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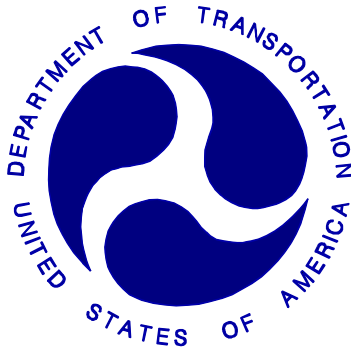
**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

**GENERAL MOTORS CORP.
2001 BUICK LESABRE
4-DOOR SEDAN**

NHTSA NUMBER: M10100

VERIDIAN TEST NUMBER: 8602-9

VERIDIAN ENGINEERING
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December 15, 2000

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Performance Standards
Office of Crashworthiness Standards
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15. <i>Supplementary Notes</i>					
16. <i>Abstract</i> A frontal load cell barrier test of a 2001 Buick LeSabre 4-Door Sedan was performed at Veridian Engineering crash test facility in Buffalo, New York, on December 15, 2000. The impact velocity was 56.49 kph and the temperature at the barrier face was 21.1 °C. The maximum post-test vehicle crush was 611mm. The test vehicle was equipped with 3-point restraint systems, knee bolsters, and airbags at both the driver and right outboard passenger seating positions. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appeared to comply with head, chest, and femur requirements.					
ATD Position	HIC	Clip (g's)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)
Driver (064)	652.1	46.7	25.4	4030.1	2600.0
Passenger (061)	509.8	41.4	34.2	1311.2	3872.9
17. <i>Key Words</i> 56 kph Frontal Barrier Impact test New Car Assessment Program (NCAP)				18. <i>Distribution Statement</i> <u>Copies of this report are available from:</u> NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, DC 20590	
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SECTION 1

PURPOSE AND SUMMARY OF TEST M10100

PURPOSE

This 56.49 kph frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-96-D-02010. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

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

SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2001 Buick LeSabre 4-Door Sedan at a velocity of 56.49 kph. The test was performed at Veridian Engineering on December 15, 2000. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The frontal barrier impact event was documented by 1 real-time camera and 16 high-speed cameras. Camera locations and other pertinent camera information can be found in this report.

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

Both ATDs were fully instrumented with head, chest, and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 064) and the right-front passenger (position 2) ATD (Serial No. 061) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 131 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces.

The driver's HIC was 652.1. The maximum chest deceleration over 3 milliseconds was 46.7 g's and maximum chest deflection was 25.4 mm. Compressive femur loads were 4030.1 Newtons on the left and 2600.0 Newtons on the right.

The right front passenger's HIC was 509.8. Maximum chest deceleration over 3 milliseconds was 41.4 g's and maximum chest deflection was 34.2 mm. Compressive femur loads were 1311.2 Newtons on the left and 3872.9 Newtons on the right.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No. : M10100 Test Mode : 56.3 kph Frontal Barrier

Test Date : December 15, 2000 Time: 14:01 Temperature : -3.9 °C

Vehicle Make/Model/Body Style : 2001 Buick LeSabre 4-Door Sedan

Vehicle Test Weight : 1861.0 kg

Vehicle/Barrier Impact Angle : 0 °

Impact Velocity : 56.49 kph

Maximum Static Crush : 611 mm

Vehicle Rebound : 844 mm

DUMMIES:

DRIVER

PASSENGER

Type :

572E

572E

Restraint System :

Airbag, 3-Point Active Seat
Belt, Knee Bolster

Airbag, 3-Point Active Seat
Belt, Knee Bolster

Number of Data Channels : 131

Number of Cameras : 1 Real Time

16 High Speed

DOOR OPENING DATA :

Closed / Operable - Left Front

Closed / Operable - Right Front

Front Seat(s) Data :

DRIVER

PASSENGER

Seat Track Failure :(mm of shift)

0

0

Seat Back Failure :

None

None

VISIBLE DUMMY CONTACT POINTS :

DRIVER

PASSENGER

Head :

Face to upper half of airbag;
Back of head to center of head
restraint

Face to right half of airbag,;
Back of head to inboard half of
head restraint

Abdomen :

None

None

Chest:

Airbag

Airbag

Knees:

Left knee to bolster left of
steering column; Right knee to
bolster right of steering column

Left knee to left half of glove
compartment door; Right knee
to center of glove compartment
door

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 2001 Buick LeSabre 4-Door Sedan

NHTSA No. : M10100 ; VIN: 1G4HP54K51U160629 ; Color : Bronze

Engine Data: 6 cylinders; - CID; 3.8 Liters; - cc

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

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

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

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

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

Date Received : 12/6/00 ; Odometer Reading 116 km

Selling Dealer : Not Available

& Address: -

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : General Motors Corp.

Date of Manufacture 10/00

GVWR : 2137 kg; GAWR: 1149 kg FRONT; 988 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 230 kpa FRONT

230 kpa REAR

Recommended Tire Size : P215/70R15

* Recommended Cold Tire Pressure : 300 kpa FRONT; 300 kpa REAR

Size of Tires on Test Vehicle: P215/70R15 ; Manufacturer: General

Vehicle Capacity Data :

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

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

Vehicle Capacity Weight (VCW) = 488.0 kg

No. of Occupants x 68 kg = 408.2 kg

Rated Cargo/Luggage Weight (RCLW) = 79.8 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>508.5</u>	kg	Right Rear	=	<u>310.0</u>	kg
Left Front	=	<u>501.5</u>	kg	Left Rear	=	<u>316.5</u>	kg
TOTAL FRONT	=	<u>1010.0</u>	kg	TOTAL REAR	=	<u>626.5</u>	kg
TOTAL DELIVERED WEIGHT = <u>1636.5</u> kg							
% of Total Front of Vehicle Weight = <u>61.7</u>				% of Total Rear Weight = <u>38.3</u> %			

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW)	=	<u>1636.5</u>	kg
Rated Cargo/Luggage Weight (RCLW)	=	<u>79.8</u>	kg
Weight of 2 p.572 Dummies @ 76 each	=	<u>152.0</u>	kg
TARGET TEST WEIGHT	=	<u>1868.3</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 73 KG OF CARGO WEIGHT:

Right Front	=	<u>534.0</u>	kg	Right Rear	=	<u>391.0</u>	kg
Left Front	=	<u>535.0</u>	kg	Left Rear	=	<u>401.0</u>	kg
TOTAL FRONT	=	<u>1069.0</u>	kg	TOTAL REAR	=	<u>792.0</u>	kg
TOTAL TEST WEIGHT = <u>1861.0</u> kg							
% of Total Front Weight = <u>57.4</u> %				% of Total Rear Weight = <u>42.6</u> %			
Weight of Ballast Secured in Vehicle Trunk Area = <u>25</u> kg							
Vehicle Components Removed for Weight Reduction:				<u>None</u>			

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	<u>730</u>	LF	<u>731</u>	RR	<u>744</u>	LR	<u>745</u>
FULLY LOADED :	RF	<u>718</u>	LF	<u>719</u>	RR	<u>709</u>	LR	<u>710</u>
AS TESTED :	RF	<u>724</u>	LF	<u>723</u>	RR	<u>723</u>	LR	<u>718</u>
Vehicle's Wheel Base : <u>2845</u> mm								
Location of Vehicle's C.G. : <u>1211</u> mm rearward of front wheel center.								

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual	=	<u>70.0</u>	liters
Usable Capacity Figure Furnished by COTR	=	<u>70.0</u>	liters
Test Volume Range (92 to 94% of Usable Capacity)	=	<u>64.4</u>	to <u>65.8</u> liters
ACTUAL TEST VOLUME= <u>64.4</u> liters (with entire fuel system filled)			
Test Fluid Type:	<u>Stoddard Solution</u>	;	Spec. Grav. = <u>0.764</u>
Kinematic Viscosity	=	<u>0.96</u>	centistokes; Color = <u>Orange</u>
Type of Fuel Pump:	Electric- <u>X</u>	;	Mechanical- <u>-</u>
Does Electric Pump operate with ignition switch "ON" & engine "OFF" Yes- <u>X</u> No- <u>-</u>			
Details of Fuel System <u>Fuel tank: Located between the rear wheels; Fuel Filler: Located on the left rear quarter panel over the wheel; Fuel lines: Routed along the inboard side of the left frame rail.</u>			

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°
Test Date : December 15, 2000 Time: 14:01 Temperature: -3.9 °C
Vehicle NHTSA No. : M10100
Required Impact Velocity Range : 55.5 to 57.1 kph

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

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

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

Vehicle Length:

Pre-Test Right = 5014 ; C/L = 5082 ; Left = 5017
Post-Test Right = 4509 ; C/L = 4471 ; Left = 4531
Crush Right = 505 ; C/L = 611 ; Left = 486
AVERAGE = 534 mm

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point :

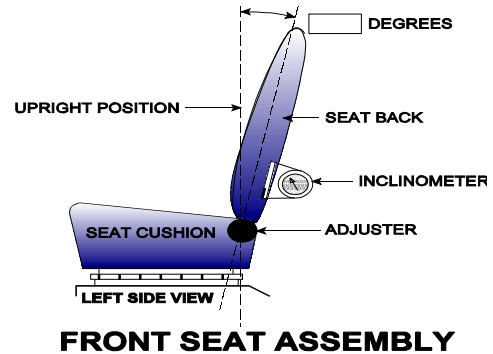
Right = 808 ; C/L = 892 ; Left = 832
AVERAGE = 844 mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2001 Vehicle Model: Buick LeSabre Body Style : 4-Door Sedan

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



Seat back angle for driver's seat: 18 degrees

Measurement instructions: With the vehicle sills level, the seat back was position so that an inclinometer placed on the outboard seat back frame through the hole in the cardboard backing read 18 degrees from vertical.

Seat back angle for passenger's seat: 18 degrees

Measurement instructions: With the vehicle sills level, the seat back was position so that an inclinometer placed on the outboard seat back frame through the hole in the cardboard backing read 18 degrees from vertical.

2. Seat Fore and Aft Positioning

Positioning of the driver's seat: The seat was placed in mid fore/aft travel position.

Positioning of the passenger's seat: The seat was placed in mid fore/aft travel position.

3. Fuel Tank Capacity Data

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 70.0 liters

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

C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 = 70.0 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 64.4 liters

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

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

The fuel pump operates briefly when the ignition switch is turned to the "run" position and the vehicle is not started. The fuel pump runs continuously when the engine is running.

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

4. STEERING COLUMN ADJUSTMENTS :

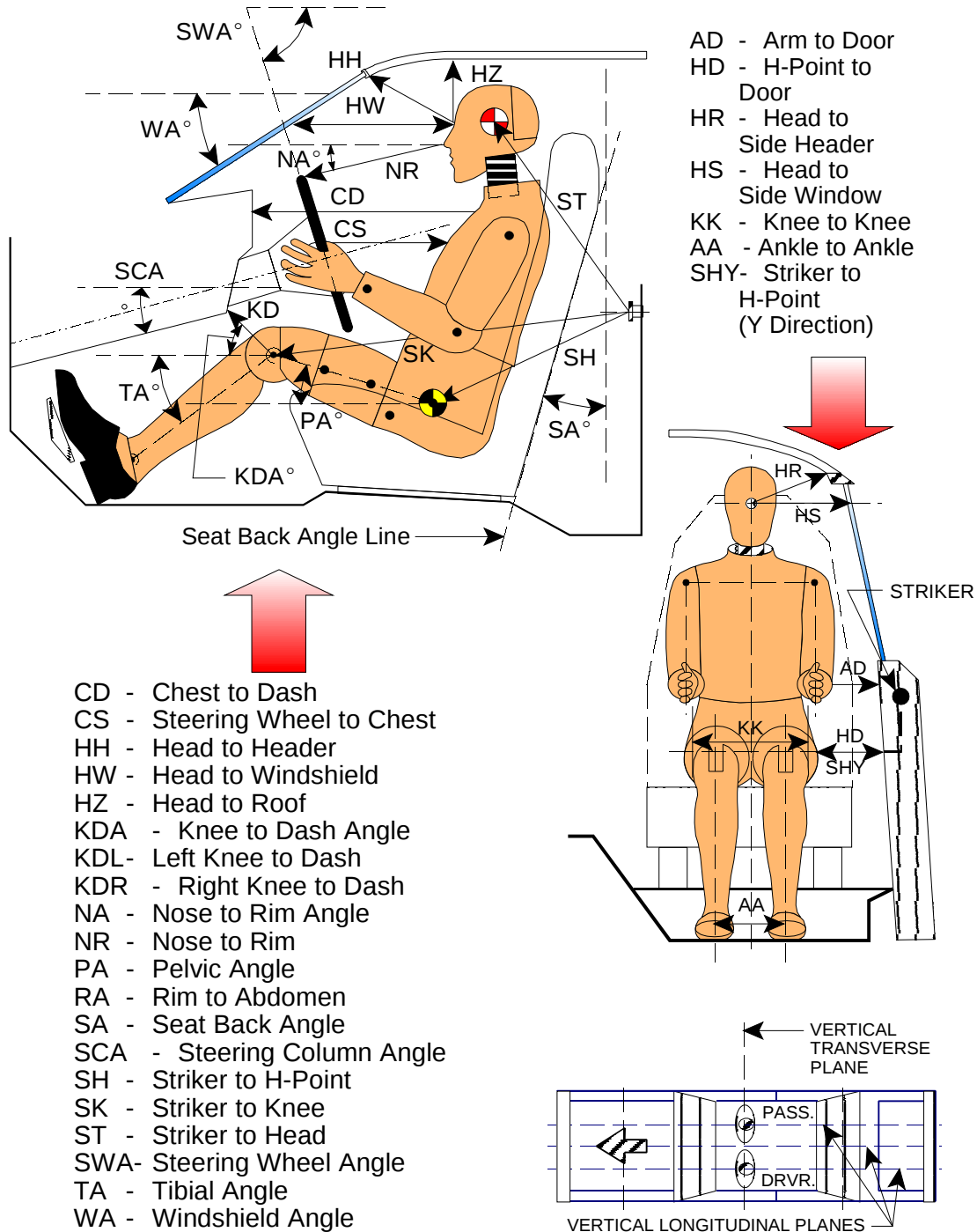
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions: The steering column was placed in the third detent down from the top
position resulting in a steering wheel angle of 19 degrees from vertical.

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: The upper seat belt anchorages are integrated into the seat back and are
not adjustable.

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

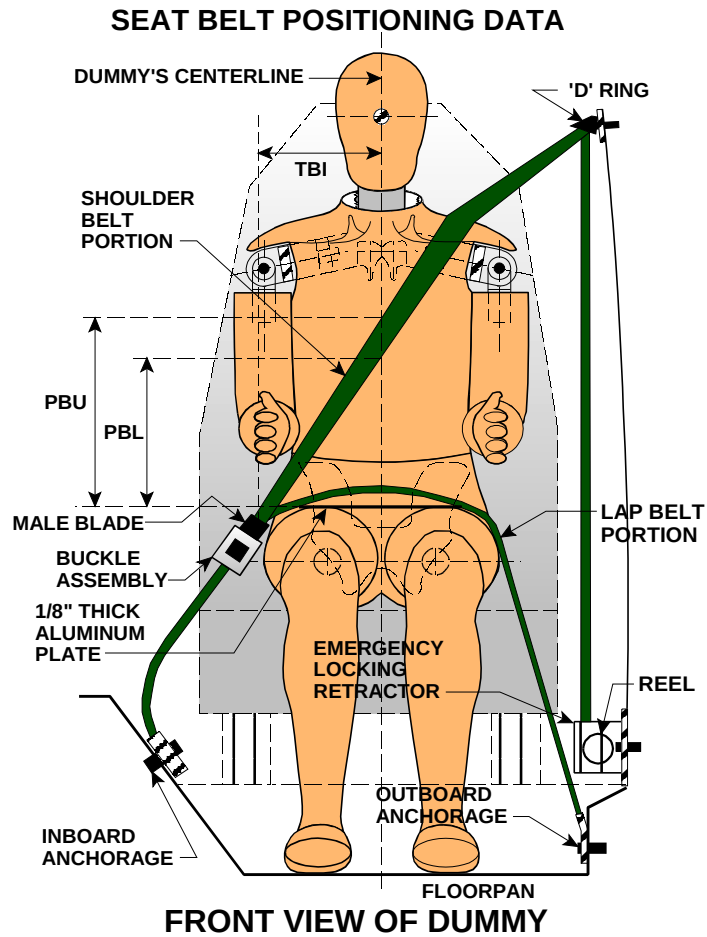


DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #064)			PASS. (Serial # 061)		
WA ^o	27 deg.			N/A		
SWA ^o	19 deg.			N/A		
SCA ^o	71 deg.			N/A		
SA ^o	18 deg.			18 deg.		
HZ	221			192		
HH	388			380		
HW	739			694		
HR	200			176 (to grab handle)		
NR	386	Angle	5 deg.	N/A		
CD	523			540		
CS	334			N/A		
RA	214			N/A		
KDL	177	Angle (KDA)	43 deg.	165		
KDR	169			175	Angle (KDA)	40 deg.
PA ^o	25.0 deg.			24.1 deg.		
TA ^o	32 deg.			36 deg.		
KK	340			270		
AA	339			248		
ST	494	Angle	4 deg.	496	Angle	3 deg.
SK	575	Angle	96 deg.	580	Angle	94 deg.
SH	228	Angle	129 deg.	221	Angle	123 deg.
SHY	280			262		
HS	356			359		
HD	214			192		
AD	134			135		

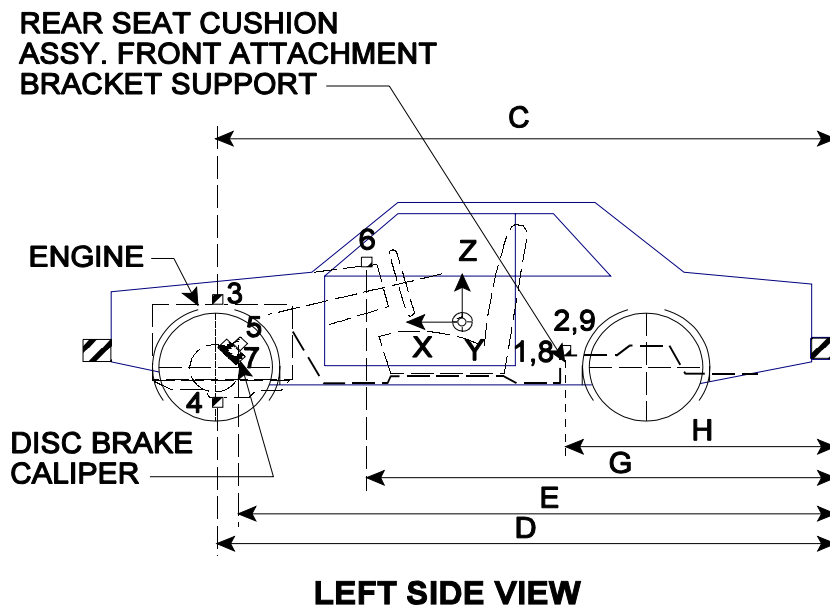
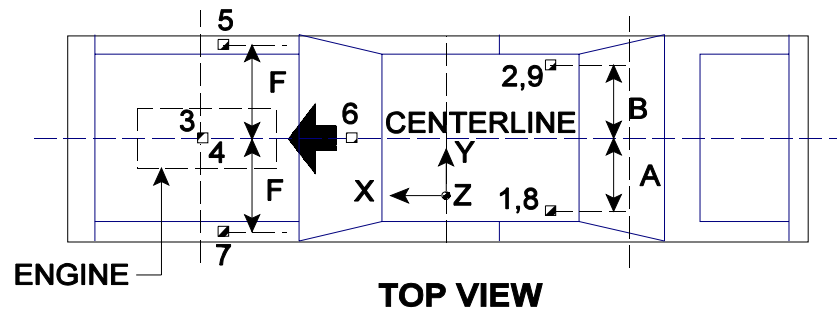
Dimensions in millimeters

DATA SHEET NO. 6 SEAT BELT POSITIONING DATA



	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	338	330
PBL-- Top surface of alum. plate to belt lower edge	255	248
<u>LAP BELT TENSION</u>	Retractor	Retractor
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



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

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

DIMENSION	PRE-TEST LENGTH (mm)
A Left Rear Seat Crossmember Y	-593
B Right Rear Seat Crossmember Y	586
C Top of Engine X	4306
D Bottom of Engine X	3972
E Disc Brake Calipers X	3979
F Disc Brake Calipers Y	±680
G Instrument Panel X	3196
H Rear Seat Crossmembers X	2053

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	7.0	19.4	-32.0	49.8
2	Rear Seat X-Member @ Right Side	7.6	20.0	-31.1	75.1
3	Top of Engine Block	22.8	73.7	-131.3	36.2
4	Bottom of Engine	22.5	51.0	-75.2	30.9
5	Disc Brake Caliper @ Right Side	15.9	42.6	-79.2	52.2
6	Instrument Panel	21.3	30.0	-61.3	55.1
7	Disc Brake Caliper @Left Side	40.8	299.8	†	-
8	Rear Seat X-Member @ Left-Redundant	8.8	20.1	-30.8	75.0
9	Rear Seat X-Member @ Right-Redundant	8.6	19.6	-33.9	49.8

† Transducer wire was cut 45 ms into the impact event.

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2001 Buick LeSabre 4-Door Sedan

NHTSA Test No.: M10100 Test Date: December 15, 2000

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head X	g	15.9	224.8	-71.6	78.9	13.9	222.5	-48.0	89.2
Head Y	g	3.2	56.0	-15.5	85.7	5.0	234.5	-13.0	96.9
Head Z	g	20.5	75.0	-4.0	94.5	29.9	79.2	-2.9	37.3
Head Resultant	g	74.2	78.9	-	-	53.1	84.5	-	-
Redundant Head X	g	16.4	224.7	-73.0	79.5	14.0	222.6	-48.9	86.1
Redundant Head Y	g	3.3	55.9	-15.1	83.8	36.1	127.5	-13.6	91.0
Redundant Head Z	g	21.3	75.3	-3.4	135.1	32.3	79.2	-3.1	37.3
Redundant Head Resultant	g	75.7	79.5	-	-	55.0	83.1	-	-
Upper Neck Fx	N	1159.4	83.5	-391.3	120.5	690.8	68.8	-757.4	104.5
Upper Neck Fy	N	†	-	†	-	147.3	254.0	-119.3	105.0
Upper Neck Fz	N	1352.3	75.1	-152.1	136.5	931.8	208.6	-419.8	96.2
Upper Neck F Resultant	N	1582.6	75.1	-	-	1007.7	112.3	-	-
Upper Neck Mx	N-m	13.3	98.9	-12.6	115.5	23.3	102.7	-8.7	65.0
Upper Neck My	N-m	70.4	85.1	-26.4	113.9	59.5	143.5	-60.8	103.8
Upper Neck Mz	N-m	13.3	108.3	-6.9	158.1	15.8	247.5	-10.5	150.3
Upper Neck M Resultant	N-m	71.4	85.1	-	-	65.9	103.8	-	-
Chest X	g	4.9	244.8	-46.1	74.1	4.3	265.0	-40.7	70.3
Chest Y	g	5.0	54.5	-12.5	80.3	4.1	93.9	-5.0	85.5
Chest Z	g	6.0	59.0	-2.5	103.4	15.3	78.5	-4.6	100.0
Chest Resultant	g	47.3	74.3	-	-	42.8	75.8	-	-
Redundant Chest X	g	4.9	244.8	-46.5	72.3	4.3	262.6	-40.1	70.5
Redundant Chest Y	g	5.1	54.9	-12.1	79.6	4.3	93.8	-5.2	81.4
Redundant Chest Z	g	6.0	56.5	-2.5	103.7	15.0	78.6	-5.4	100.0
Redundant Chest Resultant	g	47.3	74.8	-	-	41.8	76.4	-	-
Chest Displacement	mm	0.0	9.1	-25.4	94.2	0.1	31.7	-34.2	105.4

† Data is questionable from 103 to 152 ms.

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

Vehicle Year/Make/Model/Body Style: 2001 Buick LeSabre 4-Door Sedan

NHTSA Test No.: M10100 Test Date: December 15, 2000

		MAXIMUM VALUE							
		Driver				Passenger			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Pelvic X	g	3.4	206.5	-62.6	62.4	2.9	213.7	-51.4	63.3
Pelvic Y	g	6.5	95.6	-9.2	59.1	12.6	101.4	-8.3	77.4
Pelvic Z	g	3.0	226.9	-25.2	67.7	2.4	273.5	-19.3	68.9
Pelvic Resultant	g	66.1	62.5	-	-	53.8	63.3	-	-
Left Femur	N	394.2	44.9	-4030.1	62.8	119.7	134.1	-1311.2	62.9
Right Femur	N	177.6	132.9	-2600.0	61.8	272.2	45.2	-3872.9	63.1
Left Upper Tibia Mx	N-m	12.7	35.8	-30.8	59.8	17.3	204.7	-18.9	85.0
Left Upper Tibia My	N-m	56.1	64.6	-58.2	32.0	7.7	190.3	-77.6	59.6
Left Lower Tibia Fz	N	80.2	132.0	-2357.6	31.8	212.3	71.5	-3013.0	37.5
Left Lower Tibia Mx	N-m	47.4	59.0	-2.7	29.0	7.1	35.1	-7.1	115.2
Left Lower Tibia My	N-m	19.5	34.3	-16.3	60.7	26.2	40.1	-60.3	59.3
Right Upper Tibia Mx	N-m	10.7	59.2	-12.6	84.9	19.6	33.2	-16.1	48.5
Right Upper Tibia My	N-m	23.7	131.6	-101.2	49.2	16.6	177.4	-90.5	61.6
Right Lower Tibia Fz	N	686.6	87.9	-2932.8	42.8	101.9	131.5	-2806.1	34.3
Right Lower Tibia Mx	N-m	8.8	41.0	-8.7	124.4	2.9	175.9	-39.5	37.7
Right Lower Tibia My	N-m	13.7	35.4	-25.8	61.7	29.7	86.2	-33.9	61.8
Left Foot Aft Ax	g	5.0	46.1	-53.3	61.7	15.1	25.6	-77.2	60.3
Left Foot Aft Az	g	4.7	266.5	-42.2	34.2	29.0	25.7	-41.4	41.2
Left Foot Fore Az	g	17.9	17.9	-96.3	23.4	50.7	25.7	-87.7	31.4
Right Foot Aft Ax	g	15.5	37.5	-55.6	42.0	11.3	84.3	-44.2	58.1
Right Foot Aft Az	g	4.1	236.0	-58.3	48.4	10.1	49.7	-38.6	31.5
Right Foot Fore Az	g	27.2	53.9	-145.2	38.0	27.8	20.4	-61.5	26.8
Lap Belt Load	N	4594.1	67.5	-6.4	282.0	4185.9	71.2	-7.3	197.9
Torso Belt	N	4278.4	70.4	-12.2	177.3	5380.7	102.3	-68.7	226.3

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

Vehicle Year/Make/Model/Body Style: 2001 Buick LeSabre 4-Door Sedan

NHTSA Test No.: M10100 Test Date: December 15, 2000

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	652.1	66.1	95.2	55.0
Position #2 - Passenger	509.8	70.2	106.2	45.8

** 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	46.7	72.4	75.4	488.2
Position #2 - Passenger	41.4	74.4	77.4	411.7

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

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

Vehicle Year/Make/Model/Body Style: 2001 Buick LeSabre 4-Door Sedan

NHTSA Test No.: M10100 Test Date: December 15, 2000

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	681.1	65.9	95.0	55.9
Position #2 - Passenger	515.1	70.0	106.0	45.9

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

CLIP SUMMARY* REDUNDANT				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	47.0	71.5	75.5	496.7
Position #2 - Passenger	40.7	74.9	77.9	399.4

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

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

	<u>Driver</u>	<u>Passenger</u>
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	<u>1320</u>	<u>1370</u>
Shoulder belt length as measured on Part 572 Dummy.	<u>770</u>	<u>800</u>
Lap belt length as measured on Part 572 Dummy.	<u>550</u>	<u>570</u>

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.	<u>†</u>	<u>†</u>
As determined mechanically.	<u>††</u>	<u>63 mm</u>
As determined electronically.	<u>†</u>	<u>†</u>

BELT STRETCH DATA:

Measured electronically between shoulder belt load cell and the "D" ring.	<u>34</u>	<u>36</u>
Measured mechanically.	<u>40 mm/M</u>	<u>40 mm/M</u>

Dimensions in millimeters

† The shoulder belt cameras were not installed. The shoulder belts were integrated into the front seat back and were not visible from the rear.

†† Measurement not available.

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.

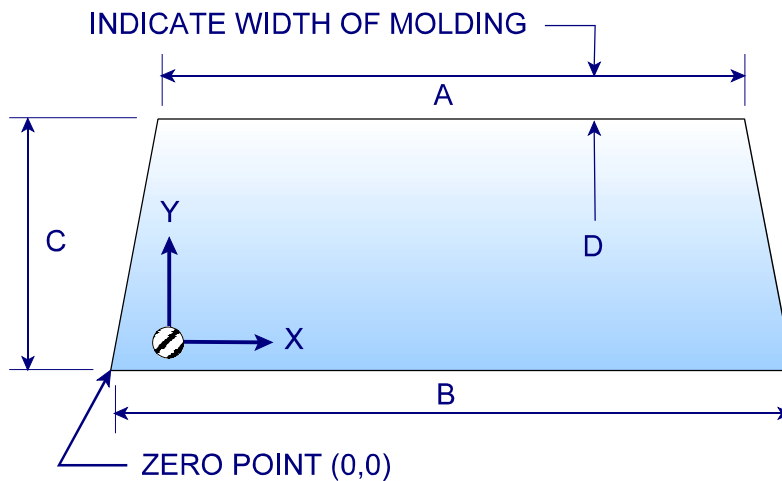
FMVSS 212 REQUIREMENTS:

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	2185	2185	100
LEFT SIDE	2185	2185	100
TOTAL	4370	4370	100

AREA OF RETENTION FAILURE:



DIMENSIONS (mm)	
A	1200
B	1650
C	760
D	15

FRONT VIEW OF WINDSHIELD

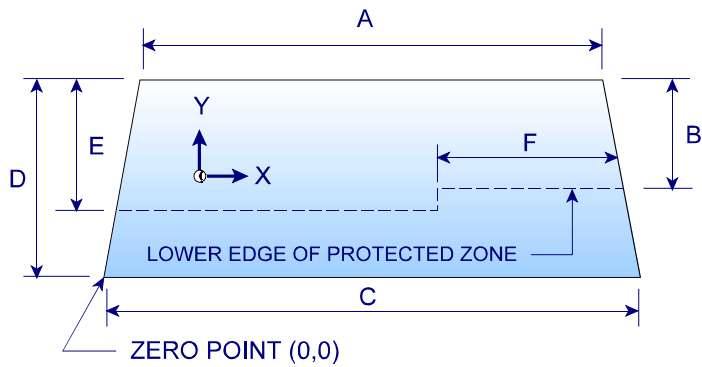
FAILURE DETAILS:

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

PROTECTED ZONE LOWER EDGE REQUIREMENT:

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

FMVSS 219 TEST DATA:



DIMENSIONS (mm)	
A	1200
B	365
C	1650
D	760
E	450
F	840

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

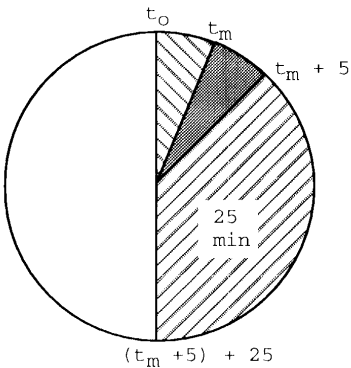
NHTSA TEST No.: M10100 TEST DATE: December 15, 2000
VEHICLE MAKE/MODEL: 2001 Buick LeSabre

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

=====

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

FUEL SPILLAGE MEASUREMENT:



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

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

SOLVENT SPILLAGE DETAILS: None

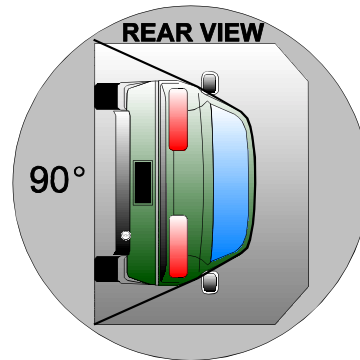
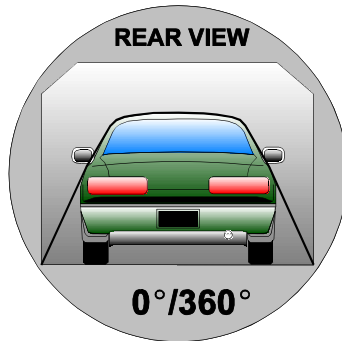
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Vehicle: 2001 Buick LeSabre

NHTSA No. M10100

0 - 90 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time	<u>1</u>	minutes	<u>19</u>	seconds
(Spec. Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>0</u>	seconds
TOTAL	<u>6</u>	minutes	<u>19</u>	seconds
Next whole minute interval	<u>7</u>	minutes		

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

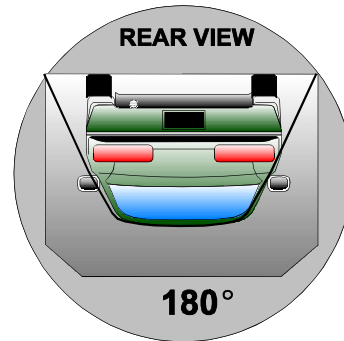
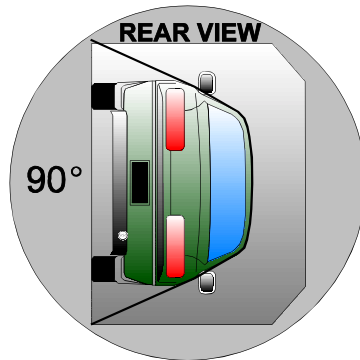
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2001 Buick LeSabre

NHTSA No. M10100

90 - 180 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time	<u>1</u> minutes	<u>9</u> seconds
(Spec. Range = 1 to 3 minutes)		
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>0</u> seconds
TOTAL	<u>6</u> minutes	<u>9</u> seconds
Next whole minute interval	<u>7</u> minutes	

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

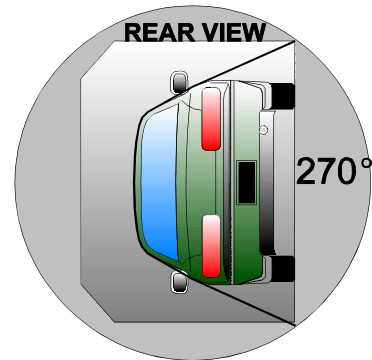
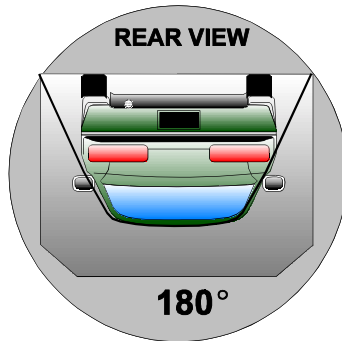
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2001 Buick LeSabre

NHTSA No. M10100

180 - 270 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

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

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

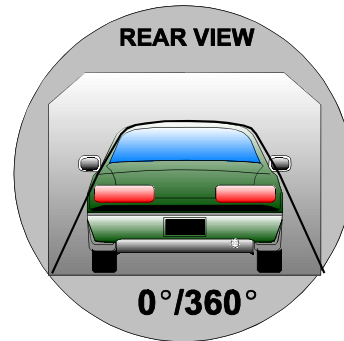
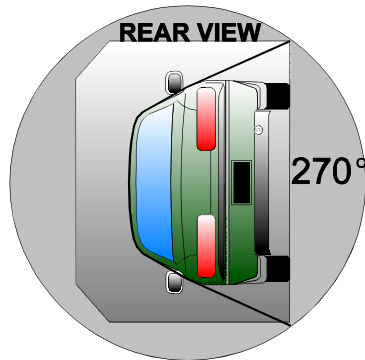
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2001 Buick LeSabre

NHTSA No. M10100

270 - 360 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

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

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

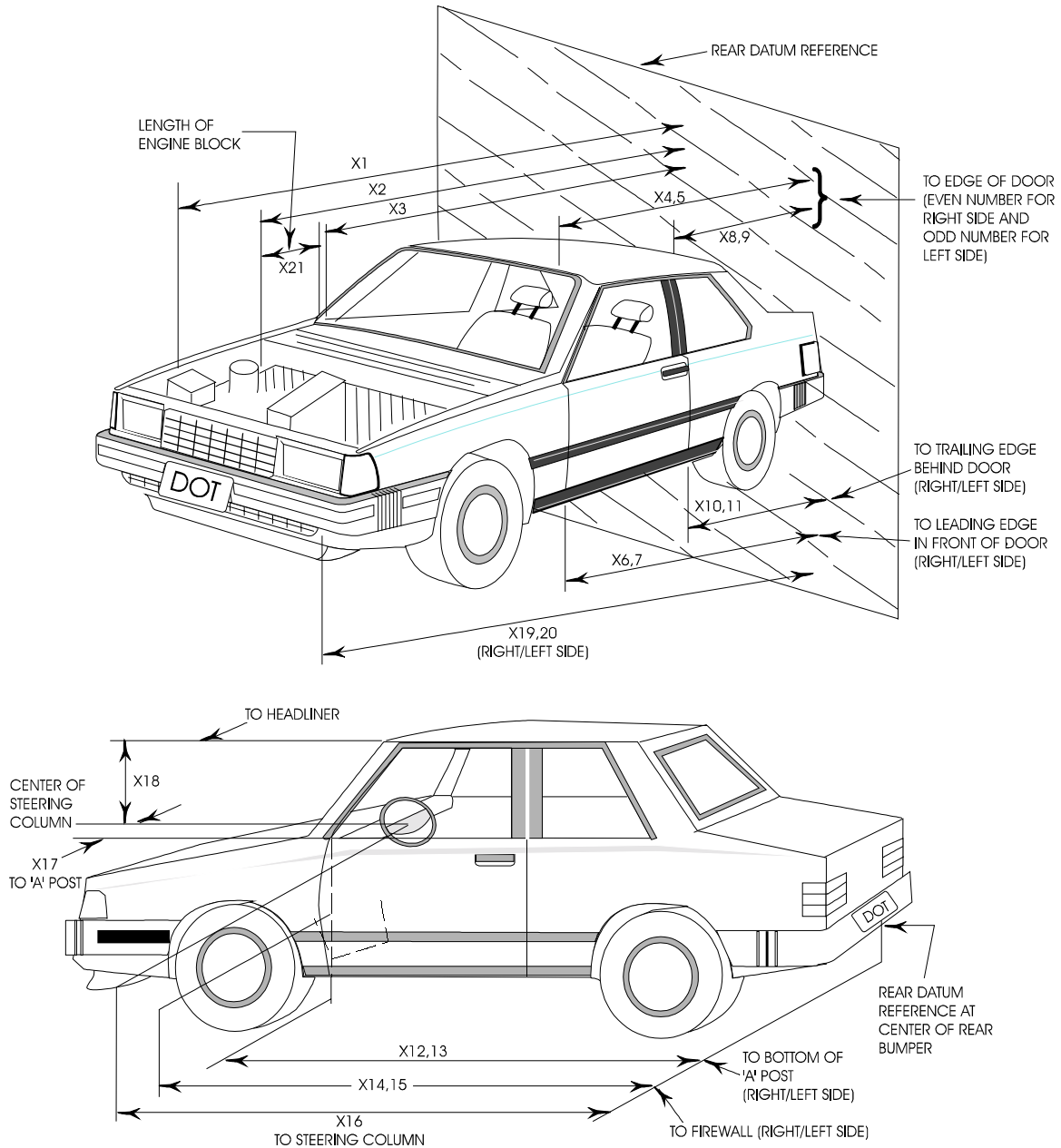
0 g	0 g	0 g	N/A
-----	-----	-----	-----

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

DATA SHEET NO. 14 TEST VEHICLE MEASUREMENTS

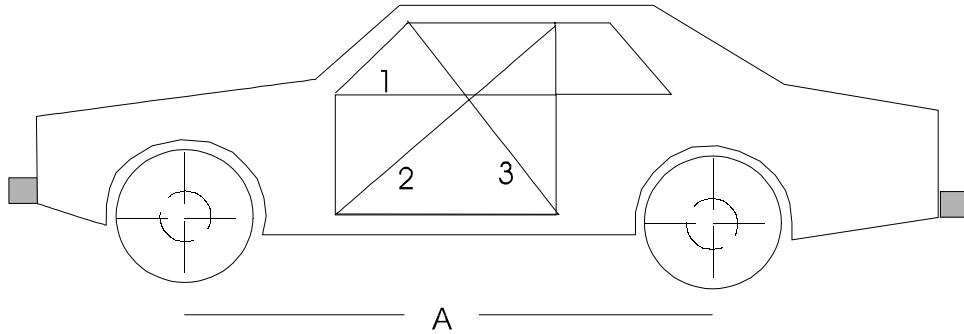


DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	5082	4471	611
X2	Rear Surface of Vehicle to Front of Engine	4518	4324	194
X3	Rear Surface of Vehicle to Firewall	3799	3759	40
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3464	3462	2
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3464	3462	2
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3433	3438	-5
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3429	3438	-9
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2391	2388	3
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2396	2395	1
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2383	2382	1
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2387	2388	-1
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3563	3568	-5
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3564	3566	-2
X14	Rear Surface of Vehicle to Firewall, Right Side	3844	3790	54
X15	Rear Surface of Vehicle to Firewall, Left Side	3857	3820	37
X16	Rear Surface of Vehicle to Steering Column	2996	3008	-12
X17	Center of Steering Column to "A" Post	314	299	15
X18	Center of Steering Column to Headliner	407	406	1
X19	Rear Surface of Vehicle to Right Side of Front Bumper	5014	4509	505
X20	Rear Surface of Vehicle to Left Side of Front Bumper	5017	4531	486
X21	Length of Engine Block	600	600	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3183	3175	8
CD	Rear Surface of Vehicle to Center of Dash Panel	3168	3197	-29
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3177	3180	-3

All Dimensions in mm

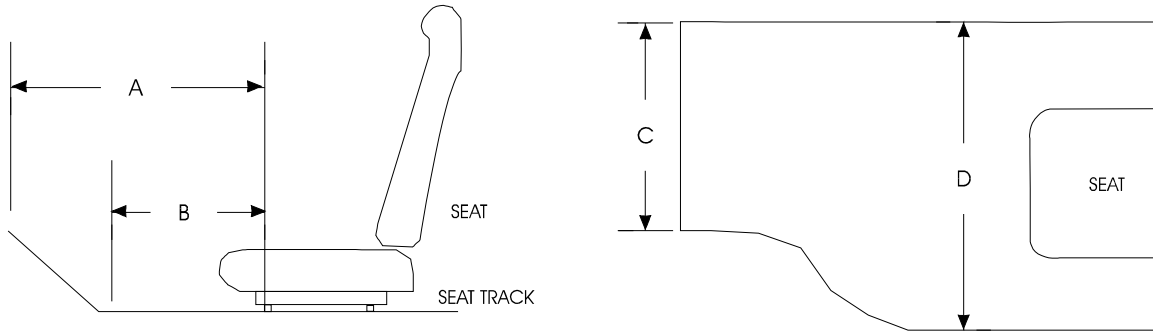
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	958	1416	1006	960	1419	1005
AFTER TEST	957	1416	1005	957	1419	1011
DIFFERENCE	1	0	1	3	0	-6

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2846	2844
AFTER TEST	2767	2731
DIFFERENCE	79	113

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



DRIVER

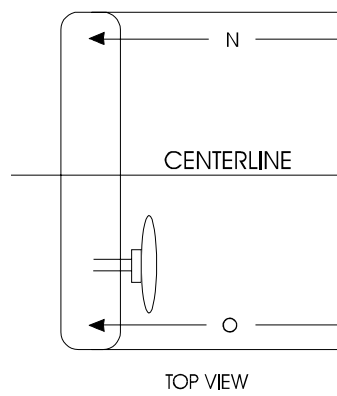
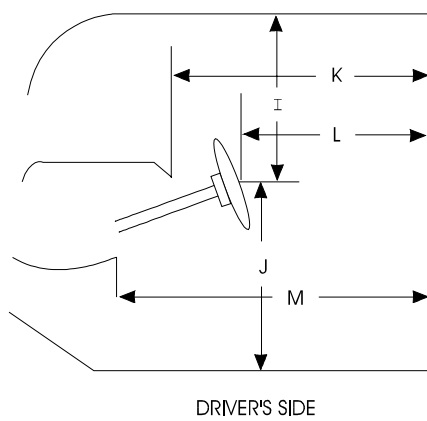
Measurement	Pre-Test	Post-Test	Difference
A	749	682	67
B	504	498	6
C	475	482	-7
D	510	504	6

PASSENGER

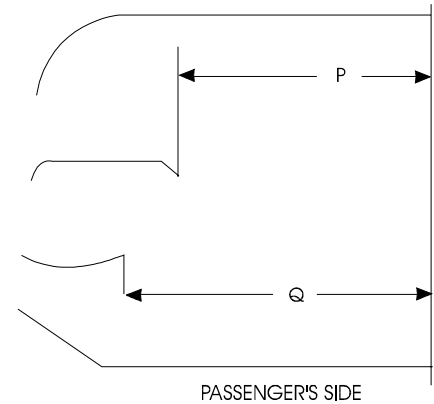
Measurement	Pre-Test	Post-Test	Difference
A	743	704	39
B	510	506	4
C	497	486	11
D	496	516	-20

Units = mm

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



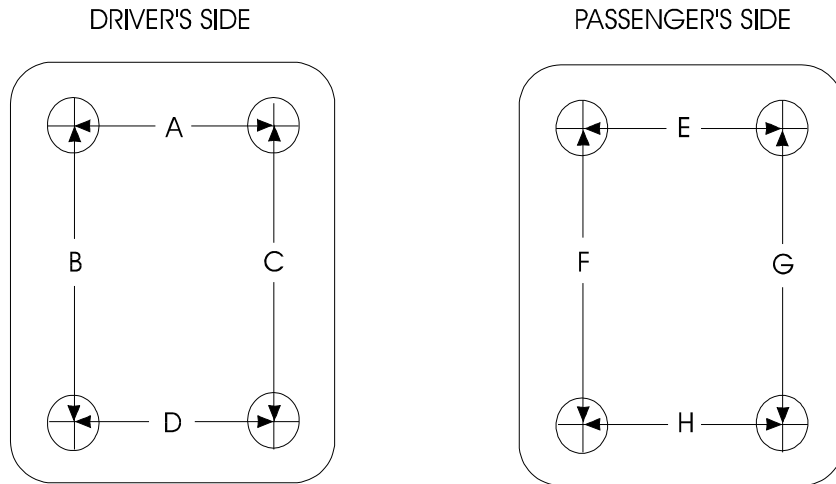
MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



Measurement	Pre-Test	Post-Test	Difference
I	407	406	1
J	637	669	-32
K	1984	2023	-39
L	1817	1831	-14
M	1972	1967	5
N	2011	2002	9
O	1998	2003	-5
P = K (PASS.)	2056	2038	18
Q = M (PASS.)	2076	2066	10

Units = mm

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

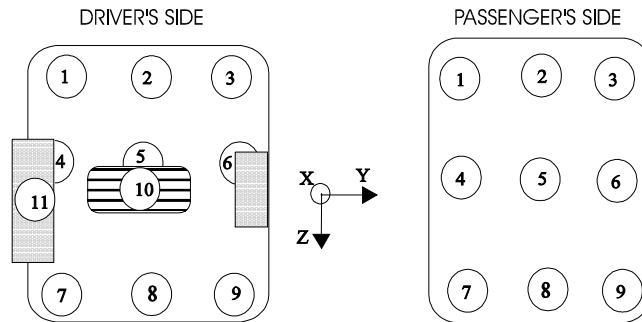


TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	400	395	5
B	600	600	0
C	600	596	4
D	400	400	0
E	400	380	20
F	600	590	10
G	600	600	0
H	400	400	0

Units = mm

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



Driver Side Floorpan Measurements

Floorpan Location	X Deformation (mm)			Z Deformation (mm)		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3703	3667	36	-563	-578	15
2	3733	3673	60	-524	-542	18
3	3722	3655	67	-531	-547	16
4	3609	3591	18	-406	-424	18
5	3632	3587	45	-416	-424	8
6	3632	3601	31	-386	-394	8
7	3477	3489	-12	-291	-281	-10
8	3488	3489	-1	-289	-263	-26
9	3492	3488	4	-299	-255	-44
10	3529	3461	68	-476	-488	12
11	3545	3537	8	-388	-392	4

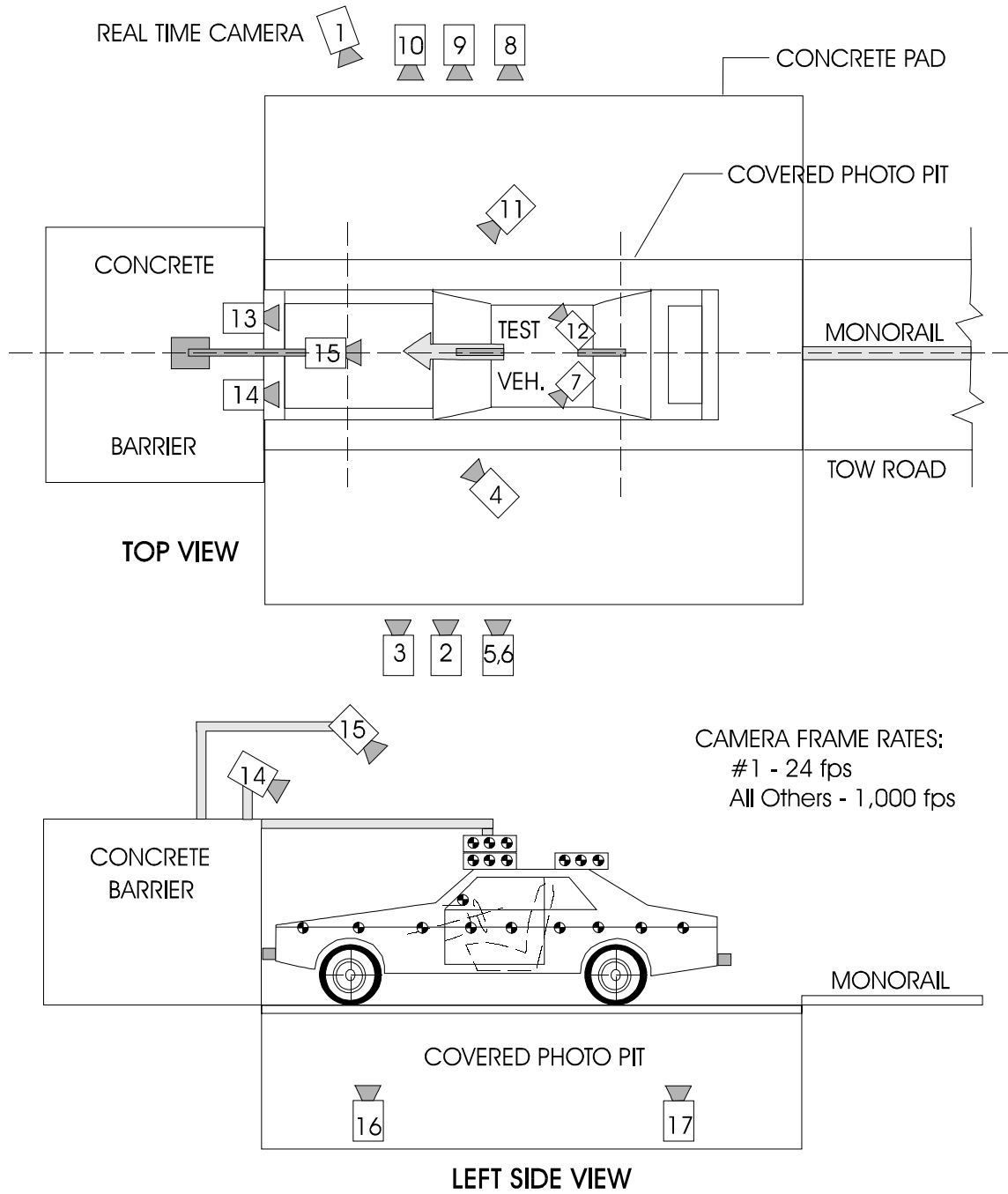
Passenger Side Floorpan Measurements

Floorpan Location	X Deformation (mm)			Z Deformation (mm)		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3720	3644	76	-484	-474	-10
2	3727	3684	43	-501	-517	16
3	3651	3599	52	-522	-531	9
4	3623	3579	44	-394	-377	-17
5	3613	3558	55	-396	-403	7
6	3591	3554	37	-419	-434	15
7	3491	3492	-1	-298	-254	-44
8	3494	3485	9	-298	-271	-27
9	3505	3473	32	-297	-308	11

Reference: X = Rear Bumper; Z = Ground

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.: M10100 Vehicle: 2001 Buick LeSabre 4-Door Sedan

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	7162	1691	1085	-2.5	6689	12.5	1000
3	Left Side View	8584	1119	1095	-1.6	8111	25	1015
4	Driver and Interior View	7065	2710	1940	-8.9	-	35	1055
5	Steering Column (Bottom)	7860	1842	1165	-2.7	7387	25	1010
6	Steering Column (Top)	7860	1842	1785	-7.7	7387	25	1015
7†	Left Belt	-	-	-	-	-	-	-
8	Overall Right Side	7188	1957	1100	-1.9	6715	12.5	1010
9	Right Side View	8626	1450	1108	-2.5	8153	25	1005
10	Right Passenger View	8542	1925	1368	-3.1	8069	35	1020
11	Passenger and Interior View	7405	2857	1962	-8.3	-	12.5	1010
12†	Right Belt	-	-	-	-	-	-	-
13	Passenger Front View	605	-55	1985	-34.7	-	13	1015
14	Driver Front View	605	-55	1985	-34.1	-	13	1005
15	Windshield View	0	-673	3560	-50.8	-	13	1010
16	Pit View of Engine	0	620	-3048	90.0	-	13	1010
17	Pit View of Fuel Tank	0	3105	-3048	90.0	-	13	1045

*X = film plane to monorail centerline

** = referenced to horizontal plane

Y = film plane to impact location

N.T. indicates No Timing

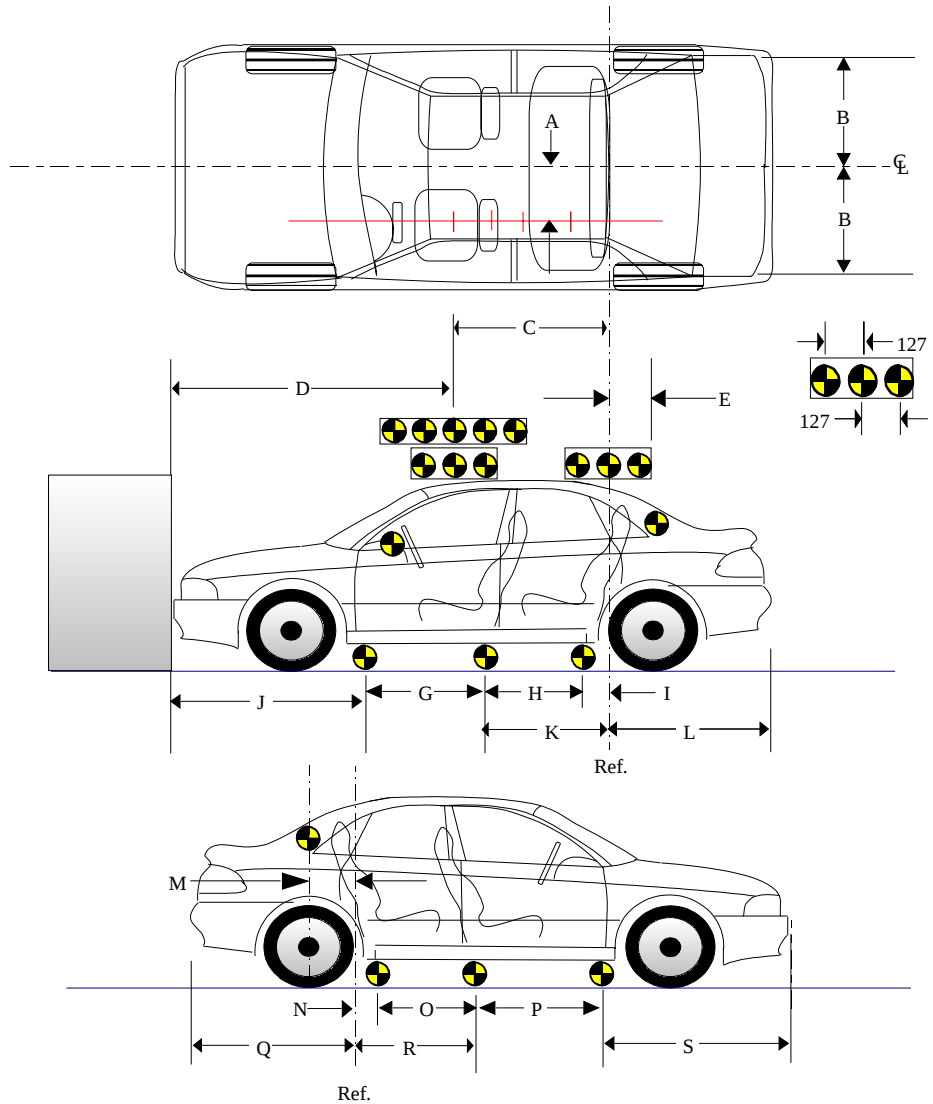
Z = film plane to ground

† Seat belt was not visible from rear occupant compartment. Camera was not installed.

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

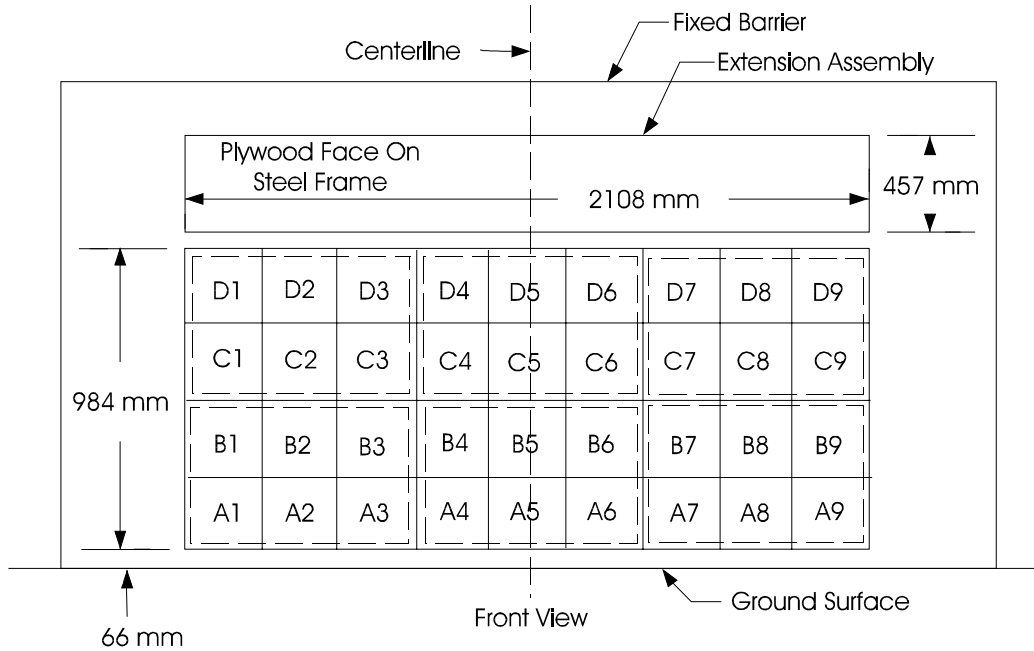
(Dimensions in millimeters)

A	397
B	744
C	1218
D	2356
E	334
F	1655
G	958
H	943
I	111
J	1557
K	1054
L	1514
M	337
N	107
O	943
P	956
Q	1511
R	1050
S	1564



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. : M10100; Test Date: December 15, 2000; Technician: Lawrence Q. Valvo

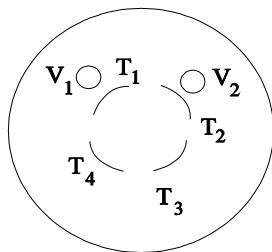
Vehicle Model Year/Make/Model: 2001 Buick LeSabre

- A. No. of vent holes: 2 -Driver 2 -Passenger
- B. Size of vent holes: (mm²) 707 -Driver 1590 -Passenger
- C. Total vent area: (mm²) 1414 -Driver 3180 -Passenger
- D. Deflated air bag length and width dimensions or, if round, diameter. (mm)
- Driver: - -Length; 640 -Diameter; 260 -Depth
- Passenger: 560 -Height; 380 -Width; 420 -Depth
- E. Is the air bag tethered?
- Driver: X -Yes; - -No; If yes, record length of tether- 280
- Passenger: X -Yes; - -No; If yes, record length of tether- 450

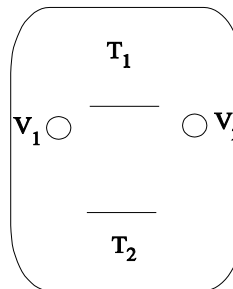
Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.

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

Driver



Passenger



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

Driver: Air bag: Serial number was illegible due to airbag deployment.

Generator: *AB7271Q6SU6956*; 16867271 MODS LES 9492136

Passenger: Air bag: 121504-12 Rev. K; GNVL9K02AYY

Generator: AL739412273W0589; 25727394

DATA SHEET NO. 19 ACCIDENT INVESTIGATION DIVISION DATA
FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Buick LeSabre 4-Door Sedan

NHTSA Test No.: M10100 VIN: 1G4HP54K51U160629

Model Year: 2001 Build Date: 10/00 Test Date: December 15, 2000

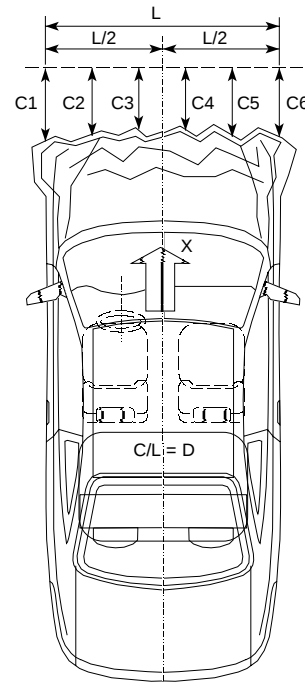
Vehicle Size Category: Large Test Weight: 1861.0 kg

Vehicle Wheelbase: 2845 mm; Front Overhang: 1068 mm; Overall Width: 1867 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	4919	4569	350	mm
C2 =	5041	4518	523	mm
C3 =	5079	4476	603	mm
C4 =	5079	4494	585	mm
C5 =	5039	4507	532	mm
C6 =	4914	4489	425	mm



Midpoint of Damage: D = Vehicle Centerline
(Longitudinal)

Length of Damaged Region:

L1= 1867 mm

L2= 934 mm

L3= 622 mm

APPENDIX A
PHOTOGRAPHS

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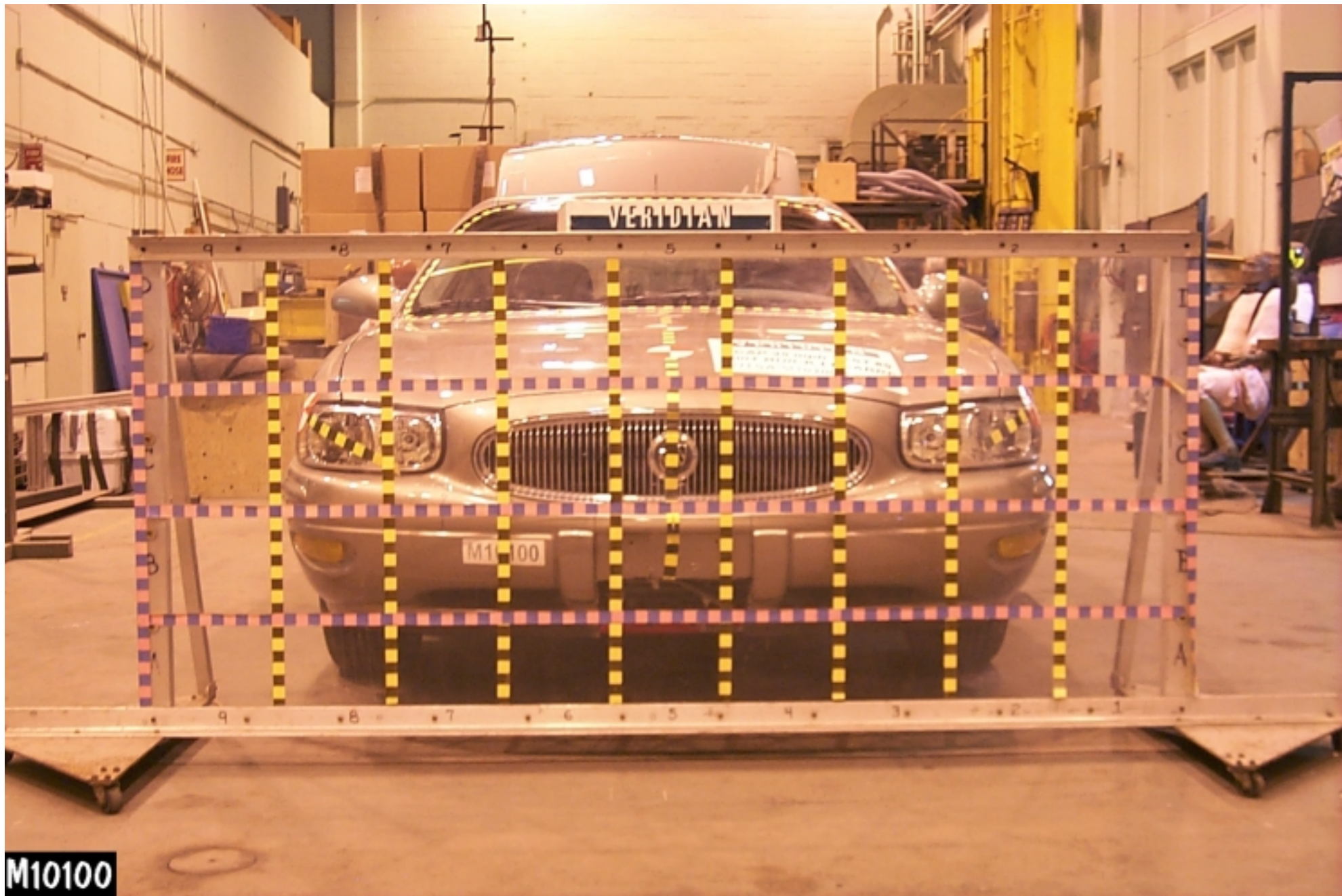


Figure A-1: LOAD CELL LOCATIONS.



Figure A-2: PRE-TEST FRONT VIEW



Figure A-3: POST-TEST FRONT VIEW.



Figure A-4: PRE-TEST LEFT SIDE VIEW



Figure A-5: POST-TEST LEFT SIDE VIEW



Figure A-6: PRE-TEST RIGHT SIDE VIEW



Figure A-7: POST-TEST RIGHT SIDE VIEW



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



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



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



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



Figure A-12: PRE-TEST WINDSHIELD VIEW



Figure A-13: POST-TEST WINDSHIELD VIEW



Figure A-14: PRE-TEST ENGINE COMPARTMENT VIEW



Figure A-15: FUEL CAP VIEW



Figure A-16: PRE-TEST FRONT UNDERBODY VIEW



Figure A-17: POST-TEST FRONT UNDERBODY VIEW

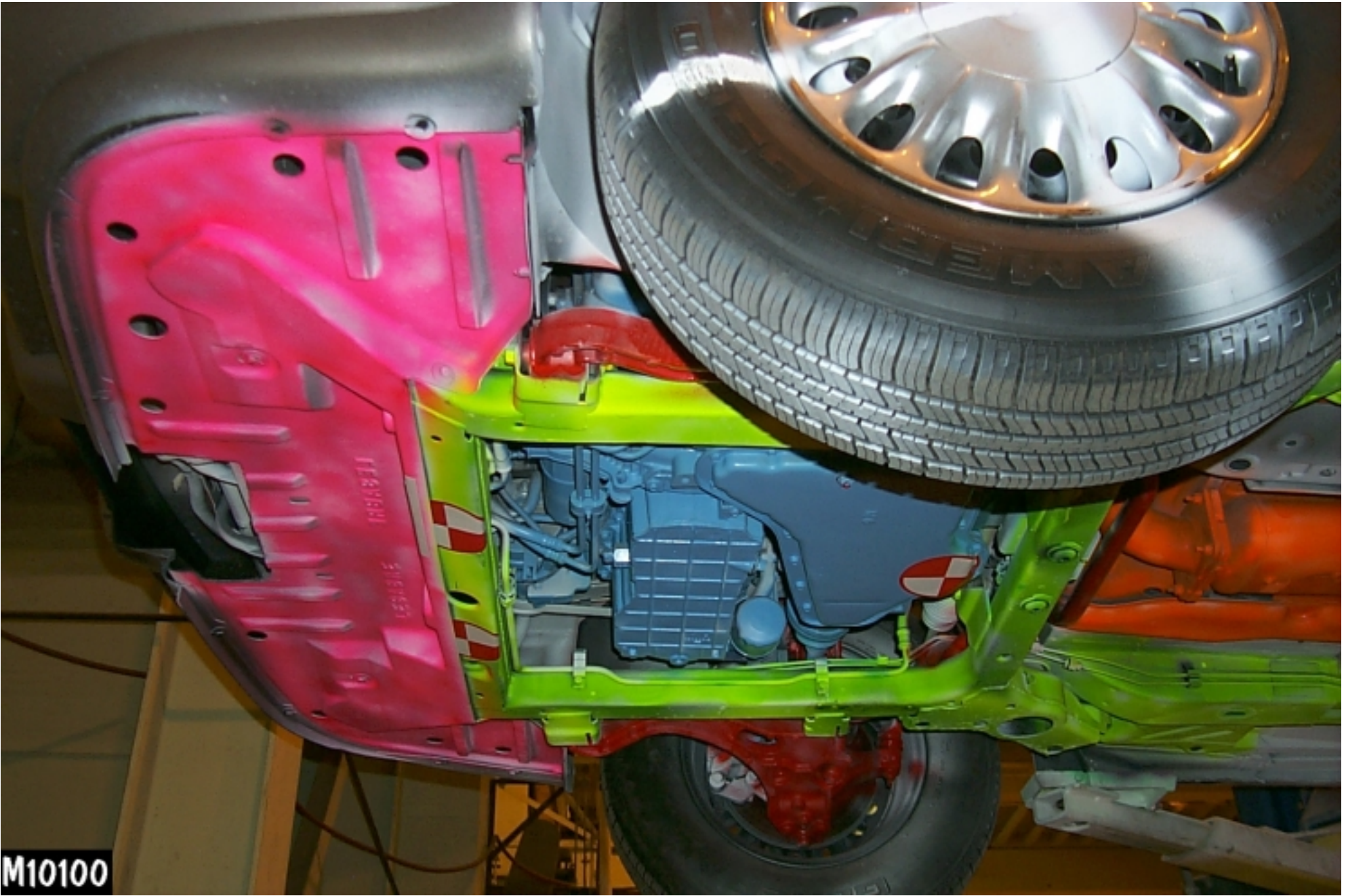


Figure A-18: PRE-TEST FRONT SIDE UNDERBODY VIEW



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



Figure A-20: PRE-TEST REAR UNDERBODY VIEW



Figure A-21: POST-TEST REAR UNDERBODY VIEW



Figure A-22: PRE-TEST DRIVER POSITION VIEW



Figure A-23: POST-TEST DRIVER POSITION VIEW



Figure A-24: PRE-TEST PASSENGER POSITION VIEW



Figure A-25: POST-TEST PASSENGER POSITION VIEW



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



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



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



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



Figure A-31: POST-TEST DRIVER HEAD LOCATION



Figure A-32: PRE-TEST PASSENGER HEAD LOCATION



Figure A-33: POST-TEST PASSENGER HEAD LOCATION



Figure A-34: PRE-TEST DRIVER FLOOR PAN VIEW



Figure A-35: POST-TEST DRIVER FLOOR PAN VIEW



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



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



Figure A-38: ROLLOVER VIEW



Figure A-39: IMPACT VIEW

APPENDIX B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

Hybrid III Dummy Sign Conventions
Load Cells and Special Transducers

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. M10100

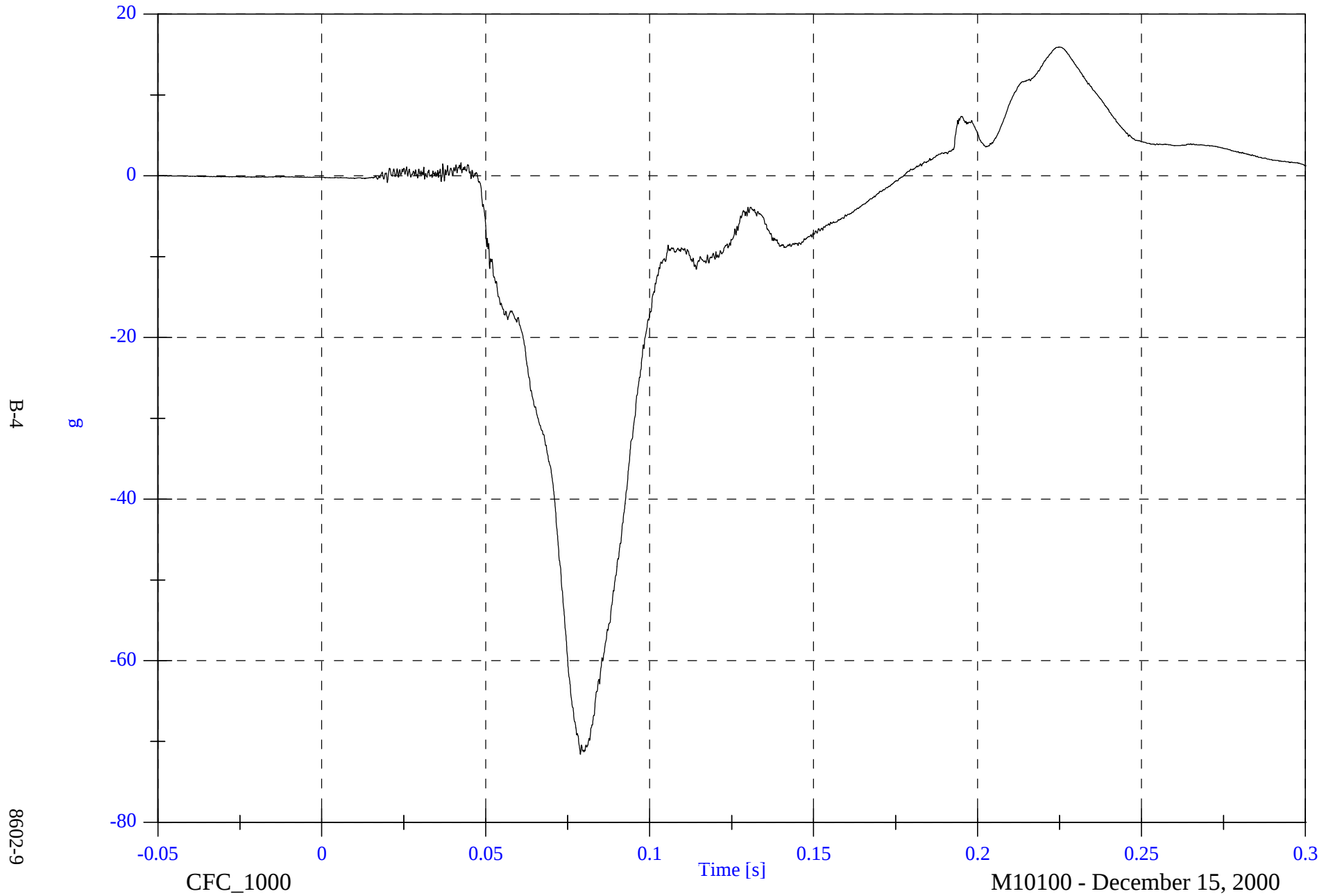
DATA TYPE	SAE FILTER CLASS (Hz)
Dummy Head Accelerations	1000
Dummy Chest Accelerations	180
Dummy Chest Displacements	60
Dummy Femur Forces	600
Dummy Belt Loads	60
Dummy Belt Displacements	180
Dummy Neck Forces	1000
Dummy Neck Moments	600
Vehicle Accelerations	60
Vehicle Velocity Integrations	180
Vehicle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

NCAP Test 9 - 2001 Buick LeSabre

P1 Head x

Max: 15.9 [g] at 0.225 [s]

Min: -71.6 [g] at 0.079 [s]

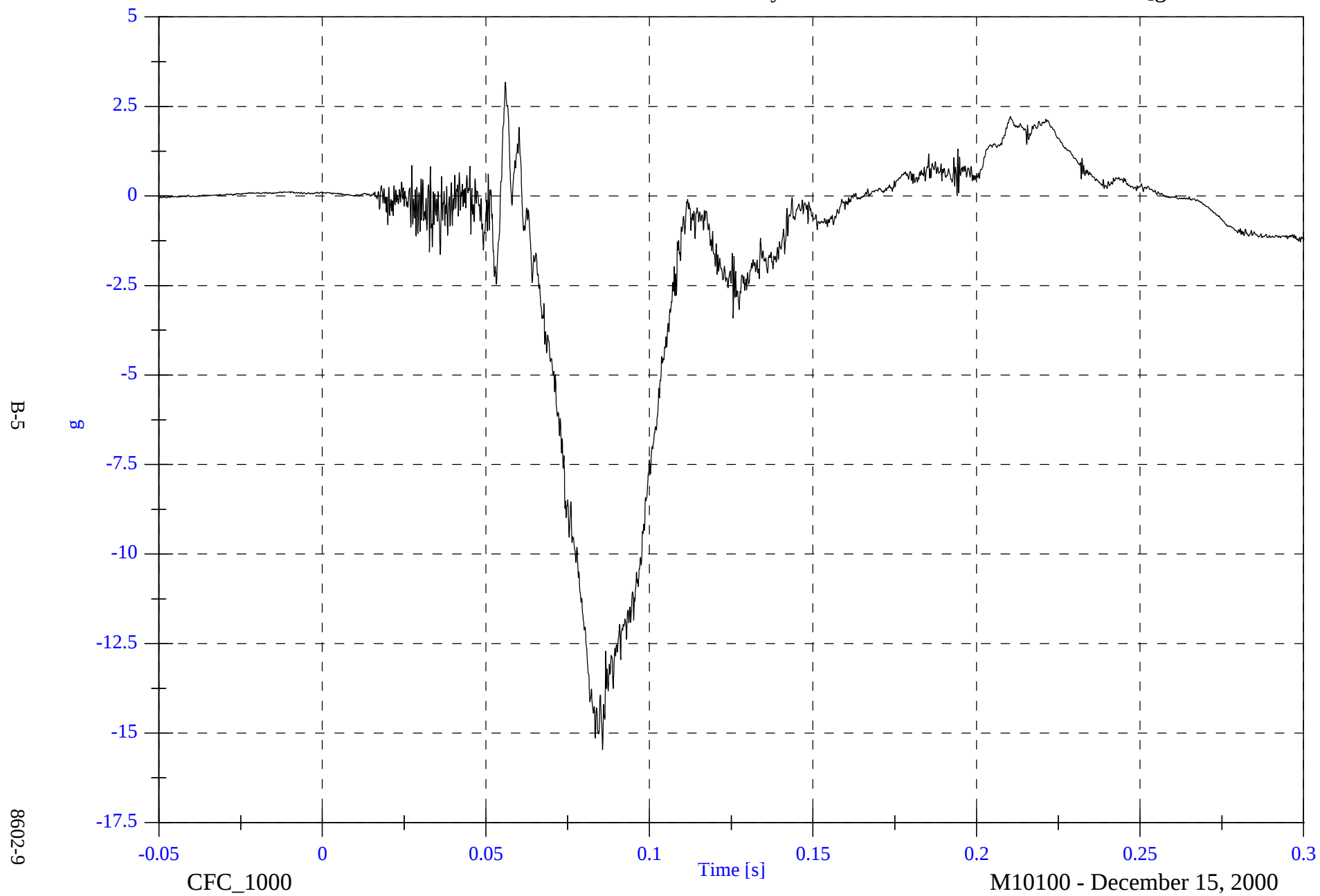


NCAP Test 9 - 2001 Buick LeSabre

P1 Head y

Max: 3.2 [g] at 0.056 [s]

Min: -15.5 [g] at 0.086 [s]

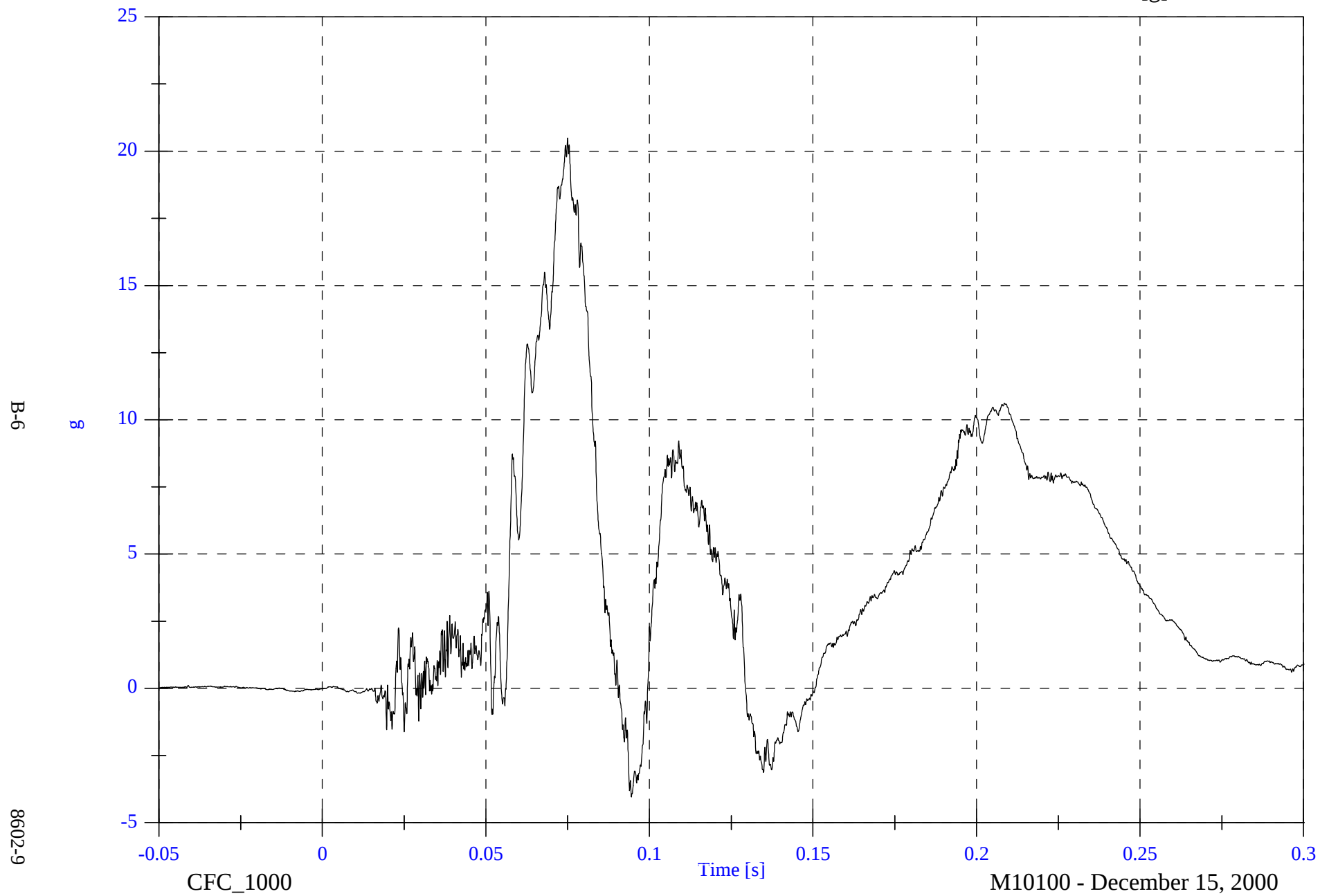


NCAP Test 9 - 2001 Buick LeSabre

P1 Head z

Max: 20.5 [g] at 0.075 [s]

Min: -4.0 [g] at 0.094 [s]

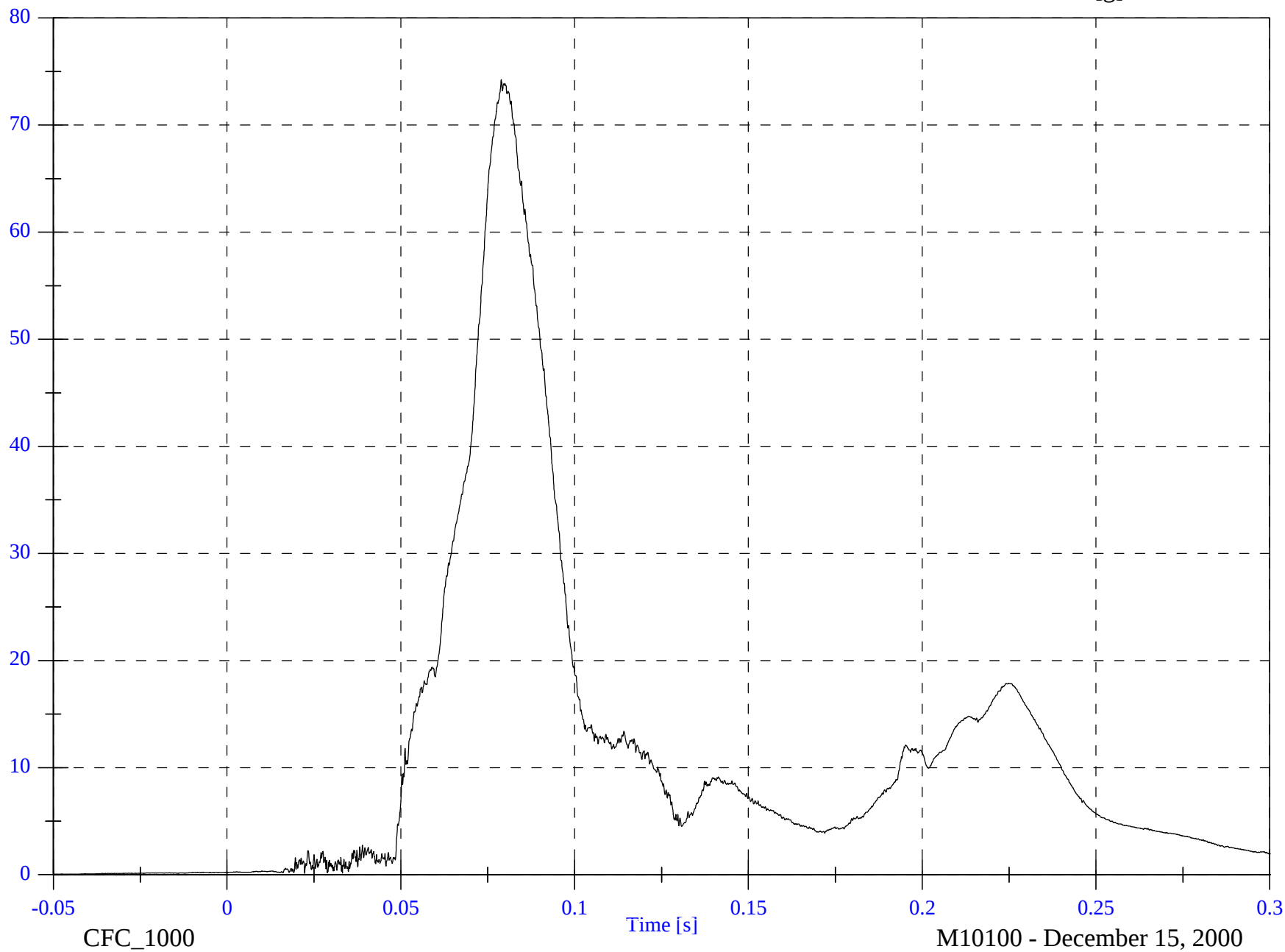


NCAP Test 9 - 2001 Buick LeSabre

P1 Head Resultant

Max: 74.2 [g] at 0.079 [s]

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



B-7

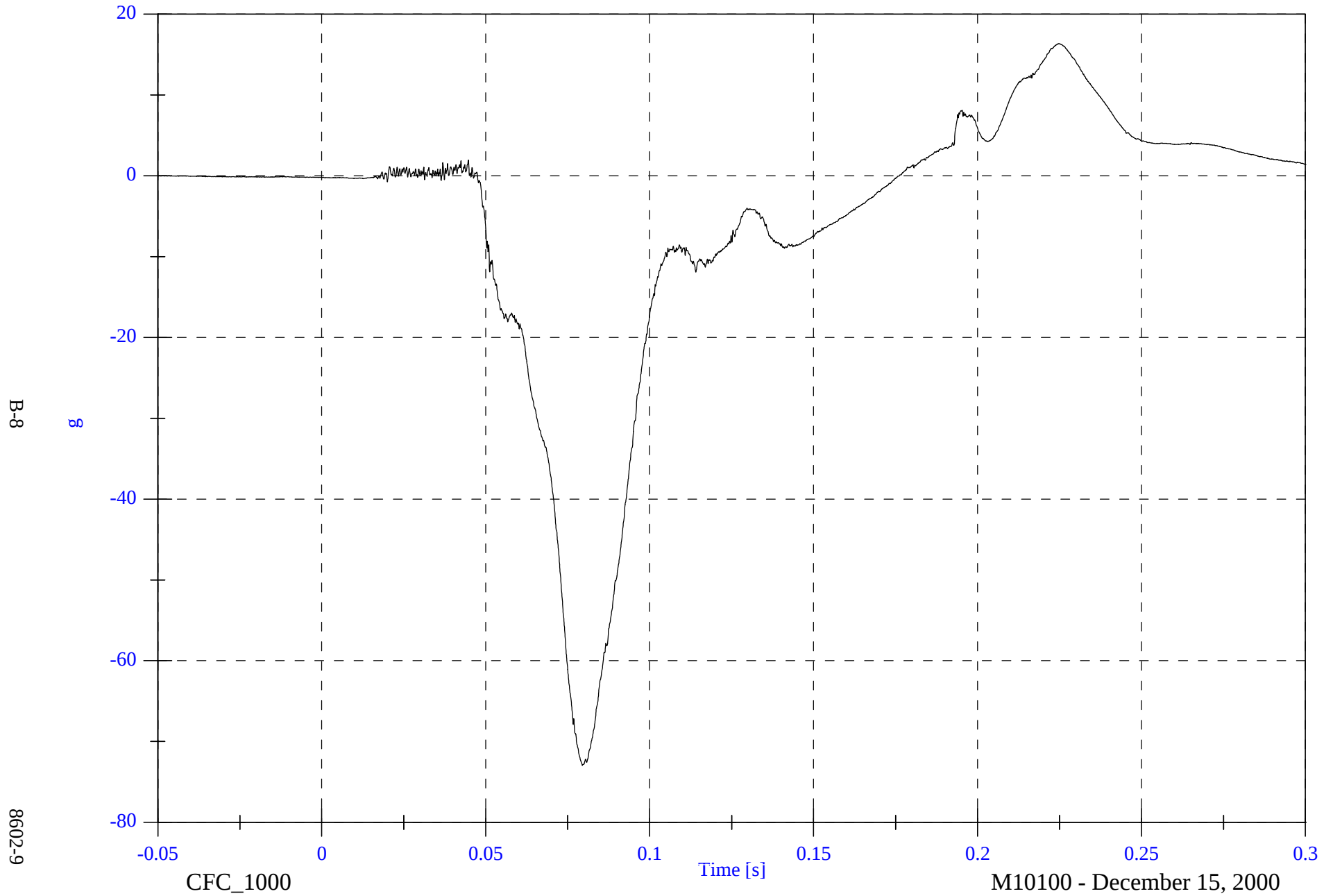
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P1 Head Red x

Max: 16.4 [g] at 0.225 [s]

Min: -73.0 [g] at 0.079 [s]

