3281

REPORT NUMBER: CAL-00-13

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

NISSAN MOTOR CO., LTD.
2000 NISSAN ALTIMA
4-DOOR SEDAN

NHTSA NUMBER: MY5200

VERIDIAN TEST NUMBER: 8413-51

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

February 11, 2000

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Performance Standards
Office of Crashworthiness Standards
Mail Code: NPS-10
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NHTSA, Office of Crashworthiness Standards

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15. *Supplementary Notes*

16. *Abstract*

A frontal load cell barrier test of a 2000 Nissan Altima 4-Door Sedan was performed at Veridian Engineering crash test facility in Buffalo, New York, on February 11, 2000.

The impact velocity was 56.8 kph and the temperature at the barrier face was 21.1 °C. The maximum post-test vehicle crush was 595 mm. The test vehicle was equipped with pretensioning 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)	585.4	40.8	35.0	2766.7	1451.2
Passenger (150)	428.9	39.6	31.0	4003.4	1977.4

17. *Key Words* 56 kph Frontal Barrier Impact test New Car Assessment Program (NCAP)	18. *Distribution Statement* Copies of this report are available from: 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 MY5200

PURPOSE

This 56.8 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 56.8 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 2000 Nissan Altima 4-Door Sedan at a velocity of 56.8 kph. The test was performed at Veridian Engineering on February 11, 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. 150) 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 585.4. The maximum chest deceleration over 3 milliseconds was 40.8 g's and maximum chest deflection was 35.0 mm. Compressive femur loads were 2766.7 Newtons on the left and 1451.2 Newtons on the right.

The right front passenger's HIC was 428.9. Maximum chest deceleration over 3 milliseconds was 39.6 g's and maximum chest deflection was 31.0 mm. Compressive femur loads were 4003.4 Newtons on the left and 1977.4 Newtons on the right.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No. : MY5200 Test Mode : 56.3 kph Frontal Barrier

Test Date : February 11, 2000 Time: 14:05 Temperature : -3.9 °C

Vehicle Make/Model/Body Style : 2000 Nissan Altima 4-Door Sedan

Vehicle Test Weight : 1576.0 kg

Vehicle/Barrier Impact Angle : 0 °

Impact Velocity : 56.8 kph

Maximum Static Crush : 595 mm

Vehicle Rebound : 539 mm

DUMMIES:	DRIVER	PASSENGER
Type :	572E	572E
Restraint System :	Second Generation Airbag / 3-Point Safety Belt System	Second Generation Airbag / 3-Point Safety Belt System

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 mm	0 mm
Seat Back Failure :	None	None

VISIBLE DUMMY CONTACT POINTS :	DRIVER	PASSENGER
Head :	Face to upper center of airbag; Back of head to inboard half of head restraint	Face to upper center of airbag; Back of head to inboard half of head restraint
Abdomen :	None	None
Chest	Airbag	Airbag
Knees	Left and right knees to upper edge of knee bolsters	Left knee to left third of glove comp. door; Right knee to right third of glove comp. door

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 2000 Nissan Altima 4-Door Sedan

NHTSA No. : MY5200 ; VIN: 1N4DL01D2YC107416 ; Color : Black

Engine Data: 4 cylinders; - CID; 2.4 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 : 2/7/00 ; Odometer Reading 40 km

Selling Dealer : Lockport Nissan, Inc.

& Address: 6096 South Transit Rd., Lockport, NY 14094

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : Nissan Motor Co., Ltd.

Date of Manufacture 8/99

GVWR : 1810 kg; GAWR: 976 kg FRONT; 845 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 200 kpa FRONT

200 kpa REAR

Recommended Tire Size : P205/60/R15

* Recommended Cold Tire Pressure : 200 kpa FRONT; 200 kpa REAR

Size of Tires on Test Vehicle: P205/60/R15 ; Manufacturer: General

Vehicle Capacity Data :

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

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

Vehicle Capacity Weight (VCW) = 390.0 kg

No. of Occupants x 68 kg = 340.2 kg

Rated Cargo/Luggage Weight (RCLW) = 49.8 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 =	437.0 kg	Right Rear =	250.5 kg
Left Front =	419.0 kg	Left Rear =	275.5 kg
TOTAL FRONT =	856.0 kg	TOTAL REAR =	526.0 kg

TOTAL DELIVERED WEIGHT = 1382.0 kg

% of Total Front of Vehicle Weight = 61.9 % of Total Rear Weight = 38.1 %

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW) =	1382.0 kg
Rated Cargo/Luggage Weight (RCLW) =	49.8 kg
Weight of 2 p.572 Dummies @ 76 each =	152.0 kg
TARGET TEST WEIGHT =	1583.8 kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 42 KG OF CARGO WEIGHT:

Right Front =	462.5 kg	Right Rear =	315.0 kg
Left Front =	459.5 kg	Left Rear =	339.0 kg
TOTAL FRONT =	922.0 kg	TOTAL REAR =	654.0 kg

TOTAL TEST WEIGHT = 1576.0 kg

% of Total Front Weight = 58.5 % % of Total Rear Weight = 41.5 %

Weight of Ballast Secured in Vehicle Trunk Area = 5 kg

Vehicle Components Removed for Weight Reduction: Rear compartment trim, side mirrors, muffler

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	695	LF	698	RR	695	LR 695
FULLY LOADED :	RF	675	LF	688	RR	662	LR 662
AS TESTED :	RF	685	LF	694	RR	662	LR 662

Vehicle's Wheel Base : 2620 mm

Location of Vehicle's C.G. : 1087.2 mm rearward of front wheel center.

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual = 60 liters

Usable Capacity Figure Furnished by COTR = 59.8 liters

Test Volume Range (92 to 94% of Usable Capacity) = 55.0 to 56.2 liters

ACTUAL TEST VOLUME= 55.3 liters (with entire fuel system filled)

Test Fluid Type: Stoddard Solution ; Spec. Grav. = 0.764

Kinematic Viscosity = 0.96 centistokes; Color = Orange

Type of Fuel Pump: Electric- X ; Mechanical- -

Does Electric Pump operate with ignition switch "ON" & engine "OFF" Yes- X No- -

Details of Fuel System Fuel filler - left rear quarter panel aft of rear axle; Fuel tank - rear underbody forward of rear axle; Fuel lines - inboard of left frame rail.

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°

Test Date : February 11, 2000 Time: 14:05 Temperature: -3.9 °C

Vehicle NHTSA No. : MY5200

Required Impact Velocity Range : 55.5 to 57.1 kph

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

Trap No. 1 = 56.8 kph; Trap No. 2 = 56.8 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 =	4637	; C/L =	4749	; Left =	4639
Post-Test	Right =	4139	; C/L =	4159	; Left =	4134
Crush	Right =	498	; C/L =	590	; Left =	505
AVERAGE	=	531	mm			

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point :

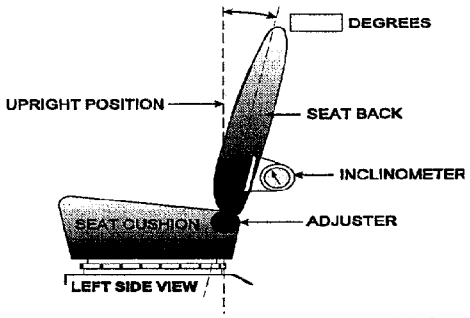
	Right =	509	; C/L =	538	; Left =	571
AVERAGE	=	539	mm			

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2000 Vehicle Model: Nissan Altima 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.



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat: 14.7 degrees

Measurement instructions: Recline seat back to detent 7, where the forward-most seat back position is defined as detent 0.

Seat back angle for passenger's seat: 14.7 degrees

Measurement instructions: Recline seat back to detent 7, where the forward-most seat back position is defined as detent 0.

2. Seat Fore and Aft Positioning

Positioning of the driver's seat: Place seat slider in detent 10, where the forward-most position is defined as detent 0.

Positioning of the passenger's seat: Place seat slider in detent 10, where the forward-most position is defined as detent 0.

3. Fuel Tank Capacity Data

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 59.8 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 = 59.8 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 55.3 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 will pump fuel: 1) for 5 seconds after the ignition is switched "ON."

2) while the engine is running.

3) for 1.5 seconds after the engine stops running.

4. STEERING COLUMN ADJUSTMENTS :

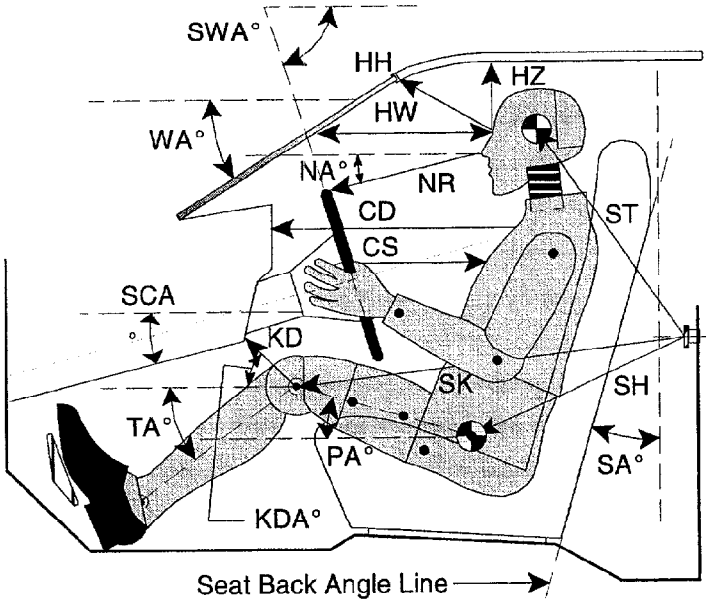
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions: Place column in mid-travel position.

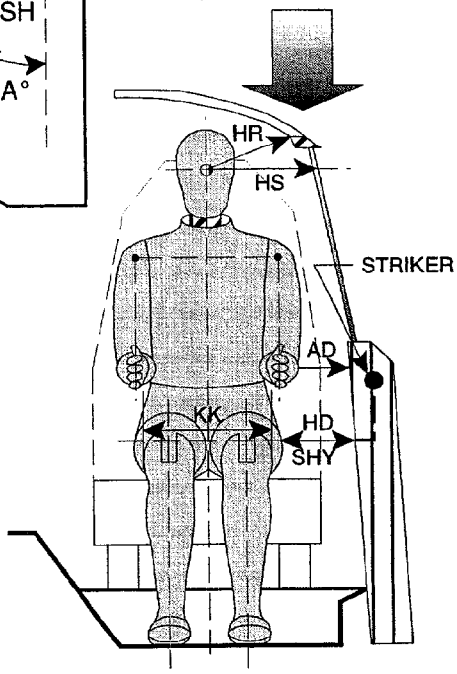
5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: Place anchorage in detent 2, where the upper-most detent is defined as detent 0.

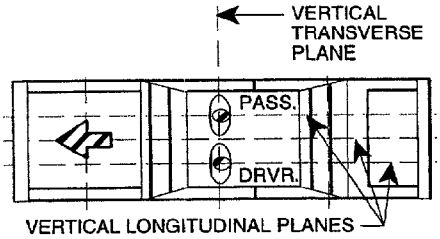
DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



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



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



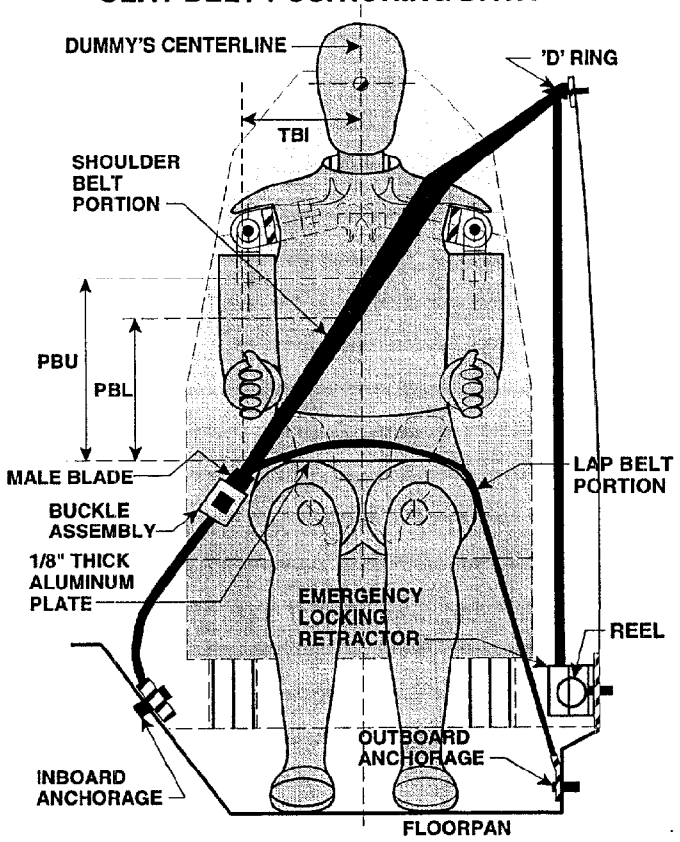
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #064)			PASS. (Serial # 150)		
WA°	32 deg.			N/A		
SWA°	66 deg.			N/A		
SCA°	24 deg.			N/A		
SA°	14.7 deg.			14.7 deg.		
HZ	158			158		
HH	323			321		
HW	579			566		
HR	198			202		
NR	429	Angle	14 deg.	N/A		
CD	530			588		
CS	311			N/A		
RA	208			N/A		
KDL	195	Angle (KDA)	26 deg.	166		
KDR	176			175	Angle (KDA)	30 deg.
PA°	22.2 deg.			22.5 deg.		
TA°	38.0 deg.			39.0 deg.		
KK	348			270		
ST	499	Angle	3 deg.	489	Angle	3 deg.
SK	573	Angle	95 deg.	589	Angle	95 deg.
SH	241	Angle	139 deg.	245	Angle	145 deg.
SHY	248			239		
HS	334			336		
HD	144			136		
AD	100			100		

Dimensions in millimeters

DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

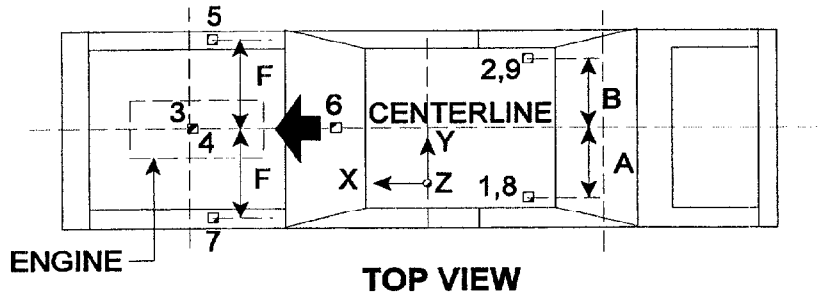
SEAT BELT POSITIONING DATA



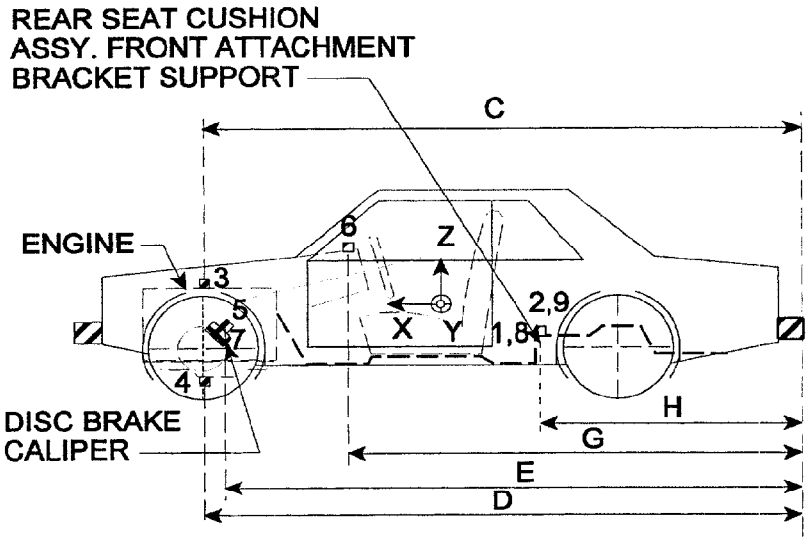
FRONT VIEW OF DUMMY

	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	358	360
PBL-- Top surface of alum. plate to belt lower edge	275	278
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	Retractor	Retractor

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



TOP VIEW



LEFT SIDE VIEW

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	LENGTH (mm)
	PRE-TEST VALUES
A Left Rear Seat Crossmember Y	-610
B Right Rear Seat Crossmember Y	610
C Top of Engine X	4004
D Bottom of Engine X	3689
E Disc Brake Calipers X	3730
F Disc Brake Calipers Y	±670
G Instrument Panel X	2971
H Rear Seat Crossmembers X	1812

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	3.1	134.9	-34.4	38.5
2	Rear Seat X-Member @ Right Side	2.9	132.7	-31.4	55.4
3	Top of Engine Block	32.6	42.7	-136.5	34.0
4	Bottom of Engine	26.4	38.7	-105.3	31.1
5	Disc Brake Caliper @ Right Side	48.0	62.5	-86.3	44.9
6	Instrument Panel	26.6	75.6	-92.9	63.6
7	Disc Brake Caliper @Left Side	78.3	63.1	-142.3	43.0
8	Rear Seat X-Member @ Left-Redundant	3.0	134.9	-34.5	38.5
9	Rear Seat X-Member @ Right-Redundant	2.9	132.8	-30.2	56.3

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2000 Nissan Altima 4-Door Sedan

NHTSA Test No.: MY5200 Test Date: February 11, 2000

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head X	g	12.1	217.8	-60.4	79.0	12.6	256.1	-45.7	77.6
Head Y	g	2.2	217.1	-13.8	85.0	10.0	70.8	-6.4	94.2
Head Z	g	23.1	60.0	-2.9	105.4	18.7	80.6	-1.3	124.8
Head Resultant	g	62.9	79.0	-	-	48.4	80.0	-	-
Redundant Head X	g	12.4	226.8	-63.3	79.1	12.4	256.5	-46.3	78.6
Redundant Head Y	g	3.0	226.2	-17.5	84.4	12.1	70.8	-7.5	94.6
Redundant Head Z	g	25.3	60.1	-1.5	105.4	18.3	43.5	-2.4	125.0
Redundant Head Resultant	g	65.9	79.4	-	-	48.0	79.3	-	-
Upper Neck Fx	N	516.4	85.2	-430.7	50.2	92.6	250.0	-432.7	64.3
Upper Neck Fy	N	73.4	222.4	-222.7	83.0	308.0	62.3	-193.6	109.5
Upper Neck Fz	N	1450.8	59.9	-59.1	20.9	1639.4	66.1	-160.2	280.7
Upper Neck F Resultant	N	1469.9	59.9	0.3	-12.2	1693.8	66.1	0.6	6.9
Upper Neck Mx	N-m	10.3	86.7	-12.0	72.4	17.5	94.0	-10.4	128.4
Upper Neck My	N-m	58.9	70.5	-21.2	116.9	25.6	143.4	-35.2	100.7
Upper Neck Mz	N-m	4.4	225.2	-6.3	164.8	15.9	110.4	-7.7	154.5
Upper Neck M Resultant	N-m	59.7	70.8	-	-	36.7	101.0	-	-
Chest X	g	3.7	238.2	-40.6	60.1	4.3	281.0	-40.8	91.2
Chest Y	g	1.3	129.5	-14.0	59.1	4.7	57.0	-11.9	90.3
Chest Z	g	5.3	47.1	-7.7	85.1	5.6	88.0	-4.3	117.3
Chest Resultant	g	42.8	59.7	-	-	42.6	91.2	-	-
Redundant Chest X	g	3.5	239.0	-41.4	60.0	4.1	280.6	-39.5	91.1
Redundant Chest Y	g	1.3	124.3	-11.9	58.9	5.5	56.7	-9.4	90.4
Redundant Chest Z	g	5.1	48.7	-6.5	84.8	7.0	93.3	-3.8	117.2
Redundant Chest Resultant	g	43.0	59.6	-	-	41.1	91.1	-	-
Chest Displacement	mm	0.0	-6.6	-35.0	79.2	0.1	-6.6	-31.0	87.6

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

Vehicle Year/Make/Model/Body Style: 2000 Nissan Altima 4-Door Sedan

NHTSA Test No.: MY5200 Test Date: February 11, 2000

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Pelvic X	g	2.1	223.0	-47.6	59.5	2.8	140.7	-53.1	59.2
Pelvic Y	g	4.7	94.3	-20.2	43.6	10.6	52.6	-5.2	74.1
Pelvic Z	g	3.2	208.8	-23.8	59.4	2.5	279.5	-22.6	72.9
Pelvic Resultant	g	53.3	59.5	-	-	55.0	59.2	-	-
Left Femur	N	923.5	52.2	-2766.7	67.8	509.5	43.0	-4003.4	56.3
Right Femur	N	1423.7	76.0	-1451.2	42.4	1160.9	49.5	-1977.4	58.9
Left Upper Tibia Mx	N-m	†	†	†	†	37.4	46.9	-36.3	57.4
Left Upper Tibia My	N-m	14.4	143.1	-102.5	52.3	29.5	59.6	-114.8	45.0
Left Lower Tibia Fz	N	103.3	141.6	-2421.4	52.4	132.6	211.8	-3671.6	46.6
Left Lower Tibia Mx	N-m	111.1	52.8	-10.5	83.8	27.1	45.3	-66.1	55.5
Left Lower Tibia My	N-m	32.2	58.8	-26.9	83.8	201.5	59.3	-49.2	42.2
Right Upper Tibia Mx	N-m	102.8	45.5	-95.0	49.3	13.7	200.9	-41.2	59.2
Right Upper Tibia My	N-m	29.5	104.2	-256.3	46.2	12.9	126.1	-109.5	48.9
Right Lower Tibia Fz	N	310.1	102.3	-8533.5	46.2	70.4	276.1	-2576.6	39.8
Right Lower Tibia Mx	N-m	73.4	44.8	-205.9	48.6	39.6	61.0	-24.9	51.3
Right Lower Tibia My	N-m	97.4	50.6	-49.4	40.6	55.6	104.5	-38.7	48.4
Left Foot Aft Ax	g	25.3	60.7	-56.3	48.1	55.1	59.7	-139.1	46.6
Left Foot Aft Az	g	11.3	70.9	-56.0	51.2	55.9	66.9	-125.5	47.5
Left Foot Fore Az	g	30.3	64.4	-64.6	50.5	155.6	59.7	-145.1	47.7
Right Foot Aft Ax	g	20.8	55.5	-141.1	46.3	31.7	58.2	-77.3	48.8
Right Foot Aft Az	g	40.9	72.5	-221.9	42.5	29.8	57.5	-94.1	47.4
Right Foot Fore Az	g	5.1 ††	20.8	-445.9 ††	42.1	114.6	58.3	-133.4	47.4
Lap Belt Load	N	6526.6	61.8	-0.2	2.1	5845.9	62.7	-2.4	170.5
Torso Belt	N	5789.7	56.3	-26.4	157.4	5769.7	54.7	-13.1	276.7

† Data is invalid.

†† Data is questionable.

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

Vehicle Year/Make/Model/Body Style: 2000 Nissan Altima 4-Door Sedan

NHTSA Test No.: MY5200 Test Date: February 11, 2000

	HEAD INJURY CRITERIA (HIC)			
	HIC**	t_1 (msec)	t_2 (msec)	Average Acceleration t_1 to t_2
Position #1 - Driver	585.4	57.6	93.6	48.4
Position #2 - Passenger	428.9	66.4	102.3	42.7

** HIC is as defined in FMVSS 208. The maximum time interval from t_1 to t_2 is 36 milliseconds.

	CLIP SUMMARY*			
	CLIP (g's)	t_1 (msec)	t_2 (msec)	CSI
Position #1 - Driver	40.8	58.2	61.2	356.7
Position #2 - Passenger	39.6	90.0	93.0	363.2

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

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

Vehicle Year/Make/Model/Body Style: 2000 Nissan Altima 4-Door Sedan

NHTSA Test No.: MY5200 Test Date: February 11, 2000

	HEAD INJURY CRITERIA (HIC) **REDUNDANT**			
	HIC**	t_1 (msec)	t_2 (msec)	Average Acceleration t_1 to t_2
Position #1 - Driver	687.4	56.3	92.3	51.6
Position #2 - Passenger	441.0	66.8	102.8	43.2

** HIC is as defined in FMVSS 208. The maximum time interval from t_1 to t_2 is 36 milliseconds.

	CLIP SUMMARY* **REDUNDANT**			
	CLIP (g's)	t_1 (msec)	t_2 (msec)	CSI
Position #1 - Driver	40.9	58.2	61.2	333.7
Position #2 - Passenger	38.2	90.1	93.1	334.9

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

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:	Driver	Passenger
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	1810	1824
Shoulder belt length as measured on Part 572 Dummy.	858	862
Lap belt length as measured on Part 572 Dummy.	802	812
SHOULDER BELT SPOOL-OFF DATA:		
As determined by film analysis.	38 †	127 †
As determined mechanically.	42	122
As determined electronically.	††	††
BELT STRETCH DATA:		
Measured electronically between shoulder belt load cell and the "D" ring.	††	††
Measured mechanically.	8 mm/M	20 mm/M

Dimensions in millimeters

† The value indicated is the total spool-off less the pretensioner spool-in.
Driver side belt pretensioner spooled-in 38 mm then spooled-off 76 mm.
Passenger side belt pretensioned spooled-in 51 mm then spooled-off 178 mm.

†† At request of the vehicle manufacturer, the transducer was not installed to prevent interference with the seat belt system.

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.

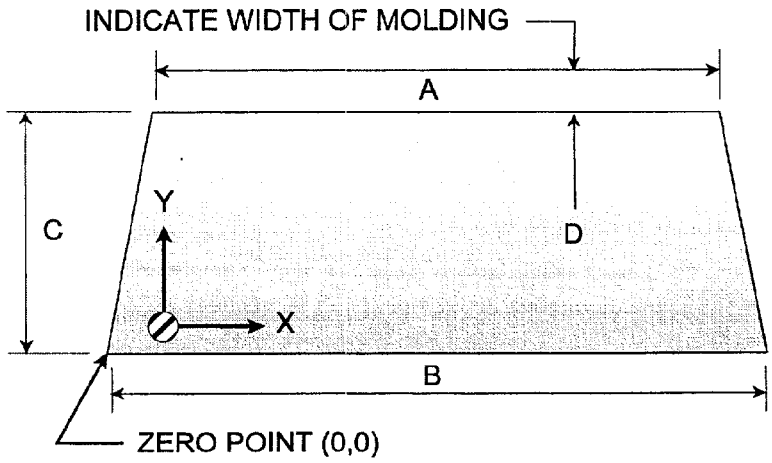
FMVSS 212 REQUIREMENTS:

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		
	PRE-TEST (mm)	POST-TEST(mm)	% OF RETENTION
RIGHT SIDE	2108	2108	100
LEFT SIDE	2108	2108	100
TOTAL	4,216	4,216	100

AREA OF RETENTION FAILURE: None



FRONT VIEW OF WINDSHIELD

DIMENSIONS (mm)	
A	1158
B	1458
C	800
D	15

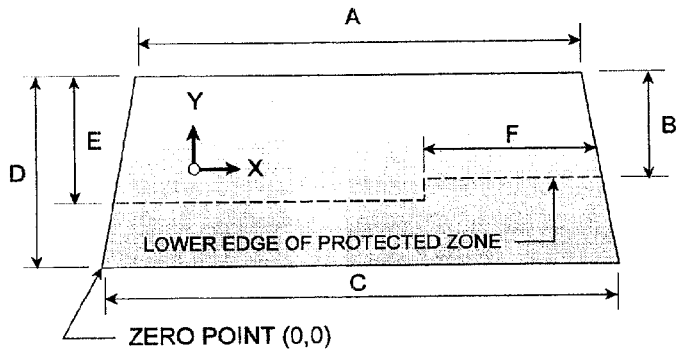
FAILURE DETAILS: None

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

PROTECTED ZONE LOWER EDGE REQUIREMENT:

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

FMVSS 219 TEST DATA:



FRONT VIEW OF WINDSHIELD

DIMENSIONS (mm)	
A	1158
B	464
C	1458
D	800
E	546
F	985

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.: MY5200 TEST DATE: February 11, 2000

VEHICLE MAKE/MODEL: 2000 Nissan Altima

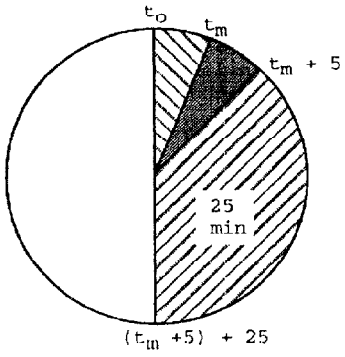
The test vehicle was filled from 92% to 94% of the manufacture's "usable" capacity. The electric fuel pump was operating if it will operate without engine operation. Two Part 572 anthropomorphic test devices were located at each of the front designated seating positions.

==========

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
1.	0	28 g
2.	0	141 g
3.	0	28 g/min.

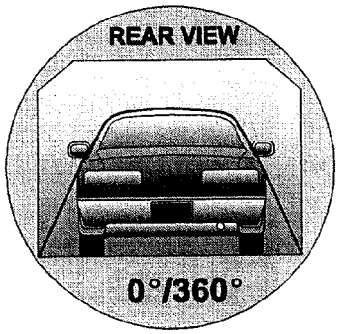
SOLVENT SPILLAGE DETAILS: None

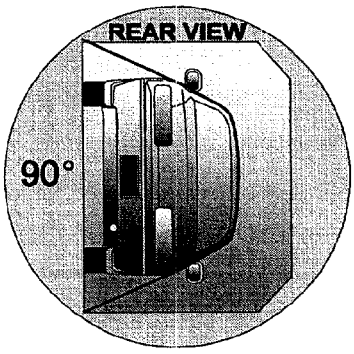
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Vehicle: 2000 Nissan Altima NHTSA No. MY5200

0 - 90 Degrees





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	12	seconds
FMVSS 301 Position Hold Time +	5	minutes	0	seconds
TOTAL	6	minutes	12	seconds
Next whole minute interval	7	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) :

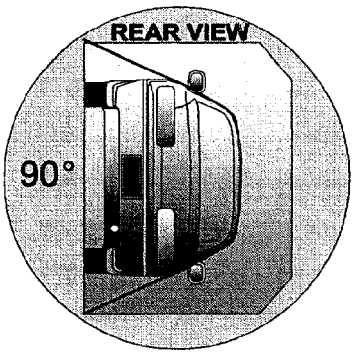
None

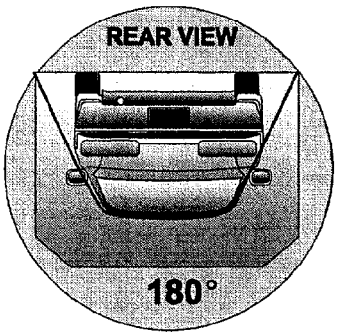
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2000 Nissan Altima NHTSA No. MY5200

90 - 180 Degrees





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

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

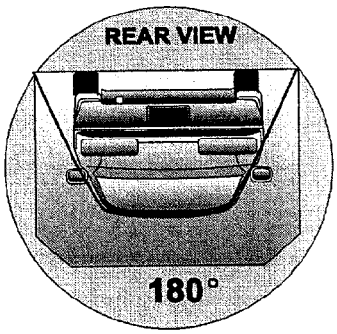
None

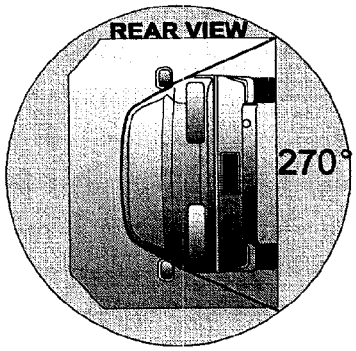
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2000 Nissan Altima NHTSA No. MY5200

180 - 270 Degrees





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	1	minutes	17	seconds
FMVSS 301 Position Hold Time +	5	minutes	0	seconds
TOTAL	6	minutes	17	seconds
Next whole minute interval	7	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):

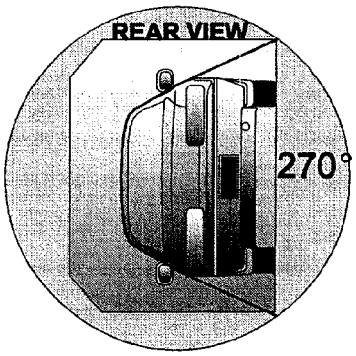
None

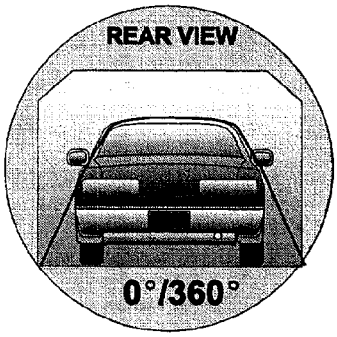
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2000 Nissan Altima NHTSA No. MY5200

270 - 360 Degrees





I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time	1	minutes	12	seconds
(Spec. Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	5	minutes	0	seconds
TOTAL	6	minutes	12	seconds
Next whole minute interval	7	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:

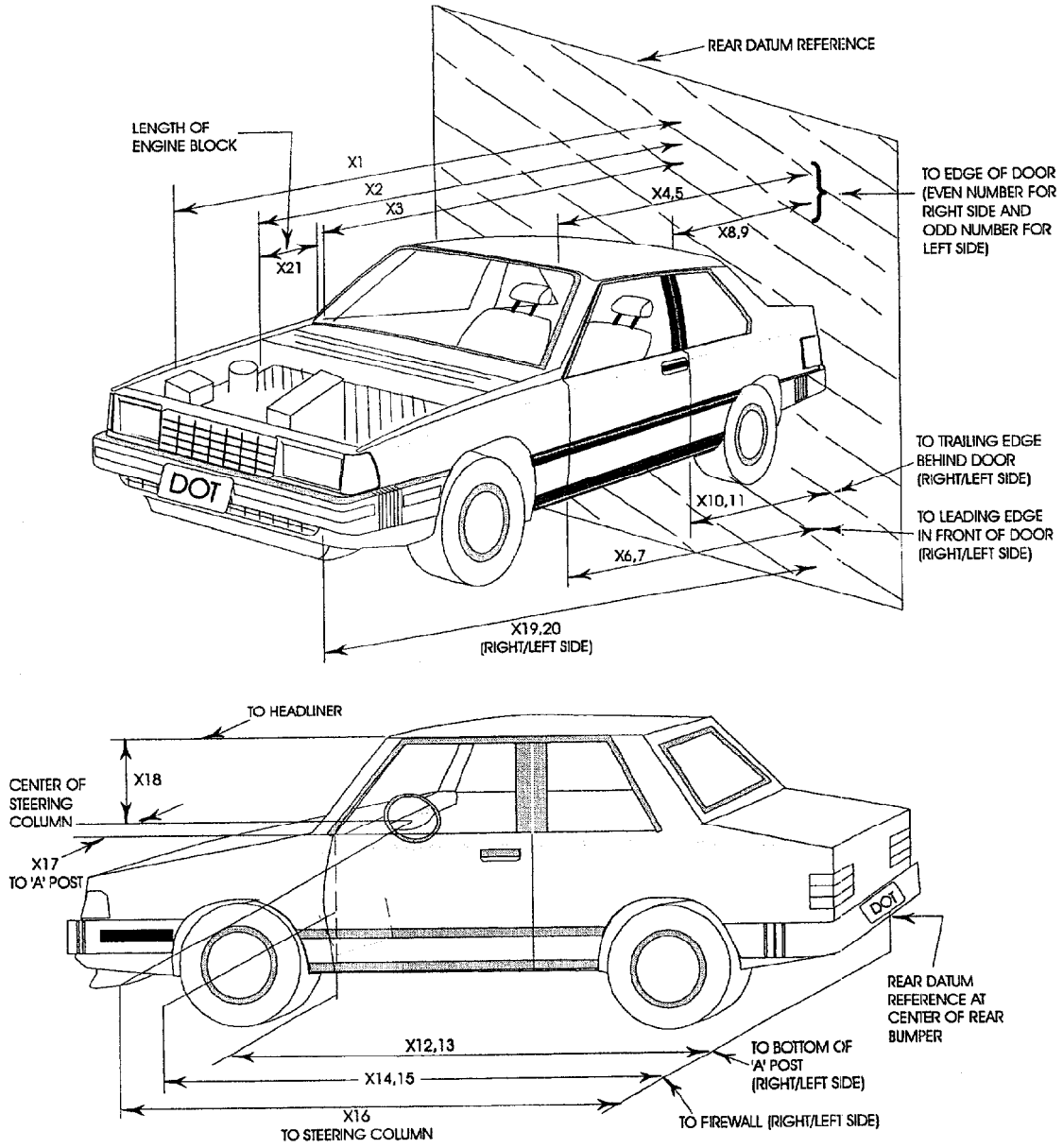
0 g	0 g	0 g	N/A

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.)

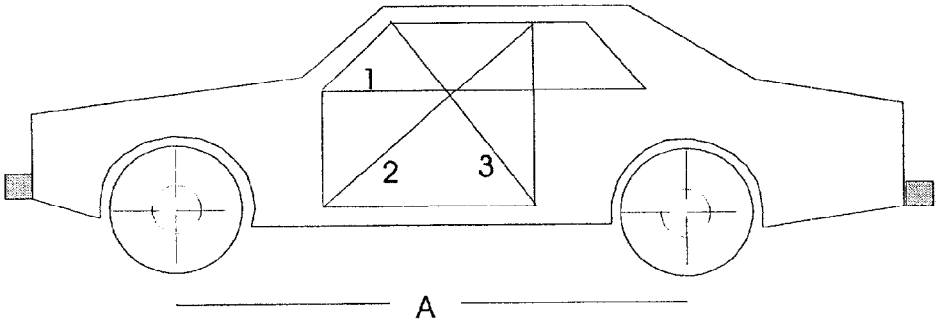
No.		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4749	4159	590
X2	Rear Surface of Vehicle to Front of Engine	4186	3892	294
X3	Rear Surface of Vehicle to Firewall	3578	3395	183
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3207	3202	5
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3196	3208	-12
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3208	3195	13
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3213	3211	2
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2161	2153	8
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2158	2157	1
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2155	2145	10
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2166	2159	7
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3355	3328	27
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3362	3336	26
X14	Rear Surface of Vehicle to Firewall, Right Side	3531	3429	102
X15	Rear Surface of Vehicle to Firewall, Left Side	3523	3403	120
X16	Rear Surface of Vehicle to Steering Column	2776	2760	16
X17	Center of Steering Column to "A" Post	280	317	-37
X18	Center of Steering Column to Headliner	421	359	62
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4637	4139	498
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4639	4134	505
X21	Length of Engine Block	527	527	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2956	2934	22
CD	Rear Surface of Vehicle to Center of Dash Panel	3024	2988	36
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2953	2927	26

All Dimensions in mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

DOOR OPENING WIDTH



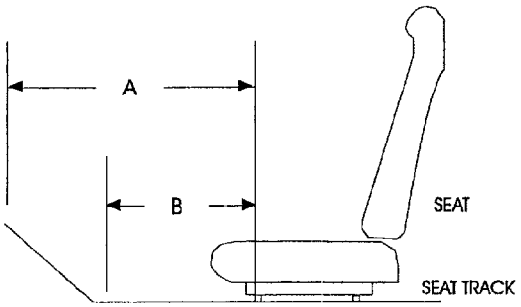
UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	982	1415	952	992	1422	972
AFTER TEST	979	1423	942	979	1421	958
DIFFERENCE	3	-8	10	13	1	14

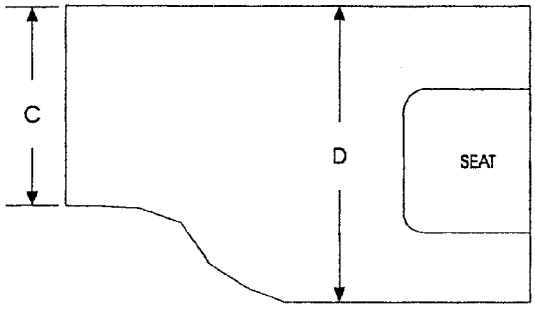
UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2620	2620
AFTER TEST	2509	2487
DIFFERENCE	111	133

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

STATIC FOOTWELL DEFORMATION





DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	764	601	163
B	559	453	106
C	468	459	9
D	558	568	-10

PASSENGER

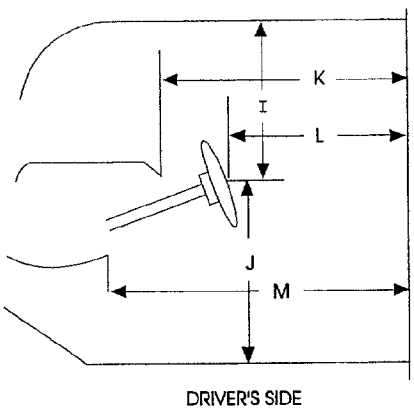
Measurement	Pre-Test	Post-Test	Difference
A	757	547	210
B	507	398	109
C	491	442	49
D	556	637	-81

Units = mm

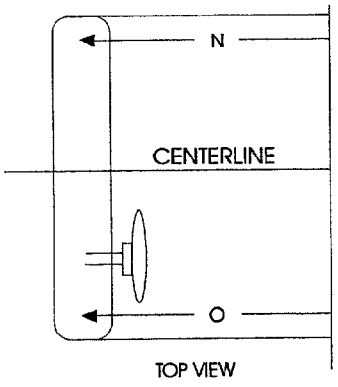
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

VEHICLE INTRUSION MEASUREMENTS

STATIC PASSENGER COMPARTMENT INTRUSION

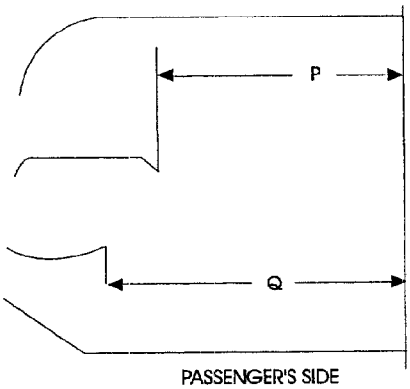


DRIVER'S SIDE



TOP VIEW

MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



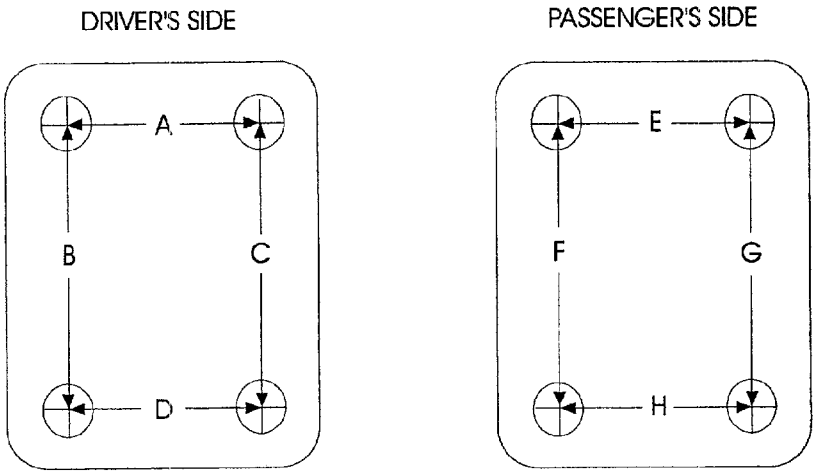
PASSENGER'S SIDE

Measurement	Pre-Test	Post-Test	Difference
I	421	359	62
J	623	719	-96
K	1835	1815	20
L	1660	1646	14
M	1854	1833	21
N	1839	1817	22
O	1837	1813	24
P = K (PASS.)	1909	1875	34
Q = M (PASS.)	1986	1897	89

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

FLOORBOARD DEFORMATION



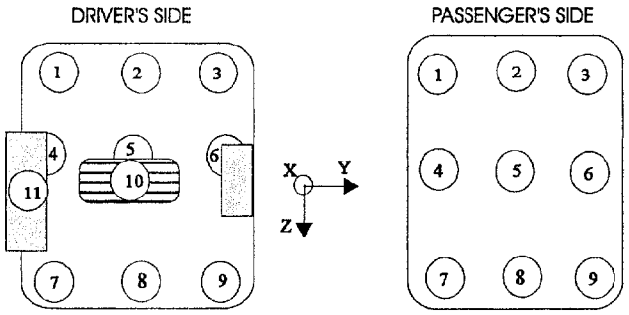
TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	400	378	22
B	400	400	0
C	400	366	34
D	400	400	0
E	400	367	33
F	400	368	32
G	400	398	2
H	400	400	0

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

TOE-PAN INTRUSION



Driver Side Floorpan Measurements

Reference: X = Rear Bumper; Z = Ground

Floorpan Location	X Deformation			Z Deformation		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3413	3295	118	-486	-531	45
2	3484	3306	178	-454	-491	37
3	3485	3269	216	-484	-533	49
4	3382	3282	100	-361	-406	45
5	3402	3222	180	-337	-407	70
6	3399	3197	202	-355	-396	41
7	3279	3229	50	-240	-278	38
8	3279	3158	121	-251	-307	56
9	3295	3152	143	-263	-301	38
10	3288	3129	159	-422	-497	75
11	3336	3267	69	-373	-402	29

Passenger Side Floorpan Measurements

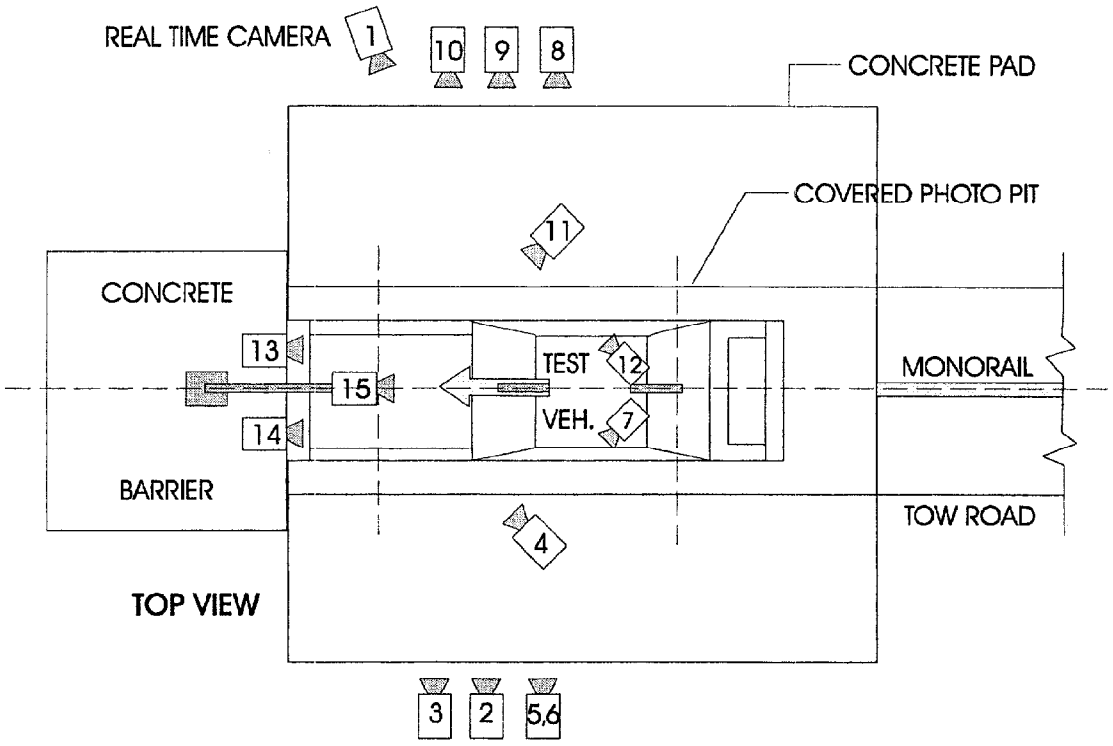
Reference: X = Rear Bumper; Z = Ground

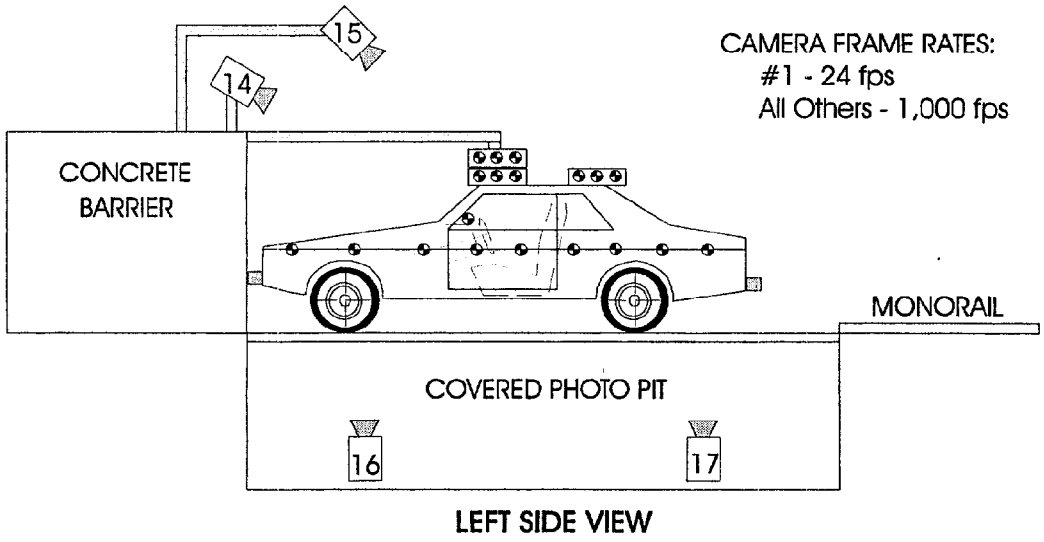
Floorpan Location	X Deformation			Z Deformation		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3454	3230	224	-416	-401	-15
2	3458	3243	215	-412	-462	50
3	3383	3246	137	-417	-398	-19
4	3346	3155	191	-297	-344	47
5	3353	3170	183	-296	-347	51
6	3323	3237	86	-308	-311	3
7	3203	3087	116	-218	-206	-12
8	3208	3094	114	-210	-182	-28
9	3197	3188	9	-204	-167	-37

Units in mm

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.: MY5200 Vehicle: 2000 Nissan Altima 4-Door Sedan

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)* X	Y	Z	ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	6626	1564	1035	-2.5	6205	12.5	1025
3	Left Side View	8140	1036	1025	-1.9	7719	25	1020
4	Driver and Interior View	7195	2605	1795	-9.1	-	35	1055
5	Steering Column (Bottom)	7486	1806	1160	-3.7	7065	25	1015
6	Steering Column (Top)	7486	1806	1790	-8.9	7065	25	1020
7	Left Belt	-	-	-	-	-	13	1030
8	Overall Right Side	6975	1925	1090	-4.8	6554	12.5	1010
9	Right Side View	8055	1264	1045	-1.9	7634	25	1000
10	Right Passenger View	7555	1764	1287	-2.4	7134	35	1010
11	Passenger and Interior View	6735	2680	1865	-8.1	-	35	1025
12	Right Belt	-	-	-	-	-	13	1030
13	Passenger Front View	605	-55	1985	-37.8	-	13	1025
14	Driver Front View	605	-55	1985	-36.9	-	13	1015
15	Windshield View	0	-675	3560	-50.7	-	13	1005
16	Pit View of Engine	0	690	-3048	90	-	13	1050
17	Pit View of Fuel Tank	0	2535	-3048	90	-	13	1010

*X = film plane to monorail centerline

Y = film plane to impact location

Z = film plane to ground

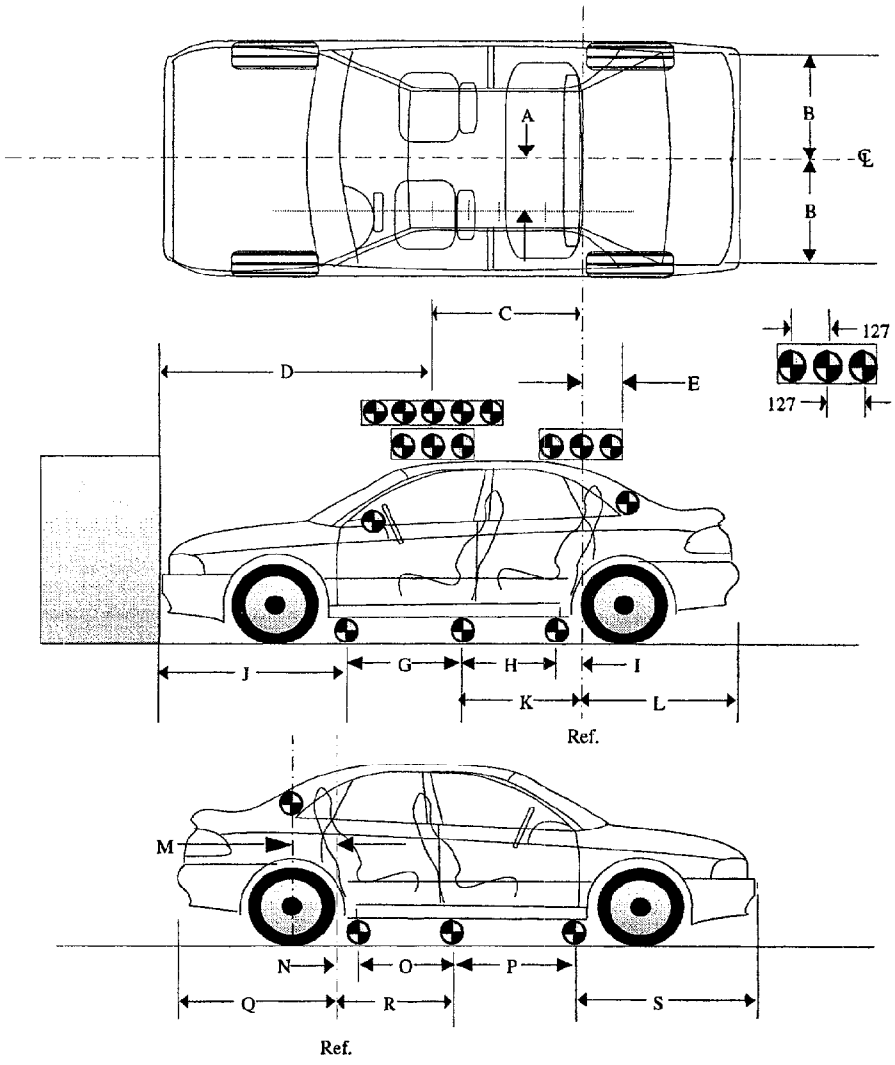
** = referenced to horizontal plane

N.T. indicates No Timing

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

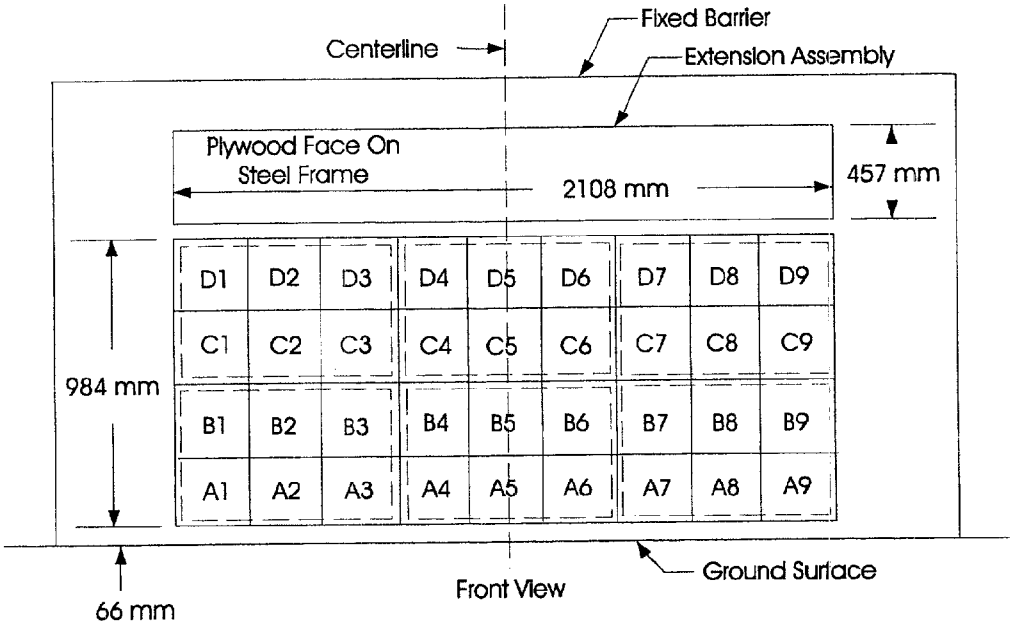
(Dimensions in millimeters)

A	345
B	668
C	1224
D	2084
E	326
F	1515
G	864
H	866
I	90
J	1472
K	956
L	1457
M	330
N	116
O	865
P	878
Q	1438
R	981
S	1453



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. : MY5200; Test Date: February 11, 2000; Technician: Lawrence Q. Valvo

Vehicle Model Year/Make/Model: 2000 Nissan Altima

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

B. Size of vent holes: (mm^2) 380 -Driver 707 -Passenger

C. Total vent area: (mm^2) 760 -Driver 1414 -Passenger

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

Driver: - -Length; - -Width; 640 -Diameter

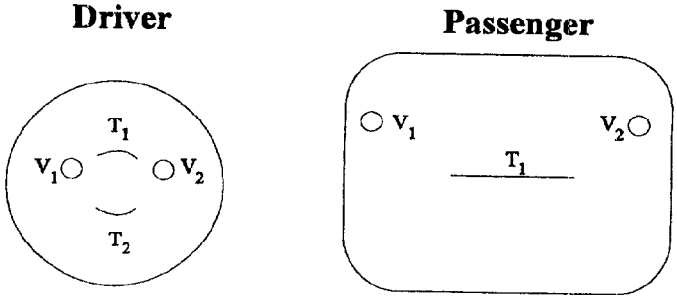
Passenger: 515 -Height; 380 -Width; 510 -Depth

E. Is the air bag tethered?

Driver: X -Yes; - -No; If yes, record length of tether- 290

Passenger: X -Yes; - -No; If yes, record length of tether- 420

Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.
(Note: Not to scale; V_n = Vent hole$_n$, T_n = Tether$_n$).



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

Driver: Air bag: NISSAN ZQ 98570-89912-C1 0004758 14 0699

Generator: G12 *KM9E0997143985*

Passenger: Air bag: P5204970-00A, TXM992210283

Generator: *NP800998120503*, * NFF K8C 4PA0G*

DATA SHEET NO. 19 ACCIDENT INVESTIGATION DIVISION DATA

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Nissan Altima 4-Door Sedan

NHTSA Test No.: MY5200 VIN: 1N4DL01D2YC107416

Model Year: 2000 Build Date: 8/99 Test Date: February 11, 2000

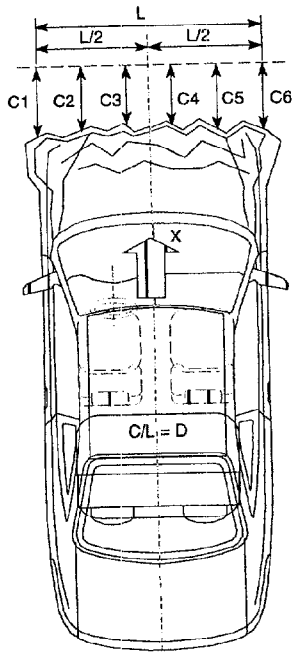
Vehicle Size Category: Compact Test Weight: 1576.0 kg

Vehicle Wheelbase: 2620 mm; Front Overhang: 1387 mm; Overall Width: 1754 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	4594	4089	-505	mm
C2 =	4694	4139	-555	mm
C3 =	4743	4148	-595	mm
C4 =	4742	4155	-587	mm
C5 =	4695	4140	-555	mm
C6 =	4586	4115	-471	mm



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region:

L1= 1754 mm

L2= 877 mm

L3= 585 mm

APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

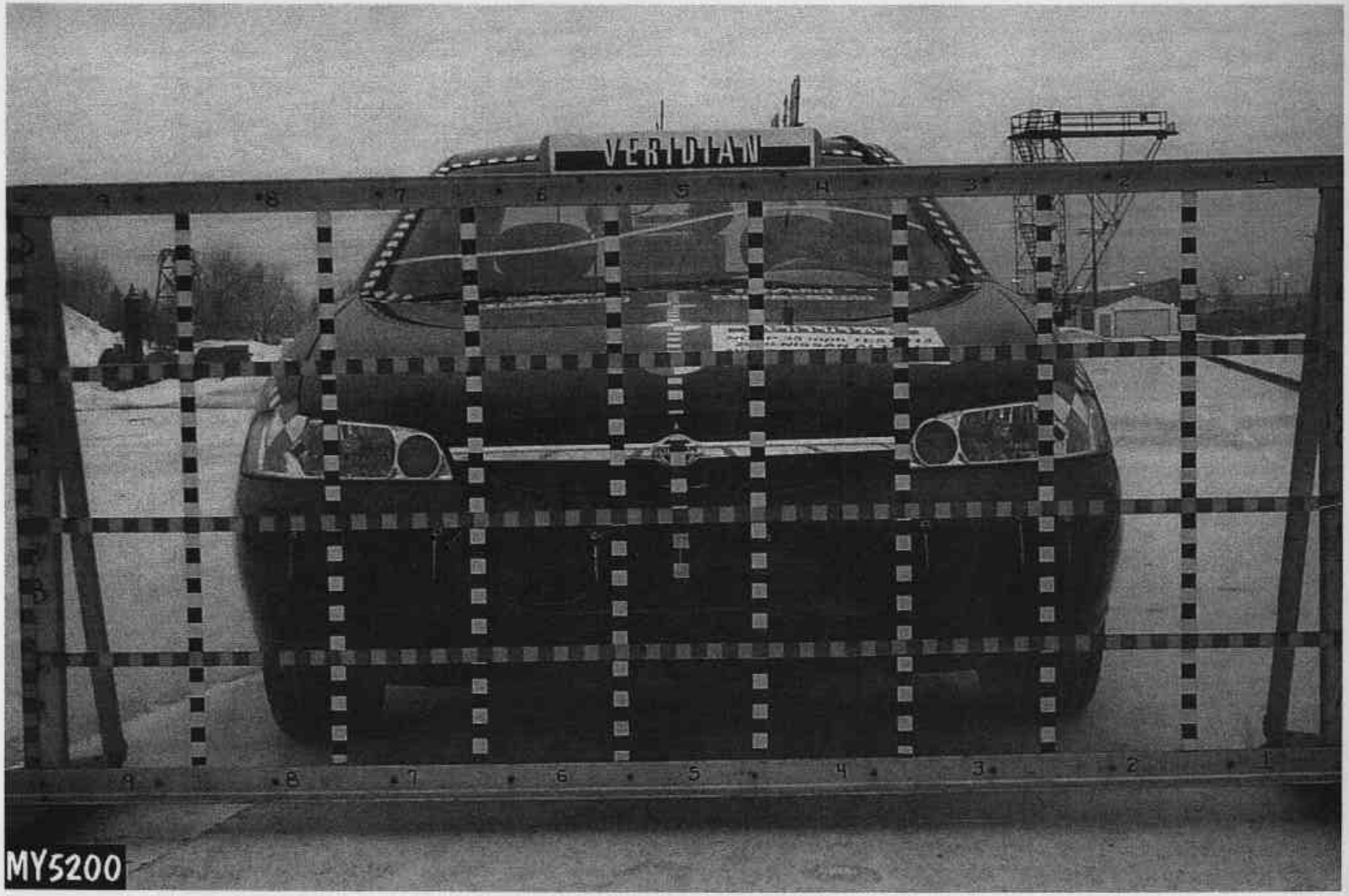


Figure A-1: LOAD CELL LOCATIONS.

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Figure A-2: PRE-TEST FRONT VIEW

Figure A-3: POST-TEST FRONT VIEW.

