

3219

REPORT NUMBER: CAL-00-5

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

**FORD MOTOR COMPANY
2000 LINCOLN TOWN CAR
4-DOOR SEDAN**

NHTSA NUMBER: MY0201

VERIDIAN TEST NUMBER: 8413-44

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



December 3, 1999

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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15. <i>Supplementary Notes</i>					
16. <i>Abstract</i> A frontal load cell barrier test of a 2000 Lincoln Town Car 4-Door Sedan was performed at Veridian Engineering crash test facility in Buffalo, New York, on December 3, 1999. The impact velocity was 56.49 kph and the temperature at the barrier face was 21 °C. The maximum post-test vehicle crush was 707 mm. The test vehicle was equipped with 3-point restraint systems, knee bolsters, and airbags at both the driver and right outboard passenger seating positions. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appeared to comply with head, chest, and femur requirements.					
ATD Position	HIC	Clip (g's)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)
Driver (061)	797.7	50.7	39.2	4348.1	6127.4
Passenger (064)	348.0	46.2	35.5	2552.6	3050.7
17. <i>Key Words</i> 56 kph Frontal Barrier Impact test New Car Assessment Program (NCAP)				18. <i>Distribution Statement</i> <u>Copies of this report are available from:</u> NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, DC 20590	
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SECTION 1

PURPOSE AND SUMMARY OF TEST MY0201

PURPOSE

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

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

SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2000 Lincoln Town Car 4-Door Sedan at a velocity of 56.49 kph. The test was performed at Veridian Engineering on December 3, 1999. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A. The NHTSA number displayed on the vehicle during the test (MY0212) was incorrect. The proper NHTSA test number is MY0201. Where possible, the NHTSA number has been blocked out or corrected in this report. The test films could not be altered.

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. 061) and the right-front passenger (position 2) ATD (Serial No. 064) were used previous to this test. Injury criteria for ATD Serial No. 061 and No. 064 were not exceeded in previous tests (MY0100 and MY0110). Certification details, along with instrumentation calibration data, are found in Appendix C.

The 132 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 797.7. The maximum chest deceleration over 3 milliseconds was 50.7 g's and maximum chest deflection was 39.2 mm. Compressive femur loads were 4348.1 Newtons on the left and 6127.4 Newtons on the right.

The right front passenger's HIC was 348.0. Maximum chest deceleration over 3 milliseconds was 46.2 g's and maximum chest deflection was 35.5 mm. Compressive femur loads were 2552.6 Newtons on the left and 3050.7 Newtons on the right.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No. : MY0201 Test Mode : 56.3 kph Frontal Barrier

Test Date : December 3, 1999 Time: 14:10 Temperature : 21.0 °C

Vehicle Make/Model/Body Style : 2000 Lincoln Town Car 4-Door Sedan

Vehicle Test Weight : 2079.0 kg

Vehicle/Barrier Impact Angle : 0 °

Impact Velocity : 56.49 kph

Maximum Static Crush : 707 mm

Vehicle Rebound : 503 mm

DUMMIES:

DRIVER

PASSENGER

Type :

572E

572E

Restraint System :

Seatbelt, Airbag, Knee Bolster

Seatbelt, Airbag, Knee Bolster

Number of Data Channels : 132

Number of Cameras : 1 Real Time

16 High Speed

DOOR OPENING DATA :

Closed/Operable - Left Front

Closed/Operable - Right Front

Front Seat(s) Data :

DRIVER

PASSENGER

Seat Track Failure :(mm of shift)

0

0

Seat Back Failure :

None

None

VISIBLE DUMMY CONTACT POINTS :

DRIVER

PASSENGER

Head :

Face to the airbag; Top of the head to sunvisor; Back of the head to the headrest

Face to the airbag; Top of the head to sunvisor; Back of the head to the headrest

Abdomen :

-

-

Chest

Airbag

Airbag

Knees

Knee Bolster

Knee Bolster

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 2000 Lincoln Town Car 4-Door Sedan
NHTSA No. : MY0201 ; VIN: 1LNHM81W8YY819470 ; Color : Silver
Engine Data: 8 cylinders; - CID; 4.6 Liters; - cc
Placement : X Longitudinal or In-Line; - Transverse or Lateral
Transmission Data : 4 speeds; - Manual; X Automatic; X Overdrive
Final Drive : X Rear Wheel Drive; - Front Wheel Drive; - Four Wheel Drive
Major Options : X A/C; X Pwr.Strg.; X Pwr. Brakes
X Pwr. Windows; X Pwr. Door Locks; X Tilt Wheel
Date Received : 11-24-99 ; Odometer Reading 43.5 km
Selling Dealer : Rainbow Ford, Lincoln-Mercury Inc.
& Address: 6980 Niagara Falls Blvd Niagara Falls, NY 14304

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : Ford Motor Company
Date of Manufacture 11-99
GVWR : 2448 kg; GAWR: 1211 kg FRONT; 1241 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 221 kpa FRONT
221 kpa REAR
Recommended Tire Size : P205/60R16
* Recommended Cold Tire Pressure : 211 kpa FRONT; 211 kpa REAR
Size of Tires on Test Vehicle: P205/60R16 ; Manufacturer: Michelin
Vehicle Capacity Data :
Type of Front Seats: - Bench; - Bucket; X Split Bench
Number of Occupants: 3 Front; 3 Rear; 6 Total
Vehicle Capacity Weight (VCW) = 499.0 kg
No. of Occupants x 68 kg = 408.2 kg
Rated Cargo/Luggage Weight (RCLW) = 90.8 kg

*Tire pressure used for test

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

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

Right Front	=	<u>518.0</u>	kg	Right Rear	=	<u>403.0</u>	kg
Left Front	=	<u>516.0</u>	kg	Left Rear	=	<u>405.0</u>	kg
TOTAL FRONT	=	<u>1034.0</u>	kg	TOTAL REAR	=	<u>808.0</u>	kg
TOTAL DELIVERED WEIGHT =		<u>1842.0</u>	kg				
% of Total Front of Vehicle Weight =		<u>56.1</u>	%	% of Total Rear Weight =		<u>43.9</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW)	=	<u>1842.0</u>	kg
Rated Cargo/Luggage Weight (RCLW)	=	<u>90.8</u>	kg
Weight of 2 p.572 Dummies @ 76 each	=	<u>152.0</u>	kg
TARGET TEST WEIGHT	=	<u>2084.8</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 85 KG OF CARGO WEIGHT:

Right Front	=	<u>559.0</u>	kg	Right Rear	=	<u>478.0</u>	kg
Left Front	=	<u>540.0</u>	kg	Left Rear	=	<u>502.0</u>	kg
TOTAL FRONT	=	<u>1099.0</u>	kg	TOTAL REAR	=	<u>980.0</u>	kg
TOTAL TEST WEIGHT =		<u>2079.0</u>	kg				
% of Total Front Weight =		<u>52.9</u>	%	% of Total Rear Weight =		<u>47.1</u>	%
Weight of Ballast Secured in Vehicle Trunk Area =		<u>0</u>	kg				
Vehicle Components Removed for Weight Reduction:		<u>None</u>					

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	<u>754</u>	LF	<u>745</u>	RR	<u>743</u>	LR	<u>745</u>
FULLY LOADED :	RF	<u>740</u>	LF	<u>732</u>	RR	<u>728</u>	LR	<u>724</u>
AS TESTED :	RF	<u>740</u>	LF	<u>735</u>	RR	<u>735</u>	LR	<u>725</u>
Vehicle's Wheel Base :		<u>3009</u> mm						
Location of Vehicle's C.G. :		<u>1418.4</u> mm rearward of front wheel center.						

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual =	<u>72</u>	liters
Usable Capacity Figure Furnished by COTR =	<u>72</u>	liters
Test Volume Range (92 to 94% of Usable Capacity) =	<u>64.2</u>	to <u>67.7</u> liters
ACTUAL TEST VOLUME=	<u>67.7</u>	liters (with entire fuel system filled)
Test Fluid Type:	<u>Stoddard Solution</u>	; Spec. Grav. = <u>0.764</u>
Kinematic Viscosity =	<u>0.96</u>	centistokes; Color = <u>Orange</u>
Type of Fuel Pump:	Electric- <u>X</u>	; Mechanical- <u>-</u>
Does Electric Pump operate with ignition switch "ON" & engine "OFF"	Yes- <u>X</u>	No- <u>-</u>
Details of Fuel System <u>Filler Neck - Left side behind rear axle; Fuel Tank - Vertically mounted centered behind rear axle; Fuel lines - Inside right frame rail.</u>		

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°
Test Date : December 3, 1999 Time: 14:10 Temperature: 21.0 °C
Vehicle NHTSA No. : MY0201
Required Impact Velocity Range : 55.5 to 57.1 kph

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

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

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

Vehicle Length:

Pre-Test	Right =	<u>5194</u>	; C/L =	<u>5236</u>	; Left =	<u>5192</u>
Post-Test	Right =	<u>4533</u>	; C/L =	<u>4529</u>	; Left =	<u>4529</u>
Crush	Right =	<u>661.0</u>	; C/L =	<u>707.0</u>	; Left =	<u>663.0</u>
AVERAGE	=	<u>677.0</u>	mm			

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point :

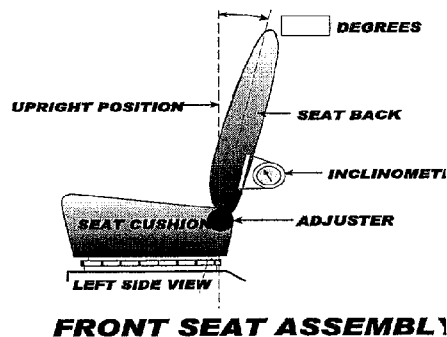
	Right =	<u>578</u>	; C/L =	<u>411</u>	; Left =	<u>521</u>
AVERAGE	=	<u>503.3</u>	mm			

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2000 Vehicle Model: Lincoln Town Car Body Style : 4-Door Sedan

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



Seat back angle for driver's seat: 29

Measurement instructions: Measured angle of back of seat frame relative to rocker sill

Seat back angle for passenger's seat: 29

Measurement instructions: Same as the driver's seat.

2. Seat Fore and Aft Positioning

Positioning of the driver's seat: Electric seat track adjusters; seat set at mid-position

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

3. Fuel Tank Capacity Data

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 72 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 = 72 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 67.7 liters

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

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

When the ignition is in the on position.

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

4. STEERING COLUMN ADJUSTMENTS :

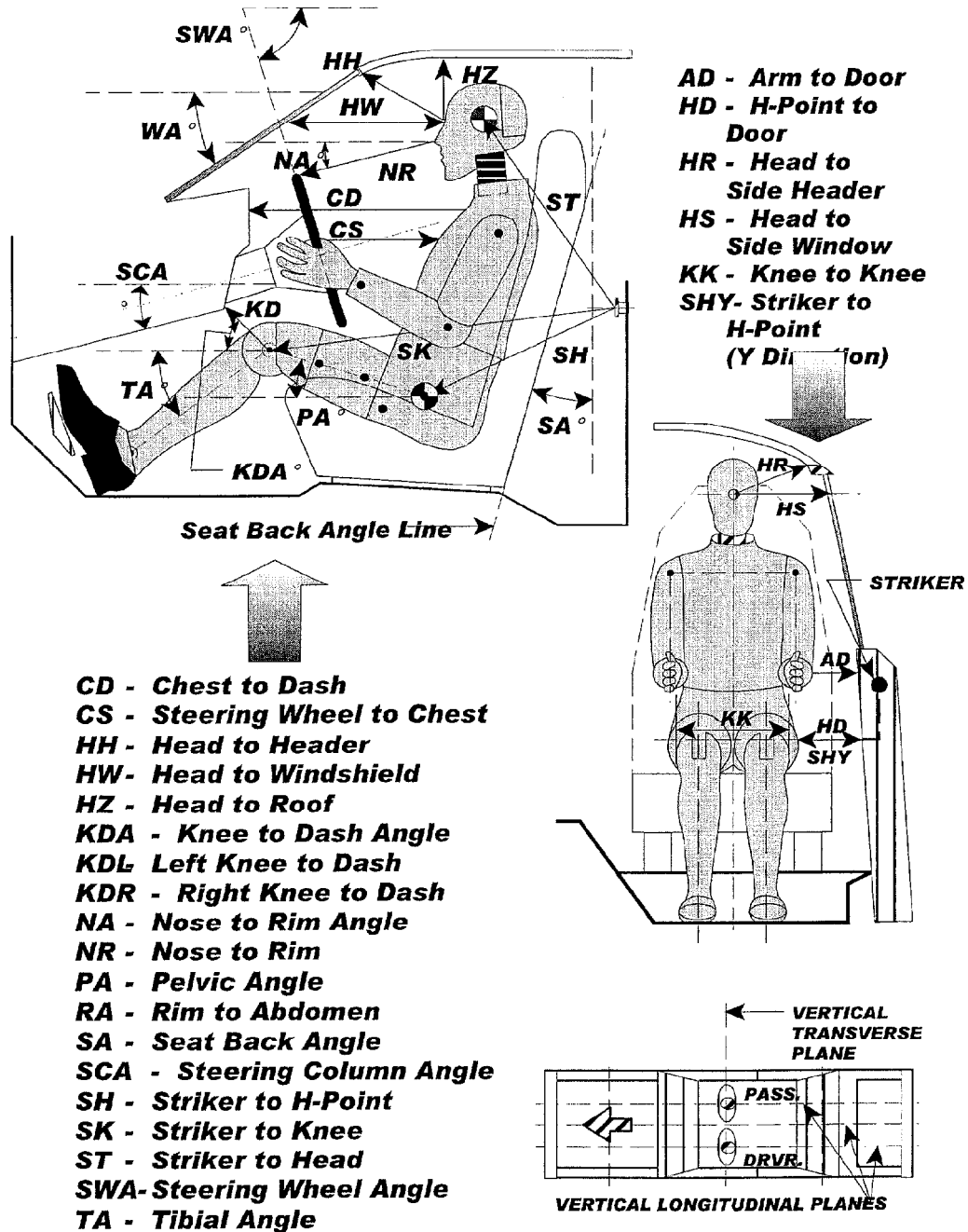
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions: 5 total detents; placed in detent 3.

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: 5 total detents; placed in detent 3.

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGER

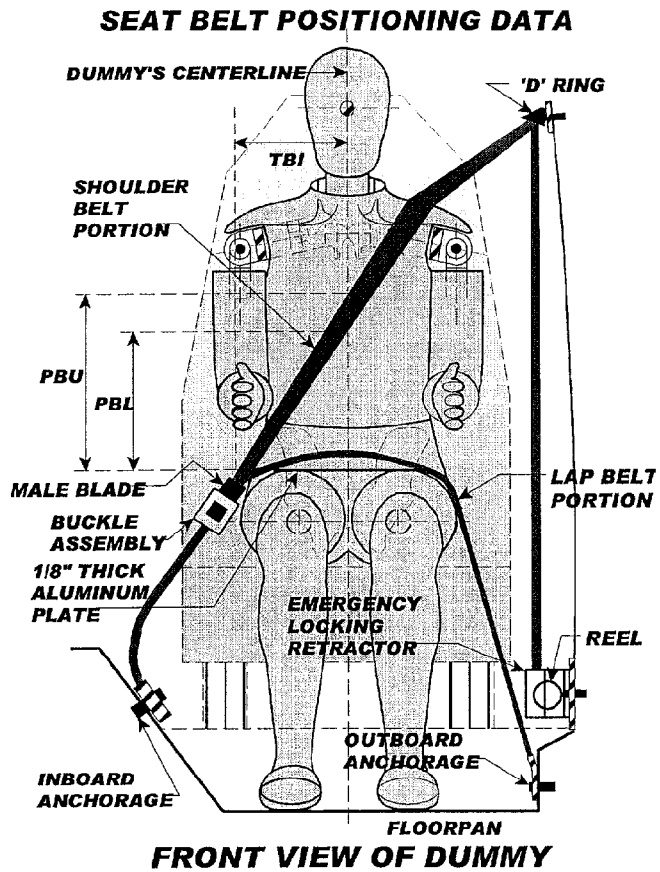


DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #061)			PASS. (Serial # 064)		
WA°	26 deg.			N/A		
SWA°	68 deg.			N/A		
SCA°	22 deg.			N/A		
SA°	29 deg.			29 deg.		
HZ	174			171		
HH	324			319		
HW	606			530		
HR	229			231		
NR	359	Angle	14 deg.	N/A		
CD	524			531		
CS	287			N/A		
RA	171			N/A		
KDL	176	Angle (KDA)	45 deg.	135		
KDR	133			155	Angle (KDA)	37 deg.
PA°	21 deg.			21 deg.		
TA°	32 deg.			44 deg.		
KK	299			270		
ST	553	Angle	81 deg.	559	Angle	81 deg.
SK	584	Angle	0 deg.	579	Angle	0 deg.
SH	210	Angle	113 deg.	215	Angle	115 deg.
SHY	274			278		
HS	174			154		
HD	333			339		
AD	122			134		

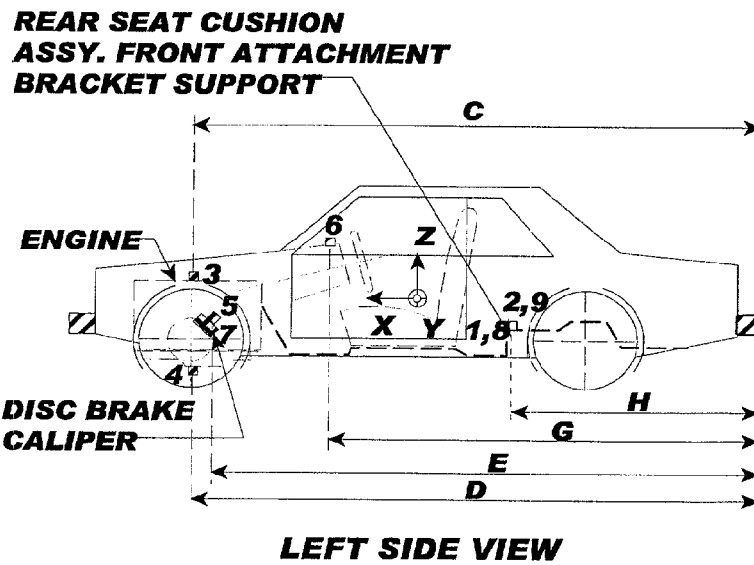
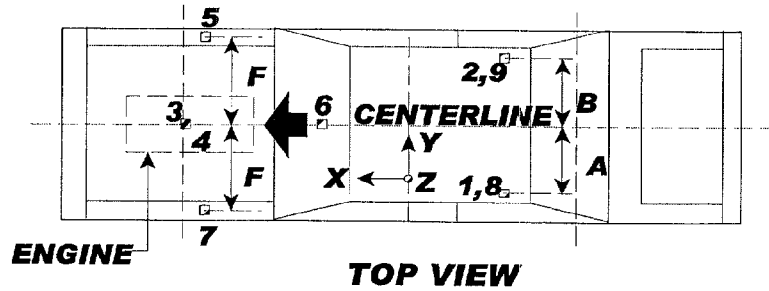
Dimensions in millimeters

DATA SHEET NO. 6 SEAT BELT POSITIONING DATA



	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	331	334
PBL-- Top surface of alum. plate to belt lower edge	221	224
<u>LAP BELT TENSION</u>	10 Newtons	10 Newtons
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



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

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

DIMENSION	LENGTH (mm)	
	PRE-TEST VALUES	
A Left Rear Seat Crossmember Y	635	663
B Right Rear Seat Crossmember Y	623	651
C Top of Engine X	4086	
D Bottom of Engine X	3976	
E Disc Brake Calipers X	3854	
F Disc Brake Calipers Y	654	654
G Instrument Panel X	3346	
H Rear Seat Crossmembers X	2223	

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	*	*	*	*
2	Rear Seat X-Member @ Right Side	4.3	150.1	-28.2	81.2
3	Top of Engine Block	**	**	**	**
4	Bottom of Engine	14.0	88.6	-47.7	60.5
5	Disc Brake Caliper @ Right Side	***	***	***	***
6	Instrument Panel	19.0	71.9	-86.2	76.4
7	Disc Brake Caliper @Left Side	15.5	87.0	-59.1	68.0
8	Rear Seat X-Member @ Left-Redundant	6.4	153.2	-31.5	81.3
9	Rear Seat X-Member @ Right-Redundant	4.3	149.7	-42.8	72.0

* Not accurate after 85 ms

** Not accurate after 80 ms

*** Data is not accurate

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2000 Lincoln Town Car 4-Door Sedan

NHTSA Test No.: MY0201 Test Date: December 3, 1999

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head X	g	10.9	208.5	-63.4	101.3	4.5	242.7	-40.2	93.4
Head Y	g	1.2	191.8	-22.6	105.3	5.7	79.6	-5.8	36.9
Head Z	g	28.4	90.3	-10.8	117.4	25.8	91.8	-7.3	39.3
Head Resultant	g	68.1	100.8	0.0	-47.9	47.8	93.0	0.0	6.8
Redundant Head X	g	9.1	235.1	-63.1	100.1	*	*	*	*
Redundant Head Y	g	1.5	193.4	-24.7	105.3	**	**	**	**
Redundant Head Z	g	33.1	85.9	-15.0	117.7	***	***	***	***
Redundant Head Resultant	g	68.8	100.1	0.0	-47.4	*	*	*	*
Upper Neck Fx	N	85.1	279.7	-333.3	81.6	156.4	271.3	-866.4	138.8
Upper Neck Fy	N	114.8	200.9	-230.7	120.9	57.5	49.4	-211.6	92.1
Upper Neck Fz	N	2536.6	91.0	-275.4	118.0	1876.2	92.0	-128.4	142.7
Upper Neck F Resultant	N	2540.7	91.0	1.4	-49.5	2025.6	92.0	1.6	-47.9
Upper Neck Mx	N-m	8.3	217.2	-31.0	97.0	8.0	59.5	-18.1	100.8
Upper Neck My	N-m	31.7	117.8	-28.0	242.0	54.7	135.5	-64.7	73.3
Upper Neck Mz	N-m	19.8	112.5	-10.2	160.6	12.2	84.8	-2.4	271.9
Upper Neck M Resultant	N-m	41.3	115.3	0.0	8.9	65.0	73.3	0.0	-11.5
Chest X	g	6.9	191.6	-49.5	96.8	1.9	299.9	-45.8	85.4
Chest Y	g	2.2	119.1	-11.3	94.2	12.5	94.2	-1.4	120.1
Chest Z	g	15.8	89.9	-15.7	116.5	17.5	77.2	-13.9	117.9
Chest Resultant	g	51.2	96.3	0.0	-12.4	47.4	85.4	0.1	-50.0
Redundant Chest X	g	6.6	191.9	-50.2	96.6	1.9	299.9	-43.2	85.4
Redundant Chest Y	g	2.8	119.6	-10.3	91.8	13.7	97.3	-1.8	120.3
Redundant Chest Z	g	17.9	89.9	-16.7	116.5	17.3	77.1	-13.7	116.6
Redundant Chest Resultant	g	51.8	96.2	0.0	-12.7	45.3	85.4	0.1	-50.0
Chest Displacement	mm	0.0	12.5	-39.2	96.7	0.0	-26.0	-35.5	101.0

* Wire Cut at 108 ms

** Wire Cut at 111 ms

*** Wire Cut at 97 ms

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

Vehicle Year/Make/Model/Body Style: 2000 Lincoln Town Car 4-Door Sedan

NHTSA Test No.: MY0201 Test Date: December 3, 1999

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Pelvic X	g	1.9	144.0	-61.7	61.6	4.0	138.7	-42.6	59.3
Pelvic Y	g	5.0	115.9	-8.0	49.5	6.9	81.0	-4.2	127.9
Pelvic Z	g	4.0	51.2	-24.5	115.3	3.4	55.2	-25.7	101.8
Pelvic Resultant	g	62.3	61.6	0.0	-12.6	42.7	59.3	0.0	-48.9
Left Femur	N	117.8	33.7	-4348.1	83.3	409.7	110.5	-2552.6	58.3
Right Femur	N	43.9	229.8	-6127.4	61.9	471.1	109.5	-3050.7	59.4
Left Upper Tibia Mx	N-m	118.9	66.2	-7.2	87.6	22.6	88.2	-21.7	102.2
Left Upper Tibia My	N-m	103.5	62.8	-106.4	51.4	17.2	169.1	-109.9	90.0
Left Lower Tibia Fz	N	151.8	168.6	-4772.5	53.5	97.3	151.9	-3882.0	89.6
Left Lower Tibia Mx	N-m	44.3	67.4	-72.2	87.3	28.8	125.3	-49.2	73.3
Left Lower Tibia My	N-m	98.5	89.0	-4.3	114.3	102.1	90.9	-35.8	38.2
Right Upper Tibia Mx	N-m	55.0	73.3	-10.6	99.7	11.1	84.6	-37.7	55.8
Right Upper Tibia My	N-m	15.5	160.5	-176.7	85.8	11.1	277.7	-98.9	89.7
Right Lower Tibia Fz	N	*	*	*	*	88.9	269.3	-3220.1	89.3
Right Lower Tibia Mx	N-m	84.1	70.5	-15.8	57.9	59.9	88.5	-13.5	47.9
Right Lower Tibia My	N-m	120.7	89.2	-61.8	51.9	86.4	91.6	-17.3	44.5
Left Foot Aft Ax	g	39.5	85.8	-76.9	55.6	18.4	85.1	-53.0	46.1
Left Foot Aft Az	g	5.9	60.5	-37.1	51.7	20.3	35.0	-37.0	70.4
Left Foot Fore Az	g	18.1	76.0	-64.8	55.2	66.4	35.0	-65.3	70.4
Right Foot Aft Ax	g	30.0	79.7	-112.6	52.8	23.8	93.1	-44.4	50.5
Right Foot Aft Az	g	8.6	76.6	-61.0	59.1	3.3	32.3	-41.6	86.7
Right Foot Fore Az	g	**	**	**	**	16.7	67.4	-48.1	84.0
Lap Belt Load	N	3434.3	62.4	-1.0	180.1	5700.6	68.0	-1.7	191.5
Torso Belt	N	7176.3	89.3	-19.6	250.8	7330.2	87.9	-10.9	217.6

* Not accurate after 87 ms

** Not accurate after 33 ms

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

Vehicle Year/Make/Model/Body Style: 2000 Lincoln Town Car 4-Door Sedan

NHTSA Test No.: MY0201 Test Date: December 3, 1999

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	797.7	76.8	112.8	54.7
Position #2 - Passenger	348.0	72.8	108.8	39.3

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

CLIP SUMMARY*				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	50.7	94.6	97.6	518.5
Position #2 - Passenger	46.2	83.7	86.7	460.0

* 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 Lincoln Town Car 4-Door Sedan

NHTSA Test No.: MY0201 Test Date: December 3, 1999

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	862.7	75.9	111.8	56.5
Position #2 - Passenger	***	***	***	***

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

CLIP SUMMARY* REDUNDANT				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	51.0	94.6	97.6	529.7
Position #2 - Passenger	44.1	84.0	87.0	427.8

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

*** Position #2 HIC value not calculated due to a wire cut at 108 msec.

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

	<u>Driver</u>	<u>Passenger</u>
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	<u>1641</u>	<u>1650</u>
Shoulder belt length as measured on Part 572 Dummy.	<u>826</u>	<u>829</u>
Lap belt length as measured on Part 572 Dummy.	<u>594</u>	<u>604</u>

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.	<u>50.8</u>	<u>87.9</u>
As determined mechanically.	<u>51</u>	<u>91</u>
As determined electronically.	<u>44.9</u>	<u>105</u>

BELT STRETCH DATA:

Measured electronically between shoulder belt load cell and the "D" ring.	<u>*</u>	<u>*</u>
Measured mechanically.	<u>1</u>	<u>1</u>

Dimensions in millimeters

* Data was not recorded

DATA SHEET NO.10 SUMMARY OF FMVSS 212 DATA

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

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

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

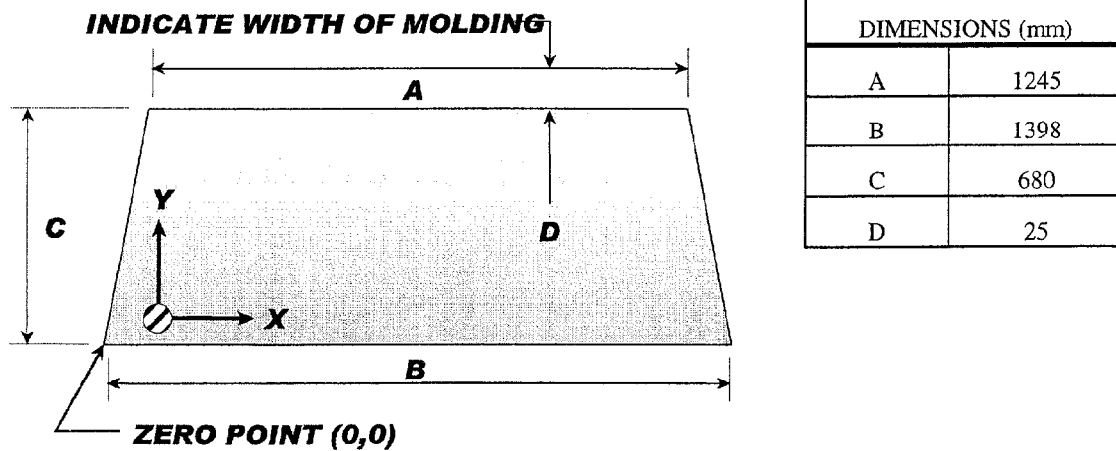
FMVSS 212 REQUIREMENTS:

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

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST(mm)	
RIGHT SIDE	1501.5	1501.5	100
LEFT SIDE	1501.5	1501.5	100
TOTAL	3,003	3,003	100

AREA OF RETENTION FAILURE: None



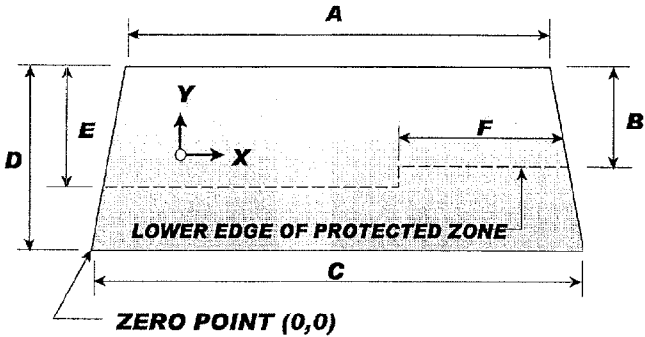
FAILURE DETAILS: None

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:



DIMENSIONS (mm)	
A	1245
B	404
C	1398
D	680
E	430
F	1503

FRONT VIEW OF WINDSHIELD

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

(Show location of penetration on the above sketch)

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

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

NHTSA TEST No.: MY0201 TEST DATE: December 3, 1999

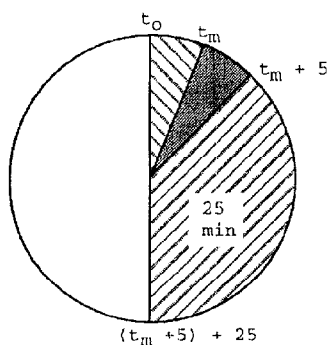
VEHICLE MAKE/MODEL: 2000 Lincoln Town Car

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

=====

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

FUEL SPILLAGE MEASUREMENT:



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

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

SOLVENT SPILLAGE DETAILS: None

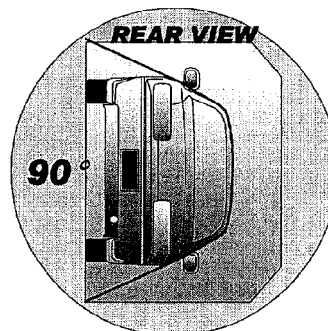
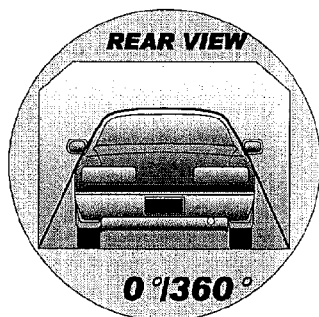
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Vehicle: 2000 Lincoln Town Car

NHTSA No. MY0201

0 - 90 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

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

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

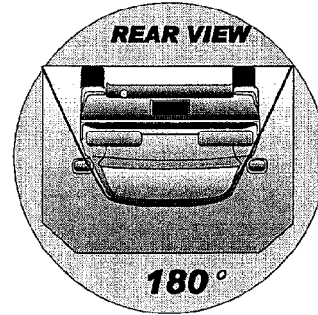
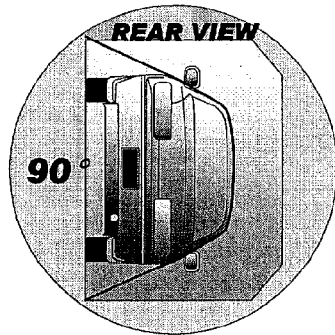
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2000 Lincoln Town Car

NHTSA No. MY0201

90 - 180 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time	<u>1</u>	minutes	<u>09</u>	seconds
(Spec. Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>0</u>	seconds
TOTAL	<u>6</u>	minutes	<u>9</u>	seconds
Next whole minute interval	<u>7</u>	minutes		

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

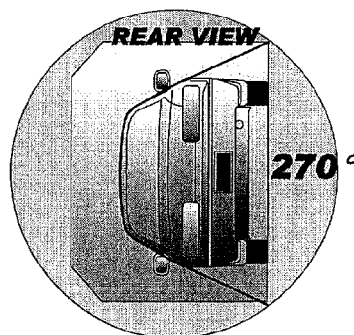
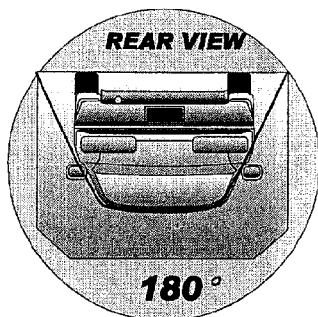
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2000 Lincoln Town Car

NHTSA No. MY0201

180 - 270 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time	<u>1</u> minutes	<u>15</u> seconds
(Spec. Range = 1 to 3 minutes)		
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>0</u> seconds
TOTAL	<u>6</u> minutes	<u>15</u> seconds
Next whole minute interval	<u>7</u> minutes	

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

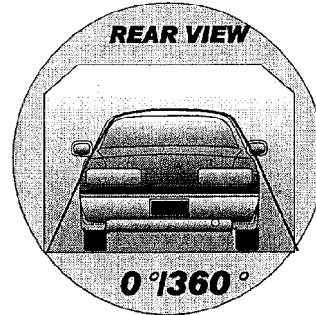
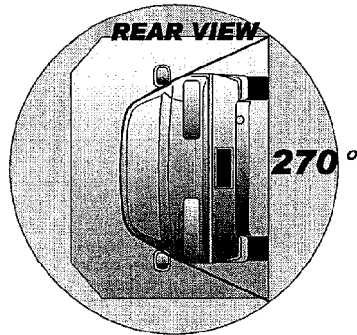
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2000 Lincoln Town Car

NHTSA No. MY0201

270 - 360 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

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

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

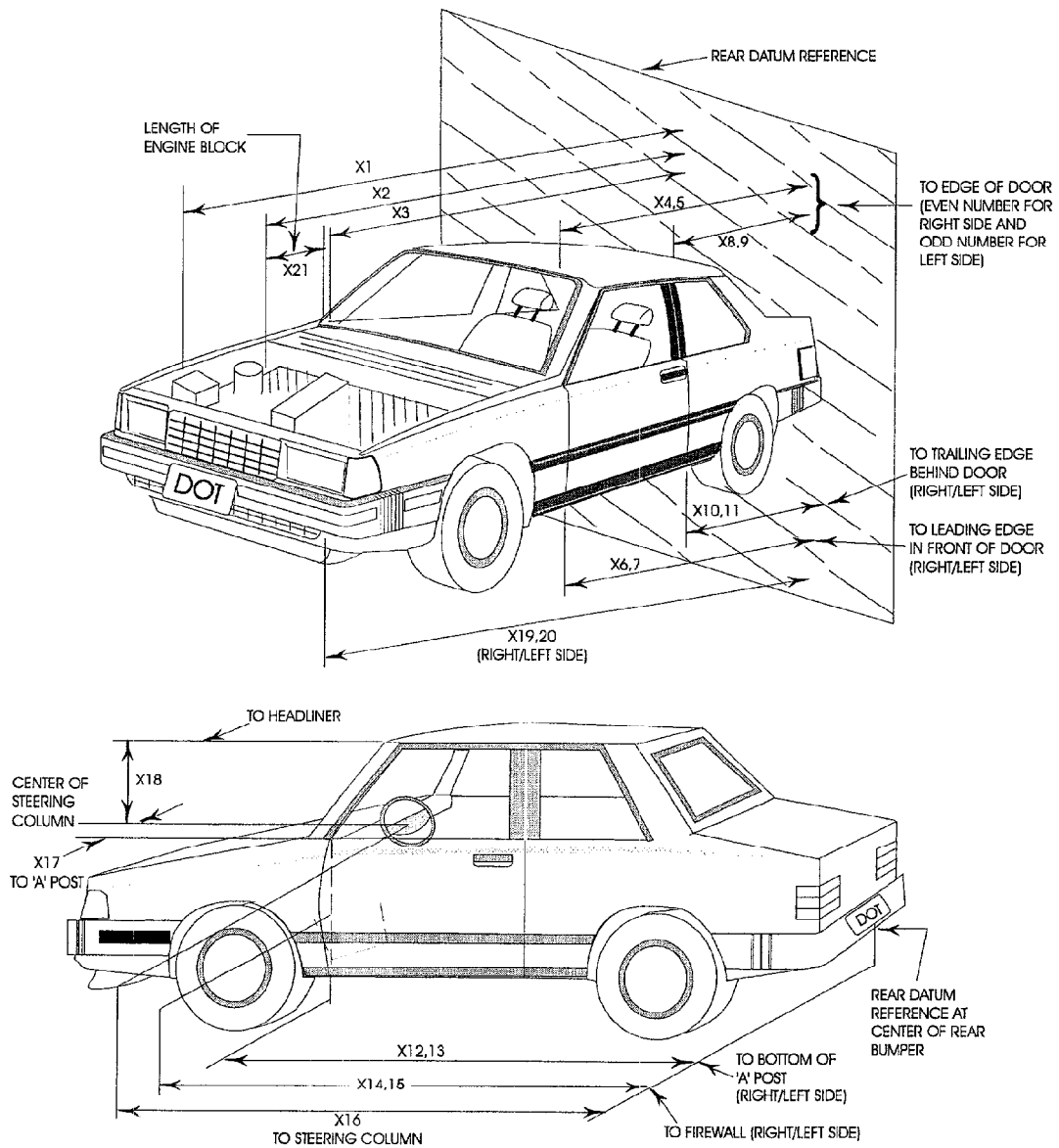
0 g	0 g	0 g	N/A
-----	-----	-----	-----

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

DATA SHEET NO. 14 TEST VEHICLE MEASUREMENTS

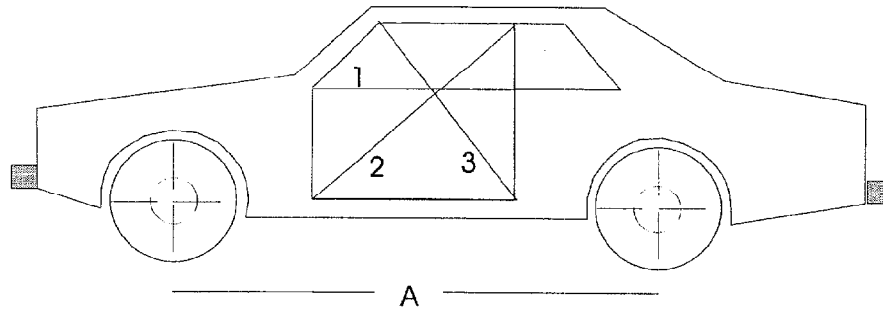


DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

No.		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	5236	4529	706
X2	Rear Surface of Vehicle to Front of Engine	4313	4003	310
X3	Rear Surface of Vehicle to Firewall	3924	3795	129
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3424	3417	8
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3724	3655	69
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3519	3506	13
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3819	3745	74
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2366	2359	7
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2664	2603	61
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2422	2421	1
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2720	2658	61
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3528	3537	-9
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3838	3793	44
X14	Rear Surface of Vehicle to Firewall, Right Side	3834	3661	173
X15	Rear Surface of Vehicle to Firewall, Left Side	3770	3760	9
X16	Rear Surface of Vehicle to Steering Column	3246	3162	84
X17	Center of Steering Column to "A" Post	398	416	-18
X18	Center of Steering Column to Headliner	417	386	32
X19	Rear Surface of Vehicle to Right Side of Front Bumper	5194	4533	660
X20	Rear Surface of Vehicle to Left Side of Front Bumper	5192	4529	663
X21	Length of Engine Block	479	479	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3144	3142	1
CD	Rear Surface of Vehicle to Center of Dash Panel	3501	3433	67
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3451	3369	82

All Dimensions in mm

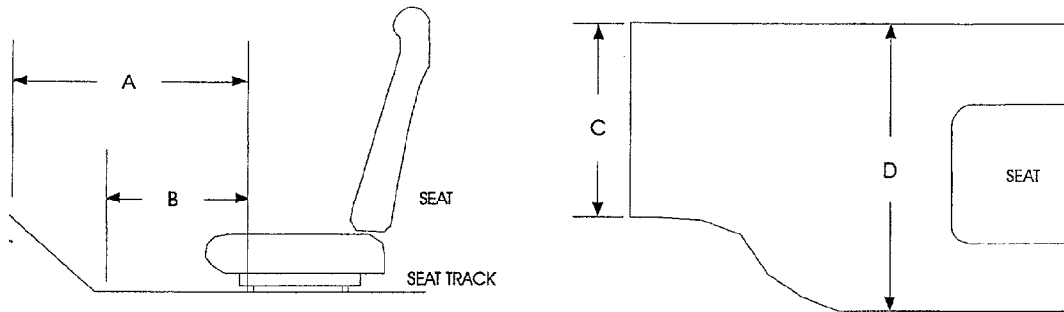
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
VEHICLE INTRUSION MEASUREMENTS
DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	996	1461	1082	993	1462	1039
AFTER TEST	973	1454	1122	983	1448	1039
DIFFERENCE	22.5	7	-40.1	10.2	14.9	0.3

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	3009	3017
AFTER TEST	2840	2836
DIFFERENCE	169.2	181.5

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



DRIVER

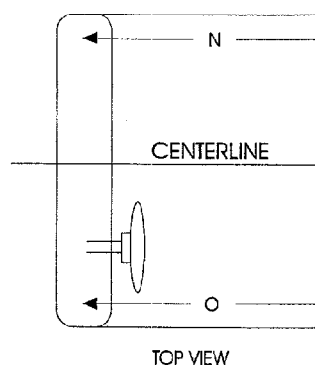
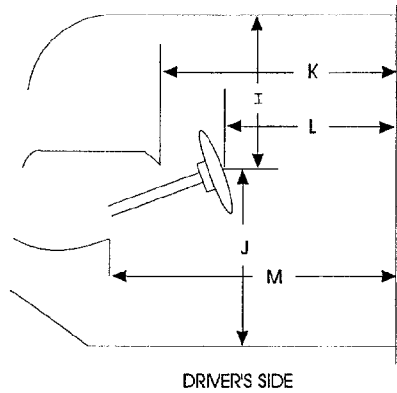
Measurement	Pre-Test	Post-Test	Difference
A	485	430	55
B	425	368	57
C	441	421	21
D	498	419	78

PASSENGER

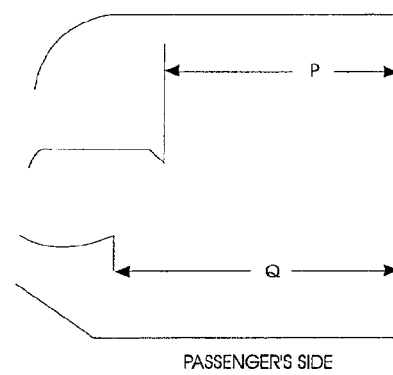
Measurement	Pre-Test	Post-Test	Difference
A	486	417	69
B	430	362	68
C	416	325	92
D	518	497	21