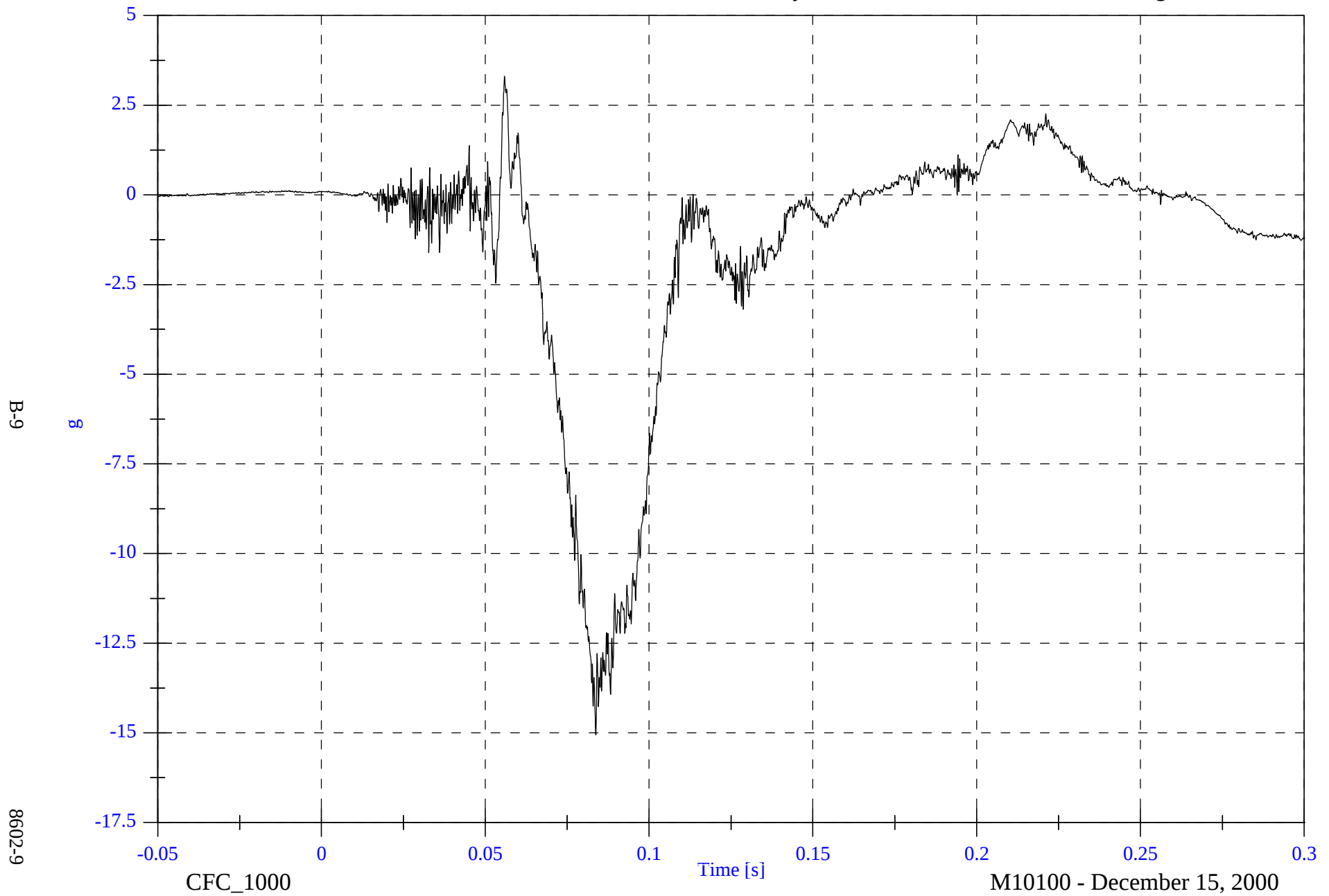


NCAP Test 9 - 2001 Buick LeSabre

P1 Head Red y

Max: 3.3 [g] at 0.056 [s]

Min: -15.1 [g] at 0.084 [s]

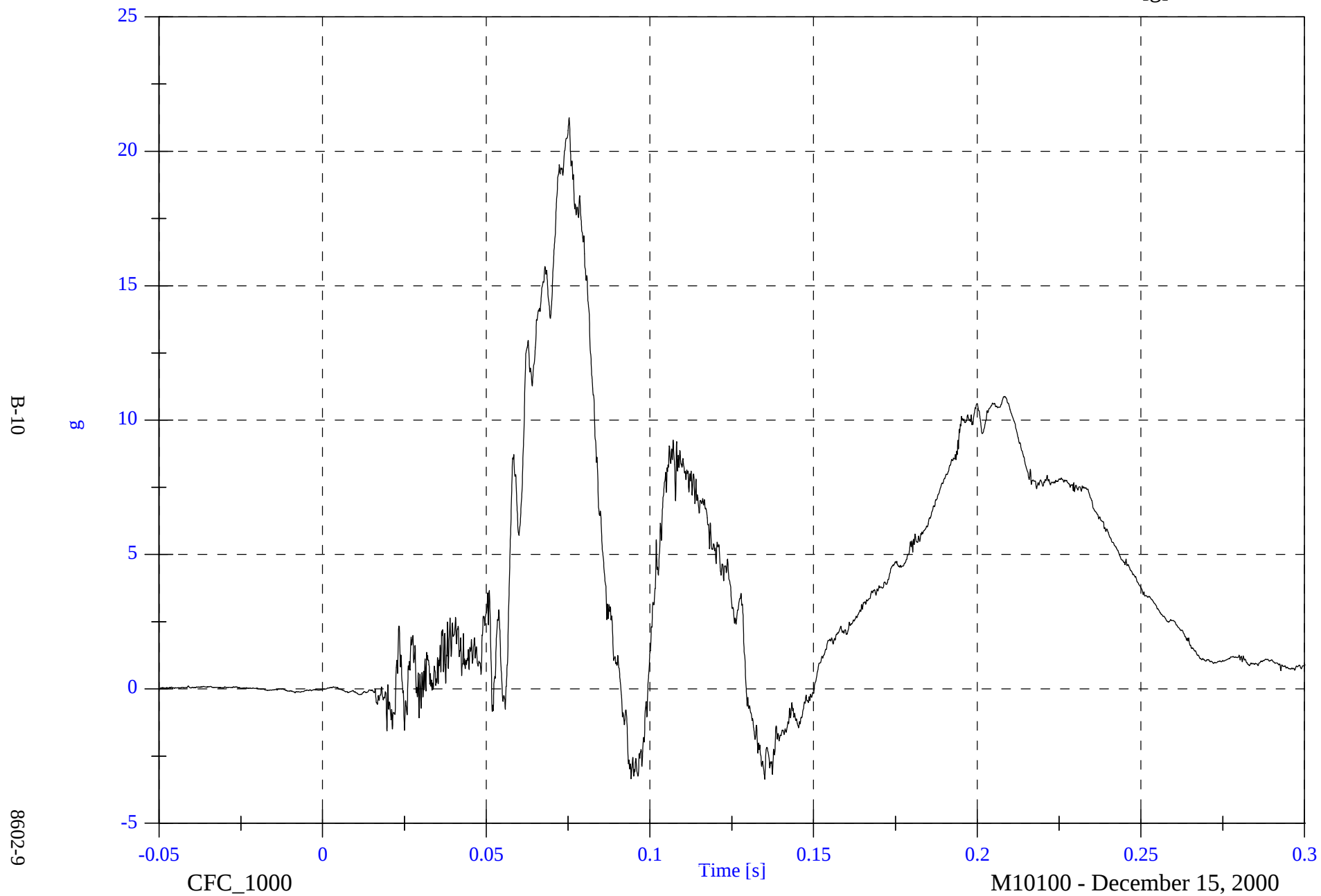


NCAP Test 9 - 2001 Buick LeSabre

P1 Head Red z

Max: 21.3 [g] at 0.075 [s]

Min: -3.4 [g] at 0.135 [s]



B-10

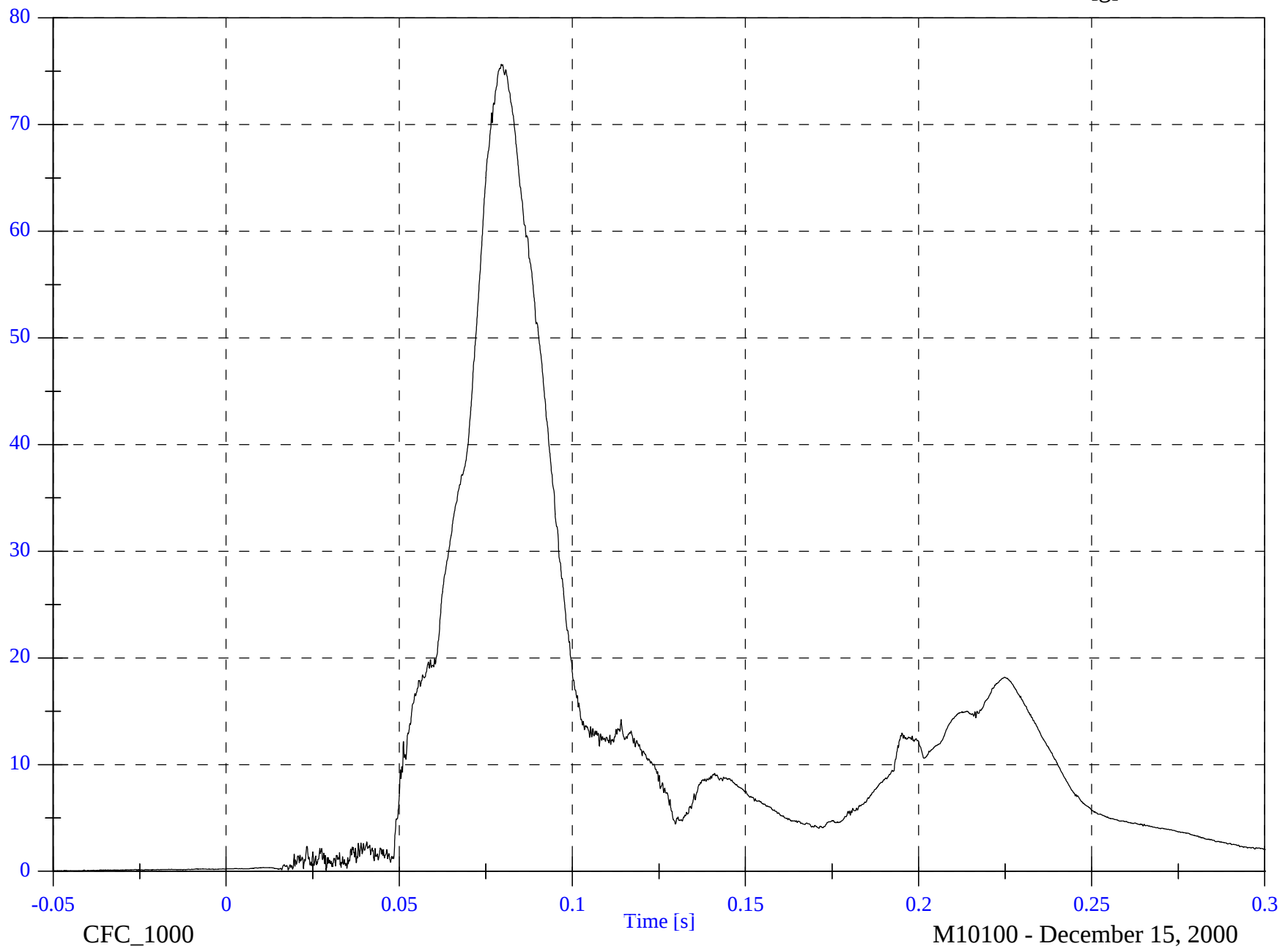
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P1 Head Red Resultant

Max: 75.7 [g] at 0.079 [s]

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



B-11

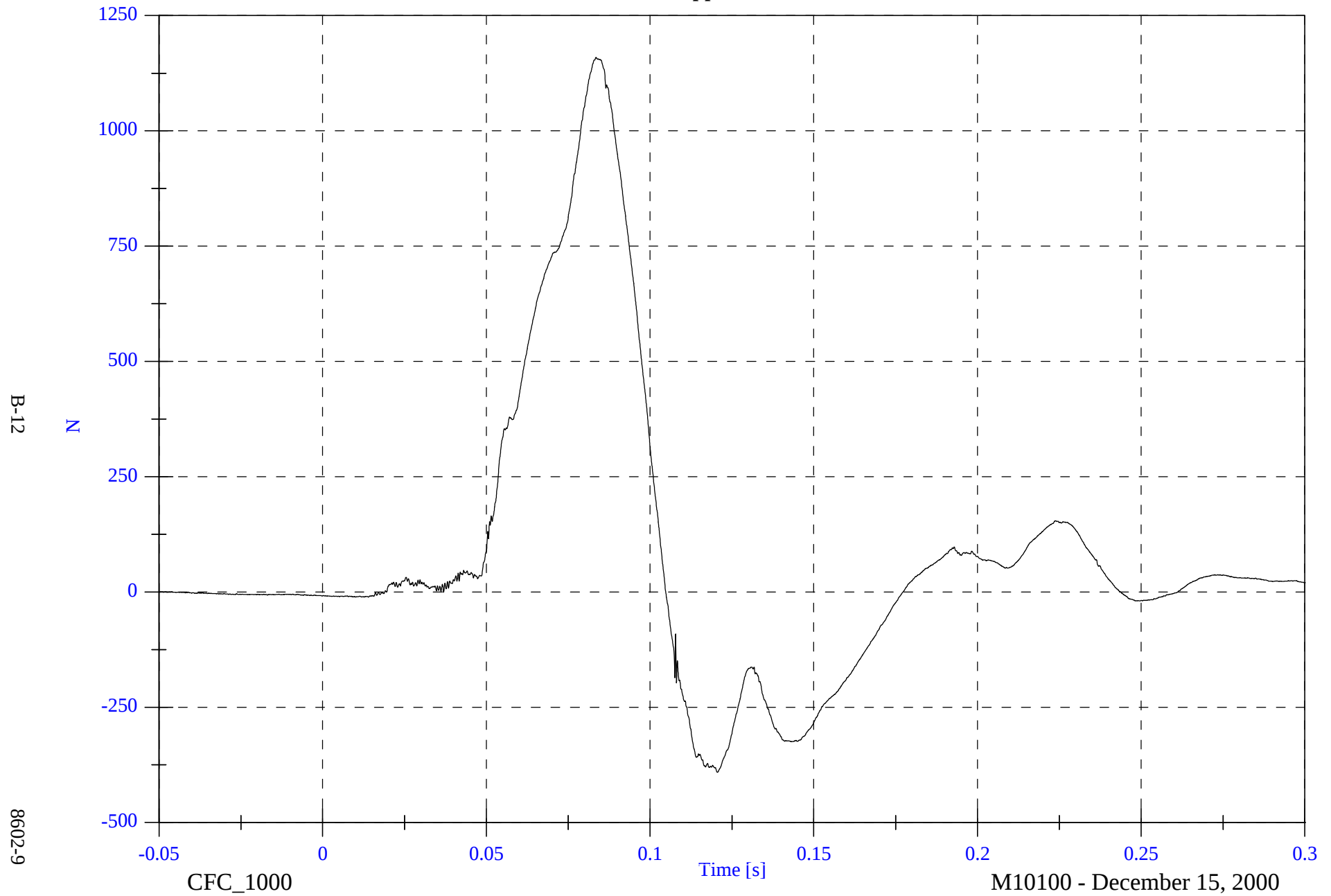
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P1 Upper Neck Fx

Max: 1159.4 [N] at 0.083 [s]

Min: -391.3 [N] at 0.121 [s]

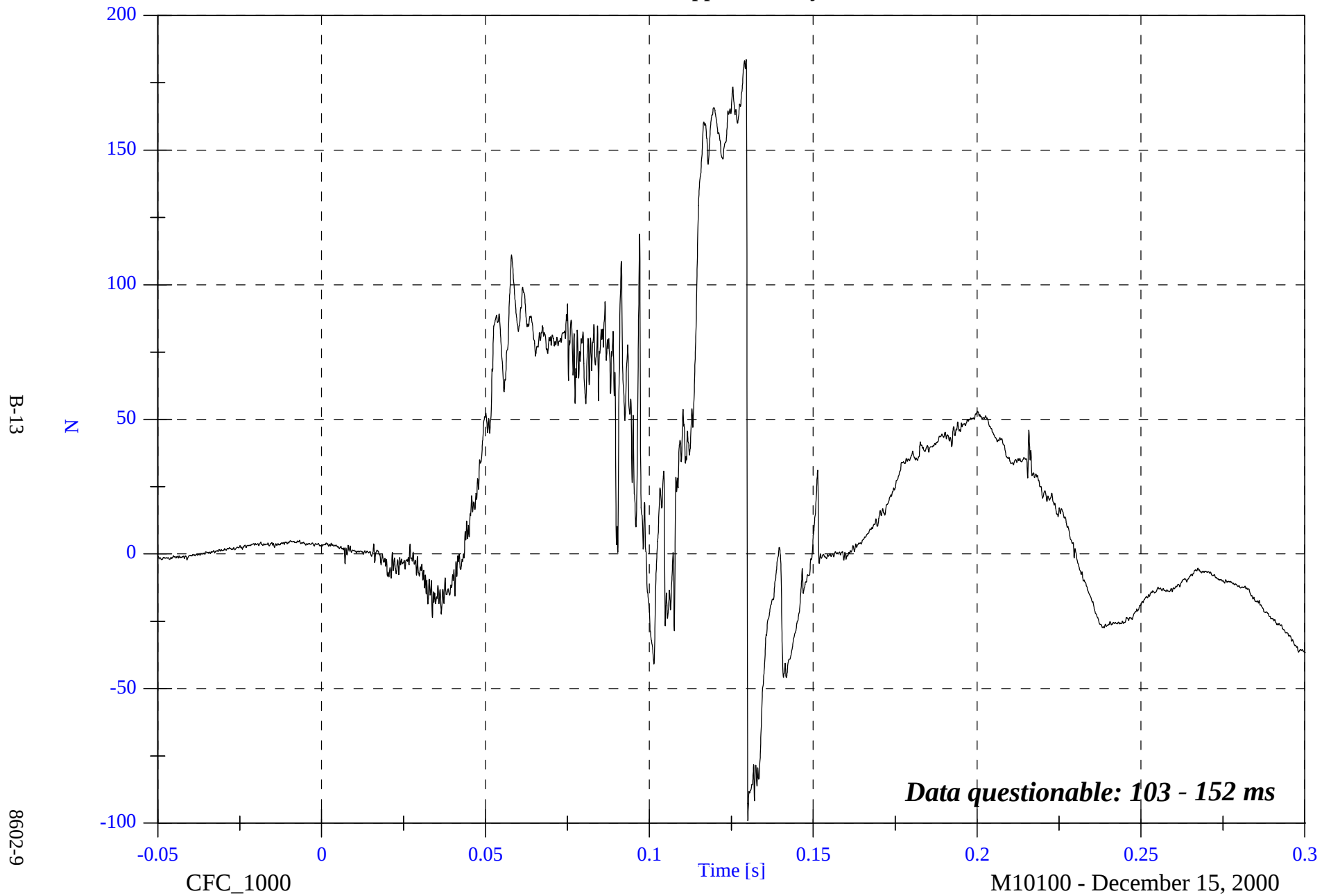


NCAP Test 9 - 2001 Buick LeSabre

Max: 183.7 [N] at 0.130 [s]

Min: -99.1 [N] at 0.130 [s]

P1 Upper Neck Fy

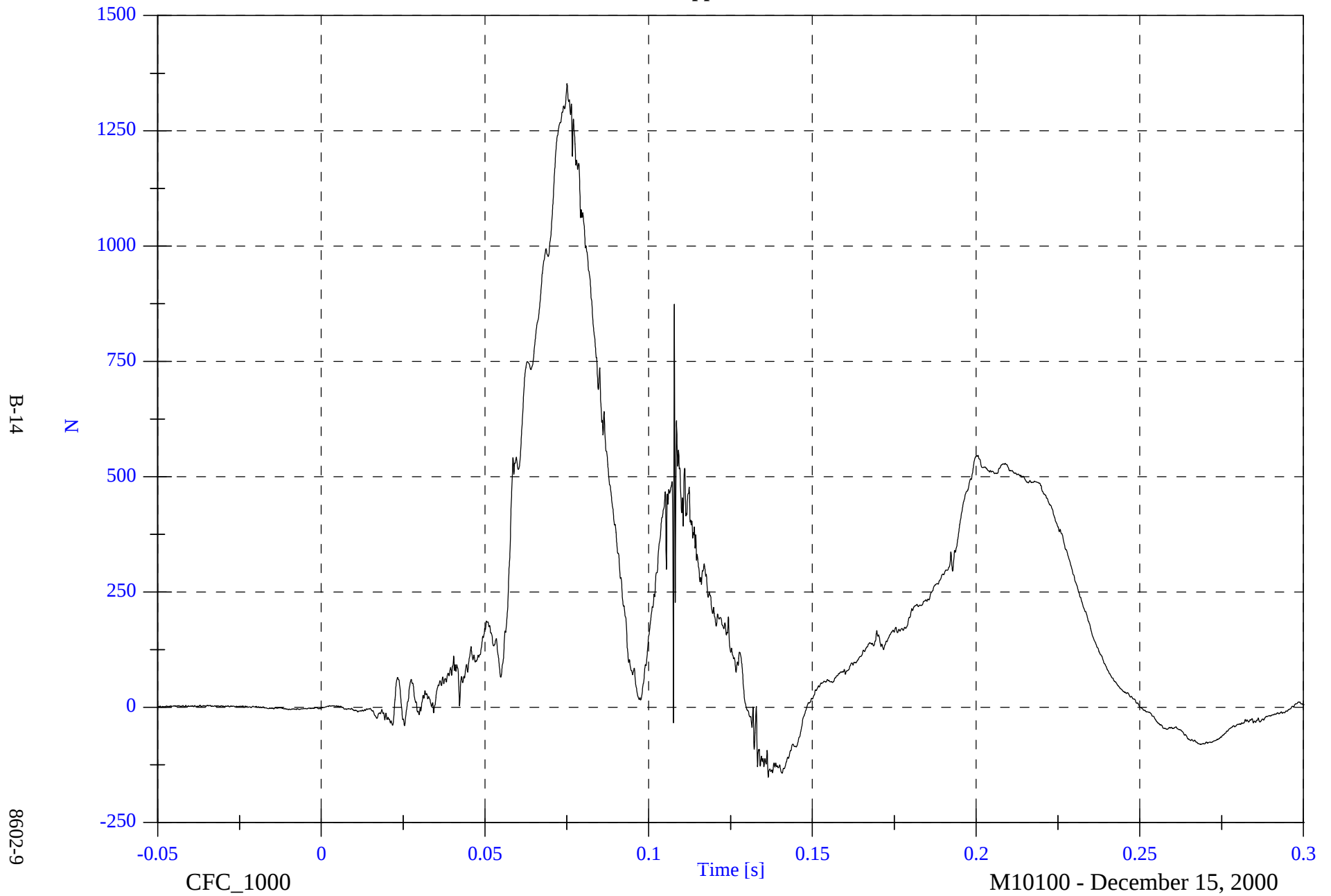


NCAP Test 9 - 2001 Buick LeSabre

Max: 1352.3 [N] at 0.075 [s]

P1 Upper Neck Fz

Min: -152.1 [N] at 0.137 [s]

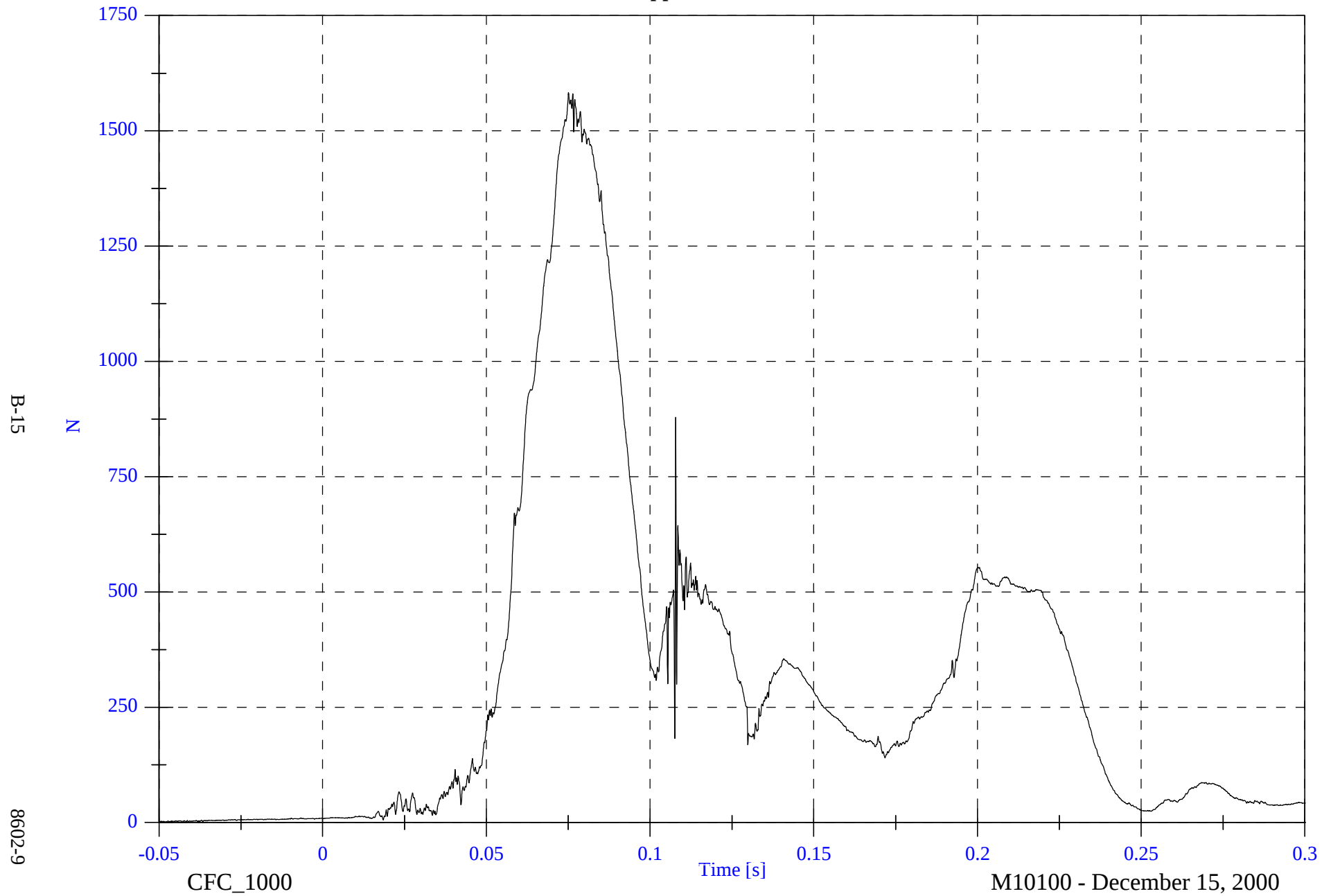


NCAP Test 9 - 2001 Buick LeSabre

P1 Upper Neck F Resultant

Max: 1582.6 [N] at 0.075 [s]

Min: 1.4 [N] at -0.050 [s]

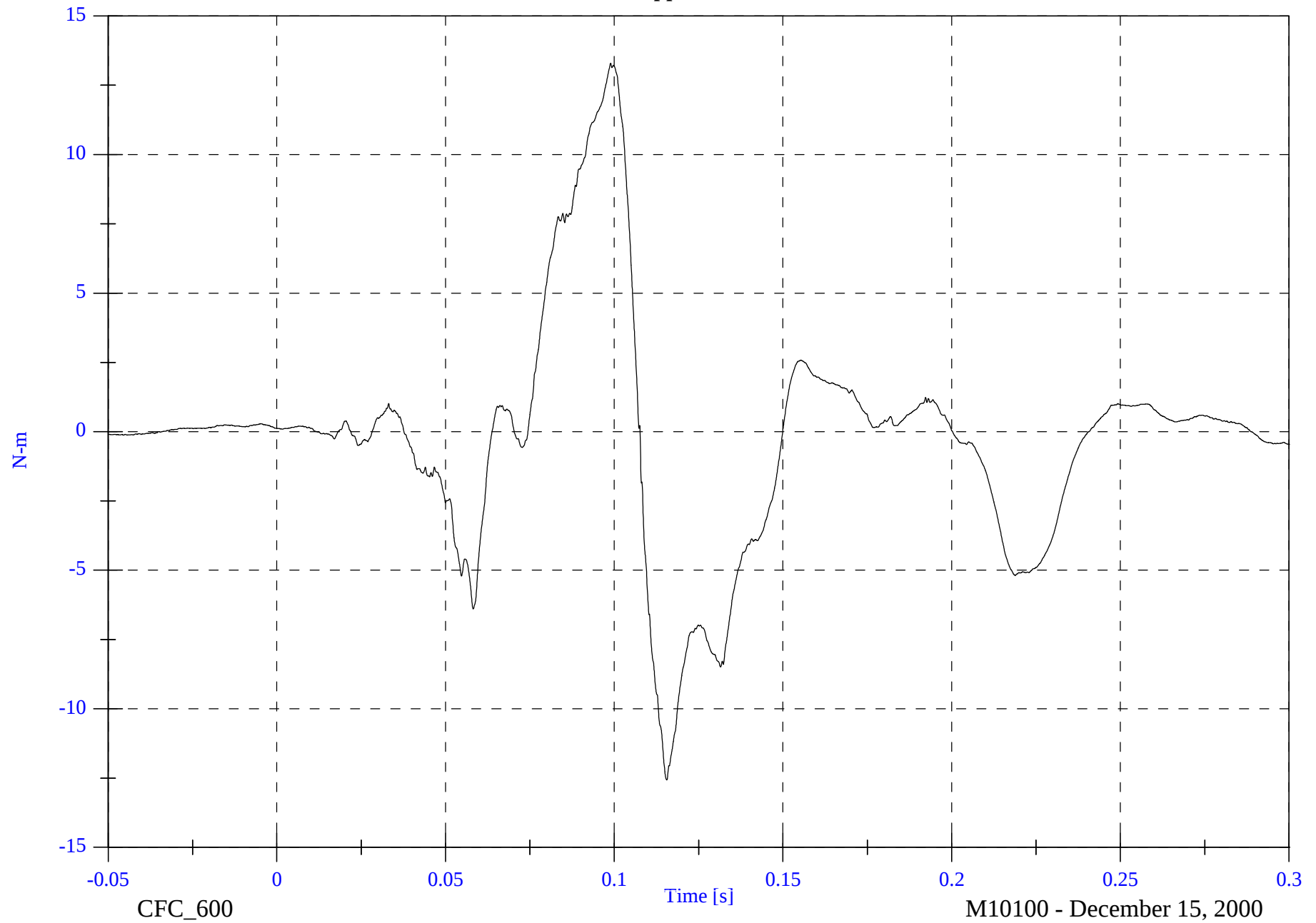


NCAP Test 9 - 2001 Buick LeSabre

P1 Upper Neck Mx

Max: 13.3 [N-m] at 0.099 [s]

Min: -12.6 [N-m] at 0.116 [s]



B-16

8602-9

CFC_600

M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

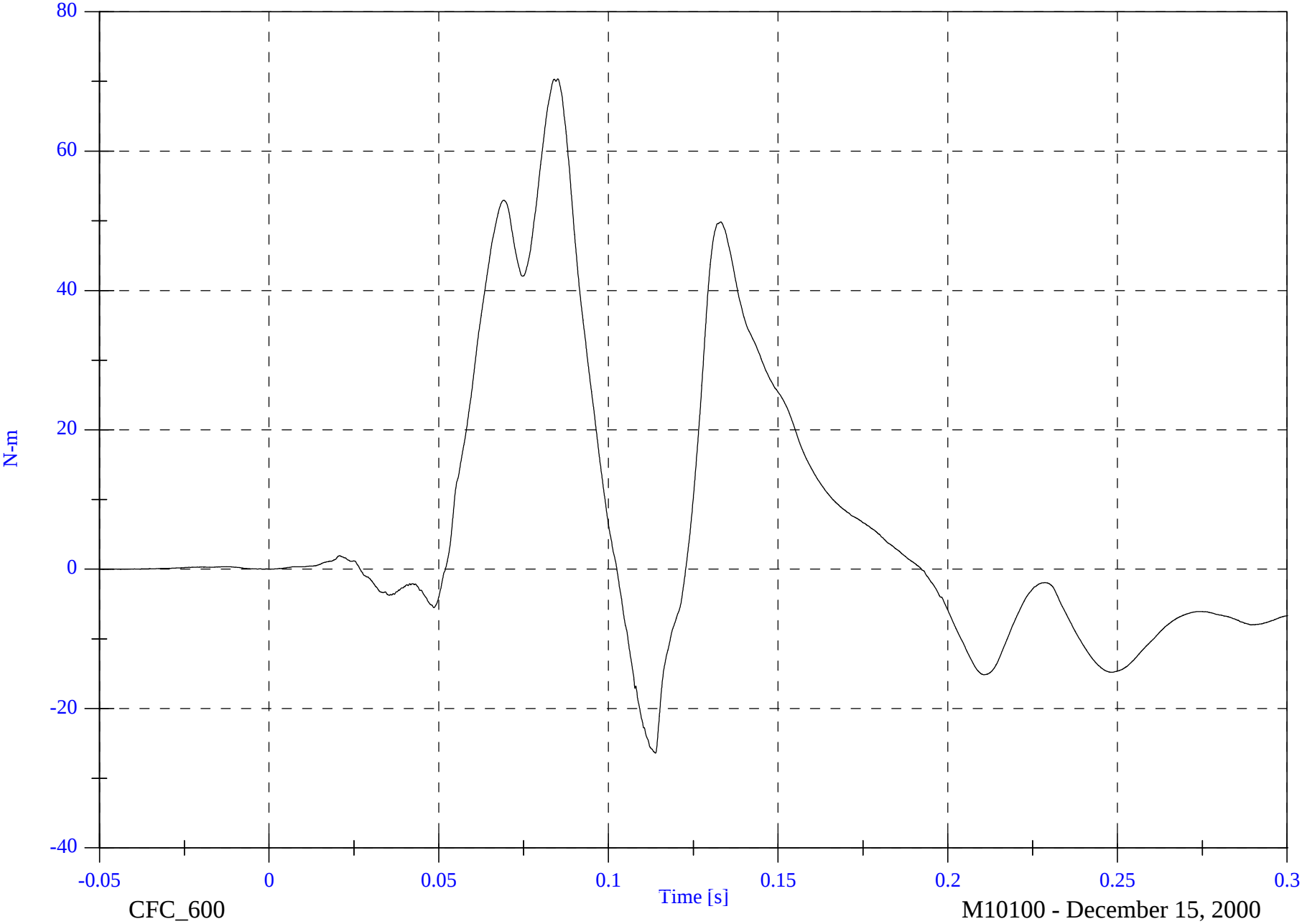
P1 Upper Neck My

Max: 70.4 [N-m] at 0.085 [s]

Min: -26.4 [N-m] at 0.114 [s]

B-17

8602-9

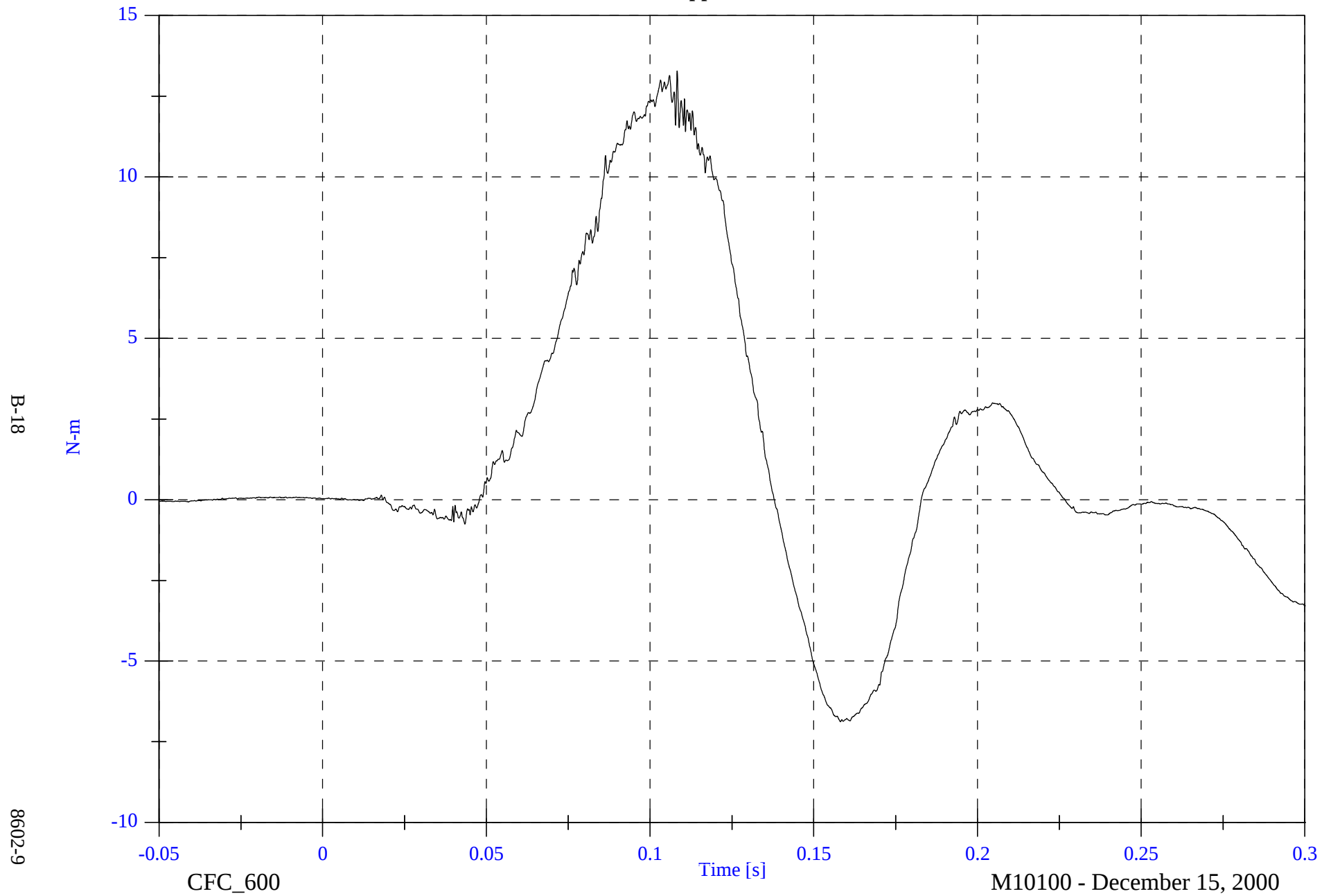


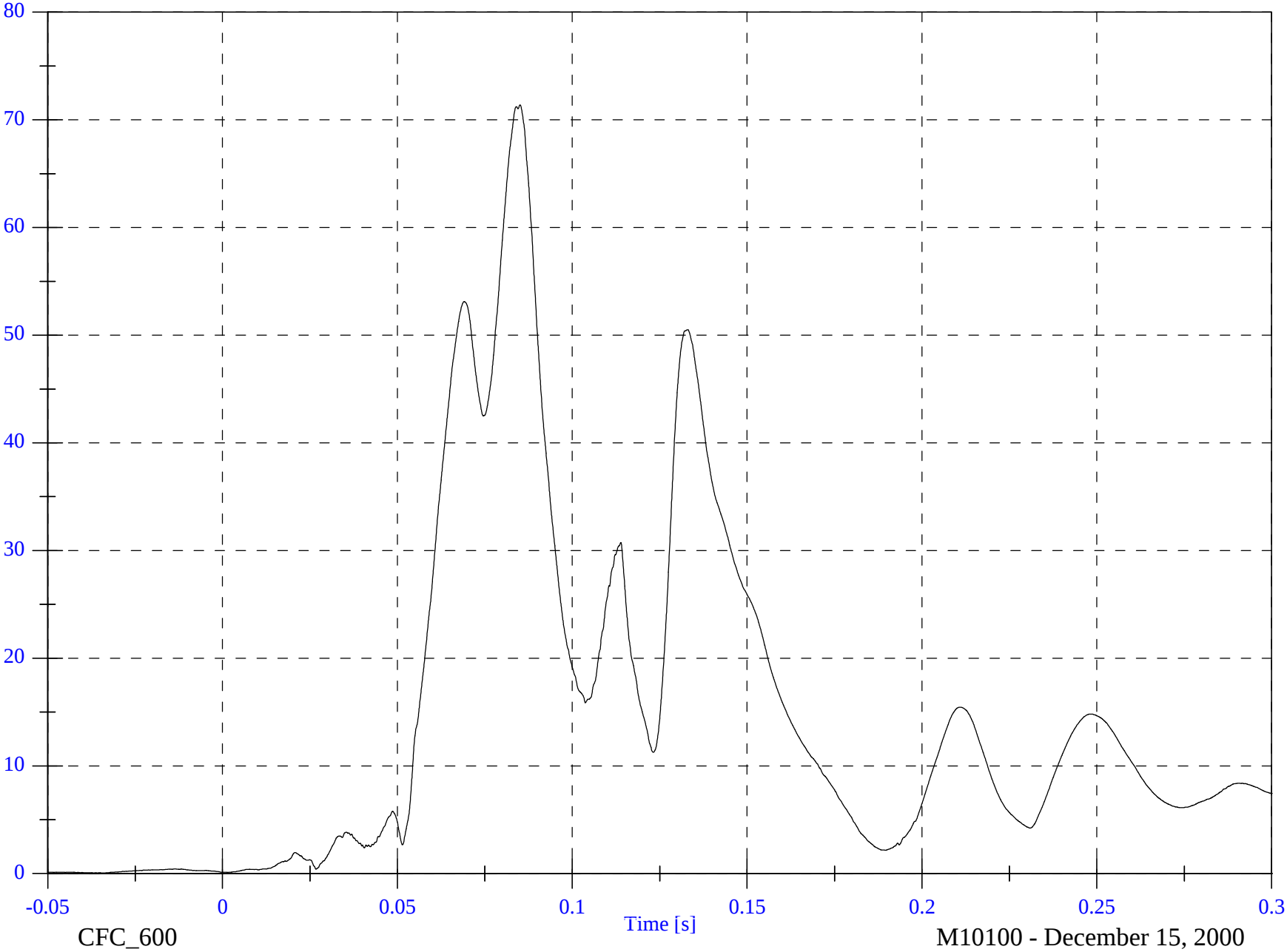
NCAP Test 9 - 2001 Buick LeSabre

P1 Upper Neck Mz

Max: 13.3 [N-m] at 0.108 [s]

Min: -6.9 [N-m] at 0.158 [s]



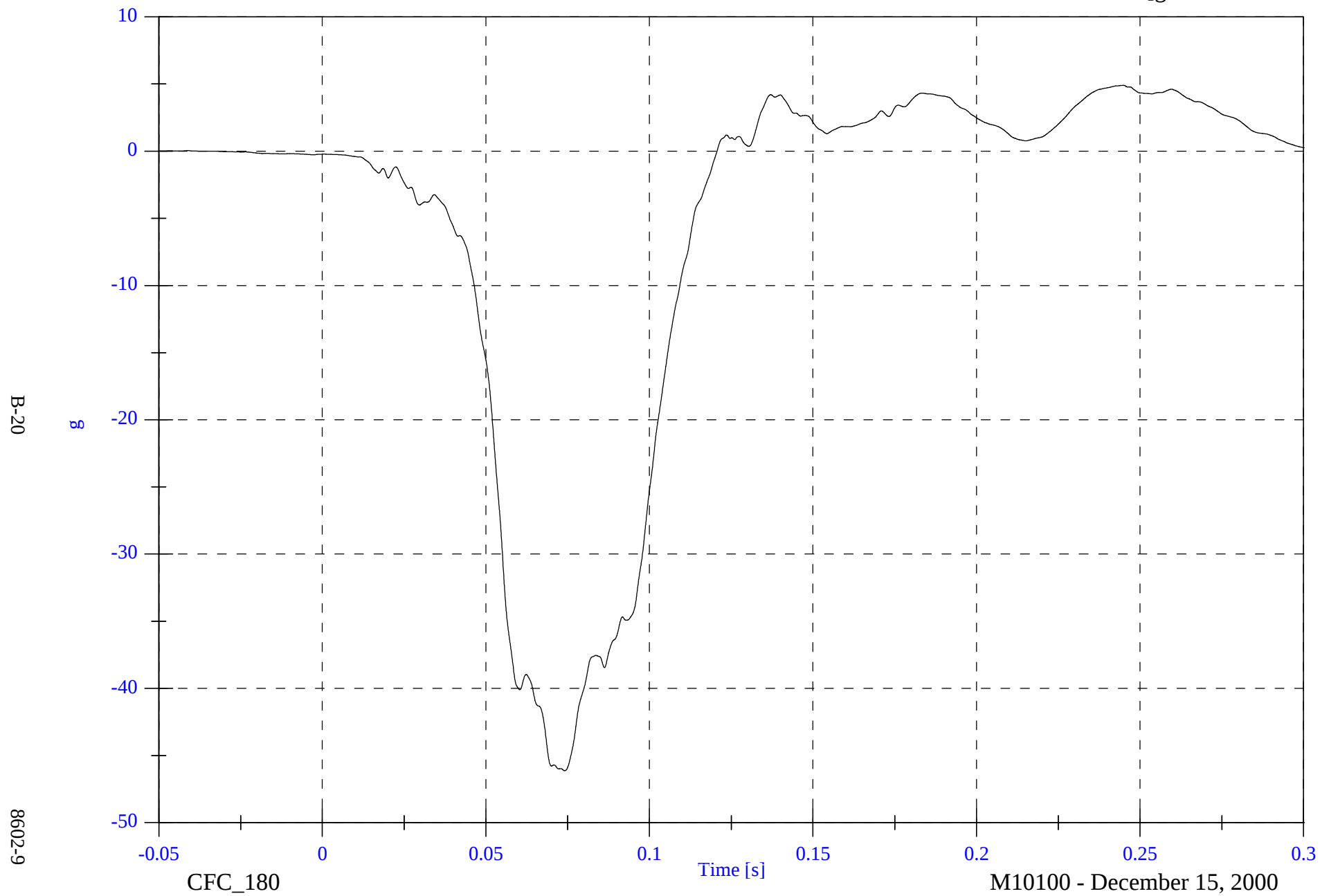


NCAP Test 9 - 2001 Buick LeSabre

P1 Chest x

Max: 4.9 [g] at 0.245 [s]

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

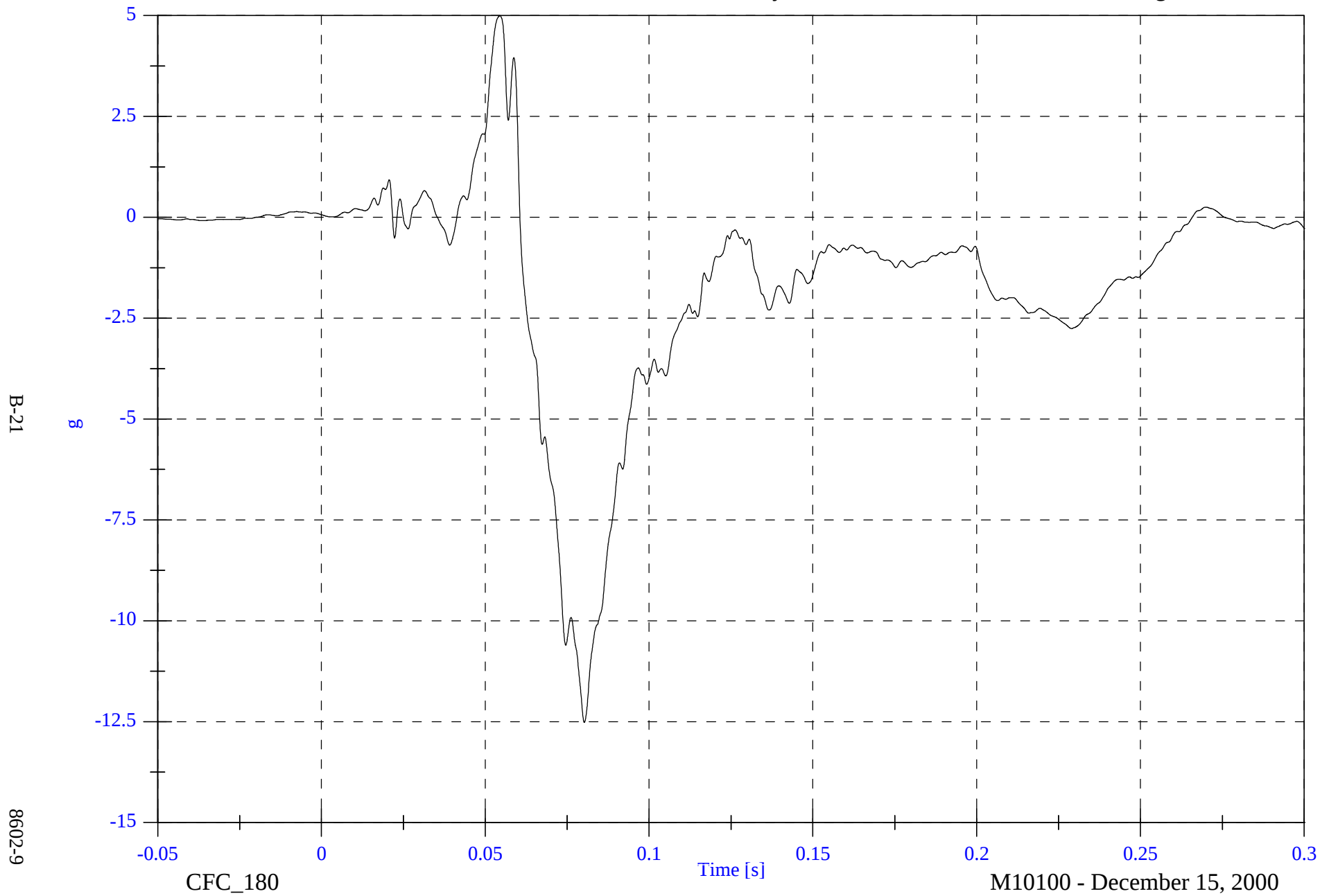


NCAP Test 9 - 2001 Buick LeSabre

P1 Chest y

Max: 5.0 [g] at 0.054 [s]

Min: -12.5 [g] at 0.080 [s]

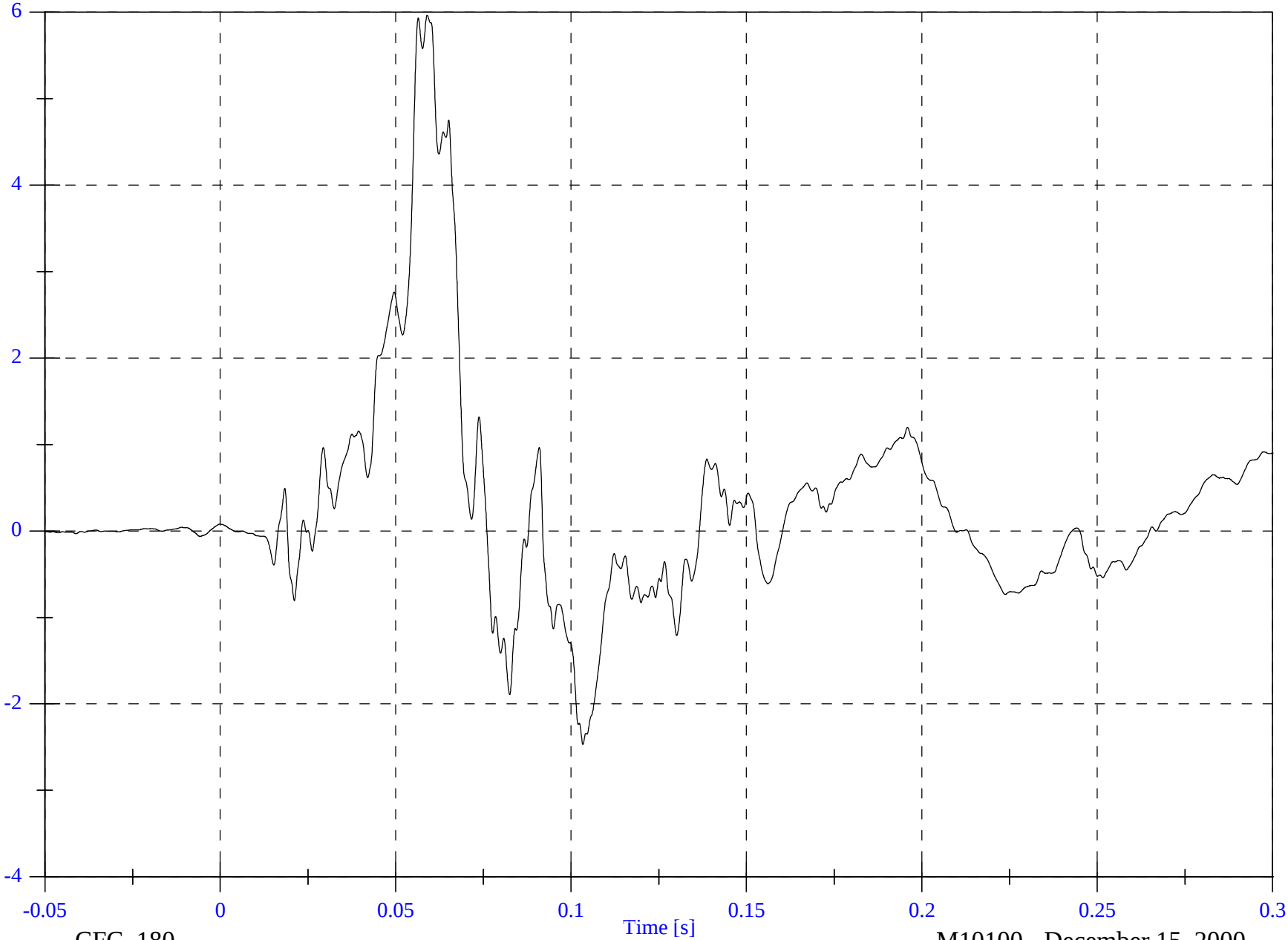


NCAP Test 9 - 2001 Buick LeSabre

Max: 6.0 [g] at 0.059 [s]

Min: -2.5 [g] at 0.103 [s]

P1 Chest z



B-22

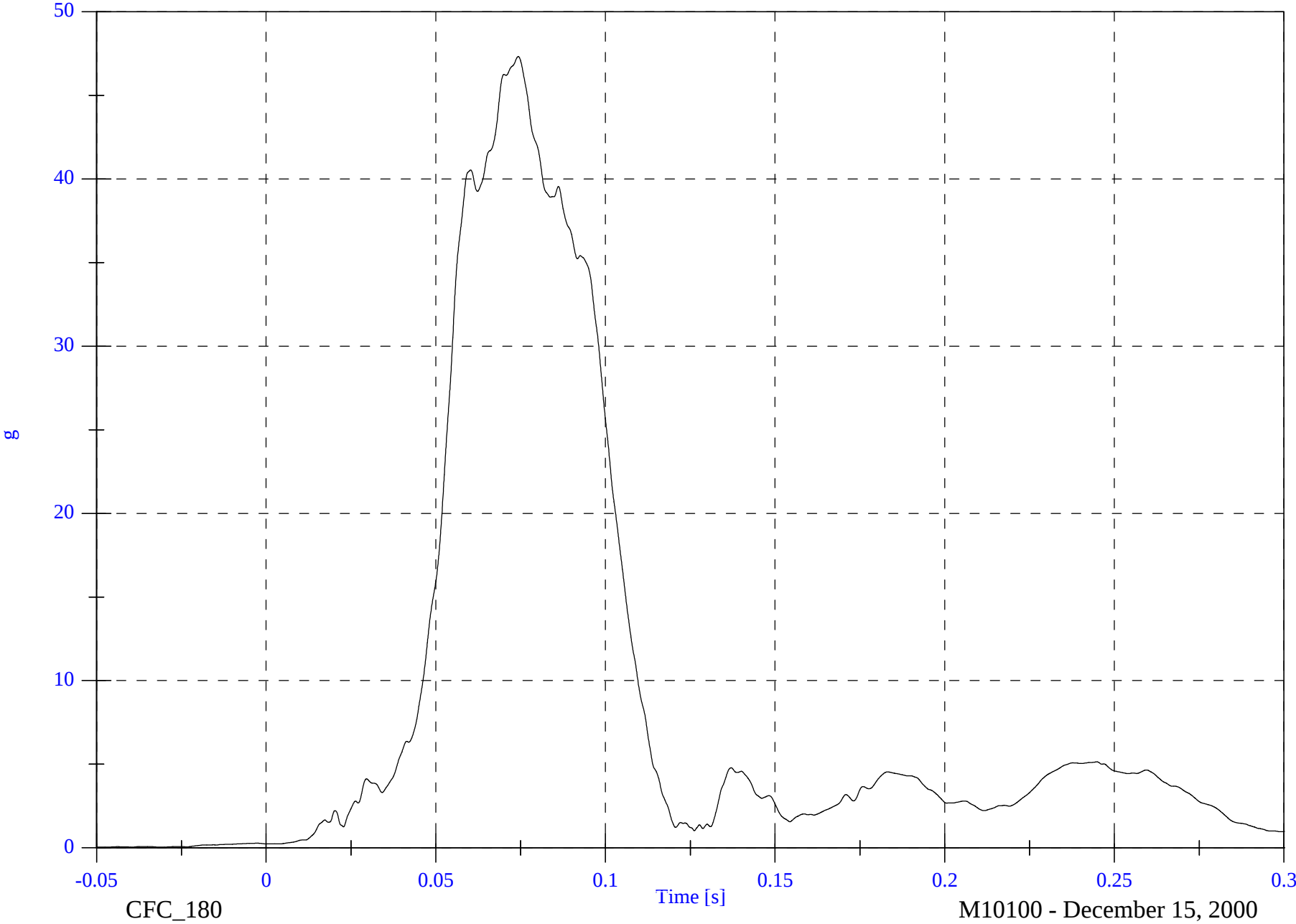
8602-9

CFC_180

M10100 - December 15, 2000

B-23

8602-9



NCAP Test 9 - 2001 Buick LeSabre

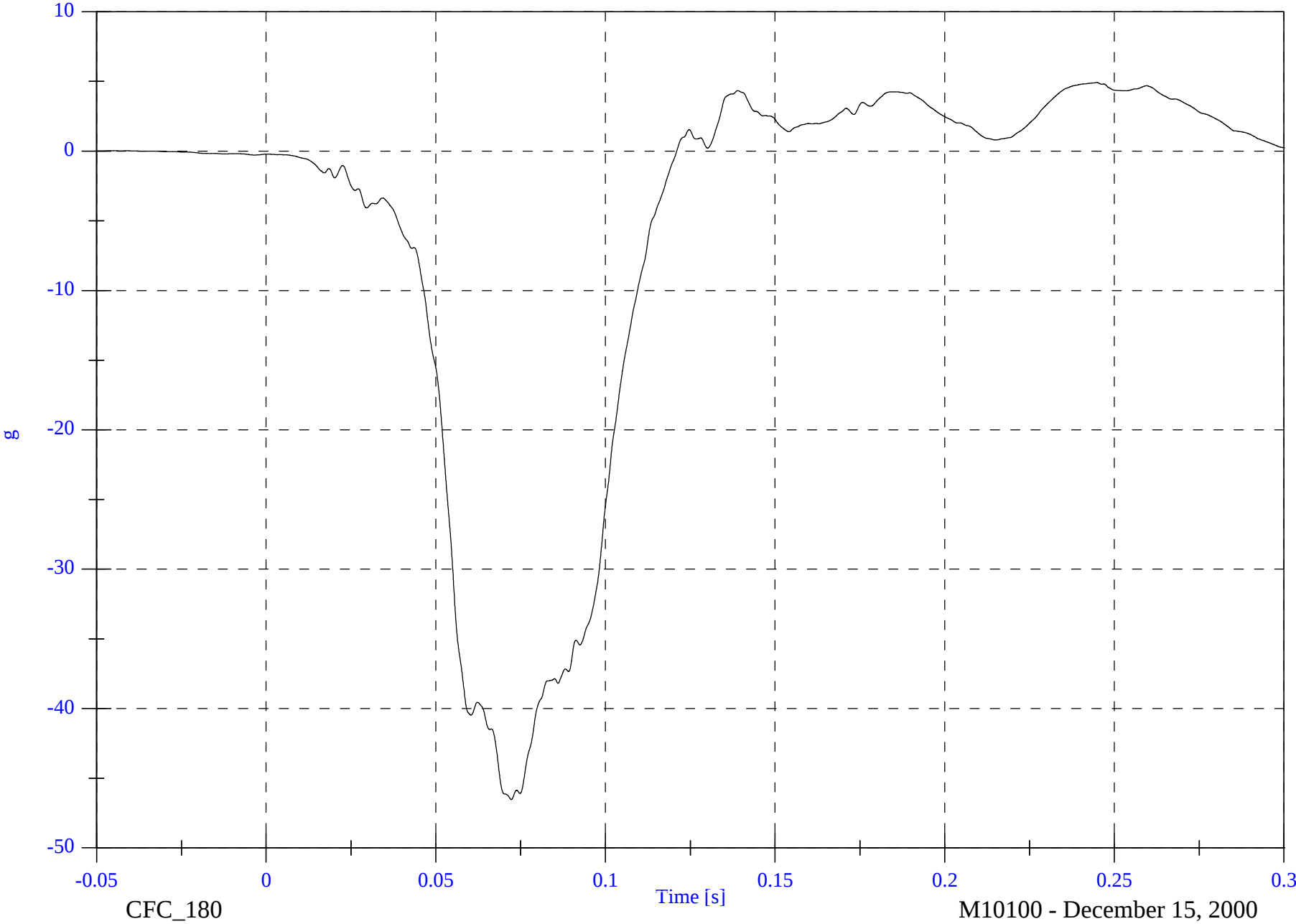
P1 Chest Red x

Max: 4.9 [g] at 0.245 [s]

Min: -46.5 [g] at 0.072 [s]

B-24

8602-9

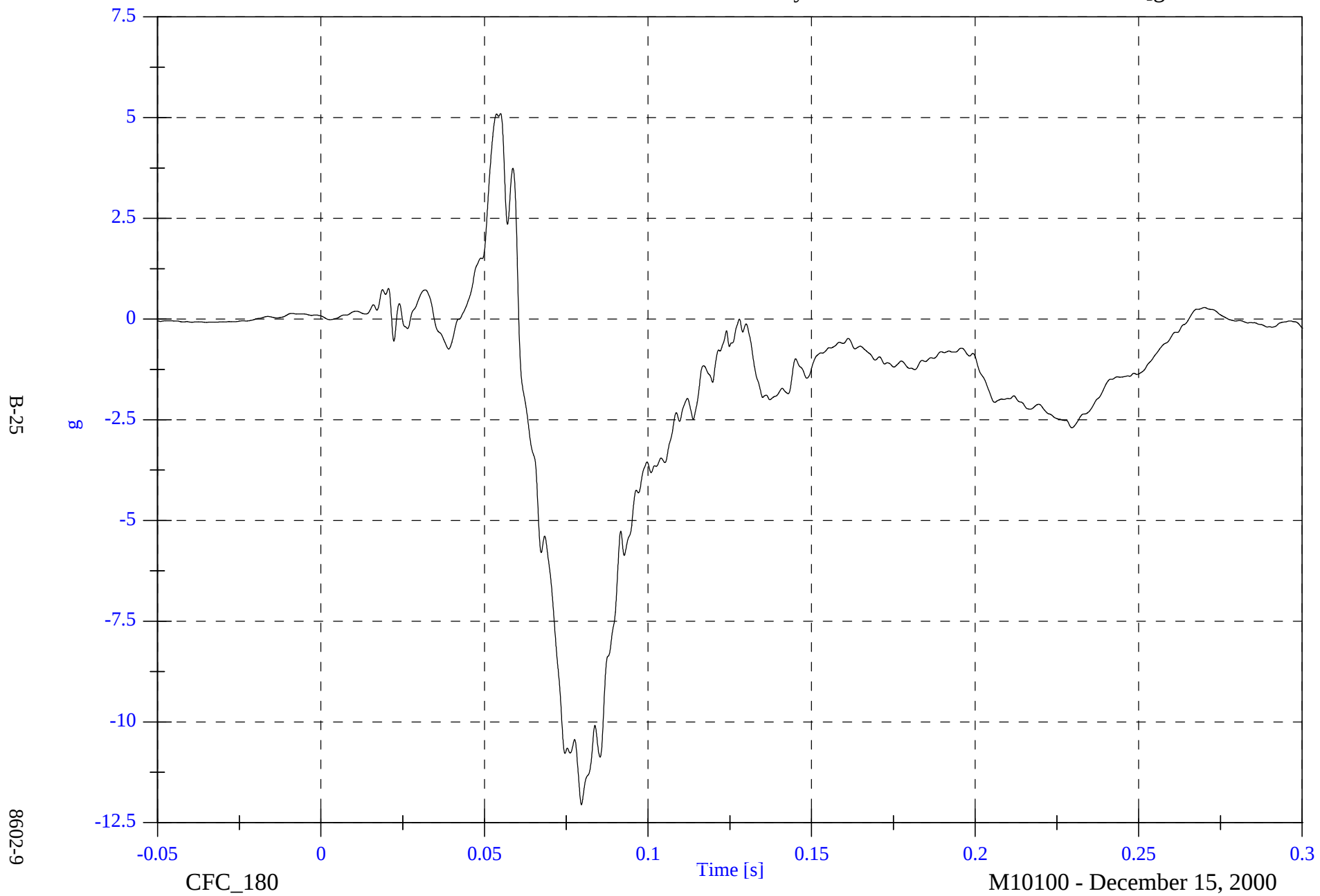


NCAP Test 9 - 2001 Buick LeSabre

P1 Chest Red y

Max: 5.1 [g] at 0.055 [s]

Min: -12.1 [g] at 0.080 [s]

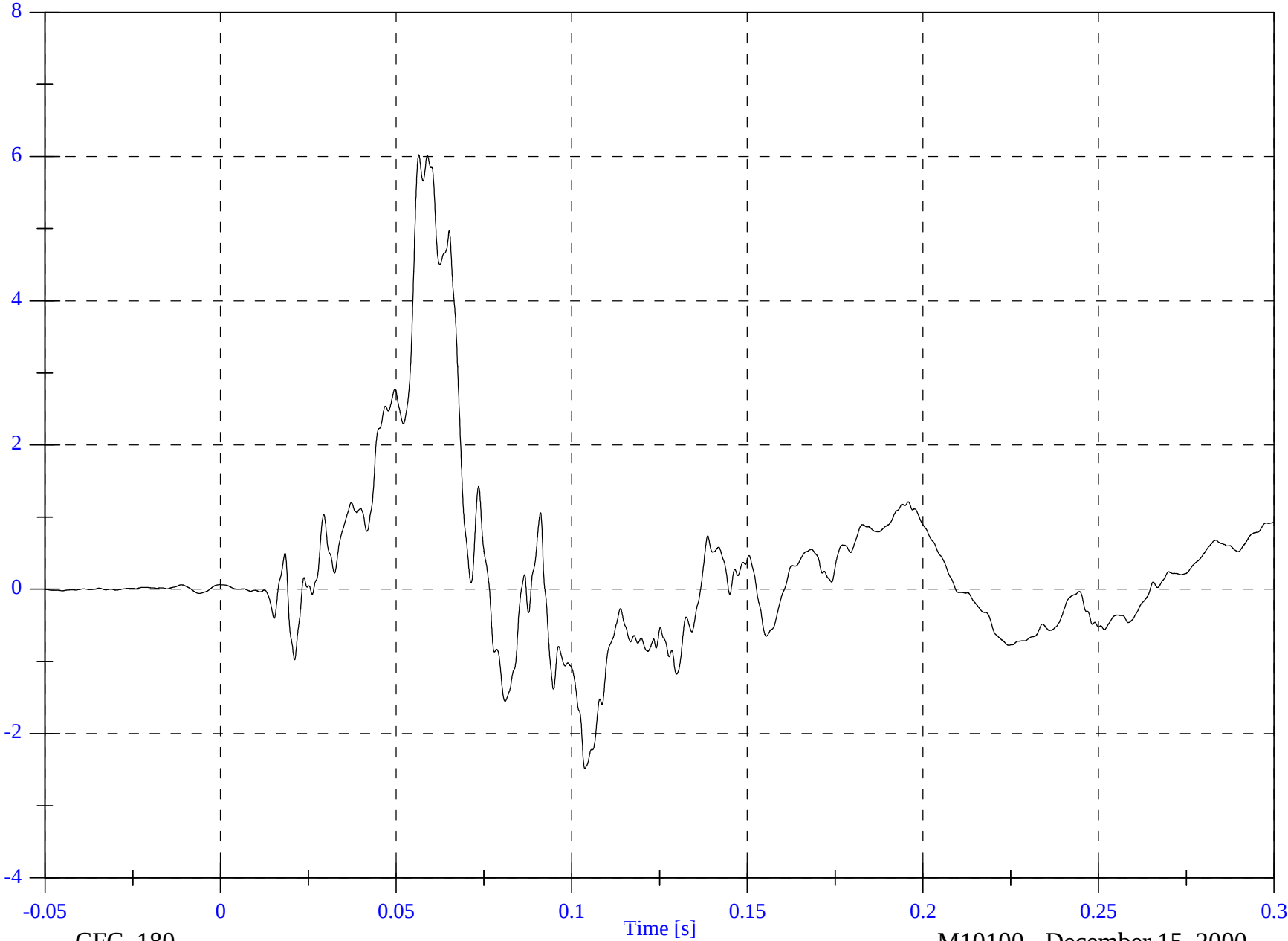


NCAP Test 9 - 2001 Buick LeSabre

Max: 6.0 [g] at 0.056 [s]

Min: -2.5 [g] at 0.104 [s]

P1 Chest Red z



B-26

8602-9

CFC_180

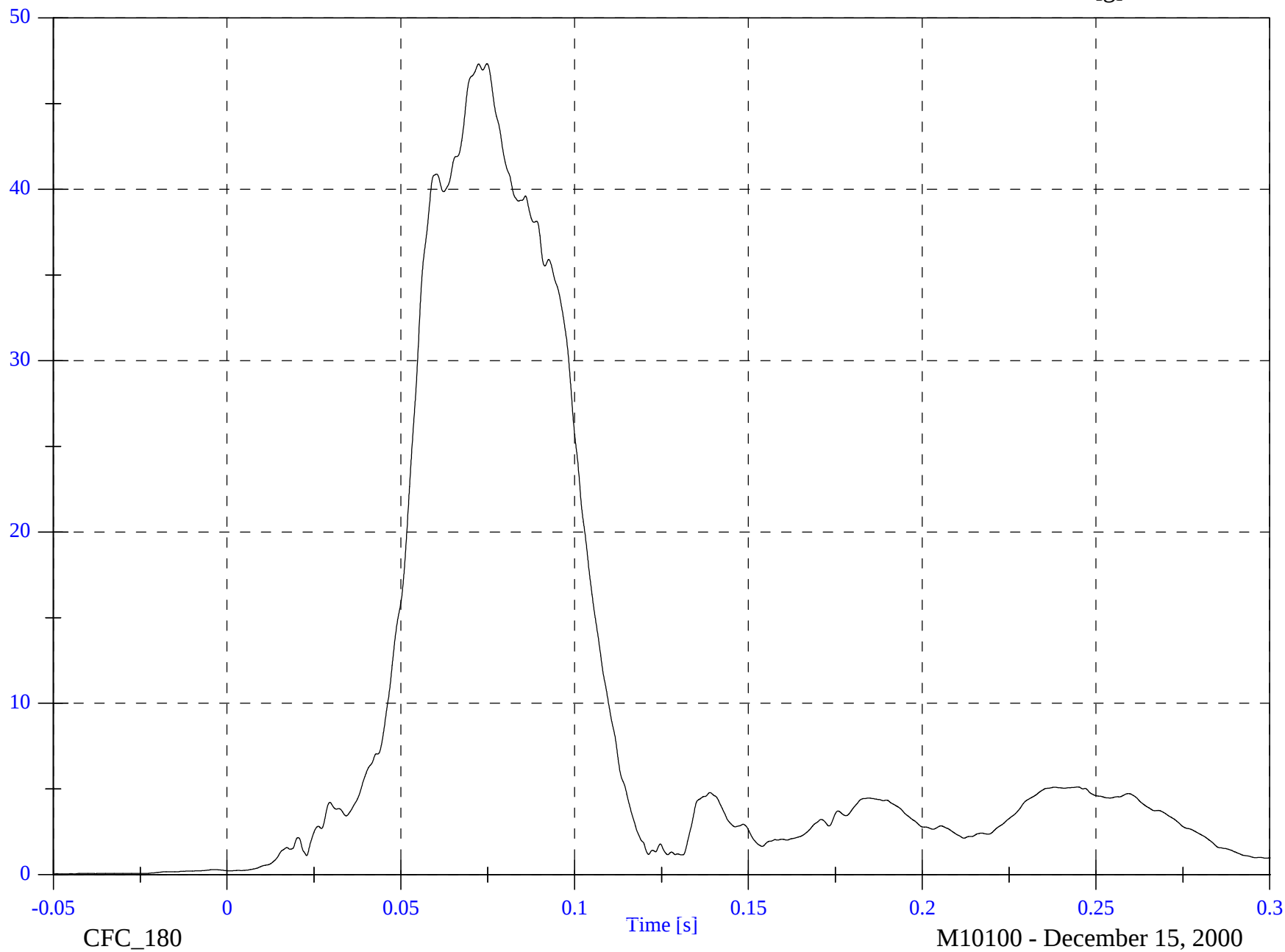
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

P1 Chest Red Resultant

Max: 47.3 [g] at 0.075 [s]

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



B-27

8602-9

NCAP Test 9 - 2001 Buick LeSabre

P1 Chest Compression x

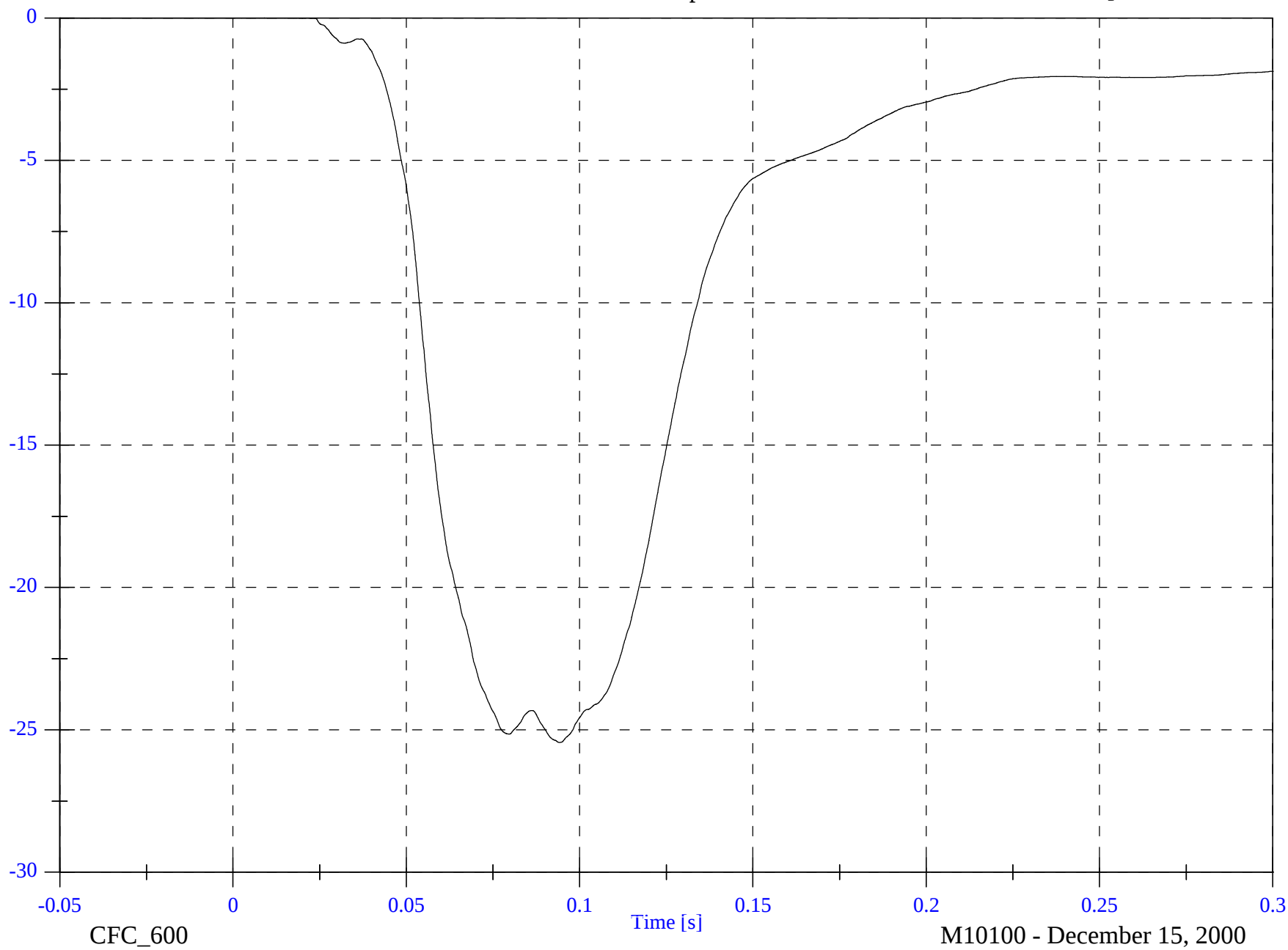
Max: 0.0 [mm] at 0.009 [s]

Min: -25.4 [mm] at 0.094 [s]

B-28

mm

8602-9

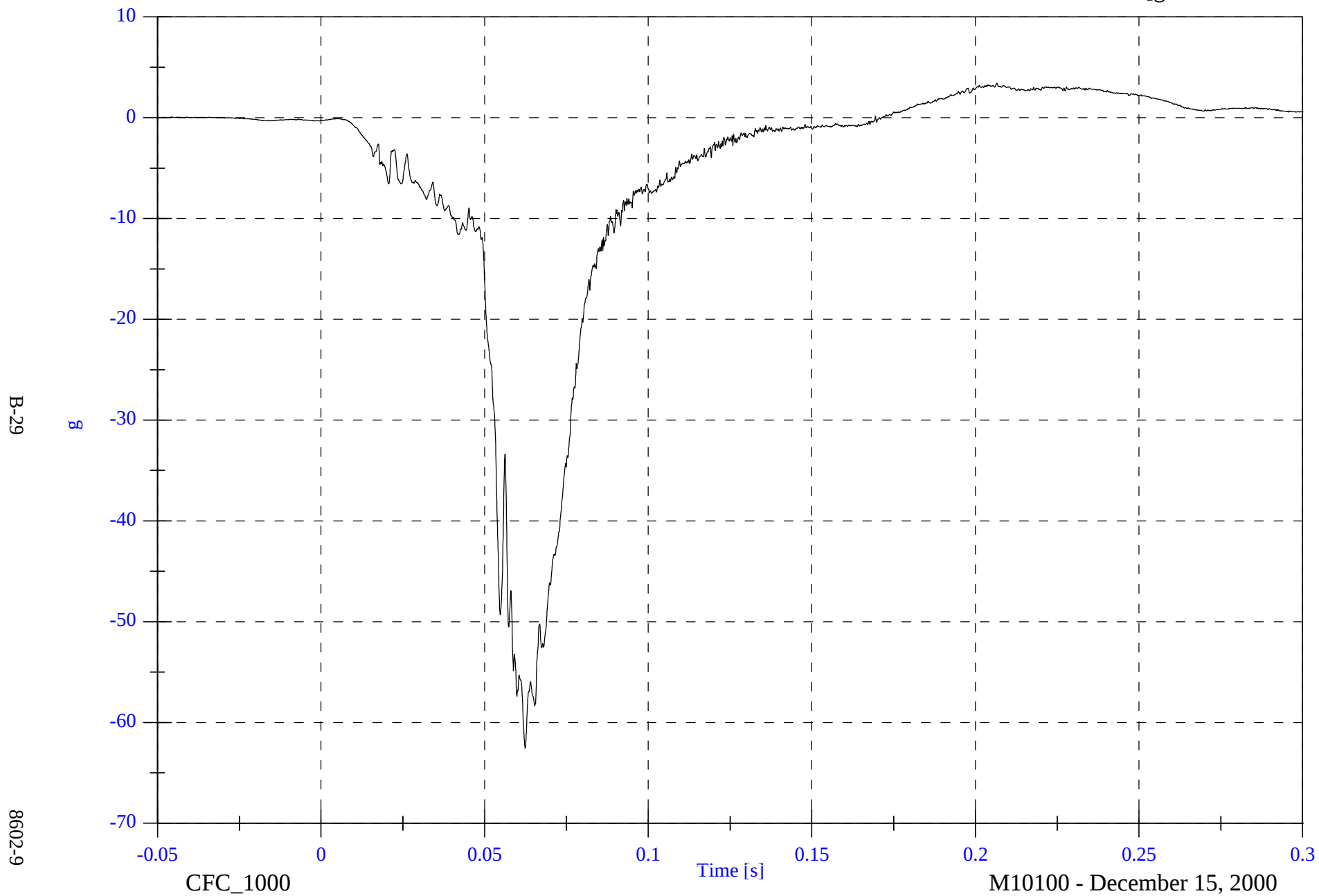


NCAP Test 9 - 2001 Buick LeSabre

Max: 3.4 [g] at 0.207 [s]

Min: -62.6 [g] at 0.062 [s]

P1 Pelvic x



B-29

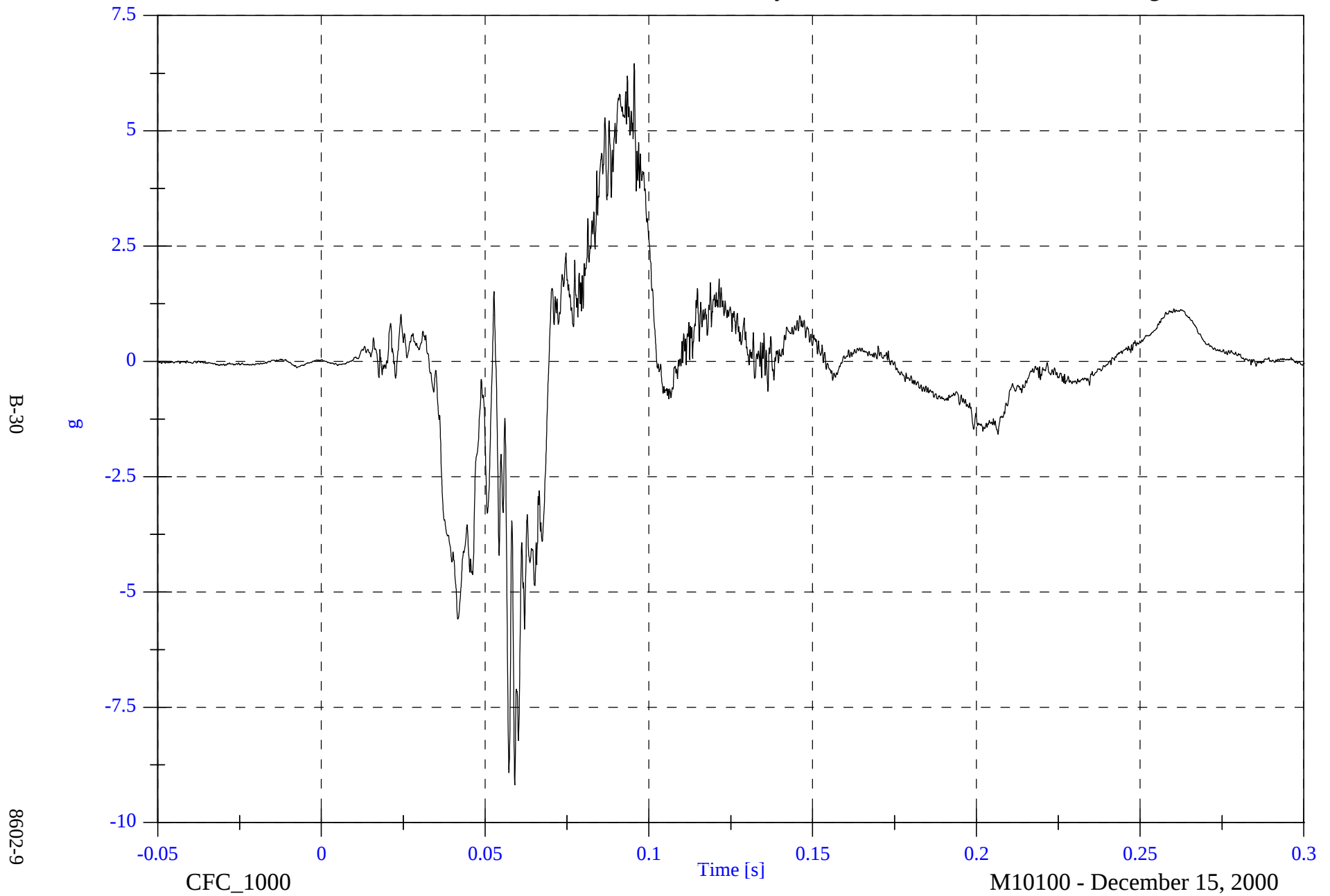
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P1 Pelvic y

Max: 6.5 [g] at 0.096 [s]

Min: -9.2 [g] at 0.059 [s]

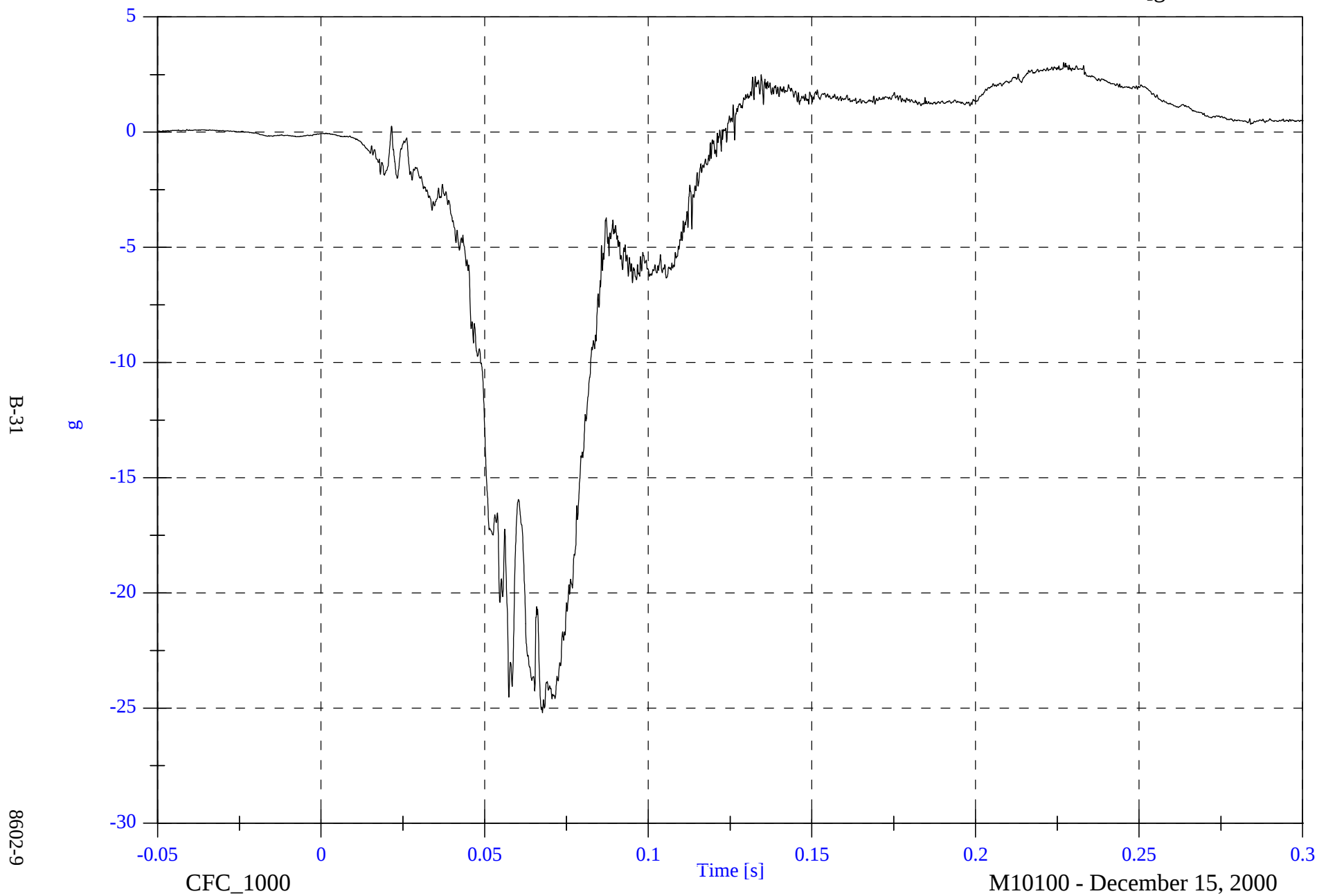


NCAP Test 9 - 2001 Buick LeSabre

P1 Pelvic z

Max: 3.0 [g] at 0.227 [s]

Min: -25.2 [g] at 0.068 [s]

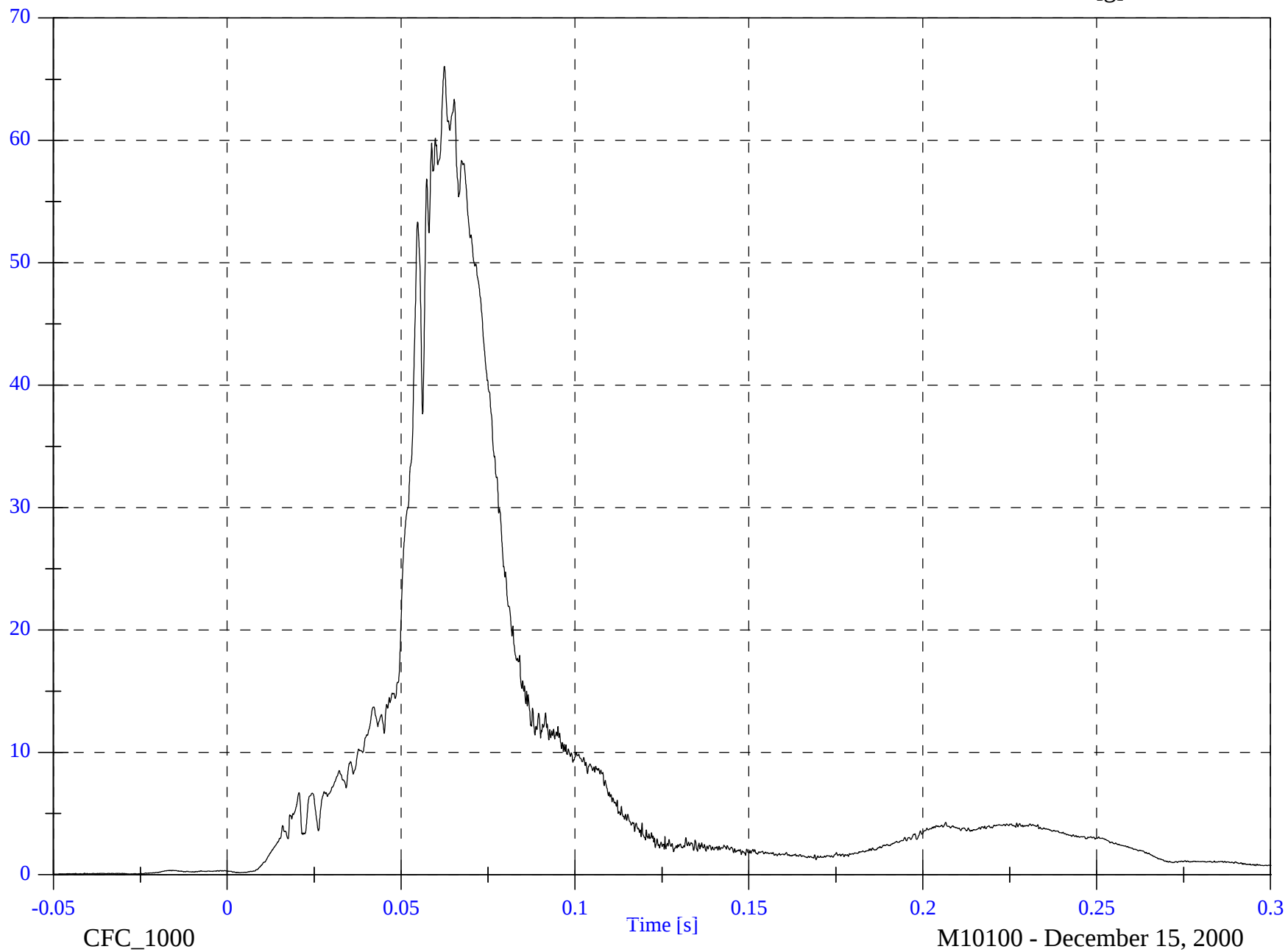


NCAP Test 9 - 2001 Buick LeSabre

P1 Pelvic Resultant

Max: 66.1 [g] at 0.062 [s]

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



B-32

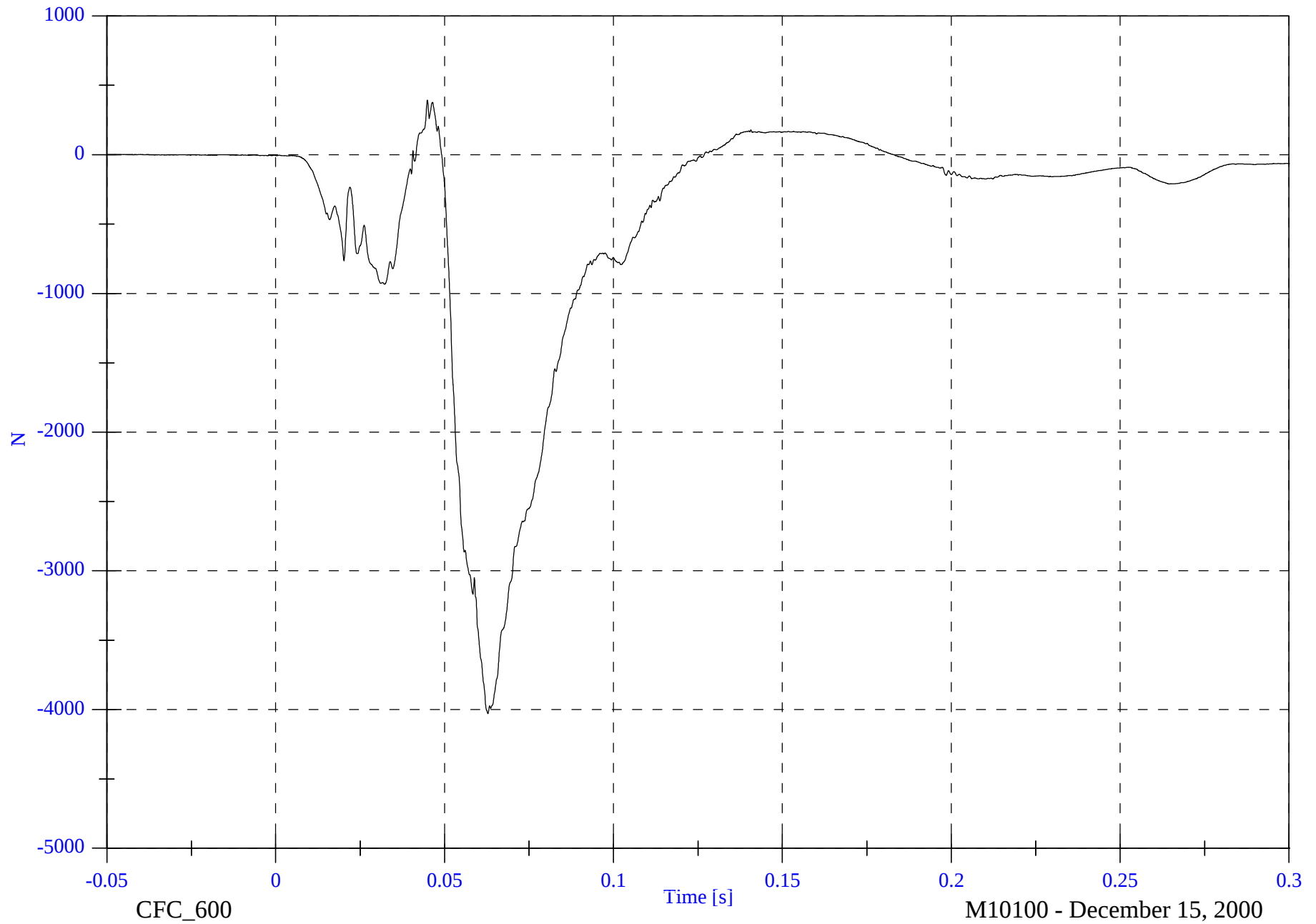
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P1 Left Femur z

