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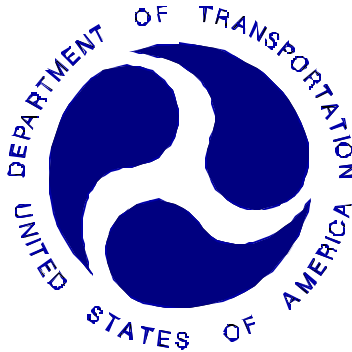
**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

TOYOTA MOTOR CORPORATION
2004 TOYOTA PRIUS
5-DOOR HATCHBACK

NHTSA NUMBER: M45107

GENERAL DYNAMICS TEST NUMBER: 8642-NCAP-45

GENERAL DYNAMICS
ADVANCED INFORMATION ENGINEERING SERVICES
TRANSPORTATION SCIENCES CENTER
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February 24, 2004

FINAL REPORT

PREPARED FOR:

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National Highway Traffic Safety Administration
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16. Abstract A frontal load cell barrier test of a 2004 Toyota Prius 5-Door Hatchback was performed at General Dynamics crash test facility in Buffalo, New York, on February 24, 2004. The impact velocity was 56.97 kph and the temperature at the barrier face was 20°C. The maximum post-test vehicle crush was 582 mm. The test vehicle was equipped with 3-point restraint systems with torso belt pretensioners and force limiters, knee bolsters, head restraints and airbags at both the driver and right outboard passenger seating positions. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appeared to comply with head, chest, and femur requirements.					
ATD Position	HIC	Clip (g's)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)
Driver (061)	340.6	40.9	-25.8	-1571.0	-3192.5
Passenger (064)	296.1	48.1	-27.1	-1674.7	-1404.0
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SECTION 1

PURPOSE AND SUMMARY OF TEST

1.1 PURPOSE

This 56.97 kph frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-01-D-32005. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

The 56.97 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

1.2 TEST PROCEDURE

This 56.97 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. 061) and the right-front passenger (position 2) ATD (Serial No.064) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The vehicle, occupant, camera and measurement data are presented in Section 2. Appendix A contains the still photograph prints. The 164 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 2004 Toyota Prius 5-Door Hatchback at a velocity of 56.97 kph. The test was performed at General Dynamics on February 24, 2004. 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	340.6	40.9	-25.8	-1571.0	-3192.5	†	†
Passenger ATD	296.1	48.1	-27.1	-1674.7	-1404.0	†	†

† - Not used due to vehicle being equipped with torso belt pretensioners.

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

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

The 2004 Toyota Prius 5-Door Hatchback 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>M45107</u>	Test Mode:	<u>56.3 kph Frontal Barrier</u>
Test Date:	<u>February 24, 2004</u>	Time:	<u>13:41</u> Temperature: <u>20</u> °C
Vehicle Make/Model/Body Style:	<u>2004 Toyota Prius 5-Door Hatchback</u>		
Vehicle Test Weight:	<u>1516.0</u>	kg	
Vehicle/Barrier Impact Angle:	<u>0</u>	°	
Impact Velocity:	<u>56.97</u>	kph	
Maximum Static Crush:	<u>582</u>	mm	
Vehicle Rebound:	<u>721</u>	mm	
<u>DUMMIES:</u>	<u>DRIVER</u>	<u>PASSENGER</u>	
Type:	<u>572E</u>	<u>572E</u>	
Restraint System:	<u>Three point seatbelt with torso belt pretensioners and force limiters, airbag, knee bolster and head restraint</u>	<u>Three point seatbelt with torso belt pretensioners and force limiters, airbag, knee bolster and head restraint</u>	
Number of Data Channels:	<u>164</u>		
Number of Cameras:	<u>1</u>	Real Time	
	<u>16</u>	High Speed	
<u>DOOR OPENING DATA:</u>	<u>Closed, Latched and Operable without Tools - Left Front</u>		
	<u>Closed, Latched and Operable without Tools - Right Front</u>		
Front Seat(s) Data:	<u>DRIVER</u>	<u>PASSENGER</u>	
Seat Track Failure: (mm of shift)	<u>0</u>	<u>0</u>	
Seat Back Failure:	<u>None</u>	<u>None</u>	
<u>VISIBLE DUMMY CONTACT POINTS:</u>	<u>DRIVER</u>	<u>PASSENGER</u>	
Head:	<u>The face to the center of the airbag, the top of the head to the side header and the back of the head to the center of the head restraint.</u>	<u>The face to the center of the airbag, the top of the head to the side header and the back of the head to the right of center of the head restraint.</u>	
Abdomen:	<u>-</u>	<u>-</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: 2004 Toyota Prius 5-Door Hatchback

NHTSA No. : M45107 ; VIN: JTDKB20U740031091 ; Color: Blue

Engine Data: 4 cylinders; - CID; 1.5 Liters; - cc

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

Transmission Data: - speeds; - Manual; X Automatic; - 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: 02/03/2004 ; Odometer Reading 19 km

Selling Dealer: Northtown Toyota

& Address: 1135 Millersport Highway Amherst, NY 14226

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Toyota Motor Corporation

Date of Manufacture 12/03

GVWR: 1721 kg; GAWR: 1059 kg FRONT; 1021 kg REAR

DATA FROM TIRE PLACARD:

Recommended Tire Size: P185/65R15

* Recommended Cold Tire Pressure: 240 kPa FRONT; 230 kPa REAR

DATA FROM TIRE SIDEWALL:

Size of Tires on Test Vehicle: P185/65R15 86S ; Manufacturer: Goodyear

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

Treadwear: 460 ; Traction: A ; Temperature: B

VEHICLE CAPACITY DATA:

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

Number of Occupants: 2 Front; 3 Rear; 5 Total

Vehicle Capacity Weight (VCW) = 374.0 kg

No. of Occupants x 68.04 kg = 340.2 kg

Rated Cargo/Luggage Weight (RCLW) = 33.8 kg

*Tire pressure used for test

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

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

Right Front =	<u>390.0</u>	kg	Right Rear =	<u>261.0</u>	kg
Left Front =	<u>402.0</u>	kg	Left Rear =	<u>282.0</u>	kg
TOTAL FRONT =	<u>792.0</u>	kg	TOTAL REAR =	<u>543.0</u>	kg
TOTAL DELIVERED WEIGHT =	<u>1335.0</u>	kg			
% of Total Front of Vehicle Weight =	<u>59.3%</u>		% of Total Rear Weight =	<u>40.7%</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW) =	<u>1335.0</u>	kg
Rated Cargo/Luggage Weight (RCLW) =	<u>33.8</u>	kg
Weight of 2 p.572 Dummies @ 76 each =	<u>152</u>	kg
TARGET TEST WEIGHT =	<u>1520.8</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND

29.0

KG OF CARGO WEIGHT:

Right Front =	<u>435.0</u>	kg	Right Rear =	<u>310.0</u>	kg
Left Front =	<u>445.0</u>	kg	Left Rear =	<u>326.0</u>	kg
TOTAL FRONT =	<u>880.0</u>	kg	TOTAL REAR =	<u>636.0</u>	kg
TOTAL TEST WEIGHT =	<u>1516.0</u>	kg			
% of Total Front Weight =	<u>58.0%</u>	%	% of Total Rear Weight =	<u>42.0%</u>	%
Weight of Ballast Secured in Vehicle Trunk Area =	<u>0</u>	kg			
Vehicle Components Removed for Weight Reduction:	<u>Rear side window glass, rear bumper, side mirrors, left rear seatback.</u>				

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED:	RF	<u>684</u>	LF	<u>678</u>	RR	<u>677</u>	LR	<u>679</u>
FULLY LOADED:	RF	<u>668</u>	LF	<u>659</u>	RR	<u>654</u>	LR	<u>647</u>
AS TESTED:	RF	<u>684</u>	LF	<u>678</u>	RR	<u>656</u>	LR	<u>656</u>
Vehicle's Wheel Base:	<u>2700</u> mm							
Location of Vehicle's C.G.:	<u>1133</u> mm rearward of front wheel center.							

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual =	<u>50</u>	liters
Usable Capacity Figure Furnished by COTR =	<u>50</u>	liters
Test Volume Range (92 to 94% of Usable Capacity) =	<u>46</u>	to <u>47</u> liters
ACTUAL TEST VOLUME=	<u>46.6</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> </u>	Mechanical- <u> </u>
Does Electric Pump operate with ignition switch "ON" & engine "OFF"	Yes- <u> </u>	No- <u> </u>
<u>Details of Fuel System: The tank is centered ahead of the rear axle; The fuel lines run inside the right frame stiffener; The filler neck is located on the left side of the vehicle behind the rear axle.</u>		

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test: Frontal Barrier Impact Angle: 0°
Test Date: February 24, 2004 Time: 13:41 Temperature: 20 °C
Vehicle NHTSA No.: M45107
Required Impact Velocity Range: 55.5 to 57.1 kph

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

Trap No. 1 = 56.97 kph; Trap No. 2 = 56.97 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>4362</u> ; C/L = <u>4436</u> ; Right = <u>4369</u>
Post-Test	Left = <u>3934</u> ; C/L = <u>3854</u> ; Right = <u>3891</u>
Crush	Left = <u>428</u> ; C/L = <u>582</u> ; Right = <u>478</u>
AVERAGE	= <u>496</u> mm

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point:

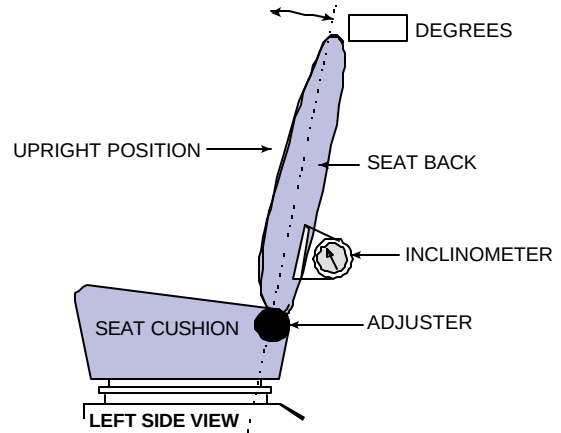
	Left = <u>700</u> ; C/L = <u>751</u> ; Right = <u>711</u>
AVERAGE	= <u>721</u> mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2004 Vehicle Model: Toyota Prius Body Style : 5-Door Hatchback

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



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat: 8

Measurement instructions: Recline seat to detent number five with the forward most detent being detent one.

This results in reclining the seat 8 degrees rearward from the most upright position or 89 degrees from level sill.

Seat back angle for passenger's seat: 8

Measurement instructions: Same as the driver's seat.

2. Seat Fore and Aft Positioning

Positioning of the driver's seat: There are 17 total detents with a total travel of 240 mm. The seat is placed in detent number 9 or at 120 mm.

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 50 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 = 50 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 46.6 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 is turned to the 'ON' position or while the engine is running.

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

4. STEERING COLUMN ADJUSTMENTS:

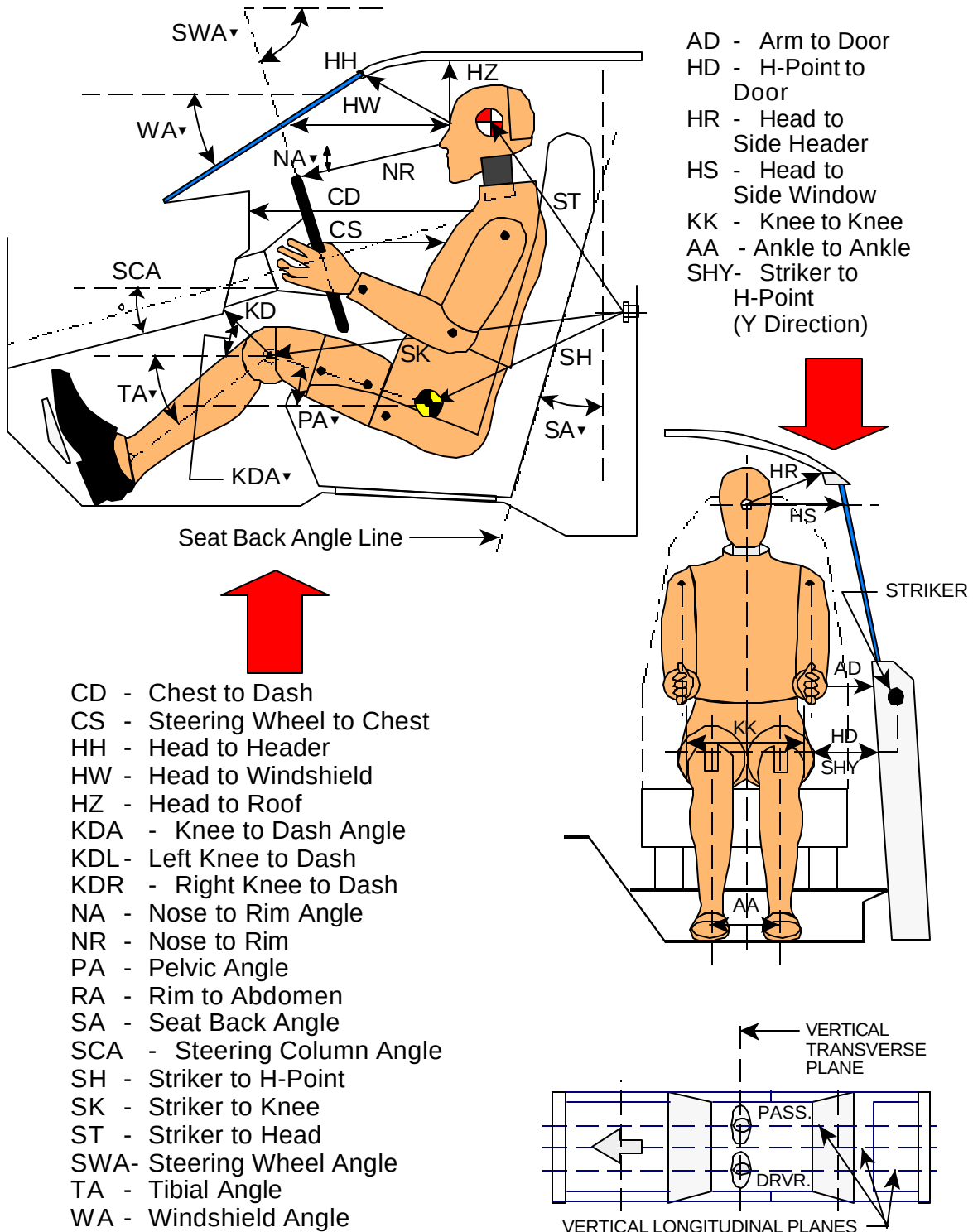
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions: The steering column is set to an angle of 28 degrees from the rocker sill.

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: There are five total detents with the uppermost detent numbered detent
one. The test position is detent two.

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



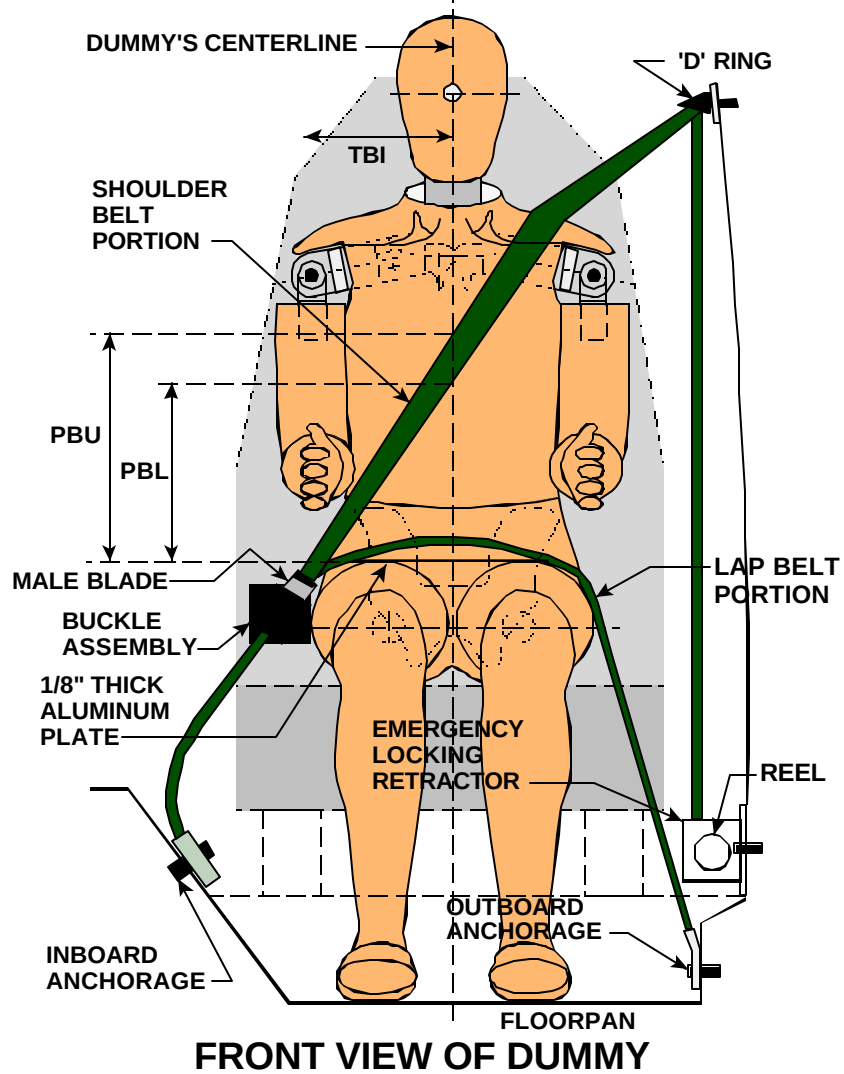
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #061)			PASS. (Serial #064)		
WA ⁰	22 deg.			N/A		
SWA ⁰	62 deg.			N/A		
SCA ⁰	28 deg.			N/A		
SA ⁰	8 deg.			8 deg.		
HZ	181			178		
HH	325			339		
HW	611			593		
HR	195			202		
NR	403	Angle	-20 deg.	N/A		
CD	544			468		
CS	295			N/A		
RA	180			N/A		
KDL	143	Angle (KDA)	37 deg.	86		
KDR	90			134	Angle (KDA)	50 deg.
PA ⁰	22.6 deg.			23.1 deg.		
TA ⁰	51.8 deg.			45.3 deg.		
KK	332			250		
AA	357			225		
ST	486	Angle	10 deg.	491	Angle	11 deg.
SK	610	Angle	95 deg.	612	Angle	96 deg.
SH	280	Angle	124 deg.	260	Angle	127 deg.
SHY	220			215		
HS	305			319		
HD	132			102		
AD	111			98		

Dimensions in millimeters

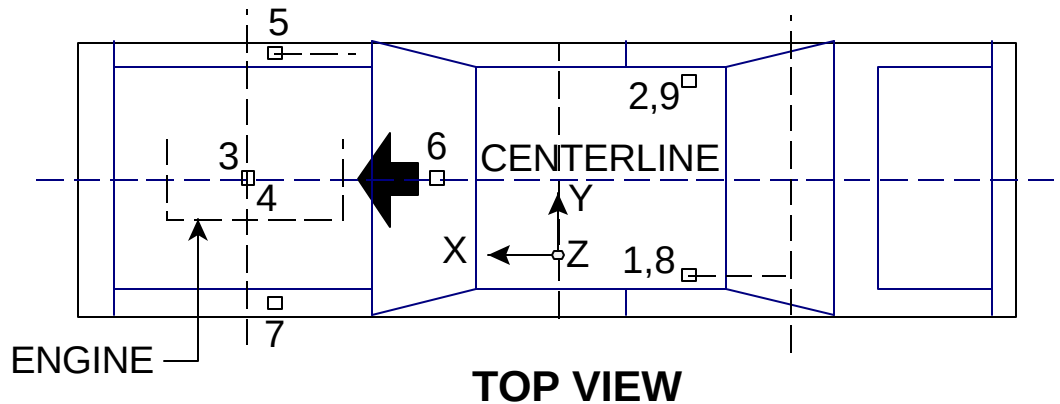
DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

SEAT BELT POSITIONING DATA

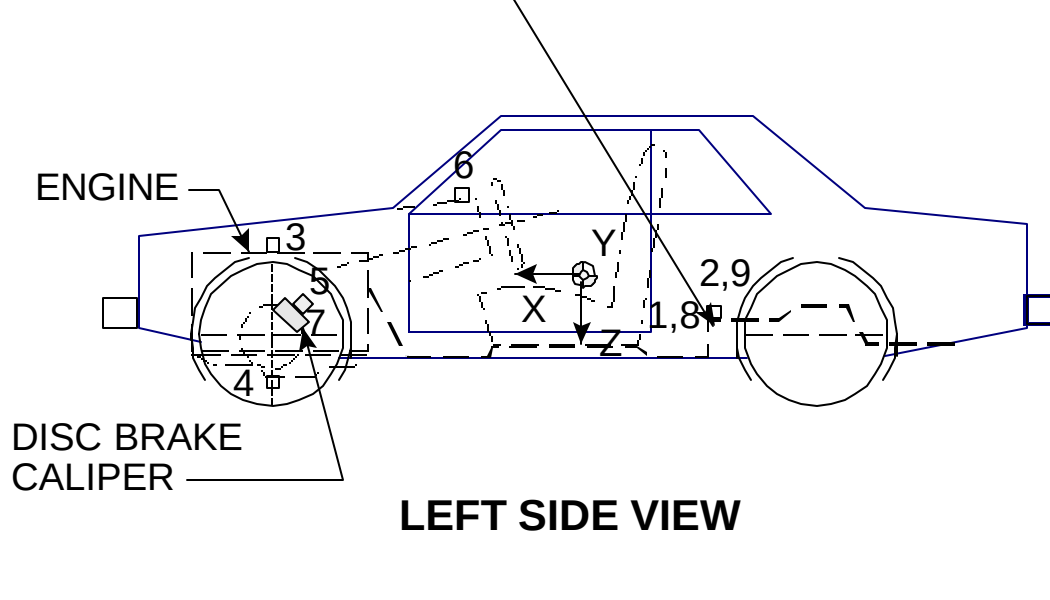


	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	380	360
PBL-- Top surface of alum. plate to belt lower edge	300	280
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

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	1719	-608	-366
2	Right Rear Seat Cross Member X	1720	602	-359
3	Top of Engine Block	3761	21	-737
4	Bottom of Engine	3177	11	-141
5	Disc Brake Caliper @ Right Side	3479	733	-374
6	Instrument Panel	2970	20	-1035
7	Disc Brake Caliper @Left Side	3575	-691	-414
8	Left Rear Seat Cross Member Z	1719	-608	-366
9	Right Rear Seat Cross Member Z	1720	602	-359

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Left Rear Seat Cross Member X	5.6	98.0	-47.4	53.5
2	Right Rear Seat Cross Member X	2.7	99.0	-43.1	53.9
3	Top of Engine Block	65.4	43.4	-115.0	33.9
4	Bottom of Engine	11.0	54.0	-166.6	30.5
5	Disc Brake Caliper @ Right Side	14.4	61.7	-70.7	40.8
6	Instrument Panel	6.8	127.2	-52.2	66.1
7	Disc Brake Caliper @Left Side	‡	‡	‡	‡
8	Left Rear Seat Cross Member Z	13.8	43.5	-6.6	73.5
9	Right Rear Seat Cross Member Z	§	§	§	§

‡ - Data is Questionable after 43 ms.

§ - Data is Questionable after 90 ms.

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2004 Toyota Prius 5-Door Hatchback

NHTSA Test No.: M45107 Test Date: February 24, 2004

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head 9 Array X Arm Y	g	7.3	107.0	-6.5	49.4	11.5	55.0	-9.3	62.8
Head 9 Array X Arm Z	g	20.6	58.7	-9.8	90.8	23.8	61.7	-7.3	117.7
Head 9 Array Y Arm X	g	2.1	199.2	-49.4	79.5	0.1	-13.4	-43.2	81.9
Head 9 Array Y Arm Z	g	21.1	58.5	-11.8	92.6	21.0	60.1	-7.2	99.9
Head 9 Array Z Arm X	g	8.6	99.8	-56.0	78.9	3.2	22.2	-47.0	73.7
Head 9 Array Z Arm Y	g	11.4	115.4	-15.5	88.6	9.3	54.4	-3.8	83.0
Head X	g	1.1	199.8	-52.1	80.4	0.9	16.7	-42.9	78.0
Head Y	g	6.7	106.3	-4.2	26.9	6.8	83.4	-4.4	63.4
Head Z	g	22.0	58.1	-15.8	91.4	41.2	132.5	-8.9	84.3
Head Resultant	g	52.2	80.4	0.0	-27.9	43.5	132.5	0.1	-22.5
Redundant Head X	g	1.3	199.9	-51.2	80.4	0.7	15.9	-44.5	81.5
Redundant Head Y	g	6.2	106.4	-4.2	26.9	8.4	84.9	‡	‡
Redundant Head Z	g	22.2	58.7	-15.7	91.4	20.3	59.8	-9.1	85.1
Redundant Head Resultant	g	51.3	80.4	0.0	-26.4	44.7	81.5	0.1	-22.8
Upper Neck Fx	N	474.7	83.0	-400.7	44.8	602.9	83.8	-400.0	133.9
Upper Neck Fy	N	180.7	124.0	-72.5	28.8	104.2	44.2	-137.6	80.1
Upper Neck Fz	N	1247.1	67.6	-138.0	92.6	1157.8	58.7	-384.6	84.8
Upper Neck F Resultant	N	1265.9	67.6	1.2	-25.5	1181.7	58.7	2.1	97.0
Upper Neck Mx	N-m	15.1	117.5	-15.6	88.0	8.9	50.1	-6.2	84.4
Upper Neck My	N-m	32.4	64.7	-46.8	98.6	35.4	120.5	-31.1	98.0
Upper Neck Mz	N-m	6.8	63.1	-8.2	120.7	3.7	15.7	-9.9	89.1
Upper Neck M Resultant	N-m	47.2	99.0	0.0	-38.4	35.7	120.5	0.1	-49.8
Chest X	g	3.8	135.2	-42.6	60.0	3.2	124.1	-49.1	85.3
Chest Y	g	7.2	91.3	-4.3	42.6	11.3	80.6	-9.1	72.1
Chest Z	g	6.9	20.0	-10.3	77.0	10.0	61.2	-8.3	76.2
Chest Resultant	g	42.7	84.5	0.0	-27.6	49.1	85.2	0.1	-24.3

‡ - Data spikes present

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

Vehicle Year/Make/Model/Body Style: 2004 Toyota Prius 5-Door Hatchback

NHTSA Test No.: M45107 Test Date: February 24, 2004

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Redundant Chest X	g	3.8	136.0	-42.1	60.1	3.0	128.5	-47.2	85.0
Redundant Chest Y	g	8.1	98.8	-4.3	42.6	12.6	80.7	-8.7	72.1
Redundant Chest Z	g	7.1	20.0	-10.2	95.0	9.7	61.2	-8.7	75.1
Redundant Chest Resultant	g	42.5	84.8	0.0	-28.1	47.4	84.9	0.1	-26.0
Chest Displacement	mm	0.0	-32.1	-25.8	62.5	0.0	-17.2	-27.1	60.9
Pelvic X	g	4.3	105.6	-63.9	60.1	5.7	101.1	-52.2	60.8
Pelvic Y	g	9.8	62.8	-10.2	45.6	8.1	69.5	-6.3	85.5
Pelvic Z	g	3.2	150.1	-35.8	75.0	3.2	197.2	-36.2	74.3
Pelvic Resultant	g	67.0	60.1	0.0	-27.4	57.5	66.1	0.0	-27.4
Left Femur	N	686.0	45.4	-1571.0	59.8	534.4	17.5	-1674.7	61.6
Right Femur	N	346.4	34.2	-3192.5	54.4	477.2	89.5	-1404.0	70.0
Left Upper Tibia Mx	N-m	23.7	54.2	-16.4	85.1	47.7	76.5	-24.1	190.9
Left Upper Tibia My	N-m	5.8	110.0	-117.8	56.1	21.3	191.7	-90.0	73.7
Left Lower Tibia Fz	N	*	*	*	*	83.2	151.6	-3074.3	80.9
Left Lower Tibia Mx	N-m	10.6	62.0	-12.5	89.6	19.4	72.5	-67.2	84.2
Left Lower Tibia My	N-m	43.5	88.4	-63.1	55.9	19.6	90.7	-33.2	50.0
Right Upper Tibia Mx	N-m	22.9	61.7	-68.1	53.7	13.8	77.6	-38.1	56.4
Right Upper Tibia My	N-m	25.3	101.0	-103.4	44.1	16.3	115.0	-98.6	75.5
Right Lower Tibia Fz	N	65.1	145.2	-1914.0	45.3	218.3	117.2	-2836.0	78.7
Right Lower Tibia Mx	N-m	83.0	60.6	-35.0	52.8	17.5	55.0	-14.7	83.2
Right Lower Tibia My	N-m	52.5	60.9	-49.2	50.1	14.8	90.8	-41.0	47.7
Left Foot Aft Ax	g	†	†	†	†	13.8	15.3	-71.9	52.6
Left Foot Aft Az	g	4.9	181.1	-54.8	55.6	6.1	15.0	-38.9	49.7
Left Foot Fore Az	g	23.8	12.5	-70.6	40.7	18.8	15.1	-51.4	49.7
Right Foot Aft Ax	g	16.7	64.2	-72.8	42.8	7.0	68.2	-79.7	54.0
Right Foot Aft Az	g	8.8	59.4	-74.4	50.8	4.1	65.6	-43.4	55.1
Right Foot Fore Az	g	51.2	57.2	-178.0	41.5	28.7	70.3	-57.7	55.2
Lap Belt Load	N	8457.1	60.4	-1.8	-33.6	9701.7	60.3	-24.3	181.0

* - Noise in Data

† - Wire cut at 79 ms.

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

Vehicle Year/Make/Model/Body Style: 2004 Toyota Prius 5-Door Hatchback

NHTSA Test No.: M45107 Test Date: February 24, 2004

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	340.6	57.2	93.2	38.9 g
Position #2 - Passenger	296.1	58.9	94.9	36.8 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	40.9	83.3	86.3	429.3
Position #2 - Passenger	48.1	84.4	87.4	508.4

* 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: 2004 Toyota Prius 5-Door Hatchback
 NHTSA Test No.: M45107 Test Date: February 24, 2004

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	328.3	57.2	93.2	38.4 g
Position #2 - Passenger	303.3 ¹	58.8	94.8	37.2 g

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

¹ Calculated using Primary Head Y Accelerometer

CLIP SUMMARY* REDUNDANT				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	40.6	83.3	86.3	421.0
Position #2 - Passenger	45.6	84.1	87.7	470.2

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

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

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

Driver

Passenger

1820

1820

Shoulder belt length as measured
on Part 572 Dummy.

880

880

Lap belt length as measured
on Part 572 Dummy.

940

940

Dimensions in millimeters

DATA SHEET NO.10 SUMMARY OF FMVSS 212 DATA

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

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

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

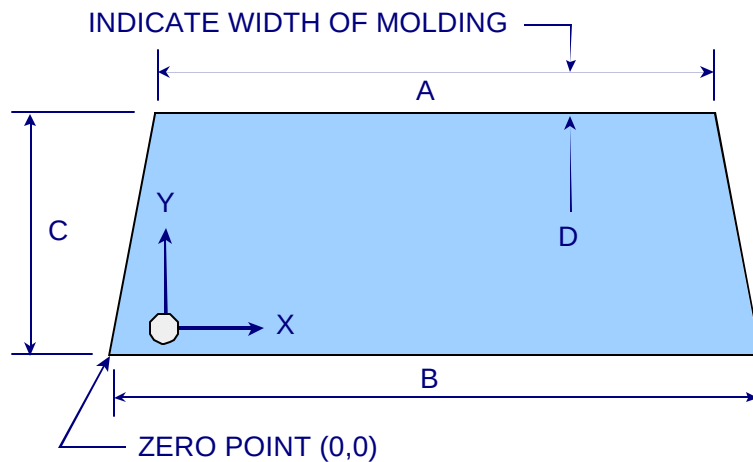
FMVSS 212 REQUIREMENTS:

The Post-Test periphery retention amount must be at least 75% of the Pre-Test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of the windshield for vehicles equipped with automatic restraint systems for front occupants,

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST (mm)	
RIGHT SIDE	2167.5	2167.5	100.0%
LEFT SIDE	2167.5	2167.5	100.0%
TOTAL	4335	4335	100.0%

AREA OF RETENTION FAILURE: None



DIMENSIONS (mm)	
A	1190
B	1425
C	860
D	15

FRONT VIEW OF WINDSHIELD

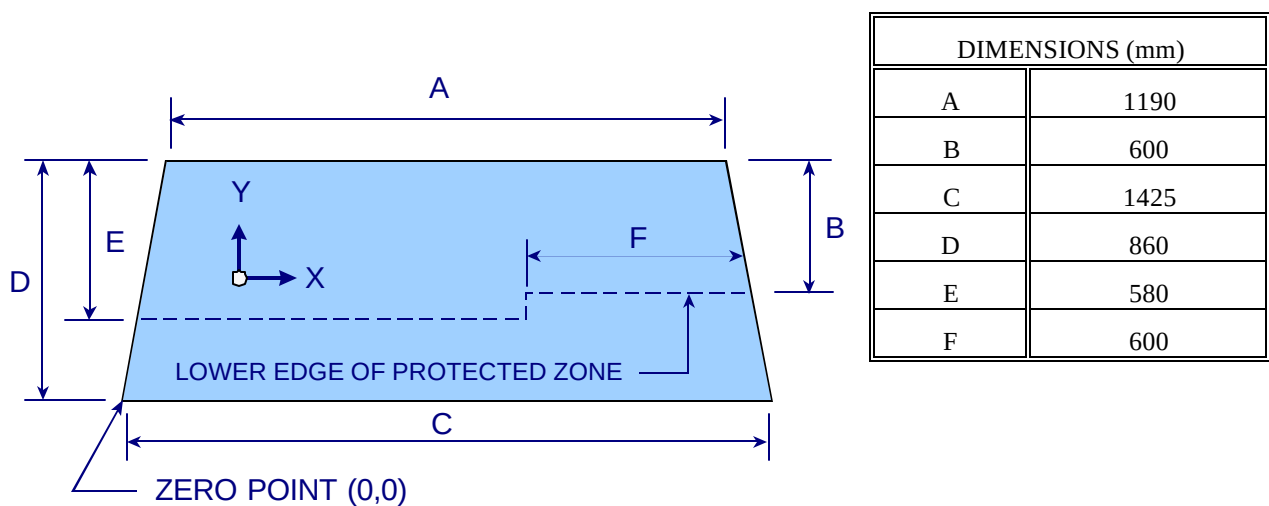
FAILURE DETAILS: None

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

PROTECTED ZONE LOWER EDGE REQUIREMENT:

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

FMVSS 219 TEST DATA:



FRONT VIEW OF WINDSHIELD

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

(Show location of penetration on the above sketch)

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

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

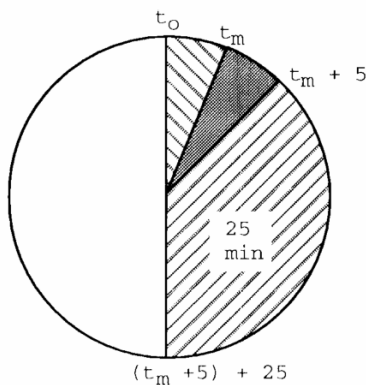
NHTSA TEST No.: M45107 TEST DATE: February 24, 2004
VEHICLE MAKE/MODEL: 2004 Toyota Prius 5-Door Hatchback

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

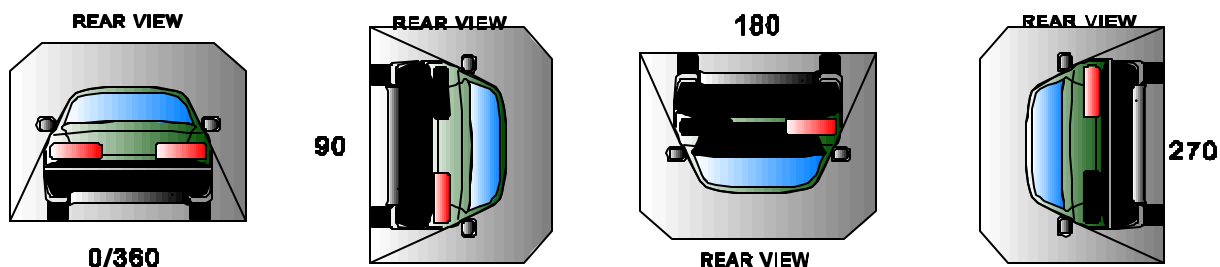
ACTUAL	MAX ALLOWED
0	28 g
0	141 g
0	28 g/min.

SOLVENT SPILLAGE DETAILS: None

DATA SHEET NO. 13 - ROLLOVER DATA

Vehicle: 2004 Toyota Prius 5-Door Hatchback

NHTSA No.: M45107



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	11	seconds	5	minutes	6	minutes	11	seconds	7	minutes
90° - 180°	1	minutes	06	seconds	5	minutes	6	minutes	6	seconds	7	minutes
180°-270°	1	minutes	01	seconds	5	minutes	6	minutes	1	seconds	7	minutes
270°-360°	1	minutes	11	seconds	5	minutes	6	minutes	11	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:

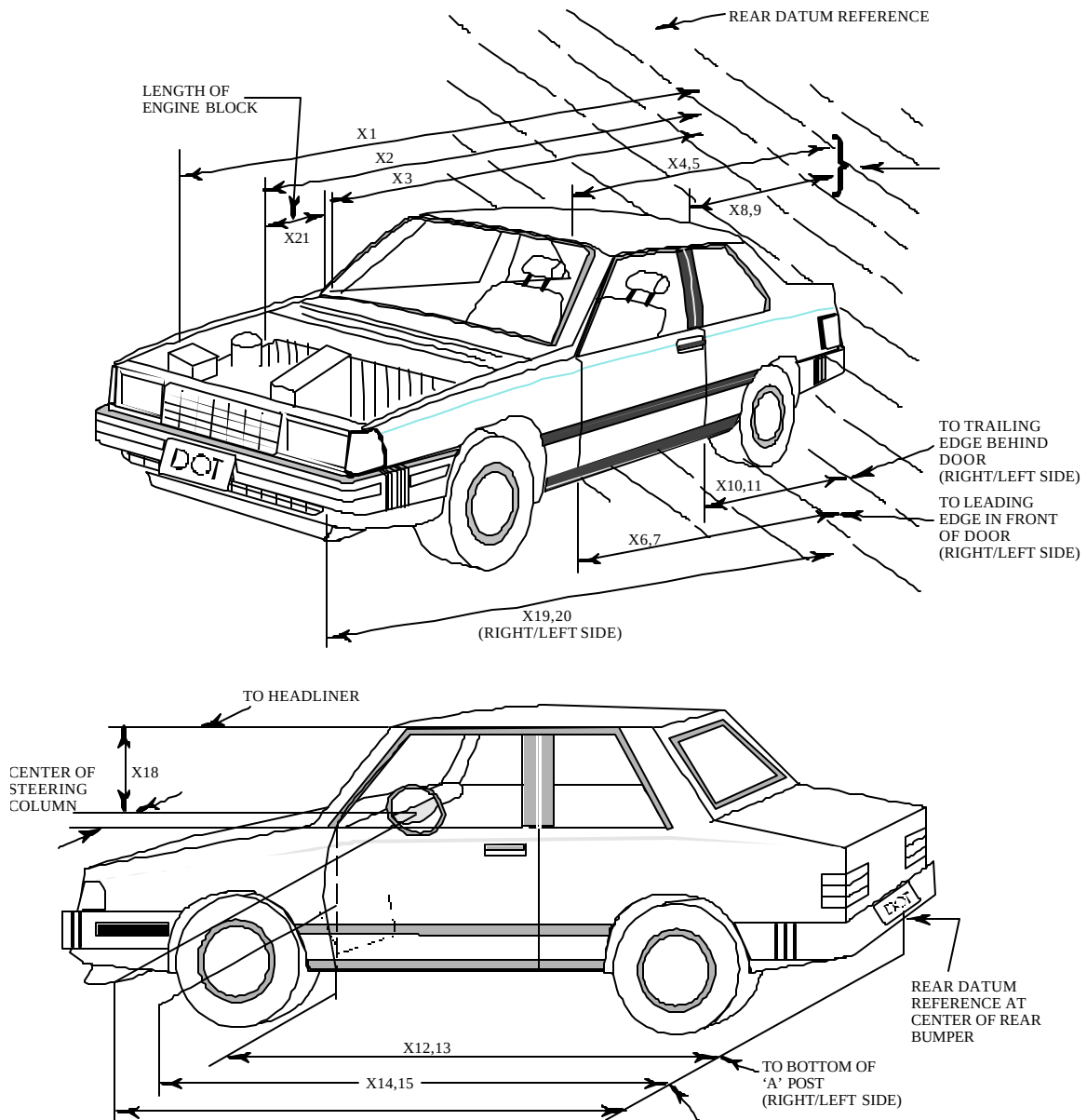
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°	0	0	0	N/A
90° - 180°	0	0	0	N/A
180°-270°	0	0	0	N/A
270°-360°	0	0	0	N/A

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

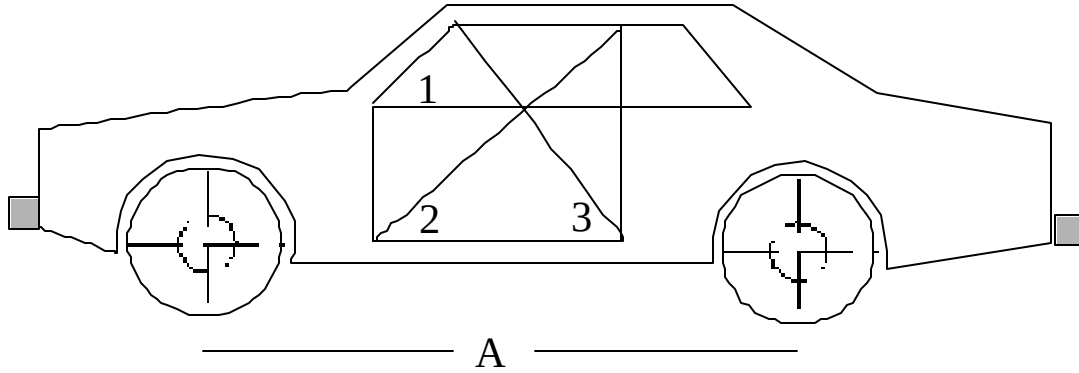


DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4436	3854	582
X2	Rear Surface of Vehicle to Front of Engine	3972	3702	270
X3	Rear Surface of Vehicle to Firewall	3672	3582	90
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3084	3081	3
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3085	3086	-1
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3068	3067	1
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3066	3064	2
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2045	2035	10
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2045	2035	10
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2040	2021	19
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2039	2031	8
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3275	3274	1
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3274	3274	0
X14	Rear Surface of Vehicle to Firewall, Right Side	3617	3559	58
X15	Rear Surface of Vehicle to Firewall, Left Side	3609	3549	60
X16	Rear Surface of Vehicle to Steering Column	2667	2694	-27
X17	Center of Steering Column to "A" Post	315	271	44
X18	Center of Steering Column to Headliner	448	463	-15
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4369	3891	478
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4362	3934	428
X21	Length of Engine Block	305	305	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2834	2826	8
CD	Rear Surface of Vehicle to Center of Dash Panel	3038	3037	1
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2837	2829	8

All Dimensions in mm

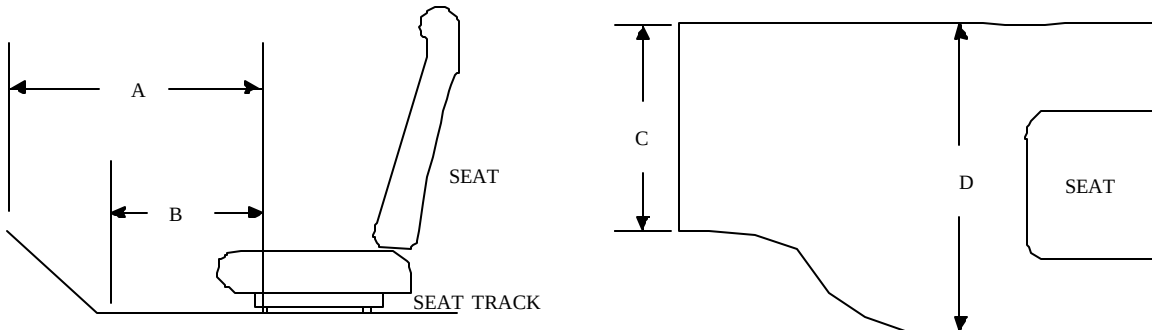
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	958	1439	1031	967	1444	1013
AFTER TEST	955	1414	1036	958	1450	1015
DIFFERENCE	3	25	-5	9	-6	-2

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2700	2700
AFTER TEST	2585	2641
DIFFERENCE	115	59

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



DRIVER

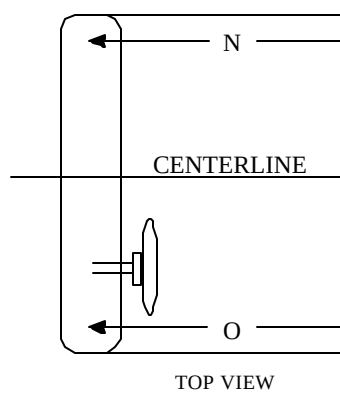
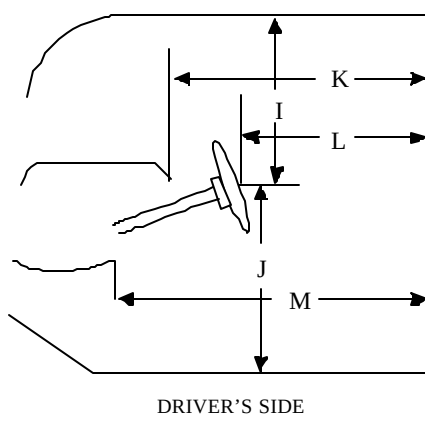
Measurement	Pre-Test	Post-Test	Difference
A	685	608	77
B	523	501	22
C	494	486	8
D	450	459	-9

PASSENGER

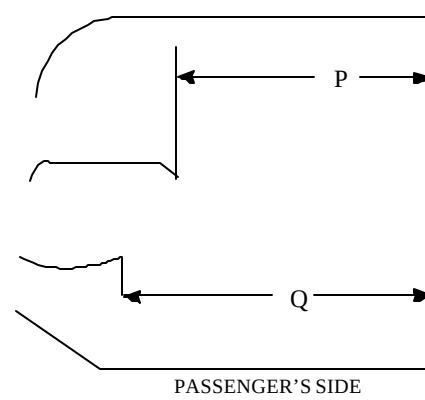
Measurement	Pre-Test	Post-Test	Difference
A	686	666	20
B	517	503	14
C	486	481	5
D	498	489	9

Units = mm

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



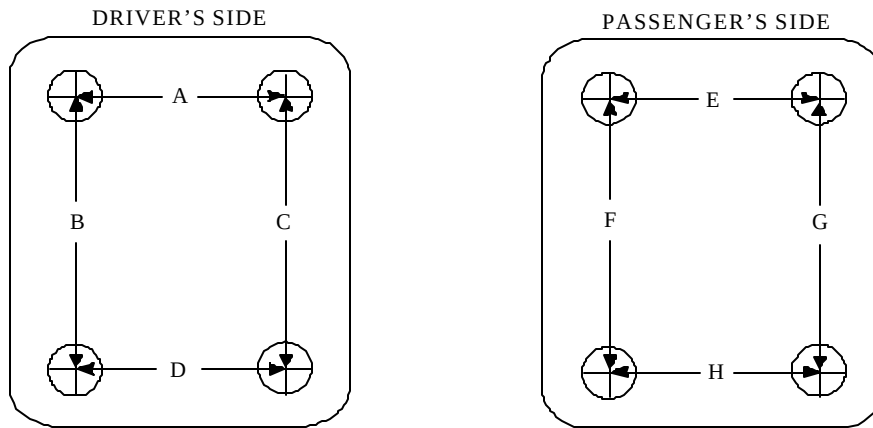
MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



Measurement	Pre-Test	Post-Test	Difference
I	448	463	-15
J	665	642	23
K	1880	1868	12
L	1636	1662	-26
M	1957	1950	7
N	1802	1792	10
O	1807	1797	10
P = K (PASS.)	2041	2007	34
Q = M (PASS.)	1812	1778	34

Units = mm

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

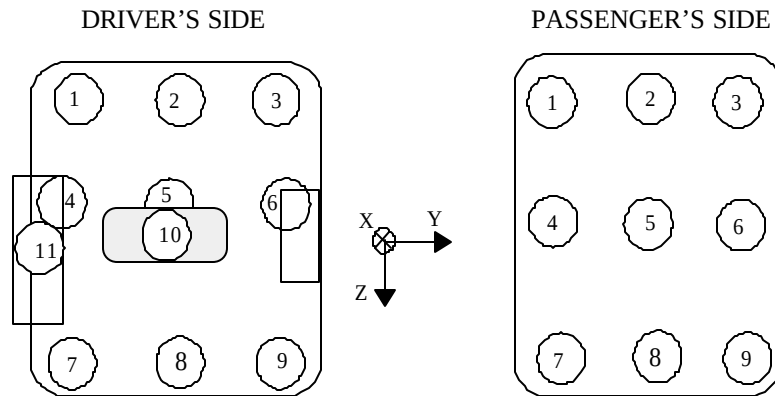


TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	494	486	8
B	489	476	13
C	438	435	3
D	450	459	-9
E	486	481	5
F	400	371	29
G	440	423	18
H	498	489	8

Units = mm

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



Driver Side Toe-pan Measurements

Toe-pan Location	X Deformation (mm)			Z Deformation (mm)		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3232	3171	61	-406	-439	33
2	3243	3165	78	-372	-399	27
3	3244	3171	73	-376	-388	12
4	3178	3153	25	-310	-334	24
5	3166	3118	48	-303	-342	39
6	3064	3146	-82	-287	-320	33
7	3092	3086	6	-251	-262	11
8	3080	3058	22	-257	-286	29
9	3056	3056	0	-255	-261	6
10	3124	3095	29	-420	-390	-30
11	3169	3137	32	-384	-404	20

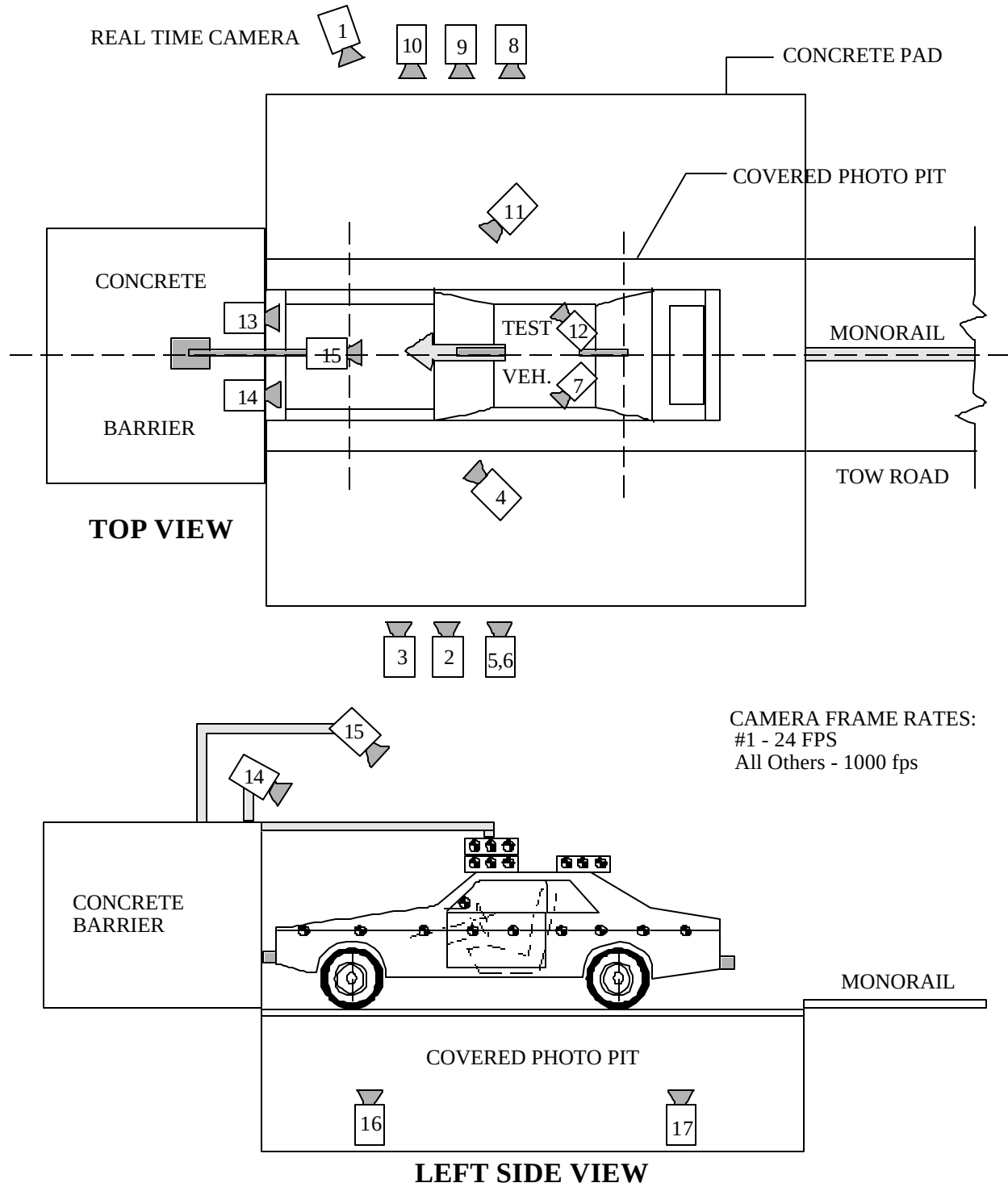
Passenger Side Toe-pan Measurements

Toe-pan Location	X Deformation (mm)			Z Deformation (mm)		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3233	3237	-4	-397	-381	-16
2	3249	3222	27	-391	-407	16
3	3231	3183	48	-422	-438	16
4	3139	3143	-4	-313	-328	15
5	3163	3142	21	-319	-337	18
6	3160	3149	11	-319	-339	20
7	3071	3058	13	-255	-253	-2
8	3080	3060	20	-258	-261	3
9	3082	3068	14	-255	-261	6

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

DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

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



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

NHTSA Test No.: M45107 Vehicle: 2004 Toyota Prius 5-Door Hatchback

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	6507	1593	1093	-5	6205	12.5	1020
3	Left Side View	7620	1033	1099	-4	7318	25	1020
4	Driver and Interior View	7350	2580	1975	-10	-	25	1065
5	Steering Column (Bottom)	7500	1936	1177	-4	7198	25	1030
6	Steering Column (Top)	7500	1936	1777	-9	7198	25	1025
7	Left side CRS lateral view	3598	2718	2488	-22	-	24-70	1000
8	Overall Right Side	6681	2078	1100	-3	6931	12.5	1020
9	Right Side View	8026	1555	1064	-4	8276	25	1000
10	Right Passenger View	7741	1875	1460	-3	7991	35	1030
11	Passenger and Interior View	7091	2548	1982	-6	-	25	1015
12	Right side CRS lateral view	3582	2652	2567	-25	-	24-70	1000
13	Passenger Front View	620	-92	1987	-40	-	13	1030
14	Driver Front View	620	-92	1987	-41	-	13	1020
15	Windshield View	0	-530	3374	-53	-	13	1010
16	Pit View of Engine	0	615	-3048	90	-	13	1010
17	Pit View of Fuel Tank	0	2825	-3048	90	-	13	1000

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

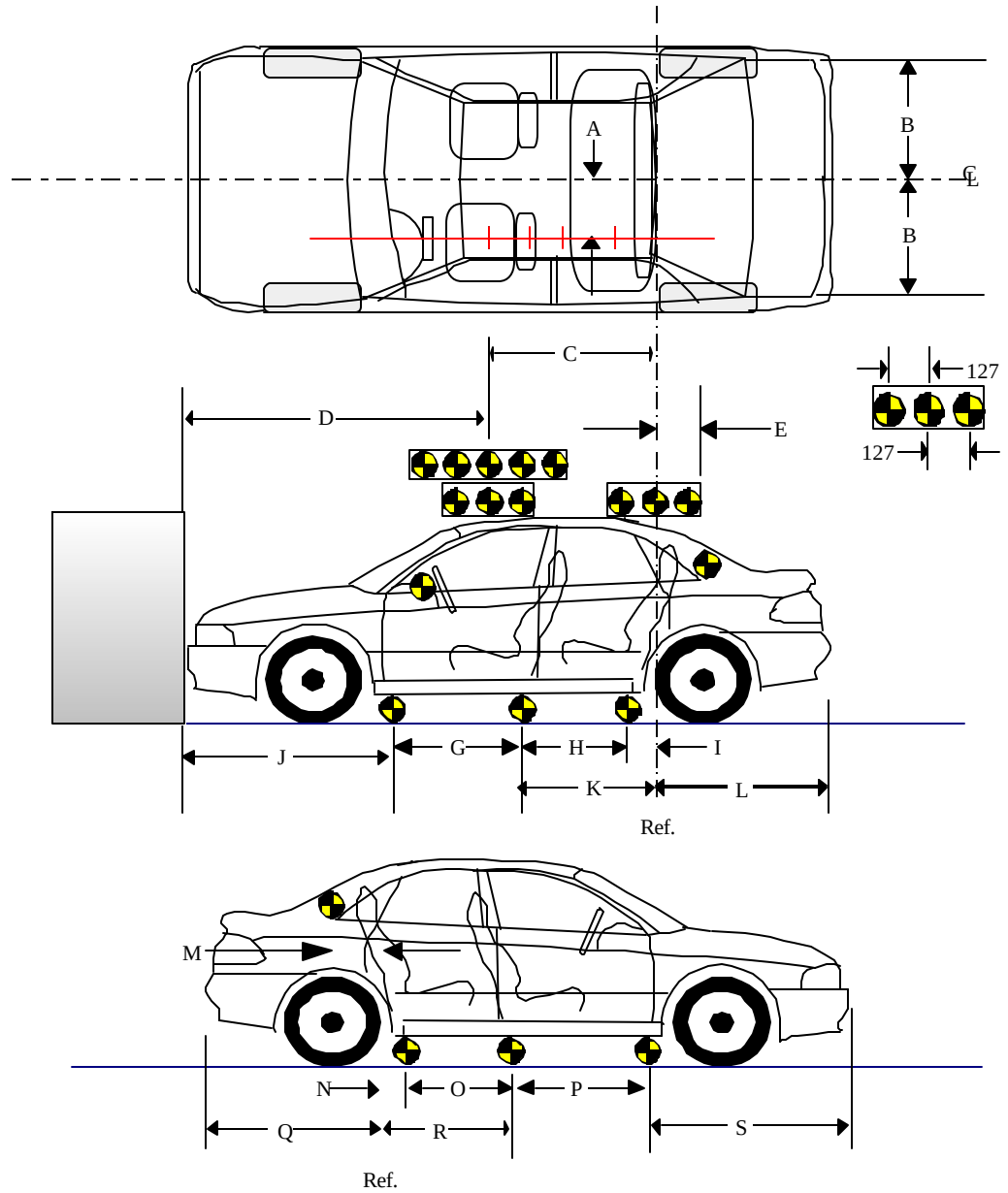
Y = film plane to impact location N.T. indicates No Timing

Z = film plane to ground

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

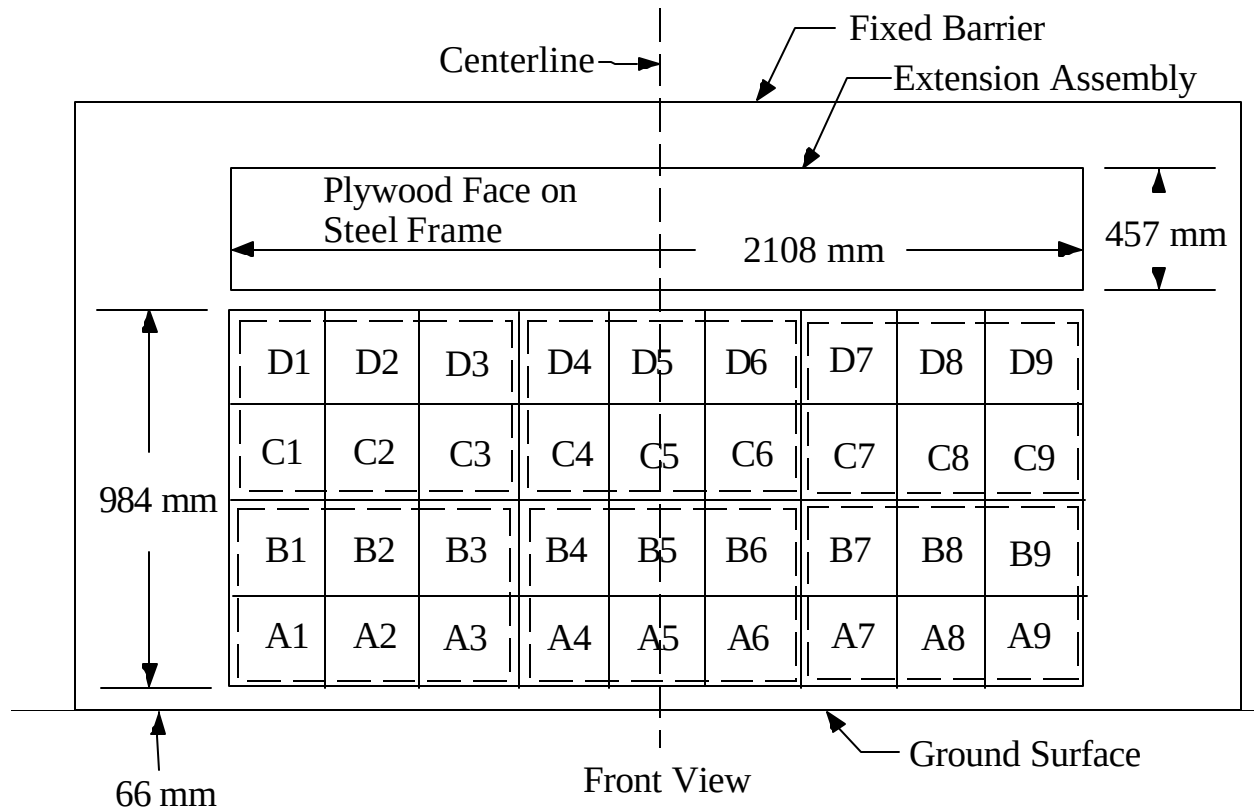
(Dimensions in millimeters)

A	326
B	552
C	1217
D	2061
E	284
F	1646
G	920
H	936
I	113
J	1309
K	1049
L	1158
M	292
N	101
O	924
P	932
Q	1166
R	1025
S	1313



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.: M45107; Test Date: February 24, 2004; Technician: Patrick MacDiarmid

Vehicle Model Year/Make/Model: 2004 Toyota Prius 5-Door Hatchback

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

B. Size of vent holes: (mm²) 400 -Driver 1963 -Passenger

C. Total vent area: (mm²) 800 -Driver 3926 -Passenger

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

Driver: 500 -Height; 600 -Width; 400 -Depth

Passenger: 600 -Height; 700 -Width; 820 -Depth

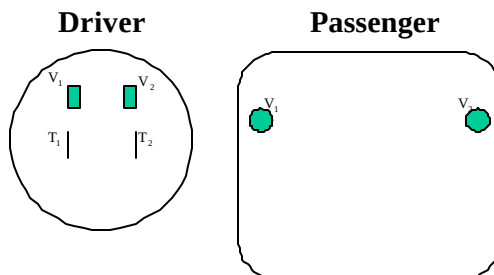
E. Is the air bag tethered?

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

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

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

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



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

Driver: Air bag: GA120-00900 903027930

Generator: -

Passenger: Air bag: GA220-00590 9F3077962

Generator: -

DATA SHEET NO. 19 ACCIDENT INVESTIGATION DIVISION DATA

FOR FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Toyota Prius 5-Door Hatchback

NHTSA Test No.: M45107 VIN: JTDKB20U740031091

Model Year: 2004 Build Date: 12/03 Test Date: February 24, 2004

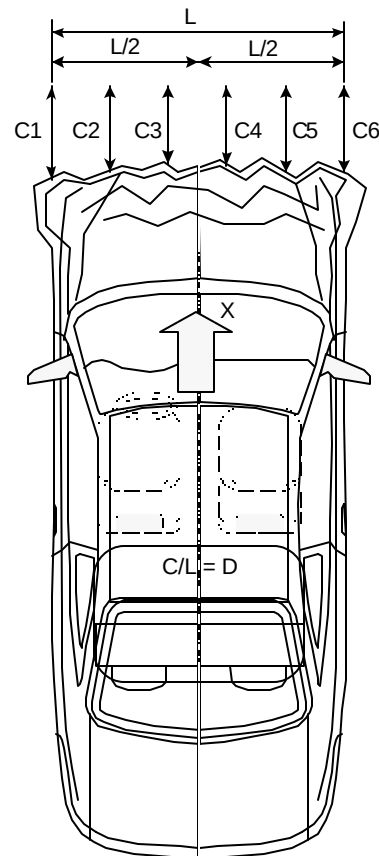
Vehicle Size Category: Mid-Size Test Weight: 1516.0 kg

Vehicle Wheelbase: 2700 mm; Front Overhang: 884 mm; Overall Width: 1730 mm

Collision Deformation Classification (CDC) Code: 12FDEW 4

Crush Depth Dimensions

	PRE (mm)	POST (mm)	DIFF (mm)
C1 =	4278	3906	372
C2 =	4376	3931	445
C3 =	4419	3895	524
C4 =	4422	3871	551
C5 =	4381	3889	492
C6 =	4280	3910	370



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region: L1= 1410 mm

L2= 705.0 mm

L5= 282 mm

APPENDIX A
PHOTOGRAPHS

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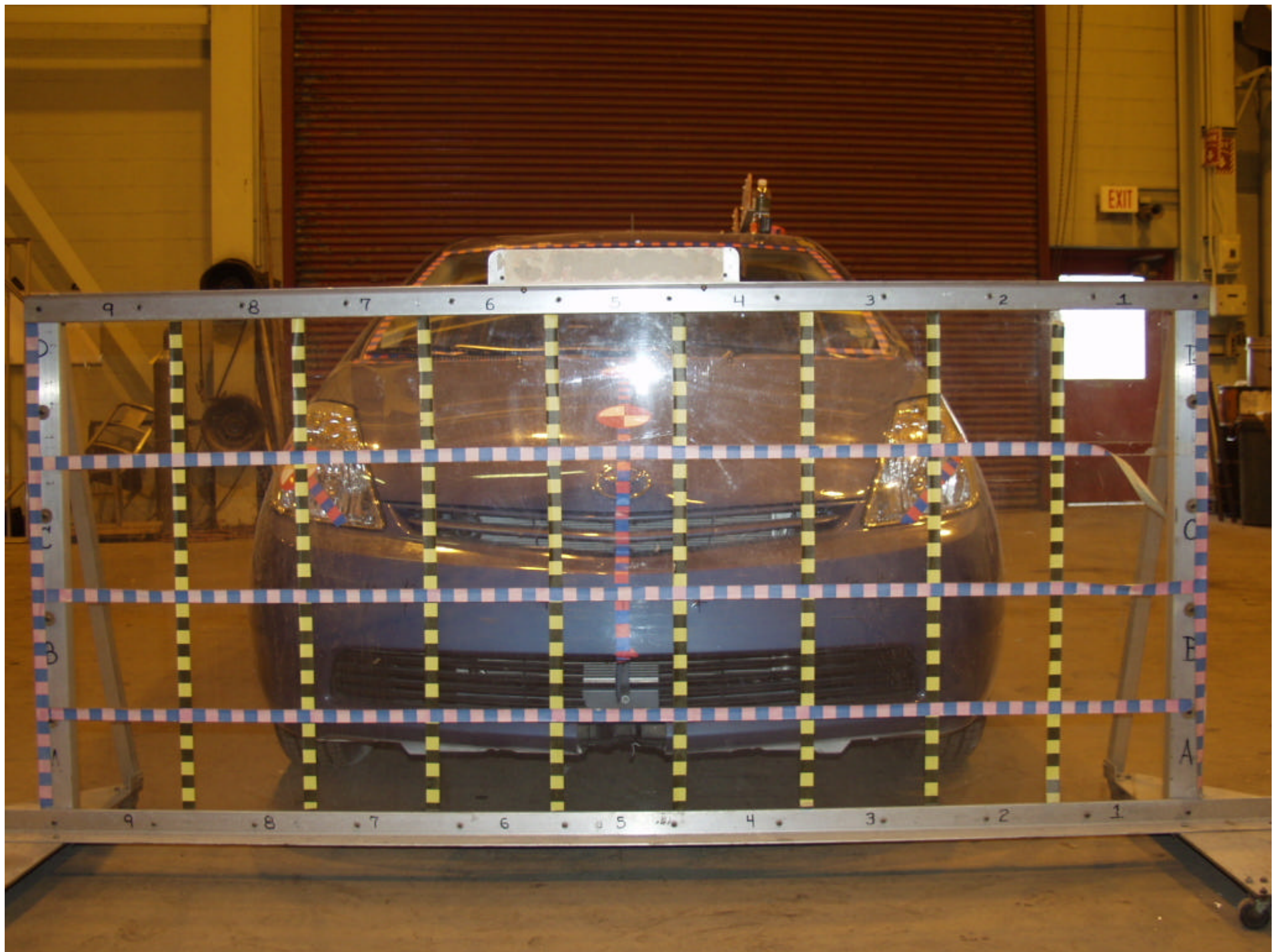


Figure A-1 LOAD CELL LOCATIONS



Figure A-2 VEHICLE CERTIFICATION PLACARD



Figure A-3 VEHICLE TIRE PLACARD



Figure A-4 RIGHT FRONT, AS RECEIVED



Figure A-5 LEFT REAR, AS RECEIVED



Figure A-6 PRE-TEST FRONT VIEW



Figure A-7 POST-TEST FRONT VIEW



Figure A-8 PRE-TEST LEFT SIDE VIEW



Figure A-9 POST-TEST LEFT SIDE VIEW



Figure A-10 PRE-TEST RIGHT SIDE VIEW



Figure A-11 POST-TEST RIGHT SIDE VIEW



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



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



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

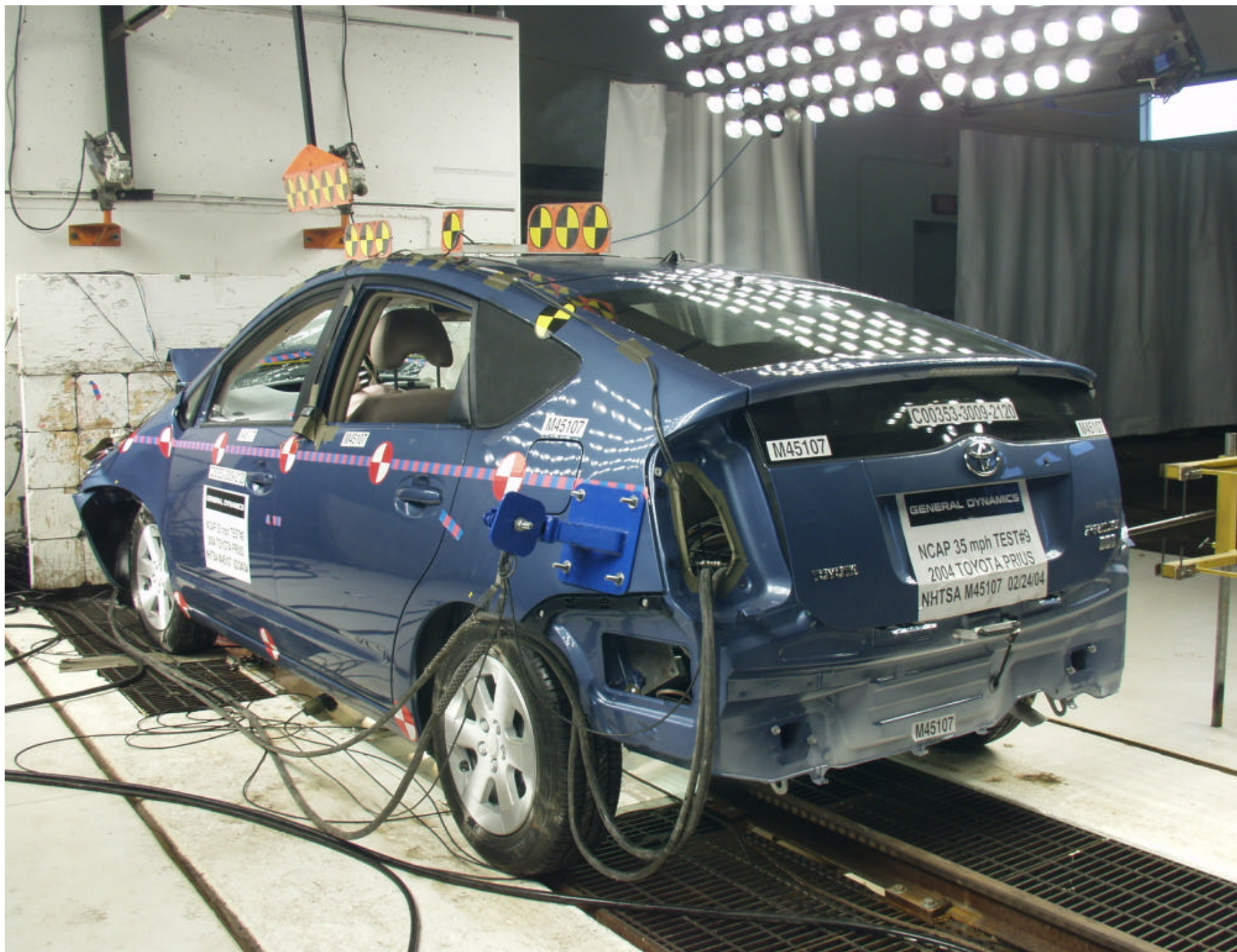


Figure A-15 POST-TEST LEFT REAR THREE-QUARTER VIEW



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



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



Figure A-18 PRE-TEST WINDSHIELD VIEW



Figure A-19 POST-TEST WINDSHIELD VIEW



Figure A-20 PRE-TEST ENGINE COMPARTMENT VIEW



Figure A-21 POST-TEST ENGINE COMPARTMENT VIEW

M45107



Figure A-22 PRE-TEST FUEL CAP VIEW



Figure A-23 POST-TEST FUEL CAP VIEW

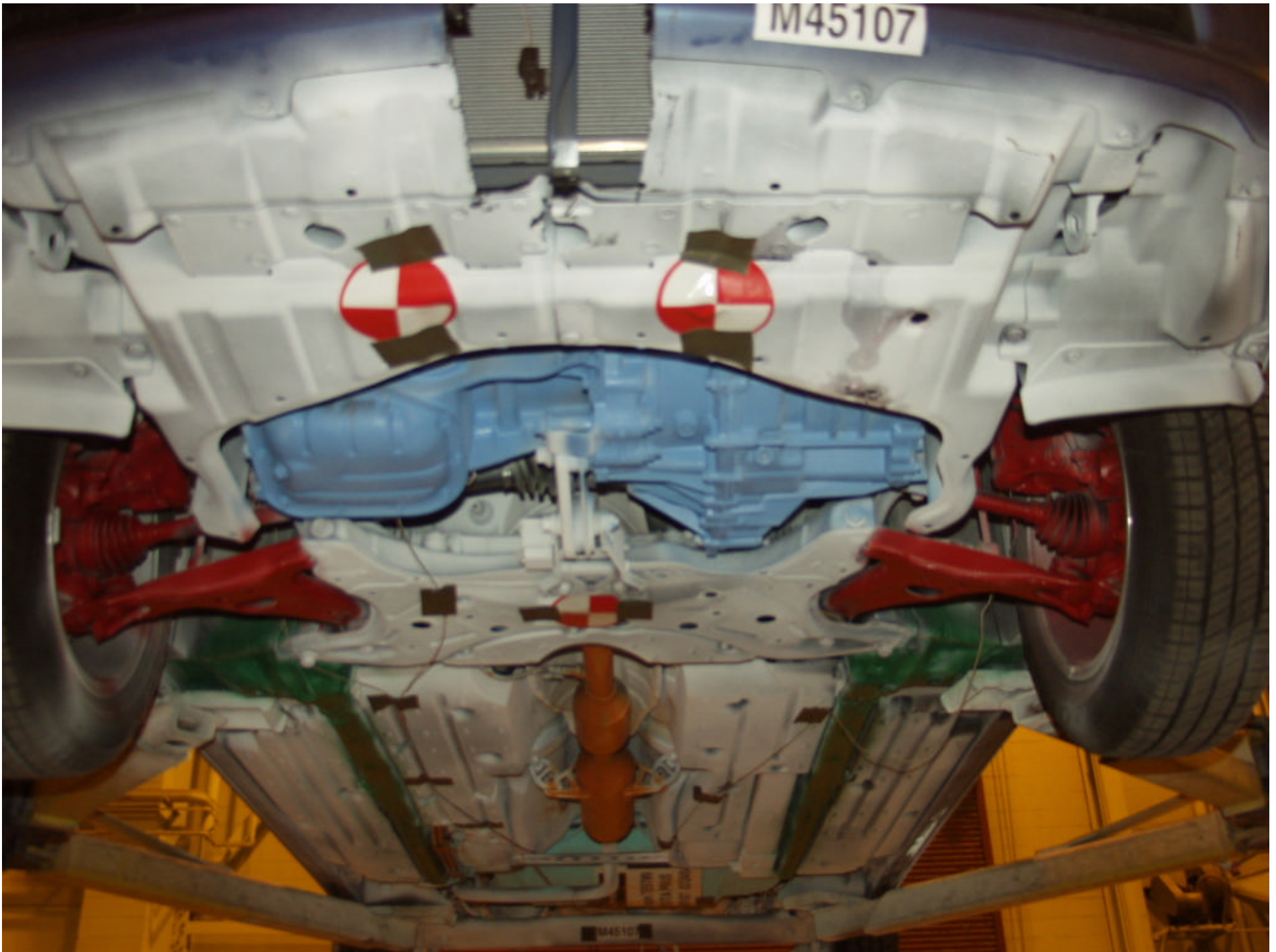


Figure A-24 PRE-TEST FRONT UNDERBODY VIEW

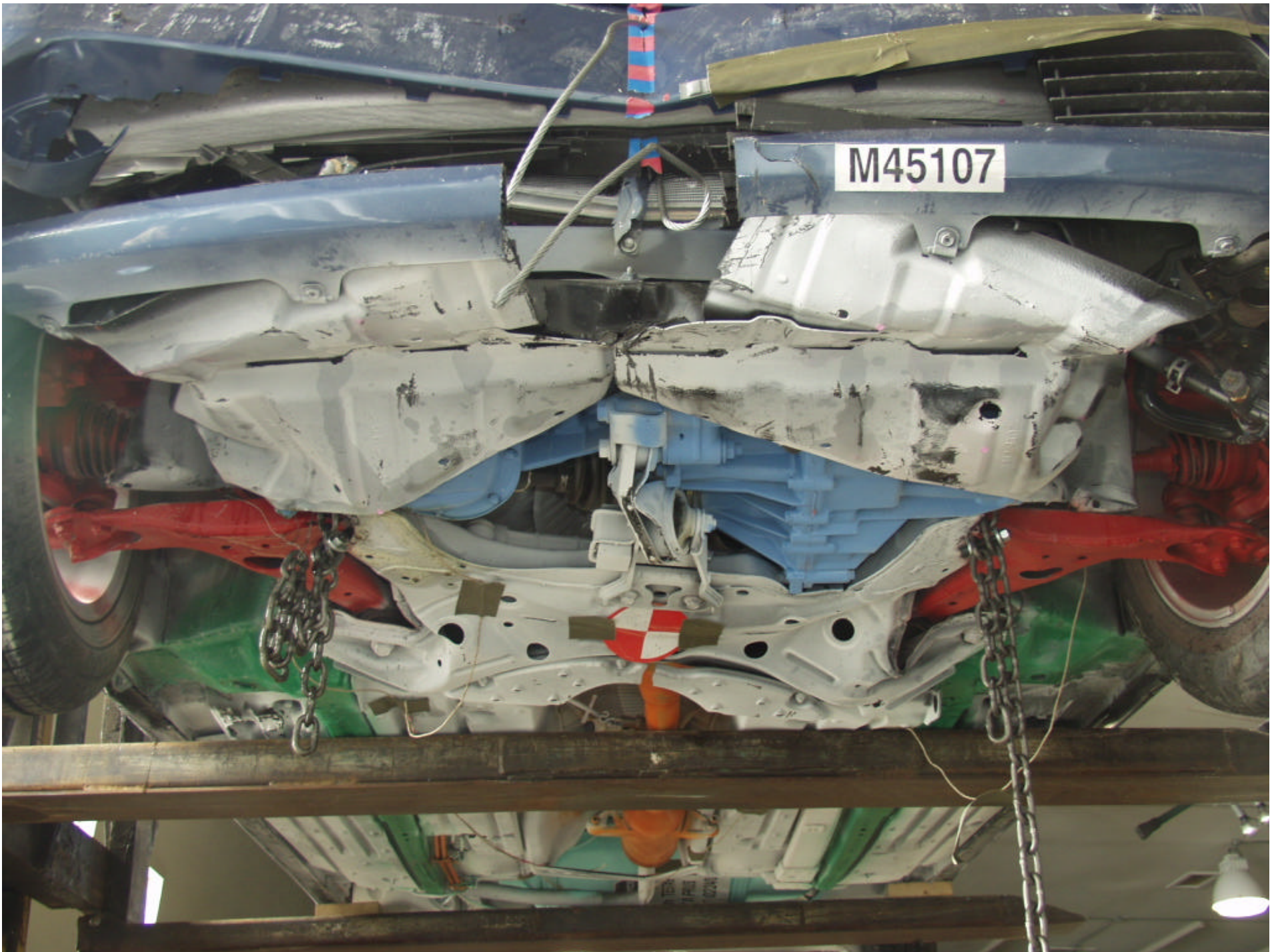


Figure A-25 POST-TEST FRONT UNDERBODY VIEW



Figure A-26 PRE-TEST MID UNDERBODY VIEW



Figure A-27 POST-TEST MID UNDERBODY VIEW



Figure A-28 PRE-TEST REAR UNDERBODY VIEW



Figure A-29 POST-TEST REAR UNDERBODY VIEW



Figure A-30 PRE-TEST DRIVER HEAD LOCATION



Figure A-31 POST-TEST DRIVER HEAD LOCATION



Figure A-32 PRE-TEST DRIVER POSITION VIEW



Figure A-33 POST-TEST DRIVER POSITION VIEW



Figure A-34 PRE-TEST DRIVER AND INTERIOR VIEW



Figure A-35 POST-TEST DRIVER AND INTERIOR VIEW



Figure A-36 PRE-TEST DRIVER FEET VIEW



Figure A-37 POST-TEST DRIVER FEET VIEW



Figure A-38 PRE-TEST DRIVER KNEE BOLSTER VIEW



Figure A-39 POST-TEST DRIVER KNEE BOLSTER VIEW



Figure A-40 PRE-TEST DRIVER FLOOR PAN VIEW



Figure A-41 POST-TEST DRIVER FLOOR PAN VIEW



Figure A-42 POST-TEST DRIVER HEAD VIEW



Figure A-43 POST-TEST DRIVER CONTACT TO AIRBAG



Figure A-44 PRE-TEST PASSENGER HEAD LOCATION



Figure A-45 POST-TEST PASSENGER HEAD LOCATION



Figure A-46 PRE-TEST PASSENGER POSITION VIEW



Figure A-47 POST-TEST PASSENGER POSITION VIEW



Figure A-48 PRE-TEST PASSENGER AND INTERIOR VIEW



Figure A-49 POST-TEST PASSENGER AND INTERIOR VIEW



Figure A-50 PRE- TEST PASSENGER FEET VIEW



A-54

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Figure A-51 POST-TEST PASSENGER FEET VIEW



Figure A-52 PRE-TEST PASSENGER KNEE BOLSTER VIEW



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8642-NCAP-45

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



A-59

8642-NCAP-45

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 x [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 z [N, CFC_600]	B-43
37	V1P1 Right Femur z [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

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PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
47	V1P1 Right Lower Tibia My [N-m, CFC_600]	B-54
48	V1P1 Left Foot Aft x [g, CFC_600]	B-55
49	V1P1 Left Foot Aft z [g, CFC_600]	B-56
50	V1P1 Left Foot Fore z [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 Ay [g, CFC_1000]	B-62
56	V1P2 Head 9 Array X Arm Az [g, CFC_1000]	B-63
57	V1P2 Head 9 Array Y Arm Ax [g, CFC_1000]	B-64
58	V1P2 Head 9 Array Y Arm Az [g, CFC_1000]	B-65
59	V1P2 Head 9 Array Z Arm Ax [g, CFC_1000]	B-66
60	V1P2 Head 9 Array Z Arm Ay [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 x [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 z [N, CFC_600]	B-97
91	V1P2 Right Femur z [N, CFC_600]	B-98
92	V1P2 Left Upper Tibia Mx [N-m, CFC_600]	B-99

Table of Data Plots (Continued)

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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
96	V1P2 Left Lower Tibia My [N-m, CFC_600]	B-103
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	Barrier Load Cell A1 Fx [N, CFC_60]	B-143
137	Barrier Load Cell A2 Fx [N, CFC_60]	B-144
138	Barrier Load Cell A3 Fx [N, CFC_60]	B-145

Table of Data Plots (Continued)

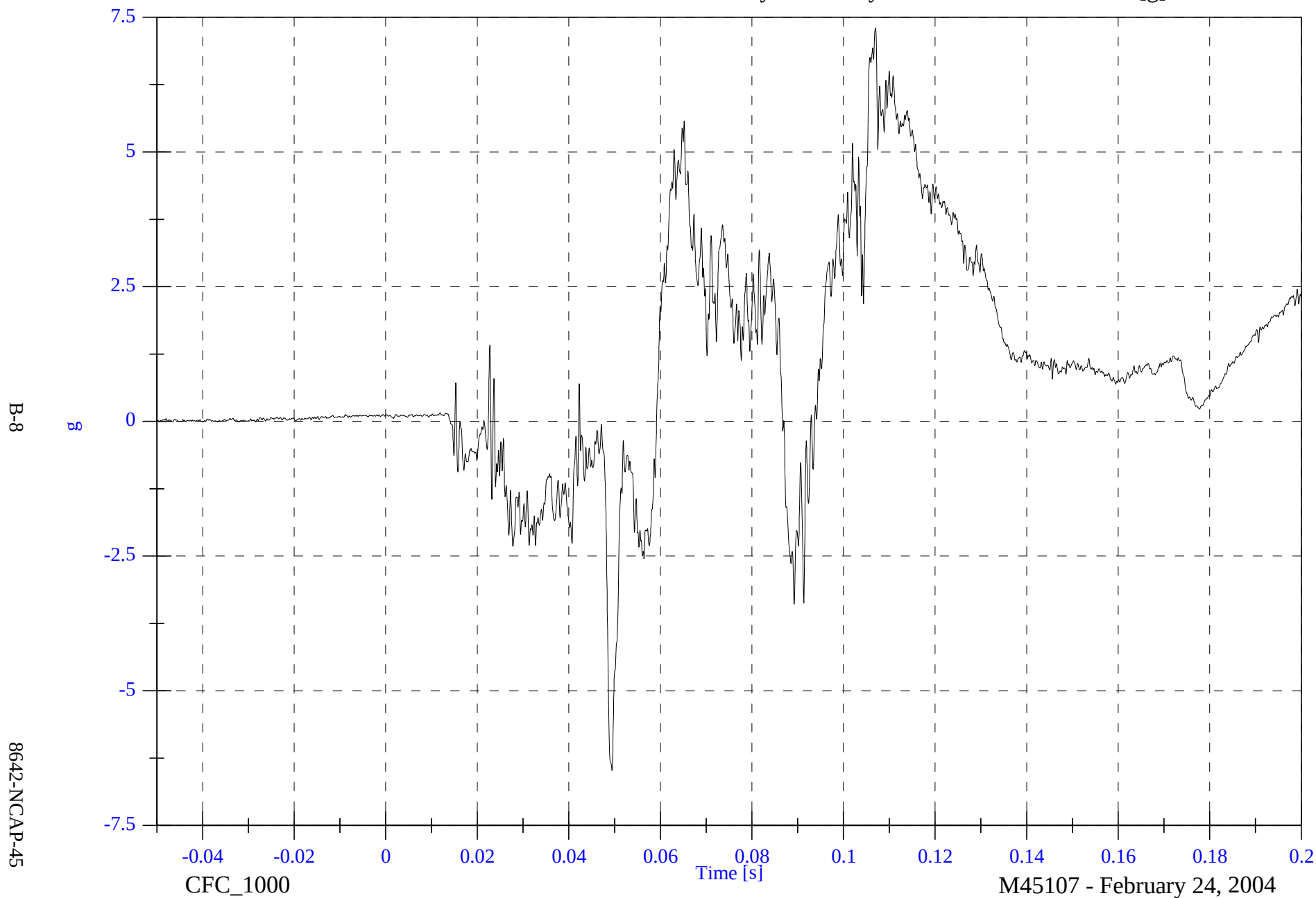
PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
139	Barrier Load Cell A4 Fx [N, CFC_60]	B-146
140	Barrier Load Cell A5 Fx [N, CFC_60]	B-147
141	Barrier Load Cell A6 Fx [N, CFC_60]	B-148
142	Barrier Load Cell A7 Fx [N, CFC_60]	B-149
143	Barrier Load Cell A8 Fx [N, CFC_60]	B-150
144	Barrier Load Cell A9 Fx [N, CFC_60]	B-151
145	Barrier Load Cell B1 Fx [N, CFC_60]	B-152
146	Barrier Load Cell B2 Fx [N, CFC_60]	B-153
147	Barrier Load Cell B3 Fx [N, CFC_60]	B-154
148	Barrier Load Cell B4 Fx [N, CFC_60]	B-155
149	Barrier Load Cell B5 Fx [N, CFC_60]	B-156
150	Barrier Load Cell B6 Fx [N, CFC_60]	B-157
151	Barrier Load Cell B7 Fx [N, CFC_60]	B-158
152	Barrier Load Cell B8 Fx [N, CFC_60]	B-159
153	Barrier Load Cell B9 Fx [N, CFC_60]	B-160
154	Barrier Load Cell C1 Fx [N, CFC_60]	B-161
155	Barrier Load Cell C2 Fx [N, CFC_60]	B-162
156	Barrier Load Cell C3 Fx [N, CFC_60]	B-163
157	Barrier Load Cell C4 Fx [N, CFC_60]	B-164
158	Barrier Load Cell C5 Fx [N, CFC_60]	B-165
159	Barrier Load Cell C6 Fx [N, CFC_60]	B-166
160	Barrier Load Cell C7 Fx [N, CFC_60]	B-167
161	Barrier Load Cell C8 Fx [N, CFC_60]	B-168
162	Barrier Load Cell C9 Fx [N, CFC_60]	B-169
163	Barrier Load Cell D1 Fx [N, CFC_60]	B-170
164	Barrier Load Cell D2 Fx [N, CFC_60]	B-171
165	Barrier Load Cell D3 Fx [N, CFC_60]	B-172
166	Barrier Load Cell D4 Fx [N, CFC_60]	B-173
167	Barrier Load Cell D5 Fx [N, CFC_60]	B-174
168	Barrier Load Cell D6 Fx [N, CFC_60]	B-175
169	Barrier Load Cell D7 Fx [N, CFC_60]	B-176
170	Barrier Load Cell D8 Fx [N, CFC_60]	B-177
171	Barrier Load Cell D9 Fx [N, CFC_60]	B-178
172	Group 1 Load Cell Sum (A1,A2,A3,B1,B2,B3)	B-179
173	Group 2 Load Cell Sum (A4,A5,A6,B4,B5,B6)	B-180
174	Group 3 Load Cell Sum (A7,A8,A9,B7,B8,B9)	B-181
175	Group 4 Load Cell Sum (C1,C2,C3,D1,D2,D3)	B-182
176	Group 5 Load Cell Sum (C4,C5,C6,D4,D5,D6)	B-183
177	Group 6 Load Cell Sum (C7,C8,C9,D7,D8,D9)	B-184
178	Total Load Cell Sum (All 6 Groups)	B-185

2004 NCAP Test 9 2004 Toyota Prius

V1P1 Head 9 Array X Arm Ay

Max: 7.3 [g] at 0.107 [s]

Min: -6.5 [g] at 0.049 [s]

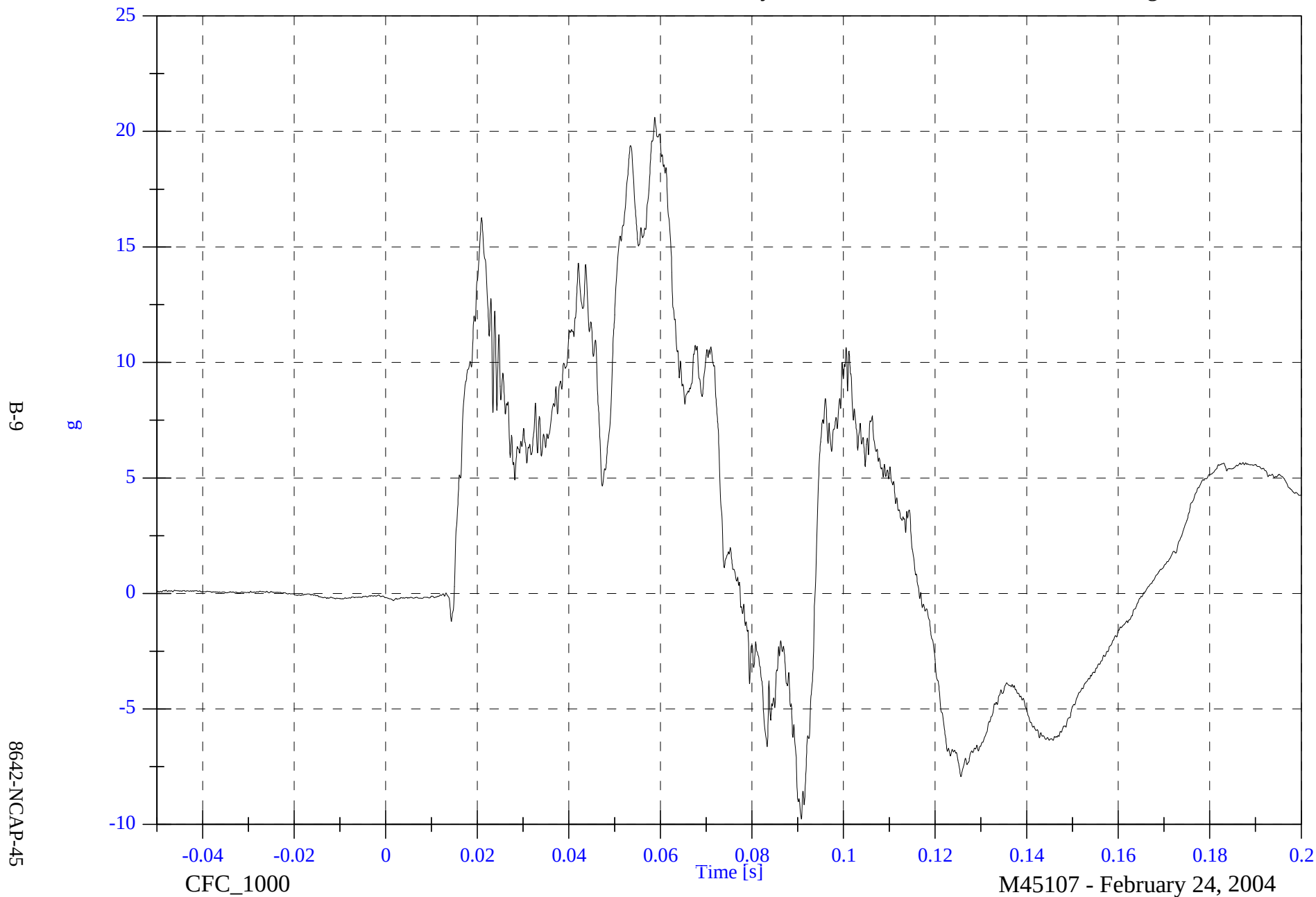


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Head 9 Array X Arm Az

Max: 20.6 [g] at 0.059 [s]

Min: -9.8 [g] at 0.091 [s]

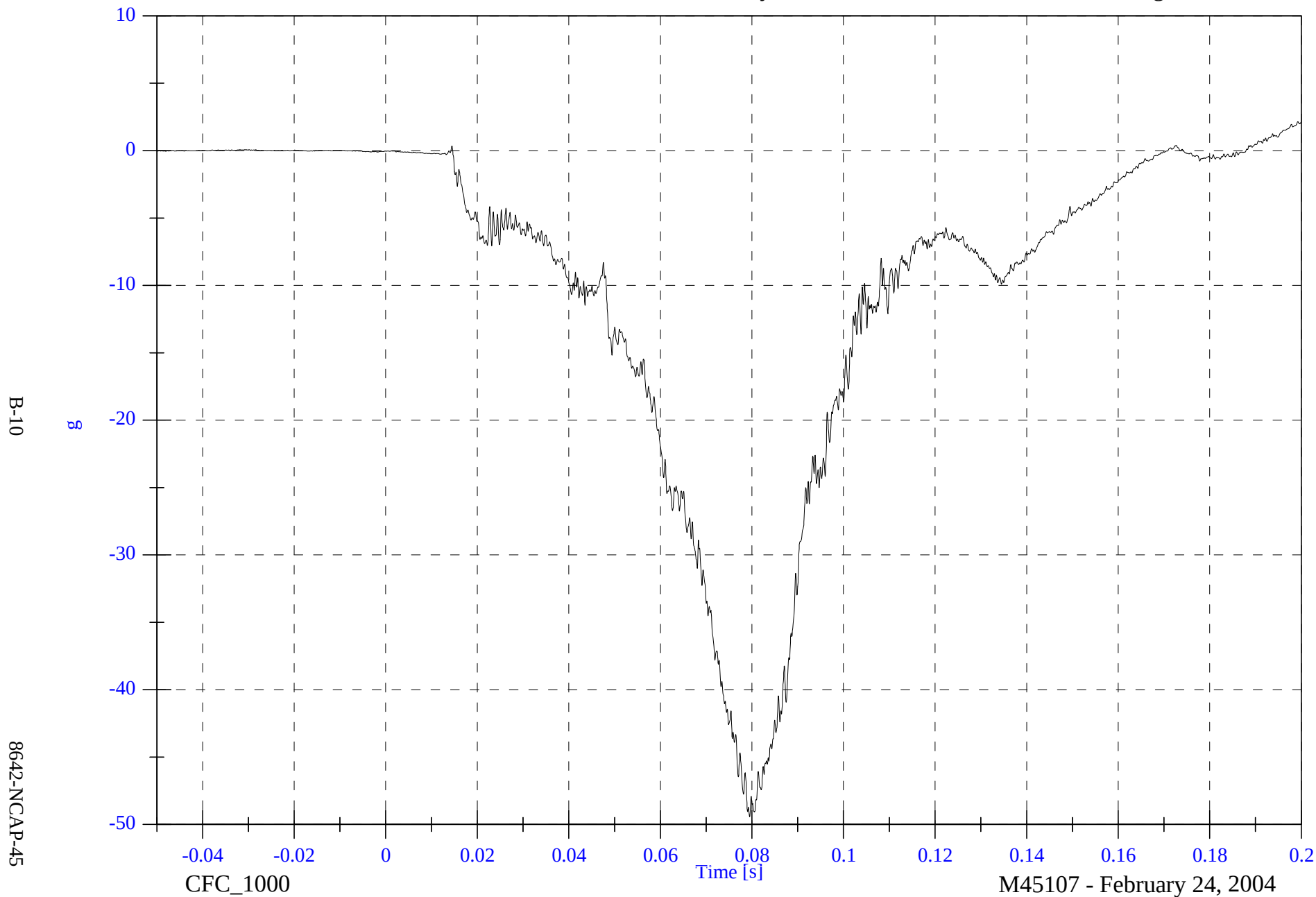


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Head 9 Array Y Arm Ax

Max: 2.1 [g] at 0.199 [s]

Min: -49.4 [g] at 0.079 [s]



2004 NCAP Test 9 2004 Toyota Prius

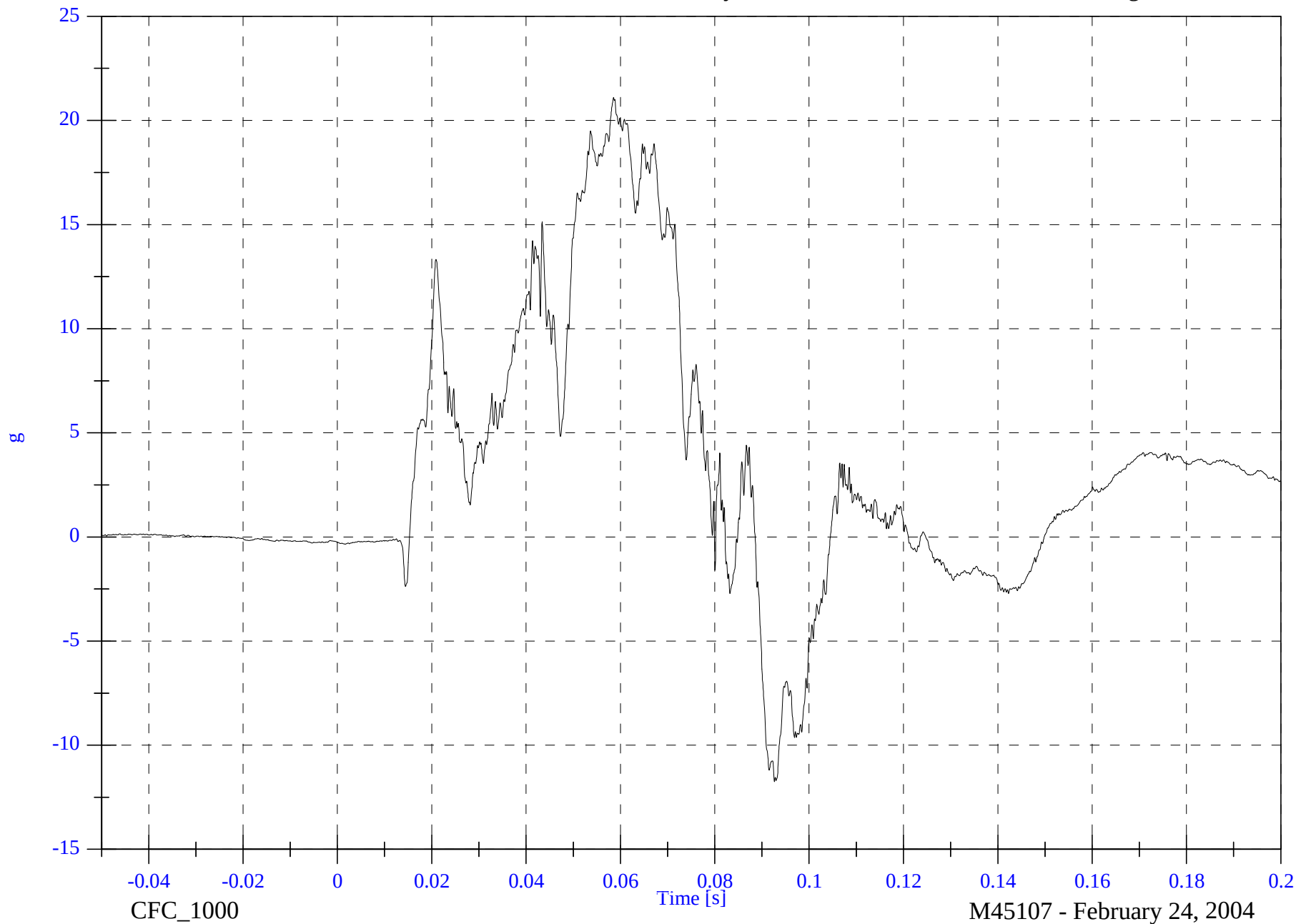
V1P1 Head 9 Array Y Arm Az

Max: 21.1 [g] at 0.059 [s]

Min: -11.8 [g] at 0.093 [s]

B-11

8642-NCAP-45

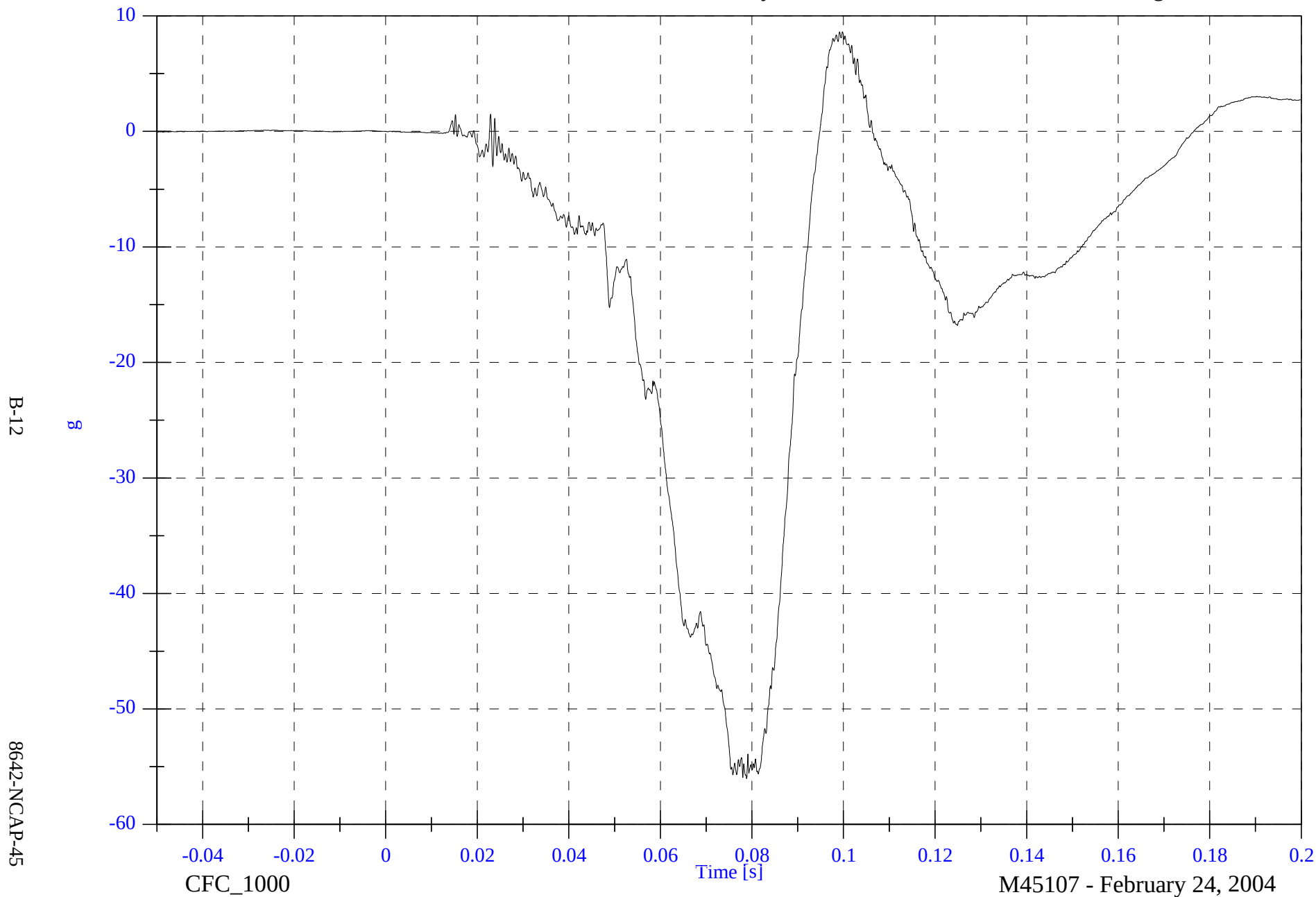


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Head 9 Array Z Arm Ax

Max: 8.6 [g] at 0.100 [s]

Min: -56.0 [g] at 0.079 [s]

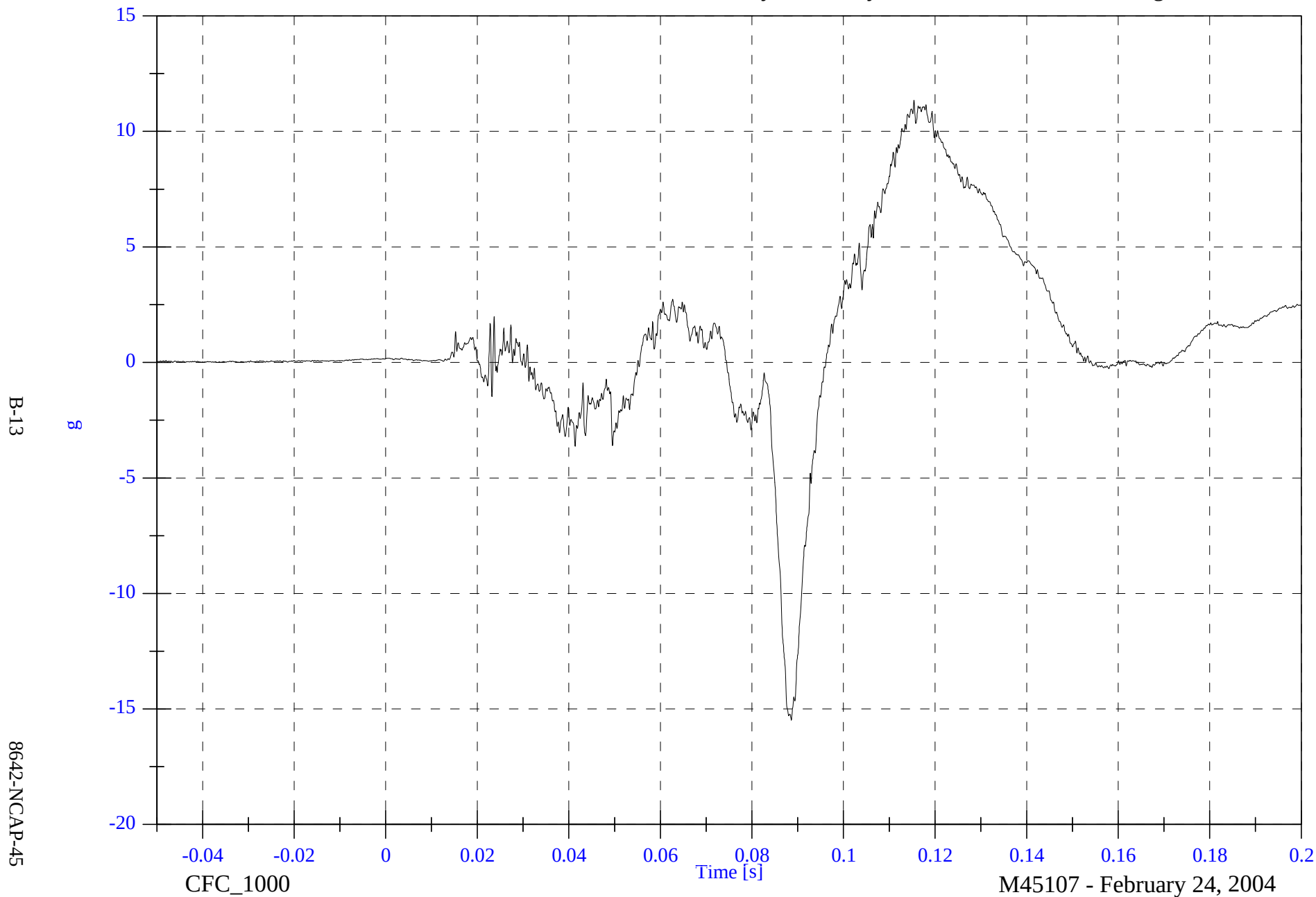


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Head 9 Array Z Arm Ay

Max: 11.4 [g] at 0.115 [s]

Min: -15.5 [g] at 0.089 [s]

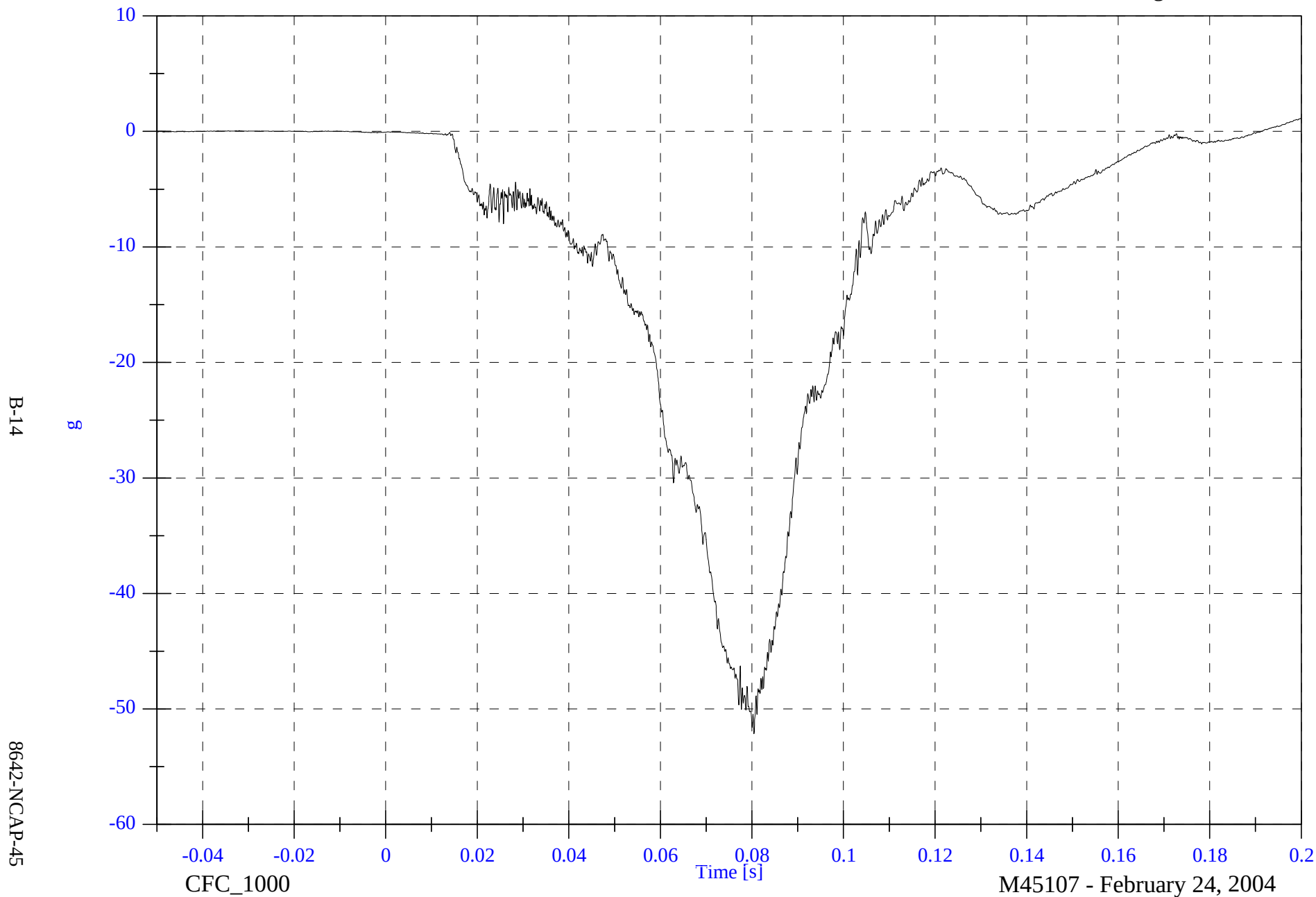


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Head CG x

Max: 1.1 [g] at 0.200 [s]

Min: -52.1 [g] at 0.080 [s]

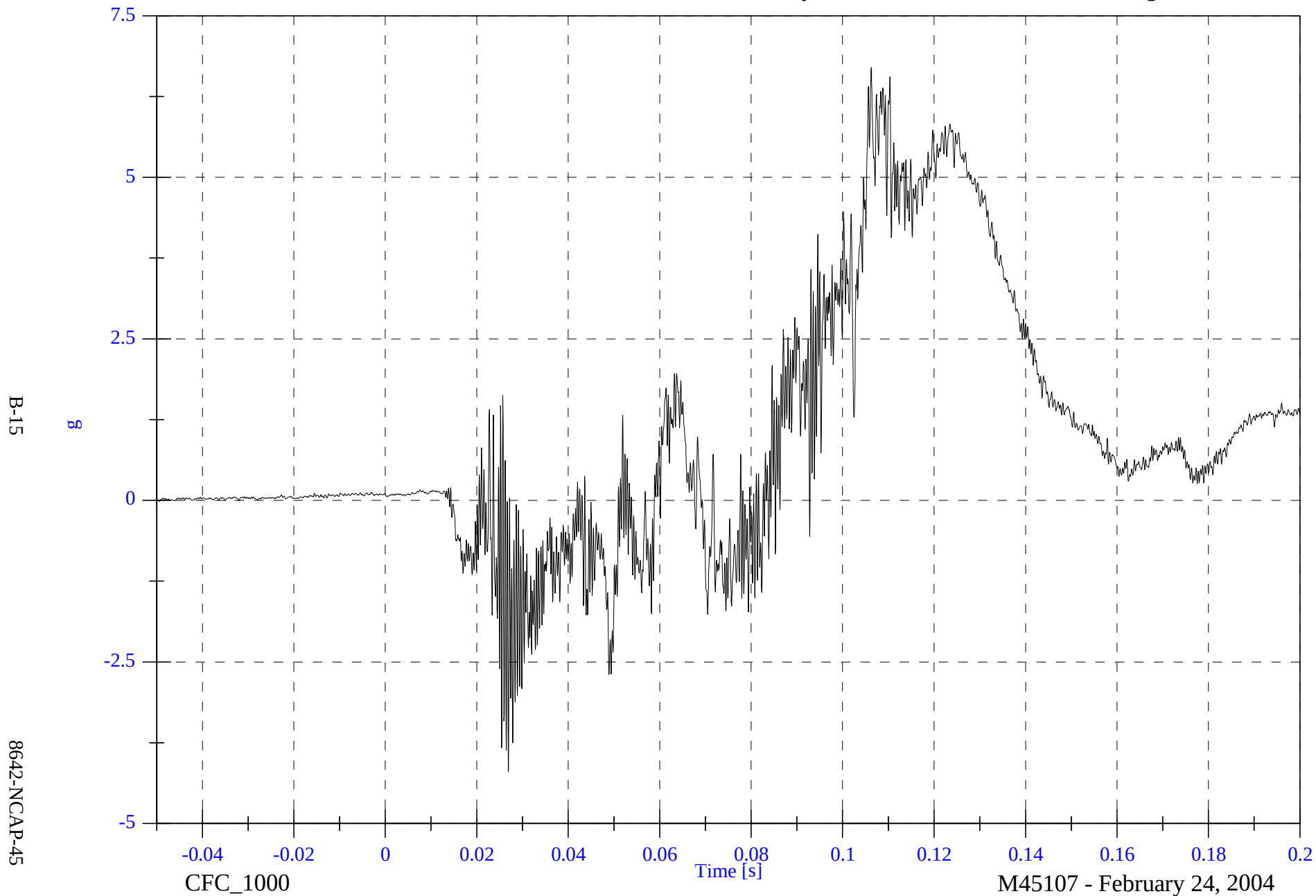


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Head CG y

Max: 6.7 [g] at 0.106 [s]