Units = mm

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



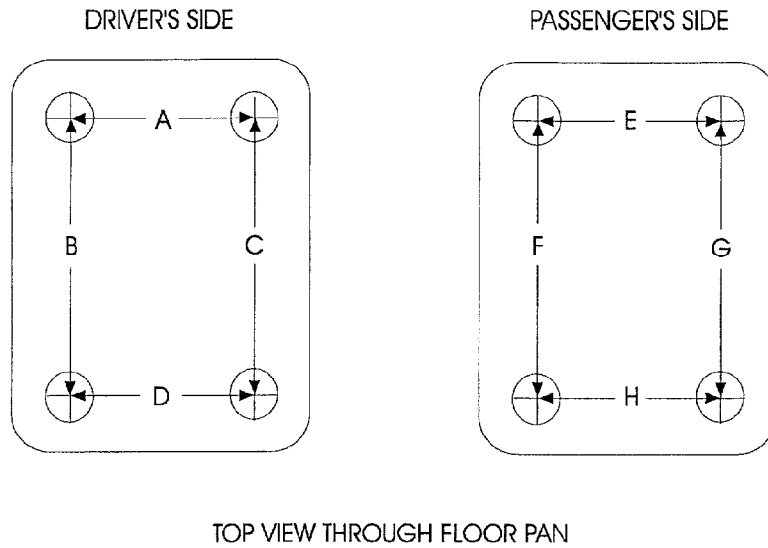
MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



Measurement	Pre-Test	Post-Test	Difference
I	417	386	32
J	591	680	-88
K	1769	1741	28
L	1535	1487	48
M	1748	1723	26
N	1787	1703	85
O	1740	1695	45
P = K (PASS.)	1790	1760	31
Q = M (PASS.)	1836	1760	76

Units = mm

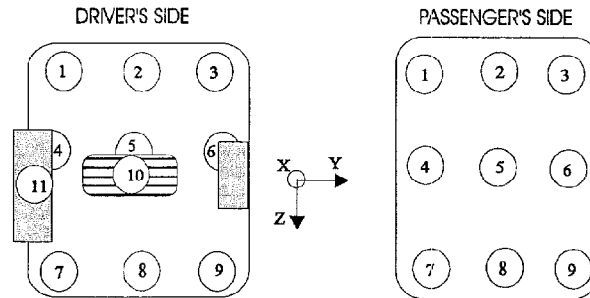
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
FLOORBOARD DEFORMATION



Measurement	Pre-Test	Post-Test	Difference
A	330	335	-5
B	615	610	5
C	610	595	15
D	325	310	15
E	325	330	-5
F	610	605	5
G	625	615	10
H	335	330	5

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	3910.0	3797.7	112	-477.2	-478.4	1
2	3899.1	3773.3	126	-470.9	-465.1	-6
3	3940.8	3787.5	153	-442.2	-431.0	-11
4	3868.2	3786.5	82	-450.9	-448.6	-2
5	3896.0	3755.0	141	-425.2	-443.5	18
6	3898.0	3767.6	130	-397.4	-433.1	36
7	3832.3	3748.7	84	-410.2	-385.0	-25
8	3838.9	3729.8	109	-378.0	-410.9	33
9	3860.4	3729.5	131	-369.5	-373.4	4
10	3807.7	3720.7	87	-524.6	-519.6	-5
11	-	-	0	-	-	0

Passenger Side Floorpan Measurements

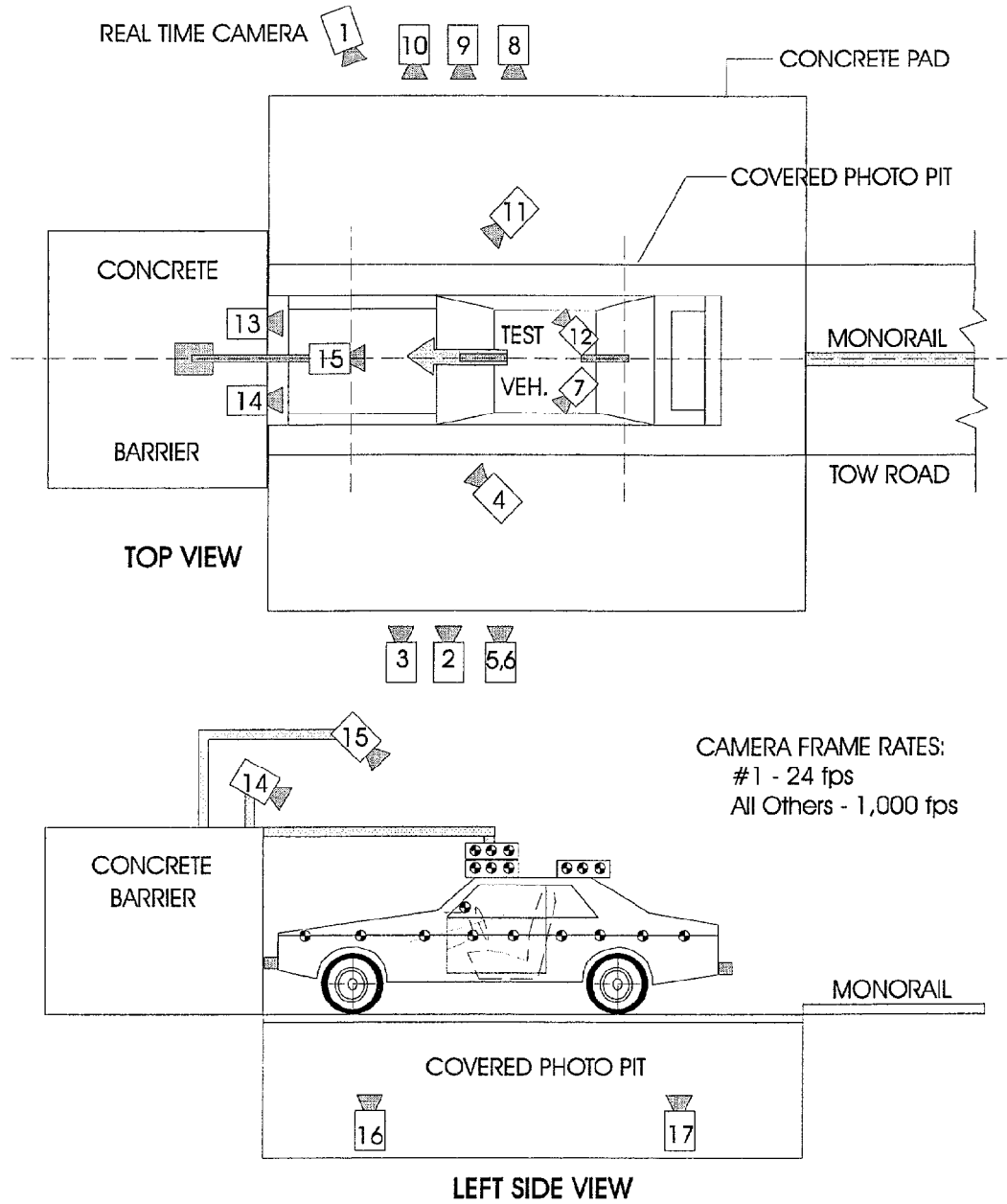
Reference: X = Rear Bumper; Z = Ground

Floorpan Location	X Deformation			Z Deformation		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3874.8	3798.4	76	-455.7	-468.6	13
2	3884.6	3807.4	77	-458.9	-476.7	18
3	3895.0	3821.1	74	-462.2	-484.2	22
4	3859.0	3755.2	104	-405.0	-409.4	4
5	3858.1	3763.5	95	-408.0	-430.2	22
6	3874.1	3766.7	107	-414.7	-403.4	-11
7	3806.2	3737.1	69	-370.3	-368.2	-2
8	3843.8	3758.7	85	-371.8	-397.5	26
9	3833.2	3759.1	74	-368.9	-378.9	10

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.: MY0201 Vehicle: 2000 Lincoln Town Car 4-Door Sedan

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)*			ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	8843	2113	1091	-2	8303	12.5	1005
3	Left Side View	8657	1083	1089	-2	8117	25	1005
4	Driver and Interior View	7059	3186	1967	-11	-	35	1050
5	Steering Column (Bottom)	7763	1888	1174	-4	7223	25	1010
6	Steering Column (Top)	7763	1888	1776	-9	7223	25	1005
7	Left Belt	-	-	-	-	-	13	1010
8	Overall Right Side	7423	2119	1028	-3	6883	12.5	1010
9	Right Side View	8763	1457	1066	-1	8223	25	1000
10	Right Passenger View	8603	2129	1258	-3	8063	35	1010
11	Passenger and Interior View	6855	3049	1934	-3	-	35	1020
12	Right Belt	-	-	-	-	-	13	1020
13	Passenger Front View	614	-67	1963	-34	-	13	1005
14	Driver Front View	614	-67	1963	-34	-	13	1005
15	Windshield View	0	-532	3374	-50	-	13	1000
16	Pit View of Engine	0	650	-3048	90	-	13	1045
17	Pit View of Fuel Tank	0	2835	-3048	90	-	13	1005

*X = film plane to monorail centerline

** = referenced to horizontal plane

Y = film plane to impact location

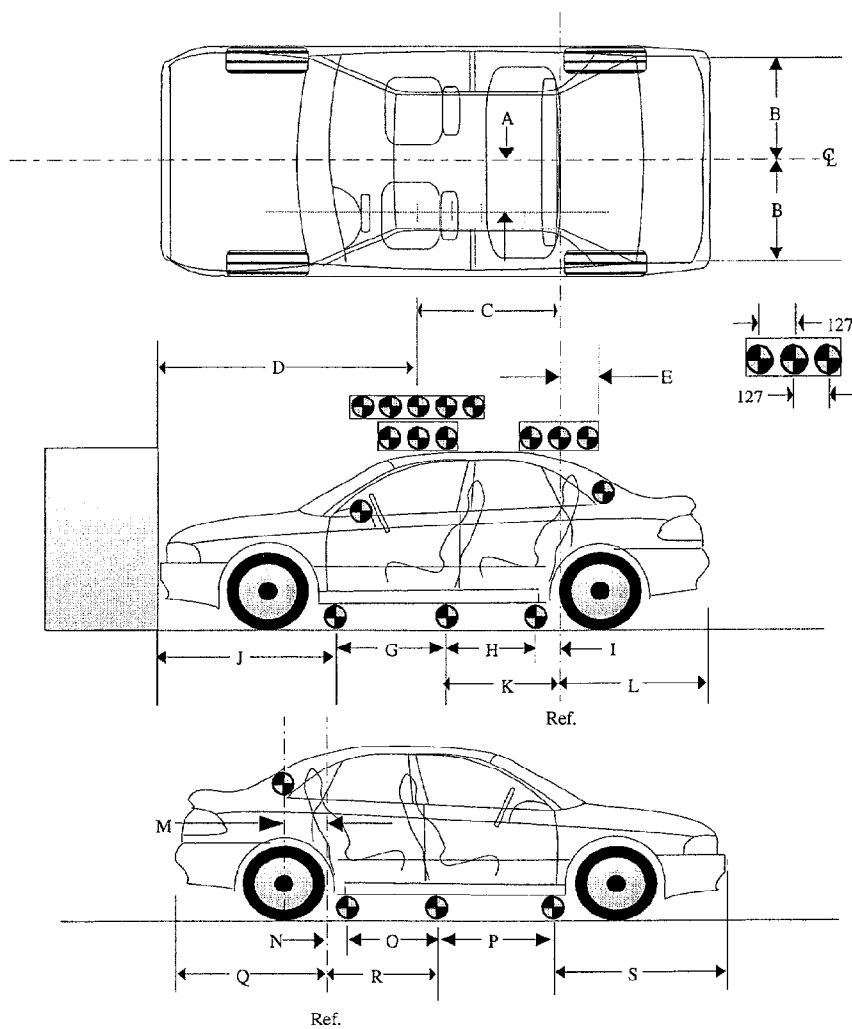
N.T. indicates No Timing

Z = film plane to ground

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

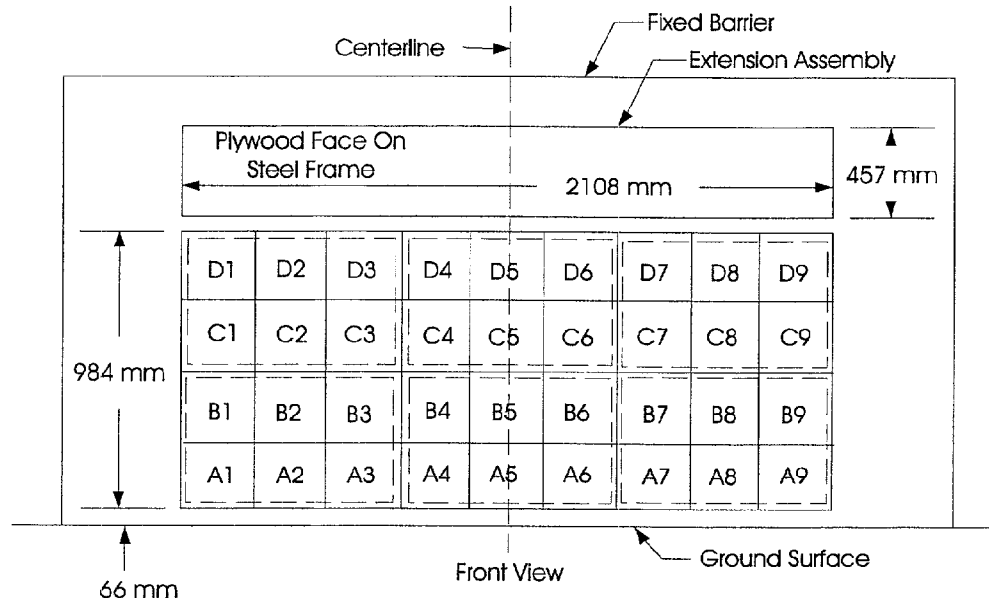
(Dimensions in millimeters)

A	463.5
B	159.8
C	1223.4
D	2237.9
E	304.1
F	1657.4
G	1006.7
H	1007.4
I	186.4
J	1543.7
K	1193.8
L	1491.5
M	611.3
N	189.4
O	1001.6
P	1006.4
Q	1489.3
R	1191.0
S	1548.9



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. : MY0201; Test Date: December 3, 1999; Technician: James A. Czarnecki

Vehicle Model Year/Make/Model: 2000 Lincoln Town Car

A. No. of vent holes: 2 -Driver 1 -Passenger

B. Size of vent holes: (mm²) 176.7 -Driver 2827.4 -Passenger

C. Total vent area: (mm²) 353.4 -Driver 5654.8 -Passenger

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

Driver: - -Length; - -Width; 525 -Diameter

Passenger: 650 -Height; 640 -Width; 260 -Depth

E. Is the air bag tethered?

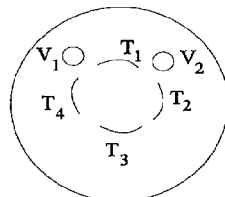
Driver: X -Yes; - -No; If yes, record length of tether- 230 mm

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

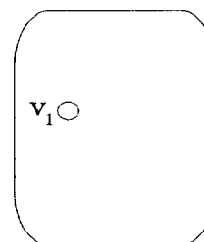
Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.

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

Driver



Passenger



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

Driver: Air bag: 1AKT301M10101

Generator: T1LD297M10051 30303566B

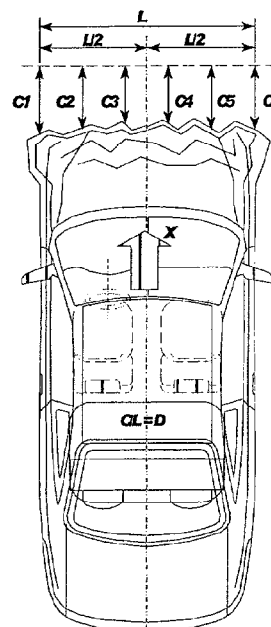
Passenger: Air bag: -

Generator: YW1A54044R74 ABZVNR T93091005

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	5478.1	4812.7	-665.4	mm
C2 =	5515.4	4843.0	-672.4	mm
C3 =	5539.6	4840.8	-698.8	mm
C4 =	5536.5	4835.8	-700.7	mm
C5 =	5512.9	4840.6	-672.3	mm
C6 =	5478.1	4821.8	-656.3	mm



Length of Damaged Region:

L1=	<u>1987</u>	mm
L2=	<u>993.5</u>	mm
L3=	662.3	mm

APPENDIX A
PHOTOGRAPHS

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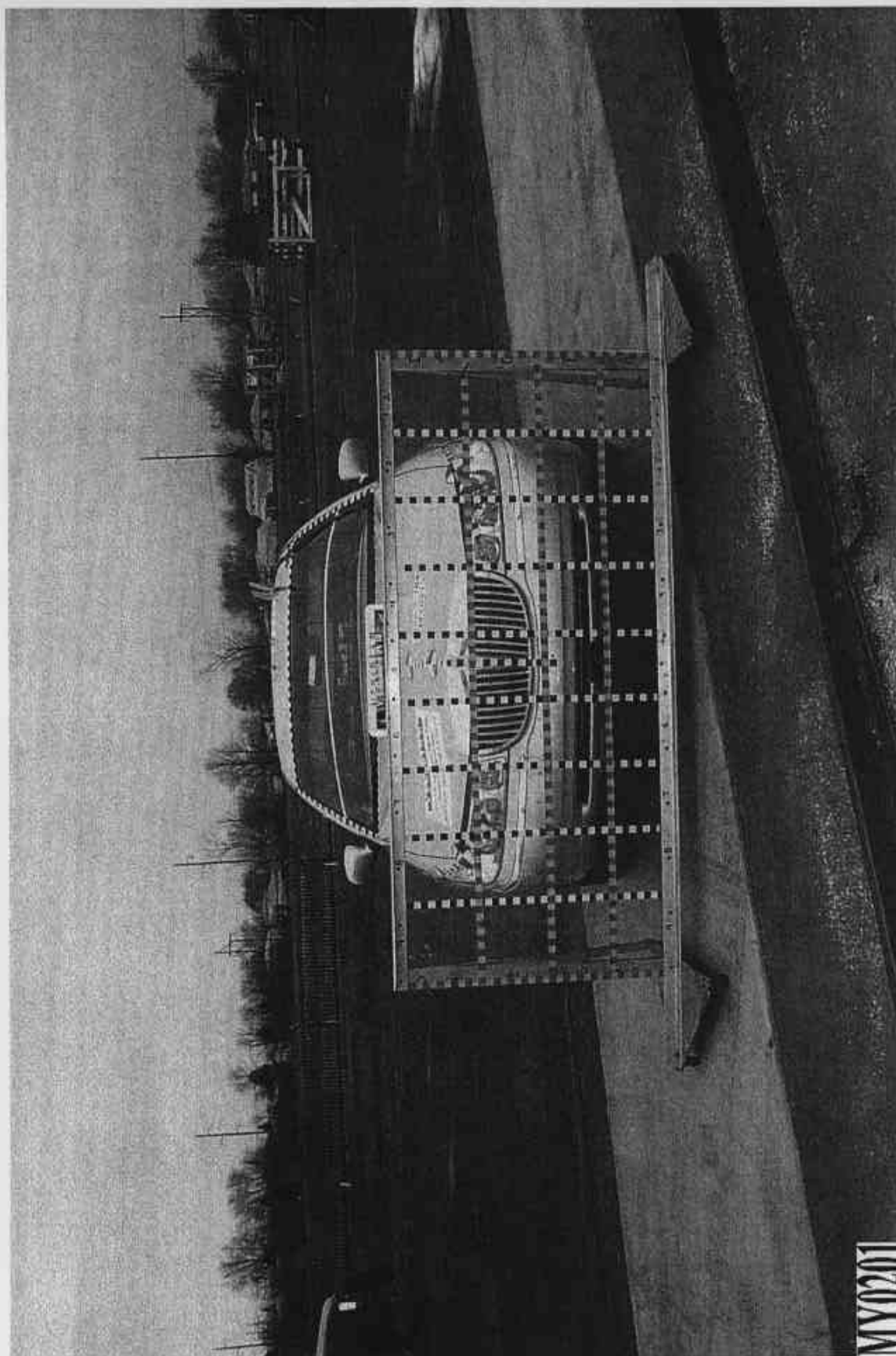