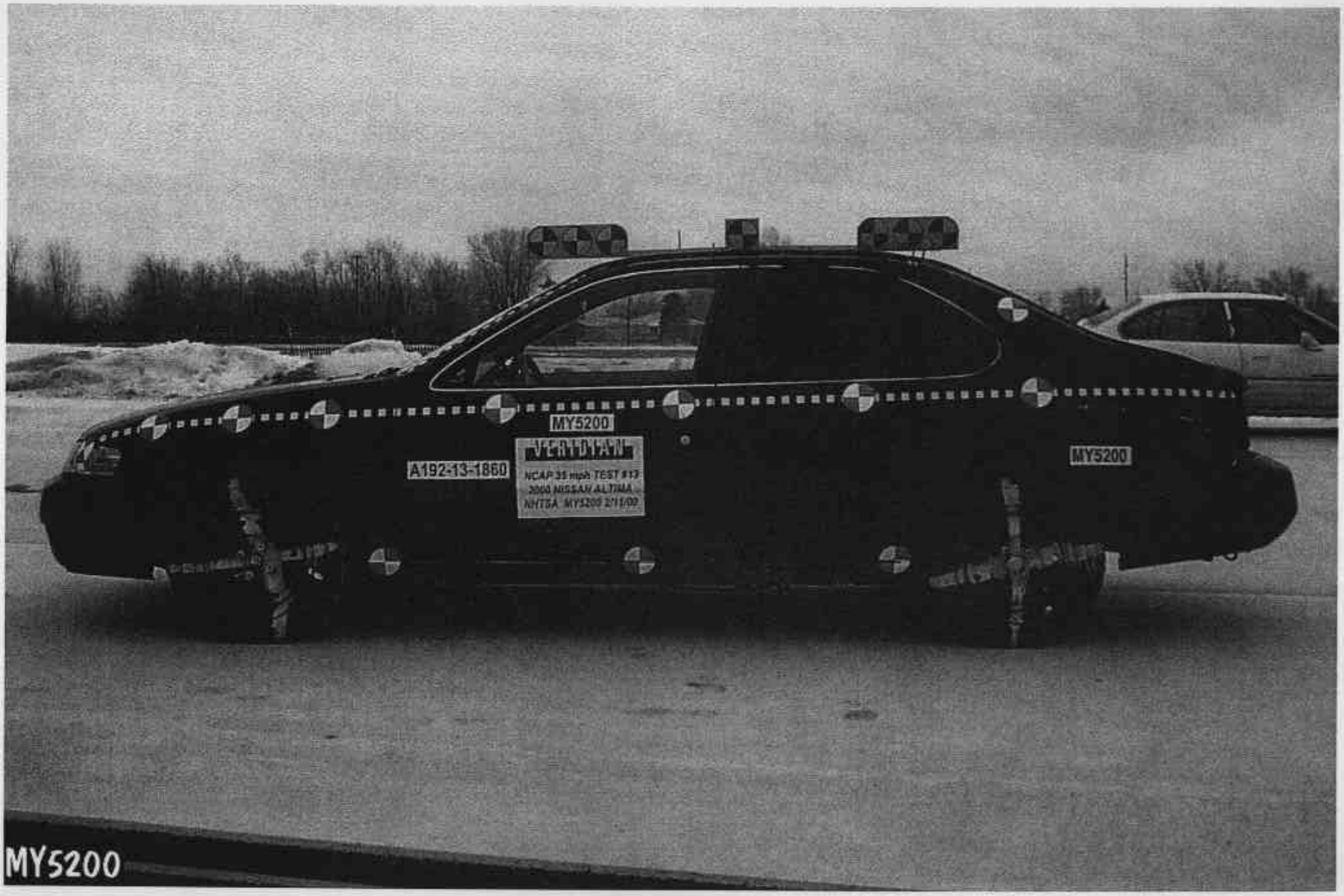

Figure A-4: PRE-TEST LEFT SIDE VIEW

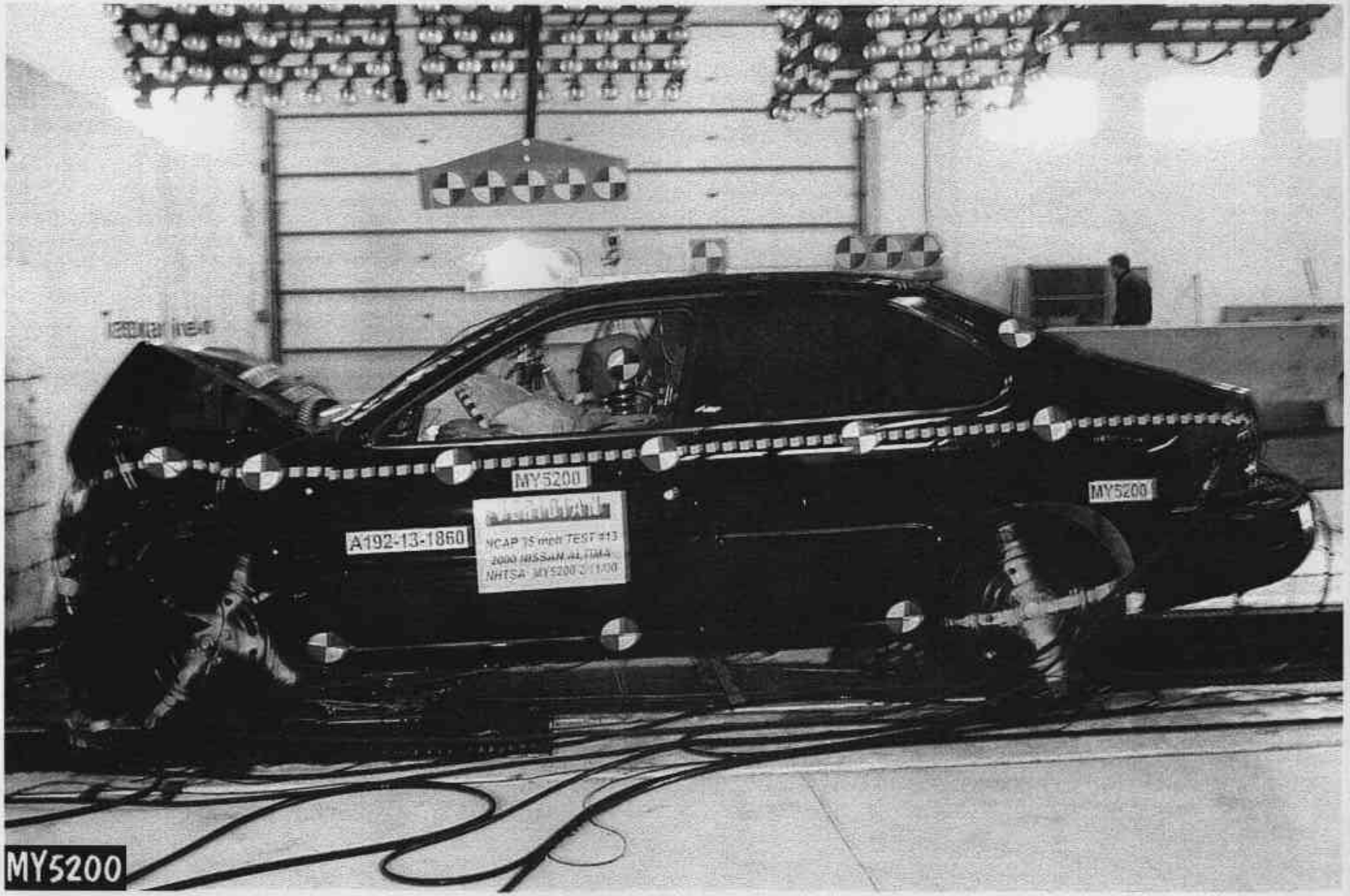

Figure A-5: POST-TEST LEFT SIDE VIEW

Figure A-6: PRE-TEST RIGHT SIDE VIEW

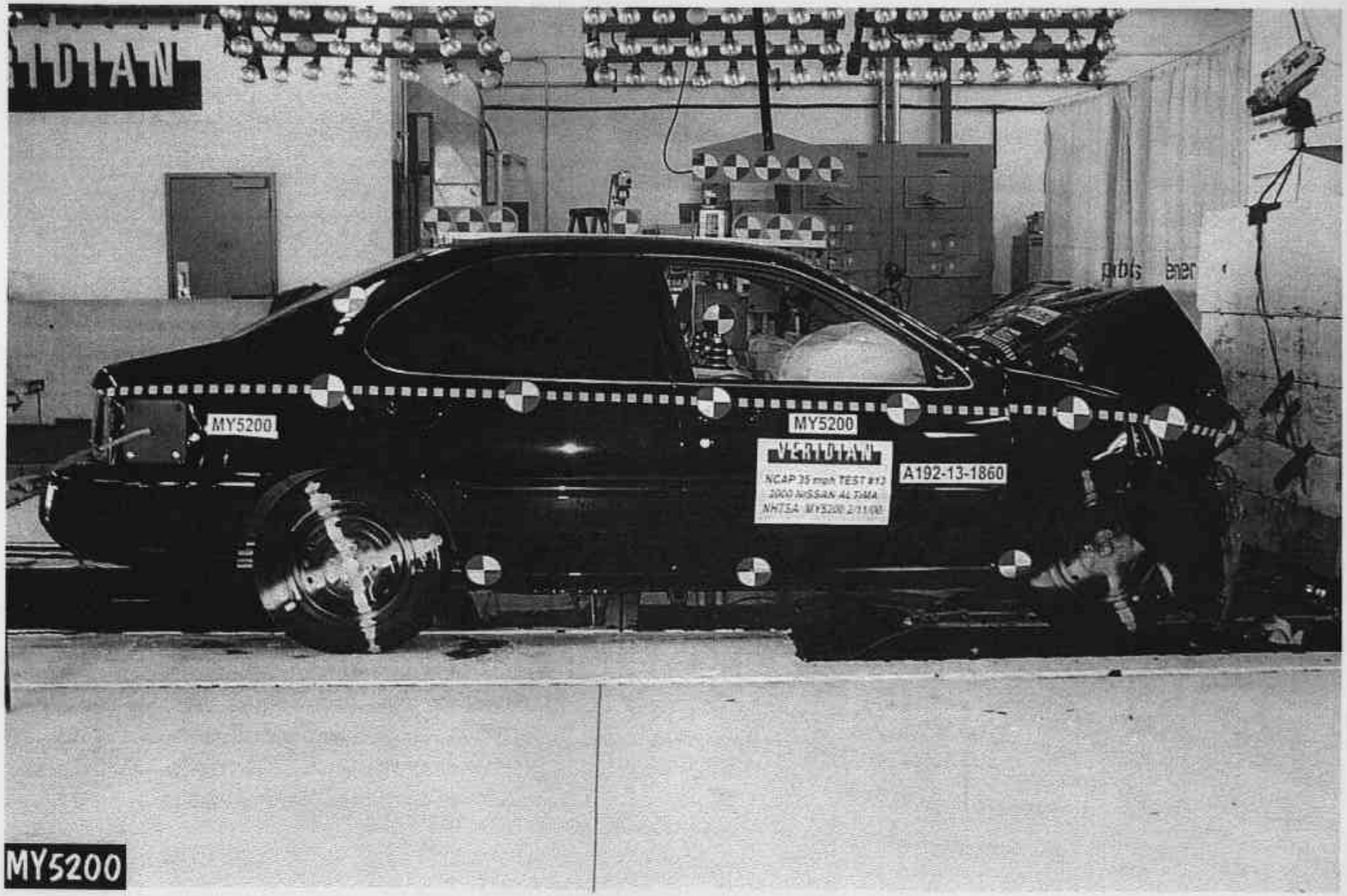

Figure A-7: POST-TEST RIGHT SIDE VIEW

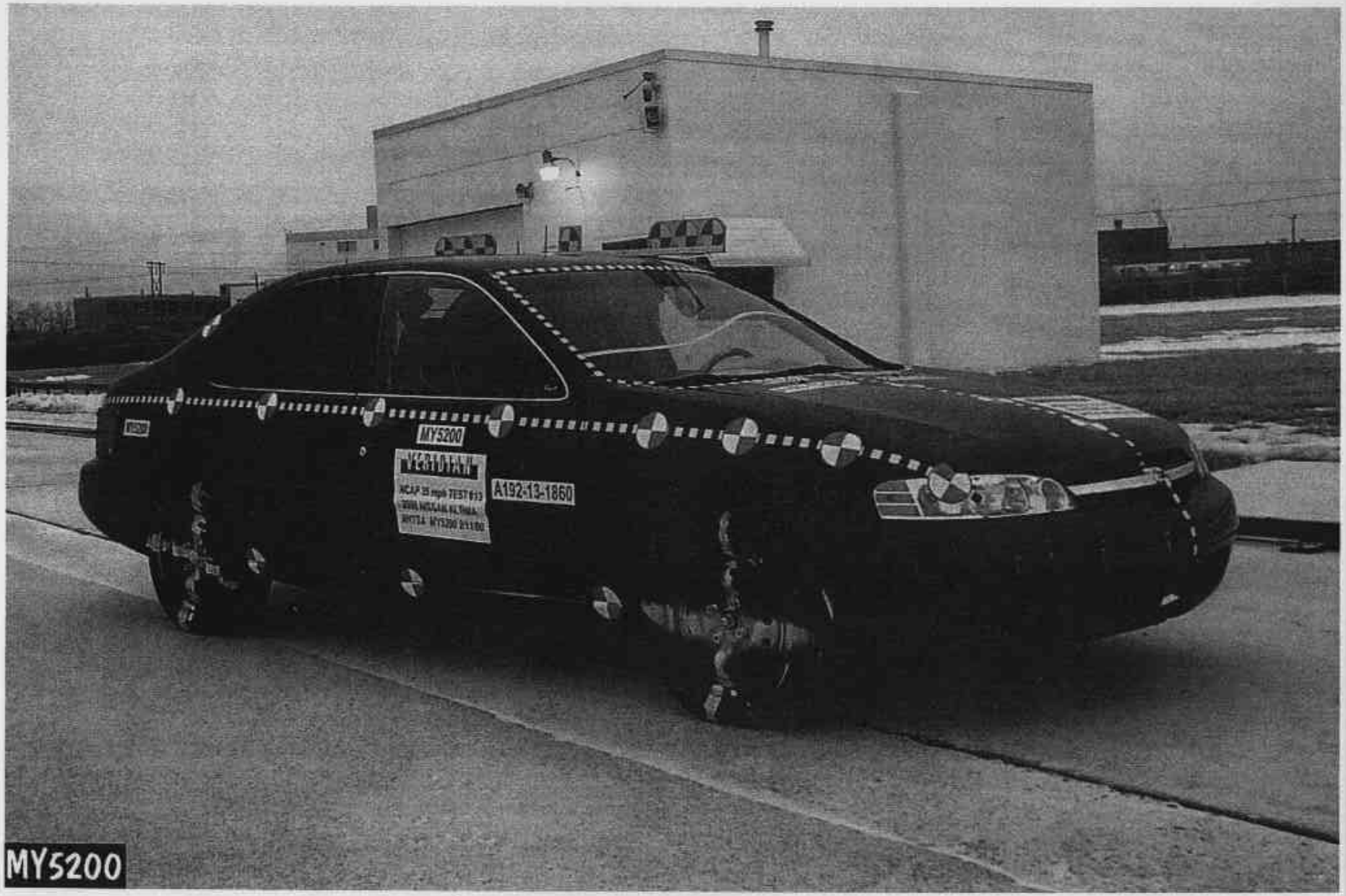

Figure A-8: PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

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

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

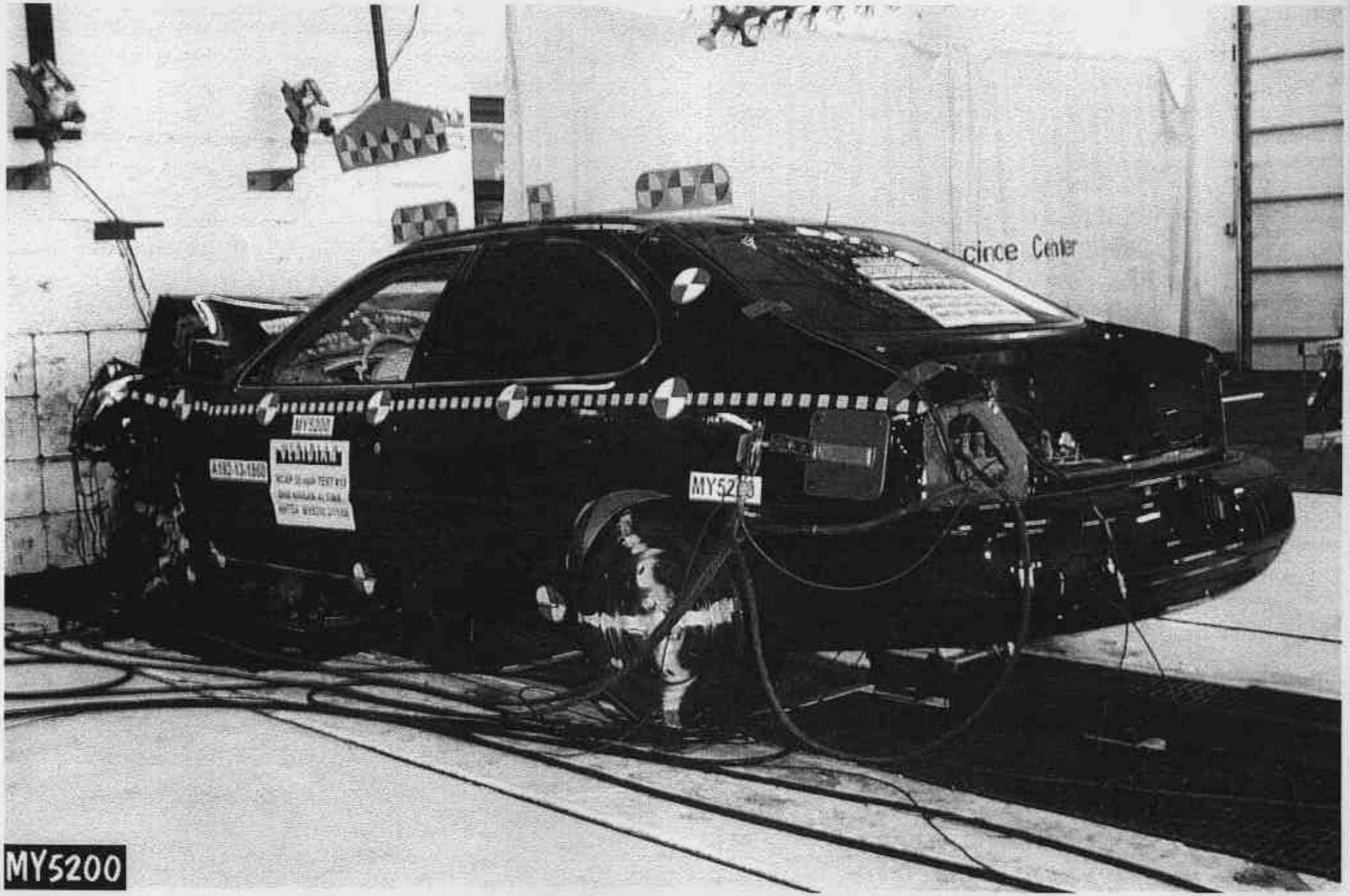

Figure A-11: POST-TEST LEFT REAR THREE-QUARTER VIEW

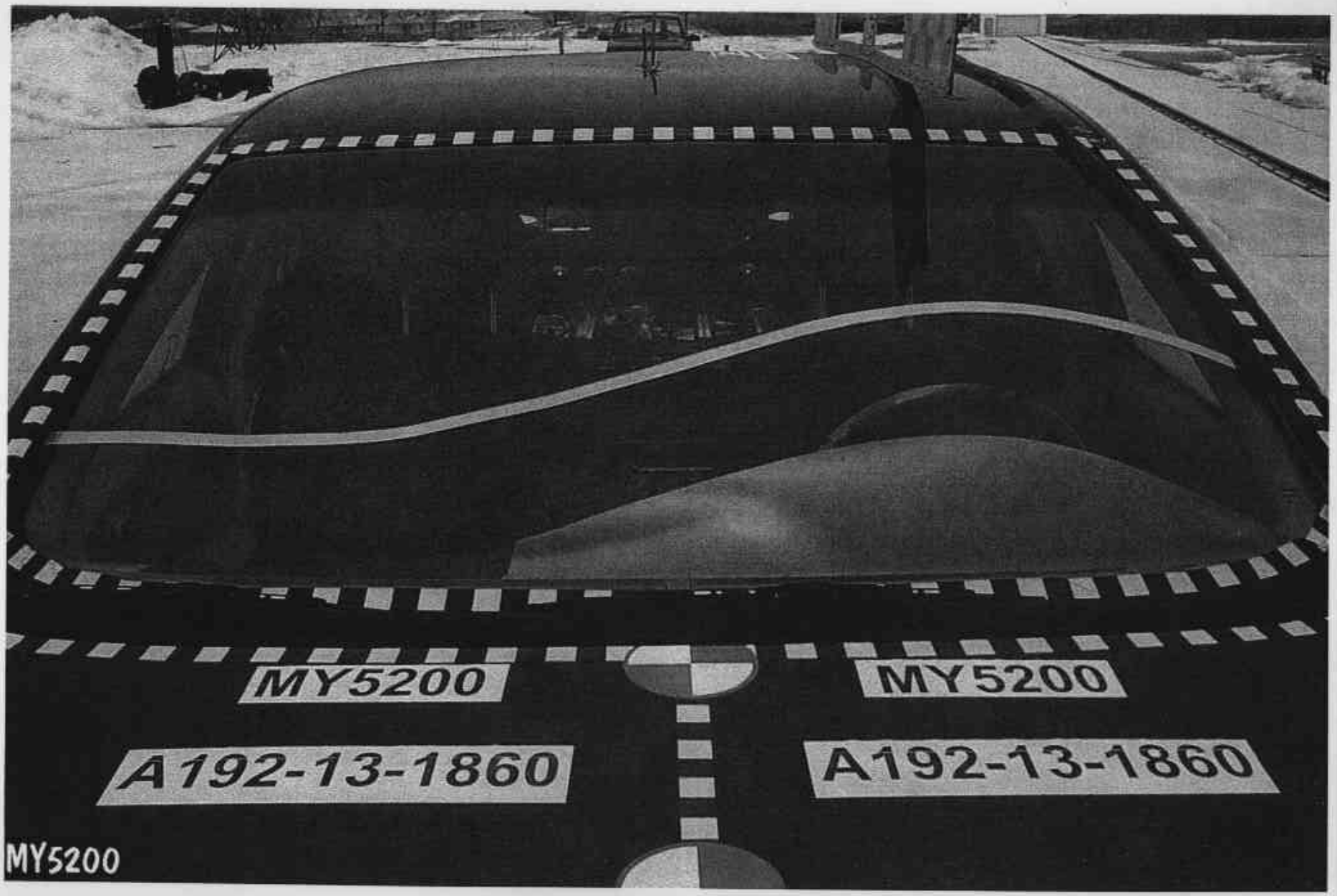

Figure A-12: PRE-TEST WINDSHIELD VIEW

8413-51

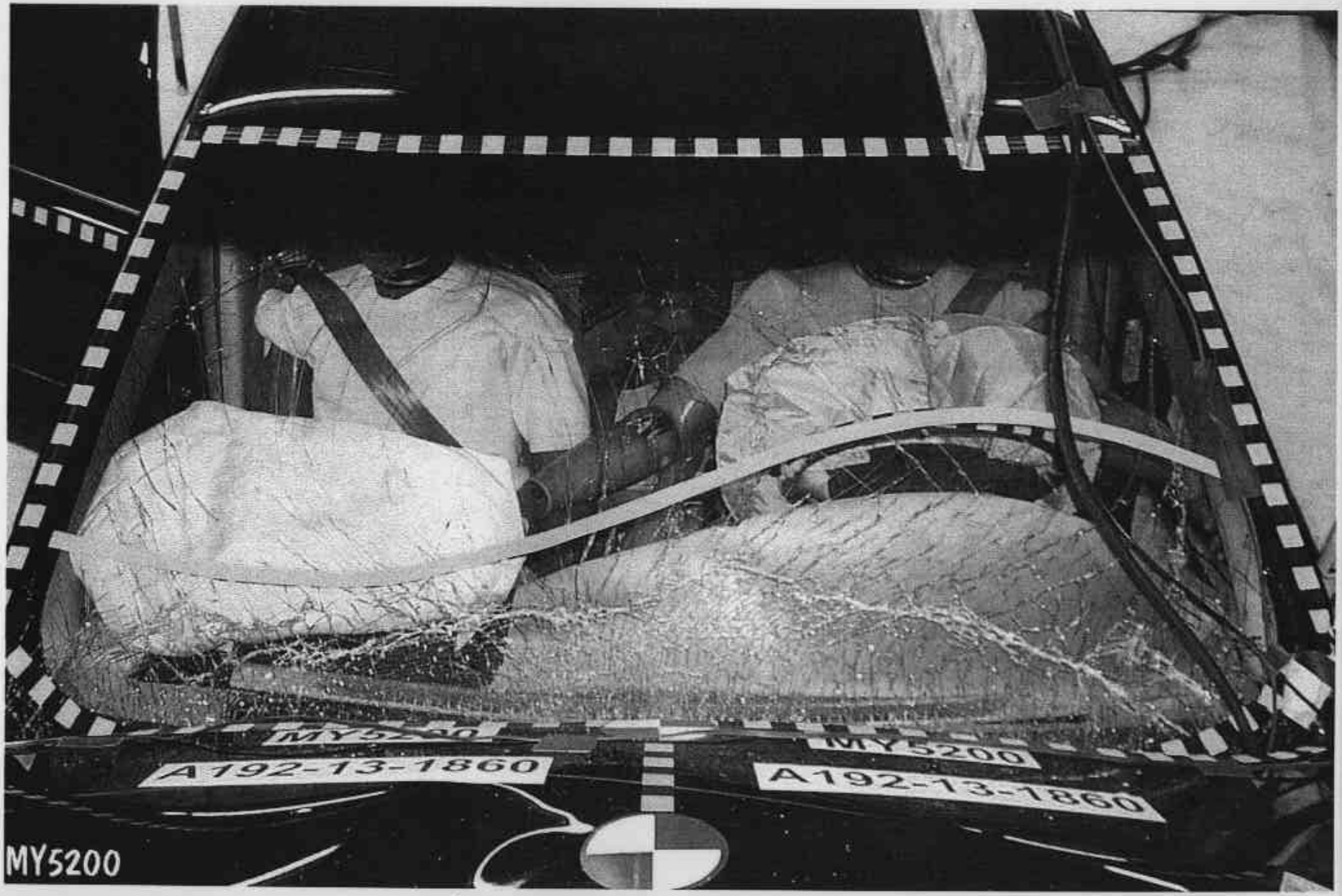

Figure A-13: POST-TEST WINDSHIELD VIEW

8413-51

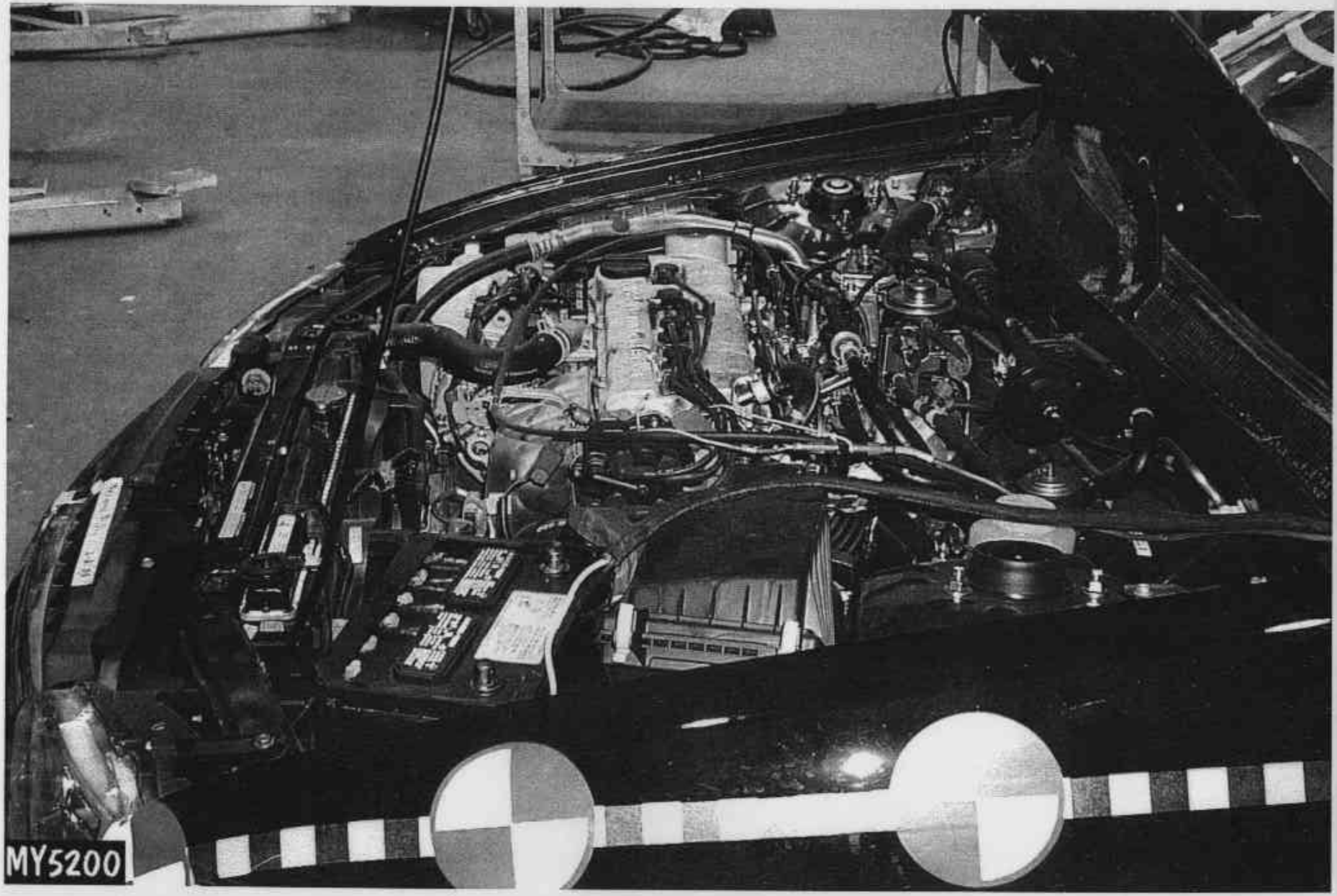

Figure A-14: PRE-TEST ENGINE COMPARTMENT VIEW

Figure A-15: FUEL CAP VIEW

Figure A-16: PRE-TEST FRONT UNDERBODY VIEW

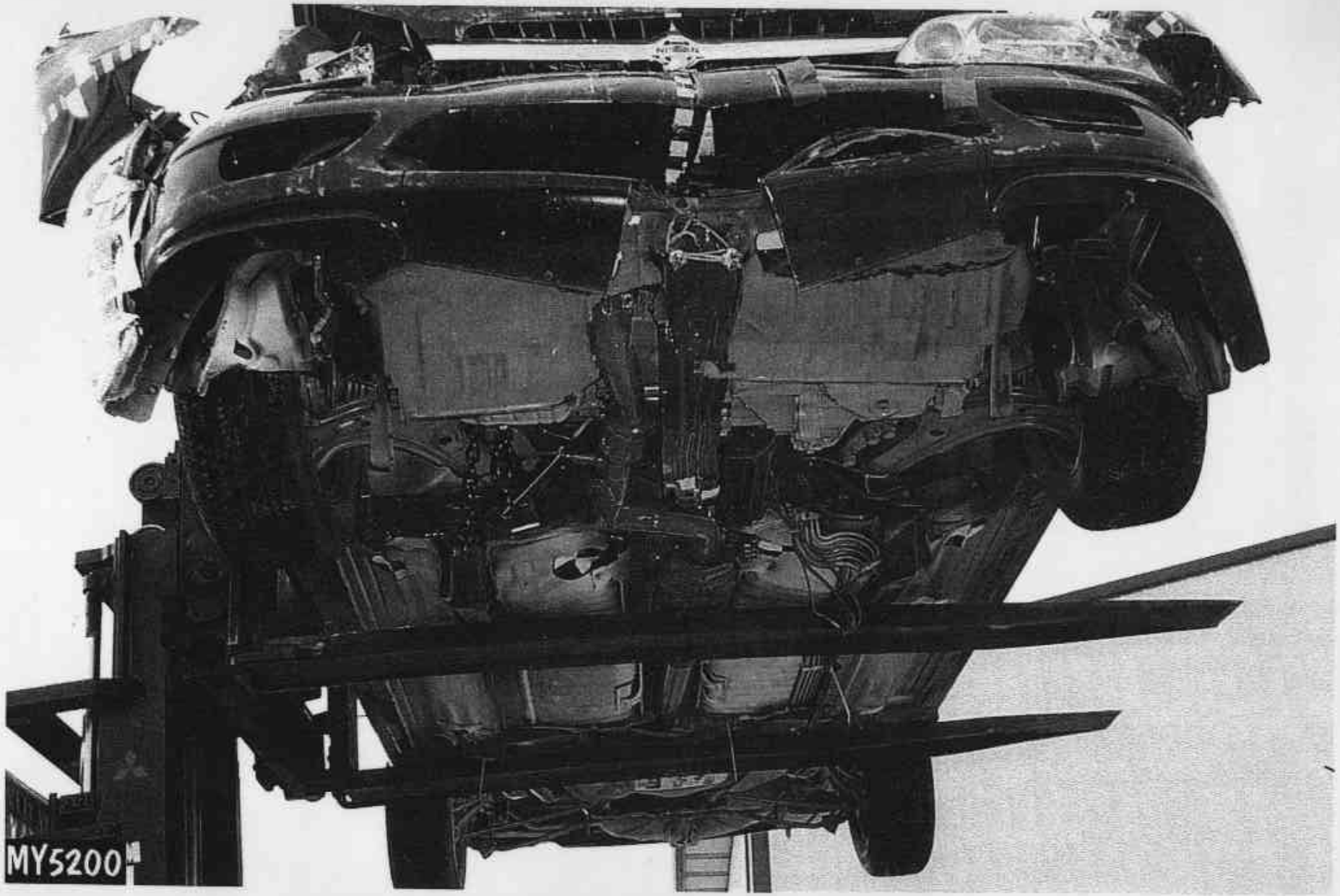

Figure A-17: POST-TEST FRONT UNDERBODY VIEW

8413-51

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

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

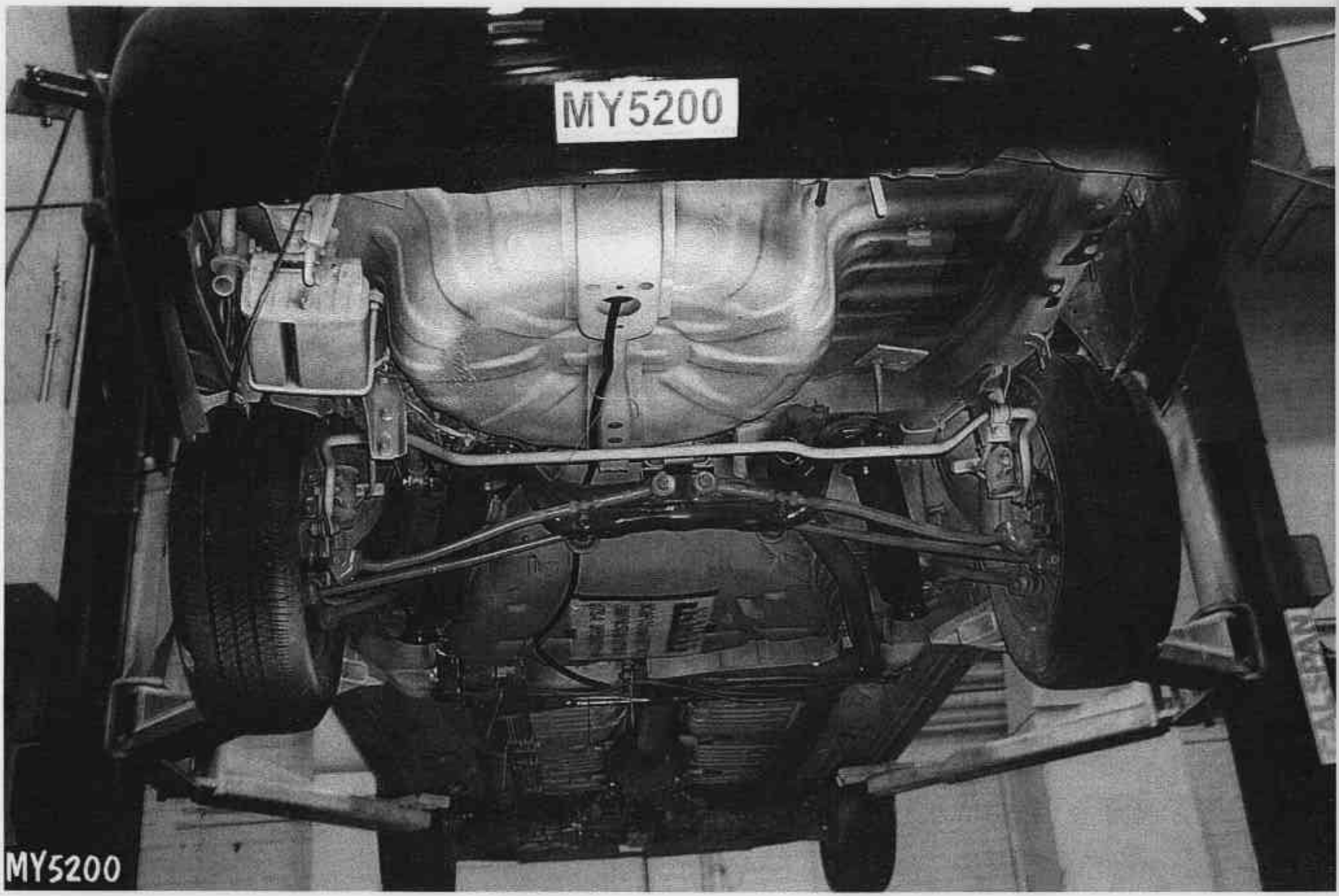

Figure A-20: PRE-TEST REAR UNDERBODY VIEW

Figure A-21: POST-TEST REAR UNDERBODY VIEW

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MY5200

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

8413-51

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

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

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

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

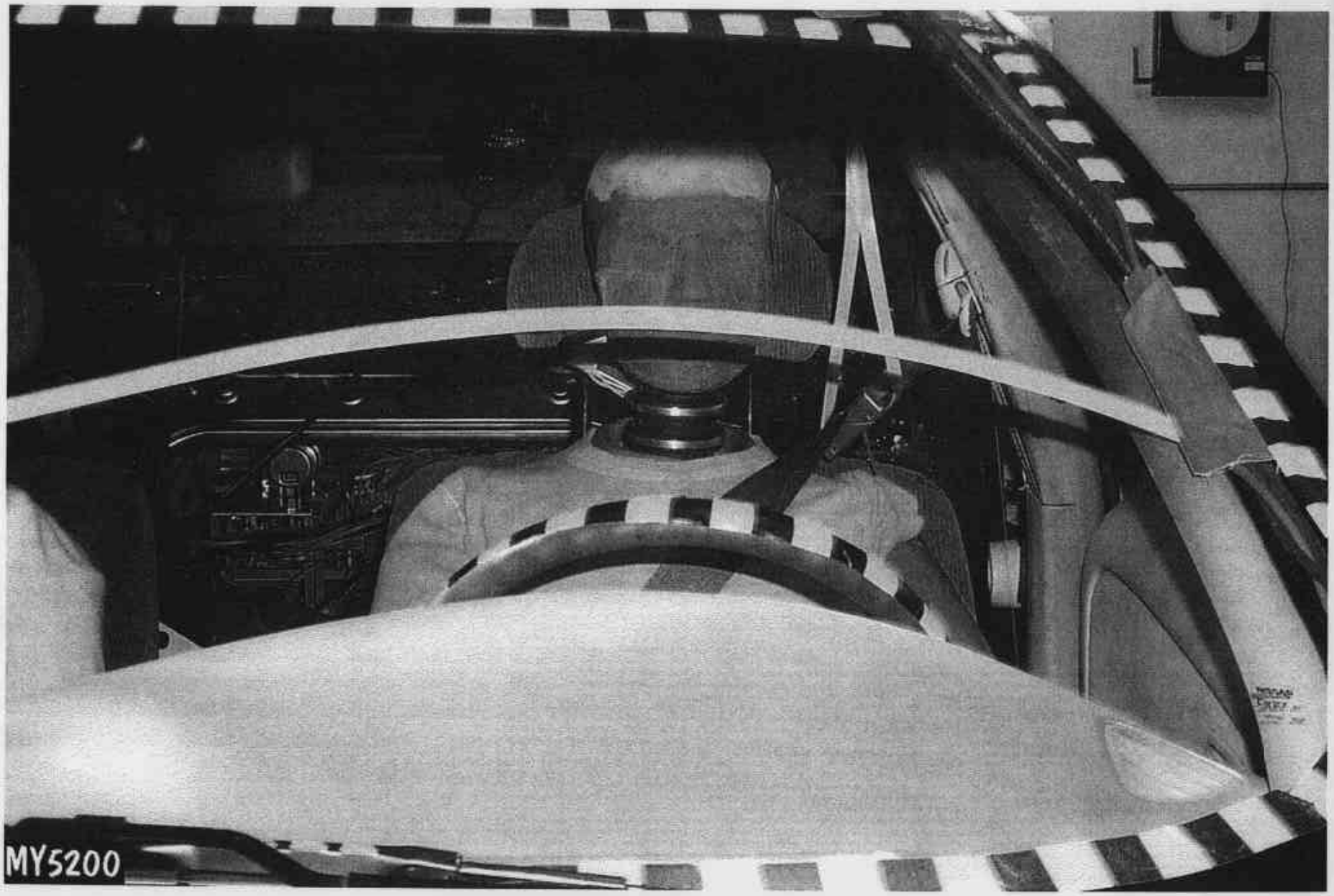


Figure A-30: PRE-TEST DRIVER HEAD LOCATION

Figure A-31: POST-TEST DRIVER HEAD LOCATION

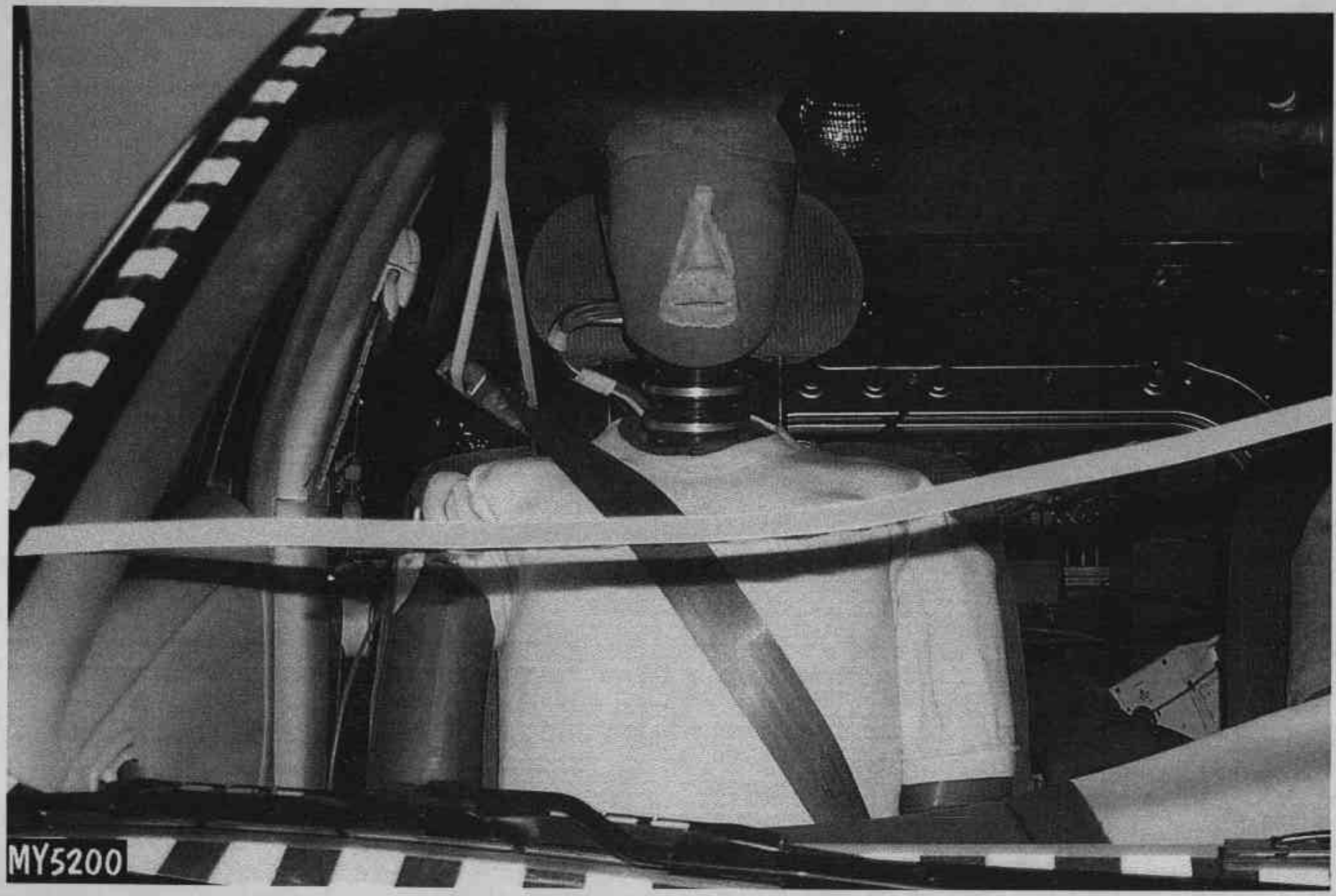


Figure A-32: PRE-TEST PASSENGER HEAD LOCATION

8413-51

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

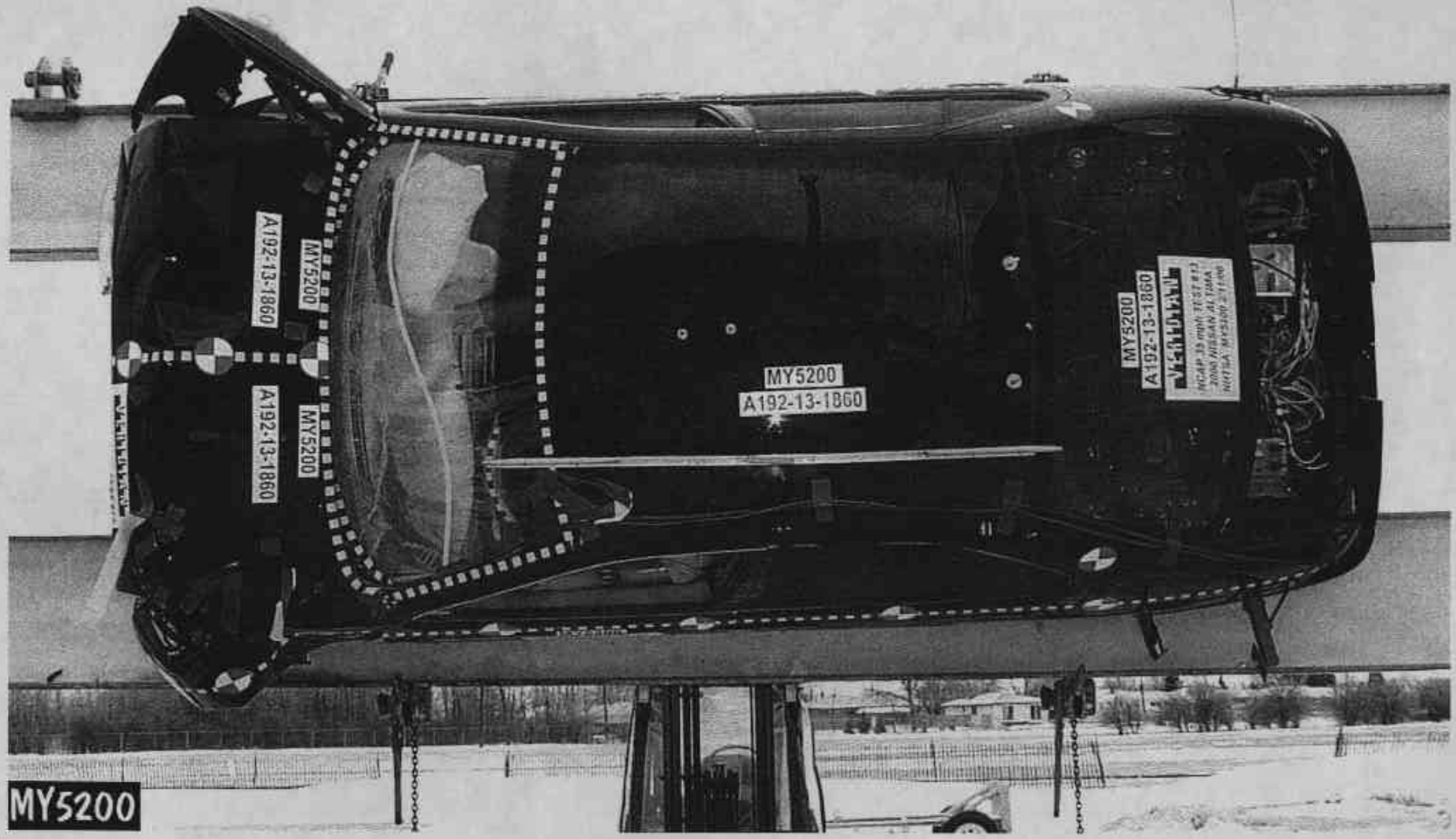


Figure A-38: ROLLOVER VIEW

8413-51

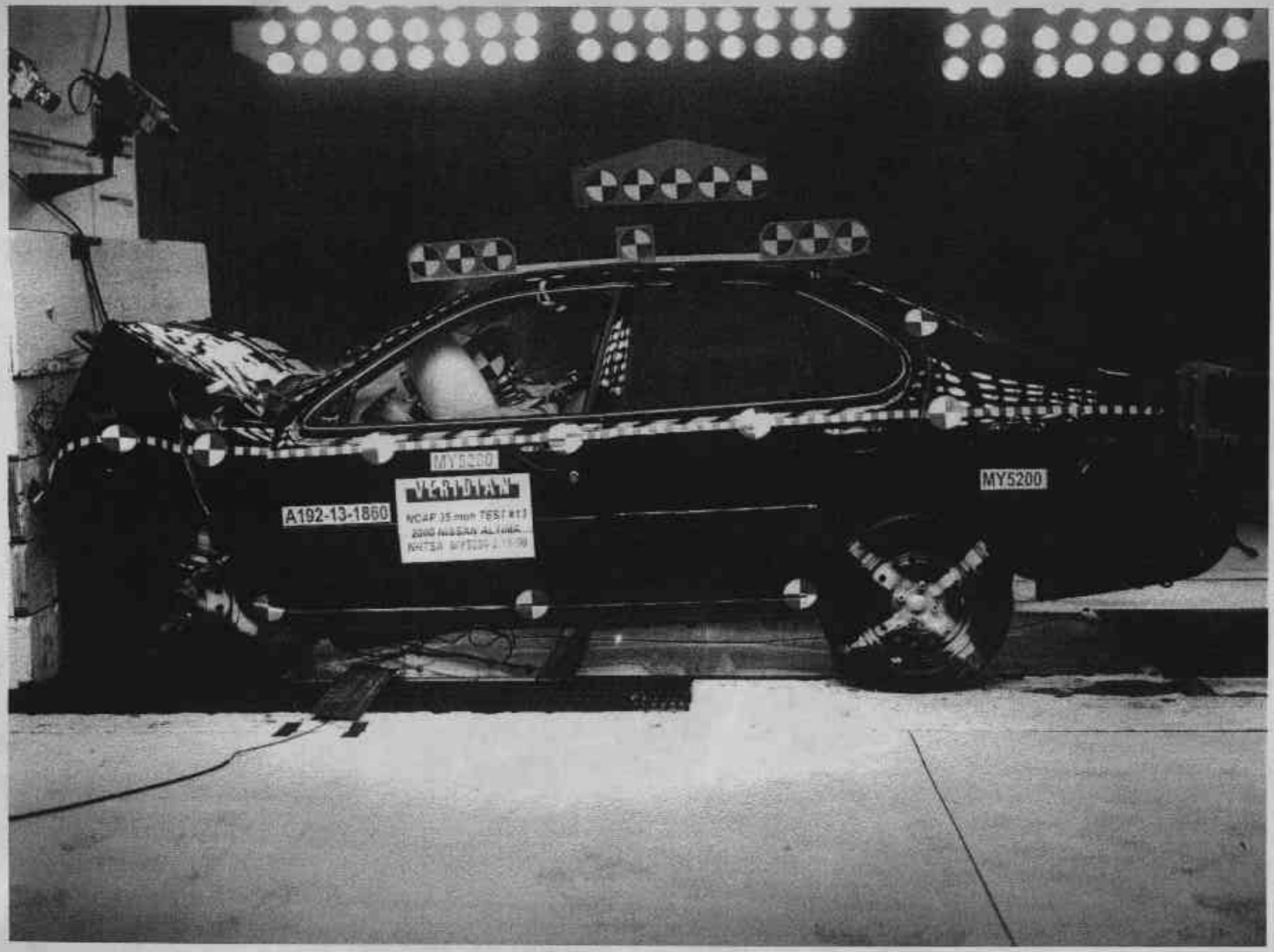


Figure A-39: IMPACT VIEW

APPENDIX B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

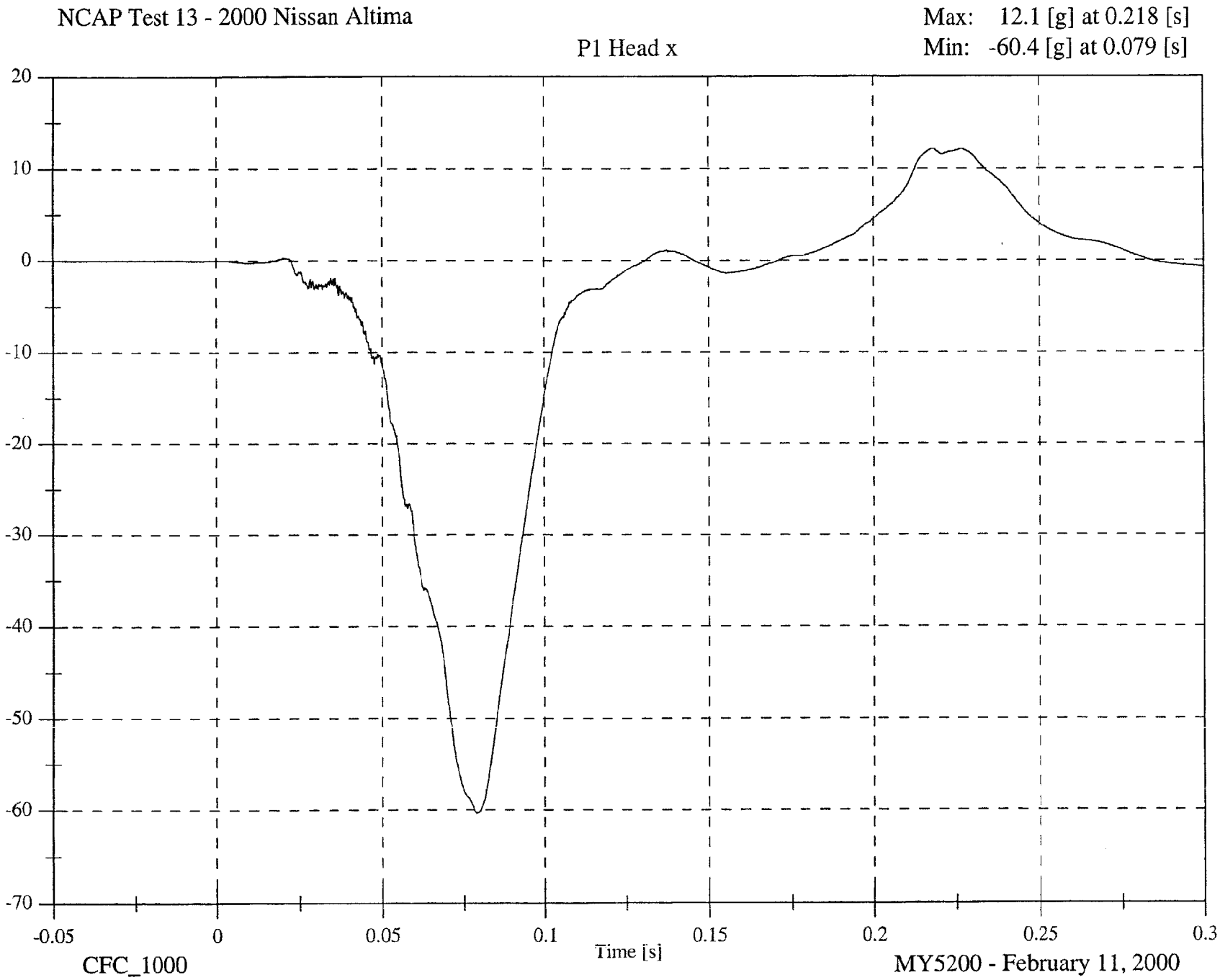
Hybrid III Dummy Sign Conventions
Load Cells and Special Transducers

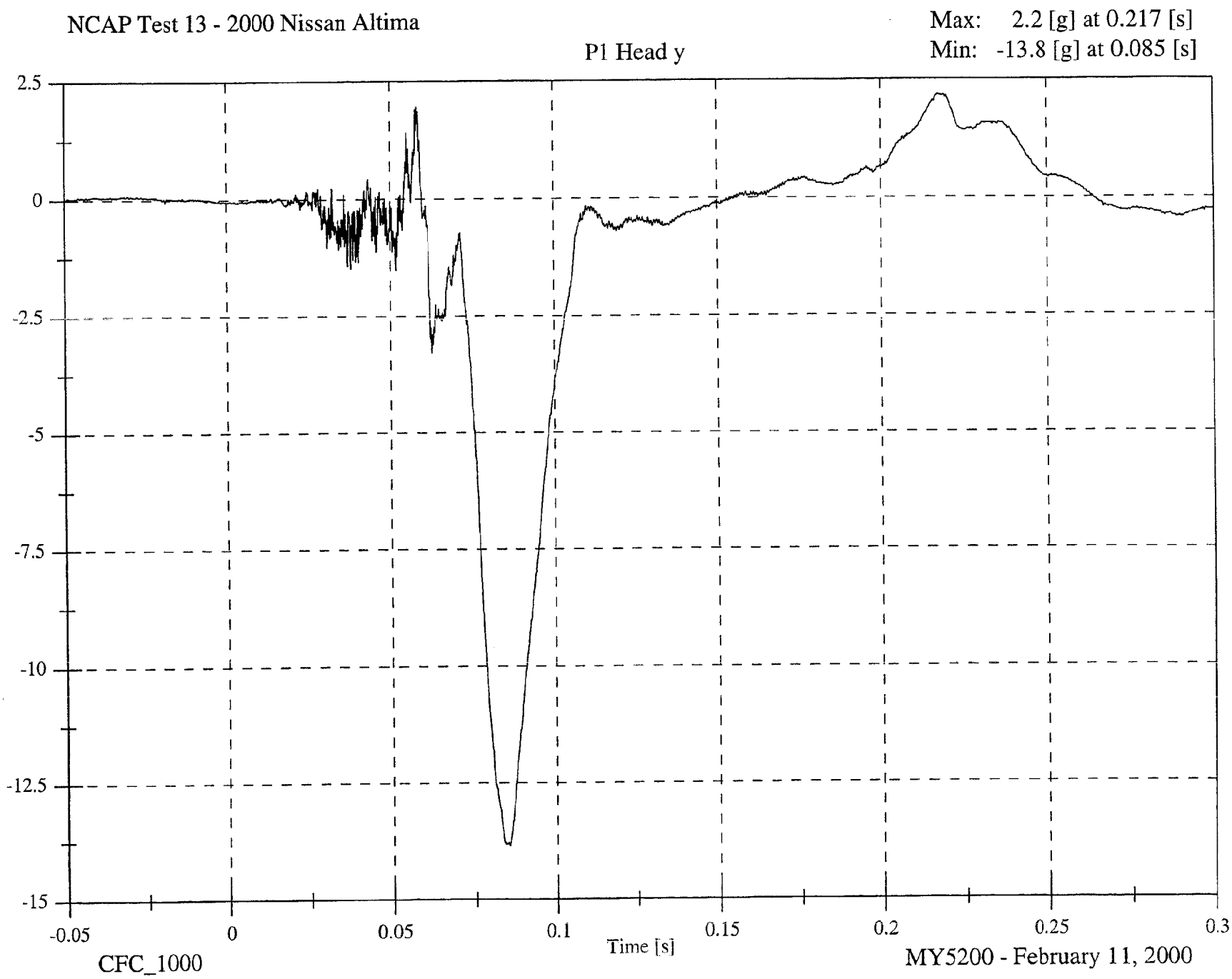
Transducer	SAE Sign Convention (positive unless noted)
Upper Neck Load Cell	Fx Head rearward Fy Head left Fz Neck in tension Mx Left ear to left shoulder My Chin to chest (flexion) Mz Chin to left shoulder (look left)
Chest Displacement Potentiometer	Compression is negative
Pelvic Load Cell (Lower Lumbar)	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

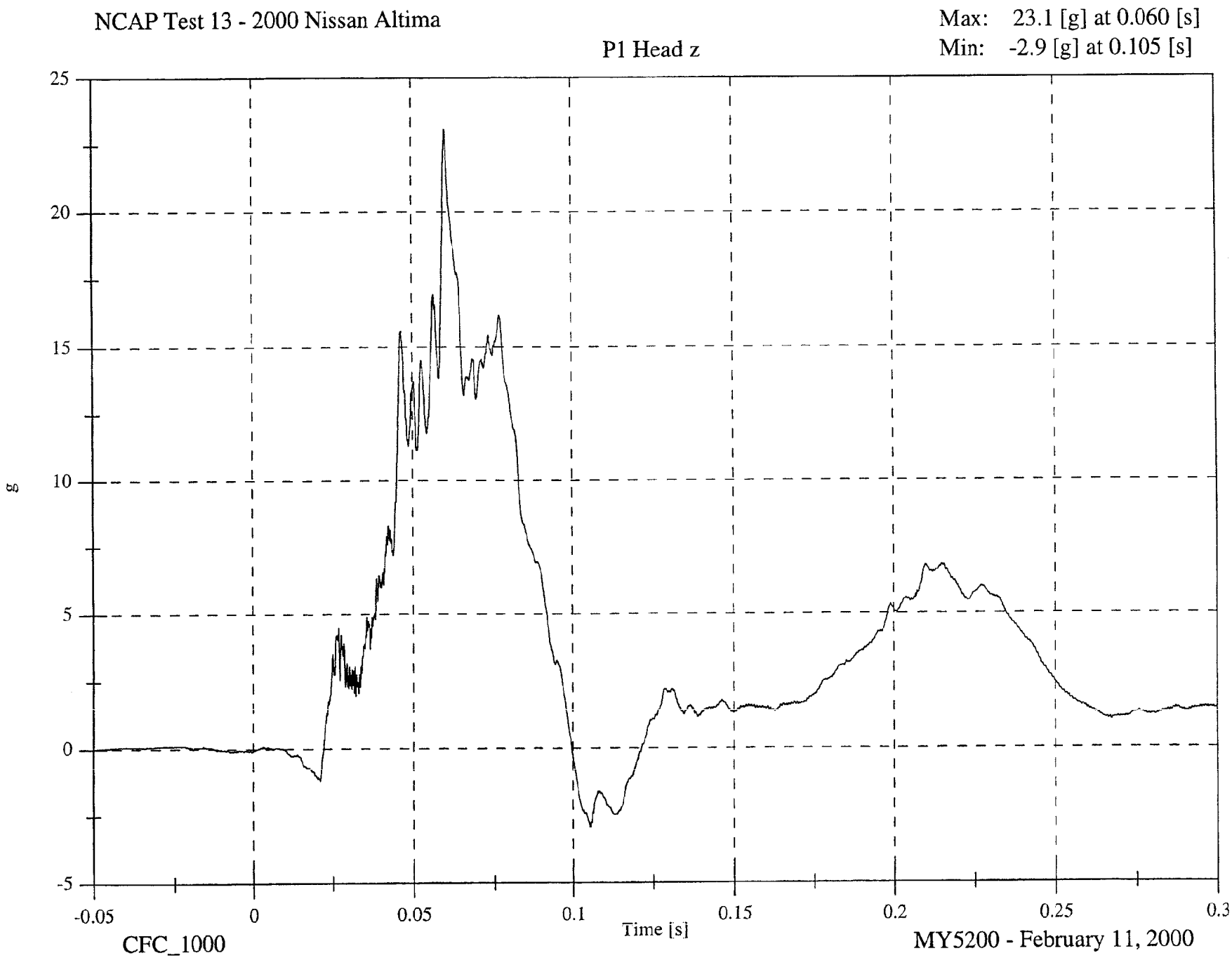
DATA CHANNEL FILTER CLASS SUMMARY

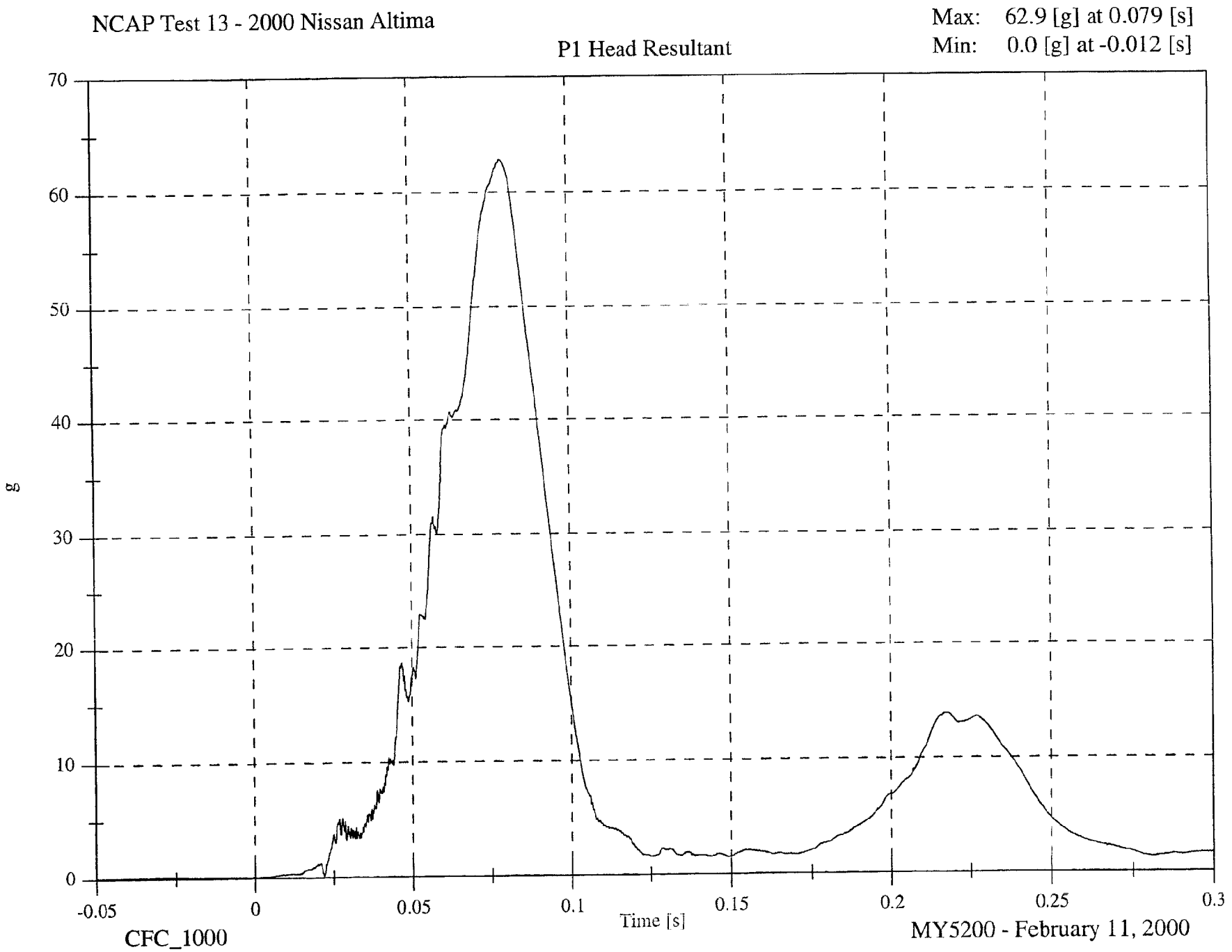
NHTSA TEST NO. MY5200

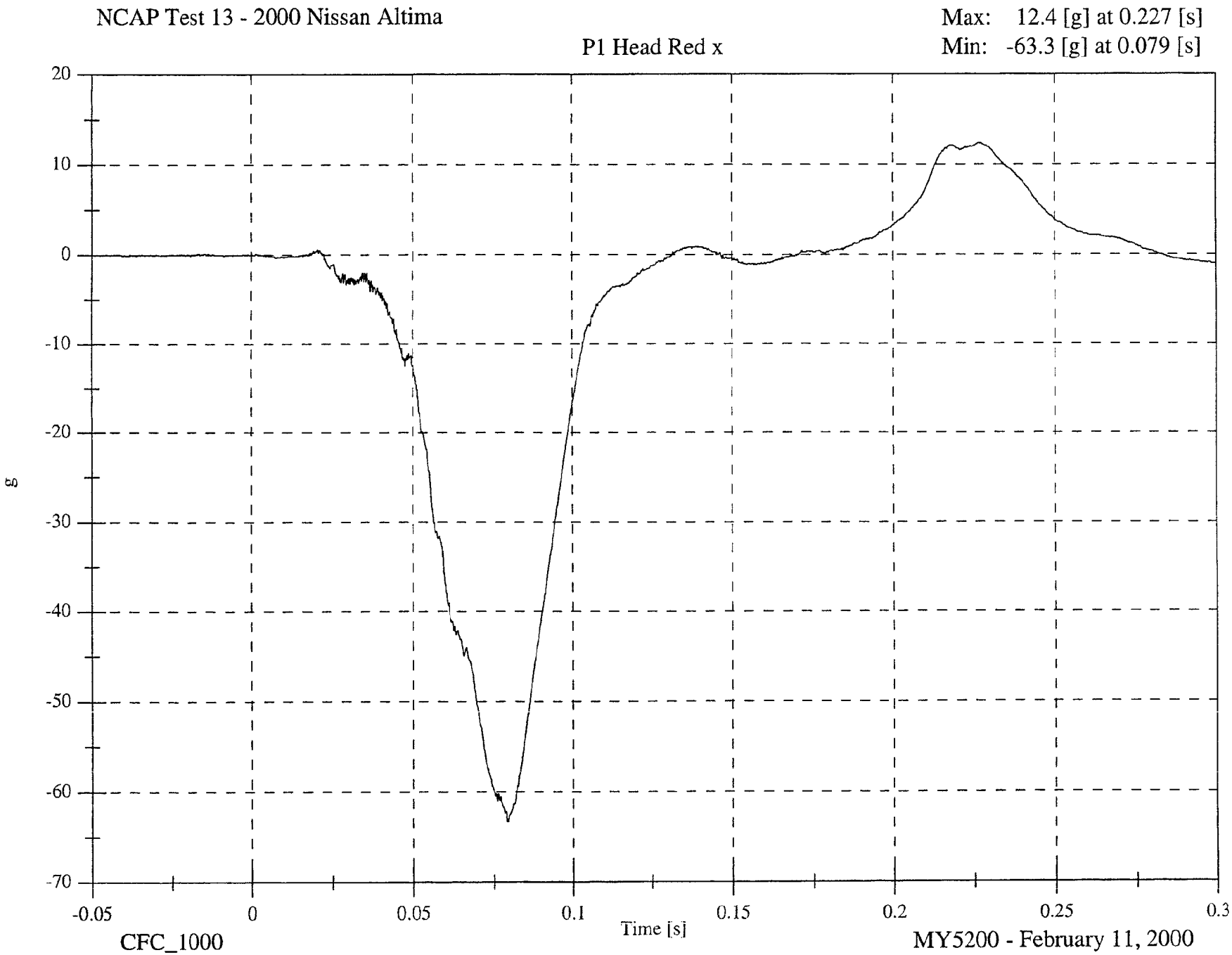
DATA TYPE	SAE FILTER CLASS (Hz)
Dummy Head Accelerations	1000
Dummy Chest Accelerations	180
Dummy Chest Displacements	60
Dummy Femur Forces	600
Dummy Belt Loads	60
Dummy Belt Displacements	180
Dummy Neck Forces	1000
Dummy Neck Moments	600
Vehicle Accelerations	60
Vehicle Velocity Integrations	180
Vehicle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

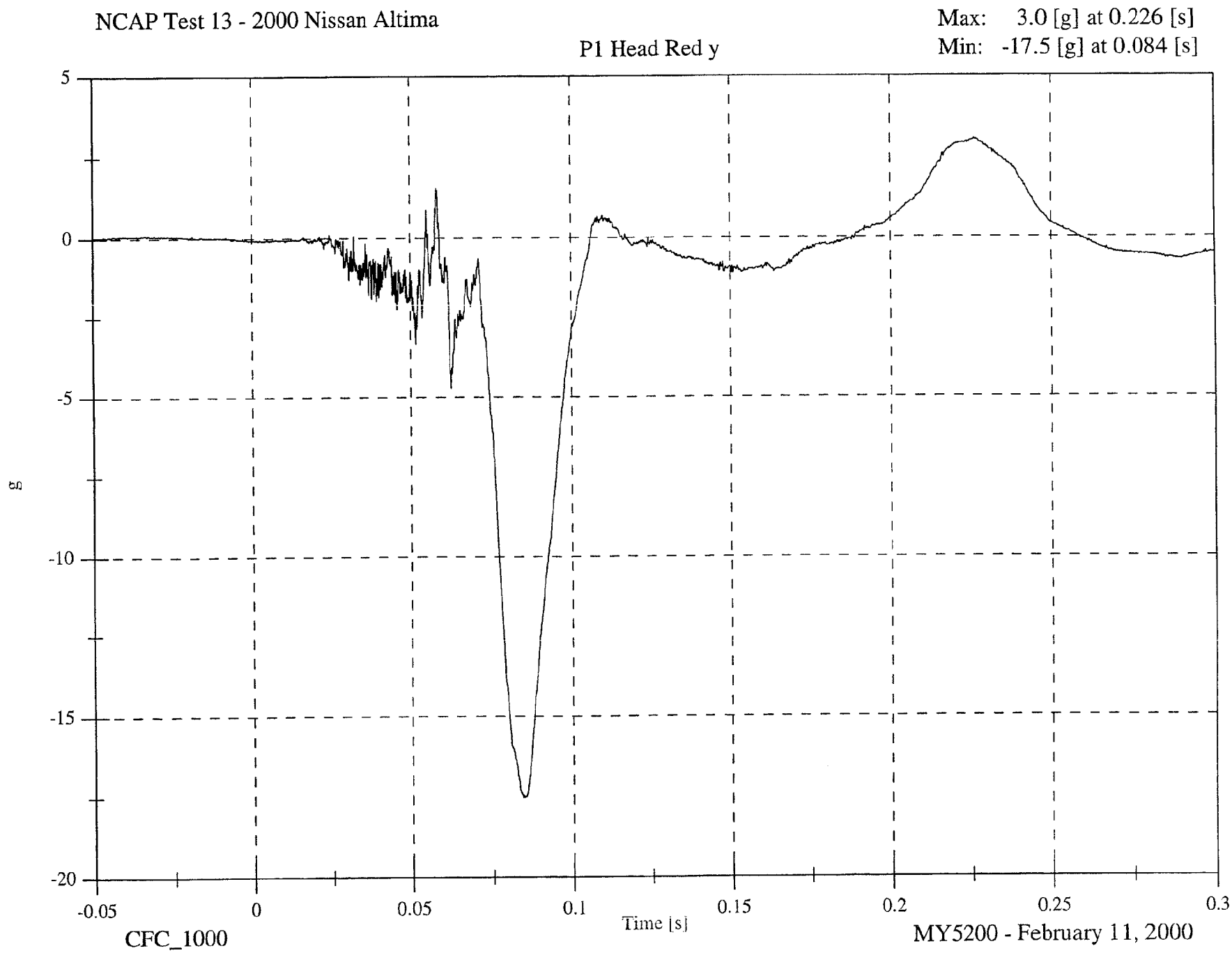

NCAP Test 13 - 2000 Nissan Altima
P1 Head x
Max: 12.1 [g] at 0.218 [s]
Min: -60.4 [g] at 0.079 [s]
20
10
0
-10
-20
-30
-40
-50
-60
-70
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

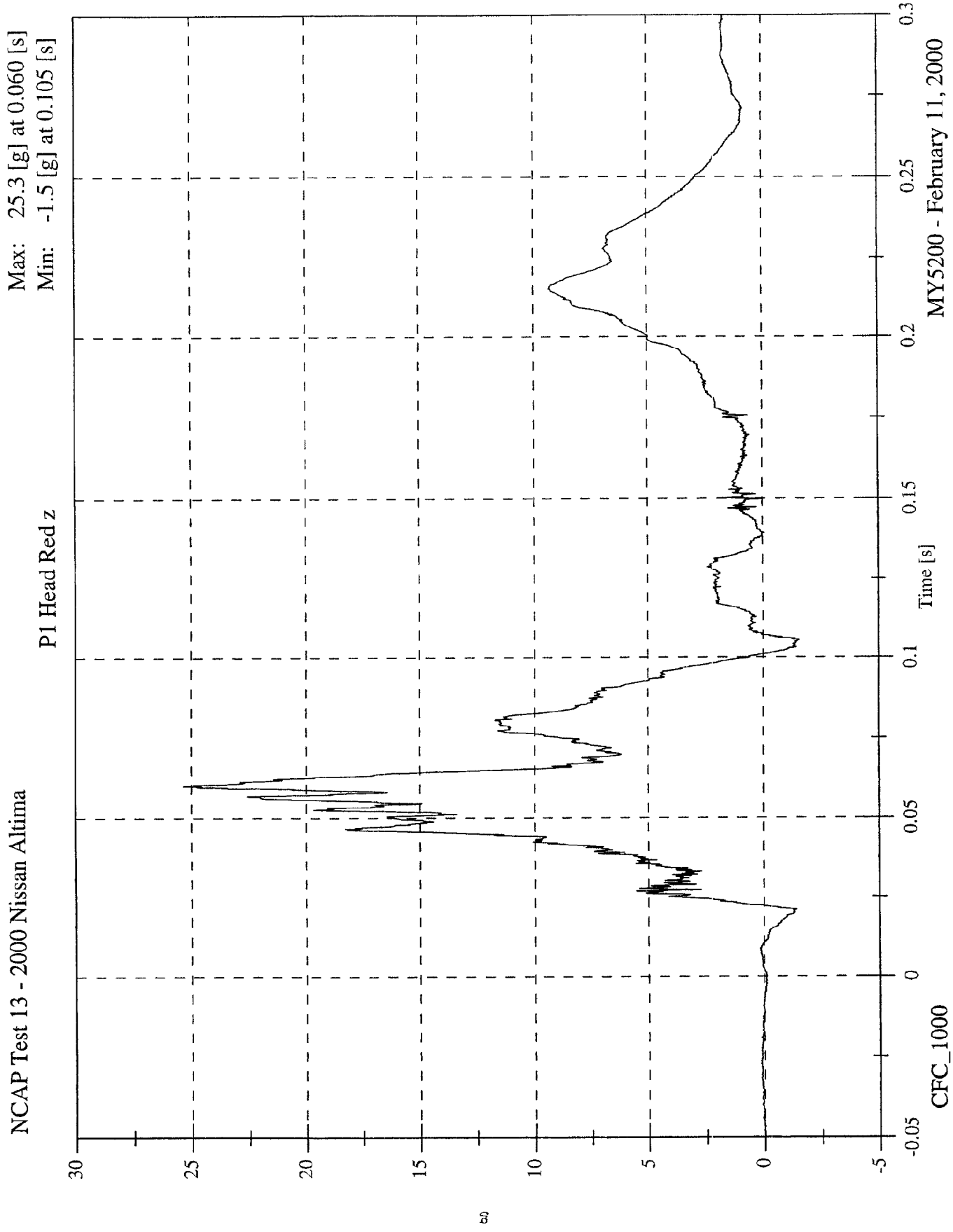

NCAP Test 13 - 2000 Nissan Altima
P1 Head y
Max: 2.2 [g] at 0.217 [s]
Min: -13.8 [g] at 0.085 [s]
2.5
0
-2.5
-5
-7.5
-10
-12.5
-15
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

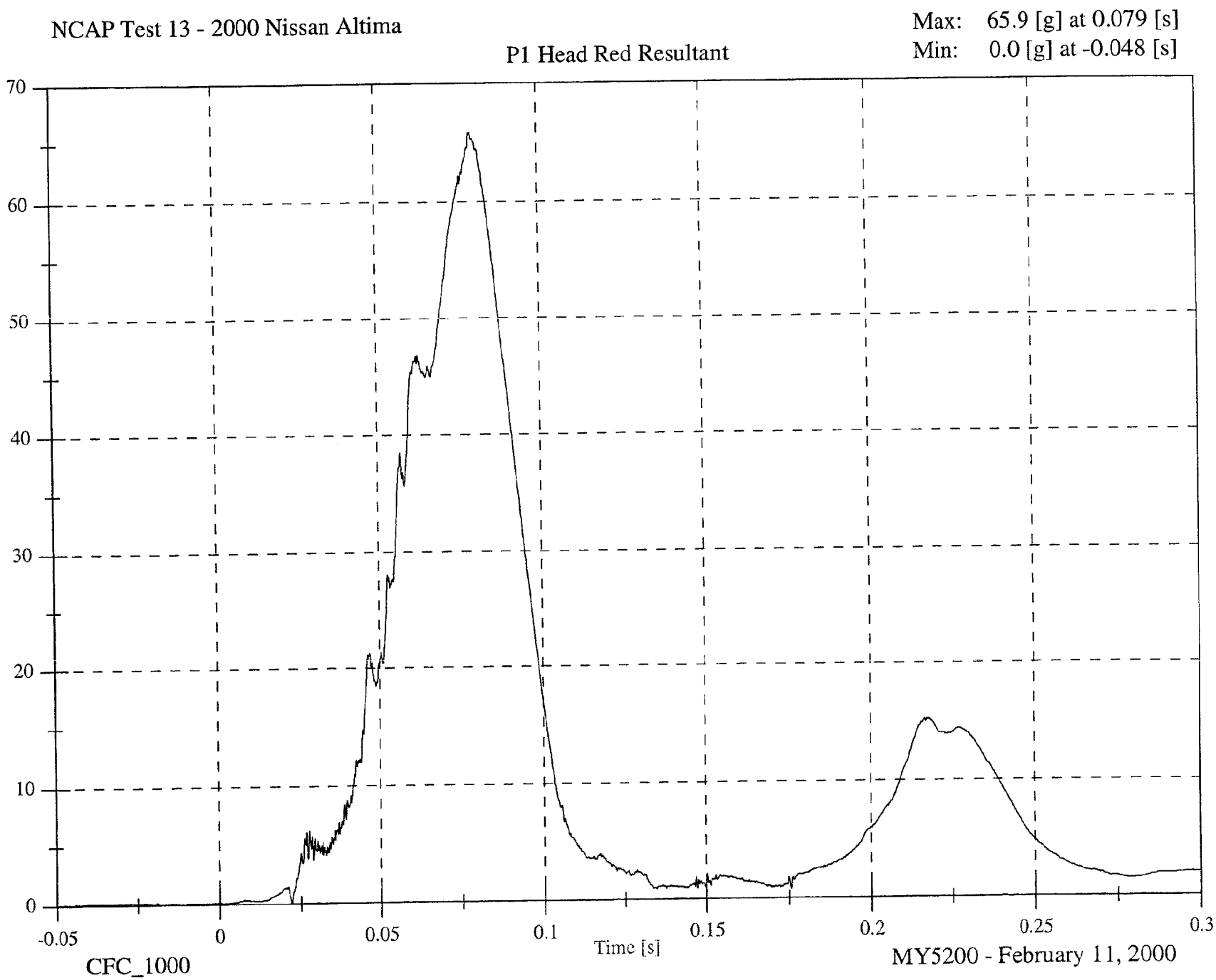

NCAP Test 13 - 2000 Nissan Altima
P1 Head z
Max: 23.1 [g] at 0.060 [s]
Min: -2.9 [g] at 0.105 [s]
25
20
15
10
5
0
-5
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

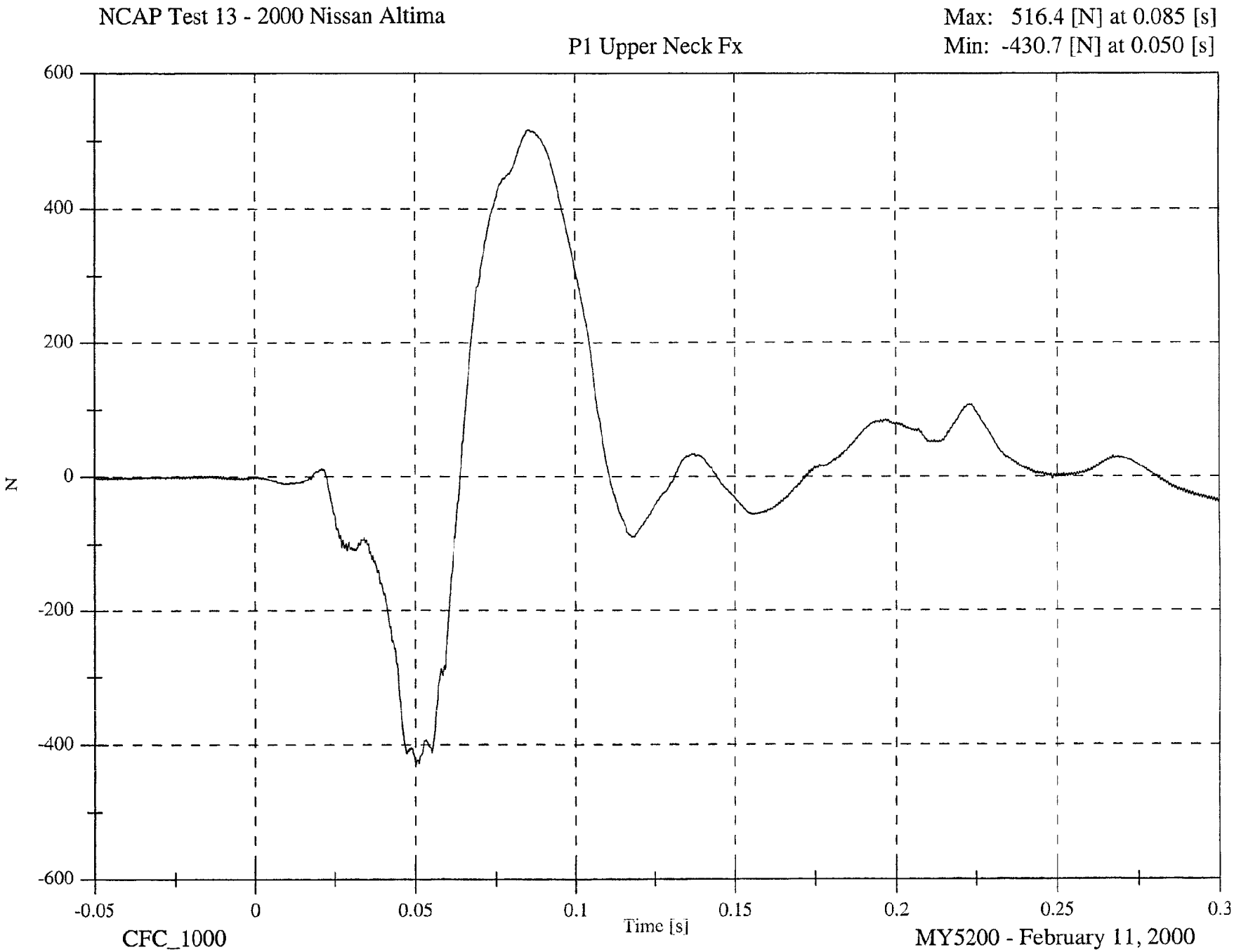

NCAP Test 13 - 2000 Nissan Altima
P1 Head Resultant
Max: 62.9 [g] at 0.079 [s]
Min: 0.0 [g] at -0.012 [s]
70
60
50
40
30
20
10
0
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

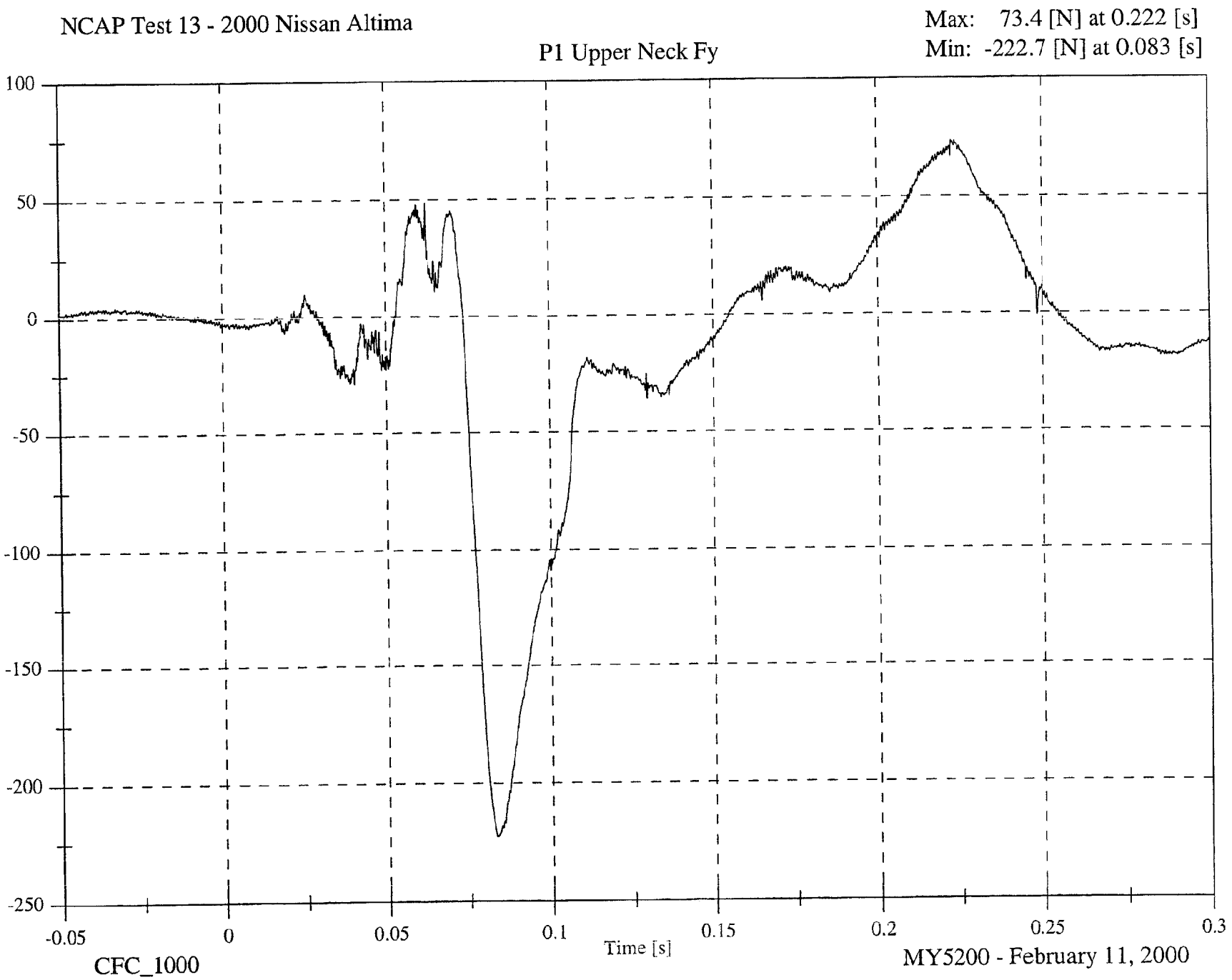

NCAP Test 13 - 2000 Nissan Altima
P1 Head Red x
Max: 12.4 [g] at 0.227 [s]
Min: -63.3 [g] at 0.079 [s]
20
10
0
-10
-20
-30
-40
-50
-60
-70
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

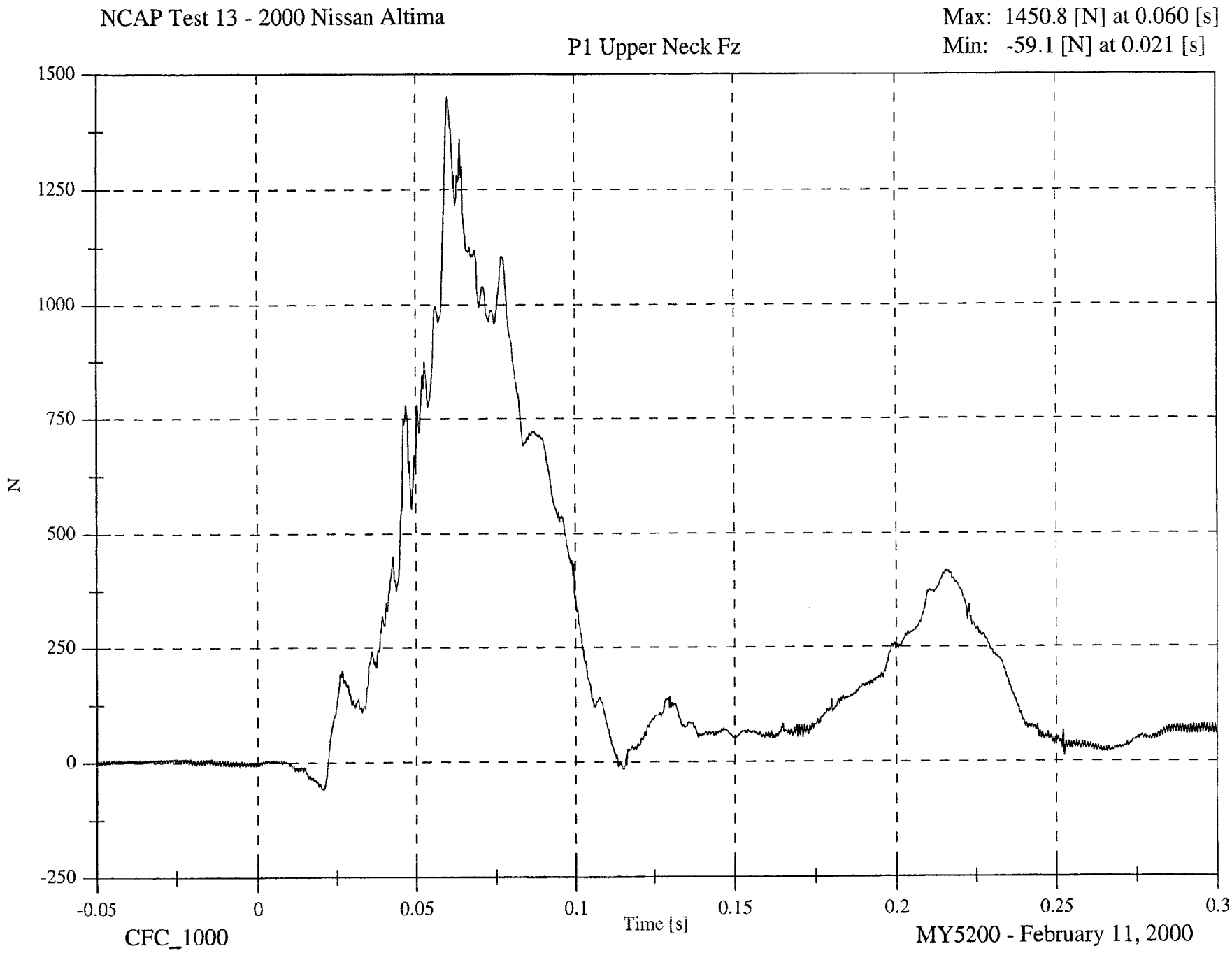

NCAP Test 13 - 2000 Nissan Altima
P1 Head Red y
Max: 3.0 [g] at 0.226 [s]
Min: -17.5 [g] at 0.084 [s]
5
0
-5
-10
-15
-20
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

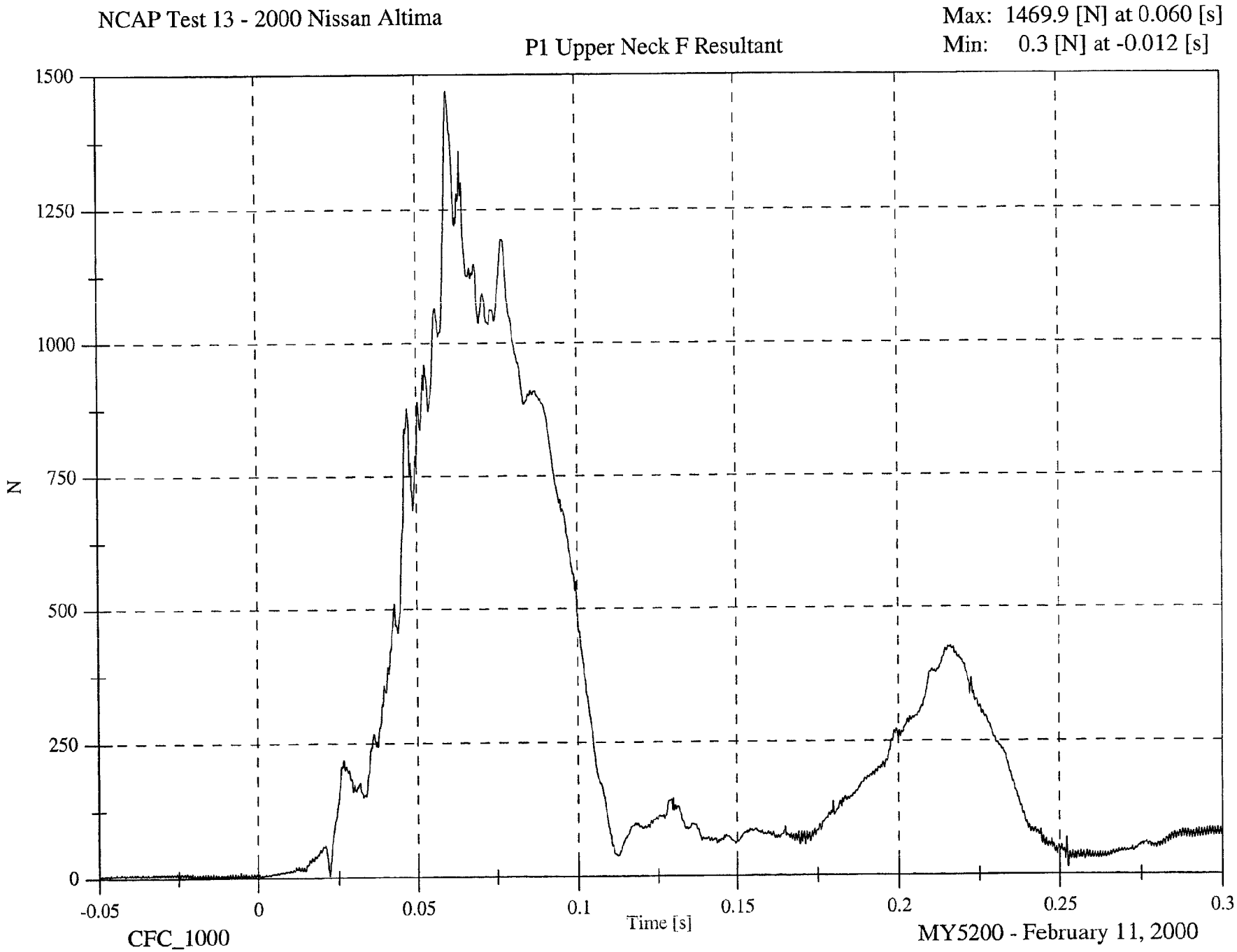

NCAP Test 13 - 2000 Nissan Altima
Max: 25.3 [g] at 0.060 [s]
Min: -1.5 [g] at 0.105 [s]
P1 Head Red z
MY5200 - February 11, 2000
CFC_1000
Time [s]
g
30
25
20
15
10
5
0
-5
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3

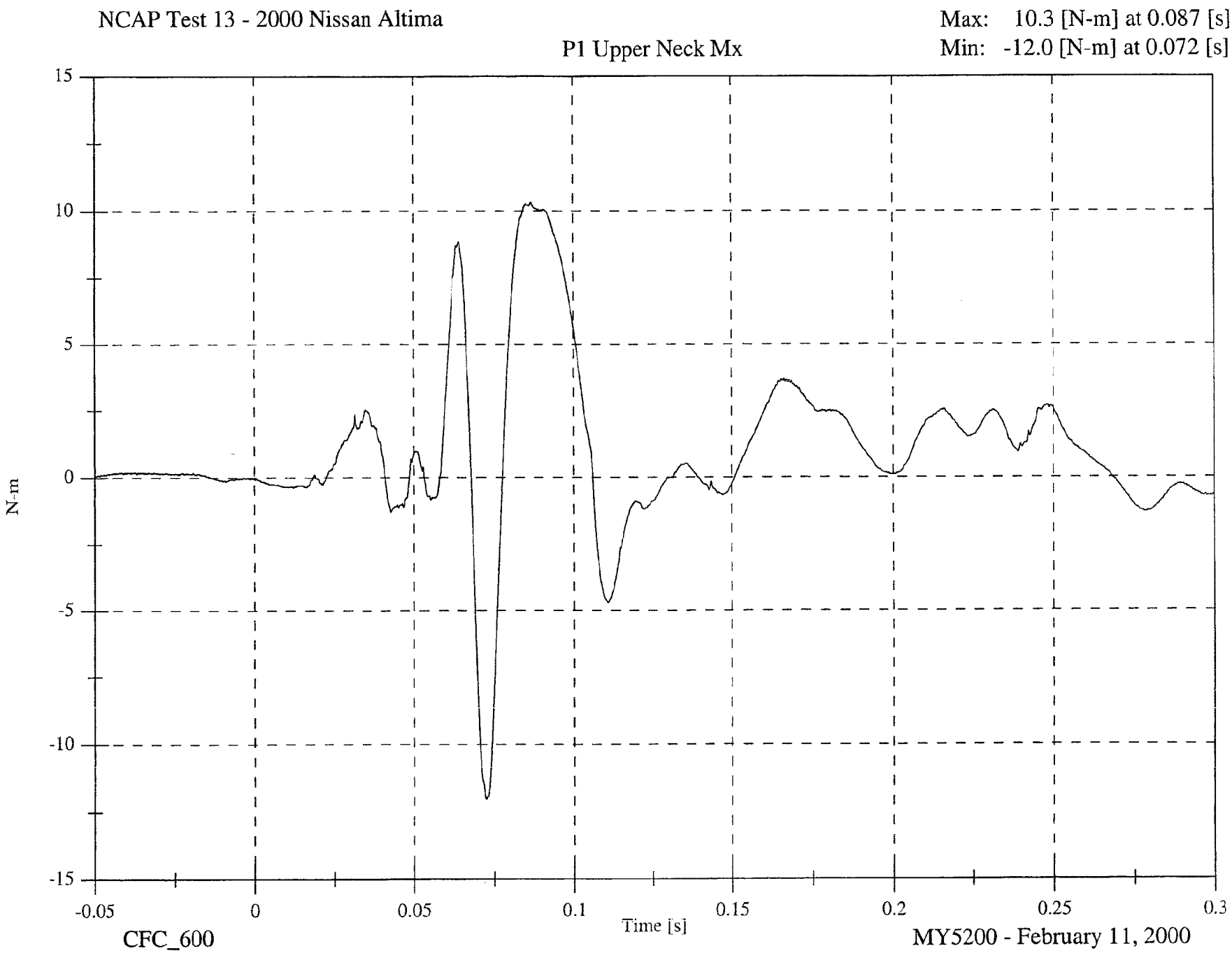

NCAP Test 13 - 2000 Nissan Altima
P1 Head Red Resultant
Max: 65.9 [g] at 0.079 [s]
Min: 0.0 [g] at -0.048 [s]
70
60
50
40
30
20
10
0
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

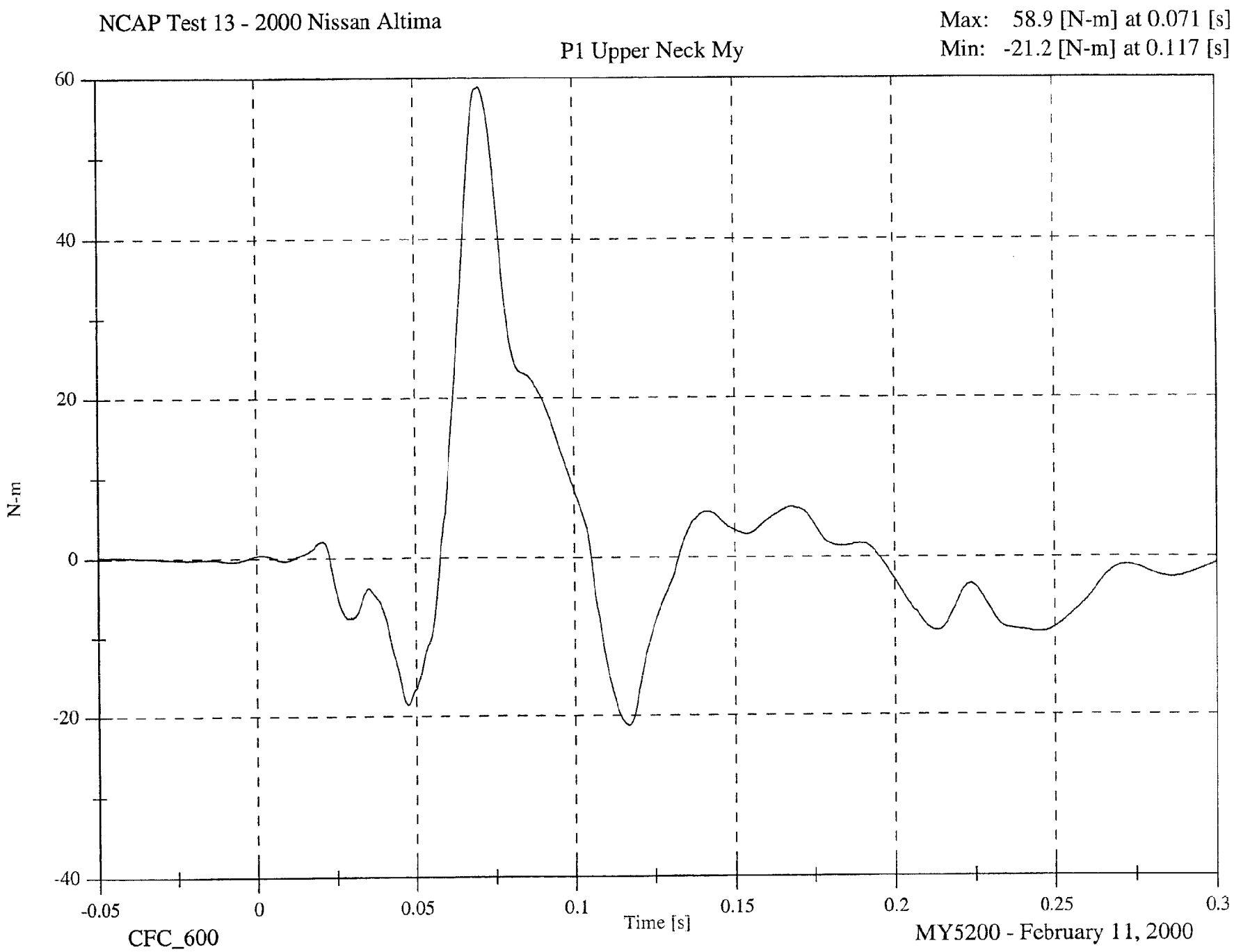

NCAP Test 13 - 2000 Nissan Altima
P1 Upper Neck Fx
Max: 516.4 [N] at 0.085 [s]
Min: -430.7 [N] at 0.050 [s]
600
400
200
0
-200
-400
-600
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

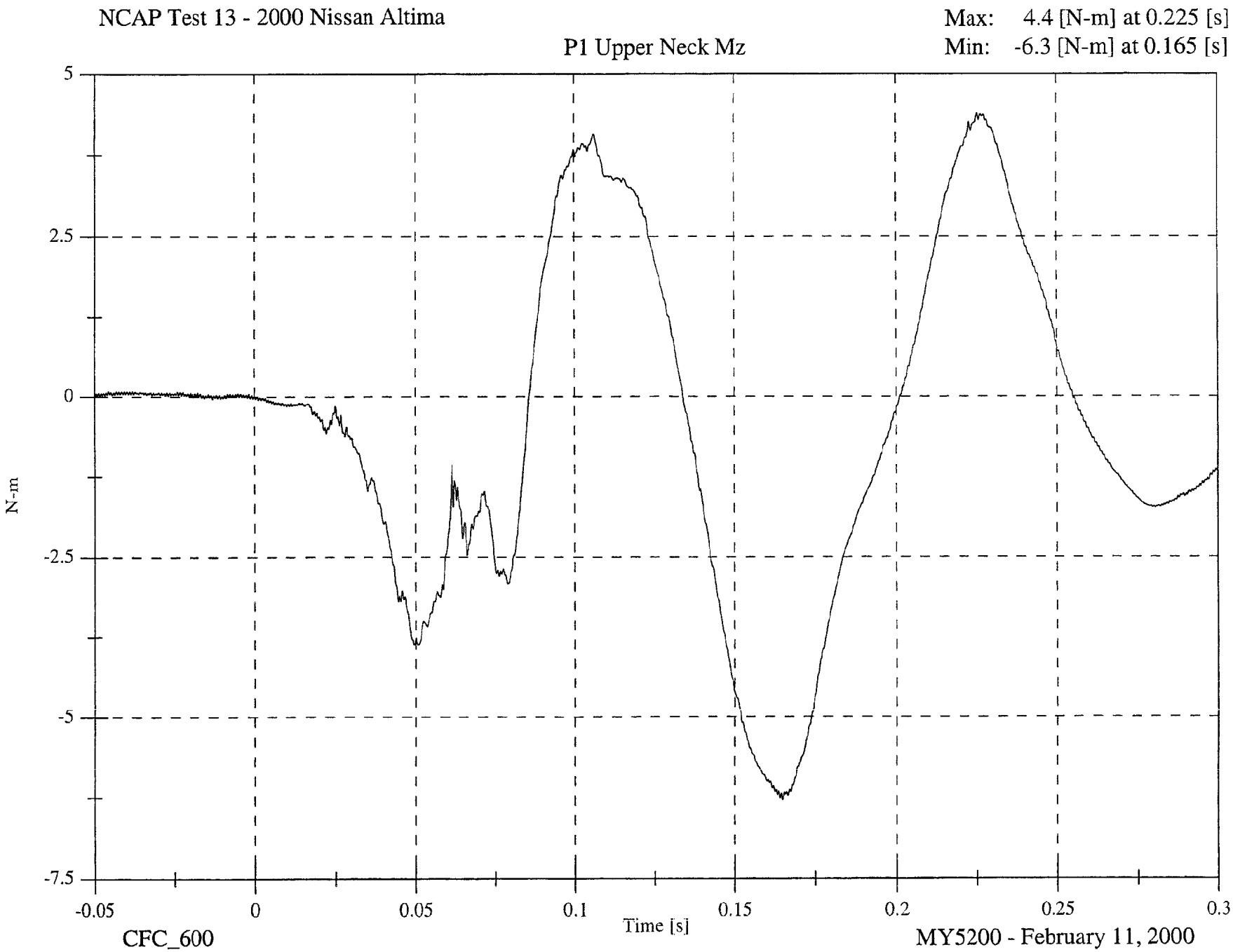

NCAP Test 13 - 2000 Nissan Altima
P1 Upper Neck Fy
Max: 73.4 [N] at 0.222 [s]
Min: -222.7 [N] at 0.083 [s]
100
50
0
-50
-100
-150
-200
-250
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

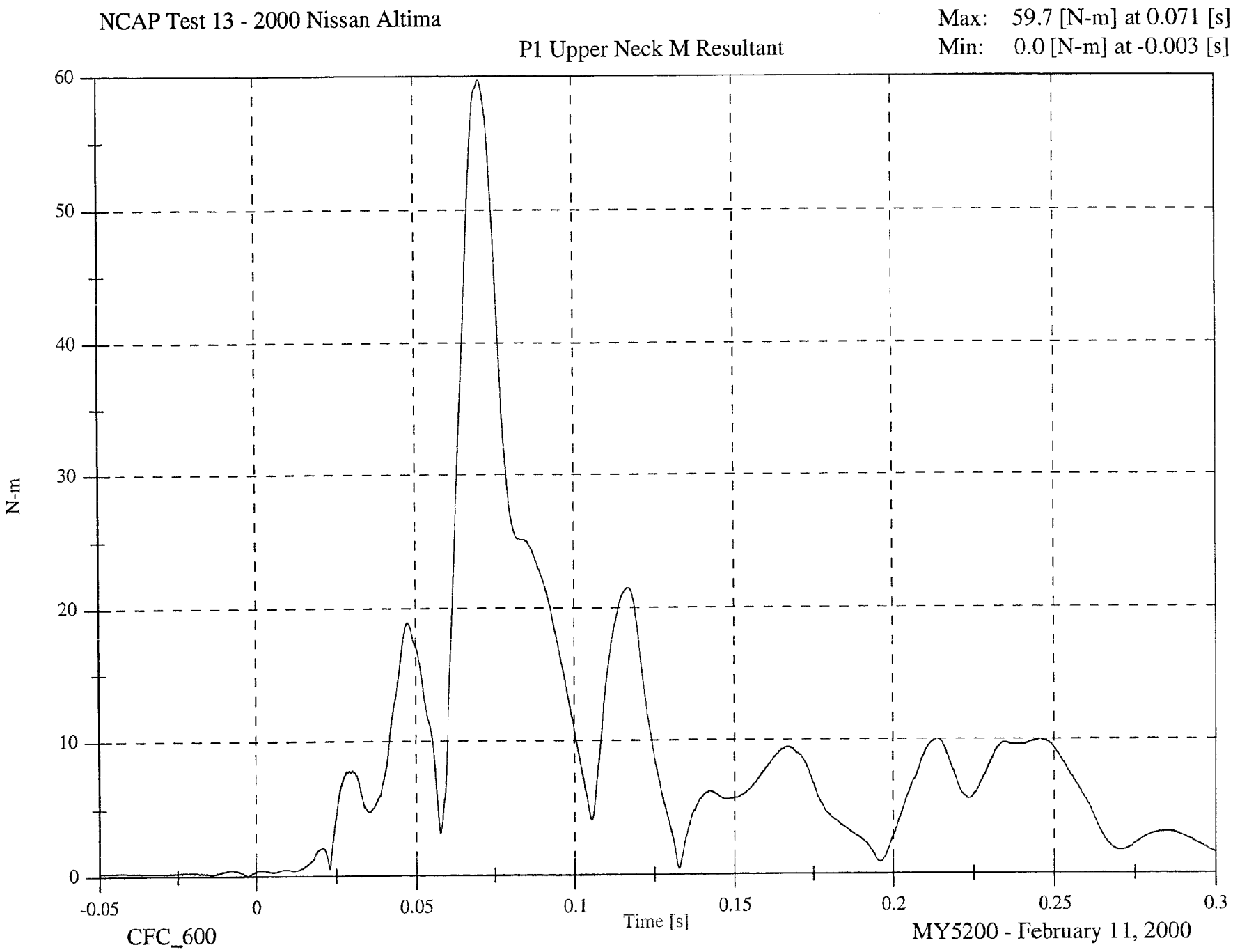

NCAP Test 13 - 2000 Nissan Altima
P1 Upper Neck Fz
Max: 1450.8 [N] at 0.060 [s]
Min: -59.1 [N] at 0.021 [s]
1500
1250
1000
750
500
250
0
-250
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

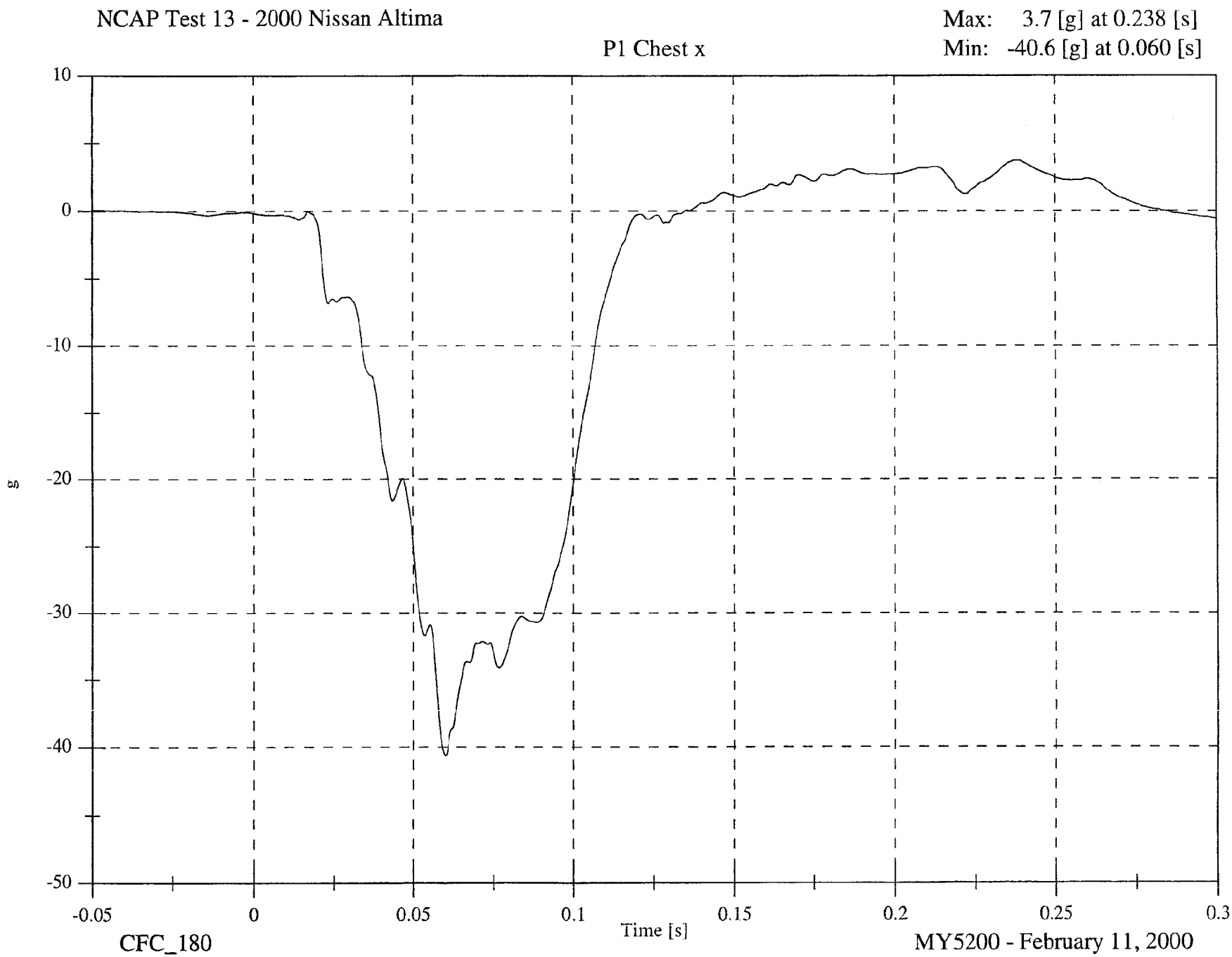

NCAP Test 13 - 2000 Nissan Altima
P1 Upper Neck F Resultant
Max: 1469.9 [N] at 0.060 [s]
Min: 0.3 [N] at -0.012 [s]
1500
1250
1000
750
500
250
0
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

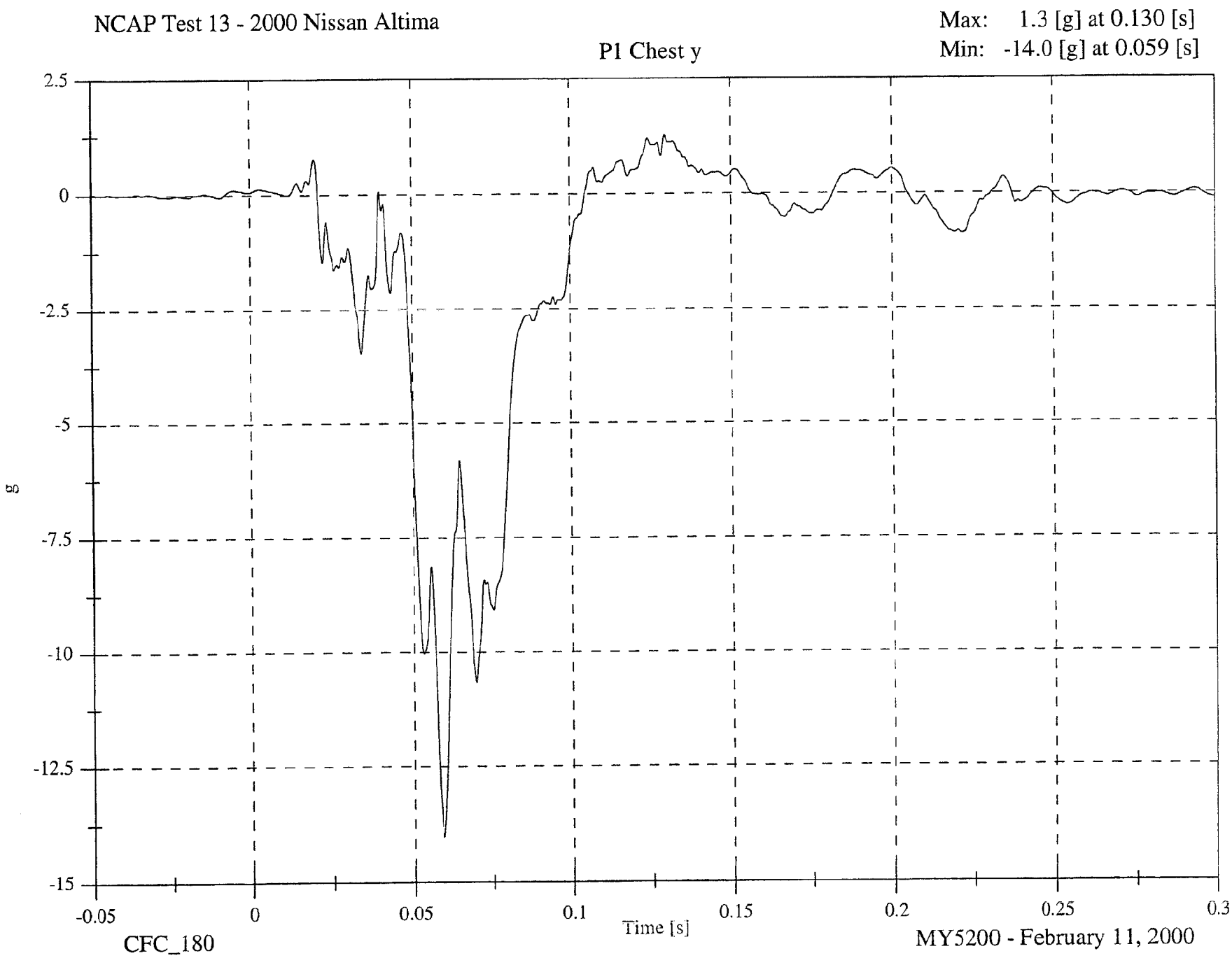

NCAP Test 13 - 2000 Nissan Altima
P1 Upper Neck Mx
Max: 10.3 [N-m] at 0.087 [s]
Min: -12.0 [N-m] at 0.072 [s]
15
10
5
0
-5
-10
-15
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

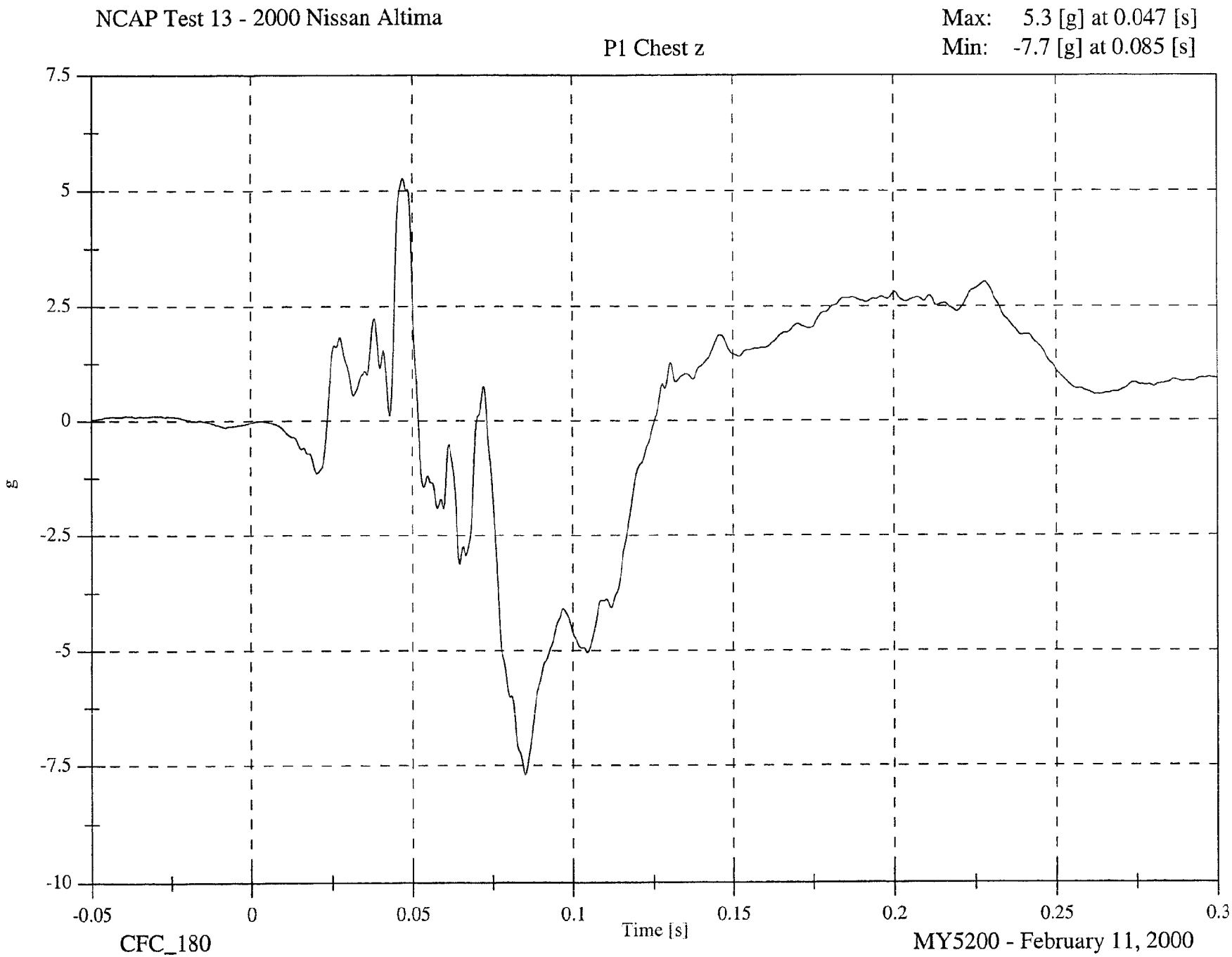

NCAP Test 13 - 2000 Nissan Altima
P1 Upper Neck My
Max: 58.9 [N-m] at 0.071 [s]
Min: -21.2 [N-m] at 0.117 [s]
60
40
20
0
-20
-40
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

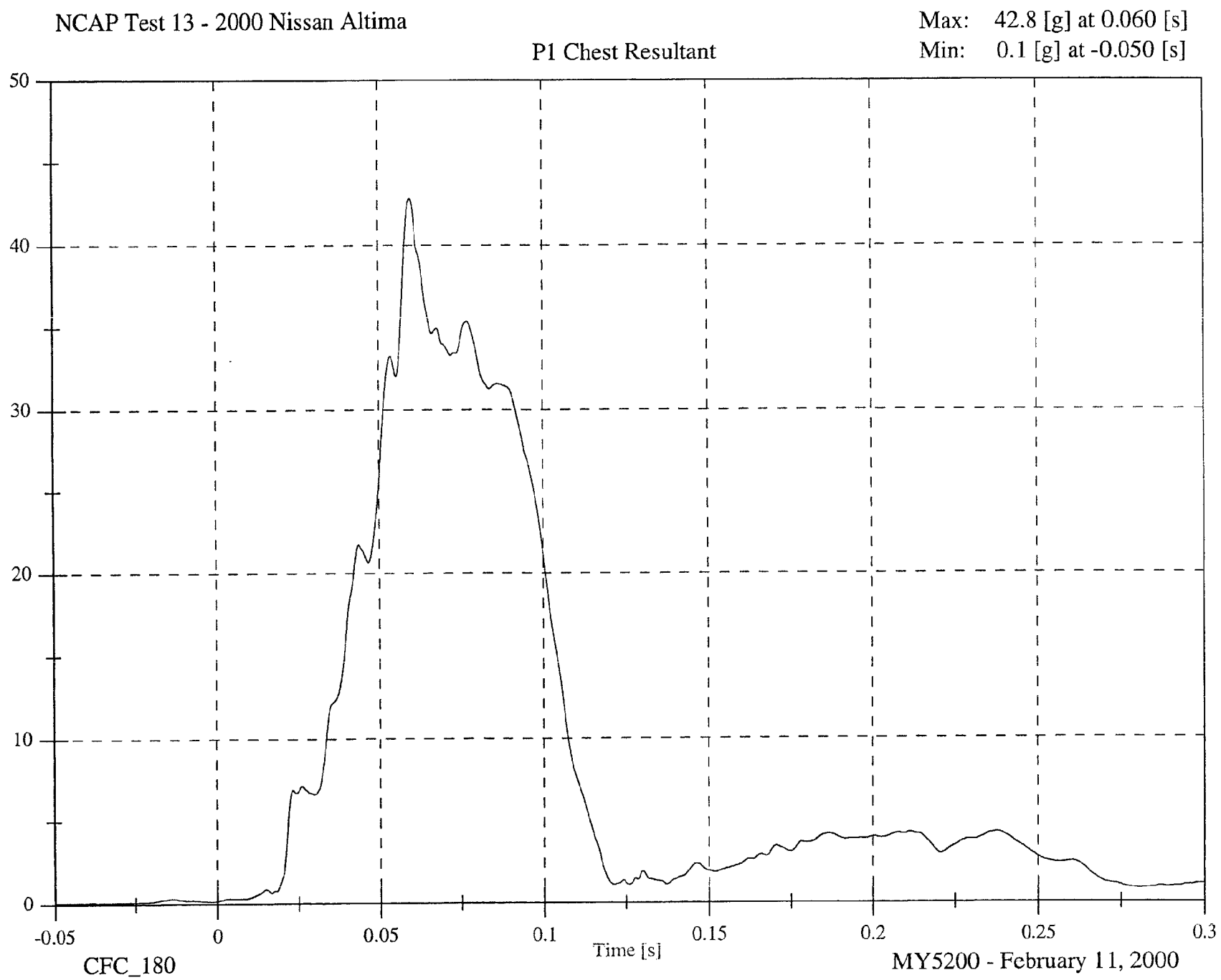

NCAP Test 13 - 2000 Nissan Altima
P1 Upper Neck Mz
Max: 4.4 [N-m] at 0.225 [s]
Min: -6.3 [N-m] at 0.165 [s]
5
2.5
0
-2.5
-5
-7.5
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

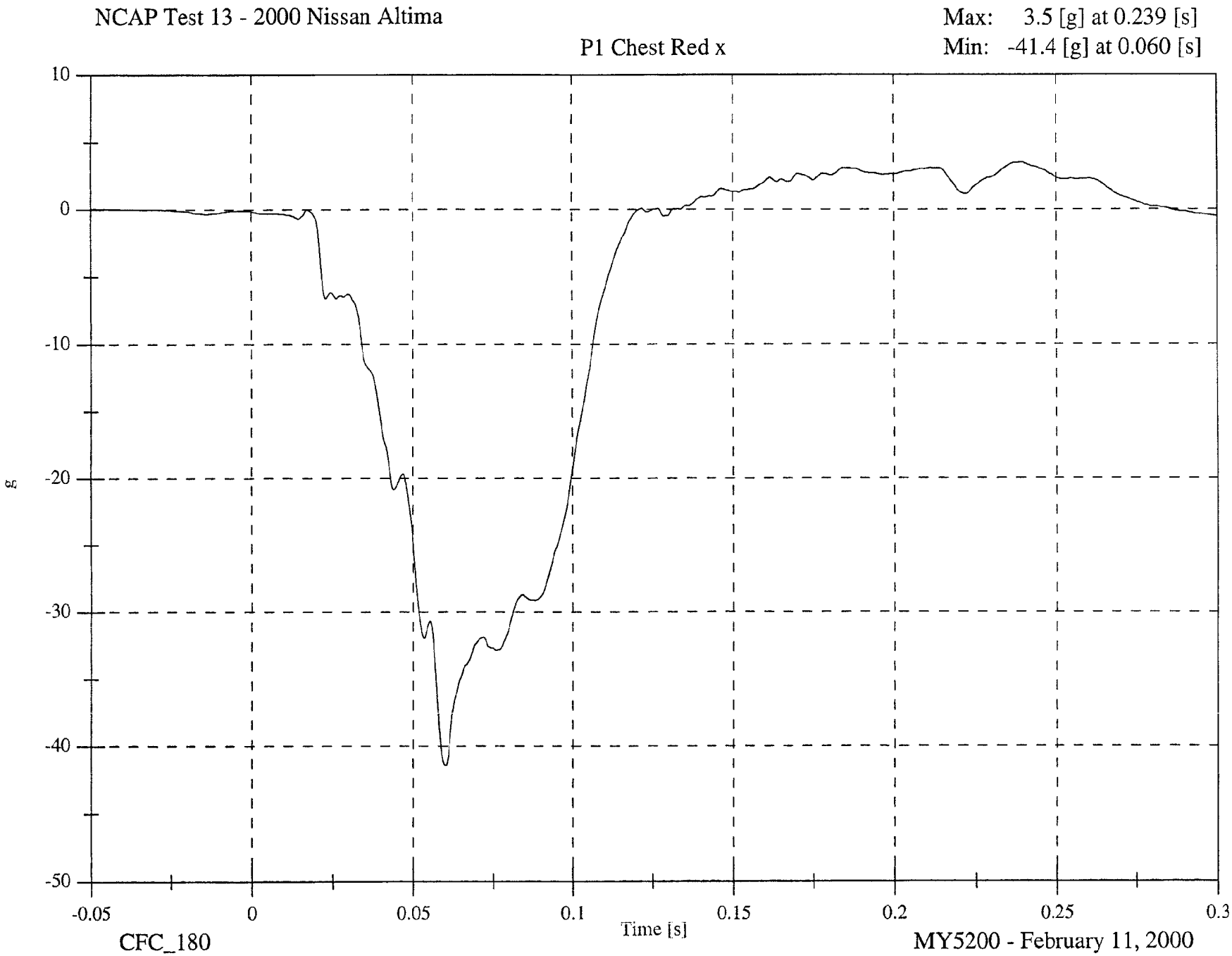

NCAP Test 13 - 2000 Nissan Altima
P1 Upper Neck M Resultant
Max: 59.7 [N-m] at 0.071 [s]
Min: 0.0 [N-m] at -0.003 [s]
N-m
60
50
40
30
20
10
0
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