Min: -4.2 [g] at 0.027 [s]



2004 NCAP Test 9 2004 Toyota Prius

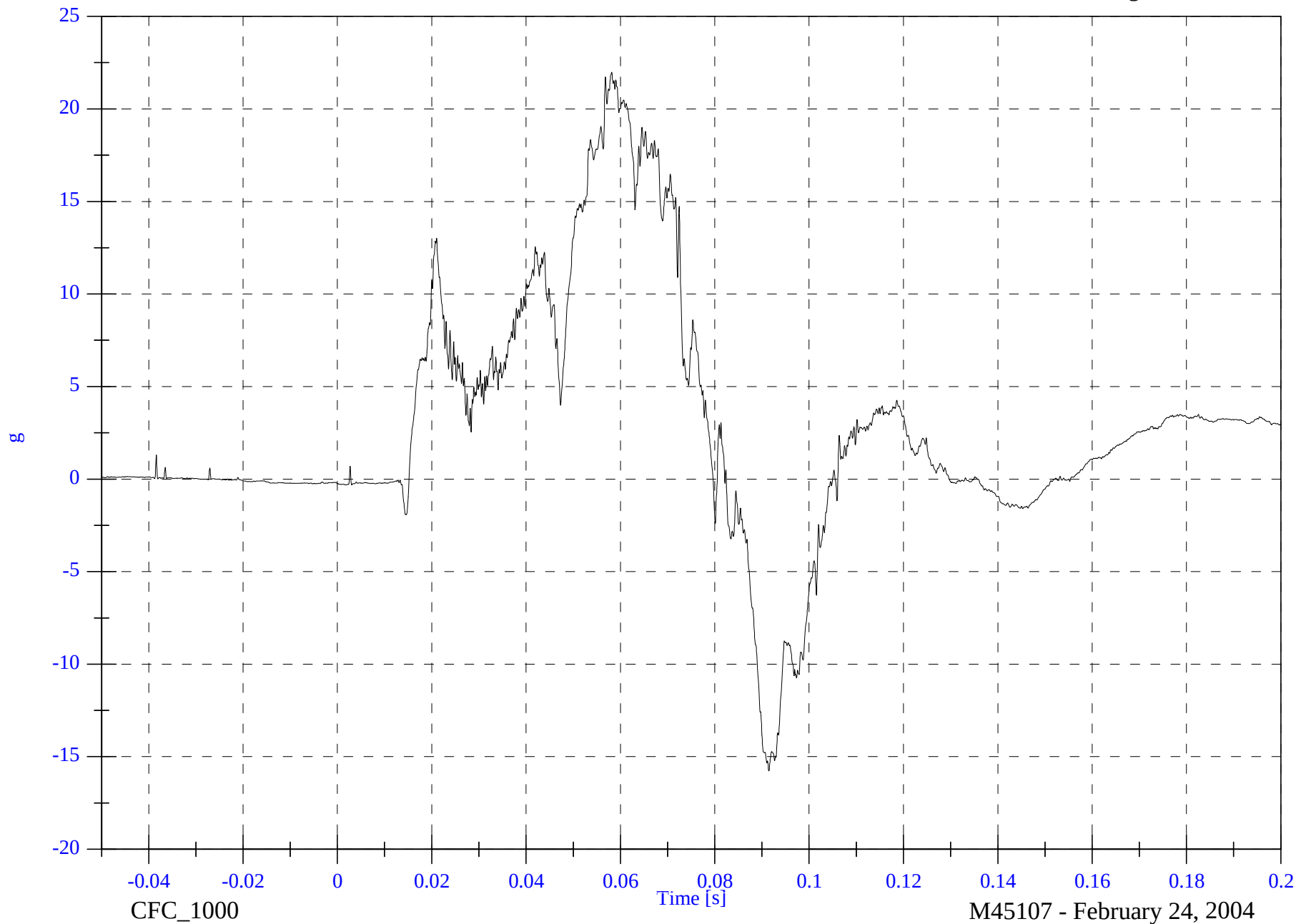
V1P1 Head CG z

Max: 22.0 [g] at 0.058 [s]

Min: -15.8 [g] at 0.091 [s]

B-16

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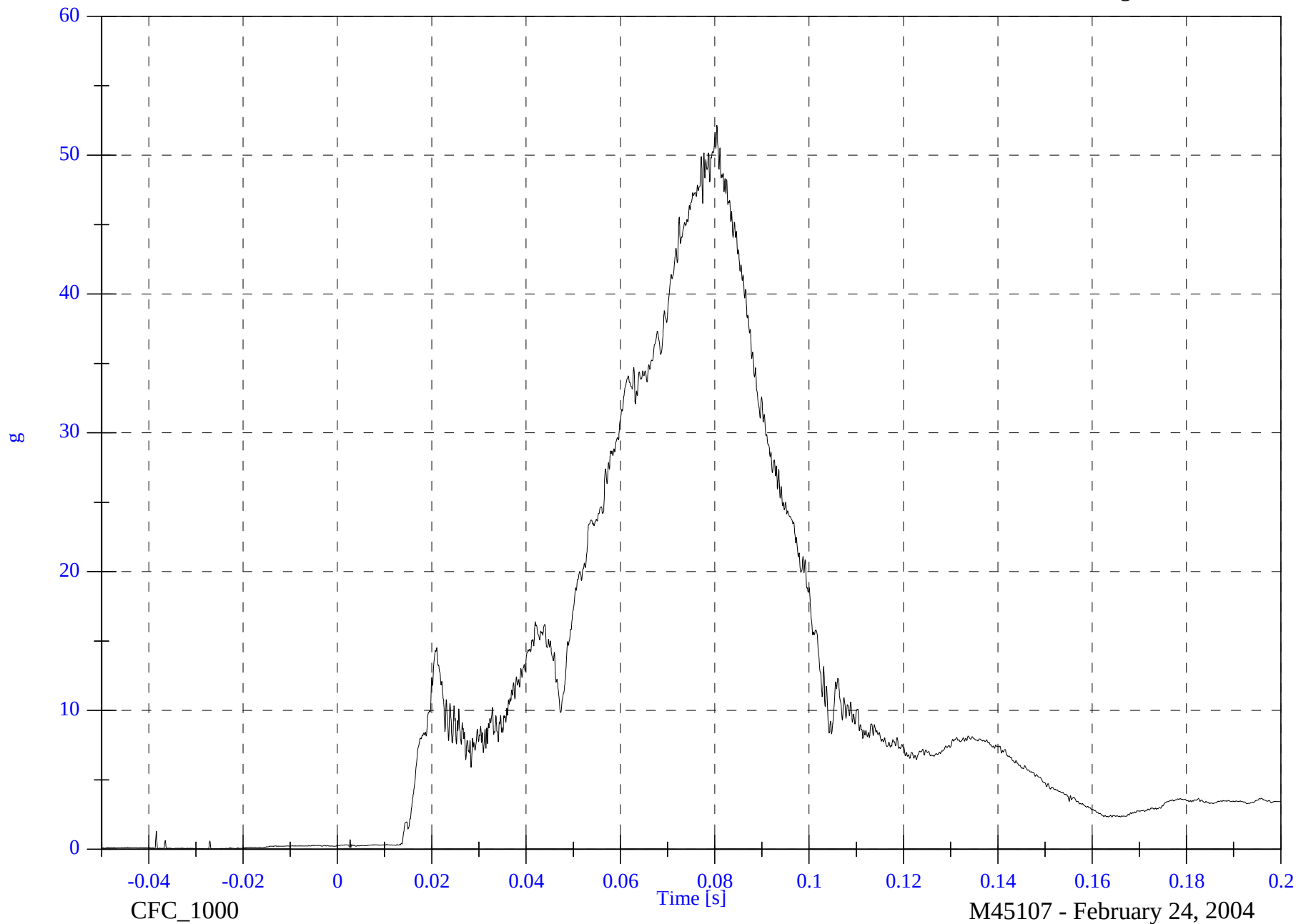
V1P1 Head CG Resultant

Max: 52.2 [g] at 0.080 [s]

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

B-17

8642-NCAP-45

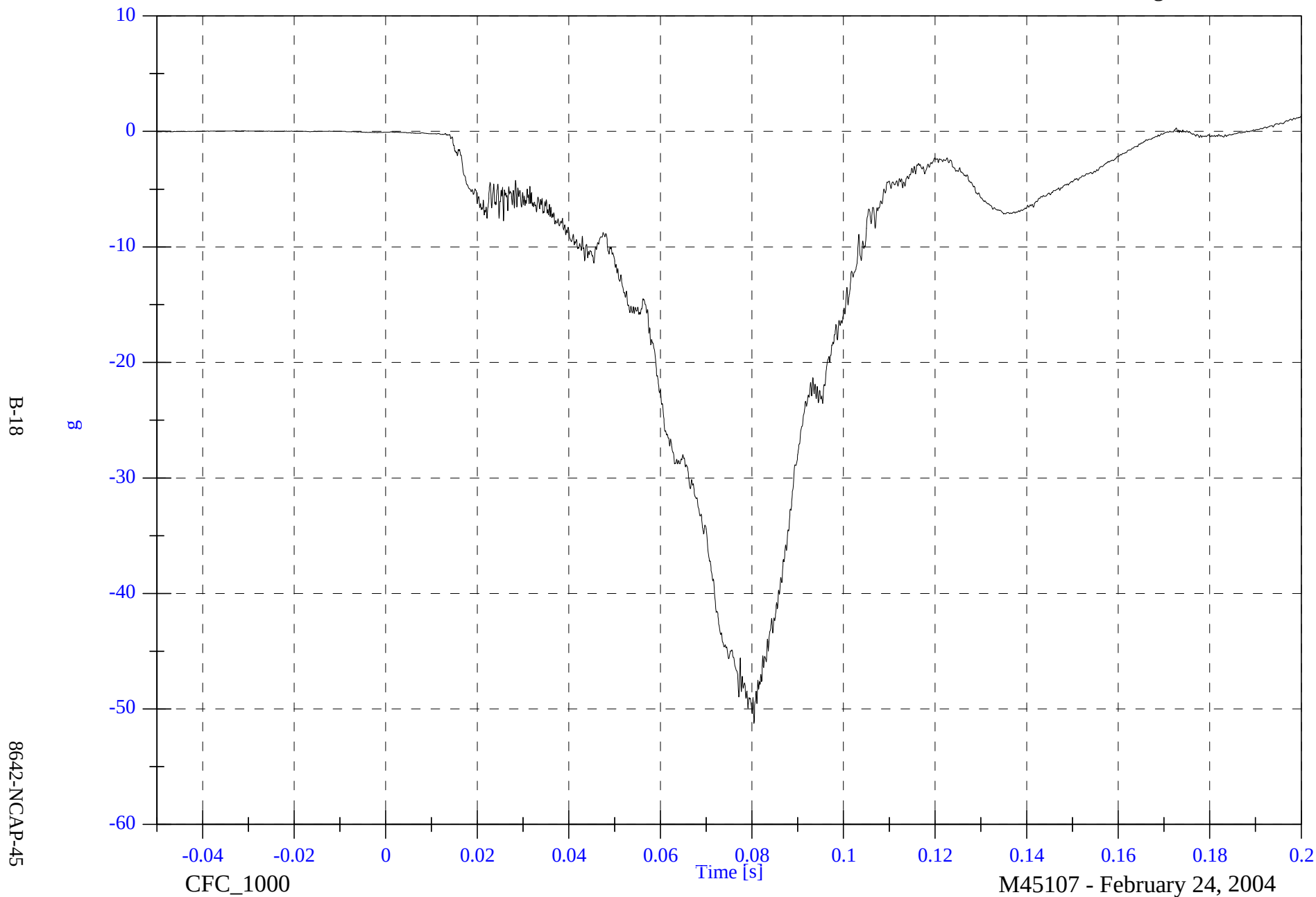


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Head CG Red x

Max: 1.3 [g] at 0.200 [s]

Min: -51.2 [g] at 0.080 [s]

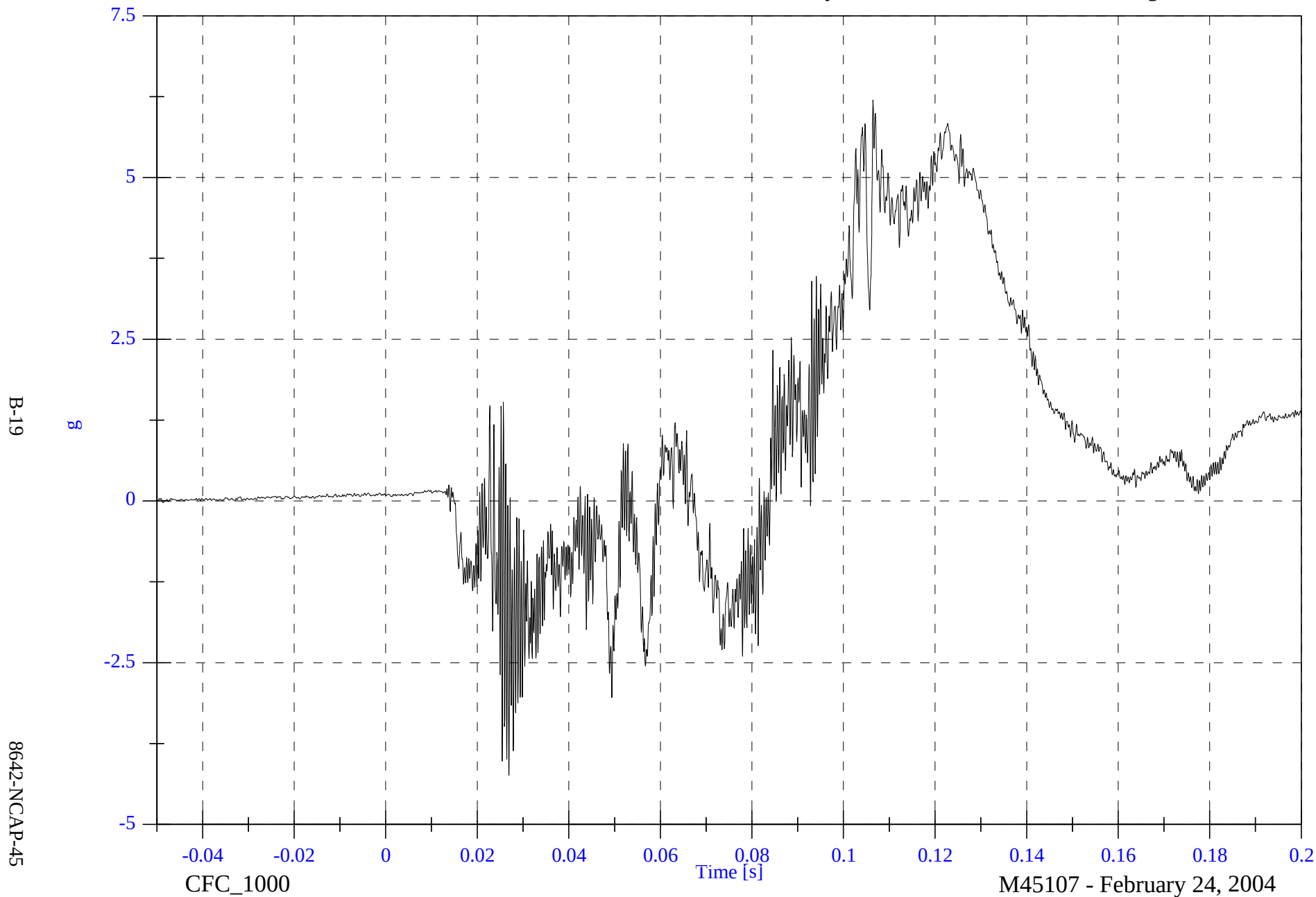


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Head CG Red y

Max: 6.2 [g] at 0.106 [s]

Min: -4.2 [g] at 0.027 [s]

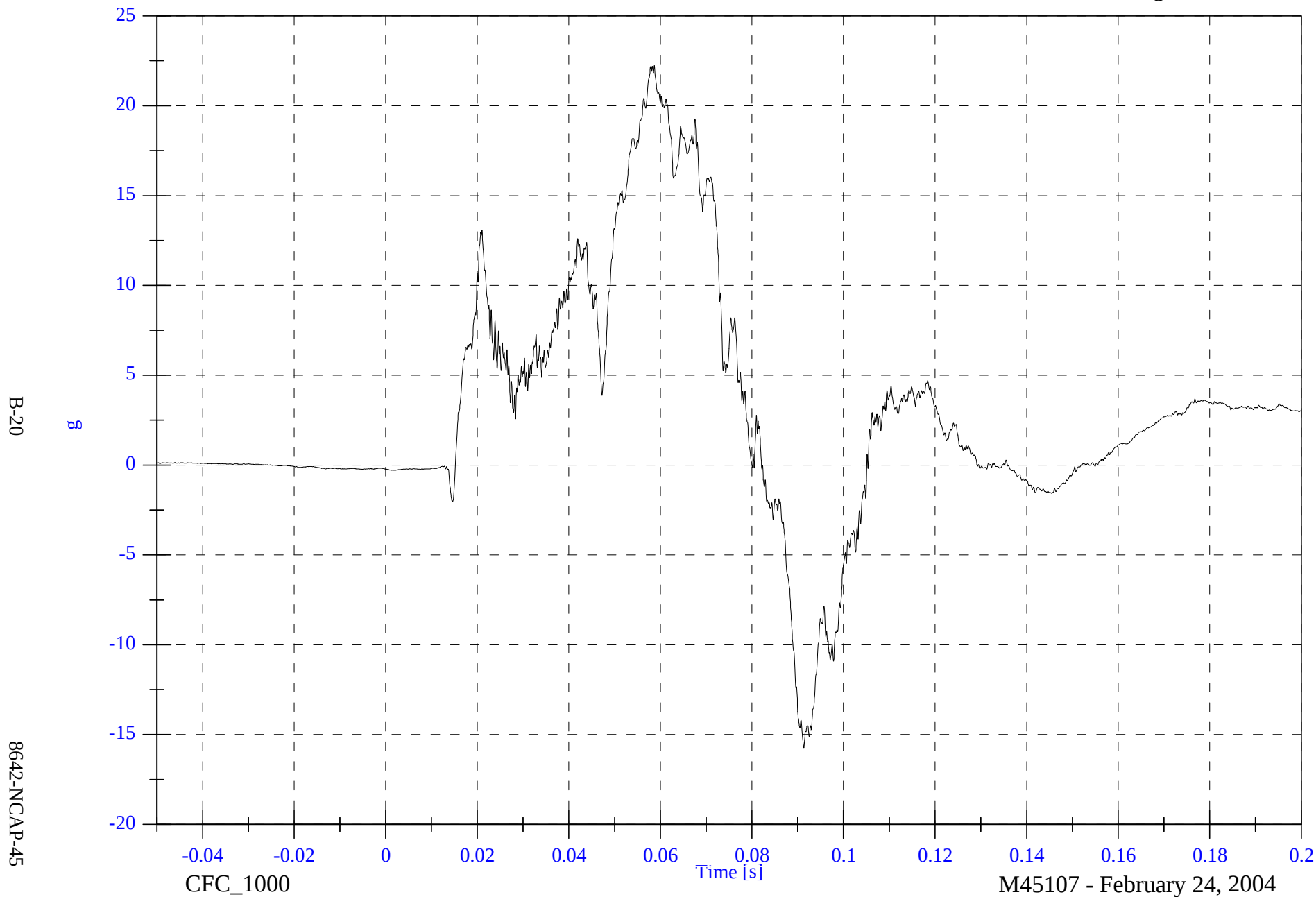


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Head CG Red z

Max: 22.2 [g] at 0.059 [s]

Min: -15.7 [g] at 0.091 [s]



2004 NCAP Test 9 2004 Toyota Prius

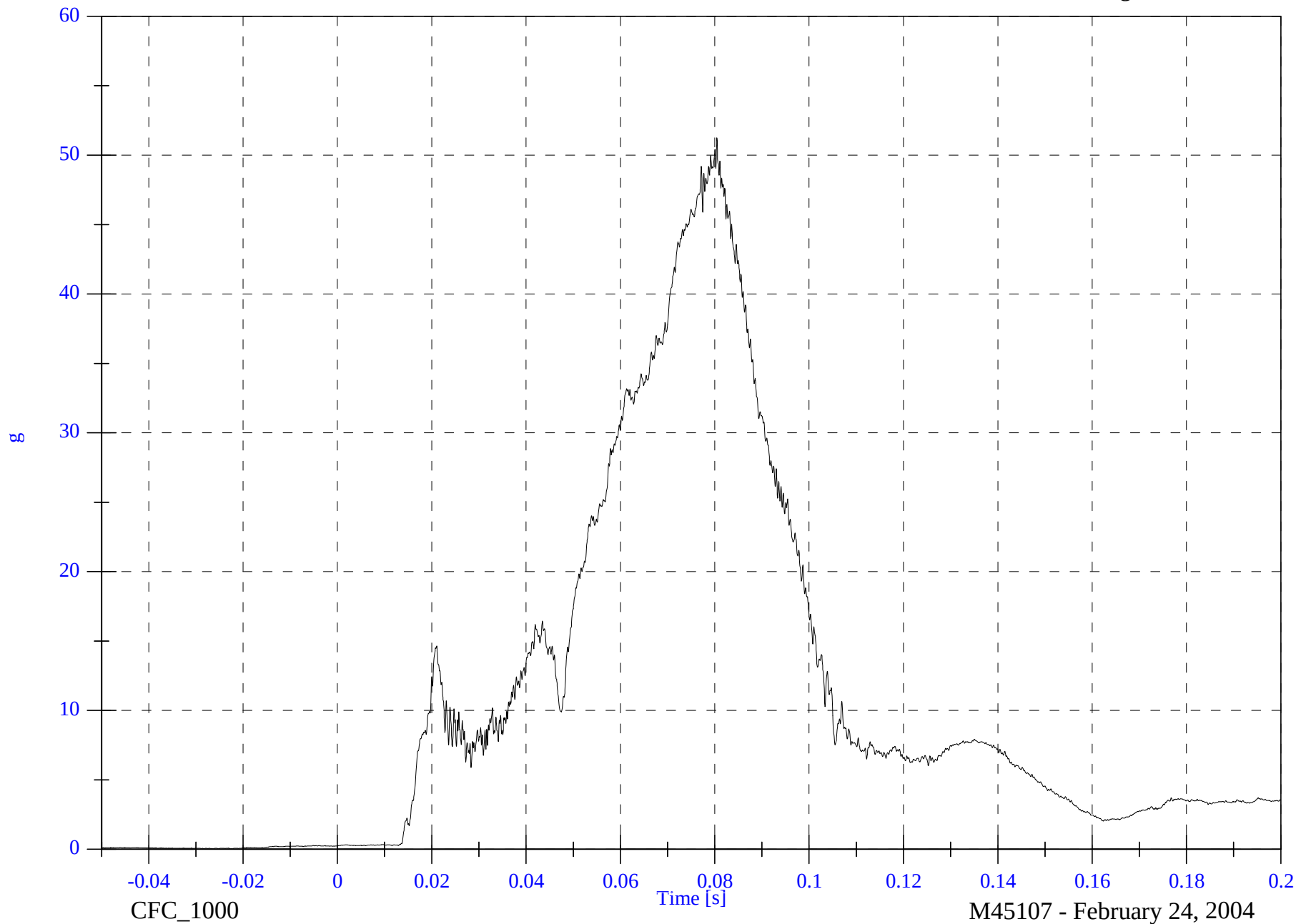
V1P1 Head CG Red Resultant

Max: 51.3 [g] at 0.080 [s]

Min: 0.0 [g] at -0.026 [s]

B-21

8642-NCAP-45

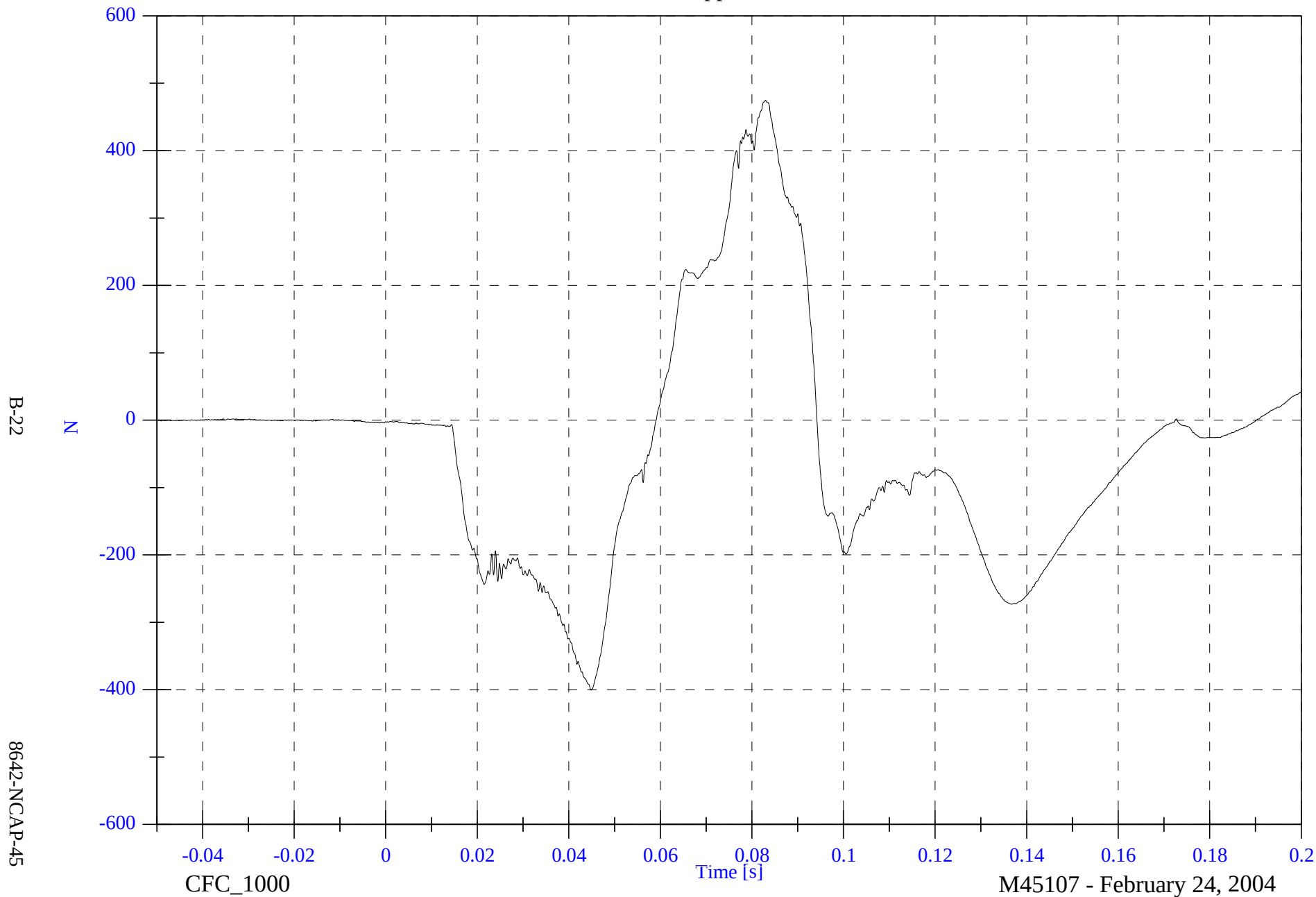


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Upper Neck Fx

Max: 474.7 [N] at 0.083 [s]

Min: -400.7 [N] at 0.045 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P1 Upper Neck Fy

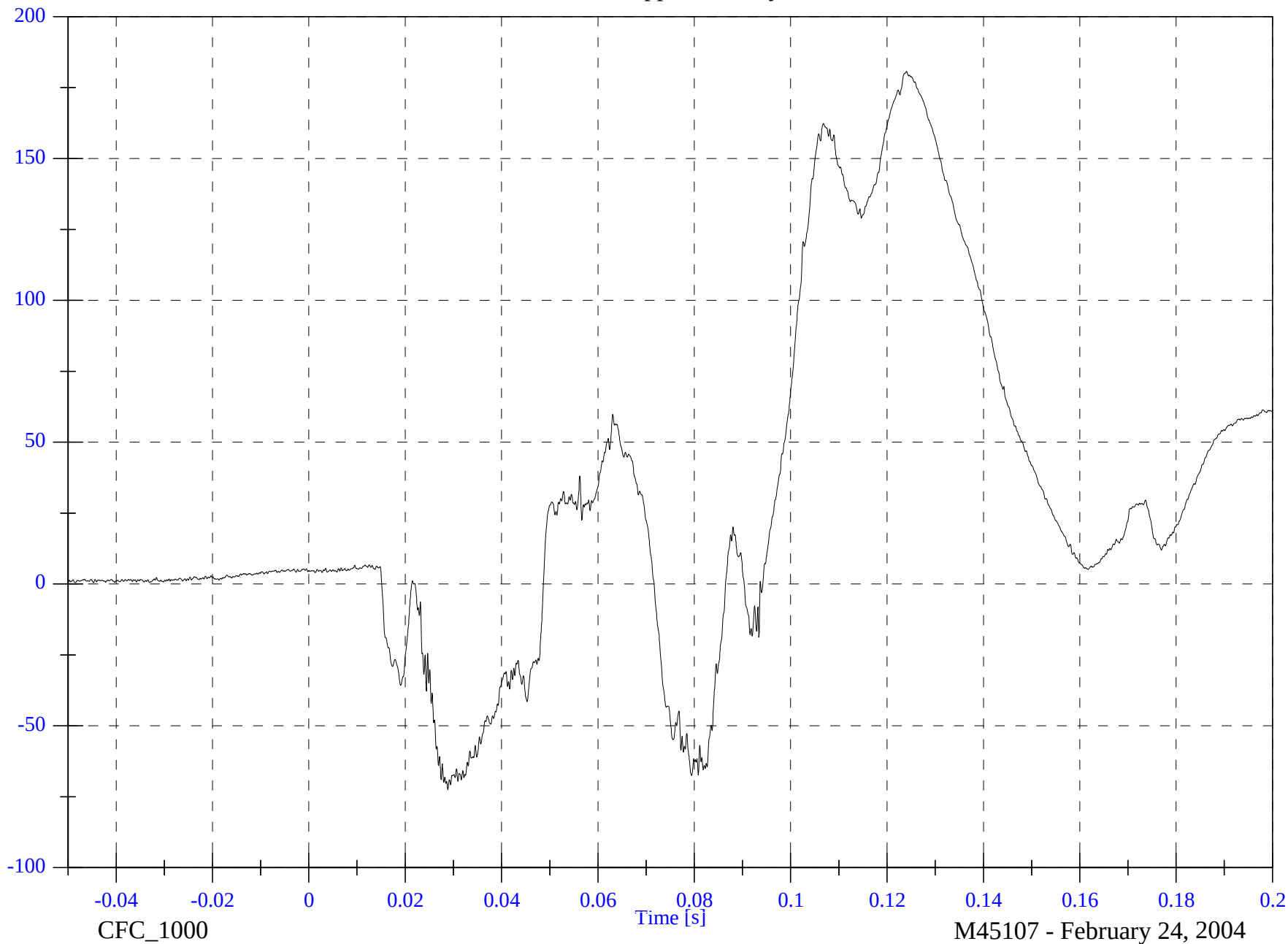
Max: 180.7 [N] at 0.124 [s]

Min: -72.5 [N] at 0.029 [s]

B-23

N

8642-NCAP-45

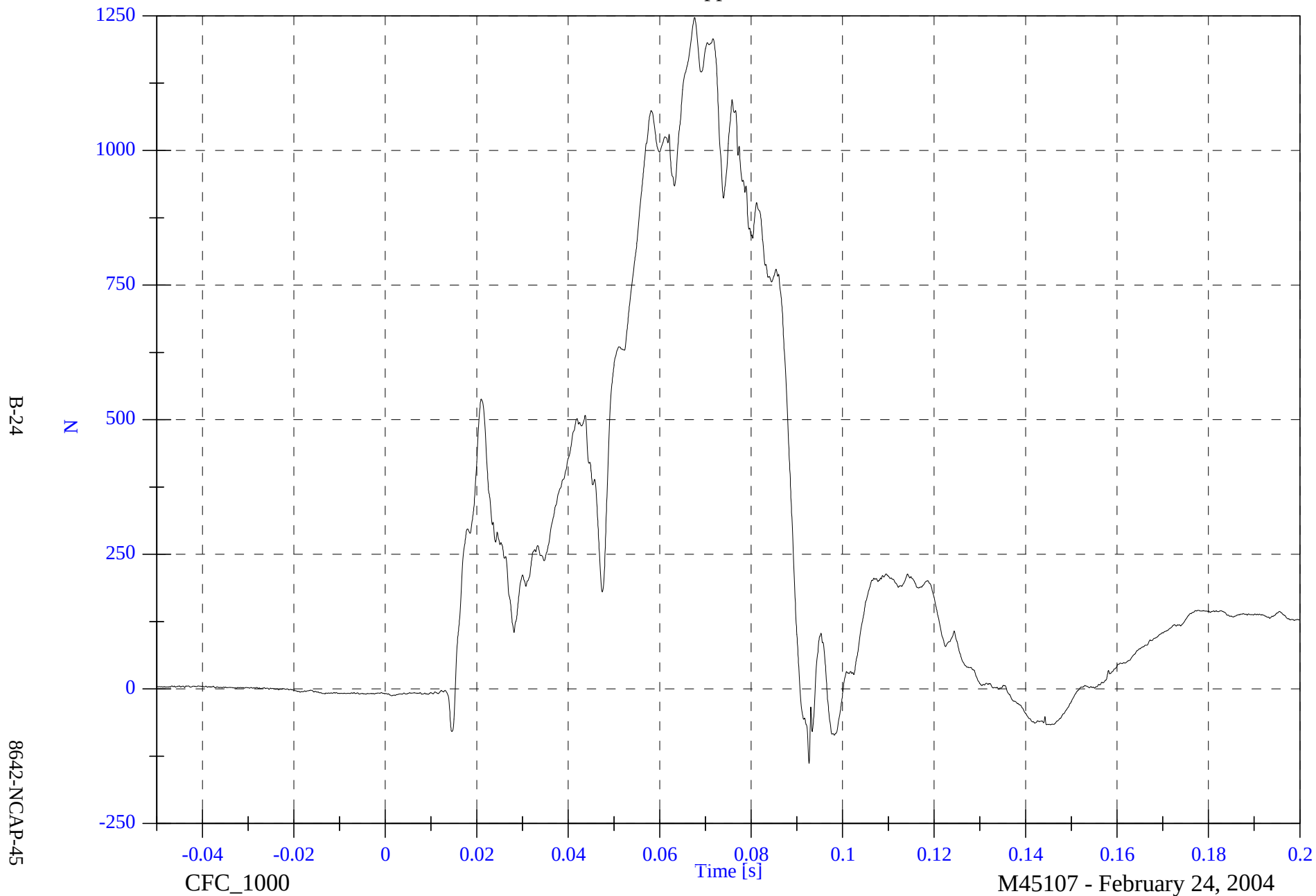


2004 NCAP Test 9 2004 Toyota Prius

Max: 1247.1 [N] at 0.068 [s]

Min: -138.0 [N] at 0.093 [s]

V1P1 Upper Neck Fz

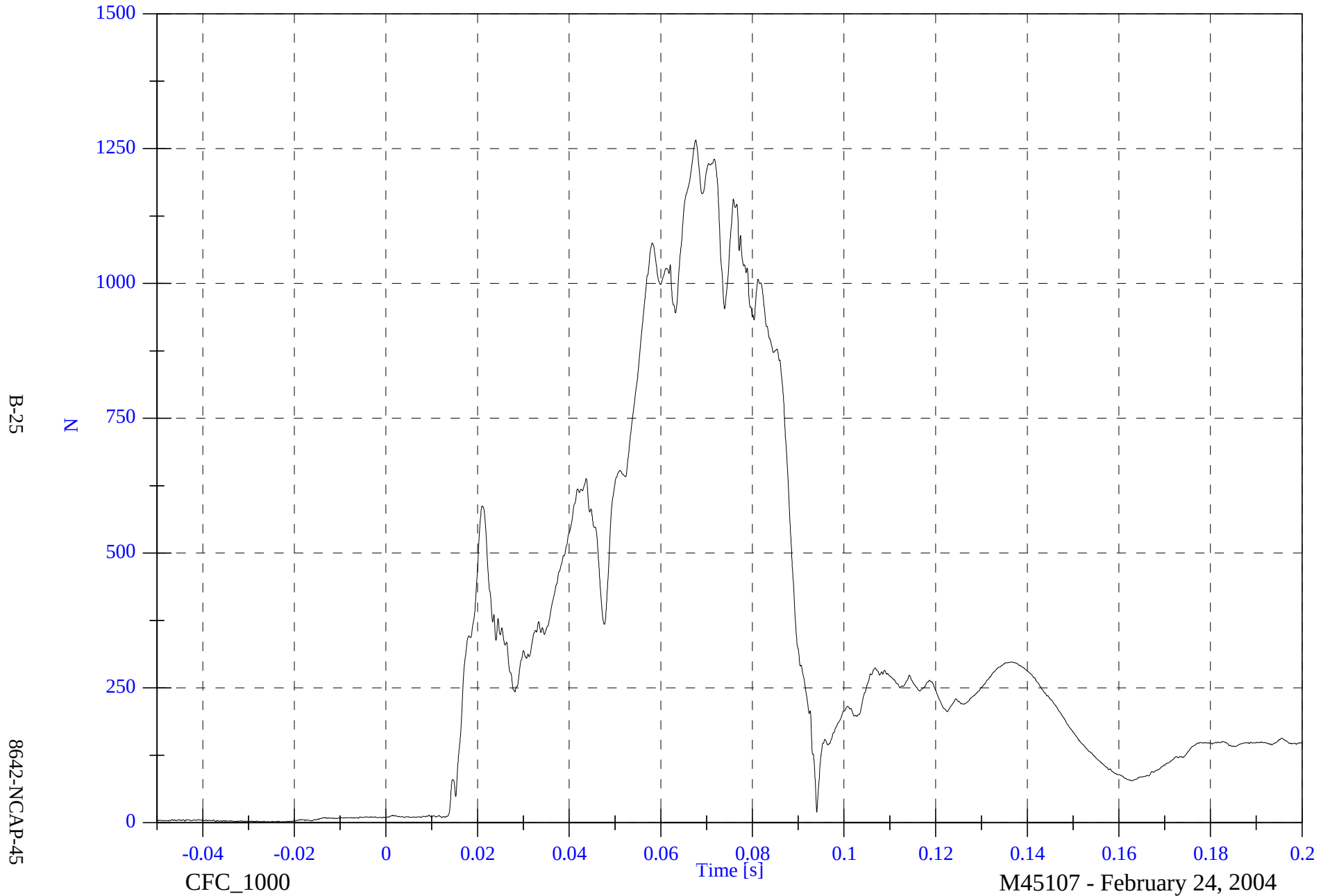


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Upper Neck F Resultant

Max: 1265.9 [N] at 0.068 [s]

Min: 1.2 [N] at -0.026 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P1 Upper Neck Mx

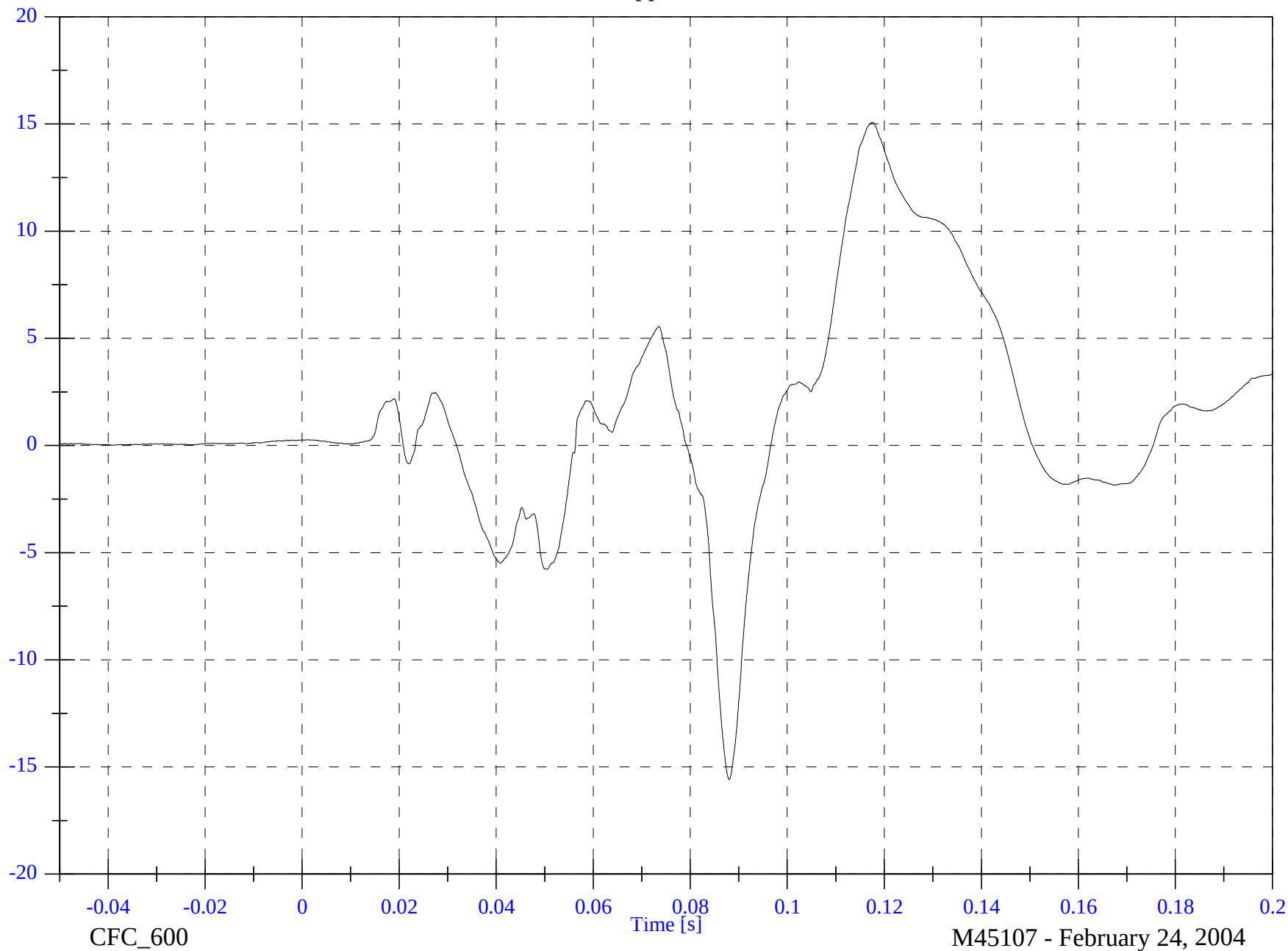
Max: 15.1 [N-m] at 0.118 [s]

Min: -15.6 [N-m] at 0.088 [s]

B-26

N-m

8642-NCAP-45



CFC_600

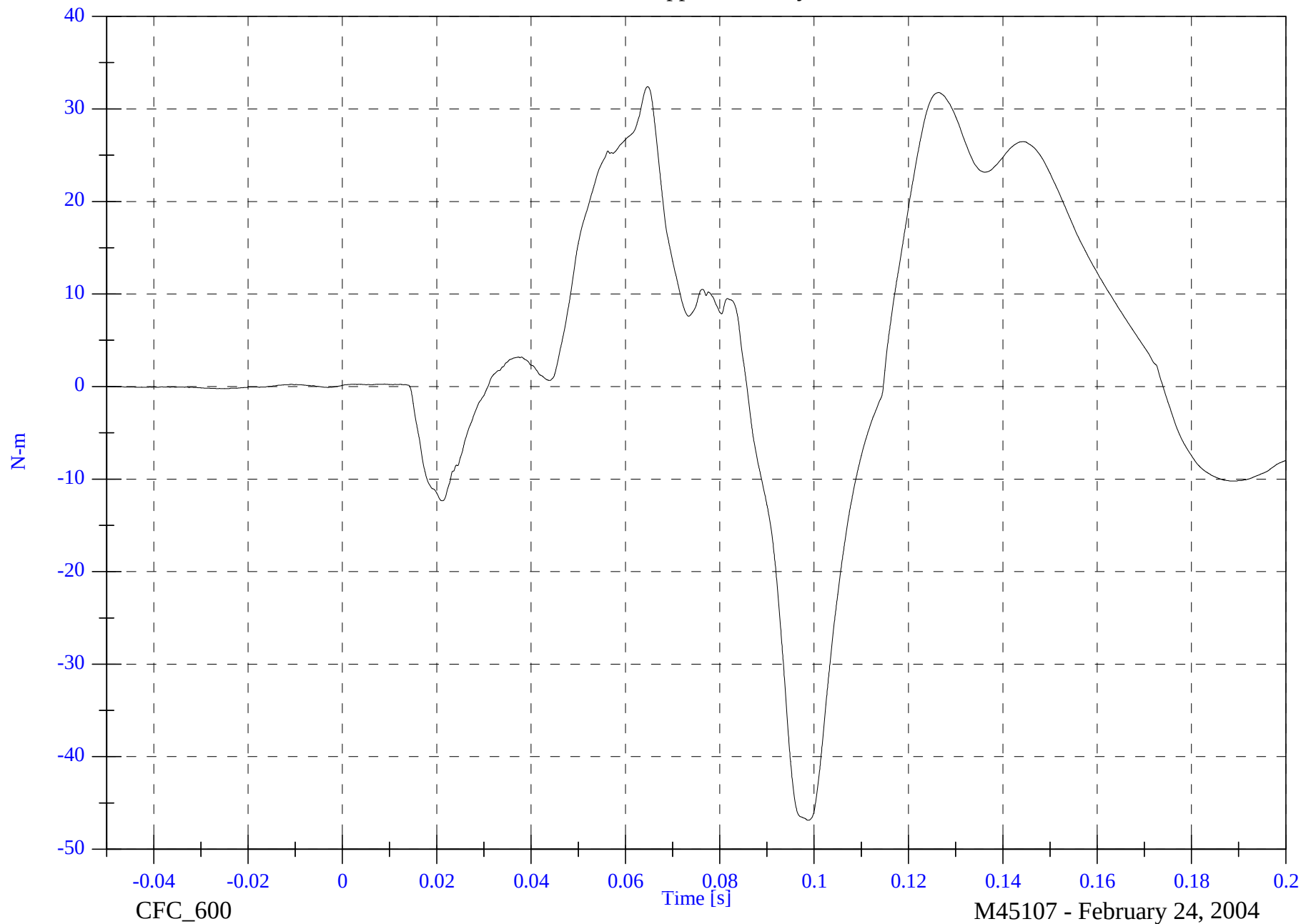
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V1P1 Upper Neck My

Max: 32.4 [N-m] at 0.065 [s]

Min: -46.8 [N-m] at 0.099 [s]



B-27

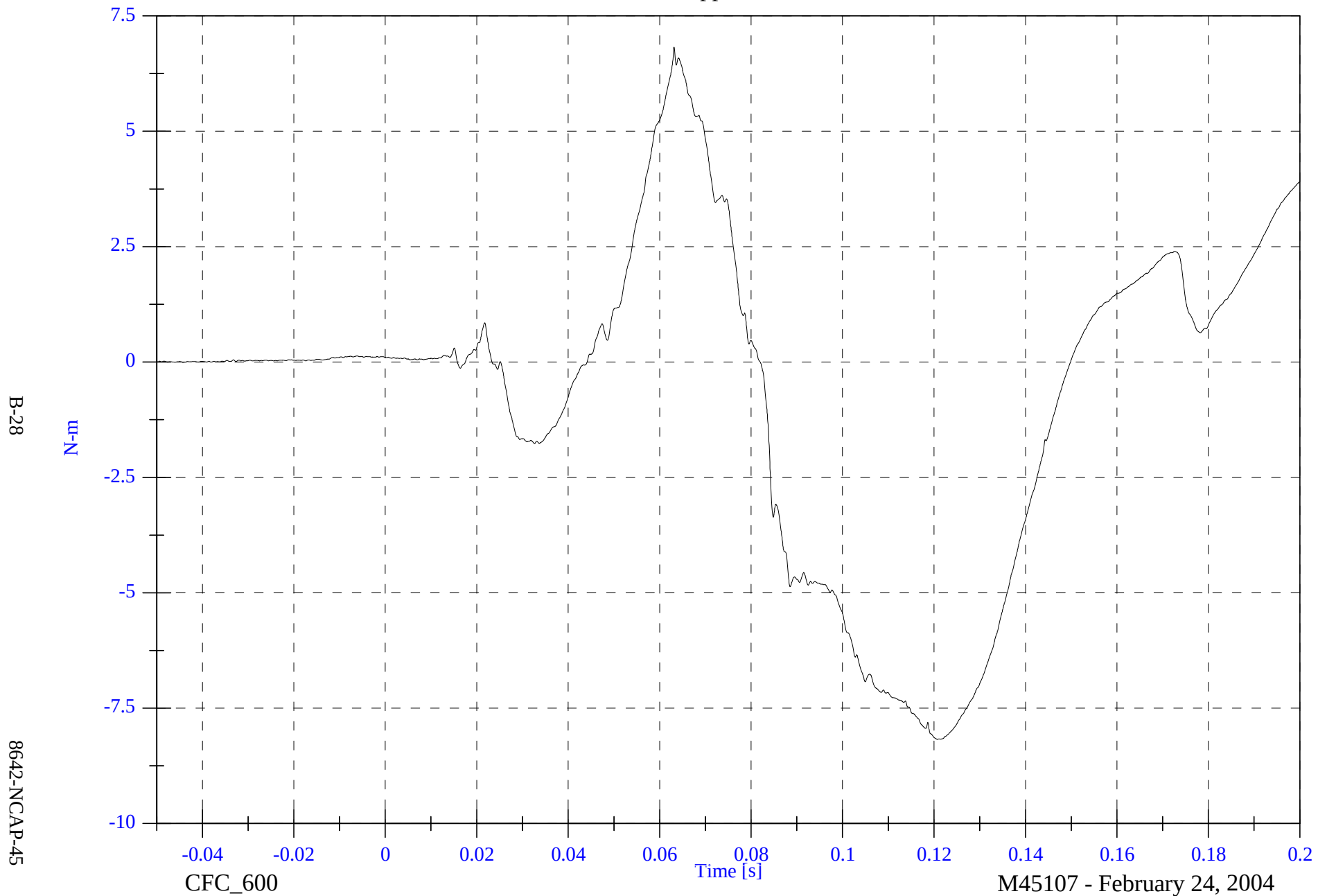
8642-NCAP-45

2004 NCAP Test 9 2004 Toyota Prius

V1P1 Upper Neck Mz

Max: 6.8 [N-m] at 0.063 [s]

Min: -8.2 [N-m] at 0.121 [s]

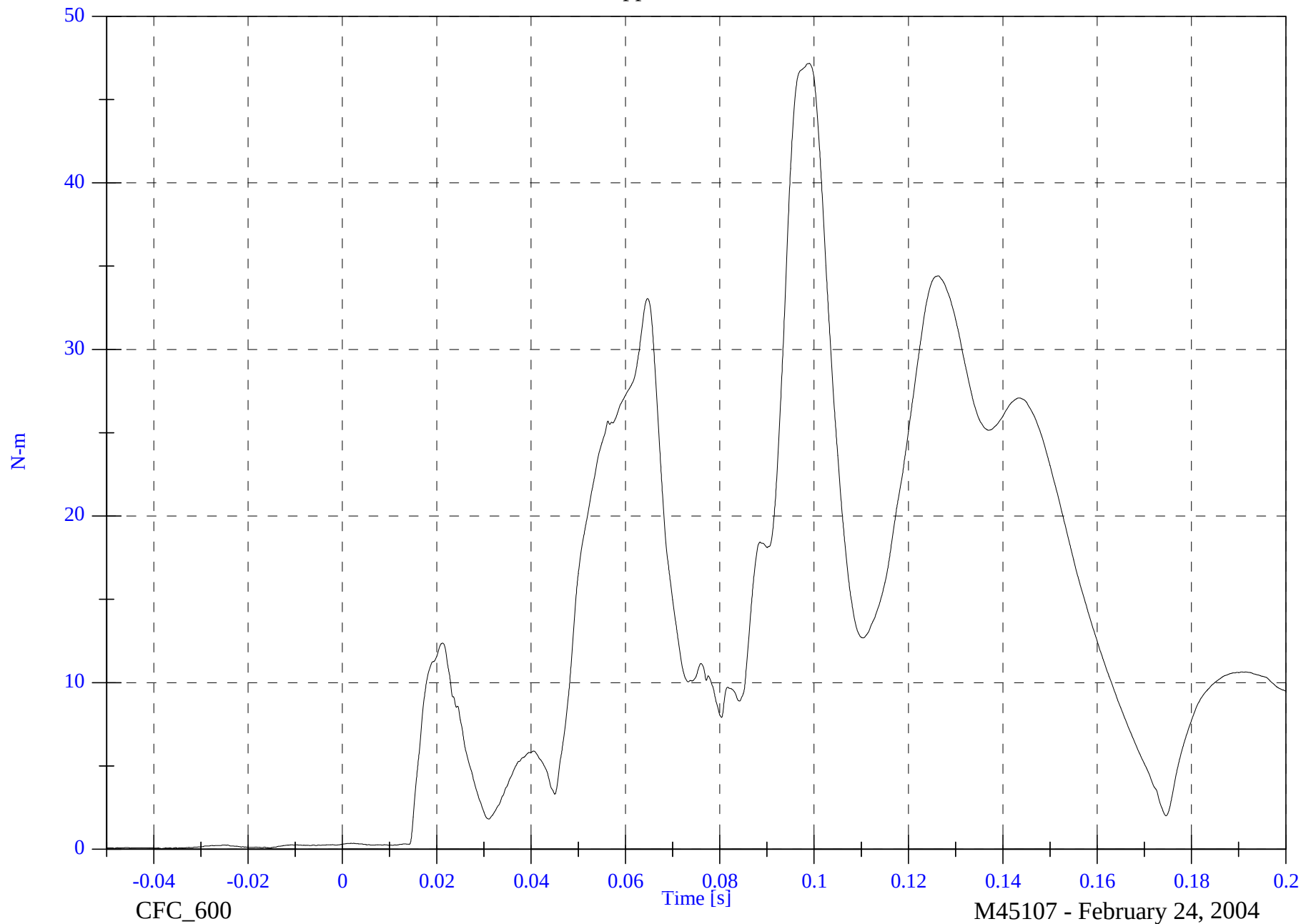


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Upper Neck M Resultant

Max: 47.2 [N-m] at 0.099 [s]

Min: 0.0 [N-m] at -0.038 [s]



B-29

8642-NCAP-45

CFC_600

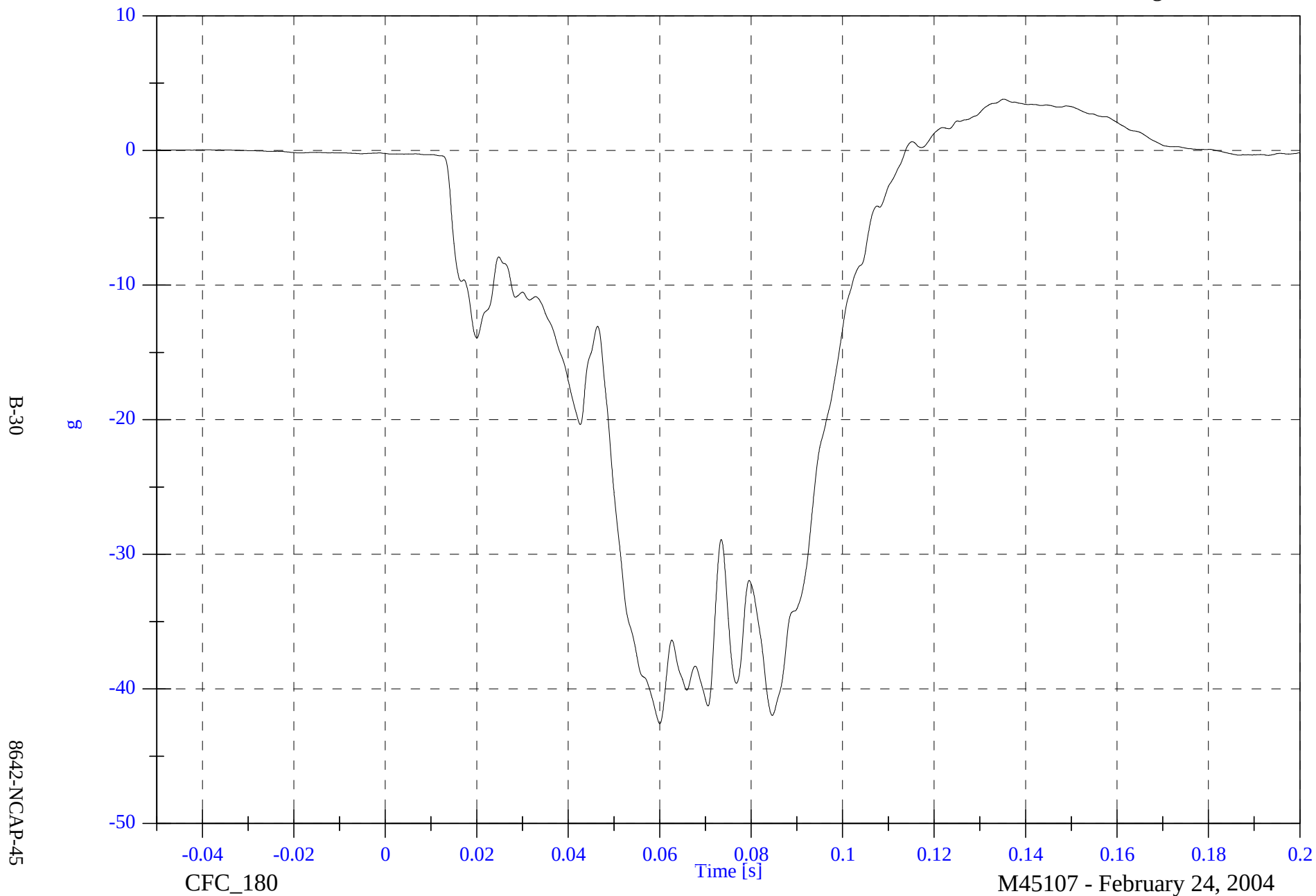
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P1 Chest x

Max: 3.8 [g] at 0.135 [s]

Min: -42.6 [g] at 0.060 [s]



2004 NCAP Test 9 2004 Toyota Prius

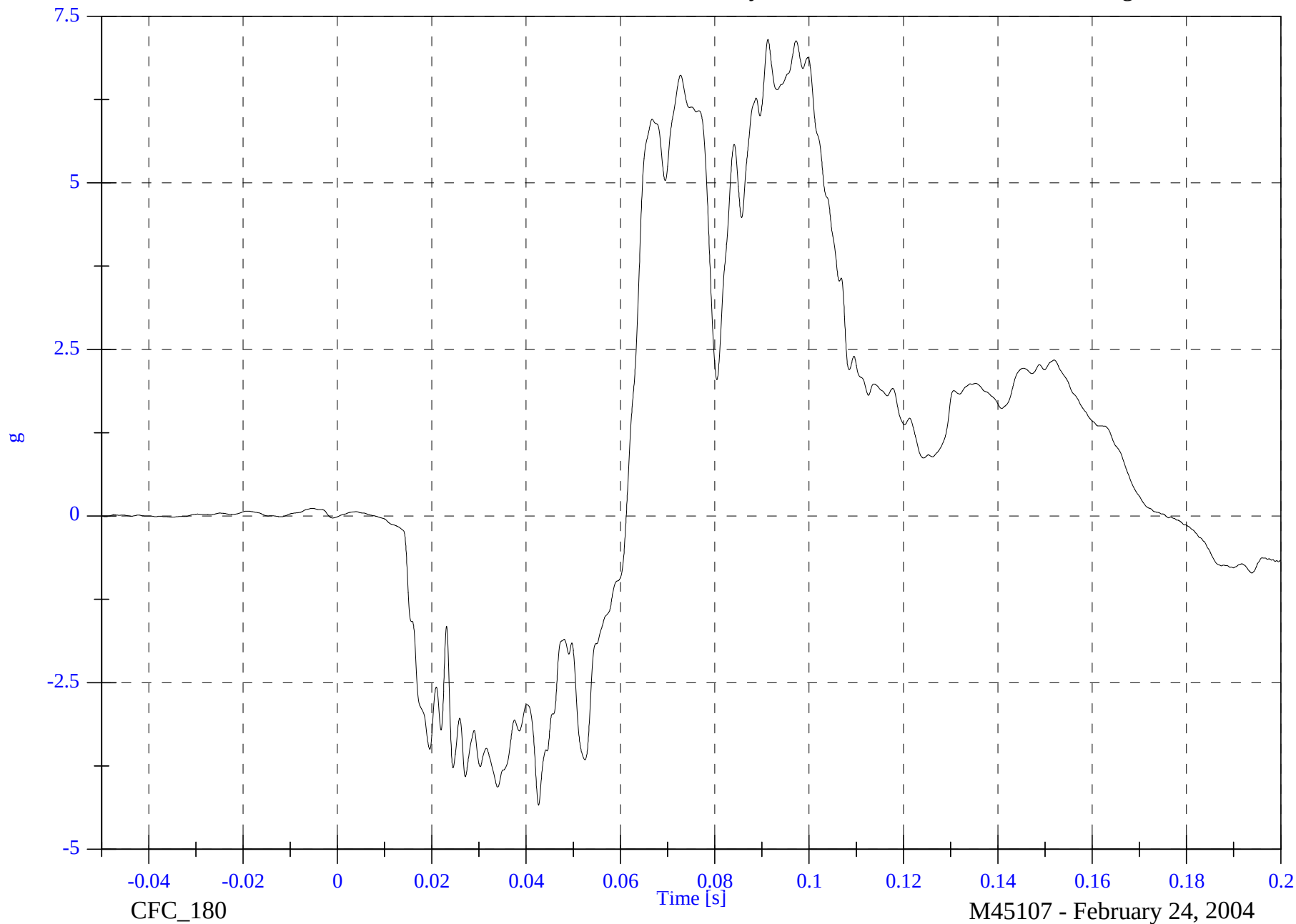
V1P1 Chest y

Max: 7.2 [g] at 0.091 [s]

Min: -4.3 [g] at 0.043 [s]

B-31

8642-NCAP-45

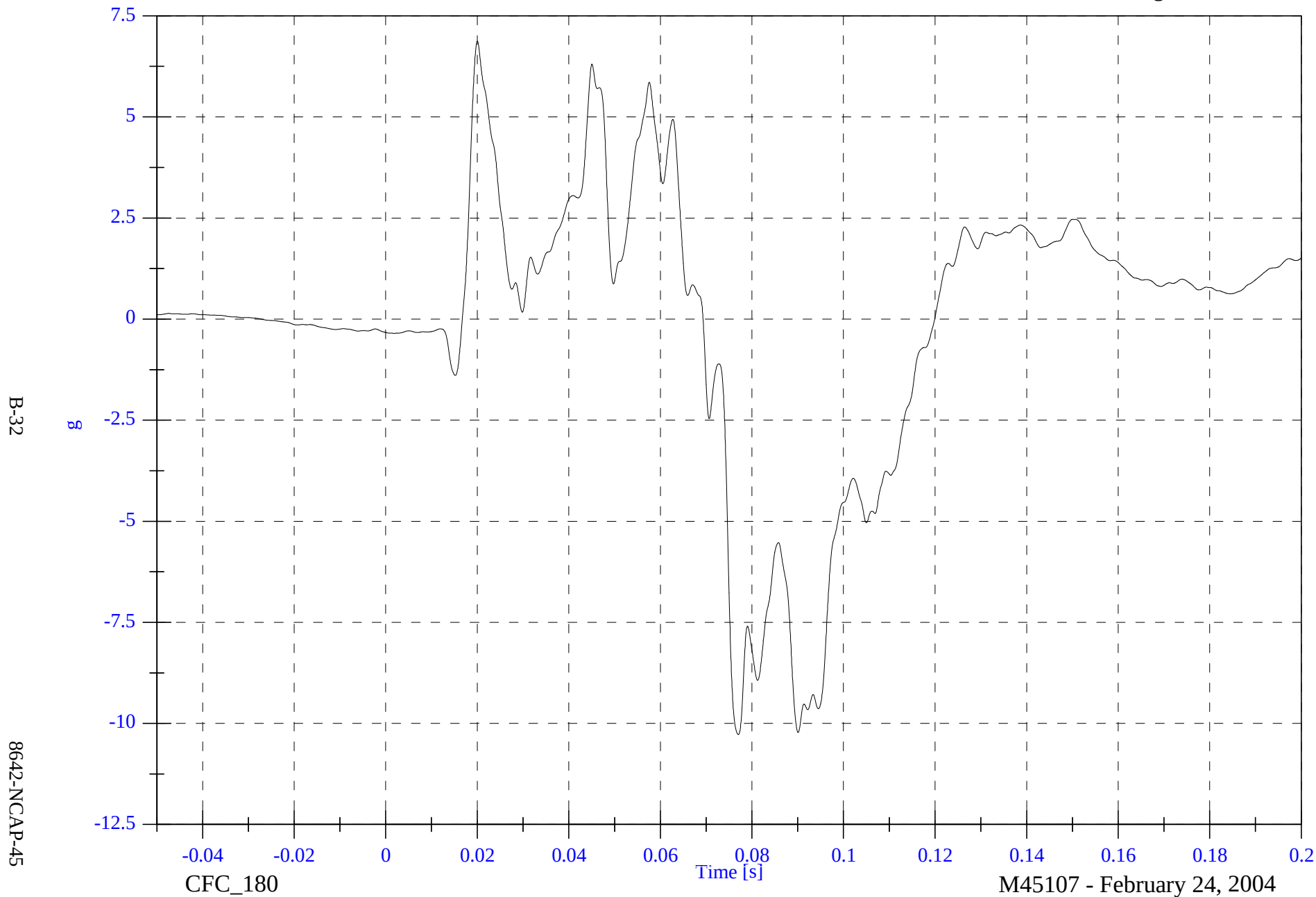


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Chest z

Max: 6.9 [g] at 0.020 [s]

Min: -10.3 [g] at 0.077 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P1 Chest Resultant

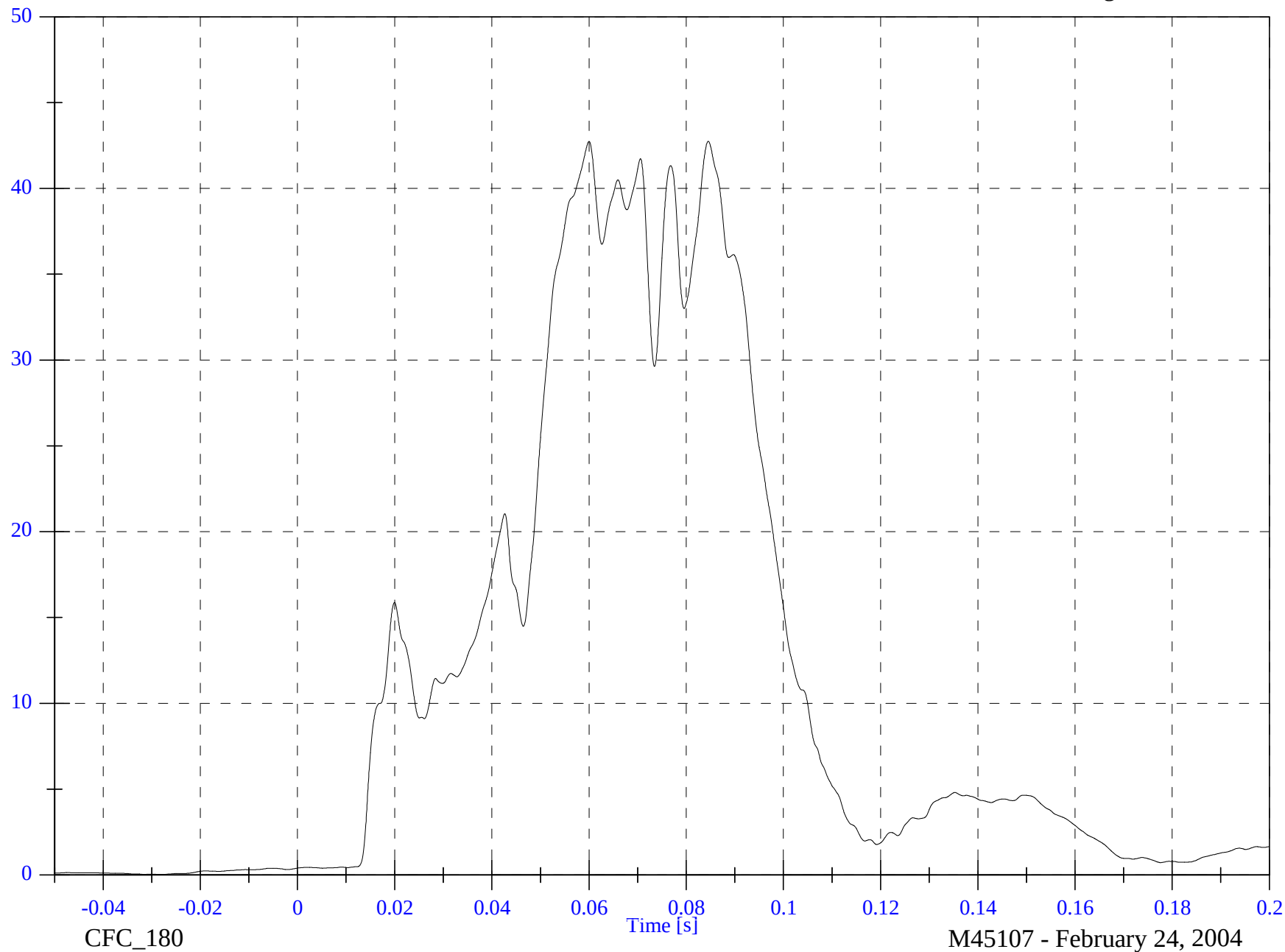
Max: 42.7 [g] at 0.085 [s]

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

B-33

8642-NCAP-45

g



2004 NCAP Test 9 2004 Toyota Prius

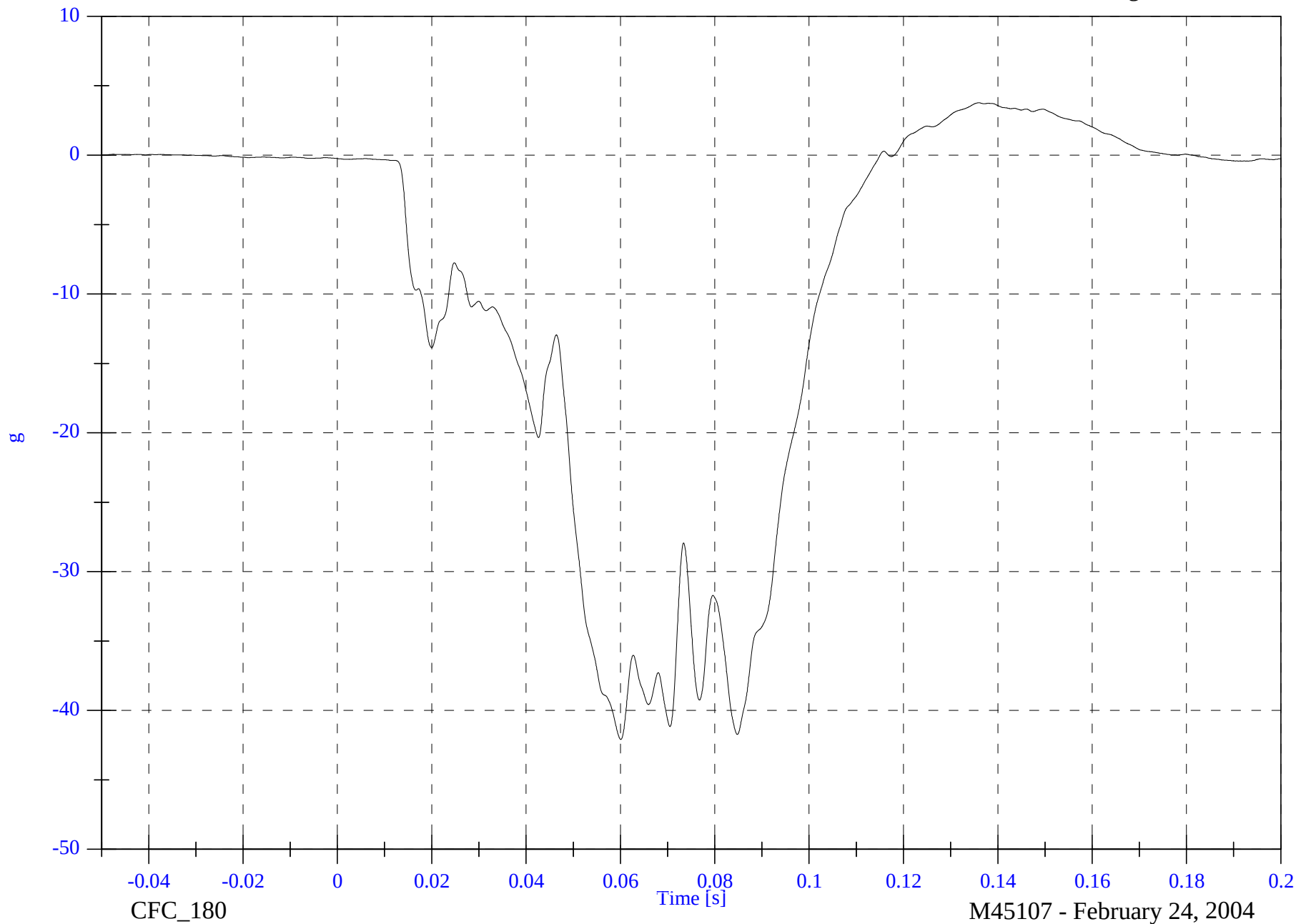
V1P1 Chest Red x

Max: 3.8 [g] at 0.136 [s]

Min: -42.1 [g] at 0.060 [s]

B-34

8642-NCAP-45



CFC_180

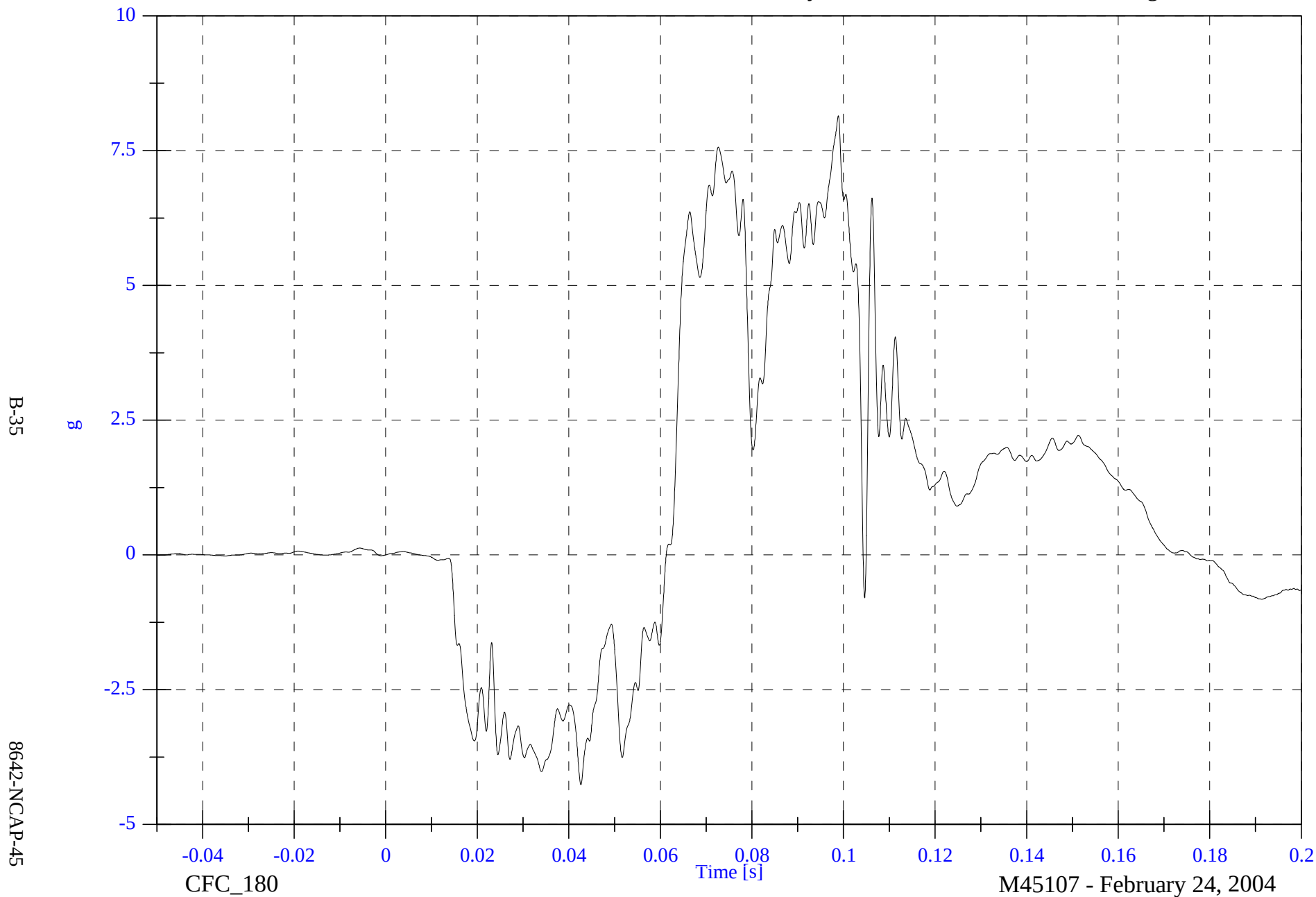
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P1 Chest Red y

Max: 8.1 [g] at 0.099 [s]

Min: -4.3 [g] at 0.043 [s]



2004 NCAP Test 9 2004 Toyota Prius

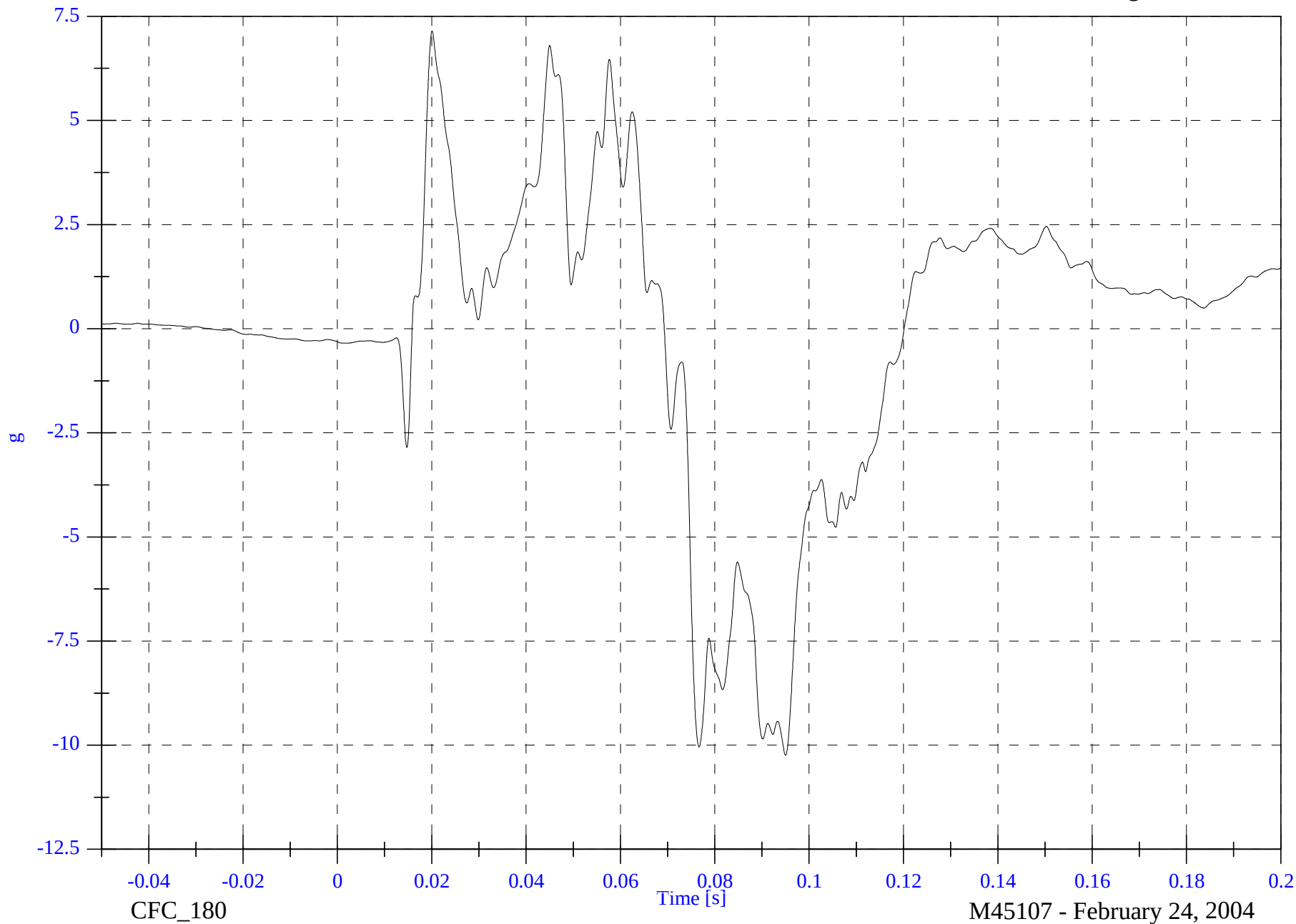
V1P1 Chest Red z

Max: 7.1 [g] at 0.020 [s]

Min: -10.2 [g] at 0.095 [s]

B-36

8642-NCAP-45



2004 NCAP Test 9 2004 Toyota Prius

V1P1 Chest Red Resultant

Max: 42.5 [g] at 0.085 [s]

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

B-37

8642-NCAP-45

g



CFC_180

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2004 NCAP Test 9 2004 Toyota Prius

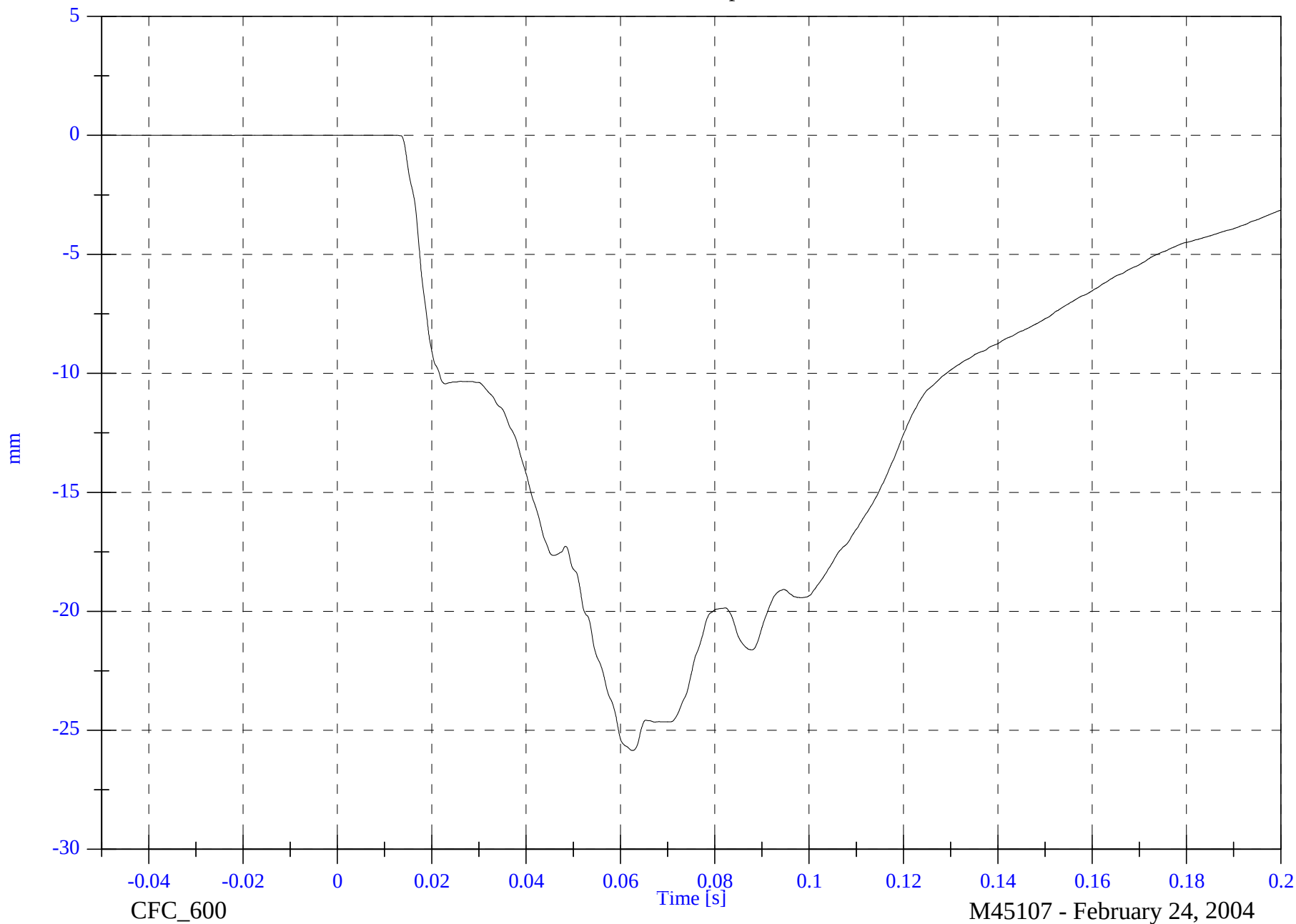
V1P1 Chest Compression x

Max: 0.0 [mm] at -0.032 [s]

Min: -25.8 [mm] at 0.063 [s]

B-38

8642-NCAP-45



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2004 NCAP Test 9 2004 Toyota Prius

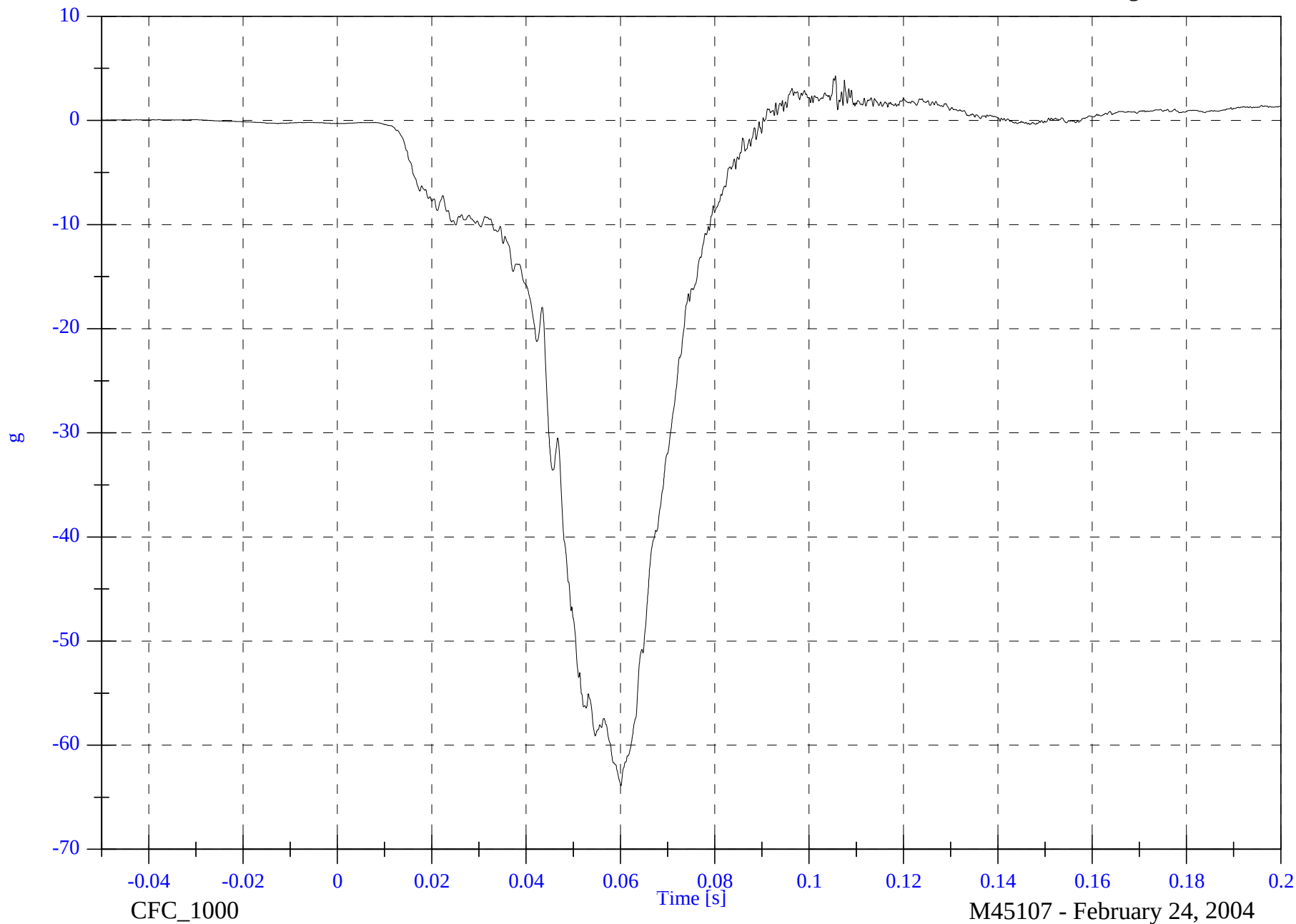
V1P1 Pelvic x

Max: 4.3 [g] at 0.106 [s]

Min: -63.9 [g] at 0.060 [s]

B-39

8642-NCAP-45

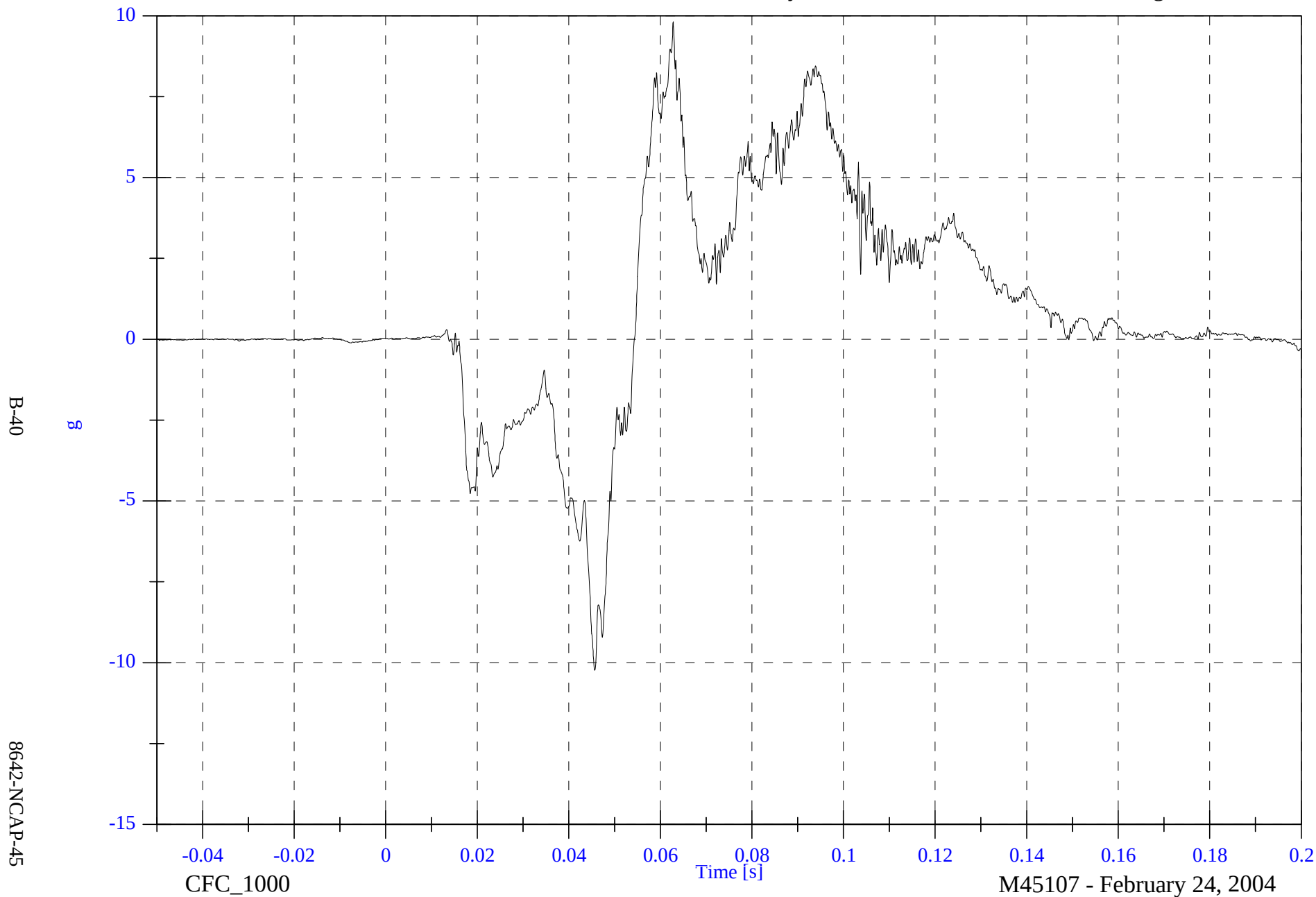


2004 NCAP Test 9 2004 Toyota Prius

Max: 9.8 [g] at 0.063 [s]

Min: -10.2 [g] at 0.046 [s]

V1P1 Pelvic y



B-40

8642-NCAP-45

CFC_1000

Time [s]

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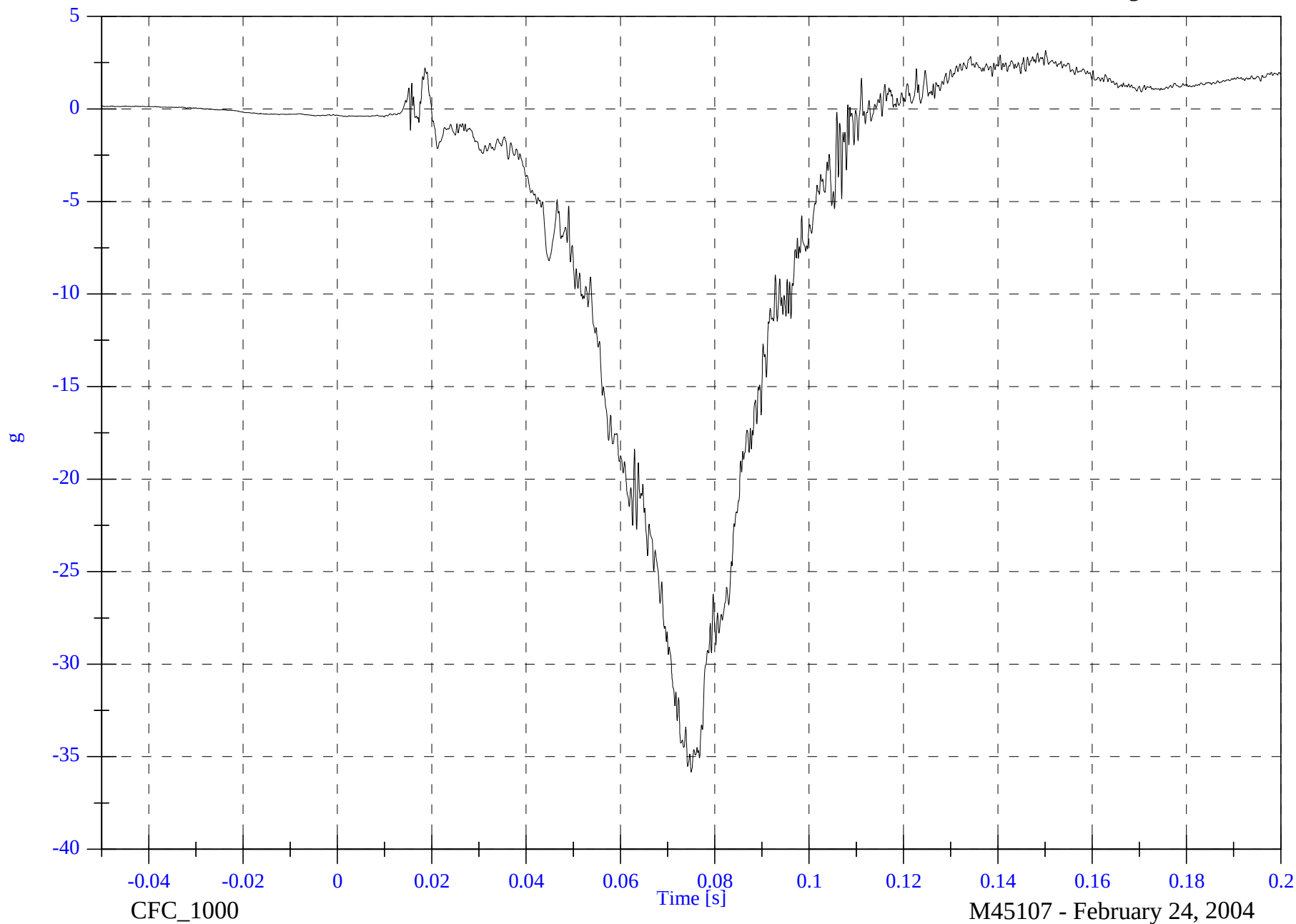
V1P1 Pelvic z

Max: 3.2 [g] at 0.150 [s]

Min: -35.8 [g] at 0.075 [s]

B-41

8642-NCAP-45



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2004 NCAP Test 9 2004 Toyota Prius

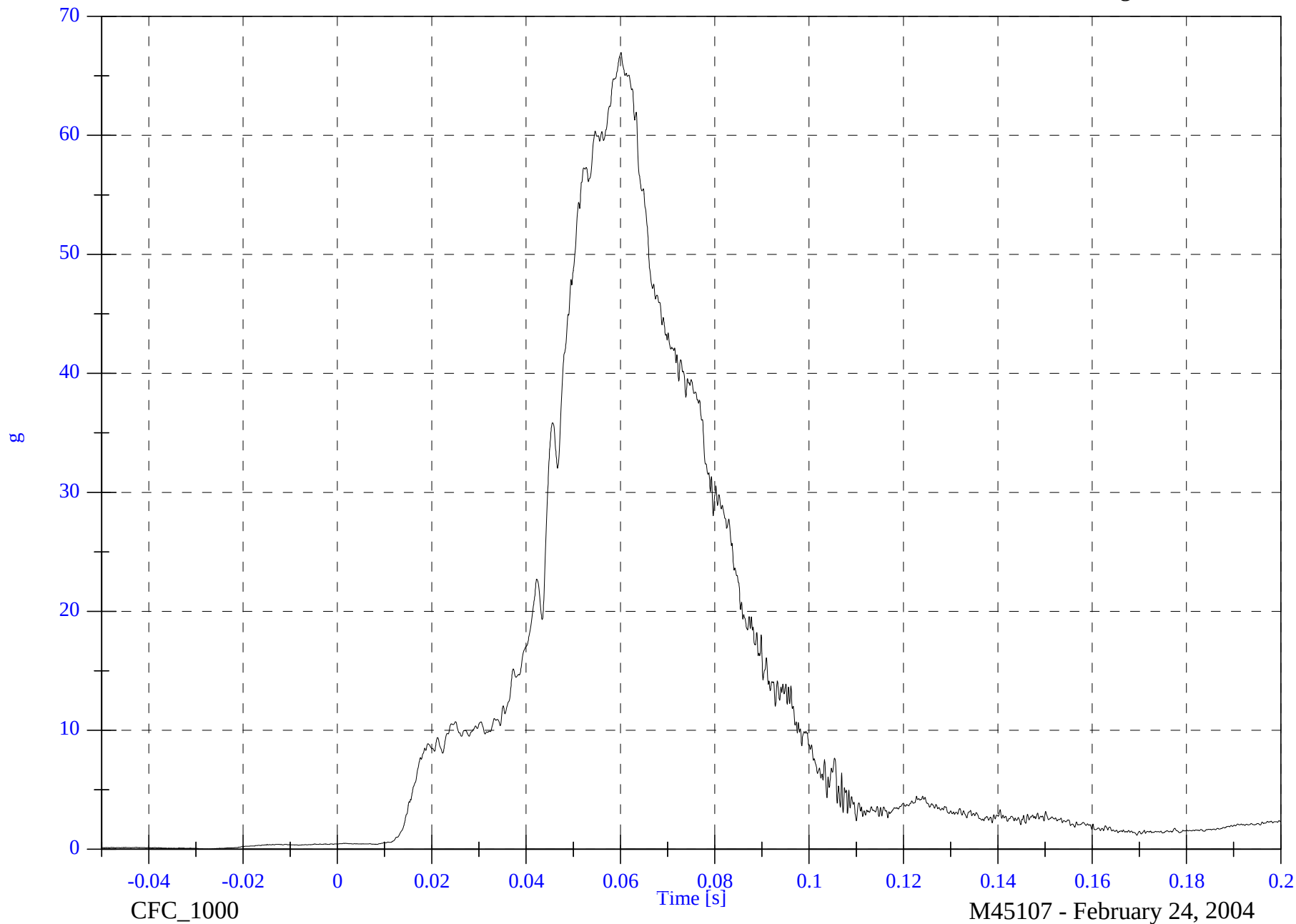
V1P1 Pelvic Resultant

Max: 67.0 [g] at 0.060 [s]

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

B-42

8642-NCAP-45



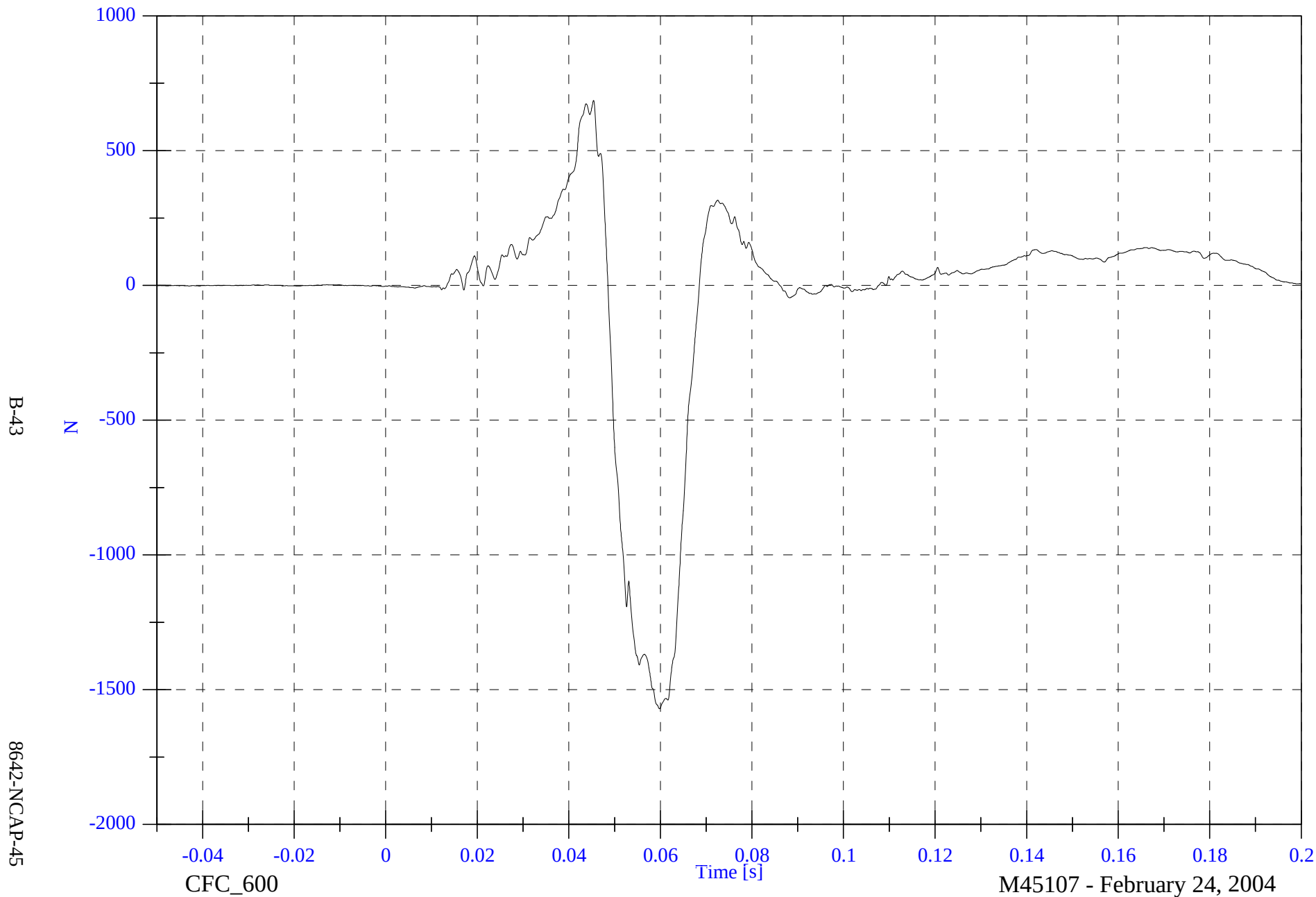
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2004 NCAP Test 9 2004 Toyota Prius

V1P1 Left Femur z

Max: 686.0 [N] at 0.045 [s]

Min: -1571.0 [N] at 0.060 [s]

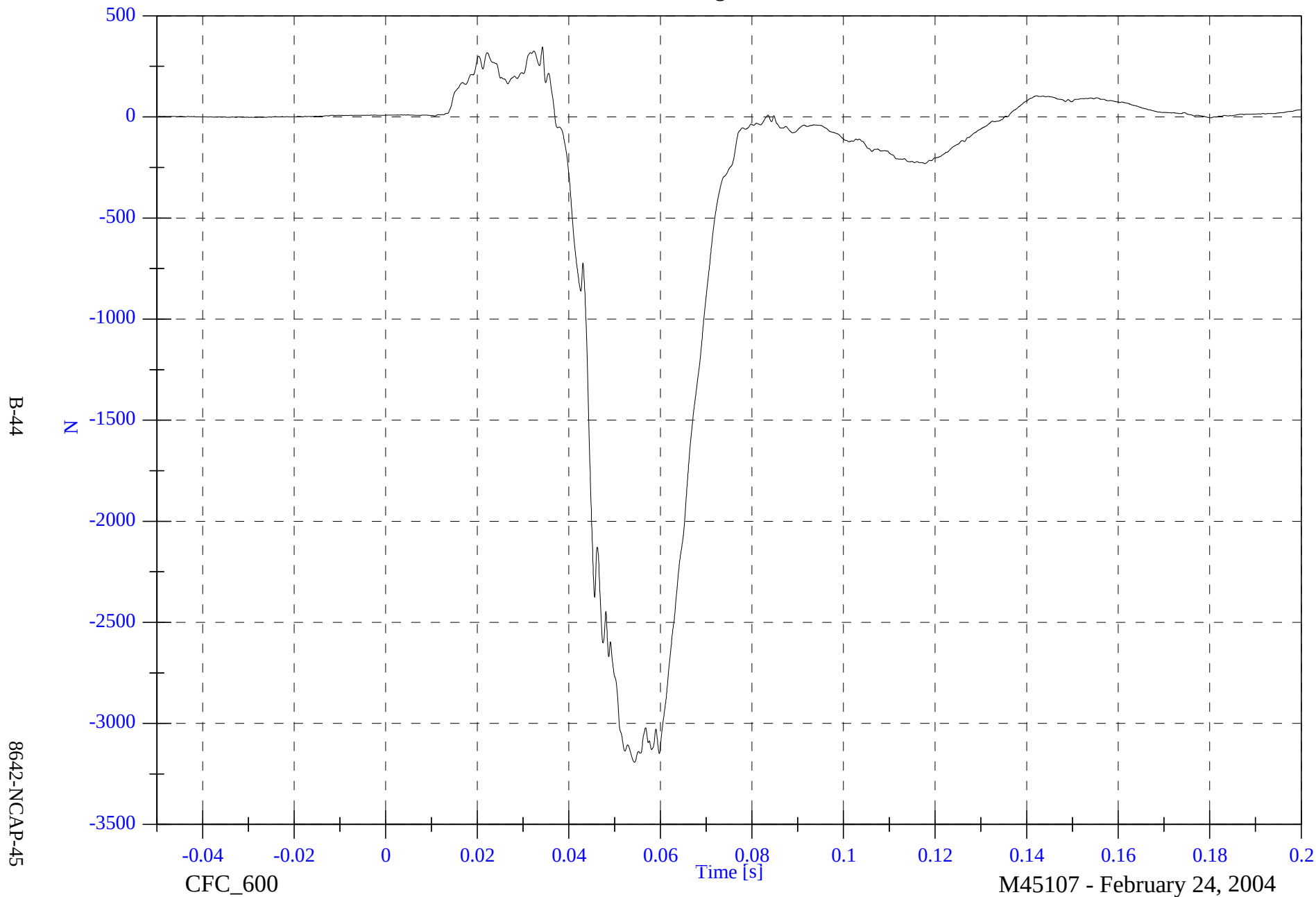


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Right Femur z

Max: 346.4 [N] at 0.034 [s]

Min: -3192.5 [N] at 0.054 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P1 Left Upper Tibia Mx

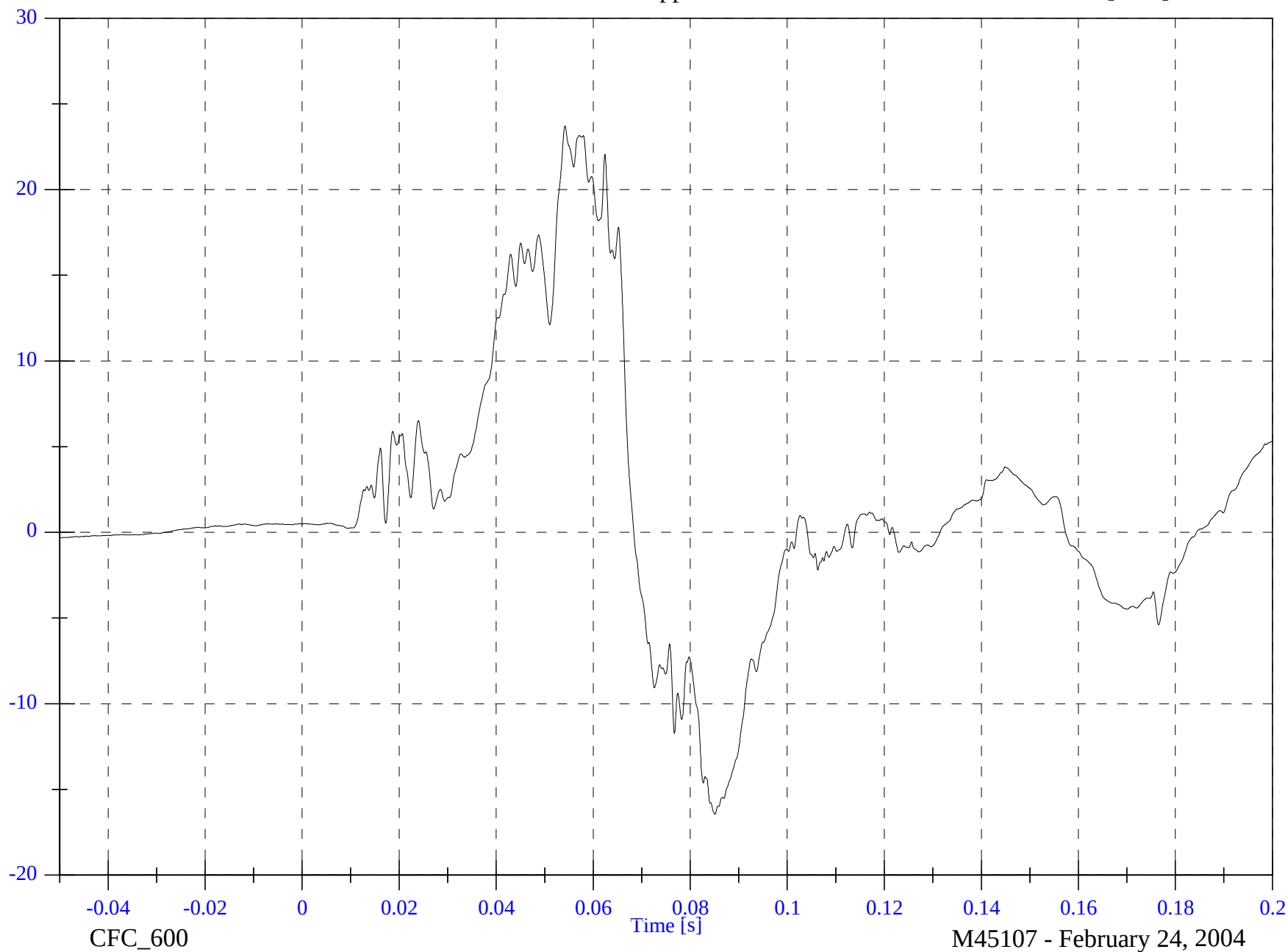
Max: 23.7 [N-m] at 0.054 [s]

Min: -16.4 [N-m] at 0.085 [s]

B-45

w-N

8642-NCAP-45



CFC_600

M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

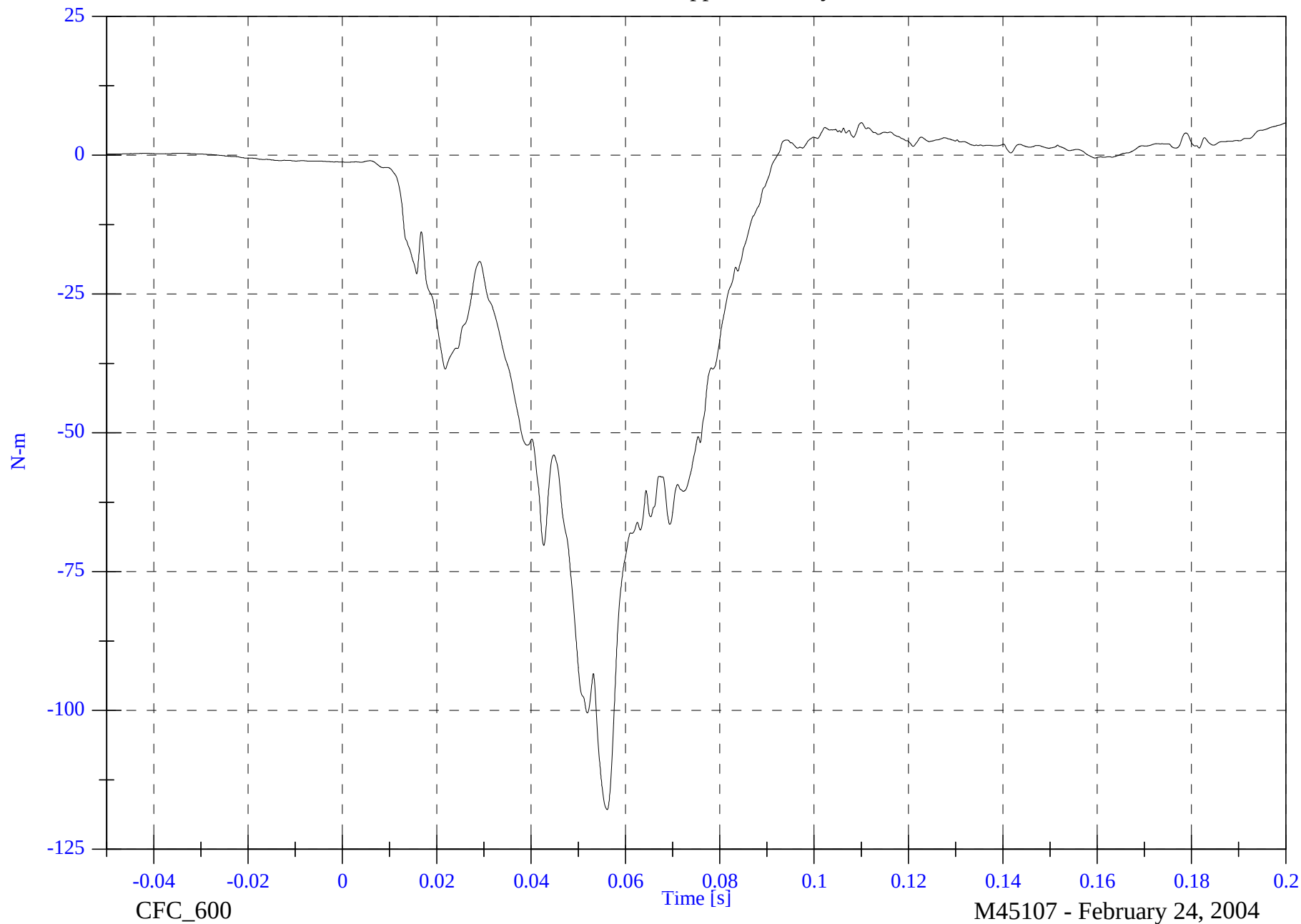
V1P1 Left Upper Tibia My

Max: 5.8 [N-m] at 0.110 [s]

