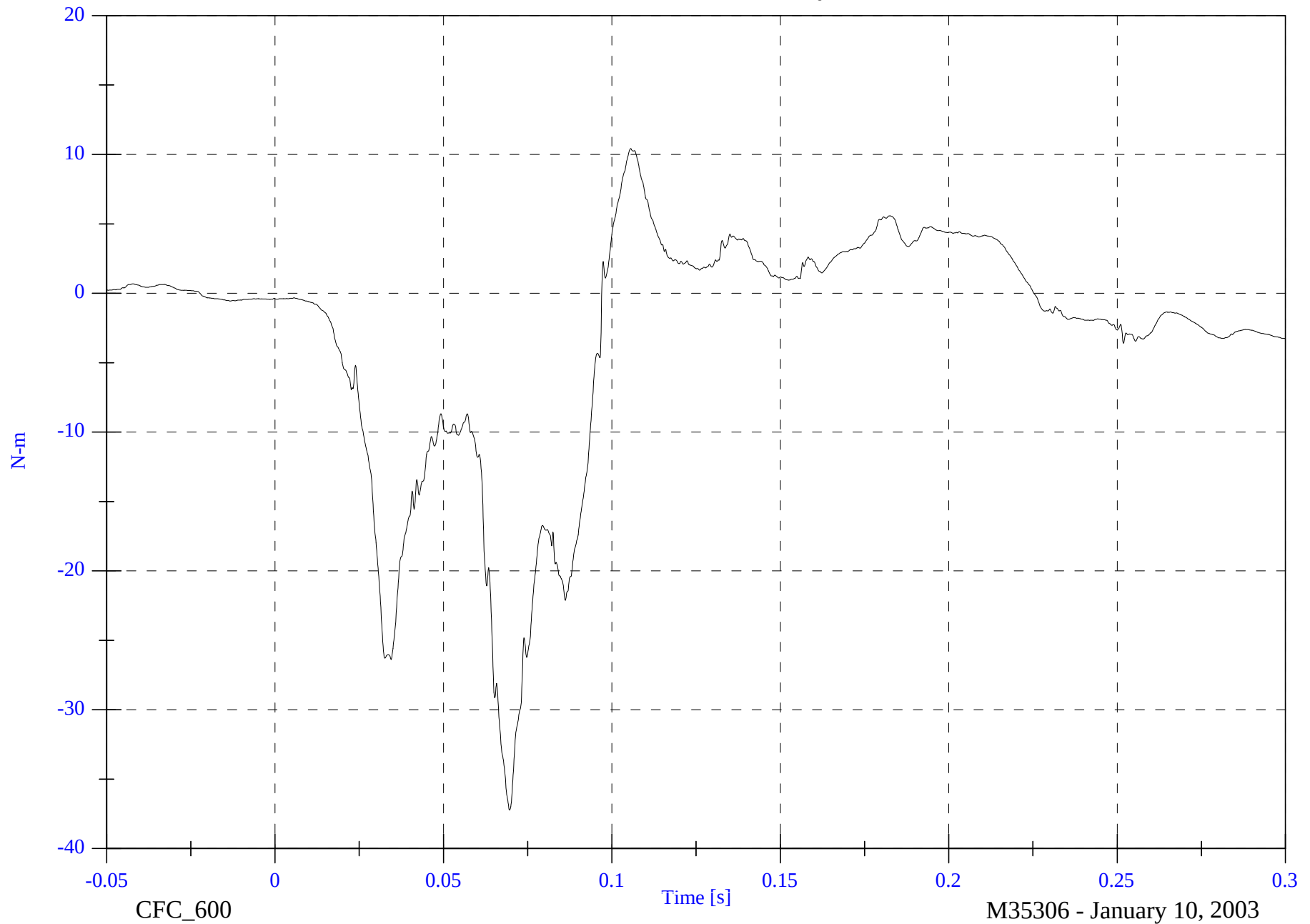


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Left Lower tibia My

Max: 10.4 [N-m] at 0.106 [s]

Min: -37.2 [N-m] at 0.070 [s]

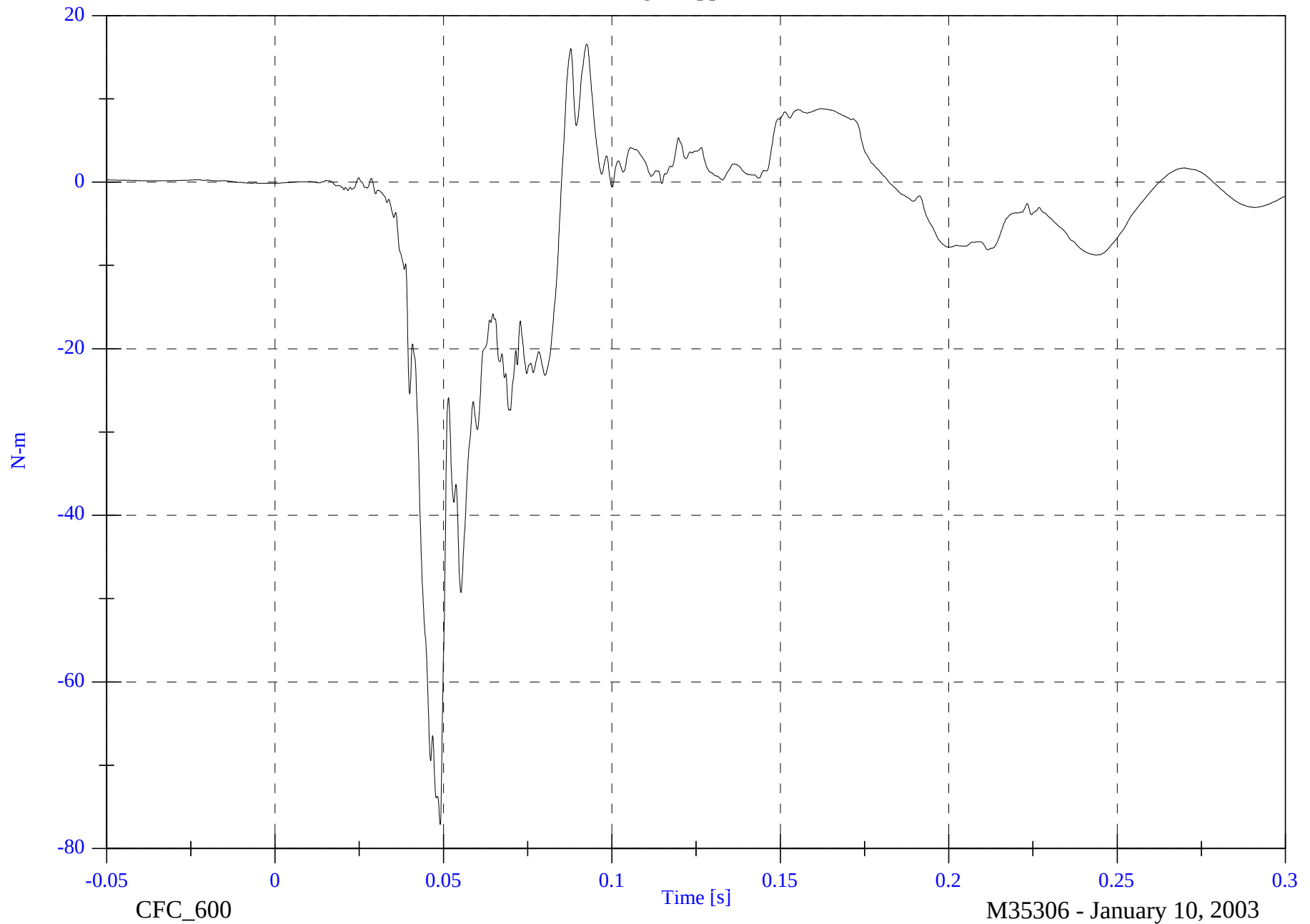


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Right Upper Tibia Mx

Max: 16.6 [N-m] at 0.093 [s]

Min: -77.1 [N-m] at 0.049 [s]



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8642-NCAP-26

CFC_600

Time [s]

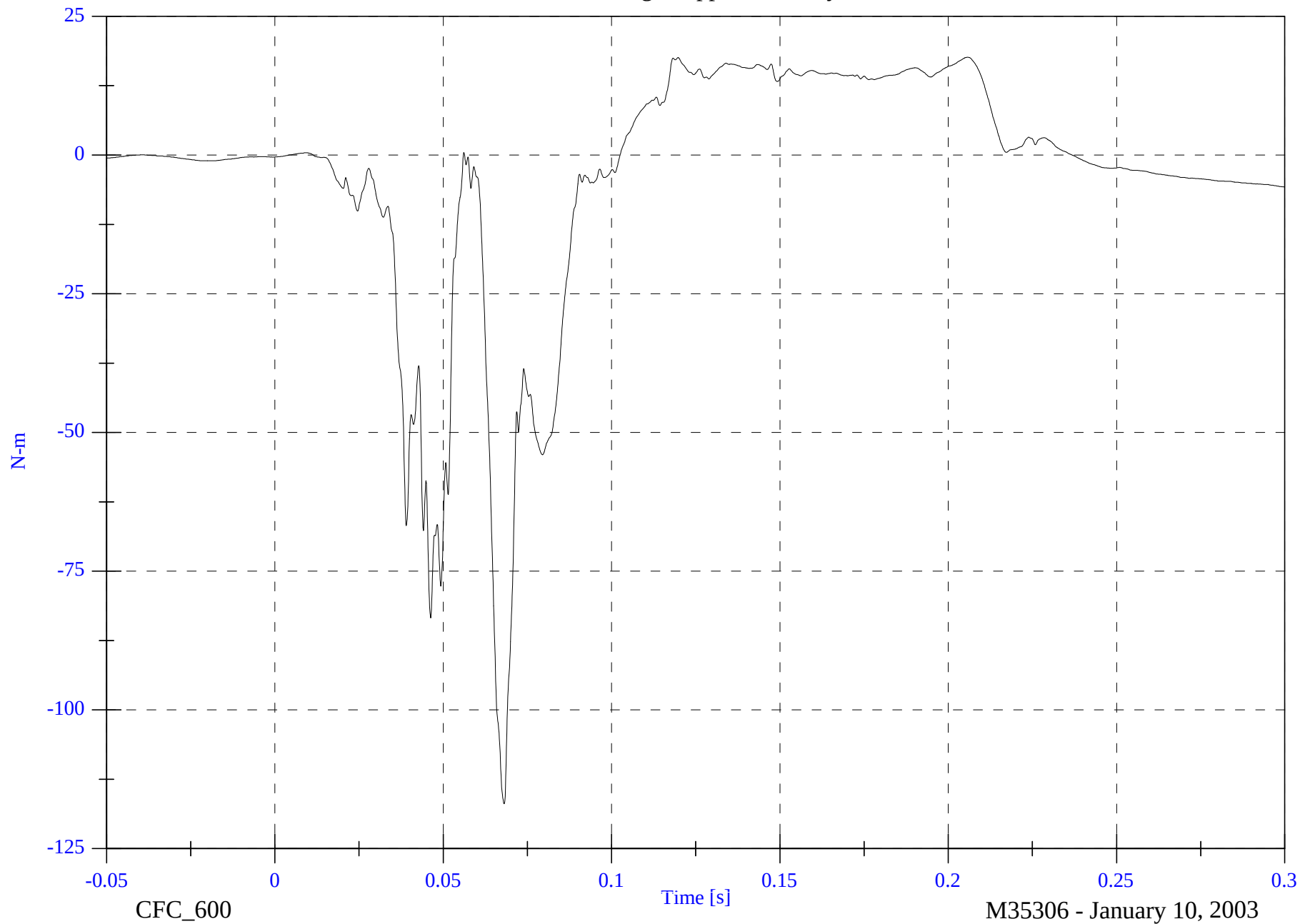
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Right Upper Tibia My

Max: 17.6 [N-m] at 0.206 [s]

Min: -116.9 [N-m] at 0.068 [s]



B-51

8642-NCAP-26

CFC_600

Time [s]

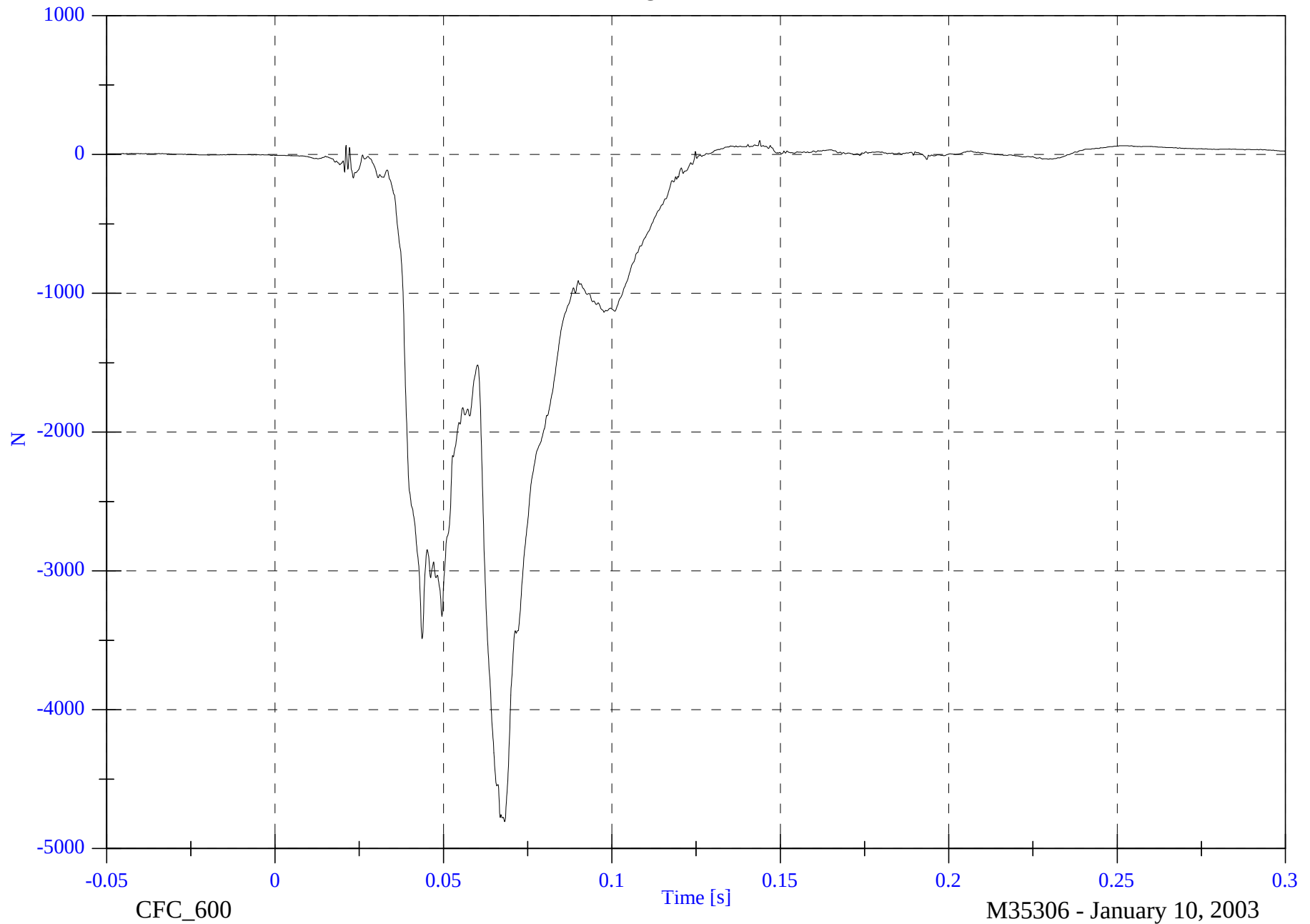
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Right Lower Tibia Fz

Max: 101.1 [N] at 0.144 [s]

Min: -4806.6 [N] at 0.068 [s]



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8642-NCAP-26

CFC_600

Time [s]

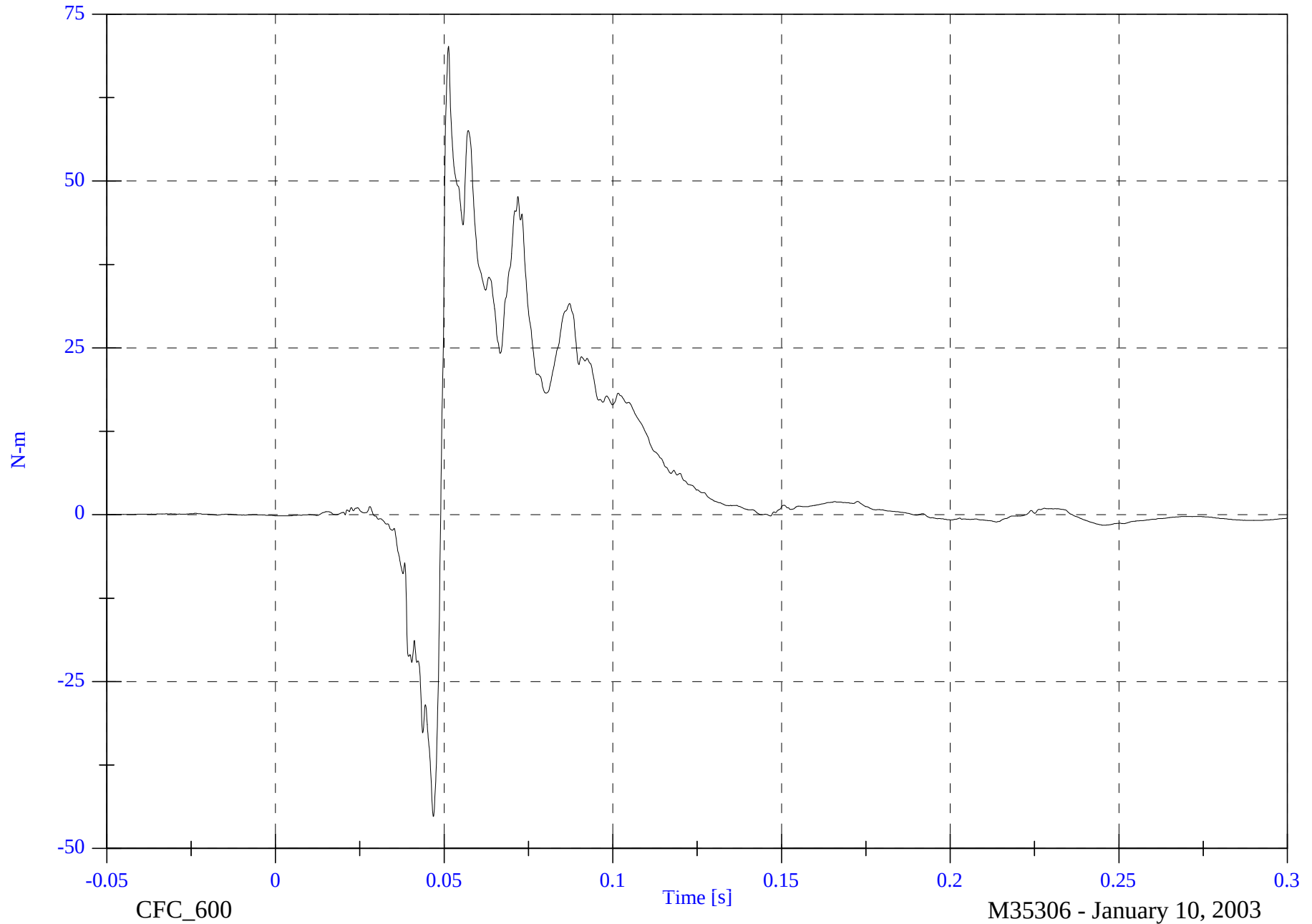
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Right Lower tibia Mx

Max: 70.2 [N-m] at 0.051 [s]

Min: -45.2 [N-m] at 0.047 [s]



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8642-NCAP-26

CFC_600

Time [s]

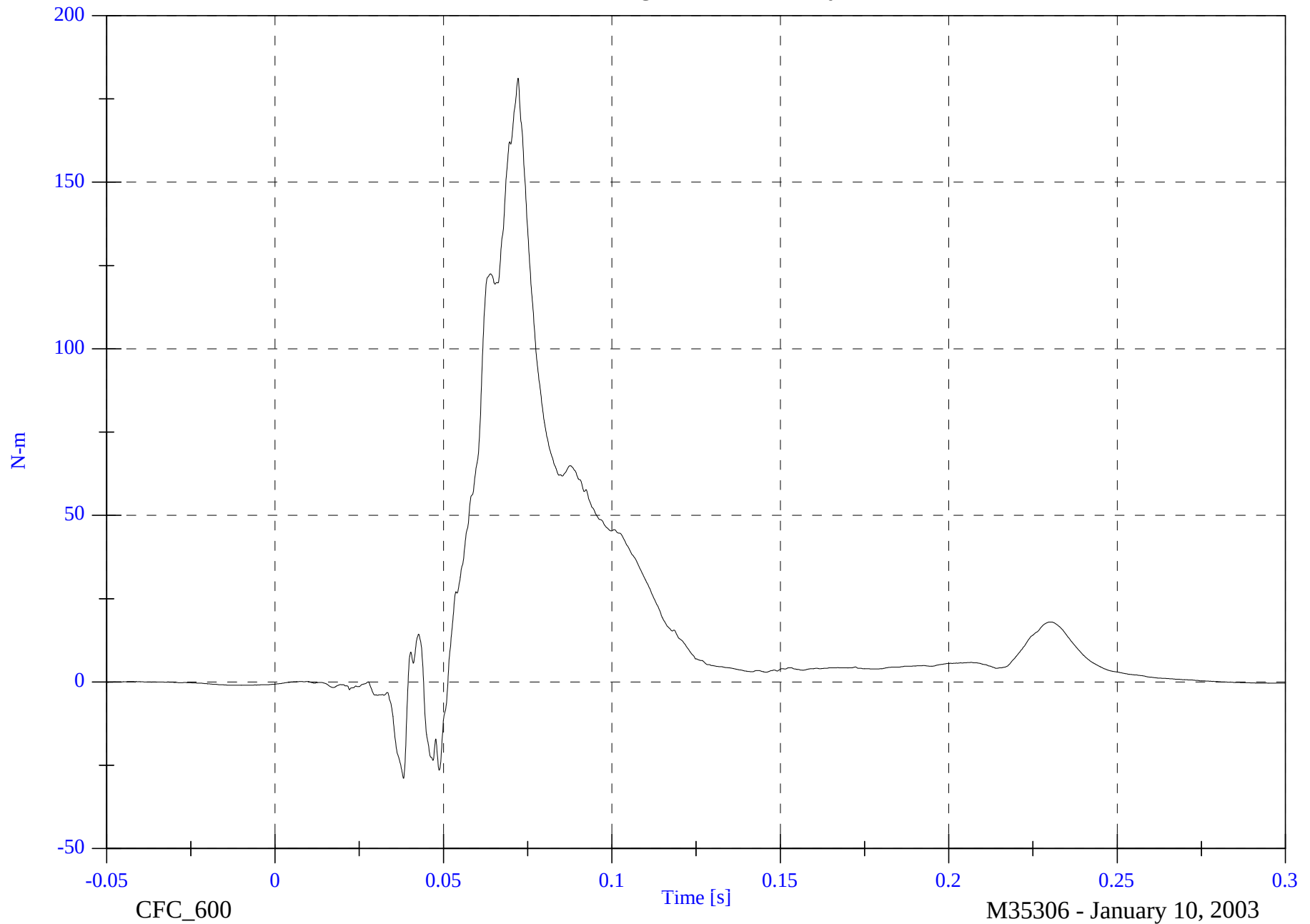
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Right Lower Tibia My

Max: 181.2 [N-m] at 0.072 [s]

Min: -28.9 [N-m] at 0.038 [s]



B-54

8642-NCAP-26

CFC_600

Time [s]

M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

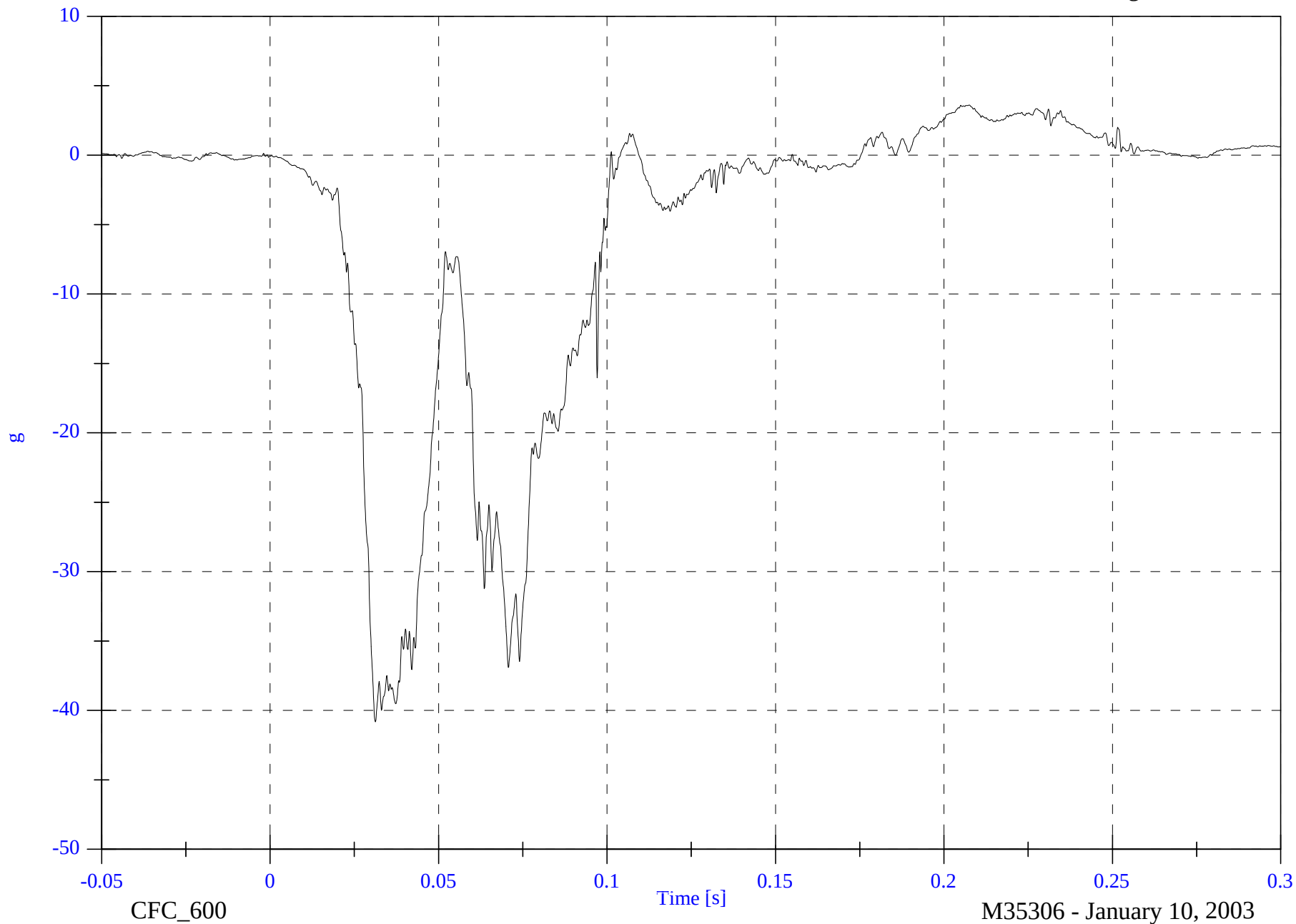
V1P1 Left Foot Aft Ax

Max: 3.6 [g] at 0.208 [s]

Min: -40.8 [g] at 0.031 [s]

B-55

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

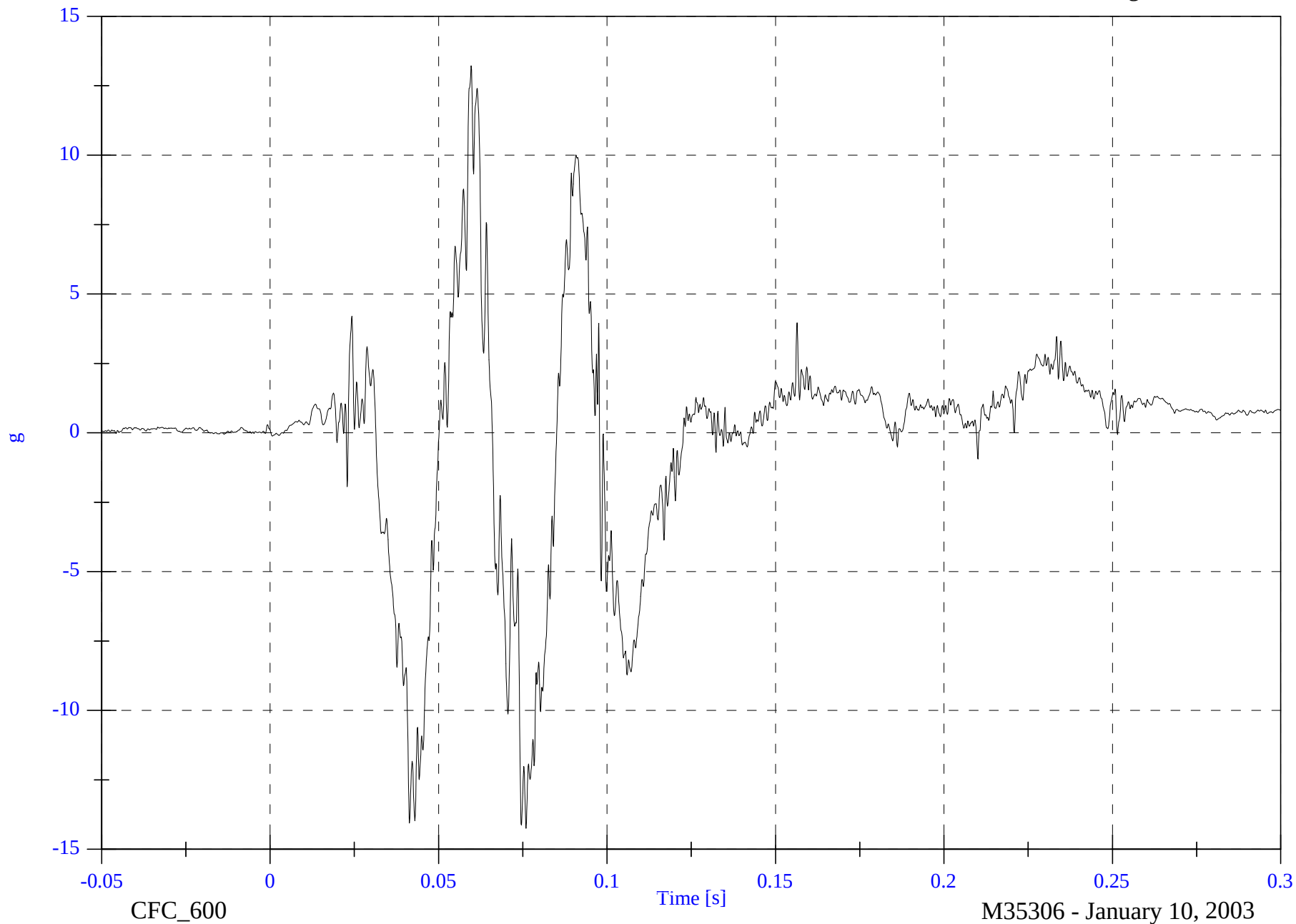
V1P1 Left Foot Aft Az

Max: 13.2 [g] at 0.060 [s]

Min: -14.2 [g] at 0.076 [s]

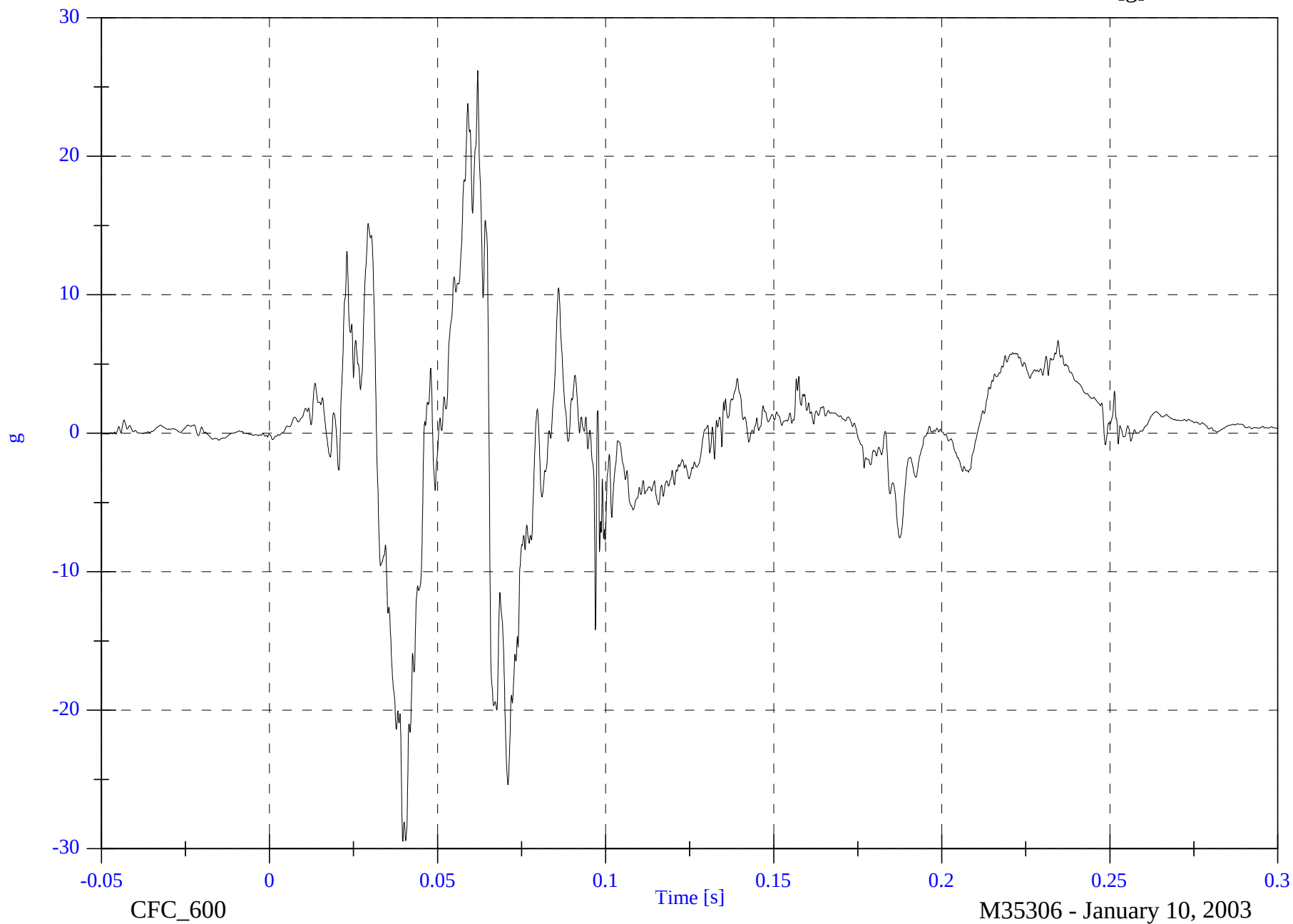
B-56

8642-NCAP-26



Min: -29.5 [g] at 0.040 [s]

Min: -29.5 [g] at 0.040 [s]

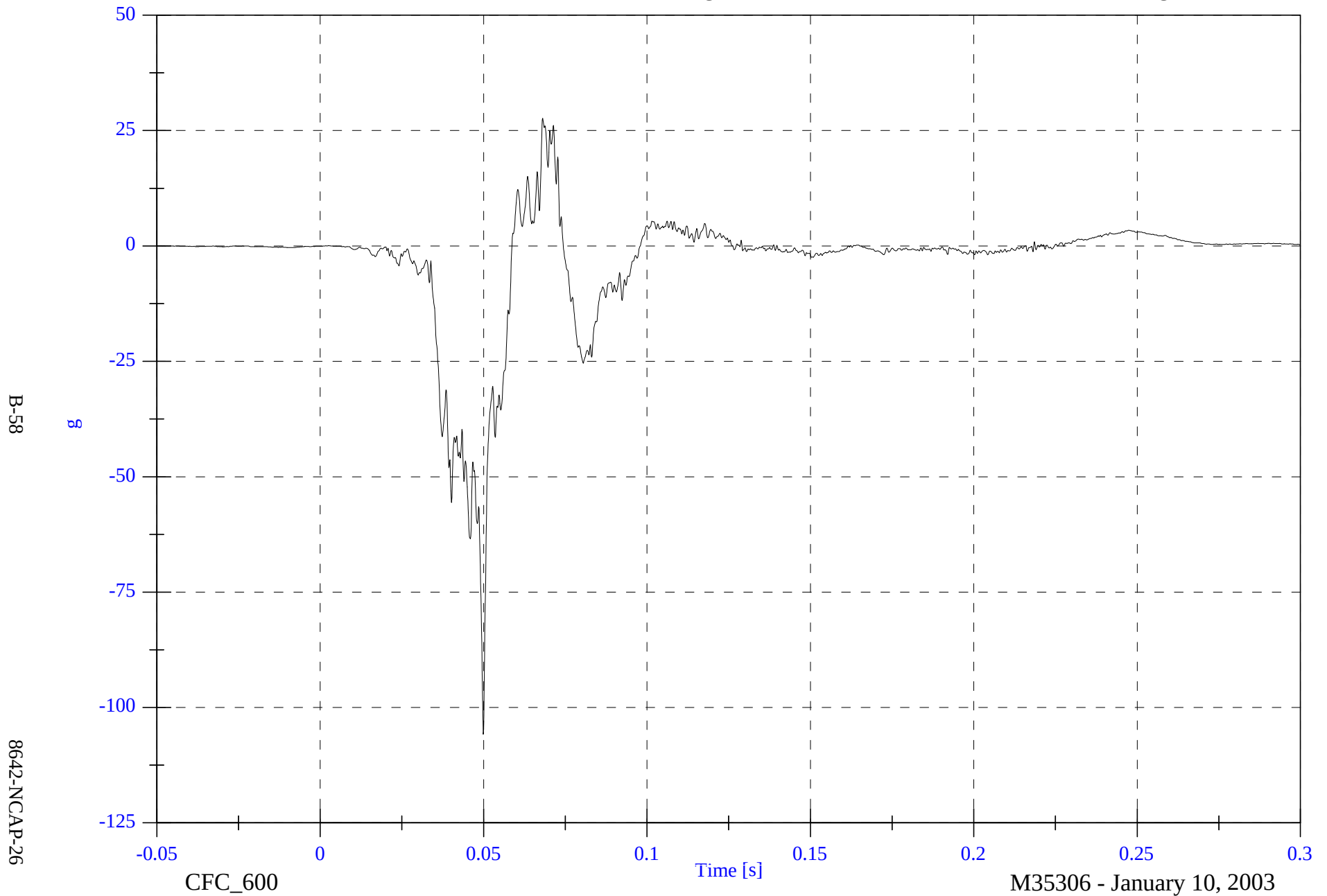


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Right Foot Aft x

Max: 27.7 [g] at 0.068 [s]

Min: -105.8 [g] at 0.050 [s]

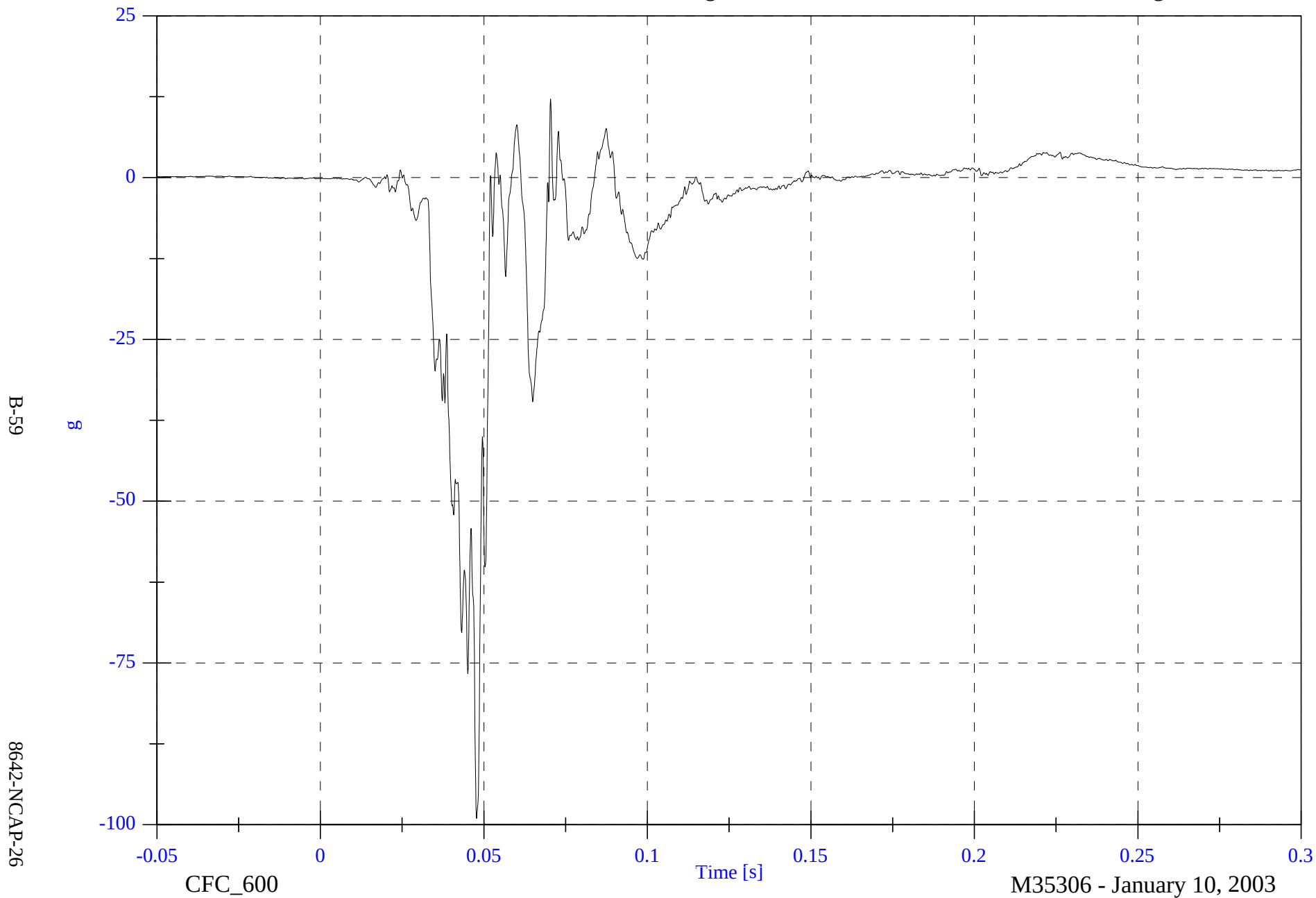


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Right Foot Aft z

Max: 12.1 [g] at 0.070 [s]

Min: -99.0 [g] at 0.048 [s]

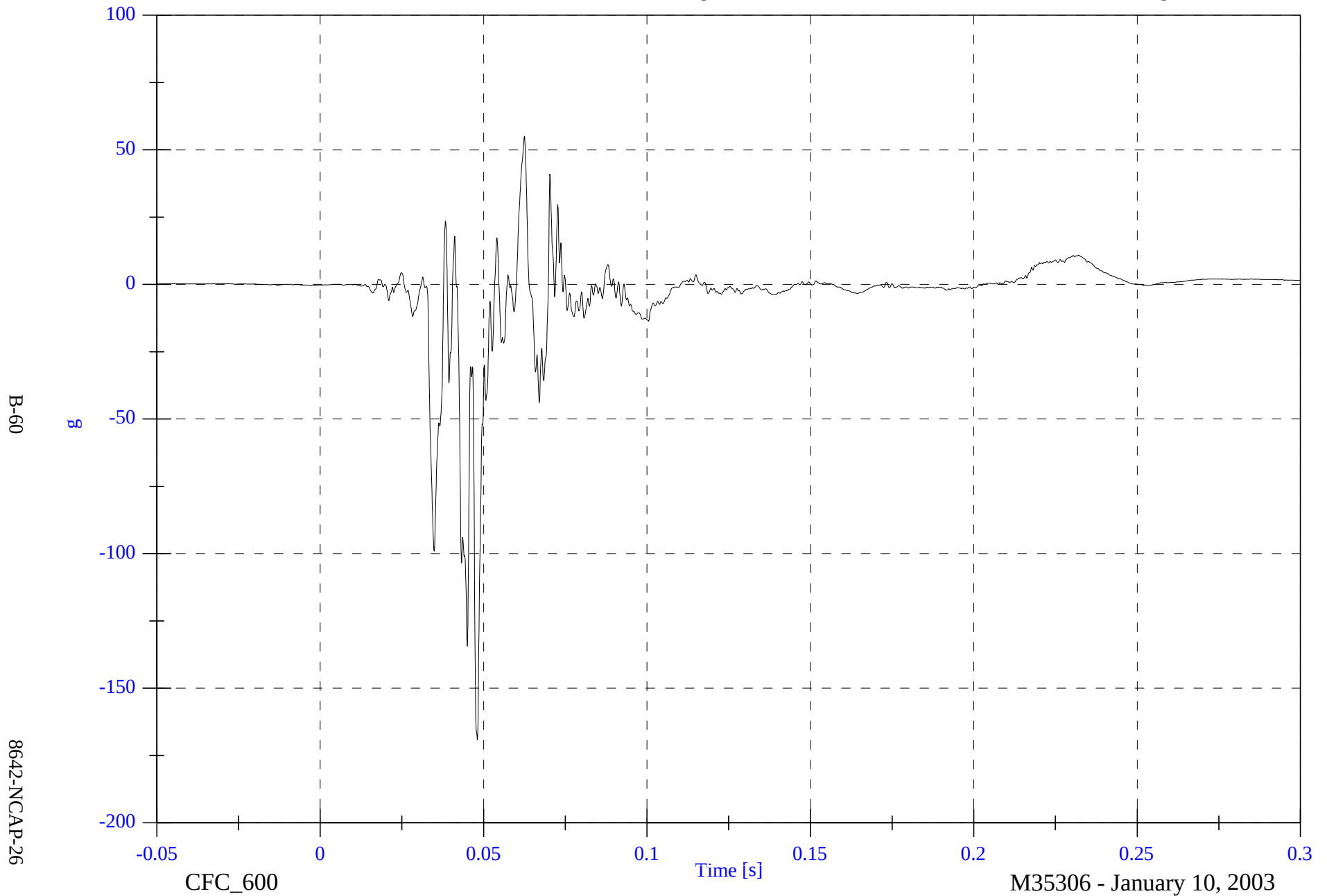


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Right Foot Fore z

Max: 55.1 [g] at 0.062 [s]

Min: -169.2 [g] at 0.048 [s]

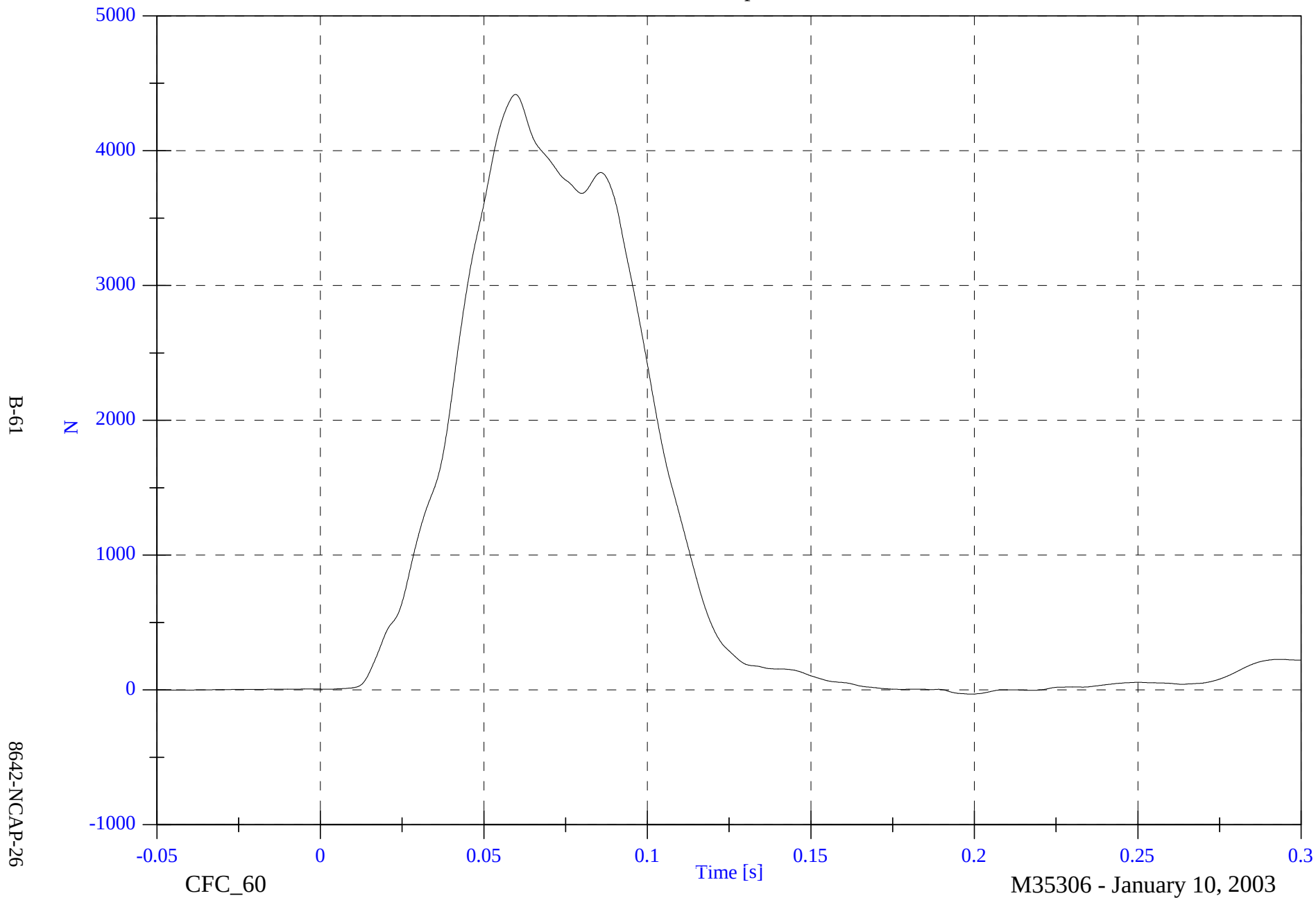


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P1 Lap Belt

Max: 4417.1 [N] at 0.060 [s]

Min: -30.8 [N] at 0.199 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

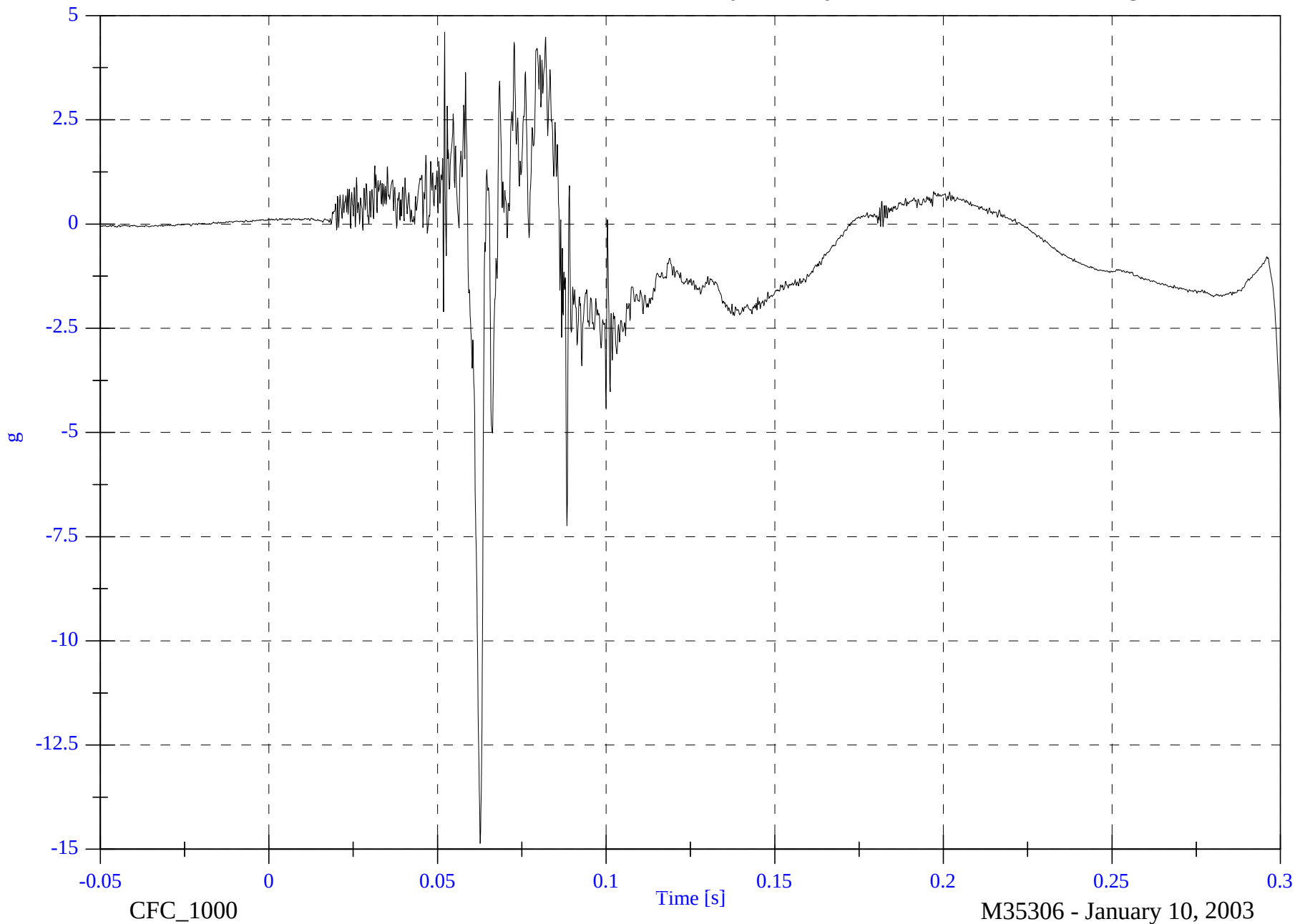
V1P2 Head 9 Array X Arm y

Max: 4.6 [g] at 0.052 [s]

Min: -14.9 [g] at 0.063 [s]

B-62

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

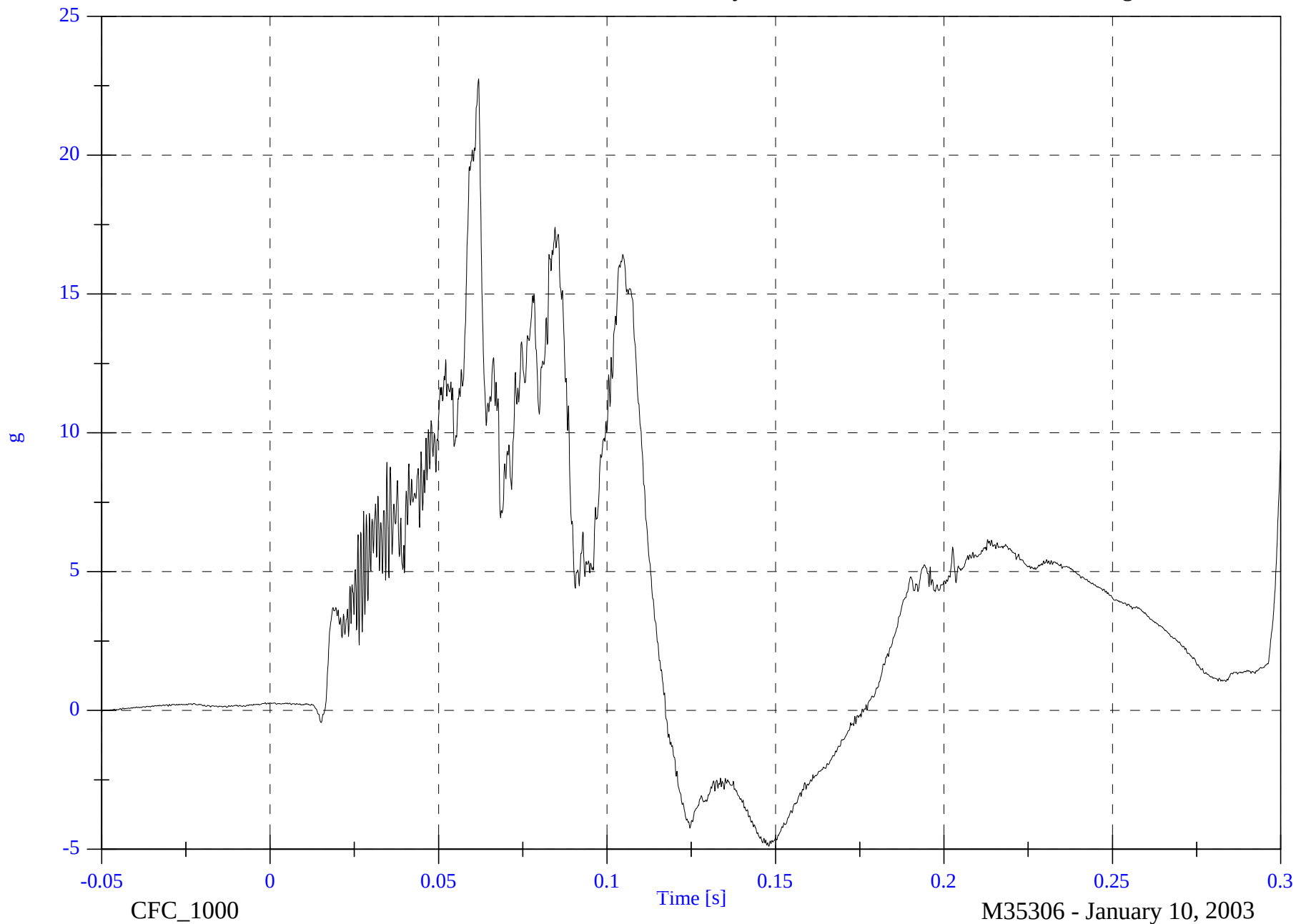
V1P2 Head 9 Array X Arm z

Max: 22.7 [g] at 0.062 [s]

Min: -4.9 [g] at 0.148 [s]

B-63

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

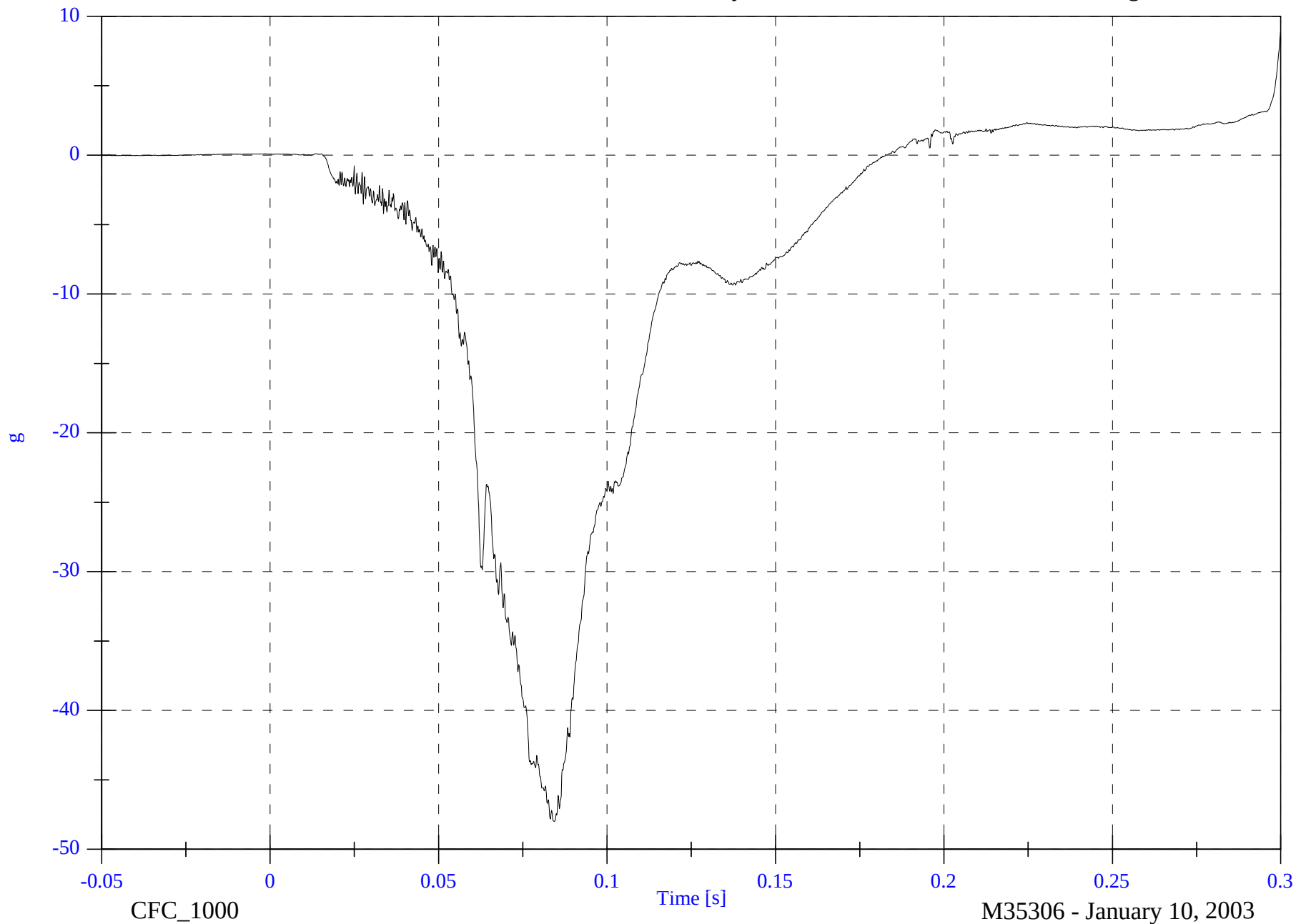
V1P2 Head 9 Array Y Arm x

Max: 8.9 [g] at 0.300 [s]

Min: -48.0 [g] at 0.084 [s]

B-64

8642-NCAP-26

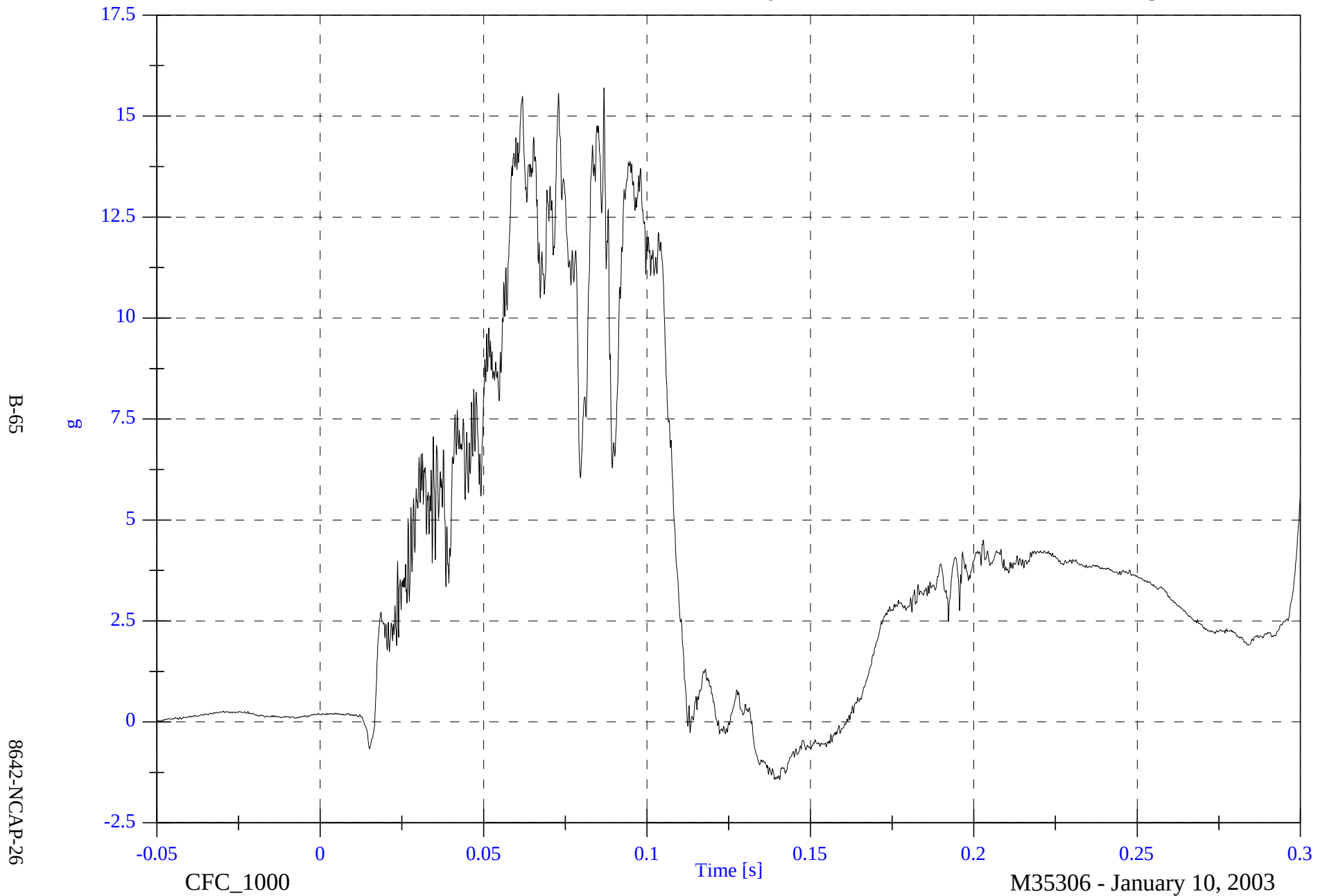


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Head 9 Array Y Arm z

Max: 15.7 [g] at 0.087 [s]

Min: -1.4 [g] at 0.141 [s]

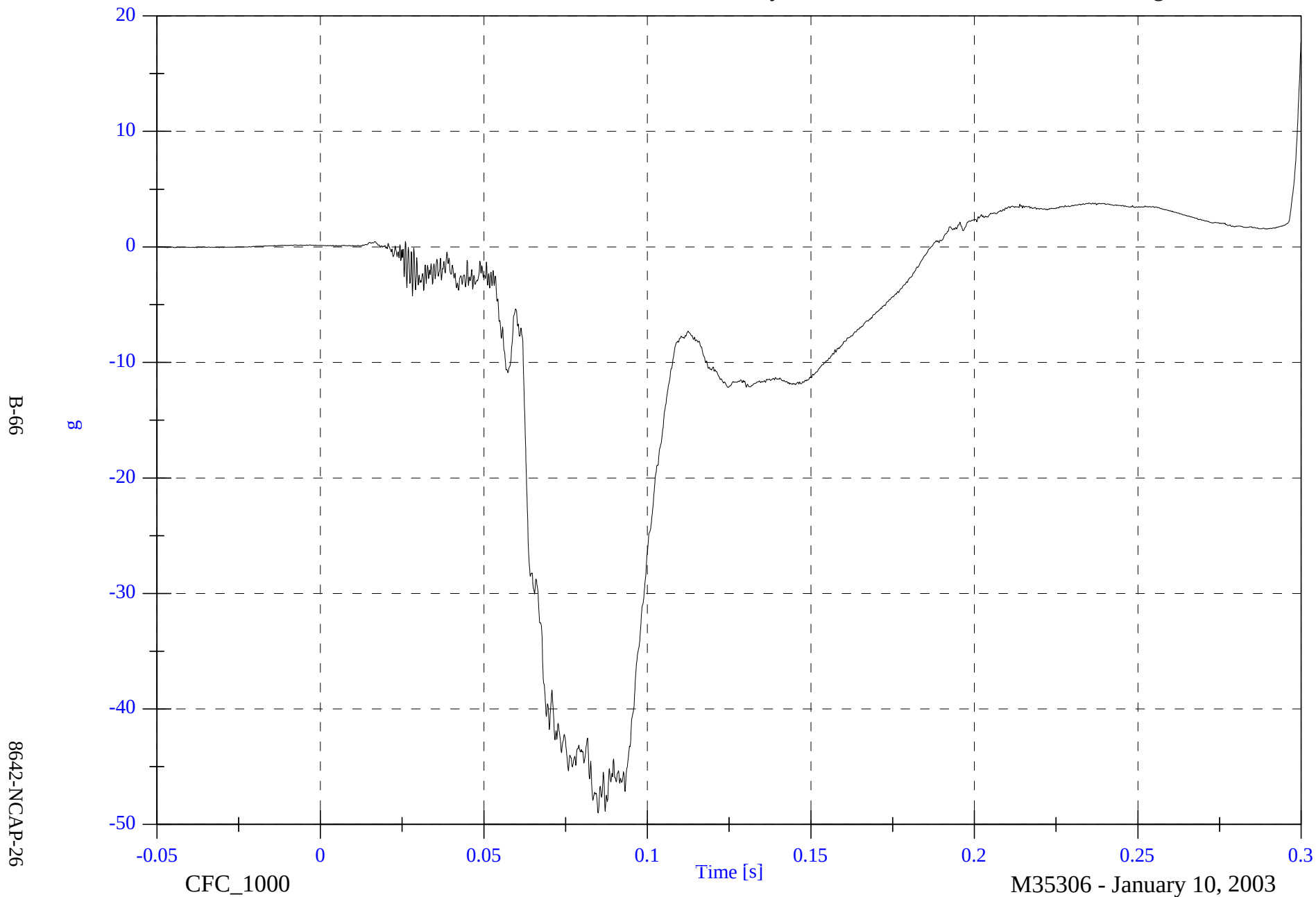


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Head 9 Array Z Arm x

Max: 17.7 [g] at 0.300 [s]

Min: -49.0 [g] at 0.085 [s]

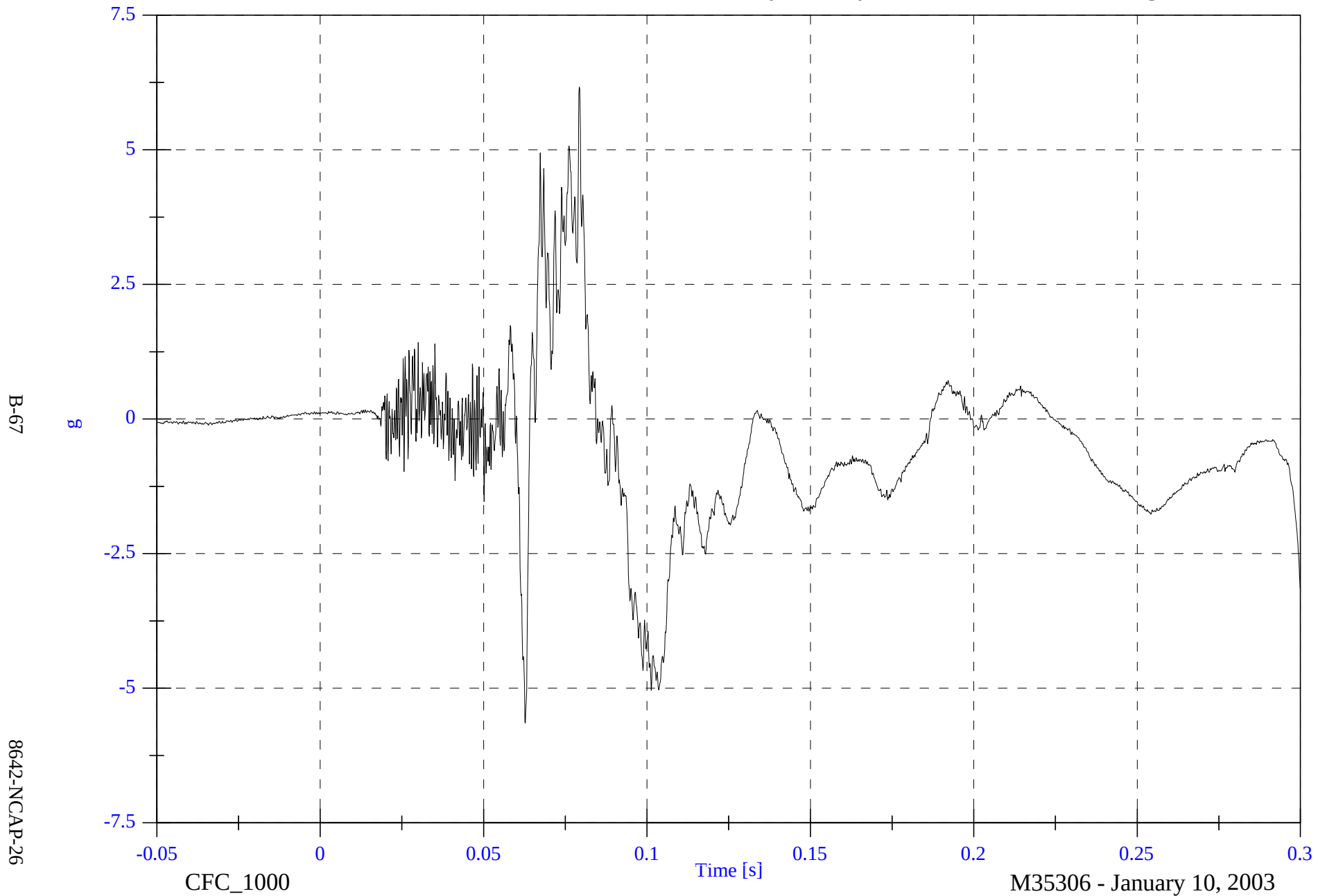


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Head 9 Array Z Arm y

Max: 6.2 [g] at 0.079 [s]

Min: -5.6 [g] at 0.063 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

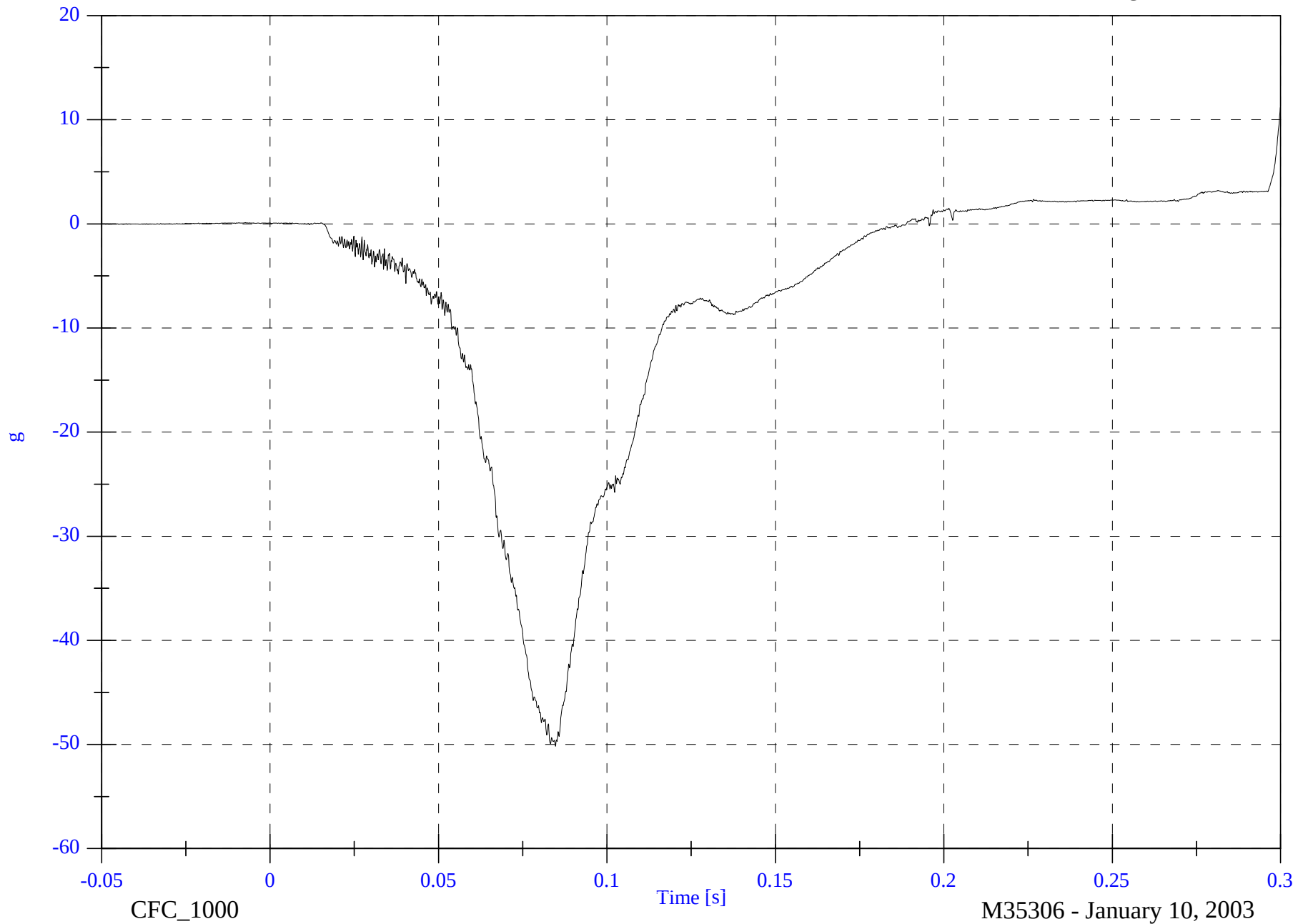
V1P2 Head CG x

Max: 11.2 [g] at 0.300 [s]

Min: -50.2 [g] at 0.085 [s]

B-68

8642-NCAP-26



CFC_1000

Time [s]

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2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Head CG y

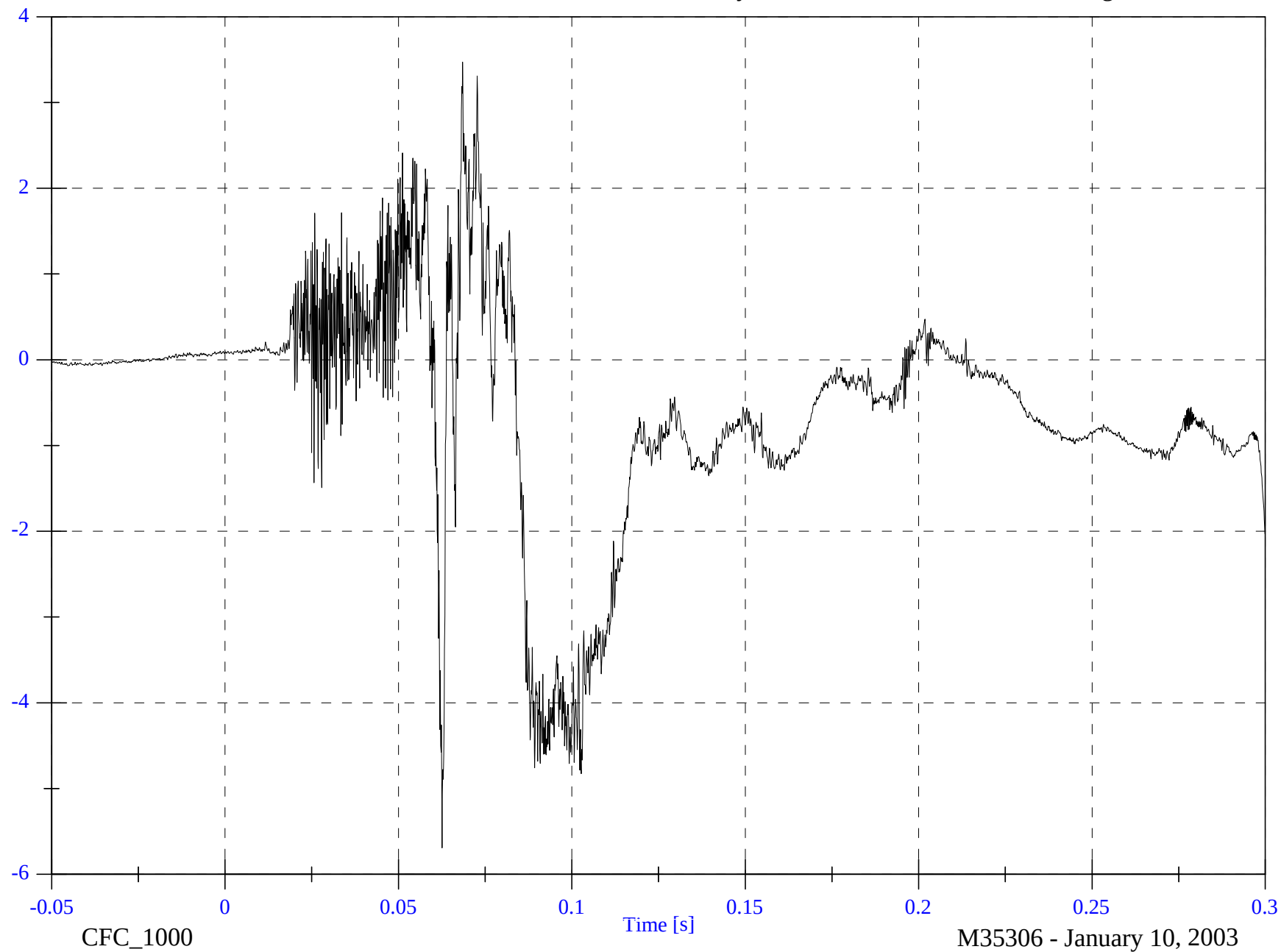
Max: 3.5 [g] at 0.068 [s]

Min: -5.7 [g] at 0.063 [s]

B-69

g

8642-NCAP-26



-0.05

0

0.05

0.1

0.15

0.2

0.25

0.3

Time [s]

CFC_1000

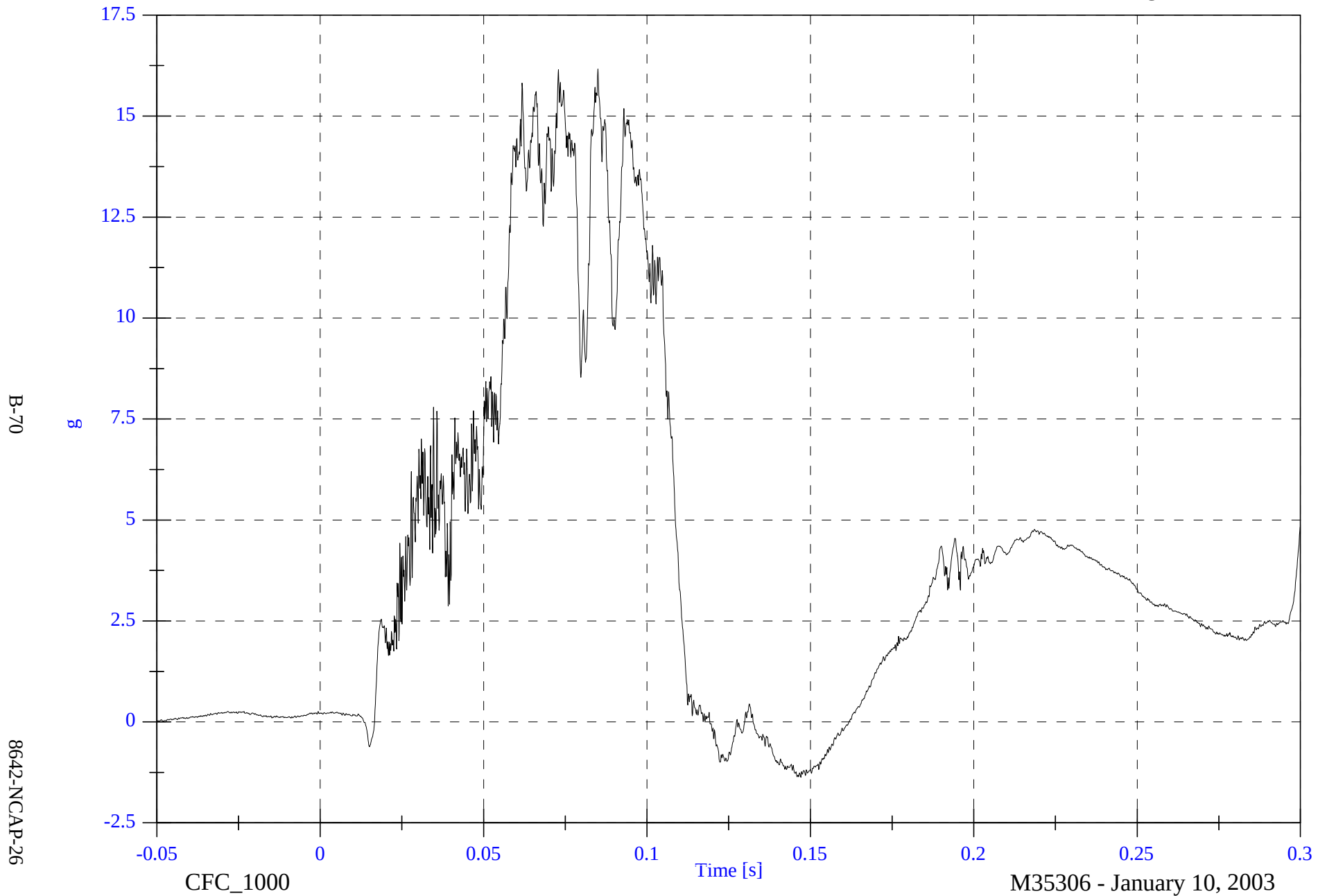
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Head CG z

Max: 16.2 [g] at 0.085 [s]

Min: -1.4 [g] at 0.147 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

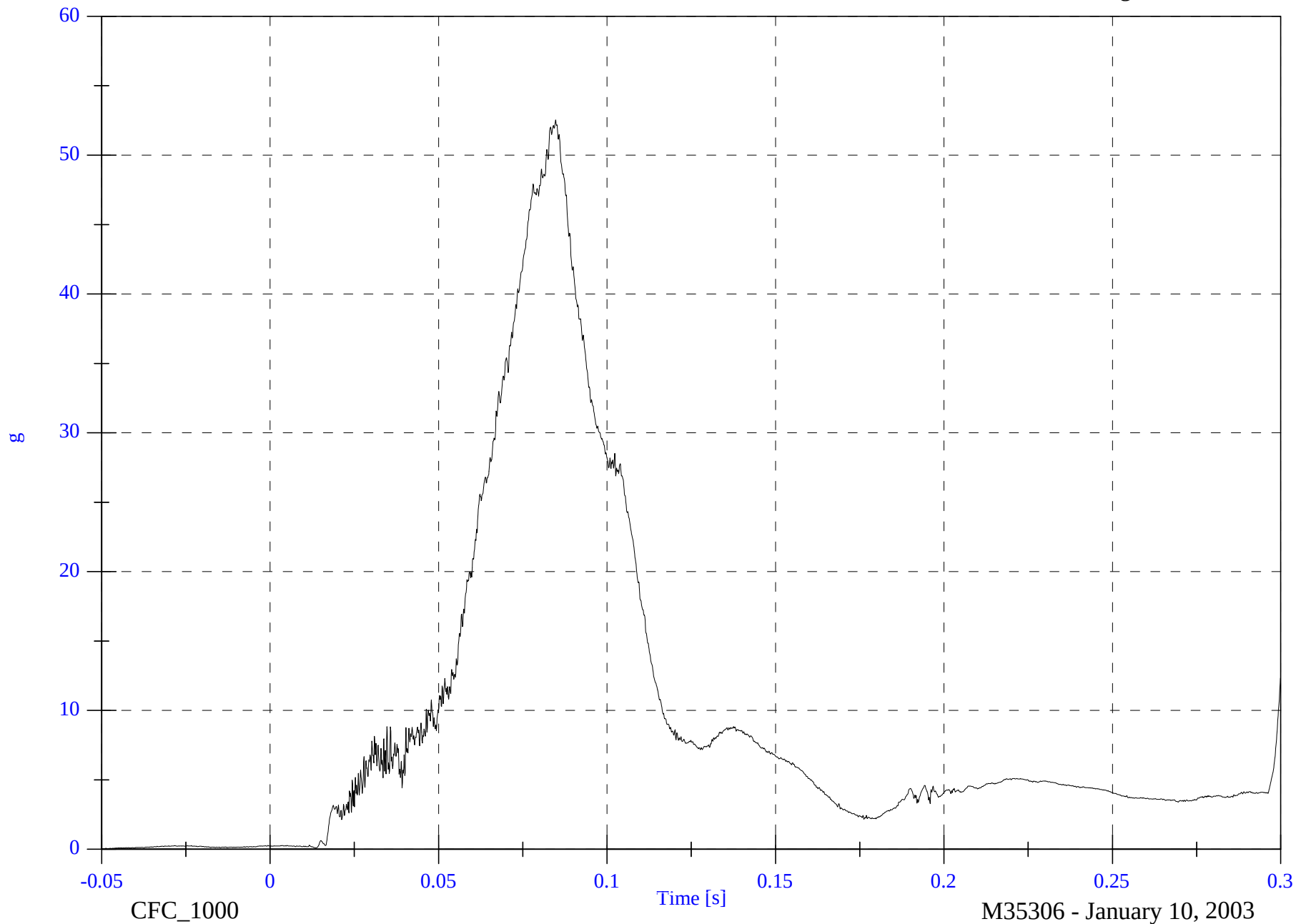
V1P2 Head CG Resultant

Max: 52.5 [g] at 0.085 [s]

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

B-71

8642-NCAP-26

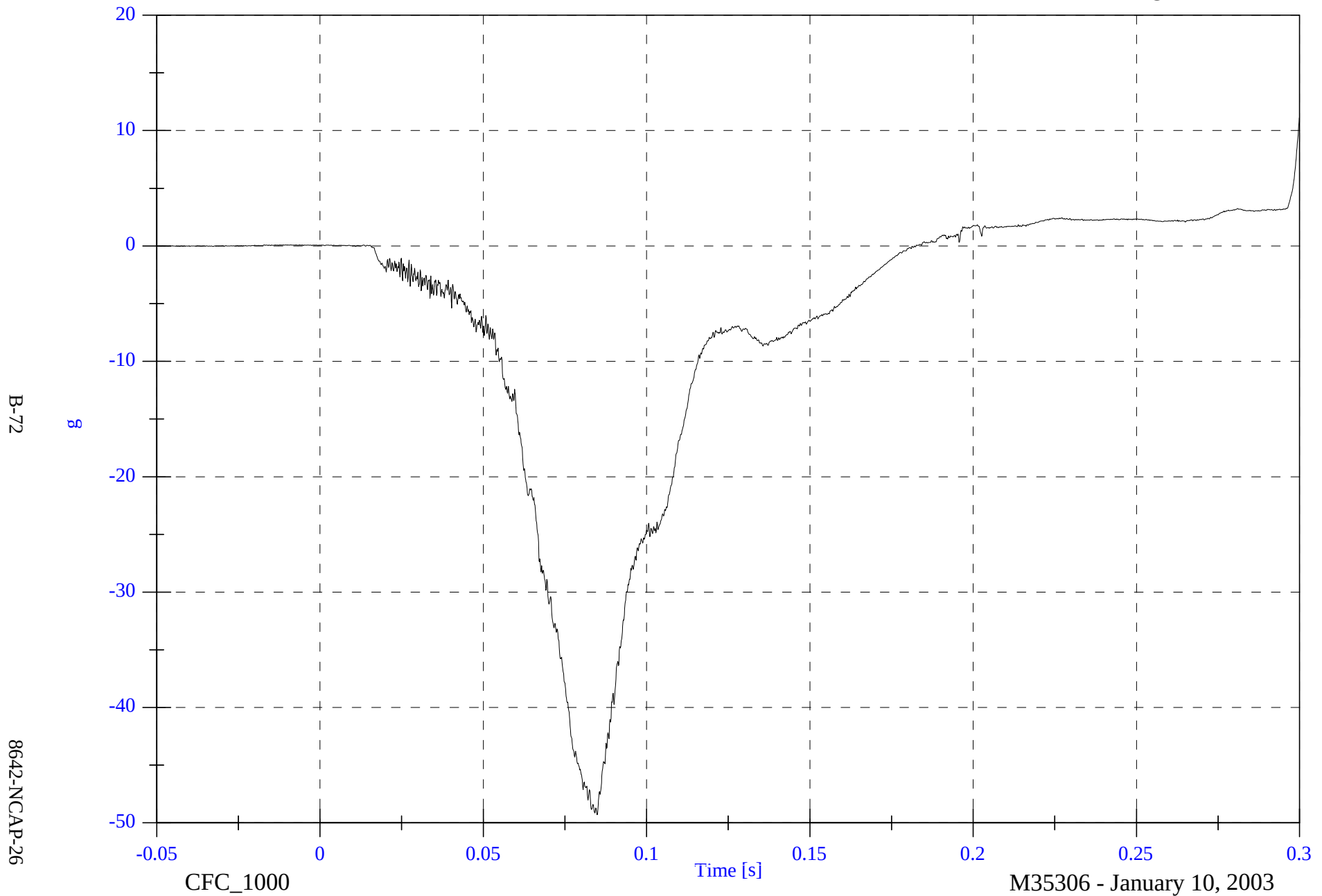


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Head CG Red x

Max: 11.1 [g] at 0.300 [s]

Min: -49.3 [g] at 0.085 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Head CG Red y

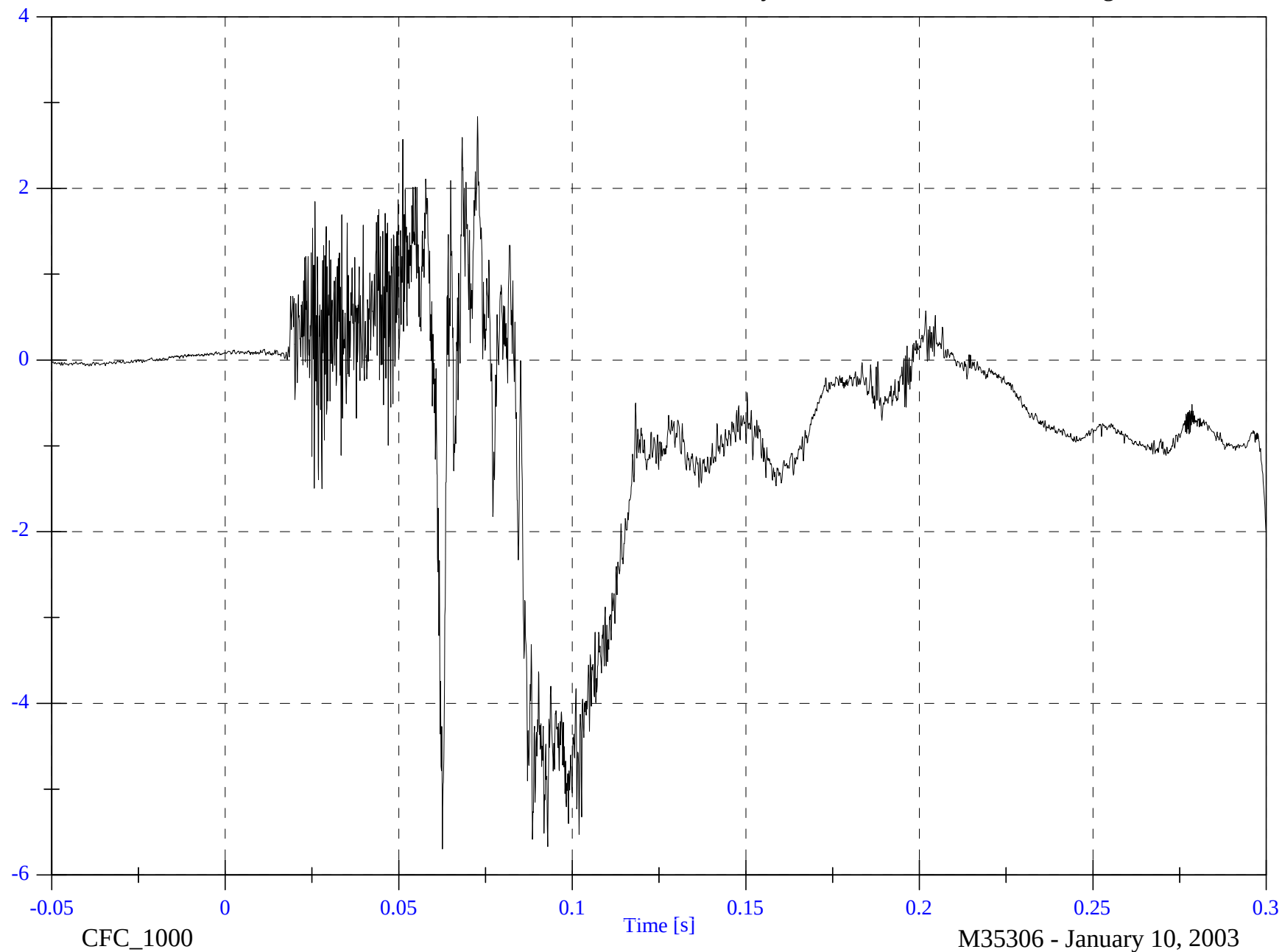
Max: 2.8 [g] at 0.073 [s]

Min: -5.7 [g] at 0.063 [s]

B-73

8642-NCAP-26

g

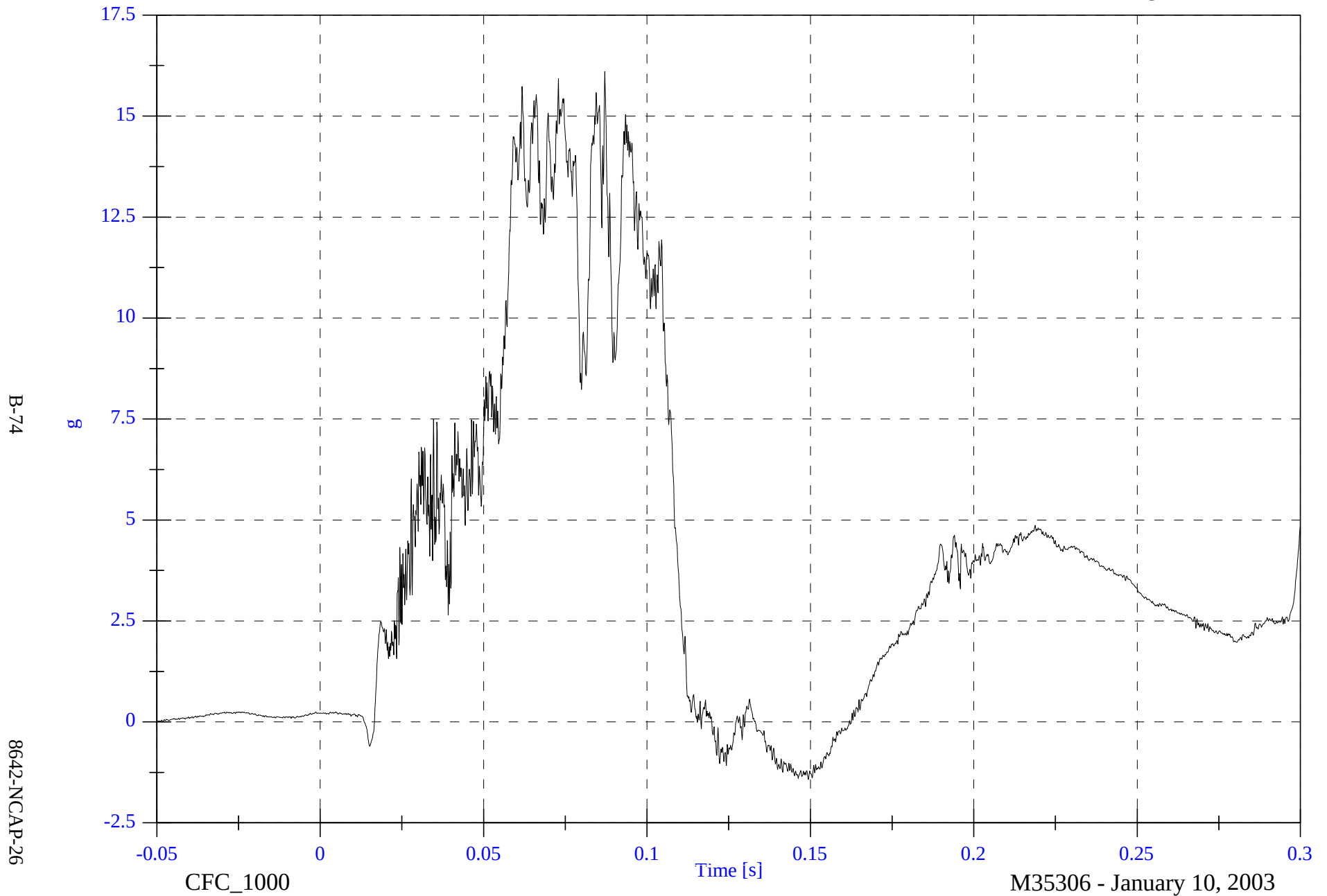


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Head CG Red z

Max: 16.1 [g] at 0.087 [s]

Min: -1.4 [g] at 0.149 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

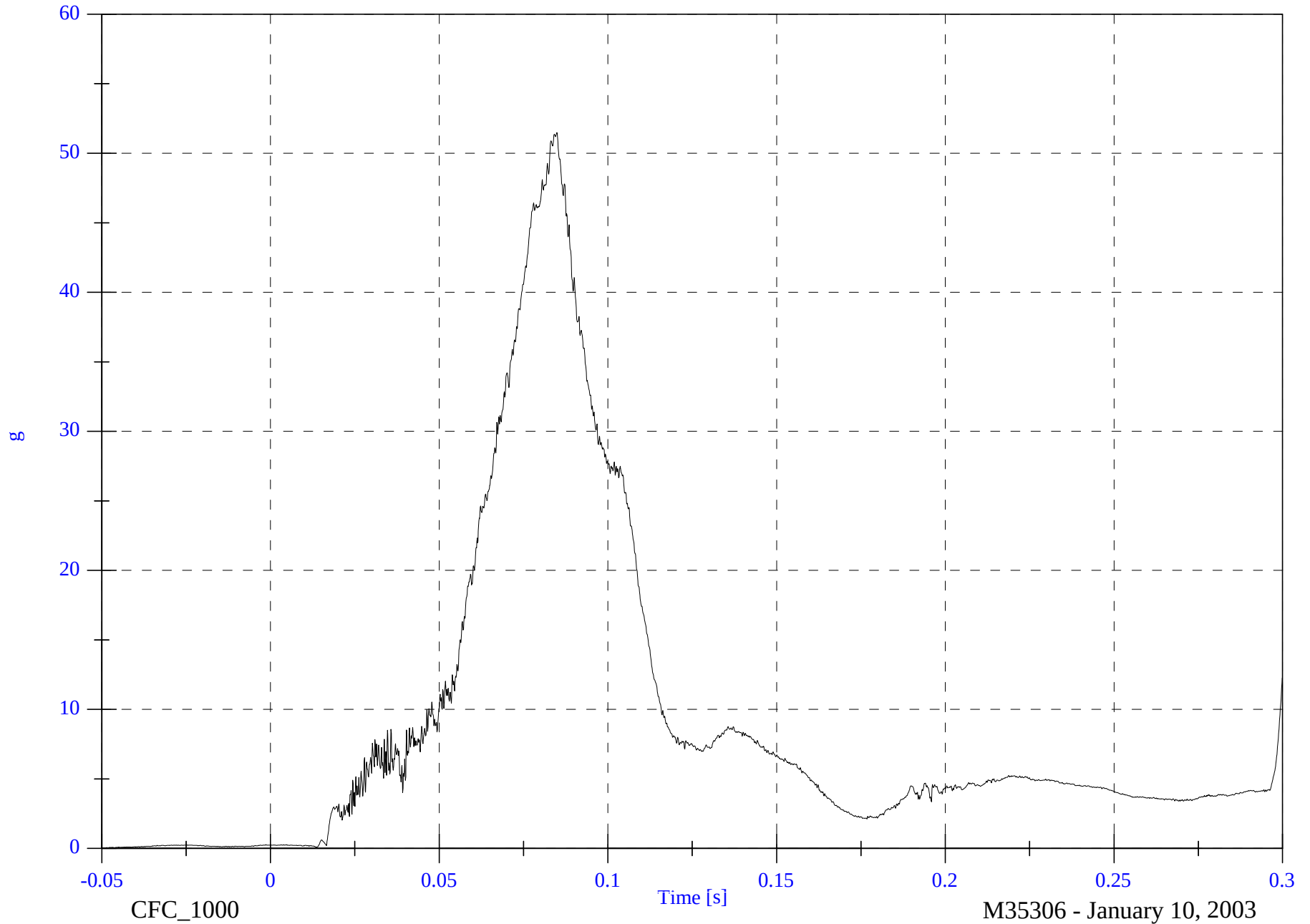
V1P2 Head CG Red Resultant

Max: 51.5 [g] at 0.085 [s]