Figure A-1 LOAD CELL LOCATIONS

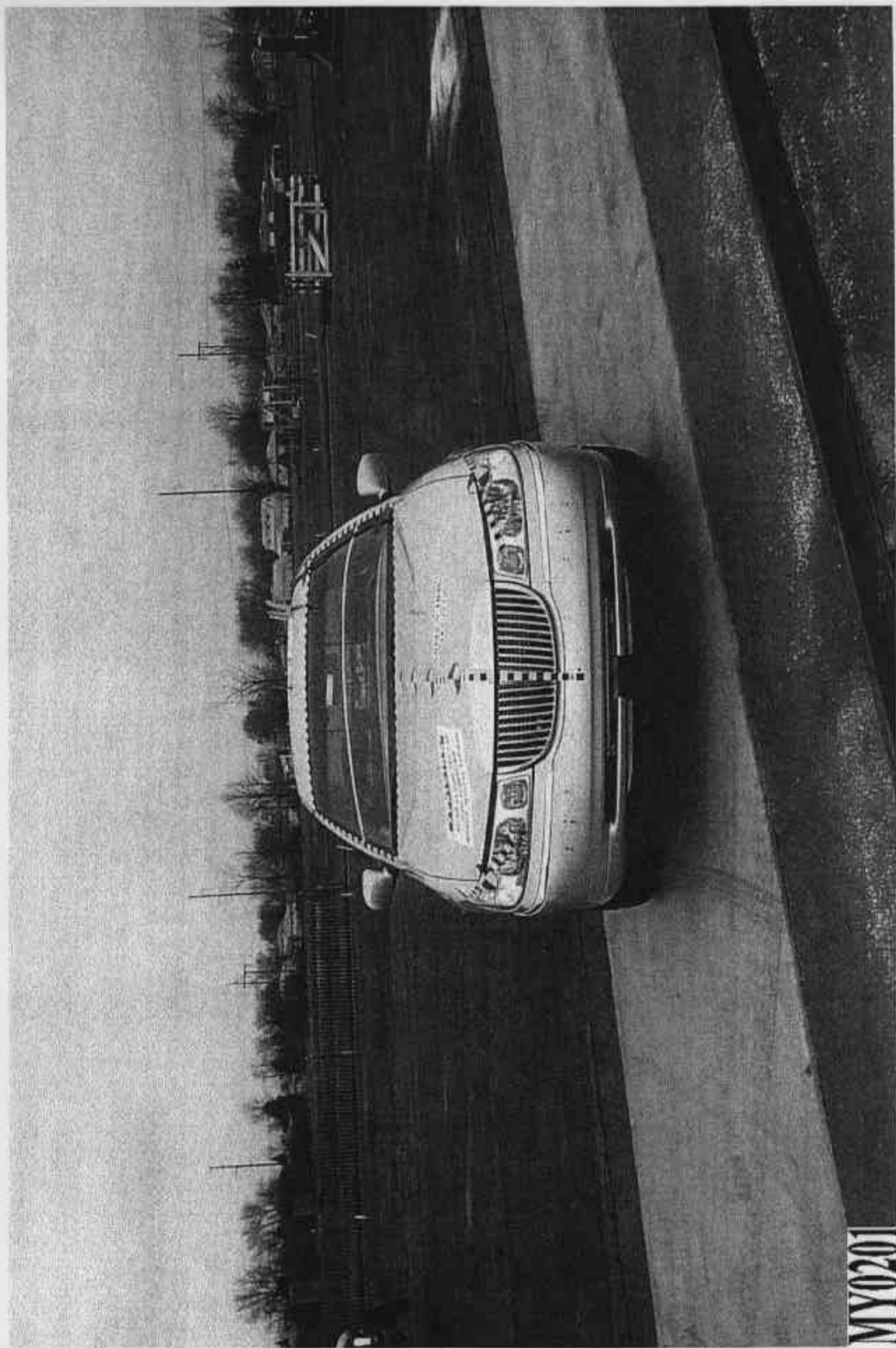


Figure A-2 PRE-TEST FRONT VIEW

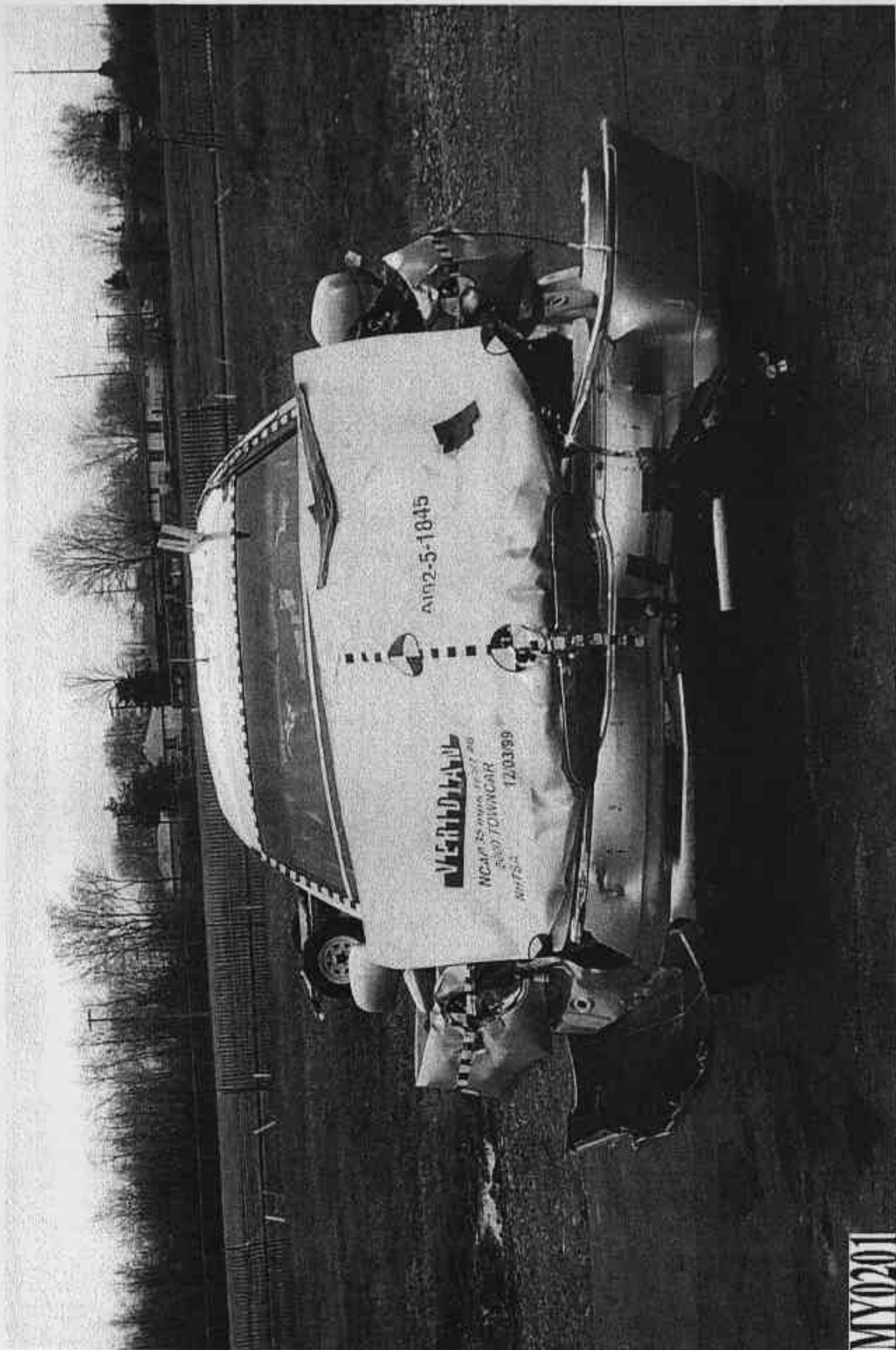


Figure A-3 POST-TEST FRONT VIEW

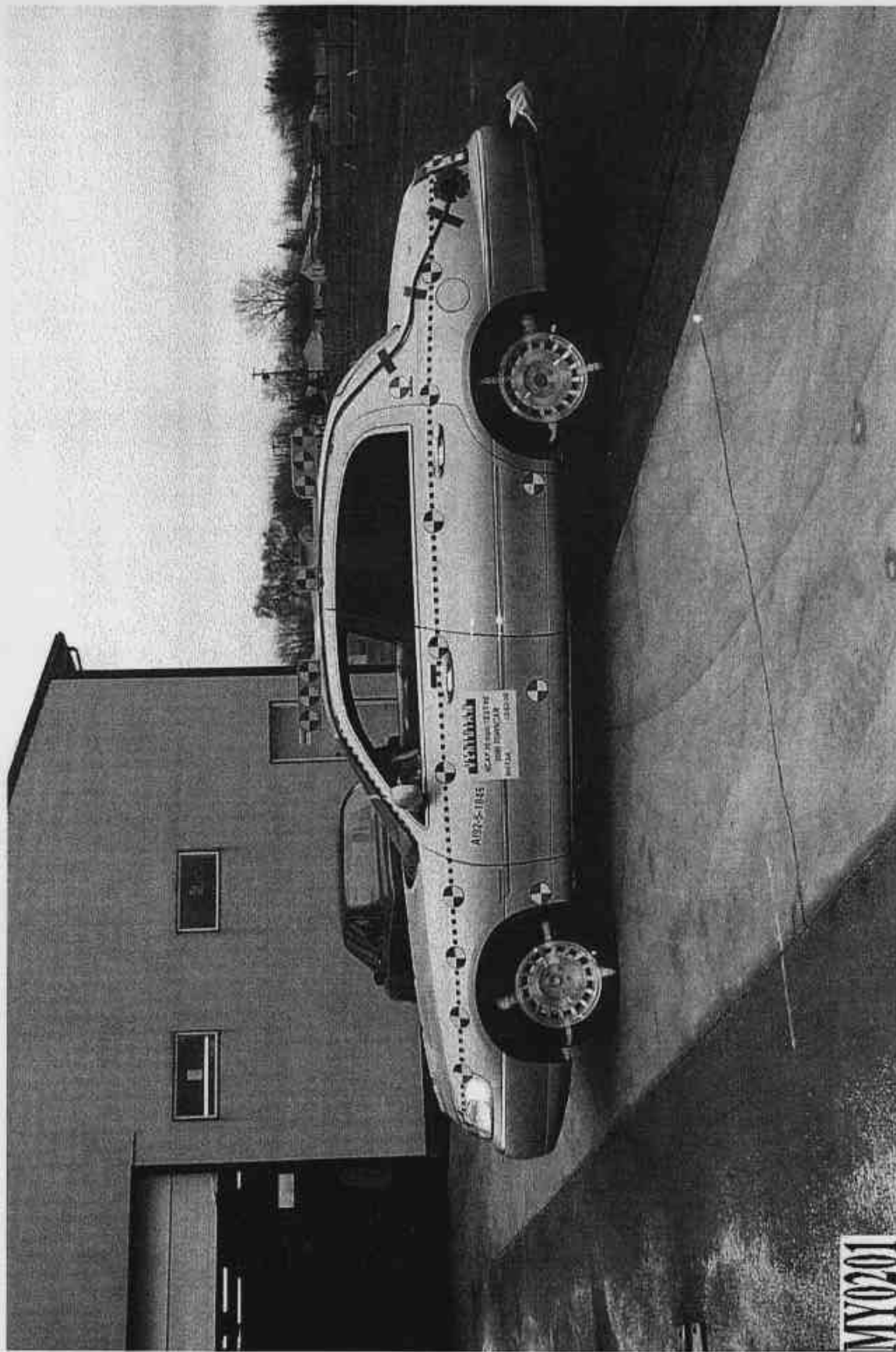


Figure A-4 PRE-TEST LEFT SIDE VIEW

MY0201

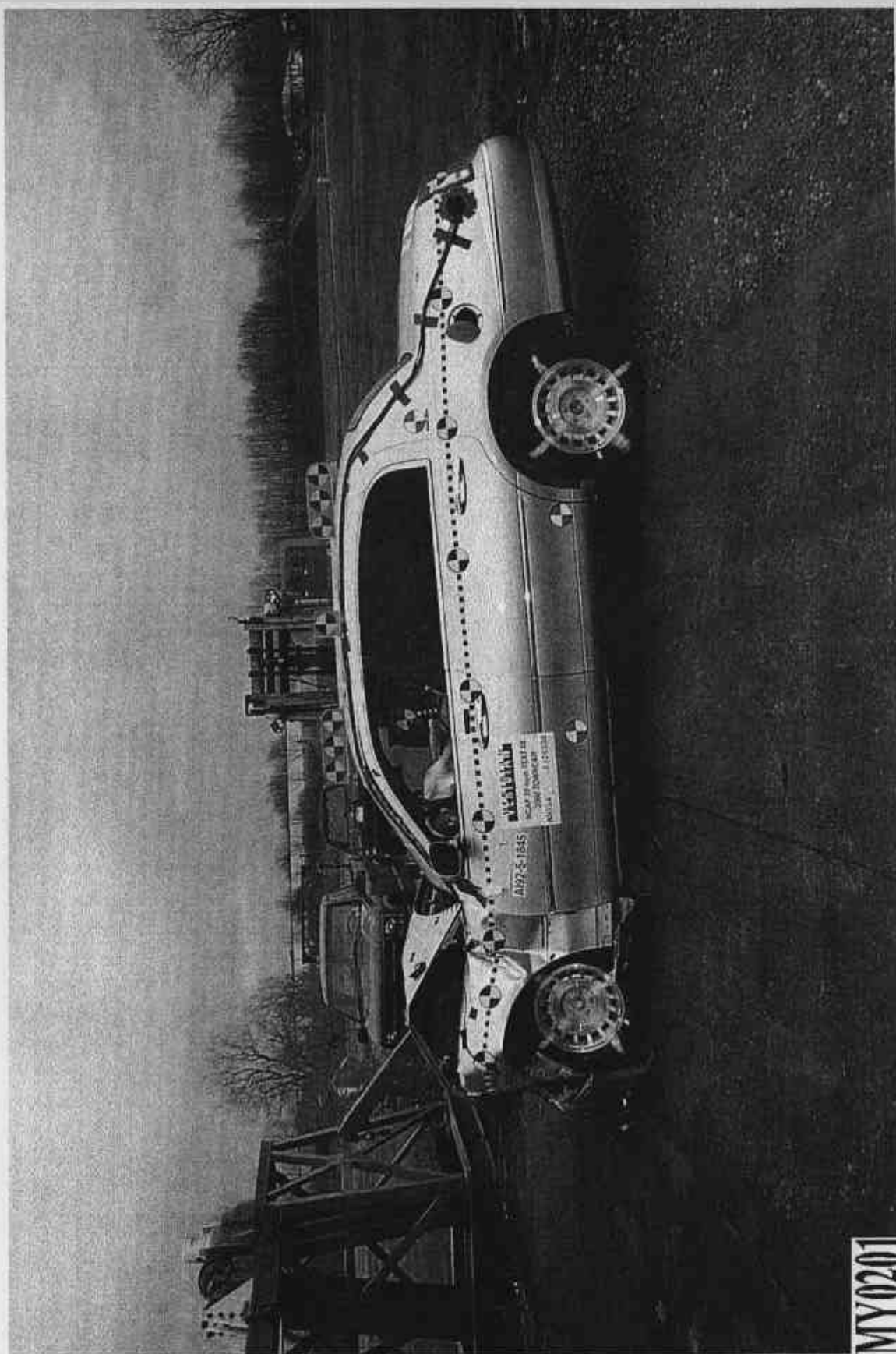


Figure A-5 POST-TEST LEFT SIDE VIEW

MY0201

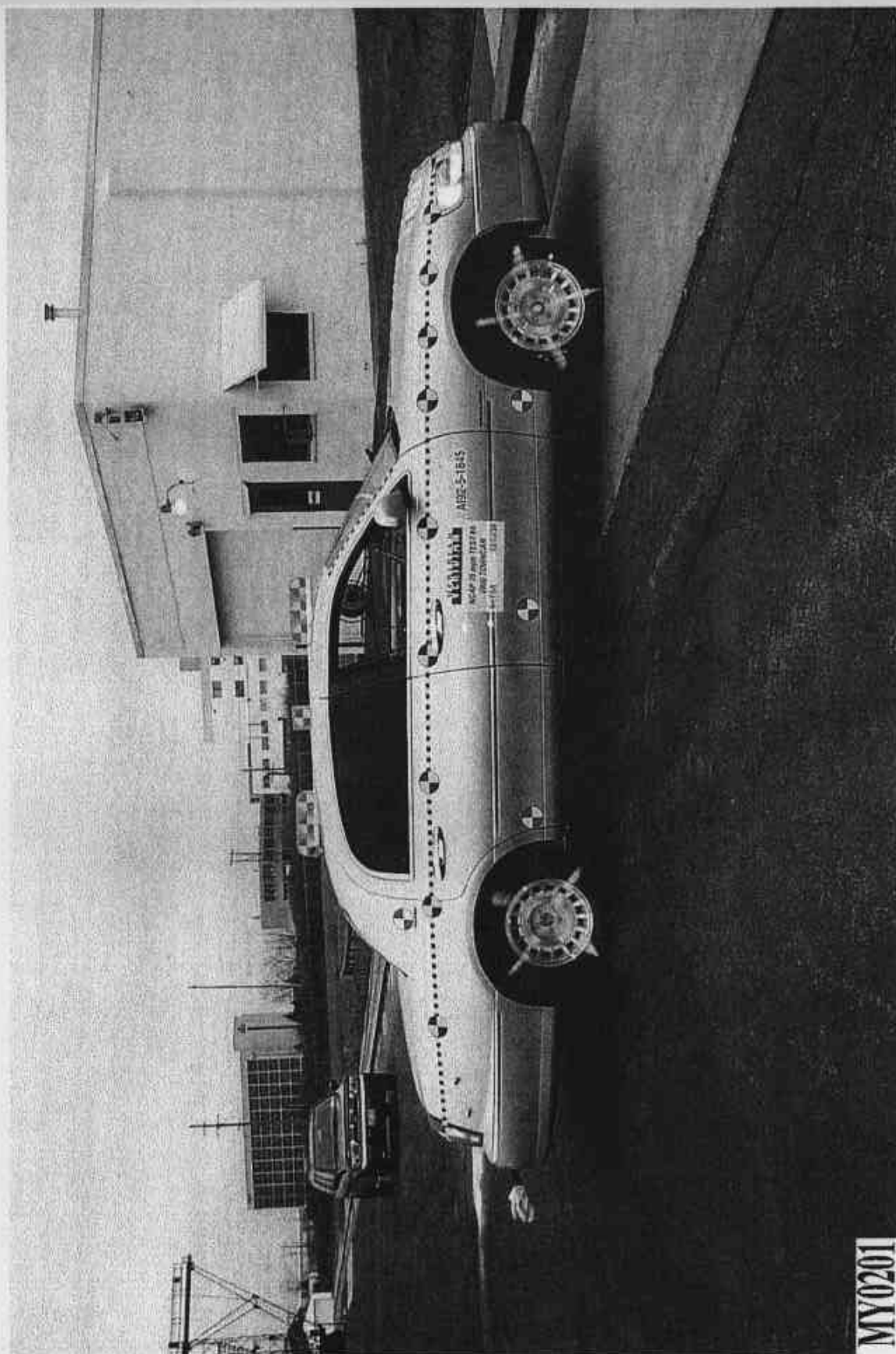


Figure A-6 PRE-TEST RIGHT SIDE VIEW

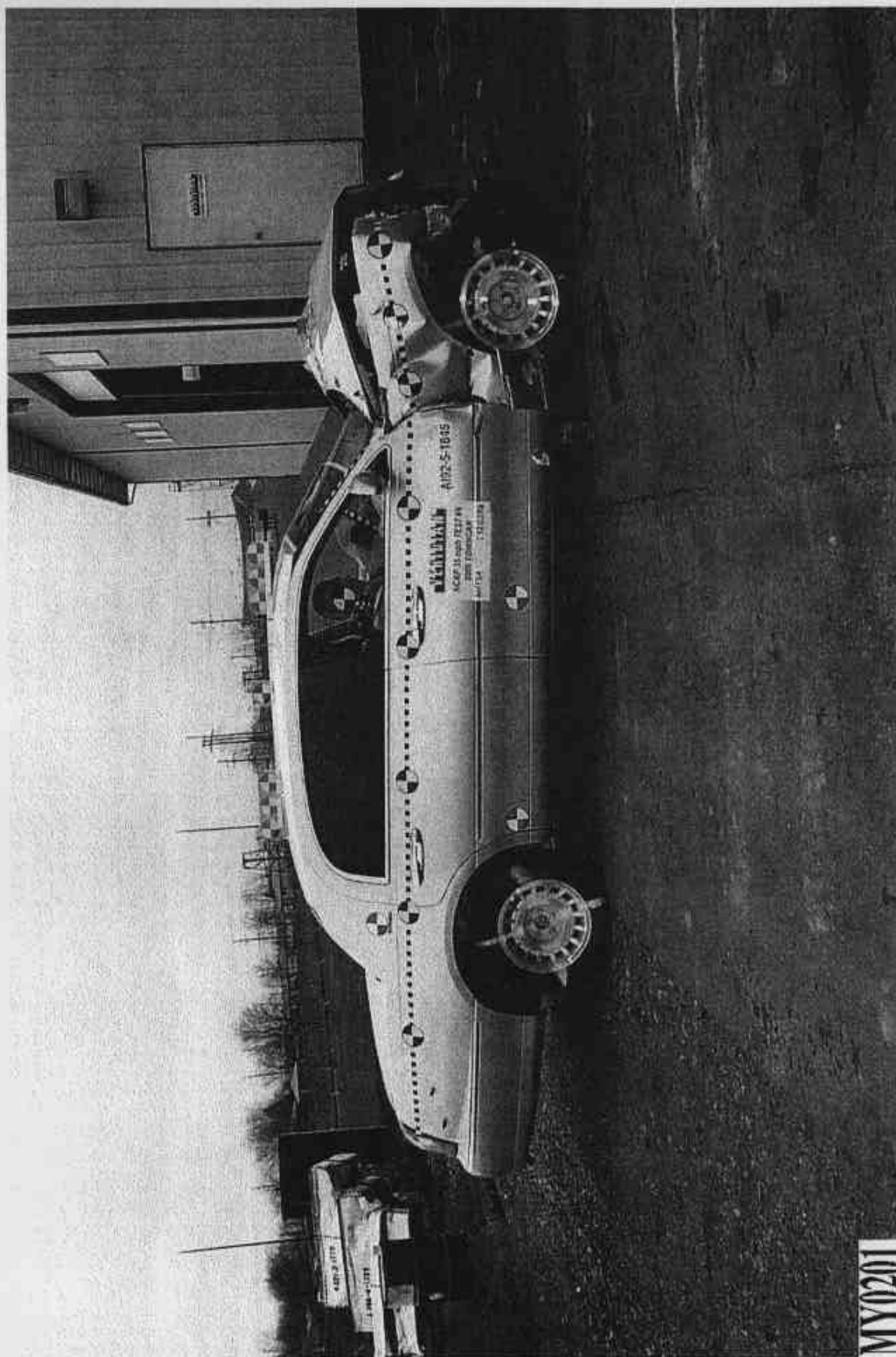


Figure A-7 POST-TEST RIGHT SIDE VIEW

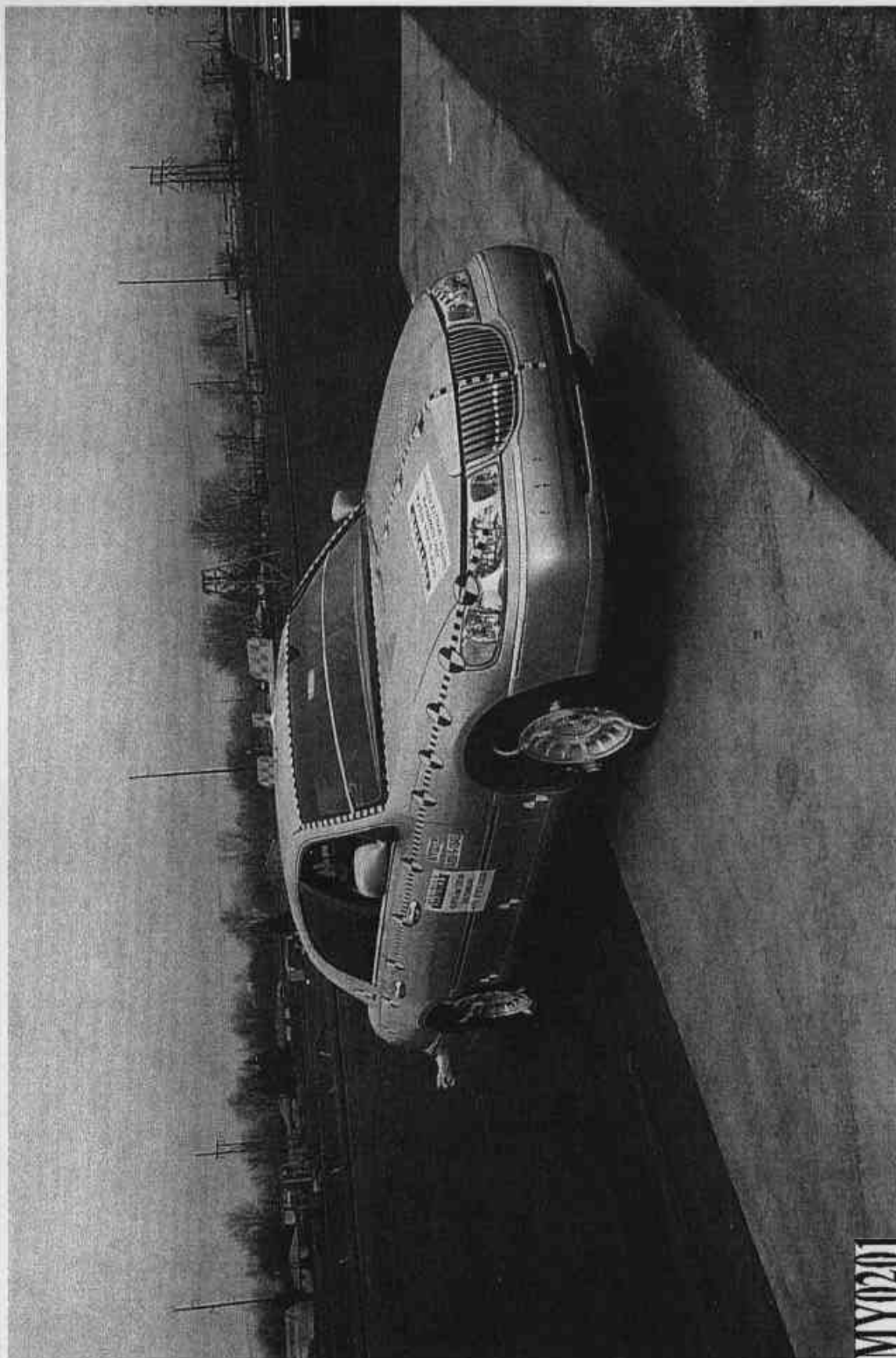


Figure A-8 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

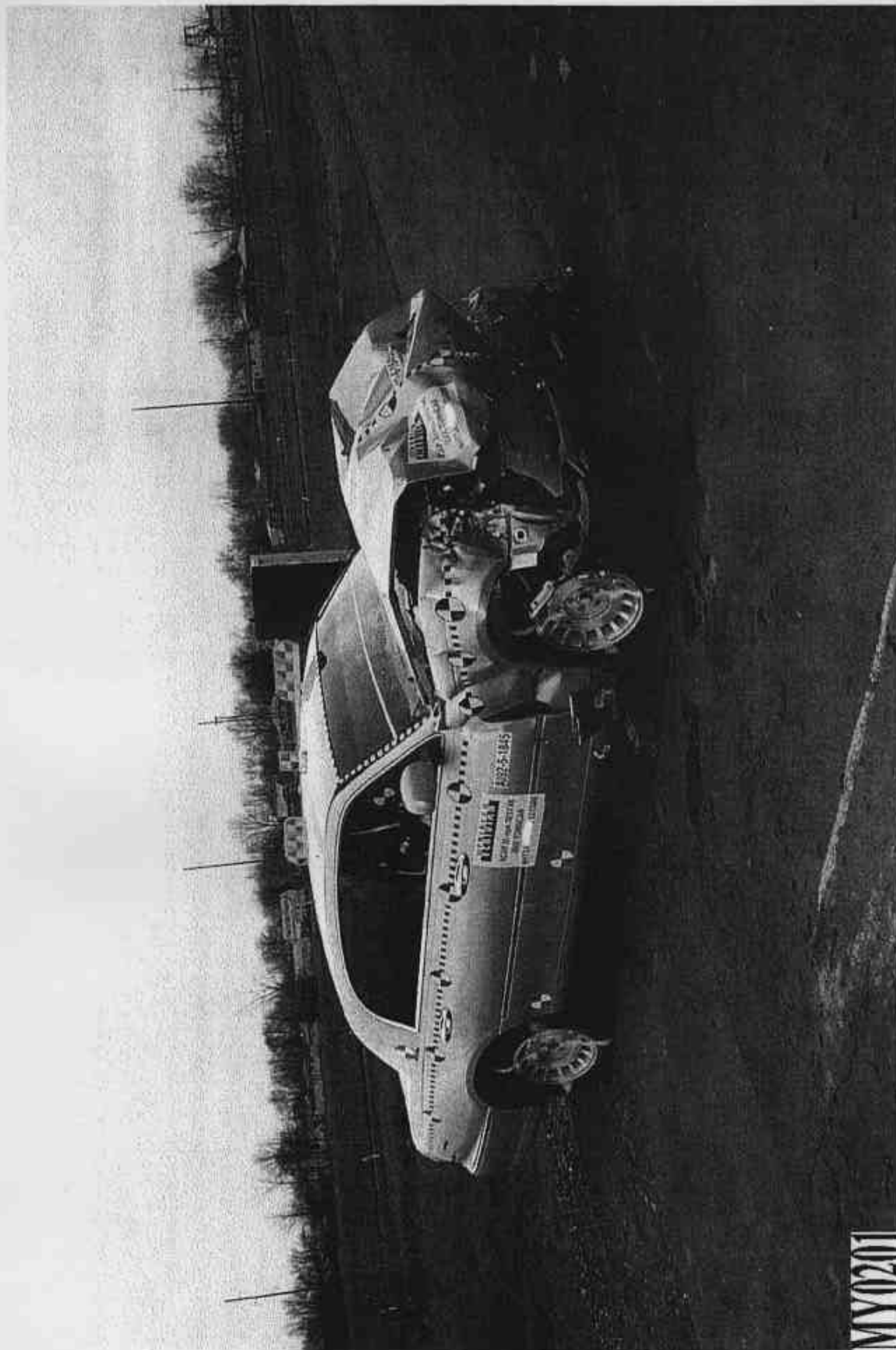


Figure A-9 POST-TEST RIGHT FRONT THREE-QUARTER VIEW

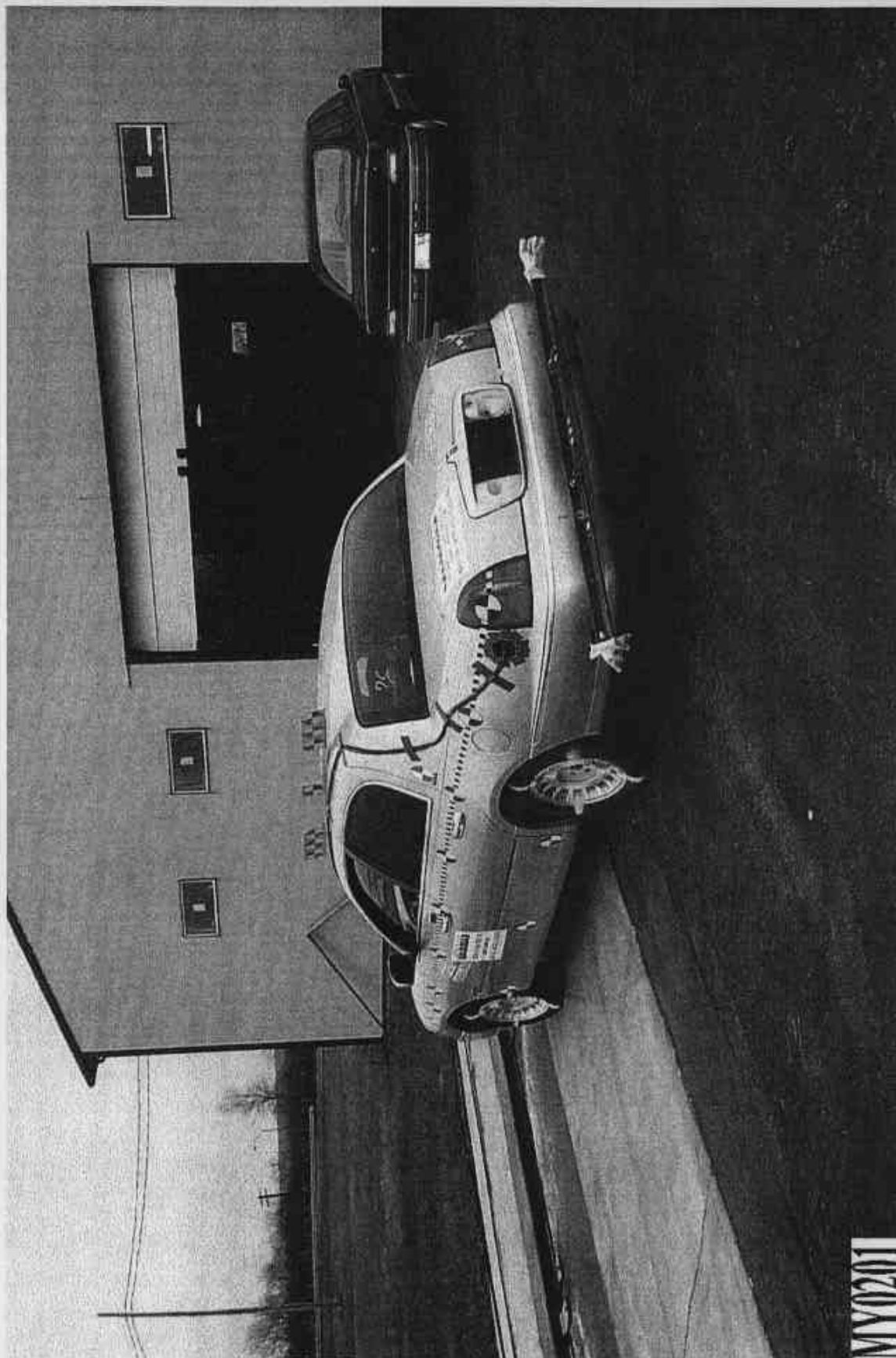
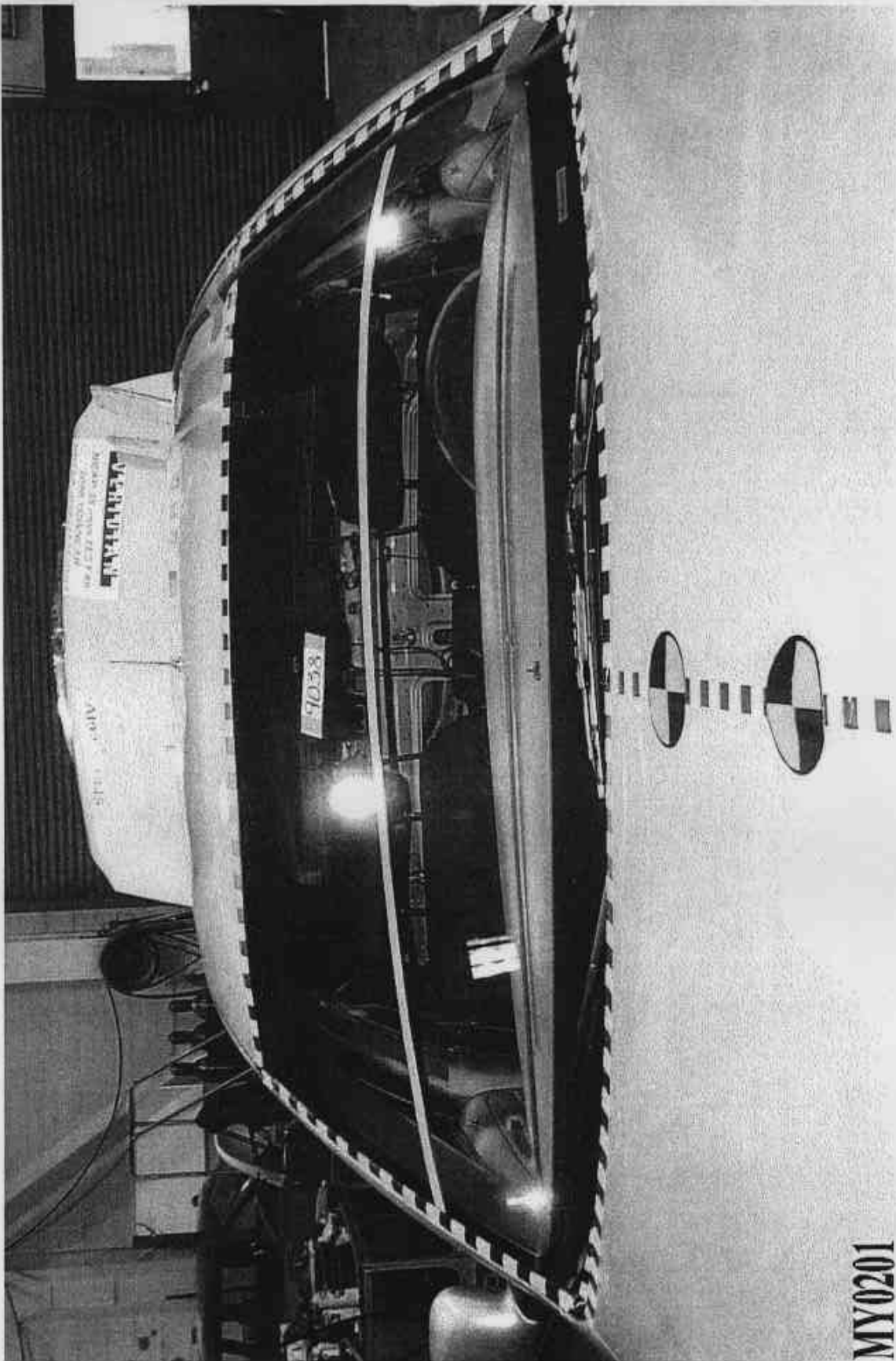


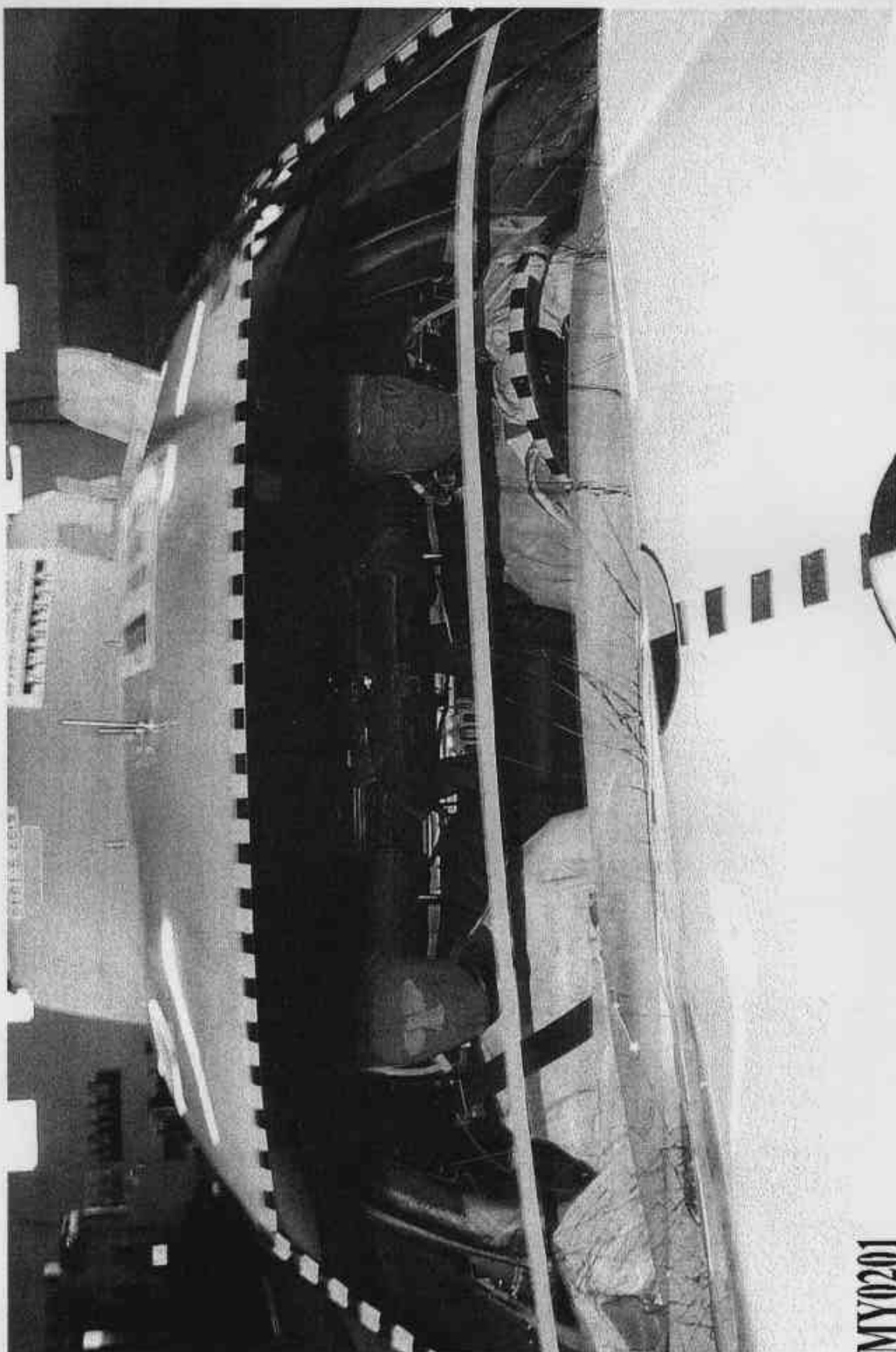
Figure A-10 PRE-TEST LEFT REAR THREE-QUARTER VIEW