Min: -117.8 [N-m] at 0.056 [s]

B-46

8642-NCAP-45

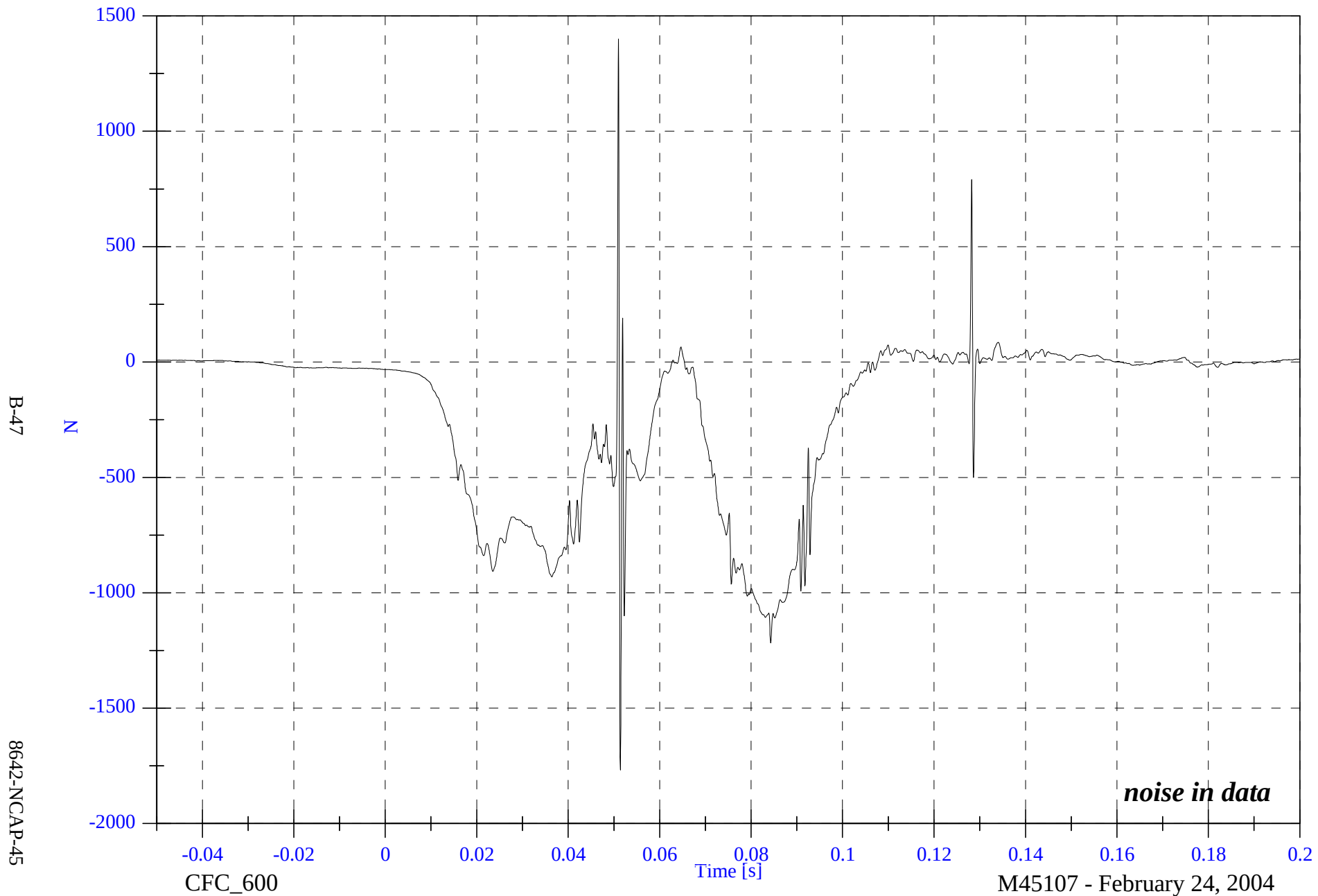


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Left Lower Tibia Fz

Max: 1400.0 [N] at 0.051 [s]

Min: -1768.2 [N] at 0.051 [s]



2004 NCAP Test 9 2004 Toyota Prius

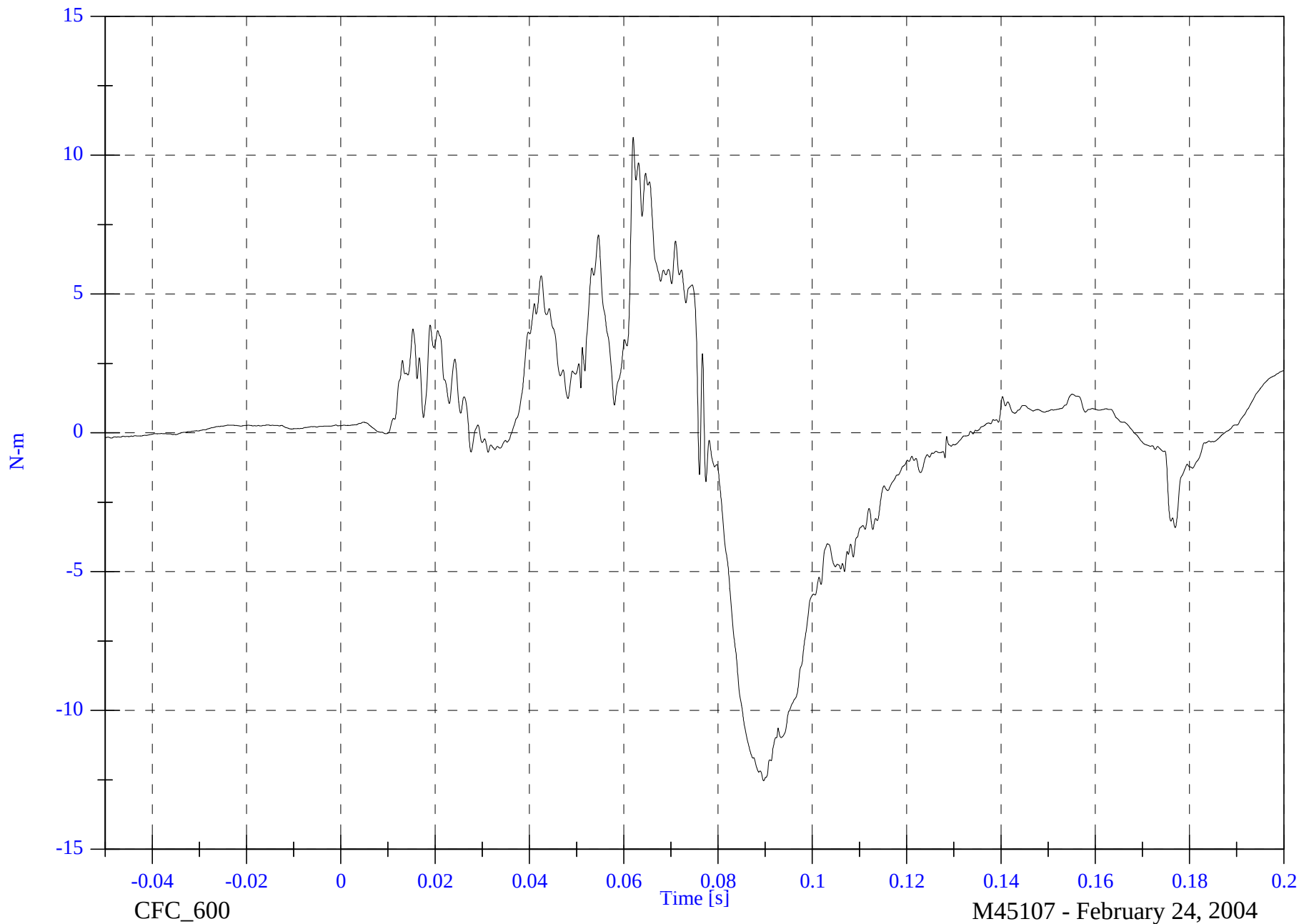
V1P1 Left Lower Tibia Mx

Max: 10.6 [N-m] at 0.062 [s]

Min: -12.5 [N-m] at 0.090 [s]

B-48

8642-NCAP-45



2004 NCAP Test 9 2004 Toyota Prius

V1P1 Left Lower Tibia My

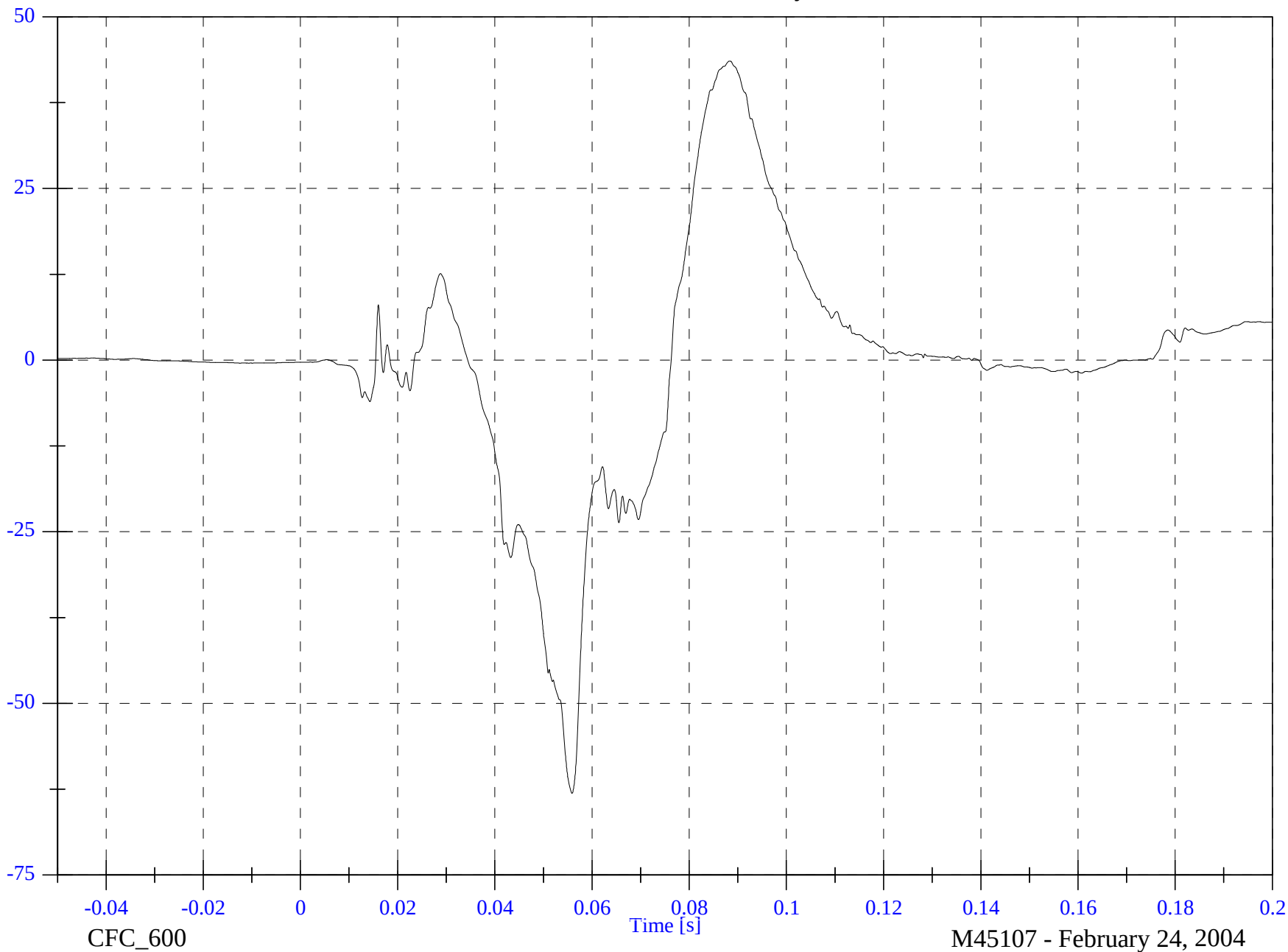
Max: 43.5 [N-m] at 0.088 [s]

Min: -63.1 [N-m] at 0.056 [s]

B-49

m-N

8642-NCAP-45



2004 NCAP Test 9 2004 Toyota Prius

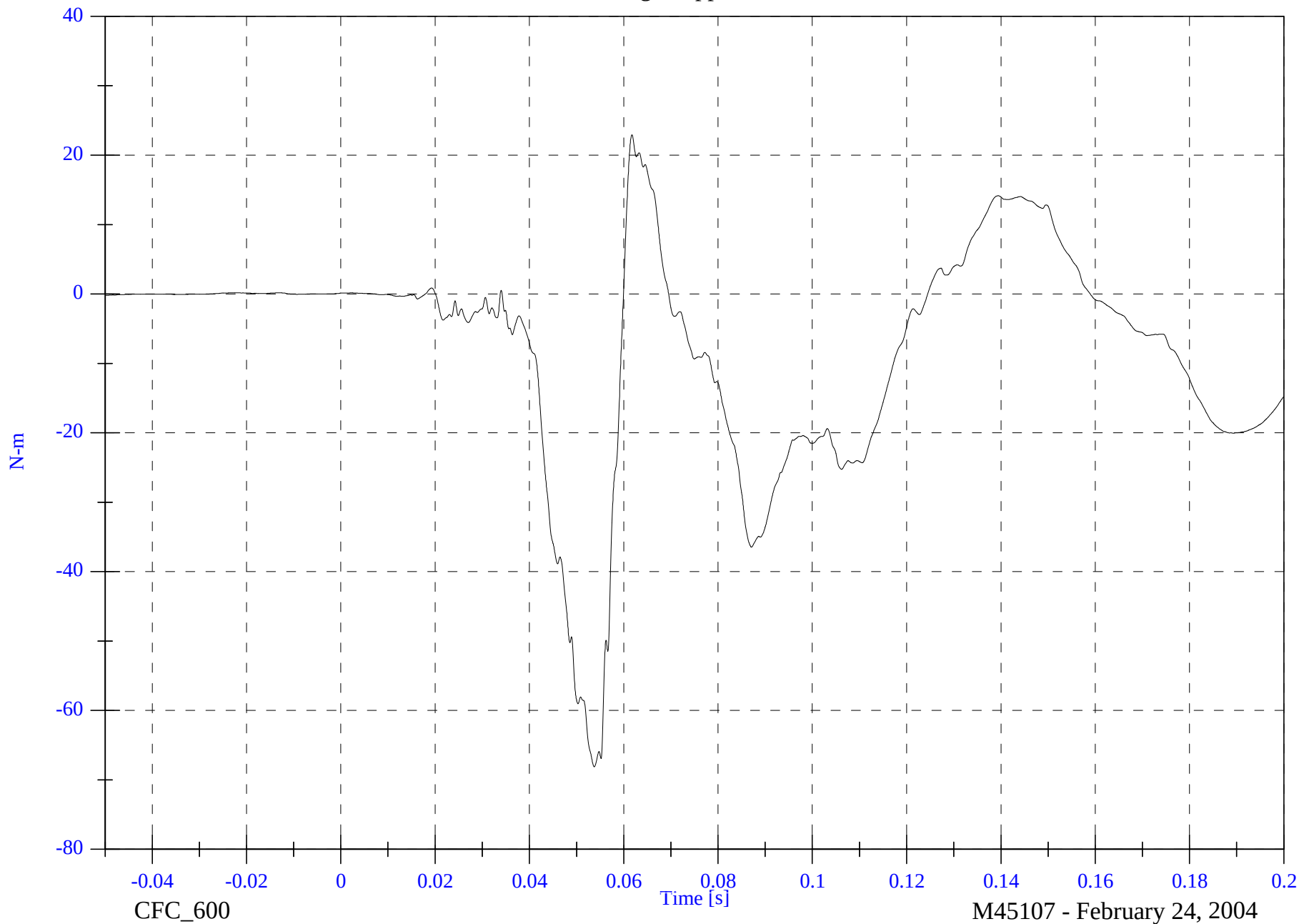
V1P1 Right Upper Tibia Mx

Max: 22.9 [N-m] at 0.062 [s]

Min: -68.1 [N-m] at 0.054 [s]

B-50

8642-NCAP-45

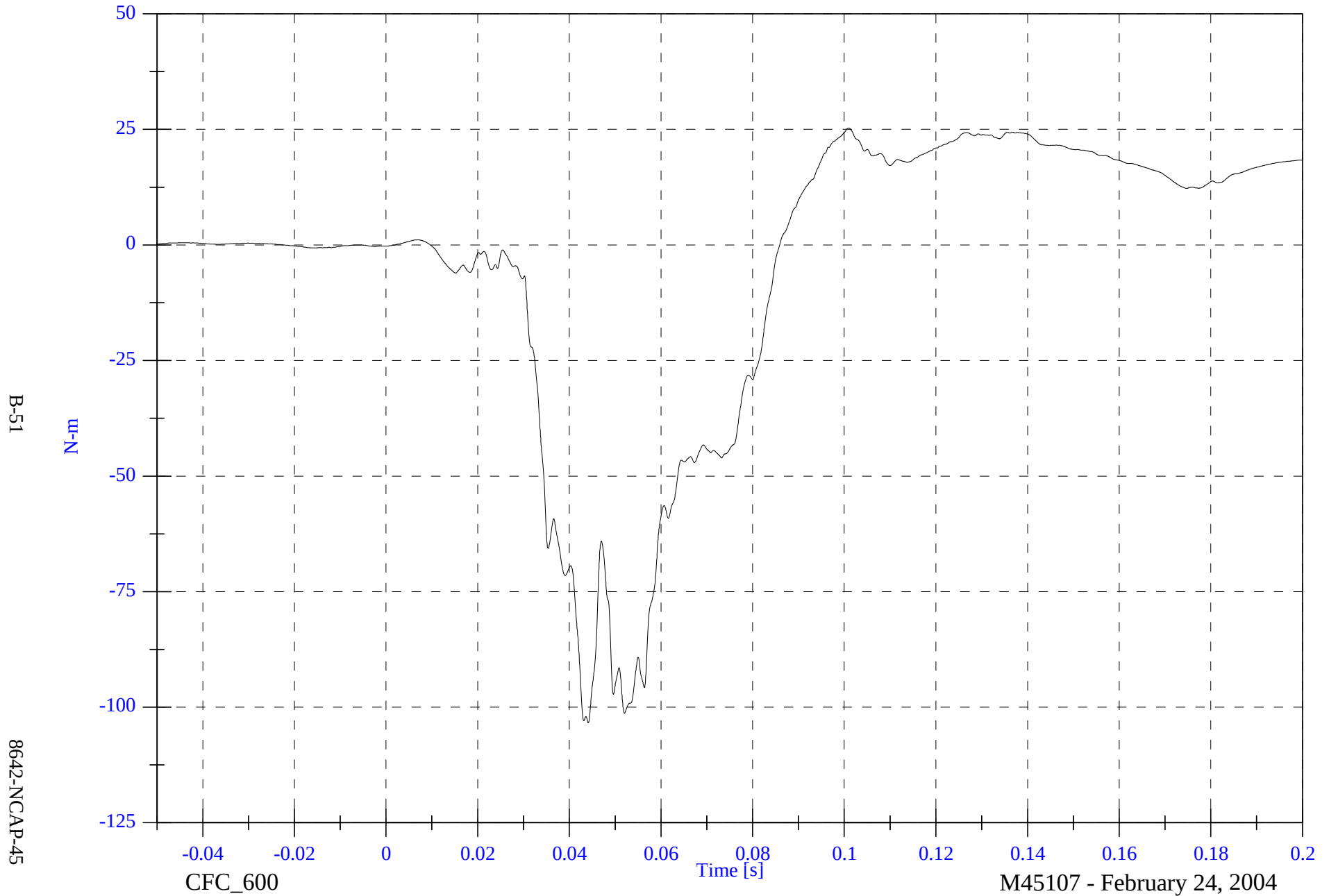


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Right Upper Tibia My

Max: 25.3 [N-m] at 0.101 [s]

Min: -103.4 [N-m] at 0.044 [s]

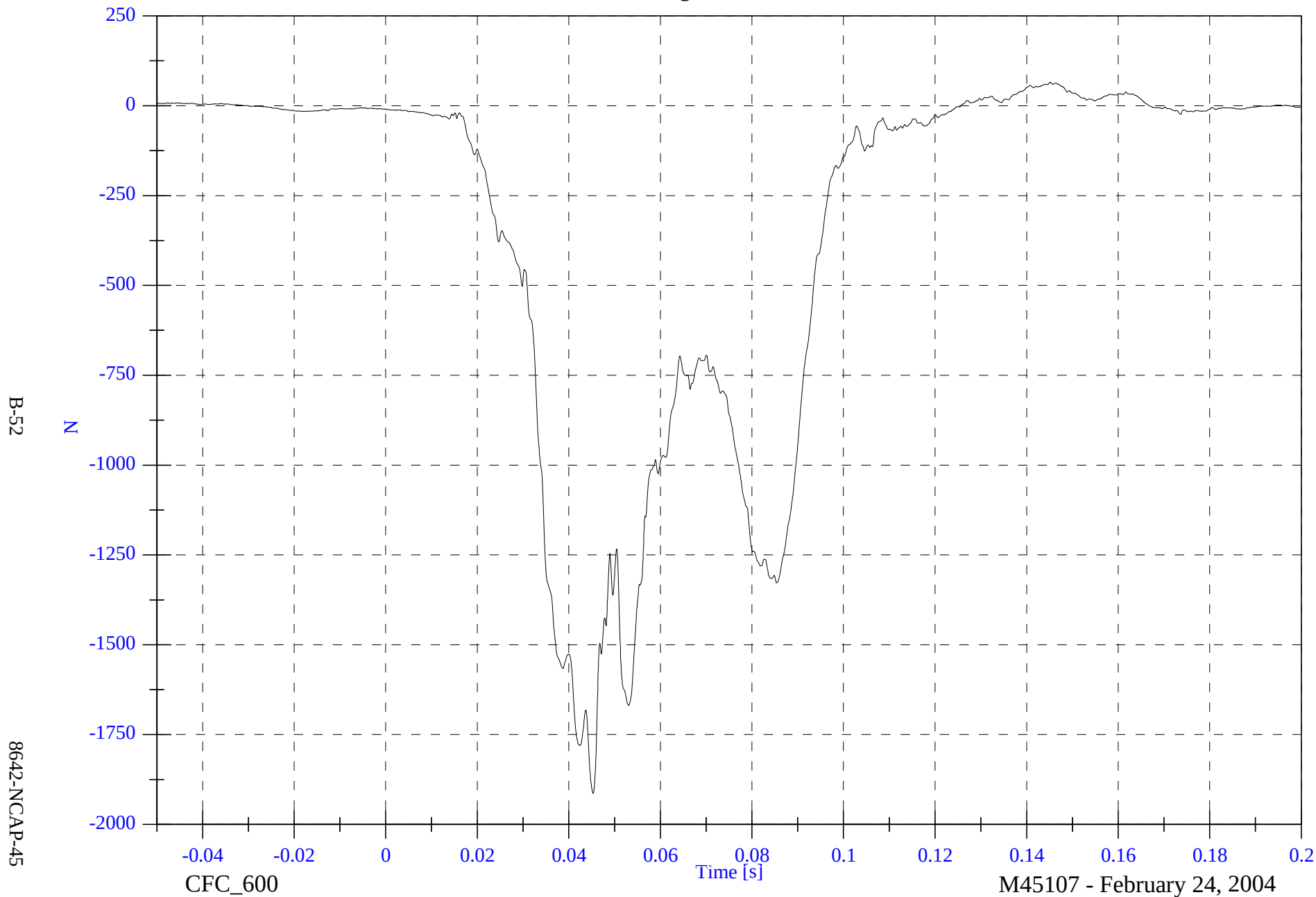


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Right Lower Tibia Fz

Max: 65.1 [N] at 0.145 [s]

Min: -1914.0 [N] at 0.045 [s]

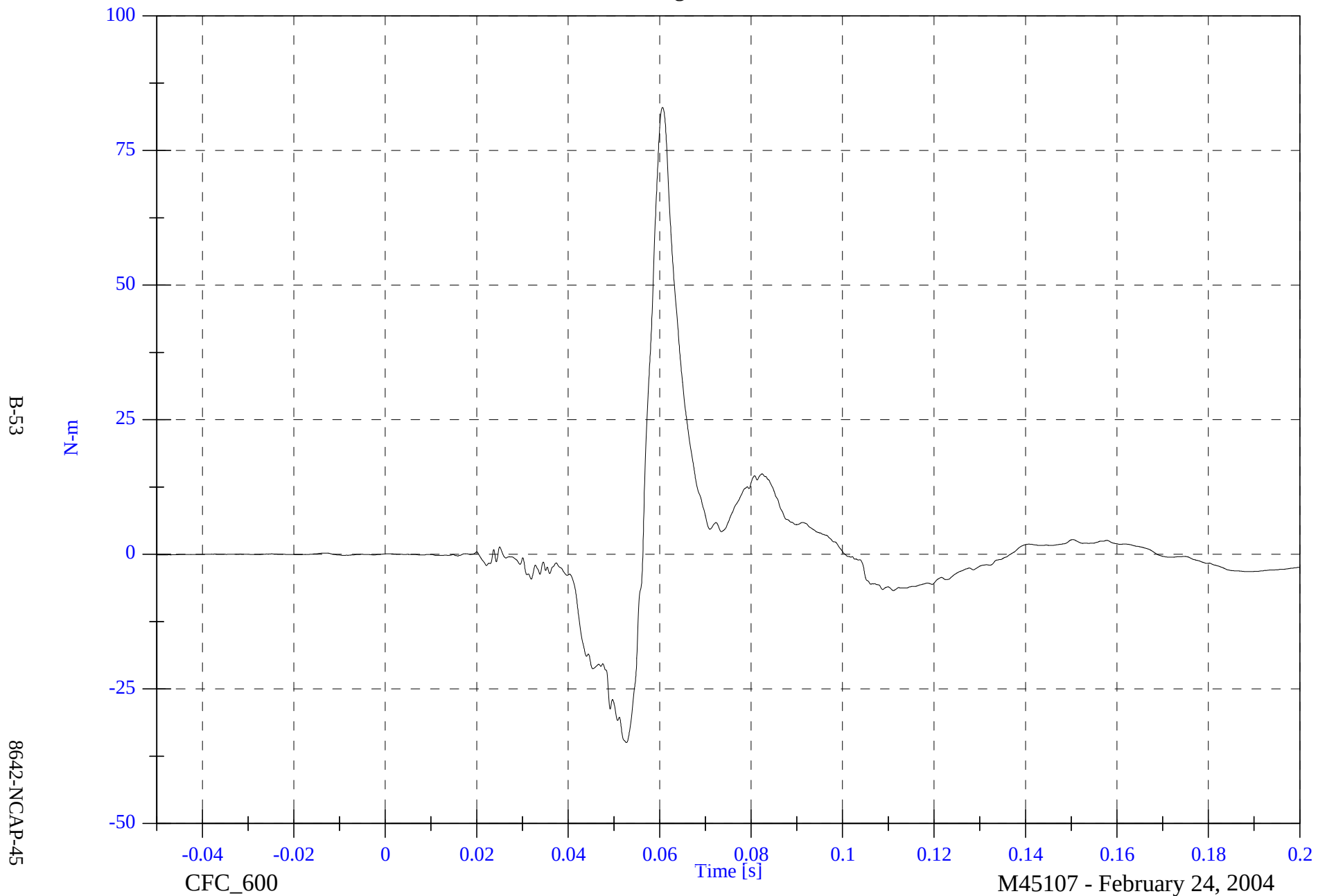


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Right Lower Tibia Mx

Max: 83.0 [N-m] at 0.061 [s]

Min: -35.0 [N-m] at 0.053 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P1 Right Lower Tibia My

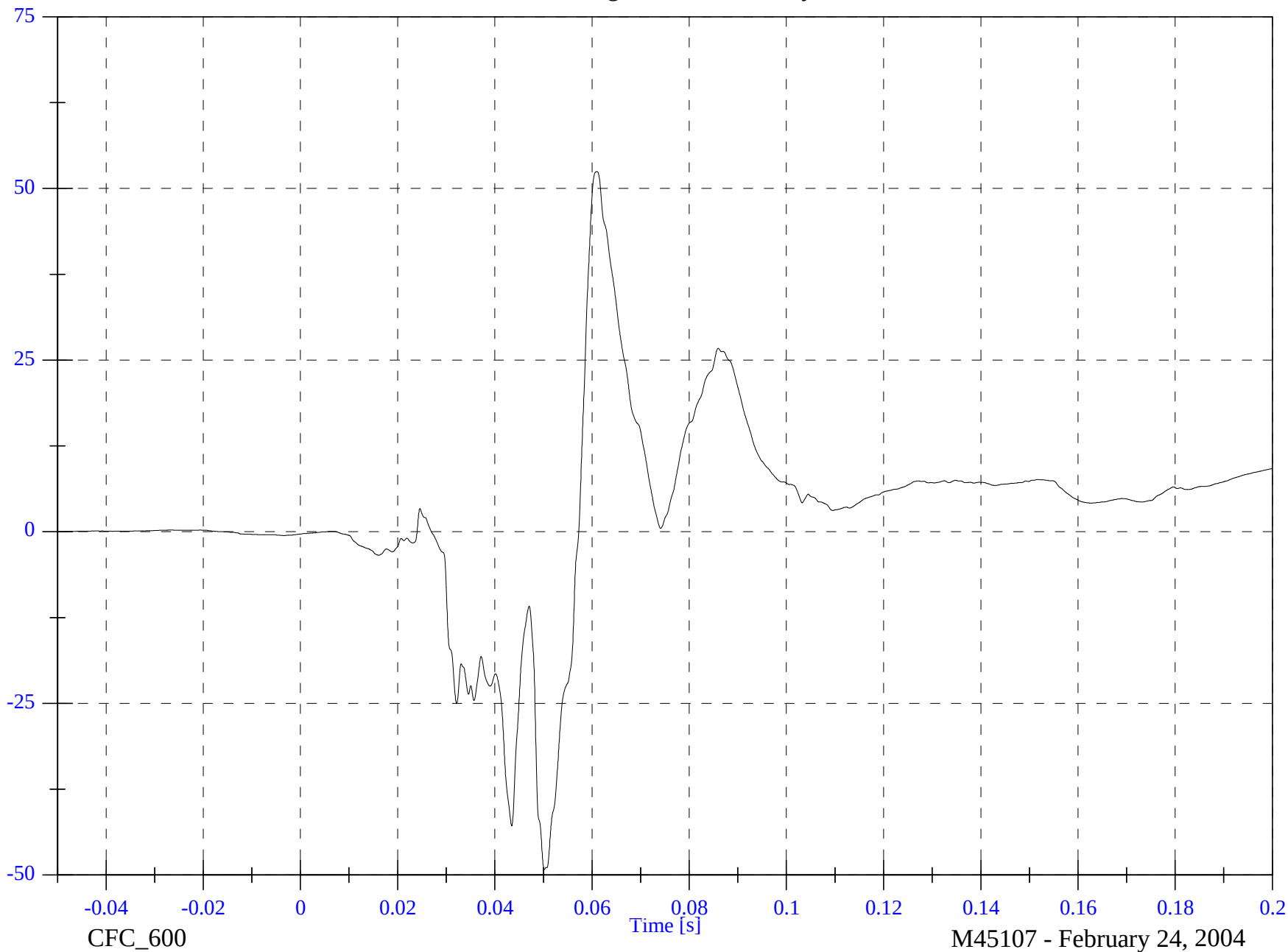
Max: 52.5 [N-m] at 0.061 [s]

Min: -49.2 [N-m] at 0.050 [s]

B-54

N-m

8642-NCAP-45



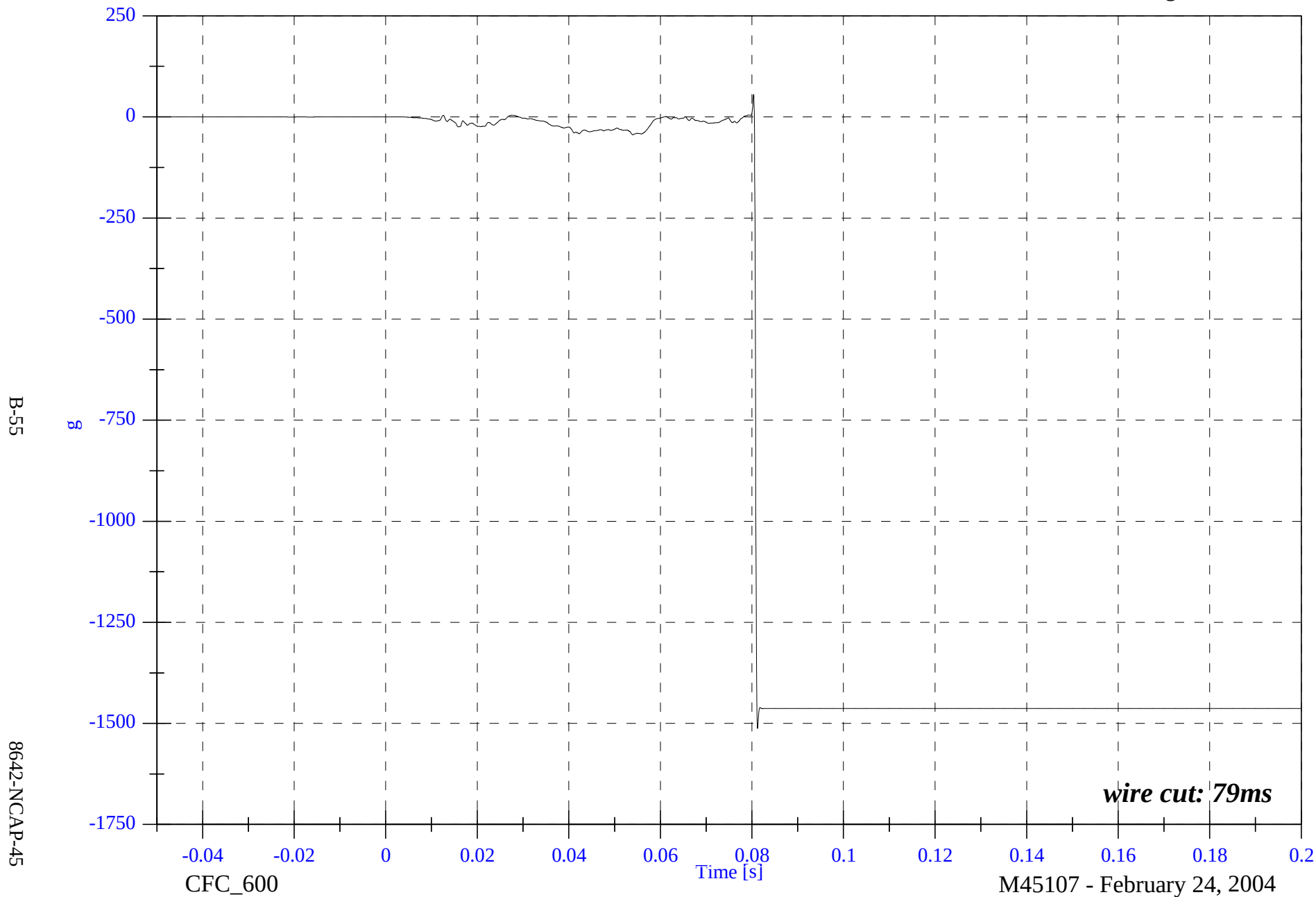
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2004 NCAP Test 9 2004 Toyota Prius

V1P1 Left Foot Aft x

Max: 55.6 [g] at 0.080 [s]

Min: -1512.2 [g] at 0.081 [s]

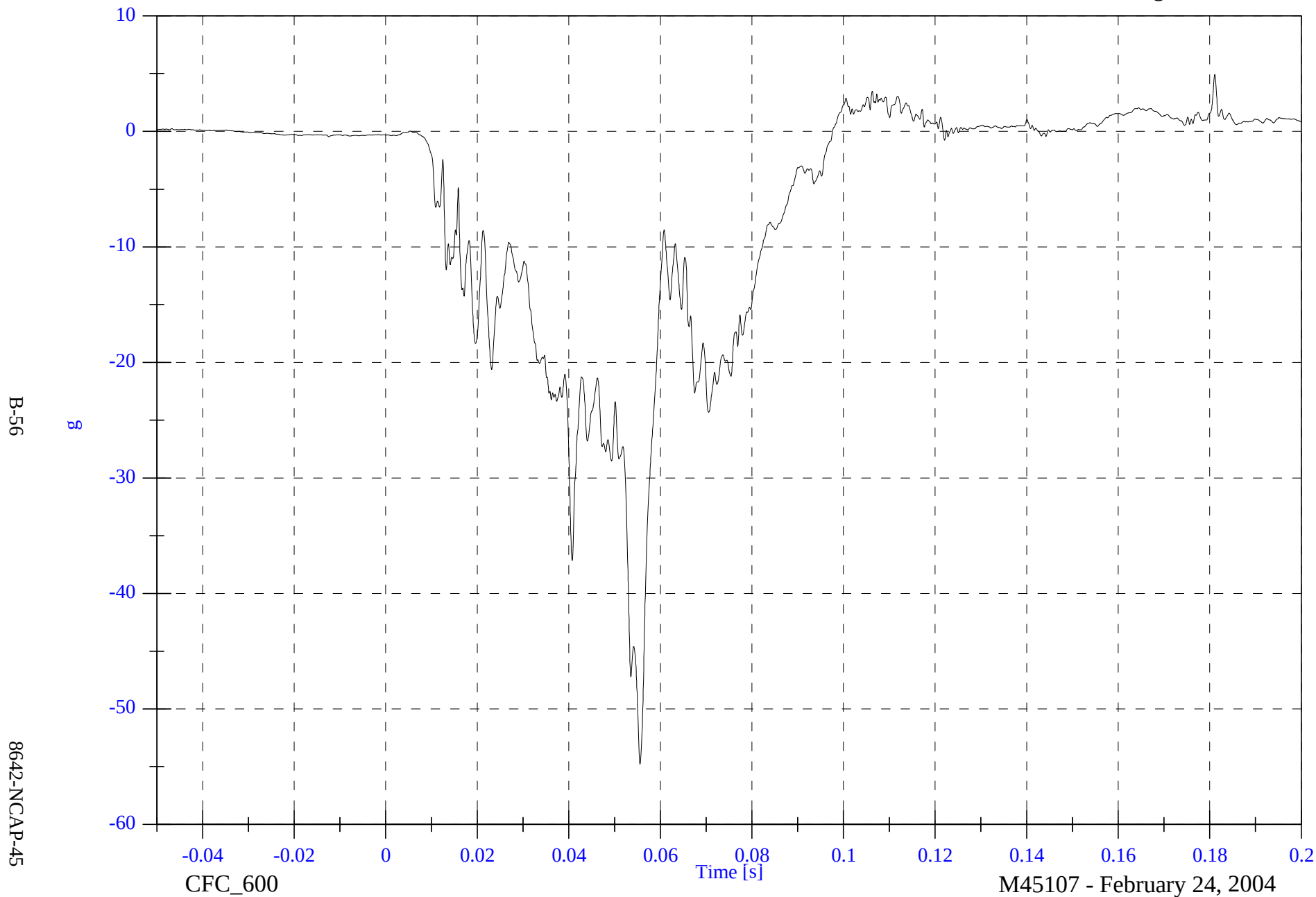


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Left Foot Aft z

Max: 4.9 [g] at 0.181 [s]

Min: -54.8 [g] at 0.056 [s]

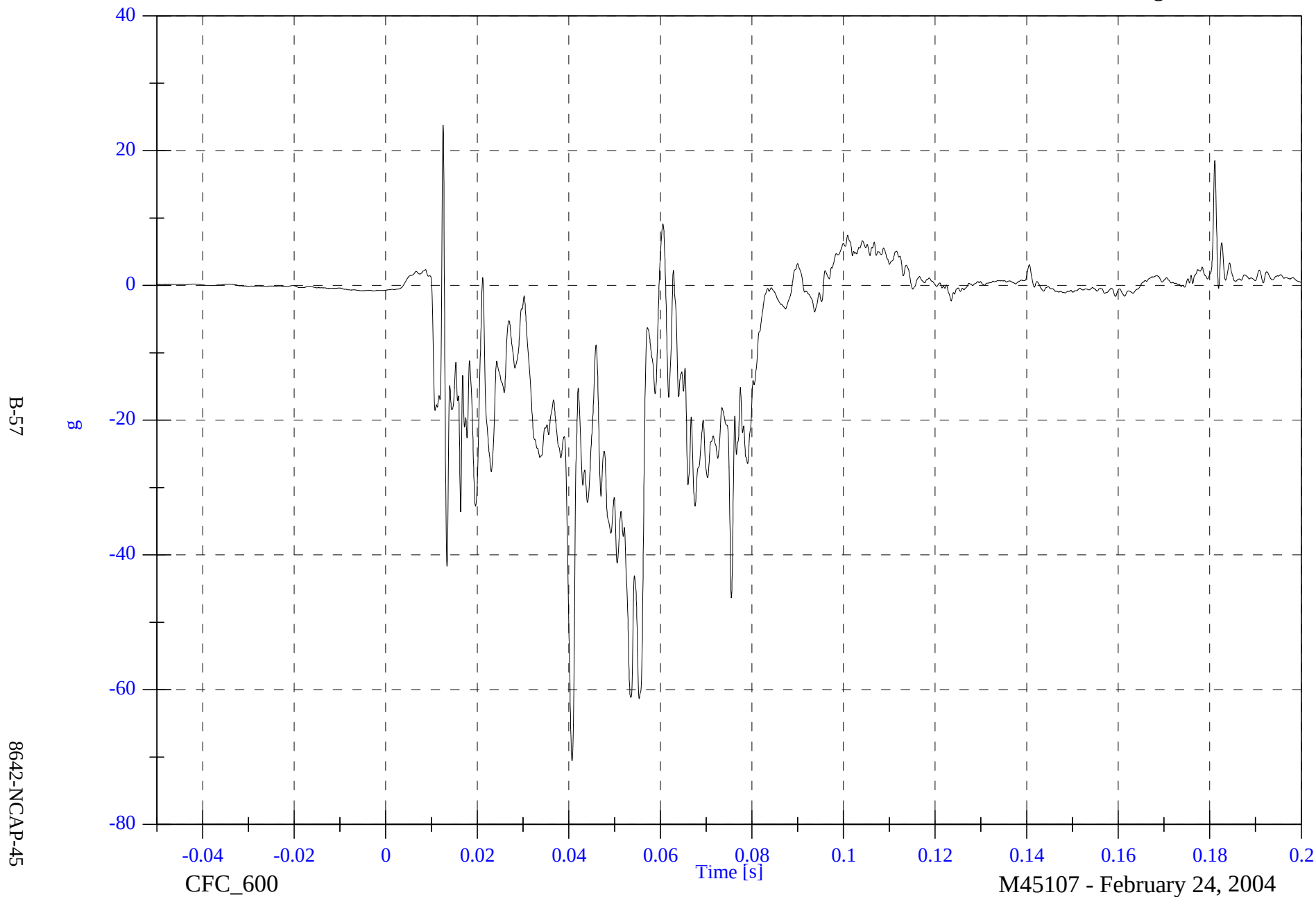


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Left Foot Fore z

Max: 23.8 [g] at 0.013 [s]

Min: -70.6 [g] at 0.041 [s]

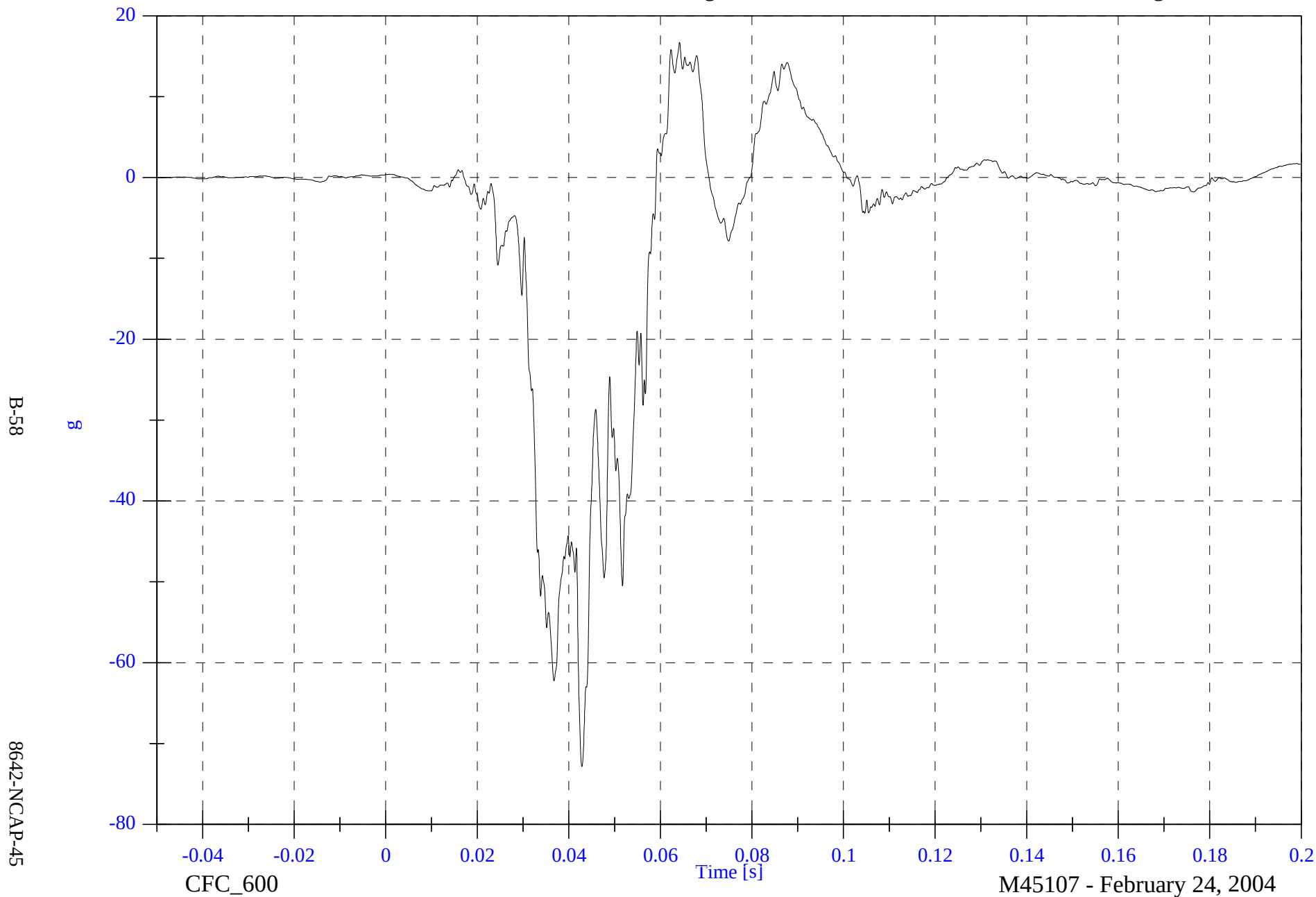


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Right Foot Aft x

Max: 16.7 [g] at 0.064 [s]

Min: -72.8 [g] at 0.043 [s]

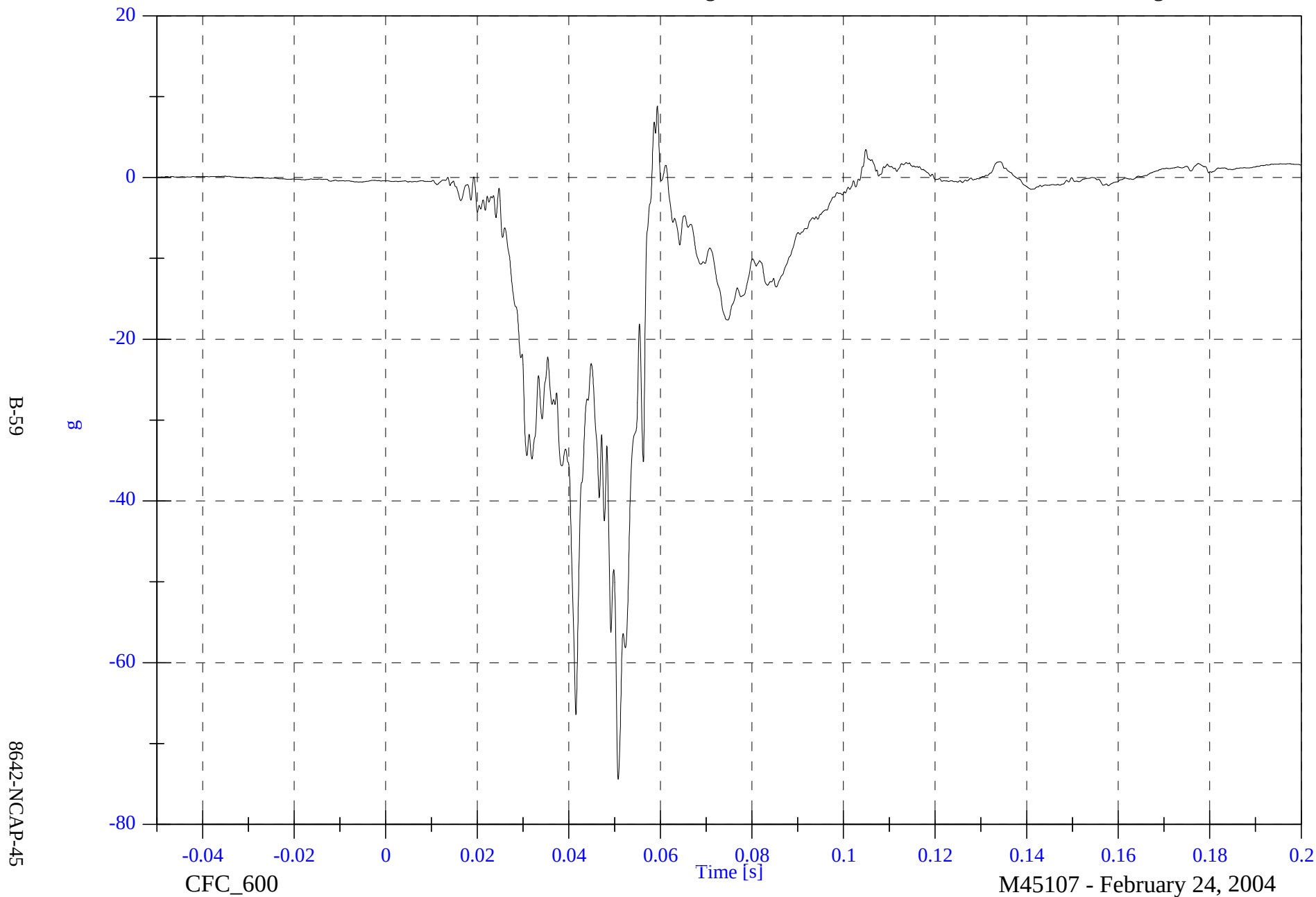


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Right Foot Aft z

Max: 8.8 [g] at 0.059 [s]

Min: -74.4 [g] at 0.051 [s]

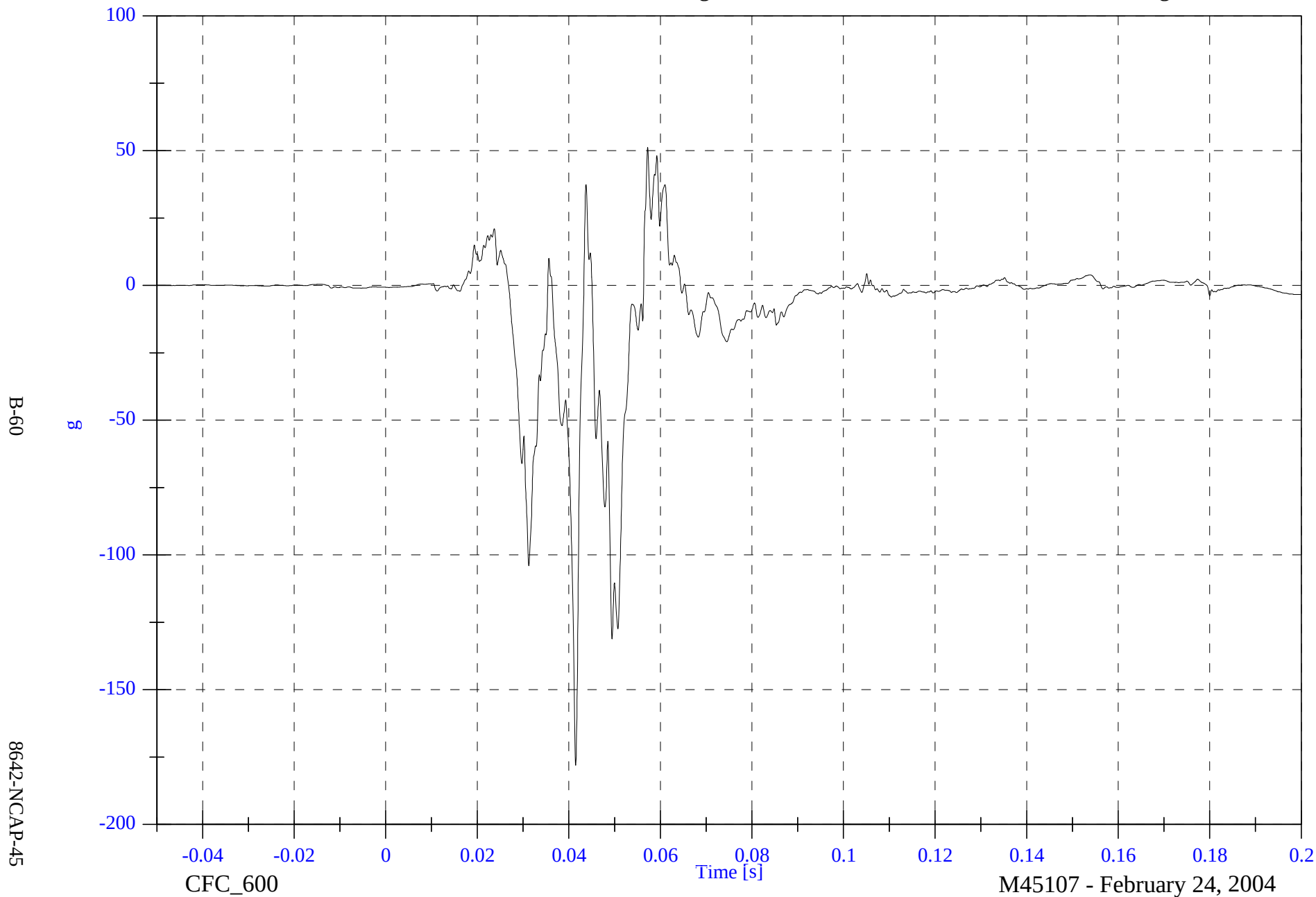


2004 NCAP Test 9 2004 Toyota Prius

V1P1 Right Foot Fore z

Max: 51.2 [g] at 0.057 [s]

Min: -178.0 [g] at 0.042 [s]

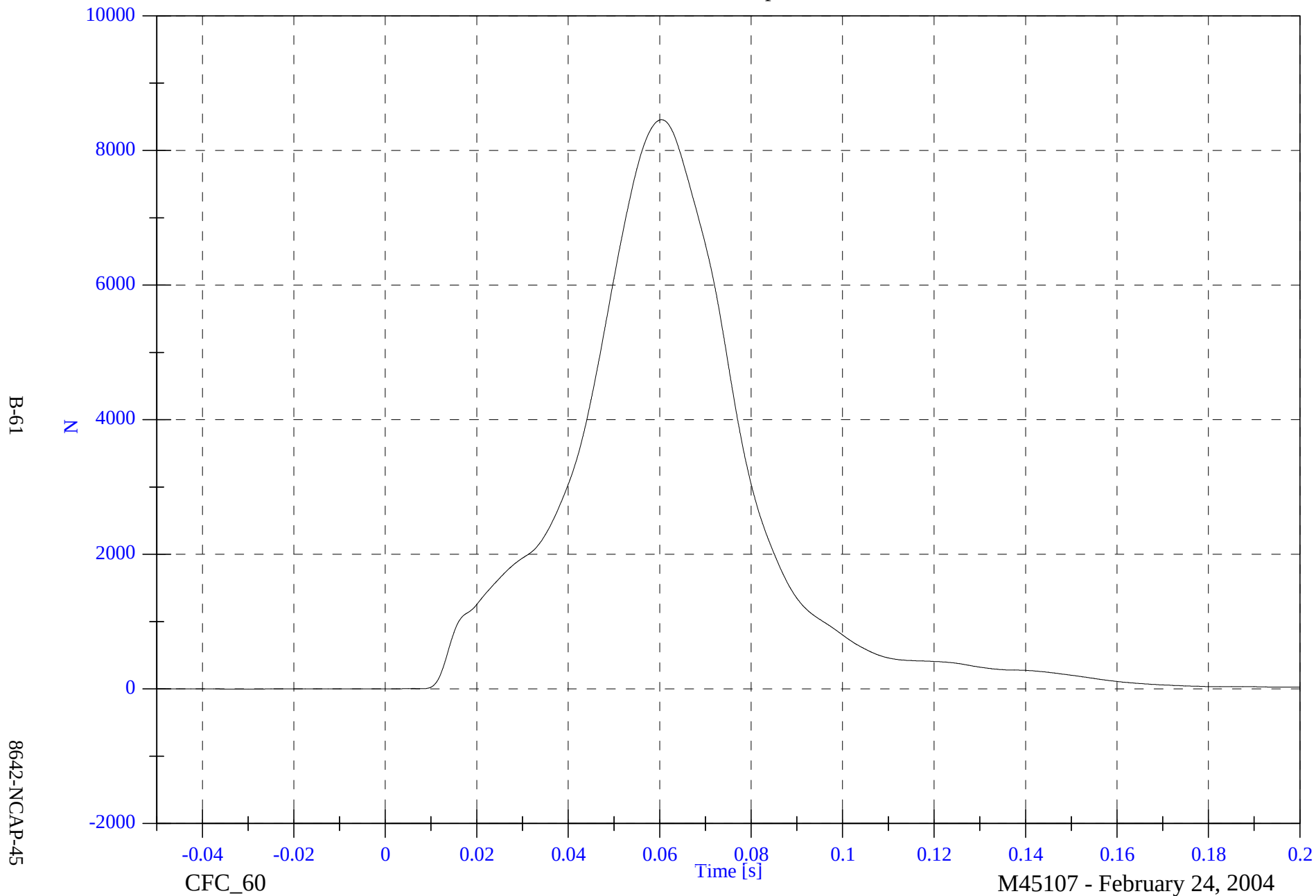


2004 NCAP Test 9 2004 Toyota Prius

V1 Driver Lap Belt

Max: 8457.1 [N] at 0.060 [s]

Min: -1.8 [N] at -0.034 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P2 Head 9 Array X Arm Ay

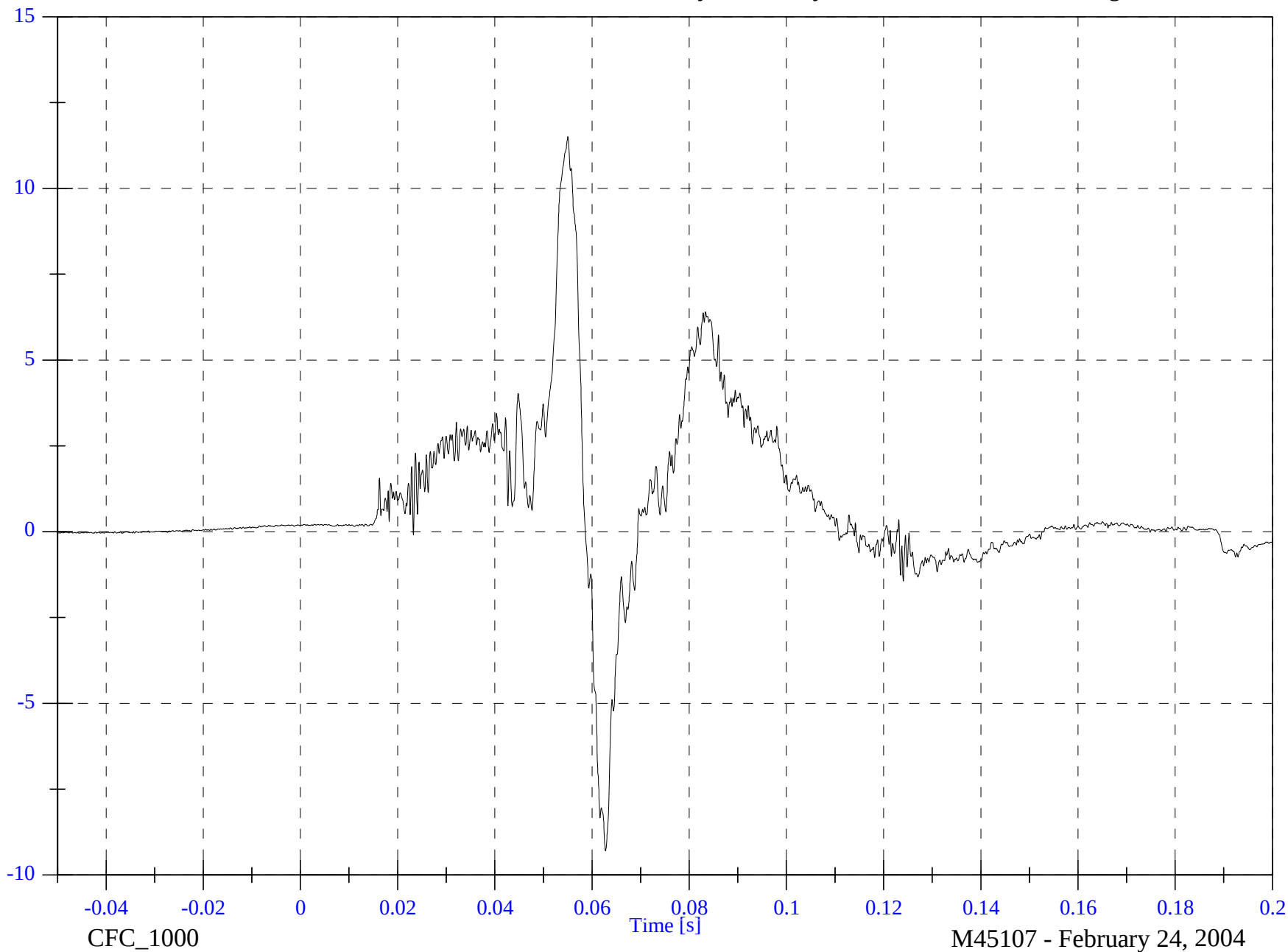
Max: 11.5 [g] at 0.055 [s]

Min: -9.3 [g] at 0.063 [s]

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g

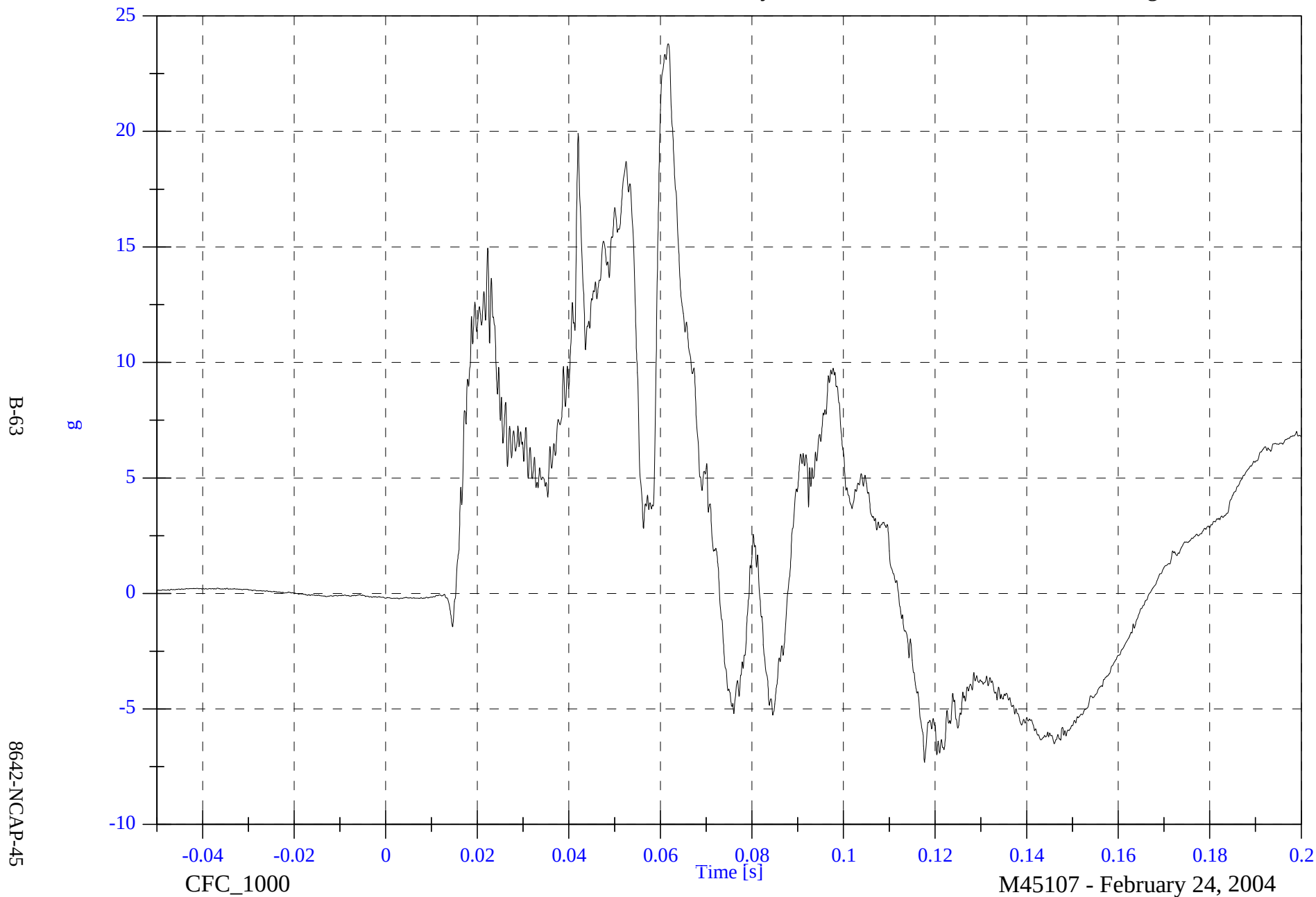


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Head 9 Array X Arm Az

Max: 23.8 [g] at 0.062 [s]

Min: -7.3 [g] at 0.118 [s]

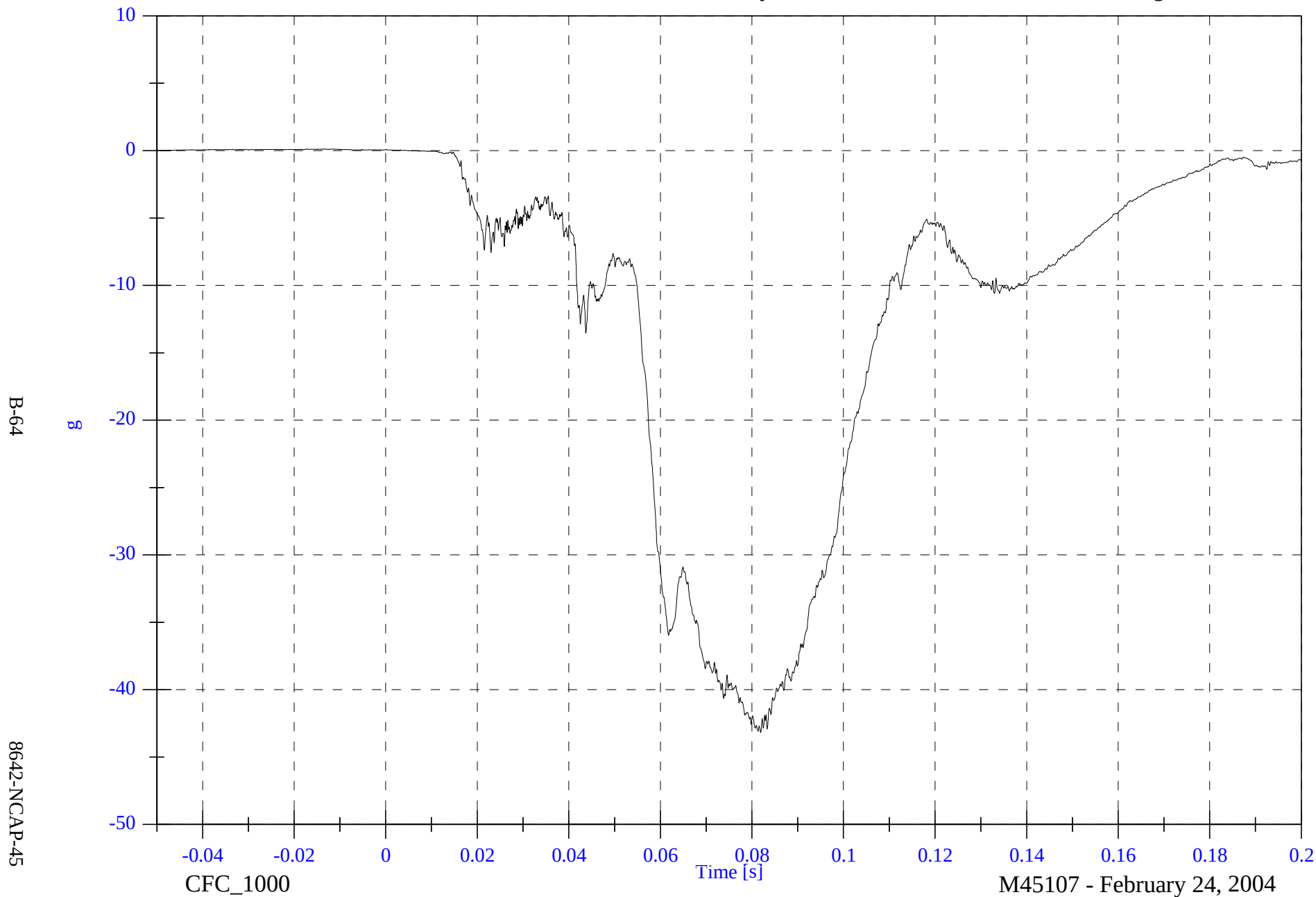


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Head 9 Array Y Arm Ax

Max: 0.1 [g] at -0.013 [s]

Min: -43.2 [g] at 0.082 [s]

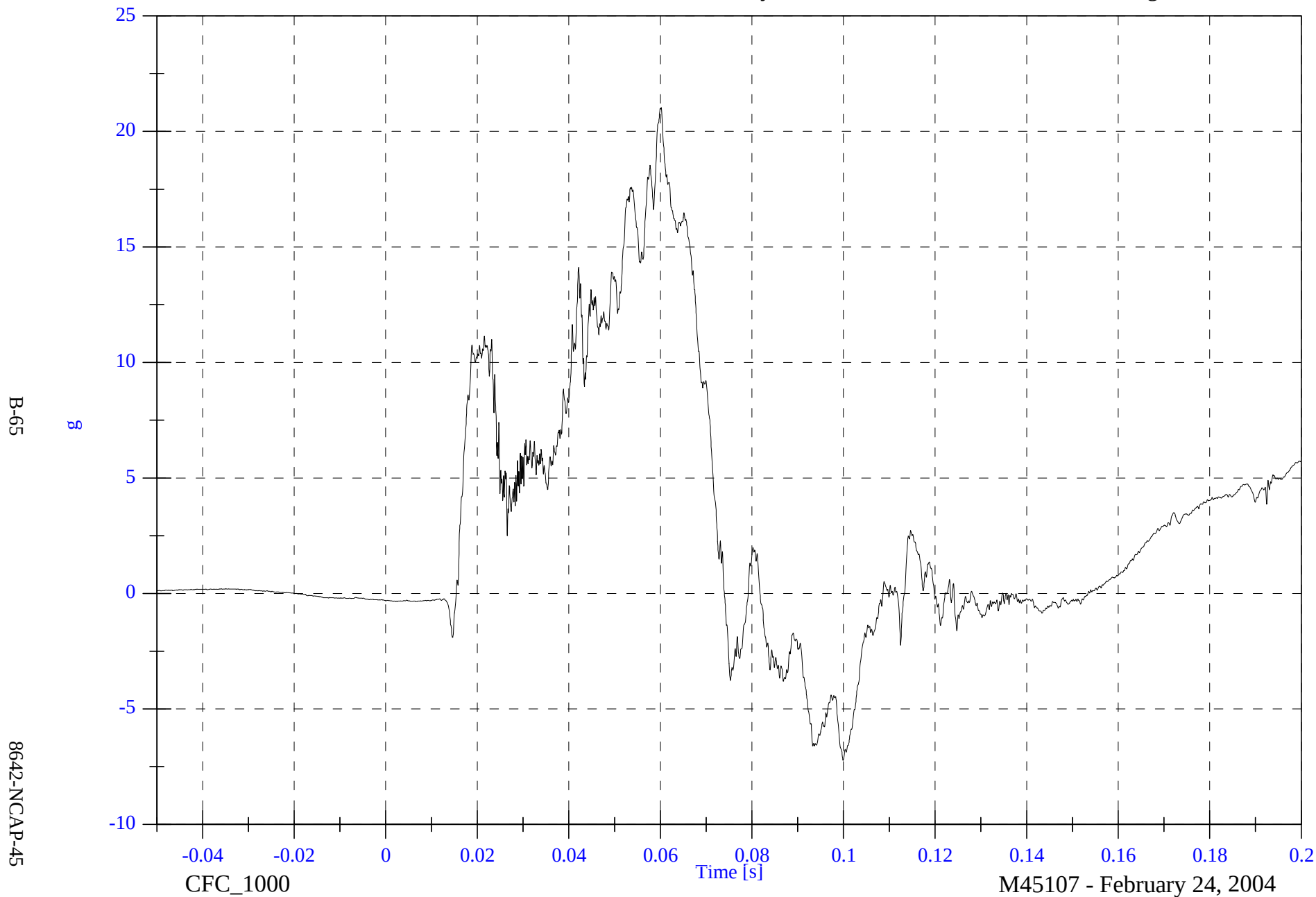


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Head 9 Array Y Arm Az

Max: 21.0 [g] at 0.060 [s]

Min: -7.2 [g] at 0.100 [s]

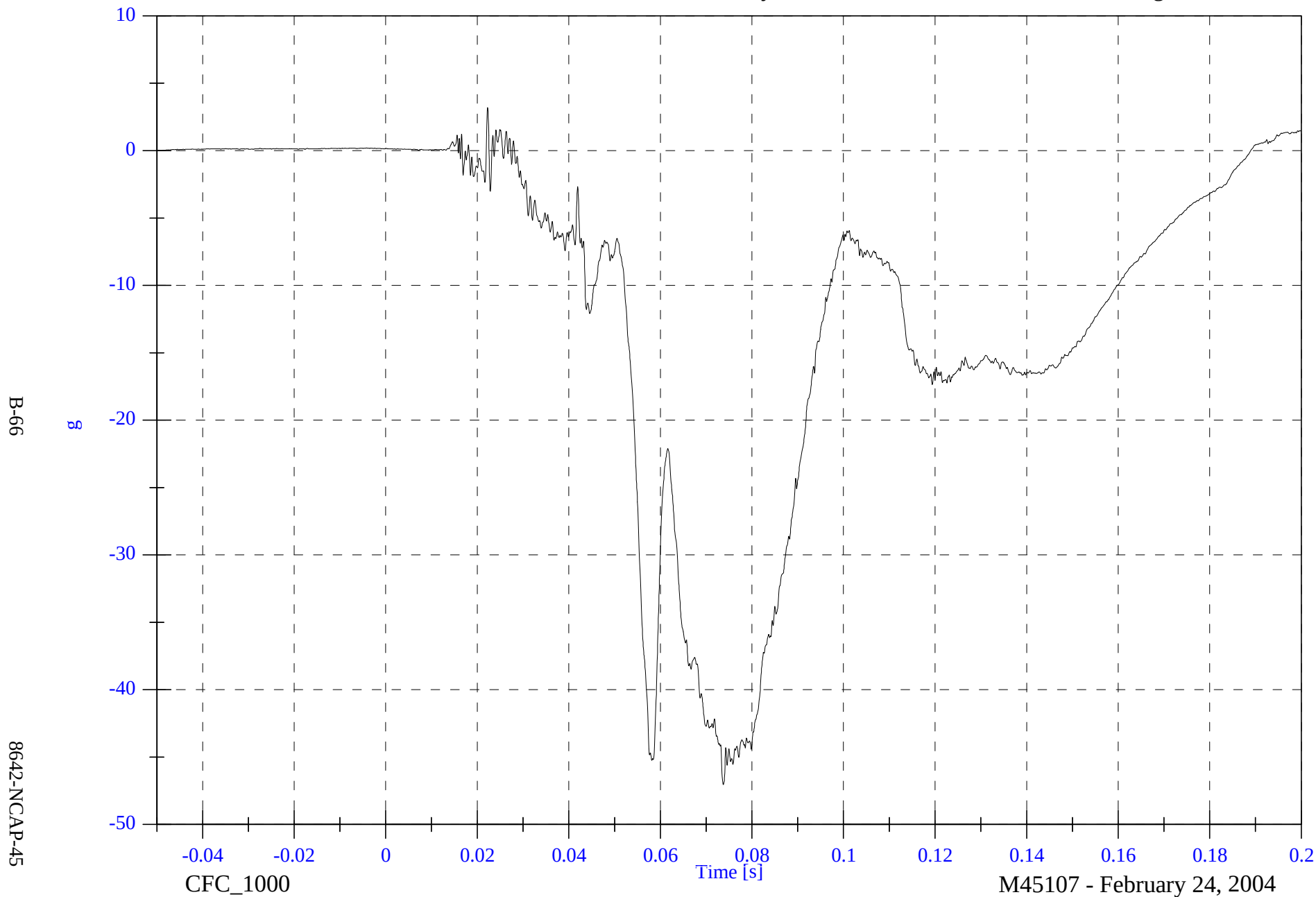


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Head 9 Array Z Arm Ax

Max: 3.2 [g] at 0.022 [s]

Min: -47.0 [g] at 0.074 [s]

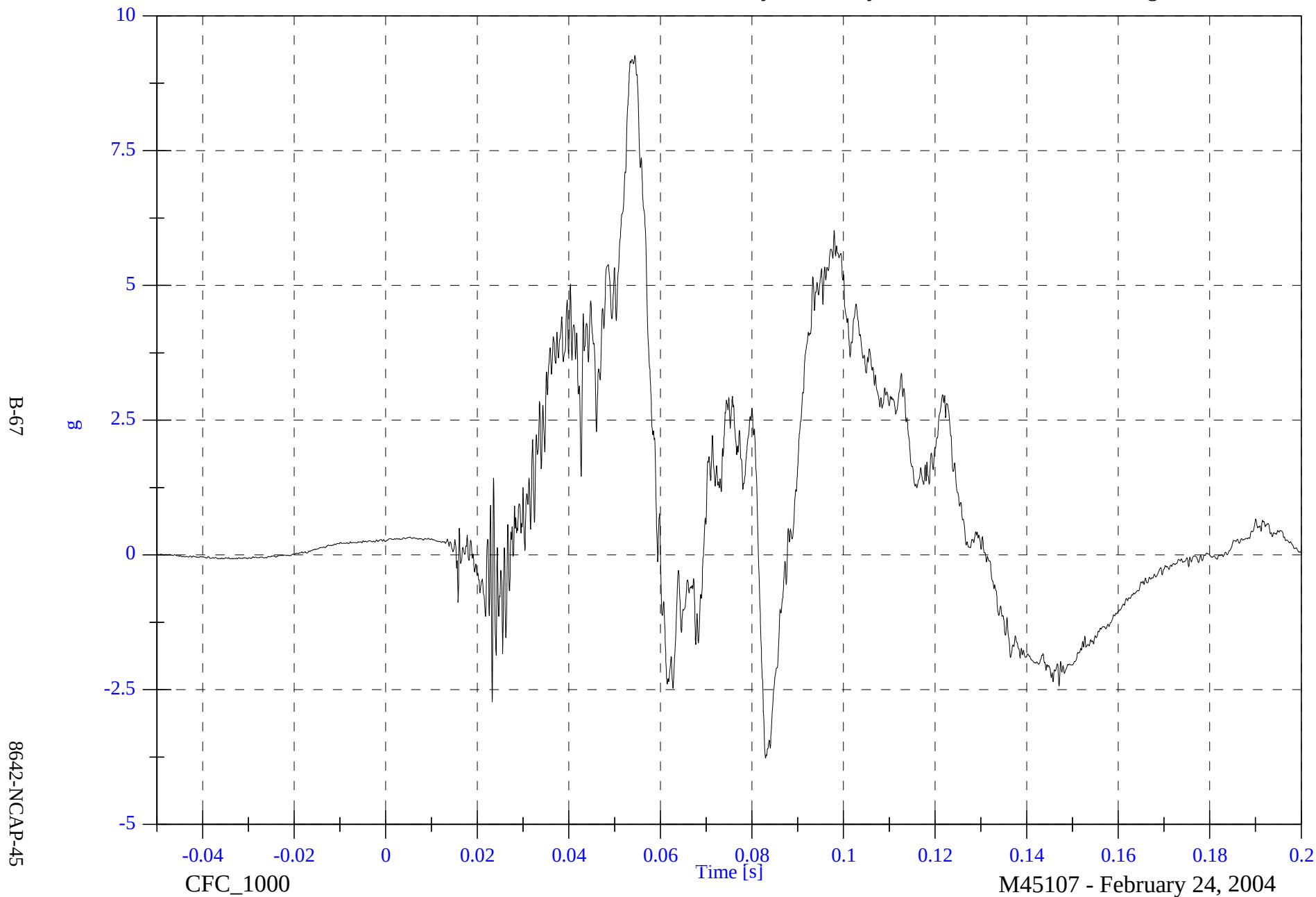


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Head 9 Array Z Arm Ay

Max: 9.3 [g] at 0.054 [s]

Min: -3.8 [g] at 0.083 [s]

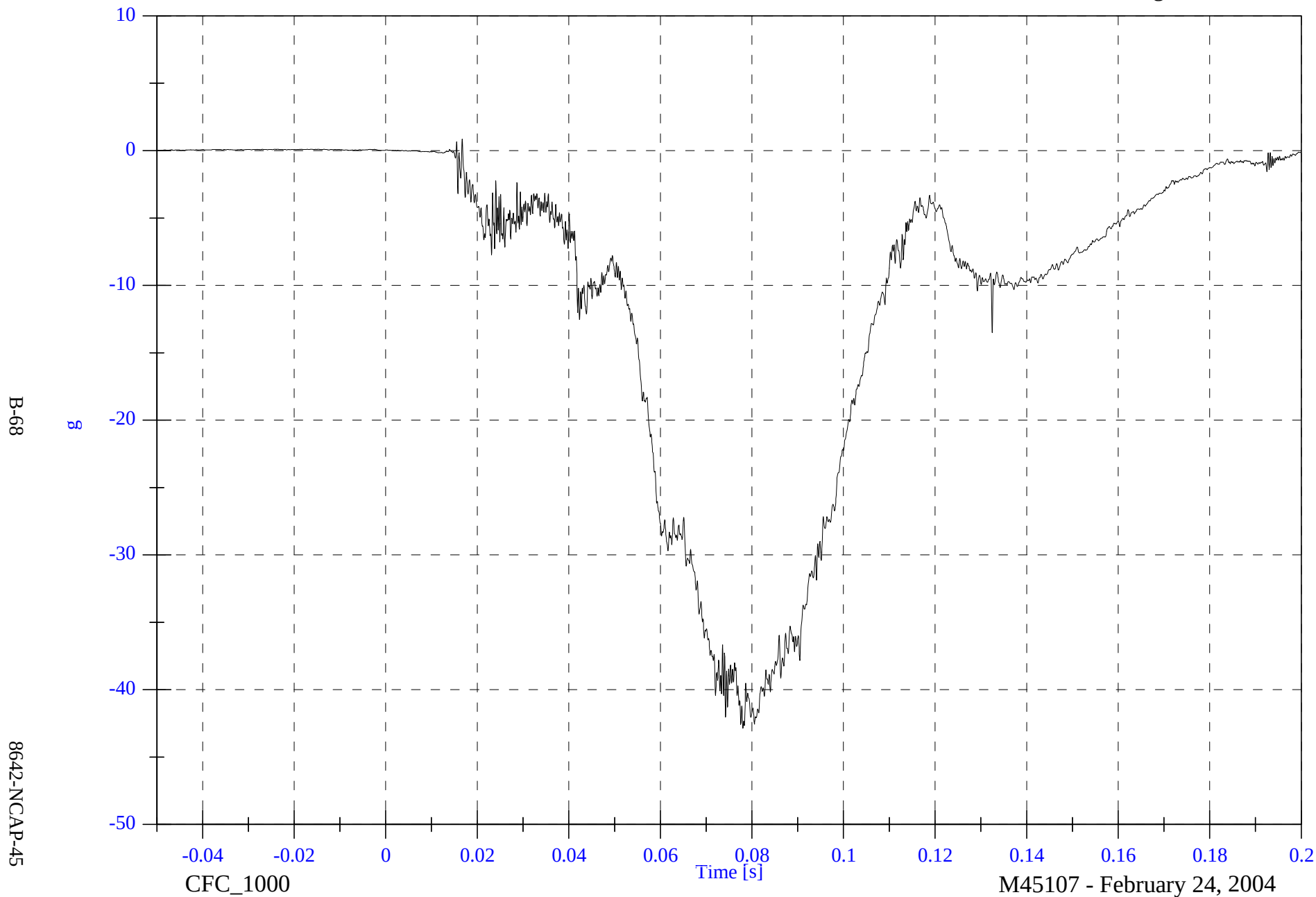


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Head CG x

Max: 0.9 [g] at 0.017 [s]

Min: -42.9 [g] at 0.078 [s]

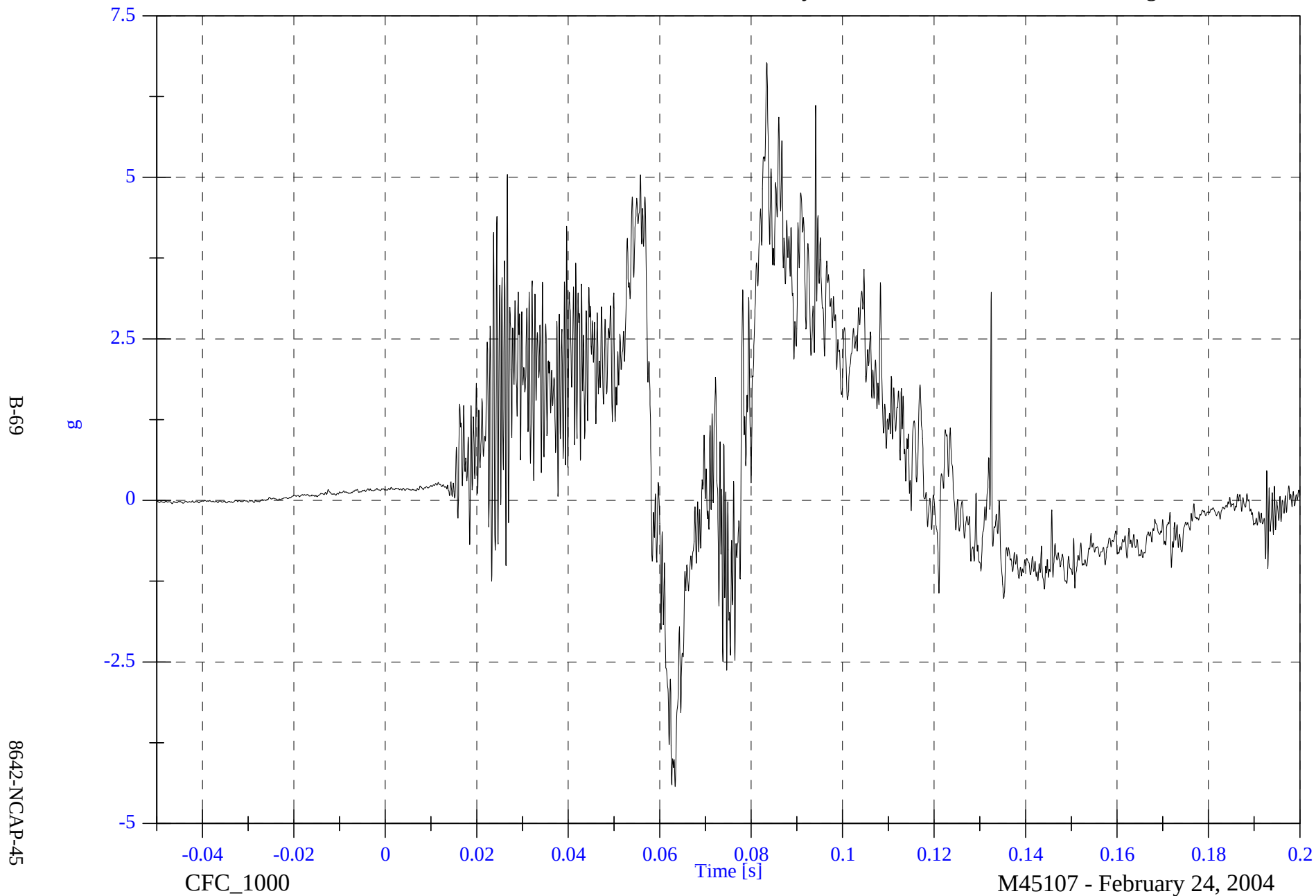


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Head CG y

Max: 6.8 [g] at 0.083 [s]

Min: -4.4 [g] at 0.063 [s]



2004 NCAP Test 9 2004 Toyota Prius

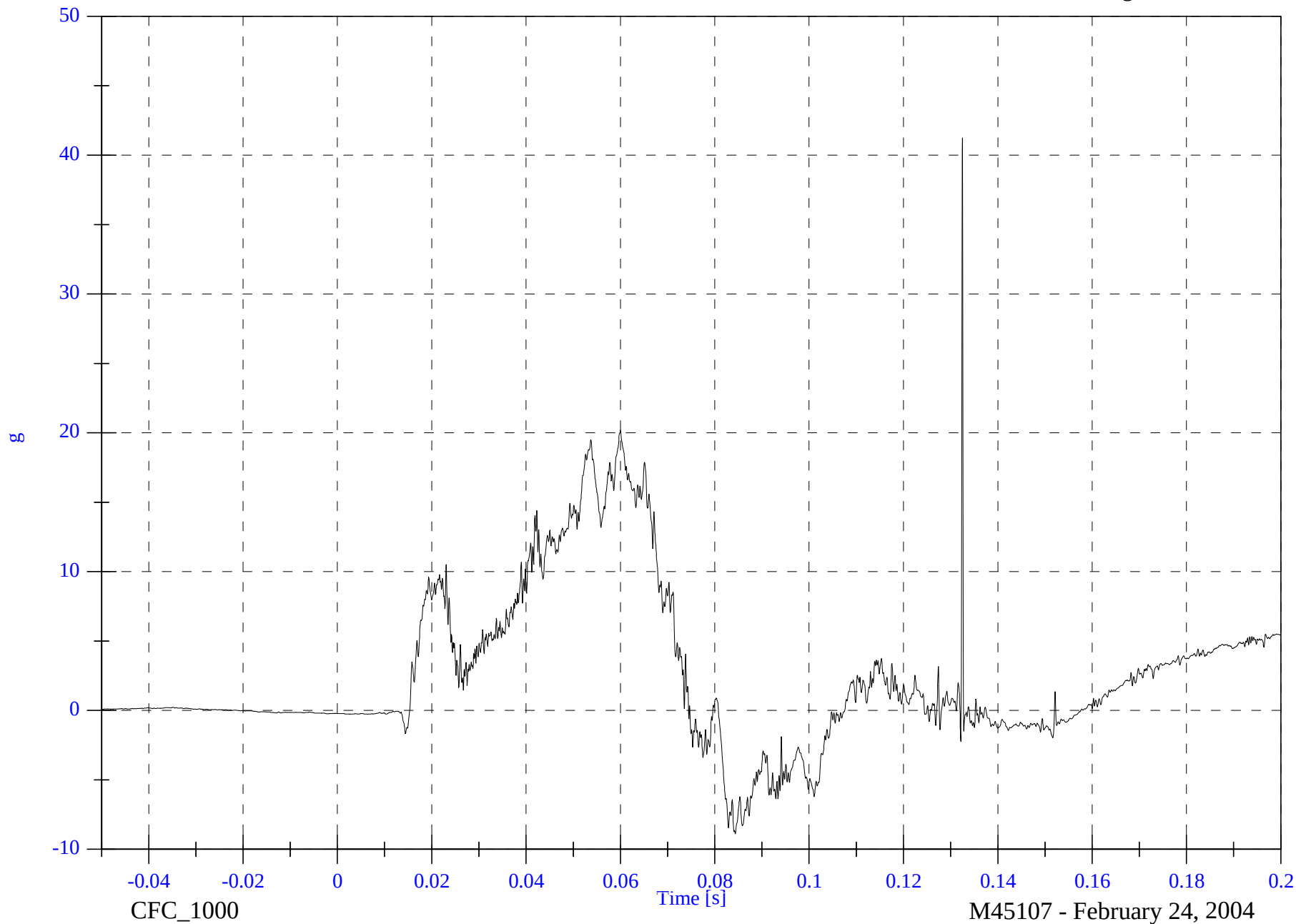
V1P2 Head CG z

Max: 41.2 [g] at 0.133 [s]

Min: -8.9 [g] at 0.084 [s]

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2004 NCAP Test 9 2004 Toyota Prius

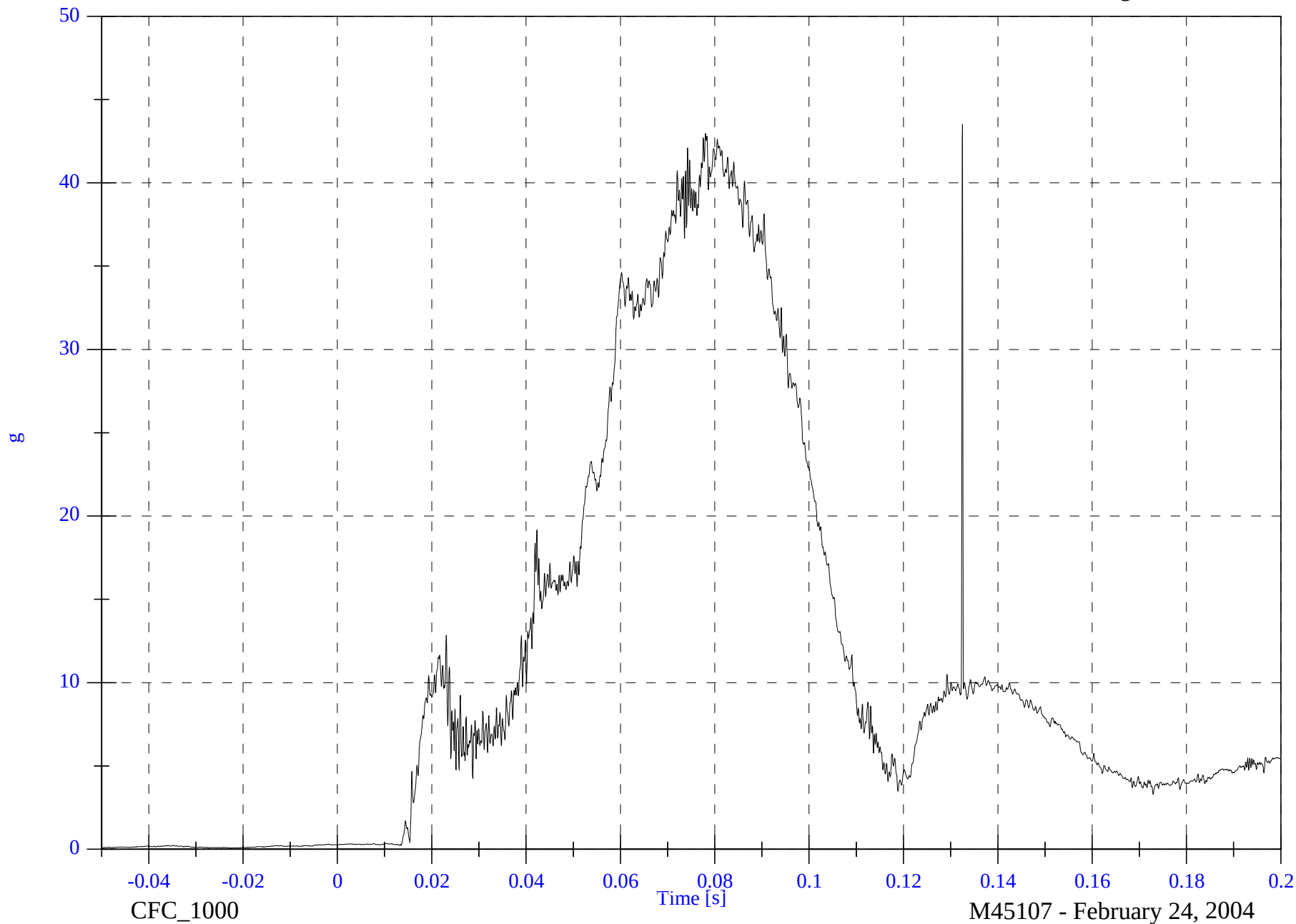
V1P2 Head CG Resultant

Max: 43.5 [g] at 0.133 [s]

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

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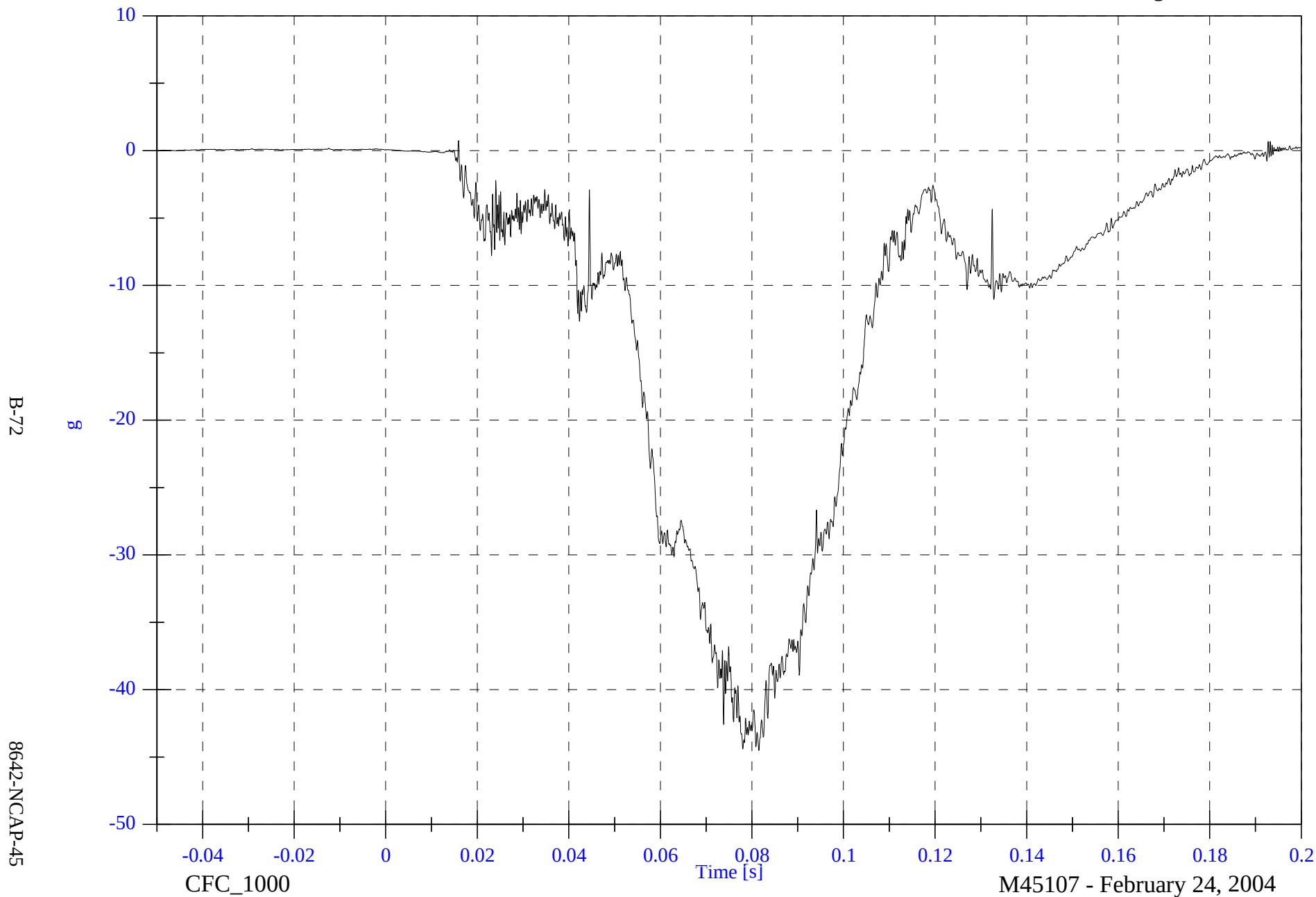


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Head CG Red x

Max: 0.7 [g] at 0.016 [s]

Min: -44.5 [g] at 0.081 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P2 Head CG Red y

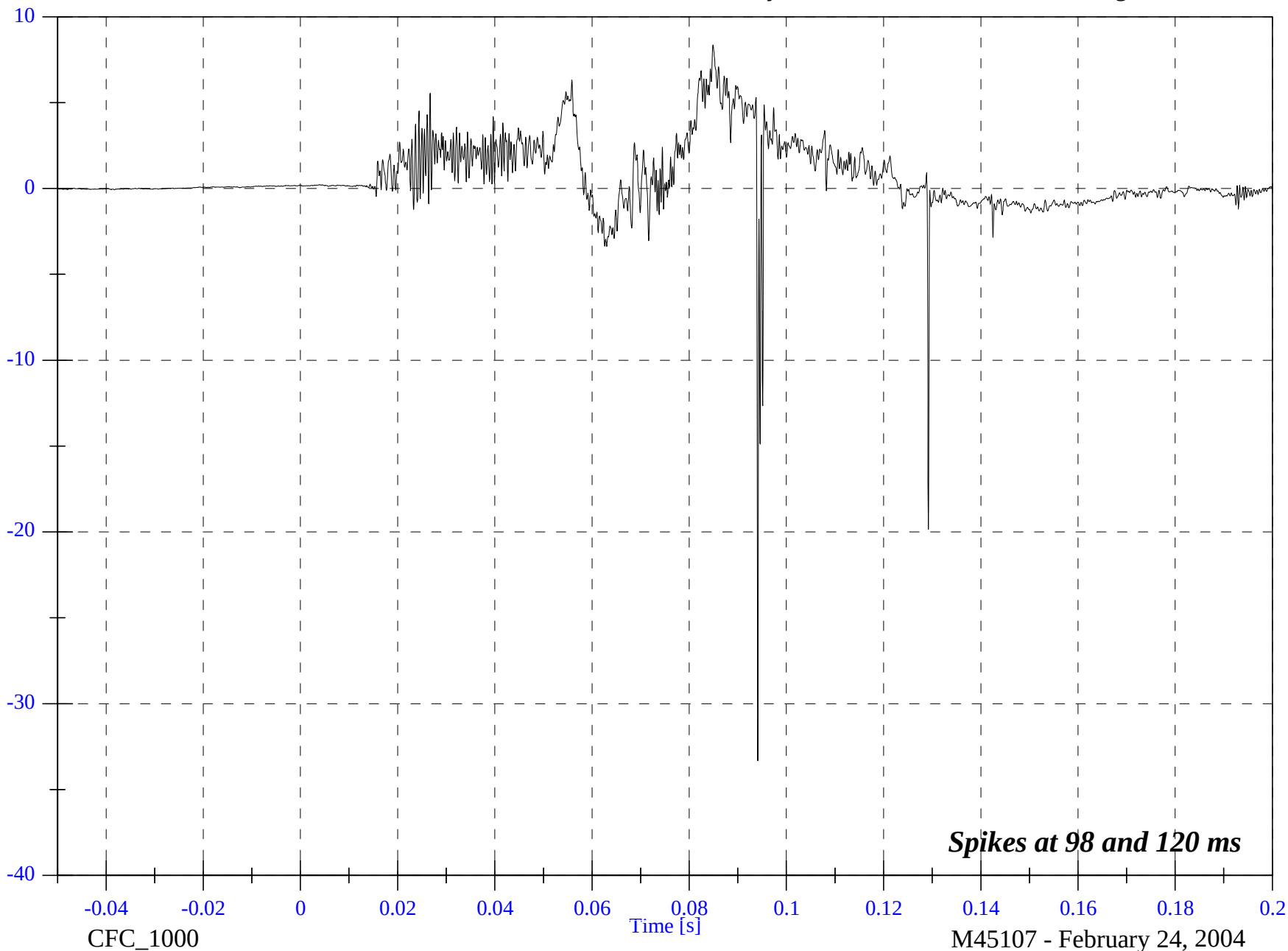
Max: 8.4 [g] at 0.085 [s]

Min: -33.3 [g] at 0.094 [s]

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g



Spikes at 98 and 120 ms

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2004 NCAP Test 9 2004 Toyota Prius

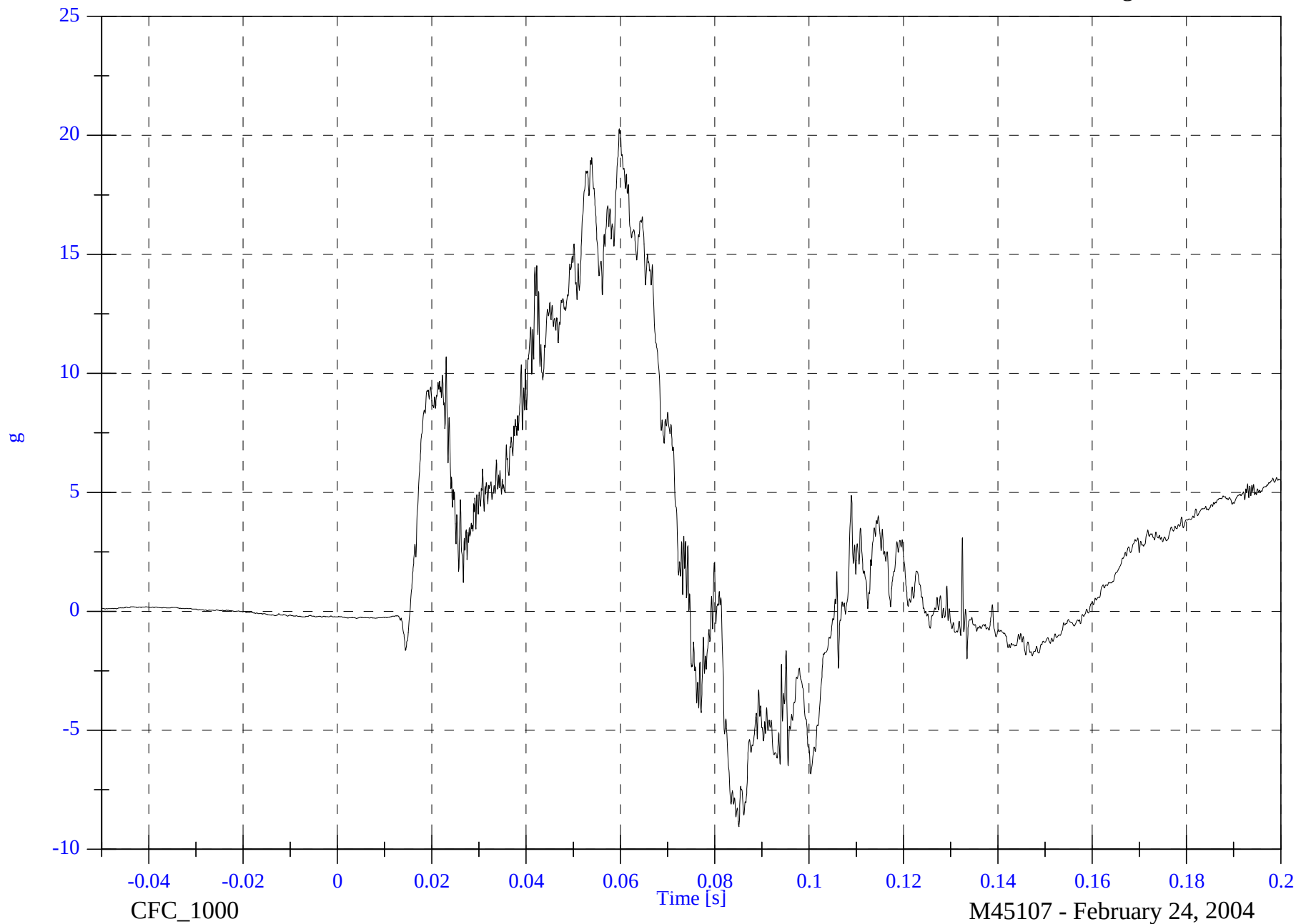
V1P2 Head CG Red z

Max: 20.3 [g] at 0.060 [s]

Min: -9.1 [g] at 0.085 [s]

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CFC_1000

Time [s]

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V1P2 Head CG Red Resultant

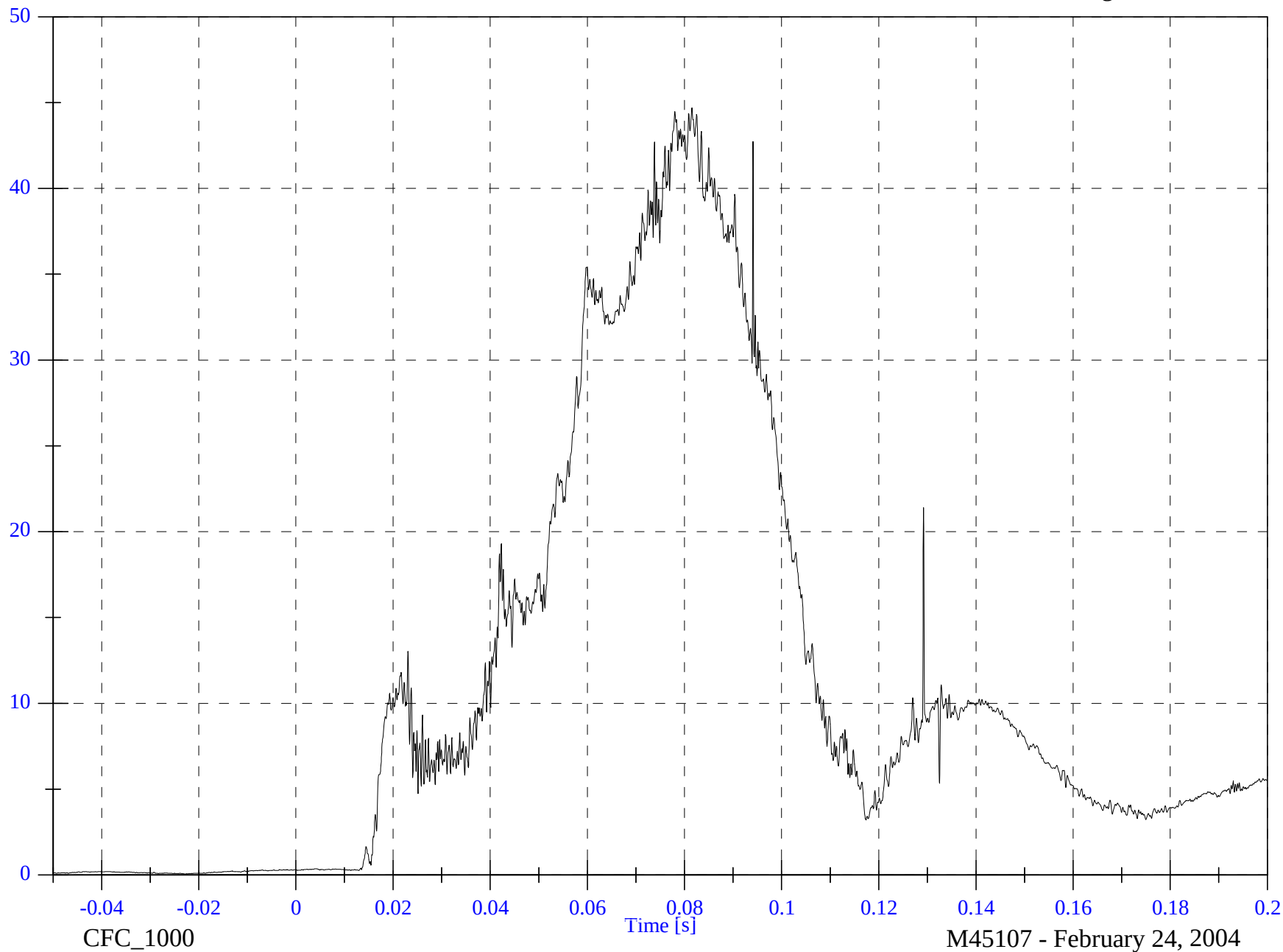
Max: 44.7 [g] at 0.082 [s]

Min: 0.1 [g] at -0.023 [s]

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g

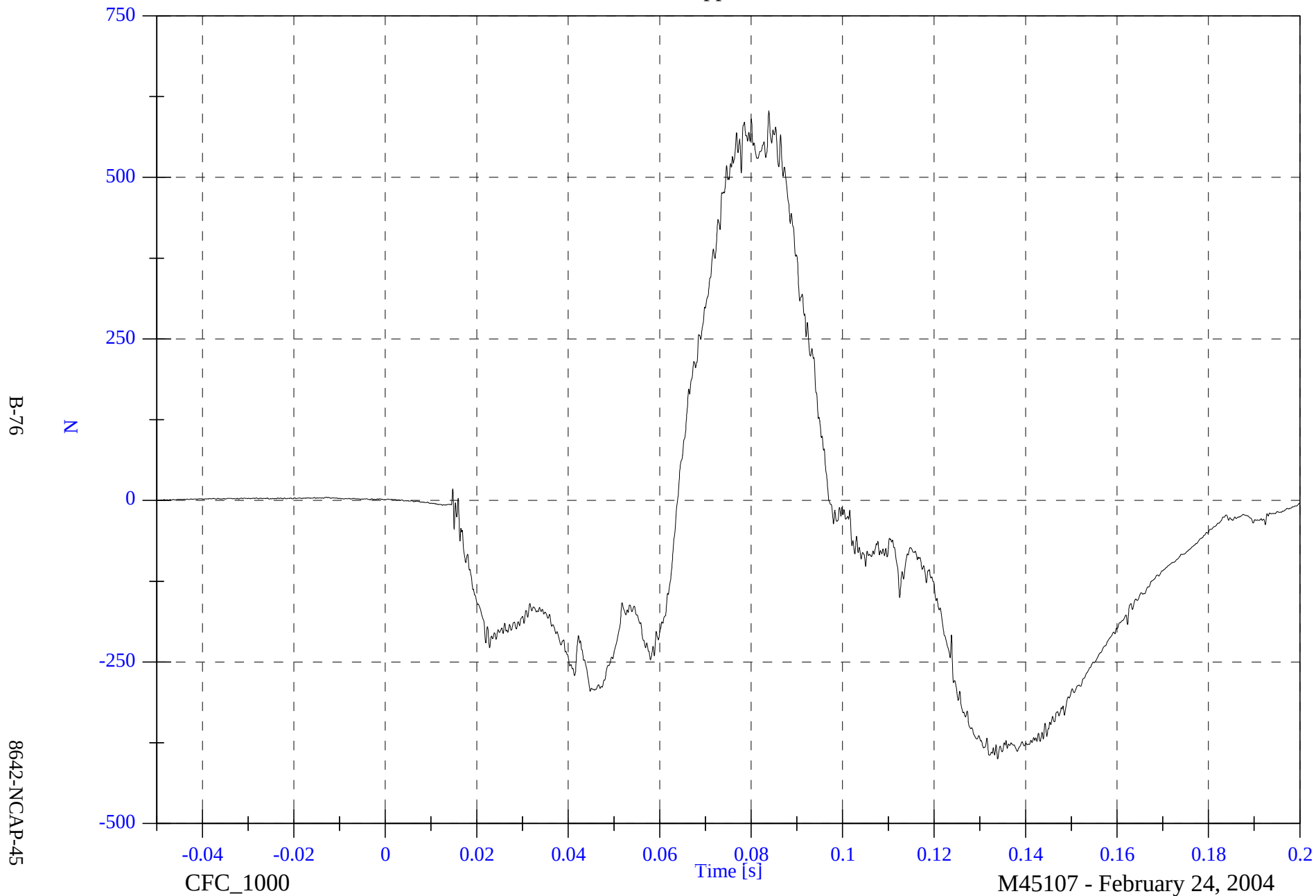


2004 NCAP Test 9 2004 Toyota Prius

Max: 602.9 [N] at 0.084 [s]

Min: -400.0 [N] at 0.134 [s]