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

B-75

8642-NCAP-26

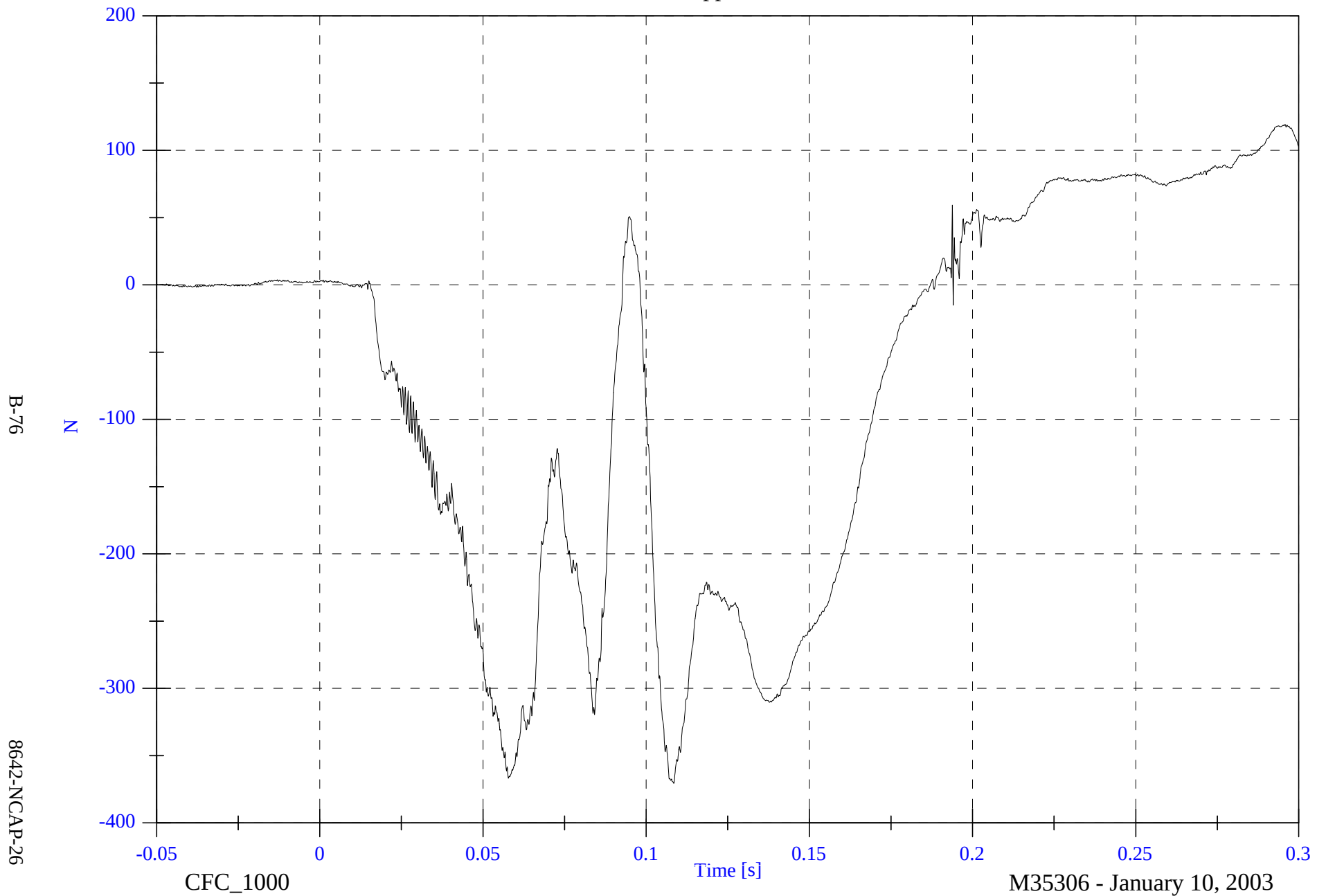


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Upper Neck Fx

Max: 119.3 [N] at 0.296 [s]

Min: -370.7 [N] at 0.109 [s]

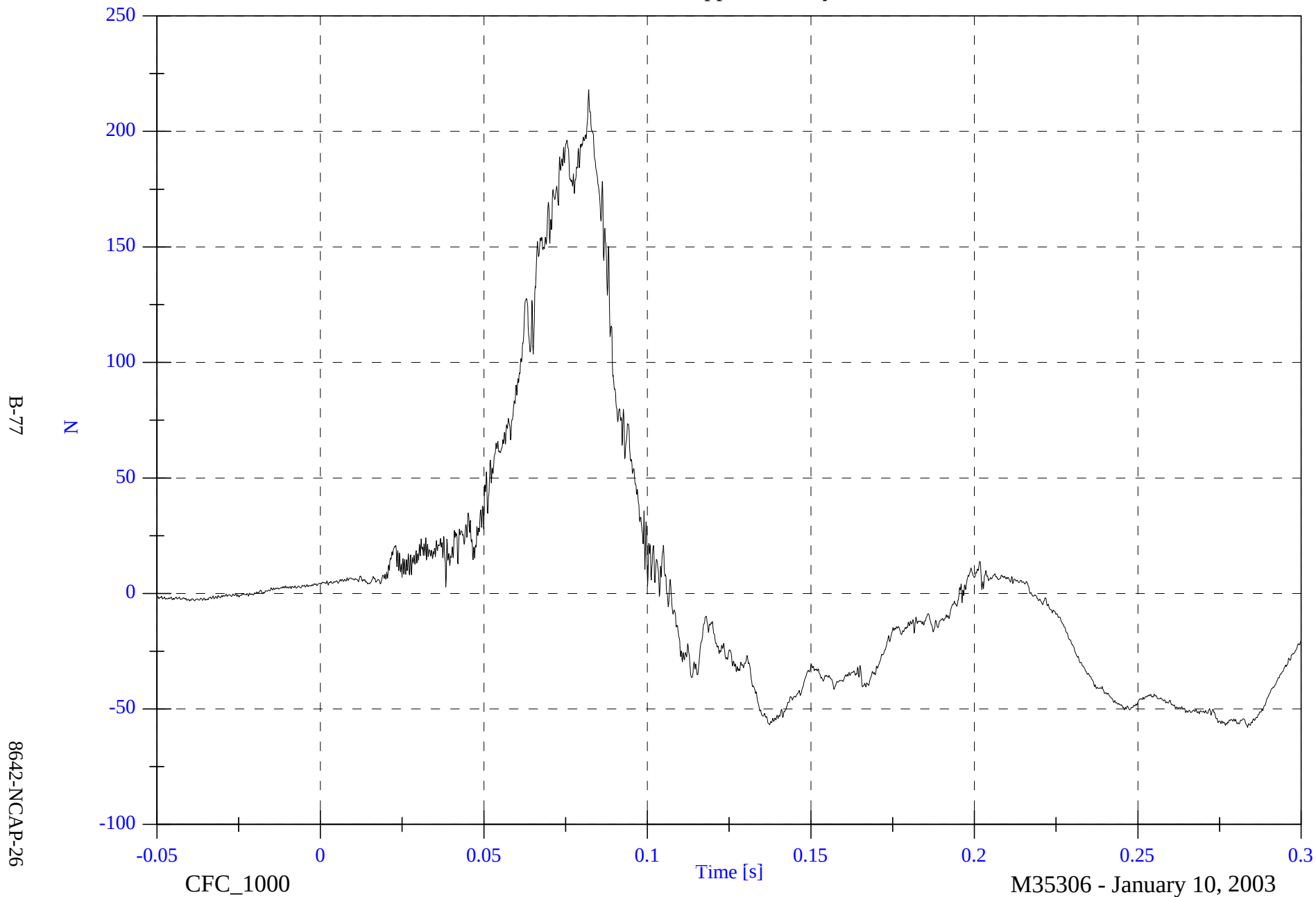


2003 NCAP Test #4 - 2003 Honda Odyssey

Max: 218.0 [N] at 0.082 [s]

V1P2 Upper Neck Fy

Min: -58.0 [N] at 0.284 [s]

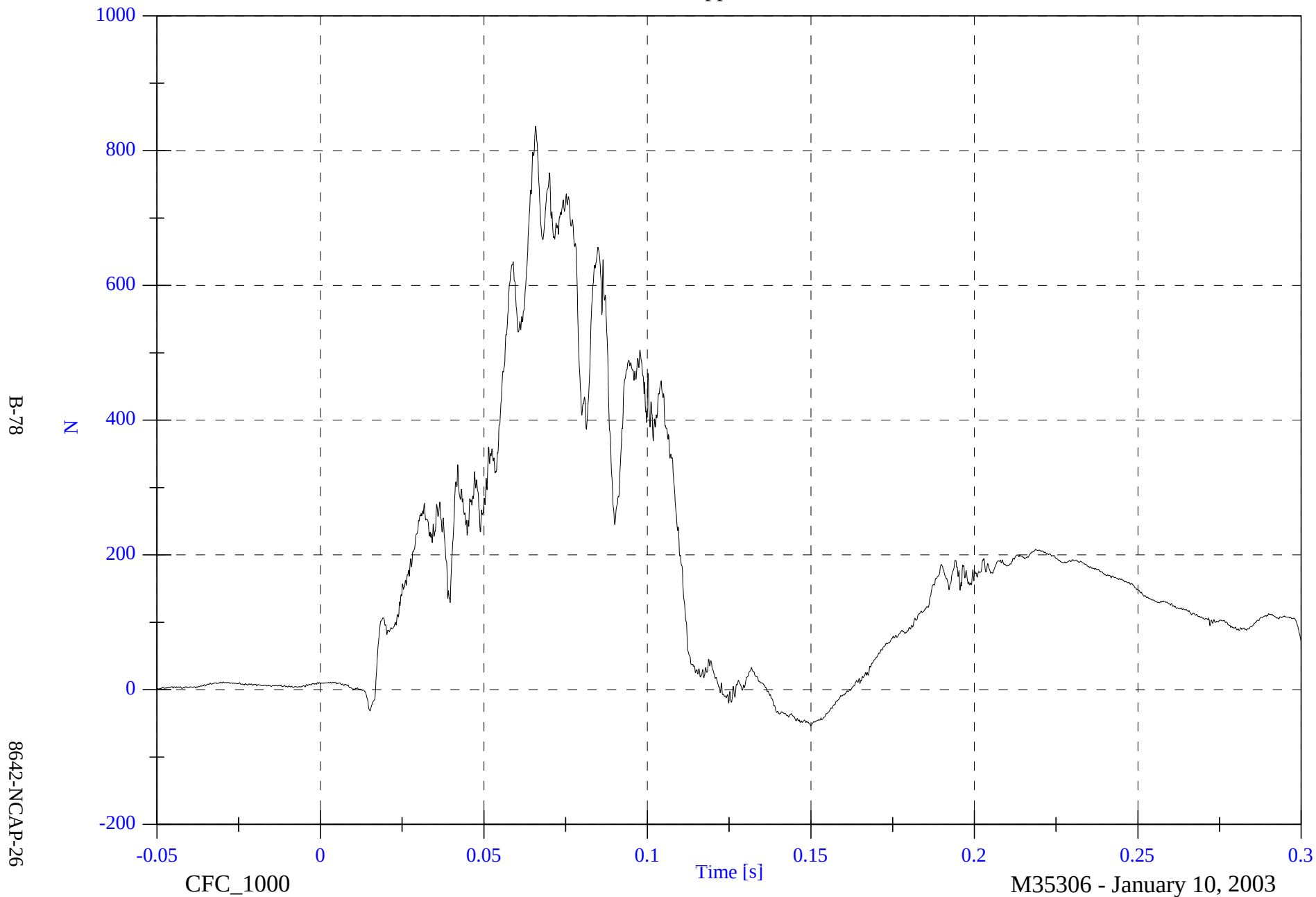


2003 NCAP Test #4 - 2003 Honda Odyssey

Max: 836.2 [N] at 0.066 [s]

V1P2 Upper Neck Fz

Min: -53.4 [N] at 0.150 [s]

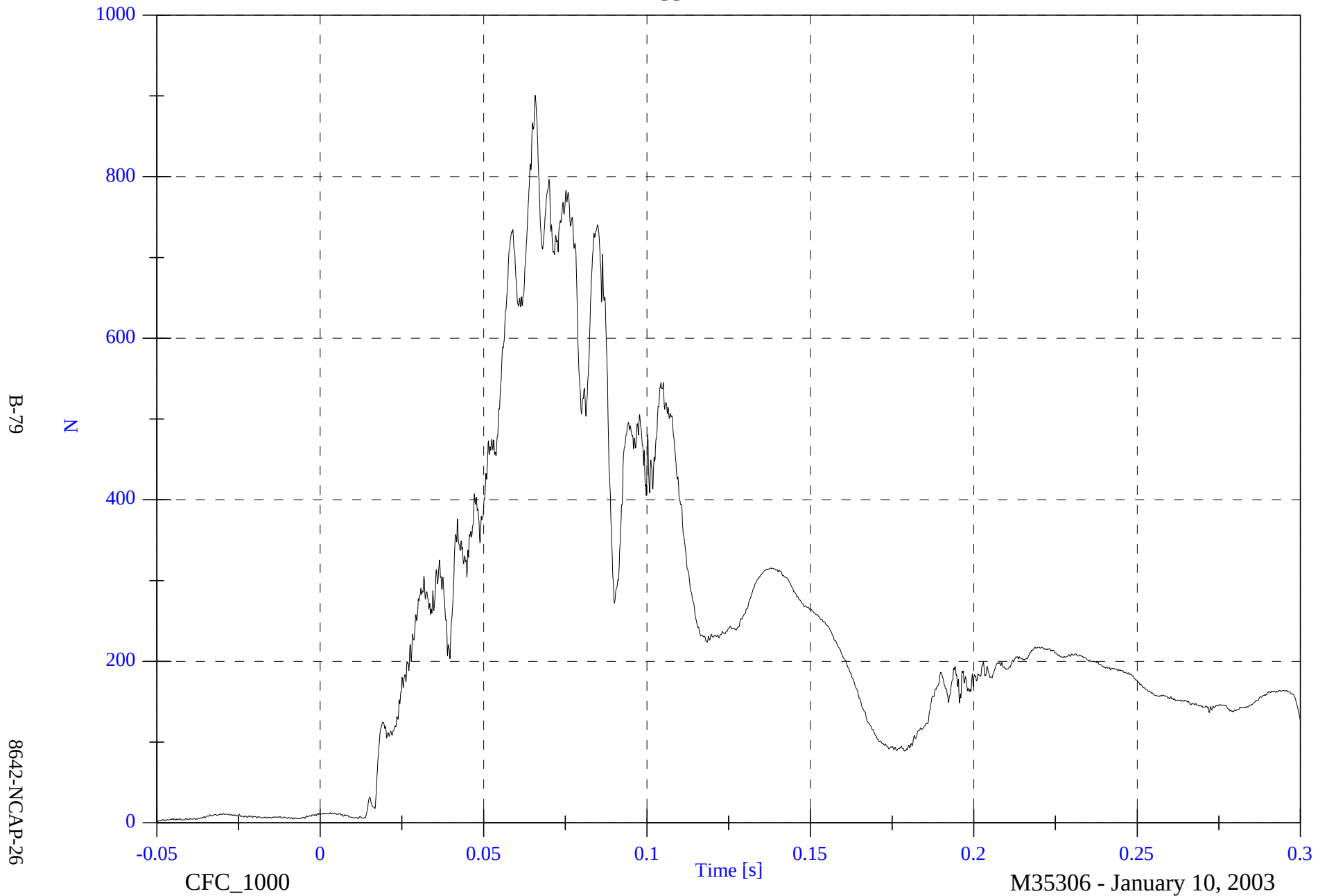


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Upper Neck F Resultant

Max: 900.8 [N] at 0.066 [s]

Min: 2.0 [N] at -0.050 [s]

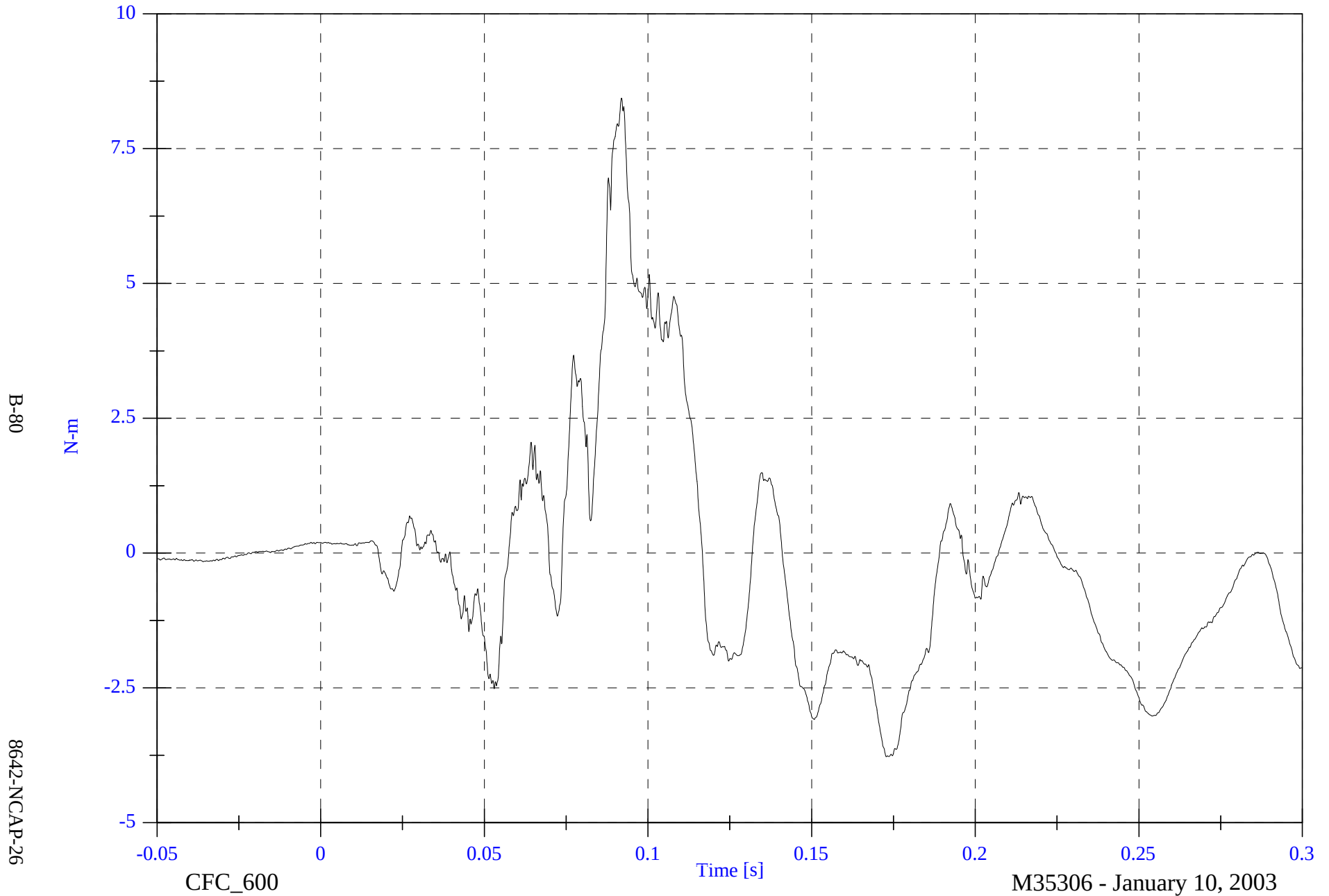


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Upper Neck Mx

Max: 8.4 [N-m] at 0.092 [s]

Min: -3.8 [N-m] at 0.173 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Upper Neck My

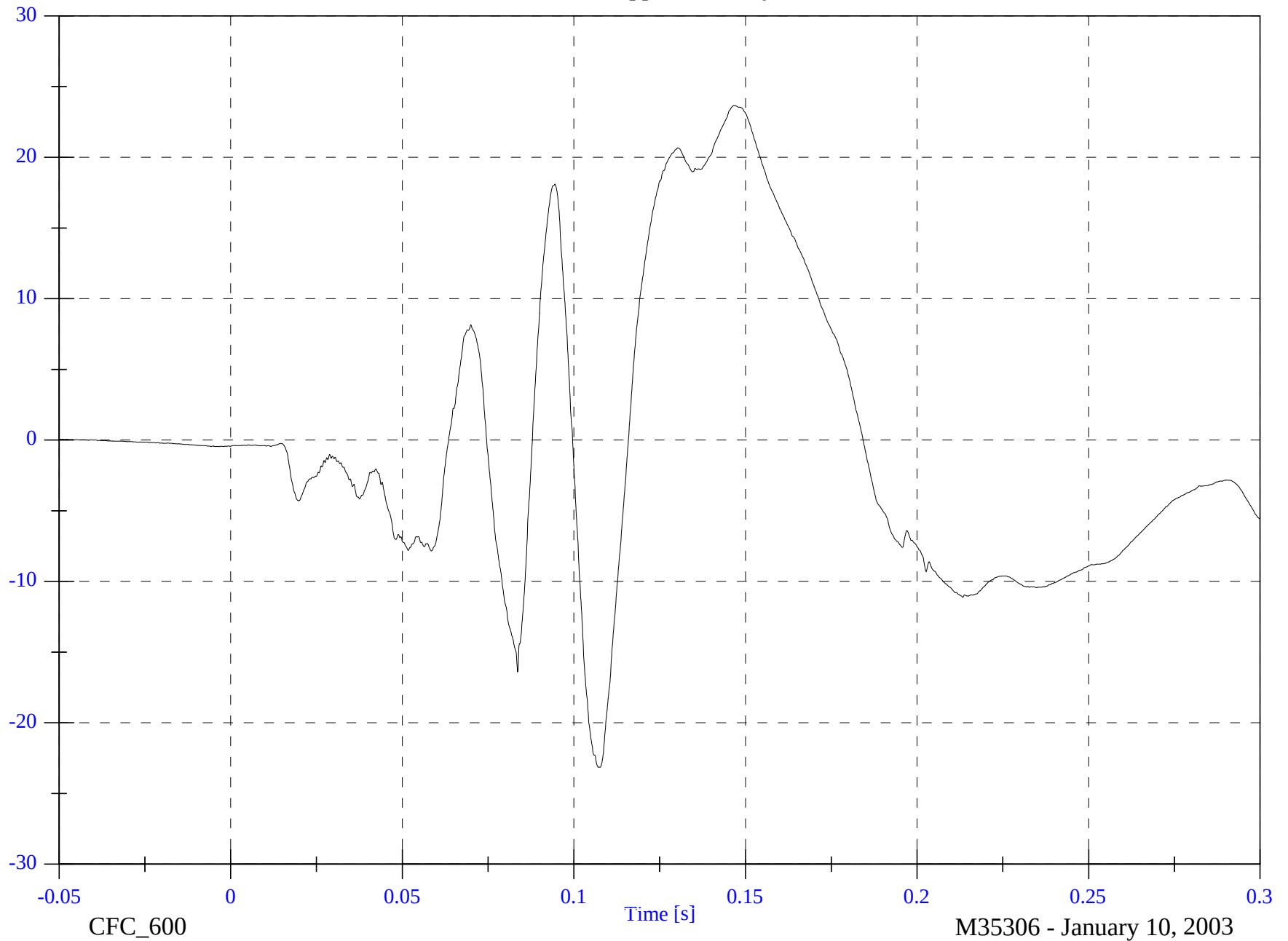
Max: 23.7 [N-m] at 0.147 [s]

Min: -23.1 [N-m] at 0.108 [s]

B-81

N-m

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Upper Neck Mz

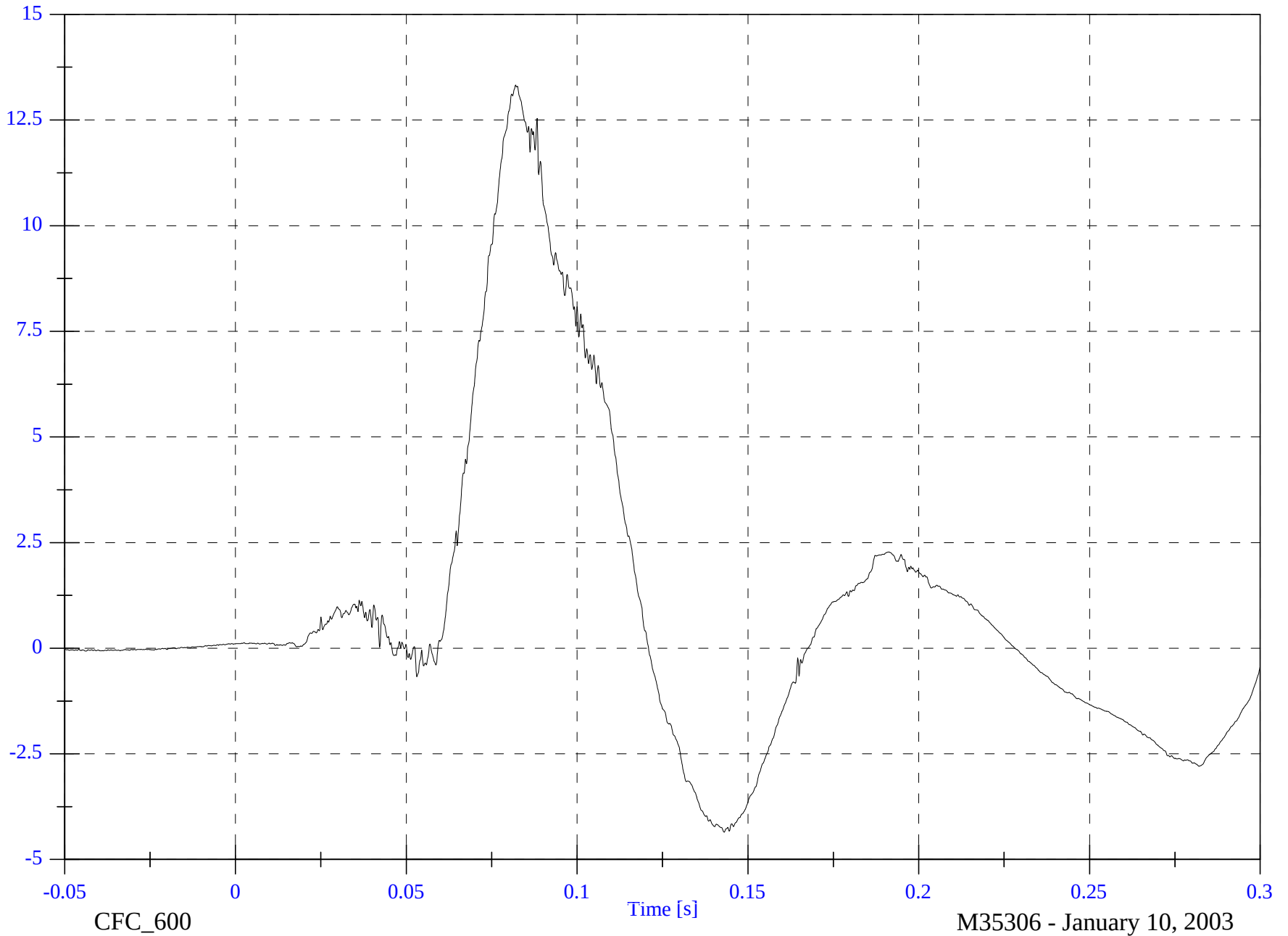
Max: 13.3 [N-m] at 0.082 [s]

Min: -4.4 [N-m] at 0.143 [s]

B-82

N-m

8642-NCAP-26



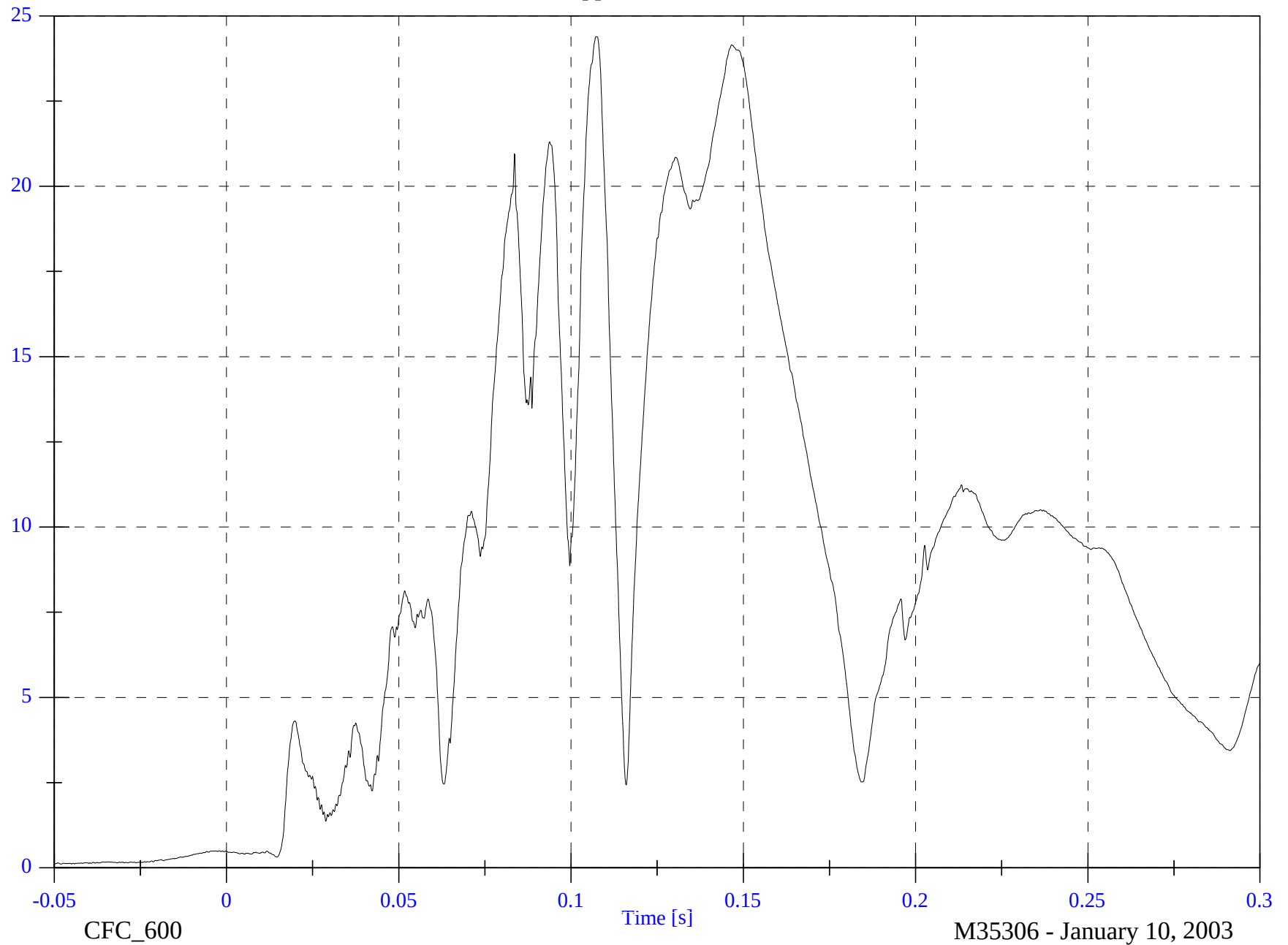
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2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Upper Neck M Resultant

Max: 24.4 [N-m] at 0.107 [s]

Min: 0.1 [N-m] at -0.048 [s]



B-83

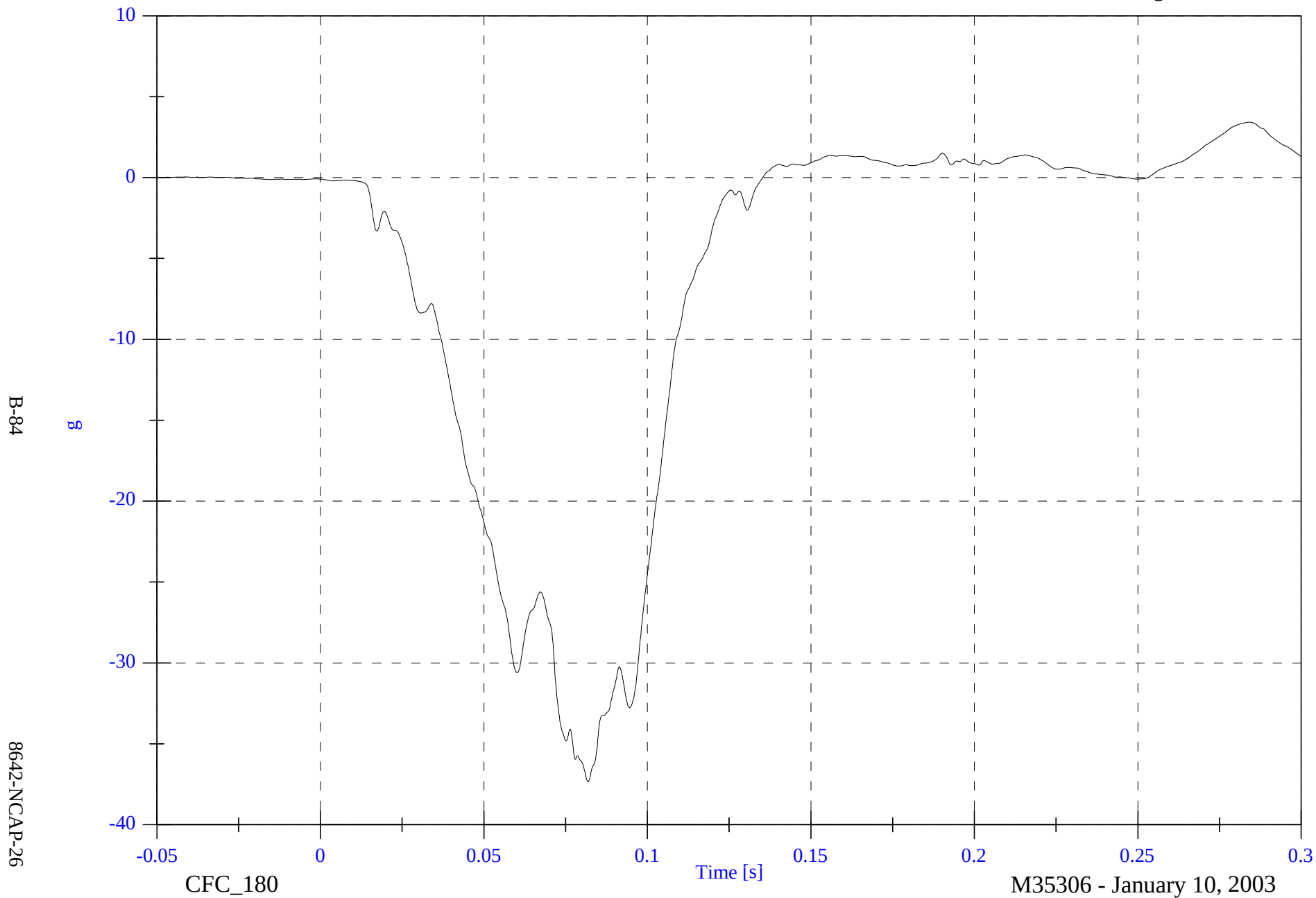
8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Chest x

Max: 3.4 [g] at 0.284 [s]

Min: -37.4 [g] at 0.082 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Chest y

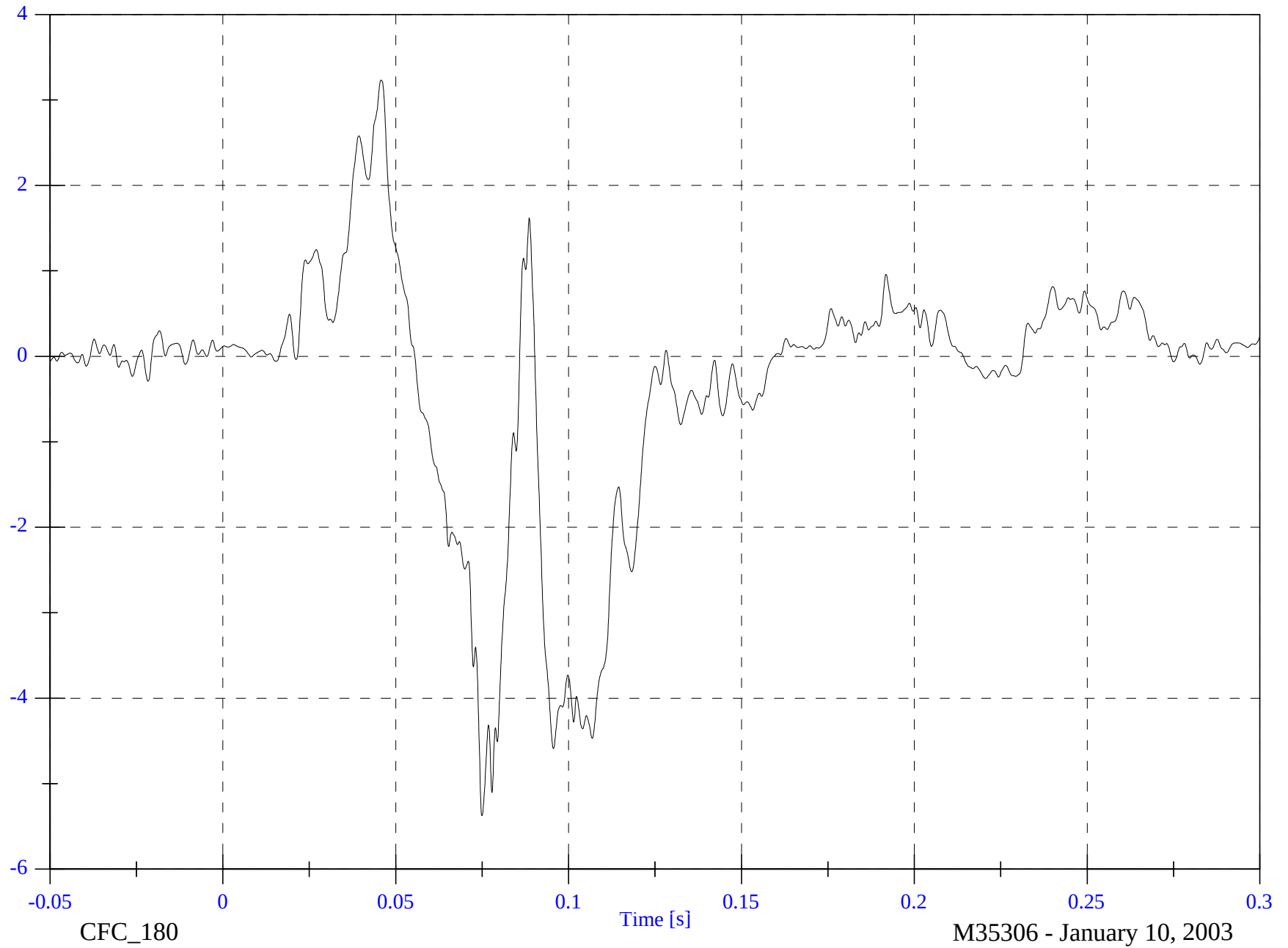
Max: 3.2 [g] at 0.046 [s]

Min: -5.4 [g] at 0.075 [s]

B-85

g

8642-NCAP-26

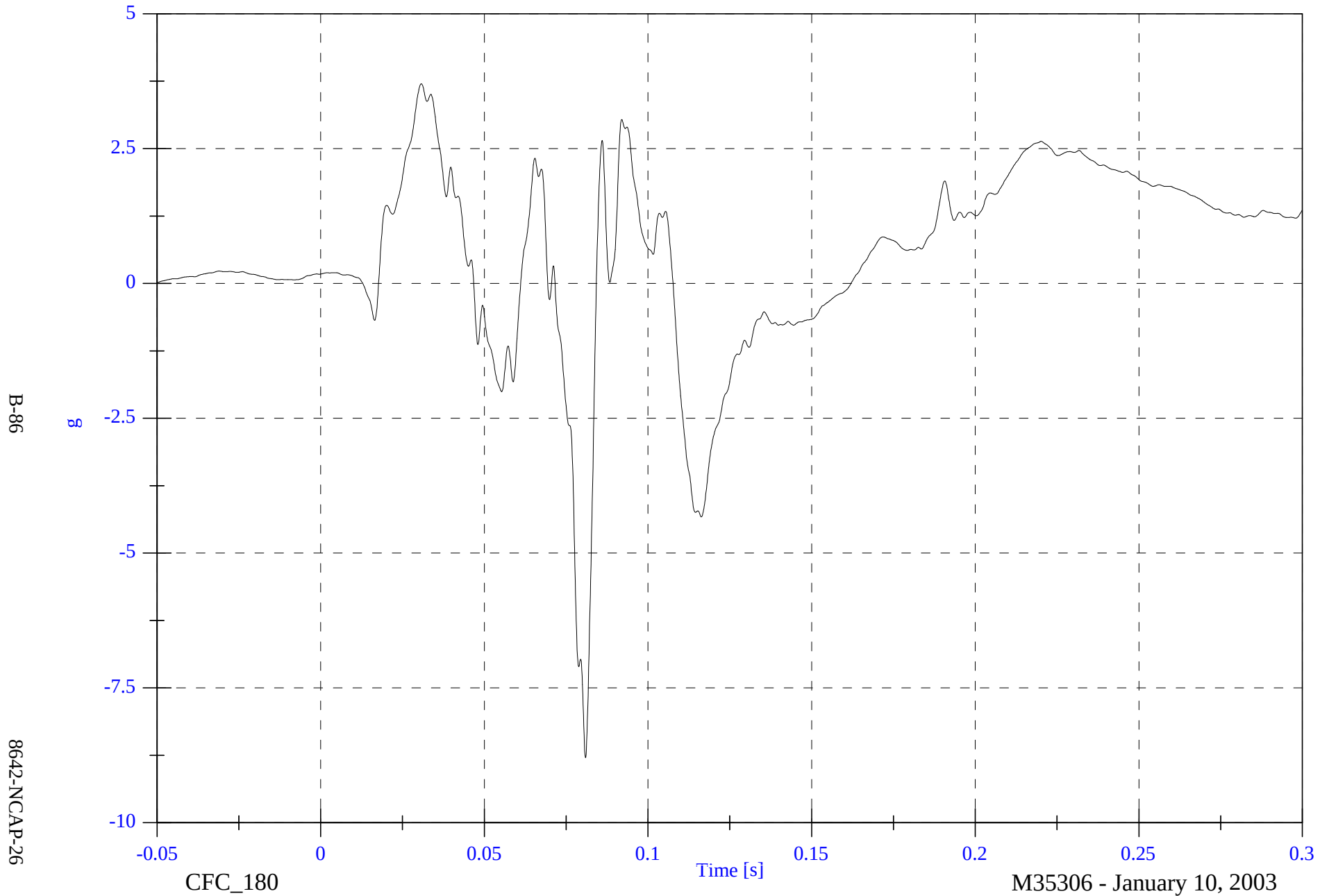


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Chest z

Max: 3.7 [g] at 0.031 [s]

Min: -8.8 [g] at 0.081 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

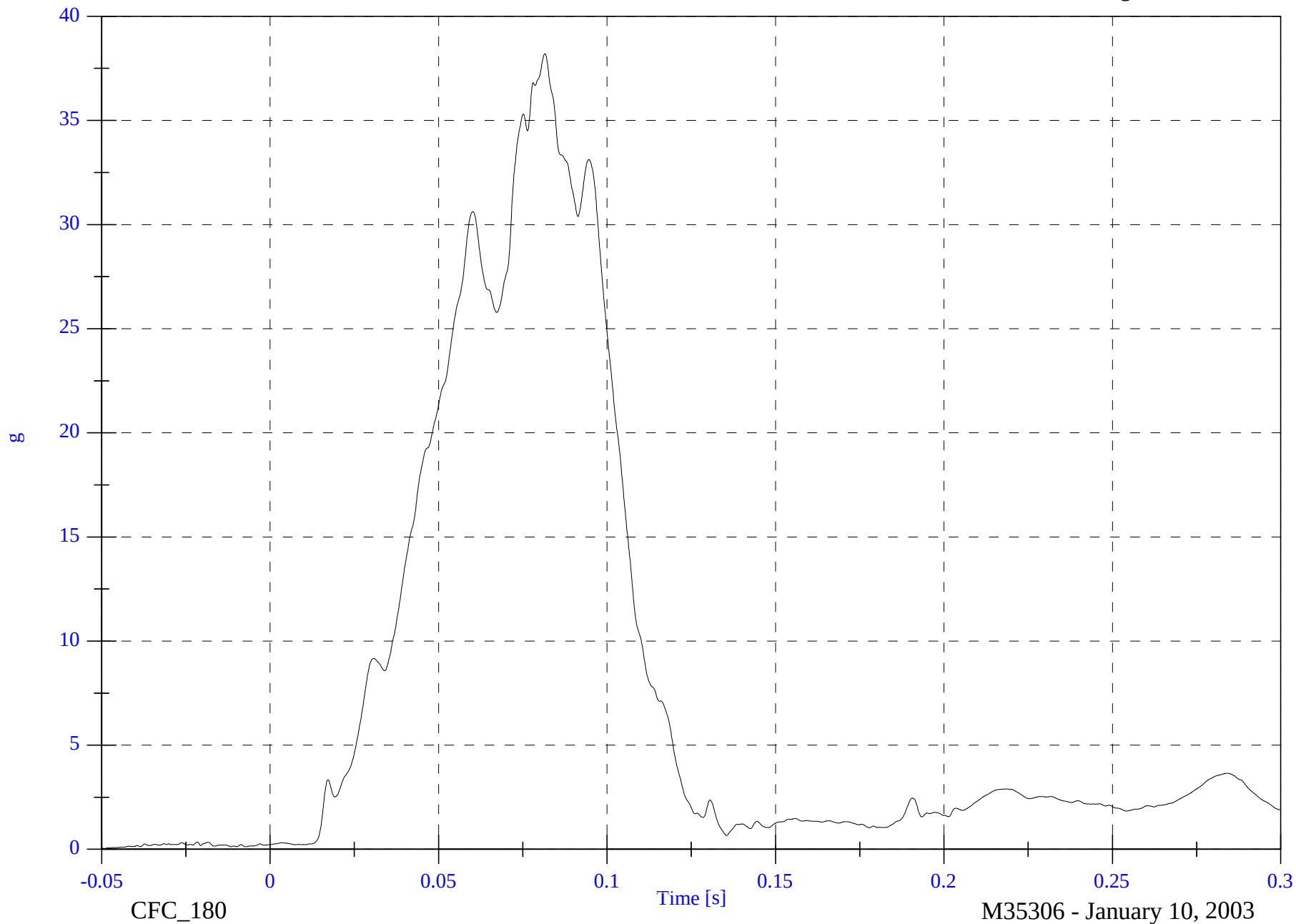
V1P2 Chest Resultant

Max: 38.2 [g] at 0.082 [s]

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

B-87

8642-NCAP-26

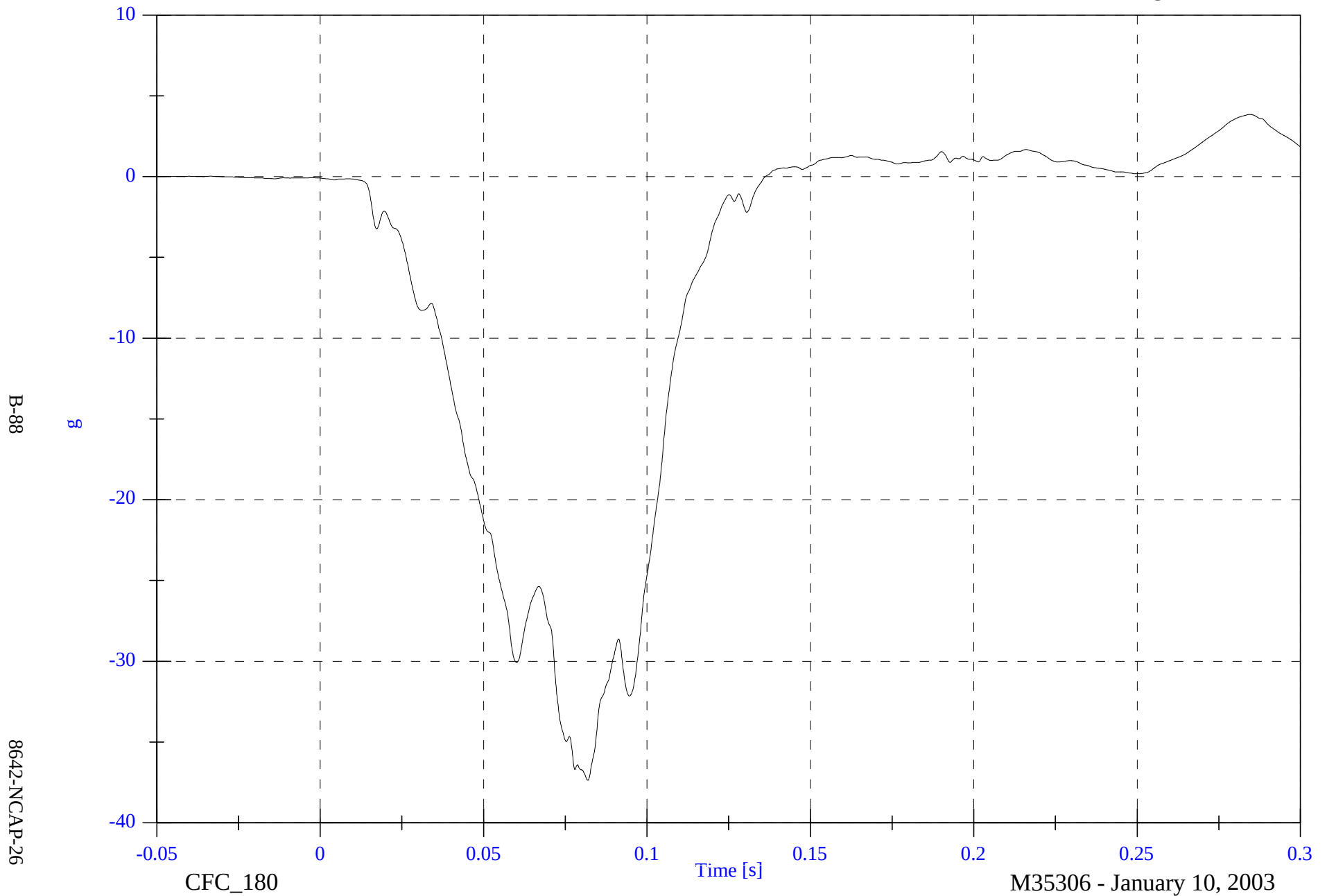


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Chest Red x

Max: 3.8 [g] at 0.285 [s]

Min: -37.4 [g] at 0.082 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Chest Red y

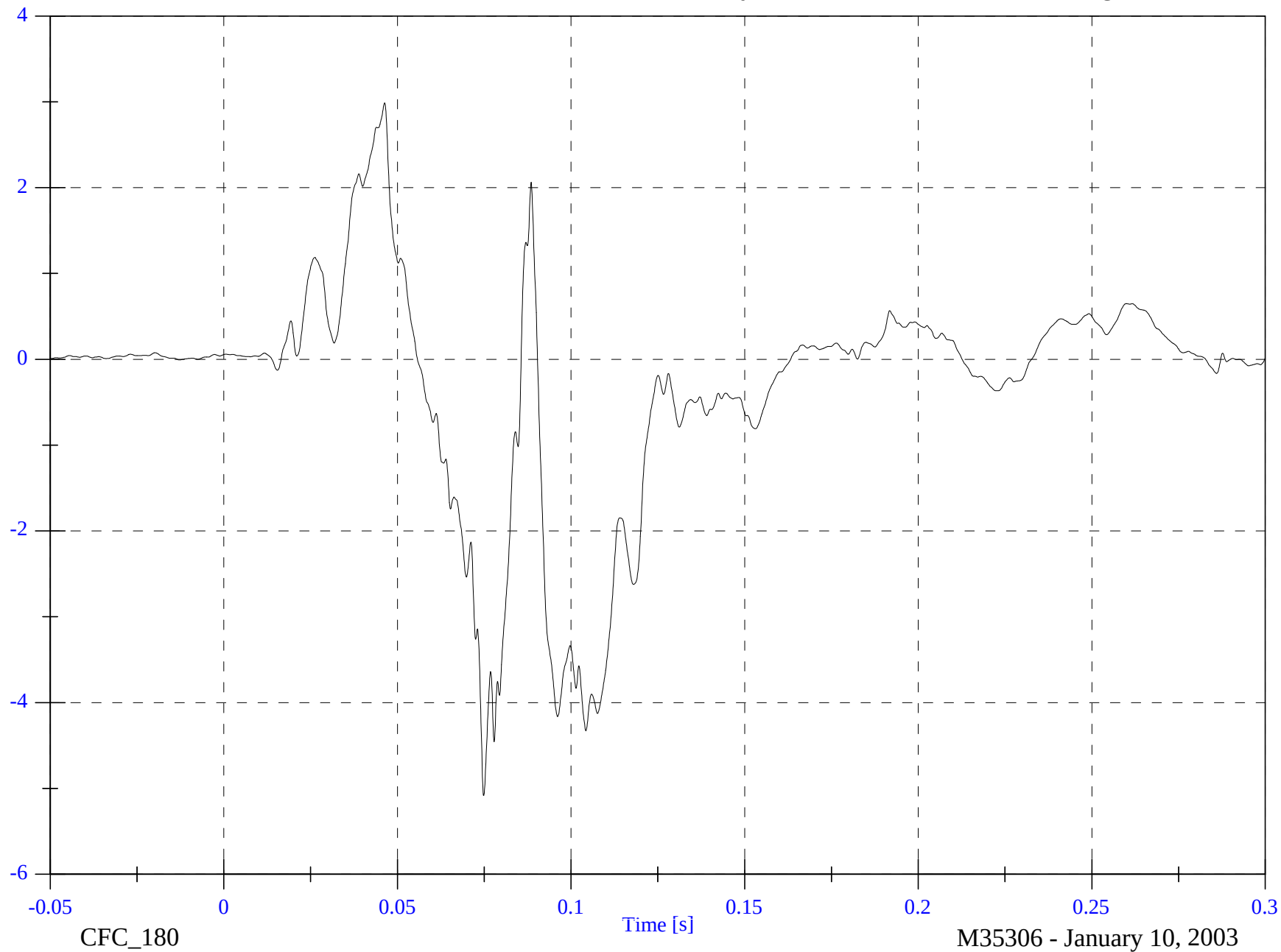
Max: 3.0 [g] at 0.046 [s]

Min: -5.1 [g] at 0.075 [s]

B-89

8642-NCAP-26

g



-0.05

0

0.05

0.1

0.15

0.2

0.25

0.3

CFC_180

Time [s]

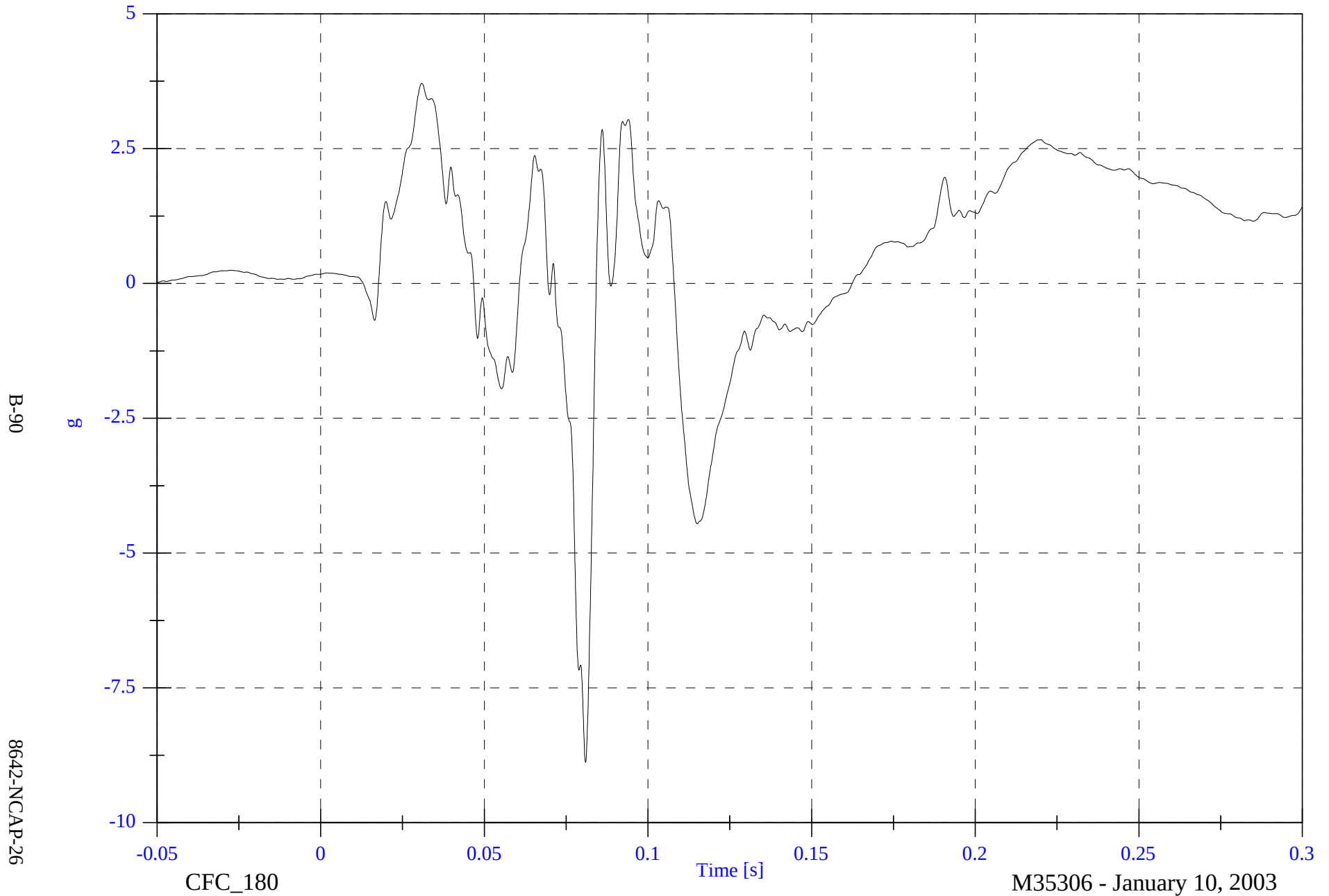
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Chest Red z

Max: 3.7 [g] at 0.031 [s]

Min: -8.9 [g] at 0.081 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

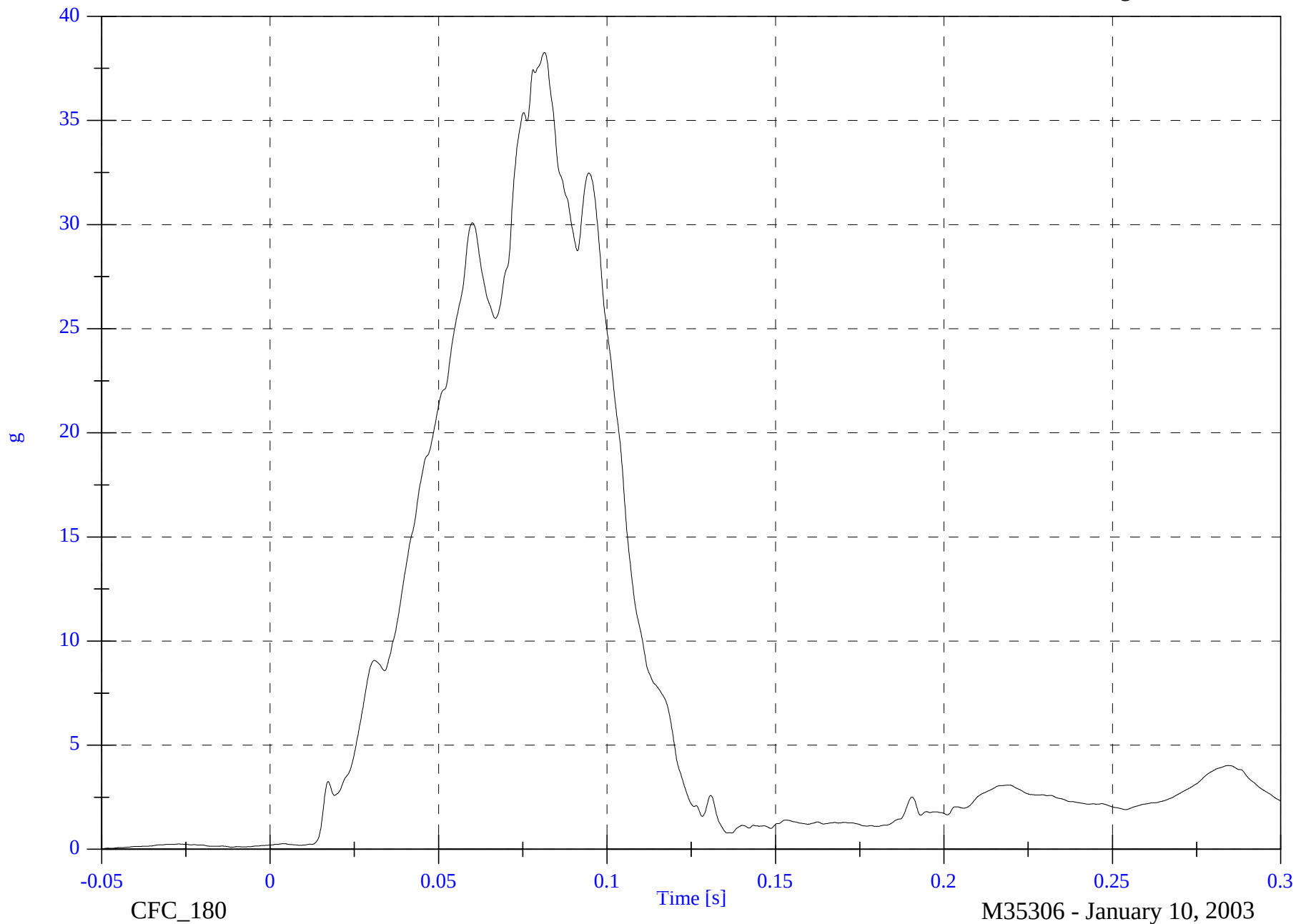
V1P2 Chest Red Resultant

Max: 38.3 [g] at 0.081 [s]

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

B-91

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

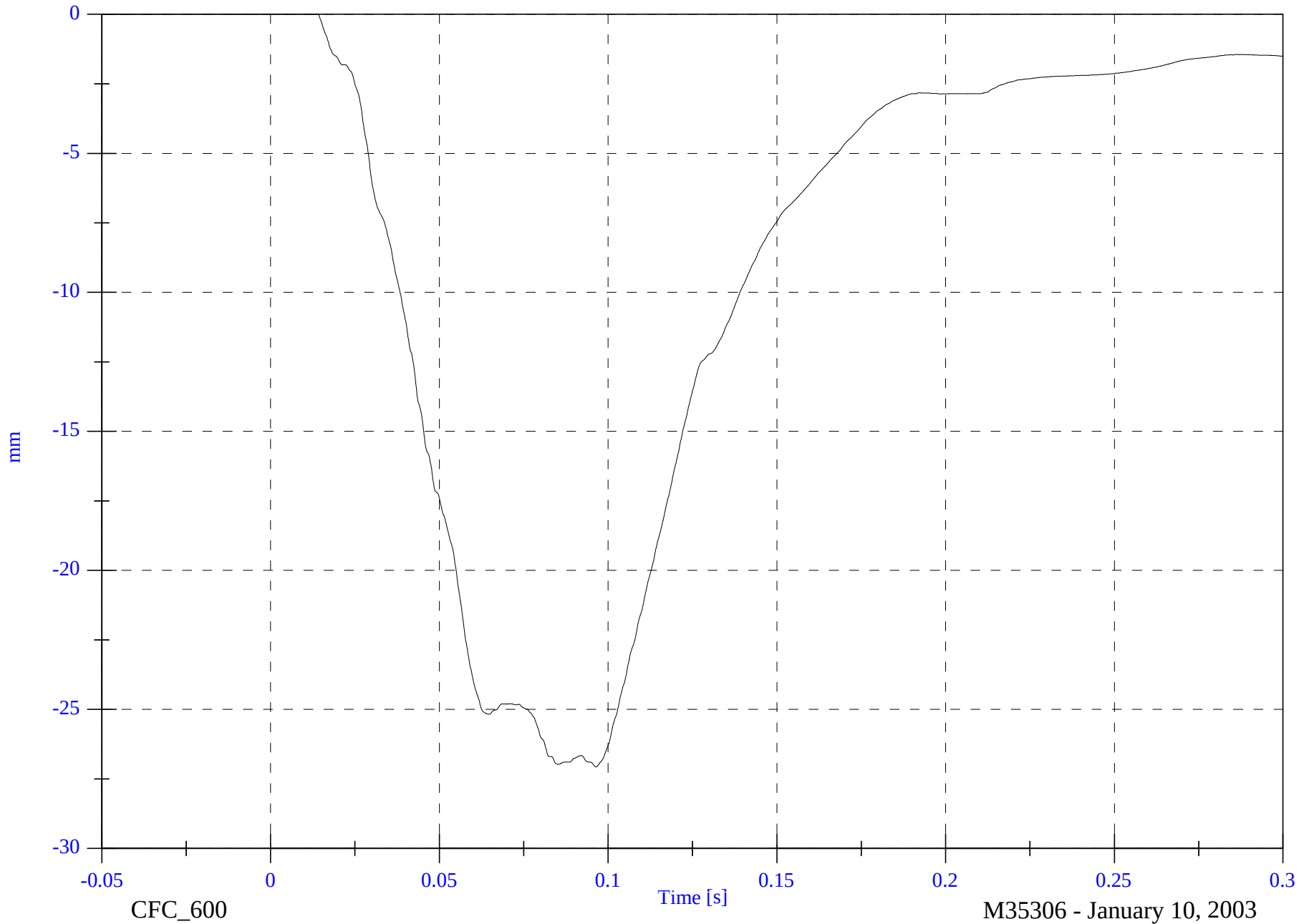
V1P2 Chest Compression

Max: 0.0 [mm] at -0.019 [s]

Min: -27.1 [mm] at 0.096 [s]

B-92

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CFC_600

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2003 NCAP Test #4 - 2003 Honda Odyssey

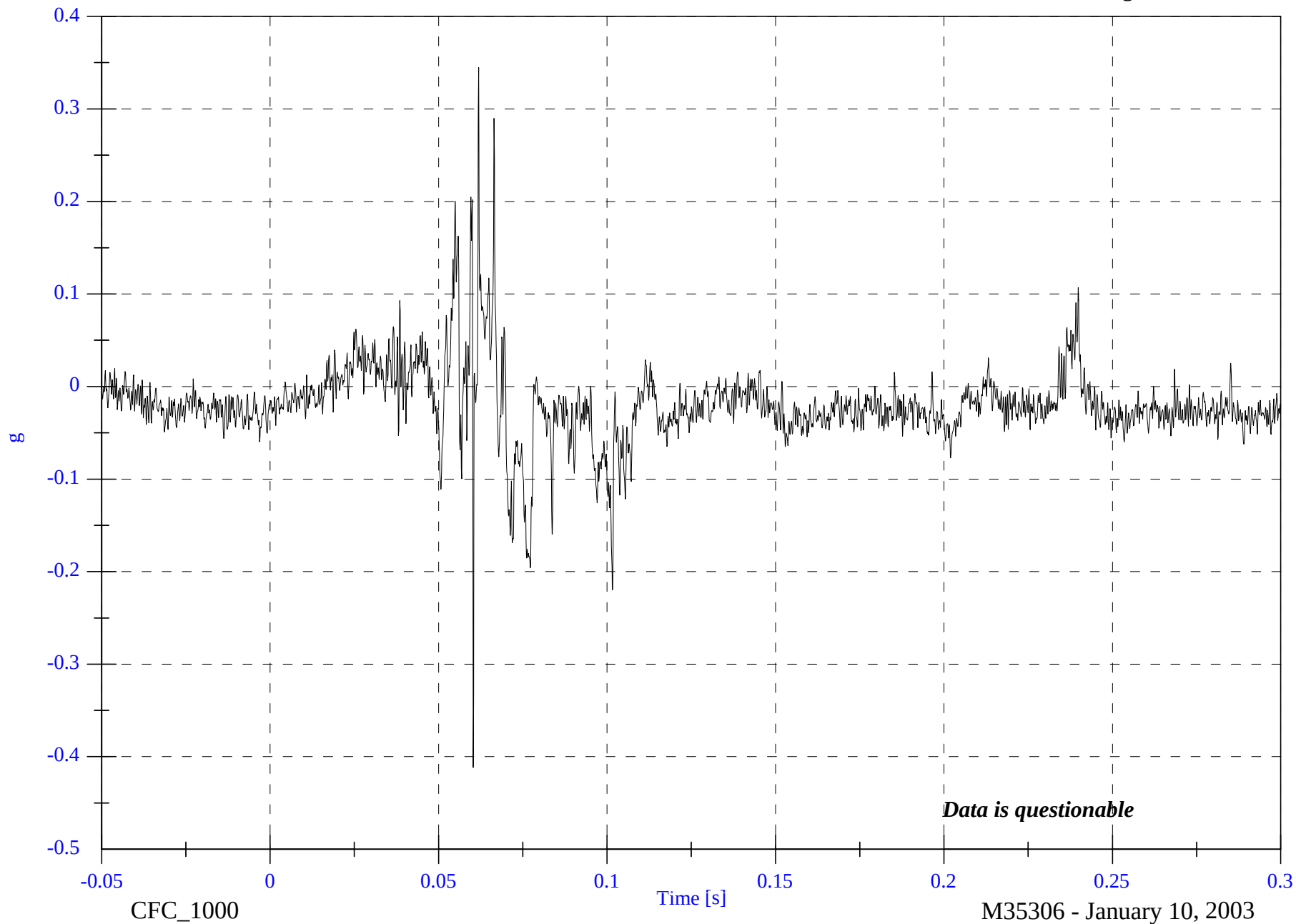
V1P2 Pelvic x

Max: 0.3 [g] at 0.062 [s]

Min: -0.4 [g] at 0.060 [s]

B-93

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

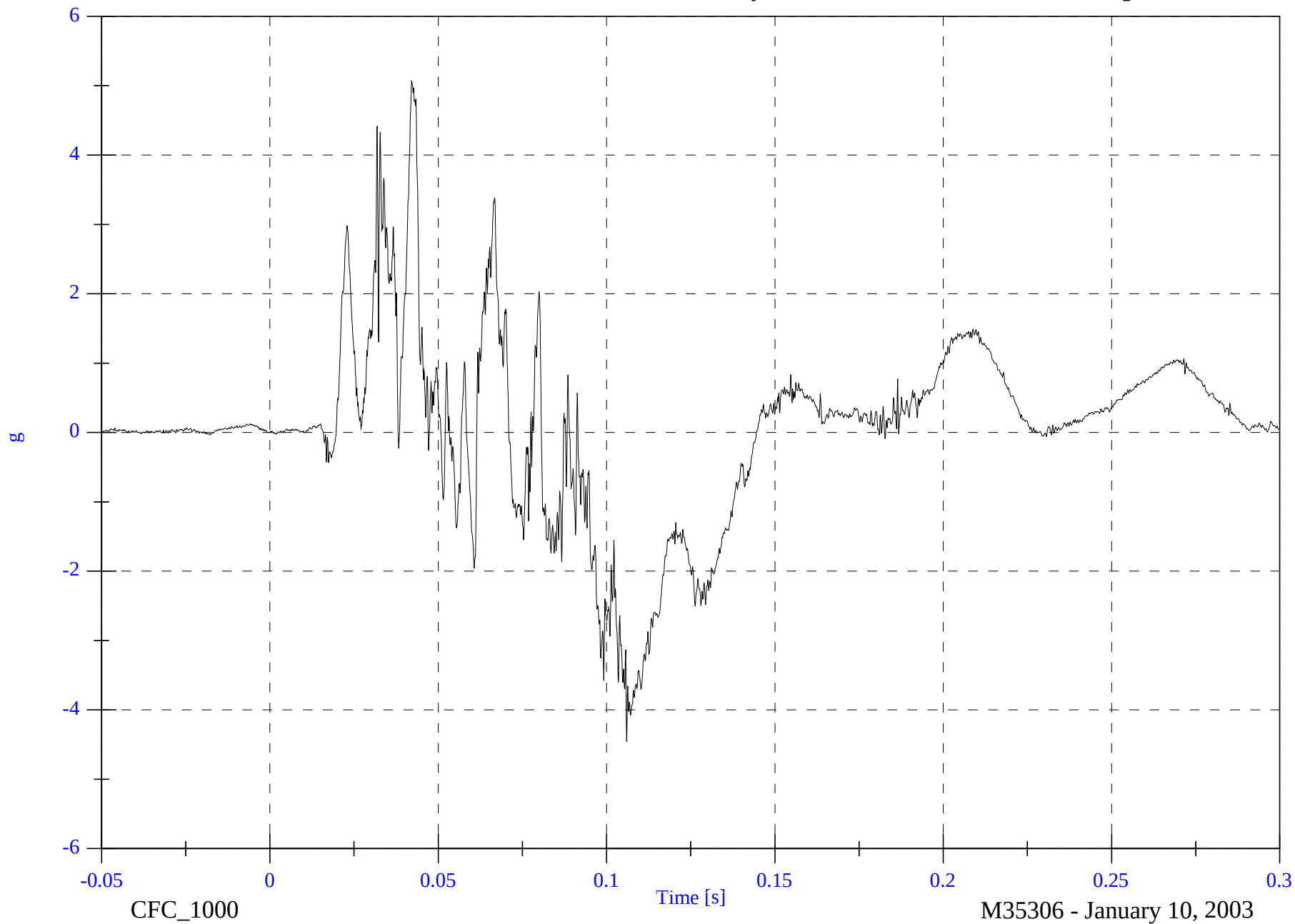
V1P2 Pelvic y

Max: 5.1 [g] at 0.042 [s]

Min: -4.5 [g] at 0.106 [s]

B-94

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

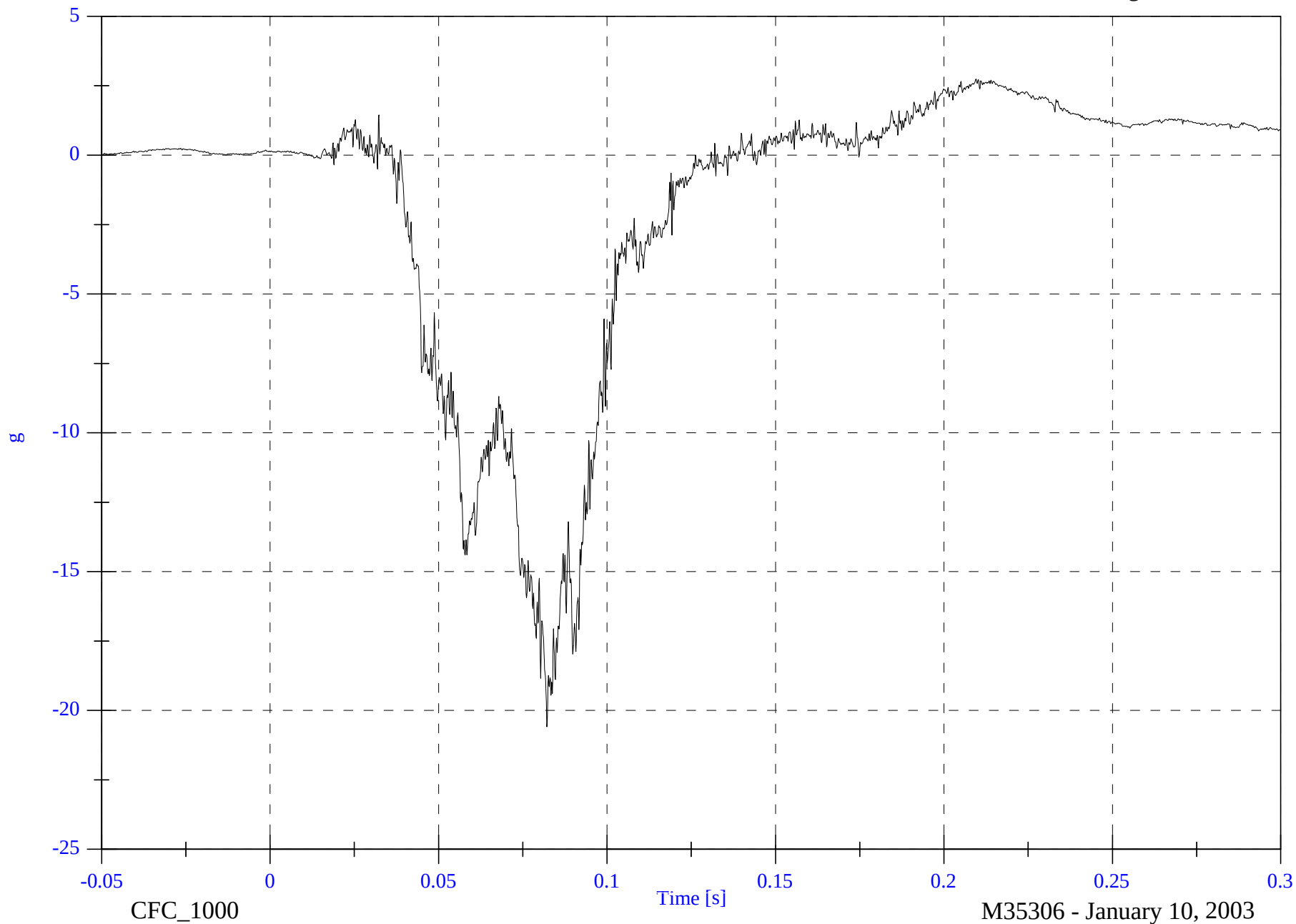
V1P2 Pelvic z

Max: 2.7 [g] at 0.209 [s]

Min: -20.6 [g] at 0.082 [s]

B-95

8642-NCAP-26

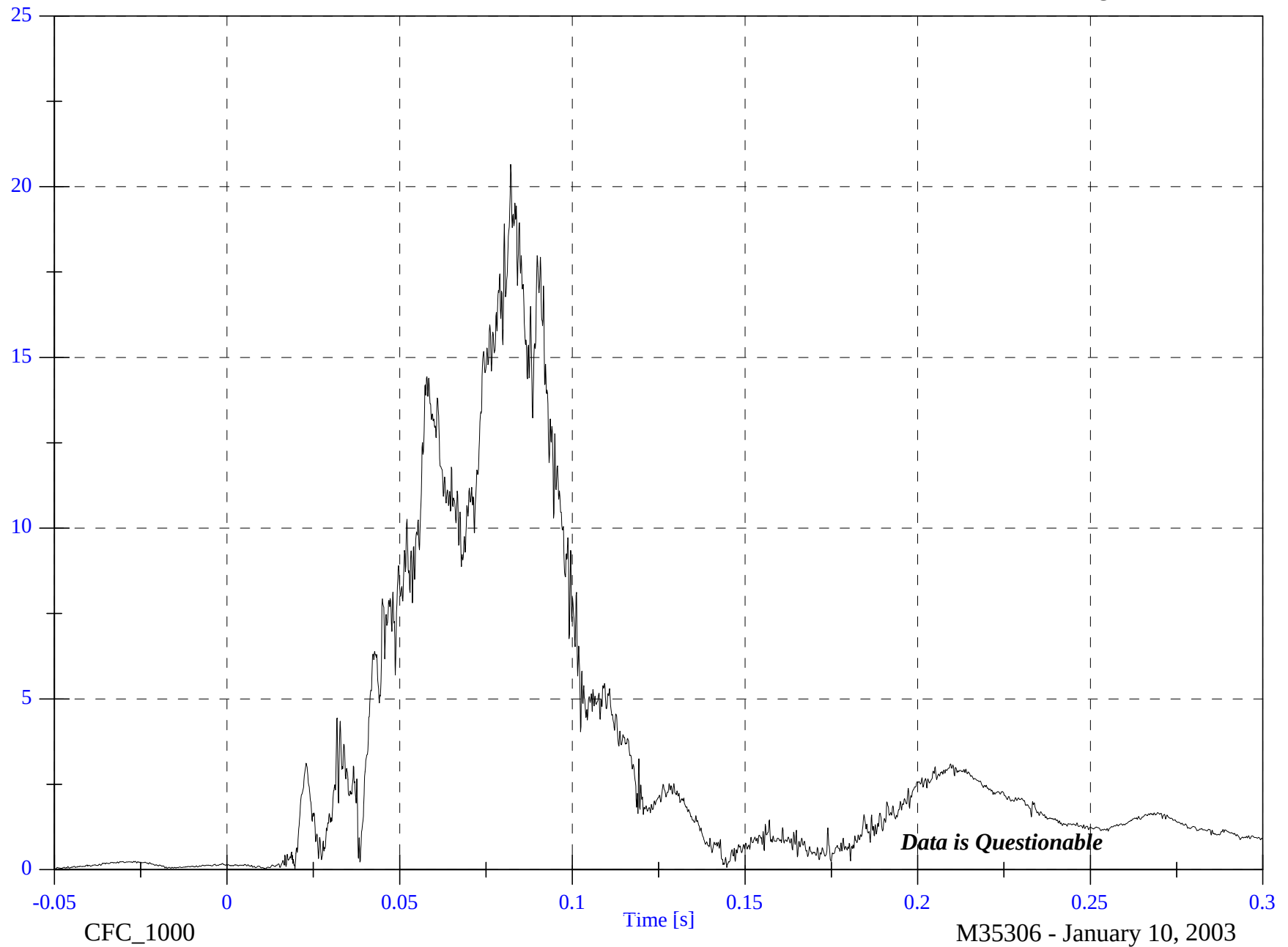


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Pelvic Resultant

Max: 20.7 [g] at 0.082 [s]

Min: 0.0 [g] at 0.020 [s]



B-96

8642-NCAP-26

CFC_1000

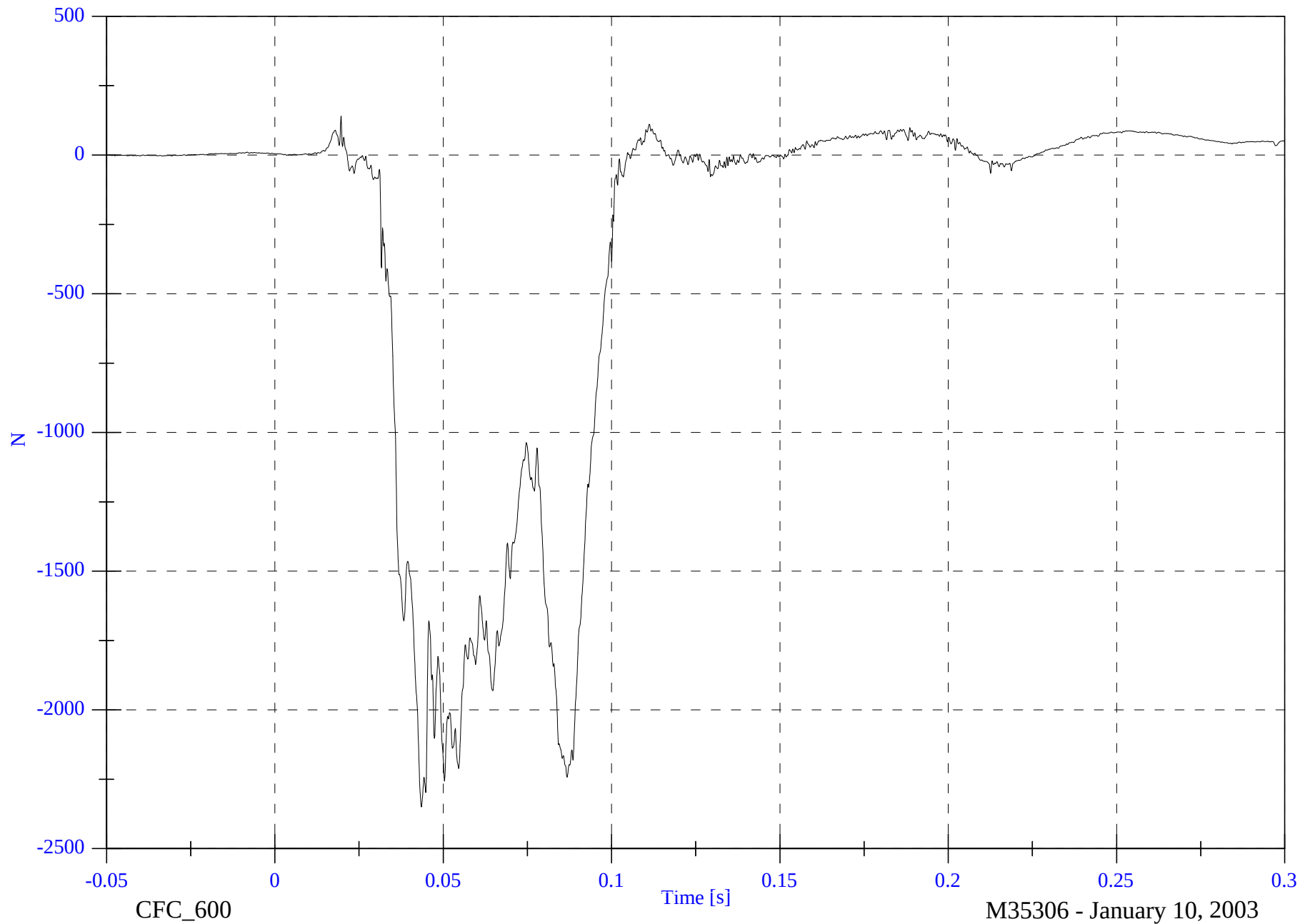
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Left Femur

Max: 140.8 [N] at 0.020 [s]

Min: -2350.2 [N] at 0.044 [s]

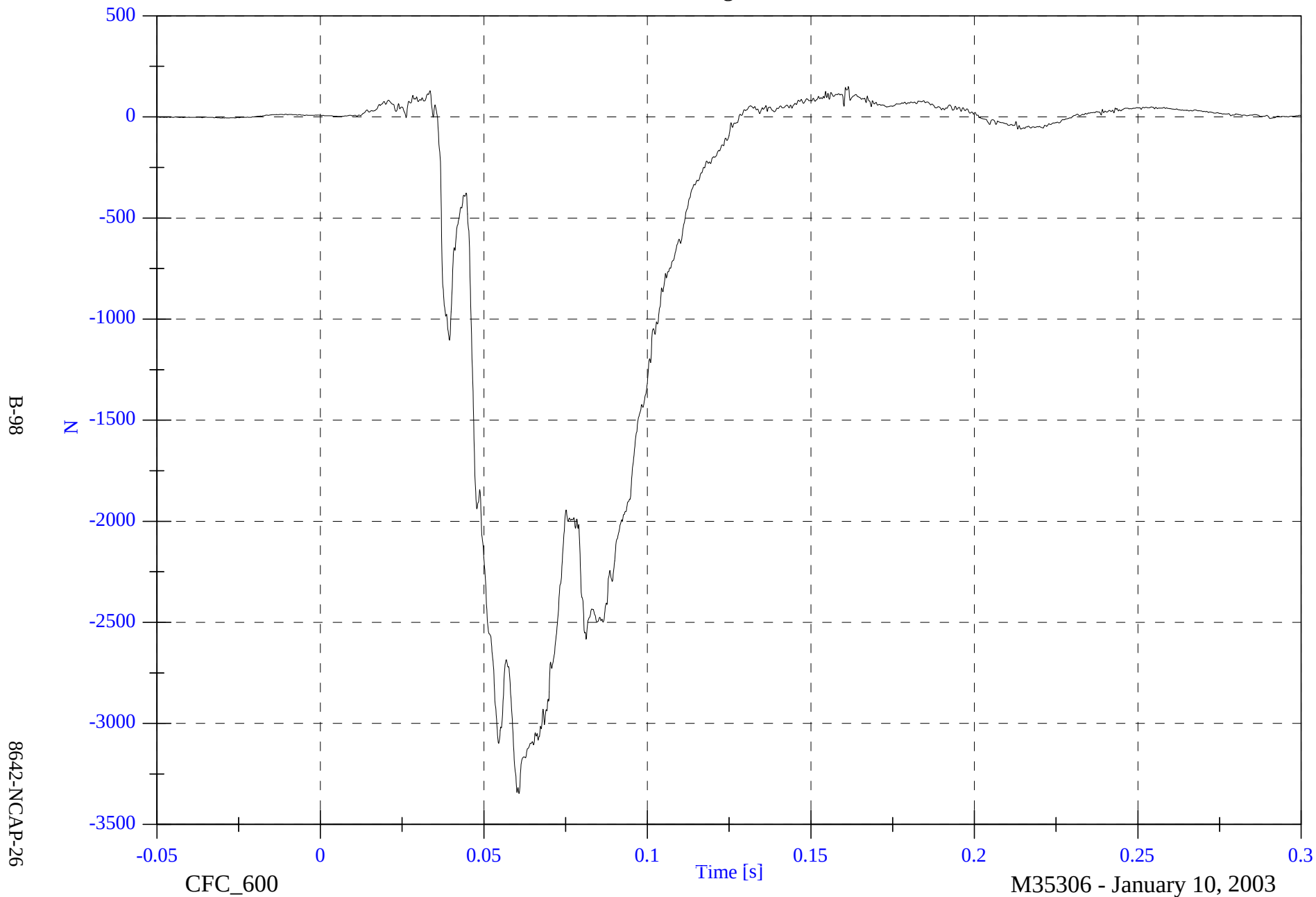


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Right Femur

Max: 149.9 [N] at 0.161 [s]

Min: -3347.5 [N] at 0.061 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

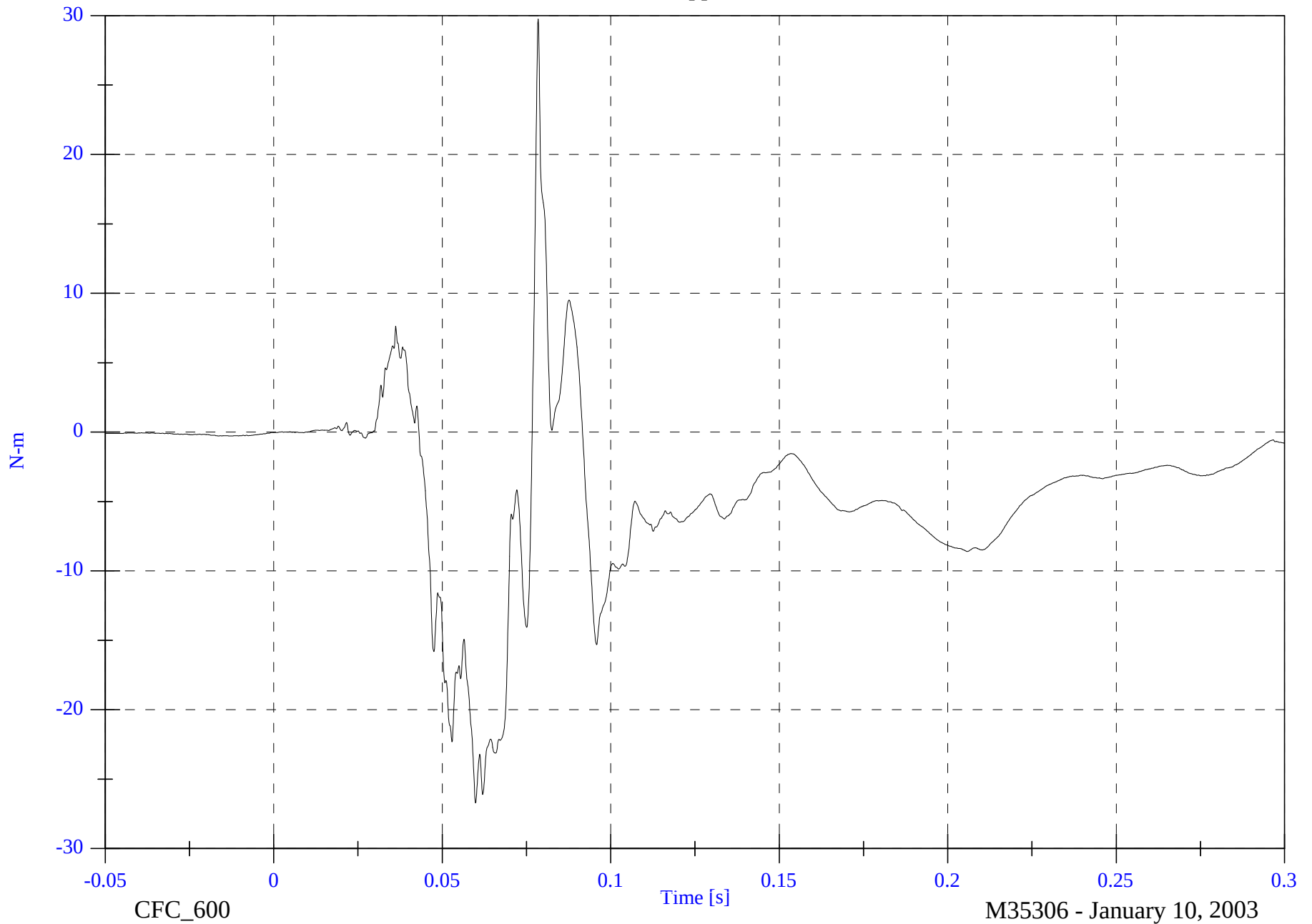
V1P2 Left Upper Tibia Mx

Max: 29.7 [N-m] at 0.078 [s]

Min: -26.7 [N-m] at 0.060 [s]

B-99

8642-NCAP-26

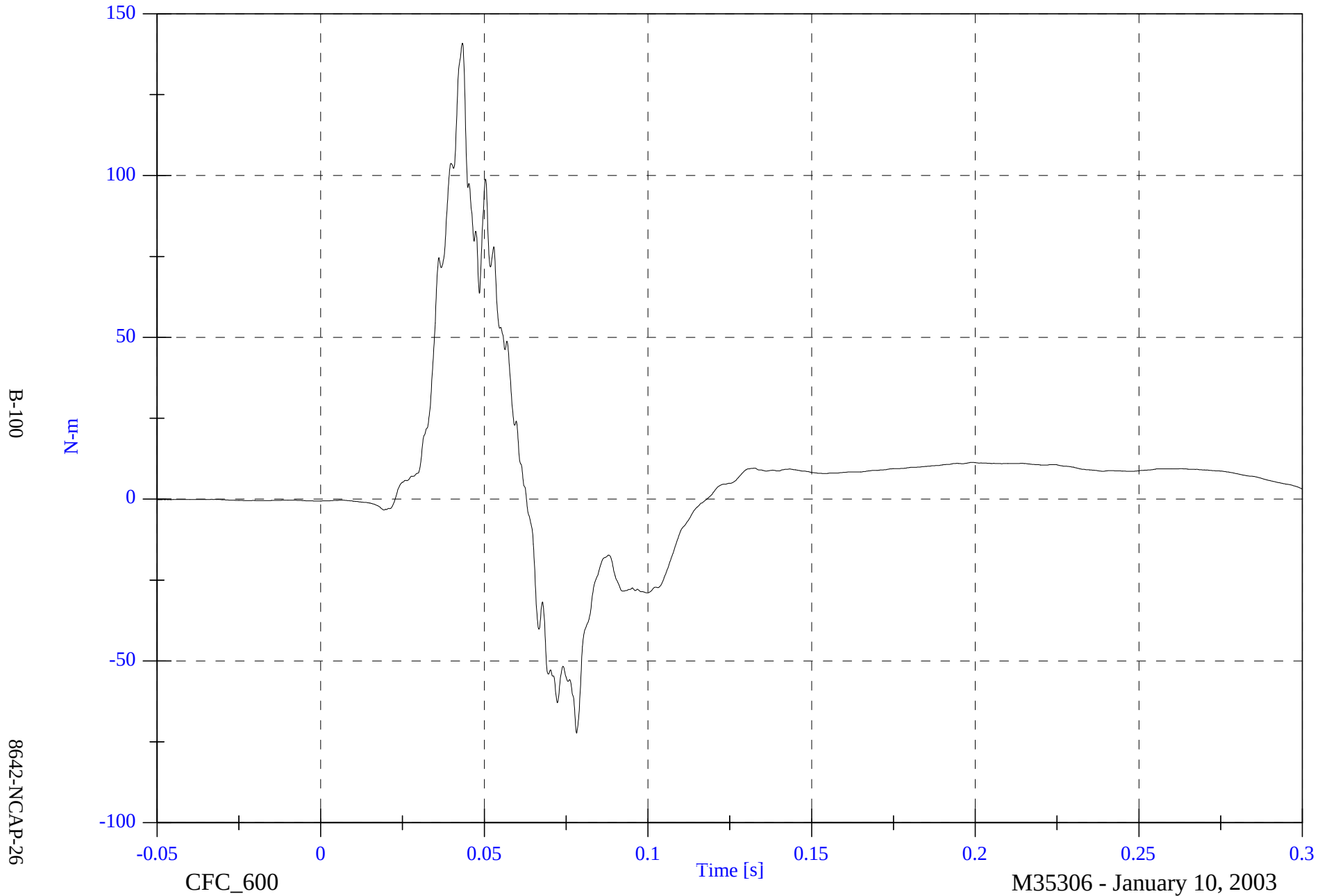


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Left Upper Tibia My

Max: 140.9 [N-m] at 0.043 [s]

Min: -72.3 [N-m] at 0.078 [s]

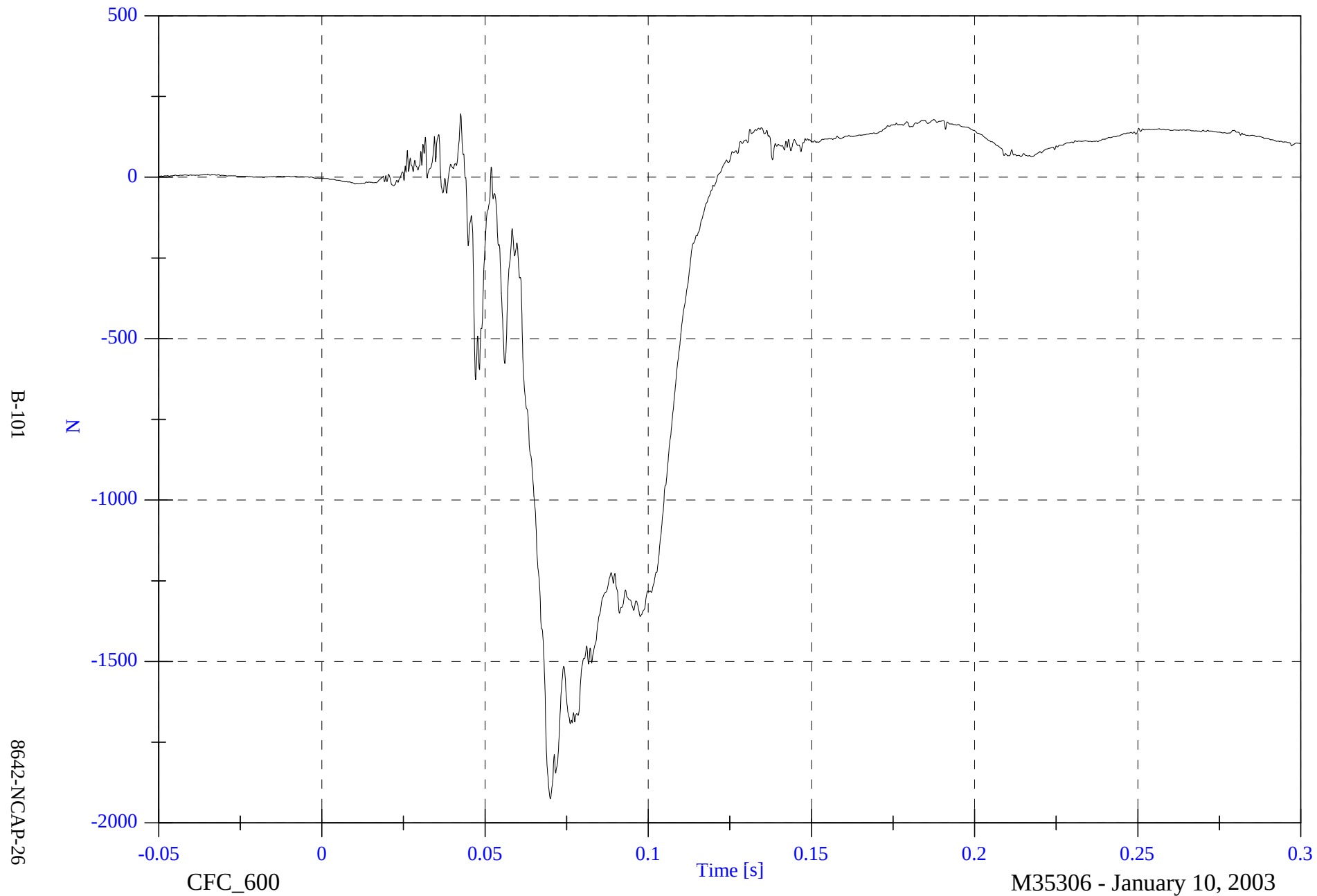


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Left Lower Tibia Fz

Max: 196.9 [N] at 0.043 [s]

Min: -1925.3 [N] at 0.070 [s]