Max: 394.2 [N] at 0.045 [s]

Min: -4030.1 [N] at 0.063 [s]



B-33

8602-9

CFC_600

Time [s]

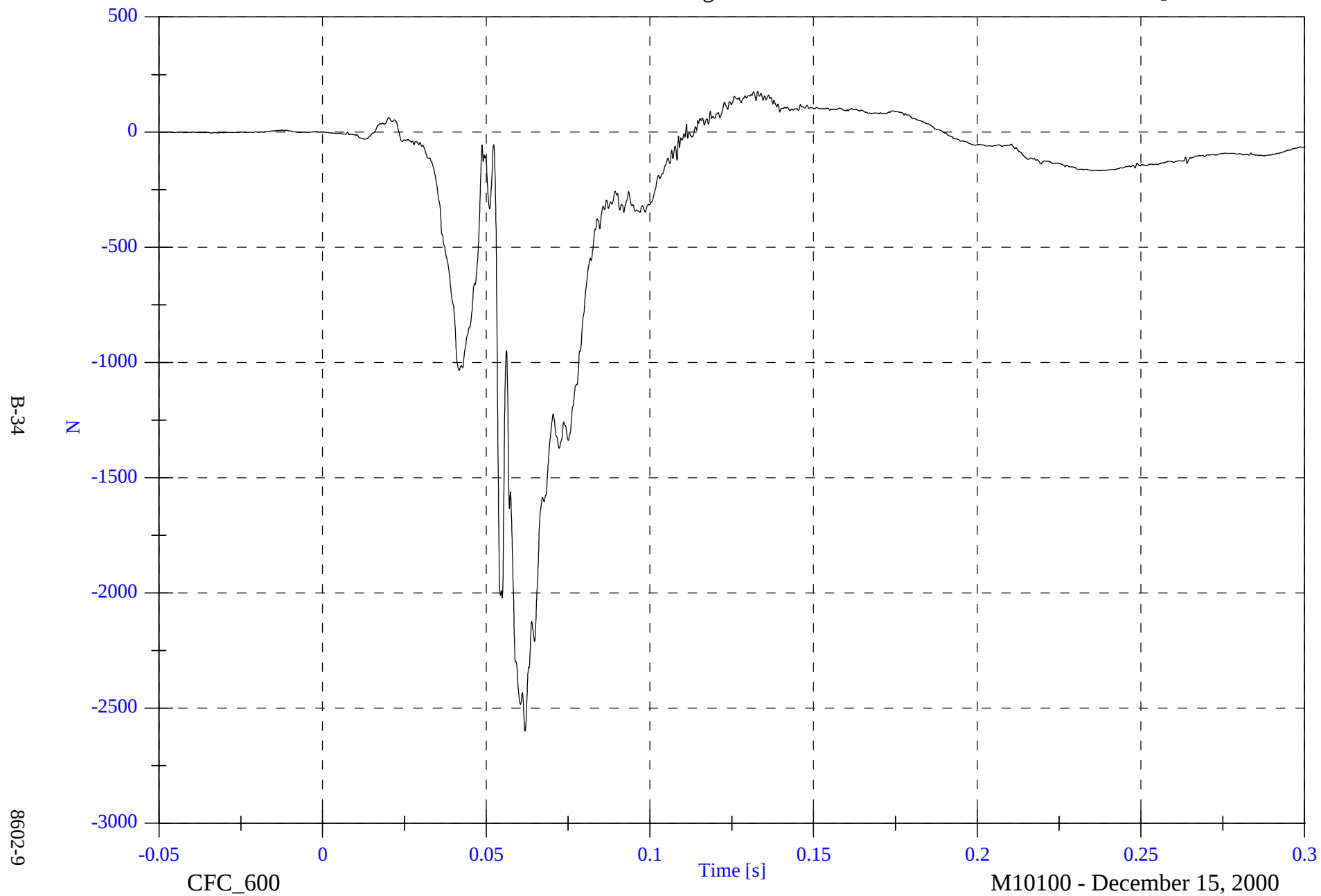
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

P1 Right Femur z

Max: 177.6 [N] at 0.133 [s]

Min: -2600.0 [N] at 0.062 [s]



NCAP Test 9 - 2001 Buick LeSabre

P1 Left Upper Tibia Mx

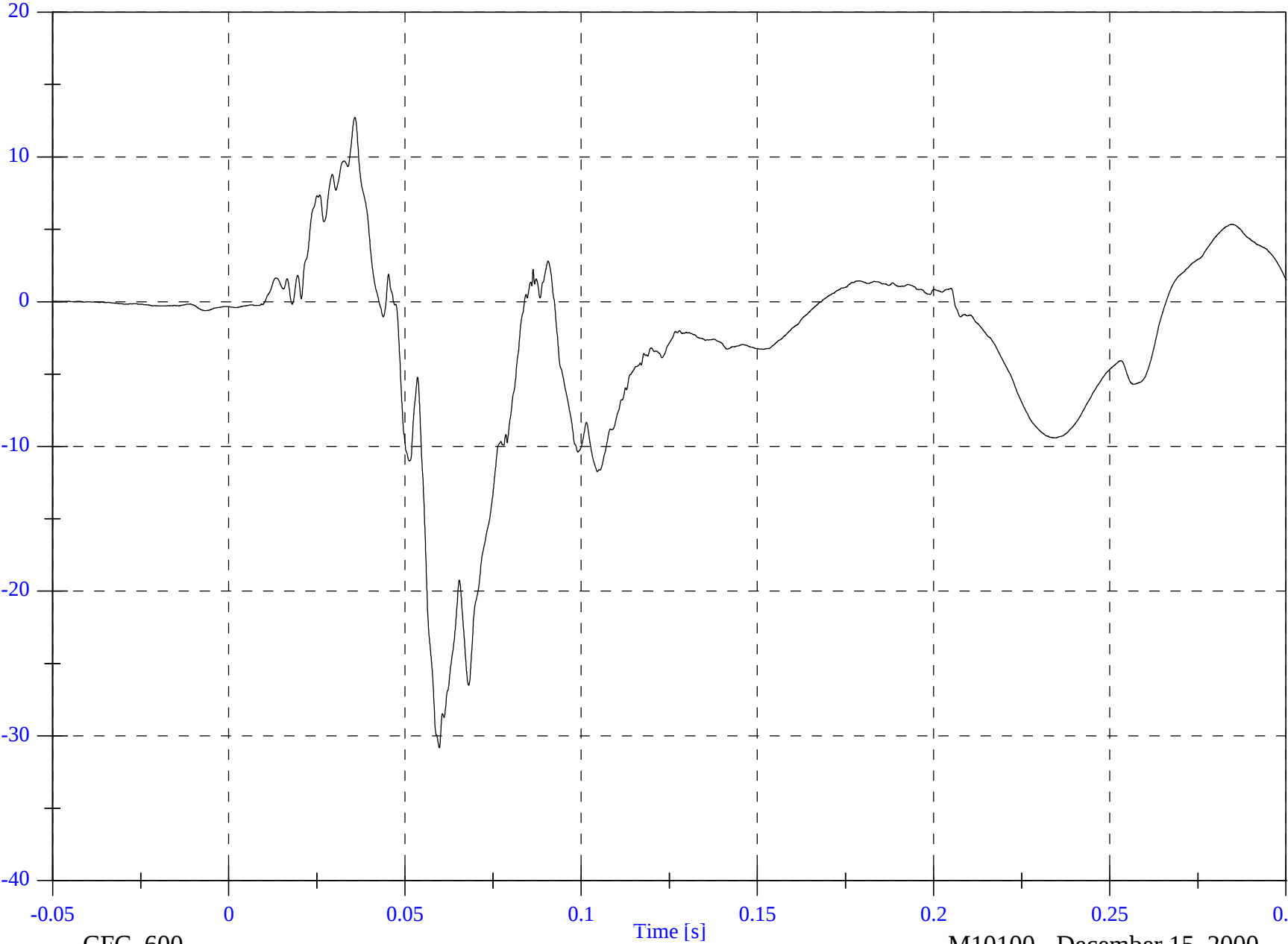
Max: 12.7 [N-m] at 0.036 [s]

Min: -30.8 [N-m] at 0.060 [s]

B-35

N-m

8602-9



CFC_600

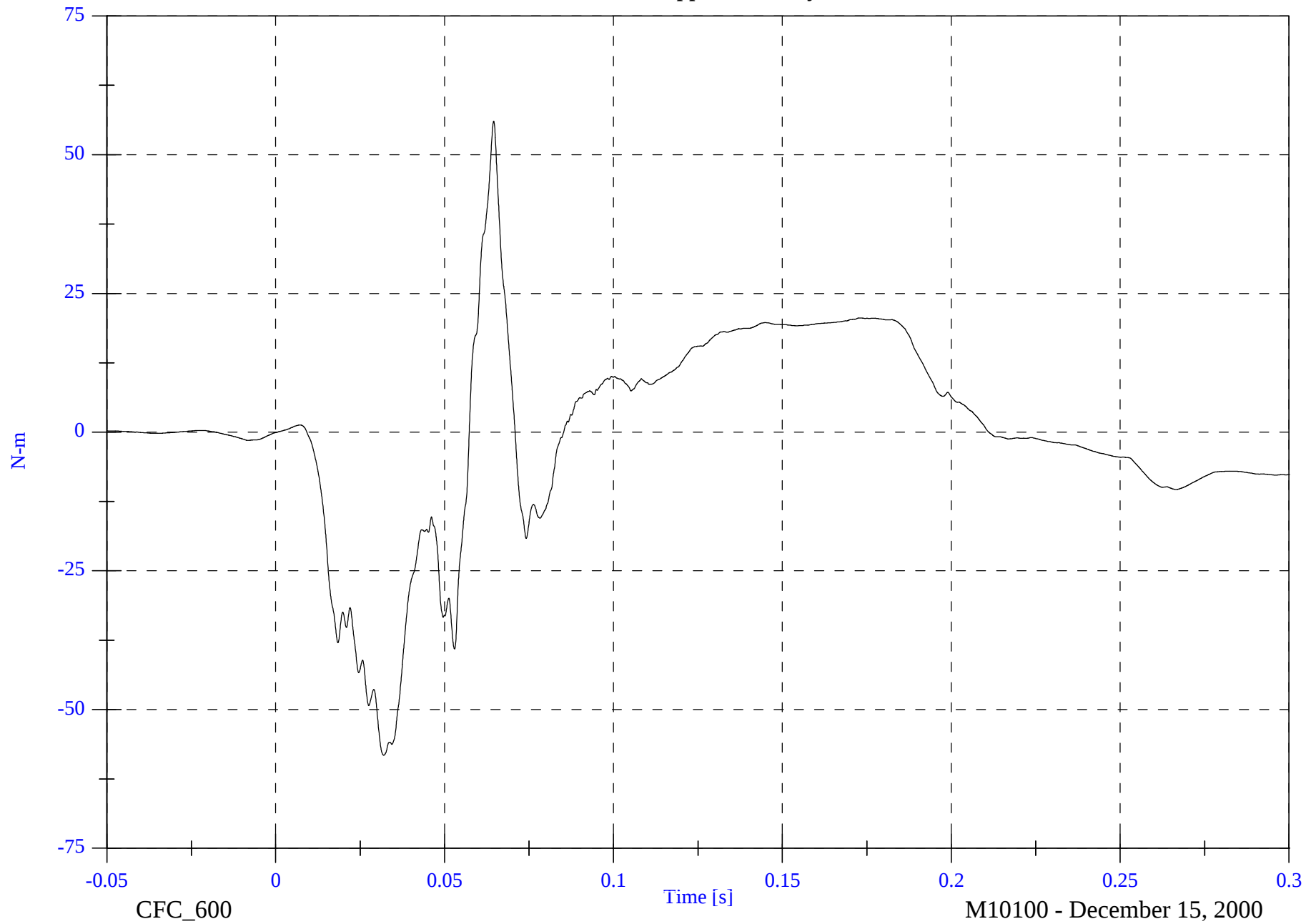
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

P1 Left Upper Tibia My

Max: 56.1 [N-m] at 0.065 [s]

Min: -58.2 [N-m] at 0.032 [s]



B-36

8602-9

CFC_600

Time [s]

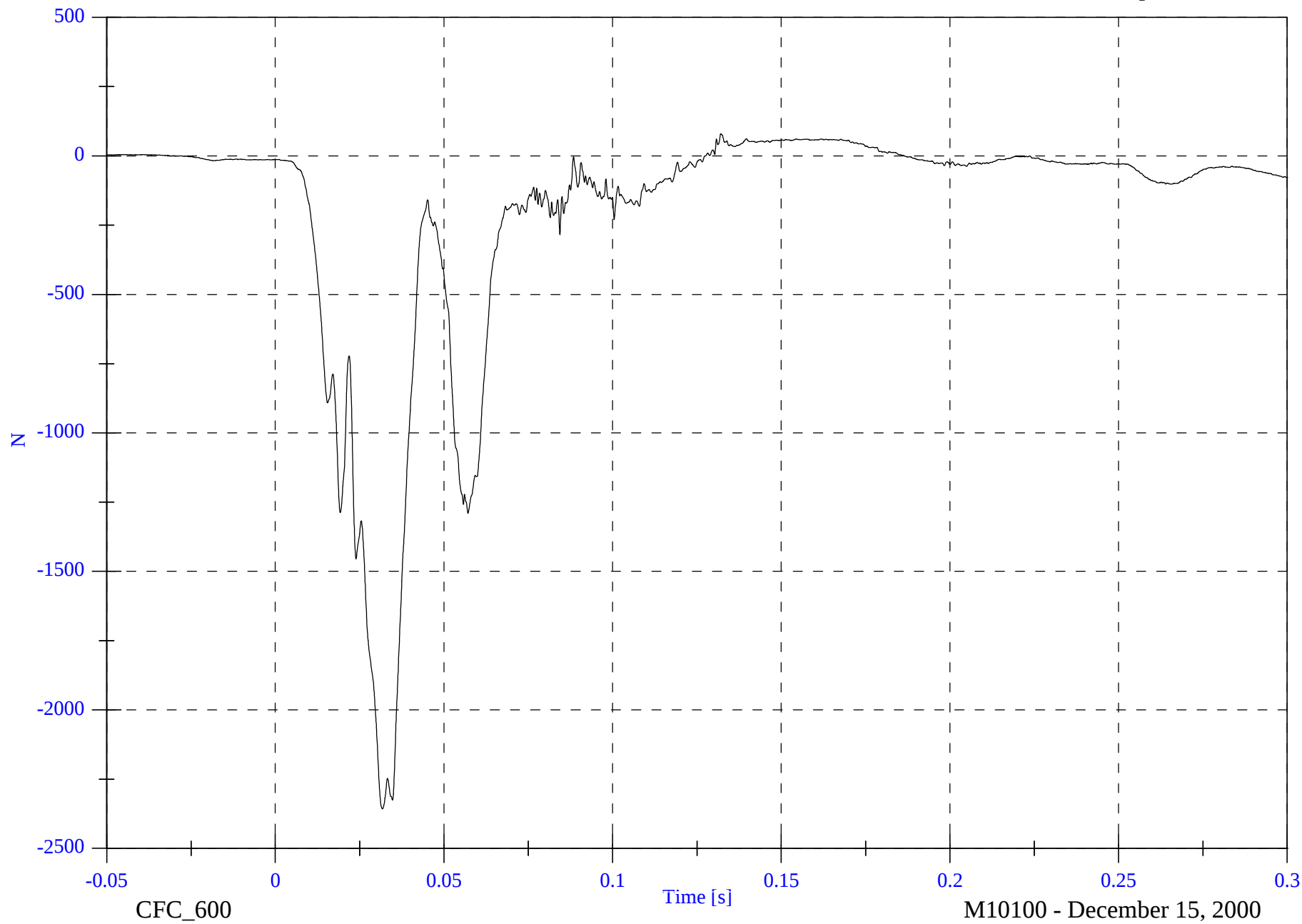
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

P1 Left Lower Tibia Fz

Max: 80.2 [N] at 0.132 [s]

Min: -2357.6 [N] at 0.032 [s]



B-37

8602-9

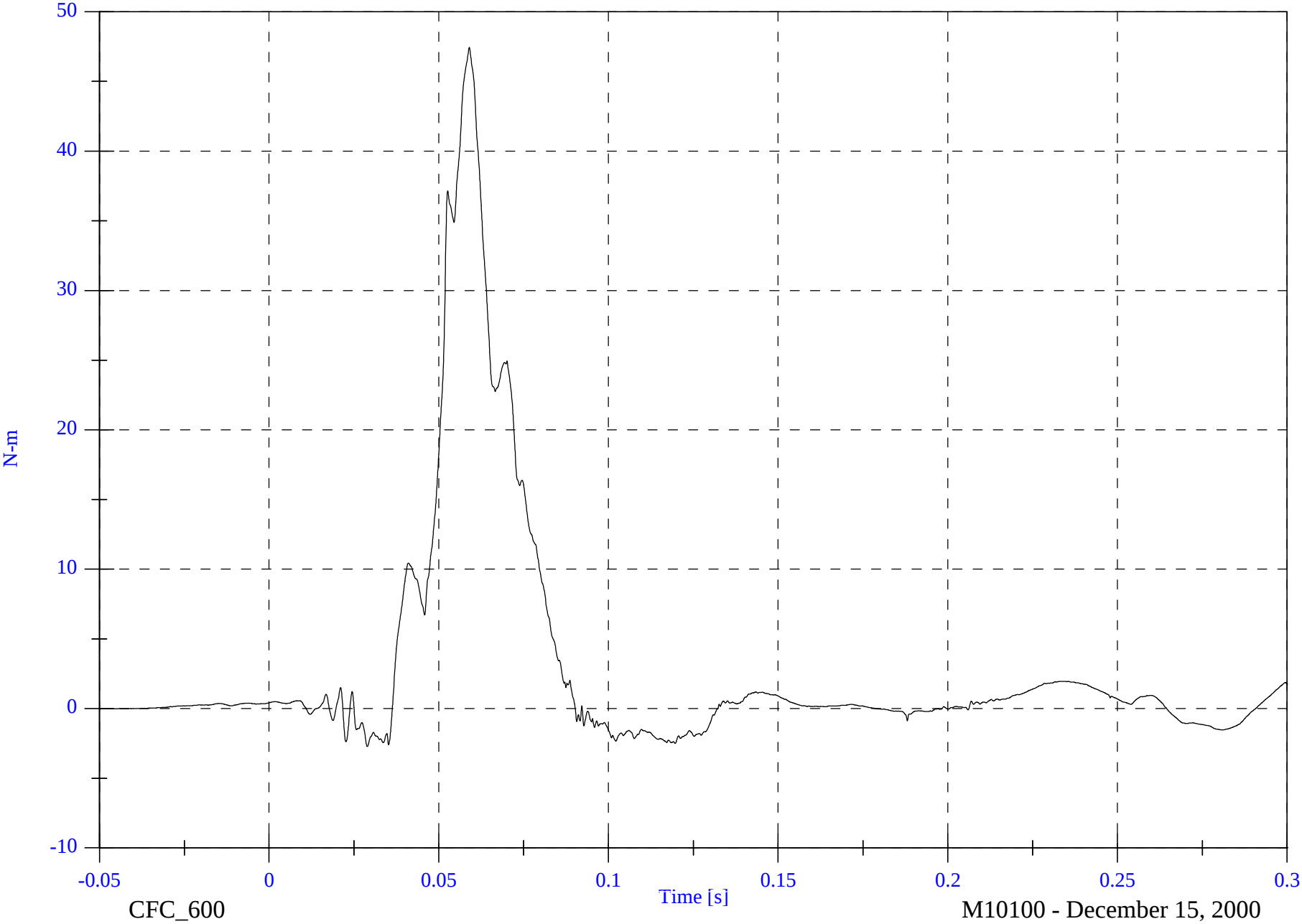
CFC_600

Time [s]

M10100 - December 15, 2000

B-38

8602-9



NCAP Test 9 - 2001 Buick LeSabre

P1 Left Lower Tibia My

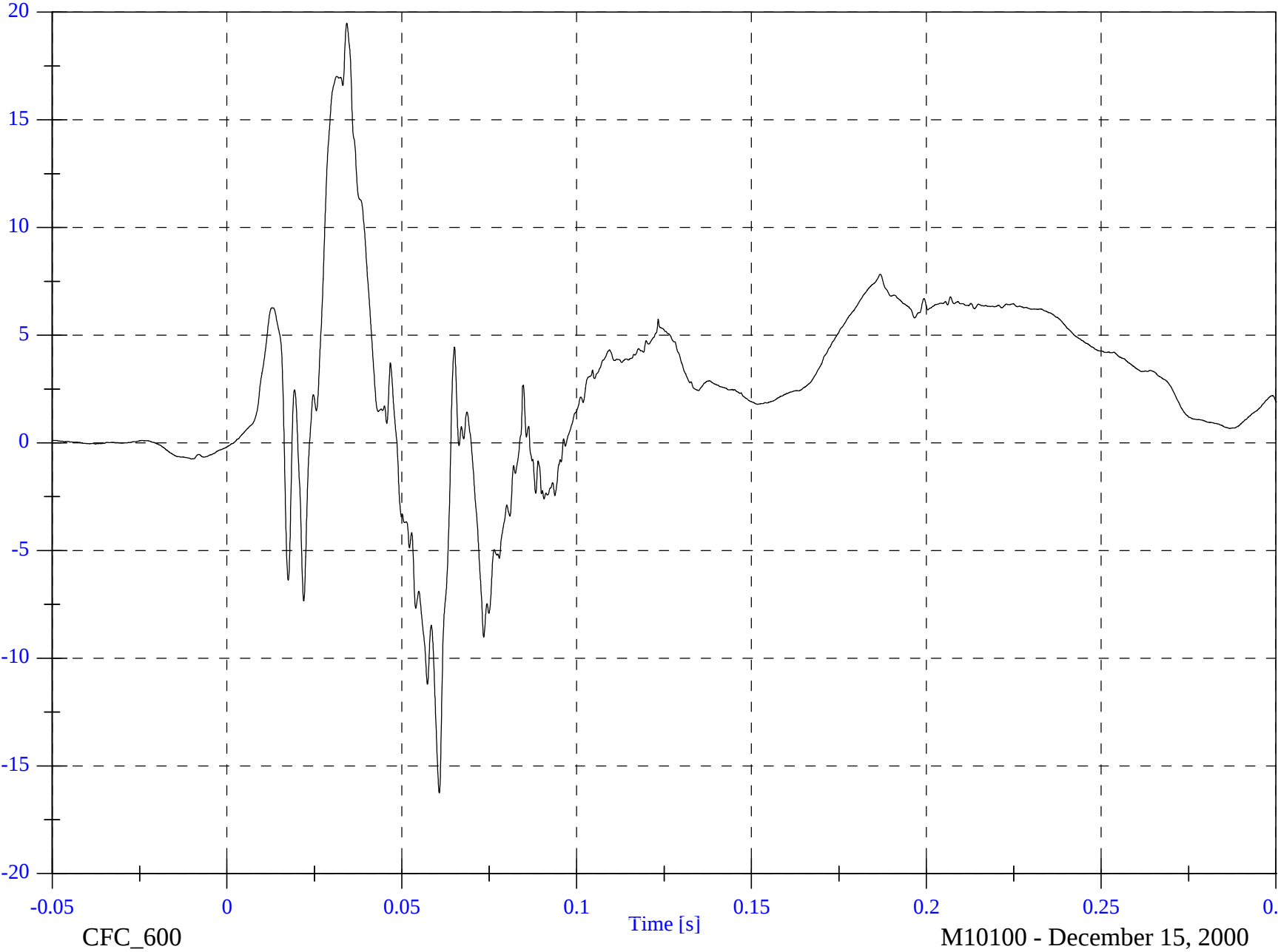
Max: 19.5 [N-m] at 0.034 [s]

Min: -16.3 [N-m] at 0.061 [s]

B-39

N-m

8602-9

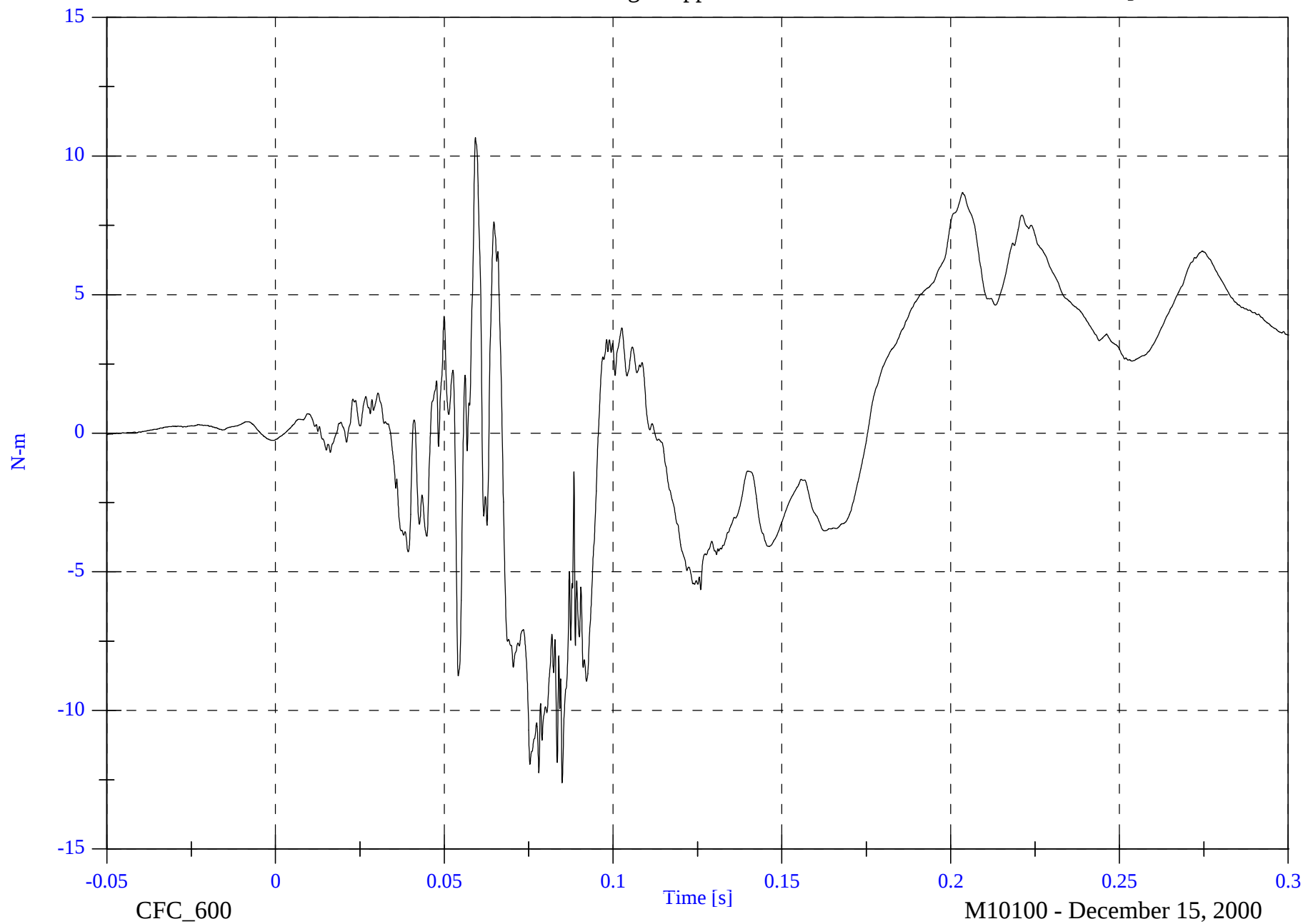


NCAP Test 9 - 2001 Buick LeSabre

P1 Right Upper Tibia Mx

Max: 10.7 [N-m] at 0.059 [s]

Min: -12.6 [N-m] at 0.085 [s]



B-40

8602-9

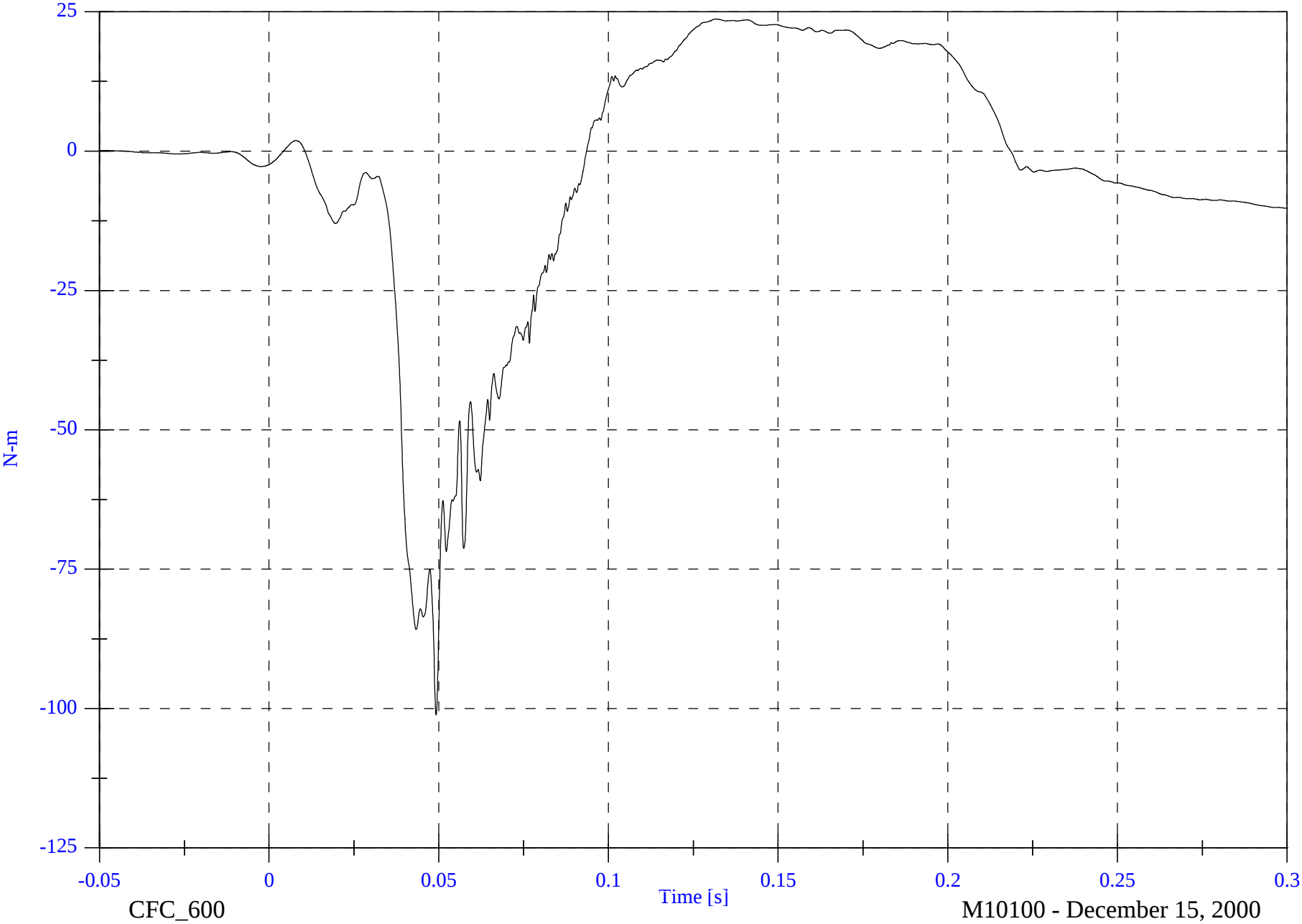
CFC_600

Time [s]

M10100 - December 15, 2000

B-41

8602-9

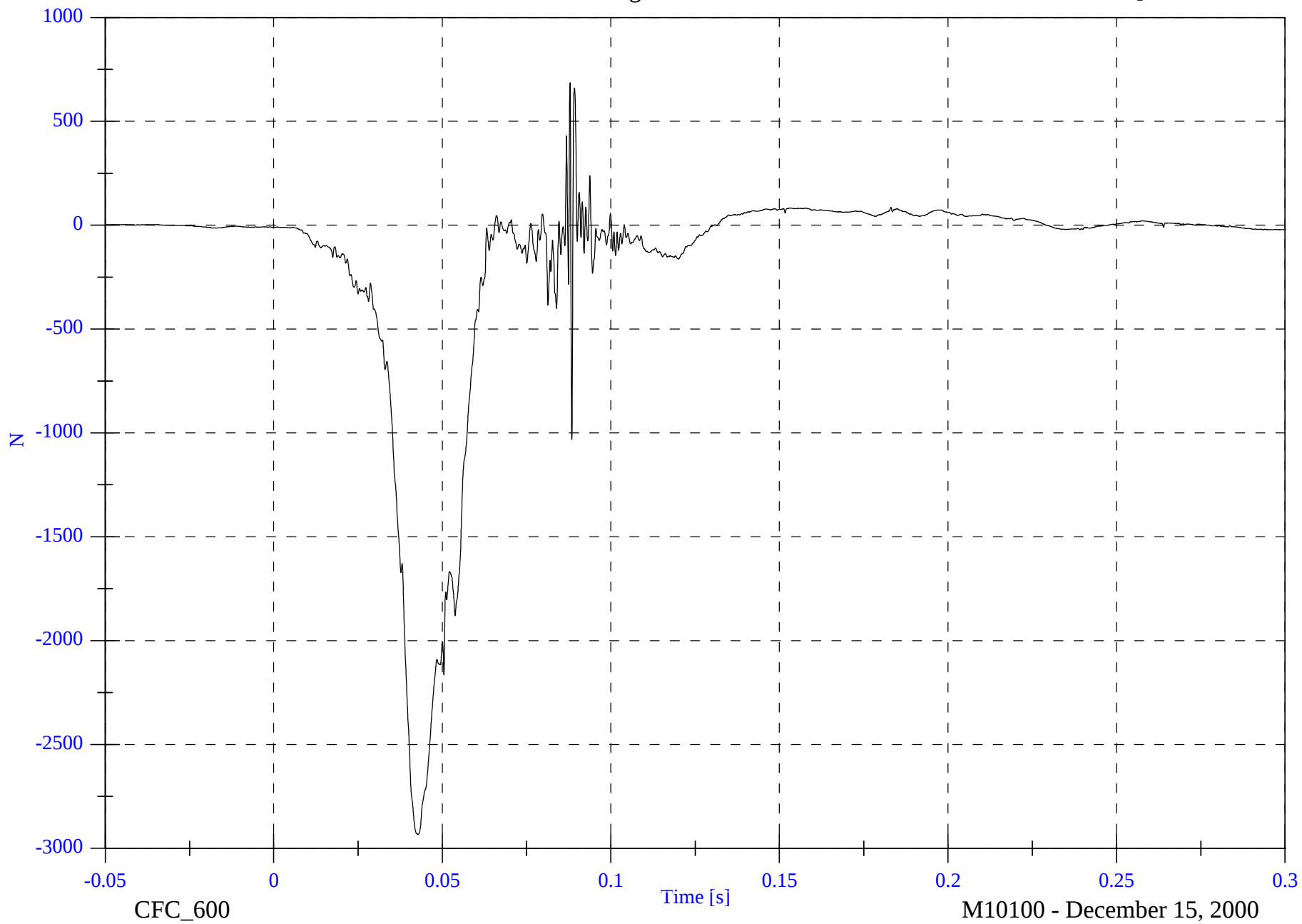


NCAP Test 9 - 2001 Buick LeSabre

P1 Right Lower Tibia Fz

Max: 686.6 [N] at 0.088 [s]

Min: -2932.8 [N] at 0.043 [s]



B-42

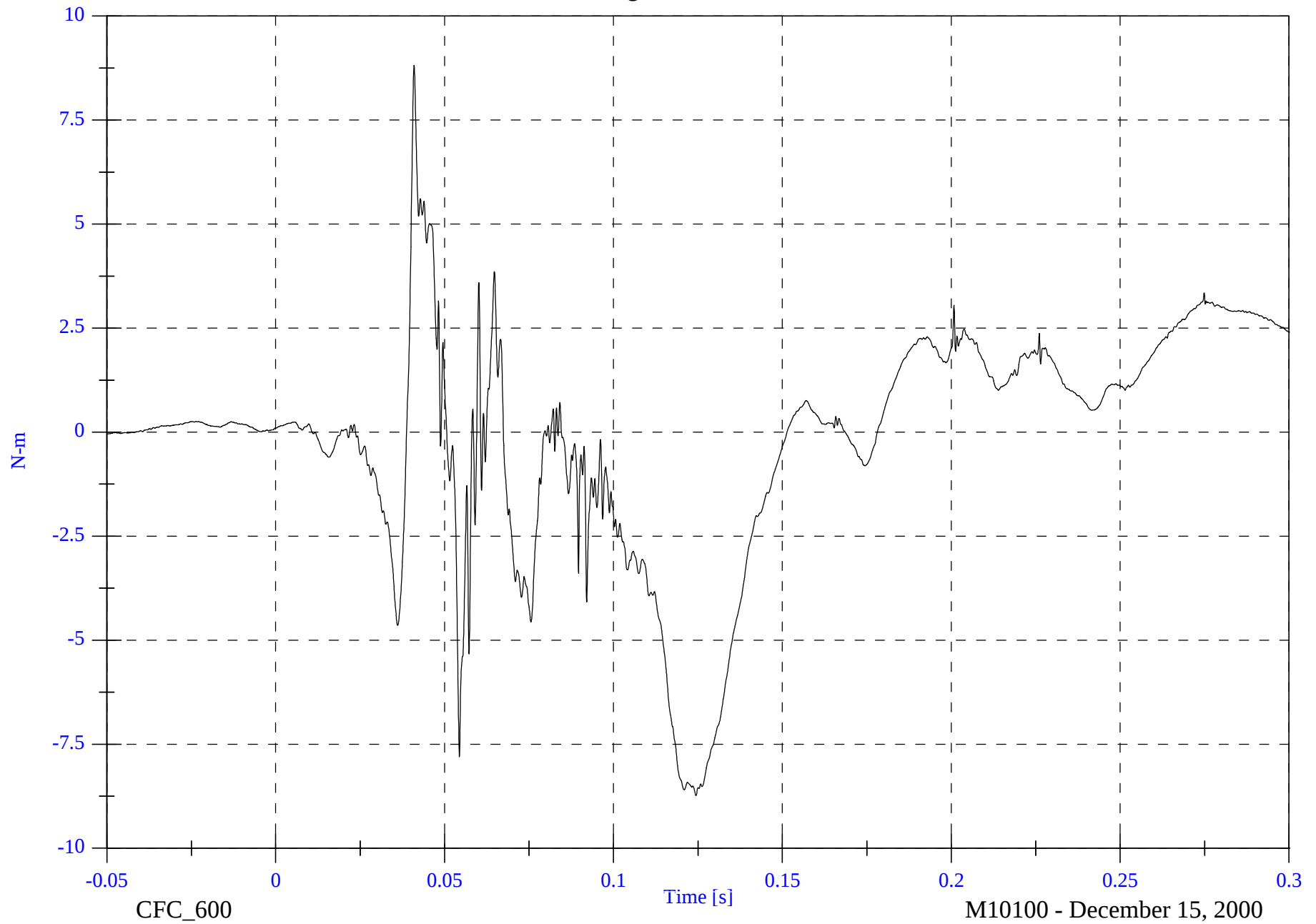
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P1 Right Lower Tibia Mx

Max: 8.8 [N-m] at 0.041 [s]

Min: -8.7 [N-m] at 0.124 [s]



B-43

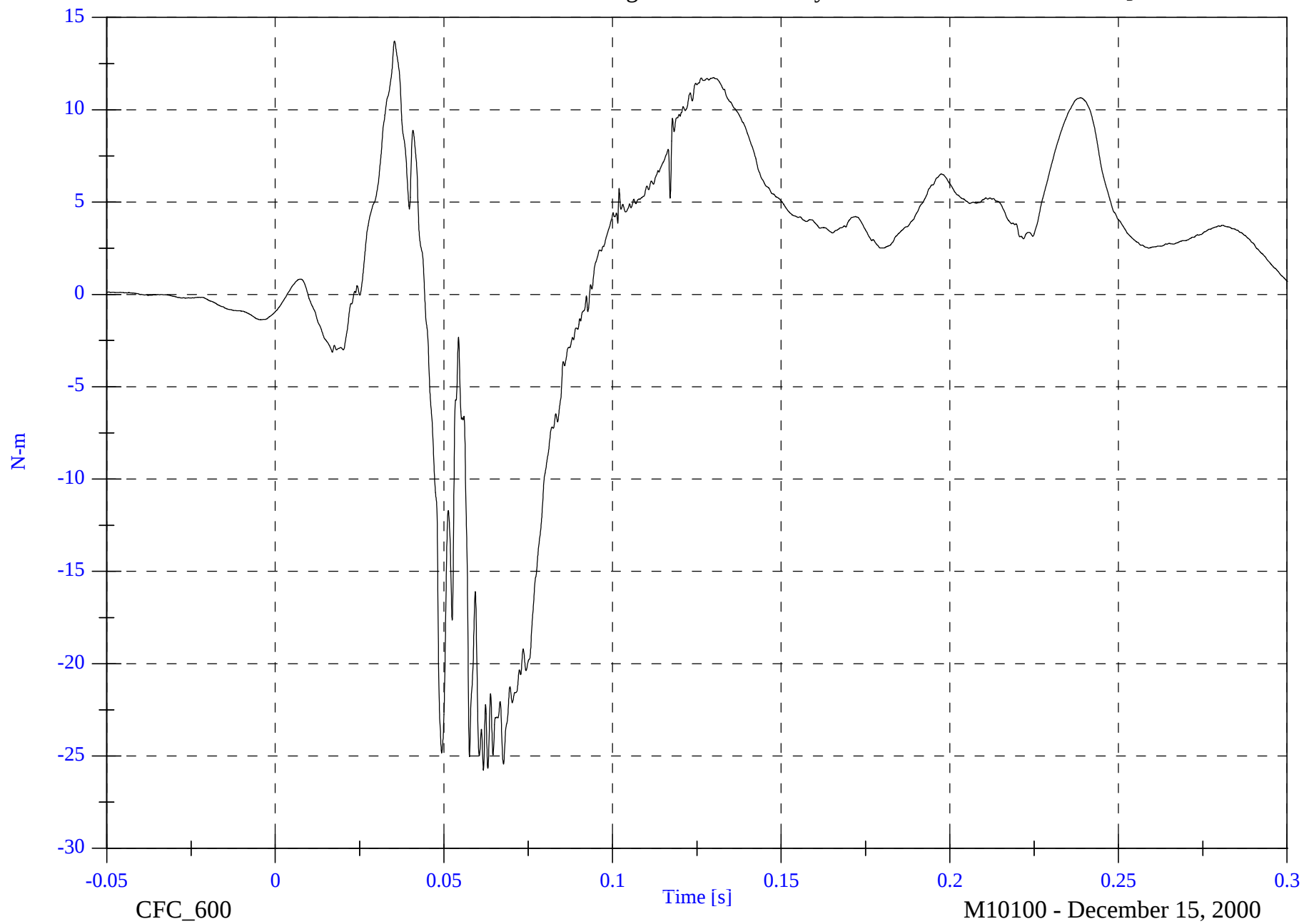
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P1 Right Lower Tibia My

Max: 13.7 [N-m] at 0.035 [s]

Min: -25.8 [N-m] at 0.062 [s]



B-44

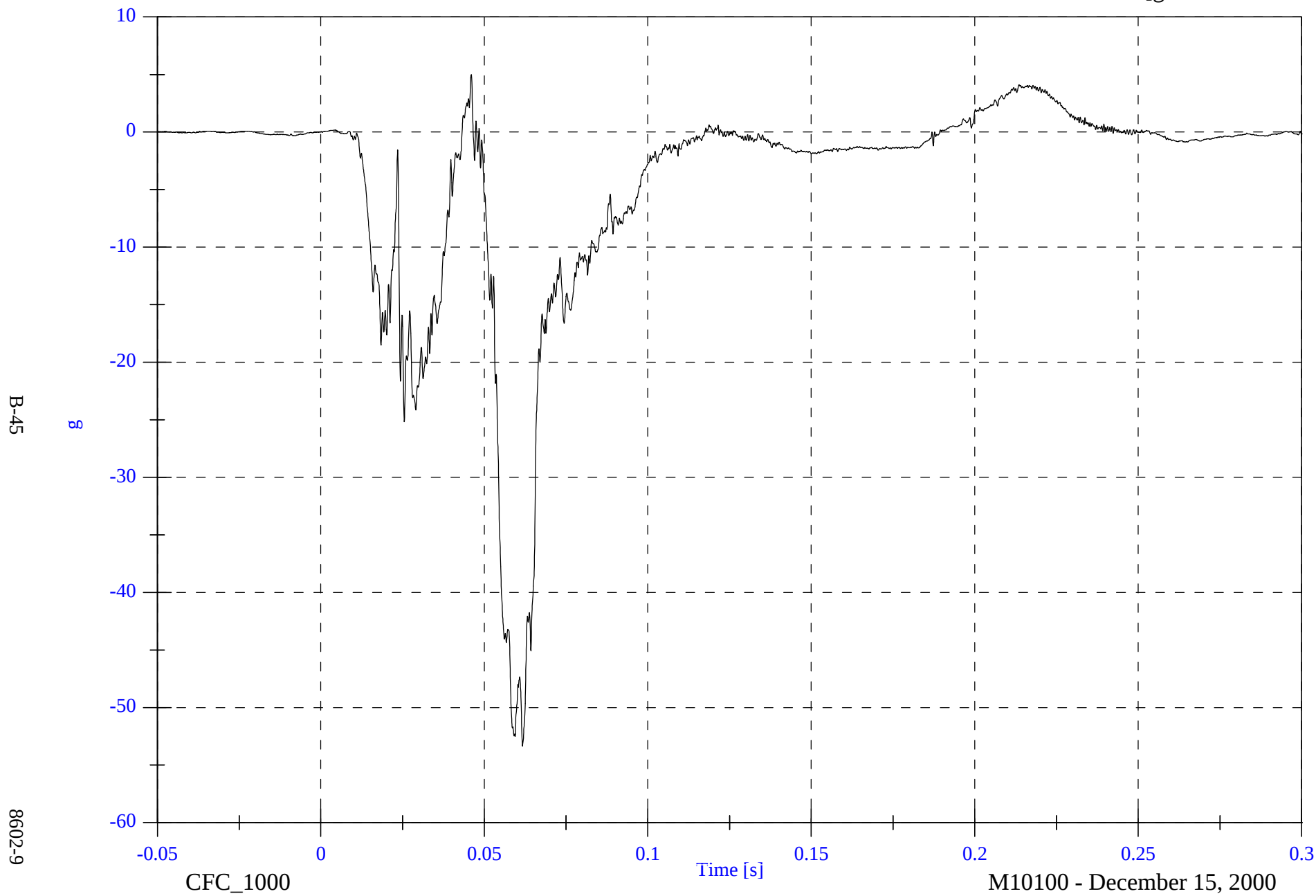
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P1 Left Foot Aft x

Max: 5.0 [g] at 0.046 [s]

Min: -53.3 [g] at 0.062 [s]

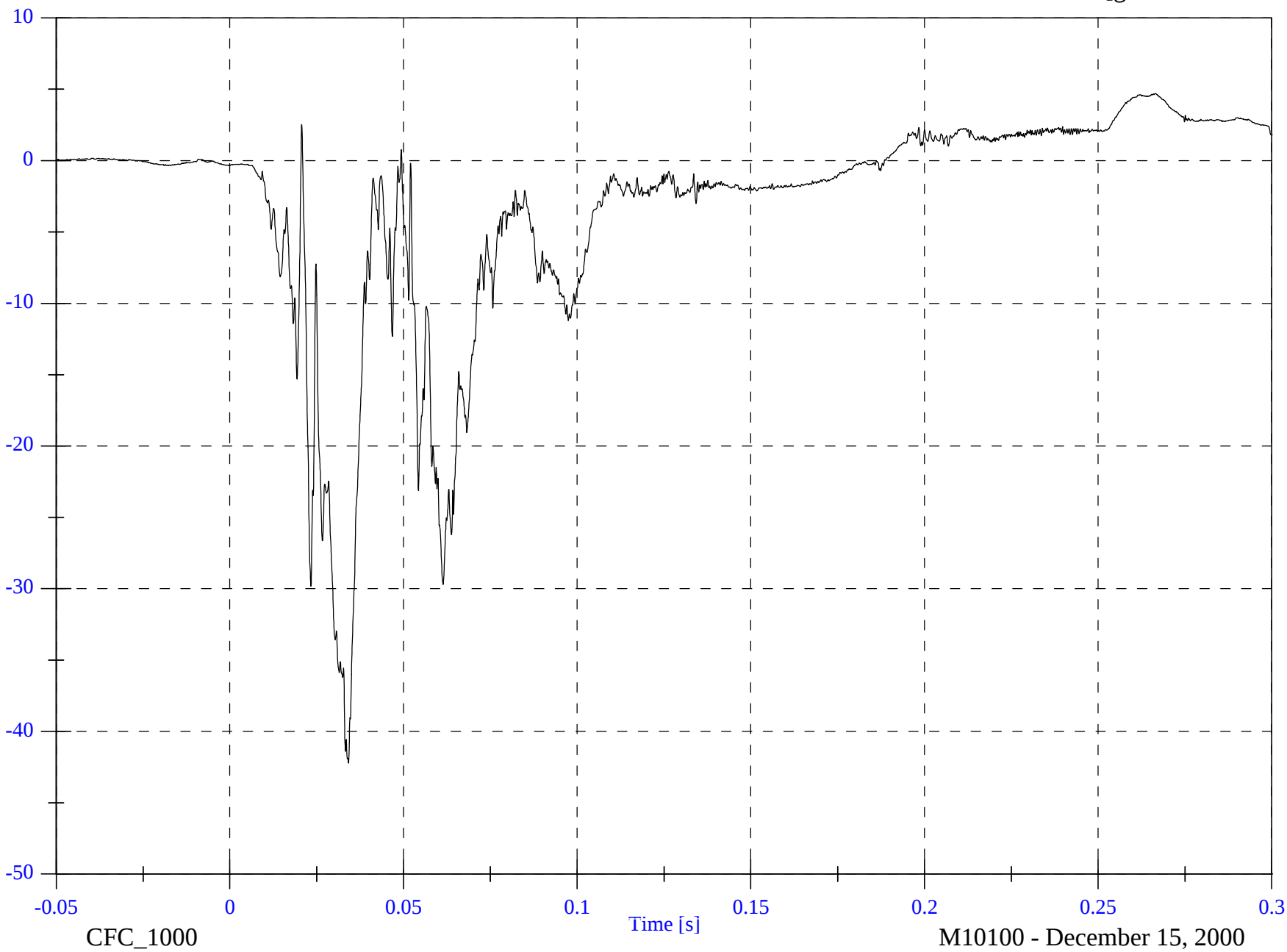


NCAP Test 9 - 2001 Buick LeSabre

P1 Left Foot Aft z

Max: 4.7 [g] at 0.267 [s]

Min: -42.2 [g] at 0.034 [s]



B-46

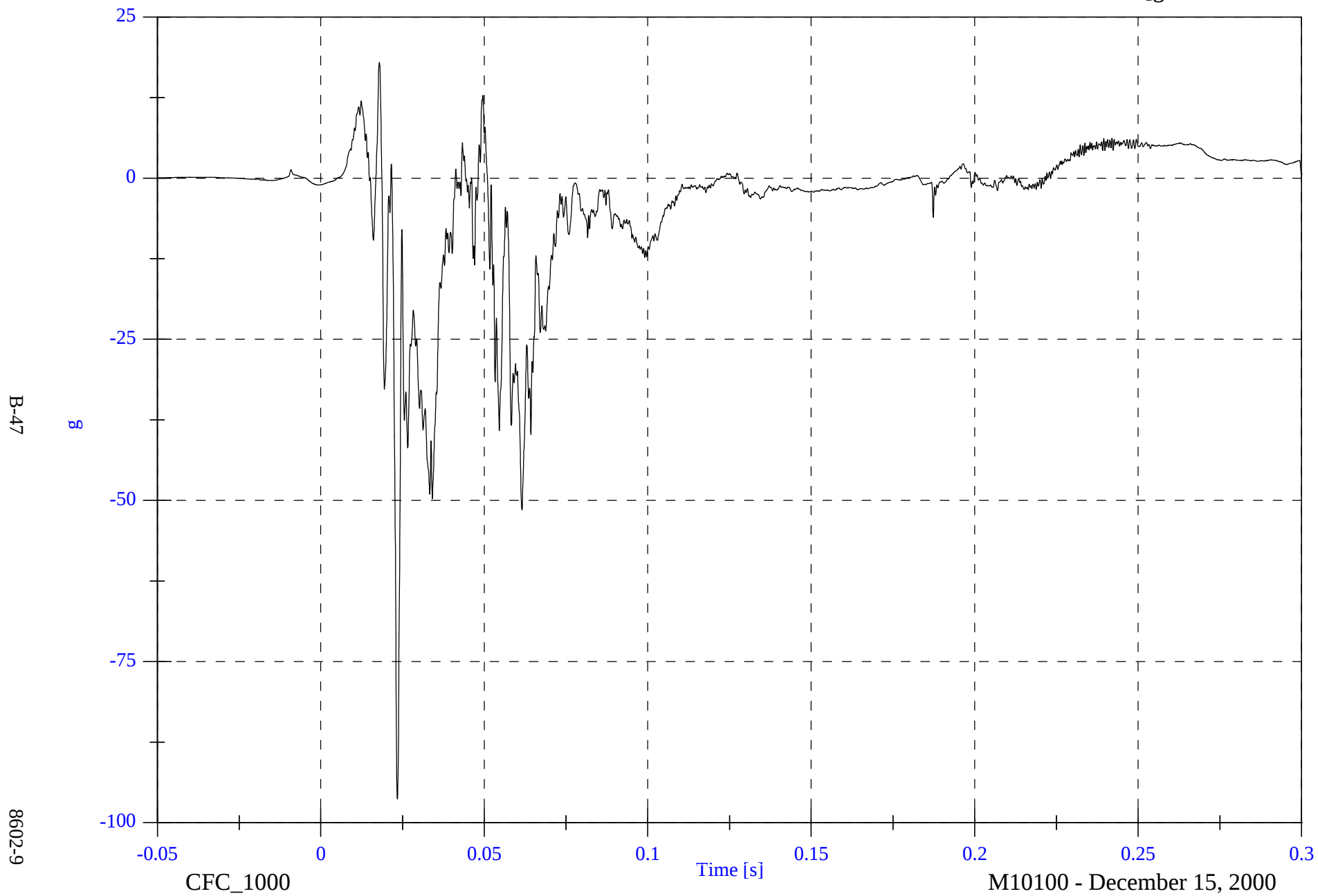
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P1 Left Foot Fore z

Max: 17.9 [g] at 0.018 [s]

Min: -96.3 [g] at 0.023 [s]



NCAP Test 9 - 2001 Buick LeSabre

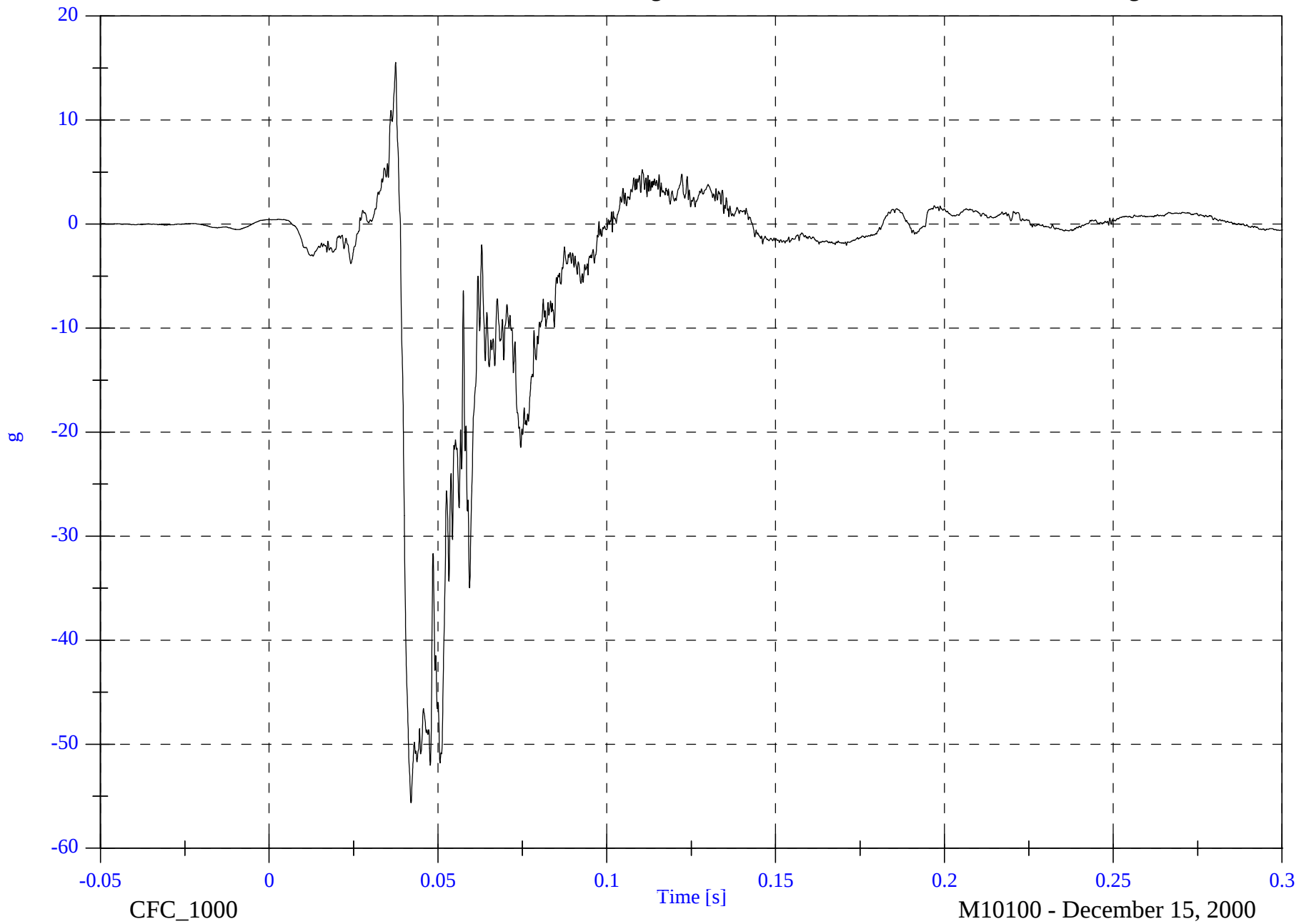
P1 Right Foot Aft x

Max: 15.5 [g] at 0.037 [s]

Min: -55.6 [g] at 0.042 [s]

B-48

8602-9



NCAP Test 9 - 2001 Buick LeSabre

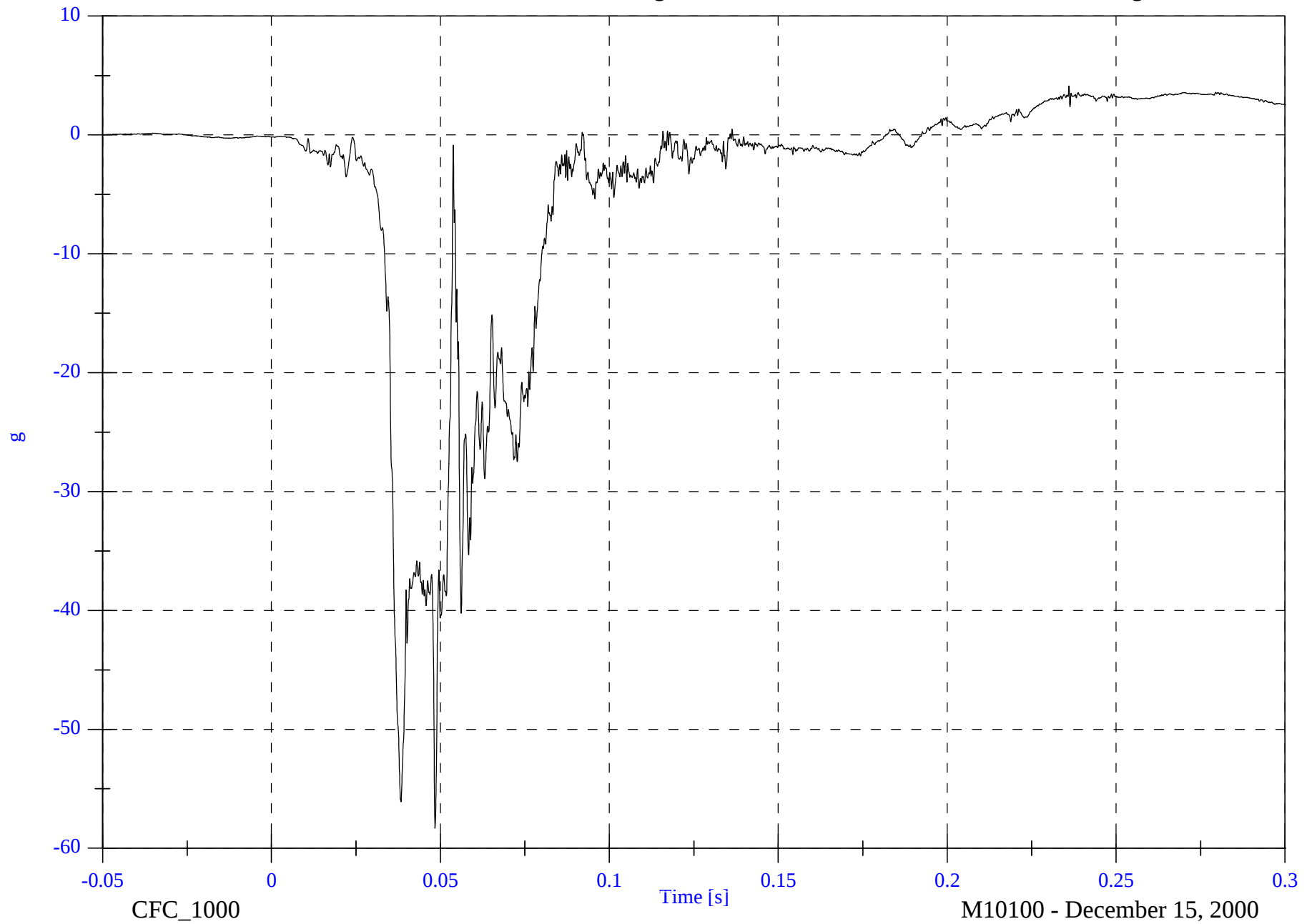
P1 Right Foot Aft z

Max: 4.1 [g] at 0.236 [s]

Min: -58.3 [g] at 0.048 [s]

B-49

8602-9

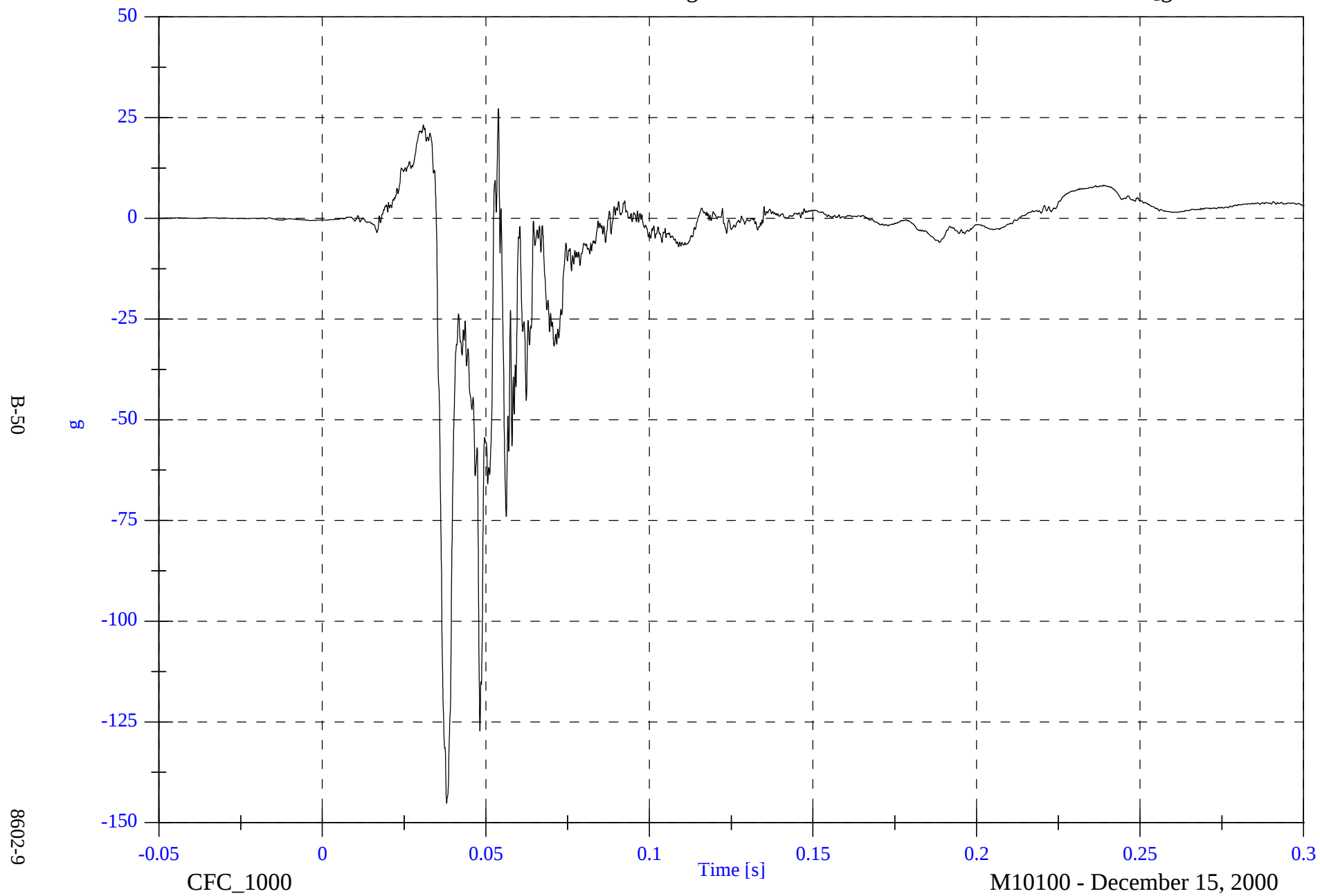


NCAP Test 9 - 2001 Buick LeSabre

P1 Right Foot Fore z

Max: 27.2 [g] at 0.054 [s]

Min: -145.2 [g] at 0.038 [s]

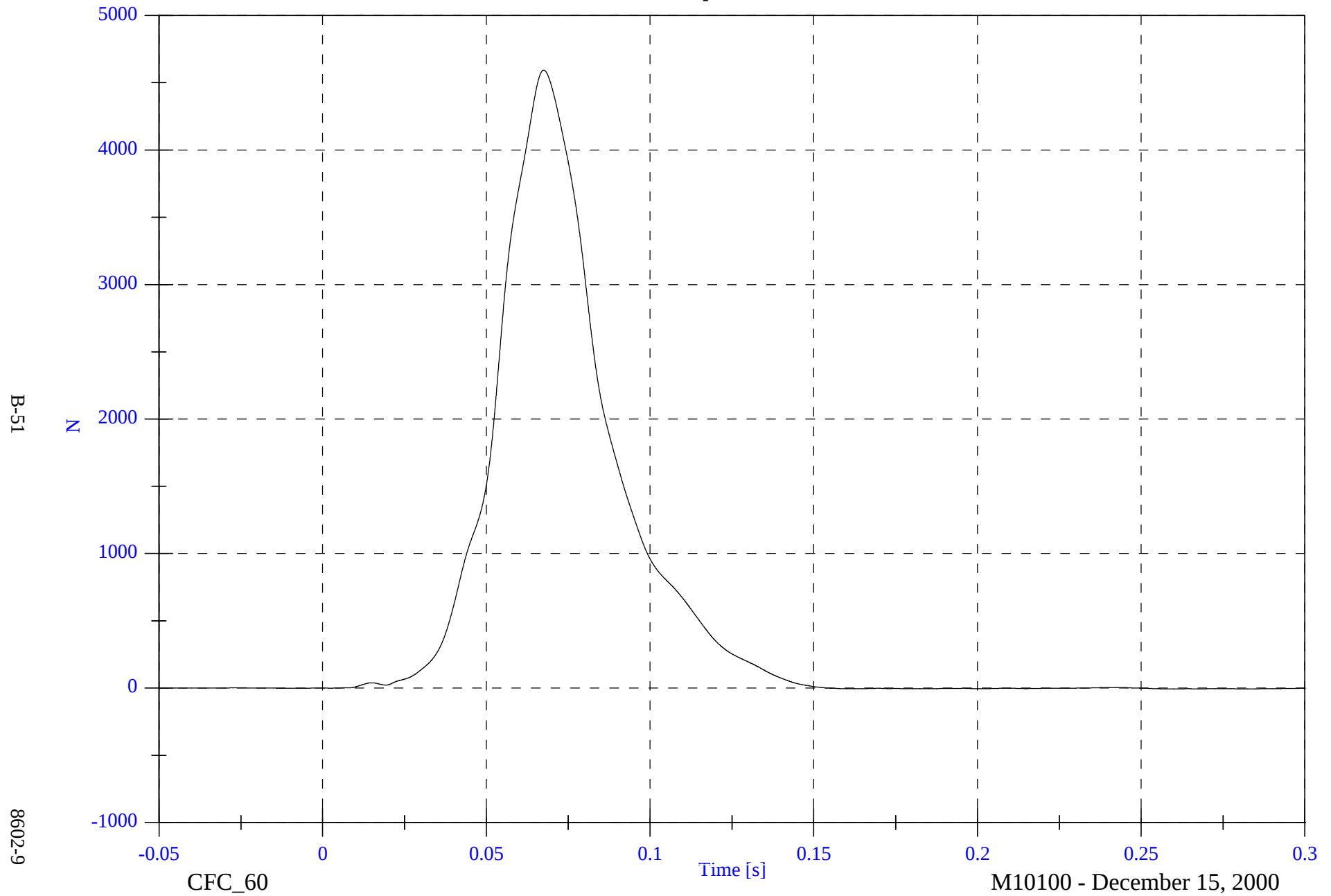


NCAP Test 9 - 2001 Buick LeSabre

P1 Lap Belt Force

Max: 4594.1 [N] at 0.068 [s]

Min: -6.4 [N] at 0.282 [s]

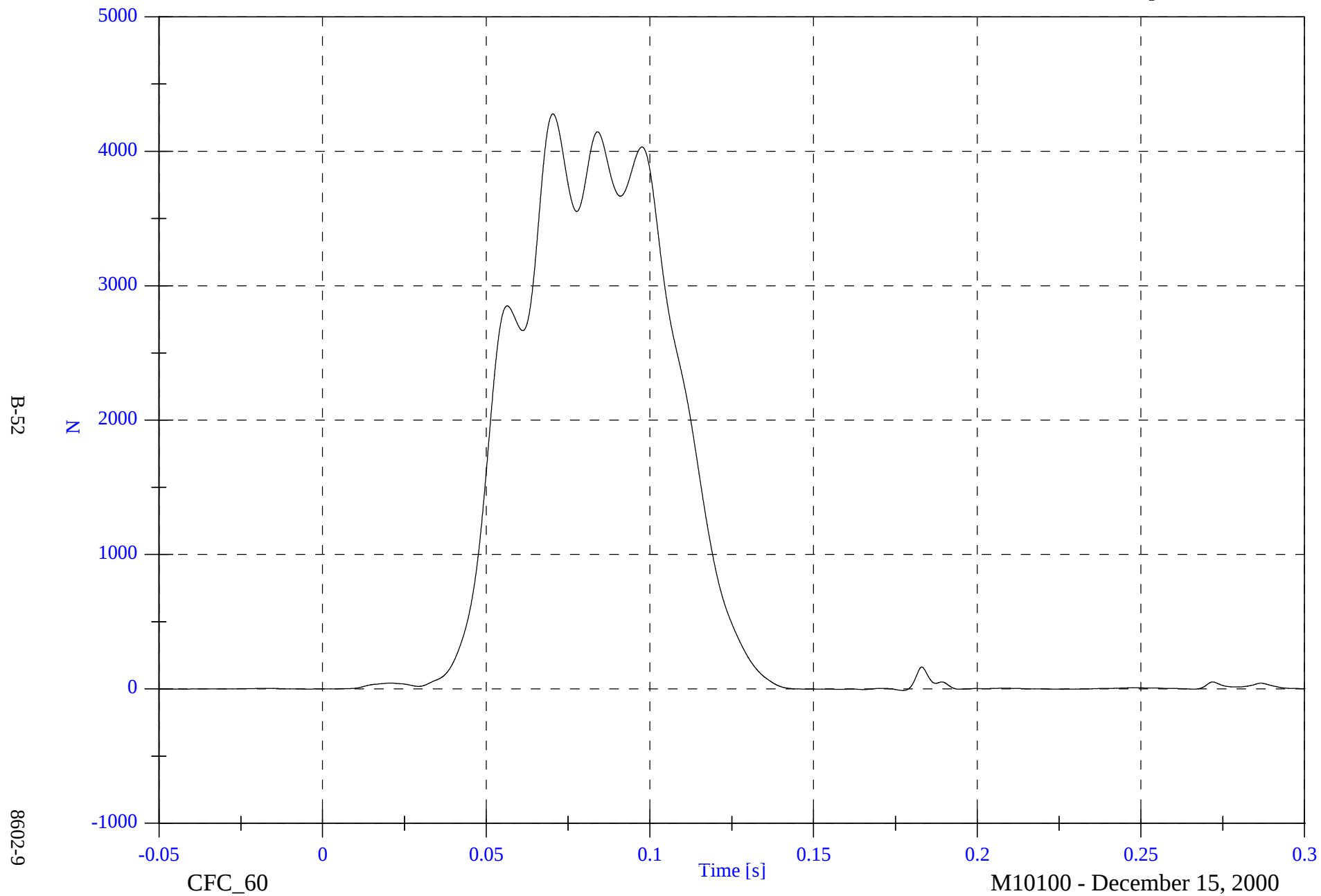


NCAP Test 9 - 2001 Buick LeSabre

P1 Shoulder Belt Force

Max: 4278.4 [N] at 0.070 [s]

Min: -12.2 [N] at 0.177 [s]

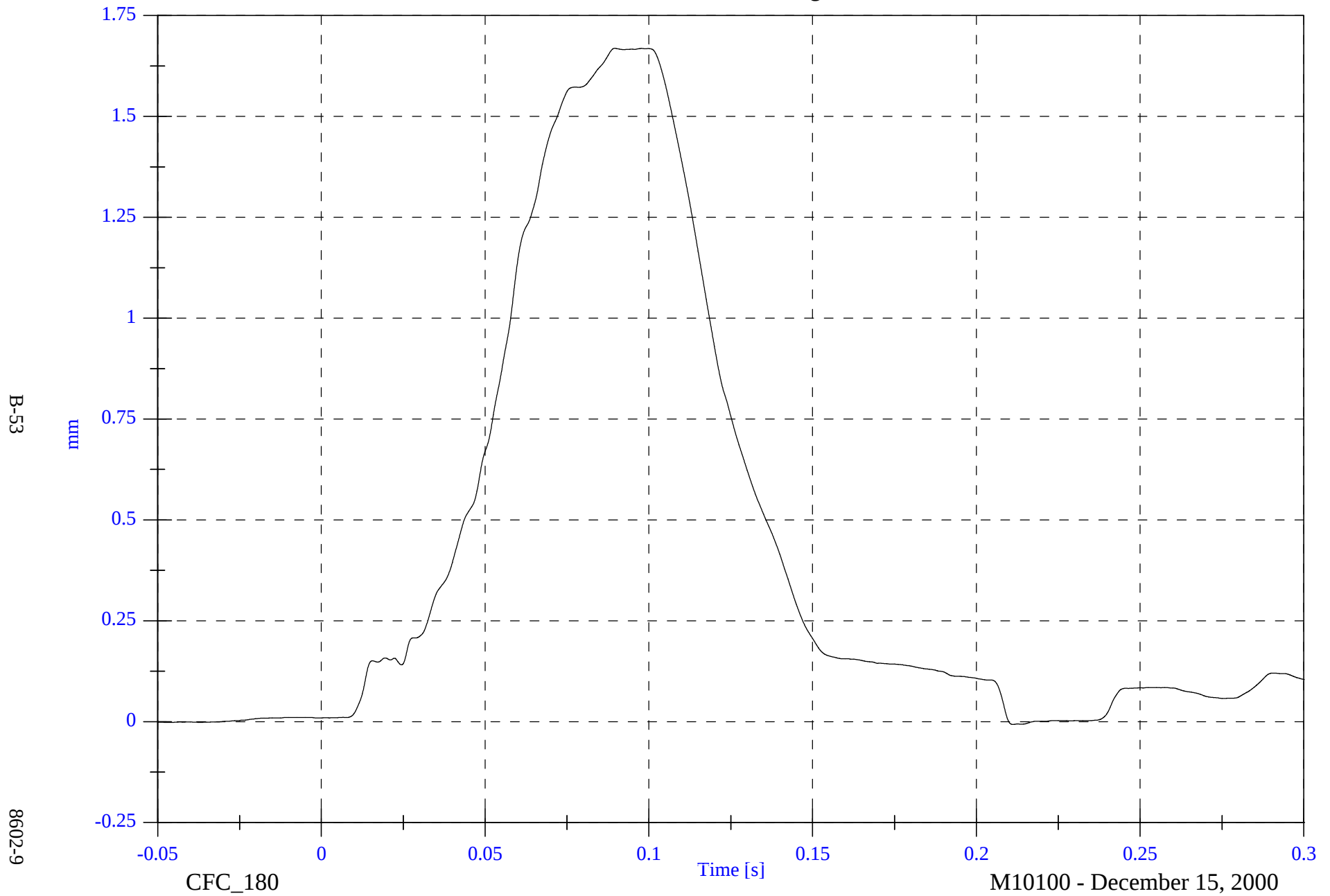


NCAP Test 9 - 2001 Buick LeSabre

P1 Shoulder Belt Elongation

Max: 1.7 [mm] at 0.090 [s]

Min: -0.0 [mm] at 0.211 [s]



NCAP Test 9 - 2001 Buick LeSabre

P2 Head x

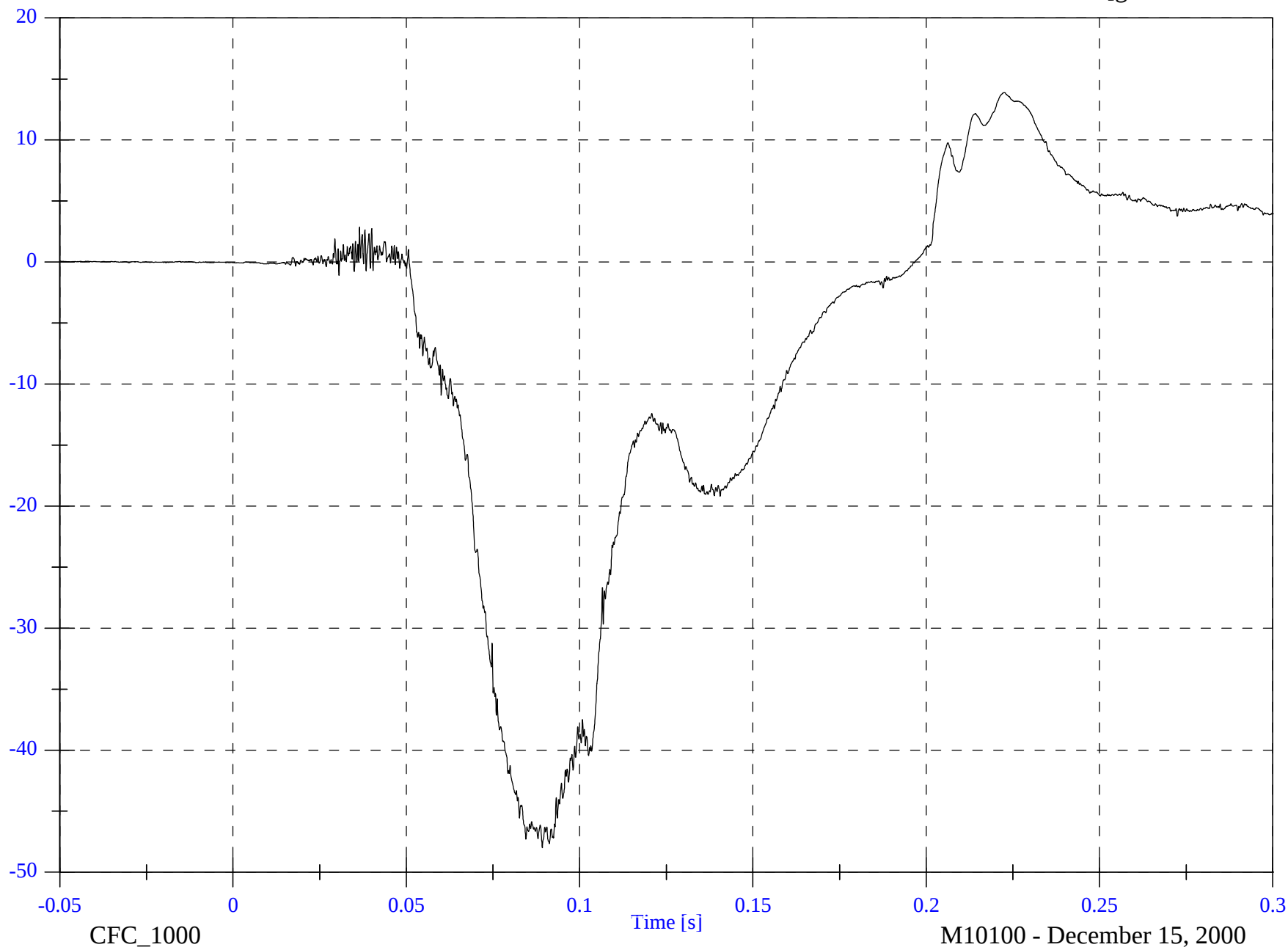
Max: 13.9 [g] at 0.222 [s]

Min: -48.0 [g] at 0.089 [s]

B-54

8602-9

g

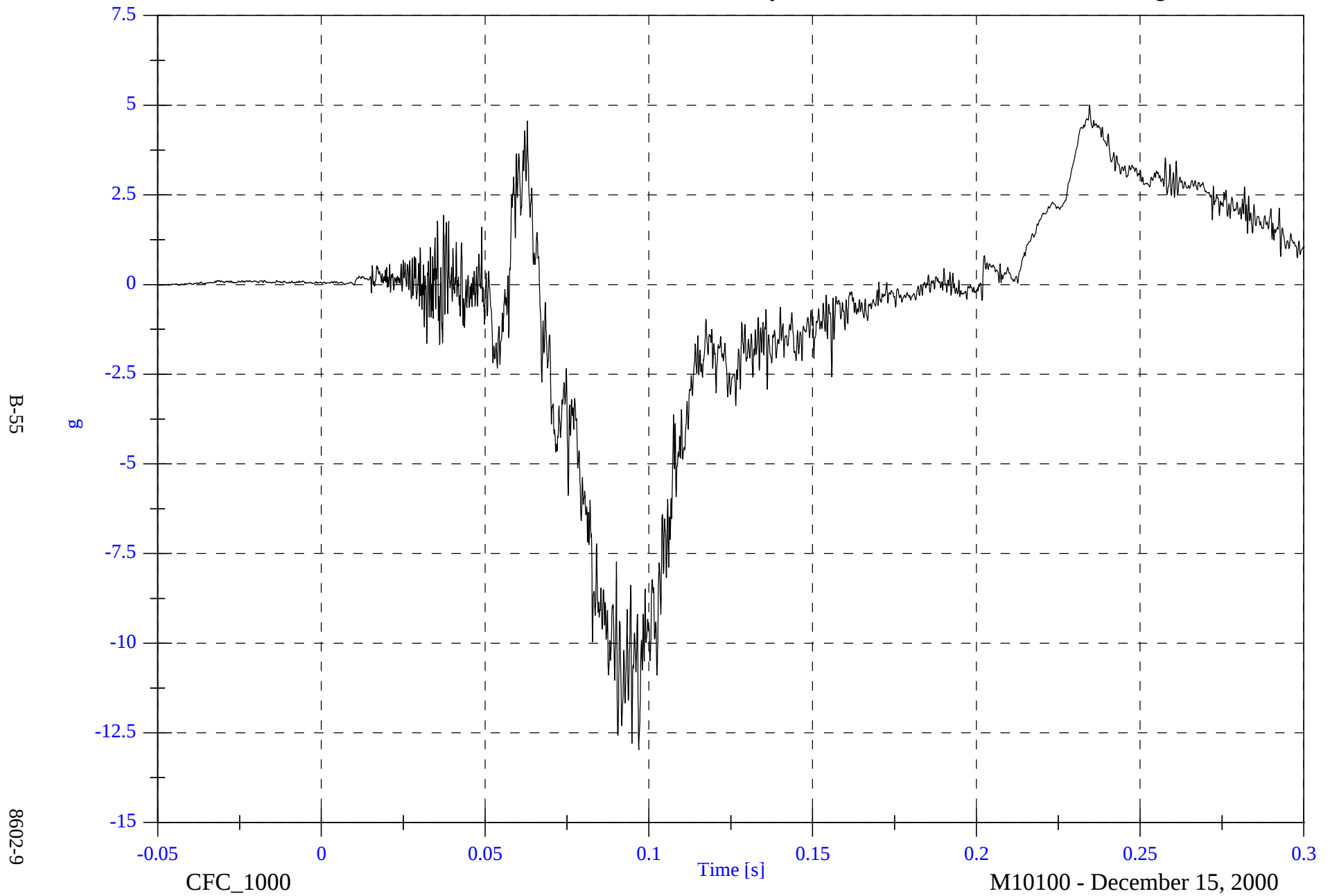


NCAP Test 9 - 2001 Buick LeSabre

P2 Head y

Max: 5.0 [g] at 0.234 [s]

Min: -13.0 [g] at 0.097 [s]

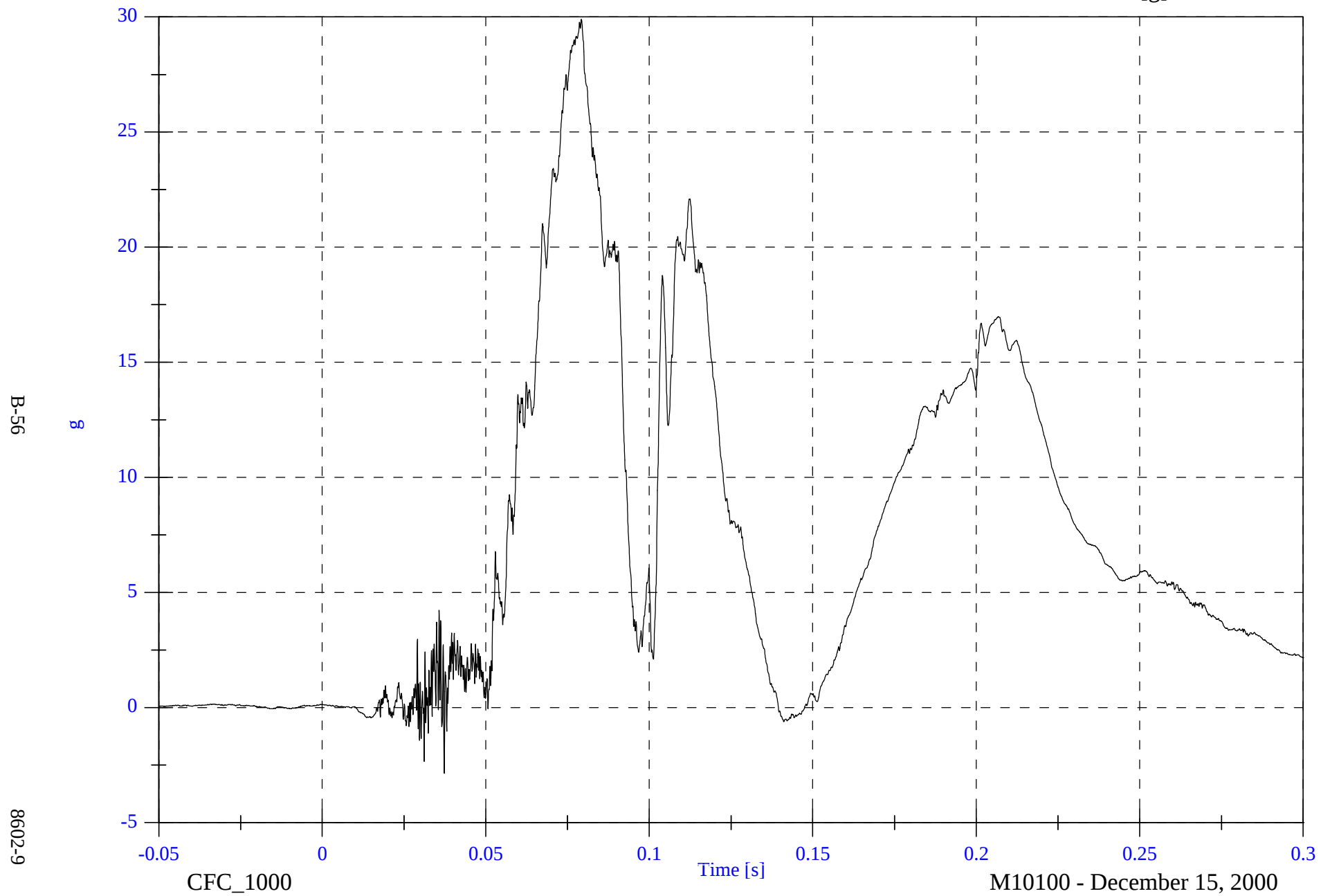


NCAP Test 9 - 2001 Buick LeSabre

Max: 29.9 [g] at 0.079 [s]

Min: -2.9 [g] at 0.037 [s]

P2 Head z

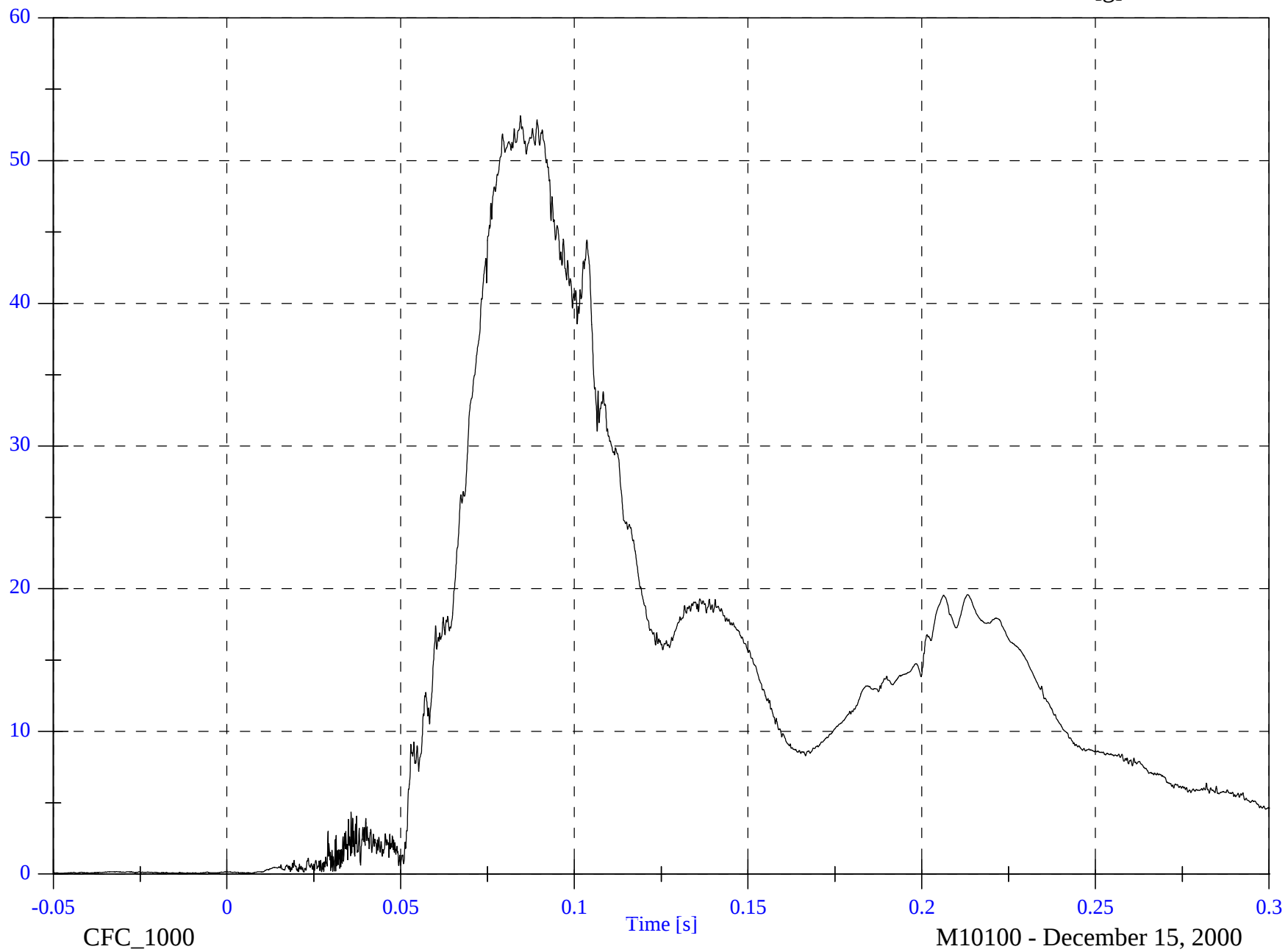


NCAP Test 9 - 2001 Buick LeSabre

P2 Head Resultant

Max: 53.1 [g] at 0.085 [s]