V1P2 Upper Neck Fx

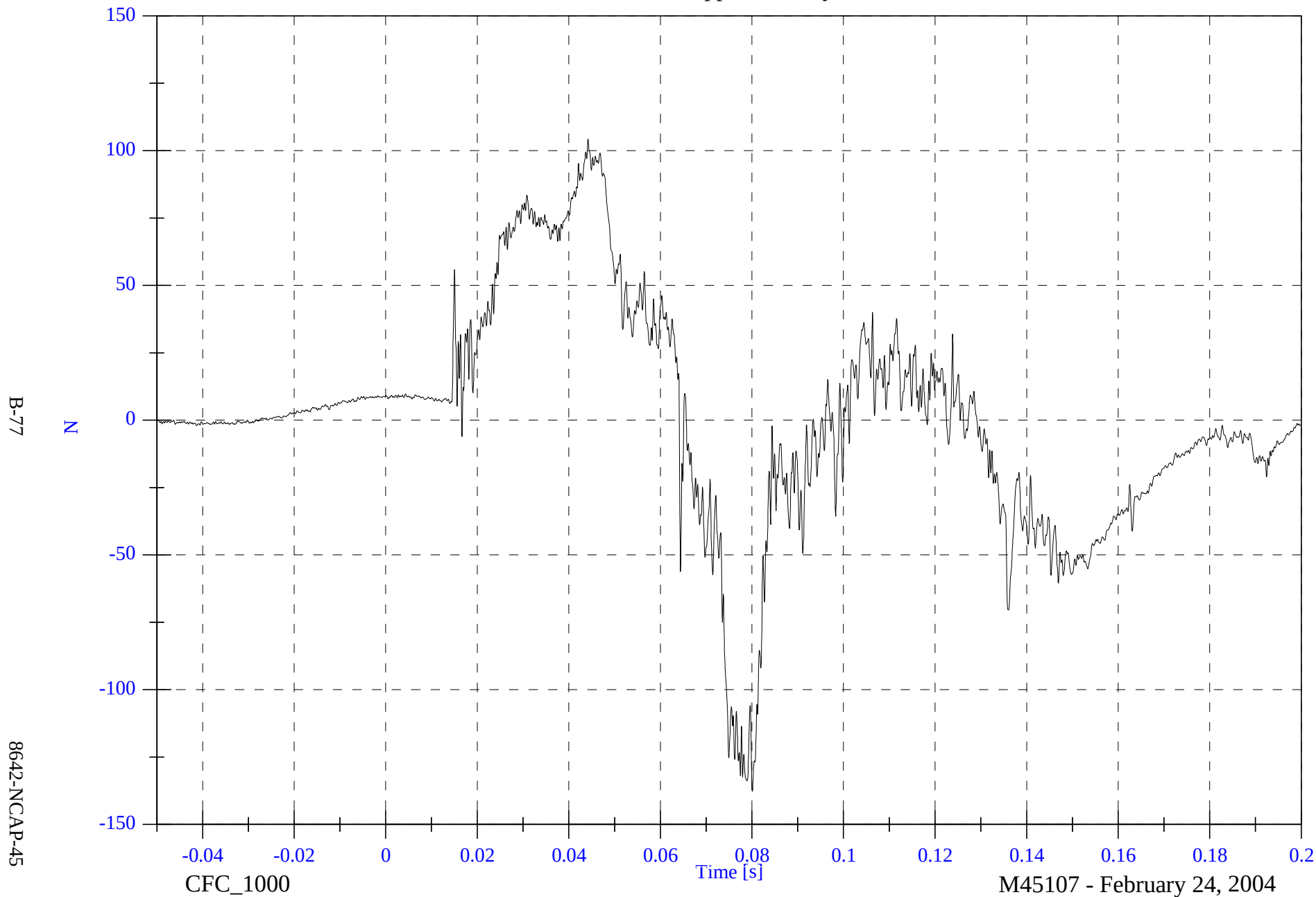


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Upper Neck Fy

Max: 104.2 [N] at 0.044 [s]

Min: -137.6 [N] at 0.080 [s]

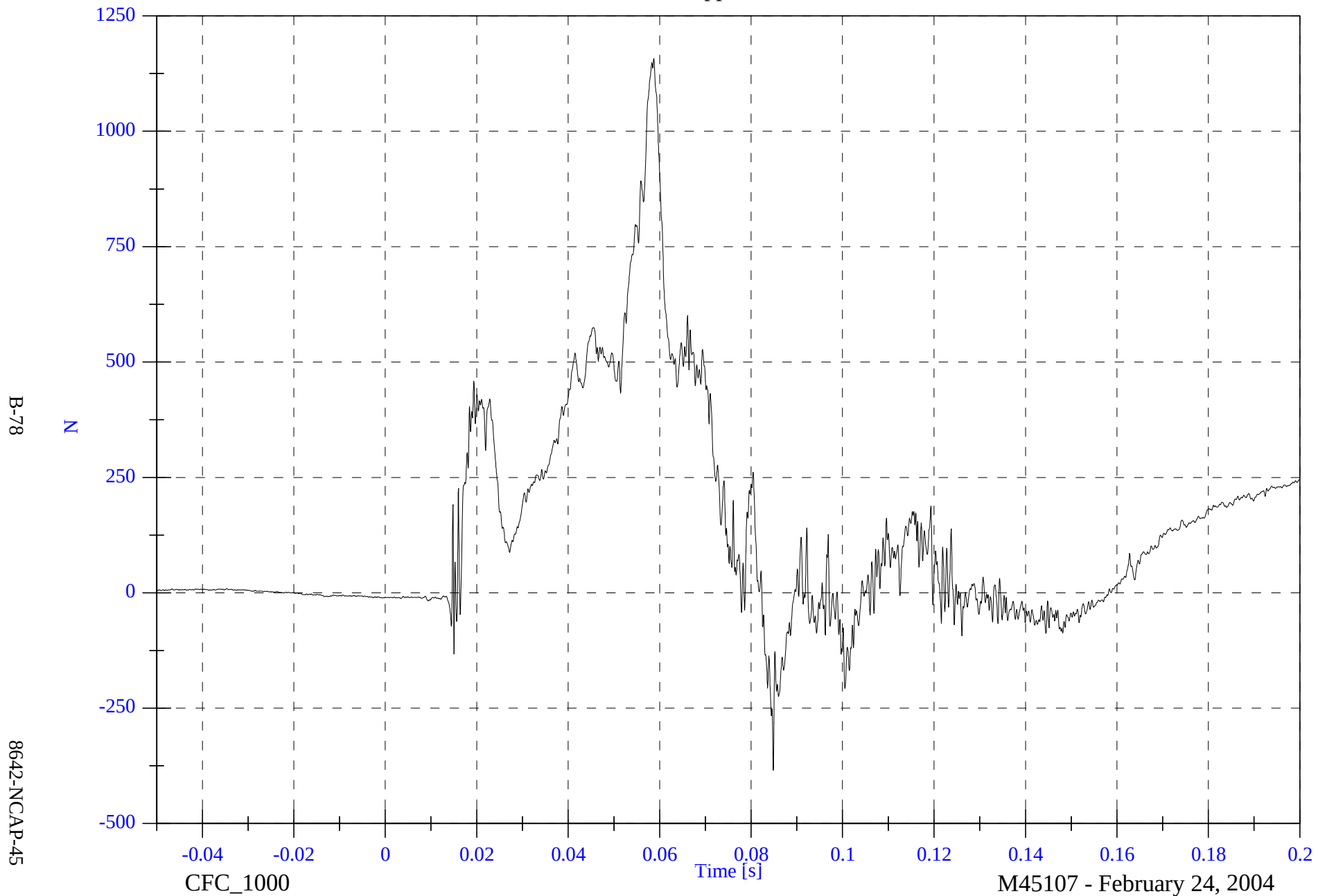


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Upper Neck Fz

Max: 1157.8 [N] at 0.059 [s]

Min: -384.6 [N] at 0.085 [s]



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CFC_1000

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2004 NCAP Test 9 2004 Toyota Prius

V1P2 Upper Neck F Resultant

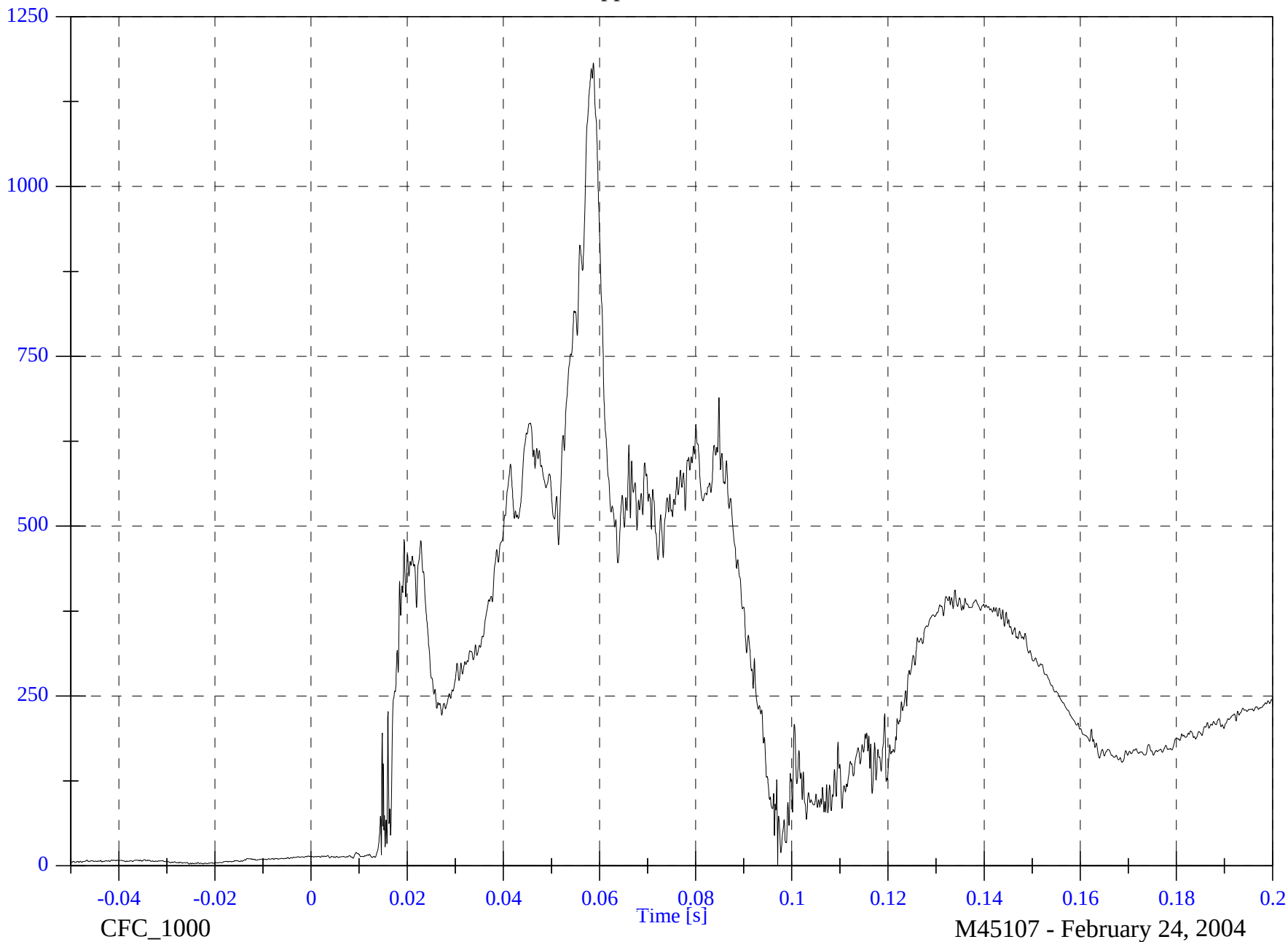
Max: 1181.7 [N] at 0.059 [s]

Min: 2.1 [N] at 0.097 [s]

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N

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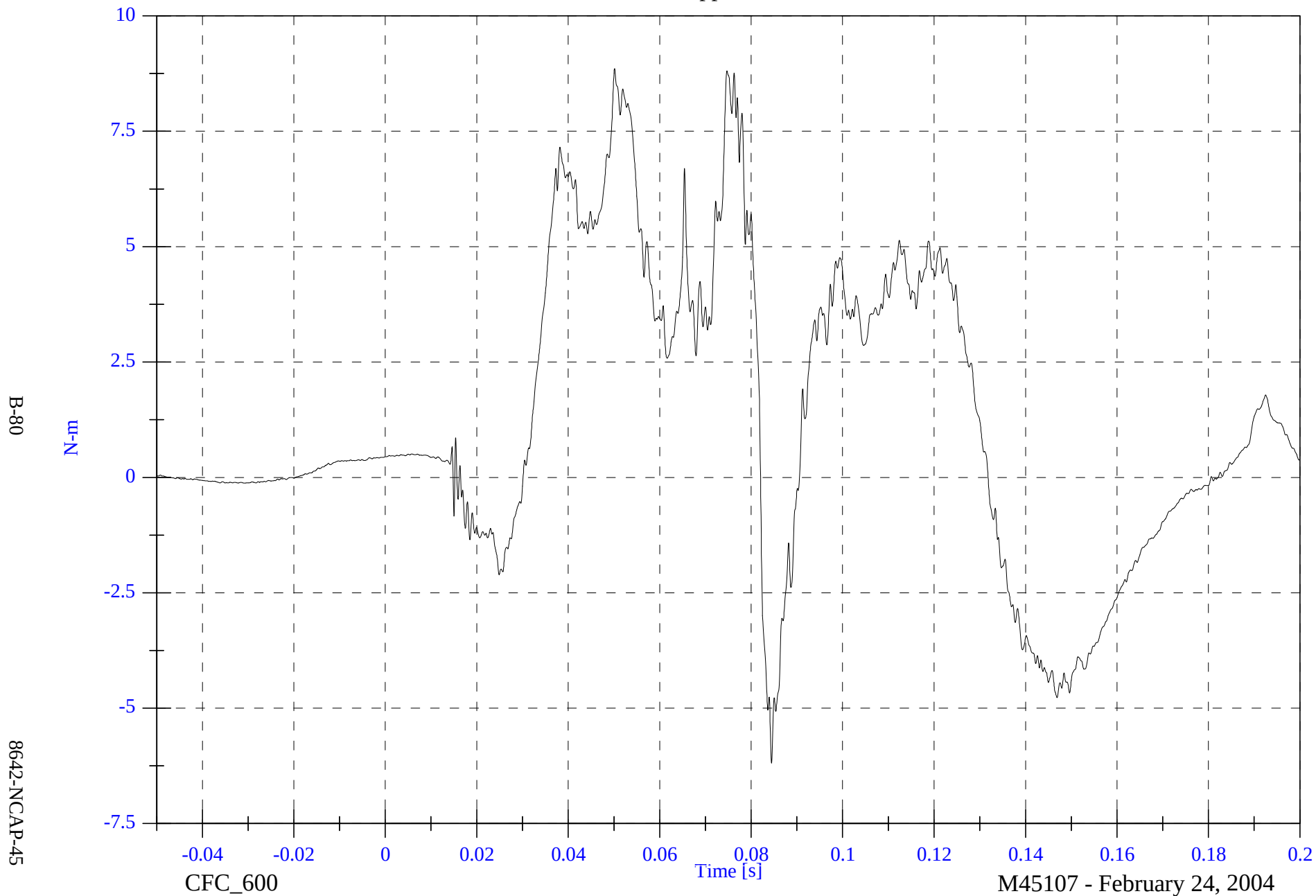


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Upper Neck Mx

Max: 8.9 [N-m] at 0.050 [s]

Min: -6.2 [N-m] at 0.084 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P2 Upper Neck My

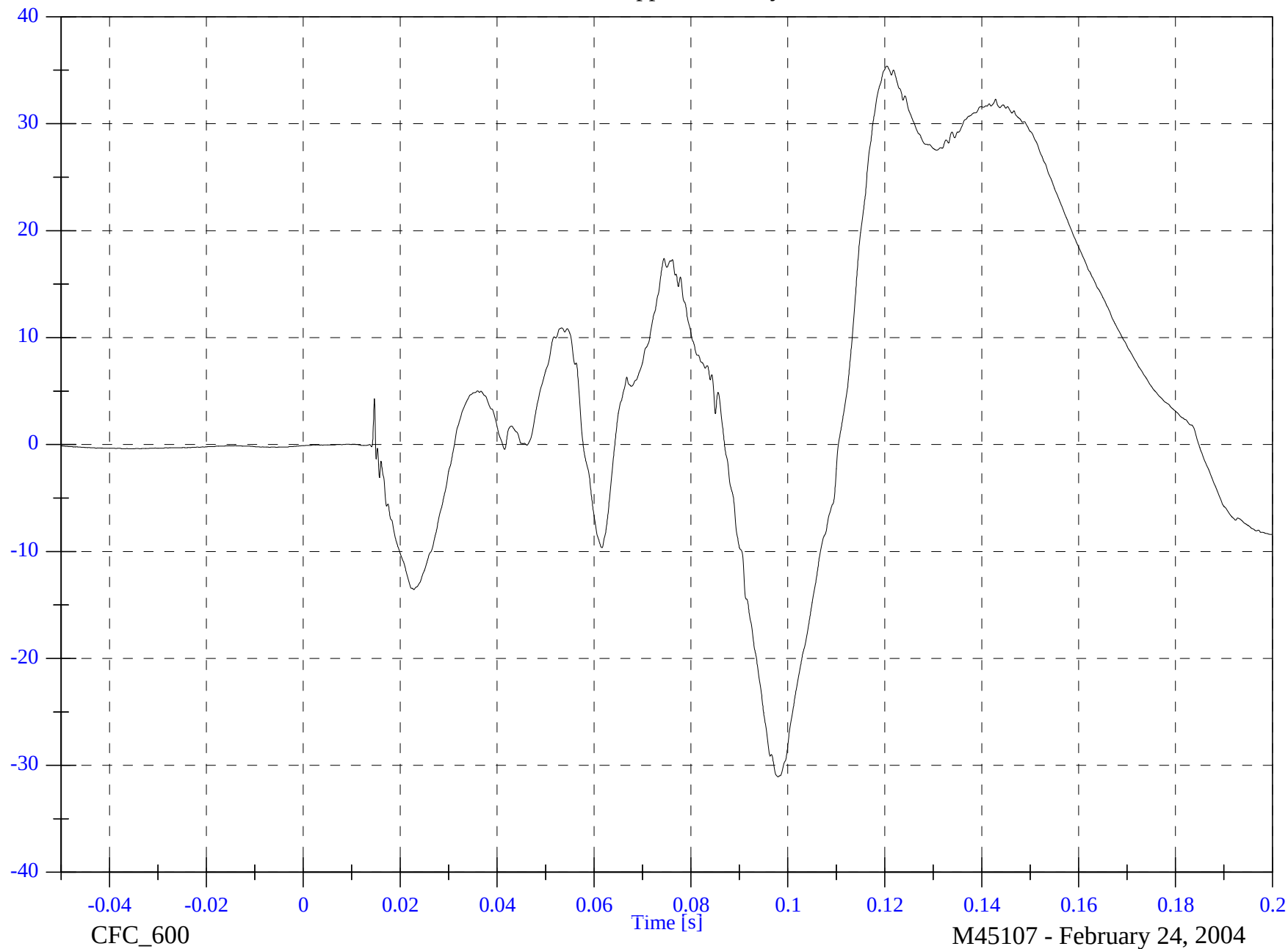
Max: 35.4 [N-m] at 0.120 [s]

Min: -31.1 [N-m] at 0.098 [s]

B-81

N-m

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CFC_600

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2004 NCAP Test 9 2004 Toyota Prius

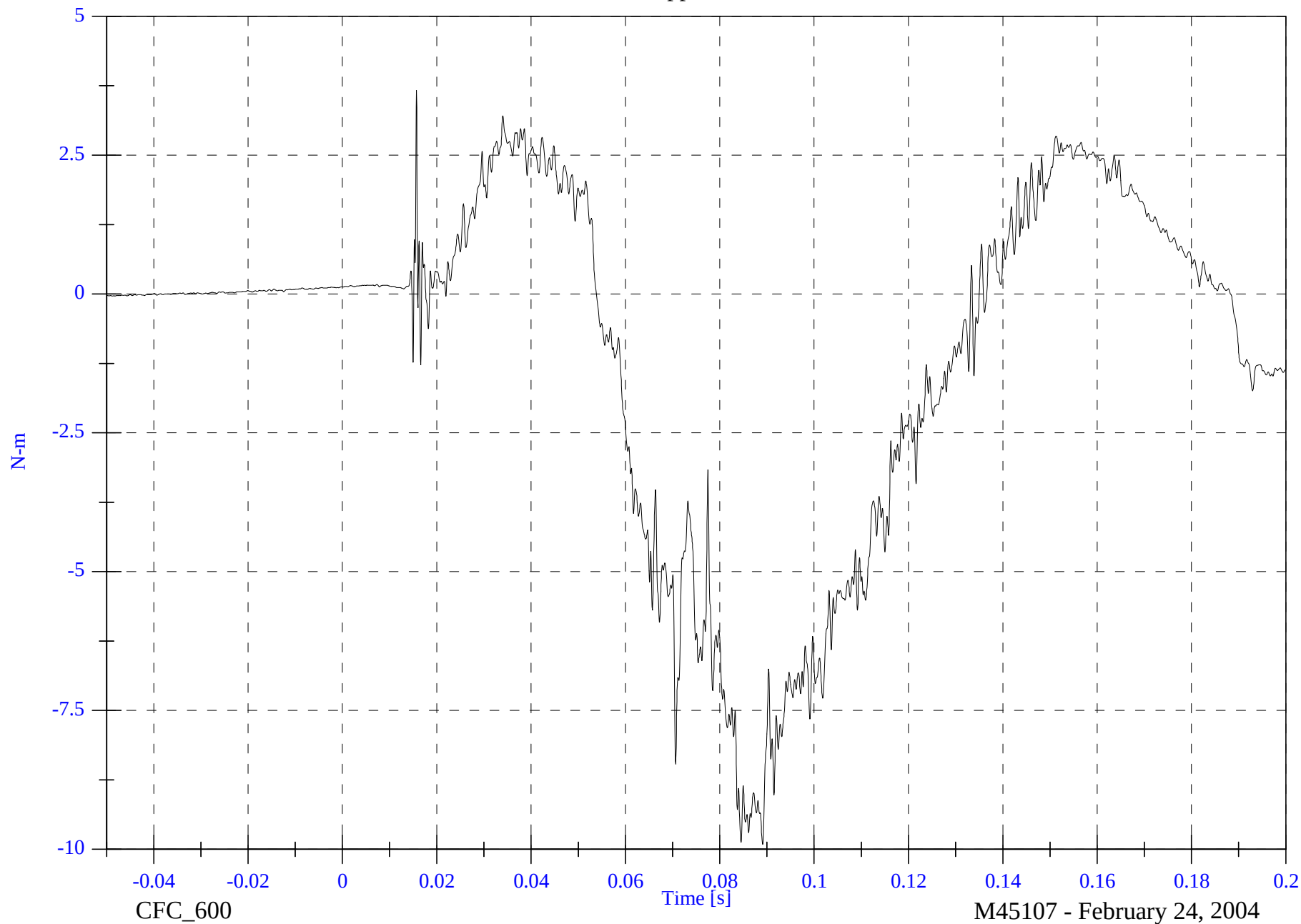
V1P2 Upper Neck Mz

Max: 3.7 [N-m] at 0.016 [s]

Min: -9.9 [N-m] at 0.089 [s]

B-82

8642-NCAP-45

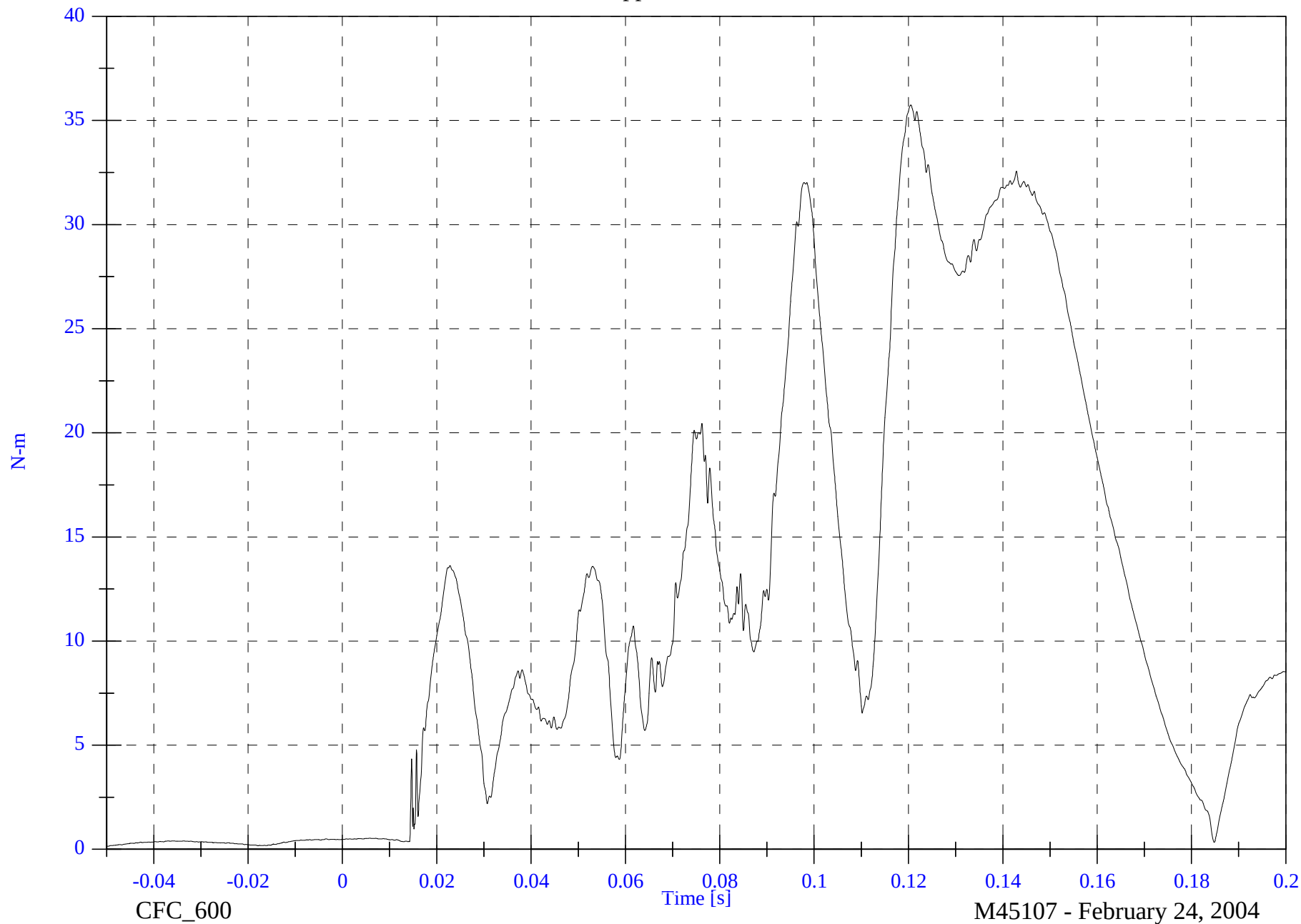


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Upper Neck M Resultant

Max: 35.7 [N-m] at 0.120 [s]

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



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8642-NCAP-45

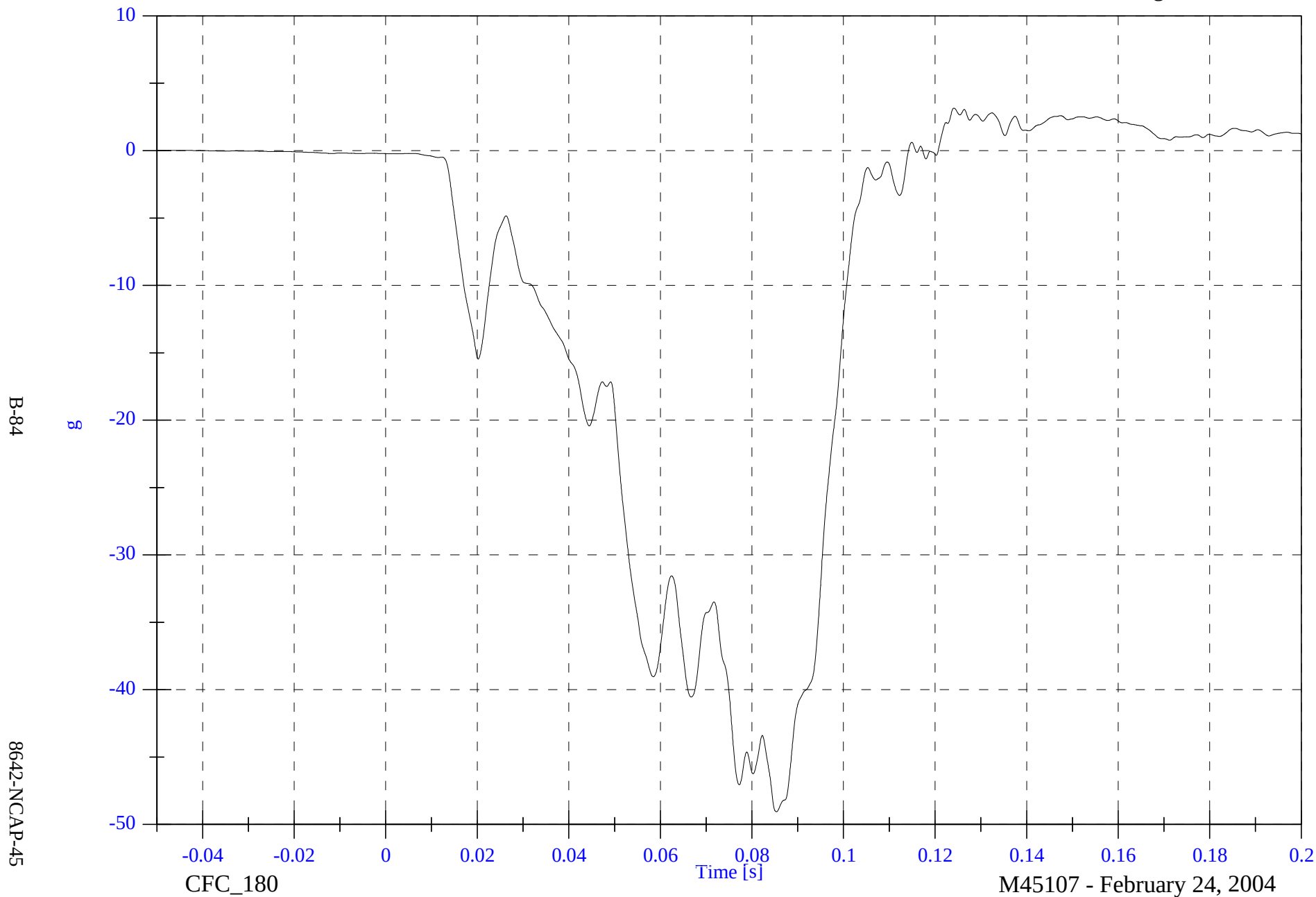
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2004 NCAP Test 9 2004 Toyota Prius

V1P2 Chest x

Max: 3.2 [g] at 0.124 [s]

Min: -49.1 [g] at 0.085 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P2 Chest y

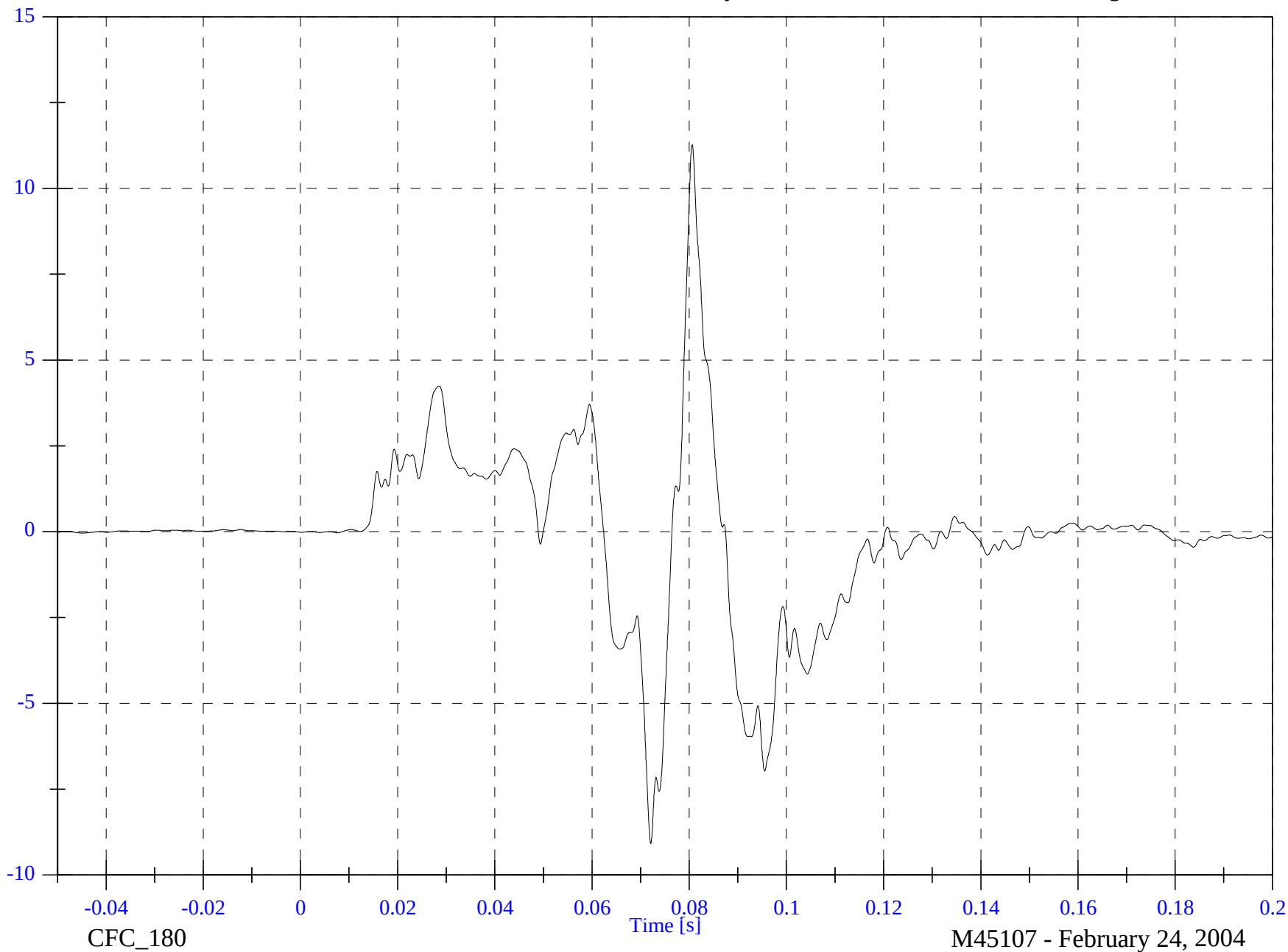
Max: 11.3 [g] at 0.081 [s]

Min: -9.1 [g] at 0.072 [s]

B-85

8642-NCAP-45

g



CFC_180

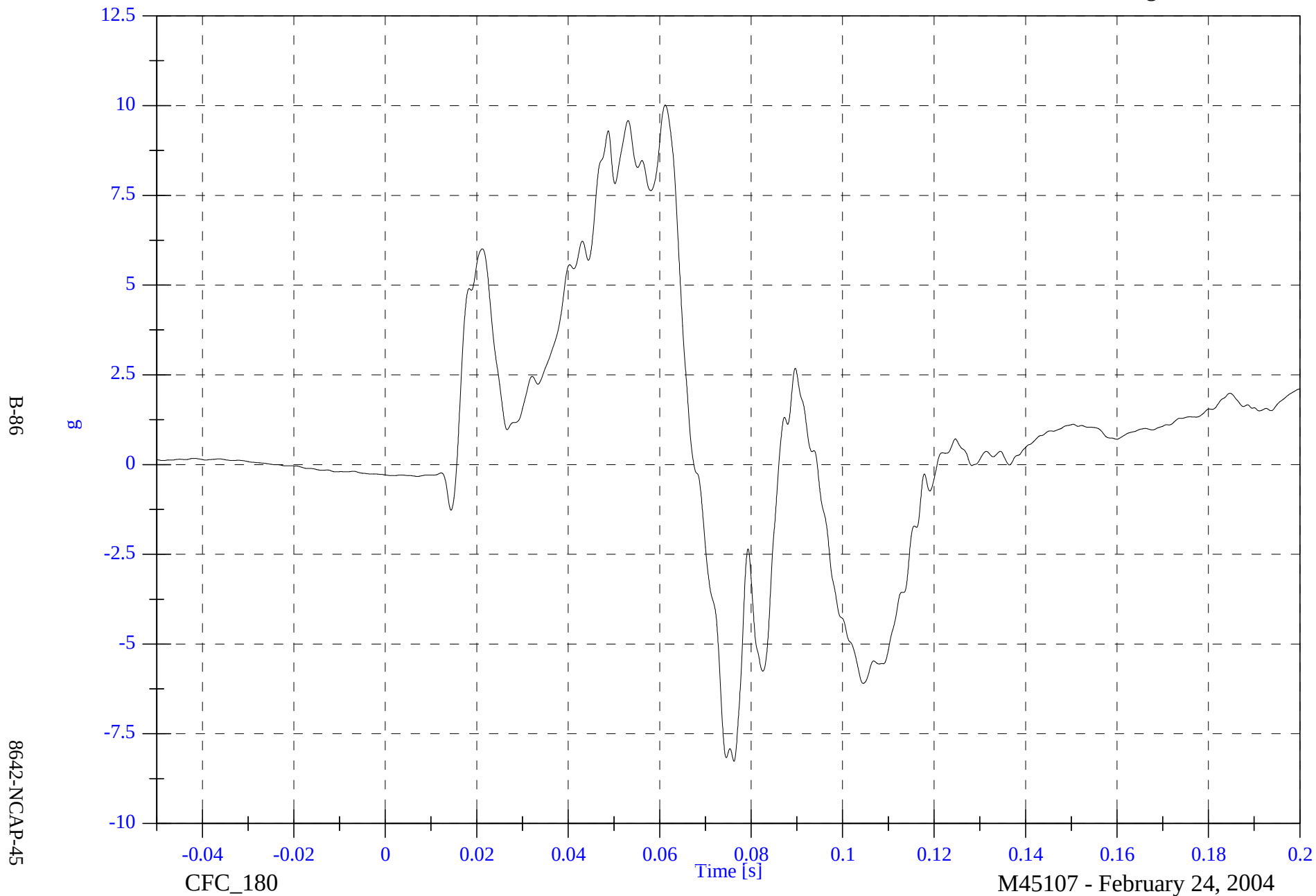
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P2 Chest z

Max: 10.0 [g] at 0.061 [s]

Min: -8.3 [g] at 0.076 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P2 Chest Resultant

Max: 49.1 [g] at 0.085 [s]

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



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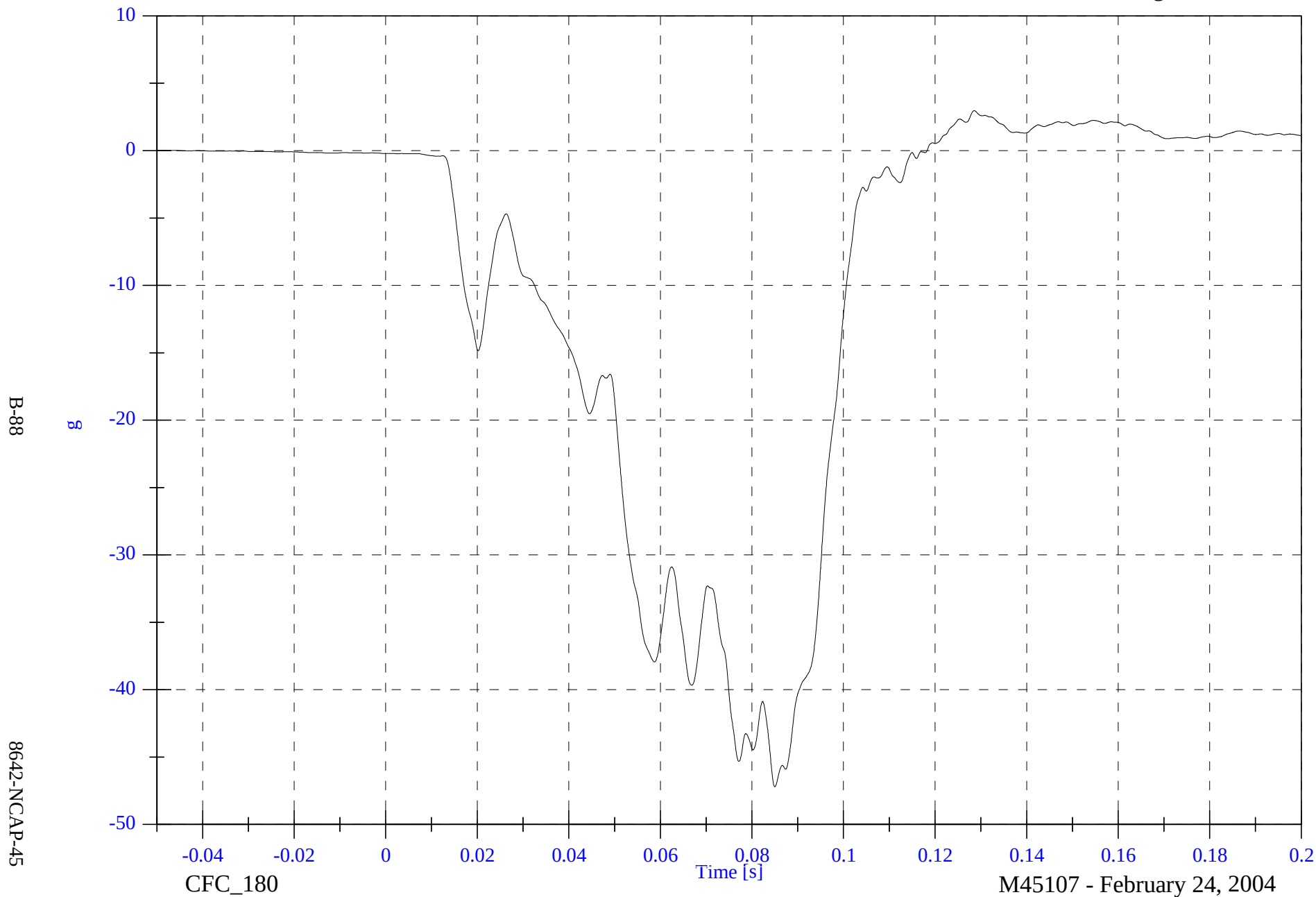
8642-NCAP-45

2004 NCAP Test 9 2004 Toyota Prius

V1P2 Chest Red x

Max: 3.0 [g] at 0.129 [s]

Min: -47.2 [g] at 0.085 [s]

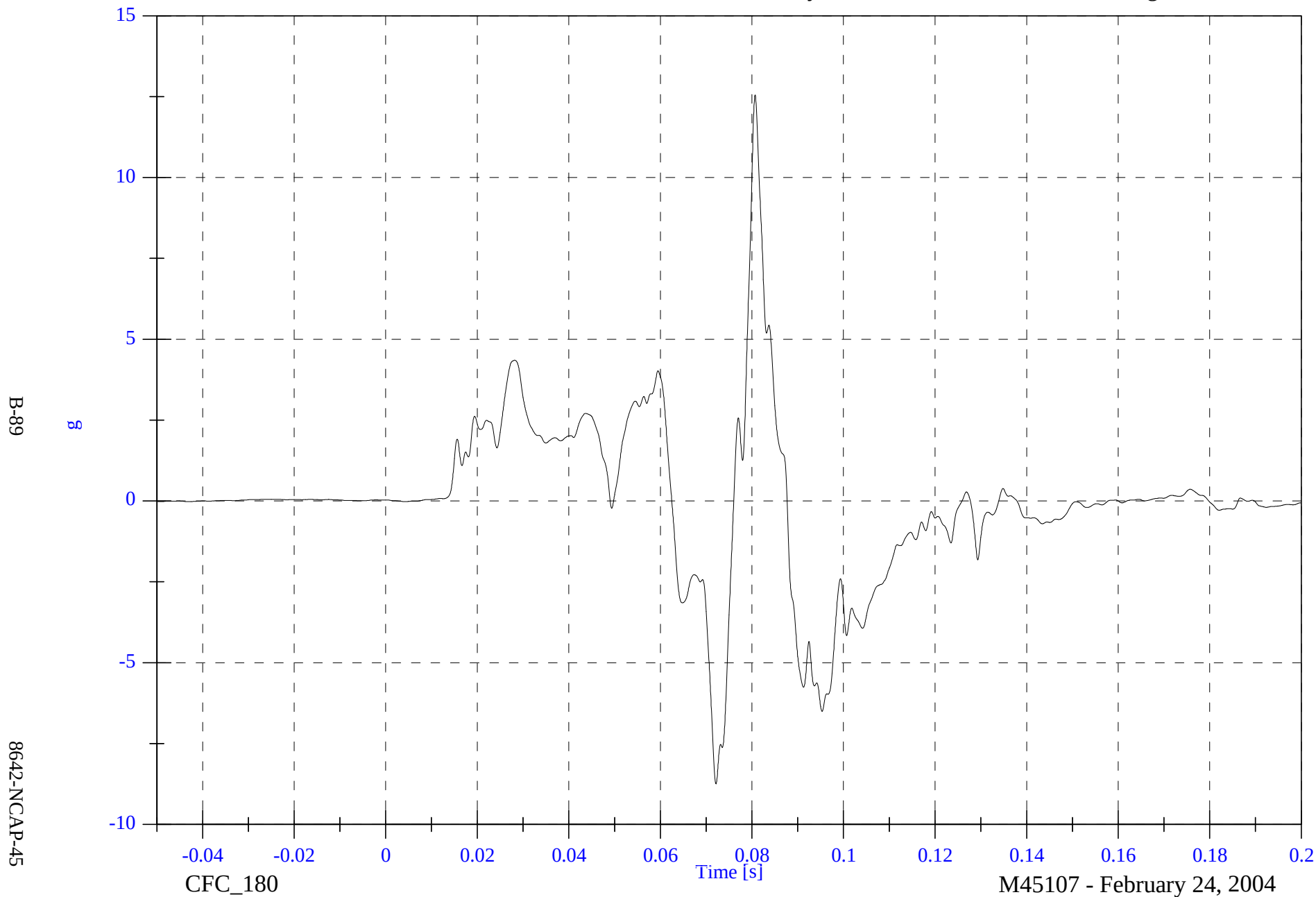


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Chest Red y

Max: 12.6 [g] at 0.081 [s]

Min: -8.7 [g] at 0.072 [s]

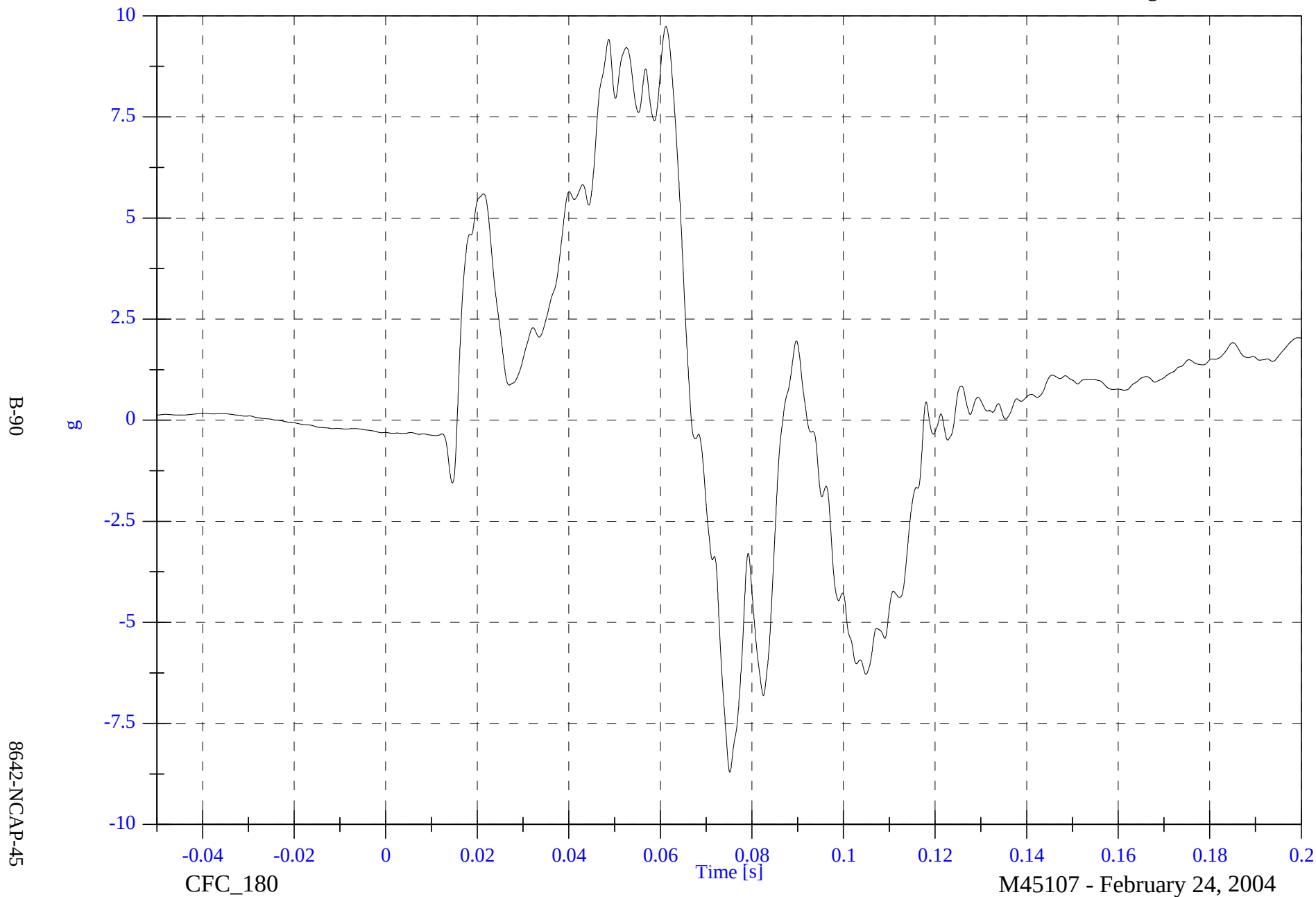


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Chest Red z

Max: 9.7 [g] at 0.061 [s]

Min: -8.7 [g] at 0.075 [s]



2004 NCAP Test 9 2004 Toyota Prius

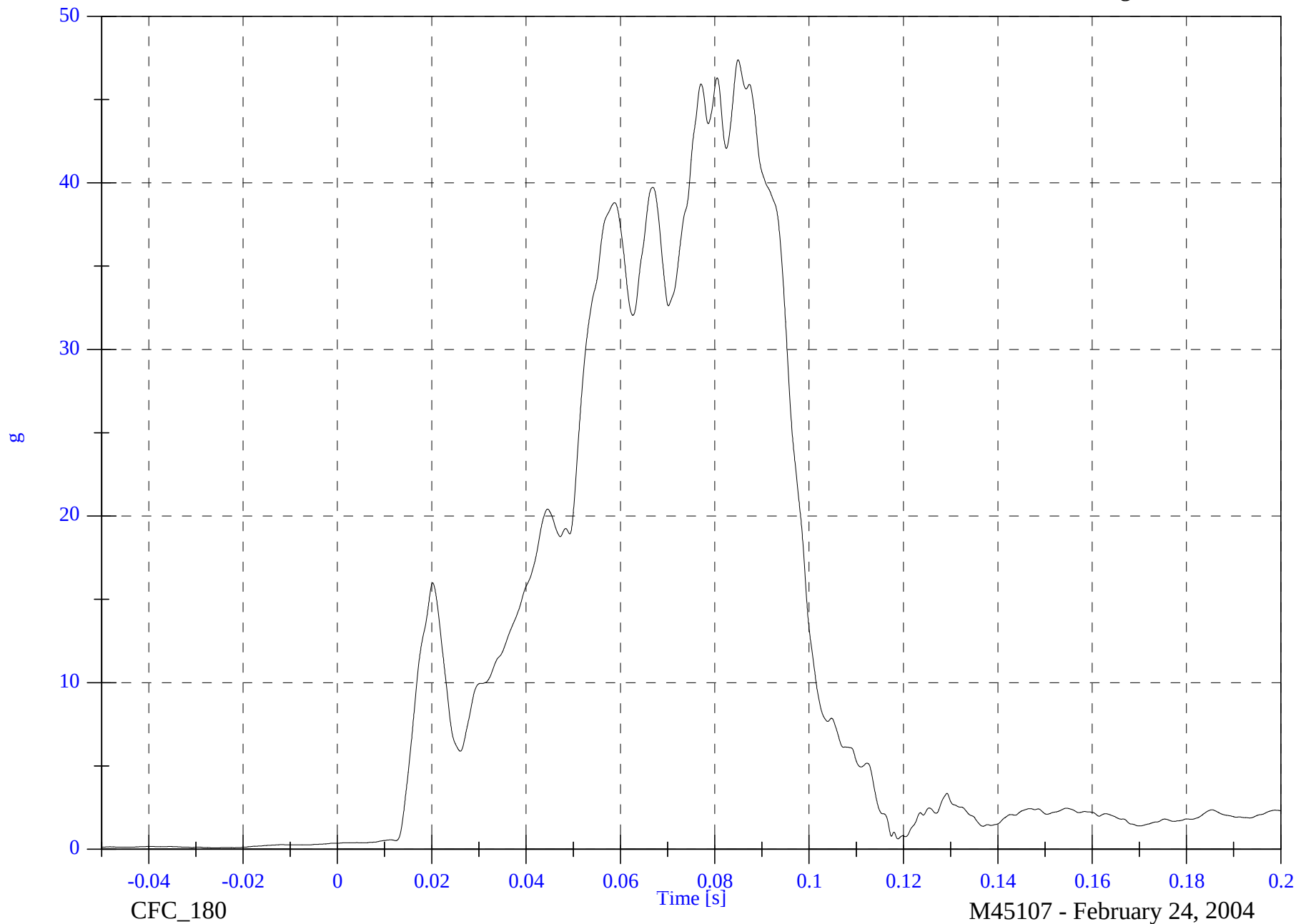
V1P2 Chest Red Resultant

Max: 47.4 [g] at 0.085 [s]

Min: 0.1 [g] at -0.026 [s]

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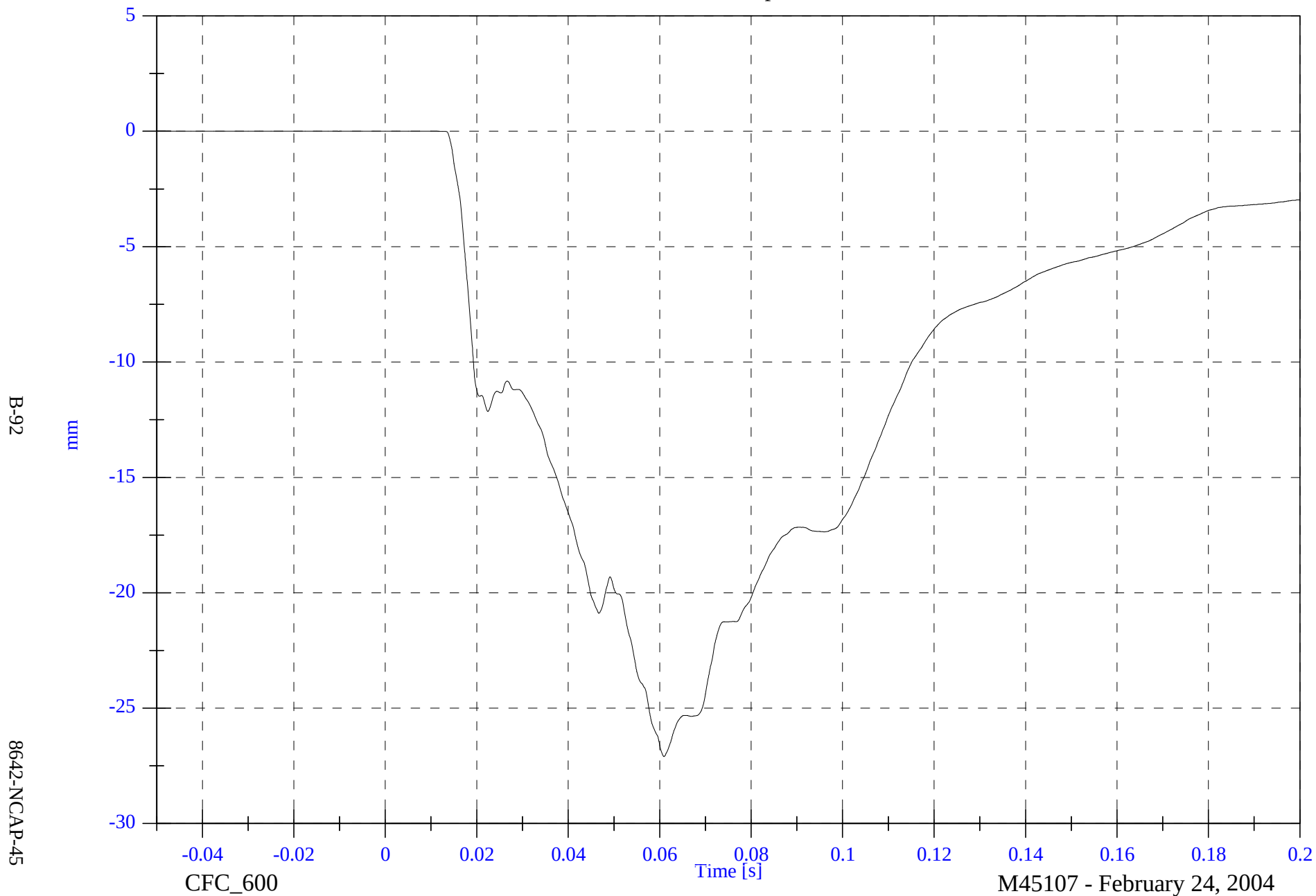


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Chest Compression x

Max: 0.0 [mm] at -0.017 [s]

Min: -27.1 [mm] at 0.061 [s]



2004 NCAP Test 9 2004 Toyota Prius

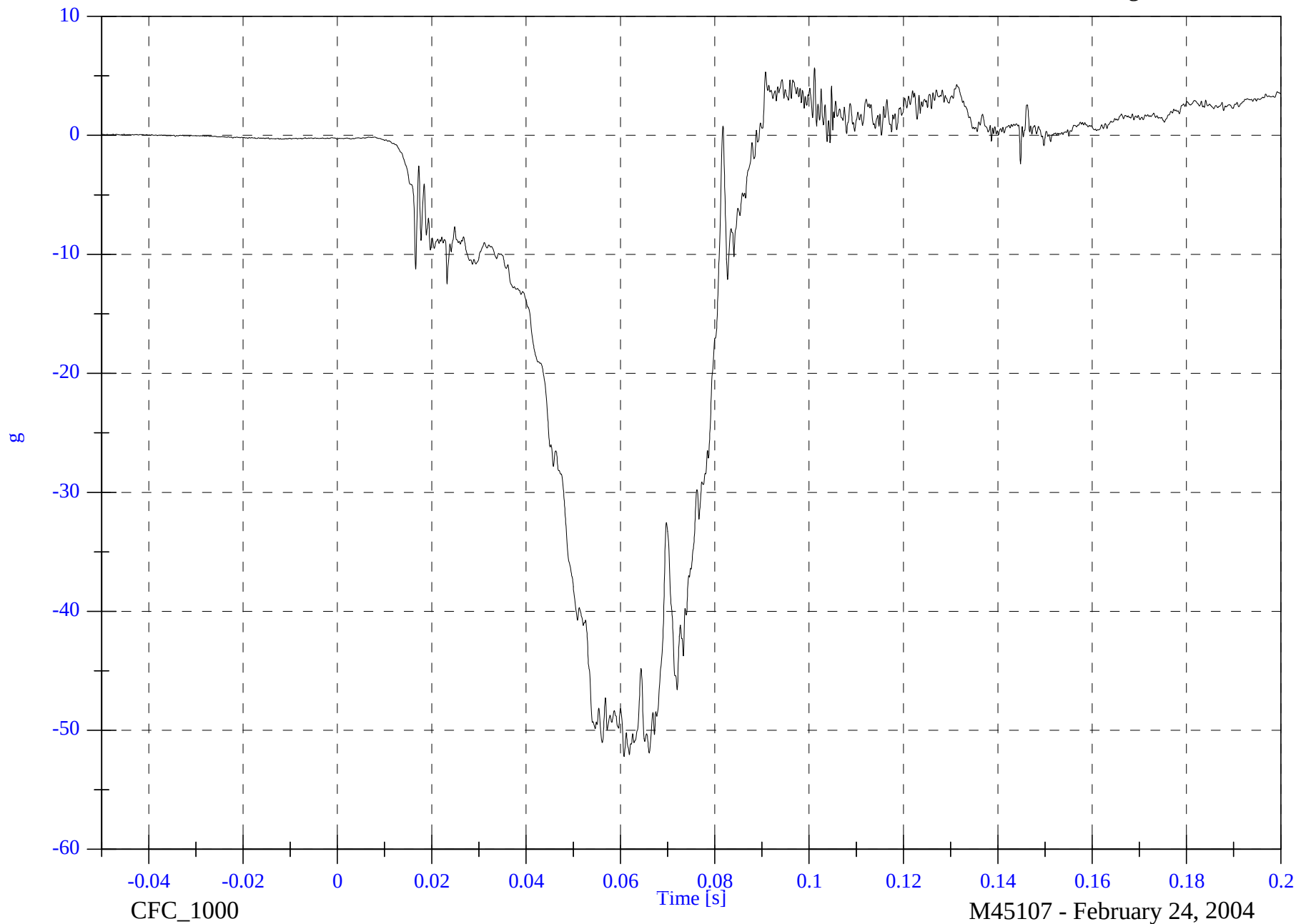
V1P2 Pelvic x

Max: 5.7 [g] at 0.101 [s]

Min: -52.2 [g] at 0.061 [s]

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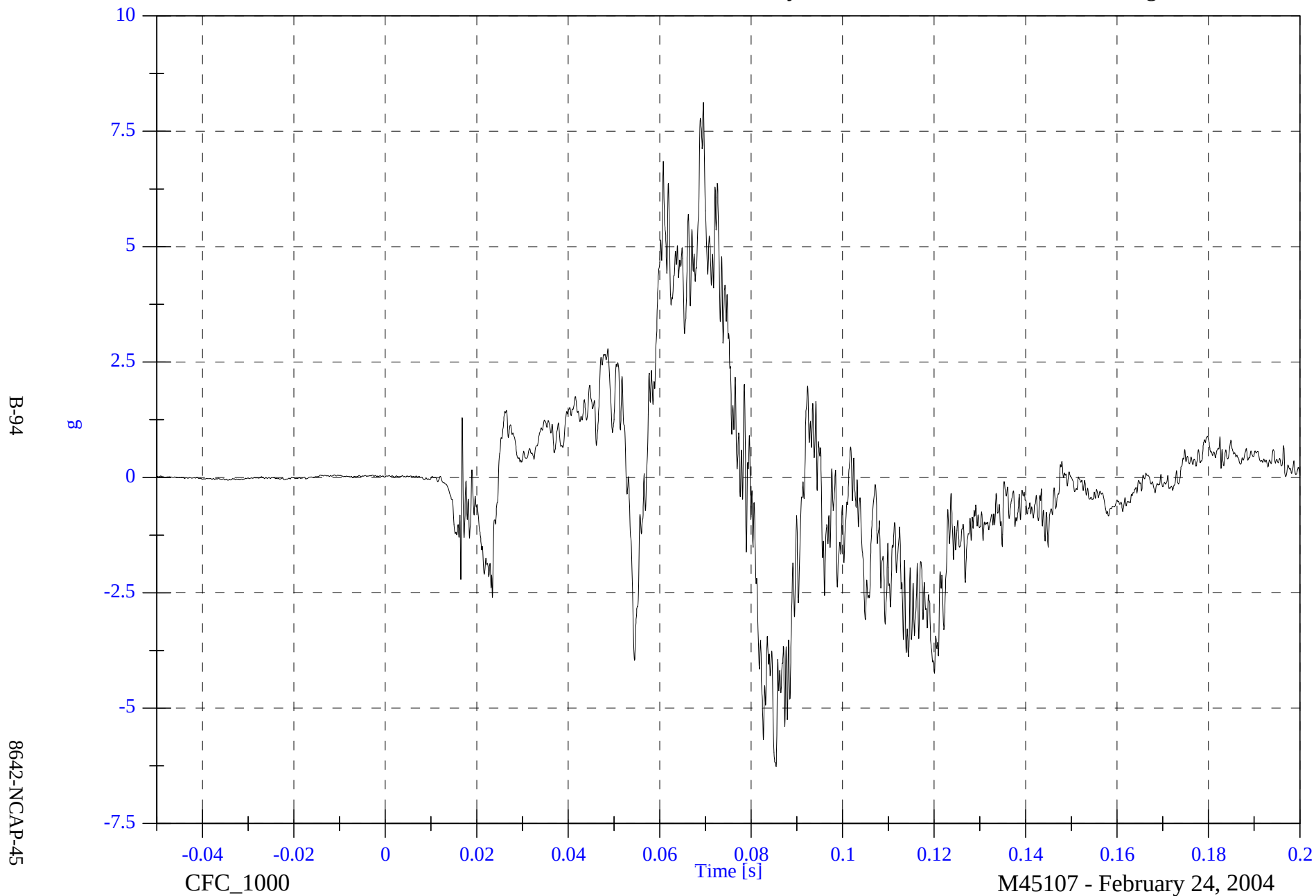
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P2 Pelvic y

Max: 8.1 [g] at 0.070 [s]

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

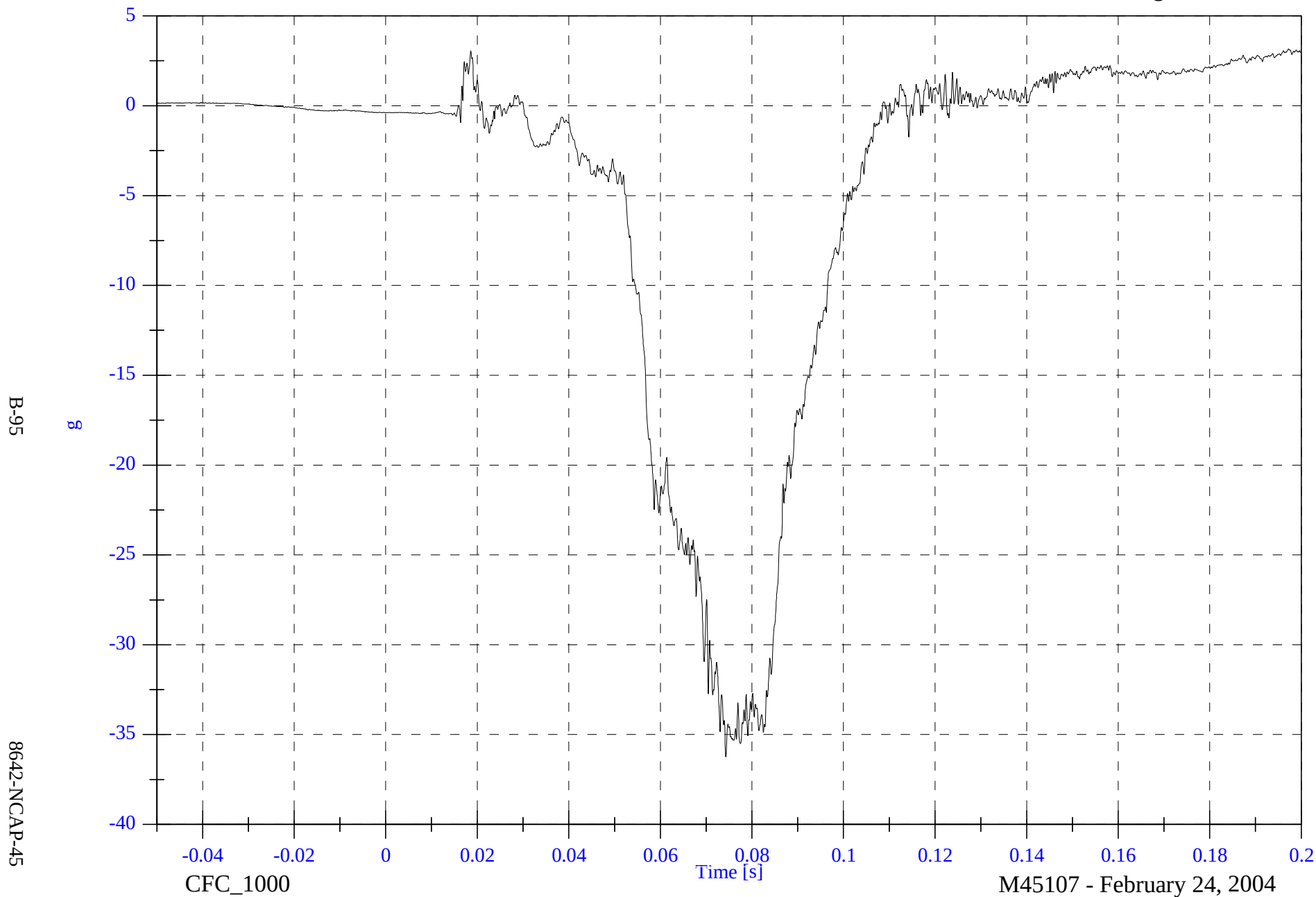


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Pelvic z

Max: 3.2 [g] at 0.197 [s]

Min: -36.2 [g] at 0.074 [s]



2004 NCAP Test 9 2004 Toyota Prius

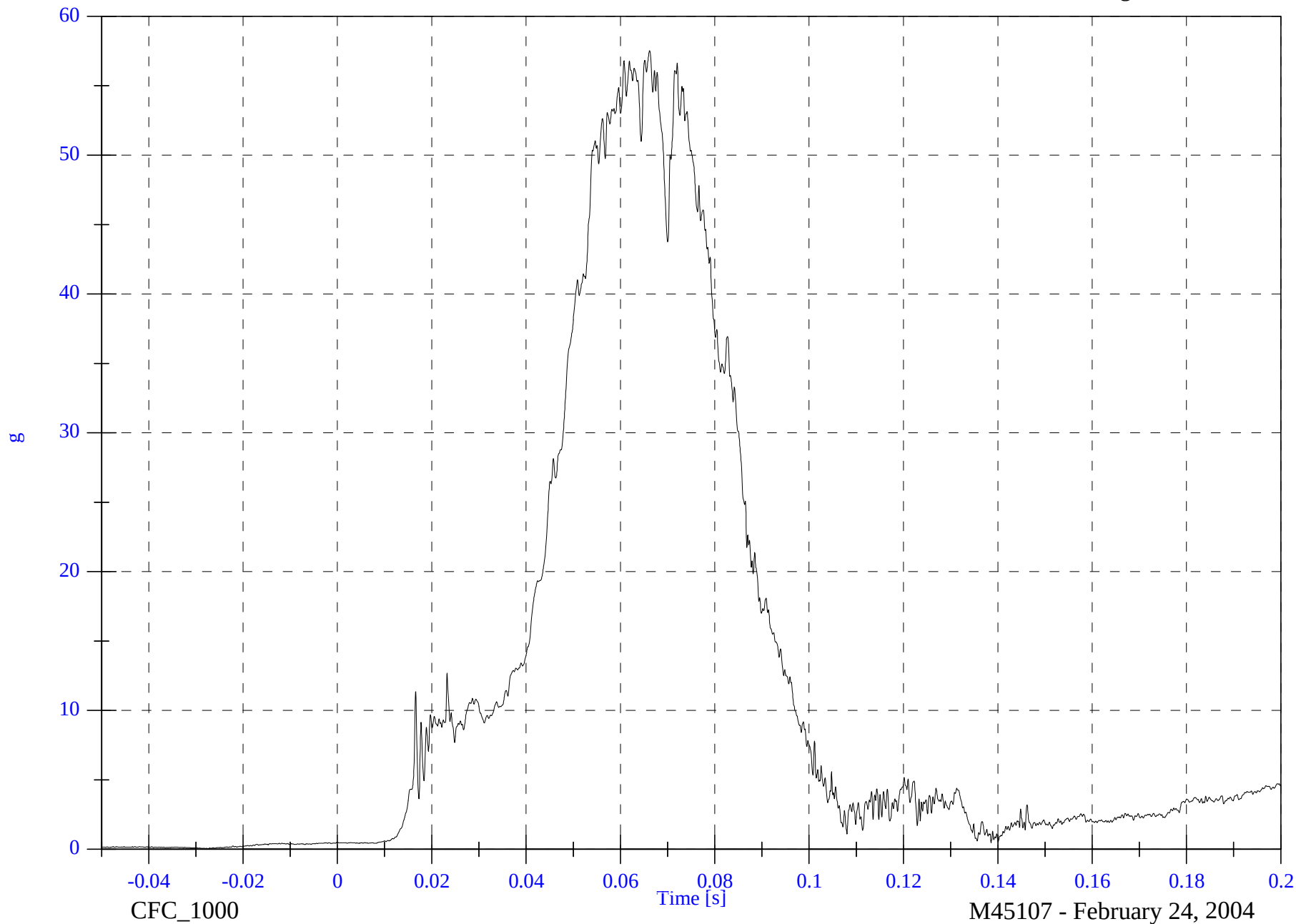
V1P2 Pelvic Resultant

Max: 57.5 [g] at 0.066 [s]

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

B-96

8642-NCAP-45

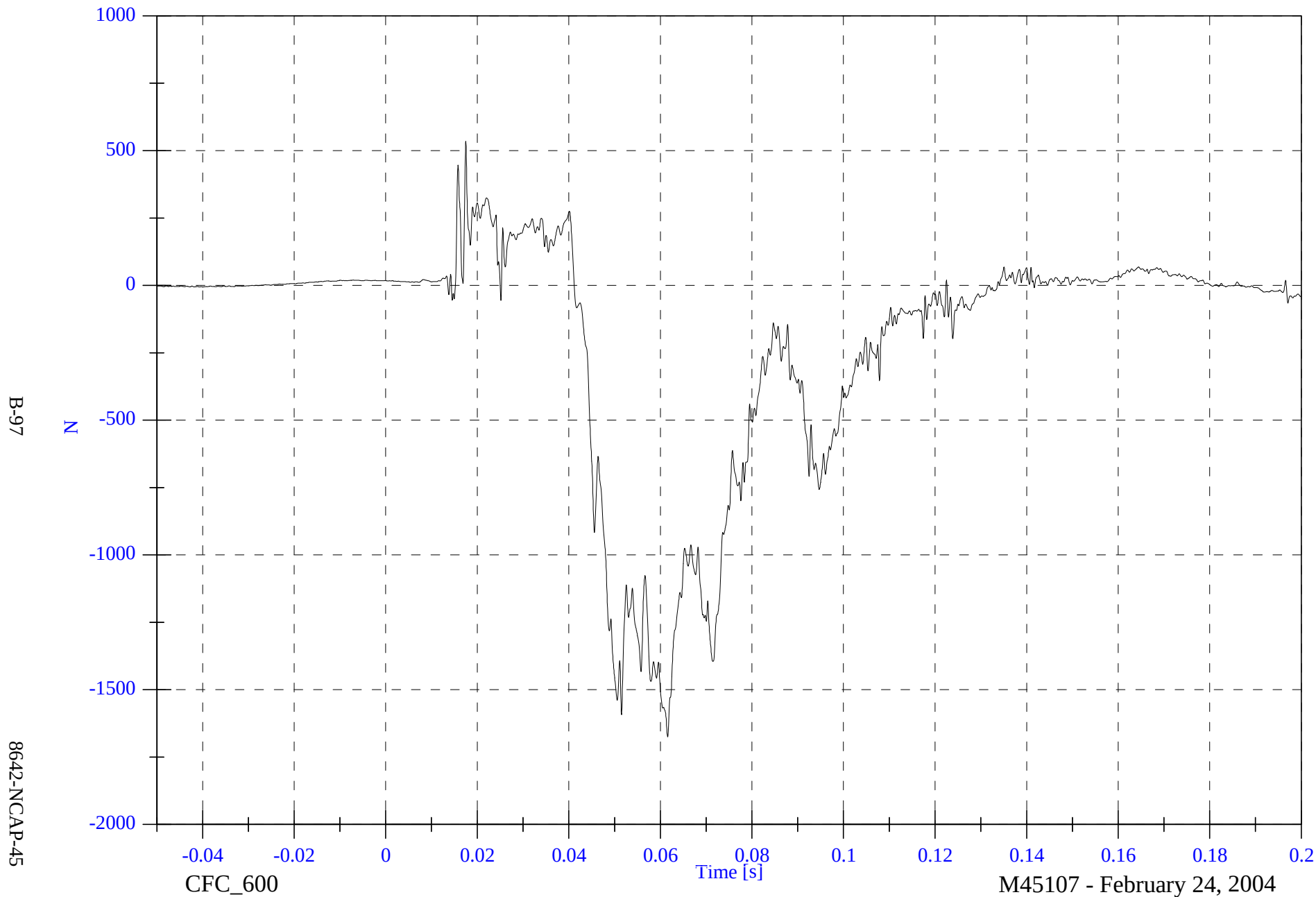


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Left Femur z

Max: 534.4 [N] at 0.018 [s]

Min: -1674.7 [N] at 0.062 [s]

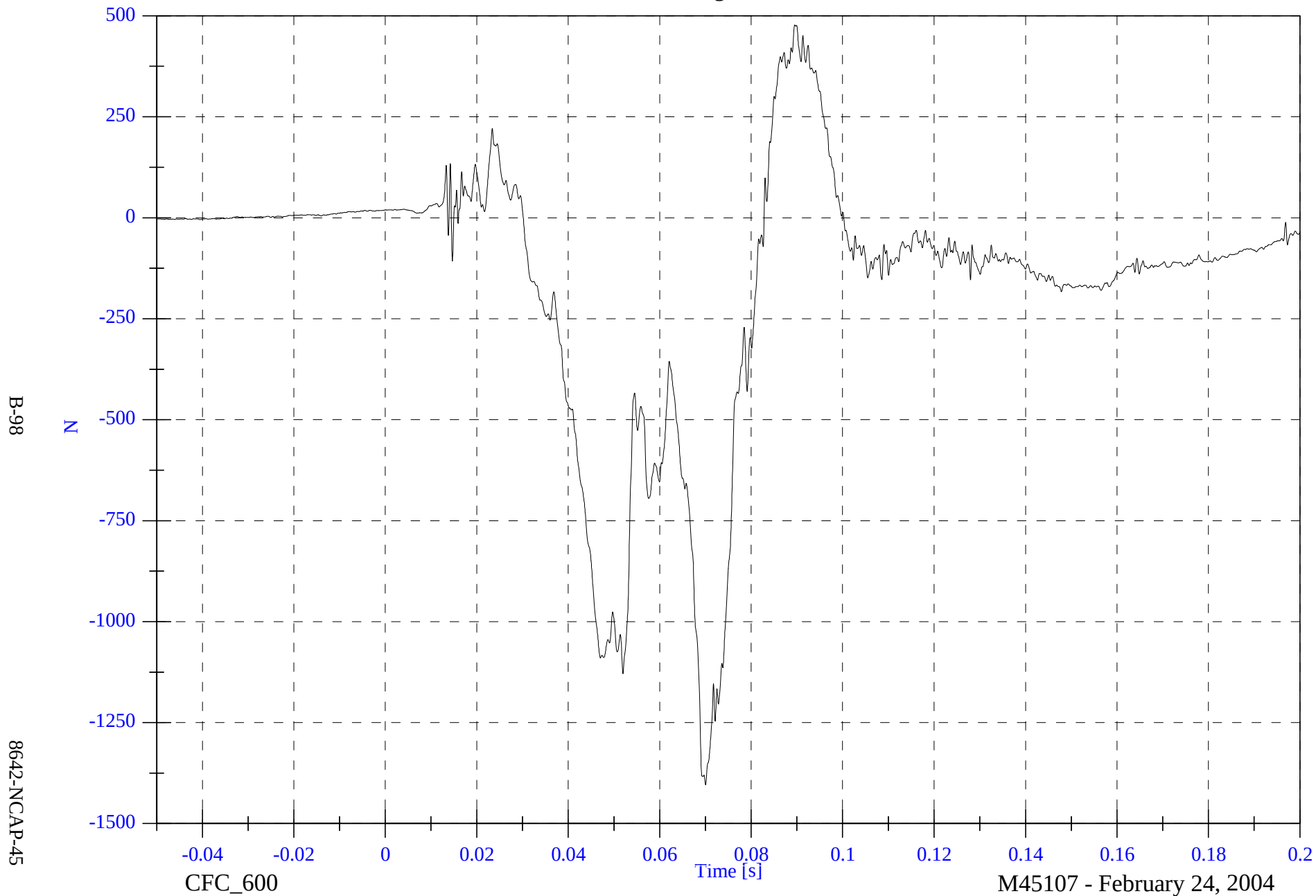


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Right Femur z

Max: 477.2 [N] at 0.089 [s]

Min: -1404.0 [N] at 0.070 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P2 Left Upper Tibia Mx

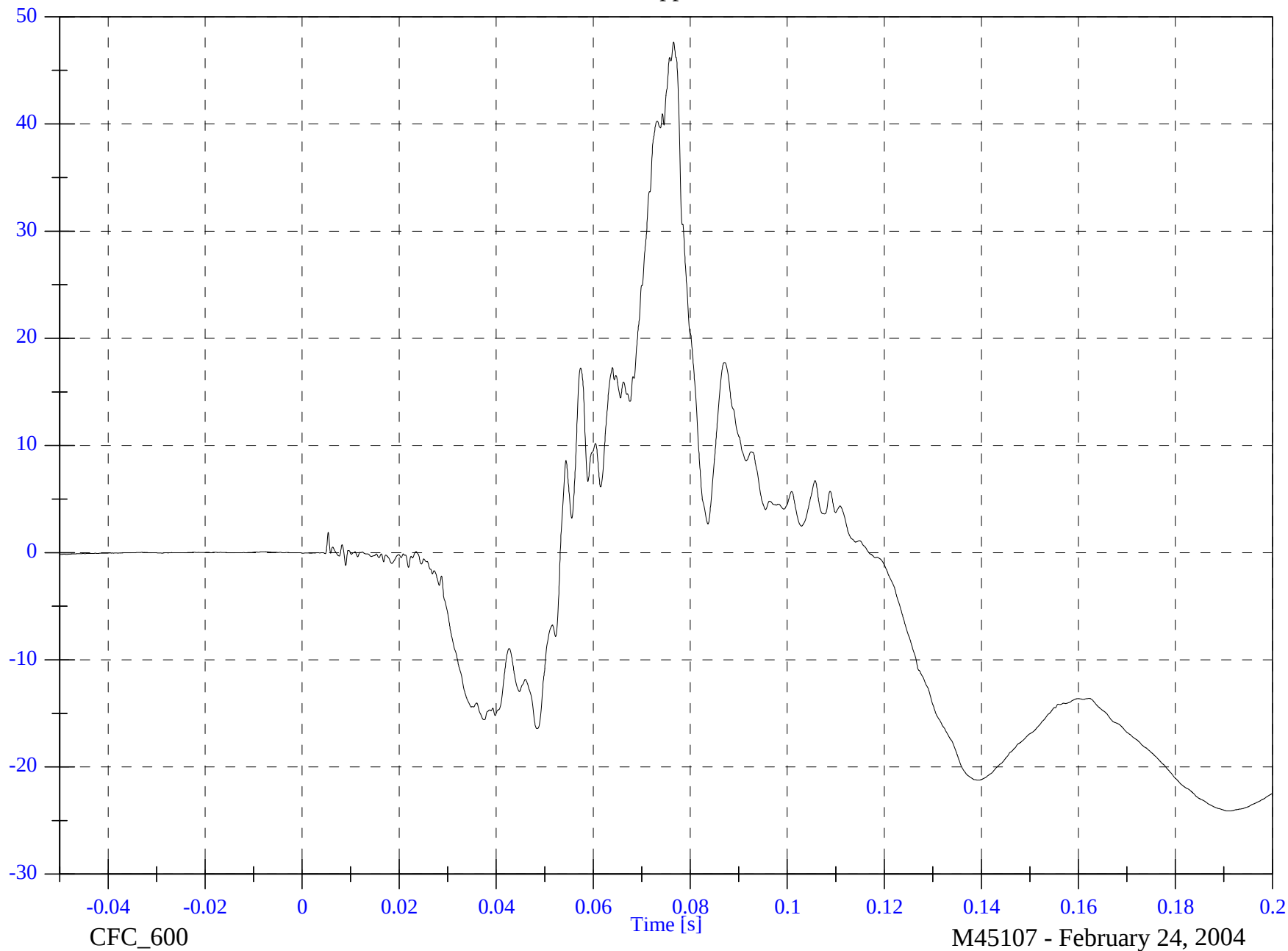
Max: 47.7 [N-m] at 0.077 [s]

Min: -24.1 [N-m] at 0.191 [s]

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N-m

8642-NCAP-45



CFC_600

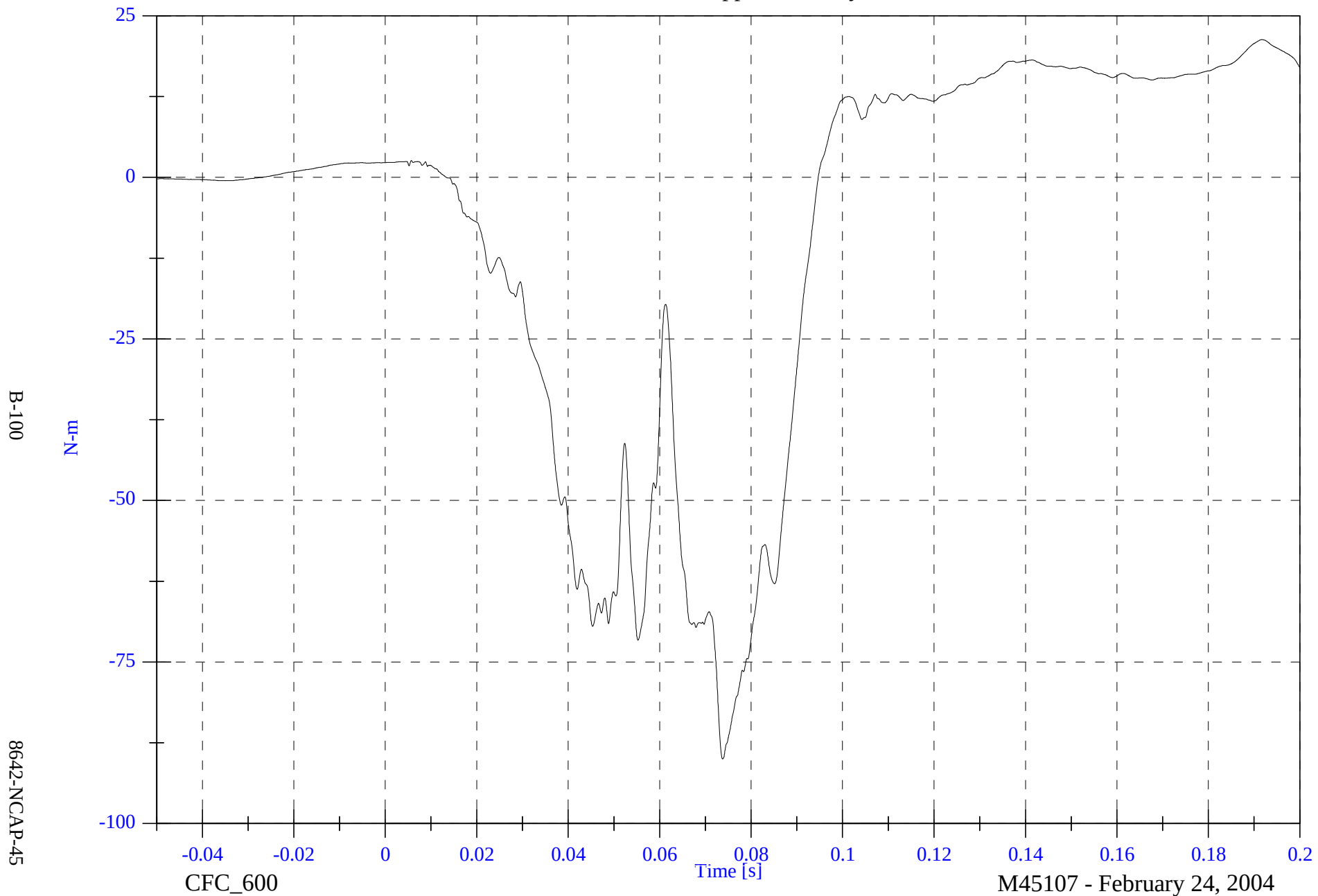
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P2 Left Upper Tibia My

Max: 21.3 [N-m] at 0.192 [s]

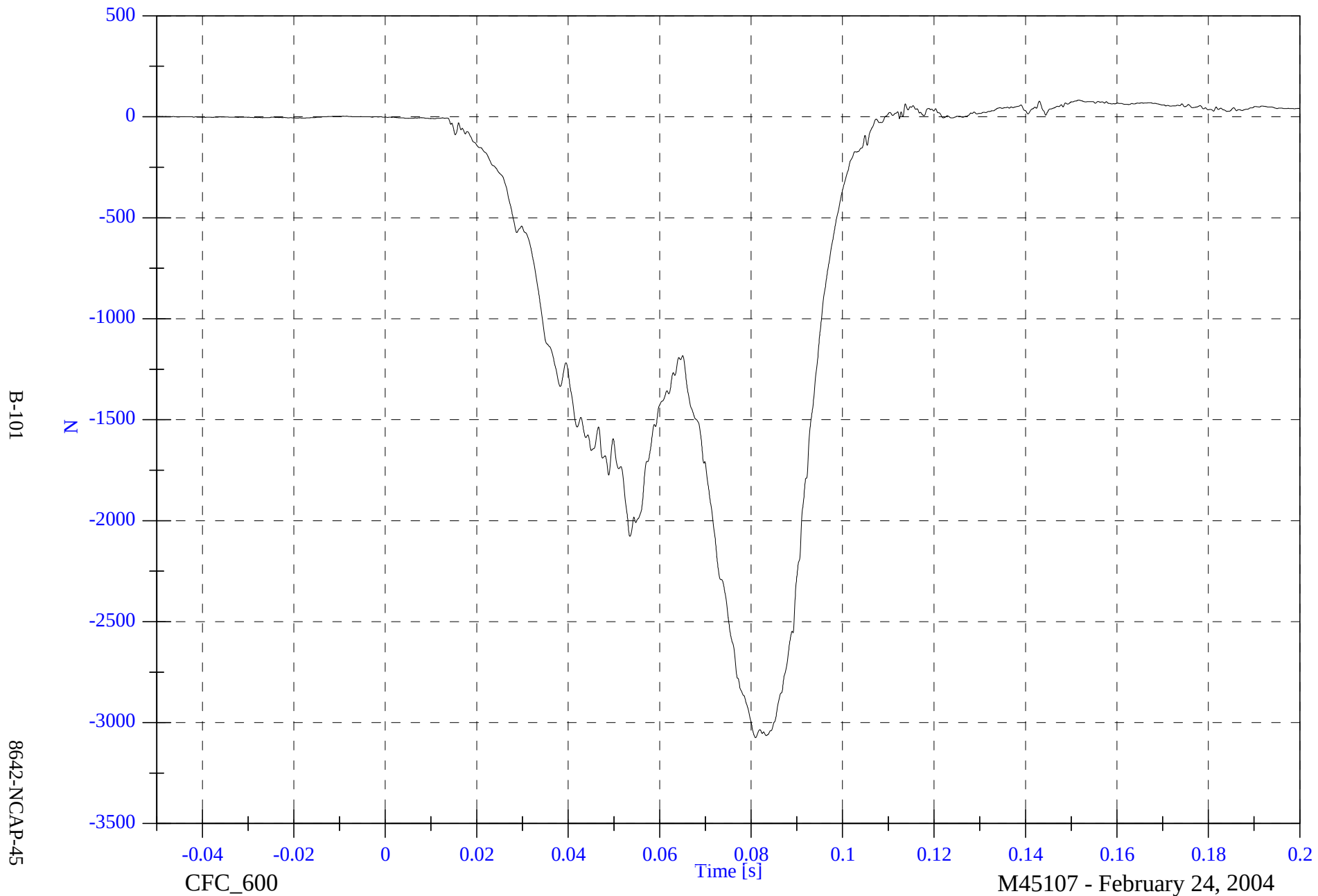
Min: -90.0 [N-m] at 0.074 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P2 Left Lower Tibia Fz

Max: 83.2 [N] at 0.152 [s]
Min: -3074.3 [N] at 0.081 [s]

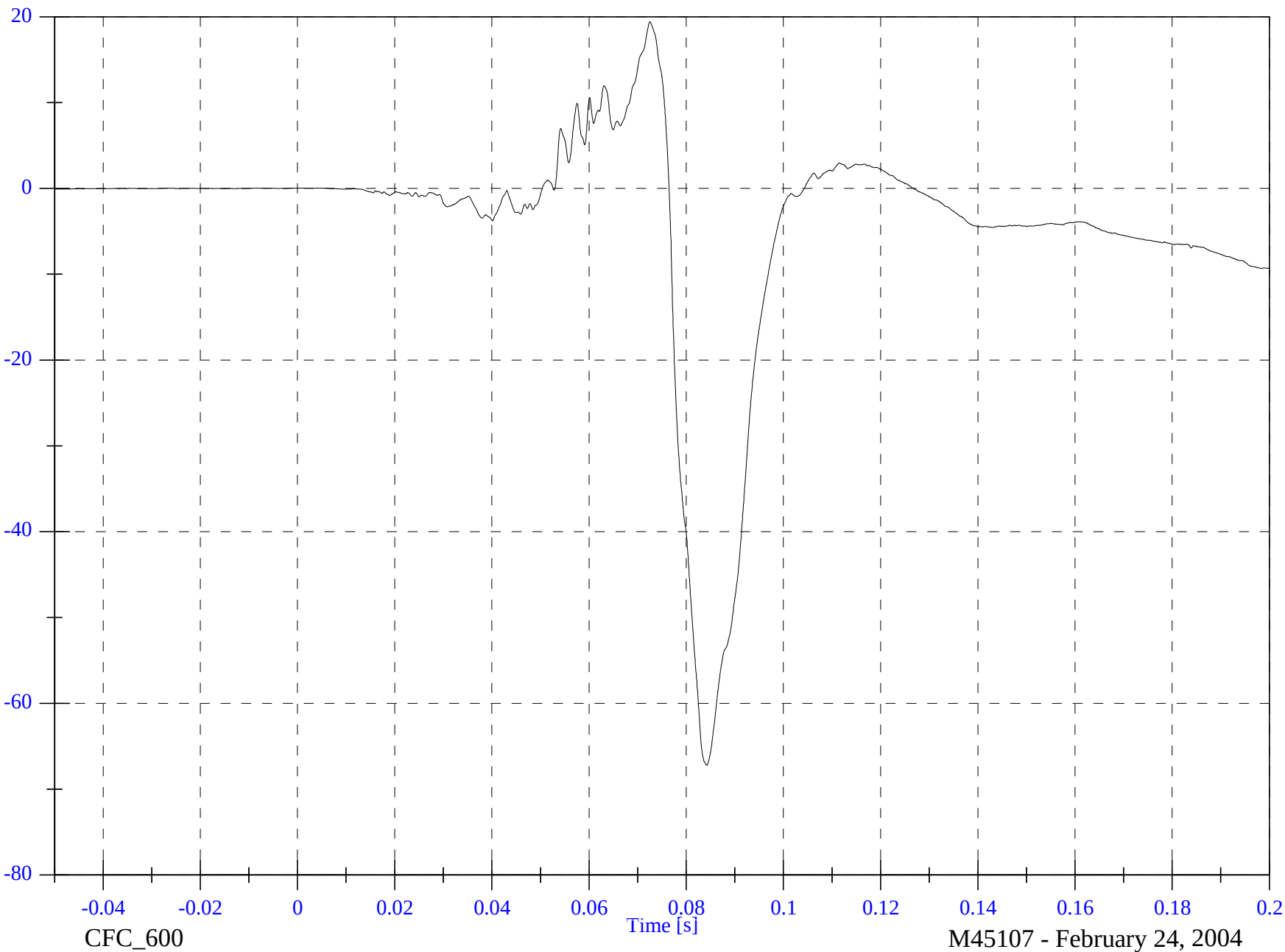


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Left Lower Tibia Mx

Max: 19.4 [N-m] at 0.072 [s]

Min: -67.2 [N-m] at 0.084 [s]



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CFC_600

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2004 NCAP Test 9 2004 Toyota Prius

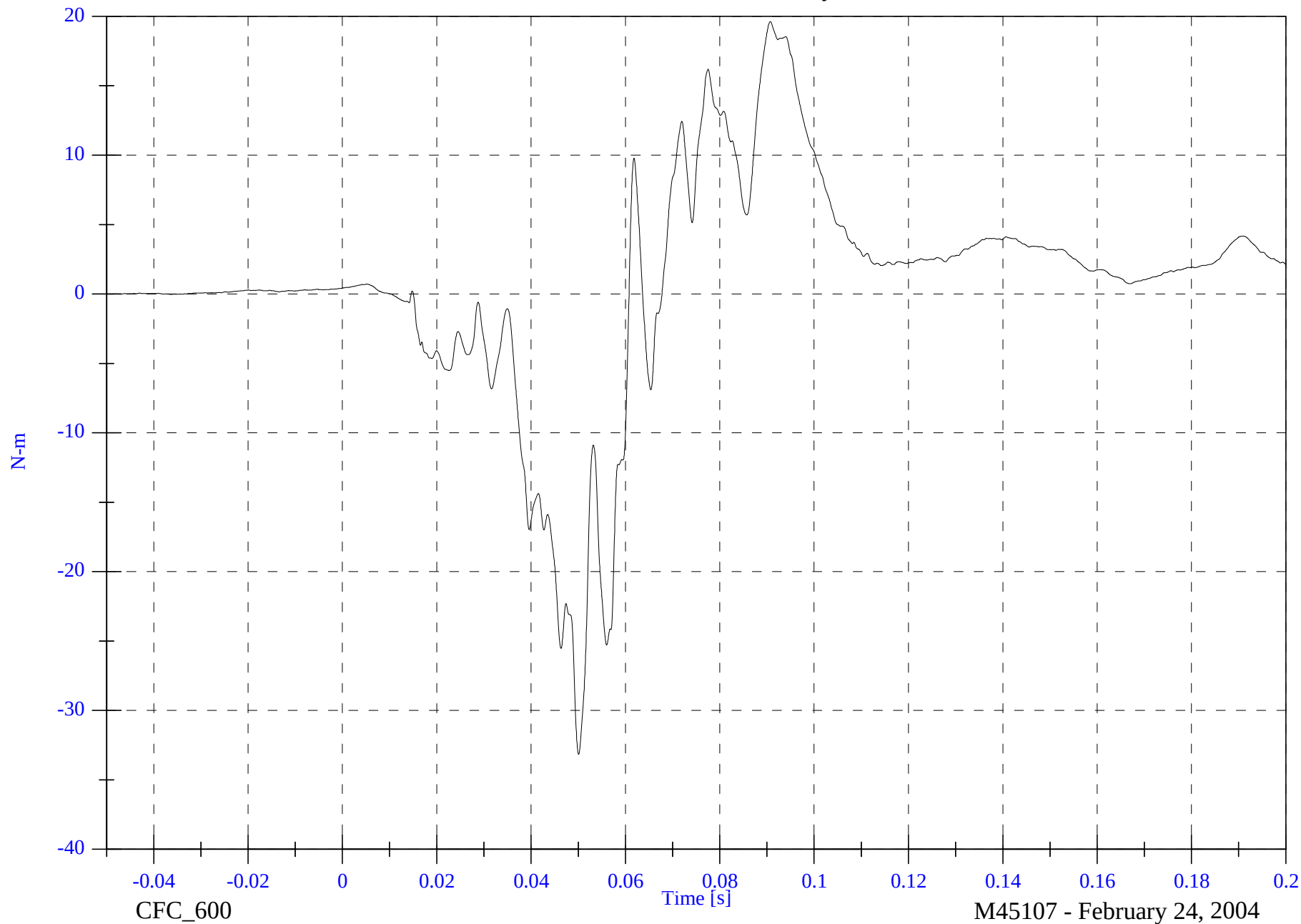
V1P2 Left Lower Tibia My

Max: 19.6 [N-m] at 0.091 [s]

Min: -33.2 [N-m] at 0.050 [s]

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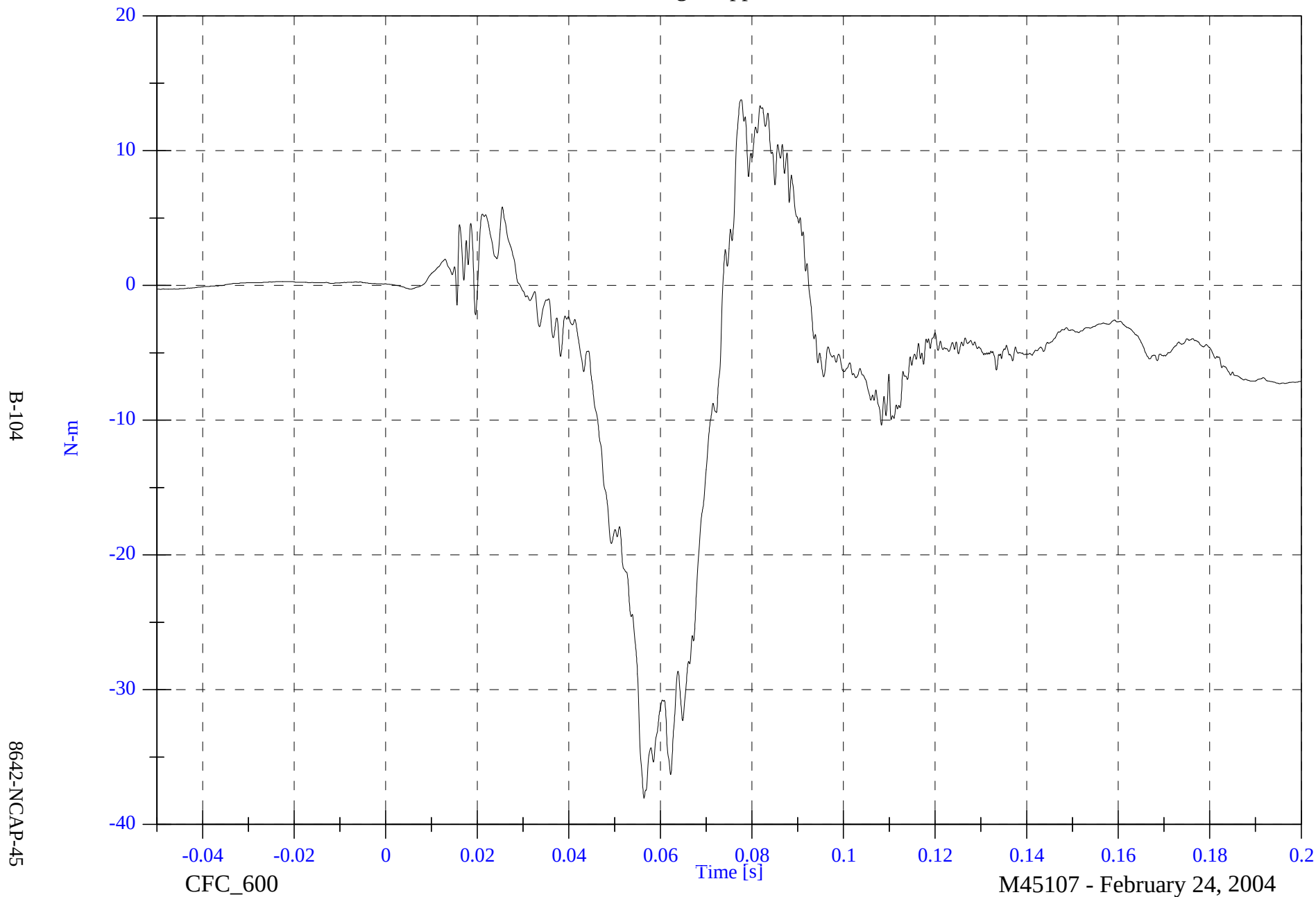


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Right Upper Tibia Mx

Max: 13.8 [N-m] at 0.078 [s]

Min: -38.1 [N-m] at 0.056 [s]



2004 NCAP Test 9 2004 Toyota Prius

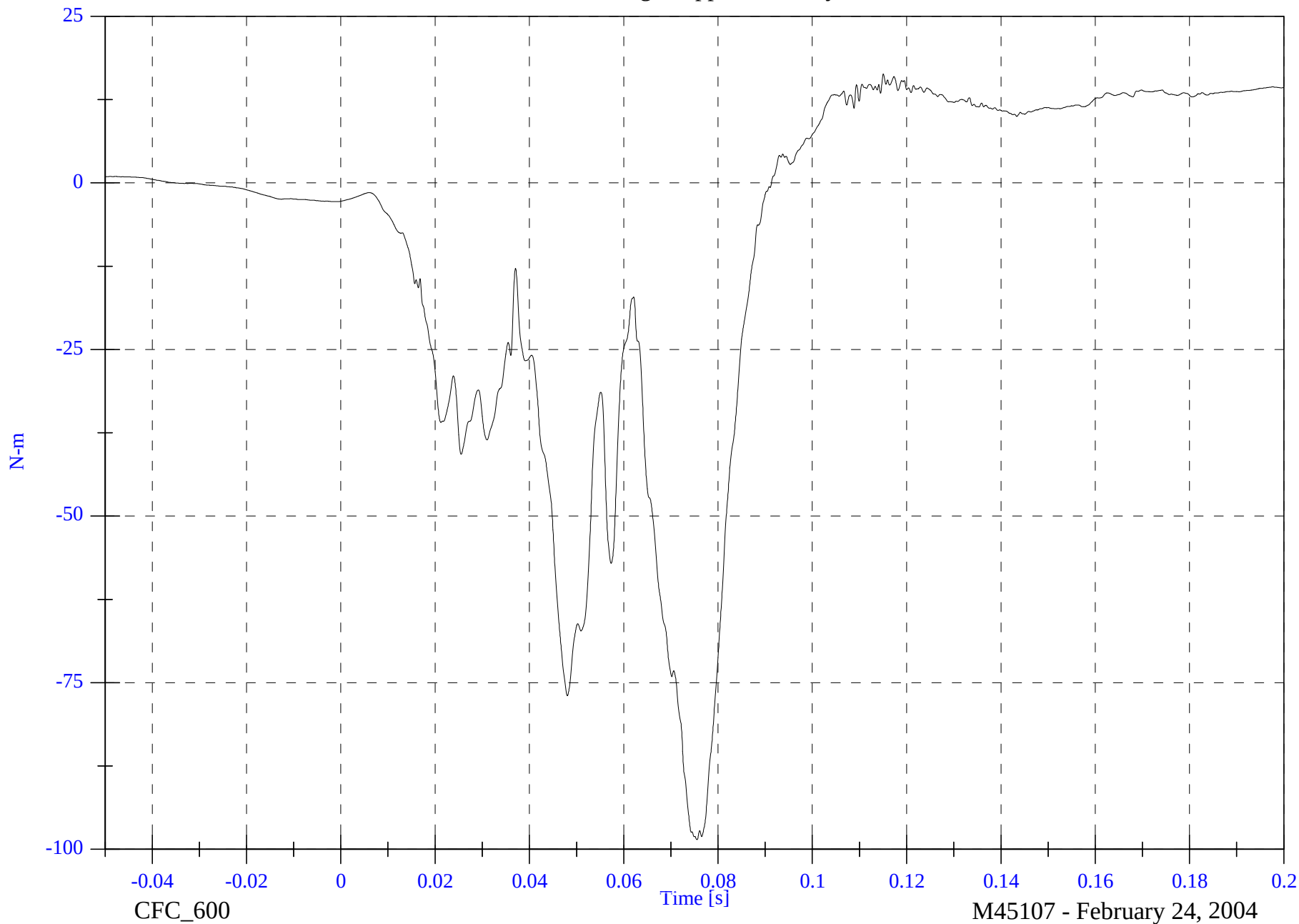
V1P2 Right Upper Tibia My

Max: 16.3 [N-m] at 0.115 [s]

Min: -98.6 [N-m] at 0.076 [s]

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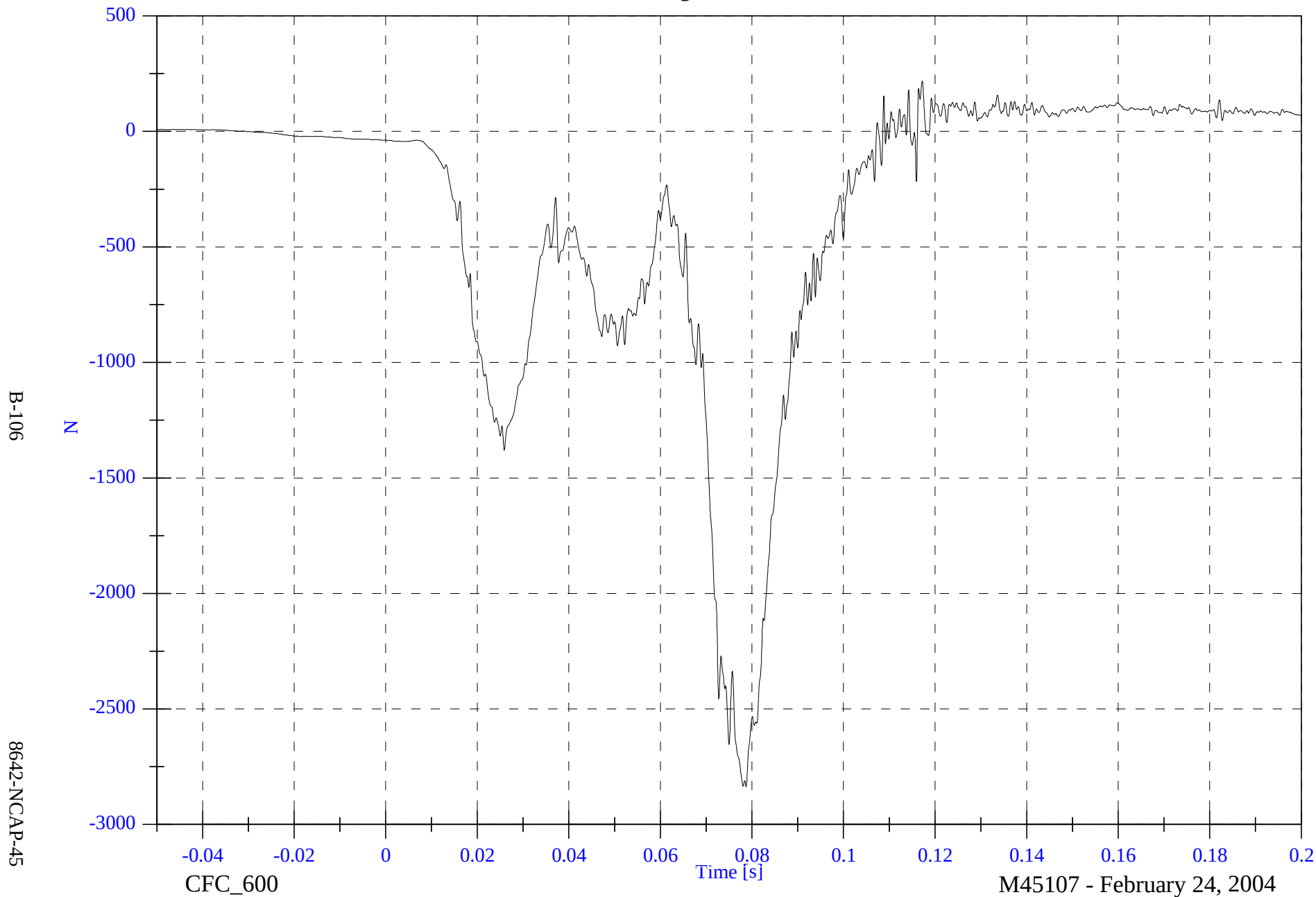
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P2 Right Lower Tibia Fz

Max: 218.3 [N] at 0.117 [s]

Min: -2836.0 [N] at 0.079 [s]

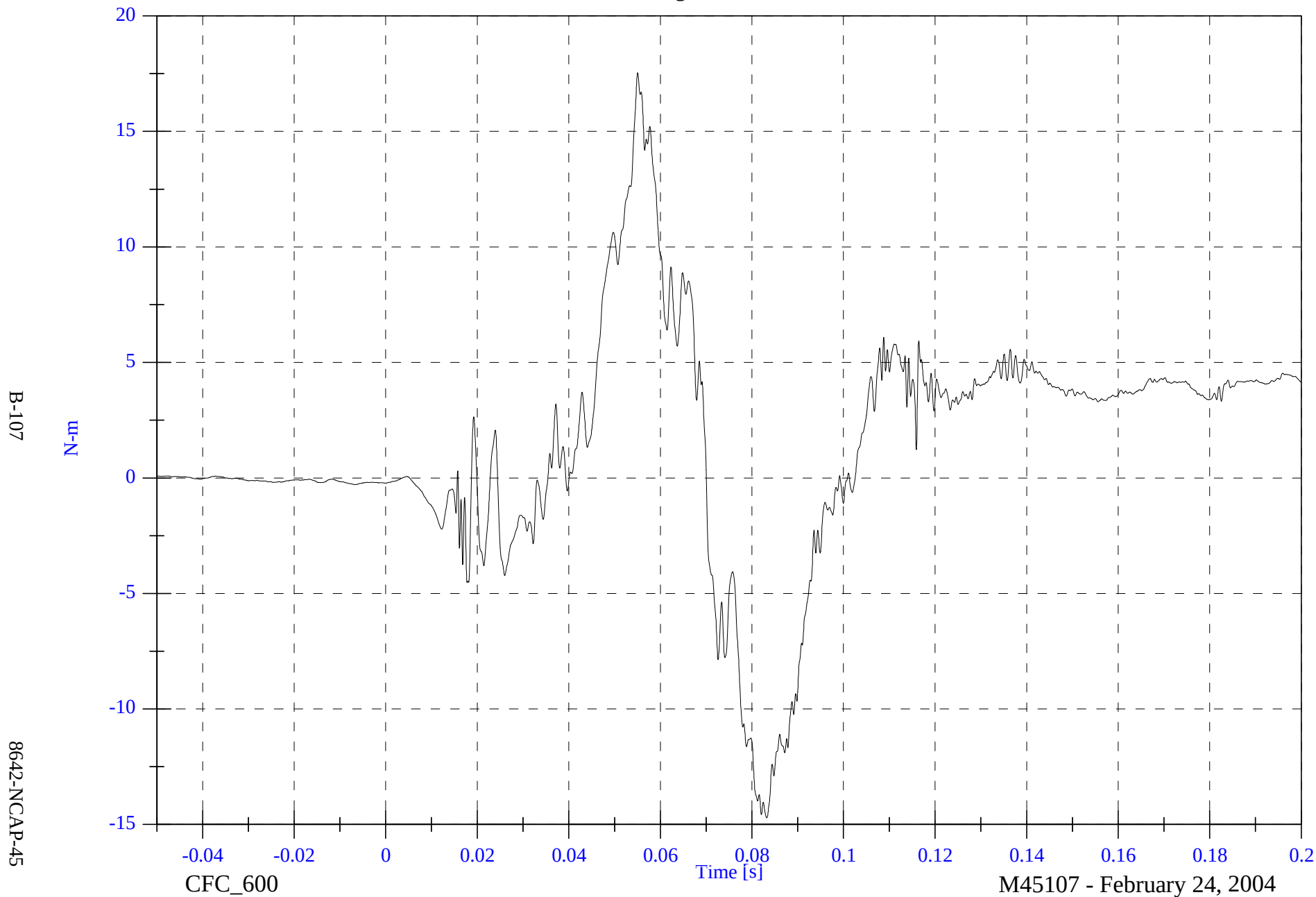


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Right Lower Tibia Mx

Max: 17.5 [N-m] at 0.055 [s]

Min: -14.7 [N-m] at 0.083 [s]

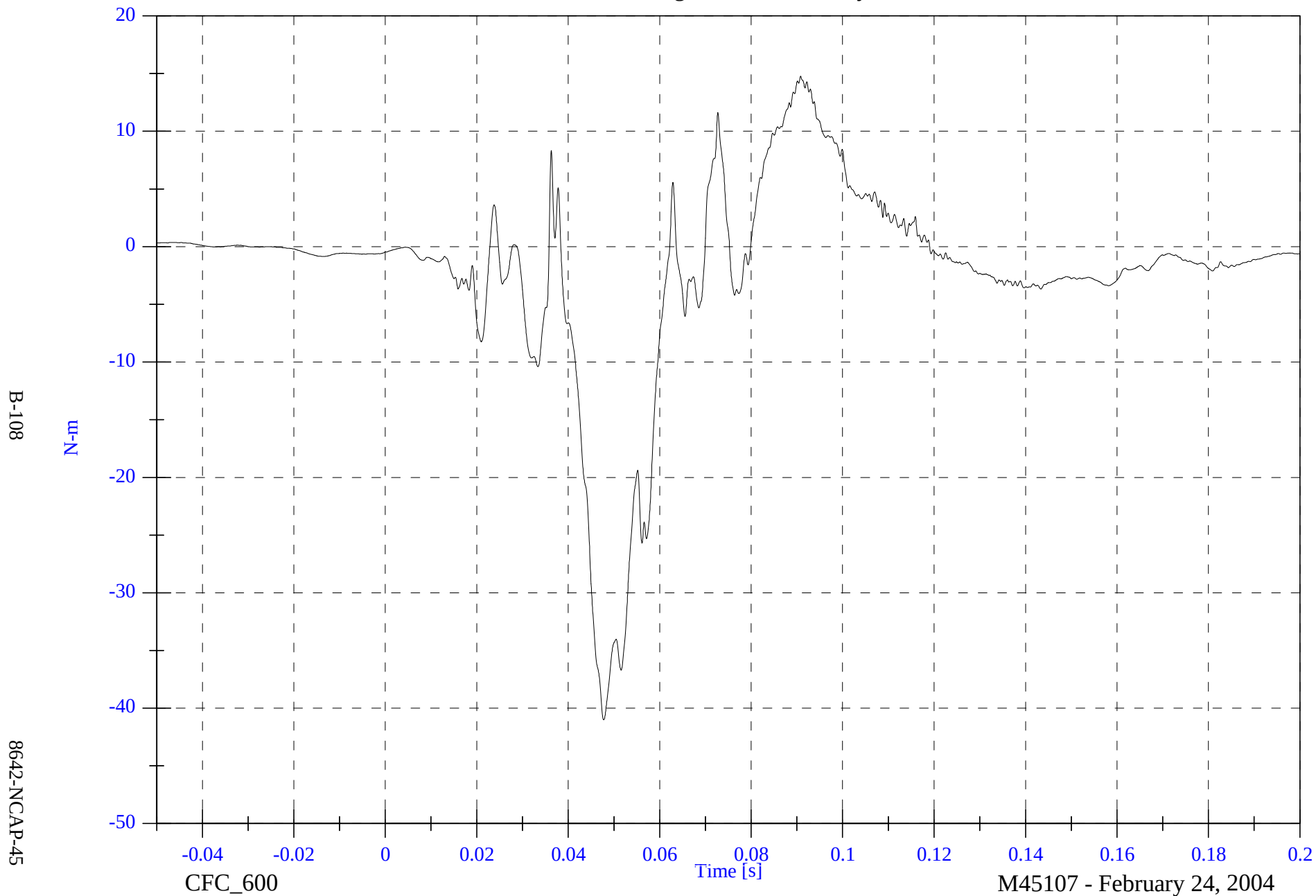


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Right Lower Tibia My

Max: 14.8 [N-m] at 0.091 [s]