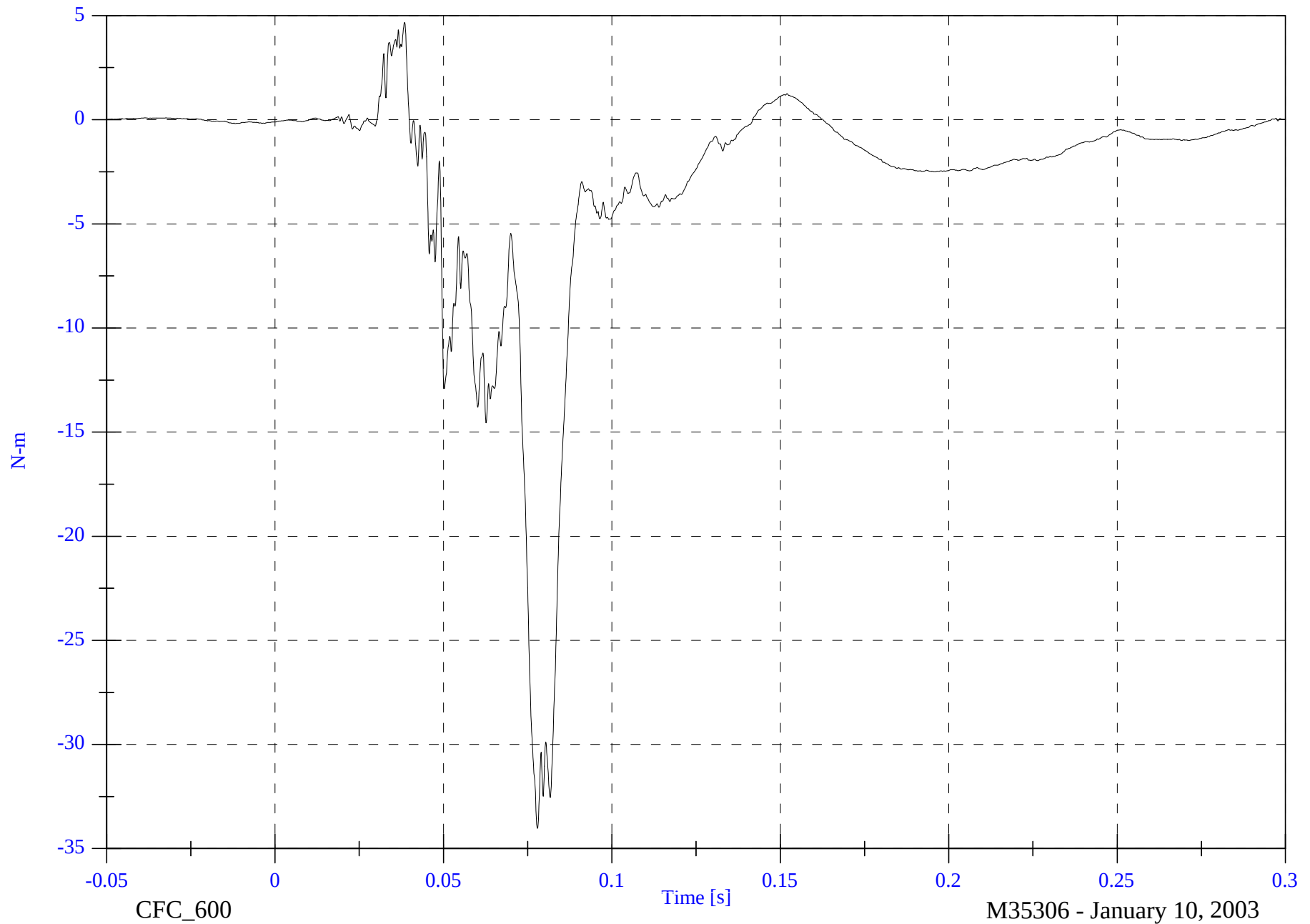


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Left Lower Tibia Mx

Max: 4.7 [N-m] at 0.039 [s]

Min: -34.0 [N-m] at 0.078 [s]

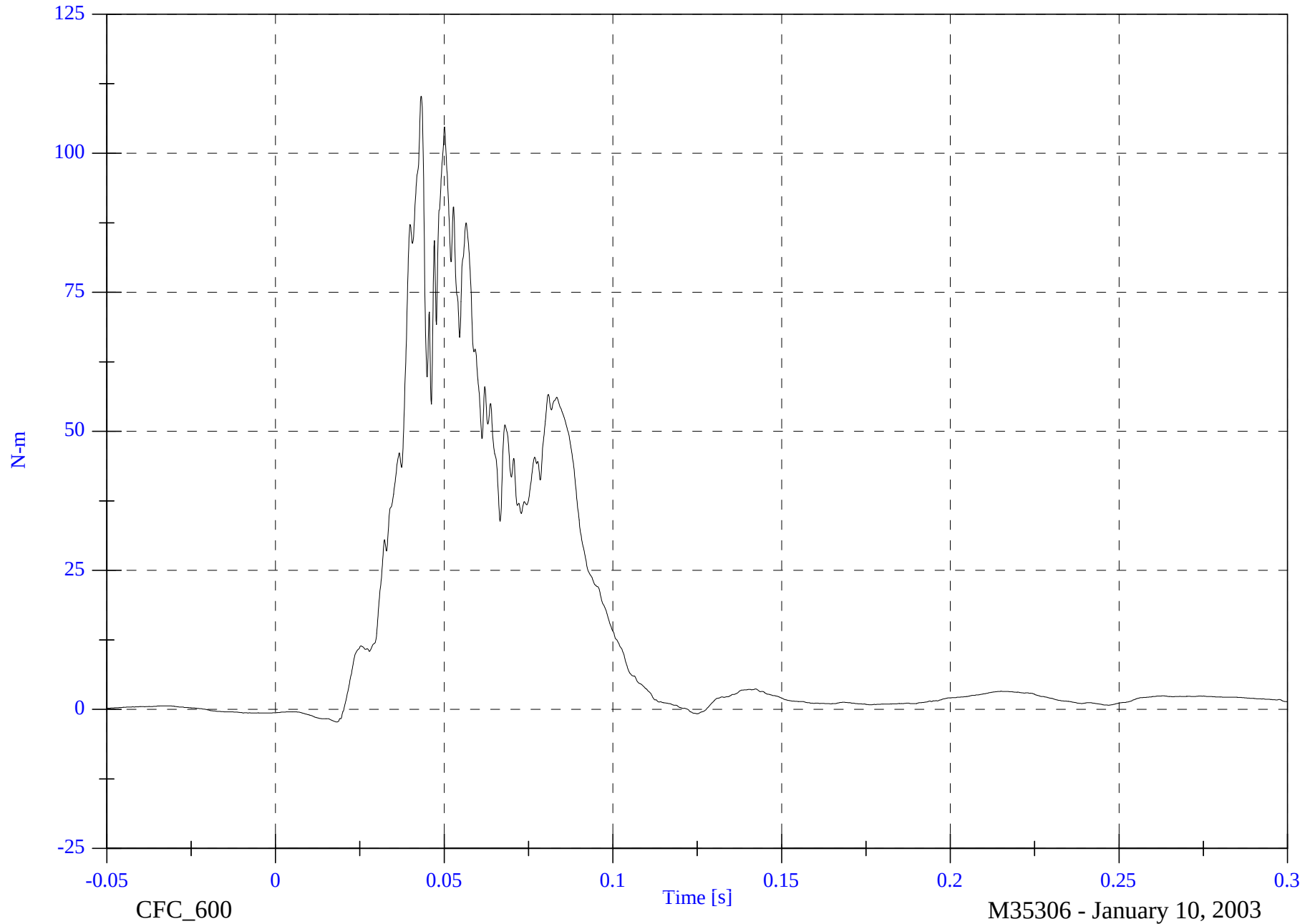


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Left Lower Tibia My

Max: 110.3 [N-m] at 0.043 [s]

Min: -2.3 [N-m] at 0.018 [s]



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CFC_600

Time [s]

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2003 NCAP Test #4 - 2003 Honda Odyssey

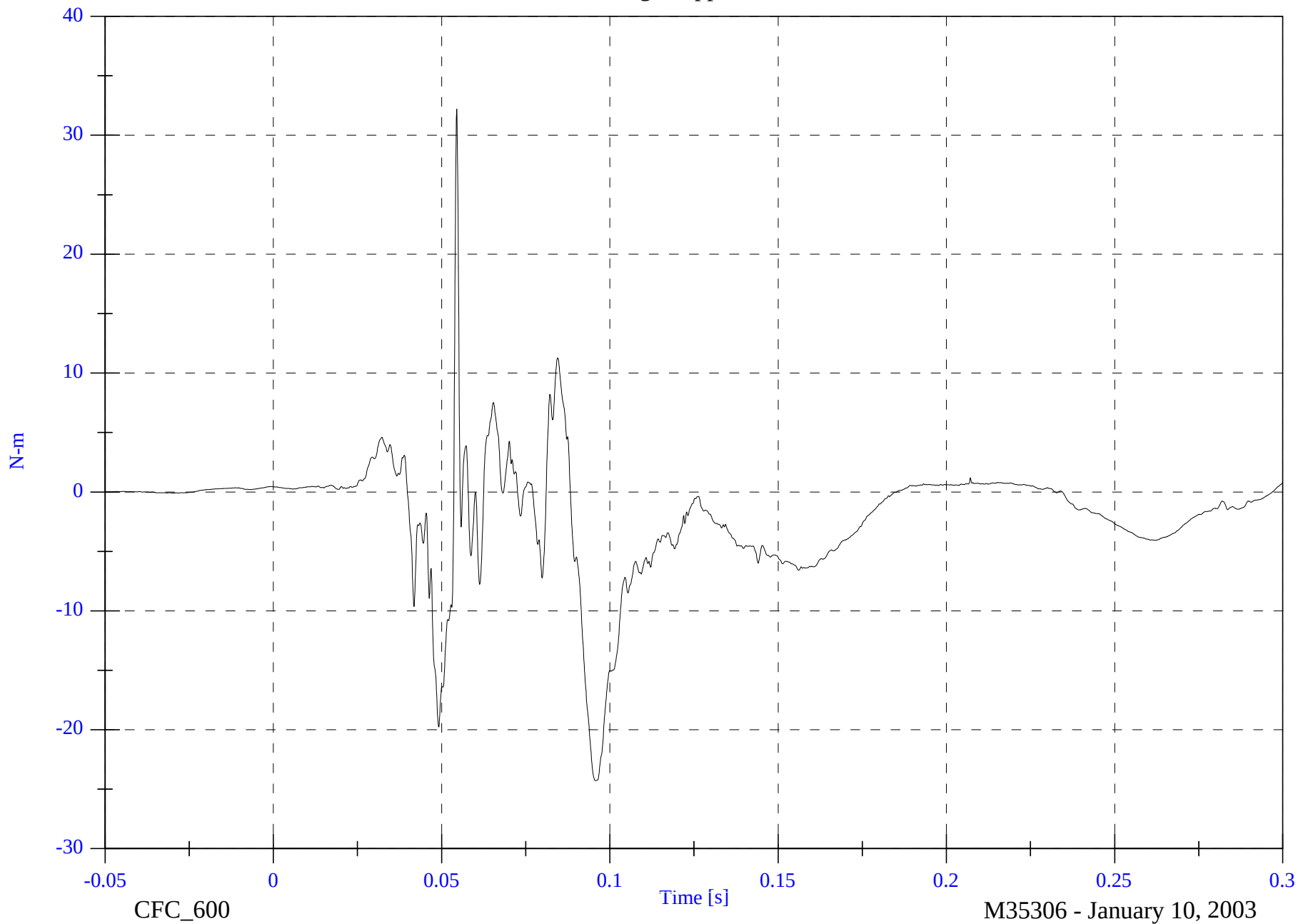
V1P2 Right Upper Tibia Mx

Max: 32.2 [N-m] at 0.054 [s]

Min: -24.3 [N-m] at 0.096 [s]

B-104

8642-NCAP-26

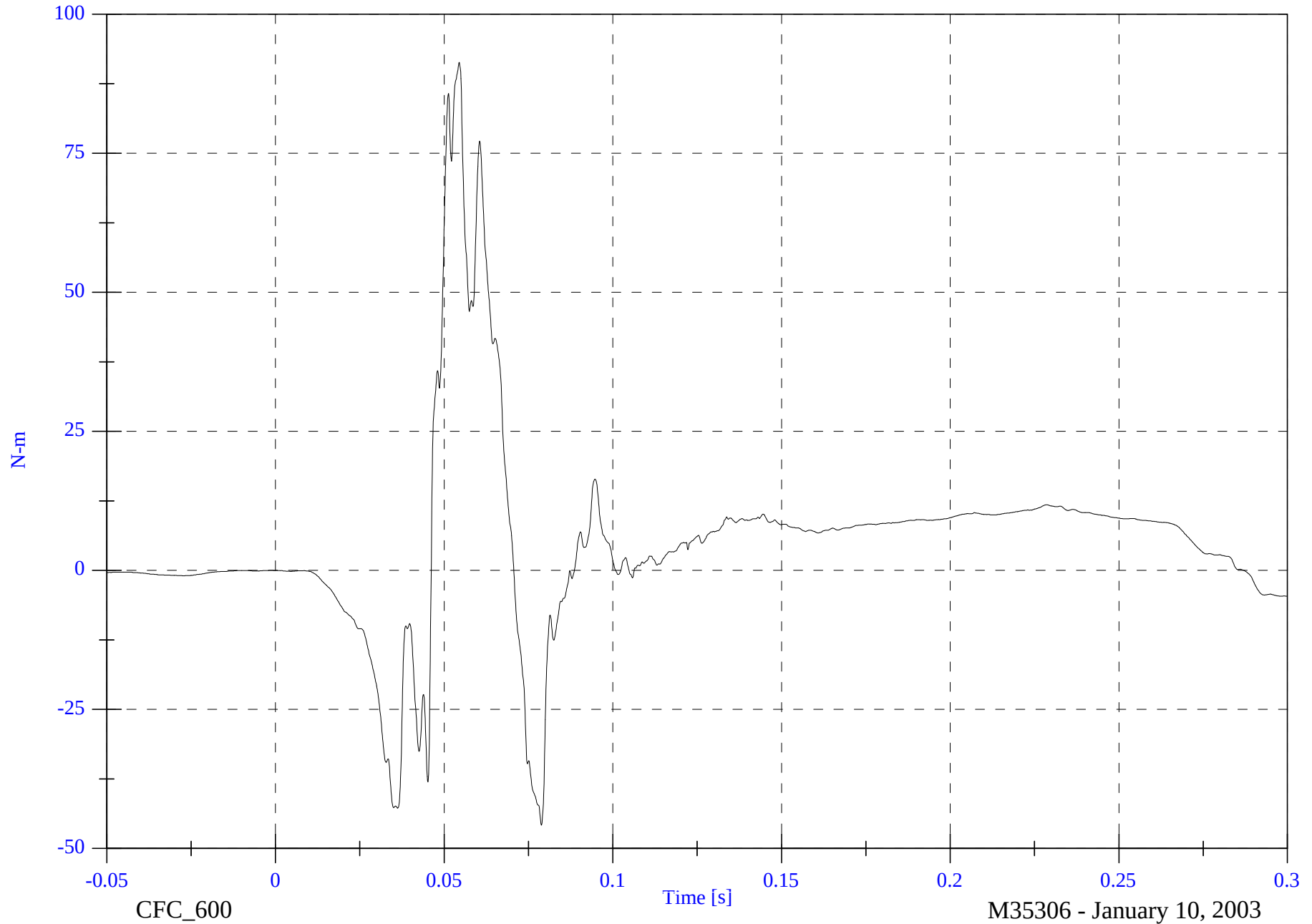


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Right Upper Tibia My

Max: 91.3 [N-m] at 0.054 [s]

Min: -45.8 [N-m] at 0.079 [s]



B-105

8642-NCAP-26

CFC_600

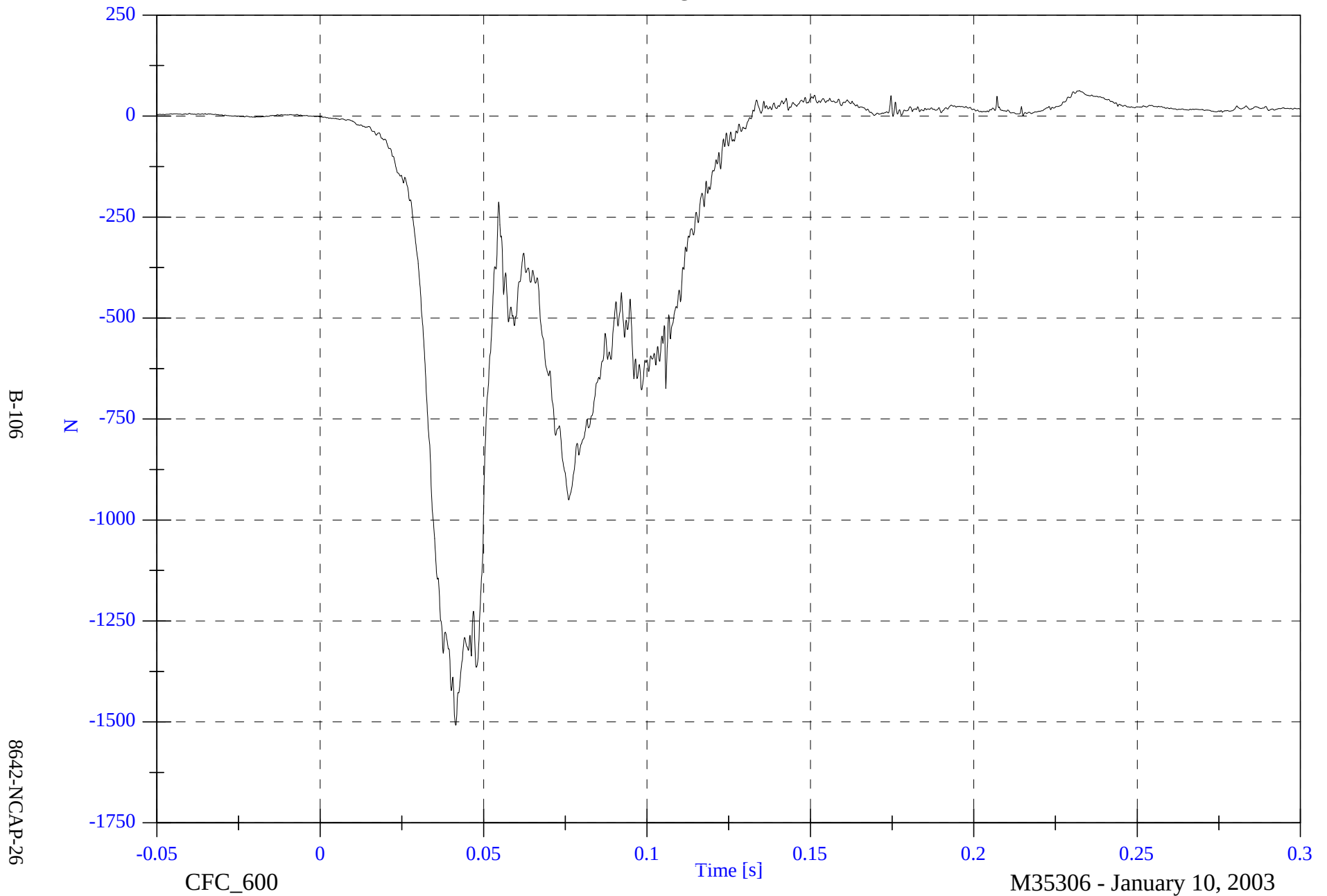
Time [s]

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2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Right Lower Tibia Fz

Max: 62.9 [N] at 0.232 [s]
Min: -1508.2 [N] at 0.041 [s]

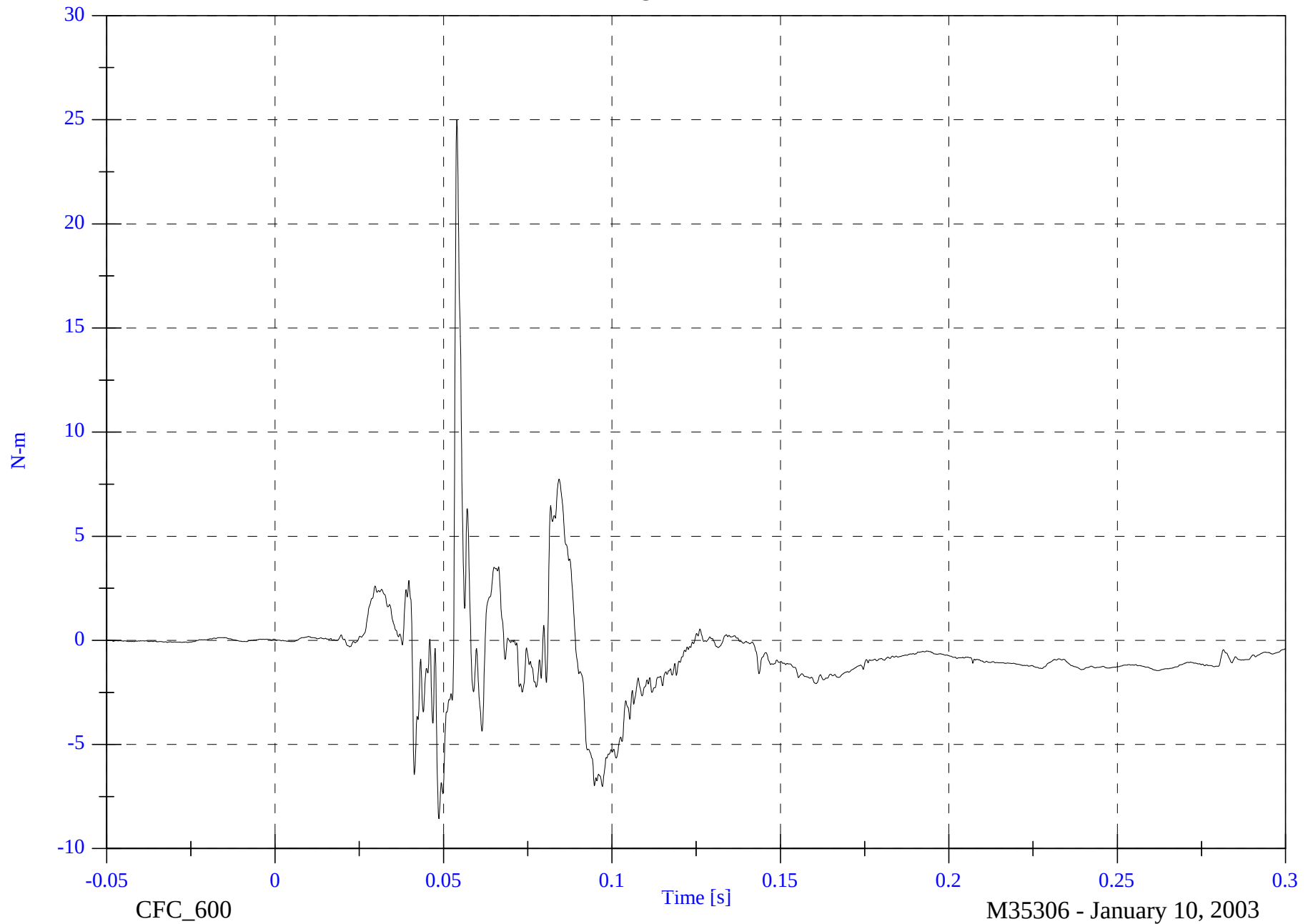


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Right Lower Tibia Mx

Max: 25.0 [N-m] at 0.054 [s]

Min: -8.6 [N-m] at 0.049 [s]



B-107

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CFC_600

Time [s]

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2003 NCAP Test #4 - 2003 Honda Odyssey

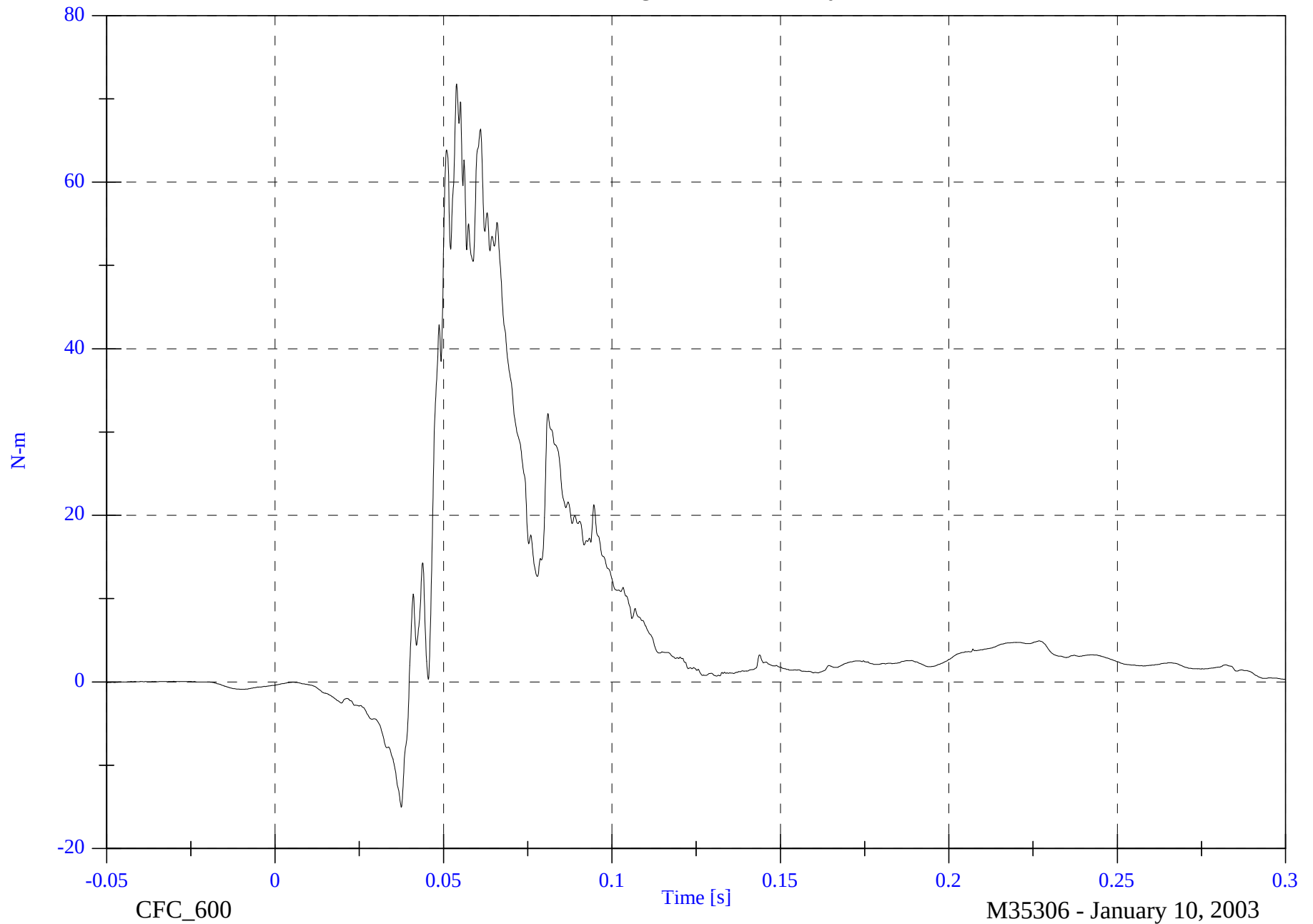
V1P2 Right Lower Tibia My

Max: 71.8 [N-m] at 0.054 [s]

Min: -15.1 [N-m] at 0.037 [s]

B-108

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

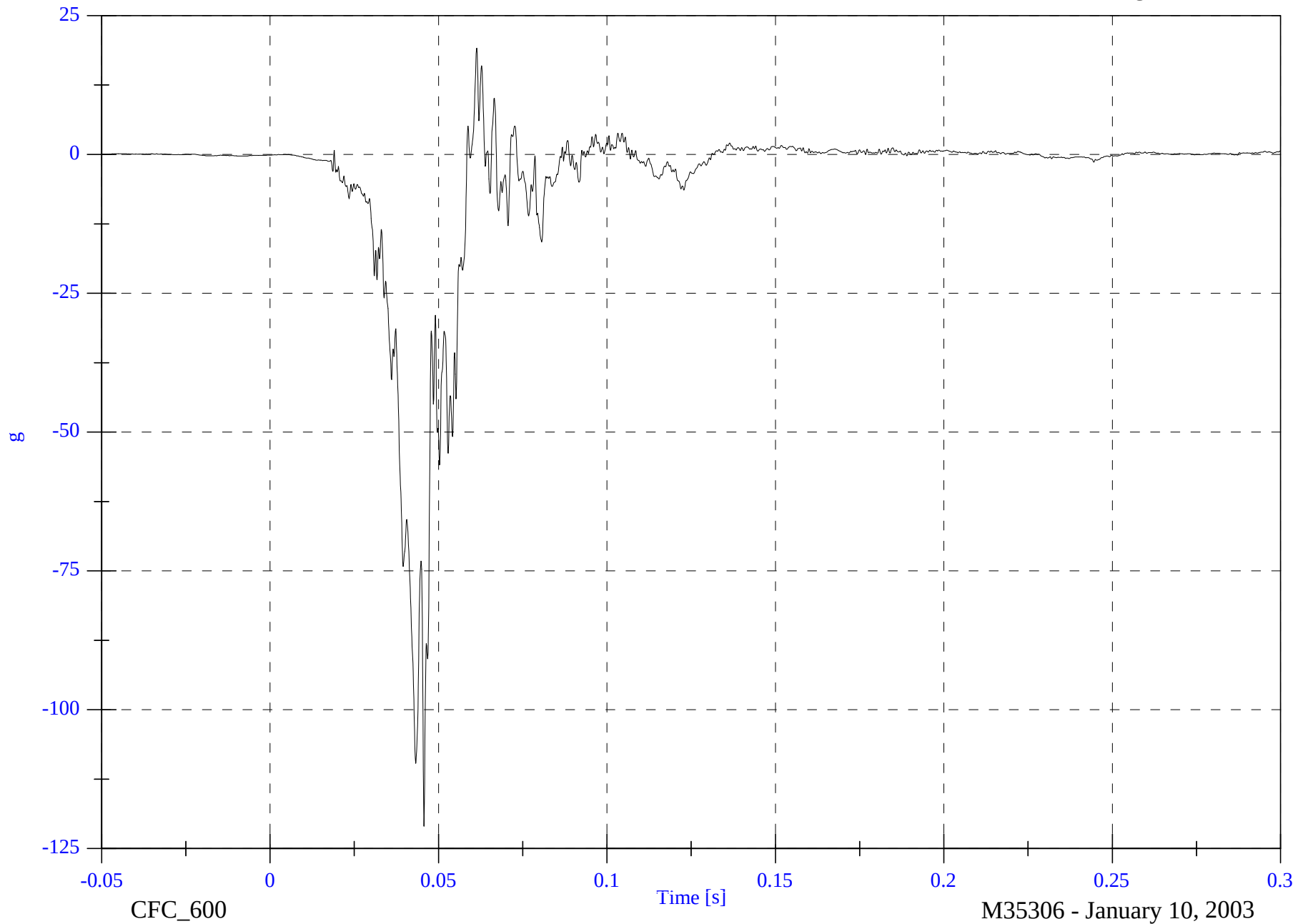
V1P2 Left foot Aft x

Max: 19.1 [g] at 0.061 [s]

Min: -121.0 [g] at 0.046 [s]

B-109

8642-NCAP-26

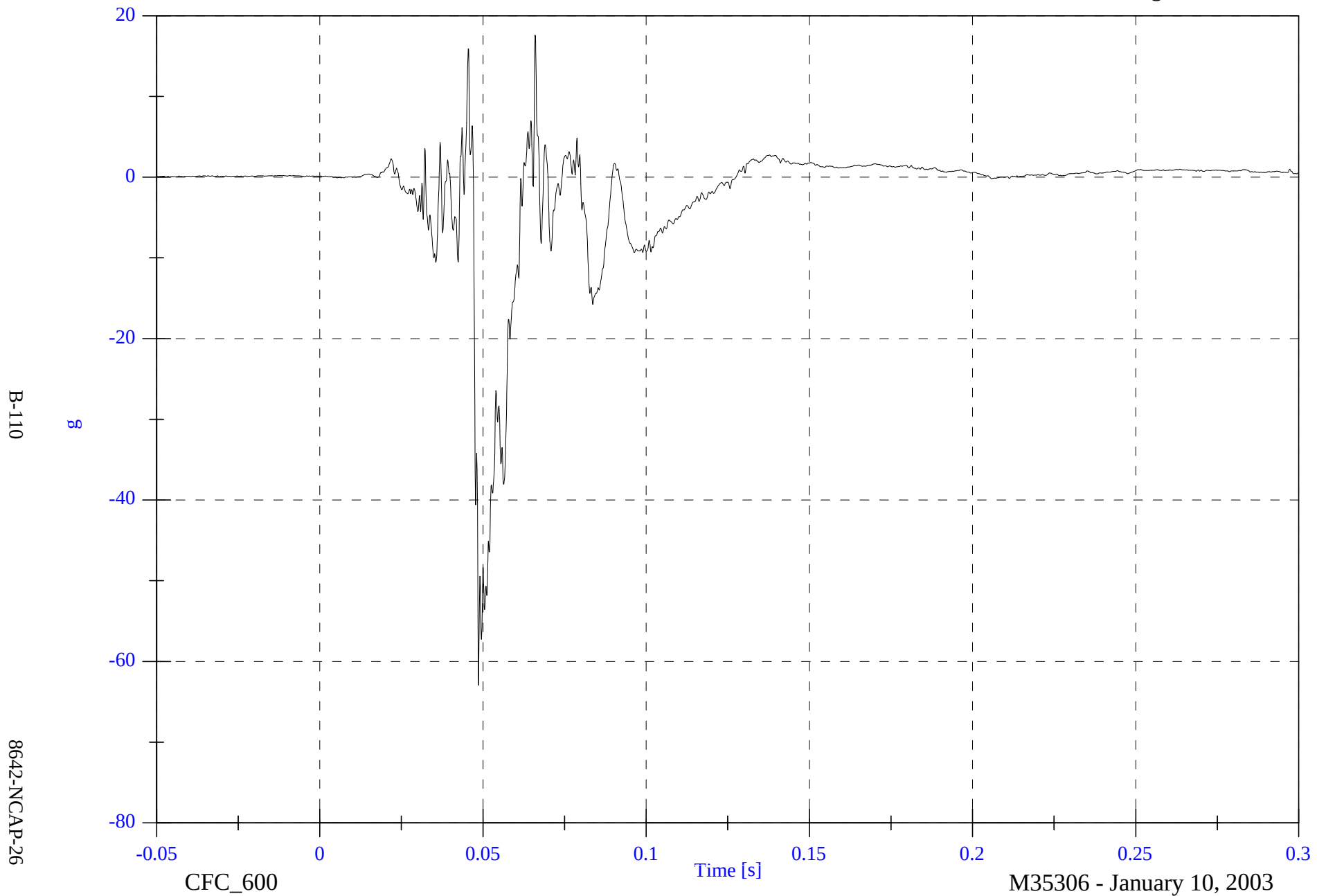


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Left Foot Aft z

Max: 17.6 [g] at 0.066 [s]

Min: -62.9 [g] at 0.049 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

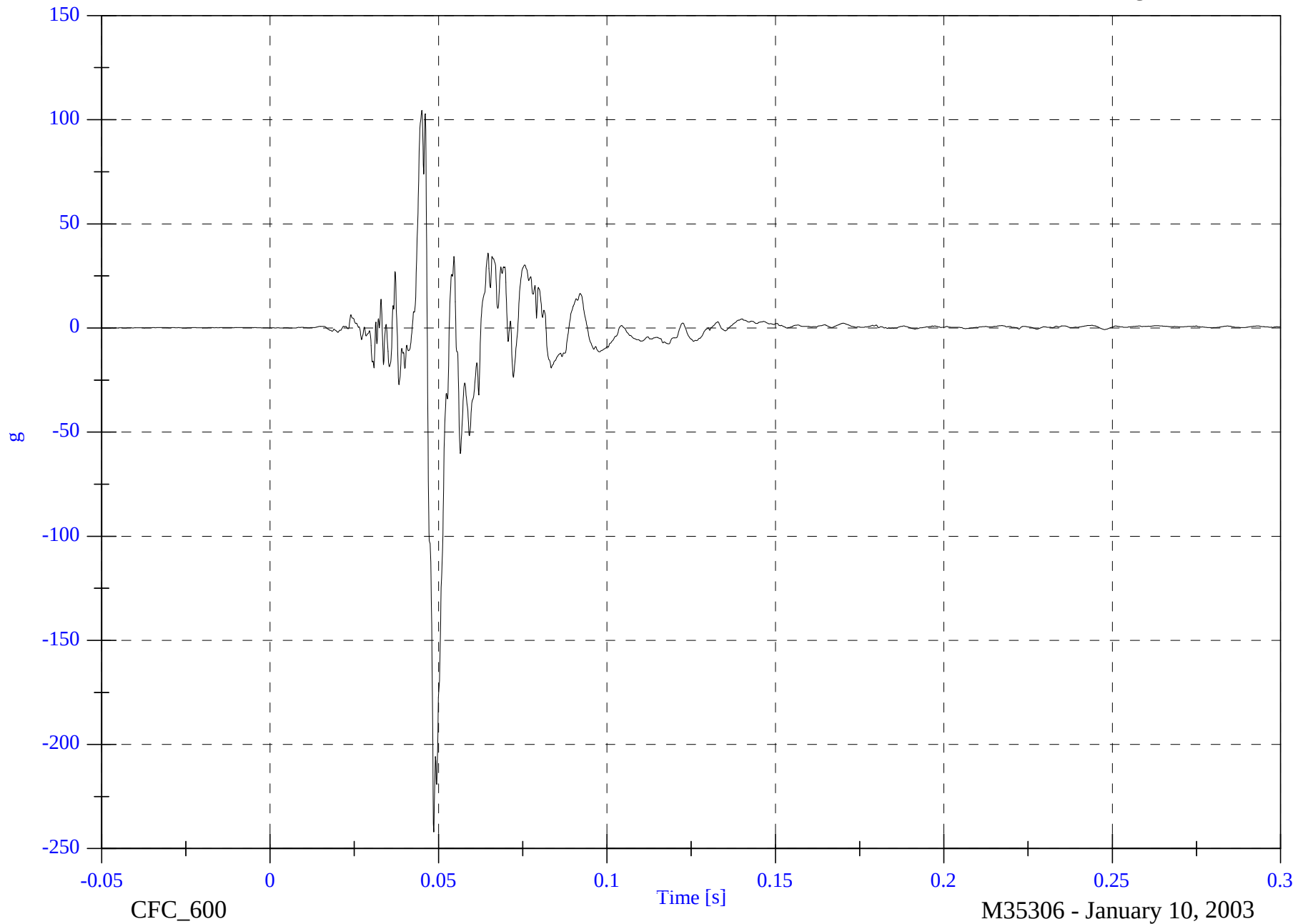
V1P2 Left Foot Fore z

Max: 104.5 [g] at 0.045 [s]

Min: -242.1 [g] at 0.049 [s]

B-111

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

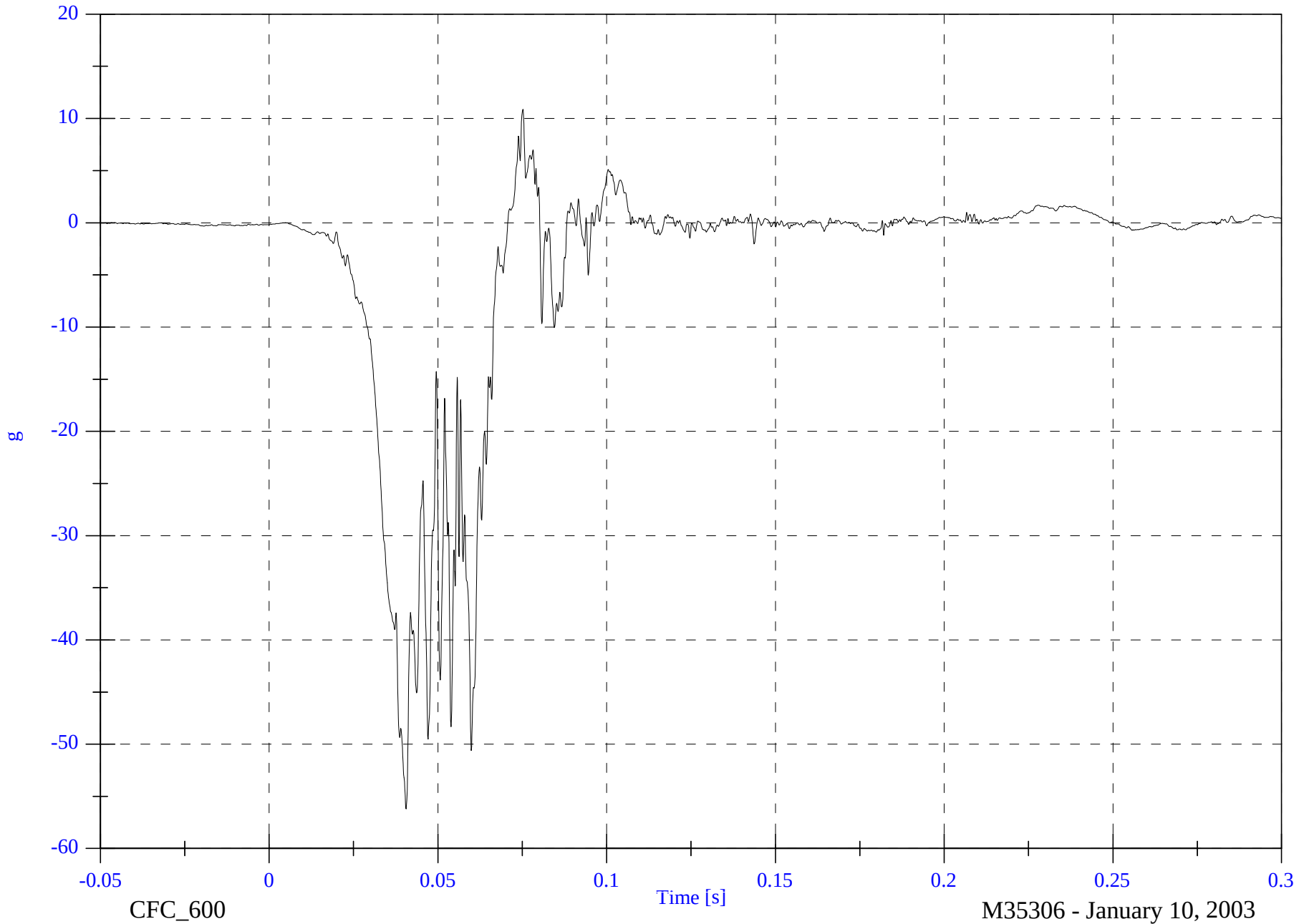
V1P2 Right Foot Aft x

Max: 10.9 [g] at 0.075 [s]

Min: -56.2 [g] at 0.041 [s]

B-112

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

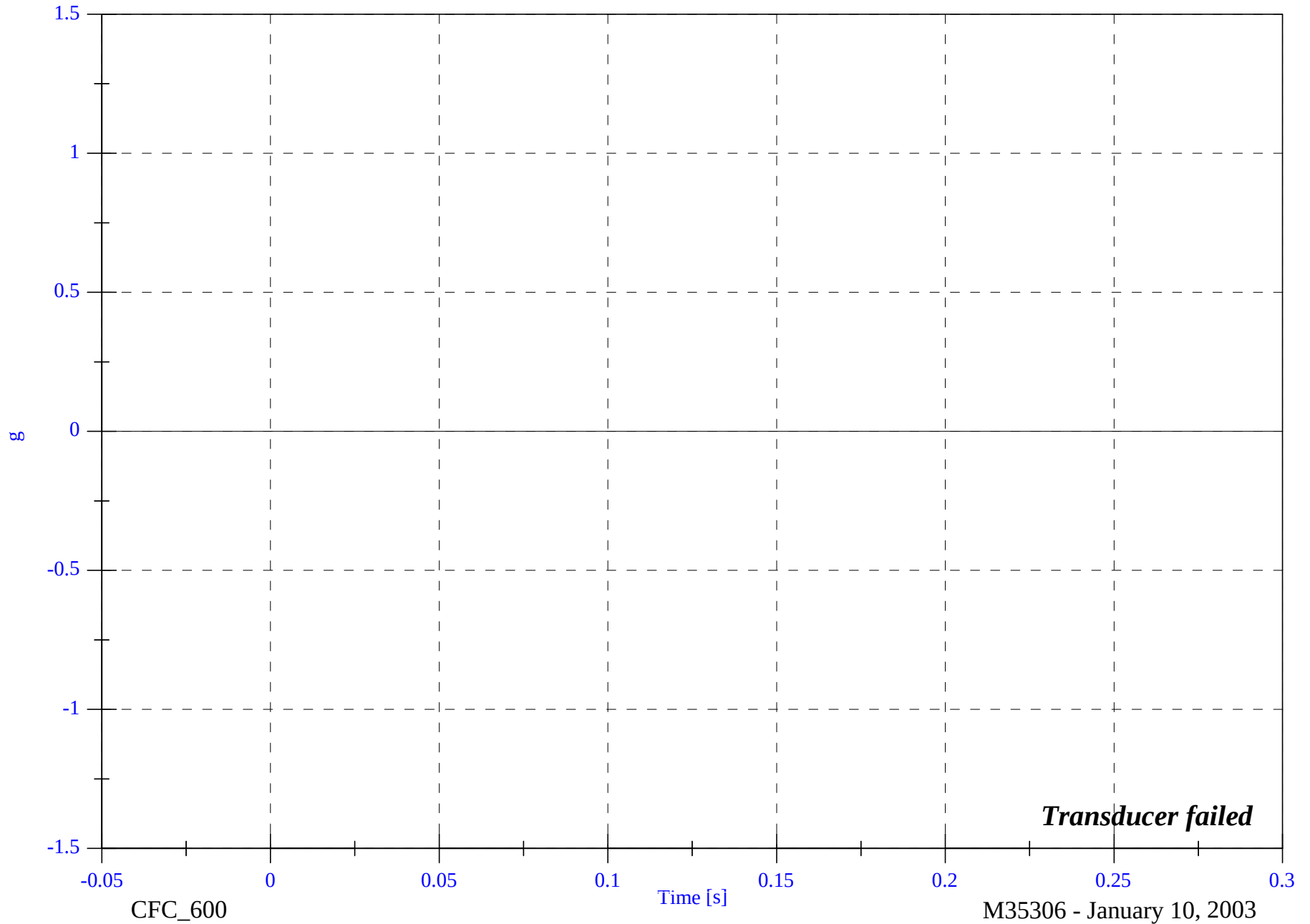
V1P2 Right Foot Aft z

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

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

B-113

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

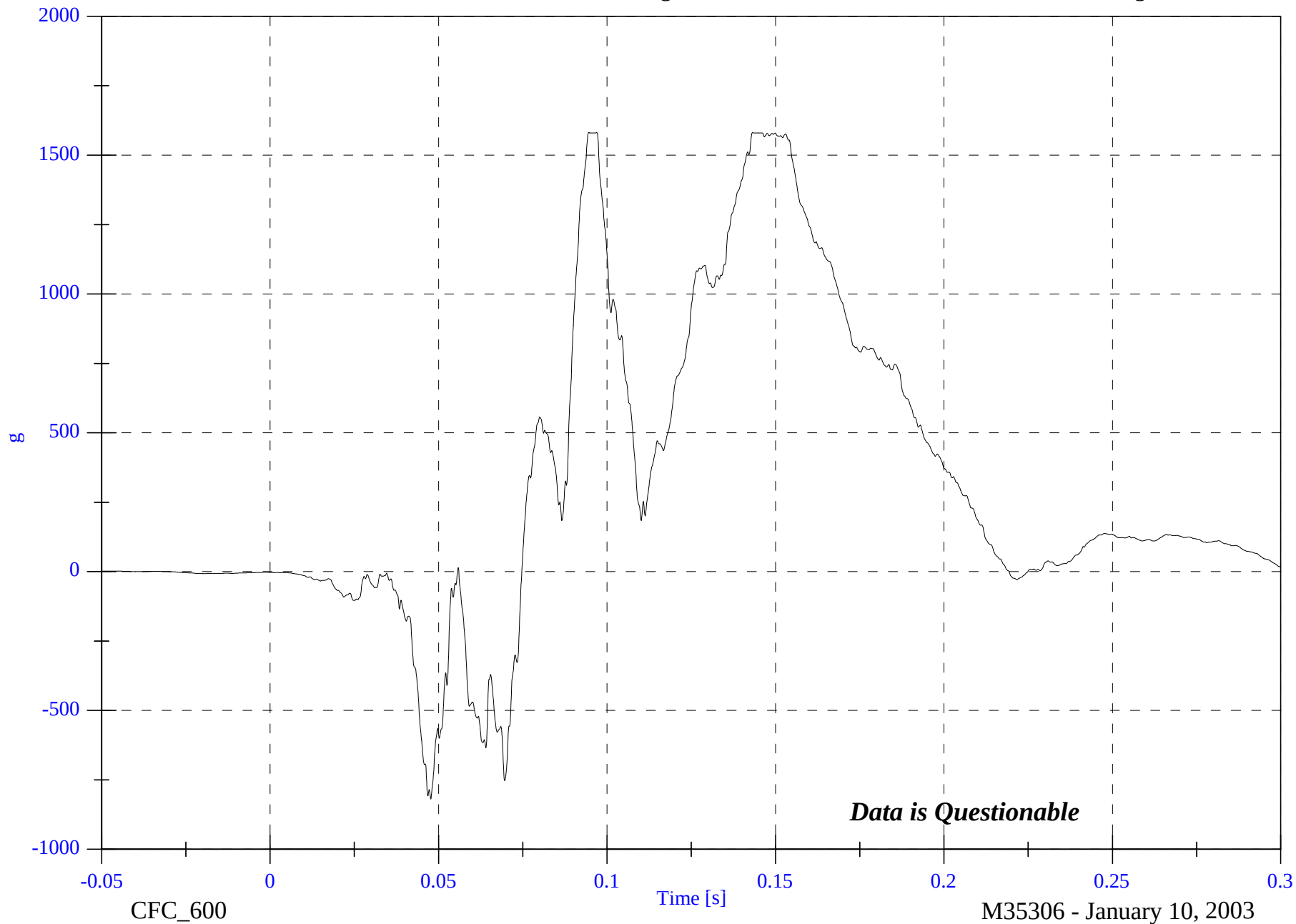
V1P2 Right Foot Fore z

Max: 1582.0 [g] at 0.097 [s]

Min: -819.4 [g] at 0.048 [s]

B-114

8642-NCAP-26

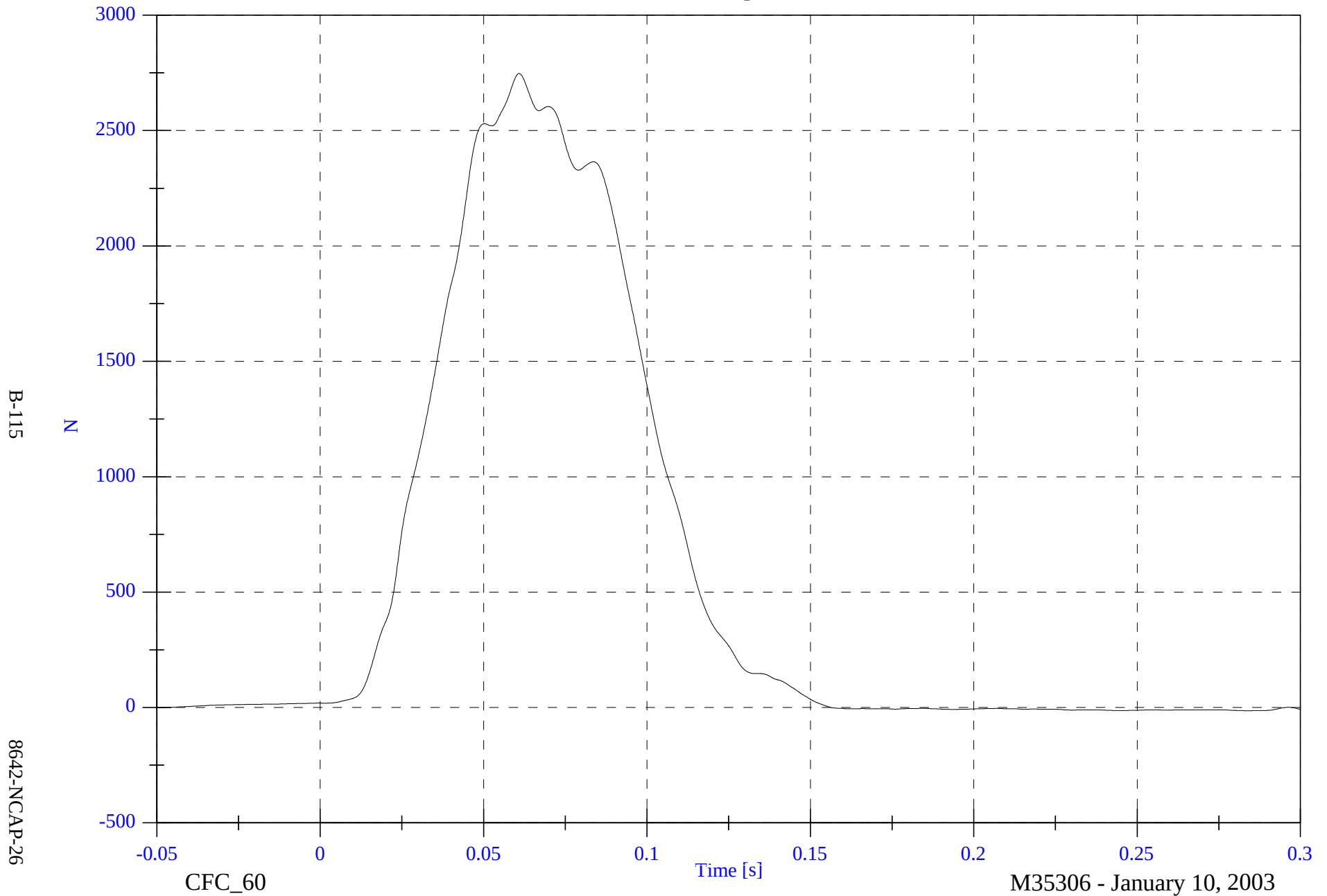


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P2 Lap Belt

Max: 2747.1 [N] at 0.061 [s]

Min: -14.3 [N] at 0.284 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

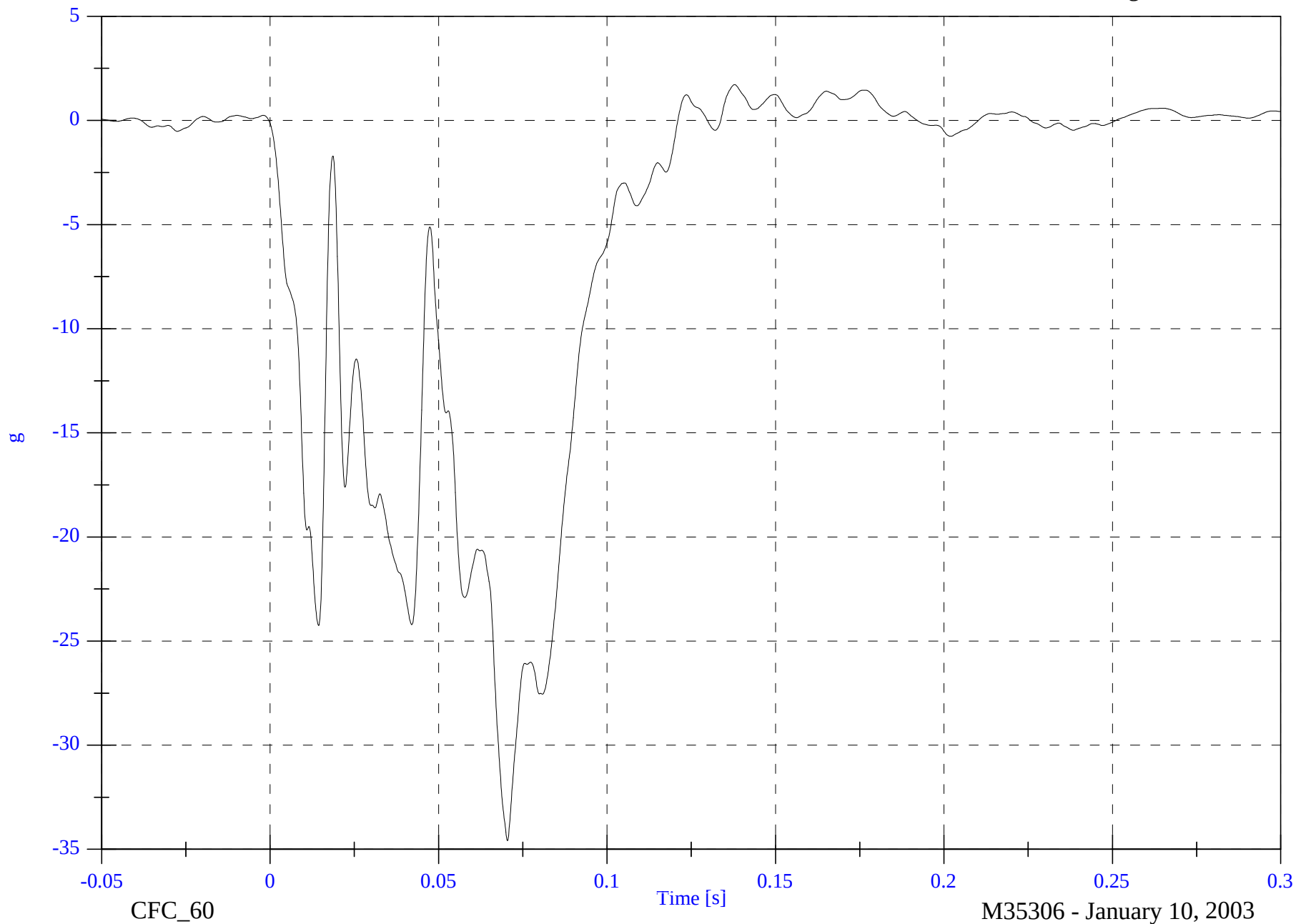
V1 Left Rear #1x

Max: 1.7 [g] at 0.138 [s]

Min: -34.6 [g] at 0.070 [s]

B-116

8642-NCAP-26

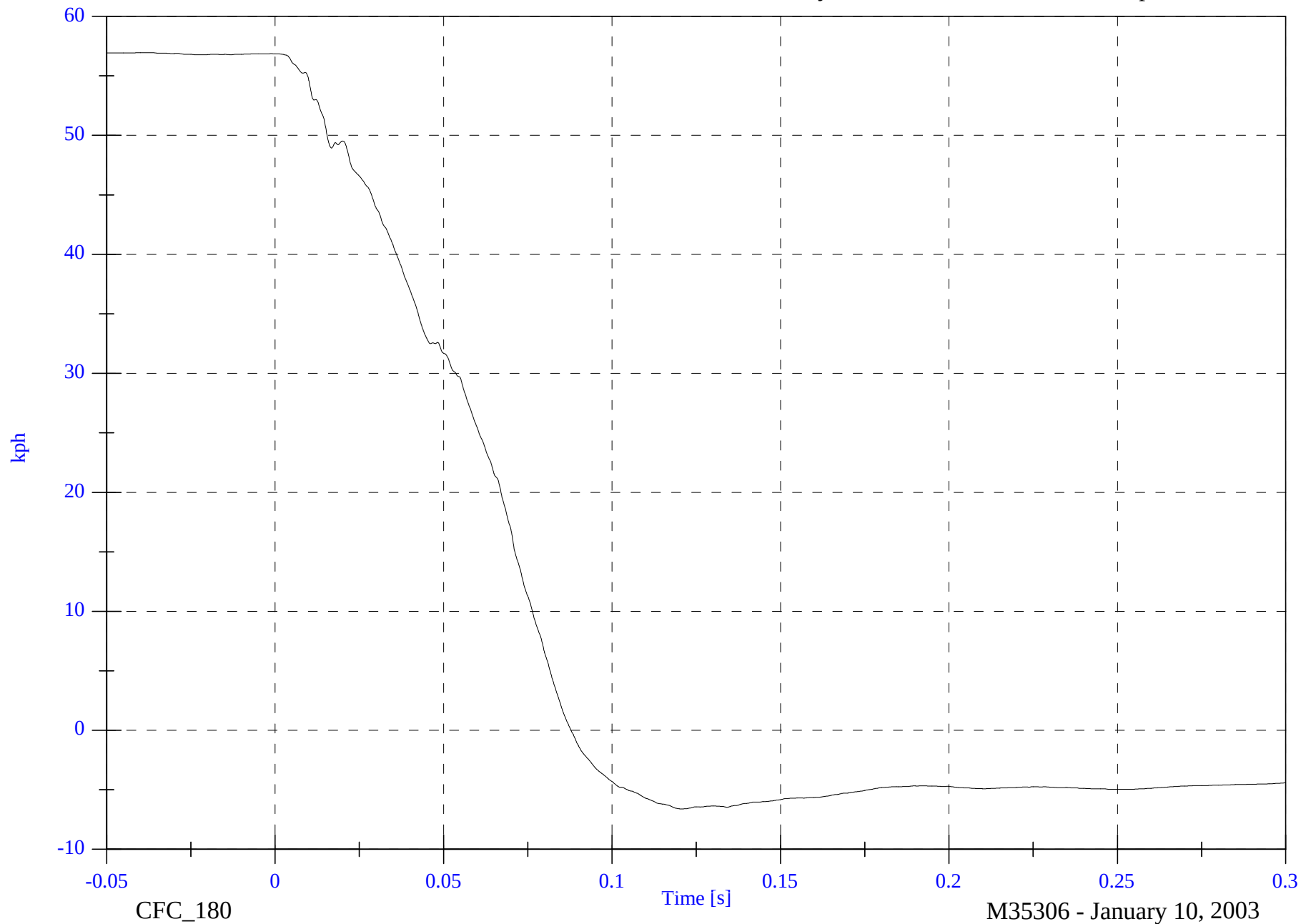


2003 NCAP Test #4 - 2003 Honda Odyssey

Max: 56.9 [kph] at -0.037 [s]

V1 Left Rear #1x Velocity

Min: -6.6 [kph] at 0.121 [s]



B-117

8642-NCAP-26

CFC_180

M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

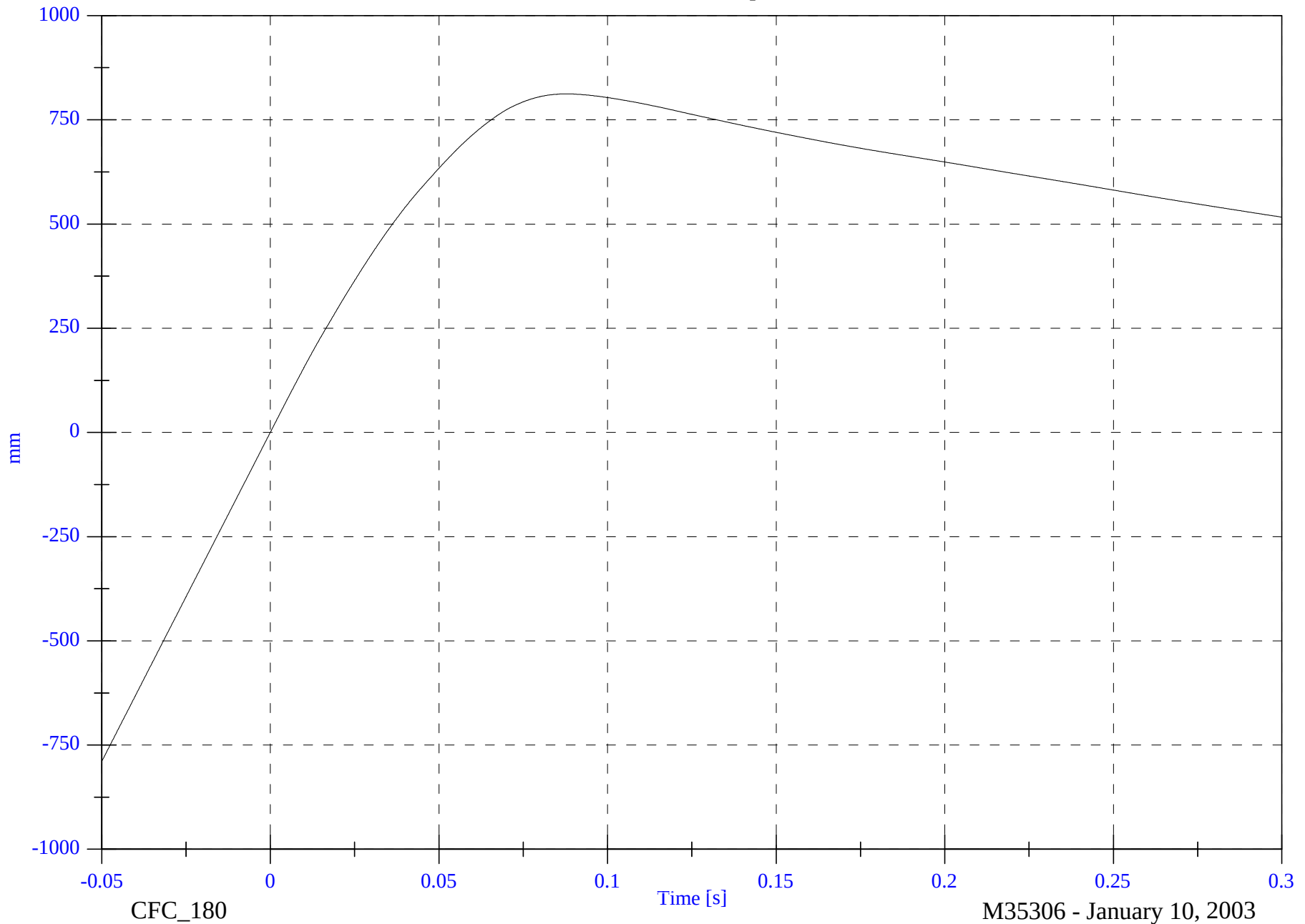
V1 Left Rear #1x Displacement

Max: 812.2 [mm] at 0.088 [s]

Min: -789.7 [mm] at -0.050 [s]

B-118

8642-NCAP-26



CFC_180

M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

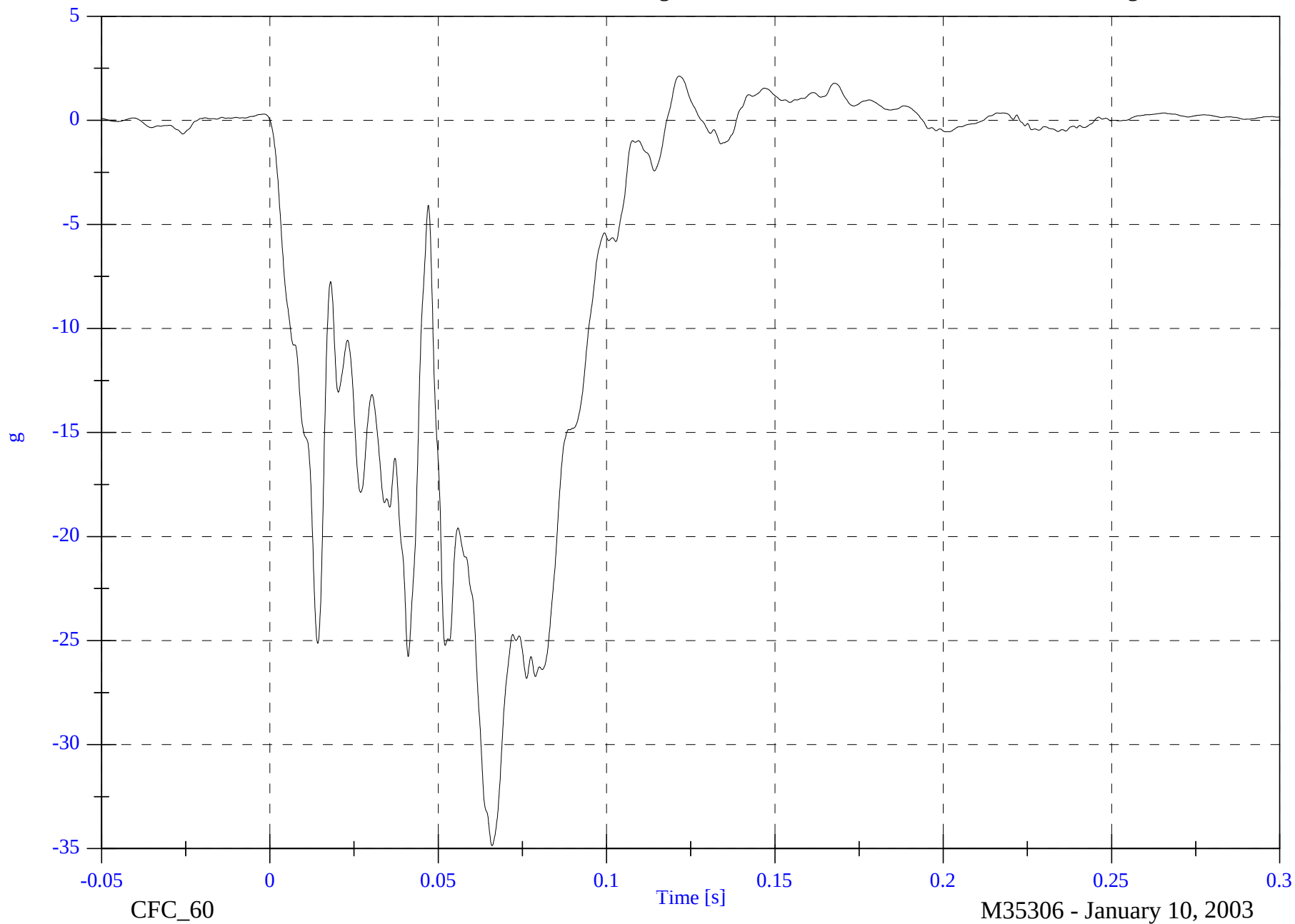
V1 Right Rear #2x

Max: 2.1 [g] at 0.121 [s]

Min: -34.9 [g] at 0.066 [s]

B-119

8642-NCAP-26

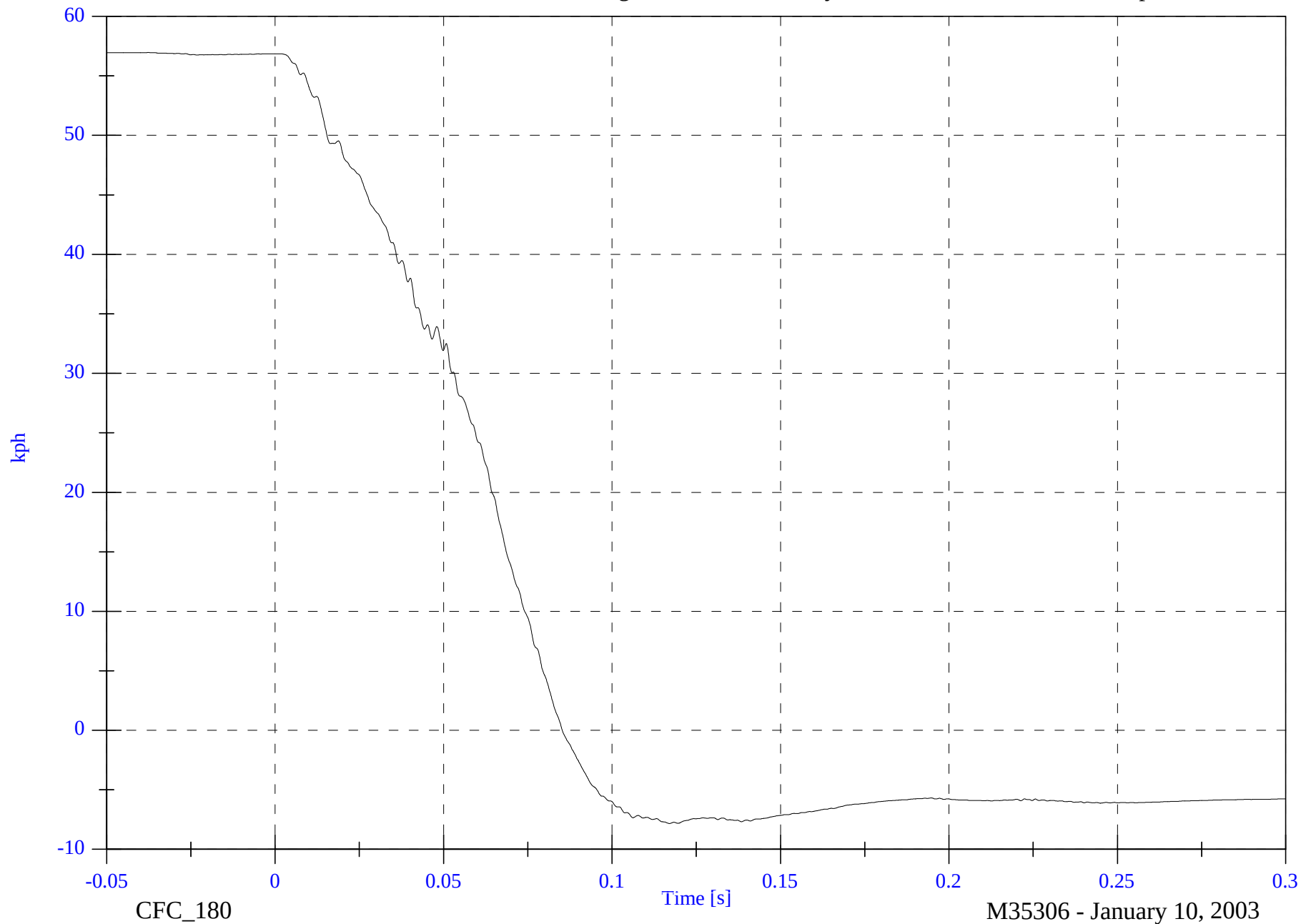


2003 NCAP Test #4 - 2003 Honda Odyssey

V1 Right Rear #2x Velocity

Max: 57.0 [kph] at -0.037 [s]

Min: -7.8 [kph] at 0.117 [s]



B-120

8642-NCAP-26

CFC_180

Time [s]

M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

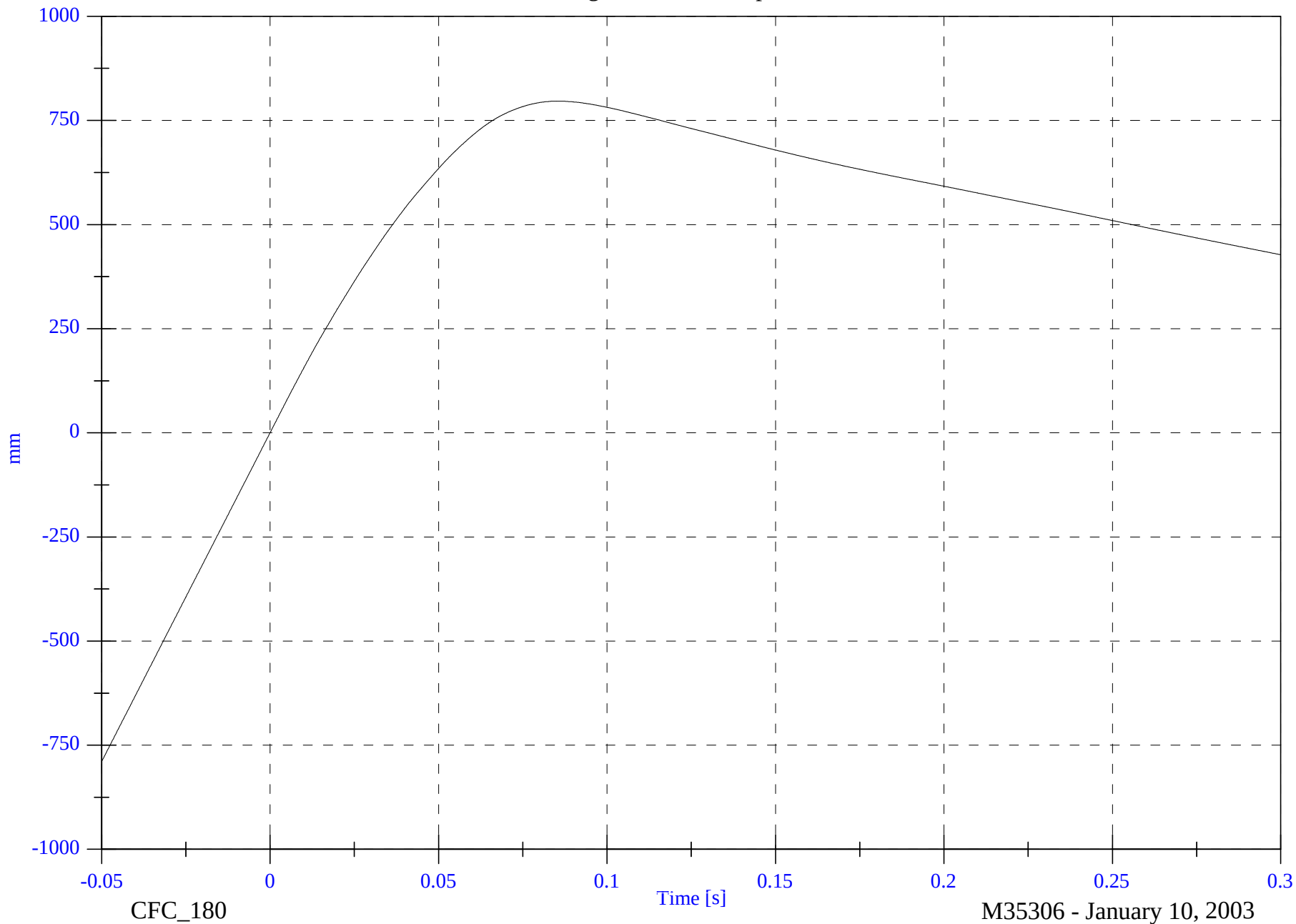
V1 Right Rear #2x Displacement

Max: 796.3 [mm] at 0.085 [s]

Min: -789.7 [mm] at -0.050 [s]

B-121

8642-NCAP-26



CFC_180

M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

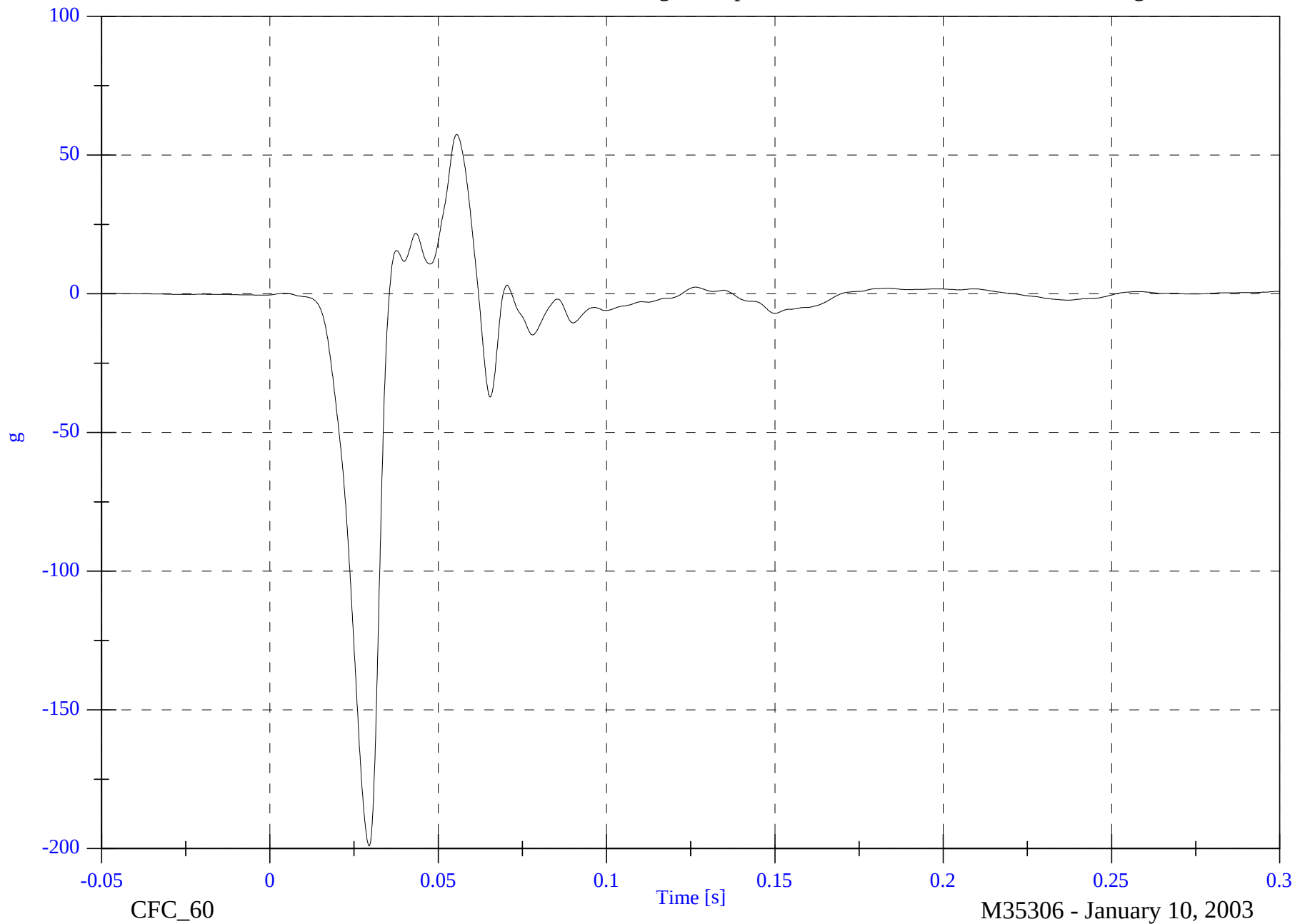
V1 Engine Top #3x

Max: 57.4 [g] at 0.055 [s]

Min: -199.1 [g] at 0.029 [s]

B-122

8642-NCAP-26

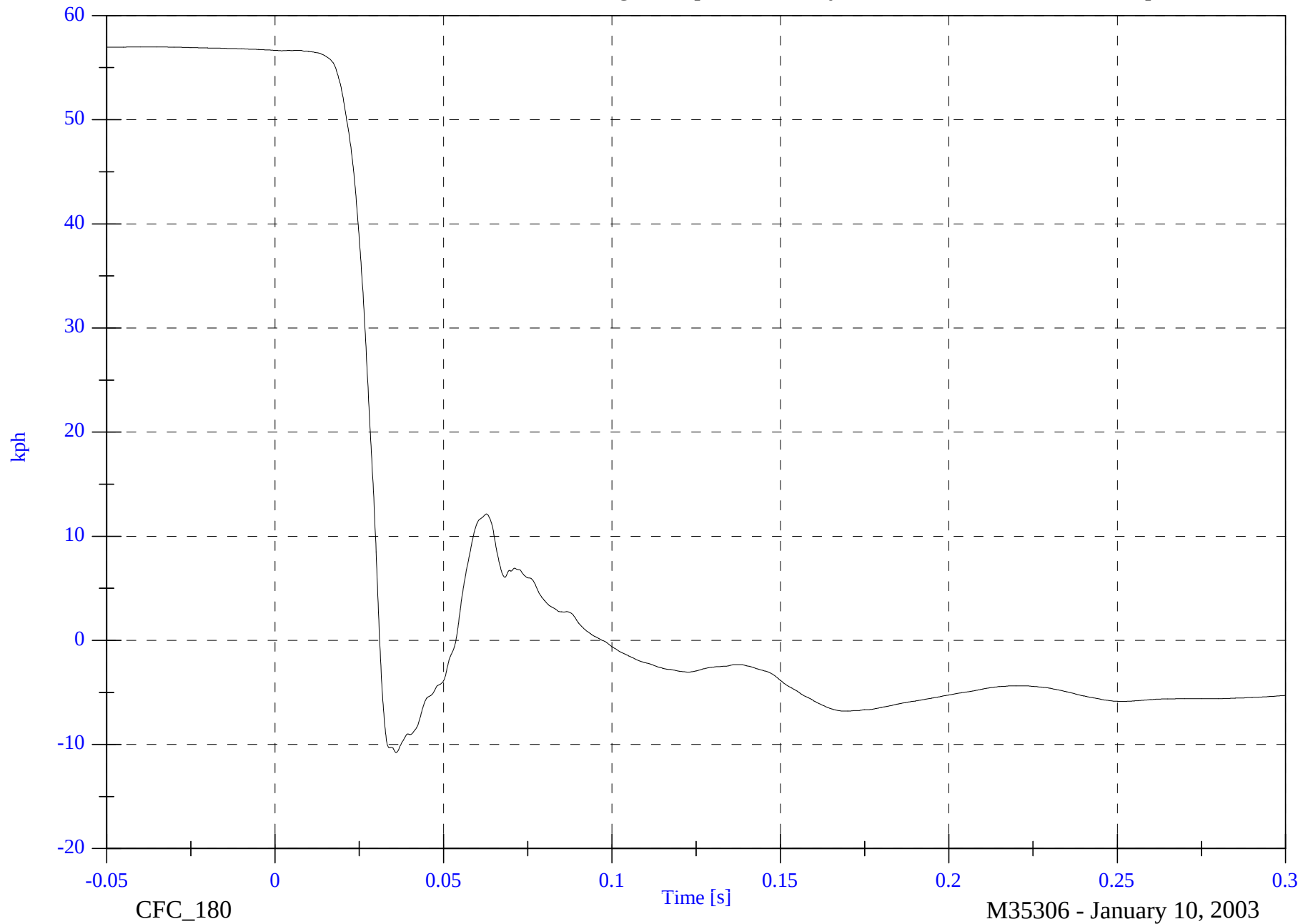


2003 NCAP Test #4 - 2003 Honda Odyssey

V1 Engine Top #3x Velocity

Max: 57.0 [kph] at -0.039 [s]

Min: -10.8 [kph] at 0.036 [s]



B-123

8642-NCAP-26

CFC_180

Time [s]

M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

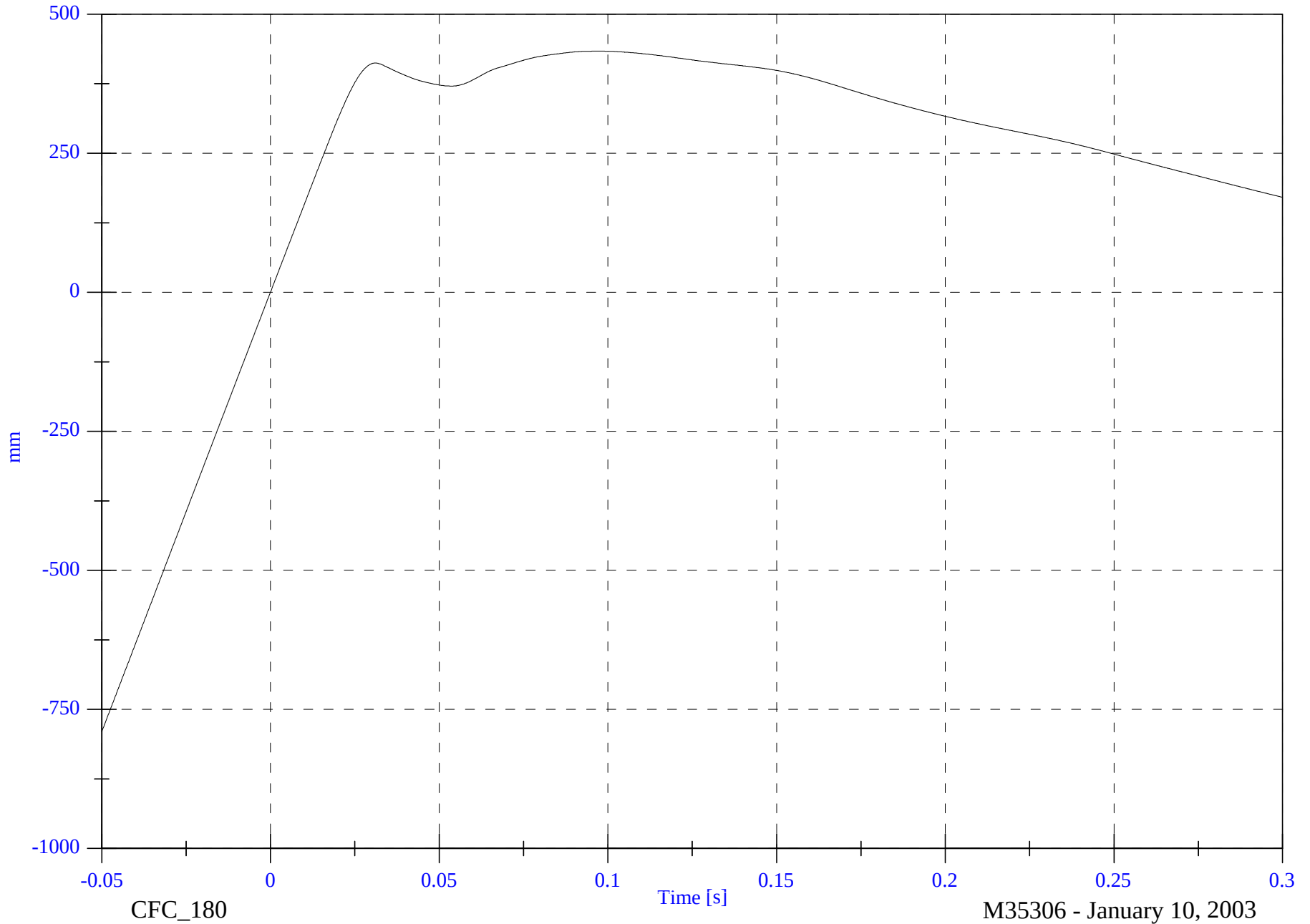
V1 Engine Top #3x Displacement

Max: 433.5 [mm] at 0.097 [s]

Min: -790.2 [mm] at -0.050 [s]

B-124

8642-NCAP-26



CFC_180

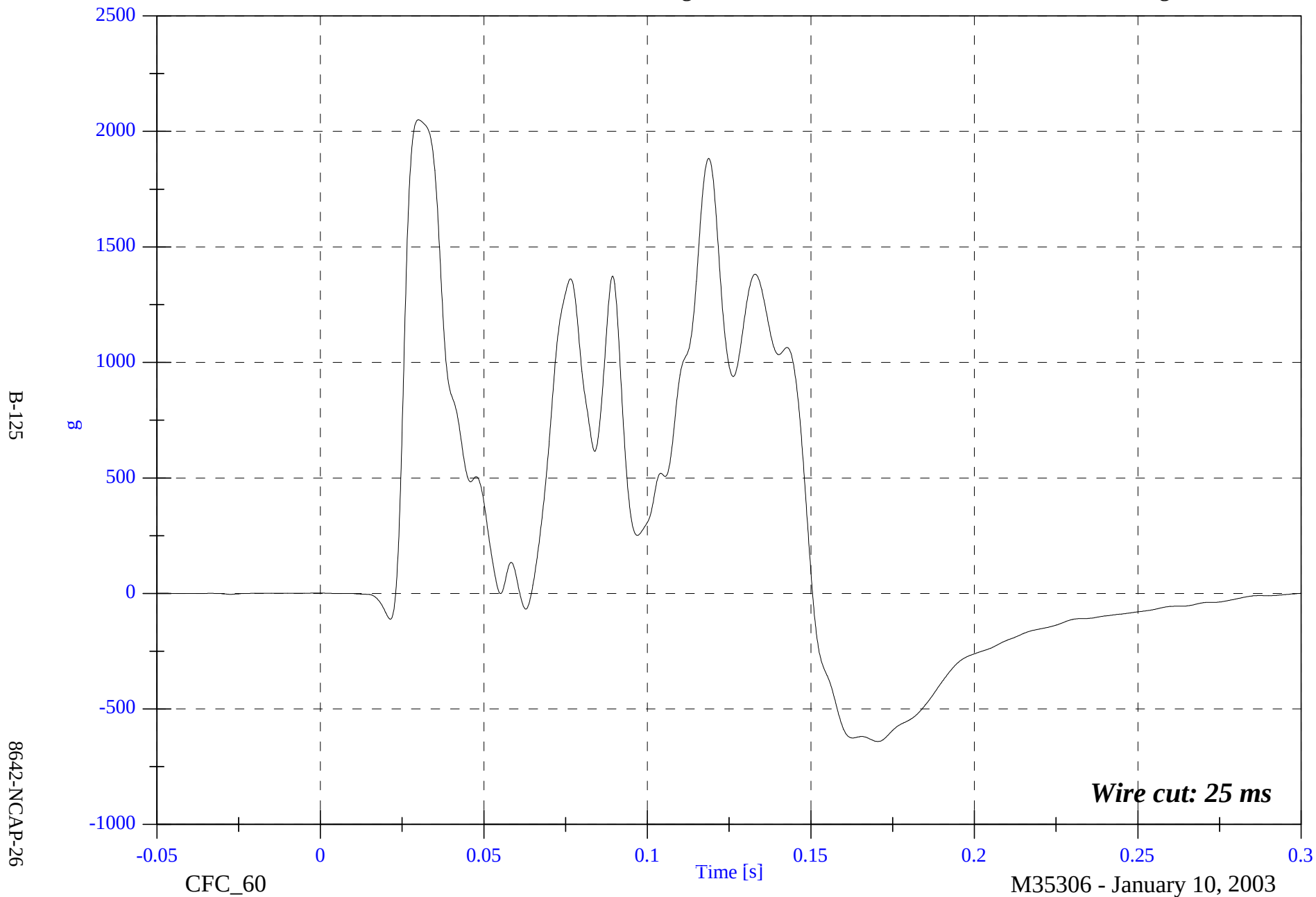
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1 Engine Bottom #4x

Max: 2050.2 [g] at 0.030 [s]

Min: -641.0 [g] at 0.170 [s]

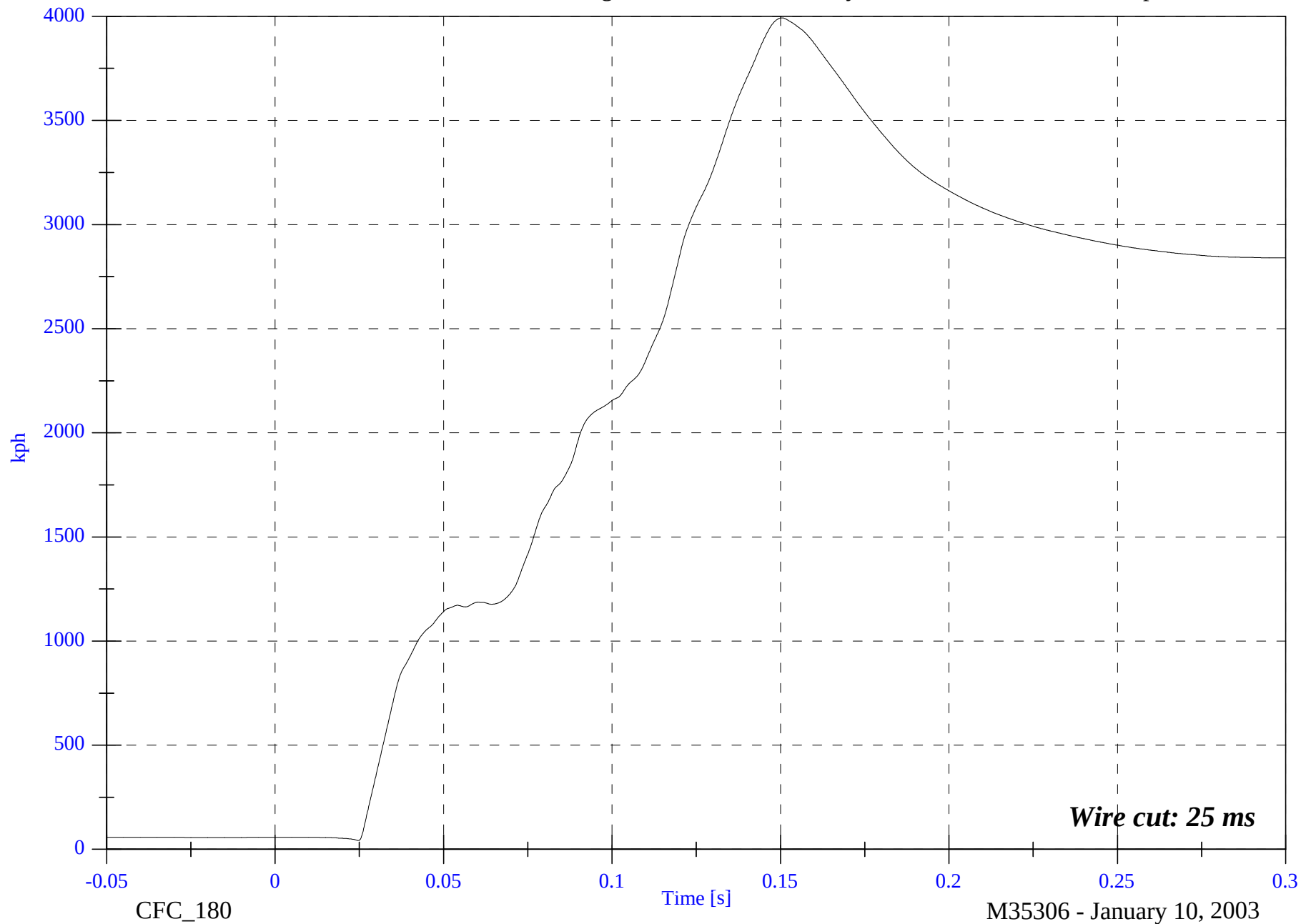


2003 NCAP Test #4 - 2003 Honda Odyssey

V1 Engine Bottom #4x Velocity

Max: 3992.8 [kph] at 0.150 [s]

Min: 42.2 [kph] at 0.025 [s]



B-126

8642-NCAP-26

Wire cut: 25 ms

CFC_180

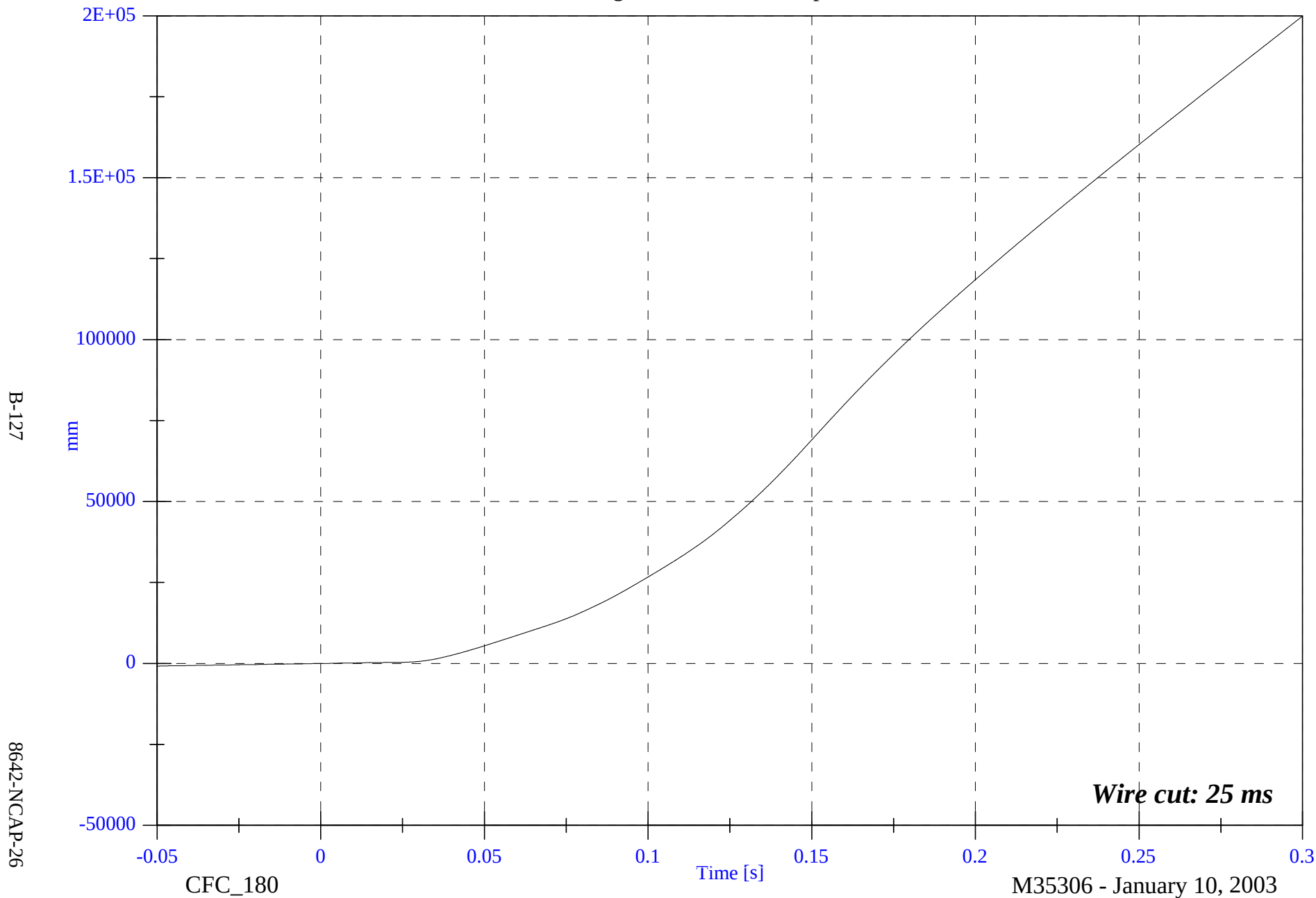
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

Max: 199869.2 [mm] at 0.300 [s]

V1 Engine Bottom #4x Displacement

Min: -791.1 [mm] at -0.050 [s]

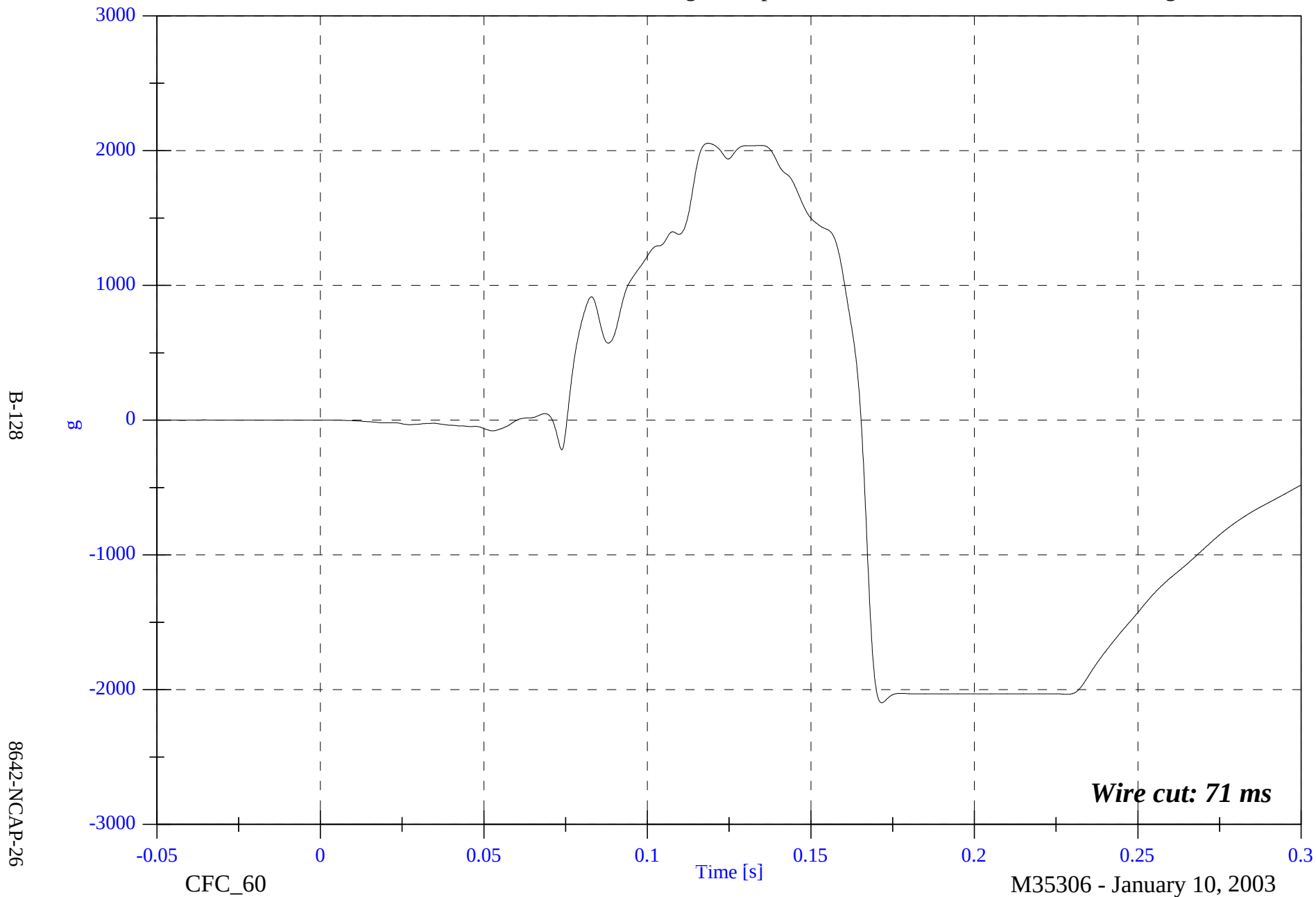


2003 NCAP Test #4 - 2003 Honda Odyssey

V1 Right Caliper #5x

Max: 2054.8 [g] at 0.119 [s]