Min: 0.0 [g] at -0.008 [s]



B-57

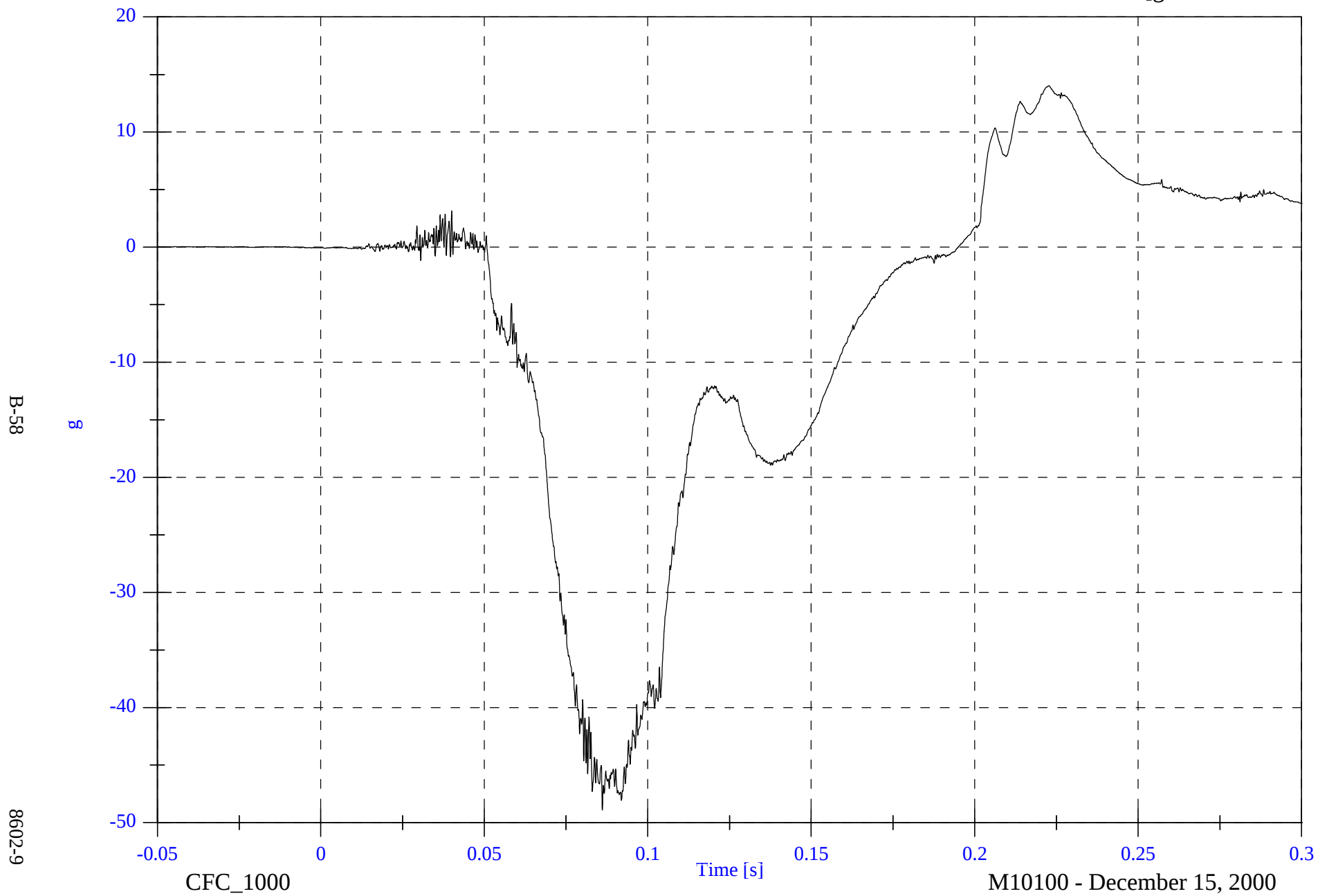
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P2 Head Red x

Max: 14.0 [g] at 0.223 [s]

Min: -48.9 [g] at 0.086 [s]

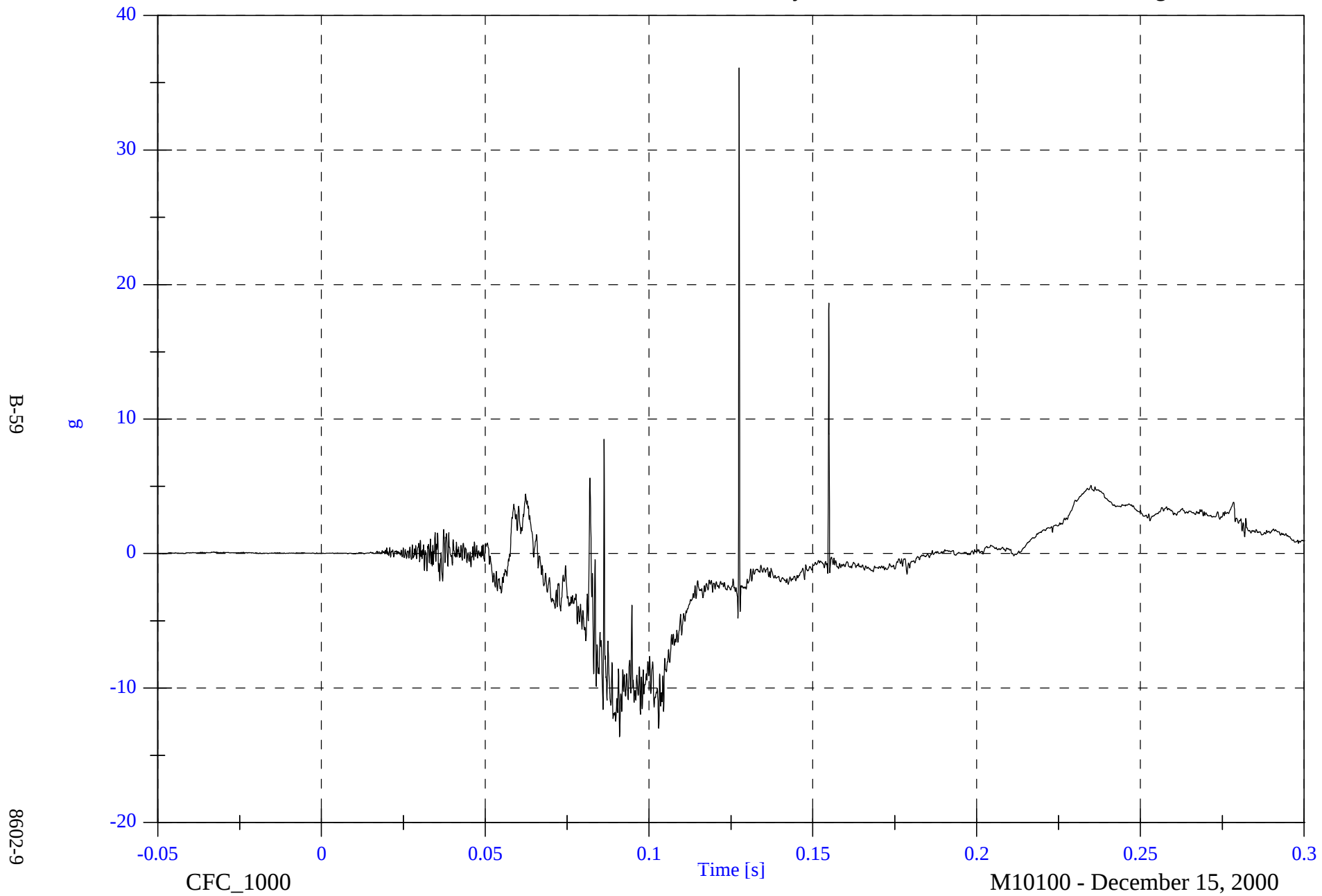


NCAP Test 9 - 2001 Buick LeSabre

Max: 36.1 [g] at 0.128 [s]

Min: -13.6 [g] at 0.091 [s]

P2 Head Red y

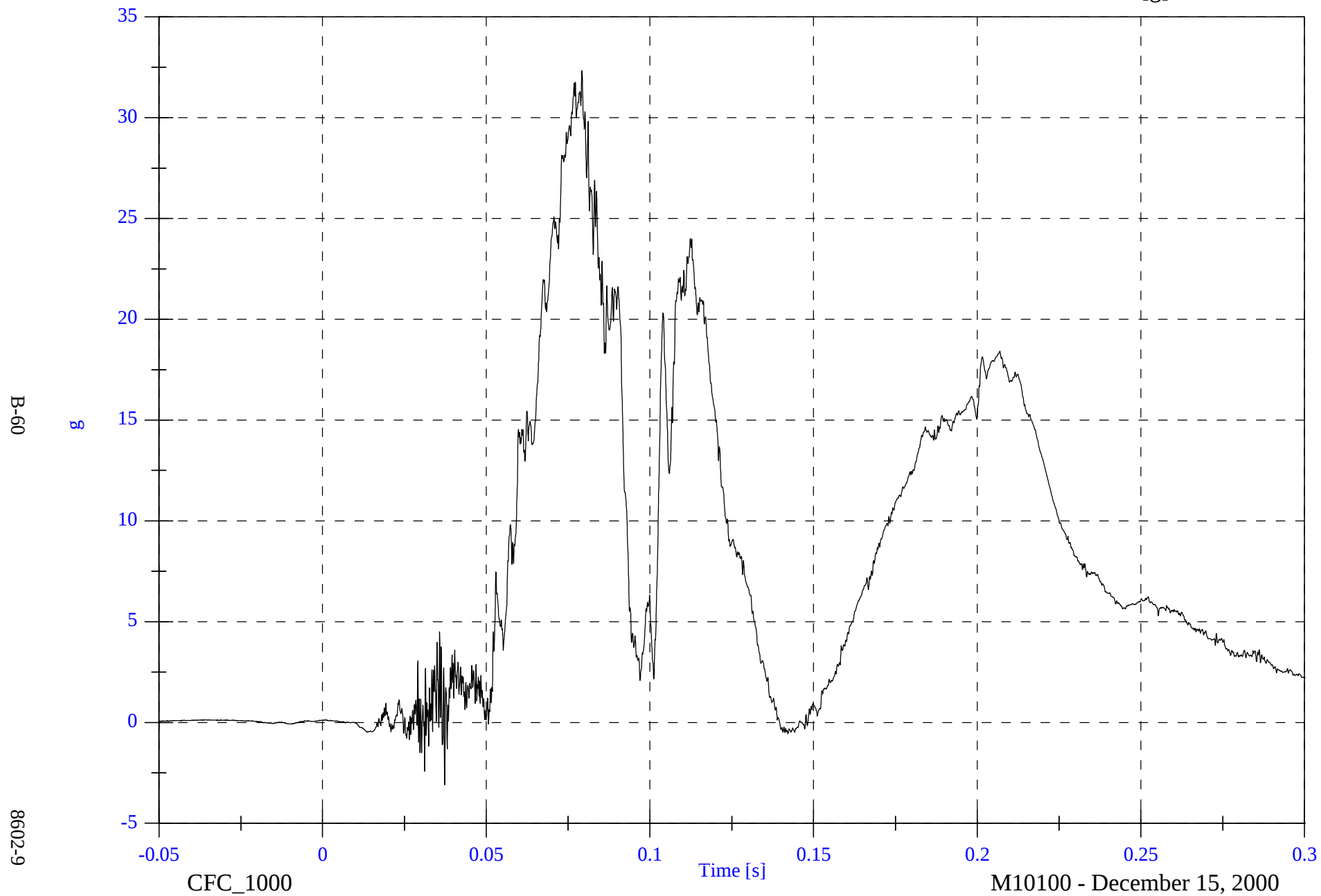


NCAP Test 9 - 2001 Buick LeSabre

Max: 32.3 [g] at 0.079 [s]

Min: -3.1 [g] at 0.037 [s]

P2 Head Red z



NCAP Test 9 - 2001 Buick LeSabre

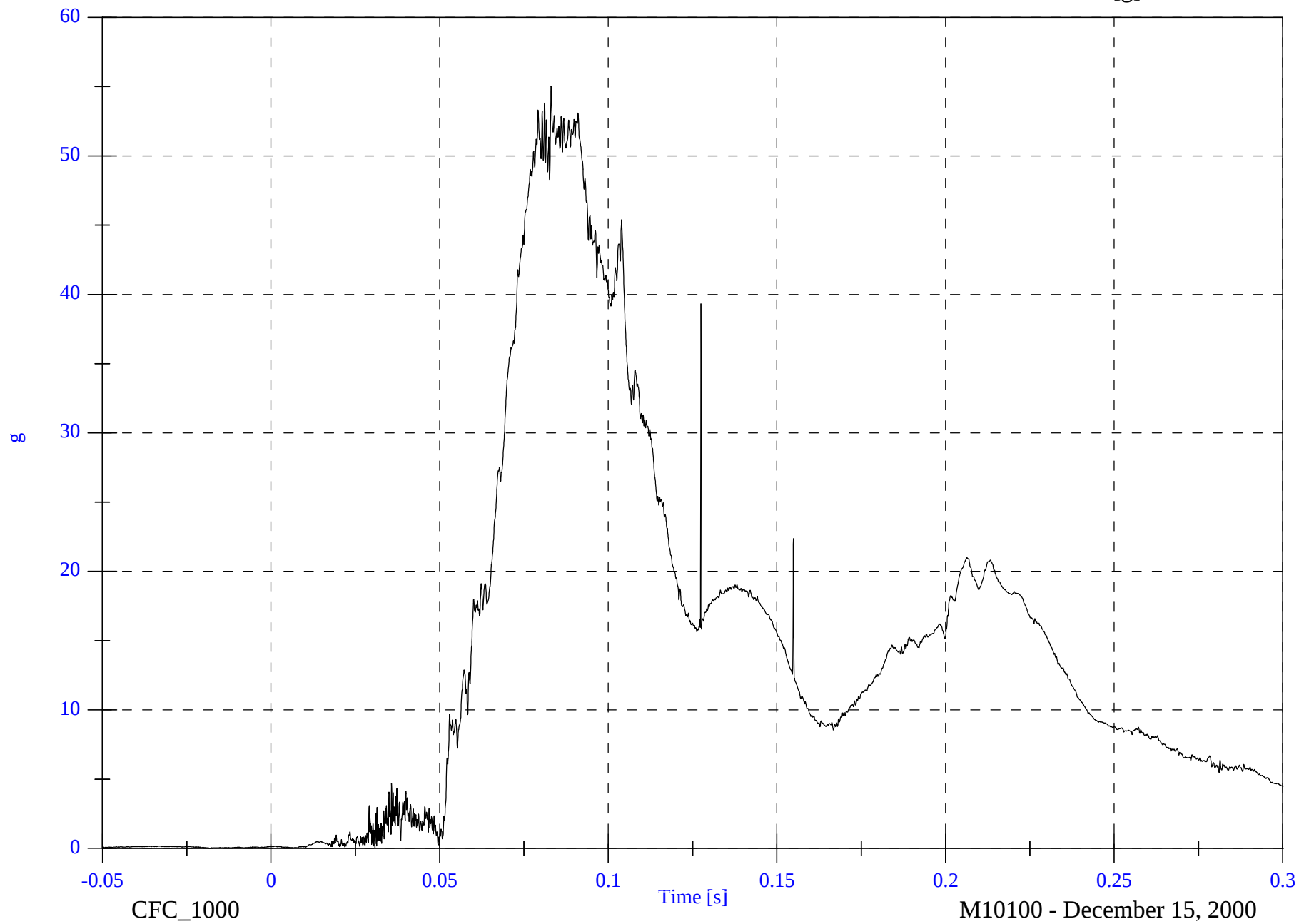
P2 Head Red Resultant

Max: 55.0 [g] at 0.083 [s]

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

B-61

8602-9

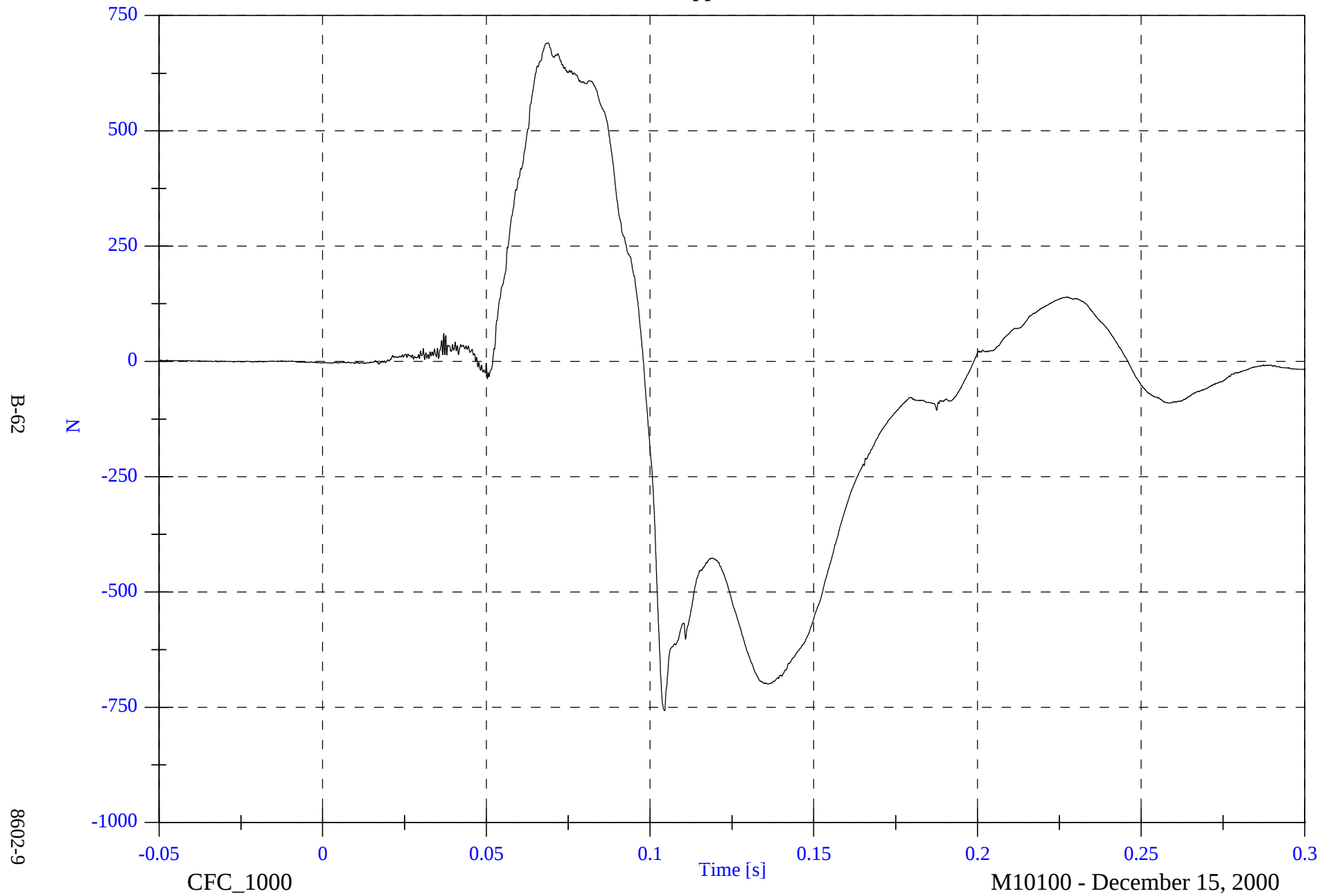


NCAP Test 9 - 2001 Buick LeSabre

P2 Upper Neck Fx

Max: 690.8 [N] at 0.069 [s]

Min: -757.4 [N] at 0.104 [s]

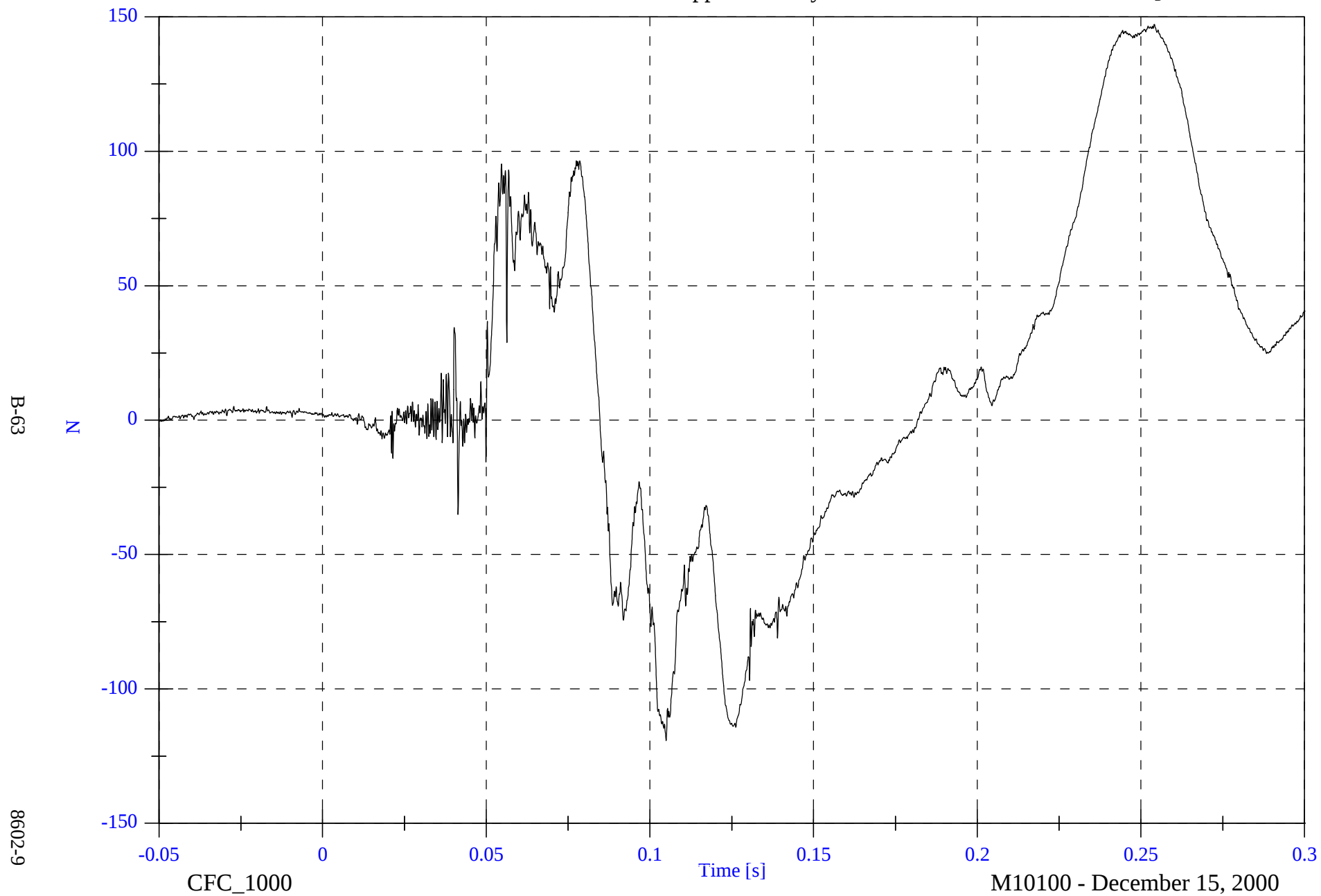


NCAP Test 9 - 2001 Buick LeSabre

P2 Upper Neck Fy

Max: 147.3 [N] at 0.254 [s]

Min: -119.3 [N] at 0.105 [s]

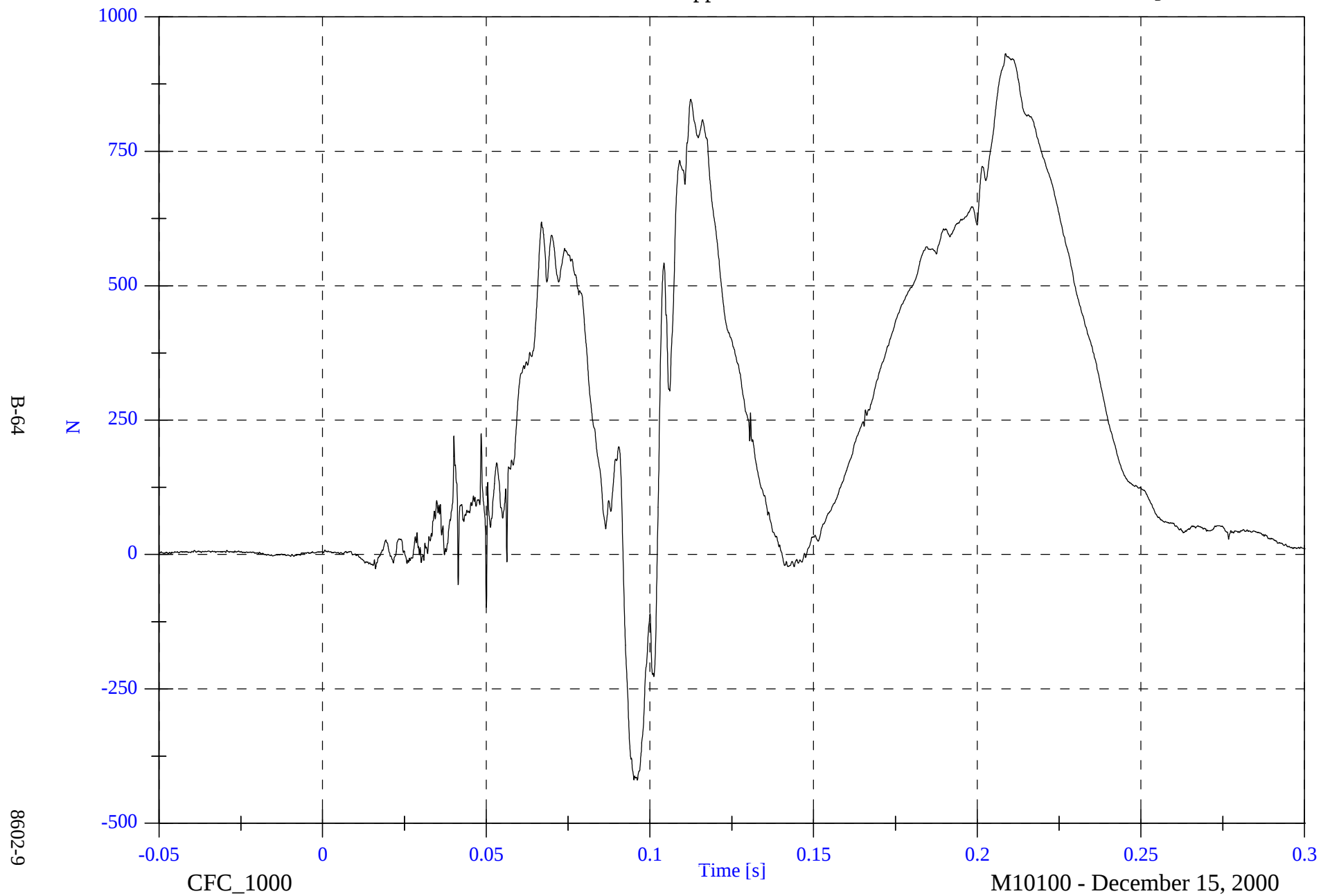


NCAP Test 9 - 2001 Buick LeSabre

P2 Upper Neck Fz

Max: 931.8 [N] at 0.209 [s]

Min: -419.8 [N] at 0.096 [s]

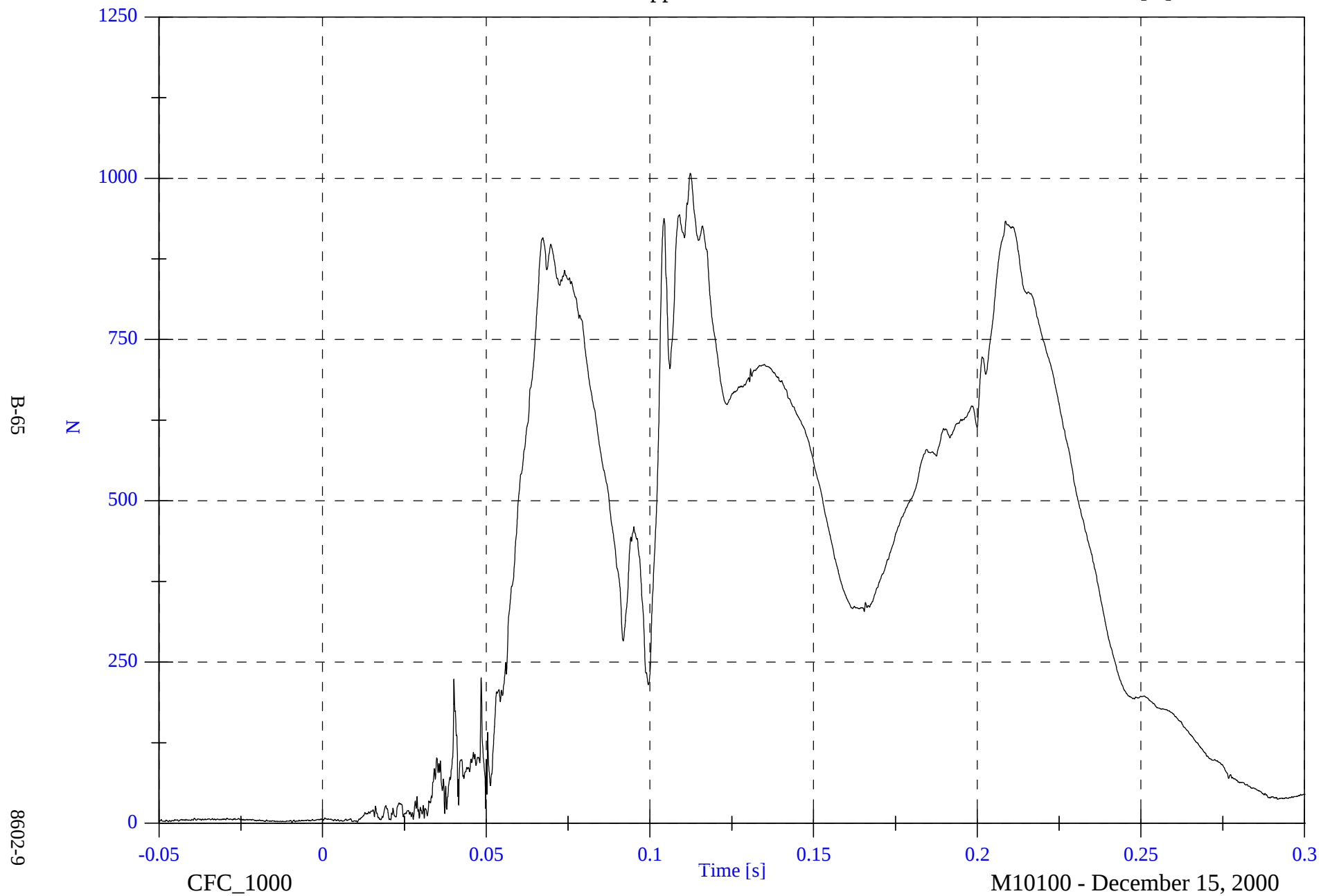


NCAP Test 9 - 2001 Buick LeSabre

P2 Upper Neck F Resultant

Max: 1007.7 [N] at 0.112 [s]

Min: 1.3 [N] at -0.009 [s]



B-65

8602-9

CFC_1000

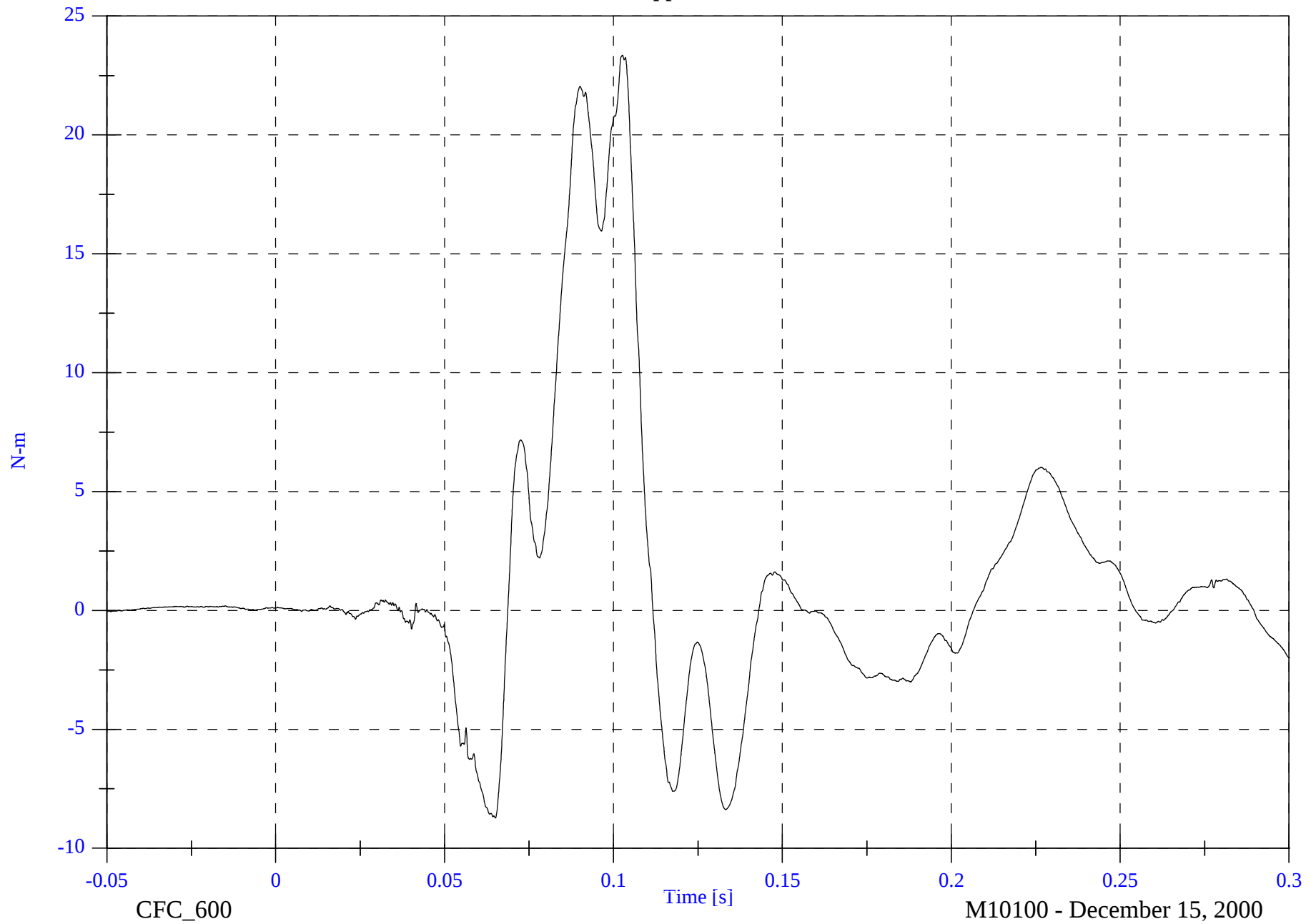
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

P2 Upper Neck Mx

Max: 23.3 [N-m] at 0.103 [s]

Min: -8.7 [N-m] at 0.065 [s]



B-66

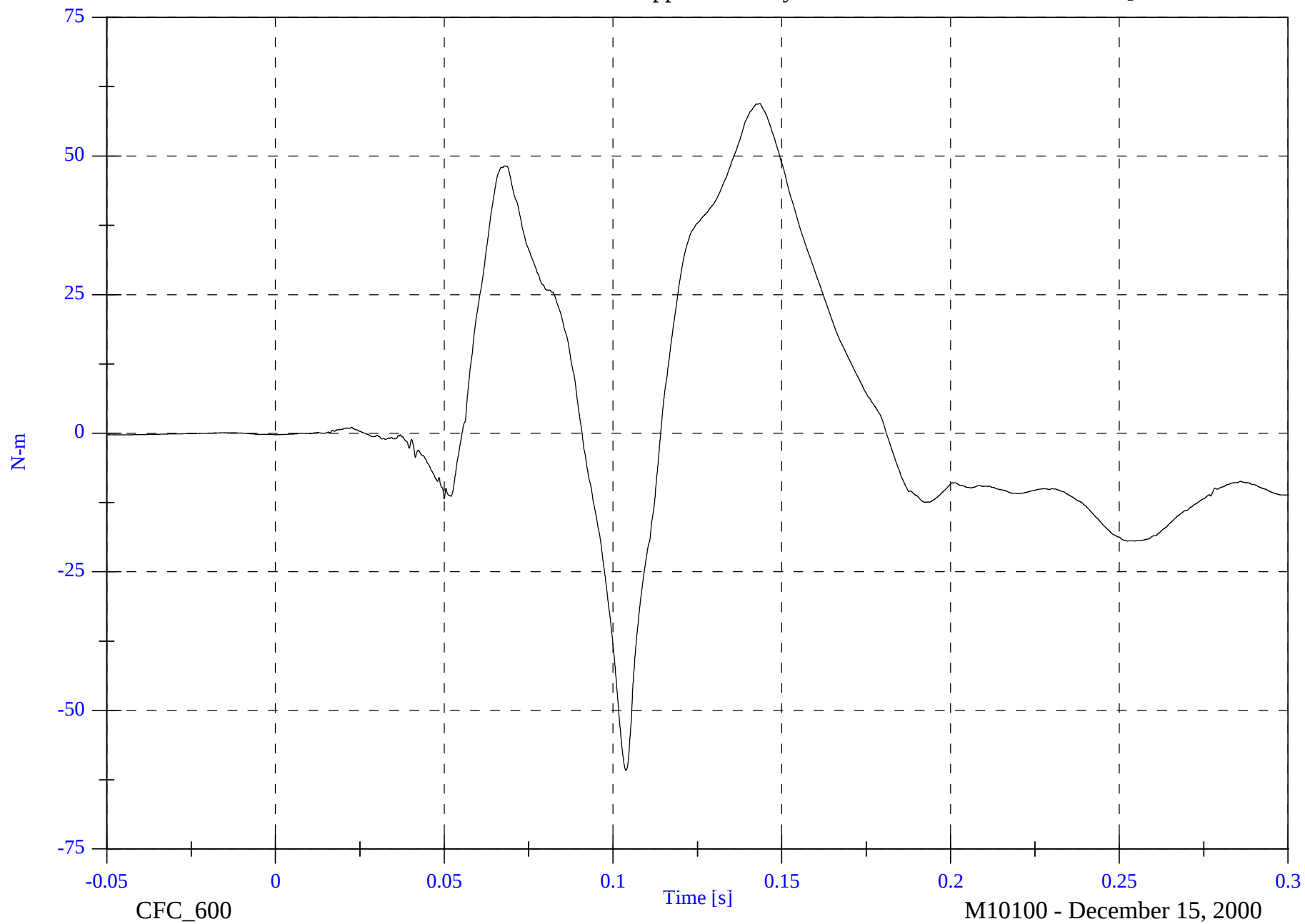
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P2 Upper Neck My

Max: 59.5 [N-m] at 0.143 [s]

Min: -60.8 [N-m] at 0.104 [s]



B-67

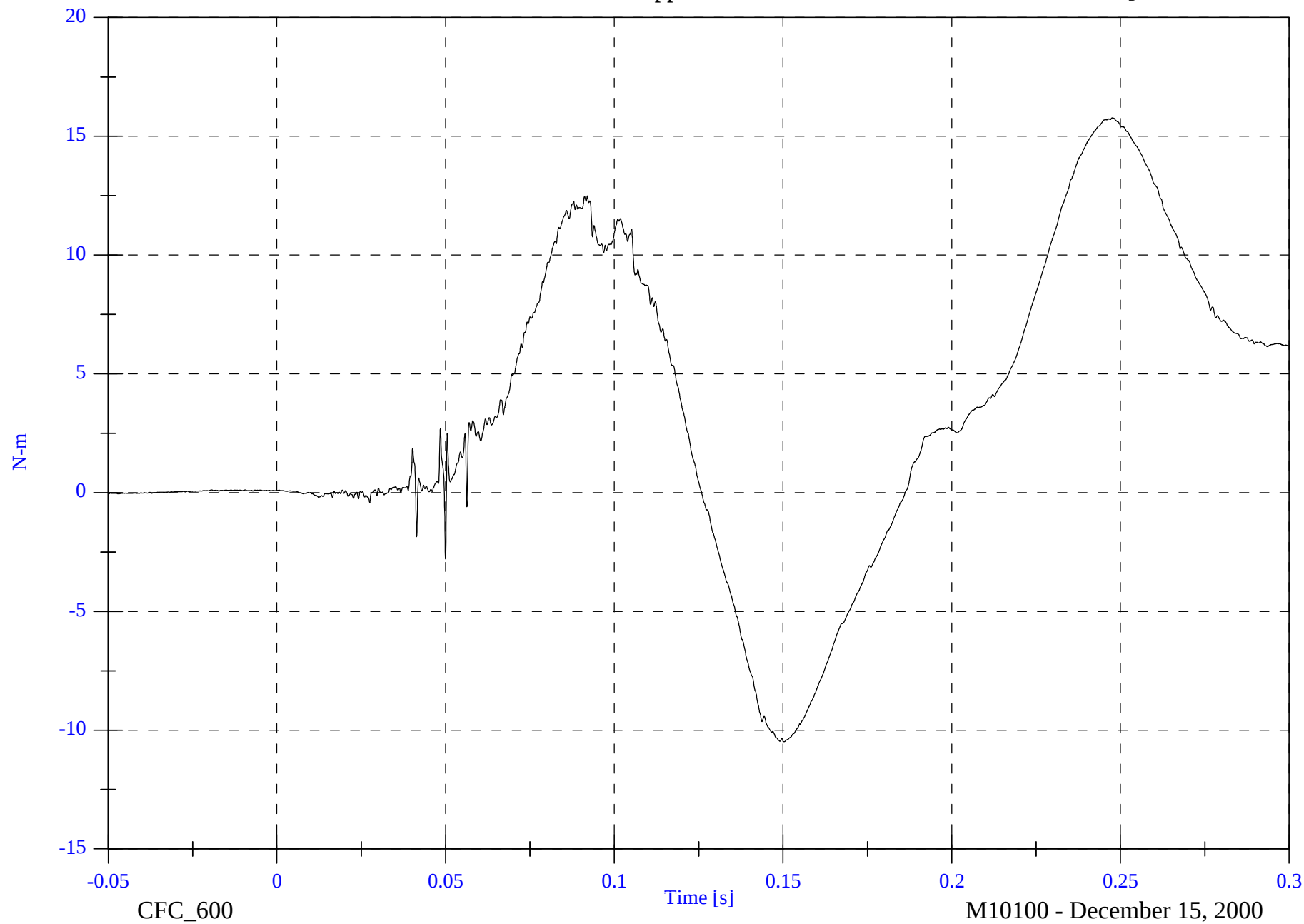
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P2 Upper Neck Mz

Max: 15.8 [N-m] at 0.247 [s]

Min: -10.5 [N-m] at 0.150 [s]



B-68

8602-9

CFC_600

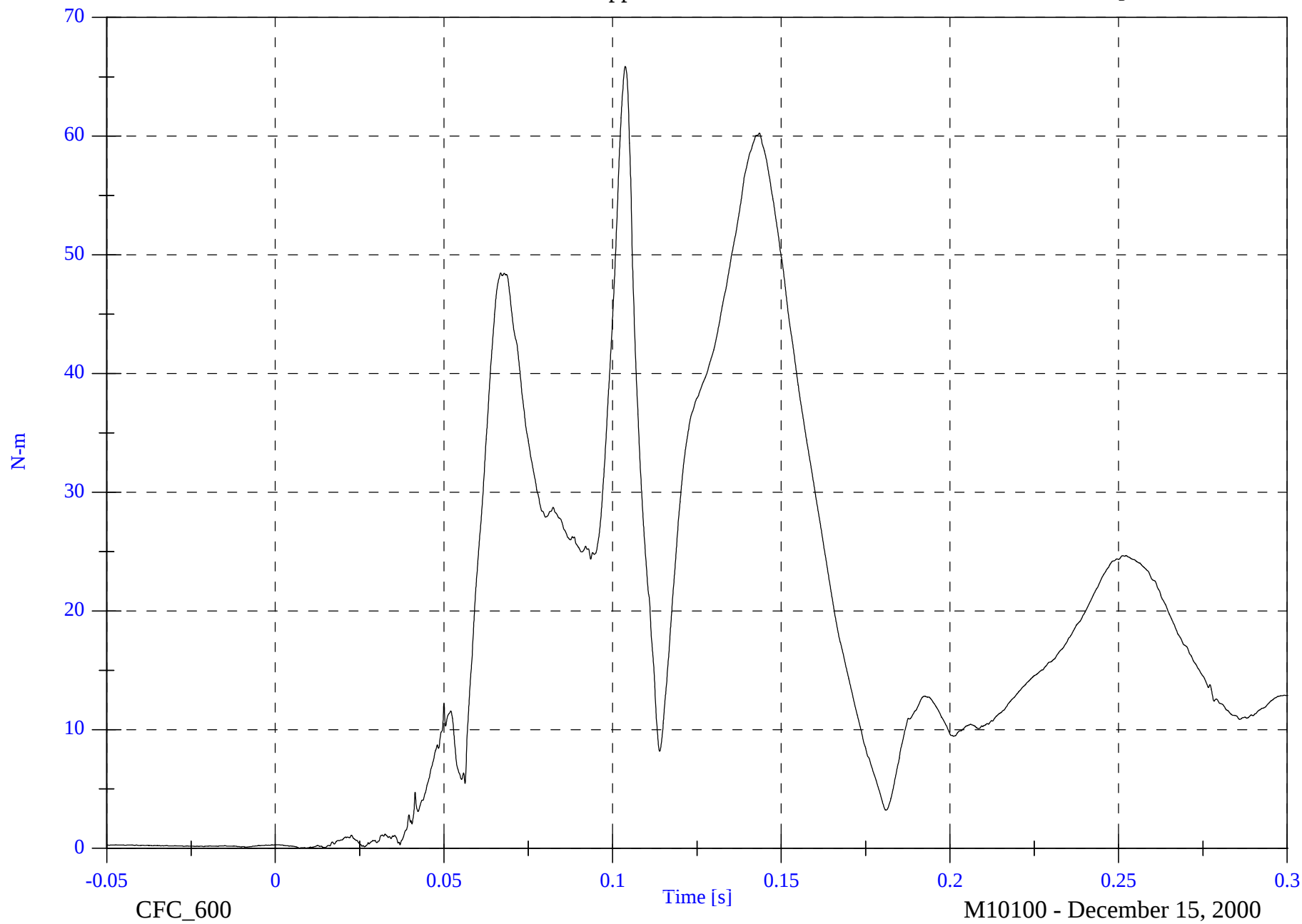
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

P2 Upper Neck M Resultant

Max: 65.9 [N-m] at 0.104 [s]

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



B-69

8602-9

CFC_600

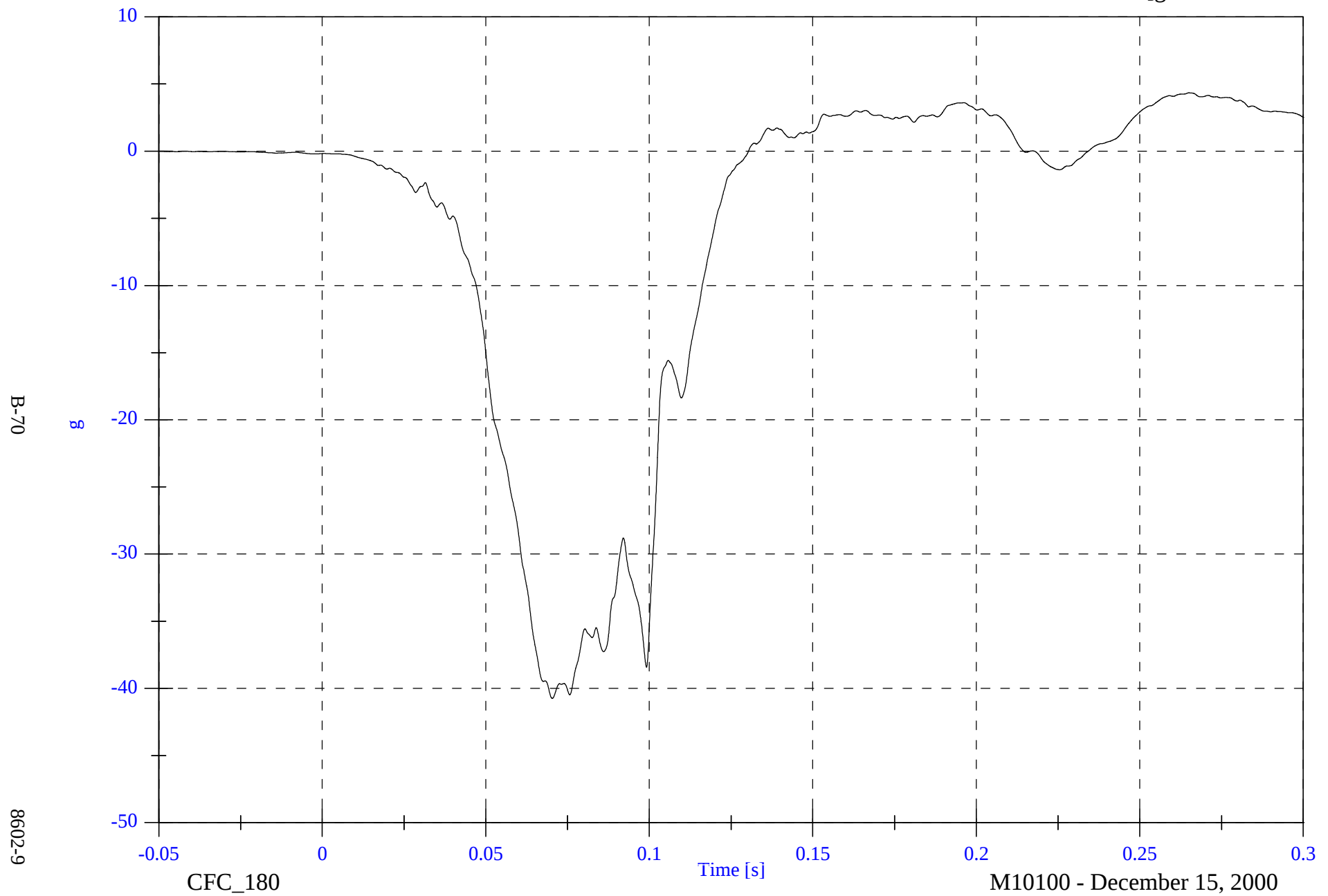
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

P2 Chest x

Max: 4.3 [g] at 0.265 [s]

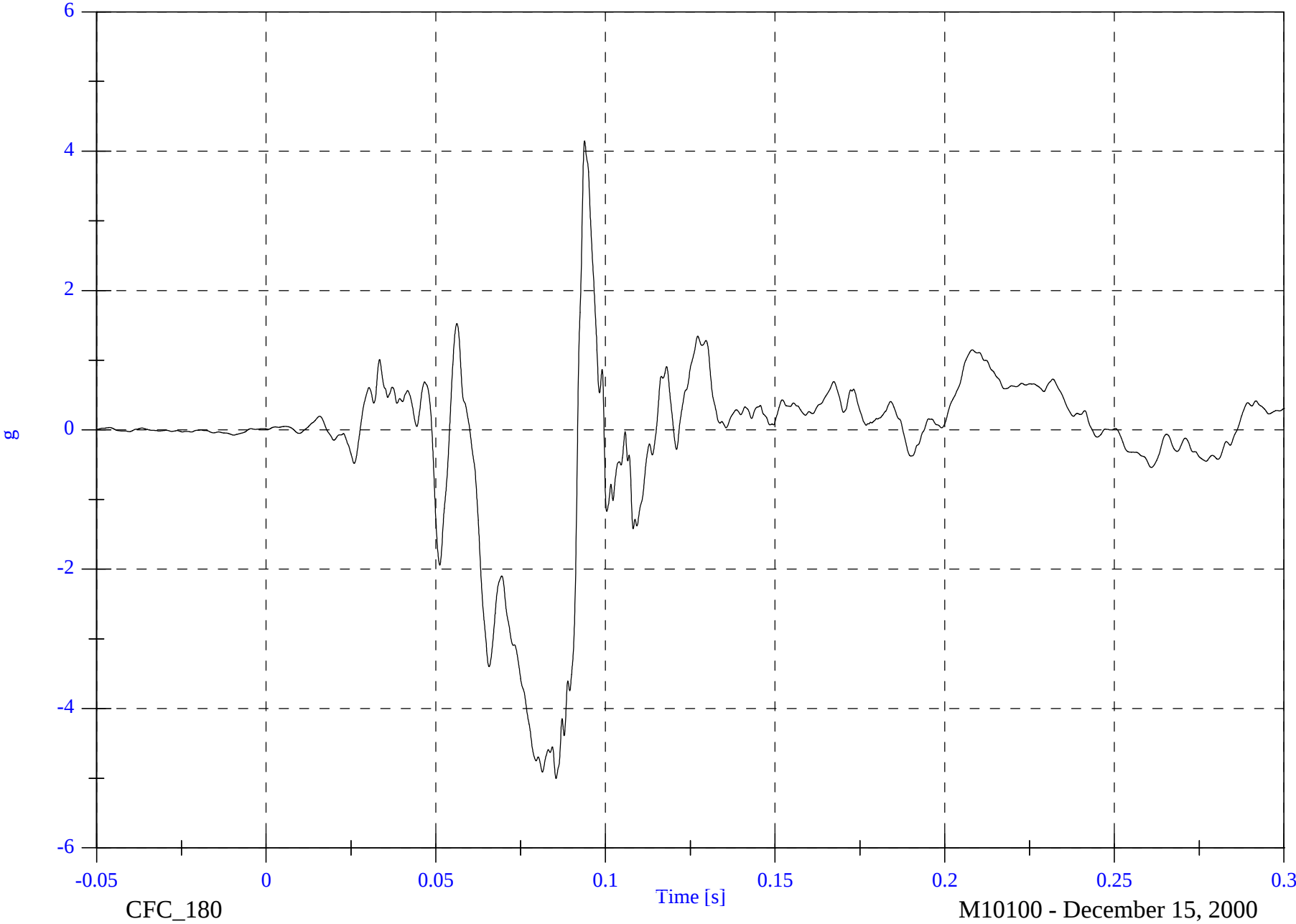
Min: -40.7 [g] at 0.070 [s]



P2 Chest y

B-71

8602-9

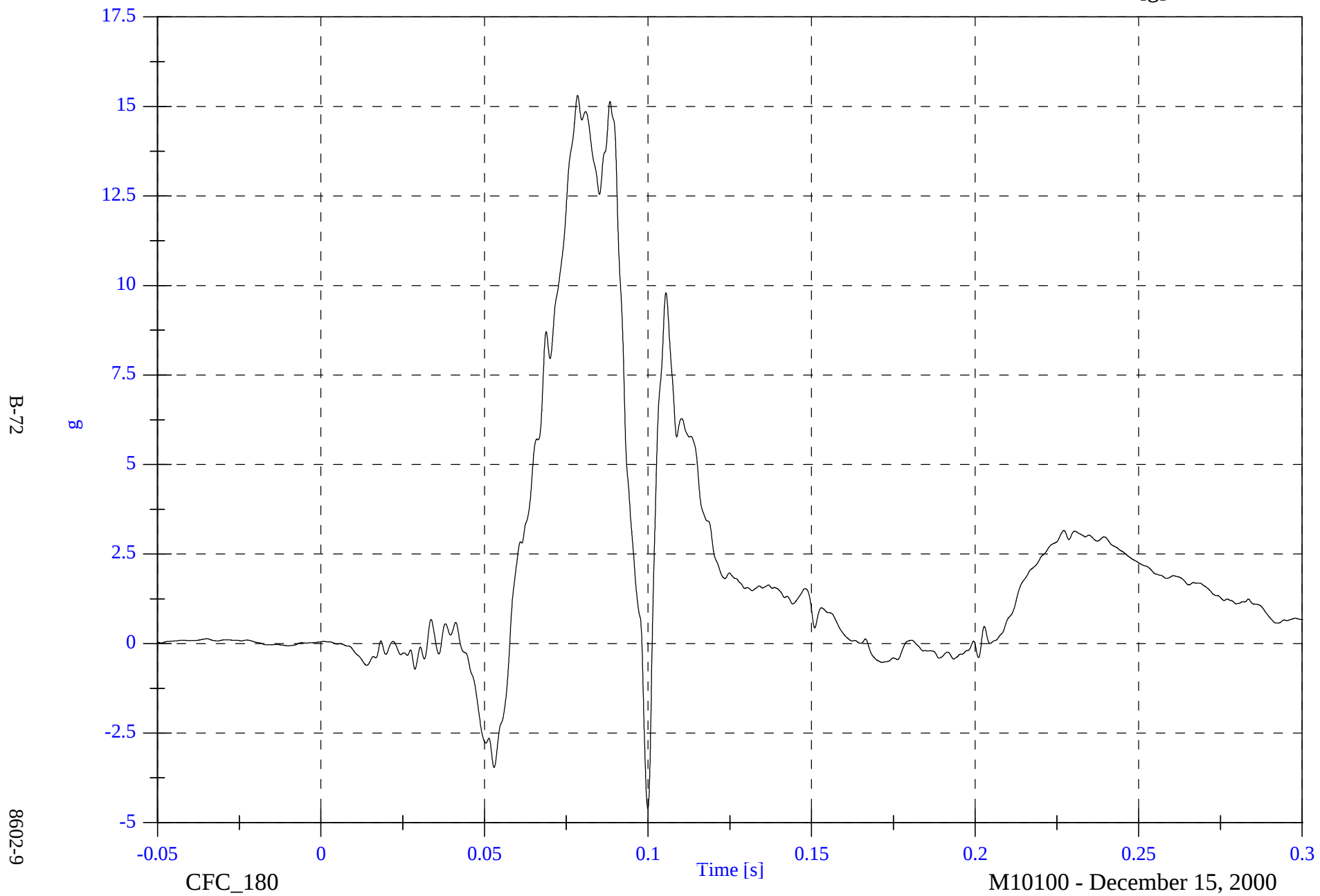


NCAP Test 9 - 2001 Buick LeSabre

P2 Chest z

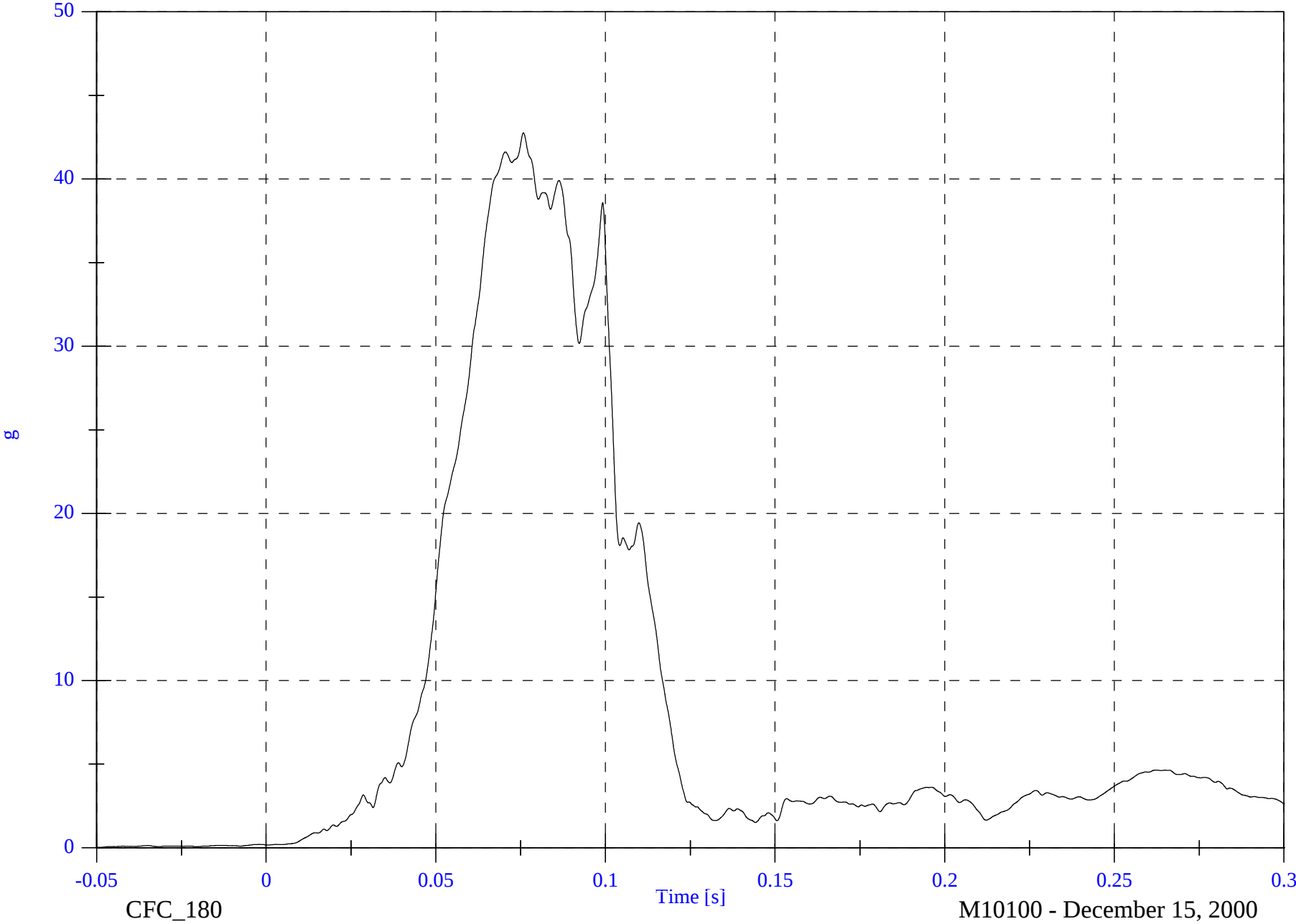
Max: 15.3 [g] at 0.078 [s]

Min: -4.6 [g] at 0.100 [s]



B-73

8602-9



NCAP Test 9 - 2001 Buick LeSabre

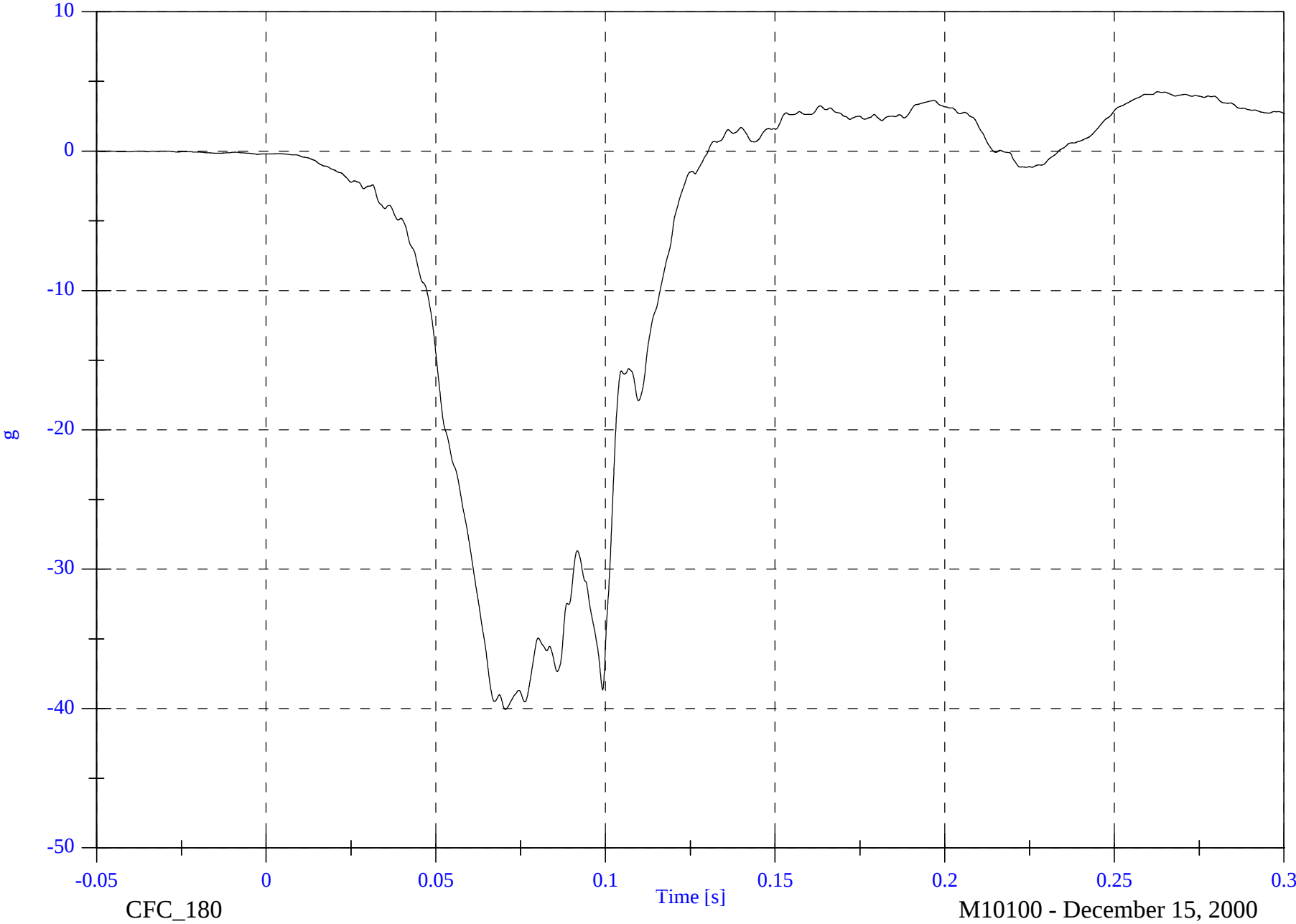
P2 Chest Red x

Max: 4.3 [g] at 0.263 [s]

Min: -40.1 [g] at 0.071 [s]

B-74

8602-9

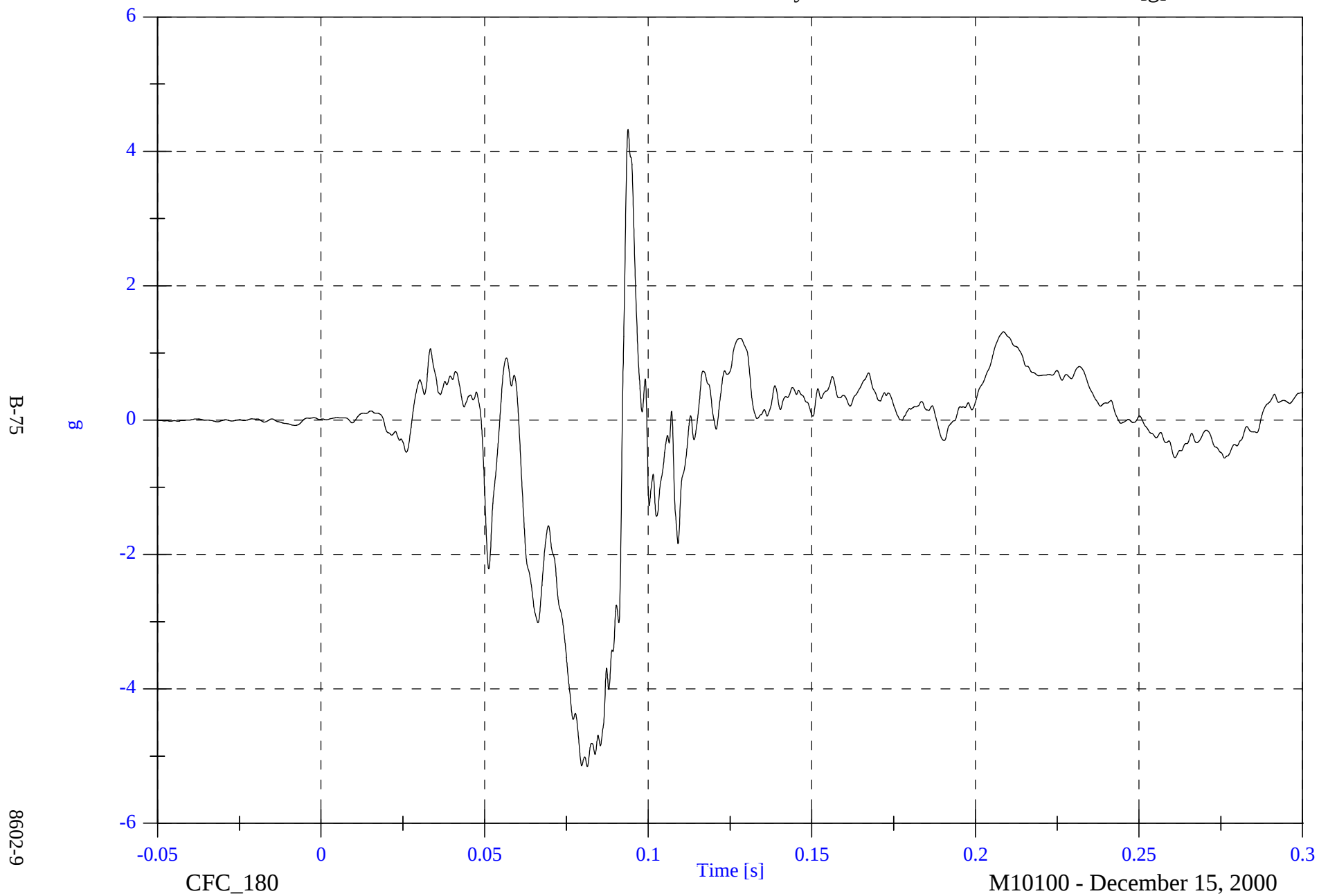


NCAP Test 9 - 2001 Buick LeSabre

P2 Chest Red y

Max: 4.3 [g] at 0.094 [s]

Min: -5.2 [g] at 0.081 [s]



NCAP Test 9 - 2001 Buick LeSabre

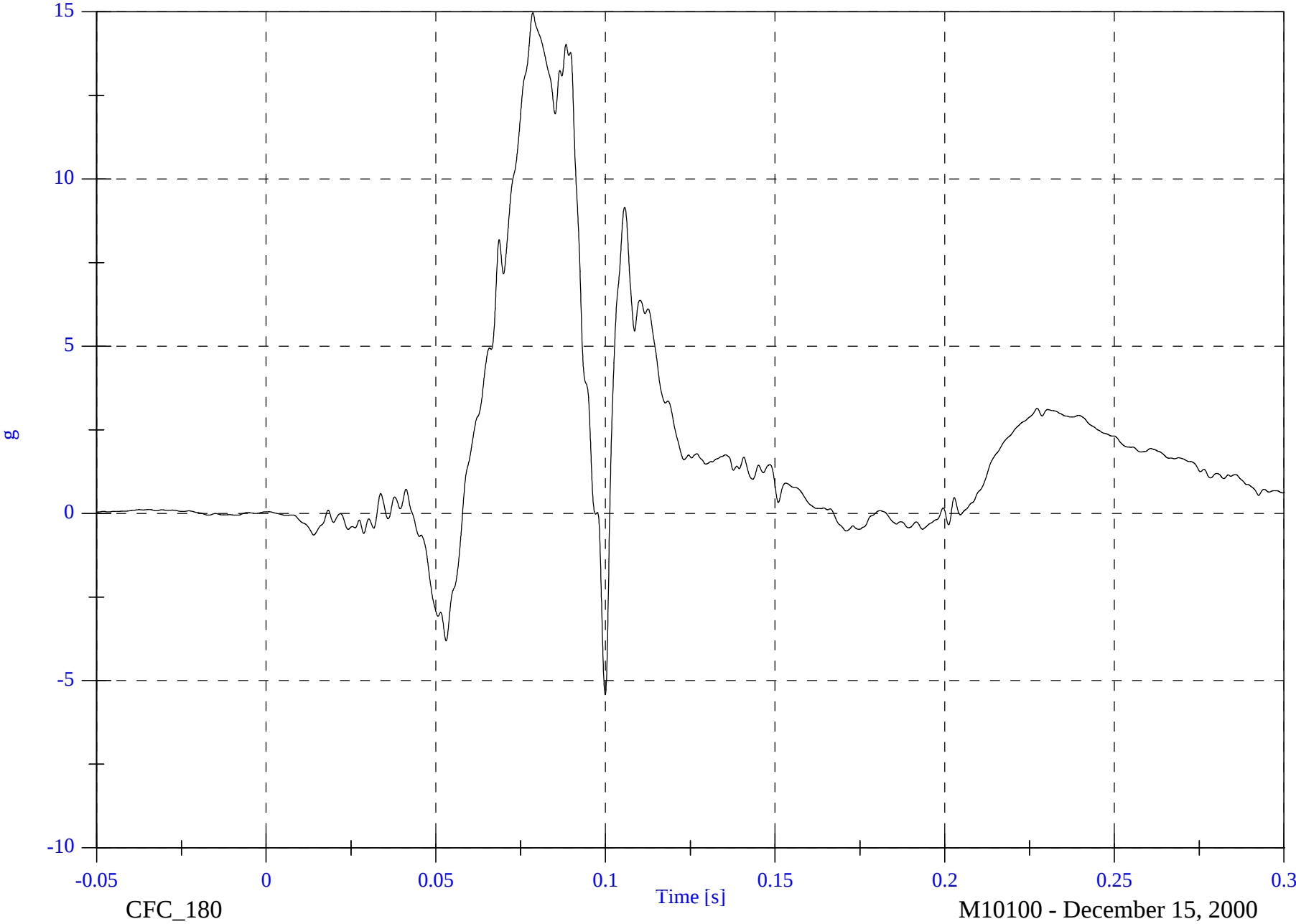
P2 Chest Red z

Max: 15.0 [g] at 0.079 [s]

Min: -5.4 [g] at 0.100 [s]

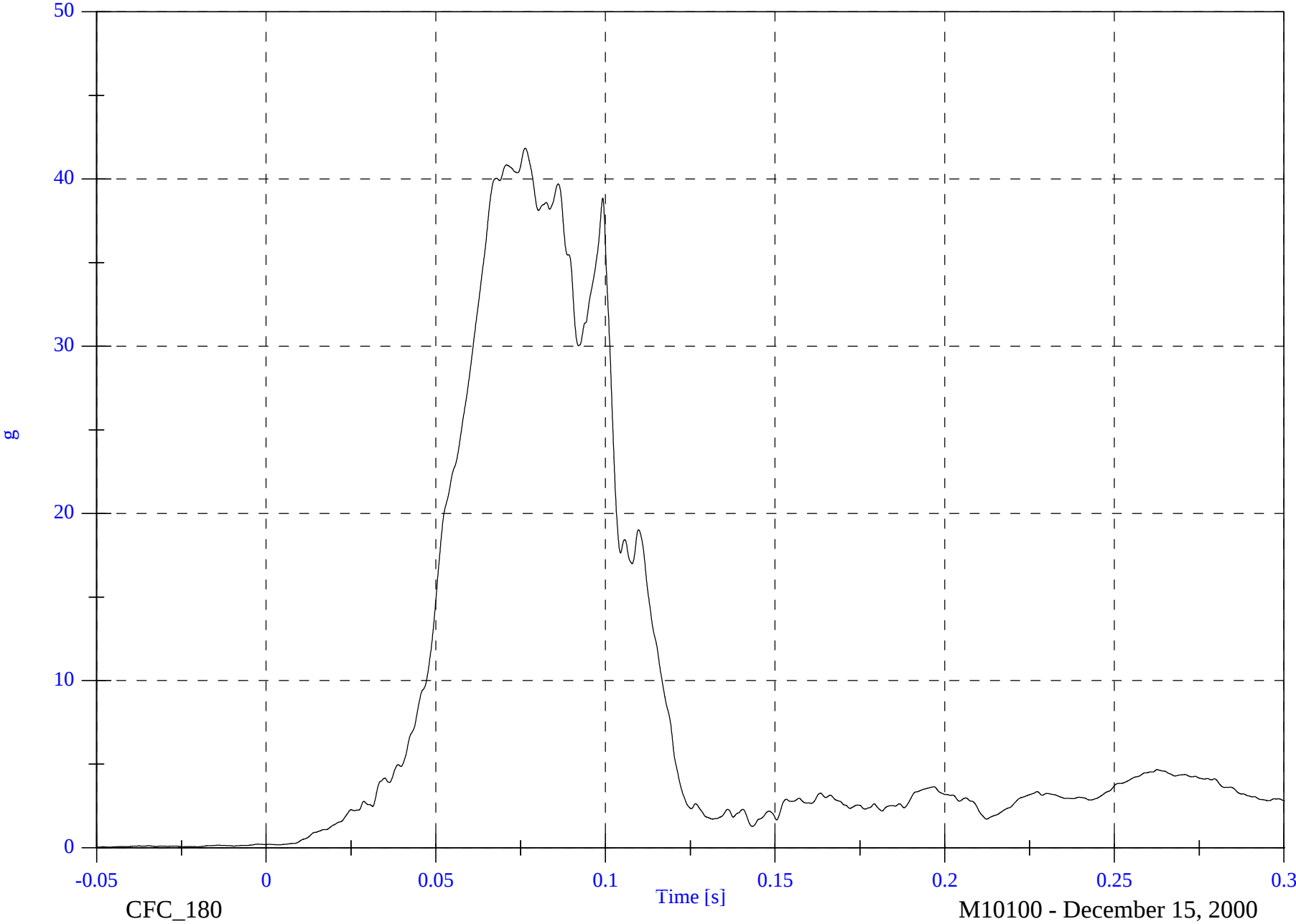
B-76

8602-9



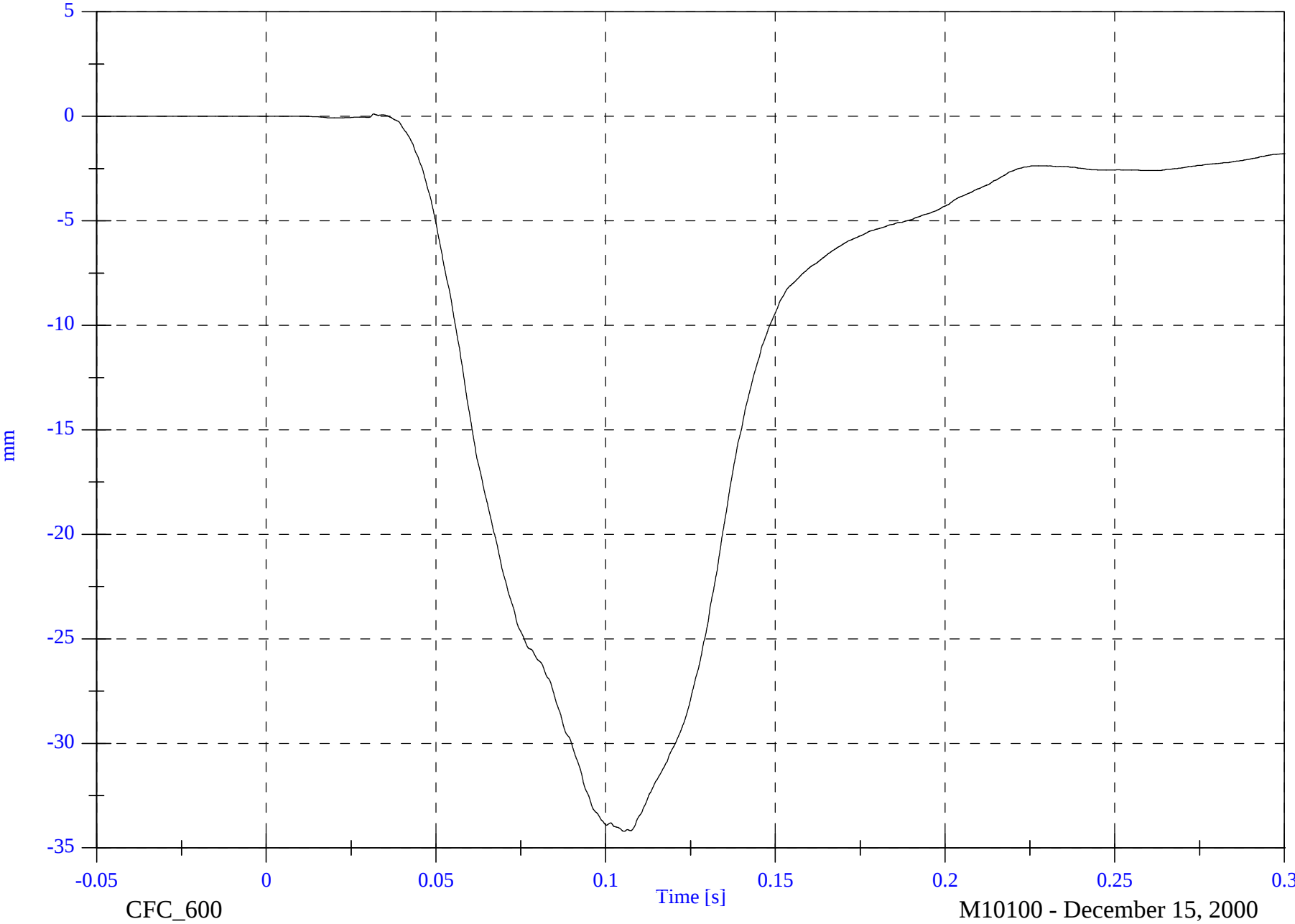
B-77

8602-9



B-78

8602-9

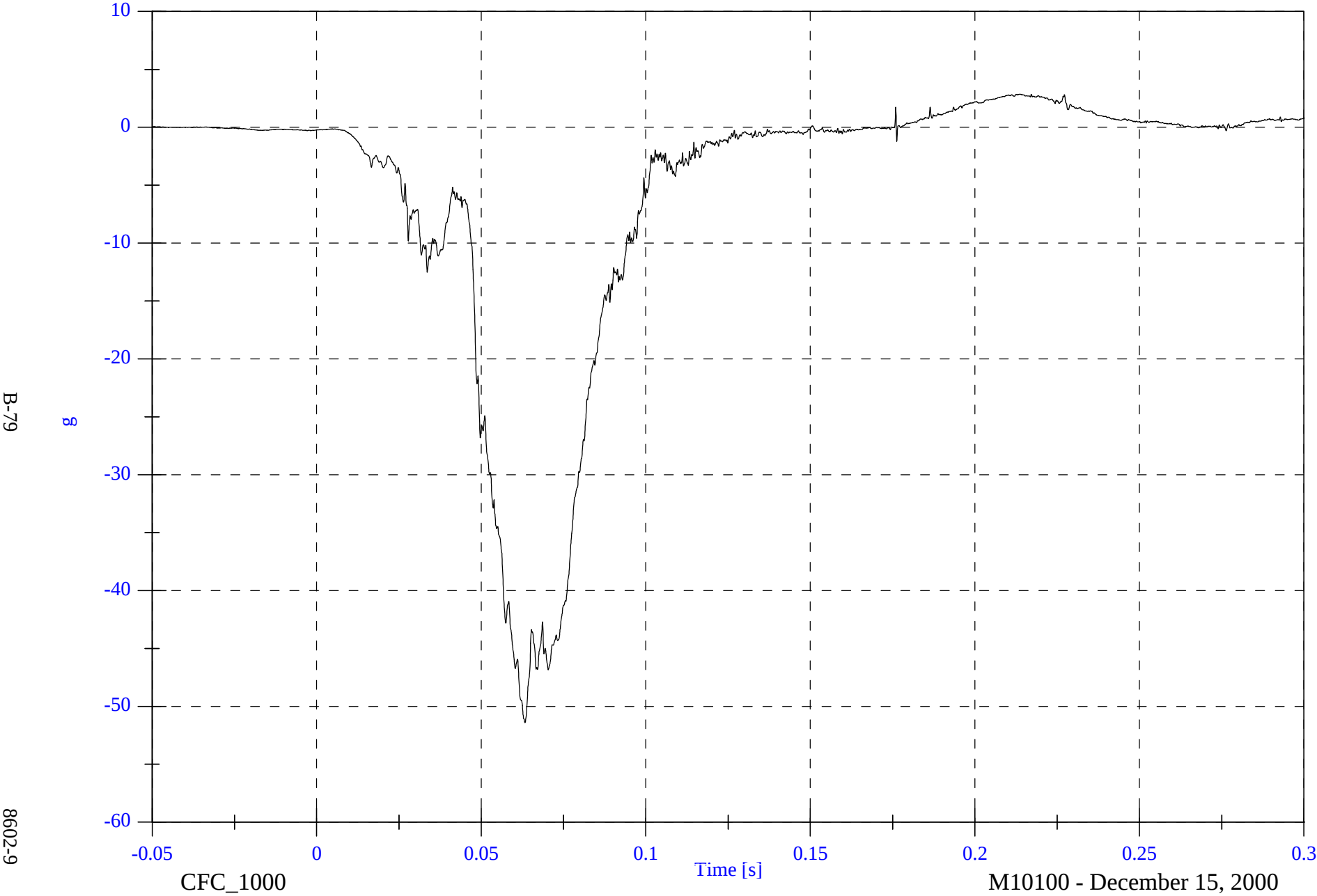


NCAP Test 9 - 2001 Buick LeSabre

Max: 2.9 [g] at 0.214 [s]

Min: -51.4 [g] at 0.063 [s]

P2 Pelvic x

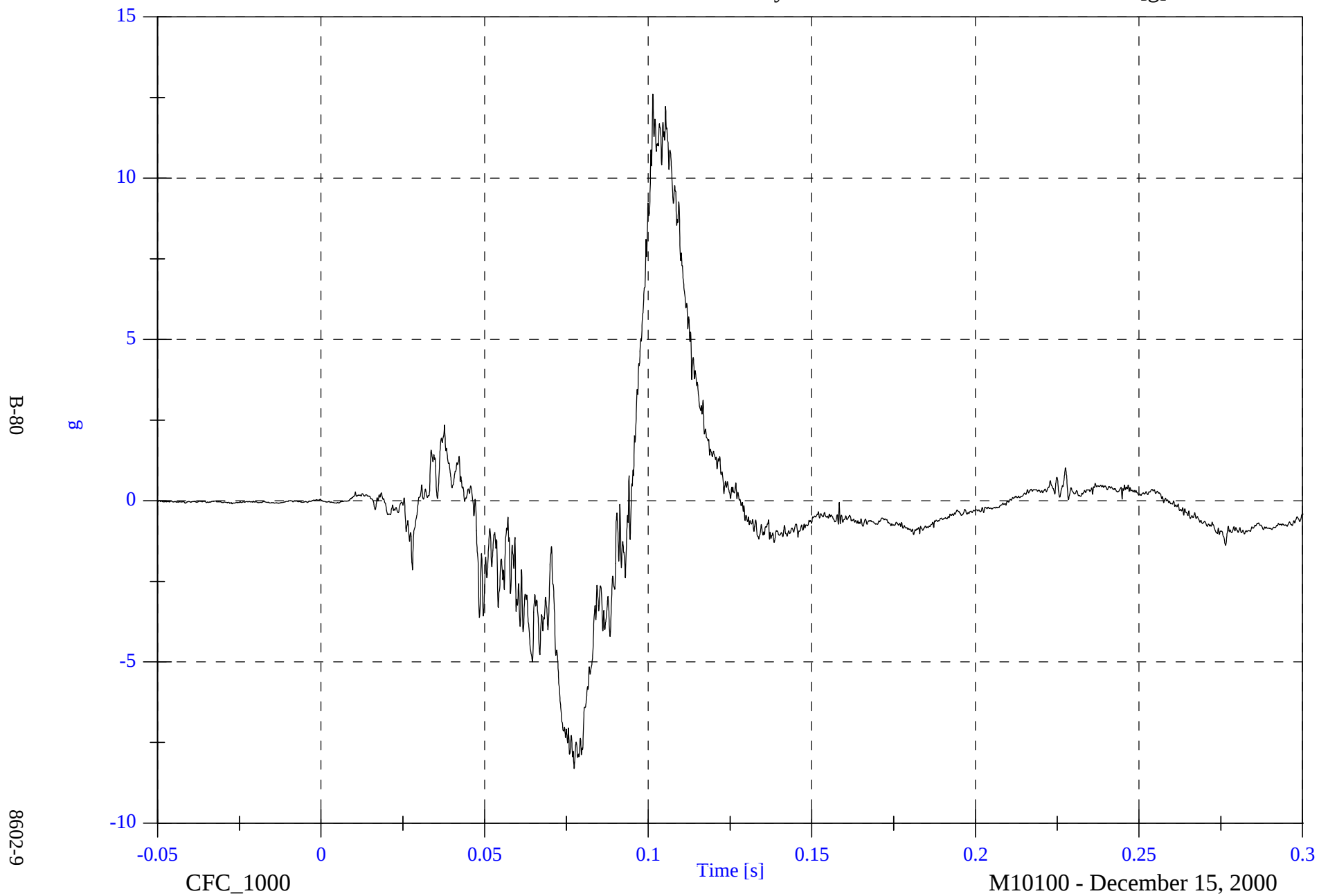


NCAP Test 9 - 2001 Buick LeSabre

Max: 12.6 [g] at 0.101 [s]

Min: -8.3 [g] at 0.077 [s]

P2 Pelvic y

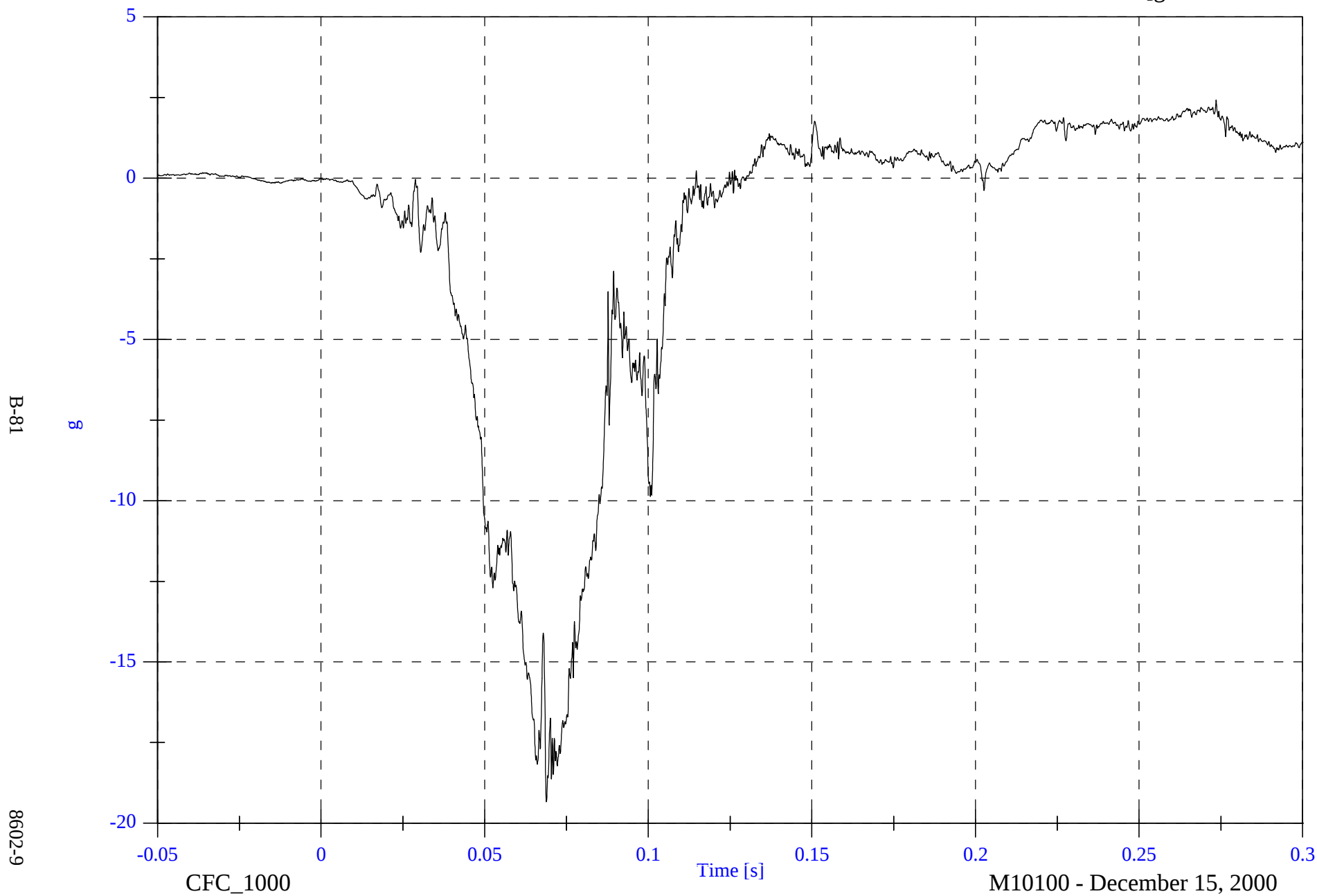


NCAP Test 9 - 2001 Buick LeSabre

Max: 2.4 [g] at 0.274 [s]