MY0201

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





MY0201

Figure A-13 POST-TEST WINDSHIELD VIEW

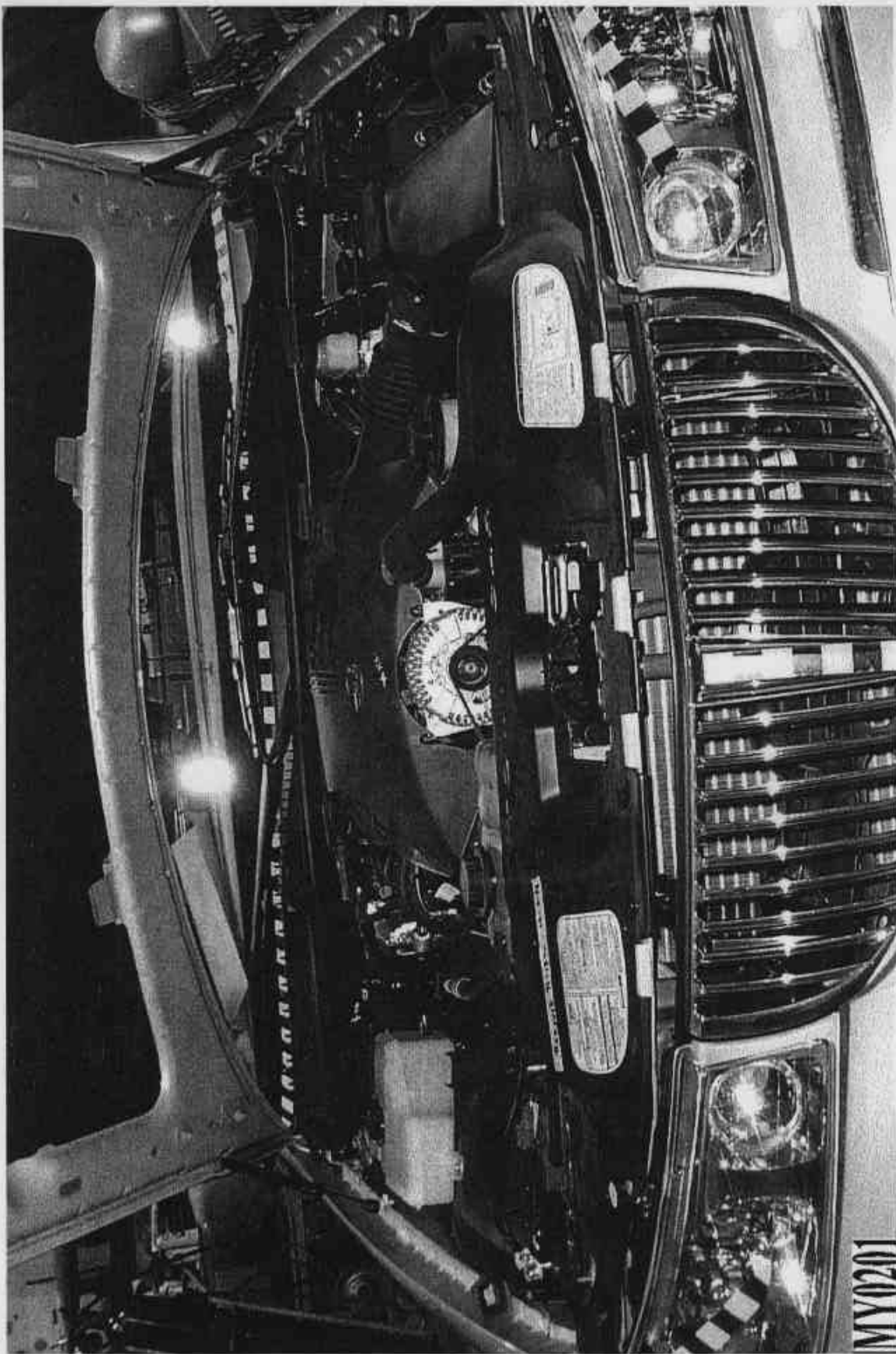


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

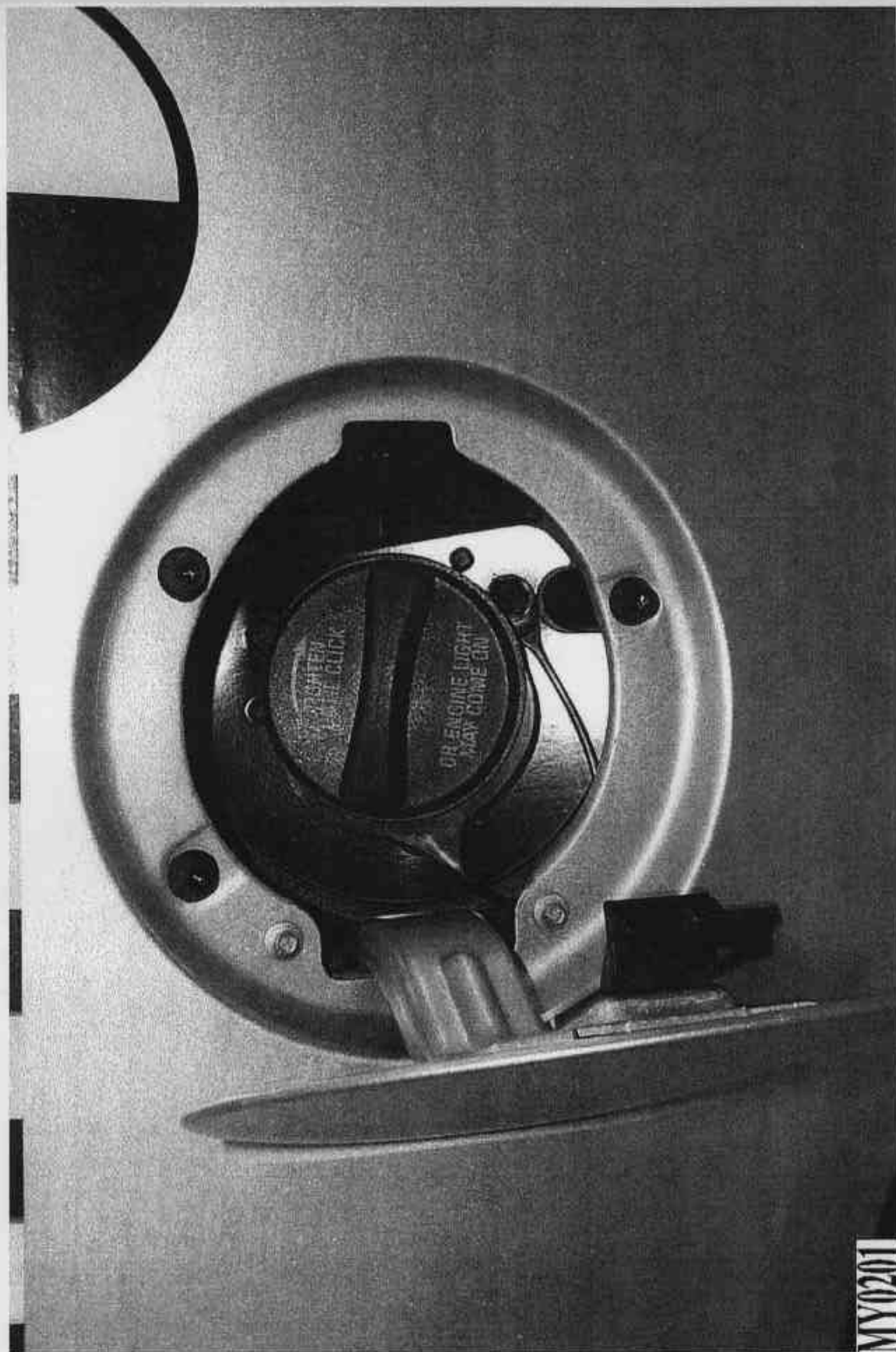


Figure A-15 FUEL CAP VIEW

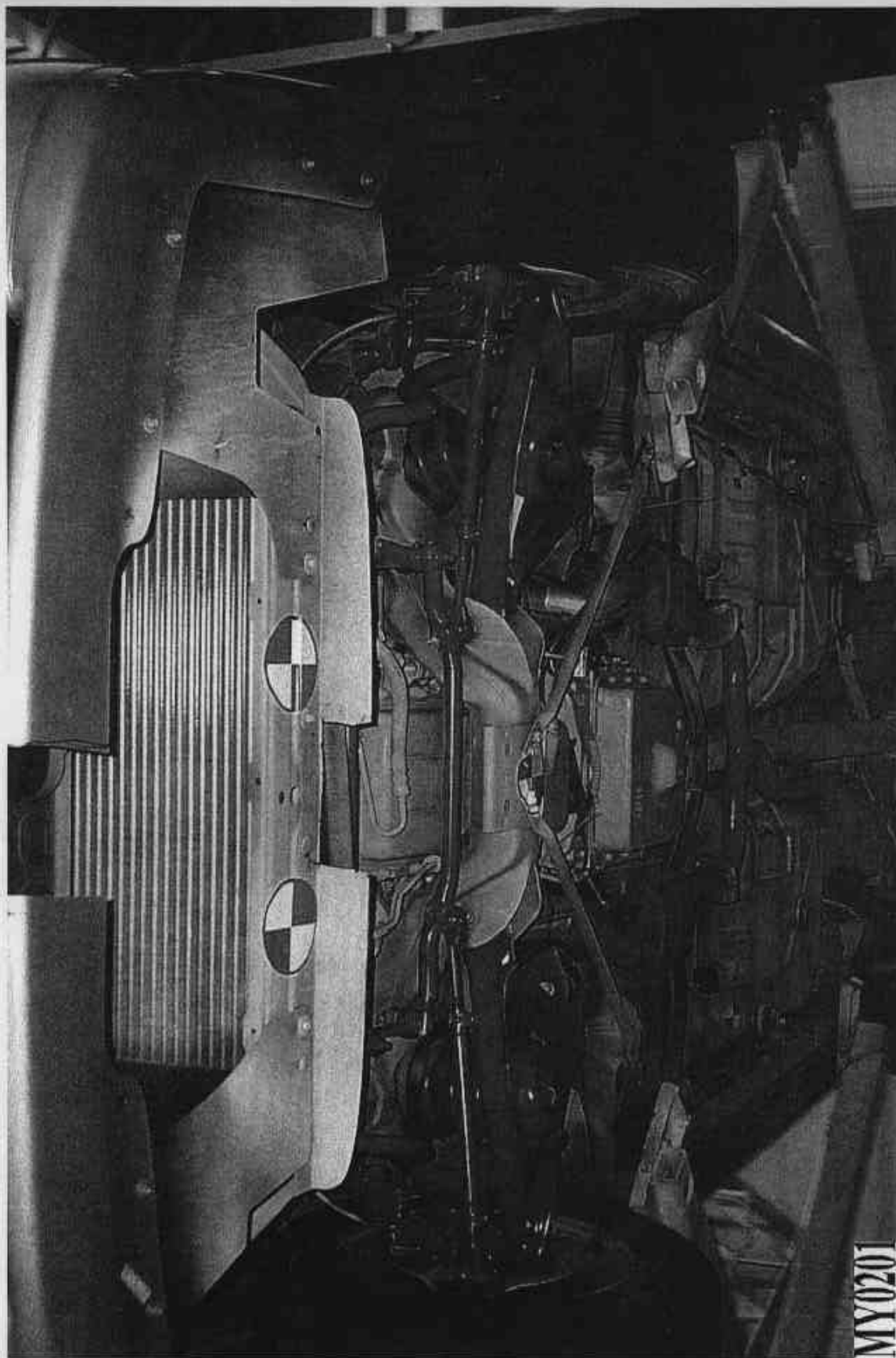


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

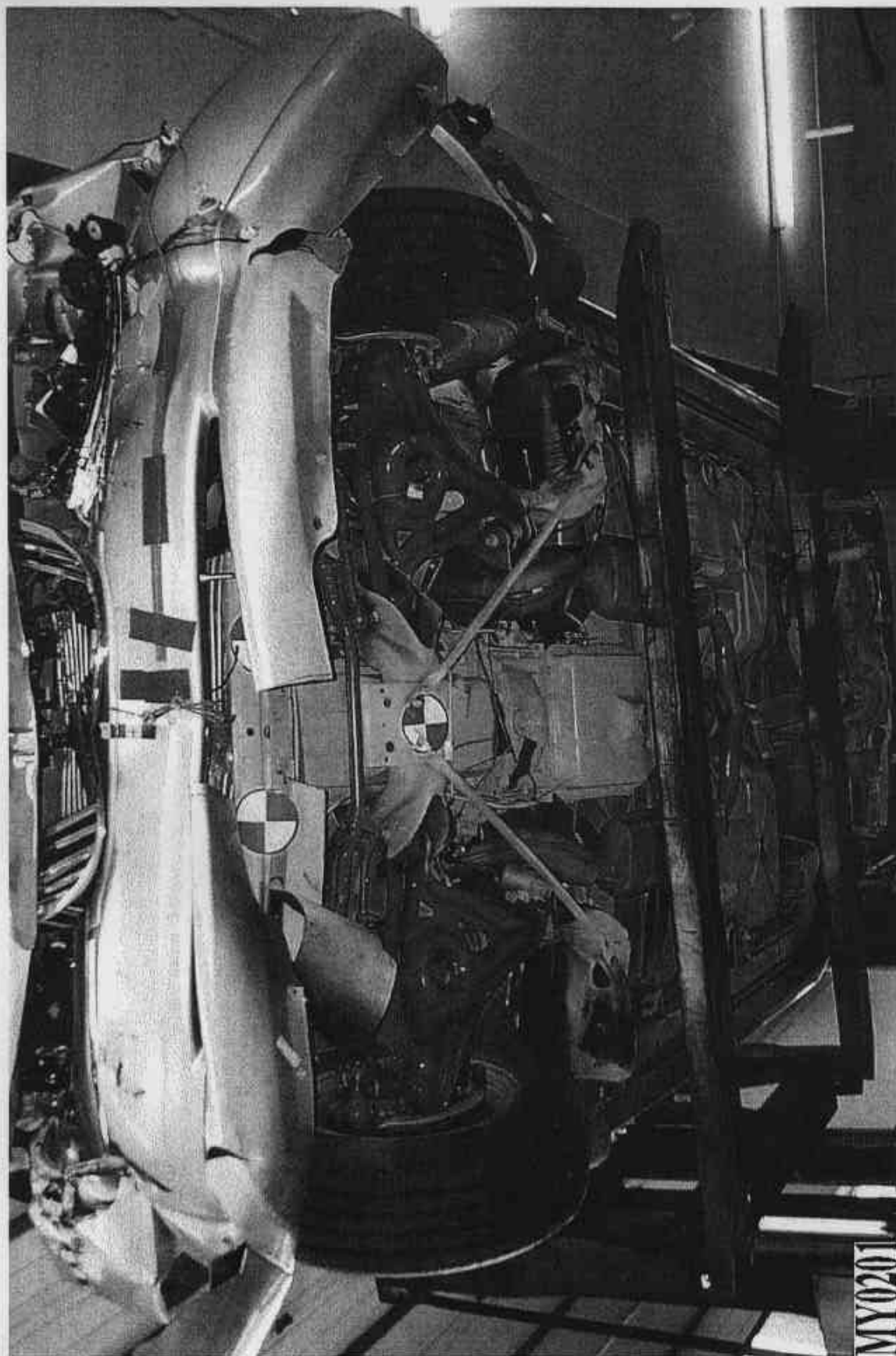


Figure A-17 POST-TEST FRONT UNDERBODY VIEW



Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW



Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

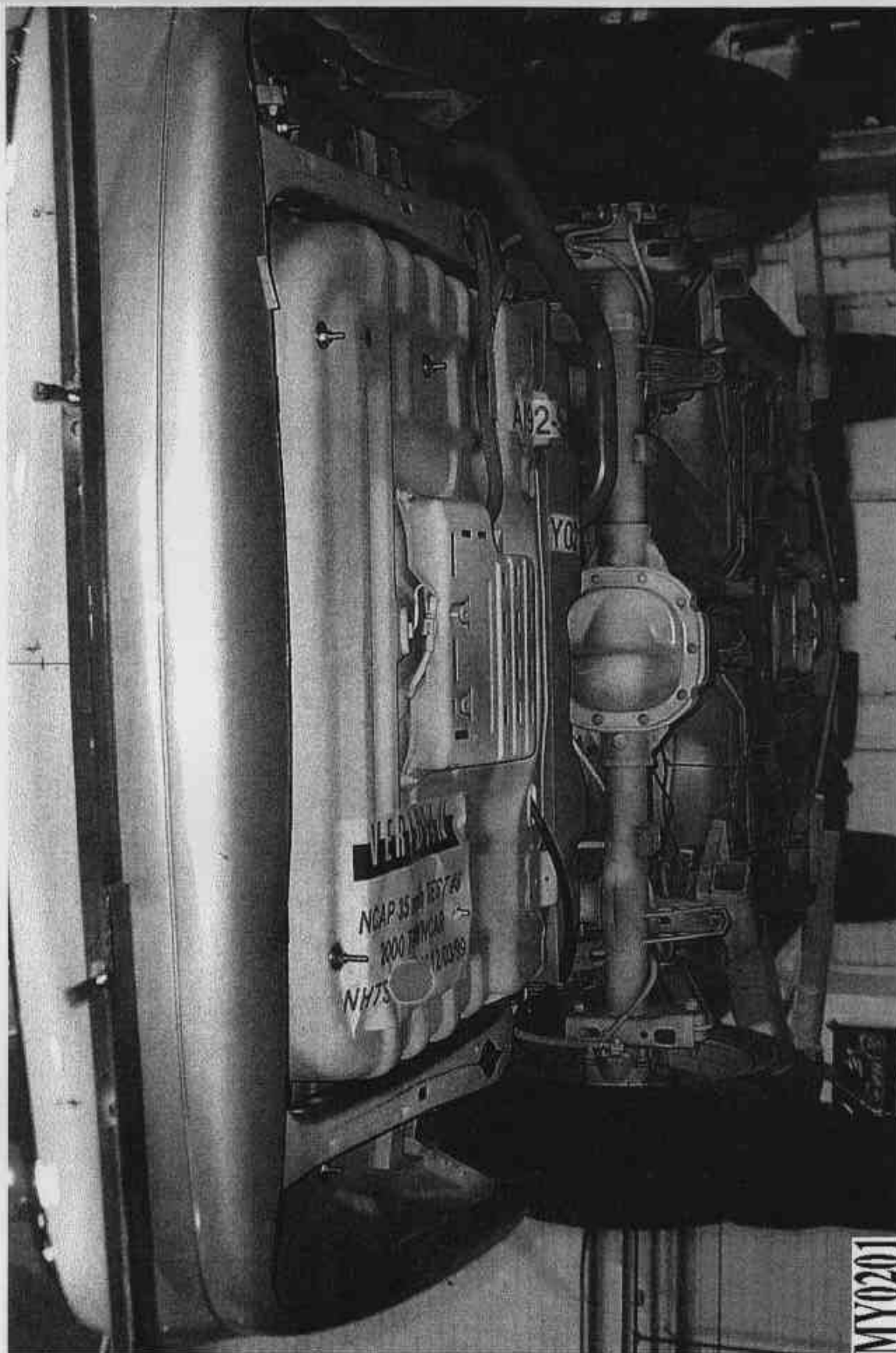


Figure A-20 PRE-TEST REAR UNDERBODY VIEW



Figure A-21 POST-TEST REAR UNDERBODY VIEW

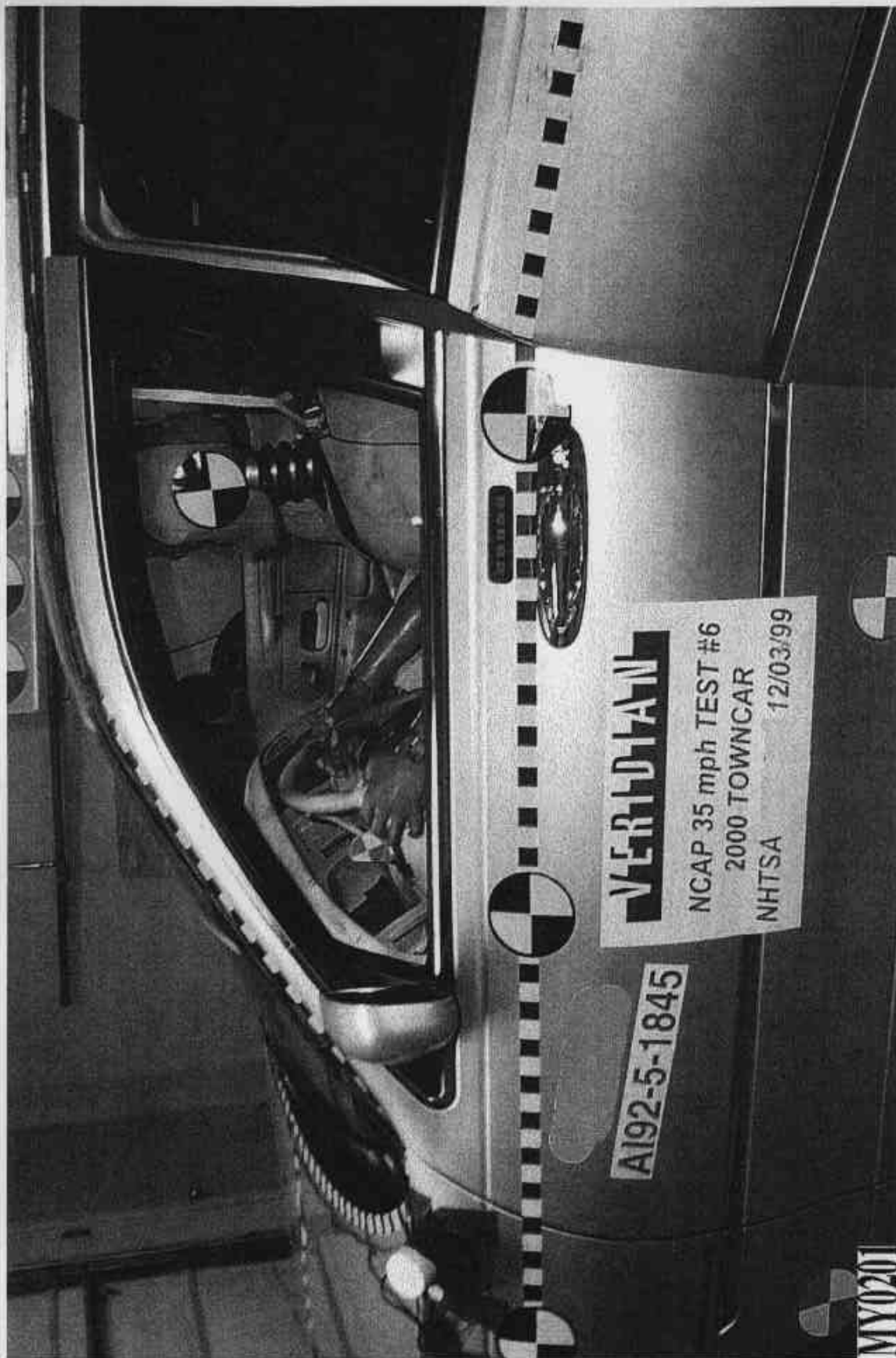


Figure A-22 PRE-TEST DRIVER POSITION VIEW

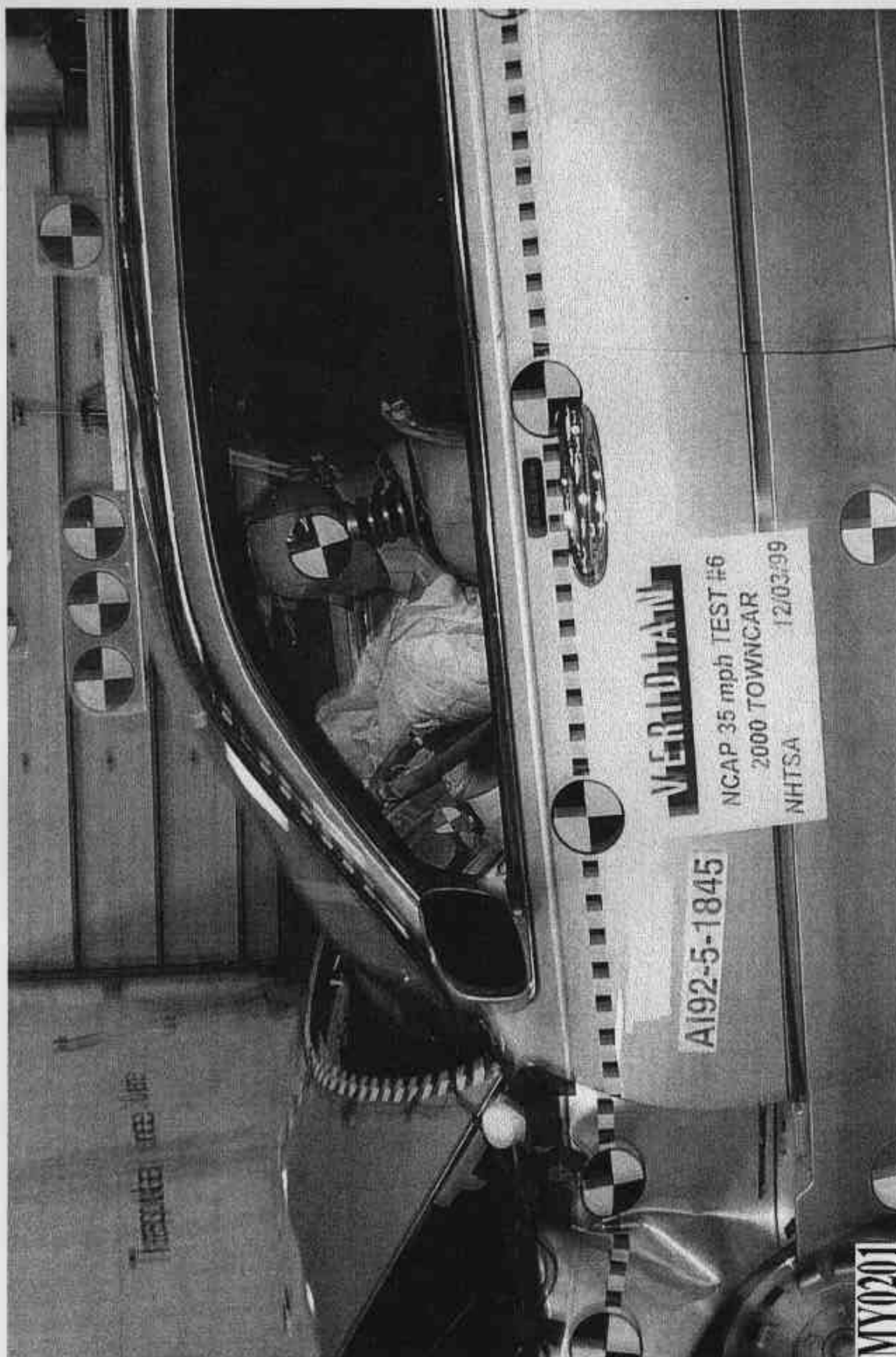


Figure A-23 POST-TEST DRIVER POSITION VIEW

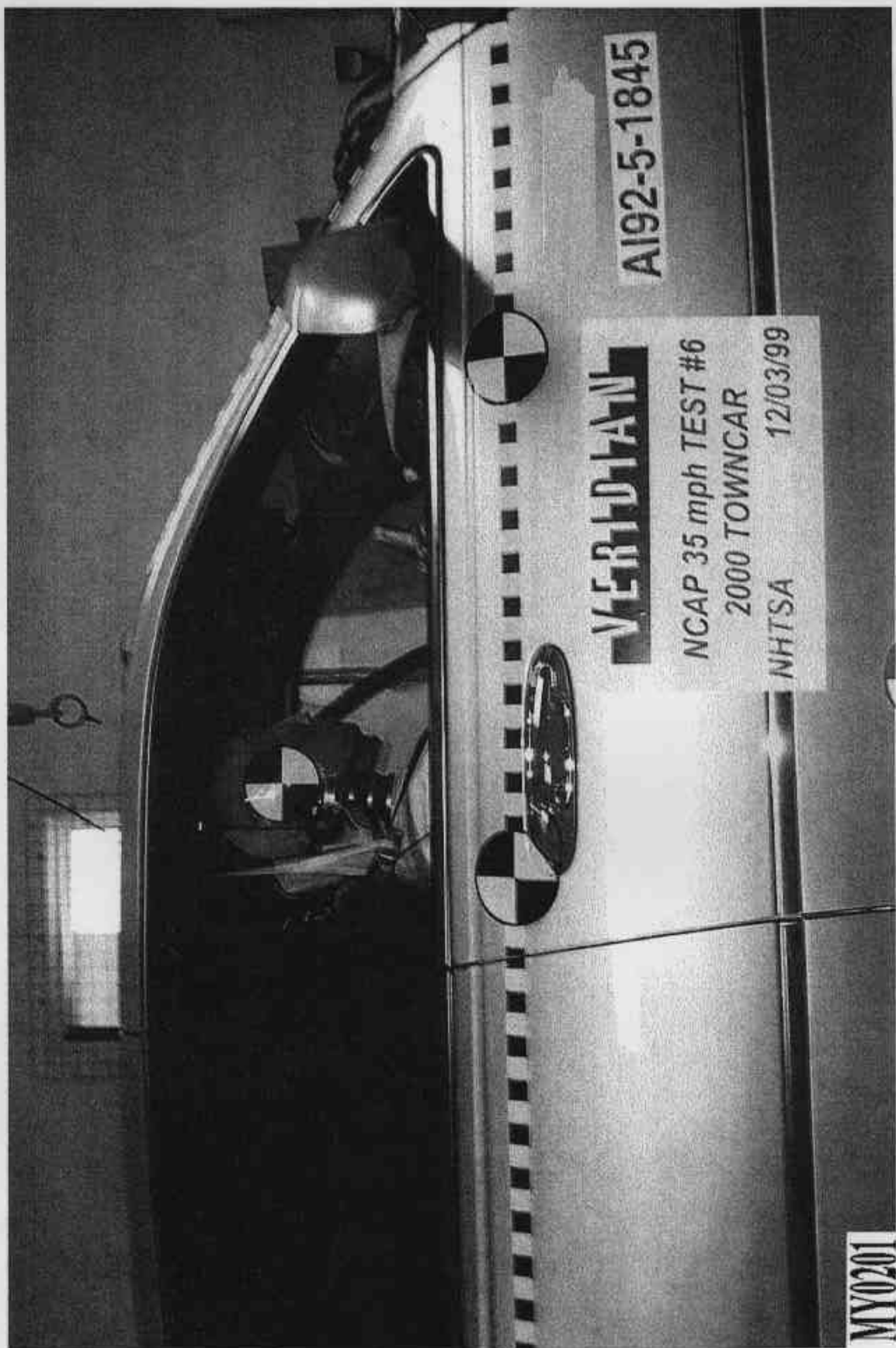


Figure A-24 PRE-TEST PASSENGER POSITION VIEW

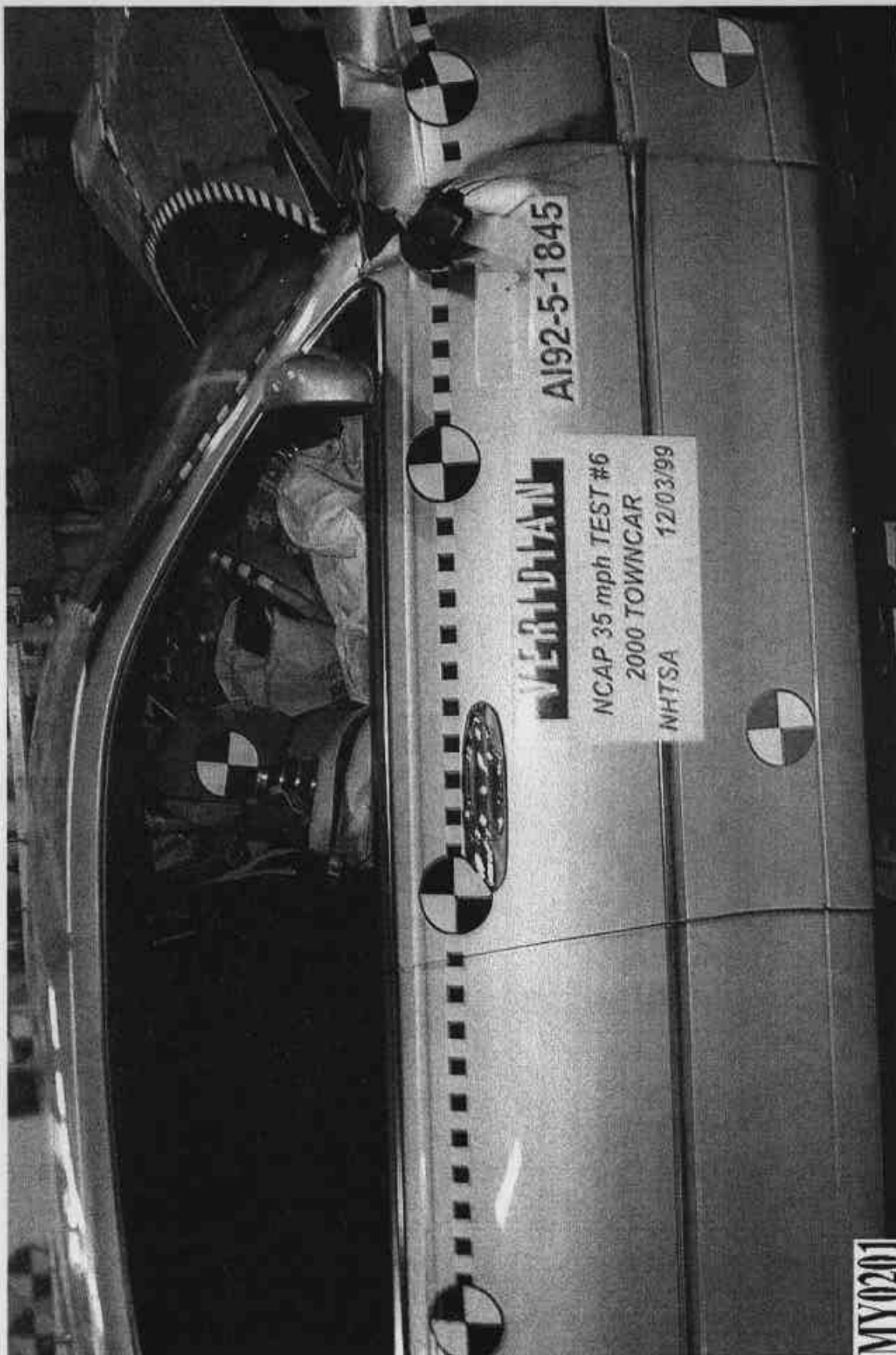


Figure A-25 POST-TEST PASSENGER POSITION VIEW



Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

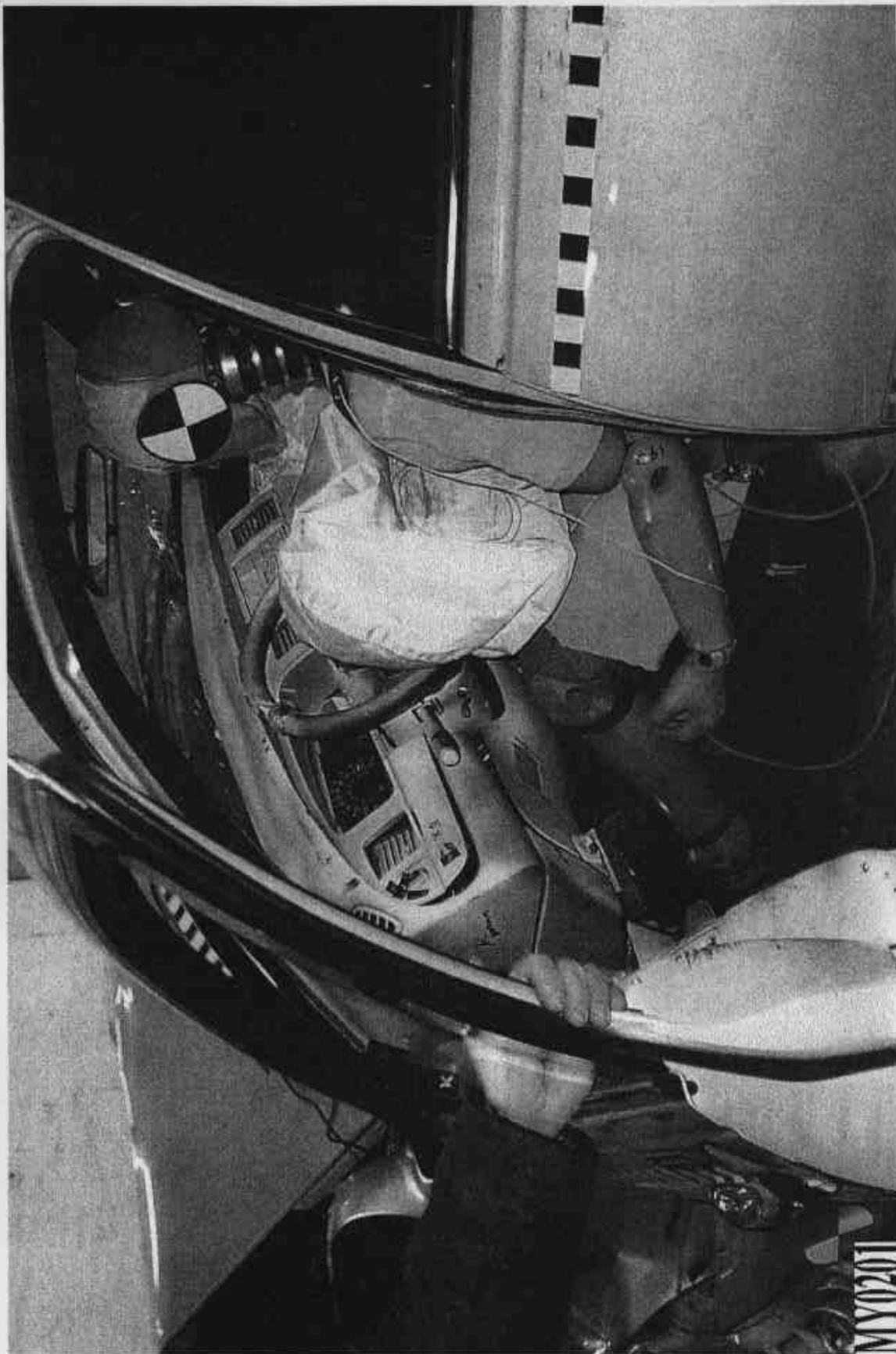


Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW



Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW



Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

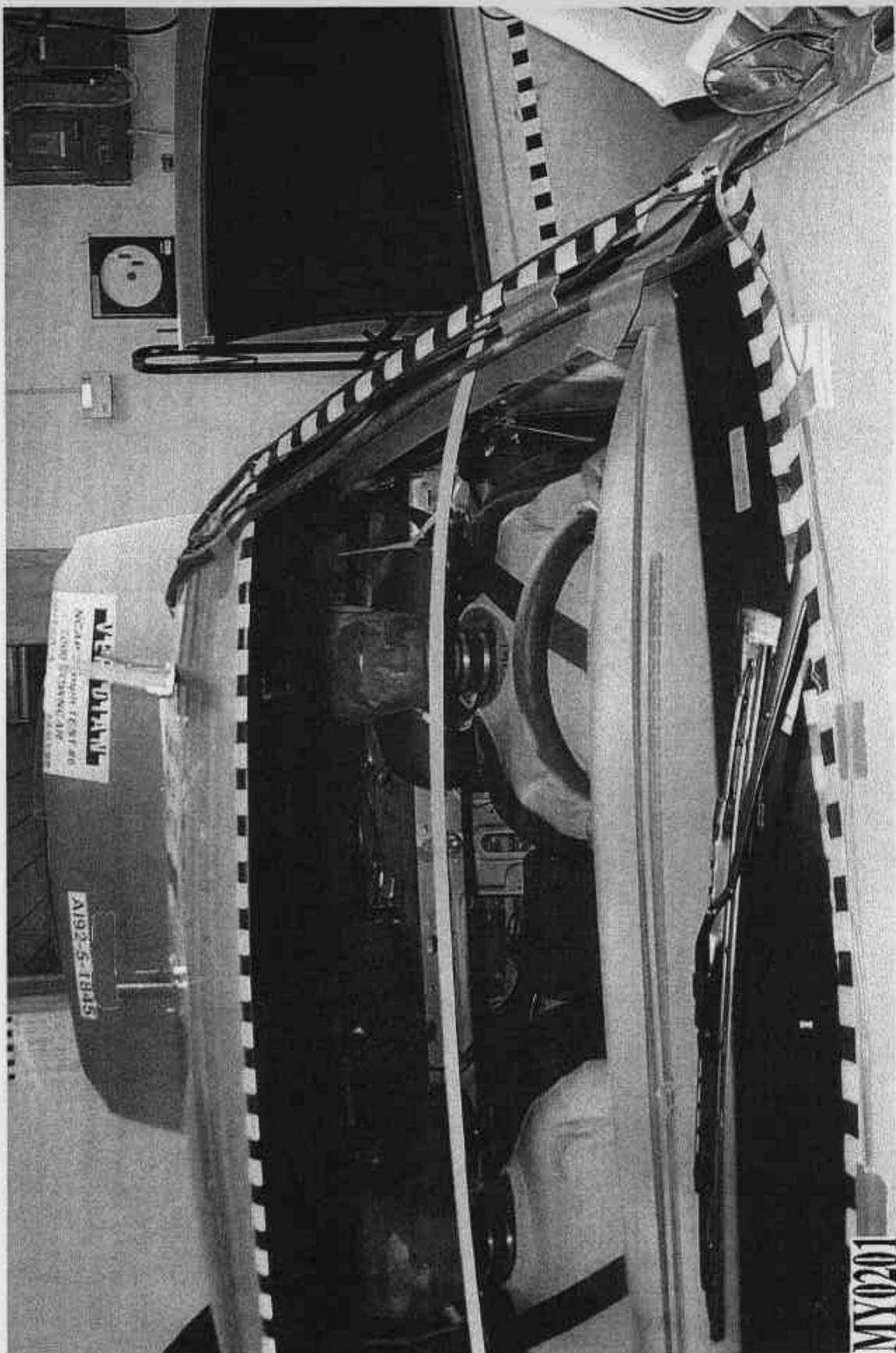
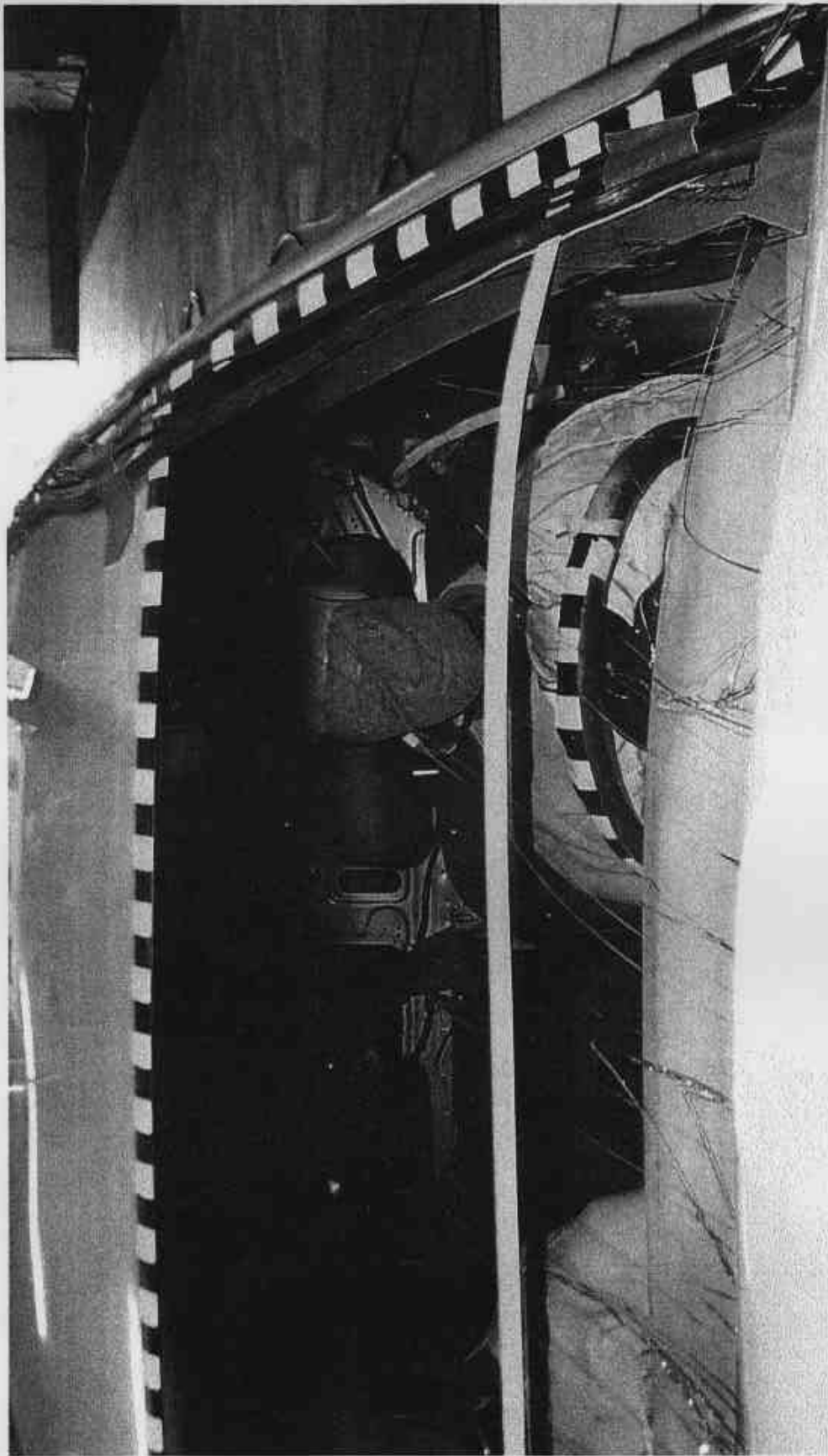
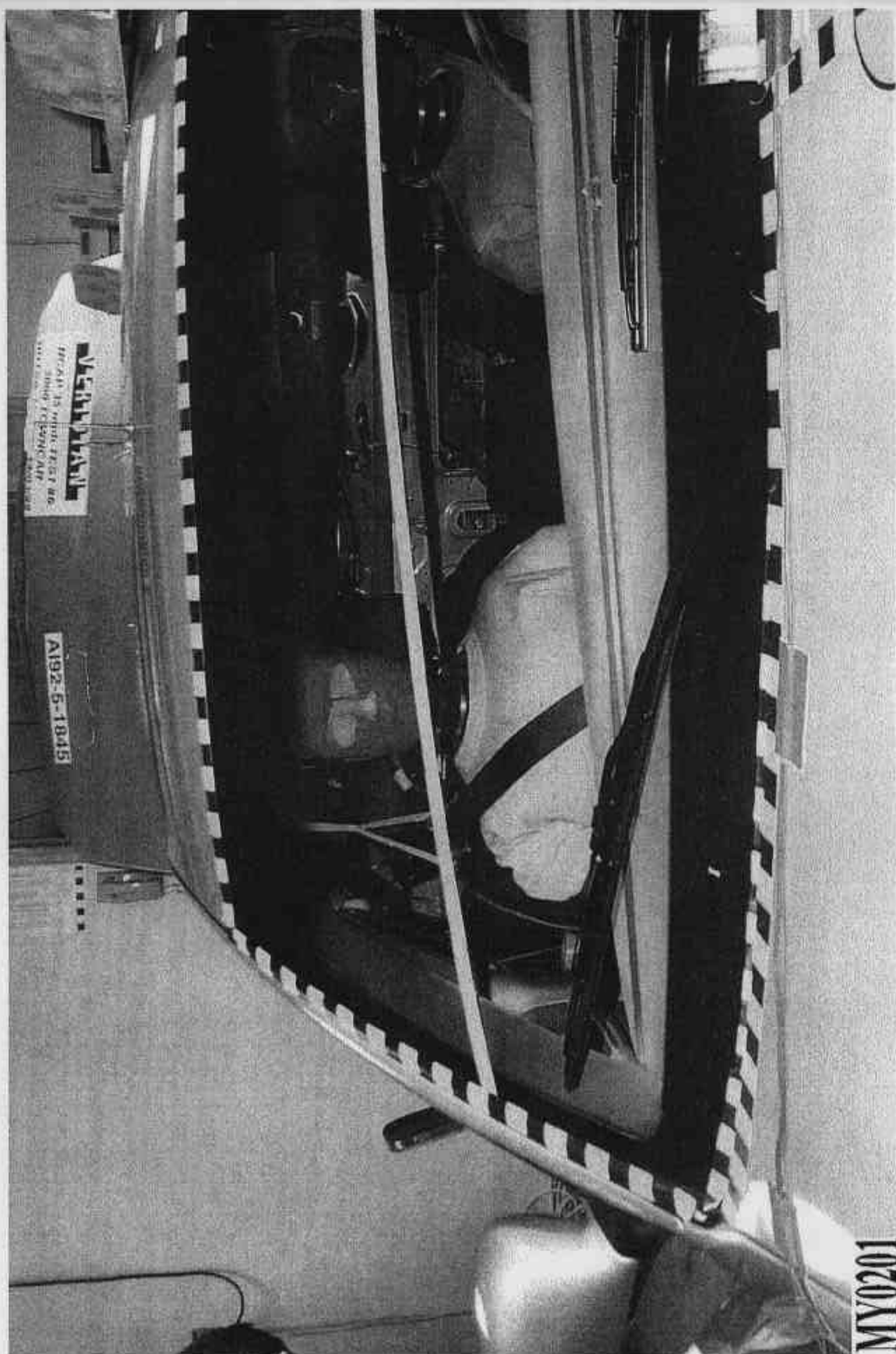


Figure A-30 PRE-TEST DRIVER HEAD LOCATION



MY0201

Figure A-31 POST-TEST DRIVER HEAD LOCATION



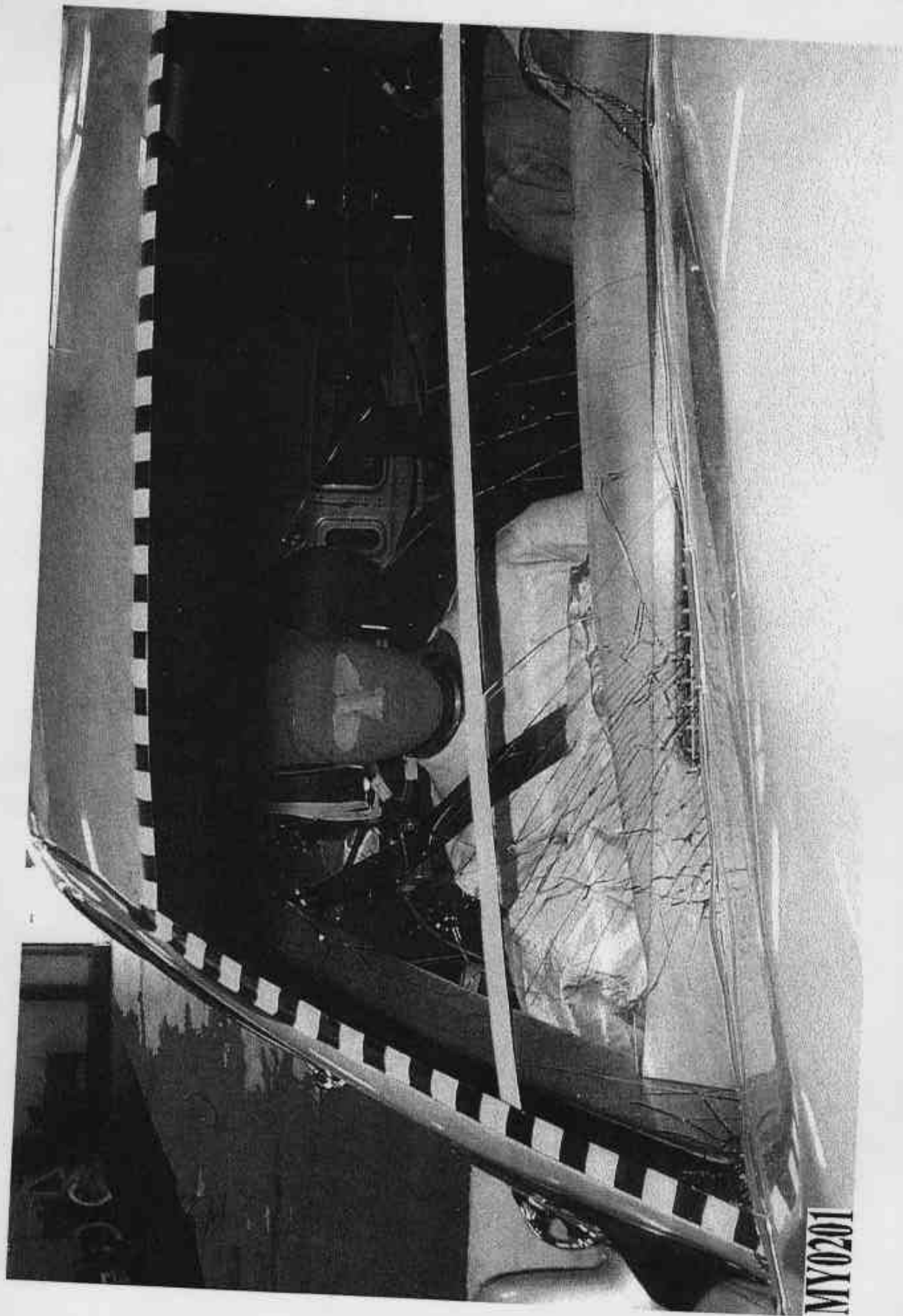


Figure A-33 POST-TEST PASSENGER HEAD LOCATION



Figure A-34 PRE-TEST DRIVER FLOOR PAN VIEW



Figure A-35 POST-TEST DRIVER FLOOR PAN VIEW

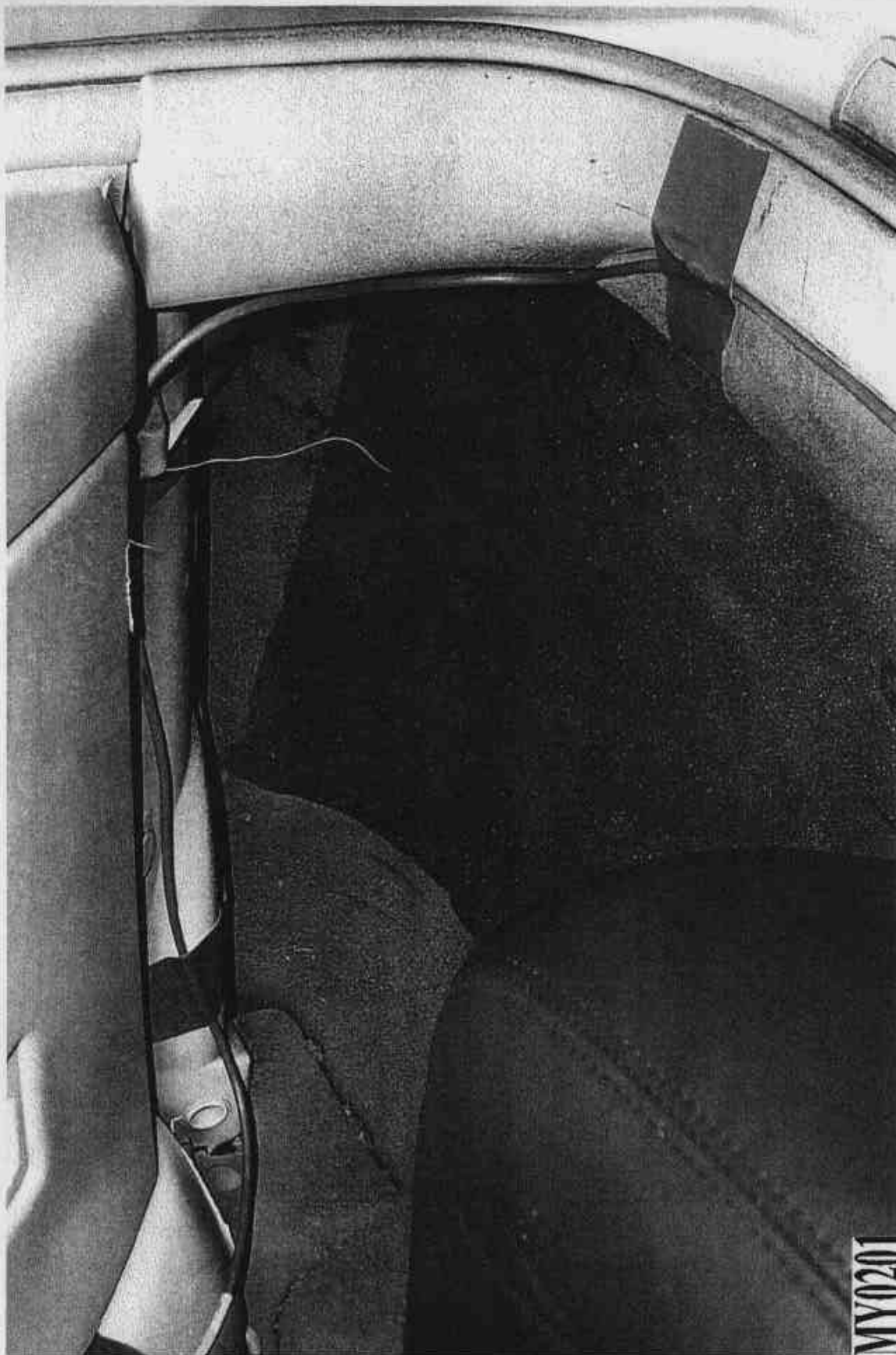


Figure A-36 PRE-TEST PASSENGER FLOOR PAN VIEW



Figure A-37 POST-TEST PASSENGER FLOOR PAN VIEW

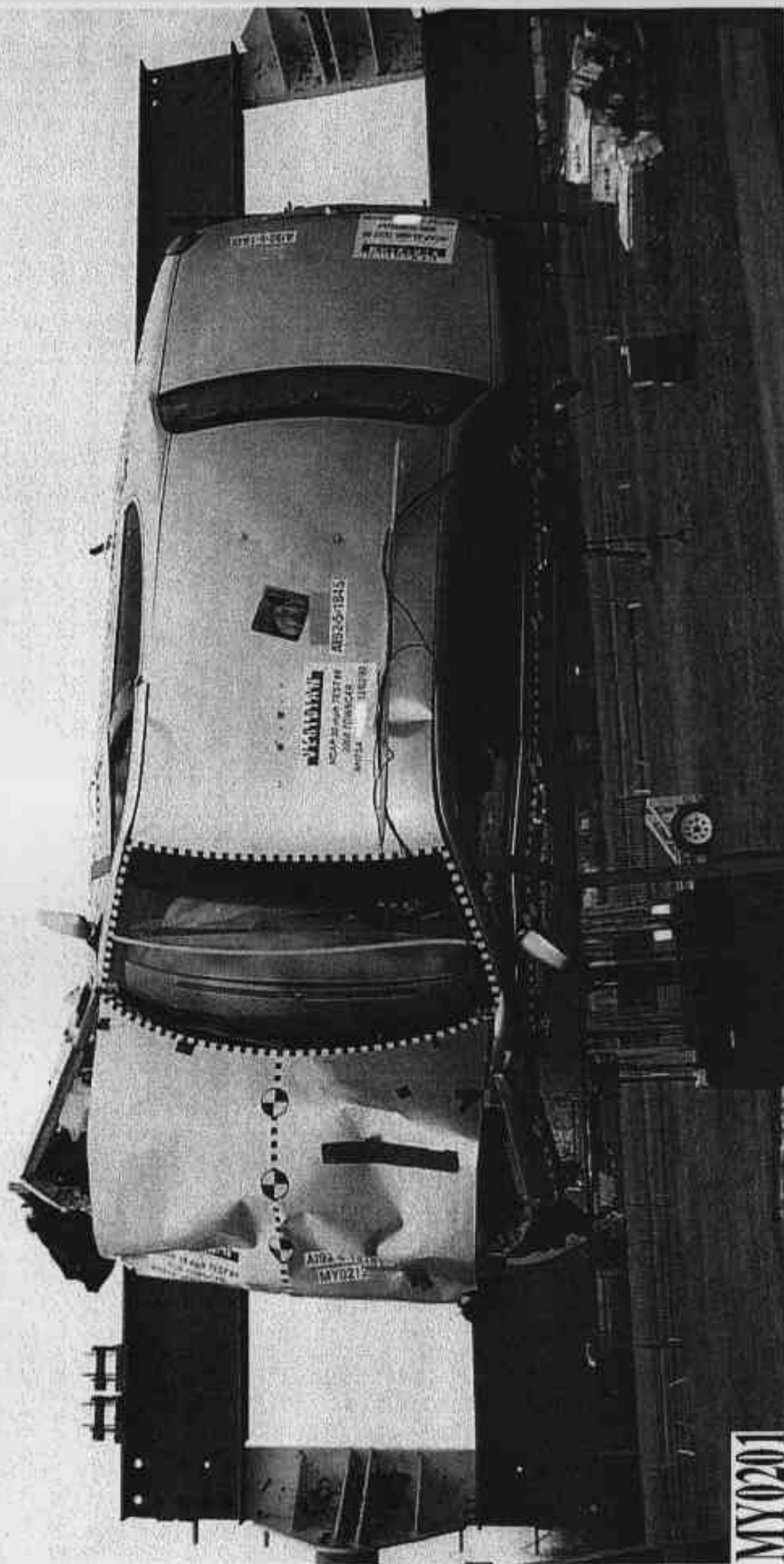


Figure A-38 ROLLOVER VIEW

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

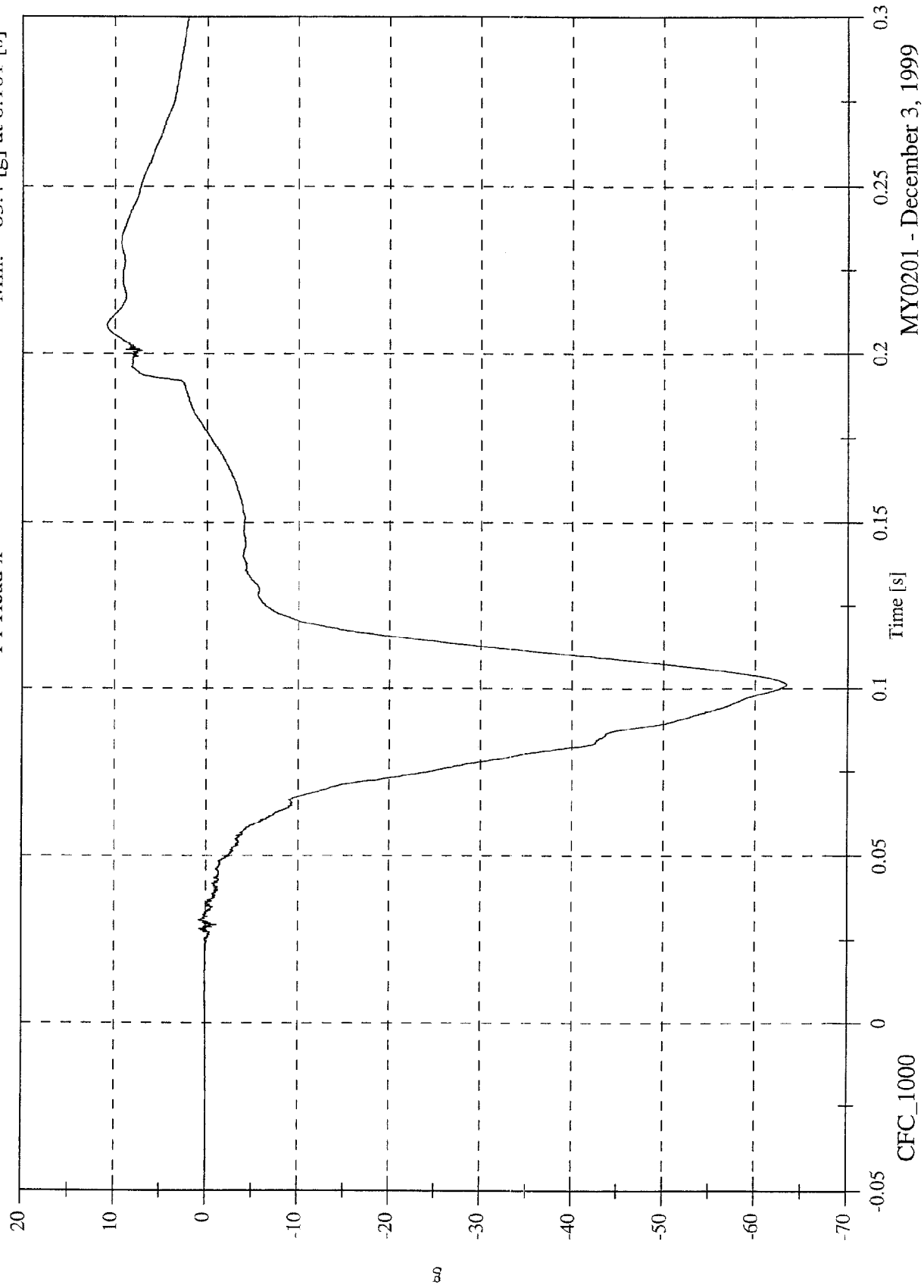
NHTSA TEST NO. MY0201

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 2000 Test#5 - 2000 Lincoln Town Car

Max: 10.9 [g] at 0.209 [s]
 Min: -63.4 [g] at 0.101 [s]

P1 Head x

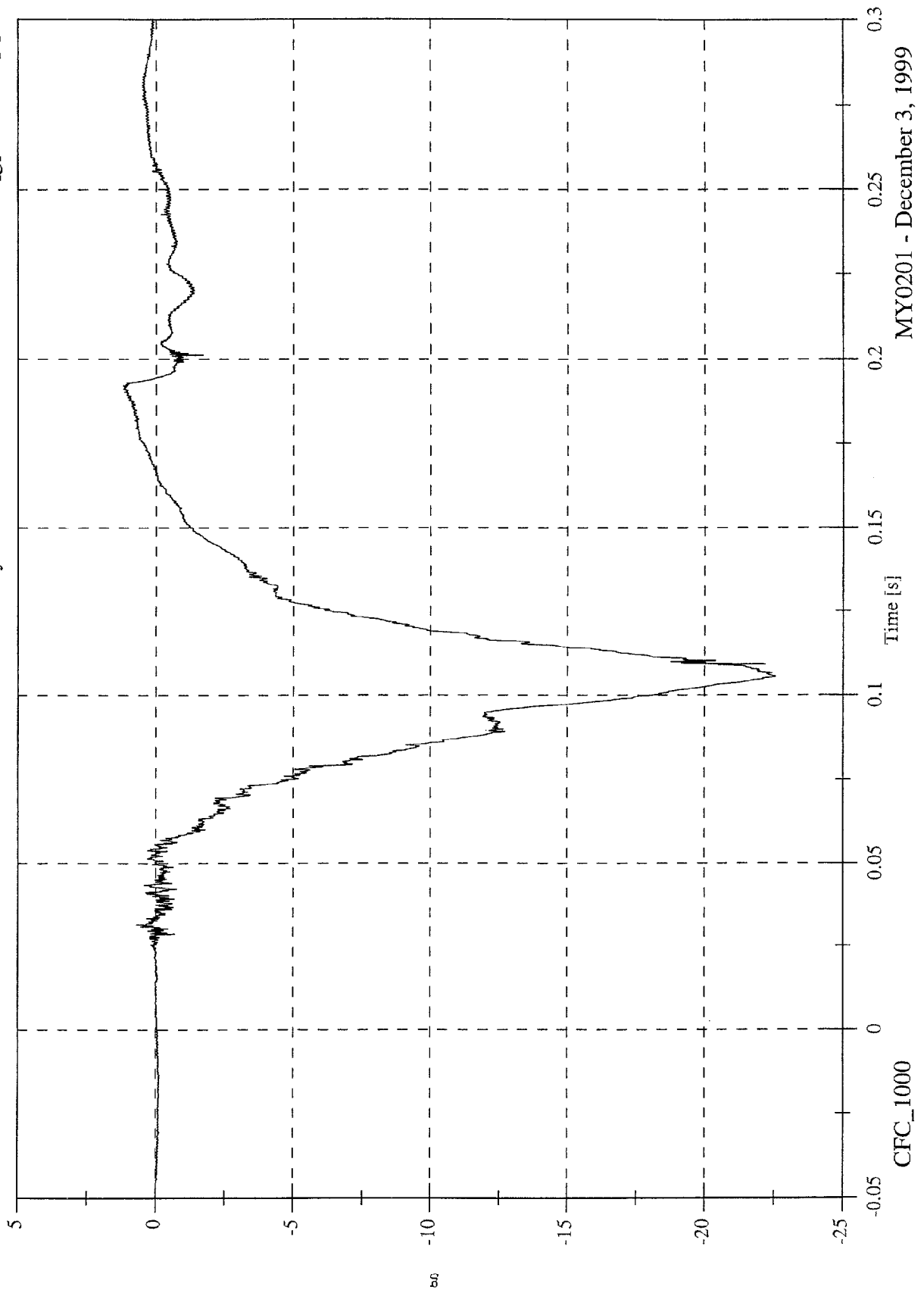


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 1.2 [g] at 0.192 [s]
Min: -22.6 [g] at 0.105 [s]