Min: -2096.8 [g] at 0.172 [s]

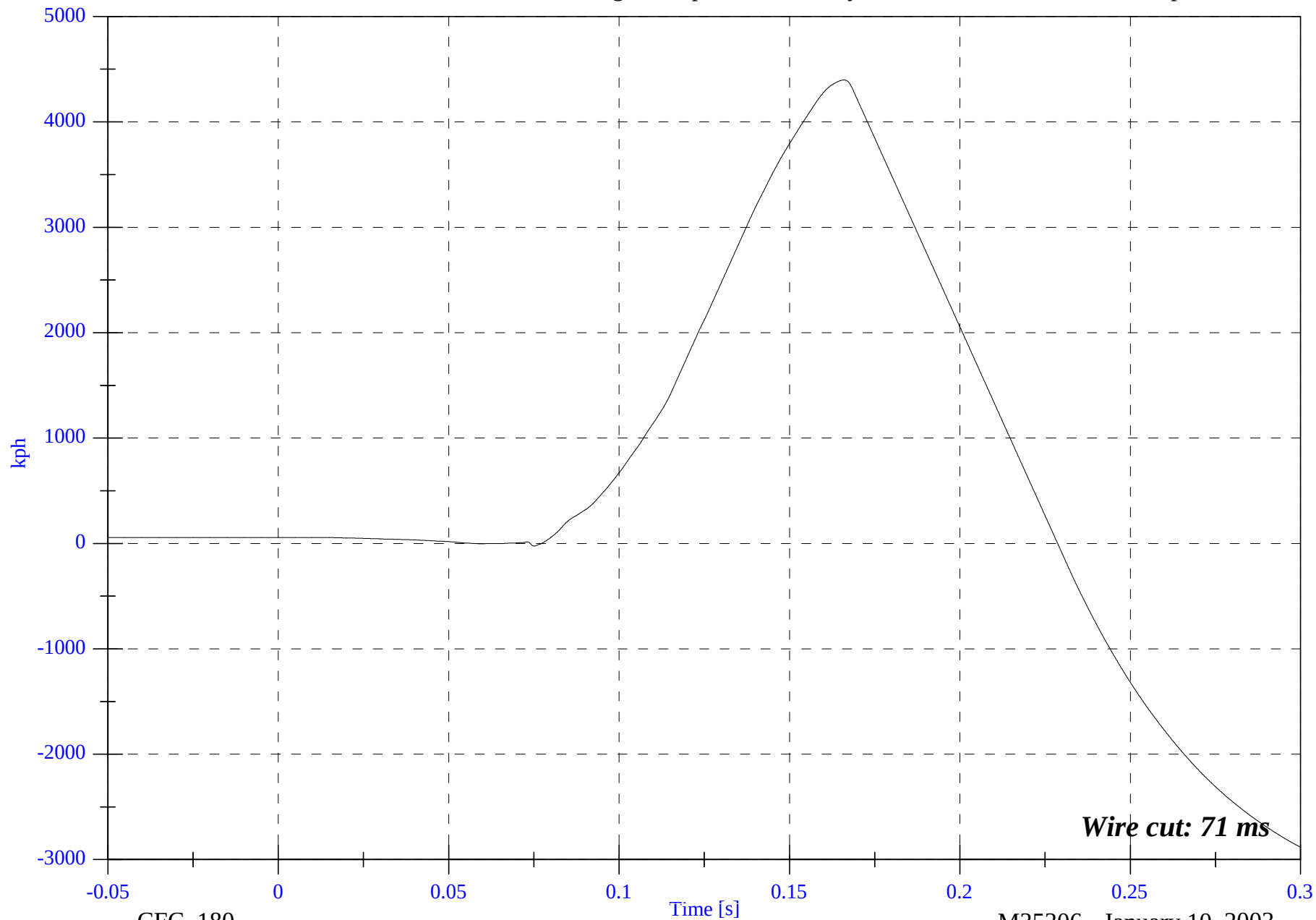


2003 NCAP Test #4 - 2003 Honda Odyssey

V1 Right Caliper #5x Velocity

Max: 4397.5 [kph] at 0.166 [s]

Min: -2882.1 [kph] at 0.300 [s]



Wire cut: 71 ms

B-129

8642-NCAP-26

CFC_180

Time [s]

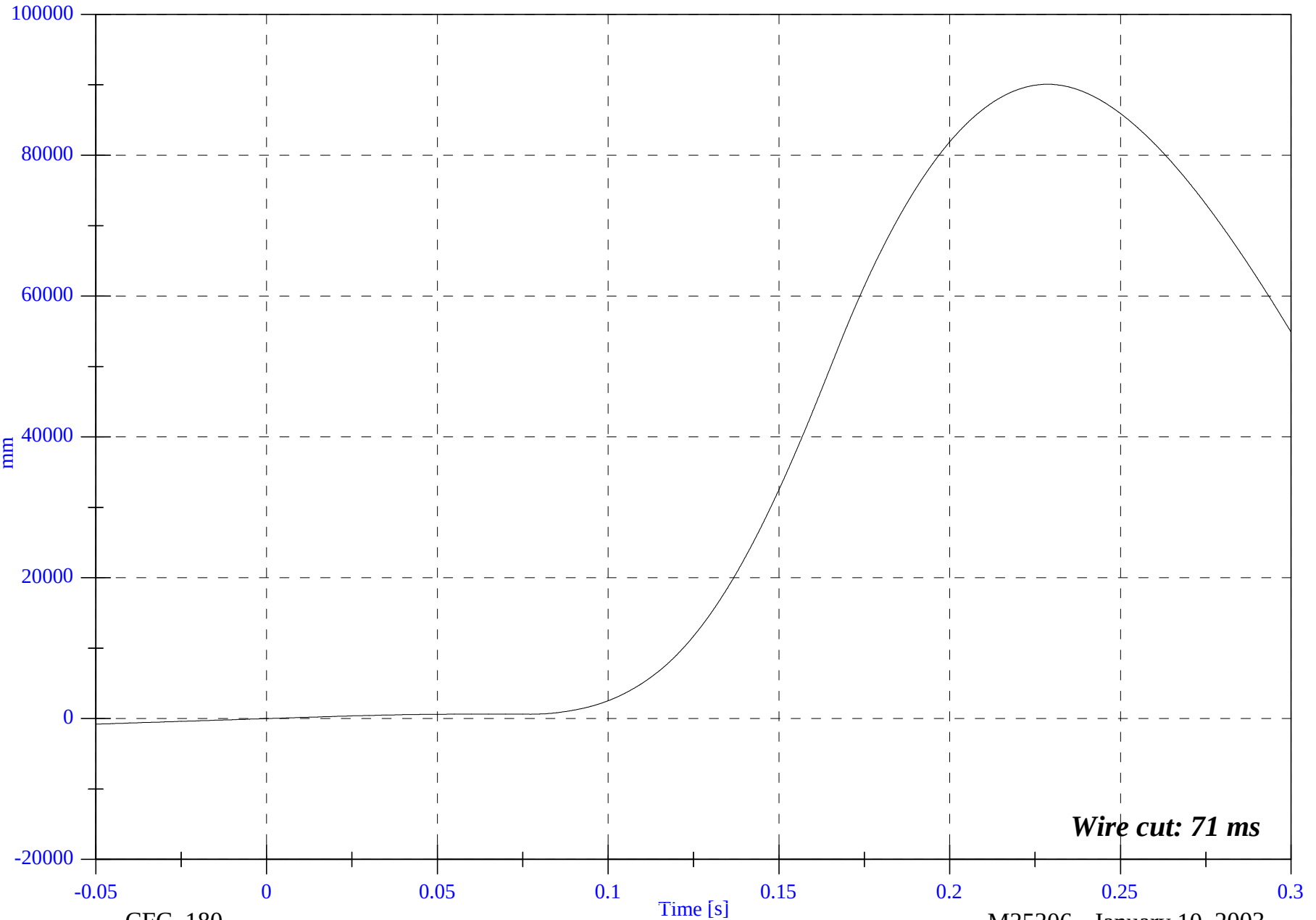
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1 Right Caliper #5x Displacement

Max: 90077.3 [mm] at 0.229 [s]

Min: -788.9 [mm] at -0.050 [s]



B-130

8642-NCAP-26

CFC_180

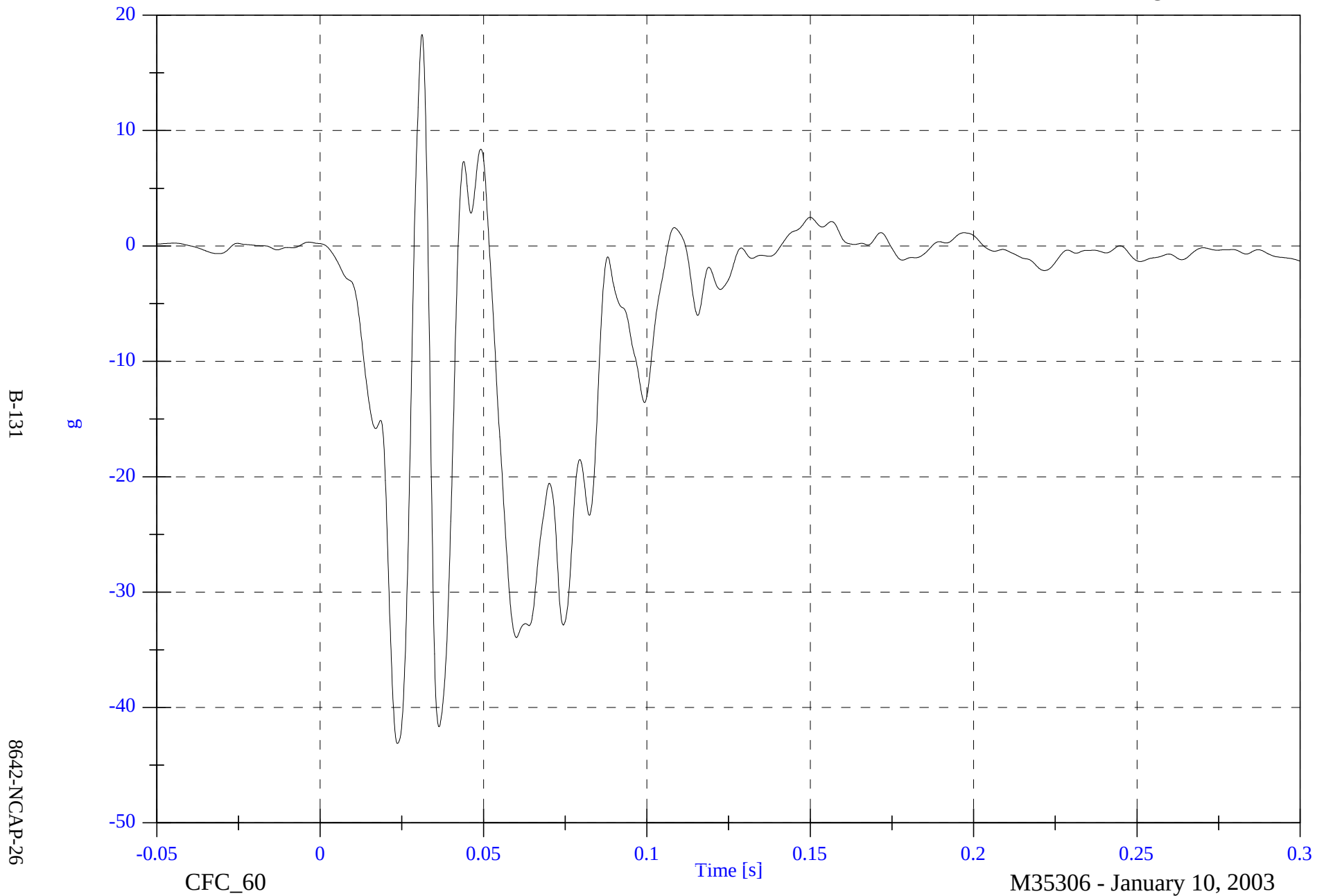
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1 Instrument Panel #6x

Max: 18.3 [g] at 0.031 [s]

Min: -43.1 [g] at 0.024 [s]

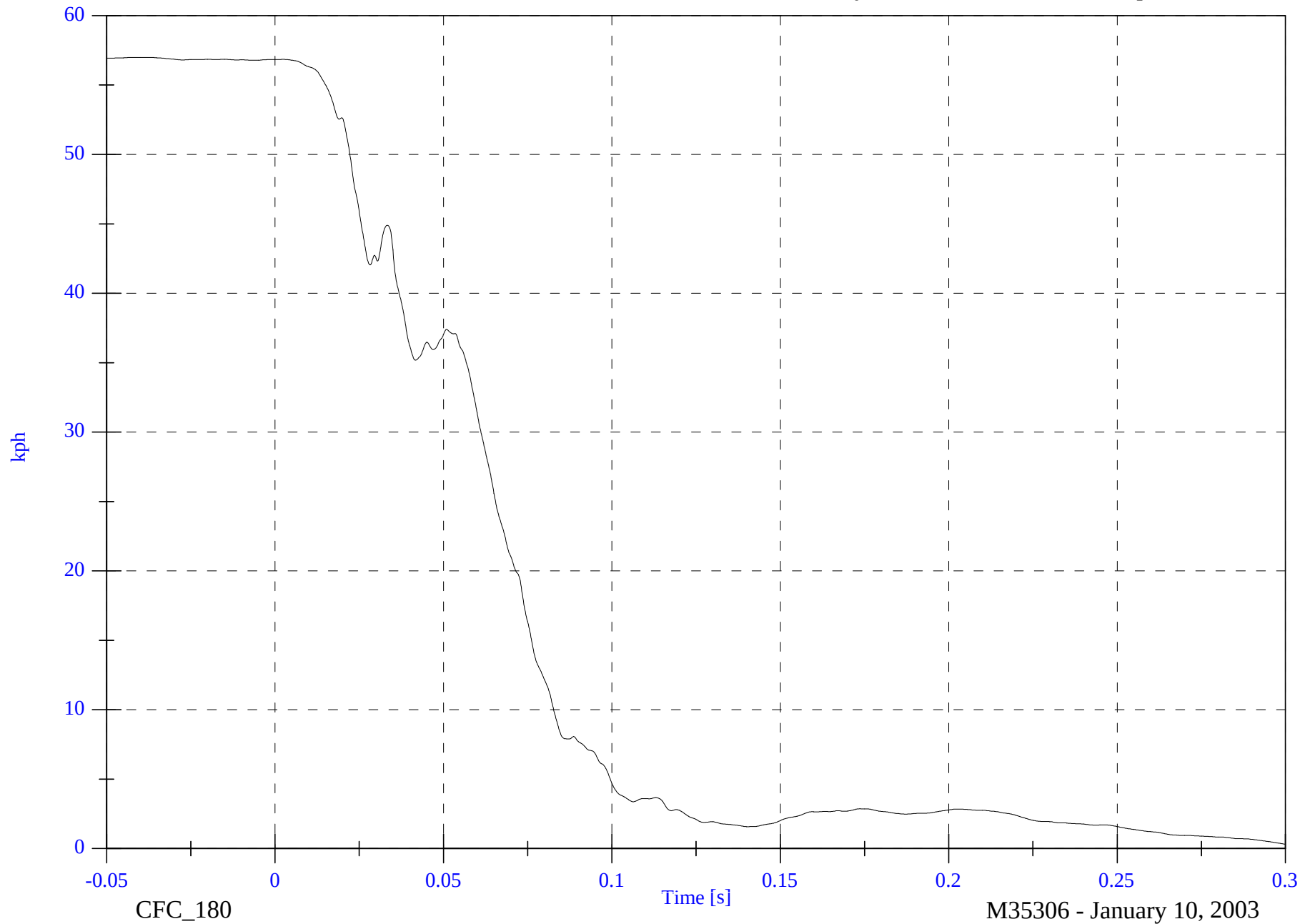


2003 NCAP Test #4 - 2003 Honda Odyssey

V1 Instrument Panel #6x Velocity

Max: 57.0 [kph] at -0.041 [s]

Min: 0.3 [kph] at 0.300 [s]



B-132

8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

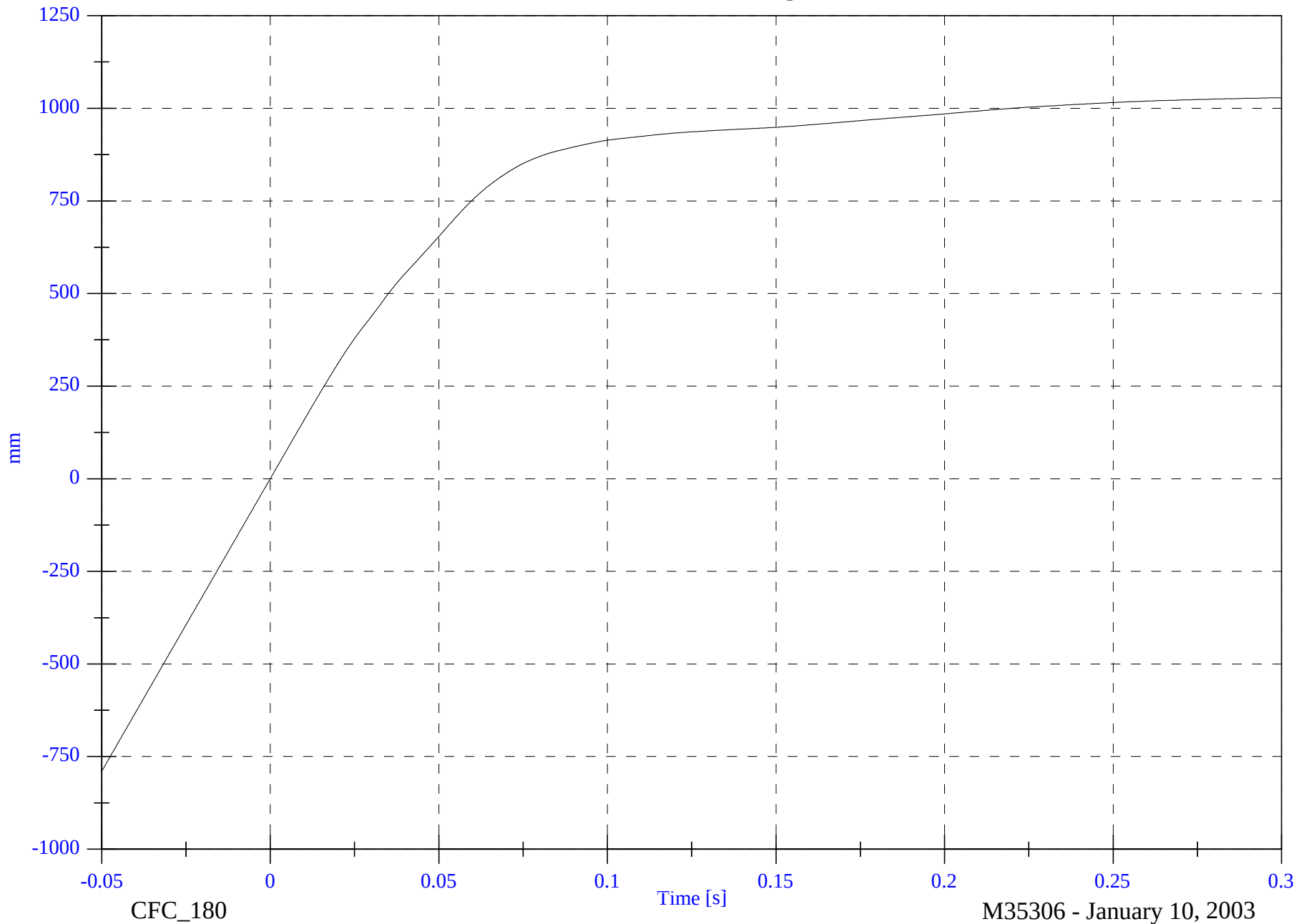
V1 Instrument Panel #6x Displacement

Max: 1028.1 [mm] at 0.300 [s]

Min: -790.0 [mm] at -0.050 [s]

B-133

8642-NCAP-26



CFC_180

M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

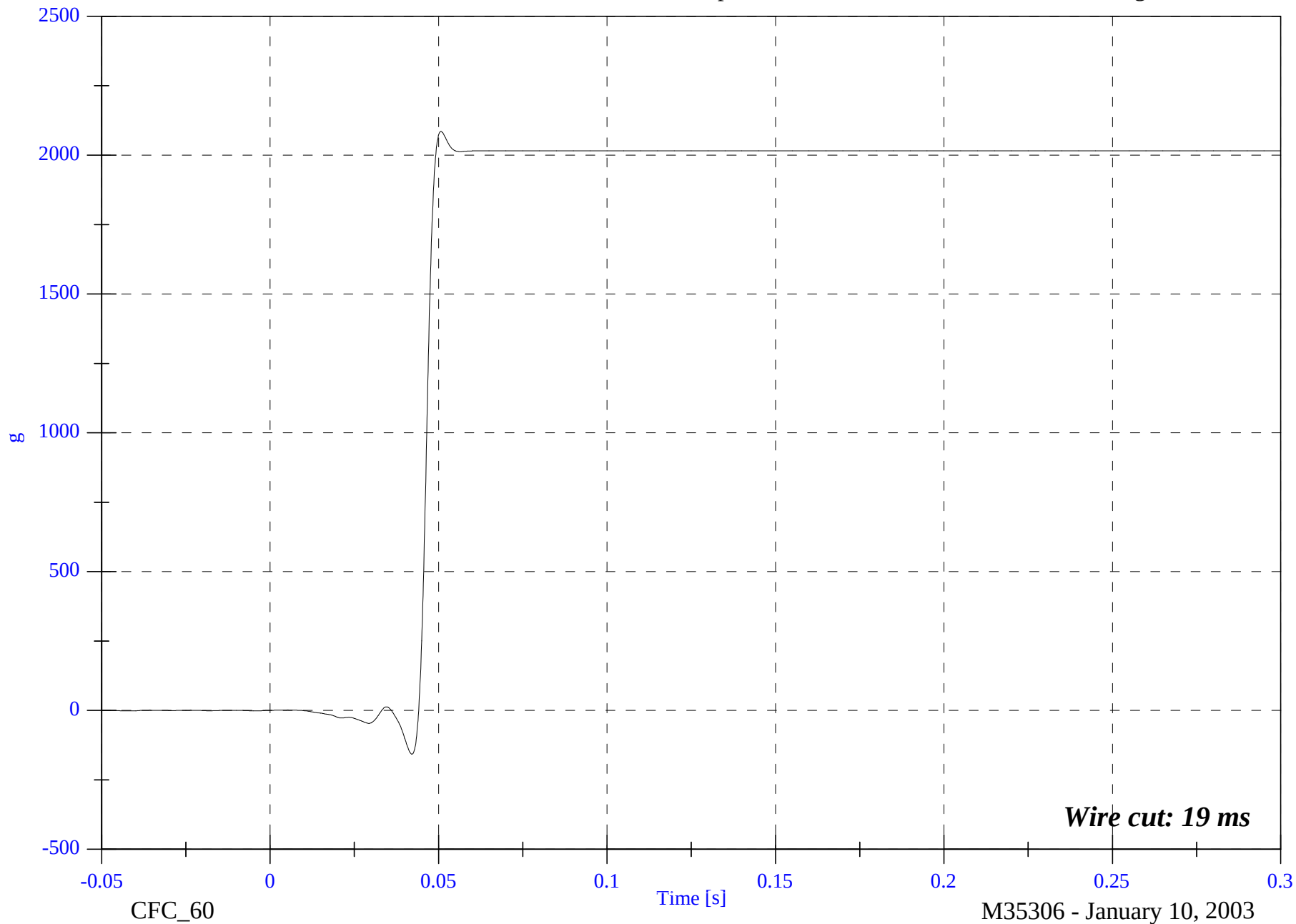
V1 Left Caliper #7x

Max: 2085.5 [g] at 0.051 [s]

Min: -157.4 [g] at 0.042 [s]

B-134

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

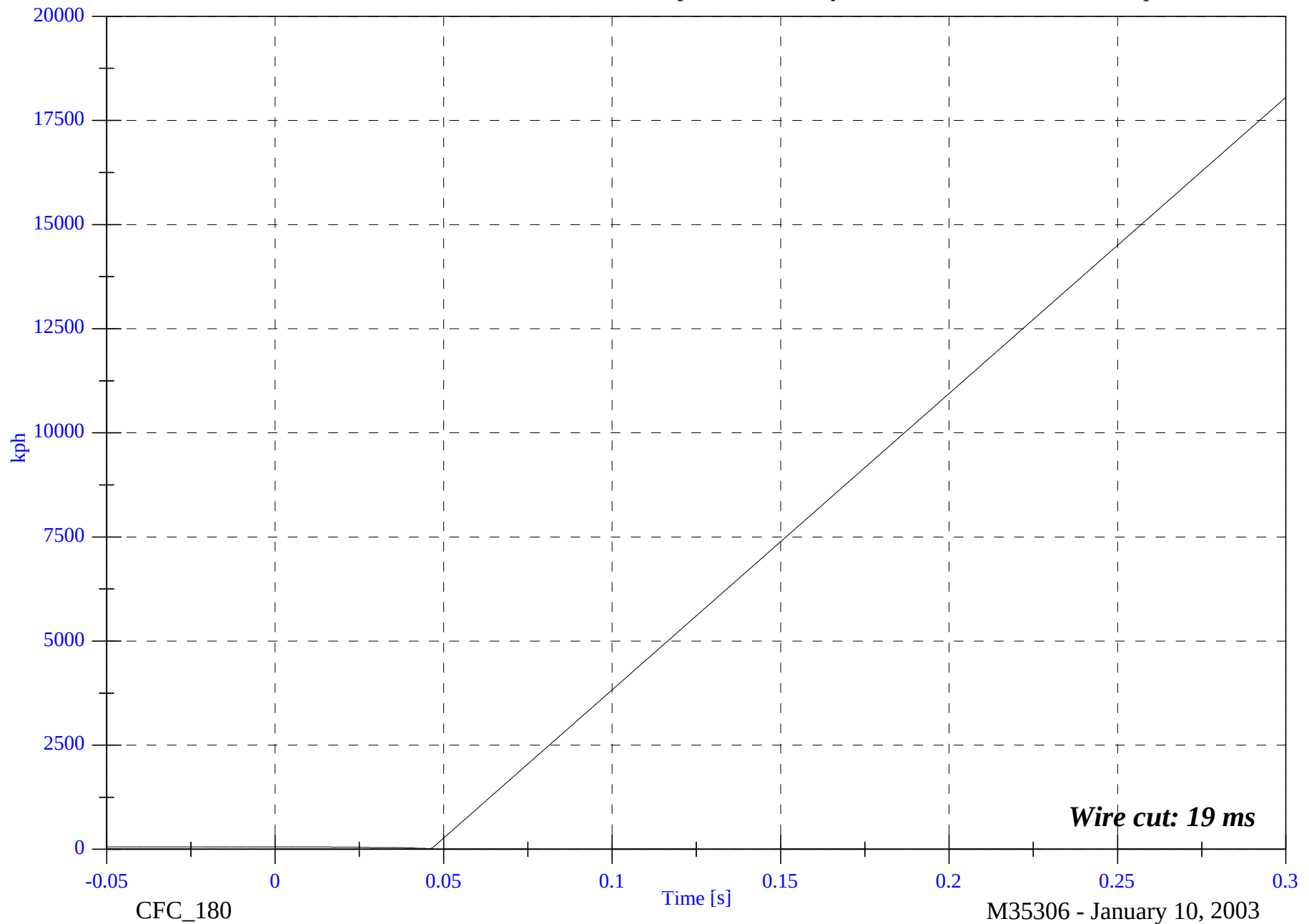
V1 Left Caliper #7x Velocity

Max: 18050.9 [kph] at 0.300 [s]

Min: 16.4 [kph] at 0.046 [s]

B-135

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

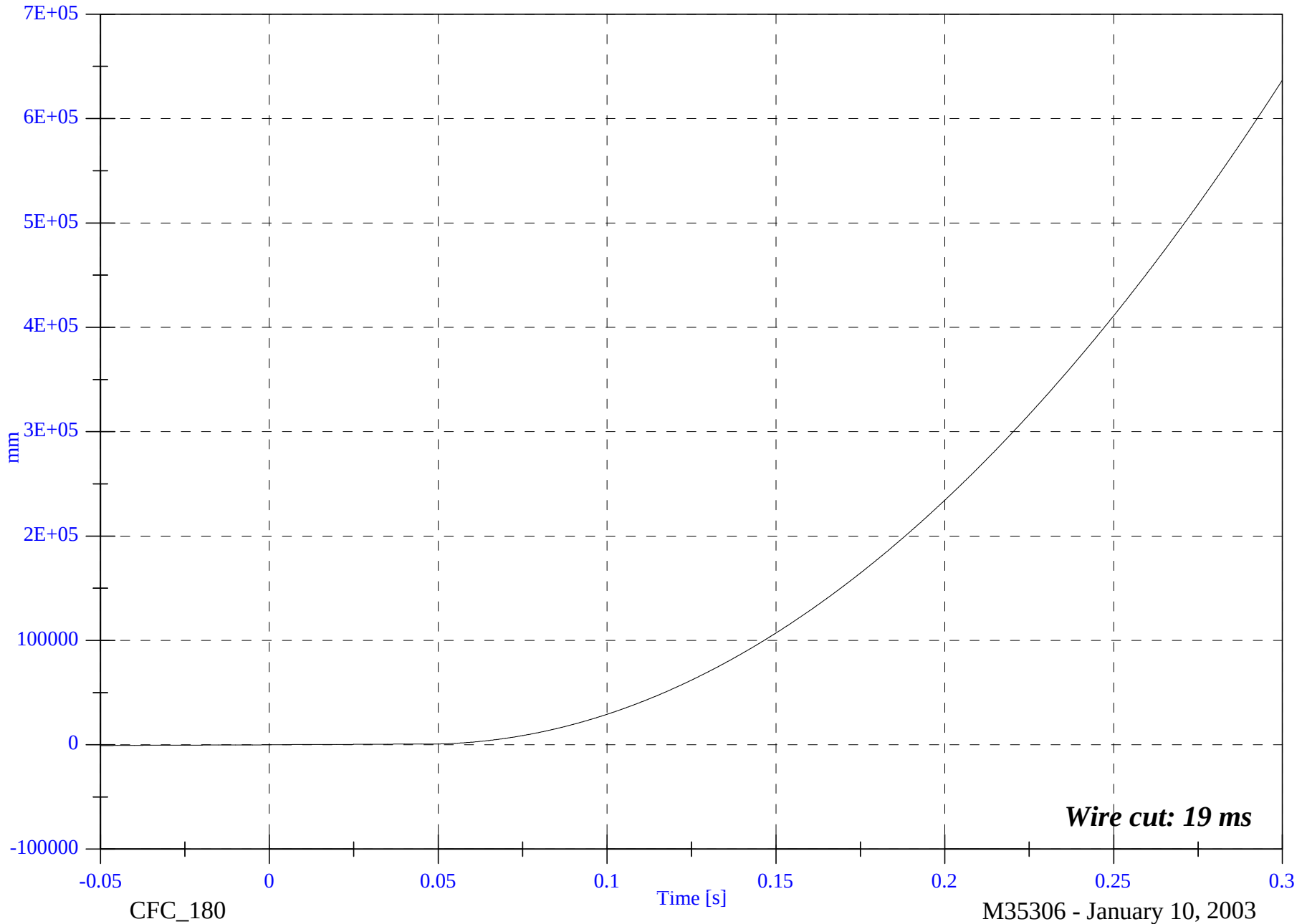
V1 Left Caliper #7x Displacement

Max: 636561.6 [mm] at 0.300 [s]

Min: -789.7 [mm] at -0.050 [s]

B-136

8642-NCAP-26

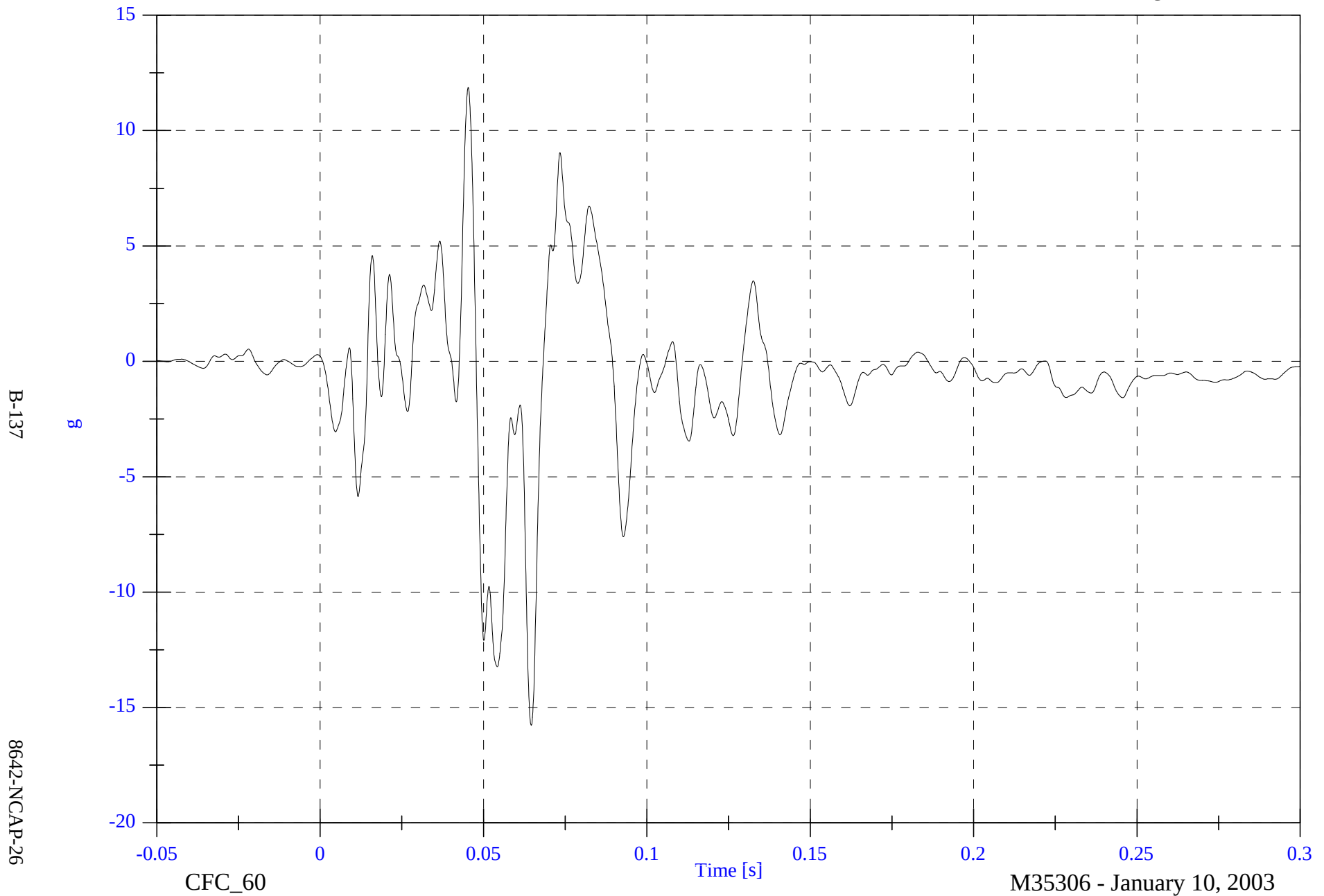


2003 NCAP Test #4 - 2003 Honda Odyssey

V1 Left Rear #8z

Max: 11.9 [g] at 0.045 [s]

Min: -15.8 [g] at 0.065 [s]

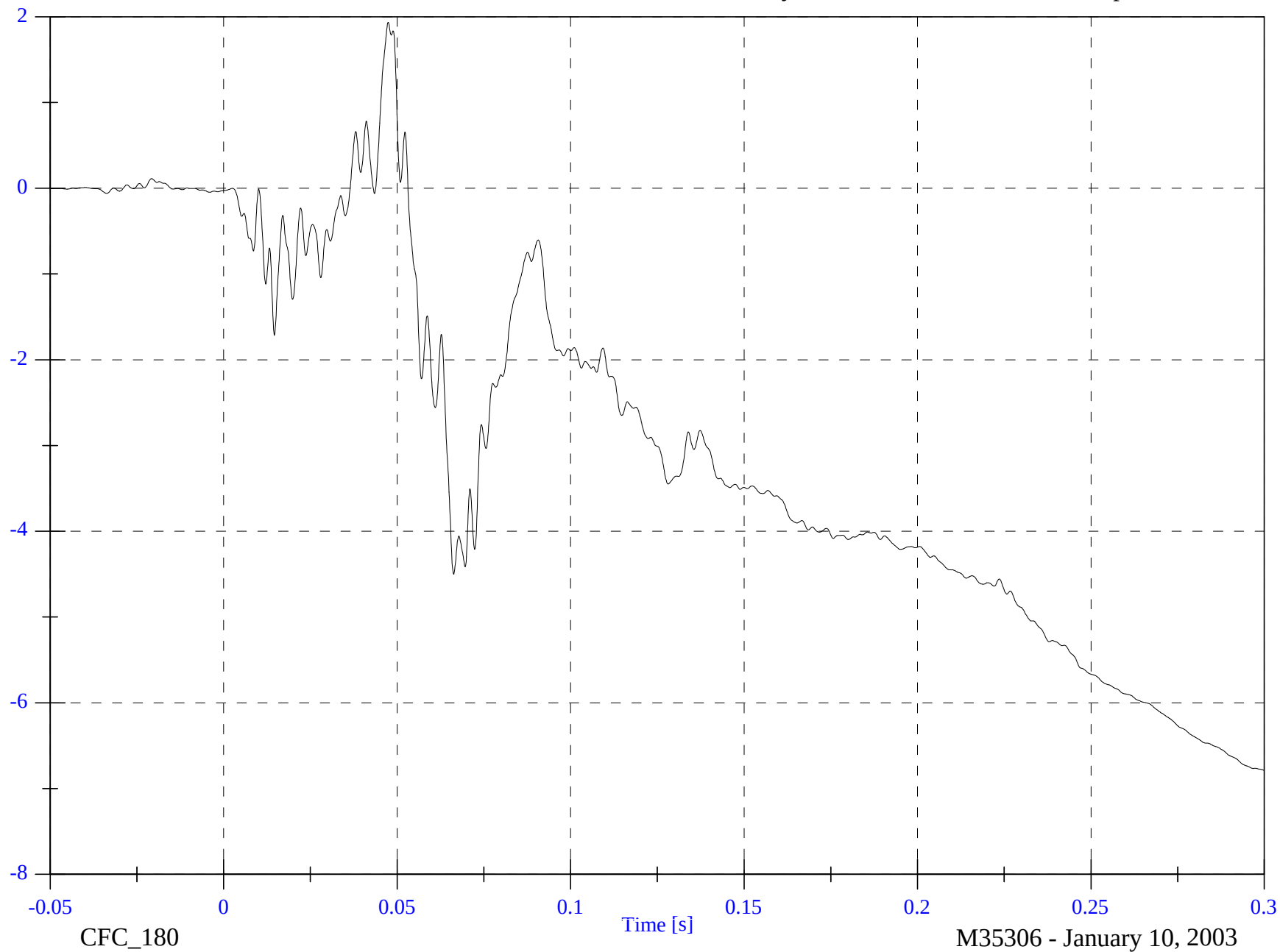


2003 NCAP Test #4 - 2003 Honda Odyssey

V1 Left Rear #8z Velocity

Max: 1.9 [kph] at 0.047 [s]

Min: -6.8 [kph] at 0.300 [s]



B-138

8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

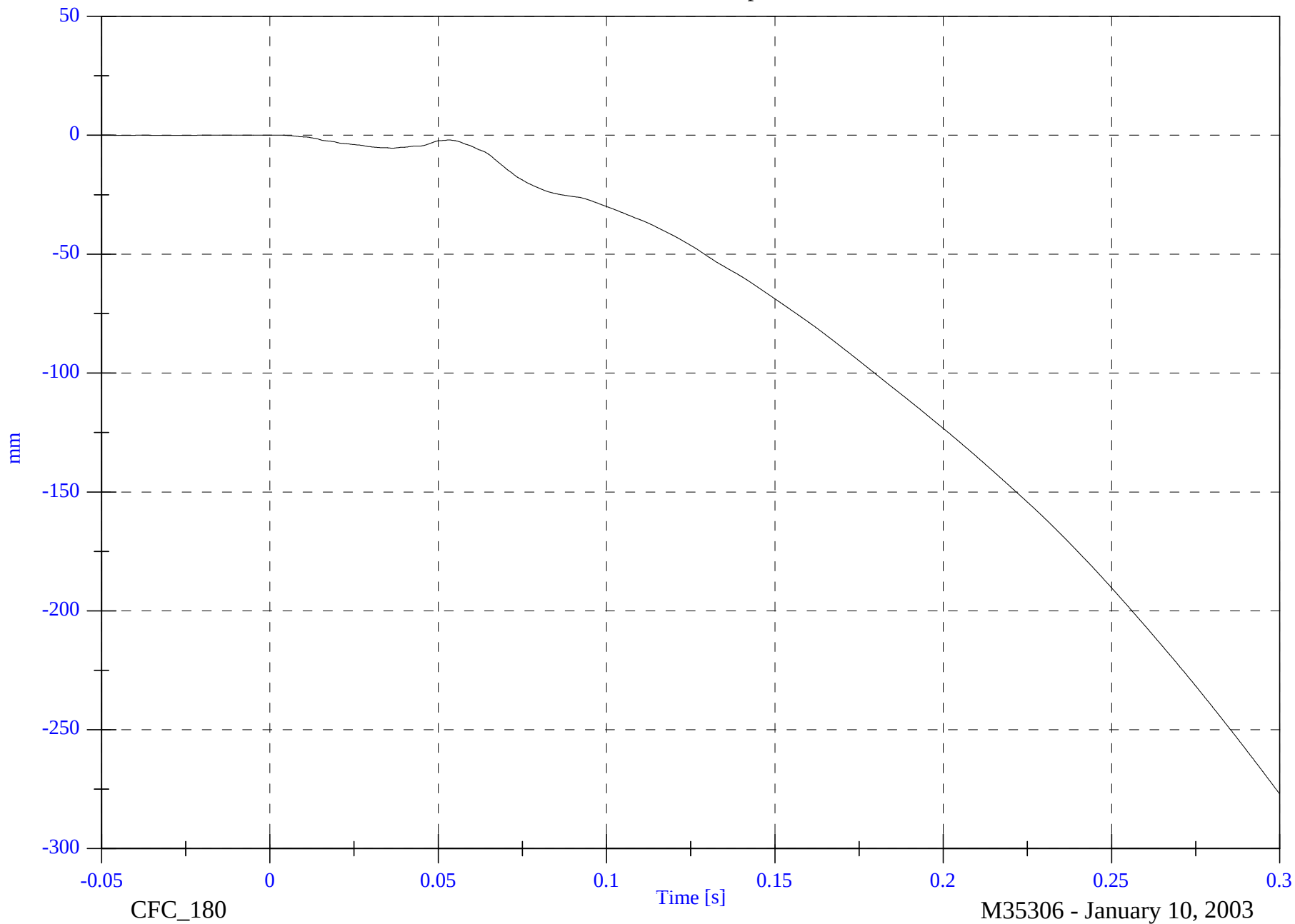
V1 Left Rear #8z Displacement

Max: 0.1 [mm] at -0.015 [s]

Min: -276.9 [mm] at 0.300 [s]

B-139

8642-NCAP-26



CFC_180

M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

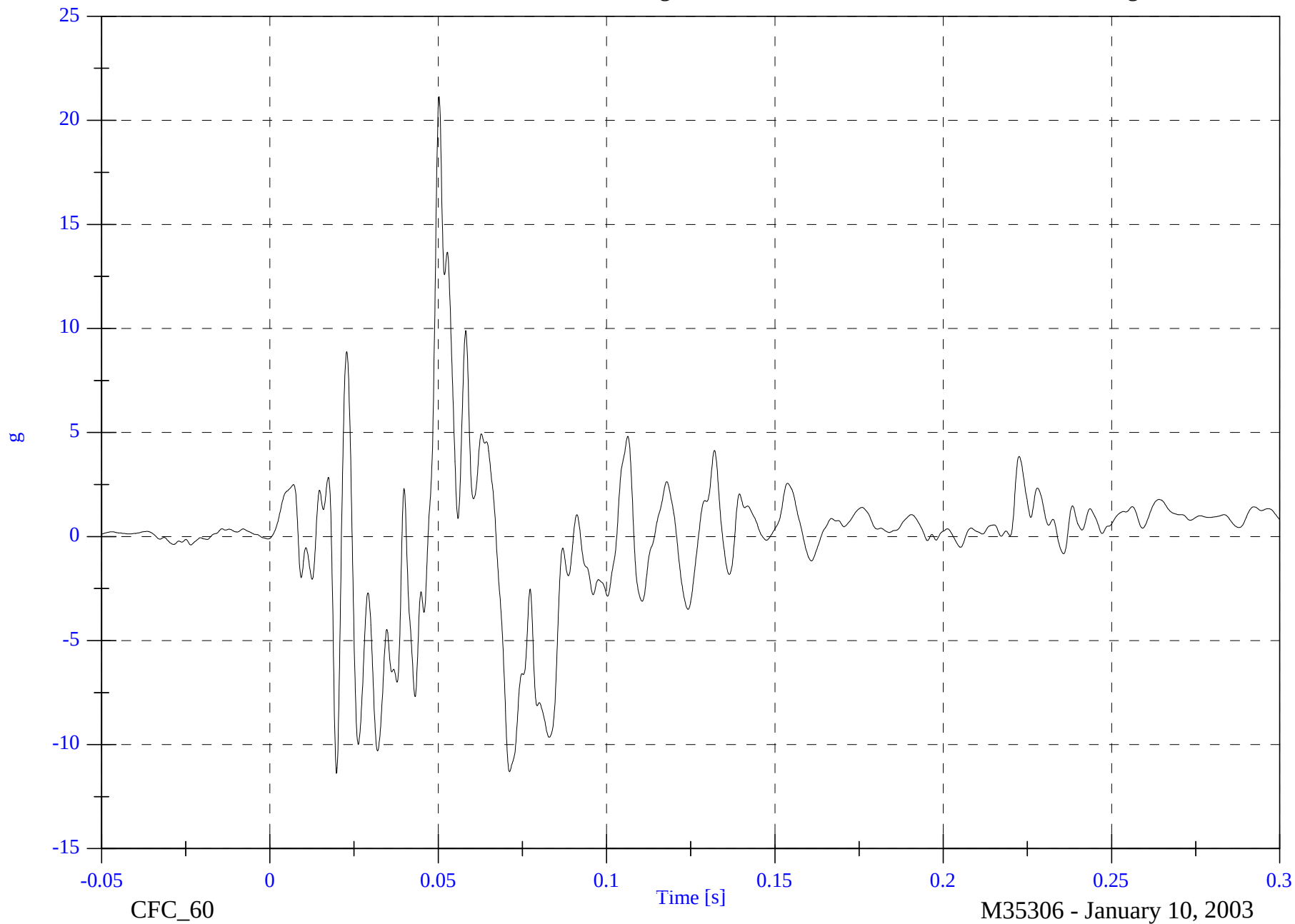
V1 Right Rear #9z

Max: 21.1 [g] at 0.050 [s]

Min: -11.4 [g] at 0.020 [s]

B-140

8642-NCAP-26

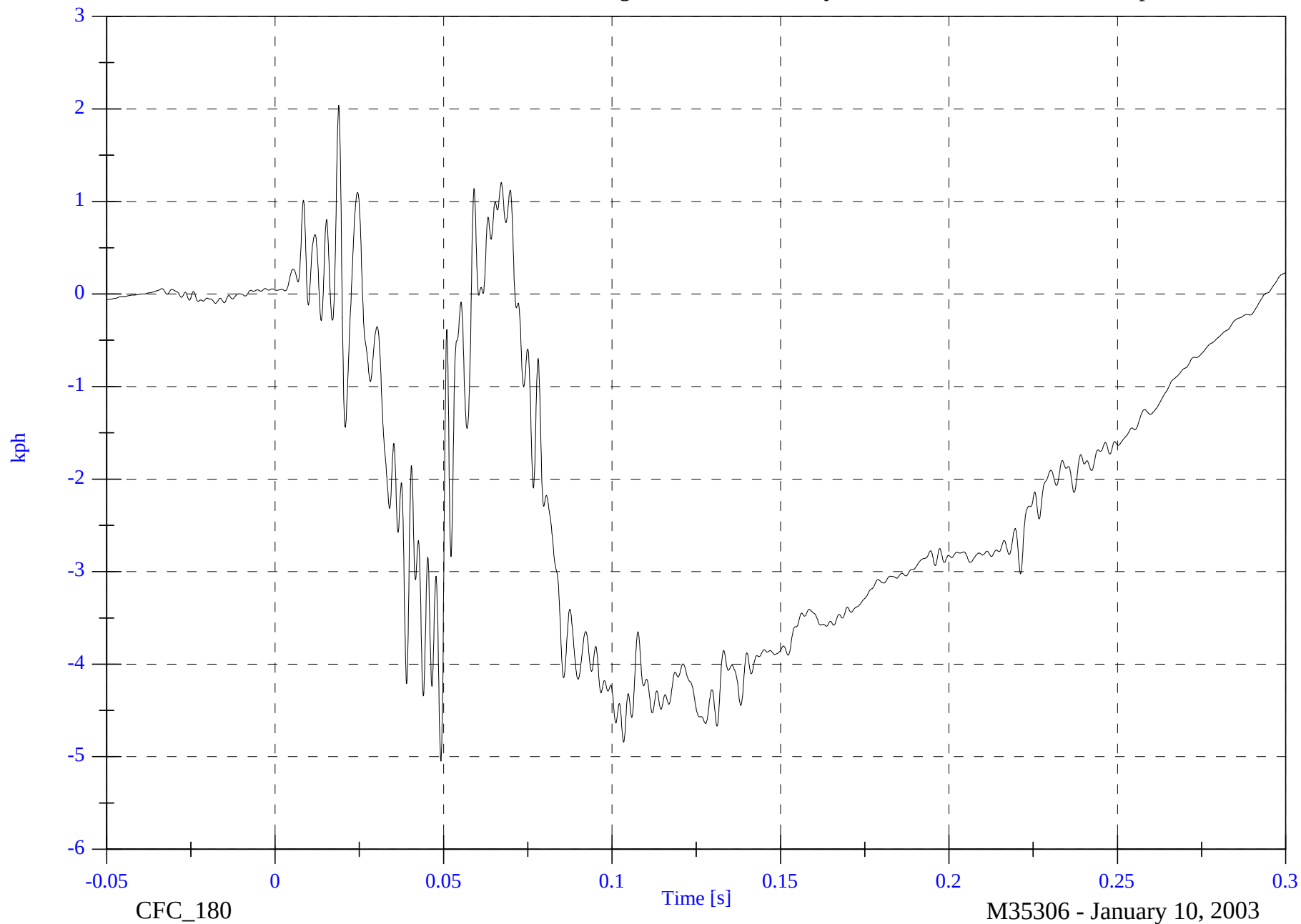


2003 NCAP Test #4 - 2003 Honda Odyssey

V1 Right Rear #9z Velocity

Max: 2.0 [kph] at 0.019 [s]

Min: -5.0 [kph] at 0.049 [s]



B-141

8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

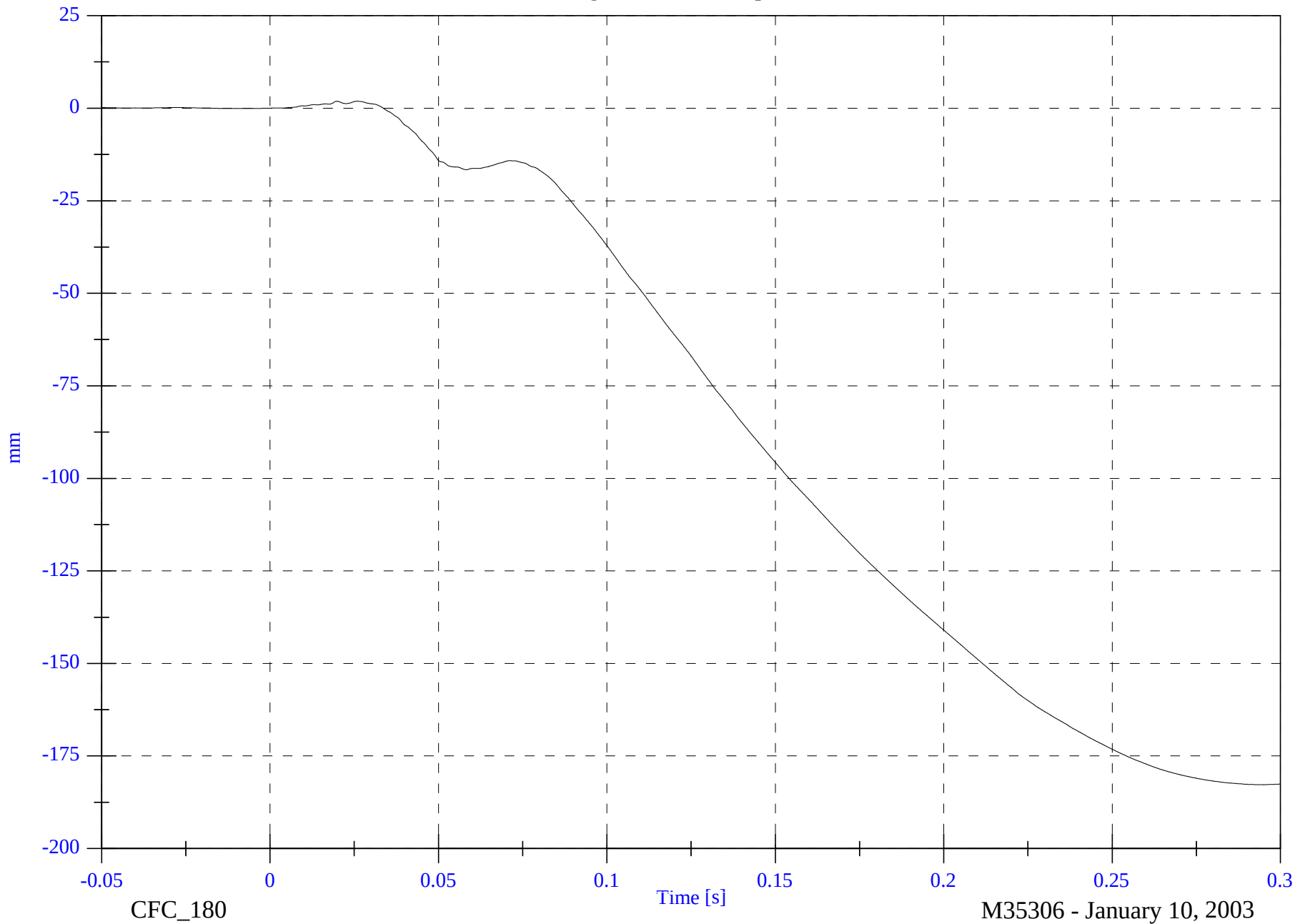
V1 Right Rear #9z Displacement

Max: 1.9 [mm] at 0.026 [s]

Min: -182.7 [mm] at 0.294 [s]

B-142

8642-NCAP-26



NCAP Test #4- 2003 Honda Odyssey

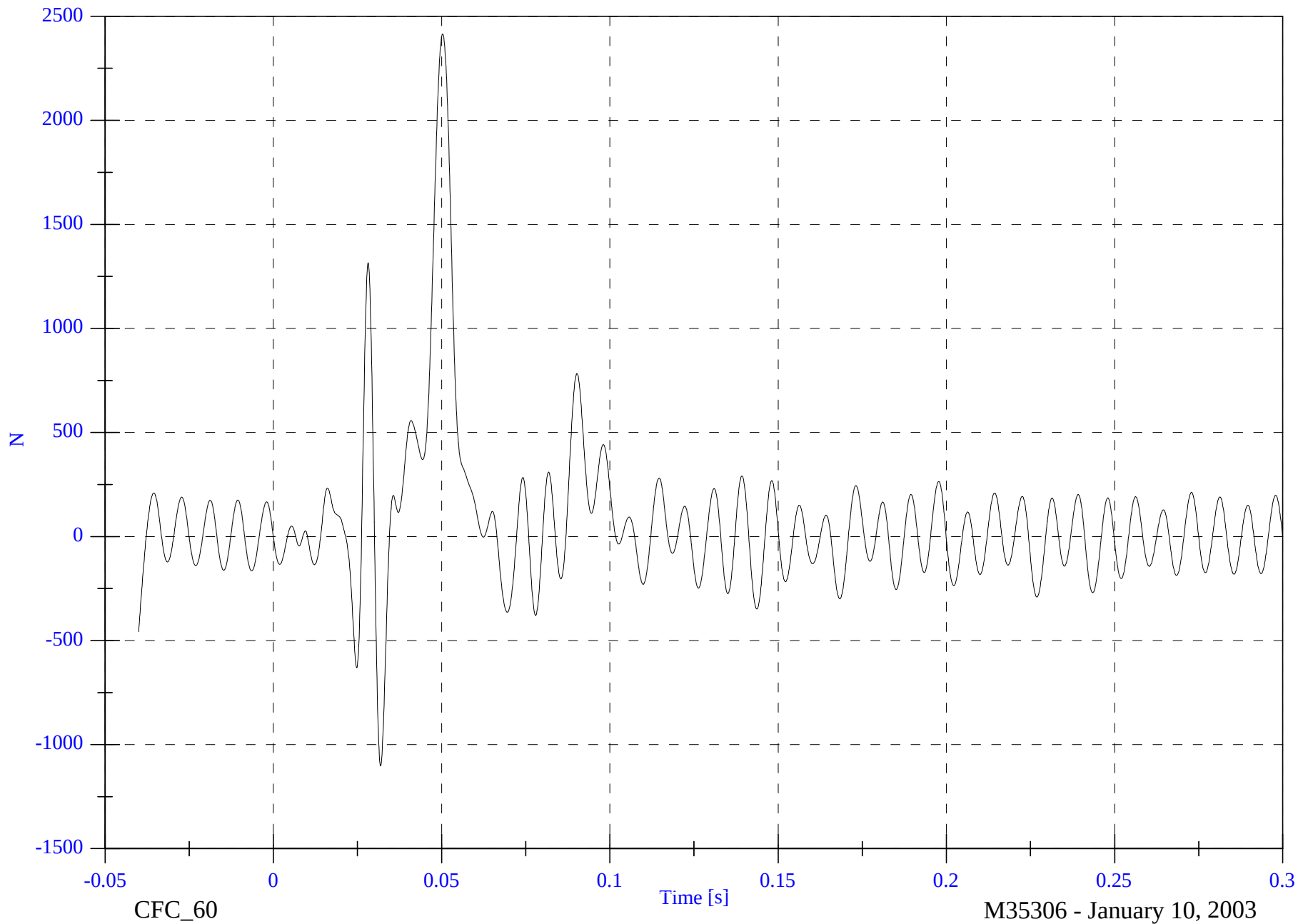
B1 LCA1 Fx

Max: 2415.5 [N] at 0.050 [s]

Min: -1103.4 [N] at 0.032 [s]

B-143

8642-NCAP-26



NCAP Test #4- 2003 Honda Odyssey

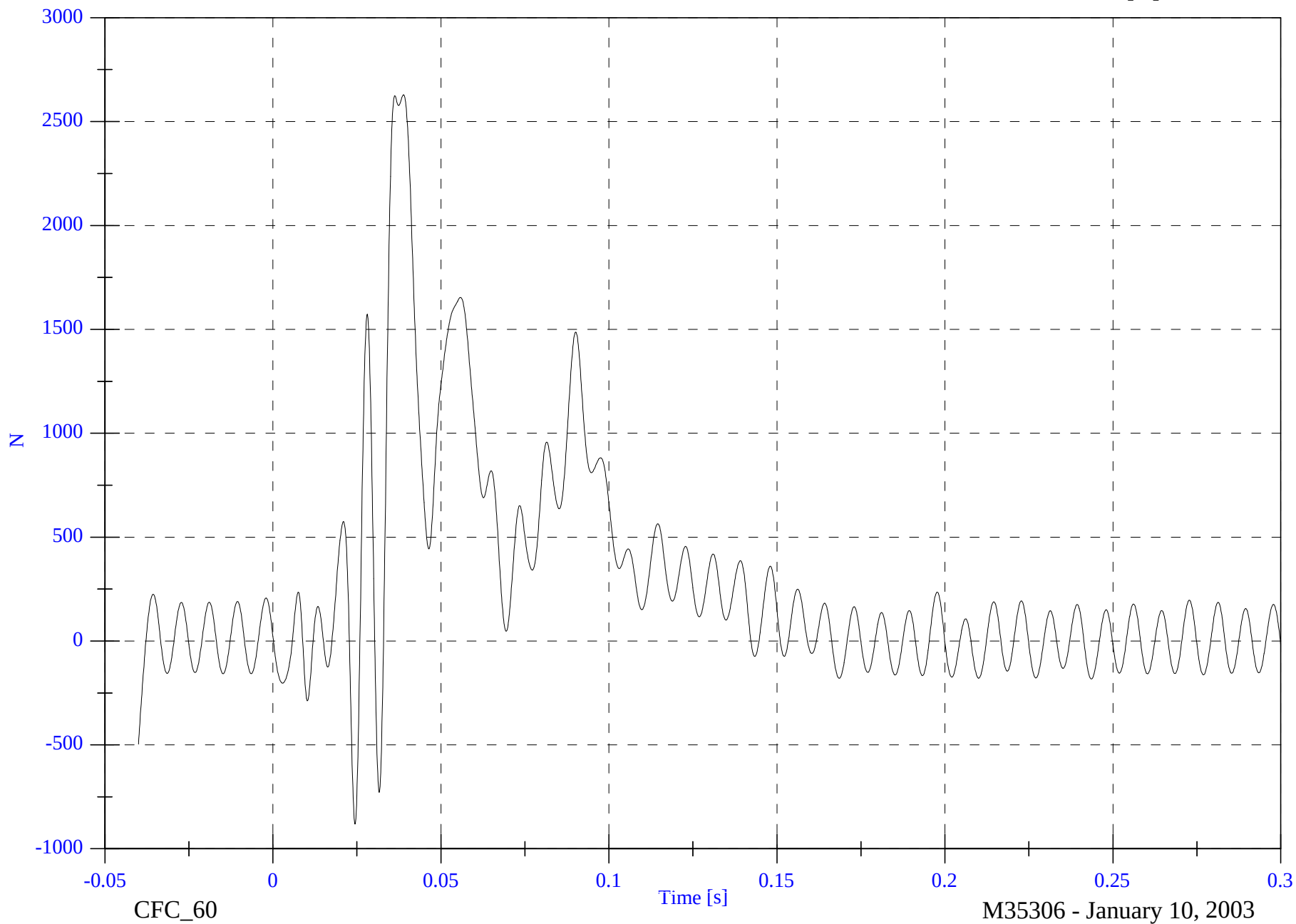
B1 LCA2 Fx

Max: 2629.3 [N] at 0.039 [s]

Min: -881.4 [N] at 0.024 [s]

B-144

8642-NCAP-26

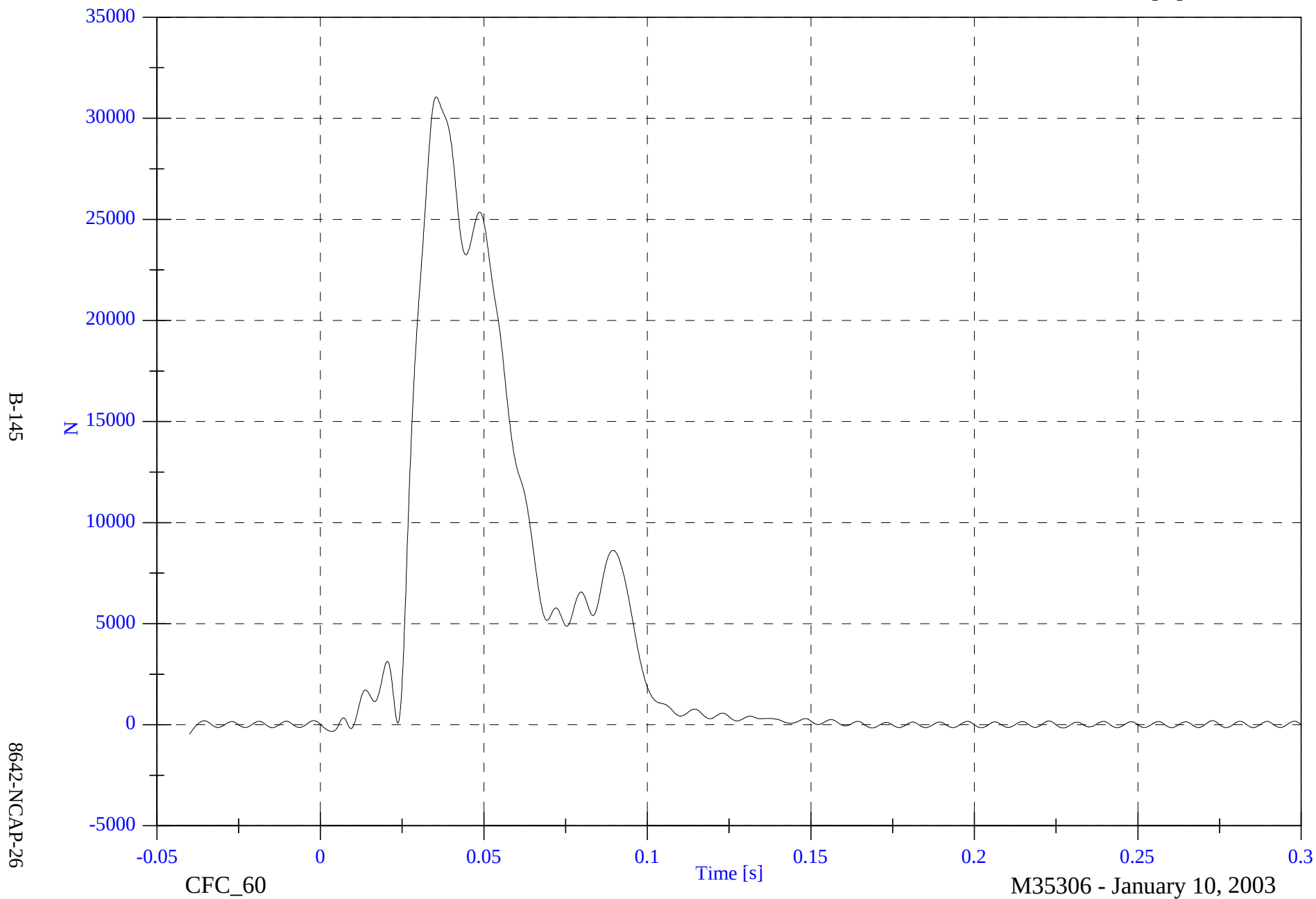


NCAP Test #4- 2003 Honda Odyssey

B1 LCA3 Fx

Max: 31056.9 [N] at 0.035 [s]

Min: -464.6 [N] at -0.040 [s]

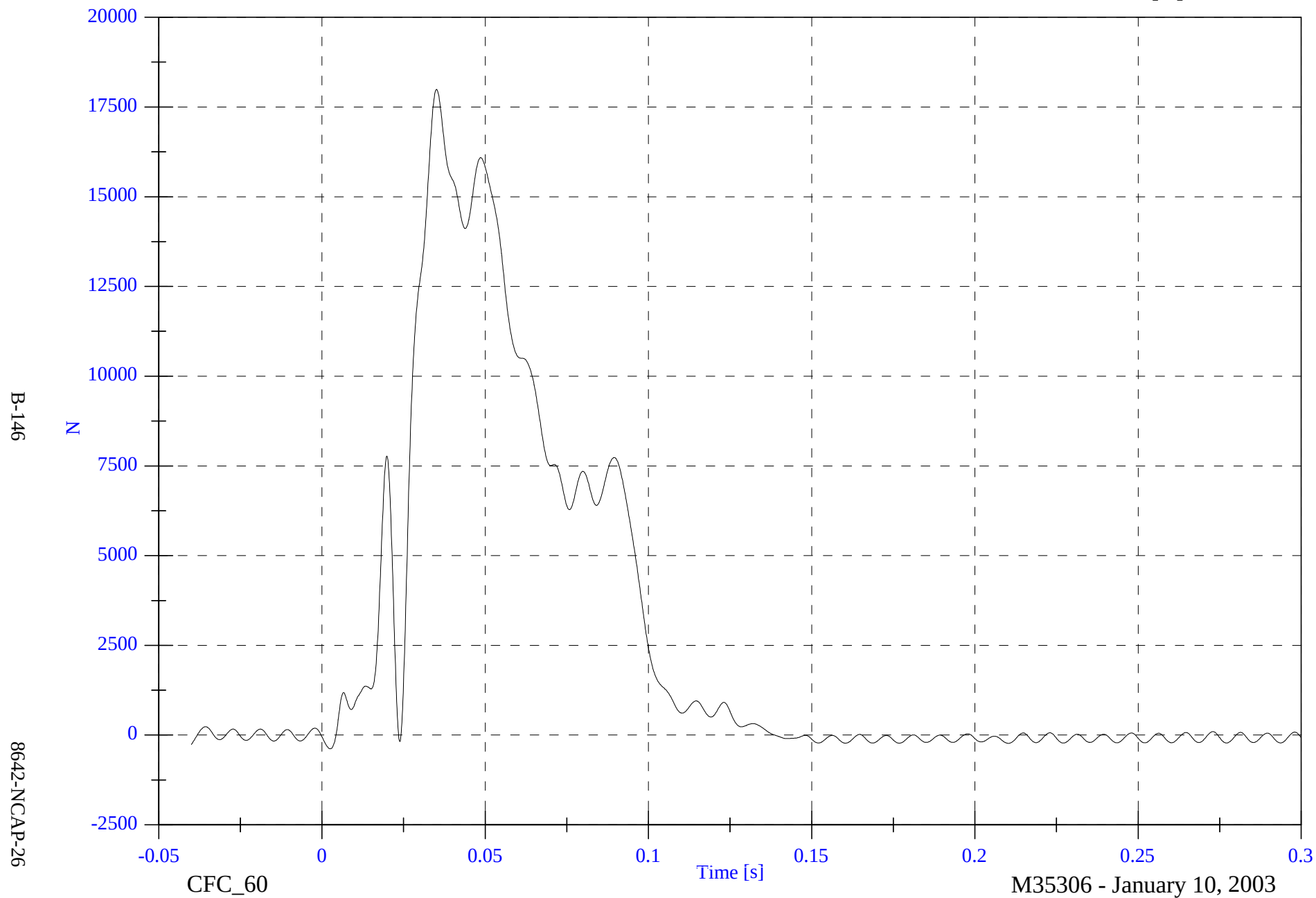


NCAP Test #4- 2003 Honda Odyssey

B1 LCA4 Fx

Max: 17989.4 [N] at 0.035 [s]

Min: -381.8 [N] at 0.003 [s]



NCAP Test #4- 2003 Honda Odyssey

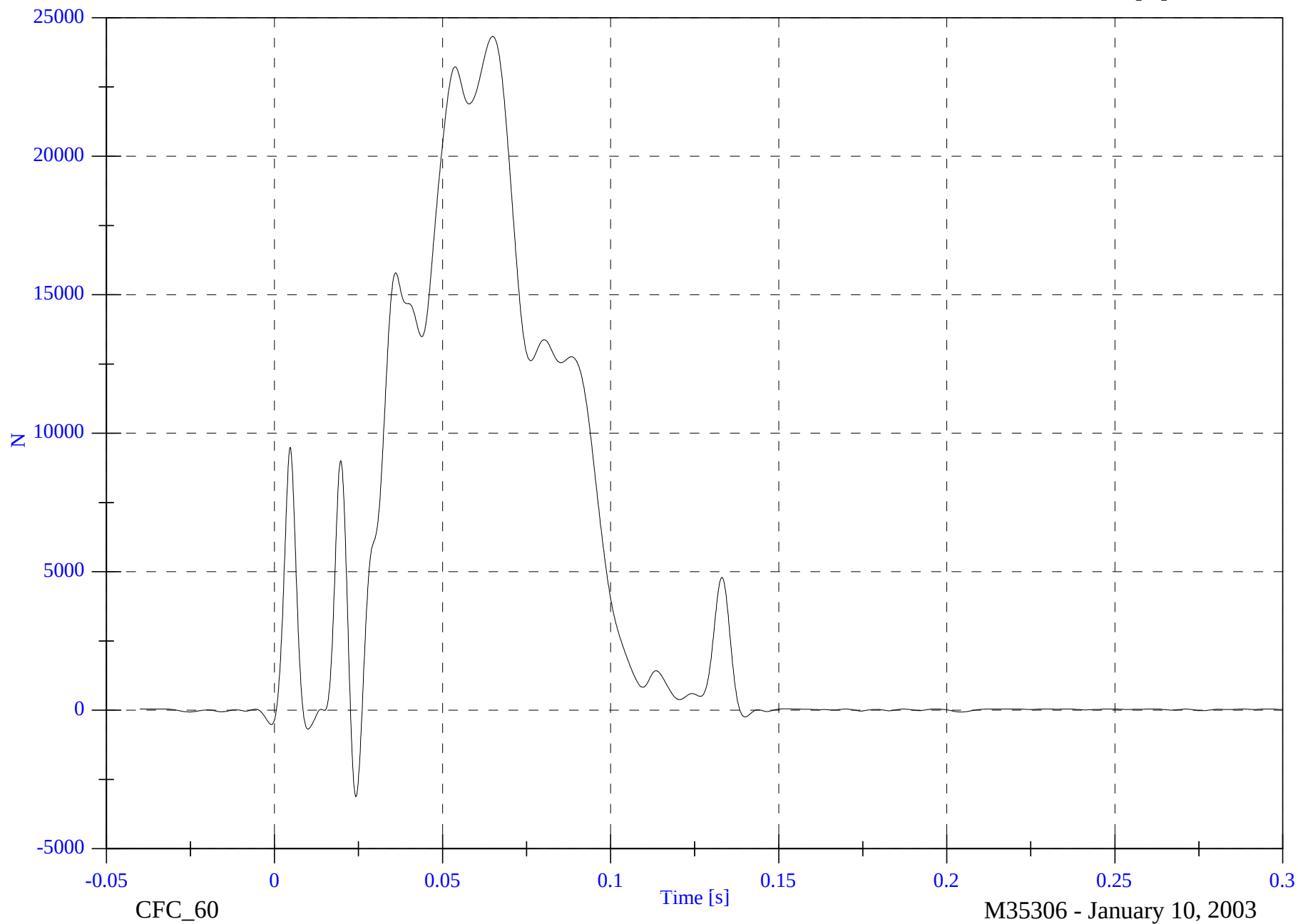
B1 LCA5 Fx

Max: 24322.5 [N] at 0.065 [s]

Min: -3116.4 [N] at 0.024 [s]

B-147

8642-NCAP-26

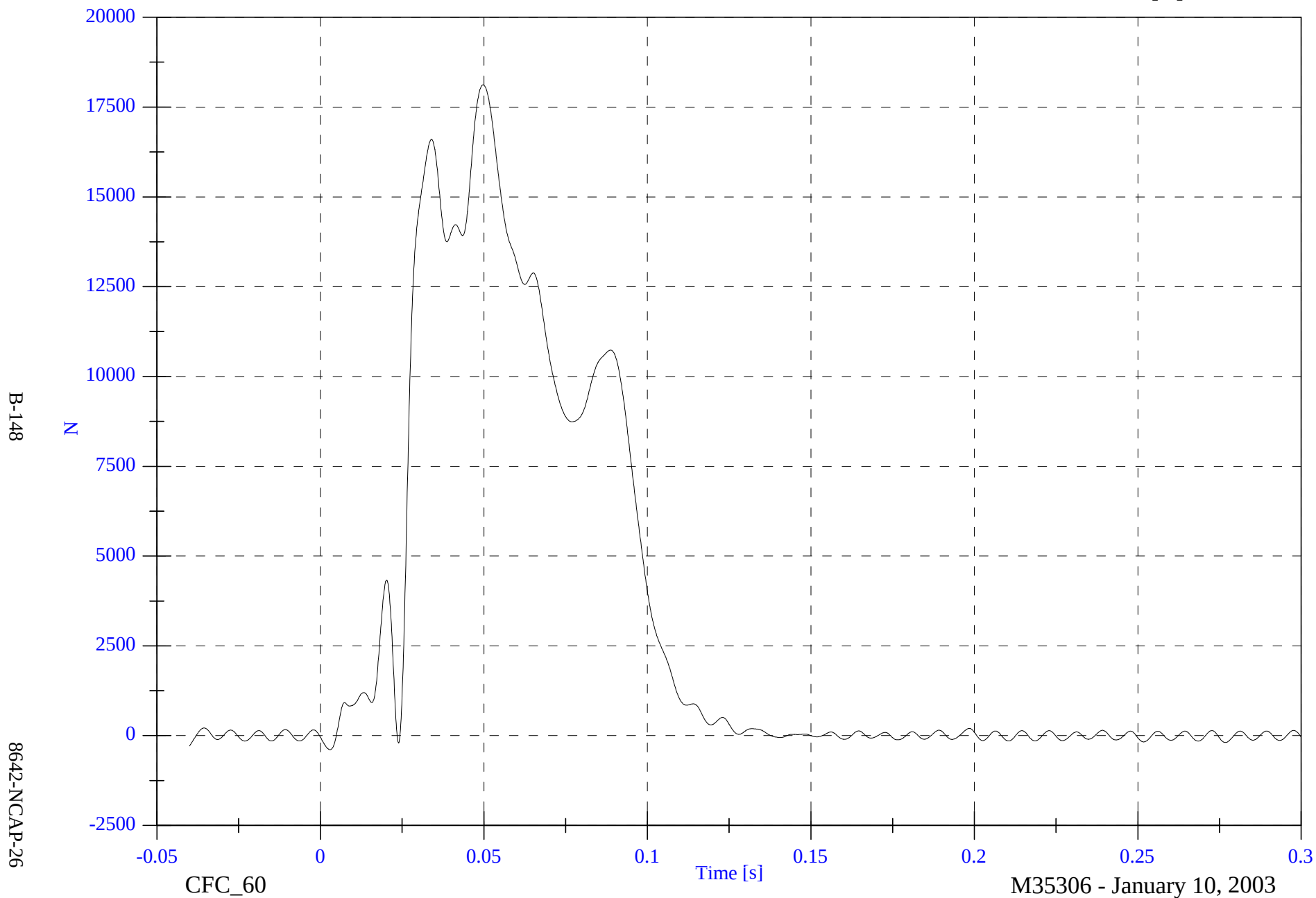


NCAP Test #4- 2003 Honda Odyssey

B1 LCA6 Fx

Max: 18116.0 [N] at 0.050 [s]

Min: -389.6 [N] at 0.003 [s]

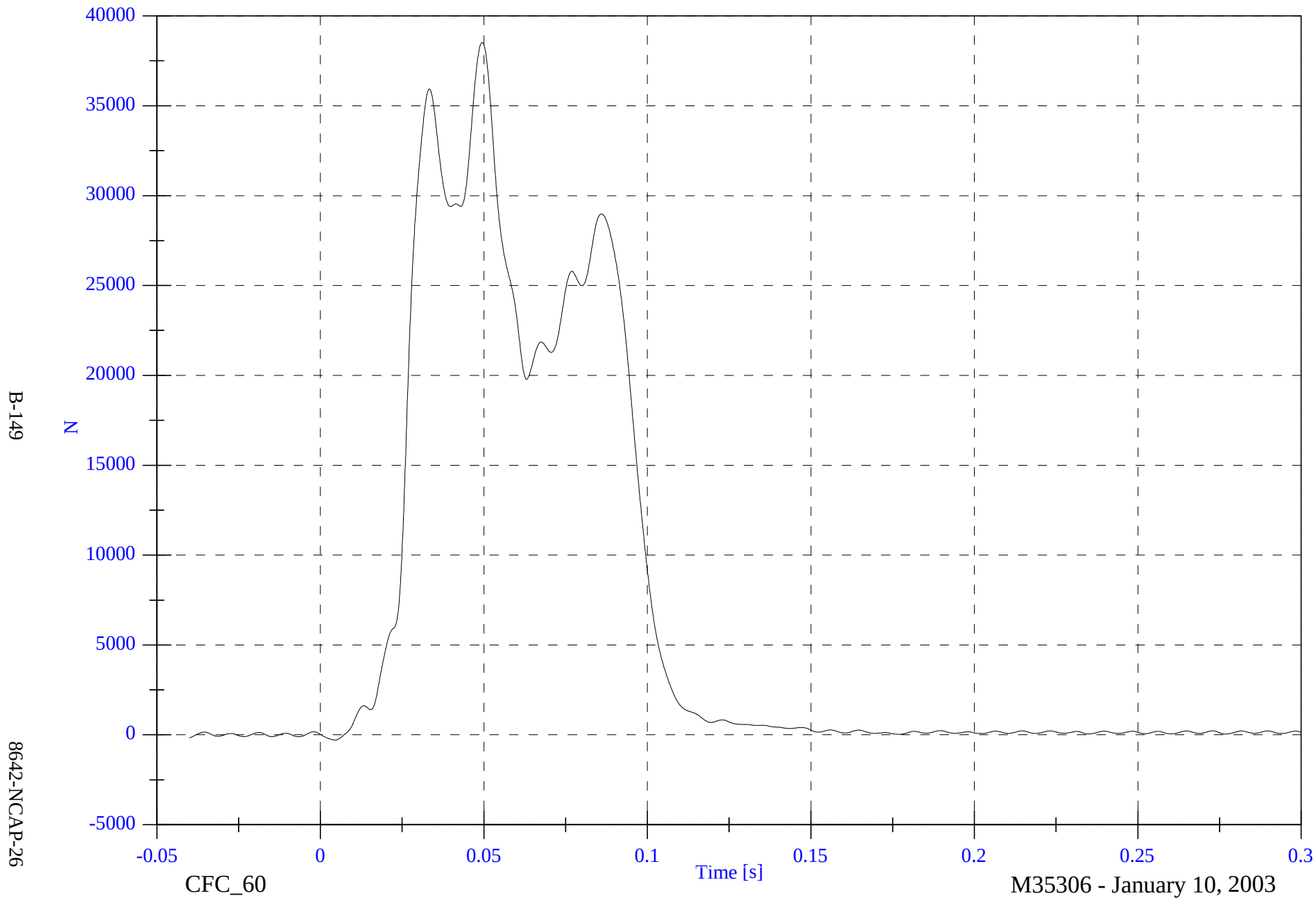


NCAP Test #4- 2003 Honda Odyssey

B1 LCA7 Fx

Max: 38529.3 [N] at 0.049 [s]

Min: -287.8 [N] at 0.004 [s]



NCAP Test #4- 2003 Honda Odyssey

B1 LCA8 Fx

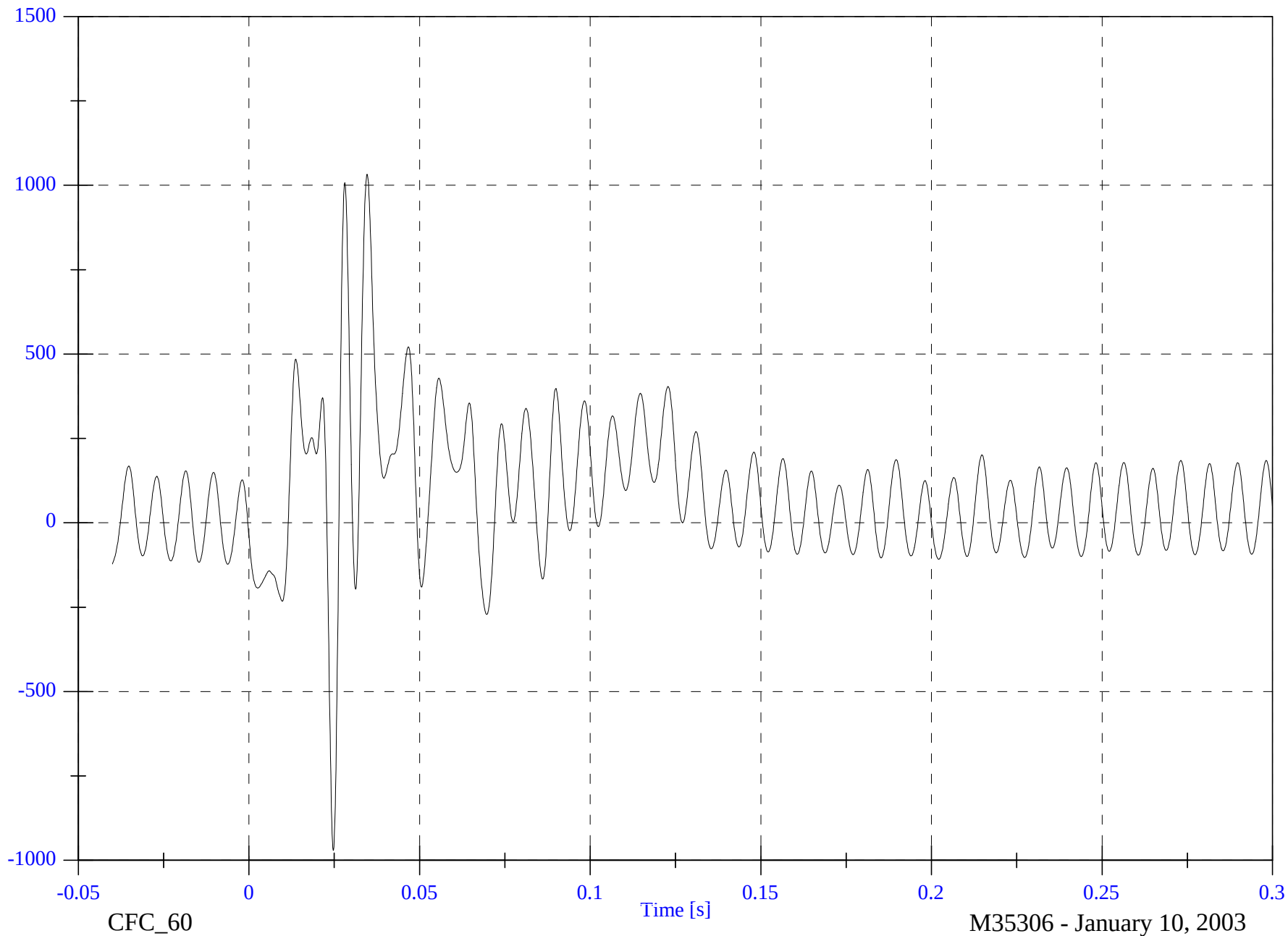
Max: 1032.8 [N] at 0.035 [s]

Min: -970.7 [N] at 0.025 [s]

B-150

N

8642-NCAP-26



NCAP Test #4- 2003 Honda Odyssey

Max: 2995.9 [N] at 0.090 [s]

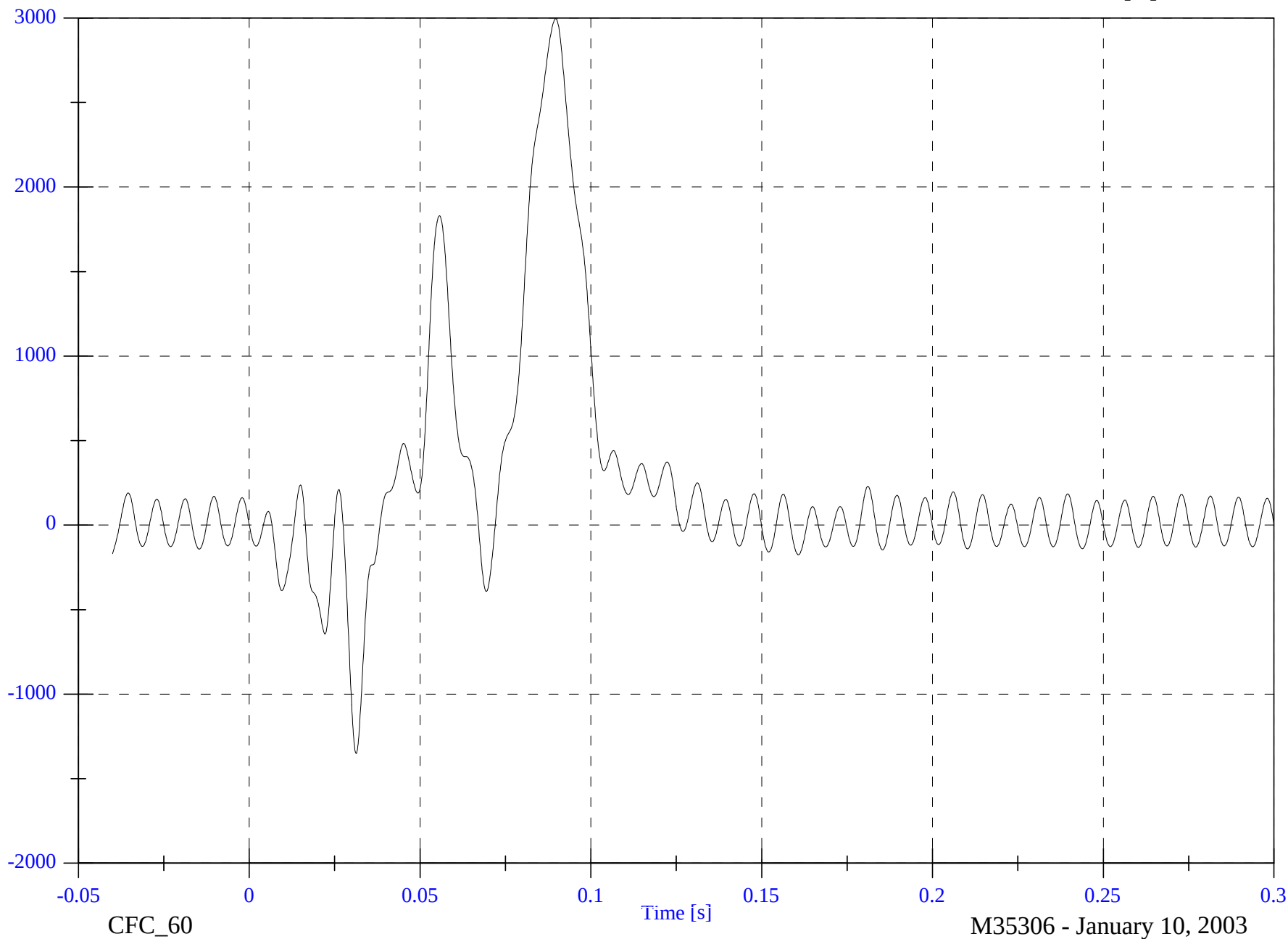
Min: -1351.1 [N] at 0.031 [s]

B1 LCA9 Fx

B-151

N

8642-NCAP-26

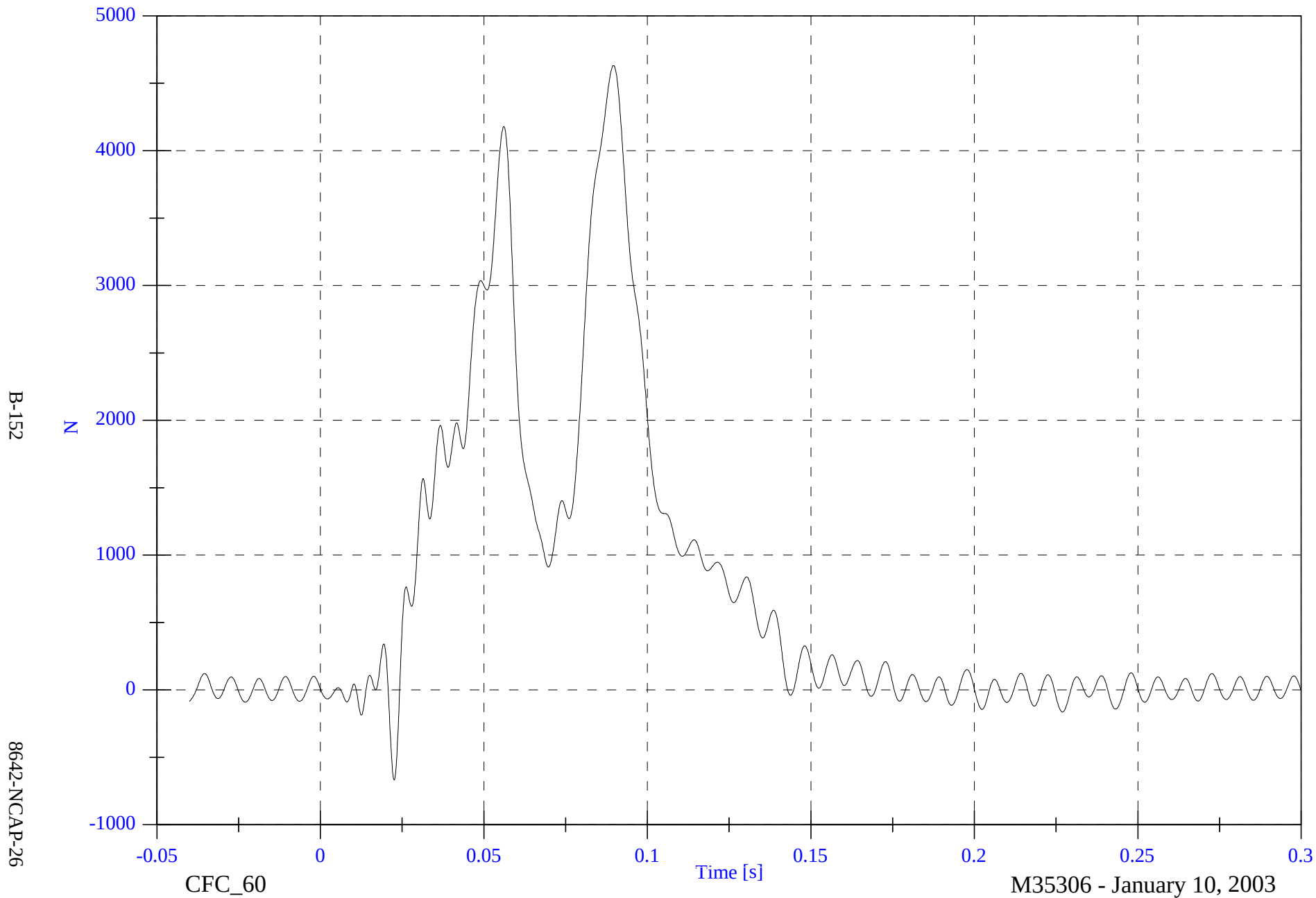


NCAP Test #4- 2003 Honda Odyssey

Max: 4631.9 [N] at 0.090 [s]

Min: -669.2 [N] at 0.023 [s]

B1 LCB1 Fx



NCAP Test #4- 2003 Honda Odyssey

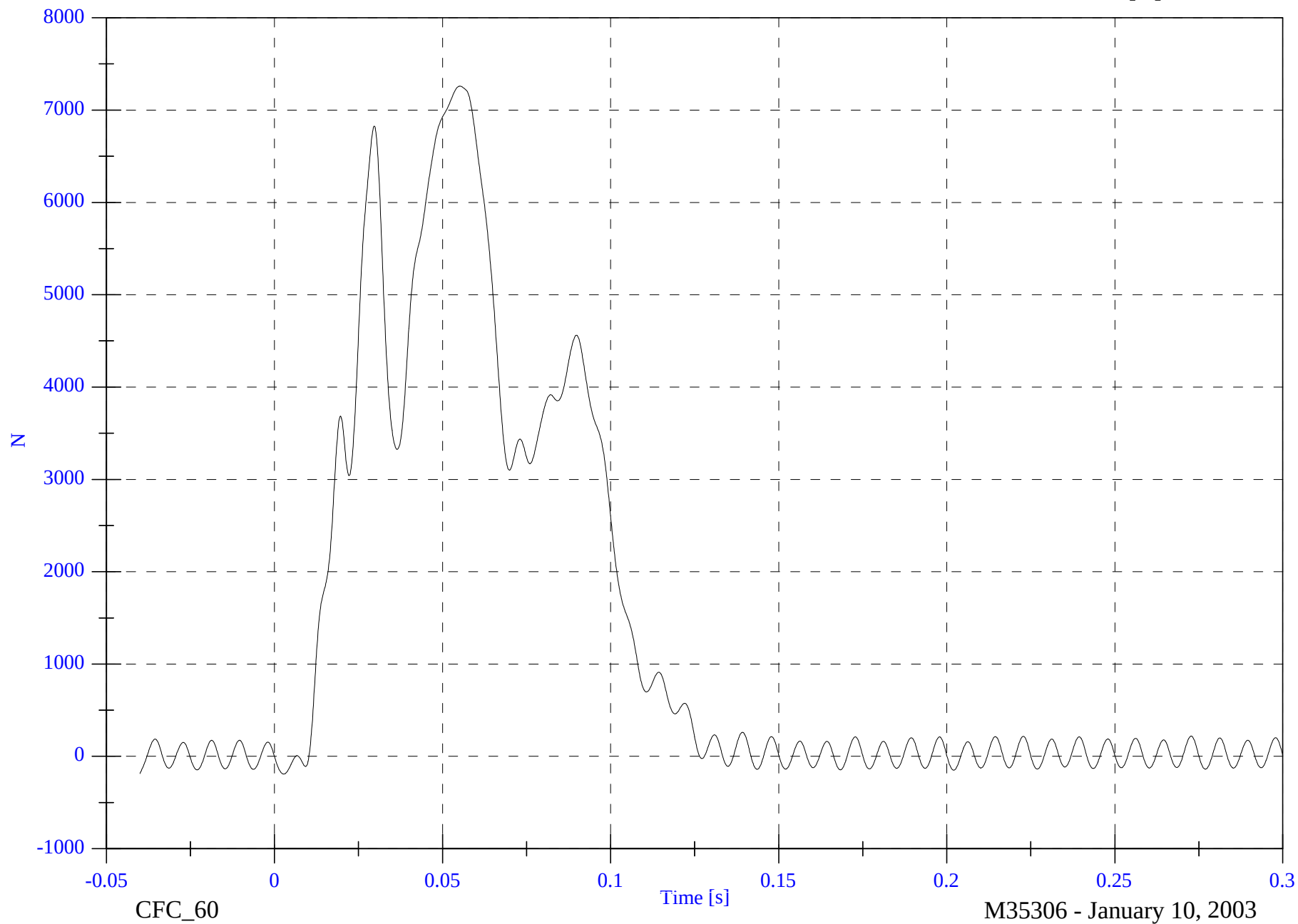
Max: 7258.9 [N] at 0.055 [s]

Min: -191.5 [N] at 0.003 [s]

B1 LCB2 Fx

B-153

8642-NCAP-26

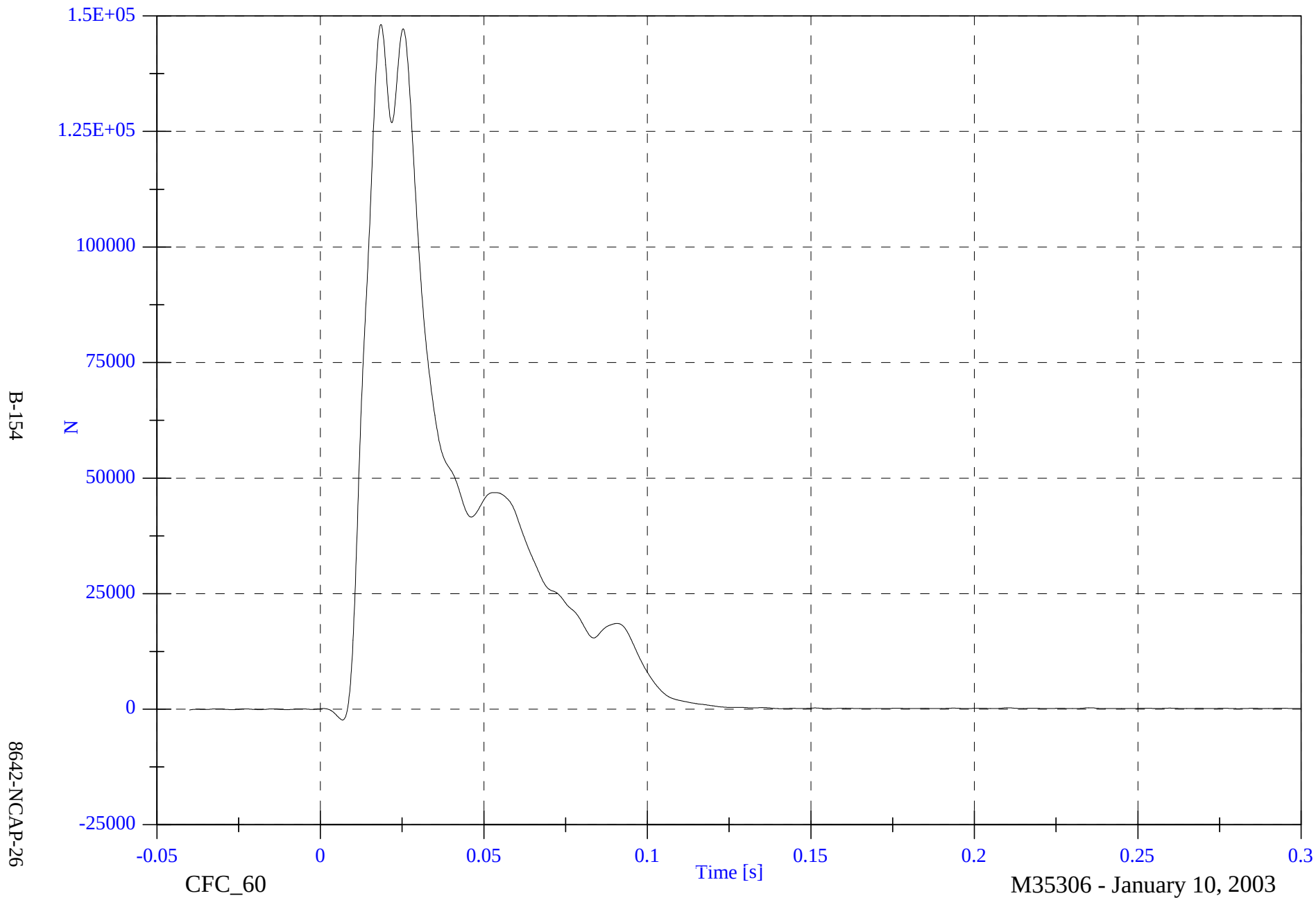


NCAP Test #4- 2003 Honda Odyssey

B1 LCB3 Fx

Max: 148121.8 [N] at 0.018 [s]