Min: -19.3 [g] at 0.069 [s]

P2 Pelvic z

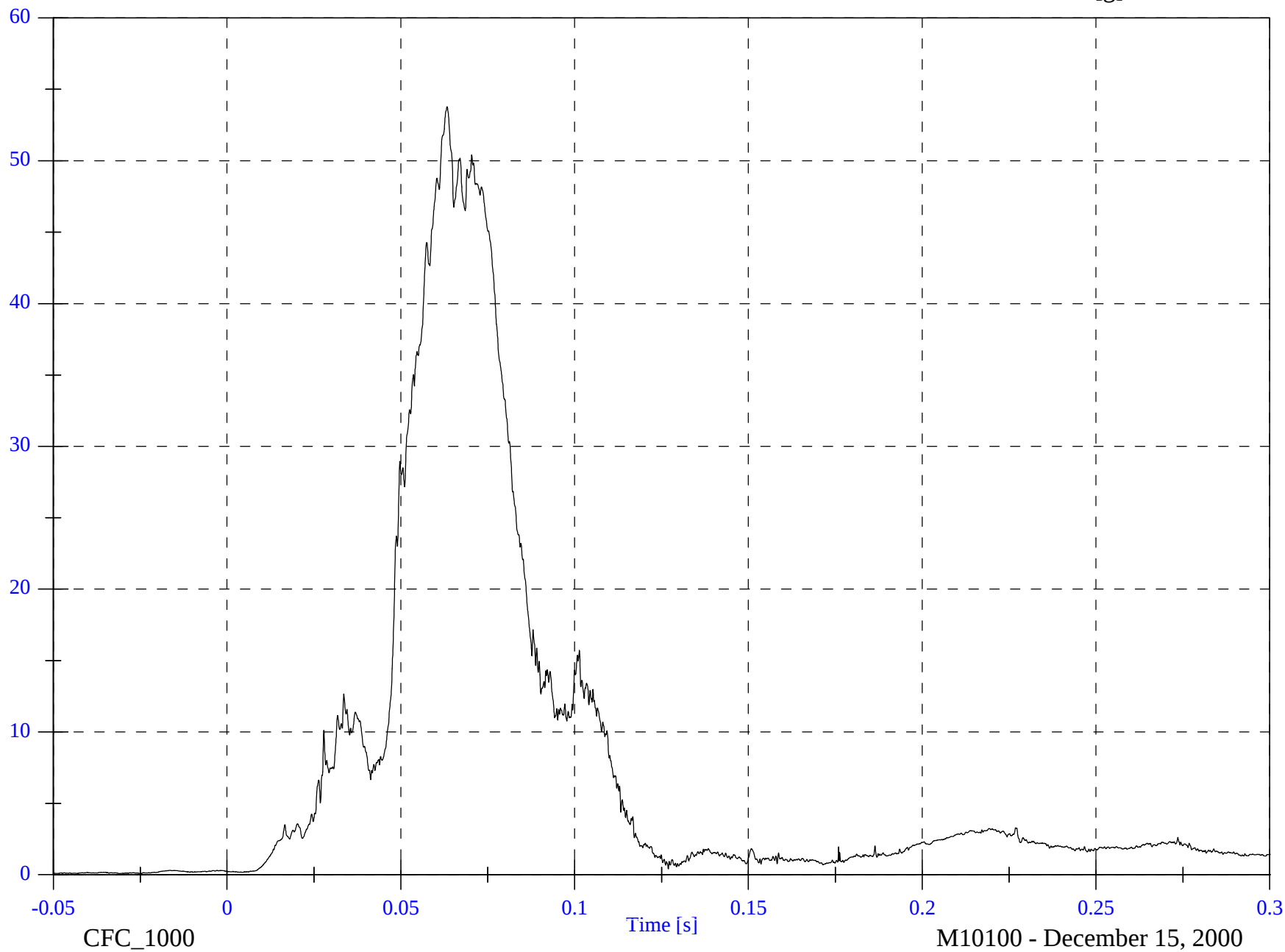


NCAP Test 9 - 2001 Buick LeSabre

P2 Pelvic Resultant

Max: 53.8 [g] at 0.063 [s]

Min: 0.1 [g] at -0.031 [s]

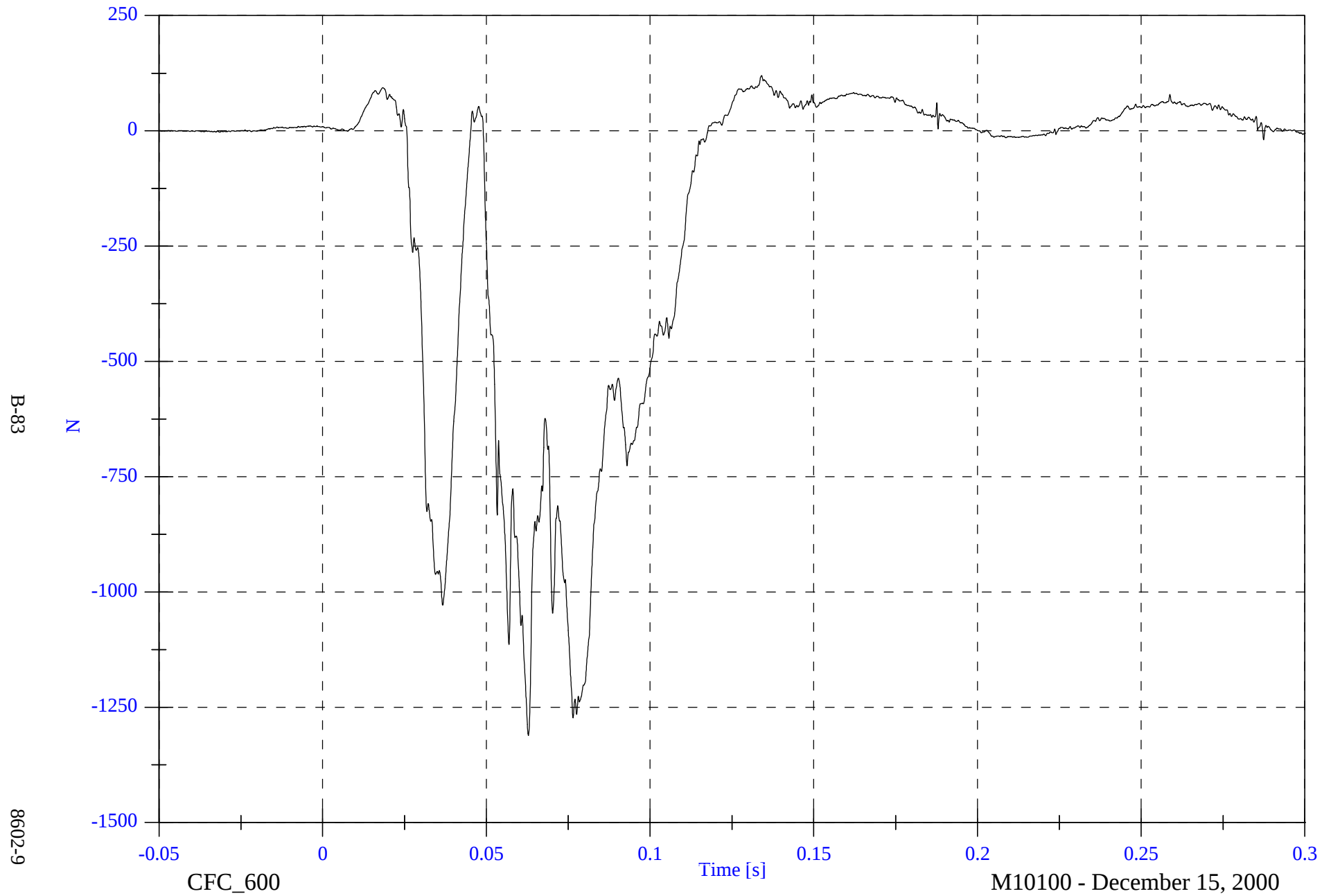


NCAP Test 9 - 2001 Buick LeSabre

P2 Left Femur z

Max: 119.7 [N] at 0.134 [s]

Min: -1311.2 [N] at 0.063 [s]

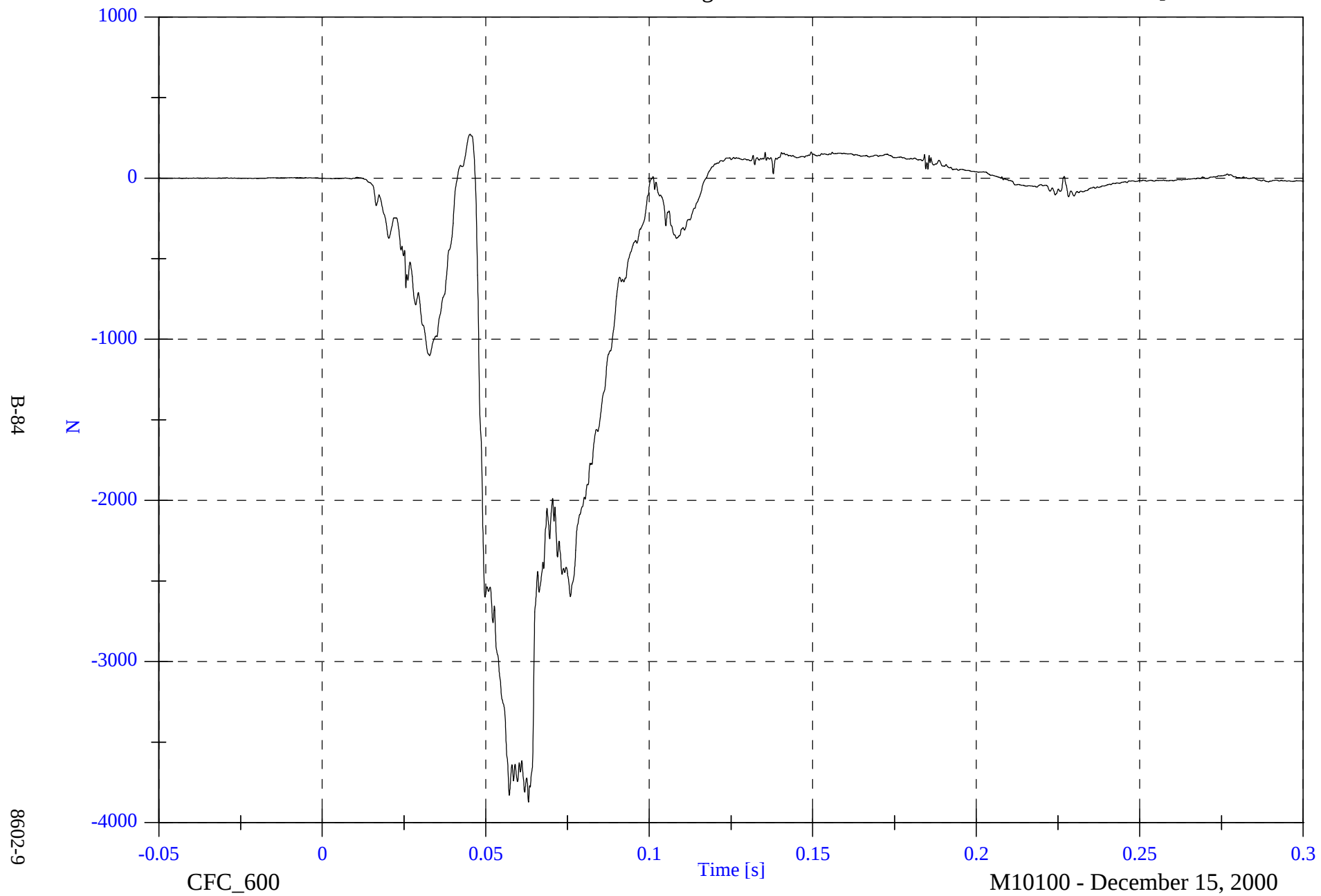


NCAP Test 9 - 2001 Buick LeSabre

P2 Right Femur z

Max: 272.2 [N] at 0.045 [s]

Min: -3872.9 [N] at 0.063 [s]

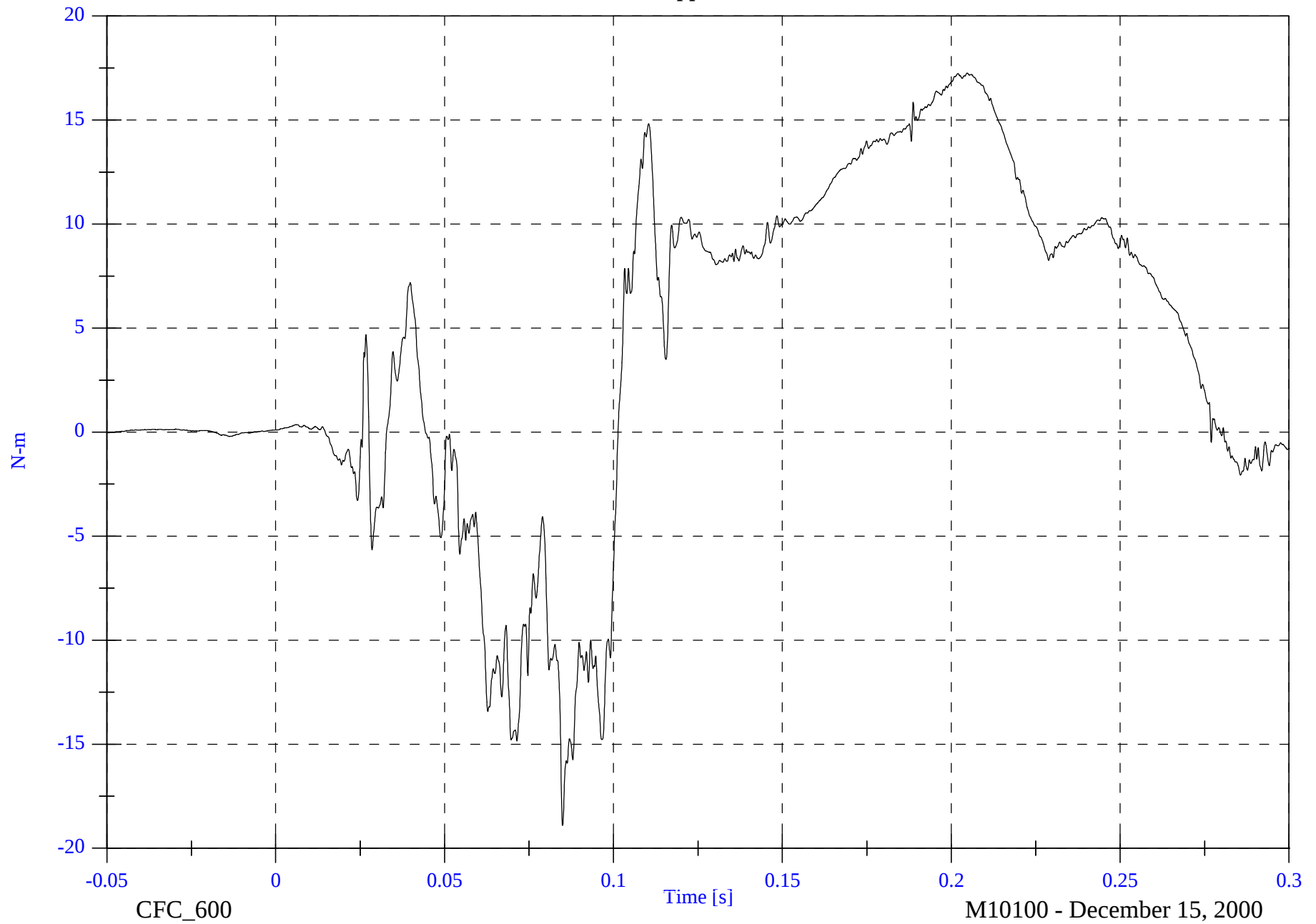


NCAP Test 9 - 2001 Buick LeSabre

P2 Left Upper Tibia Mx

Max: 17.3 [N-m] at 0.205 [s]

Min: -18.9 [N-m] at 0.085 [s]



B-85

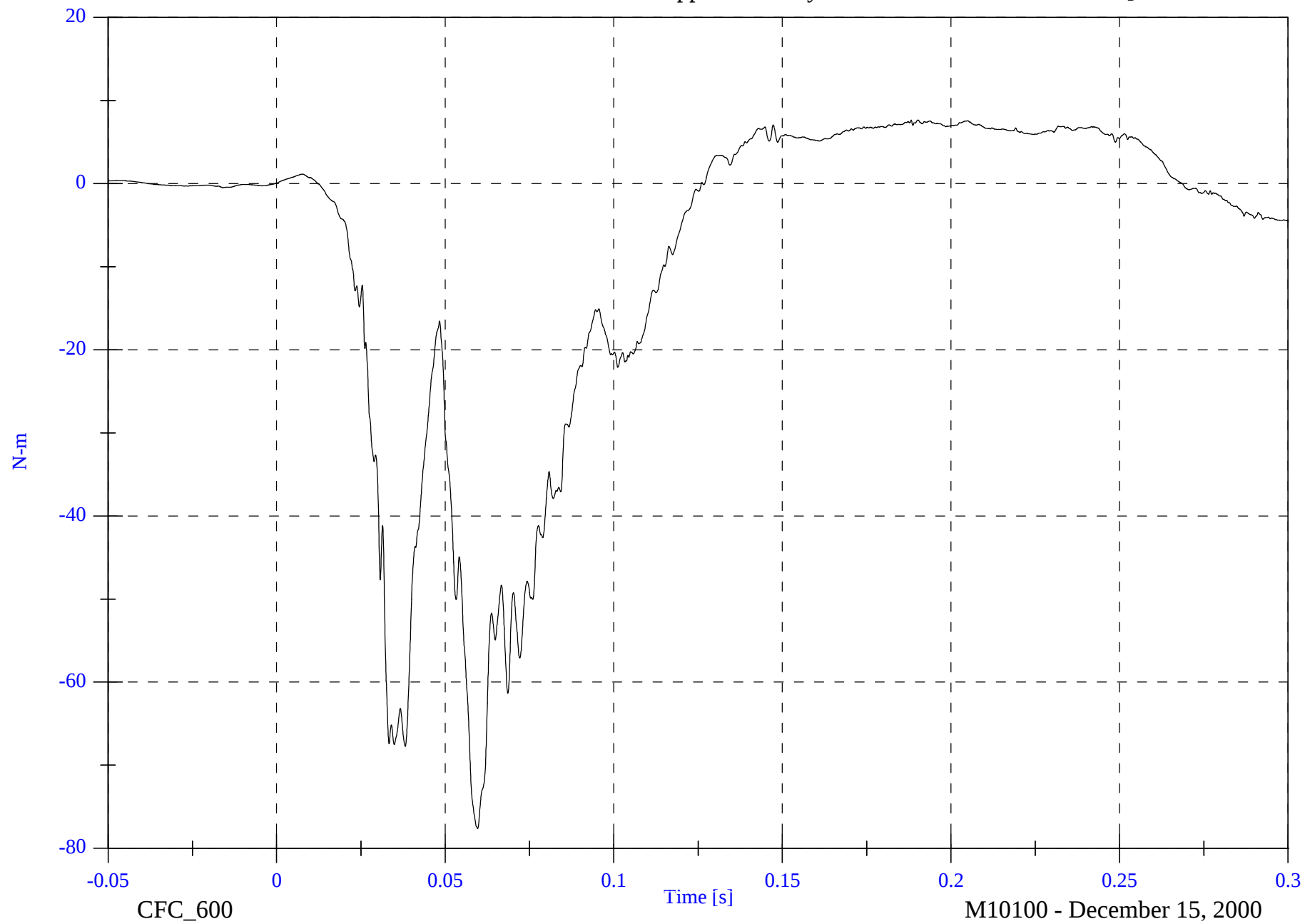
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P2 Left Upper Tibia My

Max: 7.7 [N-m] at 0.190 [s]

Min: -77.6 [N-m] at 0.060 [s]



B-86

8602-9

CFC_600

Time [s]

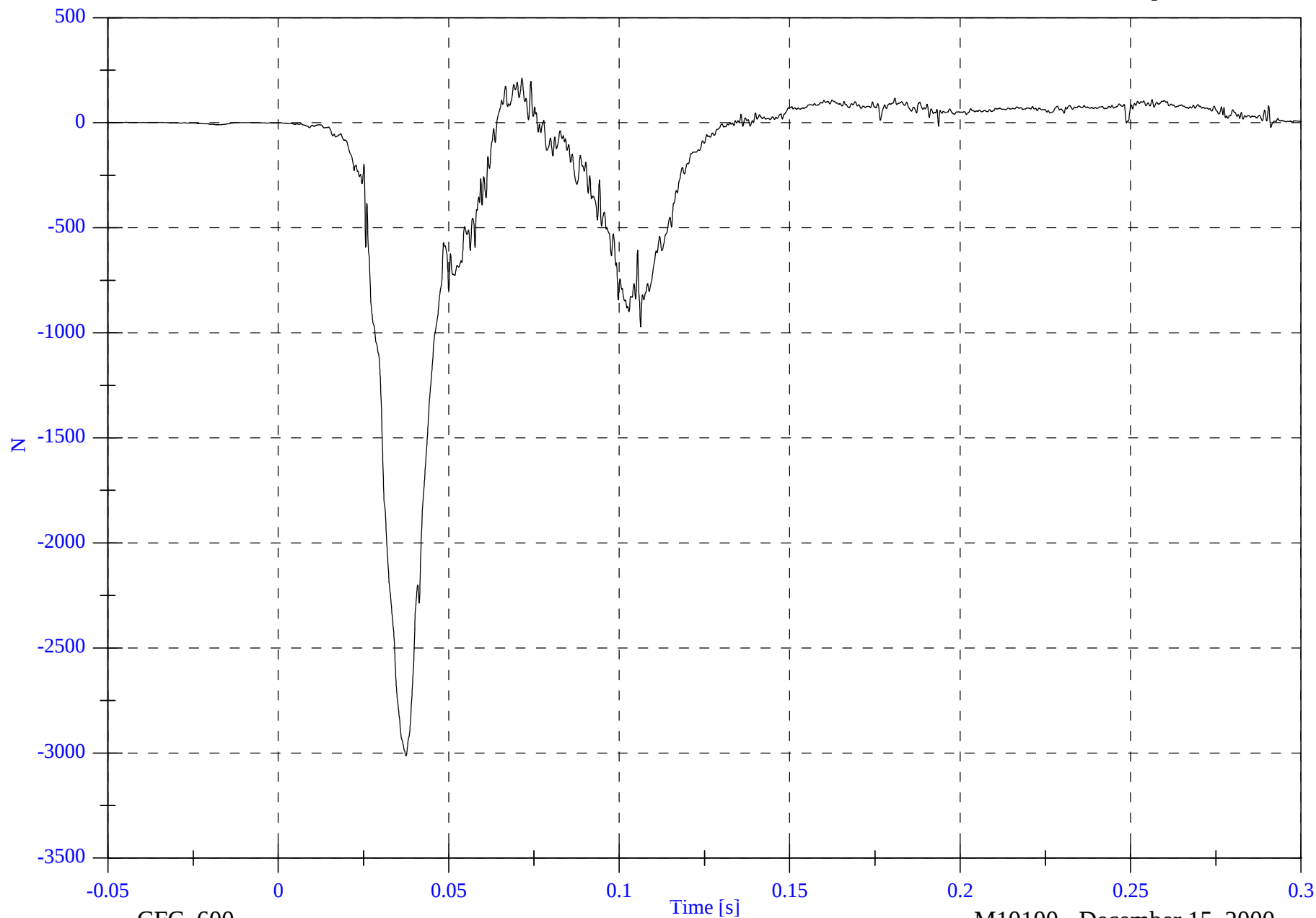
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

P2 Left Lower Tibia Fz

Max: 212.3 [N] at 0.071 [s]

Min: -3013.0 [N] at 0.038 [s]



B-87

8602-9

CFC_600

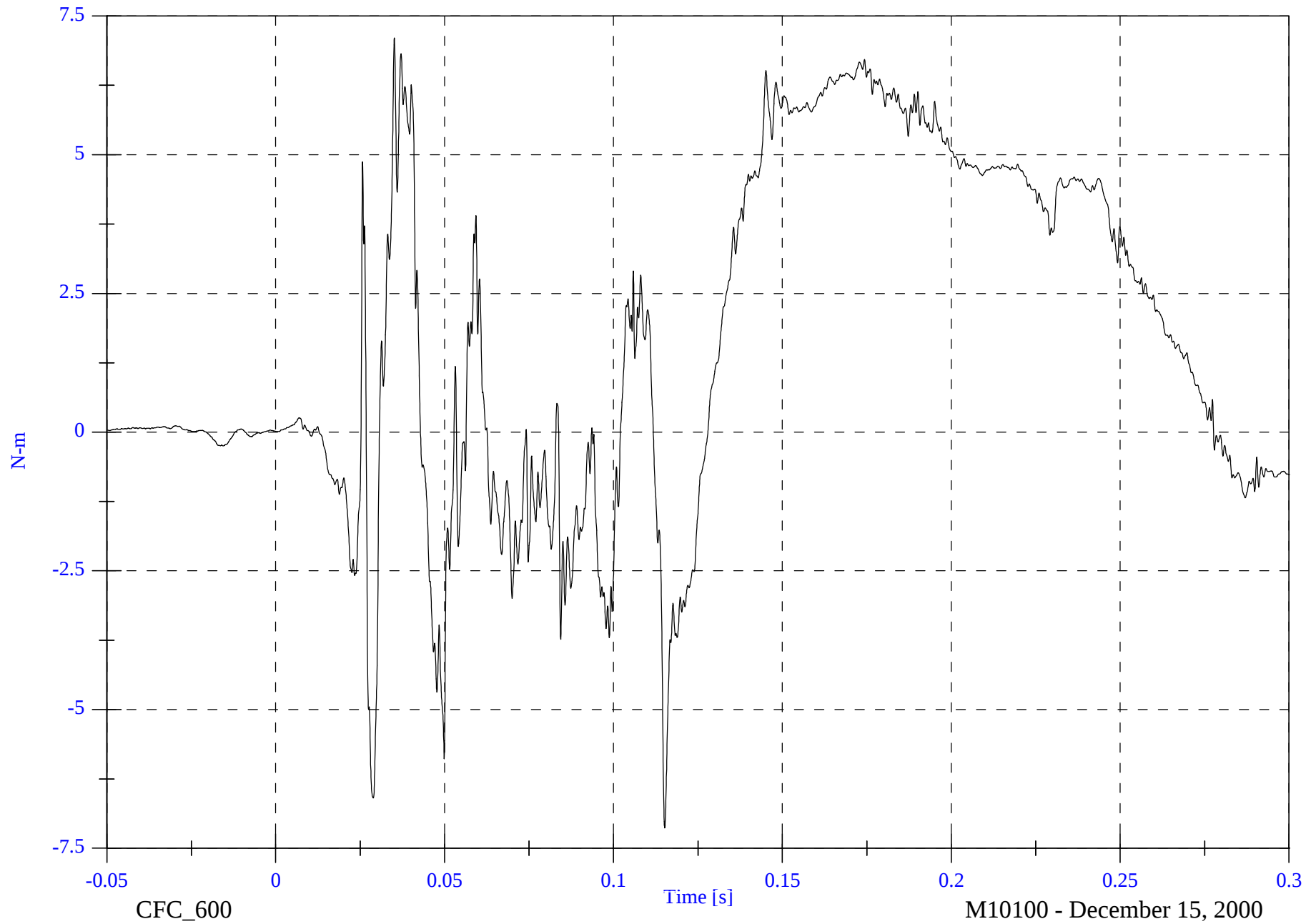
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

P2 Left Lower Tibia Mx

Max: 7.1 [N-m] at 0.035 [s]

Min: -7.1 [N-m] at 0.115 [s]



B-88

8602-9

CFC_600

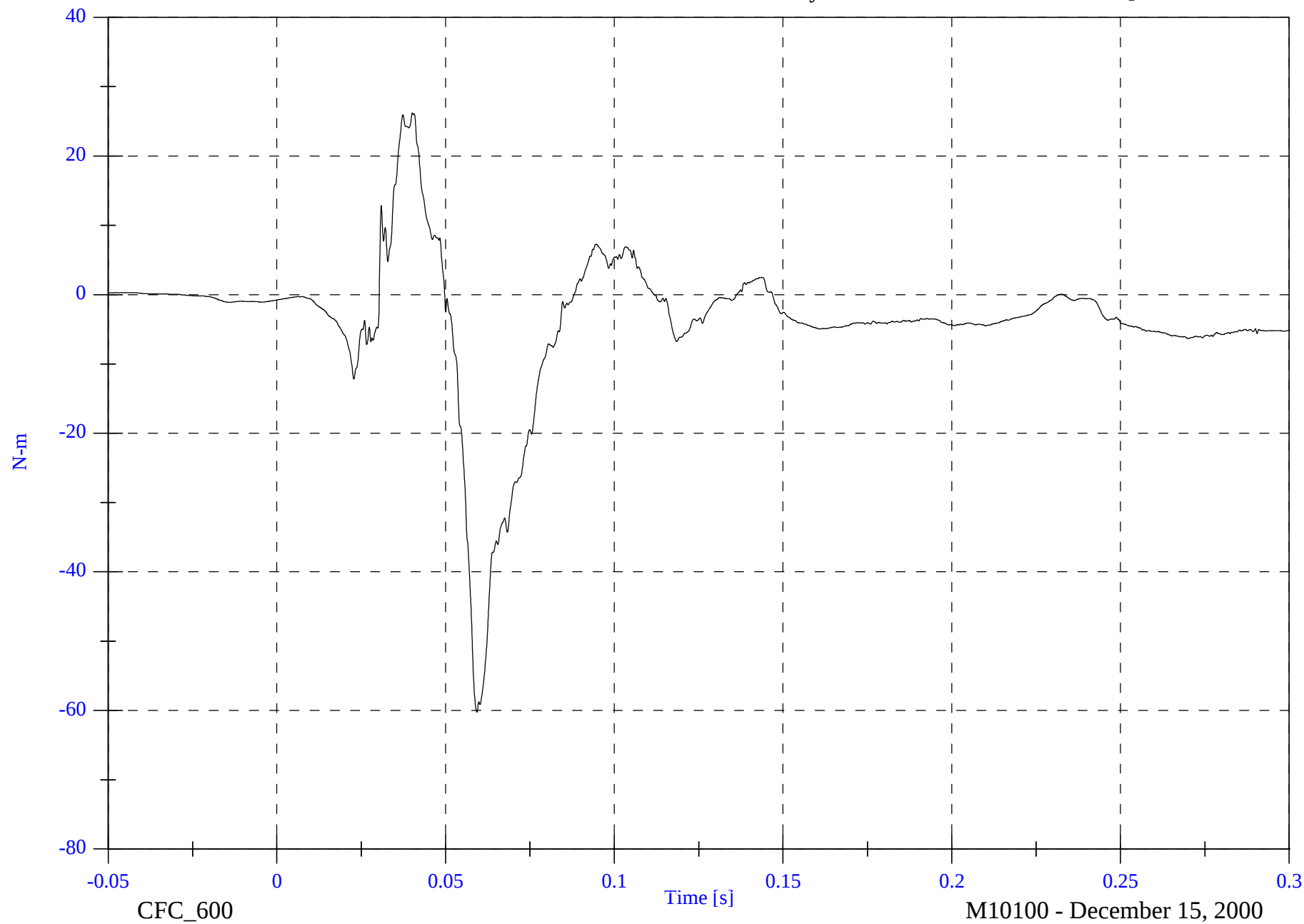
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

P2 Left Lower Tibia My

Max: 26.2 [N-m] at 0.040 [s]

Min: -60.3 [N-m] at 0.059 [s]



B-89

8602-9

CFC_600

Time [s]

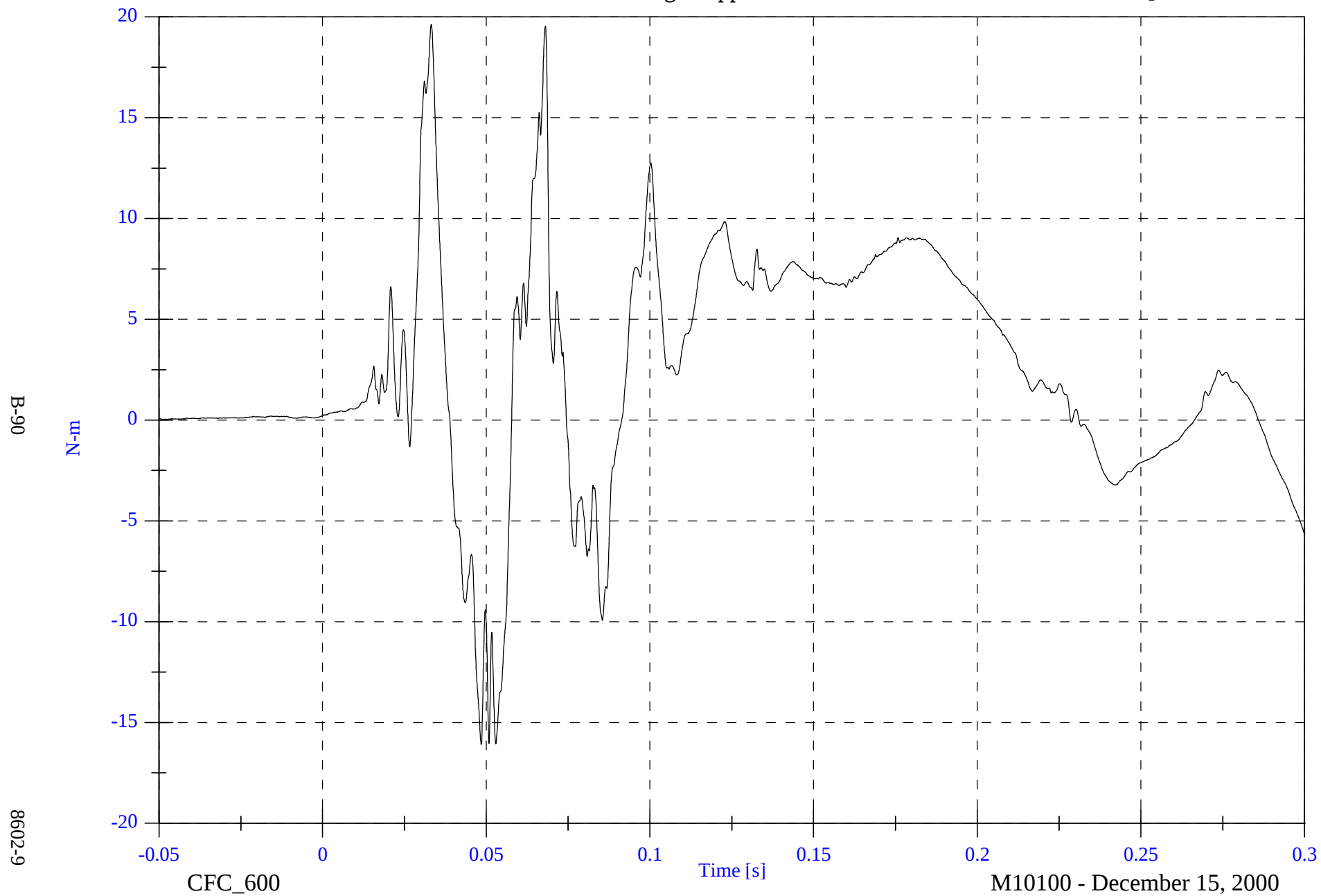
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

P2 Right Upper Tibia Mx

Max: 19.6 [N-m] at 0.033 [s]

Min: -16.1 [N-m] at 0.049 [s]



B-90

8602-9

CFC_600

Time [s]

M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

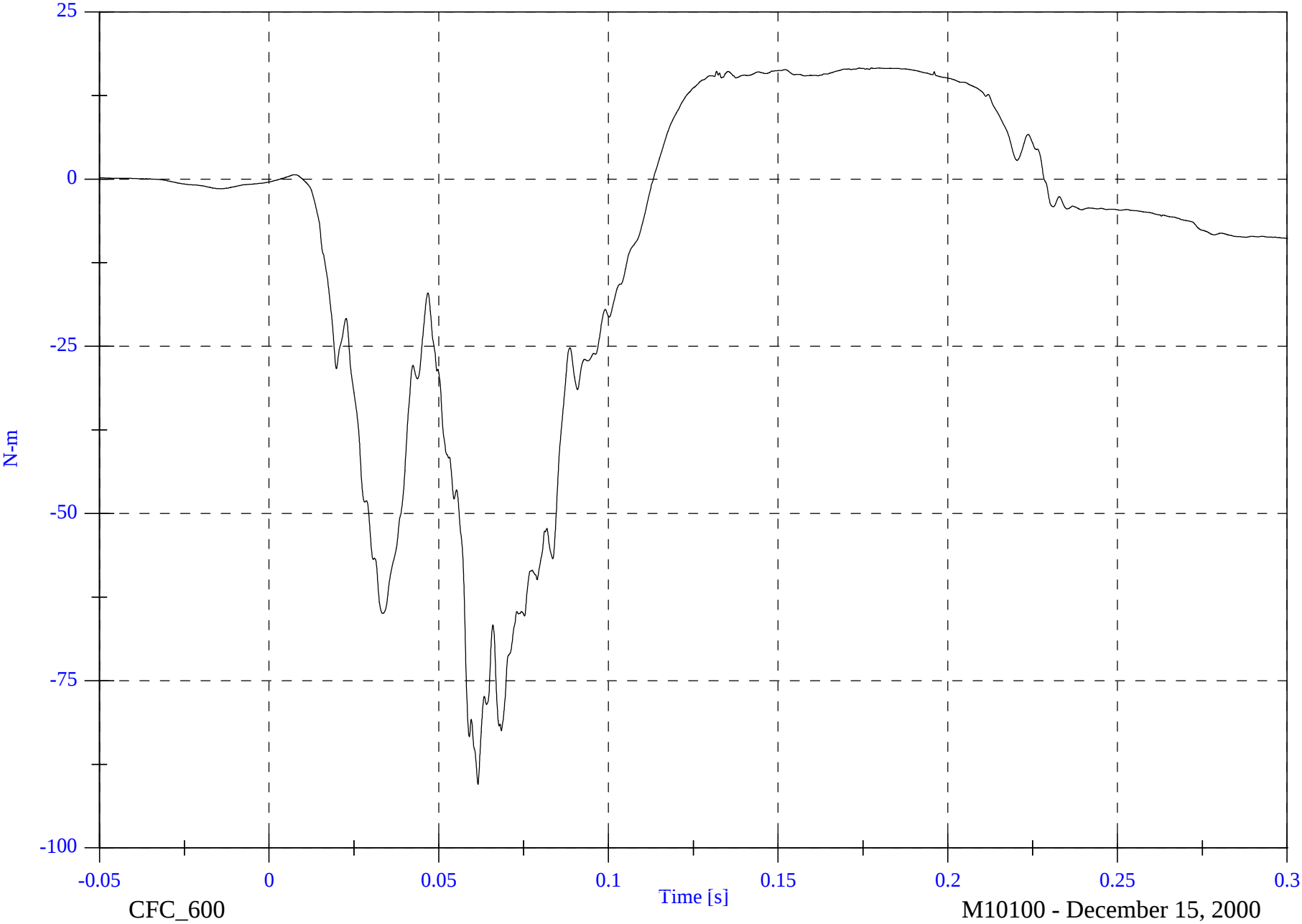
P2 Right Upper Tibia My

Max: 16.6 [N-m] at 0.177 [s]

Min: -90.5 [N-m] at 0.062 [s]

B-91

8602-9

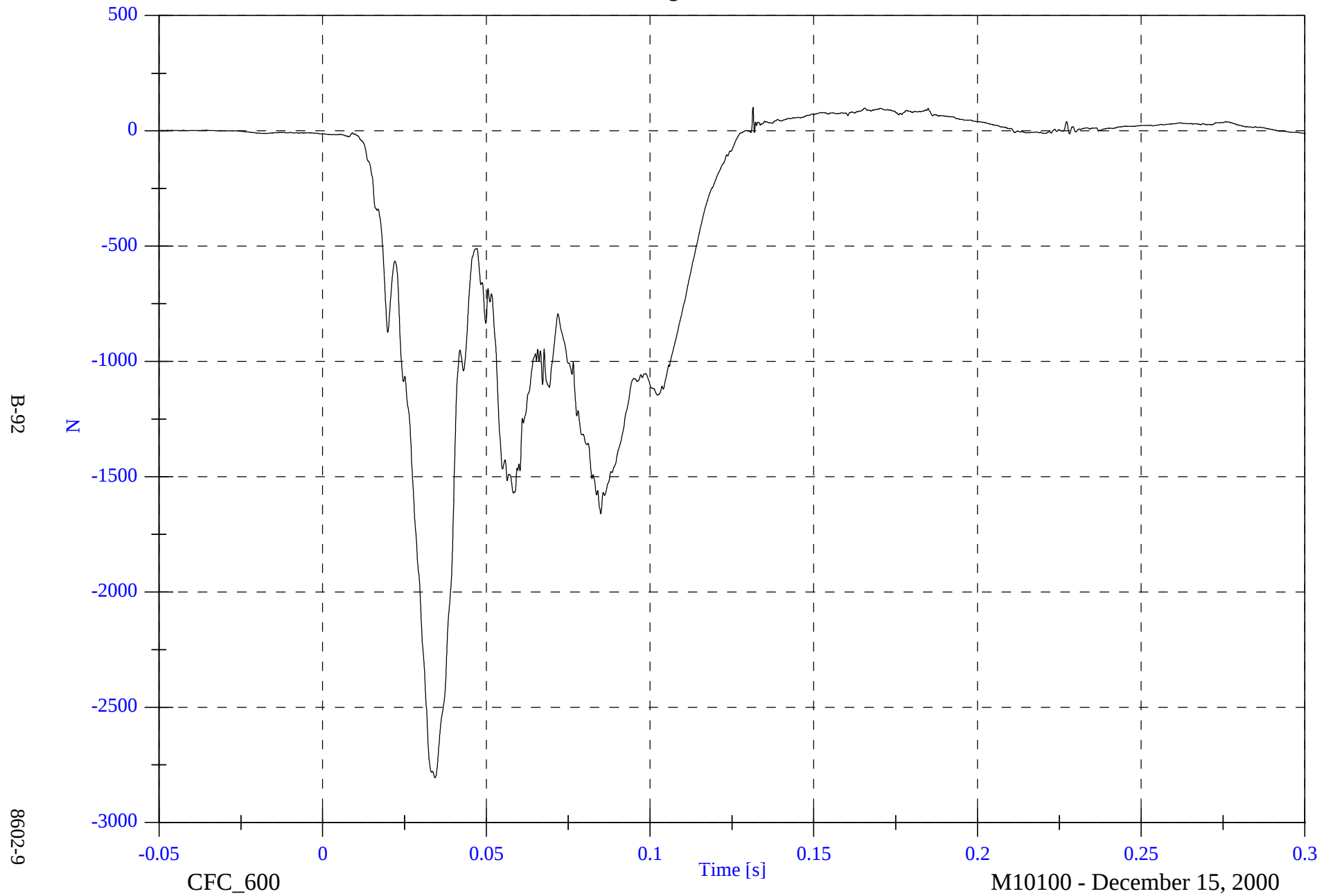


NCAP Test 9 - 2001 Buick LeSabre

P2 Right Lower Tibia Fz

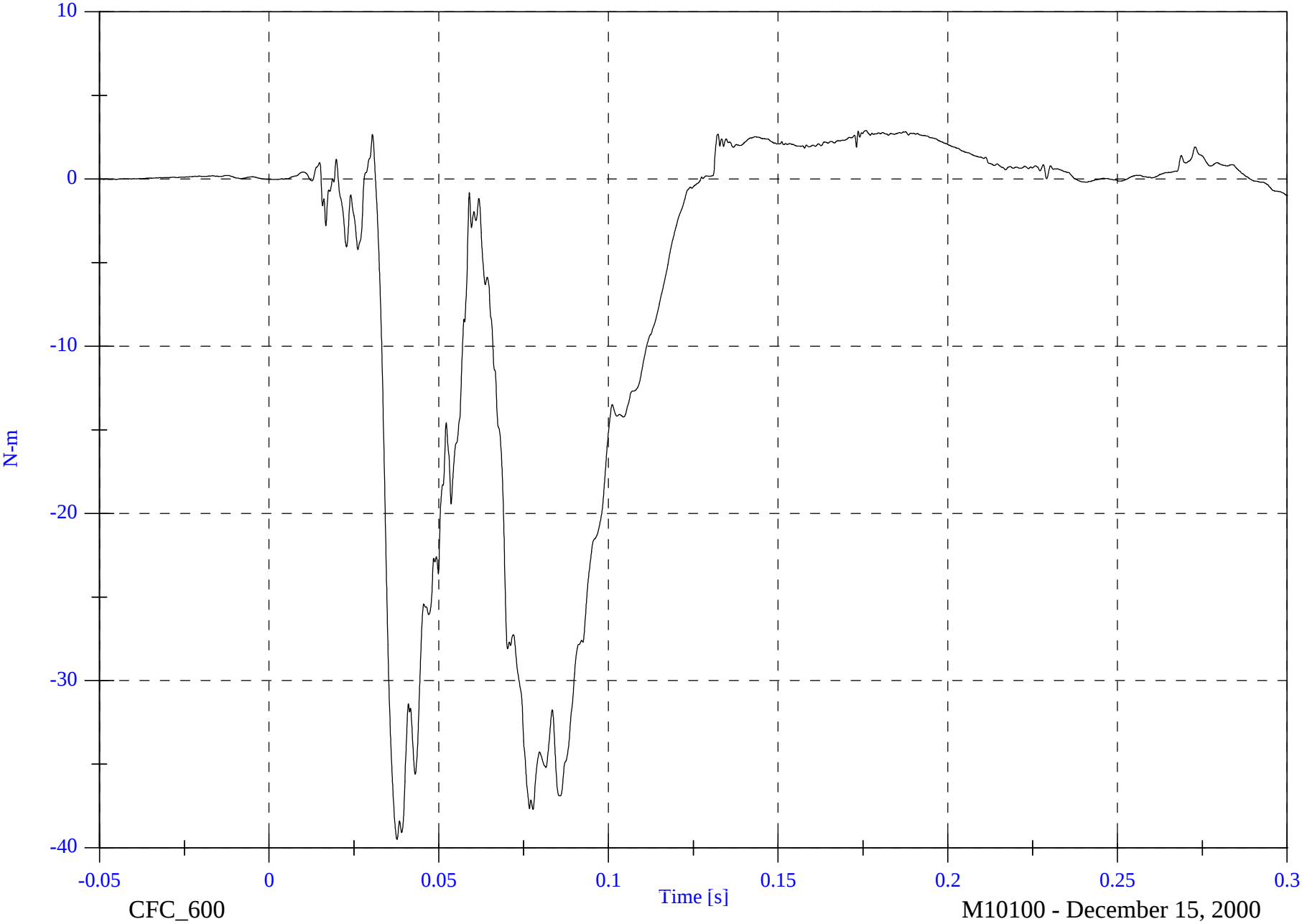
Max: 101.9 [N] at 0.131 [s]

Min: -2806.1 [N] at 0.034 [s]



B-93

8602-9

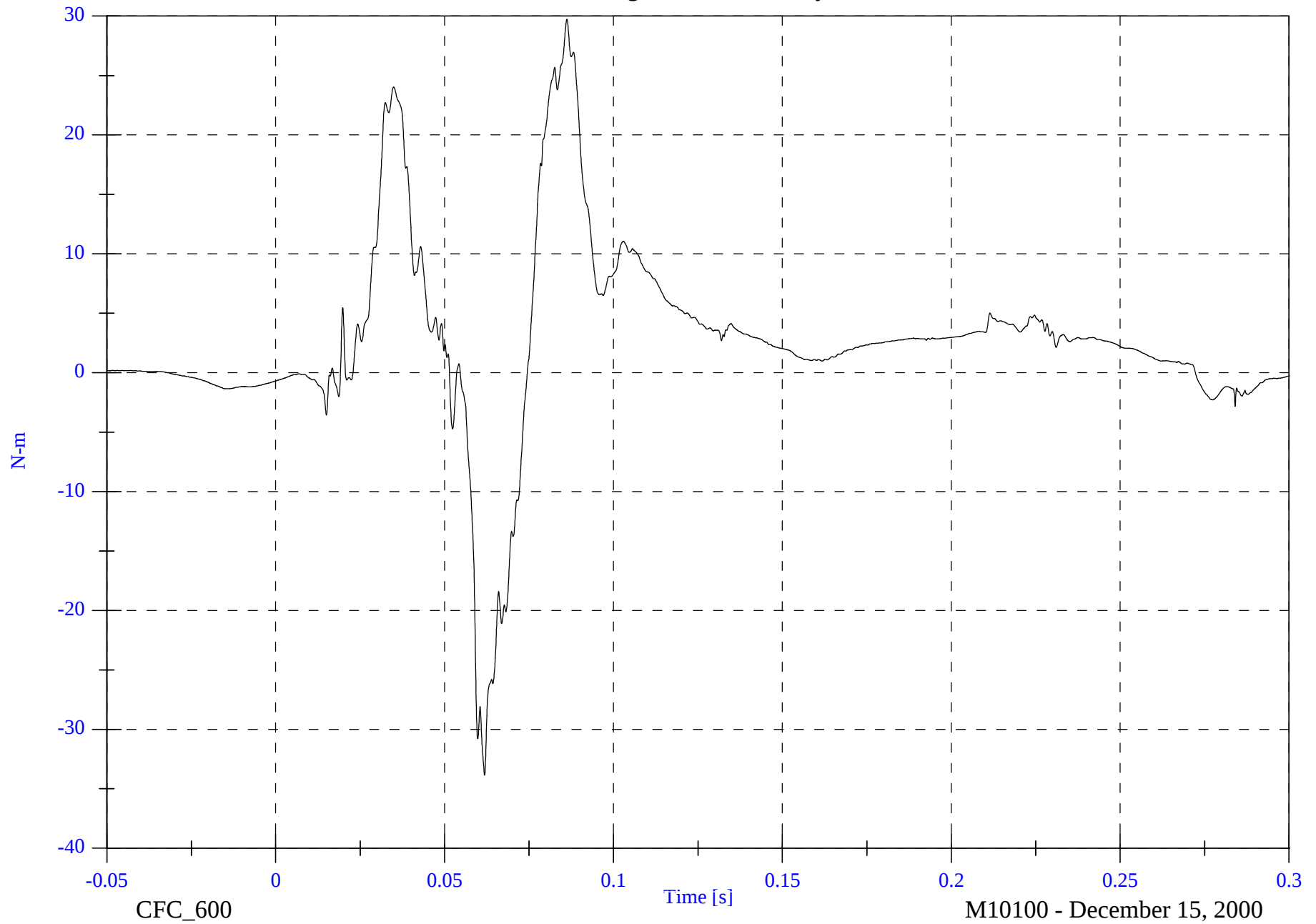


NCAP Test 9 - 2001 Buick LeSabre

P2 Right Lower Tibia My

Max: 29.7 [N-m] at 0.086 [s]

Min: -33.9 [N-m] at 0.062 [s]



B-94

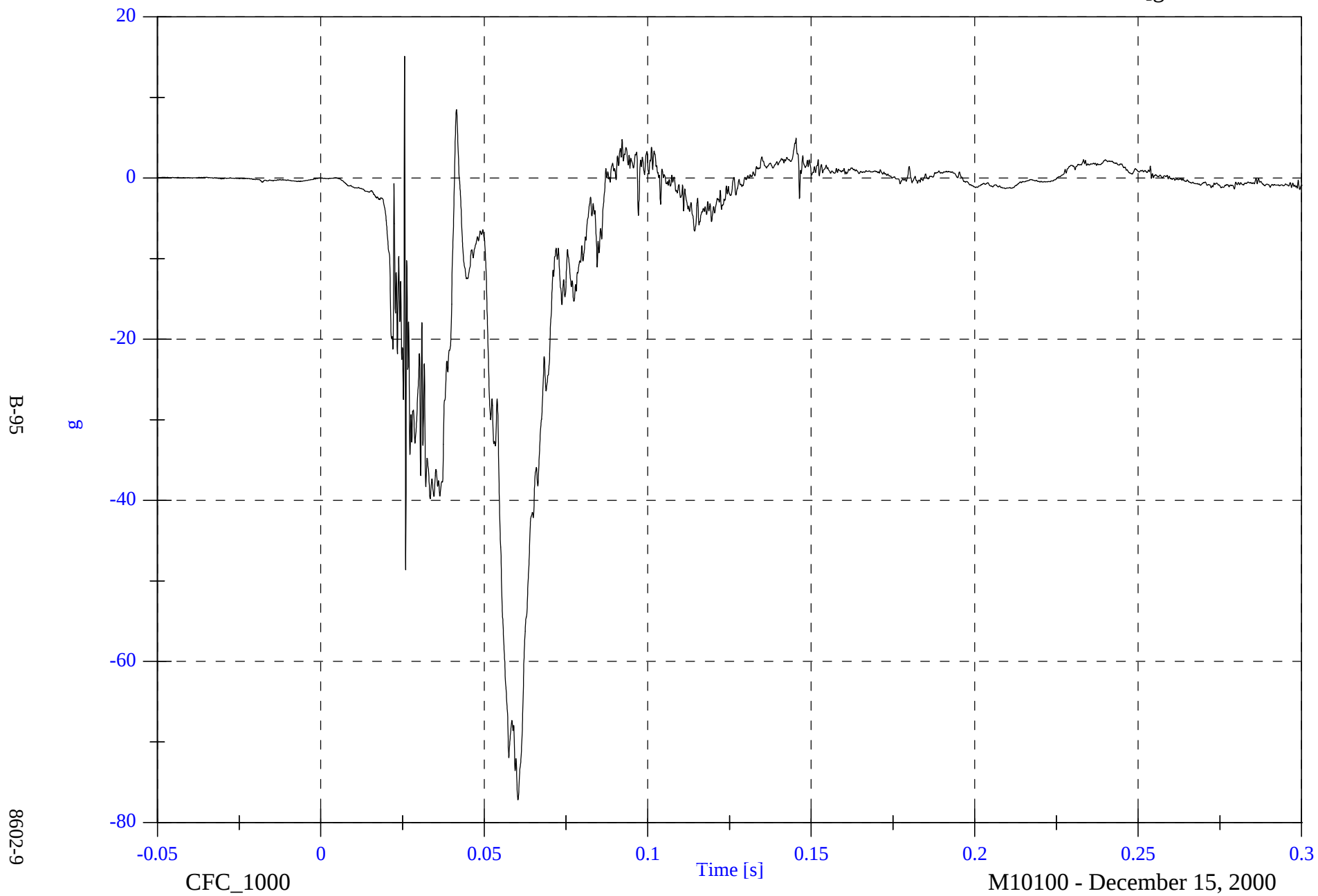
8602-9

NCAP Test 9 - 2001 Buick LeSabre

P2 Left Foot Aft x

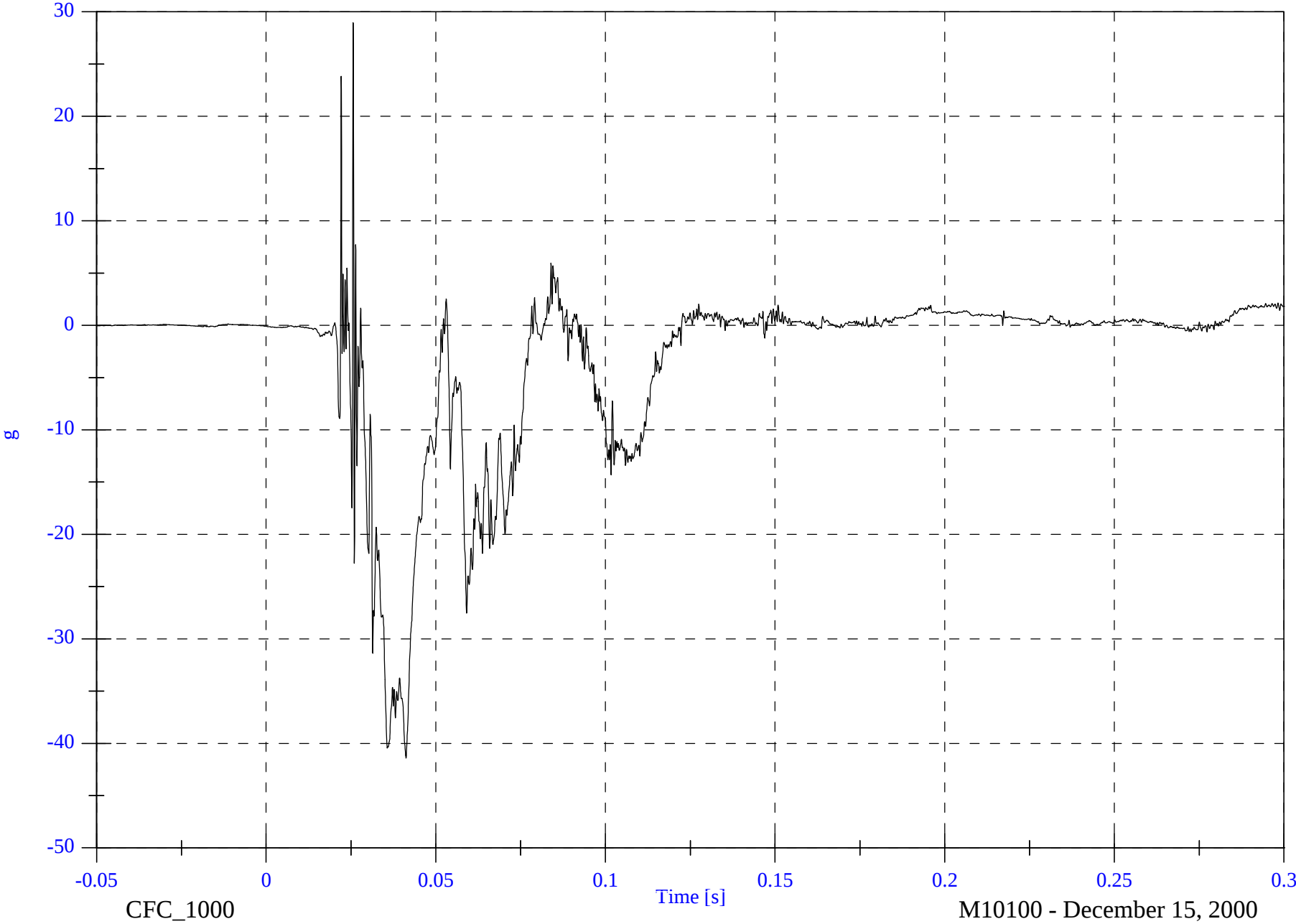
Max: 15.1 [g] at 0.026 [s]

Min: -77.2 [g] at 0.060 [s]



B-96

8602-9

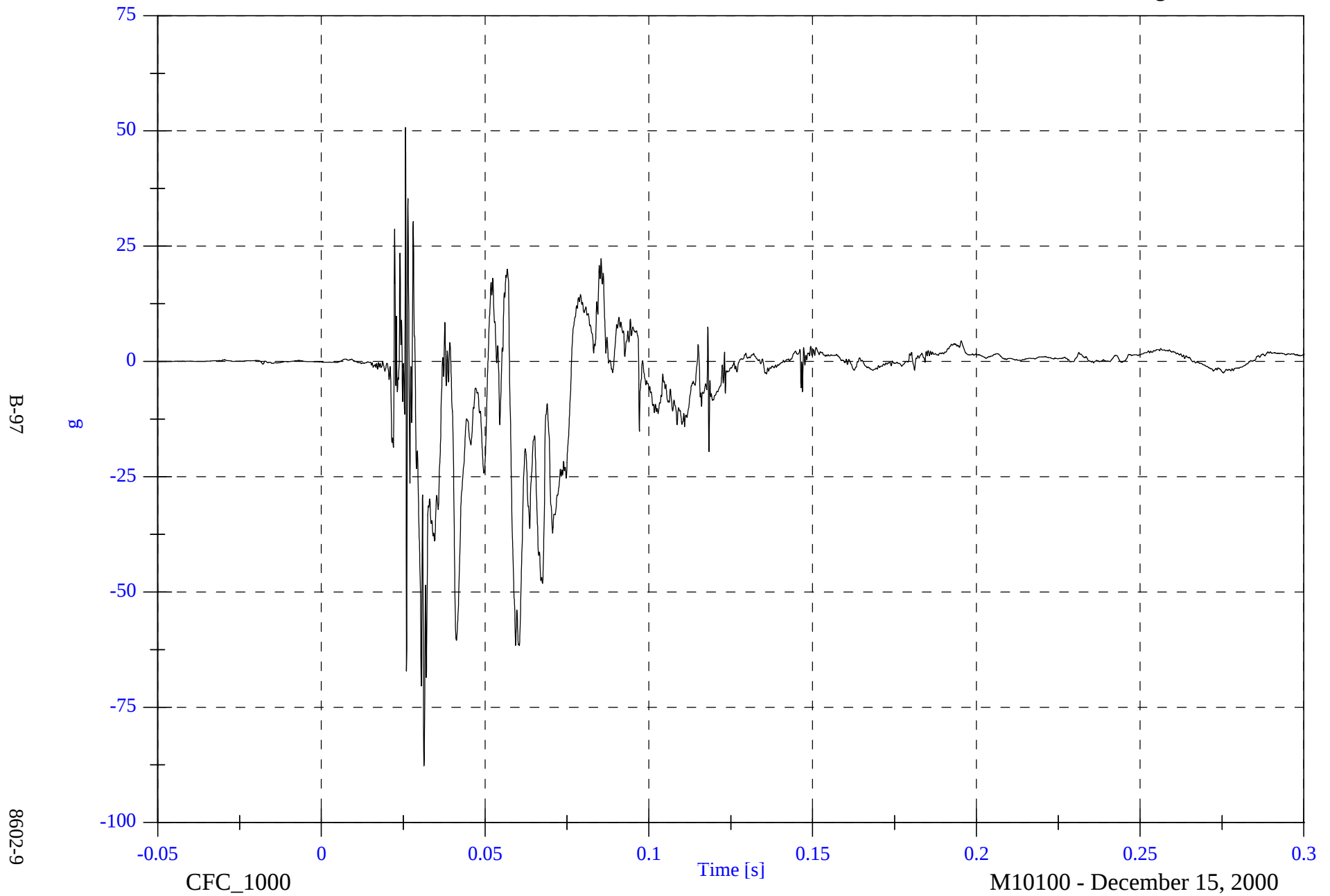


NCAP Test 9 - 2001 Buick LeSabre

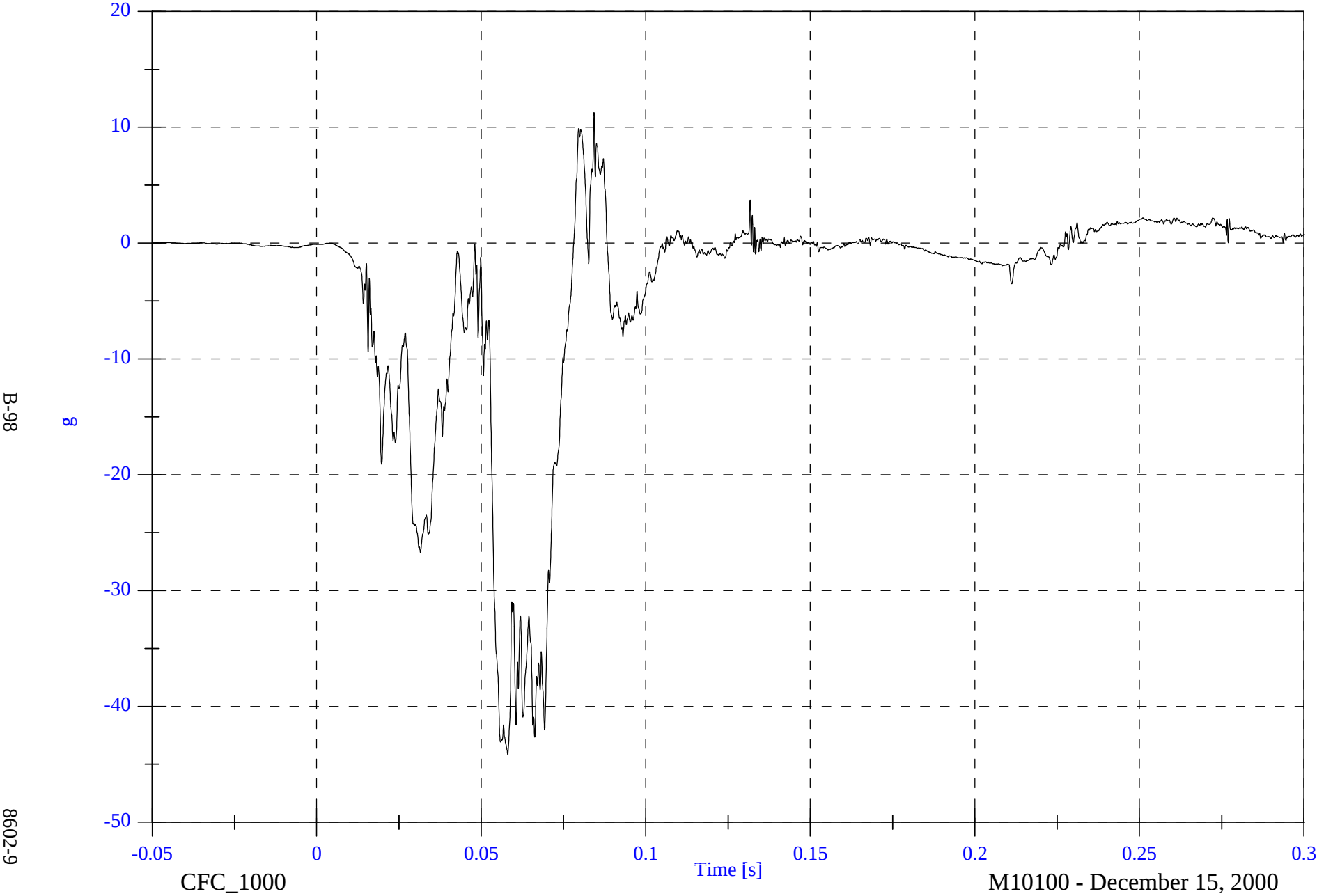
P2 Left Foot Fore z

Max: 50.7 [g] at 0.026 [s]

Min: -87.7 [g] at 0.031 [s]



P2 Right Foot Aft x

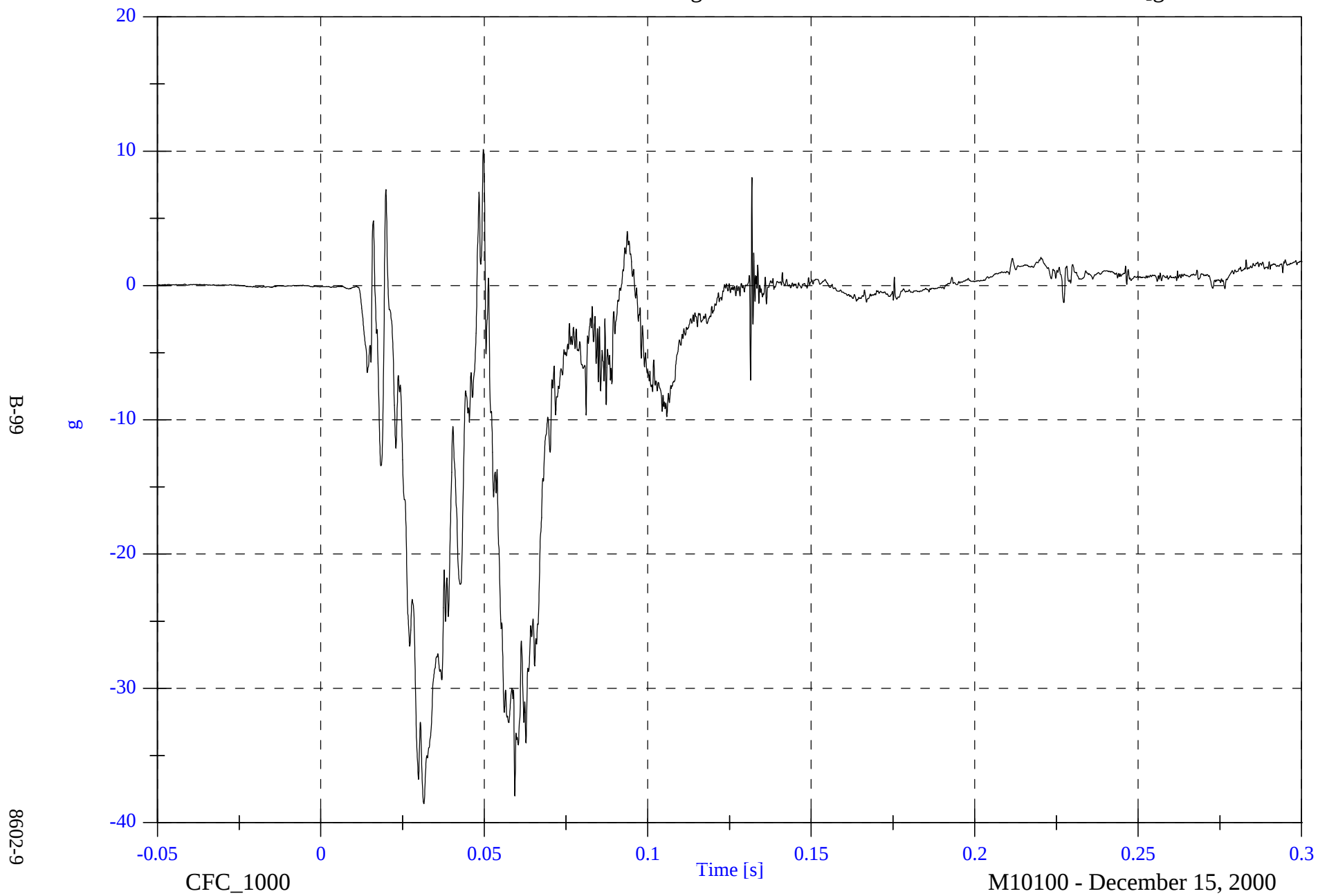


NCAP Test 9 - 2001 Buick LeSabre

P2 Right Foot Aft z

Max: 10.1 [g] at 0.050 [s]

Min: -38.6 [g] at 0.032 [s]

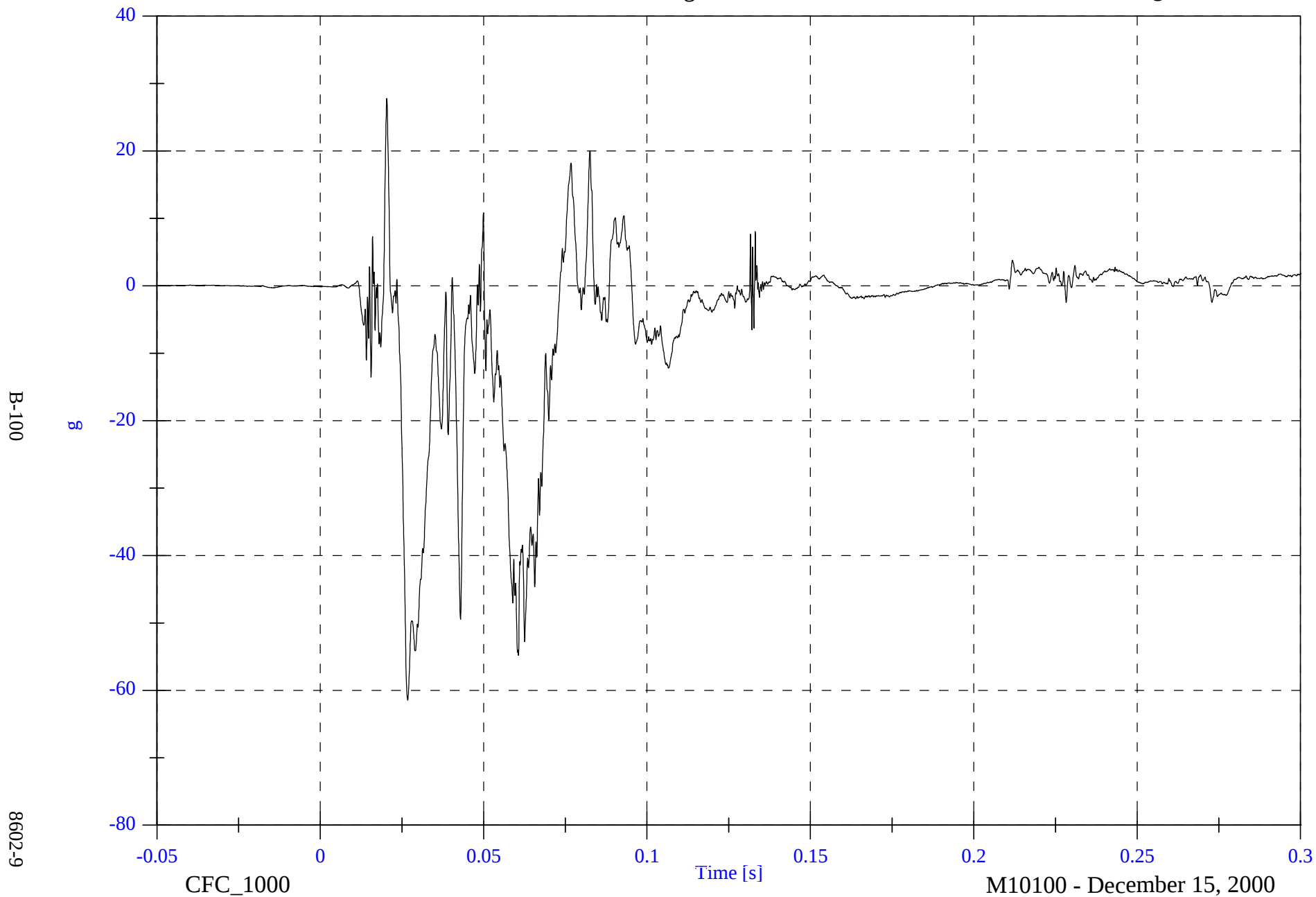


NCAP Test 9 - 2001 Buick LeSabre

P2 Right Foot Fore z

Max: 27.8 [g] at 0.020 [s]

Min: -61.5 [g] at 0.027 [s]

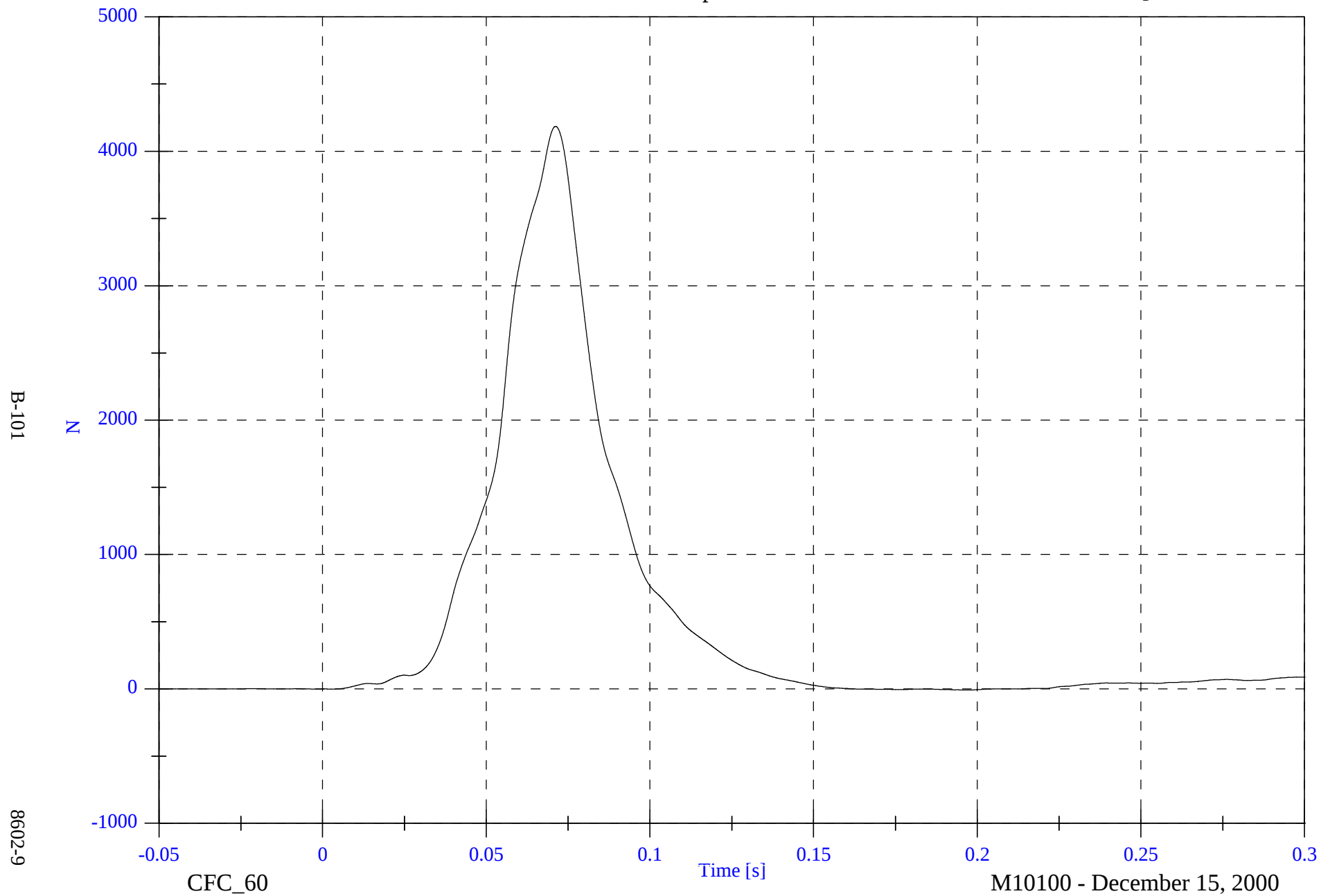


NCAP Test 9 - 2001 Buick LeSabre

P2 Lap Belt Force

Max: 4185.9 [N] at 0.071 [s]

Min: -7.3 [N] at 0.198 [s]

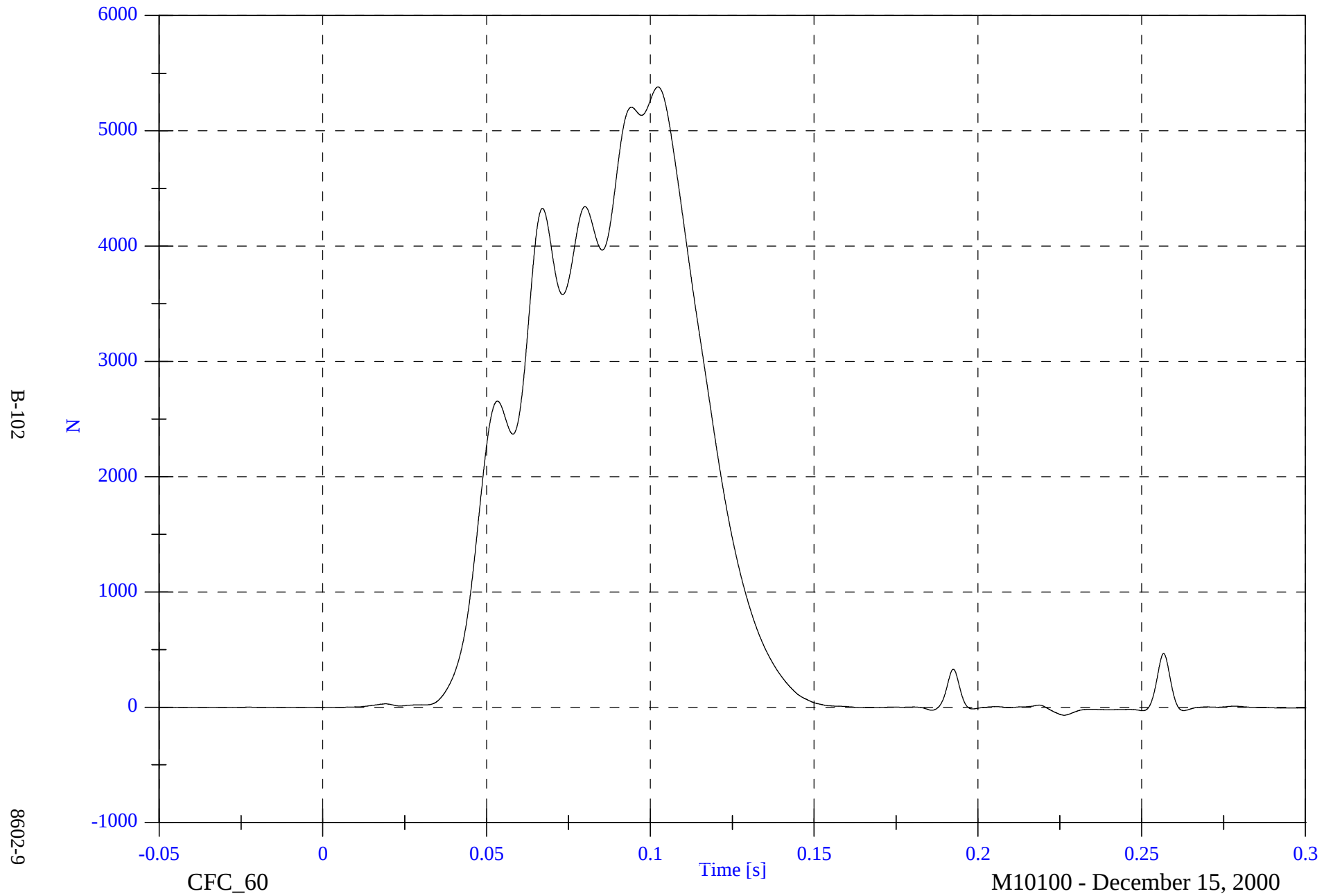


NCAP Test 9 - 2001 Buick LeSabre

P2 Shoulder Belt Force

Max: 5380.7 [N] at 0.102 [s]

Min: -68.7 [N] at 0.226 [s]

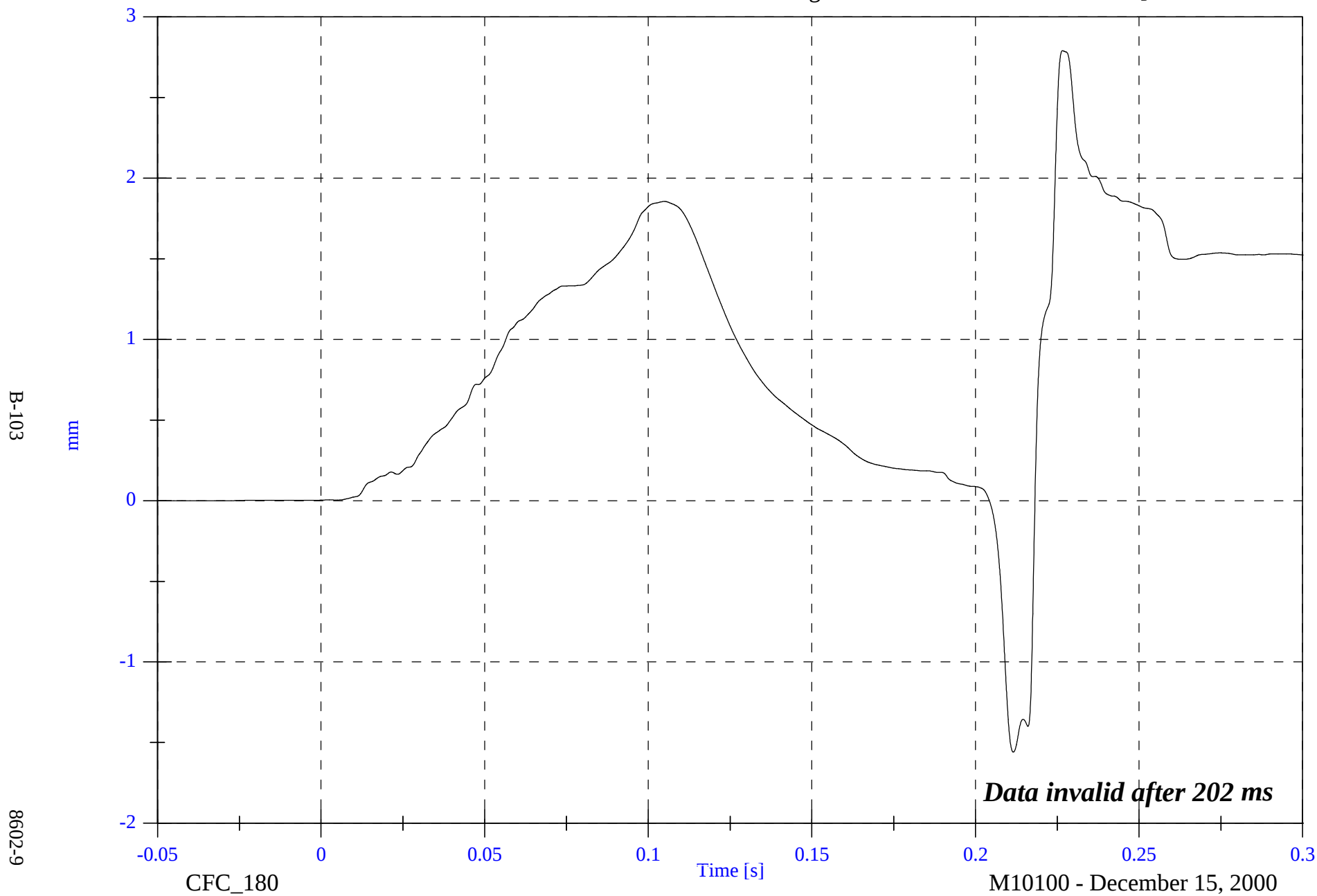


NCAP Test 9 - 2001 Buick LeSabre

P2 Shoulder Belt Elongation

Max: 2.8 [mm] at 0.227 [s]

Min: -1.6 [mm] at 0.212 [s]



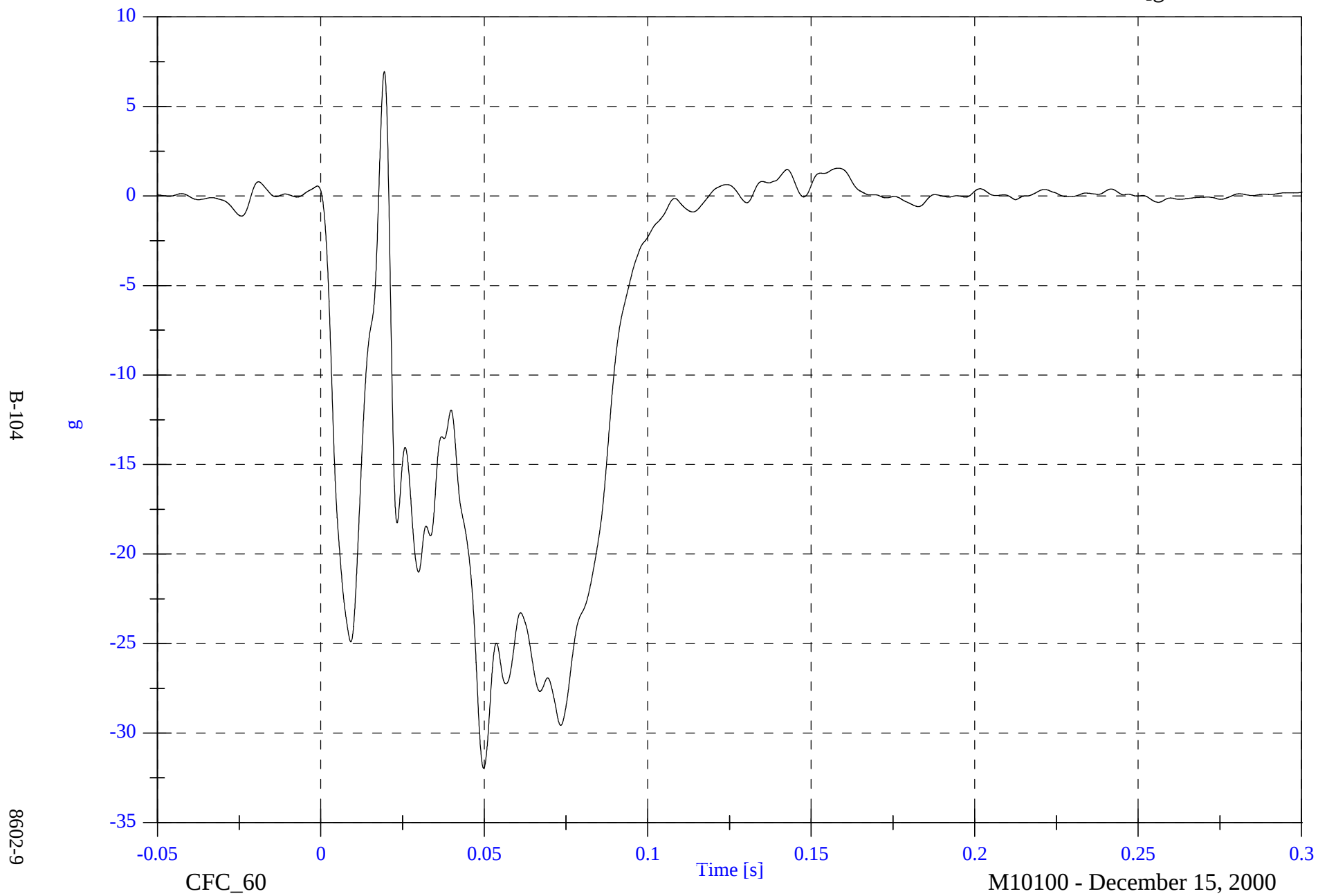
8602-9

NCAP Test 9 - 2001 Buick LeSabre

Left Rear #1x

Max: 7.0 [g] at 0.019 [s]

Min: -32.0 [g] at 0.050 [s]

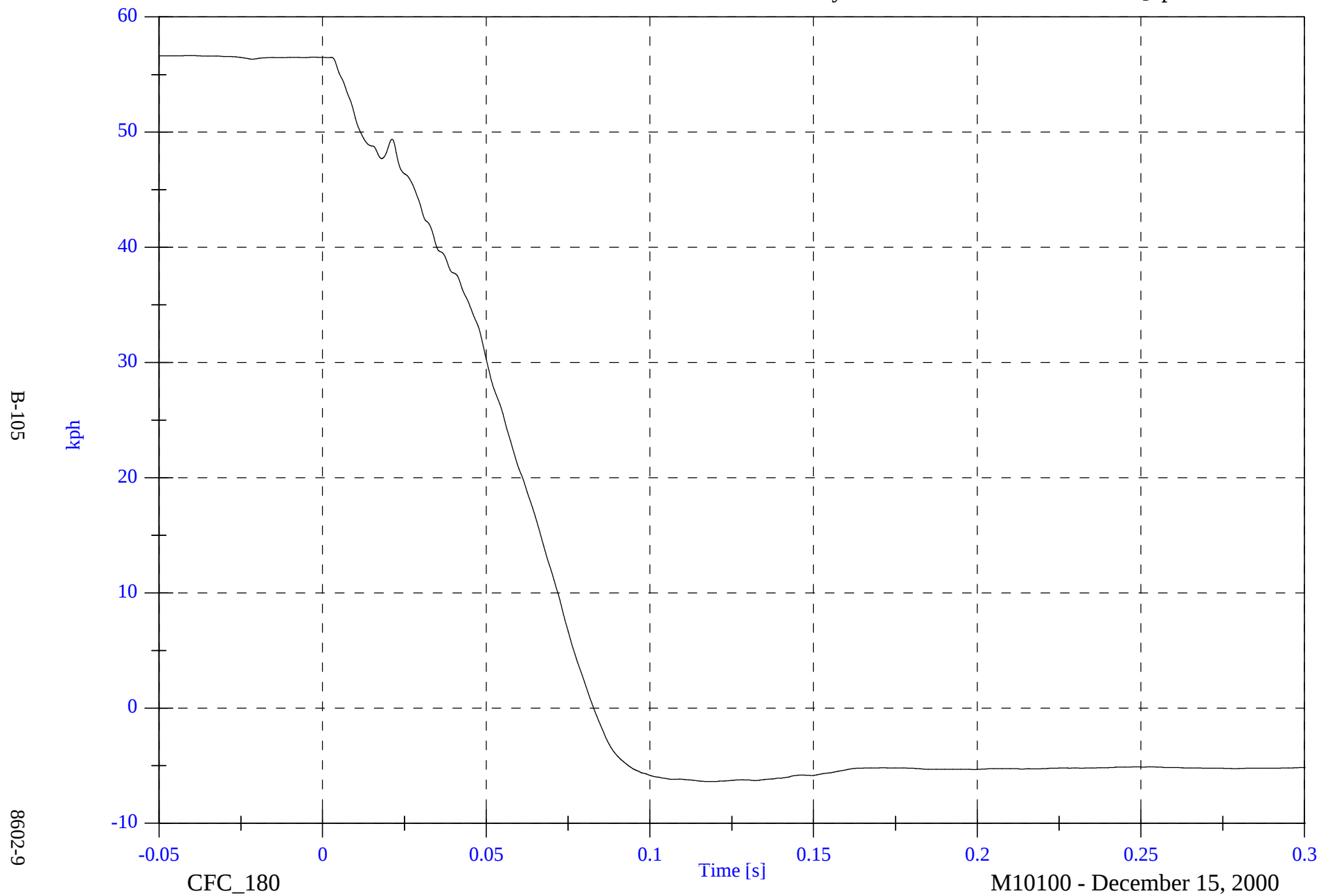


NCAP Test 9 - 2001 Buick LeSabre

Max: 56.6 [kph] at -0.040 [s]

Min: -6.4 [kph] at 0.119 [s]