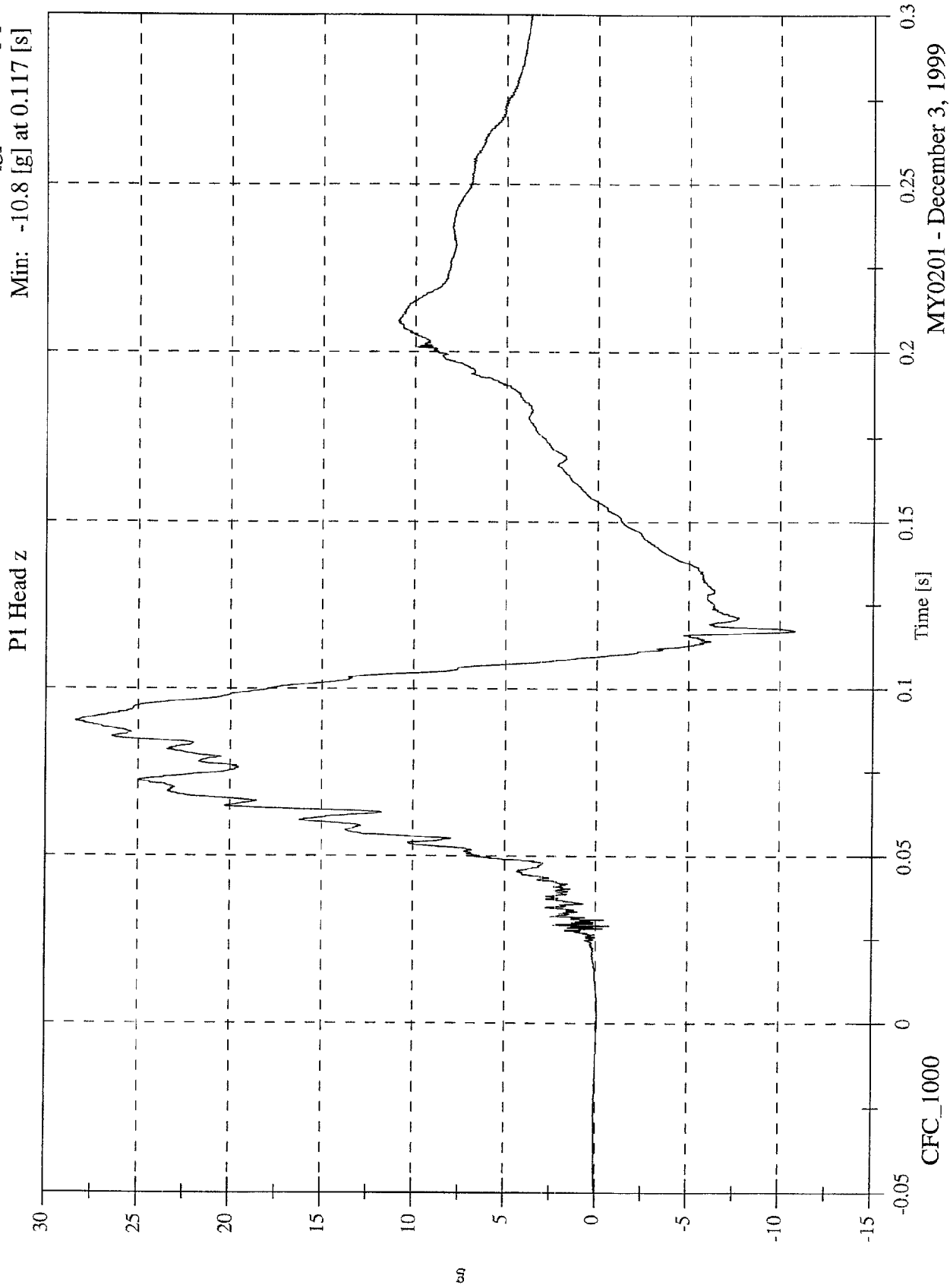
P1 Head y



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 28.4 [g] at 0.090 [s]
 Min: -10.8 [g] at 0.117 [s]



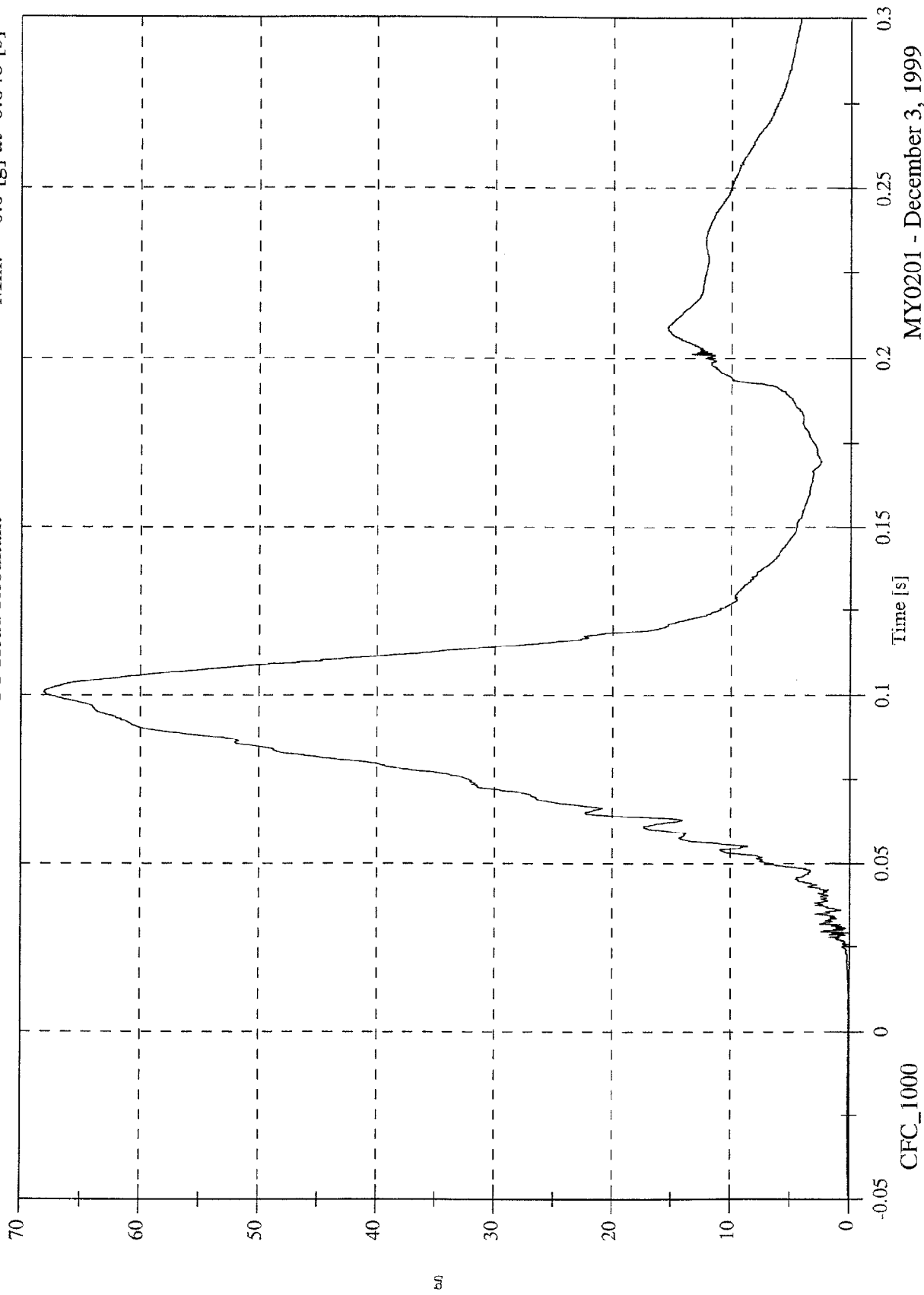
MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 68.1 [g] at 0.101 [s]

Min: 0.0 [g] at -0.048 [s]

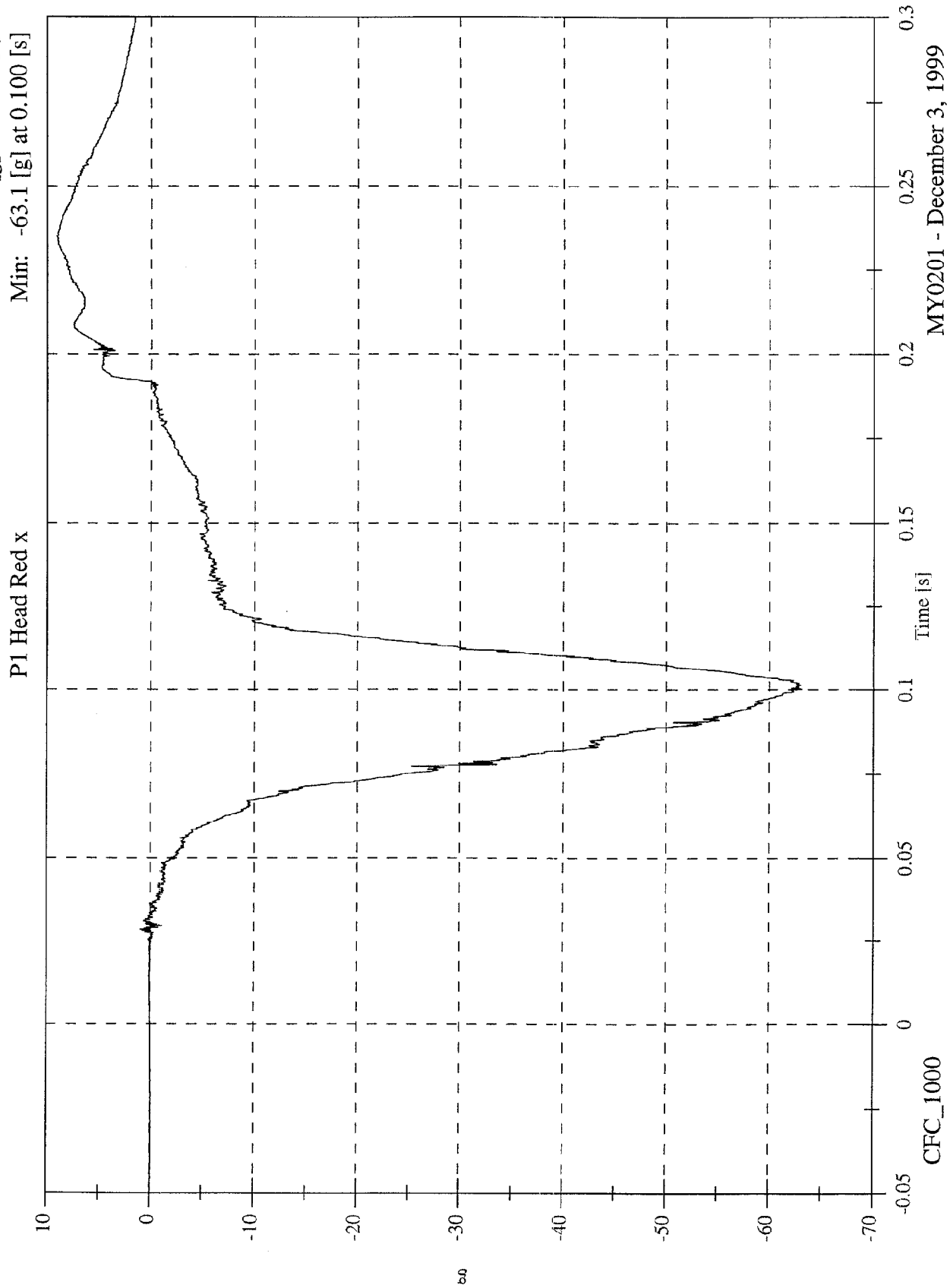
P1 Head Resultant



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

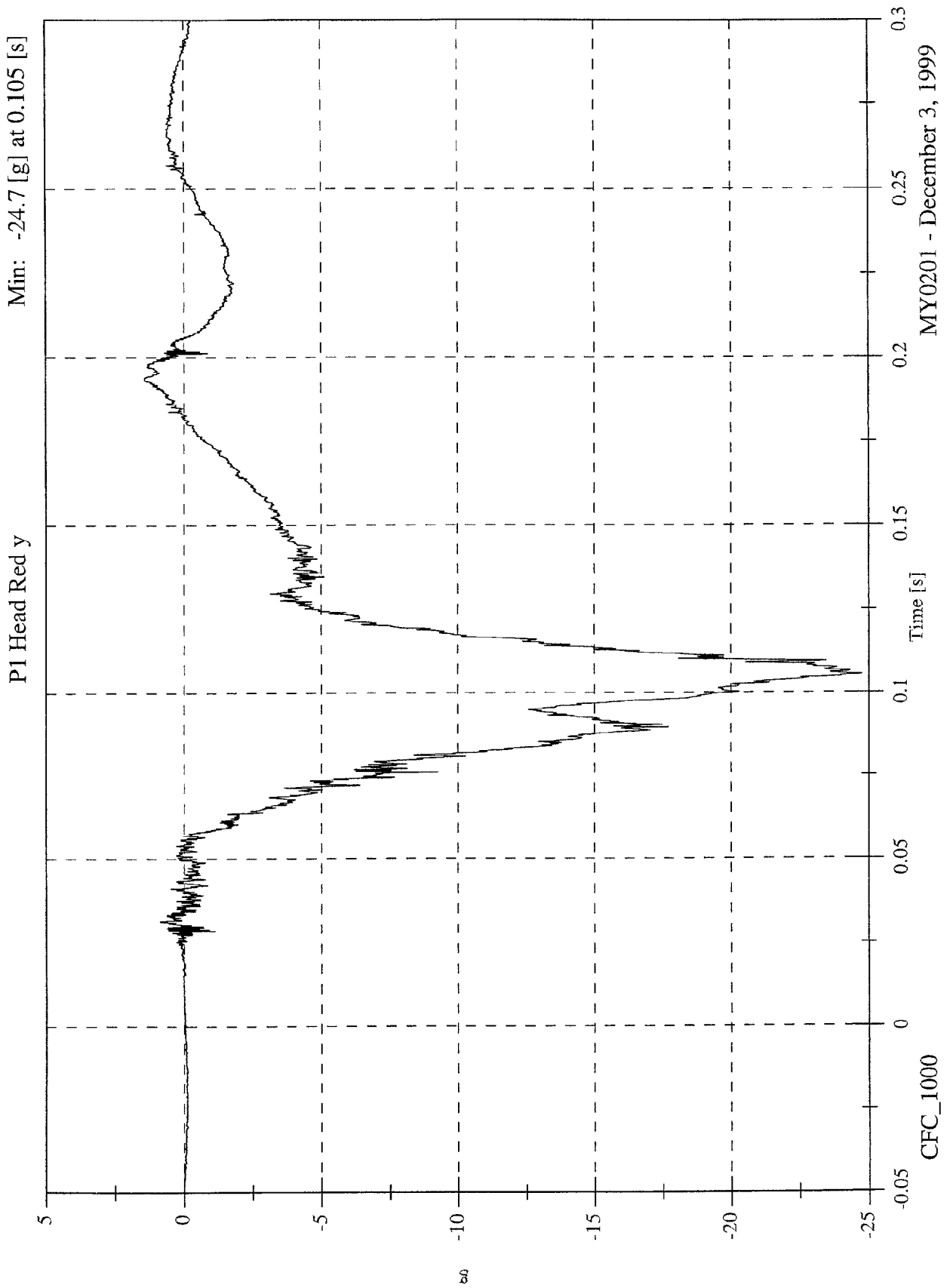
Max: 9.1 [g] at 0.235 [s]
 Min: -63.1 [g] at 0.100 [s]



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 1.5 [g] at 0.193 [s]
Min: -24.7 [g] at 0.105 [s]

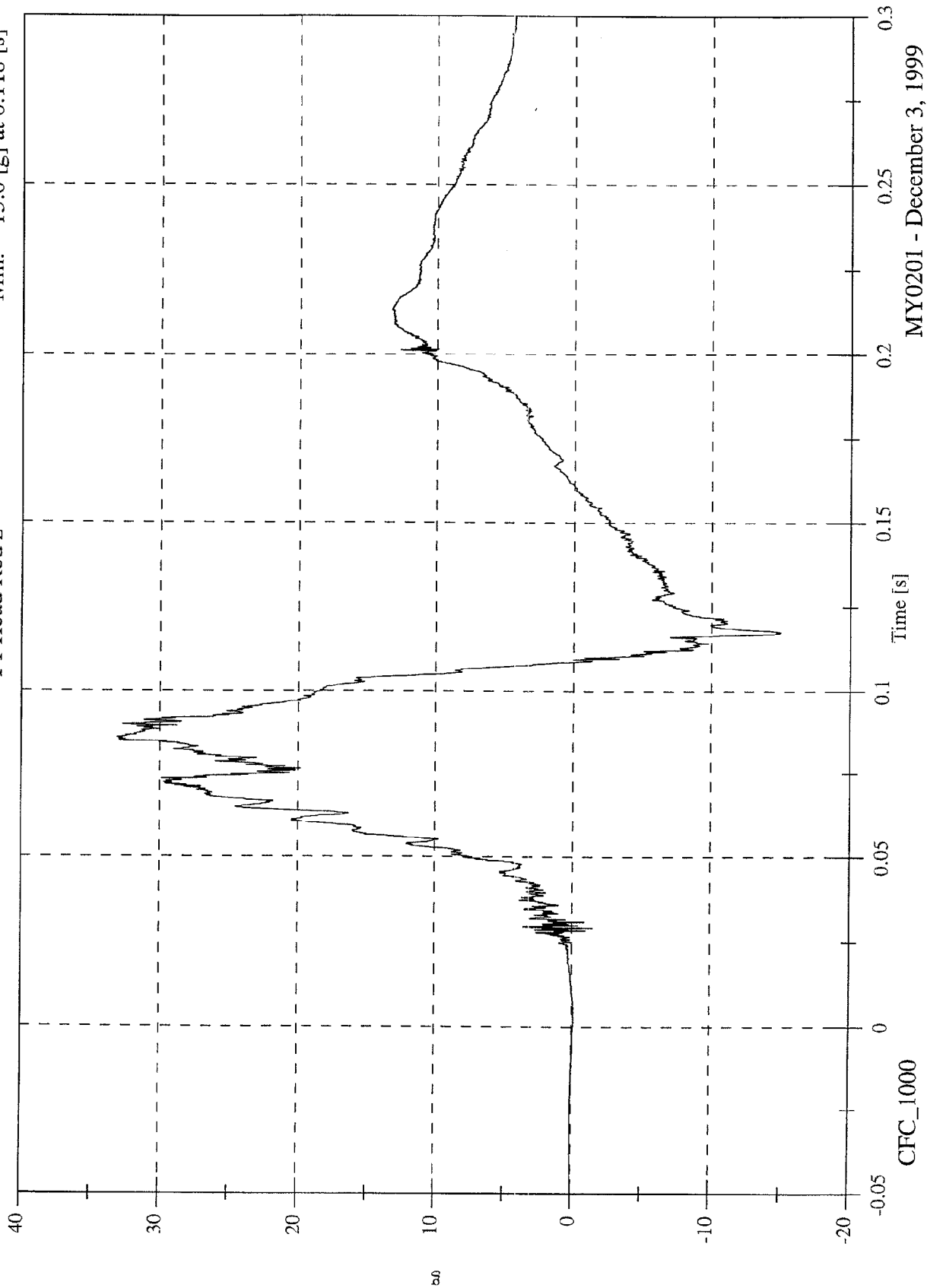


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 33.1 [g] at 0.086 [s]
Min: -15.0 [g] at 0.118 [s]

P1 Head Red z

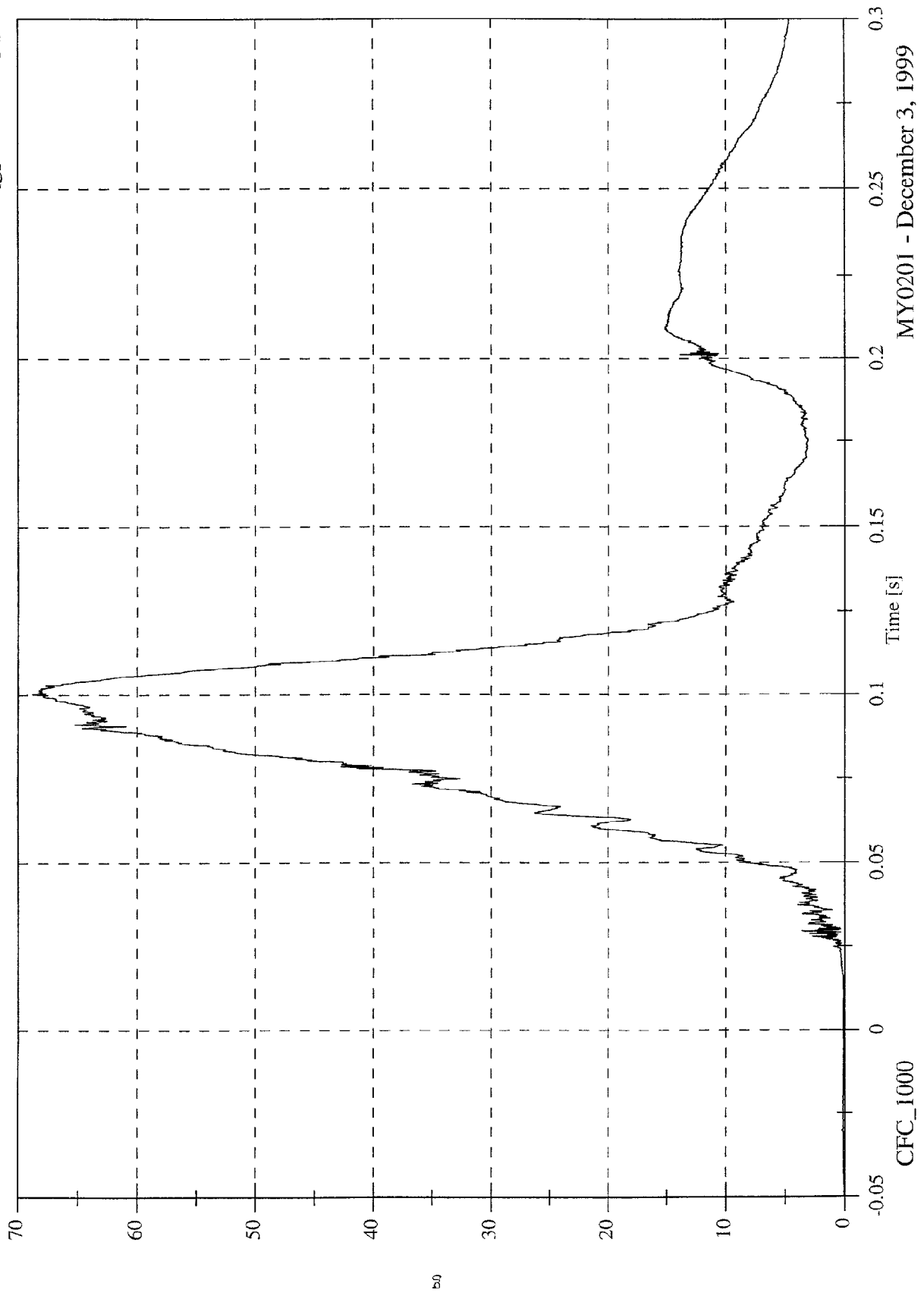


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 68.8 [g] at 0.100 [s]
 Min: 0.0 [g] at -0.047 [s]

P1 Head Red Resultant

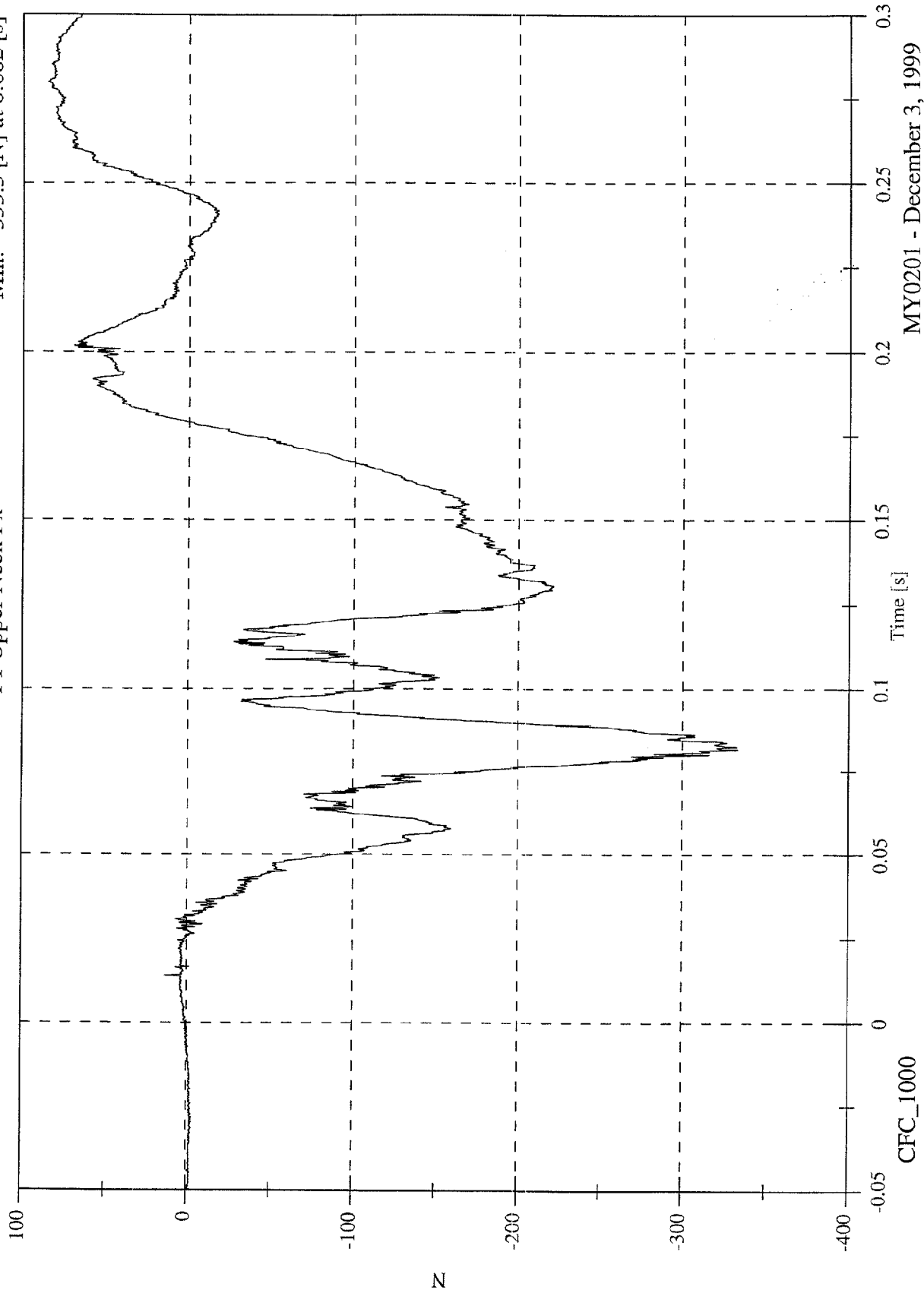


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

P1 Upper Neck Fx

Max: 85.1 [N] at 0.280 [s]
Min: -333.3 [N] at 0.082 [s]

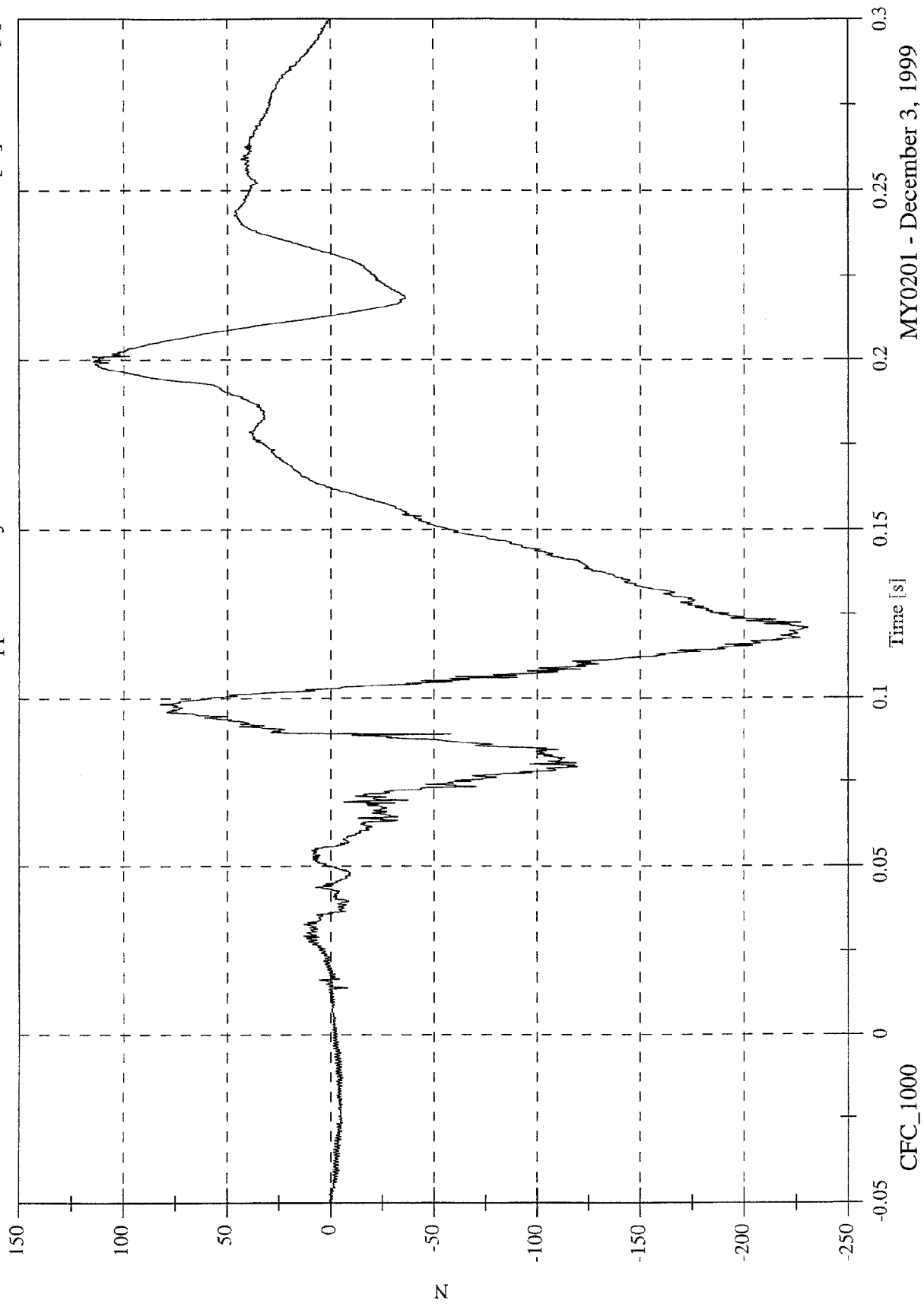


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 114.8 [N] at 0.201 [s]
 Min: -230.7 [N] at 0.121 [s]

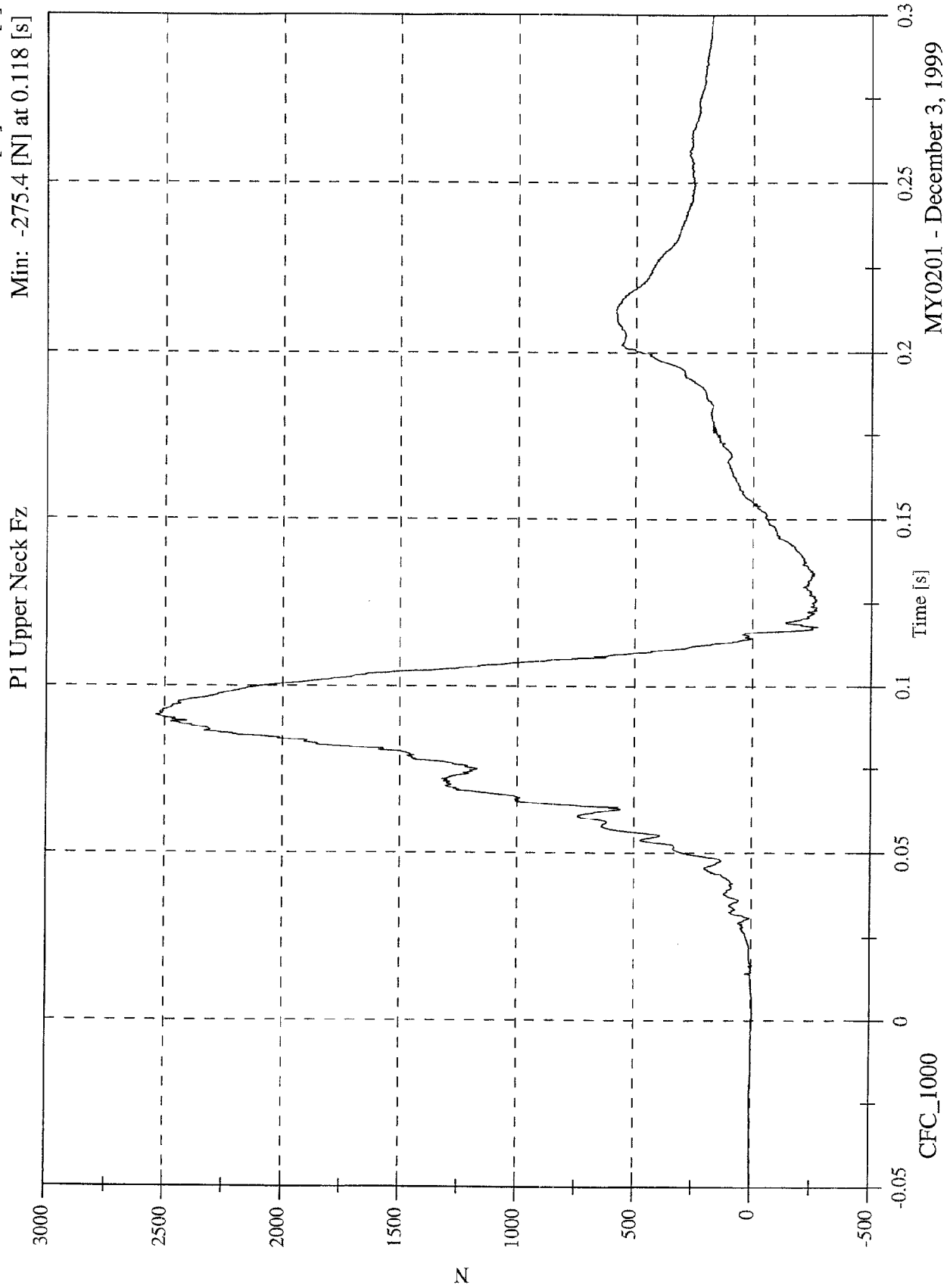
P1 Upper Neck Fy



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 2536.6 [N] at 0.091 [s]
 Min: -275.4 [N] at 0.118 [s]

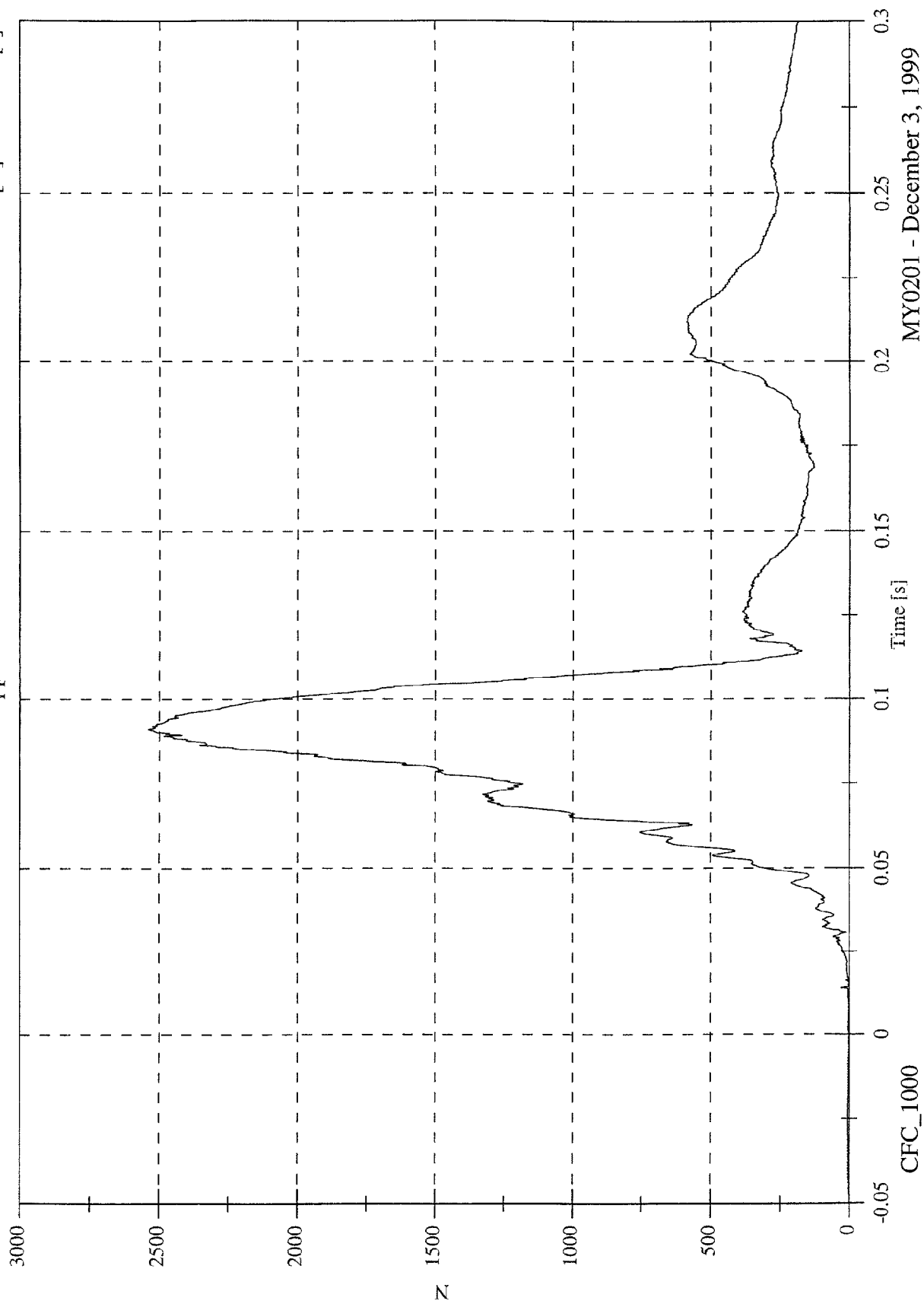


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 2540.7 [N] at 0.091 [s]
 Min: 1.4 [N] at -0.050 [s]

P1 Upper Neck F Resultant

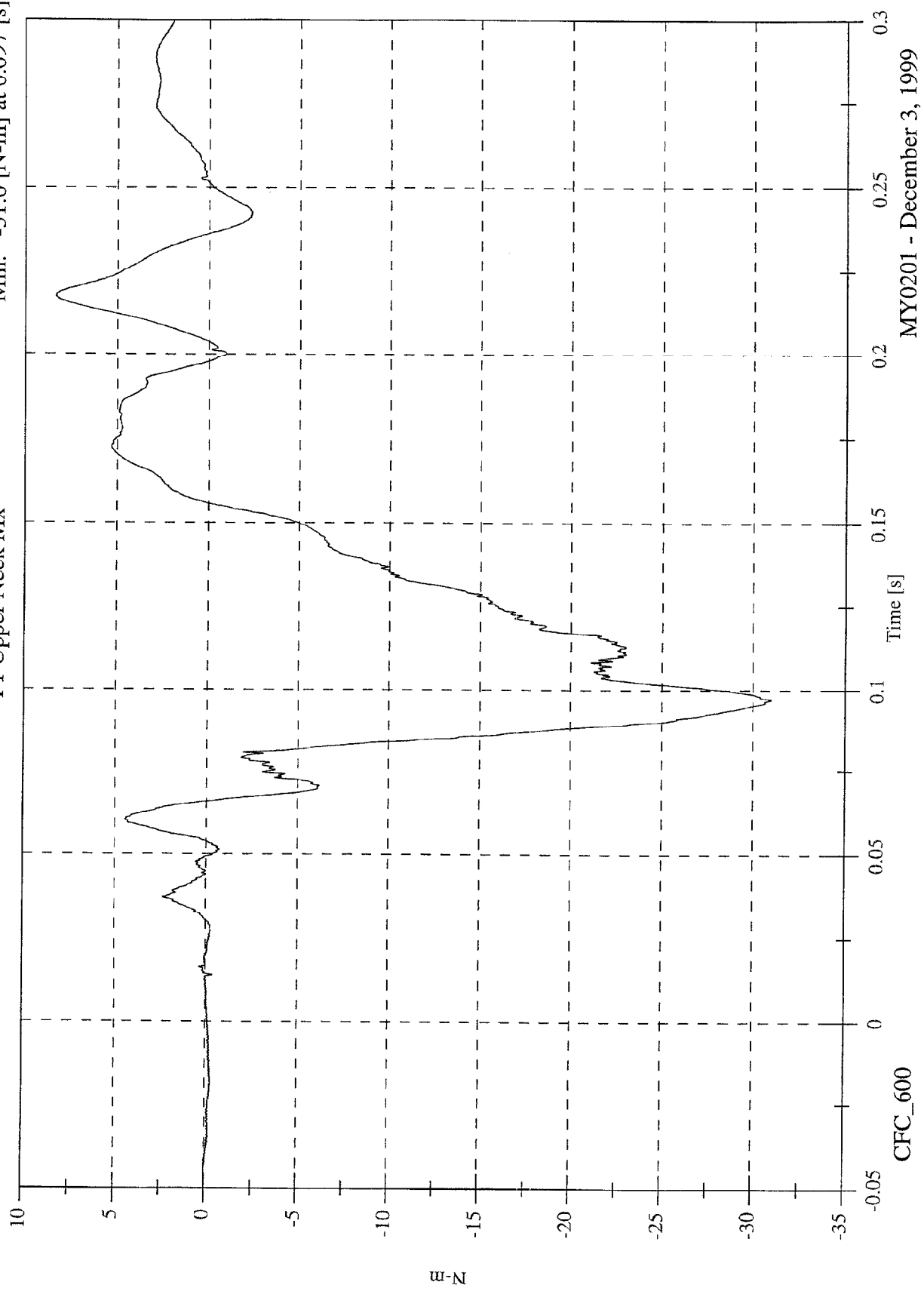


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 8.3 [N-m] at 0.217 [s]
Min: -31.0 [N-m] at 0.097 [s]

P1 Upper Neck Mx

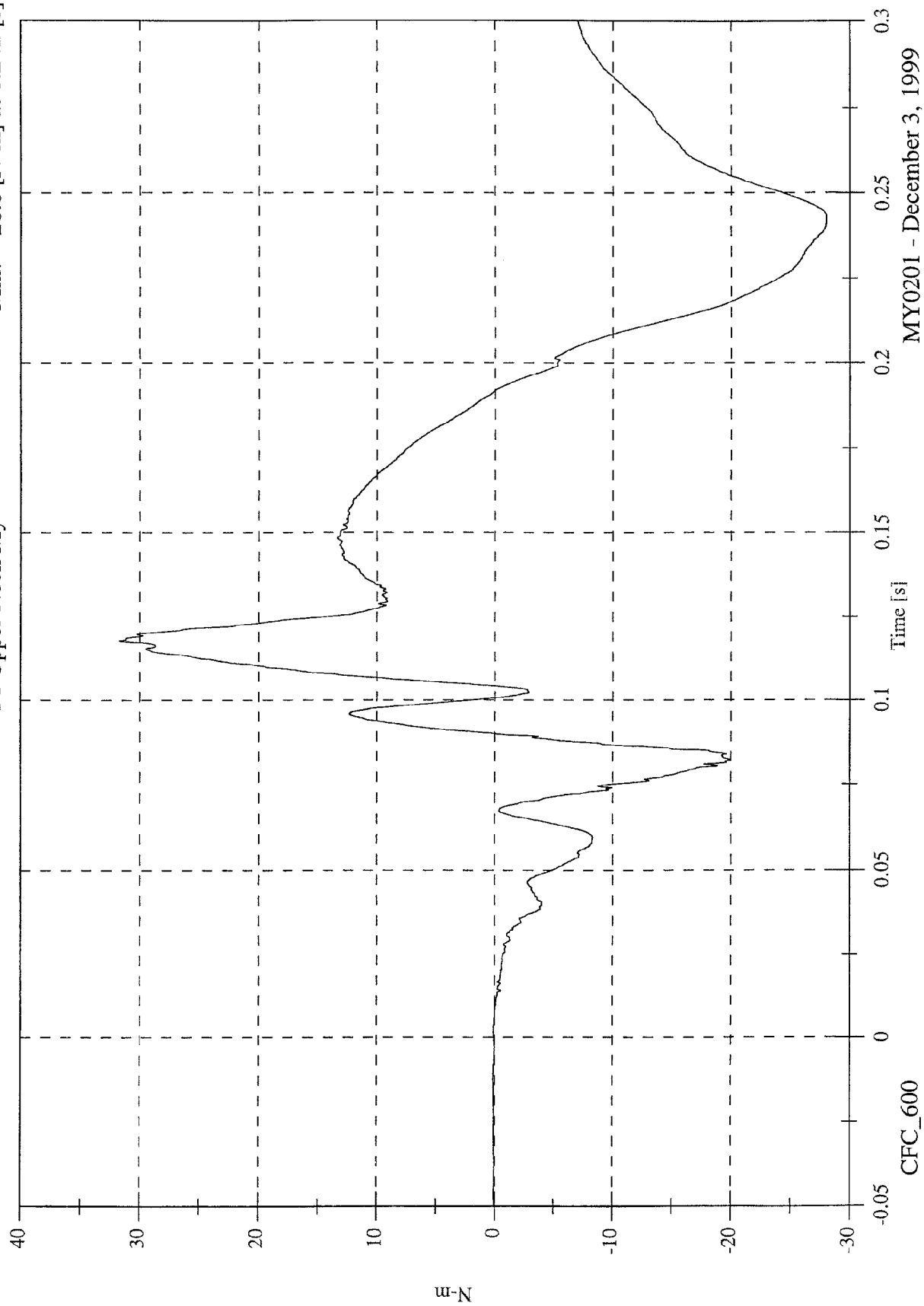


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 31.7 [N-m] at 0.118 [s]
 Min: -28.0 [N-m] at 0.242 [s]