Min: -2324.2 [N] at 0.007 [s]

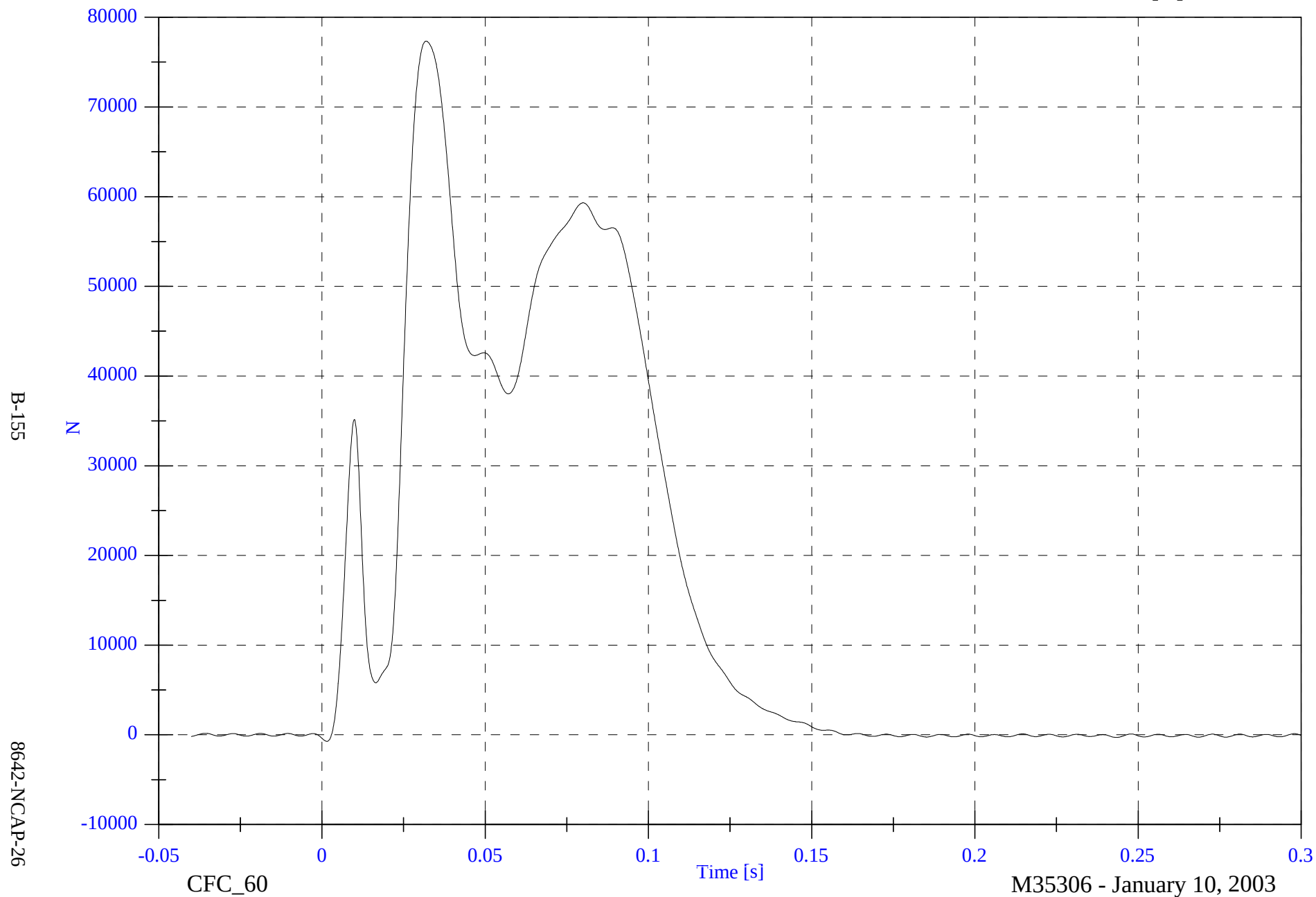


NCAP Test #4- 2003 Honda Odyssey

B1 LCB4 Fx

Max: 77335.0 [N] at 0.032 [s]

Min: -713.3 [N] at 0.001 [s]

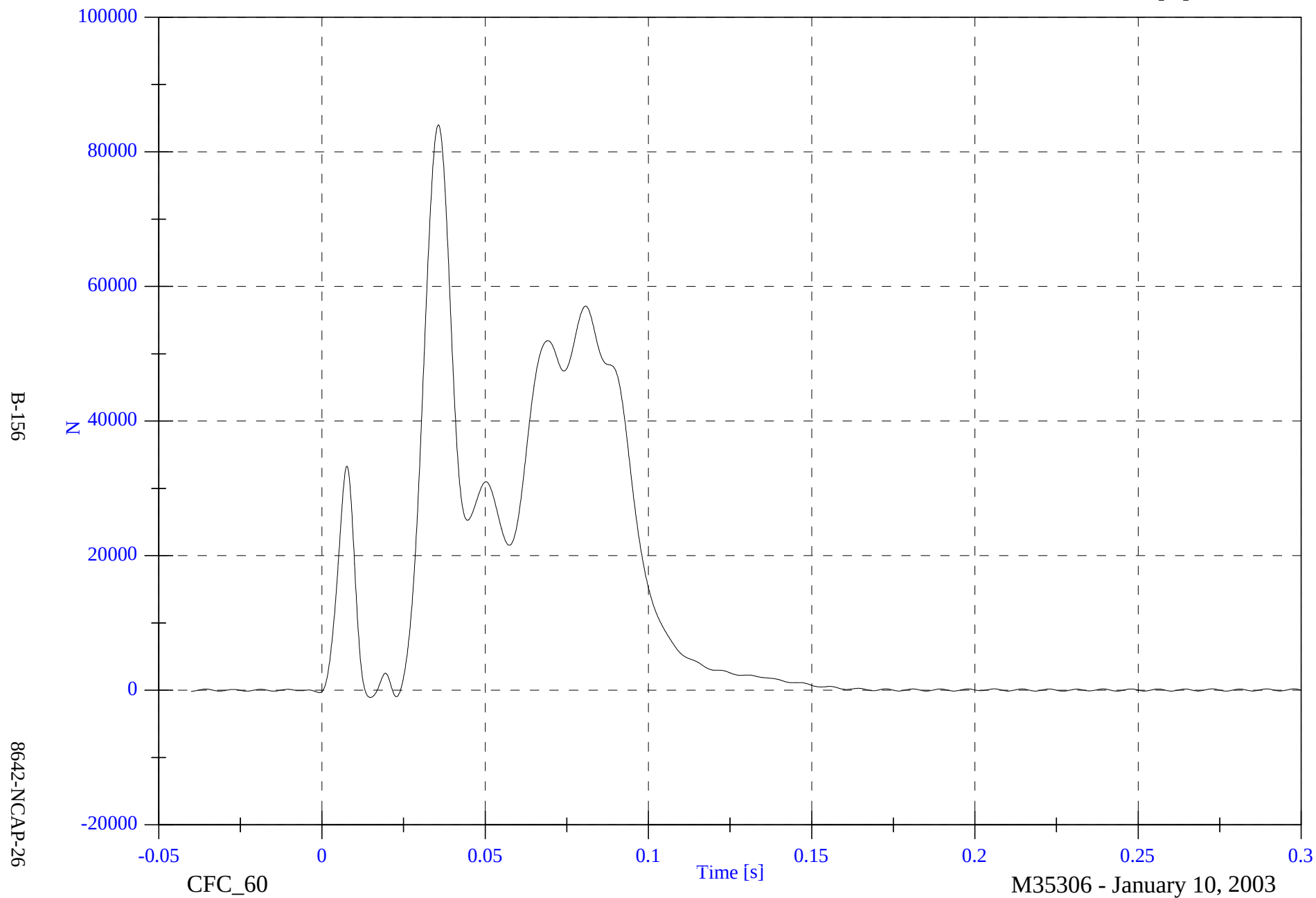


NCAP Test #4- 2003 Honda Odyssey

B1 LCB5 Fx

Max: 84006.7 [N] at 0.036 [s]

Min: -1063.4 [N] at 0.015 [s]

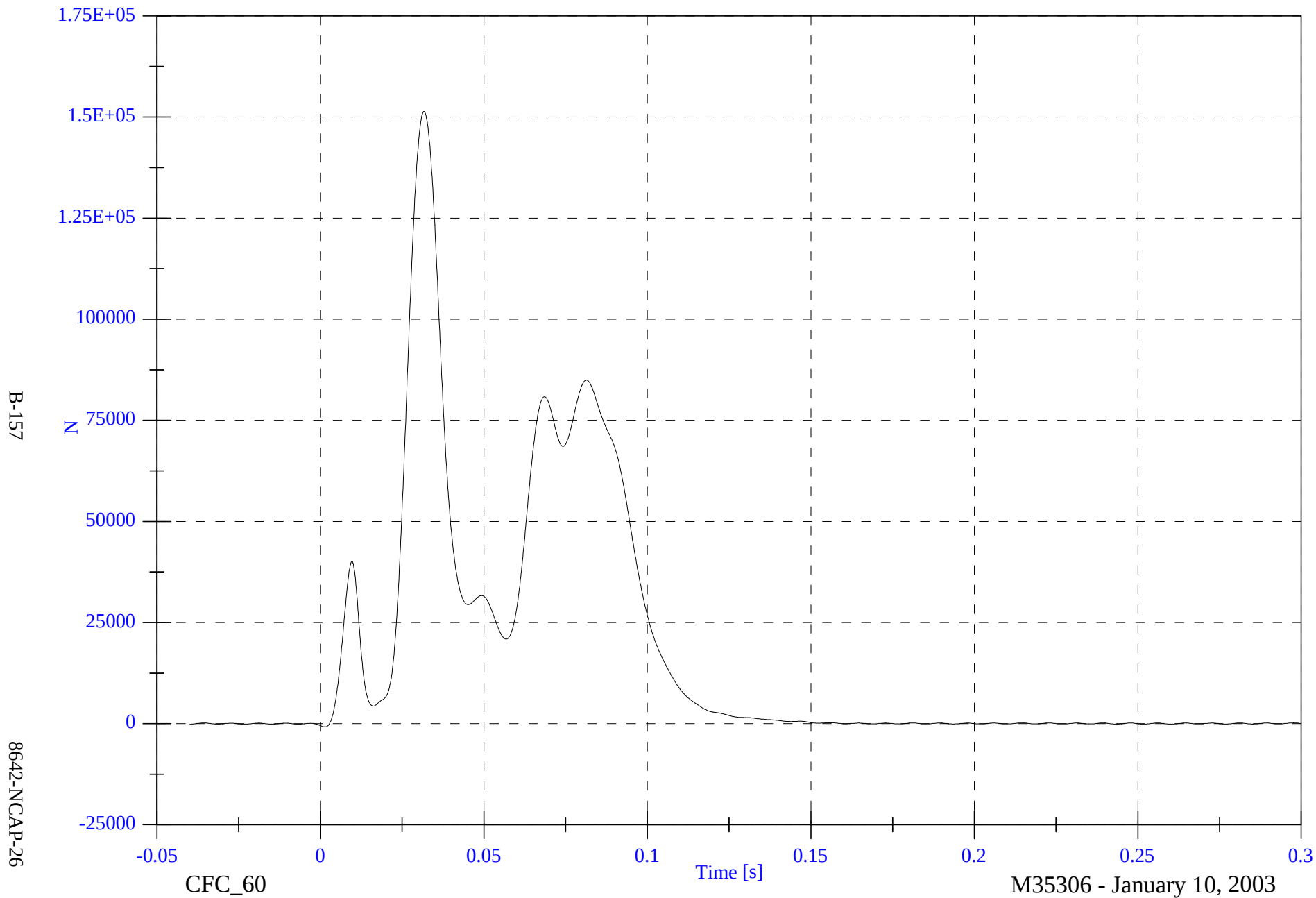


NCAP Test #4- 2003 Honda Odyssey

B1 LCB6 Fx

Max: 151387.9 [N] at 0.032 [s]

Min: -801.3 [N] at 0.001 [s]

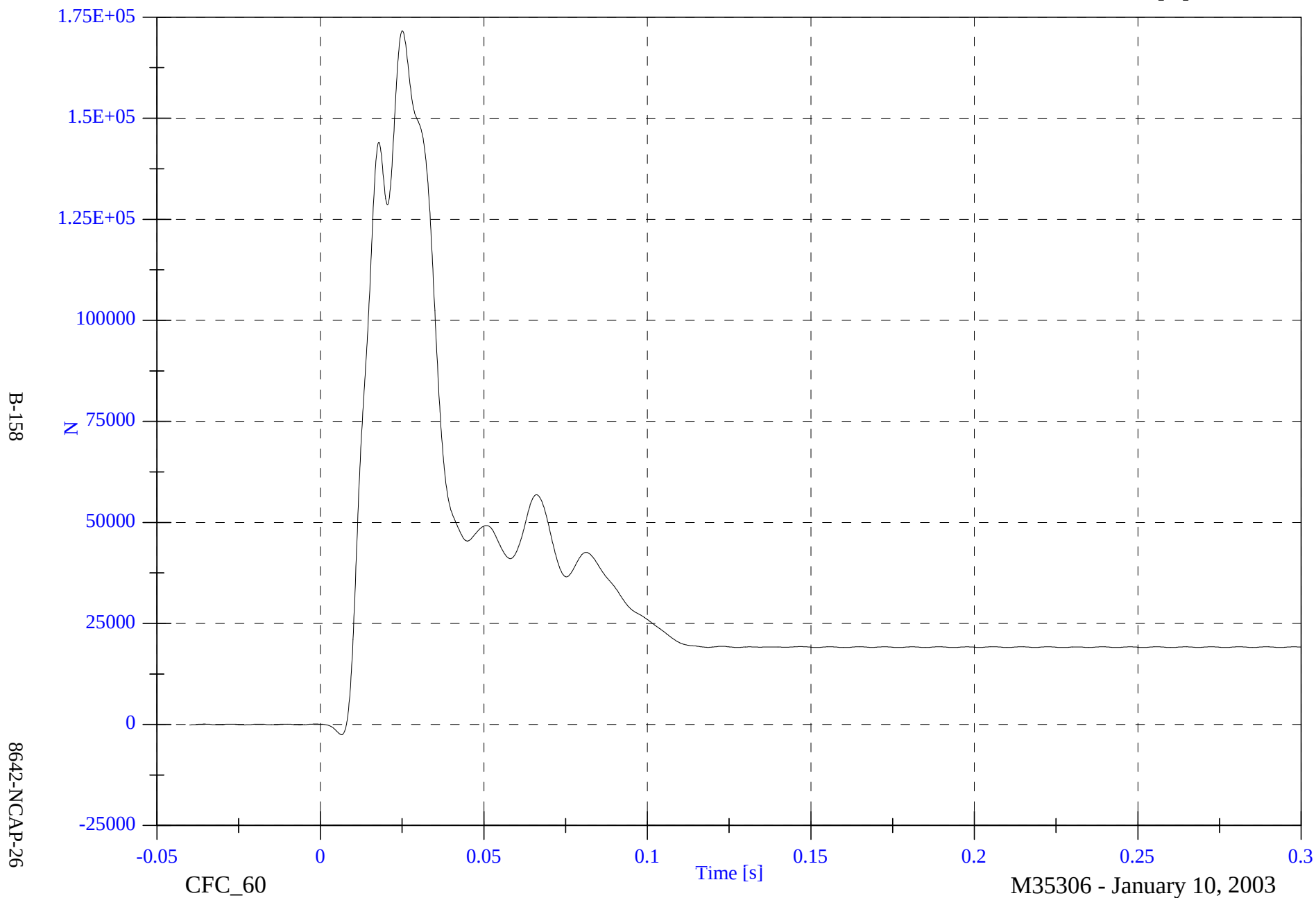


NCAP Test #4- 2003 Honda Odyssey

B1 LCB7 Fx

Max: 171620.0 [N] at 0.025 [s]

Min: -2535.2 [N] at 0.006 [s]

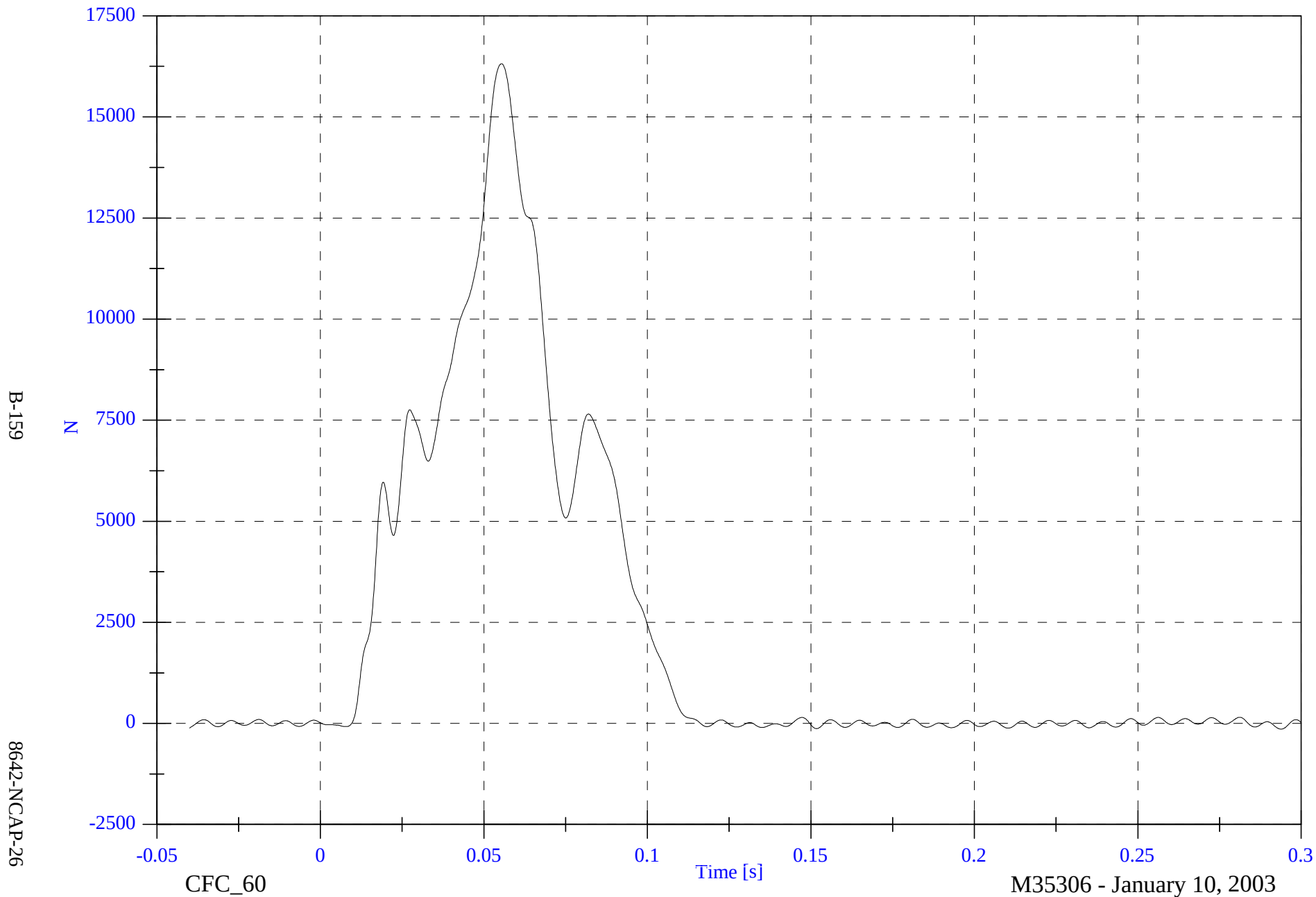


NCAP Test #4- 2003 Honda Odyssey

B1 LCB8 Fx

Max: 16317.0 [N] at 0.055 [s]

Min: -141.4 [N] at 0.294 [s]



NCAP Test #4- 2003 Honda Odyssey

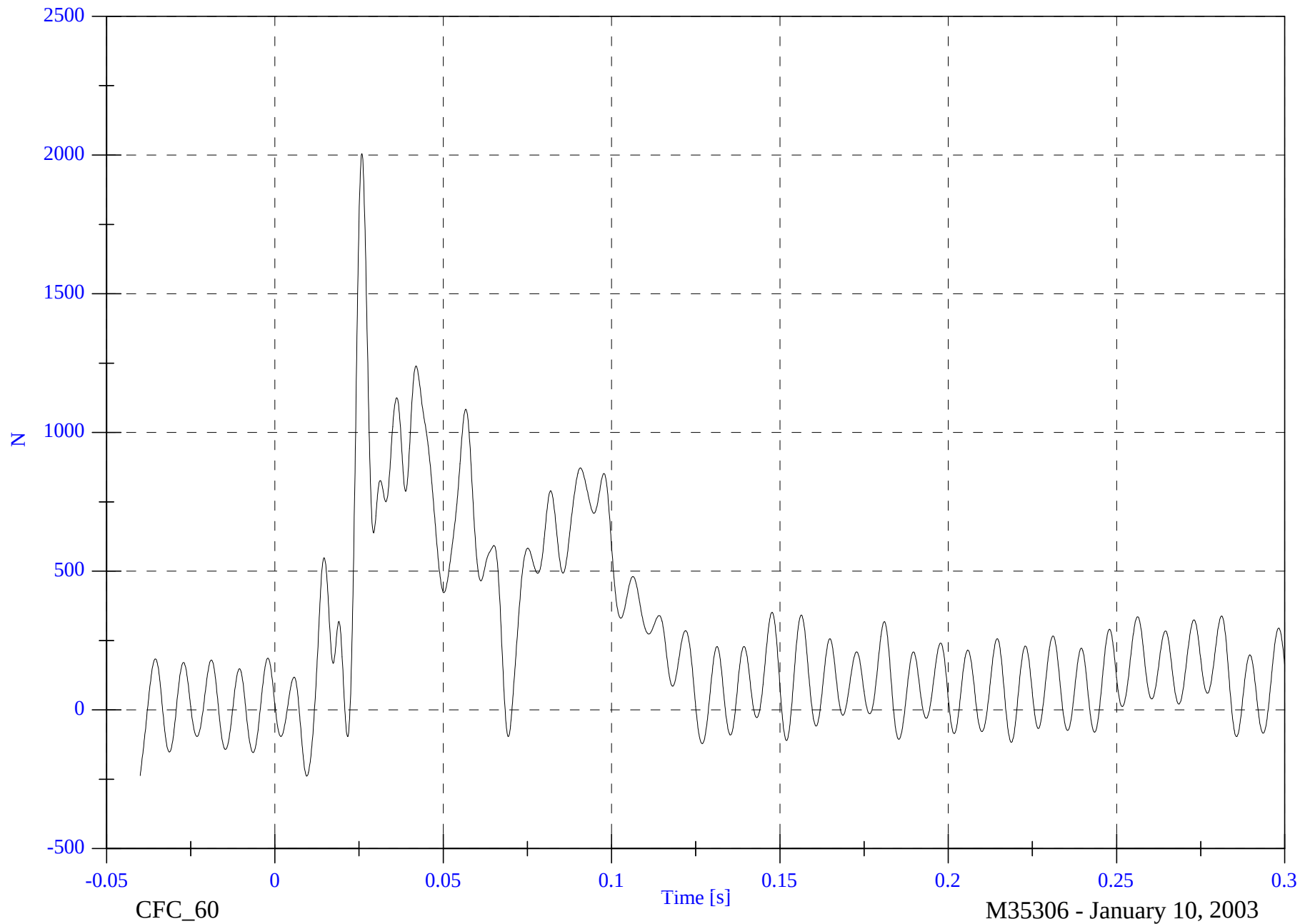
B1 LCB9 Fx

Max: 2005.3 [N] at 0.026 [s]

Min: -238.4 [N] at 0.009 [s]

B-160

8642-NCAP-26

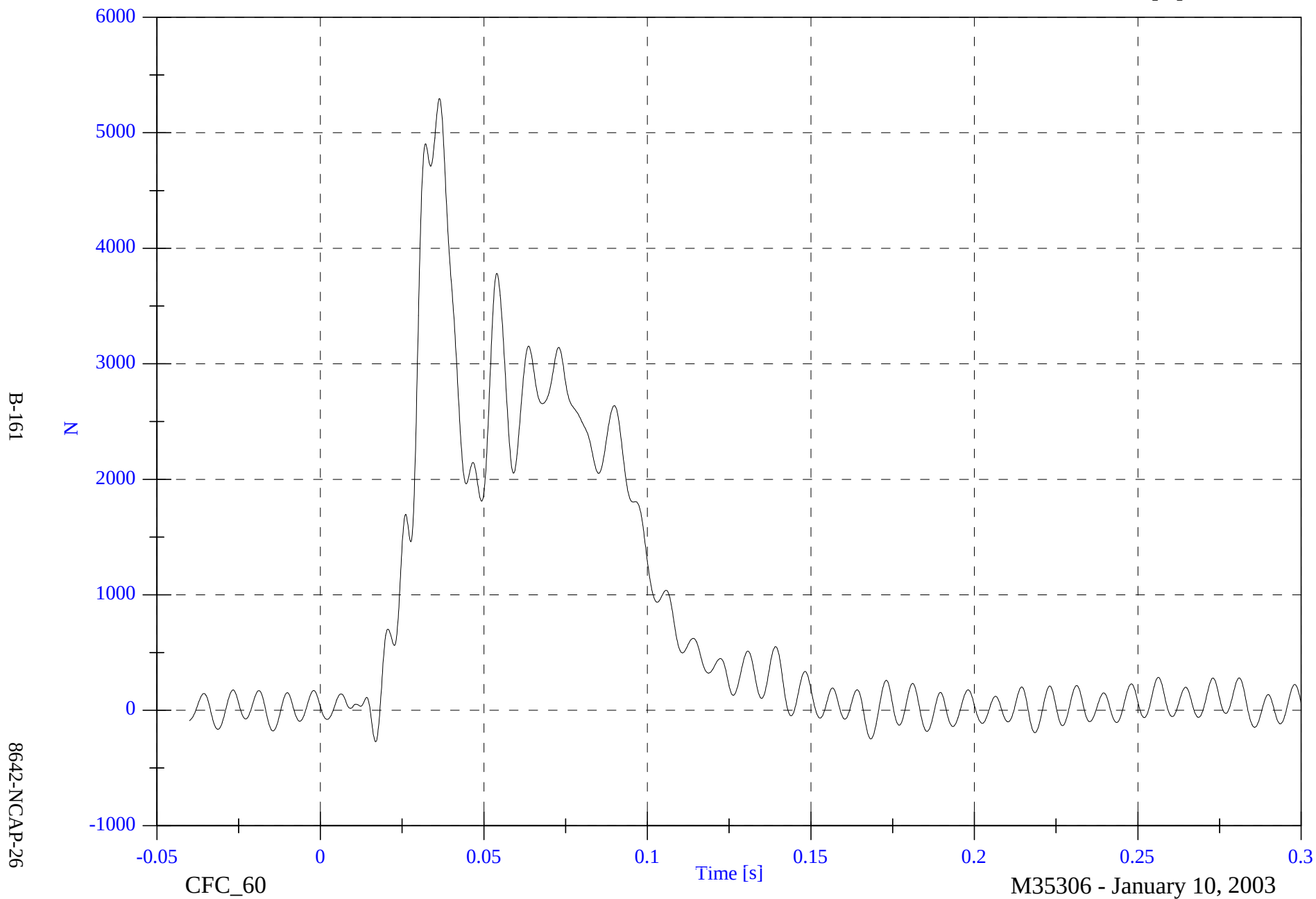


NCAP Test #4- 2003 Honda Odyssey

Max: 5295.9 [N] at 0.036 [s]

Min: -272.2 [N] at 0.017 [s]

B1 LCC1 Fx

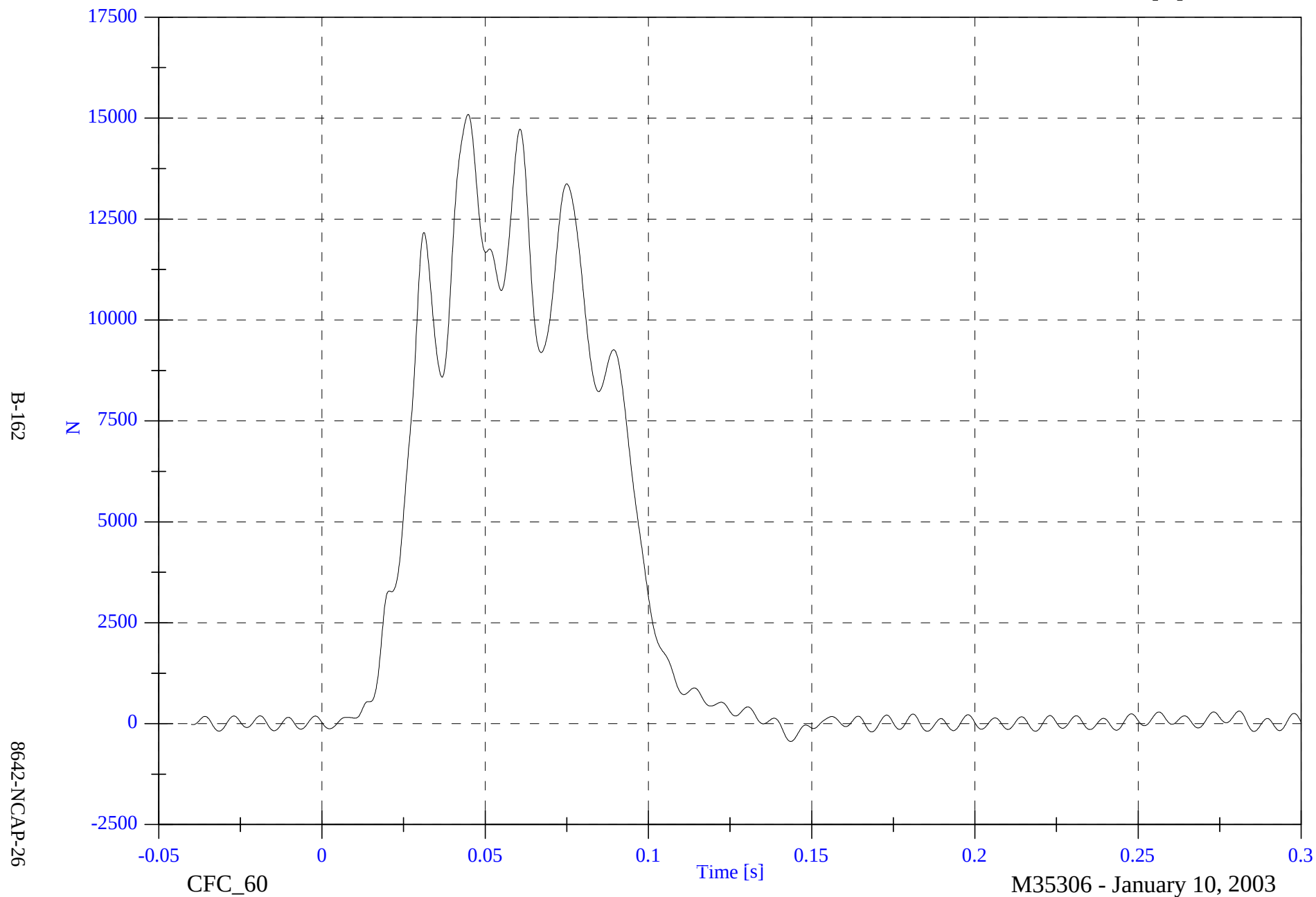


NCAP Test #4- 2003 Honda Odyssey

B1 LCC2 Fx

Max: 15092.1 [N] at 0.045 [s]

Min: -441.2 [N] at 0.144 [s]



NCAP Test #4- 2003 Honda Odyssey

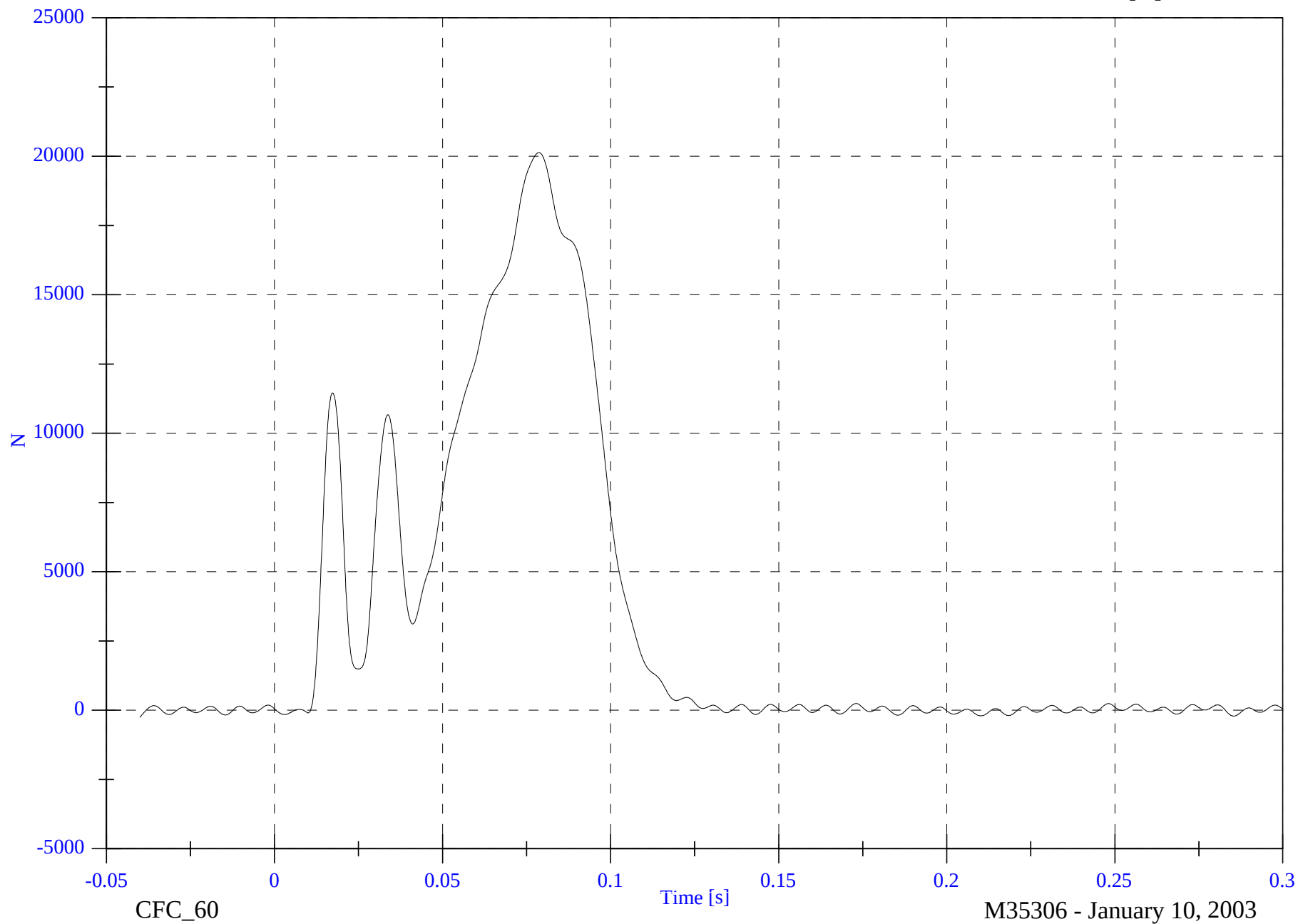
Max: 20133.3 [N] at 0.079 [s]

Min: -254.6 [N] at -0.040 [s]

B1 LCC3 Fx

B-163

8642-NCAP-26

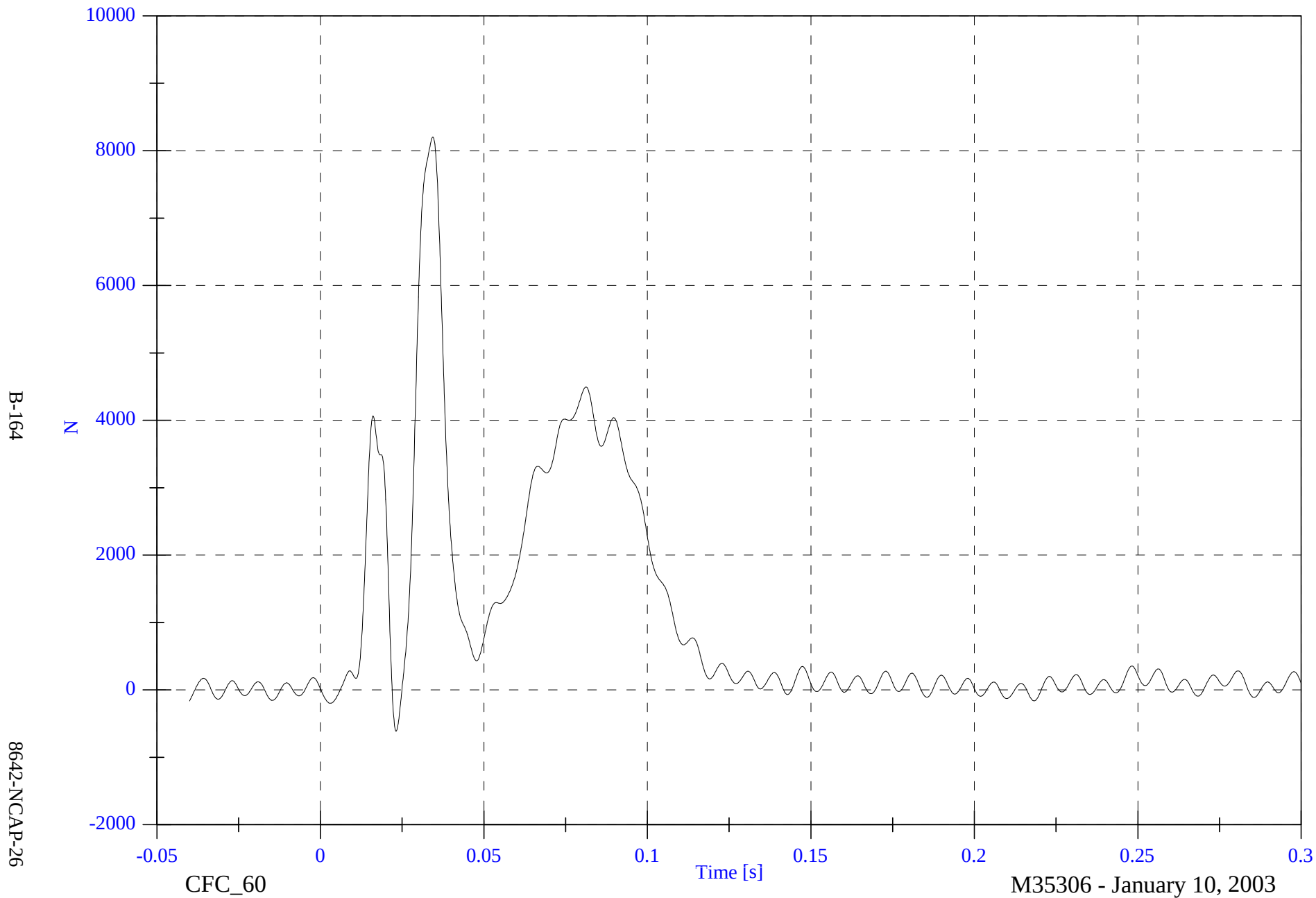


NCAP Test #4- 2003 Honda Odyssey

B1 LCC4 Fx

Max: 8204.7 [N] at 0.034 [s]

Min: -611.9 [N] at 0.023 [s]



NCAP Test #4- 2003 Honda Odyssey

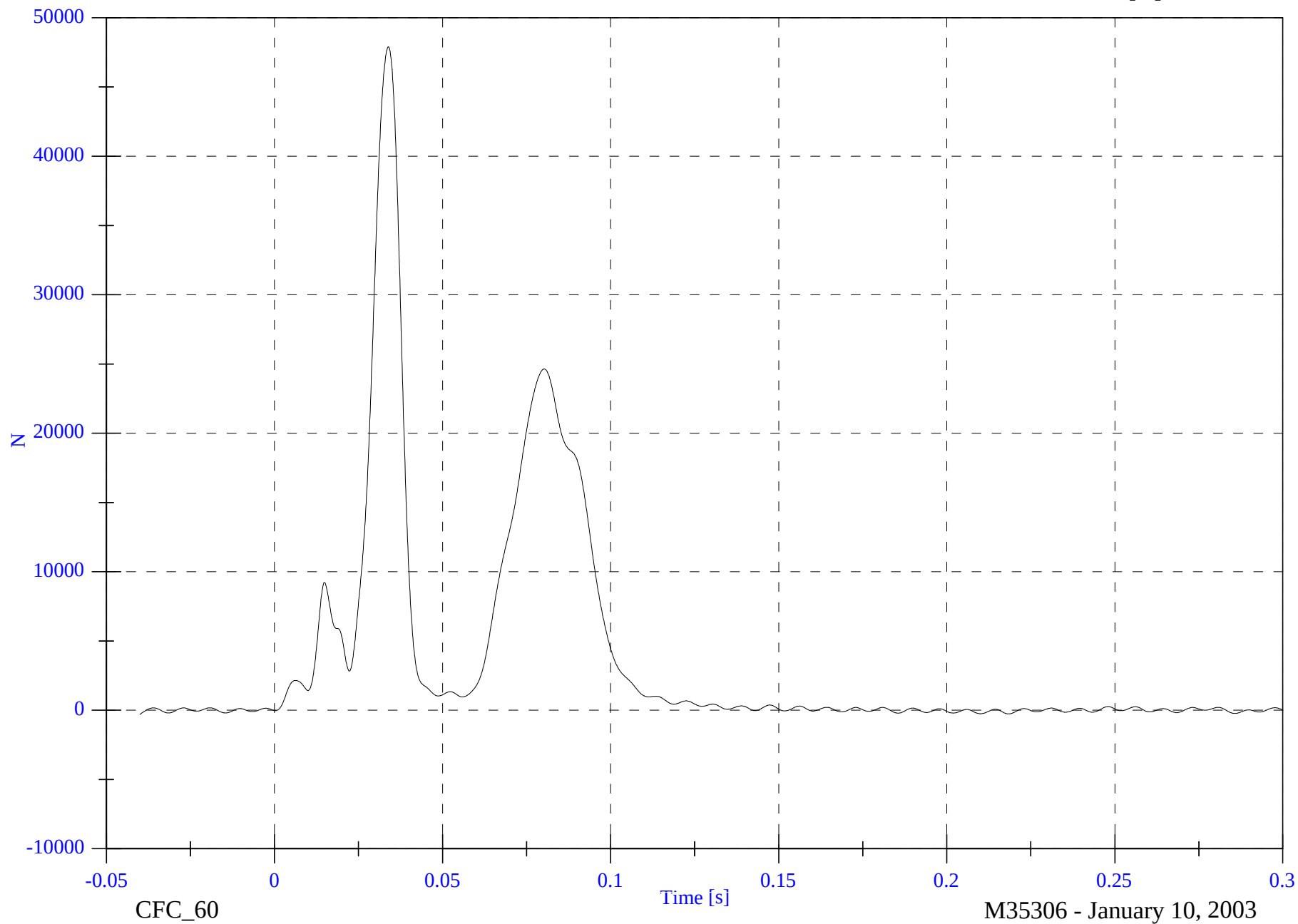
B1 LCC5 Fx

Max: 47908.5 [N] at 0.034 [s]

Min: -303.1 [N] at -0.040 [s]

B-165

8642-NCAP-26

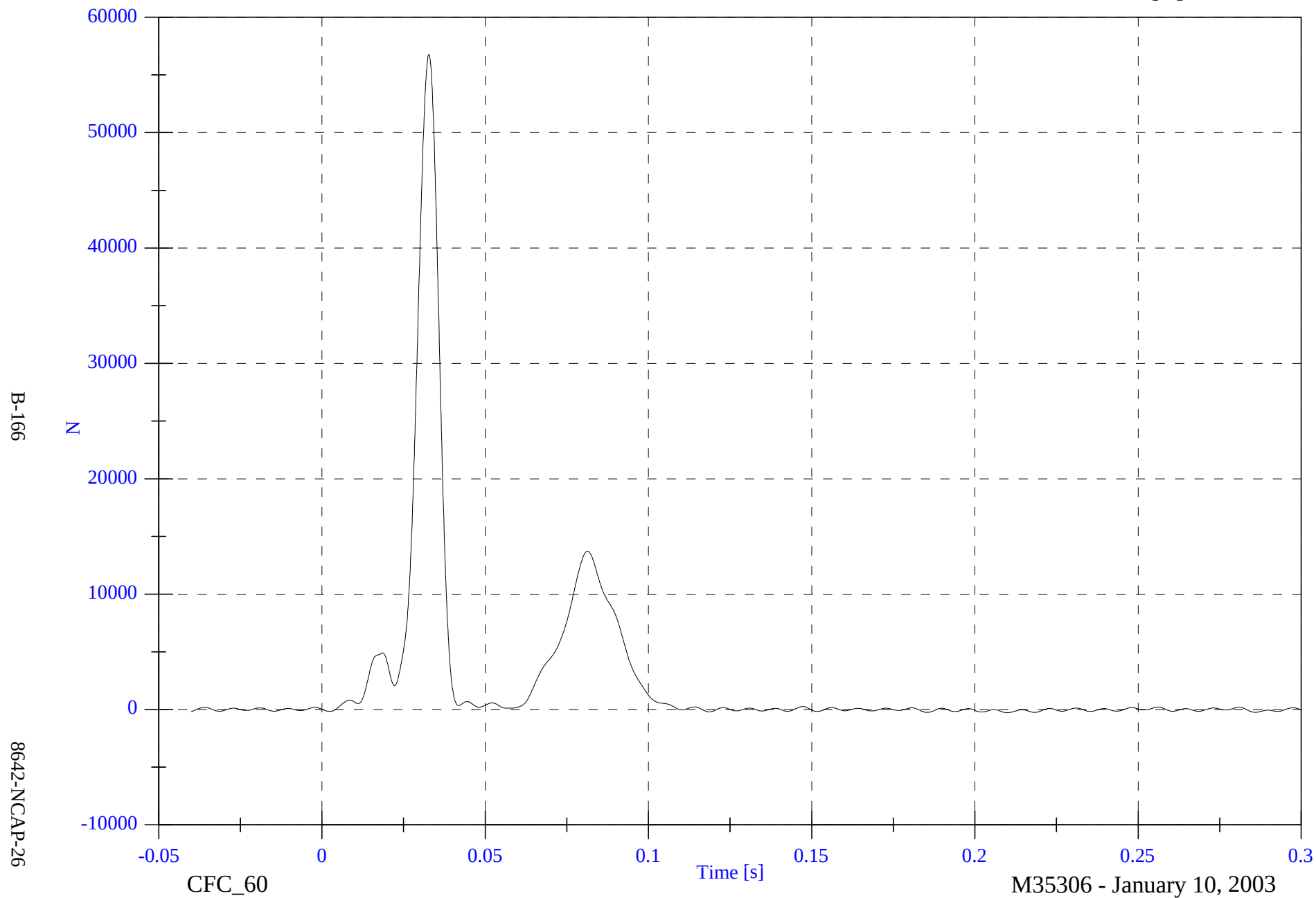


NCAP Test #4- 2003 Honda Odyssey

B1 LCC6 Fx

Max: 56776.9 [N] at 0.033 [s]

Min: -278.1 [N] at 0.210 [s]

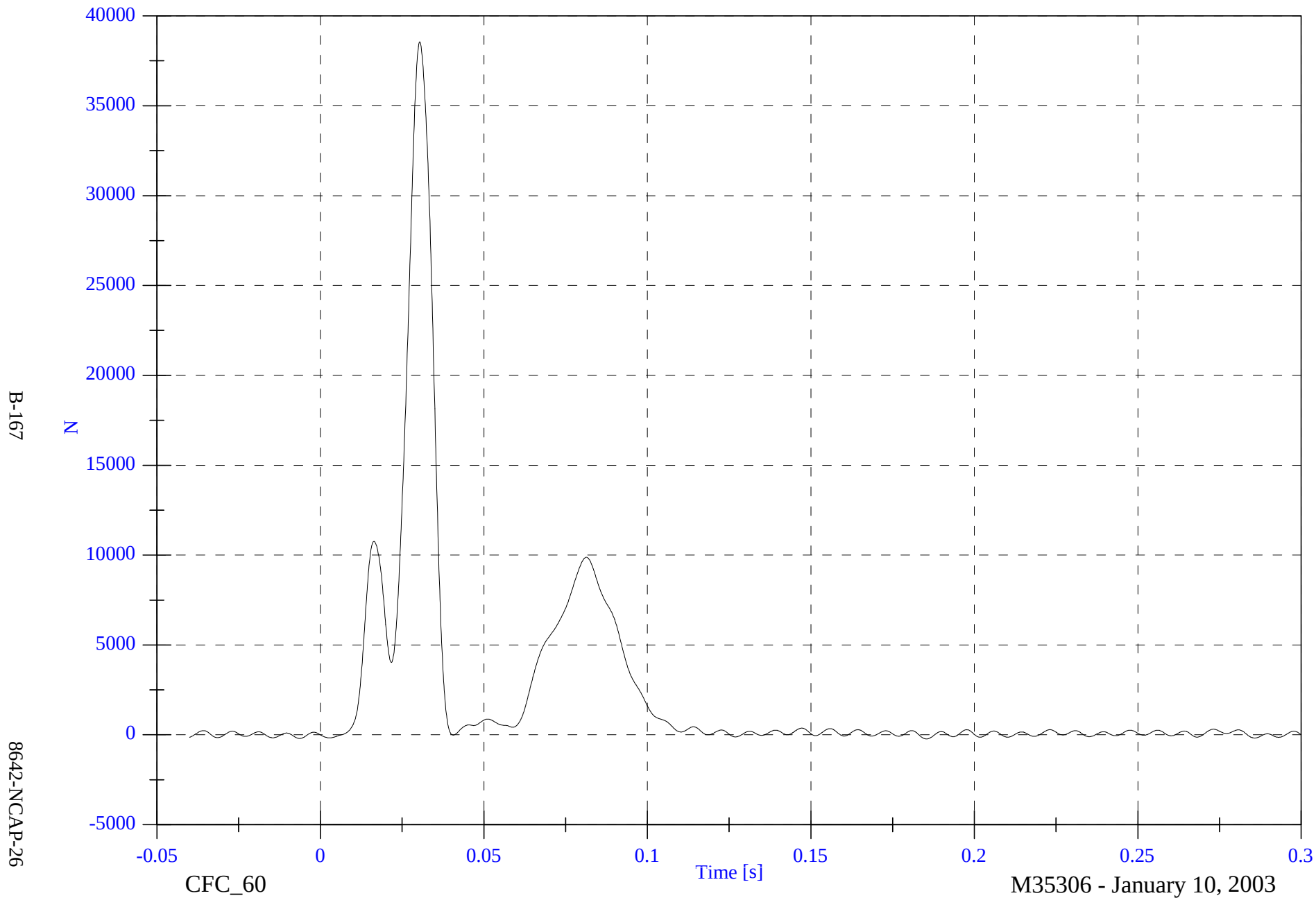


NCAP Test #4- 2003 Honda Odyssey

B1 LCC7 Fx

Max: 38552.8 [N] at 0.030 [s]

Min: -225.2 [N] at 0.185 [s]

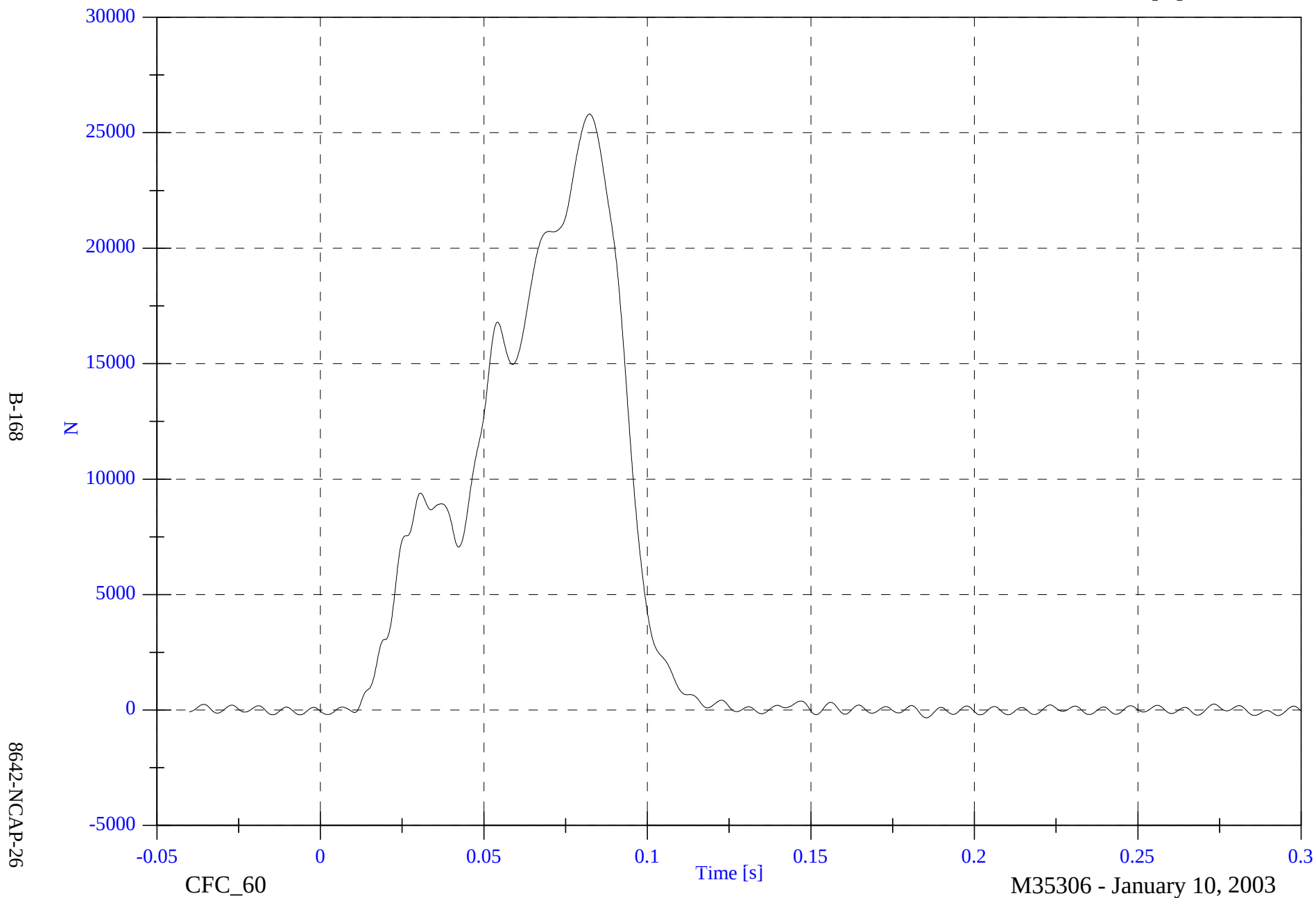


NCAP Test #4- 2003 Honda Odyssey

B1 LCC8 Fx

Max: 25809.5 [N] at 0.082 [s]

Min: -335.0 [N] at 0.185 [s]



NCAP Test #4- 2003 Honda Odyssey

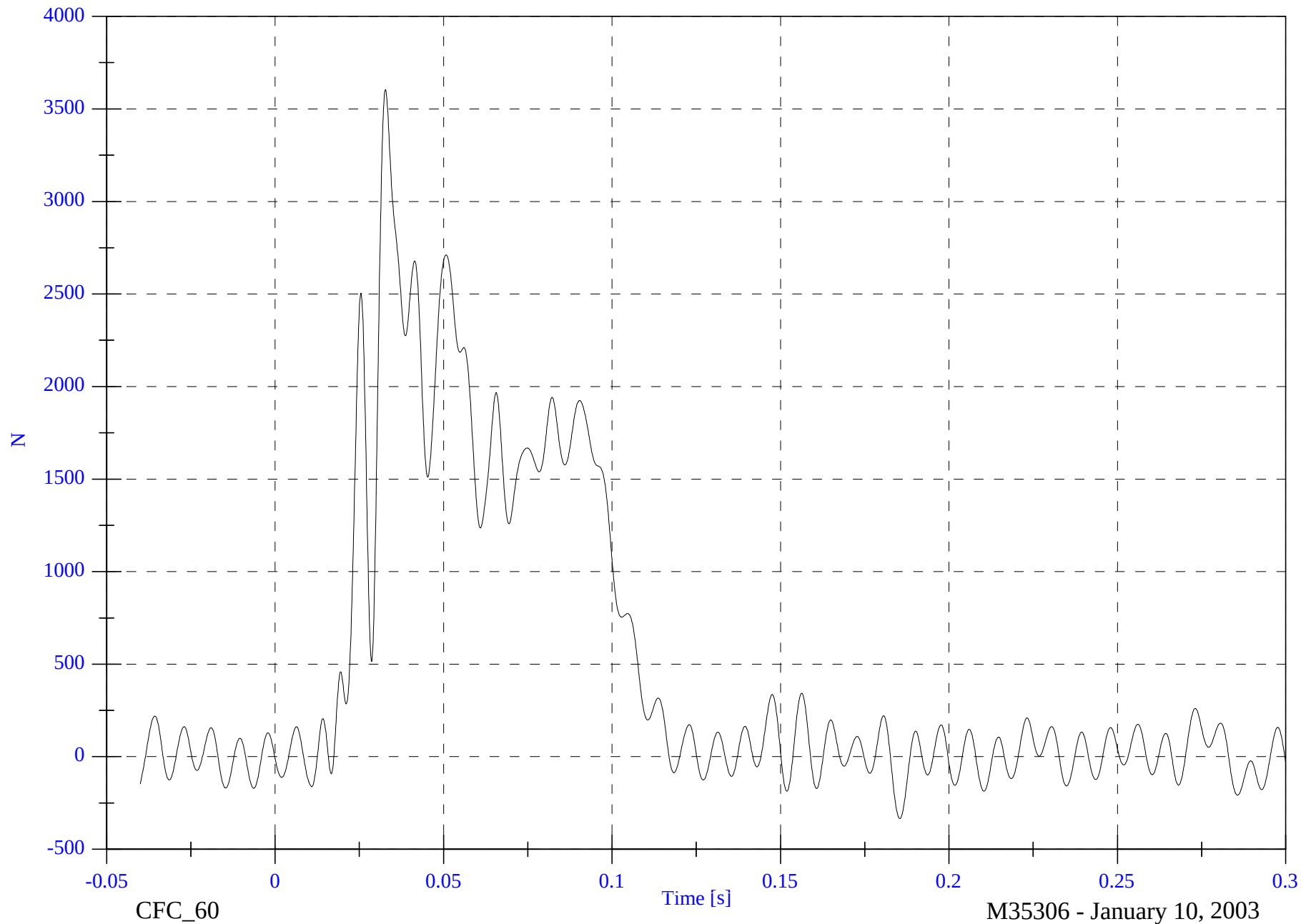
B1 LCC9 Fx

Max: 3603.8 [N] at 0.033 [s]

Min: -333.7 [N] at 0.185 [s]

B-169

8642-NCAP-26

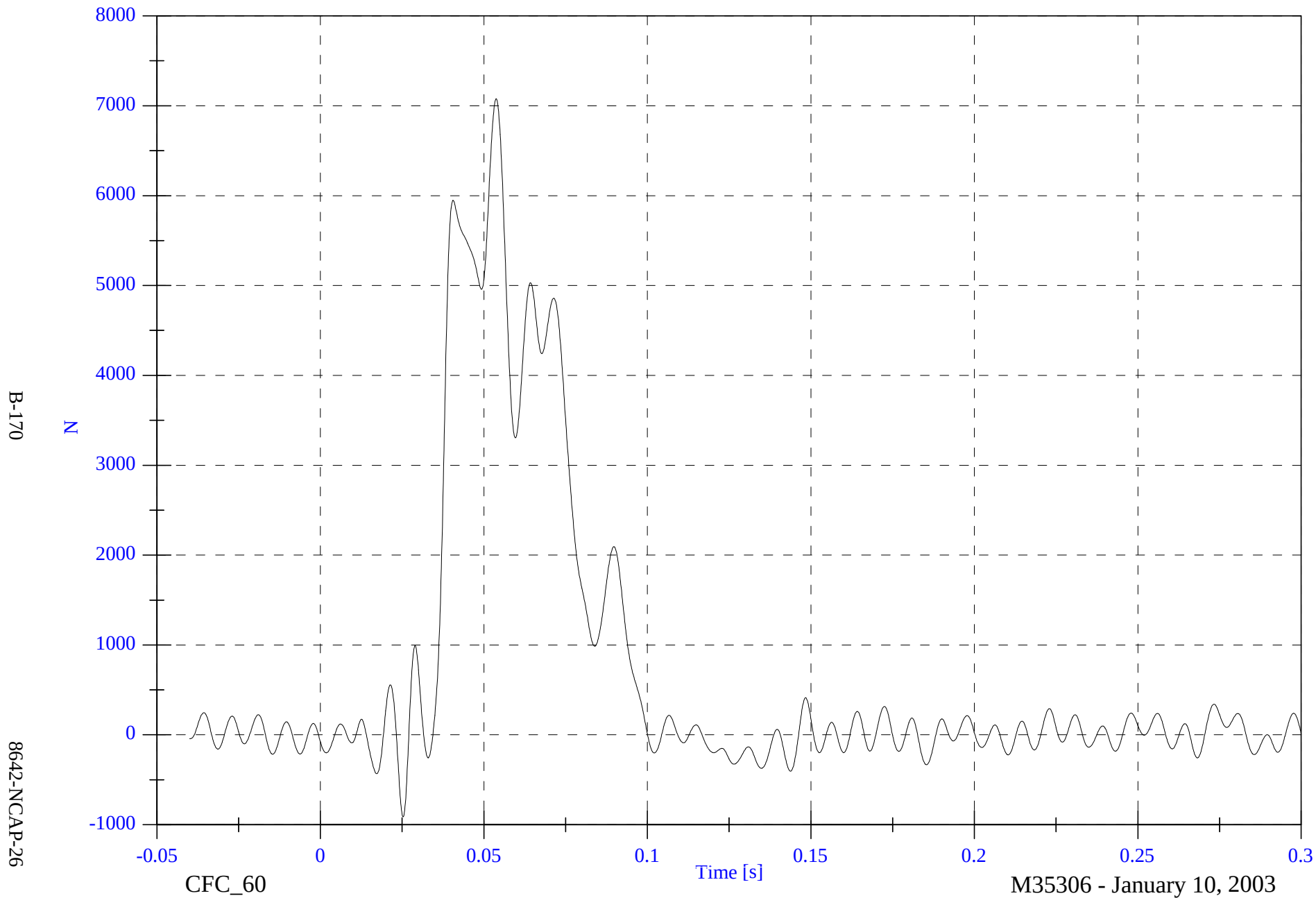


NCAP Test #4- 2003 Honda Odyssey

Max: 7078.1 [N] at 0.054 [s]

Min: -912.2 [N] at 0.025 [s]

B1 LCD1 Fx

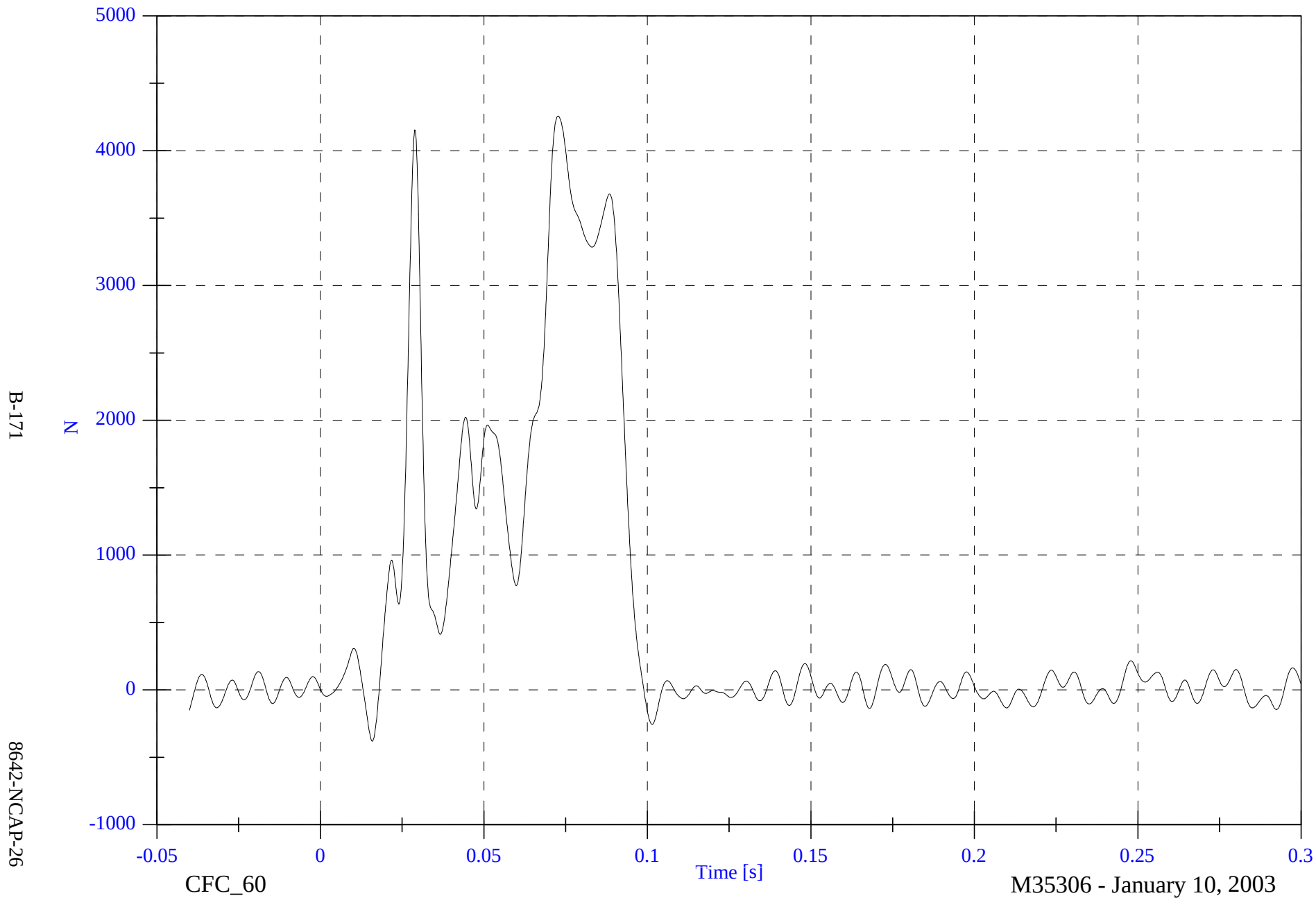


NCAP Test #4- 2003 Honda Odyssey

Max: 4256.7 [N] at 0.073 [s]

Min: -380.6 [N] at 0.016 [s]

B1 LCD2 Fx



NCAP Test #4- 2003 Honda Odyssey

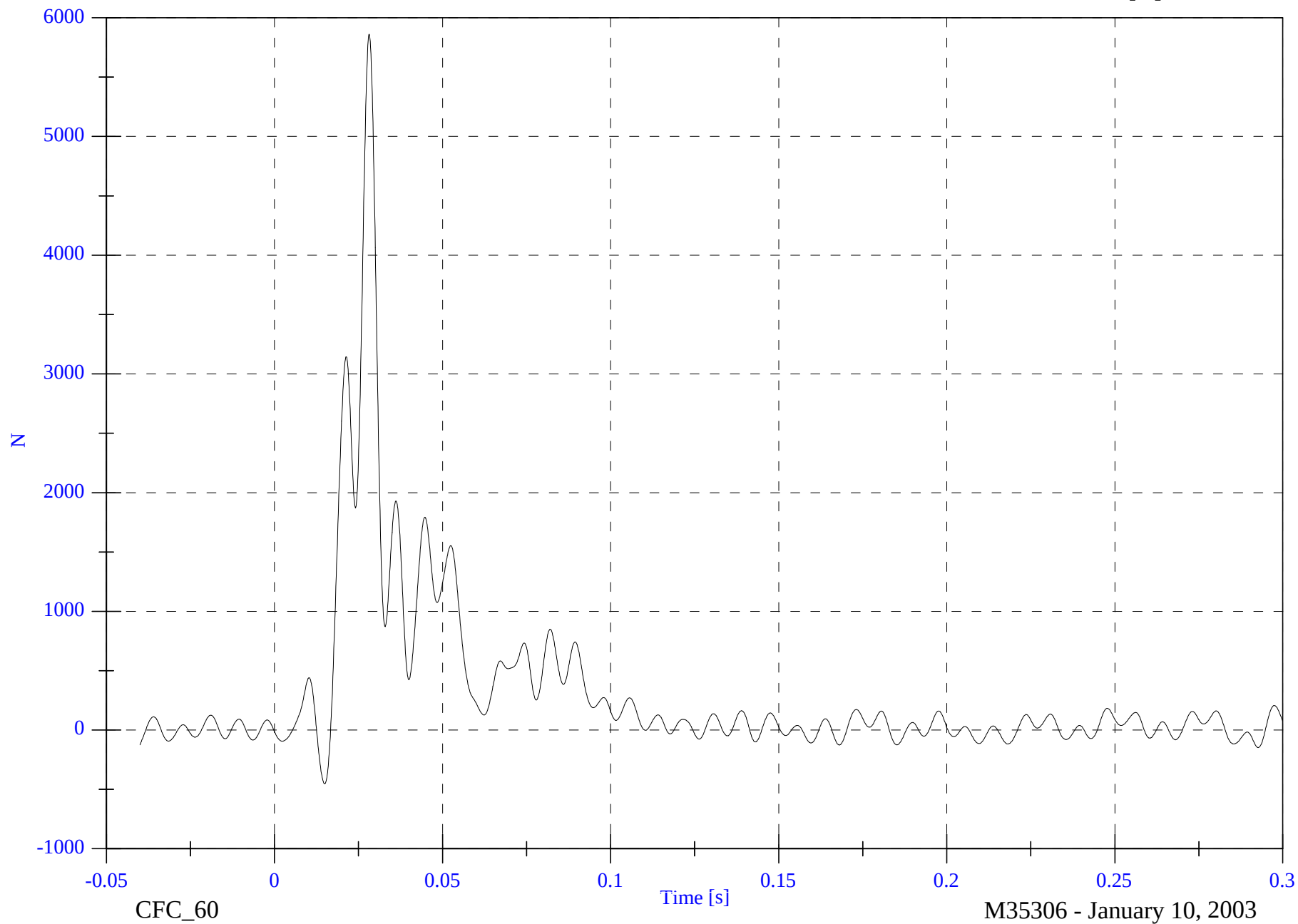
Max: 5862.3 [N] at 0.028 [s]

Min: -452.7 [N] at 0.015 [s]

B1 LCD3 Fx

B-172

8642-NCAP-26

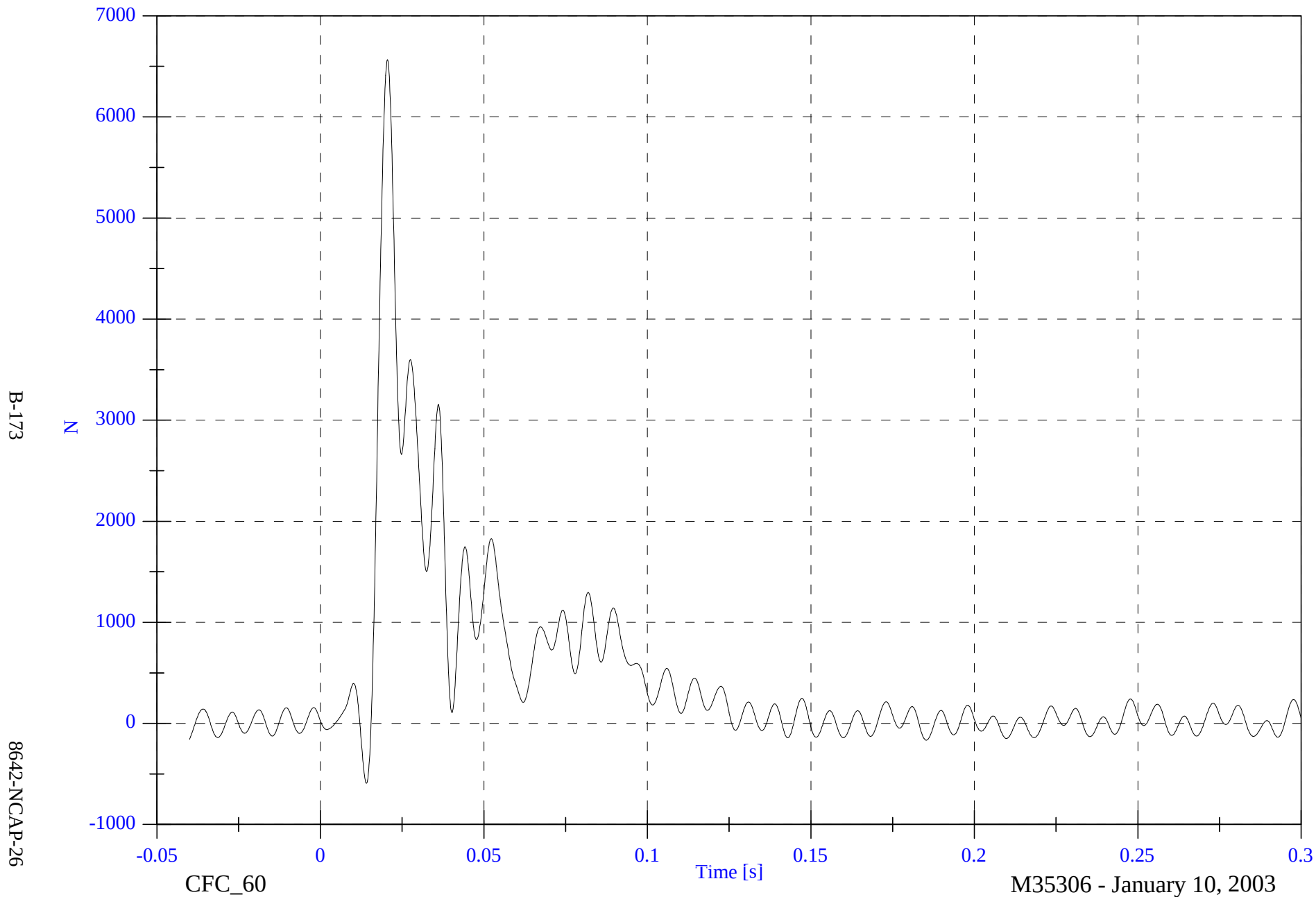


NCAP Test #4- 2003 Honda Odyssey

B1 LCD4 Fx

Max: 6566.4 [N] at 0.020 [s]

Min: -592.5 [N] at 0.014 [s]



NCAP Test #4- 2003 Honda Odyssey

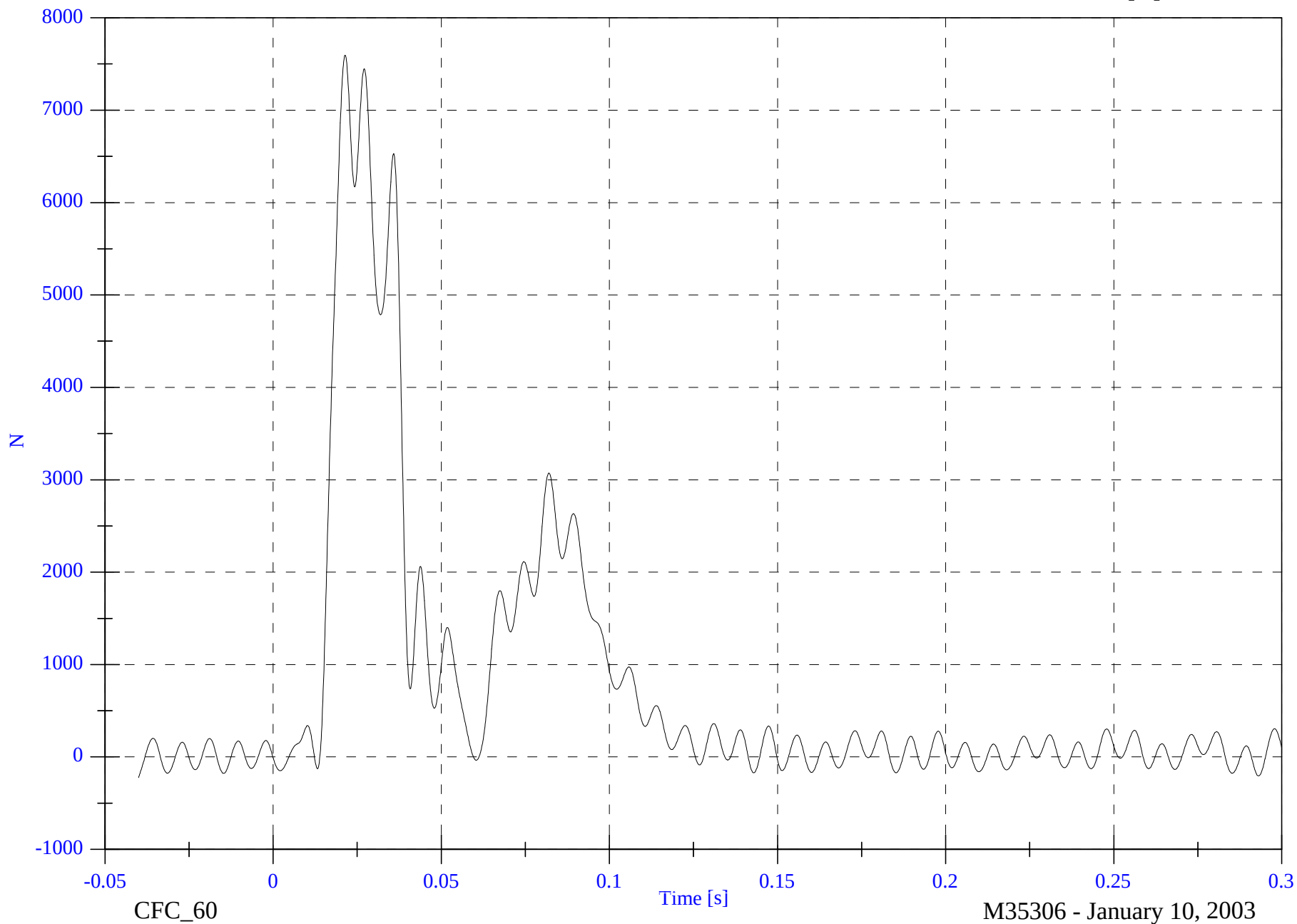
B1 LCD5 Fx

Max: 7594.6 [N] at 0.021 [s]

Min: -222.0 [N] at -0.040 [s]

B-174

8642-NCAP-26

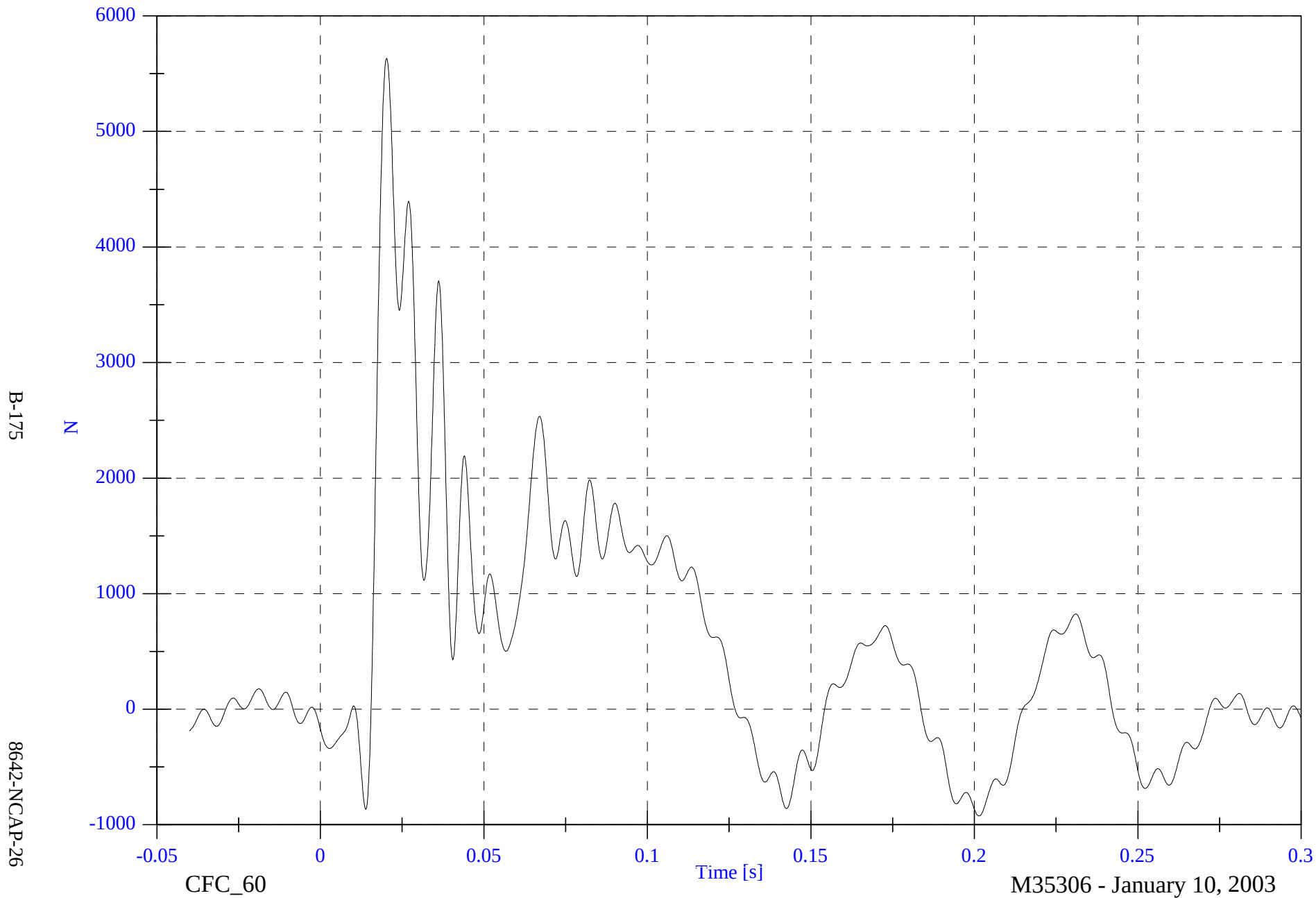


NCAP Test #4- 2003 Honda Odyssey

B1 LCD6 Fx

Max: 5633.4 [N] at 0.020 [s]

Min: -924.0 [N] at 0.201 [s]

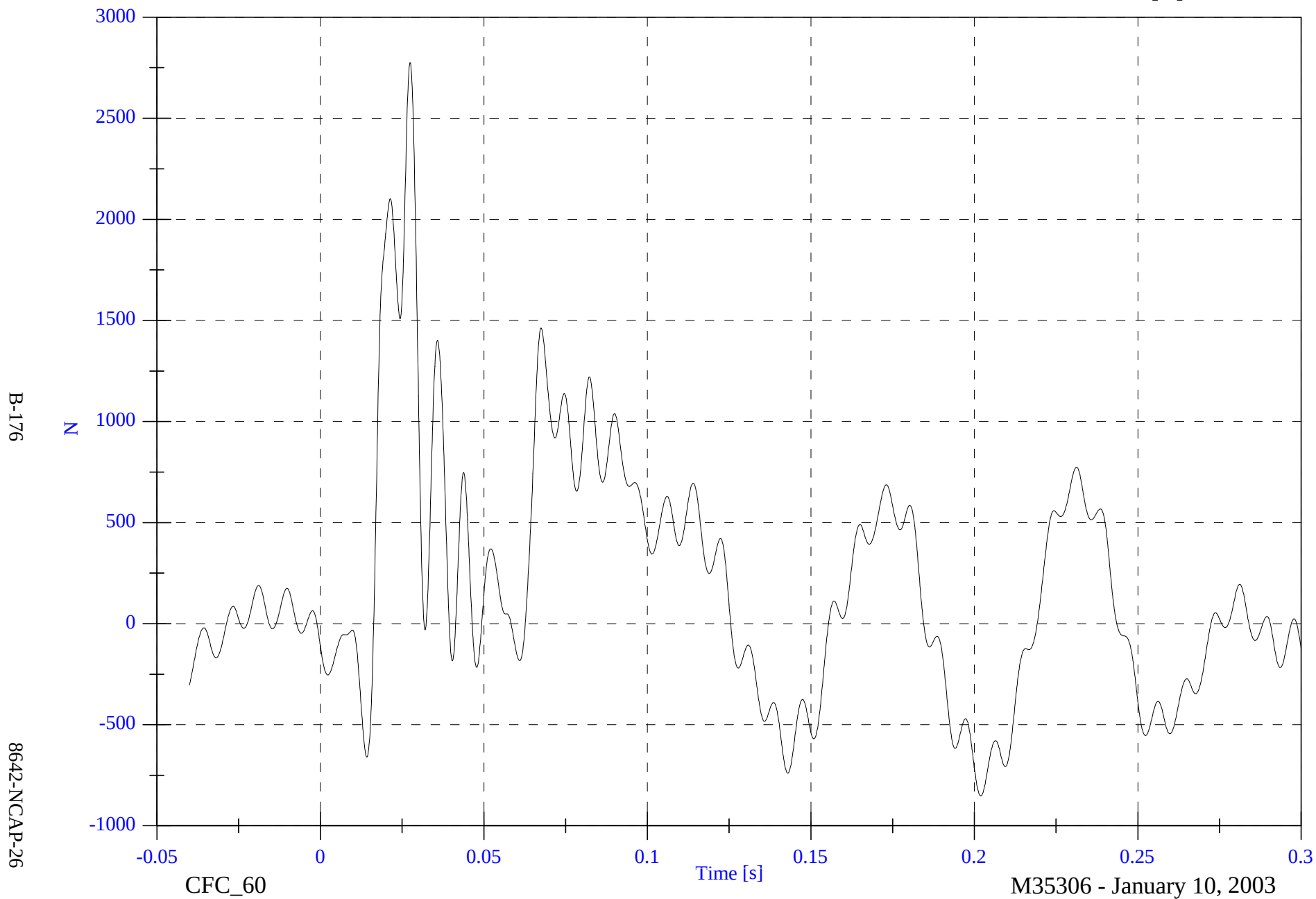


NCAP Test #4- 2003 Honda Odyssey

B1 LCD7 Fx

Max: 2774.7 [N] at 0.027 [s]

Min: -851.9 [N] at 0.202 [s]

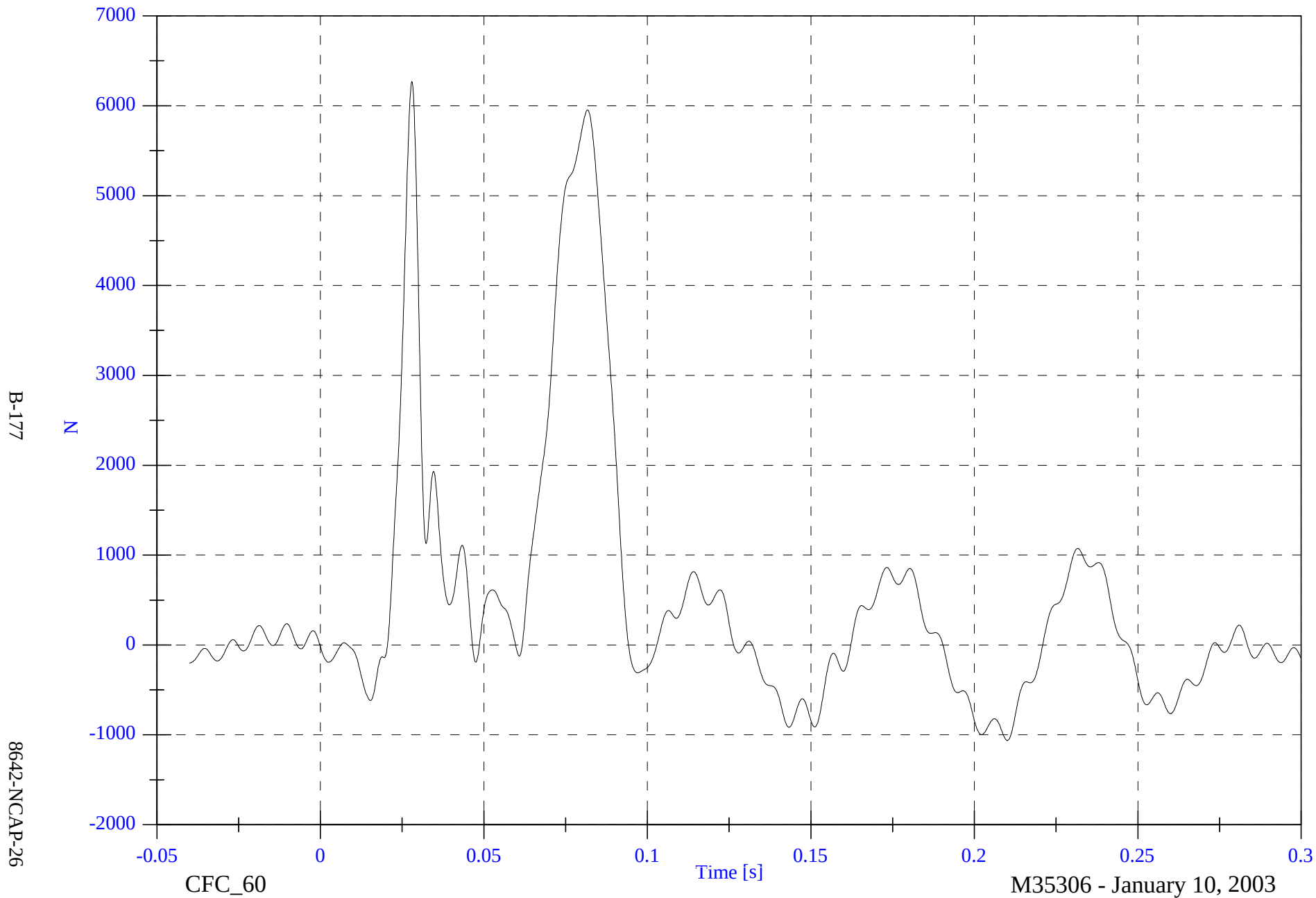


NCAP Test #4- 2003 Honda Odyssey

B1 LCD8 Fx

Max: 6269.7 [N] at 0.028 [s]

Min: -1062.1 [N] at 0.210 [s]

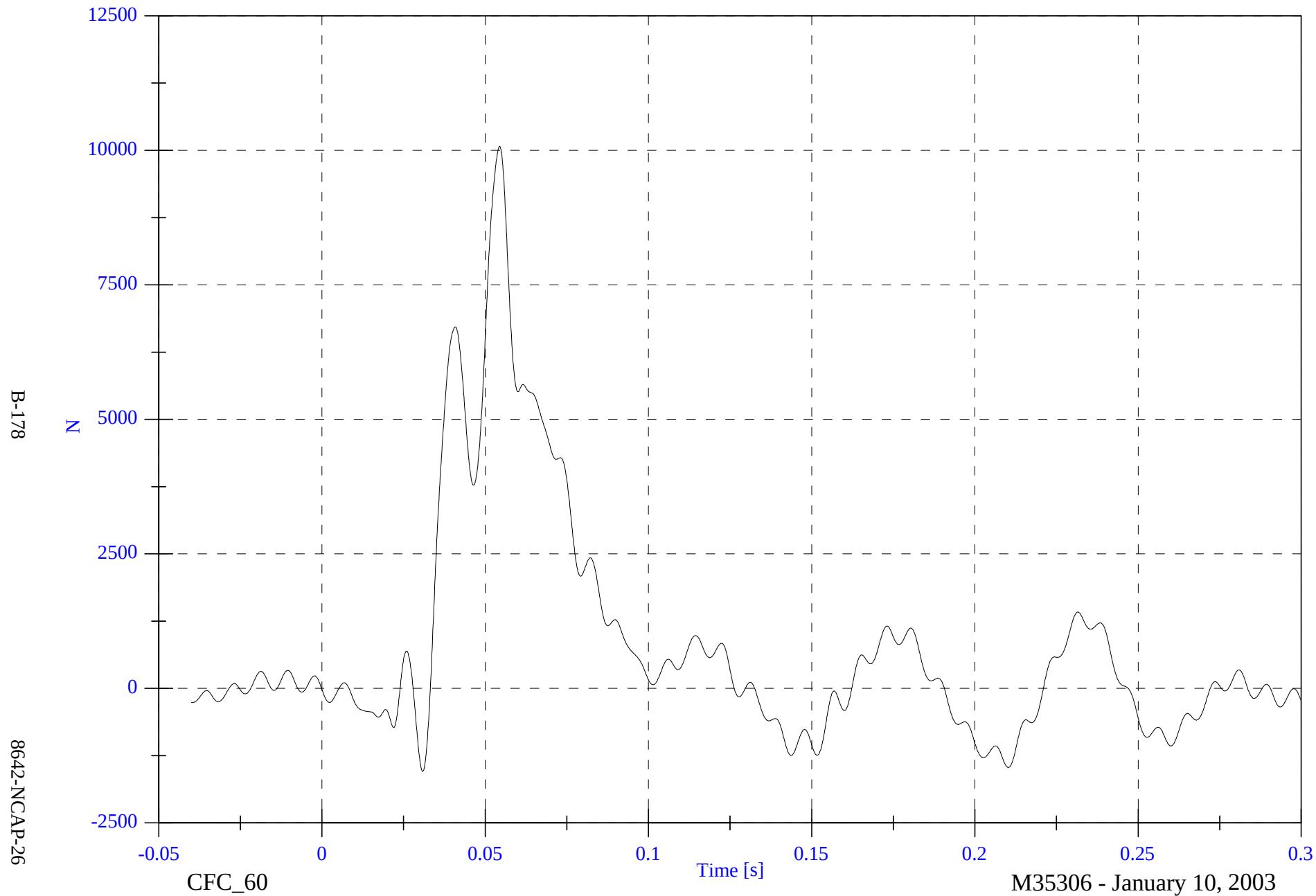


NCAP Test #4- 2003 Honda Odyssey

B1 LCD9 Fx

Max: 10073.0 [N] at 0.054 [s]

Min: -1542.9 [N] at 0.031 [s]

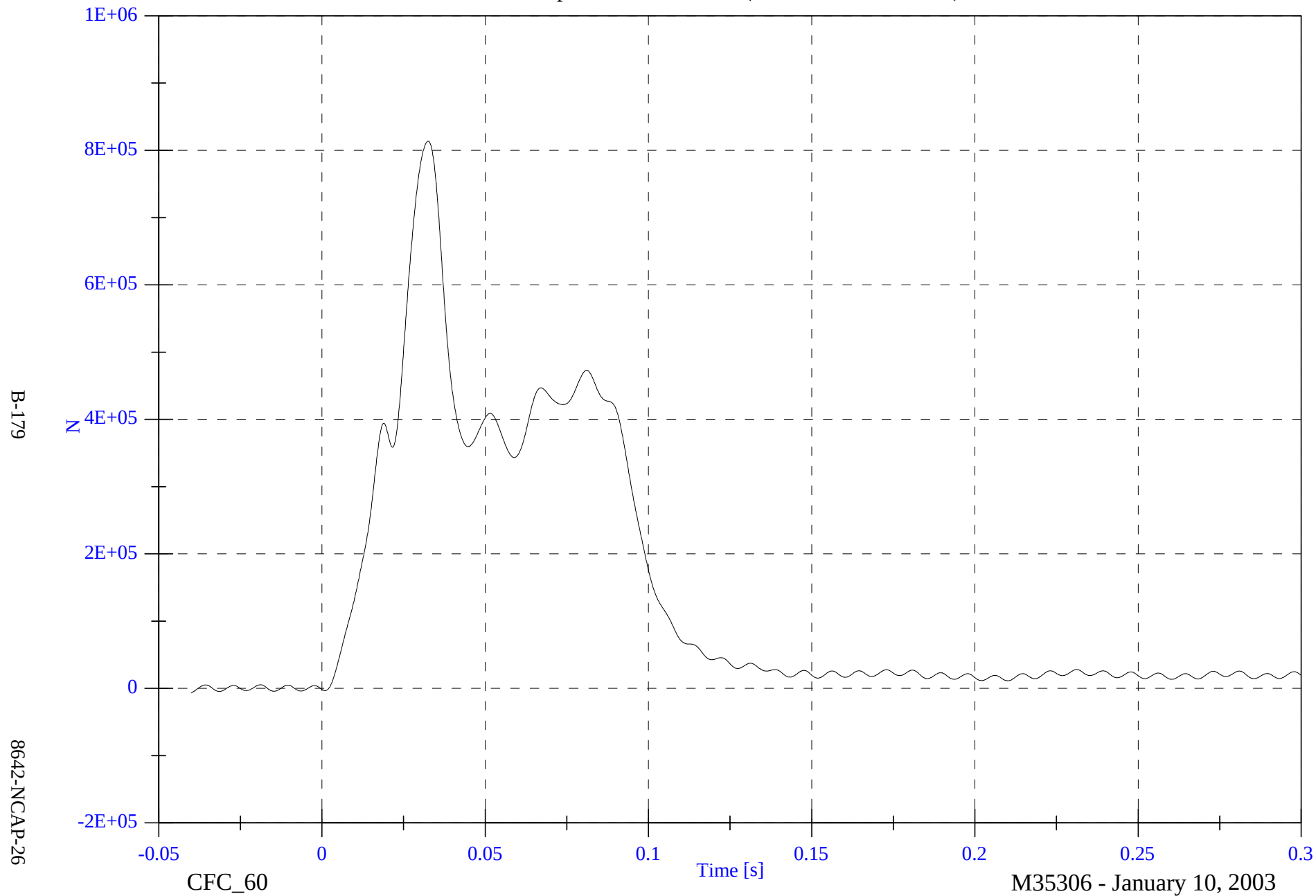


NCAP Test #4- 2003 Honda Odyssey

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

Max: 813633.8 [N] at 0.032 [s]

Min: -6860.2 [N] at -0.040 [s]

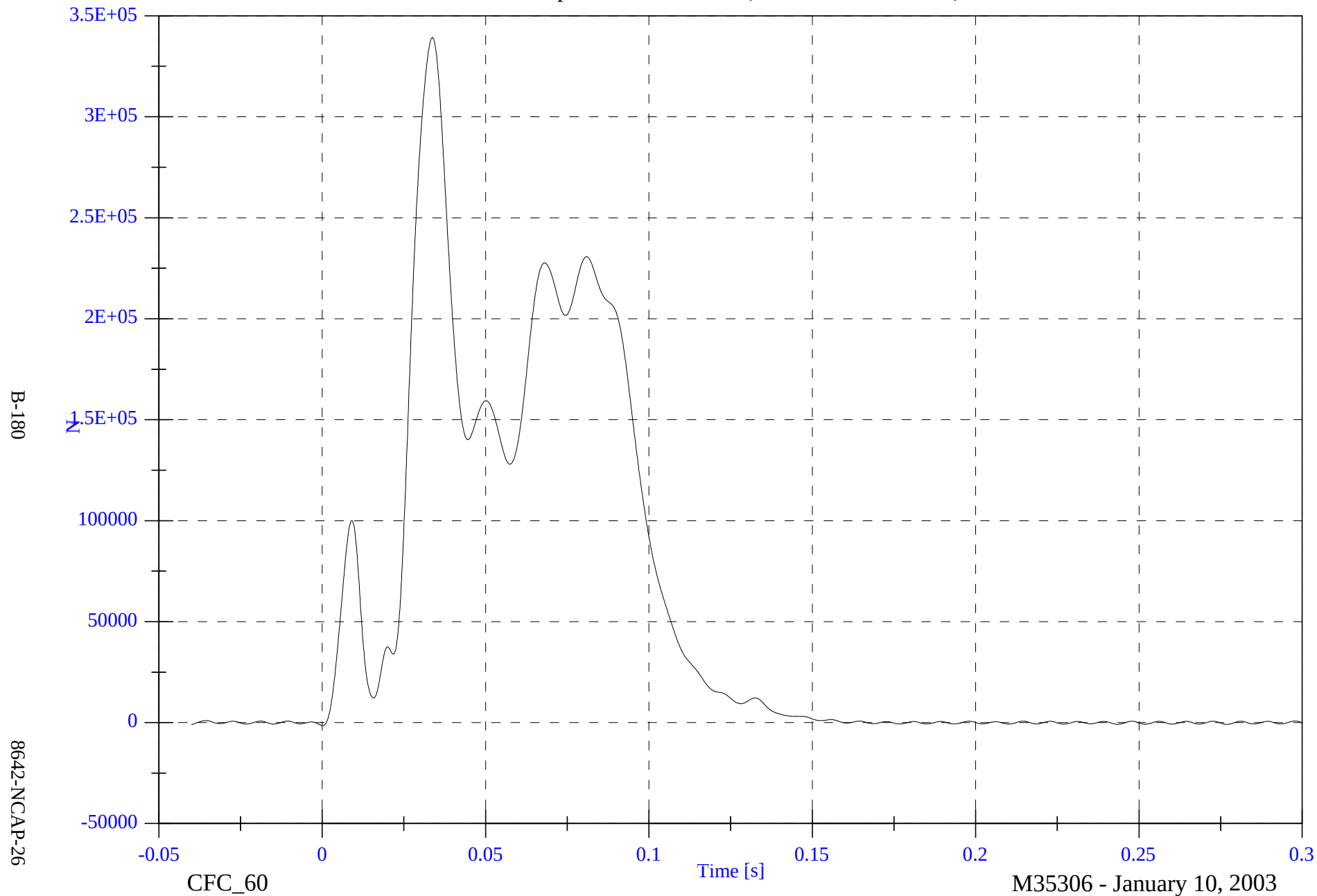


NCAP Test #4- 2003 Honda Odyssey

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

Max: 339289.2 [N] at 0.034 [s]

Min: -1504.1 [N] at 0.000 [s]