Min: -41.0 [N-m] at 0.048 [s]

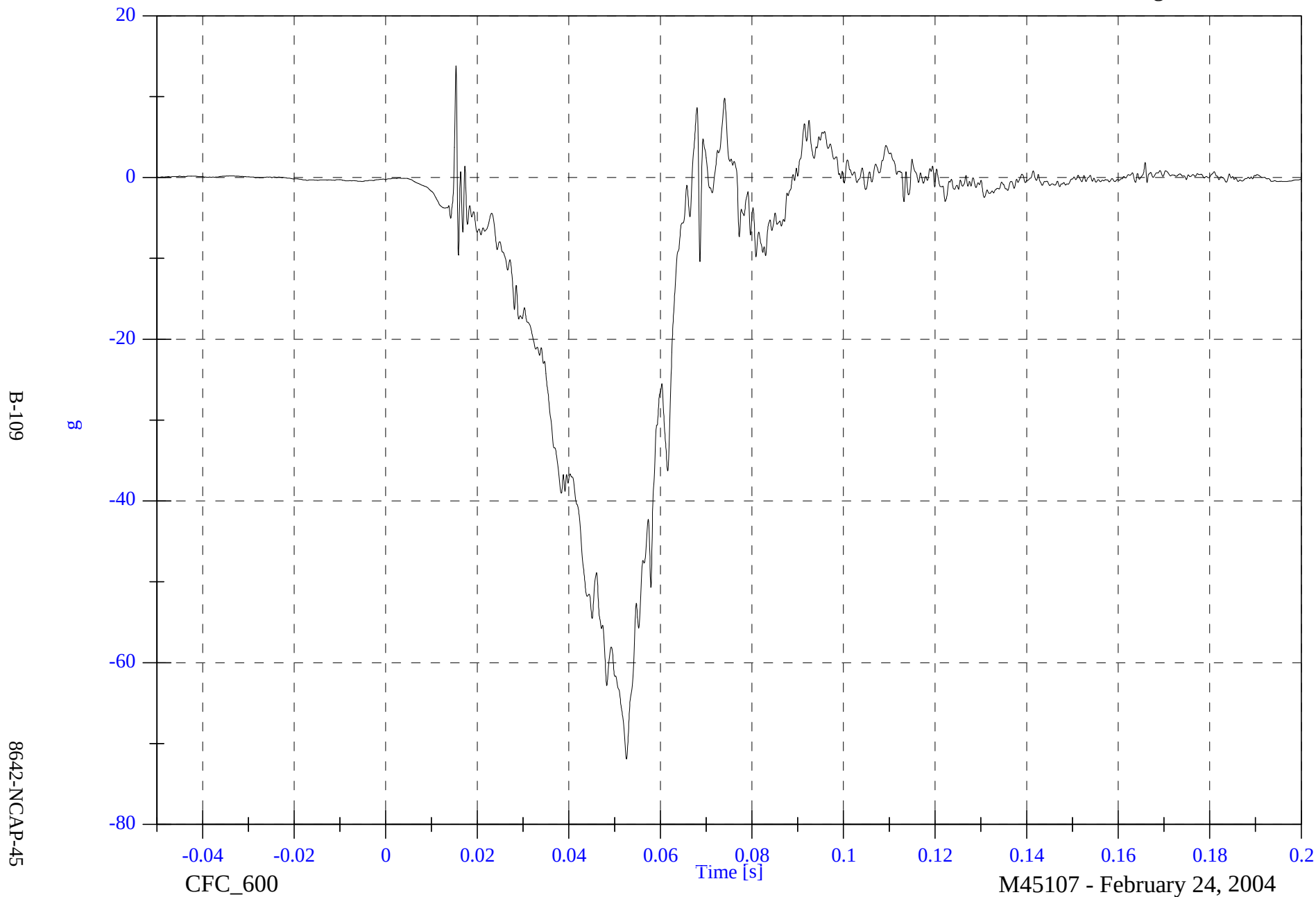


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Left Foot Aft x

Max: 13.8 [g] at 0.015 [s]

Min: -71.9 [g] at 0.053 [s]

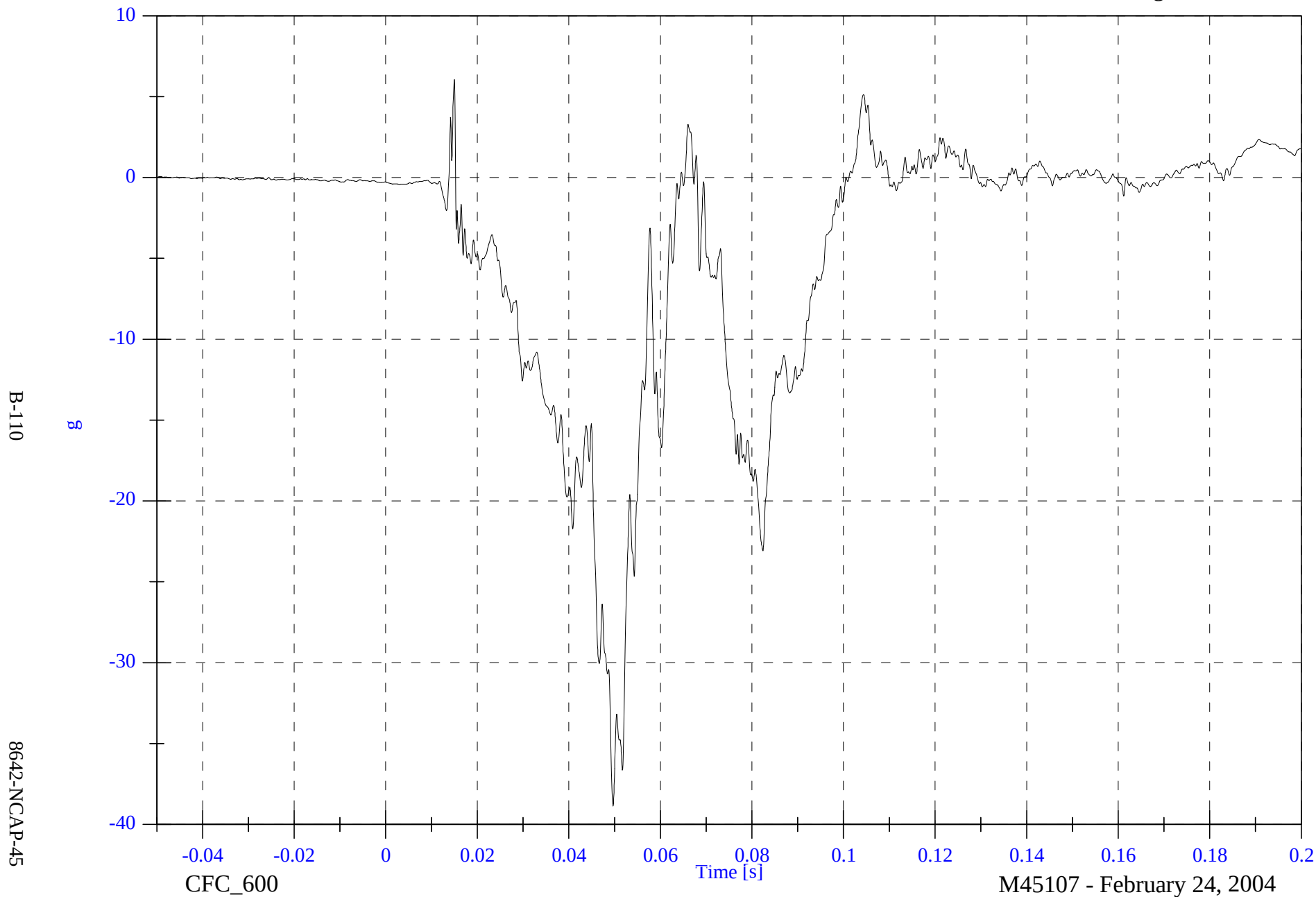


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Left Foot Aft z

Max: 6.1 [g] at 0.015 [s]

Min: -38.9 [g] at 0.050 [s]



2004 NCAP Test 9 2004 Toyota Prius

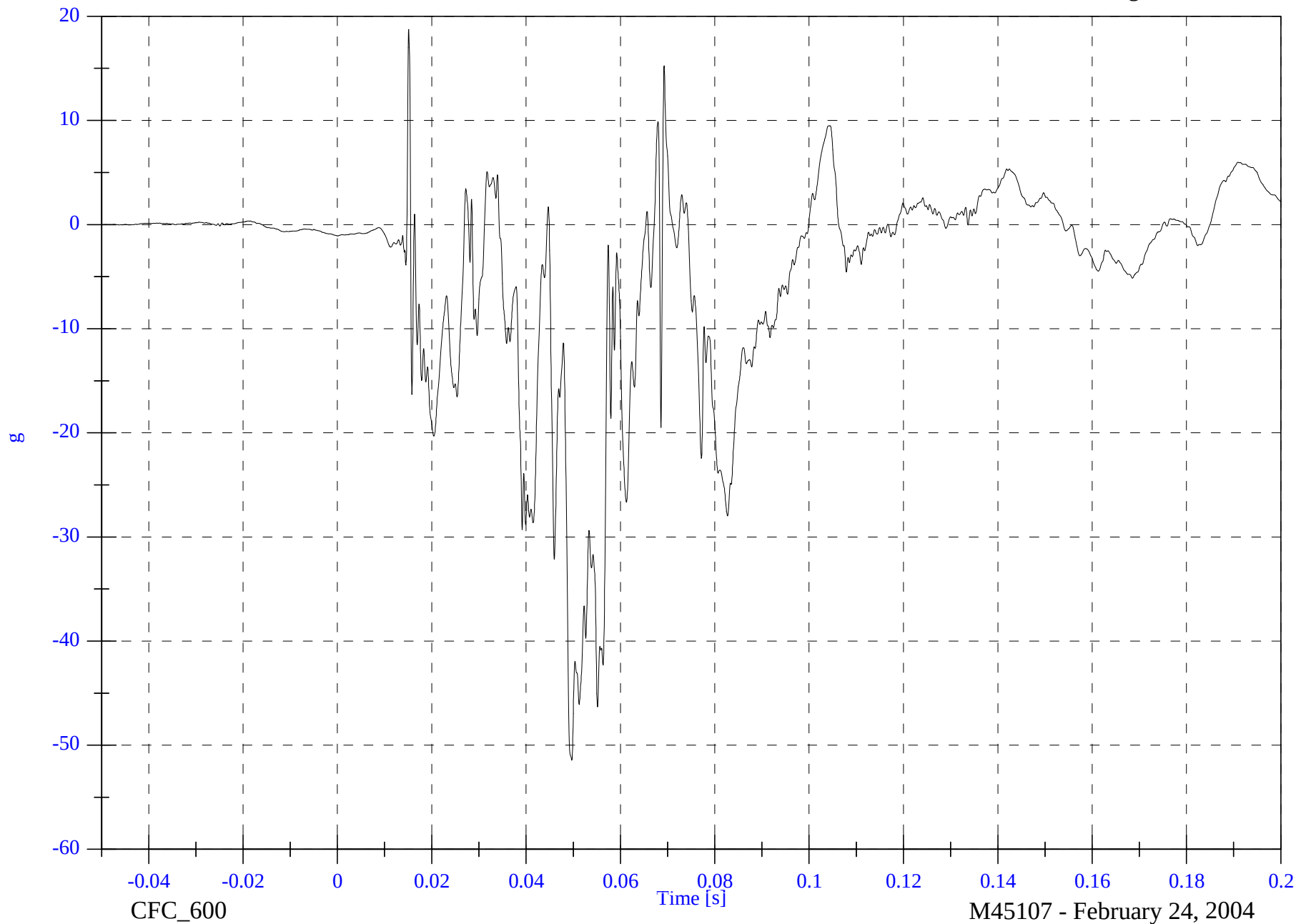
V1P2 Left Foot Fore z

Max: 18.8 [g] at 0.015 [s]

Min: -51.4 [g] at 0.050 [s]

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2004 NCAP Test 9 2004 Toyota Prius

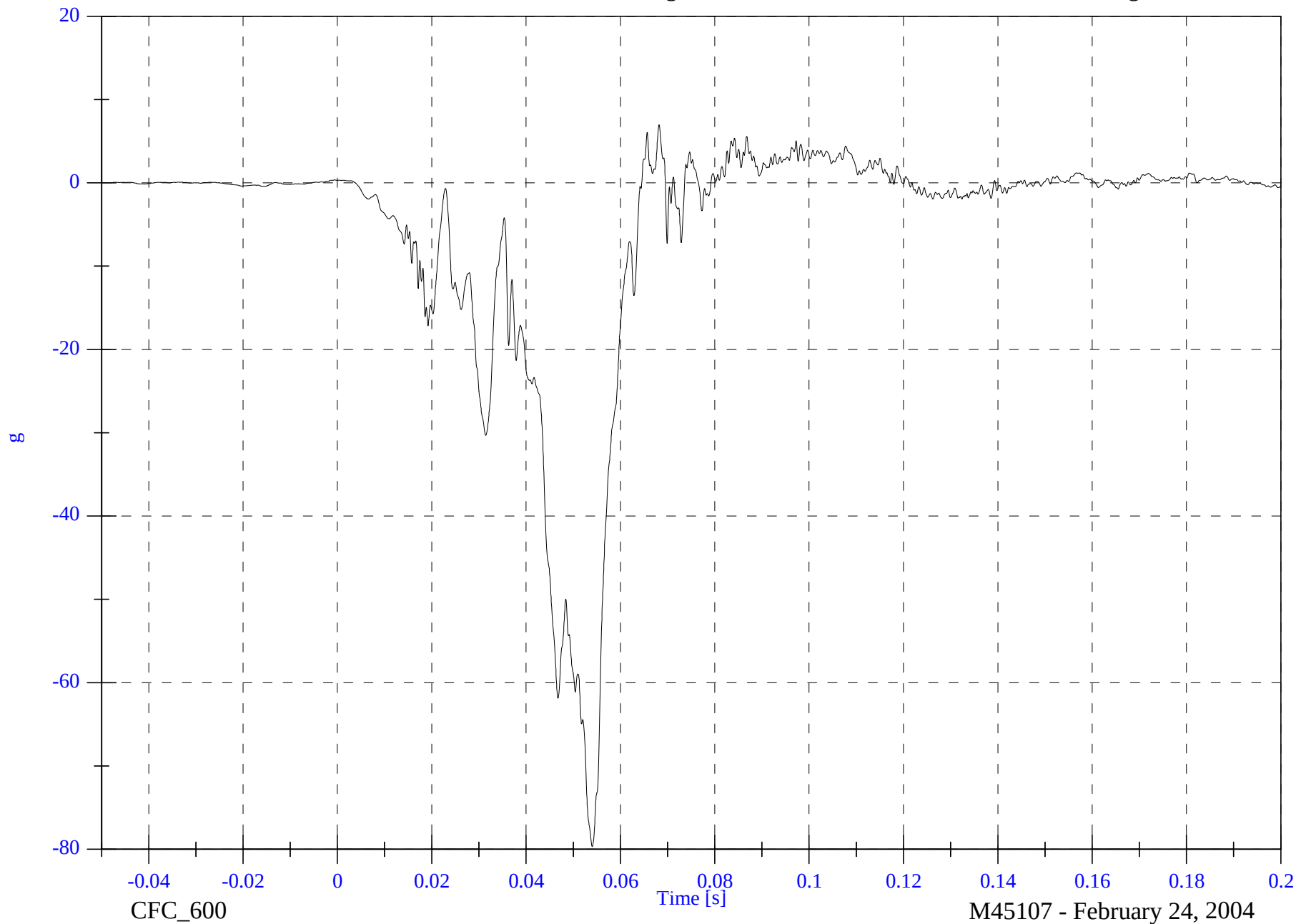
V1P2 Right Foot Aft x

Max: 7.0 [g] at 0.068 [s]

Min: -79.7 [g] at 0.054 [s]

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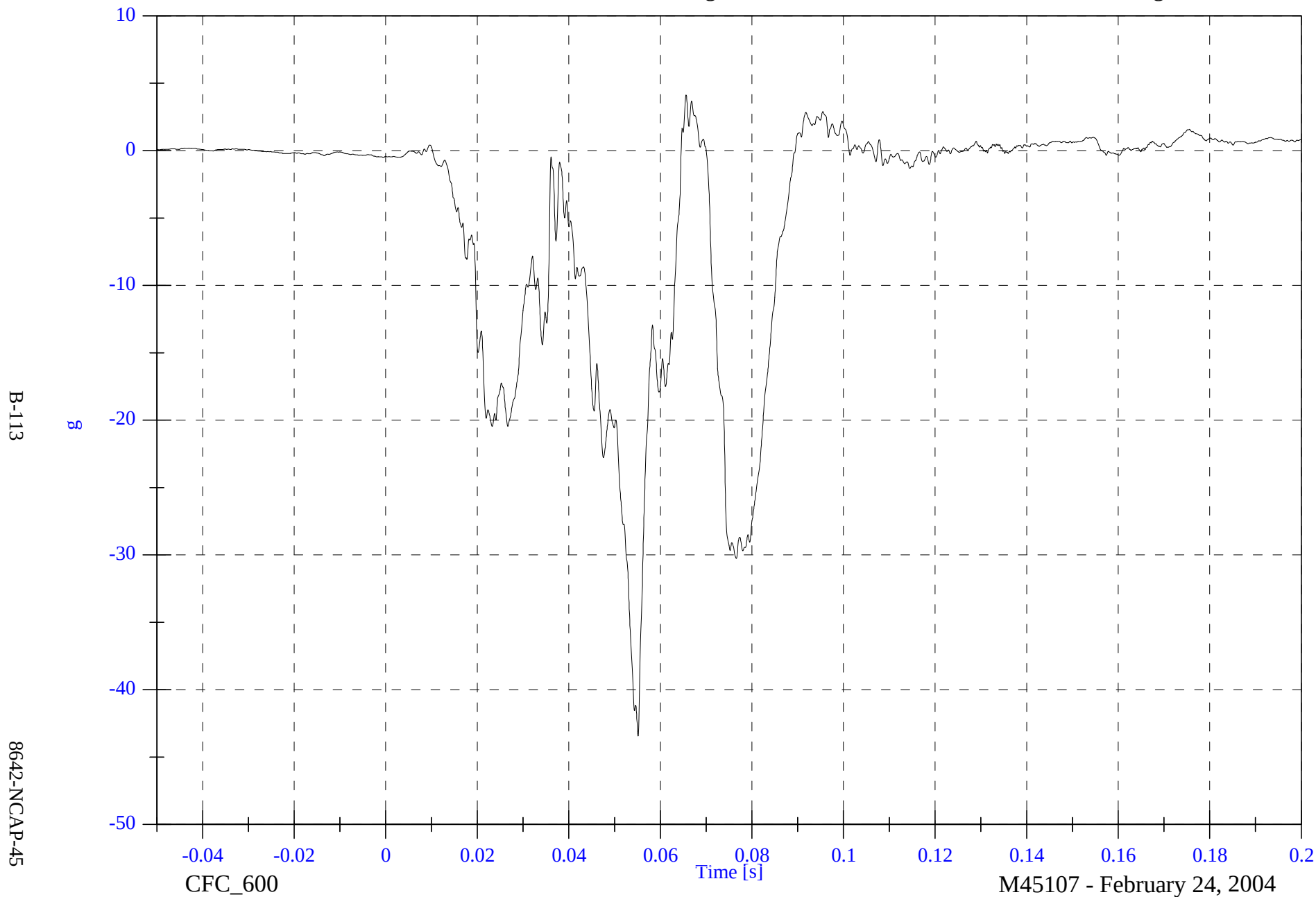


2004 NCAP Test 9 2004 Toyota Prius

V1P2 Right Foot Aft z

Max: 4.1 [g] at 0.066 [s]

Min: -43.4 [g] at 0.055 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P2 Right Foot Fore z

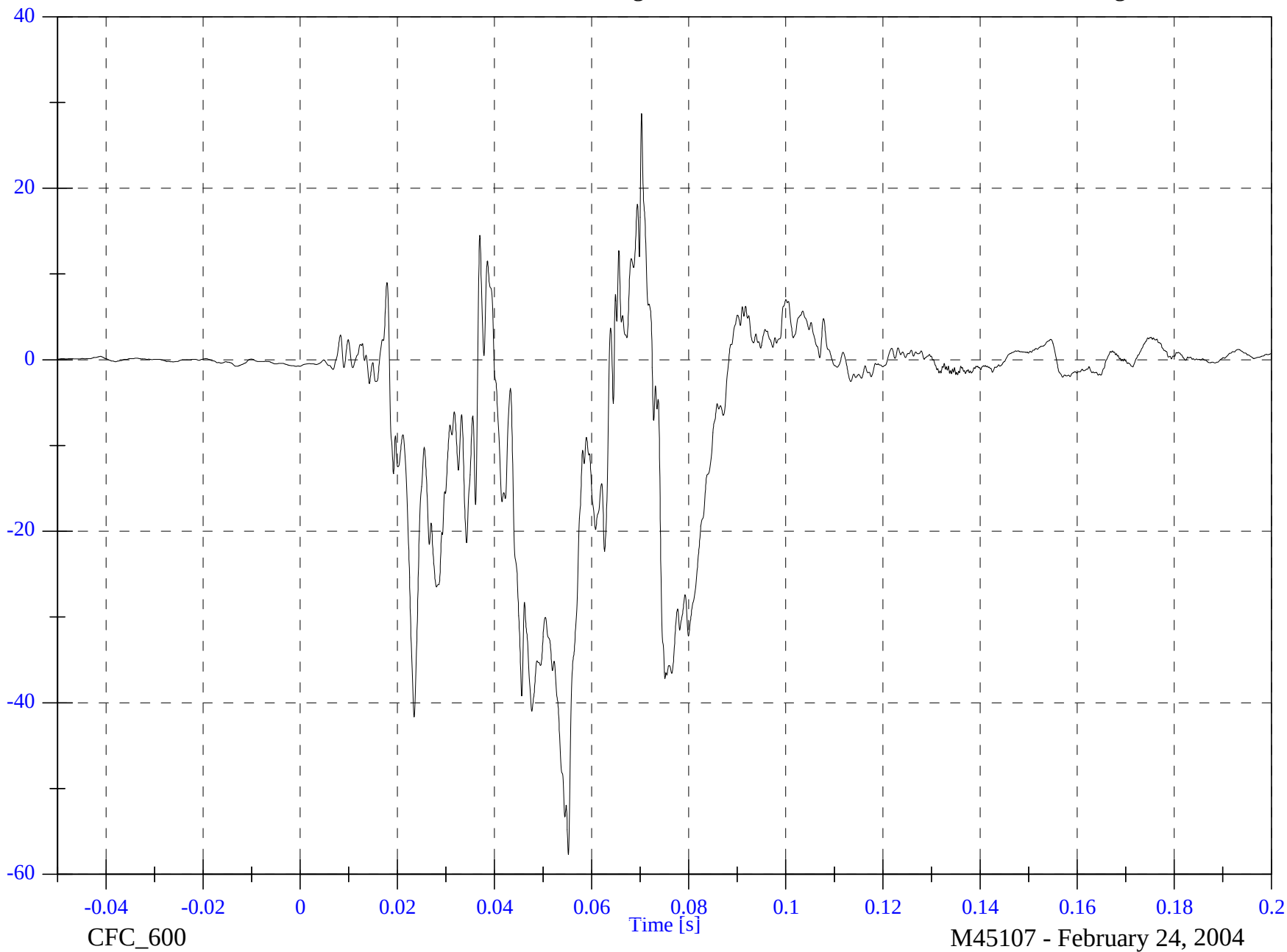
Max: 28.7 [g] at 0.070 [s]

Min: -57.7 [g] at 0.055 [s]

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8642-NCAP-45

g

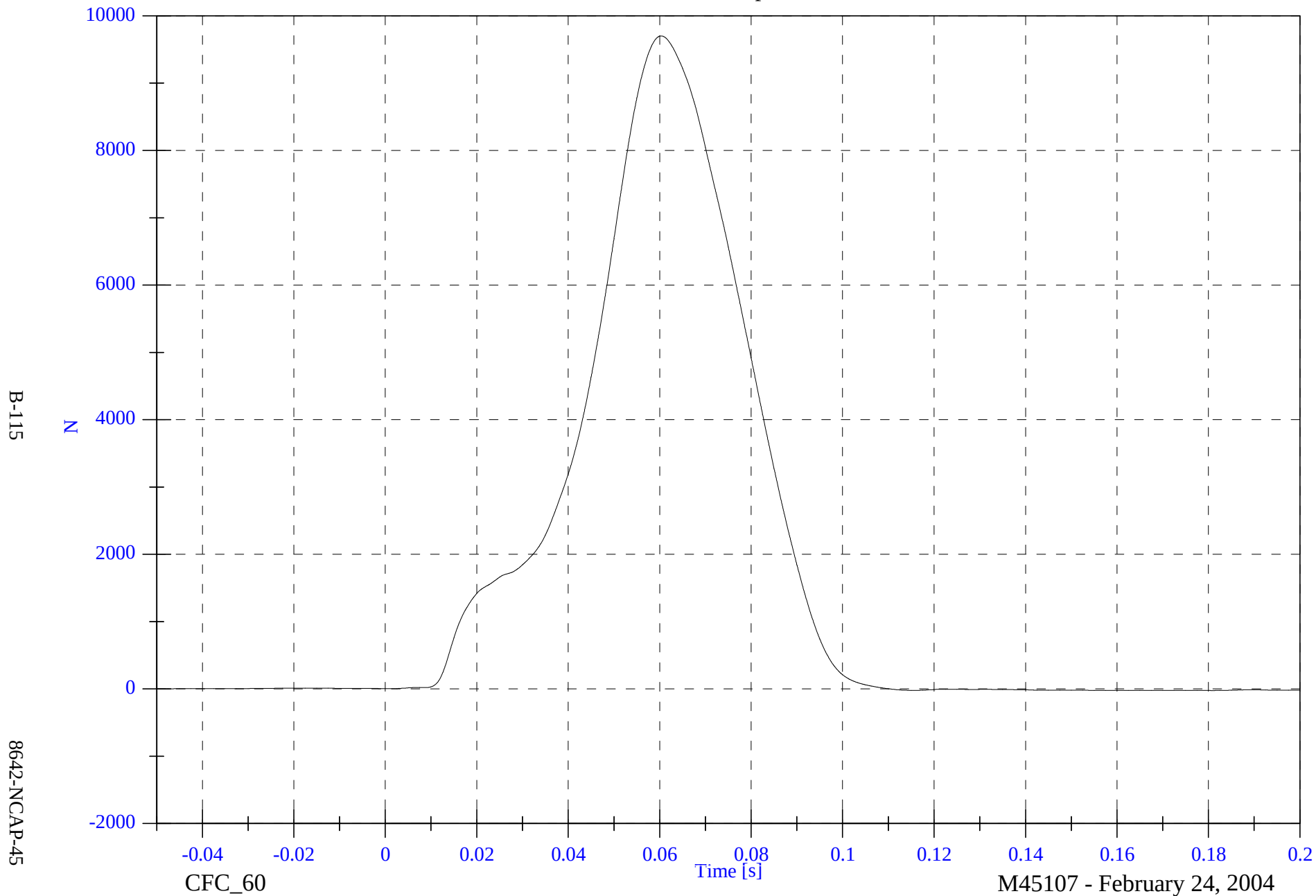


2004 NCAP Test 9 2004 Toyota Prius

Max: 9701.7 [N] at 0.060 [s]

Min: -24.3 [N] at 0.181 [s]

V1 RFP Lap Belt



2004 NCAP Test 9 2004 Toyota Prius

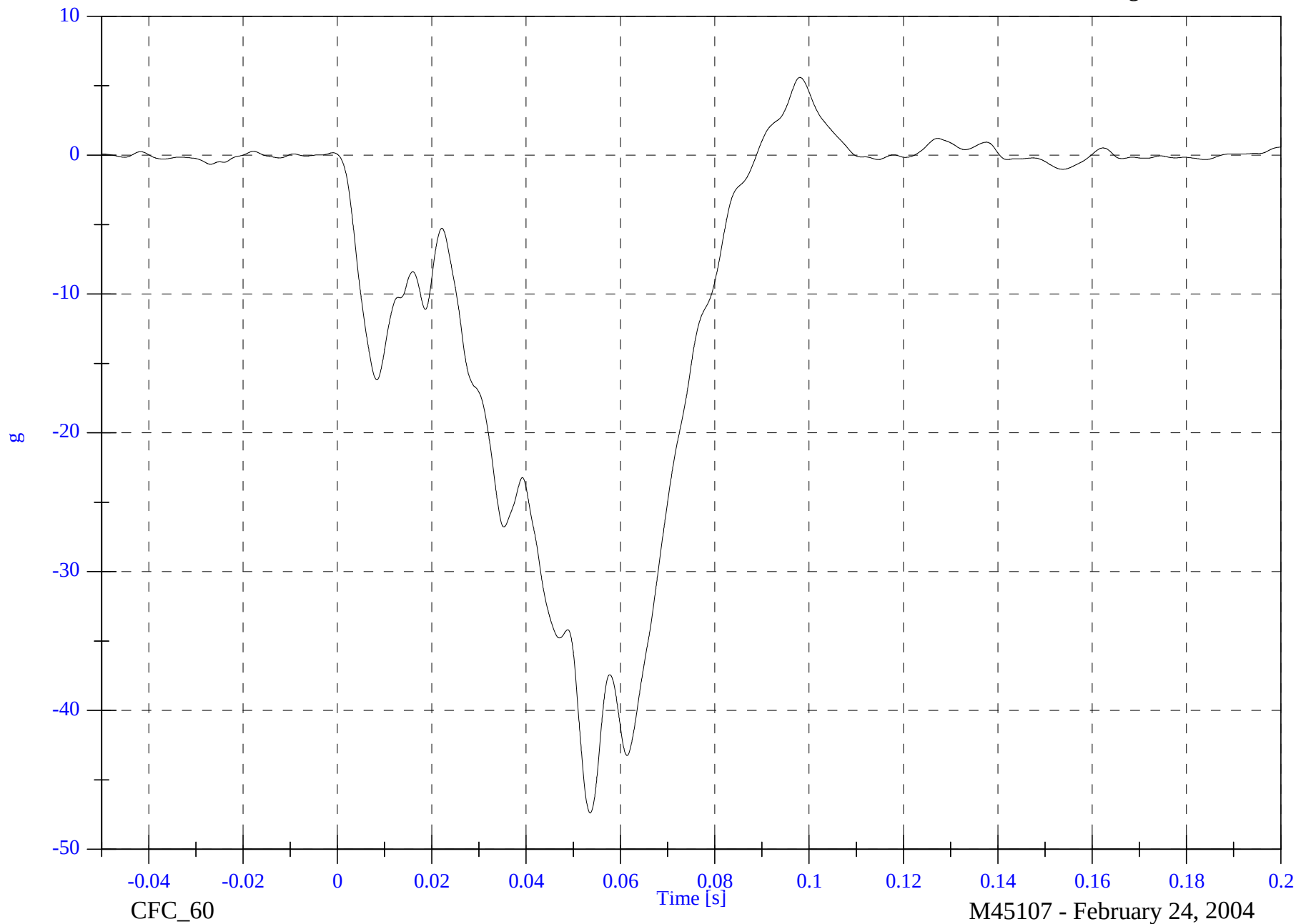
V1 Left Rear #1x

Max: 5.6 [g] at 0.098 [s]

Min: -47.4 [g] at 0.054 [s]

B-116

8642-NCAP-45

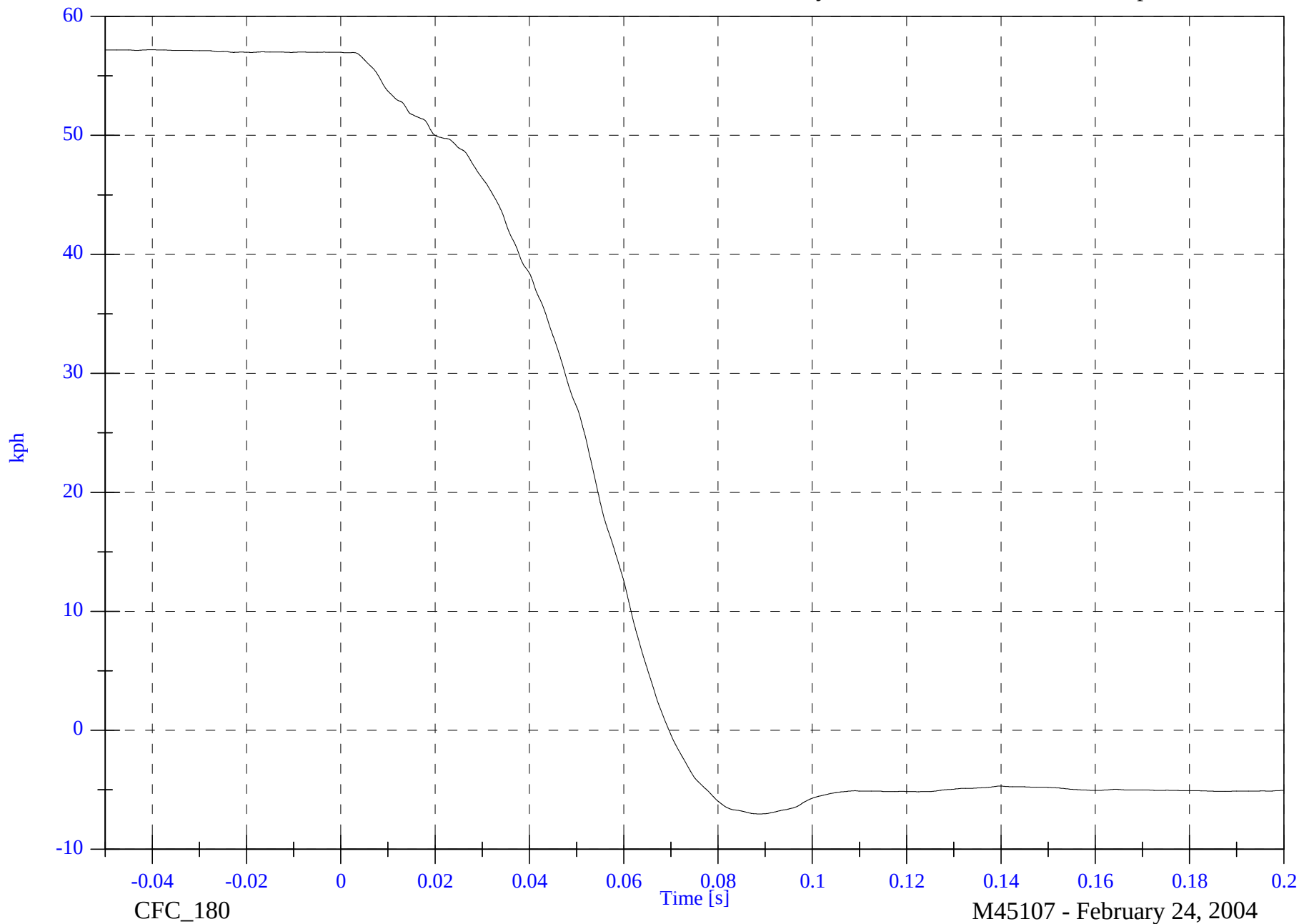


2004 NCAP Test 9 2004 Toyota Prius

V1 Left Rear #1x Velocity

Max: 57.2 [kph] at -0.040 [s]

Min: -7.0 [kph] at 0.089 [s]



B-117

8642-NCAP-45

CFC_180

M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

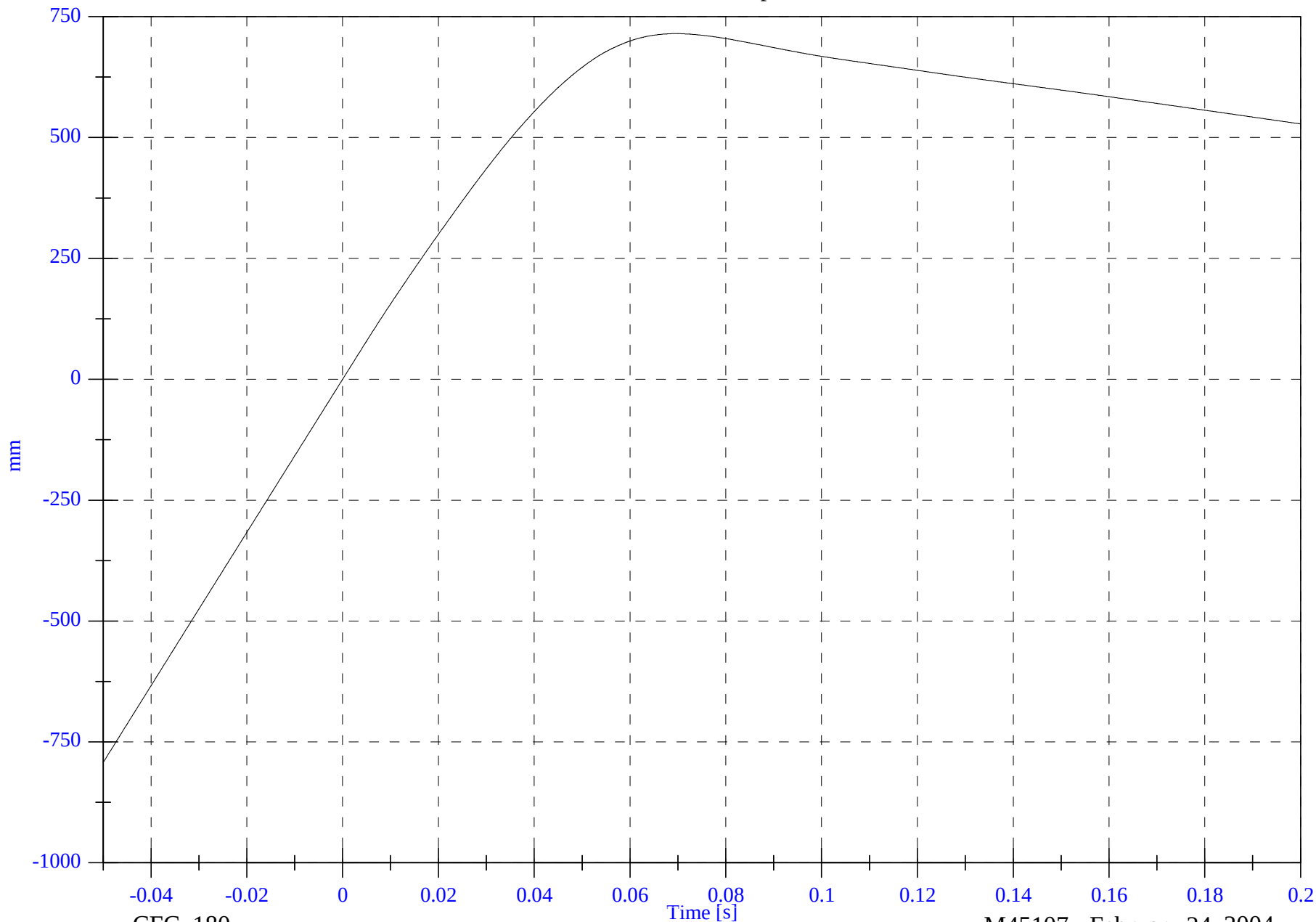
V1 Left Rear #1x Displacement

Max: 714.6 [mm] at 0.070 [s]

Min: -792.6 [mm] at -0.050 [s]

B-118

8642-NCAP-45



CFC_180

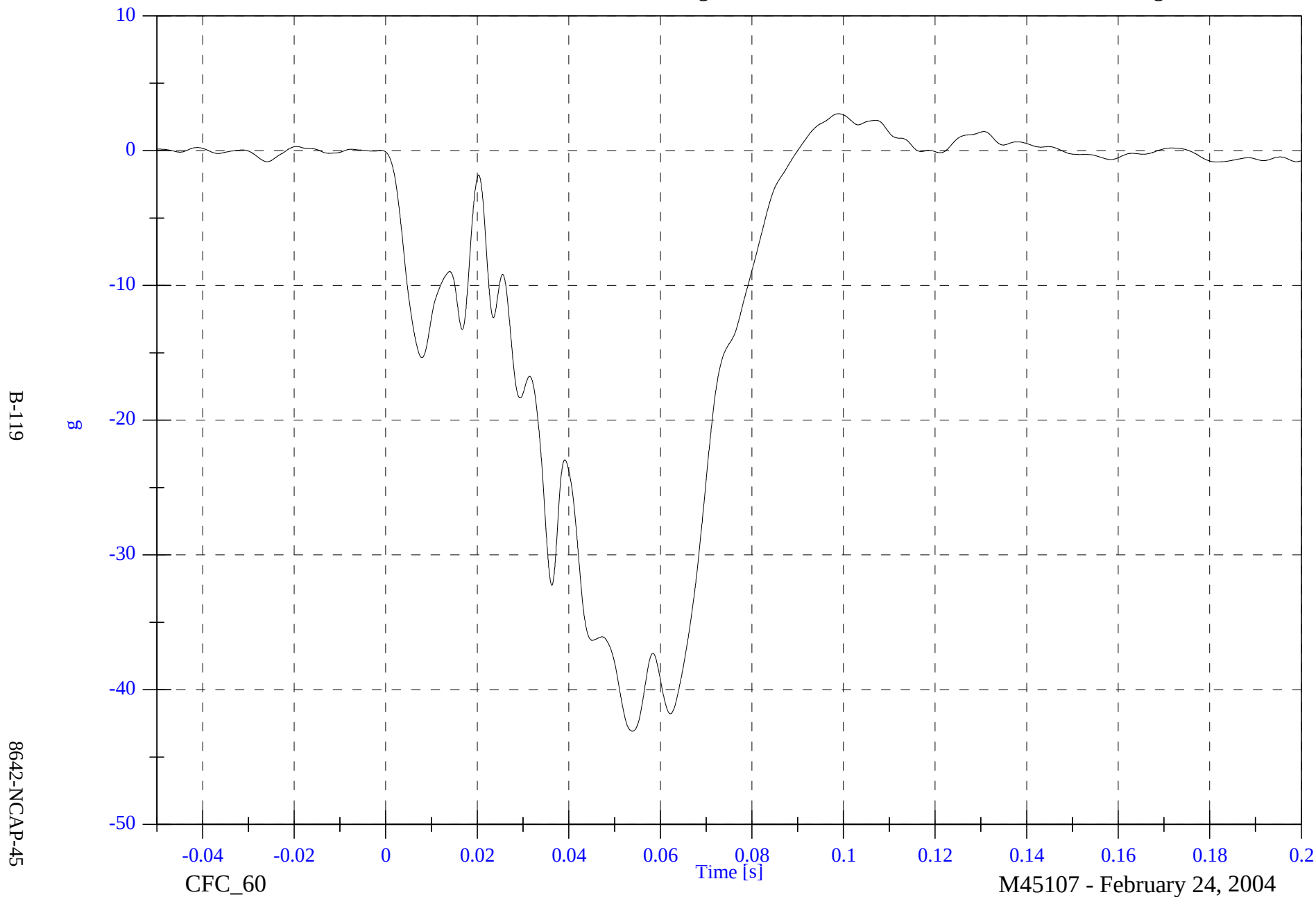
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1 Right Rear #2x

Max: 2.7 [g] at 0.099 [s]

Min: -43.1 [g] at 0.054 [s]



2004 NCAP Test 9 2004 Toyota Prius

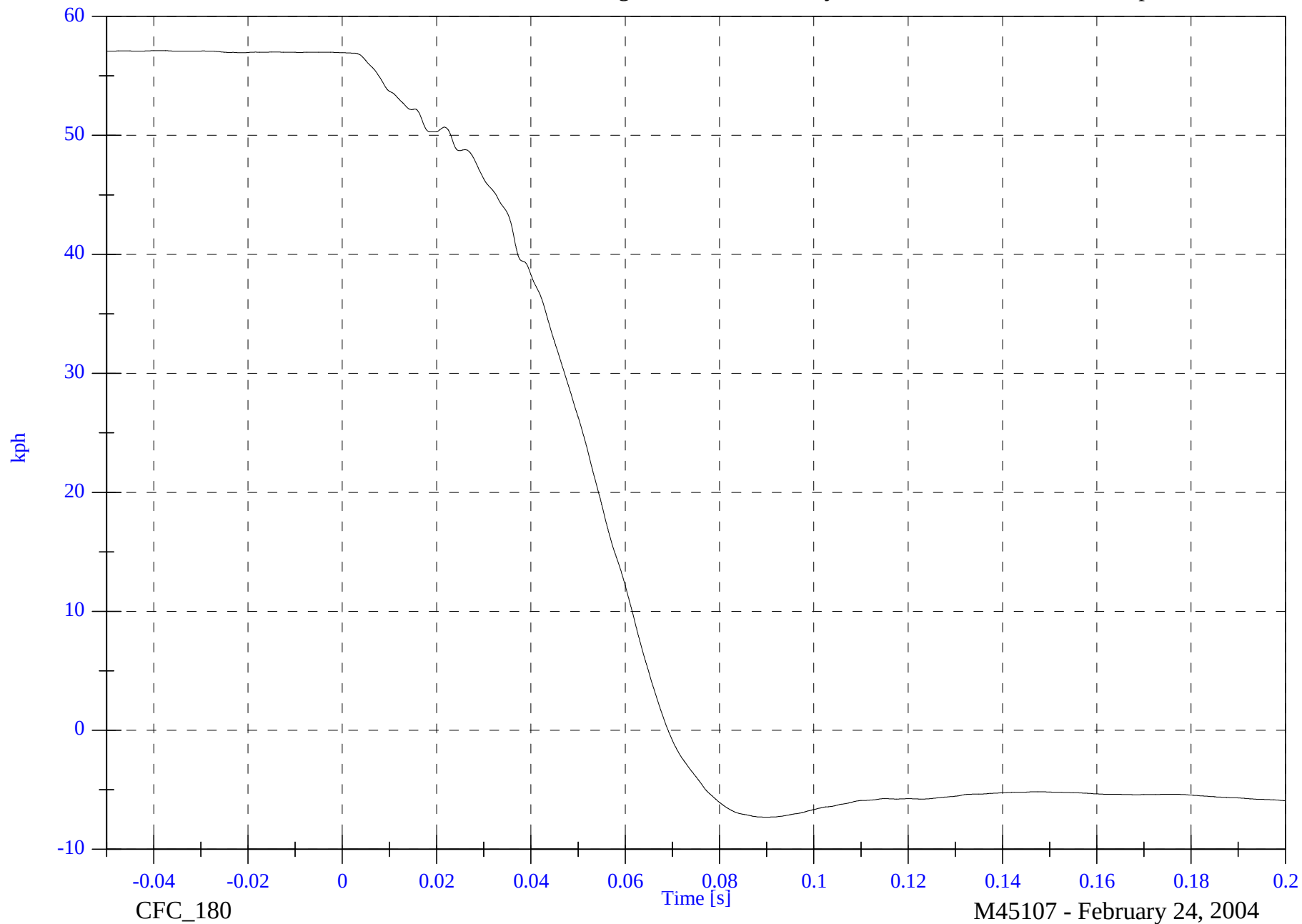
V1 Right Rear #2x Velocity

Max: 57.1 [kph] at -0.039 [s]

Min: -7.3 [kph] at 0.090 [s]

B-120

8642-NCAP-45



M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

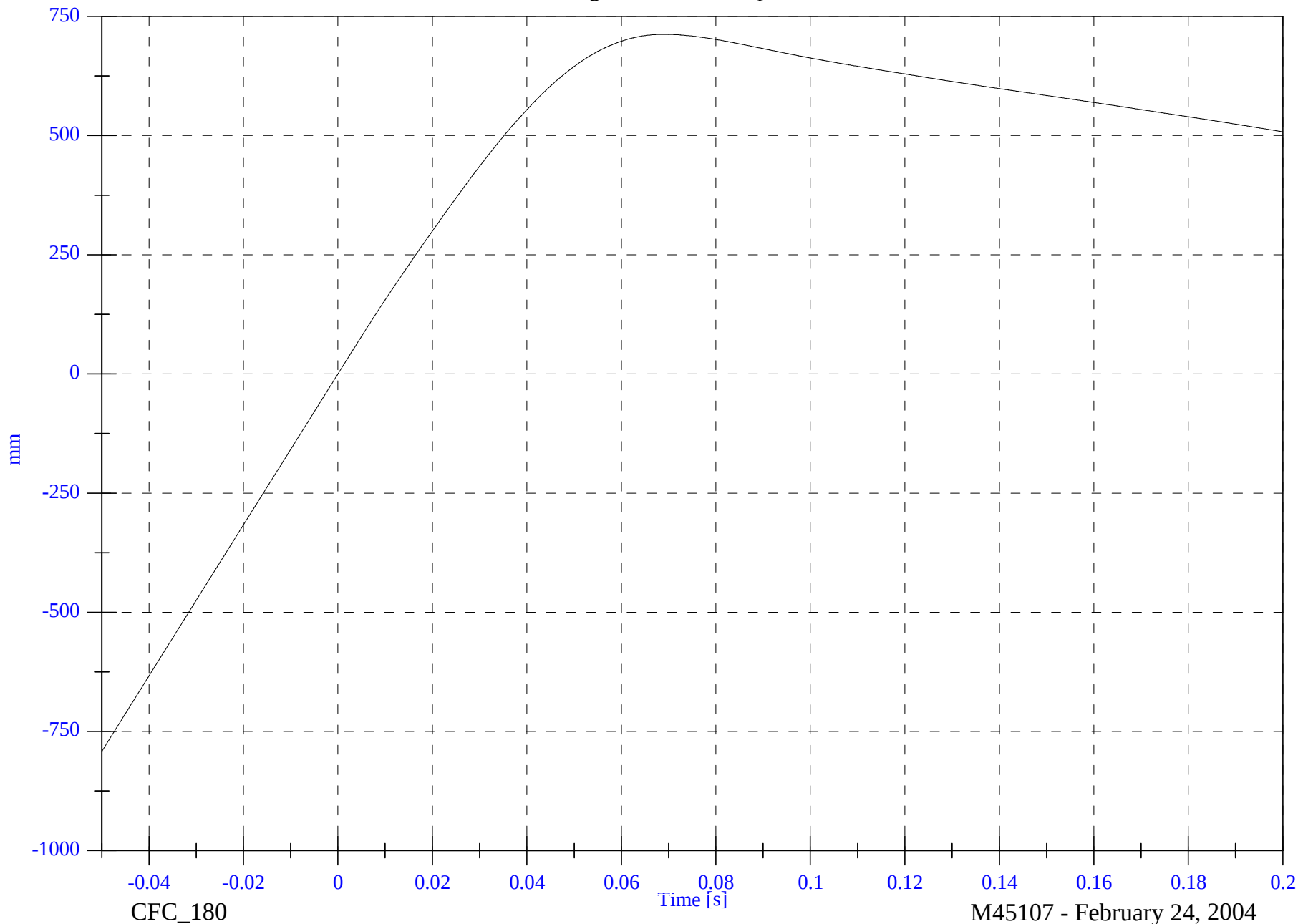
V1 Right Rear #2x Displacement

Max: 712.3 [mm] at 0.069 [s]

Min: -792.1 [mm] at -0.050 [s]

B-121

8642-NCAP-45



M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

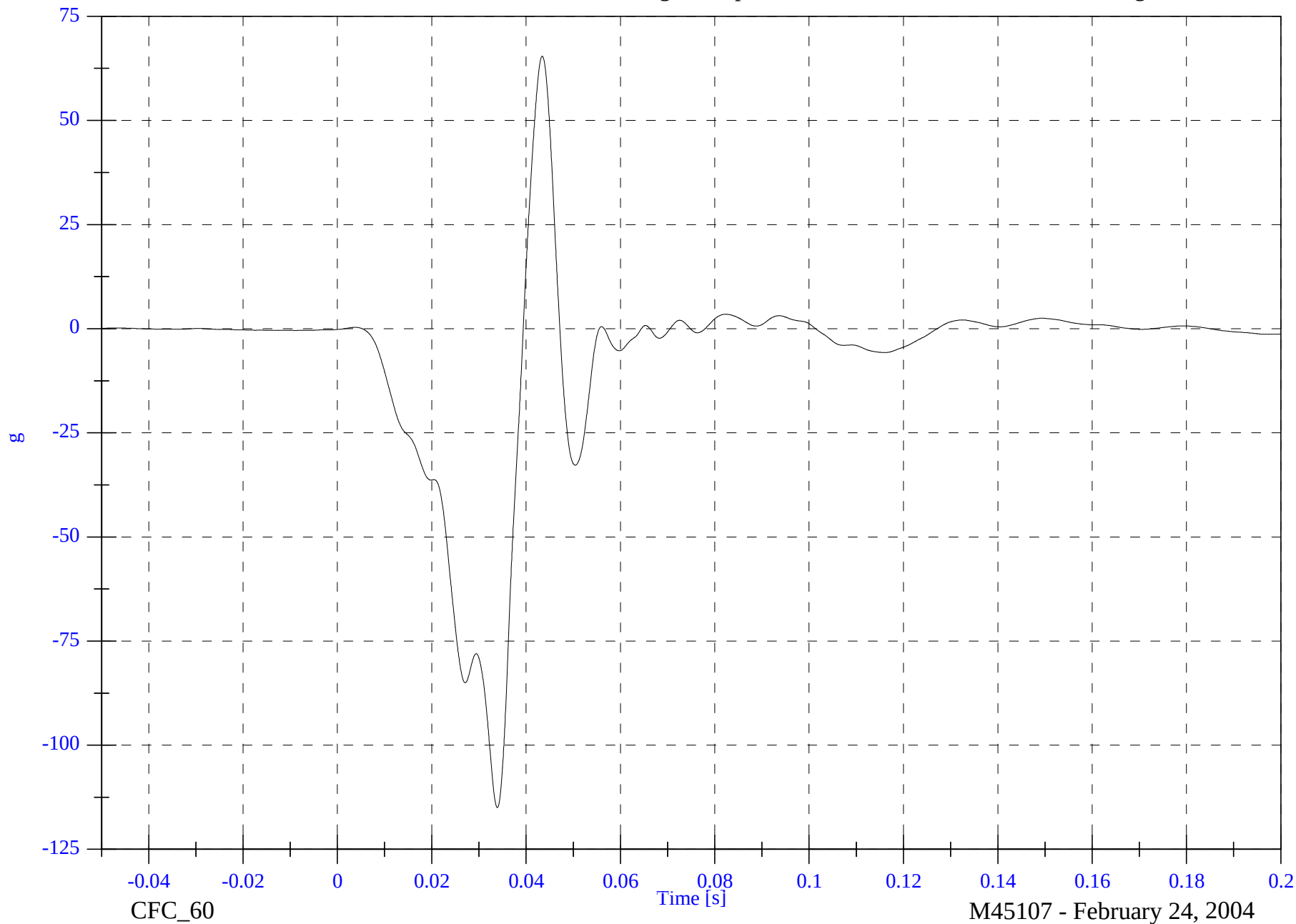
V1 Engine Top #3x

Max: 65.4 [g] at 0.043 [s]

Min: -115.0 [g] at 0.034 [s]

B-122

8642-NCAP-45



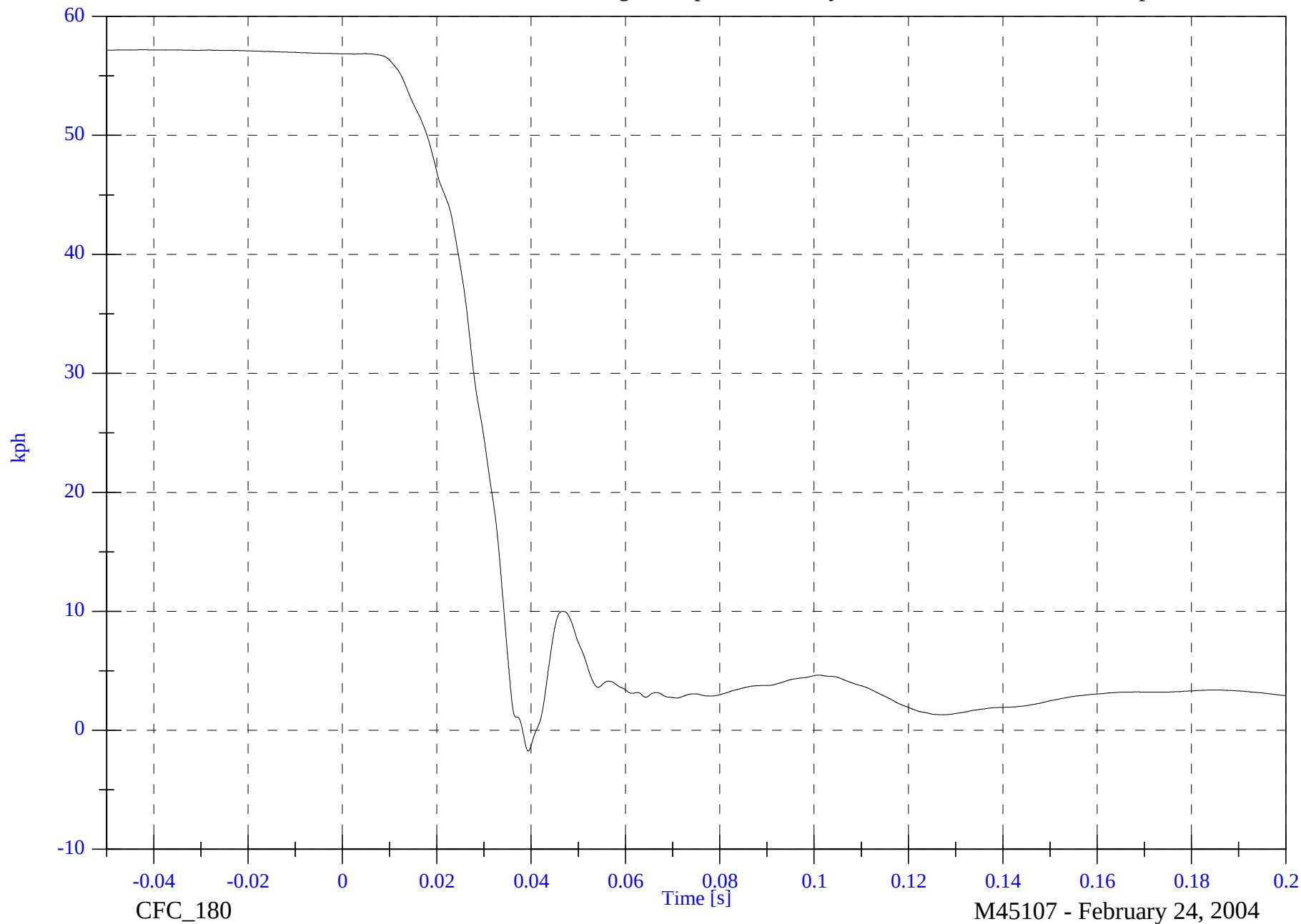
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1 Engine Top #3x Velocity

Max: 57.2 [kph] at -0.042 [s]

Min: -1.7 [kph] at 0.039 [s]



B-123

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CFC_180

Time [s]

M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

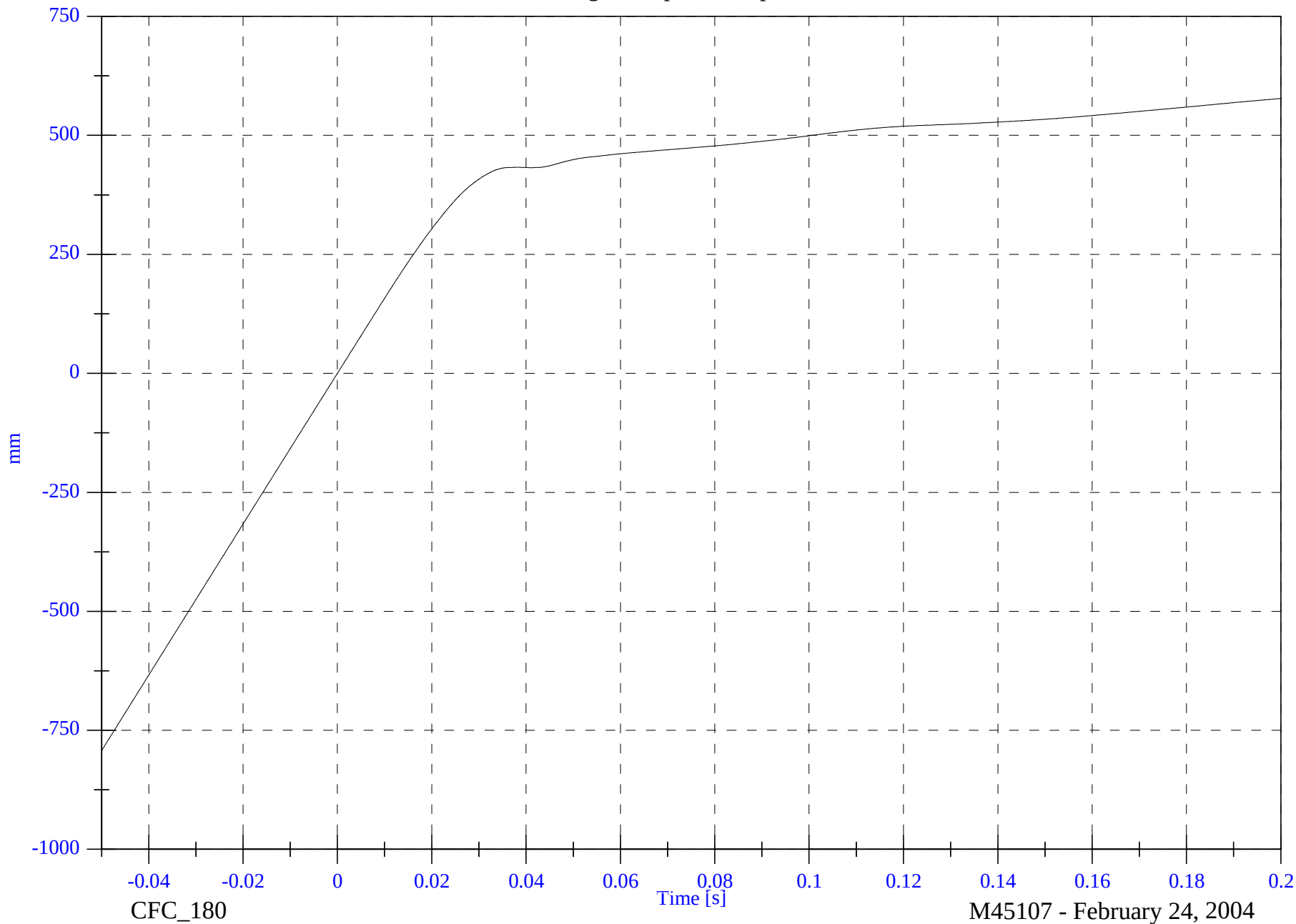
V1 Engine Top #3x Displacement

Max: 577.3 [mm] at 0.200 [s]

Min: -792.8 [mm] at -0.050 [s]

B-124

8642-NCAP-45

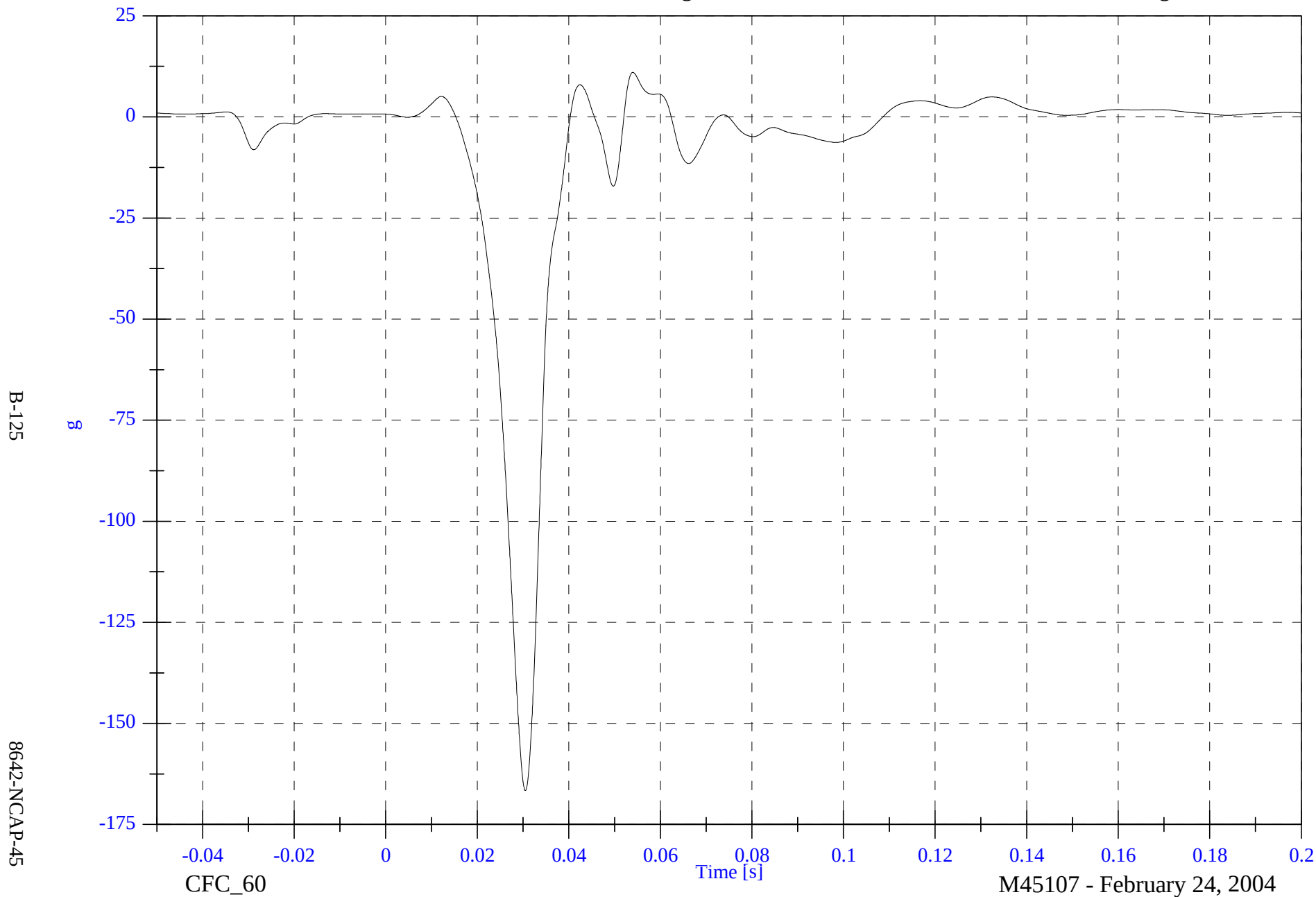


2004 NCAP Test 9 2004 Toyota Prius

V1 Engine Bottom #4x

Max: 11.0 [g] at 0.054 [s]

Min: -166.6 [g] at 0.030 [s]

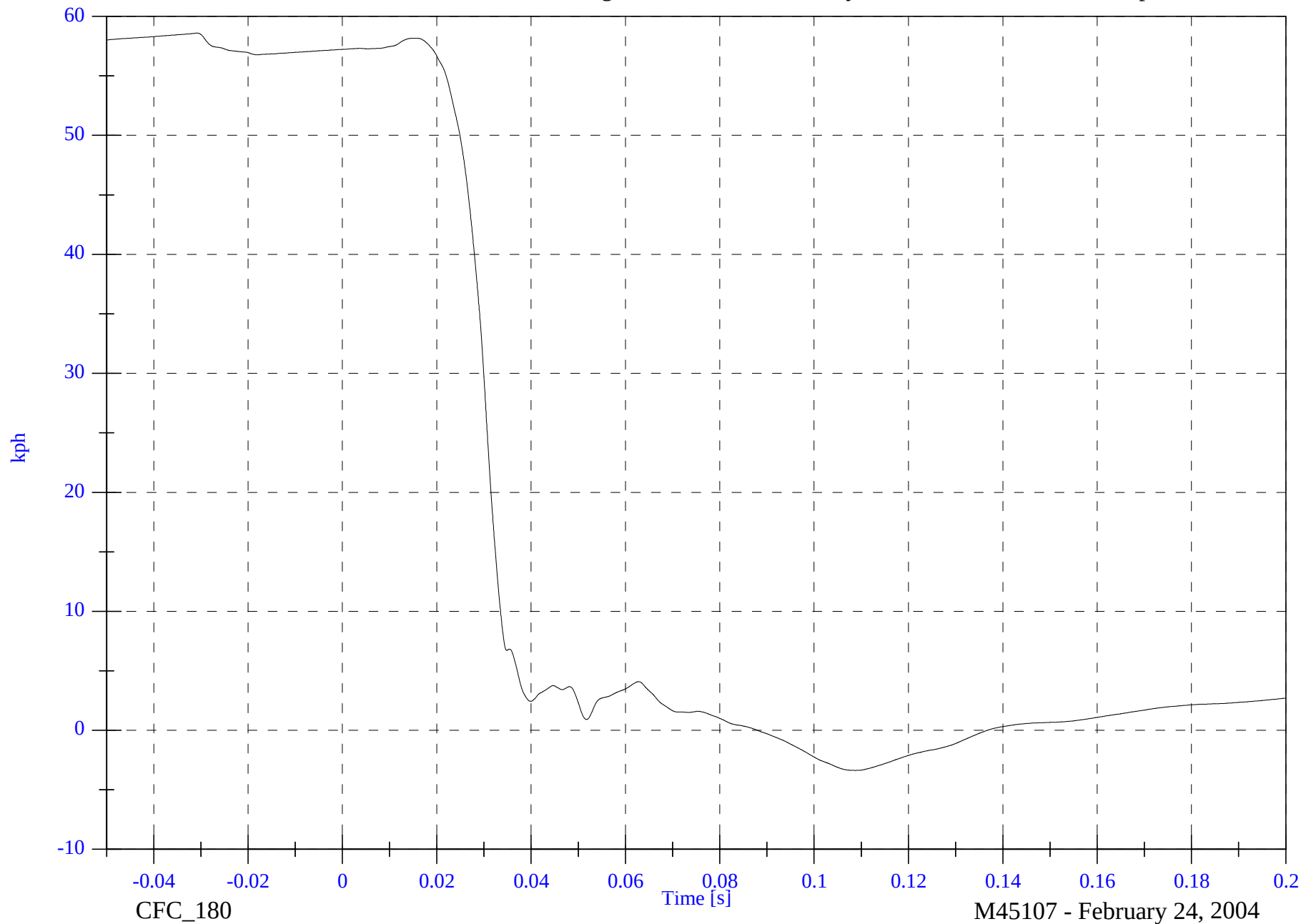


2004 NCAP Test 9 2004 Toyota Prius

V1 Engine Bottom #4x Velocity

Max: 58.6 [kph] at -0.031 [s]

Min: -3.4 [kph] at 0.109 [s]



B-126

8642-NCAP-45

CFC_180

Time [s]

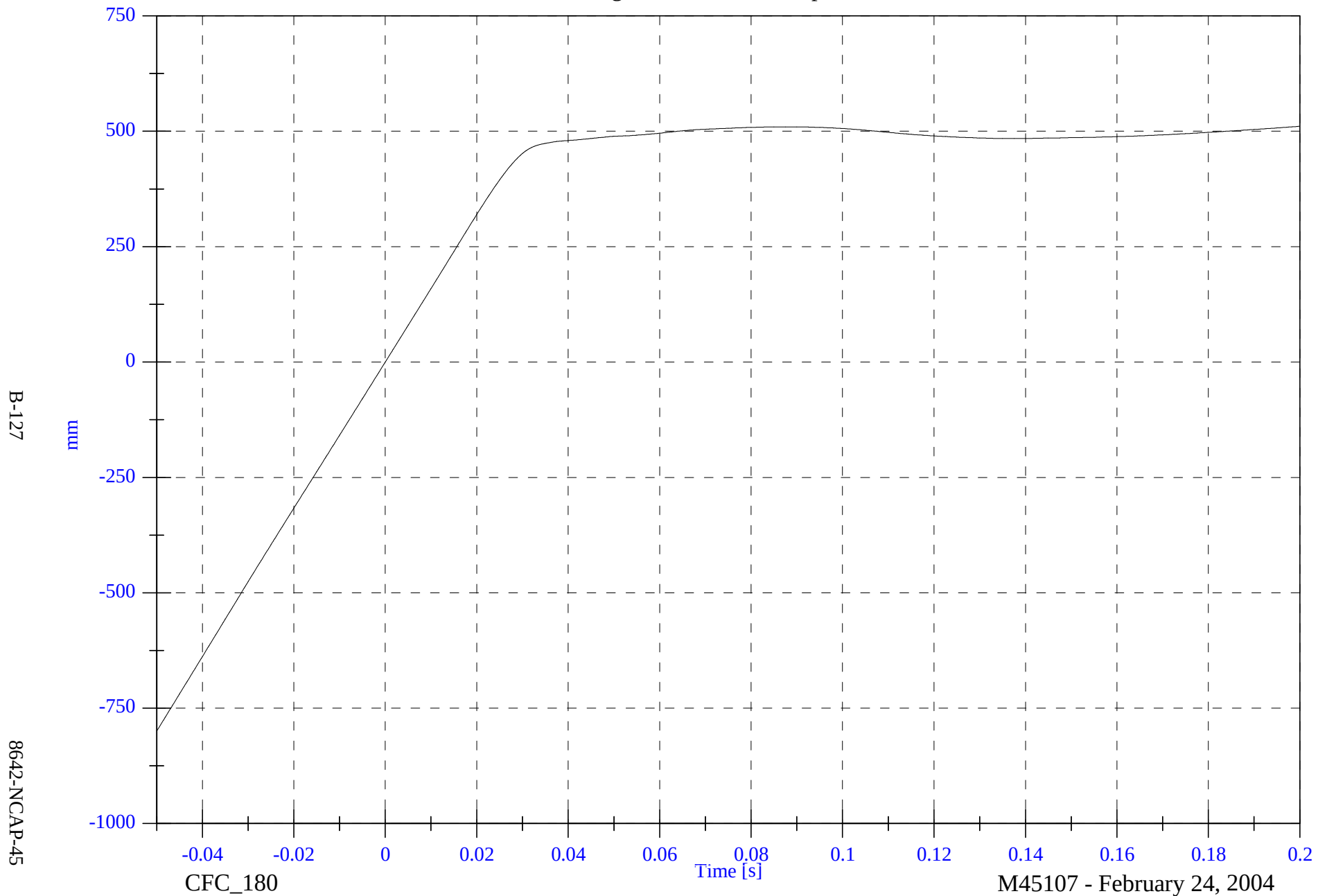
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1 Engine Bottom #4x Displacement

Max: 510.7 [mm] at 0.200 [s]

Min: -799.8 [mm] at -0.050 [s]



B-127

8642-NCAP-45

CFC_180

Time [s]

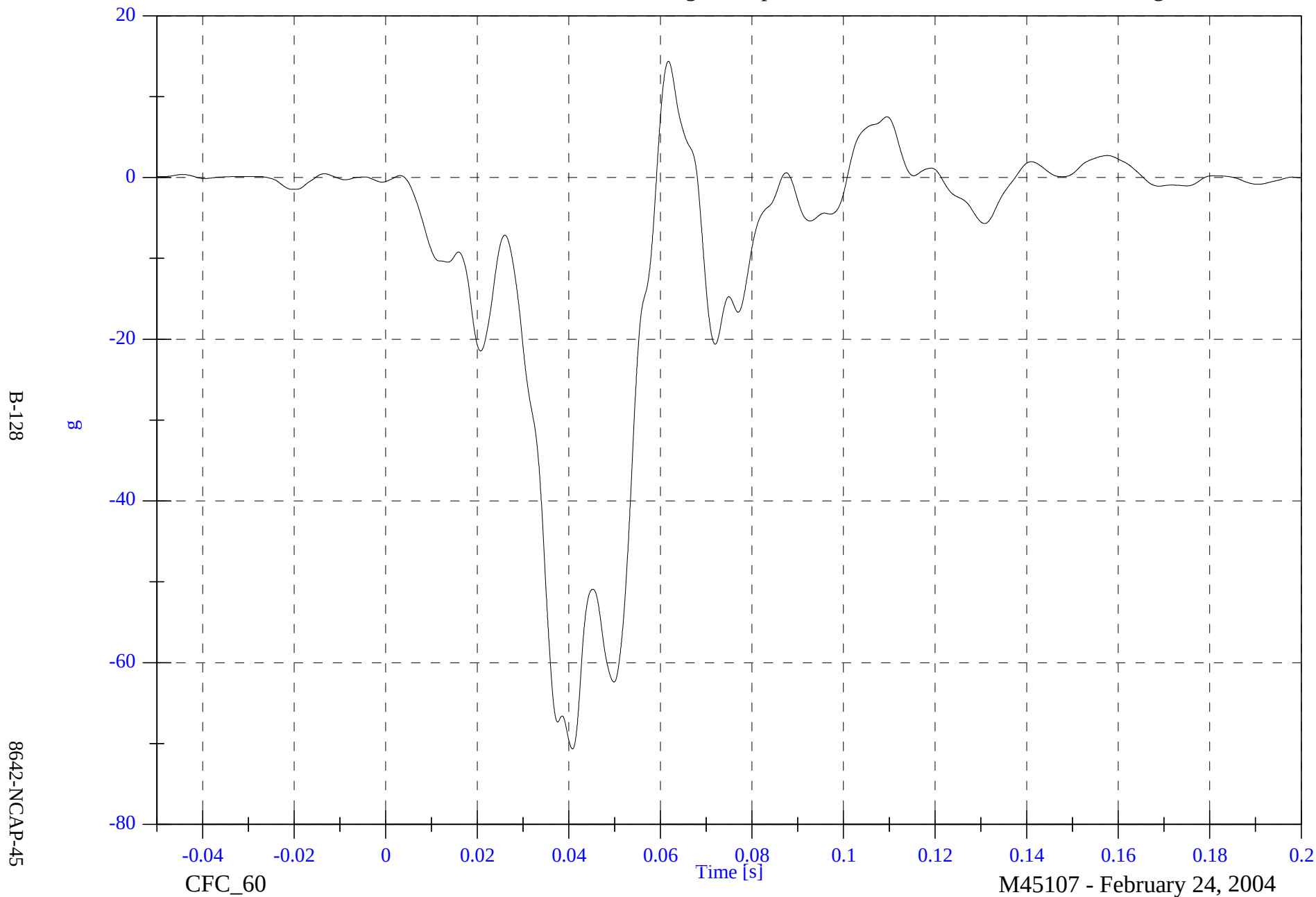
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1 Right Caliper #5x

Max: 14.4 [g] at 0.062 [s]

Min: -70.7 [g] at 0.041 [s]



2004 NCAP Test 9 2004 Toyota Prius

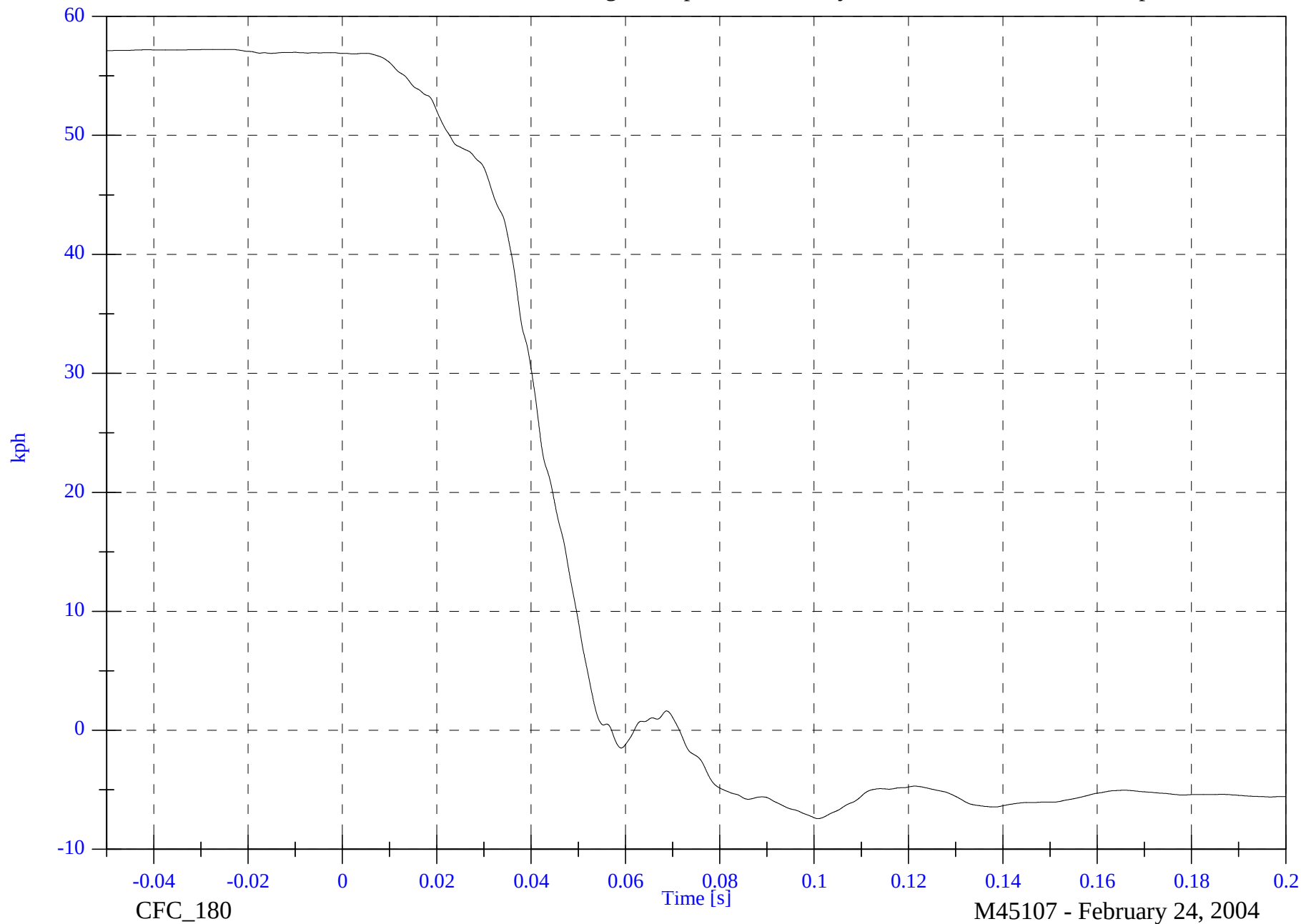
V1 Right Caliper #5x Velocity

Max: 57.2 [kph] at -0.026 [s]

Min: -7.4 [kph] at 0.101 [s]

B-129

8642-NCAP-45

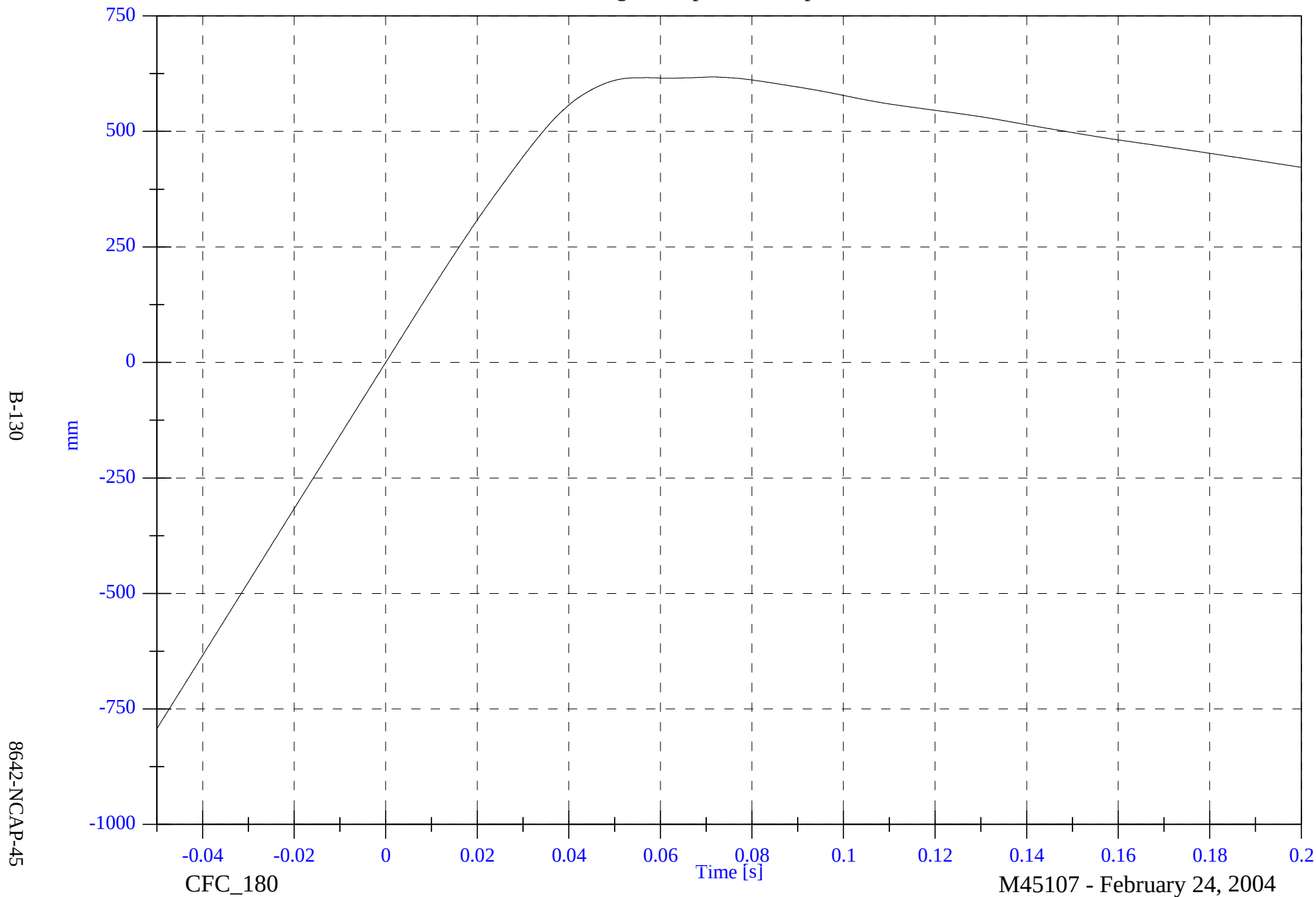


2004 NCAP Test 9 2004 Toyota Prius

V1 Right Caliper #5x Displacement

Max: 617.6 [mm] at 0.071 [s]

Min: -792.8 [mm] at -0.050 [s]



B-130

8642-NCAP-45

CFC_180

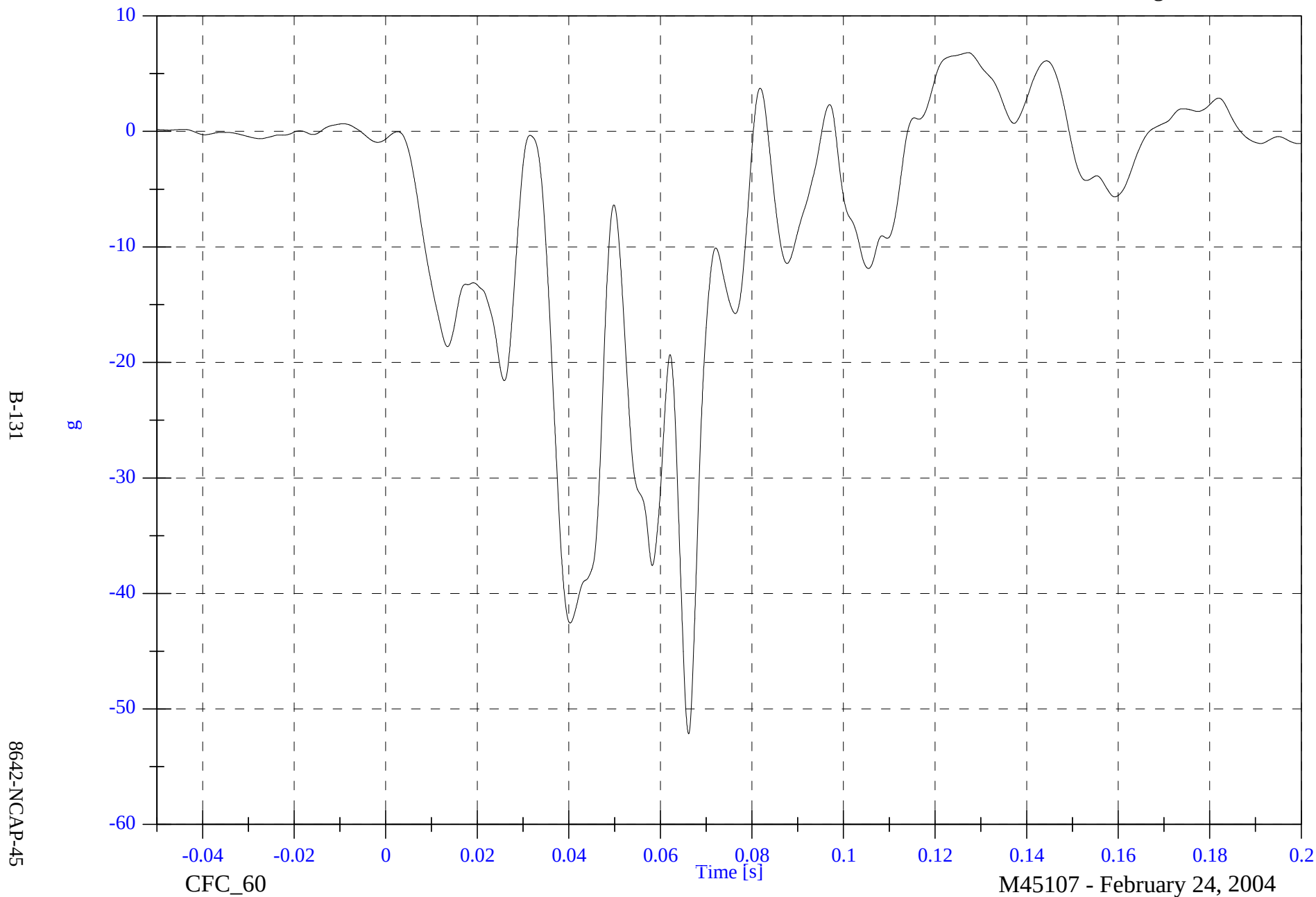
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1 Instrument Panel #6x

Max: 6.8 [g] at 0.127 [s]

Min: -52.2 [g] at 0.066 [s]



2004 NCAP Test 9 2004 Toyota Prius

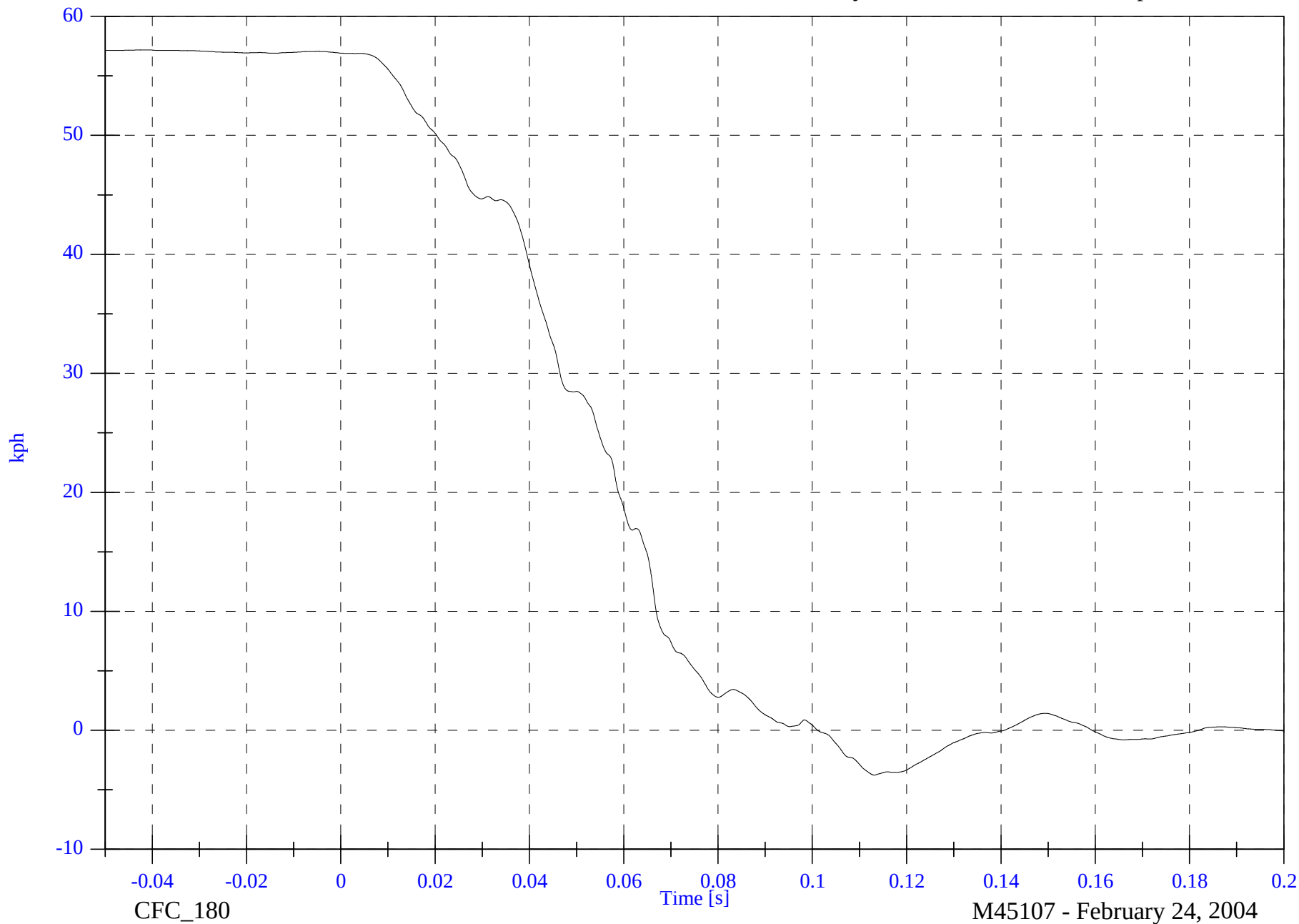
V1 Instrument Panel #6x Velocity

Max: 57.2 [kph] at -0.042 [s]

Min: -3.8 [kph] at 0.113 [s]

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8642-NCAP-45



2004 NCAP Test 9 2004 Toyota Prius

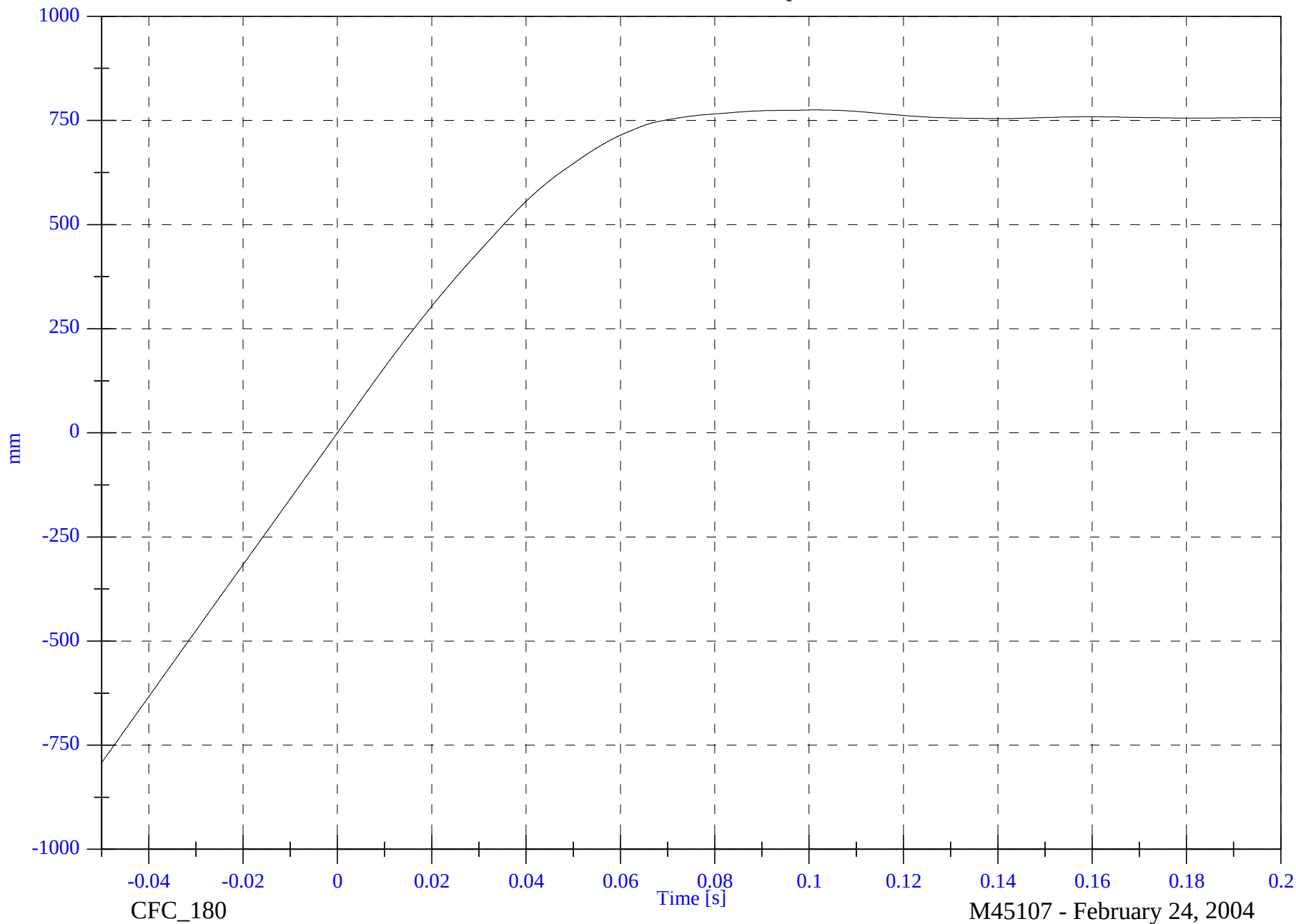
V1 Instrument Panel #6x Displacement

Max: 775.1 [mm] at 0.101 [s]

Min: -792.3 [mm] at -0.050 [s]

B-133

8642-NCAP-45



M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

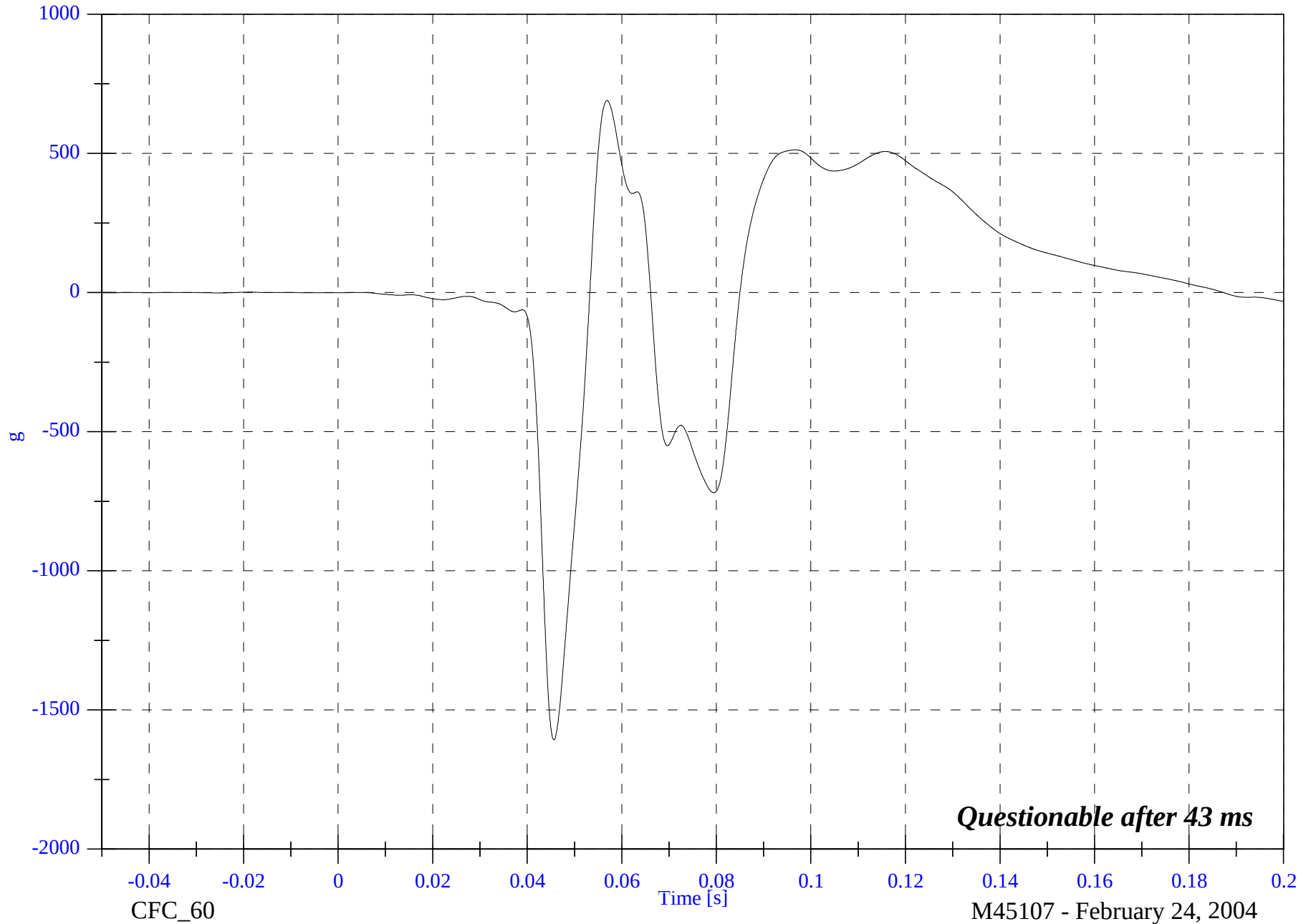
V1 Left Caliper #7x

Max: 689.7 [g] at 0.057 [s]

Min: -1607.8 [g] at 0.046 [s]

B-134

8642-NCAP-45



2004 NCAP Test 9 2004 Toyota Prius

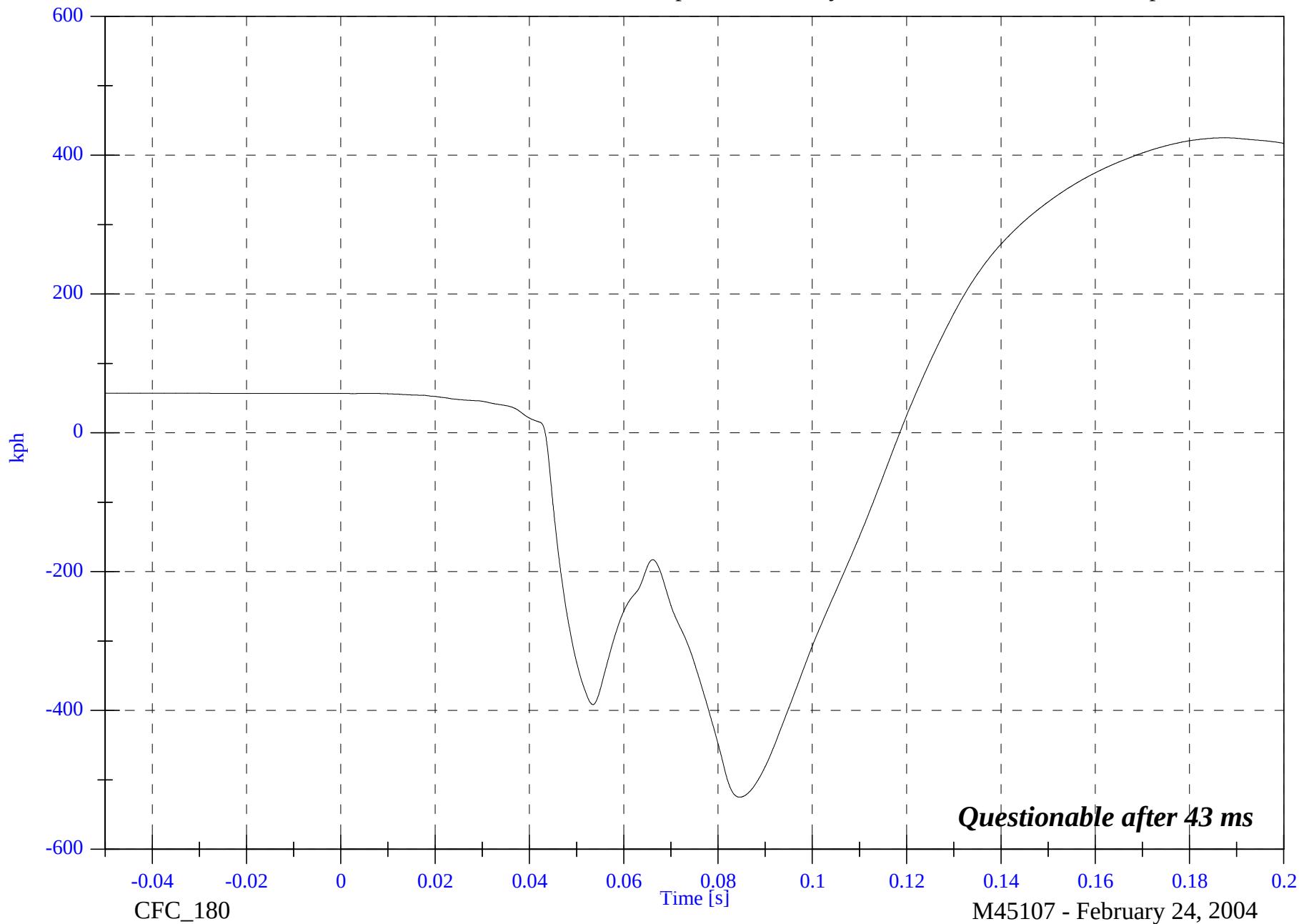
V1 Left Caliper #7x Velocity

Max: 425.0 [kph] at 0.187 [s]

Min: -524.9 [kph] at 0.085 [s]

B-135

8642-NCAP-45



2004 NCAP Test 9 2004 Toyota Prius

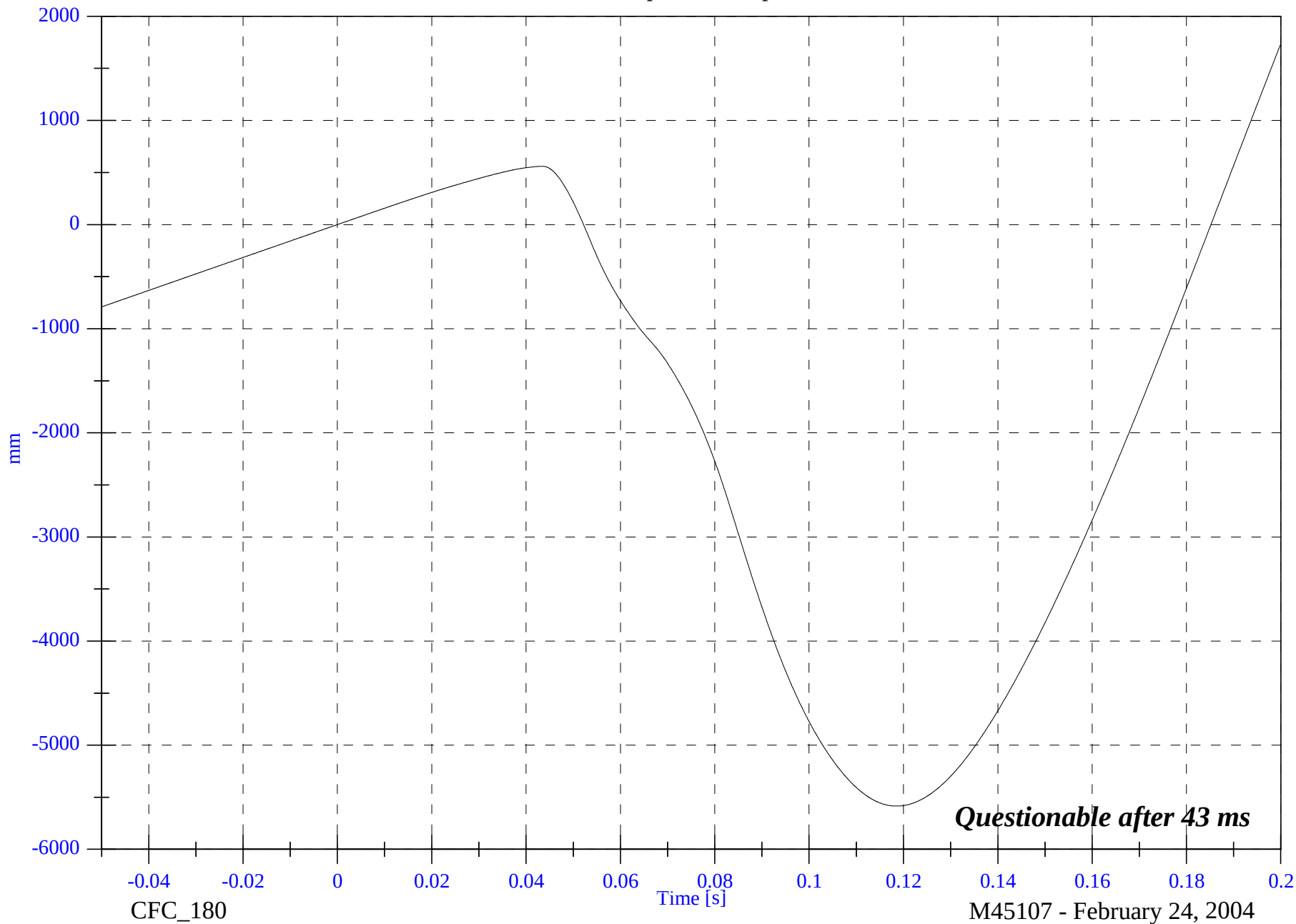
V1 Left Caliper #7x Displacement

Max: 1732.1 [mm] at 0.200 [s]

Min: -5585.4 [mm] at 0.119 [s]

B-136

8642-NCAP-45

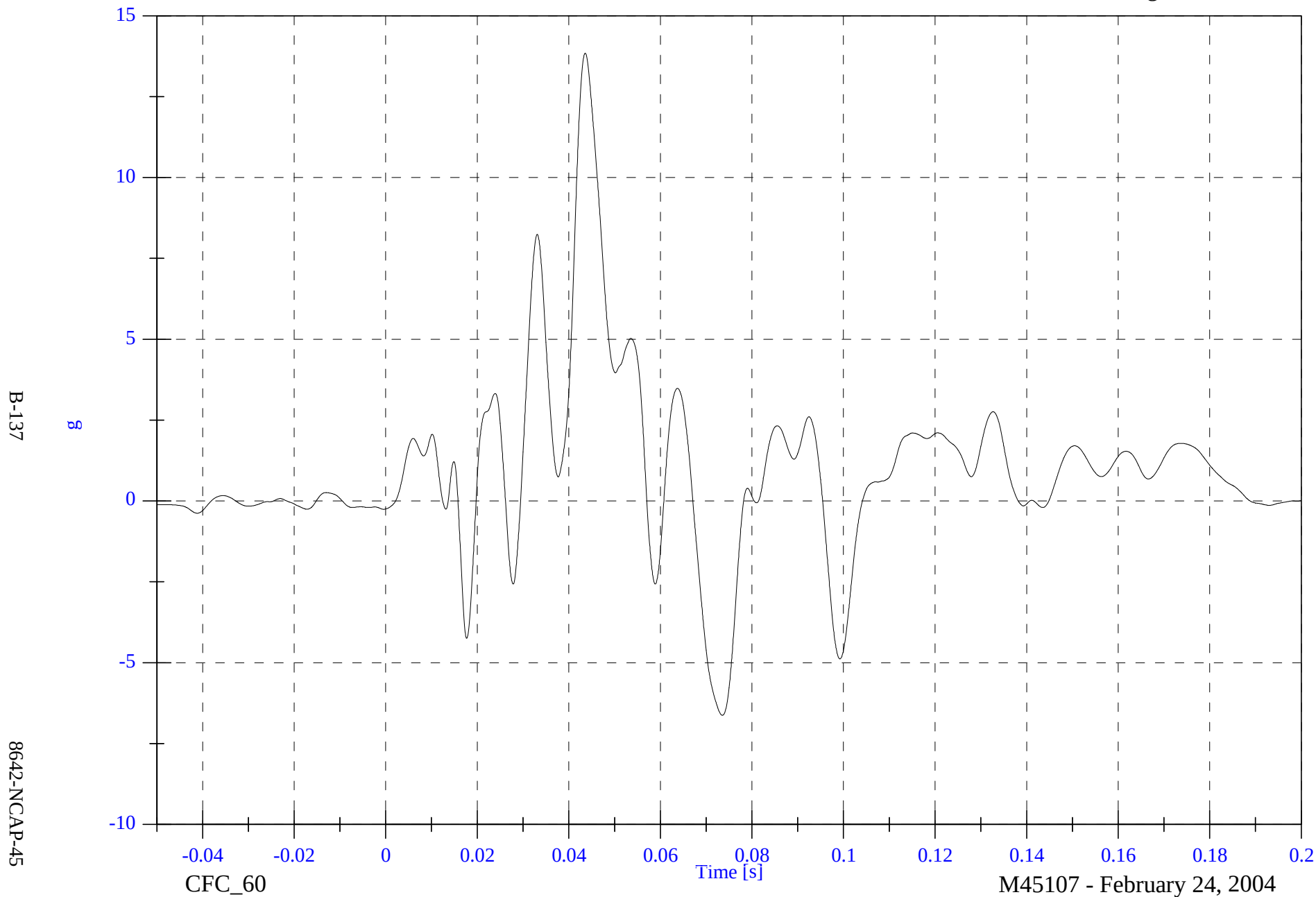


2004 NCAP Test 9 2004 Toyota Prius

V1 Left Rear #8z

Max: 13.8 [g] at 0.044 [s]

Min: -6.6 [g] at 0.074 [s]

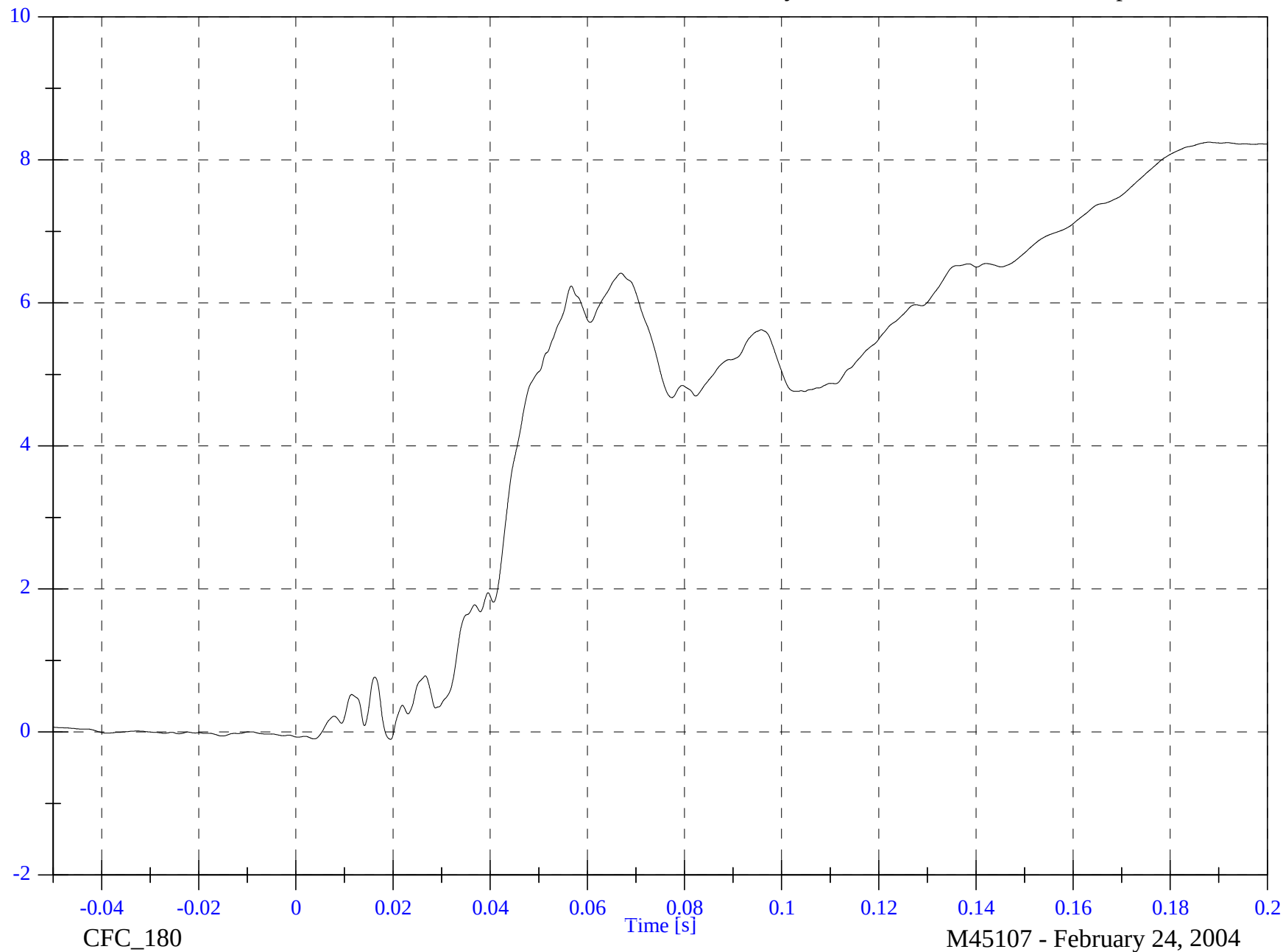


2004 NCAP Test 9 2004 Toyota Prius

V1 Left Rear #8z Velocity

Max: 8.2 [kph] at 0.188 [s]