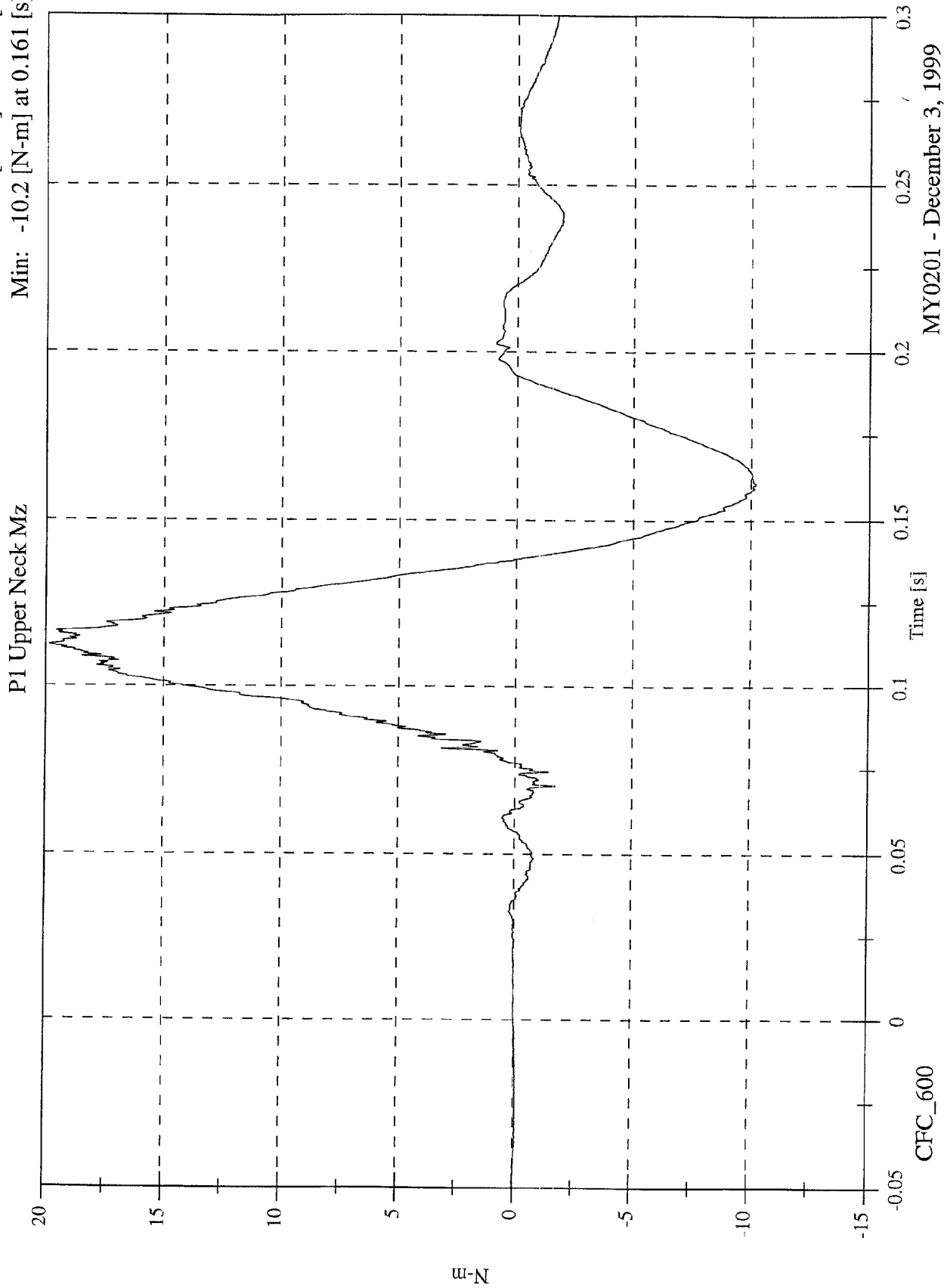
P1 Upper Neck My



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 19.8 [N-m] at 0.112 [s]
 Min: -10.2 [N-m] at 0.161 [s]

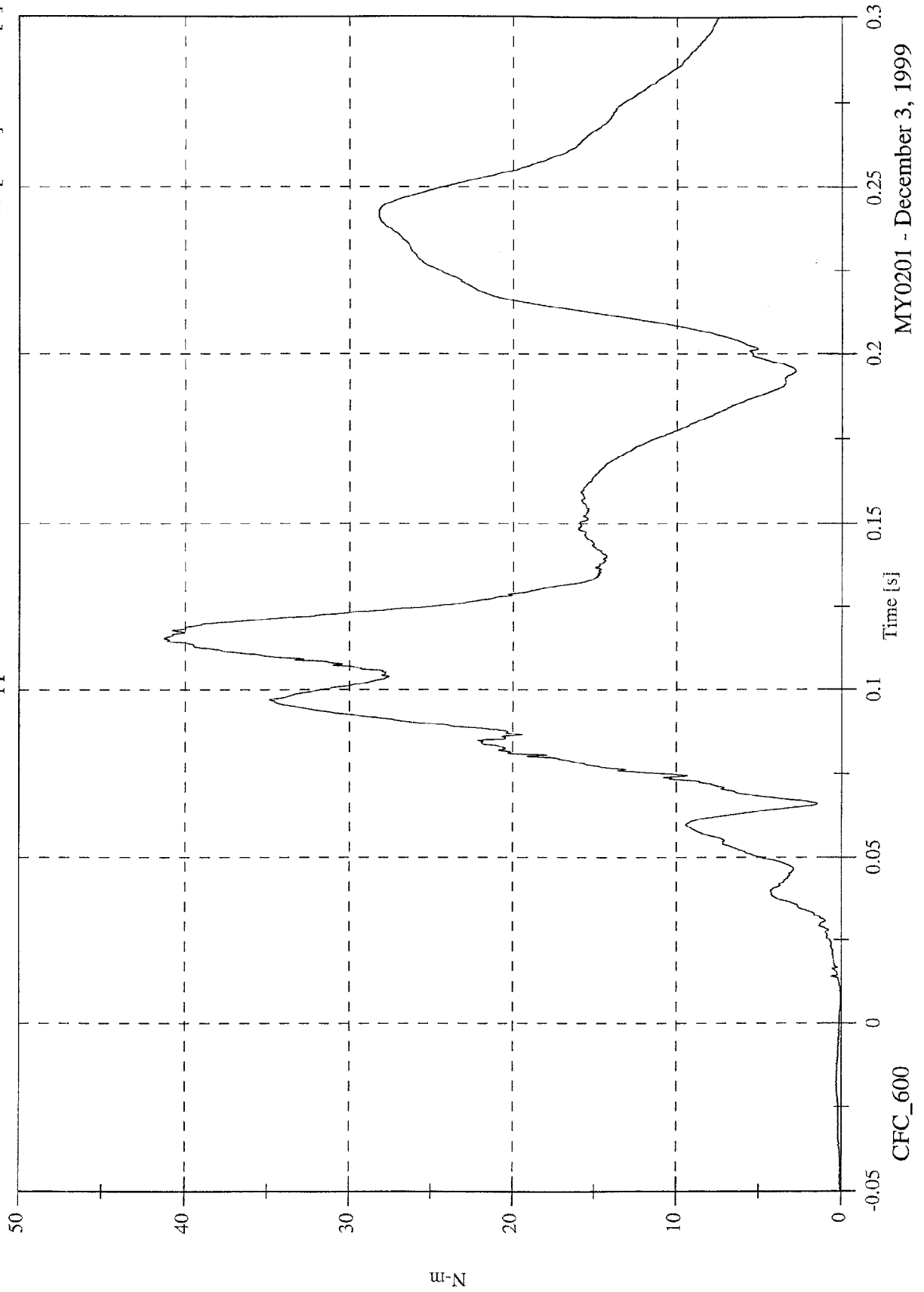


NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 41.3 [N-m] at 0.115 [s]

Min: 0.0 [N-m] at 0.009 [s]

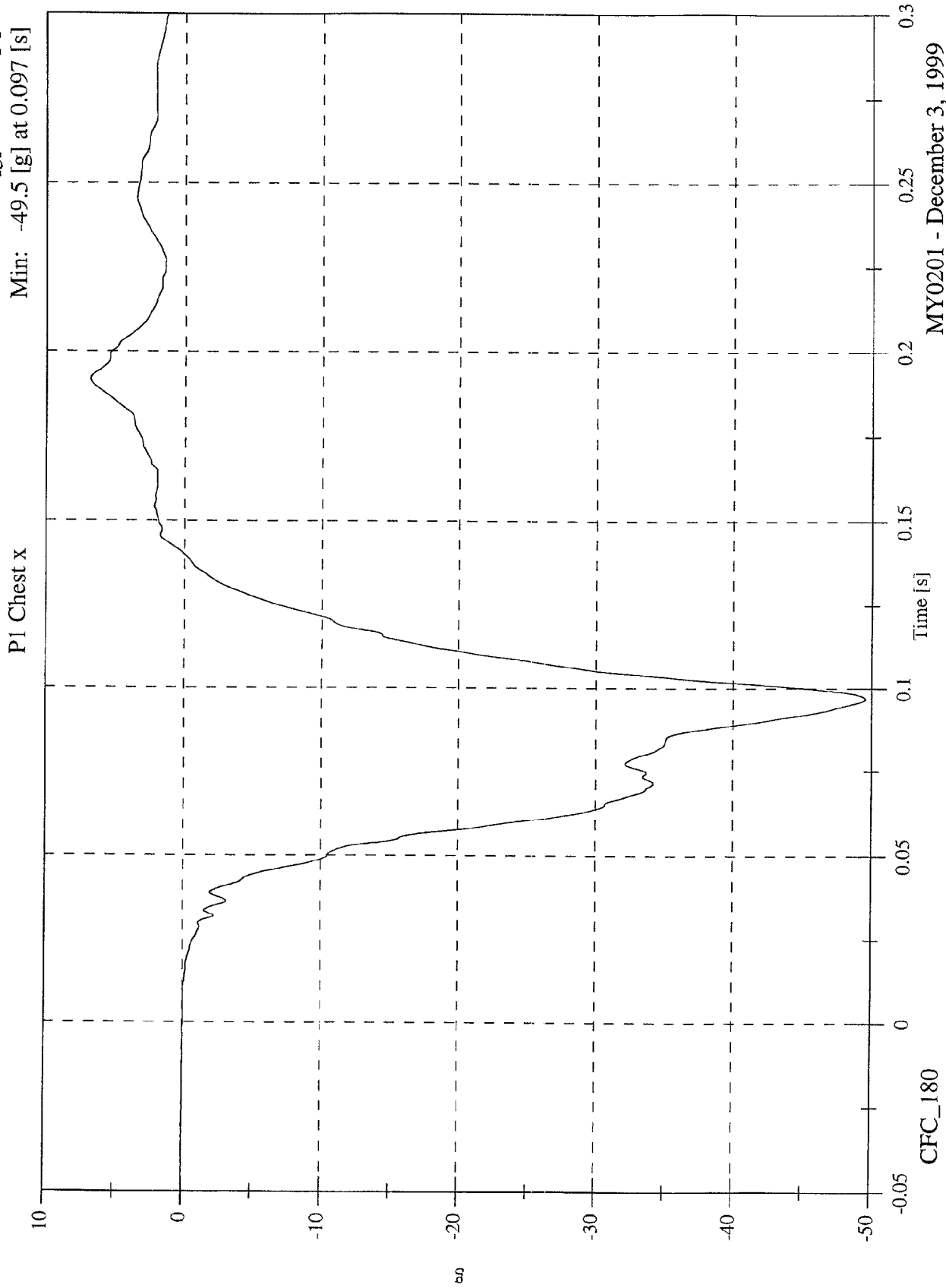
P1 Upper Neck M Resultant



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

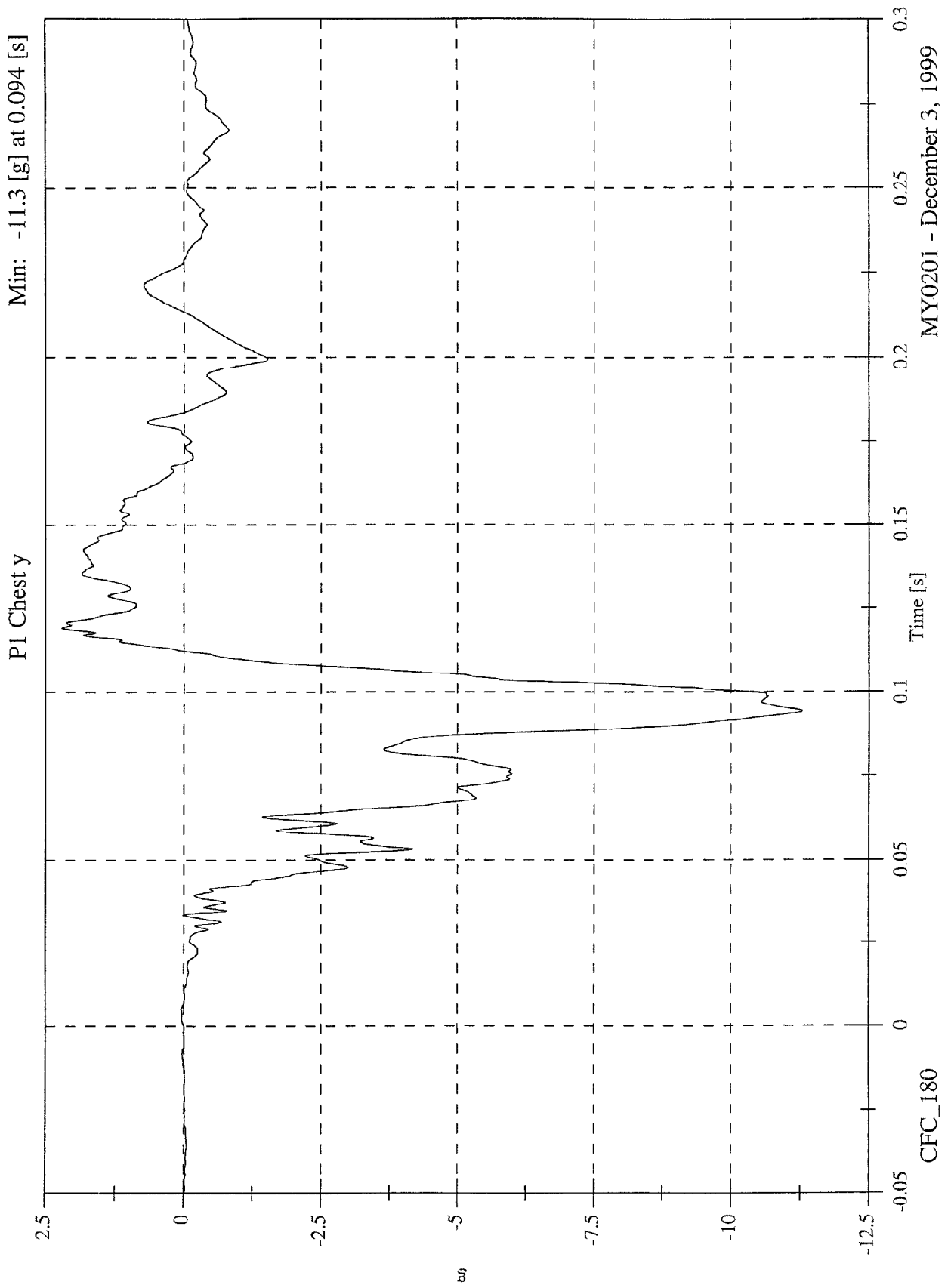
Max: 6.9 [g] at 0.192 [s]
 Min: -49.5 [g] at 0.097 [s]



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 2.2 [g] at 0.119 [s]
 Min: -11.3 [g] at 0.094 [s]

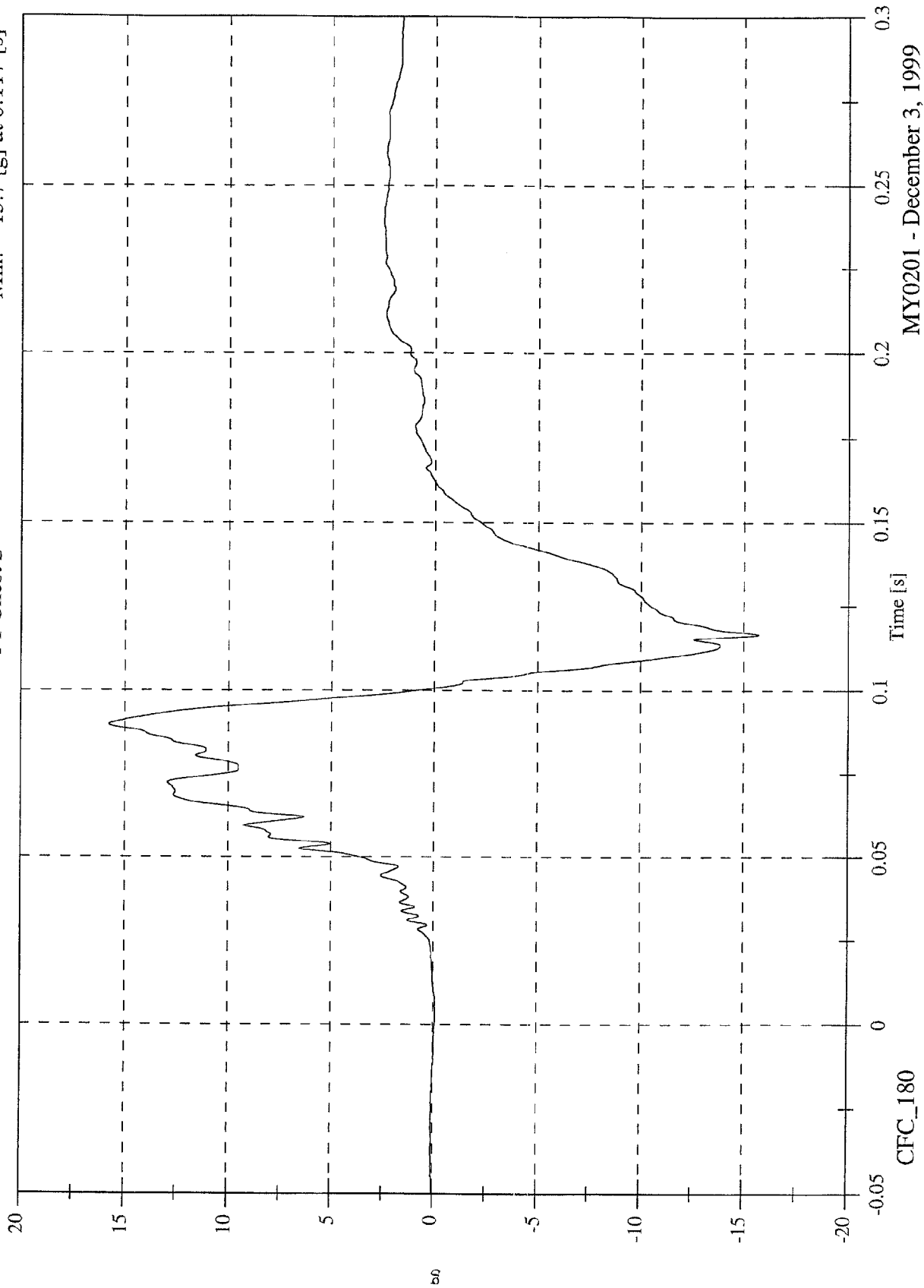


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 15.8 [g] at 0.090 [s]
 Min: -15.7 [g] at 0.117 [s]

P1 Chest z

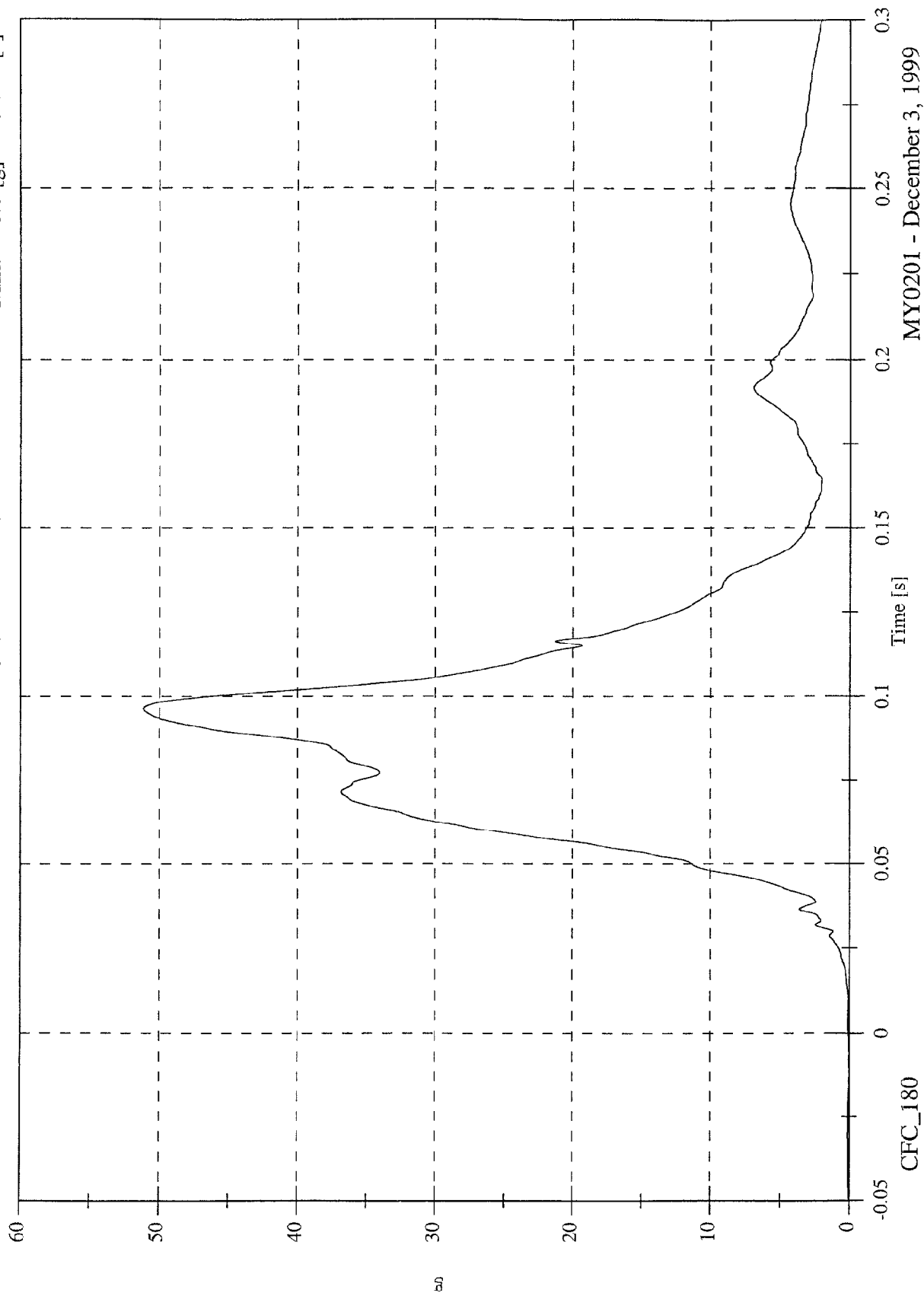


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 51.2 [g] at 0.096 [s]
 Min: 0.0 [g] at -0.012 [s]

P1 Chest Resultant

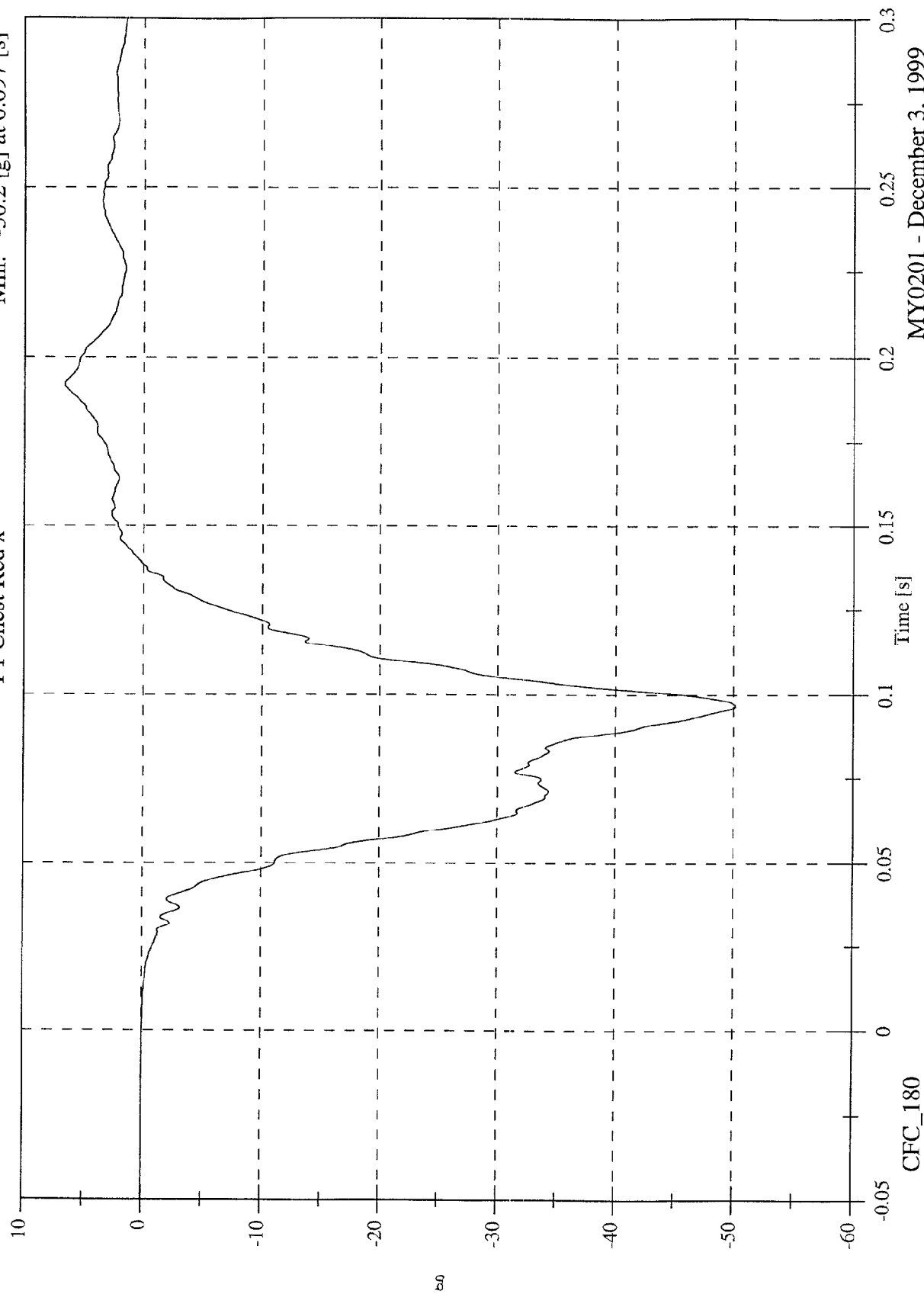


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 6.6 [g] at 0.192 [s]
Min: -50.2 [g] at 0.097 [s]

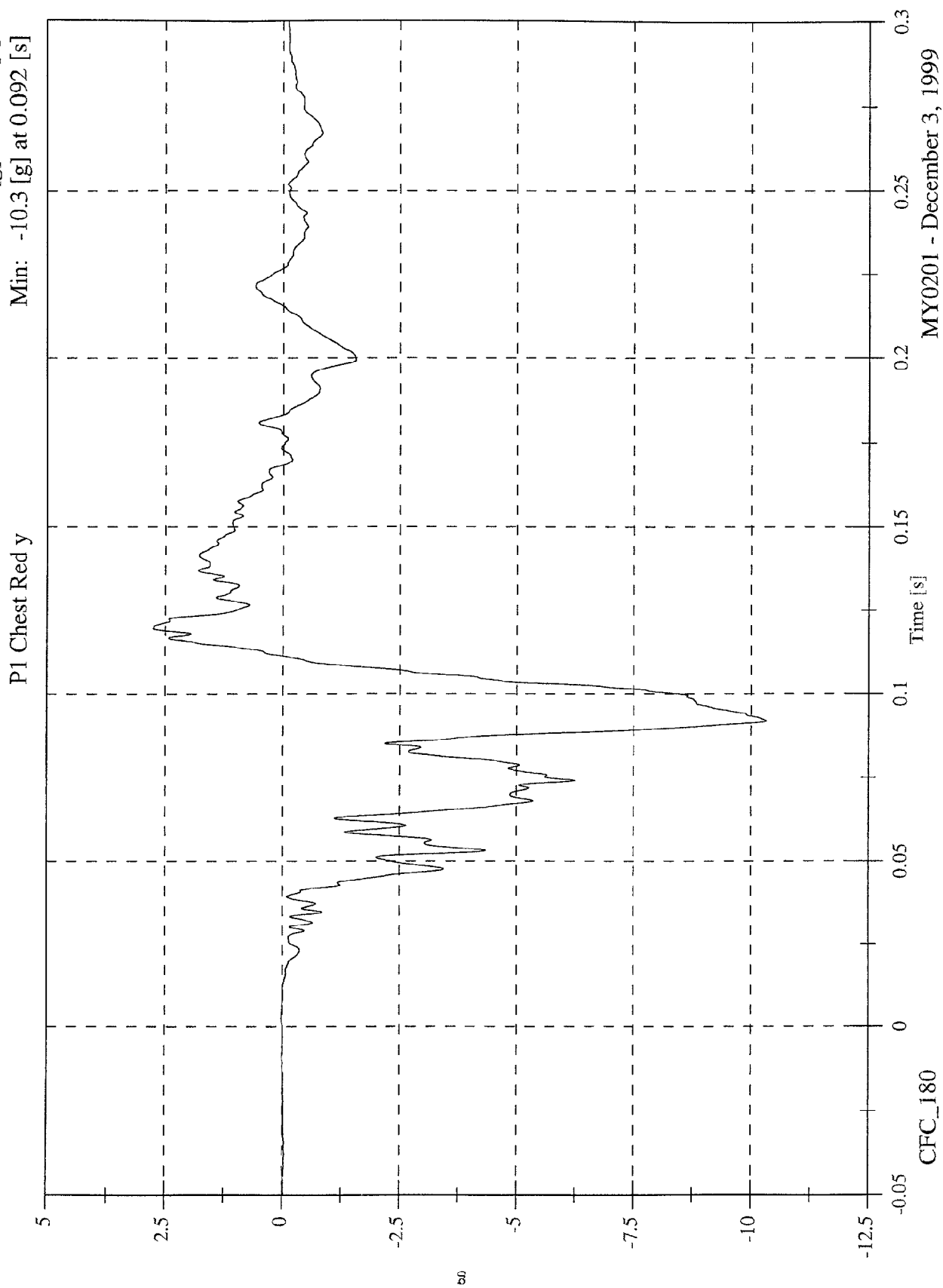
P1 Chest Red x



MY0201 - December 3, 1999

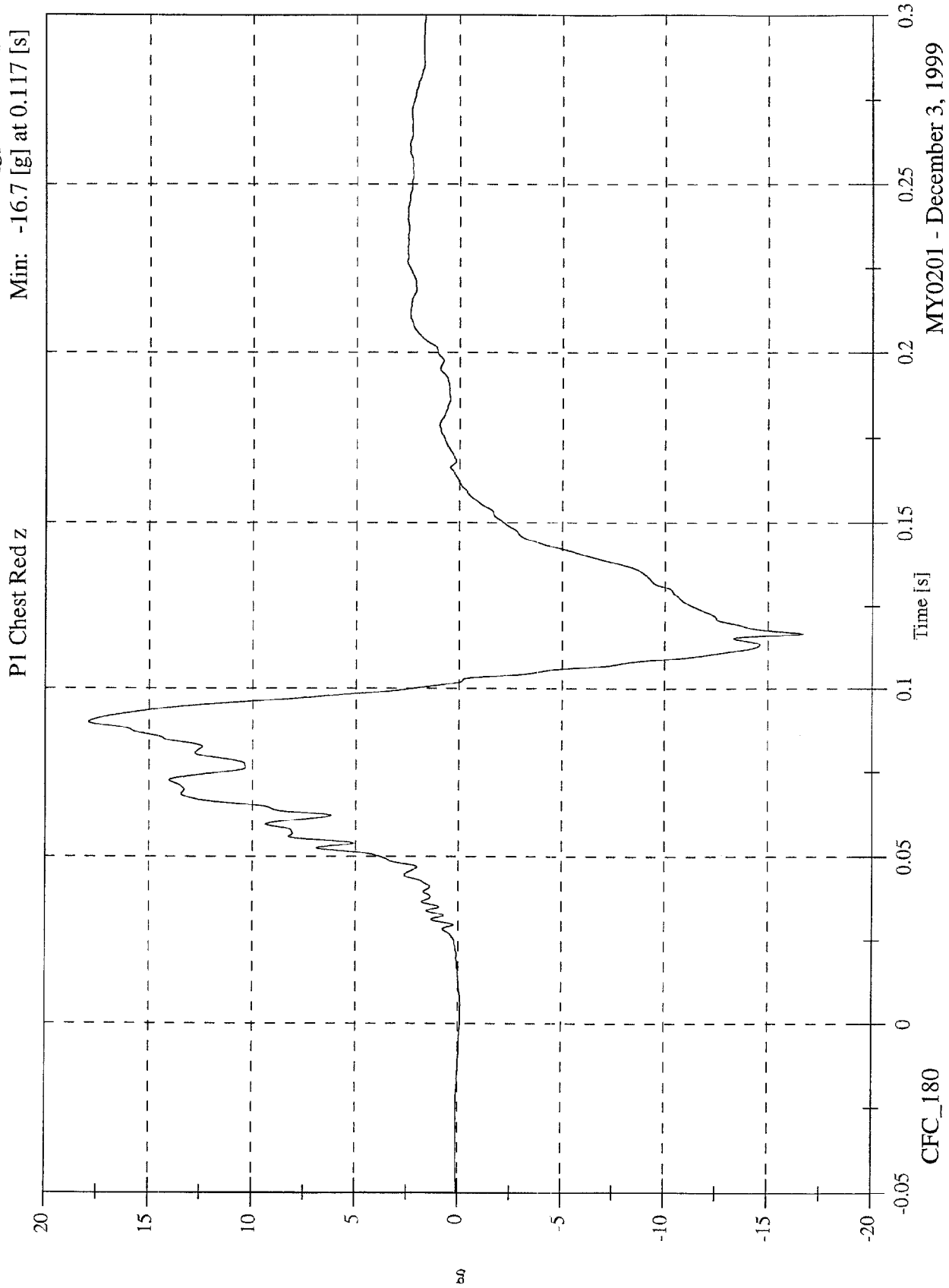
NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 2.8 [g] at 0.120 [s]
Min: -10.3 [g] at 0.092 [s]



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 17.9 [g] at 0.090 [s]
 Min: -16.7 [g] at 0.117 [s]

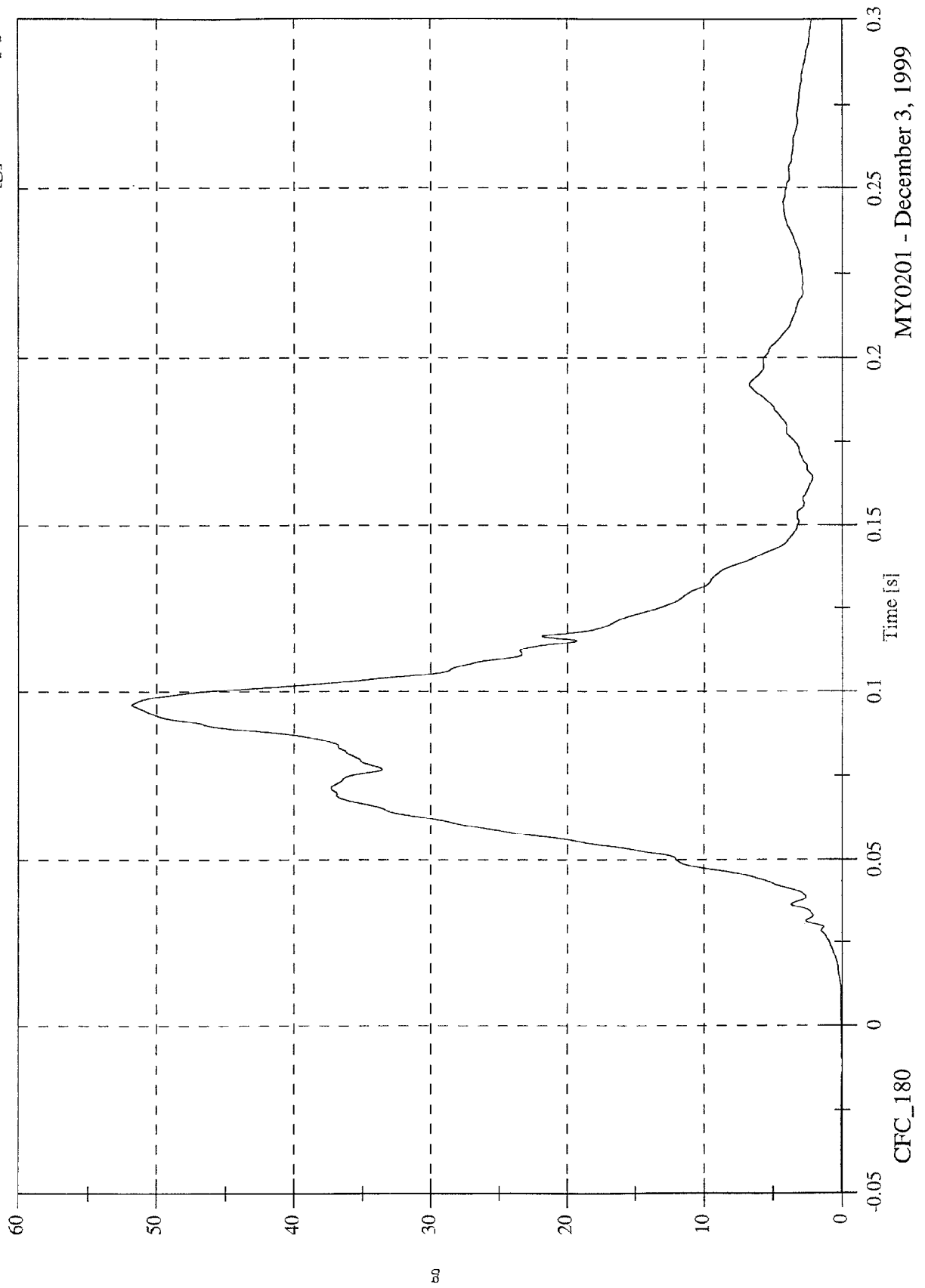


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 51.8 [g] at 0.096 [s]
 Min: 0.0 [g] at -0.013 [s]

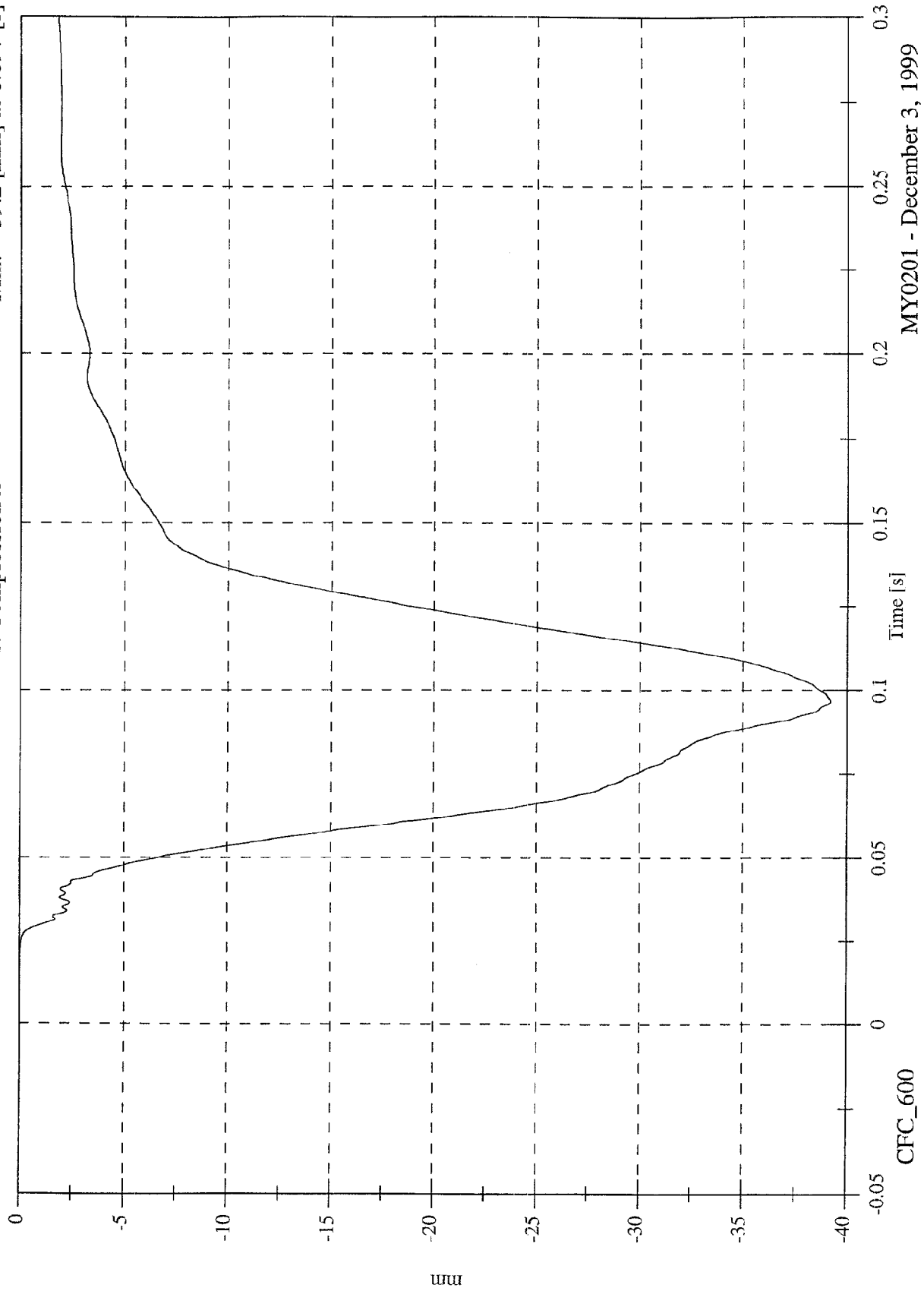
P1 Chest Red Resultant



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 0.0 [mm] at 0.012 [s]
 Min: -39.2 [mm] at 0.097 [s]