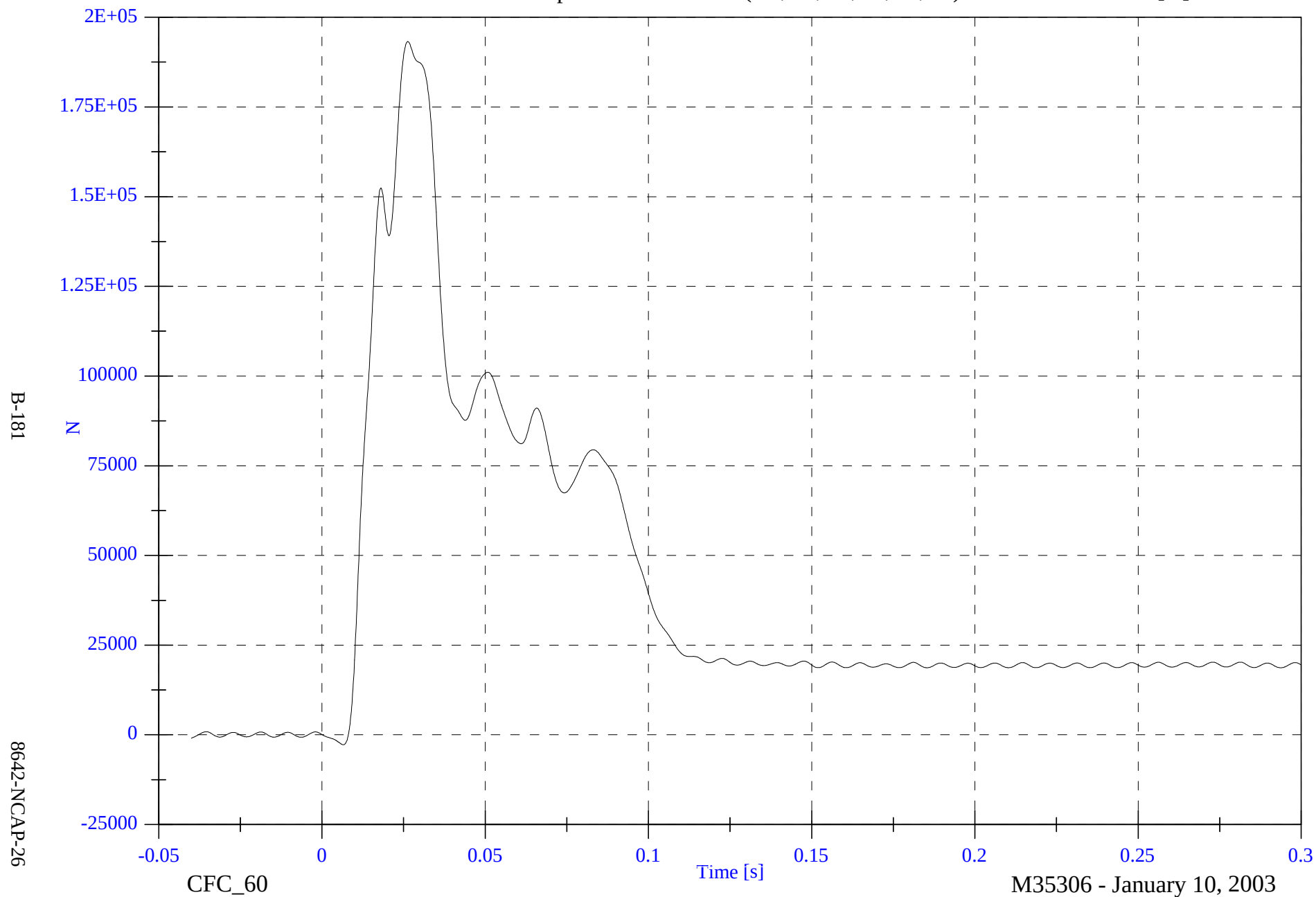


NCAP Test #4- 2003 Honda Odyssey

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

Max: 193228.6 [N] at 0.026 [s]

Min: -2762.2 [N] at 0.007 [s]

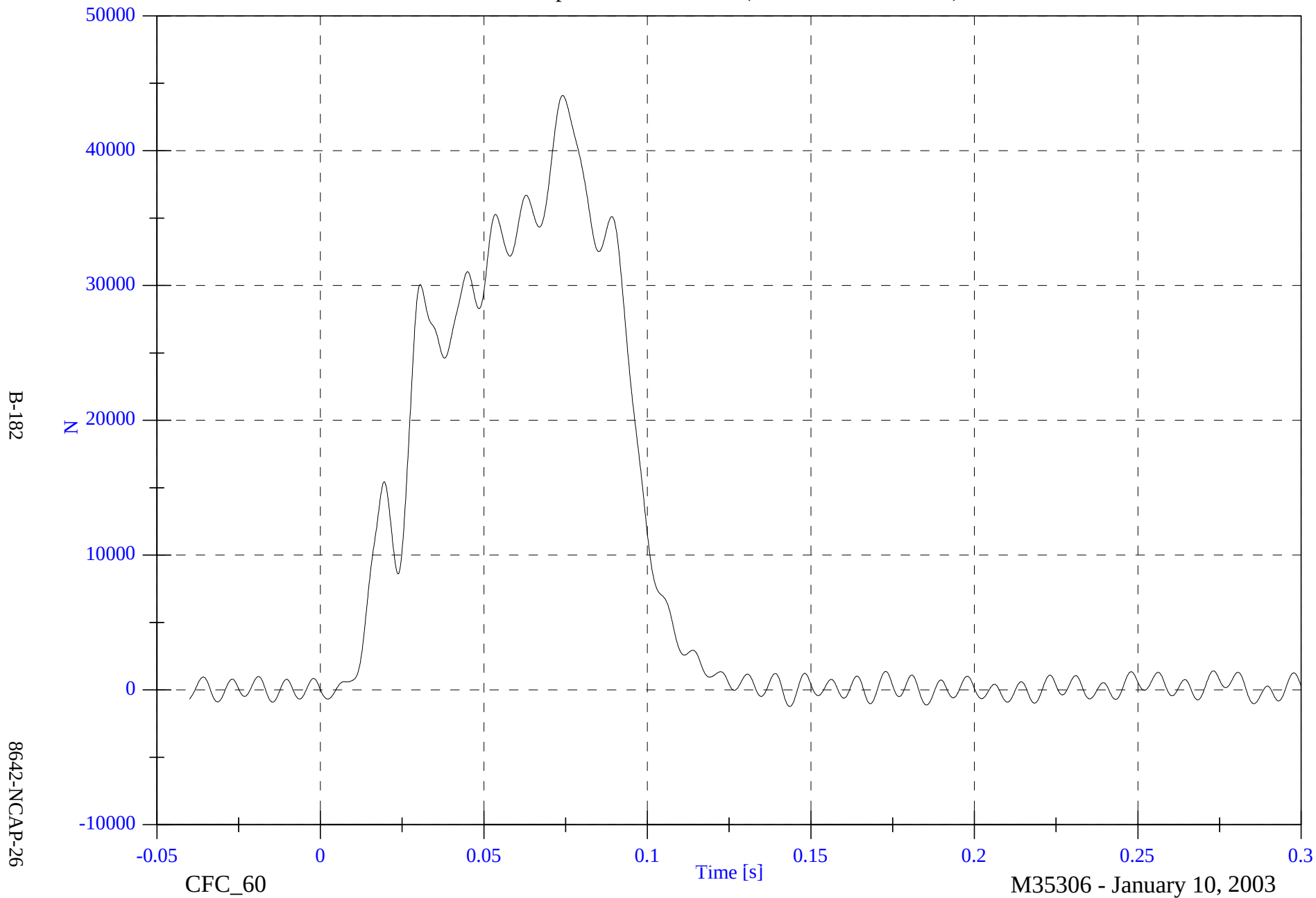


NCAP Test #4- 2003 Honda Odyssey

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

Max: 44093.8 [N] at 0.074 [s]

Min: -1229.1 [N] at 0.144 [s]

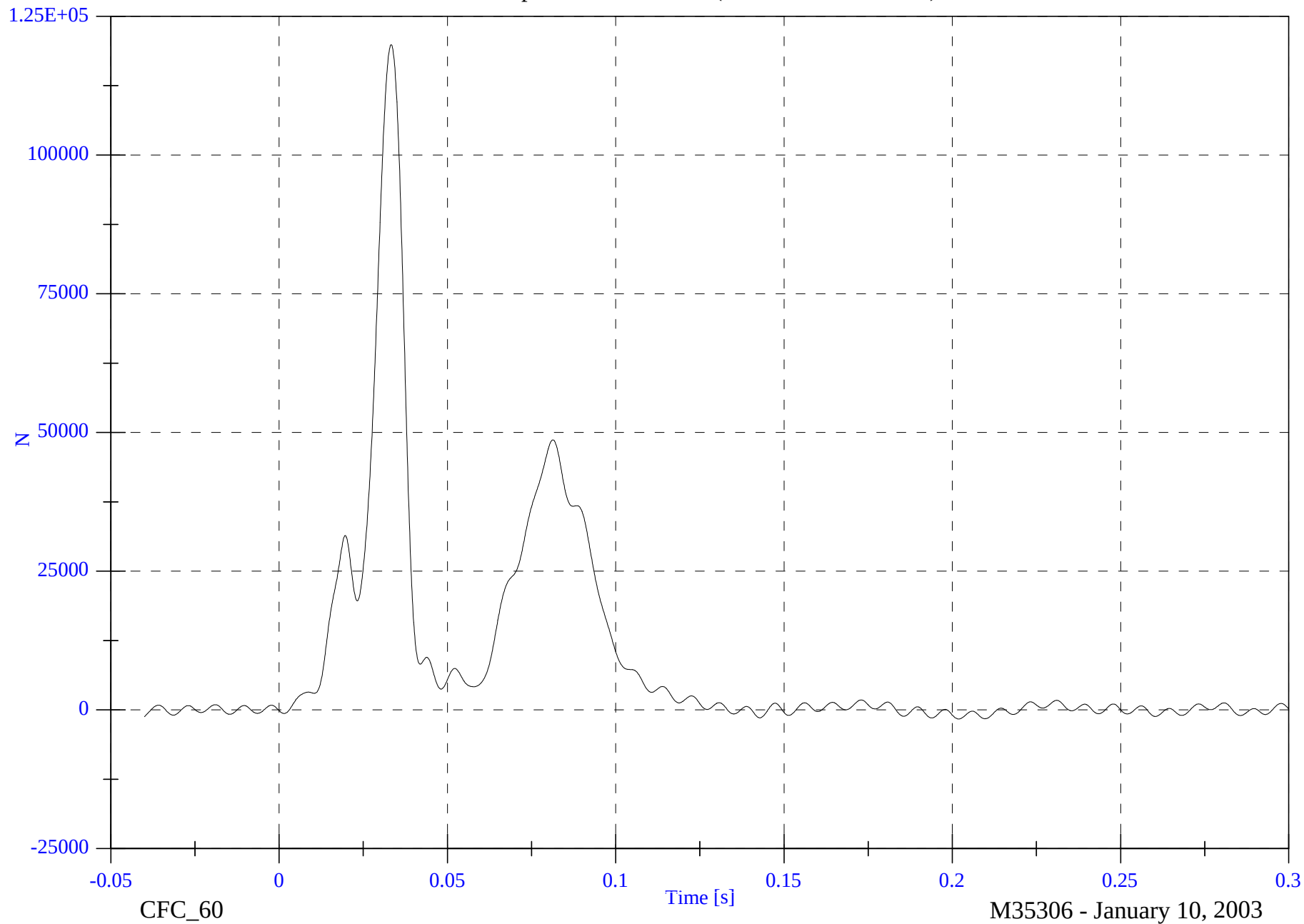


NCAP Test #4- 2003 Honda Odyssey

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

Max: 119897.3 [N] at 0.033 [s]

Min: -1625.7 [N] at 0.202 [s]

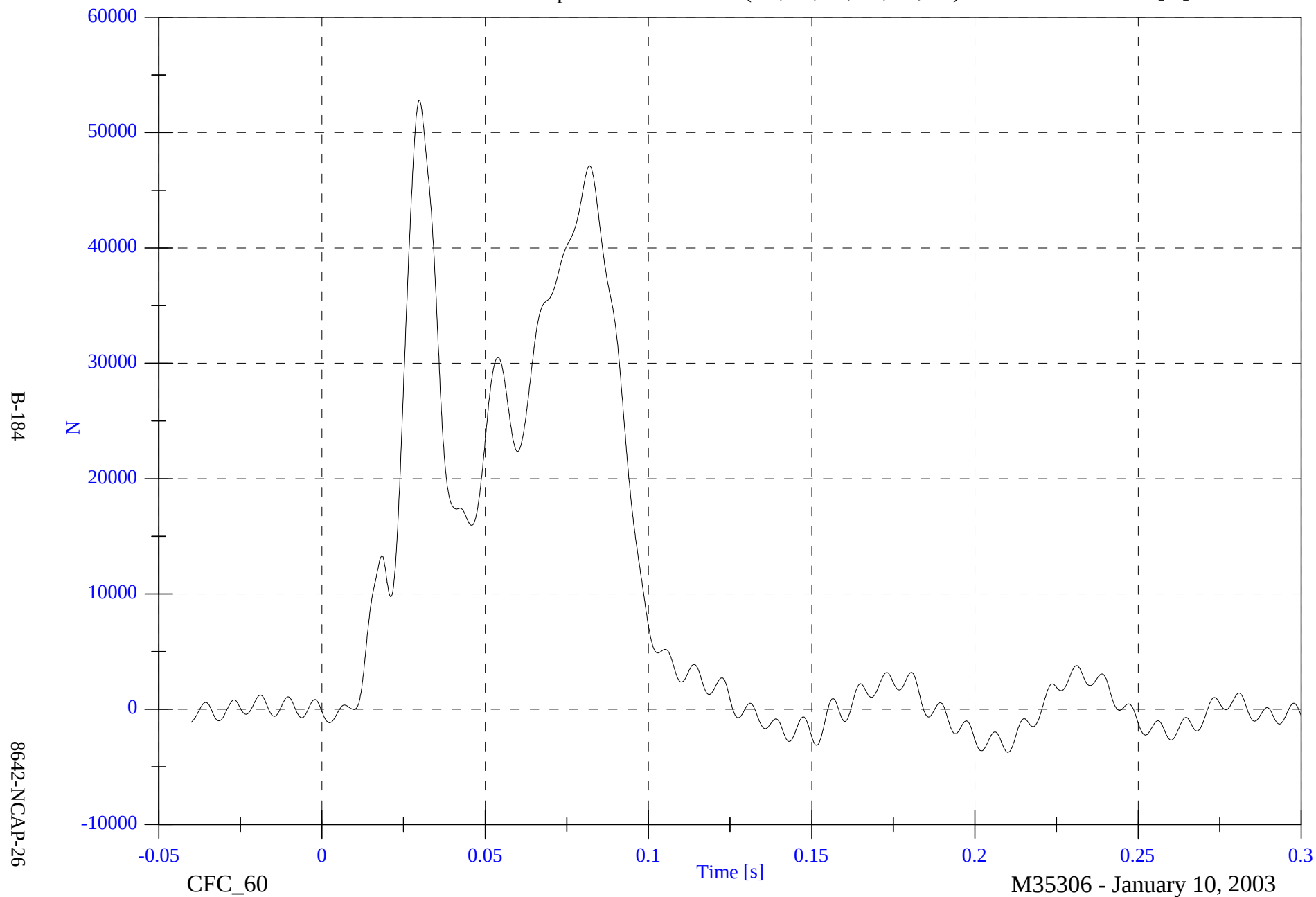


NCAP Test #4- 2003 Honda Odyssey

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

Max: 52804.7 [N] at 0.030 [s]

Min: -3731.5 [N] at 0.210 [s]

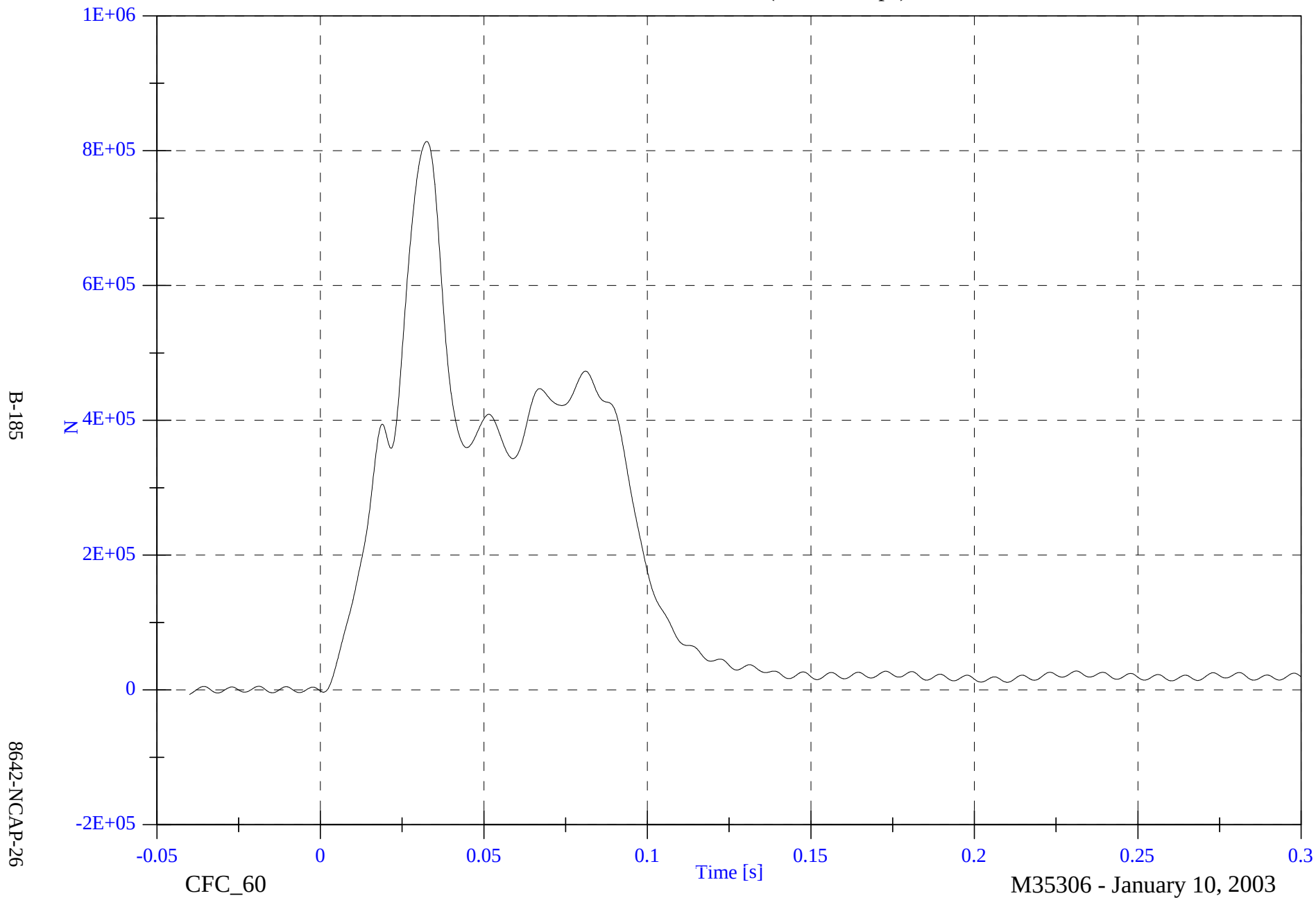


NCAP Test #4- 2003 Honda Odyssey

Total Load Cell Sum (All 6 Groups)

Max: 813633.8 [N] at 0.032 [s]

Min: -6860.2 [N] at -0.040 [s]



APPENDIX C

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

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

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

Dummy serial numbers and certification dates are:

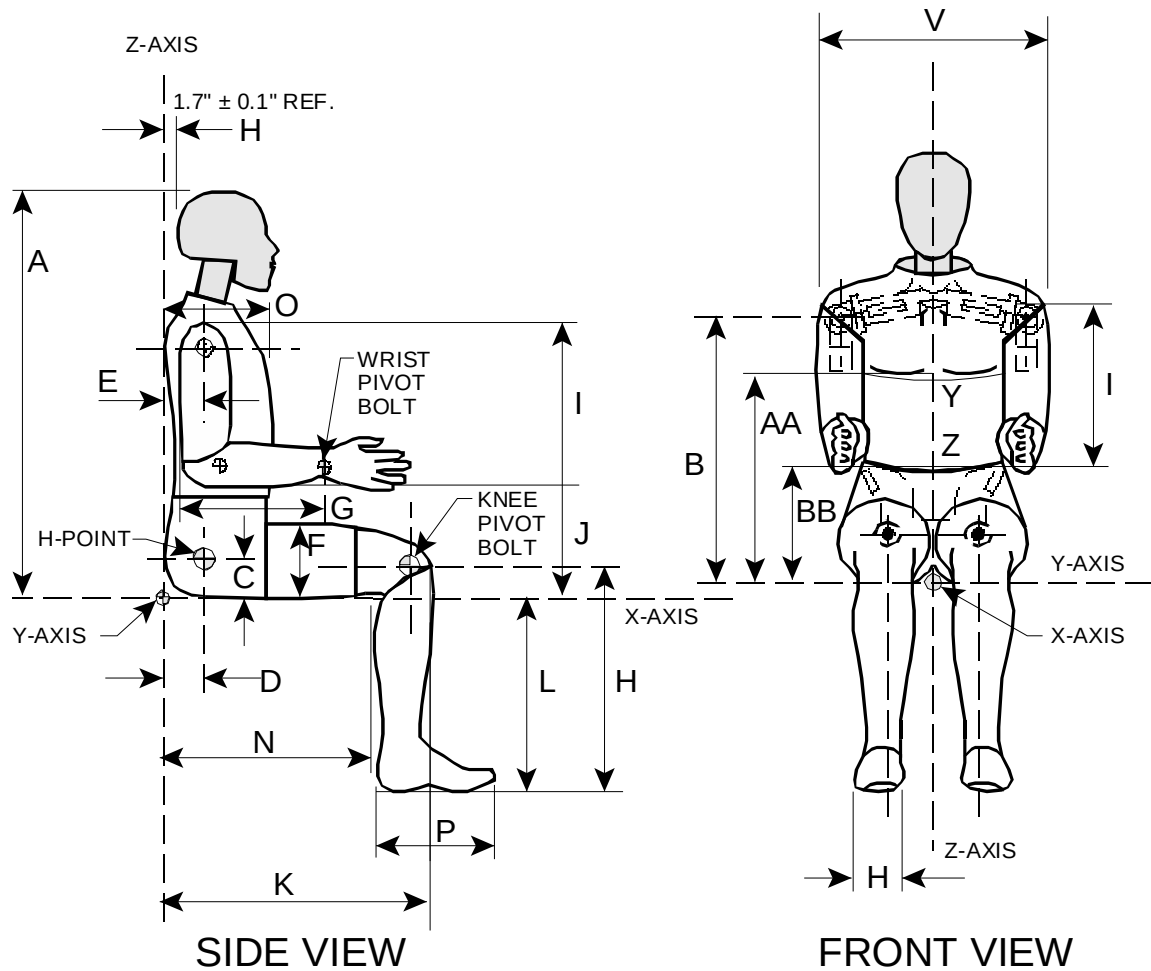
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	150	December 11, 2002
#2/Right Front Passenger	245	December 11, 2002

Electronic Test Equipment

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

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS SPECIFICATIONS



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

PART 572E
HEAD DROP TEST

Dummy Serial Number 150
Sequential Test Number 2
Date December 5, 2002
Workfile 150H2 12-05-02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	69.0
Relative Humidity	10% - 70%	33.00
Peak Resultant Acceleration	225-275 G's	236.06
Peak Lateral Acceleration	15 G's Max	6.77
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	150	
Sequential Test Number	13	
Date	December 6, 2002	6 Axis Neck Transducer
Workfile	150Flx13 12-06-02	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71.00
Relative Humidity		10% - 70%	35.00
Impact Velocity		22.60 - 23.40 Ft/s	22.63
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.31
	20 ms	17.60 - 22.60 G's	21.34
	30 ms	12.50 - 18.50 G's	15.65
Max Pendulum G's Above 30 ms		29 G's Max	15.65
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	38.10
D Plane Rotation	Max	64 - 78 Deg	64.10
	Time	57 - 64 ms	58.20
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	69.66
	Time	47 - 58 ms	51.20
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	113.10
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	102.80

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	150	
Sequential Test Number	1	
Date	December 6, 2002	6 Axis Neck Transducer
Workfile	150Ext 12-06-02	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71.00
Relative Humidity		10% - 70%	35.00
Impact Velocity		19.50 - 20.30 Ft/s	19.55
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.19
	20 ms	14.00 - 19.00 G's	15.97
	30 ms	11.00 - 16.00 G's	13.08
Max Pendulum G's Above 30 ms		22 G's Max	13.95
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	40.40
D Plane Rotation	Max	81 - 106 Deg	86.04
	Time	72 - 82 ms	77.80
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-47.39
	Time	65 - 79 ms	73.50
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	157.20
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	140.10

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 150
Sequential Test Number 1
Date December 11, 2002
Workfile 150T 12-11-02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0
Relative Humidity	10% - 70%	38.00
Pendulum Velocity	21.6 - 22.4 Ft/s	22.29
Maximum Deflection	2.50 - 2.86 in	2.56
Maximum Resistive Force	1160 - 1325 Lbs	1321.69
Internal Hysteresis	69 - 85 %	71.98

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 150
Sequential Test Number 2; 1
Date December 11, 2002
Workfile 150LF2 12-11-02; 150RF 12-11-02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	68.0
Relative Humidity	10% - 70%	35.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1242.79
RIGHT KNEE		
Temperature	66 - 78 Deg F	68.0
Relative Humidity	10% - 70%	35.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1205.93

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 150
Sequential Test Number 1
Date December 11, 2002

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			39
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	34.8
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	18.4
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.8
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 December 9, 2002
Workfile 245H1 12-9-02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	69.0
Relative Humidity	10% - 70%	35.00
Peak Resultant Acceleration	225-275 G's	236.36
Peak Lateral Acceleration	15 G's Max	6.67
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	245	
Sequential Test Number	2	
Date	December 9, 2002	6 Axis Neck Transducer
Workfile	245Flx2 12-09-02	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	69.00
Relative Humidity		10% - 70%	35.00
Impact Velocity		22.60 - 23.40 Ft/s	23.13
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.71
	20 ms	17.60 - 22.60 G's	22.46
	30 ms	12.50 - 18.50 G's	17.69
Max Pendulum G's Above 30 ms		29 G's Max	17.69
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.40
D Plane Rotation	Max	64 - 78 Deg	74.63
	Time	57 - 64 ms	63.40
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	66.29
	Time	47 - 58 ms	52.70
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	125.20
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.00

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	245	
Sequential Test Number	1	
Date	December 9, 2002	6 Axis Neck Transducer
Workfile	245Ext1 12-09-02	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70.00
Relative Humidity		10% - 70%	35.00
Impact Velocity		19.50 - 20.30 Ft/s	19.67
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	17.70
	20 ms	14.00 - 19.00 G's	15.86
	30 ms	11.00 - 16.00 G's	12.78
Max Pendulum G's Above 30 ms		22 G's Max	12.78
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	43.50
D Plane Rotation	Max	81 - 106 Deg	84.72
	Time	72 - 82 ms	76.00
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-46.11
	Time	65 - 79 ms	67.20
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	150.90
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	133.70

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 245
Sequential Test Number 1
Date December 11, 2002
Workfile 245T 12-11-02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0
Relative Humidity	10% - 70%	38.00
Pendulum Velocity	21.6 - 22.4 Ft/s	22.23
Maximum Deflection	2.50 - 2.86 in	2.58
Maximum Resistive Force	1160 - 1325 Lbs	1259.15
Internal Hysteresis	69 - 85 %	73.65

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 245
Sequential Test Number 1; 1
Date December 11, 2002
Workfile 245LF 12-11-02; 245RF 12-11-02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	68.0
Relative Humidity	10% - 70%	32.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1207.03
RIGHT KNEE		
Temperature	66 - 78 Deg F	68.0
Relative Humidity	10% - 70%	35.00
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1091.07

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 245
Sequential Test Number 1
Date December 11, 2002

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			39
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	39.4
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	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.5
Knee Pivot Height	M	19.1 - 19.7 in	19.2
Foot Length	P	9.9 - 10.5 in	10.2
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician:

B. Swiecicki

APPENDIX D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 150)		Manufacturer	Serial #	Calibration	
				Last	Next
Head 9 Array	X Arm Y	ENDEVCO	AC-P17531	22-Aug-02	22-Feb-03
	X Arm Z	ENDEVCO	AC-P14965	22-Aug-02	22-Feb-03
	Y Arm X	ENDEVCO	AC-P17563	22-Aug-02	22-Feb-03
	Y Arm Z	ENDEVCO	AC-P18551	22-Aug-02	22-Feb-03
	Z Arm X	ENDEVCO	AC-P17539	22-Aug-02	22-Feb-03
	Z Arm Y	ENDEVCO	AC-P18718	22-Aug-02	22-Feb-03
Head	X	ENDEVCO	AC-P16832	22-Aug-02	22-Feb-03
	Y	ENDEVCO	AC-P16591	22-Aug-02	22-Feb-03
	Z	ENDEVCO	AC-P16286	22-Aug-02	22-Feb-03
Head	X (R)	ENDEVCO	AC-P17141	22-Aug-02	22-Feb-03
	Y (R)	ENDEVCO	AC-P17242	22-Aug-02	22-Feb-03
	Z (R)	ENDEVCO	AC-P17152	22-Aug-02	22-Feb-03
Neck Load Cell	X	DENTON	LC-441Fx	14-Oct-02	14-Apr-03
	Y	DENTON	LC-441Fy	14-Oct-02	14-Apr-03
	Z	DENTON	LC-441Fz	14-Oct-02	14-Apr-03
Neck Moment	X	DENTON	LC-441Mx	14-Oct-02	14-Apr-03
	Y	DENTON	LC-441My	14-Oct-02	14-Apr-03
	Z	DENTON	LC-441Mz	14-Oct-02	14-Apr-03
Chest	X	ENDEVCO	AC-P17235	22-Aug-02	22-Feb-03
	Y	ENDEVCO	AC-P14393	22-Aug-02	22-Feb-03
	Z	ENDEVCO	AC-P17285	22-Aug-02	22-Feb-03
Chest	X (R)	ENDEVCO	AC-P16863	22-Aug-02	22-Feb-03
	Y (R)	ENDEVCO	AC-P17248	22-Aug-02	22-Feb-03
	Z (R)	ENDEVCO	AC-P17283	22-Aug-02	22-Feb-03
Chest Deflection	X	SERVO	DS-150	24-Sep-02	24-Mar-03
Pelvic	X	ENDEVCO	AC-J30041	22-Aug-02	22-Feb-03
	Y	ENDEVCO	AC-P13355	22-Aug-02	22-Feb-03
	Z	ENDEVCO	AC-P13329	22-Aug-02	22-Feb-03

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	25-Sep-02	25-Mar-03
Right Femur Load Cell	Fz	GSE	LC-419	25-Sep-02	25-Mar-03
Left Upper Tibia	Mx	DENTON	LC-265Mx	24-Oct-02	24-Apr-03
	My	DENTON	LC-265My	24-Oct-02	24-Apr-03
Left Lower Tibia	Fz	DENTON	LC-178Fz	24-Oct-02	24-Apr-03
	Mx	DENTON	LC-178Mx	24-Oct-02	24-Apr-03
	My	DENTON	LC-178My	24-Oct-02	24-Apr-03
Right Upper Tibia	Mx	DENTON	LC-199Mx	24-Oct-02	24-Apr-03
	My	DENTON	LC-199My	24-Oct-02	24-Apr-03
Right Lower Tibia	Fz	SERVO	LC-128Fz	24-Oct-02	24-Apr-03
	Mx	DENTON	LC-128Mx	24-Oct-02	24-Apr-03
	My	DENTON	LC-128My	24-Oct-02	24-Apr-03
Left Foot Rear	X	ENDEVCO	AC-J19868	22-Aug-02	22-Feb-03
	Z	ENDEVCO	AC-AJ8C0	22-Aug-02	22-Feb-03
Left Foot Front	Z	ENDEVCO	AC-J34378	22-Aug-02	22-Feb-03
Right Foot Rear	X	ENDEVCO	AC-AJ7F6	22-Aug-02	22-Feb-03
	Z	ENDEVCO	AC-J27079	22-Aug-02	22-Feb-03
Right Foot Front	Z	ENDEVCO	AC-J23997	22-Aug-02	22-Feb-03
Lap Belt Load Cell		LEBOW	LC-706	12-Nov-02	12-May-03

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	27-Aug-02	27-Feb-03
	X Arm Z	ENDEVCO	AC-P19212	27-Aug-02	27-Feb-03
	Y Arm X	ENDEVCO	AC-P19197	27-Aug-02	27-Feb-03
	Y Arm Z	ENDEVCO	AC-P18738	27-Aug-02	27-Feb-03
	Z Arm X	ENDEVCO	AC-P19217	27-Aug-02	27-Feb-03
	Z Arm Y	ENDEVCO	AC-P18739	27-Aug-02	27-Feb-03
Head	X	ENDEVCO	AC-P19216	06-Aug-02	06-Feb-03
	Y	ENDEVCO	AC-P15534	06-Aug-02	06-Feb-03
	Z	ENDEVCO	AC-P23303	06-Aug-02	06-Feb-03
Head	X (R)	ENDEVCO	AC-P16576	06-Aug-02	06-Feb-03
	Y (R)	ENDEVCO	AC-P15526	06-Aug-02	06-Feb-03
	Z (R)	ENDEVCO	AC-P19255	06-Aug-02	06-Feb-03
Neck Load Cell	X	DENTON	LC-076Fx	15-Oct-02	15-Apr-03
	Y	DENTON	LC-076Fy	15-Oct-02	15-Apr-03
	Z	DENTON	LC-076Fz	15-Oct-02	15-Apr-03
Neck Moment	X	DENTON	LC-076Mx	15-Oct-02	15-Apr-03
	Y	DENTON	LC-076My	15-Oct-02	15-Apr-03
	Z	DENTON	LC-076Mz	15-Oct-02	15-Apr-03
Chest	X	ENTRAN	AC-01G18-F03	23-Aug-02	23-Feb-03
	Y	ENTRAN	AC-01G18-F07	23-Aug-02	23-Feb-03
	Z	ENTRAN	AC-01J02-F09	23-Aug-02	23-Feb-03
Chest	X (R)	ENTRAN	AC-01G18-F18	23-Aug-02	23-Feb-03
	Y (R)	ENTRAN	AC-01G18-F10	23-Aug-02	23-Feb-03
	Z (R)	ENTRAN	AC-01G18-F09	23-Aug-02	23-Feb-03
Chest Deflection	X	SERVO	DS-245	11-Oct-02	11-Apr-03
Pelvic	X	ENDEVCO	AC-J31034	28-Aug-02	01-Mar-03
	Y	ENDEVCO	AC-P17258	28-Aug-02	01-Mar-03
	Z	ENDEVCO	AC-J31010	28-Aug-02	01-Mar-03

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	25-Sep-02	25-Mar-03
Right Femur Load Cell	Fz	GSE	LC-951	25-Sep-02	25-Mar-03
Left Upper Tibia	Mx	DENTON	LC-200Mx	16-May-02	24-Apr-03
	My	DENTON	LC-200My	16-May-02	24-Apr-03
Left Lower Tibia	Fz	DENTON	LC-129Fz	24-Oct-02	24-Apr-03
	Mx	DENTON	LC-129Mx	24-Oct-02	24-Apr-03
	My	DENTON	LC-129My	24-Oct-02	24-Apr-03
Right Upper Tibia	Mx	DENTON	LC-264Mx	24-Oct-02	24-Apr-03
	My	DENTON	LC-264My	24-Oct-02	24-Apr-03
Right Lower Tibia	Fz	DENTON	LC-177Fz	24-Oct-02	24-Apr-03
	Mx	DENTON	LC-177Mx	24-Oct-02	24-Apr-03
	My	DENTON	LC-177My	24-Oct-02	24-Apr-03
Left Foot Rear	X	ENDEVCO	AC-J18059	27-Aug-02	27-Feb-03
	Z	ENDEVCO	AC-J18662	27-Aug-02	27-Feb-03
Left Foot Front	Z	ENDEVCO	AC-J36176	27-Aug-02	27-Feb-03
Right Foot Rear	X	ENDEVCO	AC-J20084	27-Aug-02	27-Feb-03
	Z	ENDEVCO	AC-J28727	27-Aug-02	27-Feb-03
Right Foot Front	Z	ENDEVCO	AC-J18738	27-Aug-02	27-Feb-03
Lap Belt Load Cell		LEBOW	LC-707	12-Nov-02	12-May-03

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(Six Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	ICS	AC-8062-003	11-Nov-02	11-May-03
Right Rear Seat Crossmember X	ICS	AC-8084-020	20-Nov-02	20-May-03
Top of Engine	ICS	AC-8084-022	20-Nov-02	20-May-03
Bottom of Engine	ICS	AC-8084-045	20-Nov-02	20-May-03
Right Disc Brake Caliper	ICS	AC-9026-042	20-Nov-02	20-May-03
Instrument Panel	ICS	AC-8084-018	11-Nov-02	11-May-03
Left Disc Brake Caliper	ICS	AC-8084-039	20-Nov-02	20-May-03
Left Seat Rear Crossmember Z	ICS	AC-8083-028	11-Nov-02	11-May-03
Right Seat Rear Crossmember Z	ICS	AC-6917-012	11-Nov-02	11-May-03

REPORT NUMBER: CAL-03-04

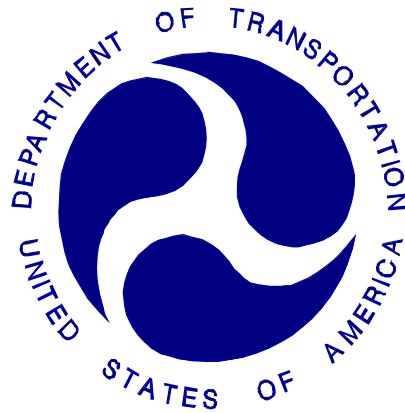
NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

EVENFLO VANGAURD V FORWARD FACING LATCH
GRACO MY CARGO HIGHBACK BOOSTER

NHTSA NUMBER: M35306

VERIDIAN ENGINEERING TEST NUMBER: 8642-NCAP-26

VERIDIAN ENGINEERING
TRANSPORTATION SCIENCES CENTER
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BUFFALO, NEW YORK 14225



January 10, 2003

FINAL REPORT

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

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				6. Performing Organization Code CAL	
7. Author(s) Patrick G. MacDiarmid, Jr., Project Engineer David J. Travale, Program Manager				8. Performing Organization Report No. 8642-NCAP-26	
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12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards Mail Code: NVS-111 400 Seventh SW, Room 5313 Washington, D.C. 20590				13. Type of Report and Period Covered Final Report, January 2003	
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15. Supplementary Notes					
16. Abstract A frontal load cell barrier test was conducted on the subject CRS Evenflo Vangaurd V Forward Facing LATCH and Graco My CarGo Highback Booster 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 January 10, 2003.					
ATD Position		HIC 15		HIC 36	
P3 (Right Rear) (142)		772.2		772.2	
P4 (Left Rear) (144)		593.9		1048.2	
* Chest x Transducer Failed					
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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SECTION 1

PURPOSE AND SUMMARY OF TEST M35306

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

The 56.81 kph NCAP frontal impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) NCAP Laboratory Test Procedure.

SUMMARY

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

The right rear (Position 3) child dummy (serial no. 142) and left rear (Position 4) child dummy (serial no. 144) were calibrated previous to this test. Child dummy certification information is found in section 5.

The right rear child dummy's HIC was 772.2, maximum chest deceleration over 3 ms was questionable due to anomalies in the chest x accelerometer. The left rear child dummy's HIC was 593.9, maximum chest deceleration over 3 ms was 39.0 g's.

SECTION 2
DATA SHEET NO. 1
CRASH TEST SUMMARY

TEST DUMMY INFORMATION:

DESCRIPTION	Position #3 CRS	Position #4 CRS
ATD Type/Serial No.	Hybrid III 3C/142	Hybrid III 6C /144
Restraint System:	Evenflo Vangaurd V forward facing LATCH	Graco My CarGo Booster

Number of Data Channels 57

Number of Cameras: 1 Real Time

2 High Speed

POST TEST DOOR OPENING

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

POST TEST SEAT DATA

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

VISIBLE DUMMY CONTACT POINTS

	Position #3 CRS	Position #4 CRS
Head Contact:	The face and chin to the chest and the back of the head to the child restraint	The face and chin to the chest and the back of the head to the child restraint
Upper Torso Contact:	None	None
Lower Torso Contact:	None	None
Left Knee Contact:	None	None
Right Knee Contact:	None	None

DATA SHEET NO. 2

CRS PARAMETER DATA

CRS: Evenflo Vangaurd V forward facing LATCH and Graco My CarGo Highback Booster

NHTSA No. M35306

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Delivered Weight of Vehicle with Maximum Fluids = 1984.0 kg (A)

AS TESTED WEIGHT OF VEHICLE

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

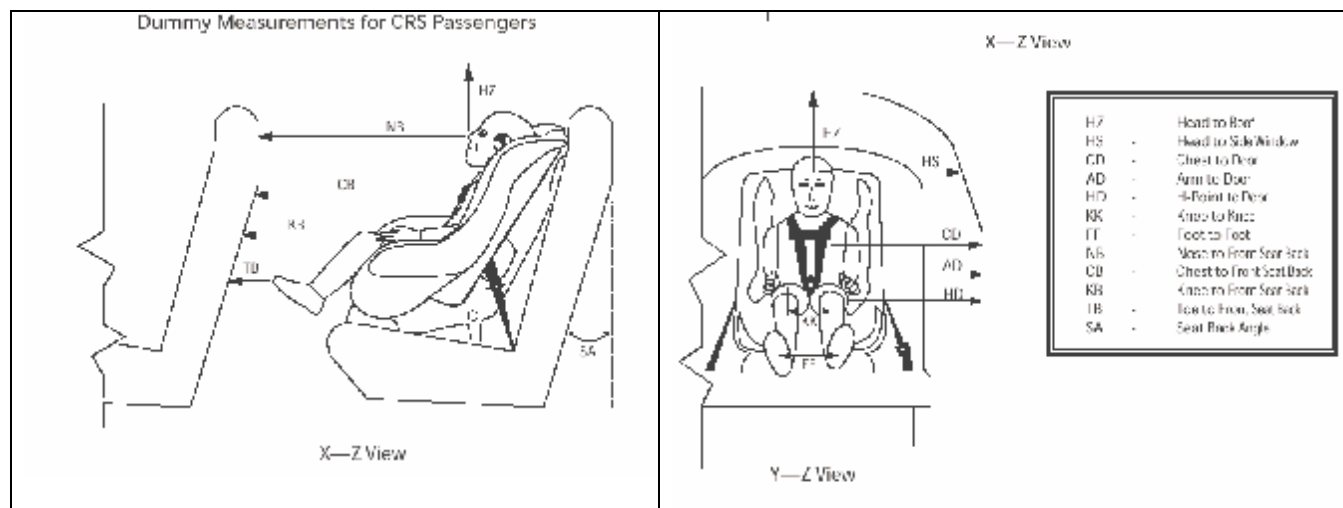
Left Front	=	<u>599.5</u>	kg	Left Rear	=	<u>504.0</u>	kg
Right Front	=	<u>615.0</u>	kg	Right Rear	=	<u>460.0</u>	kg
TOTAL FRONT	=	<u>1214.5</u>	kg	TOTAL REAR	=	<u>964.0</u>	kg
TOTAL TEST WEIGHT =		<u>2178.5</u>	kg				

DATA SHEET NO. 3

CHILD DUMMY POSITIONING IN VEHICLE

CRS: Evenflo Vangaurd V forward facing LATCH and Graco My CarGo Highback Booster

NHTSA No. M35306



Measurement	Pre-Test (mm)		Post Test (mm)	
	P3 CRS (142)	P4 CRS (144)	P3 CRS (142)	P4 CRS (144)
SA	10°	10°	10°	10°
HS	462	415	441	406
CD	427	390	411	399
AD	275	276	268	209
HD	330	328	328	300
HZ	405	388	392	388
NB	573	578	580	618
CB	500	495	522	536
KK	180	115	185	100
FF	220	150	245	150
KB – LEFT	400	300	422	350
KB – RIGHT	400	300	412	320
TB – LEFT	111	140	100	110
TB – RIGHT	110	140	125	100

All dimensions in mm (unless noted)

P3 – Right Rear Passenger (CRS #1)

P4 – Left Rear Passenger (CRS #2)

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES

CRS: Evenflo Vangaurd V forward facing LATCH and Graco My CarGo Highback Booster

NHTSA No. M35306

DESCRIPTION	Unit	MAXIMUM VALUE							
		Position #3				Position #4			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head X	g	170.2	187.7	-43.2	109.3	14.3	213.3	-30.1	113.0
Head Y	g	12.6	113.9	-27.9	109.1	4.2	215.2	-10.6	109.7
Head Z	g	51.5	89.0	-10.2	51.3	68.8	87.2	-1.2	44.8
Head Resultant	g	177.7	187.8	0.0	-17.6	70.1	87.2	0.0	-21.8
Head RZ	g	66.1	109.2	-64.0	187.0	-	-	-	-
Upper Neck Fx	N	31.9	259.6	-692.8	126.0	12.1	23.2	-611.9	75.1
Upper Neck Fy	N	66.6	80.7	-54.4	117.3	24.2	221.3	-125.3	91.2
Upper Neck Fz	N	1463.2	100.1	-352.7	190.8	2230.0	88.6	-112.8	241.8
Upper Neck F Resultant	N	1552.0	100.1	1.0	-42.2	2265.1	88.6	1.5	-20.4
Upper Neck Mx	N-m	5.8	111.9	-4.2	221.5	8.7	130.2	-5.7	98.9
Upper Neck My	N-m	4.5	158.4	-18.8	193.3	27.8	106.9	-29.5	65.1
Upper Neck Mz	N-m	2.1	263.5	-2.3	113.5	6.2	107.3	-5.6	135.4
Upper Neck M Resultant	N-m	18.8	193.3	0.0	-25.2	29.7	65.0	0.0	-27.9
Lower Neck Fx	N	214.4	187.5	-534.9	122.1	-	-	-	-
Lower Neck Fy	N	25.7	59.3	-167.3	116.6	-	-	-	-
Lower Neck Fz	N	1132.4	101.3	-366.3	53.6	-	-	-	-
Lower Neck F Resultant	N	1230.8	101.3	0.7	-41.0	-	-	-	-
Lower Neck Mx	N-m	11.6	90.0	-6.5	247.7	-	-	-	-
Lower Neck My	N-m	83.8	125.8	-11.8	187.4	-	-	-	-
Lower Neck Mz	N-m	10.4	90.0	-1.0	299.4	-	-	-	-
Lower Neck M Resultant	N-m	83.8	125.8	0.1	-30.4	-	-	-	-
Chest X	g	*	*	*	*	4.8	290.9	-35.0	62.7
Chest Y	g	5.1	88.5	-3.7	198.4	7.4	83.7	-3.2	59.3
Chest Z	g	20.8	190.6	-19.9	69.4	6.3	222.3	-19.8	68.6
Chest Resultant	g	*	*	*	*	39.3	68.4	0.1	-22.5
Chest Displacement	g	0.1	25.9	-17.3	129.6	*	*	*	*

* Data is questionable

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES (CONTINUED)

CRS: Evenflo Vangaurd V forward facing LATCH and Graco My CarGo Highback Booster

NHTSA No. M35306

		MAXIMUM VALUE							
		Position #3				Position #4			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Pelvic X	g	9.5	161.3	-39.8	76.5	7.2	278.0	-45.2	82.9
Pelvic Y	g	4.0	205.1	-5.2	58.7	10.8	101.9	-7.7	59.2
Pelvic Z	g	27.8	190.4	-26.6	70.7	6.5	242.6	-26.7	68.7
Pelvic Resultant	g	46.6	76.4	0.1	10.4	50.0	82.9	0.0	207.7
Tether Belt Load	N	938.0	69.5	-86.7	291.7	-	-	-	-
Lap Belt Load	N	-	-	-	-	2116.7	67.2	-11.2	148.8

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES (CONTINUED)

CRS: Evenflo Vangaurd V forward facing LATCH and Graco My CarGo Highback Booster

NHTSA No. M35306

	HEAD INJURY CRITERIA (HIC)							
	HIC15				HIC36			
	HIC	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂	HIC	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #3 - Right	772.2	186.0	189.4	138.9 g	772.2	186.0	189.4	138.9 g
Position #4 - Left	593.9	81.1	96.1	69.0 g	1048.2	69.6	105.6	61.0 g

	CLIP SUMMARY*			
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #3 - Right	**	**	**	**
Position #4 - Left	39.0	66.4	69.4	349.6

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

**Chest X Sensor Damaged – Data is Not Accurate

Position 3 Neck Injury Summary (HIII 3 year old – In Position)

Nij V10	Nij	Time (ms)	Z Force (N)	X Force (N)	Y Moment (N-m)
Ntf	0.63	98.9	1448.5	523.9	1.0
Nte	0.73	107.2	1399.7	-546.5	-4.0
Ncf	0.14	53.5	-277.6	-58.9	0.3
Nce	0.59	191.2	-304.6	-238.0	-13.2

Peak Tension (CFC1000) 1463.2 N

Peak Compression (CFC1000) -352.7 N

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

Position 4 Neck Injury Summary (HIII 6 year old – In Position)

Nij V10	Nij	Time (ms)	Z Force (N)	X Force (N)	Y Moment (N-m)
Ntf	0.89	107.9	1630.8	-379.4	34.2
Nte	0.70	66.0	674.4	-502.9	-20.2
Ncf	0.01	24.3	-29.2	2.1	0.1
Nce	0.49	241.8	-112.0	-66.7	-18.8

Peak Tension (CFC1000) 2230.0 N

Peak Compression (CFC1000) -112.8 N

Critical Values

Nij Intercepts				Peak Limits	
Tension (CVt)	3096 N	Extension (mCVe)	42 N-m	Tension	1890 N
Compression (CVc)	2800 N	Flexion (mCVf)	93 N-m	Compression	-1820 N

Condyle Offset -0.01778

DATA SHEET NO. 5

CRS PERFORMANCE DATA

CRS: Evenflo Vangaurd V forward facing LATCH and Graco My CarGo Highback Booster

NHTSA No. M35306

		MAXIMUM VALUE			
DESCRIPTION	Unit	Positive	Time (ms)	Negative	Time (ms)
P3 CRS X	g	*	*	*	*
P4 CRS X	g	*	*	*	*

*Not Used

DATA SHEET NO. 5

CRS PERFORMANCE DATA (CONTINUED)

CRS: Evenflo Vangaurd V forward facing LATCH and Graco My CarGo Highback Booster

NHTSA No. M35306

POSITION #3 CRS POST-TEST INSPECTION (Serial No. 3691261 P1)

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

POSITION #4 CRS POST-TEST INSPECTION (Serial No. 8481CHL)

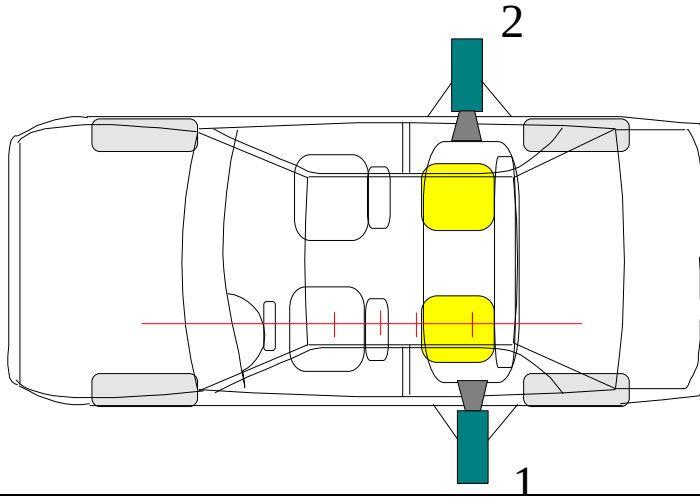
LOCATION	DAMAGE	REMARKS
Upper Tether Strap	NA	NA
Upper Tether Buckle	NA	NA
Upper Tether Hook	NA	NA
Vehicle Upper Tether Anchor	NA	NA
Lower Anchor Strap	NA	NA
Lower Anchor Buckle	NA	NA
Lower Anchor Hooks	NA	NA
Vehicle Lower CRS Anchors	NA	NA
Five Point Harness Connections	NA	NA
Cracks on CRS	No	None
Fabric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

DATA SHEET NO. 6

CRS CAMERA DATA

CRS: Evenflo Vangaurd V forward facing LATCH and Graco My CarGo Highback Booster

NHTSA No. M35306



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Left side CRS lateral view	3658	2693	2553	-29	13	1030
2	Right side CRS lateral view	3642	2642	2568	-32	13	1030

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

X = + Forward

Y = + To Right

Z = + Down

SECTION 3

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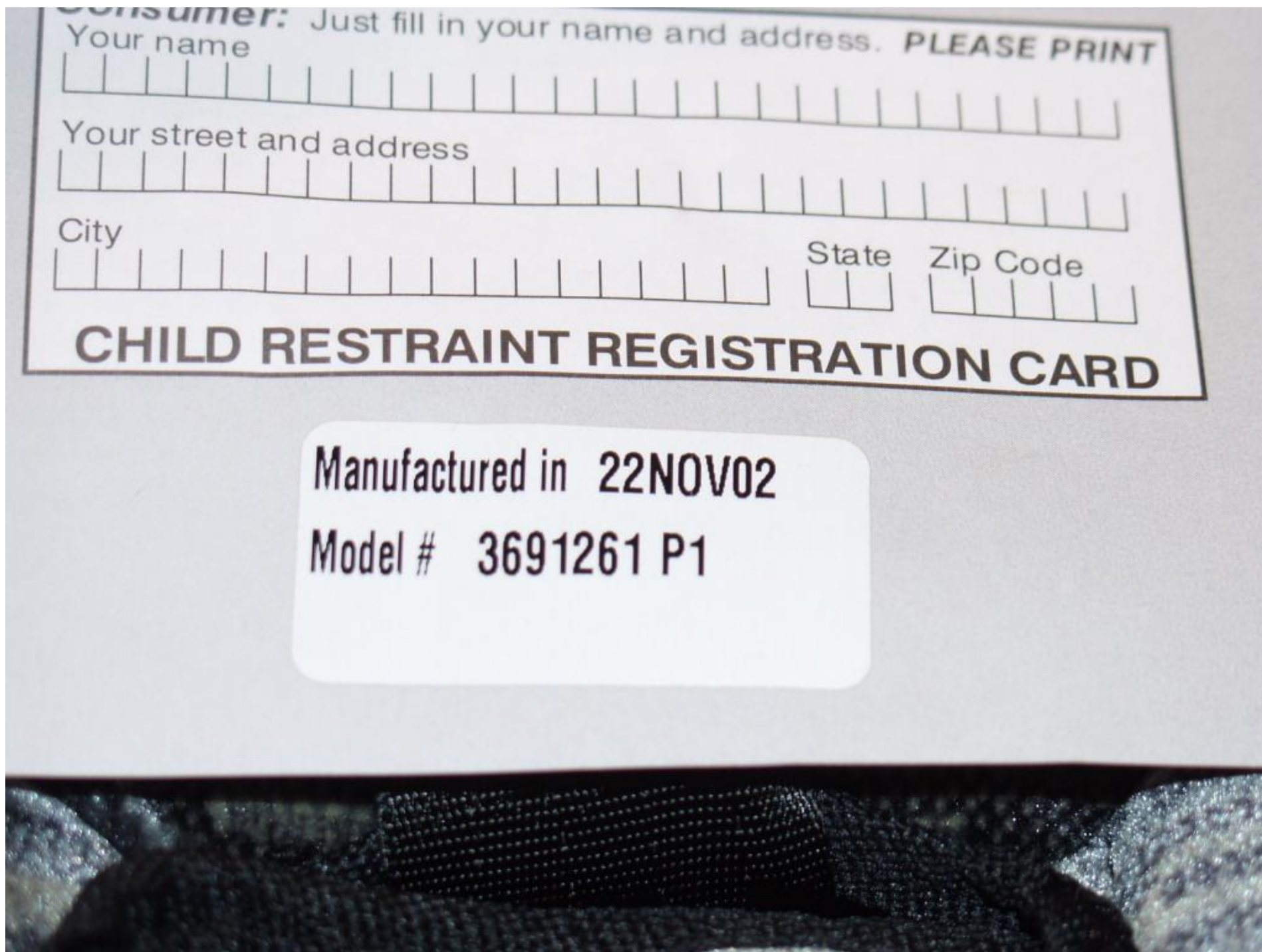


Figure 3-1 CLOSE-UP VIEW OF POSITION 3 CRS LABEL



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



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

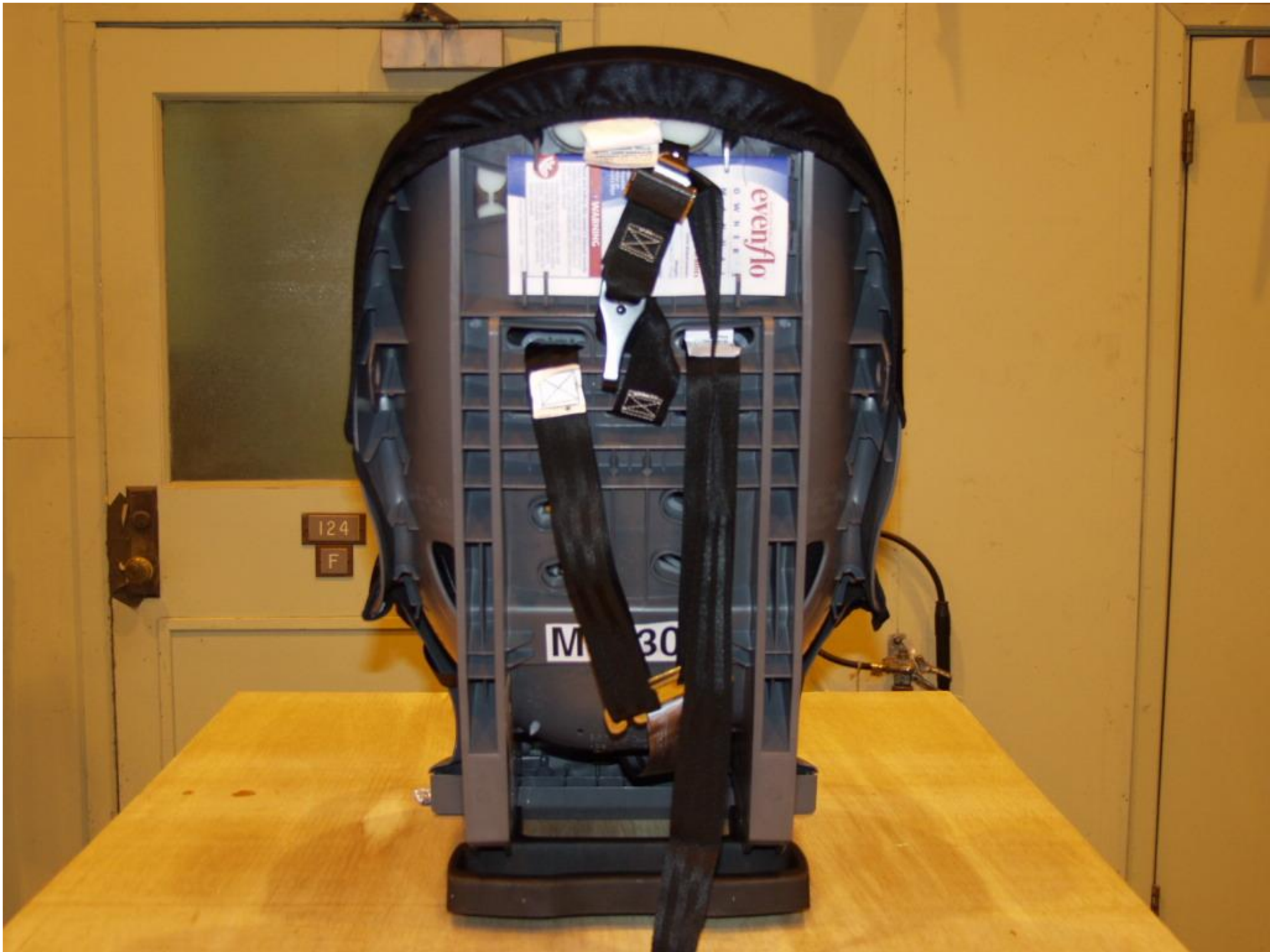


Figure 3-4 PRE-TEST REAR VIEW OF POSITION 3 CRS



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



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



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



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



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

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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



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



Figure 3-27 PRE-TEST POSITION 3 FRONT VIEW



Figure 3-28 POST-TEST POSITION 3 FRONT VIEW



Figure 3-29 PRE-TEST POSITION 4 FRONT VIEW



Figure 3-30 POST-TEST POSITION 4 FRONT VIEW

SECTION 4

CHILD DUMMY RESPONSE AND CRS DATA TRACES

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4	V1P3 Head Resultant [g, CFC_1000]	4-7
5	V1P3 Head Red z [g, CFC_1000]	4-8
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9	V1P3 Upper Neck F Resultant [N, CFC_1000]	4-12
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11	V1P3 Upper Neck My [N-m, CFC_600]	4-14
12	V1P3 Upper Neck Mz [N-m, CFC_600]	4-15
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15	V1P3 Lower Neck Fy [N, CFC_1000]	4-18
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17	V1P3 Lower Neck F Resultant [N, CFC_1000]	4-20
18	V1P3 Lower Neck Mx [N-m, CFC_600]	4-21
19	V1P3 Lower Neck My [N-m, CFC_600]	4-22
20	V1P3 Lower Neck Mz [N-m, CFC_600]	4-23
21	V1P3 Lower Neck M Resultant [N-m, CFC_600]	4-24
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23	V1P3 Chest y [g, CFC_180]	4-26
24	V1P3 Chest z [g, CFC_180]	4-27
25	V1P3 Chest Resultant [g, CFC_180]	4-28
26	V1P3 Chest Compression [mm, CFC_600]	4-29
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28	V1P3 Pelvic y [g, CFC_1000]	4-31
29	V1P3 Pelvic z [g, CFC_1000]	4-32
30	V1P3 Pelvic Resultant [g, CFC_1000]	4-33
31	V1P3 Tether Belt [N, CFC_60]	4-34
32	V1P4 Head x [g, CFC_1000]	4-35
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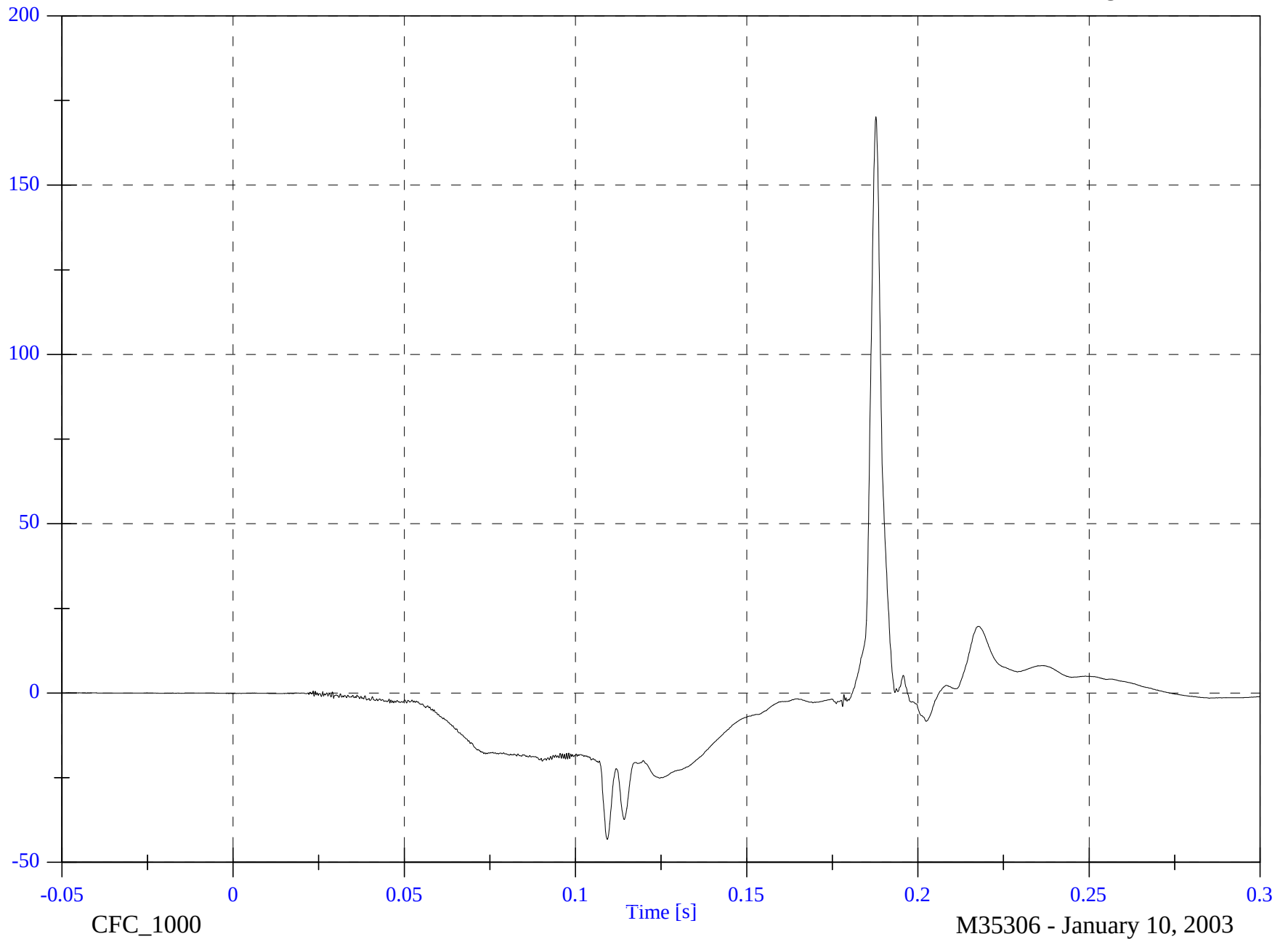
PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
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51	V1P4 Pelvic z [g, CFC_1000]	4-54
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53	V1P4 Lap Belt [N, CFC_60]	4-56

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Head x

Max: 170.2 [g] at 0.188 [s]

Min: -43.2 [g] at 0.109 [s]

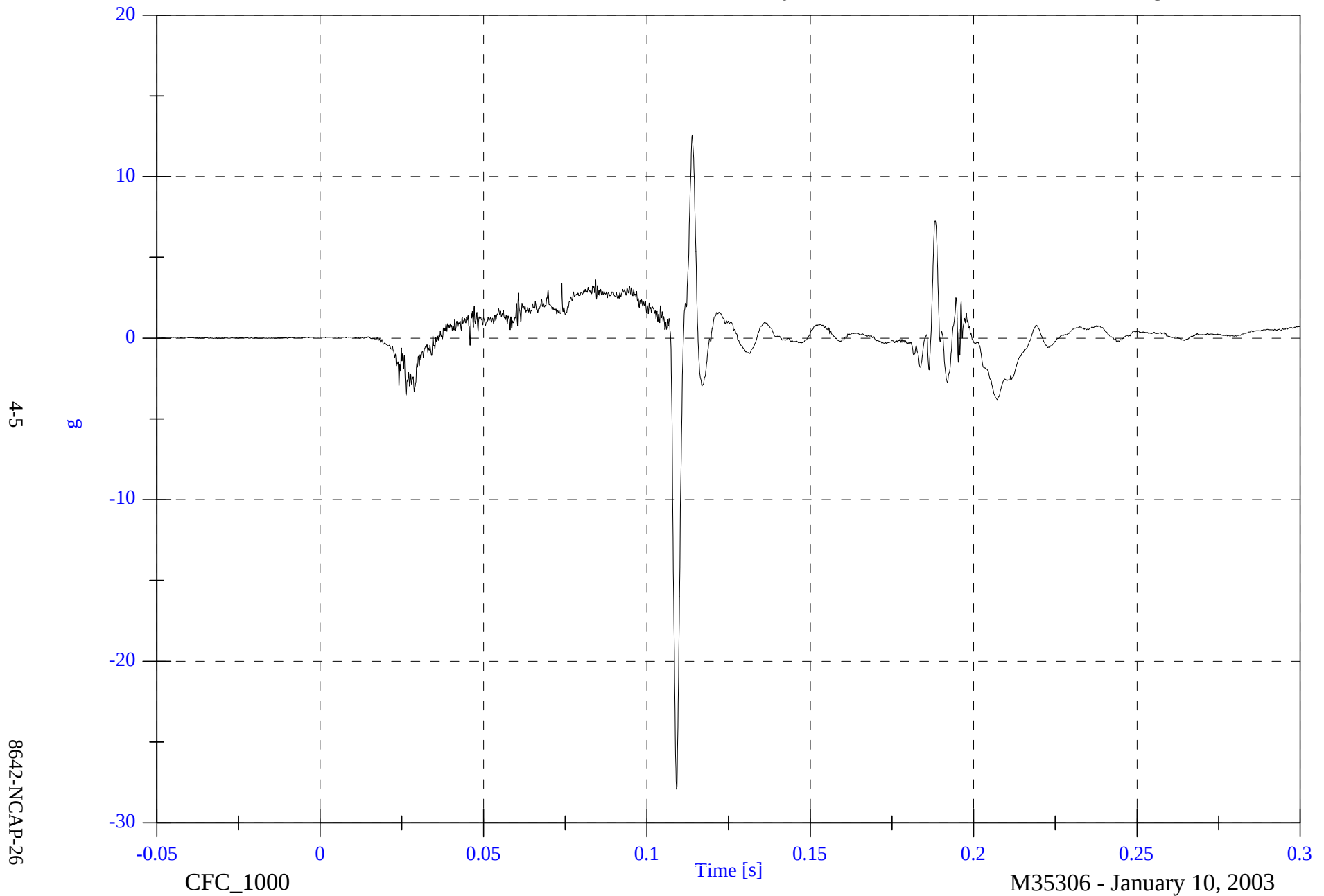


2003 NCAP Test #4 - 2003 Honda Odyssey

Max: 12.6 [g] at 0.114 [s]

Min: -27.9 [g] at 0.109 [s]

V1P3 Head y

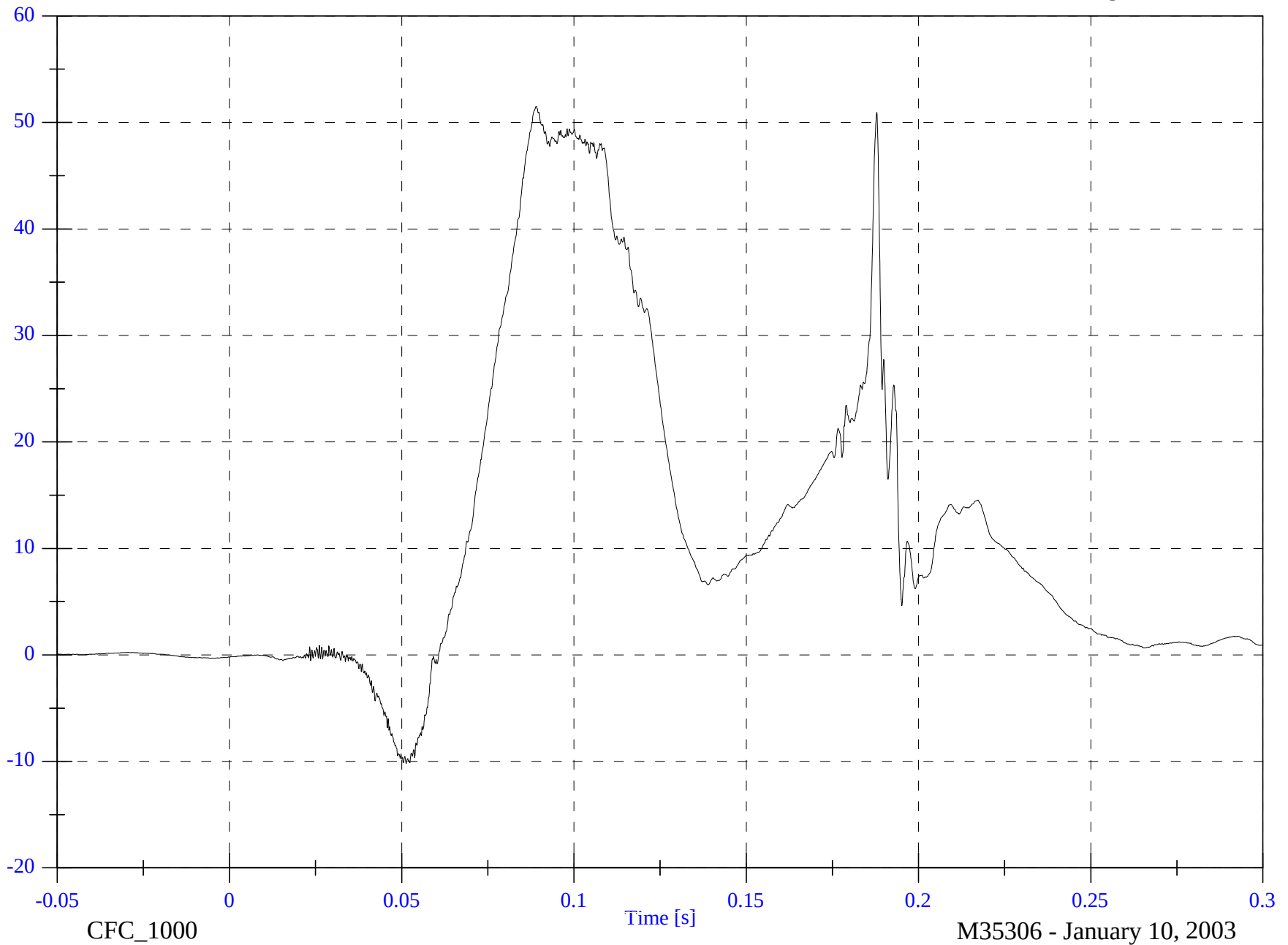


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Head z

Max: 51.5 [g] at 0.089 [s]

Min: -10.2 [g] at 0.051 [s]



4-6

8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

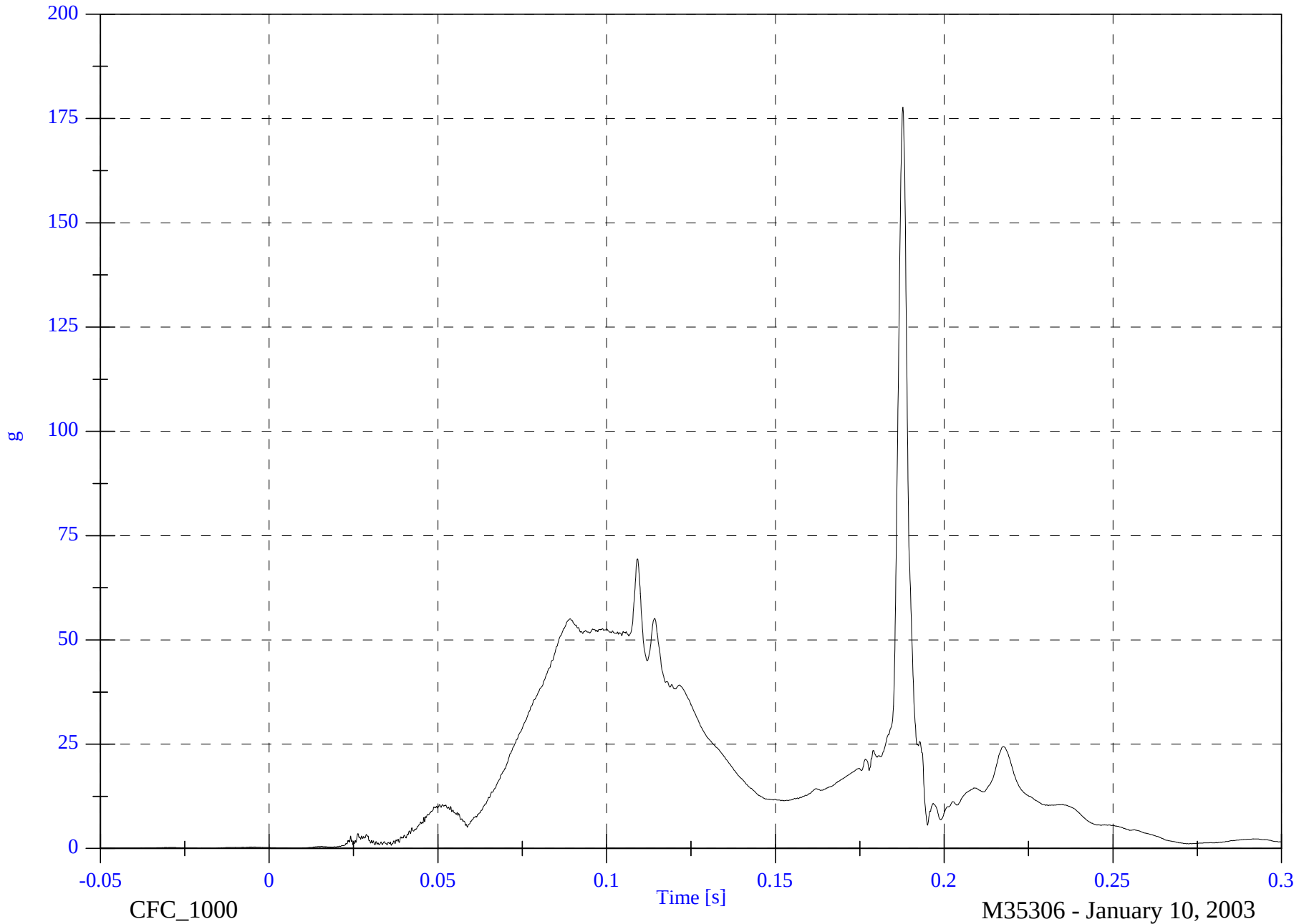
V1P3 Head Resultant

Max: 177.7 [g] at 0.188 [s]

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

4-7

8642-NCAP-26

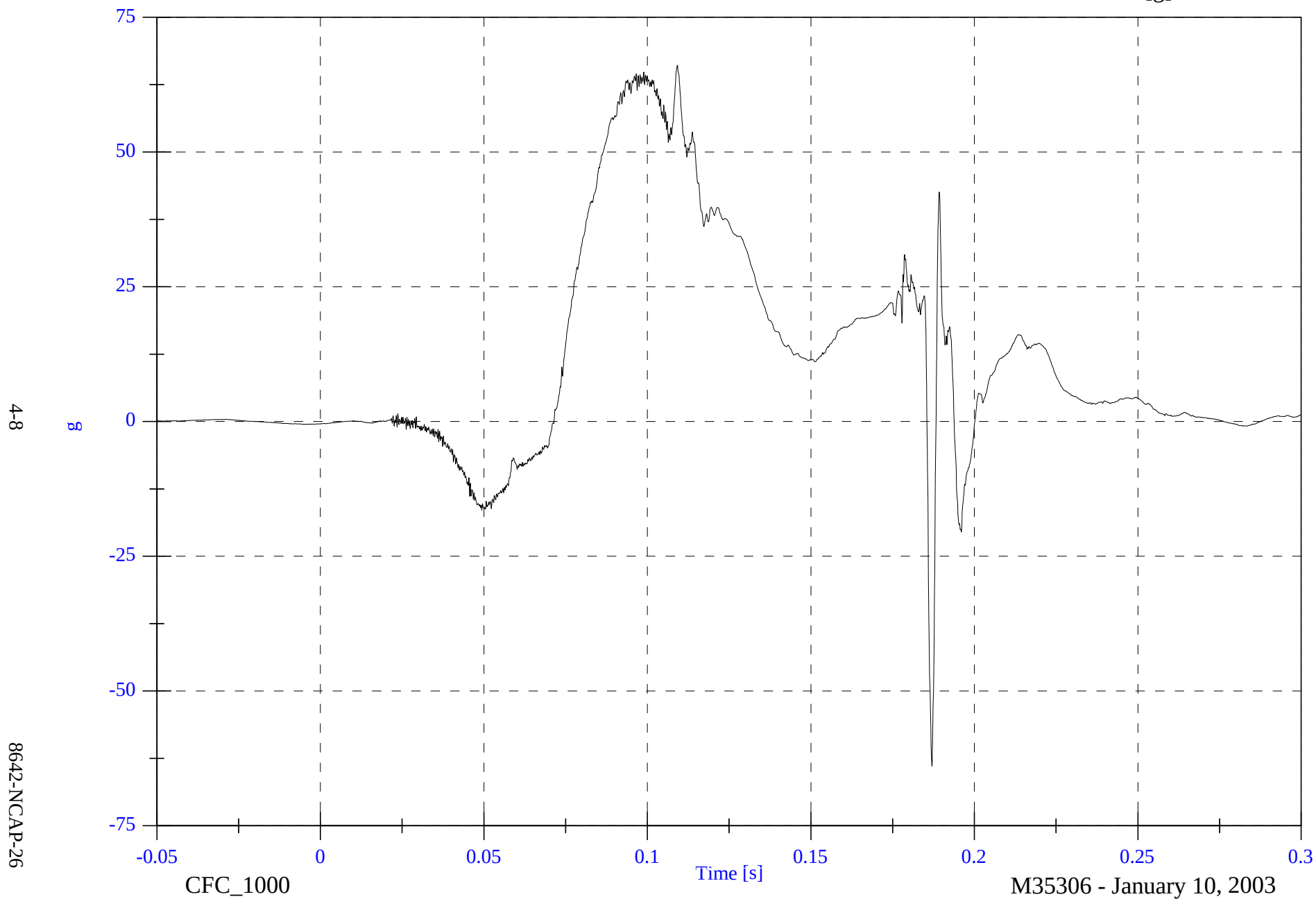


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Head Red z

Max: 66.1 [g] at 0.109 [s]

Min: -64.0 [g] at 0.187 [s]

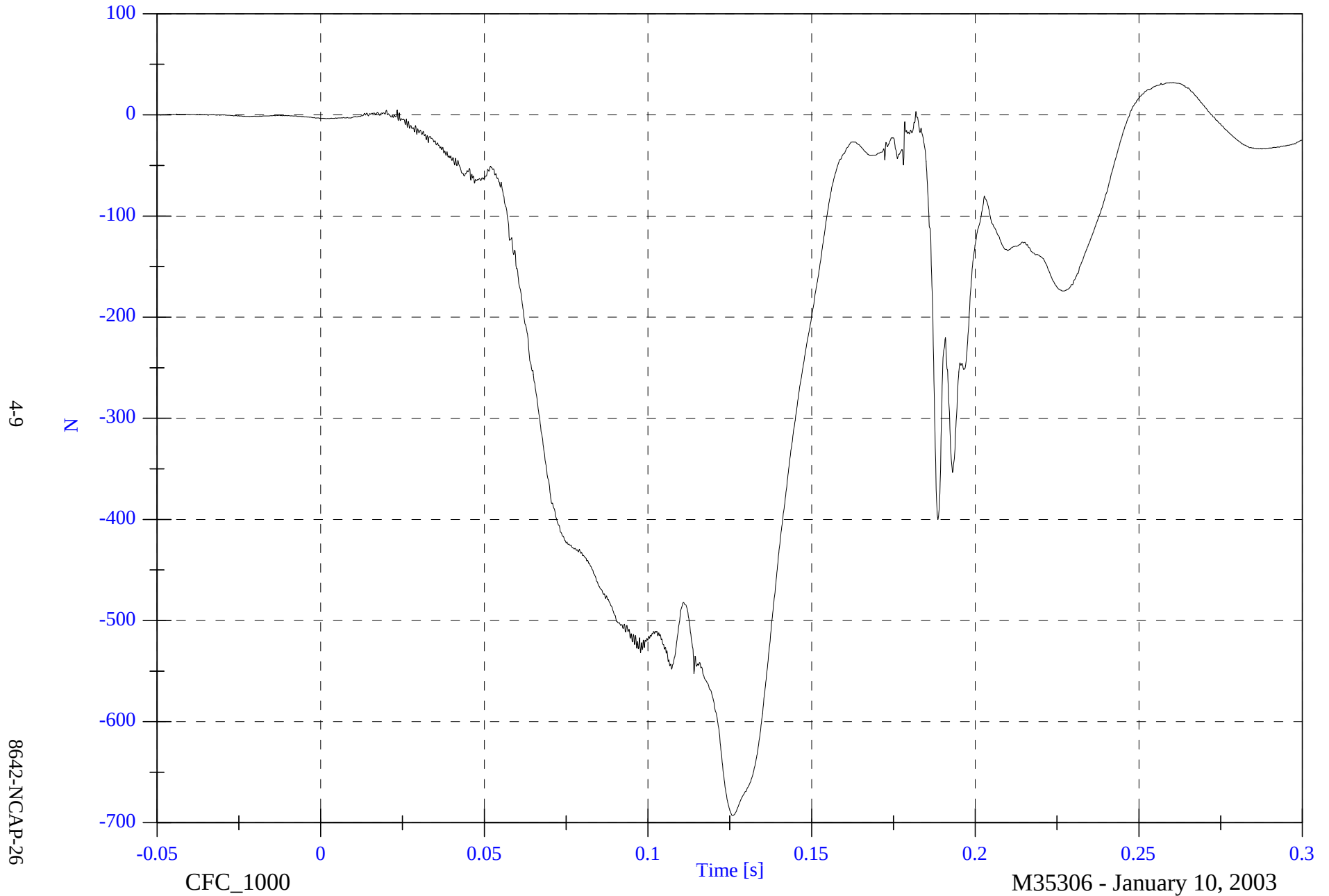


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Upper Neck Fx

Max: 31.9 [N] at 0.260 [s]

Min: -692.8 [N] at 0.126 [s]

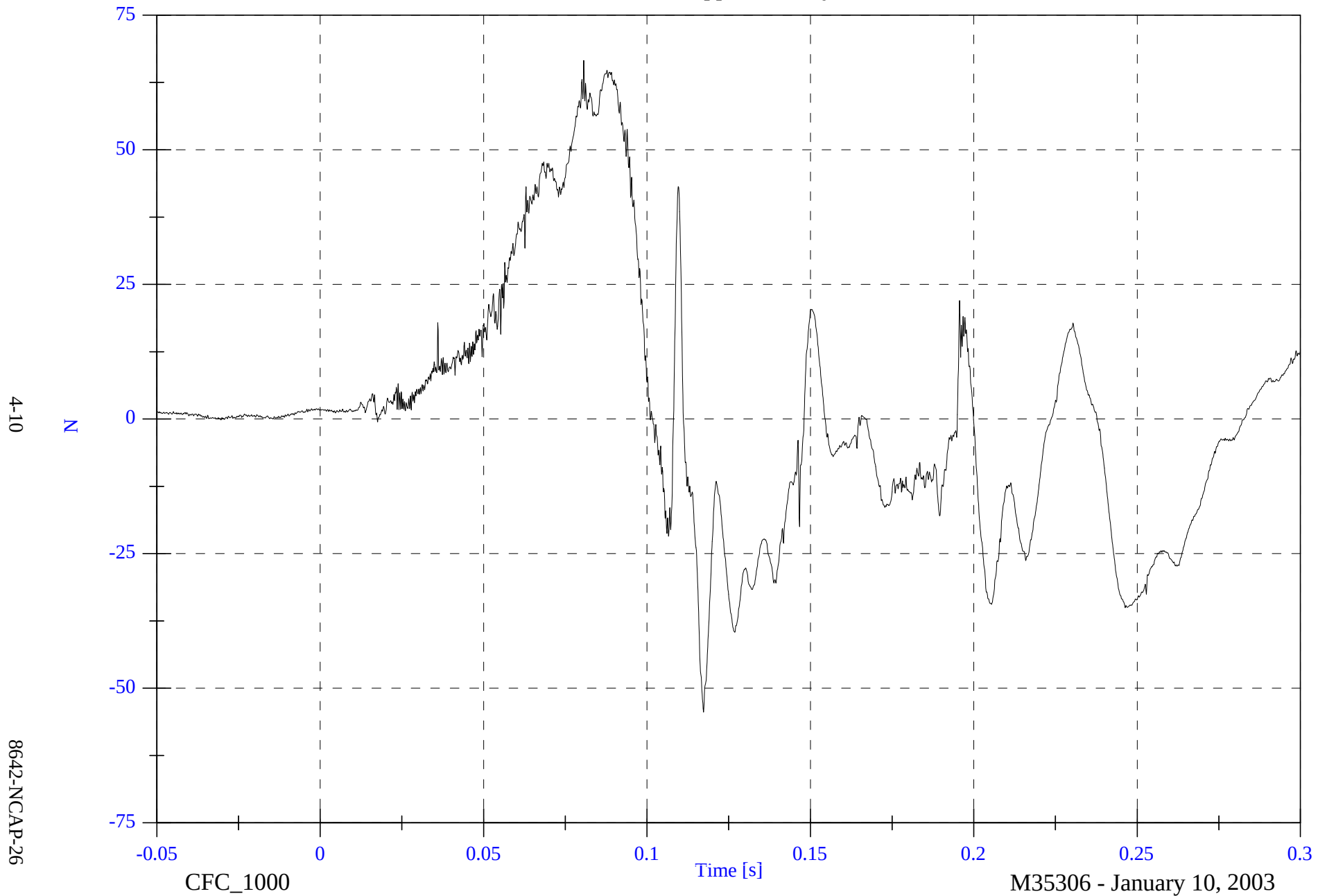


2003 NCAP Test #4 - 2003 Honda Odyssey

Max: 66.6 [N] at 0.081 [s]

Min: -54.4 [N] at 0.117 [s]

V1P3 Upper Neck Fy



8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

Max: 1463.2 [N] at 0.100 [s]

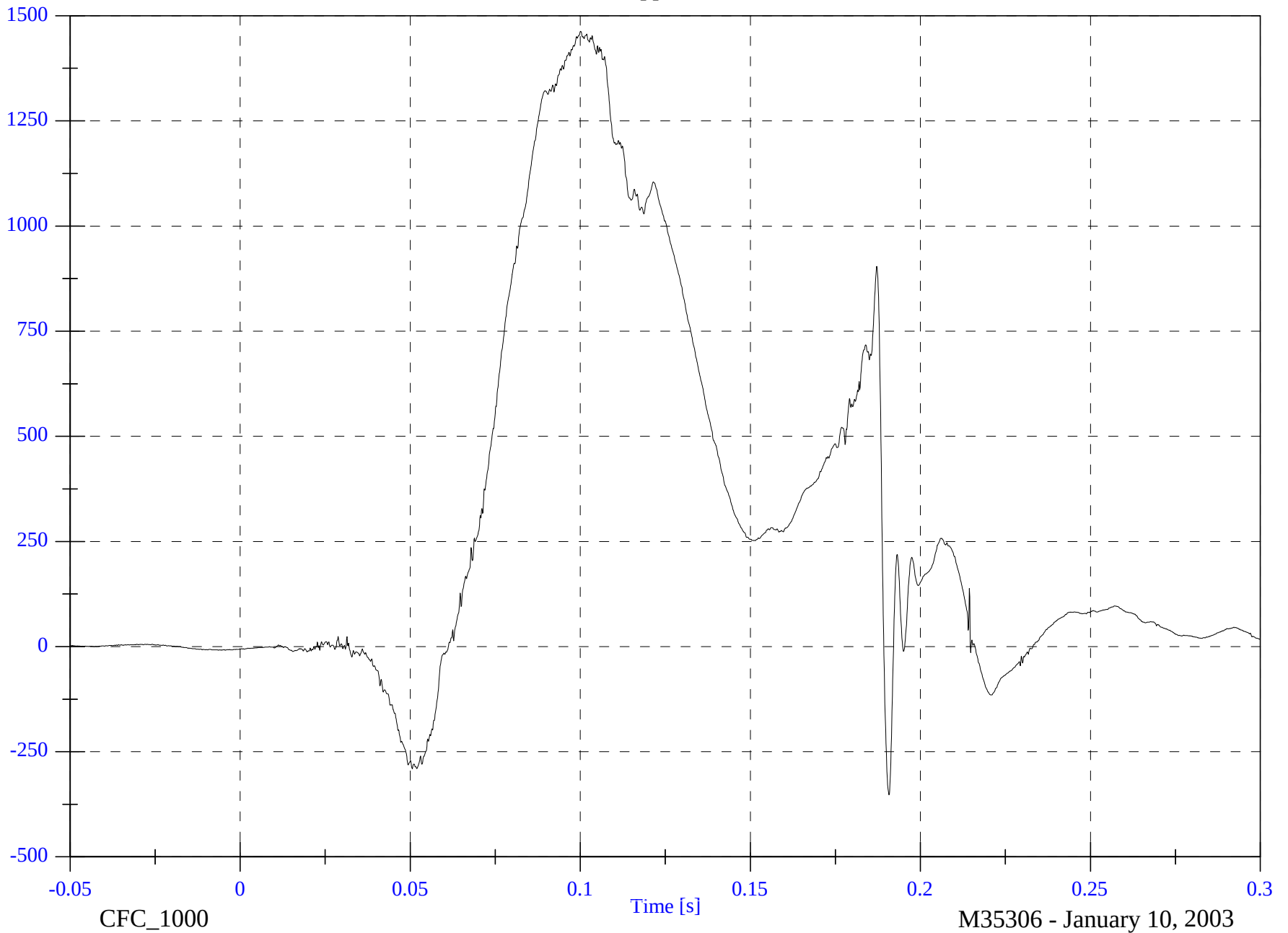
Min: -352.7 [N] at 0.191 [s]

V1P3 Upper Neck Fz

4-11

N

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

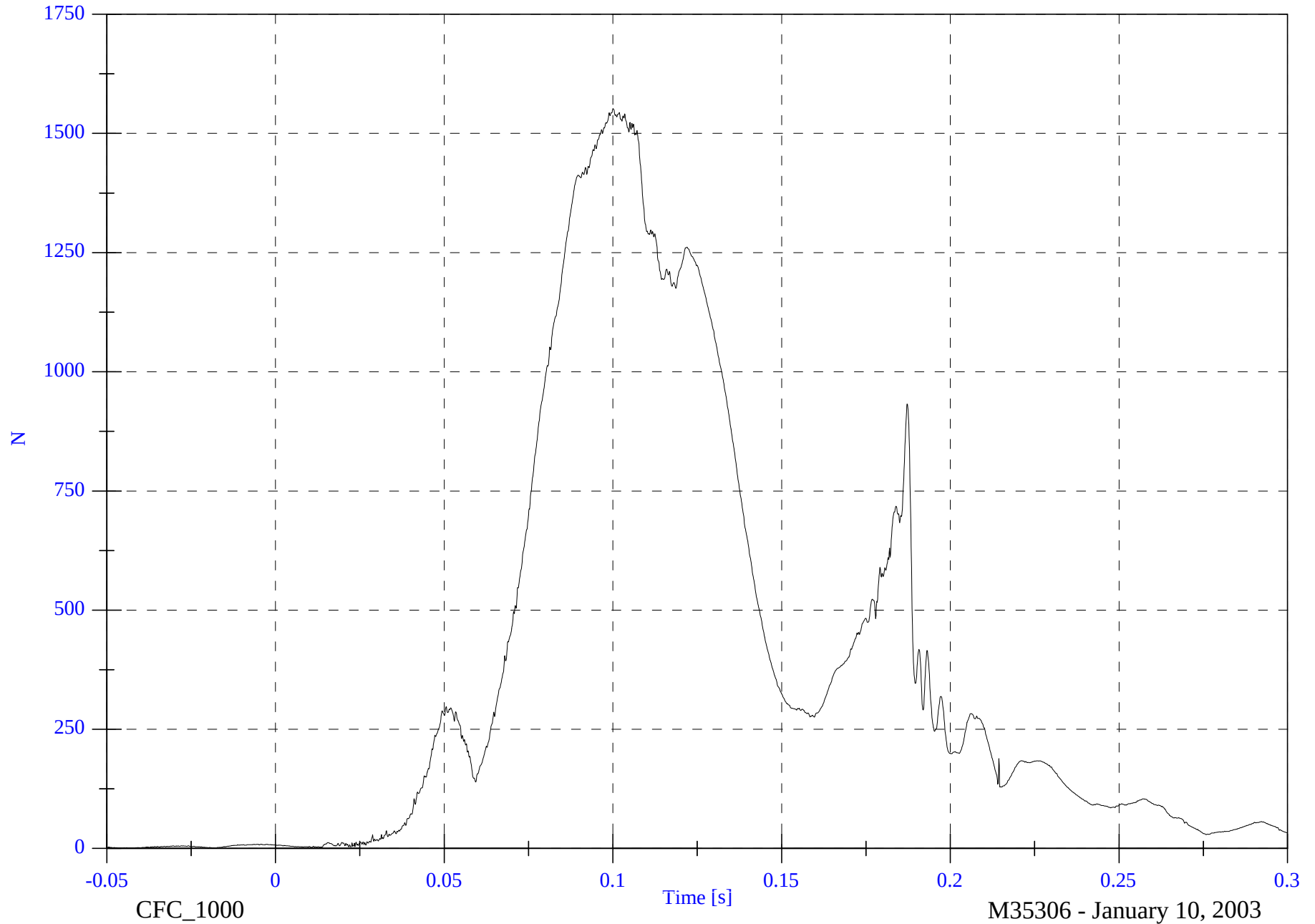
V1P3 Upper Neck F Resultant

Max: 1552.0 [N] at 0.100 [s]

Min: 1.0 [N] at -0.042 [s]

4-12

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Upper Neck Mx

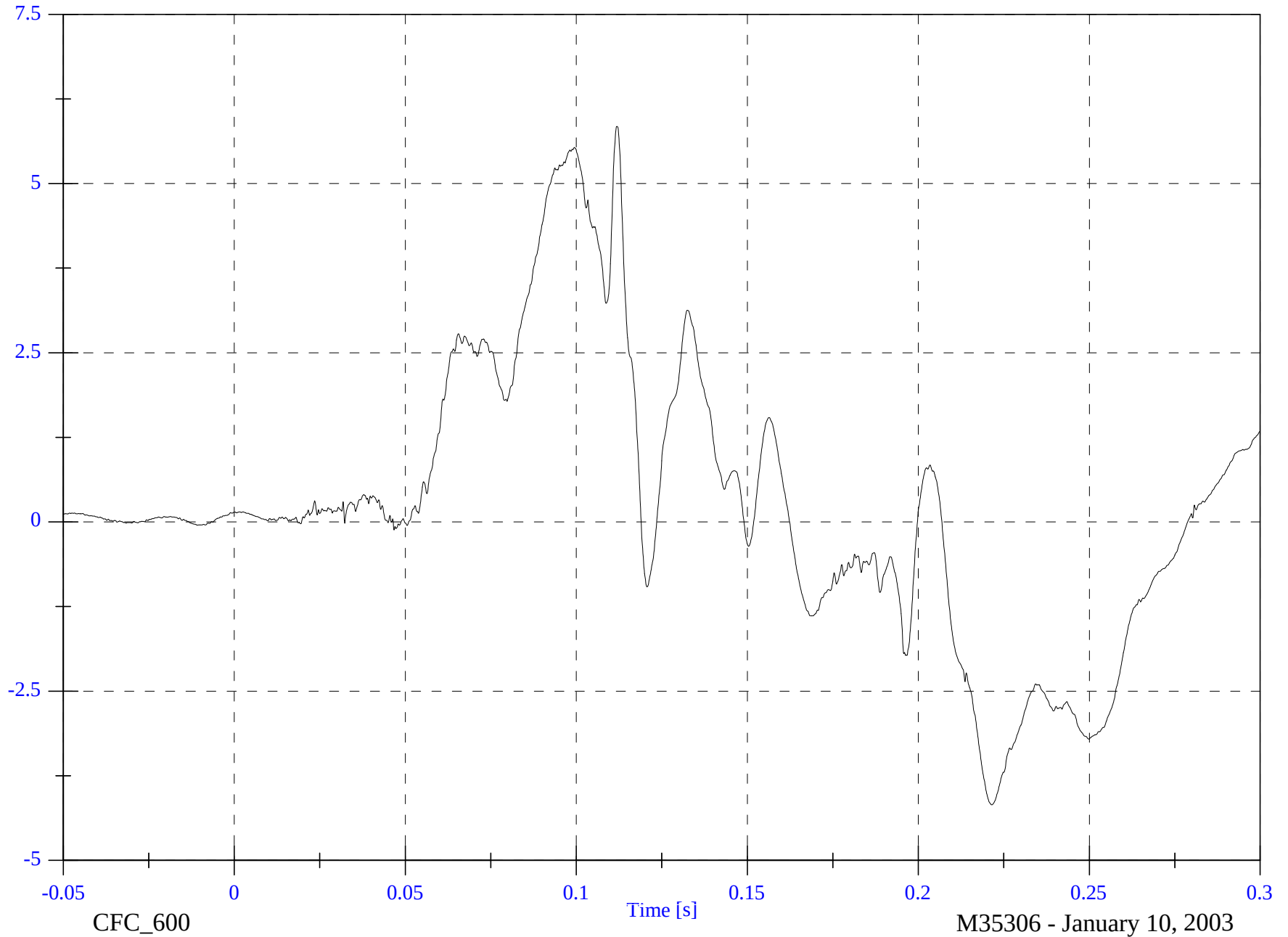
Max: 5.8 [N-m] at 0.112 [s]

Min: -4.2 [N-m] at 0.222 [s]

4-13

N-m

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Upper Neck My

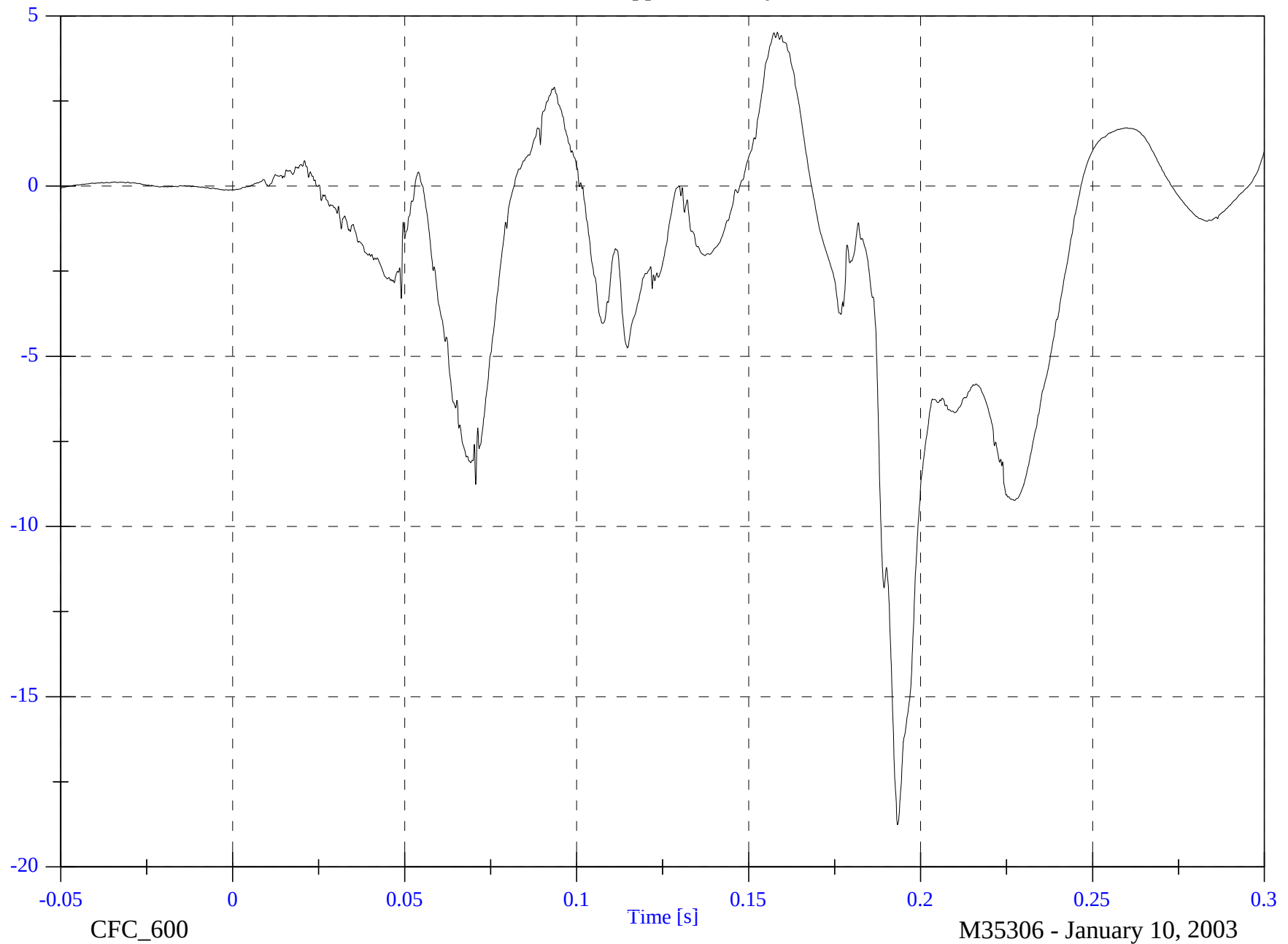
Max: 4.5 [N-m] at 0.158 [s]