Min: -0.1 [kph] at 0.019 [s]



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CFC_180

Time [s]

M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

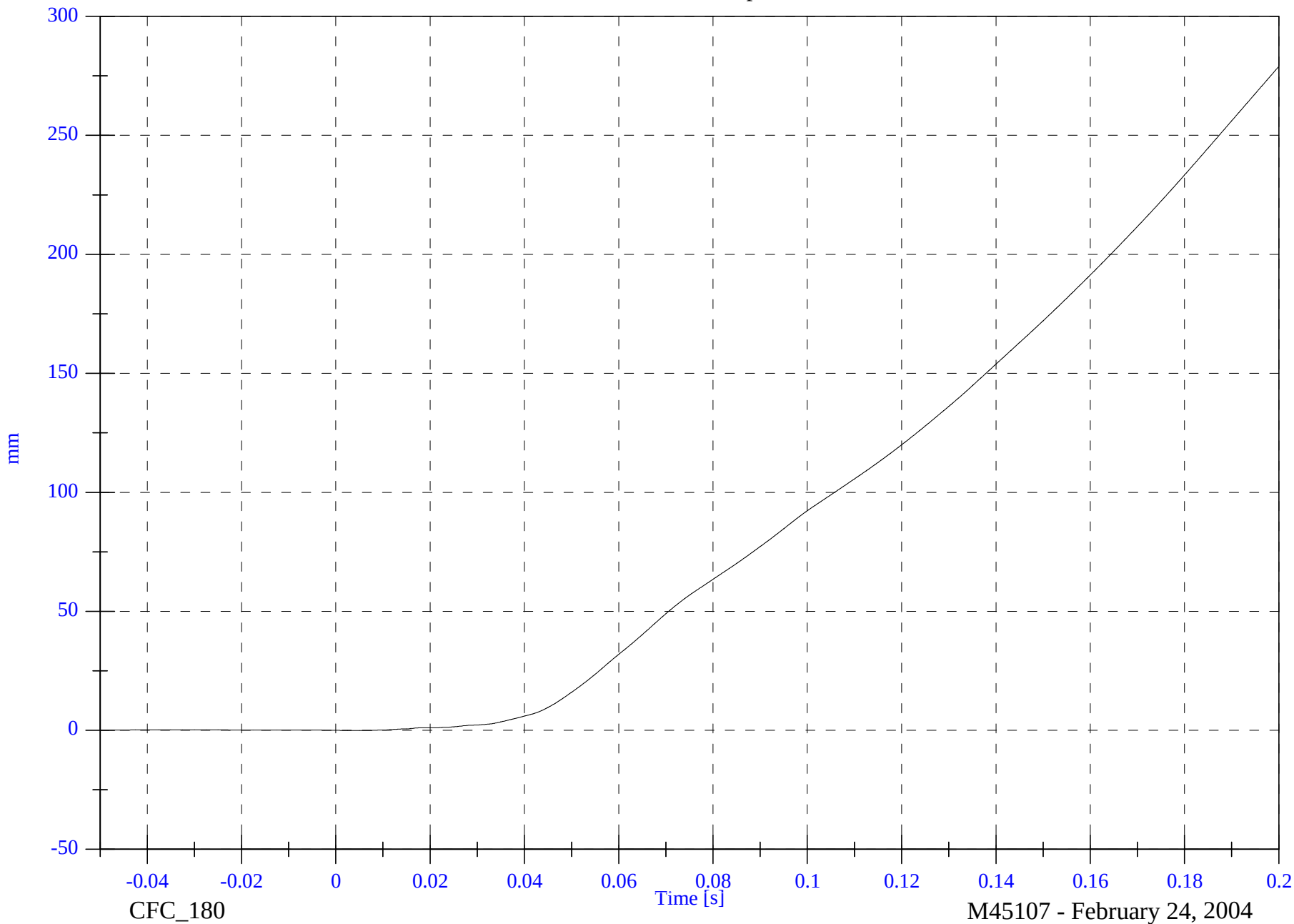
V1 Left Rear #8z Displacement

Max: 278.8 [mm] at 0.200 [s]

Min: -0.1 [mm] at 0.005 [s]

B-139

8642-NCAP-45



M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

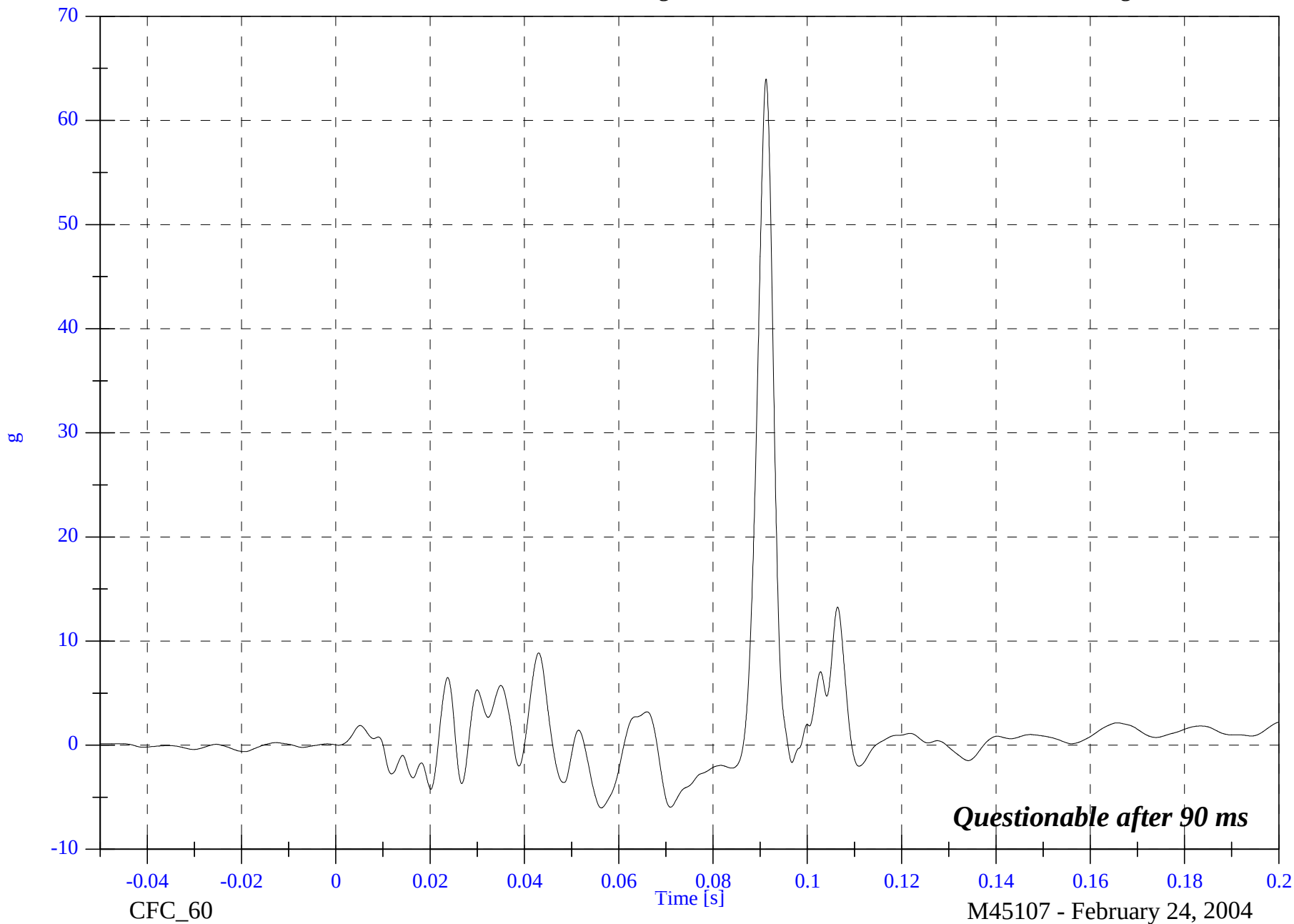
V1 Right Rear #9z

Max: 64.0 [g] at 0.091 [s]

Min: -6.0 [g] at 0.056 [s]

B-140

8642-NCAP-45

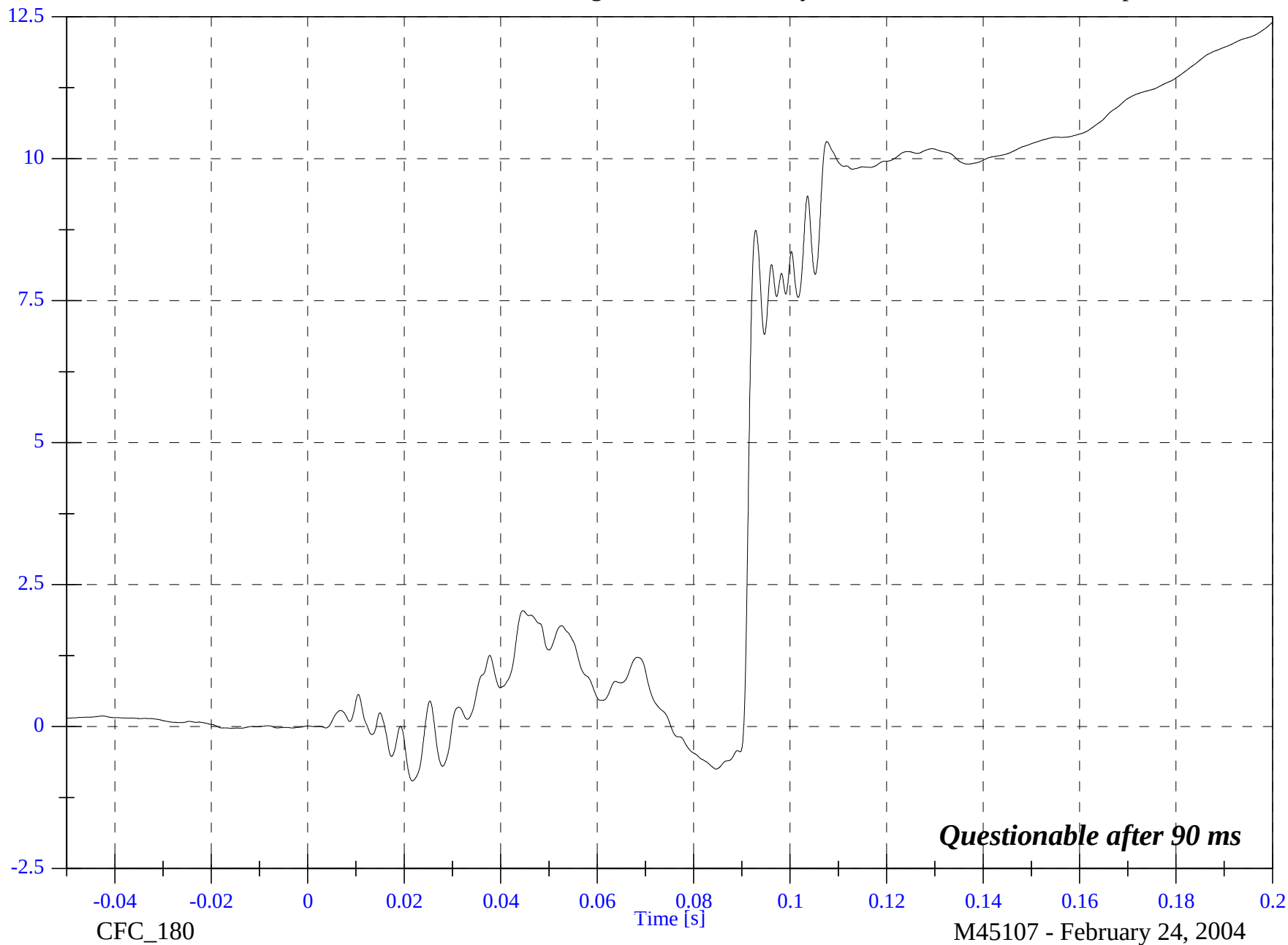


2004 NCAP Test 9 2004 Toyota Prius

V1 Right Rear #9z Velocity

Max: 12.4 [kph] at 0.200 [s]

Min: -1.0 [kph] at 0.022 [s]



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8642-NCAP-45

CFC_180

Time [s]

M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1 Right Rear #9z Displacement

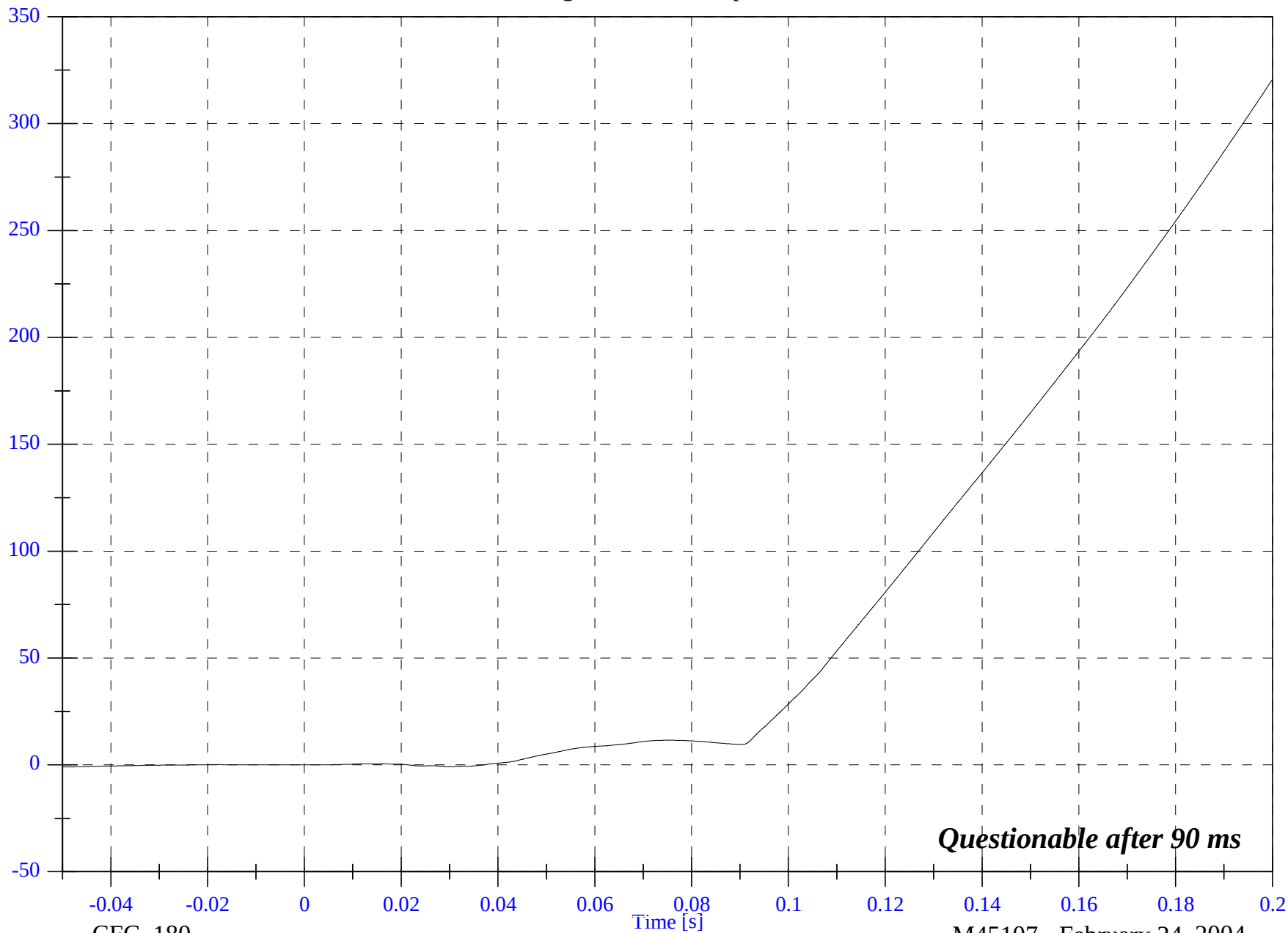
Max: 320.6 [mm] at 0.200 [s]

Min: -1.0 [mm] at -0.050 [s]

B-142

8642-NCAP-45

mm



Questionable after 90 ms

CFC_180

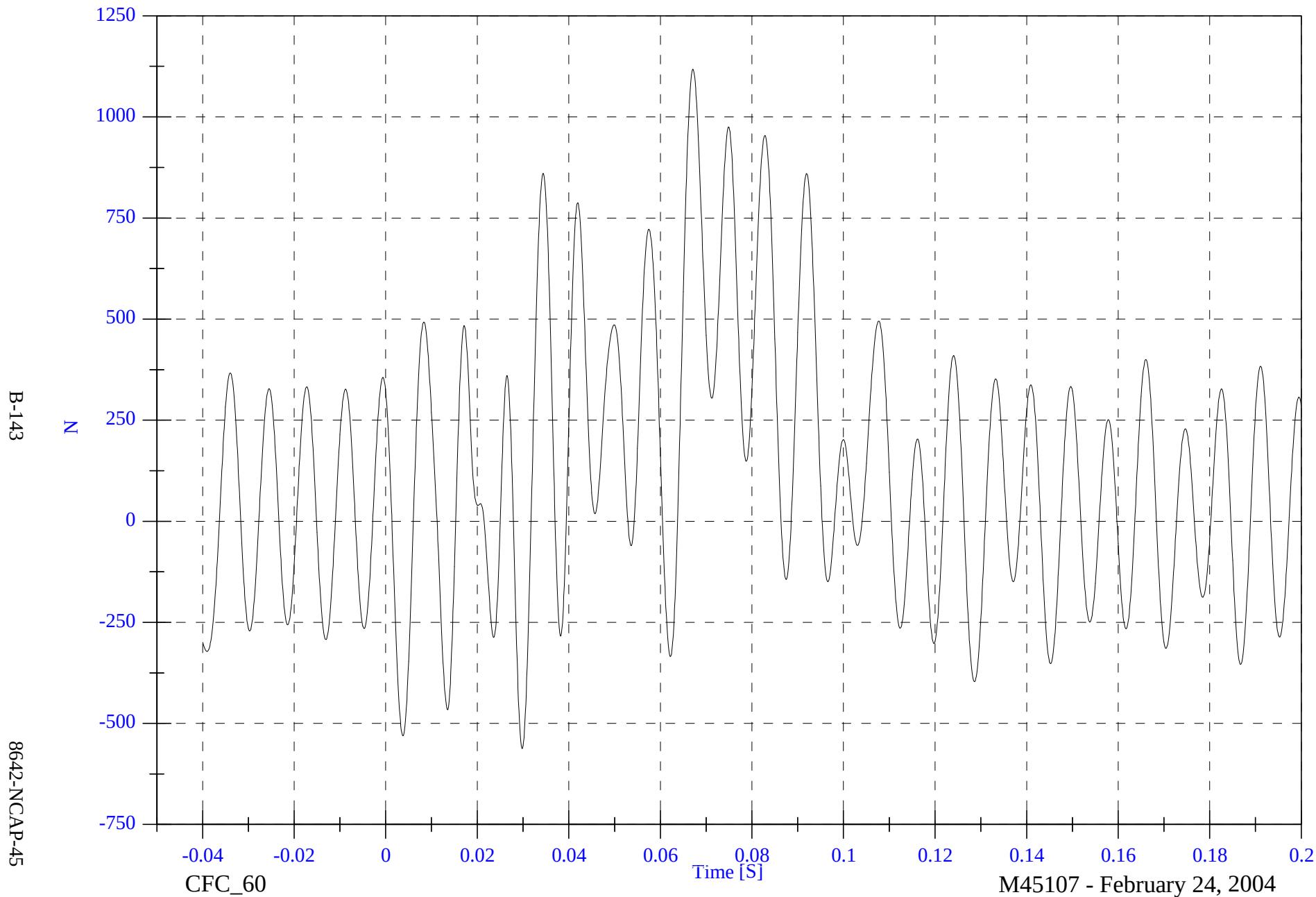
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell A1 Fx

Max: 1118.0 [N] at 0.067 [S]

Min: -562.4 [N] at 0.030 [S]

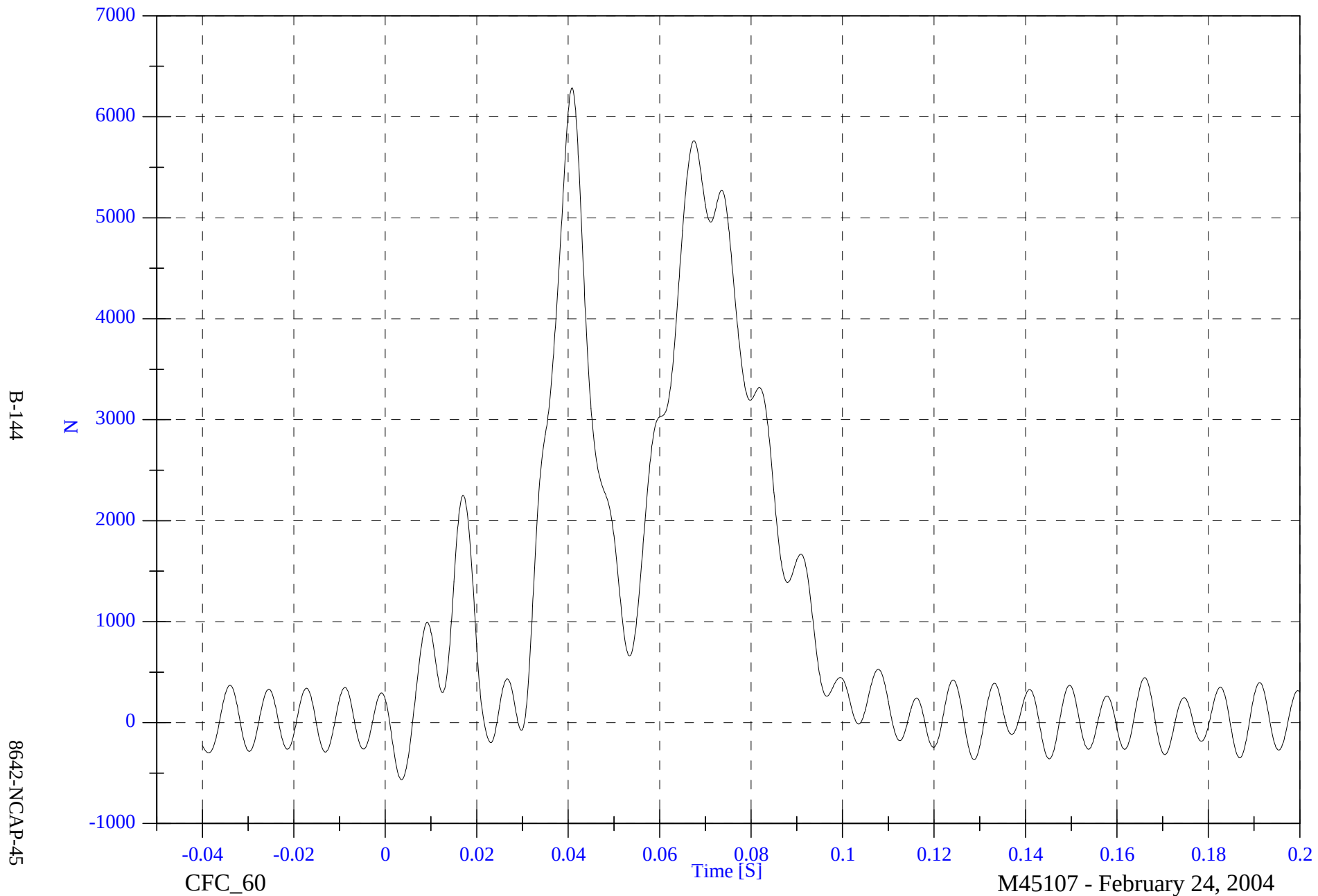


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell A2 Fx

Max: 6286.4 [N] at 0.041 [S]

Min: -565.2 [N] at 0.004 [S]

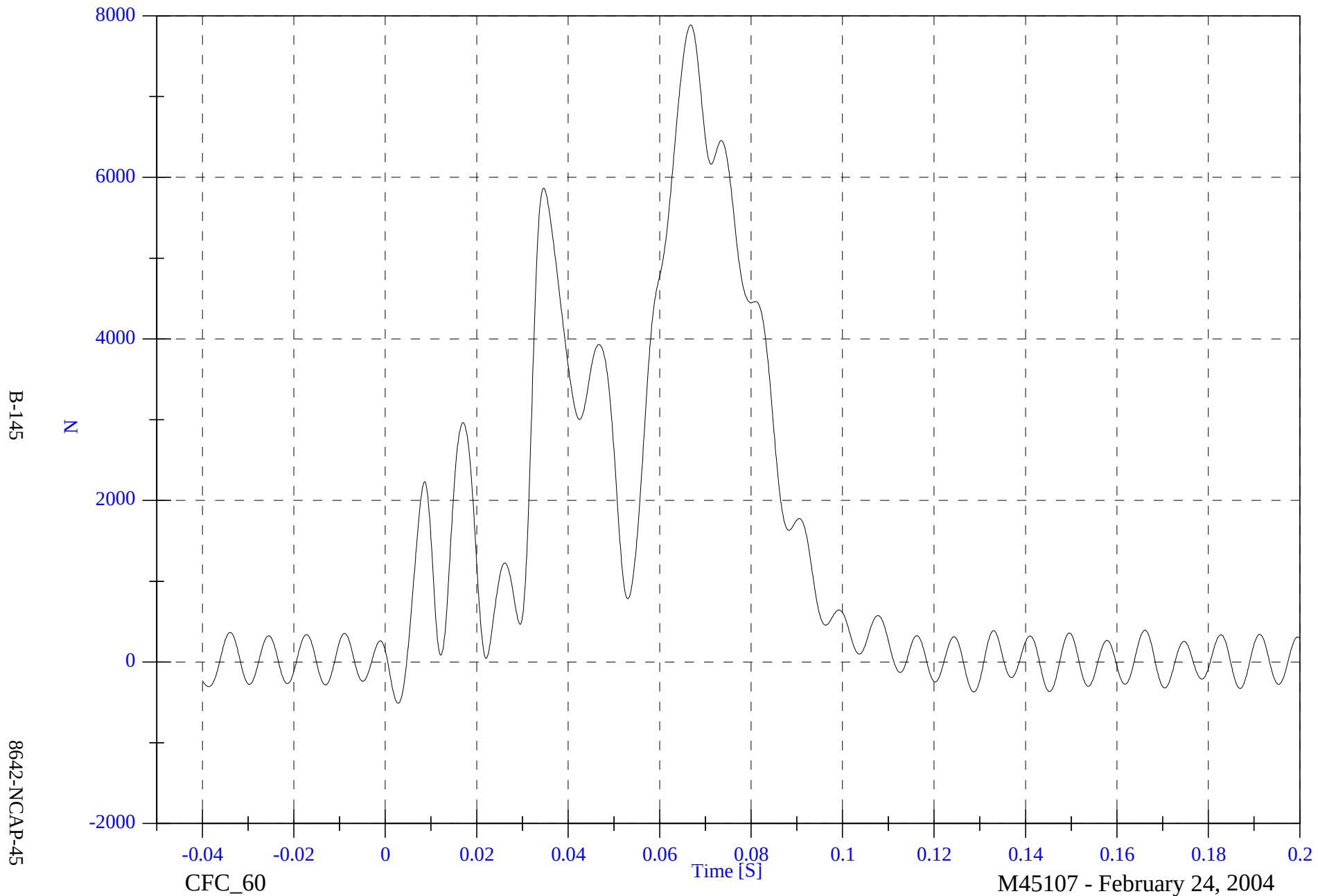


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell A3 Fx

Max: 7887.9 [N] at 0.067 [S]

Min: -511.0 [N] at 0.003 [S]

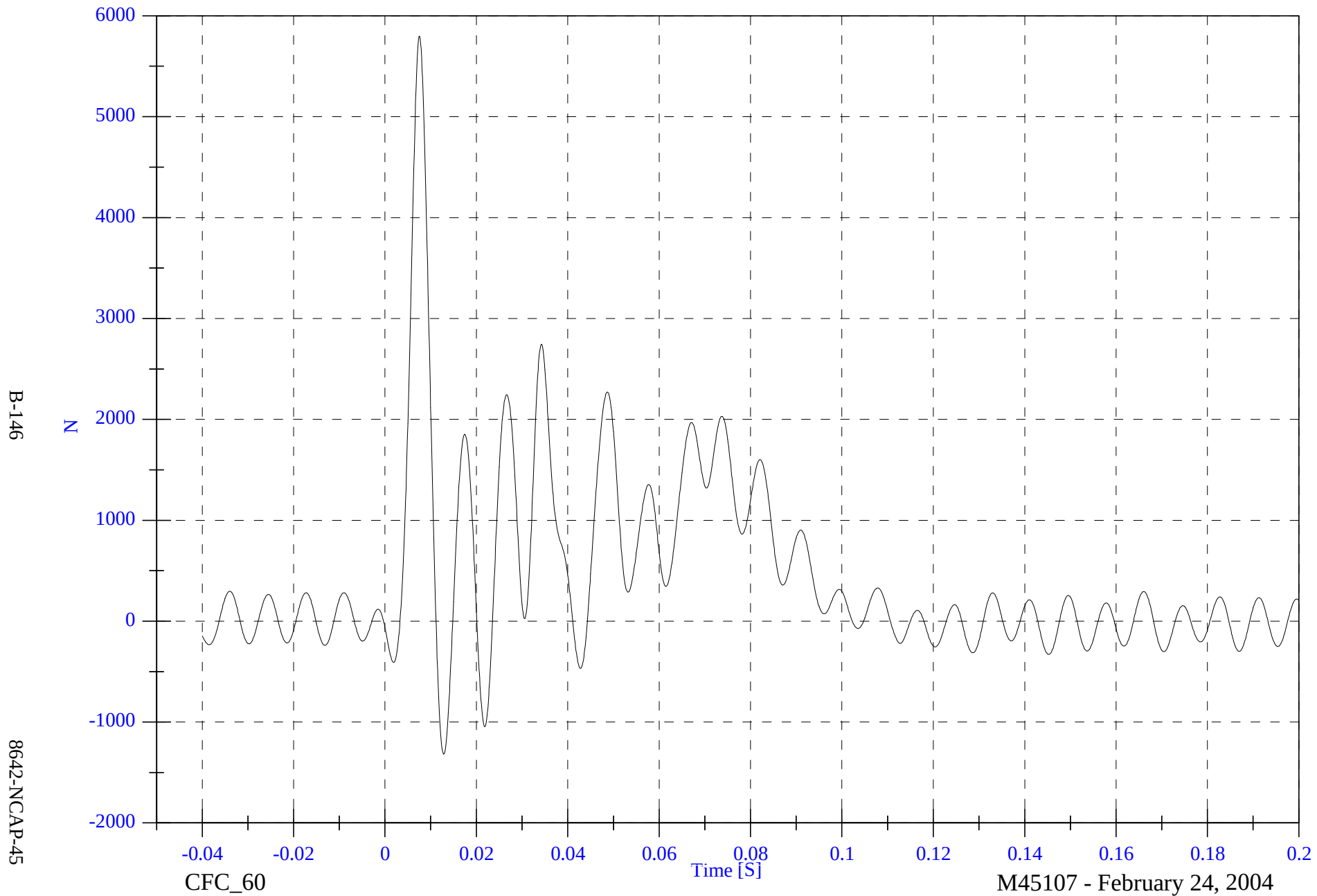


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell A4 Fx

Max: 5801.2 [N] at 0.007 [S]

Min: -1319.1 [N] at 0.013 [S]

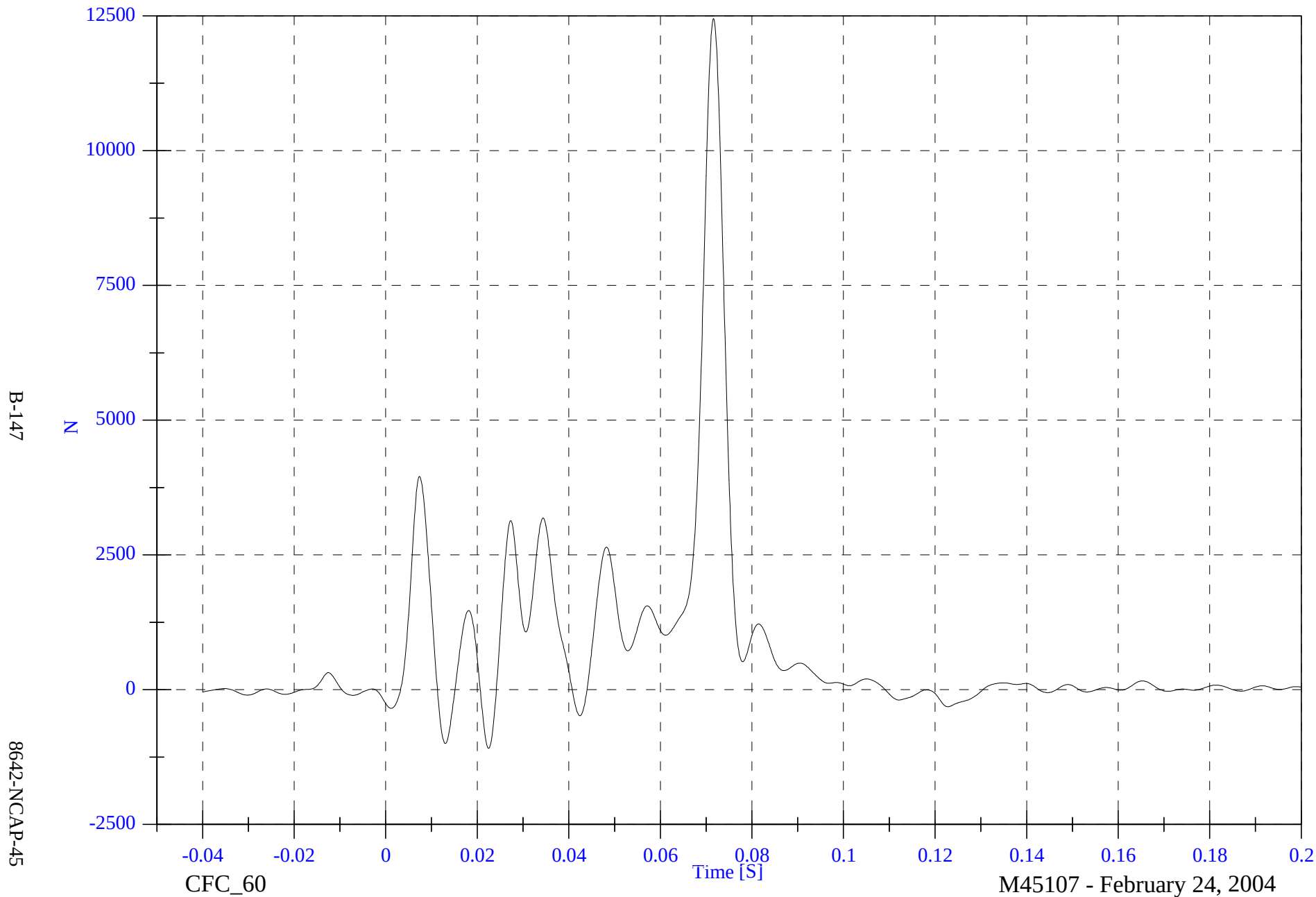


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell A5 Fx

Max: 12448.5 [N] at 0.072 [S]

Min: -1086.7 [N] at 0.022 [S]

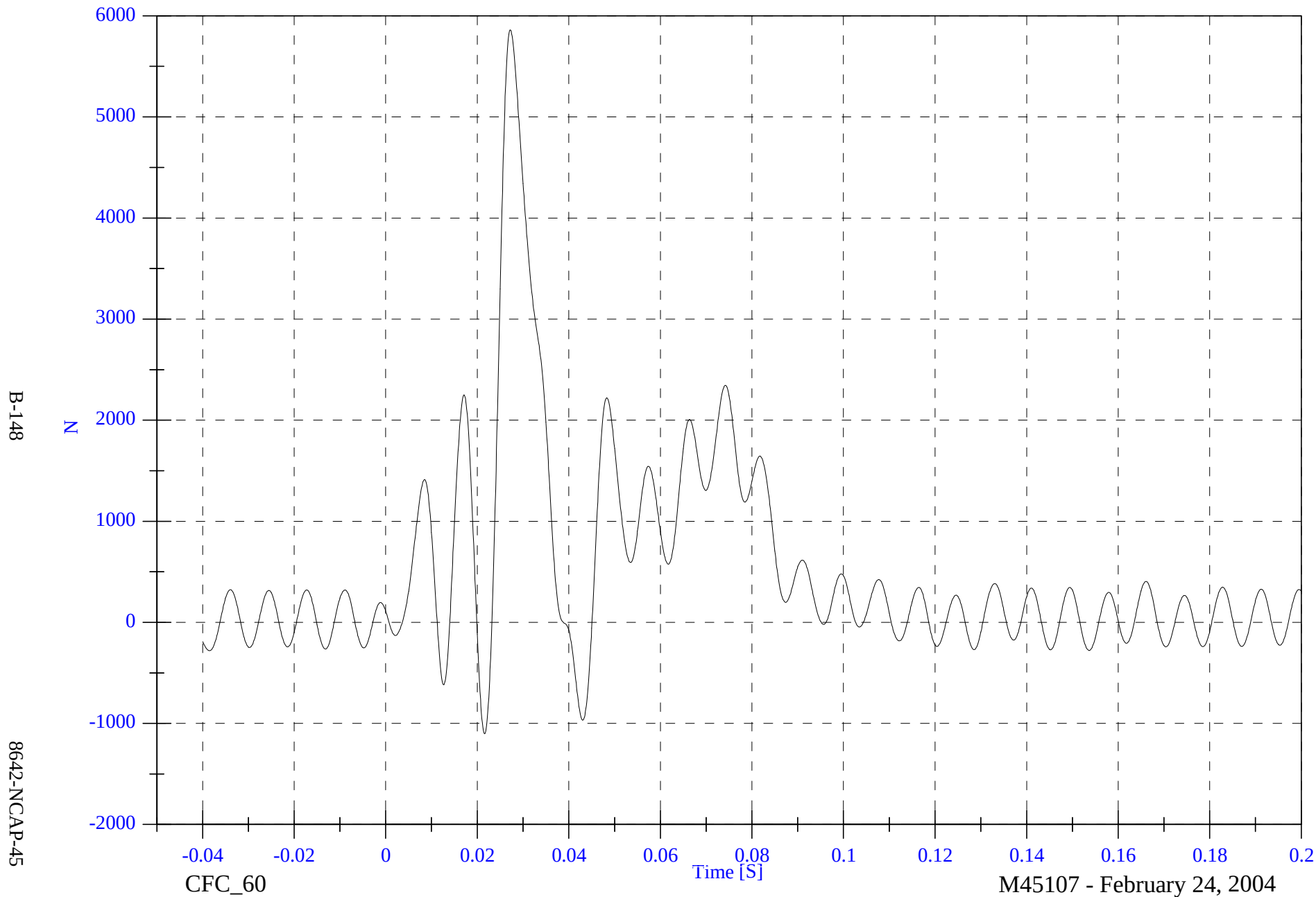


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell A6 Fx

Max: 5860.9 [N] at 0.027 [S]

Min: -1103.9 [N] at 0.022 [S]

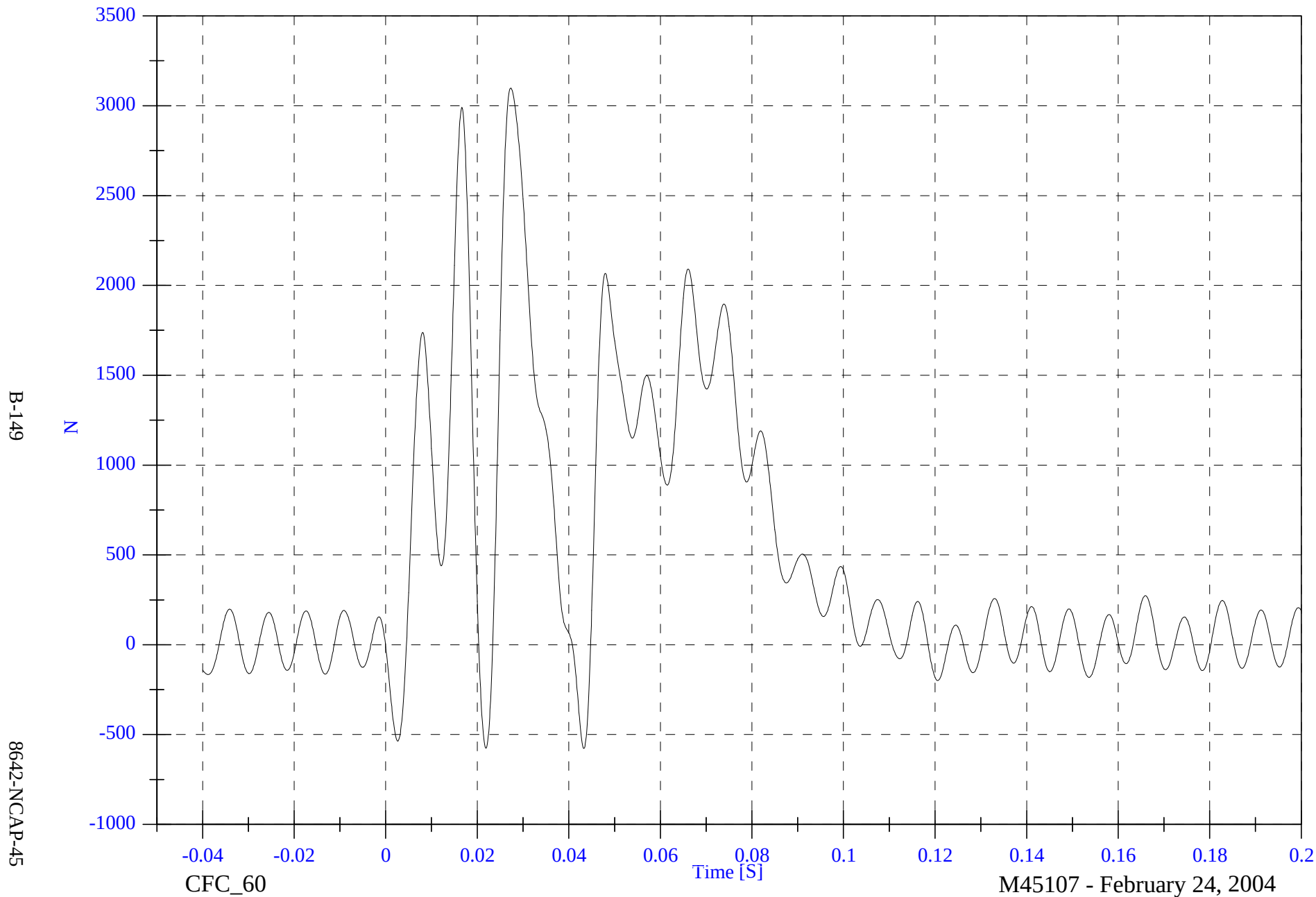


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell A7 Fx

Max: 3098.4 [N] at 0.027 [S]

Min: -577.2 [N] at 0.043 [S]

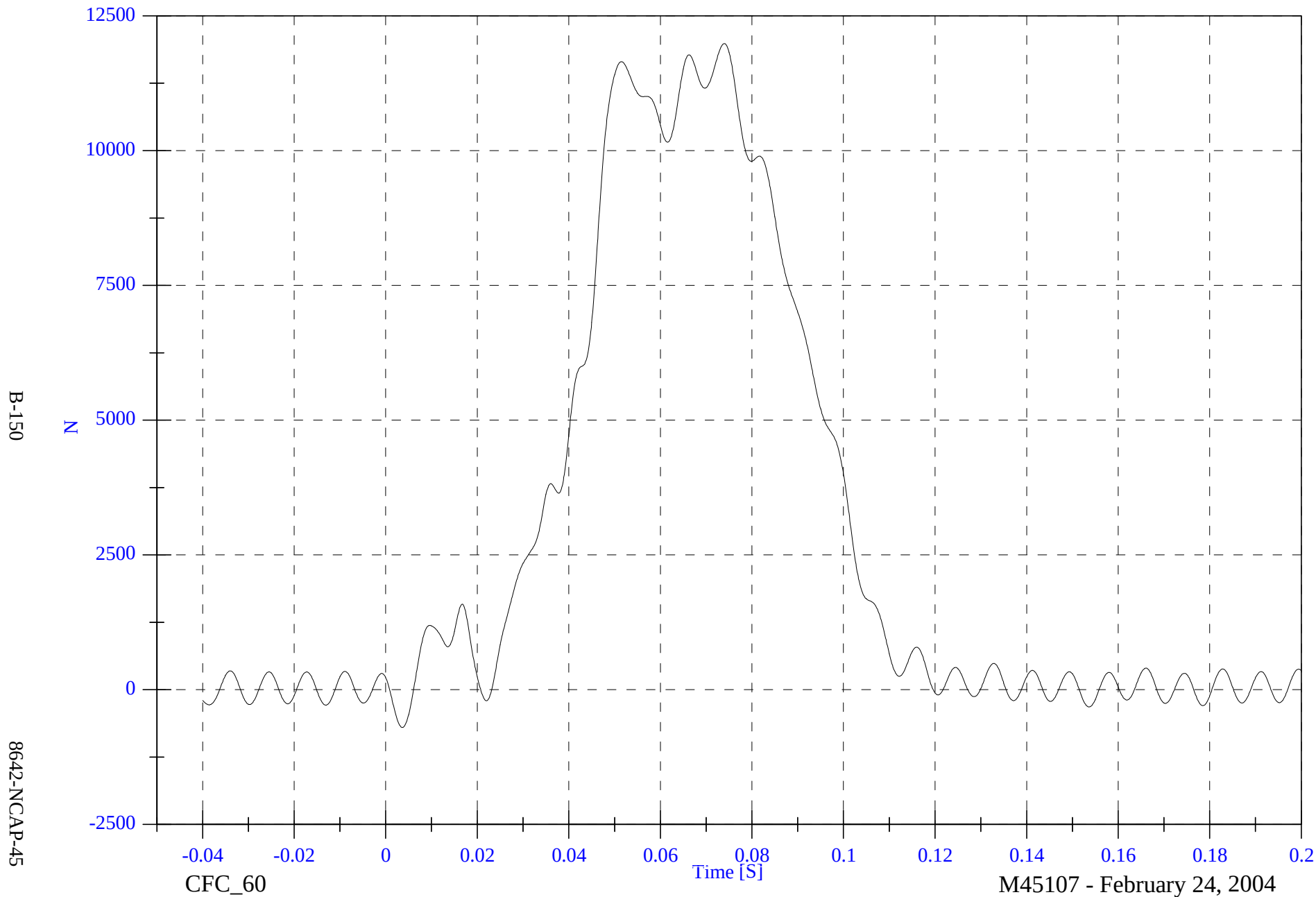


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell A8 Fx

Max: 11985.5 [N] at 0.074 [S]

Min: -700.0 [N] at 0.004 [S]

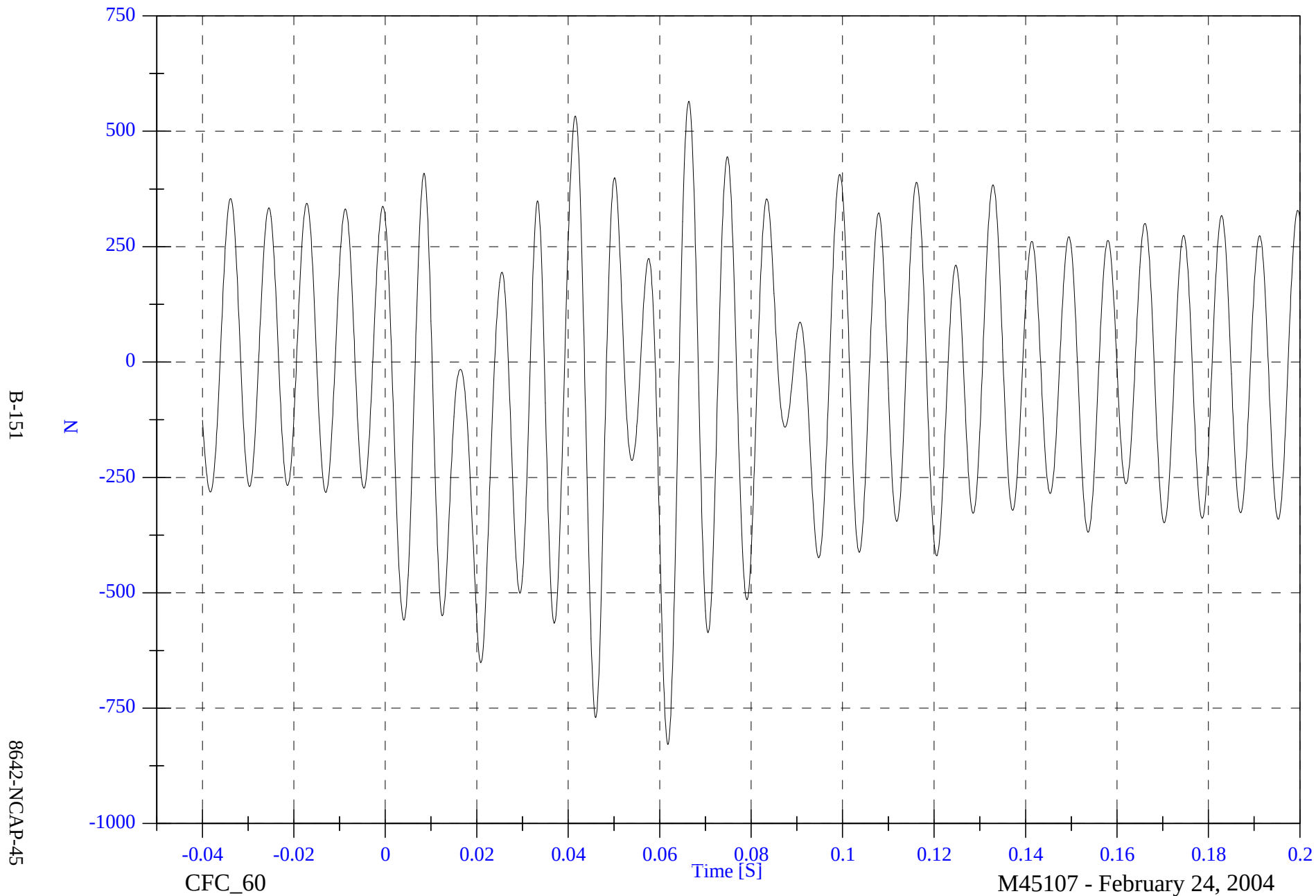


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell A9 Fx

Max: 564.7 [N] at 0.066 [S]

Min: -828.8 [N] at 0.062 [S]

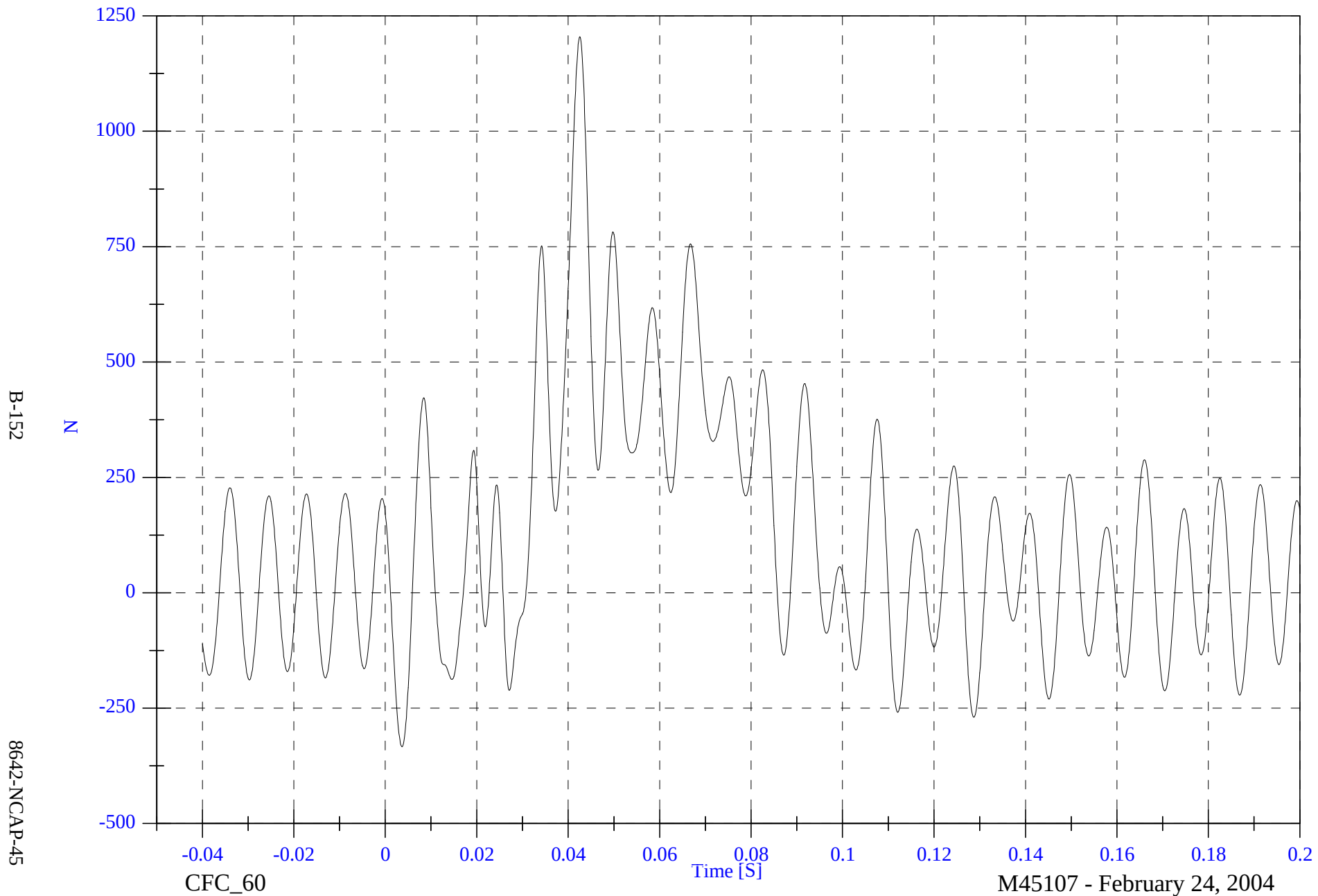


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell B1 Fx

Max: 1204.8 [N] at 0.042 [S]

Min: -333.5 [N] at 0.004 [S]

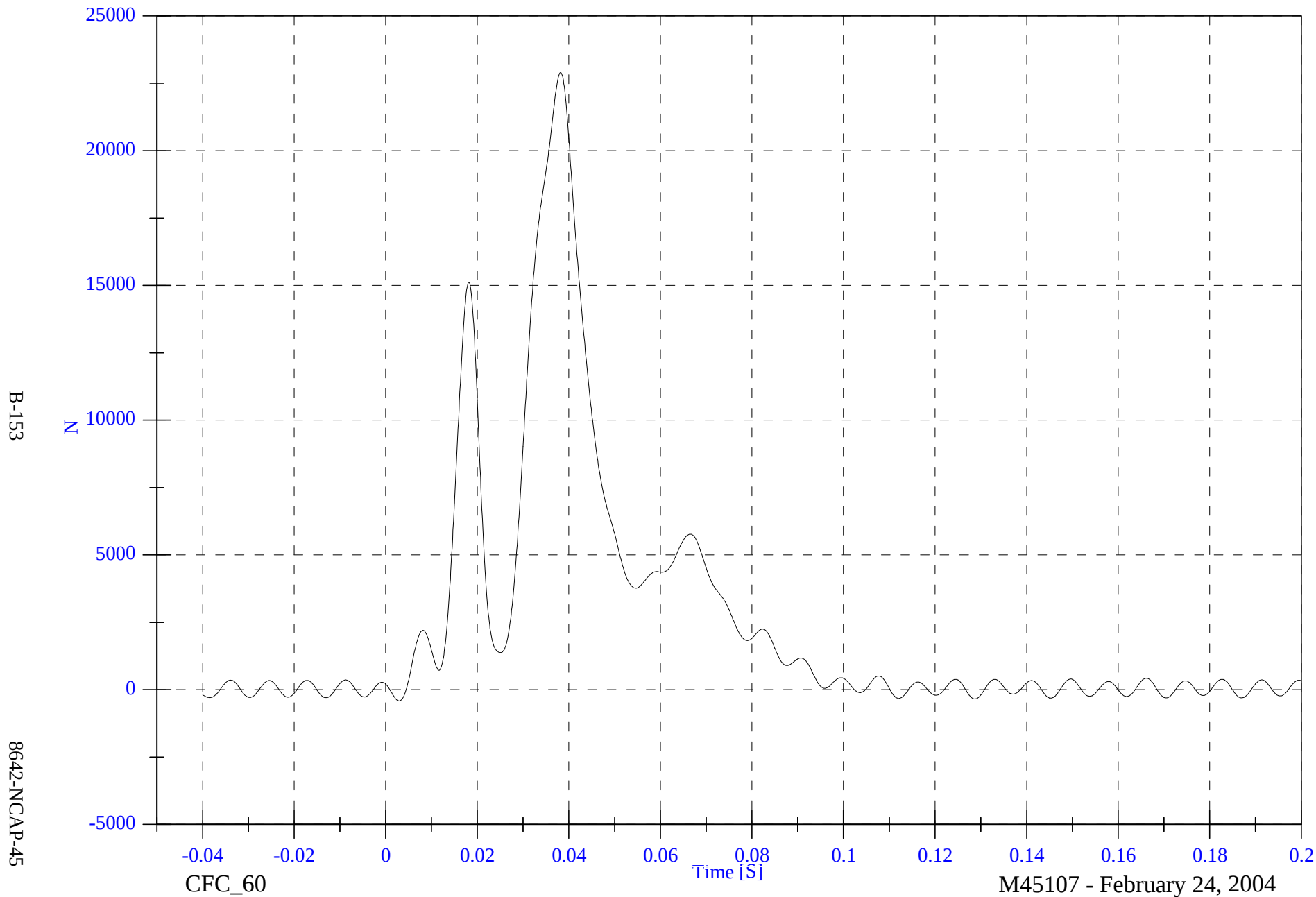


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell B2 Fx

Max: 22899.9 [N] at 0.038 [S]

Min: -415.9 [N] at 0.003 [S]

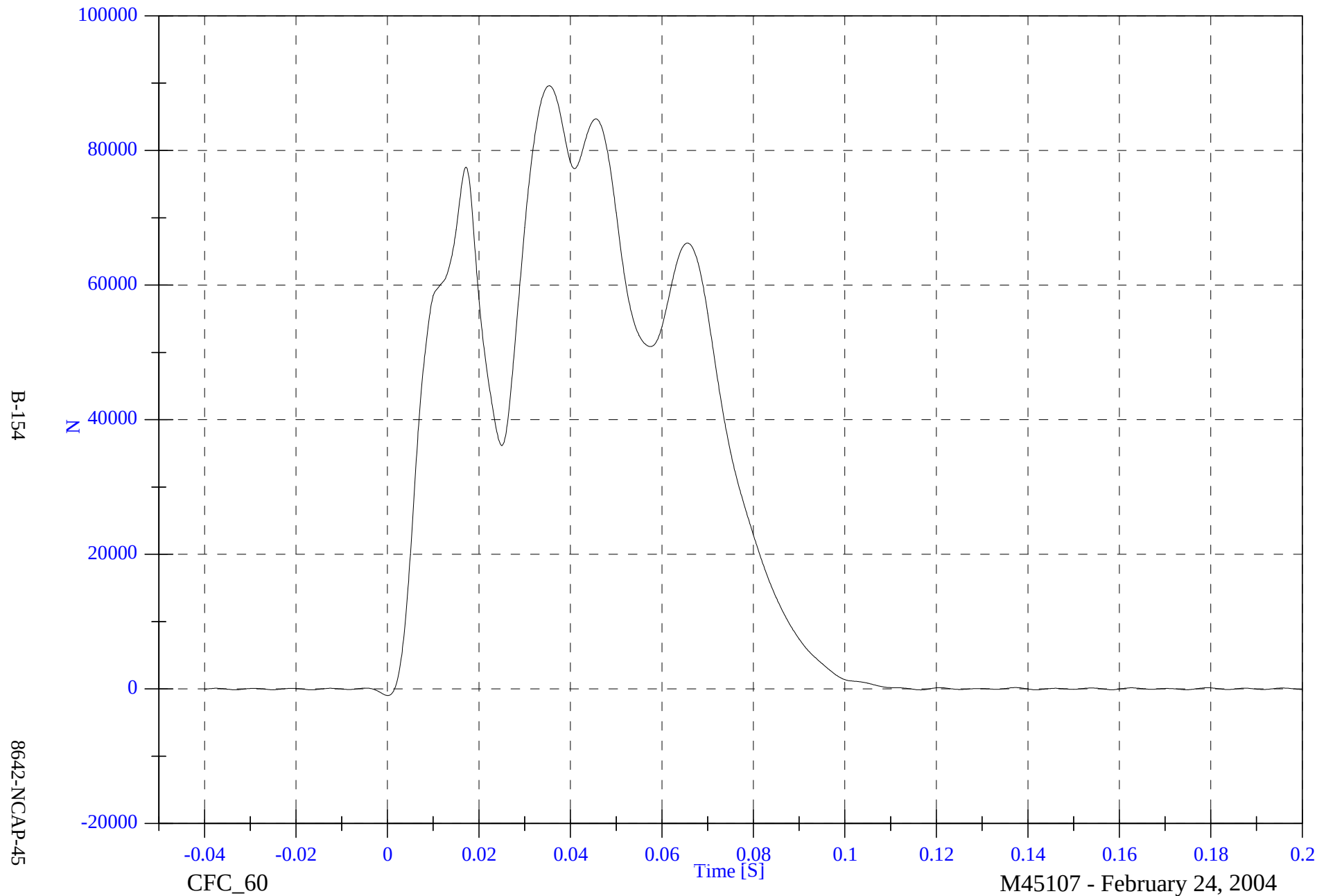


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell B3 Fx

Max: 89617.1 [N] at 0.035 [S]

Min: -982.0 [N] at 0.000 [S]

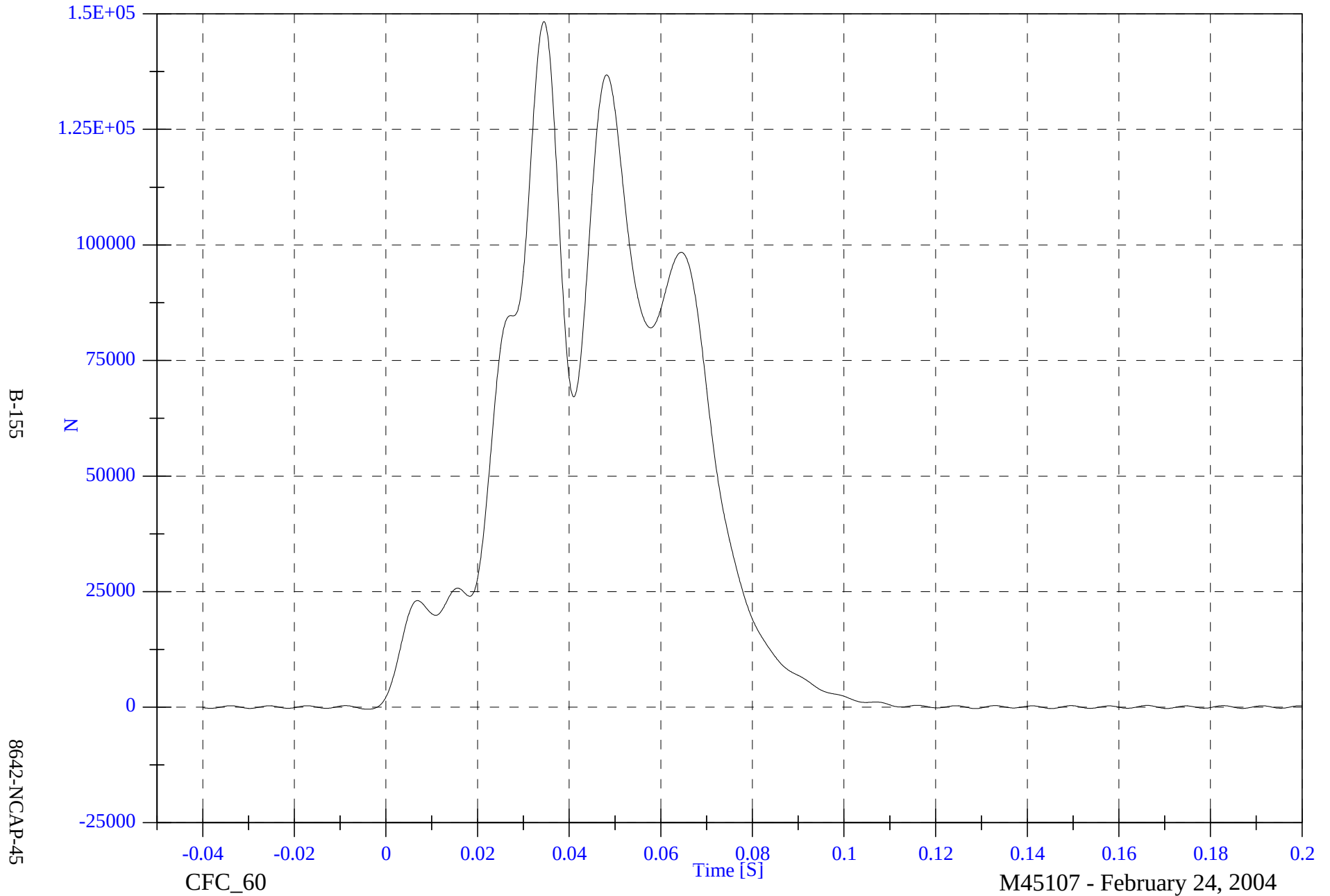


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell B4 Fx

Max: 148327.7 [N] at 0.034 [S]

Min: -452.7 [N] at -0.004 [S]

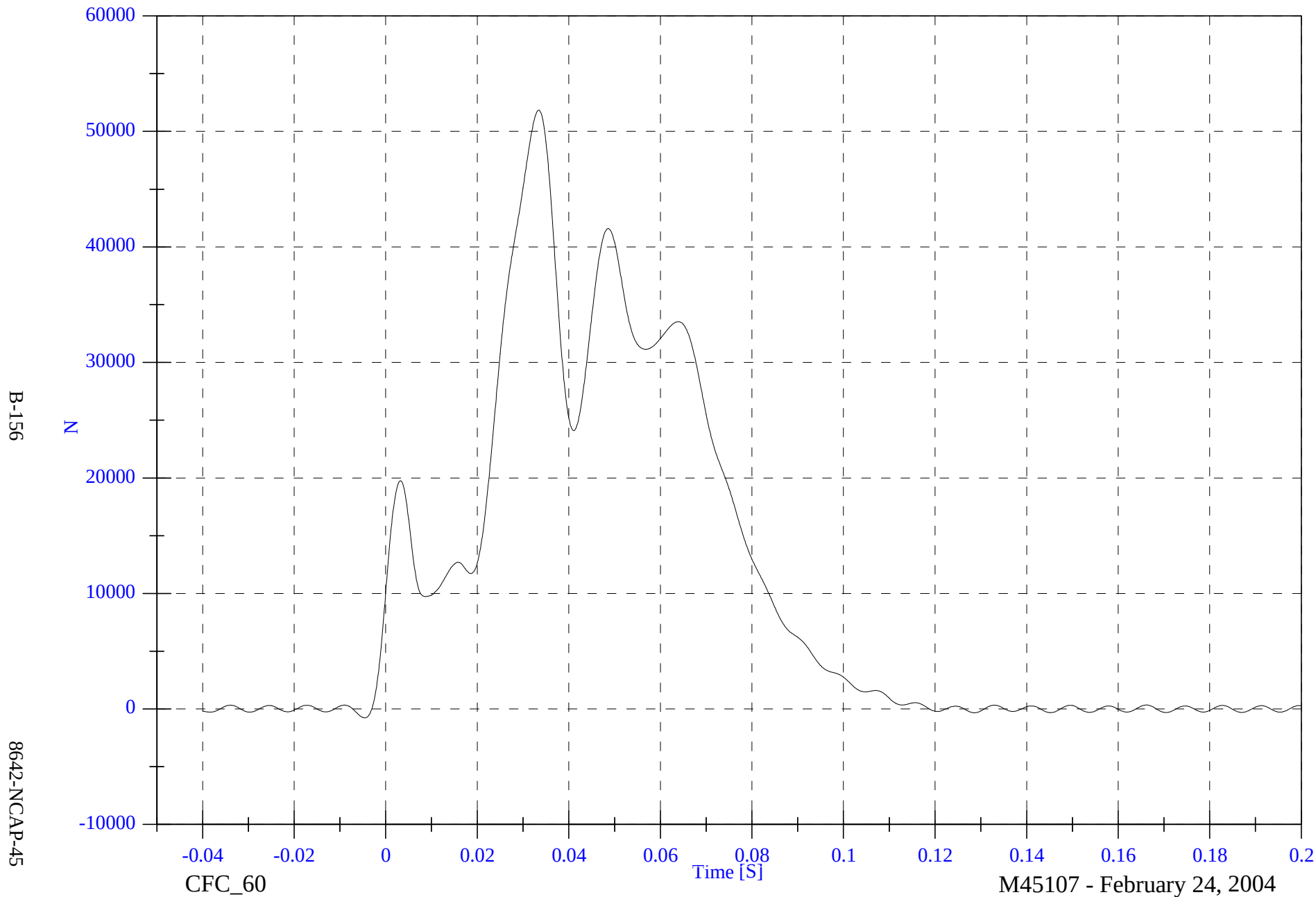


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell B5 Fx

Max: 51834.9 [N] at 0.033 [S]

Min: -775.3 [N] at -0.005 [S]

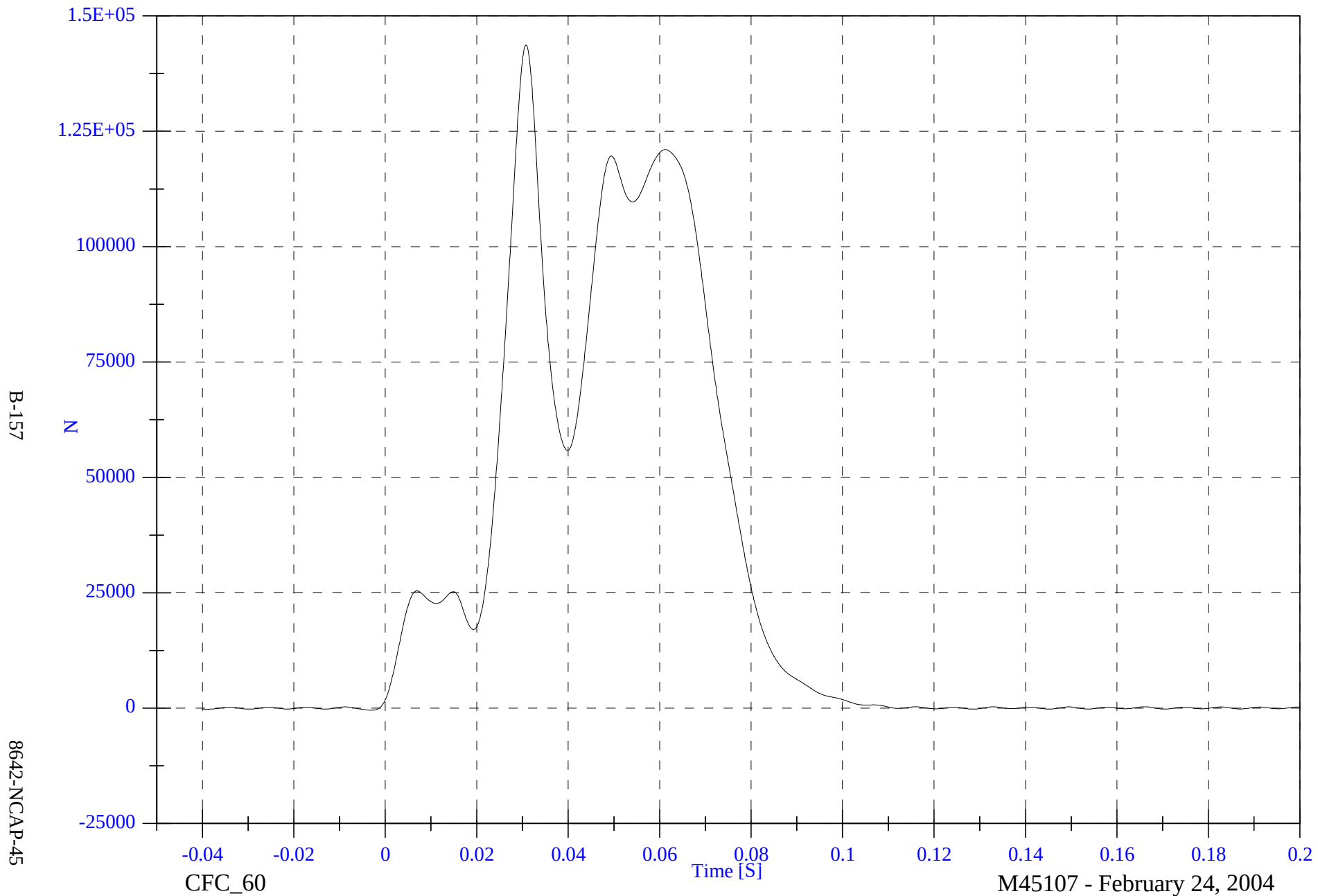


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell B6 Fx

Max: 143692.7 [N] at 0.031 [S]

Min: -452.3 [N] at -0.003 [S]

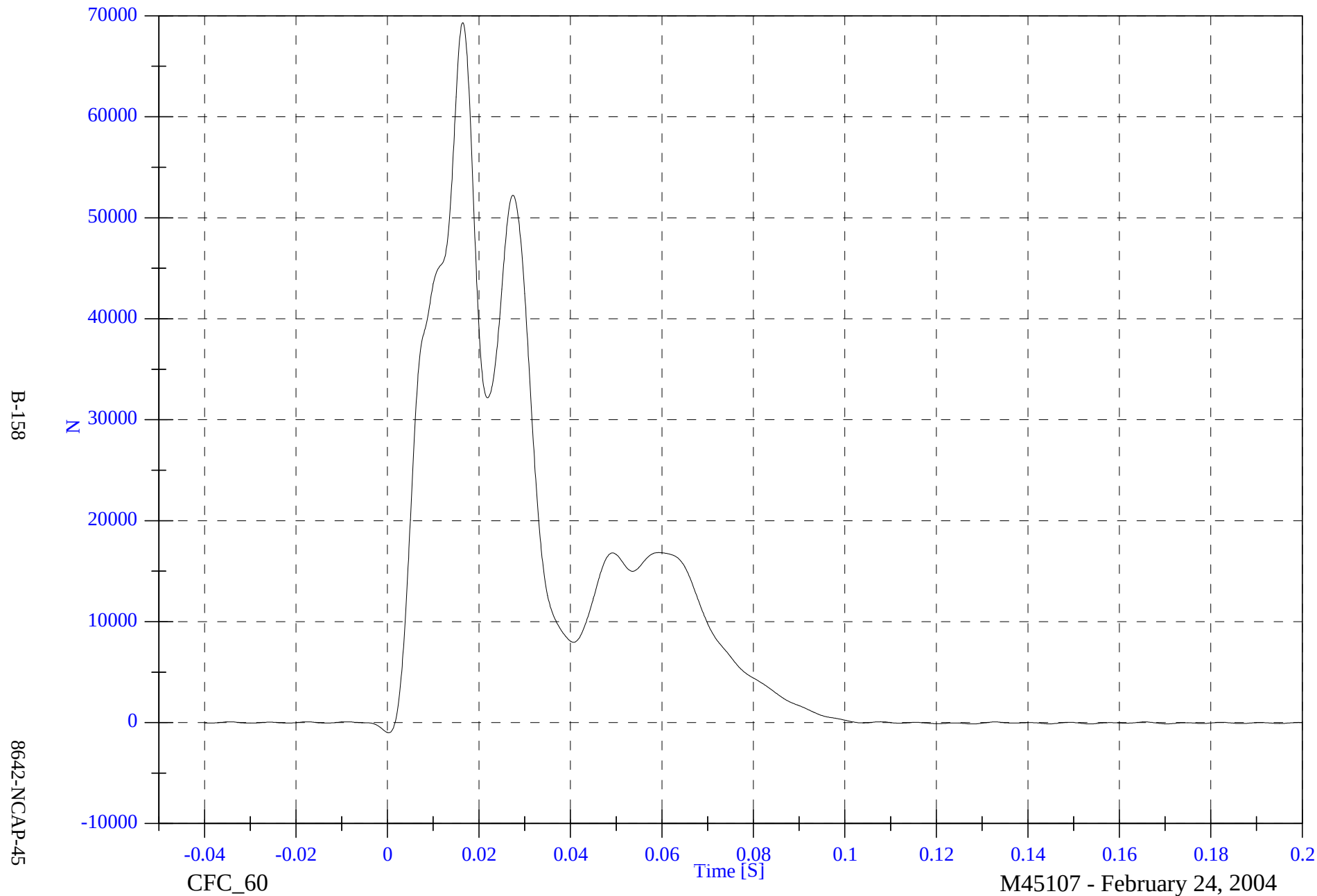


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell B7 Fx

Max: 69334.4 [N] at 0.016 [S]

Min: -1006.5 [N] at 0.000 [S]

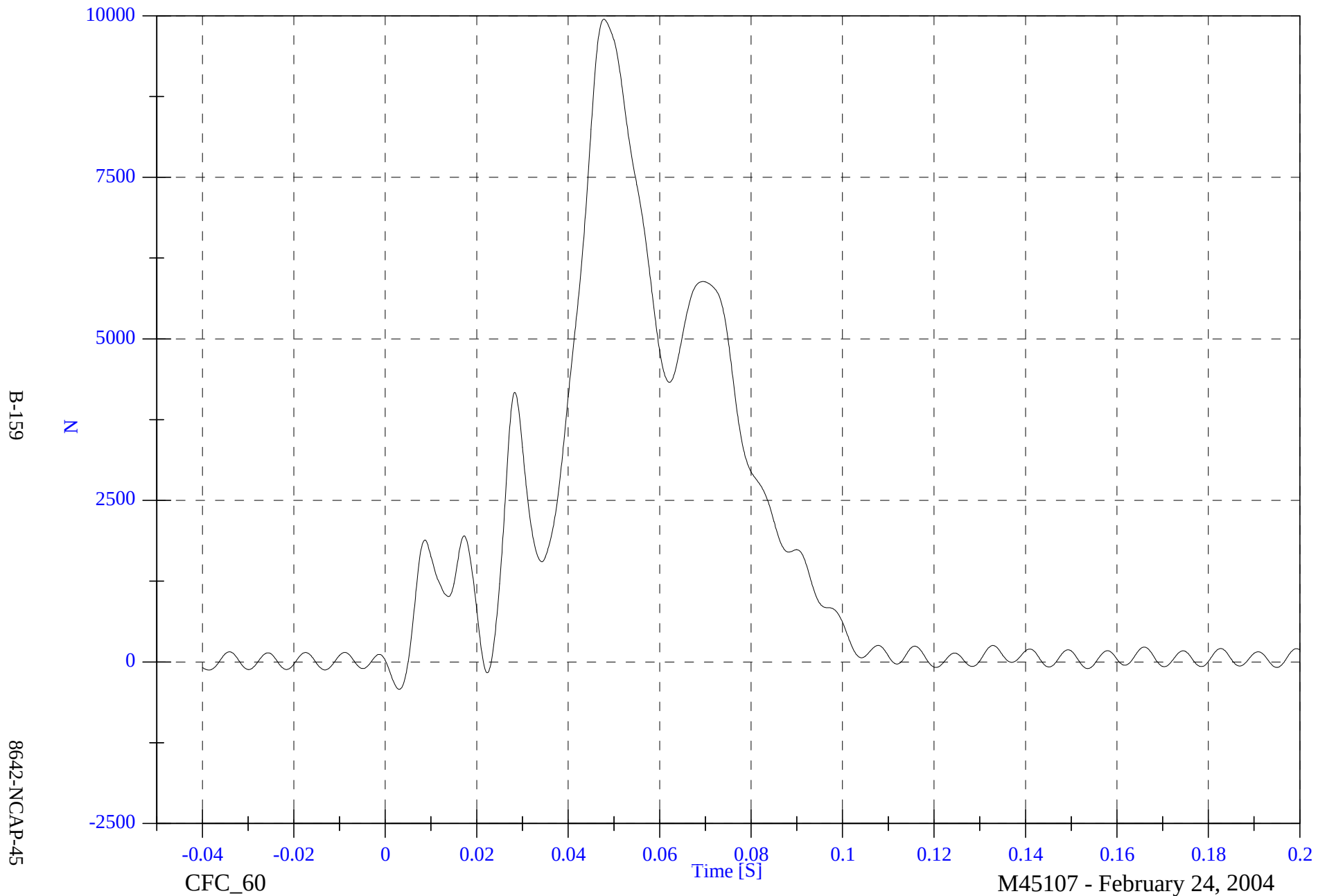


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell B8 Fx

Max: 9947.2 [N] at 0.048 [S]

Min: -422.9 [N] at 0.003 [S]

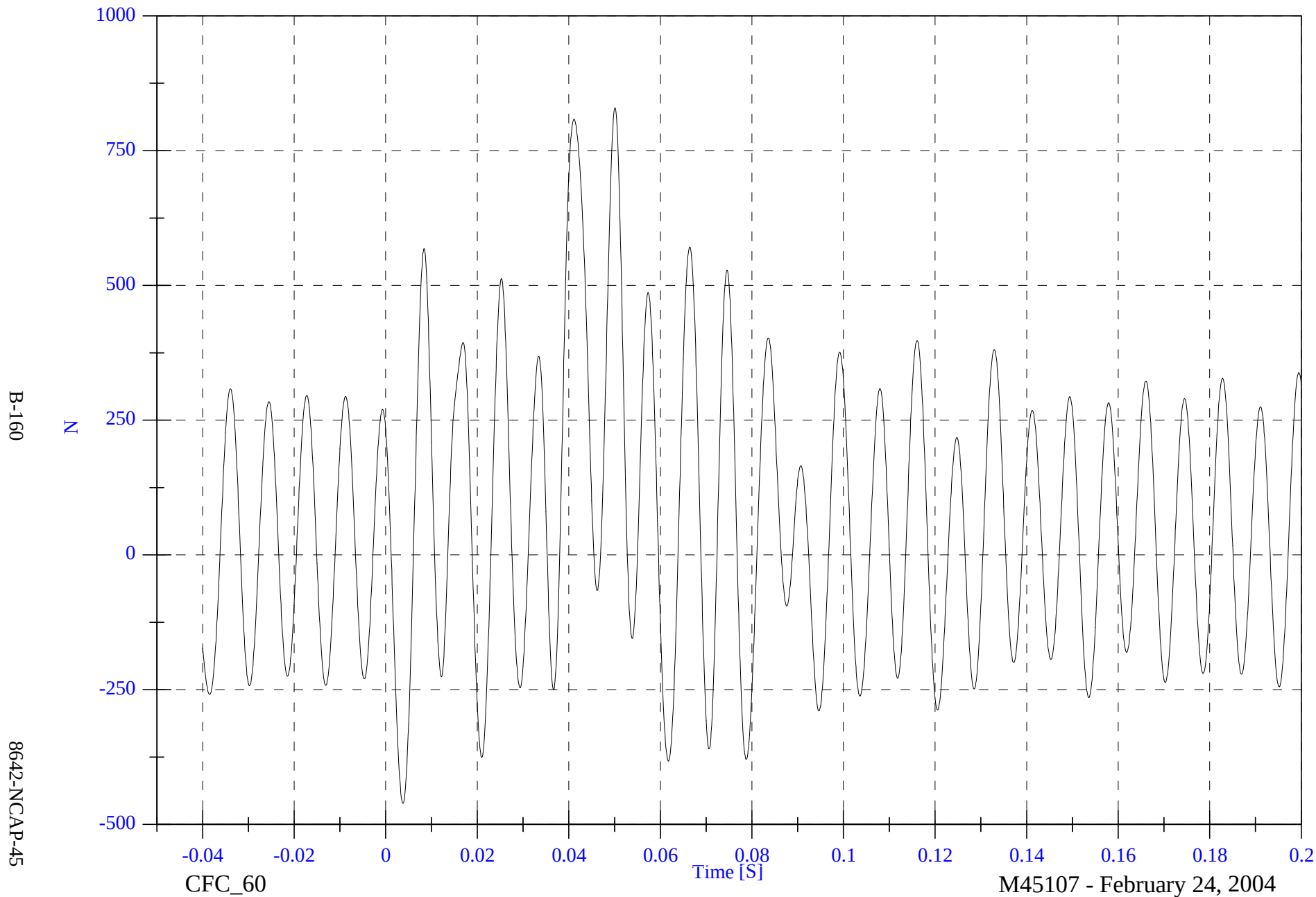


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell B9 Fx

Max: 829.2 [N] at 0.050 [S]

Min: -461.0 [N] at 0.004 [S]



2004 NCAP Test 9 2004 Toyota Prius

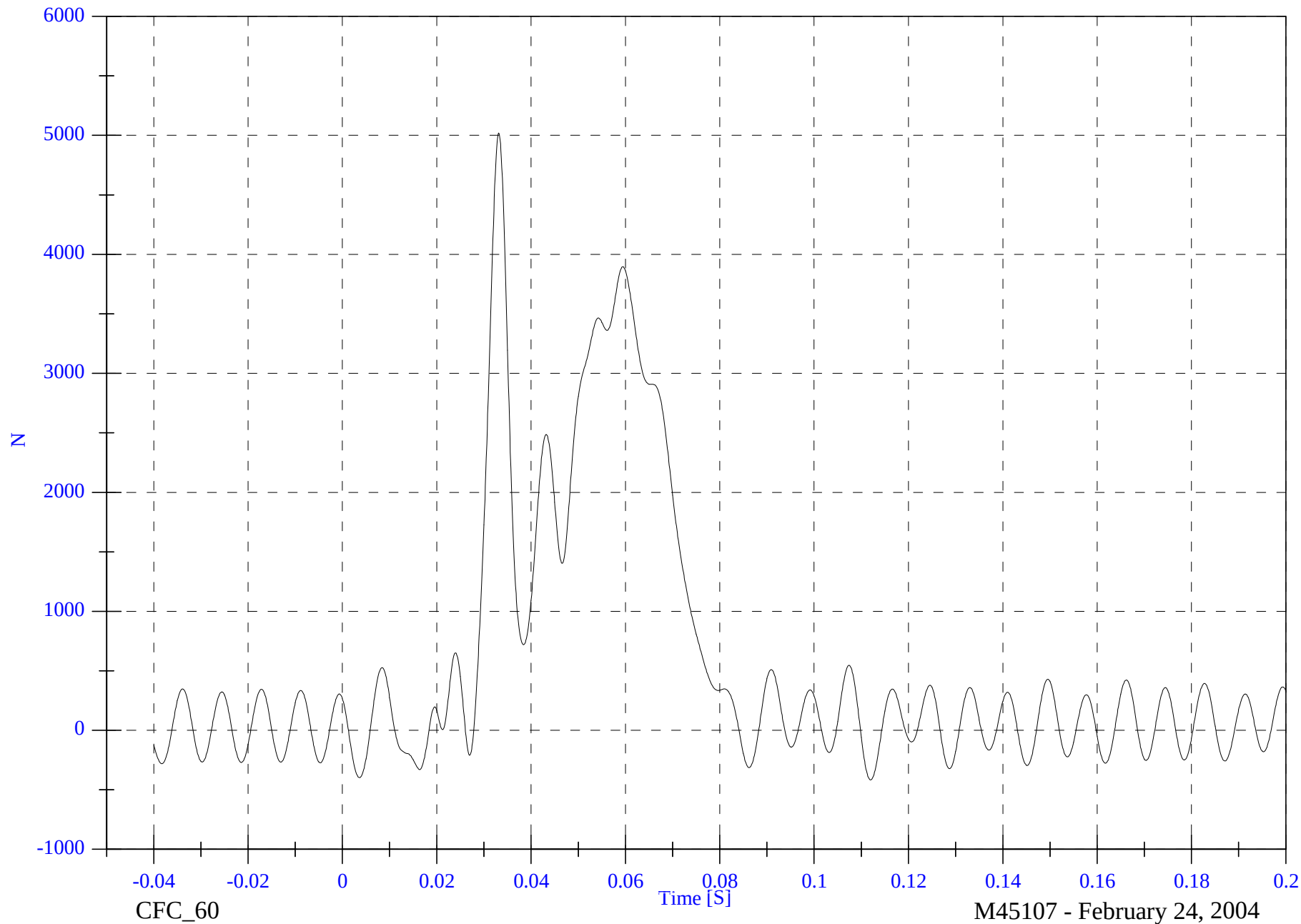
Barrier Load Cell C1 Fx

Max: 5019.5 [N] at 0.033 [S]

Min: -417.6 [N] at 0.112 [S]

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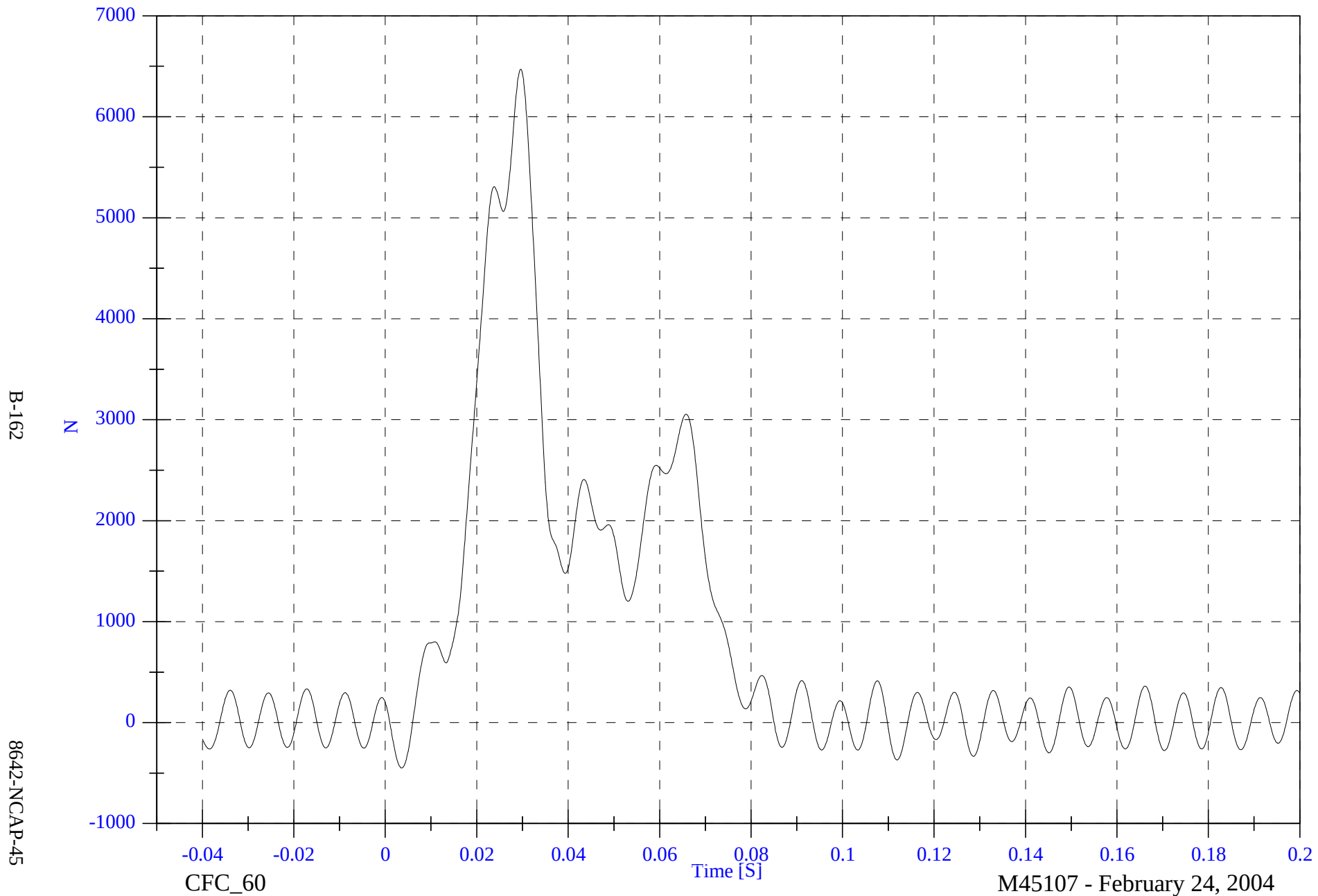


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell C2 Fx

Max: 6471.5 [N] at 0.030 [S]

Min: -449.8 [N] at 0.004 [S]

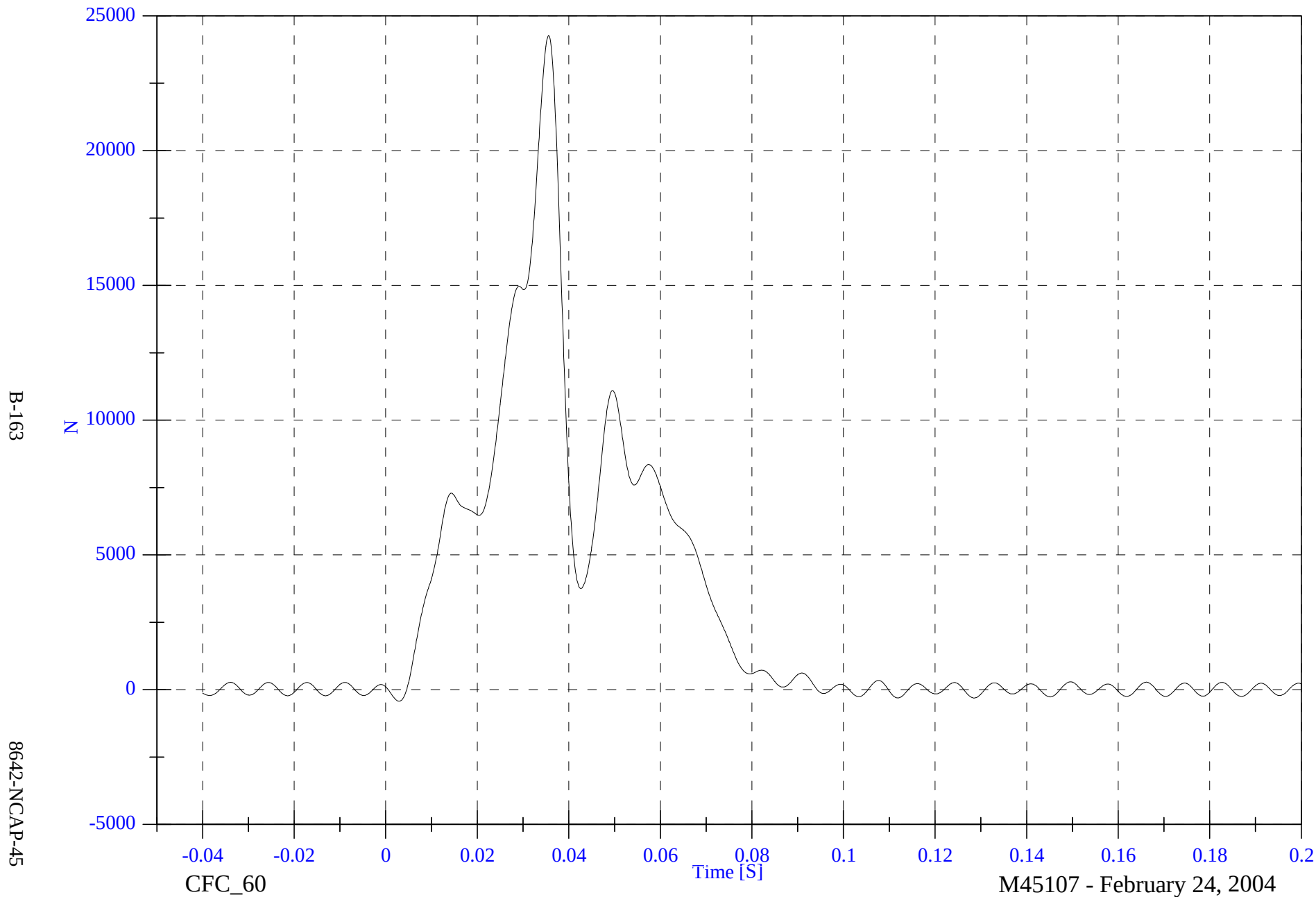


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell C3 Fx

Max: 24270.4 [N] at 0.036 [S]

Min: -428.1 [N] at 0.003 [S]

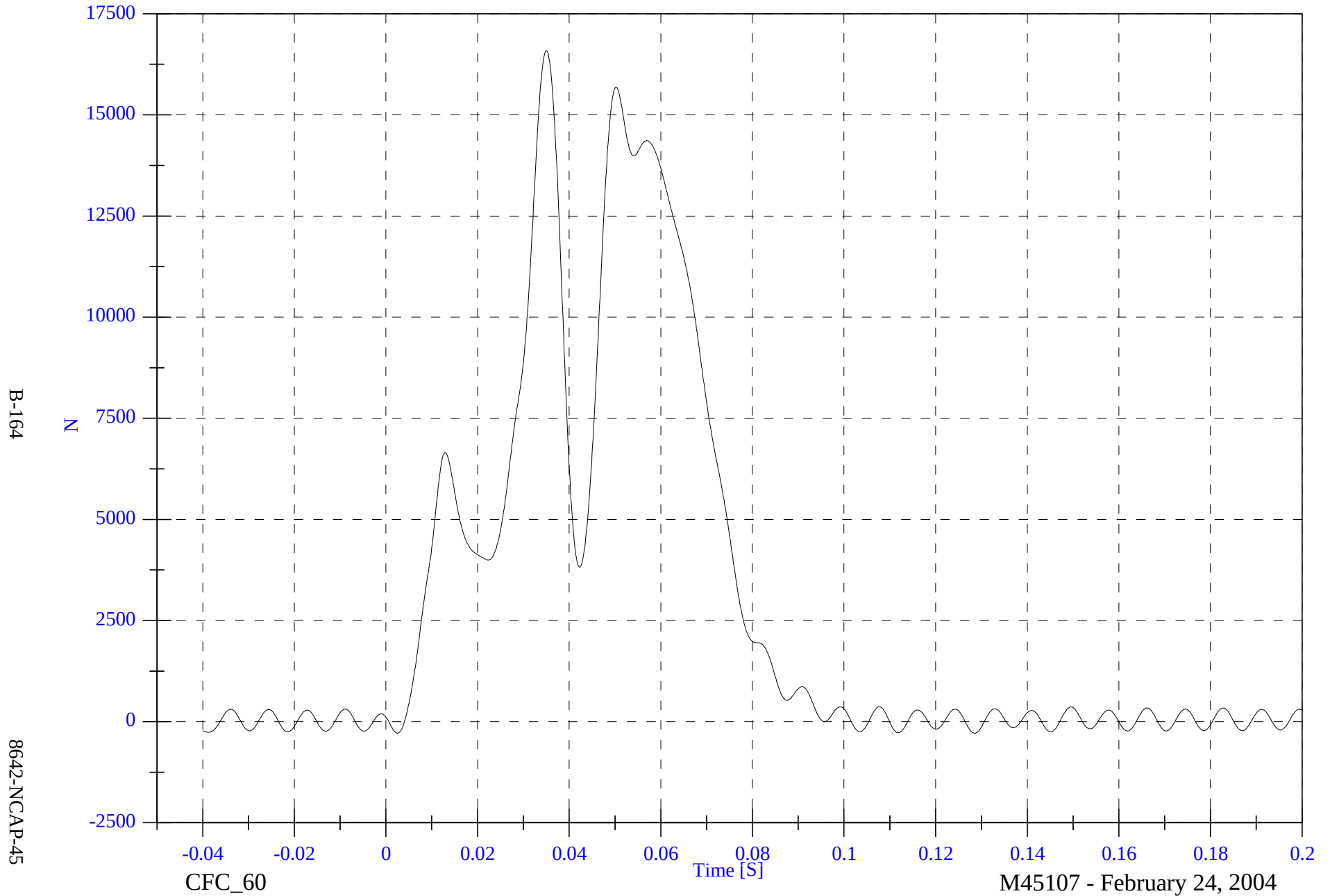


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell C4 Fx

Max: 16590.0 [N] at 0.035 [S]

Min: -287.5 [N] at 0.002 [S]

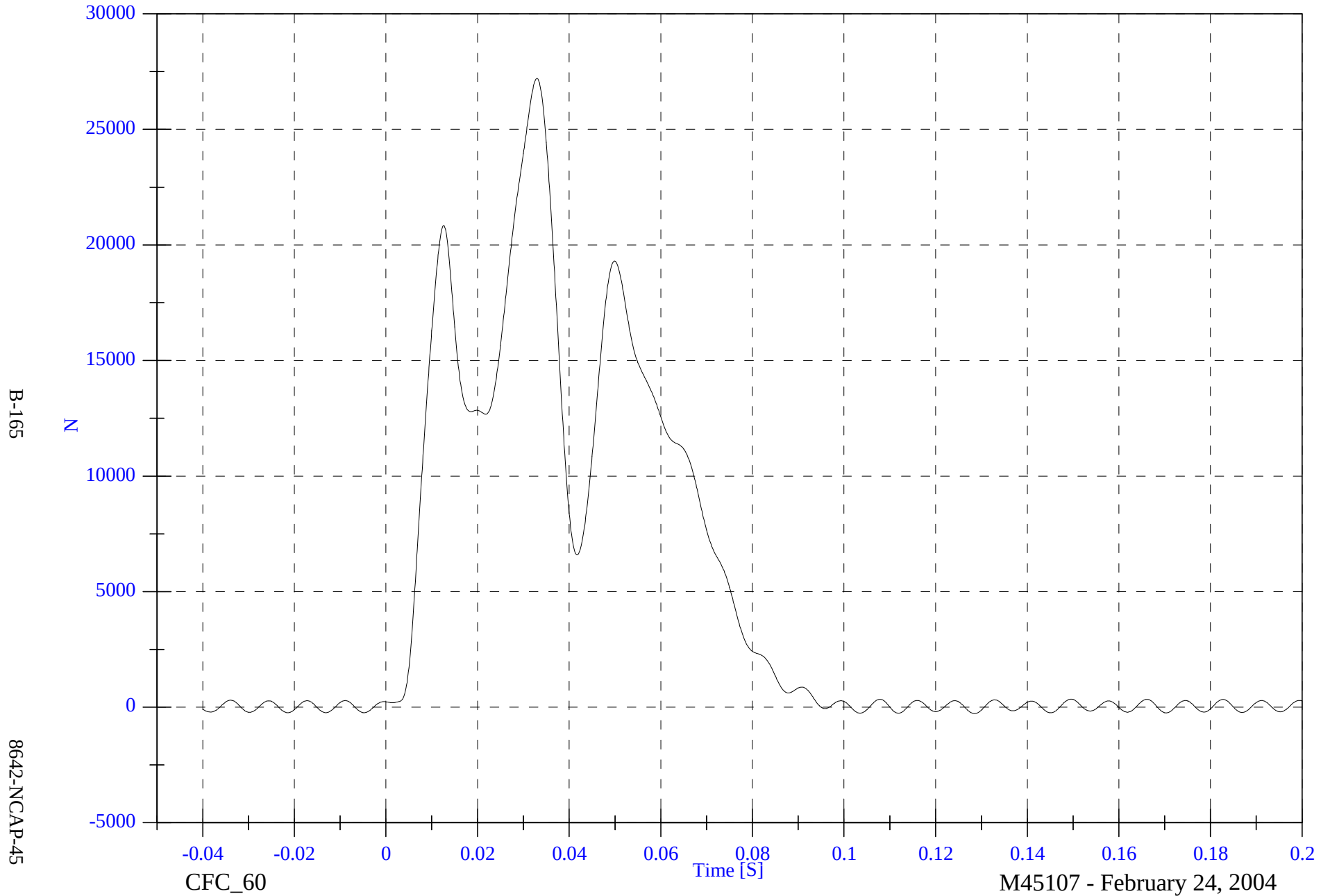


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell C5 Fx

Max: 27205.7 [N] at 0.033 [S]

Min: -276.6 [N] at 0.128 [S]

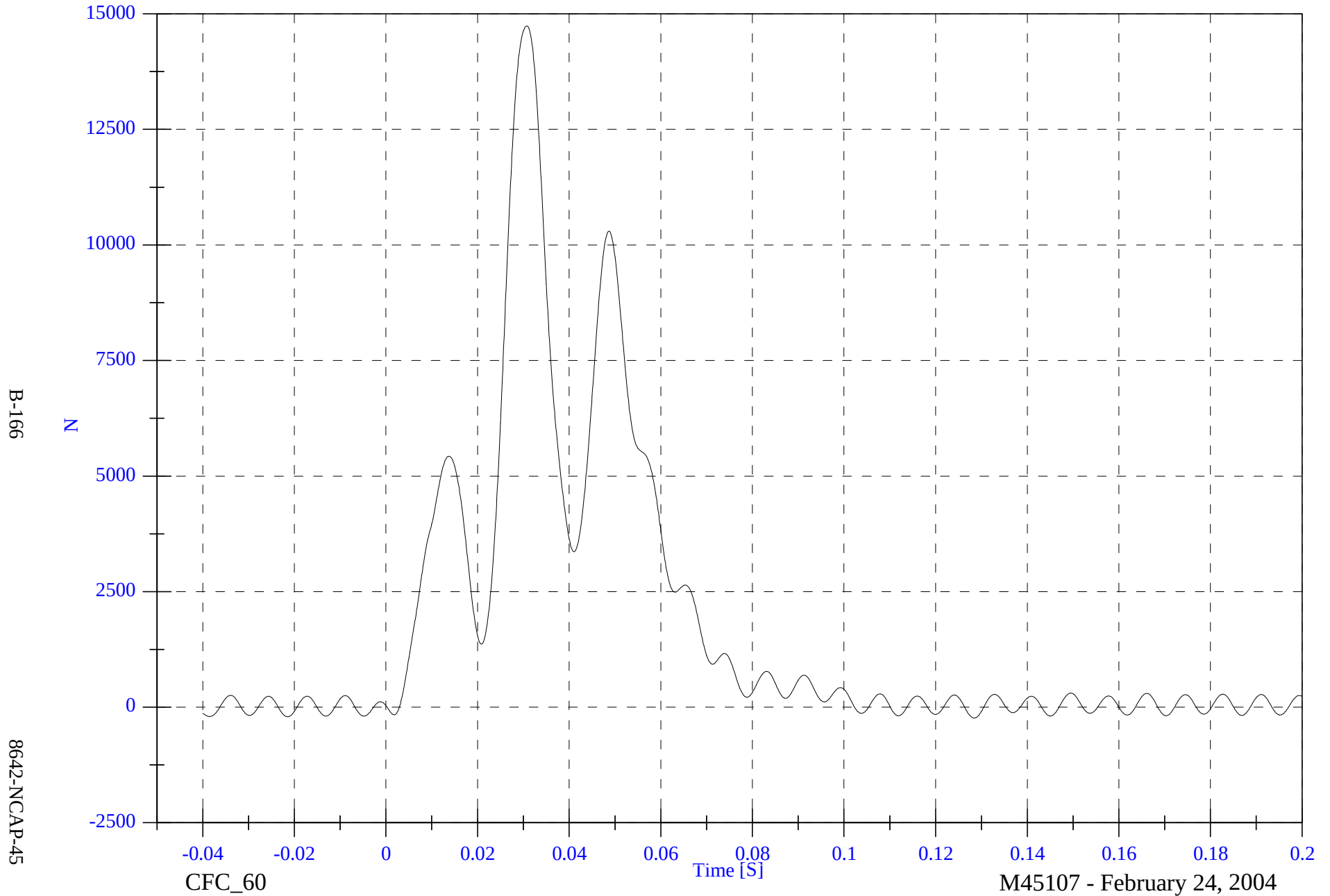


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell C6 Fx

Max: 14734.9 [N] at 0.031 [S]

Min: -234.9 [N] at 0.128 [S]

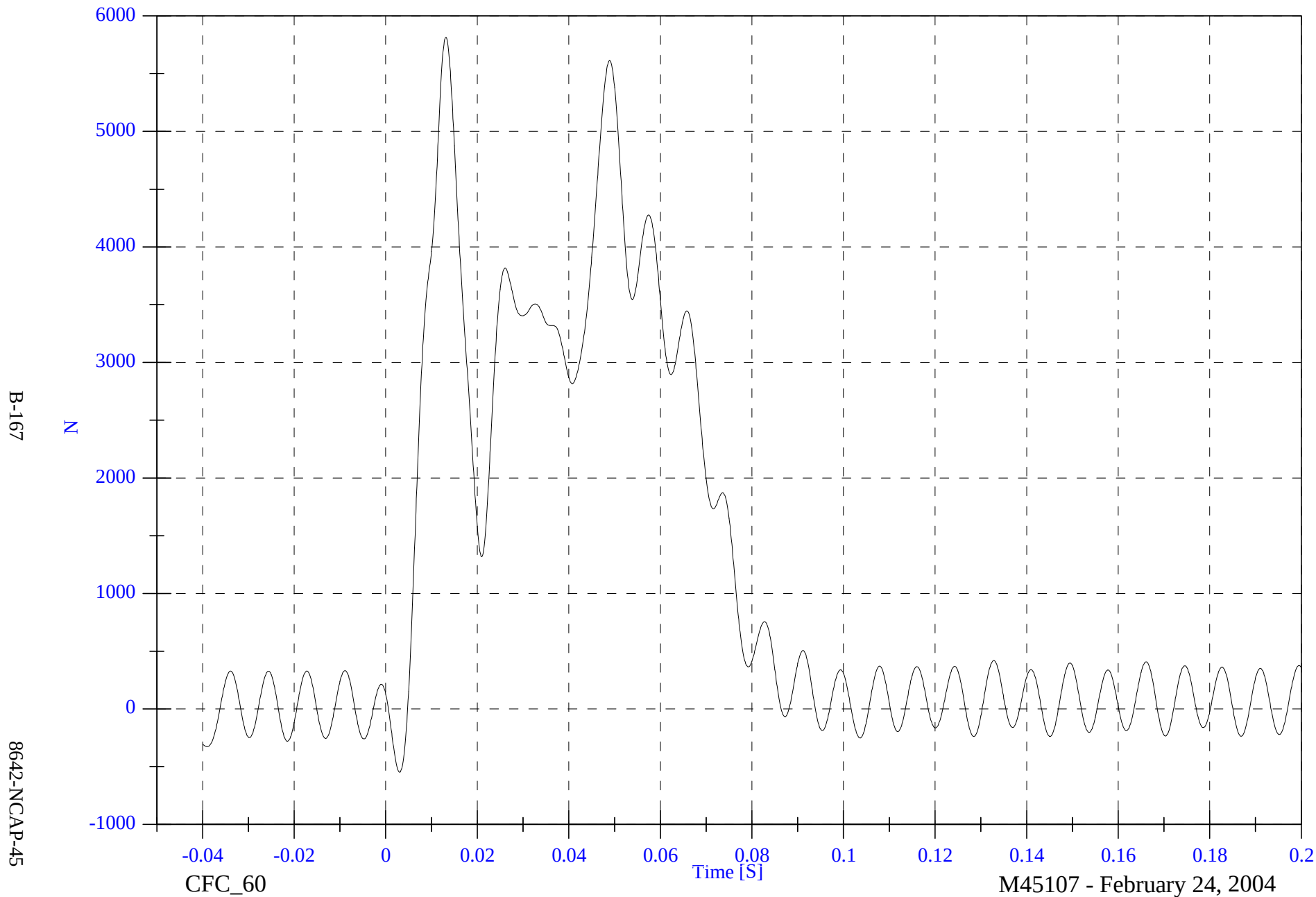


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell C7 Fx

Max: 5814.2 [N] at 0.013 [S]

Min: -547.1 [N] at 0.003 [S]

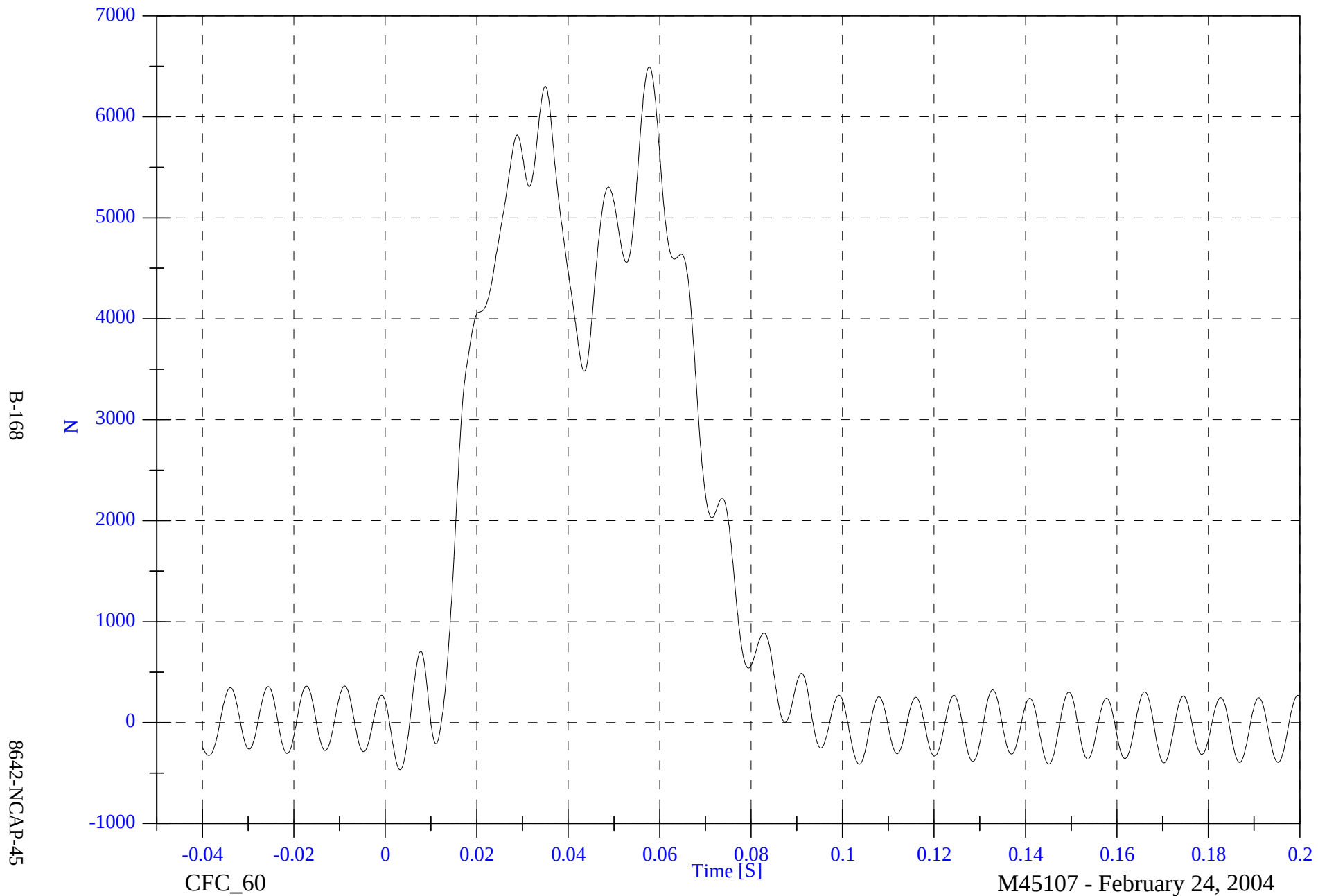


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell C8 Fx

Max: 6495.9 [N] at 0.058 [S]

Min: -466.5 [N] at 0.003 [S]