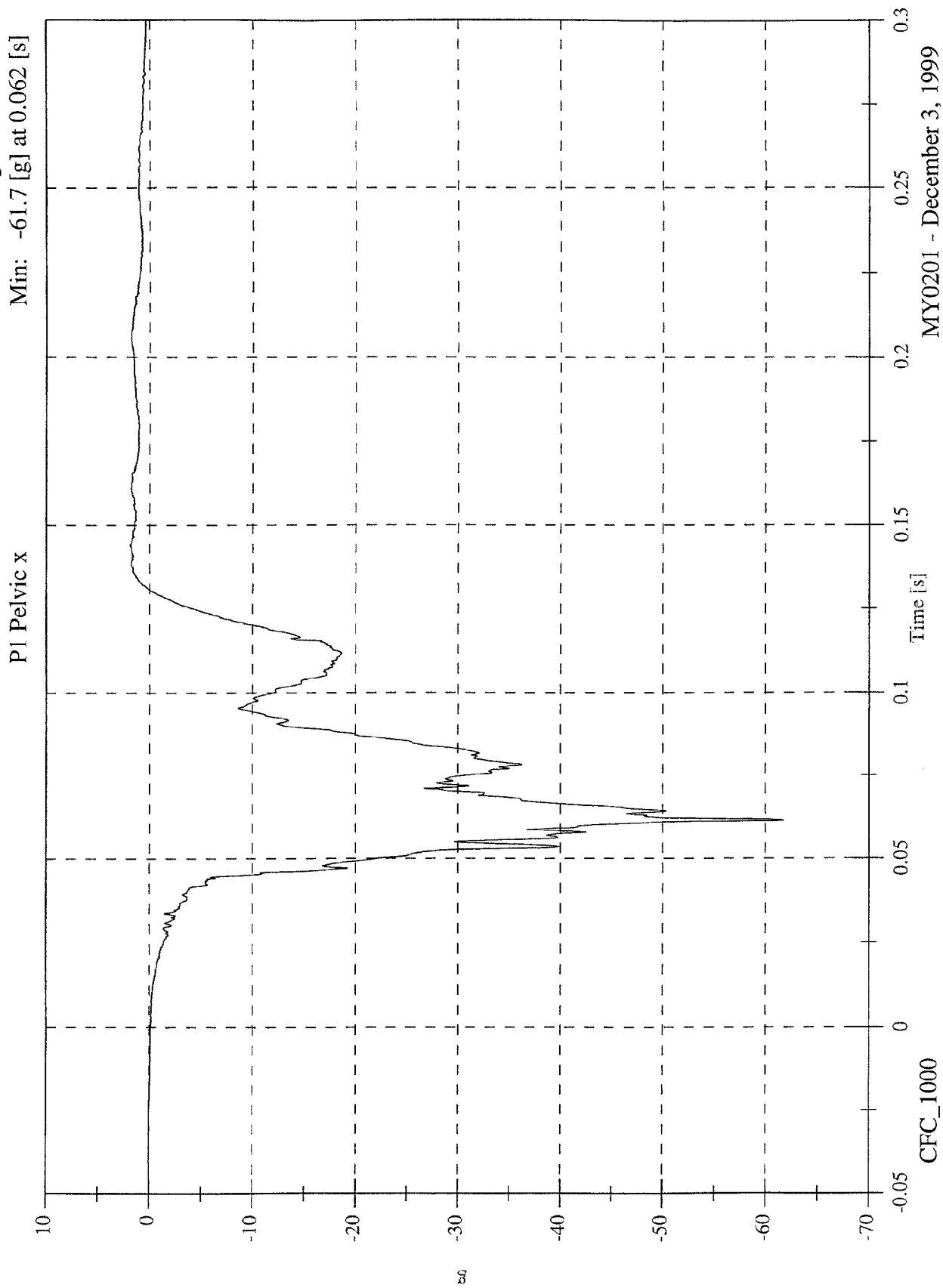
P1 Chest Compression x



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 1.9 [g] at 0.144 [s]
Min: -61.7 [g] at 0.062 [s]

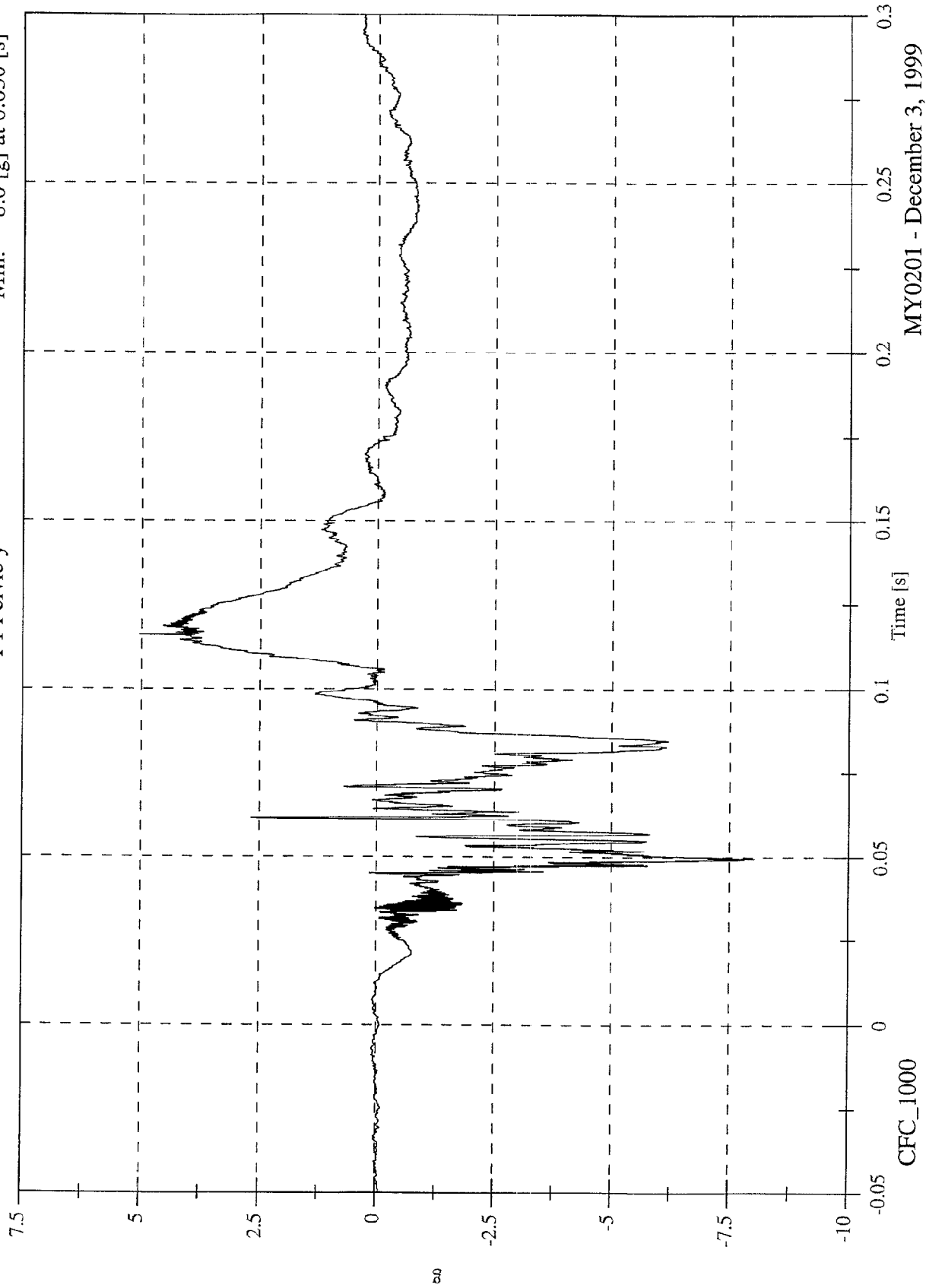


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 5.0 [g] at 0.116 [s]
Min: -8.0 [g] at 0.050 [s]

P1 Pelvic y

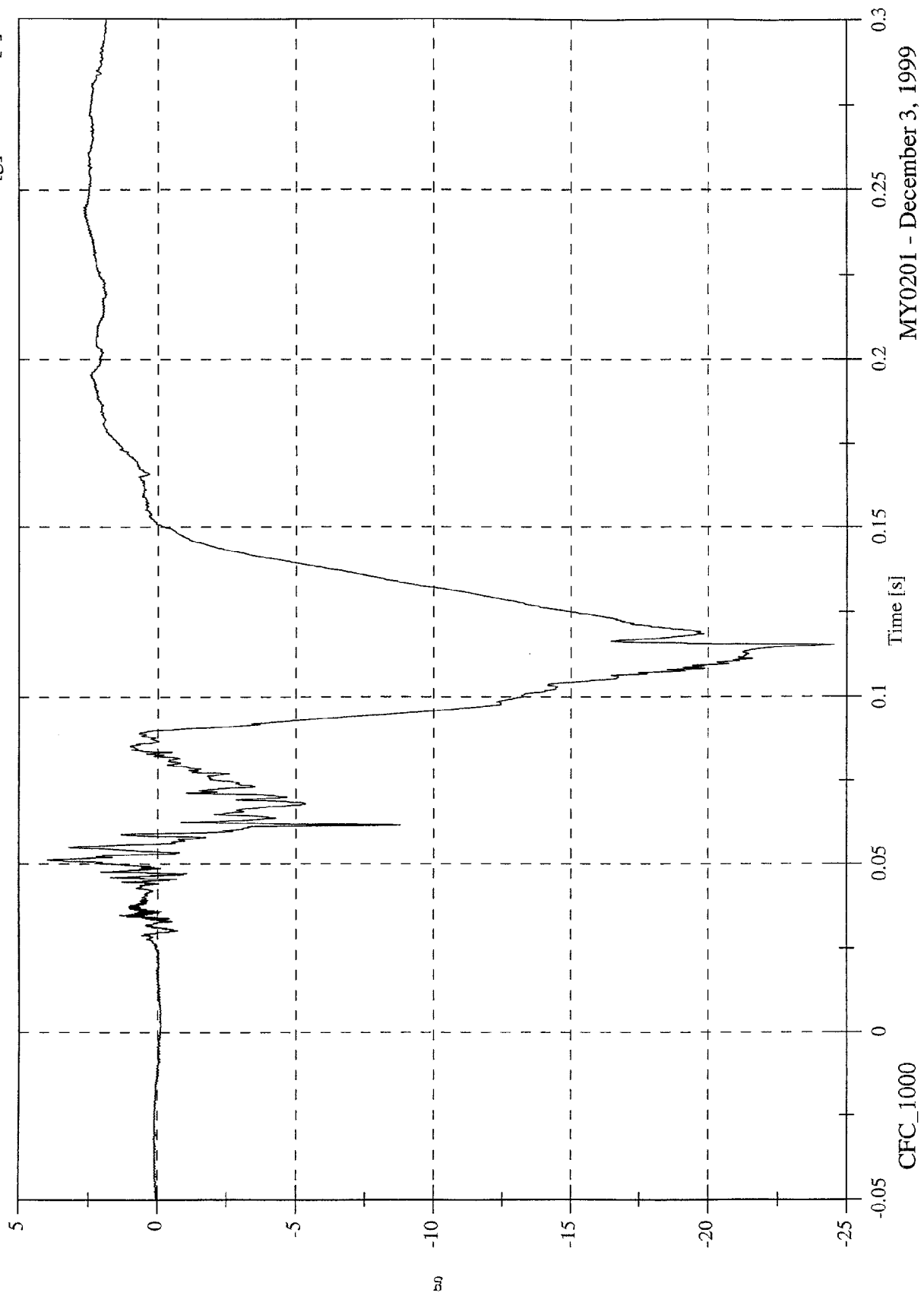


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 4.0 [g] at 0.051 [s]
 Min: -24.5 [g] at 0.115 [s]

P1 Pelvic z

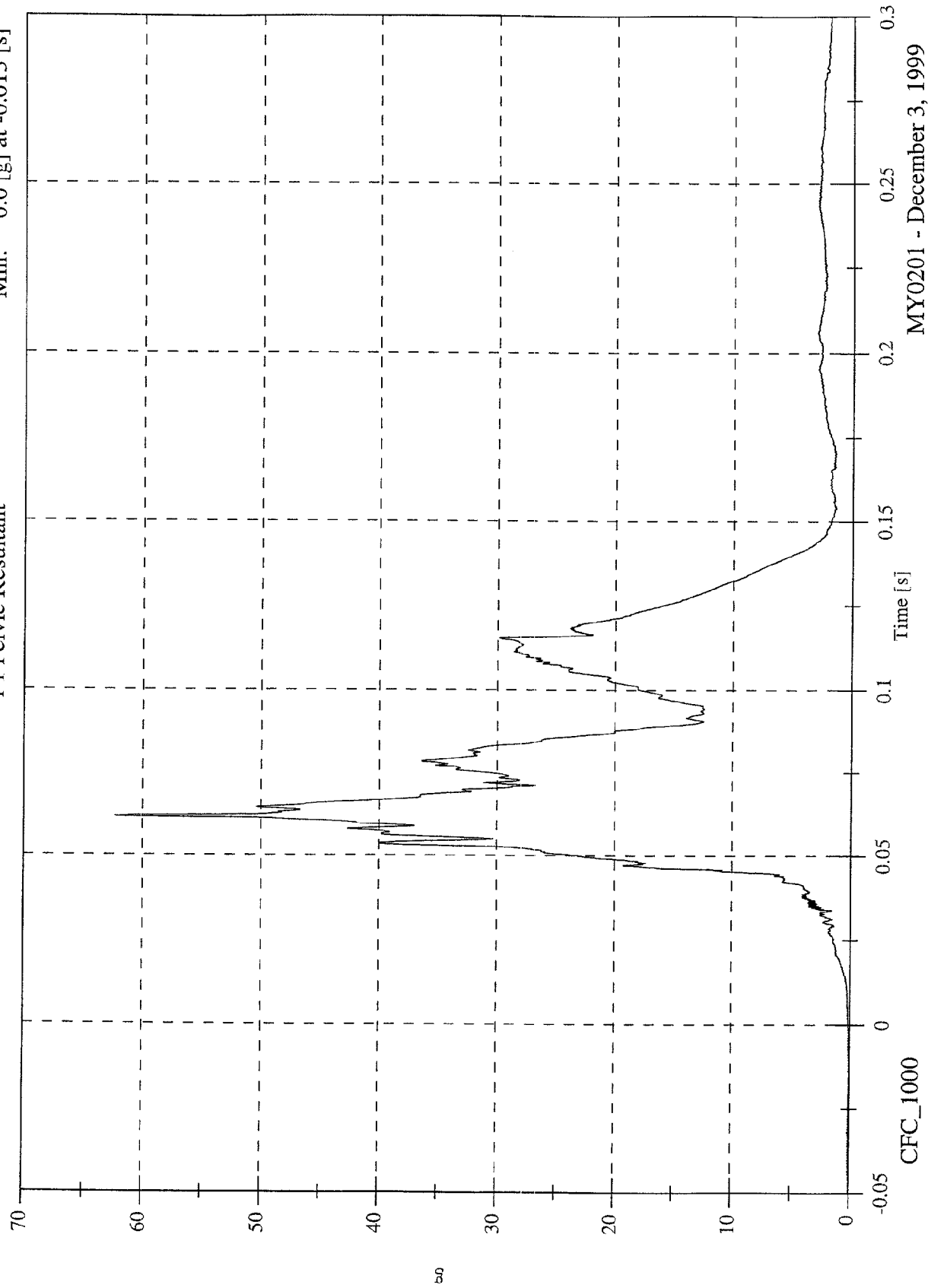


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 62.3 [g] at 0.062 [s]
Min: 0.0 [g] at -0.013 [s]

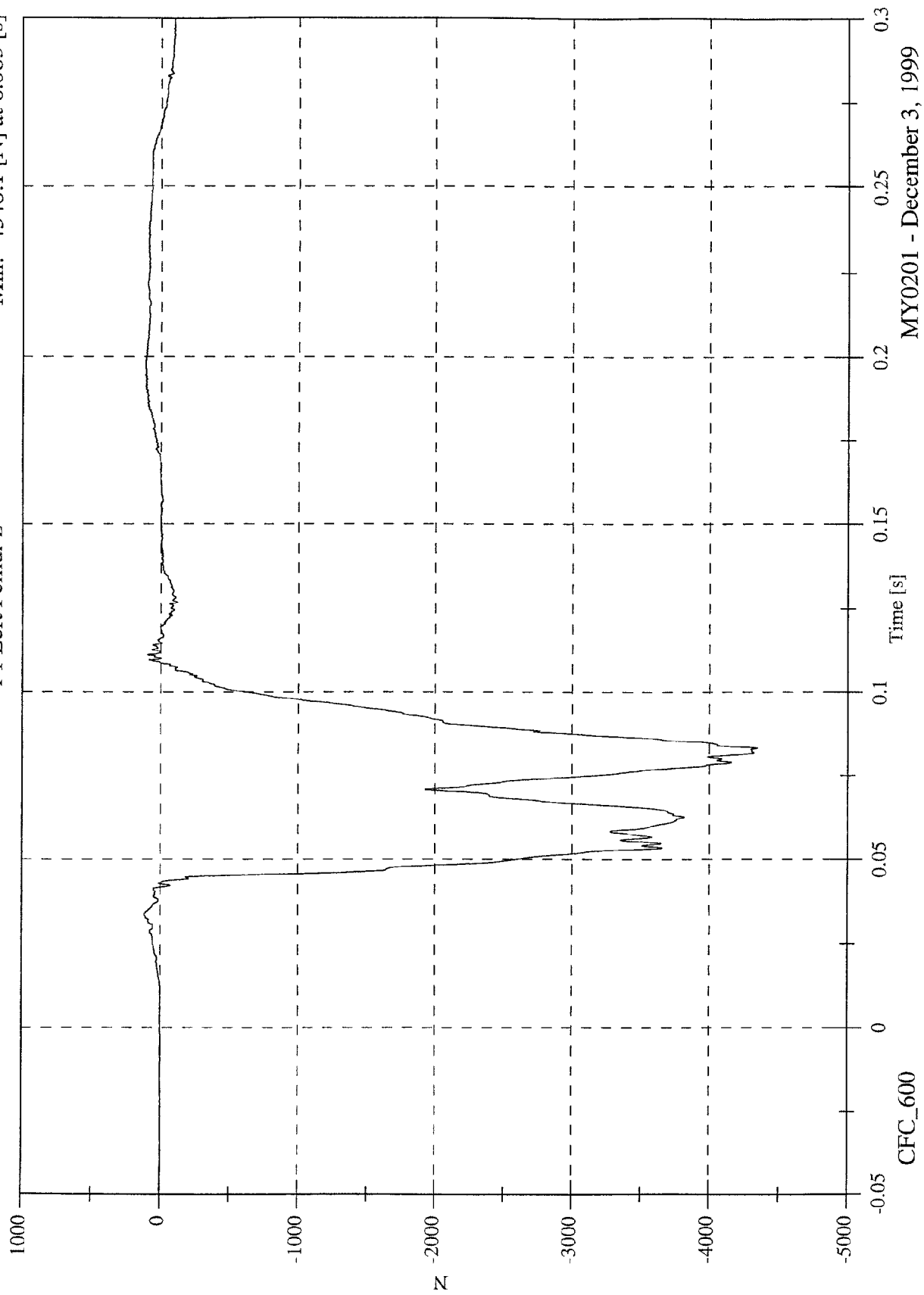
P1 Pelvic Resultant



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 117.8 [N] at 0.034 [s]
Min: -4348.1 [N] at 0.083 [s]

P1 Left Femur z

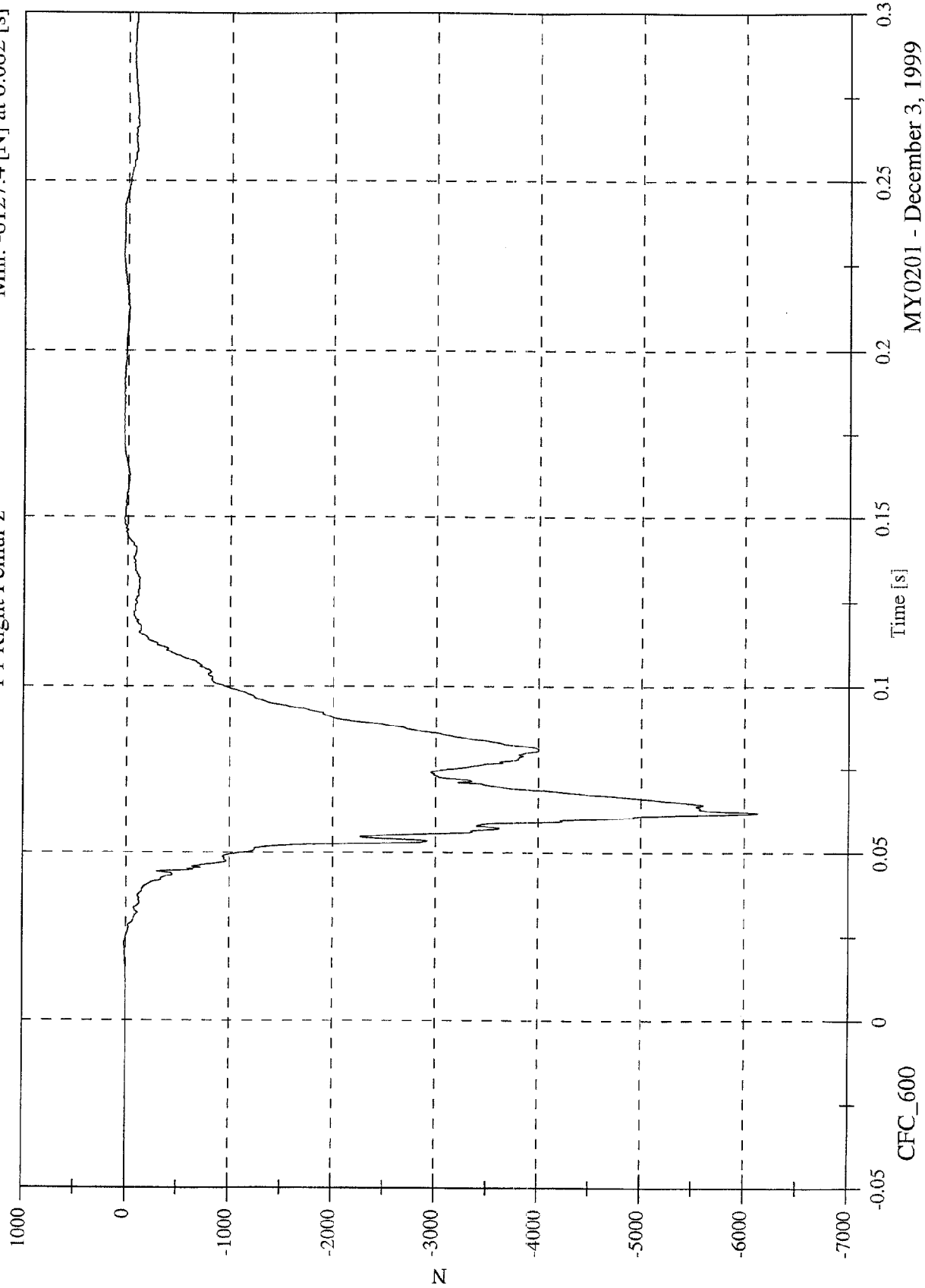


MY0201 - December 3, 1999

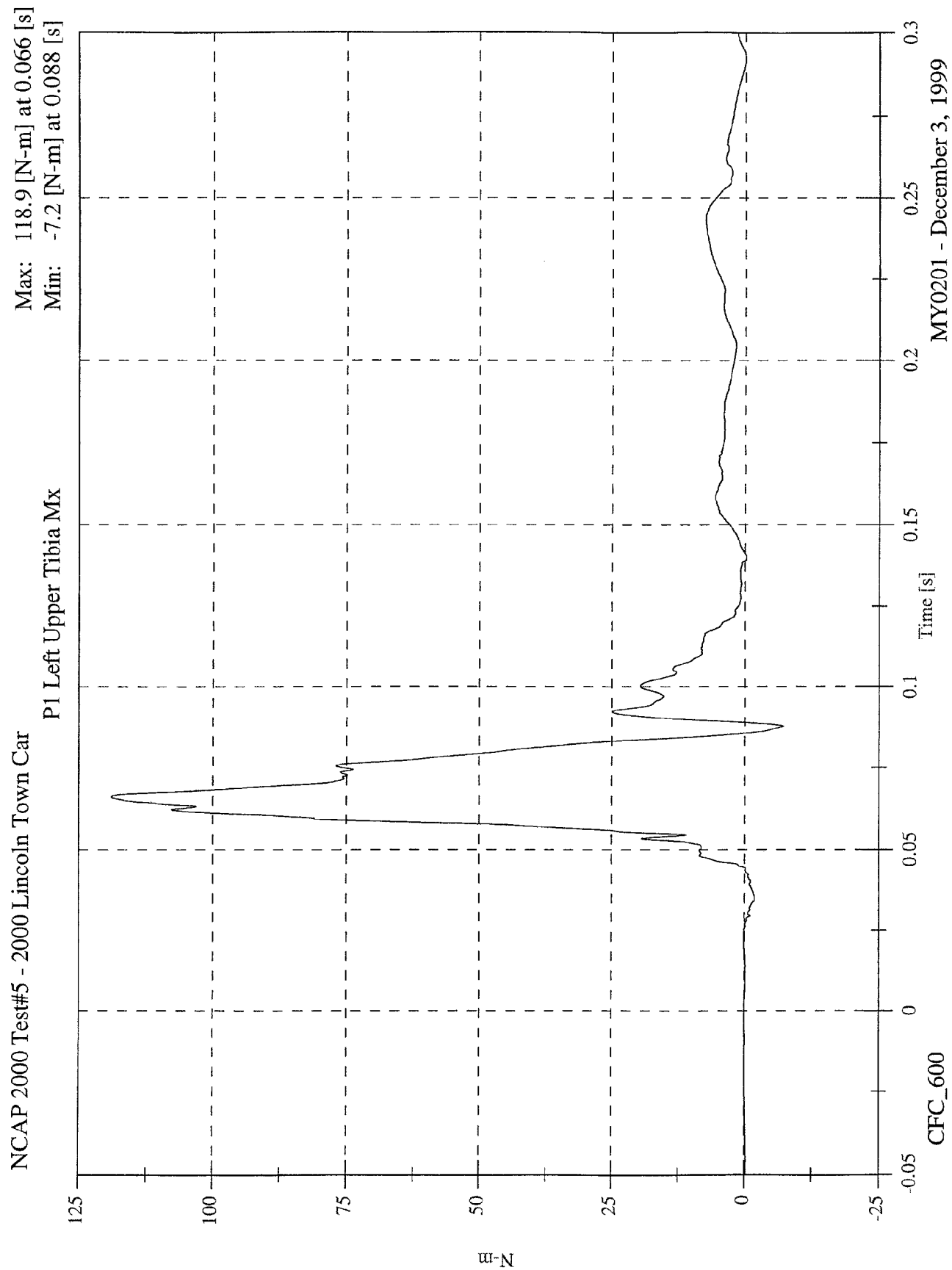
NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 43.9 [N] at 0.230 [s]
 Min: -6127.4 [N] at 0.062 [s]

P1 Right Femur z



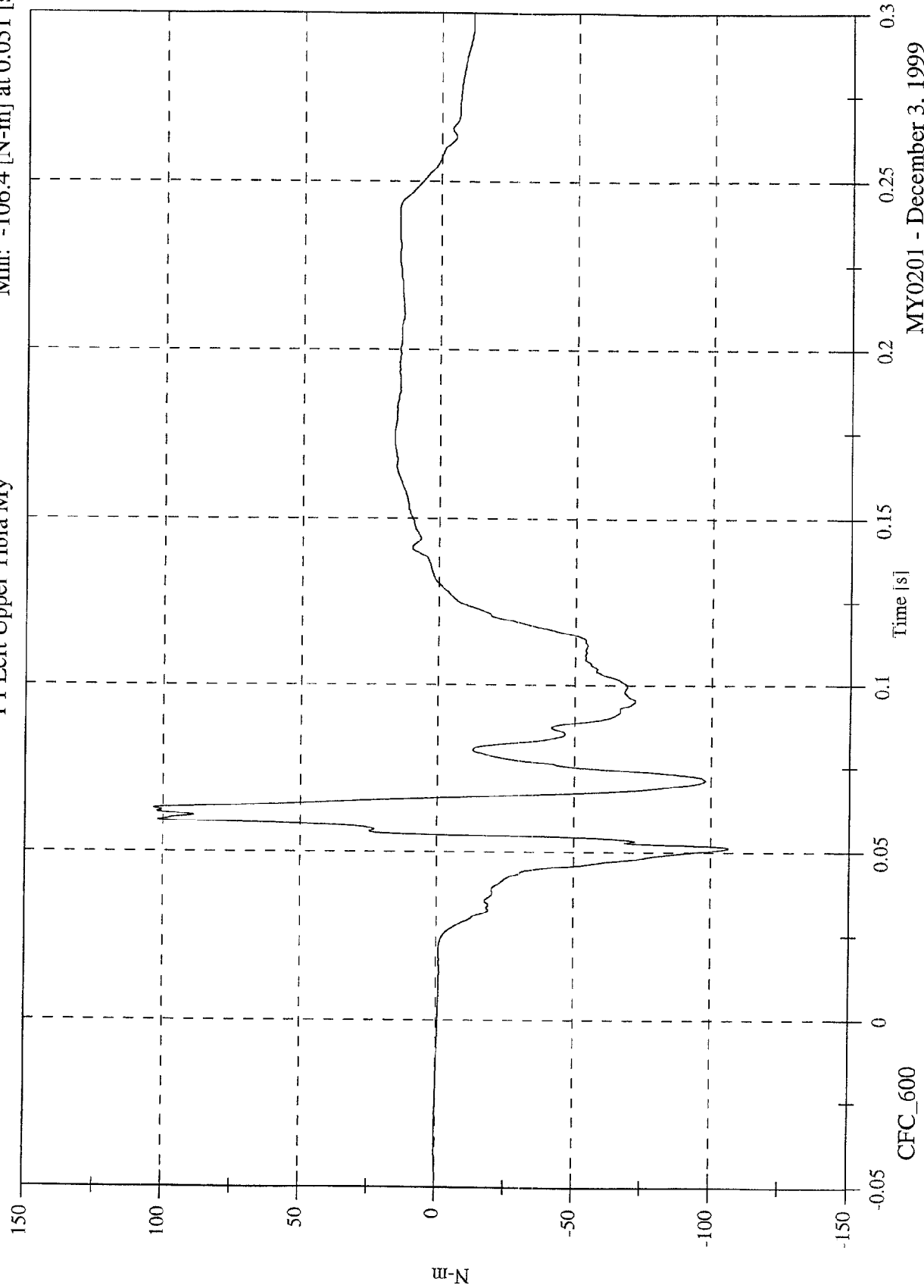
MY0201 - December 3, 1999



NCAP 2000 Test#5 - 2000 Lincoln Town Car

P1 Left Upper Tibia My

Max: 103.5 [N-m] at 0.063 [s]
Min: -106.4 [N-m] at 0.051 [s]

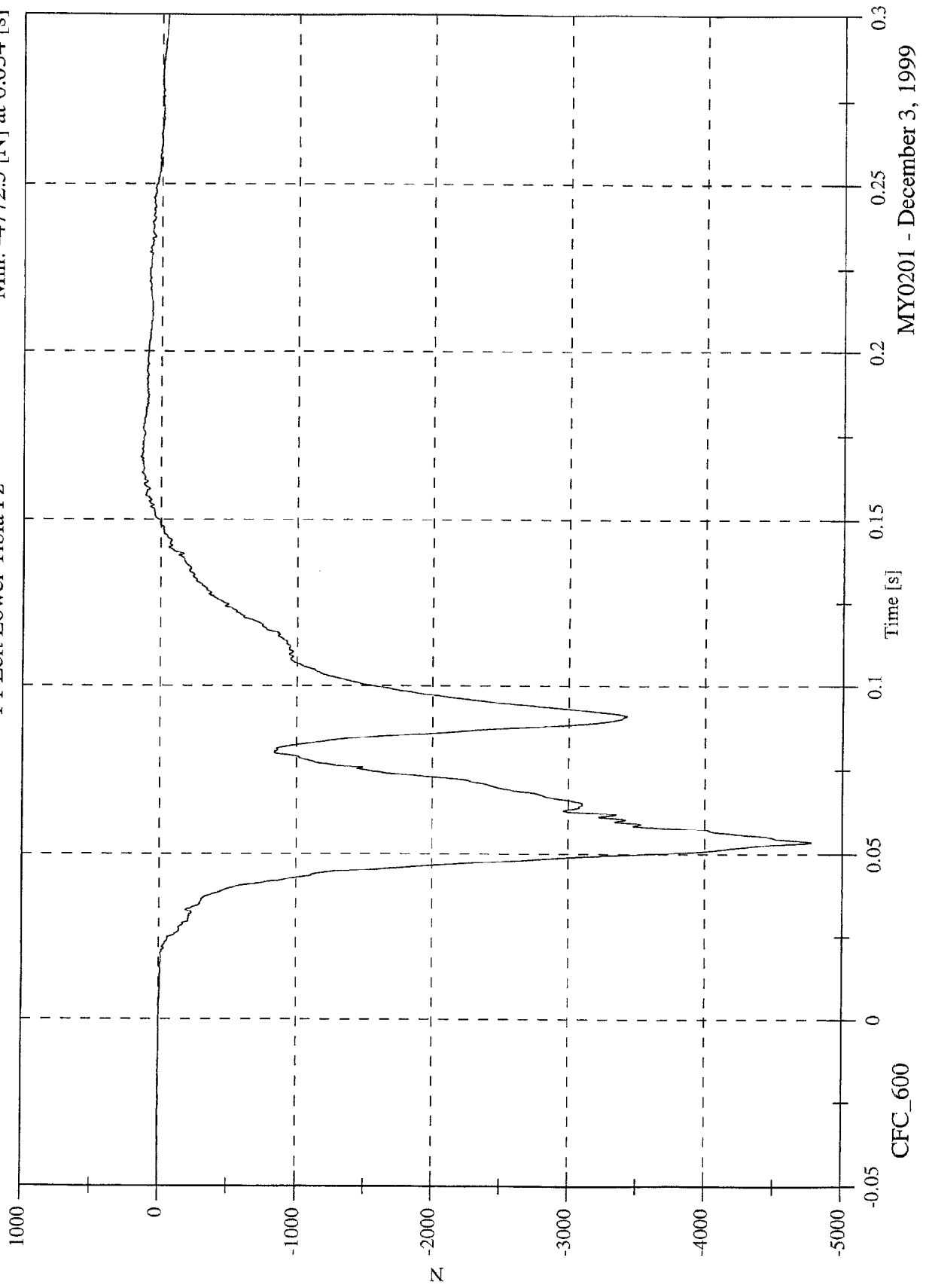


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 151.8 [N] at 0.169 [s]
Min: -4772.5 [N] at 0.054 [s]

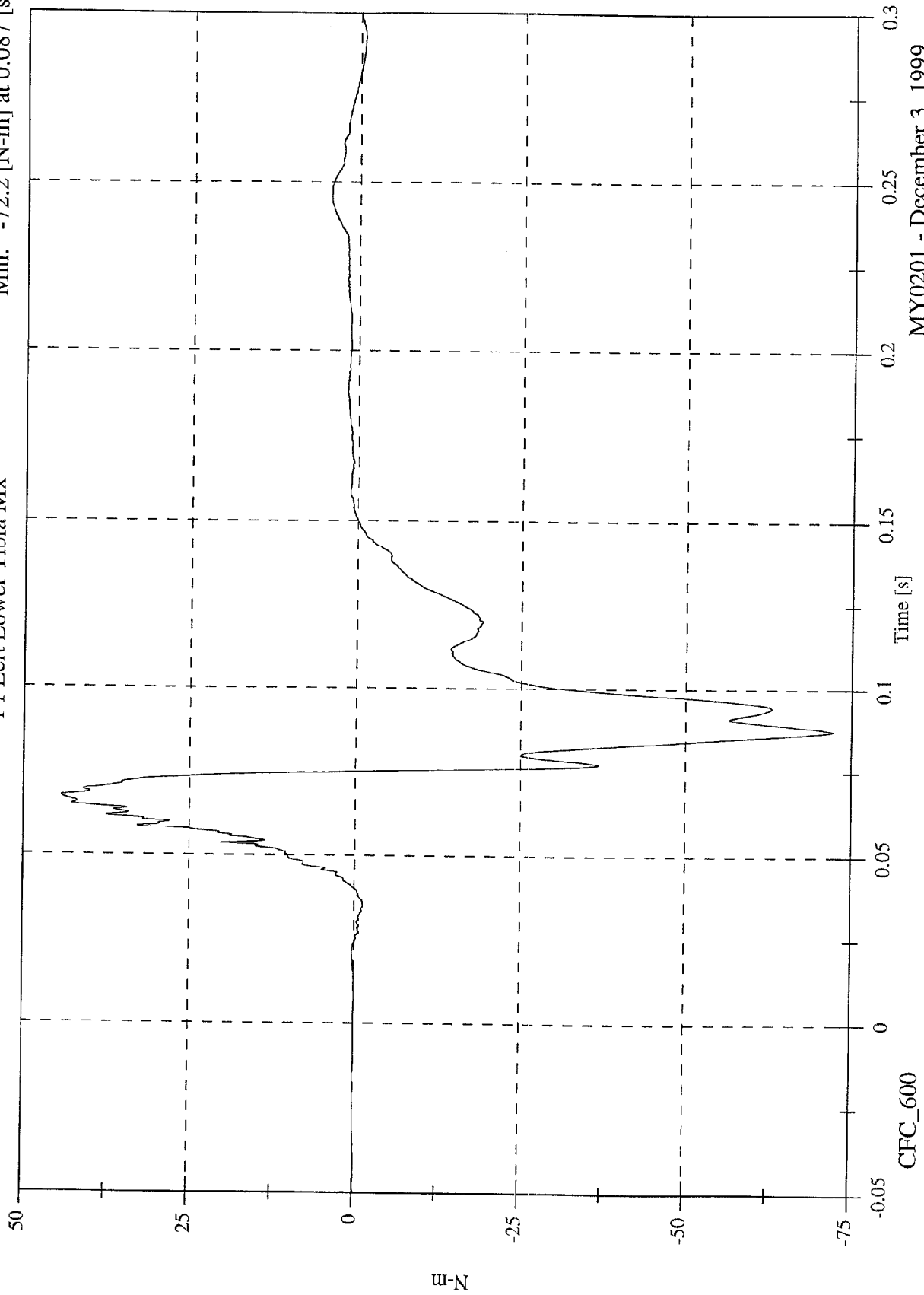
P1 Left Lower Tibia Fz



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 44.3 [N-m] at 0.067 [s]
 Min: -72.2 [N-m] at 0.087 [s]

P1 Left Lower Tibia Mx

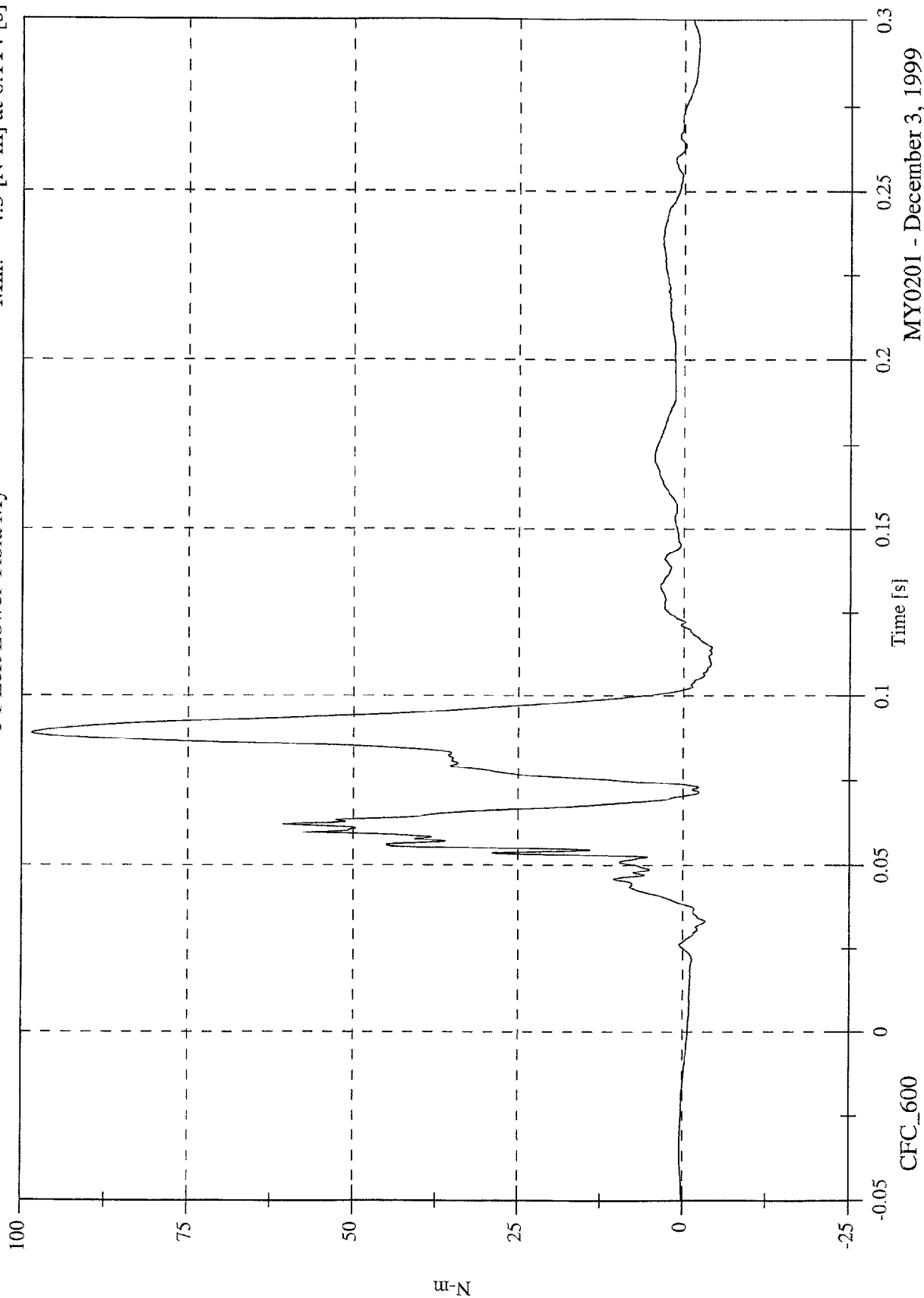


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 98.5 [N-m] at 0.089 [s]
 Min: -4.3 [N-m] at 0.114 [s]

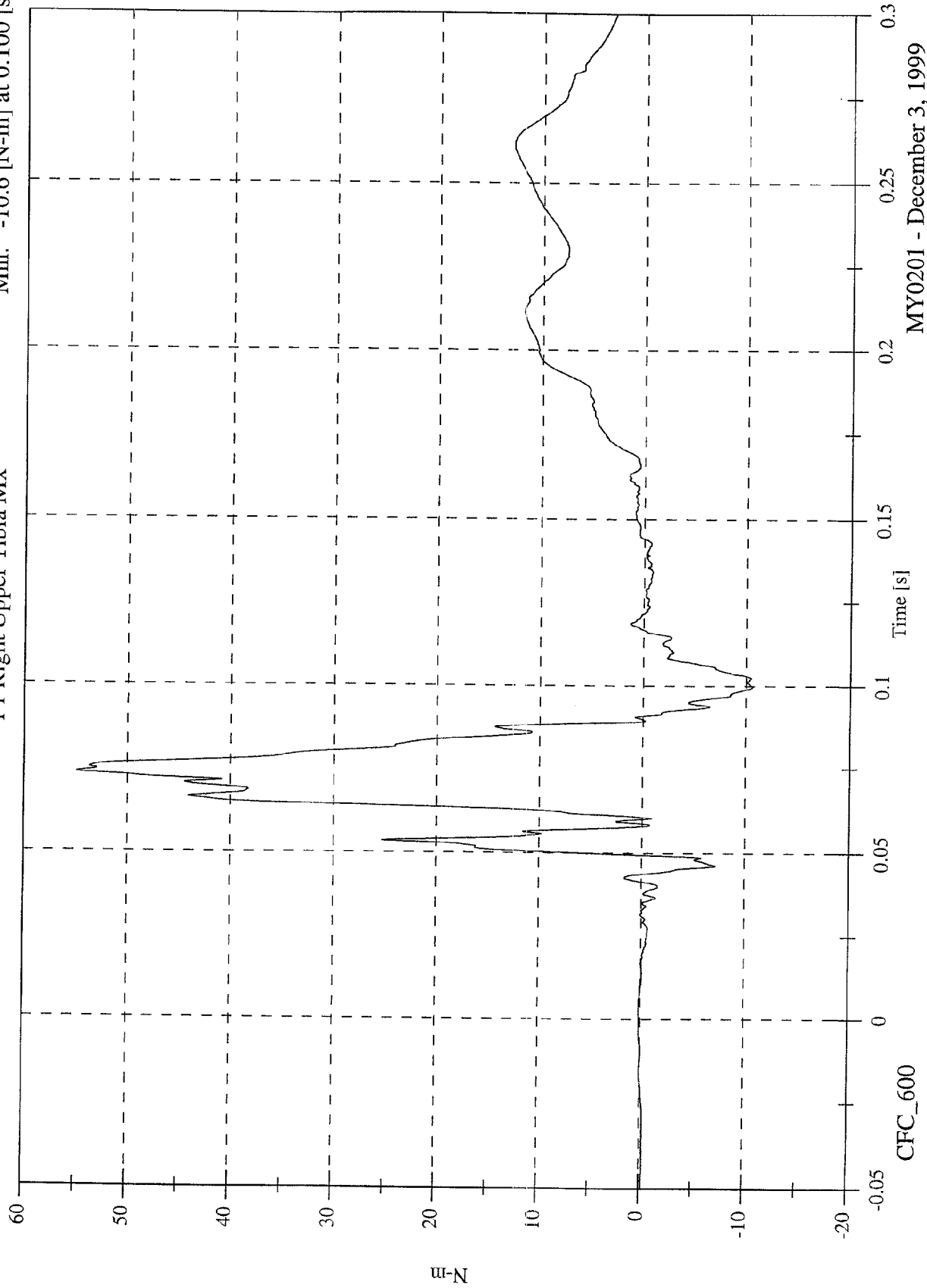
P1 Left Lower Tibia My



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 55.0 [N-m] at 0.073 [s]
 Min: -10.6 [N-m] at 0.100 [s]