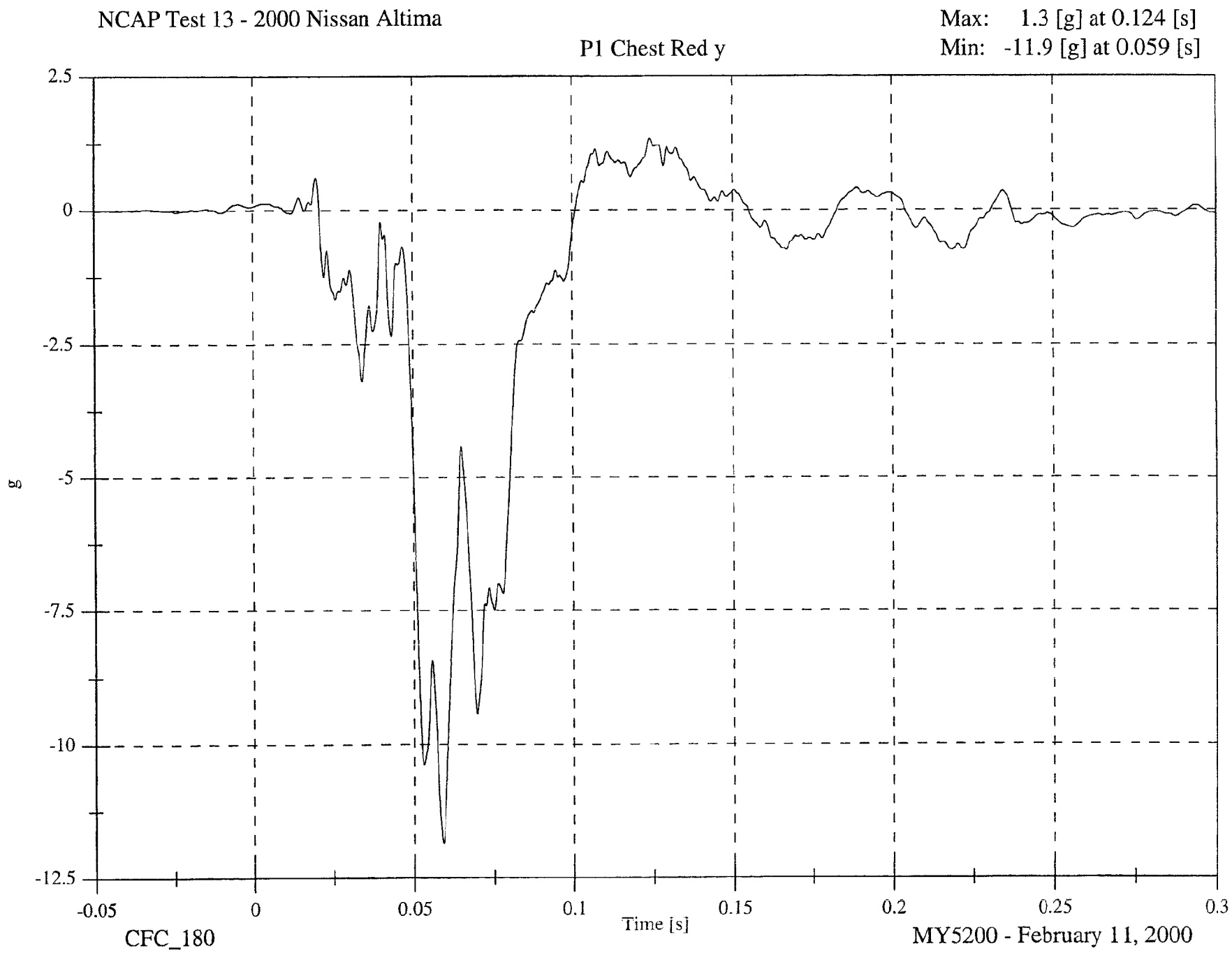

NCAP Test 13 - 2000 Nissan Altima
P1 Chest x
Max: 3.7 [g] at 0.238 [s]
Min: -40.6 [g] at 0.060 [s]
10
0
-10
-20
-30
-40
-50
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

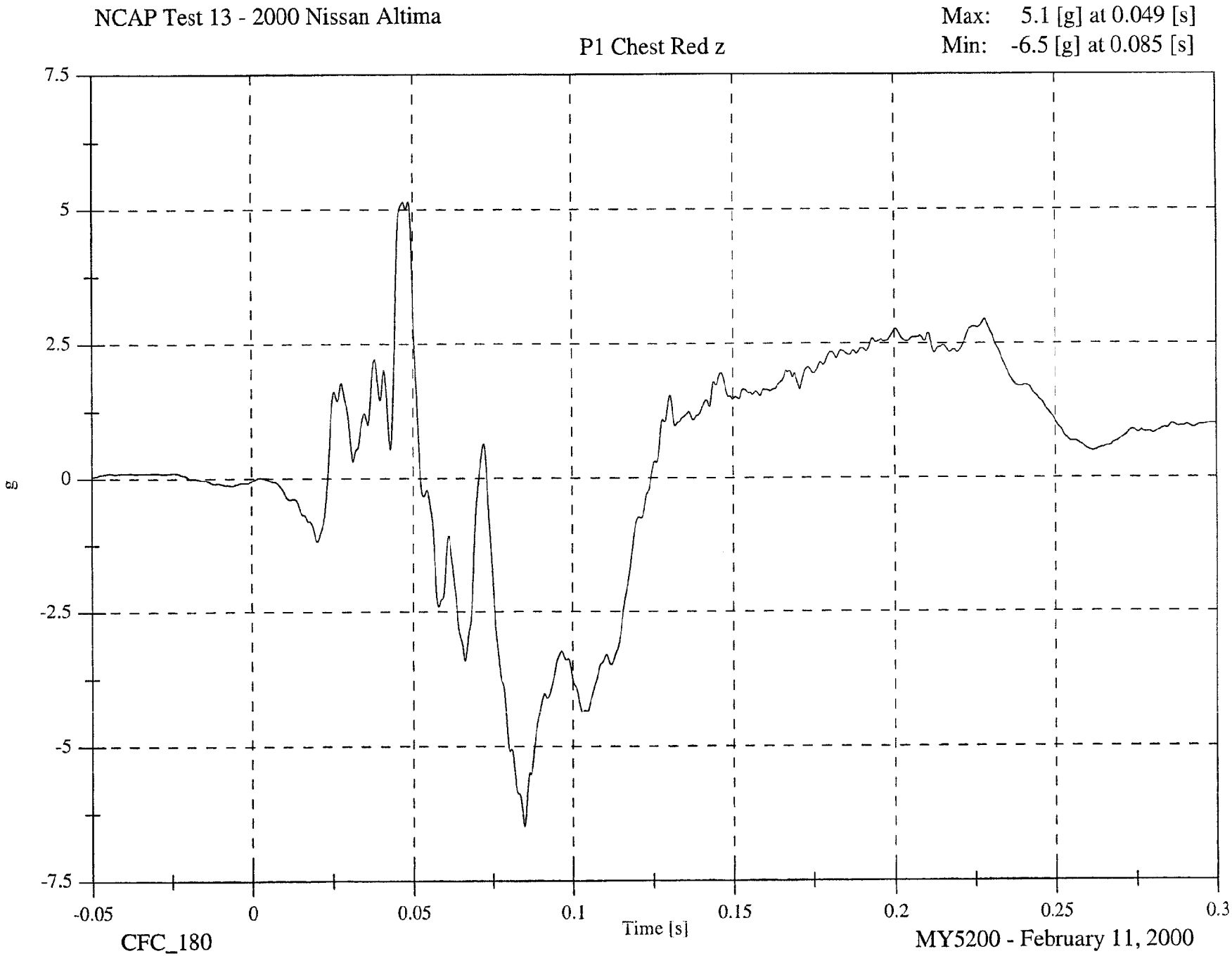

NCAP Test 13 - 2000 Nissan Altima
P1 Chest y
Max: 1.3 [g] at 0.130 [s]
Min: -14.0 [g] at 0.059 [s]
2.5
0
-2.5
-5
-7.5
-10
-12.5
-15
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

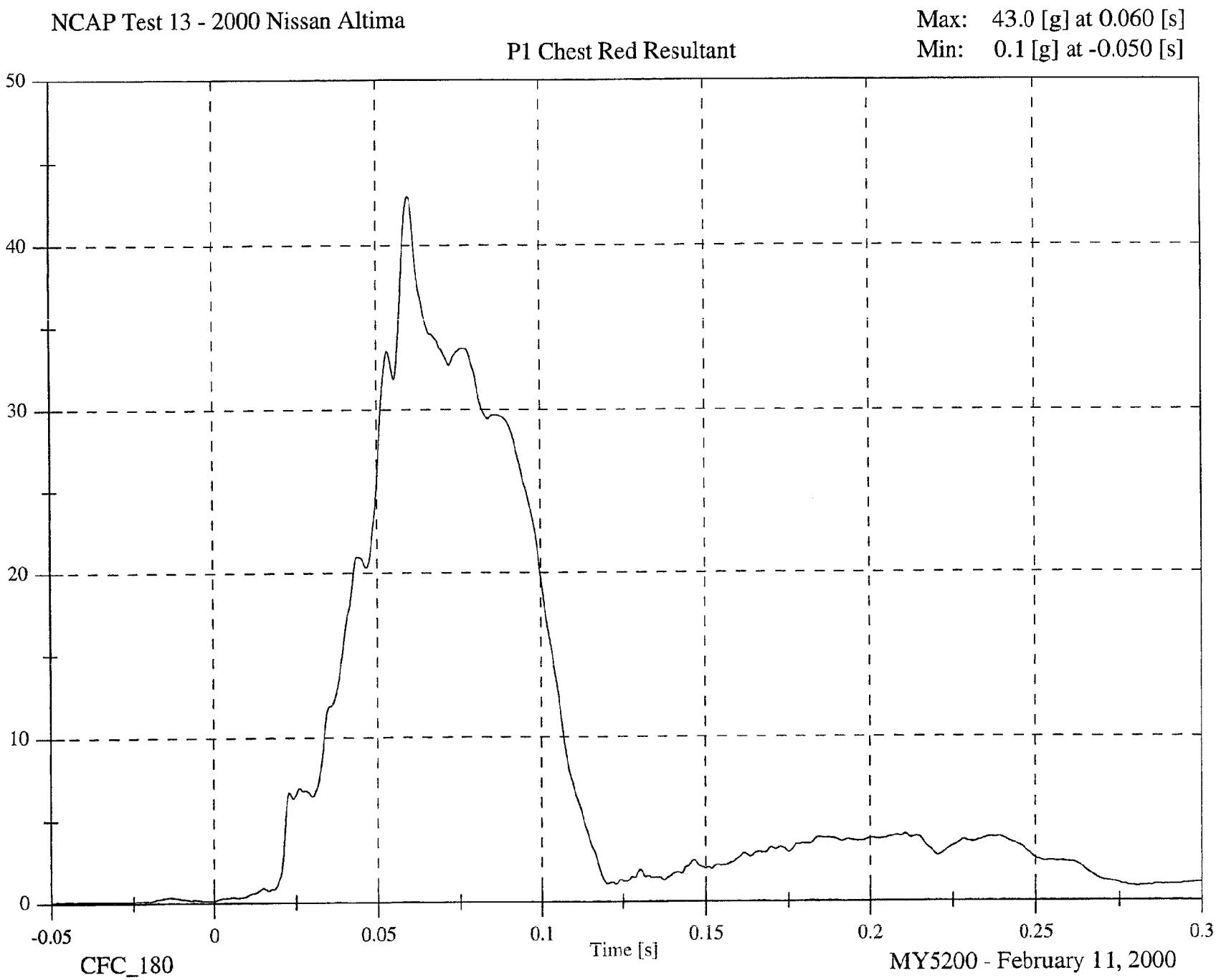

NCAP Test 13 - 2000 Nissan Altima
P1 Chest z
Max: 5.3 [g] at 0.047 [s]
Min: -7.7 [g] at 0.085 [s]
7.5
5
2.5
0
-2.5
-5
-7.5
-10
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

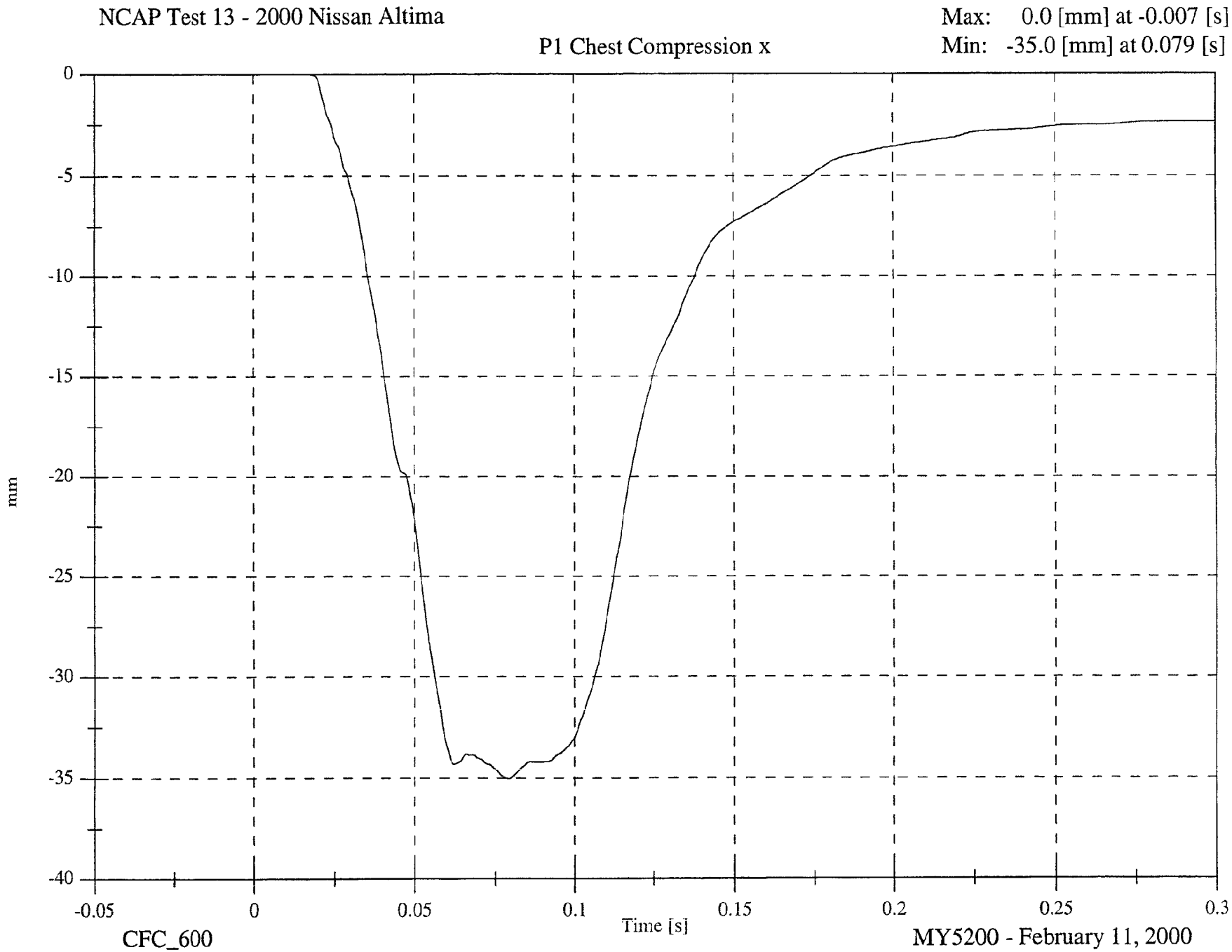

NCAP Test 13 - 2000 Nissan Altima
P1 Chest Resultant
Max: 42.8 [g] at 0.060 [s]
Min: 0.1 [g] at -0.050 [s]
50
40
30
20
10
0
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

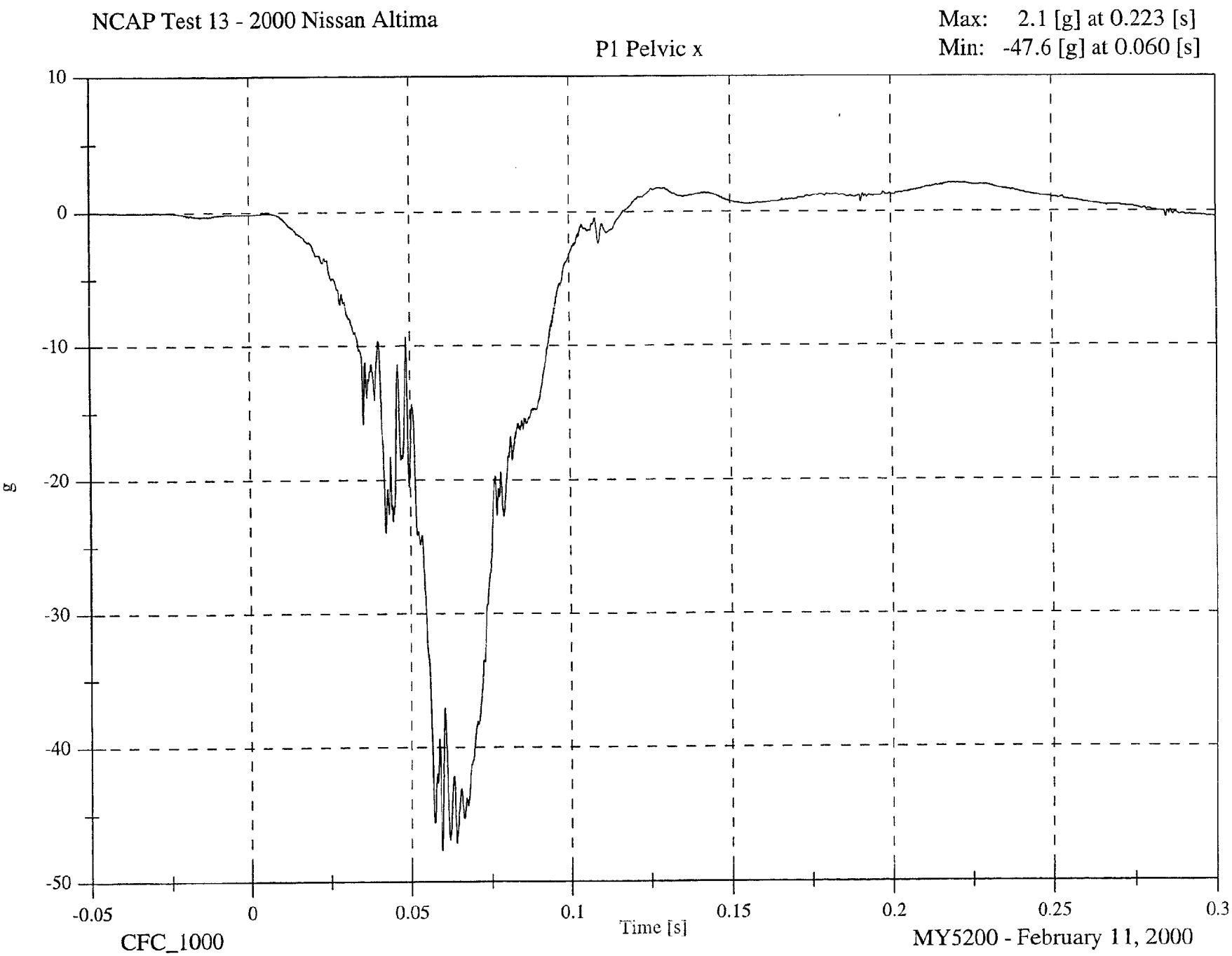

NCAP Test 13 - 2000 Nissan Altima
P1 Chest Red x
Max: 3.5 [g] at 0.239 [s]
Min: -41.4 [g] at 0.060 [s]
10
0
-10
-20
-30
-40
-50
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

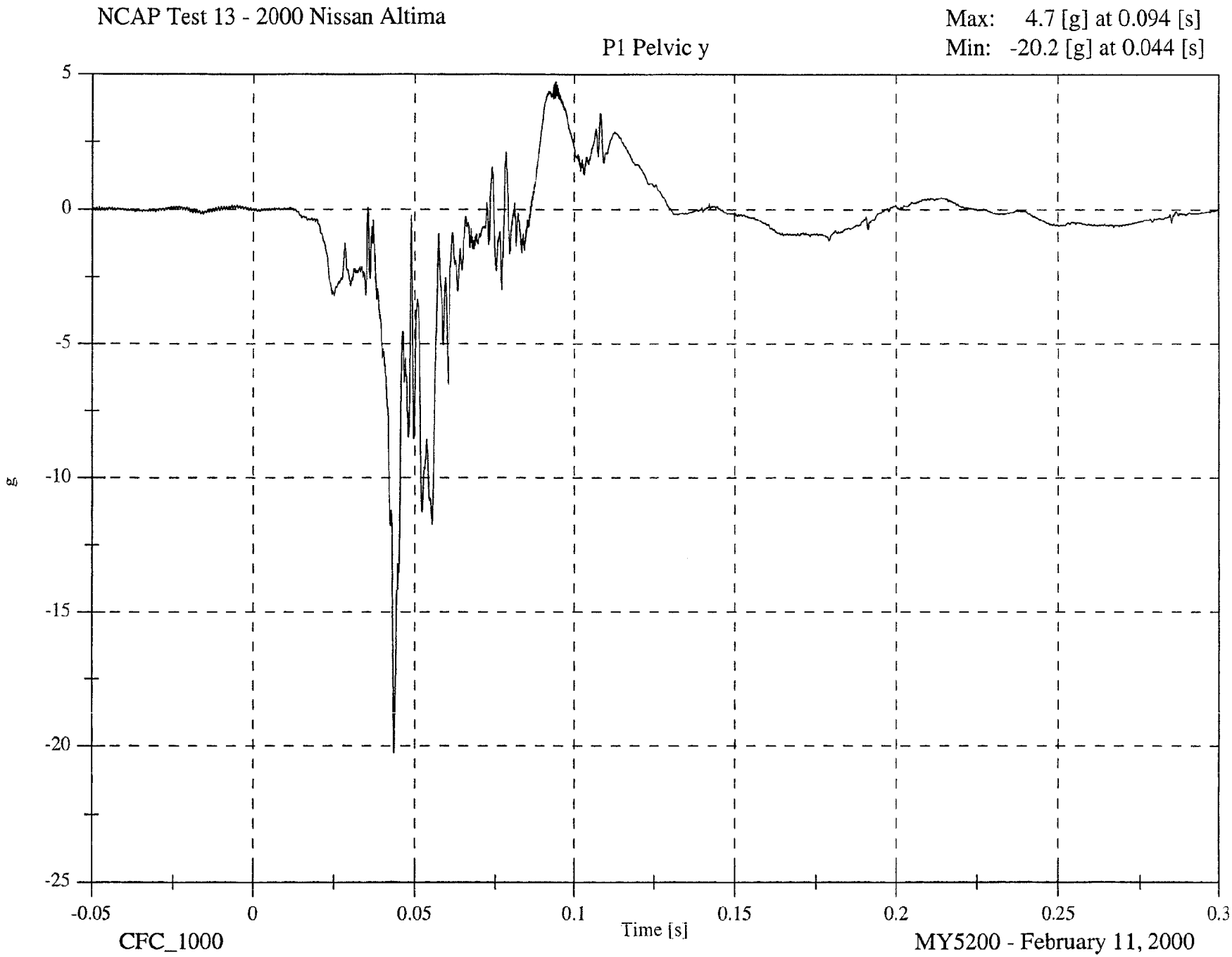

NCAP Test 13 - 2000 Nissan Altima
P1 Chest Red y
Max: 1.3 [g] at 0.124 [s]
Min: -11.9 [g] at 0.059 [s]
2.5
0
-2.5
-5
-7.5
-10
-12.5
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

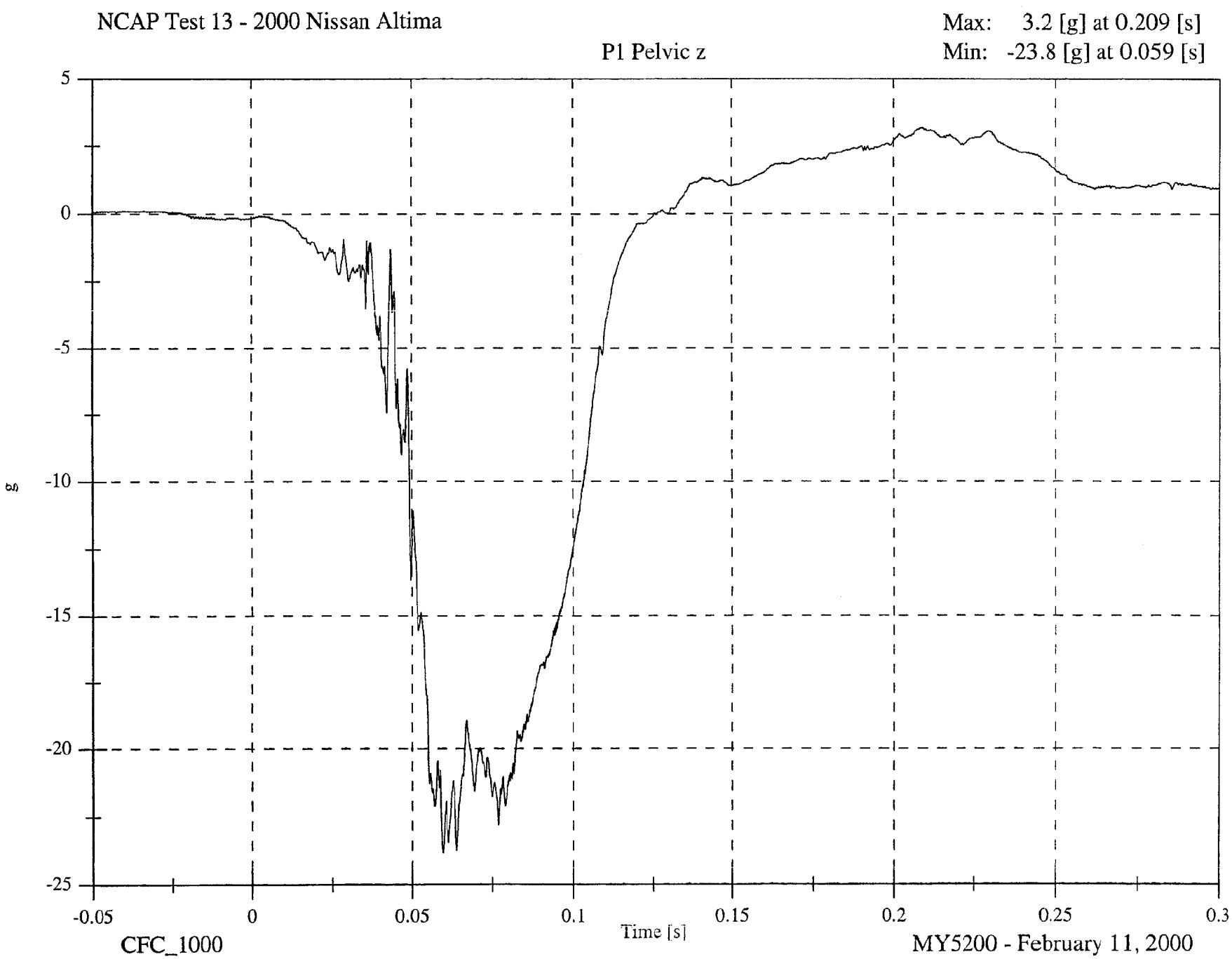

NCAP Test 13 - 2000 Nissan Altima
P1 Chest Red z
Max: 5.1 [g] at 0.049 [s]
Min: -6.5 [g] at 0.085 [s]
7.5
5
2.5
0
-2.5
-5
-7.5
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

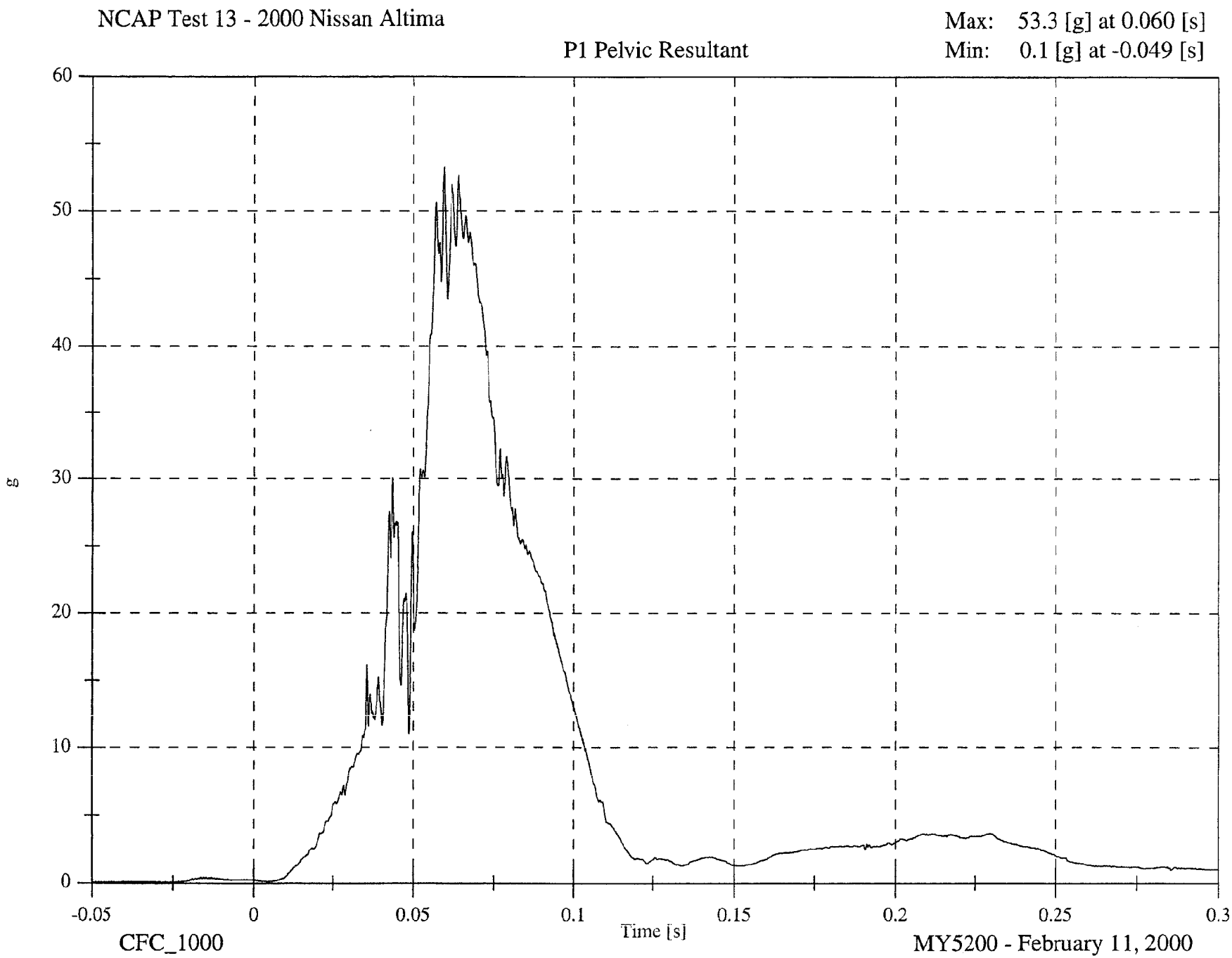

NCAP Test 13 - 2000 Nissan Altima
P1 Chest Red Resultant
Max: 43.0 [g] at 0.060 [s]
Min: 0.1 [g] at -0.050 [s]
50
40
30
20
10
0
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

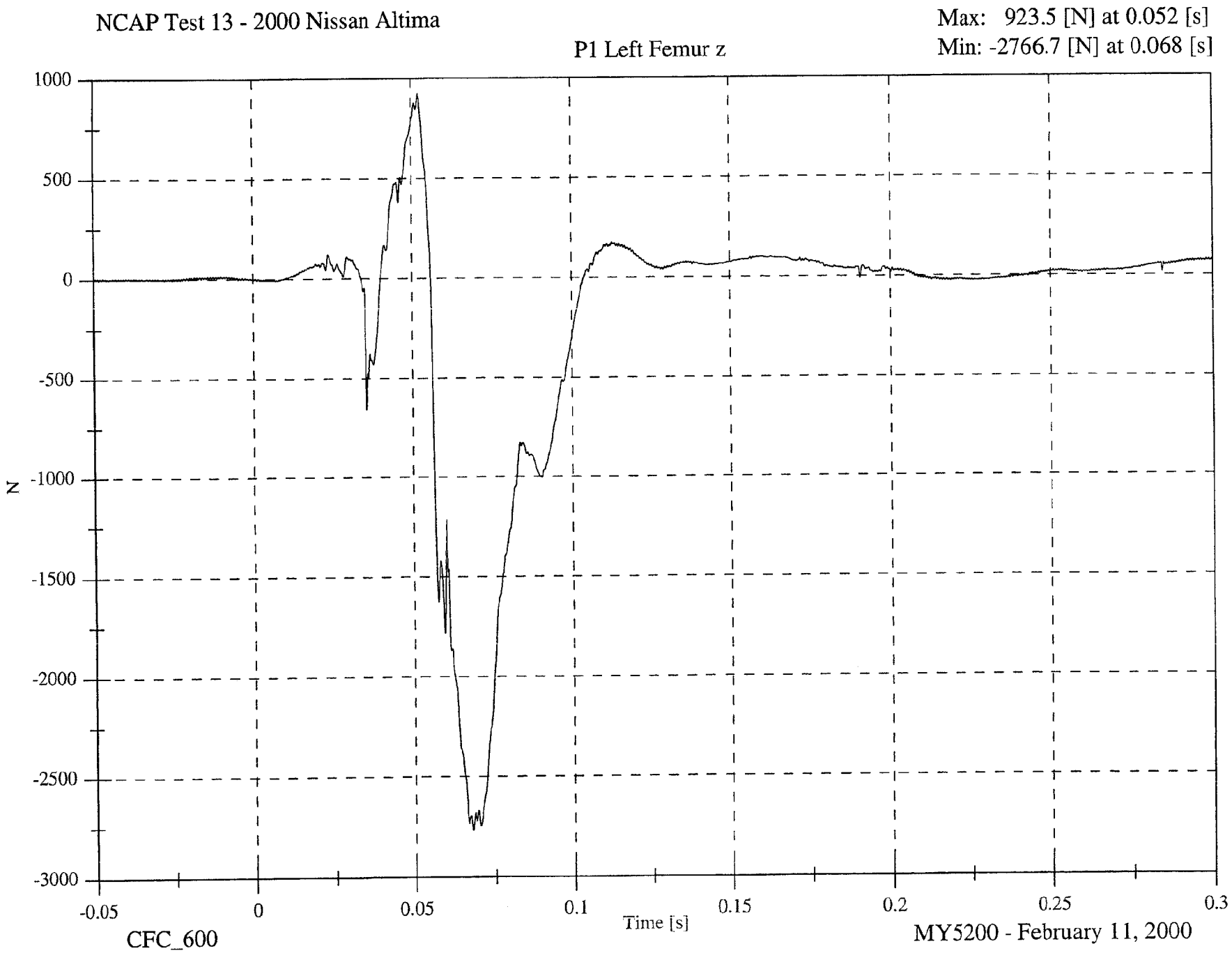

NCAP Test 13 - 2000 Nissan Altima
P1 Chest Compression x
Max: 0.0 [mm] at -0.007 [s]
Min: -35.0 [mm] at 0.079 [s]
mm
0
-5
-10
-15
-20
-25
-30
-35
-40
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

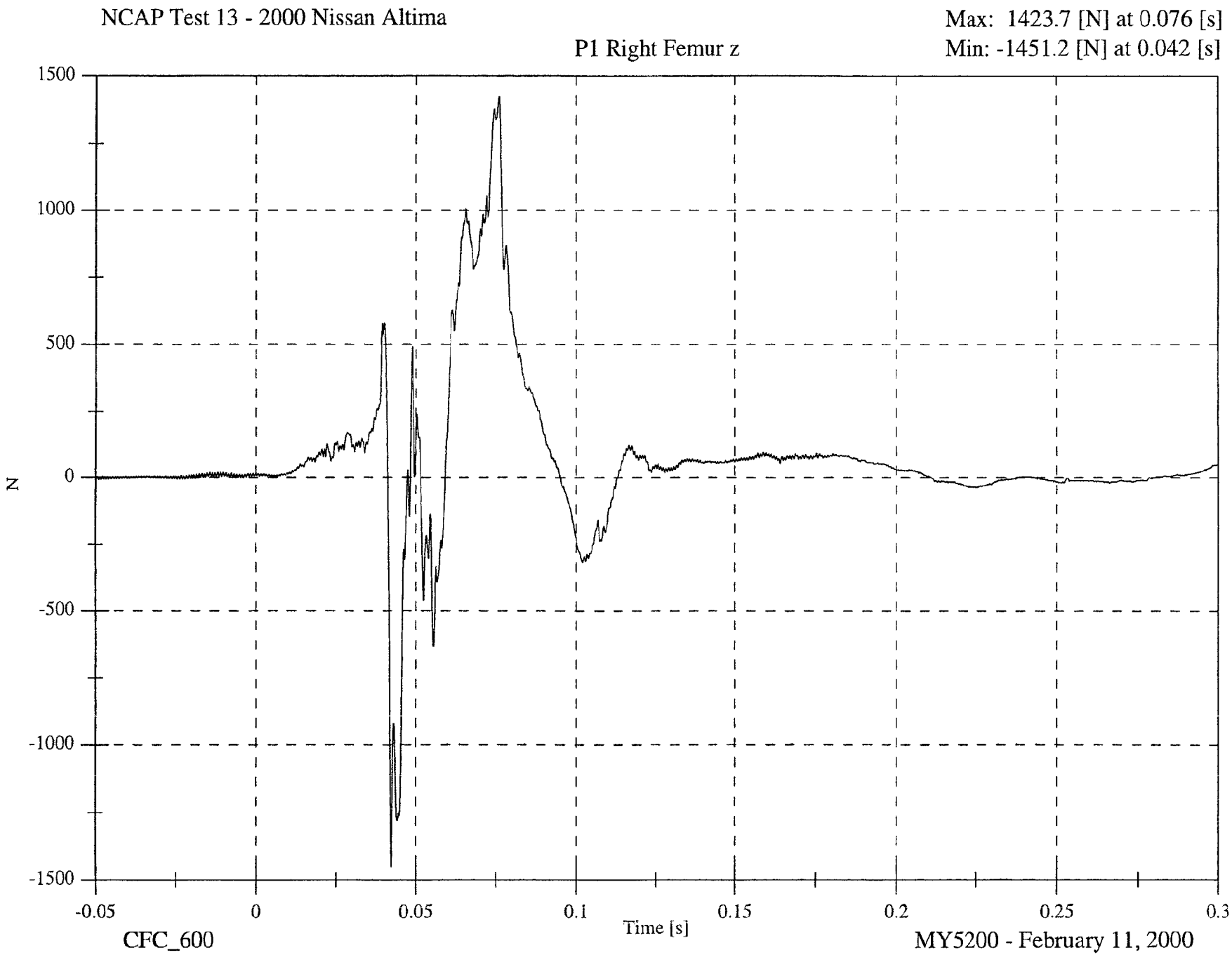

NCAP Test 13 - 2000 Nissan Altima
P1 Pelvic x
Max: 2.1 [g] at 0.223 [s]
Min: -47.6 [g] at 0.060 [s]
10
0
-10
-20
-30
-40
-50
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

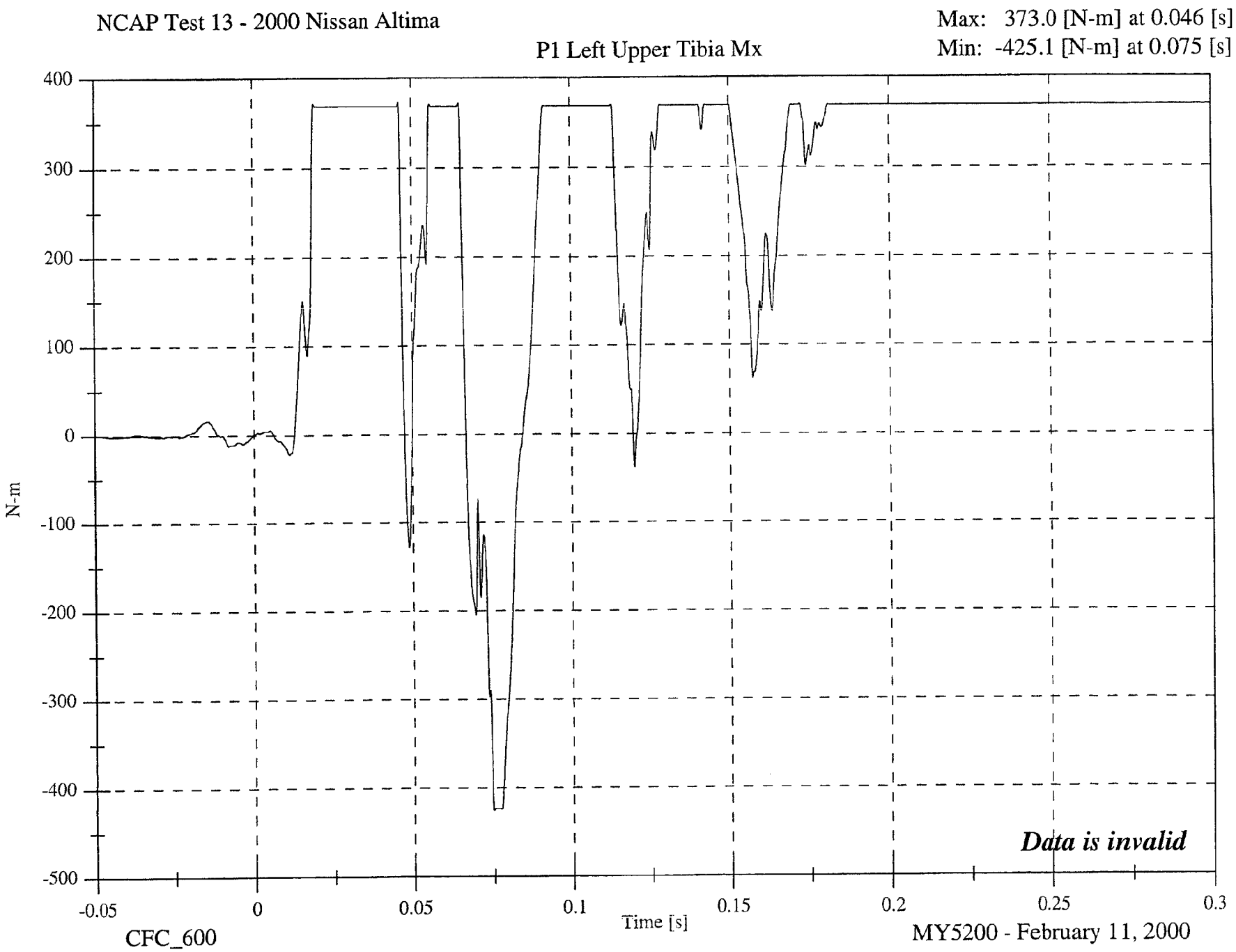

NCAP Test 13 - 2000 Nissan Altima
P1 Pelvic y
Max: 4.7 [g] at 0.094 [s]
Min: -20.2 [g] at 0.044 [s]
5
0
-5
-10
-15
-20
-25
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

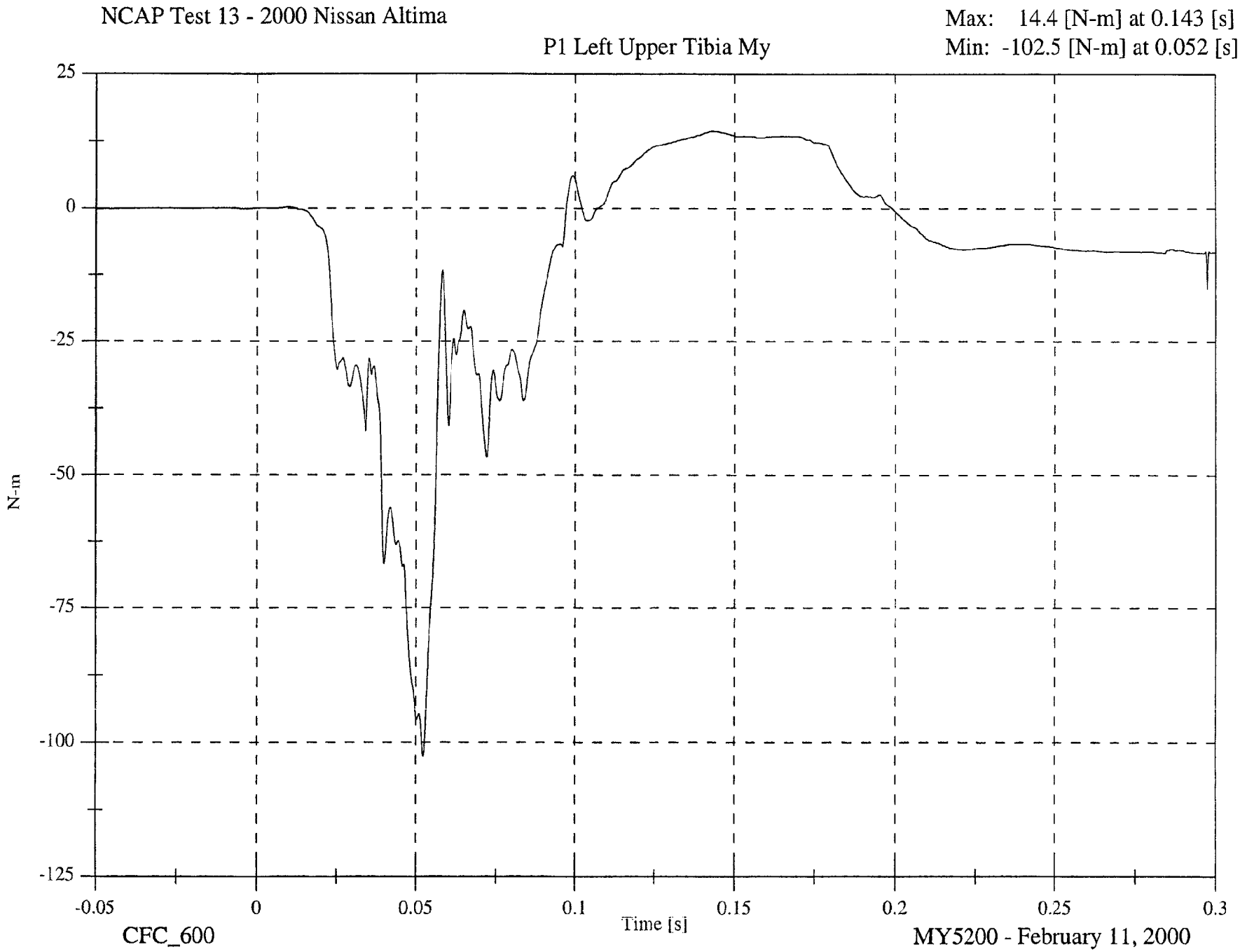

NCAP Test 13 - 2000 Nissan Altima
P1 Pelvic z
Max: 3.2 [g] at 0.209 [s]
Min: -23.8 [g] at 0.059 [s]
5
0
-5
-10
-15
-20
-25
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

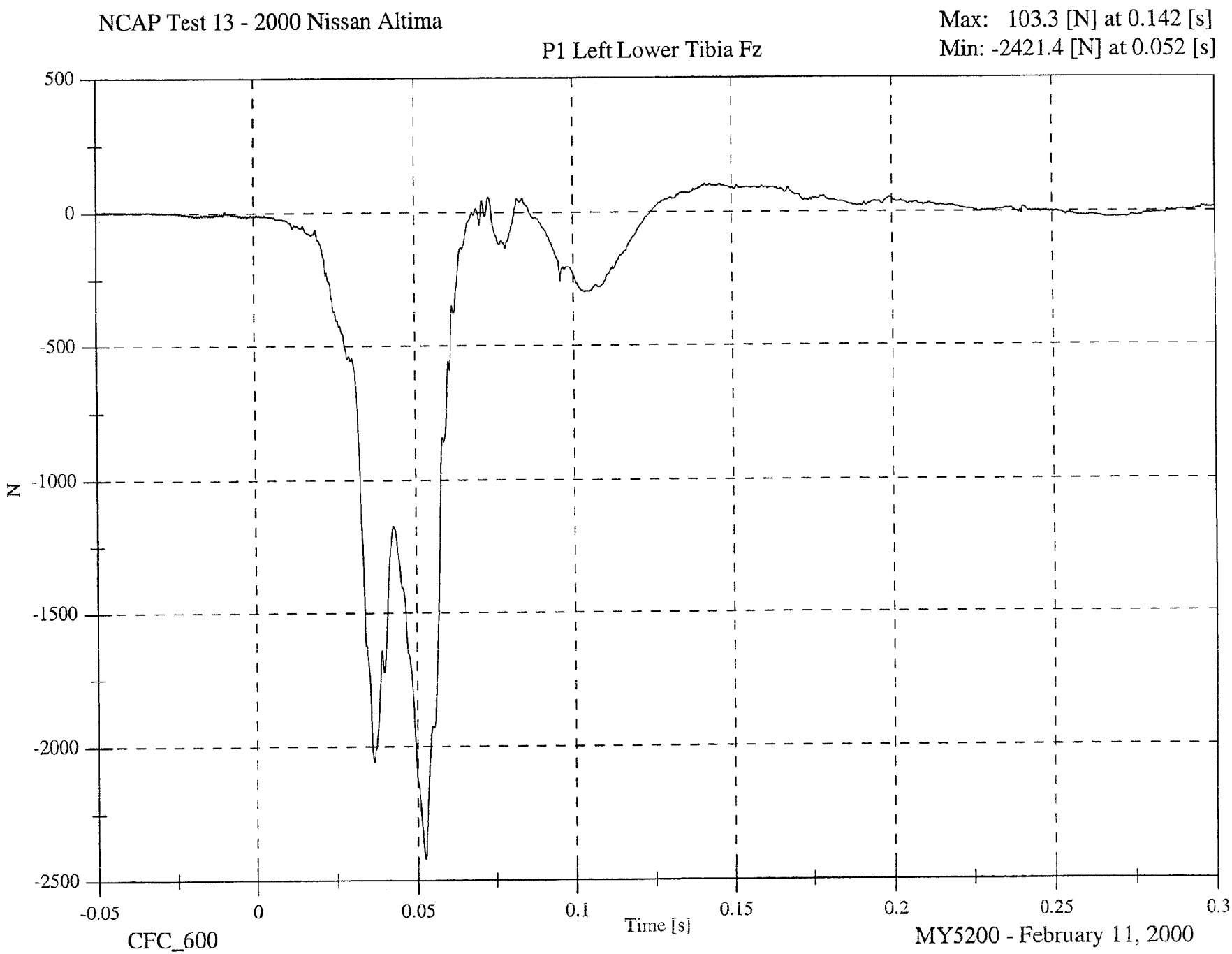

NCAP Test 13 - 2000 Nissan Altima
P1 Pelvic Resultant
Max: 53.3 [g] at 0.060 [s]
Min: 0.1 [g] at -0.049 [s]
60
50
40
30
20
10
0
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

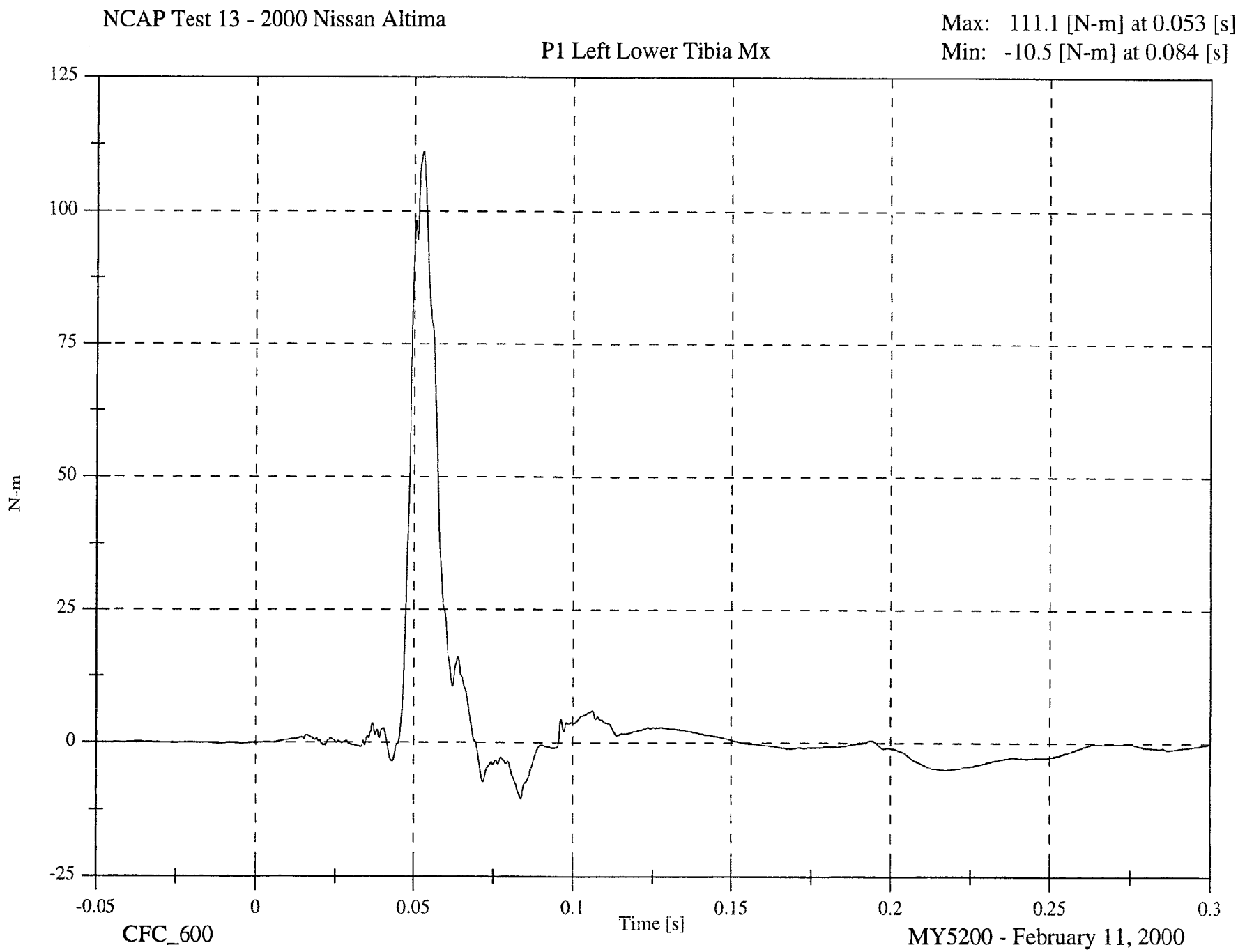

NCAP Test 13 - 2000 Nissan Altima
P1 Left Femur z
Max: 923.5 [N] at 0.052 [s]
Min: -2766.7 [N] at 0.068 [s]
1000
500
0
-500
-1000
-1500
-2000
-2500
-3000
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

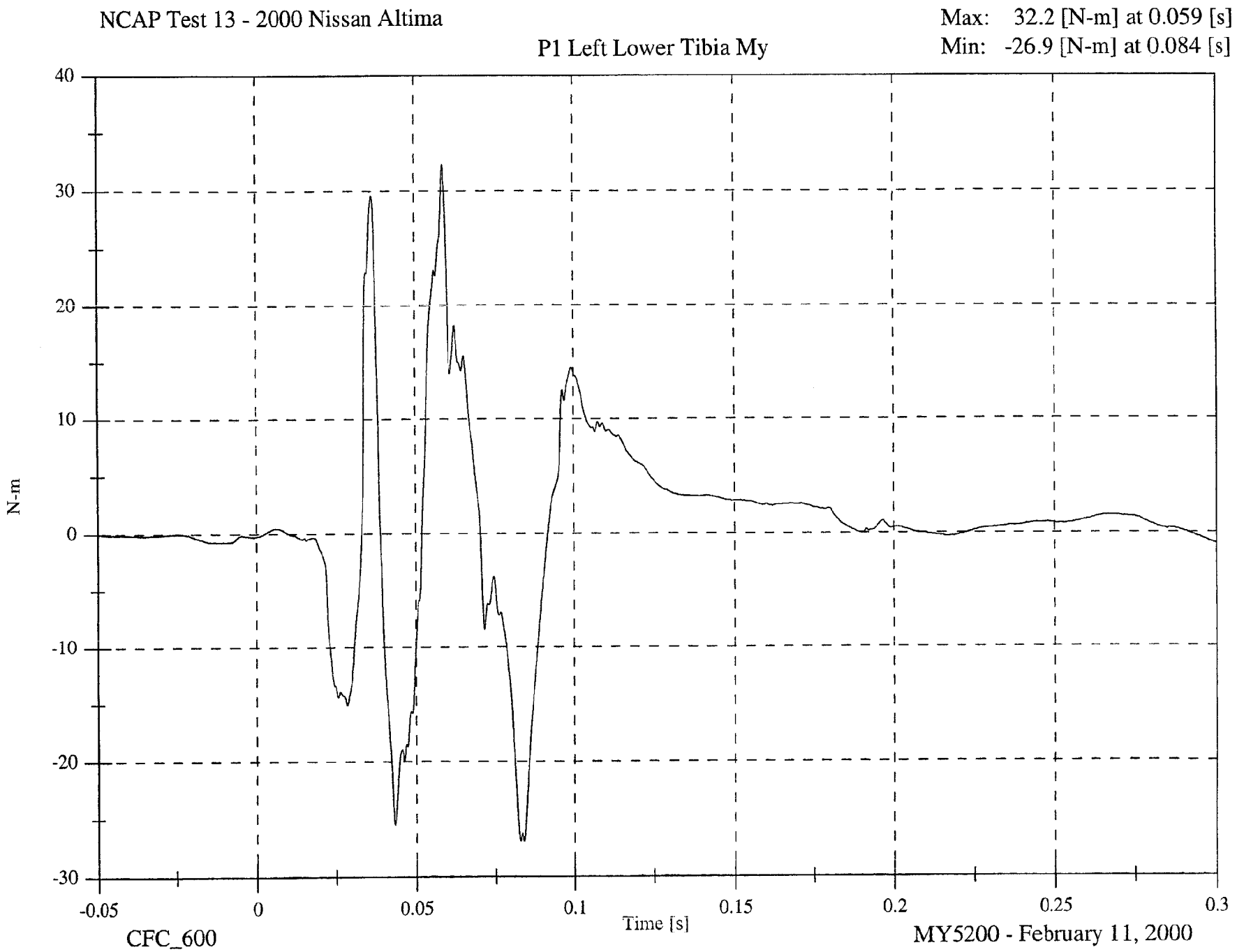

NCAP Test 13 - 2000 Nissan Altima
P1 Right Femur z
Max: 1423.7 [N] at 0.076 [s]
Min: -1451.2 [N] at 0.042 [s]
1500
1000
500
0
-500
-1000
-1500
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

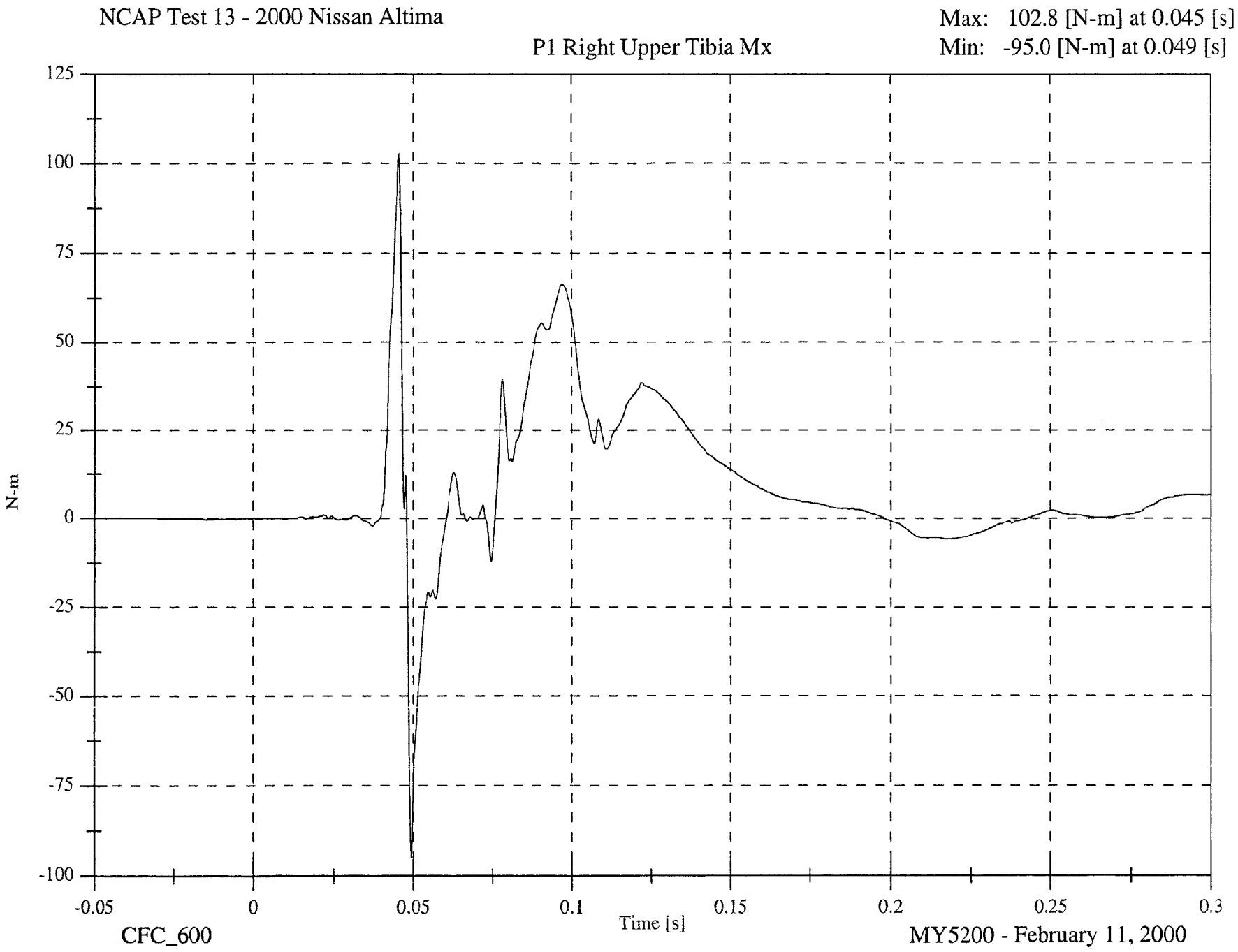

NCAP Test 13 - 2000 Nissan Altima
P1 Left Upper Tibia Mx
Max: 373.0 [N-m] at 0.046 [s]
Min: -425.1 [N-m] at 0.075 [s]
400
300
200
100
0
-100
-200
-300
-400
-500
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
Data is invalid
CFC_600
MY5200 - February 11, 2000

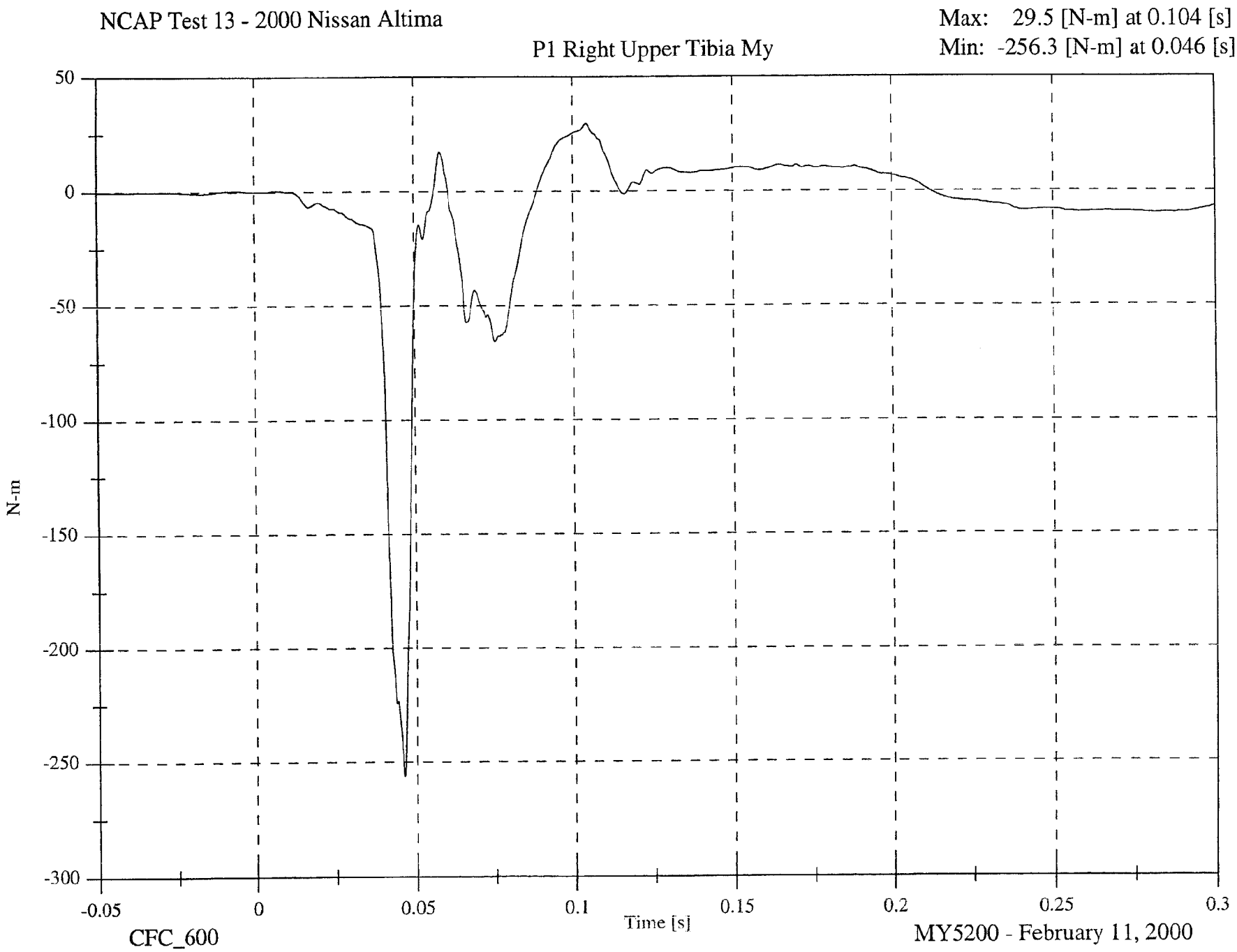

NCAP Test 13 - 2000 Nissan Altima
P1 Left Upper Tibia My
Max: 14.4 [N-m] at 0.143 [s]
Min: -102.5 [N-m] at 0.052 [s]
25
0
-25
-50
-75
-100
-125
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

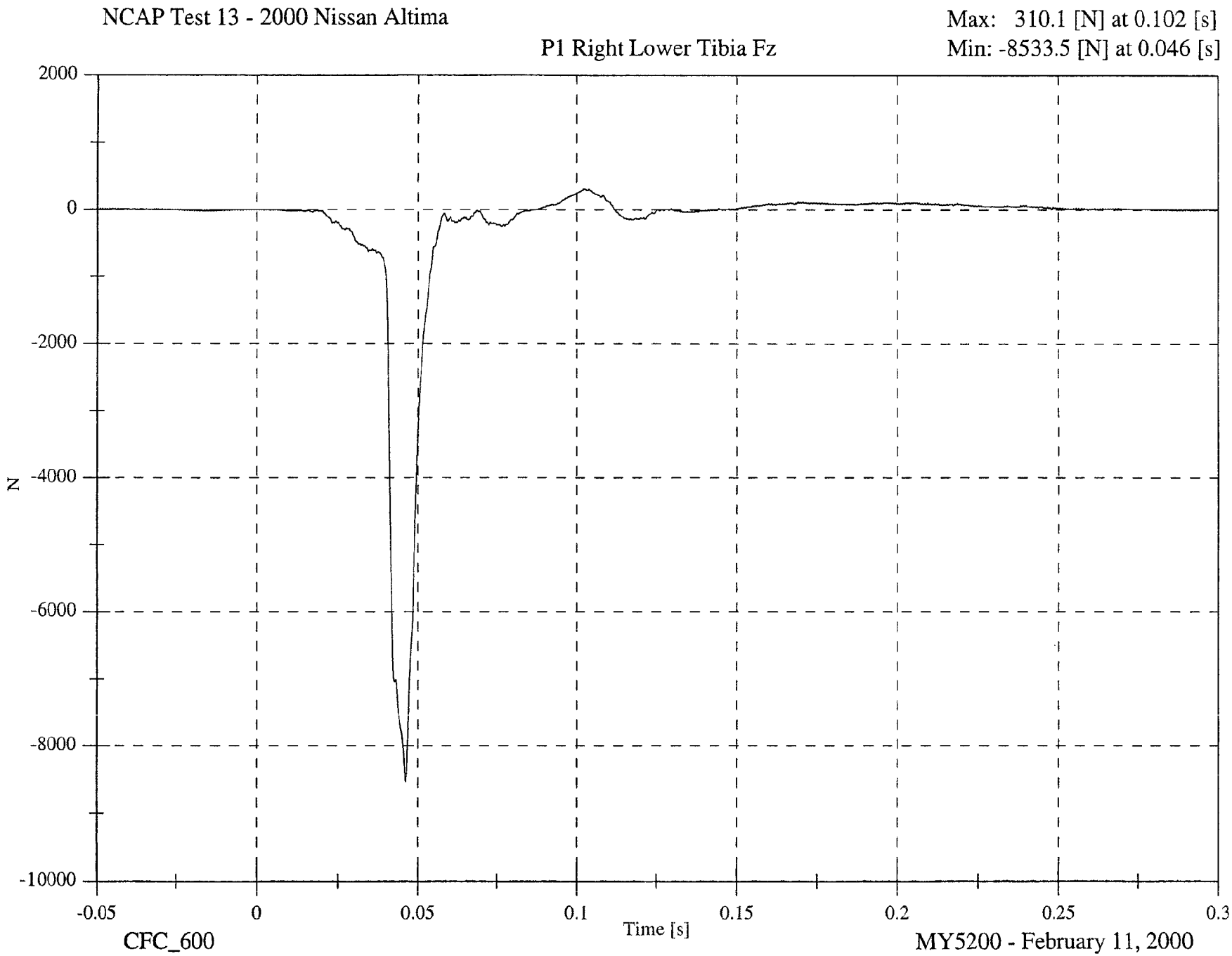

NCAP Test 13 - 2000 Nissan Altima
P1 Left Lower Tibia Fz
Max: 103.3 [N] at 0.142 [s]
Min: -2421.4 [N] at 0.052 [s]
500
0
-500
-1000
-1500
-2000
-2500
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

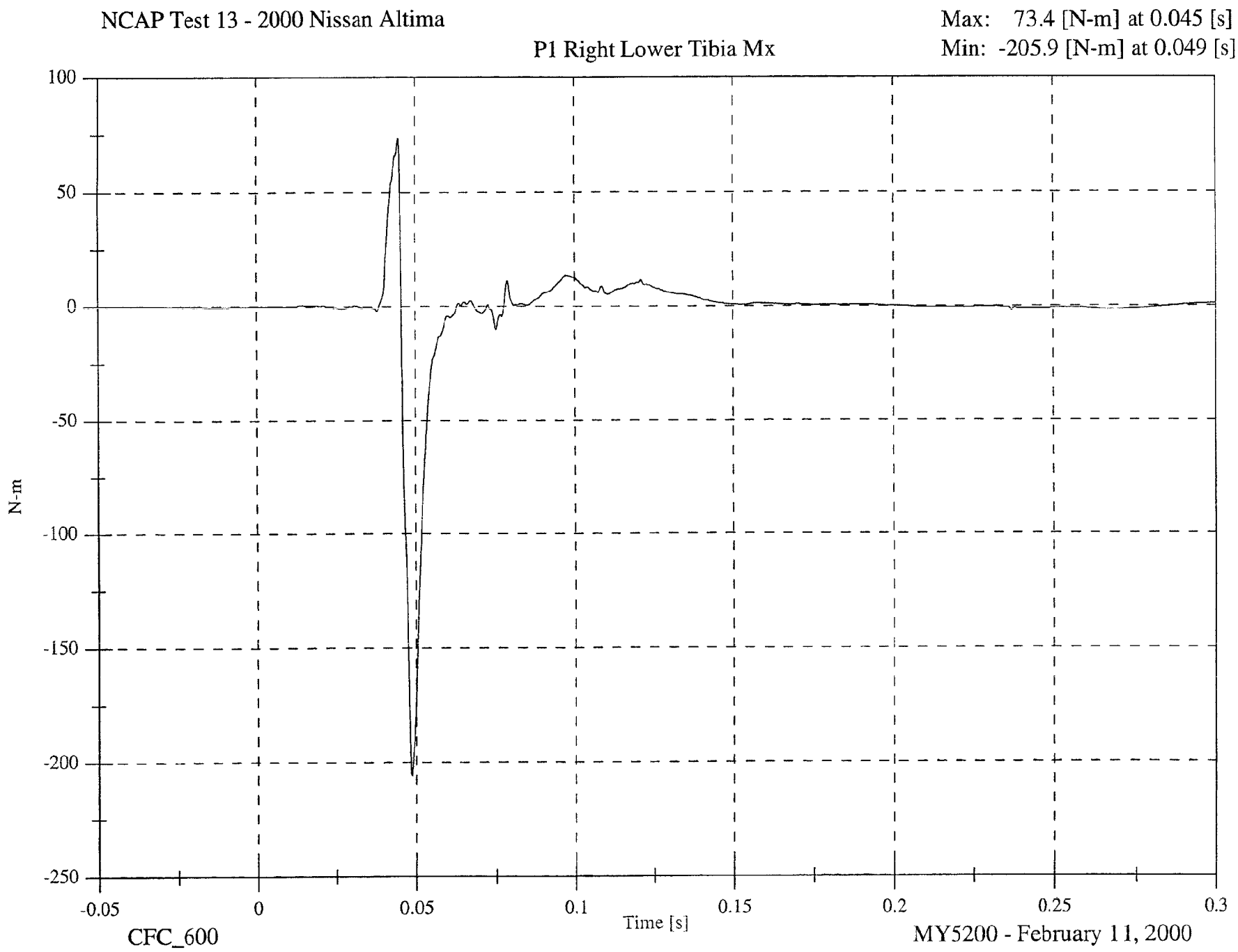

NCAP Test 13 - 2000 Nissan Altima
P1 Left Lower Tibia Mx
Max: 111.1 [N-m] at 0.053 [s]
Min: -10.5 [N-m] at 0.084 [s]
125
100
75
50
25
0
-25
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

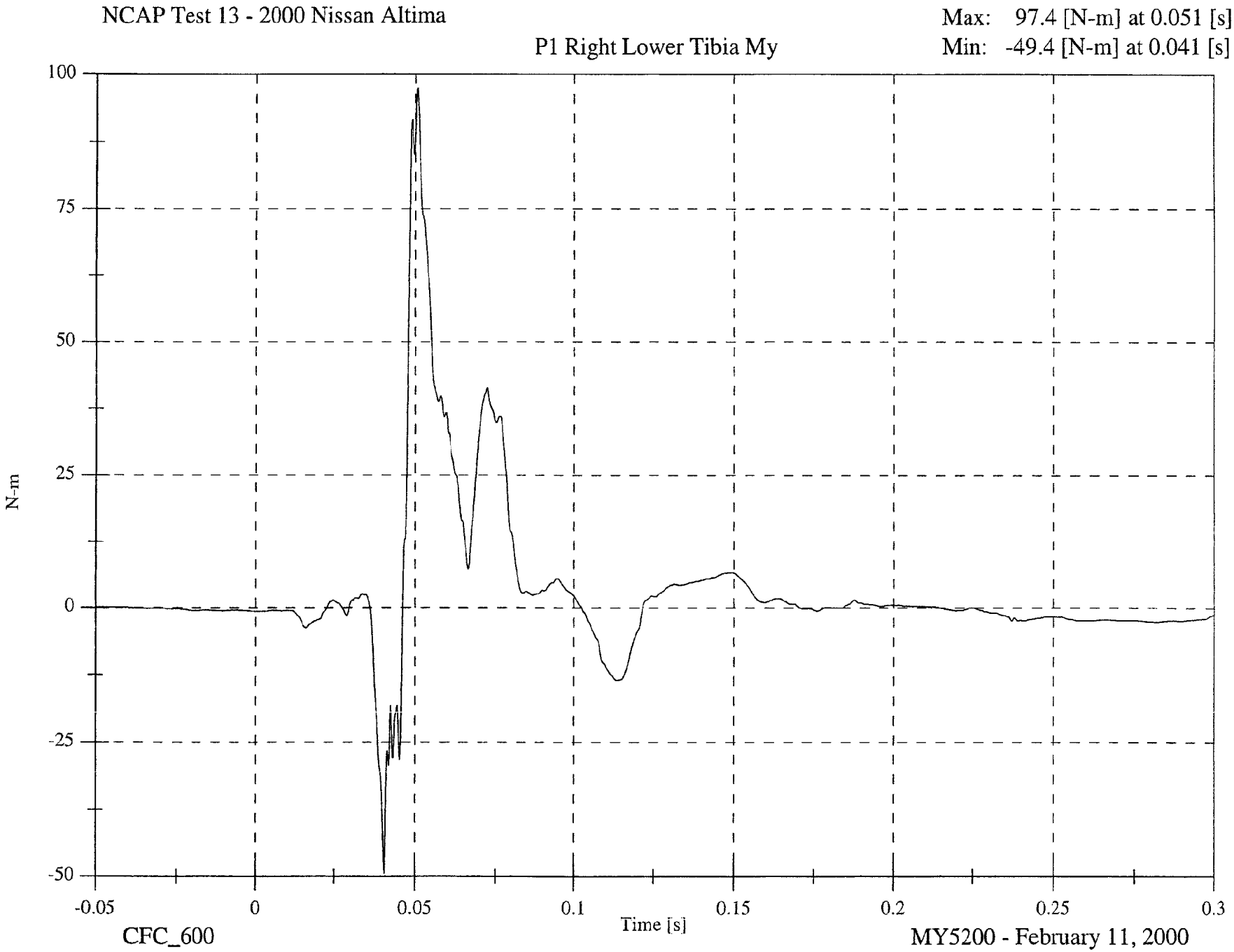

NCAP Test 13 - 2000 Nissan Altima
P1 Left Lower Tibia My
Max: 32.2 [N-m] at 0.059 [s]
Min: -26.9 [N-m] at 0.084 [s]
N-m
40
30
20
10
0
-10
-20
-30
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

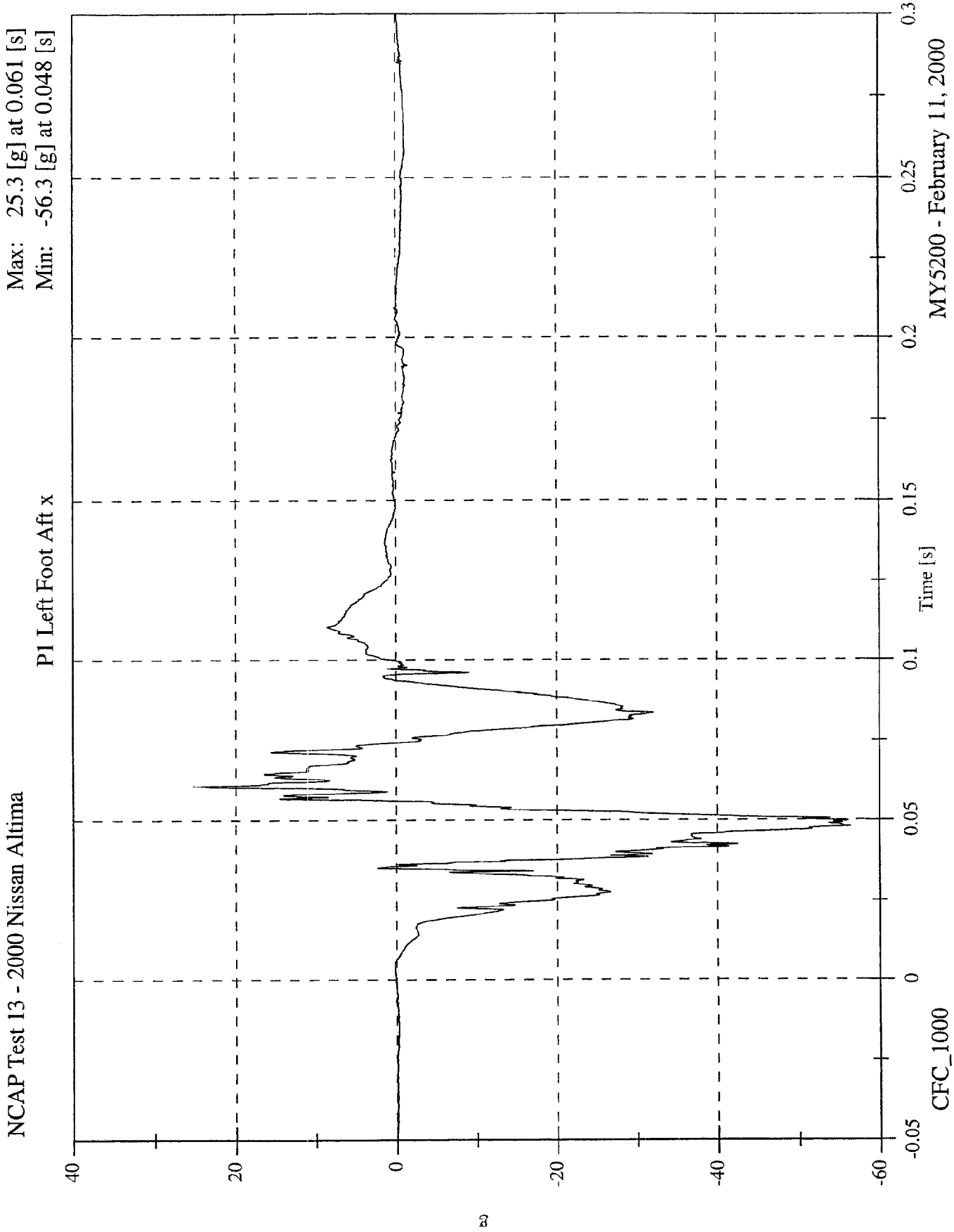

NCAP Test 13 - 2000 Nissan Altima
P1 Right Upper Tibia Mx
Max: 102.8 [N-m] at 0.045 [s]
Min: -95.0 [N-m] at 0.049 [s]
125
100
75
50
25
0
-25
-50
-75
-100
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

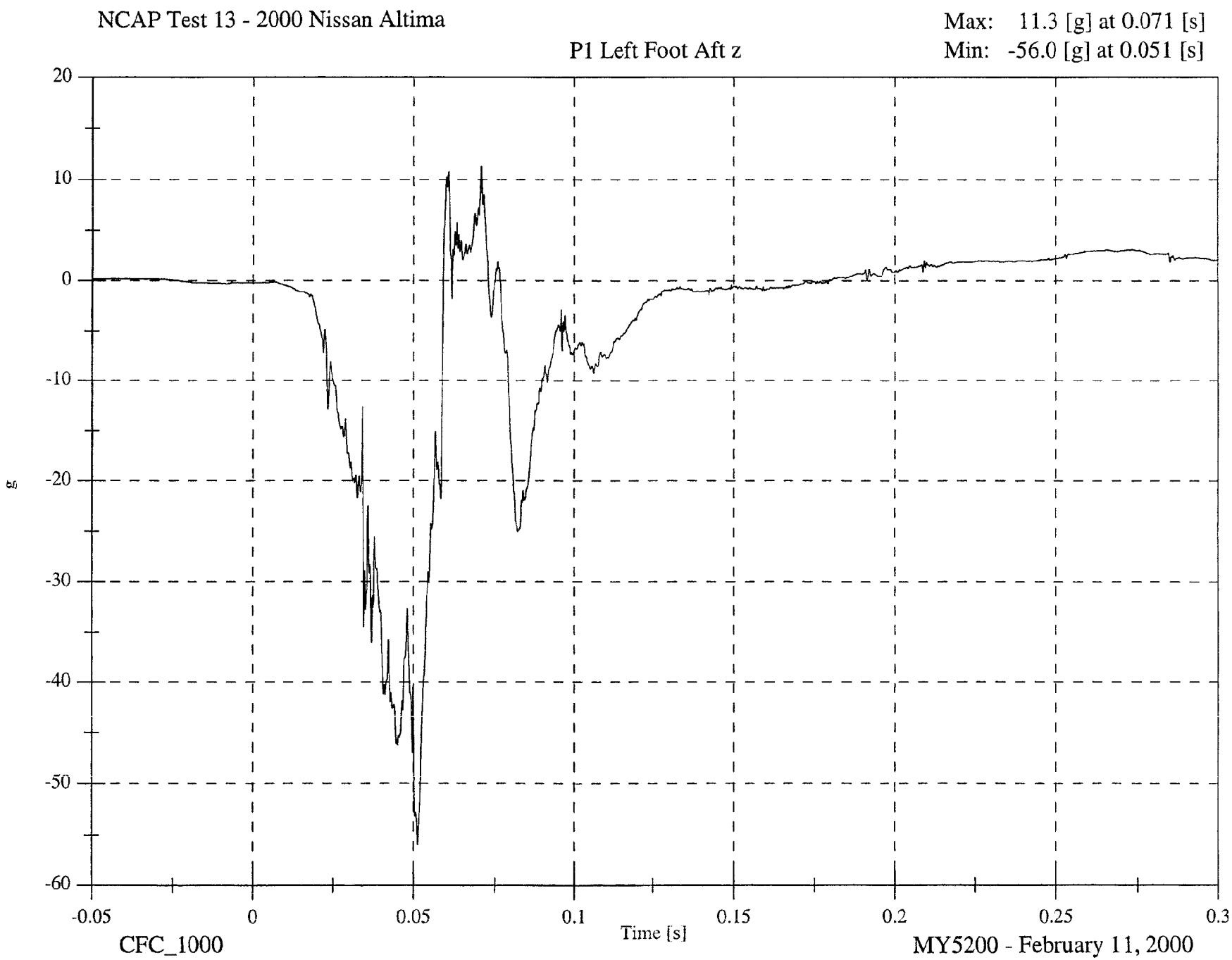

NCAP Test 13 - 2000 Nissan Altima
P1 Right Upper Tibia My
Max: 29.5 [N-m] at 0.104 [s]
Min: -256.3 [N-m] at 0.046 [s]
50
0
-50
-100
-150
-200
-250
-300
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

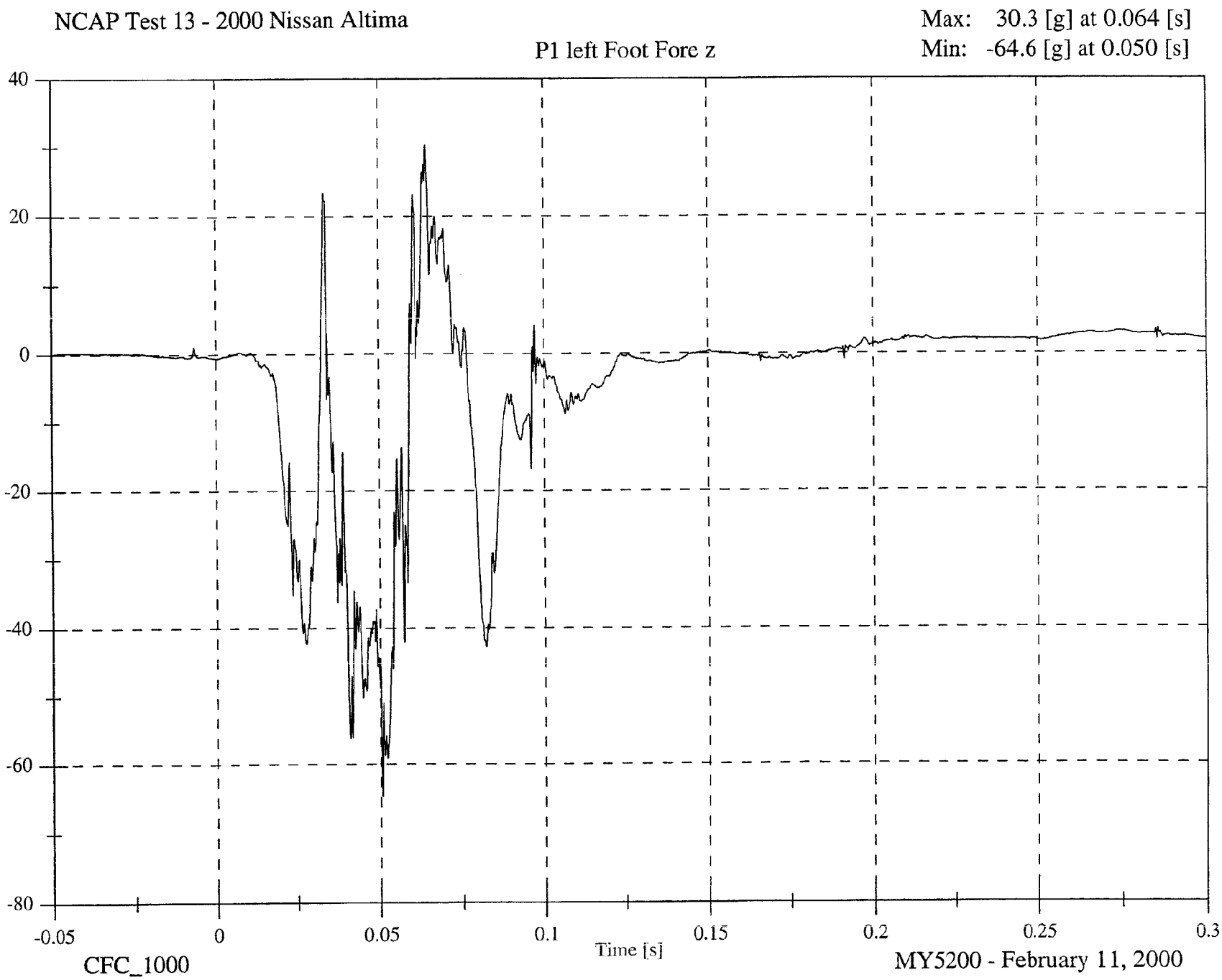

NCAP Test 13 - 2000 Nissan Altima
P1 Right Lower Tibia Fz
Max: 310.1 [N] at 0.102 [s]
Min: -8533.5 [N] at 0.046 [s]
2000
0
-2000
-4000
-6000
-8000
-10000
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

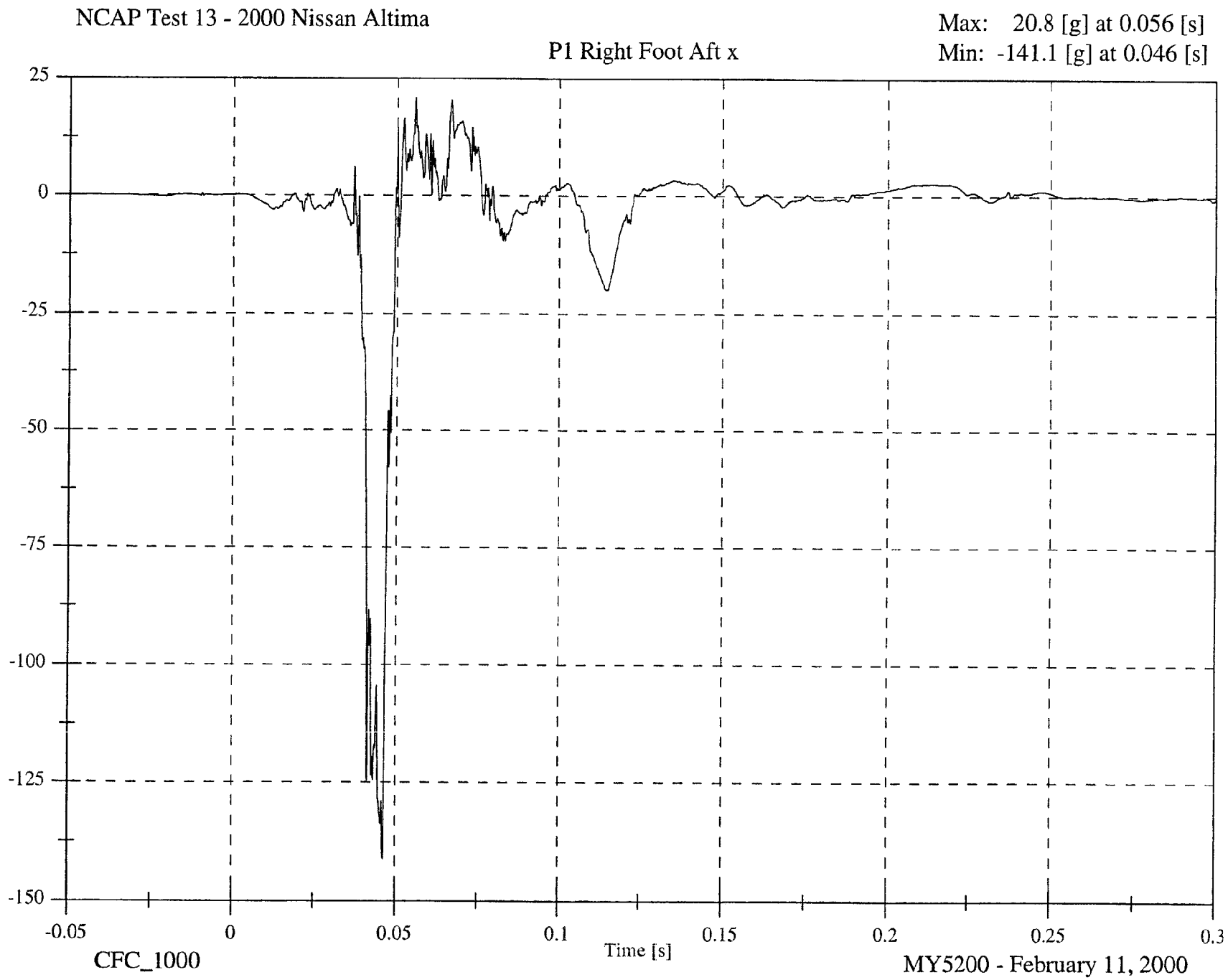

NCAP Test 13 - 2000 Nissan Altima
P1 Right Lower Tibia Mx
Max: 73.4 [N-m] at 0.045 [s]
Min: -205.9 [N-m] at 0.049 [s]
100
50
0
-50
-100
-150
-200
-250
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

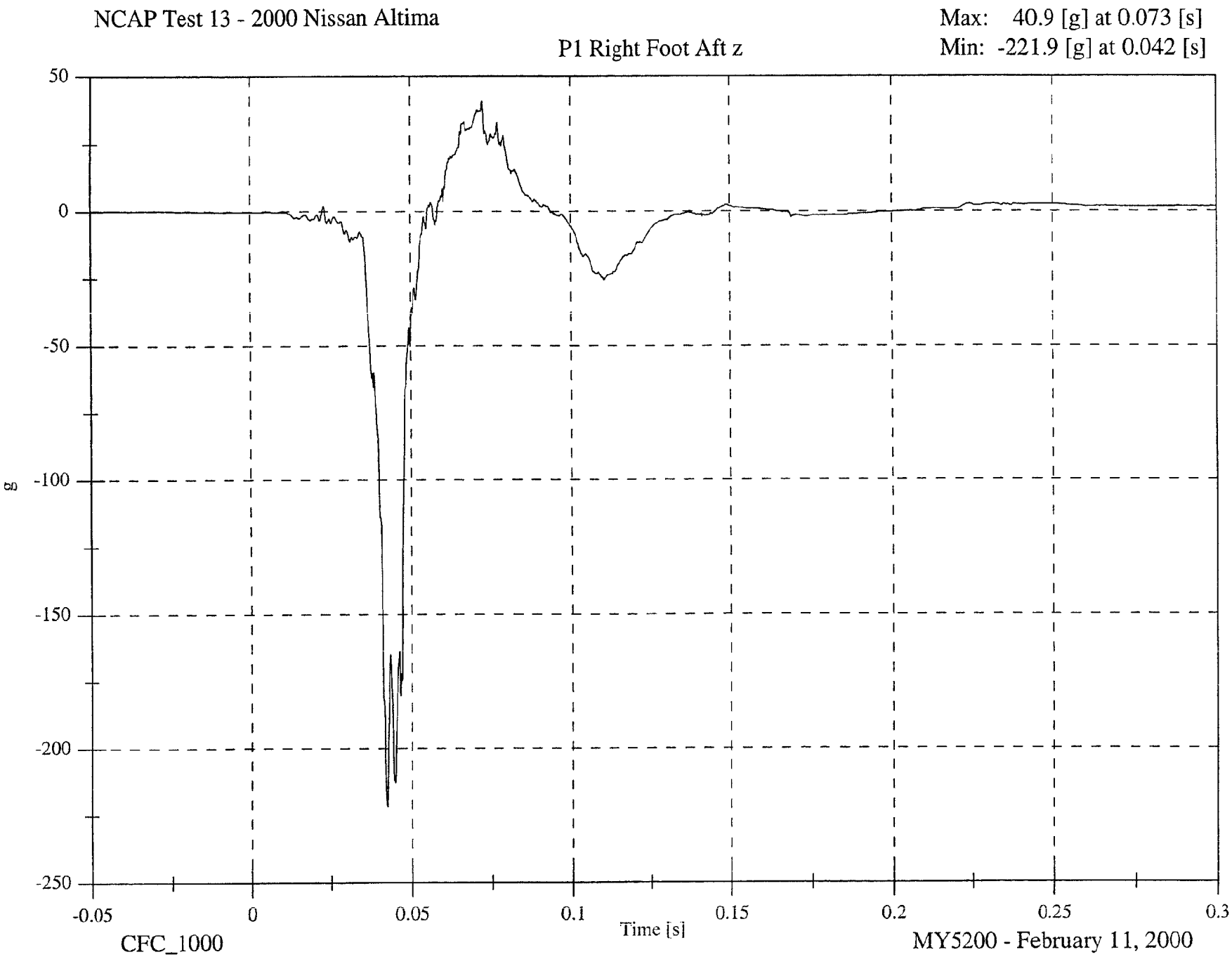

NCAP Test 13 - 2000 Nissan Altima
P1 Right Lower Tibia My
Max: 97.4 [N-m] at 0.051 [s]
Min: -49.4 [N-m] at 0.041 [s]
100
75
50
25
0
-25
-50
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