Min: -18.8 [N-m] at 0.193 [s]

4-14

N-m

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Upper Neck Mz

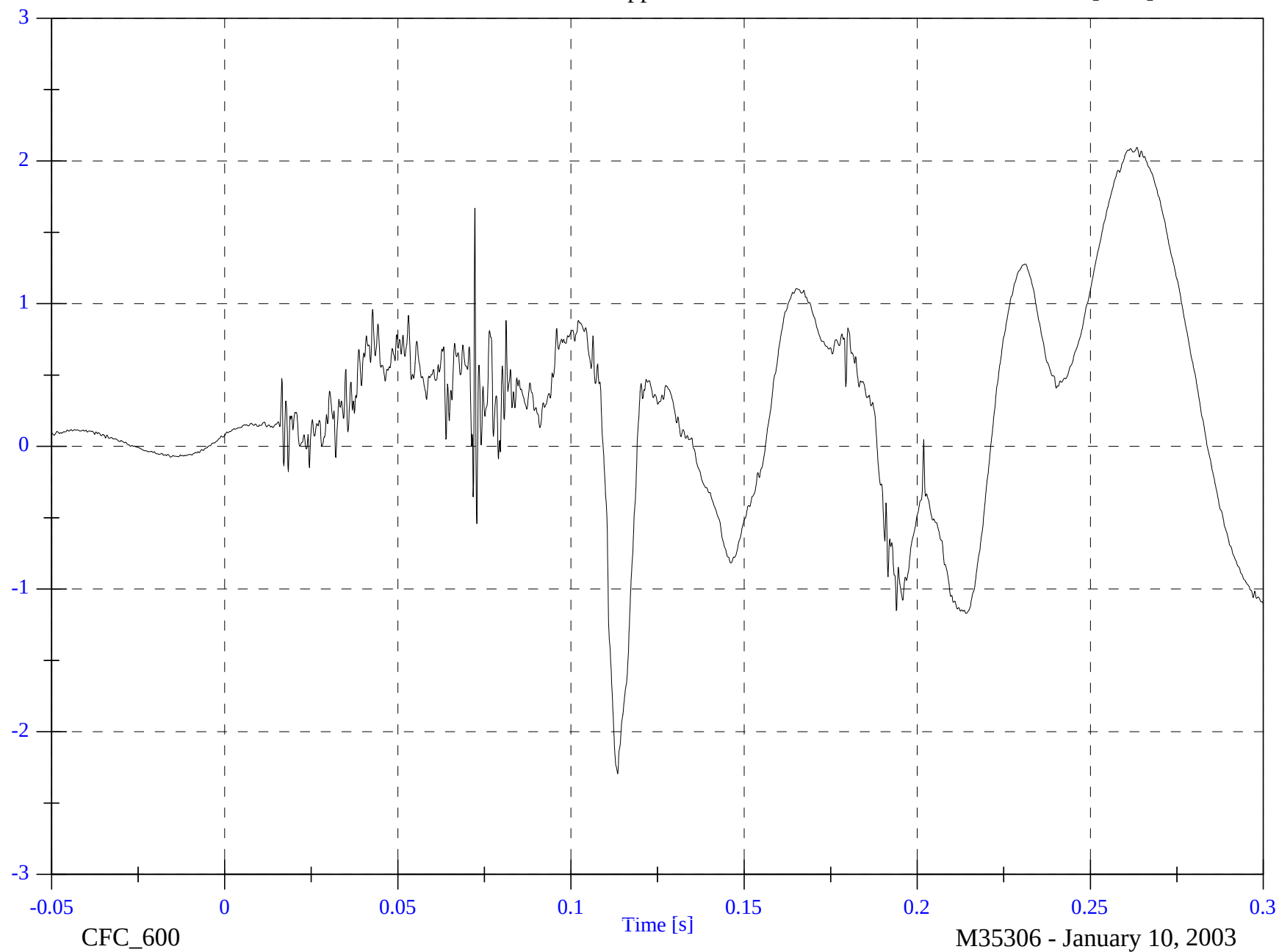
Max: 2.1 [N-m] at 0.264 [s]

Min: -2.3 [N-m] at 0.114 [s]

4-15

N-m

8642-NCAP-26

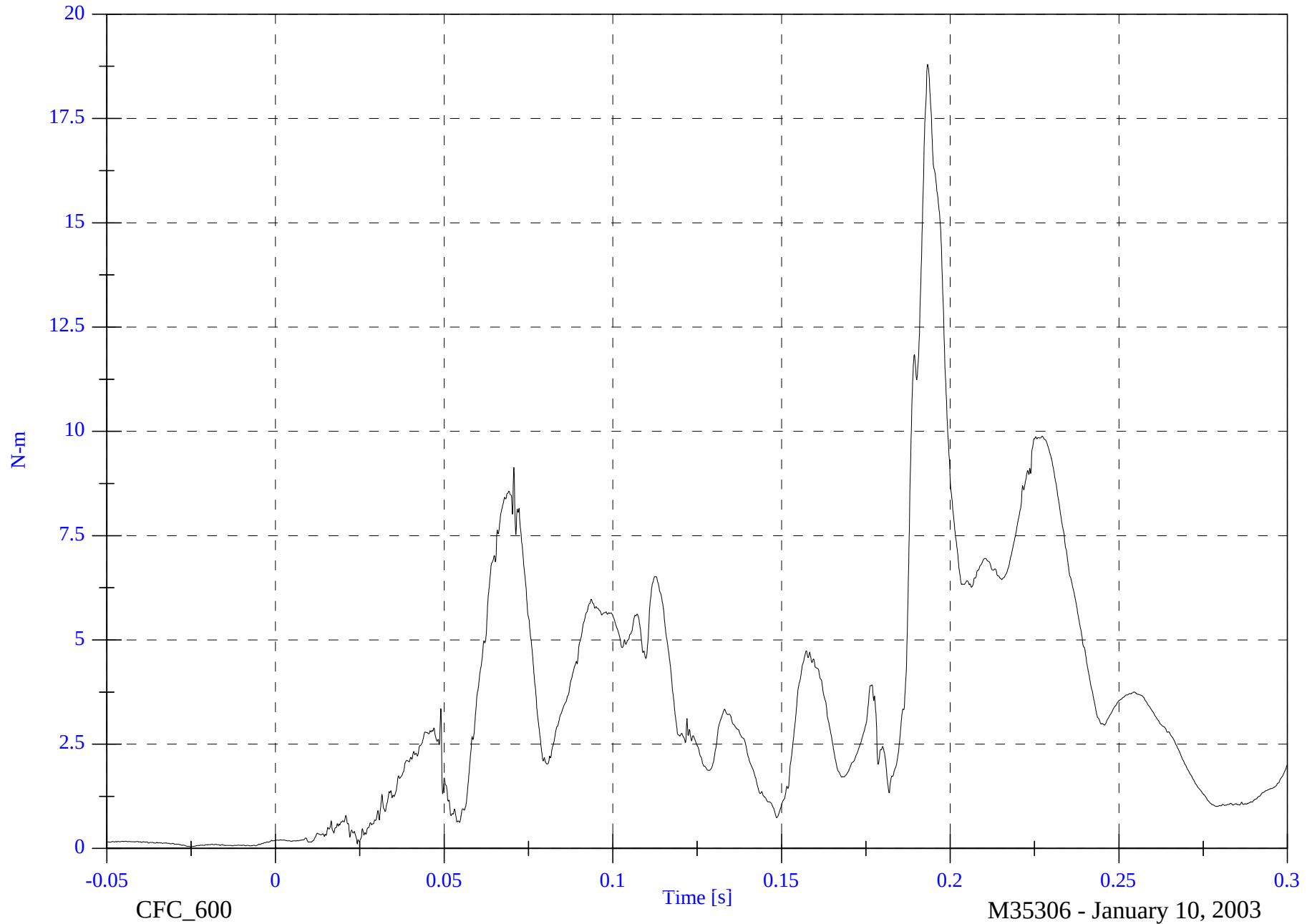


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Upper Neck M Resultant

Max: 18.8 [N-m] at 0.193 [s]

Min: 0.0 [N-m] at -0.025 [s]



4-16

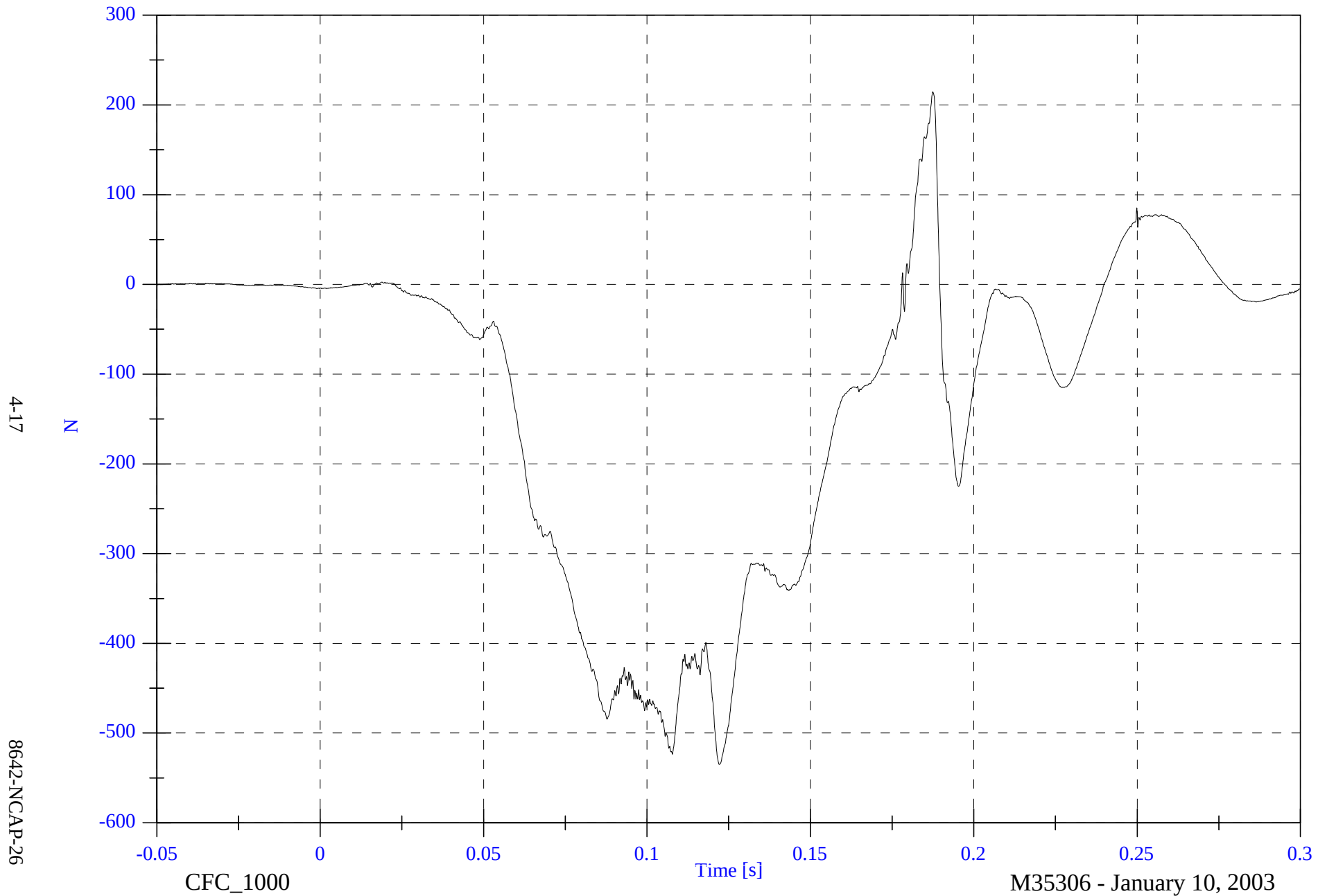
8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Lower Neck Fx

Max: 214.4 [N] at 0.187 [s]

Min: -534.9 [N] at 0.122 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Lower Neck Fy

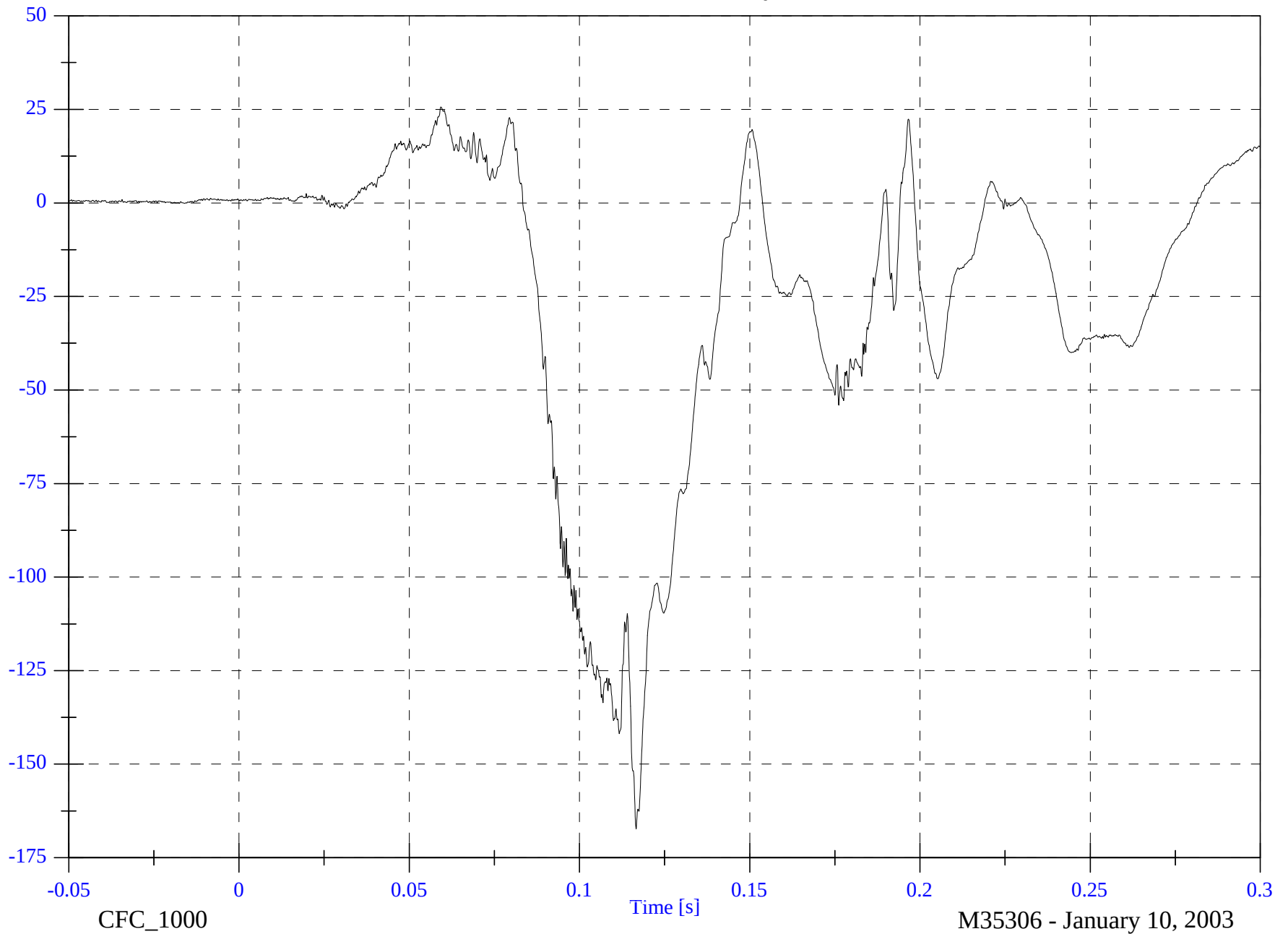
Max: 25.7 [N] at 0.059 [s]

Min: -167.3 [N] at 0.117 [s]

4-18

N

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Lower Neck Fz

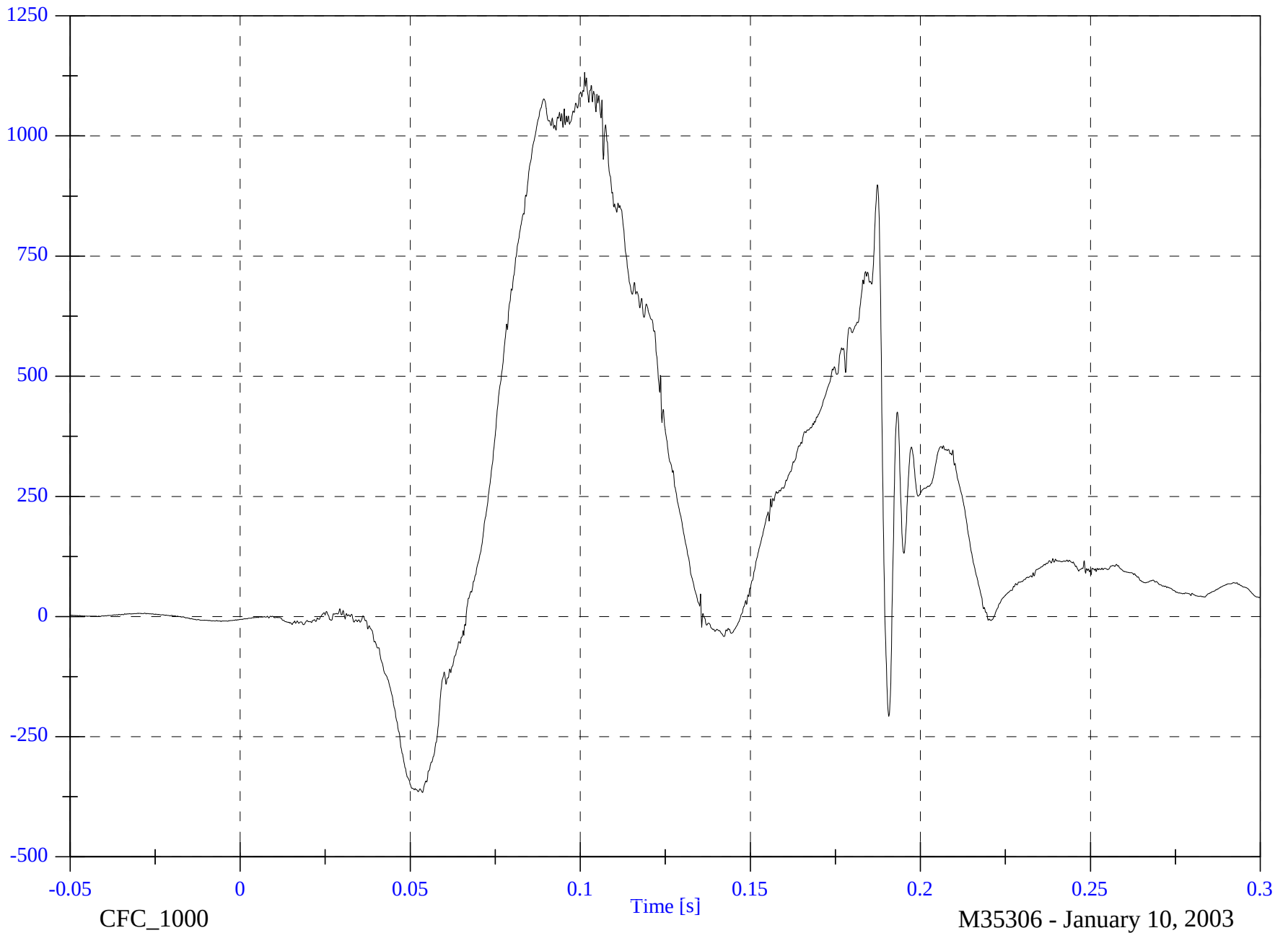
Max: 1132.4 [N] at 0.101 [s]

Min: -366.3 [N] at 0.054 [s]

4-19

N

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Lower Neck F Resultant

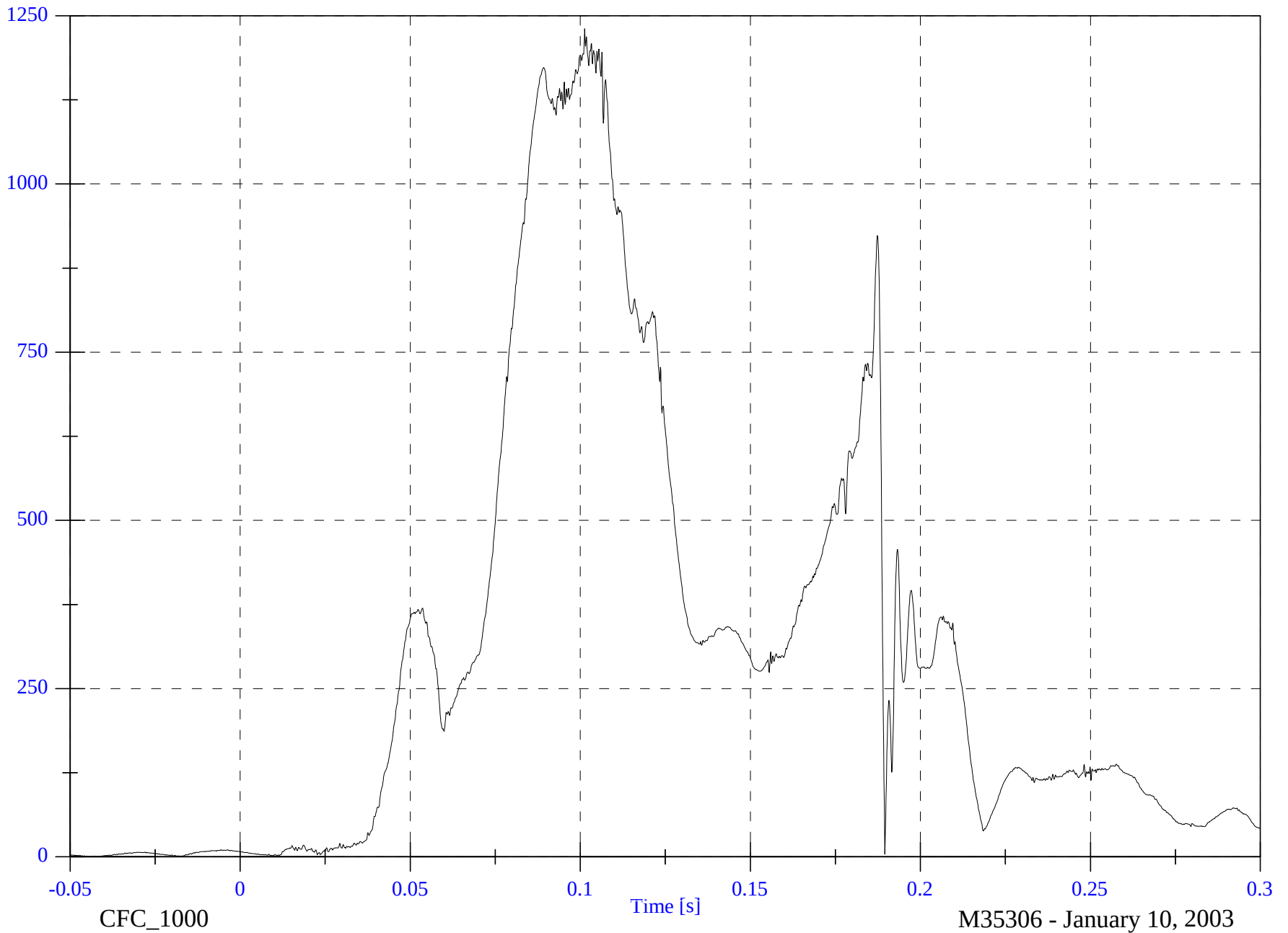
Max: 1230.8 [N] at 0.101 [s]

Min: 0.7 [N] at -0.041 [s]

4-20

N

8642-NCAP-26

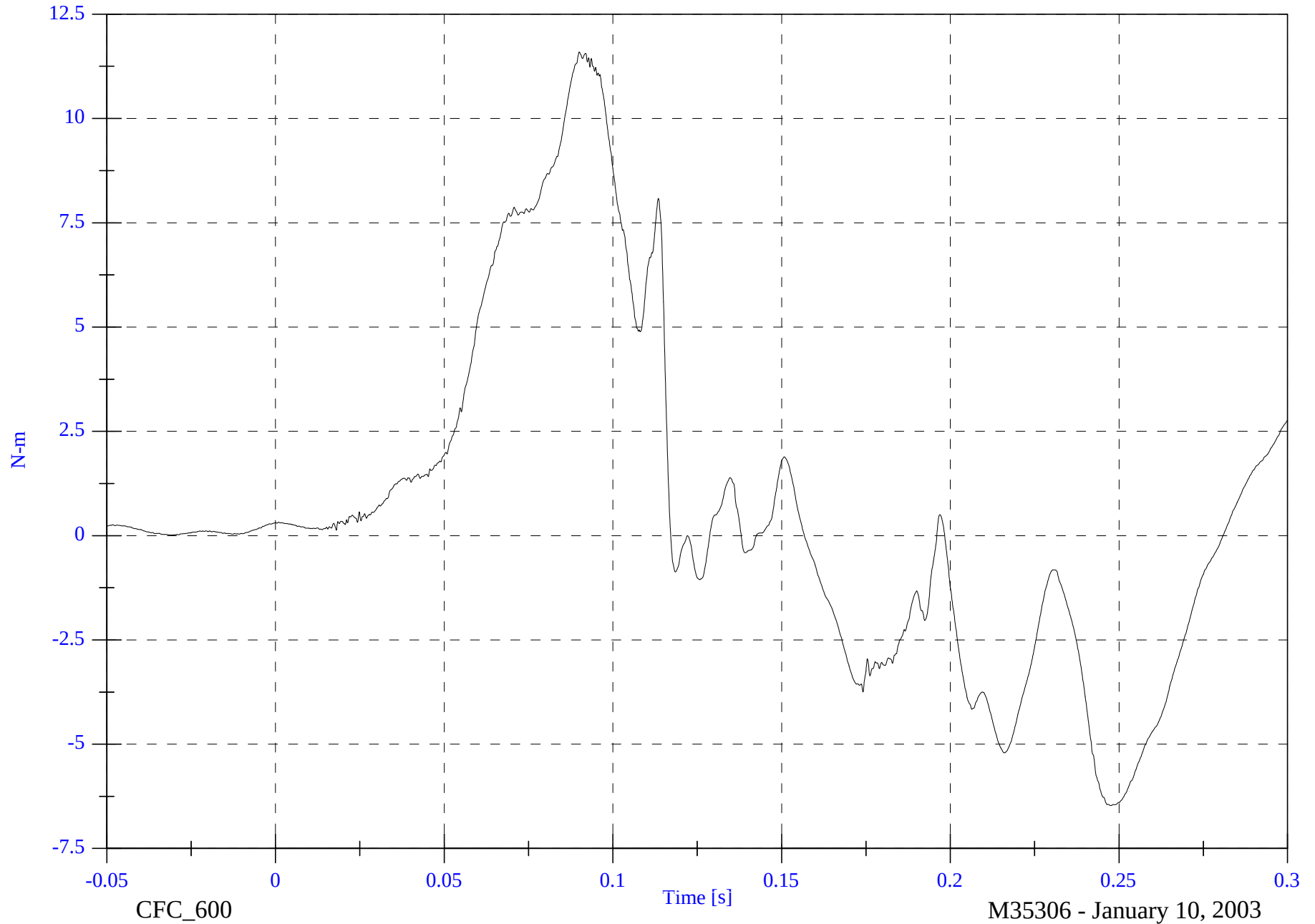


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Lower Neck Mx

Max: 11.6 [N-m] at 0.090 [s]

Min: -6.5 [N-m] at 0.248 [s]

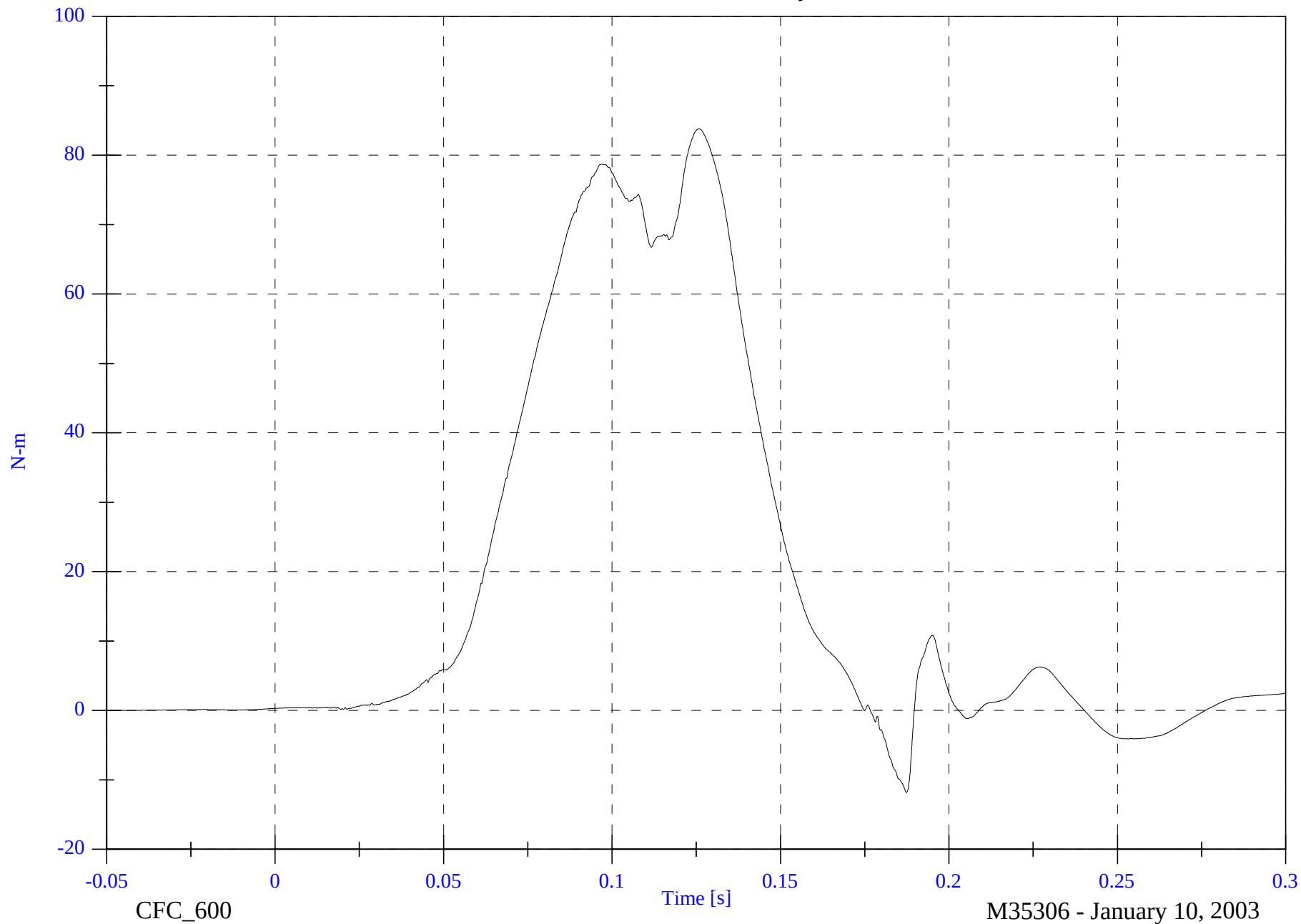


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Lower Neck My

Max: 83.8 [N-m] at 0.126 [s]

Min: -11.8 [N-m] at 0.187 [s]



4-22

8642-NCAP-26

CFC_600

Time [s]

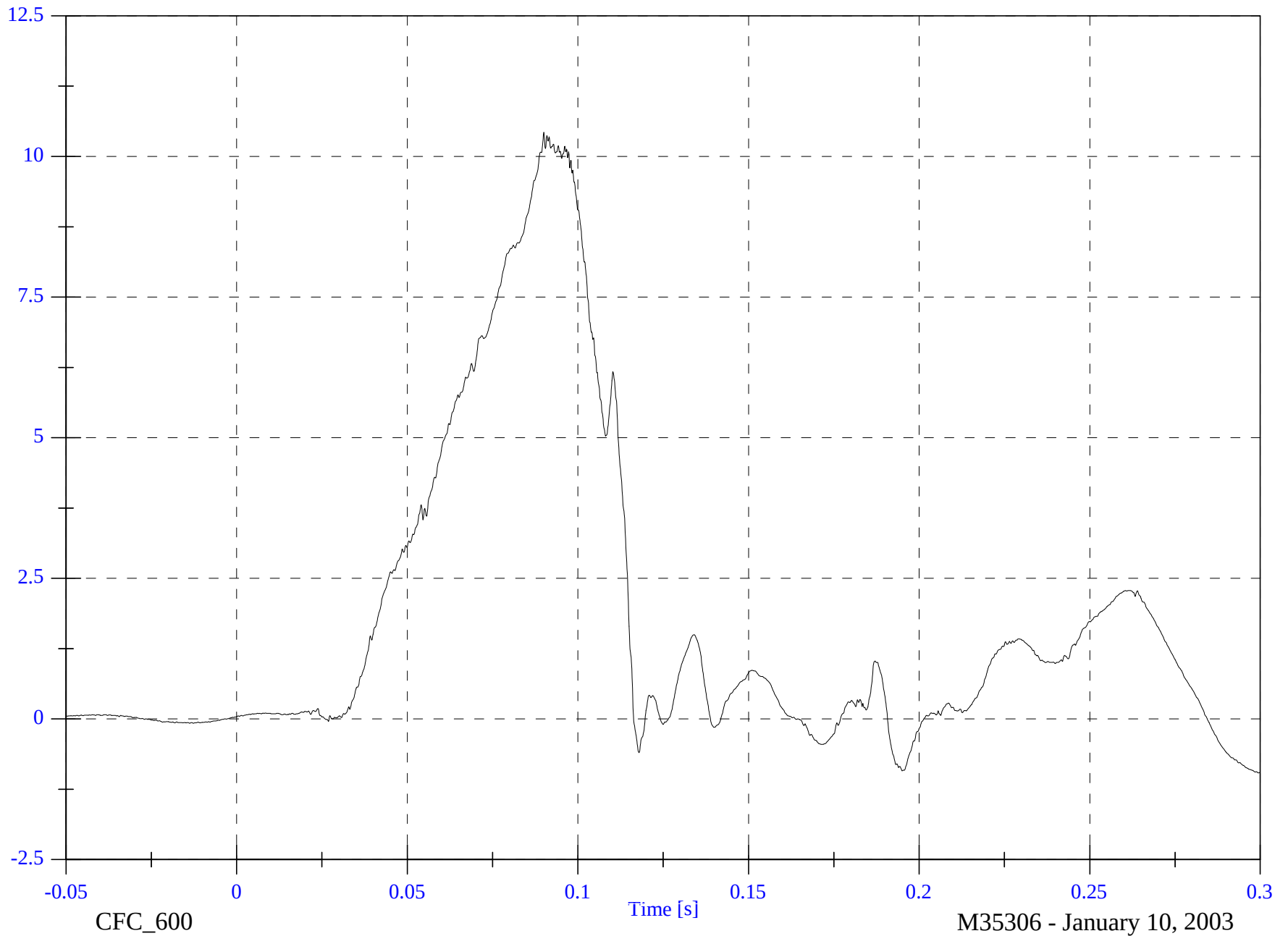
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Lower Neck Mz

Max: 10.4 [N-m] at 0.090 [s]

Min: -1.0 [N-m] at 0.299 [s]



4-23

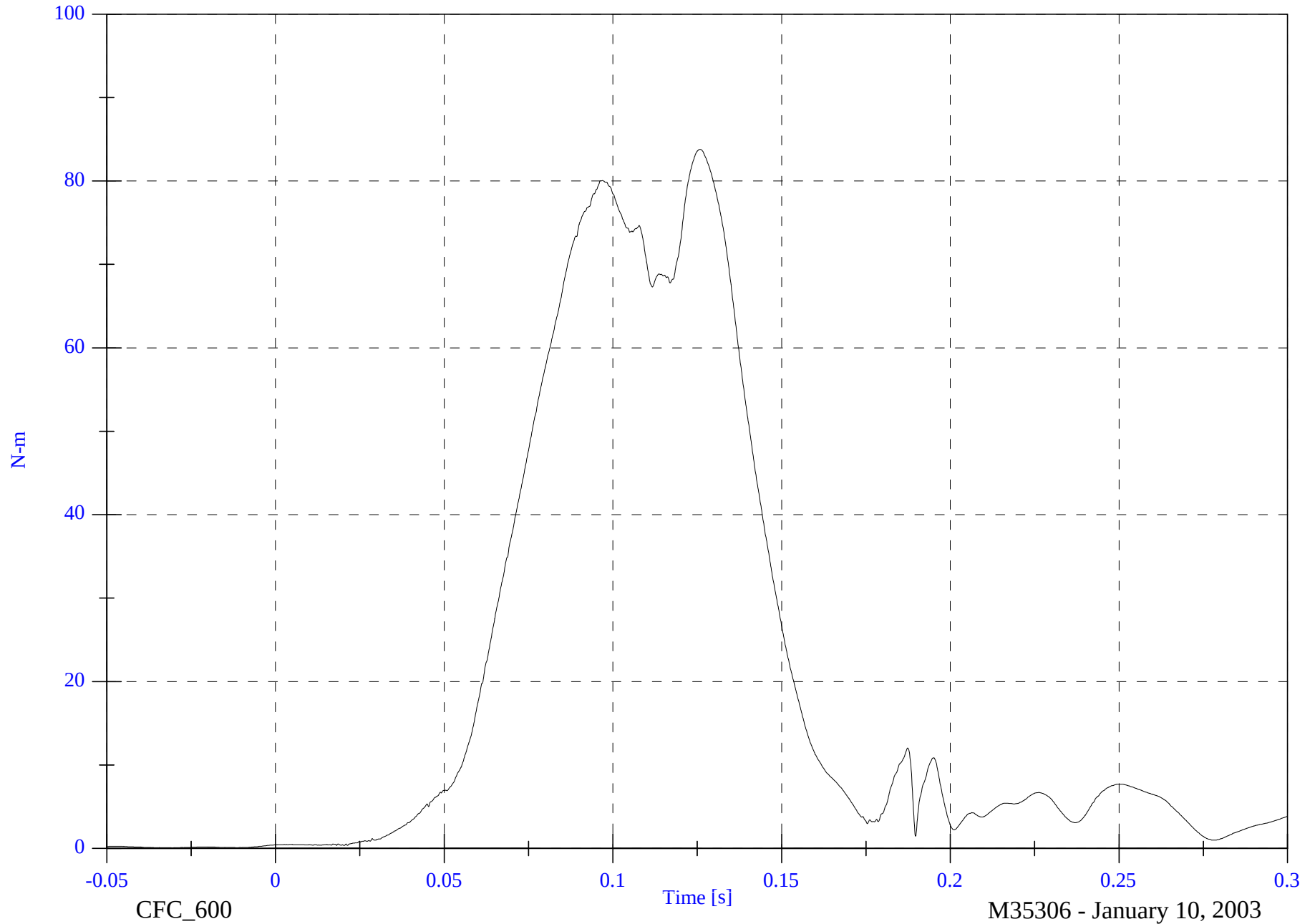
8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Lower Neck M Resultant

Max: 83.8 [N-m] at 0.126 [s]

Min: 0.1 [N-m] at -0.030 [s]

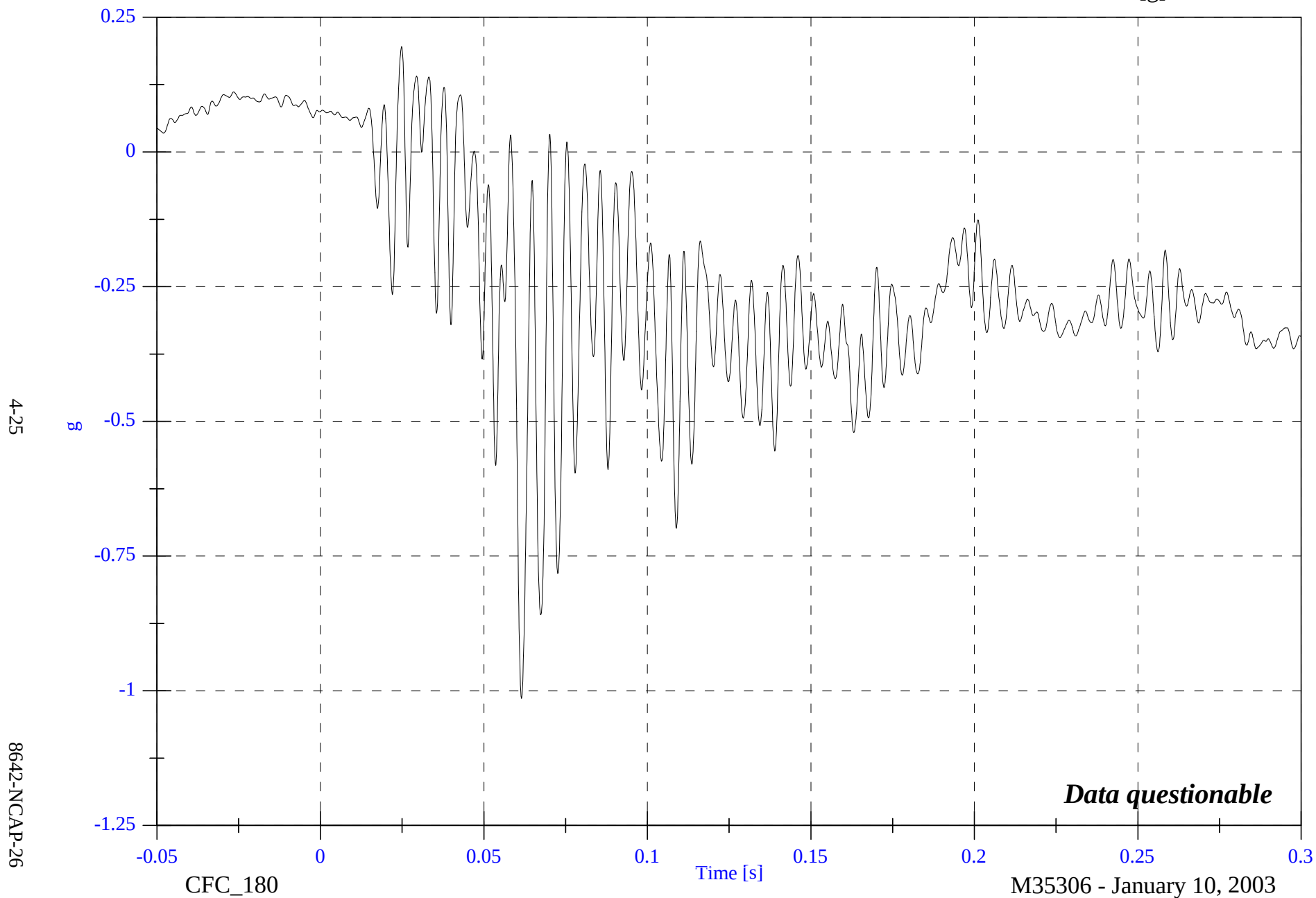


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Chest x

Max: 0.2 [g] at 0.025 [s]

Min: -1.0 [g] at 0.062 [s]

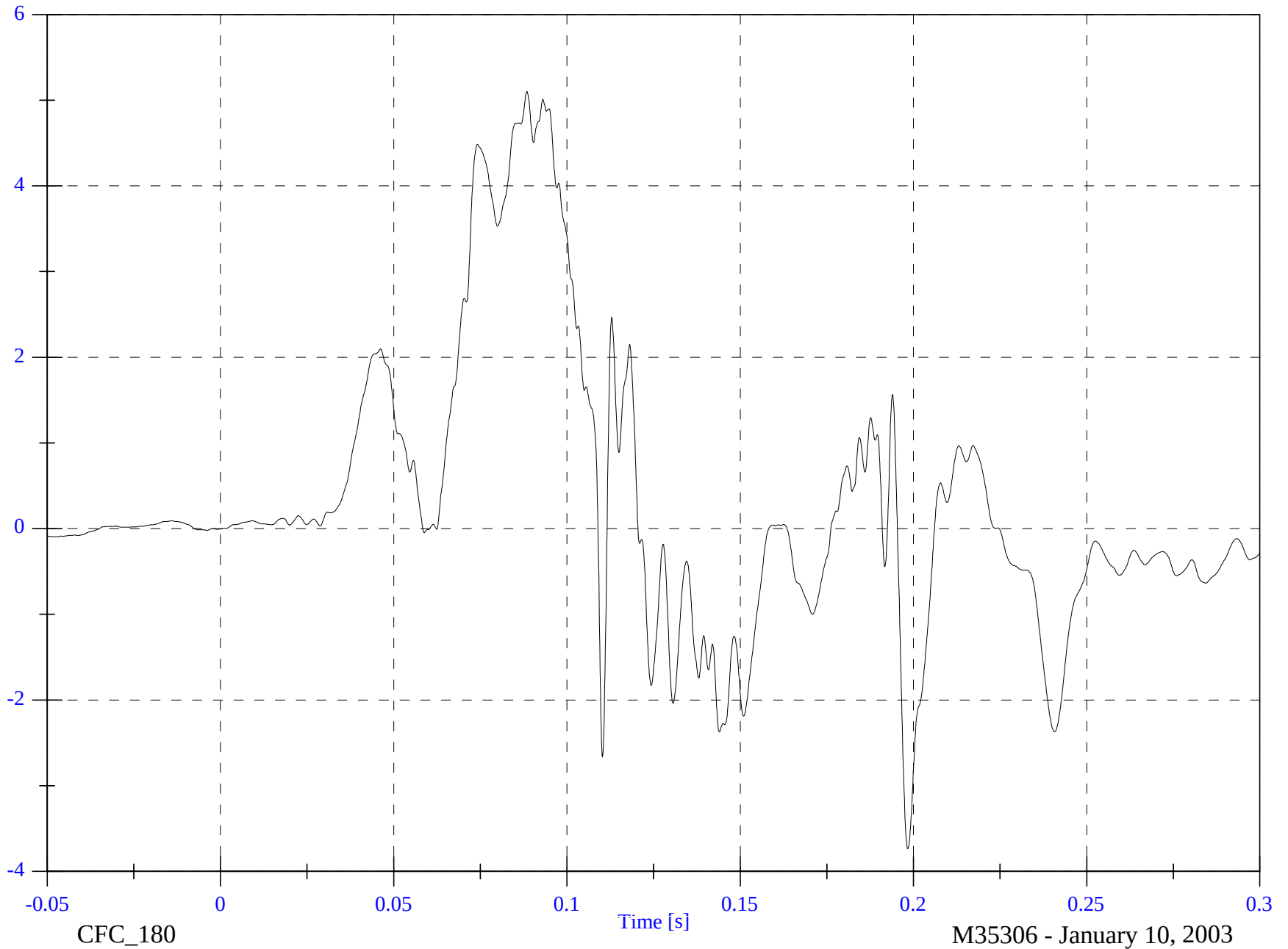


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Chest y

Max: 5.1 [g] at 0.088 [s]

Min: -3.7 [g] at 0.198 [s]

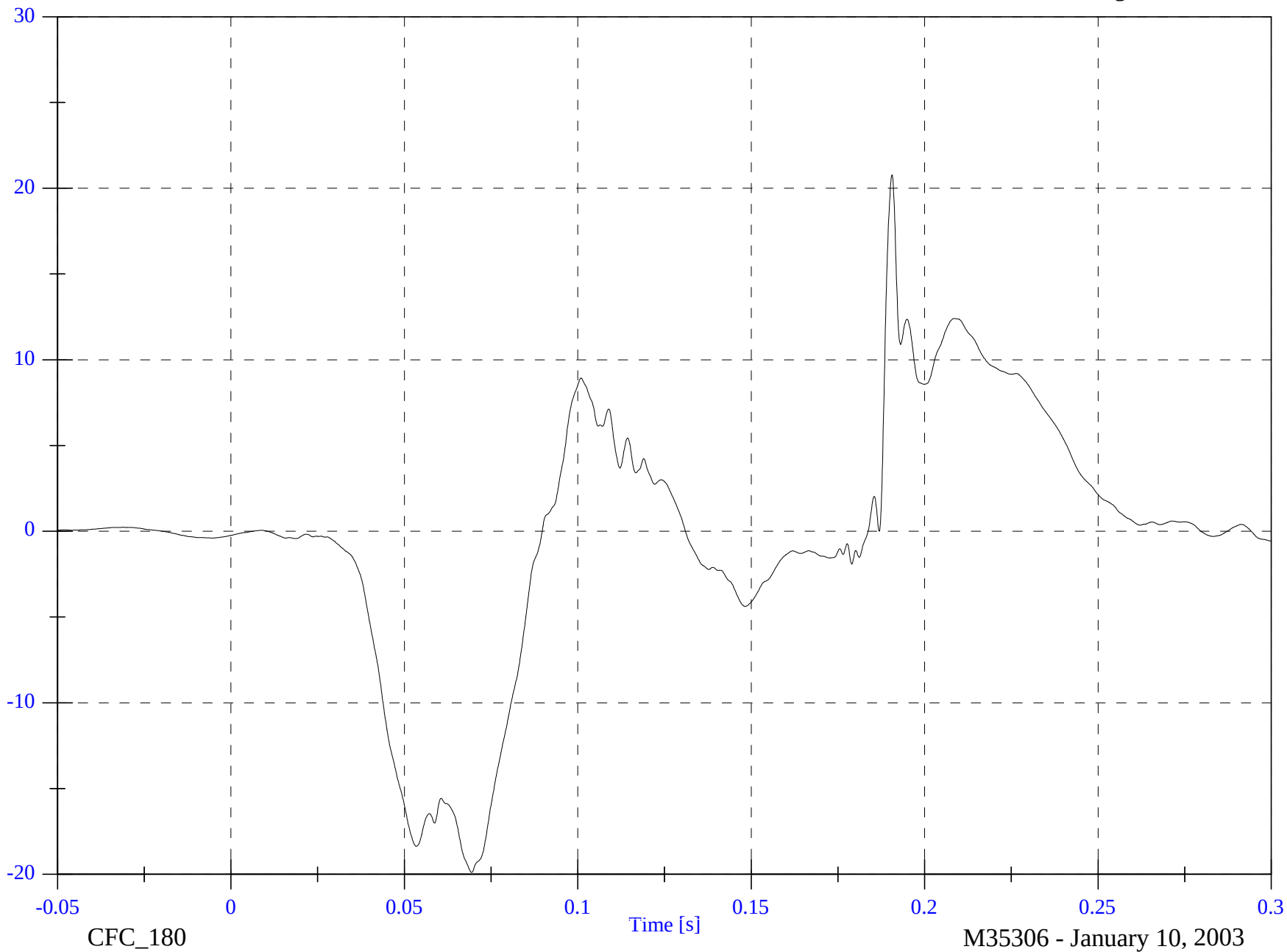


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Chest z

Max: 20.8 [g] at 0.191 [s]

Min: -19.9 [g] at 0.069 [s]



4-27

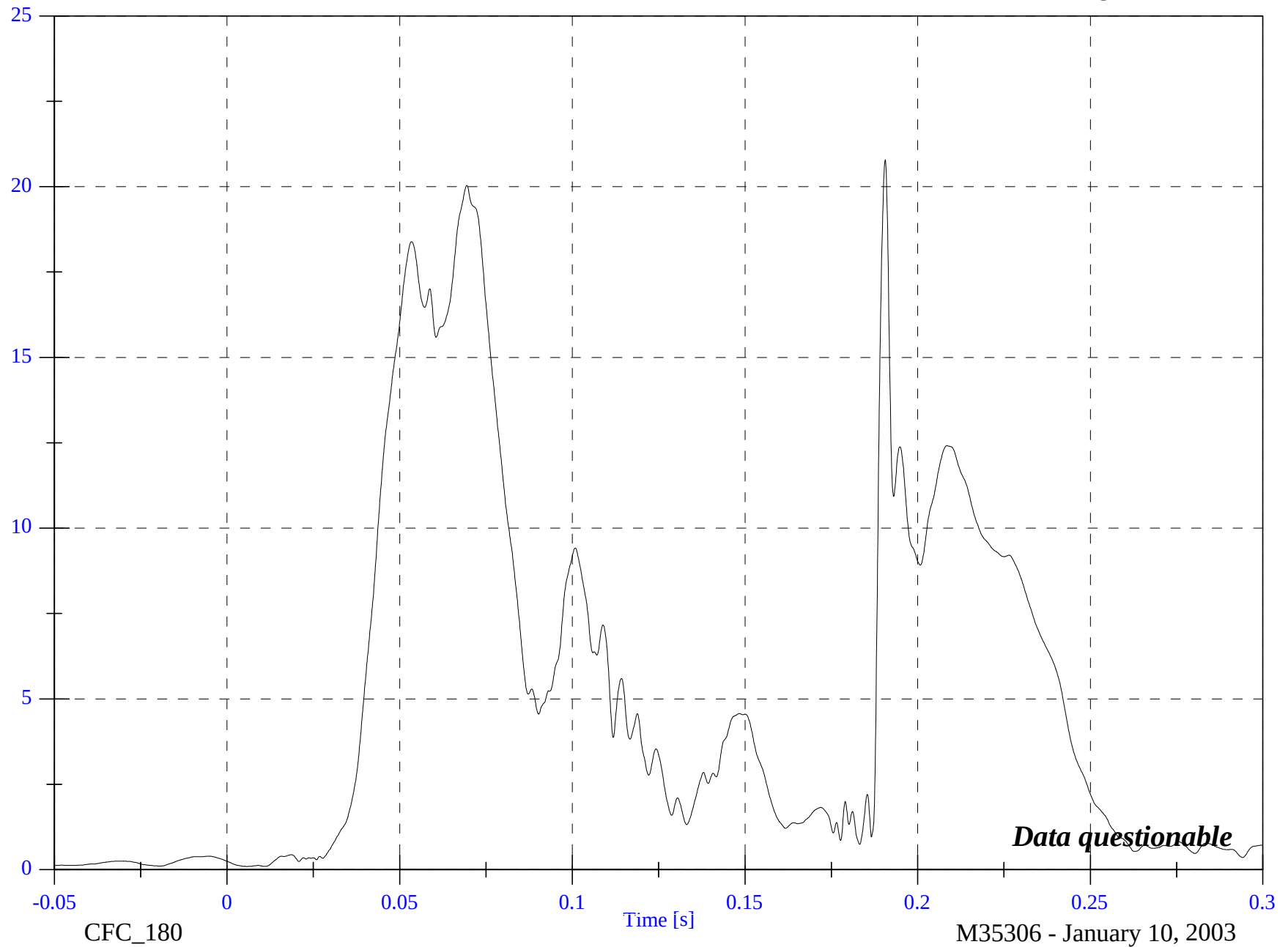
8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Chest Resultant

Max: 20.8 [g] at 0.191 [s]

Min: 0.1 [g] at 0.006 [s]



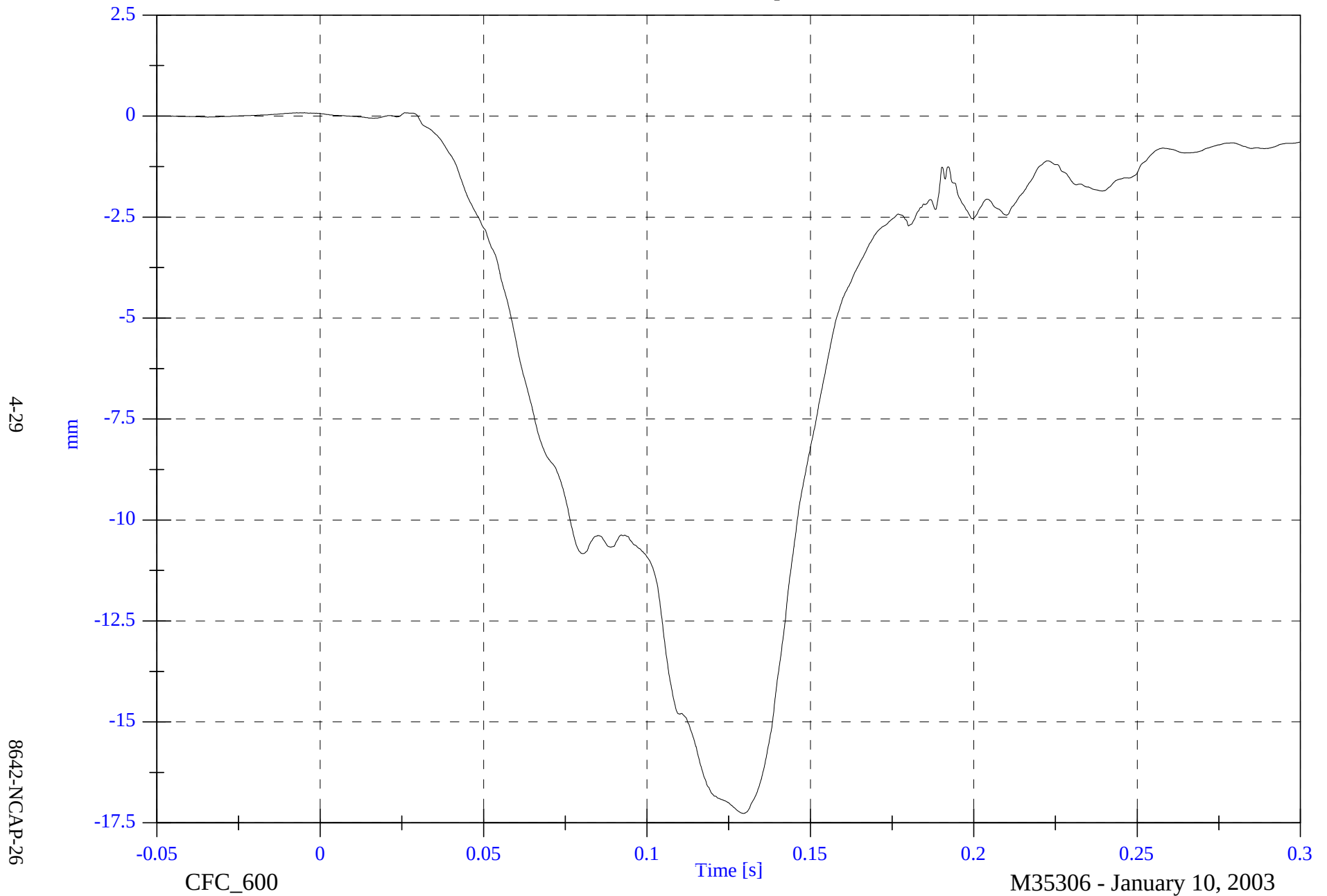
8642-NCAP-26

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Chest Compression

Max: 0.1 [mm] at 0.026 [s]

Min: -17.3 [mm] at 0.130 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

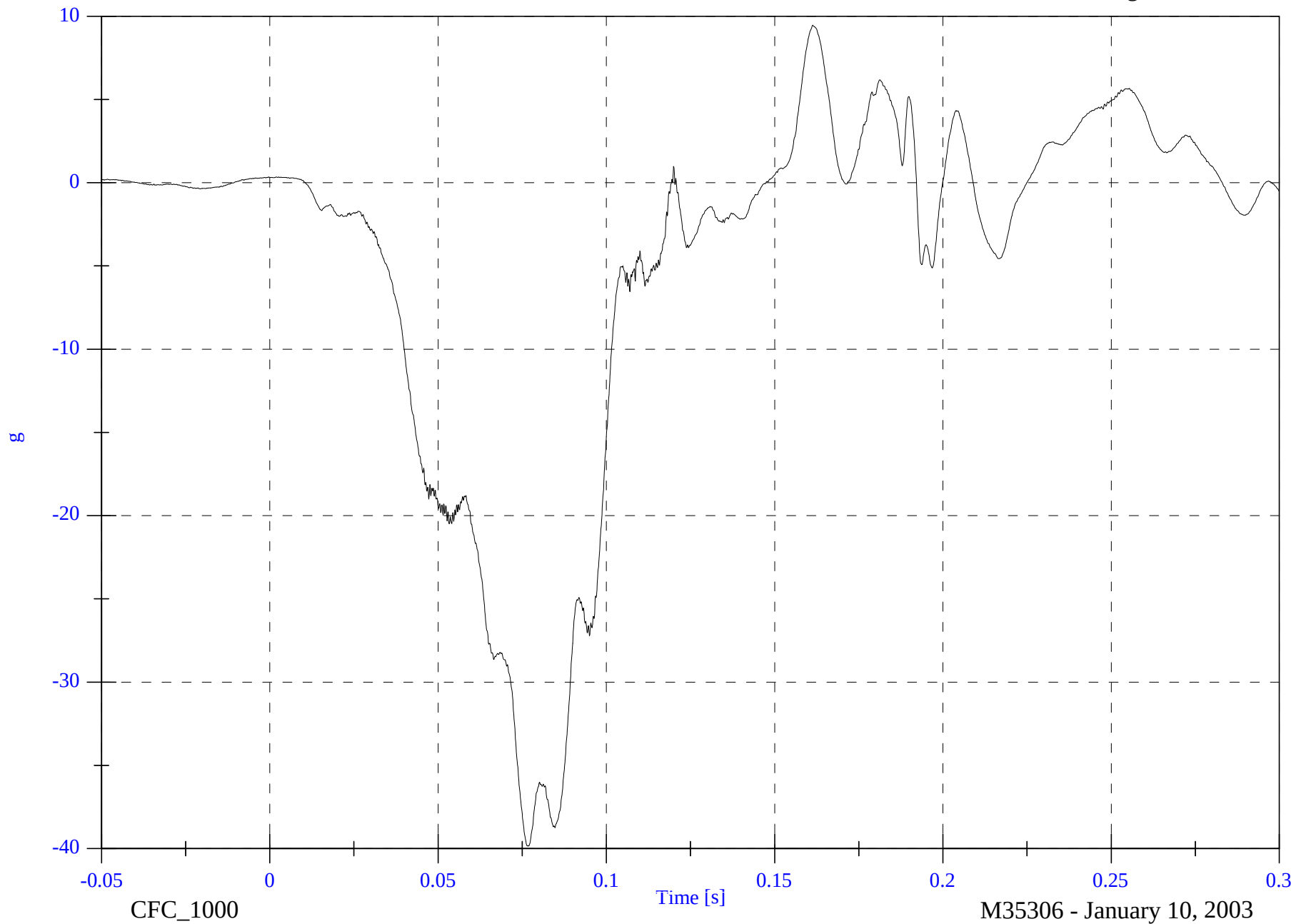
V1P3 Pelvic x

Max: 9.5 [g] at 0.161 [s]

Min: -39.8 [g] at 0.076 [s]

4-30

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

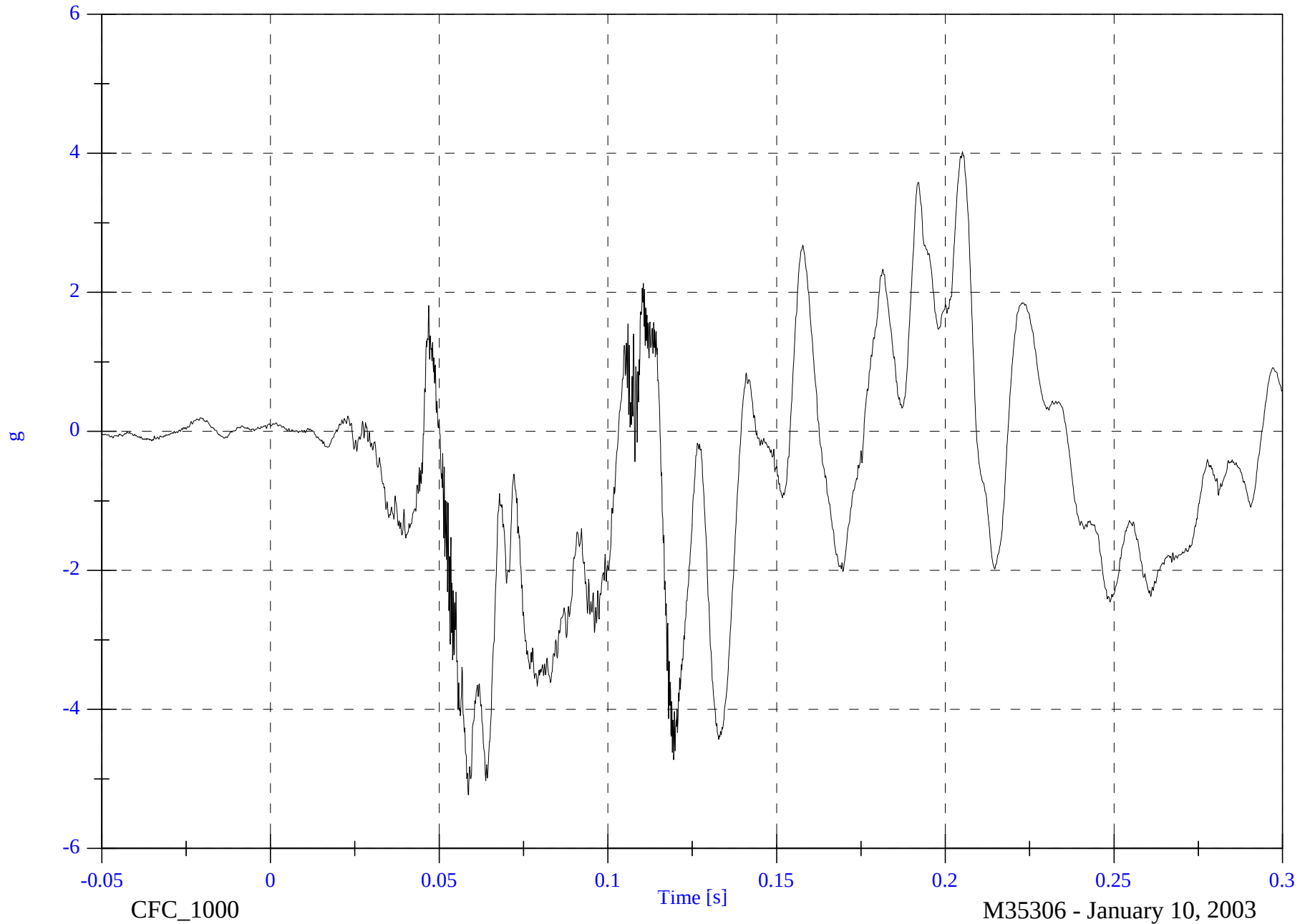
V1P3 Pelvic y

Max: 4.0 [g] at 0.205 [s]

Min: -5.2 [g] at 0.059 [s]

4-31

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

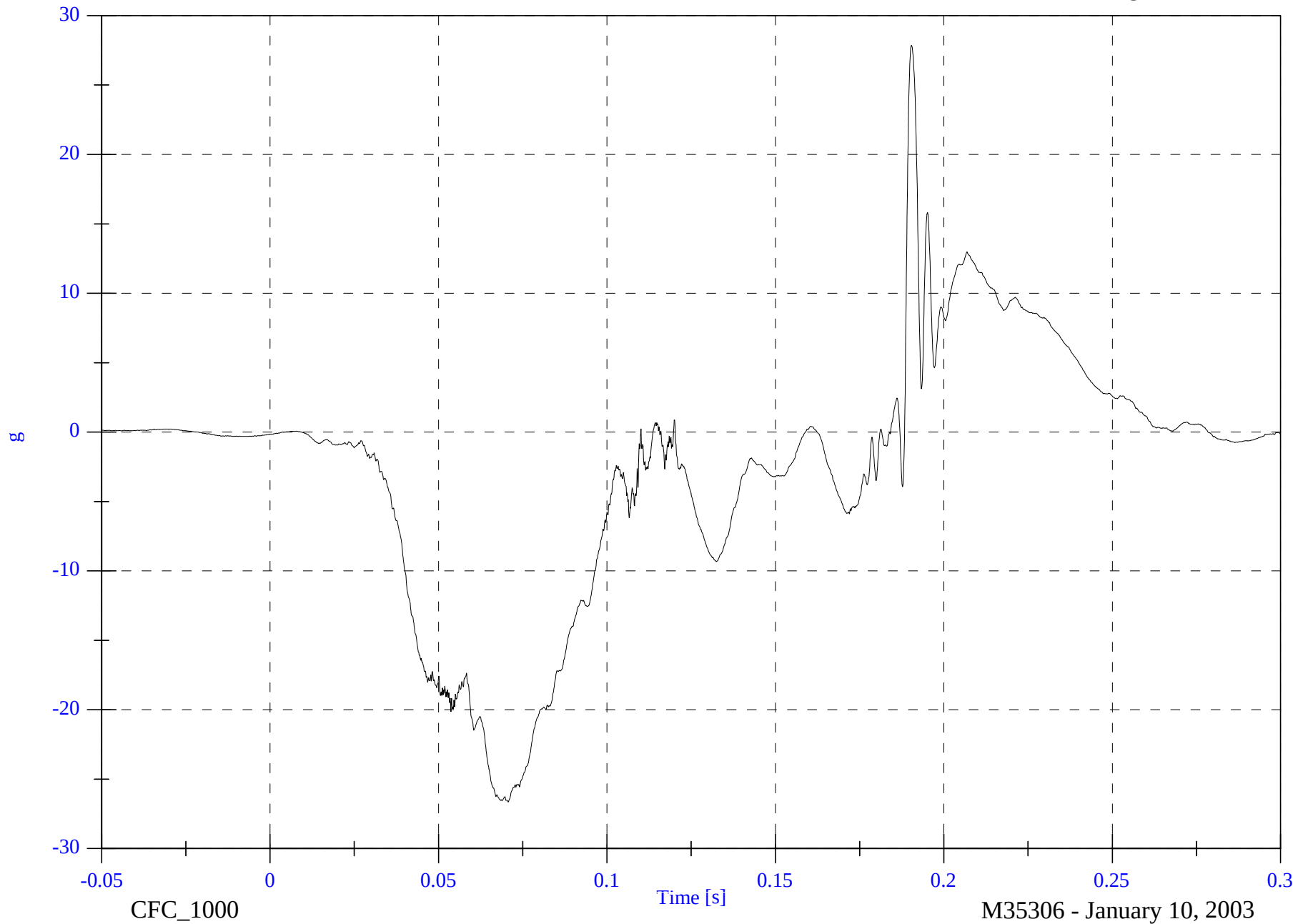
V1P3 Pelvic z

Max: 27.8 [g] at 0.190 [s]

Min: -26.6 [g] at 0.071 [s]

4-32

8642-NCAP-26

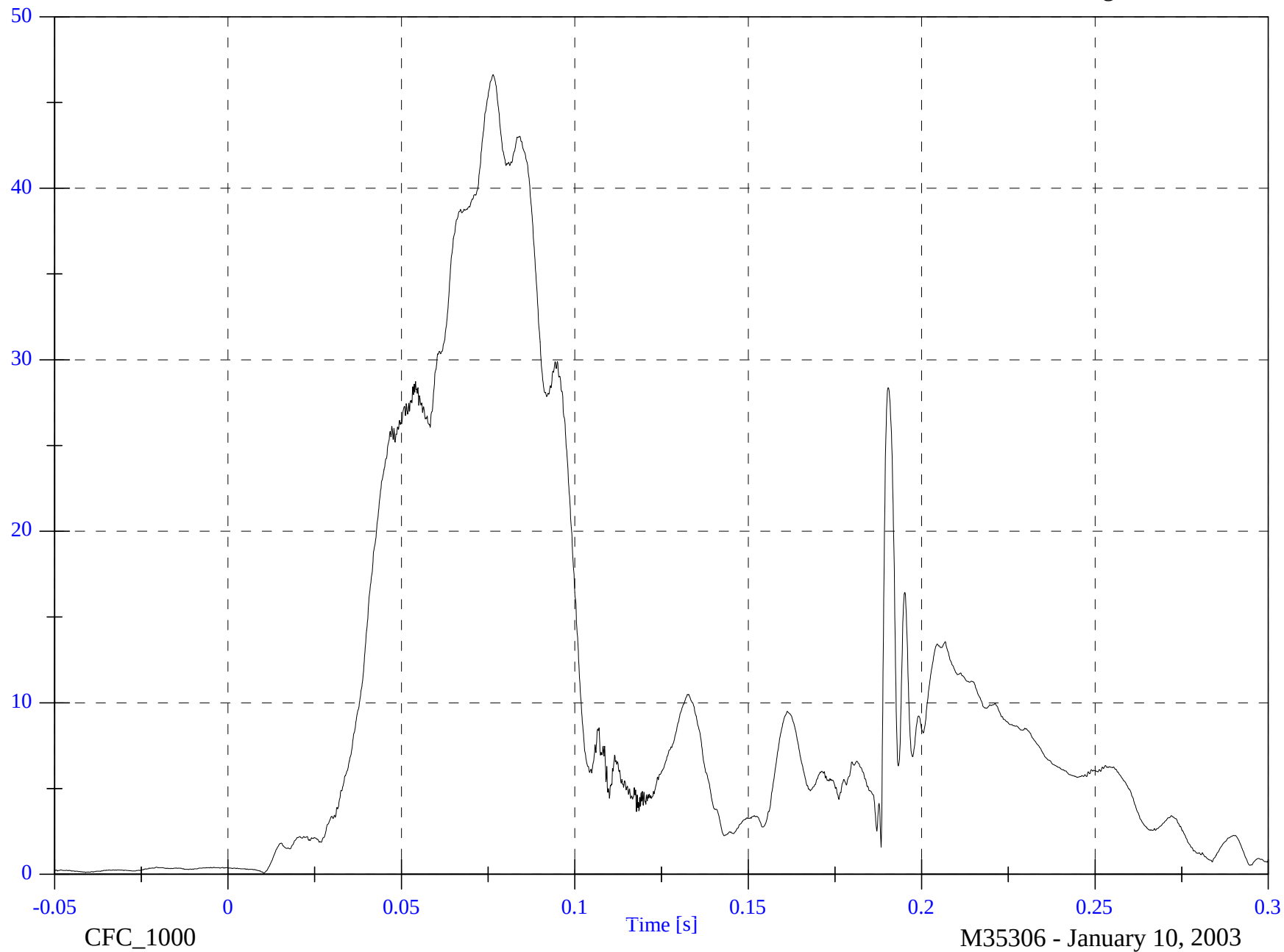


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Pelvic Resultant

Max: 46.6 [g] at 0.076 [s]

Min: 0.1 [g] at 0.010 [s]



4-33

8642-NCAP-26

CFC_1000

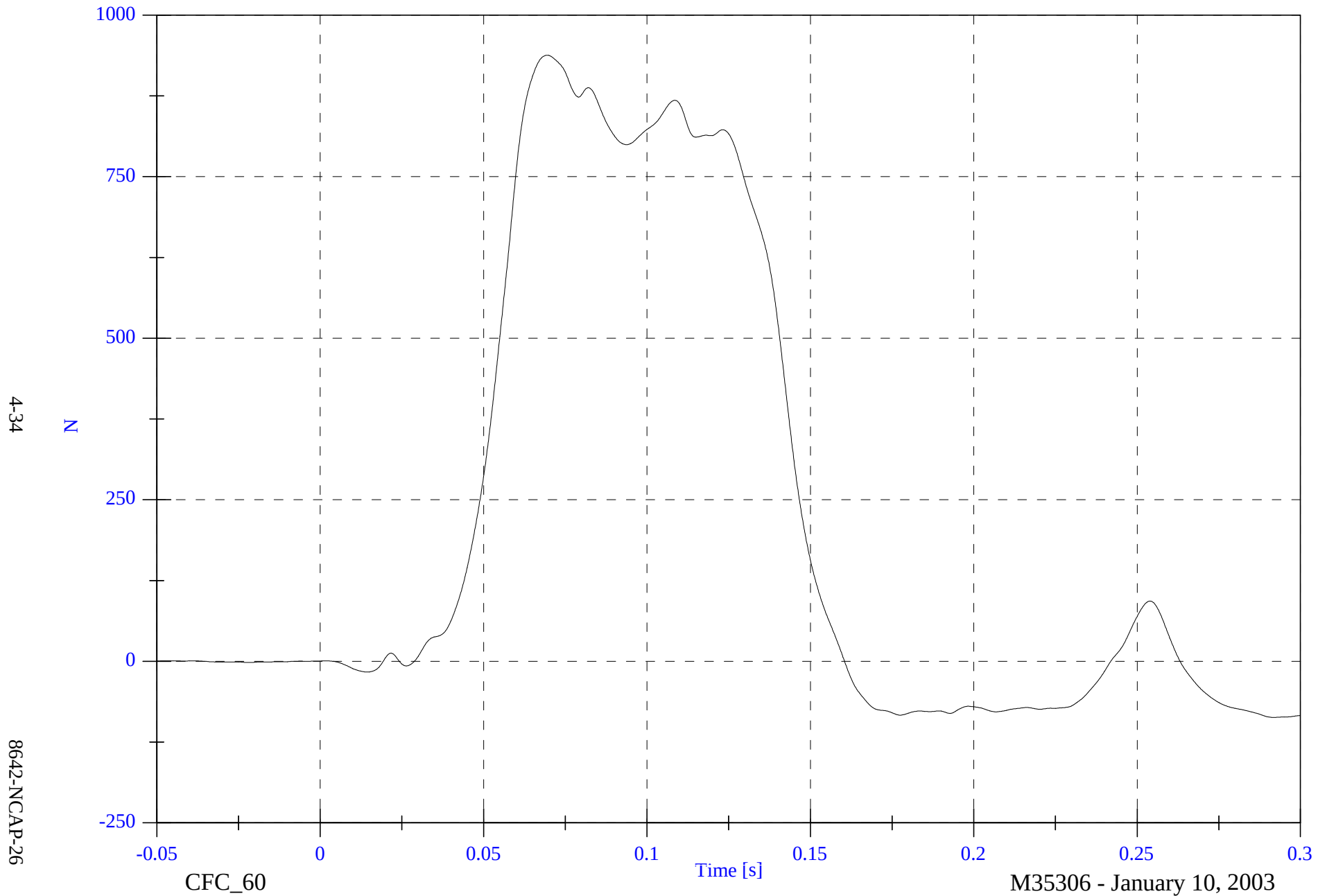
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P3 Tether Belt

Max: 938.0 [N] at 0.069 [s]

Min: -86.7 [N] at 0.292 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

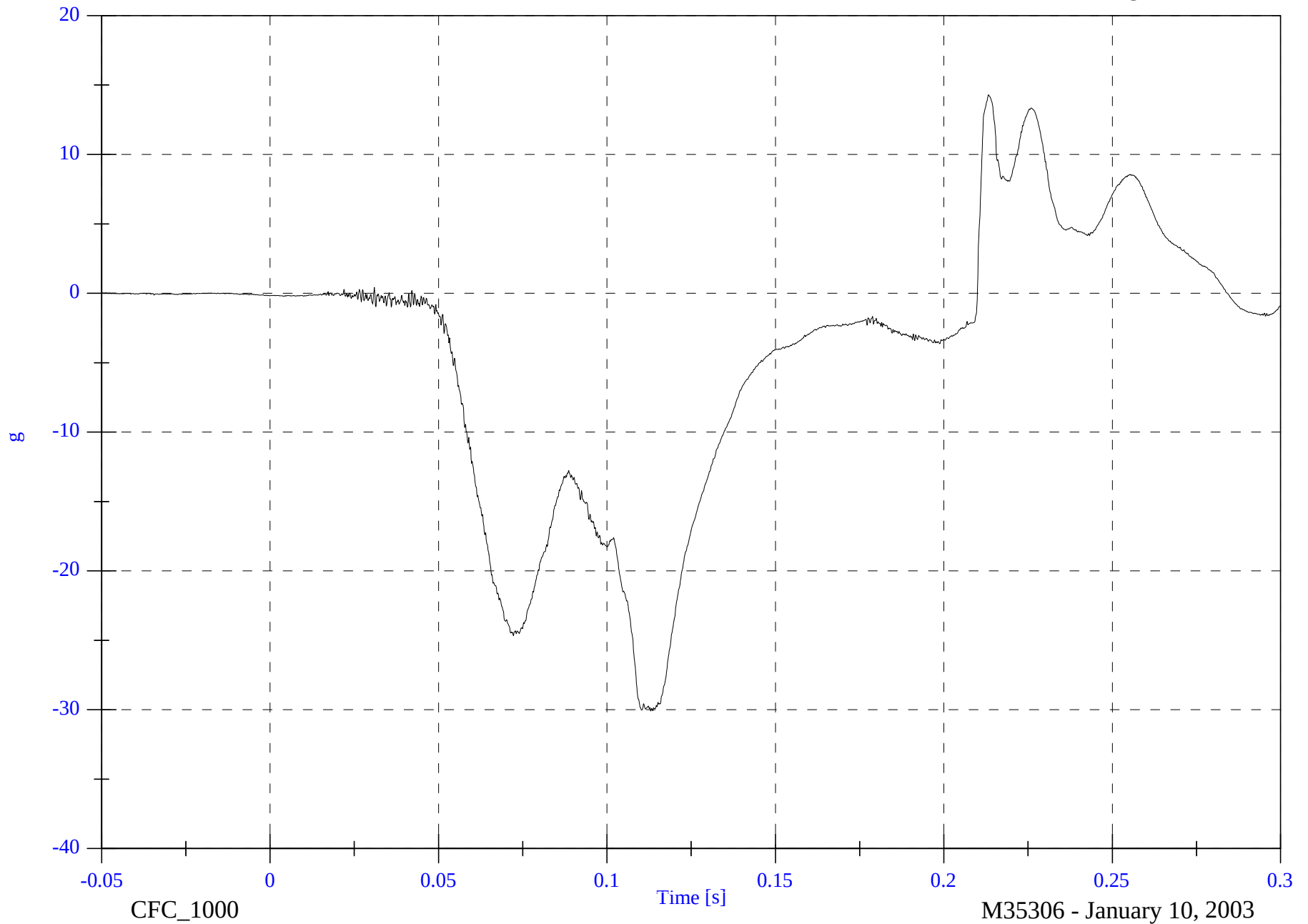
V1P4 Head x

Max: 14.3 [g] at 0.213 [s]

Min: -30.1 [g] at 0.113 [s]

4-35

8642-NCAP-26

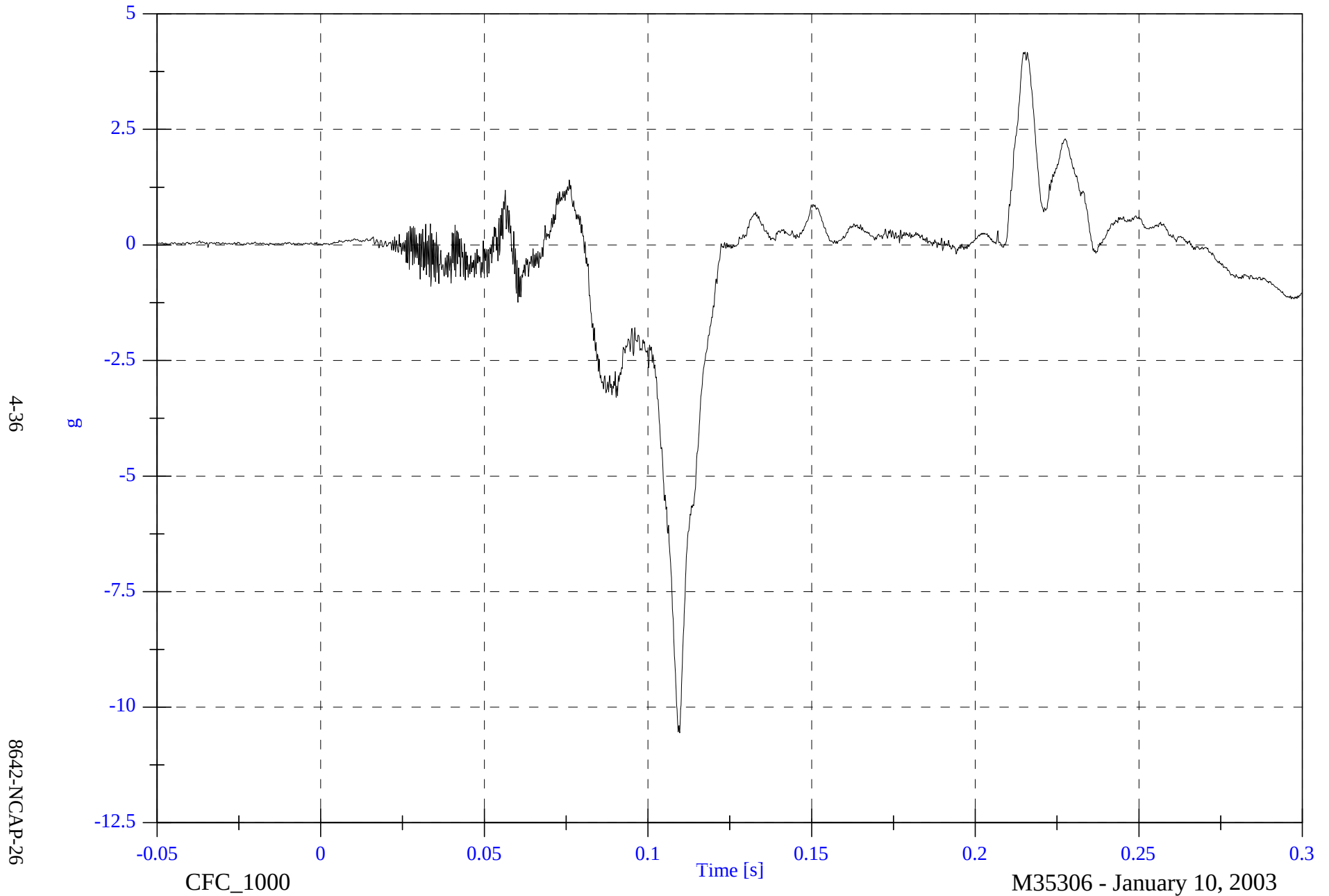


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P4 Head y

Max: 4.2 [g] at 0.215 [s]

Min: -10.6 [g] at 0.110 [s]

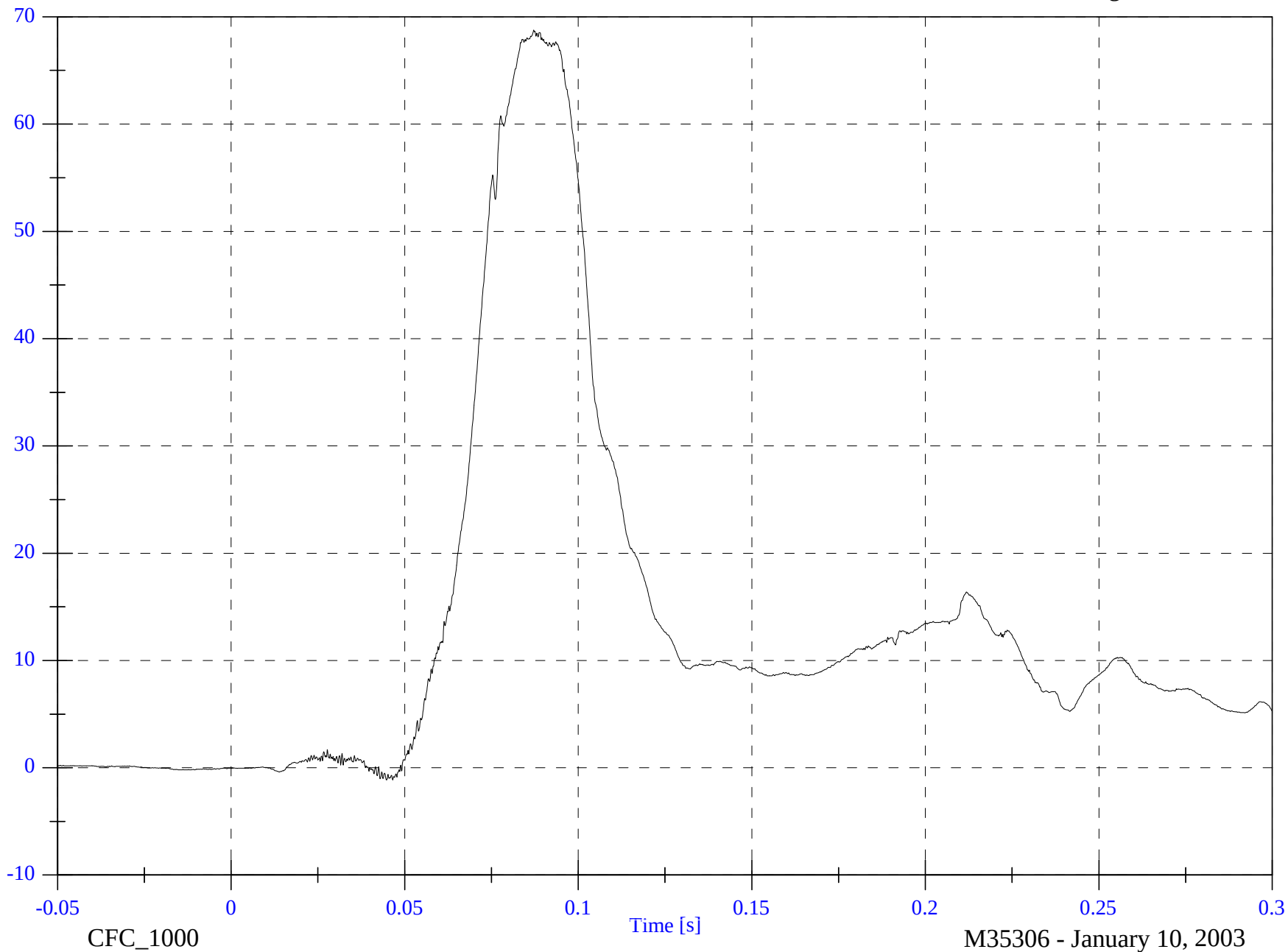


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P4 Head z

Max: 68.8 [g] at 0.087 [s]

Min: -1.2 [g] at 0.045 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

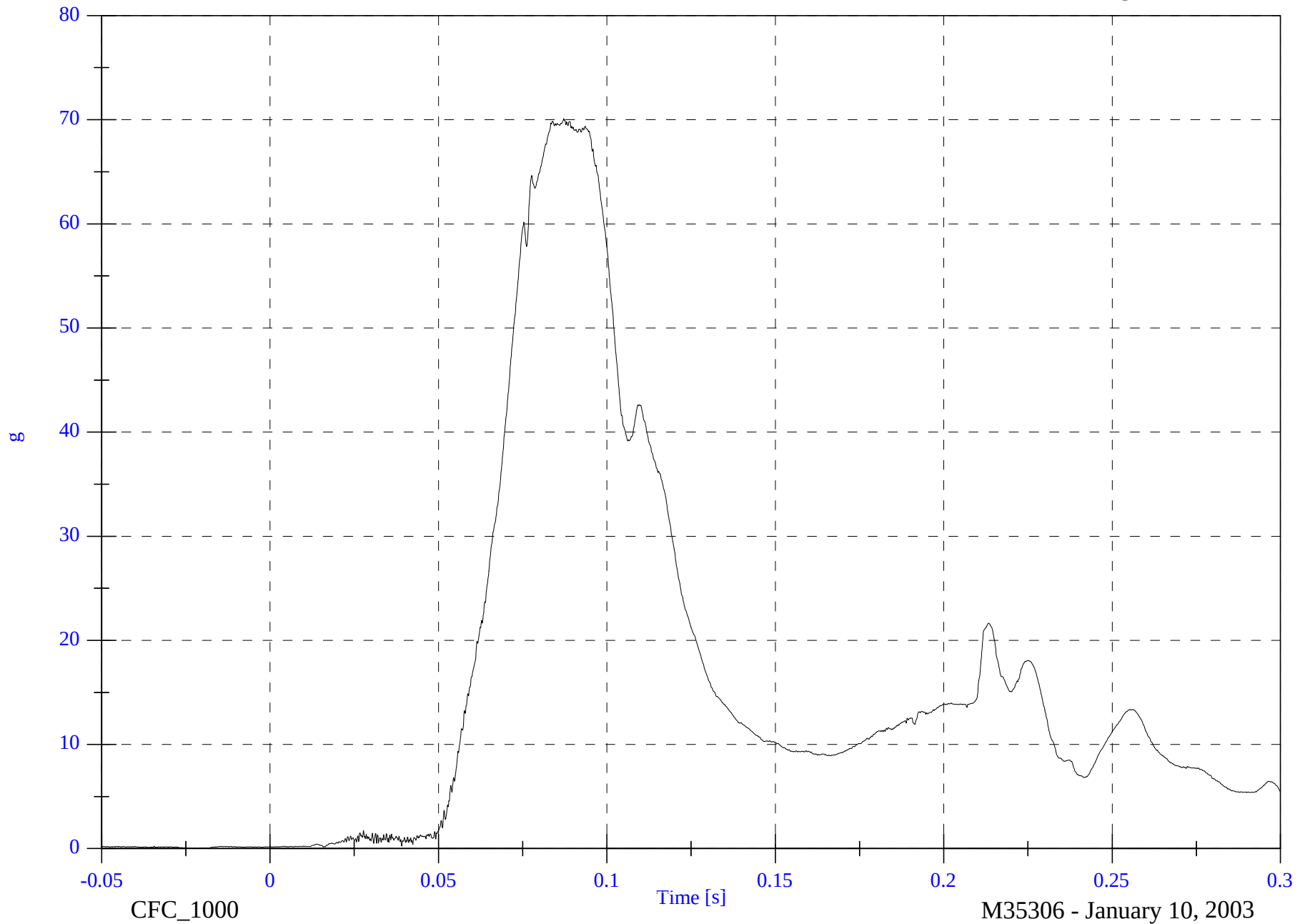
V1P4 Head Resultant

Max: 70.1 [g] at 0.087 [s]

Min: 0.0 [g] at -0.022 [s]

4-38

8642-NCAP-26

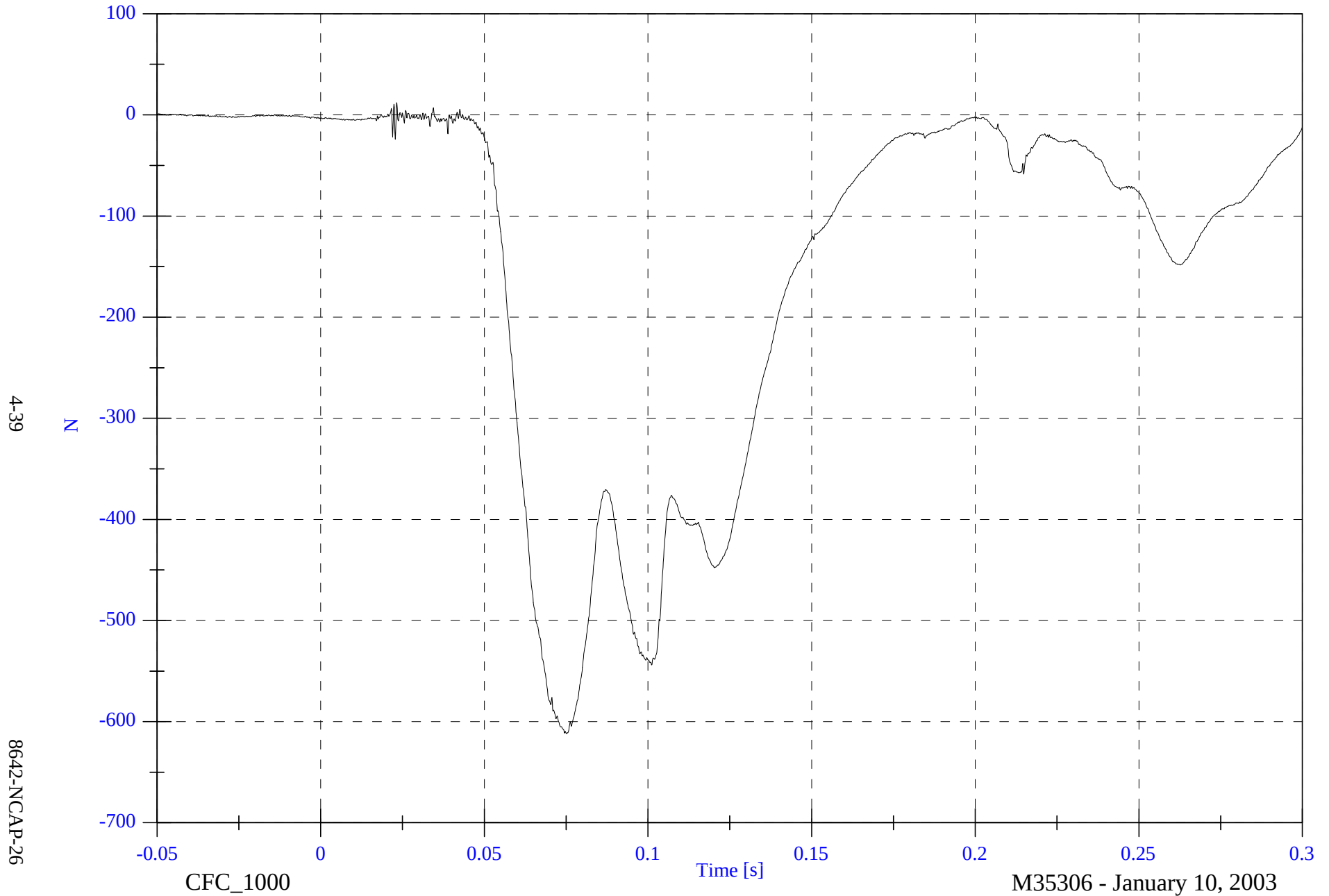


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P4 Upper Neck Fx

Max: 12.1 [N] at 0.023 [s]

Min: -611.9 [N] at 0.075 [s]

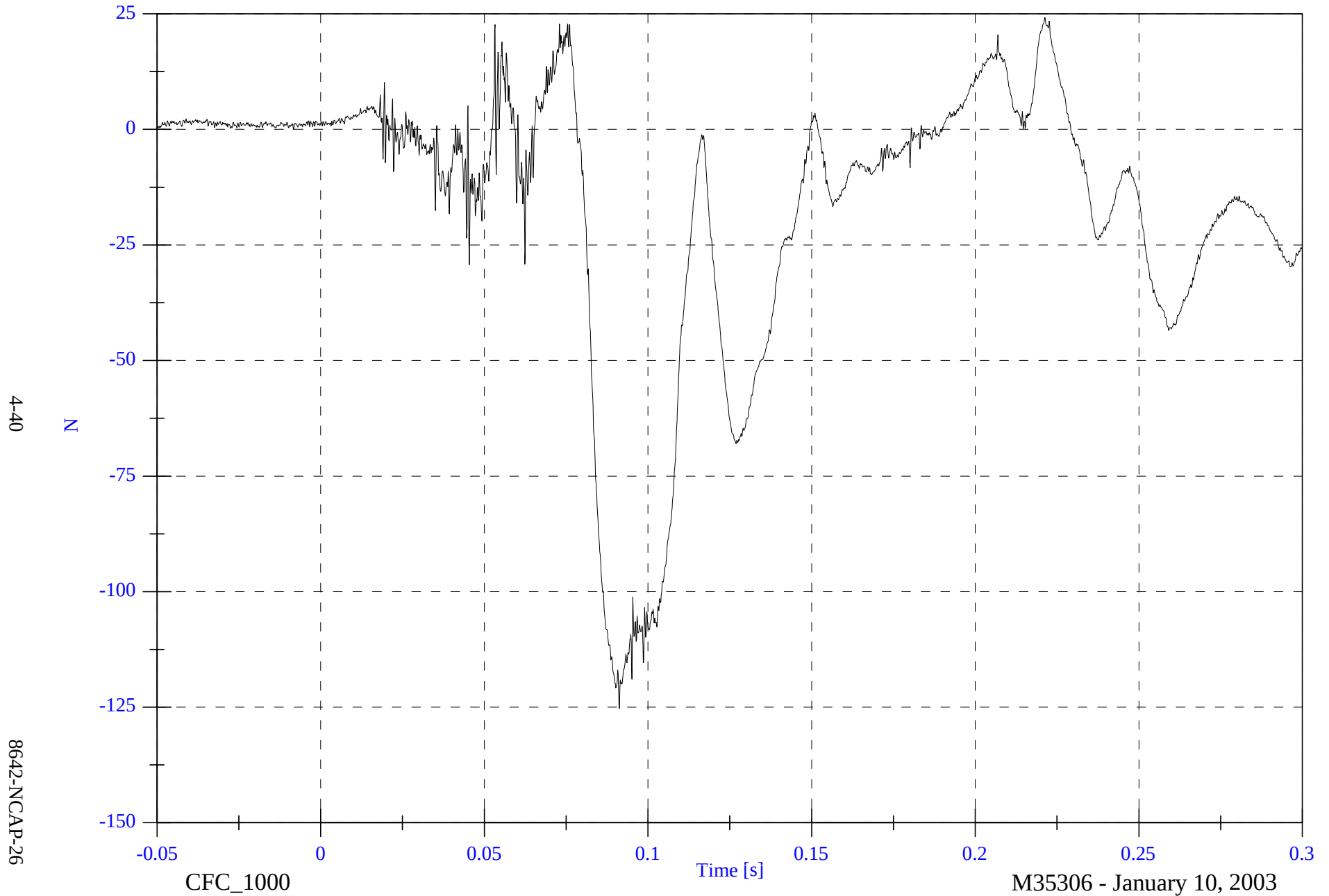


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P4 Upper Neck Fy

Max: 24.2 [N] at 0.221 [s]