Left Rear #1x Velocity



NCAP Test 9 - 2001 Buick LeSabre

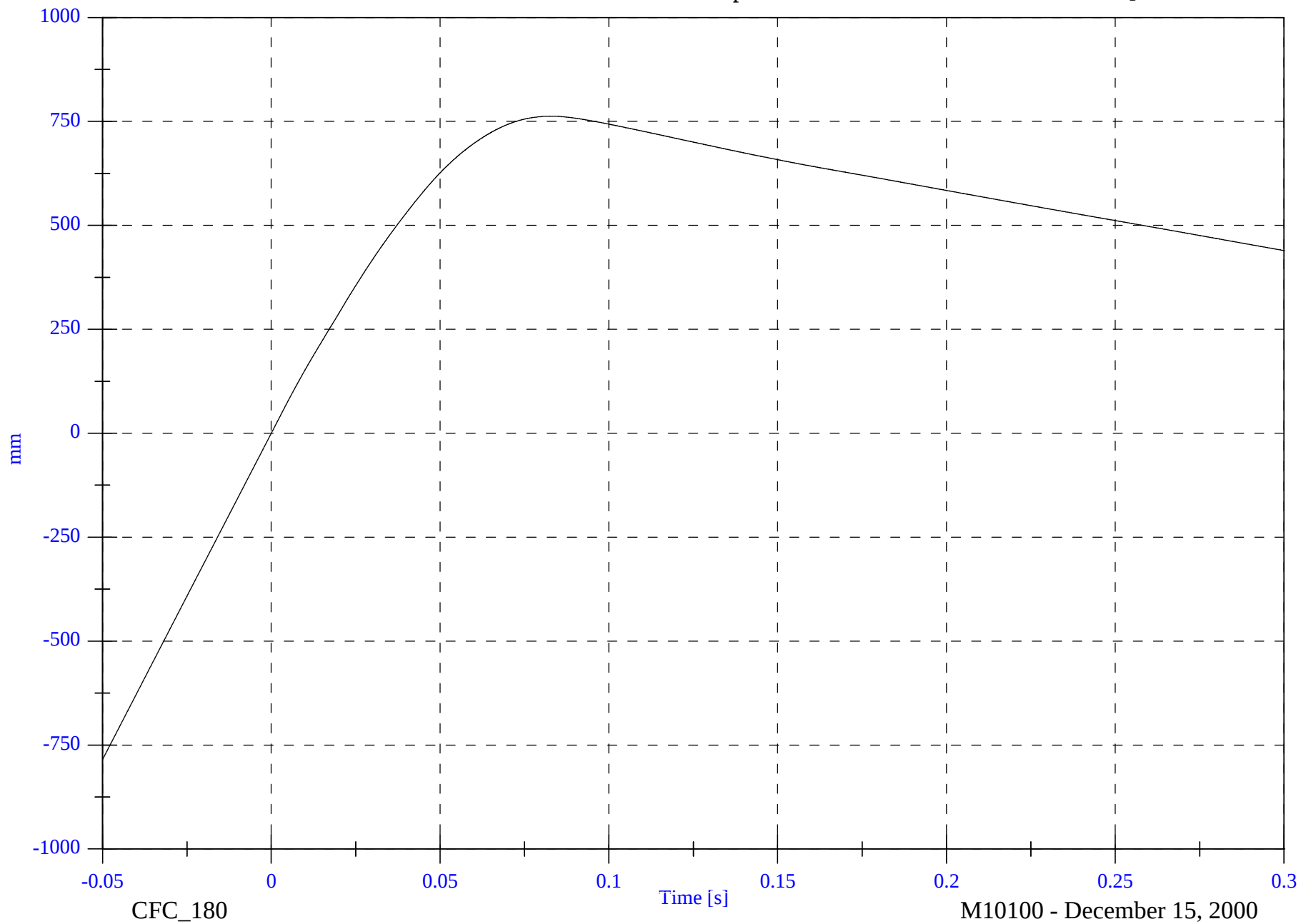
Left Rear #1x Displacement

Max: 762.5 [mm] at 0.083 [s]

Min: -785.1 [mm] at -0.050 [s]

B-106

8602-9

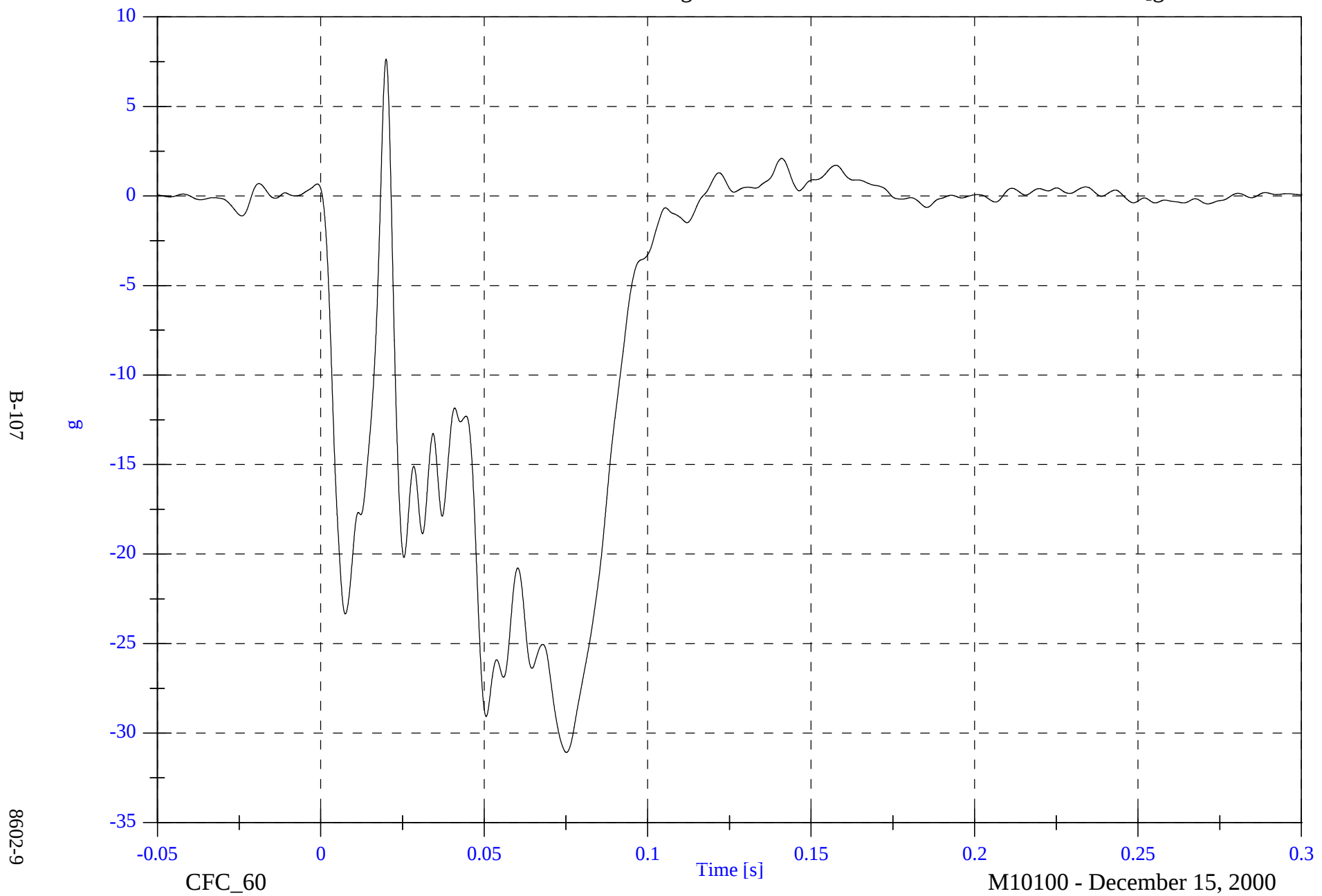


NCAP Test 9 - 2001 Buick LeSabre

Right Rear #2x

Max: 7.6 [g] at 0.020 [s]

Min: -31.1 [g] at 0.075 [s]

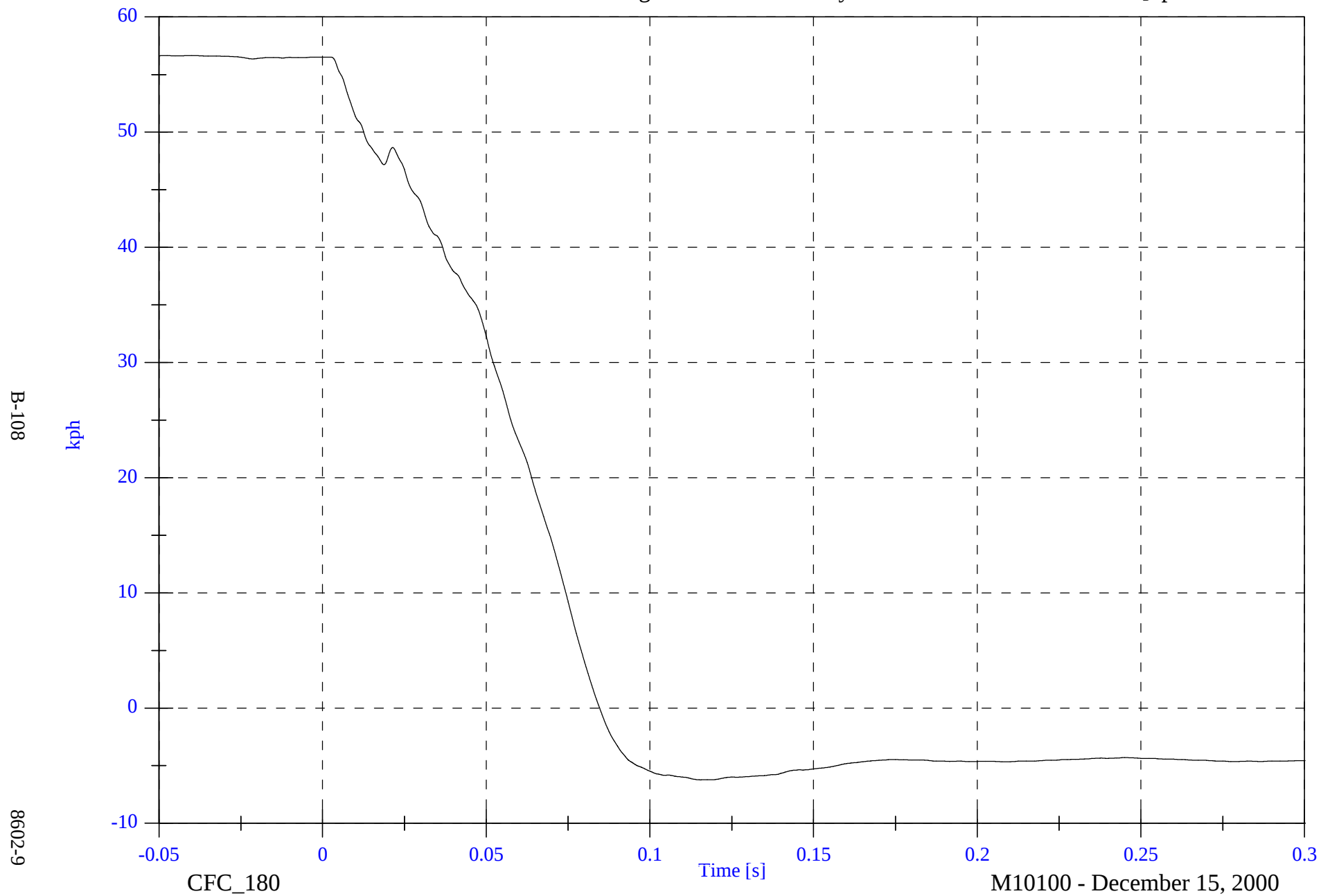


NCAP Test 9 - 2001 Buick LeSabre

Max: 56.6 [kph] at -0.040 [s]

Min: -6.2 [kph] at 0.115 [s]

Right Rear #2x Velocity

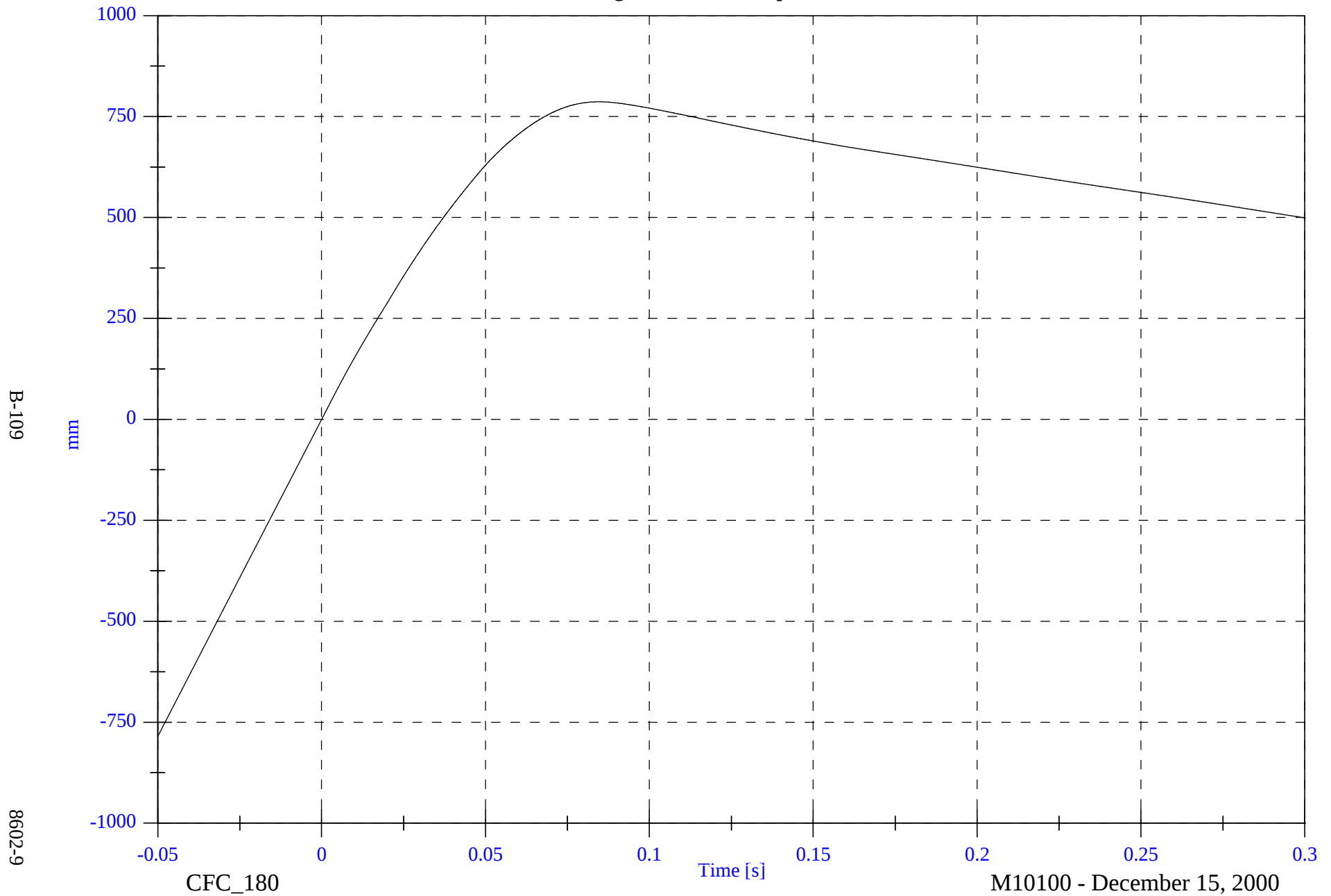


NCAP Test 9 - 2001 Buick LeSabre

Right Rear #2x Displacement

Max: 786.3 [mm] at 0.085 [s]

Min: -785.2 [mm] at -0.050 [s]

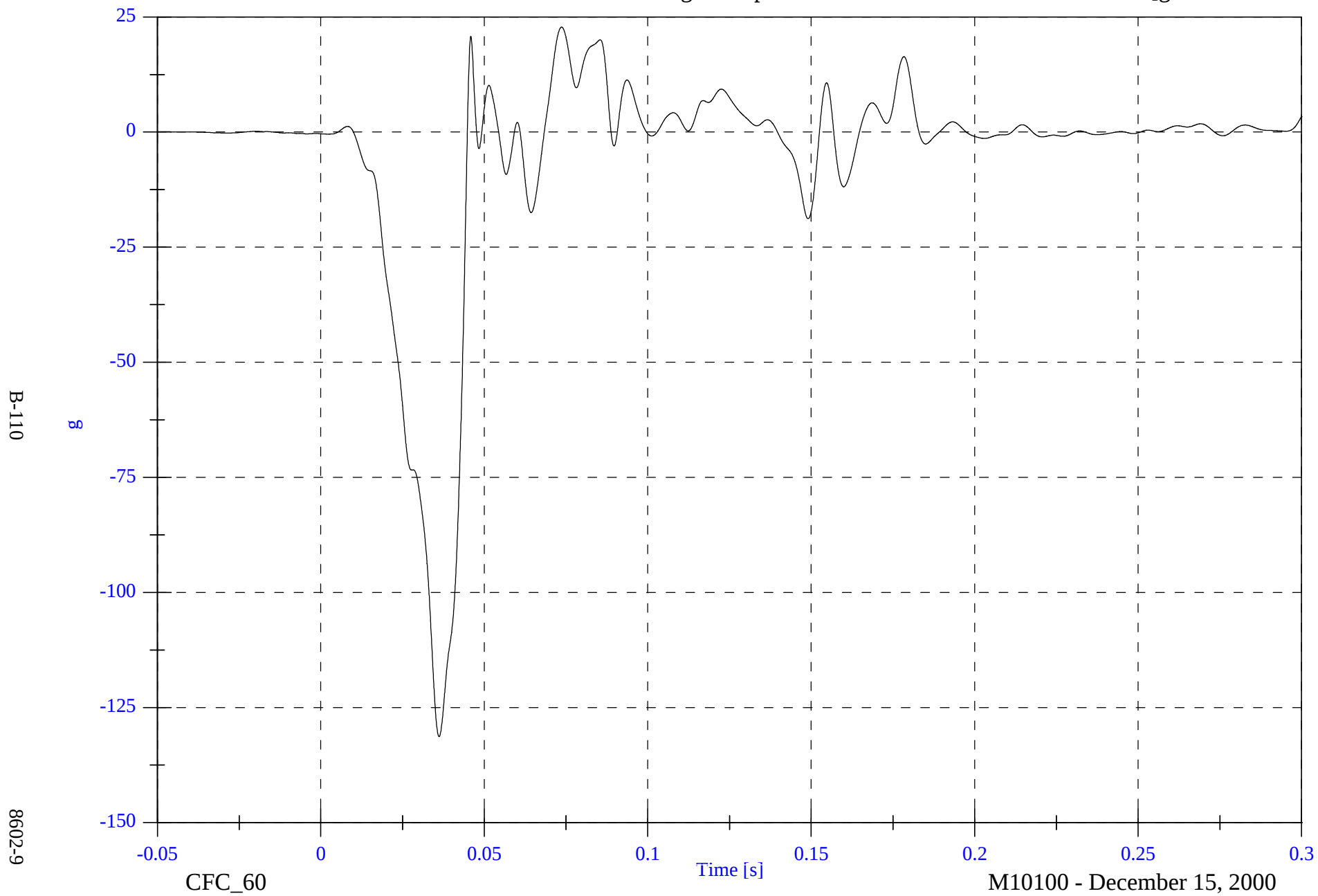


NCAP Test 9 - 2001 Buick LeSabre

Engine Top #3x

Max: 22.8 [g] at 0.074 [s]

Min: -131.3 [g] at 0.036 [s]



NCAP Test 9 - 2001 Buick LeSabre

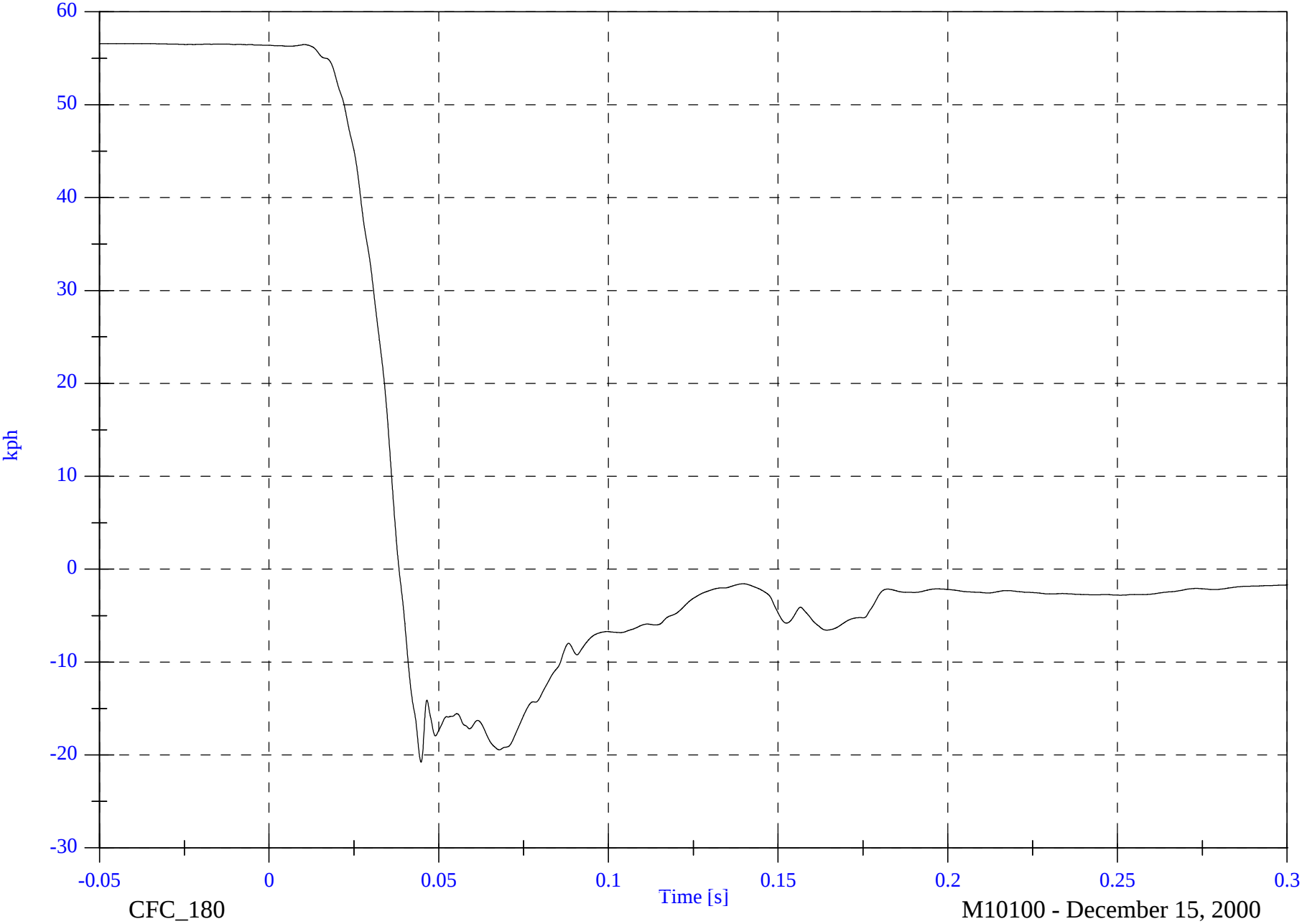
Engine Top #3x Velocity

Max: 56.6 [kph] at -0.041 [s]

Min: -20.8 [kph] at 0.045 [s]

B-111

8602-9

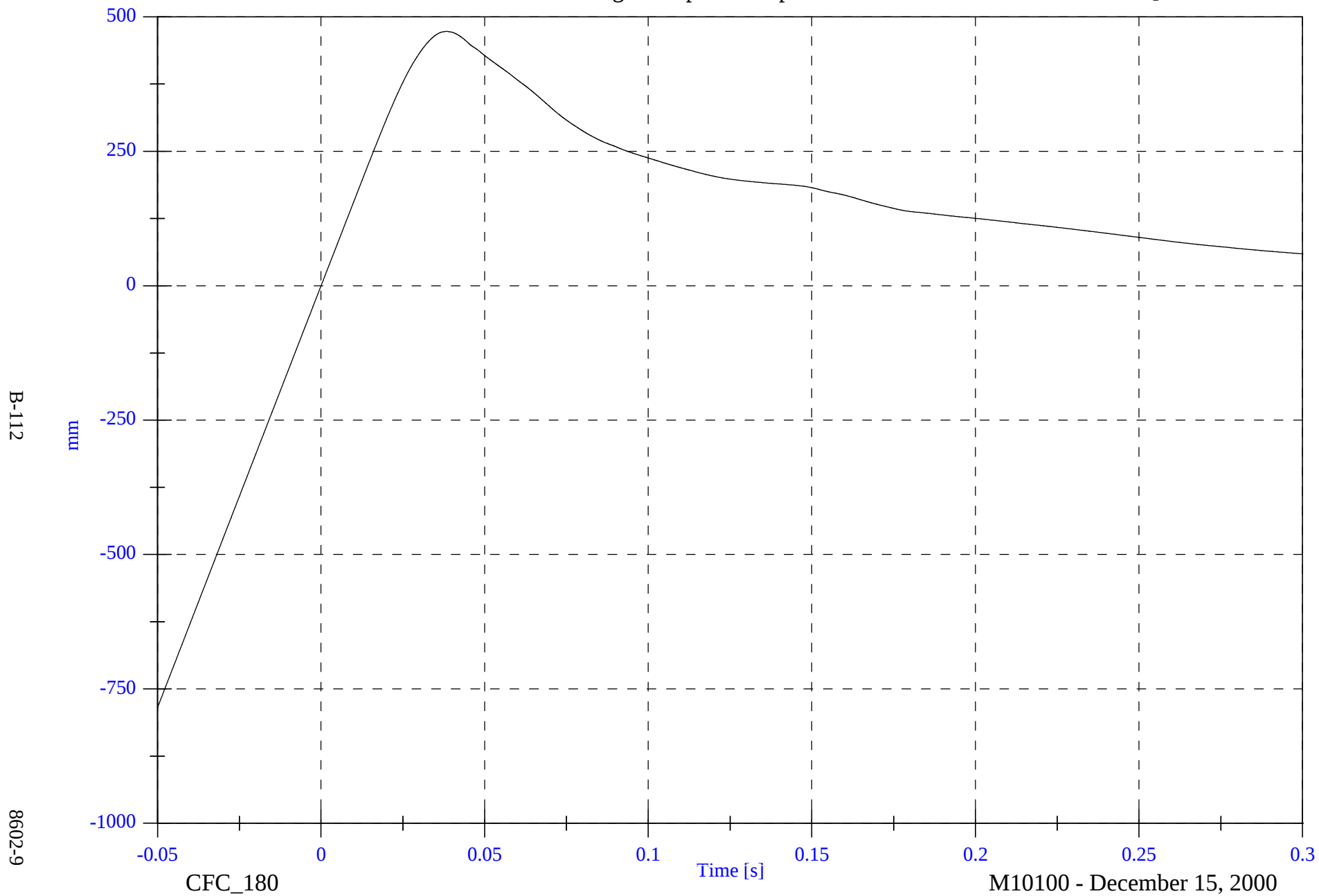


NCAP Test 9 - 2001 Buick LeSabre

Engine Top #3x Displacement

Max: 472.8 [mm] at 0.038 [s]

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



B-112

8602-9

CFC_180

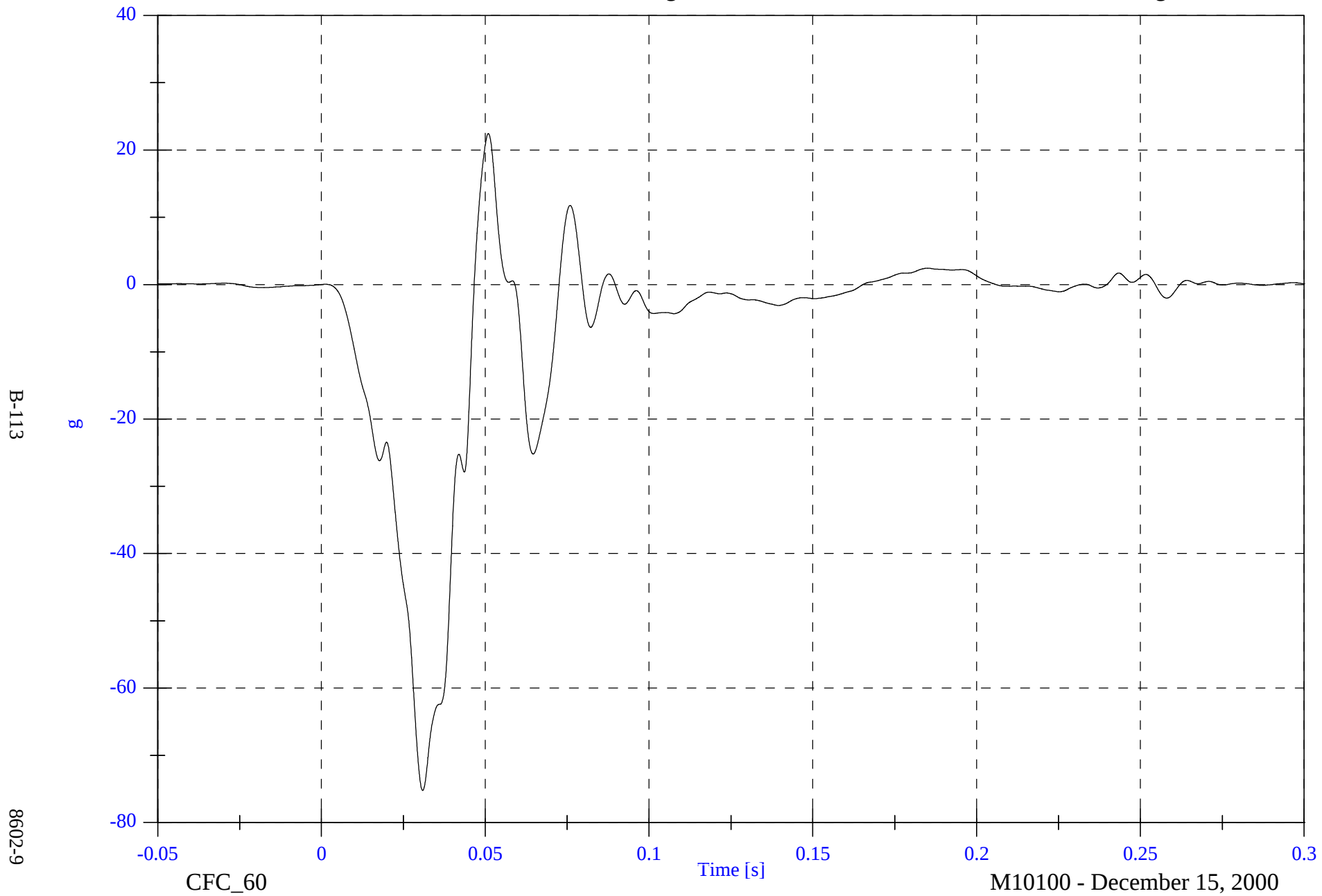
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

Engine Bottom #4x

Max: 22.5 [g] at 0.051 [s]

Min: -75.2 [g] at 0.031 [s]



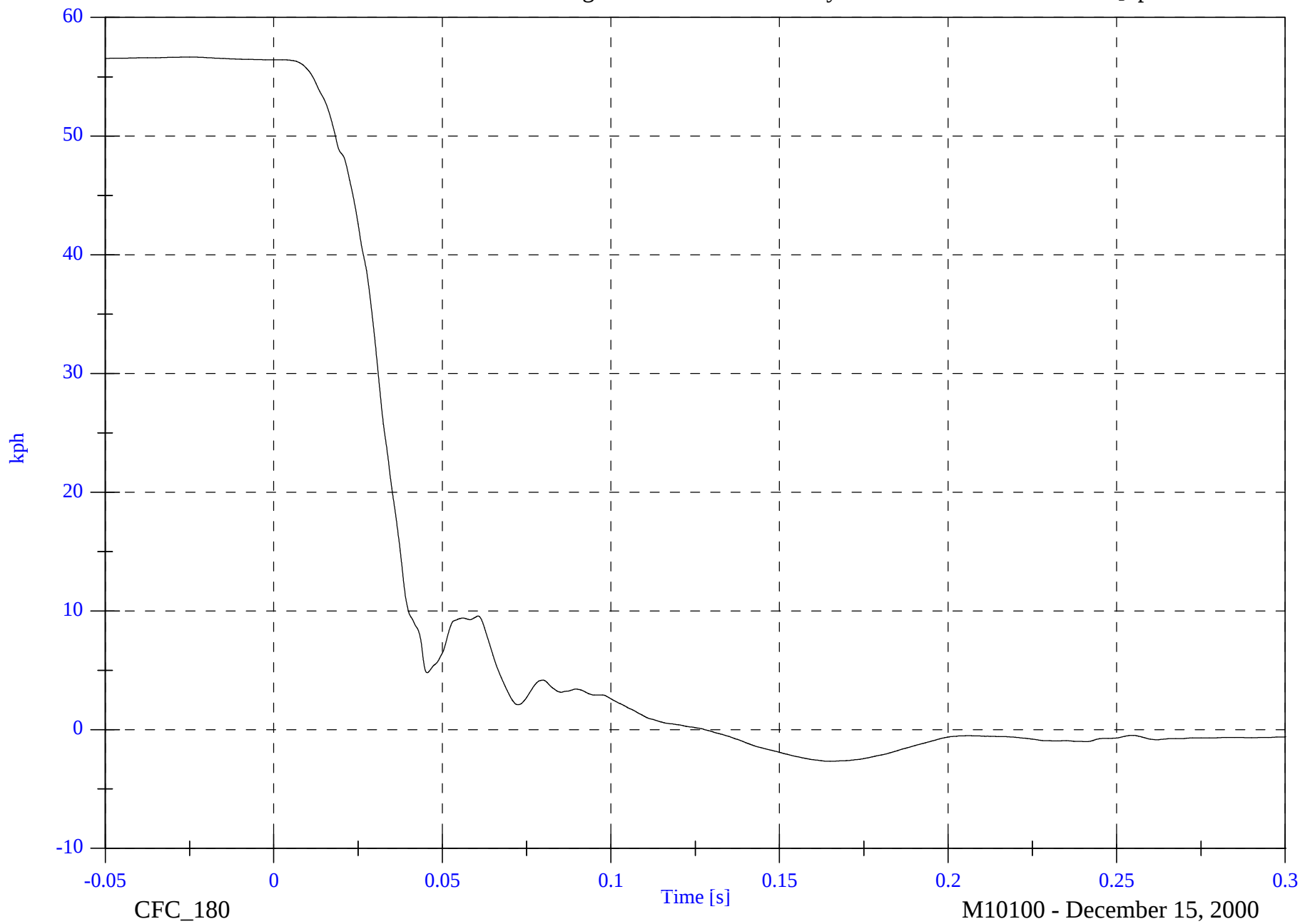
8602-9

NCAP Test 9 - 2001 Buick LeSabre

Engine Bottom #4x Velocity

Max: 56.7 [kph] at -0.024 [s]

Min: -2.7 [kph] at 0.165 [s]



B-114

8602-9

CFC_180

Time [s]

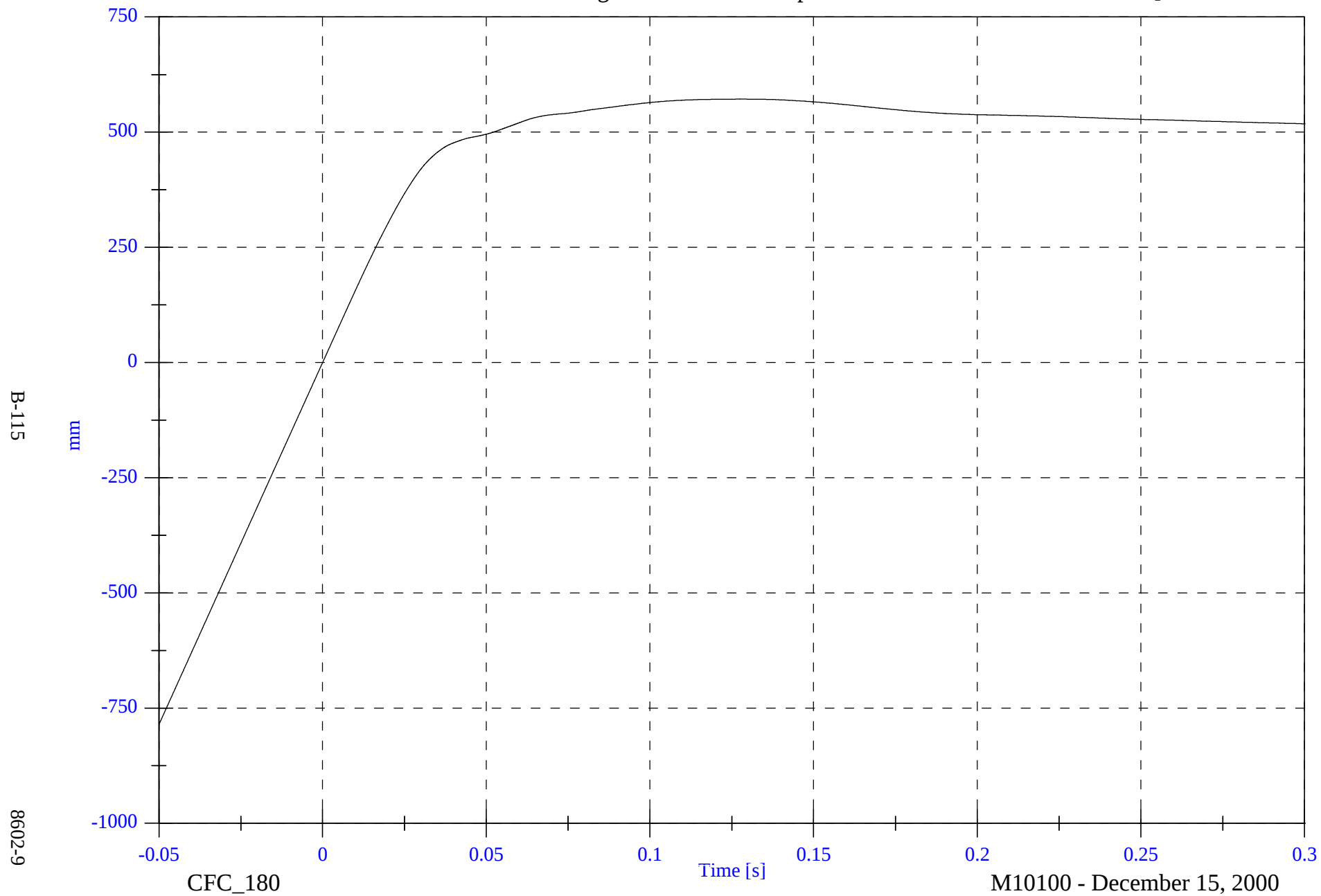
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

Engine Bottom #4x Displacement

Max: 571.7 [mm] at 0.128 [s]

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



B-115

8602-9

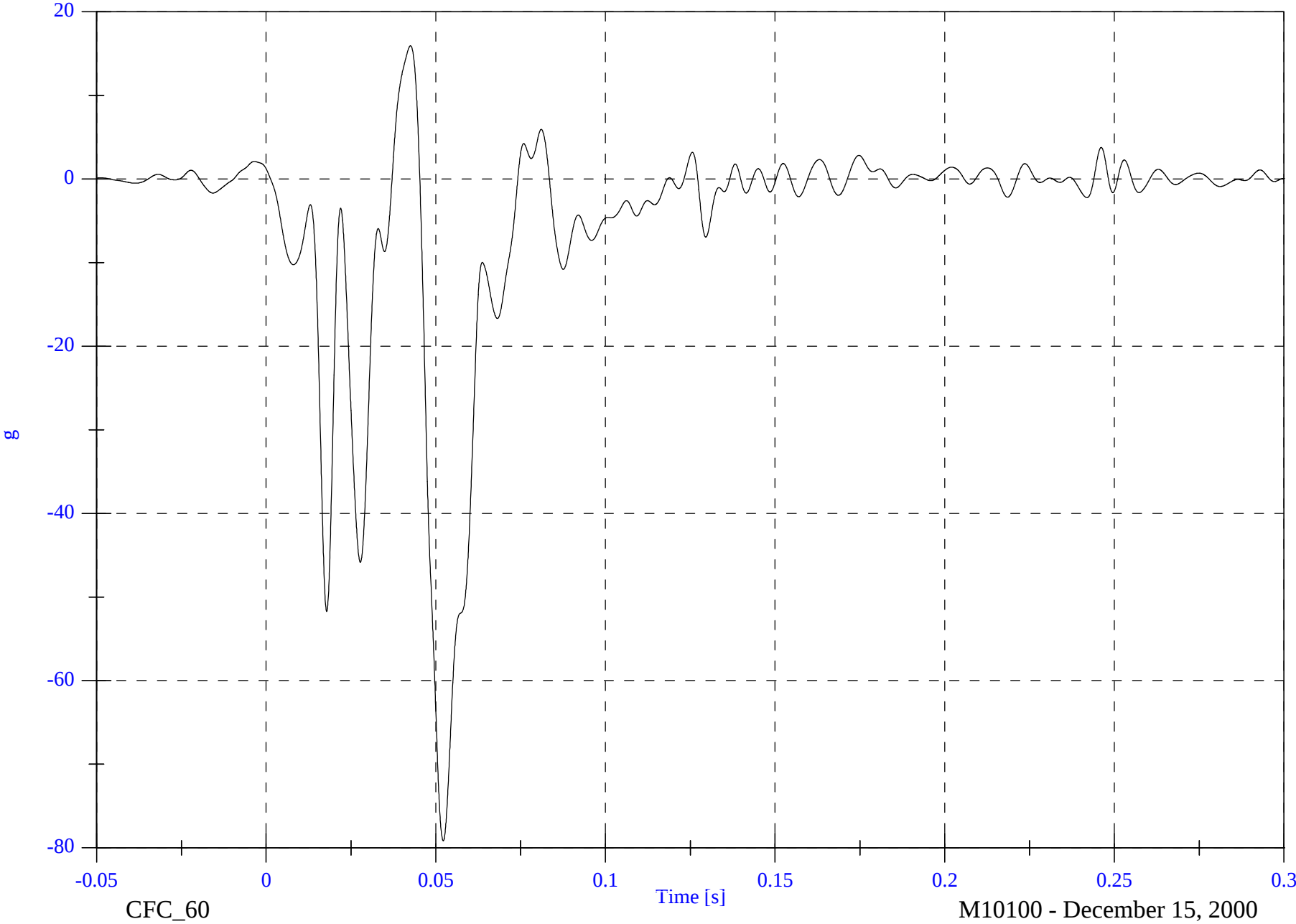
CFC_180

Time [s]

M10100 - December 15, 2000

B-116

8602-9

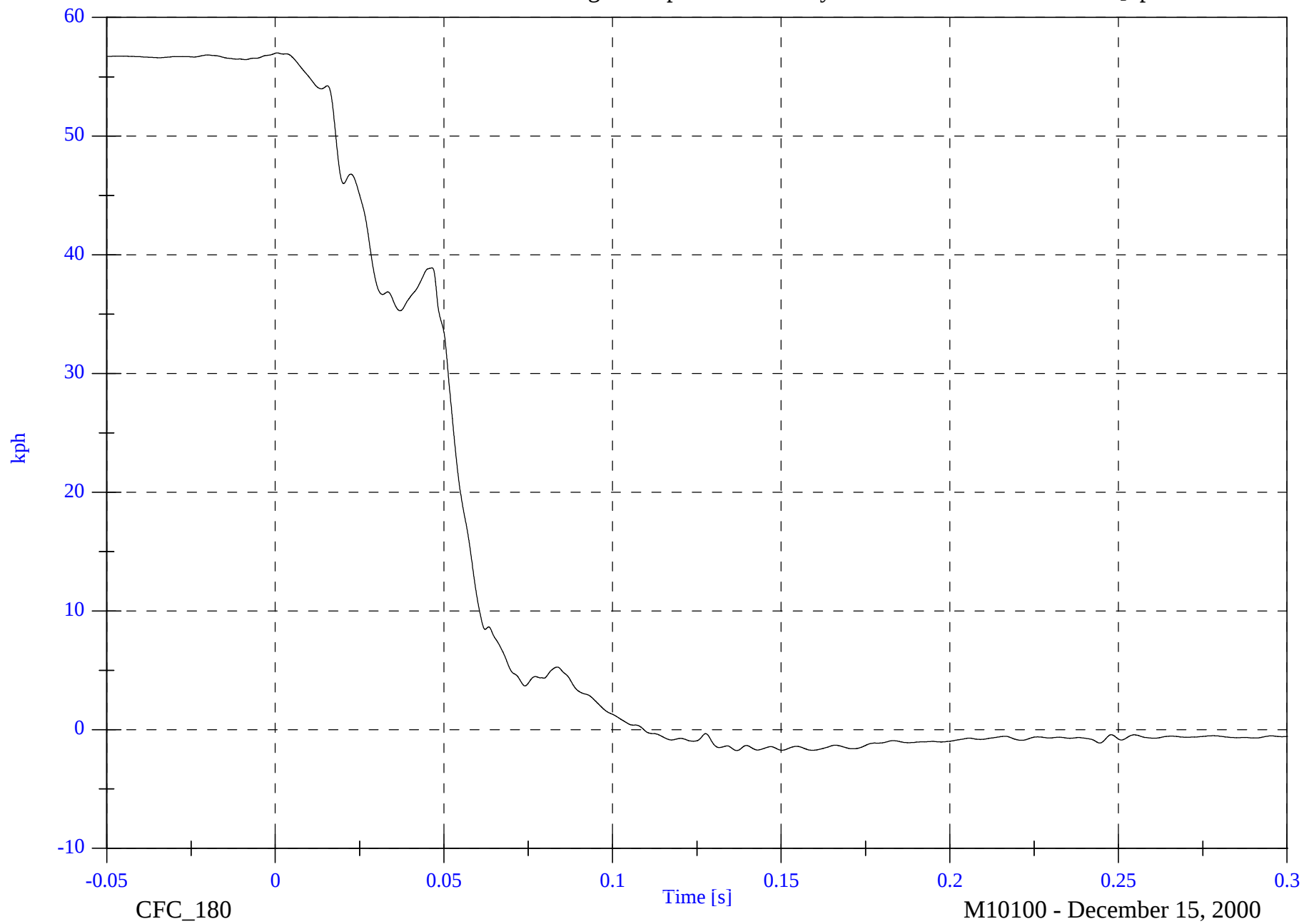


NCAP Test 9 - 2001 Buick LeSabre

Right Caliper #5x Velocity

Max: 57.0 [kph] at 0.001 [s]

Min: -1.8 [kph] at 0.137 [s]



B-117

8602-9

CFC_180

Time [s]

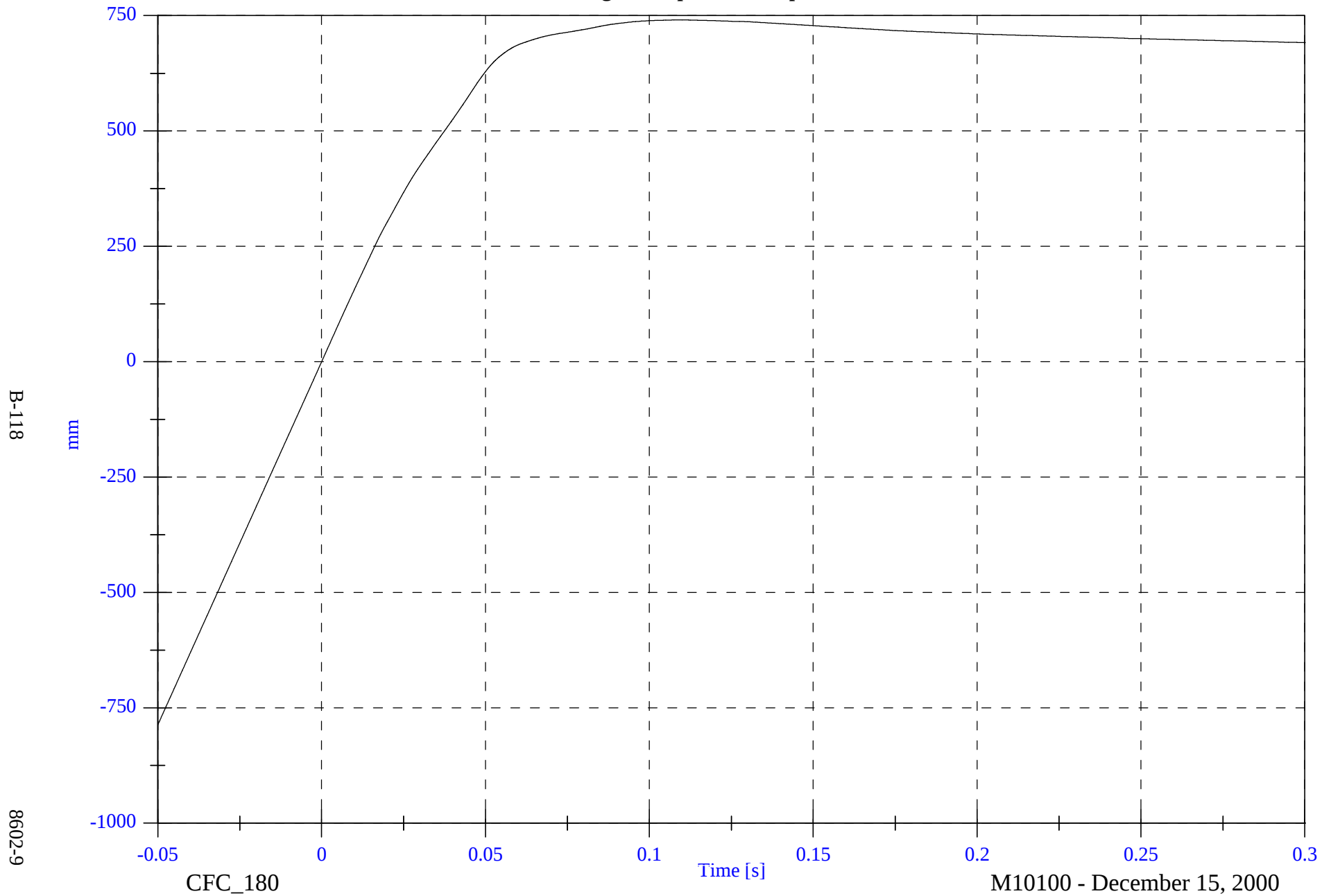
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

Right Caliper #5x Displacement

Max: 740.5 [mm] at 0.109 [s]

Min: -787.2 [mm] at -0.050 [s]



B-118

8602-9

CFC_180

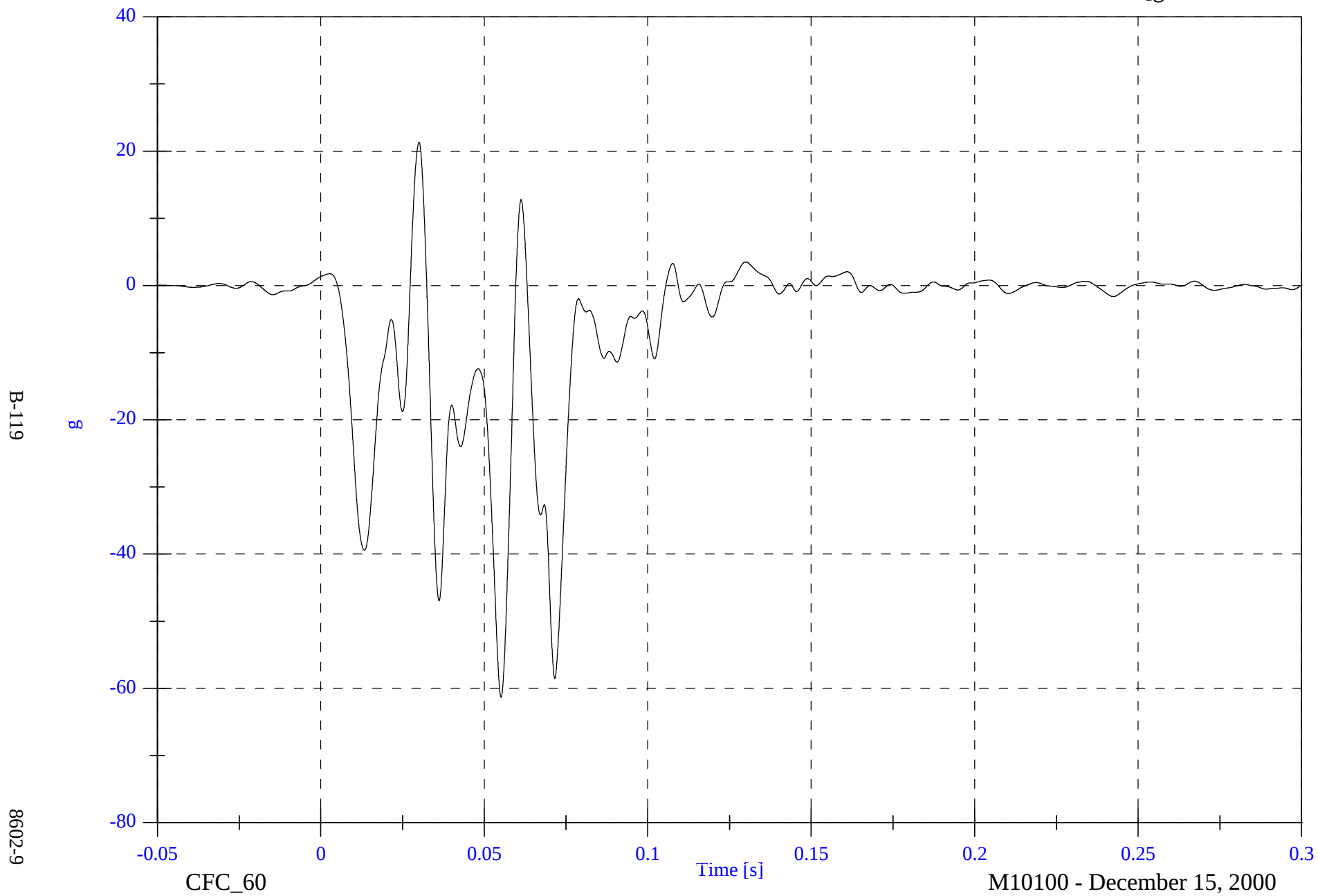
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

Instrument Panel #6x

Max: 21.3 [g] at 0.030 [s]

Min: -61.3 [g] at 0.055 [s]



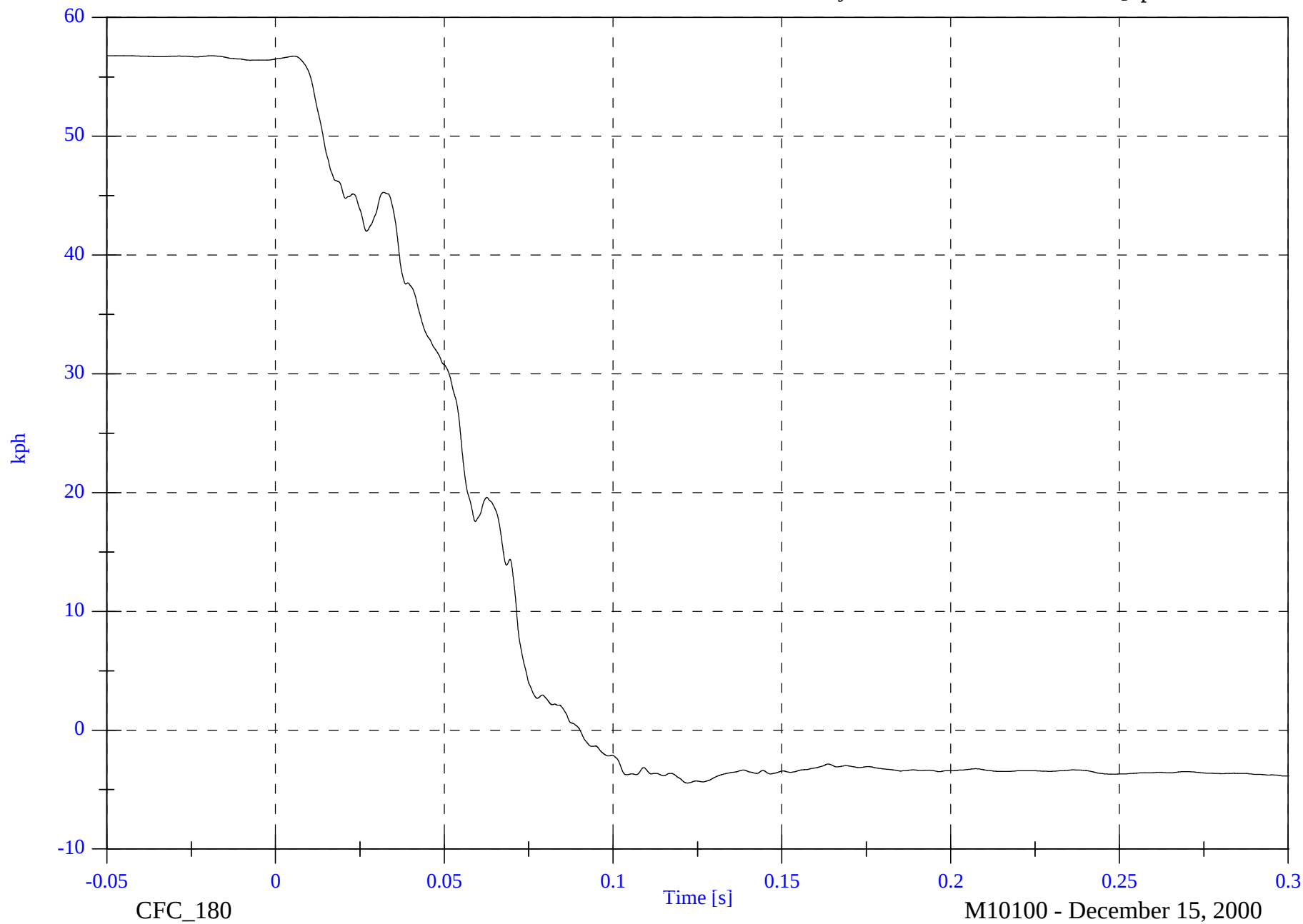
8602-9

NCAP Test 9 - 2001 Buick LeSabre

Instrument Panel #6x Velocity

Max: 56.8 [kph] at -0.019 [s]

Min: -4.4 [kph] at 0.122 [s]



B-120

8602-9

CFC_180

Time [s]

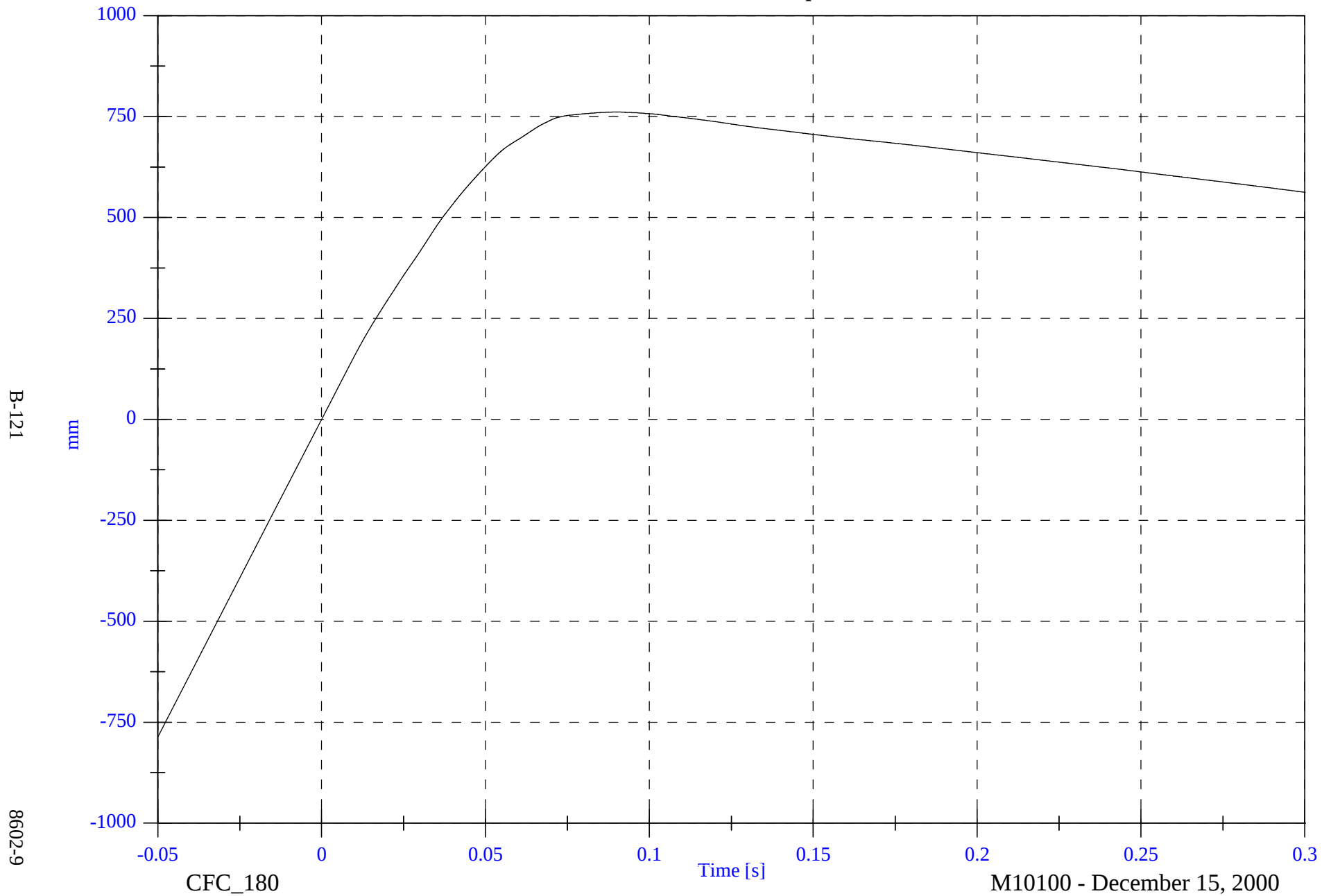
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

Instrument Panel #6x Displacement

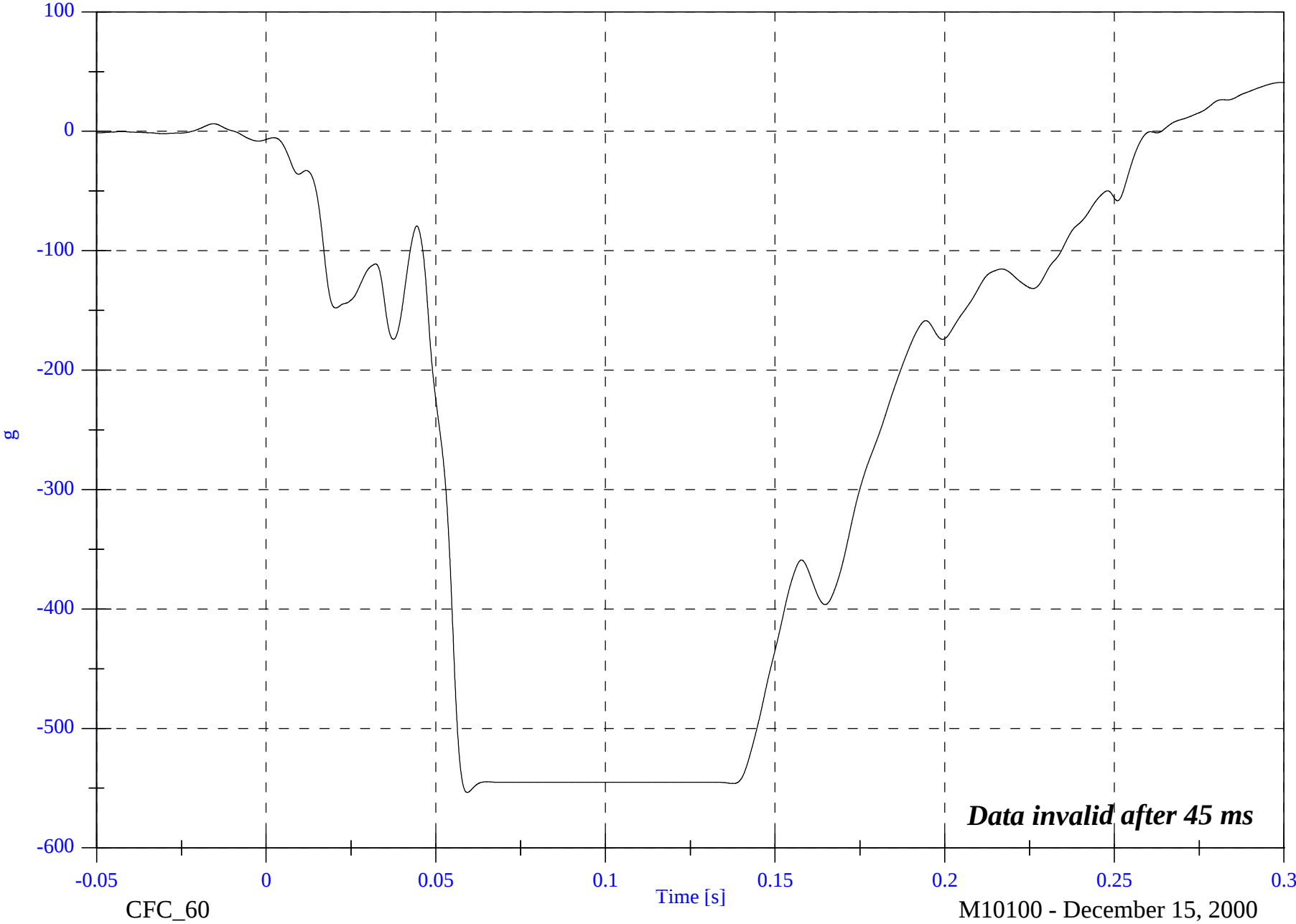
Max: 761.0 [mm] at 0.090 [s]

Min: -786.9 [mm] at -0.050 [s]



B-122

8602-9

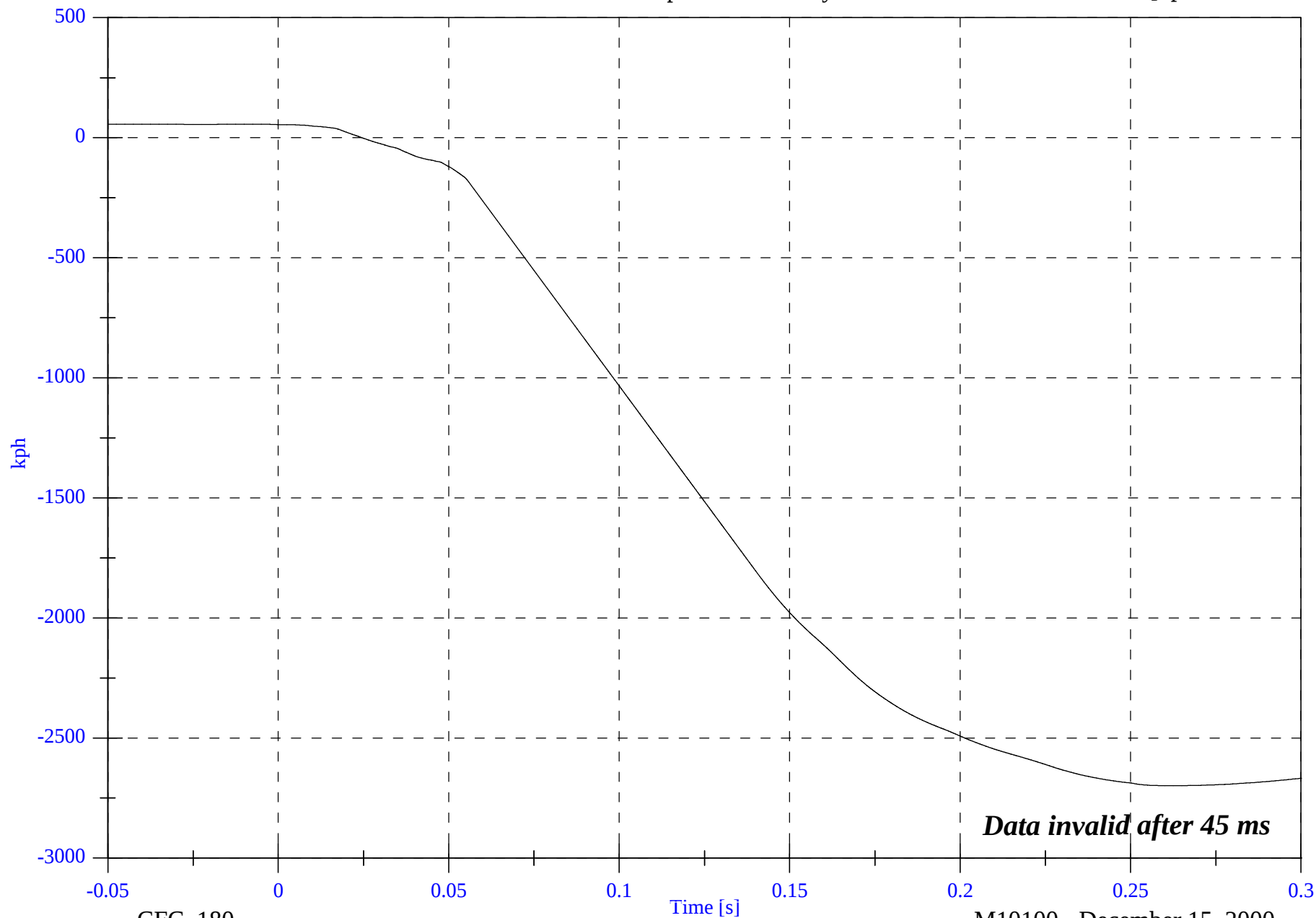


NCAP Test 9 - 2001 Buick LeSabre

Left Caliper #7x Velocity

Max: 56.5 [kph] at -0.008 [s]

Min: -2698.3 [kph] at 0.264 [s]



B-123

8602-9

CFC_180

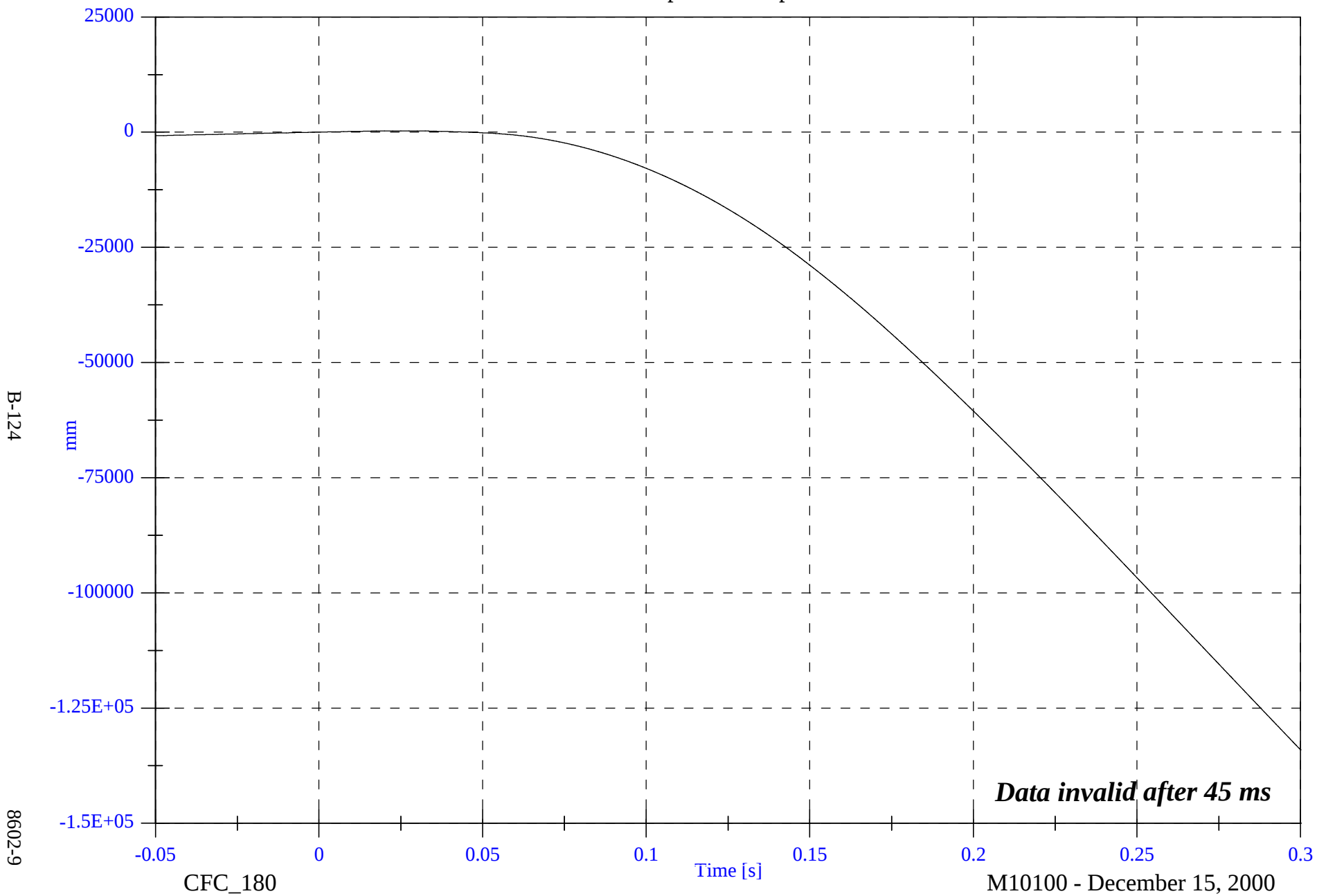
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

Left Caliper #7x Displacement

Max: 272.7 [mm] at 0.025 [s]

Min: -134037.5 [mm] at 0.300 [s]



NCAP Test 9 - 2001 Buick LeSabre

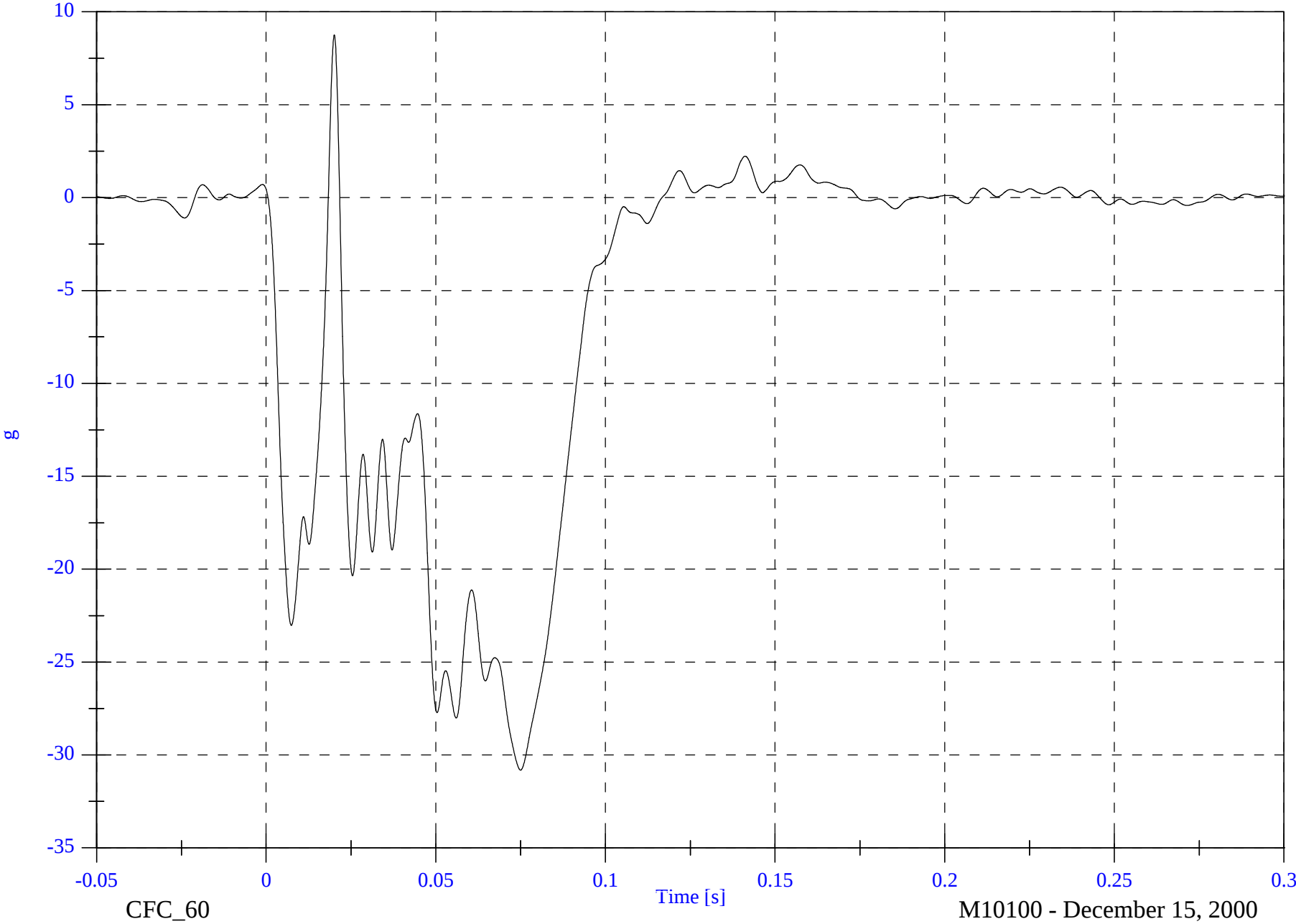
Left Rear Red #8x

Max: 8.8 [g] at 0.020 [s]

Min: -30.8 [g] at 0.075 [s]

B-125

8602-9



NCAP Test 9 - 2001 Buick LeSabre

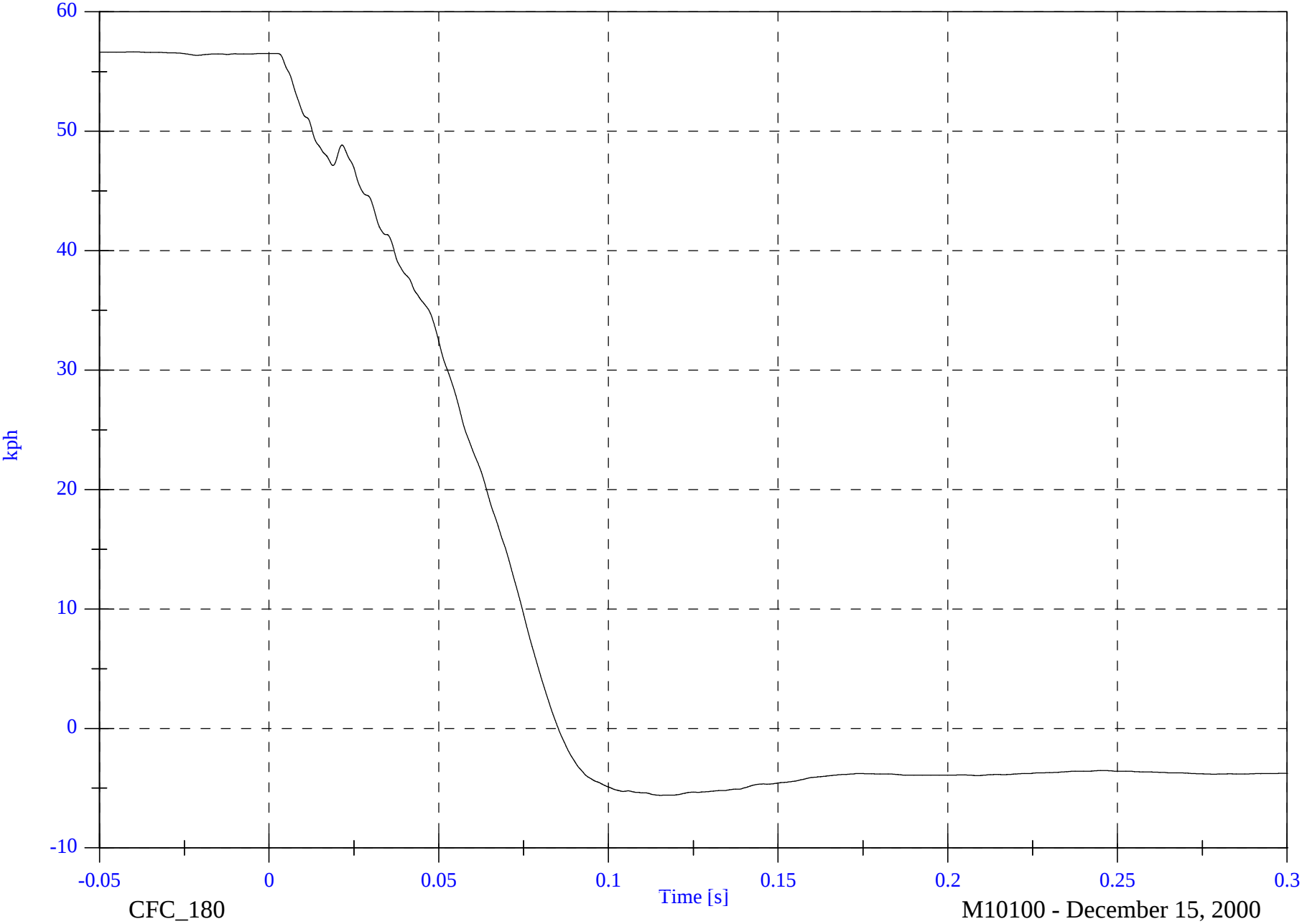
Left Rear Red #8x Velocity

Max: 56.6 [kph] at -0.040 [s]

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

B-126

8602-9

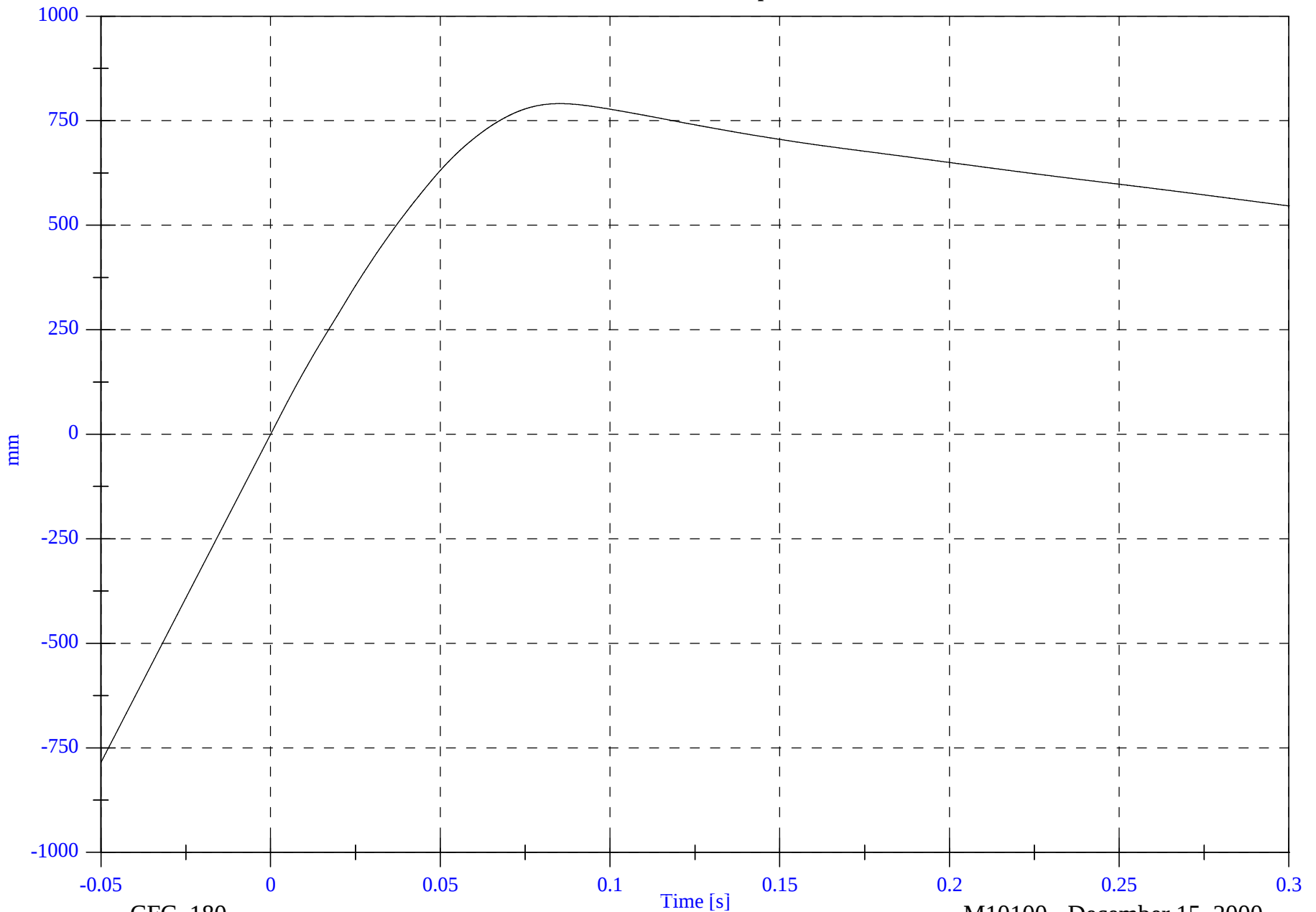


NCAP Test 9 - 2001 Buick LeSabre

Left Rear Red #8x Displacement

Max: 790.8 [mm] at 0.085 [s]

Min: -785.1 [mm] at -0.050 [s]



B-127

8602-9

CFC_180

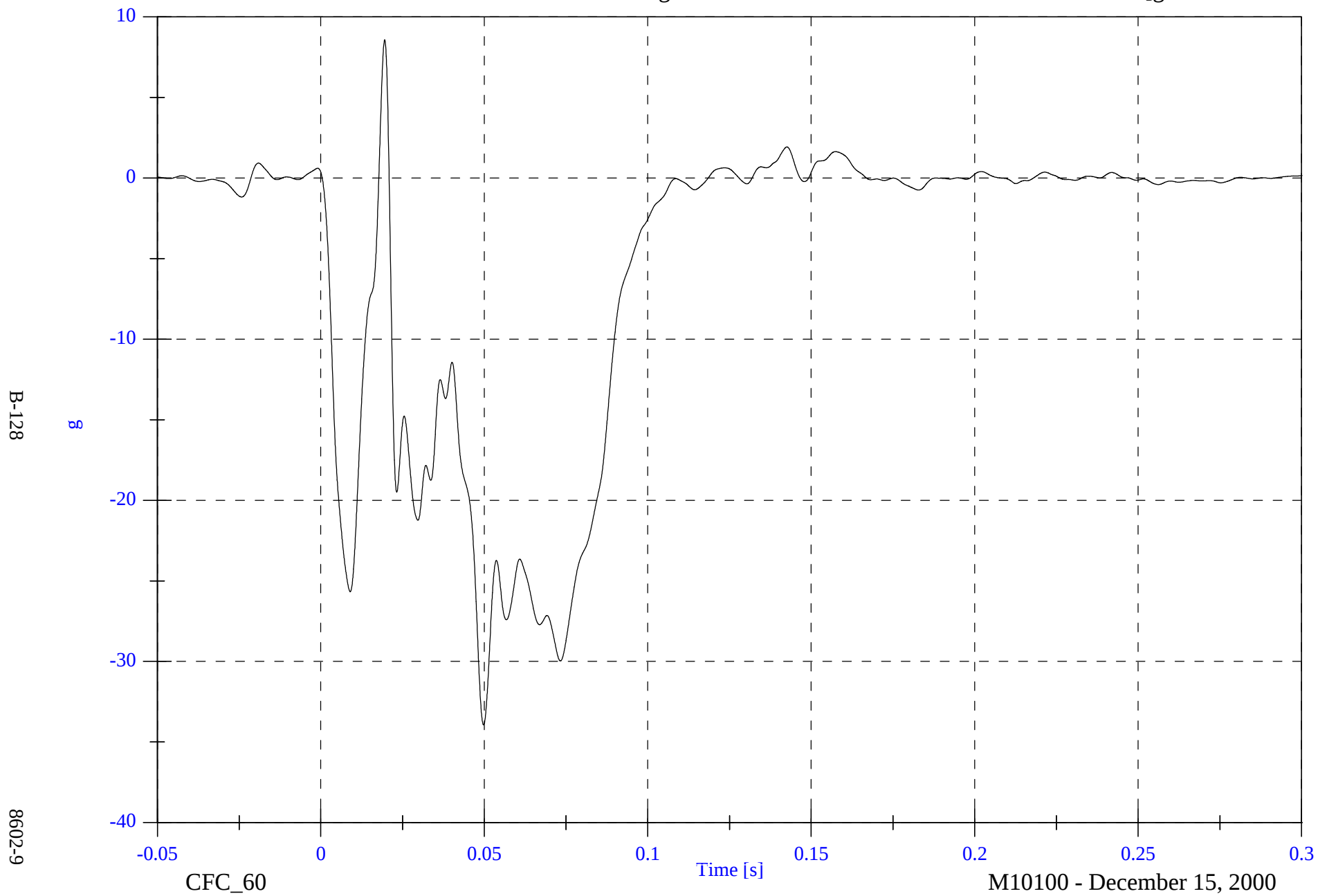
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

Right Rear Red #9x

Max: 8.6 [g] at 0.020 [s]

Min: -33.9 [g] at 0.050 [s]

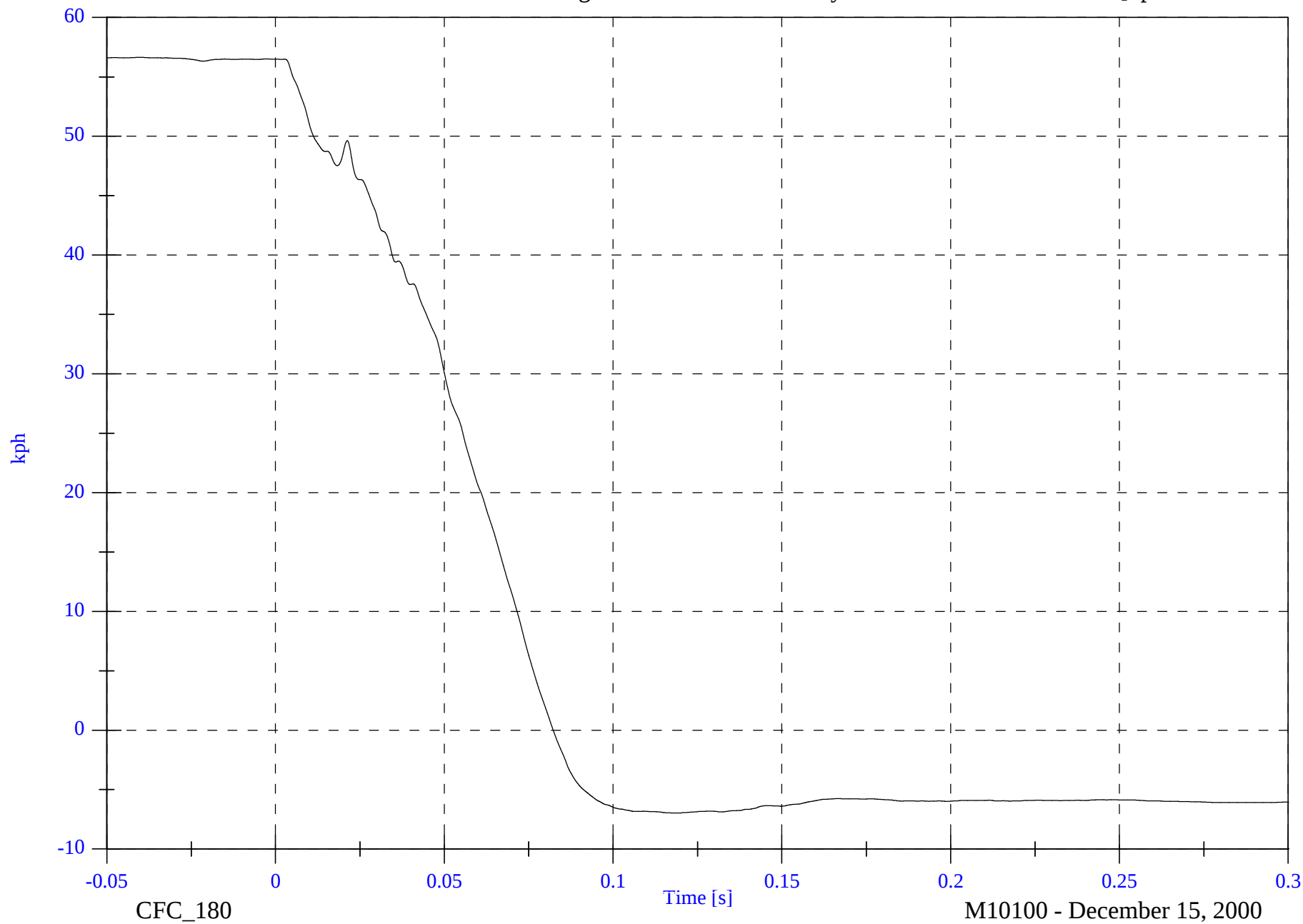


NCAP Test 9 - 2001 Buick LeSabre

Right Rear Red #9x Velocity

Max: 56.6 [kph] at -0.040 [s]

Min: -7.0 [kph] at 0.119 [s]



B-129

8602-9

CFC_180

Time [s]