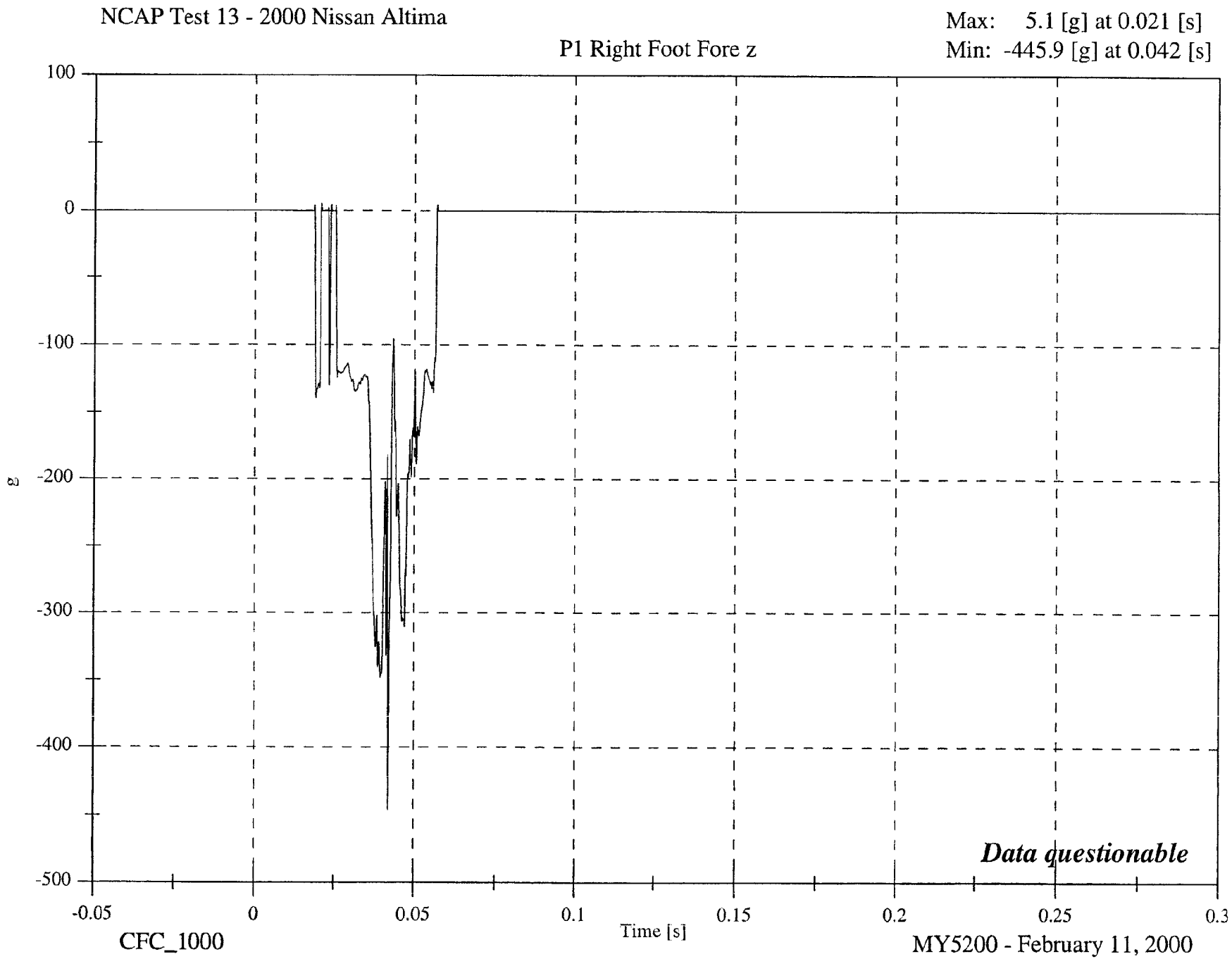

NCAP Test 13 - 2000 Nissan Altima
Max: 25.3 [g] at 0.061 [s]
Min: -56.3 [g] at 0.048 [s]
P1 Left Foot Aft x
MY5200 - February 11, 2000
CFC_1000
Time [s]
g
40
20
0
-20
-40
-60
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3

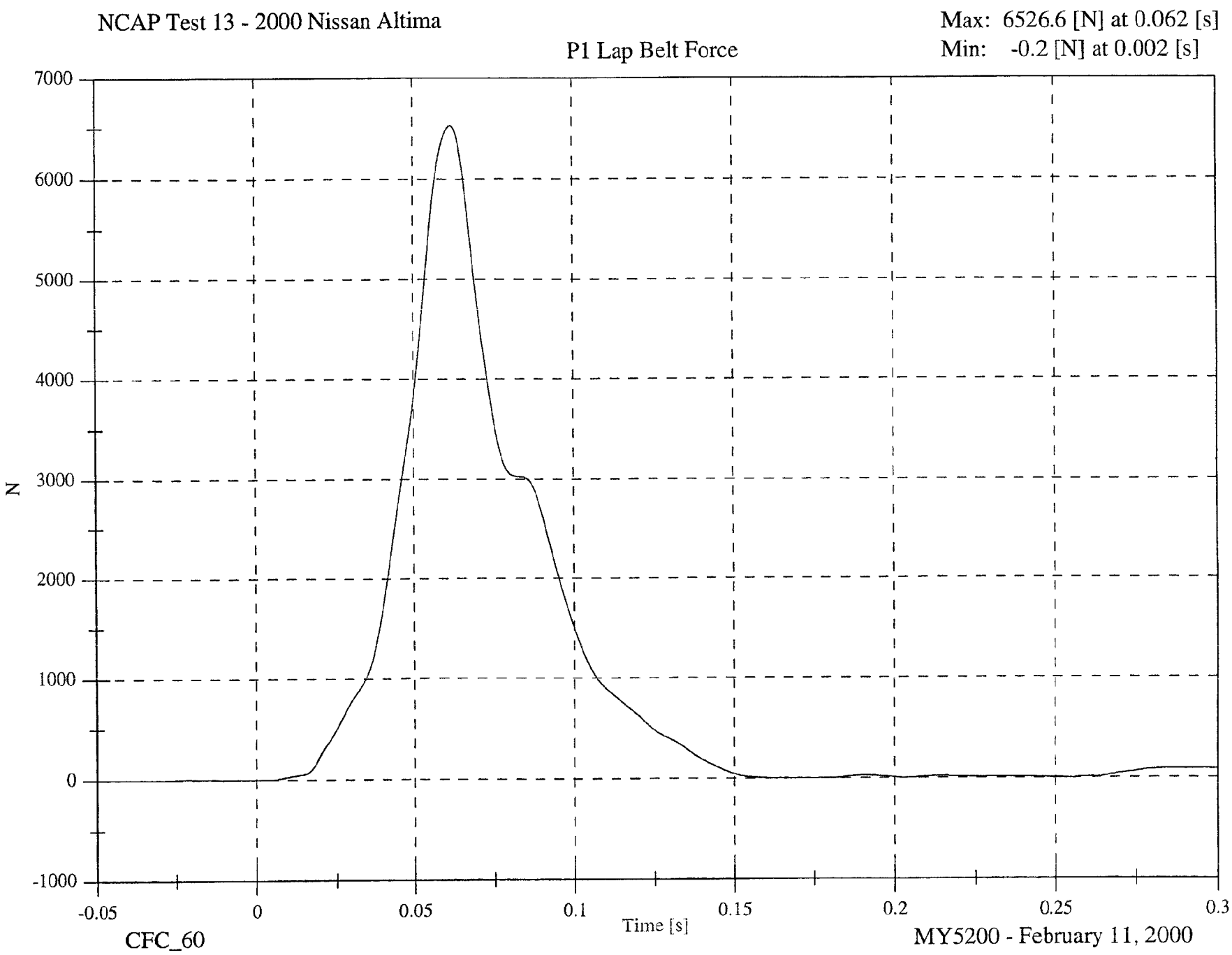

NCAP Test 13 - 2000 Nissan Altima
P1 Left Foot Aft z
Max: 11.3 [g] at 0.071 [s]
Min: -56.0 [g] at 0.051 [s]
20
10
0
-10
-20
-30
-40
-50
-60
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

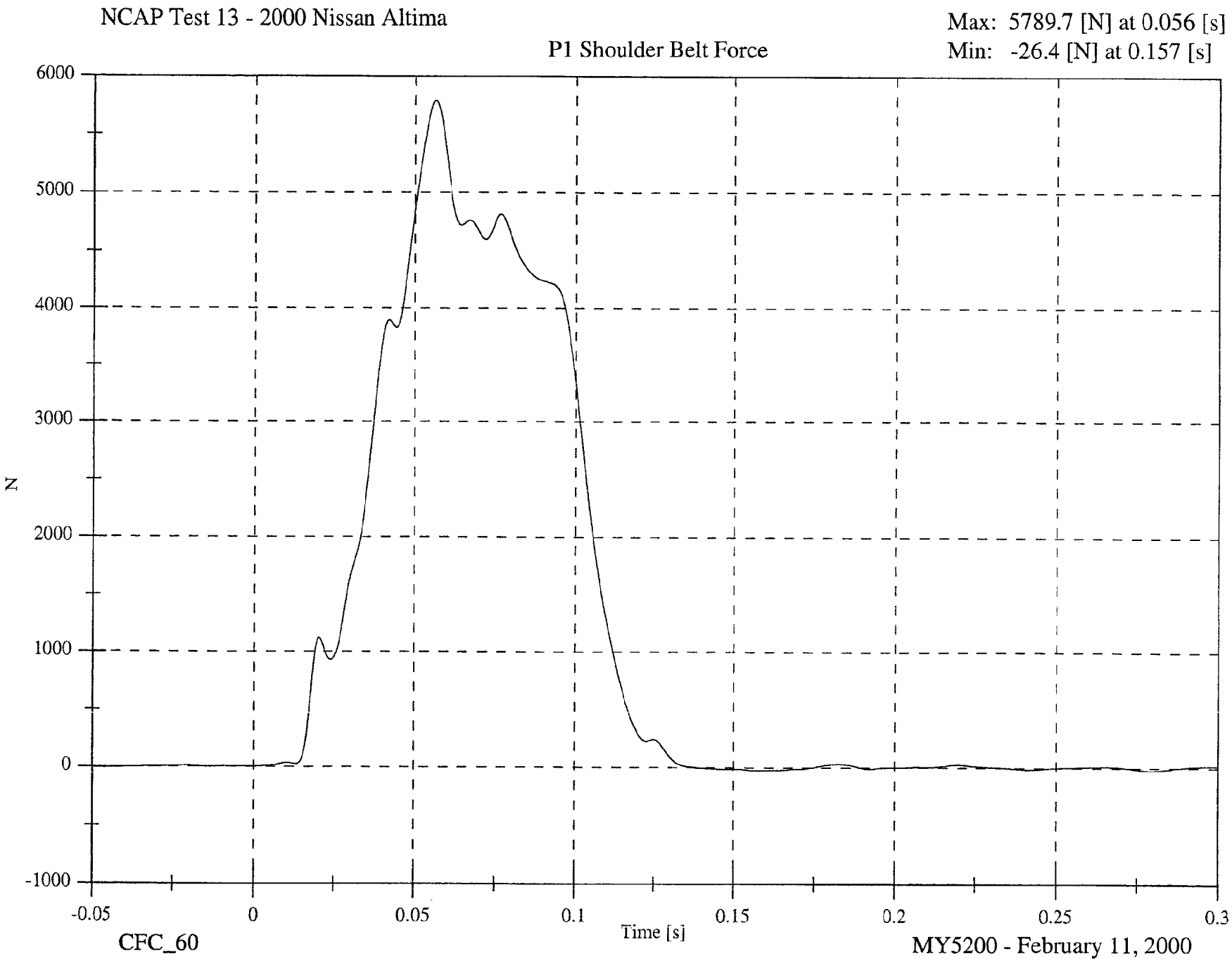

NCAP Test 13 - 2000 Nissan Altima
P1 left Foot Fore z
Max: 30.3 [g] at 0.064 [s]
Min: -64.6 [g] at 0.050 [s]
40
20
0
-20
-40
-60
-80
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

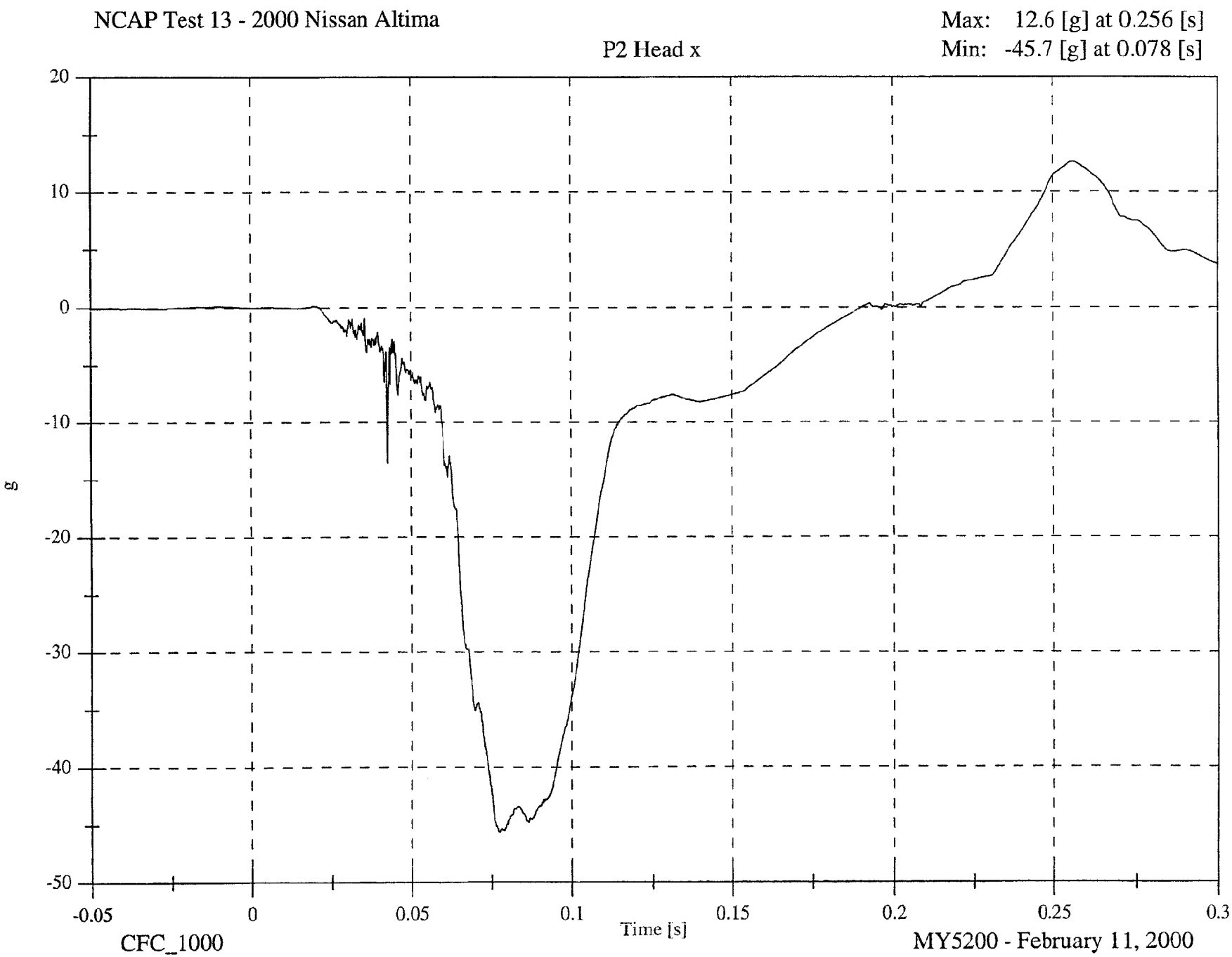

NCAP Test 13 - 2000 Nissan Altima
P1 Right Foot Aft x
Max: 20.8 [g] at 0.056 [s]
Min: -141.1 [g] at 0.046 [s]
25
0
-25
-50
-75
-100
-125
-150
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

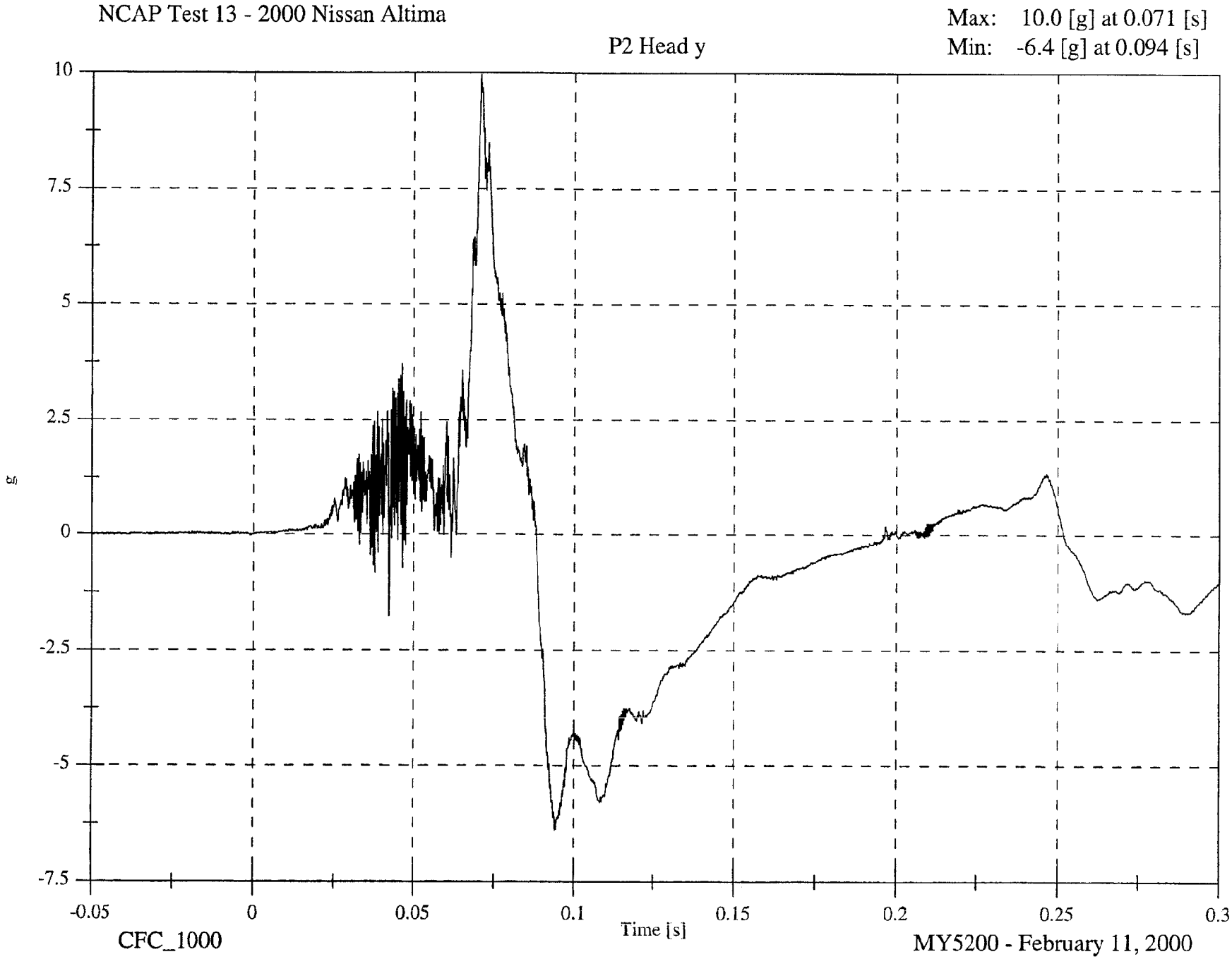

NCAP Test 13 - 2000 Nissan Altima
P1 Right Foot Aft z
Max: 40.9 [g] at 0.073 [s]
Min: -221.9 [g] at 0.042 [s]
50
0
-50
-100
-150
-200
-250
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

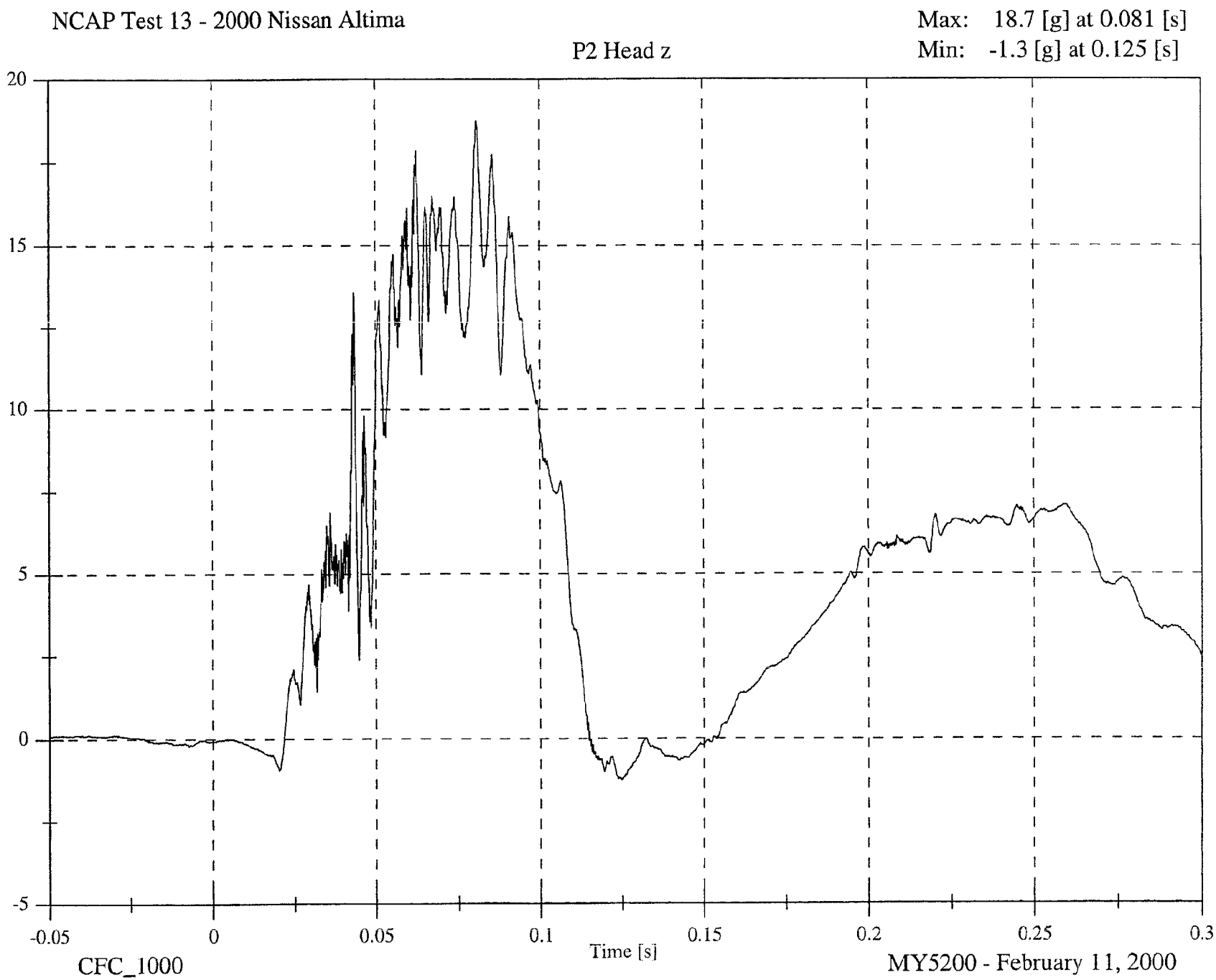

NCAP Test 13 - 2000 Nissan Altima
P1 Right Foot Fore z
Max: 5.1 [g] at 0.021 [s]
Min: -445.9 [g] at 0.042 [s]
100
0
-100
-200
-300
-400
-500
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
Data questionable
CFC_1000
MY5200 - February 11, 2000

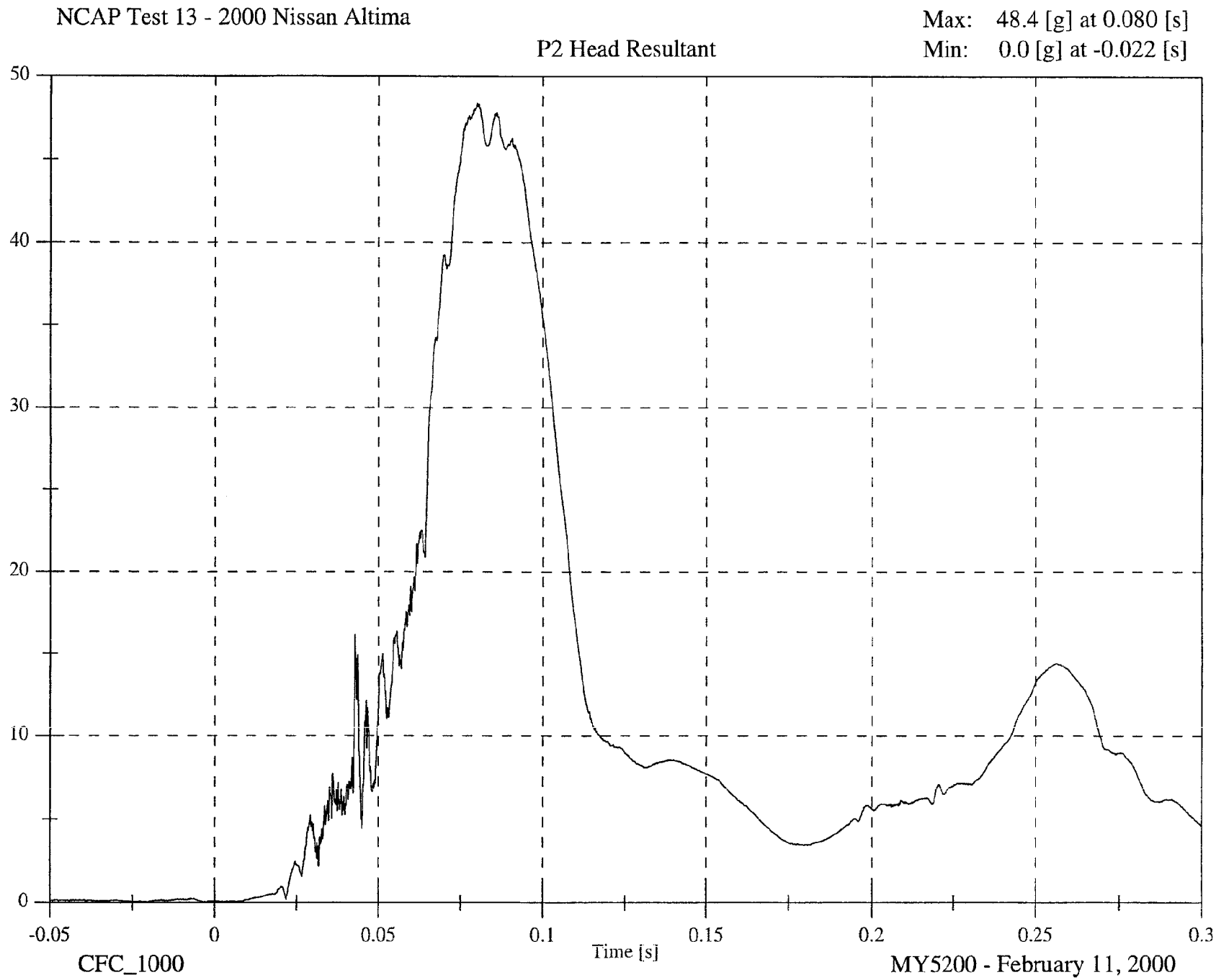

NCAP Test 13 - 2000 Nissan Altima
P1 Lap Belt Force
Max: 6526.6 [N] at 0.062 [s]
Min: -0.2 [N] at 0.002 [s]
7000
6000
5000
4000
3000
2000
1000
0
-1000
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000

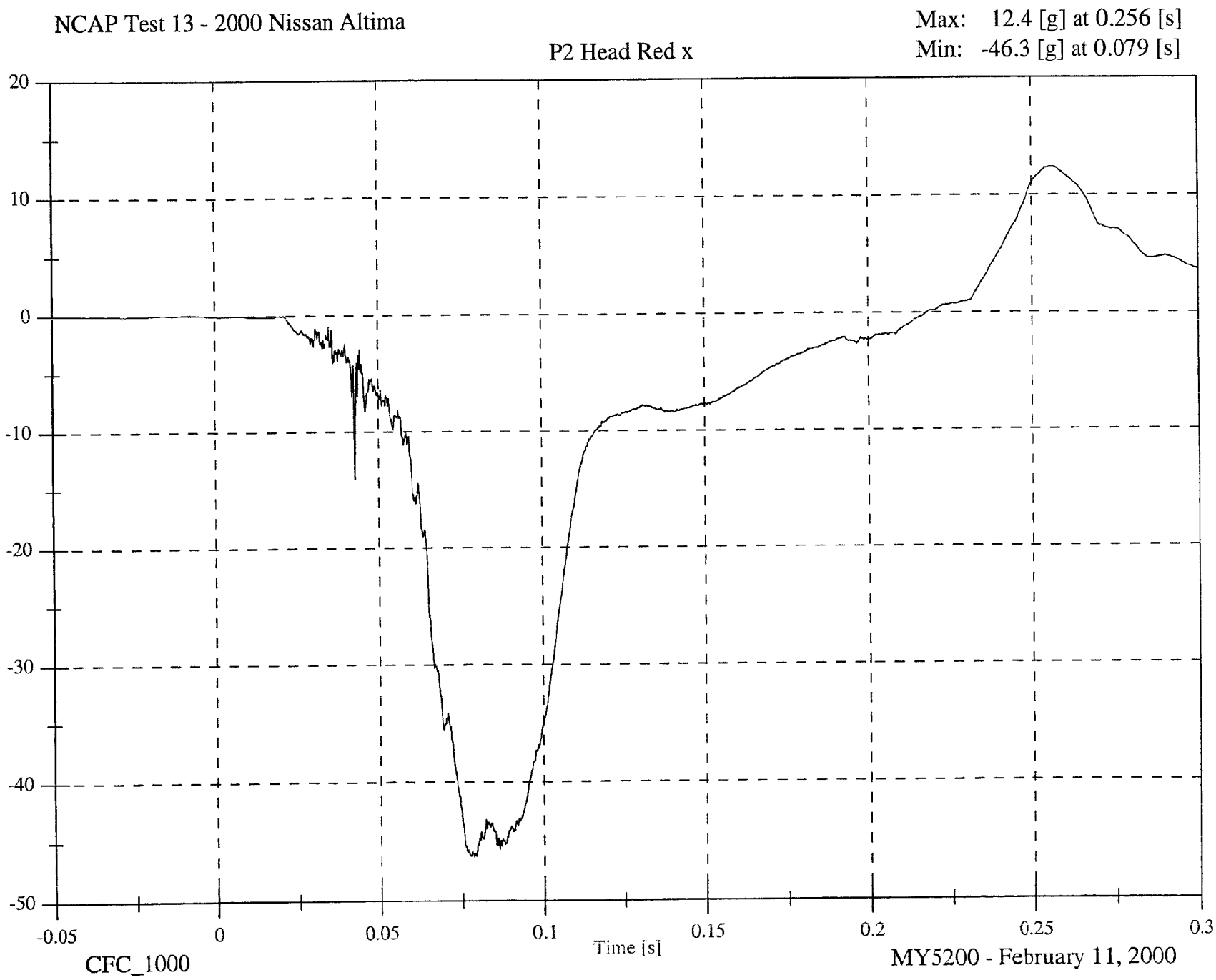

NCAP Test 13 - 2000 Nissan Altima
P1 Shoulder Belt Force
Max: 5789.7 [N] at 0.056 [s]
Min: -26.4 [N] at 0.157 [s]
6000
5000
4000
3000
2000
1000
0
-1000
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000

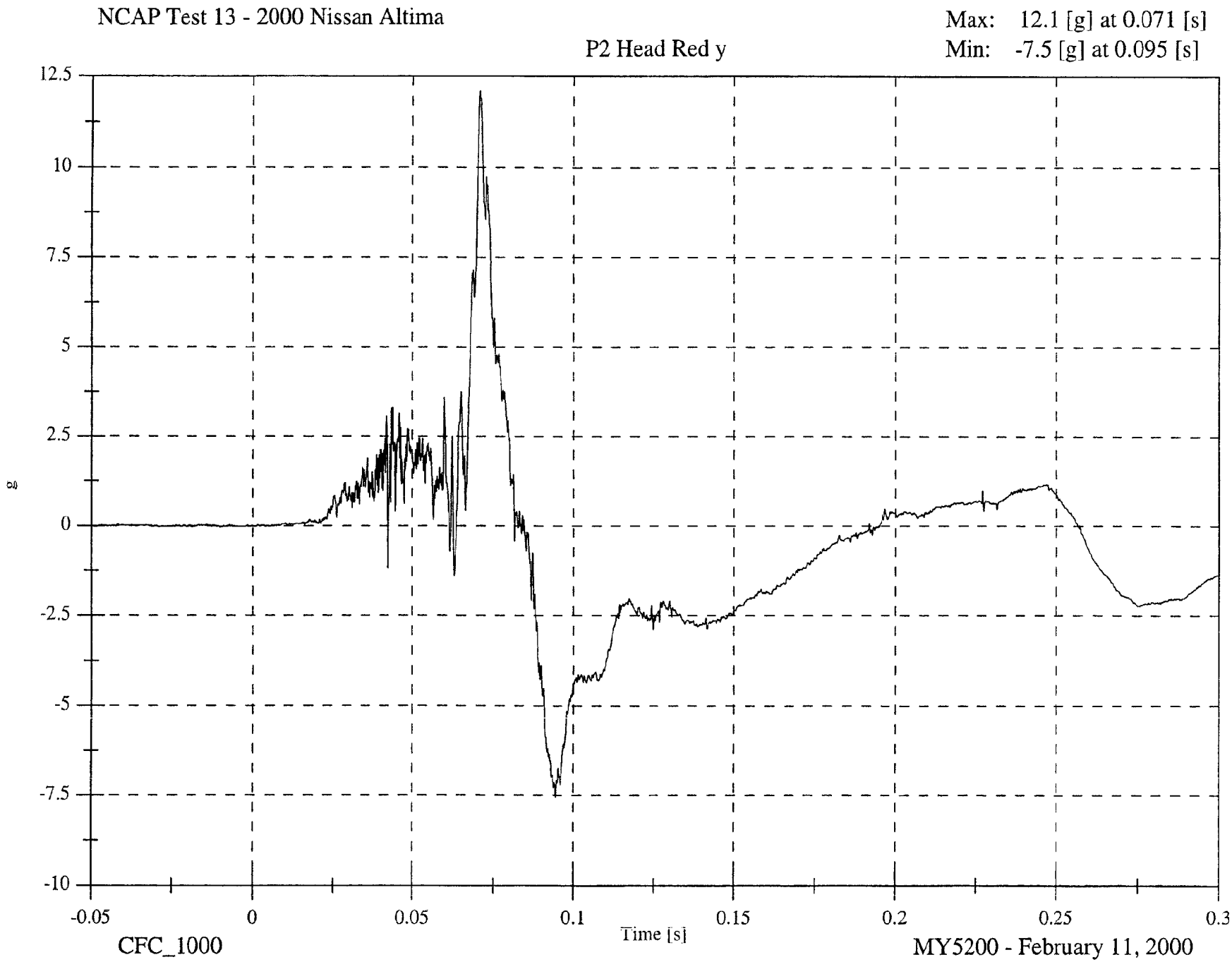

NCAP Test 13 - 2000 Nissan Altima
P2 Head x
Max: 12.6 [g] at 0.256 [s]
Min: -45.7 [g] at 0.078 [s]
20
10
0
-10
-20
-30
-40
-50
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

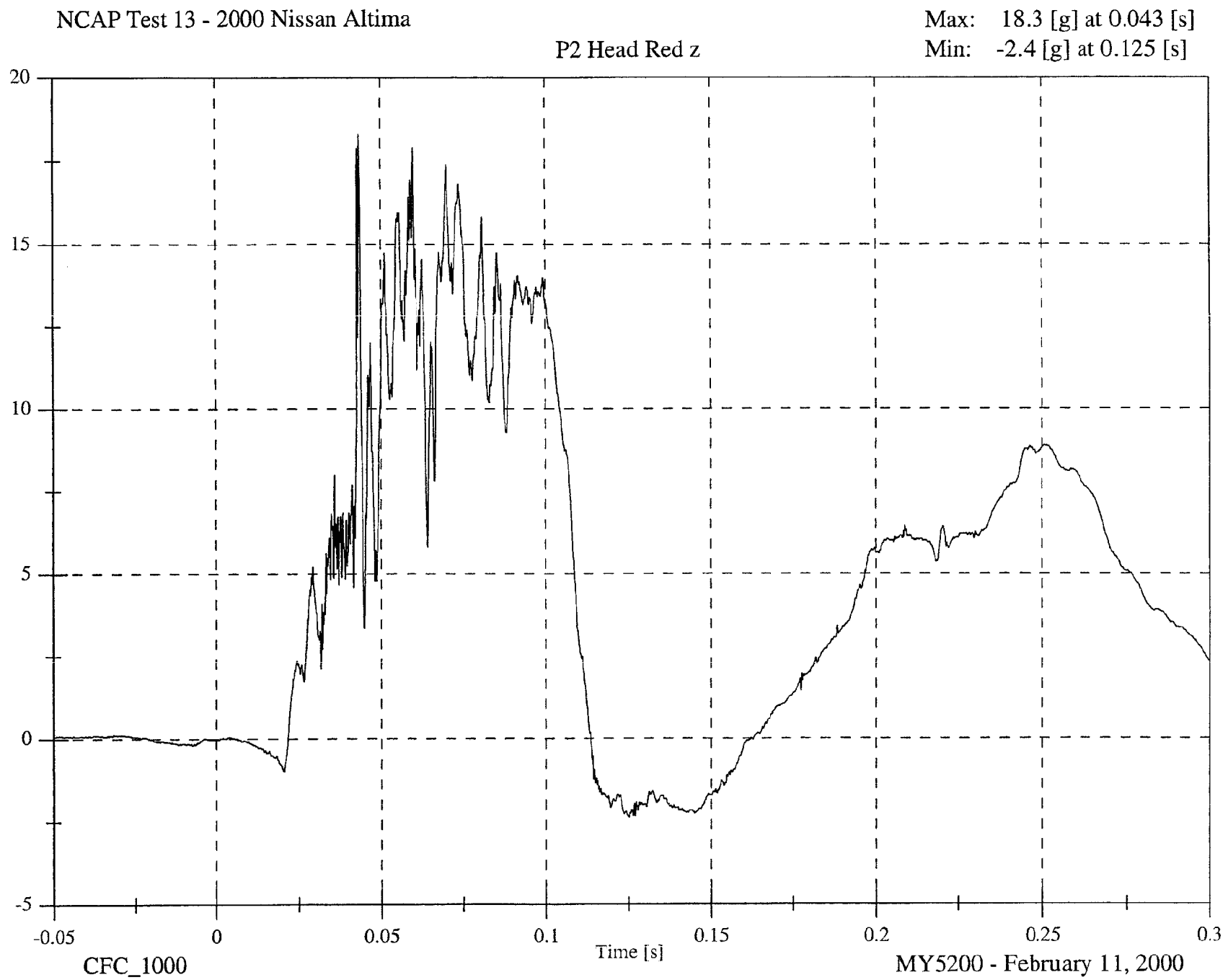

NCAP Test 13 - 2000 Nissan Altima
P2 Head y
Max: 10.0 [g] at 0.071 [s]
Min: -6.4 [g] at 0.094 [s]
10
7.5
5
2.5
0
-2.5
-5
-7.5
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

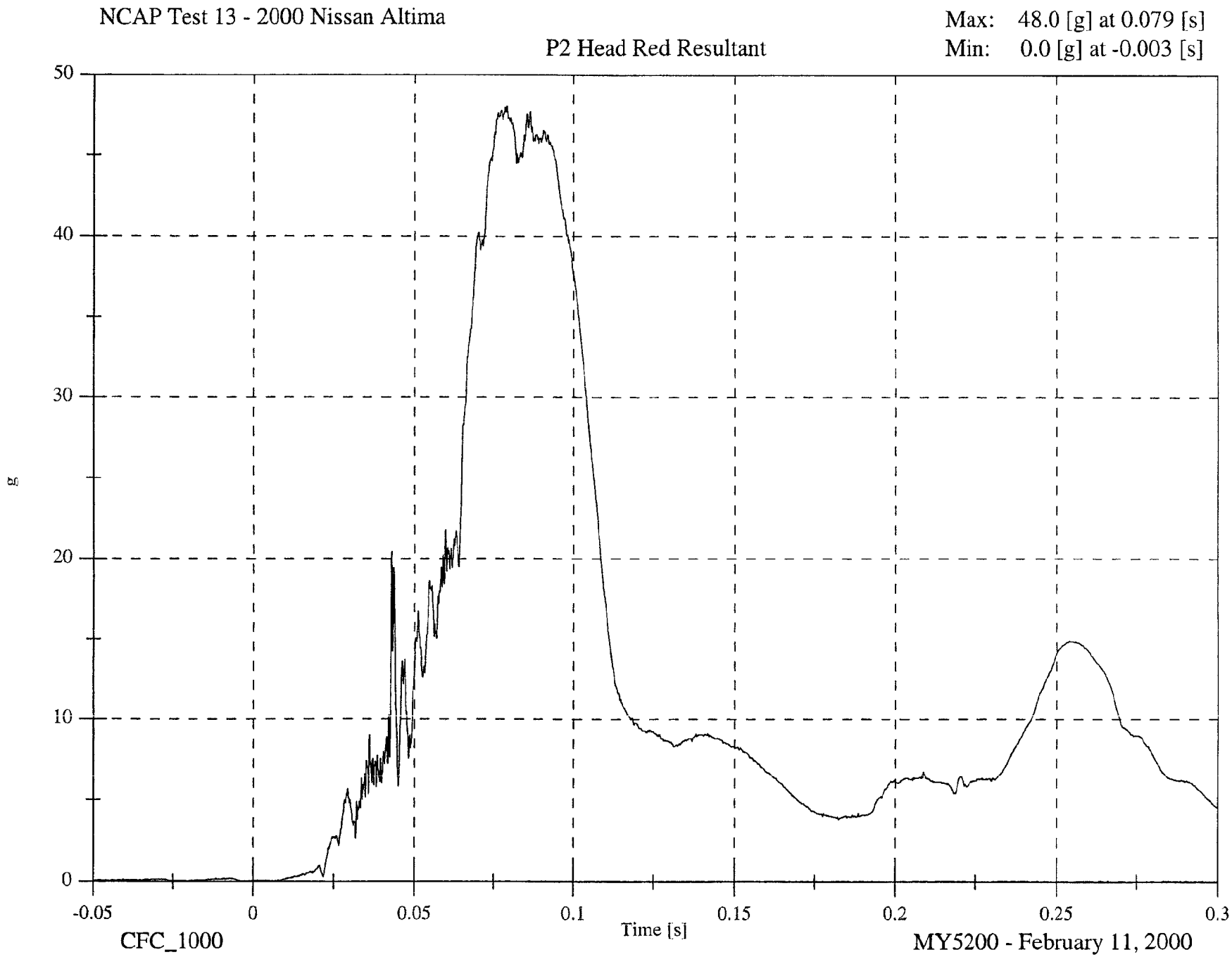

NCAP Test 13 - 2000 Nissan Altima
P2 Head z
Max: 18.7 [g] at 0.081 [s]
Min: -1.3 [g] at 0.125 [s]
20
15
10
5
0
-5
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

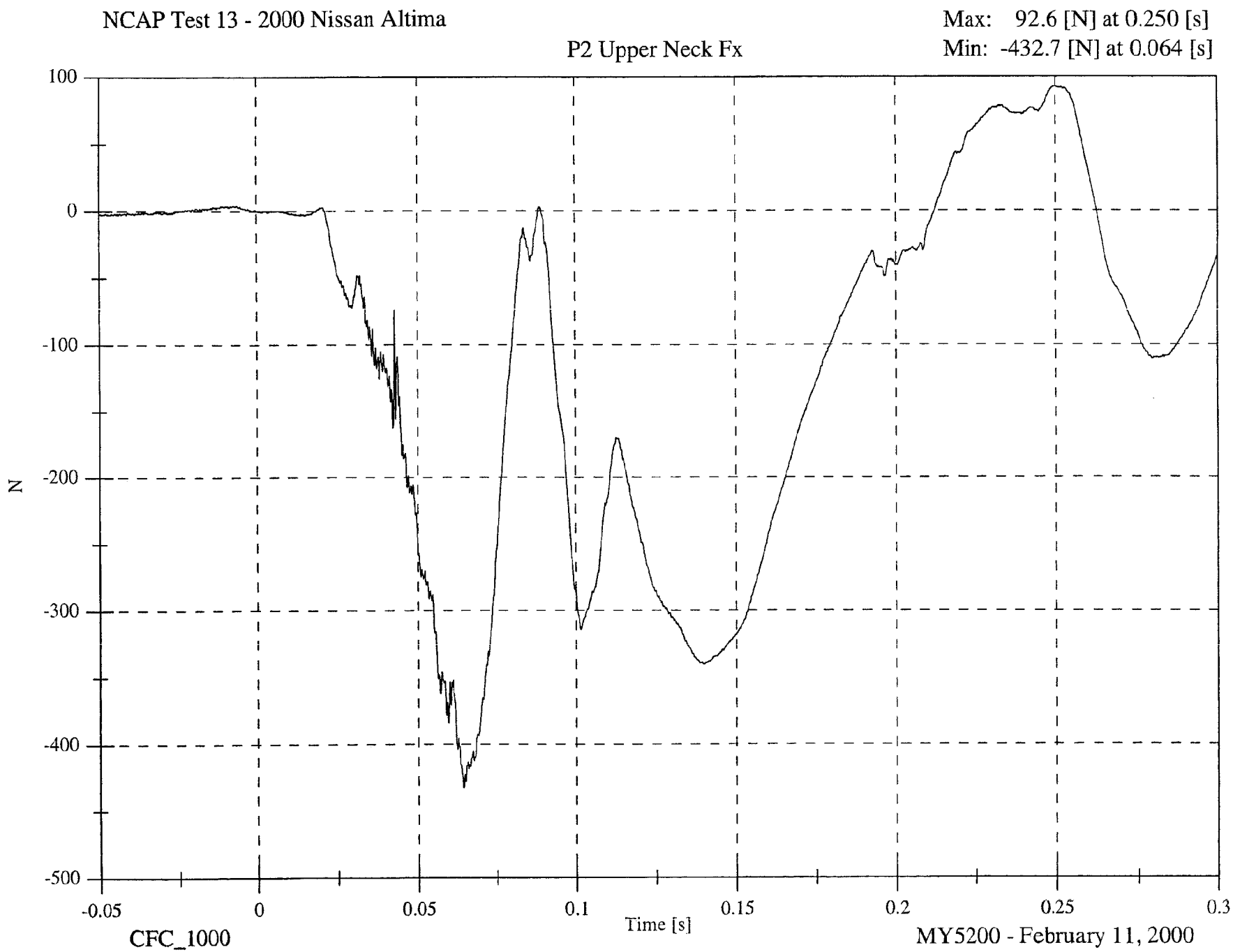

NCAP Test 13 - 2000 Nissan Altima
P2 Head Resultant
Max: 48.4 [g] at 0.080 [s]
Min: 0.0 [g] at -0.022 [s]
50
40
30
20
10
0
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

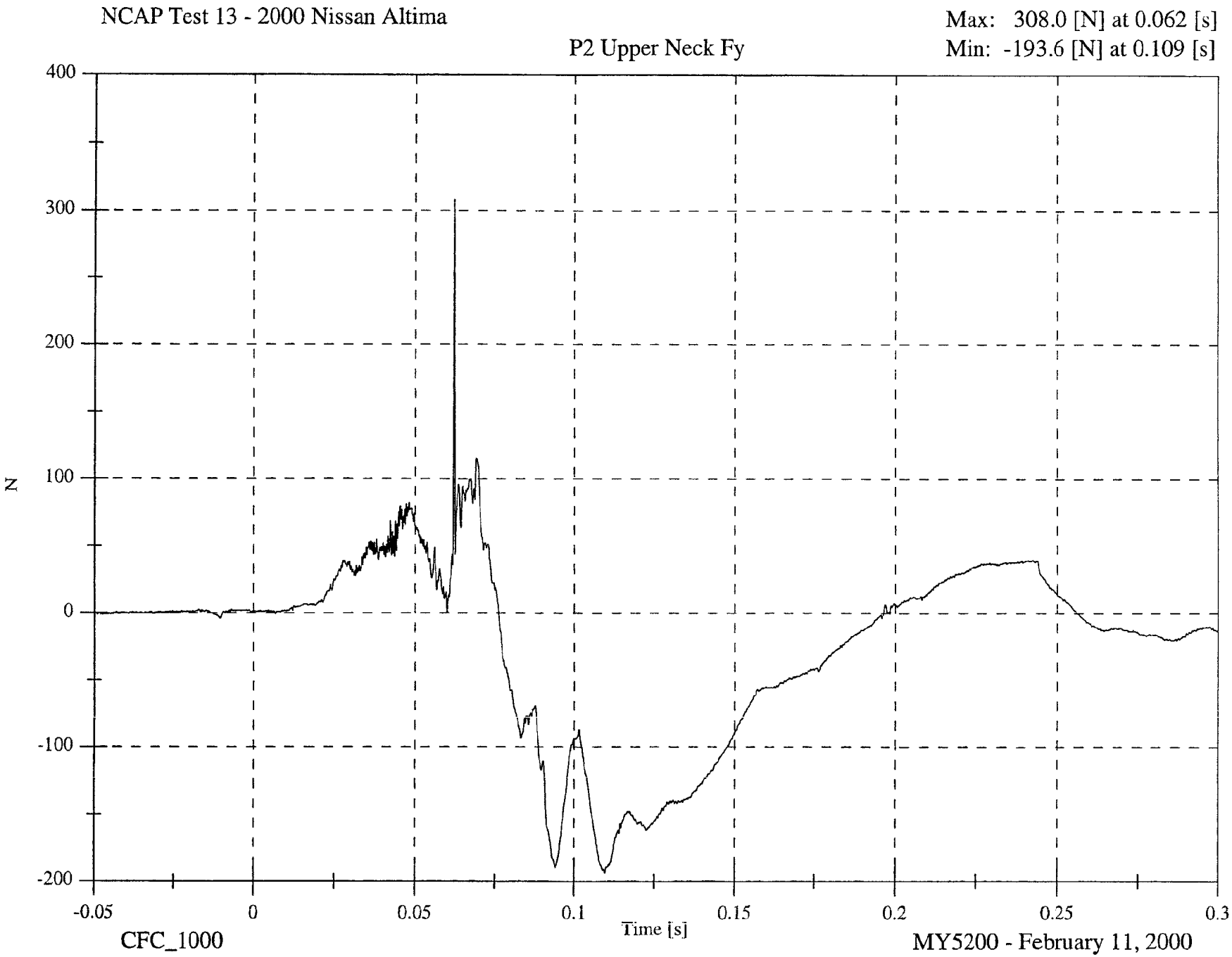

NCAP Test 13 - 2000 Nissan Altima
P2 Head Red x
Max: 12.4 [g] at 0.256 [s]
Min: -46.3 [g] at 0.079 [s]
20
10
0
-10
-20
-30
-40
-50
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

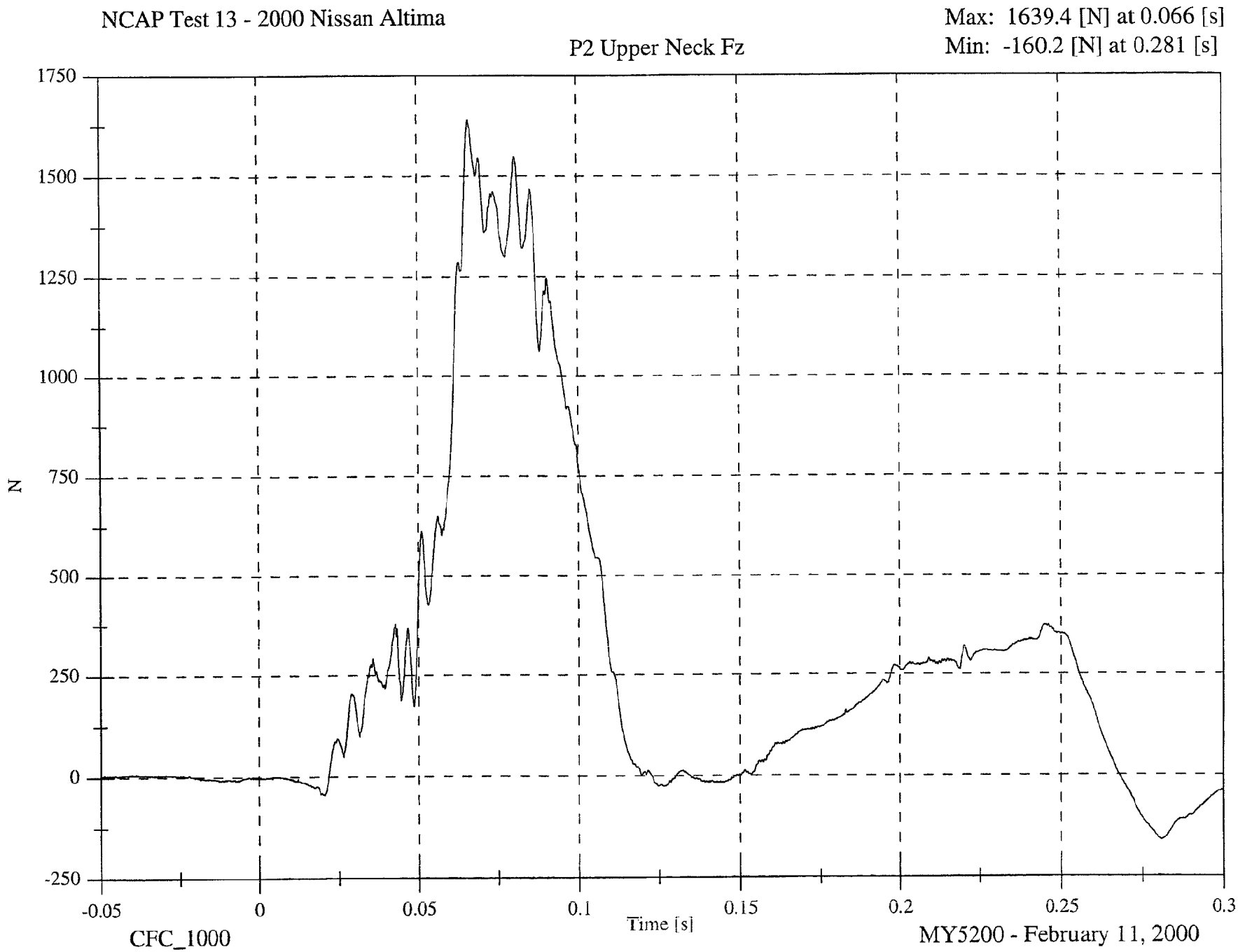

NCAP Test 13 - 2000 Nissan Altima
P2 Head Red y
Max: 12.1 [g] at 0.071 [s]
Min: -7.5 [g] at 0.095 [s]
12.5
10
7.5
5
2.5
0
-2.5
-5
-7.5
-10
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

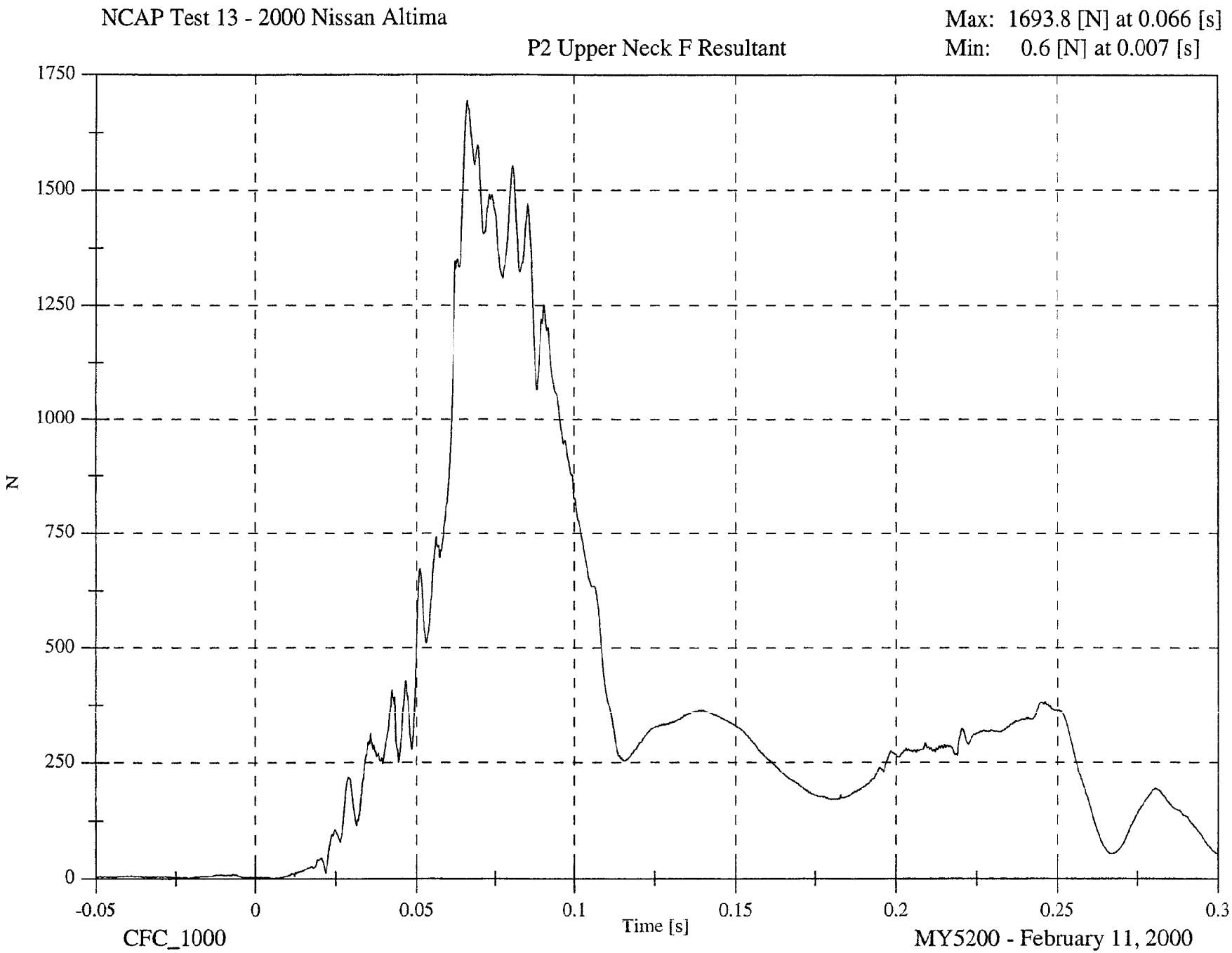

NCAP Test 13 - 2000 Nissan Altima
P2 Head Red z
Max: 18.3 [g] at 0.043 [s]
Min: -2.4 [g] at 0.125 [s]
20
15
10
5
0
-5
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
P2 Head Red Resultant
Max: 48.0 [g] at 0.079 [s]
Min: 0.0 [g] at -0.003 [s]
50
40
30
20
10
0
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
P2 Upper Neck Fx
Max: 92.6 [N] at 0.250 [s]
Min: -432.7 [N] at 0.064 [s]
100
0
-100
-200
-300
-400
-500
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
P2 Upper Neck Fy
Max: 308.0 [N] at 0.062 [s]
Min: -193.6 [N] at 0.109 [s]
400
300
200
100
0
-100
-200
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

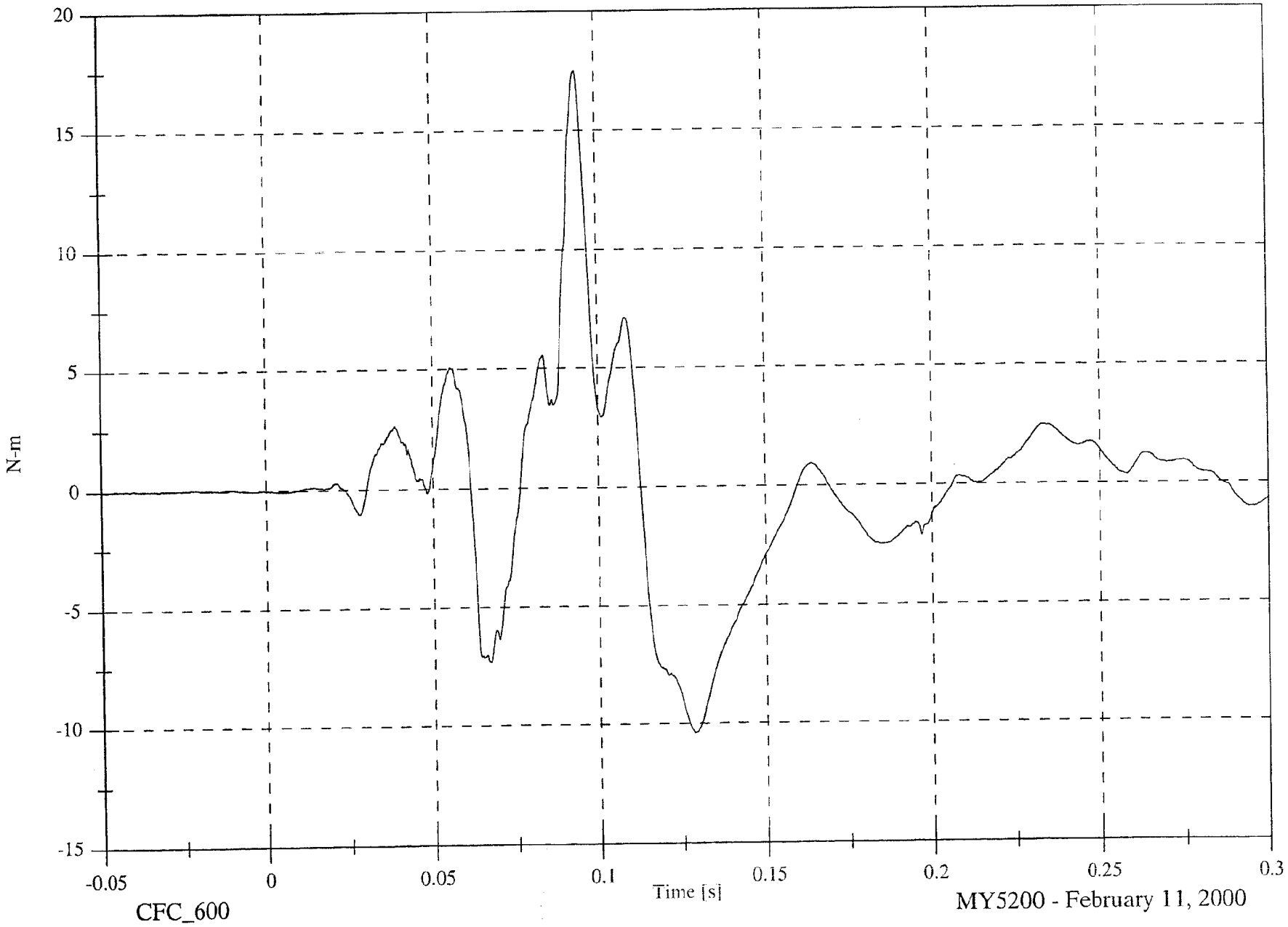

NCAP Test 13 - 2000 Nissan Altima
P2 Upper Neck Fz
Max: 1639.4 [N] at 0.066 [s]
Min: -160.2 [N] at 0.281 [s]
1750
1500
1250
1000
750
500
250
0
-250
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
P2 Upper Neck F Resultant
Max: 1693.8 [N] at 0.066 [s]
Min: 0.6 [N] at 0.007 [s]
1750
1500
1250
1000
750
500
250
0
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

NCAP Test 13 - 2000 Nissan Altima

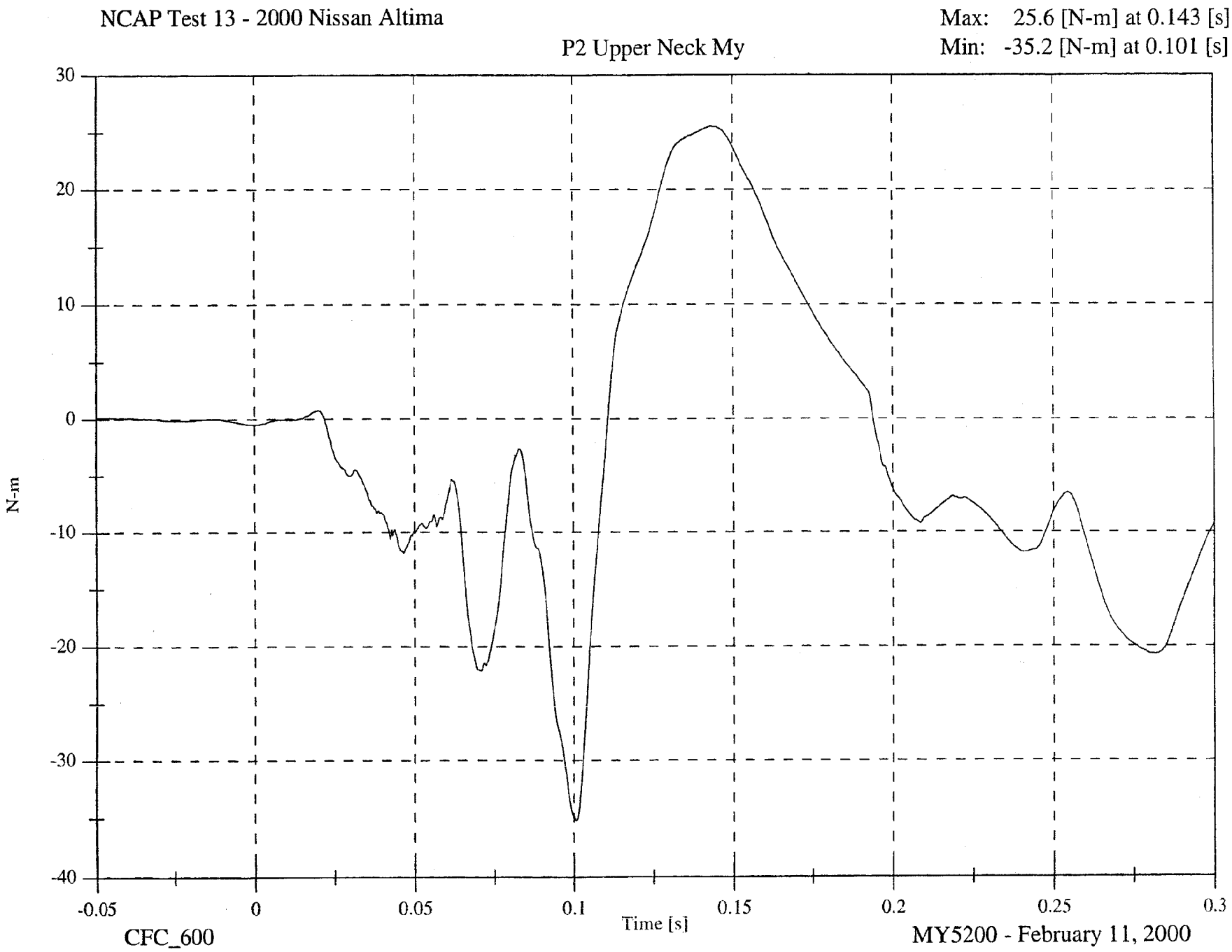
P2 Upper Neck Mx

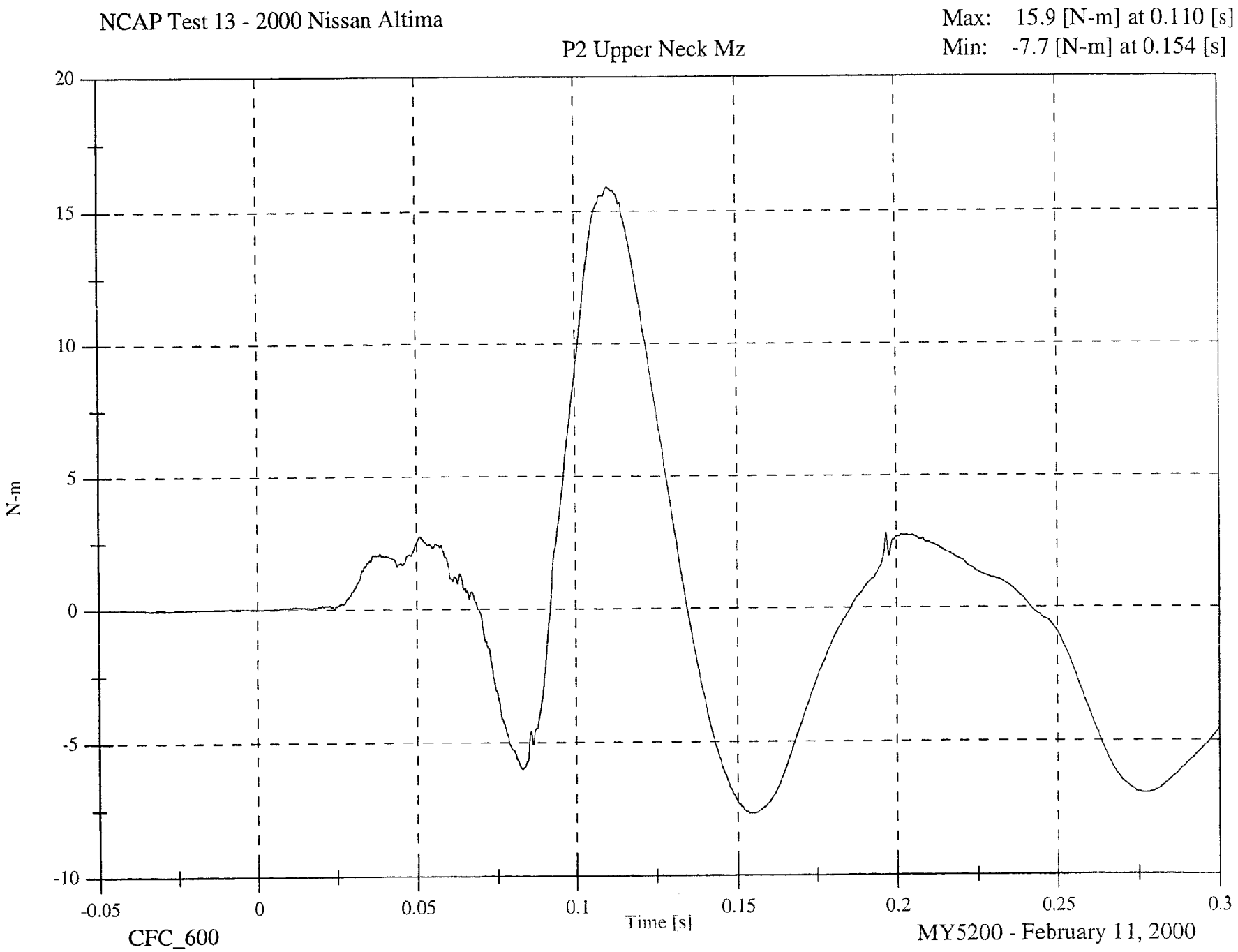
Max: 17.5 [N-m] at 0.094 [s]
Min: -10.4 [N-m] at 0.128 [s]

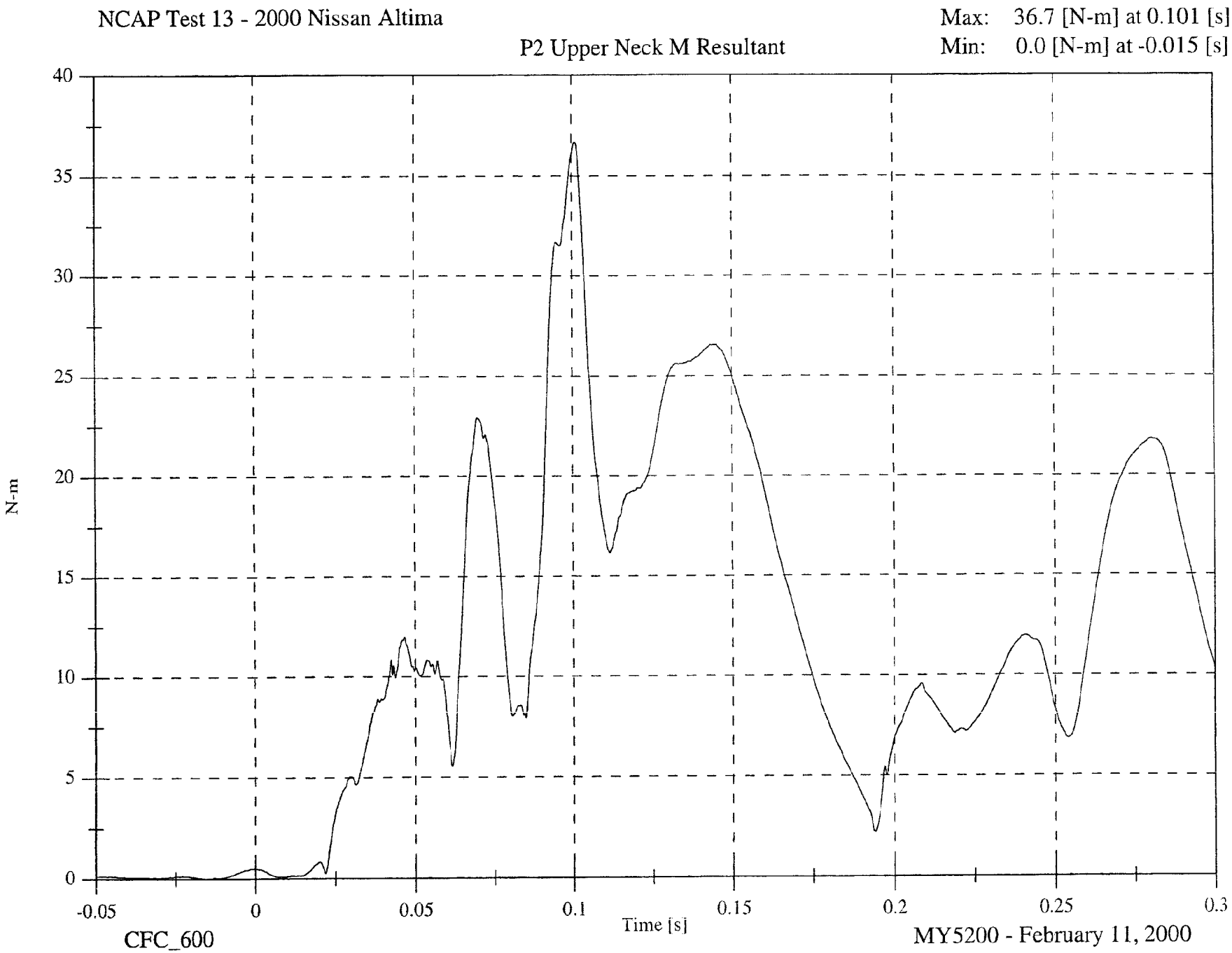


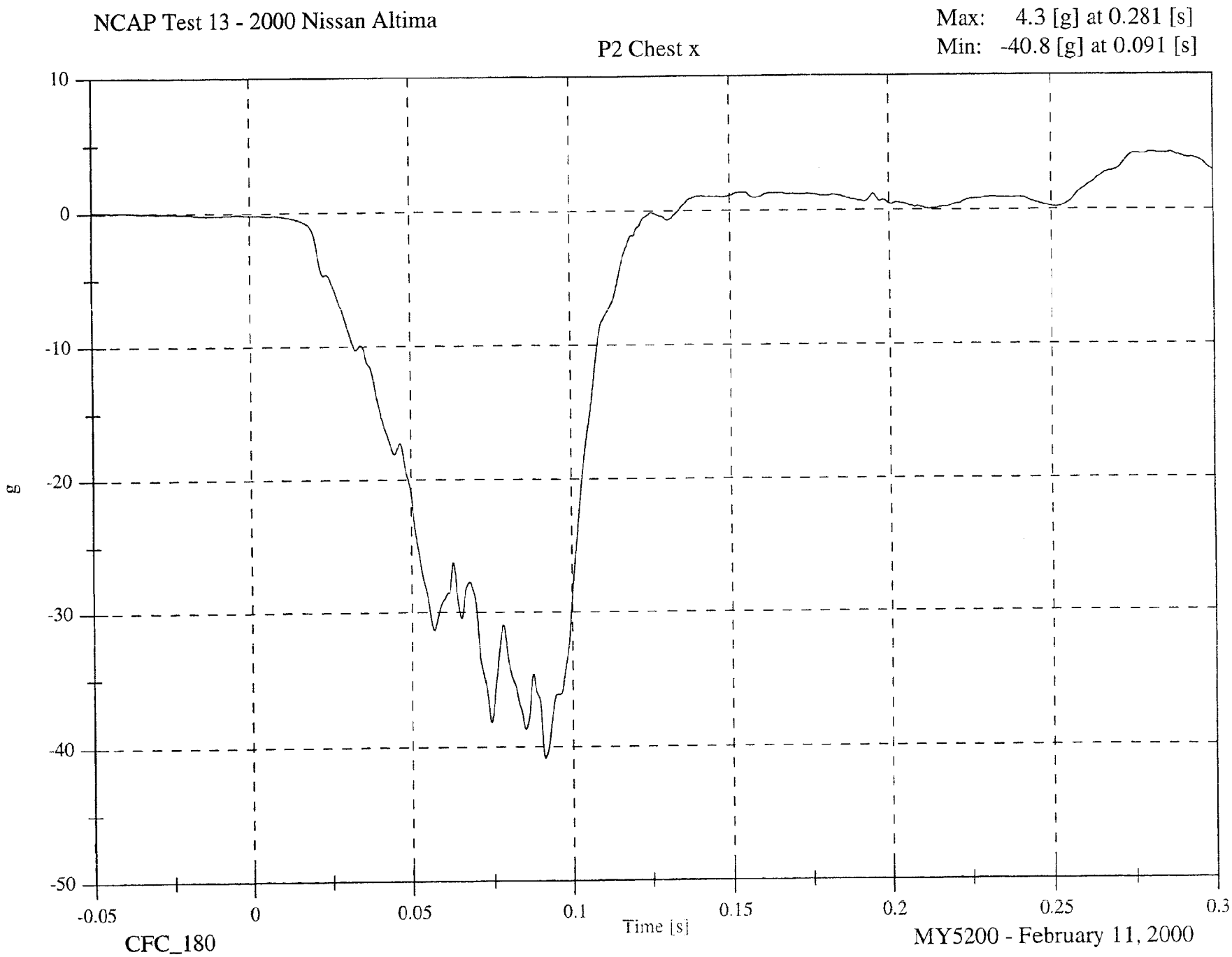
CFC_600

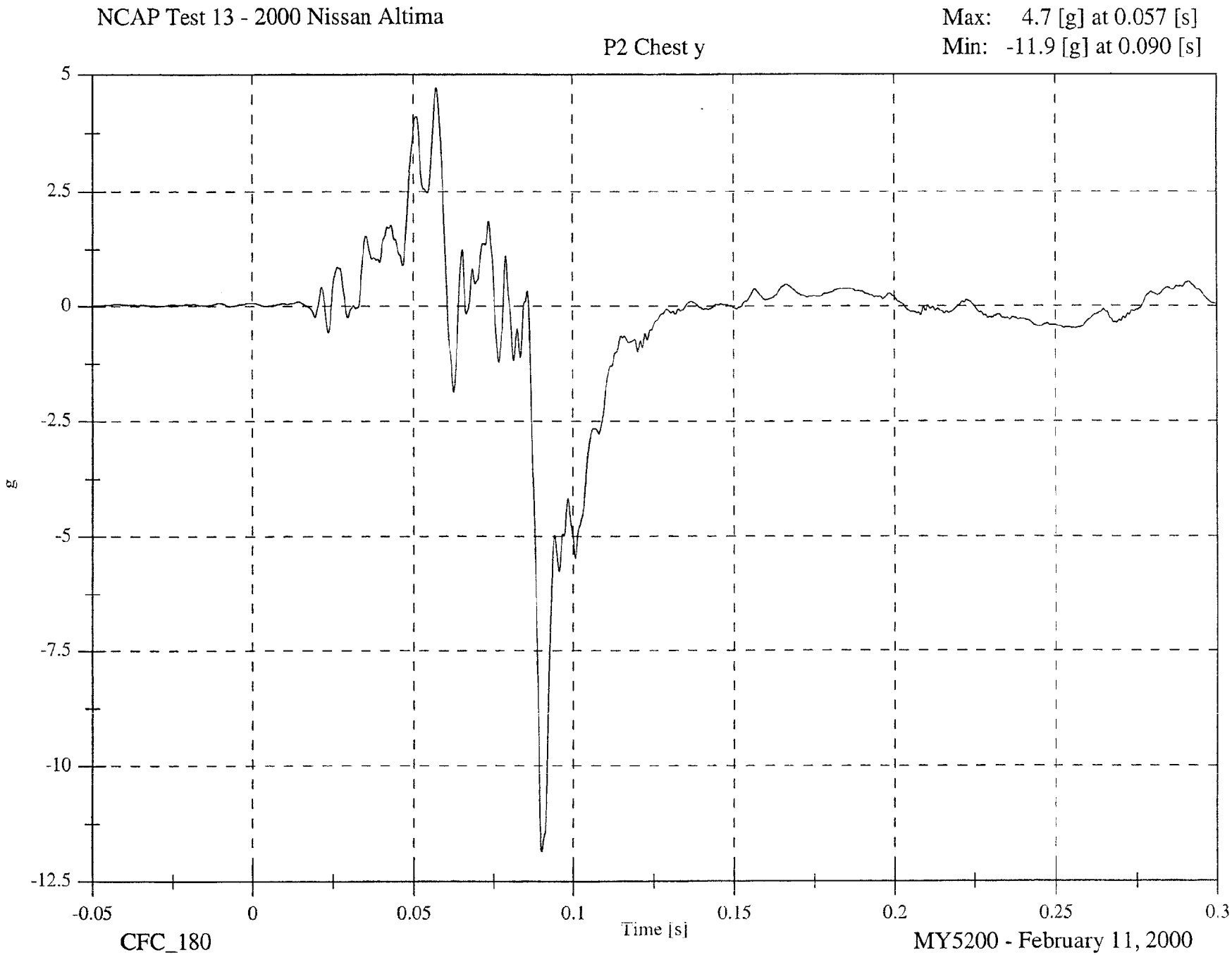
MY5200 - February 11, 2000

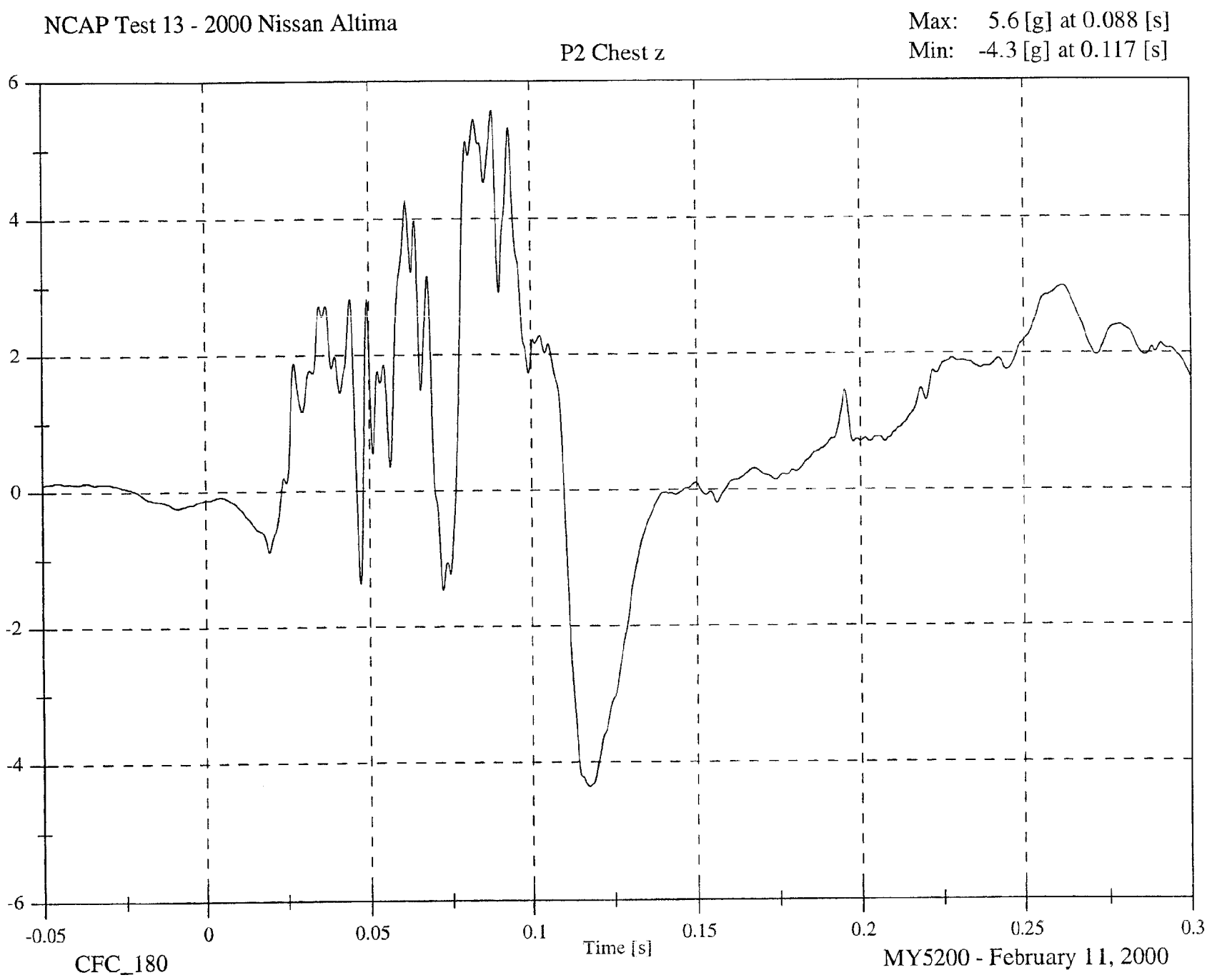

NCAP Test 13 - 2000 Nissan Altima
P2 Upper Neck My
Max: 25.6 [N-m] at 0.143 [s]
Min: -35.2 [N-m] at 0.101 [s]
30
20
10
0
-10
-20
-30
-40
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

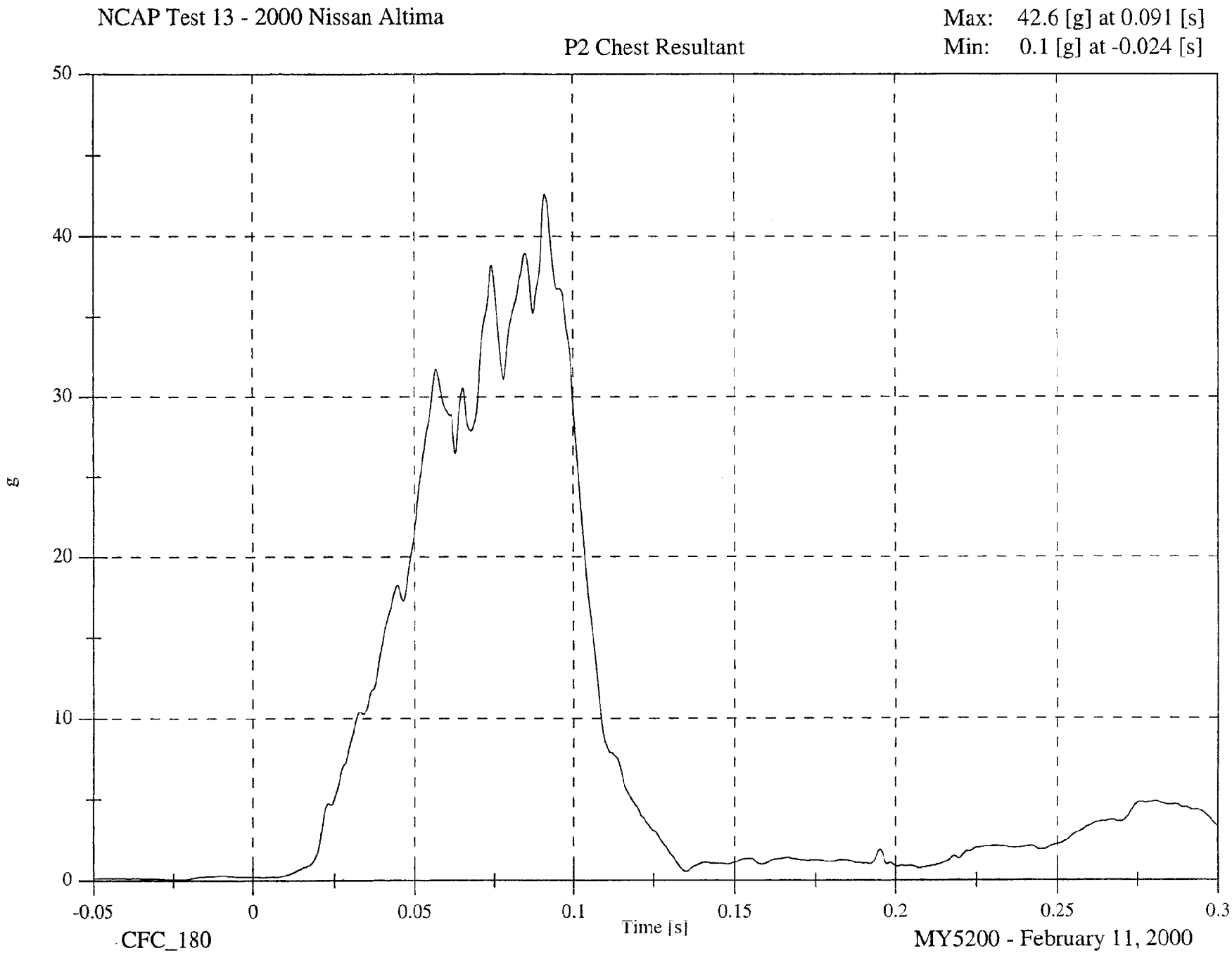

NCAP Test 13 - 2000 Nissan Altima
P2 Upper Neck Mz
Max: 15.9 [N-m] at 0.110 [s]
Min: -7.7 [N-m] at 0.154 [s]
N-m
20
15
10
5
0
-5
-10
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

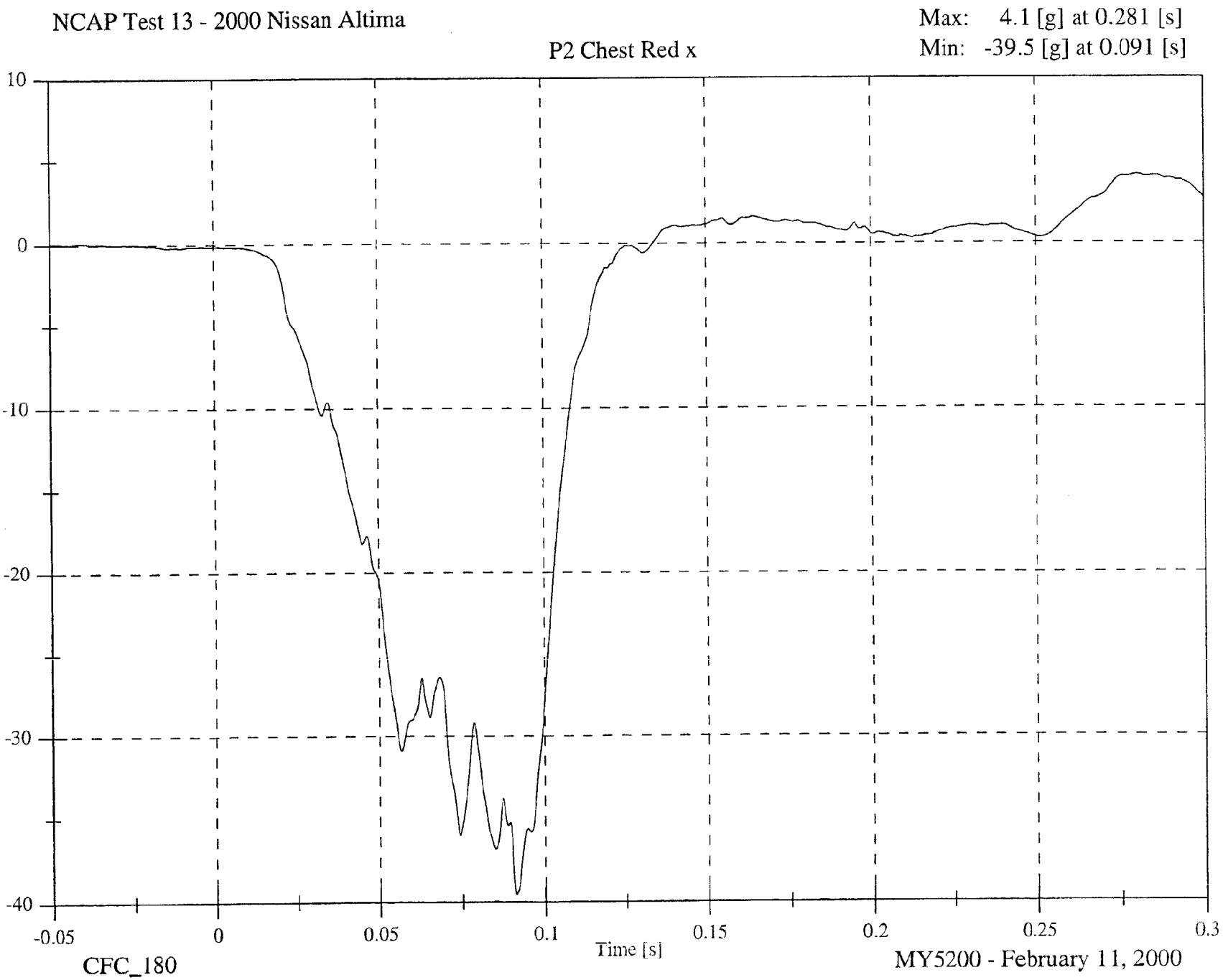

NCAP Test 13 - 2000 Nissan Altima
P2 Upper Neck M Resultant
Max: 36.7 [N-m] at 0.101 [s]
Min: 0.0 [N-m] at -0.015 [s]
N-m
40
35
30
25
20
15
10
5
0
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

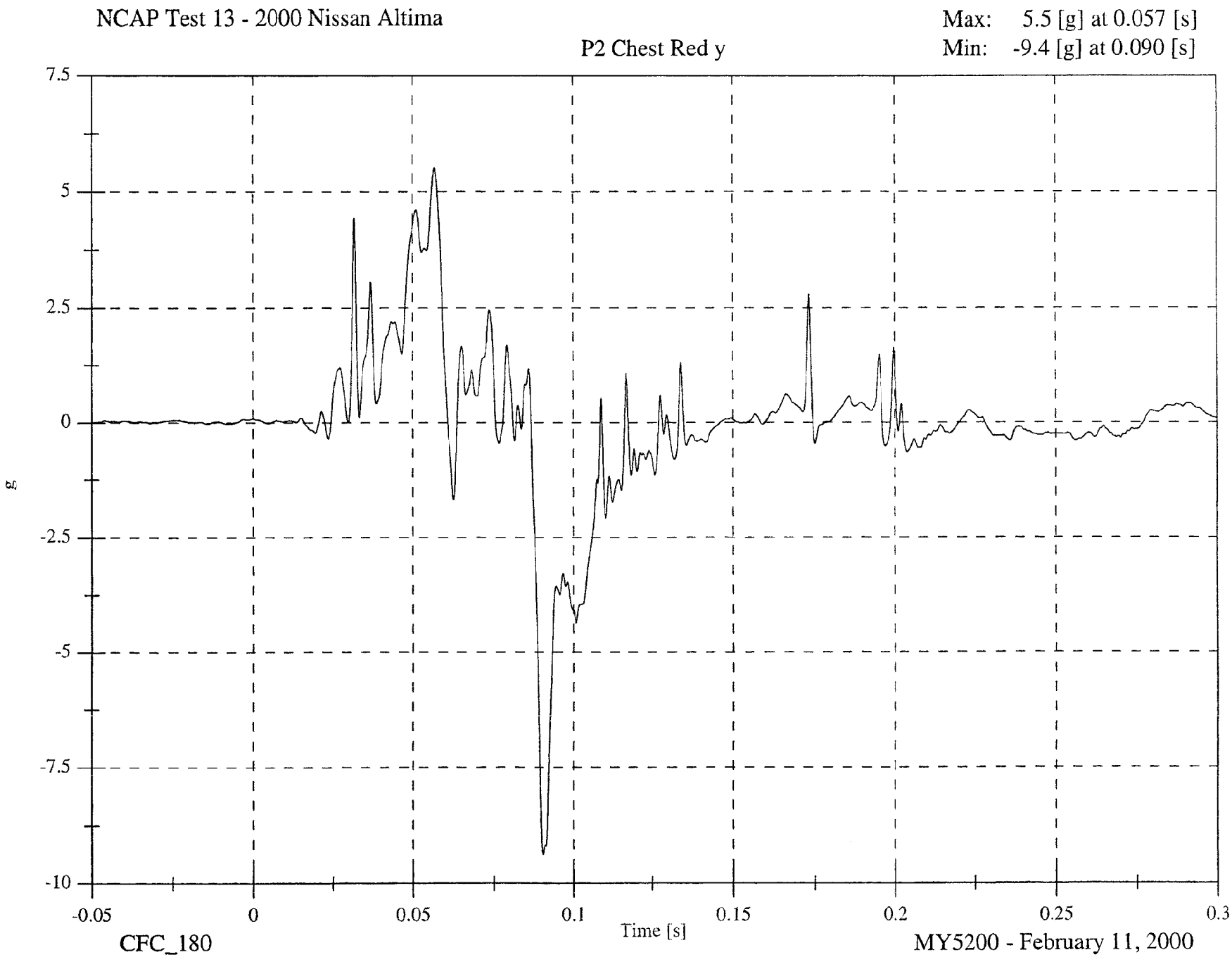

NCAP Test 13 - 2000 Nissan Altima
P2 Chest x
Max: 4.3 [g] at 0.281 [s]
Min: -40.8 [g] at 0.091 [s]
10
0
-10
-20
-30
-40
-50
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