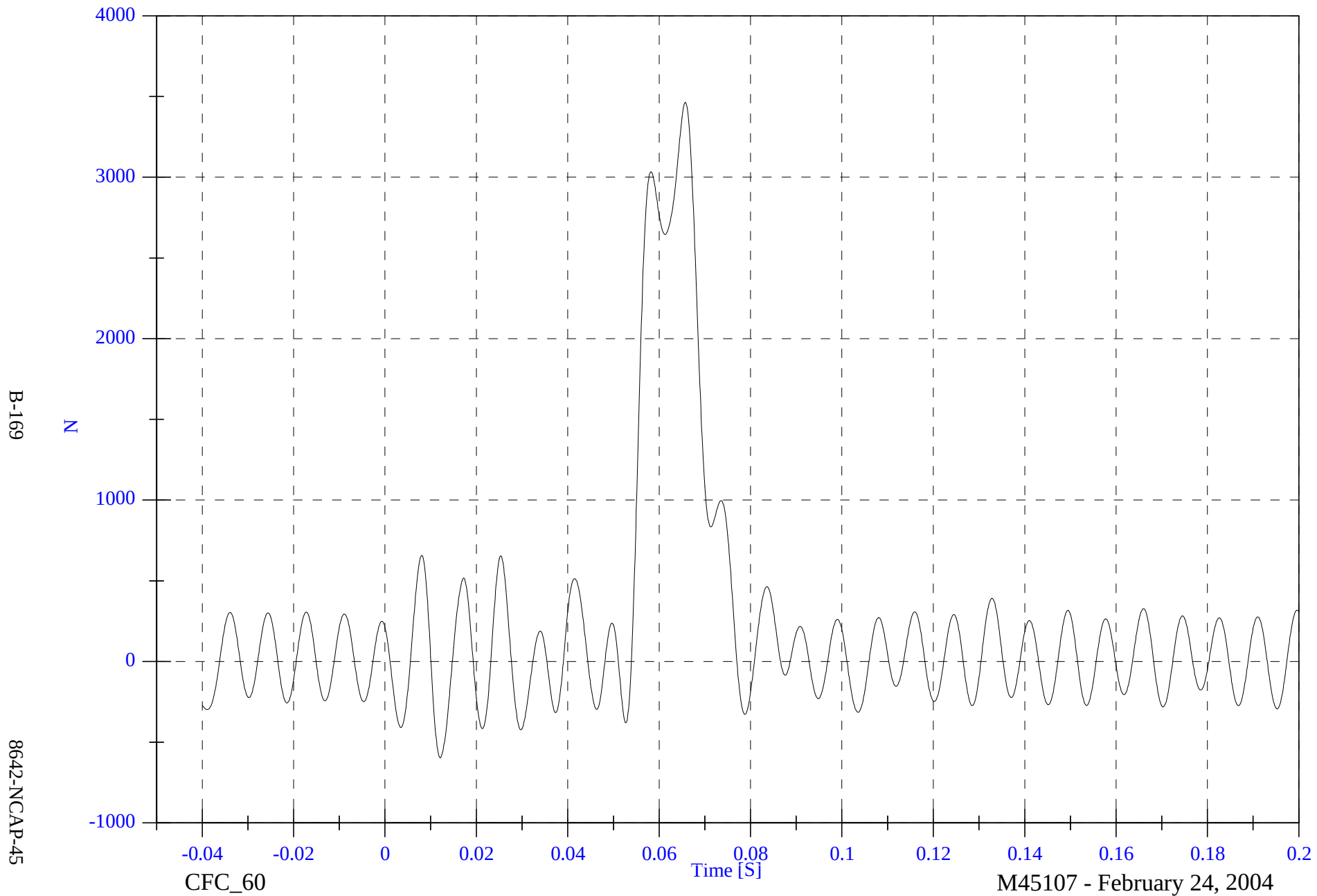


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell C9 Fx

Max: 3463.8 [N] at 0.066 [S]

Min: -596.3 [N] at 0.012 [S]

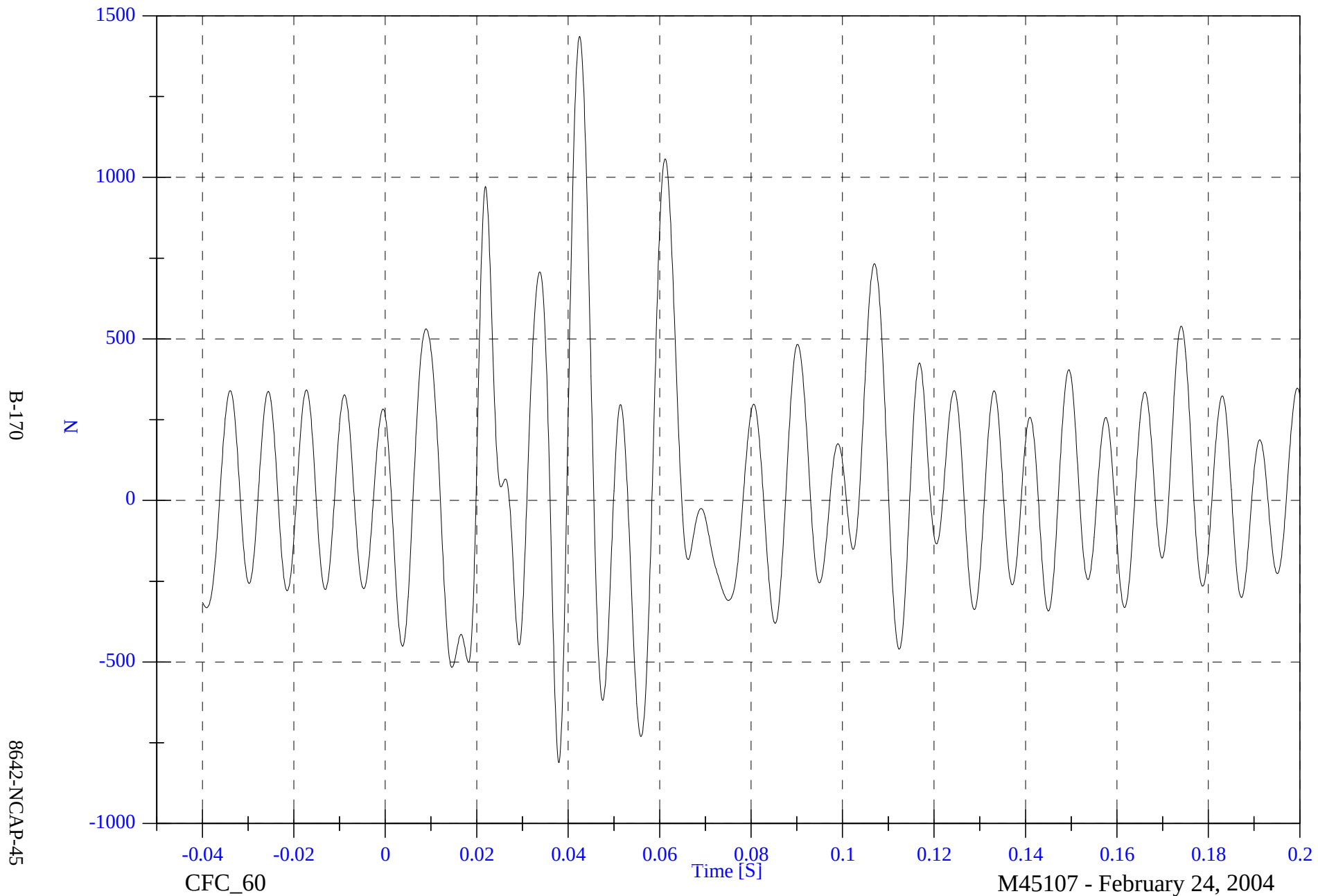


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell D1 Fx

Max: 1436.3 [N] at 0.042 [S]

Min: -811.2 [N] at 0.038 [S]

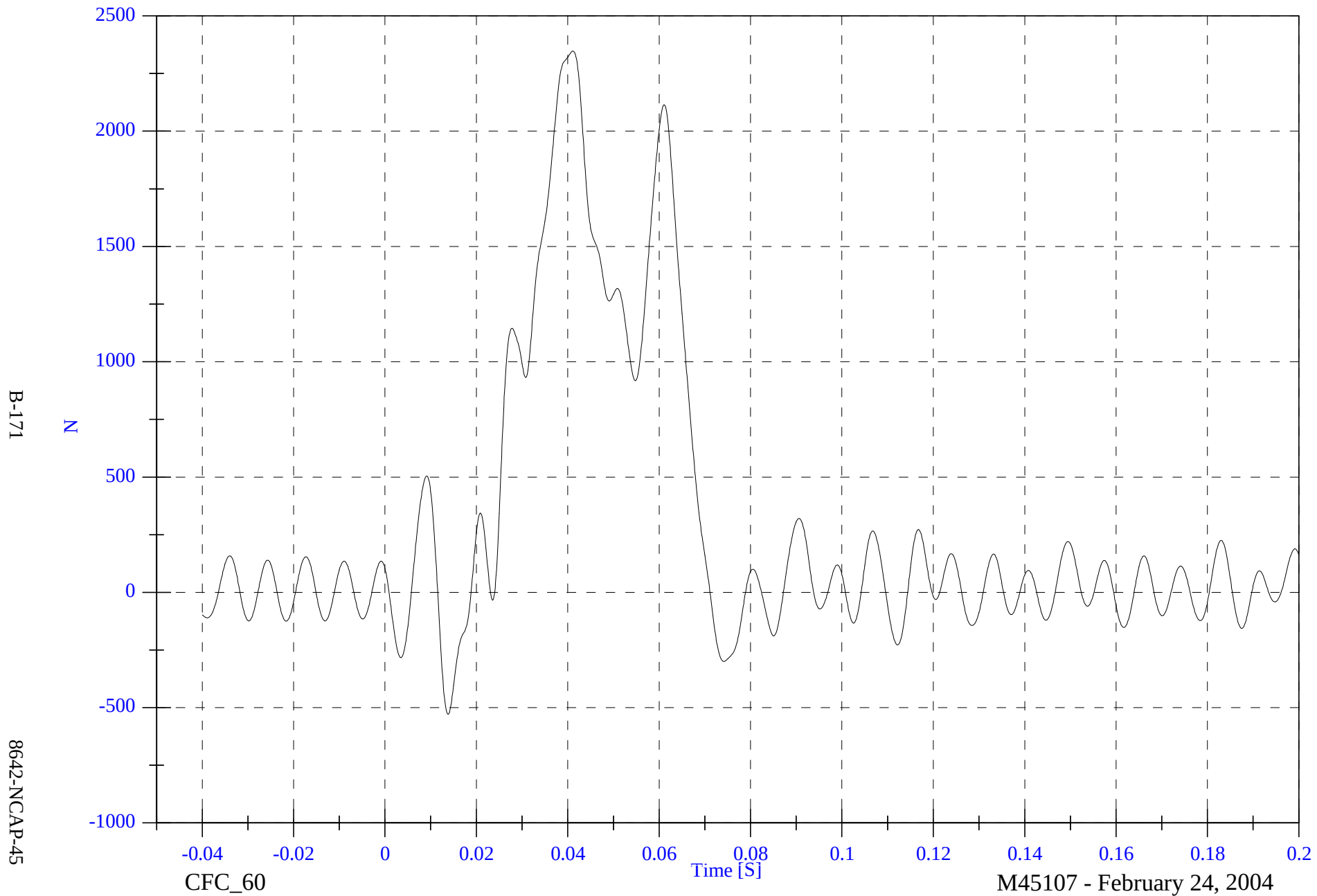


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell D2 Fx

Max: 2347.1 [N] at 0.041 [S]

Min: -528.9 [N] at 0.014 [S]

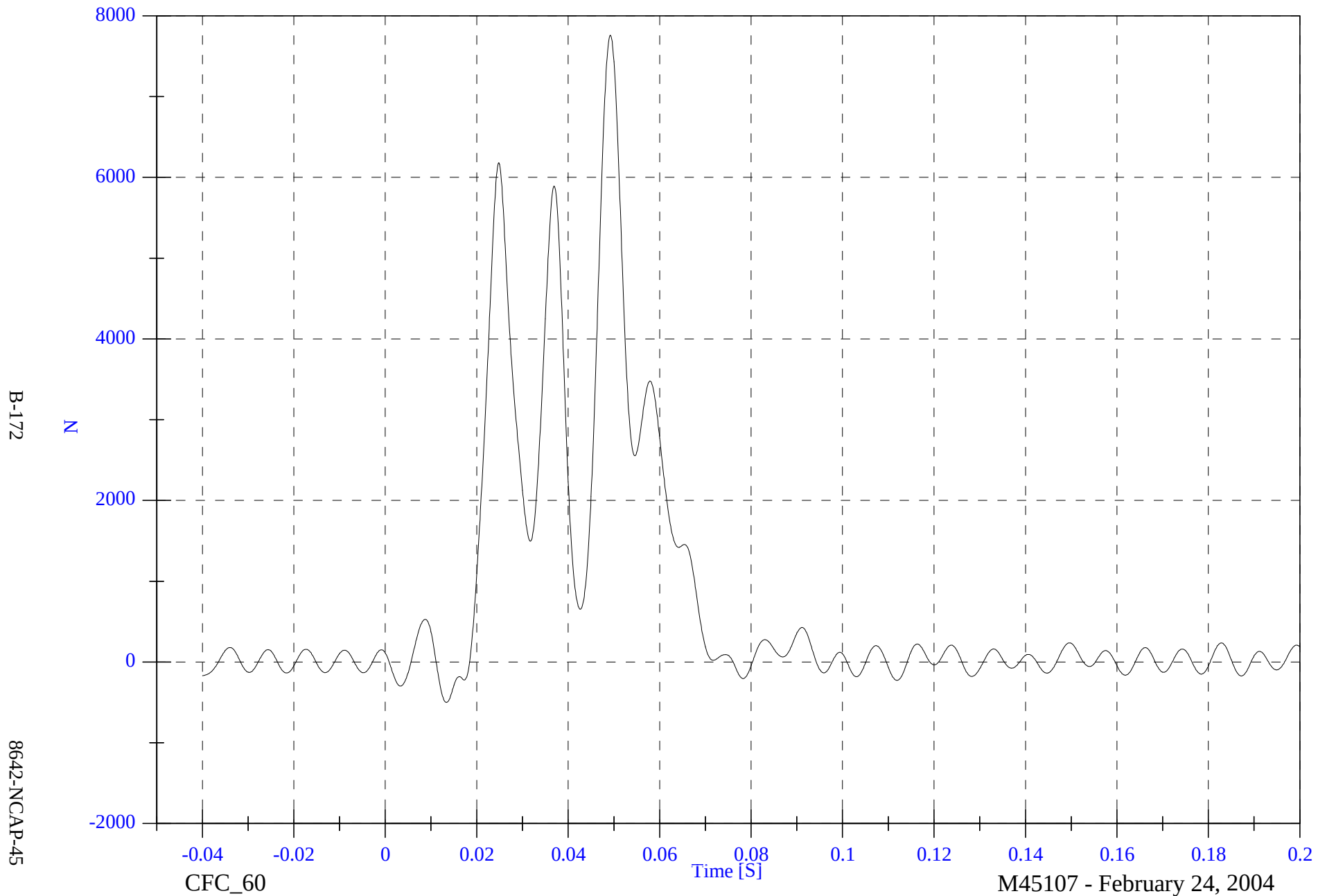


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell D3 Fx

Max: 7760.8 [N] at 0.049 [S]

Min: -499.9 [N] at 0.013 [S]

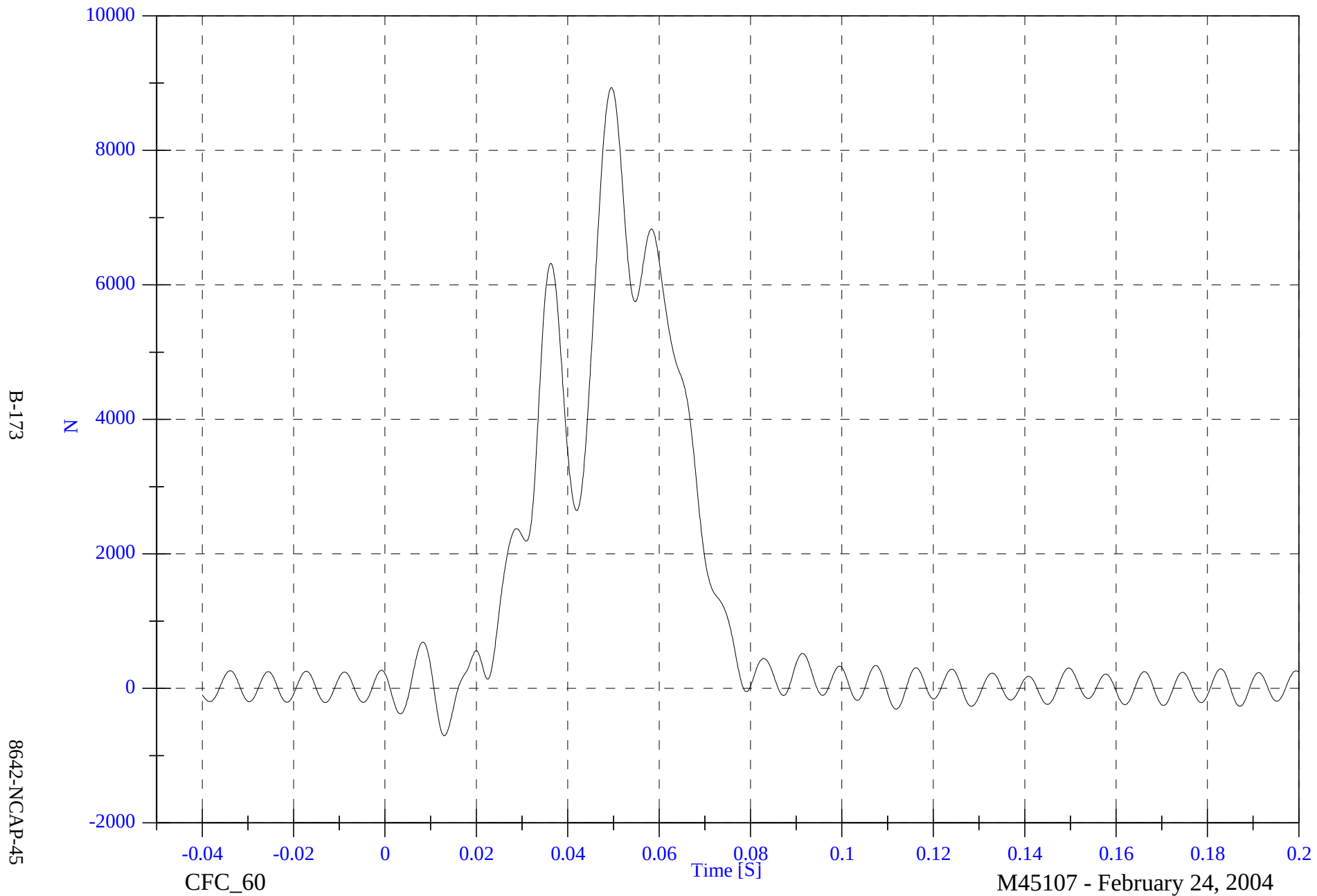


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell D4 Fx

Max: 8932.4 [N] at 0.050 [S]

Min: -703.3 [N] at 0.013 [S]

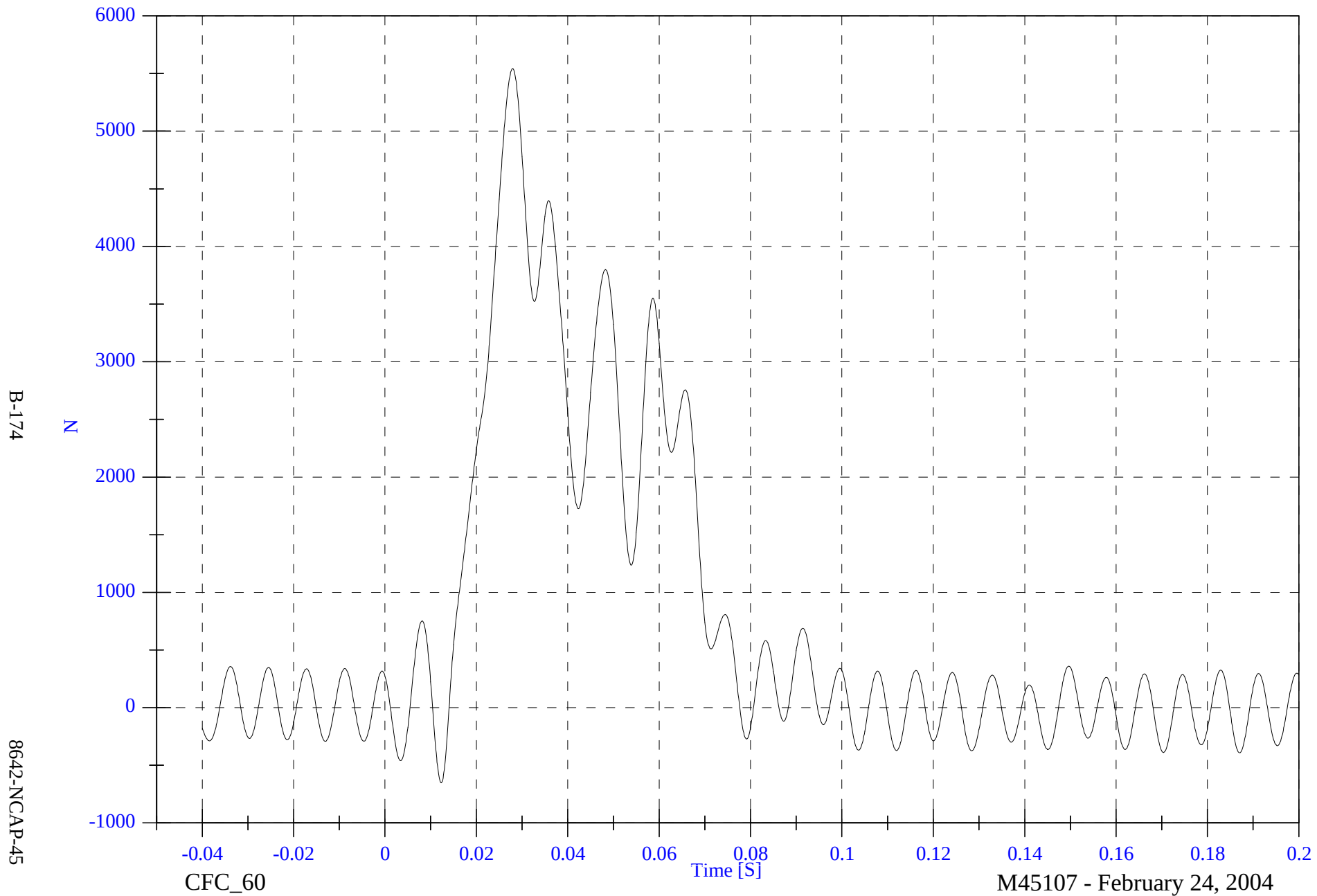


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell D5 Fx

Max: 5543.8 [N] at 0.028 [S]

Min: -652.9 [N] at 0.012 [S]

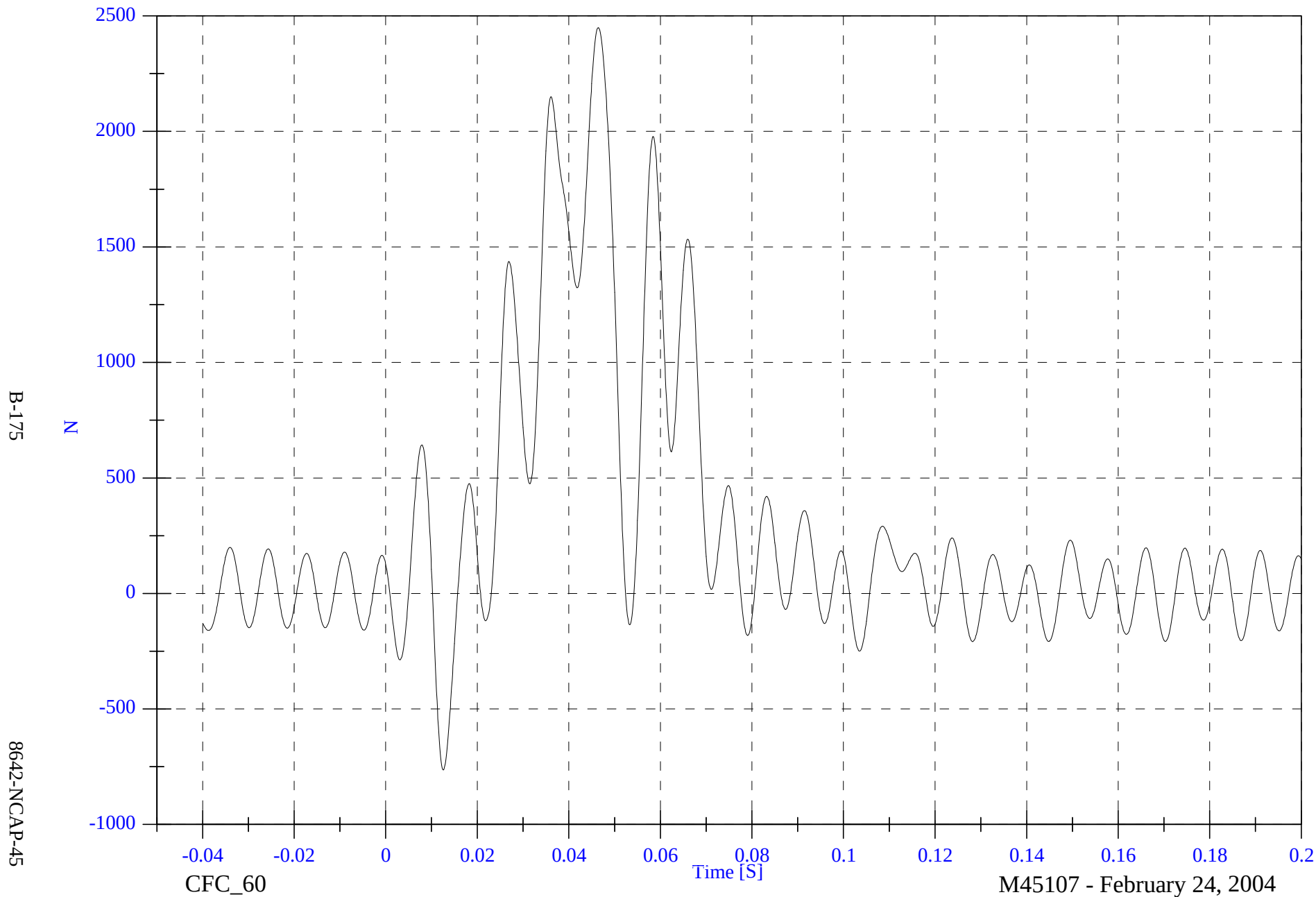


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell D6 Fx

Max: 2449.4 [N] at 0.046 [S]

Min: -763.5 [N] at 0.013 [S]

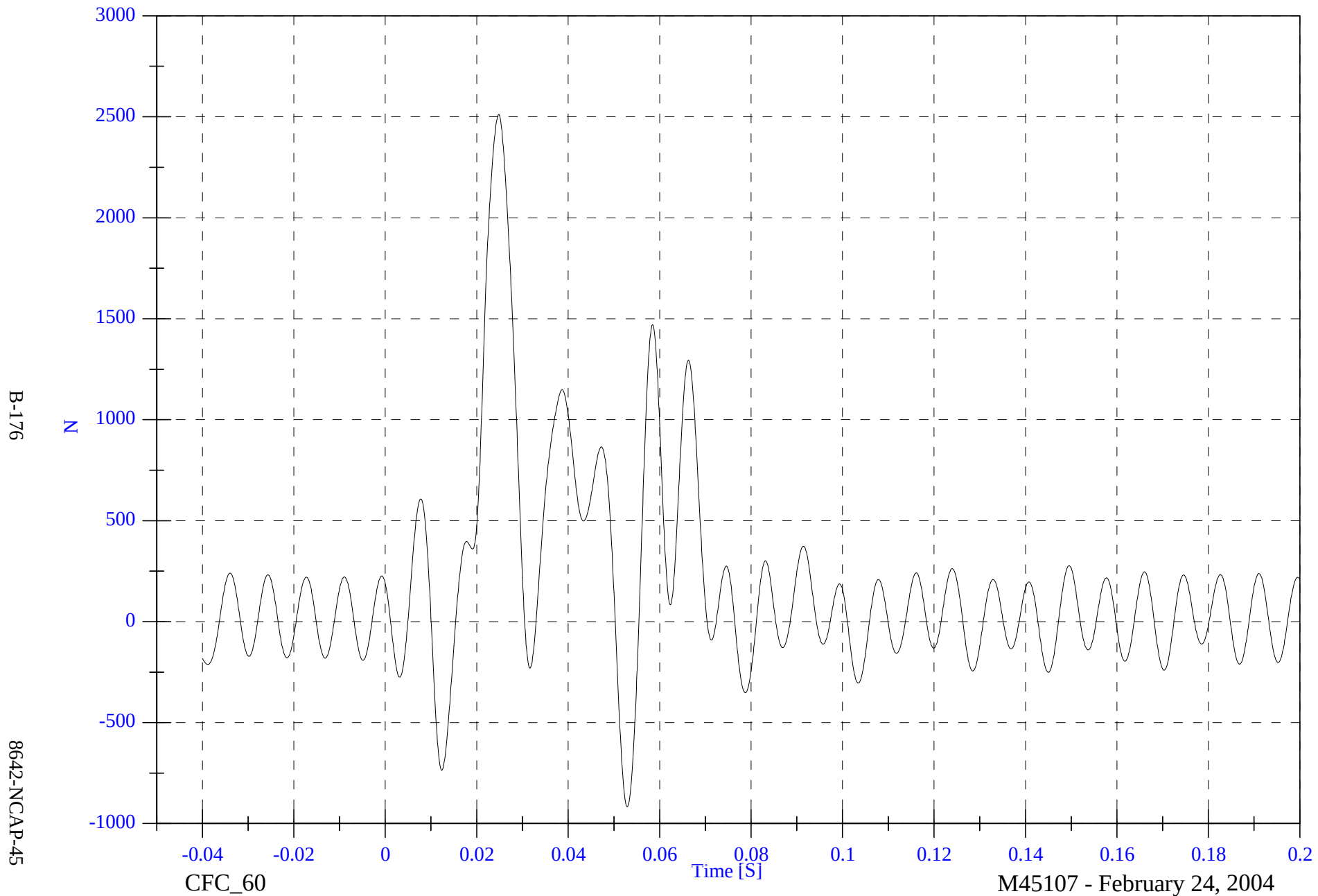


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell D7 Fx

Max: 2512.3 [N] at 0.025 [S]

Min: -916.6 [N] at 0.053 [S]

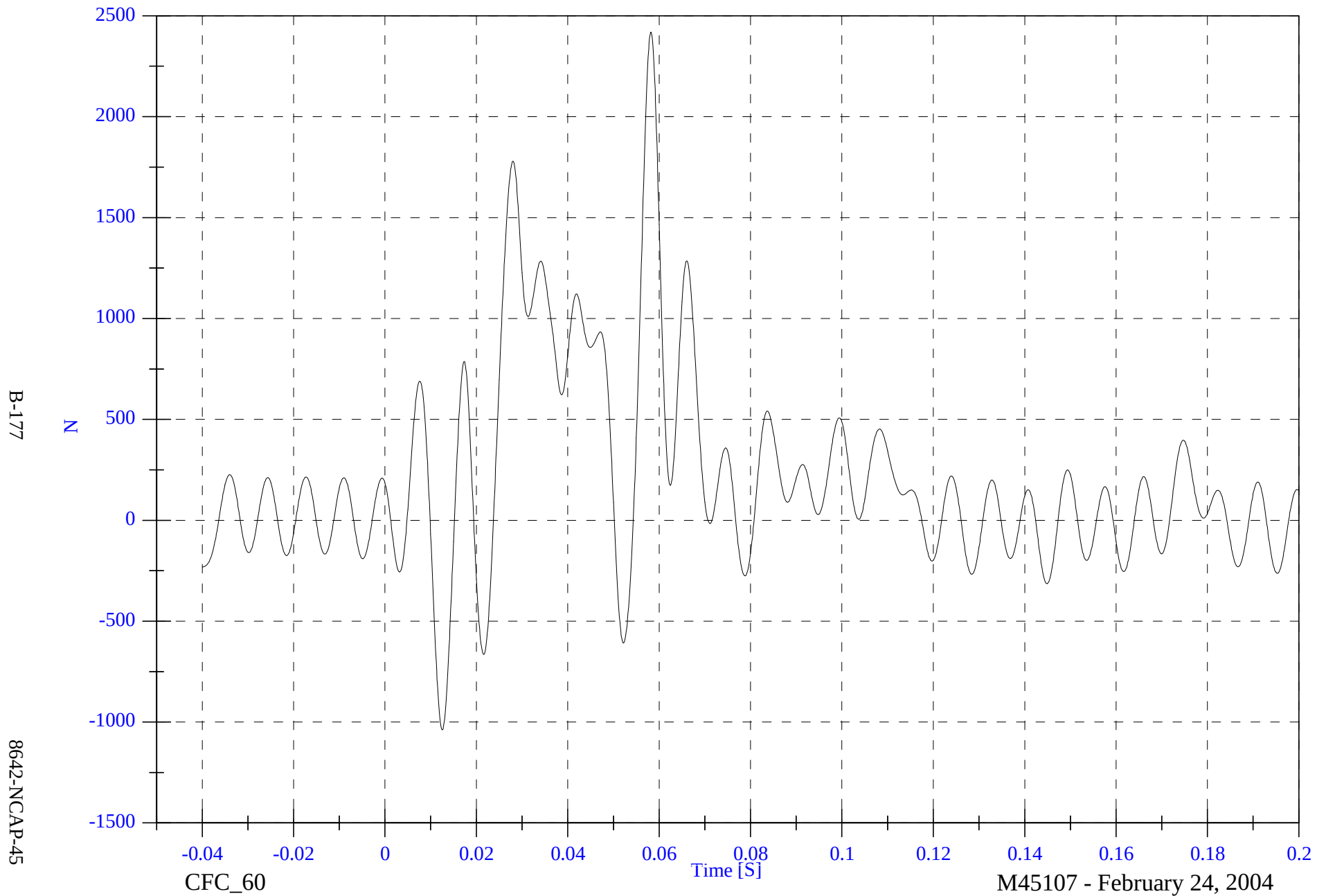


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell D8 Fx

Max: 2419.7 [N] at 0.058 [S]

Min: -1038.9 [N] at 0.012 [S]

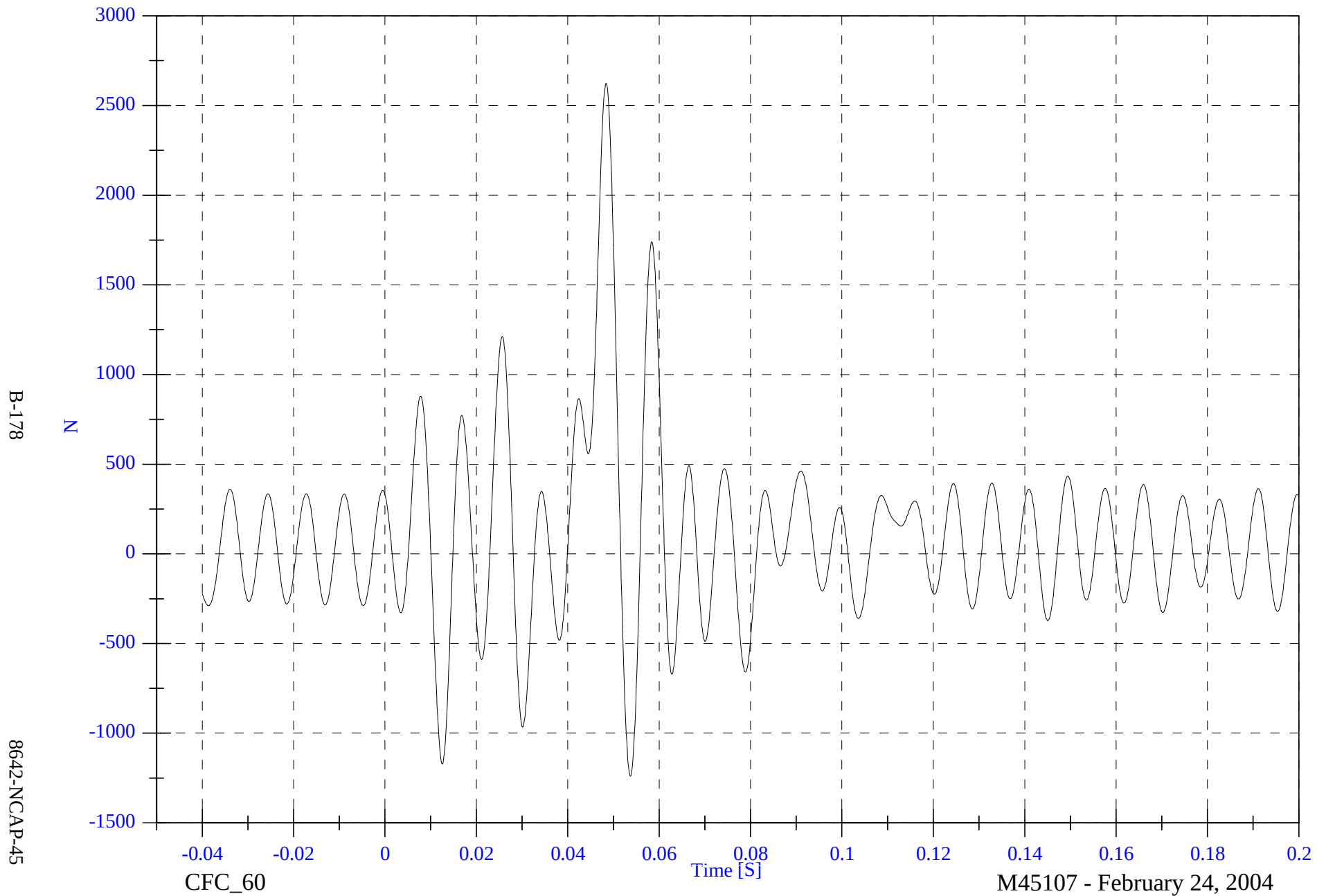


2004 NCAP Test 9 2004 Toyota Prius

Barrier Load Cell D9 Fx

Max: 2623.3 [N] at 0.048 [S]

Min: -1239.9 [N] at 0.054 [S]

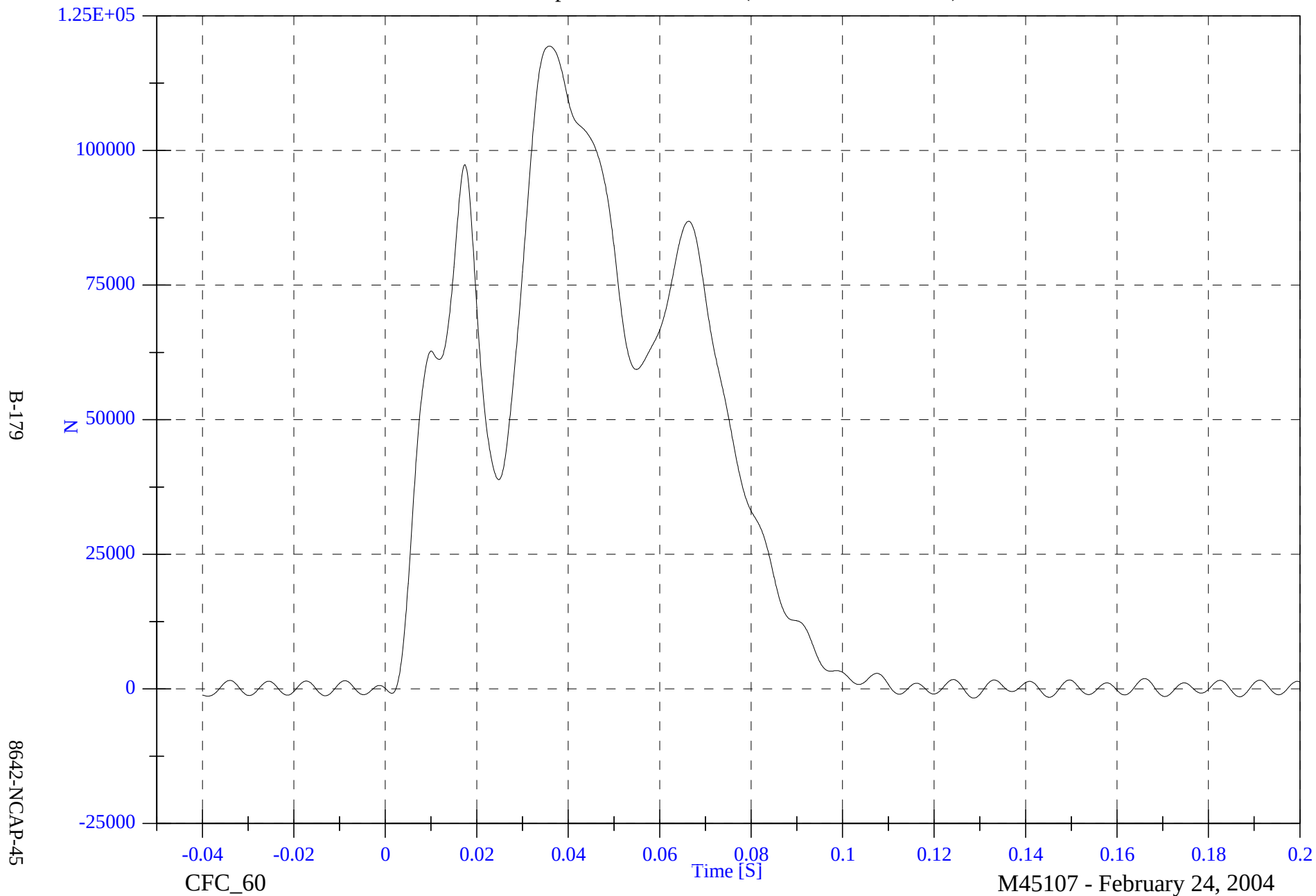


2004 NCAP Test 9 2004 Toyota Prius

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

Max: 119369.1 [N] at 0.036 [S]

Min: -1692.7 [N] at 0.129 [S]

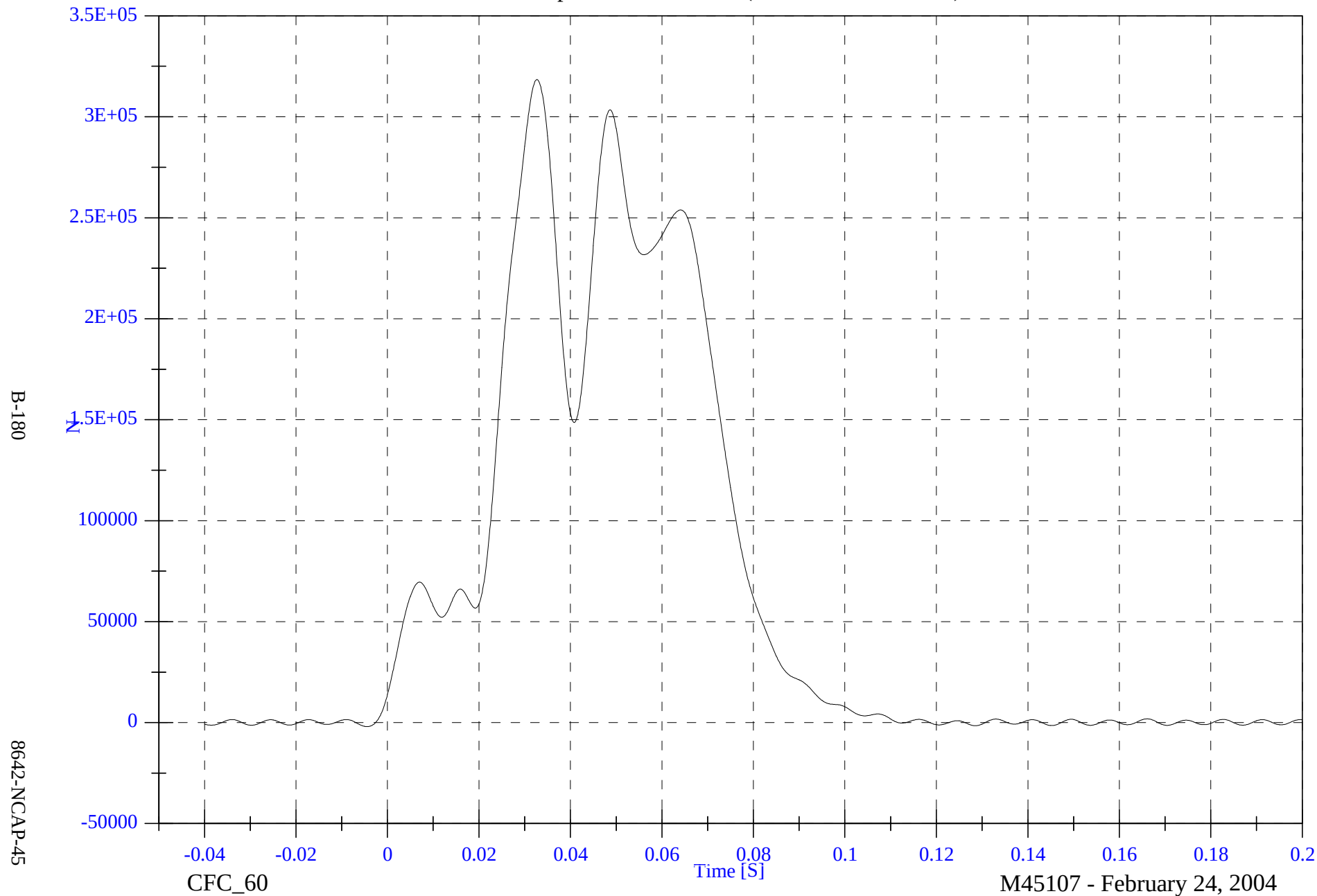


2004 NCAP Test 9 2004 Toyota Prius

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

Max: 318449.9 [N] at 0.033 [S]

Min: -1989.3 [N] at -0.005 [S]

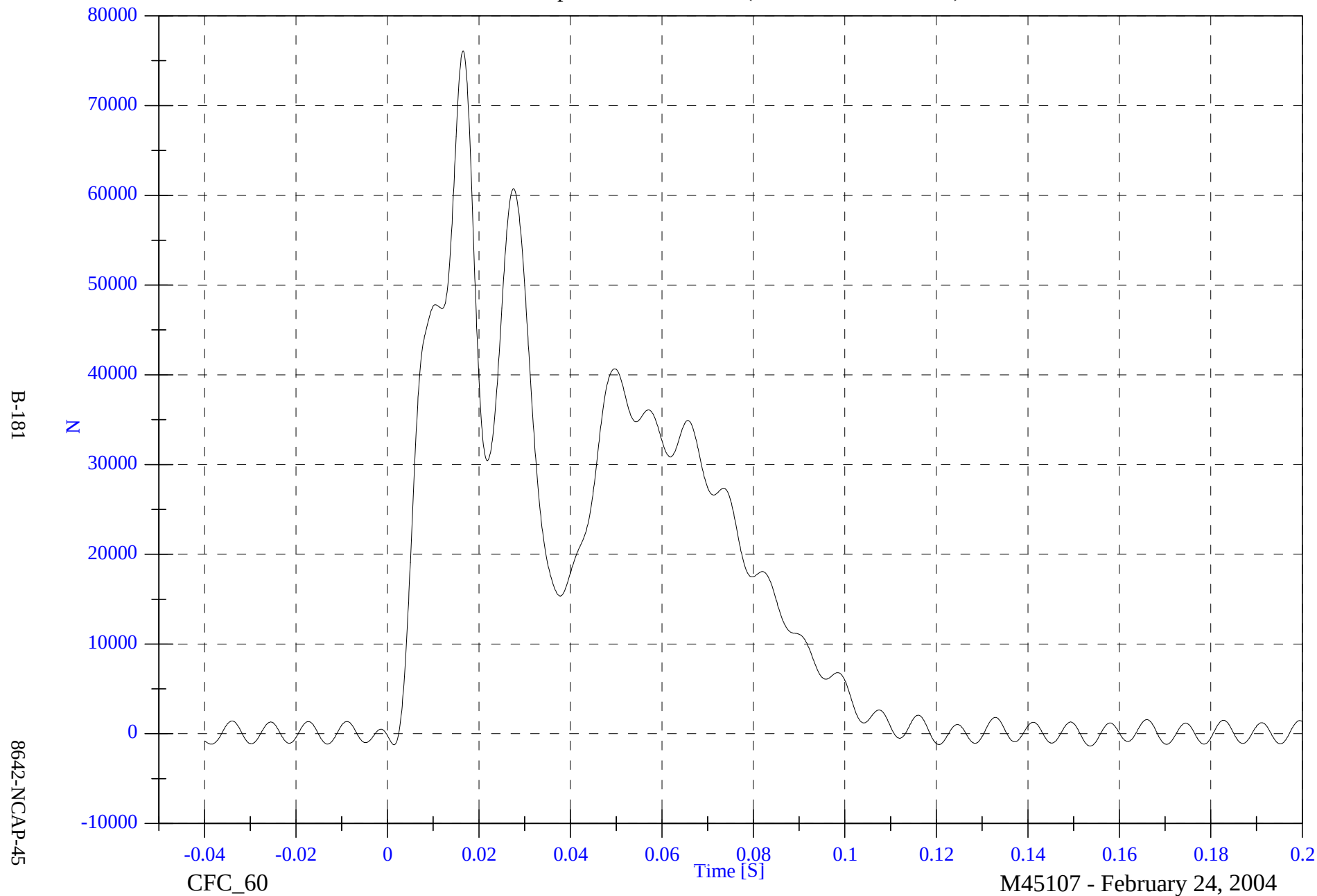


2004 NCAP Test 9 2004 Toyota Prius

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

Max: 76088.3 [N] at 0.016 [S]

Min: -1366.1 [N] at 0.154 [S]

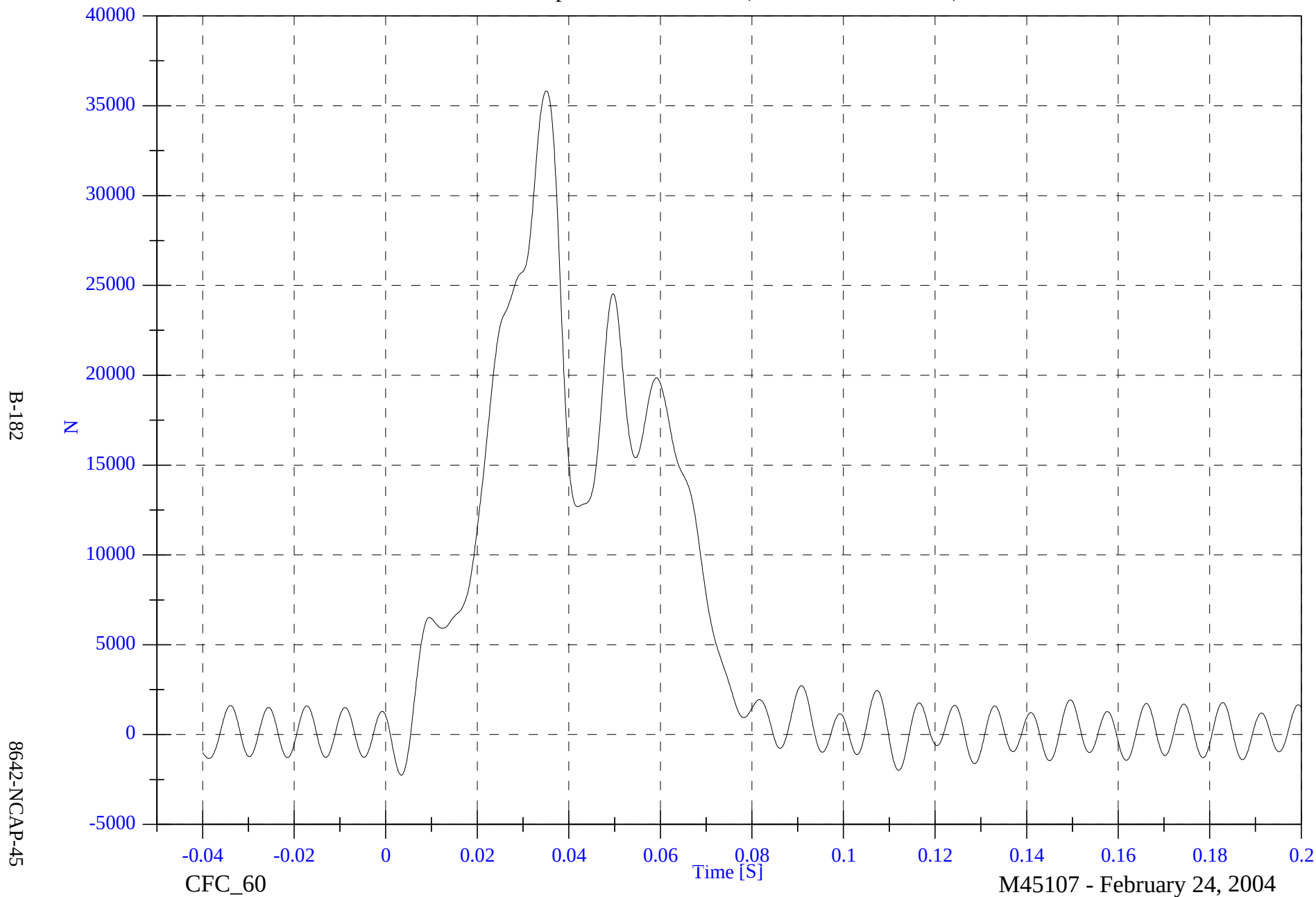


2004 NCAP Test 9 2004 Toyota Prius

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

Max: 35824.0 [N] at 0.035 [S]

Min: -2254.0 [N] at 0.003 [S]

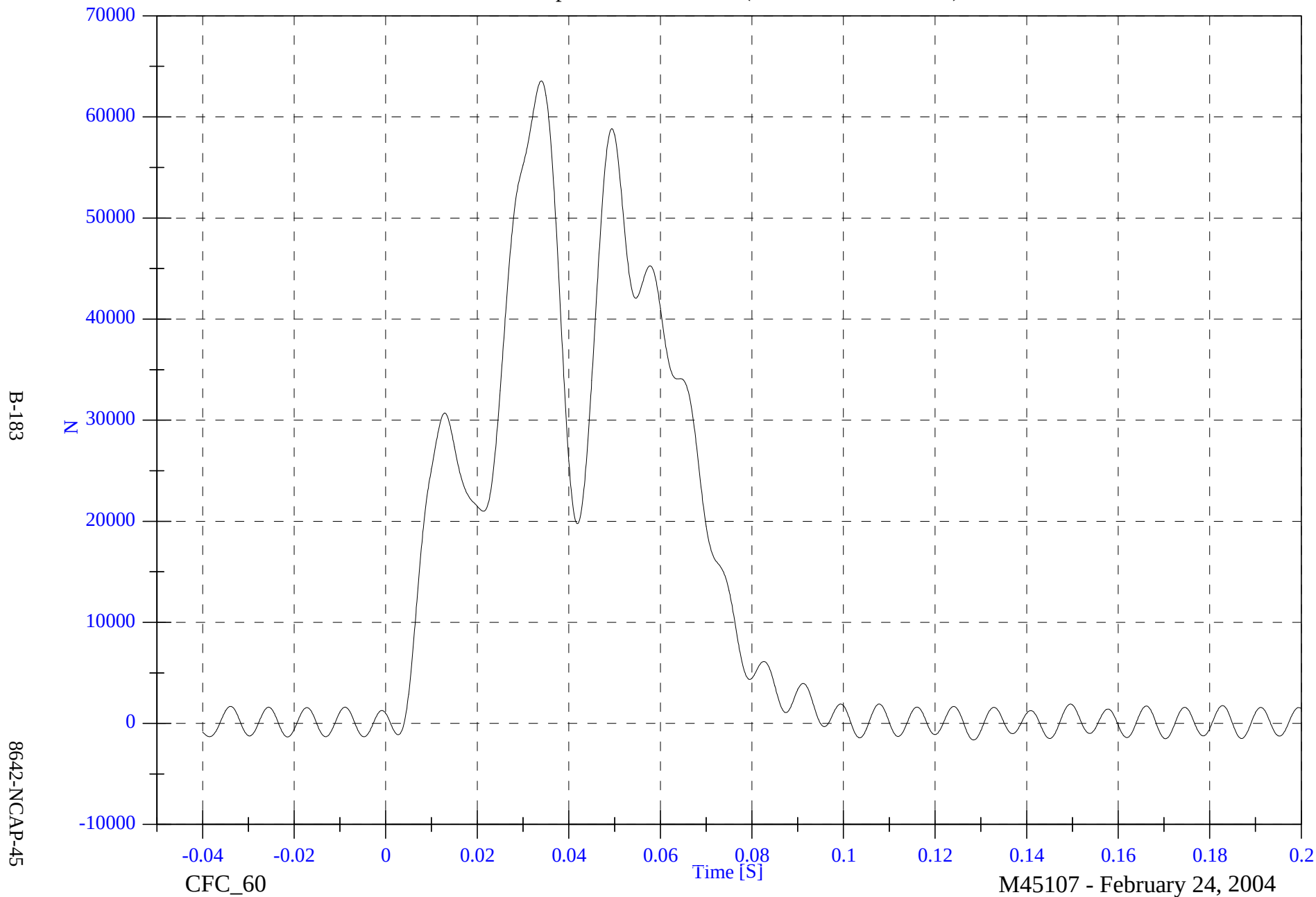


2004 NCAP Test 9 2004 Toyota Prius

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

Max: 63564.0 [N] at 0.034 [S]

Min: -1642.2 [N] at 0.128 [S]

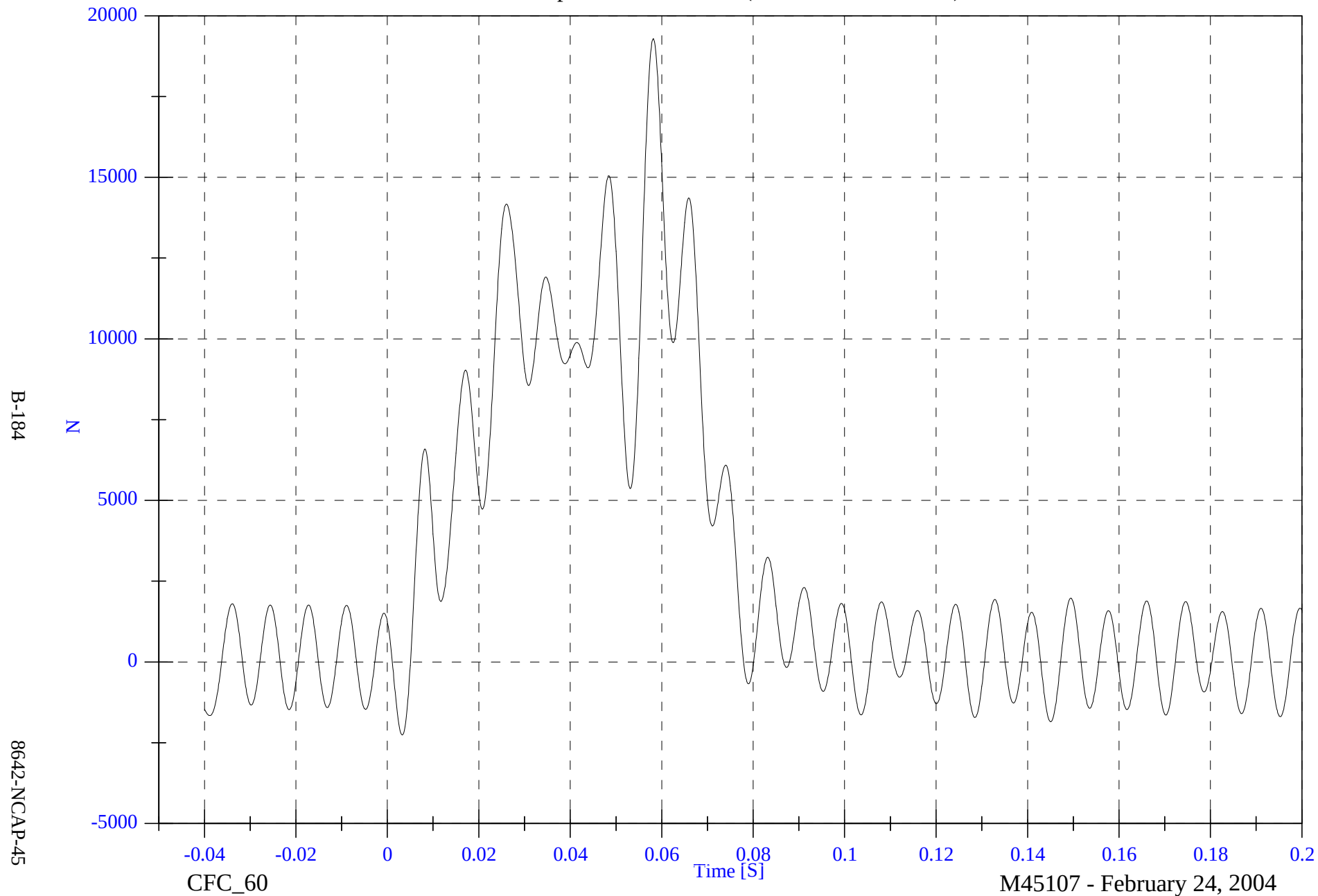


2004 NCAP Test 9 2004 Toyota Prius

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

Max: 19292.0 [N] at 0.058 [S]

Min: -2260.5 [N] at 0.003 [S]

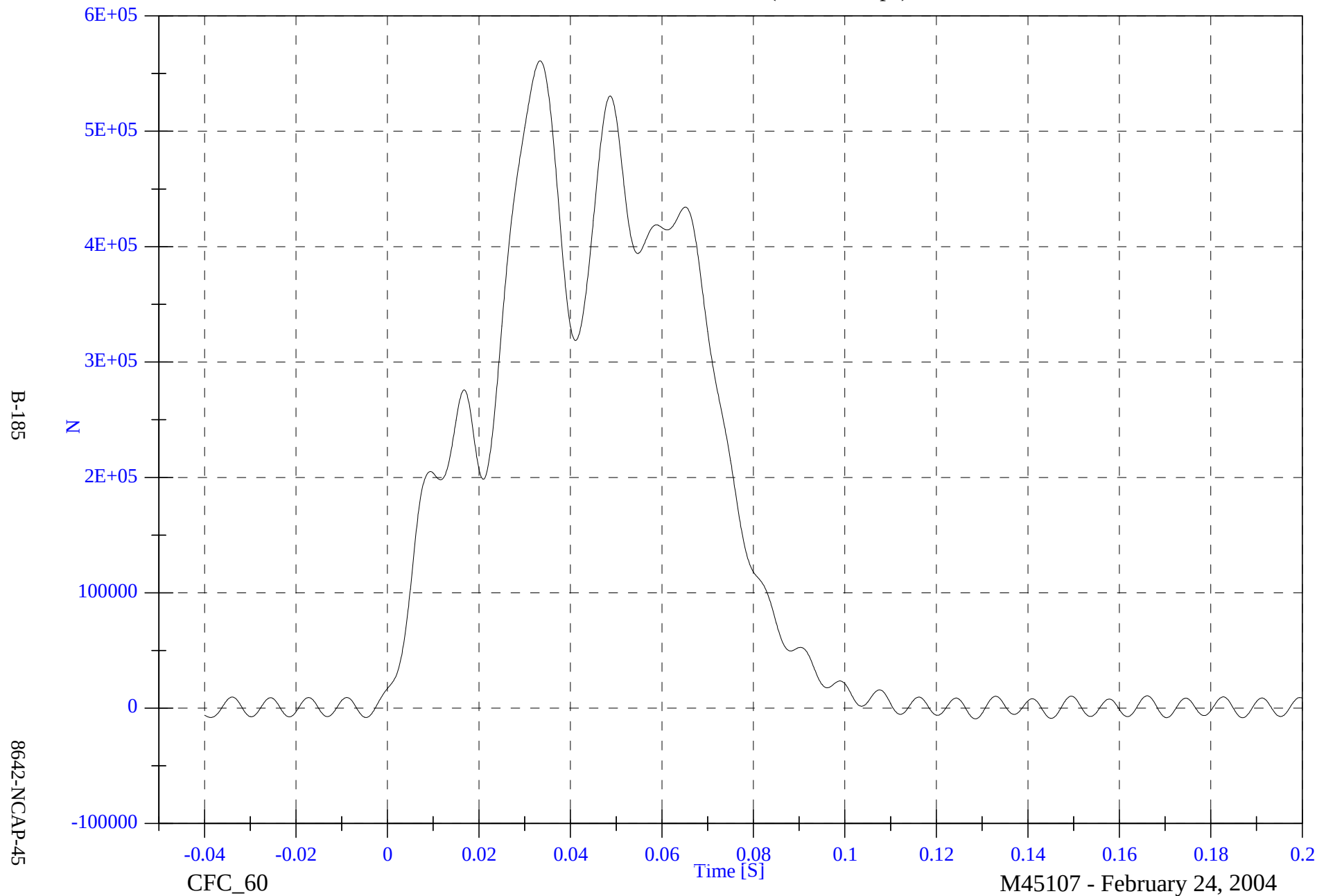


2004 NCAP Test 9 2004 Toyota Prius

Total Load Cell Sum (All 6 Groups)

Max: 561010.0 [N] at 0.033 [S]

Min: -9248.8 [N] at 0.128 [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 General Dynamics . A summary of the test results, and Part 572 specifications are included in this Appendix.

Dummy serial numbers and certification dates are:

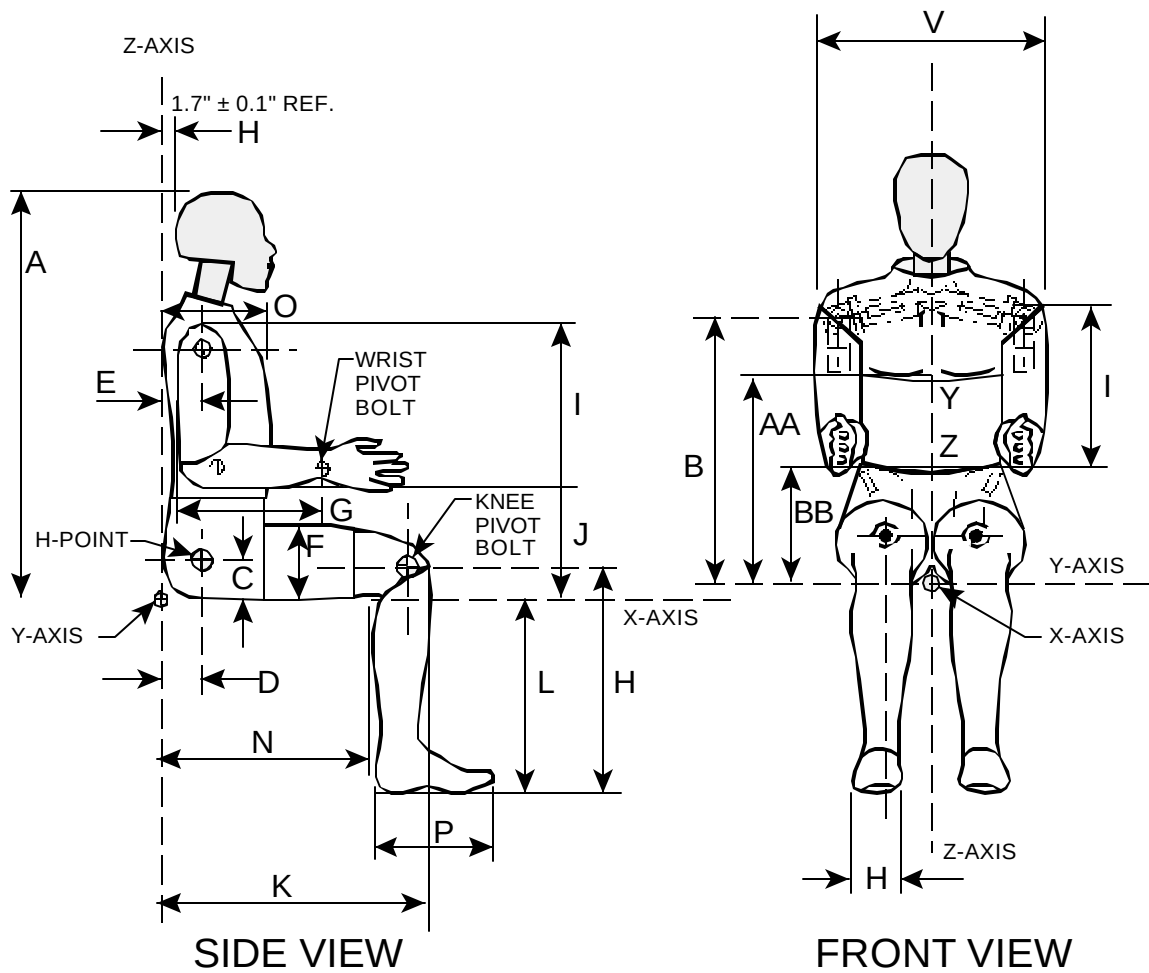
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	061	2/14/2004
#2/Right Front Passenger	064	2/14/2004

Electronic Test Equipment

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

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS SPECIFICATIONS



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

PART 572E
HEAD DROP TEST

Dummy Serial Number 061
Sequential Test Number 1
Date 2-10-2004
Workfile 061H 02-10-04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70.0
Relative Humidity	10% - 70%	36.00
Peak Resultant Acceleration	225-275 G's	254.88
Peak Lateral Acceleration	15 G's Max	10.97
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	061	
Sequential Test Number	1	
Date	02-11-2004	6 Axis Neck Transducer
Workfile	016NF 02-11-04	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	33
Impact Velocity		22.60 - 23.40 Ft/s	22.67
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.60
	20 ms	17.60 - 22.60 G's	20.92
	30 ms	12.50 - 18.50 G's	13.30
Max Pendulum G's Above 30 ms		29 G's Max	13.30
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.40
D Plane Rotation	Max	64 - 78 Deg	66.20
	Time	57 - 64 ms	58.90
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	104.20
	Time	47 - 58 ms	52.80
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	117.20
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.80

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	061	
Sequential Test Number	2	
Date	02-11-2004	6 Axis Neck Transducer
Workfile	061NE2 02-11-04	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	33
Impact Velocity		19.50 - 20.30 Ft/s	19.65
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.20
	20 ms	14.00 - 19.00 G's	16.58
	30 ms	11.00 - 16.00 G's	13.70
Max Pendulum G's Above 30 ms		22 G's Max	14.14
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	40.10
D Plane Rotation	Max	81 - 106 Deg	91.15
	Time	72 - 82 ms	75.90
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-69.34
	Time	65 - 79 ms	71.10
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	151.70
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	138.90

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 061
Sequential Test Number 1
Date 02-12-2004
Workfile 061T 02-12-04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	35
Pendulum Velocity	21.6 - 22.4 Ft/s	22.00
Maximum Deflection	2.50 - 2.86 in	2.56
Maximum Resistive Force	1160 - 1325 Lbs	1296.85
Internal Hysteresis	69 - 85 %	76.03

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 061
Sequential Test Number 1
Date 02-13-2004
Workfile 061LF 02-13-04/061RF 02-13-04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	33
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1254.82
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	33
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1238.75

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 061
Sequential Test Number 1
Date 02-14-2004

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			35
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	39.3
Waist Circumference	Z	32.9 - 34.1 in	33.6
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.7
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.1
Elbow Rest Height	J	7.5 - 8.3 in	7.8
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.4
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 064
Sequential Test Number 1
Date 02-10-2004
Workfile 064H 02-10-04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70.0
Relative Humidity	10% - 70%	36.0
Peak Resultant Acceleration	225-275 G's	259.11
Peak Lateral Acceleration	15 G's Max	5.09
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	064	
Sequential Test Number	1	
Date	02-11-2004	6 Axis Neck Transducer
Workfile	064NF 02-11-04	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70.0
Relative Humidity		10% - 70%	33.0
Impact Velocity		22.60 - 23.40 Ft/s	22.65
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.61
	20 ms	17.60 - 22.60 G's	18.90
	30 ms	12.50 - 18.50 G's	14.73
Max Pendulum G's Above 30 ms		29 G's Max	14.84
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.30
D Plane Rotation	Max	64 - 78 Deg	65.70
	Time	57 - 64 ms	59.80
Moment About Occipital Condyle	Max	88.13 – 108.47 N-m	104.17
	Time	47 - 58 ms	51.80
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	118.70
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	99.10

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	064	
Sequential Test Number	1	
Date	02-11-2004	6 Axis Neck Transducer
Workfile	064NE 02-11-04	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	33
Impact Velocity		19.50 - 20.30 Ft/s	19.79
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.88
	20 ms	14.00 - 19.00 G's	17.33
	30 ms	11.00 - 16.00 G's	15.15
Max Pendulum G's Above 30 ms		22 G's Max	15.39
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	38.20
D Plane Rotation	Max	81 - 106 Deg	85.48
	Time	72 - 82 ms	75.90
Moment About Occipital Condyle	Max	-79.99 - -52.88 N-m	-63.94
	Time	65 - 79 ms	69.90
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	154.20
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	135.90

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 064
Sequential Test Number 1
Date 02-13-2004
Workfile 064T 02-13-04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0
Relative Humidity	10% - 70%	31.0
Pendulum Velocity	21.6 - 22.4 Ft/s	22.30
Maximum Deflection	2.50 - 2.86 in	2.57
Maximum Resistive Force	1160 - 1325 Lbs	1288.35
Internal Hysteresis	69 - 85 %	75.00

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 064
Sequential Test Number 1
Date 02-13-2004
Workfile 064LF 02-13-04/064RF 02-13-04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70.0
Relative Humidity	10% - 70%	33.0
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1180.95
RIGHT KNEE		
Temperature	66 - 78 Deg F	70.0
Relative Humidity	10% - 70%	33.0
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1178.84

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 064
Sequential Test Number 1
Date 02-14-2004

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			35
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	39.3
Waist Circumference	Z	32.9 - 34.1 in	34.0
Chest Depth	O	8.4 - 9.0 in	8.5
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.4
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.2
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
Elbow Rest Height	J	7.5 - 8.3 in	7.8
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.4
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician:

B. Swiecicki

APPENDIX D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Head 9 Array	X Arm Y	ENDEVCO	AC-P21399	06-Nov-03	06-May-04
	X Arm Z	ENDEVCO	AC-P23282	11-Nov-03	11-May-04
	Y Arm X	ENDEVCO	AC-P23155	11-Nov-03	11-May-04
	Y Arm Z	ENDEVCO	AC-P23358	06-Nov-03	06-May-04
	Z Arm X	ENDEVCO	AC-P18731	11-Nov-03	11-May-04
	Z Arm Y	ENDEVCO	AC-P19217	26-Nov-03	26-May-04
Head	X	ENDEVCO	AC-P18516	11-Nov-03	11-May-04
	Y	ENDEVCO	AC-P19222	11-Nov-03	11-May-04
	Z	ENDEVCO	AC-P18558	26-Nov-03	26-May-04
Head	X (R)	ENDEVCO	AC-P18663	11-Nov-03	11-May-04
	Y (R)	ENDEVCO	AC-P18639	11-Nov-03	11-May-04
	Z (R)	ENDEVCO	AC-P18537	11-Nov-03	11-May-04
Neck Load Cell	X	DENTON	LC-076Fx	24-Sep-03	24-Mar-04
	Y	DENTON	LC-076Fy	24-Sep-03	24-Mar-04
	Z	DENTON	LC-076Fz	24-Sep-03	24-Mar-04
Neck Moment	X	DENTON	LC-076Mx	24-Sep-03	24-Mar-04
	Y	DENTON	LC-076My	24-Sep-03	24-Mar-04
	Z	DENTON	LC-076Mz	24-Sep-03	24-Mar-04
Chest	X	ENDEVCO	AC-P21373	30-Oct-03	30-Apr-04
	Y	ENDEVCO	AC-P22639	30-Oct-03	30-Apr-04
	Z	ENDEVCO	AC-P21297	30-Oct-03	30-Apr-04
Chest	X (R)	ENDEVCO	AC-P21171	30-Oct-03	30-Apr-04
	Y (R)	ENDEVCO	AC-P23136	30-Oct-03	30-Apr-04
	Z (R)	ENDEVCO	AC-P23128	30-Oct-03	30-Apr-04
Chest Deflection	X	SERVO	DS-061	11-Nov-03	11-May-04
Pelvic	X	ENDEVCO	AC-P18792	11-Nov-03	11-May-04
	Y	ENDEVCO	AC-P17535	11-Nov-03	11-May-04
	Z	ENDEVCO	AC-P23134	11-Nov-03	11-May-04

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(Six Month Calibration Minimum)

DRIVER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	DENTON	LC-231	03-Dec-03	03-Jun-04
Right Femur Load Cell	Fz	DENTON	LC-232	03-Dec-03	03-Jun-04
Left Upper Tibia	Mx	DENTON	LC-038Mx	26-Sep-03	26-Mar-04
	My	DENTON	LC-038My	26-Sep-03	26-Mar-04
Left Lower Tibia	Fz	DENTON	LC-124Fz	26-Sep-03	26-Mar-04
	Mx	DENTON	LC-124Mx	26-Sep-03	26-Mar-04
	My	DENTON	LC-124My	26-Sep-03	26-Mar-04
Right Upper Tibia	Mx	DENTON	LC-023Mx	26-Sep-03	26-Mar-04
	My	DENTON	LC-023My	26-Sep-03	26-Mar-04
Right Lower Tibia	Fz	DENTON	LC-111Fz	26-Sep-03	26-Mar-04
	Mx	DENTON	LC-111Mx	26-Sep-03	26-Mar-04
	My	DENTON	LC-111My	26-Sep-03	26-Mar-04
Left Foot Rear	X	ENTRAN	AC-00L13-F04	14-Nov-03	14-May-04
	Z	ENTRAN	AC-01G18-F15	14-Nov-03	14-May-04
Left Foot Front	Z	ENTRAN	AC-01G18-F14	14-Nov-03	14-May-04
Right Foot Rear	X	ENTRAN	AC-01G18-F05	14-Nov-03	14-May-04
	Z	ENTRAN	AC-01G18-F03	14-Nov-03	14-May-04
Right Foot Front	Z	ENTRAN	AC-01J02-F09	14-Nov-03	14-May-04
Lap Belt Load Cell		First Technology	LC-155	16-Sep-03	16-Mar-04

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Head 9 Array	X Arm Y	ENDEVCO	AC-P18532	20-Nov-03	20-May-04
	X Arm Z	ENDEVCO	AC-P17237	20-Nov-03	20-May-04
	Y Arm X	ENDEVCO	AC-P16662	20-Nov-03	20-May-04
	Y Arm Z	ENDEVCO	AC-P17299	20-Nov-03	20-May-04
	Z Arm X	ENDEVCO	AC-P21441	20-Nov-03	20-May-04
	Z Arm Y	ENDEVCO	AC-P19197	26-Nov-03	26-May-04
Head	X	ENDEVCO	AC-J32184	03-Nov-03	03-May-04
	Y	ENDEVCO	AC-J32185	30-Oct-03	30-Apr-04
	Z	ENDEVCO	AC-J31011	03-Nov-03	03-May-04
Head	X (R)	ENDEVCO	AC-J31020	03-Nov-03	03-May-04
	Y (R)	ENDEVCO	AC-J31101	03-Nov-03	03-May-04
	Z (R)	ENDEVCO	AC-J31059	03-Nov-03	03-May-04
Neck Load Cell	X	DENTON	LC-441Fx	25-Sep-03	25-Mar-04
	Y	DENTON	LC-441Fy	25-Sep-03	25-Mar-04
	Z	DENTON	LC-441Fz	25-Sep-03	25-Mar-04
Neck Moment	X	DENTON	LC-441Mx	25-Sep-03	25-Mar-04
	Y	DENTON	LC-441My	25-Sep-03	25-Mar-04
	Z	DENTON	LC-441Mz	25-Sep-03	25-Mar-04
Chest	X	ENDEVCO	AC-P18948	21-Nov-03	21-May-04
	Y	ENDEVCO	AC-J33018	03-Nov-03	03-May-04
	Z	ENDEVCO	AC-J32783	03-Nov-03	03-May-04
Chest	X (R)	ENDEVCO	AC-J31066	03-Nov-03	03-May-04
	Y (R)	ENDEVCO	AC-P16979	03-Nov-03	03-May-04
	Z (R)	ENDEVCO	AC-J31022	03-Nov-03	03-May-04
Chest Deflection	X	SERVO	DS-064	20-Nov-03	20-May-04
Pelvic	X	ENDEVCO	AC-P23174	30-Oct-03	30-Apr-04
	Y	ENDEVCO	AC-P23164	30-Oct-03	30-Apr-04
	Z	ENDEVCO	AC-P23137	30-Oct-03	30-Apr-04

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(Six Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell	Fz	GSE	LC-723	03-Dec-03	03-Jun-04
Right Femur Load Cell	Fz	GSE	LC-955	03-Dec-03	03-Jun-04
Left Upper Tibia	Mx	DENTON	LC-045Mx	26-Sep-03	26-Mar-04
	My	DENTON	LC-045My	26-Sep-03	26-Mar-04
Left Lower Tibia	Fz	DENTON	LC-125Fz	26-Sep-03	26-Mar-04
	Mx	DENTON	LC-125Mx	26-Sep-03	26-Mar-04
	My	DENTON	LC-125My	26-Sep-03	26-Mar-04
Right Upper Tibia	Mx	DENTON	LC-016Mx	26-Sep-03	26-Mar-04
	My	DENTON	LC-016My	26-Sep-03	26-Mar-04
Right Lower Tibia	Fz	DENTON	LC-123Fz	26-Sep-03	26-Mar-04
	Mx	DENTON	LC-123Mx	26-Sep-03	26-Mar-04
	My	DENTON	LC-123My	26-Sep-03	26-Mar-04
Left Foot Rear	X	ENDEVCO	AC-J18059	04-Dec-03	04-Jun-04
	Z	ENDEVCO	AC-J36176	04-Dec-03	04-Jun-04
Left Foot Front	Z	ENDEVCO	AC-J18662	04-Dec-03	04-Jun-04
Right Foot Rear	X	ENDEVCO	AC-AJ8C0	04-Dec-03	04-Jun-04
	Z	ENDEVCO	AC-J19868	04-Dec-03	04-Jun-04
Right Foot Front	Z	ENDEVCO	AC-J34378	04-Dec-03	04-Jun-04
Lap Belt Load Cell		First Technology	LC-156	16-Sep-03	16-Mar-04

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(Six Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	GS SENSORS	AC-9440-023	03-Dec-03	03-Jun-04
Right Rear Seat Crossmember X	GS SENSORS	AC-9444-038	03-Dec-03	03-Jun-04
Top of Engine	ICS	AC-8084-024	11-Dec-03	11-Jun-04
Bottom of Engine	ICS	AC-8084-041	11-Dec-03	11-Jun-04
Right Disc Brake Caliper	ICS	AC-8083-028	11-Dec-03	11-Jun-04
Instrument Panel	GS SENSORS	AC-9440-045	16-Dec-03	16-Jun-04
Left Disc Brake Caliper	ICS	AC-8084-010	11-Dec-03	11-Jun-04
Left Seat Rear Crossmember Z	GS SENSORS	AC-9440-046	03-Dec-03	03-Jun-04
Right Seat Rear Crossmember Z	GS SENSORS	AC-9440-029	03-Dec-03	03-Jun-04

REPORT NUMBER: CAL-04-09

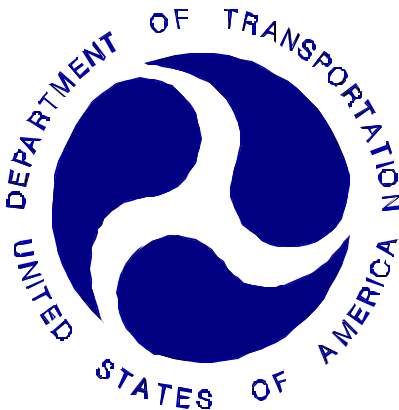
NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

EVENFLO VANGUARD 5 WITH LATCH AND TOP TETHER

NHTSA NUMBER: M45107

GENERAL DYNAMICS REPORT NUMBER: 8642-NCAP-45

GENERAL DYNAMICS
ADVANCED INFORMATION ENGINEERING SERVICES
TRANSPORTATION SCIENCES CENTER
P.O. BOX 400
BUFFALO, NEW YORK 14225



February 24, 2004

FINAL REPORT

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

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-01-D-32005. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

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				14. Sponsoring Agency Code NVS-111	
15. Supplementary Notes					
16. Abstract This CRS test was performed in conjunction with a New Car Assessment Program (NCAP) load cell barrier test. An Evenflo Vanguard 5 LATCH and Top Tether forward facing convertible was secured in Position 3 (P3) with the LATCH system and top tether. This test was conducted at the General Dynamics Crash Test Facility in Buffalo, New York, on February 24, 2004.					
ATD Position		HIC 15		HIC 36	
P3 (Right Rear) (044)		805.3		1162.3	
				Clip (3 ms)	
				60.2	
17. Key Words New Car Assessment Program (NCAP)				18. Distribution Statement	
				Copies of this report are available from: National Highway Traffic Safety Administration Technical Reference Division Room 5108 (NAD-52) 400 Seventh St., S.W. Washington, D.C. 20590 Telephone No. (202) 366-4946 ATTN: Robert Hornicle	
19. Security Classification of Report UNCLASSIFIED		20. Security Classification of Page UNCLASSIFIED		21. No. of Pages 87	
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SECTION 1

PURPOSE AND SUMMARY OF TEST M45107

The purpose of this test was to obtain CRS performance data in a frontal impact NCAP condition. The 56.96 kph NCAP frontal impact test was conducted in accordance with the Office of Crashworthiness Standards (OCS) NCAP Laboratory Test Procedure.

SUMMARY

A forward facing convertible 5-point belt CRS and a 3 year old child dummy (serial no. 044) was secured in the right rear occupant position (Position 3 or P3). The 3 Year Old Hybrid III (P572 P) child dummy was instrumented with head, chest, and pelvic triaxial accelerometers, a head rear Z-direction accelerometer, a chest displacement sensor, and upper and lower six axial neck load cells. The dummy was calibrated previous to this test and the certification information is found in section 5.

The right rear child dummy's HIC (15 ms) was 805.3, the HIC after 36 ms was 1162.3 and the maximum chest deceleration over 3 ms was 60.2 g's.

SECTION 2
DATA SHEET NO. 1
CRASH TEST SUMMARY

TEST DUMMY INFORMATION:

DESCRIPTION	Position #3 CRS
ATD Type/Serial No.	Hybrid III 3C/044
Restraint System:	Evenflo Vanguard 5 LATCH and Top Tether

Number of Data Channels _____ 26 _____

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
Head Contact:	The face and chin to the chest and the back of the head to the child restraint, the top of the head to the vehicle head restraint.
Upper Torso Contact:	None
Lower Torso Contact:	None
Left Knee Contact:	None
Right Knee Contact:	None

DATA SHEET NO. 2

CRS PARAMETER DATA

CRS: Evenflo Vanguard 5 LATCH and Top Tether

NHTSA No. M45107

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Delivered Weight of Vehicle with Maximum Fluids = 1335.0 kg (A)

AS TESTED WEIGHT OF VEHICLE

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

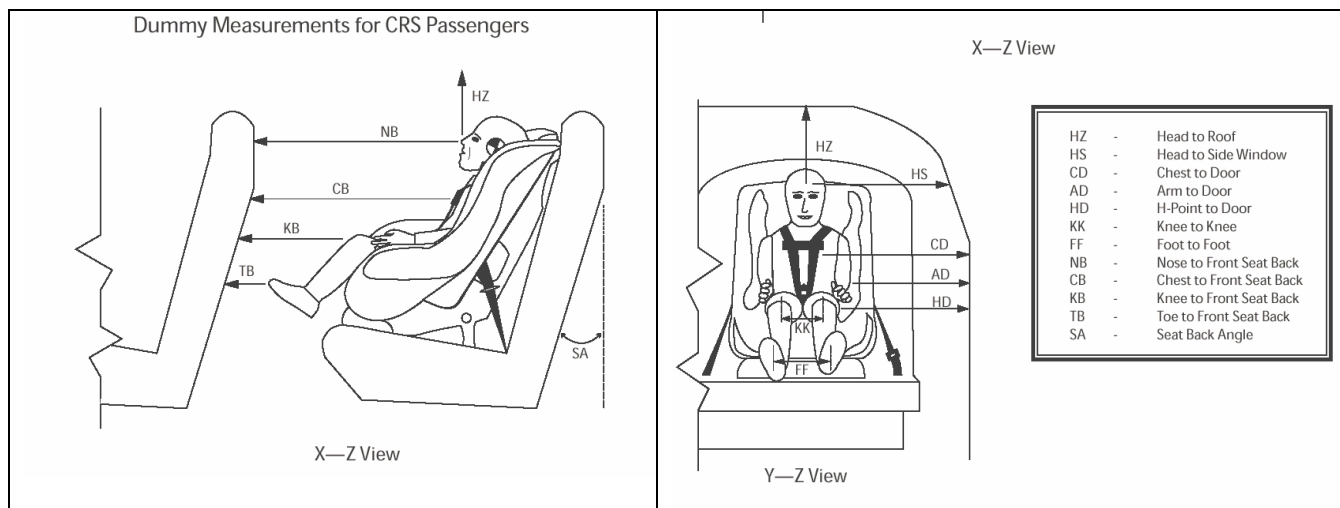
Left Front	=	<u>445.0</u>	kg	Left Rear	=	<u>326.0</u>	kg
Right Front	=	<u>435.0</u>	kg	Right Rear	=	<u>310.0</u>	kg
TOTAL FRONT	=	<u>880.0</u>	kg	TOTAL REAR	=	<u>636.0</u>	kg
TOTAL TEST WEIGHT =		<u>1516.0</u>	kg				

DATA SHEET NO. 3

CHILD DUMMY POSITIONING IN VEHICLE

CRS: Evenflo Vanguard 5 LATCH and Top Tether

NHTSA No. M45107



Measurement	P3 CRS (044)
SA	23.0
HS	478
CD	346
AD	215
HD	275
HZ	323
NB	590
CB	582
KK	155
FF	175
KB – LEFT	470
KB – RIGHT	455
TB – LEFT	180
TB – RIGHT	180

All dimensions in mm (unless noted)

P3 – Right Rear Passenger (CRS #1)

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES

CRS: Evenflo Vanguard 5 LATCH and Top Tether

NHTSA No. M45107

		MAXIMUM VALUE			
		Position #3			
DESCRIPTION	Unit	Pos	msec	Neg	msec
Head X	g	90.9	181.9	-35.0	106.0
Head Y	g	8.6	105.9	-9.2	183.6
Head Z	g	79.5	90.2	-2.6	39.5
Head Resultant	g	100.6	182.0	0.0	-49.9
Head Rear Z	g	94.2	87.9	-15.6	175.7
Upper Neck Fx	N	0.7	-49.8	-706.5	104.7
Upper Neck Fy	N	84.0	82.7	-30.2	137.2
Upper Neck Fz	N	2230.6	90.2	-443.9	184.5
Upper Neck F Resultant	N	2272.1	90.1	0.8	-48.6
Upper Neck Mx	N-m	5.1	96.3	-4.3	142.1
Upper Neck My	N-m	3.0	126.9	-22.5	187.4
Upper Neck Mz	N-m	1.6	72.4	-2.0	107.0
Upper Neck M Resultant	N-m	22.5	187.4	0.0	-46.8
Lower Neck Fx	N	155.9	176.4	-1733.5	88.2
Lower Neck Fy	N	45.6	125.4	-468.0	78.6
Lower Neck Fz	N	1425.6	91.8	-254.8	184.4
Lower Neck F Resultant	N	2211.8	90.0	1.1	-45.8
Lower Neck Mx	N-m	14.8	103.2	-6.4	139.3
Lower Neck My	N-m	115.6	102.4	-11.1	176.3
Lower Neck Mz	N-m	15.7	83.2	-1.1	198.8
Lower Neck M Resultant	N-m	116.7	102.5	0.1	-47.5
Chest X	g	17.7	187.2	-55.3	82.5
Chest Y	g	9.4	81.1	-4.0	186.1
Chest Z	g	28.1	96.0	-33.7	70.6
Chest Resultant	g	62.0	82.3	0.0	-50.0
Chest Displacement	g	0.2	18.9	-19.6	104.6

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES (CONTINUED)

CRS: Evenflo Vanguard 5 LATCH and Top Tether

NHTSA No. M45107

		MAXIMUM VALUE			
		Position #3			
DESCRIPTION	Unit	Pos	msec	Neg	msec
Pelvic X	g	16.1	126.8	-66.1	62.2
Pelvic Y	g	7.7	125.0	-11.2	96.9
Pelvic Z	g	29.1	97.6	-36.0	60.8
Pelvic Resultant	g	75.0	62.2	0.0	-31.6
Tether Belt Load	N	283.8	70.2	-100.9	147.9

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES (CONTINUED)

CRS: Evenflo Vanguard 5 LATCH and Top Tether

NHTSA No. M45107

	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	805.3	82.5	97.5	78.0 g	1162.3	71.1	107.1	63.6 g

	CLIP SUMMARY*			
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #3 - Right	60.2	80.2	83.2	733.8

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

DATA SHEET NO. 5

CRS PERFORMANCE DATA

CRS: Evenflo Vanguard 5 LATCH and Top Tether

NHTSA No. M45107

		MAXIMUM VALUE			
DESCRIPTION	Unit	Positive	Time (ms)	Negative	Time (ms)
P3 CRS X	g	16.3	199.9	-65.4	66.2

DATA SHEET NO. 5**CRS PERFORMANCE DATA (CONTINUED)**CRS: Evenflo Vanguard 5 LATCH and Top TetherNHTSA No. M45107**POSITION #3 CRS POST-TEST INSPECTION (Serial No. 3691261 P1 22NOV03)**

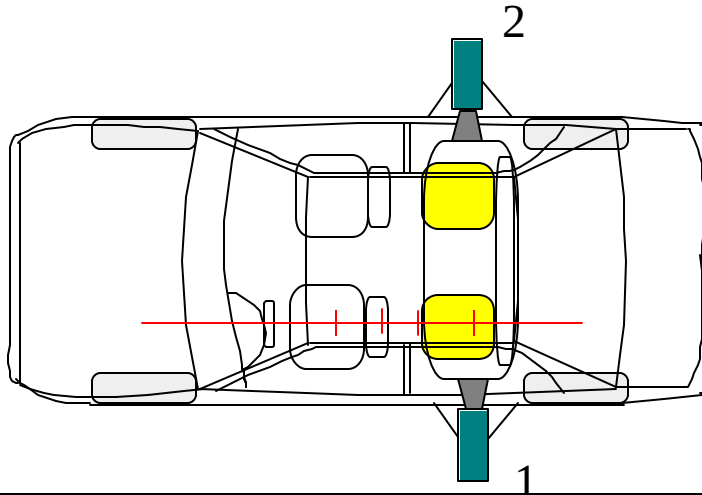
LOCATION	DAMAGE	REMARKS
Upper Tether Strap	No	None
Upper Tether Buckle	No	None
Upper Tether Hook	No	None
Vehicle Upper Tether Anchor	No	None
Lower Anchor Strap	No	None
Lower Anchor Buckle	No	None
Lower Anchor Hooks	No	None
Vehicle Lower CRS Anchors	No	None
Five Point Harness Connections	No	None
Cracks 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

DATA SHEET NO. 6

CRS CAMERA DATA

CRS: Evenflo Vanguard 5 LATCH and Top Tether

NHTSA No. M45107



Camera No.	View	Coordinates (millimeters)			Angle** (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Left side CRS lateral view	3598	2718	2488	-22	24-70	1000
2	Right side CRS lateral view	3582	2652	2567	-25	24-70	1000

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

** = referenced to horizontal plane

X = film plane to monorail centerline

Y = film plane to impact location

Z = film plane to ground

SECTION 3

PHOTOGRAPHS

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Although child restraint systems undergo testing and evaluation, it is possible that a child restraint could be recalled. In case of recall, we can reach you only if we have your name and address, so please send in the card to be on our recall list.

Please fill this card out and mail it NOW, while you are thinking about it.

It's already addressed and we've paid the postage.

Tear off and mail this part

Consumer: Just fill in your name and address. **PLEASE PRINT**

Your name

Your street and address

If you prefer, you may register your child restraint system via the Internet by visiting www.evenflo.com.

State Zip Code

ISTRATION CARD

Manufactured in 22NOV03

Model # 3691261 P1

You will need the model number and date of manufacture (both of which appear on the card below).

PEEL OFF

25804620 5/03



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



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



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



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



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



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



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



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



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



Figure 3-10: PRE-TEST POSITION 3 LEFT SIDE VIEW



Figure 3-11: POST-TEST POSITION 3 LEFT SIDE VIEW



Figure 3-12: PRE-TEST POSITION 3 RIGHT SIDE VIEW



Figure 3-13: POST-TEST POSITION 3 RIGHT SIDE VIEW



Figure 3-14: PRE-TEST POSITION 3 FRONT VIEW



Figure 3-15: POST-TEST POSITION 3 FRONT VIEW

SECTION 4

CHILD DUMMY RESPONSE AND CRS DATA TRACES

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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	V1 P3 Tether Belt [N, CFC_60]	4-34

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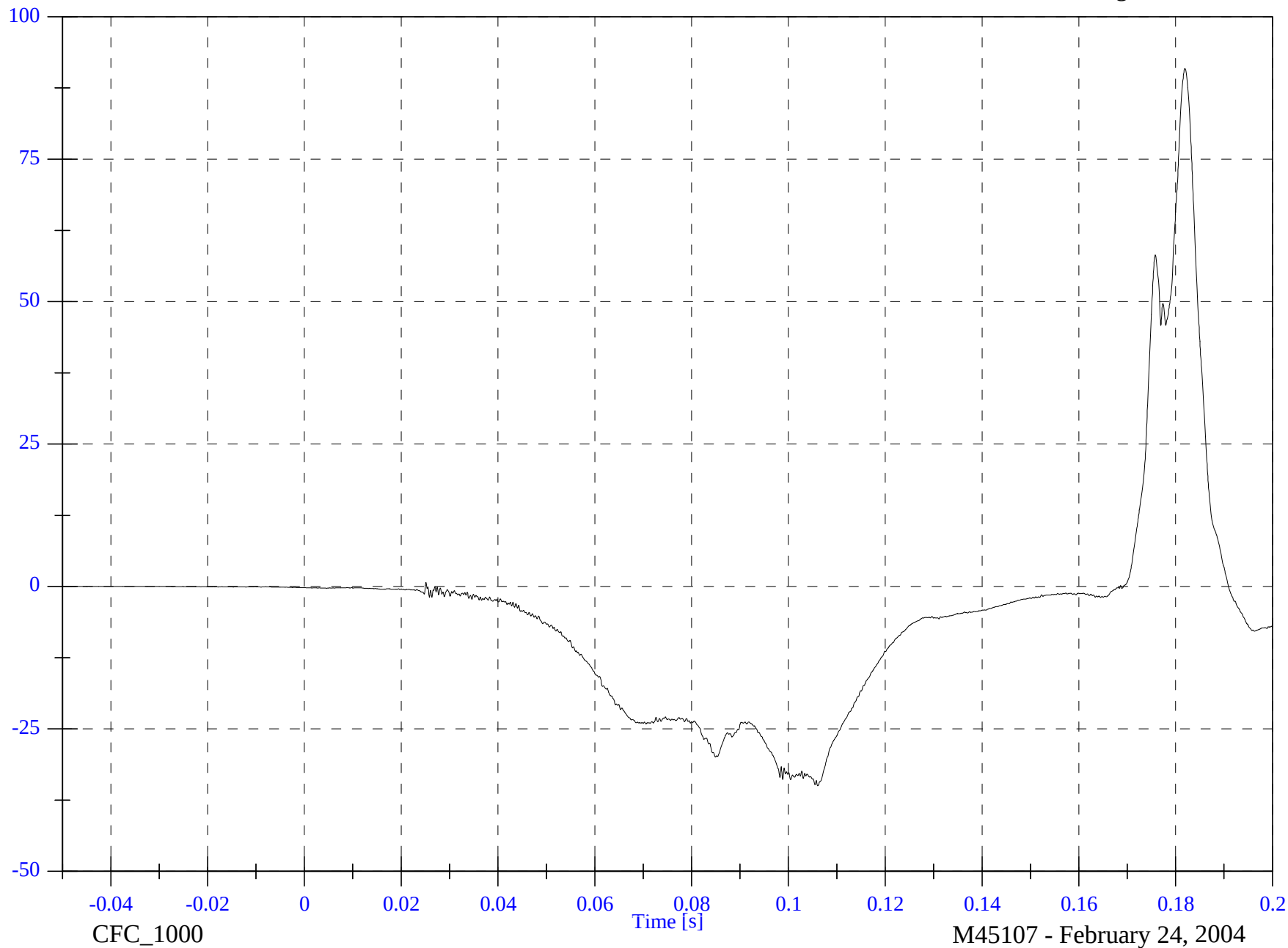
PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
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2004 NCAP Test 9 2004 Toyota Prius

V1P3 Head x

Max: 90.9 [g] at 0.182 [s]

Min: -35.0 [g] at 0.106 [s]



4-4

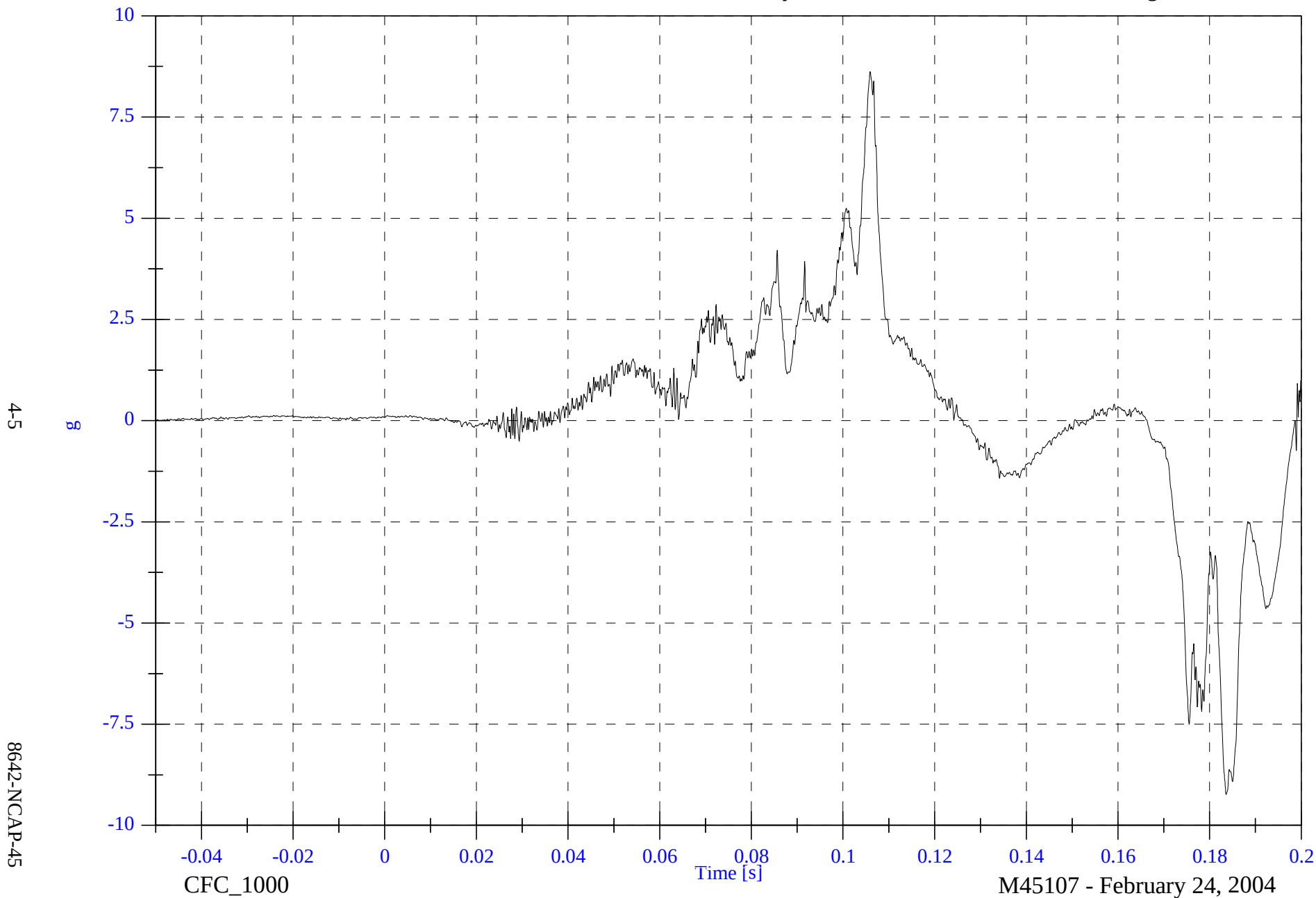
8642-NCAP-45

2004 NCAP Test 9 2004 Toyota Prius

V1P3 Head y

Max: 8.6 [g] at 0.106 [s]

Min: -9.2 [g] at 0.184 [s]

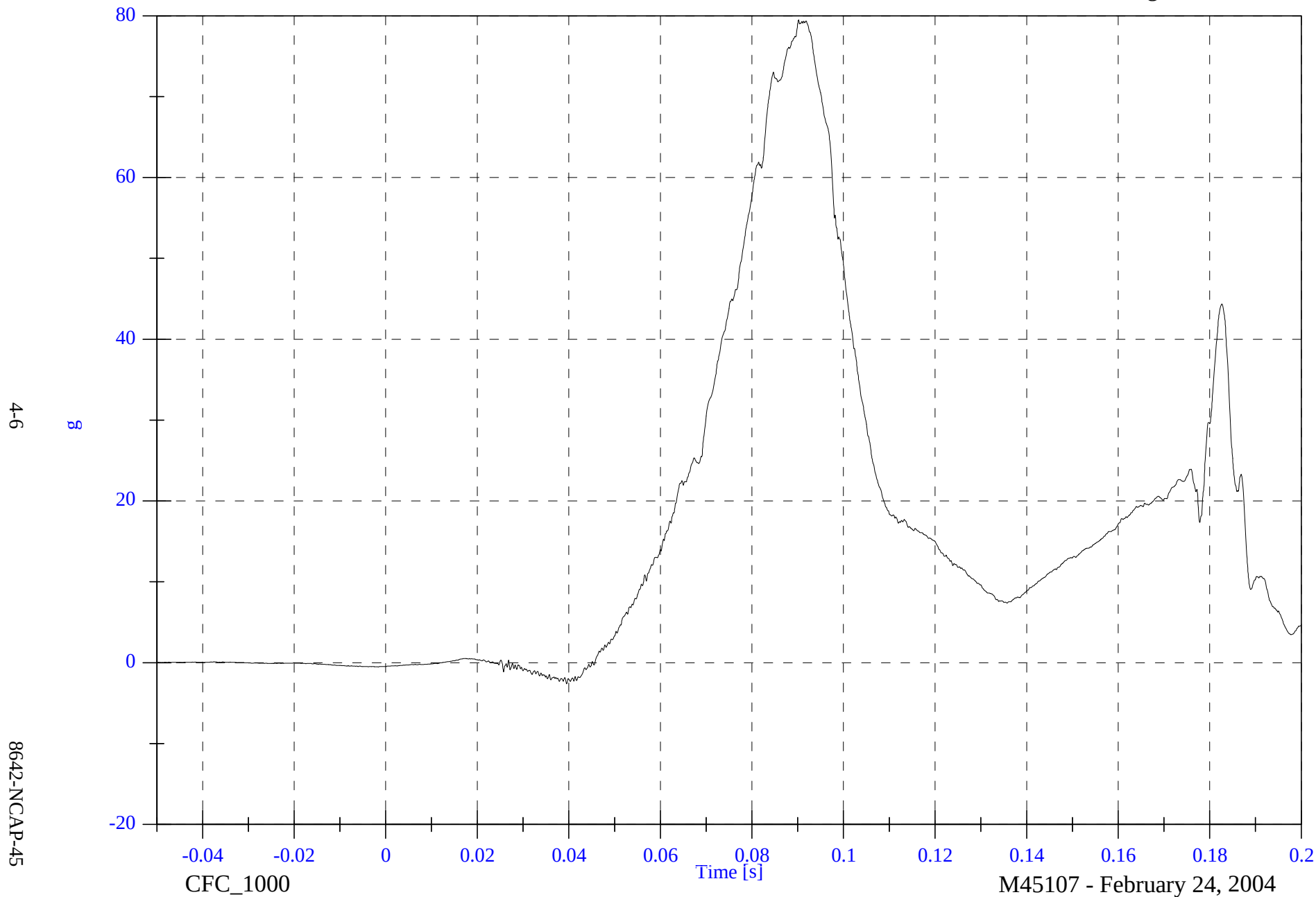


2004 NCAP Test 9 2004 Toyota Prius

Max: 79.5 [g] at 0.090 [s]

Min: -2.6 [g] at 0.039 [s]

V1P3 Head z



2004 NCAP Test 9 2004 Toyota Prius

V1P3 Head Resultant

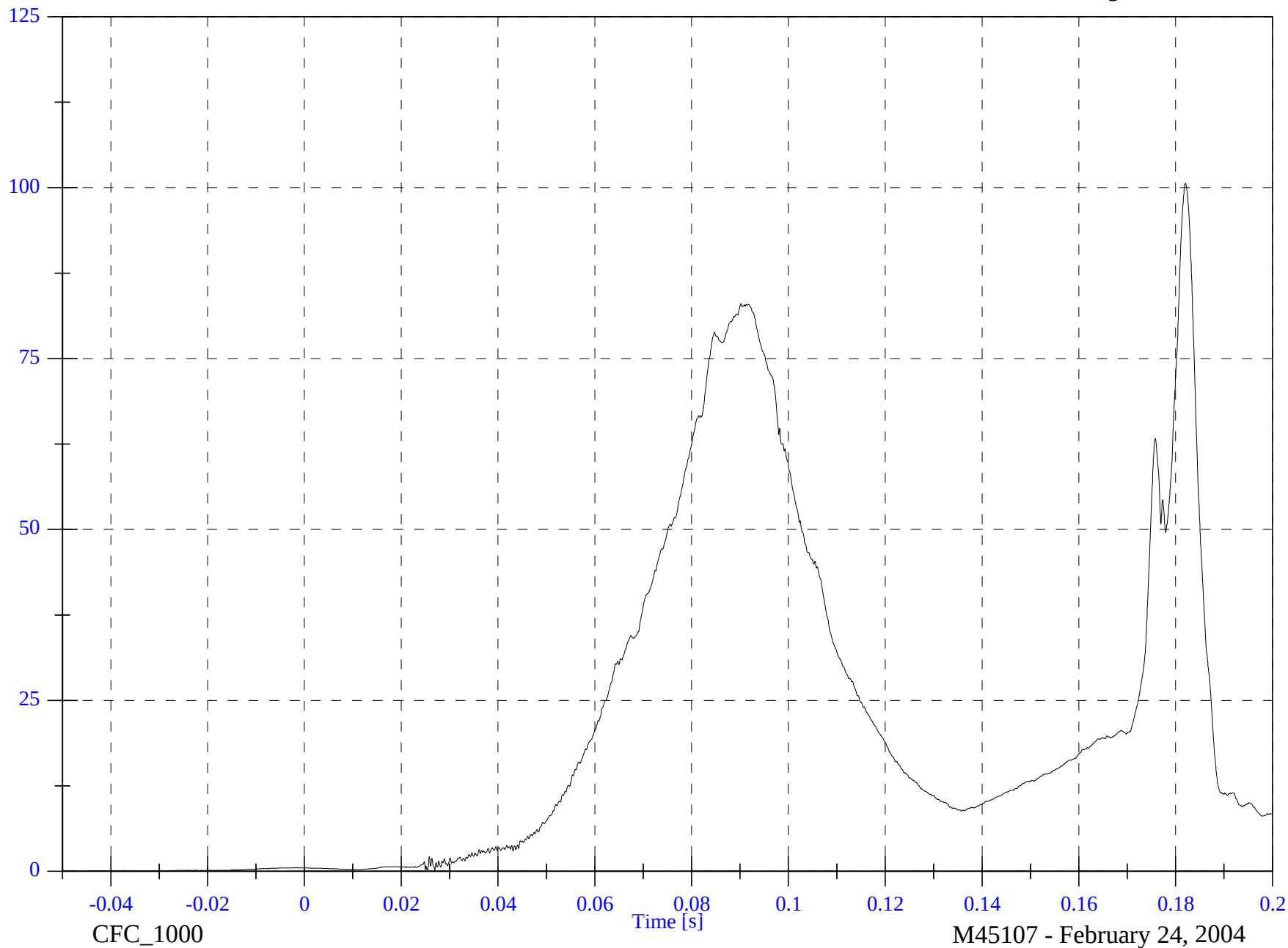
Max: 100.6 [g] at 0.182 [s]

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

4-7

8642-NCAP-45

g



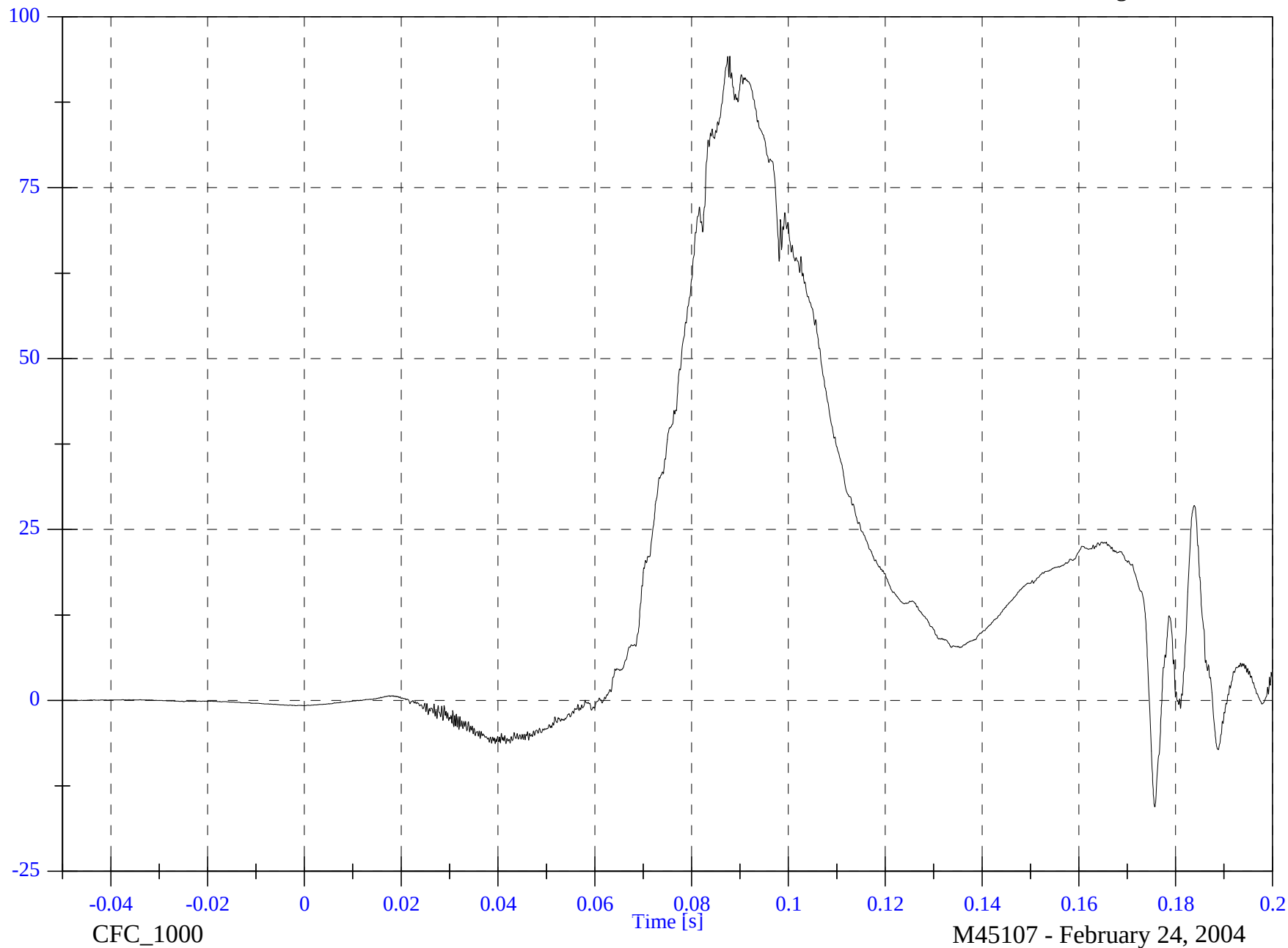
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P3 Head Rear z

Max: 94.2 [g] at 0.088 [s]

Min: -15.6 [g] at 0.176 [s]



4-8

8642-NCAP-45

CFC_1000

Time [s]

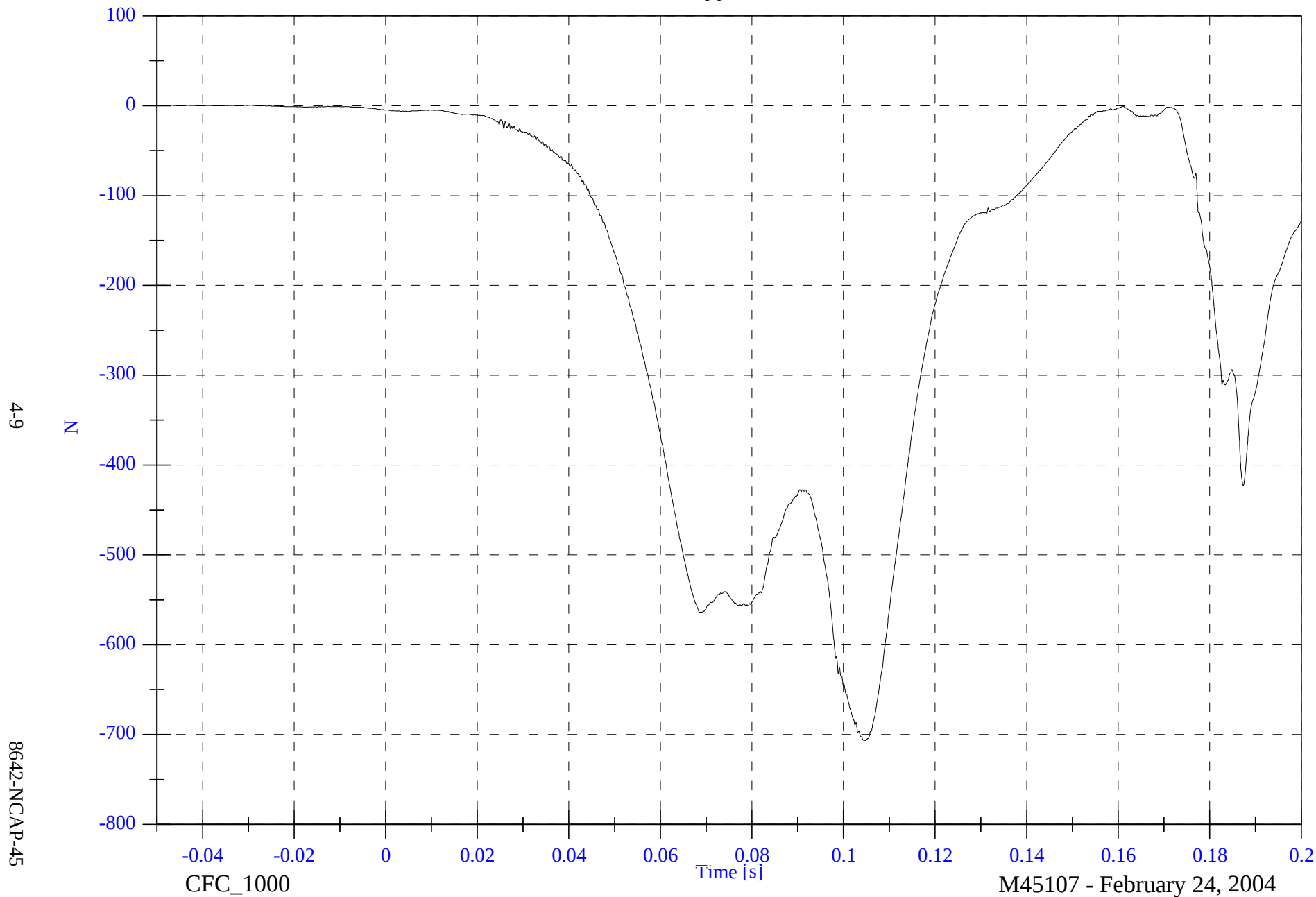
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P3 Upper Neck Fx