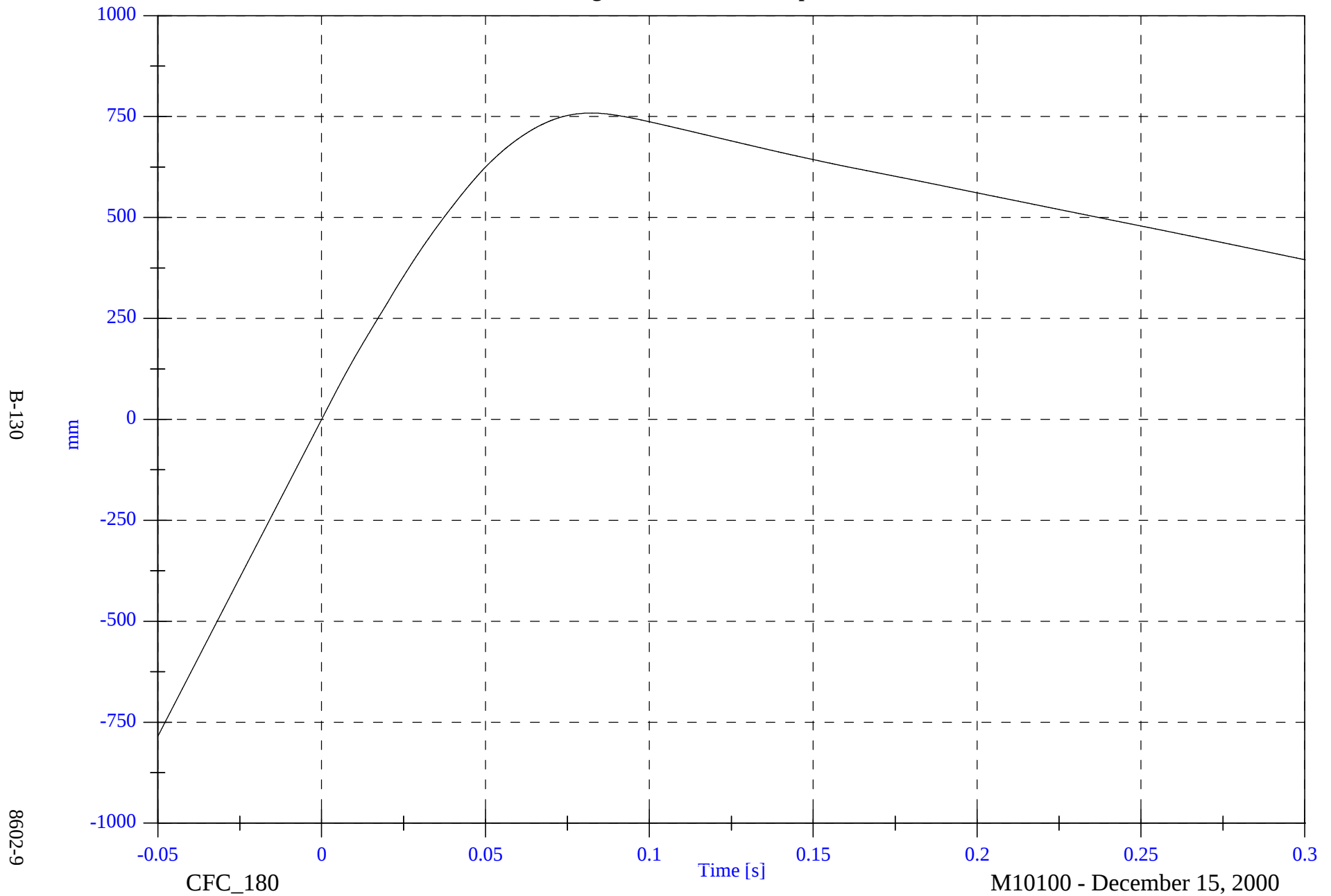
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

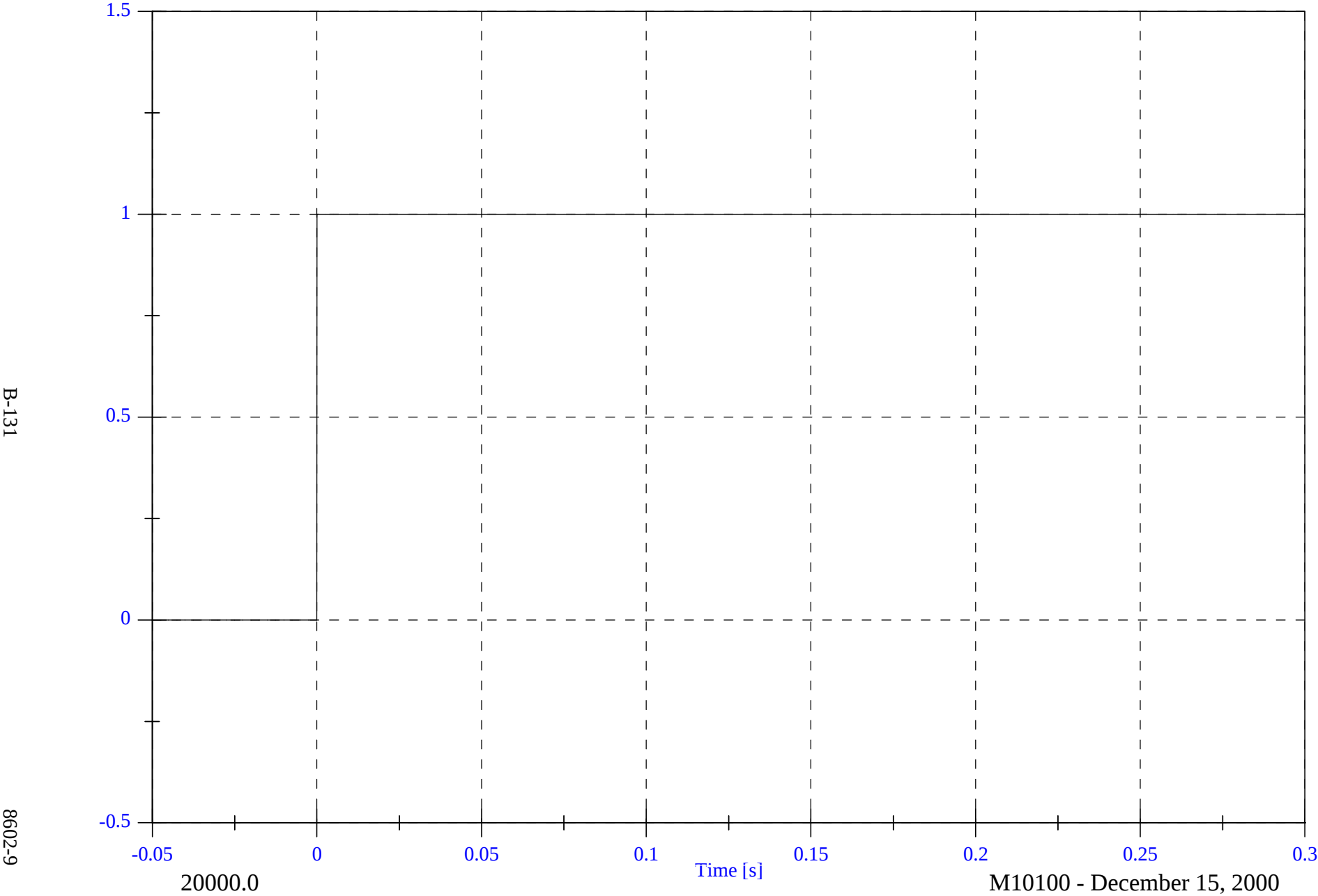
Right Rear Red #9x Displacement

Max: 758.6 [mm] at 0.082 [s]

Min: -785.1 [mm] at -0.050 [s]



Contact Time

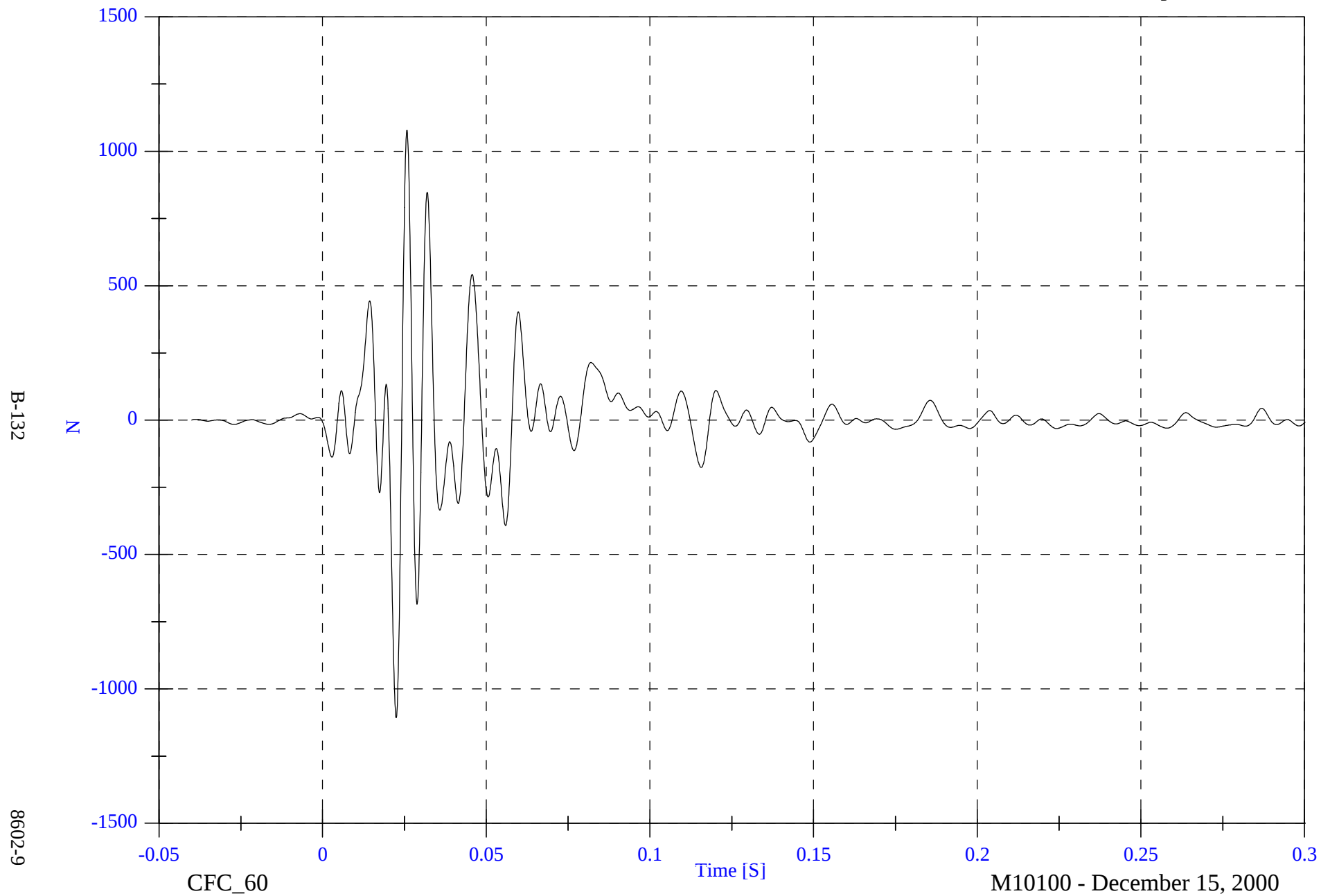


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell A1 Fx

Max: 1078.3 [N] at 0.026 [S]

Min: -1107.0 [N] at 0.022 [S]

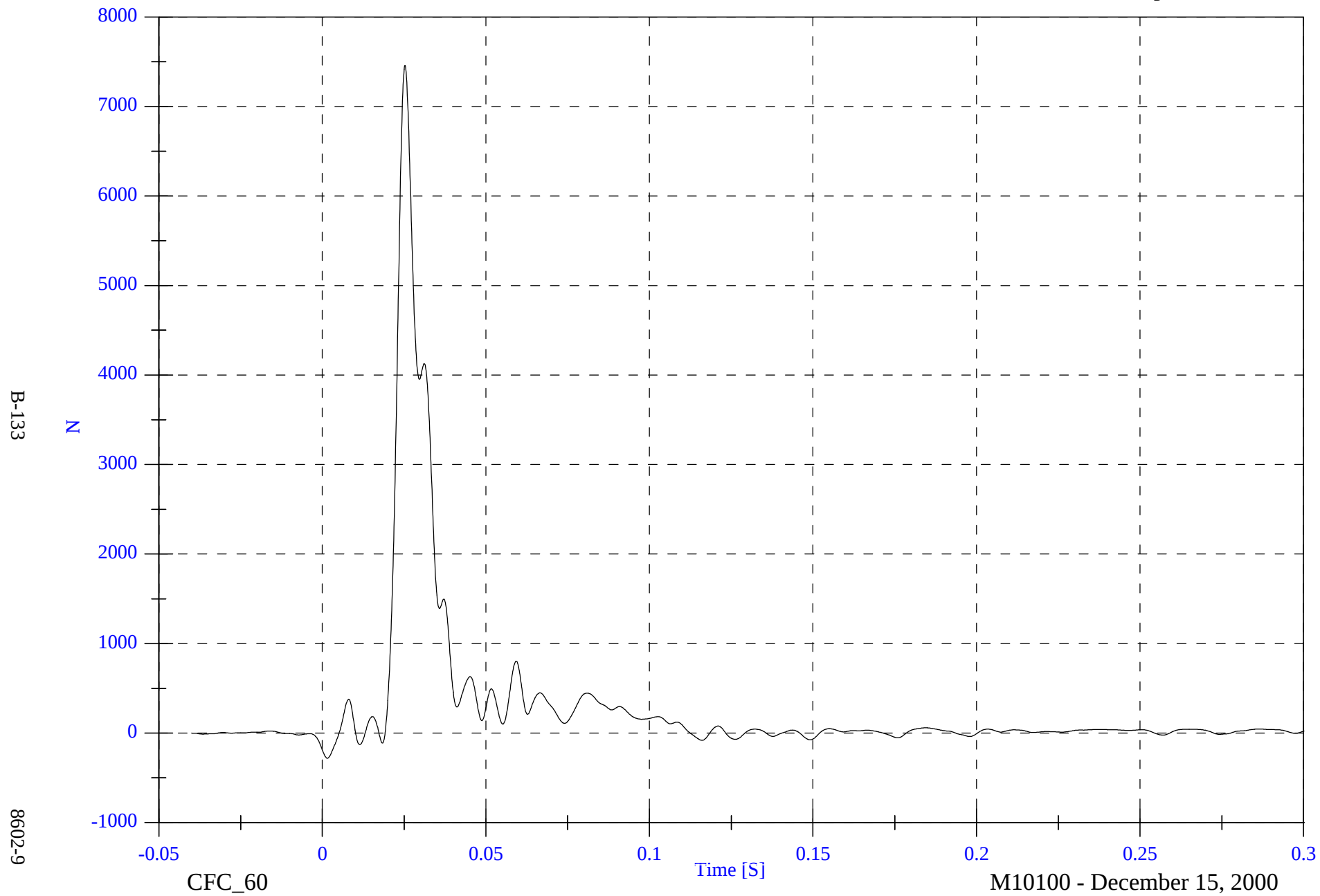


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell A2 Fx

Max: 7458.9 [N] at 0.025 [S]

Min: -280.2 [N] at 0.001 [S]

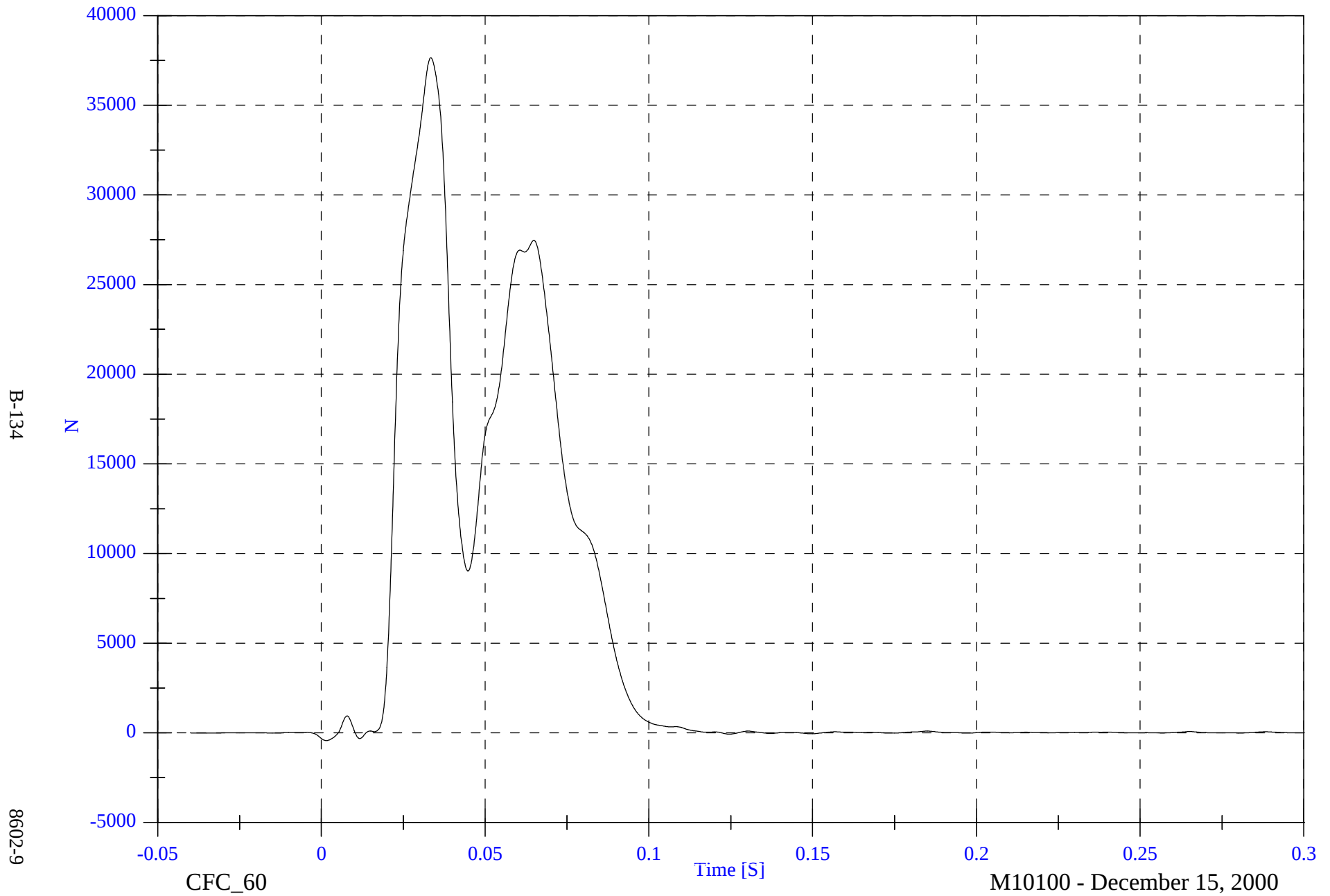


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell A3 Fx

Max: 37646.6 [N] at 0.033 [S]

Min: -427.5 [N] at 0.001 [S]

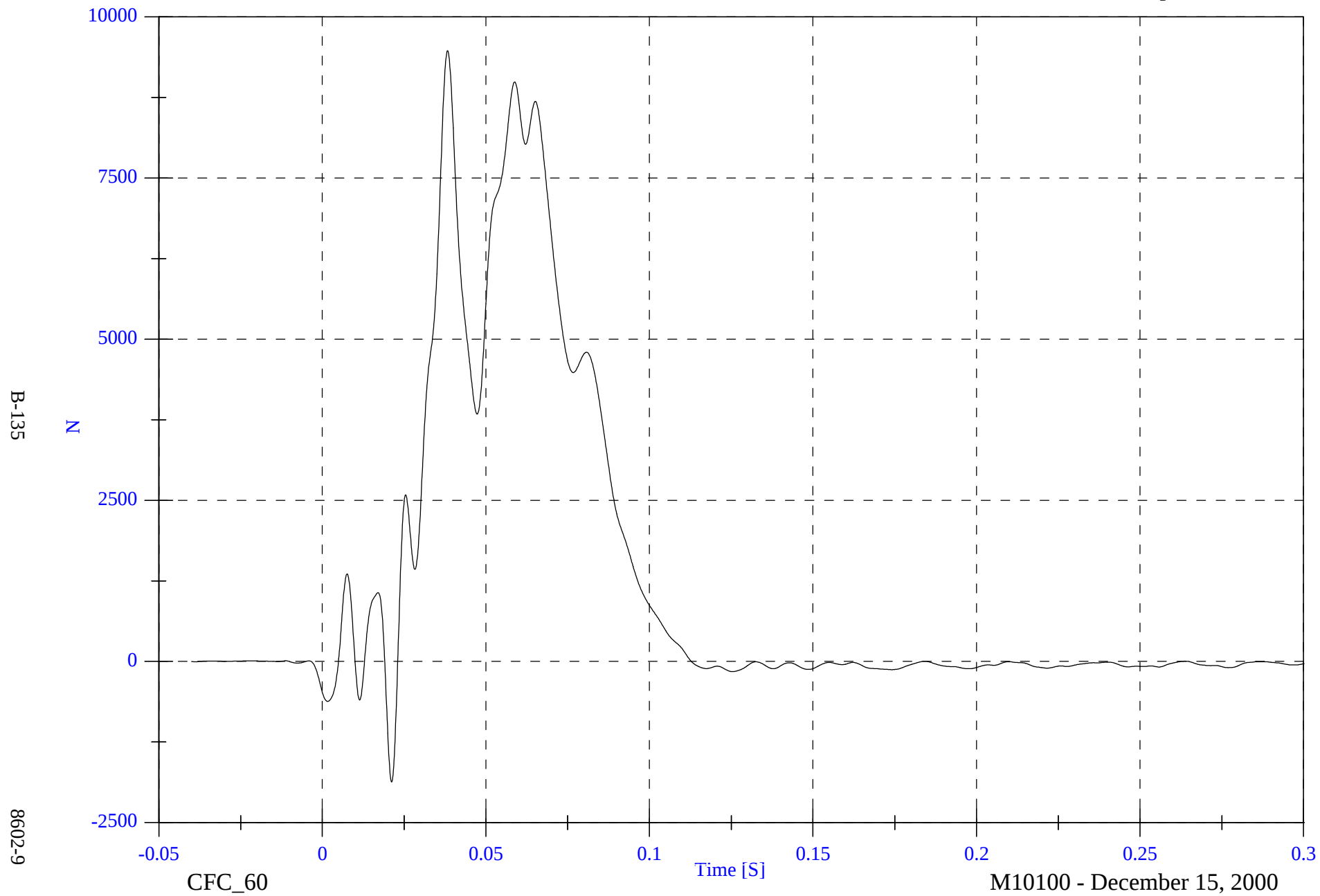


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell A4 Fx

Max: 9476.8 [N] at 0.038 [S]

Min: -1870.2 [N] at 0.021 [S]

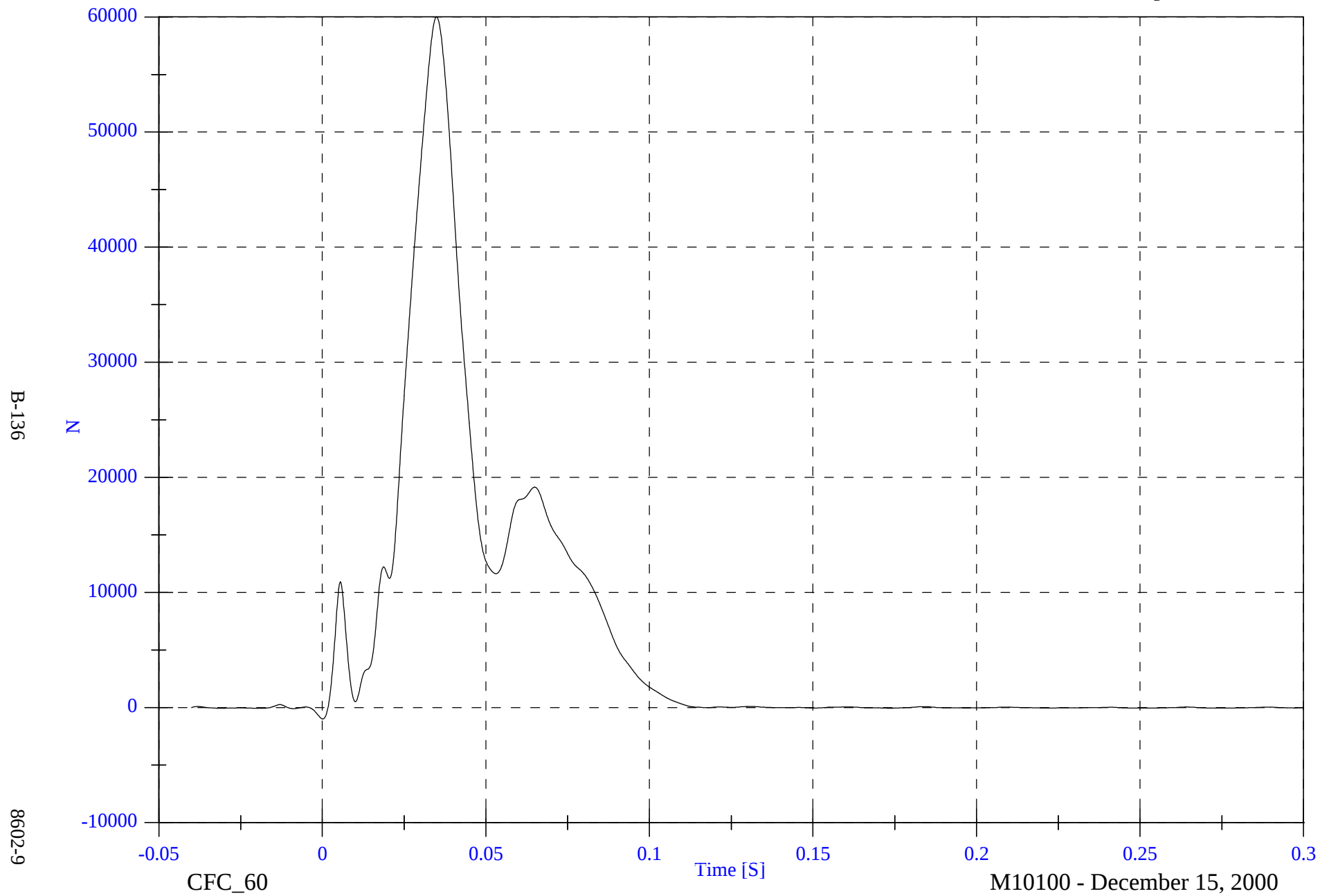


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell A5 Fx

Max: 60003.2 [N] at 0.035 [S]

Min: -989.1 [N] at 0.000 [S]

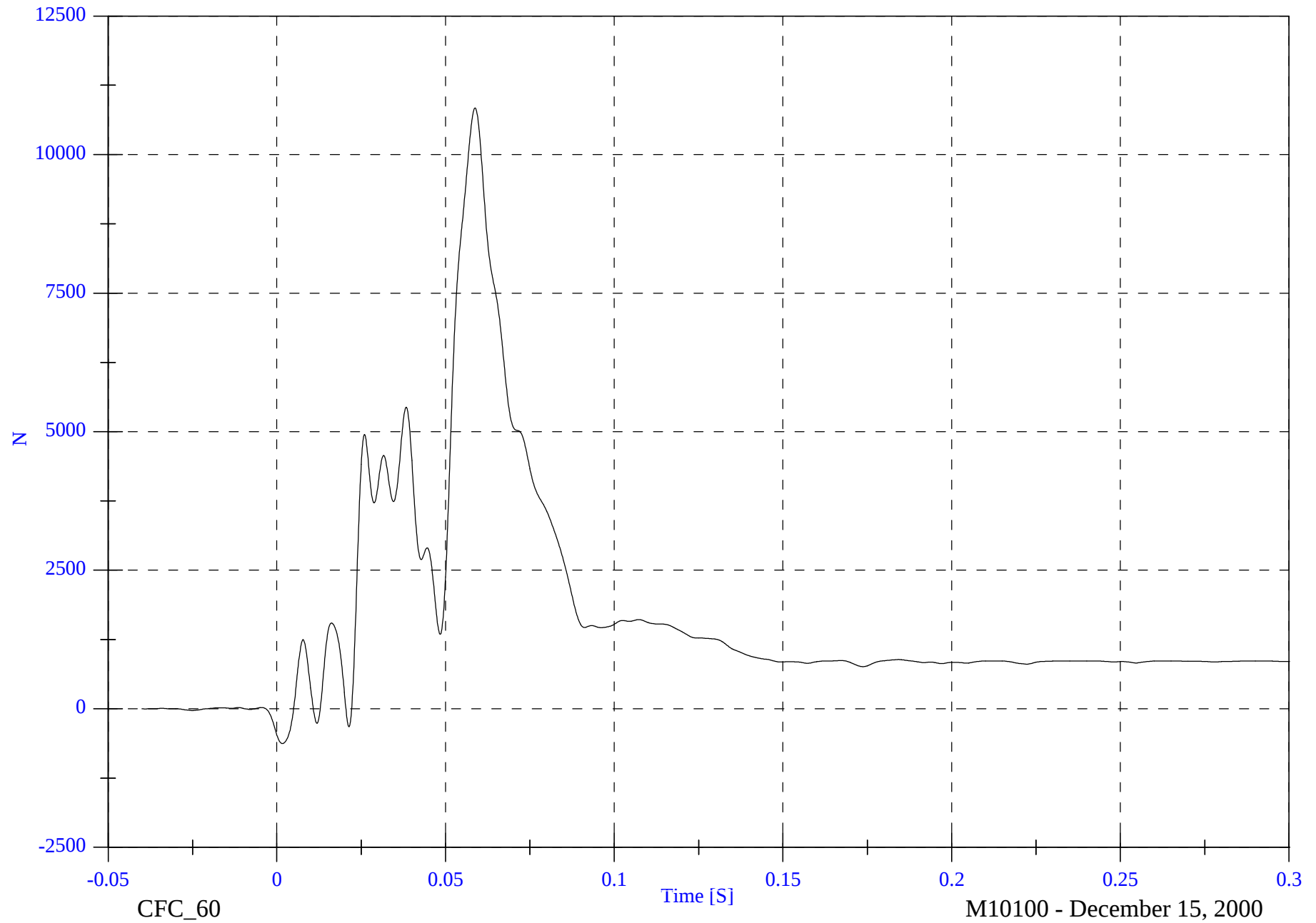


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell A6 Fx

Max: 10840.2 [N] at 0.059 [S]

Min: -627.5 [N] at 0.002 [S]

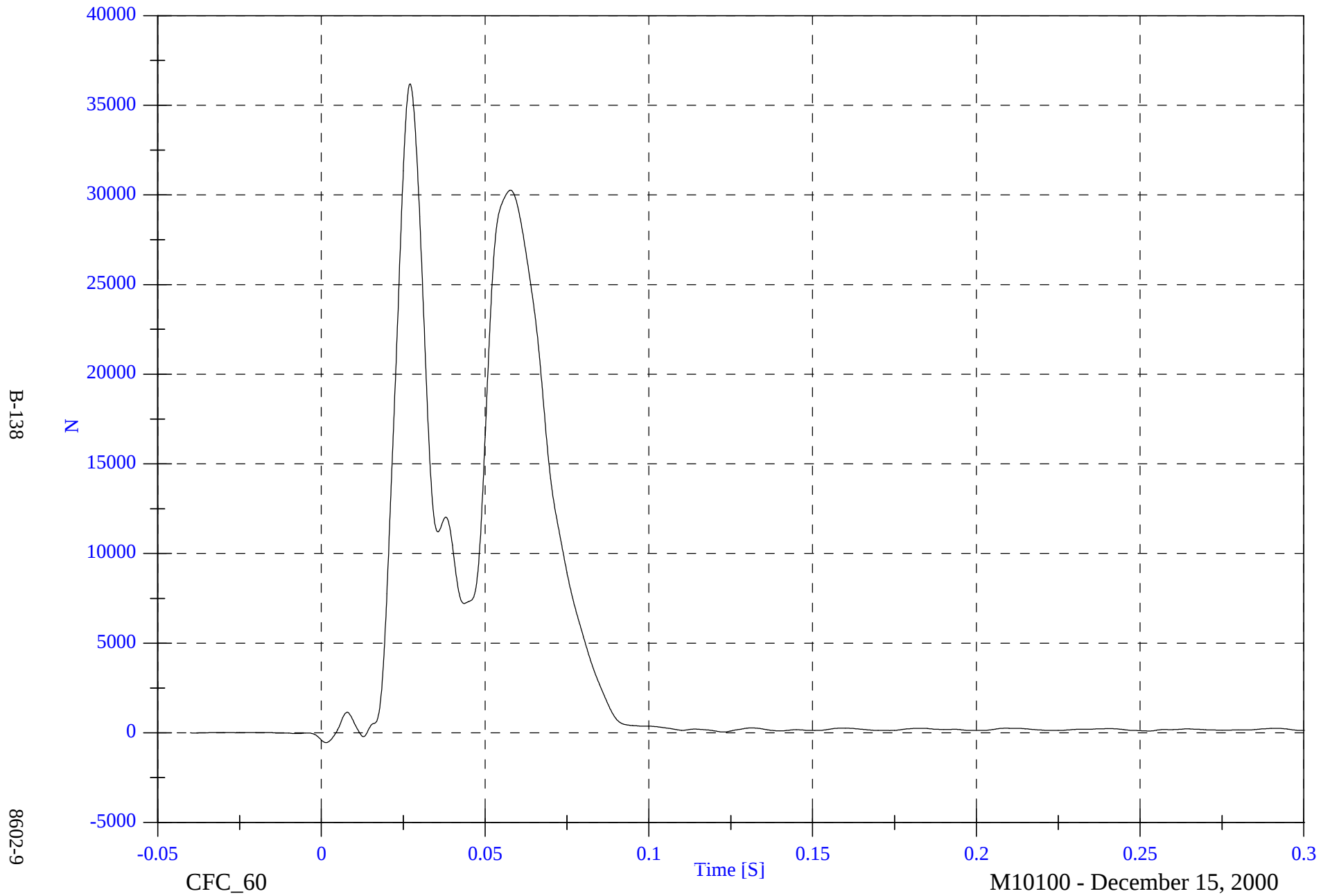


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell A7 Fx

Max: 36188.4 [N] at 0.027 [S]

Min: -542.8 [N] at 0.001 [S]

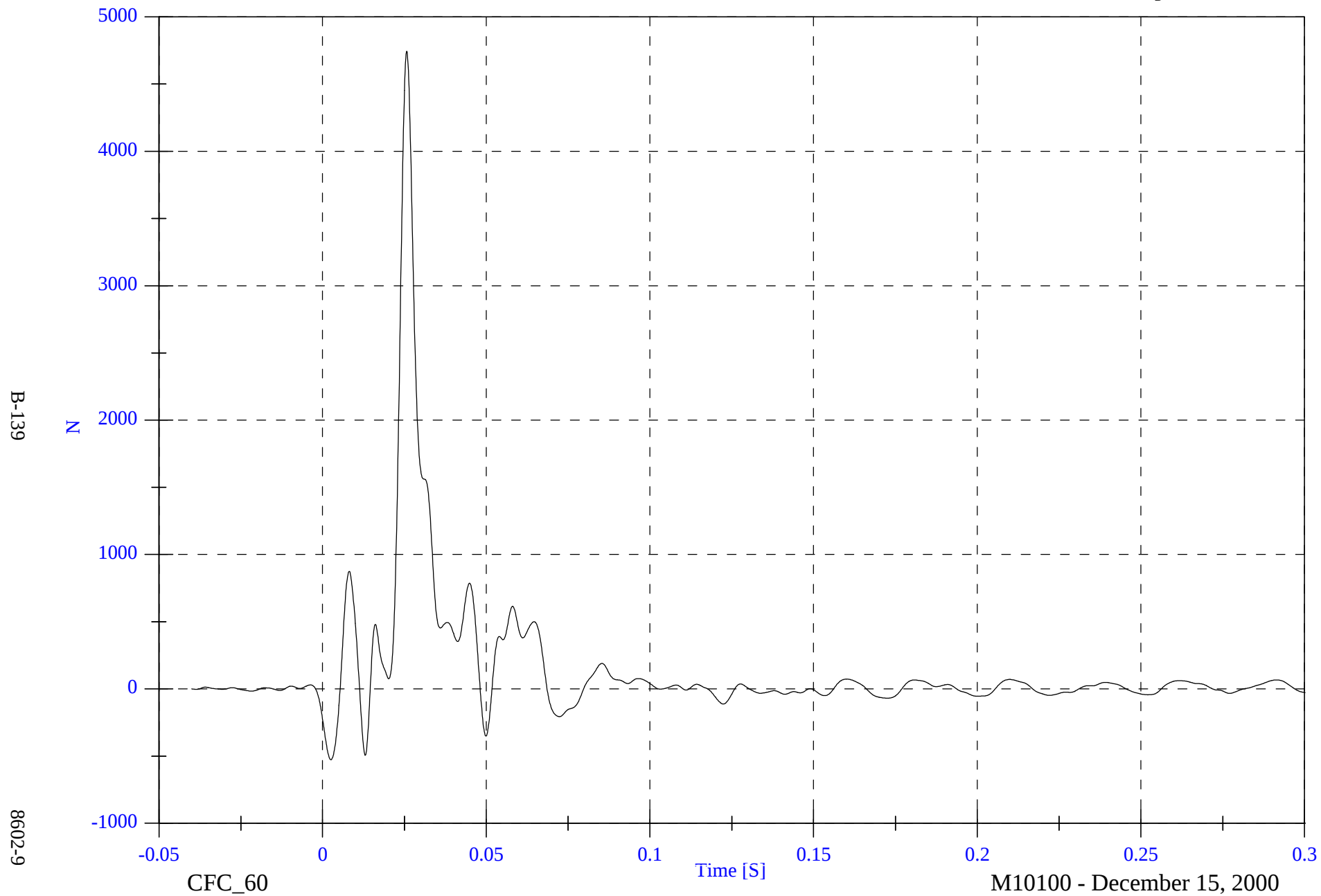


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell A8 Fx

Max: 4746.1 [N] at 0.026 [S]

Min: -527.5 [N] at 0.002 [S]

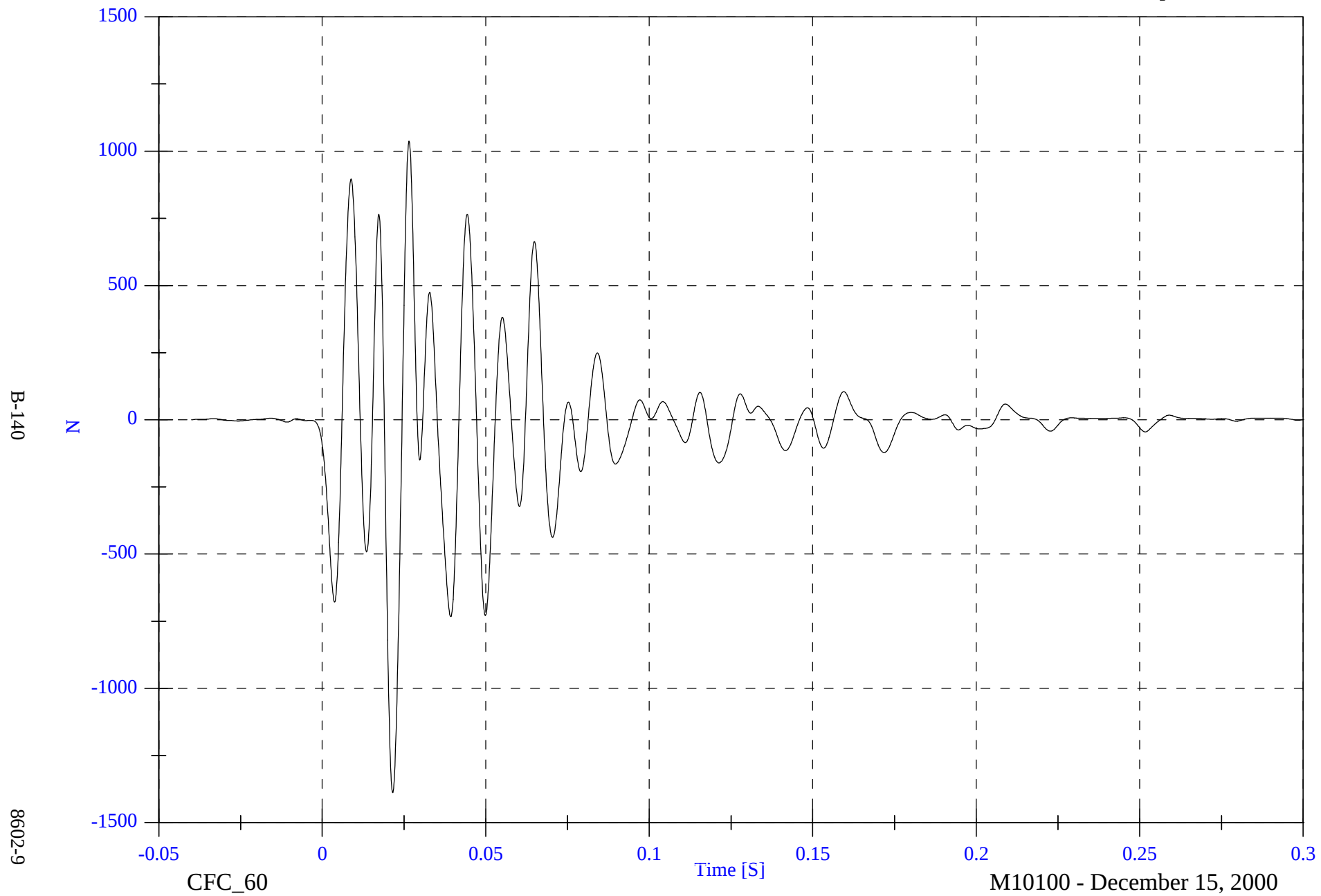


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell A9 Fx

Max: 1037.8 [N] at 0.026 [S]

Min: -1388.4 [N] at 0.021 [S]

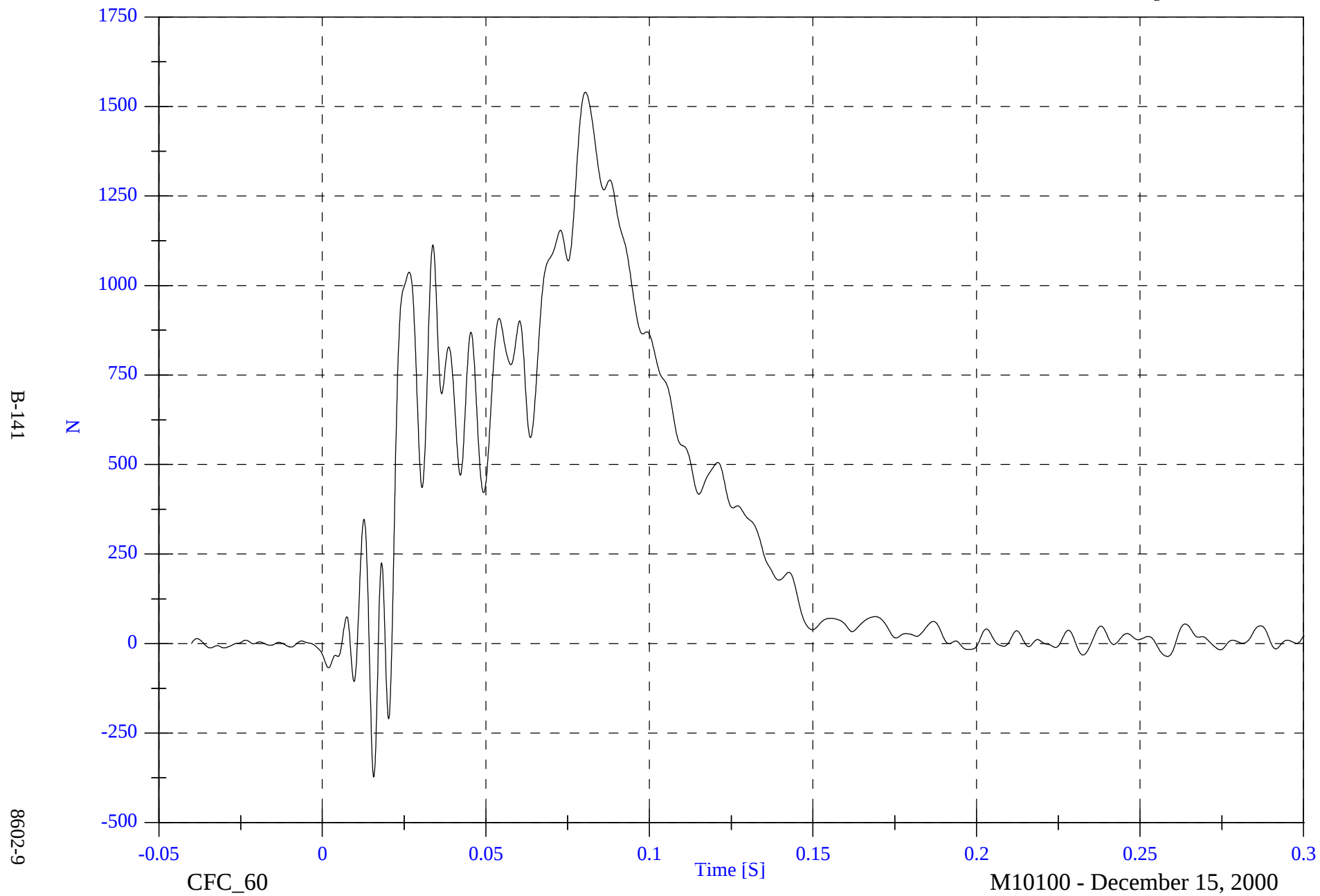


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell B1 Fx

Max: 1539.9 [N] at 0.080 [S]

Min: -373.2 [N] at 0.016 [S]

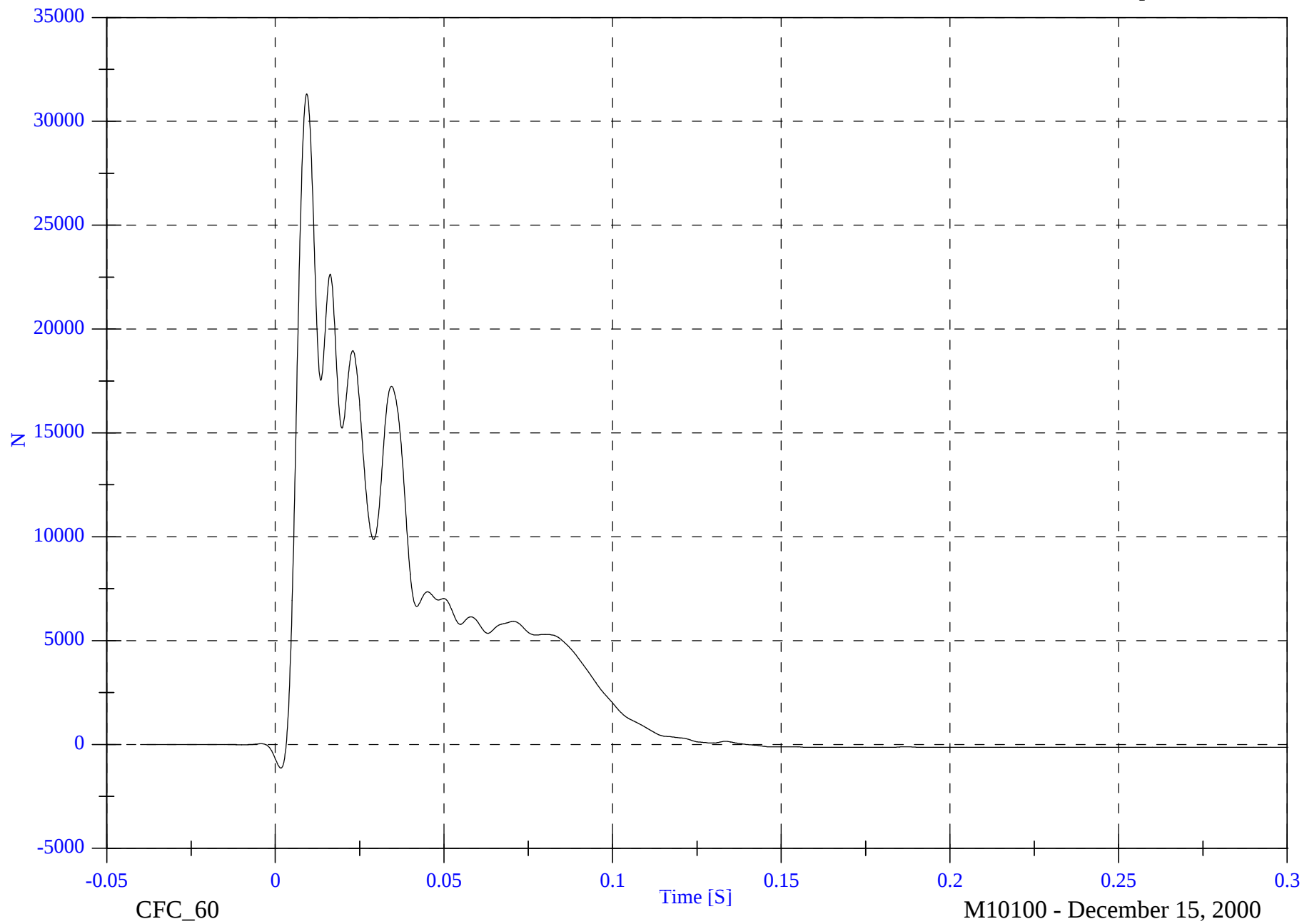


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell B2 Fx

Max: 31325.1 [N] at 0.009 [S]

Min: -1135.2 [N] at 0.002 [S]



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8602-9

CFC_60

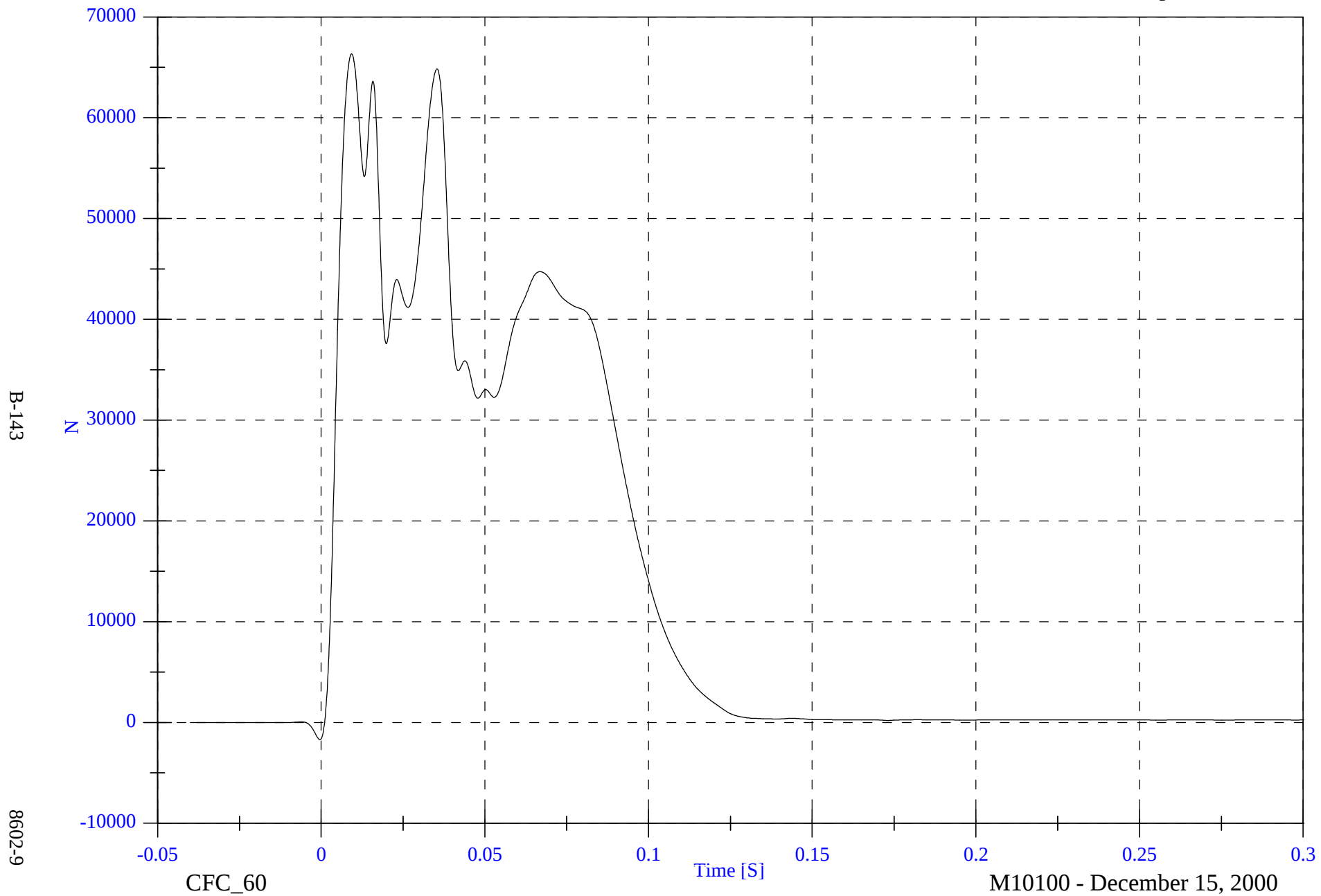
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell B3 Fx

Max: 66346.0 [N] at 0.009 [S]

Min: -1699.1 [N] at -0.000 [S]

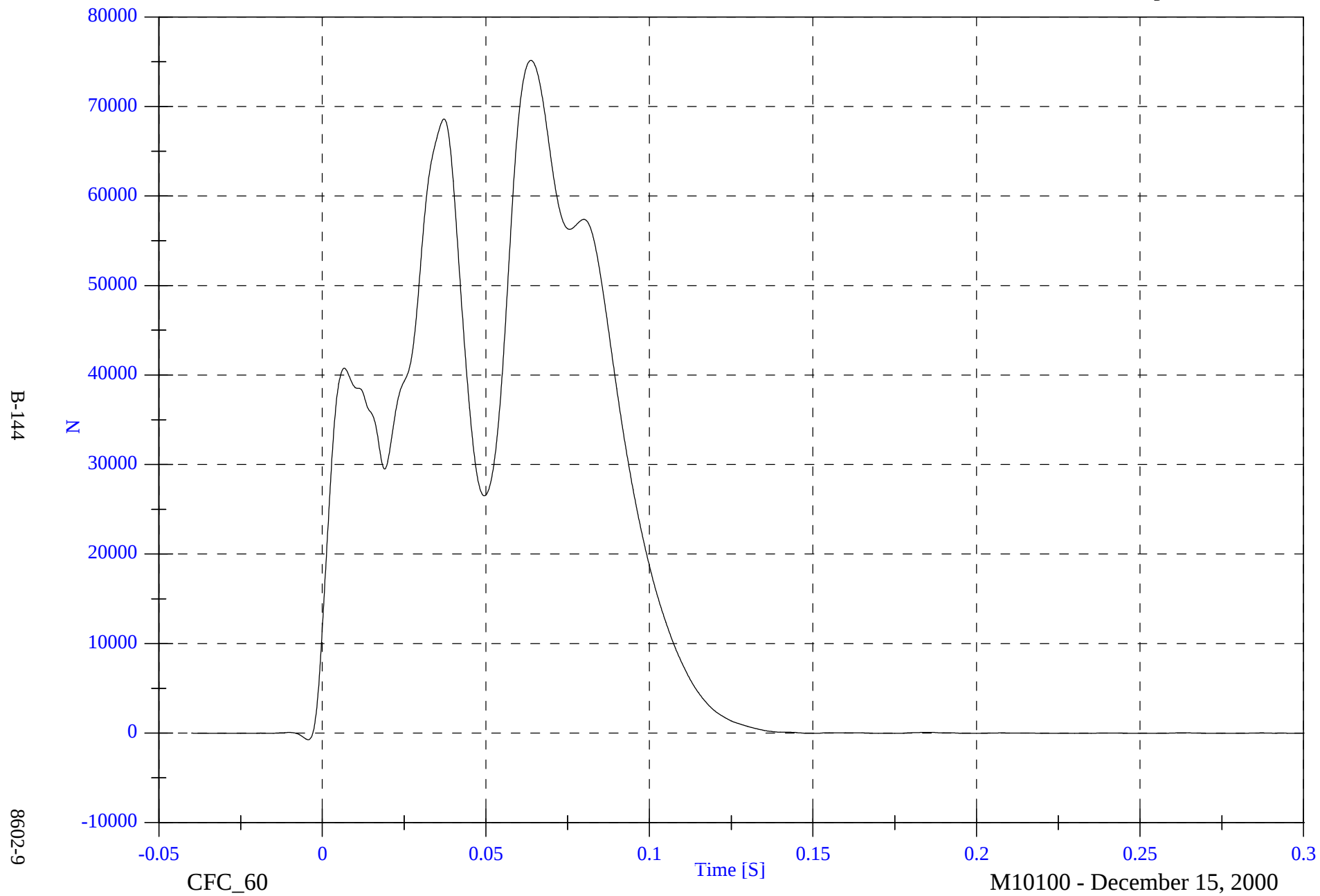


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell B4 Fx

Max: 75141.8 [N] at 0.064 [S]

Min: -738.1 [N] at -0.004 [S]

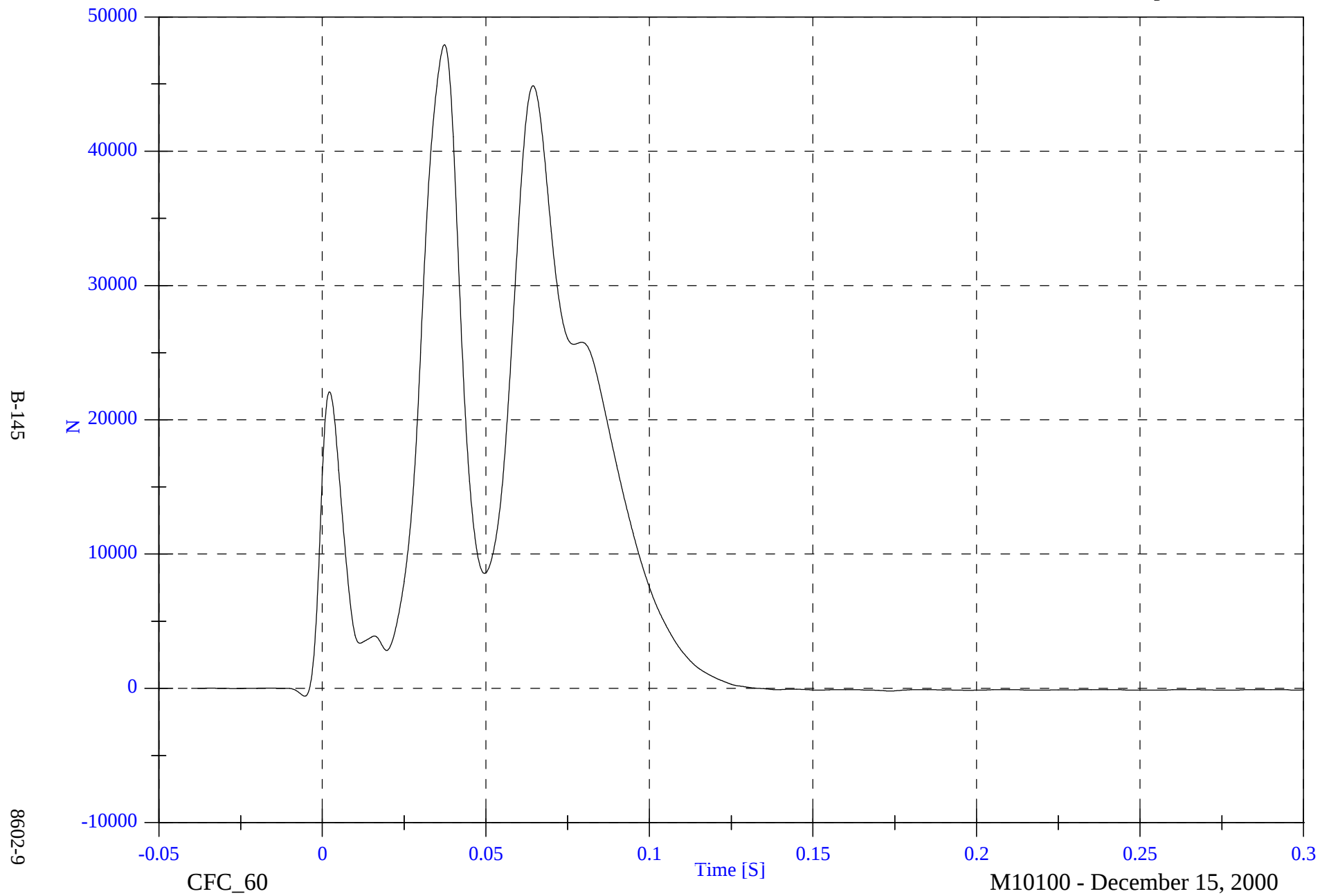


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell B5 Fx

Max: 47926.4 [N] at 0.037 [S]

Min: -579.5 [N] at -0.005 [S]

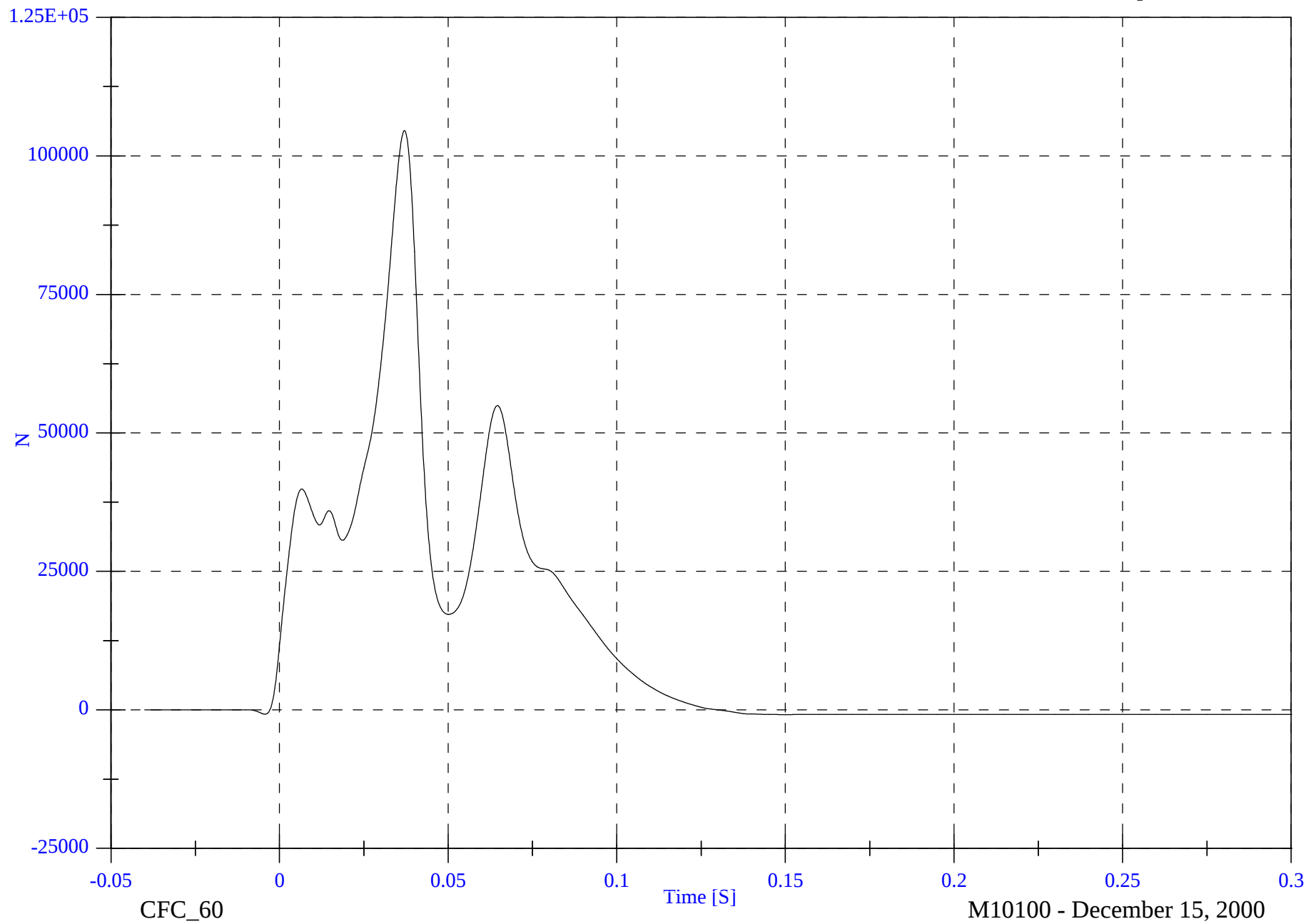


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell B6 Fx

Max: 104559.8 [N] at 0.037 [S]

Min: -862.6 [N] at 0.150 [S]



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8602-9

CFC_60

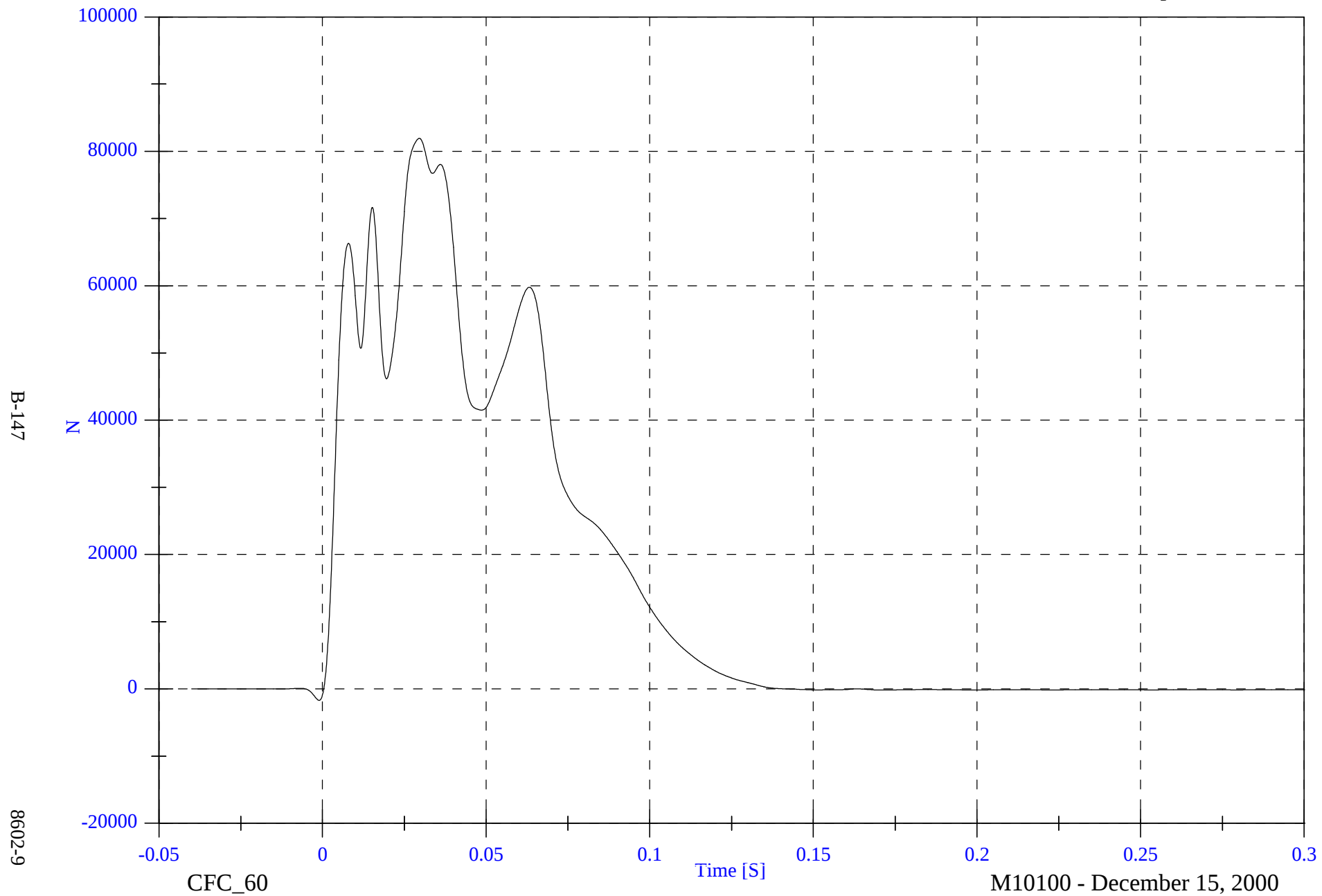
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell B7 Fx

Max: 81930.8 [N] at 0.030 [S]

Min: -1707.7 [N] at -0.001 [S]

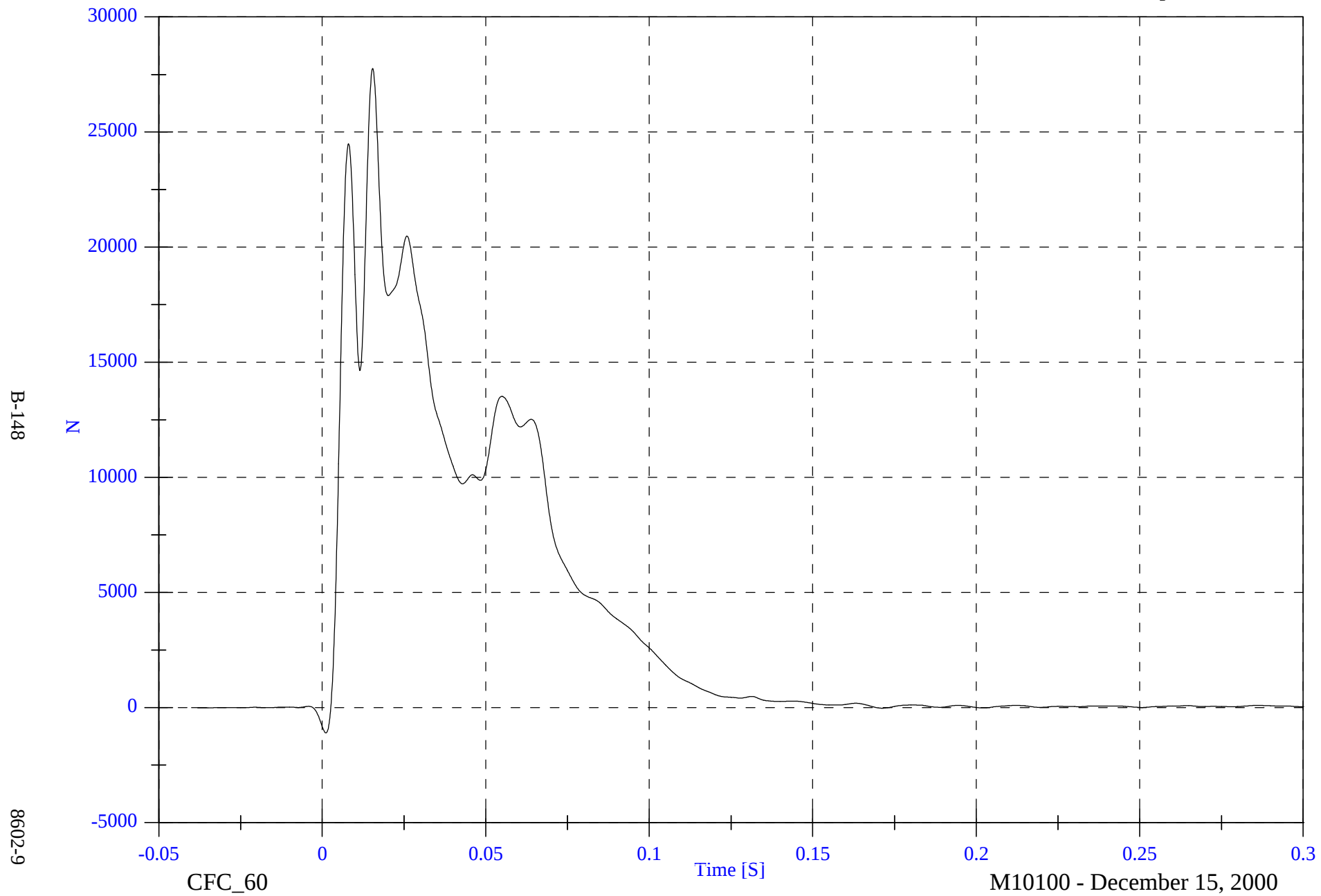


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell B8 Fx

Max: 27764.1 [N] at 0.015 [S]

Min: -1104.6 [N] at 0.001 [S]

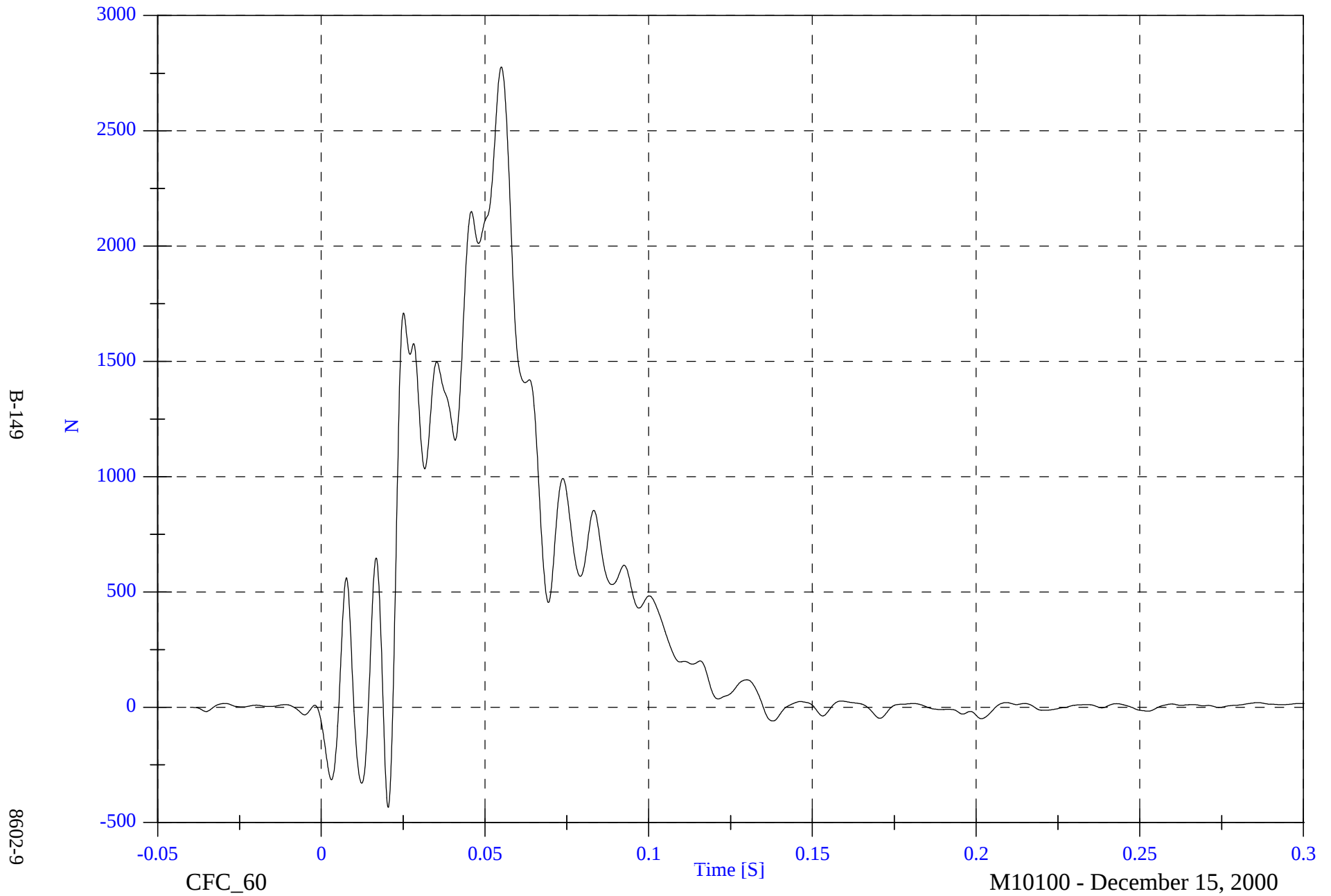


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell B9 Fx

Max: 2776.4 [N] at 0.055 [S]

Min: -434.4 [N] at 0.020 [S]

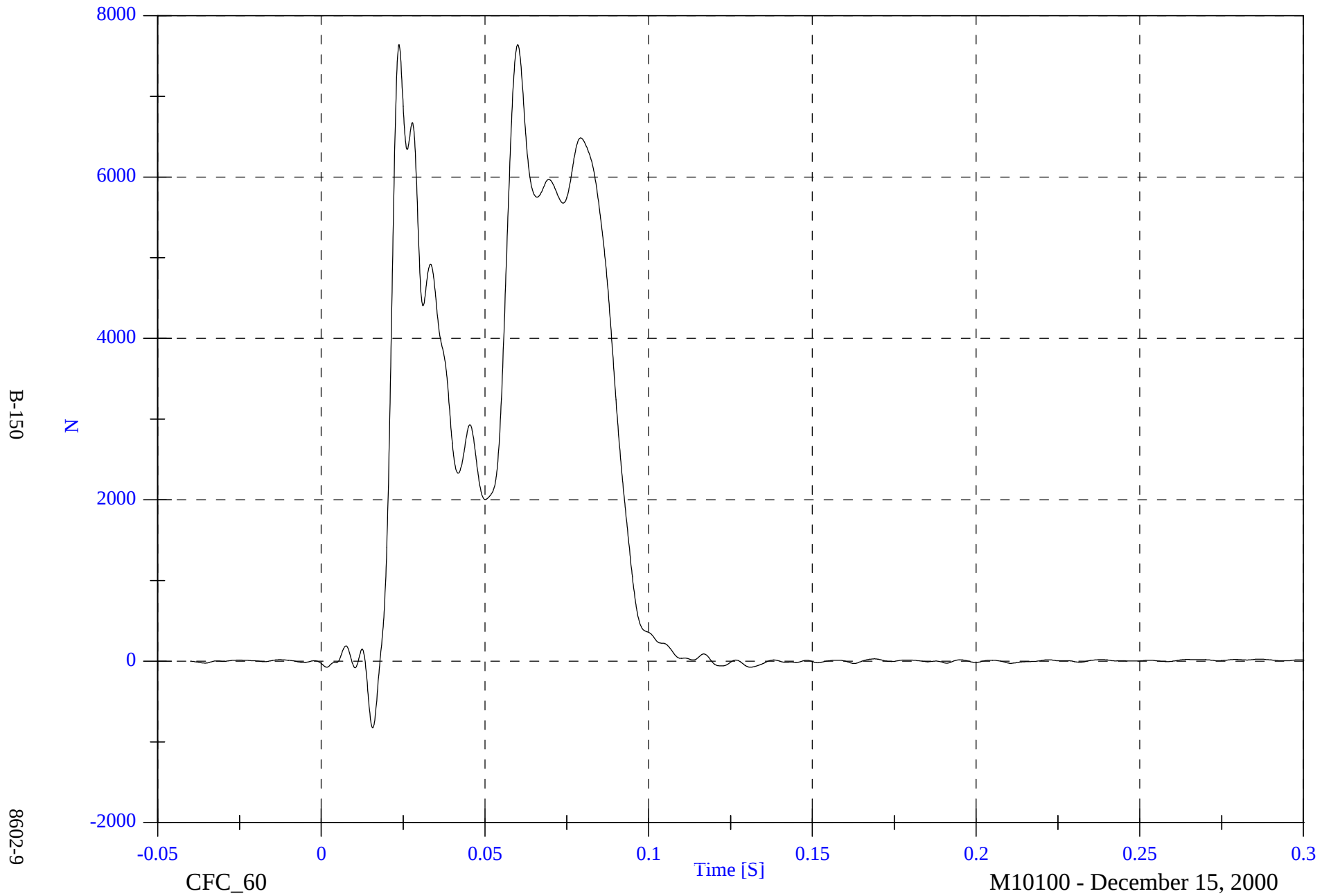


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell C1 Fx

Max: 7640.7 [N] at 0.024 [S]

Min: -827.1 [N] at 0.016 [S]

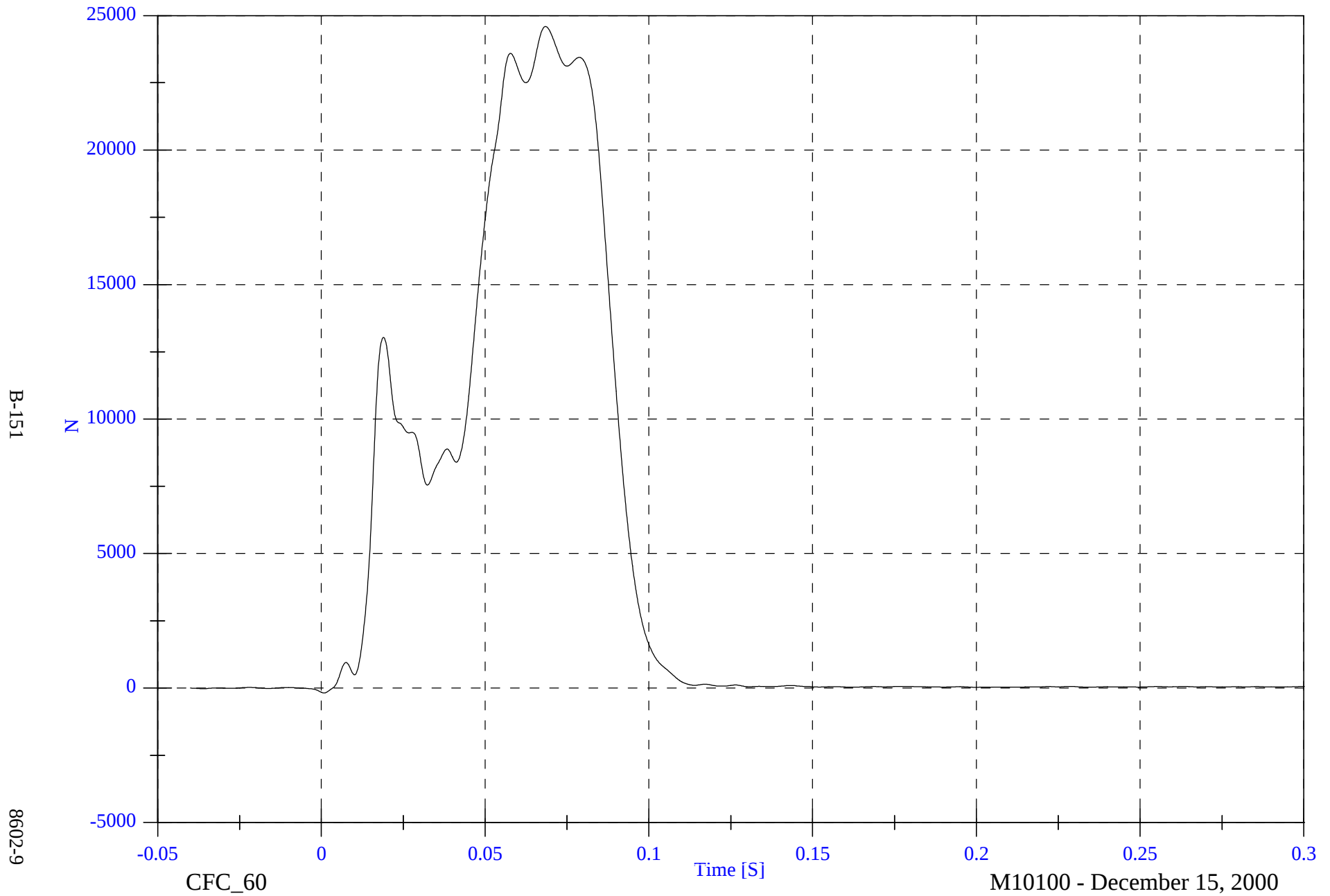


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell C2 Fx

Max: 24592.3 [N] at 0.068 [S]

Min: -183.8 [N] at 0.001 [S]

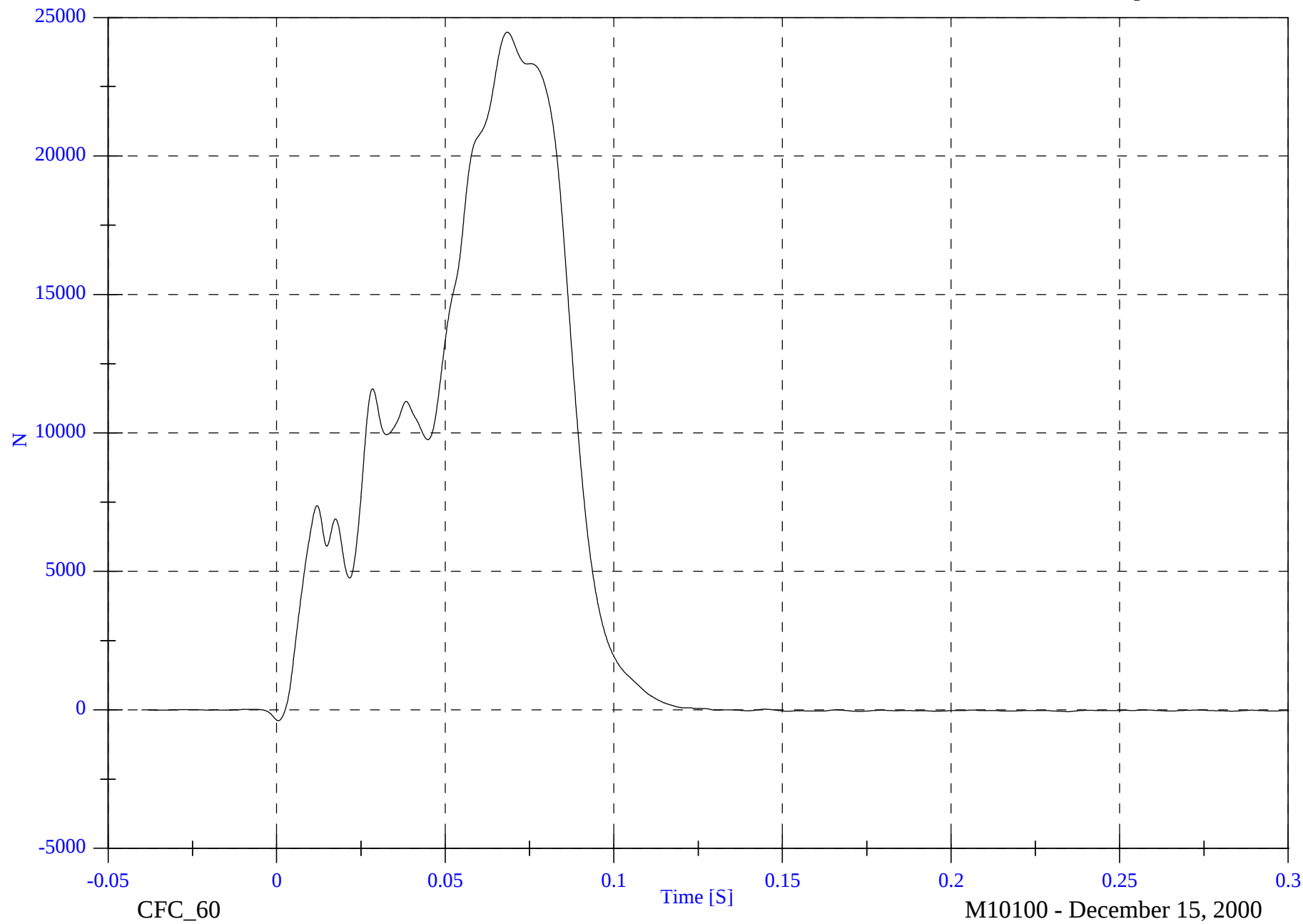


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell C3 Fx

Max: 24467.5 [N] at 0.068 [S]

Min: -391.8 [N] at 0.000 [S]



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8602-9

CFC_60

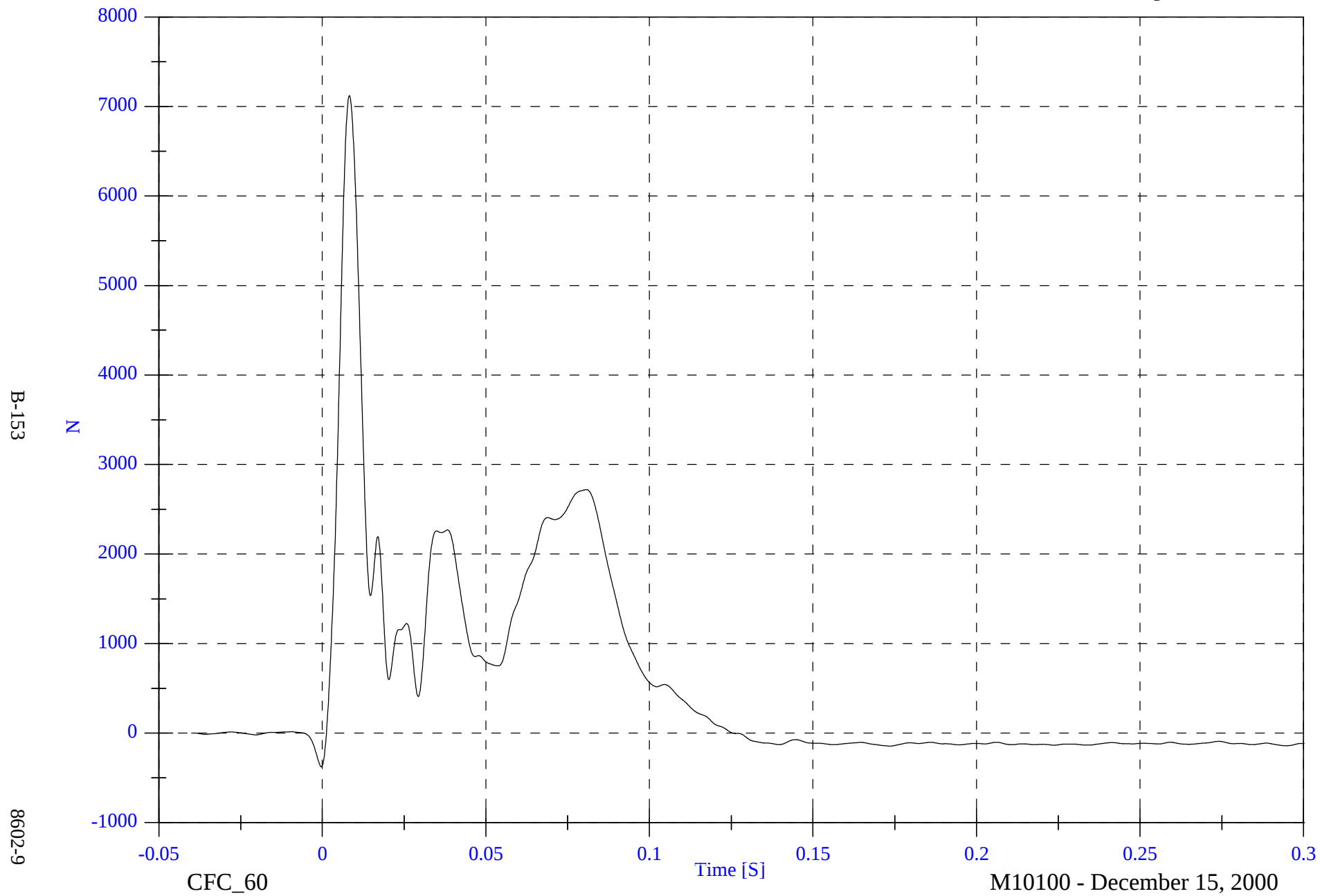
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell C4 Fx

Max: 7120.4 [N] at 0.008 [S]

Min: -376.2 [N] at -0.000 [S]

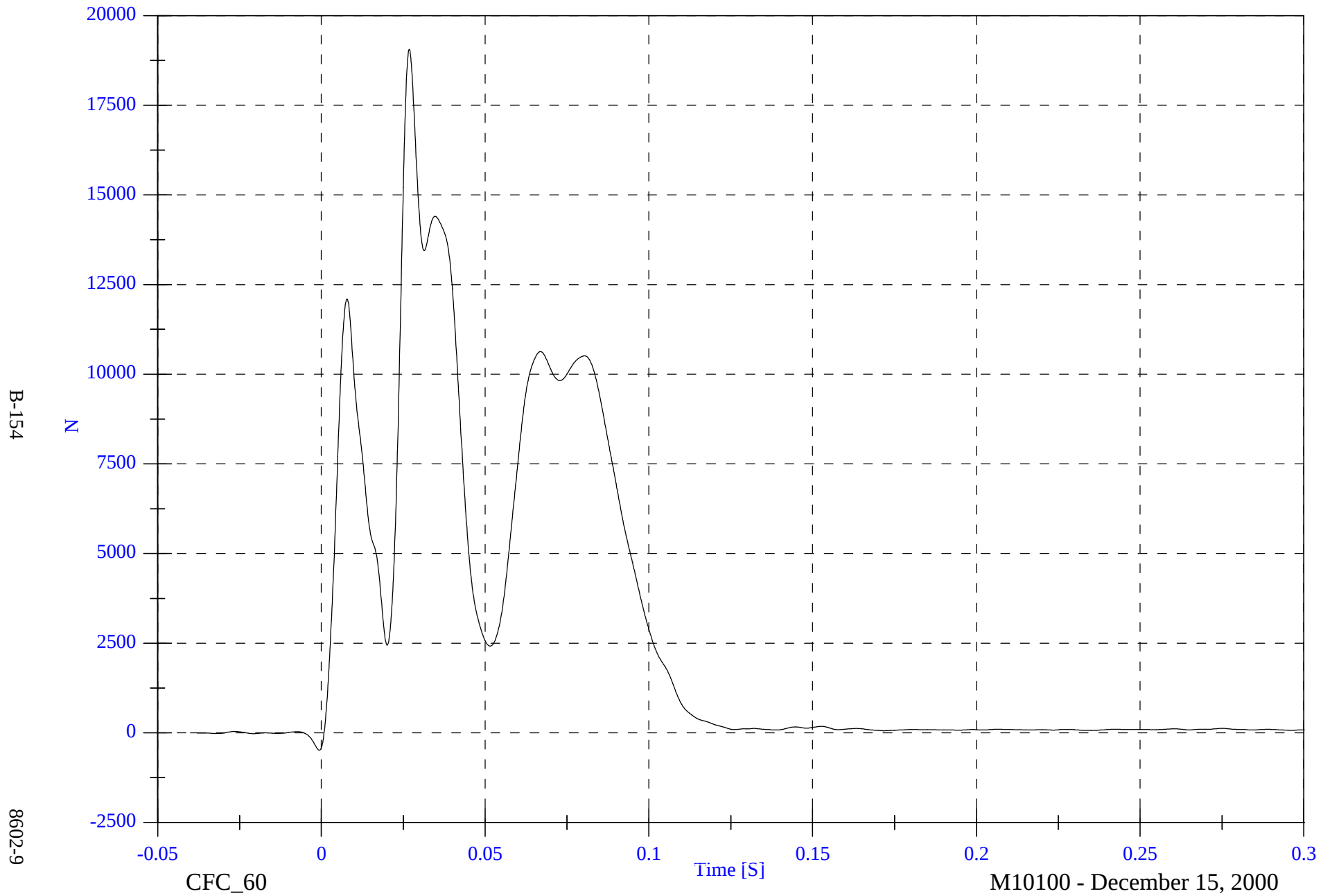


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell C5 Fx

Max: 19059.7 [N] at 0.027 [S]