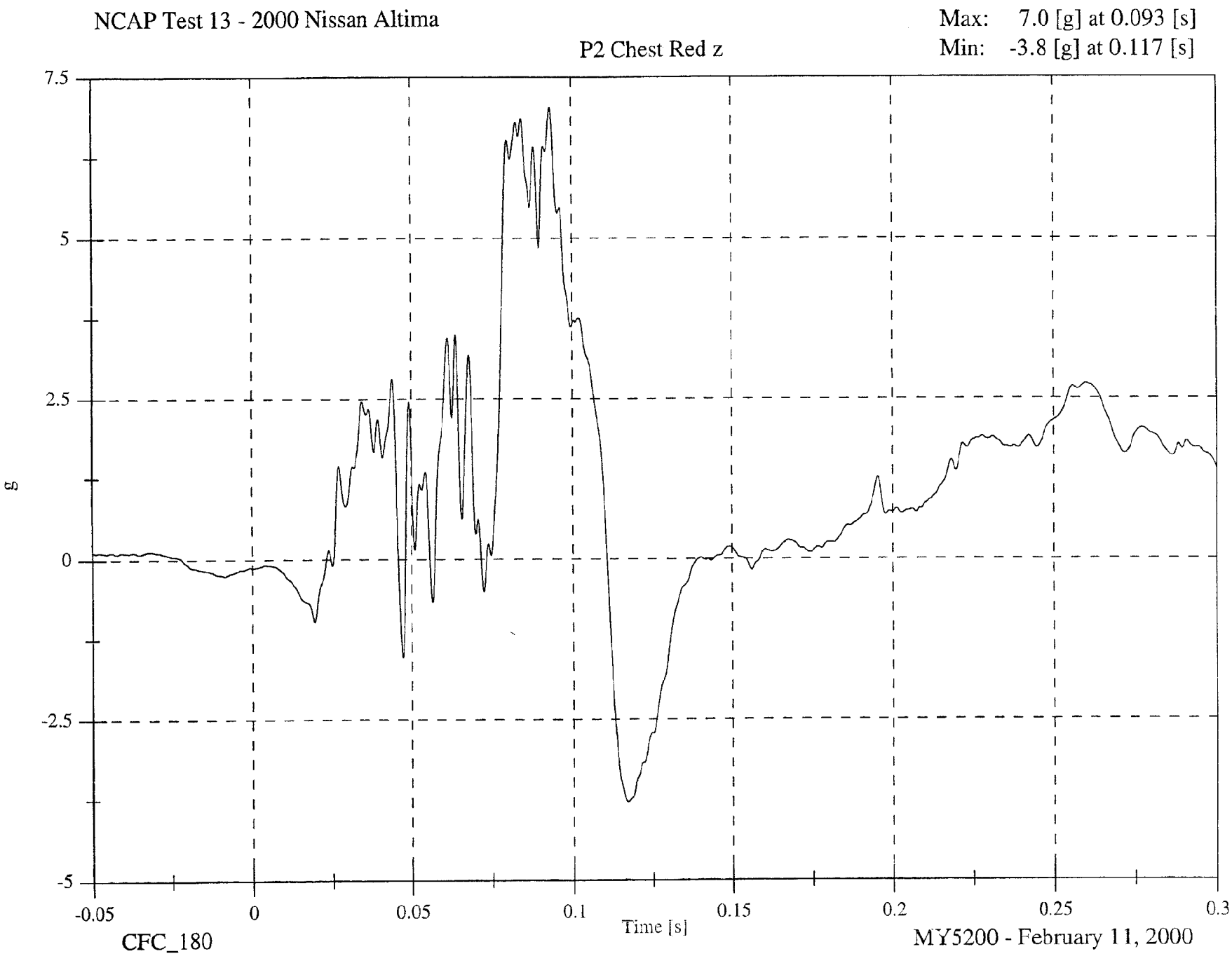

NCAP Test 13 - 2000 Nissan Altima
P2 Chest y
Max: 4.7 [g] at 0.057 [s]
Min: -11.9 [g] at 0.090 [s]
5
2.5
0
-2.5
-5
-7.5
-10
-12.5
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

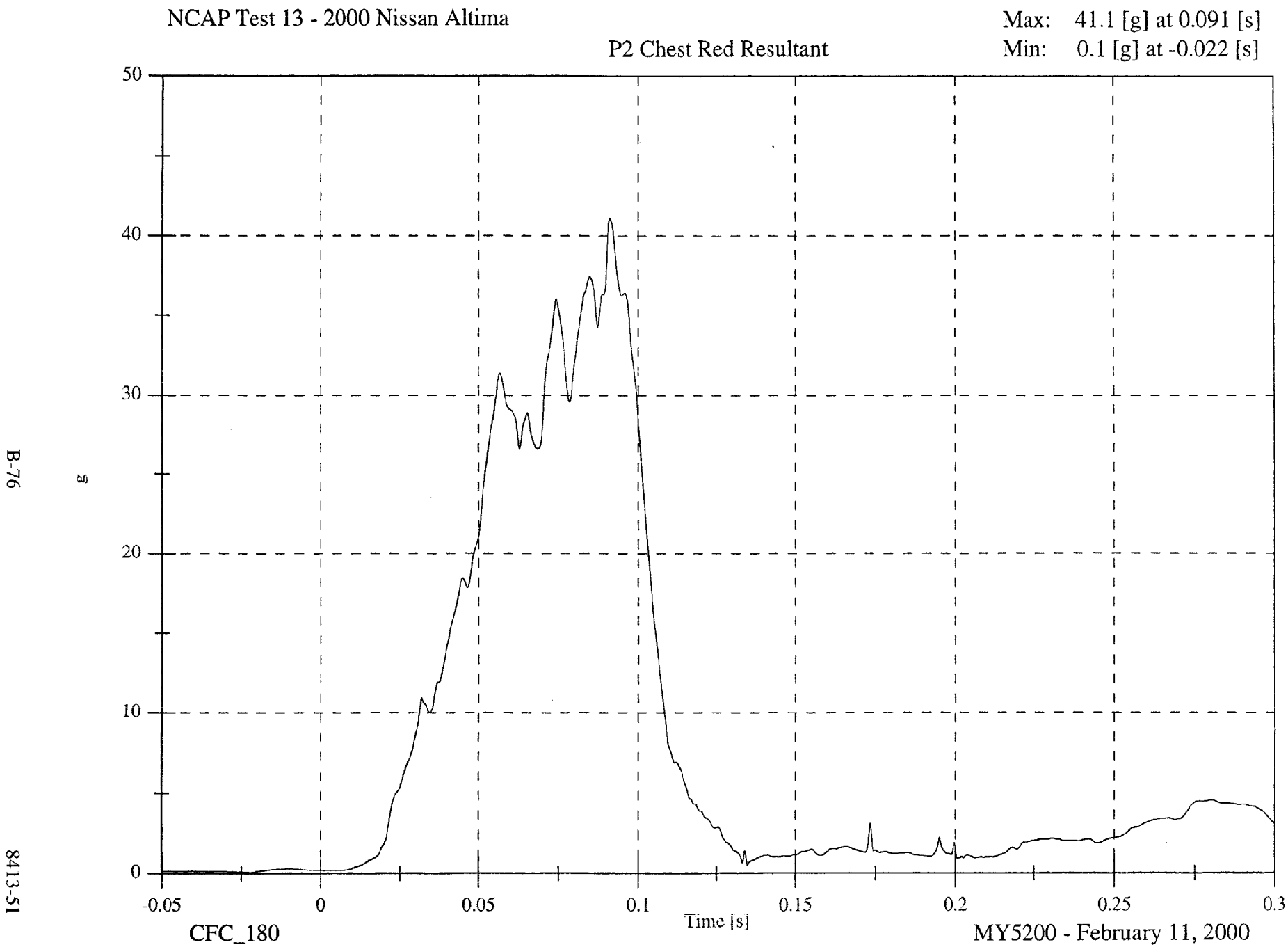

NCAP Test 13 - 2000 Nissan Altima
P2 Chest z
Max: 5.6 [g] at 0.088 [s]
Min: -4.3 [g] at 0.117 [s]
6
4
2
0
-2
-4
-6
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

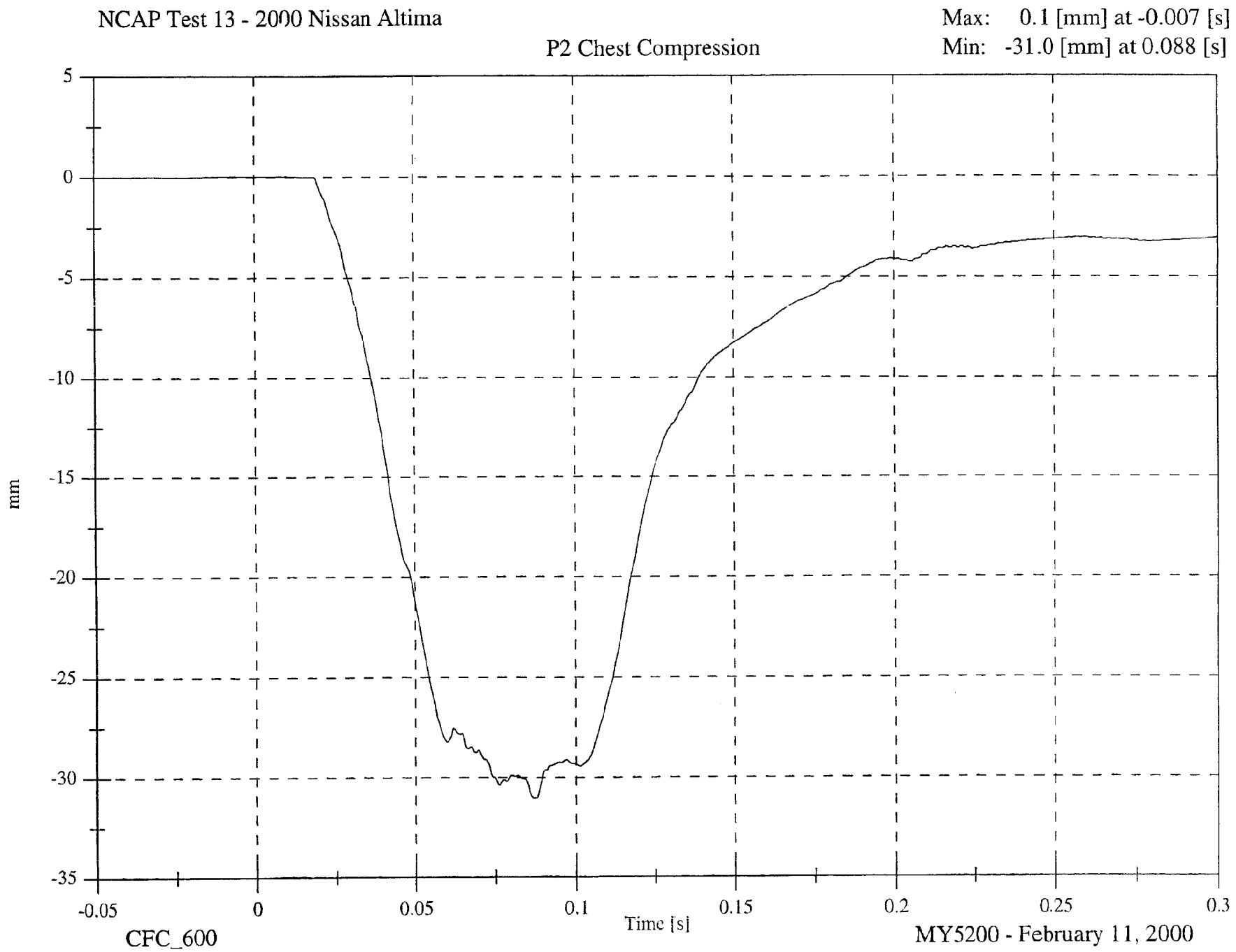

NCAP Test 13 - 2000 Nissan Altima
P2 Chest Resultant
Max: 42.6 [g] at 0.091 [s]
Min: 0.1 [g] at -0.024 [s]
50
40
30
20
10
0
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

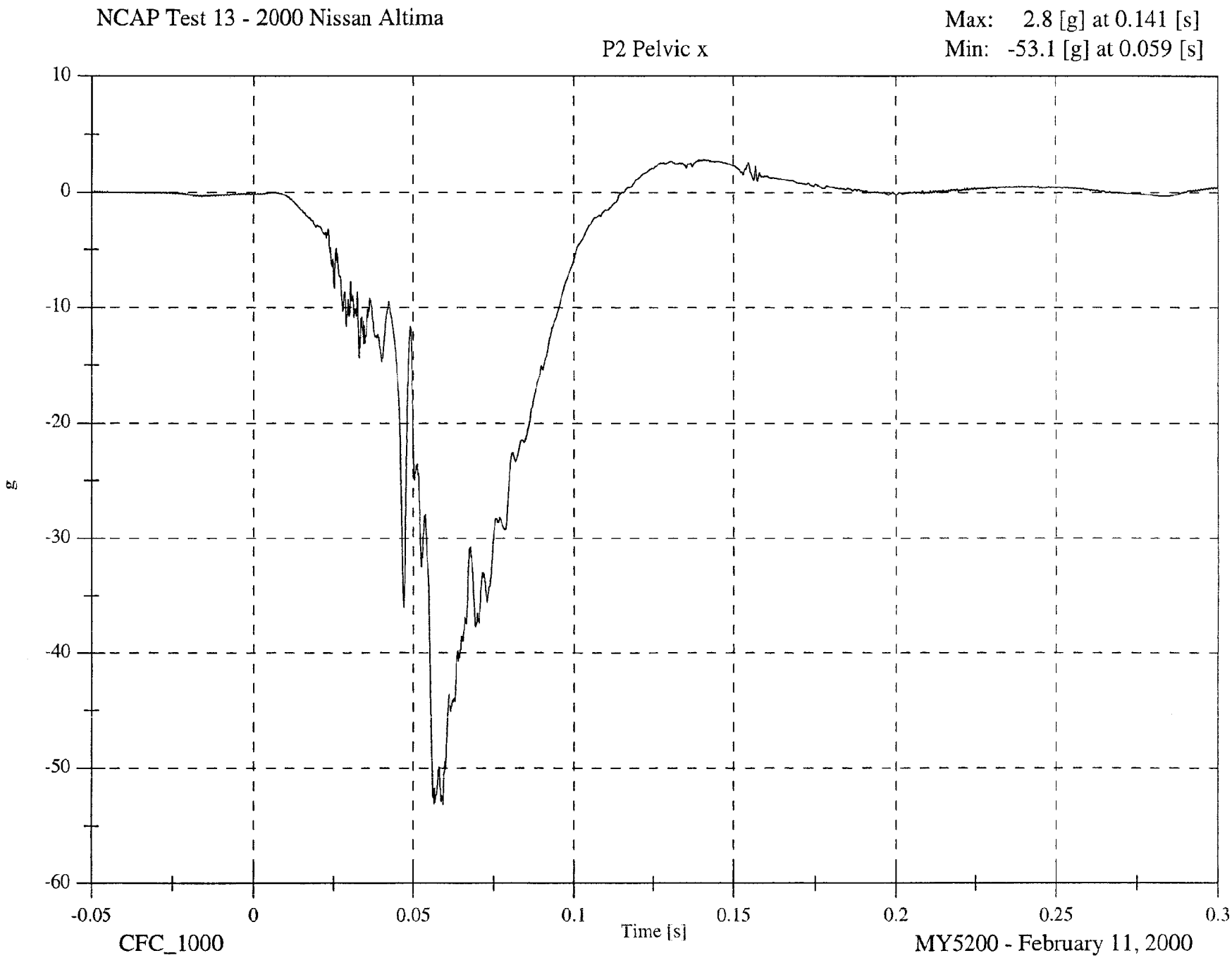

NCAP Test 13 - 2000 Nissan Altima
P2 Chest Red x
Max: 4.1 [g] at 0.281 [s]
Min: -39.5 [g] at 0.091 [s]
10
0
-10
-20
-30
-40
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

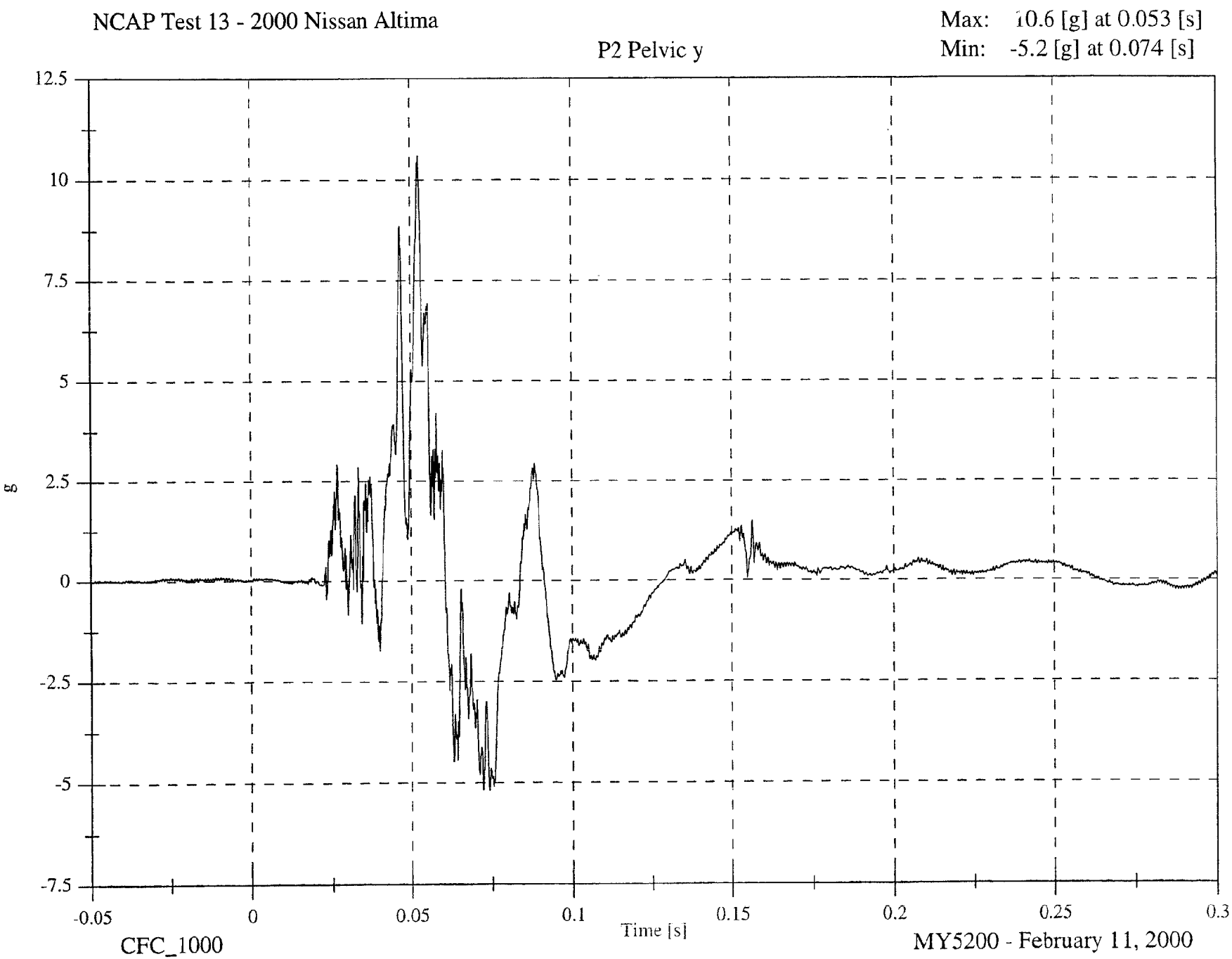

NCAP Test 13 - 2000 Nissan Altima
P2 Chest Red y
Max: 5.5 [g] at 0.057 [s]
Min: -9.4 [g] at 0.090 [s]
7.5
5
2.5
0
-2.5
-5
-7.5
-10
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

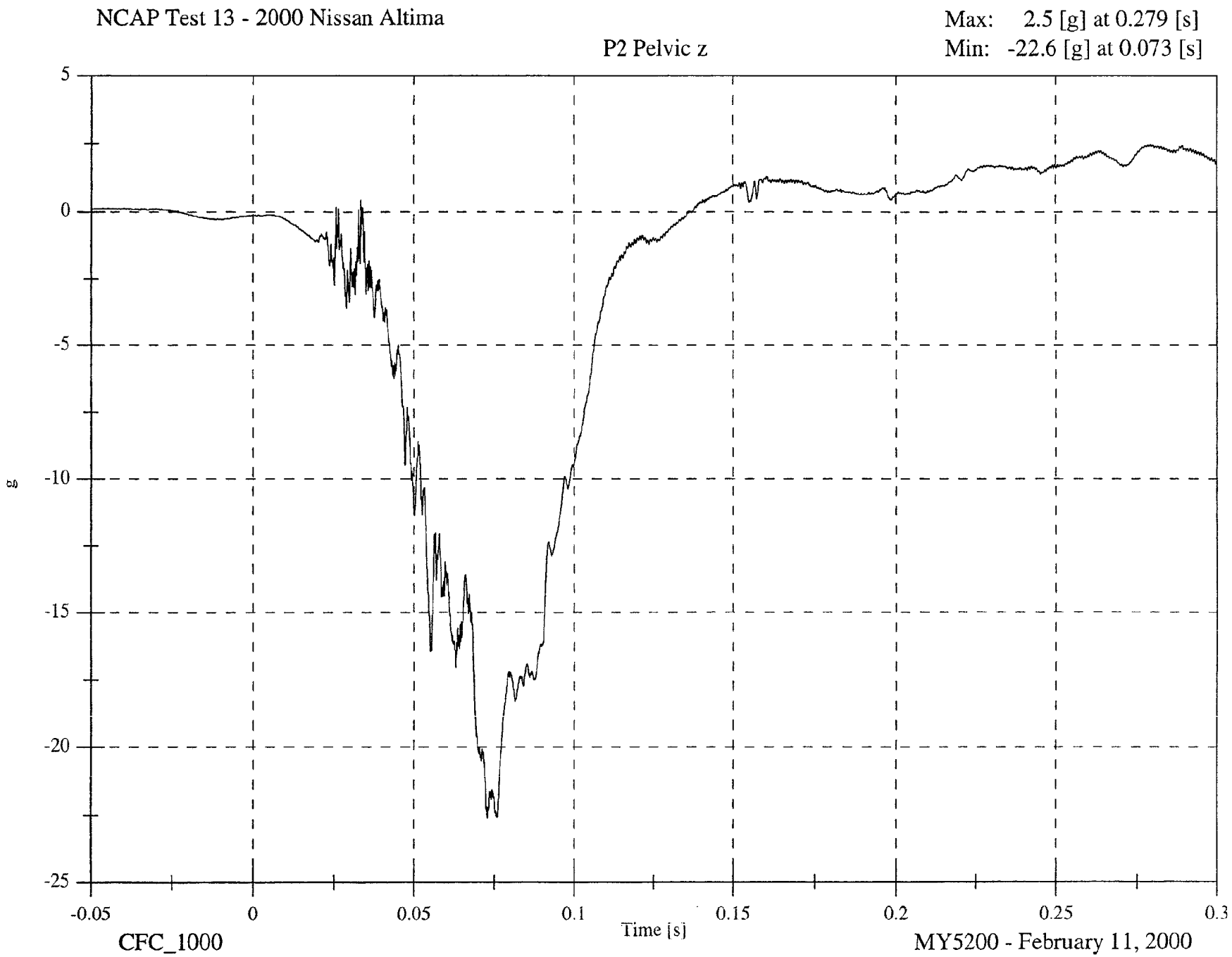

NCAP Test 13 - 2000 Nissan Altima
P2 Chest Red z
Max: 7.0 [g] at 0.093 [s]
Min: -3.8 [g] at 0.117 [s]
7.5
5
2.5
0
-2.5
-5
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

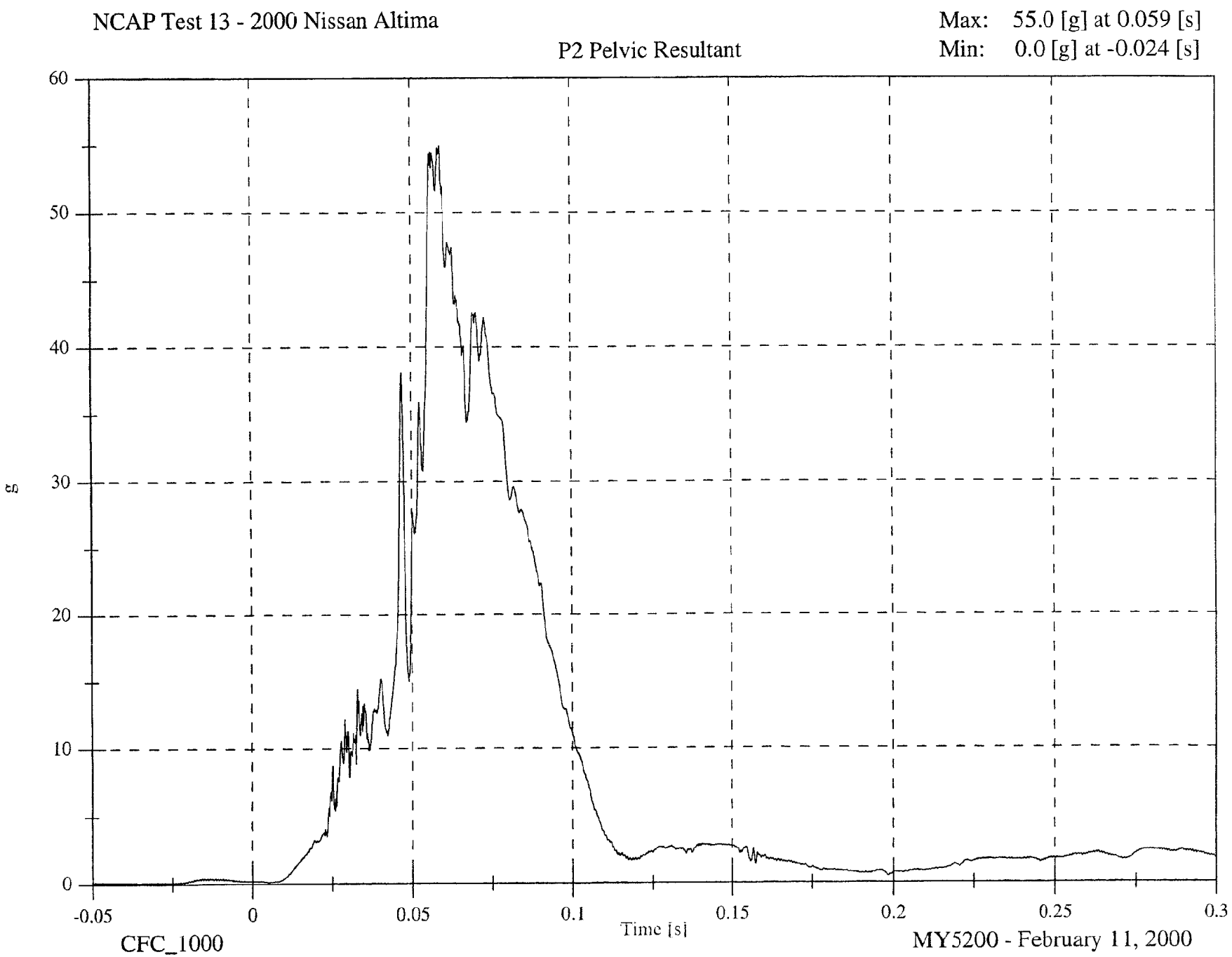

NCAP Test 13 - 2000 Nissan Altima
P2 Chest Red Resultant
Max: 41.1 [g] at 0.091 [s]
Min: 0.1 [g] at -0.022 [s]
50
40
30
20
10
0
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

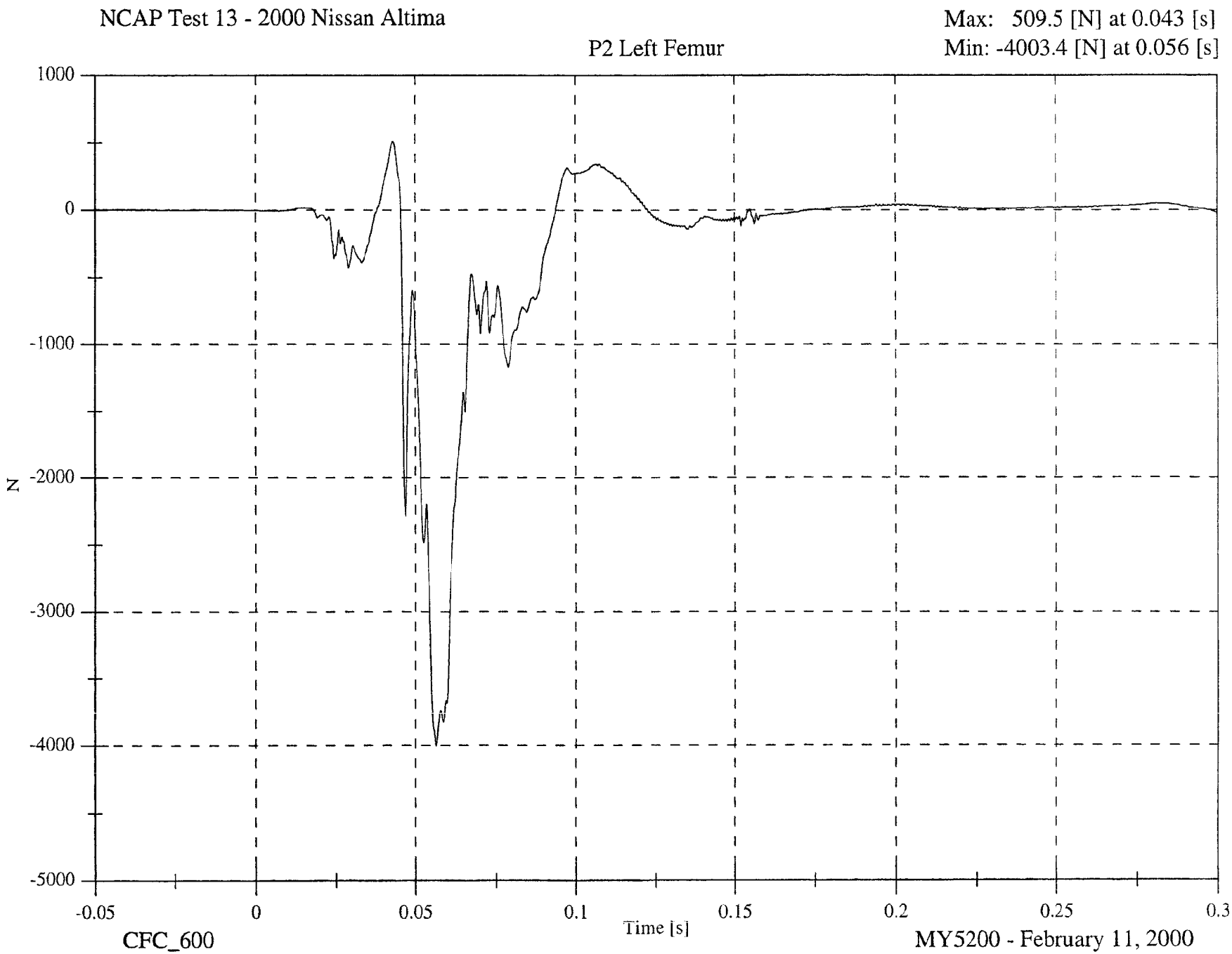

NCAP Test 13 - 2000 Nissan Altima
P2 Chest Compression
Max: 0.1 [mm] at -0.007 [s]
Min: -31.0 [mm] at 0.088 [s]
5
0
-5
-10
-15
-20
-25
-30
-35
mm
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

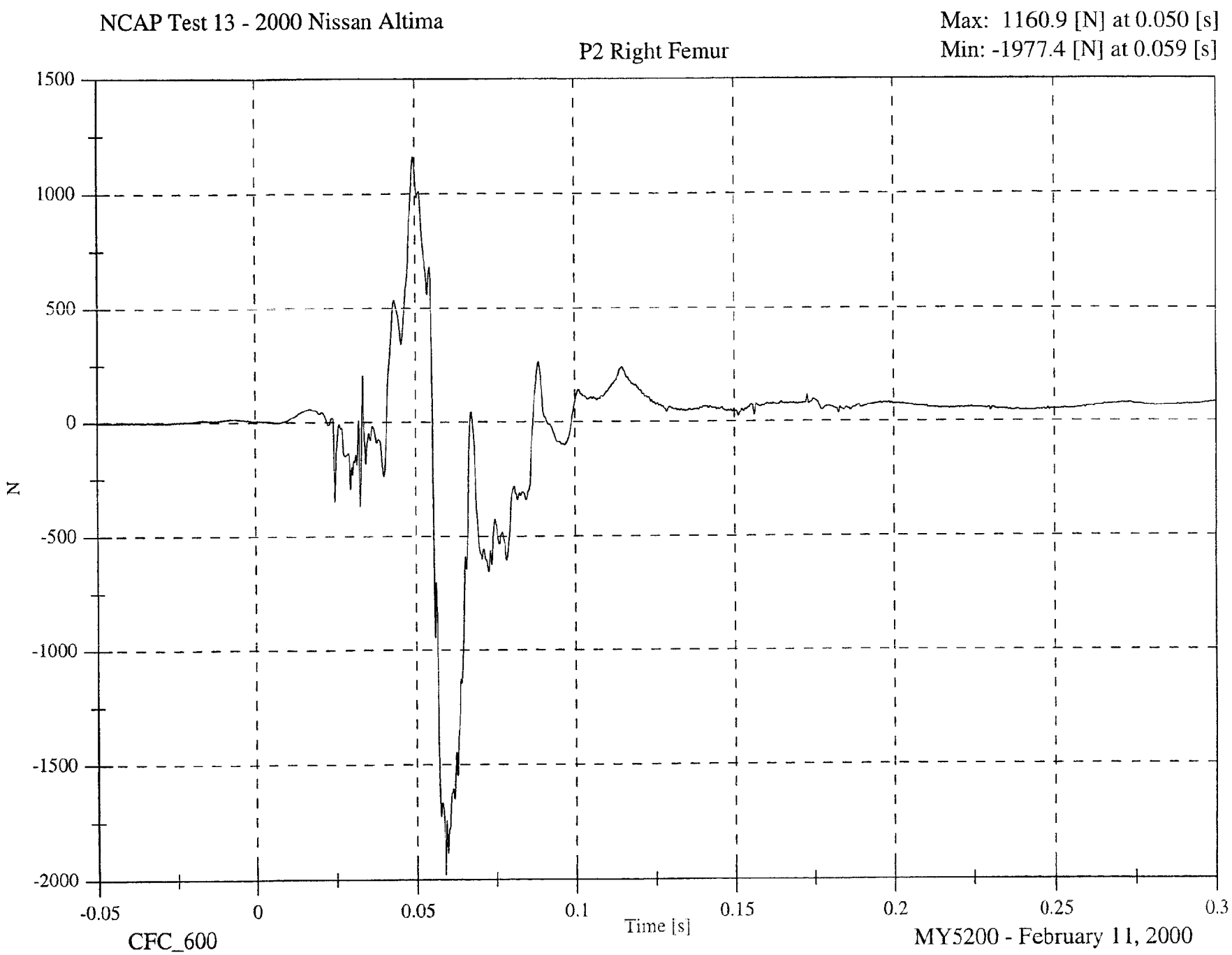

NCAP Test 13 - 2000 Nissan Altima
P2 Pelvic x
Max: 2.8 [g] at 0.141 [s]
Min: -53.1 [g] at 0.059 [s]
10
0
-10
-20
-30
-40
-50
-60
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

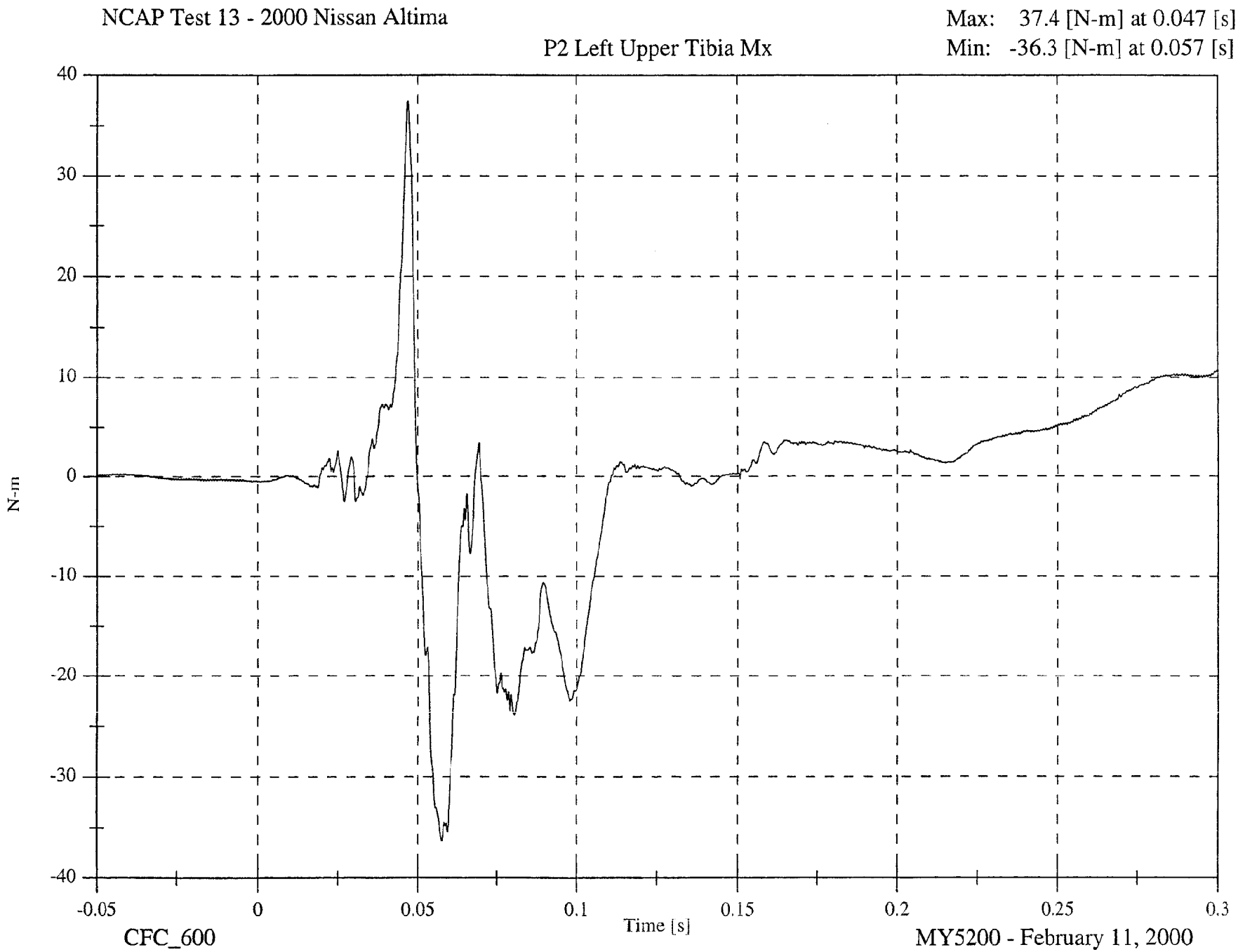

NCAP Test 13 - 2000 Nissan Altima
P2 Pelvic y
Max: 10.6 [g] at 0.053 [s]
Min: -5.2 [g] at 0.074 [s]
12.5
10
7.5
5
2.5
0
-2.5
-5
-7.5
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

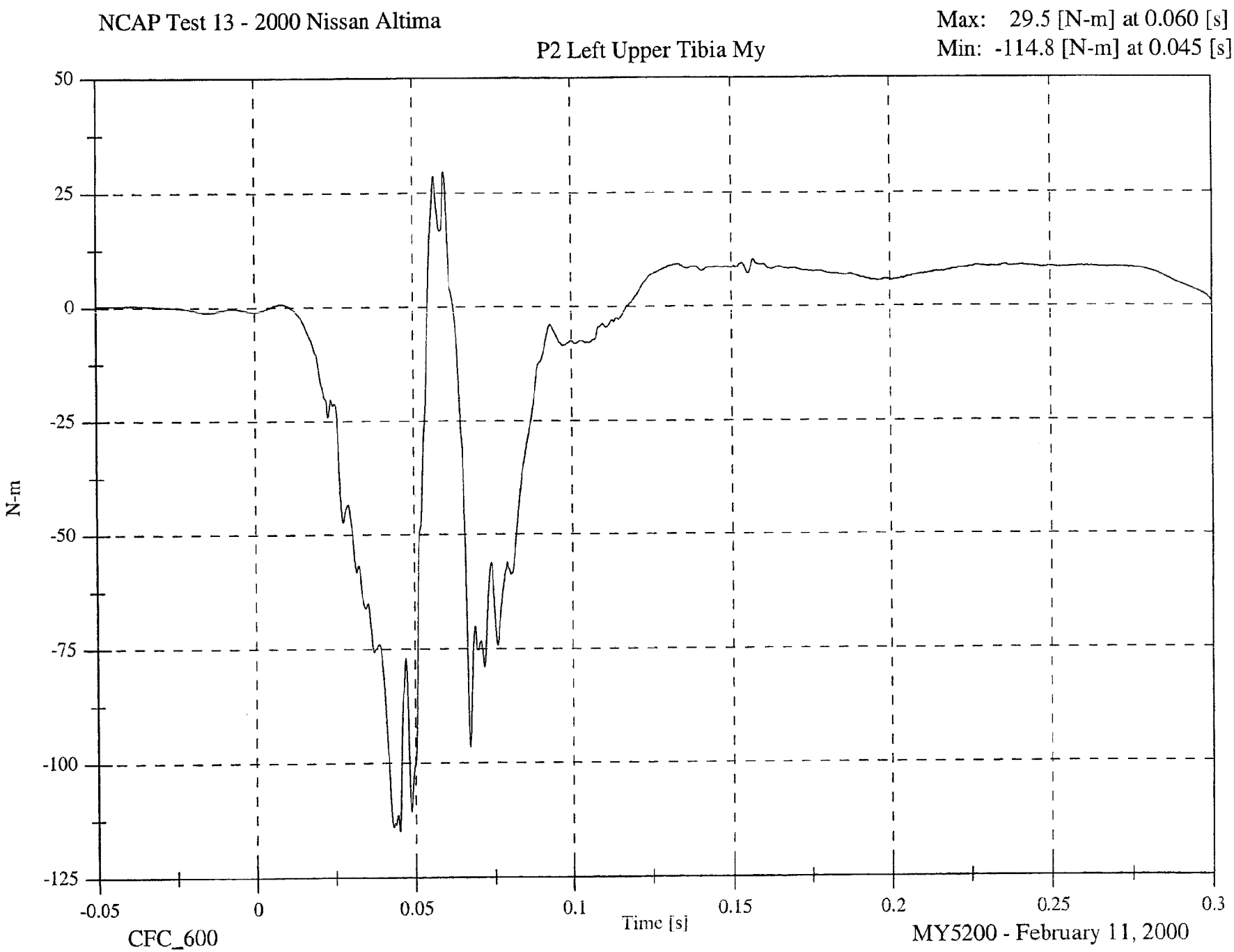

NCAP Test 13 - 2000 Nissan Altima
P2 Pelvic z
Max: 2.5 [g] at 0.279 [s]
Min: -22.6 [g] at 0.073 [s]
5
0
-5
-10
-15
-20
-25
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

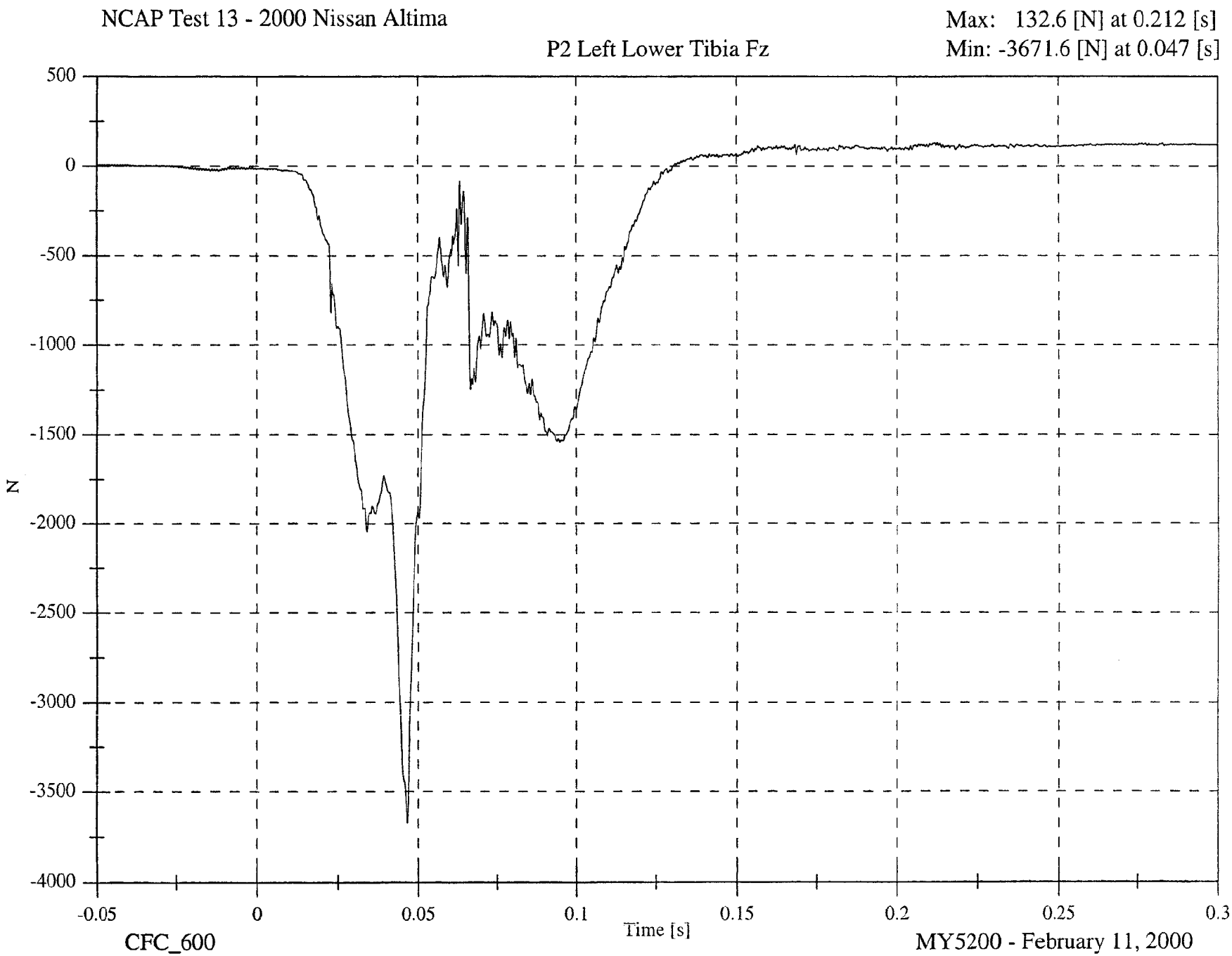

NCAP Test 13 - 2000 Nissan Altima
P2 Pelvic Resultant
Max: 55.0 [g] at 0.059 [s]
Min: 0.0 [g] at -0.024 [s]
60
50
40
30
20
10
0
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

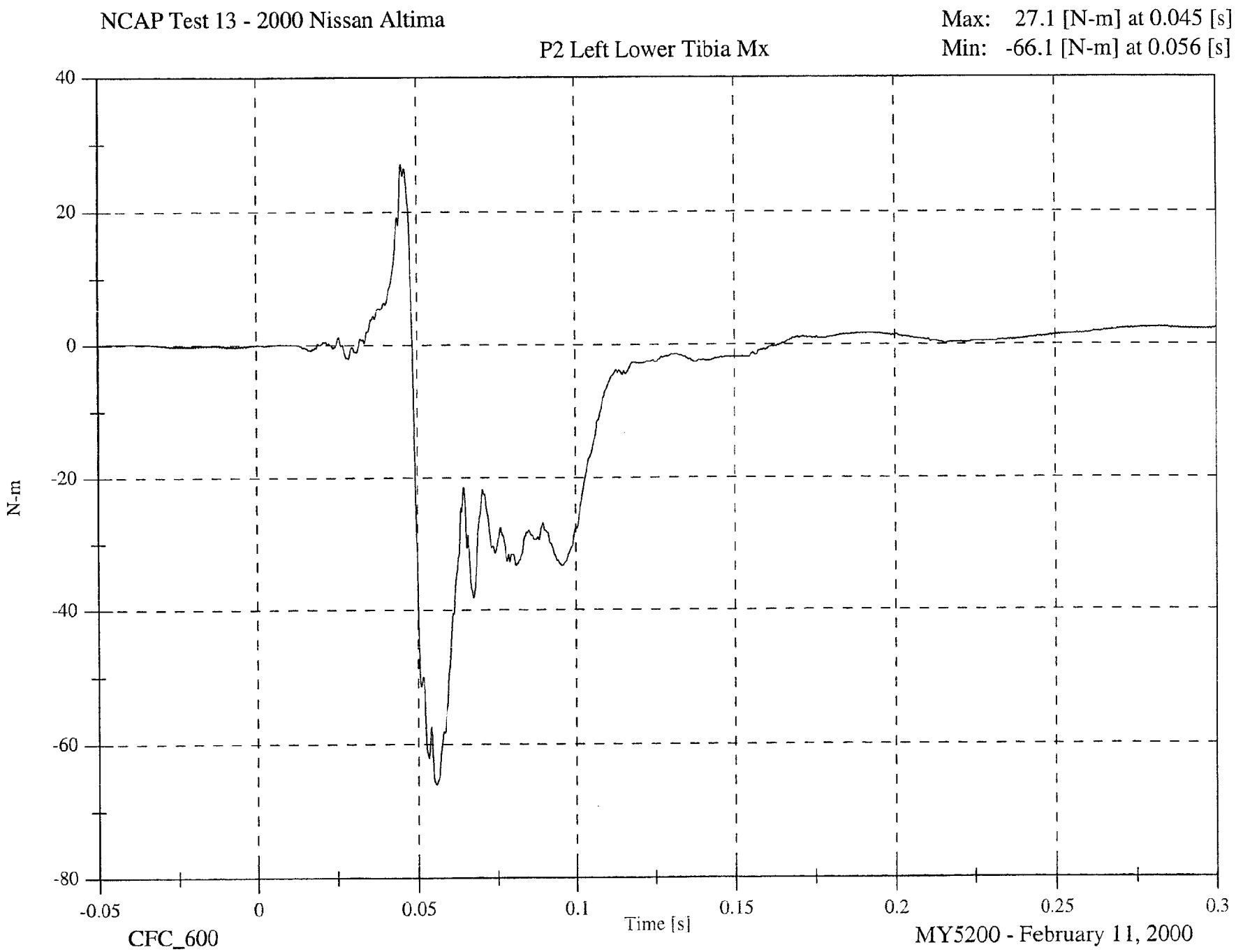

NCAP Test 13 - 2000 Nissan Altima
P2 Left Femur
Max: 509.5 [N] at 0.043 [s]
Min: -4003.4 [N] at 0.056 [s]
1000
0
-1000
-2000
-3000
-4000
-5000
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

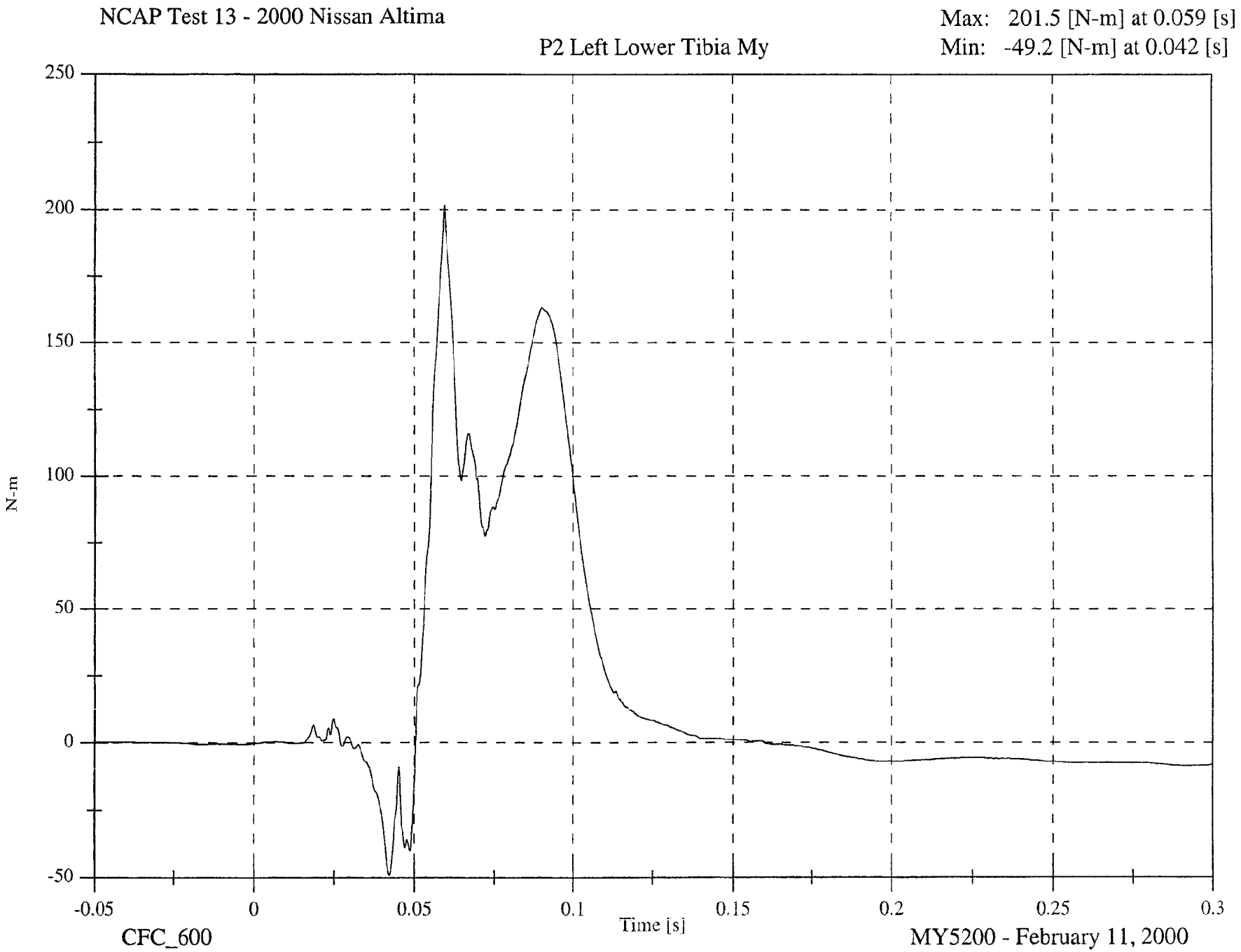

NCAP Test 13 - 2000 Nissan Altima
P2 Right Femur
Max: 1160.9 [N] at 0.050 [s]
Min: -1977.4 [N] at 0.059 [s]
1500
1000
500
0
-500
-1000
-1500
-2000
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

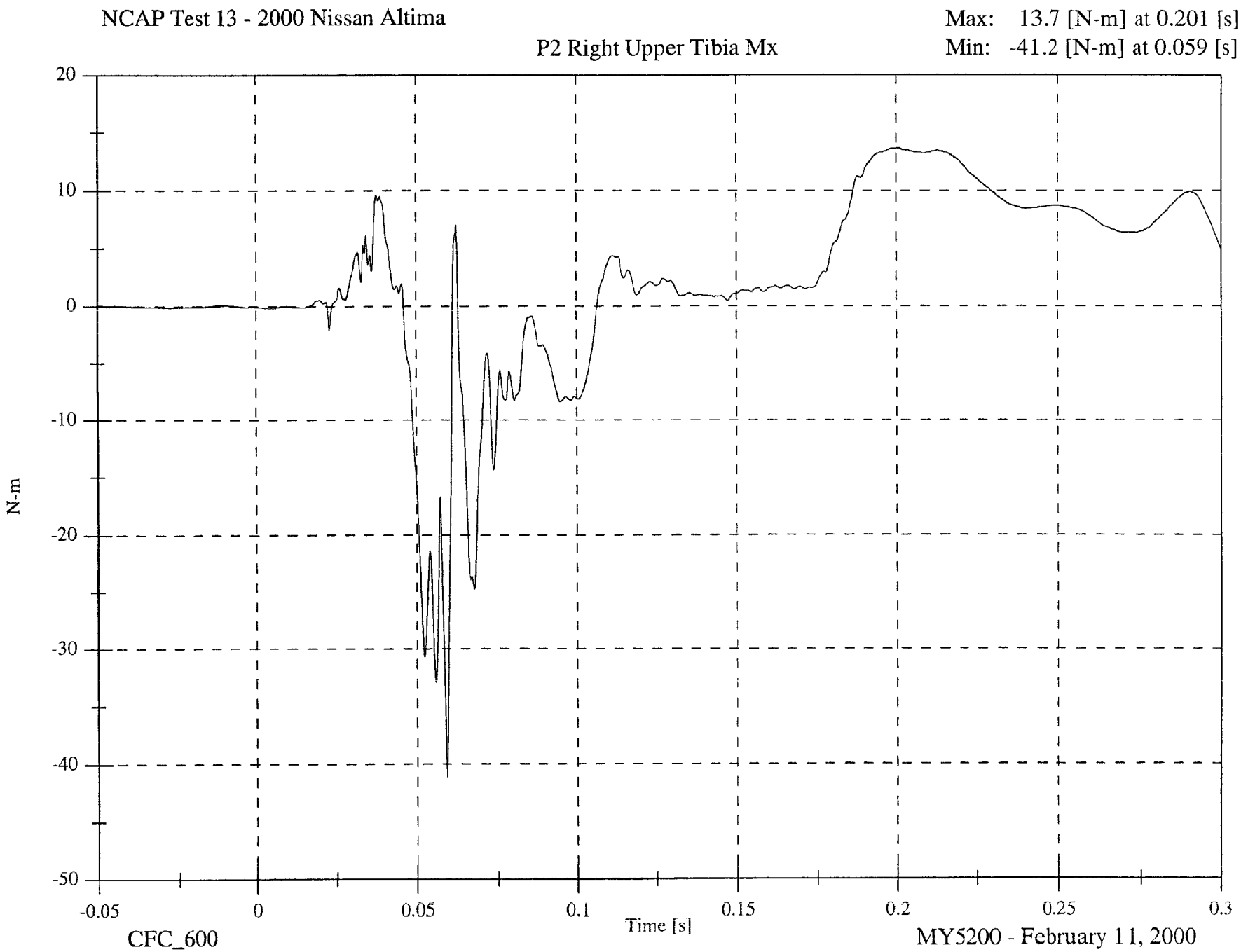

NCAP Test 13 - 2000 Nissan Altima
P2 Left Upper Tibia Mx
Max: 37.4 [N-m] at 0.047 [s]
Min: -36.3 [N-m] at 0.057 [s]
N-m
40
30
20
10
0
-10
-20
-30
-40
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

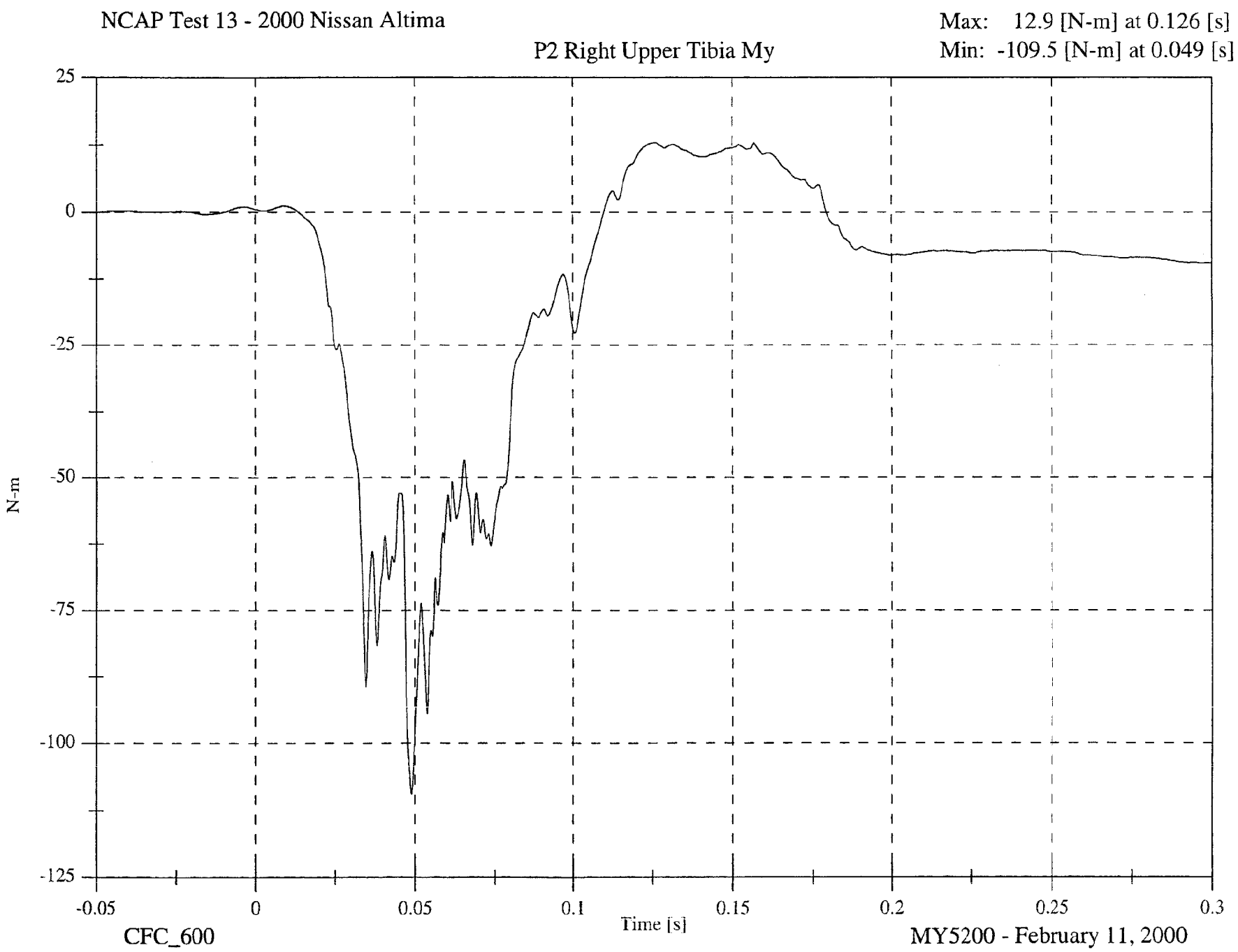

NCAP Test 13 - 2000 Nissan Altima
P2 Left Upper Tibia My
Max: 29.5 [N-m] at 0.060 [s]
Min: -114.8 [N-m] at 0.045 [s]
50
25
0
-25
-50
-75
-100
-125
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

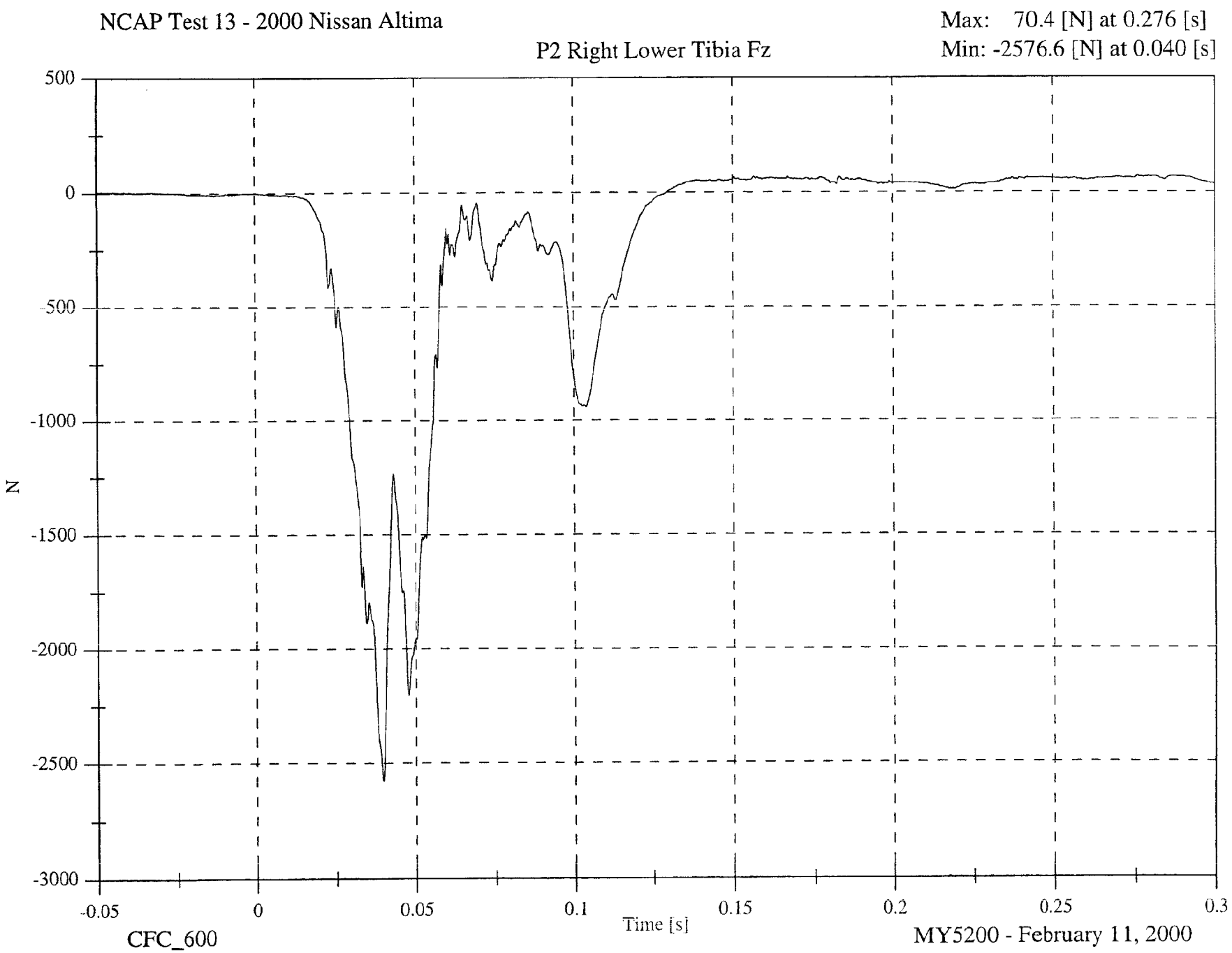

NCAP Test 13 - 2000 Nissan Altima
P2 Left Lower Tibia Fz
Max: 132.6 [N] at 0.212 [s]
Min: -3671.6 [N] at 0.047 [s]
500
0
-500
-1000
-1500
-2000
-2500
-3000
-3500
-4000
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

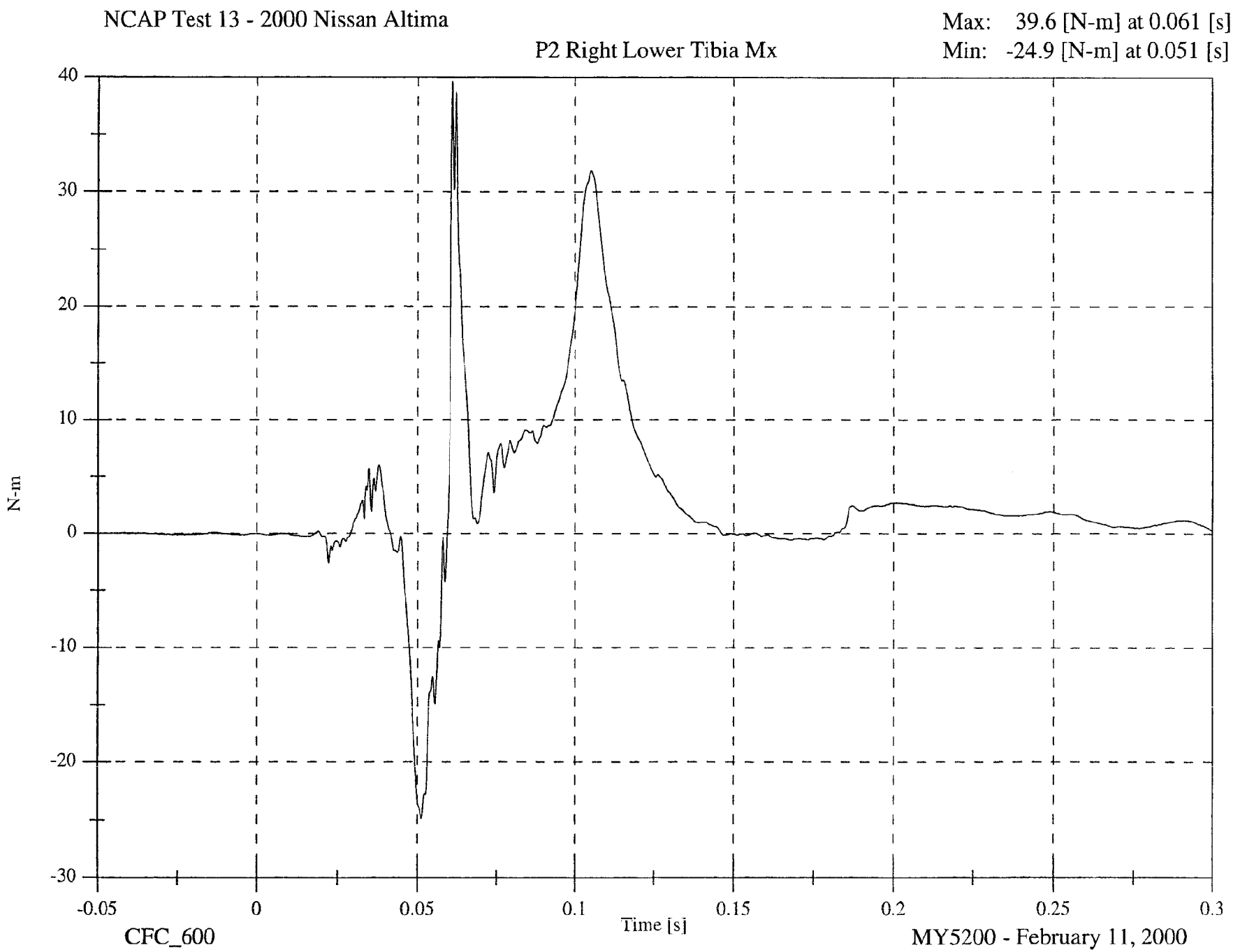

NCAP Test 13 - 2000 Nissan Altima
P2 Left Lower Tibia Mx
Max: 27.1 [N-m] at 0.045 [s]
Min: -66.1 [N-m] at 0.056 [s]
40
20
0
-20
-40
-60
-80
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

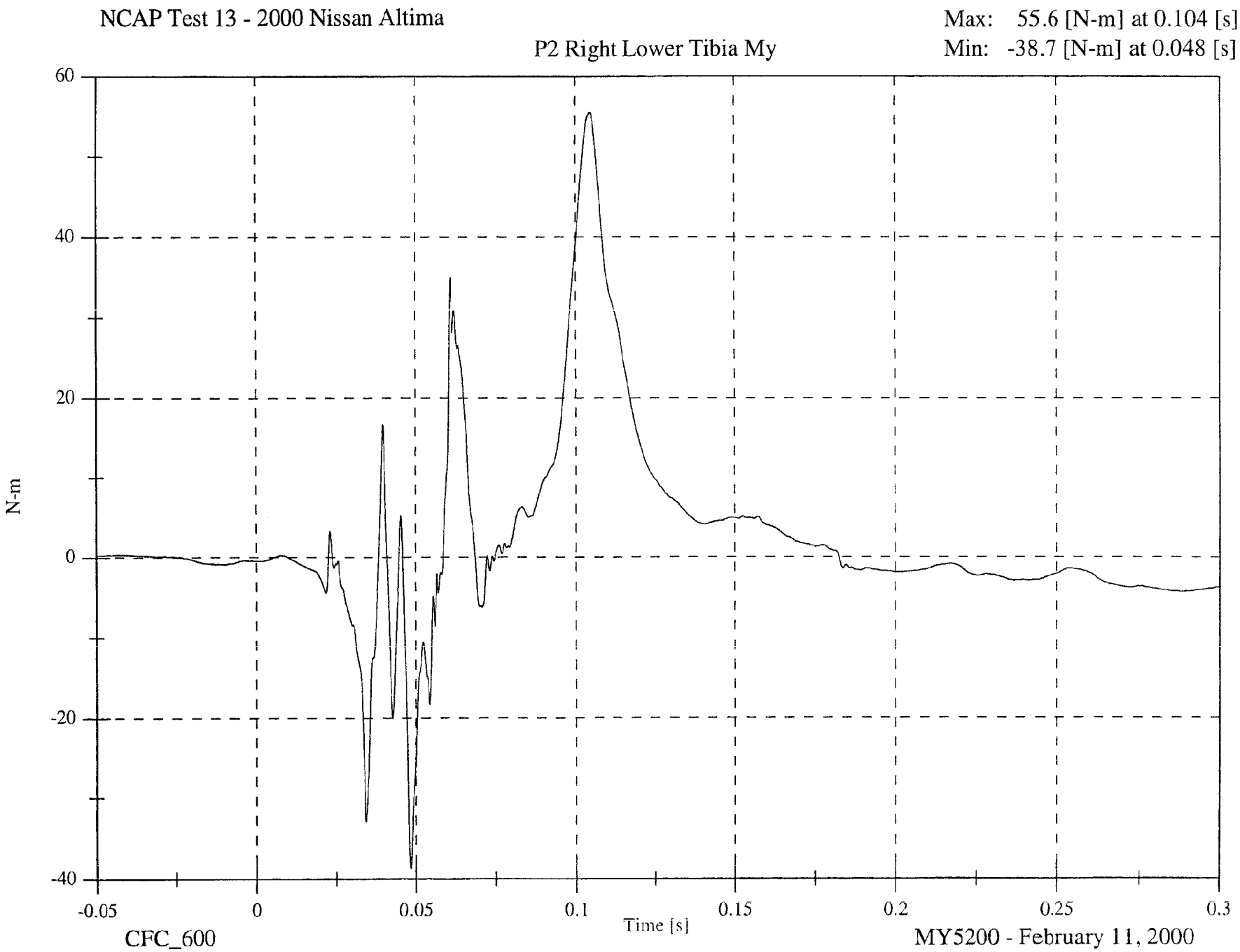

NCAP Test 13 - 2000 Nissan Altima
P2 Left Lower Tibia My
Max: 201.5 [N-m] at 0.059 [s]
Min: -49.2 [N-m] at 0.042 [s]
250
200
150
100
50
0
-50
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

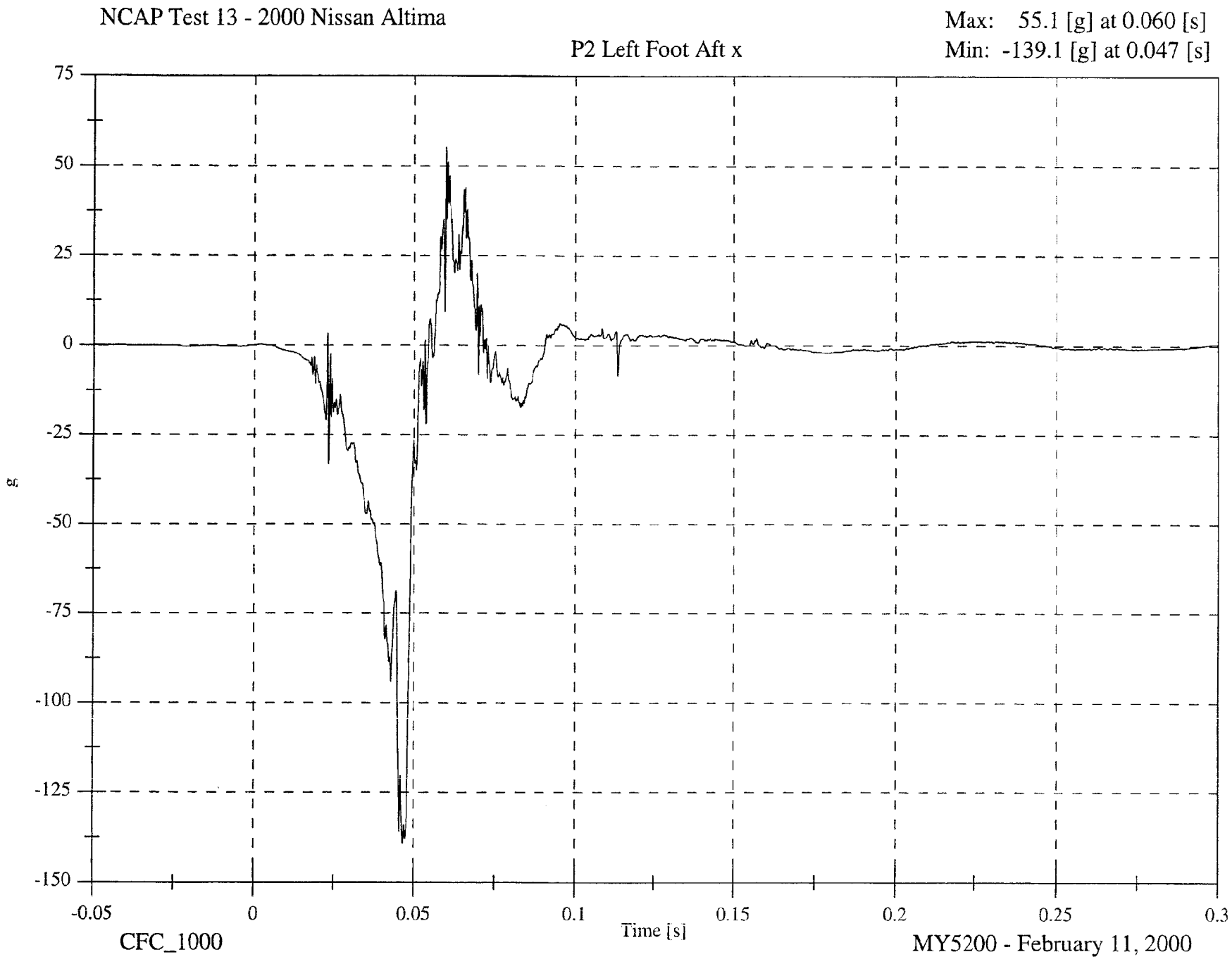

NCAP Test 13 - 2000 Nissan Altima
P2 Right Upper Tibia Mx
Max: 13.7 [N-m] at 0.201 [s]
Min: -41.2 [N-m] at 0.059 [s]
20
10
0
-10
-20
-30
-40
-50
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

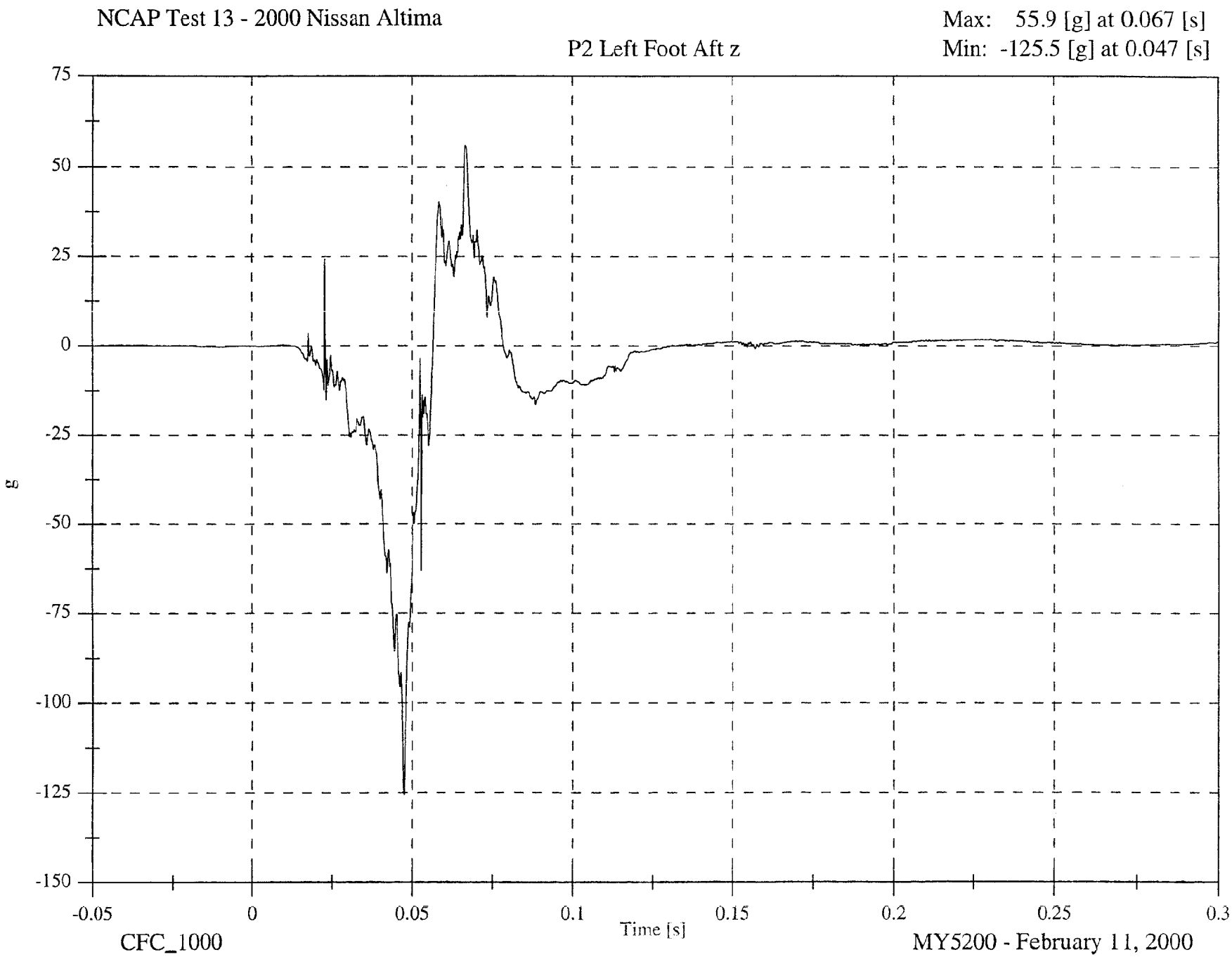

NCAP Test 13 - 2000 Nissan Altima
P2 Right Upper Tibia My
Max: 12.9 [N-m] at 0.126 [s]
Min: -109.5 [N-m] at 0.049 [s]
25
0
-25
-50
-75
-100
-125
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

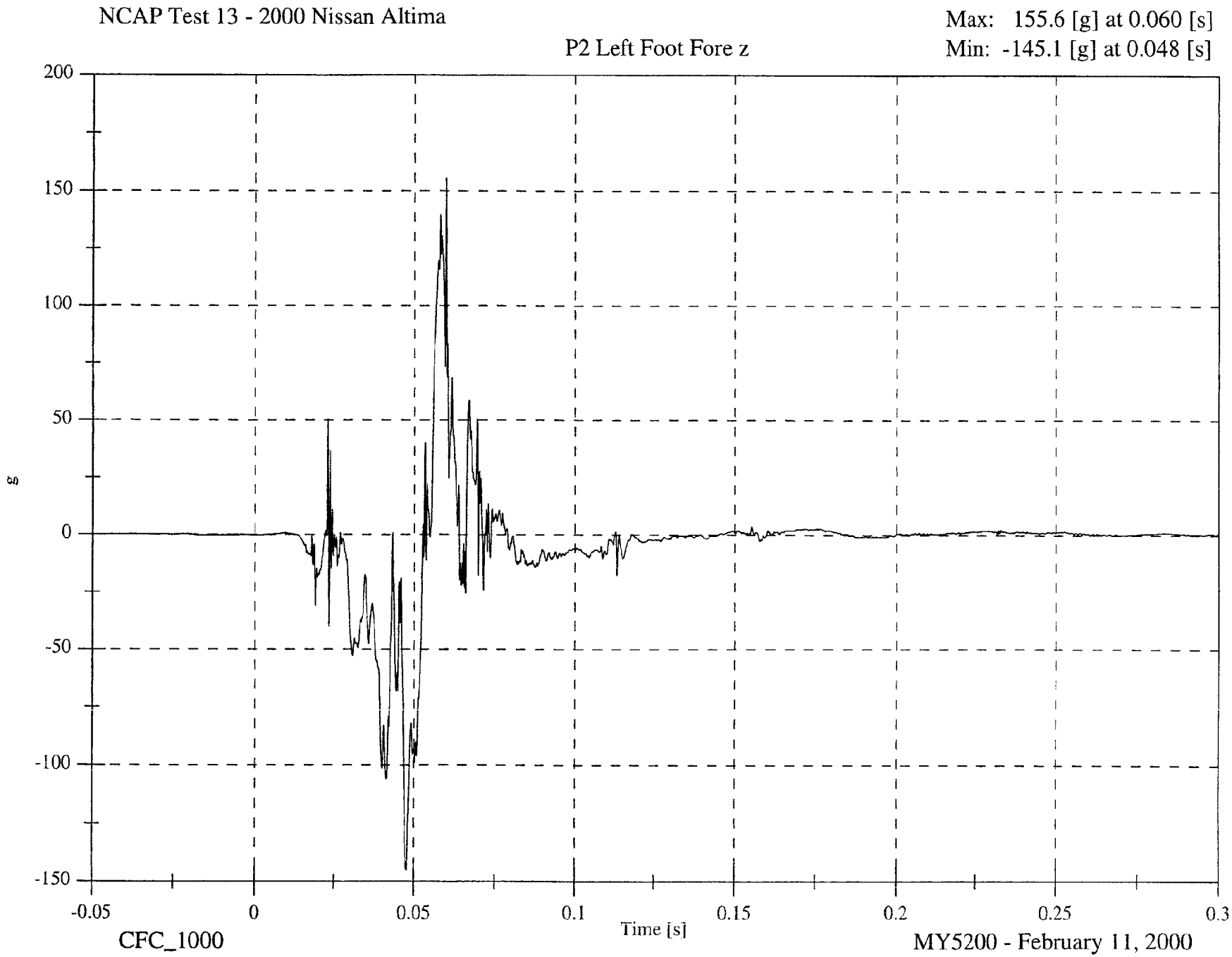

NCAP Test 13 - 2000 Nissan Altima
P2 Right Lower Tibia Fz
Max: 70.4 [N] at 0.276 [s]
Min: -2576.6 [N] at 0.040 [s]
500
0
-500
-1000
-1500
-2000
-2500
-3000
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

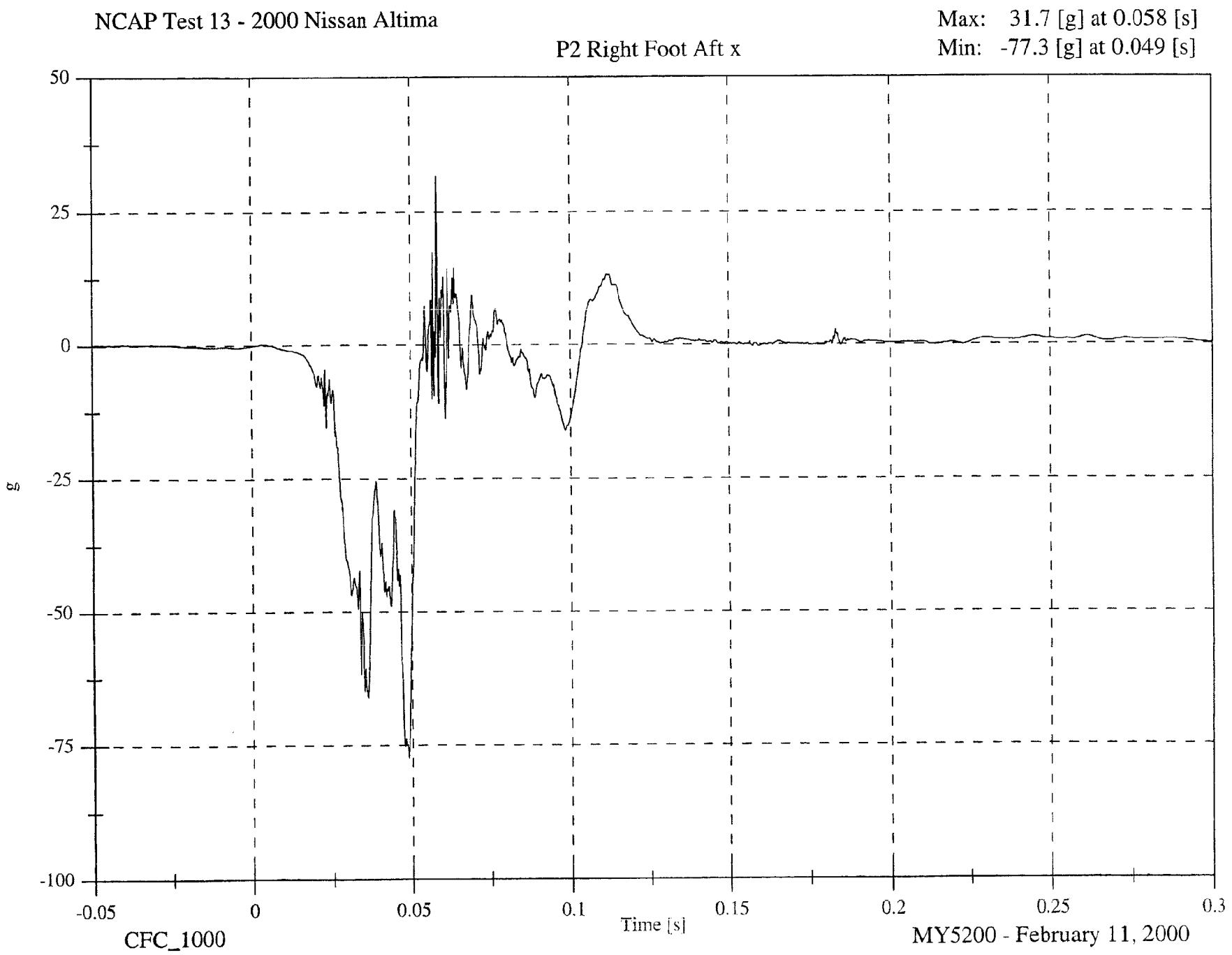

NCAP Test 13 - 2000 Nissan Altima
P2 Right Lower Tibia Mx
Max: 39.6 [N-m] at 0.061 [s]
Min: -24.9 [N-m] at 0.051 [s]
N-m
40
30
20
10
0
-10
-20
-30
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

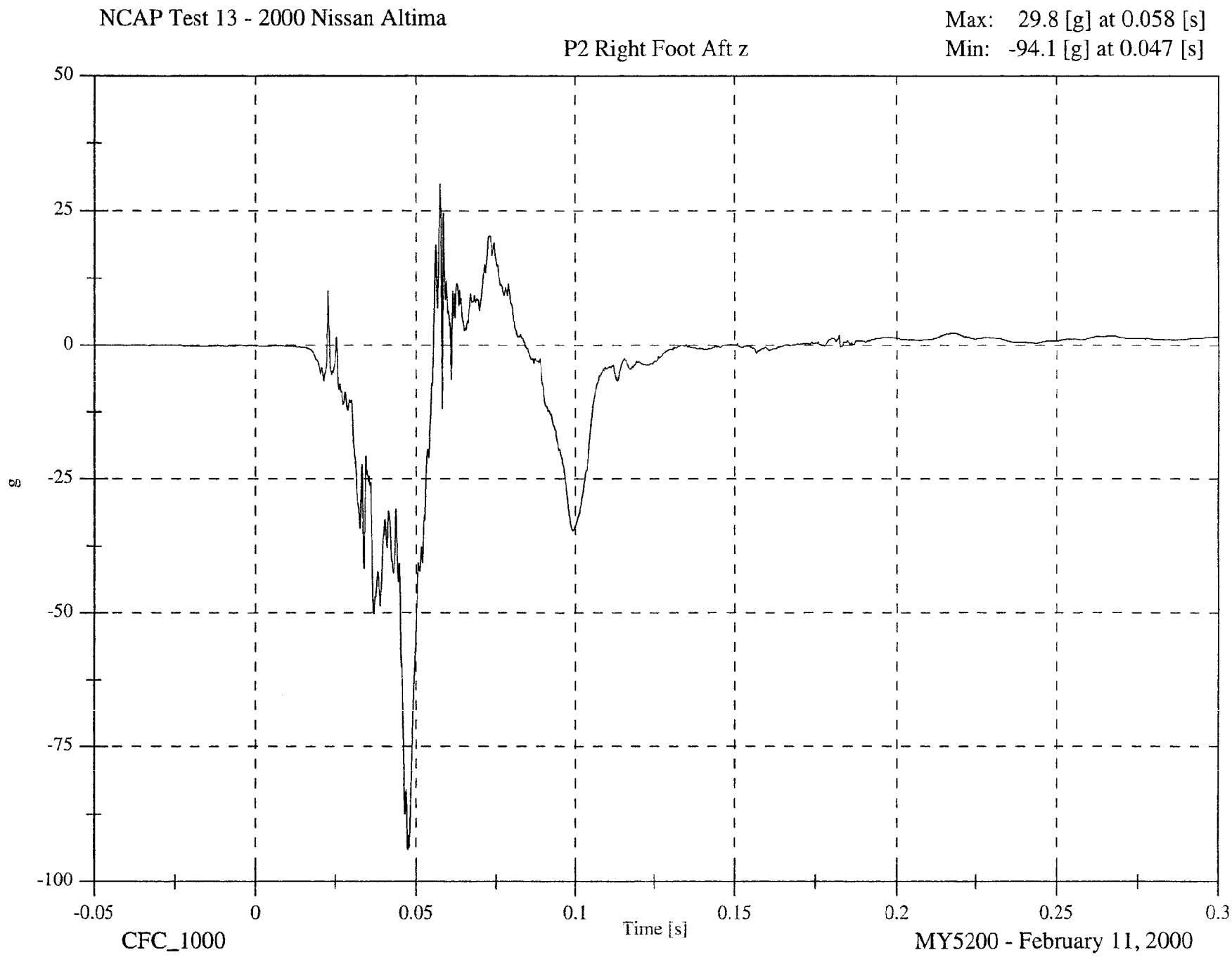

NCAP Test 13 - 2000 Nissan Altima
P2 Right Lower Tibia My
Max: 55.6 [N-m] at 0.104 [s]
Min: -38.7 [N-m] at 0.048 [s]
60
40
20
0
-20
-40
N-m
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_600
MY5200 - February 11, 2000

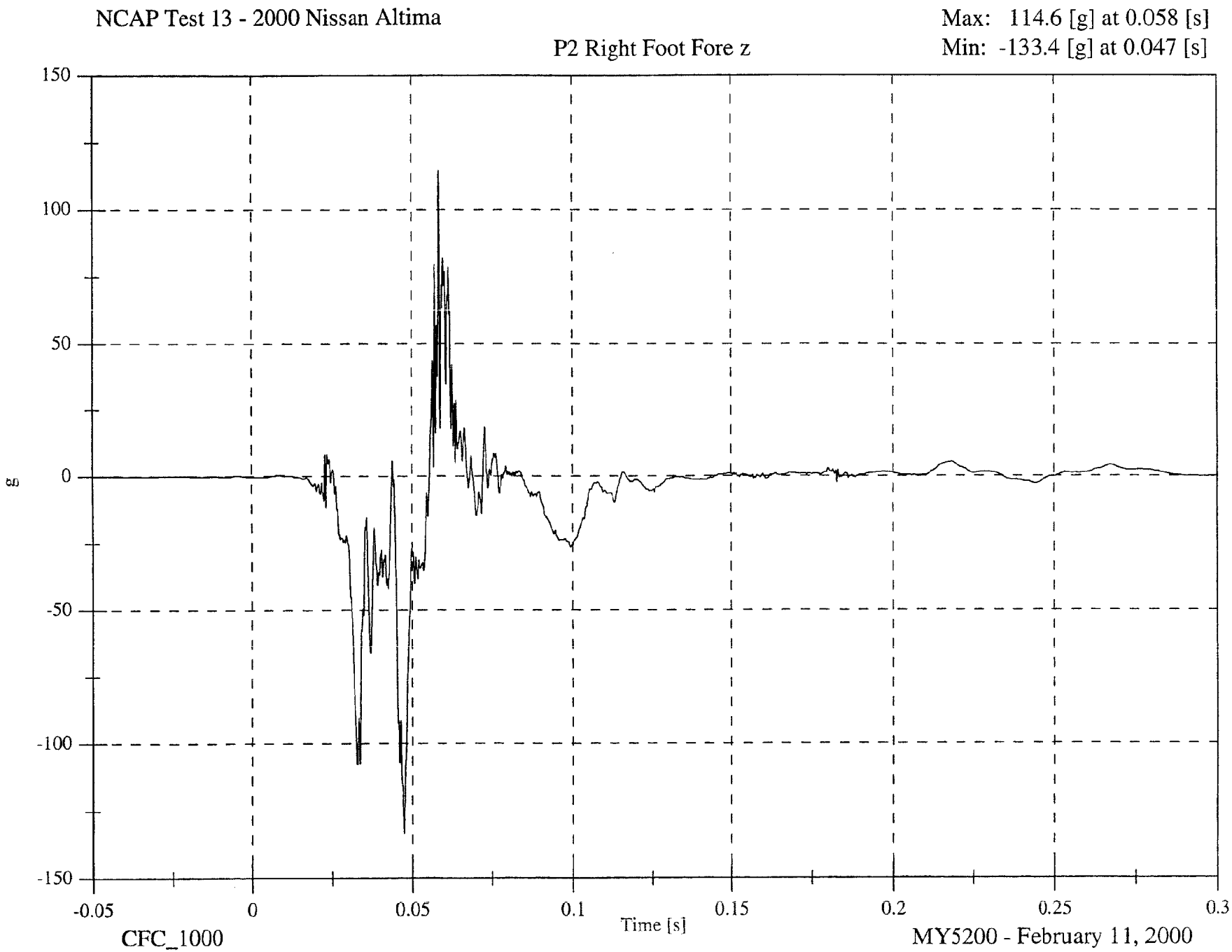

NCAP Test 13 - 2000 Nissan Altima
P2 Left Foot Aft x
Max: 55.1 [g] at 0.060 [s]
Min: -139.1 [g] at 0.047 [s]
75
50
25
0
-25
-50
-75
-100
-125
-150
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