Min: -125.3 [N] at 0.091 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

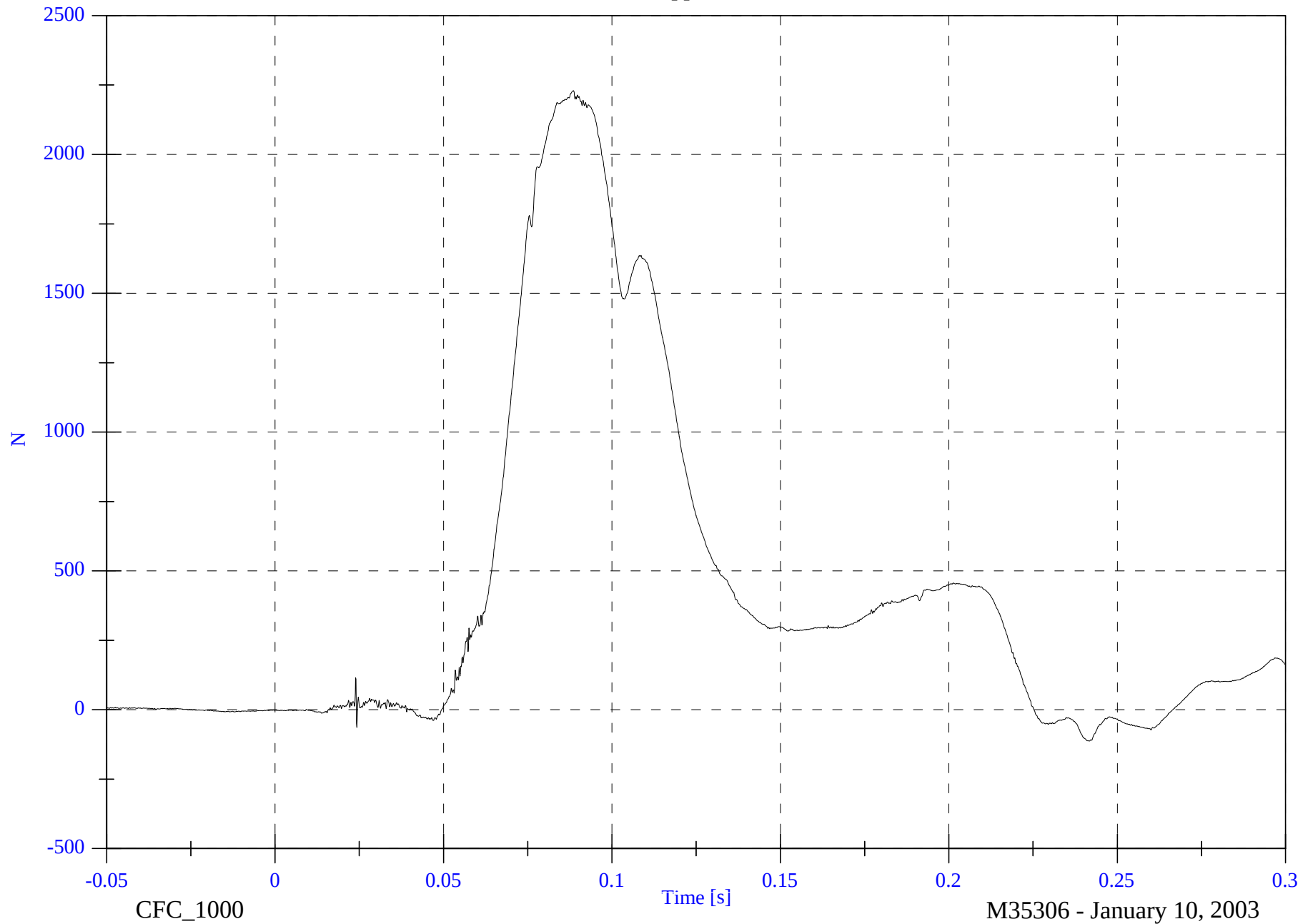
V1P4 Upper Neck Fz

Max: 2230.0 [N] at 0.089 [s]

Min: -112.8 [N] at 0.242 [s]

4-41

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

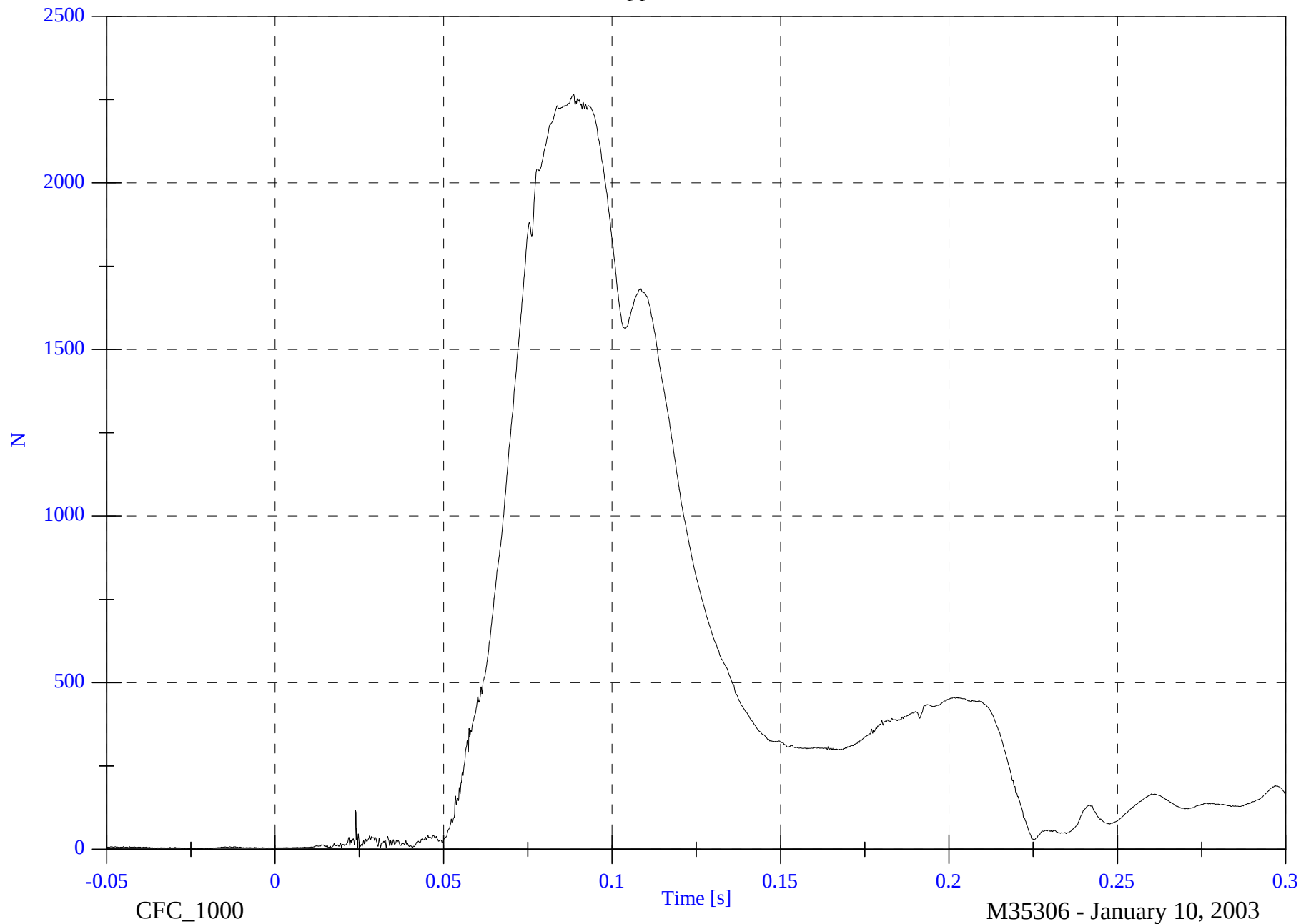
V1P4 Upper Neck F Resultant

Max: 2265.1 [N] at 0.089 [s]

Min: 1.5 [N] at -0.020 [s]

4-42

8642-NCAP-26

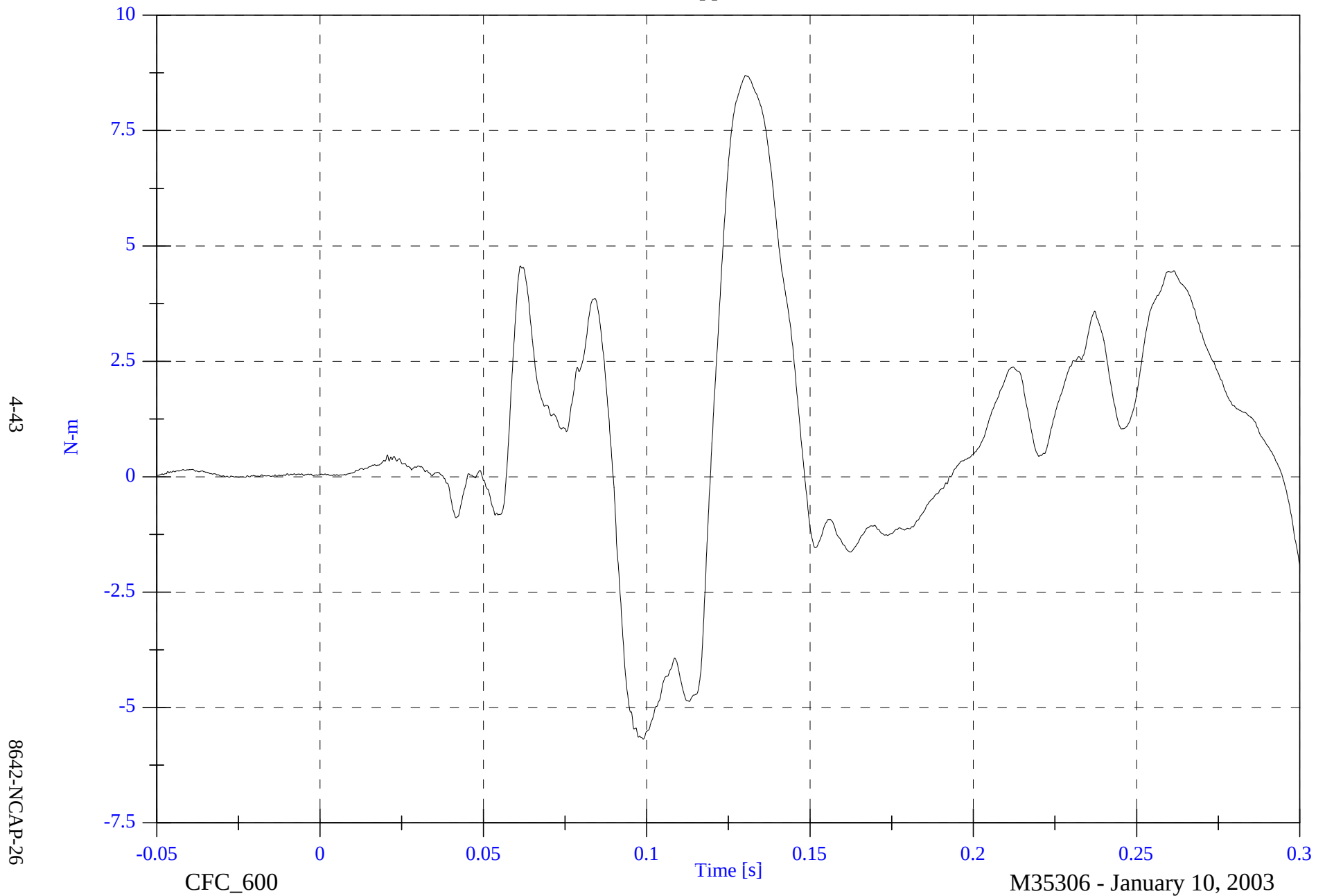


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P4 Upper Neck Mx

Max: 8.7 [N-m] at 0.130 [s]

Min: -5.7 [N-m] at 0.099 [s]

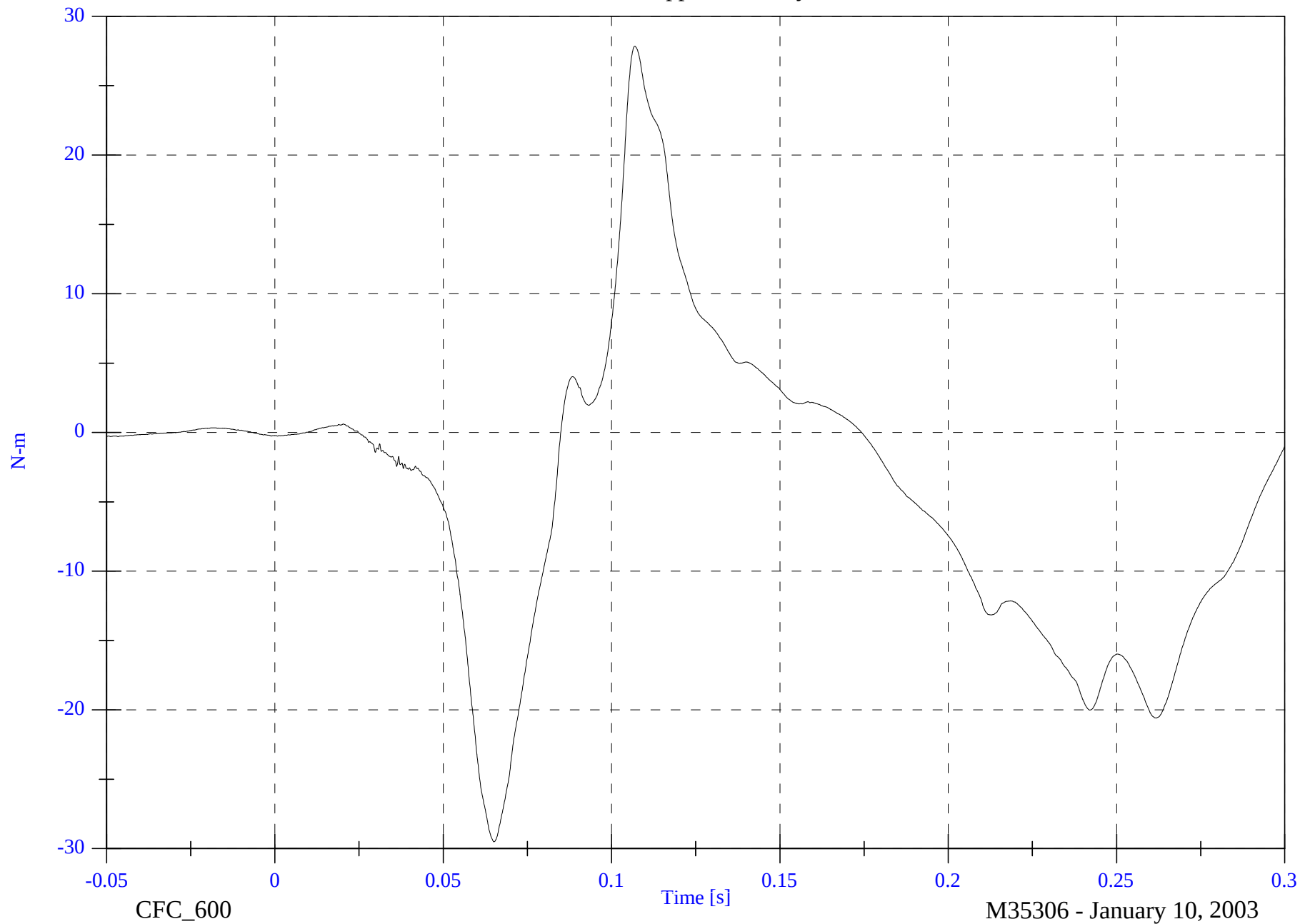


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P4 Upper Neck My

Max: 27.8 [N-m] at 0.107 [s]

Min: -29.5 [N-m] at 0.065 [s]



4-44

8642-NCAP-26

CFC_600

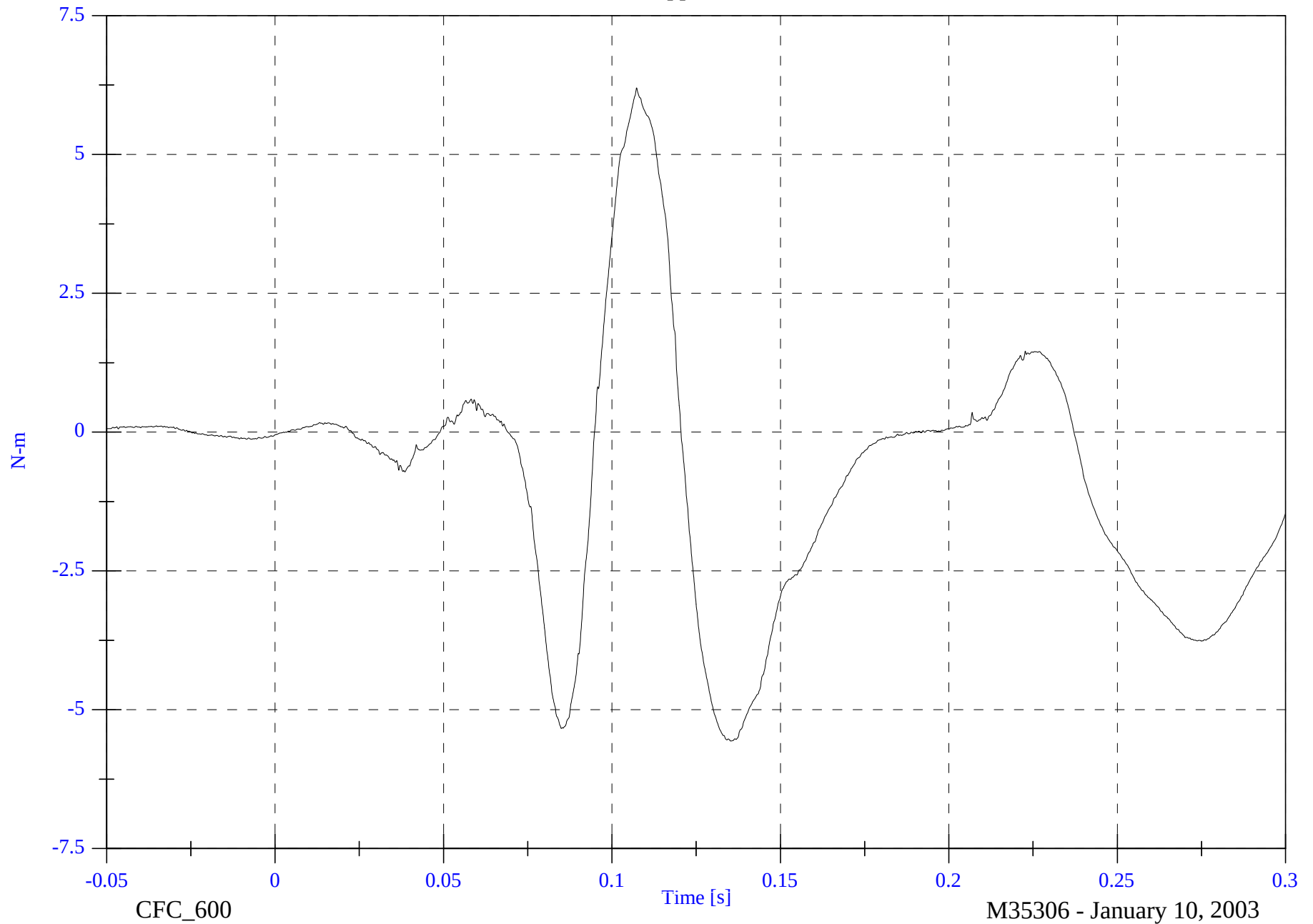
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P4 Upper Neck Mz

Max: 6.2 [N-m] at 0.107 [s]

Min: -5.6 [N-m] at 0.135 [s]



4-45

8642-NCAP-26

CFC_600

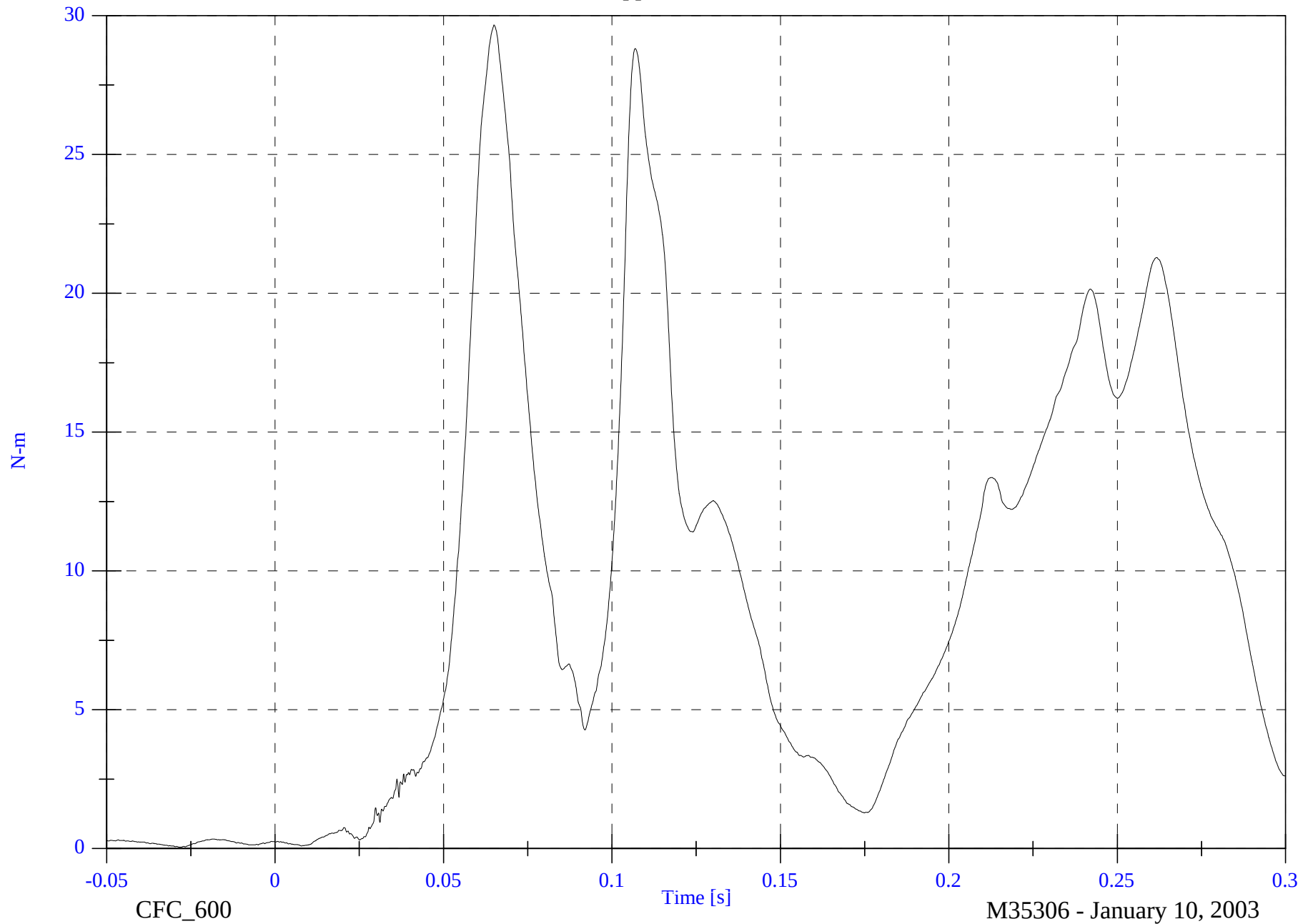
M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

V1P4 Upper Neck M Resultant

Max: 29.7 [N-m] at 0.065 [s]

Min: 0.0 [N-m] at -0.028 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P4 Chest x

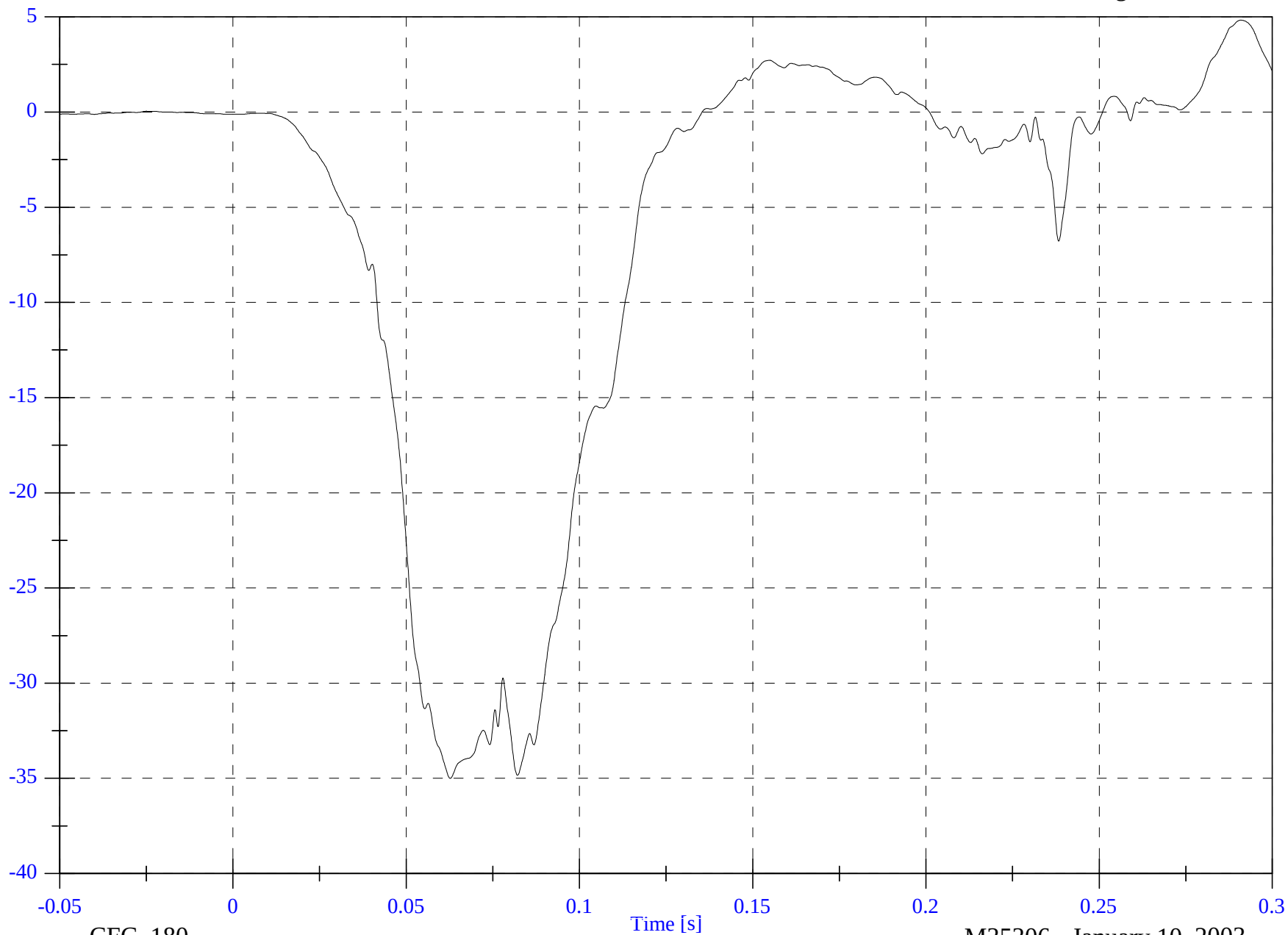
Max: 4.8 [g] at 0.291 [s]

Min: -35.0 [g] at 0.063 [s]

4-47

8642-NCAP-26

g



CFC_180

M35306 - January 10, 2003

2003 NCAP Test #4 - 2003 Honda Odyssey

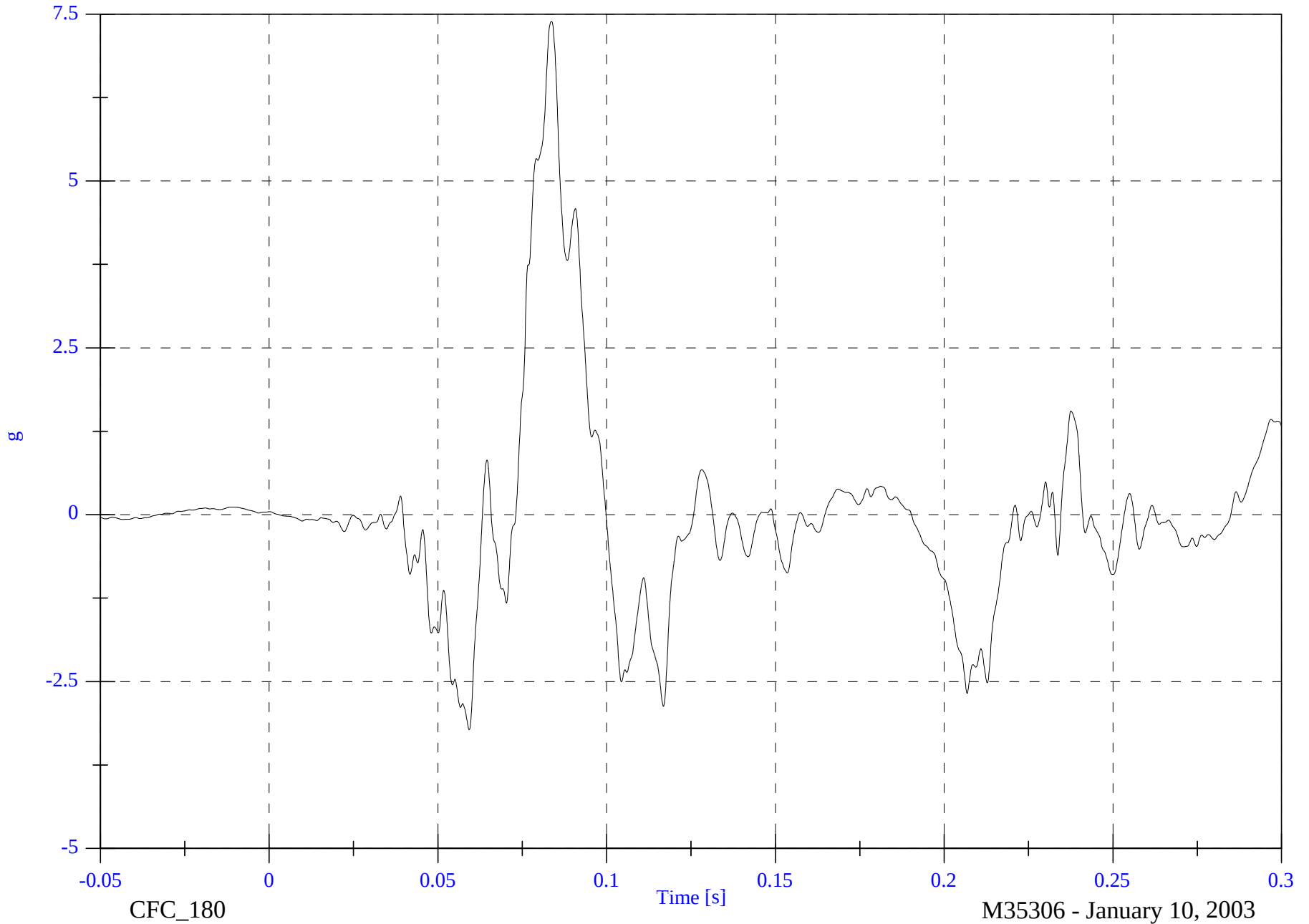
V1P4 Chest y

Max: 7.4 [g] at 0.084 [s]

Min: -3.2 [g] at 0.059 [s]

4-48

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P4 Chest z

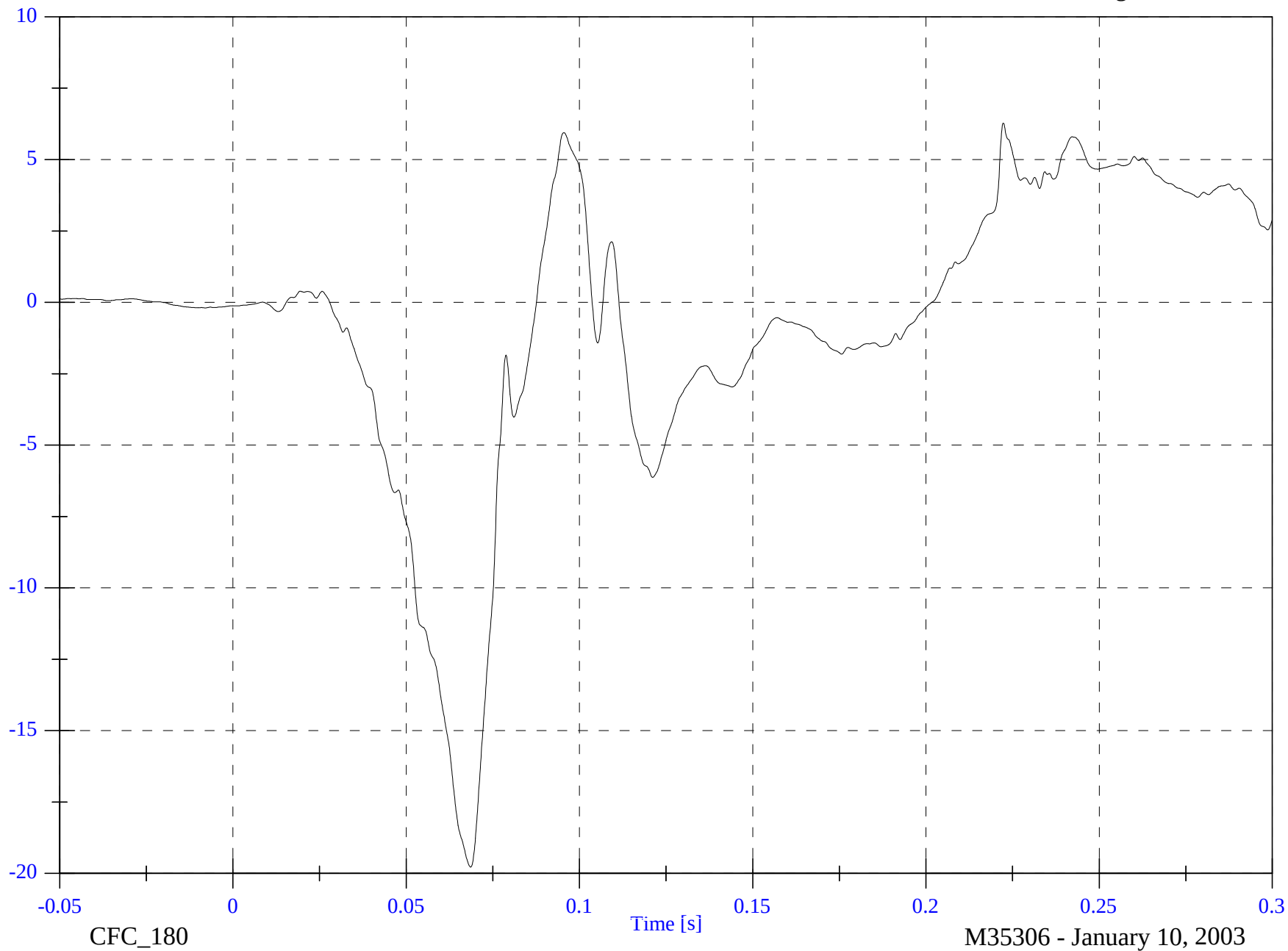
Max: 6.3 [g] at 0.222 [s]

Min: -19.8 [g] at 0.069 [s]

4-49

g

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

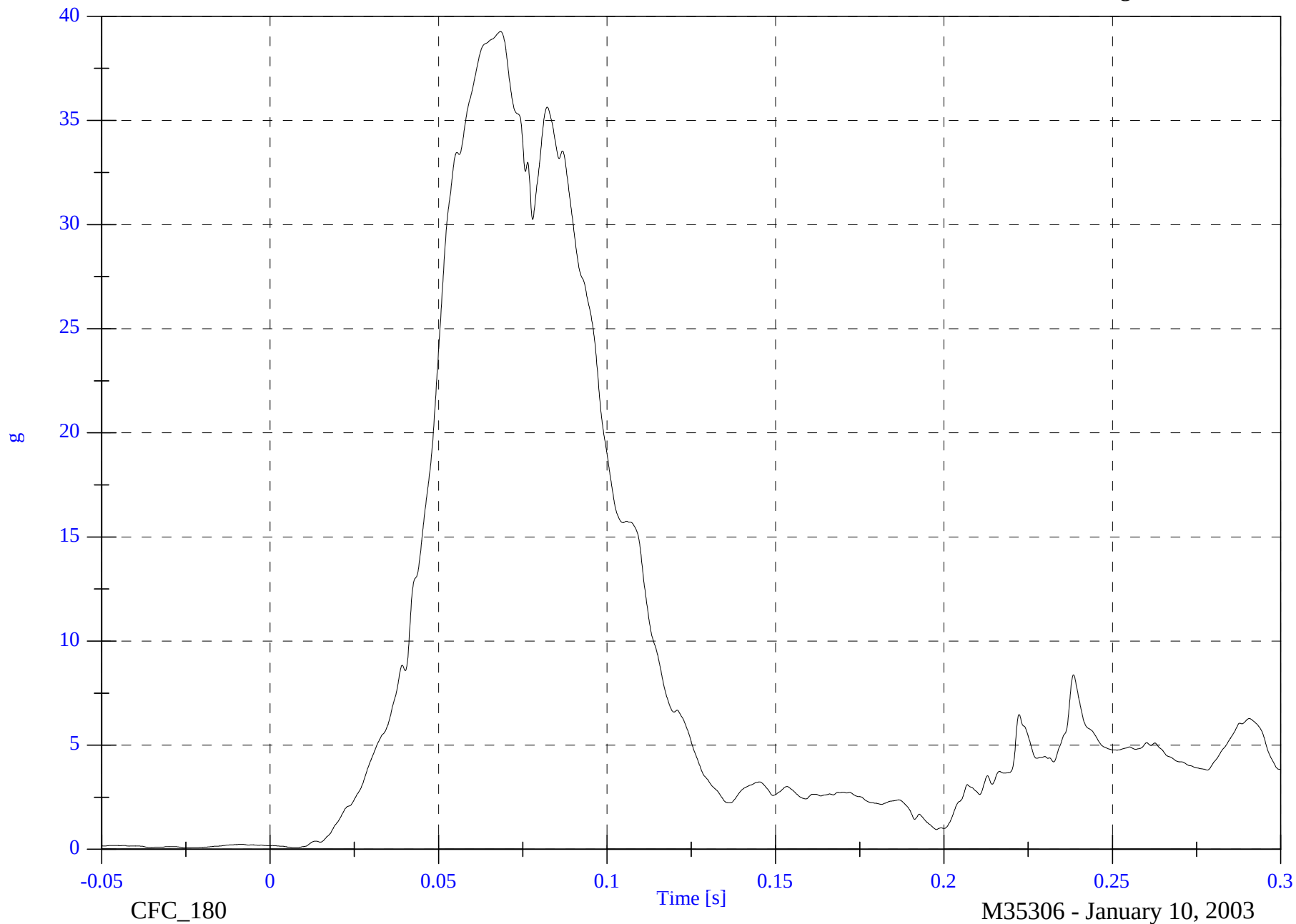
V1P4 Chest Resultant

Max: 39.3 [g] at 0.068 [s]

Min: 0.1 [g] at -0.022 [s]

4-50

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

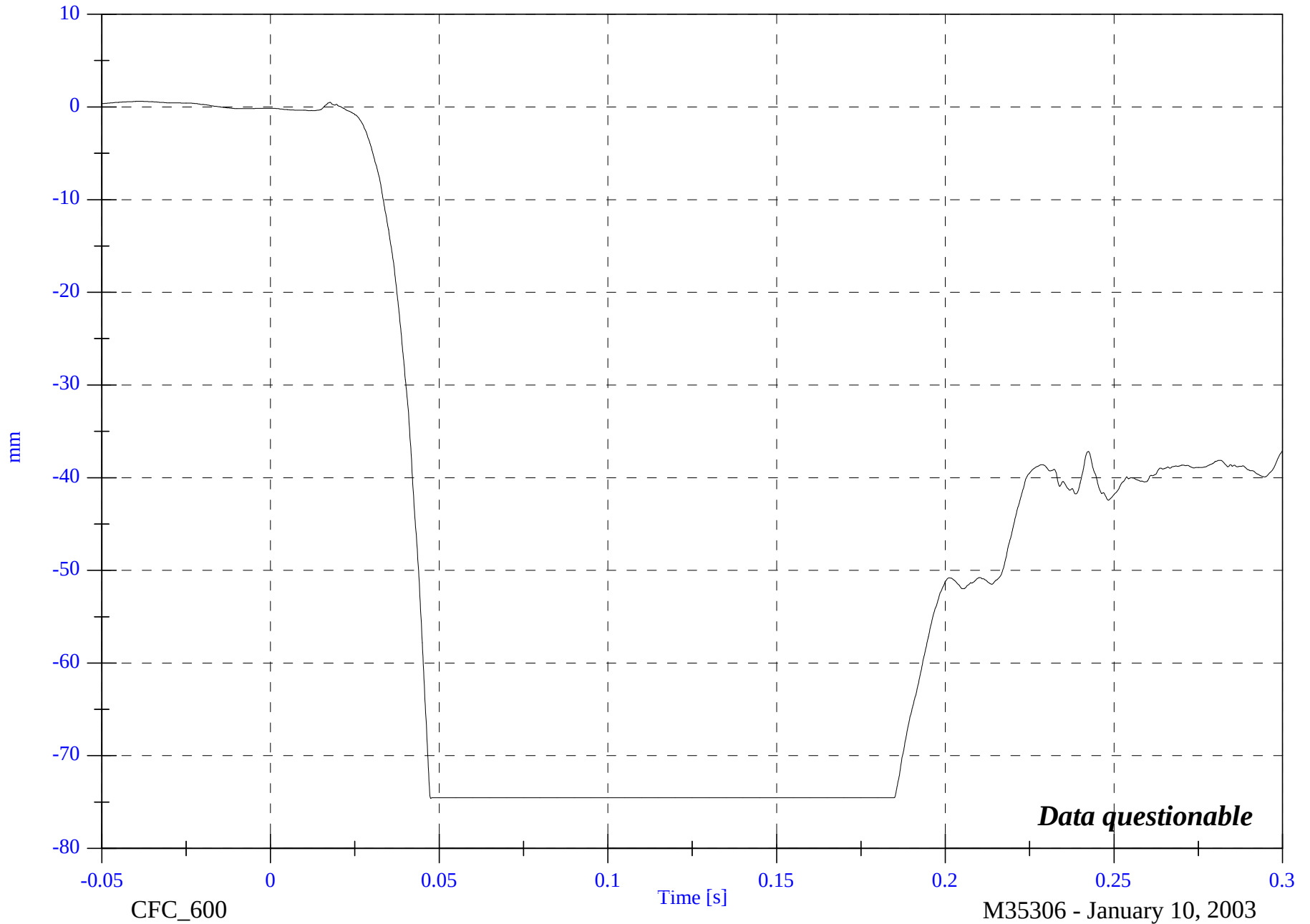
V1P4 Chest Compression

Max: 0.6 [mm] at -0.039 [s]

Min: -74.6 [mm] at 0.048 [s]

4-51

8642-NCAP-26

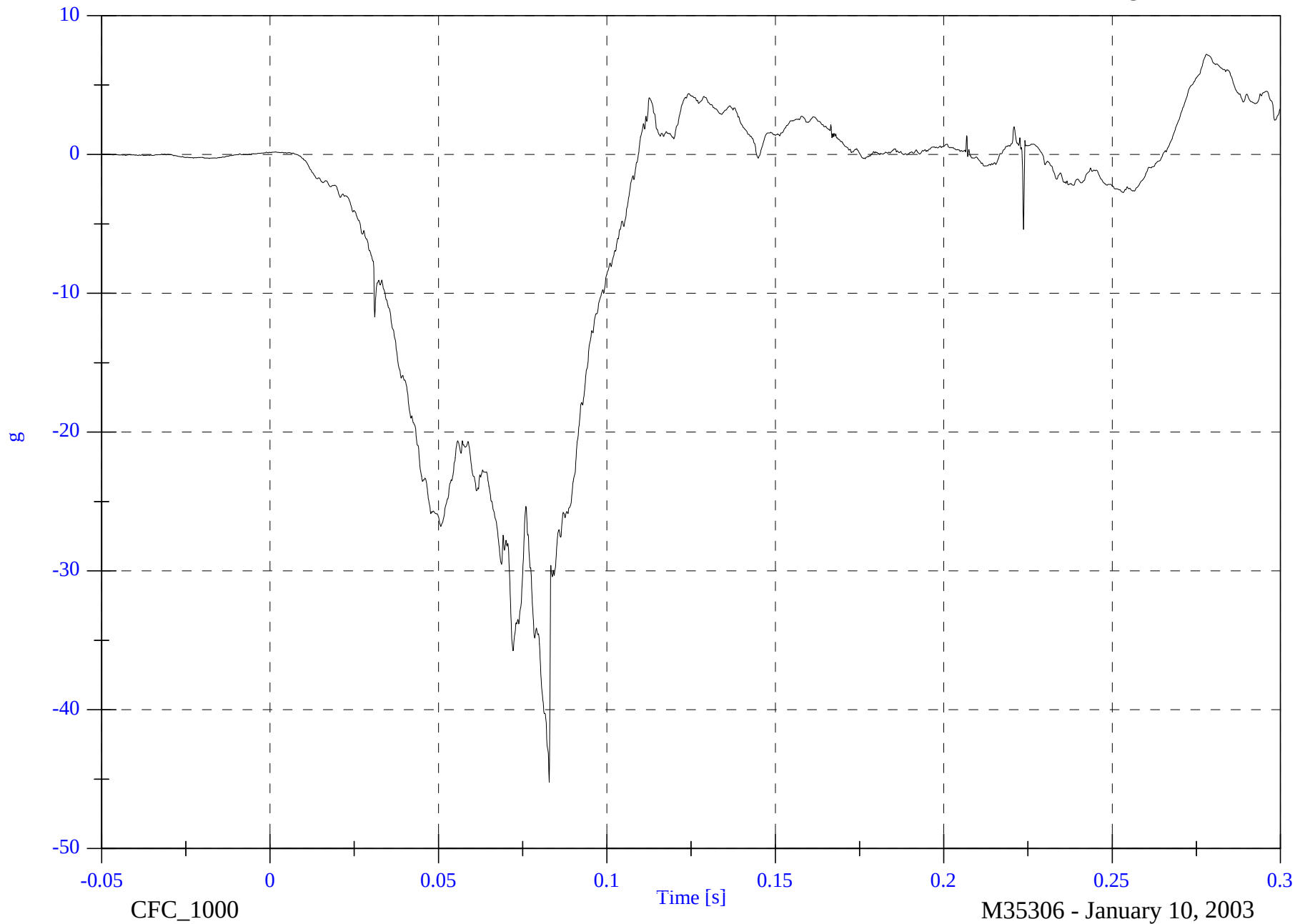


2003 NCAP Test #4 - 2003 Honda Odyssey

V1P4 Pelvic x

Max: 7.2 [g] at 0.278 [s]

Min: -45.2 [g] at 0.083 [s]



2003 NCAP Test #4 - 2003 Honda Odyssey

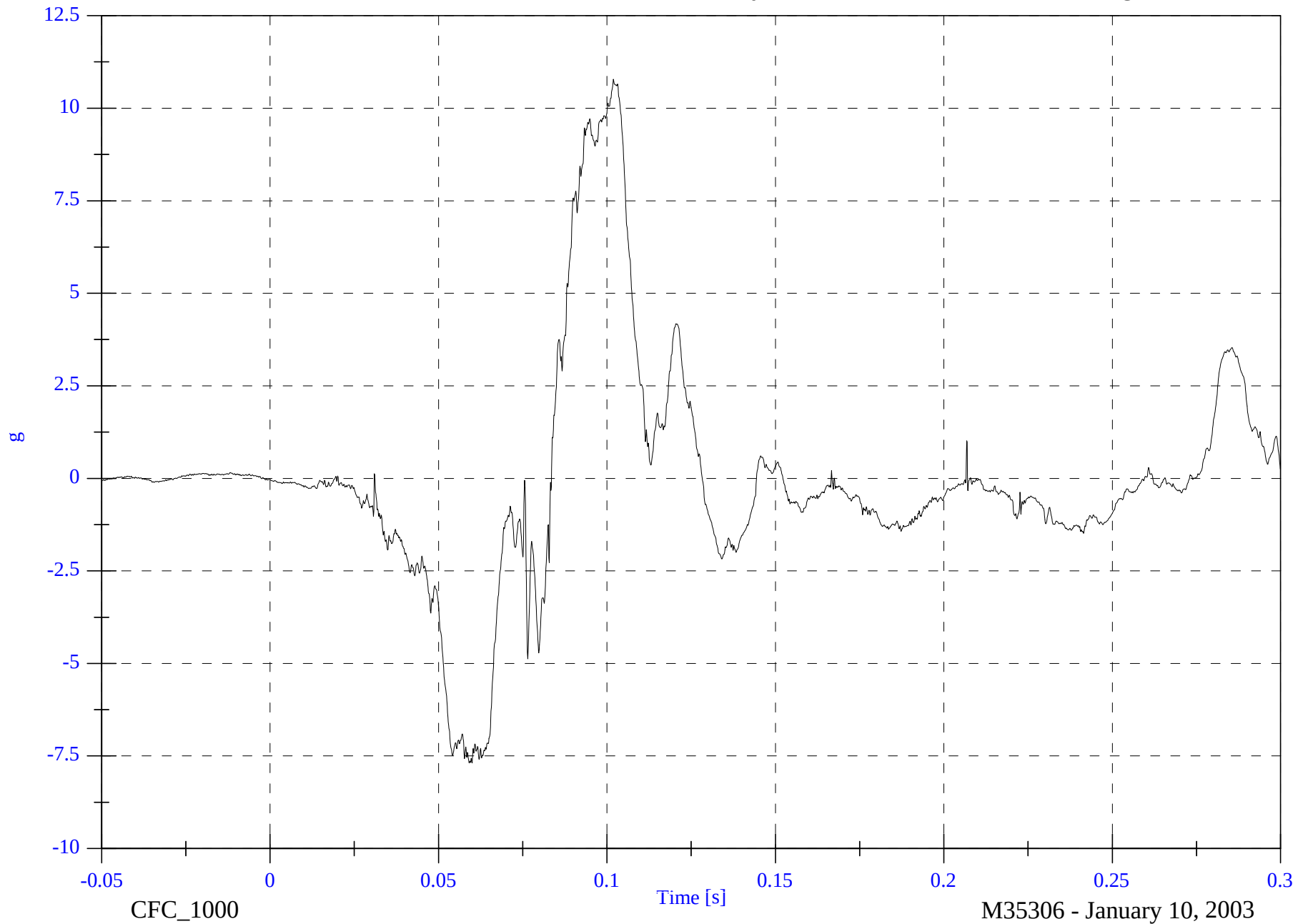
V1P4 Pelvic y

Max: 10.8 [g] at 0.102 [s]

Min: -7.7 [g] at 0.059 [s]

4-53

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

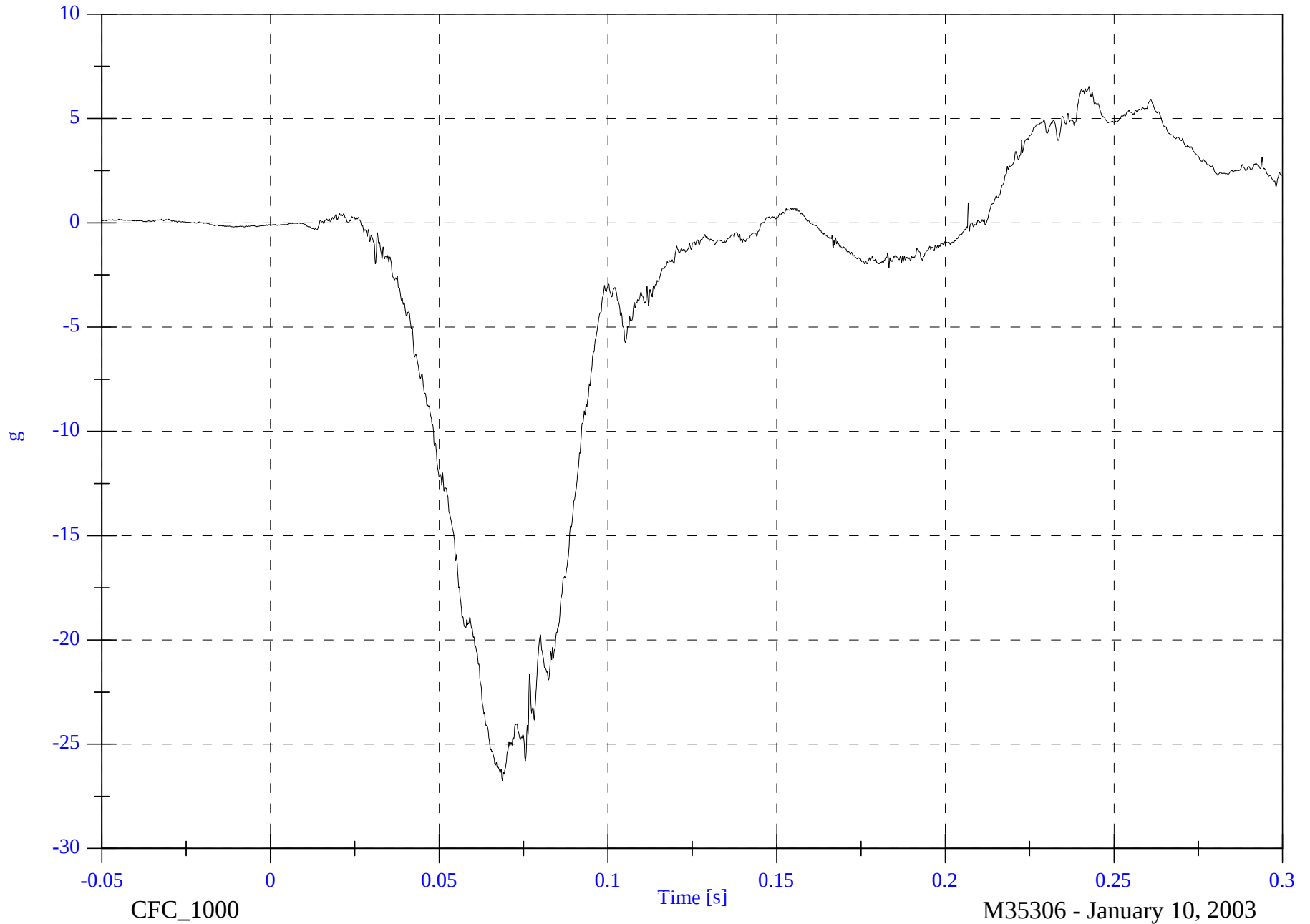
V1P4 Pelvic z

Max: 6.5 [g] at 0.243 [s]

Min: -26.7 [g] at 0.069 [s]

4-54

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

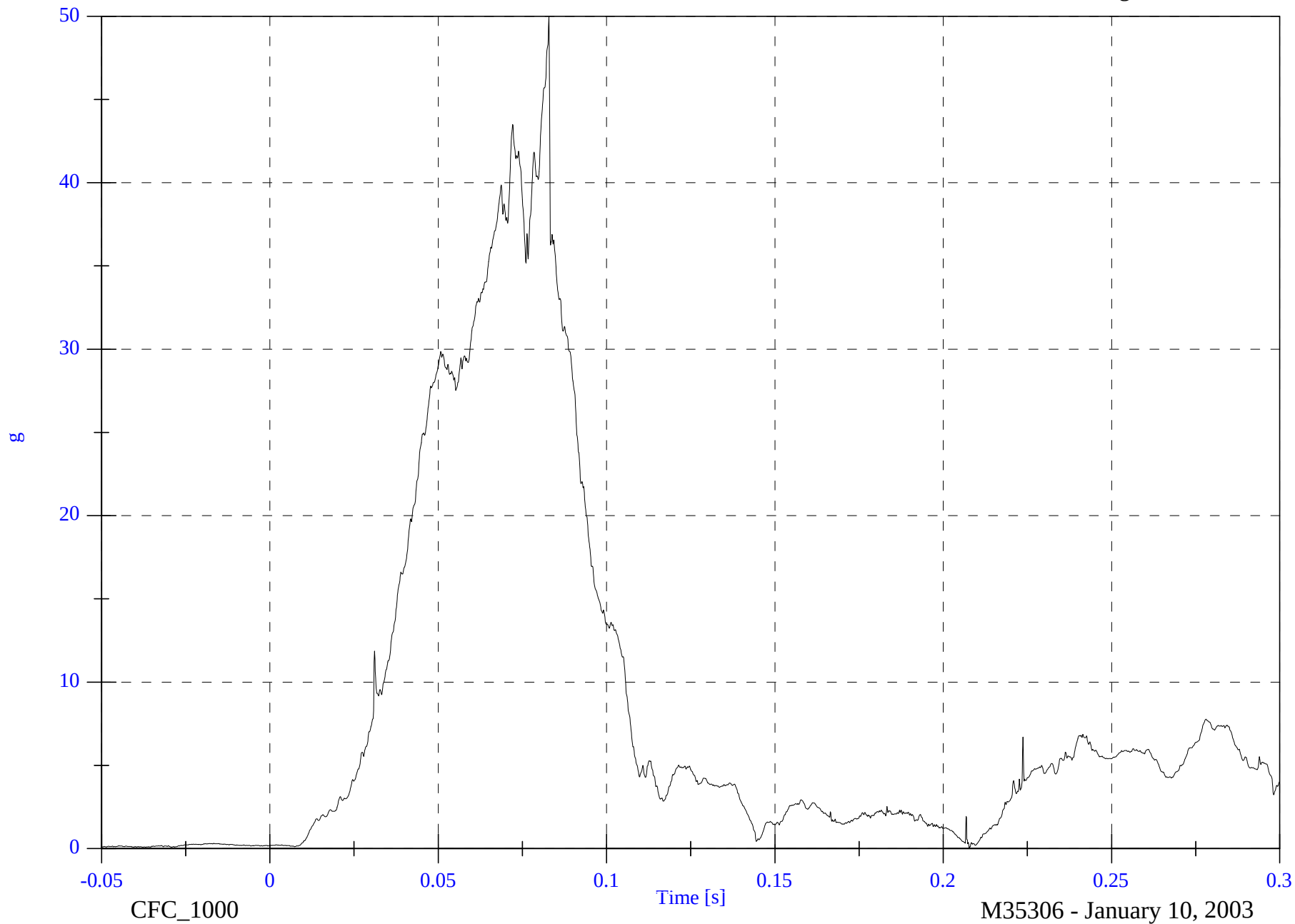
V1P4 Pelvic Resultant

Max: 50.0 [g] at 0.083 [s]

Min: 0.0 [g] at 0.208 [s]

4-55

8642-NCAP-26



2003 NCAP Test #4 - 2003 Honda Odyssey

V1P4 Lap Belt

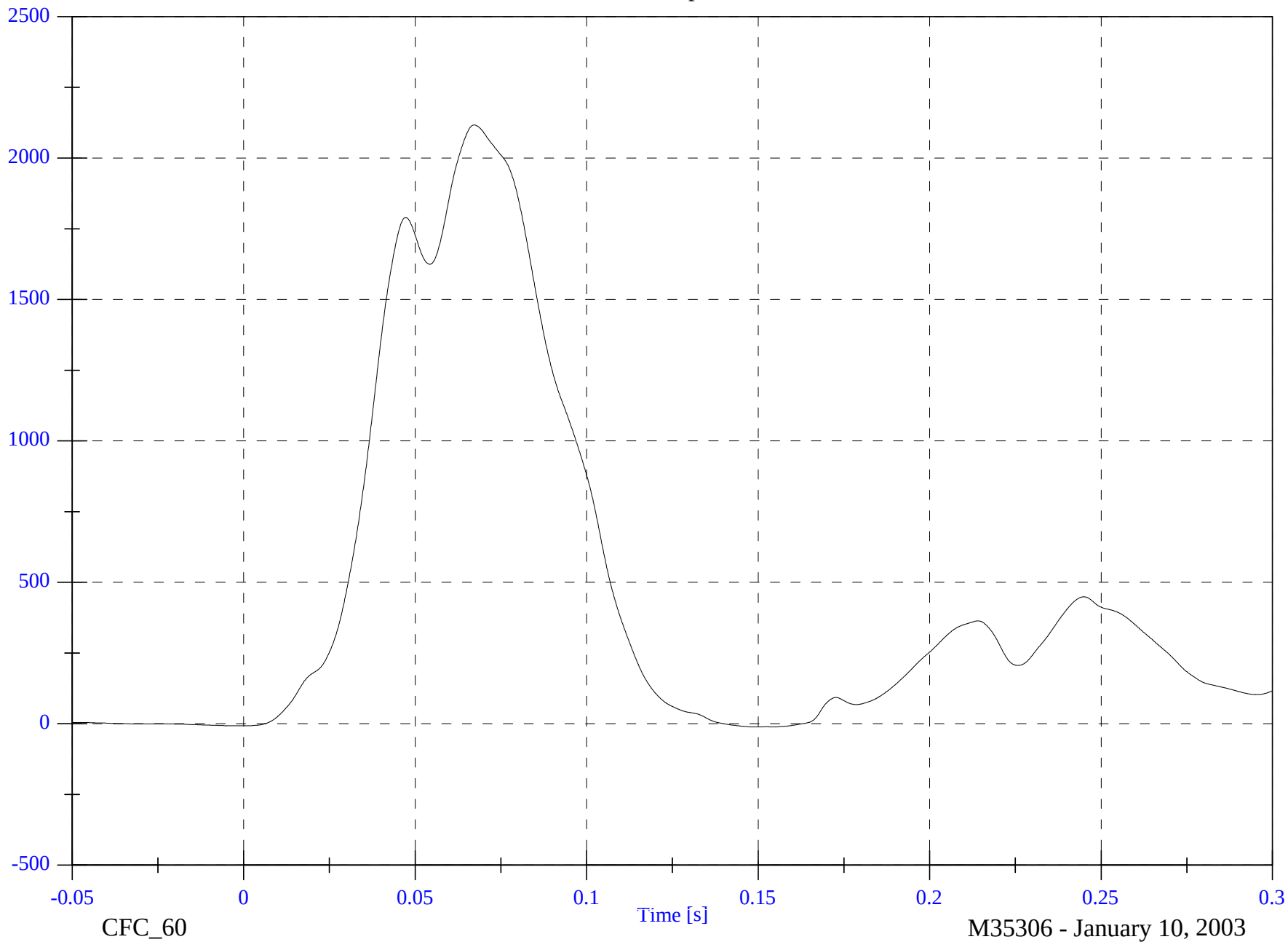
Max: 2116.7 [N] at 0.067 [s]

Min: -11.2 [N] at 0.149 [s]

4-56

N

8642-NCAP-26



SECTION 5

CHILD DUMMY CALIBRATION INFORMATION

Position 4 was certified by VRTC prior to the test program
Calibration information can be found in the bound report copy

142 Head Drop

Part 572P Head Drop

Calibration Date: 11-15-02

Serial No: 142

Work File: 142H1 11-15-02

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

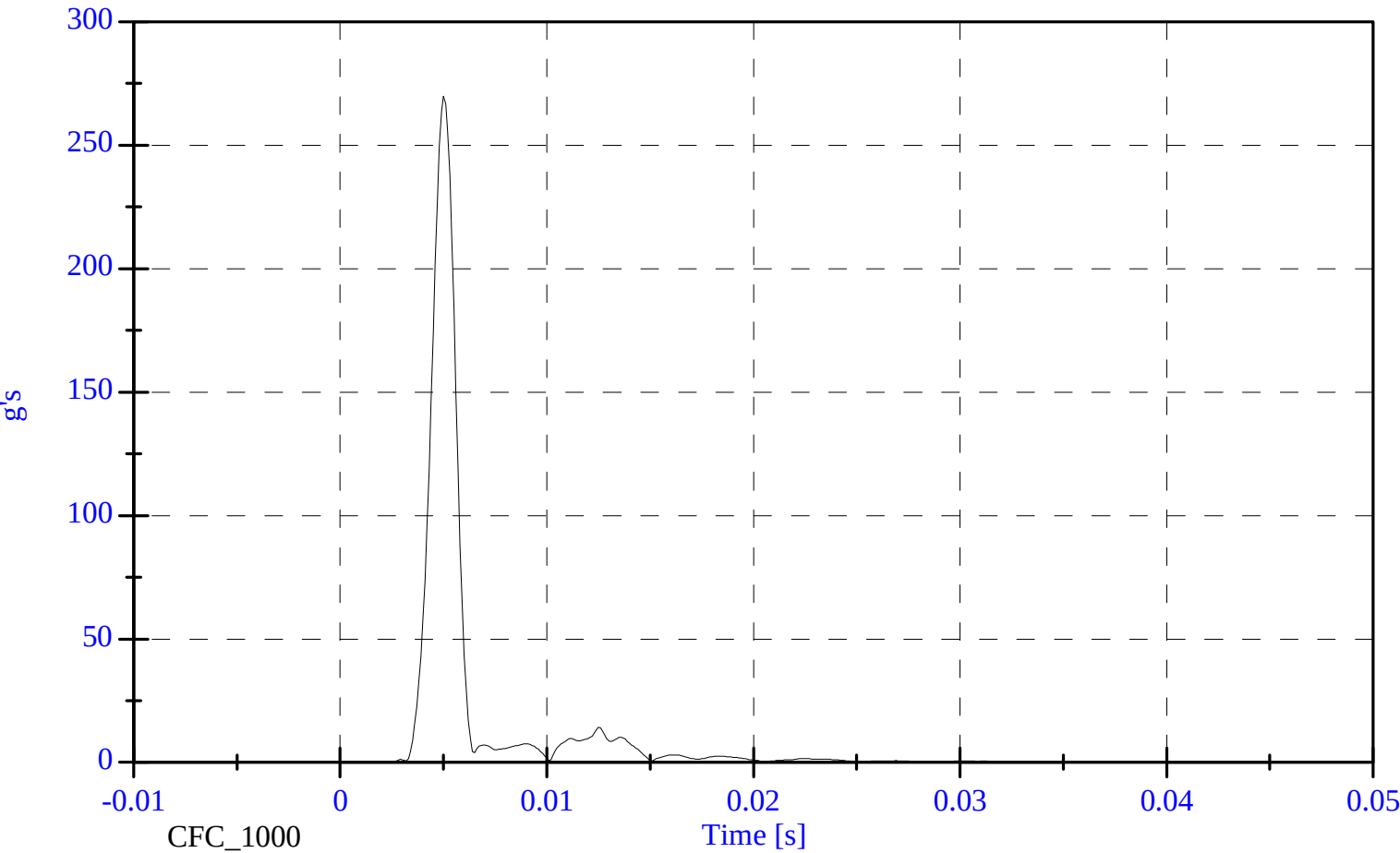
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	66.0-78.0 F	69.0 F	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Peak Resultant Accel.:	250-280 Gs	269.74 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	8.65 Gs	Passed
Curve PerCent NonModal:	< 10%	5.27 %	Passed

142 Head Drop

Head Resultant

Max: 269.7 [g's] at 0.005 [s]

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



142 Chest Impact

Part 572P Thorax Impact

Calibration Date: 11-21-02

Serial No: 142

Work File: 142T 11-21-02

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

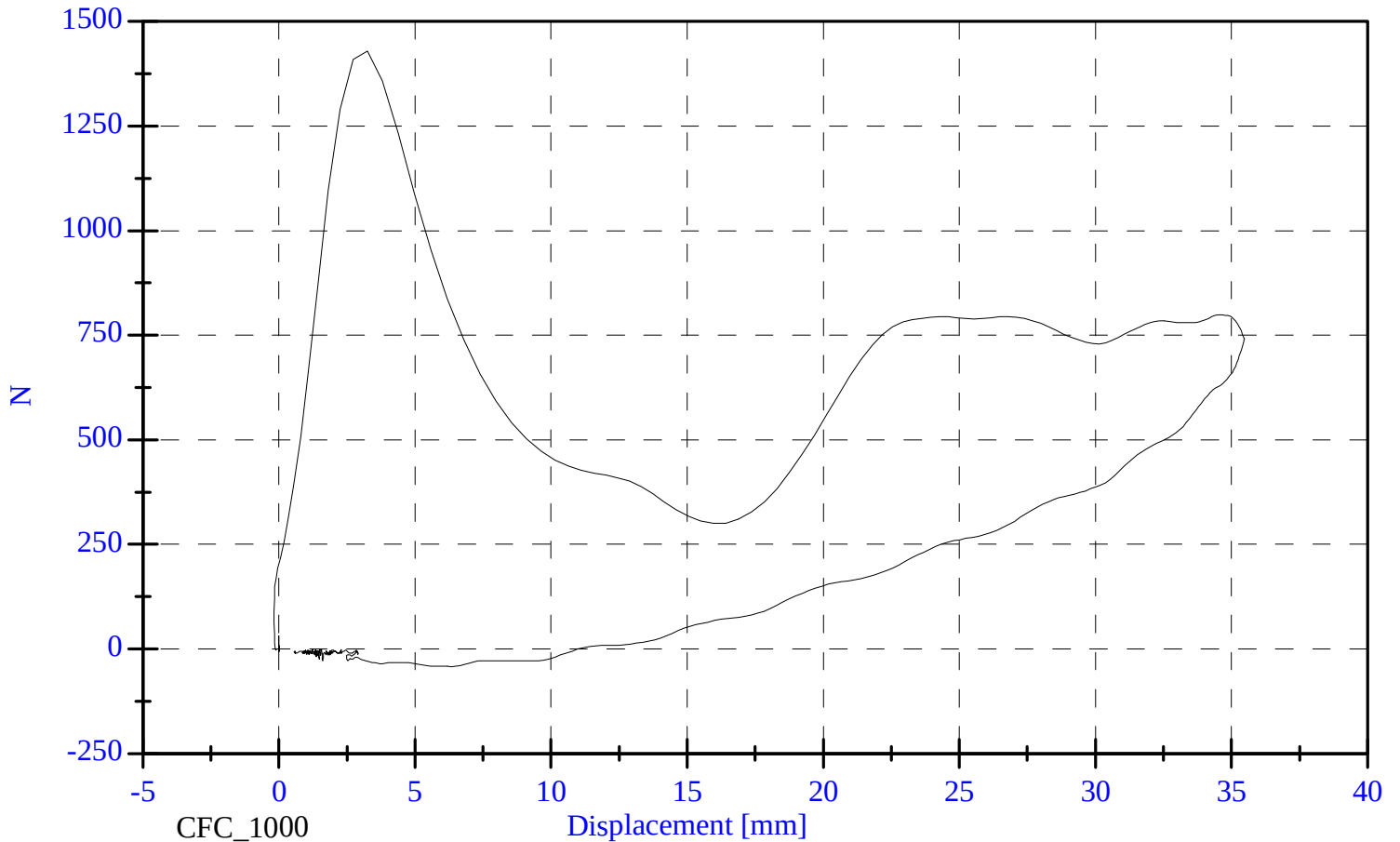
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Pendulum Velocity:	5.90- 6.10 m/s	6.03 m/s	Passed
Maximum Deflection:	32.00-38.00 mm	35.46 mm	Passed
Maximum Res. Force:	680.00- 810.00 N	798.56 N	Passed
Internal Hysteresis:	65-85 %	75.17 %	Passed
Pass Sternum Force Criteria?:	860.00 N	798.56	Passed

142 Chest Impact

Probe Force vs. Displacement

Max: 1429.2 [N] at 3.251 [mm]

Min: -42.0 [N] at 6.333 [mm]



142 Neck Ext.
Part 572P Neck Extension Test
Part 572P Serial No: 142
Calibration Date: 11-20-02
Work File: 142Ext9a 11-20-02

-----Neck Test Results-----

TEST CONDITION	PARAMETERS	RESULTS	STATUS
Lab Temperature:	69.0-72.0 F	70.00 F	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Test Pendulum Speed:	11.58-12.38 ft/s	12.01 ft/s	Passed

-----Pendulum Pulse----

Pulse at 6 ms:	3.30- 4.60 ft/s	3.94 ft/s	Passed
Pulse at 10 ms:	6.20- 8.20 ft/s	6.94 ft/s	Passed
Deceleration at 14 ms:	9.20-11.50 ft/s	9.27 ft/s	Passed

-----D Plane Rotation----

Maximum Rotation:	83.0-93.0 Deg	84.61 Deg	Passed
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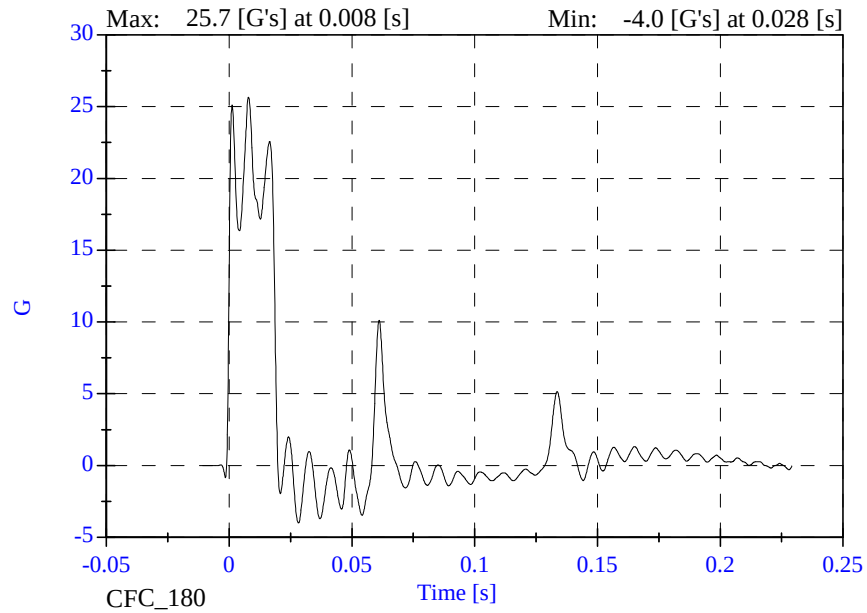
-----Moment About the Occipital Condyle----

Max Occipital Moment:	0.00- 0.00 N	-49.03 N	Failed
Occipital Moment Decay:	60.0-80.0 ms	72.20 ms	Passed

Certified By: B.Swiecicki Date: 11-20-02

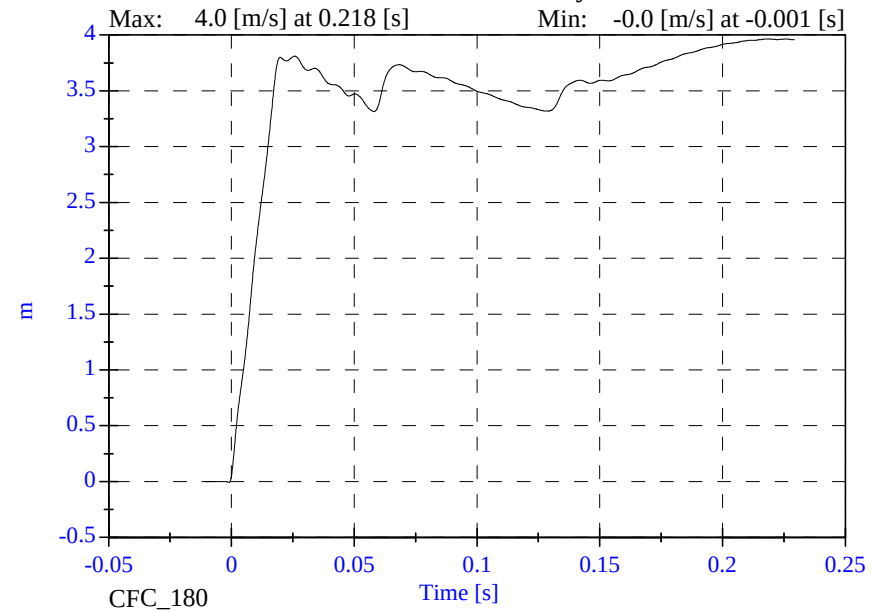
142 Neck Ext.

Pendulum Acceleration

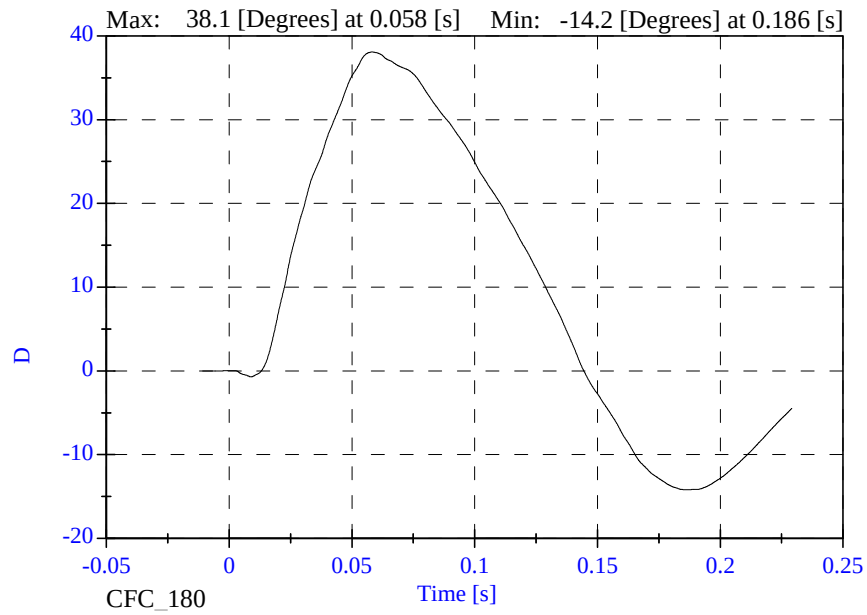


11-20-02

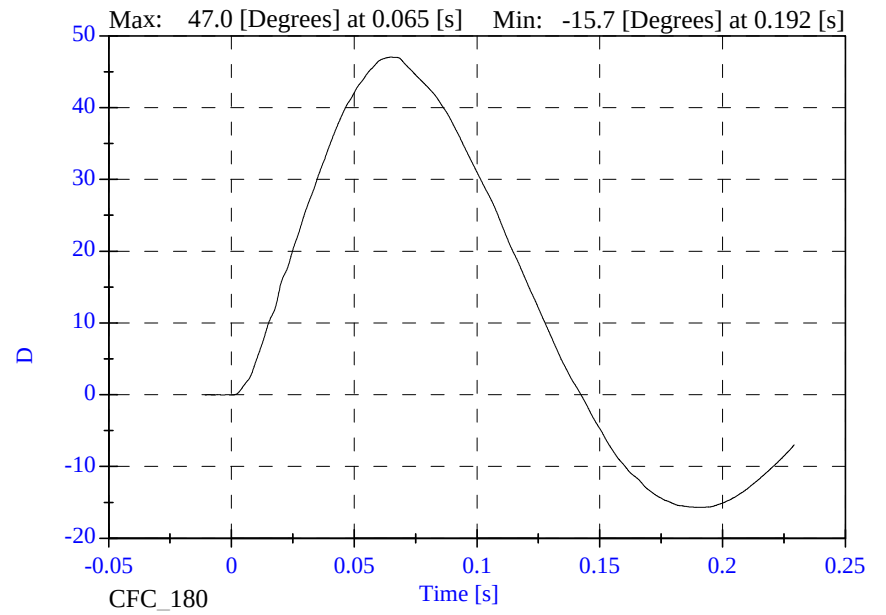
Pendulum Velocity



Head Rotation

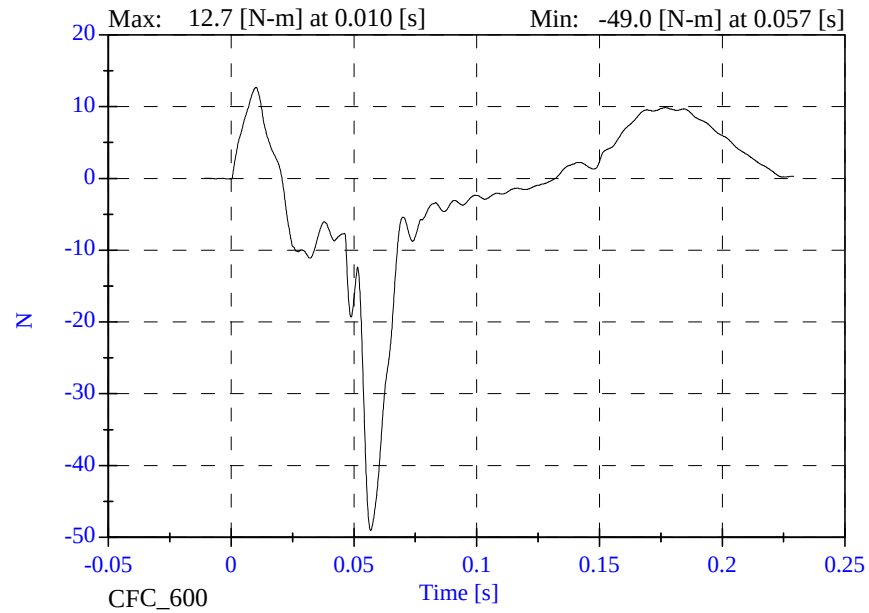


Arm Rotation



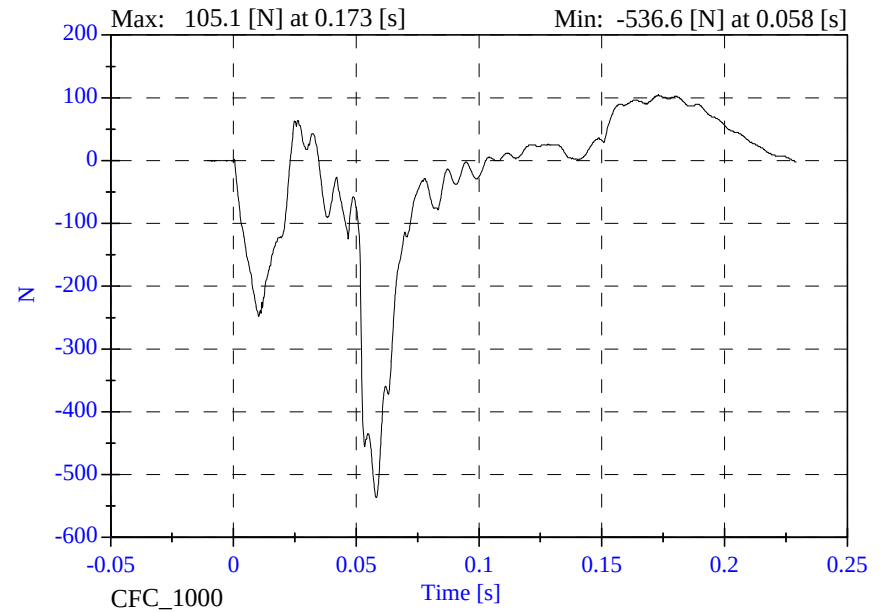
142 Neck Ext.

Neck Moment Y

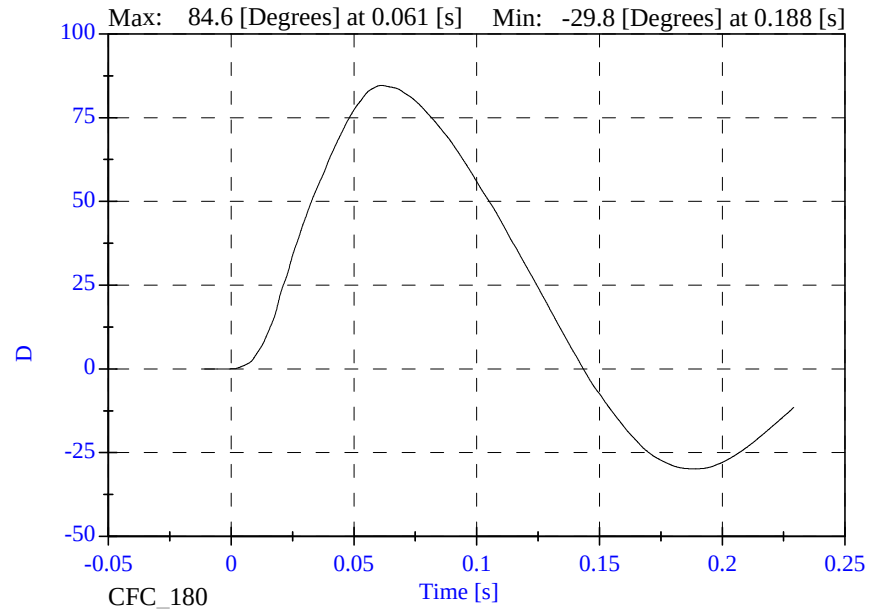


11-20-02

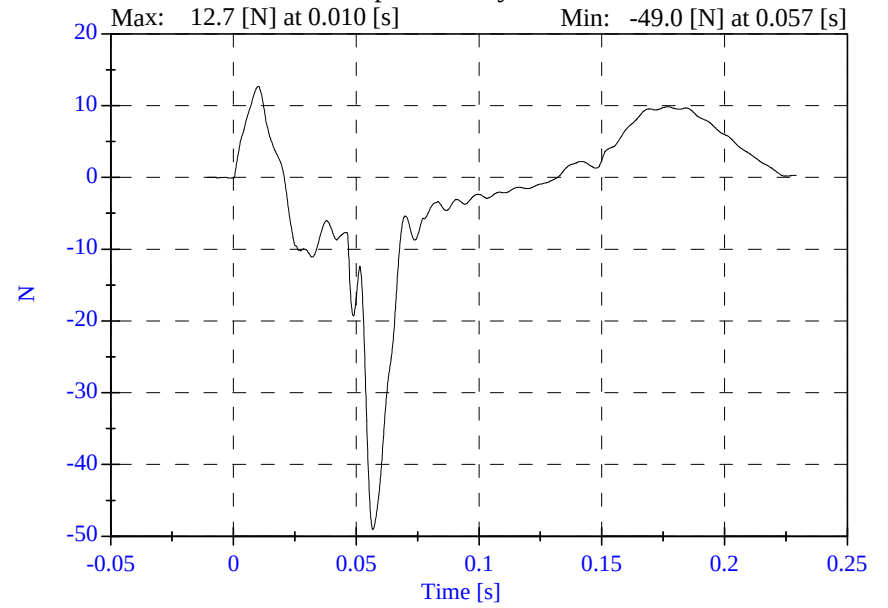
Neck Force X



Total Rotation



Occipital Condyle Moment



142FLX1 11-20-02.TXT

142 Neck Flex
Part 572P Neck Flexion Test
Part 572P Serial No: 142
Calibration Date: 11-20-02
Work File: 142Flx1 11-20-02

-----Neck Test Results-----

TEST CONDITION	PARAMETERS	RESULTS	STATUS
Lab Temperature:	20.6-22.2 C	21.11 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Test Pendulum Speed:	5.40- 5.60 m/s	5.55 m/s	Passed

-----Pendulum Pulse----

Pulse at 10 ms:	2.00- 2.70 m/s	2.09 m/s	Passed
Pulse at 15 ms:	3.00- 4.00 m/s	3.13 m/s	Passed
Deceleration at 20 ms:	4.00- 5.10 m/s	4.33 m/s	Passed

-----D Plane Rotation----

Maximum Rotation:	70.0-82.0 Deg	77.98 Deg	Passed
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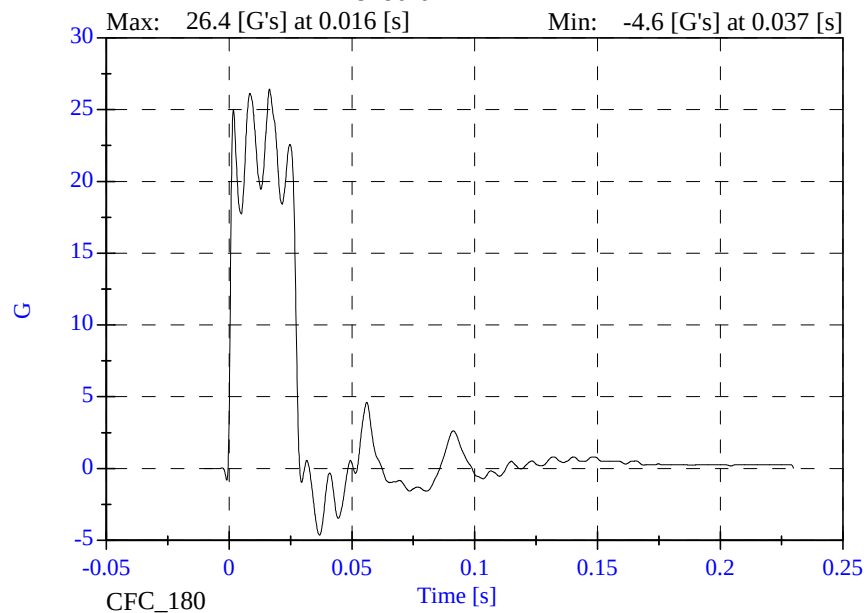
-----Moment About the Occipital Condyle----

Max Occipital Moment:	42.00- 53.00 N-M	44.98 N-M	Passed
Occipital Moment Decay:	60.0-80.0 ms	71.10 ms	Passed

Certified By: B.Swiecicki Date: 11-20-02

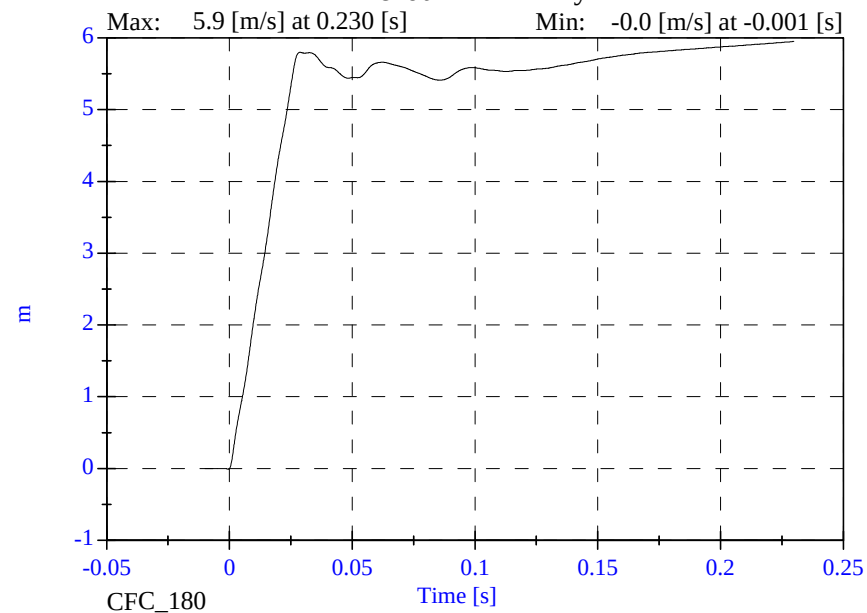
142 Neck Flex

Pendulum Acceleration

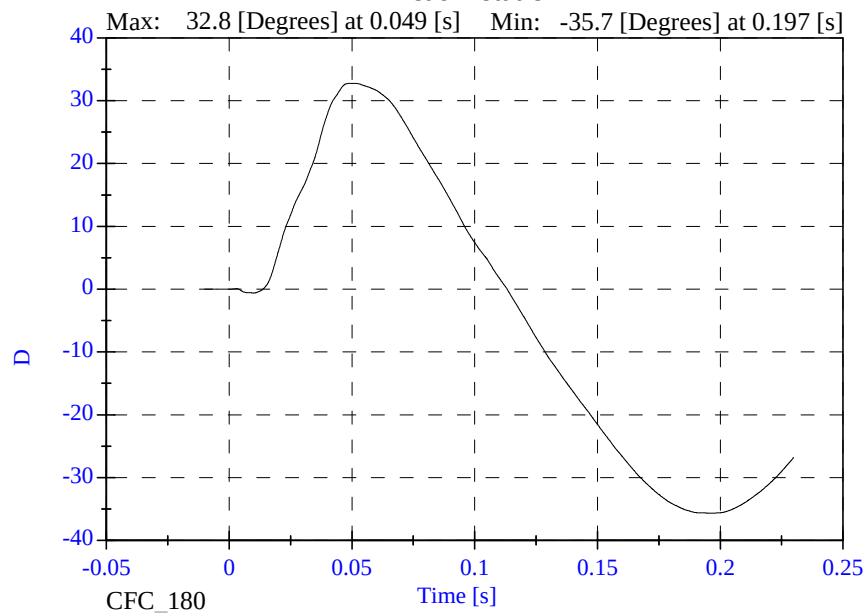


11-20-02

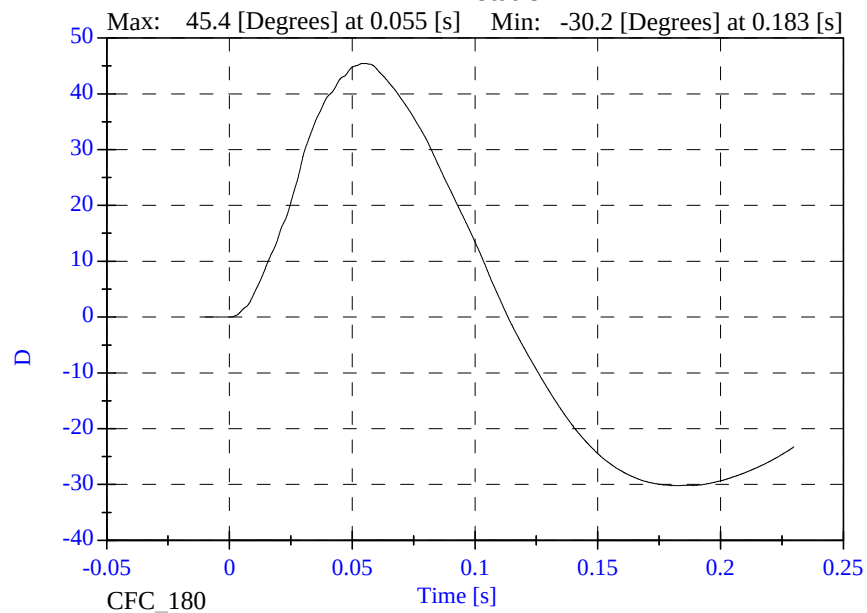
Pendulum Velocity



Head Rotation

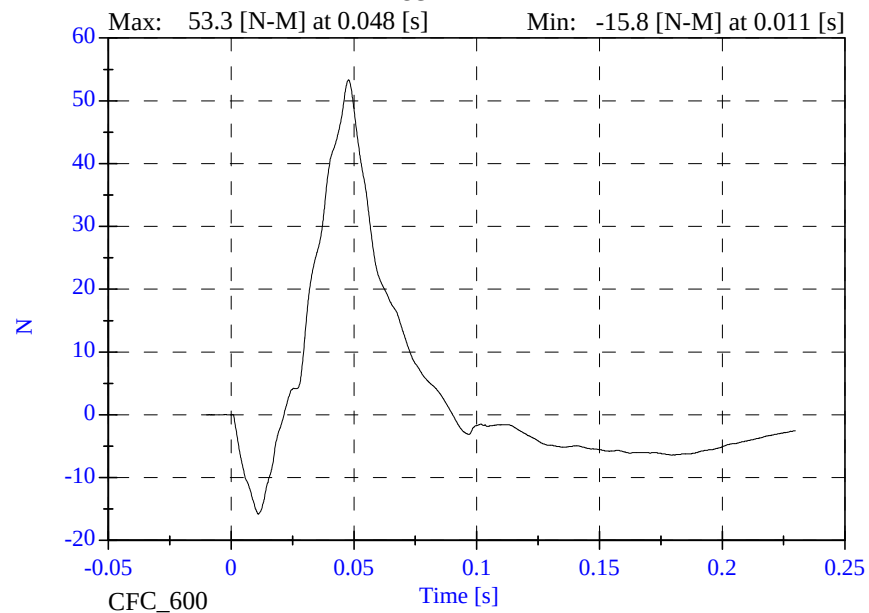


Arm Rotation



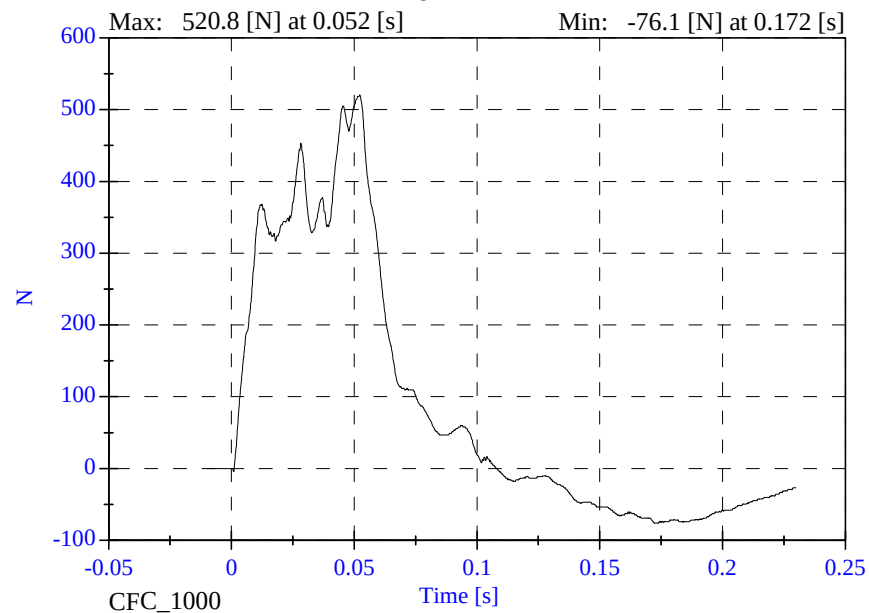
142 Neck Flex

Neck Moment Y

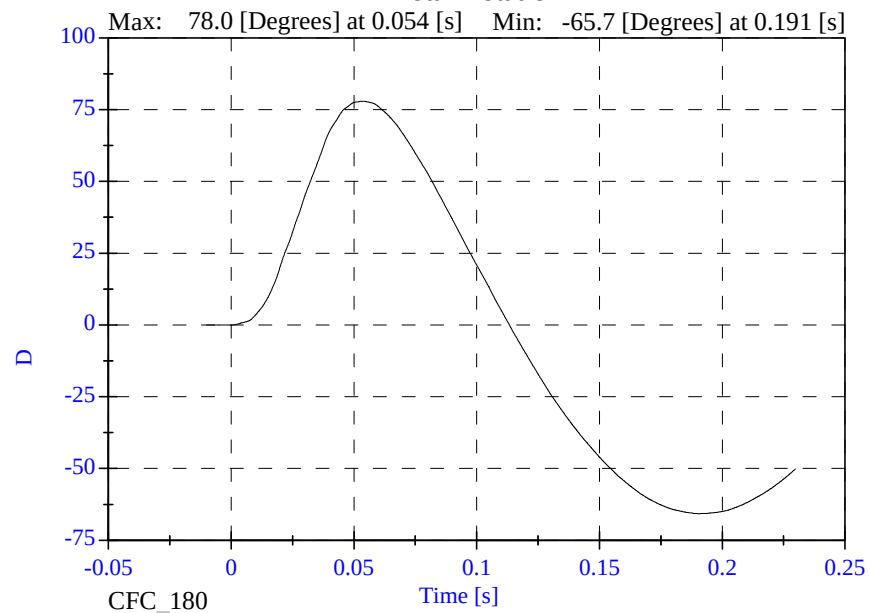


11-20-02

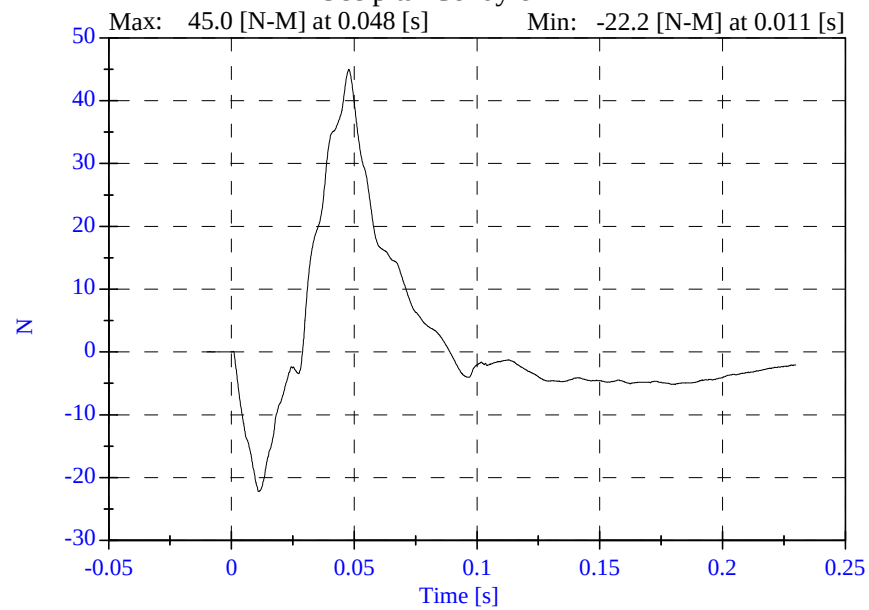
Neck Force X



Total Rotation



Occipital Condyle Moment



Spine_Flexion_test.txt

142 Lumbar Spine Flexion

Date: 11-21-02

Result: 45 degrees - 40.8 lbf

Certified By: B.Swiecicki Date: 11-21-02

SECTION 6

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

HYBRID III 3C INSTRUMENTATION

	POSITION #3 (RIGHT) SERIAL NO.: 142		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	ENTRAN	AC-99108-F29	11-Nov-02
HEAD AY	ENTRAN	AC-99102-F12	11-Nov-02
HEAD AZ	ENTRAN	AC-00L13-F03	11-Nov-02
HEAD RAZ	ENTRAN	AC-98G18-F18	11-Nov-02
UPPER NECK FX	DENTON	LC-213-Fx	14-Oct-02
UPPER NECK FY	DENTON	LC-213-Fy	14-Oct-02
UPPER NECK FZ	DENTON	LC-213-Fz	14-Oct-02
UPPER NECK MX	DENTON	LC-213-Mx	14-Oct-02
UPPER NECK MY	DENTON	LC-213-My	14-Oct-02
UPPER NECK MZ	DENTON	LC-213-Mz	14-Oct-02
LOWER NECK FX	DENTON	LC-214Fx	14-Oct-02
LOWER NECK FY	DENTON	LC-214-Fy	14-Oct-02
LOWER NECK FZ	DENTON	LC-214-Fz	15-Oct-02
LOWER NECK MX	DENTON	LC-214-Mx	15-Oct-02
LOWER NECK MY	DENTON	LC-214-My	15-Oct-02
LOWER NECK MZ	DENTON	LC-214-Mz	15-Oct-02
CHEST AX	ENTRAN	AC-99108-F30	11-Nov-02
CHEST AY	ENTRAN	AC-99108-F28	11-Nov-02
CHEST AZ	ENTRAN	AC-99H30-Z04	11-Nov-02
CHEST DISPLACEMENT X	SERVO	DS-142	13-Nov-02
PELVIS AX	ENTRAN	AC-99102-F06	11-Nov-02
PELVIS AY	ENTRAN	AC-99102-F15	11-Nov-02
PELVIS AZ	ENTRAN	AC-99G29-Q13	11-Nov-02
TETHER BELT LOAD	LEBOW	LC-707	12-Nov-02

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

HYBRID III 6C INSTRUMENTATION

	POSITION #4 (LEFT) SERIAL NO.: 144		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	ENTRAN	AC-02I02I10-N25	13-Nov-02
HEAD AY	ENTRAN	AC-02I02I10-N09	13-Nov-02
HEAD AZ	ENTRAN	AC-02I02I10-N17	13-Nov-02
UPPER NECK FX	DENTON	LC-1037Fx	05-Dec-02
UPPER NECK FY	DENTON	LC-1037Fy	05-Dec-02
UPPER NECK FZ	DENTON	LC-1037Fz	05-Dec-02
UPPER NECK MX	DENTON	LC-1037Mx	05-Dec-02
UPPER NECK MY	DENTON	LC-1037My	05-Dec-02
UPPER NECK MZ	DENTON	LC-1037Mz	05-Dec-02
CHEST AX	ENTRAN	AC-02I02I10-N04	14-Nov-02
CHEST AY	ENTRAN	AC-02I02I10-N15	14-Nov-02
CHEST AZ	ENTRAN	AC-02I02I24-N07	14-Nov-02
CHEST DISPLACEMENT X	SERVO	DS-144	30-Dec-02
PELVIS AX	ENTRAN	AC-02I02I10-N01	13-Nov-02
PELVIS AY	ENTRAN	AC-02I02I10-N02	13-Nov-02
PELVIS AZ	ENTRAN	AC-02A16-A28	12-Dec-02
LAP BELT LOAD	LEBOW	LC-712	12-Nov-02