Min: -483.1 [N] at -0.001 [S]

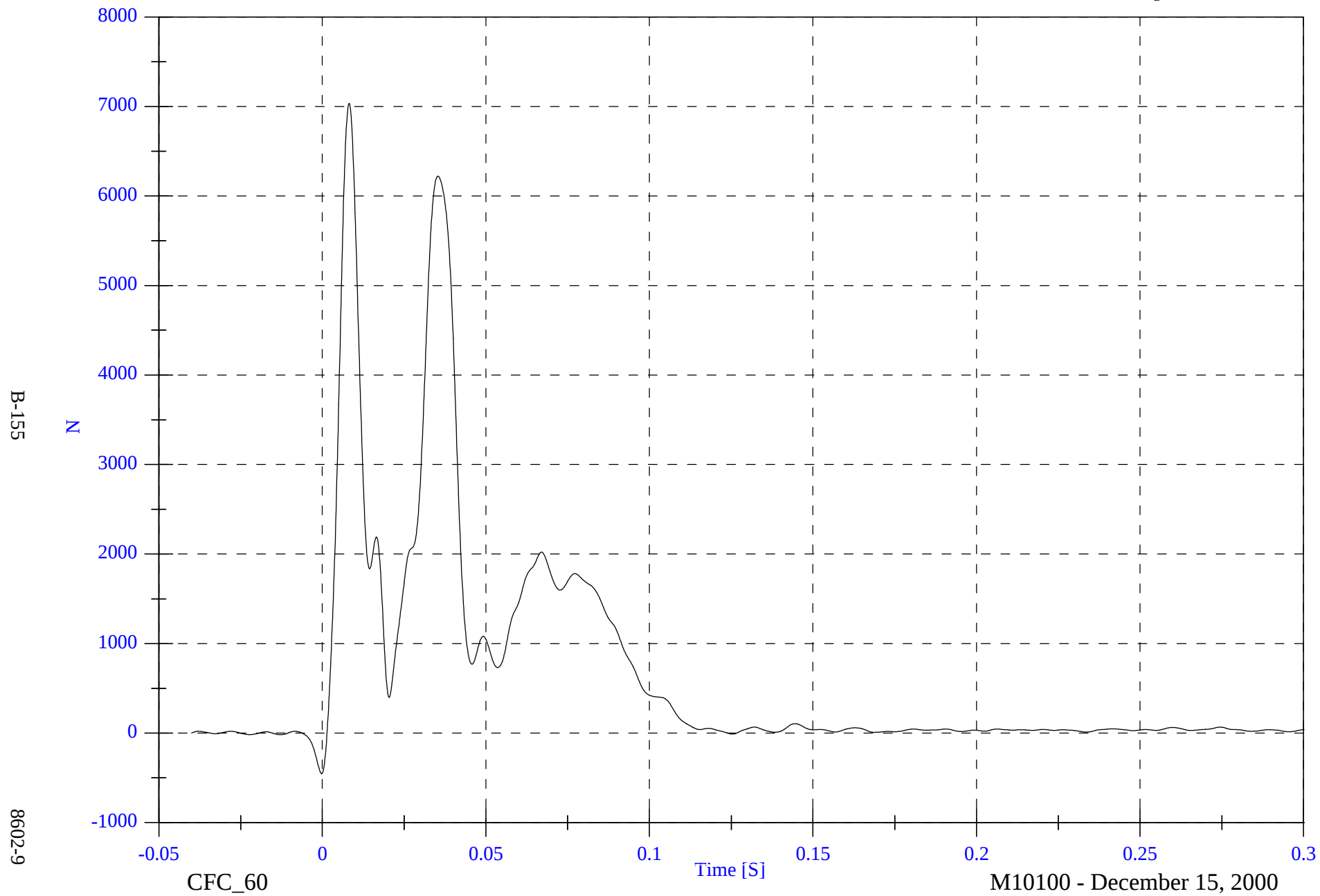


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell C6 Fx

Max: 7034.0 [N] at 0.008 [S]

Min: -453.8 [N] at -0.000 [S]

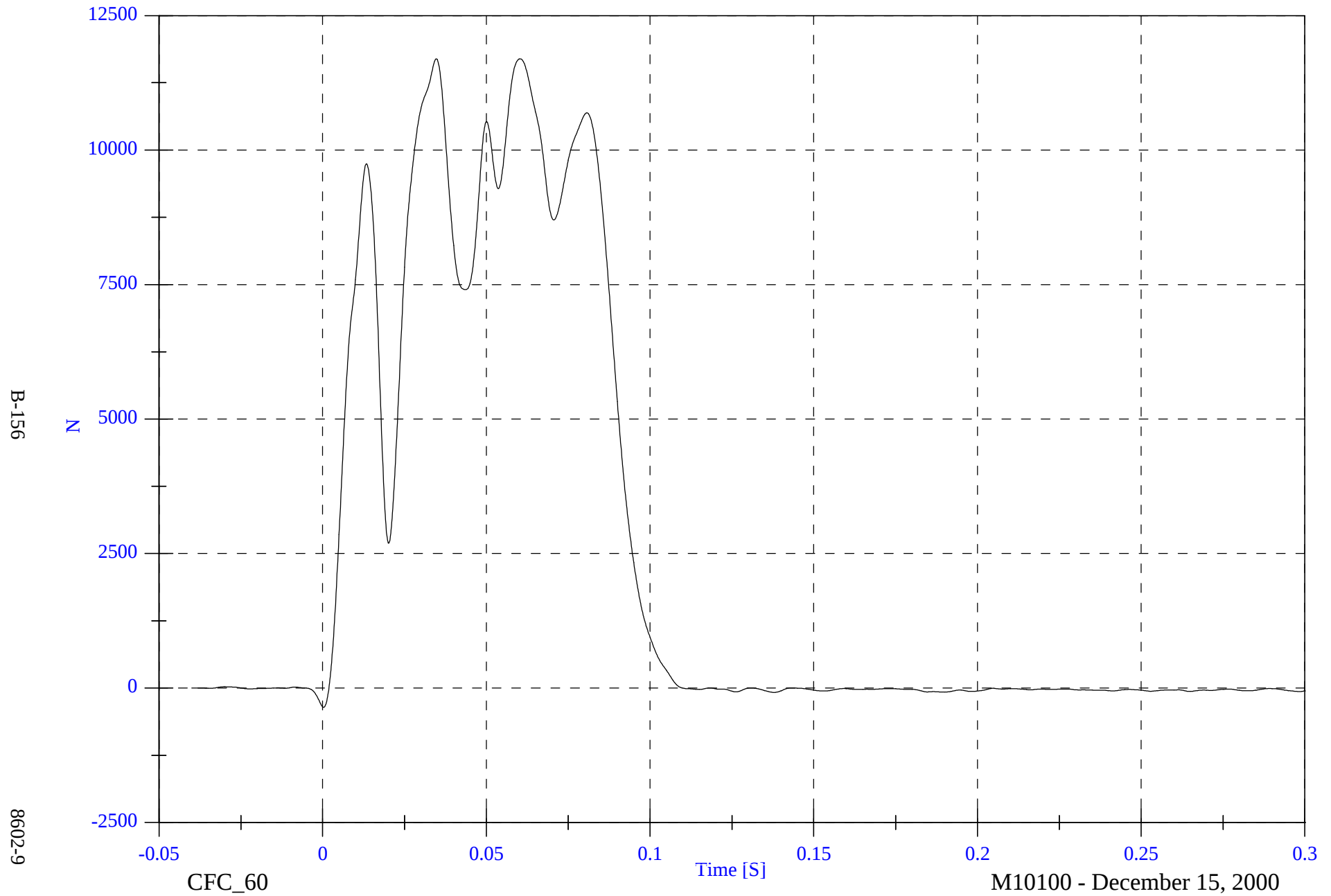


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell C7 Fx

Max: 11696.4 [N] at 0.060 [S]

Min: -358.2 [N] at 0.000 [S]

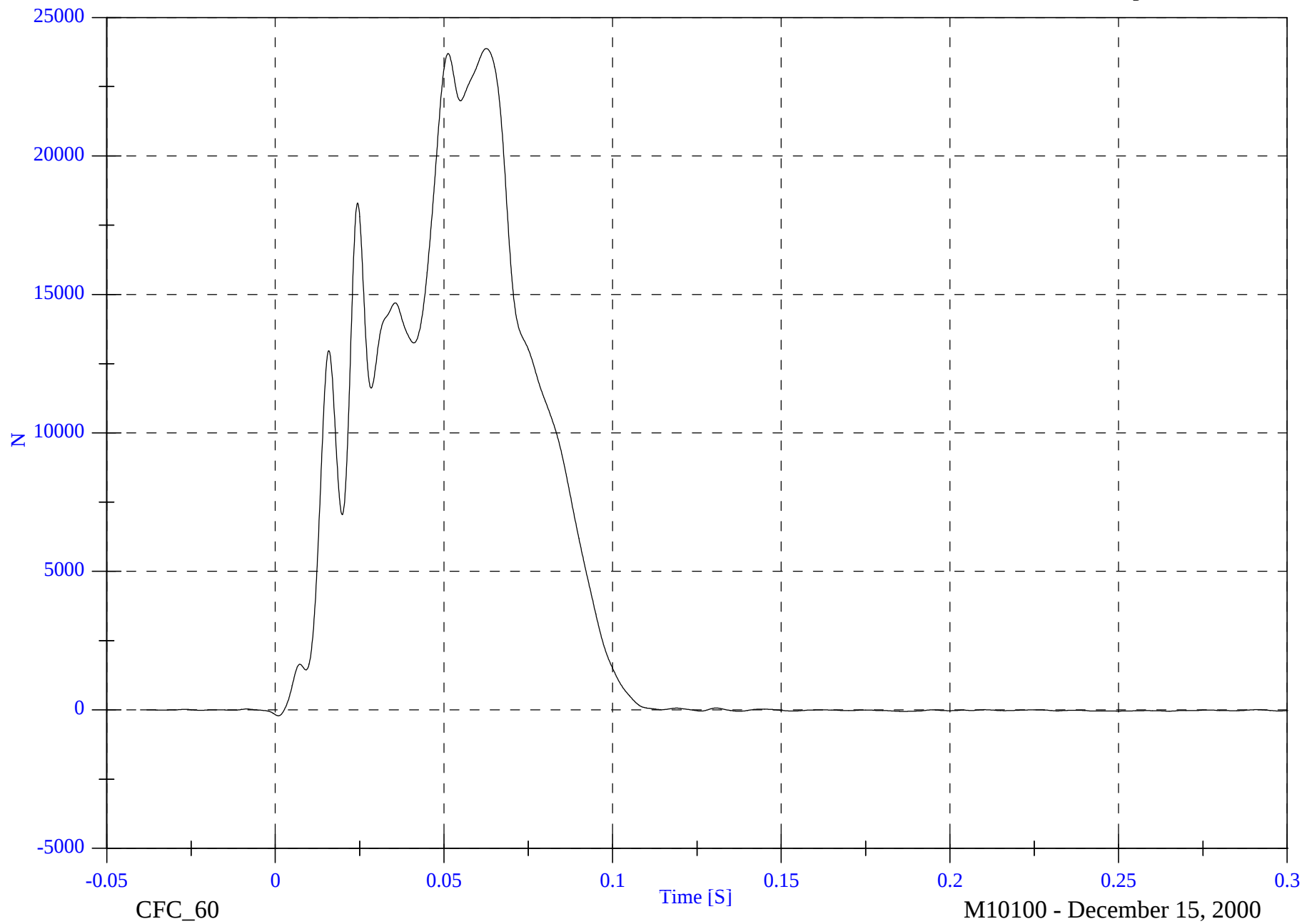


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell C8 Fx

Max: 23875.9 [N] at 0.062 [S]

Min: -213.1 [N] at 0.001 [S]

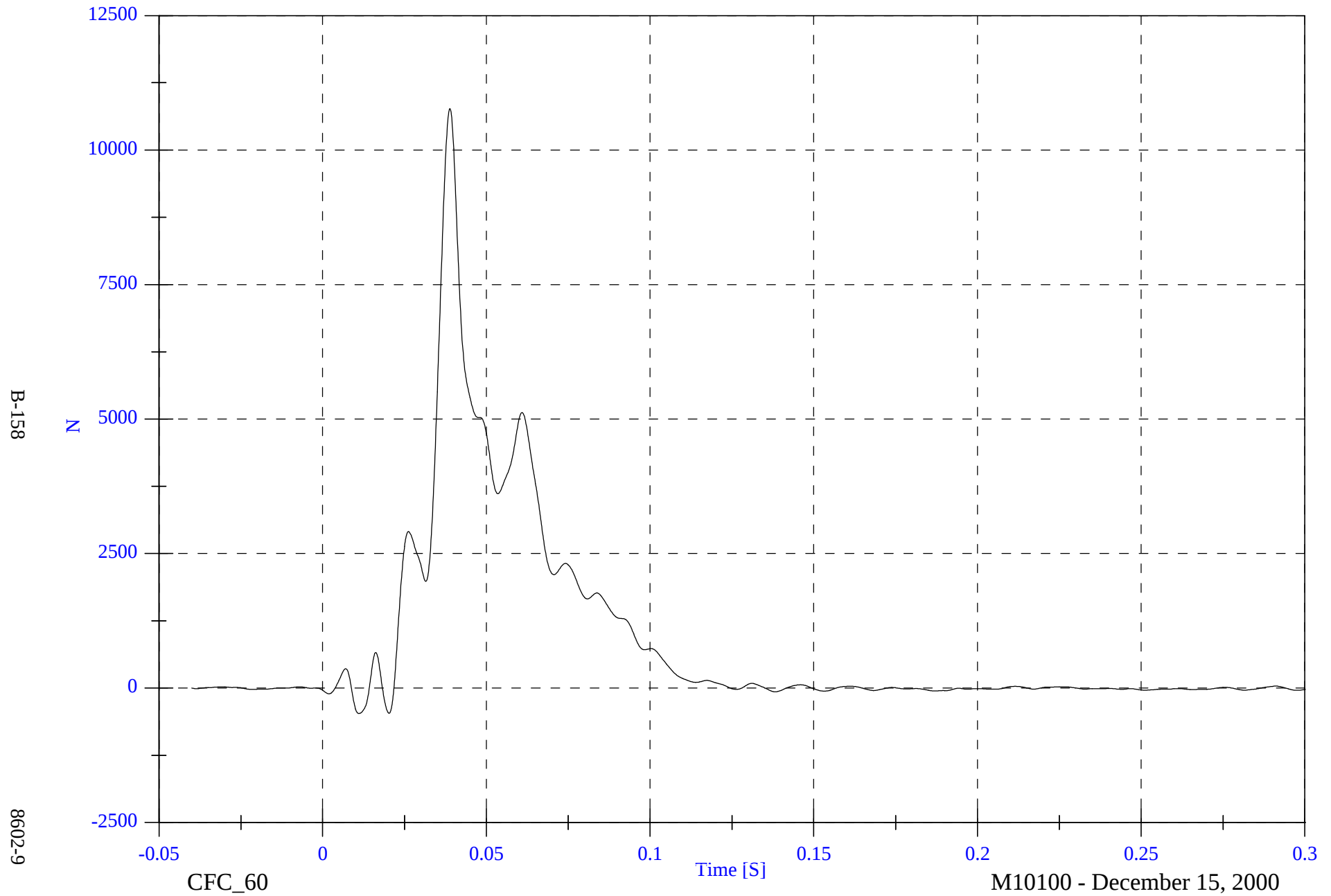


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell C9 Fx

Max: 10771.1 [N] at 0.039 [S]

Min: -472.5 [N] at 0.011 [S]

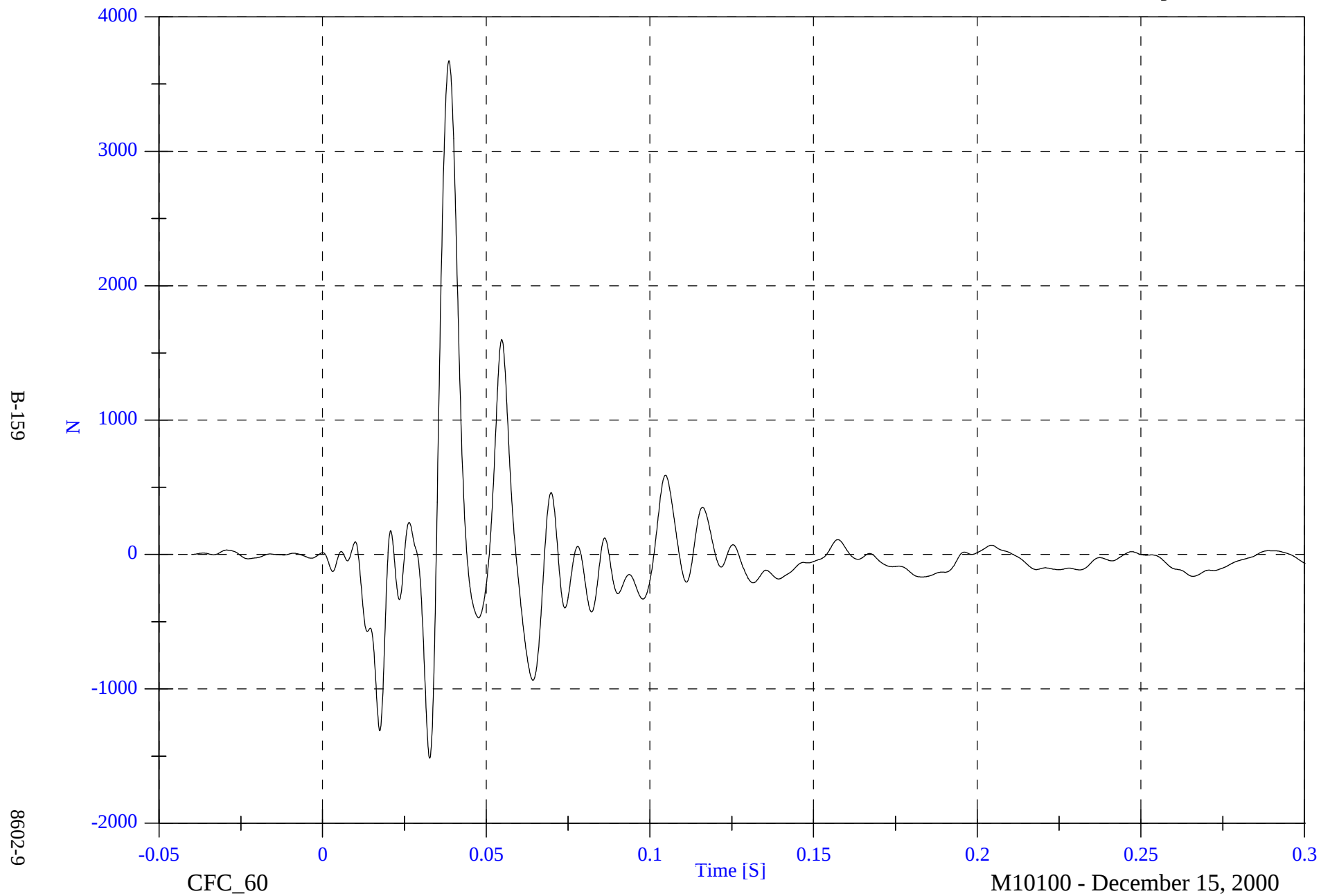


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell D1 Fx

Max: 3673.9 [N] at 0.039 [S]

Min: -1516.2 [N] at 0.033 [S]

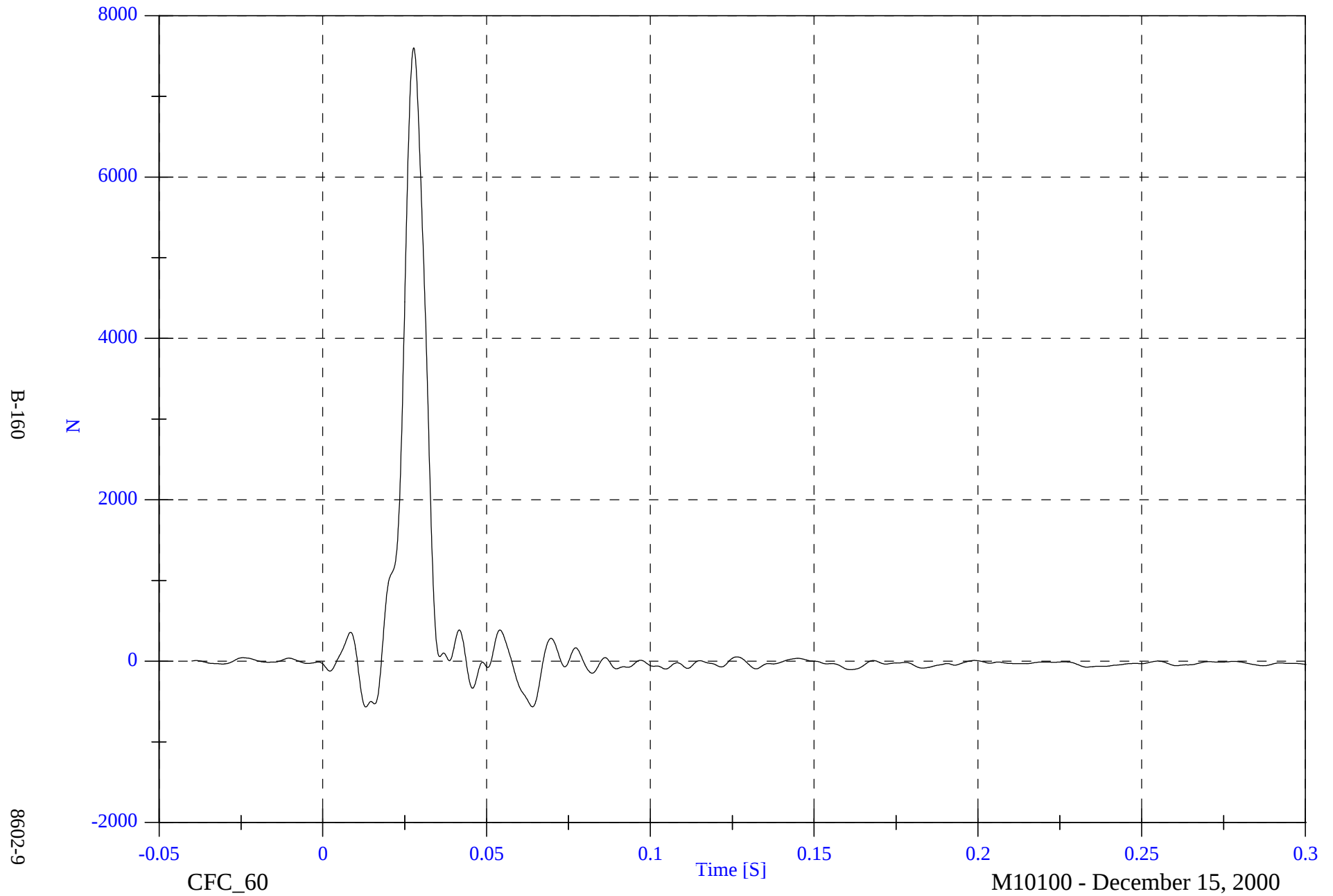


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell D2 Fx

Max: 7600.6 [N] at 0.028 [S]

Min: -567.8 [N] at 0.013 [S]

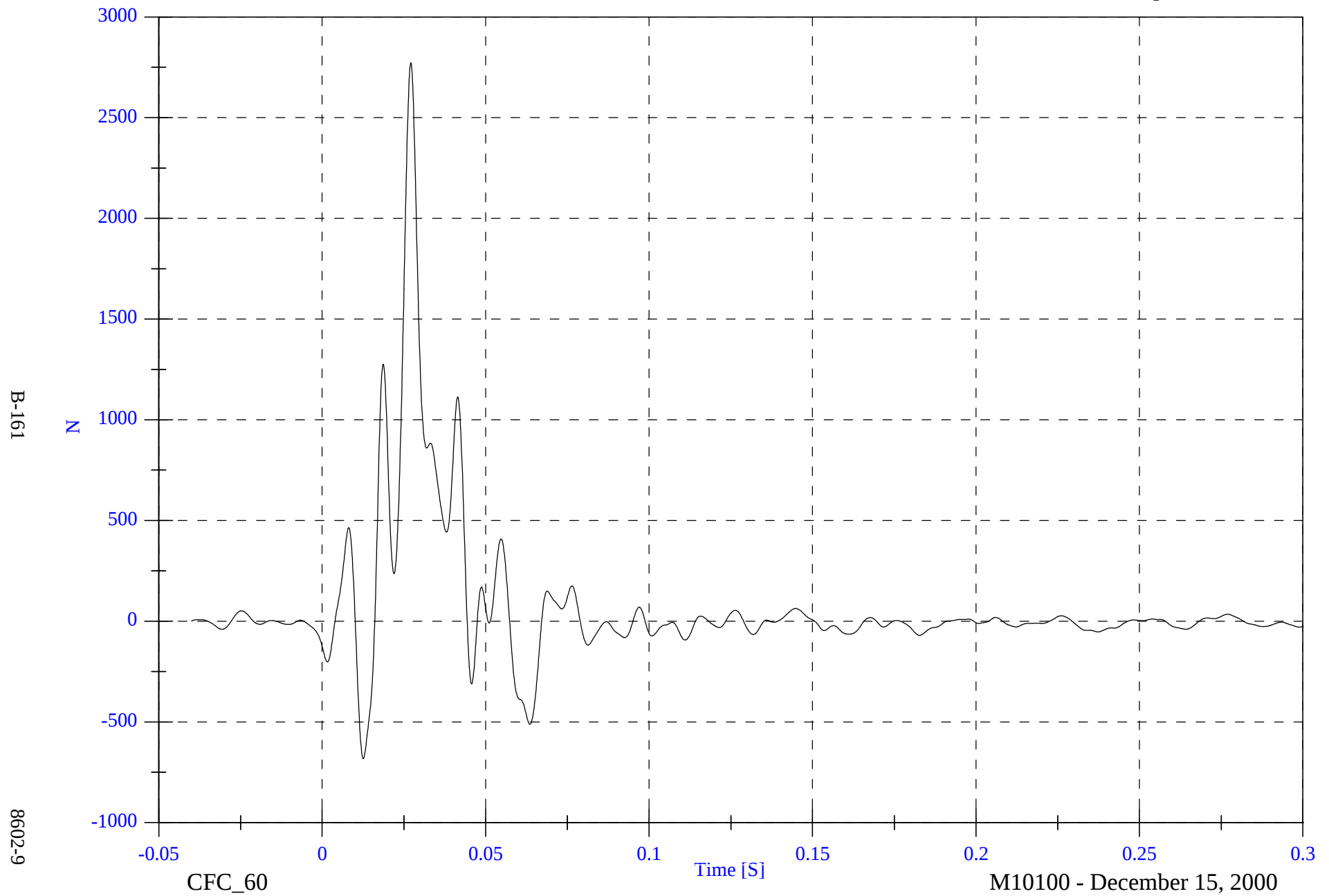


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell D3 Fx

Max: 2773.2 [N] at 0.027 [S]

Min: -682.8 [N] at 0.013 [S]

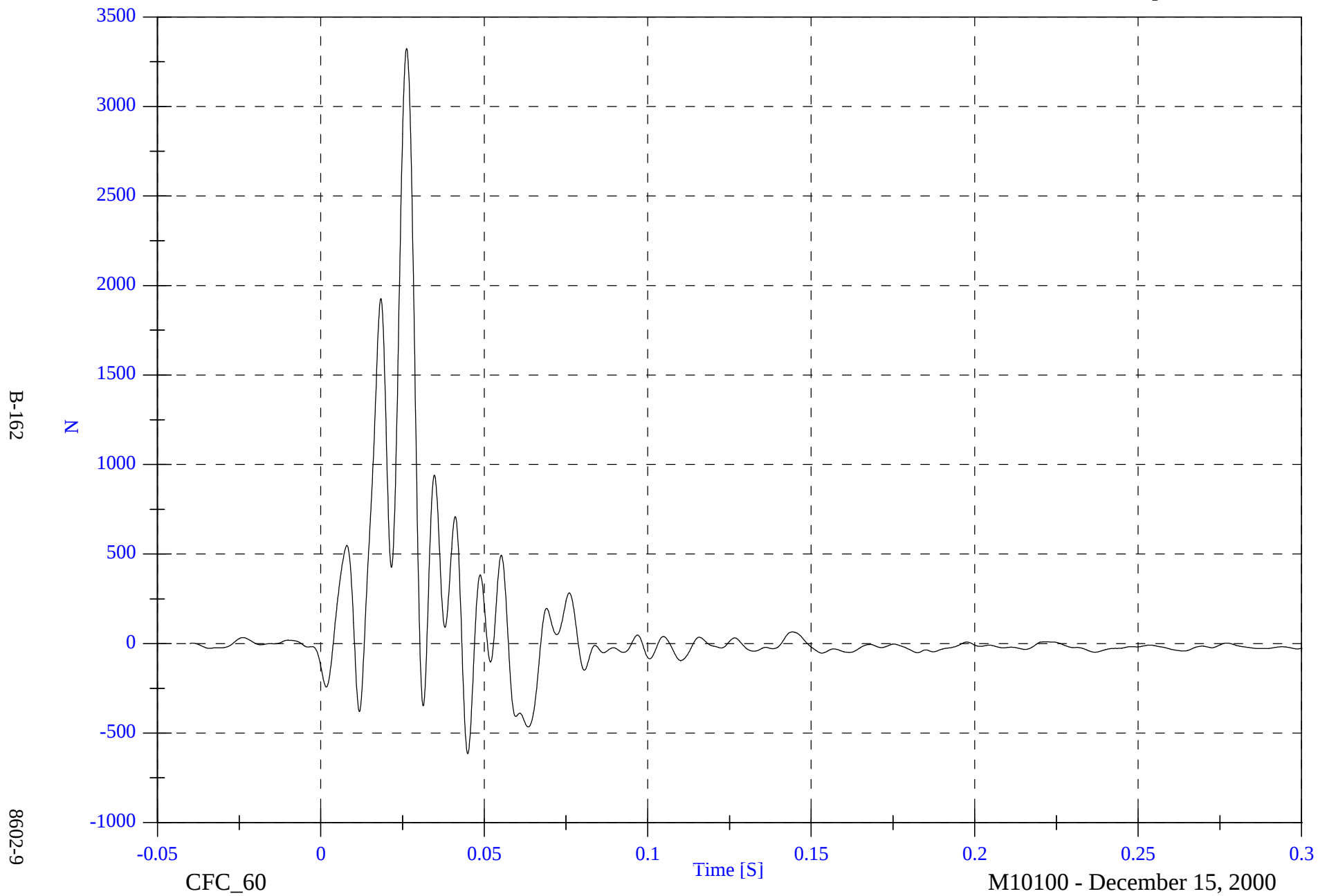


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell D4 Fx

Max: 3323.7 [N] at 0.026 [S]

Min: -615.1 [N] at 0.045 [S]

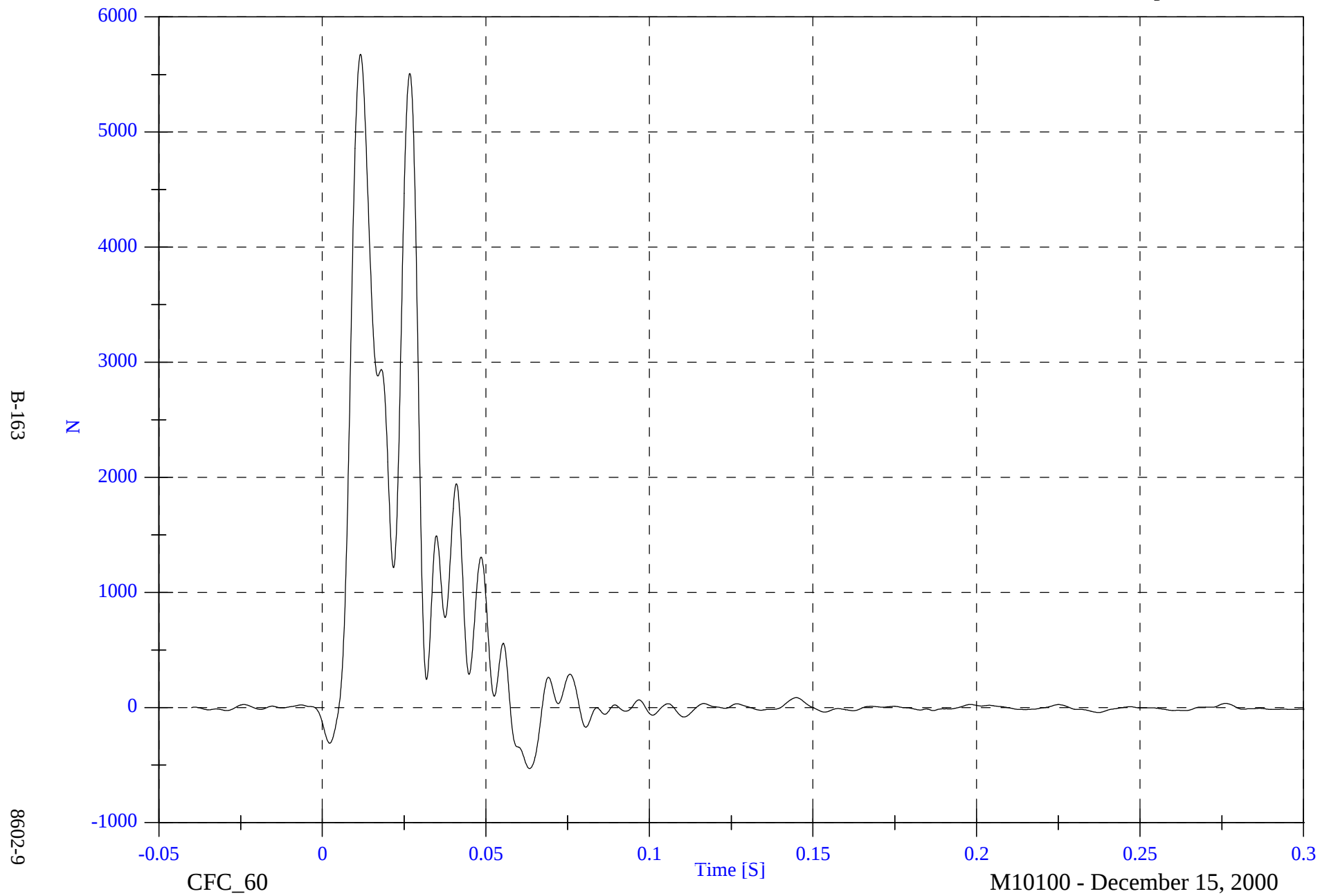


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell D5 Fx

Max: 5675.2 [N] at 0.012 [S]

Min: -529.8 [N] at 0.063 [S]

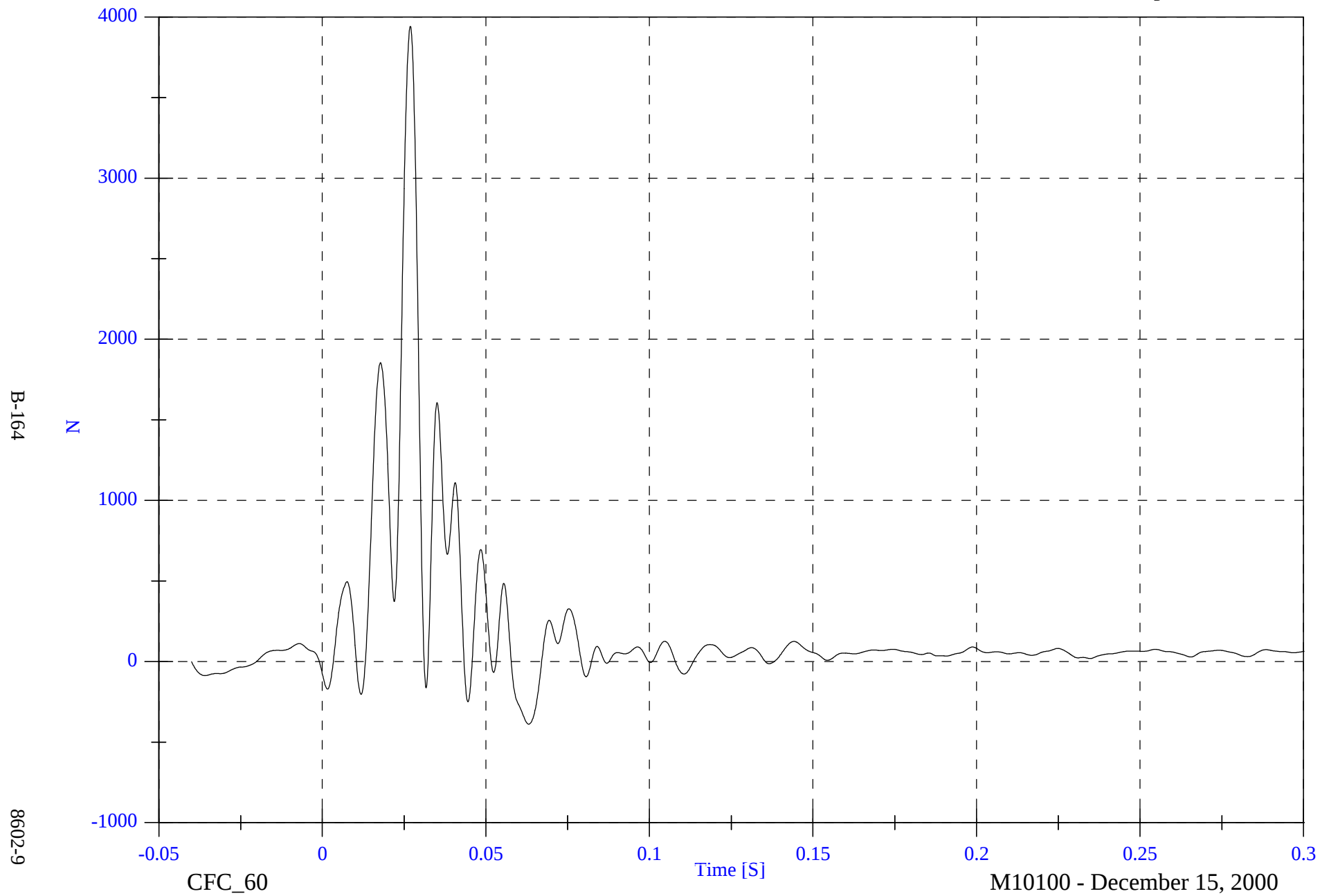


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell D6 Fx

Max: 3941.7 [N] at 0.027 [S]

Min: -388.6 [N] at 0.063 [S]

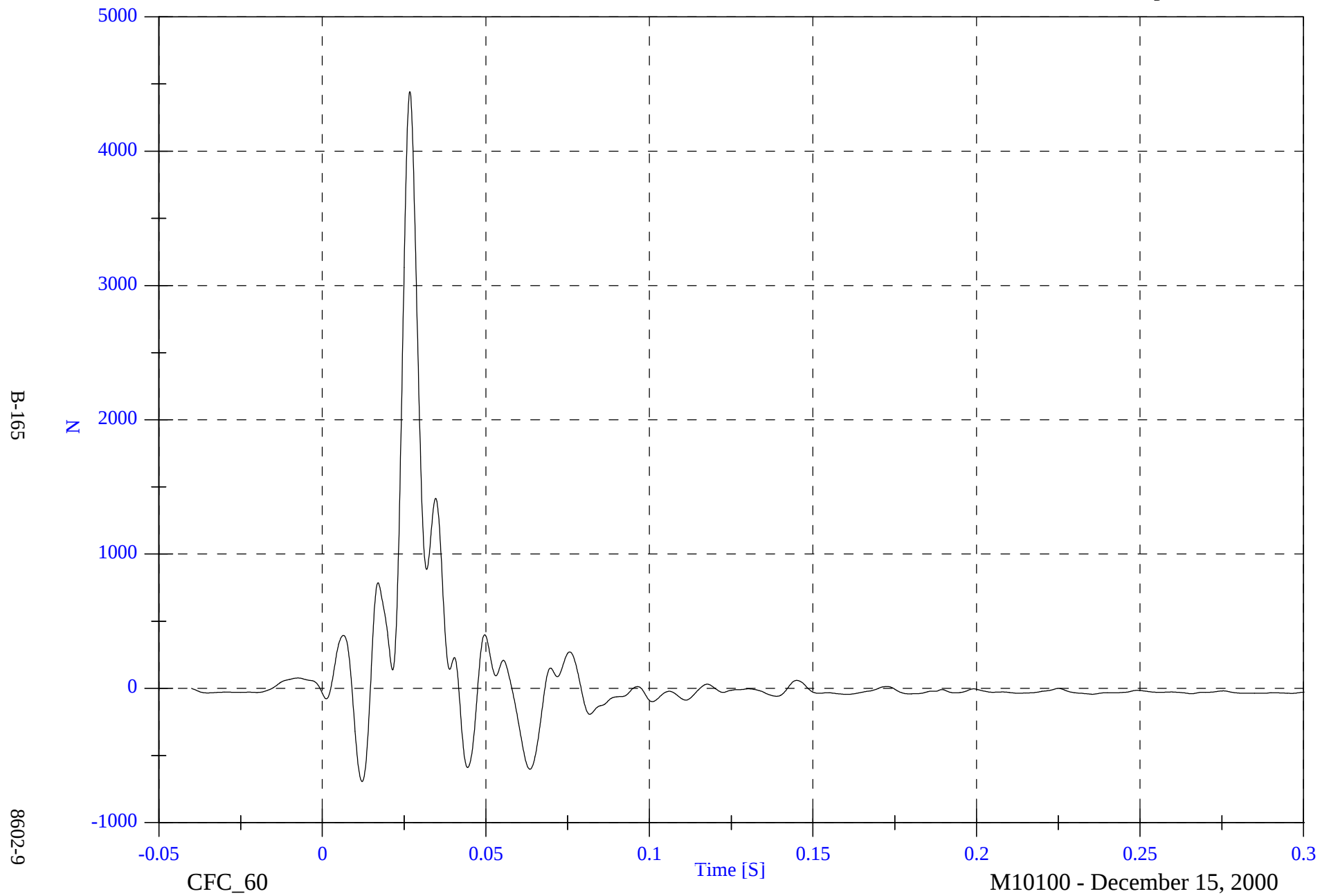


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell D7 Fx

Max: 4444.2 [N] at 0.027 [S]

Min: -693.4 [N] at 0.012 [S]

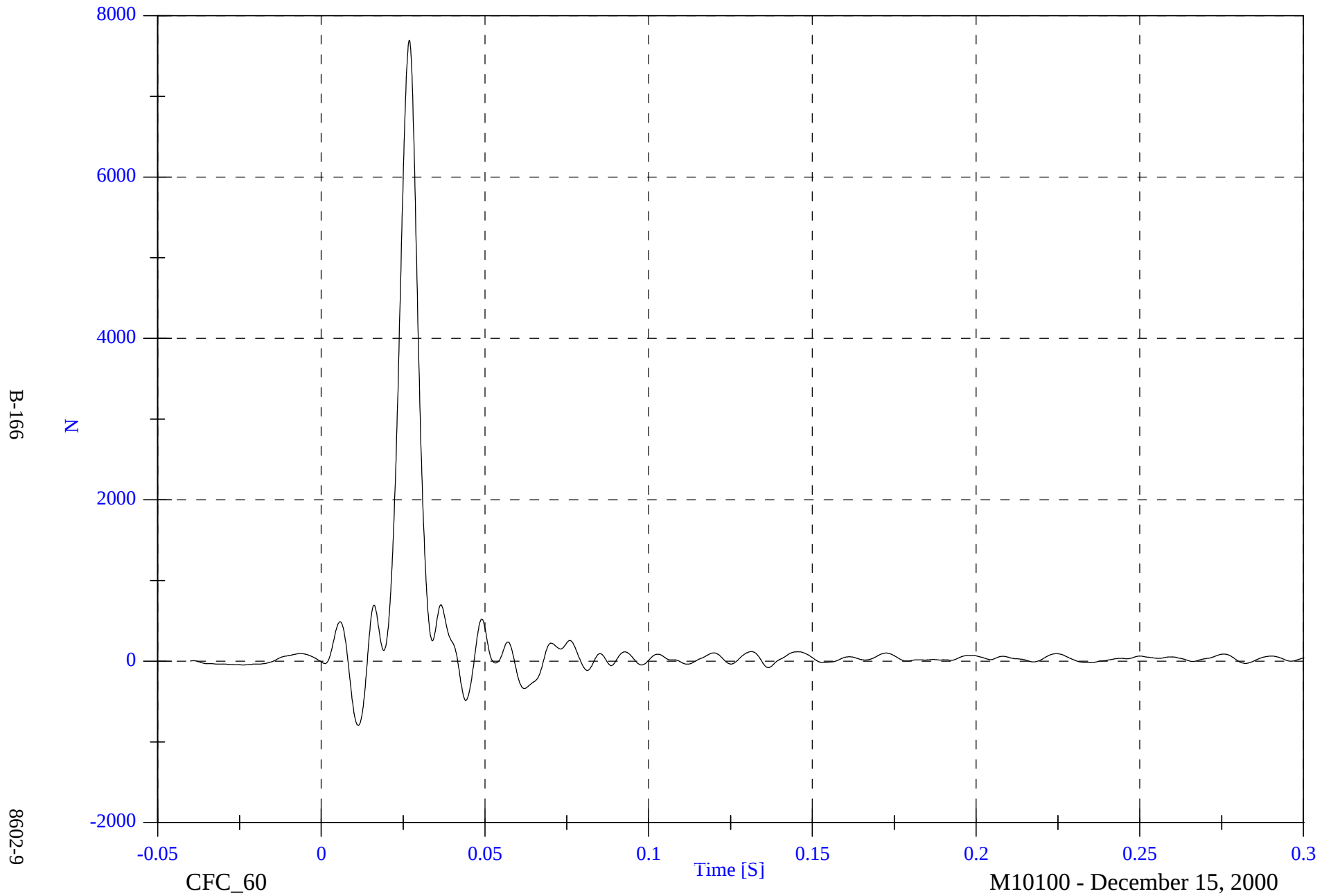


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell D8 Fx

Max: 7693.9 [N] at 0.027 [S]

Min: -795.6 [N] at 0.011 [S]

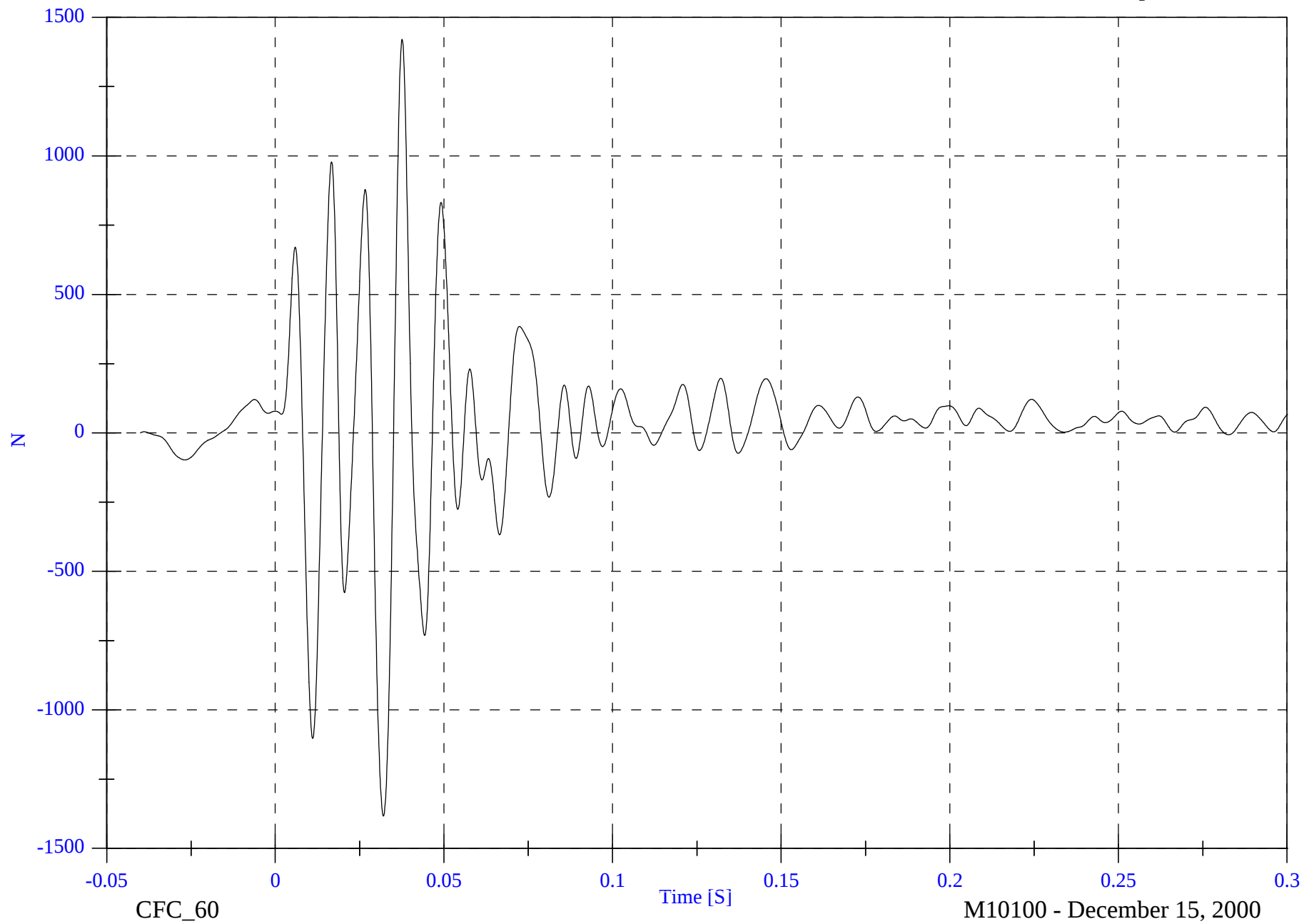


NCAP Test 9 - 2001 Buick LeSabre

Barrier Load Cell D9 Fx

Max: 1421.2 [N] at 0.038 [S]

Min: -1383.3 [N] at 0.032 [S]



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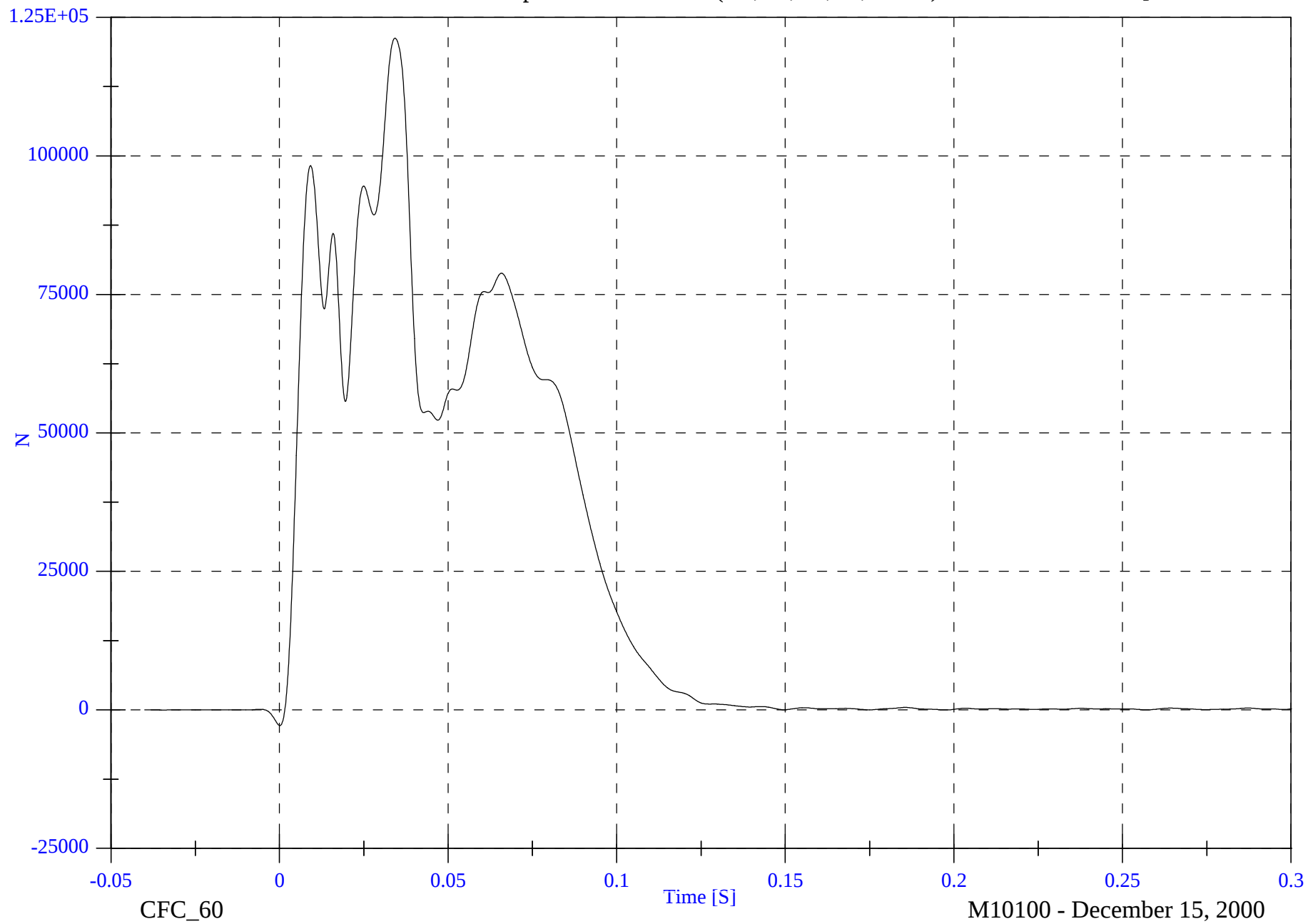
8602-9

NCAP Test 9 - 2001 Buick LeSabre

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

Max: 121259.2 [N] at 0.034 [S]

Min: -2837.7 [N] at 0.000 [S]



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8602-9

CFC_60

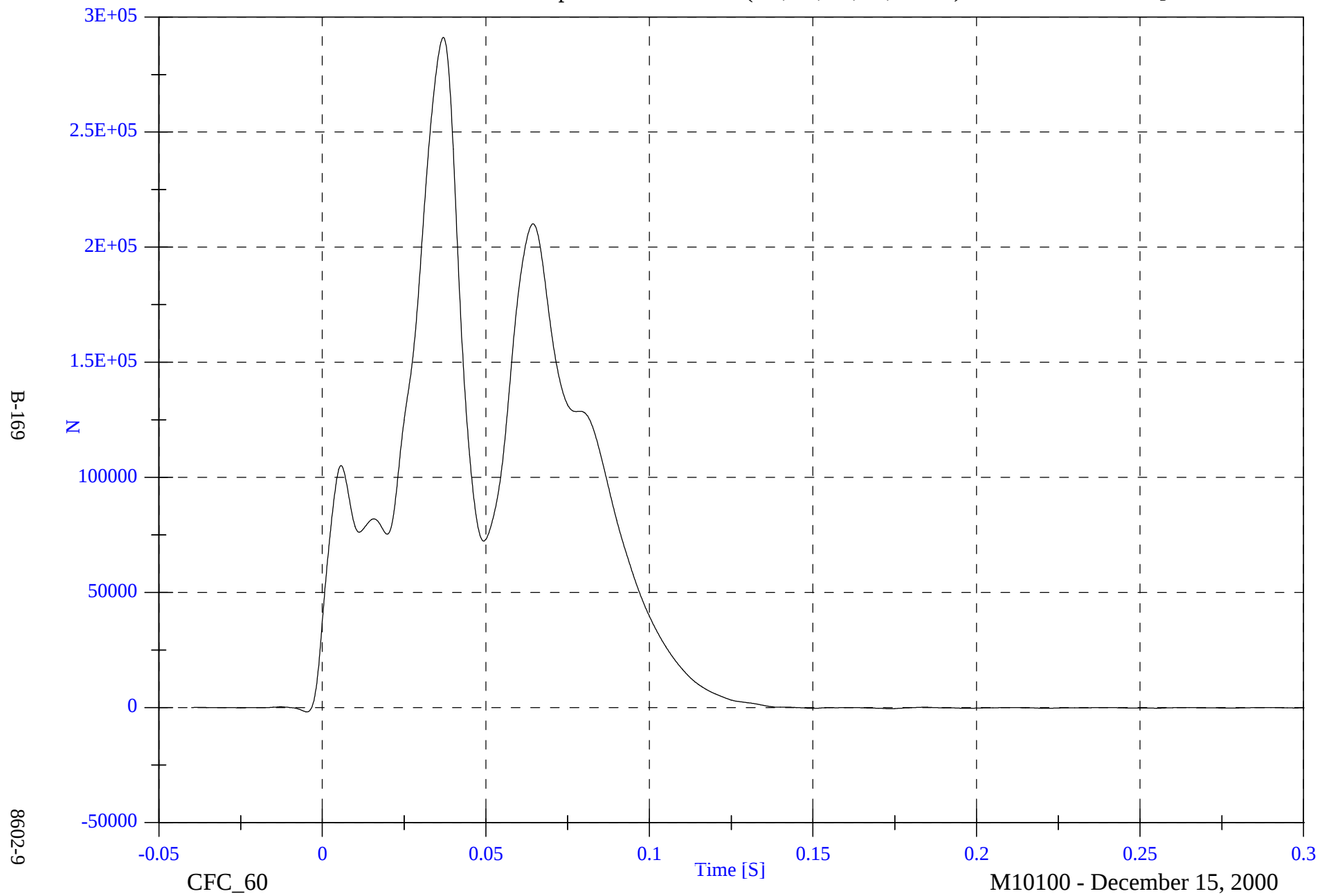
M10100 - December 15, 2000

NCAP Test 9 - 2001 Buick LeSabre

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

Max: 291078.7 [N] at 0.037 [S]

Min: -1875.4 [N] at -0.005 [S]

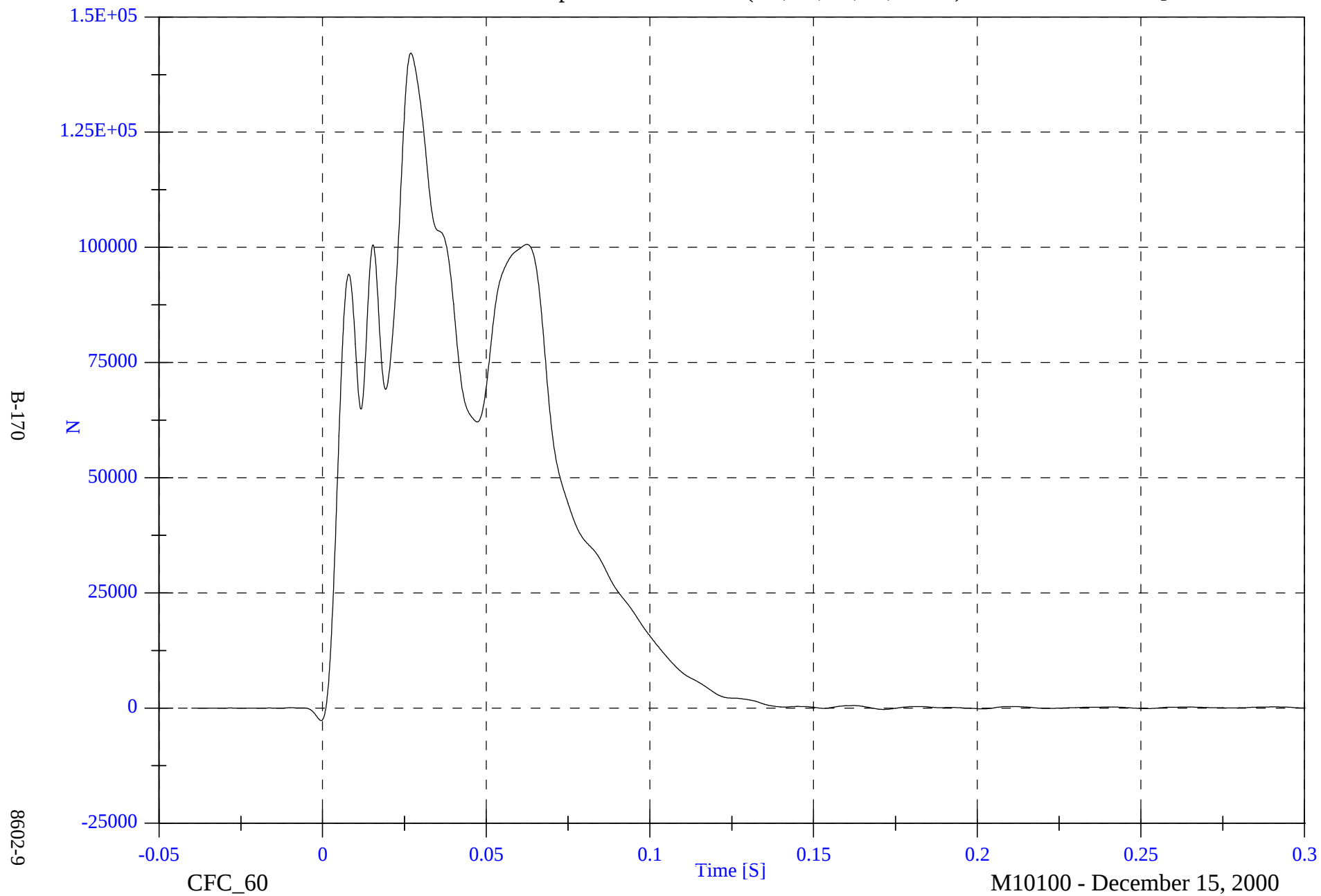


NCAP Test 9 - 2001 Buick LeSabre

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

Max: 142141.5 [N] at 0.027 [S]

Min: -2702.5 [N] at -0.000 [S]

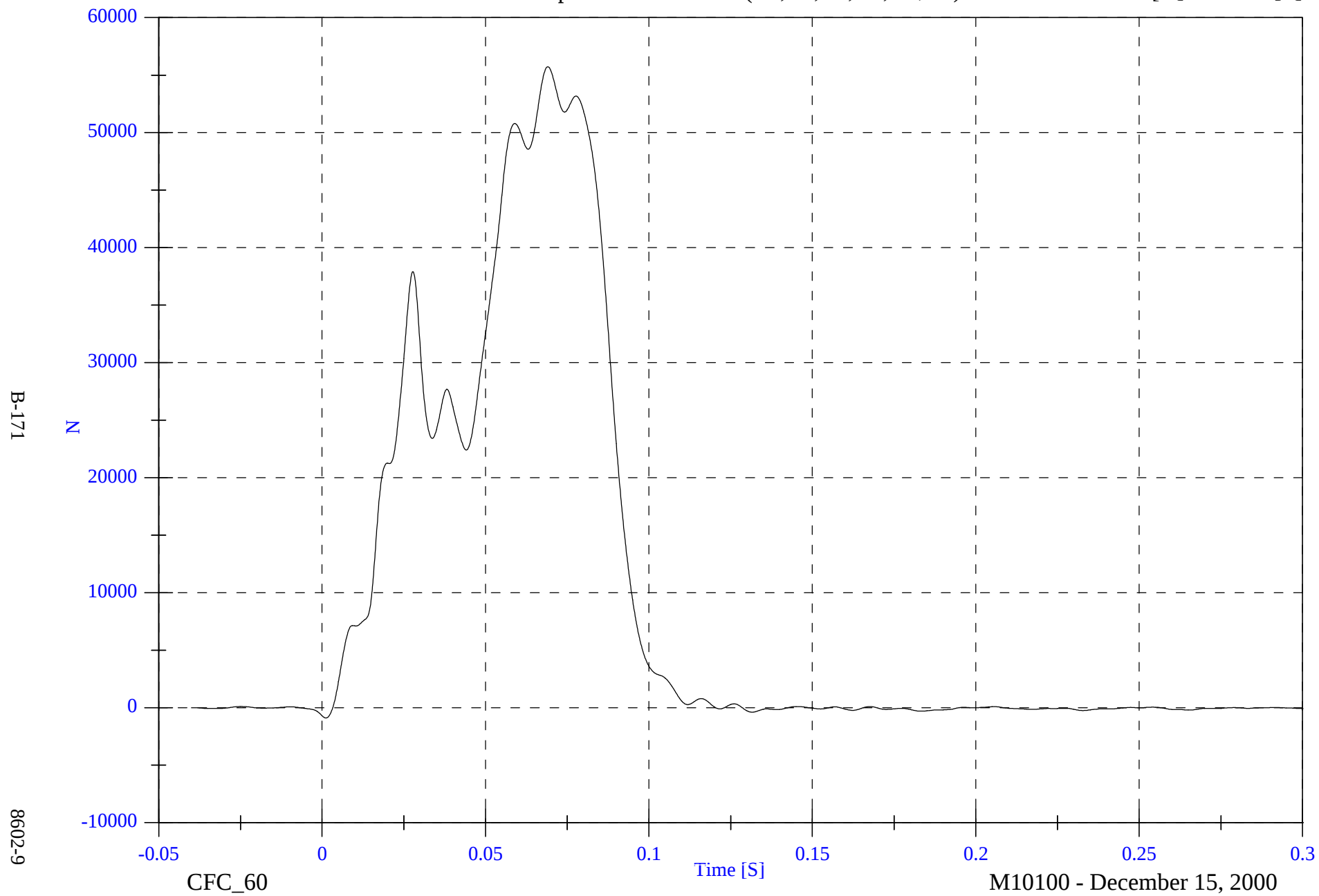


NCAP Test 9 - 2001 Buick LeSabre

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

Max: 55729.1 [N] at 0.069 [S]

Min: -893.4 [N] at 0.001 [S]

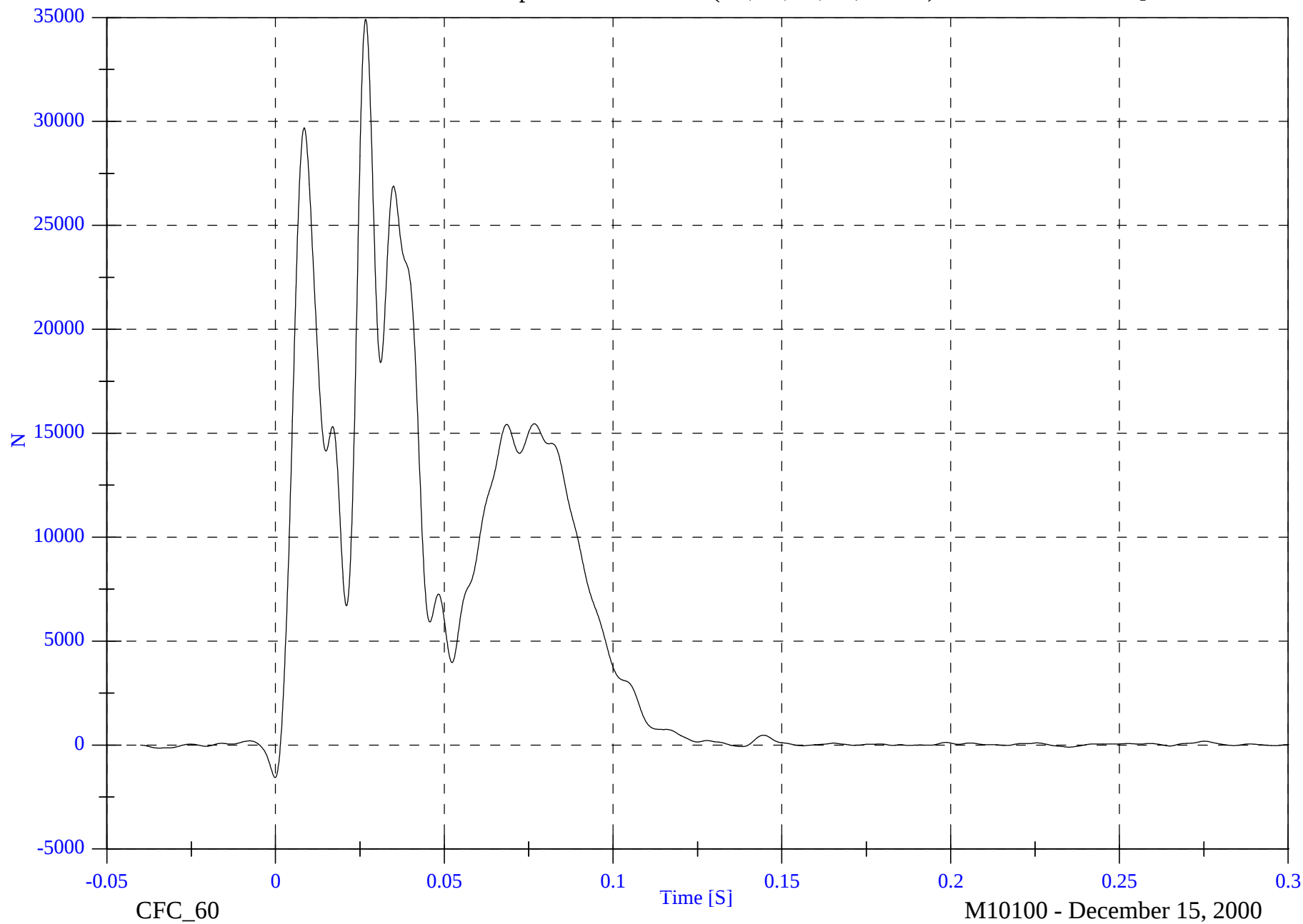


NCAP Test 9 - 2001 Buick LeSabre

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

Max: 34910.9 [N] at 0.027 [S]

Min: -1564.5 [N] at -0.000 [S]



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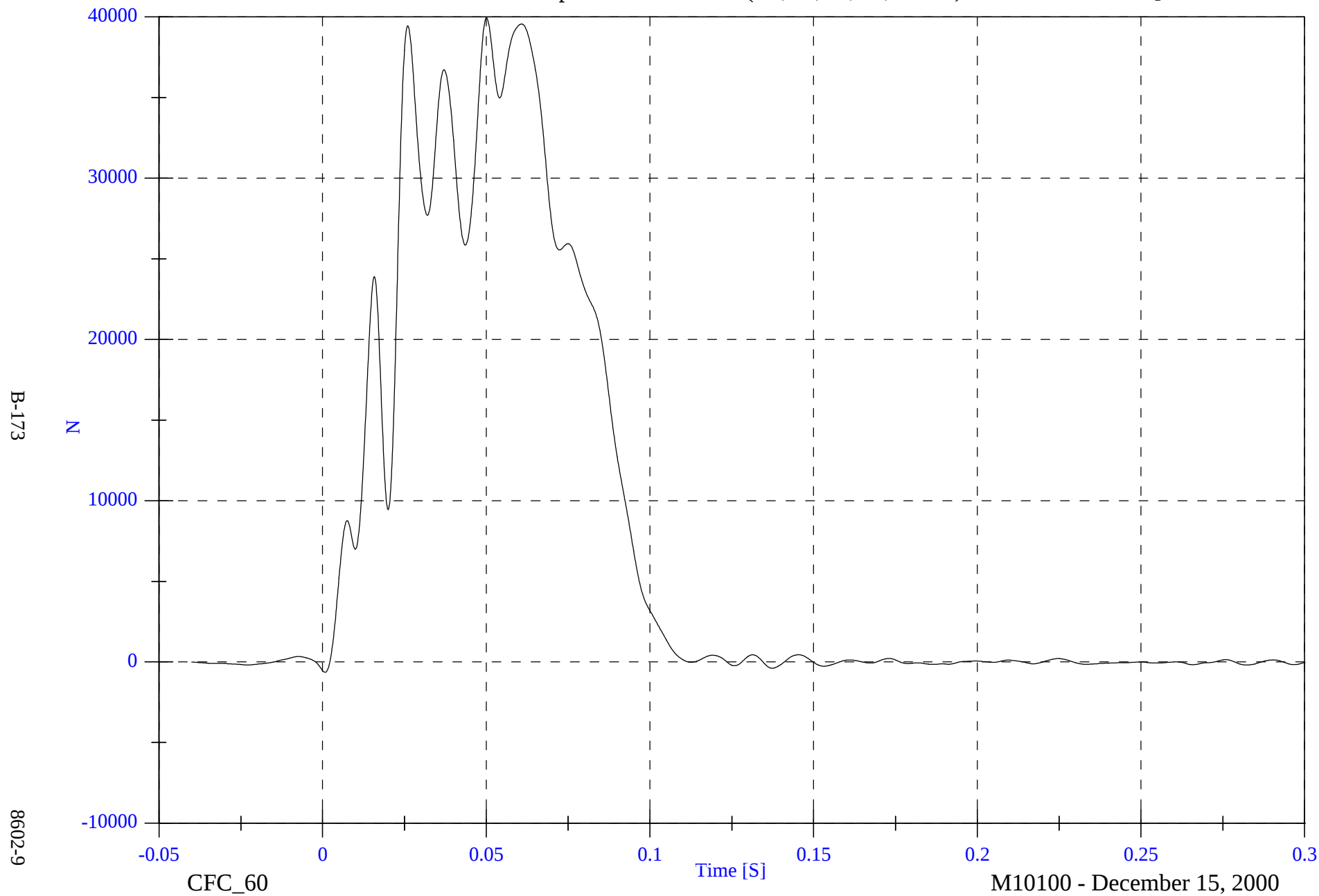
8602-9

NCAP Test 9 - 2001 Buick LeSabre

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

Max: 39935.2 [N] at 0.050 [S]

Min: -639.0 [N] at 0.001 [S]

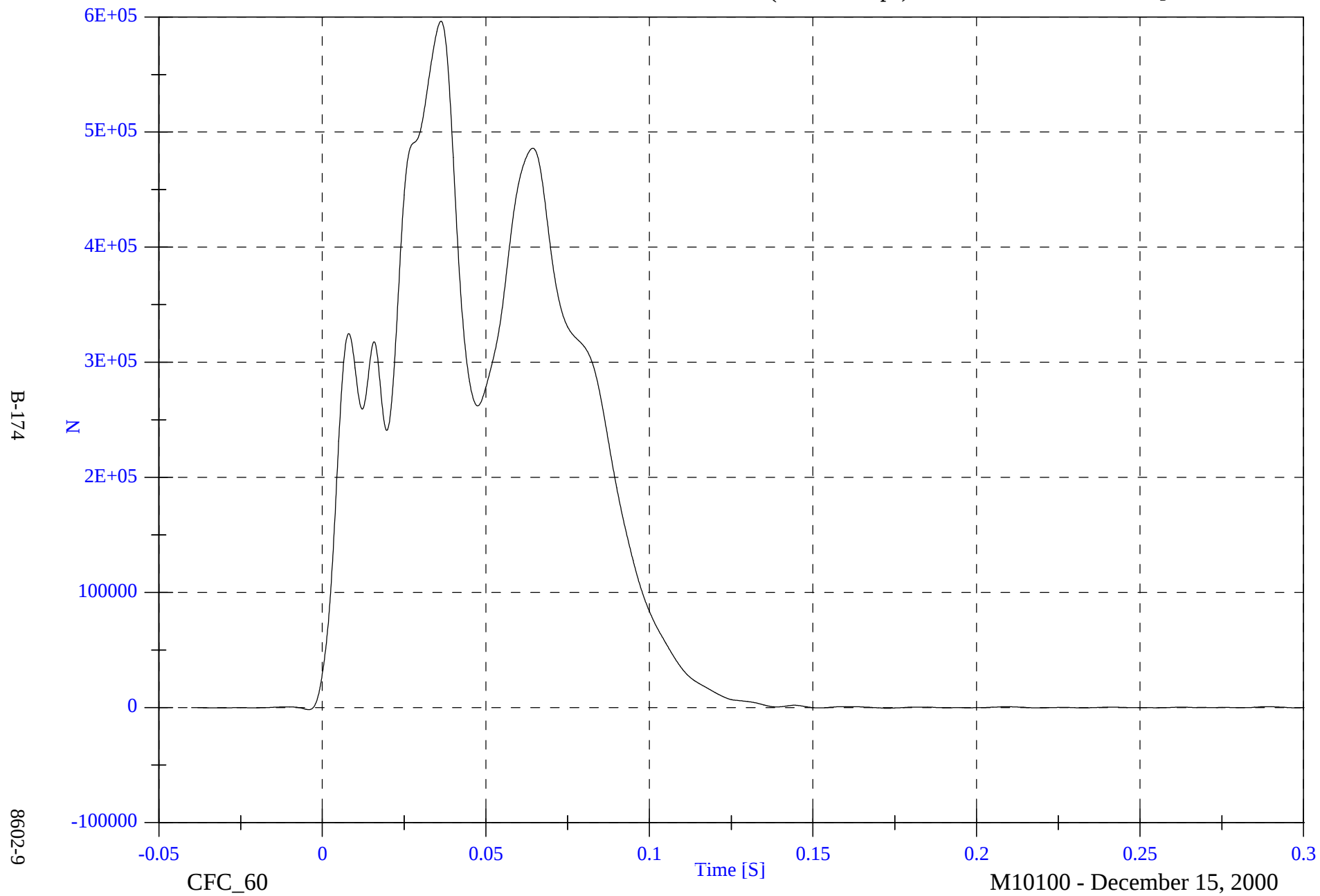


NCAP Test 9 - 2001 Buick LeSabre

Total Load Cell Sum (All 6 Groups)

Max: 596271.9 [N] at 0.036 [S]

Min: -1850.8 [N] at -0.004 [S]



APPENDIX C

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

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

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

Dummy serial numbers and certification dates are:

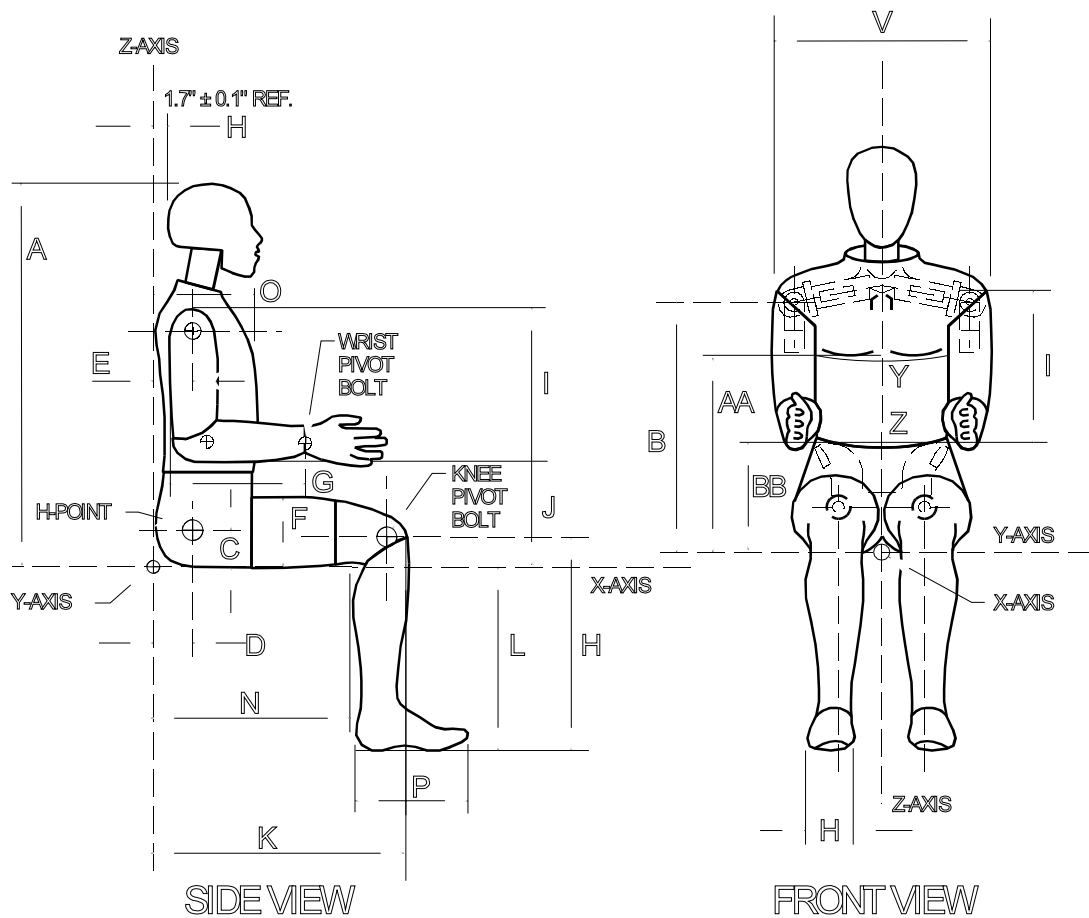
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	064	12/07/00
#2/Right Front Passenger	061	11/28/00

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 064
Sequential Test Number 4.3
Date 12/06/2000
Workfile 064400.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	71.0
Relative Humidity	10% - 70%	32.0
Peak Resultant Acceleration	225-275 G's	260.65
Peak Lateral Acceleration	15 G's Max	2.59
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	064	
Sequential Test Number	4.3	
Date	12/06/2000	6 Axis Neck Transducer
Workfile	064400.nfl	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71.0
Relative Humidity		10% - 70%	32.0
Impact Velocity		22.60 - 23.40 Ft/s	22.82
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.56
	20 ms	17.60 - 22.60 G's	19.85
	30 ms	12.50 - 18.50 G's	15.49
Max Pendulum G's Above 30 ms		29 G's Max	15.49
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.75
D Plane Rotation	Max	64 - 78 Deg	71.05
	Time	57 - 64 ms	59.75
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	70.89
	Time	47 - 58 ms	53.88
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	121.38
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	101.00

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	064	
Sequential Test Number	4.3	
Date	12/06/2000	6 Axis Neck Transducer
Workfile	064400.nex	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71.0
Relative Humidity		10% - 70%	32.0
Impact Velocity		19.50 - 20.30 Ft/s	19.58
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.01
	20 ms	14.00 - 19.00 G's	16.53
	30 ms	11.00 - 16.00 G's	13.73
Max Pendulum G's Above 30 ms		22 G's Max	13.73
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	41.00
D Plane Rotation	Max	81 - 106 Deg	98.23
	Time	72 - 82 ms	73.00
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-52.77
	Time	65 - 79 ms	68.25
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	147.50
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	139.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 064
Sequential Test Number 4.3
Date 12/07/2000
Workfile 064400.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	71.0
Relative Humidity	10% - 70%	30.0
Pendulum Velocity	21.6 - 22.4 Ft/s	21.6
Maximum Deflection	2.50 - 2.86 in	2.80
Maximum Resistive Force	1160 - 1325 Lbs	1213.37
Internal Hysteresis	69 - 85 %	74.72

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 064
Sequential Test Number 4.3
Date 112/07/2000
Workfile 064400.lf / 064400.rf

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70.0
Relative Humidity	10% - 70%	30.0
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1222.48
RIGHT KNEE		
Temperature	66 - 78 Deg F	70.0
Relative Humidity	10% - 70%	30.0
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1200.74

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 064
Sequential Test Number 4.3
Date 12/07/2000

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			71
Relative Humidity			32
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	38.9
Waist Circumference	Z	32.9 - 34.1 in	33.5
Chest Depth	O	8.4 - 9.0 in	8.6
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.3
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.3
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 061
Sequential Test Number 3.3
Date 11/27/2000
Workfile 061300.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70.0
Relative Humidity	10% - 70%	30.0
Peak Resultant Acceleration	225-275 G's	228.49
Peak Lateral Acceleration	15 G's Max	6.65
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	061	
Sequential Test Number	3.3	
Date	11/27/2000	6 Axis Neck Transducer
Workfile	061300.nfl	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70.0
Relative Humidity		10% - 70%	30.0
Impact Velocity		22.60 - 23.40 Ft/s	22.88
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.71
	20 ms	17.60 - 22.60 G's	21.37
	30 ms	12.50 - 18.50 G's	16.00
Max Pendulum G's Above 30 ms		29 G's Max	16.00
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	38.12
D Plane Rotation	Max	64 - 78 Deg	72.01
	Time	57 - 64 ms	62.62
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	77.18
	Time	47 - 58 ms	51.75
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	118.50
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.00

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	061	
Sequential Test Number	3.3	
Date	11/27/00	6 Axis Neck Transducer
Workfile	061300.nex	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70.0
Relative Humidity		10% - 70%	30.0
Impact Velocity		19.50 - 20.30 Ft/s	19.58
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.37
	20 ms	14.00 - 19.00 G's	16.74
	30 ms	11.00 - 16.00 G's	12.73
Max Pendulum G's Above 30 ms		22 G's Max	12.73
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	41.75
D Plane Rotation	Max	81 - 106 Deg	101.25
	Time	72 - 82 ms	74.50
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-53.38
	Time	65 - 79 ms	67.38
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	150.75
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	142.12

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 061
Sequential Test Number 3.3
Date 11/28/00
Workfile 061300.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0
Relative Humidity	10% - 70%	30.0
Pendulum Velocity	21.6 - 22.4 Ft/s	21.7
Maximum Deflection	2.50 - 2.86 in	2.84
Maximum Resistive Force	1160 - 1325 Lbs	1195.55
Internal Hysteresis	69 - 85 %	73.20

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 061
Sequential Test Number 3.3
Date 11/28/2000
Workfile 061300.lf / 061300.rf

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	31
Probe Velocity	6.8 - 7.0 Ft/s	6.9
Peak Knee Impact Force	1060 - 1300 Lbs	1278.98
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	31
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1285.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 061
Sequential Test Number 3.3
Date 11/28/00

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			30
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	33.5
Chest Depth	O	8.4 - 9.0 in	8.5
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	6.1
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.3
Popliteal Height	L	16.9 - 17.9 in	17.7
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.5
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	7.7
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

(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-P12587	9/15/00	3/16/01
	Y	ENDEVCO	AC-P16625	11/21/00	5/22/01
	Z	ENDEVCO	AC-P16662	9/13/00	3/14/01
Head	X (R)	ENDEVCO	AC-P14388	9/15/00	3/16/01
	Y (R)	ENDEVCO	AC-P16597	11/21/00	5/22/01
	Z (R)	ENDEVCO	AC-P17236	9/13/00	3/14/01
Neck Load Cell	X	DENTON	LC-440FX	11/16/00	5/17/01
	Y	DENTON	LC-440FY	11/15/00	5/16/01
	Z	DENTON	LC-440FZ	11/16/00	5/17/01
Neck Moment	X	DENTON	LC-440MX	11/16/00	5/17/01
	Y	DENTON	LC-440MY	11/16/00	5/17/01
	Z	DENTON	LC-440MZ	11/16/00	5/17/01
Chest	X	ENDEVCO	AC-P16583	9/6/00	3/7/01
	Y	ENDEVCO	AC-P16585	9/6/00	3/7/01
	Z	ENDEVCO	AC-P16576	9/6/00	3/7/01
Chest	X (R)	ENDEVCO	AC-P15526	9/6/00	3/7/01
	Y (R)	ENDEVCO	AC-P16587	9/6/00	3/7/01
	Z (R)	ENDEVCO	AC-P15534	9/6/00	3/7/01
Chest Deflection Gauge		SERVO	DS-064	12/7/00	6/7/01
Hybrid III Use Only					
Pelvic	X	ENDEVCO	AC-P13323	11/20/00	5/21/01
	Y	ENDEVCO	AC-P13331	11/20/00	5/21/01
	Z	ENDEVCO	AC-P13356	11/20/00	5/21/01

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell		GSE	LC-954	12/1/00	6/1/01
Right Femur Load Cell		GSE	LC-955	12/1/00	6/1/01
Left Upper Tibia	Mx	DENTON	LC-045MX	11/4/00	5/5/01
	My	DENTON	LC-045MY	11/4/00	5/5/01
Left Lower Tibia	Fz	DENTON	LC-125FZ	11/4/00	5/5/01
	Mx	DENTON	LC-125MX	11/4/00	5/5/01
	My	DENTON	LC-125MY	11/4/00	5/5/01
Right Upper Tibia	Mx	DENTON	LC-038MX	11/9/00	5/10/01
	My	DENTON	LC-038MY	11/9/00	5/10/01
Right Lower Tibia	Fz	DENTON	LC-124FZ	11/9/00	5/10/01
	Mx	DENTON	LC-124MX	11/9/00	5/10/01
	My	DENTON	LC-124MY	11/9/00	5/10/01
Left Foot Rear	X	ENDEVCO	AC-P16951	10/2/00	4/2/01
	Z	ENDEVCO	AC-P17152	10/2/00	4/2/01
Left Foot Front	Z	ENDEVCO	AC-P16975	10/2/00	4/2/01
Right Foot Rear	X	ENDEVCO	AC-J31042	11/7/00	5/8/01
	Z	ENDEVCO	AC-J32176	11/7/00	5/8/01
Right Foot Front	Z	ENDEVCO	AC-J31009	11/8/00	5/9/01
Lap Belt Load Cells		LEBOW	LC-706	12/1/00	6/1/01
Shoulder Belt Load Cells		LEBOW	LC-711	12/1/00	6/1/01
Spool-Out Potentiometer		-	-	-	-
Belt Stretch Transducer		CAL	DS-E5	8/7/00	2/5/01

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-J33019	11/30/00	5/31/01
	Y	ENDEVCO	AC-J33127	11/30/00	5/31/01
	Z	ENDEVCO	AC-J32782	11/30/00	5/31/01
Head	X (R)	ENDEVCO	AC-J31060	11/30/00	5/31/01
	Y (R)	ENDEVCO	AC-J31050	11/30/00	5/31/01
	Z (R)	ENDEVCO	AC-P16593	9/13/00	3/14/01
Neck Load Cell	X	DENTON	LC-205FX	8/28/00	2/26/01
	Y	DENTON	LC-205FY	8/28/00	2/26/01
	Z	DENTON	LC-205FZ	8/28/00	2/26/01
Neck Moment	X	DENTON	LC-205MX	8/28/00	2/26/01
	Y	DENTON	LC-205MY	8/28/00	2/26/01
	Z	DENTON	LC-205MZ	8/28/00	2/26/01
Chest	X	ENDEVCO	AC-J33351	11/30/00	5/31/01
	Y	ENDEVCO	AC-J32787	11/30/00	5/31/01
	Z	ENDEVCO	AC-J32838	11/30/00	5/31/01
Chest	X (R)	ENDEVCO	AC-J32791	11/30/00	5/31/01
	Y (R)	ENDEVCO	AC-J33156	11/30/00	5/31/01
	Z (R)	ENDEVCO	AC-J33020	11/30/00	5/31/01
Chest Deflection Gauge		SERVO	DS-061	11/10/00	5/11/01
Hybrid III Use Only					
Pelvic	X	ENDEVCO	AC-J32383	8/4/00	2/2/01
	Y	ENDEVCO	AC-J32186	8/4/00	2/2/01
	Z	ENDEVCO	AC-J32098	8/4/00	2/2/01

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell		GSE	LC-419	12/1/00	6/1/01
Right Femur Load Cell		GSE	LC-723	12/1/00	6/1/01
Left Upper Tibia	Mx	DENTON	LC-016MX	11/9/00	5/10/01
	My	DENTON	LC-016MY	11/9/00	5/10/01
Left Lower Tibia	Fz	DENTON	LC-123FZ	11/9/00	5/10/01
	Mx	DENTON	LC-123MX	11/9/00	5/10/01
	My	DENTON	LC-123MY	11/9/00	5/10/01
Right Upper Tibia	Mx	DENTON	LC-023MX	11/9/00	5/10/01
	My	DENTON	LC-023MY	11/9/00	5/10/01
Right Lower Tibia	Fz	DENTON	LC-111FZ	11/9/00	5/10/01
	Mx	DENTON	LC-111MX	11/9/00	5/10/01
	My	DENTON	LC-111MY	11/9/00	5/10/01
Left Foot Rear	X	ENDEVCO	AC-APA30	7/6/00	1/4/01
	Z	ENDEVCO	AC-J31026	9/21/00	3/22/01
Left Foot Front	Z	ENDEVCO	AC-J32831	7/6/00	1/4/01
Right Foot Rear	X	ENDEVCO	AC-J32832	7/14/00	1/12/01
	Z	ENDEVCO	AC-J33376	7/6/00	1/4/01
Right Foot Front	Z	ENDEVCO	AC-J18400	9/28/00	3/29/01
Lap Belt Load Cells		LEBOW	LC-764	12/1/00	6/1/01
Shoulder Belt Load Cells		LEBOW	LC-775	12/1/00	6/1/01
Spool-Out Potentiometer		-	-	-	-
Belt Stretch Transducer		CAL	DS-E6	8/8/00	2/6/01

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember	ENDEVCO	AC-X93	8/10/00	2/8/01
Right Rear Seat Crossmember	ICS	AC-X88	8/14/00	2/12/01
Top of Engine	ENDEVCO	AC-AA35	12/10/00	6/10/01
Bottom of Engine	ENDEVCO	AC-P16964	9/13/00	3/14/01
Right Disc Brake Caliper	ENDEVCO	AC-BA80	9/28/00	3/29/01
Instrument Panel	ENDEVCO	AC-APBF4	12/10/00	6/10/01
Left Disc Brake Caliper	ENDEVCO	AC-J28340	8/4/00	2/2/01
Left Seat Rear Crossmember (R)	ICS	AC-D88	8/14/00	2/12/01
Right Seat Rear Crossmember (R)	ICS	AC-H20	8/11/00	2/9/01