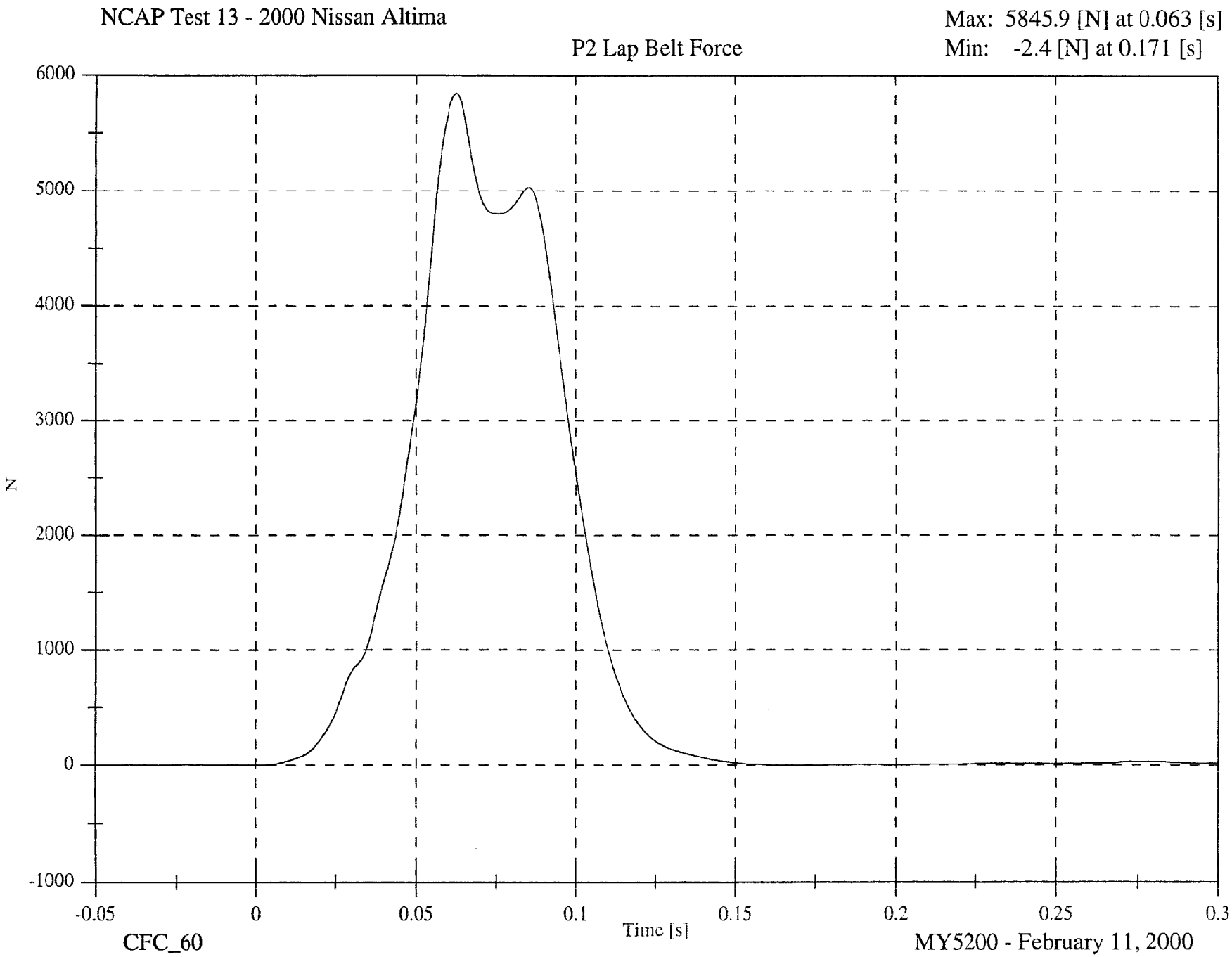

NCAP Test 13 - 2000 Nissan Altima
P2 Left Foot Aft z
Max: 55.9 [g] at 0.067 [s]
Min: -125.5 [g] at 0.047 [s]
75
50
25
0
-25
-50
-75
-100
-125
-150
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

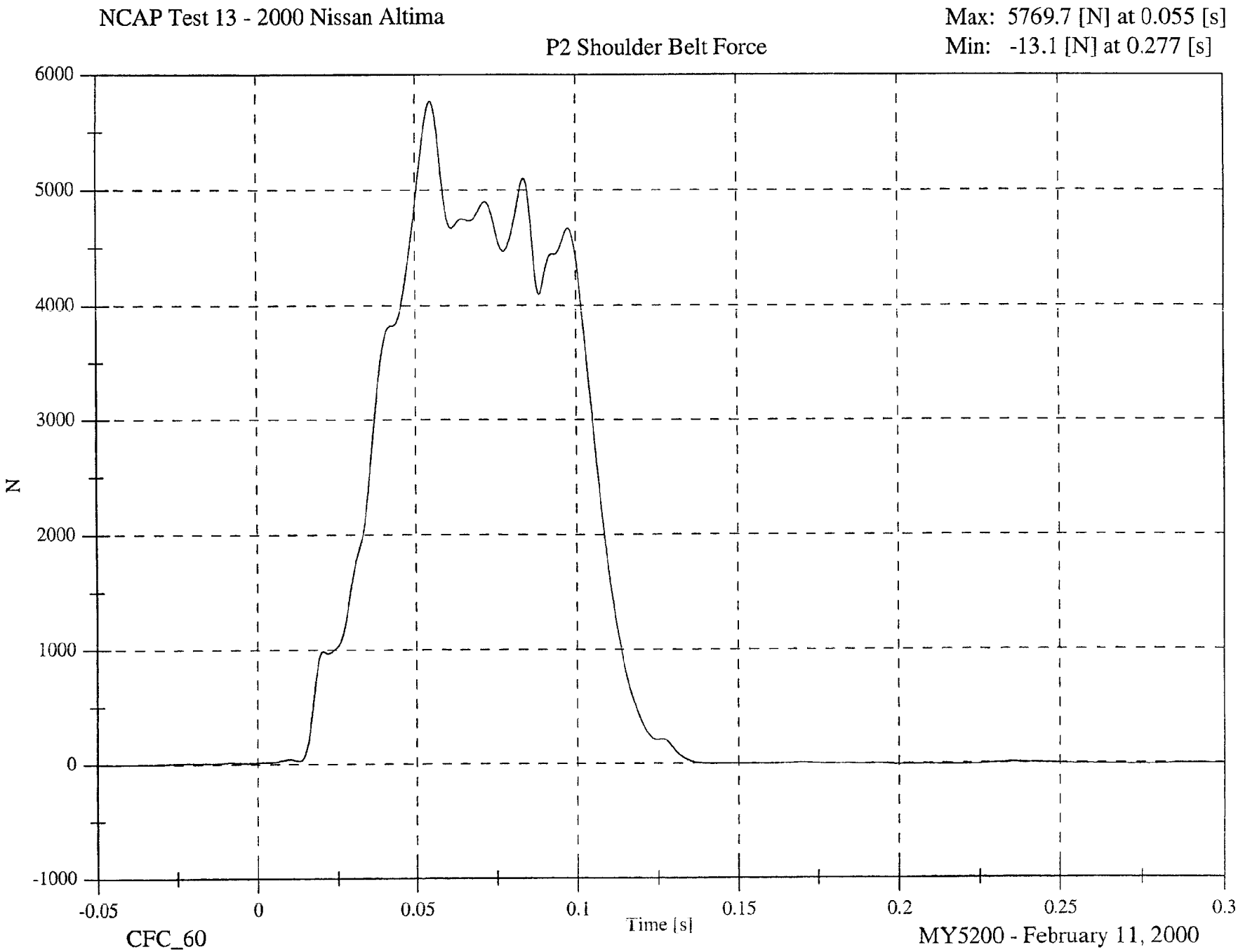

NCAP Test 13 - 2000 Nissan Altima
P2 Left Foot Fore z
Max: 155.6 [g] at 0.060 [s]
Min: -145.1 [g] at 0.048 [s]
200
150
100
50
0
-50
-100
-150
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000

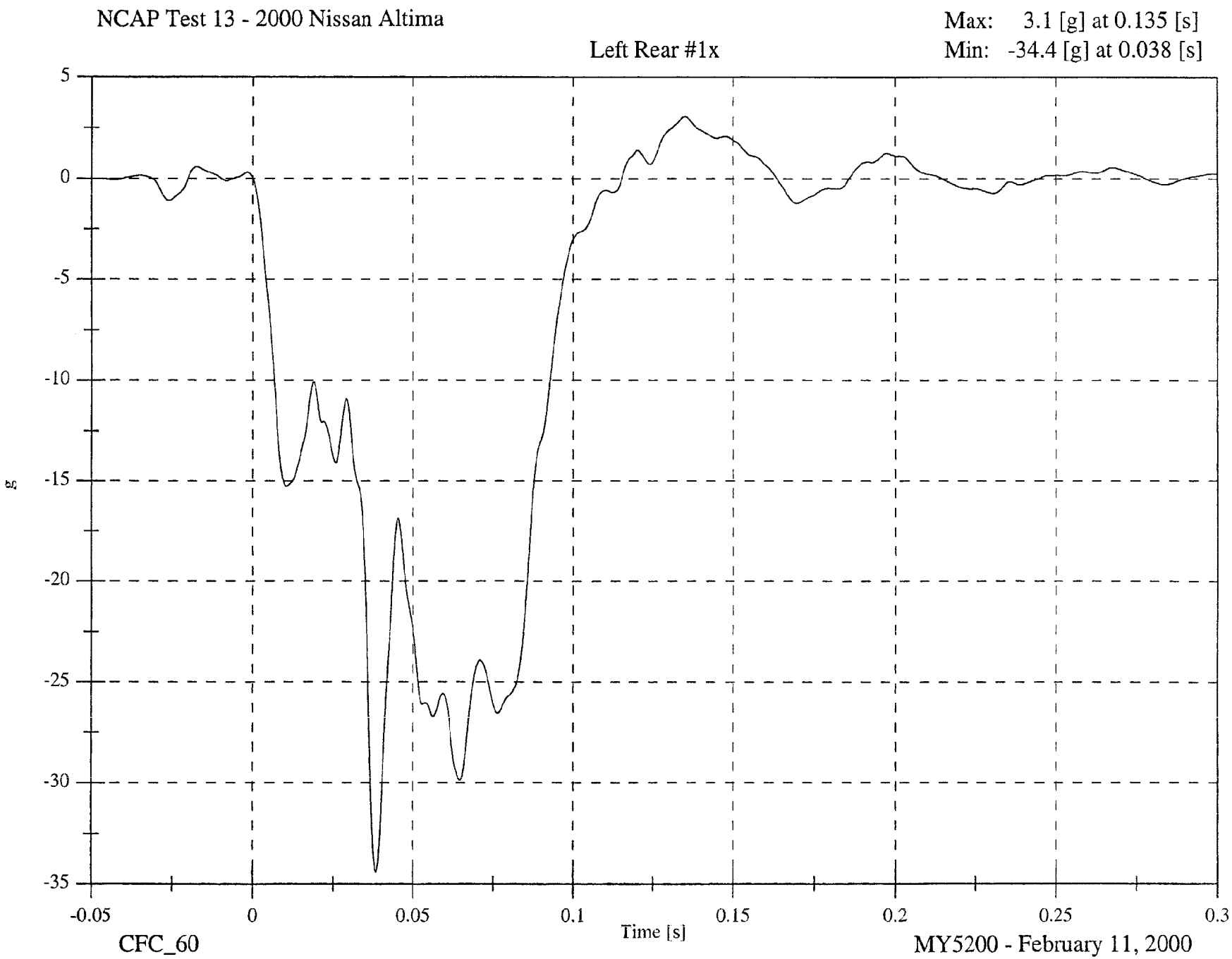

NCAP Test 13 - 2000 Nissan Altima
P2 Right Foot Aft x
Max: 31.7 [g] at 0.058 [s]
Min: -77.3 [g] at 0.049 [s]
50
25
0
-25
-50
-75
-100
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
P2 Right Foot Aft z
Max: 29.8 [g] at 0.058 [s]
Min: -94.1 [g] at 0.047 [s]
50
25
0
-25
-50
-75
-100
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
P2 Right Foot Fore z
Max: 114.6 [g] at 0.058 [s]
Min: -133.4 [g] at 0.047 [s]
150
100
50
0
-50
-100
-150
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_1000
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
P2 Lap Belt Force
Max: 5845.9 [N] at 0.063 [s]
Min: -2.4 [N] at 0.171 [s]
6000
5000
4000
3000
2000
1000
0
-1000
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
P2 Shoulder Belt Force
Max: 5769.7 [N] at 0.055 [s]
Min: -13.1 [N] at 0.277 [s]
6000
5000
4000
3000
2000
1000
0
-1000
N
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Left Rear #1x
Max: 3.1 [g] at 0.135 [s]
Min: -34.4 [g] at 0.038 [s]
5
0
-5
-10
-15
-20
-25
-30
-35
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000

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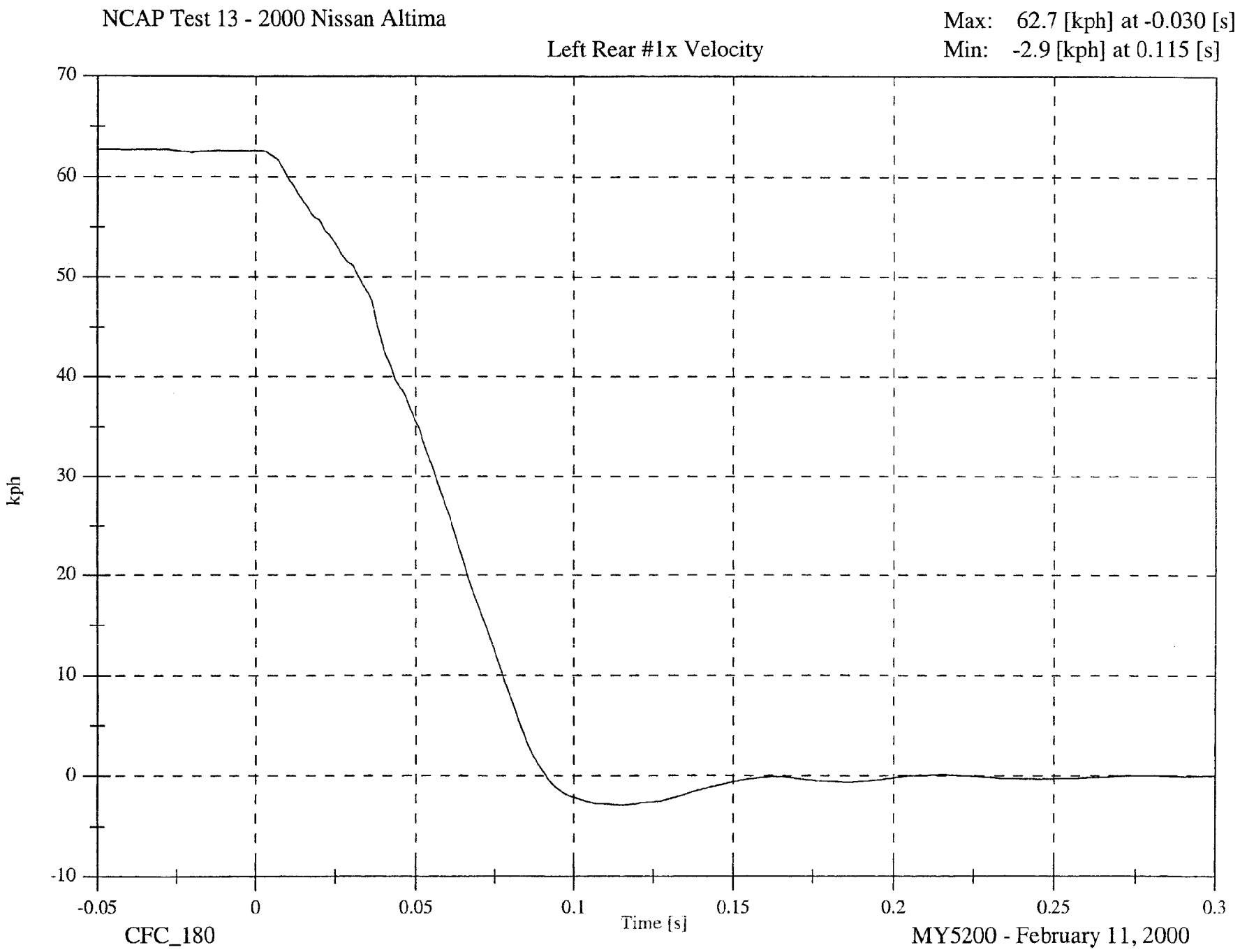
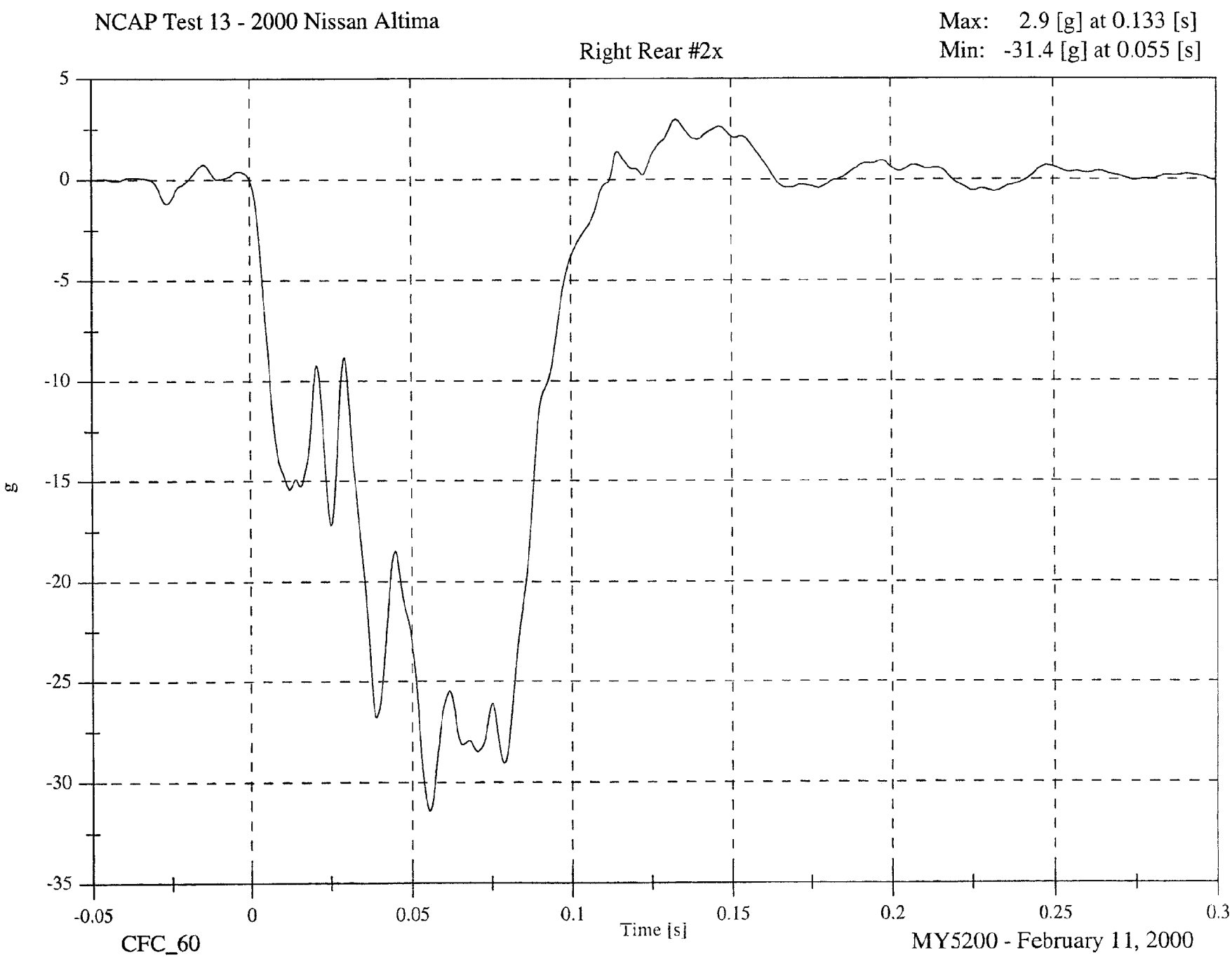

NCAP Test 13 - 2000 Nissan Altima
Left Rear #1x Velocity
Max: 62.7 [kph] at -0.030 [s]
Min: -2.9 [kph] at 0.115 [s]
70
60
50
40
30
20
10
0
-10
kph
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

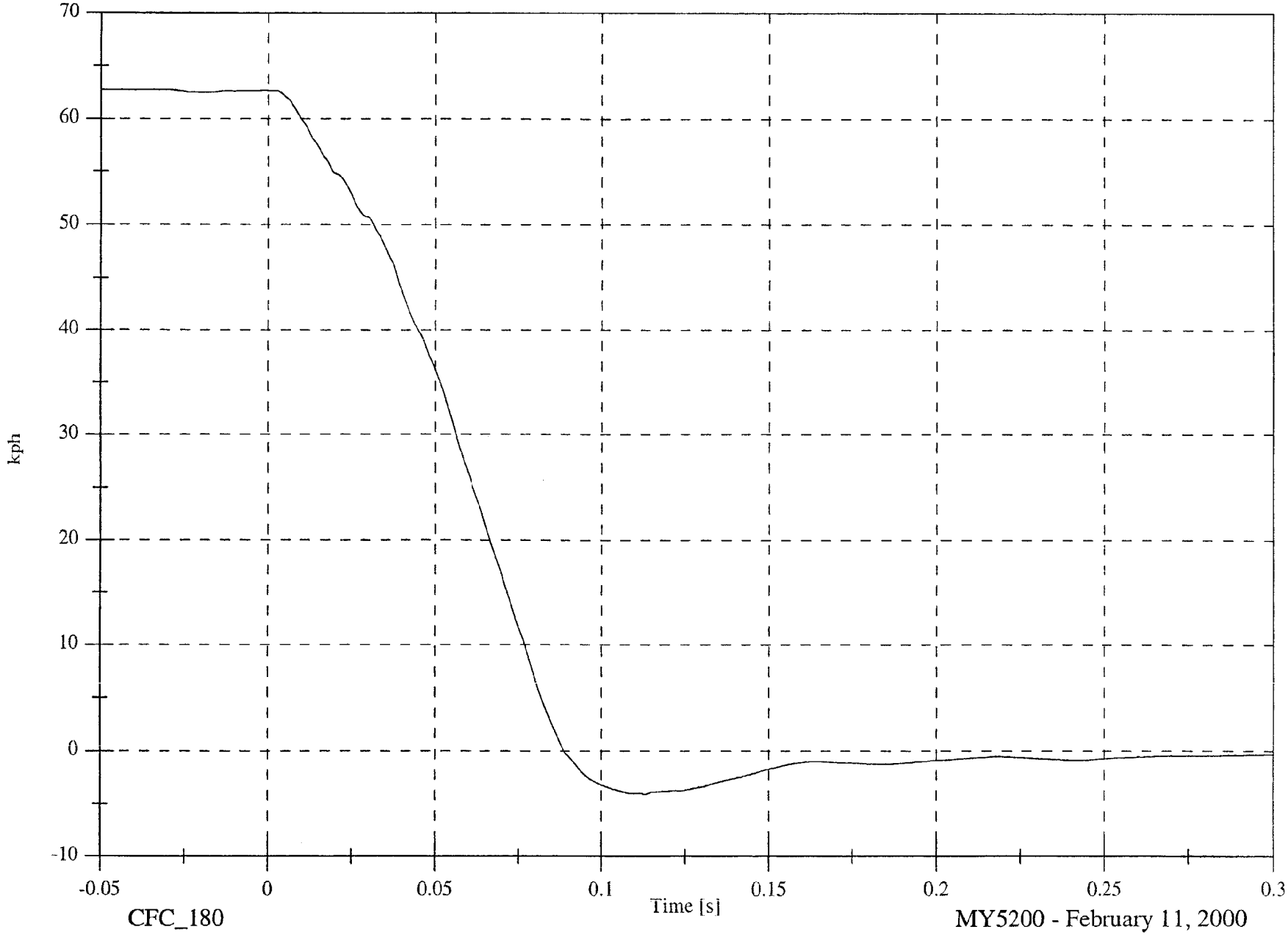

NCAP Test 13 - 2000 Nissan Altima
Left Rear #1x Displacement
Max: 911.5 [mm] at 0.091 [s]
Min: -869.8 [mm] at -0.050 [s]
1000
750
500
250
0
-250
-500
-750
-1000
mm
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Right Rear #2x
Max: 2.9 [g] at 0.133 [s]
Min: -31.4 [g] at 0.055 [s]
5
0
-5
-10
-15
-20
-25
-30
-35
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000

NCAP Test 13 - 2000 Nissan Altima

Right Rear #2x Velocity

Max: 62.7 [kph] at -0.033 [s]
Min: -4.1 [kph] at 0.113 [s]



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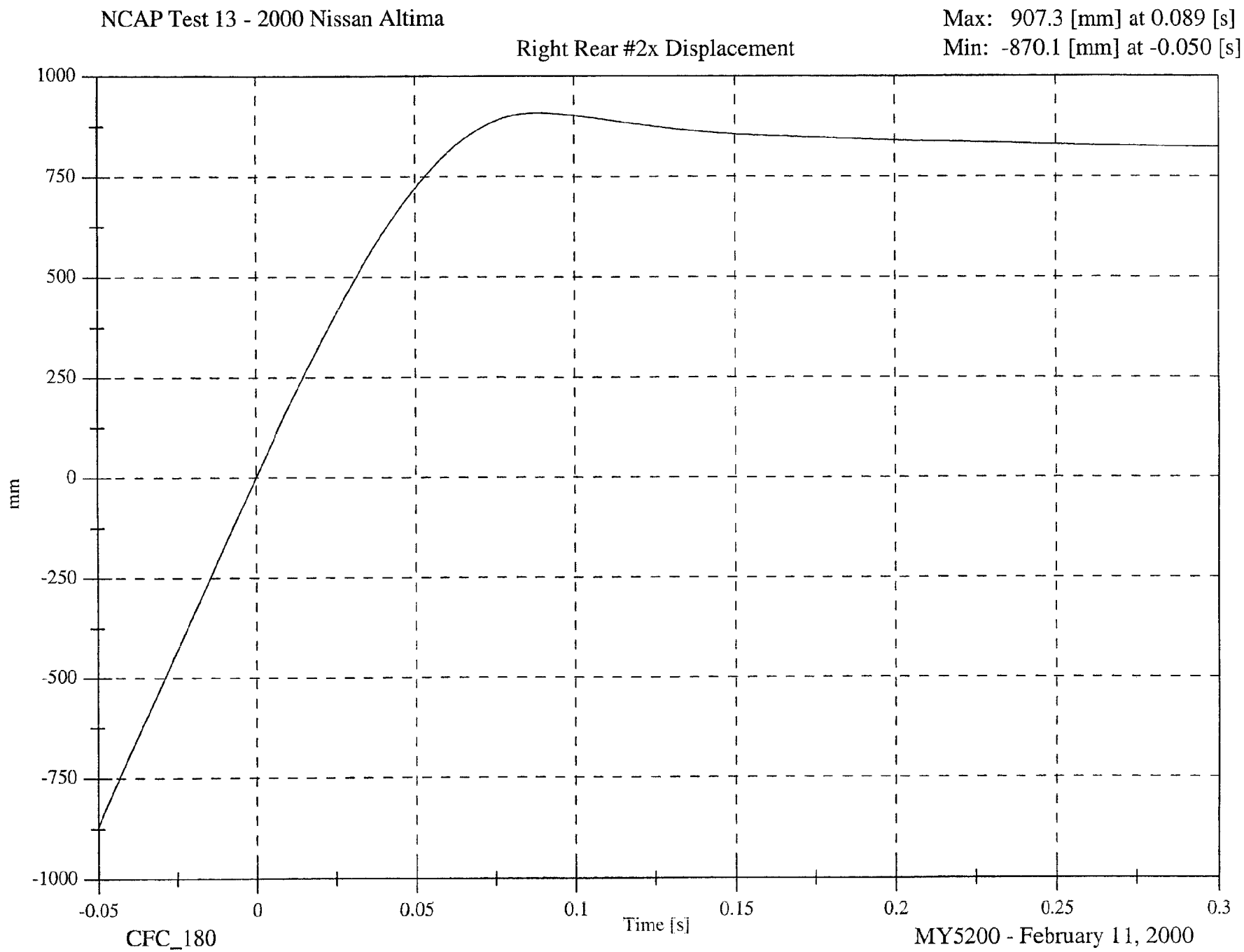
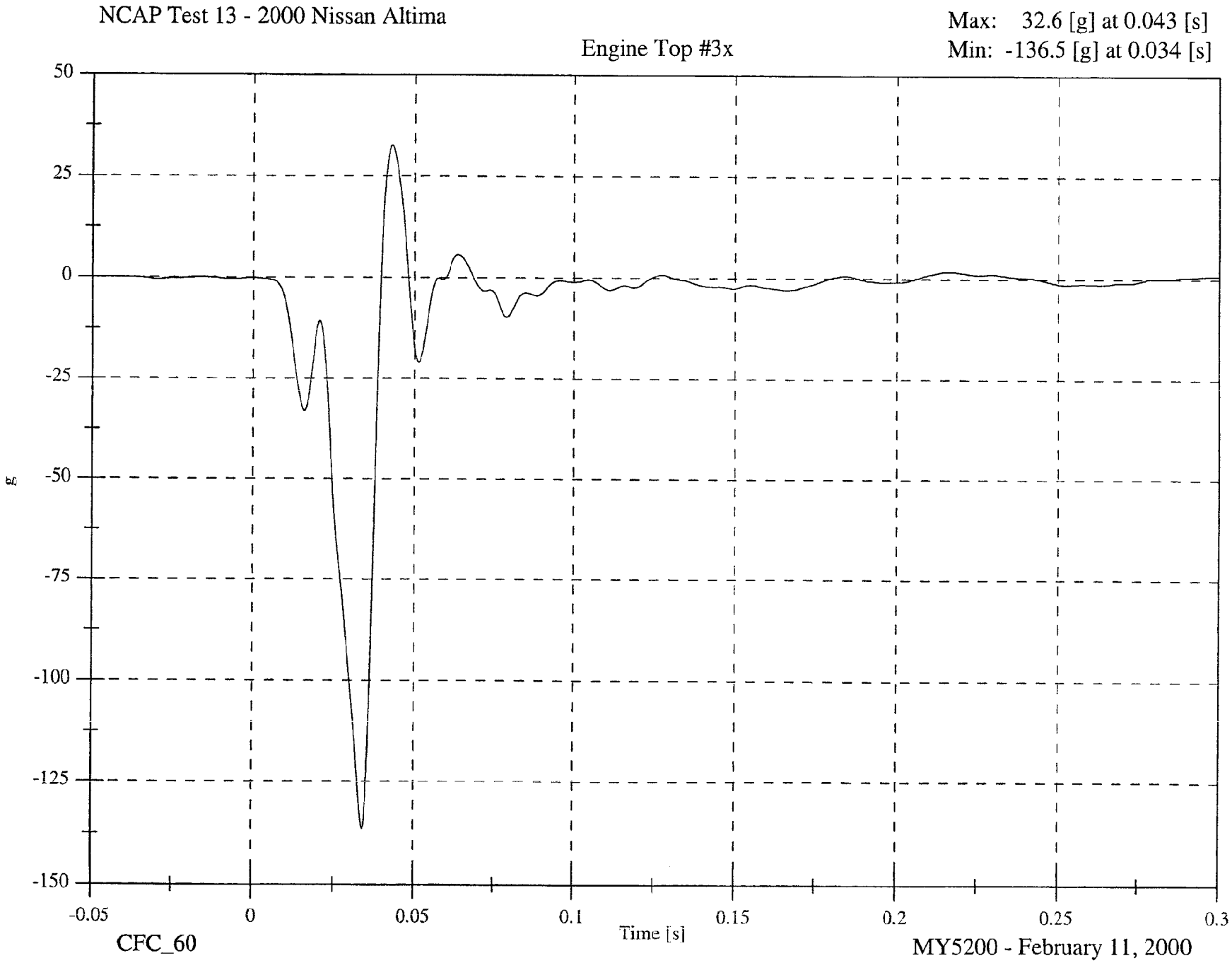
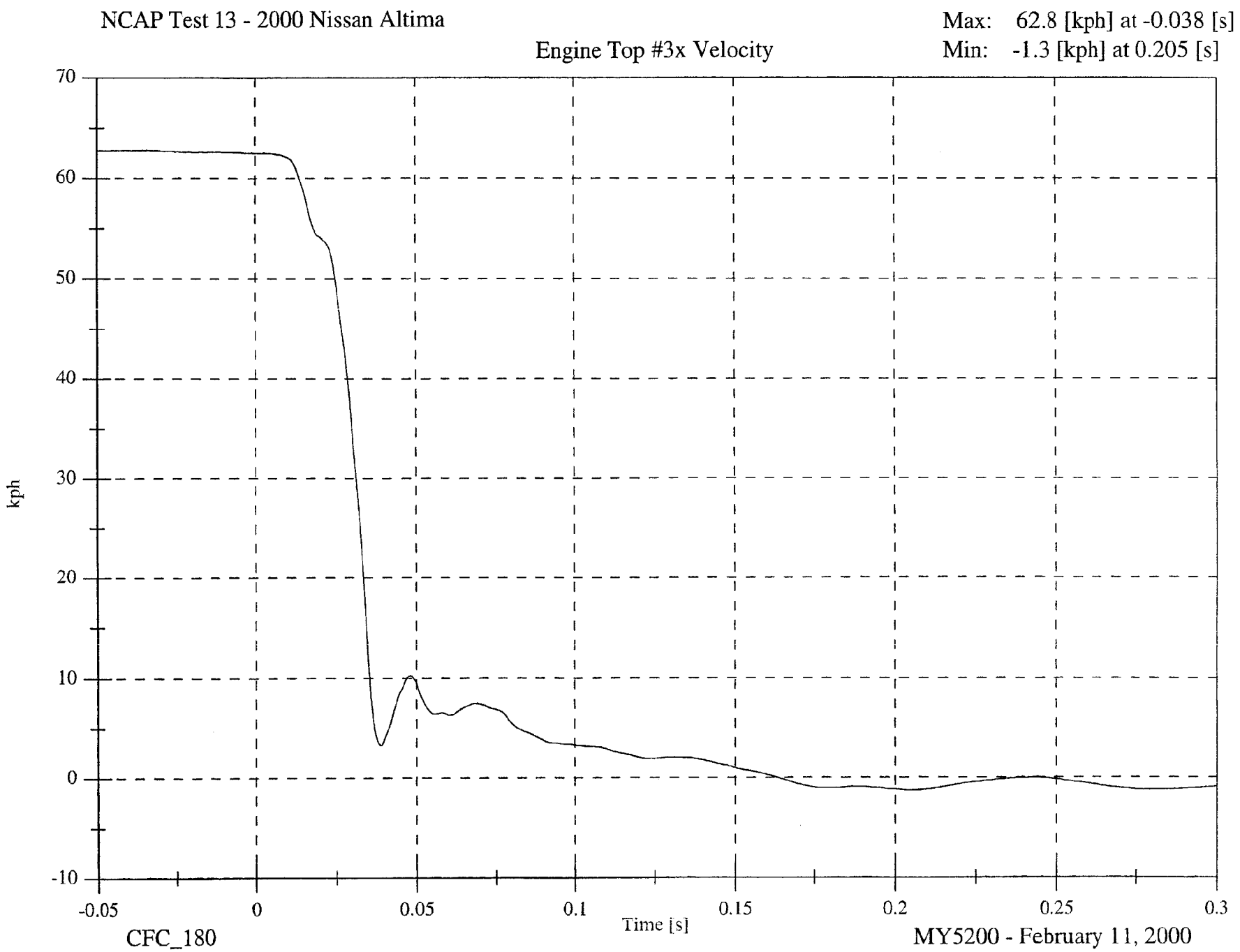

NCAP Test 13 - 2000 Nissan Altima
Right Rear #2x Displacement
Max: 907.3 [mm] at 0.089 [s]
Min: -870.1 [mm] at -0.050 [s]
1000
750
500
250
0
-250
-500
-750
-1000
mm
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

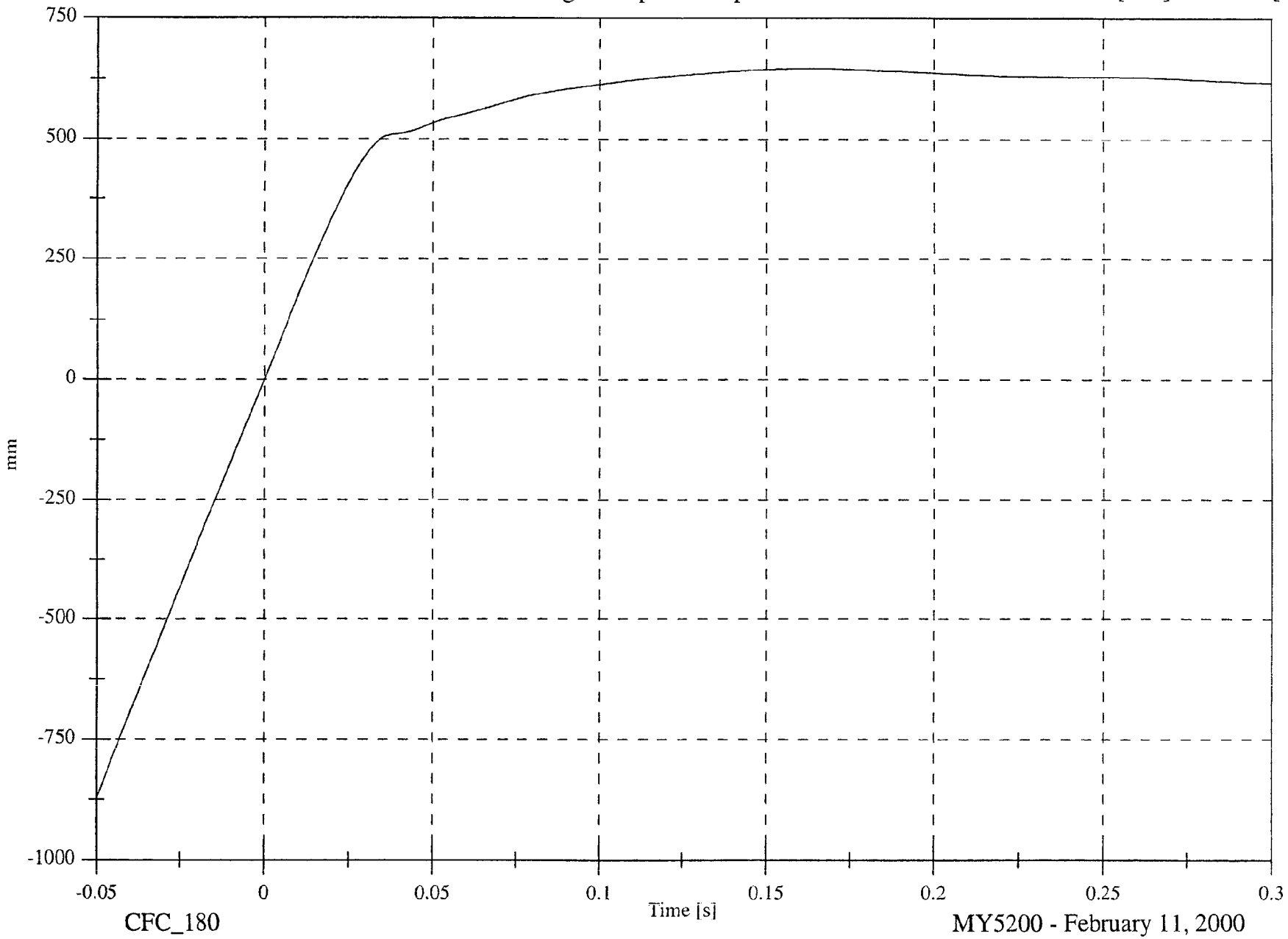

NCAP Test 13 - 2000 Nissan Altima
Engine Top #3x
Max: 32.6 [g] at 0.043 [s]
Min: -136.5 [g] at 0.034 [s]
50
25
0
-25
-50
-75
-100
-125
-150
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Engine Top #3x Velocity
Max: 62.8 [kph] at -0.038 [s]
Min: -1.3 [kph] at 0.205 [s]
70
60
50
40
30
20
10
0
-10
kph
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

NCAP Test 13 - 2000 Nissan Altima

Engine Top #3x Displacement

Max: 646.3 [mm] at 0.163 [s]
Min: -870.4 [mm] at -0.050 [s]



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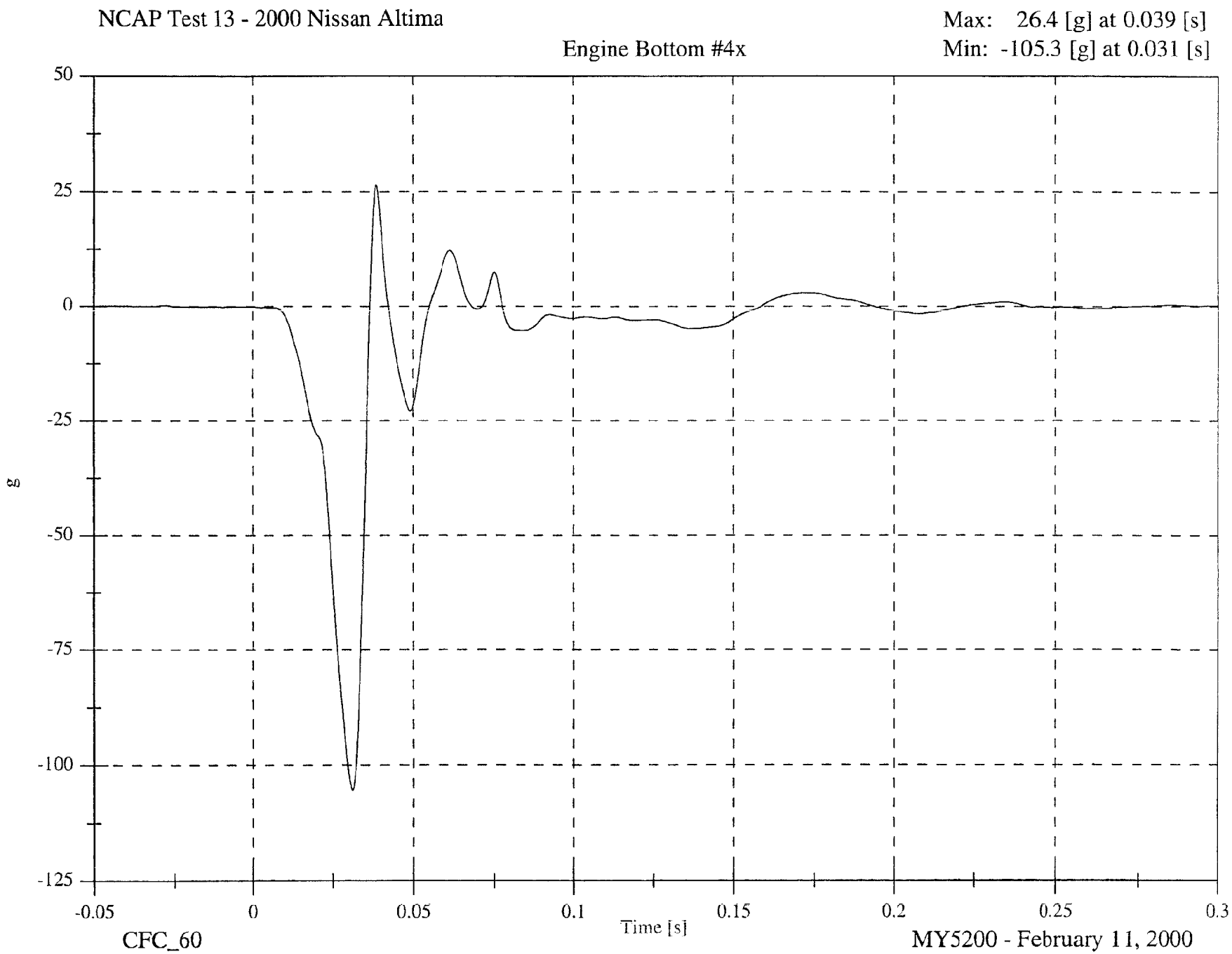
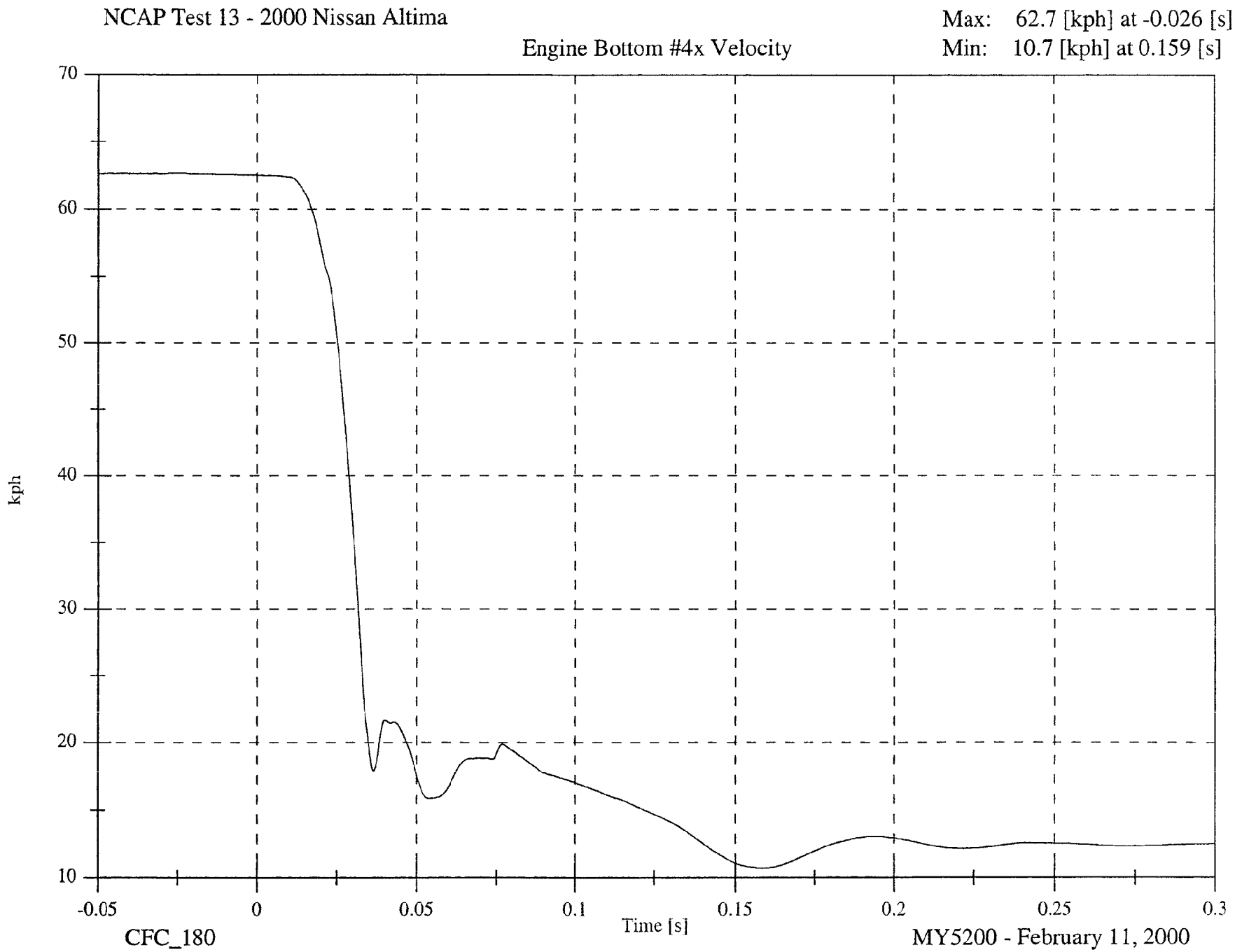
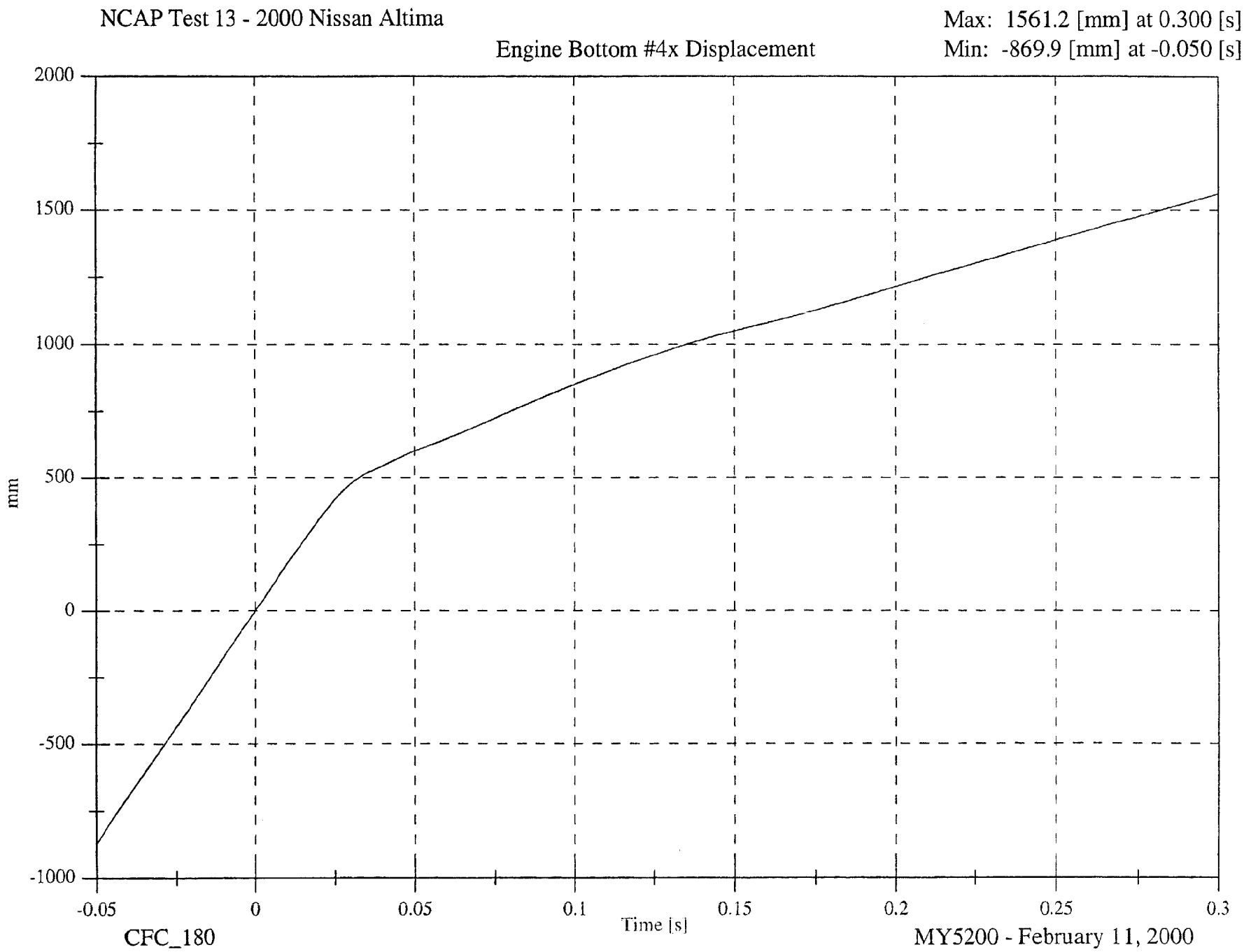
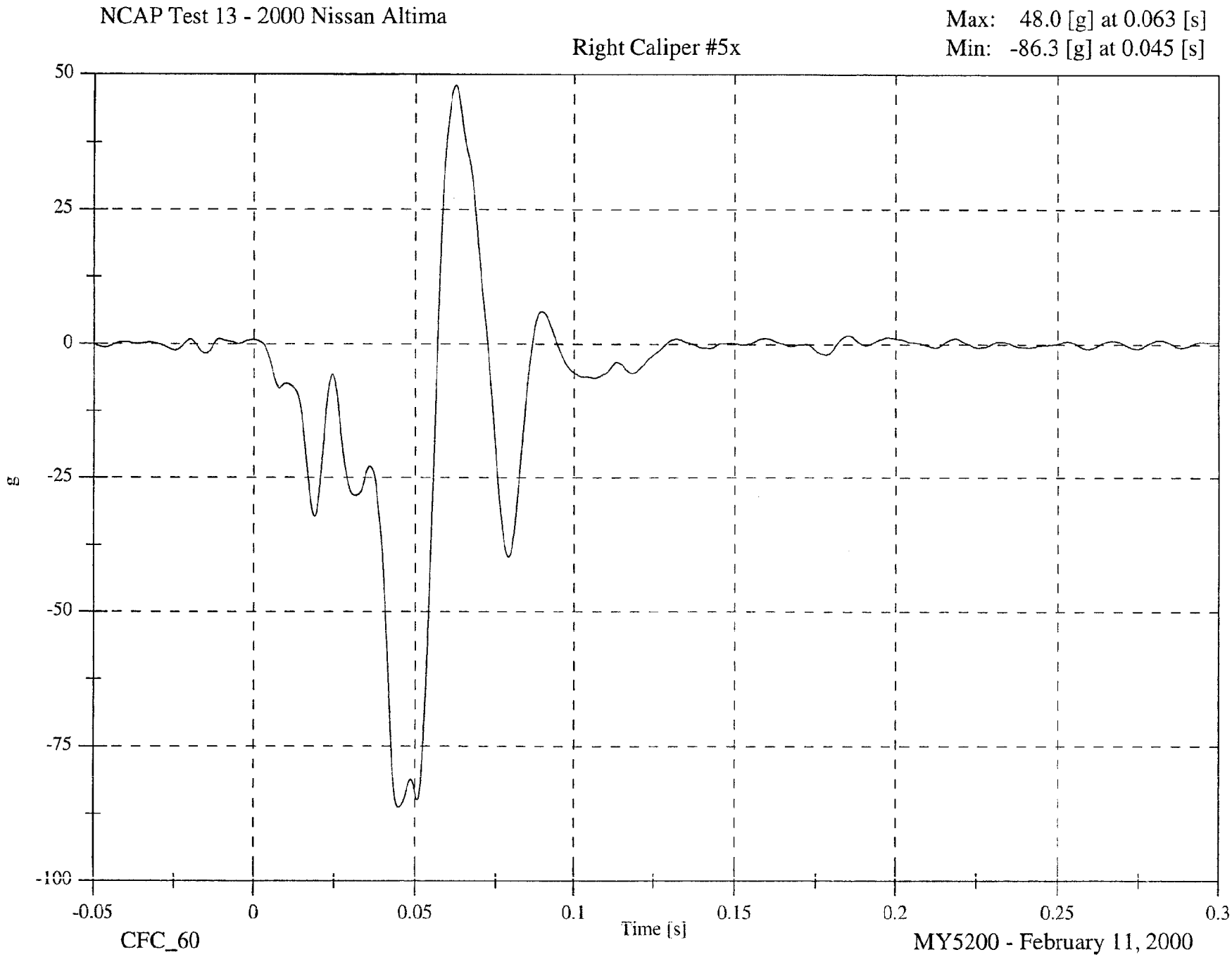
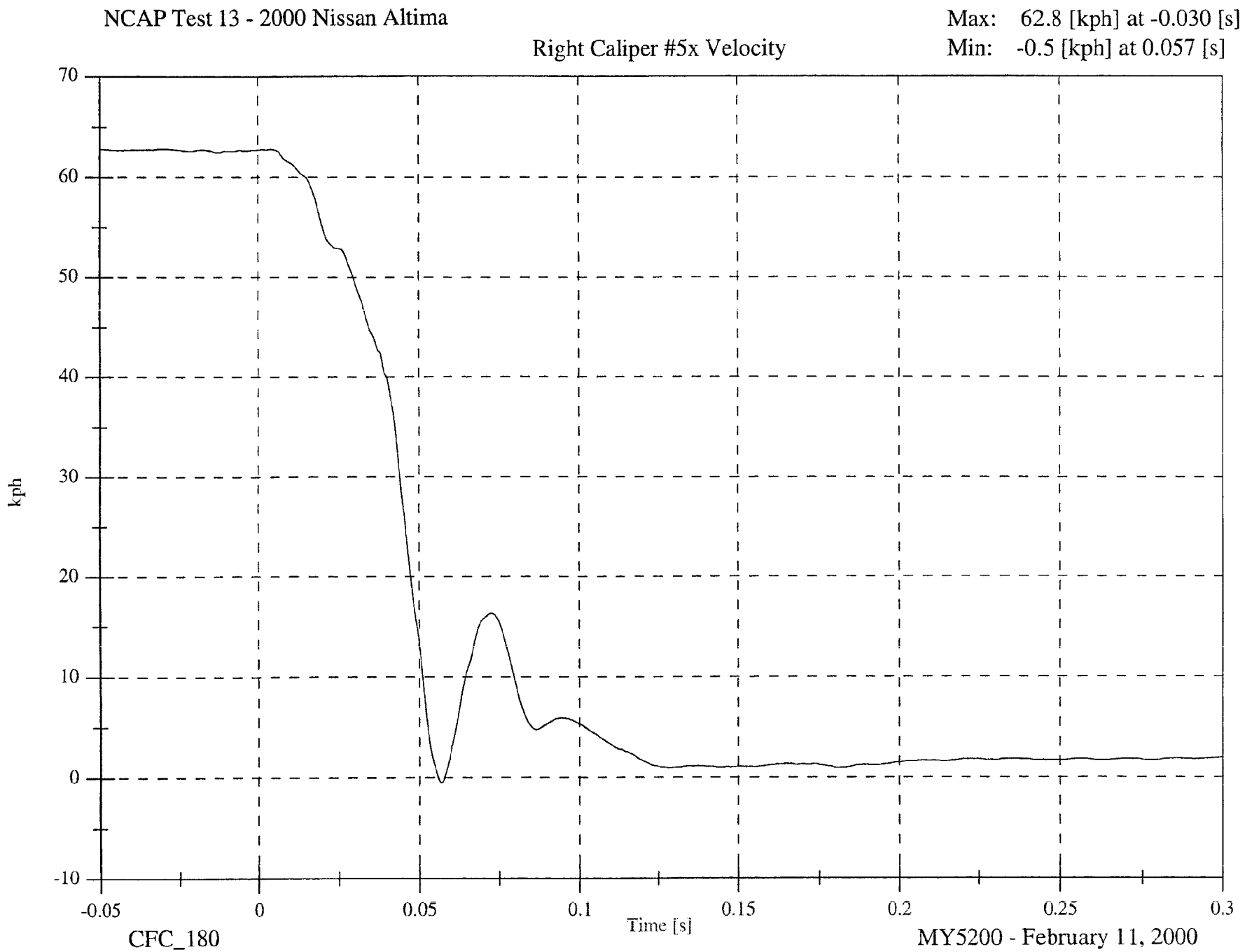
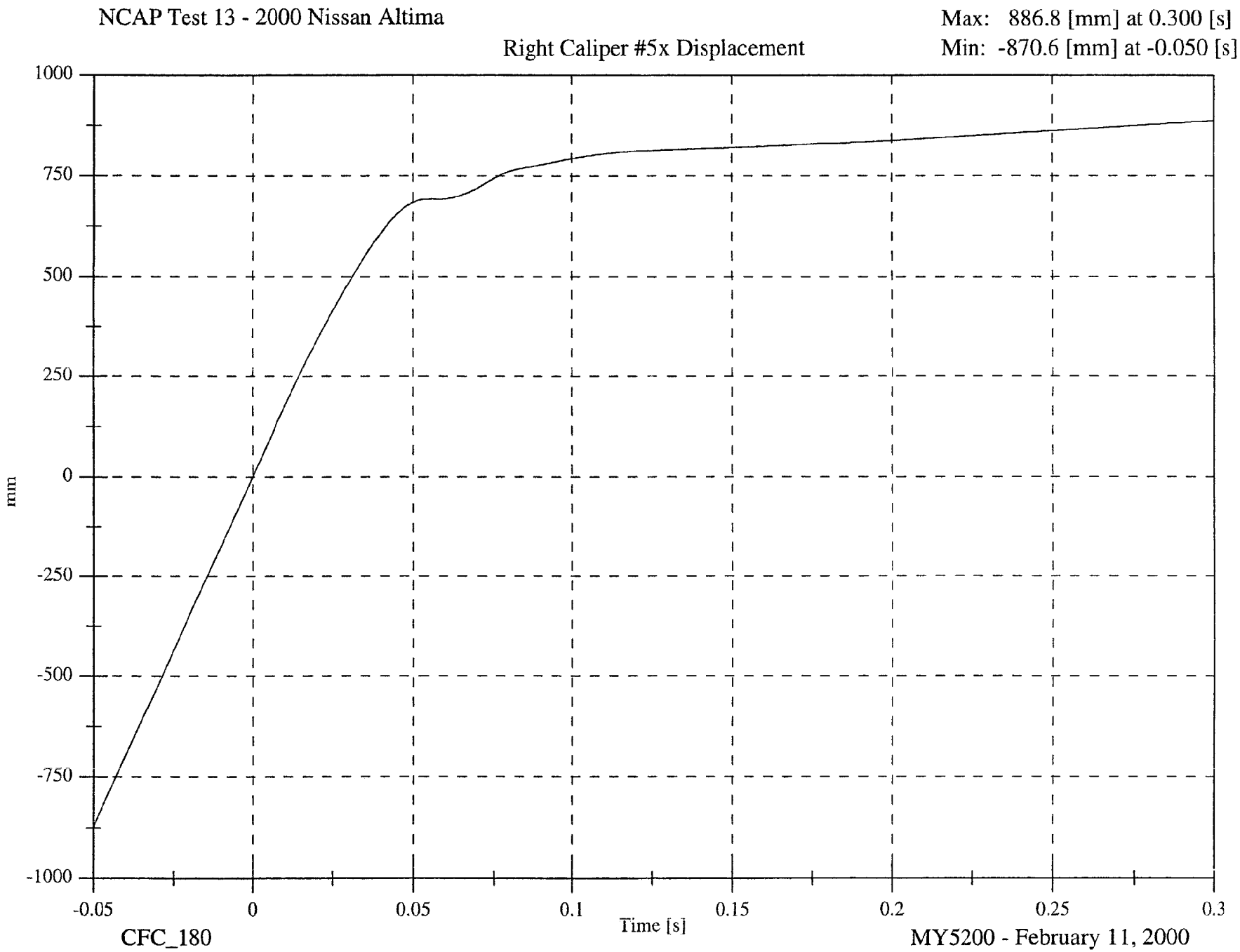

NCAP Test 13 - 2000 Nissan Altima
Engine Bottom #4x
Max: 26.4 [g] at 0.039 [s]
Min: -105.3 [g] at 0.031 [s]
50
25
0
-25
-50
-75
-100
-125
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000

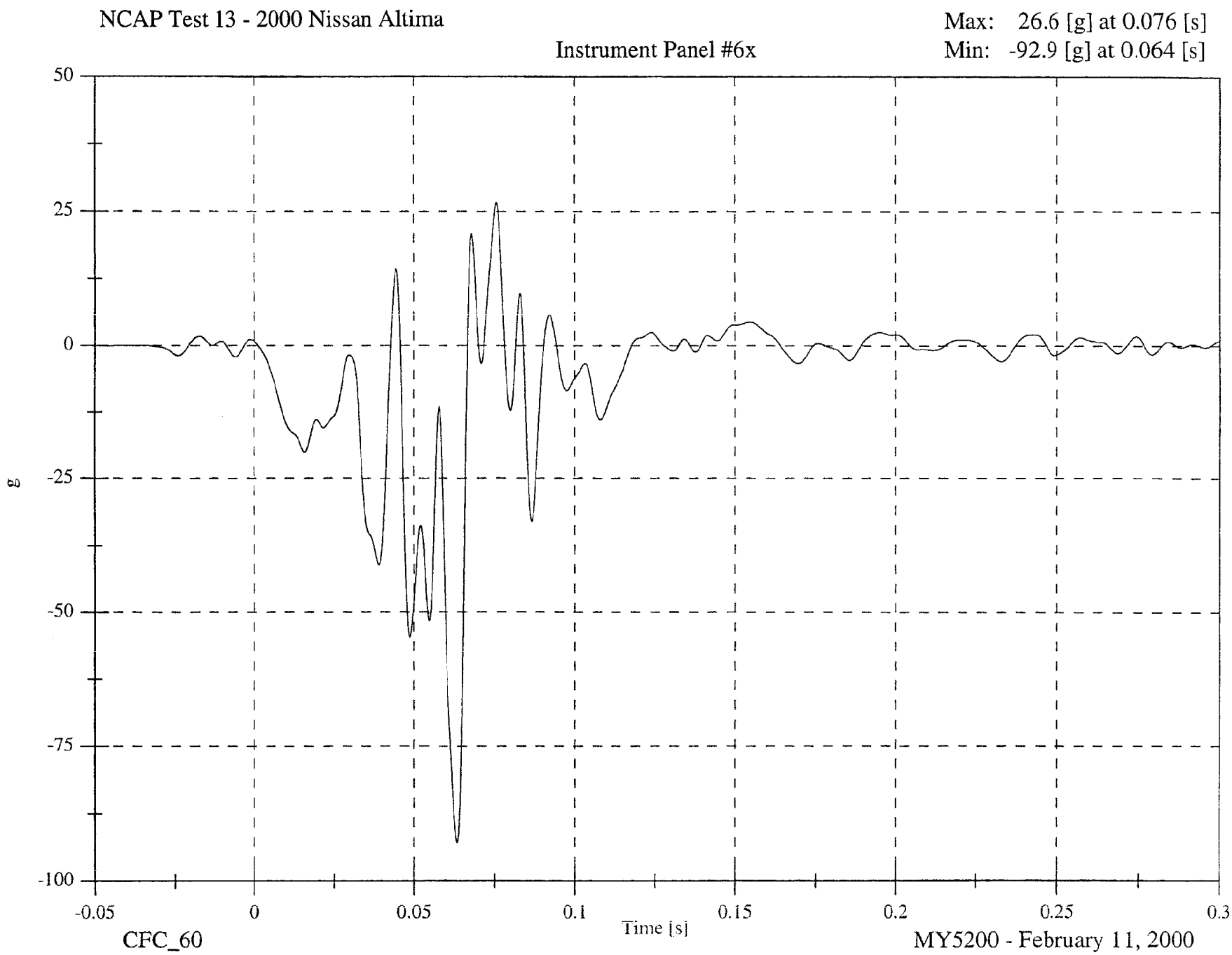

NCAP Test 13 - 2000 Nissan Altima
Engine Bottom #4x Velocity
Max: 62.7 [kph] at -0.026 [s]
Min: 10.7 [kph] at 0.159 [s]
70
60
50
40
30
20
10
kph
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Engine Bottom #4x Displacement
Max: 1561.2 [mm] at 0.300 [s]
Min: -869.9 [mm] at -0.050 [s]
2000
1500
1000
500
0
-500
-1000
mm
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Right Caliper #5x
Max: 48.0 [g] at 0.063 [s]
Min: -86.3 [g] at 0.045 [s]
50
25
0
-25
-50
-75
-100
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Right Caliper #5x Velocity
Max: 62.8 [kph] at -0.030 [s]
Min: -0.5 [kph] at 0.057 [s]
70
60
50
40
30
20
10
0
-10
kph
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Right Caliper #5x Displacement
Max: 886.8 [mm] at 0.300 [s]
Min: -870.6 [mm] at -0.050 [s]
1000
750
500
250
0
-250
-500
-750
-1000
mm
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Instrument Panel #6x
Max: 26.6 [g] at 0.076 [s]
Min: -92.9 [g] at 0.064 [s]
50
25
0
-25
-50
-75
-100
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000

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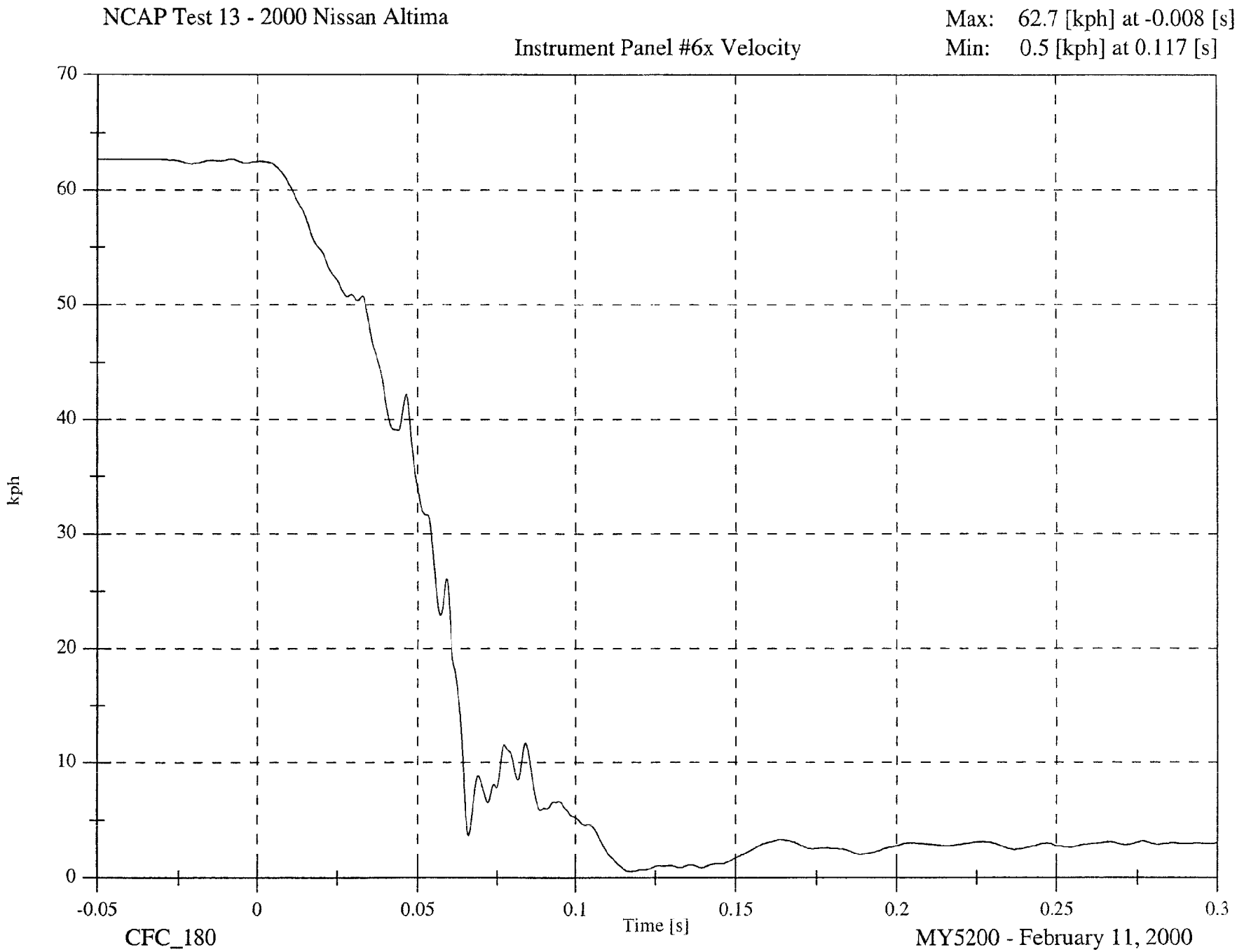
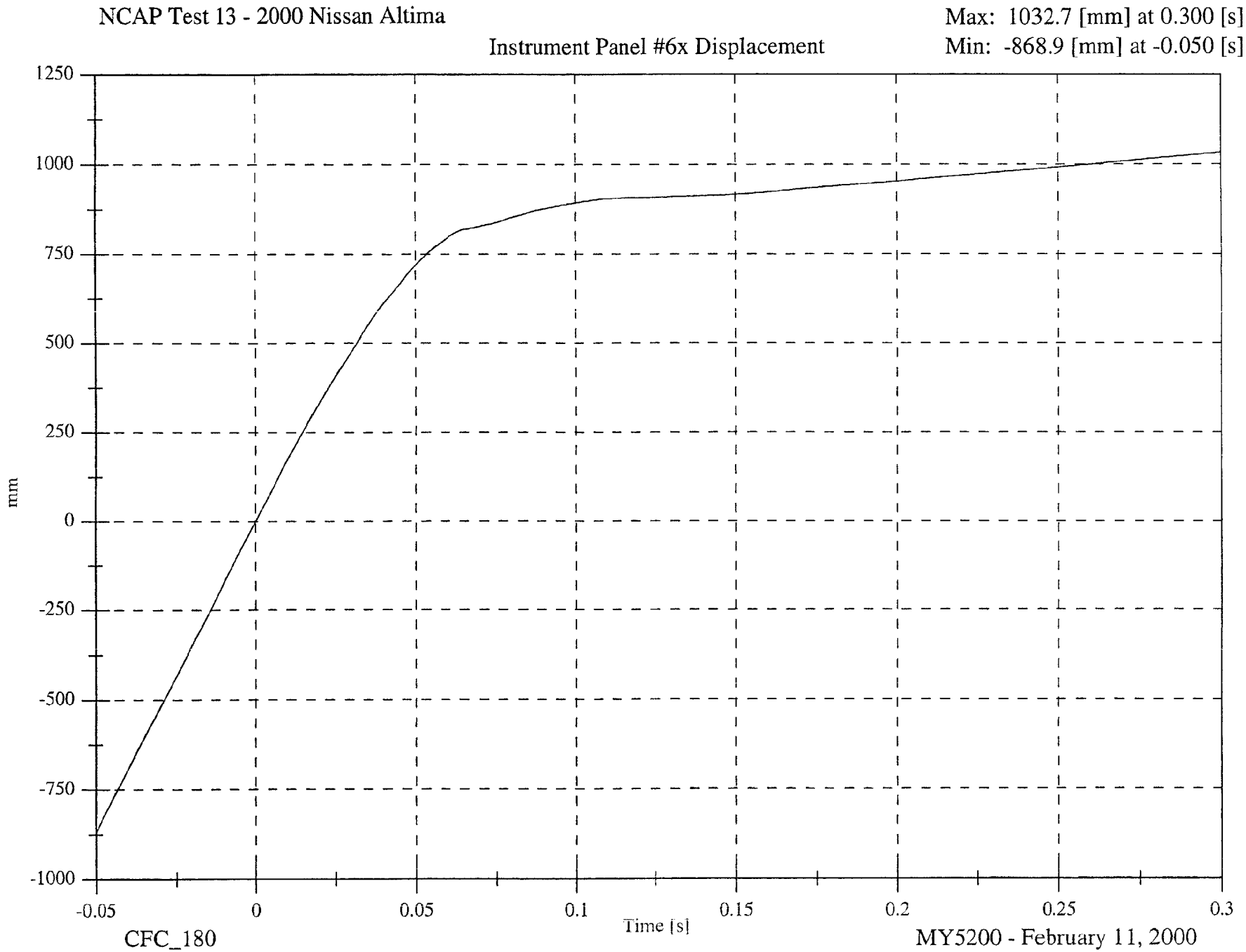
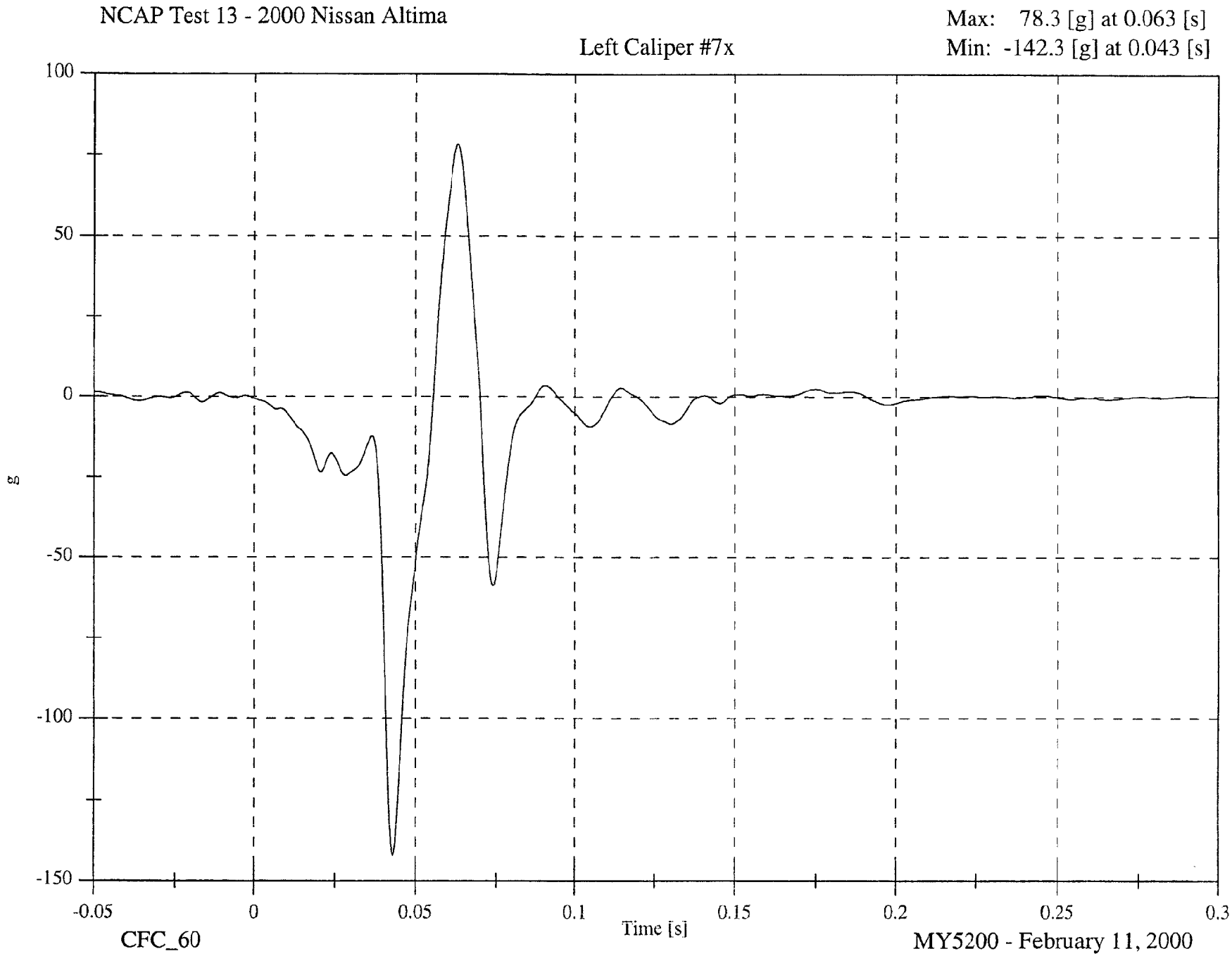

NCAP Test 13 - 2000 Nissan Altima
Instrument Panel #6x Velocity
Max: 62.7 [kph] at -0.008 [s]
Min: 0.5 [kph] at 0.117 [s]
70
60
50
40
30
20
10
0
kph
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Instrument Panel #6x Displacement
Max: 1032.7 [mm] at 0.300 [s]
Min: -868.9 [mm] at -0.050 [s]
1250
1000
750
500
250
0
-250
-500
-750
-1000
mm
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Left Caliper #7x
Max: 78.3 [g] at 0.063 [s]
Min: -142.3 [g] at 0.043 [s]
100
50
0
-50
-100
-150
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000

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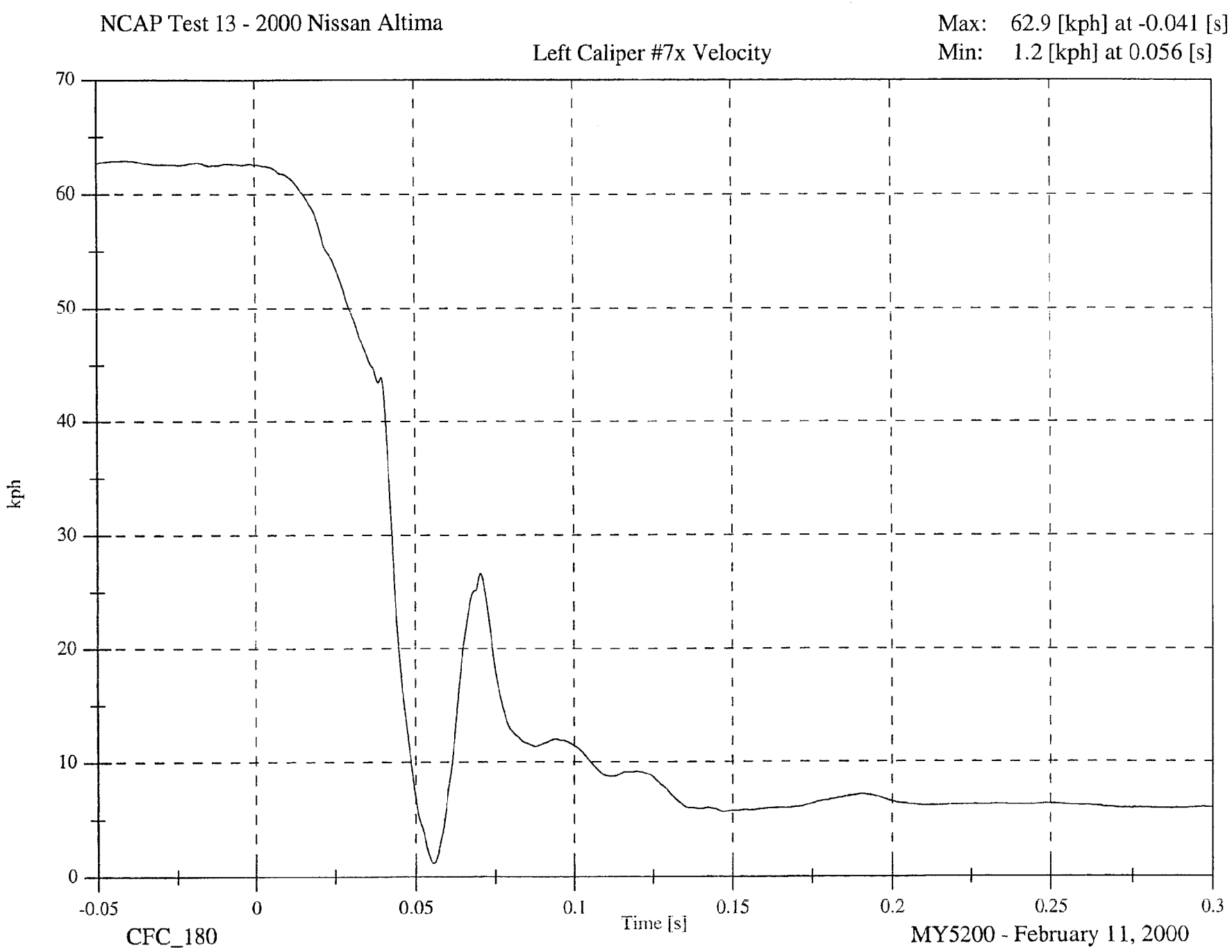
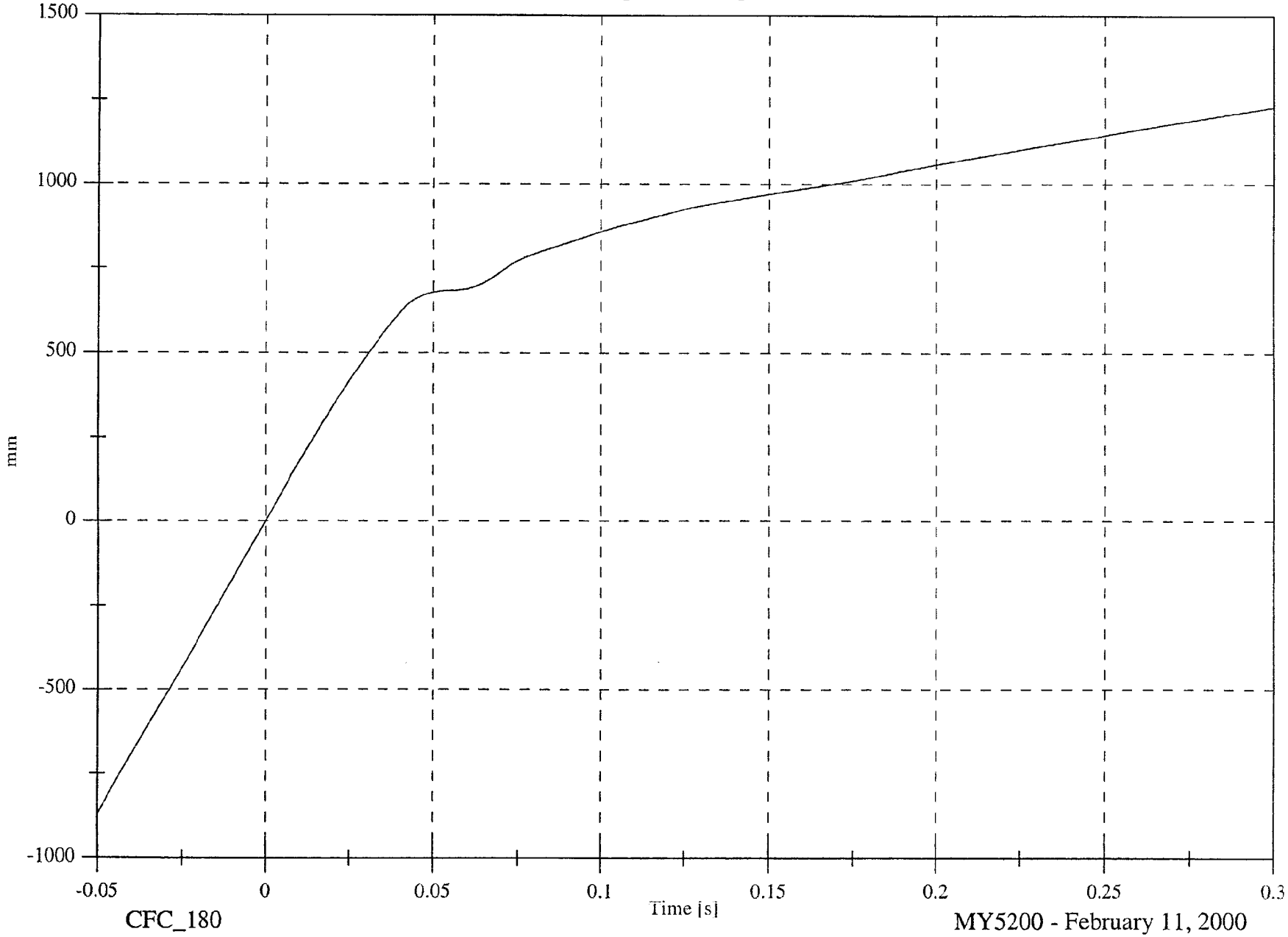

NCAP Test 13 - 2000 Nissan Altima
Left Caliper #7x Velocity
Max: 62.9 [kph] at -0.041 [s]
Min: 1.2 [kph] at 0.056 [s]
70
60
50
40
30
20
10
0
kph
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

NCAP Test 13 - 2000 Nissan Altima

Left Caliper #7x Displacement

Max: 1229.5 [mm] at 0.300 [s]
Min: -870.3 [mm] at -0.050 [s]



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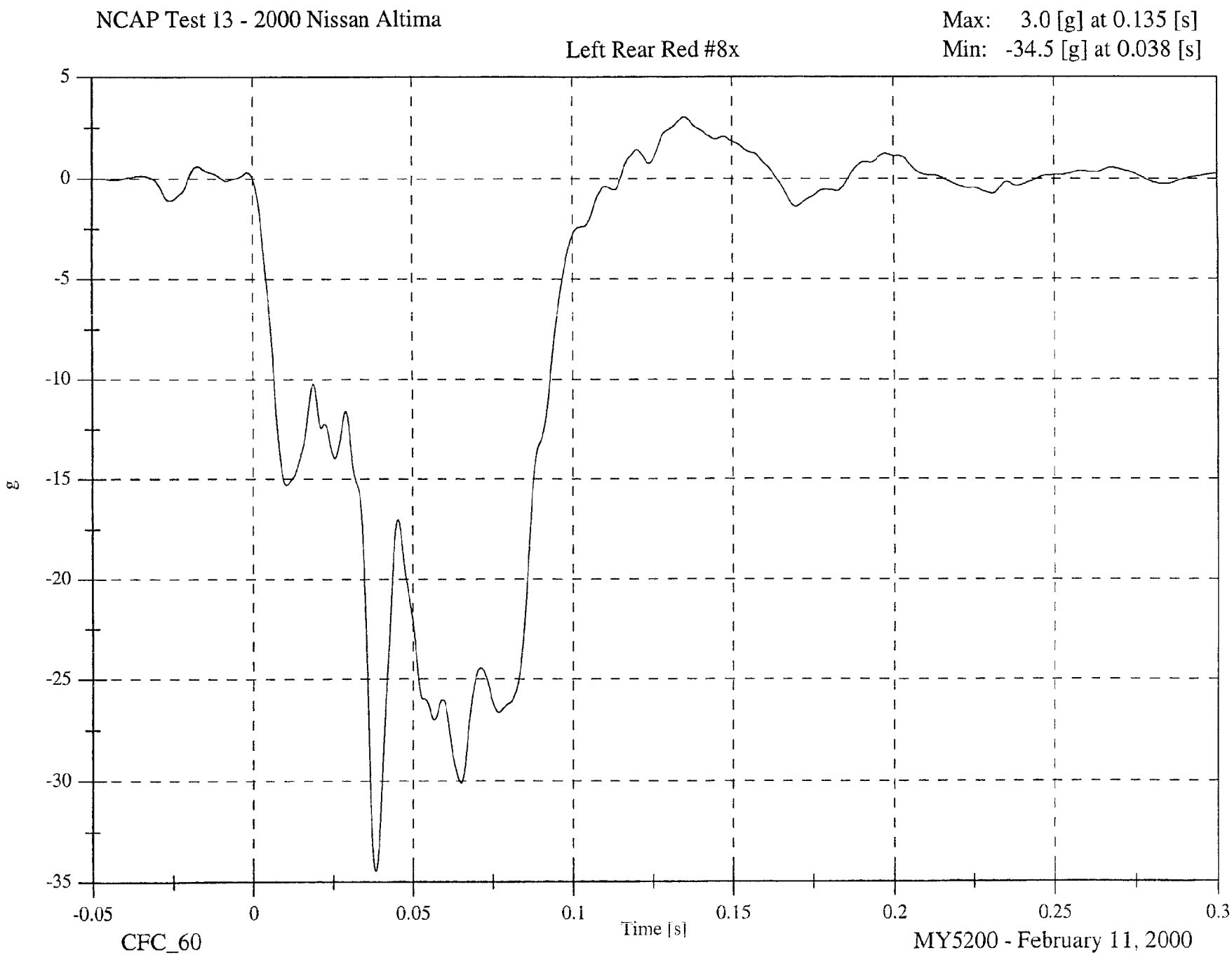
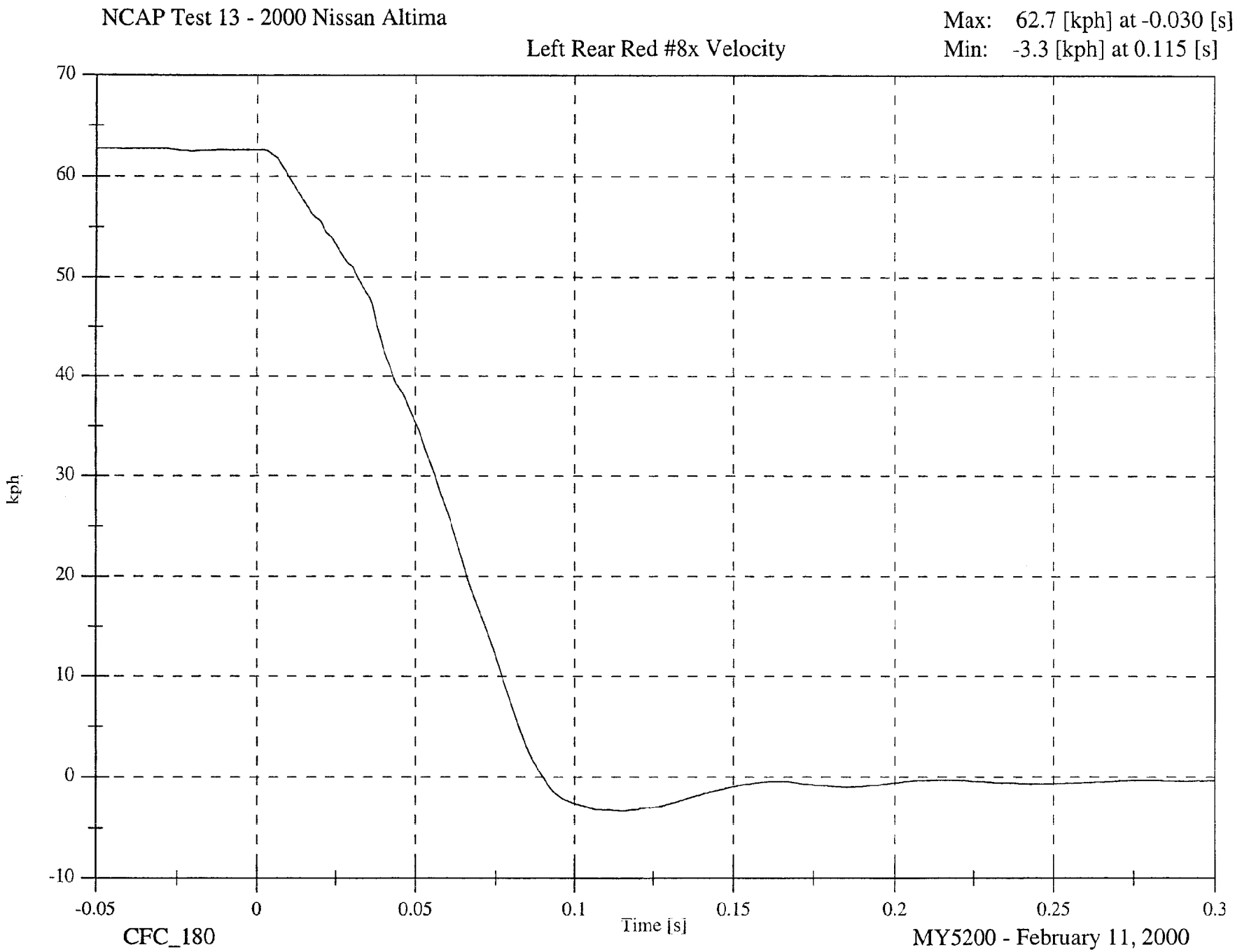
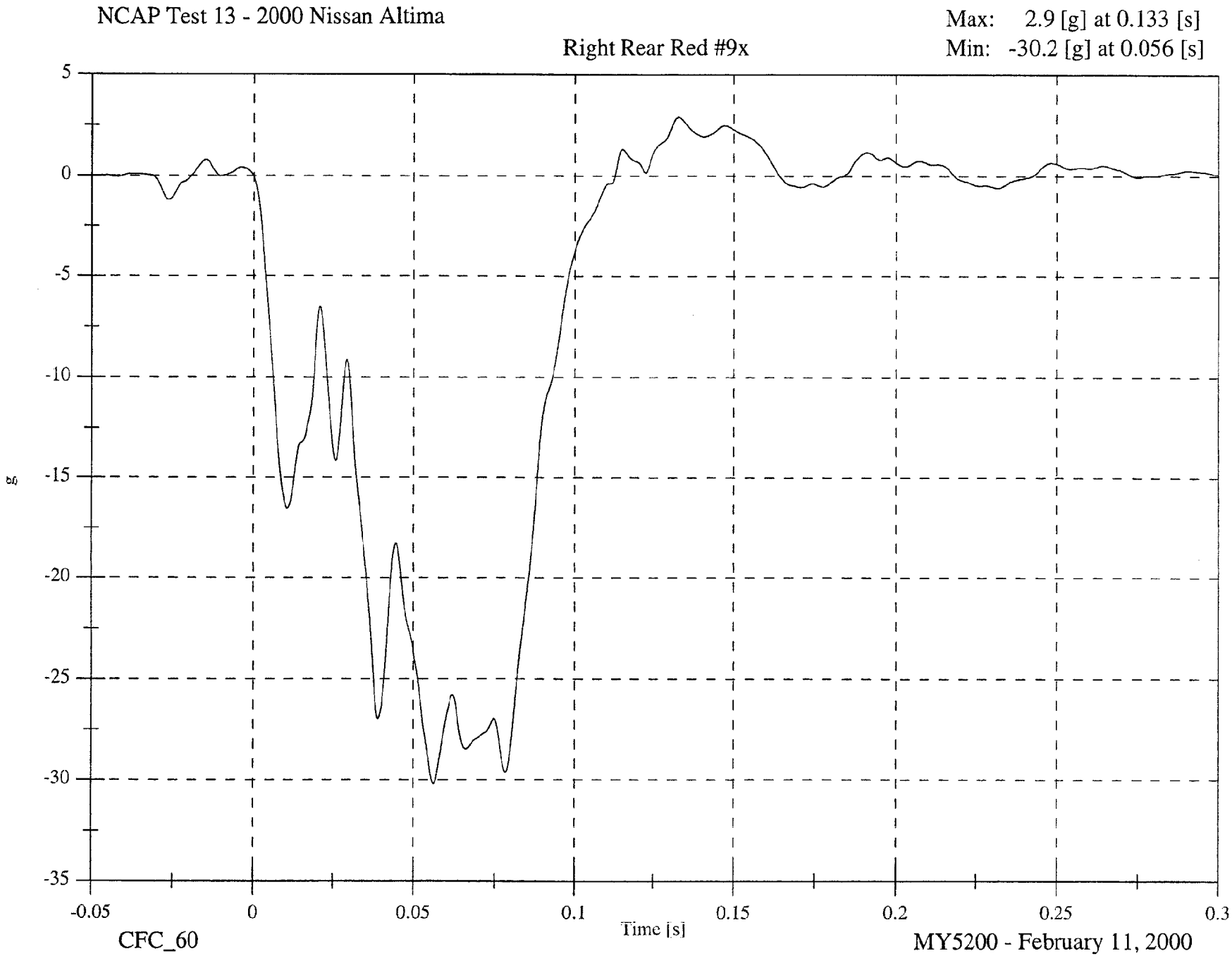