Max: 0.7 [N] at -0.050 [s]

Min: -706.5 [N] at 0.105 [s]

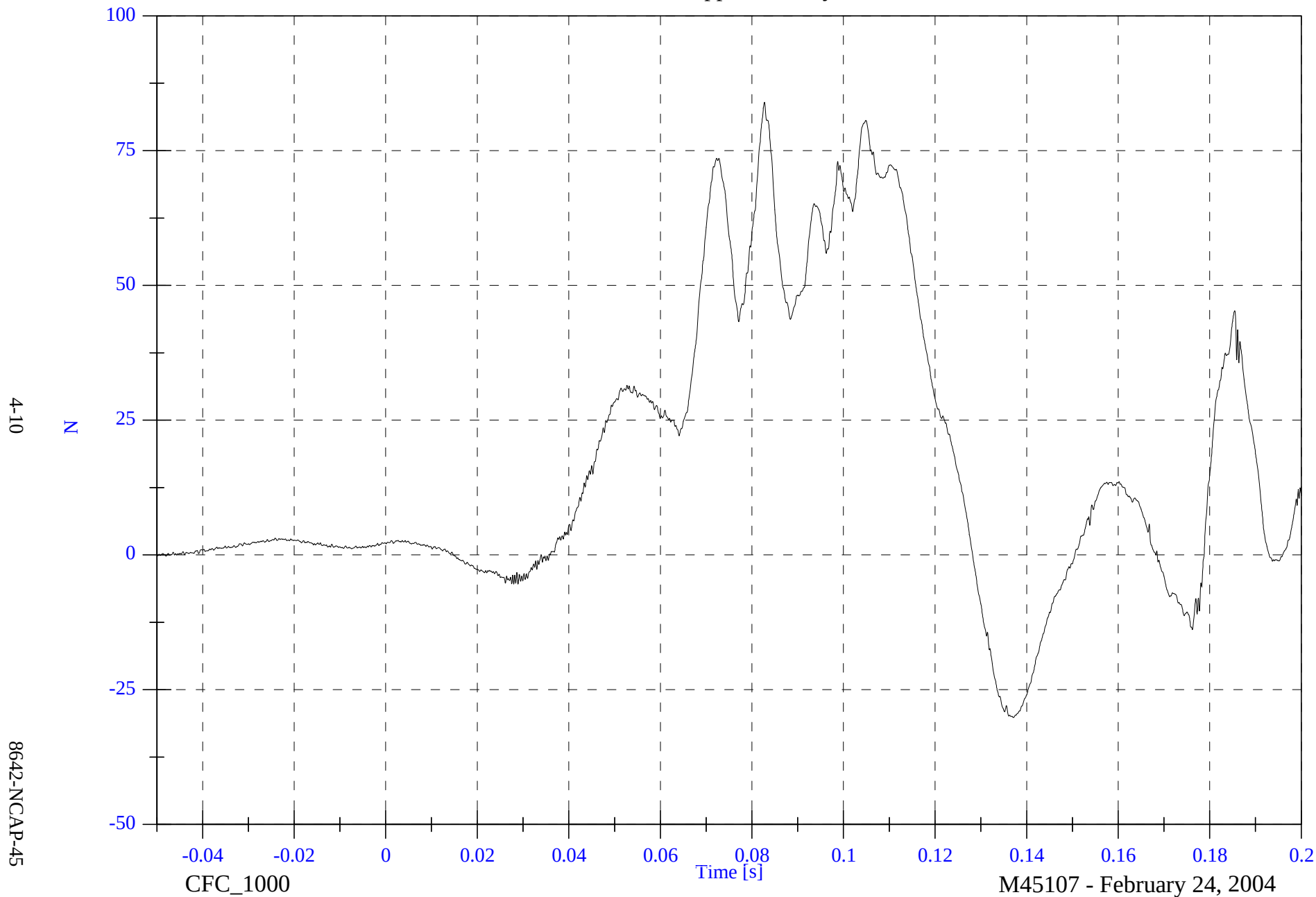


2004 NCAP Test 9 2004 Toyota Prius

V1P3 Upper Neck Fy

Max: 84.0 [N] at 0.083 [s]

Min: -30.2 [N] at 0.137 [s]

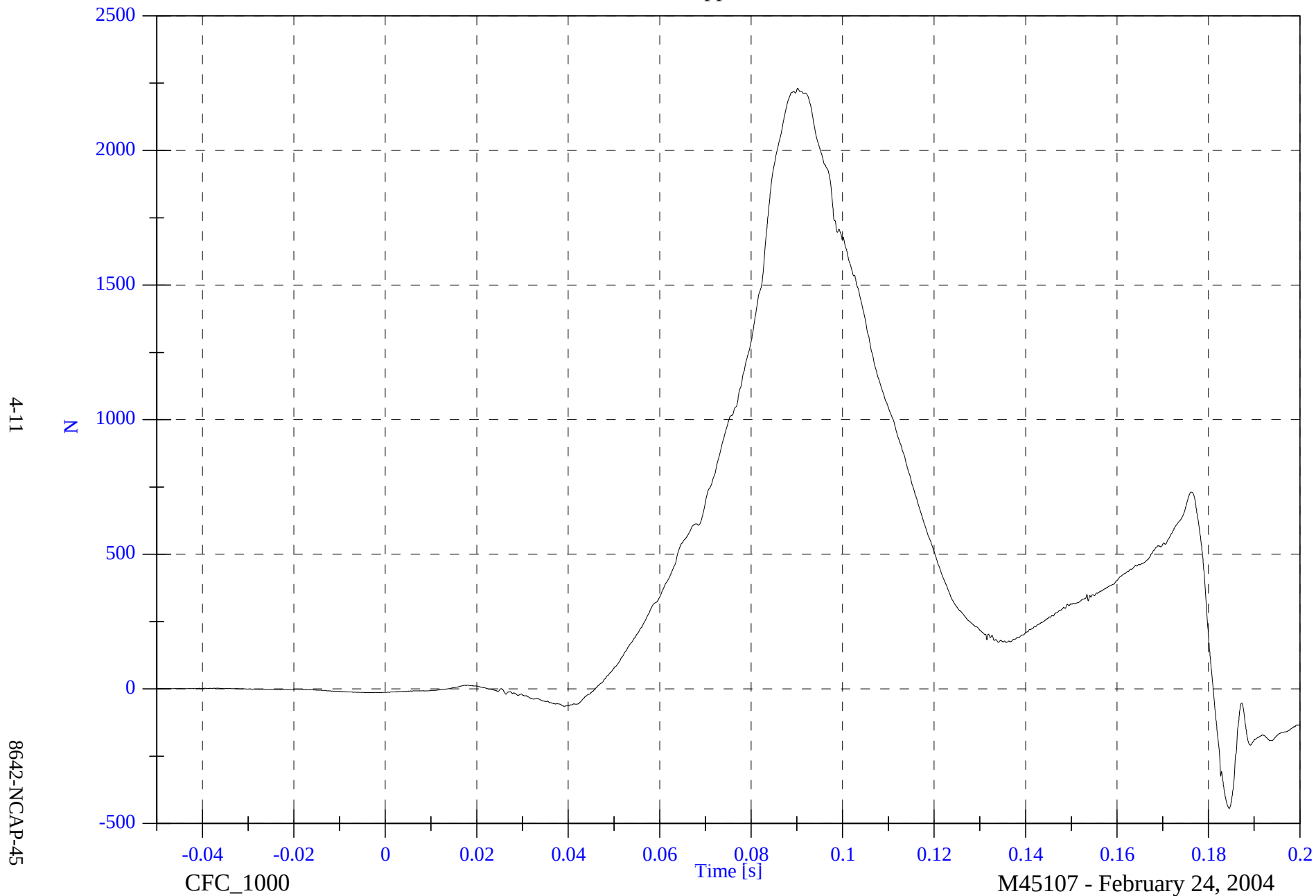


2004 NCAP Test 9 2004 Toyota Prius

V1P3 Upper Neck Fz

Max: 2230.6 [N] at 0.090 [s]

Min: -443.9 [N] at 0.185 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P3 Upper Neck F Resultant

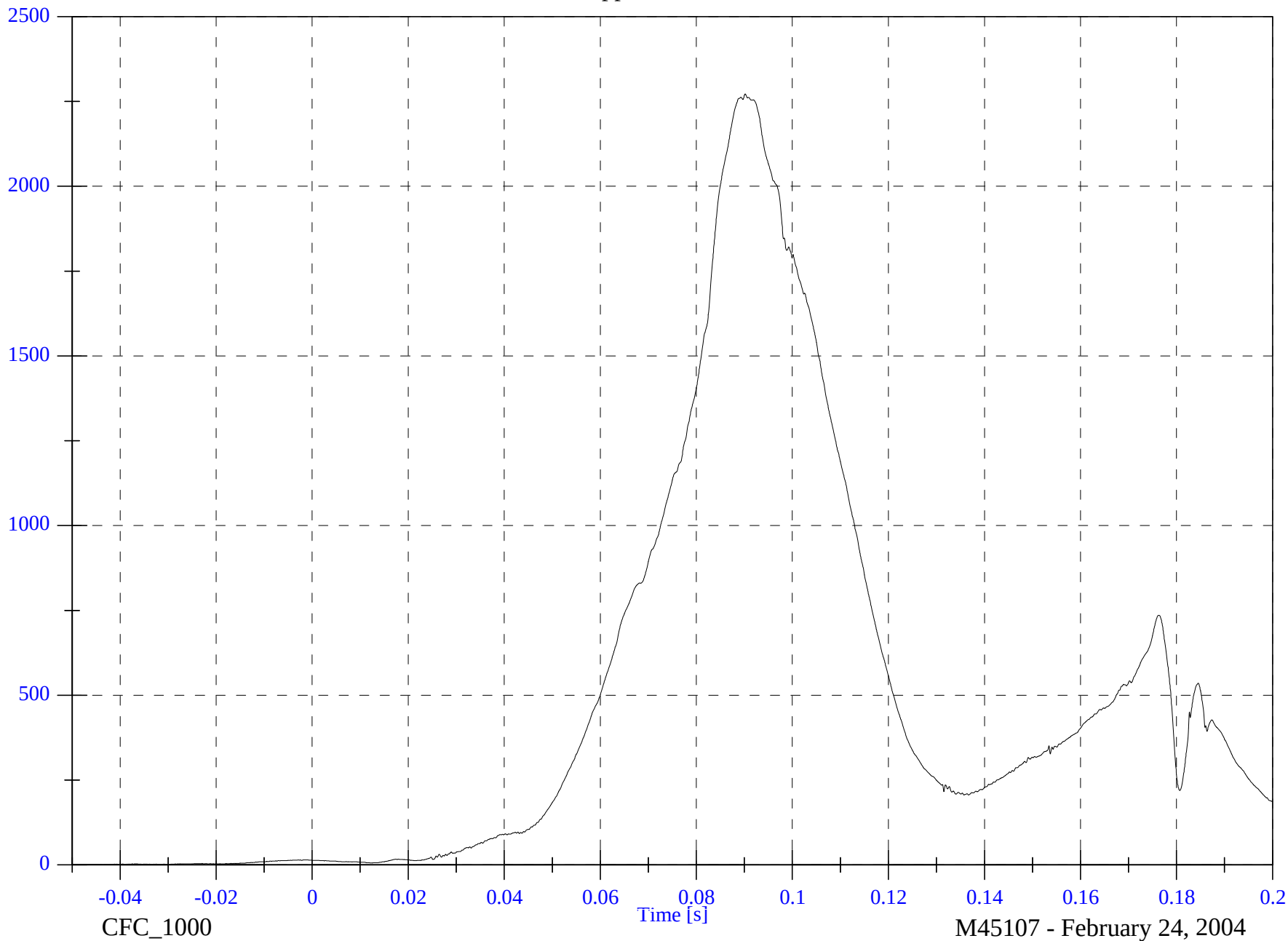
Max: 2272.1 [N] at 0.090 [s]

Min: 0.8 [N] at -0.049 [s]

4-12

N

8642-NCAP-45



2004 NCAP Test 9 2004 Toyota Prius

V1P3 Upper Neck Mx

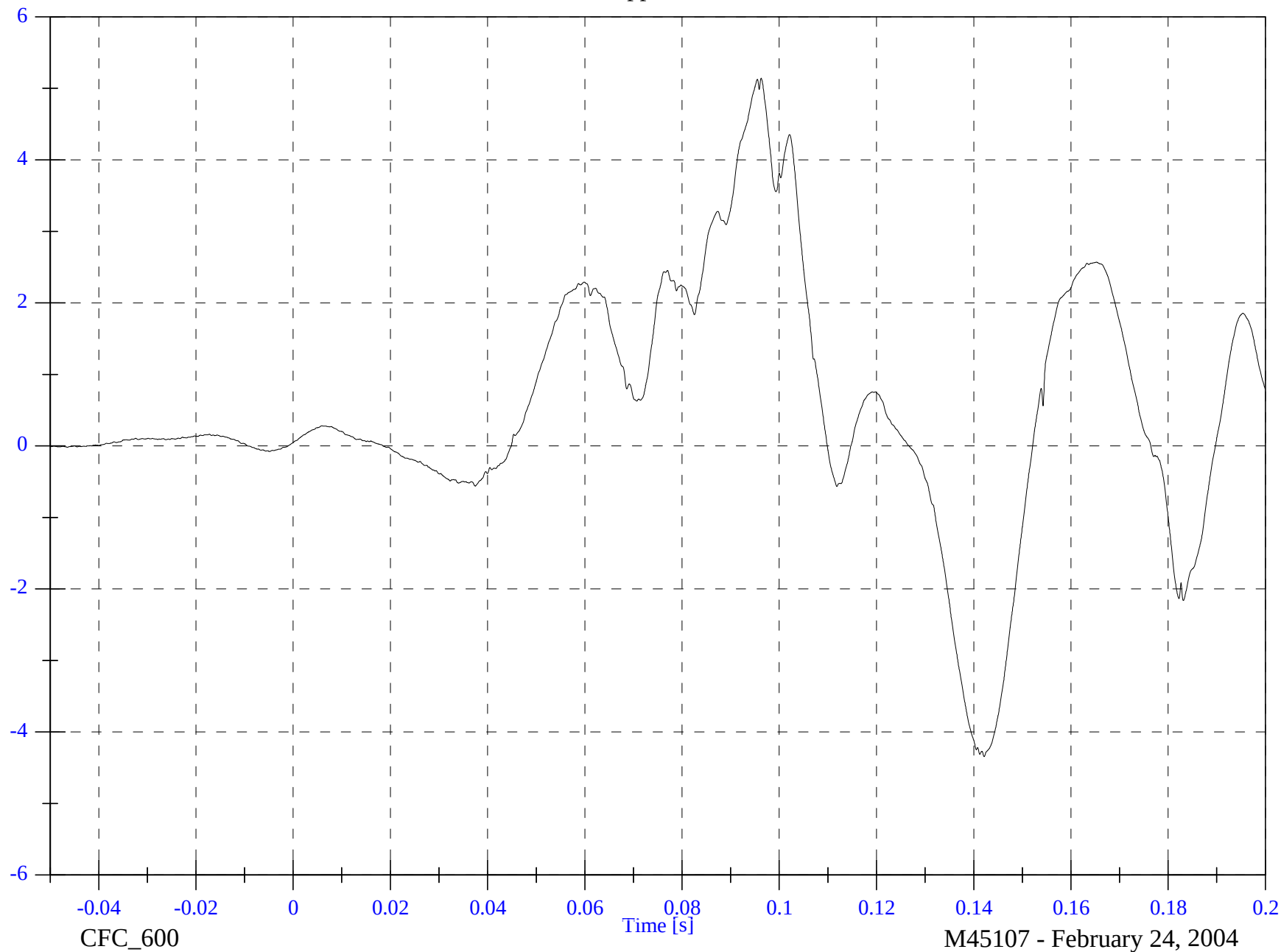
Max: 5.1 [N-m] at 0.096 [s]

Min: -4.3 [N-m] at 0.142 [s]

4-13

N-m

8642-NCAP-45



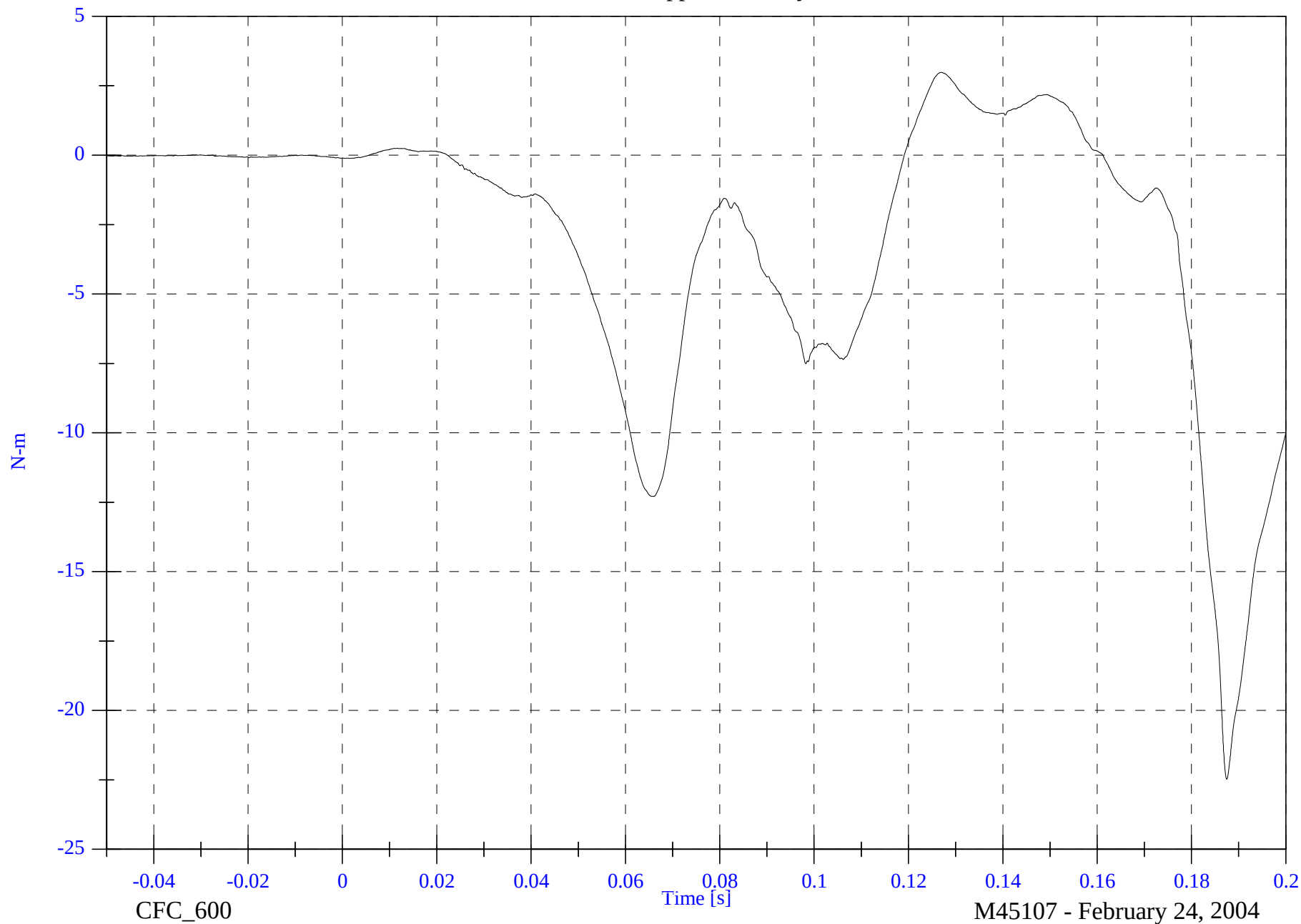
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P3 Upper Neck My

Max: 3.0 [N-m] at 0.127 [s]

Min: -22.5 [N-m] at 0.187 [s]



4-14

8642-NCAP-45

CFC_600

Time [s]

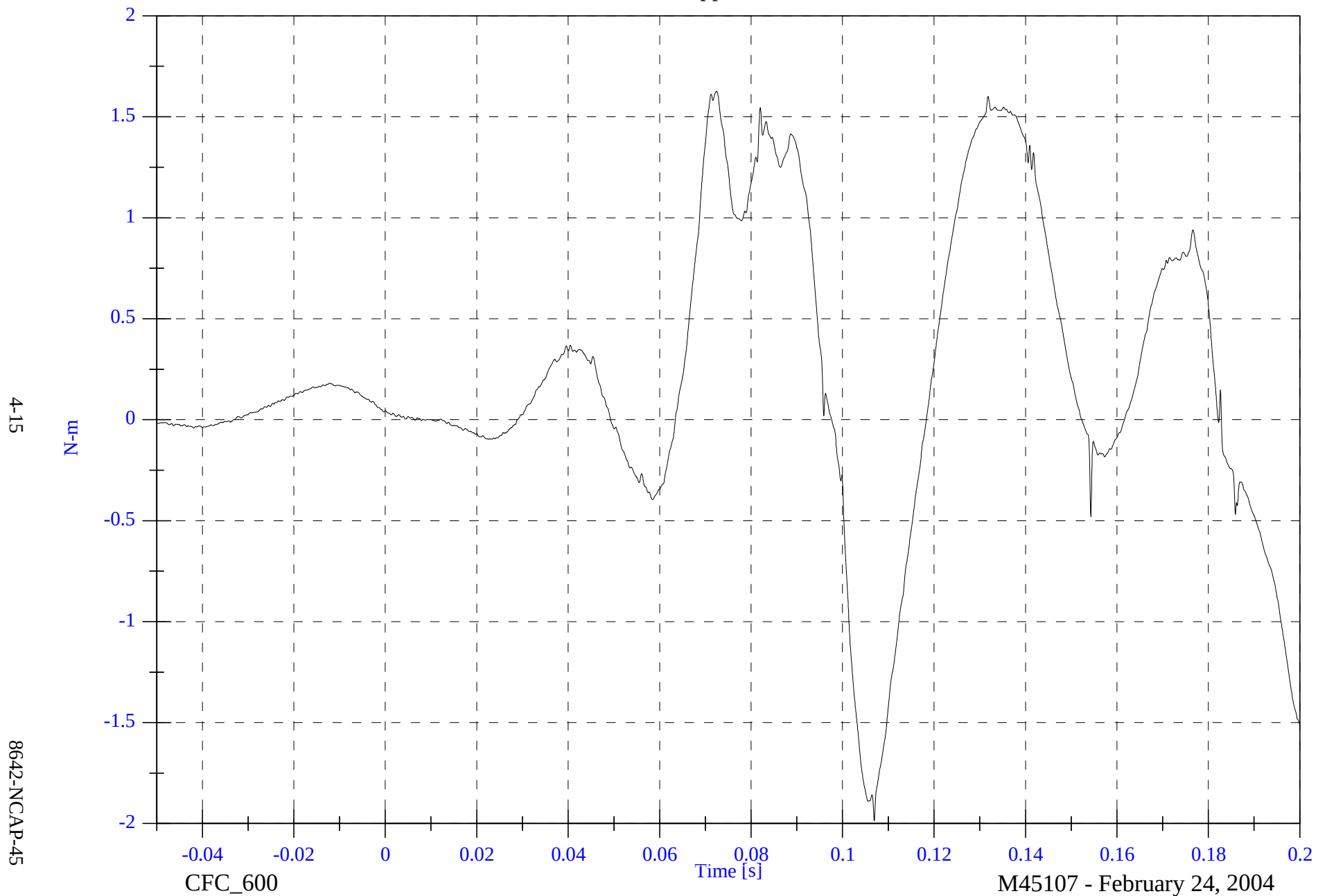
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P3 Upper Neck Mz

Max: 1.6 [N-m] at 0.072 [s]

Min: -2.0 [N-m] at 0.107 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P3 Upper Neck M Resultant

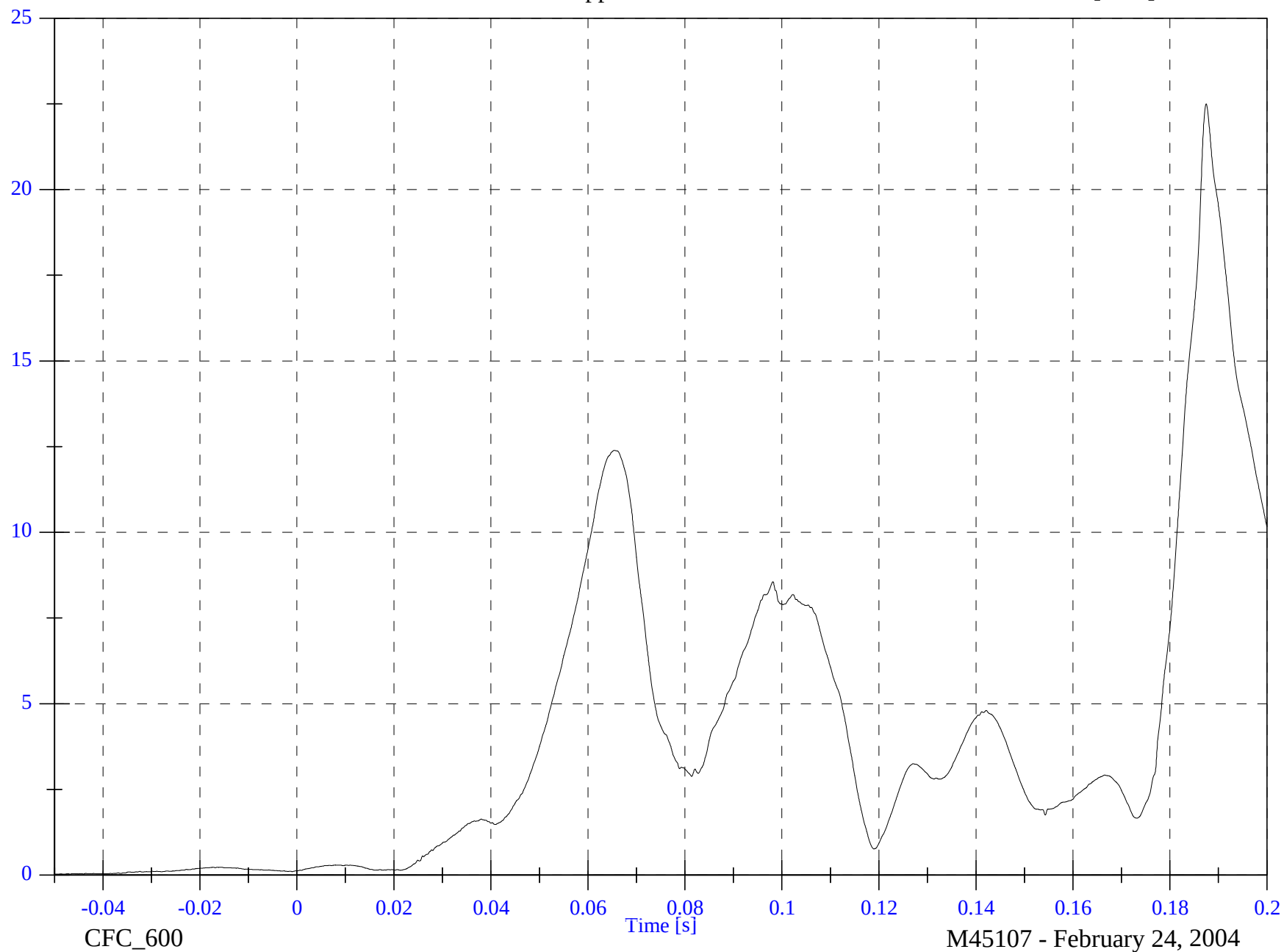
Max: 22.5 [N-m] at 0.187 [s]

Min: 0.0 [N-m] at -0.047 [s]

4-16

N-m

8642-NCAP-45

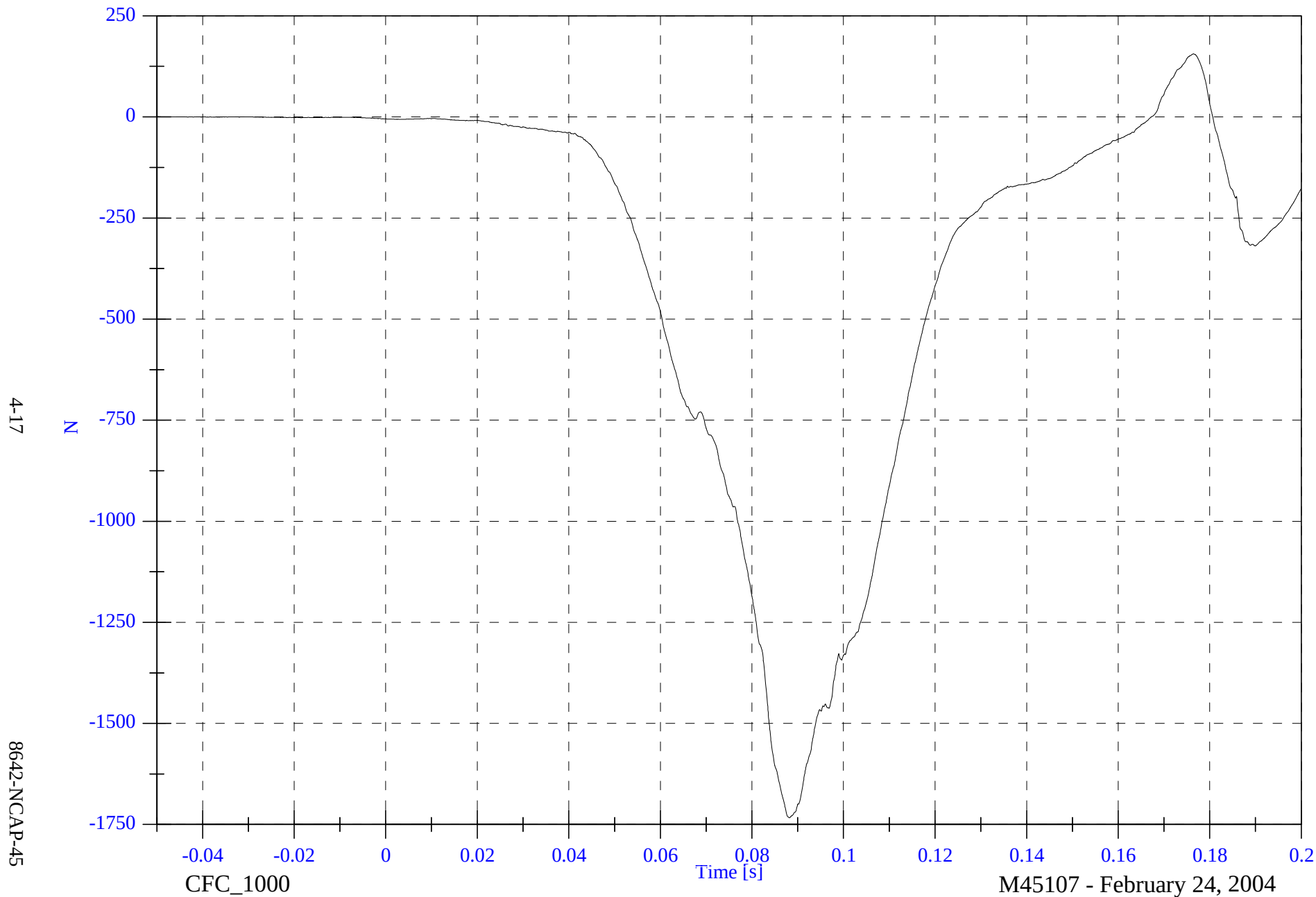


2004 NCAP Test 9 2004 Toyota Prius

V1P3 Lower Neck Fx

Max: 155.9 [N] at 0.176 [s]

Min: -1733.5 [N] at 0.088 [s]

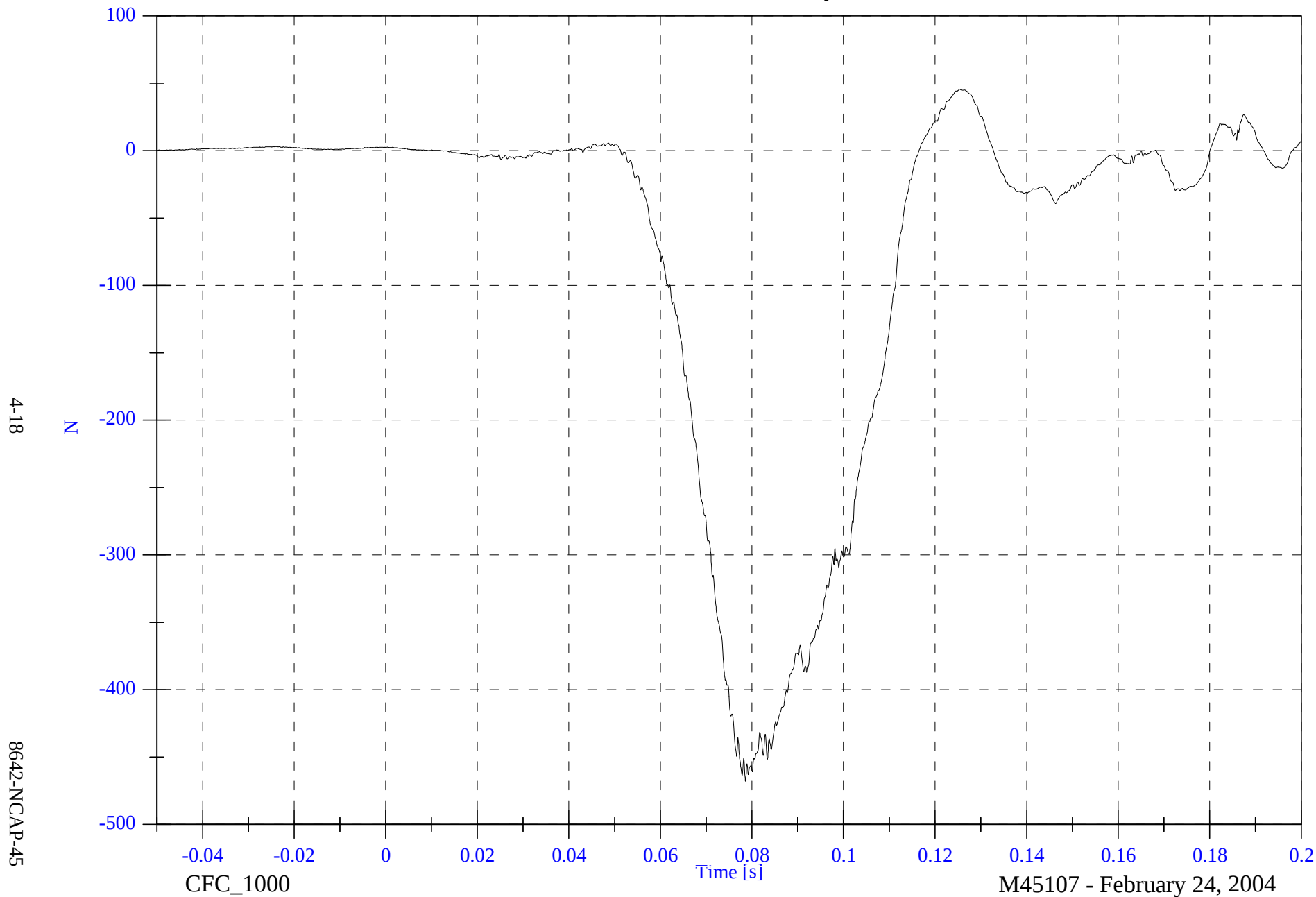


2004 NCAP Test 9 2004 Toyota Prius

V1P3 Lower Neck Fy

Max: 45.6 [N] at 0.125 [s]

Min: -468.0 [N] at 0.079 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P3 Lower Neck Fz

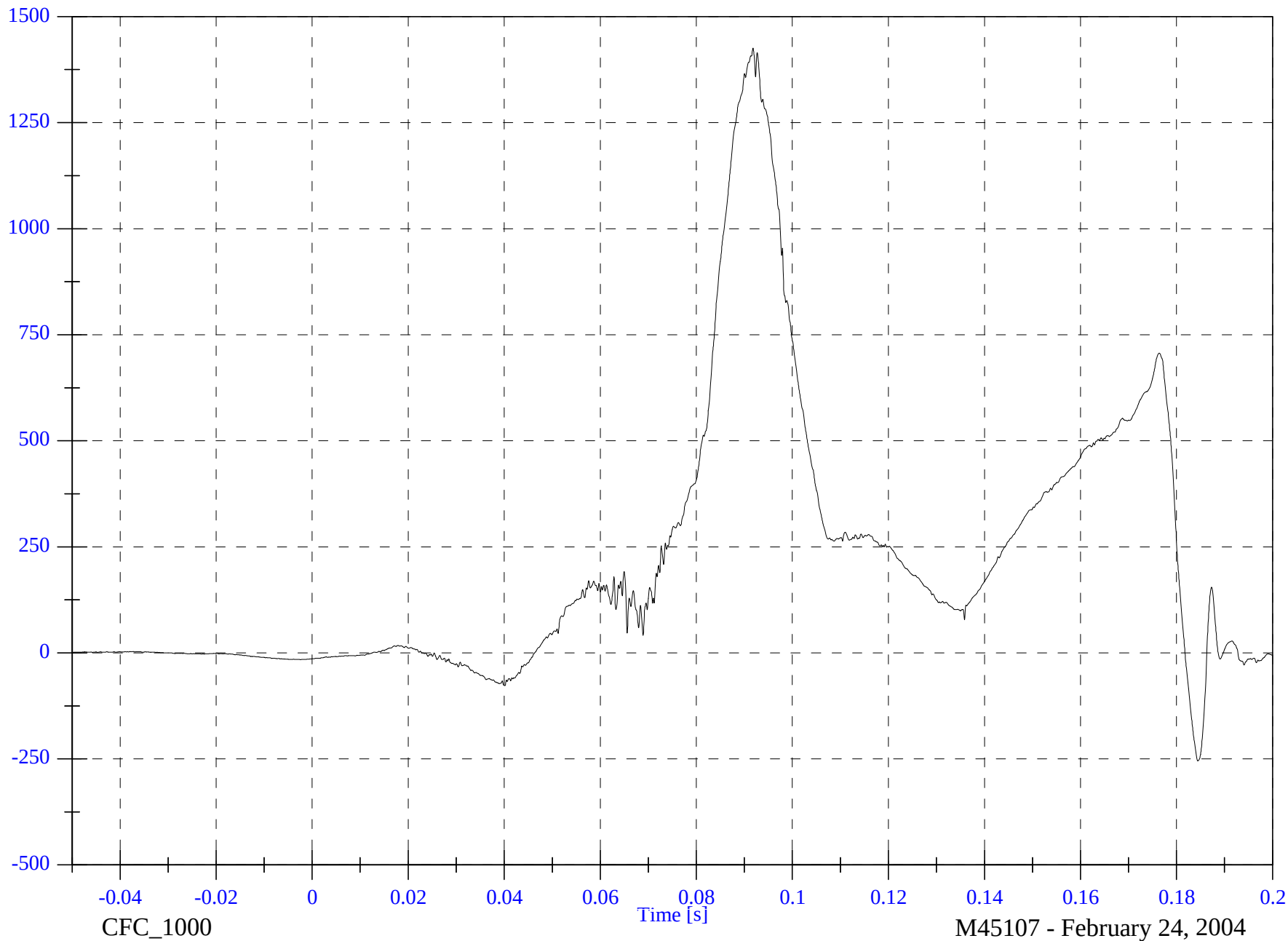
Max: 1425.6 [N] at 0.092 [s]

Min: -254.8 [N] at 0.184 [s]

4-19

N

8642-NCAP-45

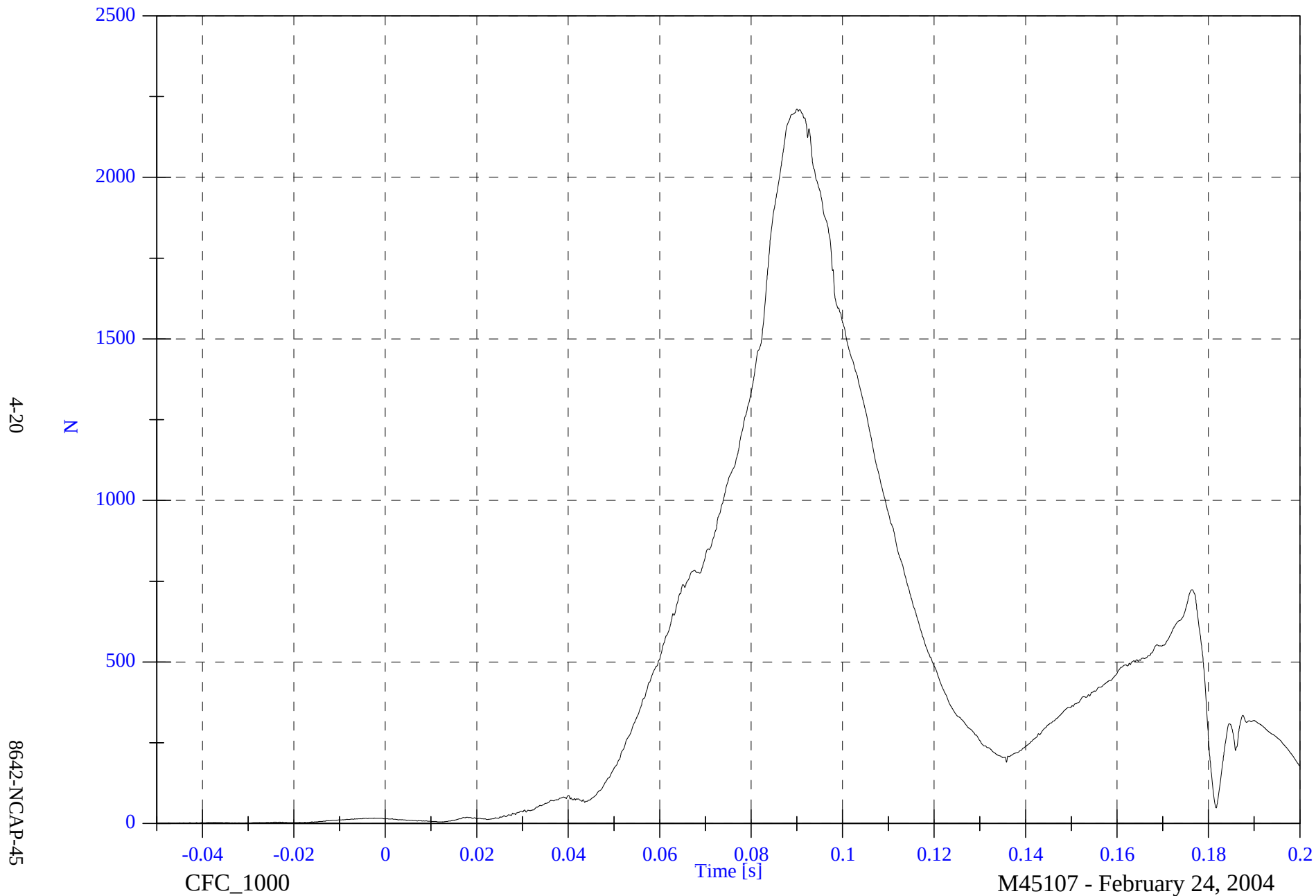


2004 NCAP Test 9 2004 Toyota Prius

V1P3 Lower Neck F Resultant

Max: 2211.8 [N] at 0.090 [s]

Min: 1.1 [N] at -0.046 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P3 Lower Neck Mx

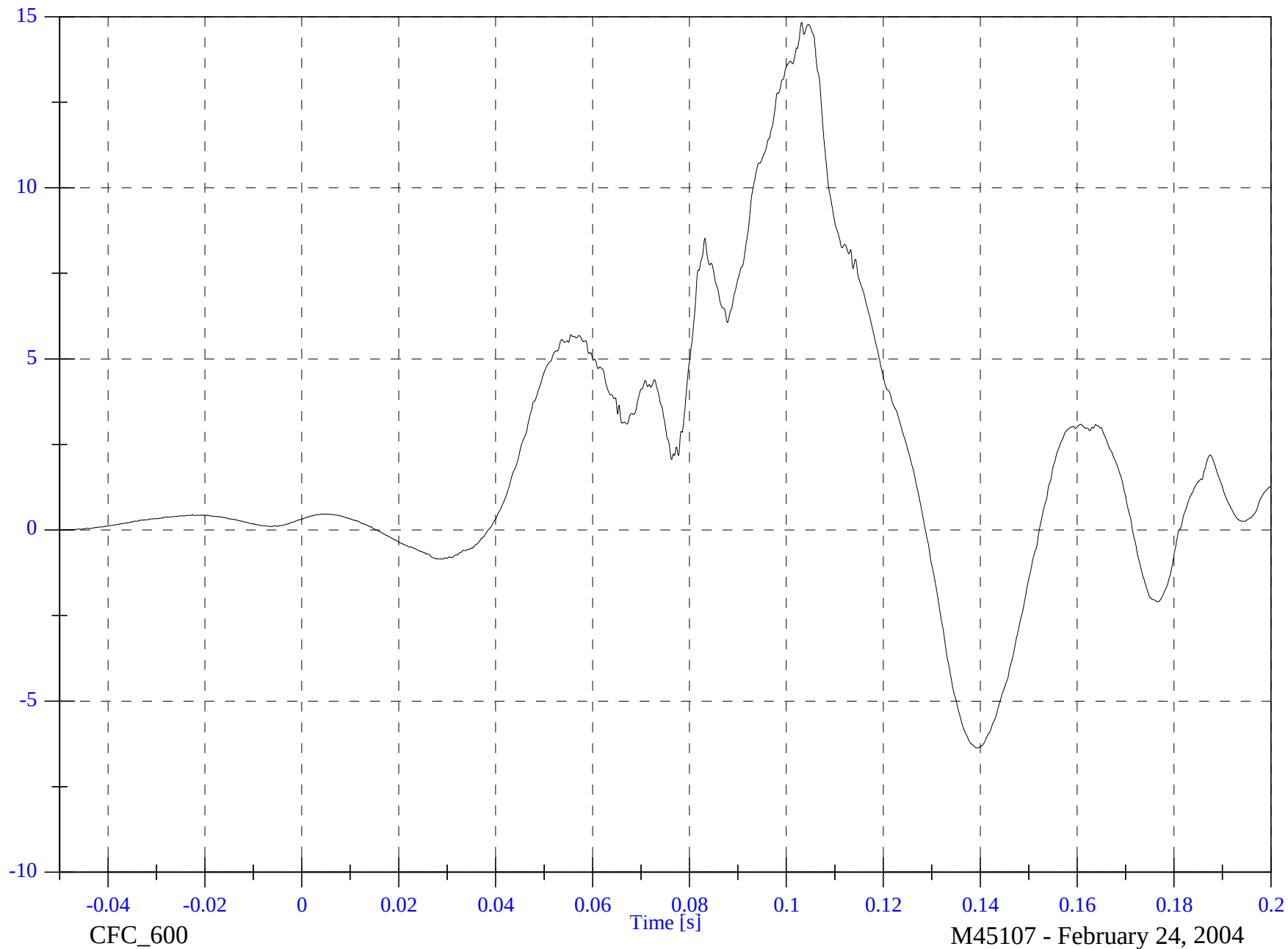
Max: 14.8 [N-m] at 0.103 [s]

Min: -6.4 [N-m] at 0.139 [s]

4-21

N-m

8642-NCAP-45



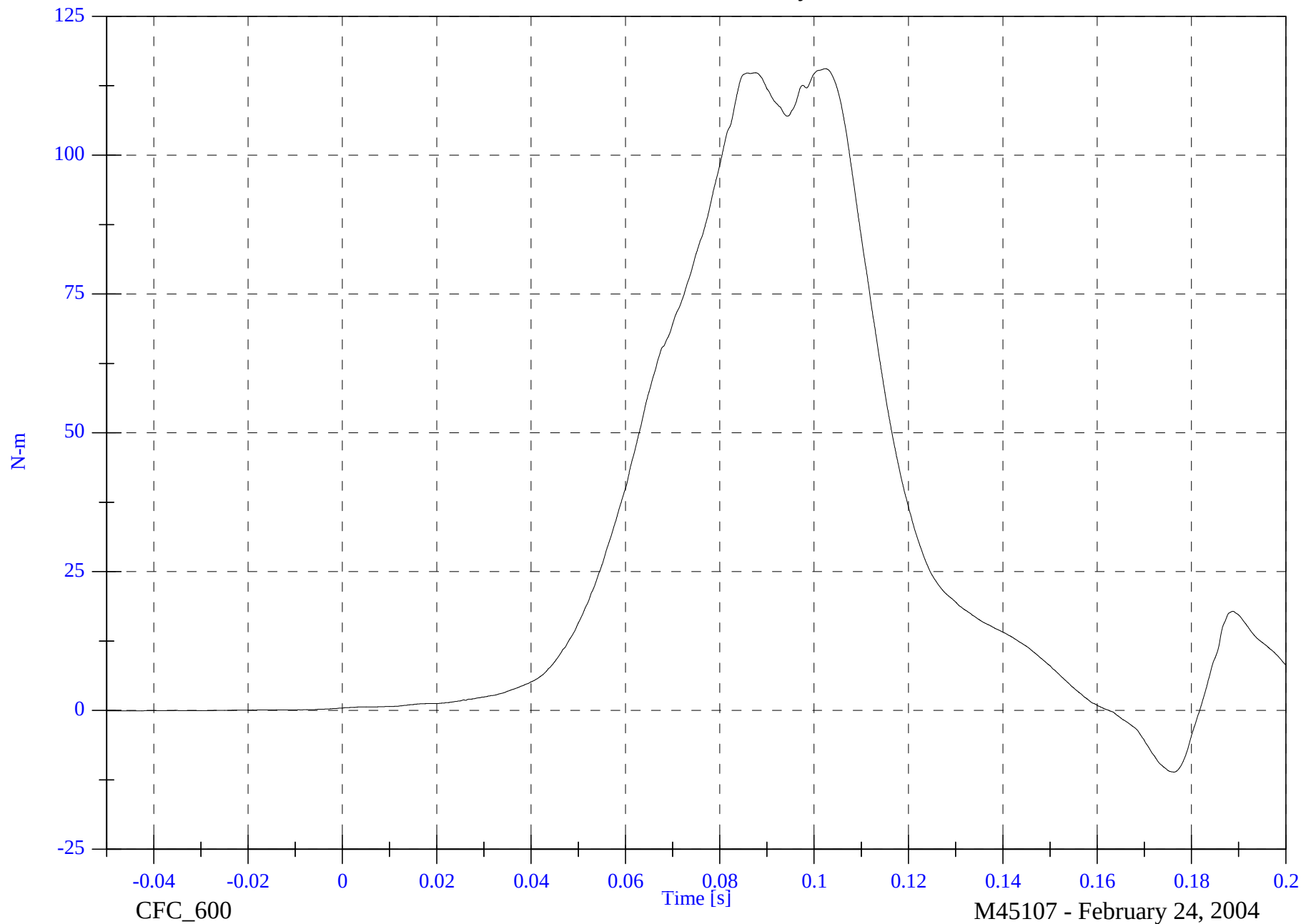
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P3 Lower Neck My

Max: 115.6 [N-m] at 0.102 [s]

Min: -11.1 [N-m] at 0.176 [s]



4-22

8642-NCAP-45

CFC_600

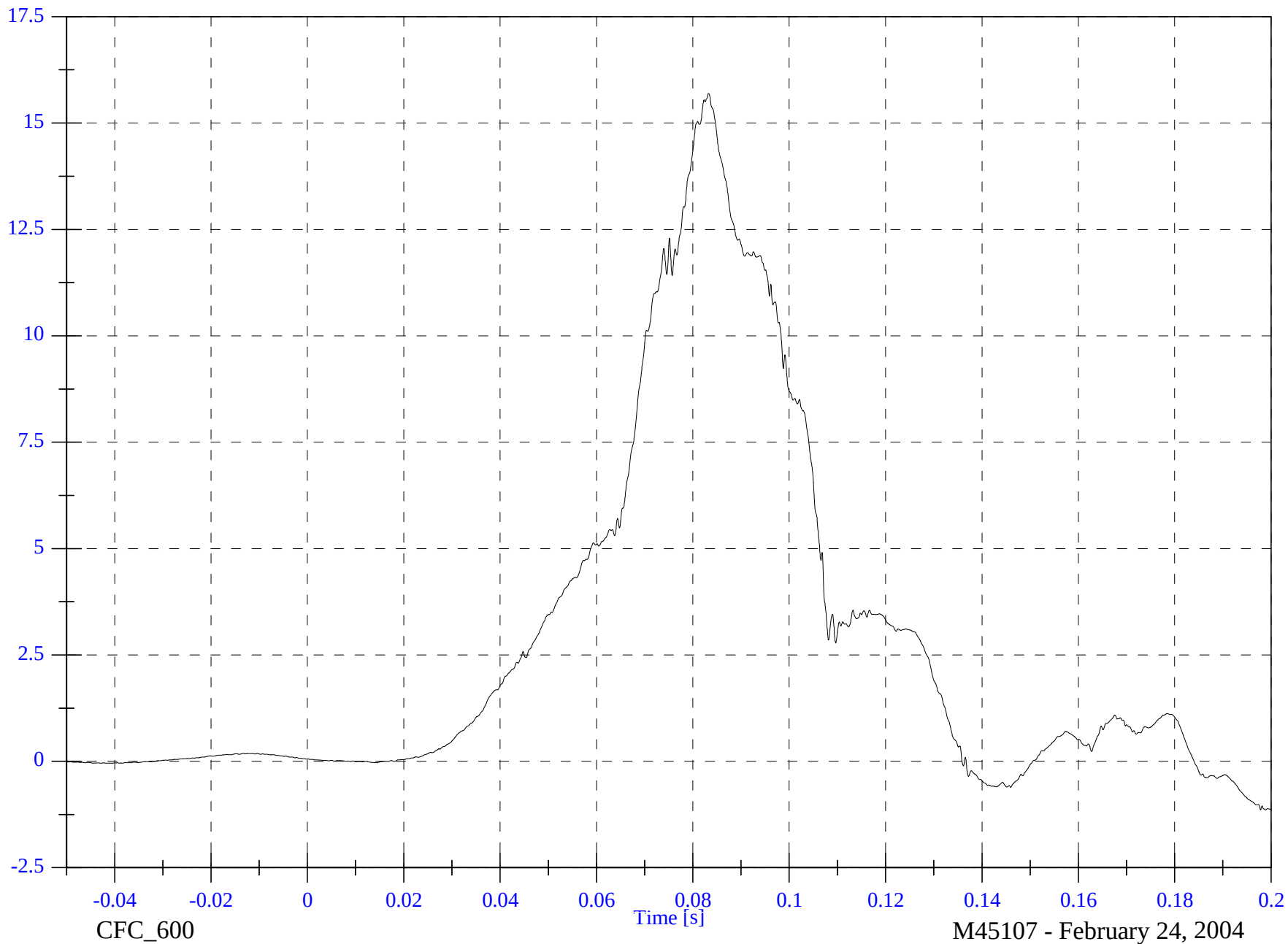
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P3 Lower Neck Mz

Max: 15.7 [N-m] at 0.083 [s]

Min: -1.1 [N-m] at 0.199 [s]



4-23

8642-NCAP-45

CFC_600

M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

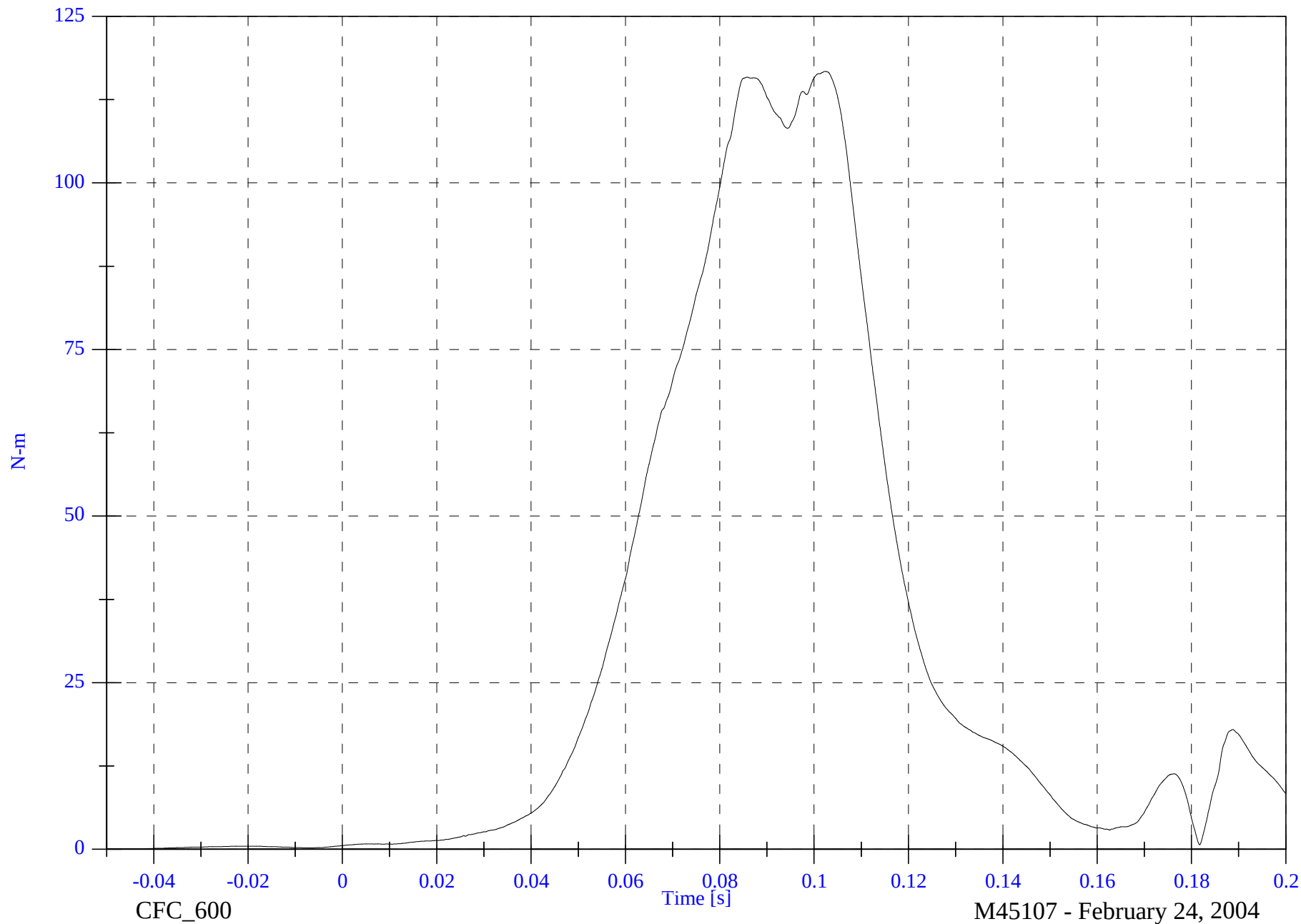
V1P3 Lower Neck M Resultant

Max: 116.7 [N-m] at 0.102 [s]

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

4-24

8642-NCAP-45



2004 NCAP Test 9 2004 Toyota Prius

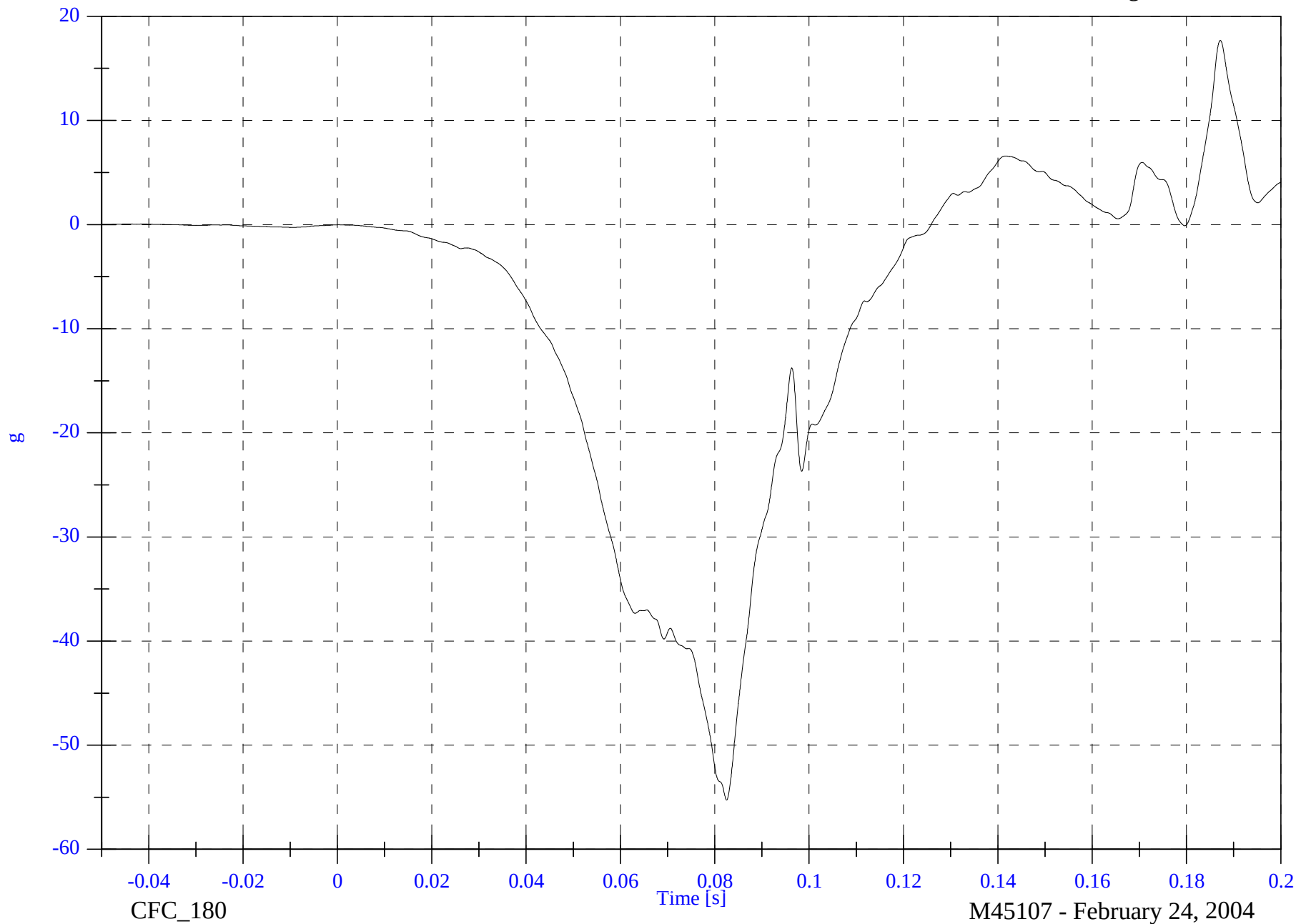
V1P3 Chest x

Max: 17.7 [g] at 0.187 [s]

Min: -55.3 [g] at 0.083 [s]

4-25

8642-NCAP-45



2004 NCAP Test 9 2004 Toyota Prius

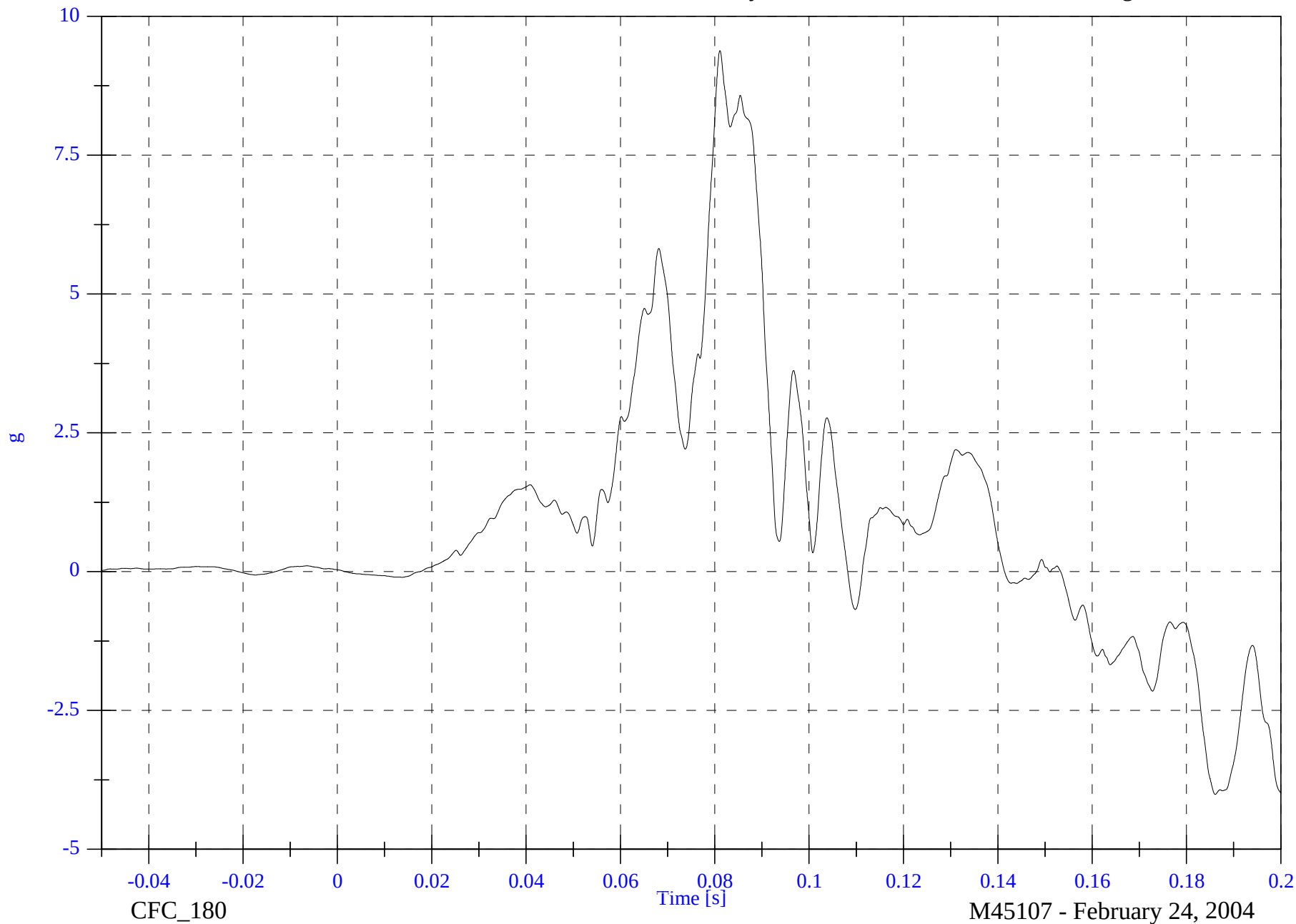
V1P3 Chest y

Max: 9.4 [g] at 0.081 [s]

Min: -4.0 [g] at 0.186 [s]

4-26

8642-NCAP-45

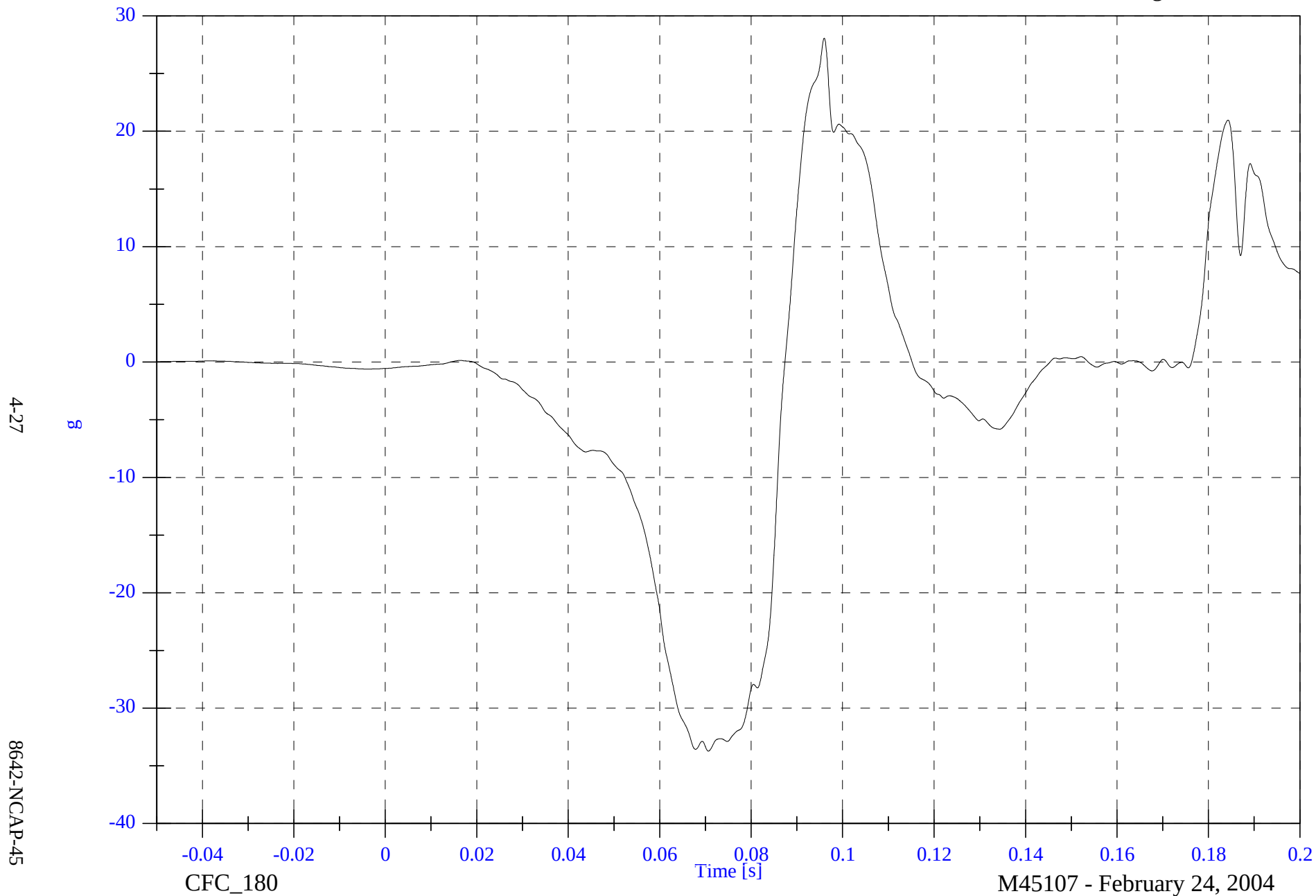


2004 NCAP Test 9 2004 Toyota Prius

V1P3 Chest z

Max: 28.1 [g] at 0.096 [s]

Min: -33.7 [g] at 0.071 [s]



2004 NCAP Test 9 2004 Toyota Prius

V1P3 Chest Resultant

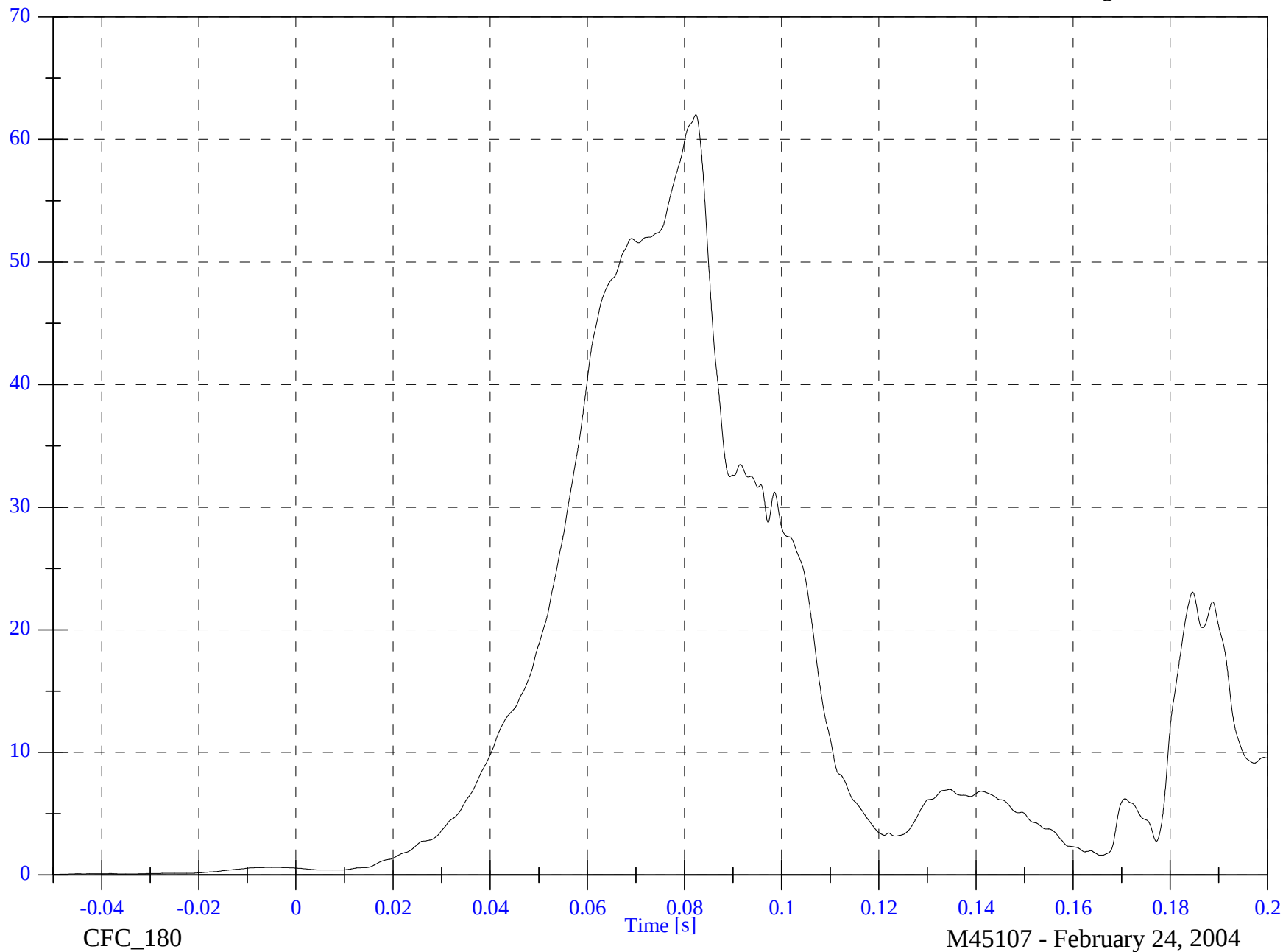
Max: 62.0 [g] at 0.082 [s]

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

4-28

8642-NCAP-45

g



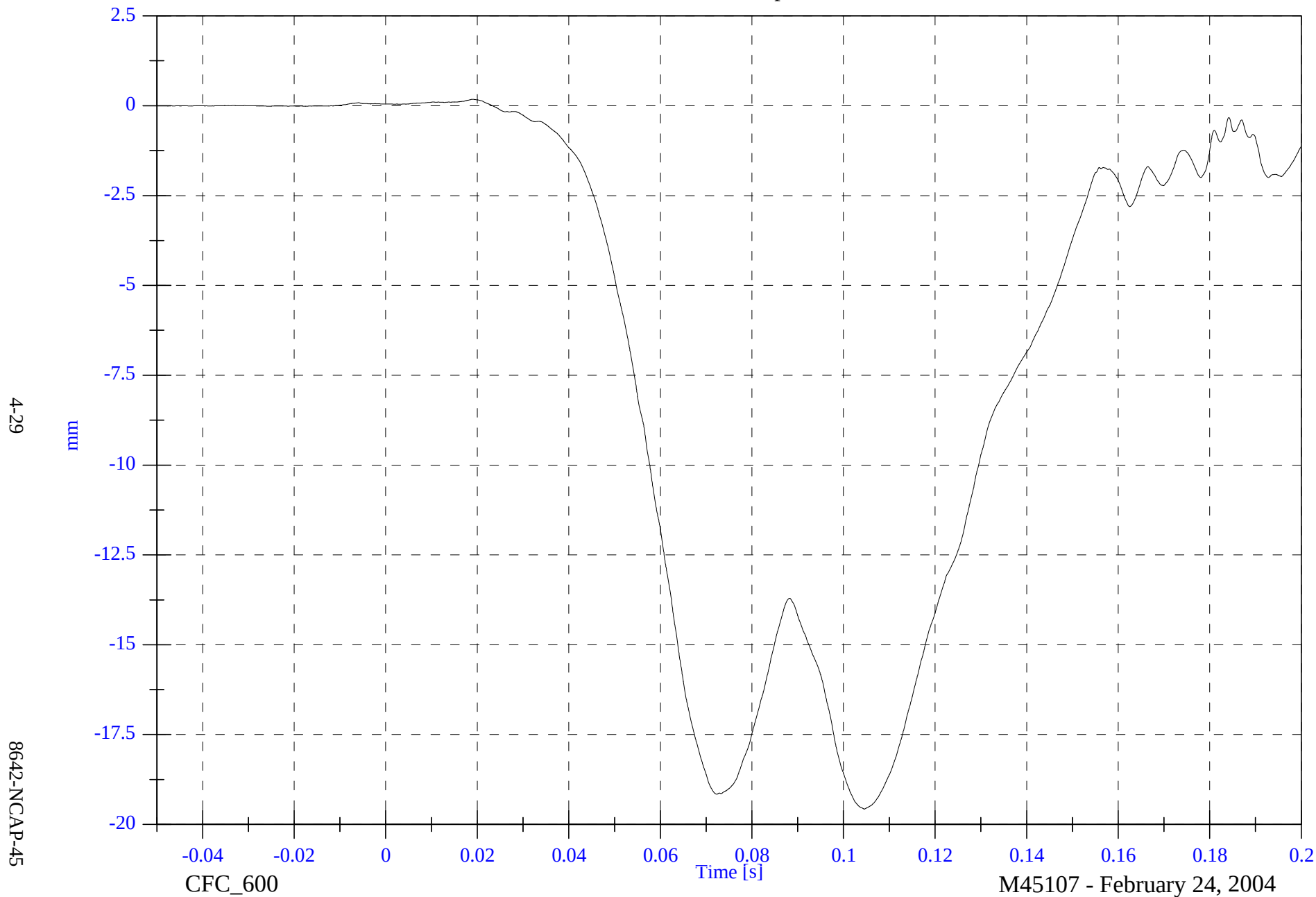
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P3 Chest Compression

Max: 0.2 [mm] at 0.019 [s]

Min: -19.6 [mm] at 0.105 [s]



2004 NCAP Test 9 2004 Toyota Prius

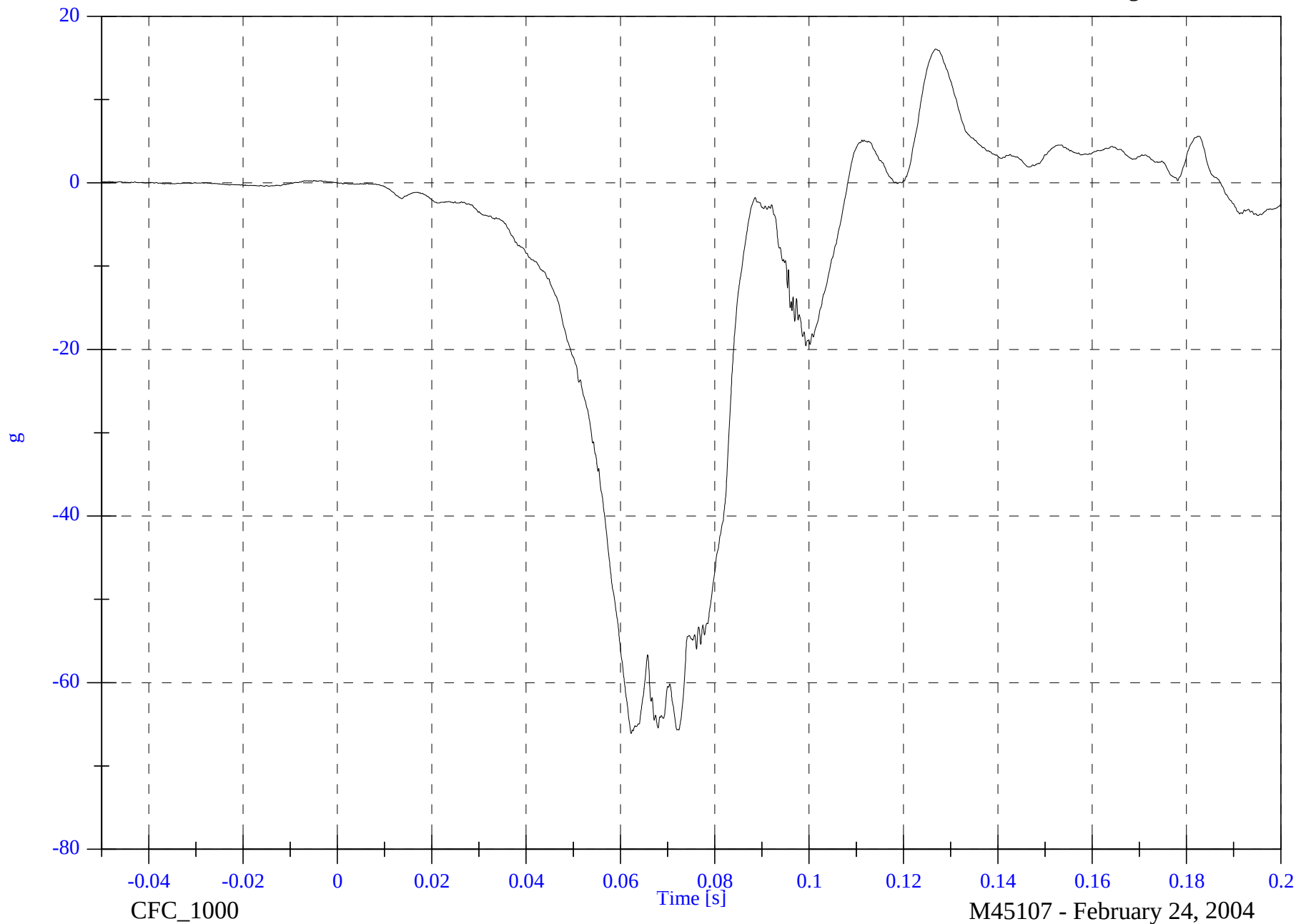
V1P3 Pelvic x

Max: 16.1 [g] at 0.127 [s]

Min: -66.1 [g] at 0.062 [s]

4-30

8642-NCAP-45



2004 NCAP Test 9 2004 Toyota Prius

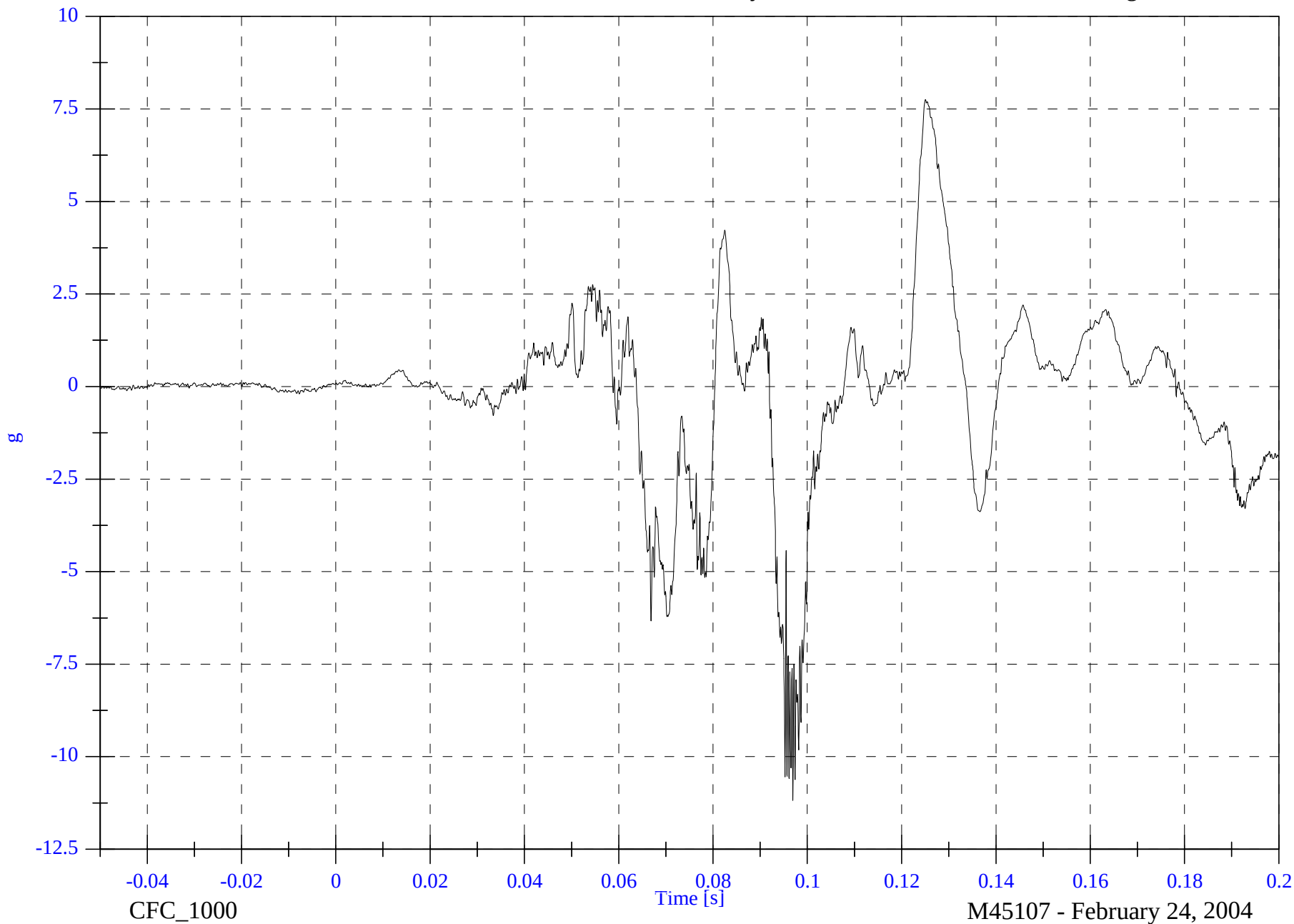
V1P3 Pelvic y

Max: 7.7 [g] at 0.125 [s]

Min: -11.2 [g] at 0.097 [s]

4-31

8642-NCAP-45



2004 NCAP Test 9 2004 Toyota Prius

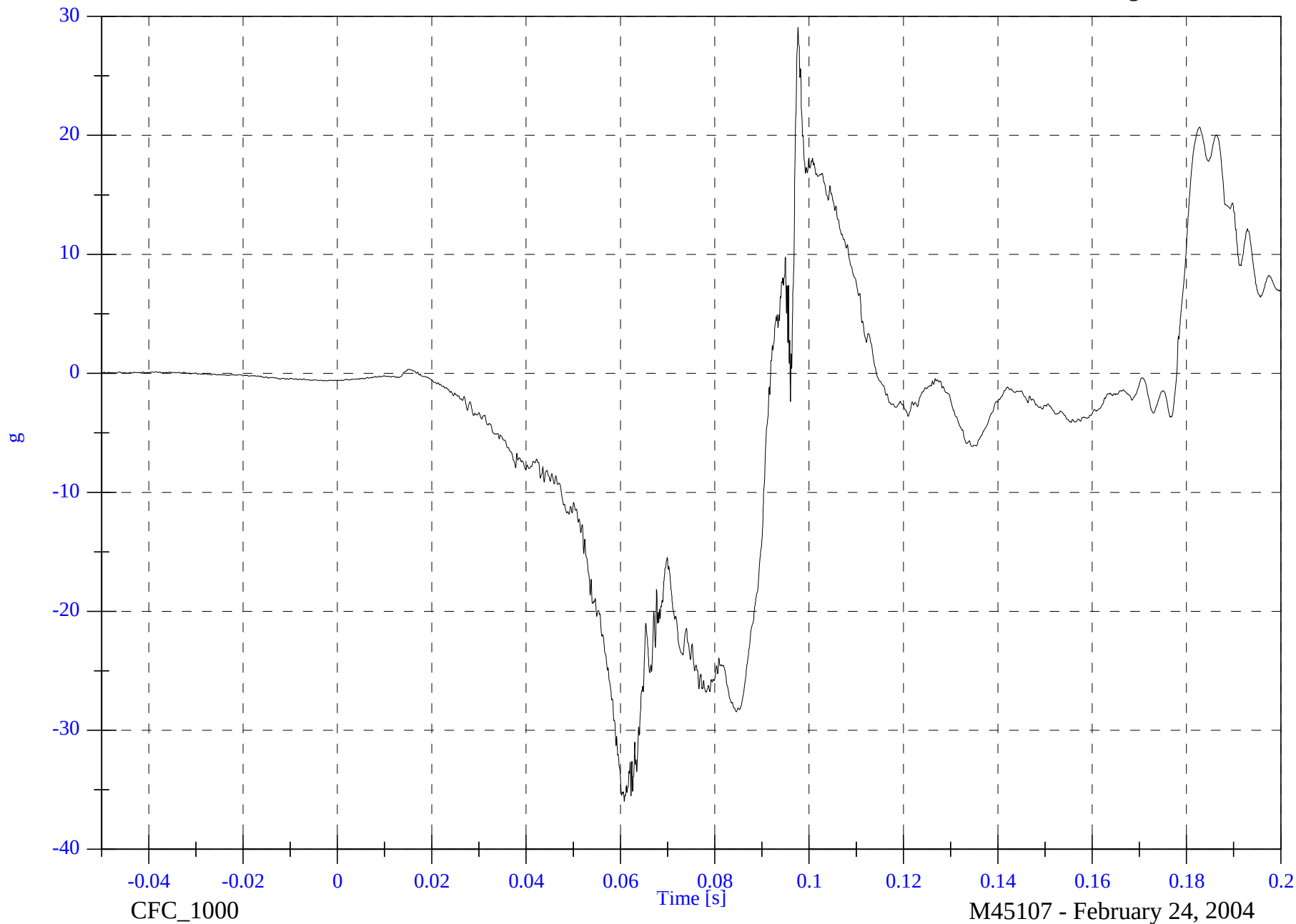
V1P3 Pelvic z

Max: 29.1 [g] at 0.098 [s]

Min: -36.0 [g] at 0.061 [s]

4-32

8642-NCAP-45

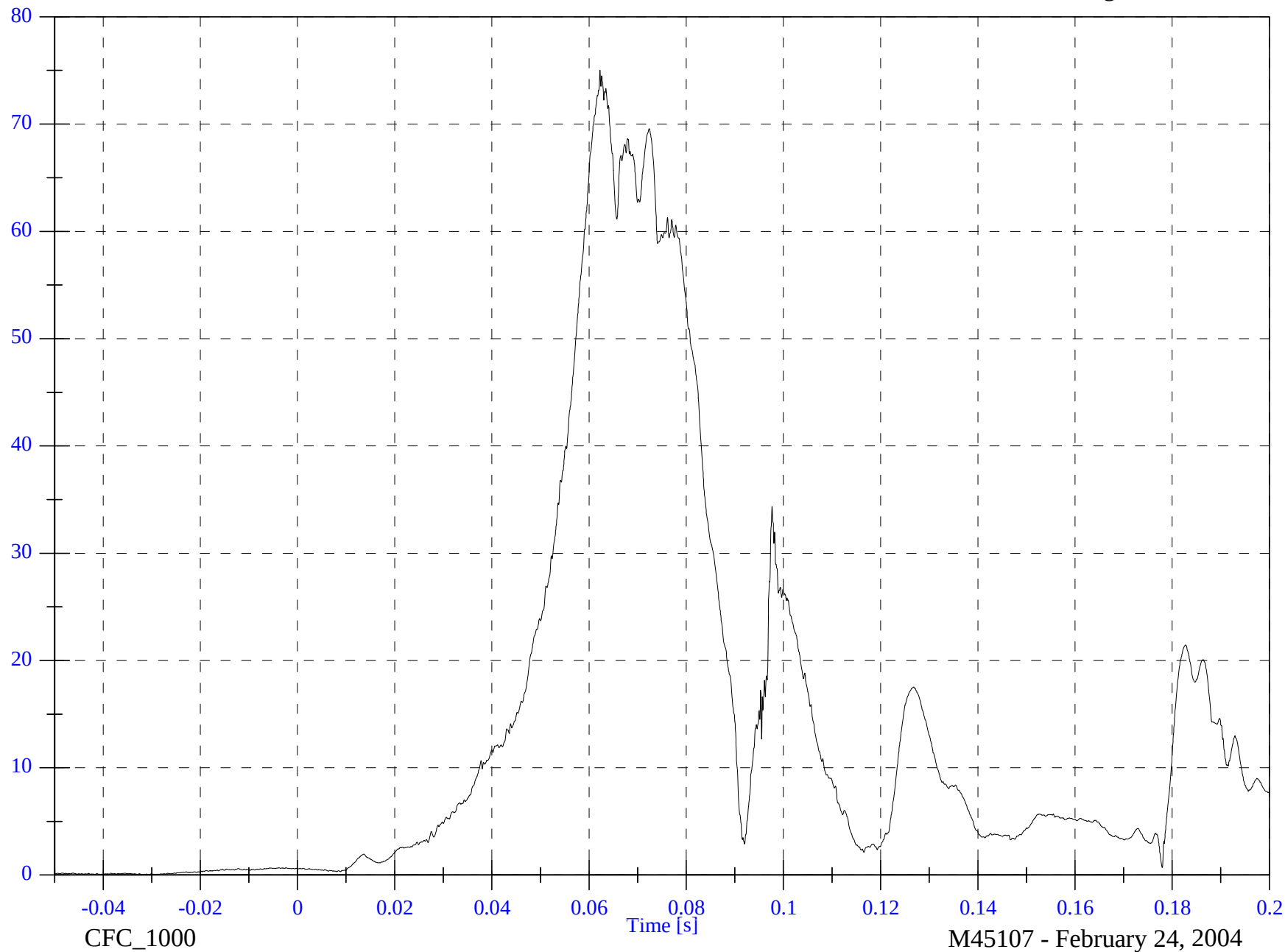


2004 NCAP Test 9 2004 Toyota Prius

V1P3 Pelvic Resultant

Max: 75.0 [g] at 0.062 [s]

Min: 0.0 [g] at -0.032 [s]



4-33

8642-NCAP-45

CFC_1000

M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1 P3 Tether Belt

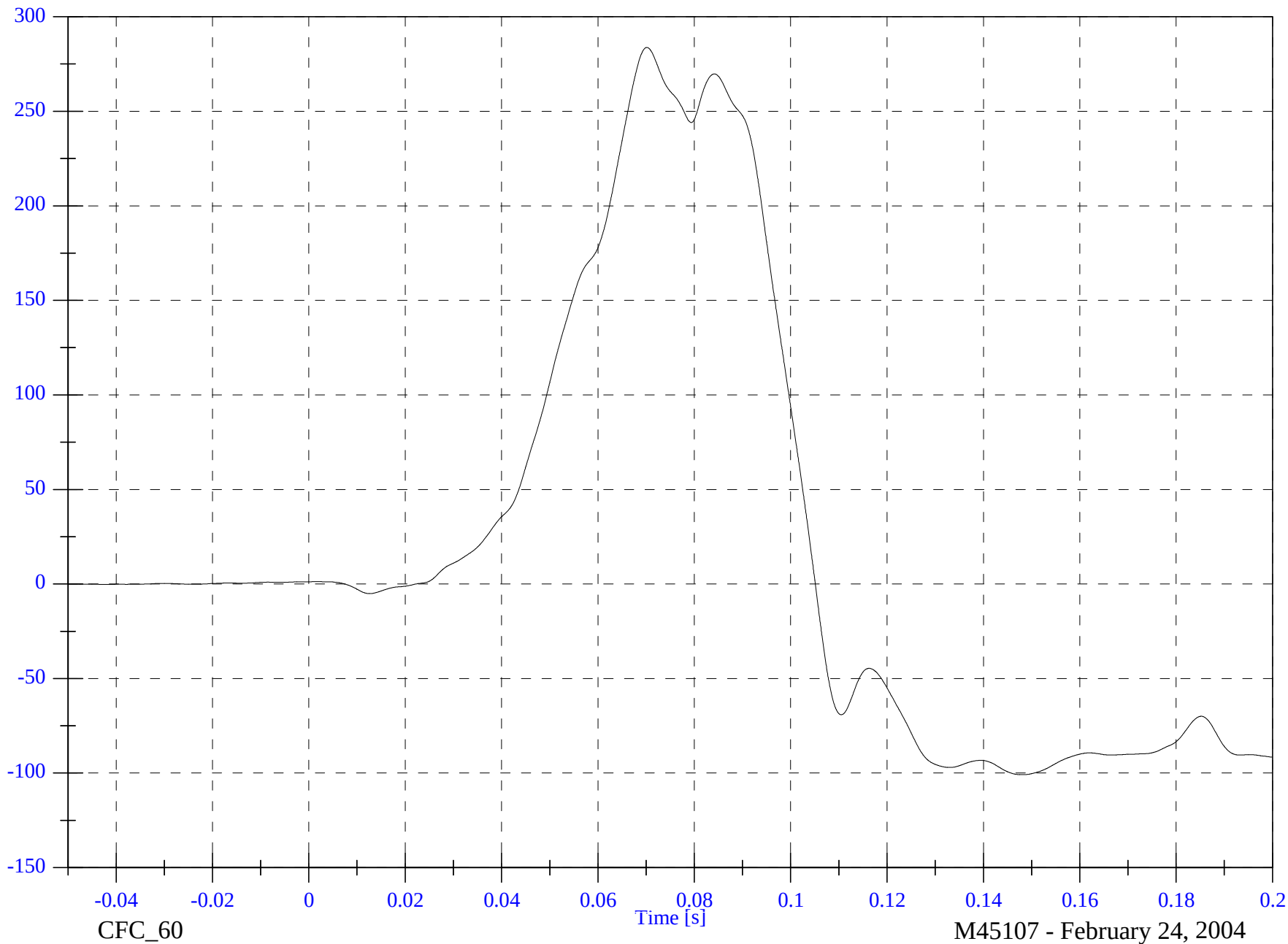
Max: 283.8 [N] at 0.070 [s]

Min: -100.9 [N] at 0.148 [s]

4-34

N

8642-NCAP-45



2004 NCAP Test 9 2004 Toyota Prius

V1P3 CRS x

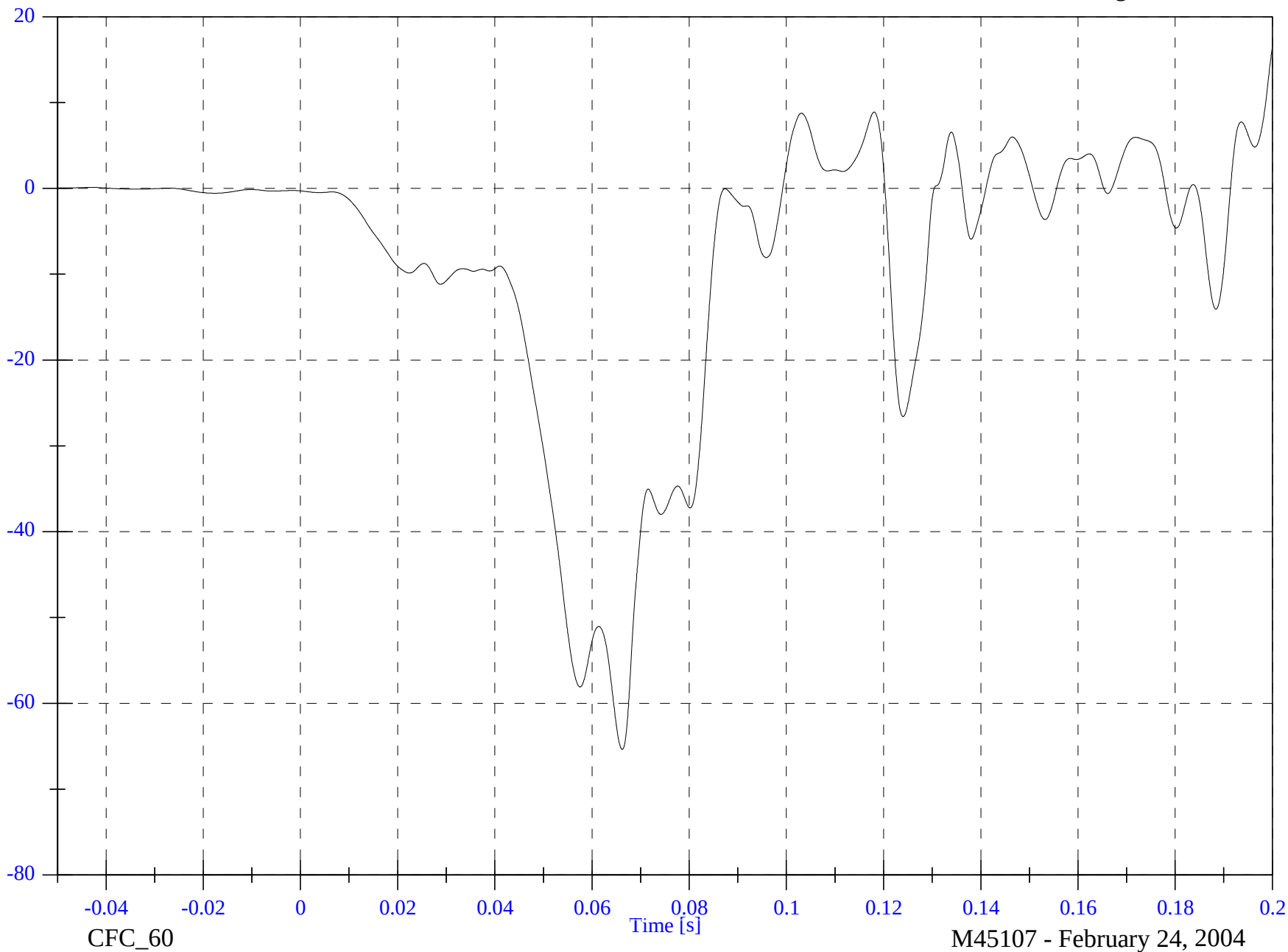
Max: 16.3 [g] at 0.200 [s]

Min: -65.4 [g] at 0.066 [s]

4-35

8642-NCAP-45

g



Time [s]

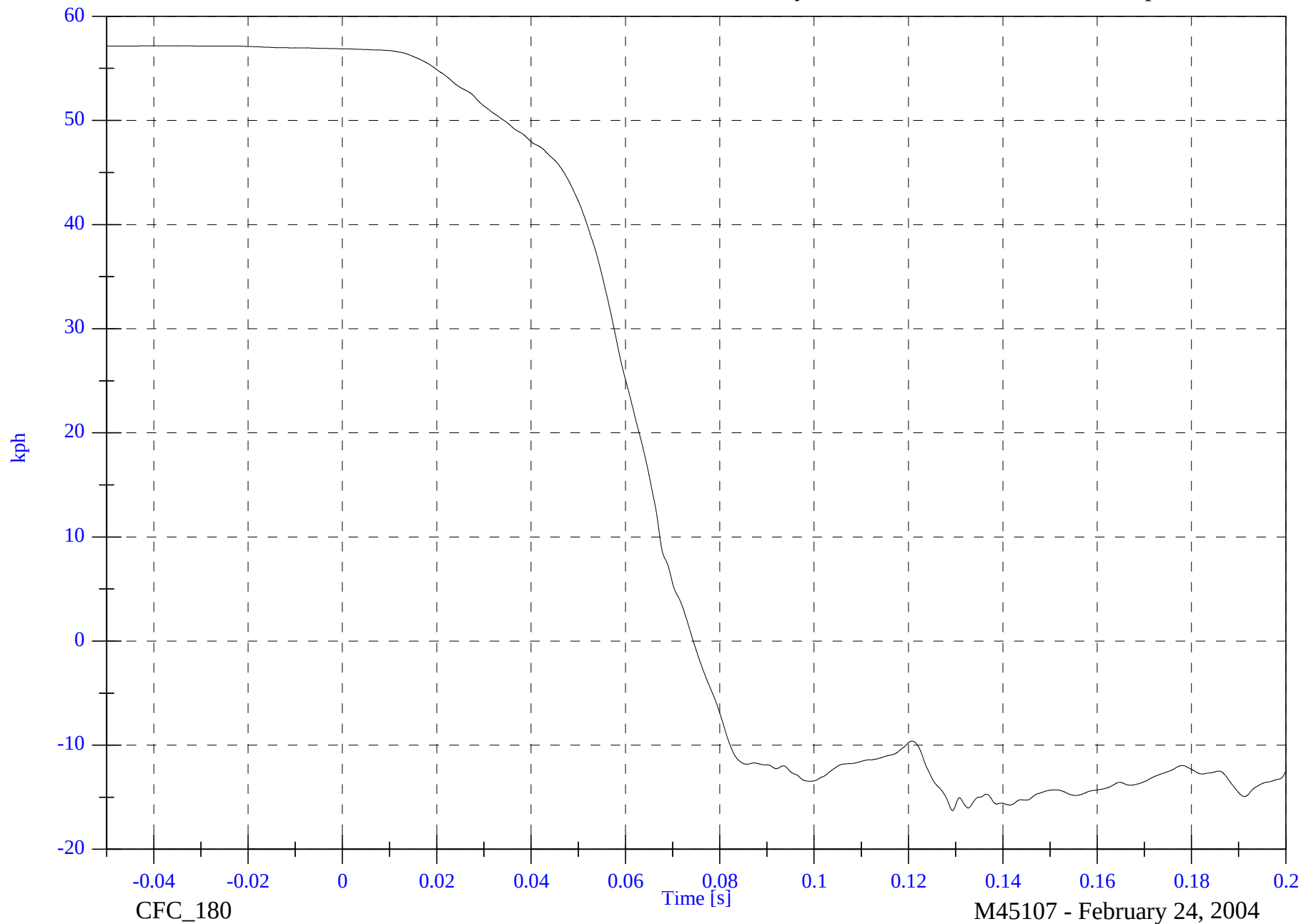
M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

V1P3 CRS x Velocity

Max: 57.2 [kph] at -0.039 [s]

Min: -16.3 [kph] at 0.129 [s]



4-36

8642-NCAP-45

CFC_180

Time [s]

M45107 - February 24, 2004

2004 NCAP Test 9 2004 Toyota Prius

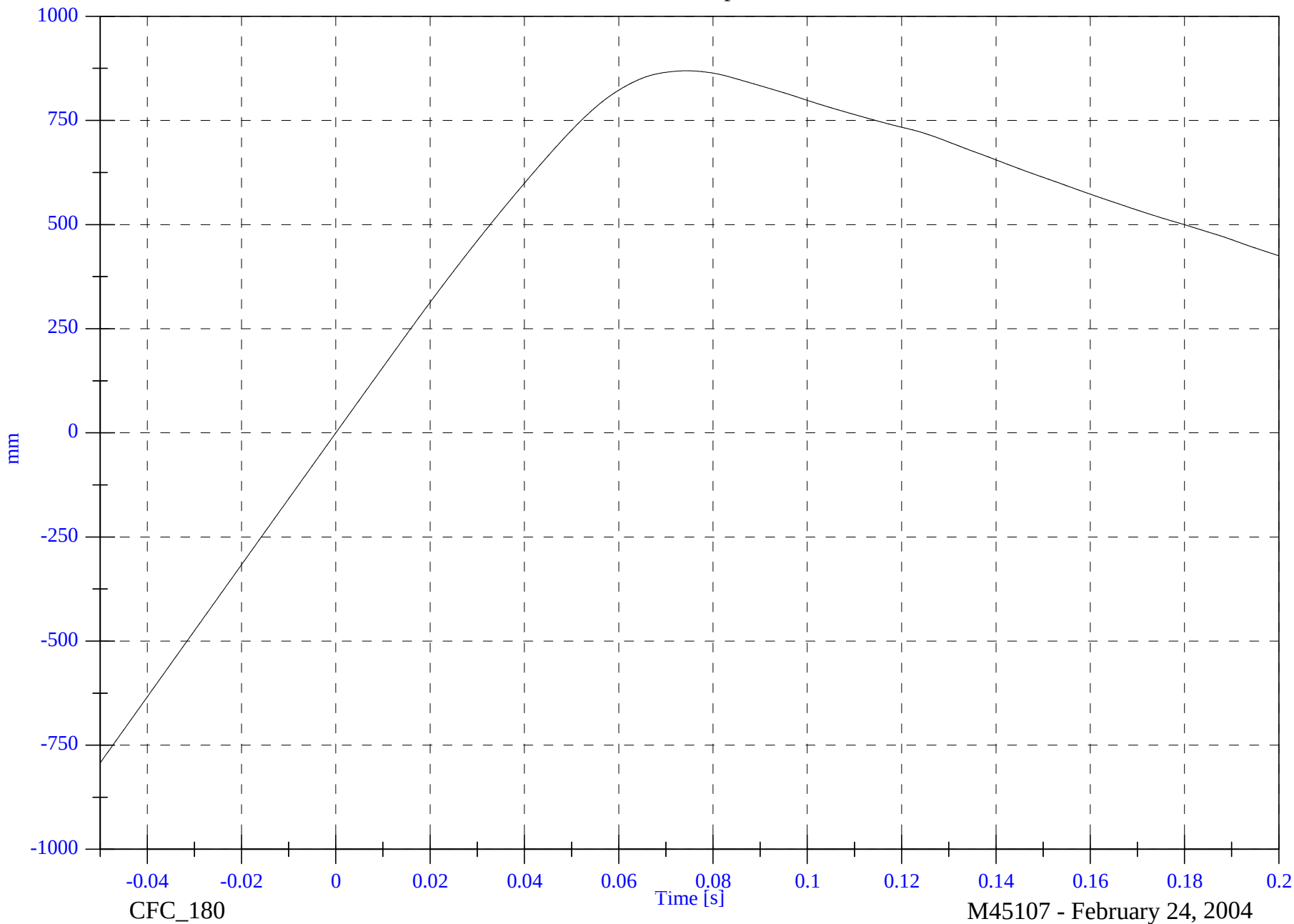
V1P3 CRS x Displacement

Max: 869.2 [mm] at 0.074 [s]

Min: -792.8 [mm] at -0.050 [s]

4-37

8642-NCAP-45



SECTION 5

CHILD DUMMY CALIBRATION INFORMATION

PART 572P
HEAD DROP TEST

Dummy Serial Number 044
Sequential Test Number 1
Date 01-21-2004
Workfile 044H 01-21-04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70.0 F
Relative Humidity	10% - 70%	35.00 %
Peak Resultant Acceleration	250-280 G's	271.45 Gs
Peak Lateral Acceleration	15 G's Max	6.74 Gs
Is Acceleration Curve Unimodal?	<10%	4.71 %

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572P
NECK FLEXION TEST

Dummy Serial Number 044
Sequential Test Number 1
Date 10-22-03
Workfile 044NF 10-22-03

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	38.00
Pendulum Speed		5.40-5.60 m/s	5.46
Pendulum Pulse	10 ms	2.00 – 2.70 m/s	2.14
	15 ms	3.00 – 4.00 m/s	3.13
	20 ms	4.00 – 5.10 m/s	4.30
D Plane Rotation	Max	70.0 – 82.0 Deg	75.72
Maximum Occipital Moment		42.00 - 53.00 N-m	52.40
Occipital Moment Decay		60.0 - 80.0 ms	74.60

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572P
NECK EXTENSION TEST

Dummy Serial Number 044
Sequential Test Number 2
Date 10-22-03
Workfile 044NE2 10-22-03

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		20.6 – 22.2 Deg C	21.11
Relative Humidity		10% - 70%	38.00
Pendulum Speed		3.55 – 3.75 m/s	3.72
Pendulum Pulse	10 ms	1.00 – 1.40 m/s	1.05
	15 ms	1.90 – 2.50 m/s	1.98
	20 ms	2.80 – 3.50 m/s	2.82
D Plane Rotation	Max	83.0 – 93.0 Deg	85.02
Maximum Occipital Moment		-53.30 - -43.70 N-m	-45.28
Occipital Moment Decay		60.0 - 80.0 ms	67.60

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572P
THORAX IMPACT TEST

Dummy Serial Number 044
Sequential Test Number 3
Date 01-22-2004
Workfile 044T3 01-22-04

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0 F
Relative Humidity	10% - 70%	35.00 %
Pendulum Velocity	19.40 – 20.00 Ft/s	19.67 ft/s
Maximum Deflection	1.30 – 1.50 in	1.35 in
Maximum Resistive Force	152.90 – 182.10 Lbs	168.03 lbf
Internal Hysteresis	65 - 85 %	72.89 %
Sternum Force Criteria	193.30 lbf	186.73 lbf

Remarks:

Laboratory Technician:

_____ B. Swiecicki

PART 572P
EXTERNAL DIMENSIONS

Dummy Serial Number 044
Sequential Test Number 1
Date 10-22-2003

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Total Sitting Height	A	21.2 – 21.8 in	21.4
Shoulder Pivot Height	B	12.1 - 12.7 in	12.4
H-Point Height	C	1.35 – 1.75 in	1.57
H-Point from Backline	D	2.24 – 2.64 in	2.76
Shoulder Pivot from Backline	E	2.40 – 2.80 in	2.76
Thigh Clearance	F	3.19 – 3.59 in	3.27
Back of Elbow to Fingertip	G	9.74 – 10.34 in	10.04
Head back from Backline	H	1.9 – 2.3 in	2.17
Shoulder - Elbow Length	I	7.3 – 7.9 in	7.87
Elbow Rest Height	J	5.26 – 5.86 in	5.31
Buttock to Knee Length	K	11.21 – 11.81 in	11.41
Popliteal Height	L	8.60 – 9.20 in	8.86
Knee Pivot Height	M	9.51 – 10.11 in	9.84
Buttock Popliteal Length	N	8.58 - 9.18 in	8.86
Chest Depth with Jacket	O	5.45 - 6.05 in	5.98
Foot Length	P	5.42 – 5.82 in	5.47
Stature	Q	36.7 – 37.7 in	37.01
Buttock to Knee Pivot Length	R	9.9 - 10.3 in	10.04
Head Breadth	S	5.15 – 5.55 in	5.16
Head Depth	T	6.59 -7.19 in	6.81
Hip Breadth	U	7.9 – 8.5 in	8.15
Shoulder Breadth	V	9.31 – 9.91in	9.49
Foot Breadth	W	2.11 – 2.51 in	2.32
Head Circumference	X	19.7 – 20.3 in	20.0
Chest Circumference (With Jacket)	Y	20.75 – 21.75 in	21.65
Waist Circumference	Z	20.75 – 21.75 in	21.66
Location for Chest Circumference	AA	9.8 – 10.2 in	10.04
Location for Waist Circumference	BB	6.3 – 6.7 in	6.50

Remarks:

Laboratory Technician:

B. Swiecicki

SECTION 6

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

HYBRID III INSTRUMENTATION

	POSITION #3 (RIGHT) SERIAL NO.: 044		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P32218	ENDEVCO	17-Feb-04
HEAD AY	AC-P17743	ENDEVCO	21-Oct-03
HEAD AZ	AC-P15319	ENDEVCO	21-Oct-03
HEAD REAR AZ	AC-02I02I10-N06	ENTRAN	08-Dec-03
UPPER NECK FX	LC-248-FX	Denton	01-Oct-03
UPPER NECK FY	LC-248-FY	Denton	01-Oct-03
UPPER NECK FZ	LC-248-Fz	Denton	01-Oct-03
UPPER NECK MX	LC-248-Mx	Denton	01-Oct-03
UPPER NECK MY	LC-248-My	Denton	01-Oct-03
UPPER NECK MZ	LC-248-Mz	Denton	01-Oct-03
LOWER NECK FX	LC-249Fx	Denton	01-Oct-03
LOWER NECK FY	LC-249Fy	Denton	01-Oct-03
LOWER NECK FZ	LC-249Fz	Denton	01-Oct-03
LOWER NECK MX	LC-249Mx	Denton	01-Oct-03
LOWER NECK MY	LC-249My	Denton	01-Oct-03
LOWER NECK MZ	LC-249Mz	Denton	01-Oct-03
CHEST AX	AC-P15334	ENDEVCO	21-Oct-03
CHEST AY	AC-P15321	ENDEVCO	21-Oct-03
CHEST AZ	AC-P17758	ENDEVCO	21-Oct-03
CHEST DISPLACEMENT X	DS-044	SERVO	22-Nov-03
PELVIS AX	AC-P16755	ENDEVCO	21-Oct-03
PELVIS AY	AC-P15591	ENDEVCO	21-Oct-03
PELVIS AZ	AC-P16155	ENDEVCO	21-Oct-03
TETHER BELT LOAD	P32269	ENDEVCO	17-Feb-04

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

CRS INSTRUMENTATION

	CRS ACCELEROMETERS		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
	P3 CRS AX	LC-174	First Technology