NCAP Test 13 - 2000 Nissan Altima
Left Rear Red #8x
Max: 3.0 [g] at 0.135 [s]
Min: -34.5 [g] at 0.038 [s]
5
0
-5
-10
-15
-20
-25
-30
-35
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Left Rear Red #8x Velocity
Max: 62.7 [kph] at -0.030 [s]
Min: -3.3 [kph] at 0.115 [s]
kph
70
60
50
40
30
20
10
0
-10
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Left Rear Red #8x Displacement
Max: 906.8 [mm] at 0.090 [s]
Min: -869.8 [mm] at -0.050 [s]
1000
750
500
250
0
-250
-500
-750
-1000
mm
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Right Rear Red #9x
Max: 2.9 [g] at 0.133 [s]
Min: -30.2 [g] at 0.056 [s]
5
0
-5
-10
-15
-20
-25
-30
-35
g
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_60
MY5200 - February 11, 2000

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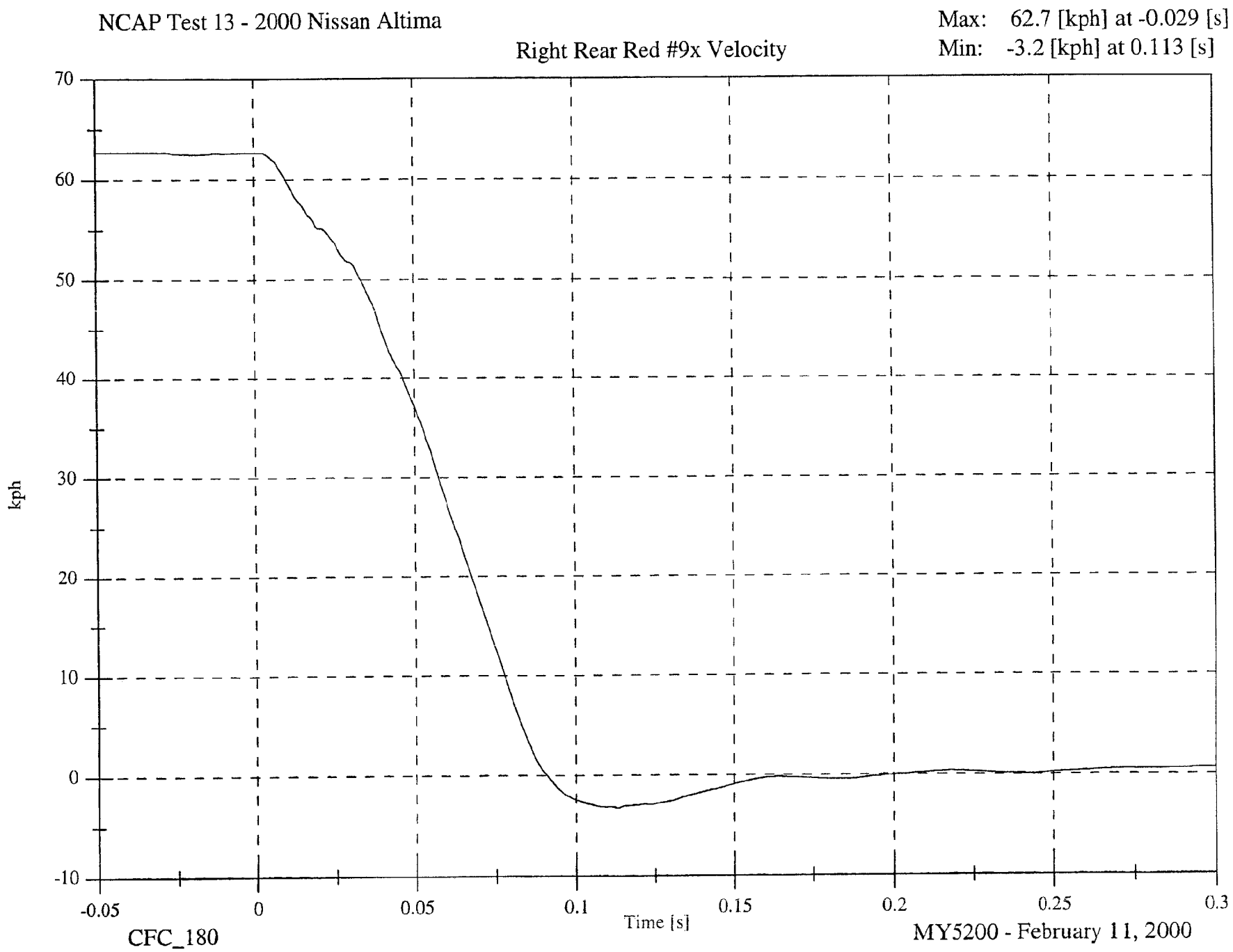
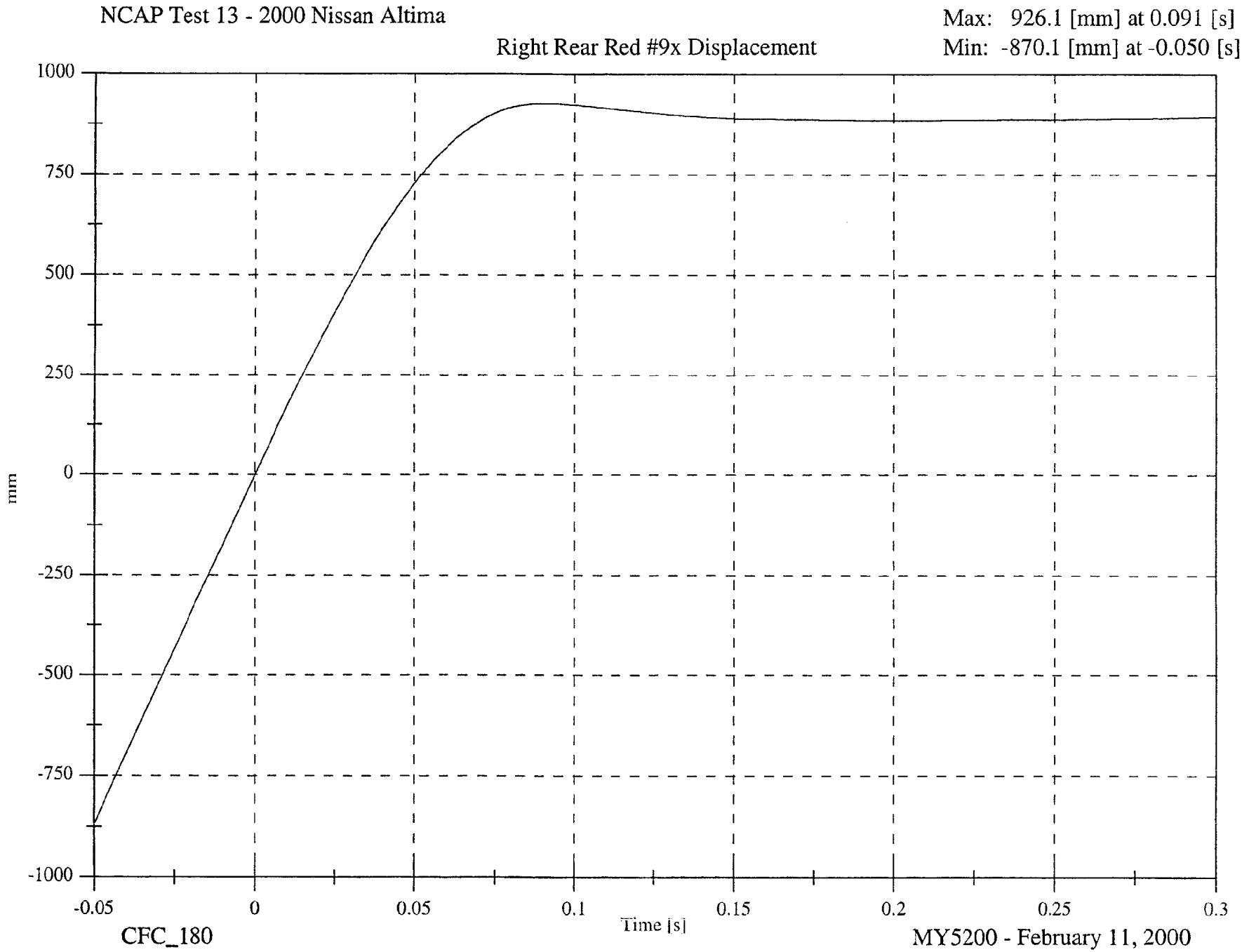
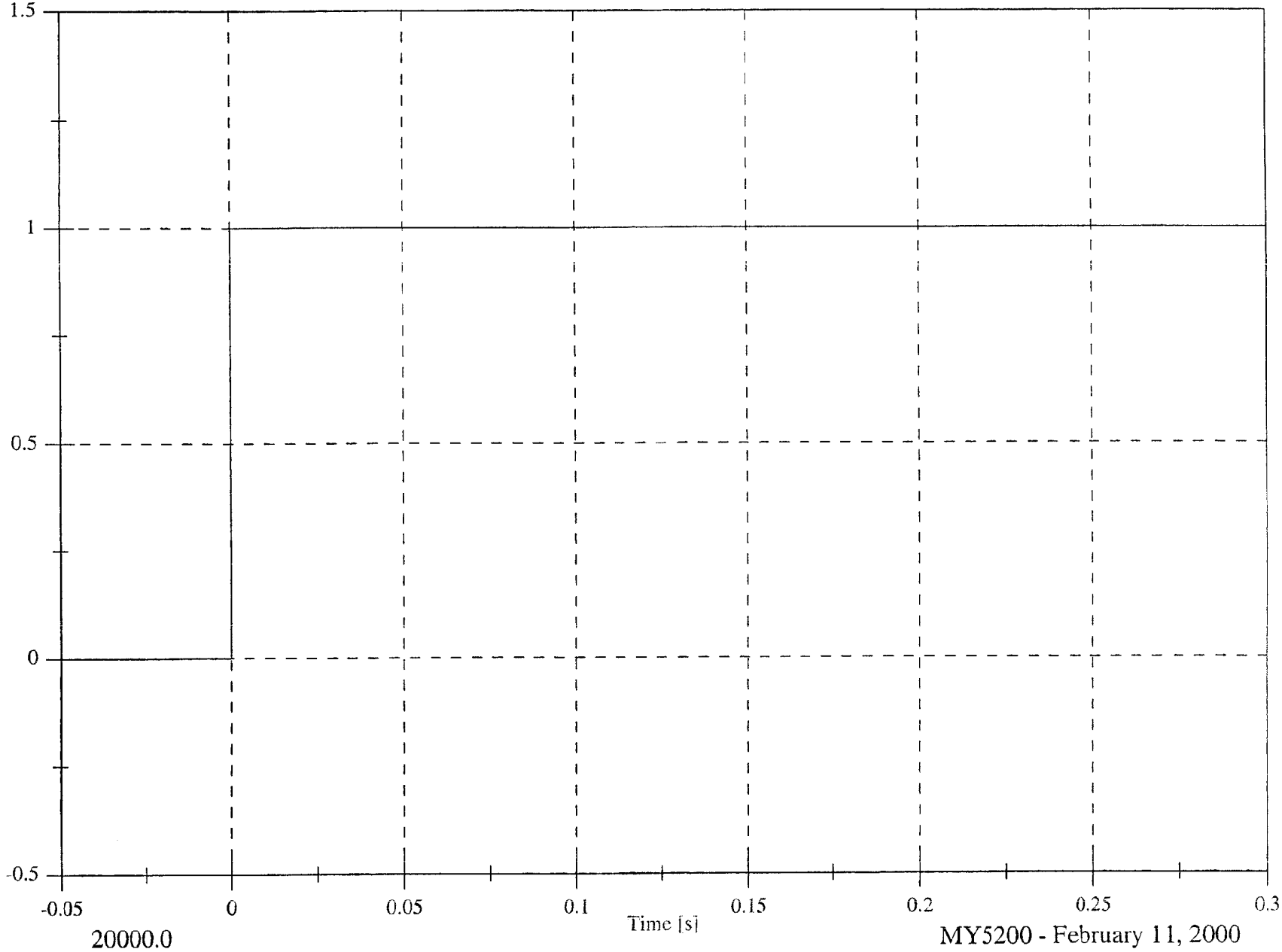
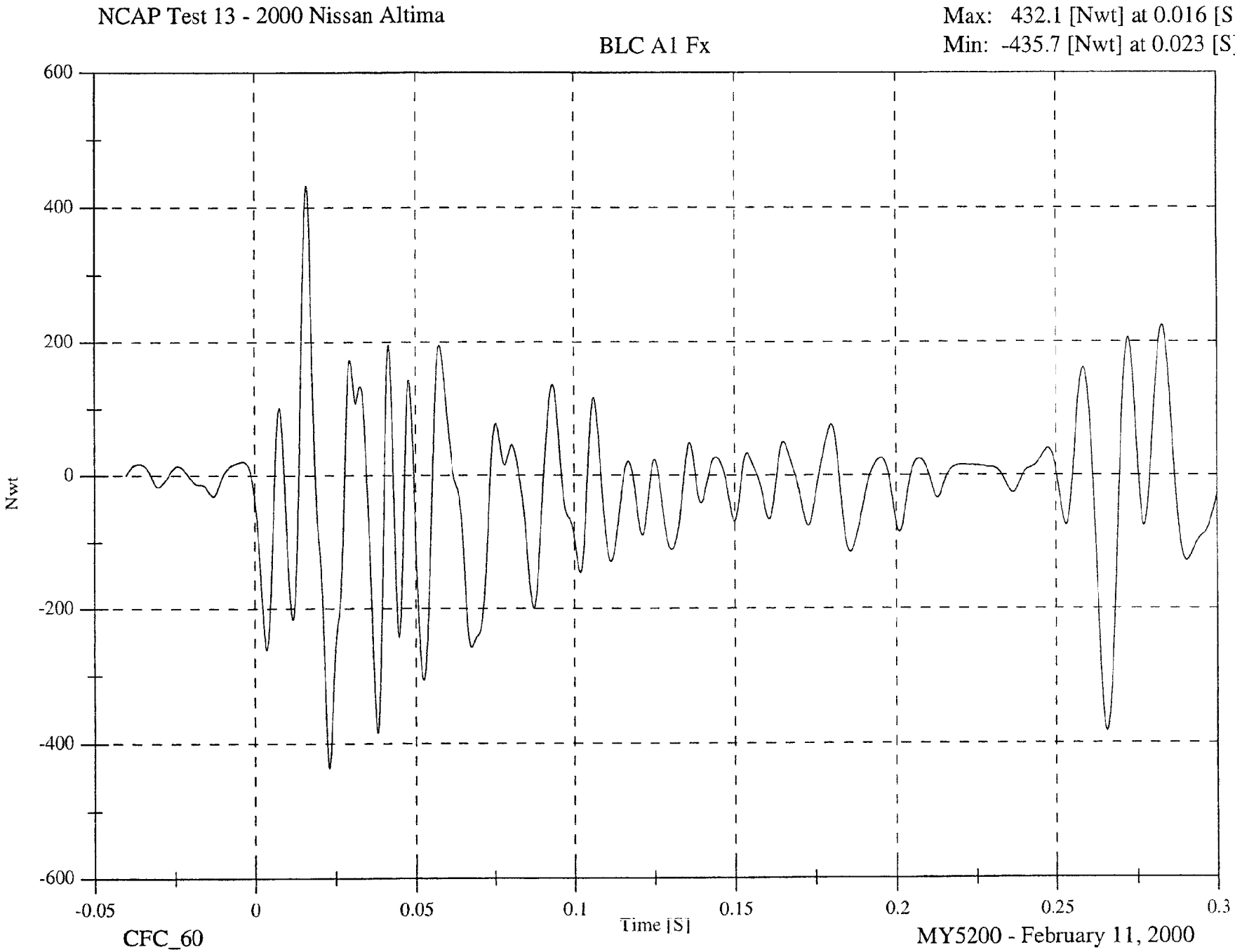

NCAP Test 13 - 2000 Nissan Altima
Right Rear Red #9x Velocity
Max: 62.7 [kph] at -0.029 [s]
Min: -3.2 [kph] at 0.113 [s]
70
60
50
40
30
20
10
0
-10
kph
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

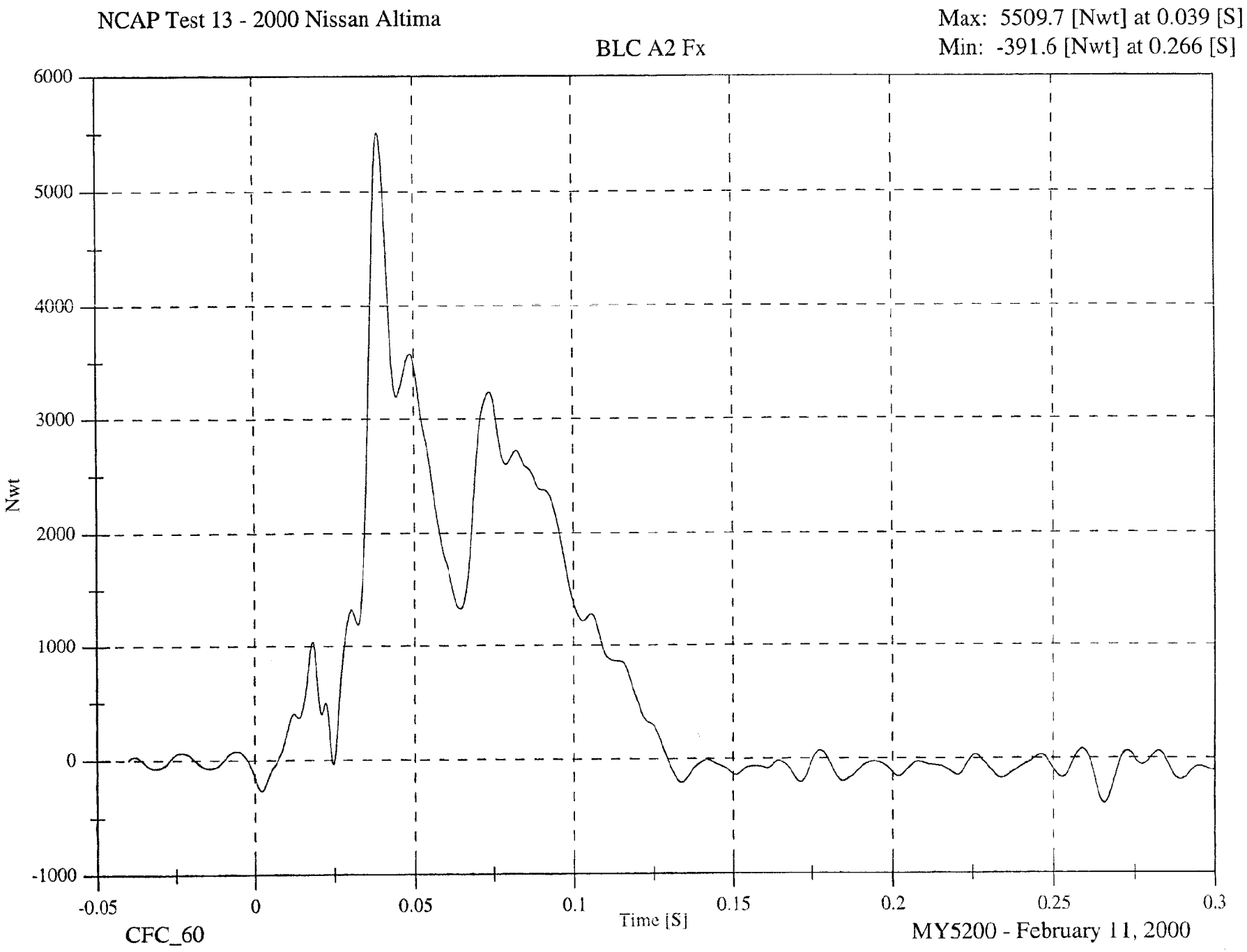

NCAP Test 13 - 2000 Nissan Altima
Right Rear Red #9x Displacement
Max: 926.1 [mm] at 0.091 [s]
Min: -870.1 [mm] at -0.050 [s]
1000
750
500
250
0
-250
-500
-750
-1000
mm
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [s]
CFC_180
MY5200 - February 11, 2000

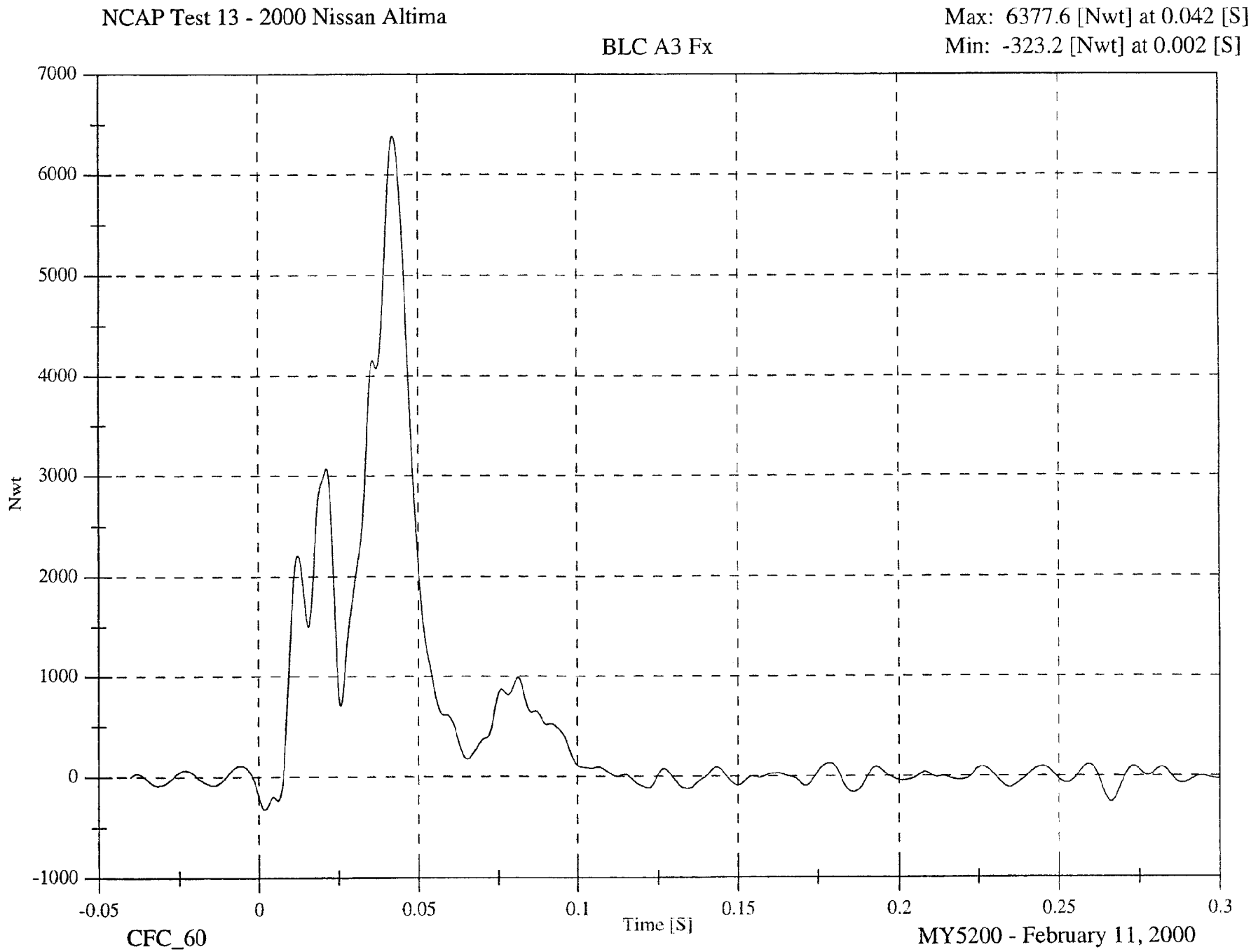
NCAP Test 13 - 2000 Nissan Altima

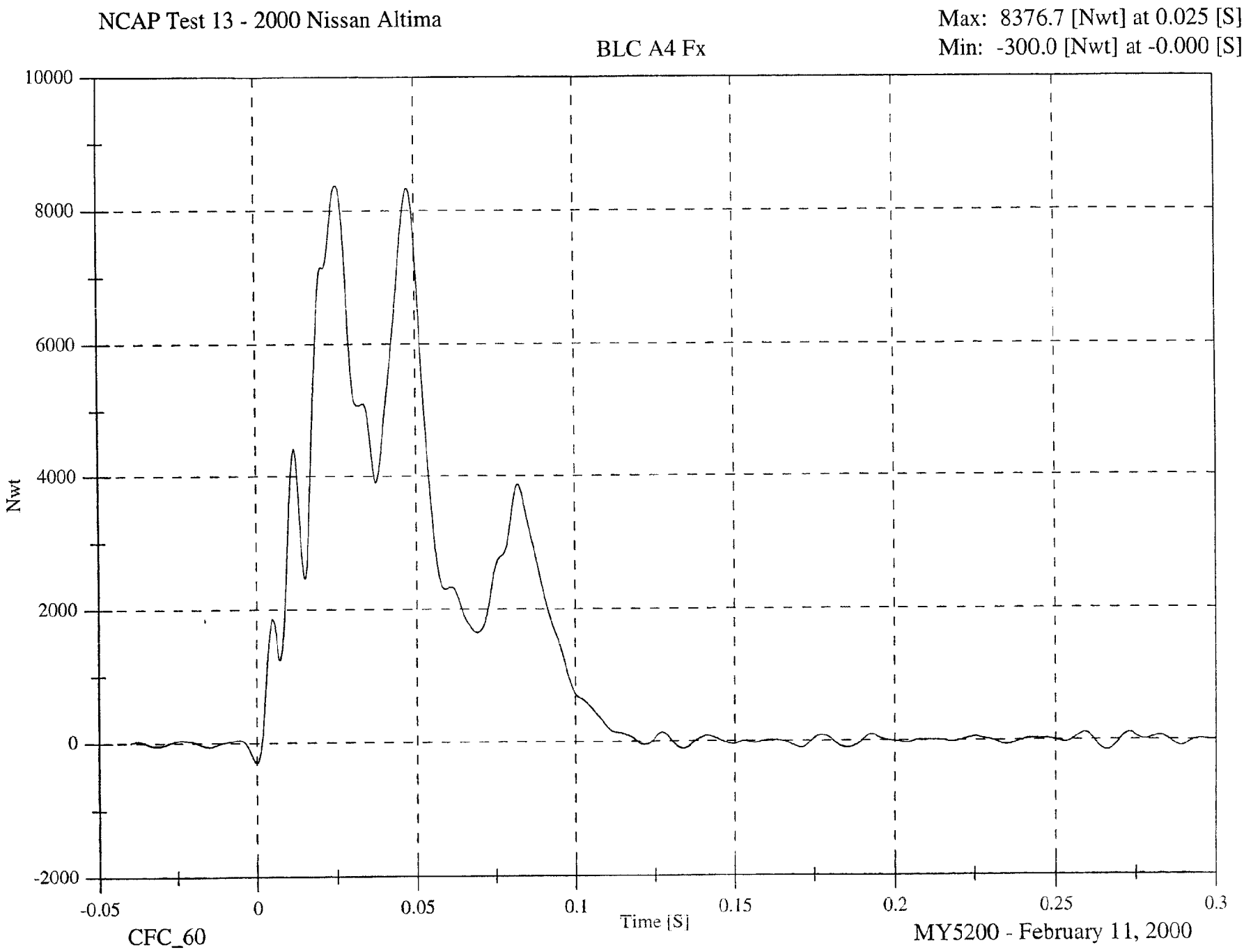
Max: 1.0 [] at 0.000 [s]
Min: 0.0 [] at -0.050 [s]

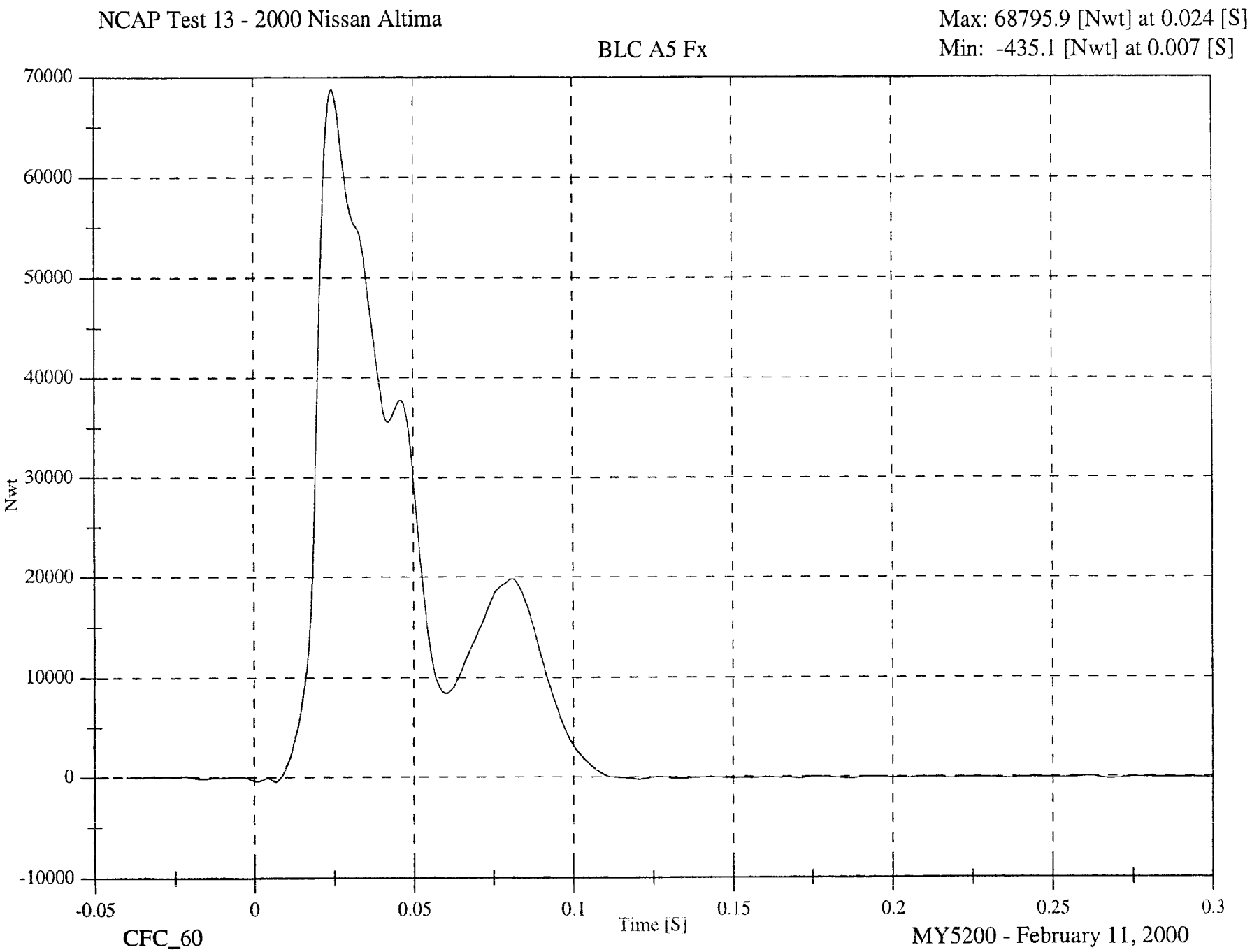


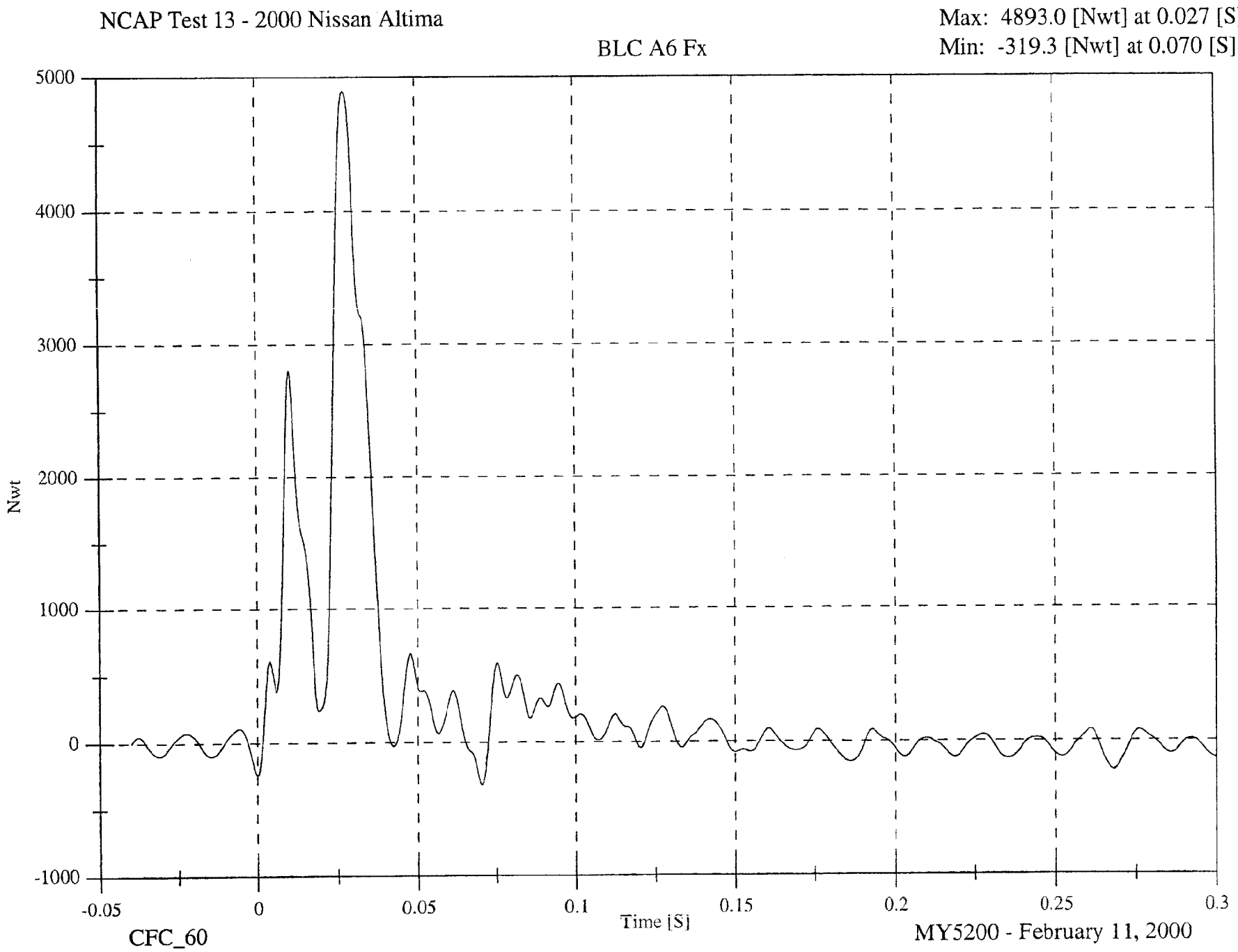

NCAP Test 13 - 2000 Nissan Altima
BLC A1 Fx
Max: 432.1 [Nwt] at 0.016 [S]
Min: -435.7 [Nwt] at 0.023 [S]
600
400
200
0
-200
-400
-600
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

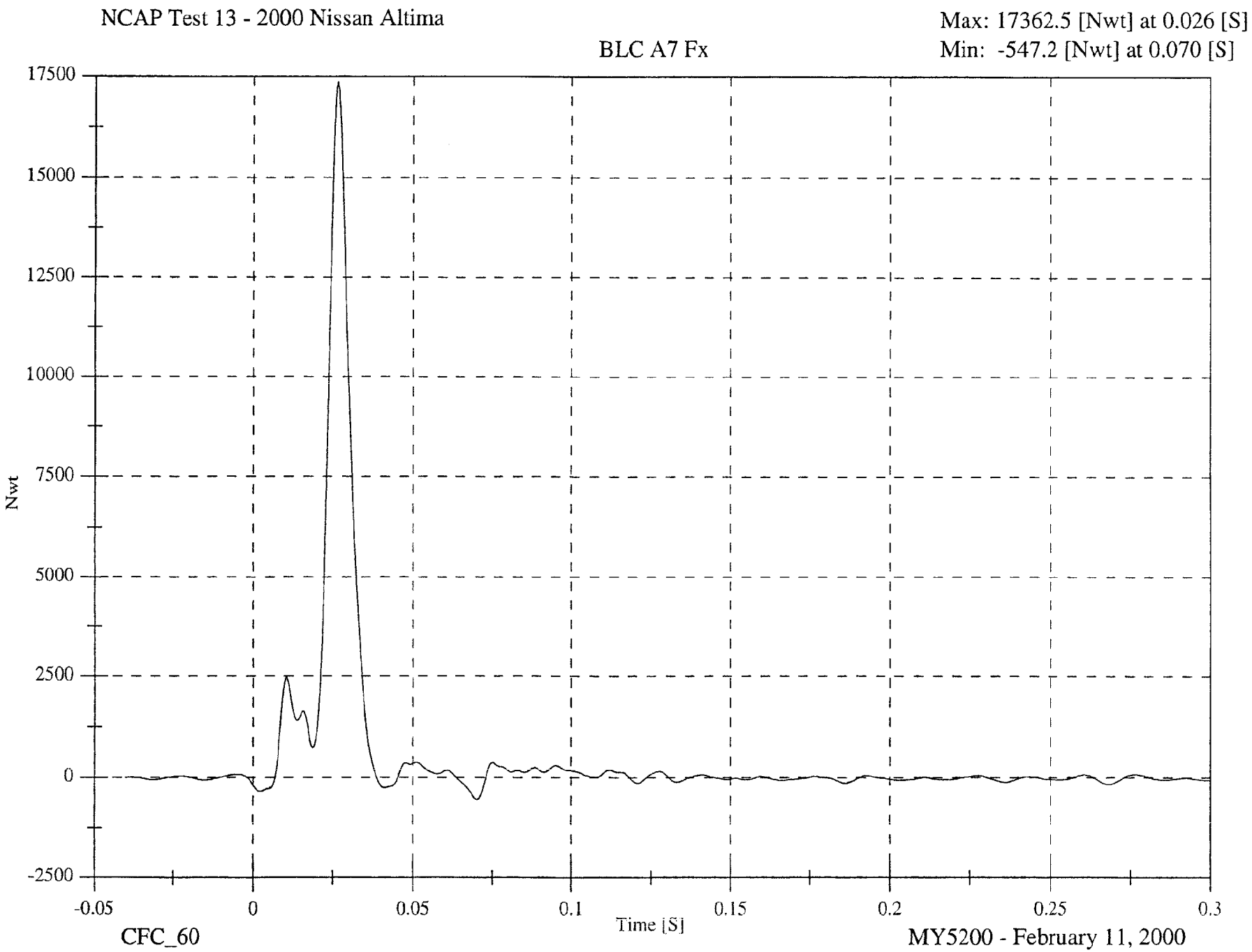

NCAP Test 13 - 2000 Nissan Altima
BLC A2 Fx
Max: 5509.7 [Nwt] at 0.039 [S]
Min: -391.6 [Nwt] at 0.266 [S]
6000
5000
4000
3000
2000
1000
0
-1000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

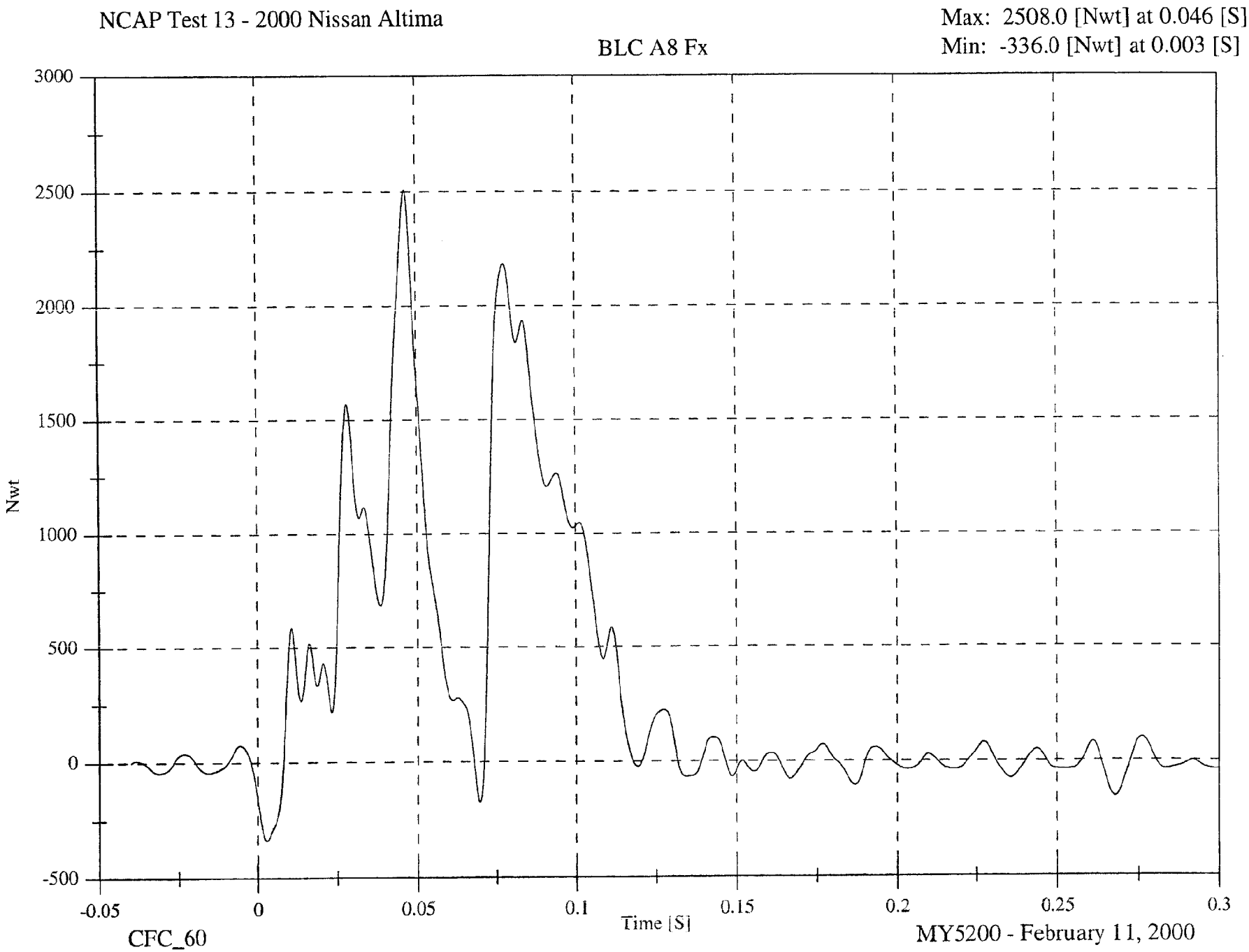

NCAP Test 13 - 2000 Nissan Altima
BLC A3 Fx
Max: 6377.6 [Nwt] at 0.042 [S]
Min: -323.2 [Nwt] at 0.002 [S]
7000
6000
5000
4000
3000
2000
1000
0
-1000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

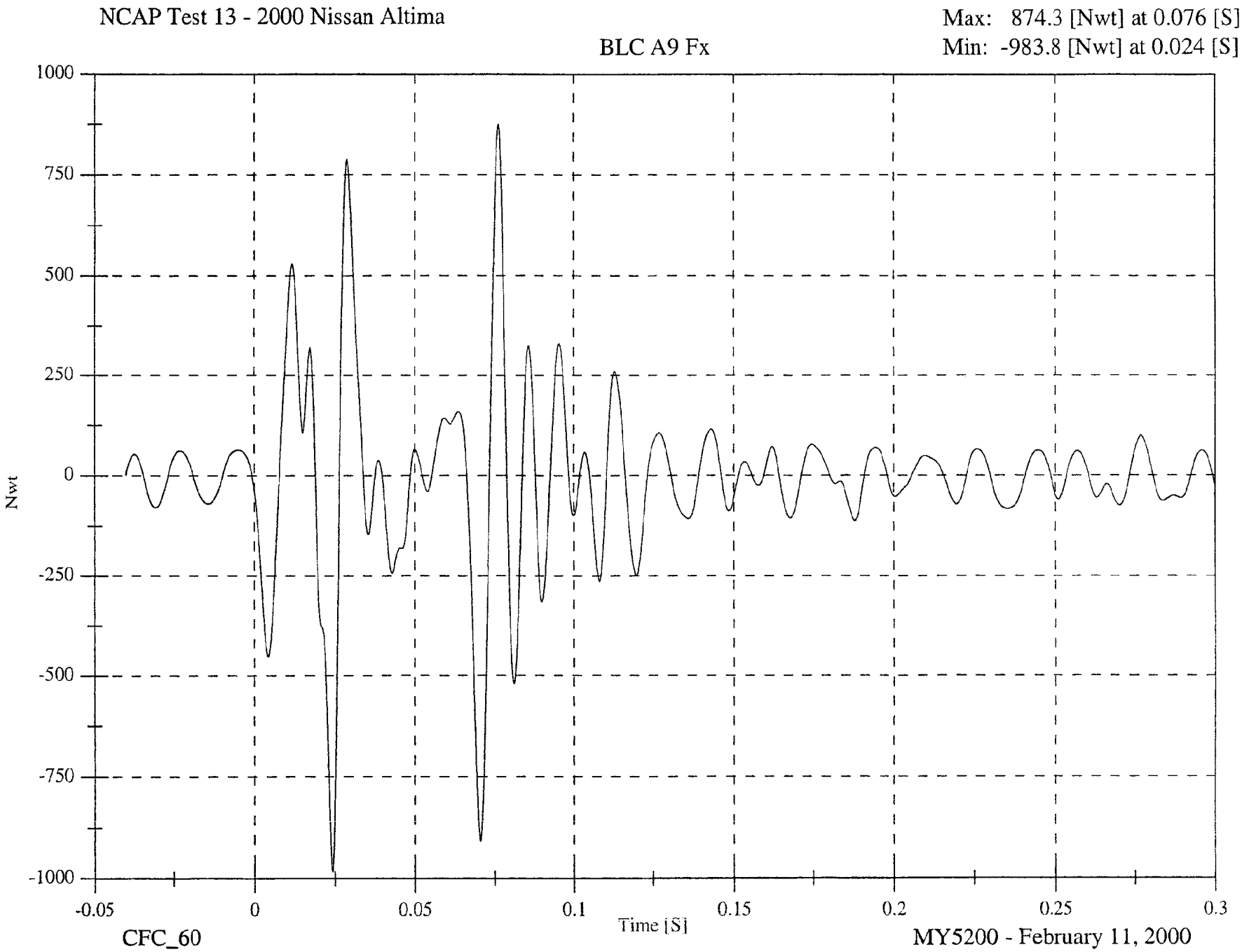

NCAP Test 13 - 2000 Nissan Altima
BLC A4 Fx
Max: 8376.7 [Nwt] at 0.025 [S]
Min: -300.0 [Nwt] at -0.000 [S]
10000
8000
6000
4000
2000
0
-2000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

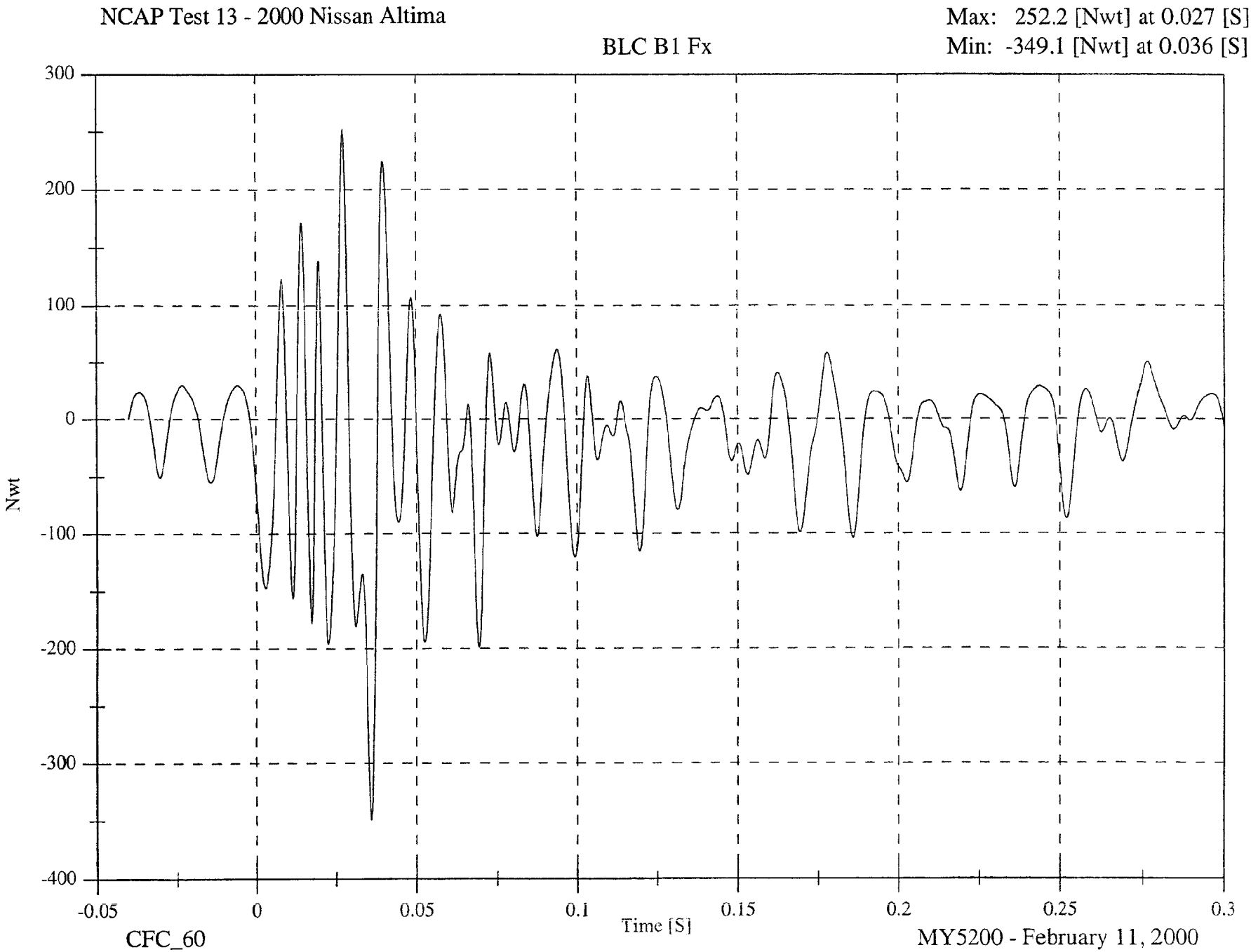

NCAP Test 13 - 2000 Nissan Altima
BLC A5 Fx
Max: 68795.9 [Nwt] at 0.024 [S]
Min: -435.1 [Nwt] at 0.007 [S]
70000
60000
50000
40000
30000
20000
10000
0
-10000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

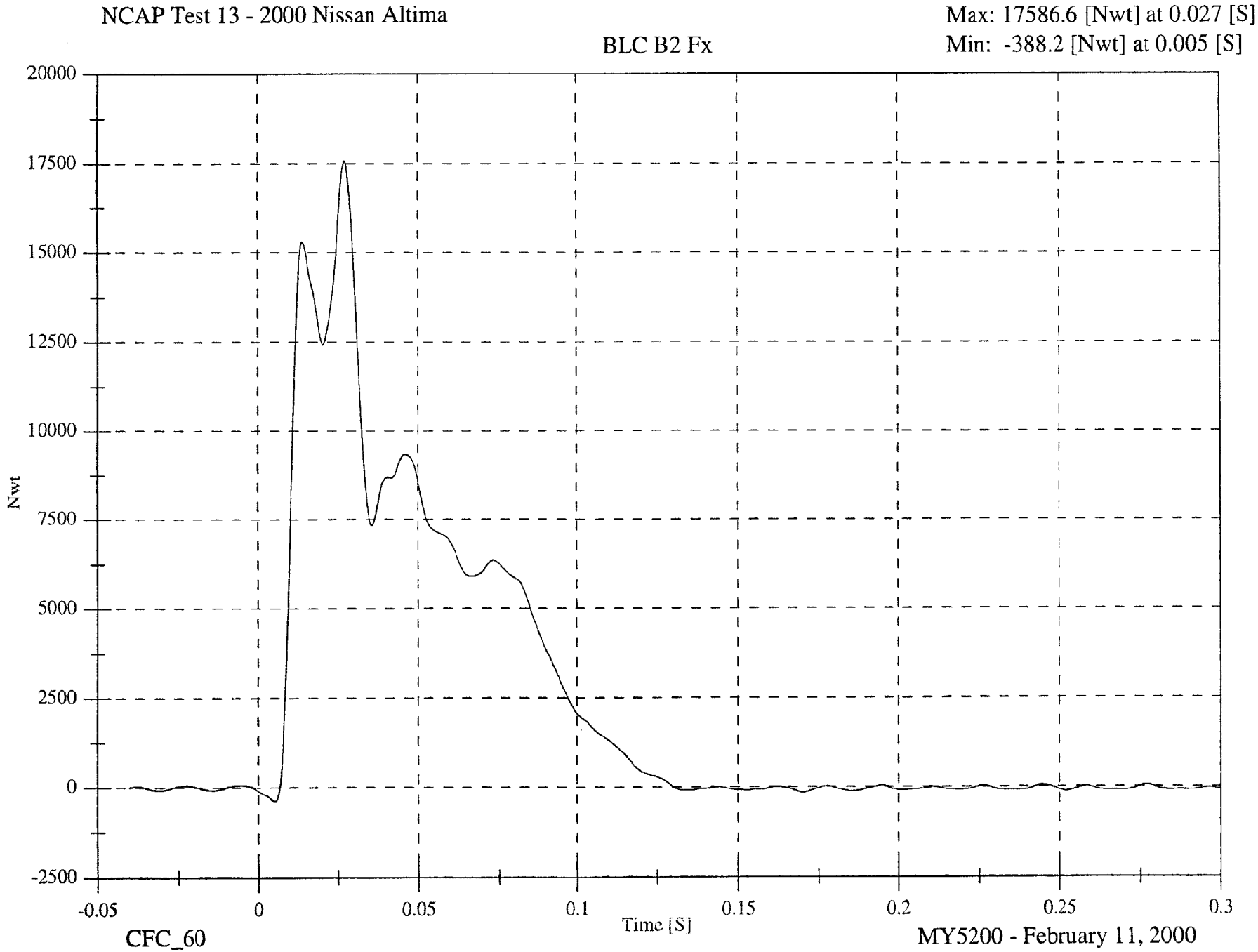

NCAP Test 13 - 2000 Nissan Altima
BLC A6 Fx
Max: 4893.0 [Nwt] at 0.027 [S]
Min: -319.3 [Nwt] at 0.070 [S]
5000
4000
3000
2000
1000
0
-1000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

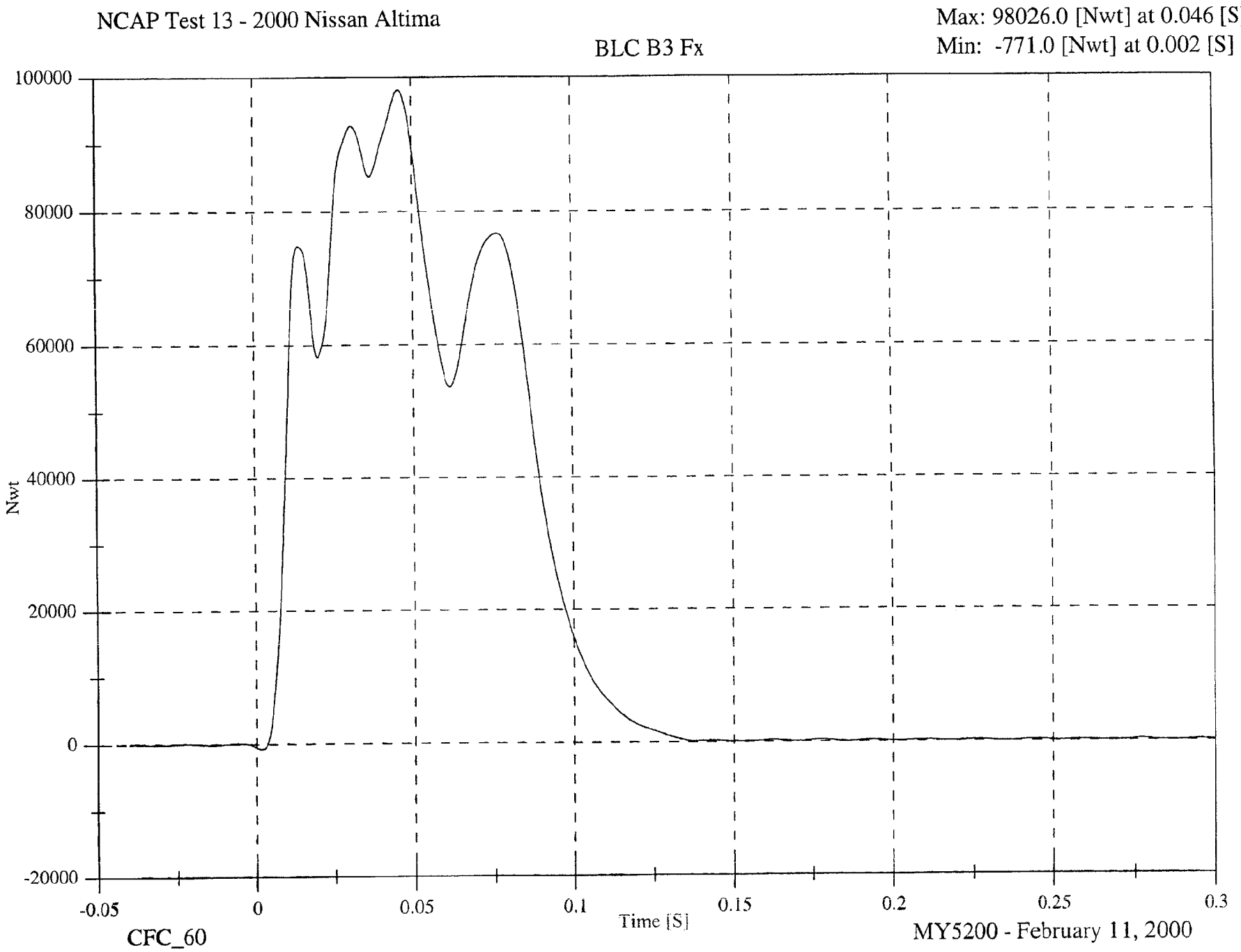

NCAP Test 13 - 2000 Nissan Altima
BLC A7 Fx
Max: 17362.5 [Nwt] at 0.026 [S]
Min: -547.2 [Nwt] at 0.070 [S]
17500
15000
12500
10000
7500
5000
2500
0
-2500
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

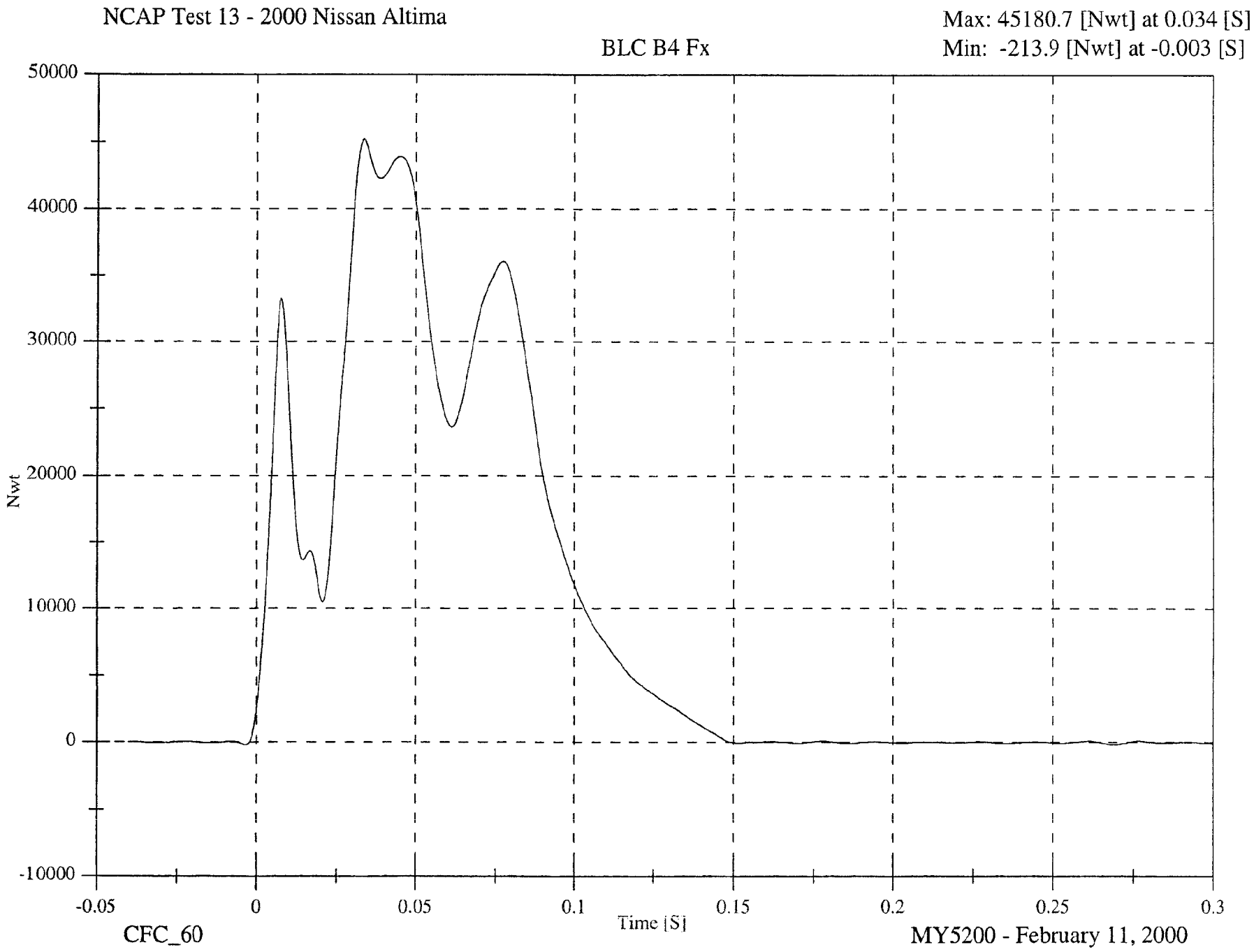

NCAP Test 13 - 2000 Nissan Altima
BLC A8 Fx
Max: 2508.0 [Nwt] at 0.046 [S]
Min: -336.0 [Nwt] at 0.003 [S]
3000
2500
2000
1500
1000
500
0
-500
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

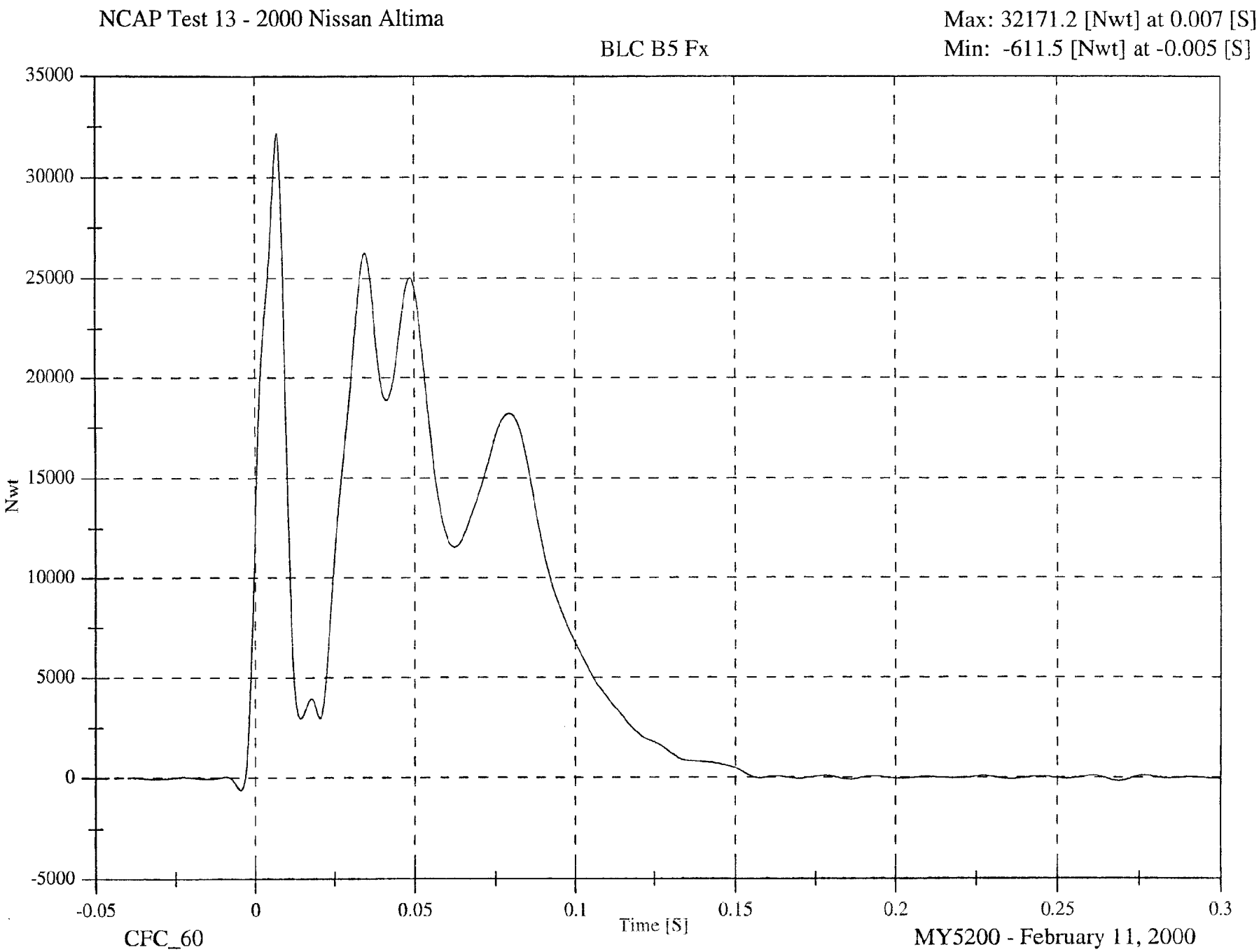

NCAP Test 13 - 2000 Nissan Altima
BLC A9 Fx
Max: 874.3 [Nwt] at 0.076 [S]
Min: -983.8 [Nwt] at 0.024 [S]
1000
750
500
250
0
-250
-500
-750
-1000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

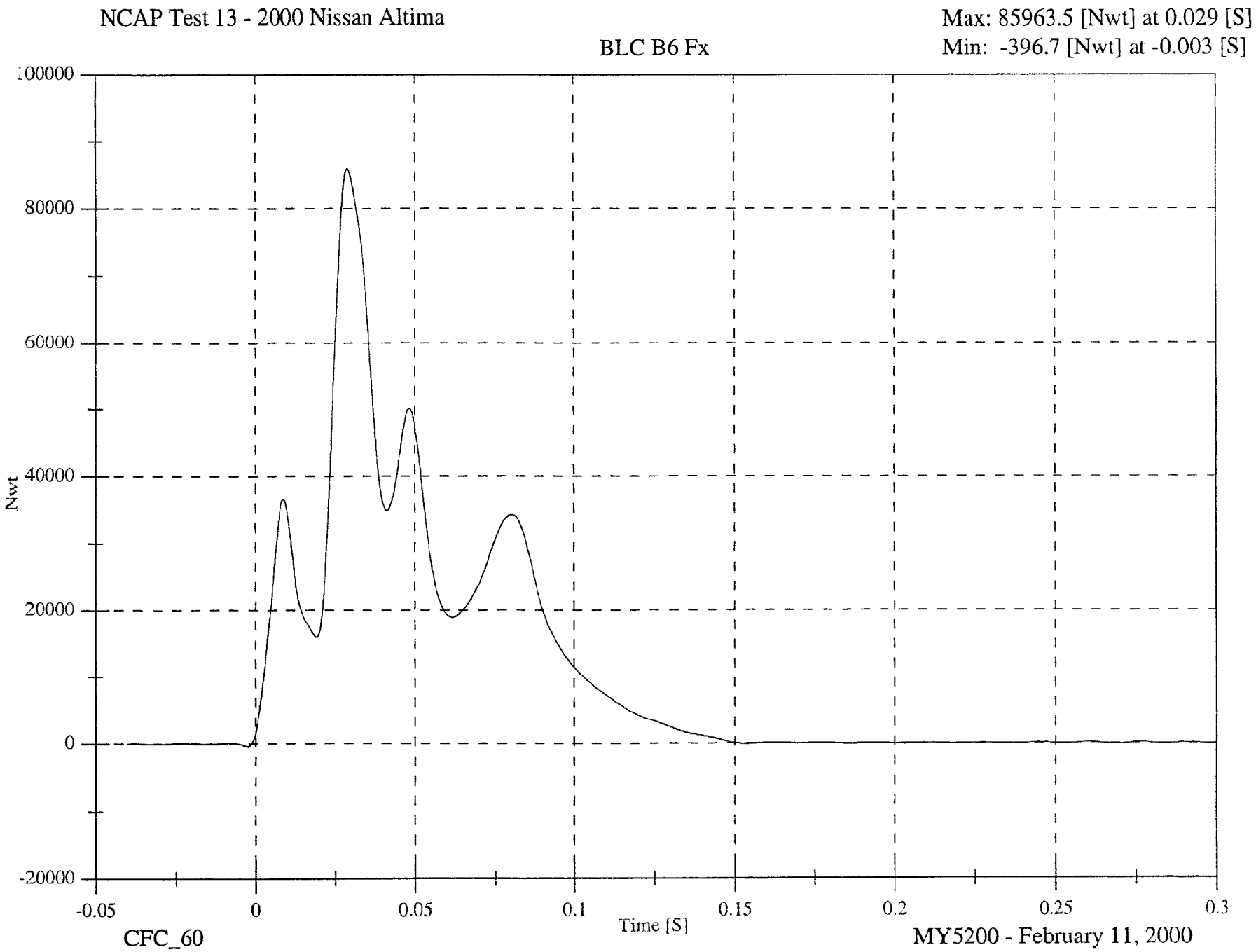

NCAP Test 13 - 2000 Nissan Altima
BLC B1 Fx
Max: 252.2 [Nwt] at 0.027 [S]
Min: -349.1 [Nwt] at 0.036 [S]
300
200
100
0
-100
-200
-300
-400
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
BLC B2 Fx
Max: 17586.6 [Nwt] at 0.027 [S]
Min: -388.2 [Nwt] at 0.005 [S]
20000
17500
15000
12500
10000
7500
5000
2500
0
-2500
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
BLC B3 Fx
Max: 98026.0 [Nwt] at 0.046 [S]
Min: -771.0 [Nwt] at 0.002 [S]
100000
80000
60000
40000
20000
0
-20000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
BLC B4 Fx
Max: 45180.7 [Nwt] at 0.034 [S]
Min: -213.9 [Nwt] at -0.003 [S]
50000
40000
30000
20000
10000
0
-10000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

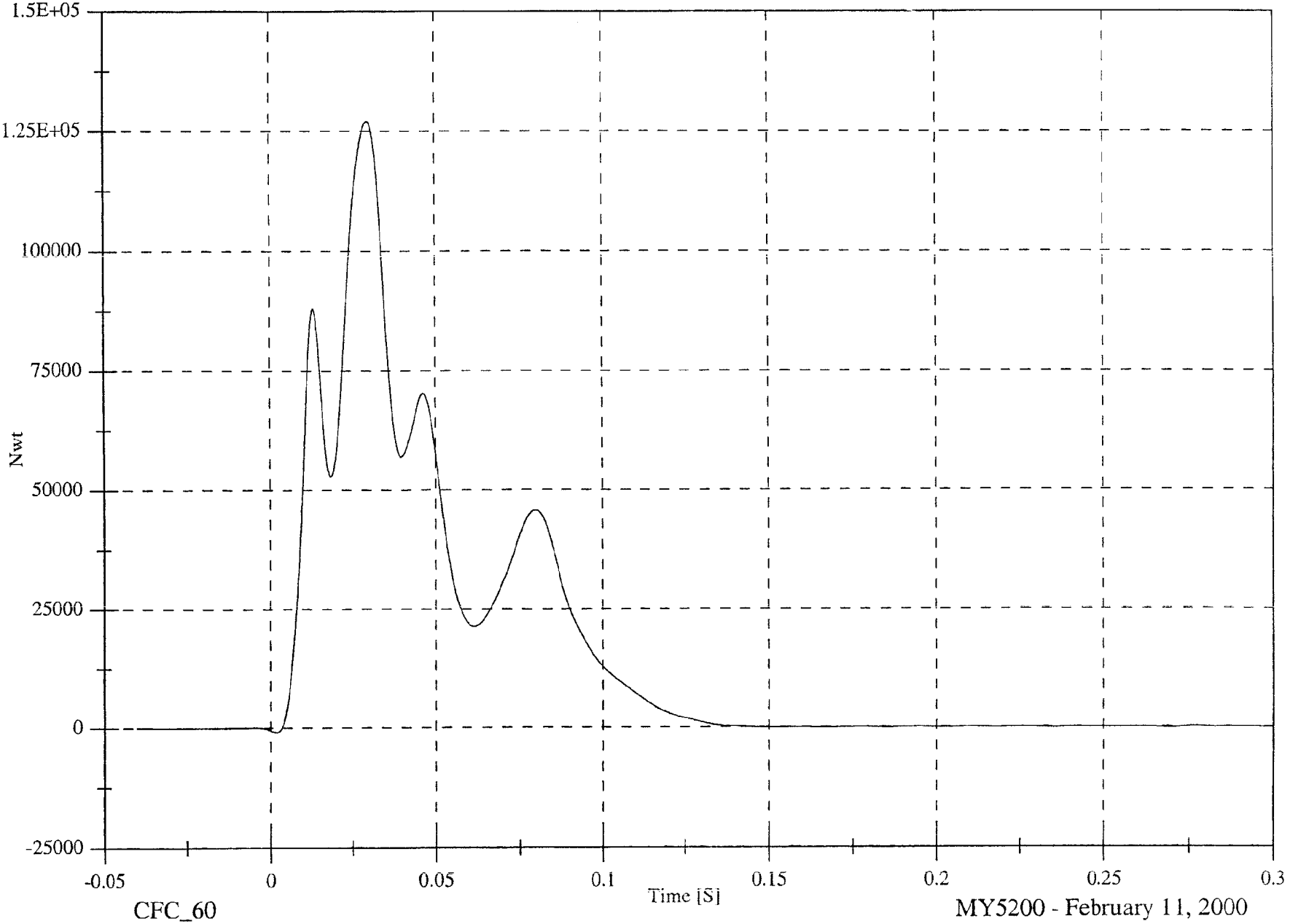

NCAP Test 13 - 2000 Nissan Altima
BLC B5 Fx
Max: 32171.2 [Nwt] at 0.007 [S]
Min: -611.5 [Nwt] at -0.005 [S]
35000
30000
25000
20000
15000
10000
5000
0
-5000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
BLC B6 Fx
Max: 85963.5 [Nwt] at 0.029 [S]
Min: -396.7 [Nwt] at -0.003 [S]
100000
80000
60000
40000
20000
0
-20000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

NCAP Test 13 - 2000 Nissan Altima

BLC B7 Fx

Max: 127025.6 [Nwt] at 0.030 [S]
Min: -888.7 [Nwt] at 0.002 [S]



CFC_60

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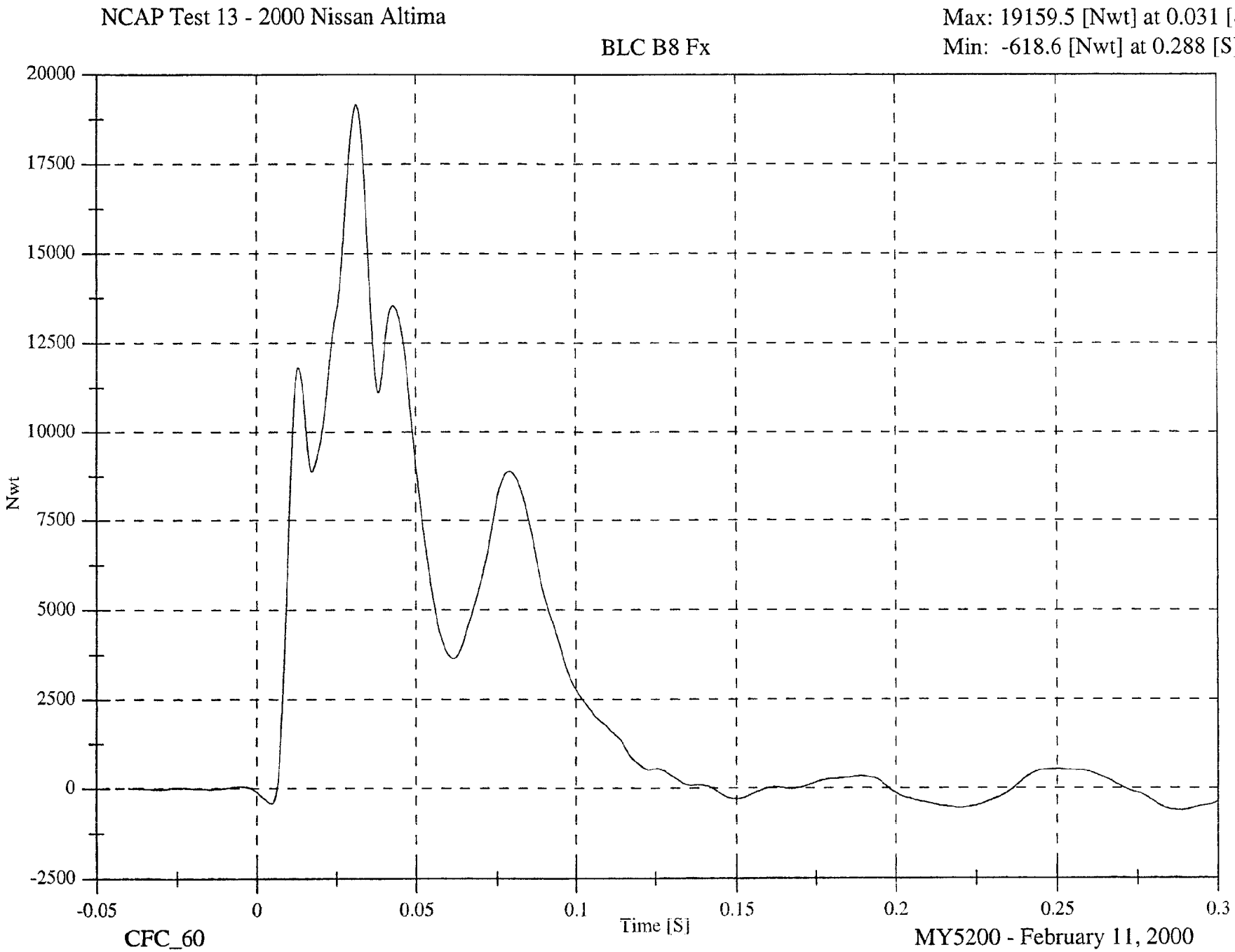
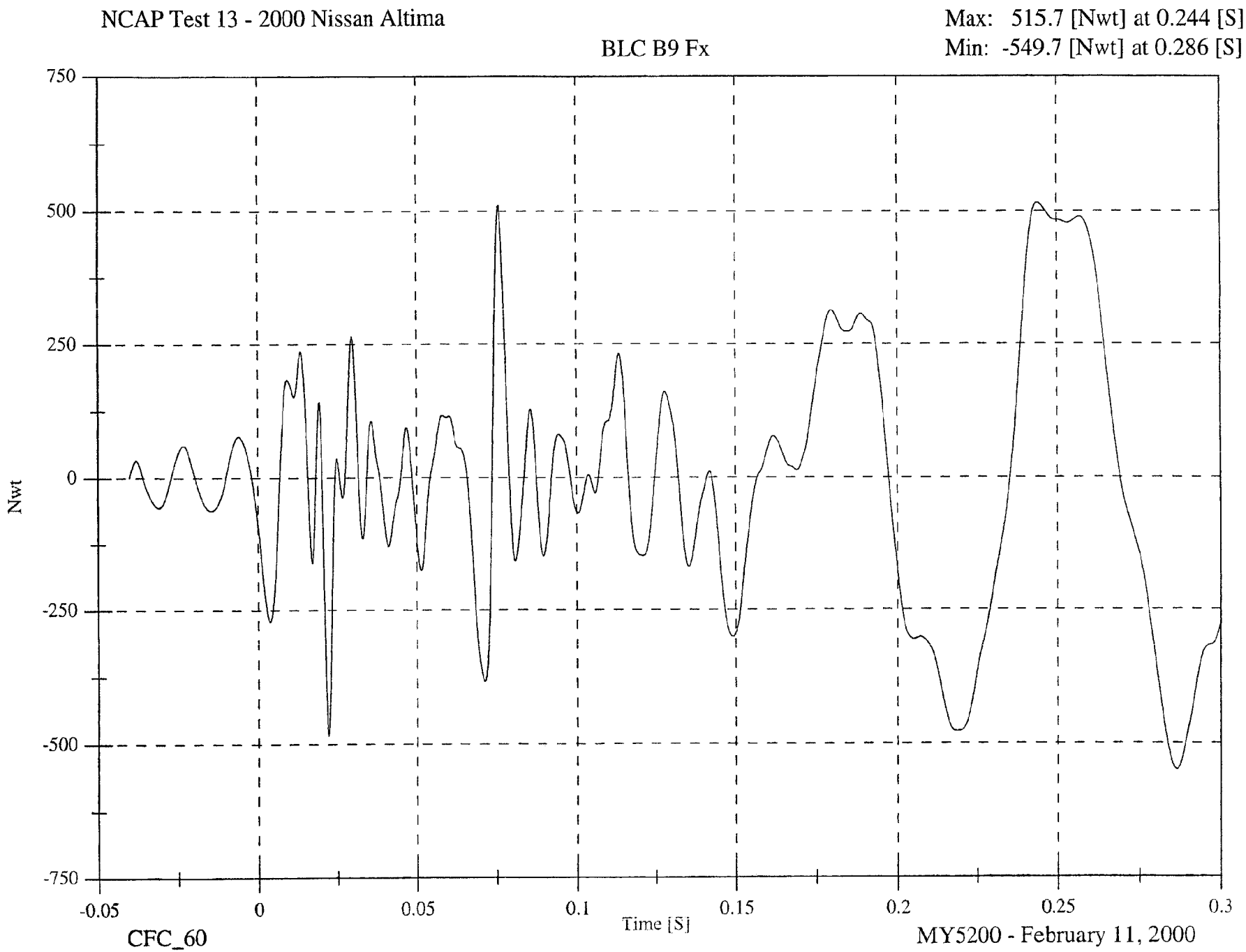
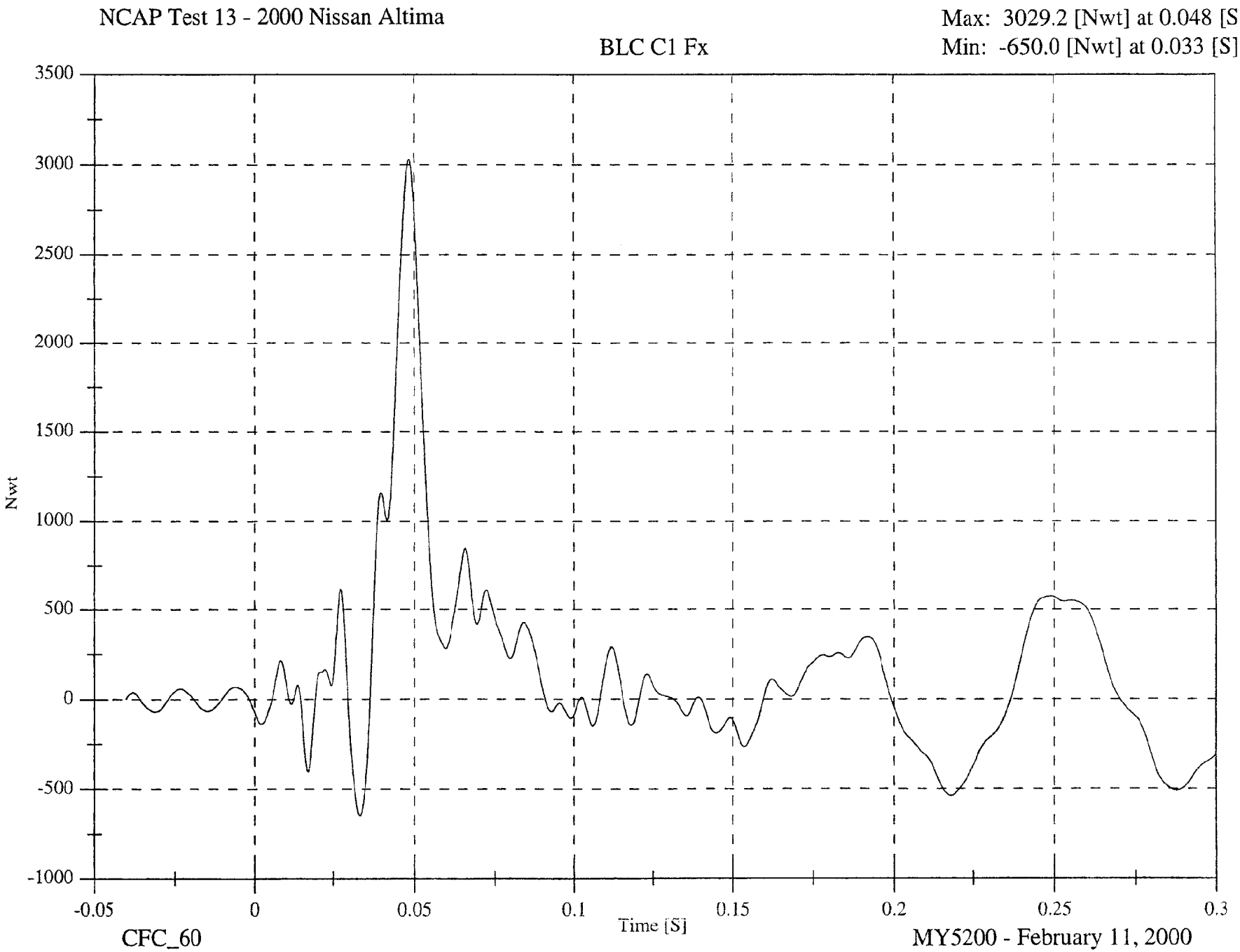
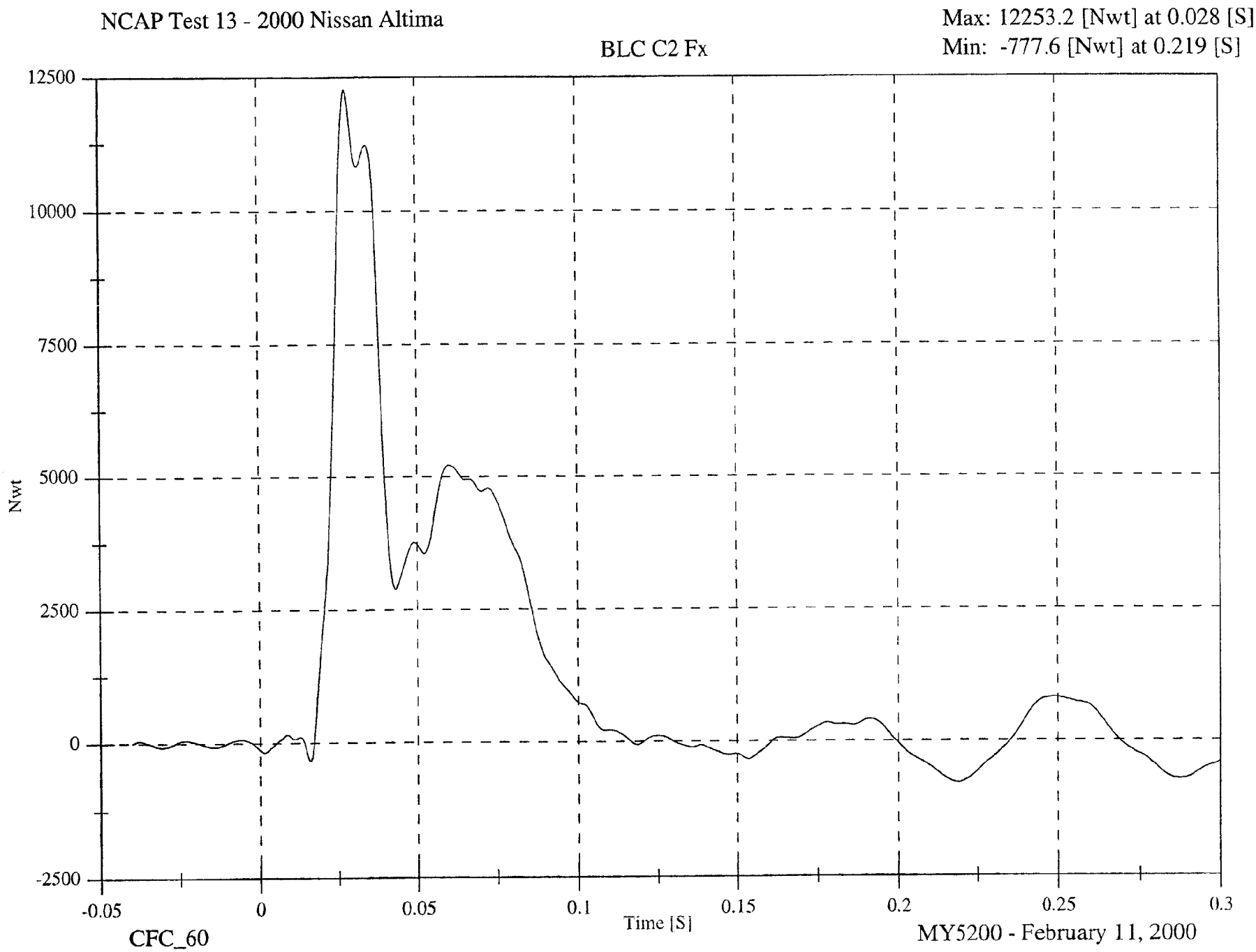

NCAP Test 13 - 2000 Nissan Altima
BLC B8 Fx
Max: 19159.5 [Nwt] at 0.031 [S]
Min: -618.6 [Nwt] at 0.288 [S]
20000
17500
15000
12500
10000
7500
5000
2500
0
-2500
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
BLC B9 Fx
Max: 515.7 [Nwt] at 0.244 [S]
Min: -549.7 [Nwt] at 0.286 [S]
750
500
250
0
-250
-500
-750
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

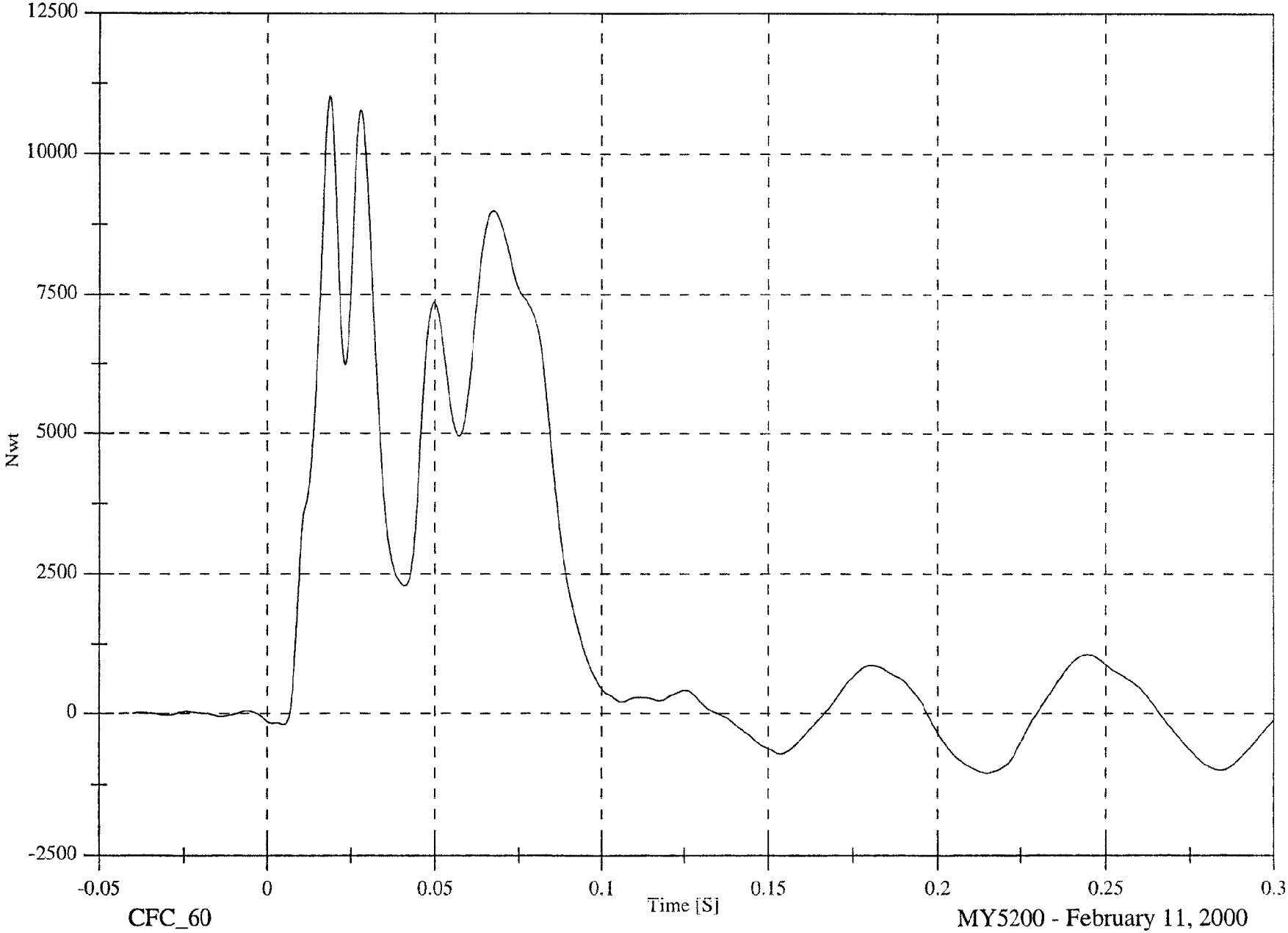

NCAP Test 13 - 2000 Nissan Altima
BLC C1 Fx
Max: 3029.2 [Nwt] at 0.048 [S]
Min: -650.0 [Nwt] at 0.033 [S]
3500
3000
2500
2000
1500
1000
500
0
-500
-1000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
BLC C2 Fx
Max: 12253.2 [Nwt] at 0.028 [S]
Min: -777.6 [Nwt] at 0.219 [S]
12500
10000
7500
5000
2500
0
-2500
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

NCAP Test 13 - 2000 Nissan Altima

BLC C3 Fx

Max: 11015.0 [Nwt] at 0.019 [S]
Min: -1055.0 [Nwt] at 0.215 [S]



CFC_60

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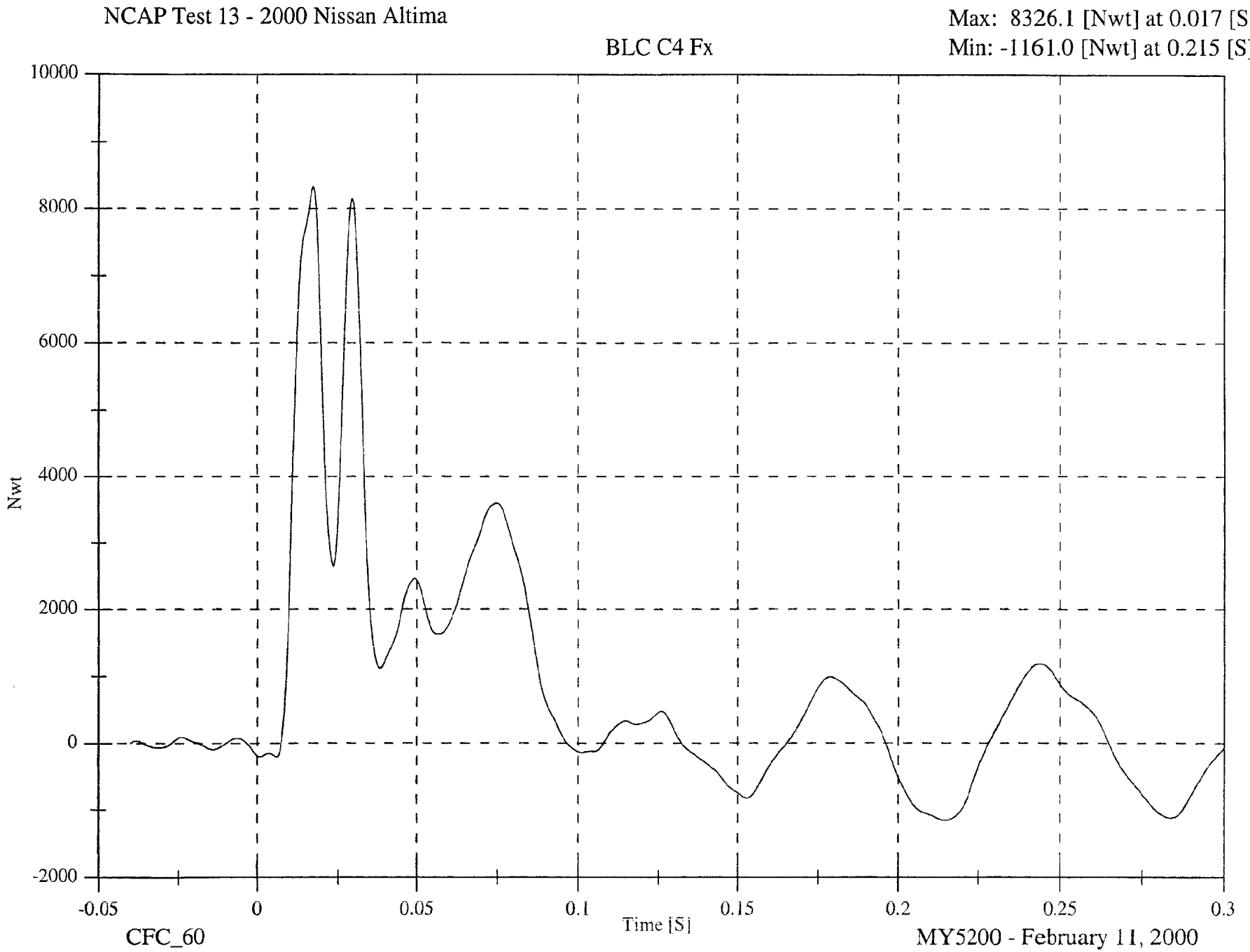
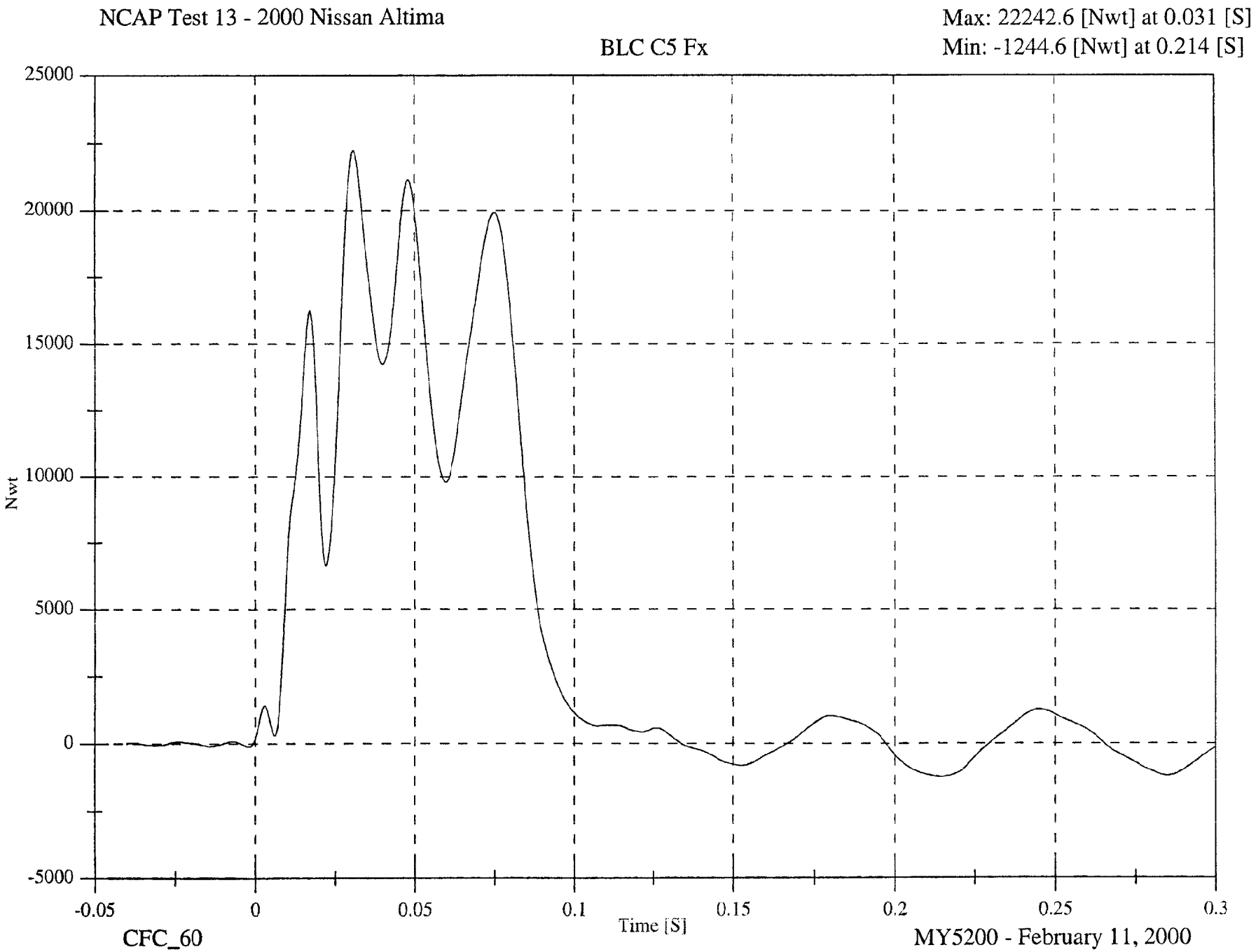
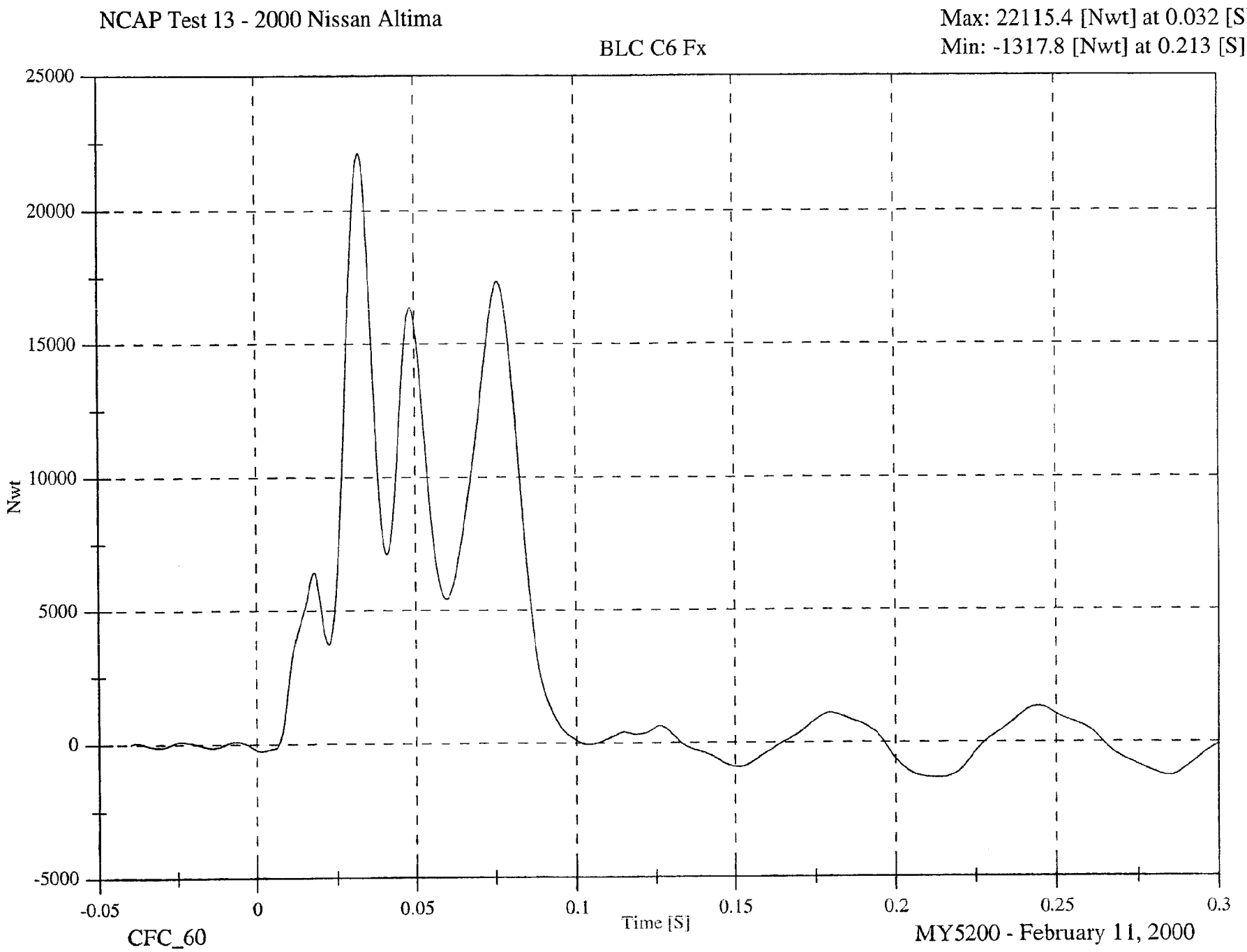
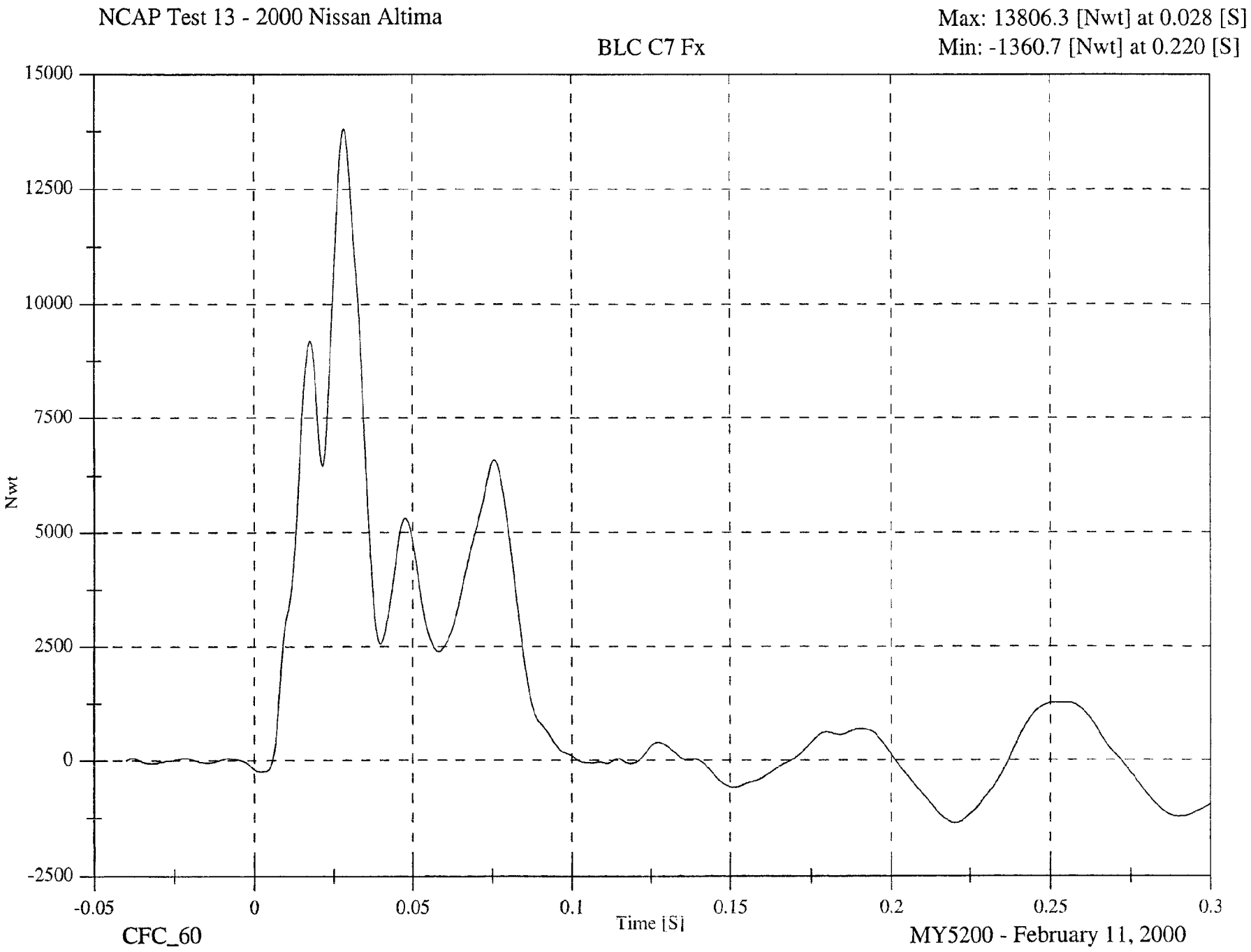
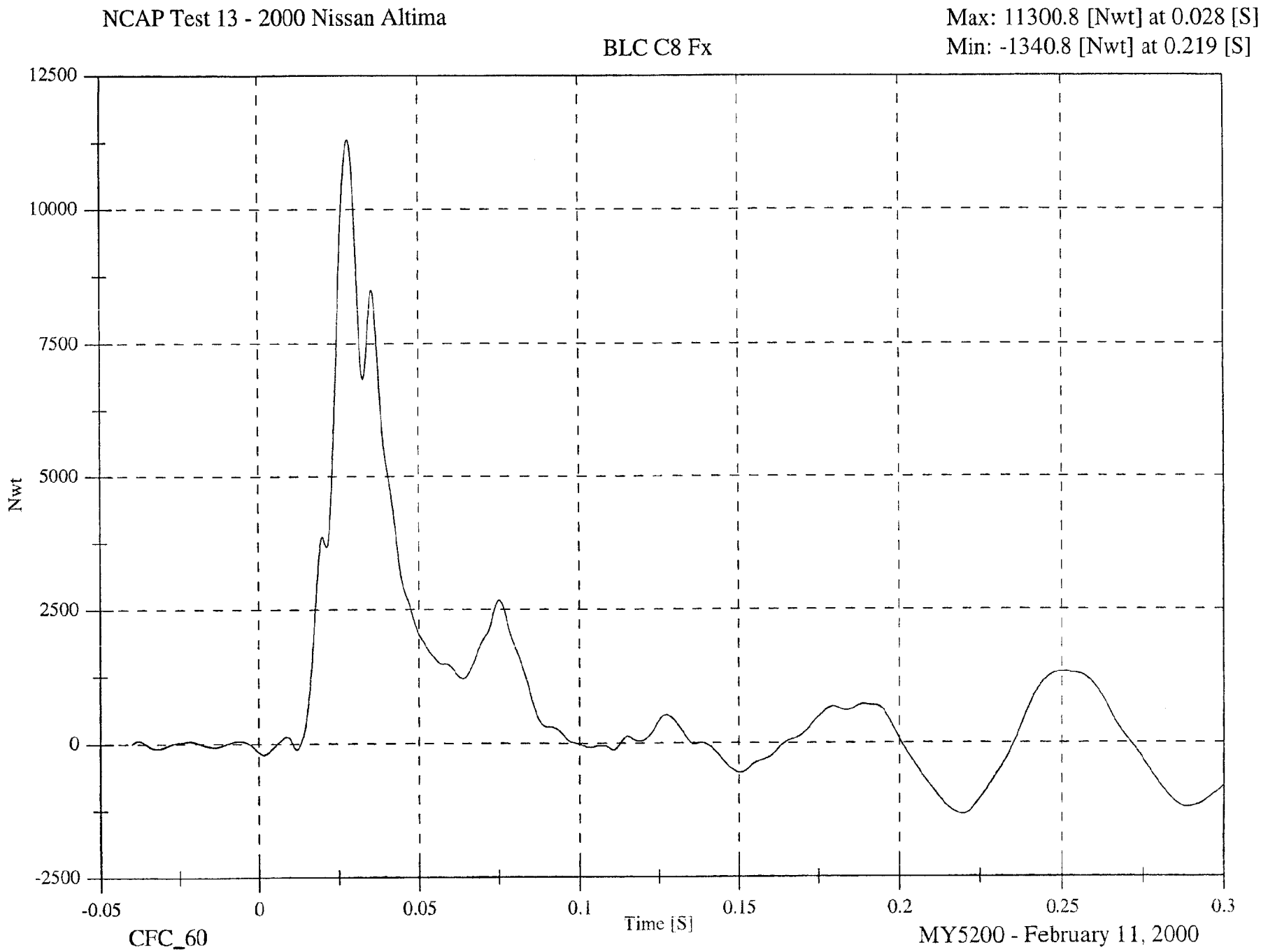
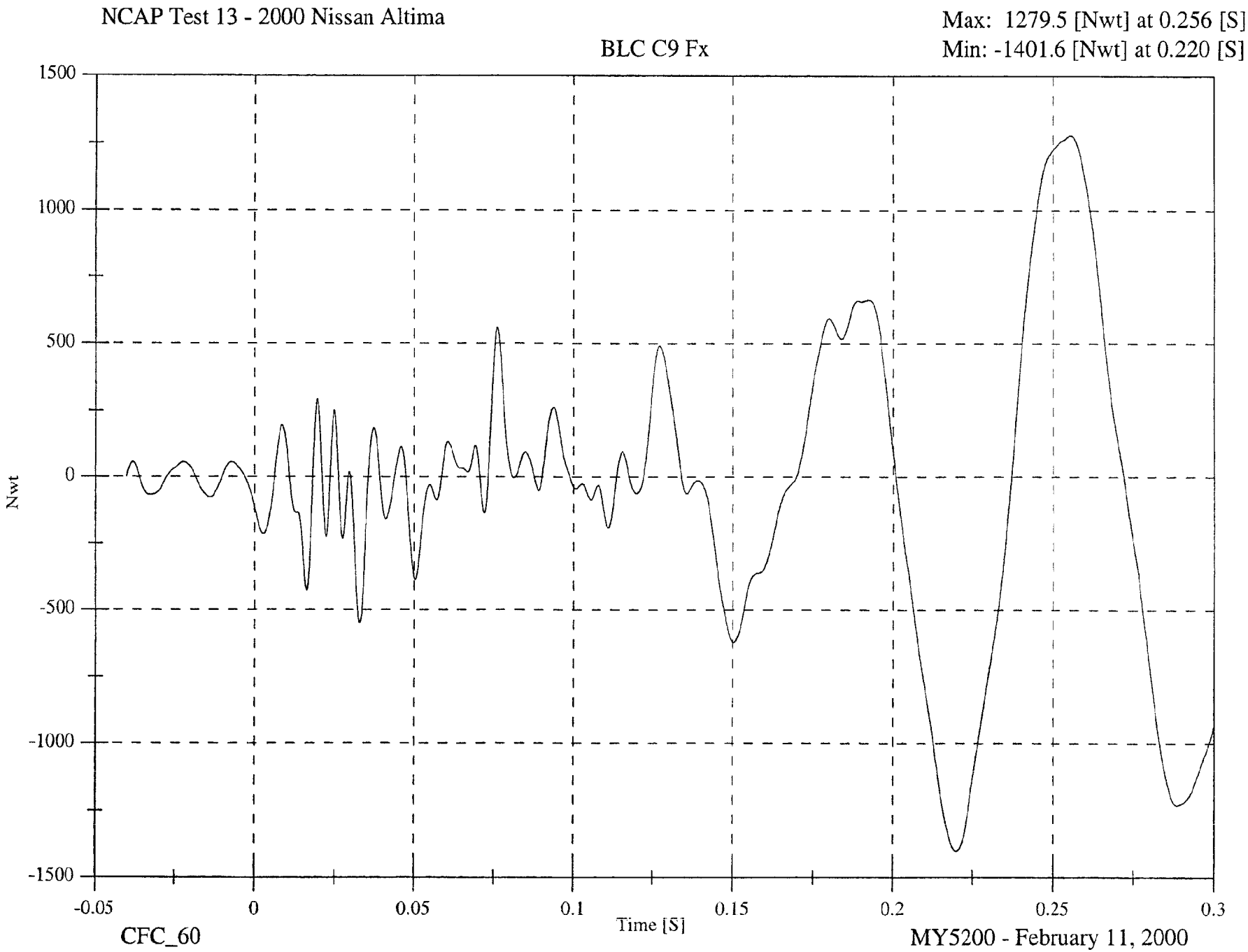

NCAP Test 13 - 2000 Nissan Altima
BLC C4 Fx
Max: 8326.1 [Nwt] at 0.017 [S]
Min: -1161.0 [Nwt] at 0.215 [S]
10000
8000
6000
4000
2000
0
-2000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

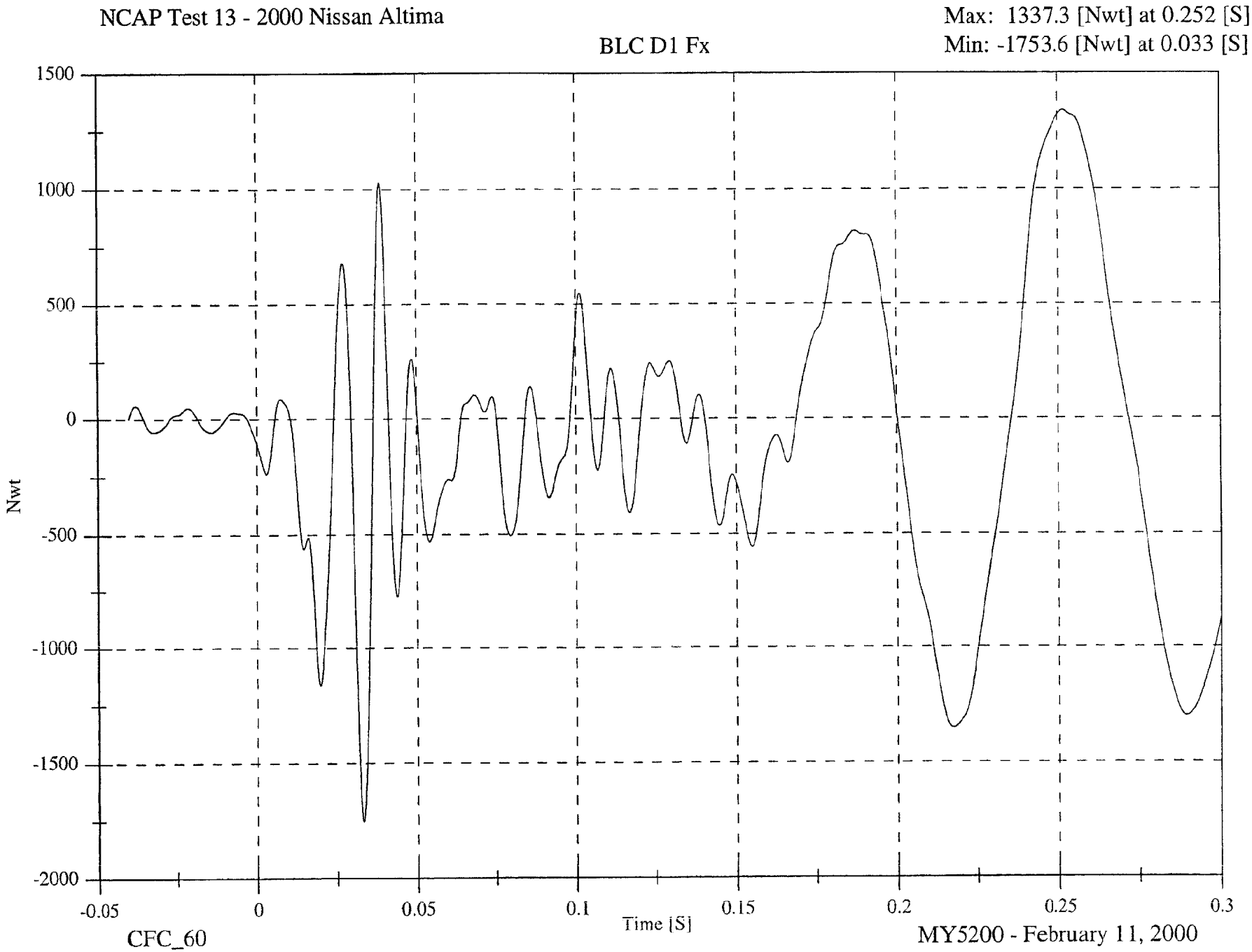

NCAP Test 13 - 2000 Nissan Altima
BLC C5 Fx
Max: 22242.6 [Nwt] at 0.031 [S]
Min: -1244.6 [Nwt] at 0.214 [S]
25000
20000
15000
10000
5000
0
-5000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

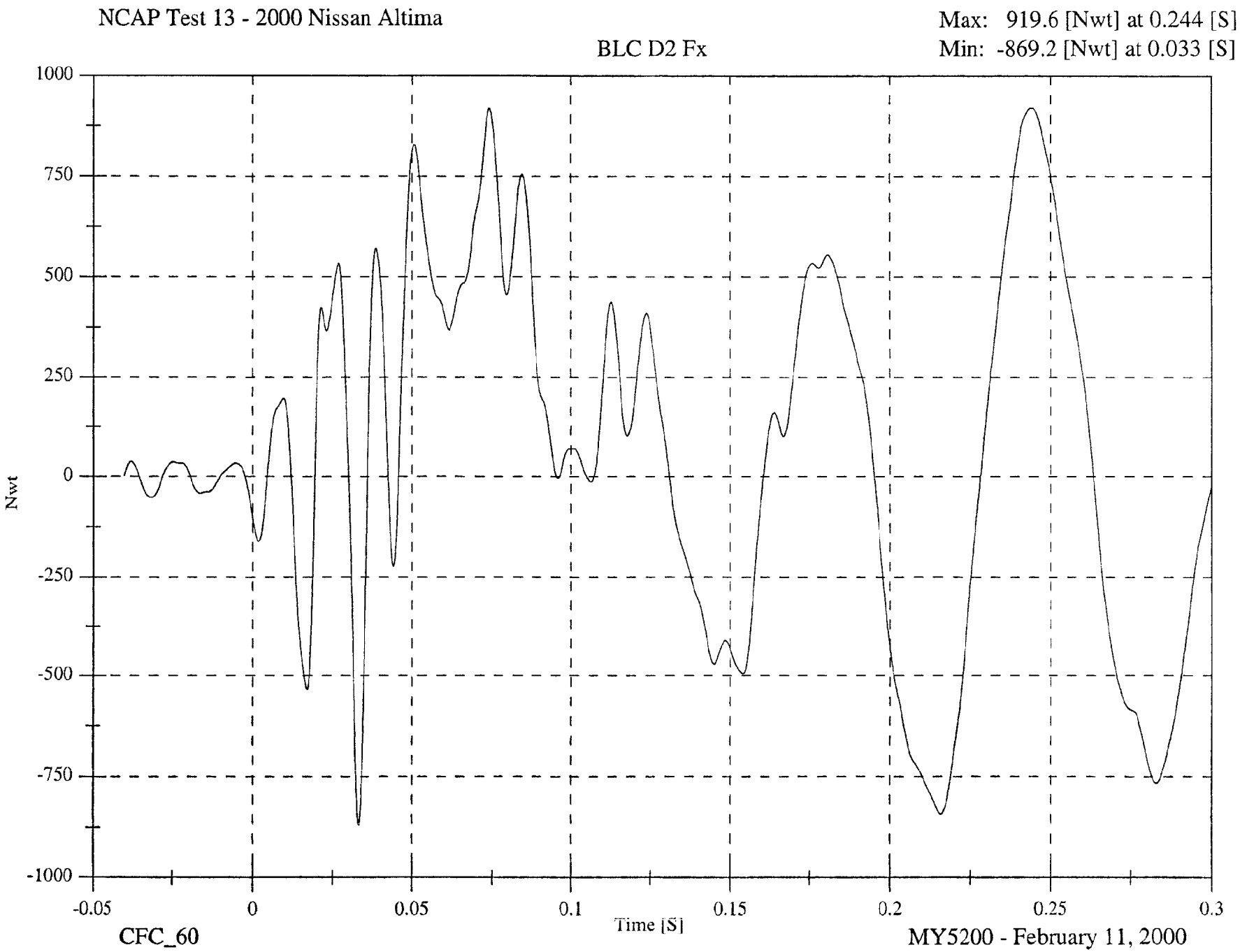

NCAP Test 13 - 2000 Nissan Altima
BLC C6 Fx
Max: 22115.4 [Nwt] at 0.032 [S]
Min: -1317.8 [Nwt] at 0.213 [S]
25000
20000
15000
10000
5000
0
-5000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

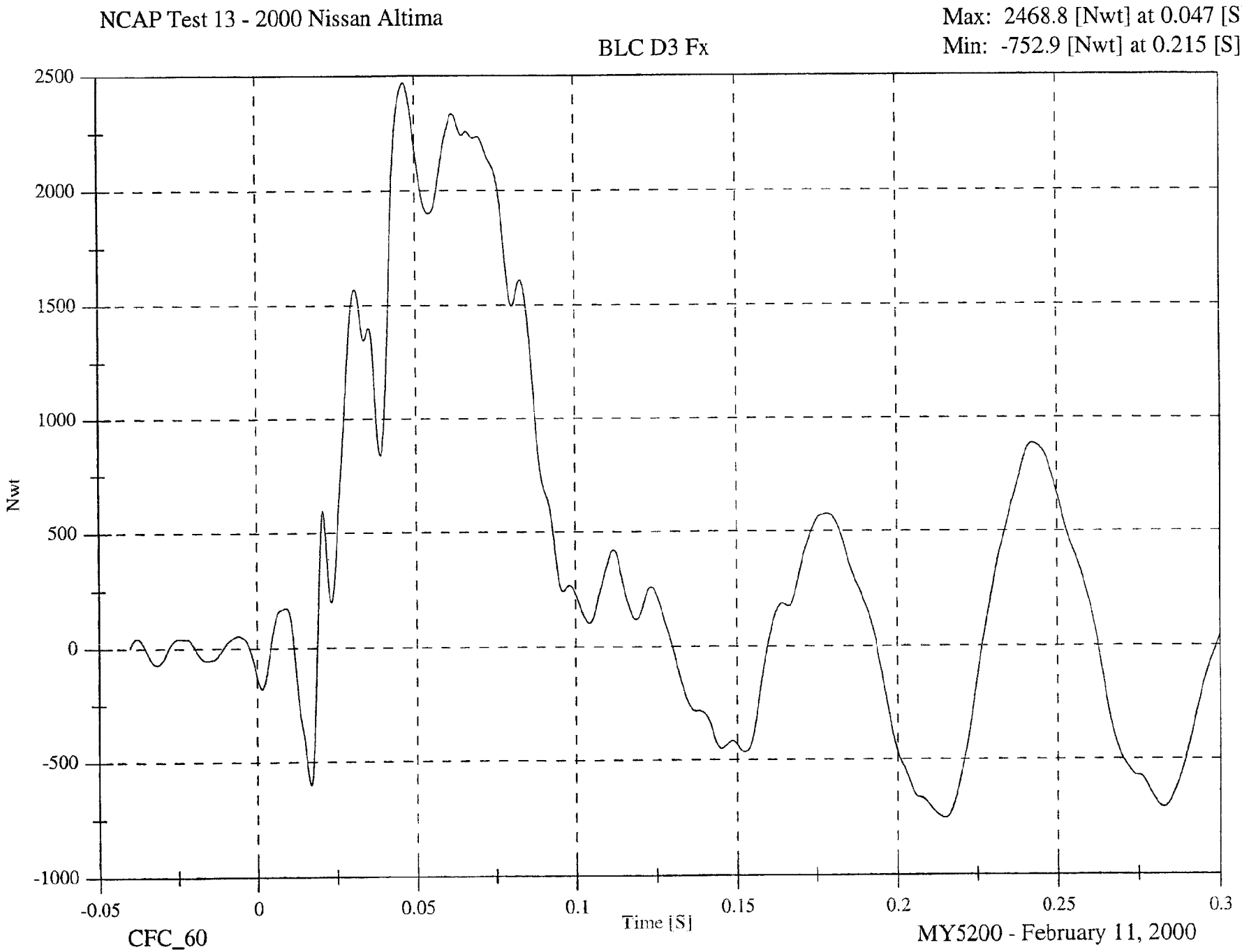

NCAP Test 13 - 2000 Nissan Altima
BLC C7 Fx
Max: 13806.3 [Nwt] at 0.028 [S]
Min: -1360.7 [Nwt] at 0.220 [S]
15000
12500
10000
7500
5000
2500
0
-2500
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

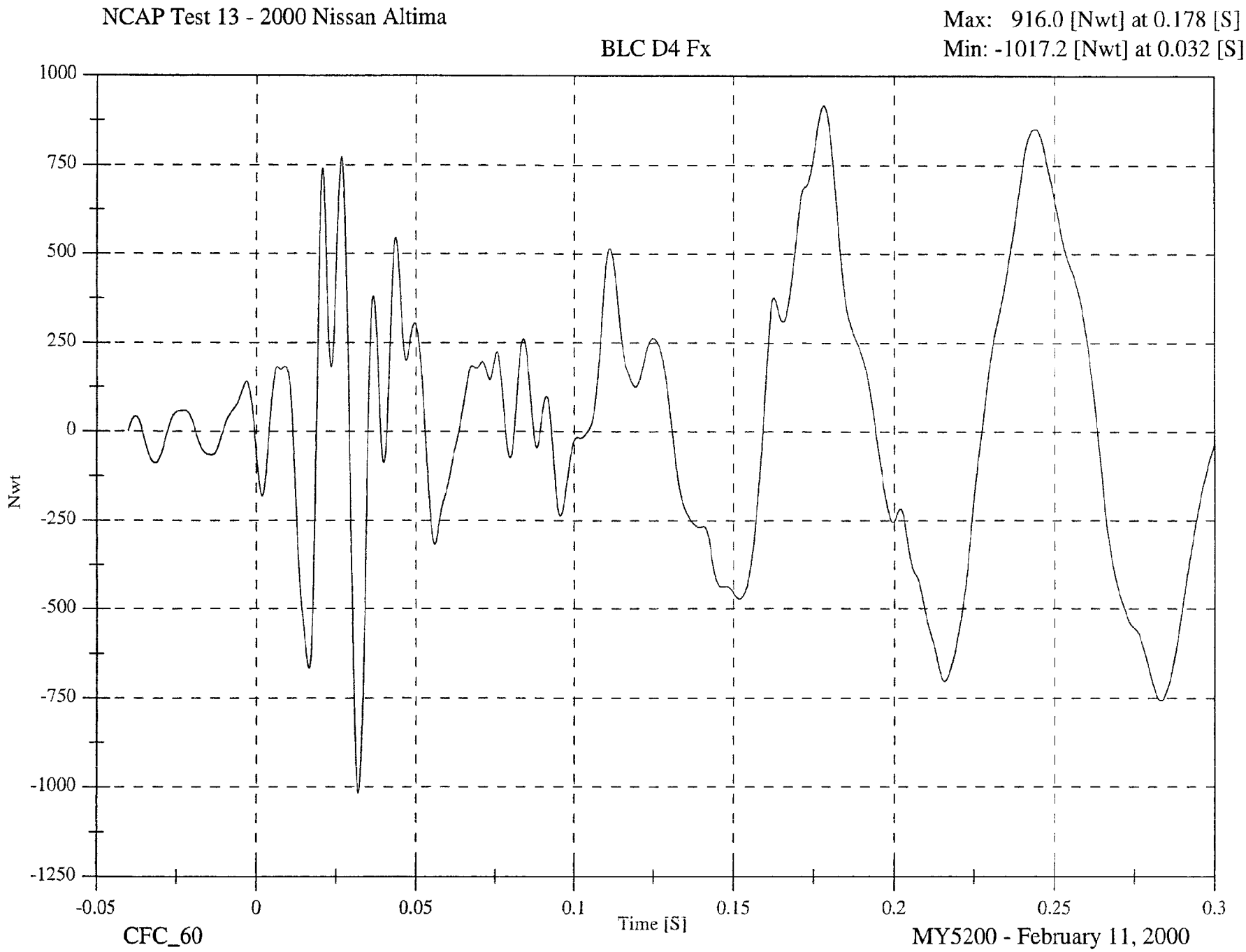

NCAP Test 13 - 2000 Nissan Altima
BLC C8 Fx
Max: 11300.8 [Nwt] at 0.028 [S]
Min: -1340.8 [Nwt] at 0.219 [S]
12500
10000
7500
5000
2500
0
-2500
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

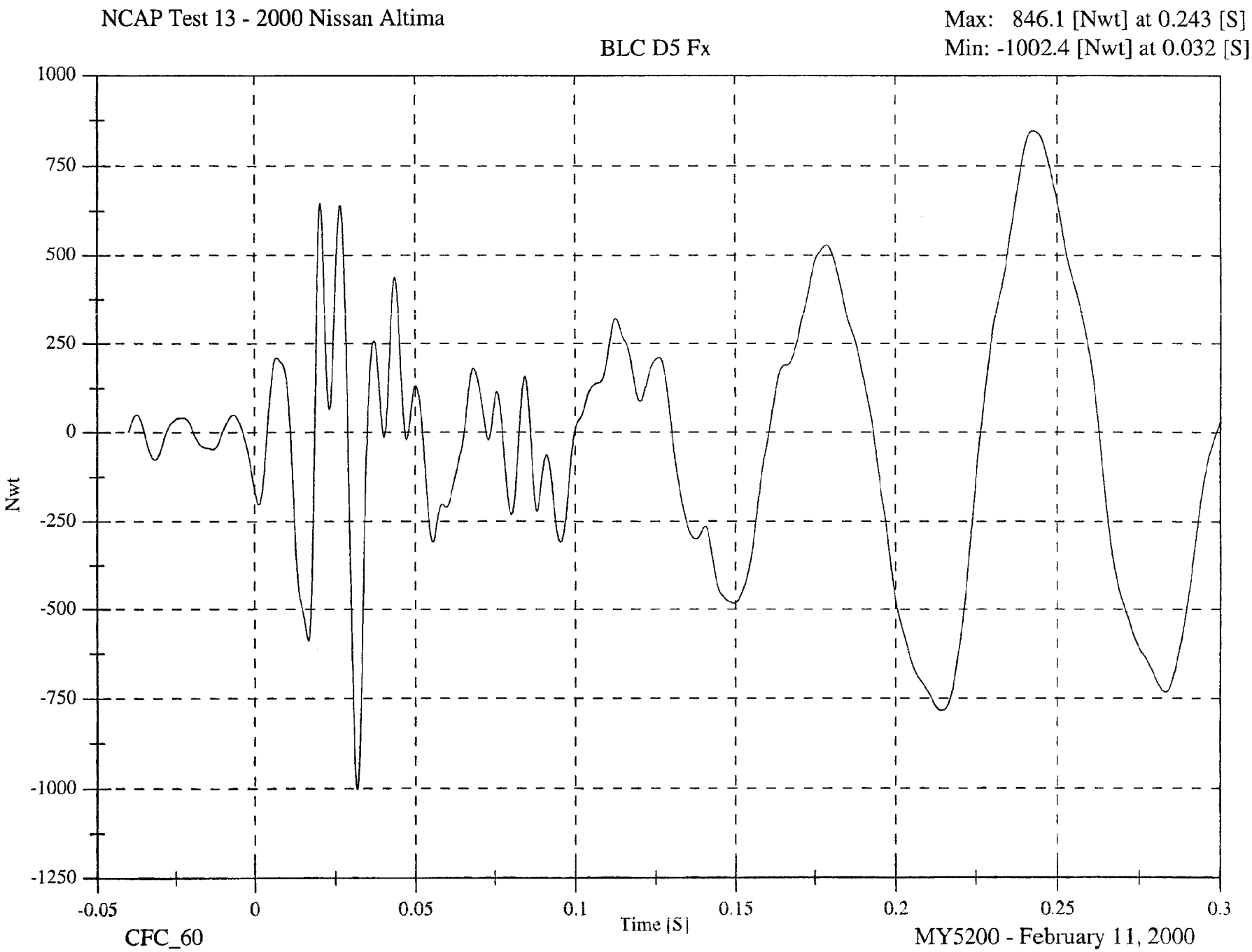

NCAP Test 13 - 2000 Nissan Altima
BLC C9 Fx
Max: 1279.5 [Nwt] at 0.256 [S]
Min: -1401.6 [Nwt] at 0.220 [S]
1500
1000
500
0
-500
-1000
-1500
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

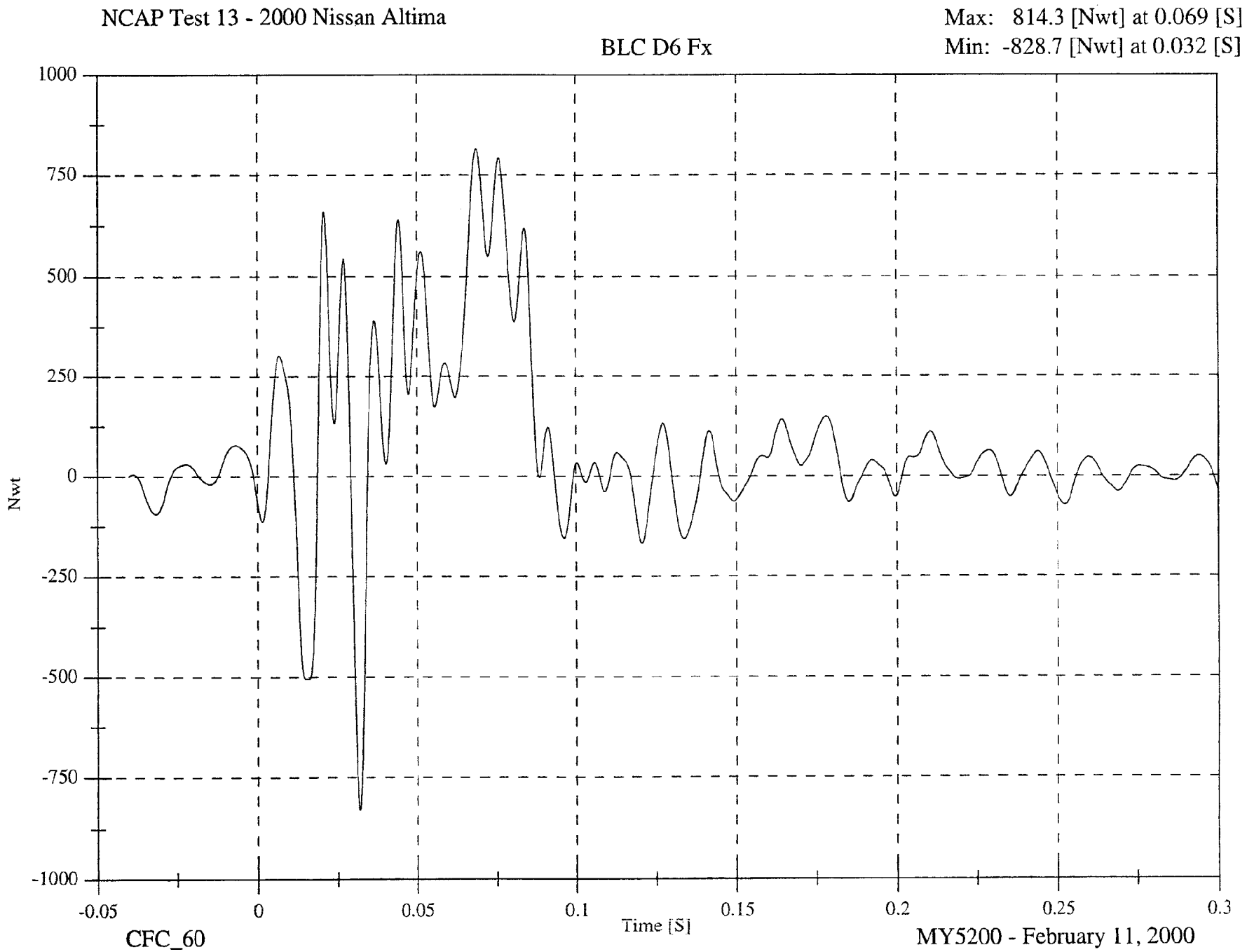

NCAP Test 13 - 2000 Nissan Altima
BLC D1 Fx
Max: 1337.3 [Nwt] at 0.252 [S]
Min: -1753.6 [Nwt] at 0.033 [S]
1500
1000
500
0
-500
-1000
-1500
-2000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

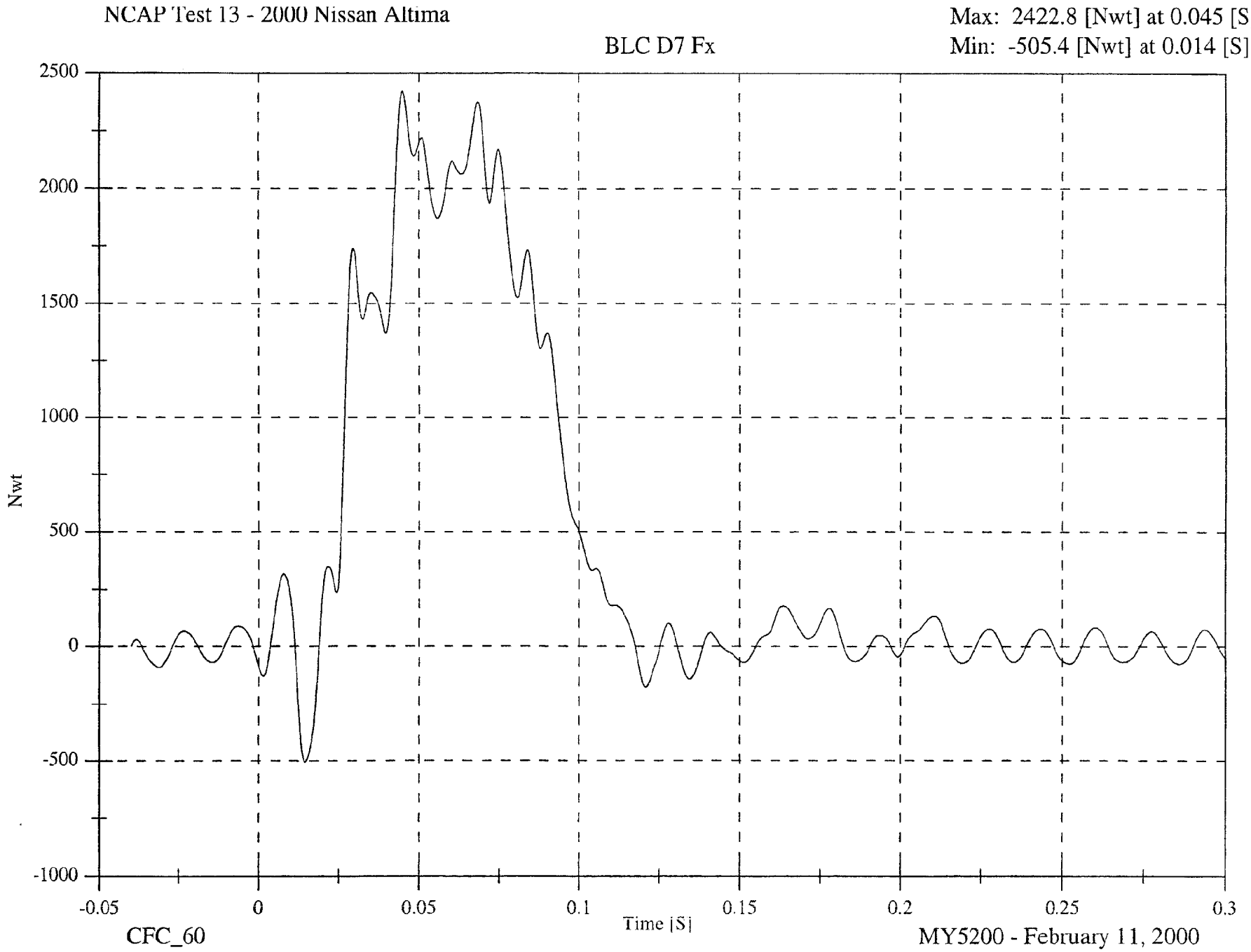

NCAP Test 13 - 2000 Nissan Altima
BLC D2 Fx
Max: 919.6 [Nwt] at 0.244 [S]
Min: -869.2 [Nwt] at 0.033 [S]
1000
750
500
250
0
-250
-500
-750
-1000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

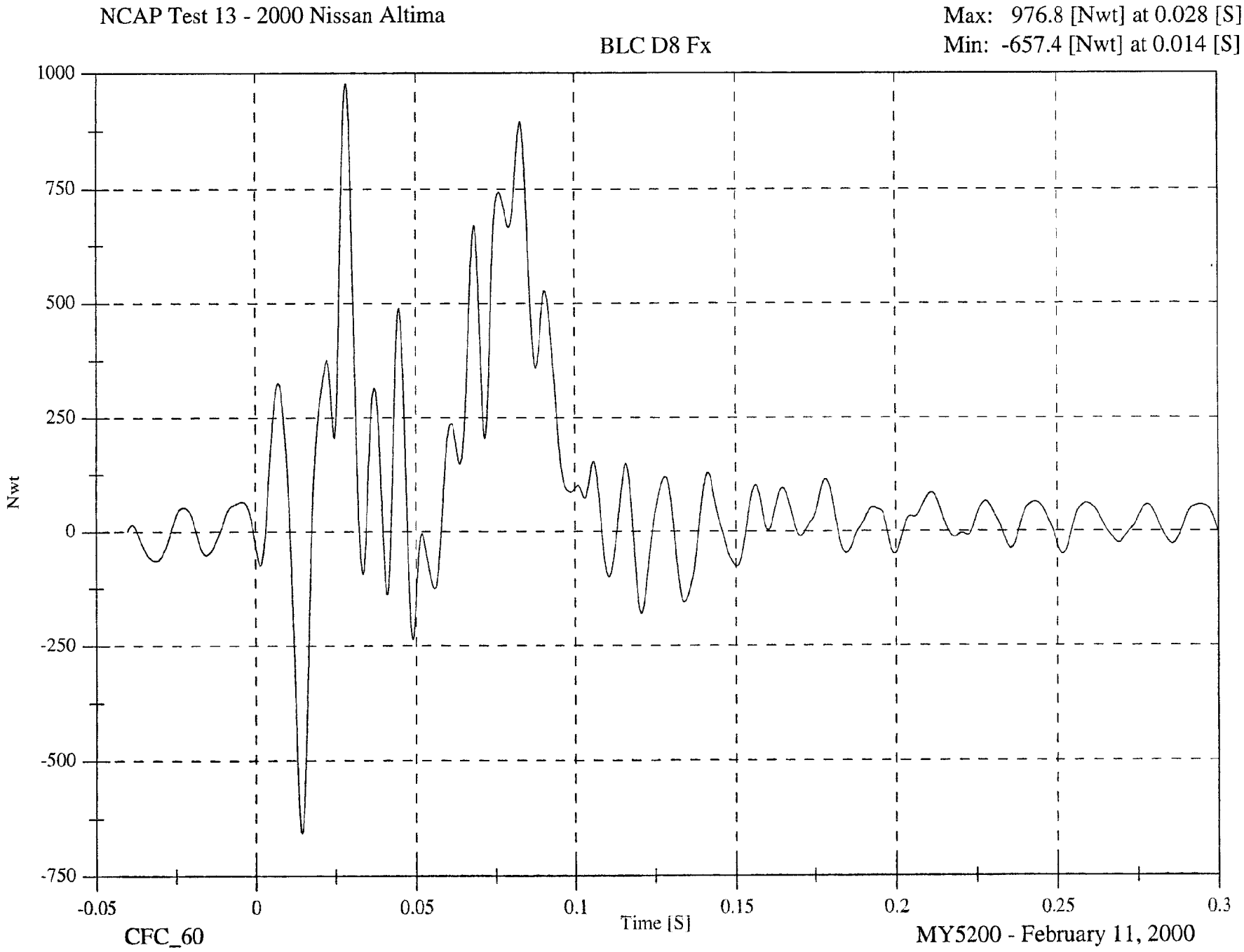

NCAP Test 13 - 2000 Nissan Altima
BLC D3 Fx
Max: 2468.8 [Nwt] at 0.047 [S]
Min: -752.9 [Nwt] at 0.215 [S]
2500
2000
1500
1000
500
0
-500
-1000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

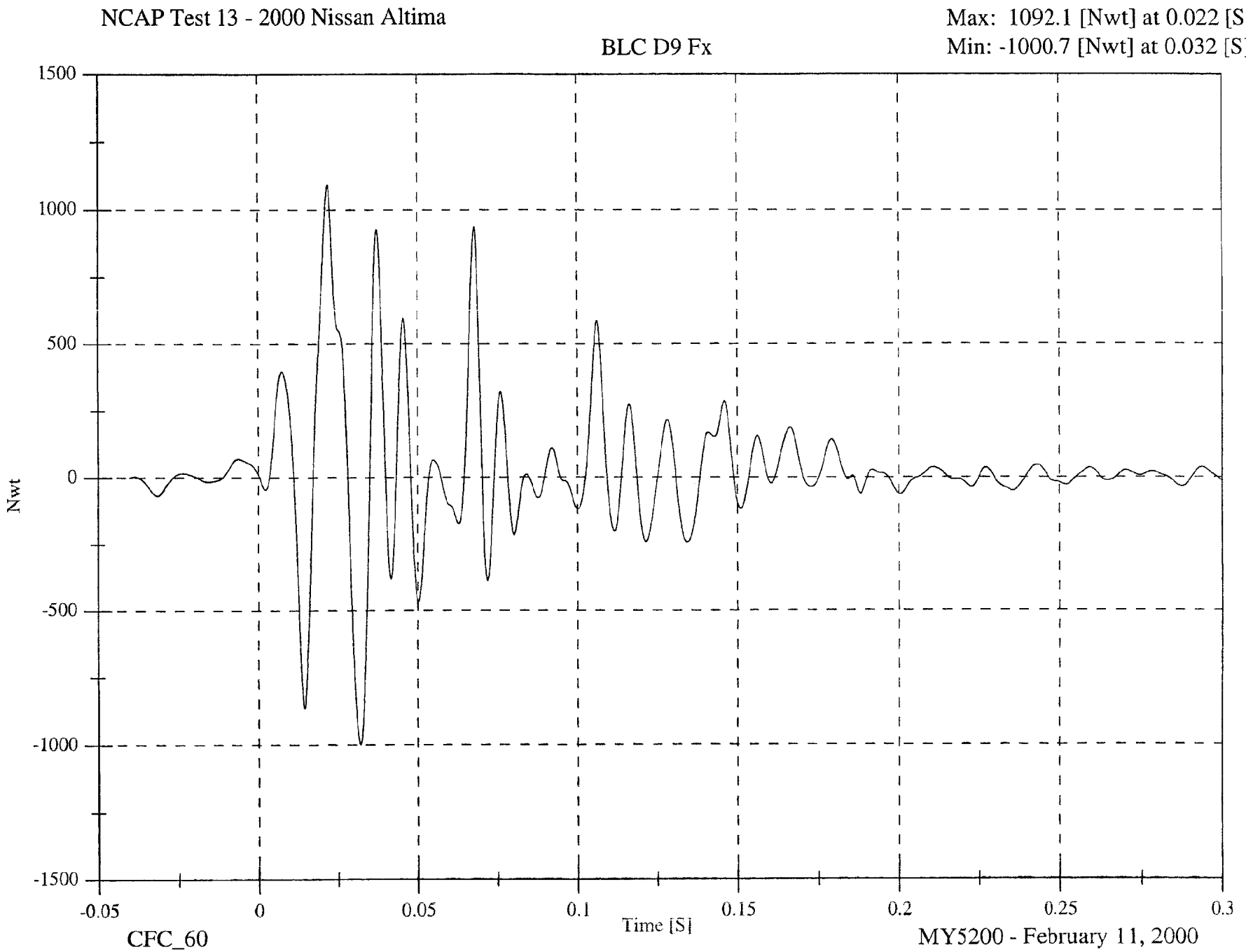

NCAP Test 13 - 2000 Nissan Altima
BLC D4 Fx
Max: 916.0 [Nwt] at 0.178 [S]
Min: -1017.2 [Nwt] at 0.032 [S]
1000
750
500
250
0
-250
-500
-750
-1000
-1250
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

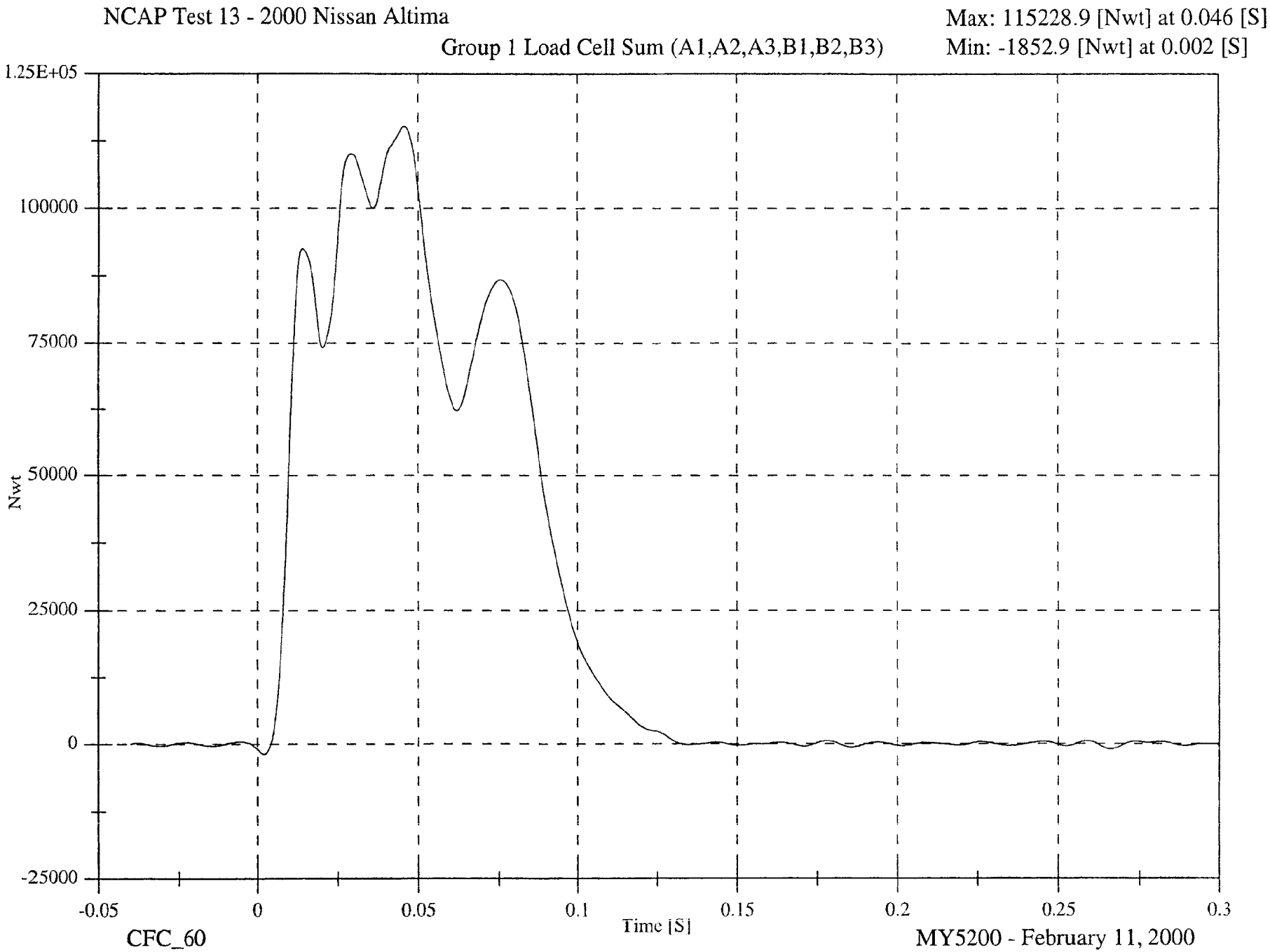

NCAP Test 13 - 2000 Nissan Altima
BLC D5 Fx
Max: 846.1 [Nwt] at 0.243 [S]
Min: -1002.4 [Nwt] at 0.032 [S]
1000
750
500
250
0
-250
-500
-750
-1000
-1250
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

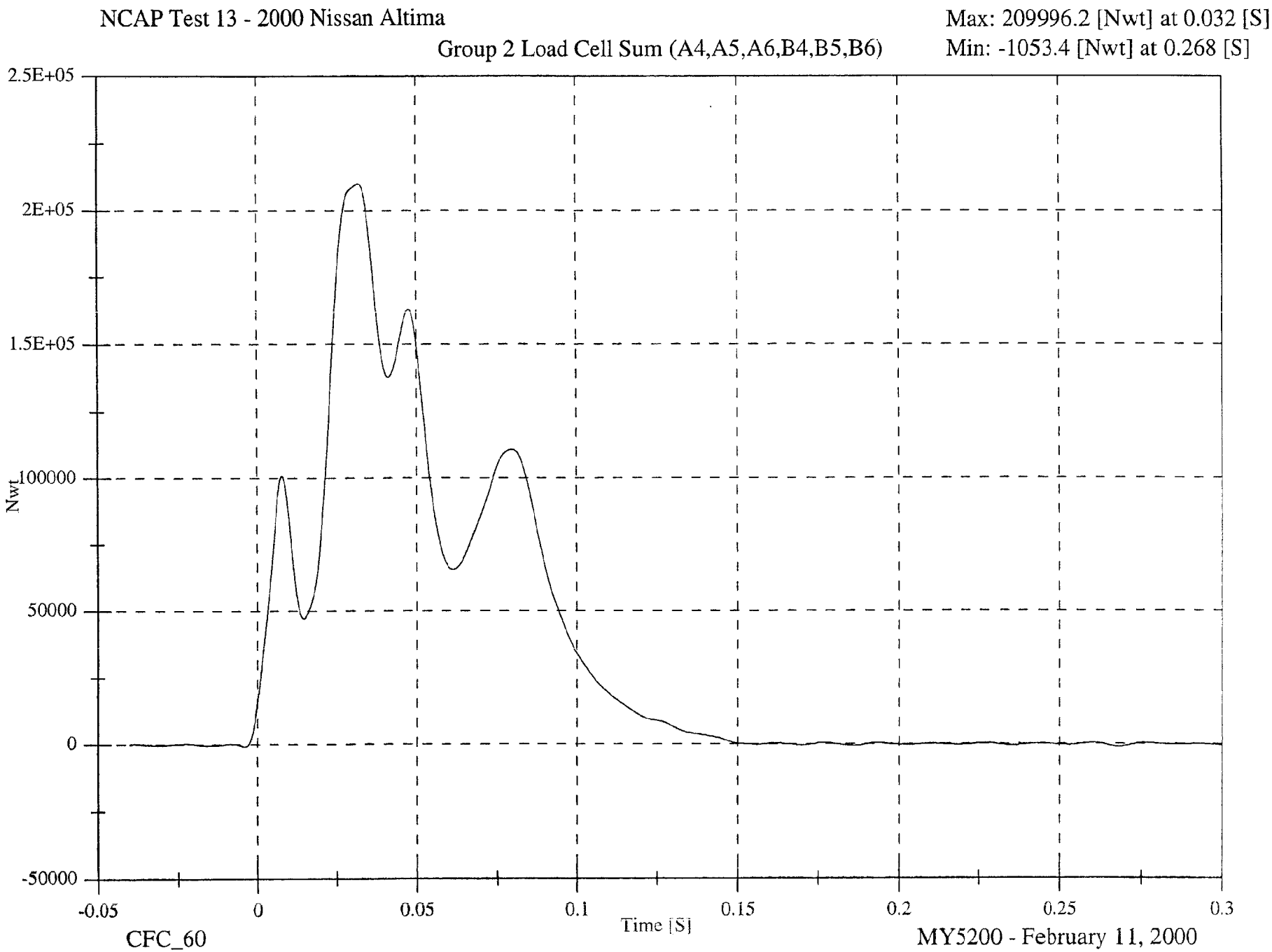

NCAP Test 13 - 2000 Nissan Altima
BLC D6 Fx
Max: 814.3 [Nwt] at 0.069 [S]
Min: -828.7 [Nwt] at 0.032 [S]
1000
750
500
250
0
-250
-500
-750
-1000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

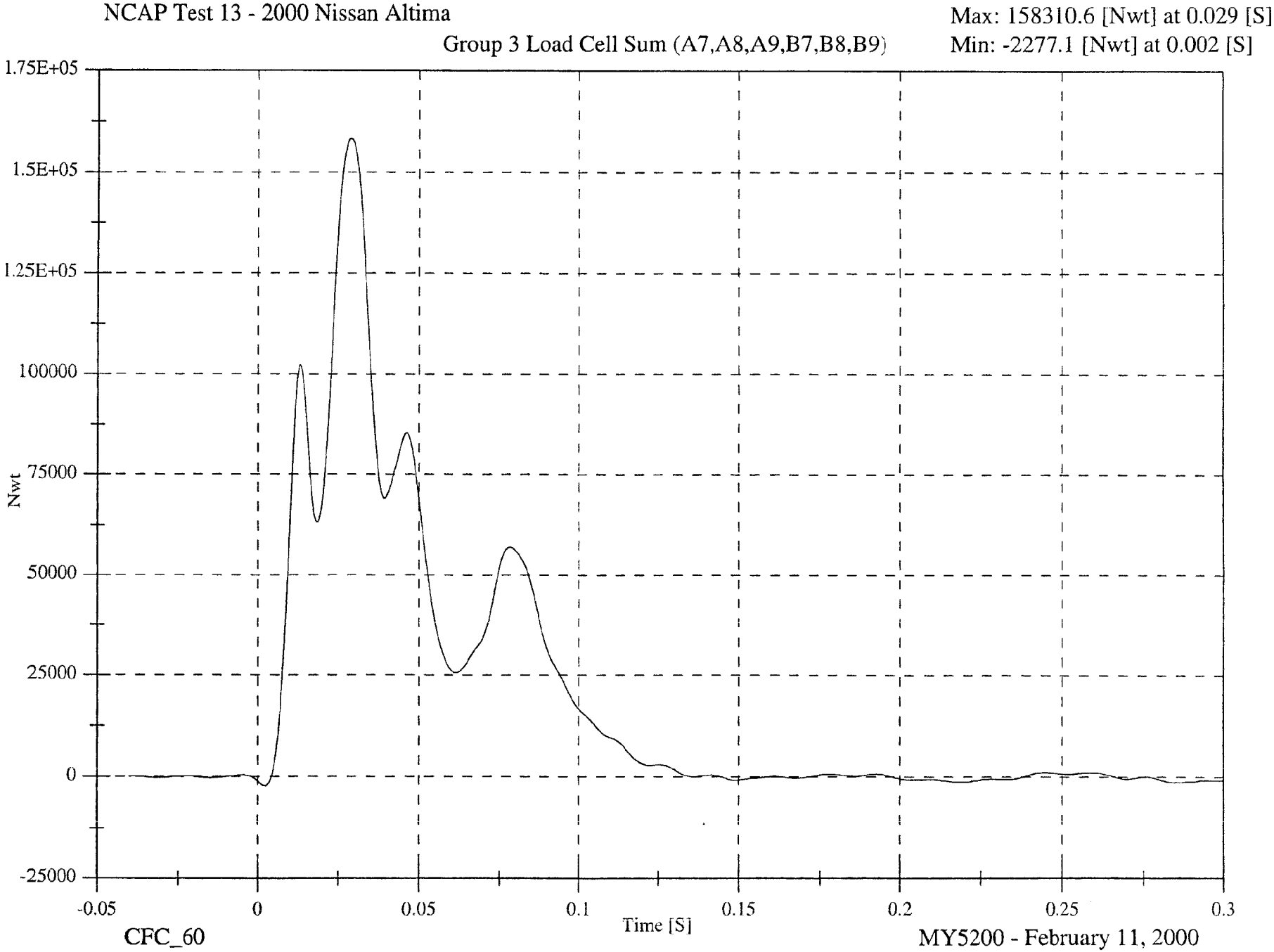

NCAP Test 13 - 2000 Nissan Altima
BLC D7 Fx
Max: 2422.8 [Nwt] at 0.045 [S]
Min: -505.4 [Nwt] at 0.014 [S]
2500
2000
1500
1000
500
0
-500
-1000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

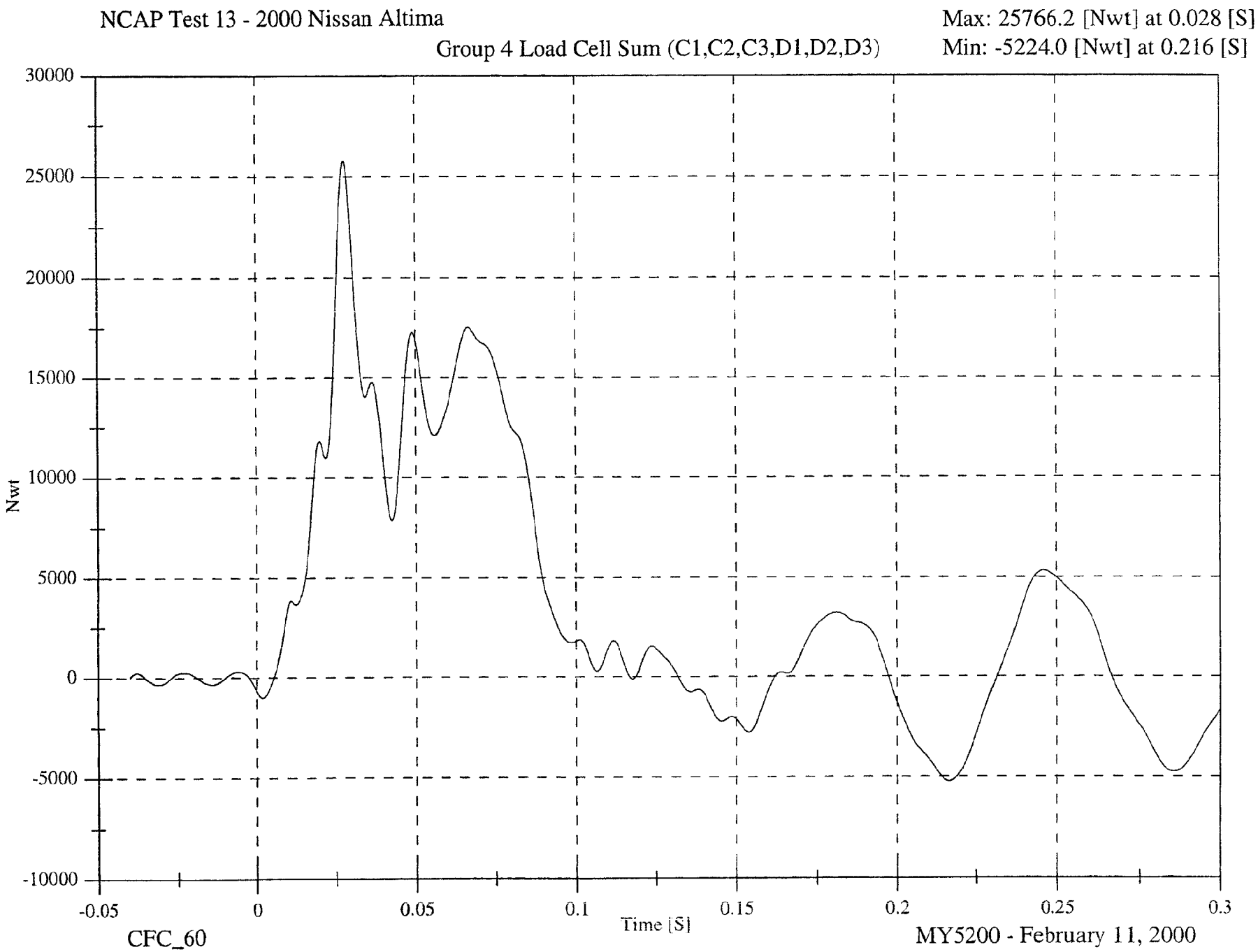

NCAP Test 13 - 2000 Nissan Altima
BLC D8 Fx
Max: 976.8 [Nwt] at 0.028 [S]
Min: -657.4 [Nwt] at 0.014 [S]
1000
750
500
250
0
-250
-500
-750
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

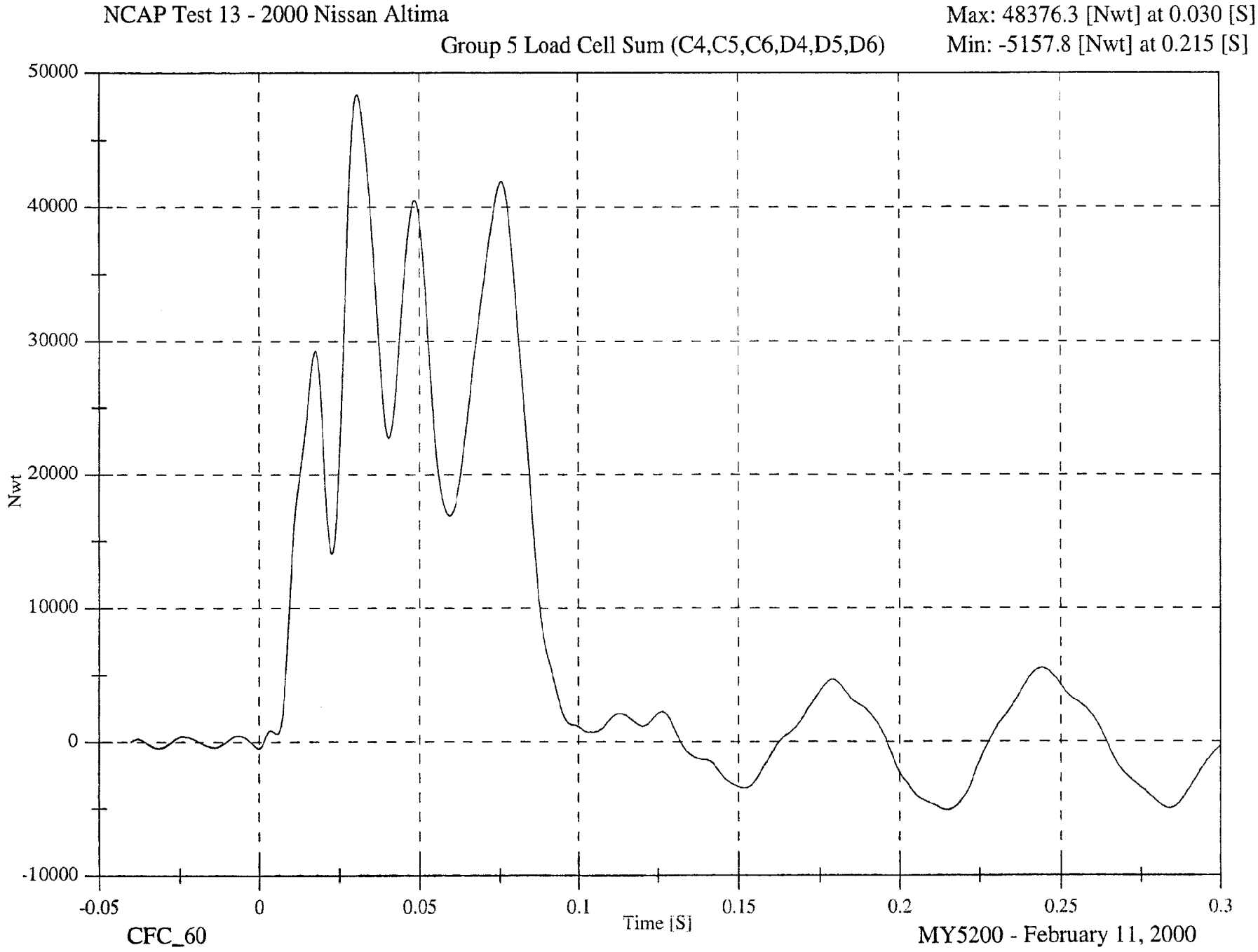

NCAP Test 13 - 2000 Nissan Altima
BLC D9 Fx
Max: 1092.1 [Nwt] at 0.022 [S]
Min: -1000.7 [Nwt] at 0.032 [S]
1500
1000
500
0
-500
-1000
-1500
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

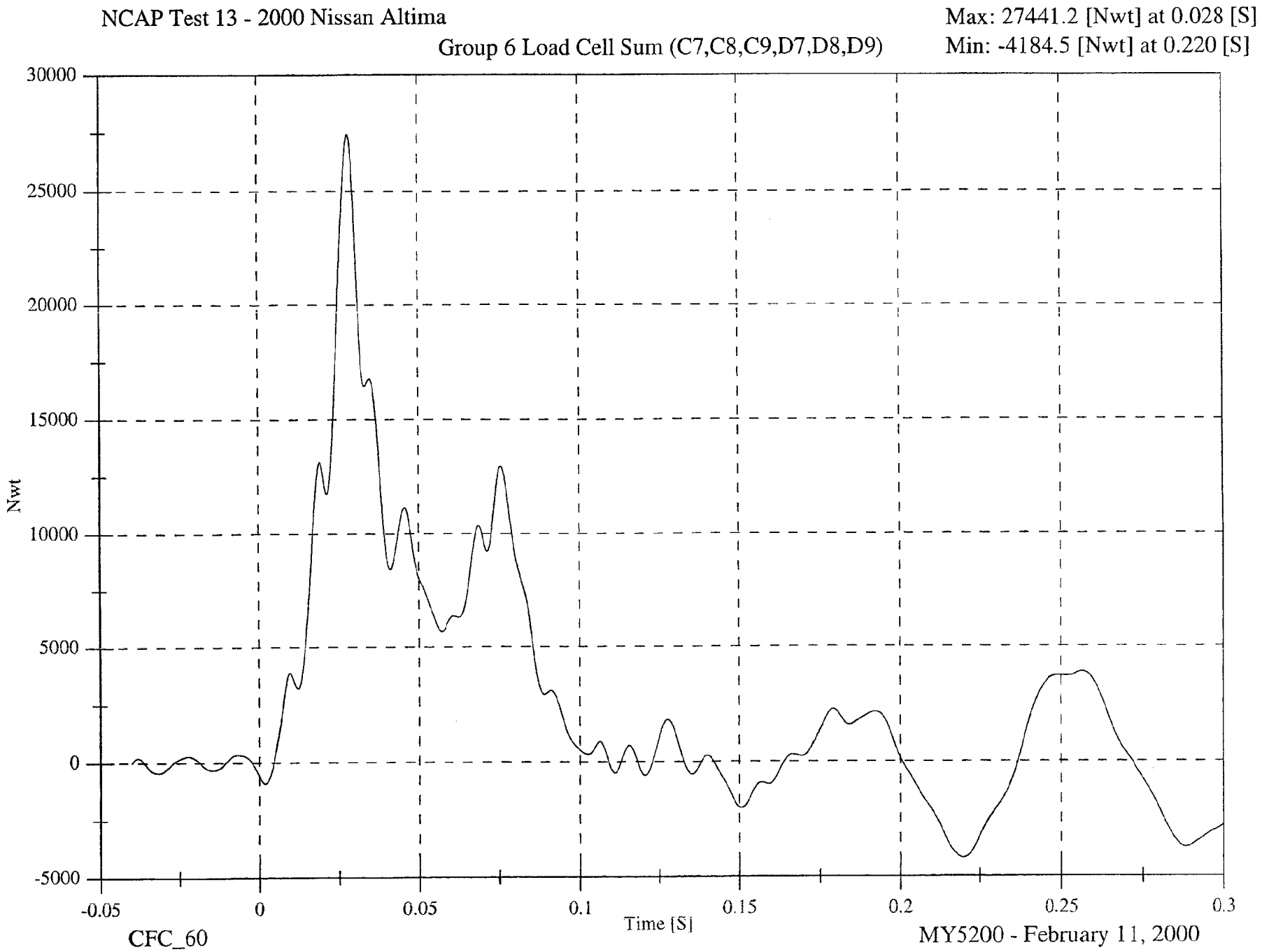

NCAP Test 13 - 2000 Nissan Altima
Group 1 Load Cell Sum (A1,A2,A3,B1,B2,B3)
Max: 115228.9 [Nwt] at 0.046 [S]
Min: -1852.9 [Nwt] at 0.002 [S]
1.25E+05
100000
75000
50000
25000
0
-25000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

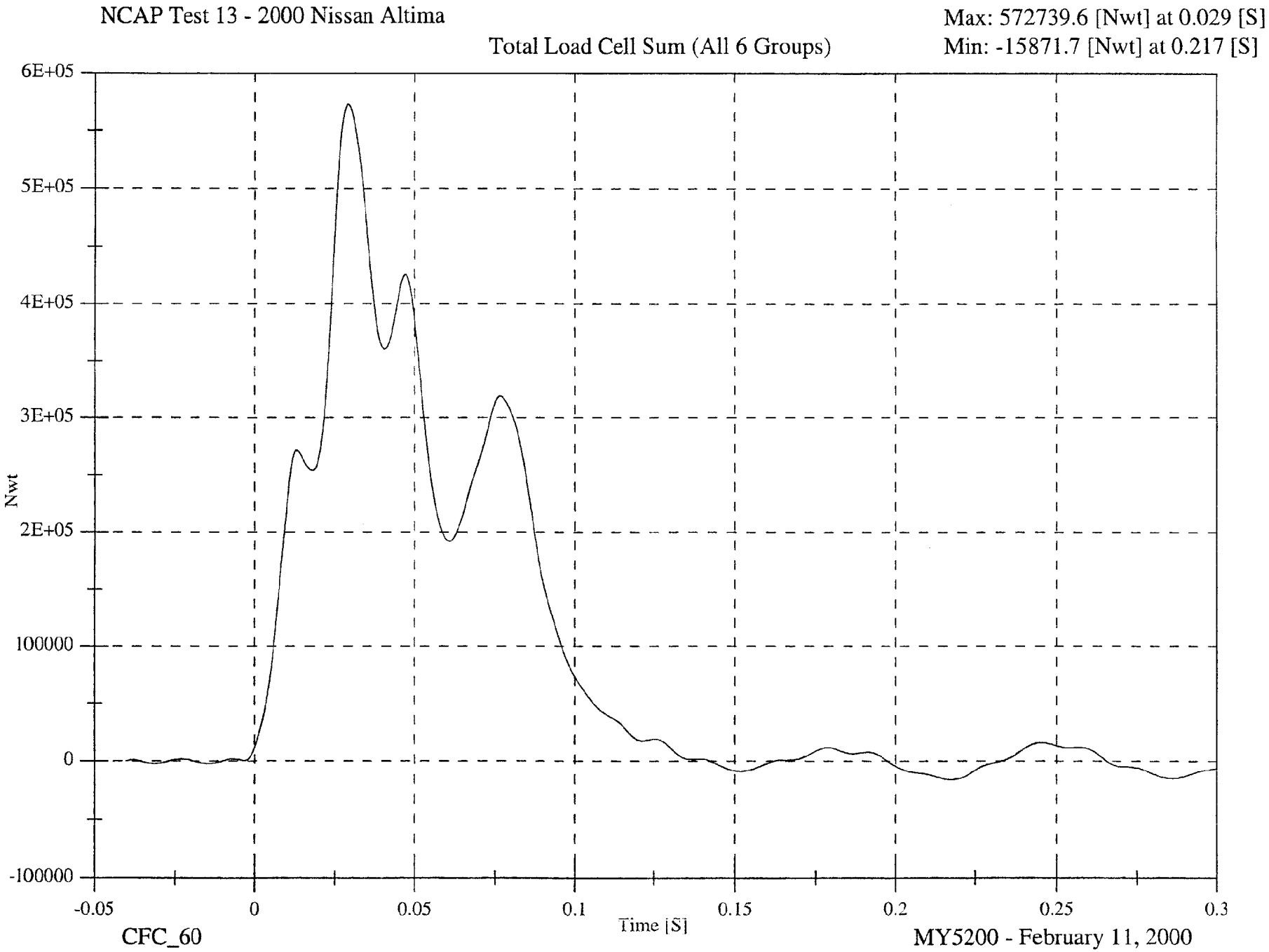

NCAP Test 13 - 2000 Nissan Altima
Group 2 Load Cell Sum (A4,A5,A6,B4,B5,B6)
Max: 209996.2 [Nwt] at 0.032 [S]
Min: -1053.4 [Nwt] at 0.268 [S]
2.5E+05
2E+05
1.5E+05
100000
50000
0
-50000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Group 3 Load Cell Sum (A7,A8,A9,B7,B8,B9)
Max: 158310.6 [Nwt] at 0.029 [S]
Min: -2277.1 [Nwt] at 0.002 [S]
1.75E+05
1.5E+05
1.25E+05
100000
75000
50000
25000
0
-25000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Group 4 Load Cell Sum (C1,C2,C3,D1,D2,D3)
Max: 25766.2 [Nwt] at 0.028 [S]
Min: -5224.0 [Nwt] at 0.216 [S]
30000
25000
20000
15000
10000
5000
0
-5000
-10000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Group 5 Load Cell Sum (C4,C5,C6,D4,D5,D6)
Max: 48376.3 [Nwt] at 0.030 [S]
Min: -5157.8 [Nwt] at 0.215 [S]
50000
40000
30000
20000
10000
0
-10000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Group 6 Load Cell Sum (C7,C8,C9,D7,D8,D9)
Max: 27441.2 [Nwt] at 0.028 [S]
Min: -4184.5 [Nwt] at 0.220 [S]
30000
25000
20000
15000
10000
5000
0
-5000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000


NCAP Test 13 - 2000 Nissan Altima
Total Load Cell Sum (All 6 Groups)
Max: 572739.6 [Nwt] at 0.029 [S]
Min: -15871.7 [Nwt] at 0.217 [S]
6E+05
5E+05
4E+05
3E+05
2E+05
100000
0
-100000
Nwt
-0.05
0
0.05
0.1
0.15
0.2
0.25
0.3
Time [S]
CFC_60
MY5200 - February 11, 2000

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.

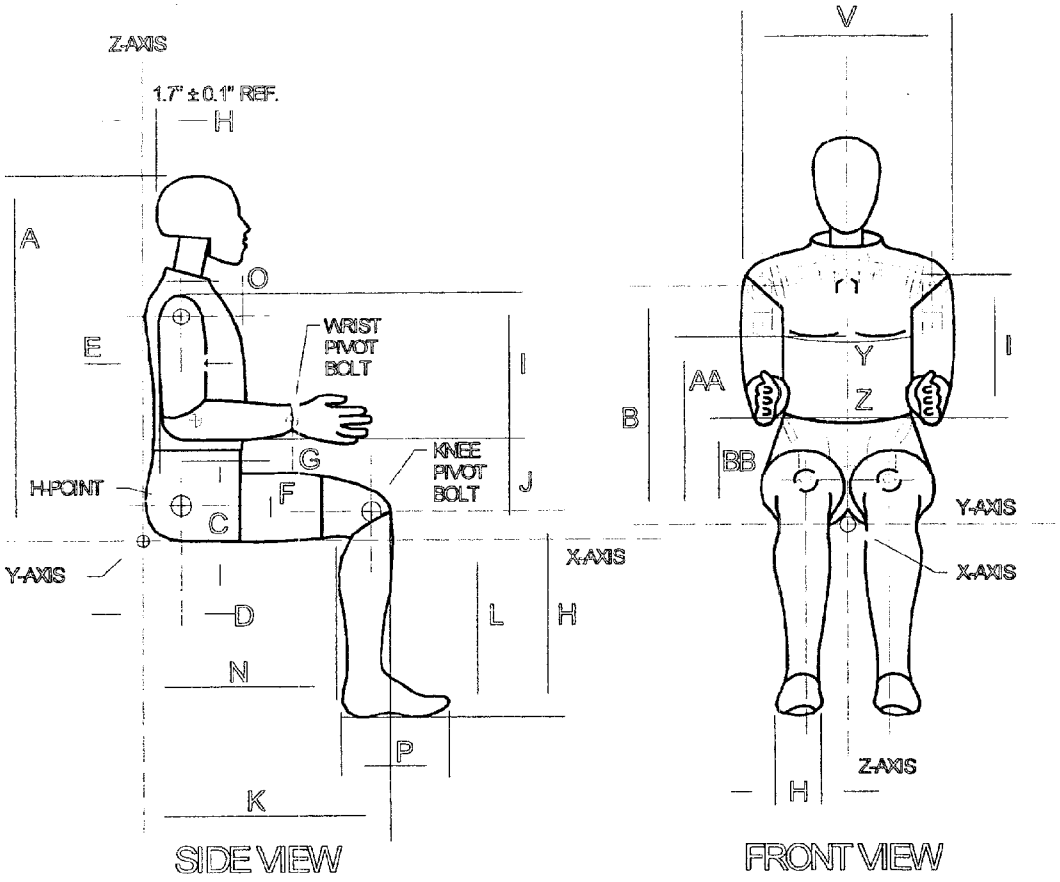
Dummy serial numbers and certification dates are:

Position No./Location	Serial No.	Completion Date
#1/Driver	064	1/14/00
#2/Right Front Passenger	150	2/8/00

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

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	1
Date	1/14/00
Workfile	064100.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	31
Peak Resultant Acceleration	225-275 G's	253.2
Peak Lateral Acceleration	15 G's Max	8.3
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	064
Sequential Test Number	1
Date	1/14/00
Workfile	064100.nfx

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	31
Impact Velocity		22.60 - 23.40 Ft/s	22.71
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.71
	20 ms	17.60 - 22.60 G's	19.60
	30 ms	12.50 - 18.50 G's	15.60
Max Pendulum G's Above 30 ms		29 G's Max	15.60
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.50
D Plane Rotation	Max	64 - 78 Deg	73.03
	Time	57 - 64 ms	60.50
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	79.17
	Time	47 - 58 ms	54.00
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	120.88
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	101.75

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	064
Sequential Test Number	1
Date	1/14/00
Workfile	064100.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	31
Impact Velocity		19.50 - 20.30 Ft/s	19.77
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.56
	20 ms	14.00 - 19.00 G's	16.94
	30 ms	11.00 - 16.00 G's	13.93
Max Pendulum G's Above 30 ms		22 G's Max	13.93
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	42.25
D Plane Rotation	Max	81 - 106 Deg	98.13
	Time	72 - 82 ms	75.25
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-57.58
	Time	65 - 79 ms	69.75
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	146.88
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	141.88

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	064
Sequential Test Number	1
Date	1/14/00
Workfile	064100.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	71
Relative Humidity	10% - 70%	32
Pendulum Velocity	21.6 - 22.4 Ft/s	21.75
Maximum Deflection	2.50 - 2.86 in	2.59
Maximum Resistive Force	1160 - 1325 Lbs	1278.73
Internal Hysteresis	69 - 85 %	74.4

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	064
Sequential Test Number	1
Date	1/14/00
Workfile	064100.lf/064100.rf

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	71
Relative Humidity	10% - 70%	32
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1255
RIGHT KNEE		
Temperature	66 - 78 Deg F	71
Relative Humidity	10% - 70%	32
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1246

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 064
Sequential Test Number 1
Date 1/14/00

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
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	38.8
Waist Circumference	Z	32.9 - 34.1 in	33.3
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	150
Sequential Test Number	2
Date	2/4/00
Workfile	150200.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	31
Peak Resultant Acceleration	225-275 G's	243.6
Peak Lateral Acceleration	15 G's Max	6.3
Is Acceleration Curve Unimodal?	YES	Yes

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	150
Sequential Test Number	2
Date	2/7/00
Workfile	150200.nfx

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	32
Impact Velocity		22.60 - 23.40 Ft/s	22.70
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.47
	20 ms	17.60 - 22.60 G's	19.83
	30 ms	12.50 - 18.50 G's	15.63
Max Pendulum G's Above 30 ms		29 G's Max	15.63
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.88
D Plane Rotation	Max	64 - 78 Deg	77.34
	Time	57 - 64 ms	58.75
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	71.90
	Time	47 - 58 ms	54.13
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	123.00
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	103.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	150	
Sequential Test Number	2	
Date	2/7/00	6 Axis Neck Transducer
Workfile	150200.nex	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	32
Impact Velocity		19.50 - 20.30 Ft/s	19.70
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	20.24
	20 ms	14.00 - 19.00 G's	17.38
	30 ms	11.00 - 16.00 G's	14.14
Max Pendulum G's Above 30 ms		22 G's Max	14.14
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	40.25
D Plane Rotation	Max	81 - 106 Deg	102.21
	Time	72 - 82 ms	73.13
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-52.67
	Time	65 - 79 ms	69.75
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	152.38
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	139.25

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number	150
Sequential Test Number	2
Date	2/8/00
Workfile	150200.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	32
Pendulum Velocity	21.6 - 22.4 Ft/s	21.92
Maximum Deflection	2.50 - 2.86 in	2.59
Maximum Resistive Force	1160 - 1325 Lbs	1311.77
Internal Hysteresis	69 - 85 %	72.8

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number	150
Sequential Test Number	2
Date	2/8/00
Workfile	150200

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	71
Relative Humidity	10% - 70%	32
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1182
RIGHT KNEE		
Temperature	66 - 78 Deg F	71
Relative Humidity	10% - 70%	32
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1146

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 150
Sequential Test Number 2
Date 2/7/00

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			31
Location for Chest Circumference	AA	16.9 -17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	34.0
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	5.7
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.5
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.1
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.5

Remarks:

Laboratory Technician: B. Swiecicki

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-C15021	11/12/99	5/12/00
	Y	ENDEVCO	AC-C15007	11/12/99	5/12/00
	Z	ENDEVCO	AC-AH5N0	11/12/99	5/12/00
Head	X (R)	ENDEVCO	AC-P13329	10/5/99	4/4/00
	Y (R)	ENDEVCO	AC-P13355	10/5/99	4/4/00
	Z (R)	ENDEVCO	AC-J31026	11/17/99	5/17/00
Neck Load Cell	X	DENTON	LC-440Fx	2/8/00	8/8/00
	Y	DENTON	LC-440Fy	2/8/00	8/8/00
	Z	DENTON	LC-440Fz	2/8/00	8/8/00
Neck Moment	X	DENTON	LC-440Mx	2/8/00	8/8/00
	Y	DENTON	LC-440My	2/8/00	8/8/00
	Z	DENTON	LC-440Mz	2/8/00	8/8/00
Chest	X	ENDEVCO	AC-A08A	12/17/99	6/16/00
	Y	ENDEVCO	AC-ADL42	12/17/99	6/16/00
	Z	ENDEVCO	AC-A28F	12/17/99	6/16/00
Chest	X (R)	ENDEVCO	AC-A14077	12/17/99	6/16/00
	Y (R)	ENDEVCO	AC-A13882	12/17/99	6/16/00
	Z (R)	ENDEVCO	AC-ACCW0	12/17/99	6/16/00
Chest Deflection Gauge		SERVO	DS-064	2/9/00	8/9/00
Hybrid III Use Only					
Pelvic	X	ENDEVCO	AC-AF480	12/17/99	6/16/00
	Y	ENDEVCO	AC-AC2M6	12/17/99	6/16/00
	Z	ENDEVCO	AC-AF5C1	12/17/99	6/16/00

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	10/20/99	4/19/00
Right Femur Load Cell		GSE	LC-955	10/19/99	4/18/00
Left Upper Tibia	Mx	DENTON	LC-045Mx	9/16/99	3/16/00
	My	DENTON	LC-045My	9/16/99	3/16/00
Left Lower Tibia	Fz	DENTON	LC-125Fz	9/16/99	3/16/00
	Mx	DENTON	LC-125Mx	9/16/99	3/16/00
	My	DENTON	LC-125My	9/16/99	3/16/00
Right Upper Tibia	Mx	DENTON	LC-038Mx	9/16/99	3/16/00
	My	DENTON	LC-038My	9/16/99	3/16/00
Right Lower Tibia	Fz	DENTON	LC-124Fz	9/16/99	3/16/00
	Mx	DENTON	LC-124Mx	9/16/99	3/16/00
	My	DENTON	LC-124My	9/16/99	3/16/00
Left Foot Rear	X	ENDEVCO	AC-J32176	10/11/99	4/10/00
	Z	ENDEVCO	AC-J31042	10/11/99	4/10/00
Left Foot Front	Z	ENDEVCO	AC-J31009	10/11/99	4/10/00
Right Foot Rear	X	ENDEVCO	AC-J31050	10/11/99	4/10/00
	Z	ENDEVCO	AC-J31060	10/11/99	4/10/00
Right Foot Front	Z	ENDEVCO	AC-J32143	10/11/99	4/10/00
Lap Belt Load Cells		LEBOW	LC-706	10/19/99	4/18/00
Shoulder Belt Load Cells		LEBOW	LC-707	10/19/99	4/18/00
Spool-Out Potentiometer		-	-	-	-
Belt Stretch Transducer		-	-	-	-

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 150)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-AF5P8	11/8/99	5/8/00
	Y	ENDEVCO	AC-C14948	11/8/99	5/8/00
	Z	ENDEVCO	AC-AH5F3	11/8/99	5/8/00
Head	X (R)	ENDEVCO	AC-J31021	10/11/99	4/10/00
	Y (R)	ENDEVCO	AC-J31066	10/7/99	4/6/00
	Z (R)	ENDEVCO	AC-J31022	10/11/99	4/10/00
Neck Load Cell	X	DENTON	LC-269Fx	11/11/99	5/11/00
	Y	DENTON	LC-269Fy	11/11/99	5/11/00
	Z	DENTON	LC-269Fz	11/11/99	5/11/00
Neck Moment	X	DENTON	LC-269Mx	11/11/99	5/11/00
	Y	DENTON	LC-269My	11/11/99	5/11/00
	Z	DENTON	LC-269Mz	11/11/99	5/11/00
Chest	X	ENDEVCO	AC-ADL50	11/8/99	5/8/00
	Y	ENDEVCO	AC-AC2P5	11/8/99	5/8/00
	Z	ENDEVCO	AC-AL6C8	11/8/99	5/8/00
Chest	X (R)	ENDEVCO	AC-J32098	10/7/99	4/6/00
	Y (R)	ENDEVCO	AC-J32383	10/7/99	4/6/00
	Z (R)	ENDEVCO	AC-J32186	10/7/99	4/6/00
Chest Deflection Gauge		SERVO	DS-150	11/23/99	5/23/00
Hybrid III Use Only					
Pelvic	X	ENDEVCO	AC-C15018	11/8/99	5/8/00
	Y	ENDEVCO	AC-C14883	11/8/99	5/8/00
	Z	ENDEVCO	AC-C14972	11/8/99	5/8/00

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 150)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell		GSE	LC-951	10/20/99	4/19/00
Right Femur Load Cell		GSE	LC-551	10/20/99	4/19/00
Left Upper Tibia	Mx	DENTON	LC-016Mx	9/16/99	3/16/00
	My	DENTON	LC-016My	9/16/99	3/16/00
Left Lower Tibia	Fz	DENTON	LC-123Fz	9/16/99	3/16/00
	Mx	DENTON	LC-123Mx	9/16/99	3/16/00
	My	DENTON	LC-123My	9/16/99	3/16/00
Right Upper Tibia	Mx	DENTON	LC-023Mx	10/12/99	4/11/00
	My	DENTON	LC-023My	10/12/99	4/11/00
Right Lower Tibia	Fz	DENTON	LC-111Fz	10/12/99	4/11/00
	Mx	DENTON	LC-111Mx	10/12/99	4/11/00
	My	DENTON	LC-111My	10/12/99	4/11/00
Left Foot Rear	X	ENDEVCO	AC-J32184	10/11/99	4/10/00
	Z	ENDEVCO	AC-J31011	10/11/99	4/10/00
Left Foot Front	Z	ENDEVCO	AC-J32185	10/11/99	4/10/00
Right Foot Rear	X	ENDEVCO	AC-J31101	10/11/99	4/10/00
	Z	ENDEVCO	AC-J31020	10/11/99	4/10/00
Right Foot Front	Z	ENDEVCO	AC-J31059	10/11/99	4/10/00
Lap Belt Load Cells		LEBOW	LC-711	10/19/99	4/18/00
Shoulder Belt Load Cells		LEBOW	LC-712	10/19/99	4/18/00
Spool-Out Potentiometer		-	-	-	-
Belt Stretch Transducer		-	-	-	-

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember	ICS	AC-D74	2/9/00	8/9/00
Right Rear Seat Crossmember	ICS	AC-X92	2/8/00	8/8/00
Top of Engine	ICS	AC-Y13	9/1/99	3/1/00
Bottom of Engine	ICS	AC-Y171	11/23/99	5/23/00
Right Disc Brake Caliper	ICS	AC-D55	11/23/99	5/23/00
Instrument Panel	ENDEVCO	AC-BC48	9/14/99	3/14/00
Left Disc Brake Caliper	ICS	AC-D75	9/14/99	3/14/00
Left Seat Rear Crossmember (R)	ICS	AC-Y11	2/8/00	8/8/00
Right Seat Rear Crossmember (R)	ICS	AC-Y17	2/8/00	8/8/00