P1 Right Upper Tibia Mx

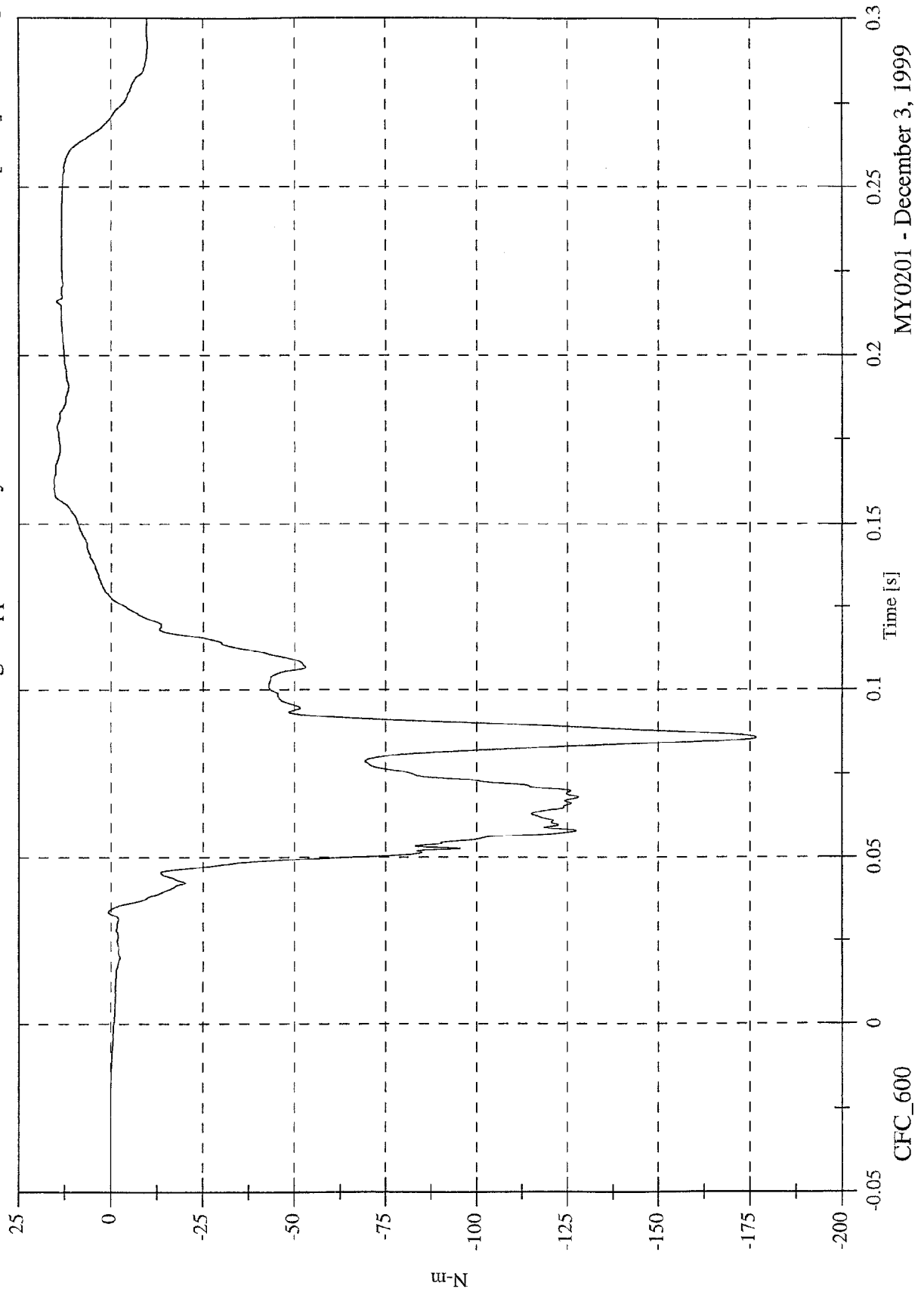


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 15.5 [N-m] at 0.160 [s]
Min: -176.7 [N-m] at 0.086 [s]

P1 Right Upper Tibia My

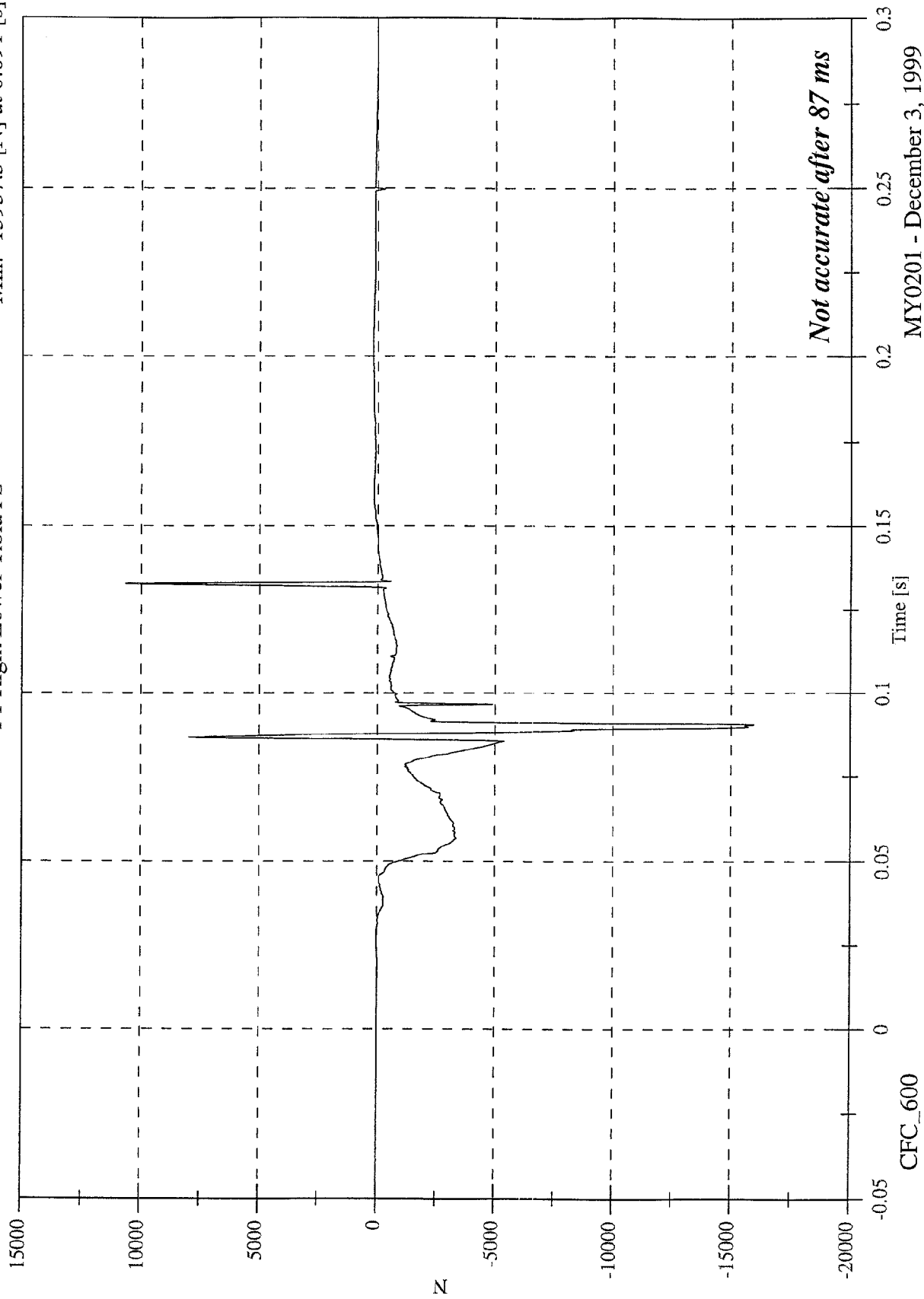


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 10657.3 [N] at 0.133 [s]
Min: -15957.5 [N] at 0.091 [s]

P1 Right Lower Tibia Fz

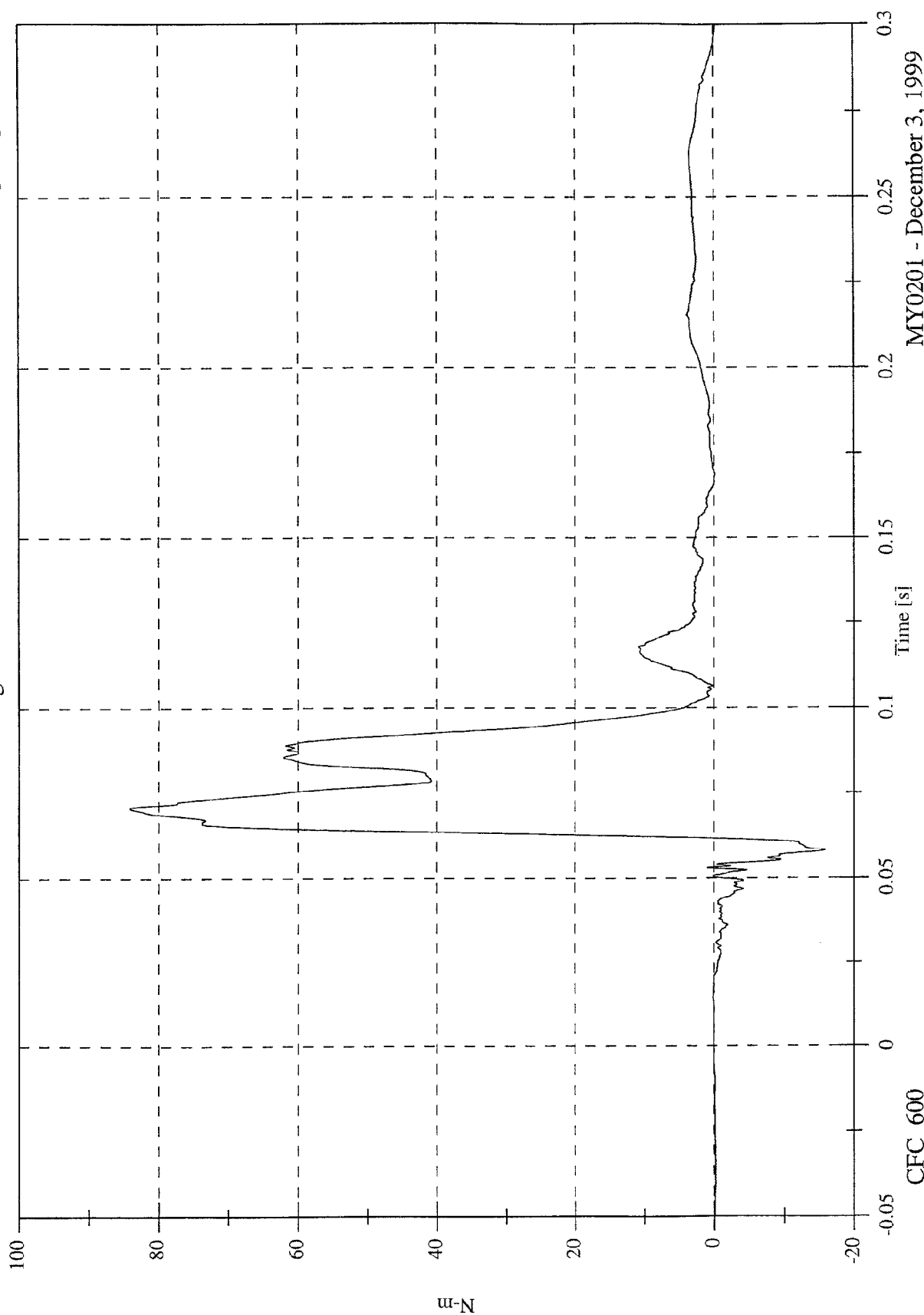


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 84.1 [N-m] at 0.071 [s]
 Min: -15.8 [N-m] at 0.058 [s]

P1 Right Lower Tibia Mx



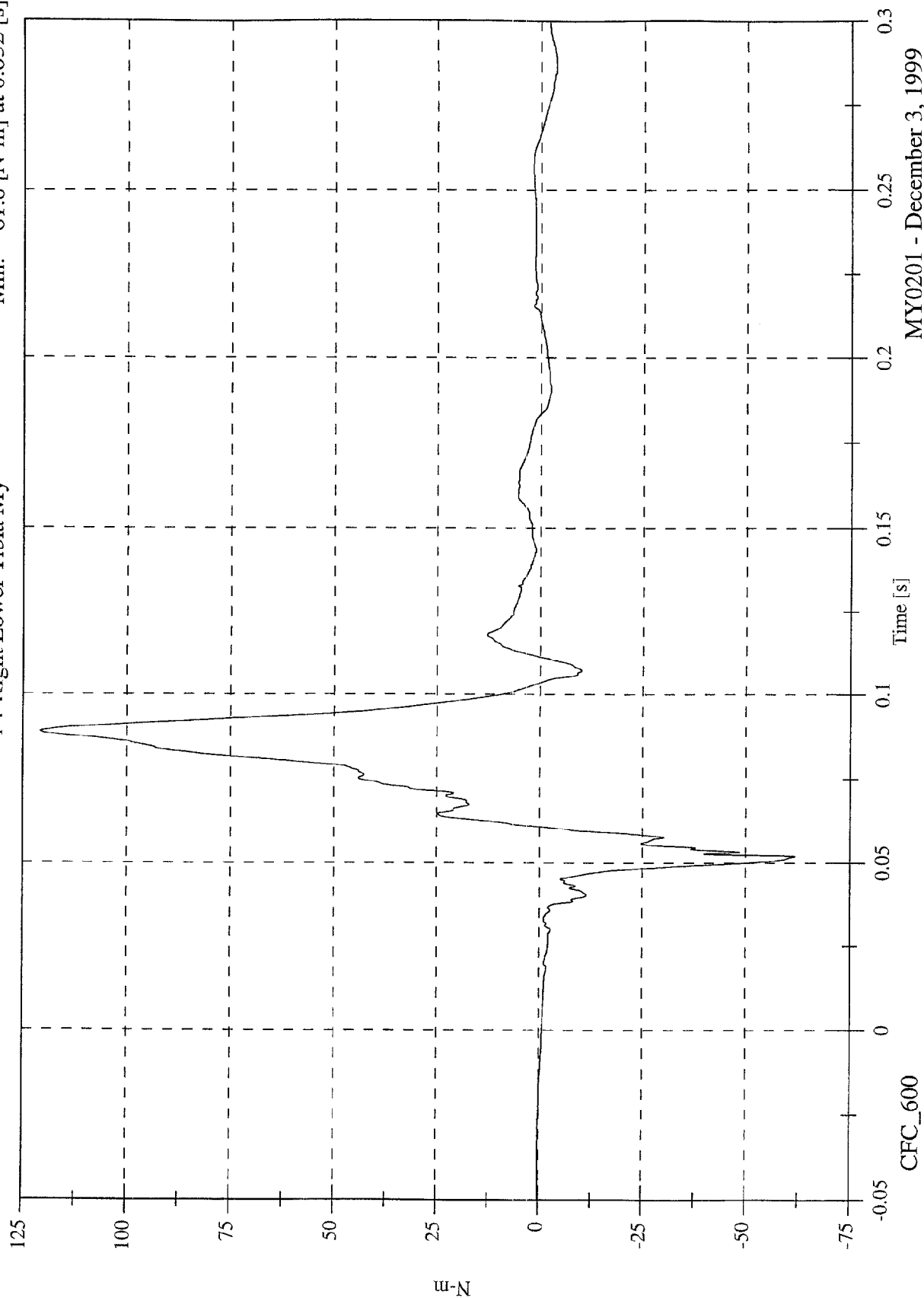
MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 120.7 [N-m] at 0.089 [s]

Min: -61.8 [N-m] at 0.052 [s]

P1 Right Lower Tibia My

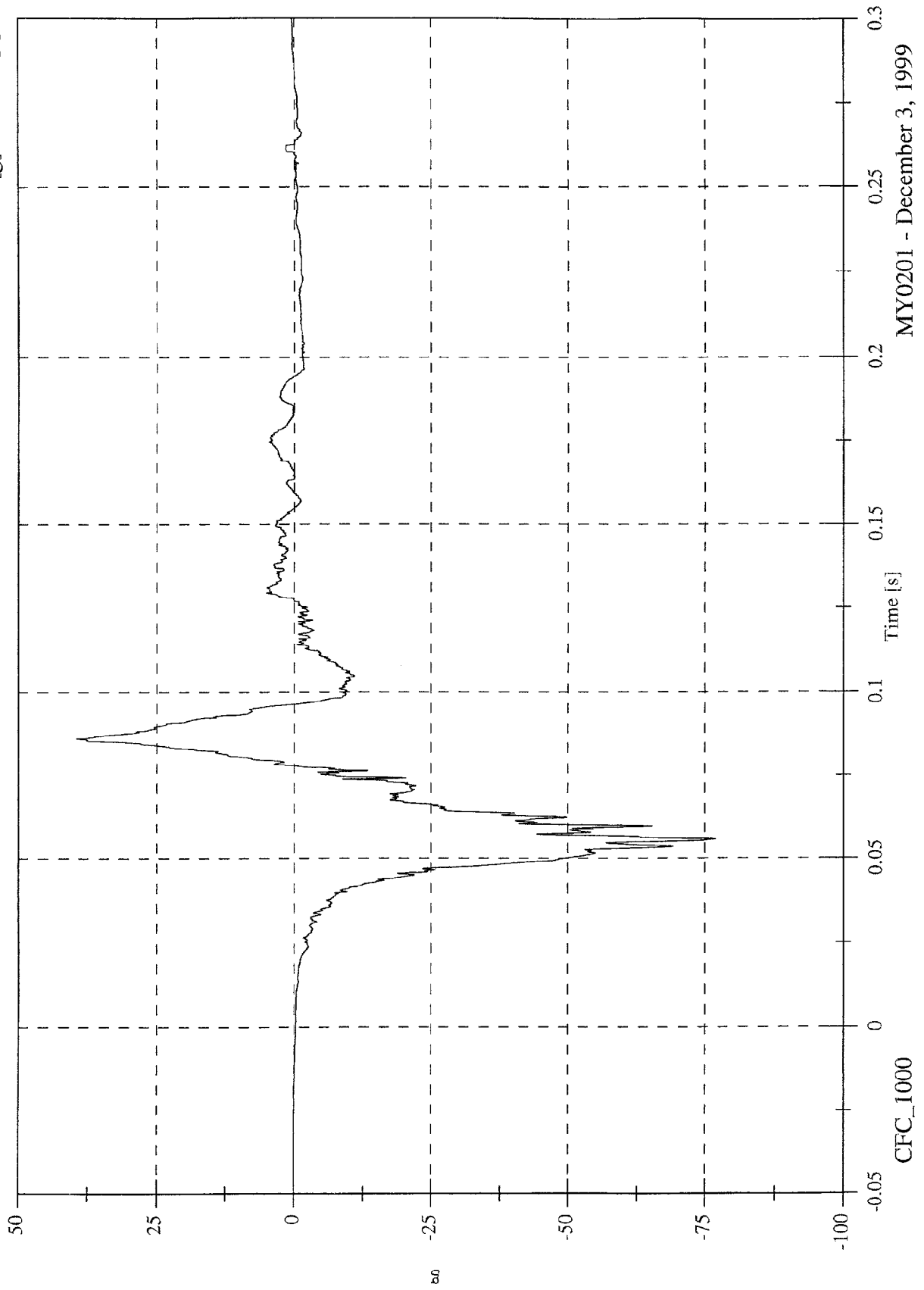


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 39.5 [g] at 0.086 [s]
 Min: -76.9 [g] at 0.056 [s]

P1 Left Foot Aft x

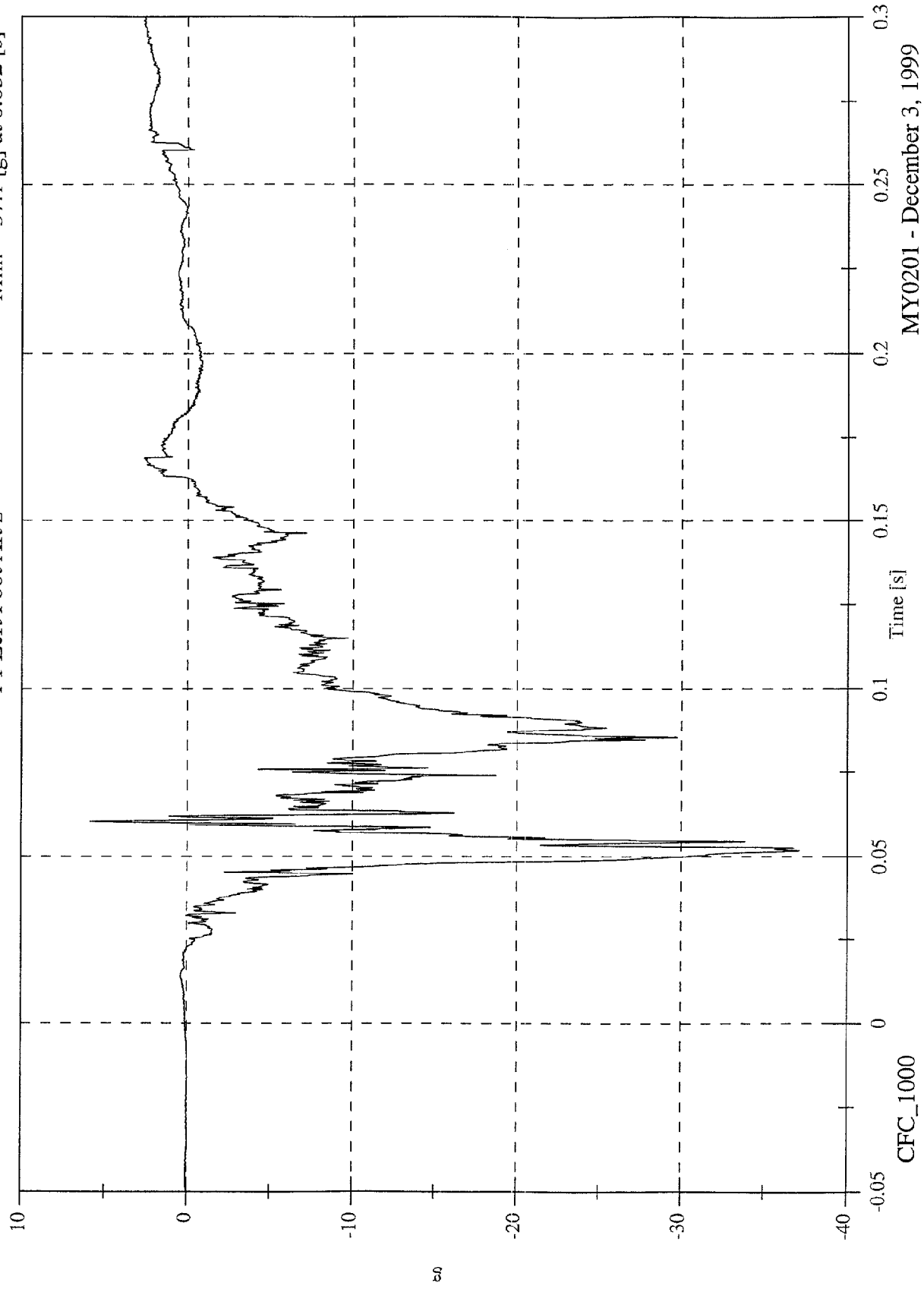


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 5.9 [g] at 0.061 [s]
 Min: -37.1 [g] at 0.052 [s]

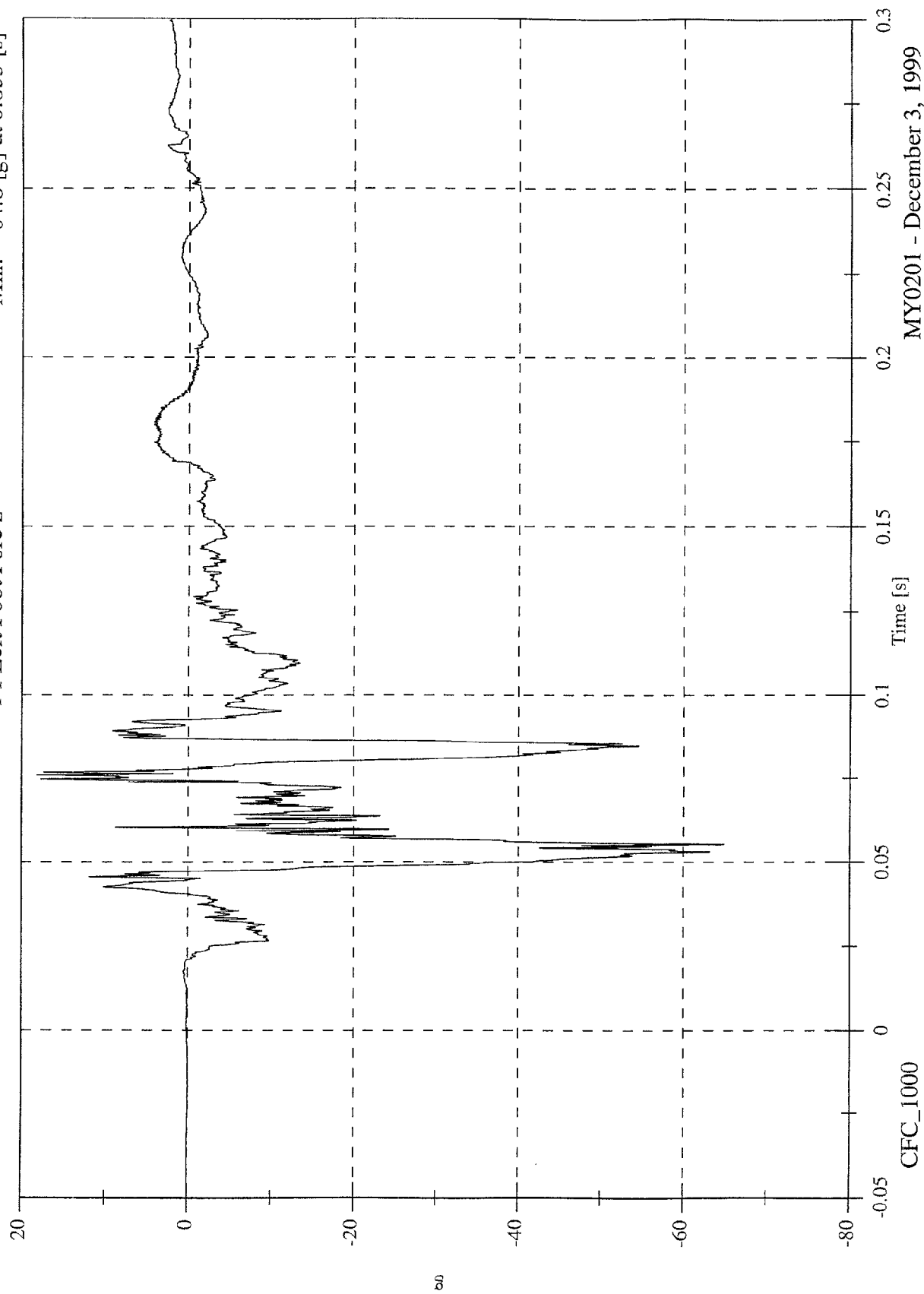
P1 Left Foot Aft z



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 18.1 [g] at 0.076 [s]
Min: -64.8 [g] at 0.055 [s]

P1 Left Foot Fore z

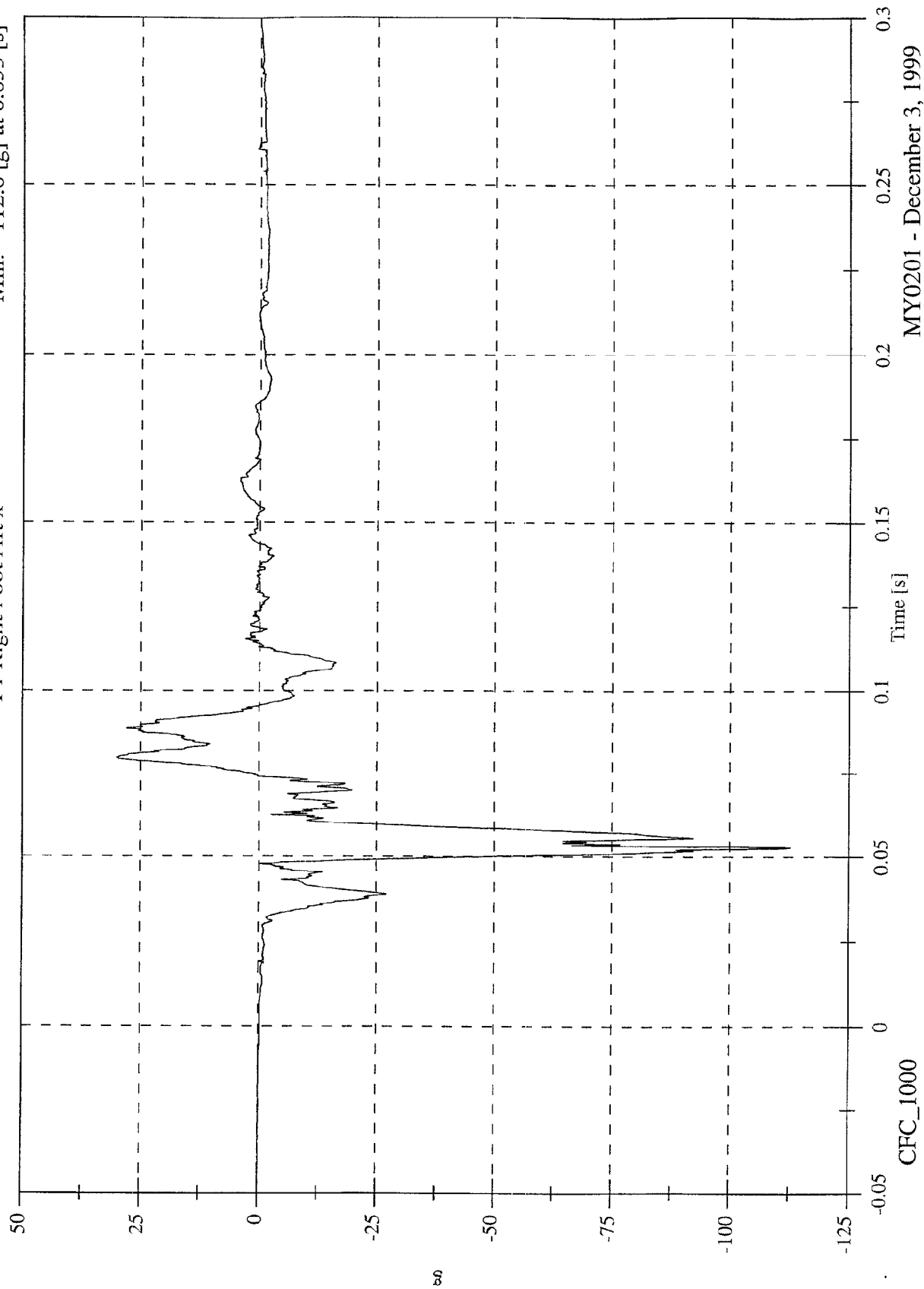


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 30.0 [g] at 0.080 [s]
Min: -112.6 [g] at 0.053 [s]

P1 Right Foot Aft x



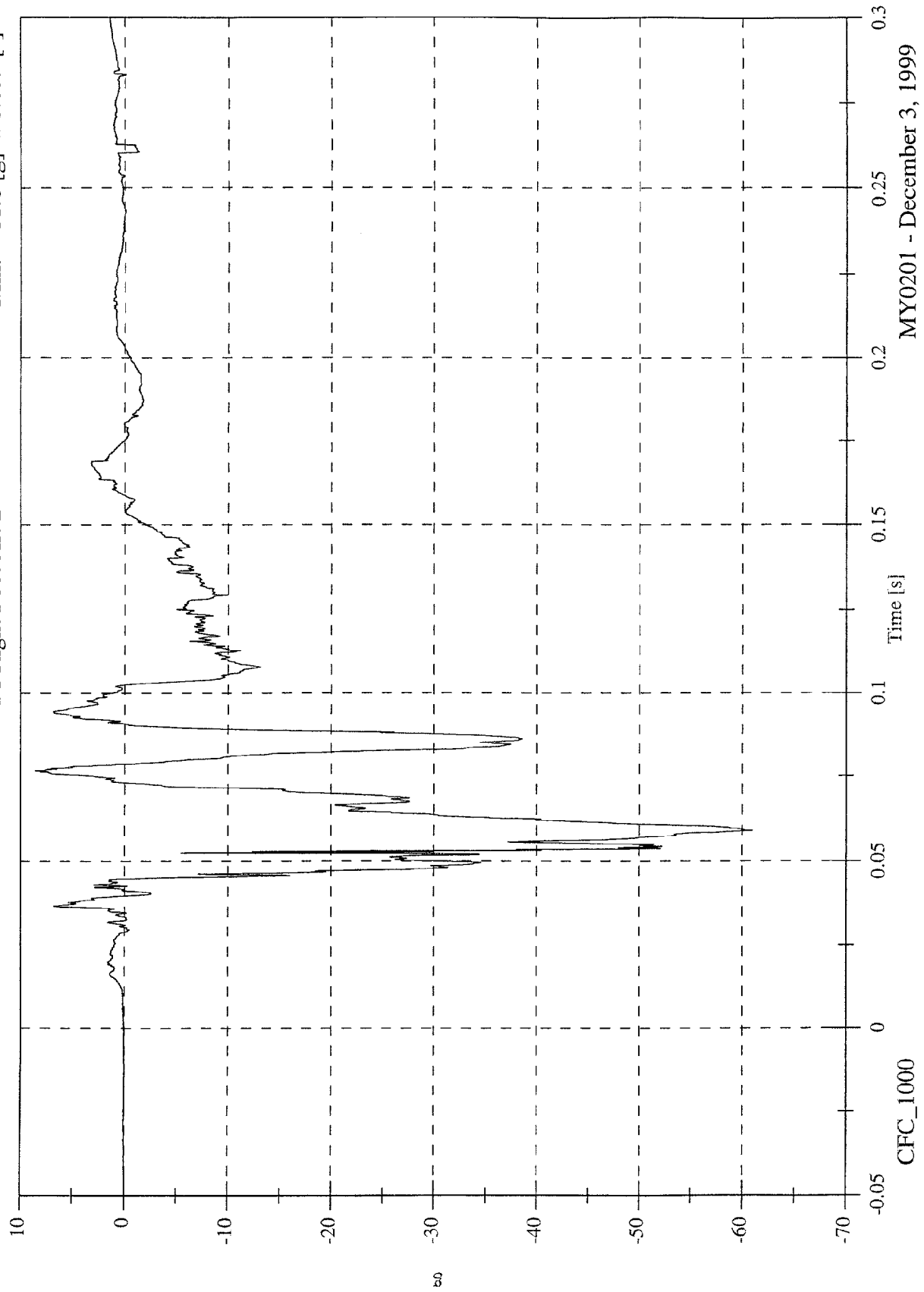
MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 8.6 [g] at 0.077 [s]

Min: -61.0 [g] at 0.059 [s]

P1 Right Foot Aft z

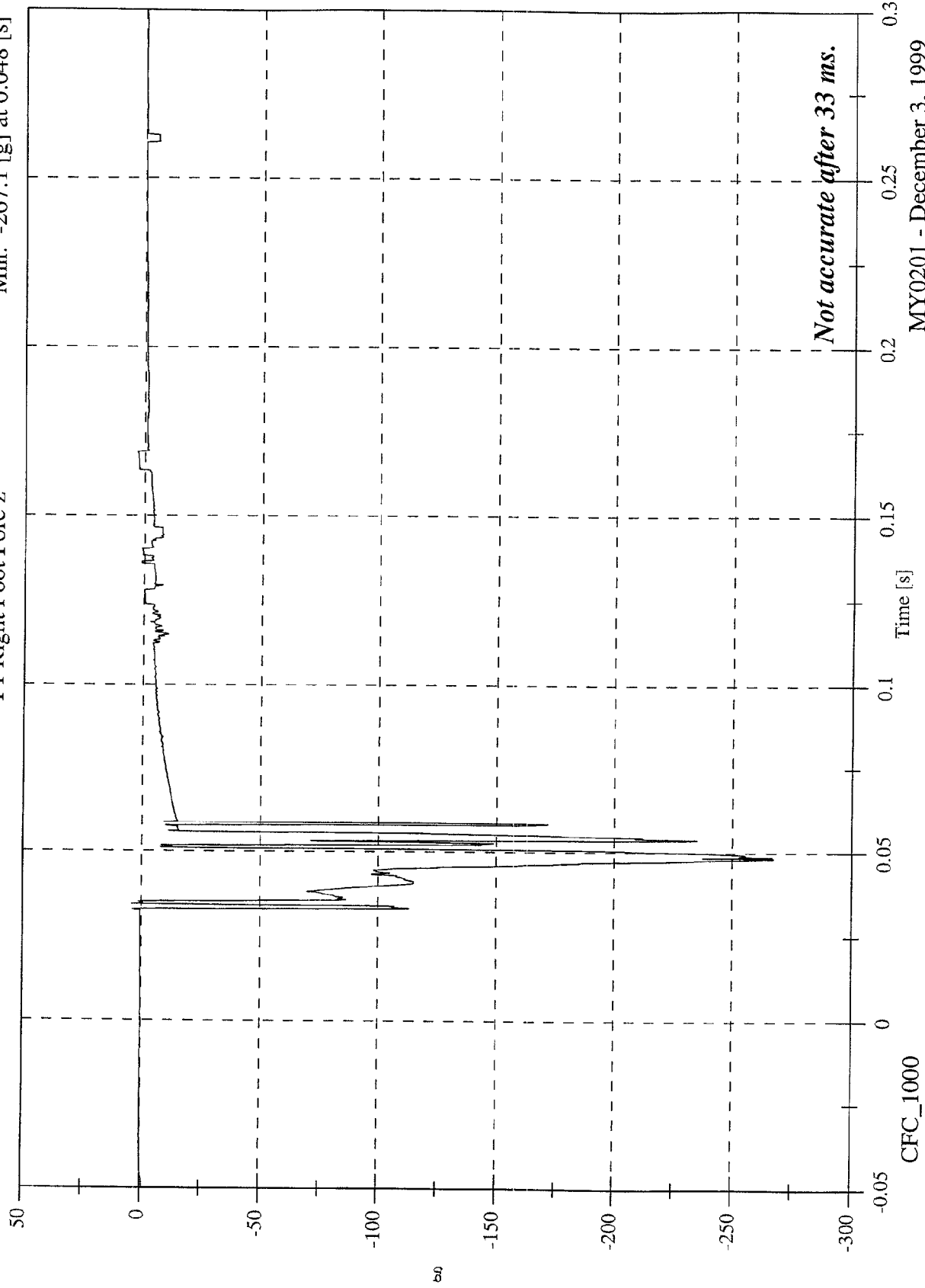


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 4.0 [g] at 0.034 [s]
Min: -267.1 [g] at 0.048 [s]

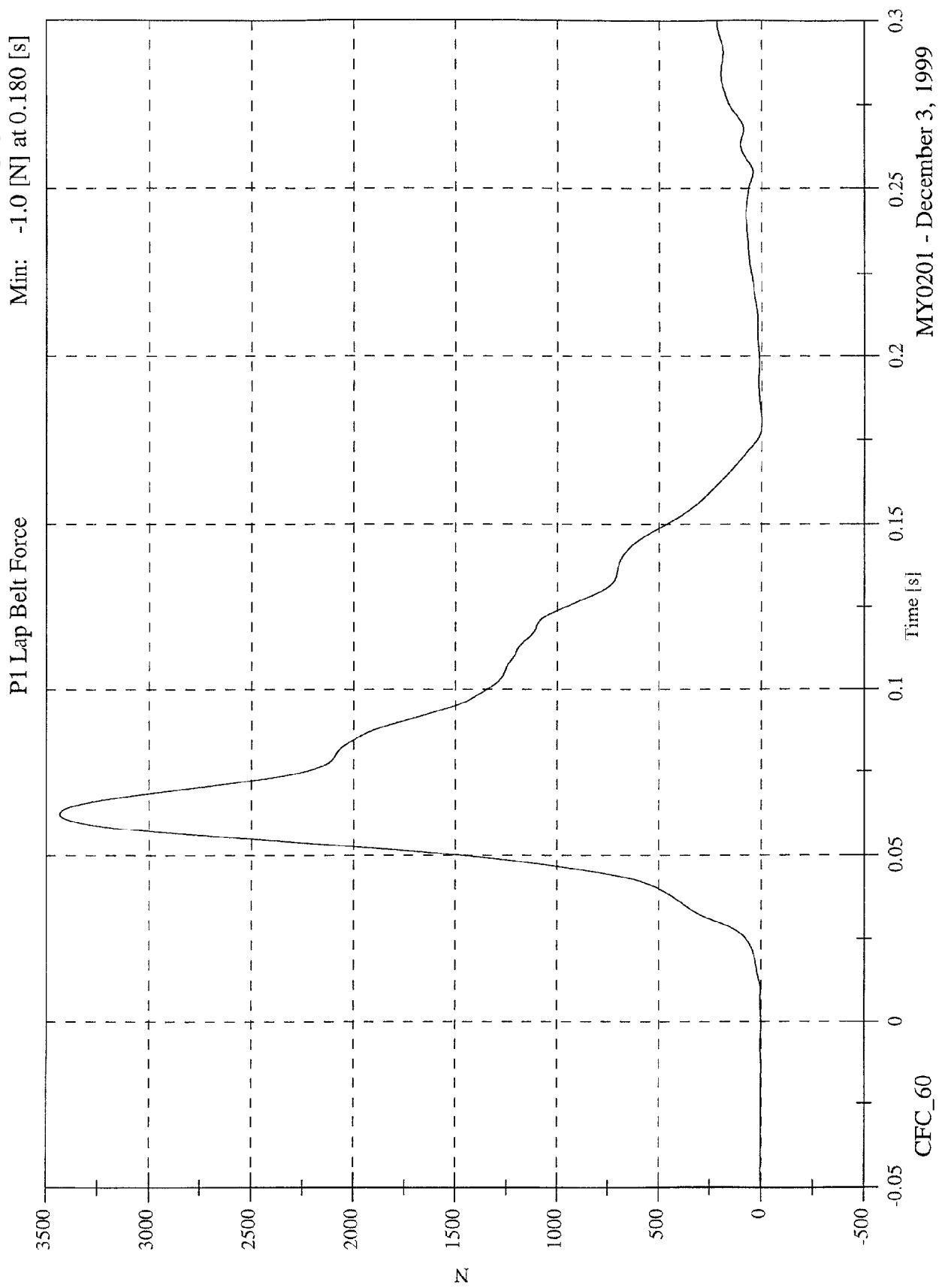
P1 Right Foot Fore z



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 3434.3 [N] at 0.062 [s]
 Min: -1.0 [N] at 0.180 [s]



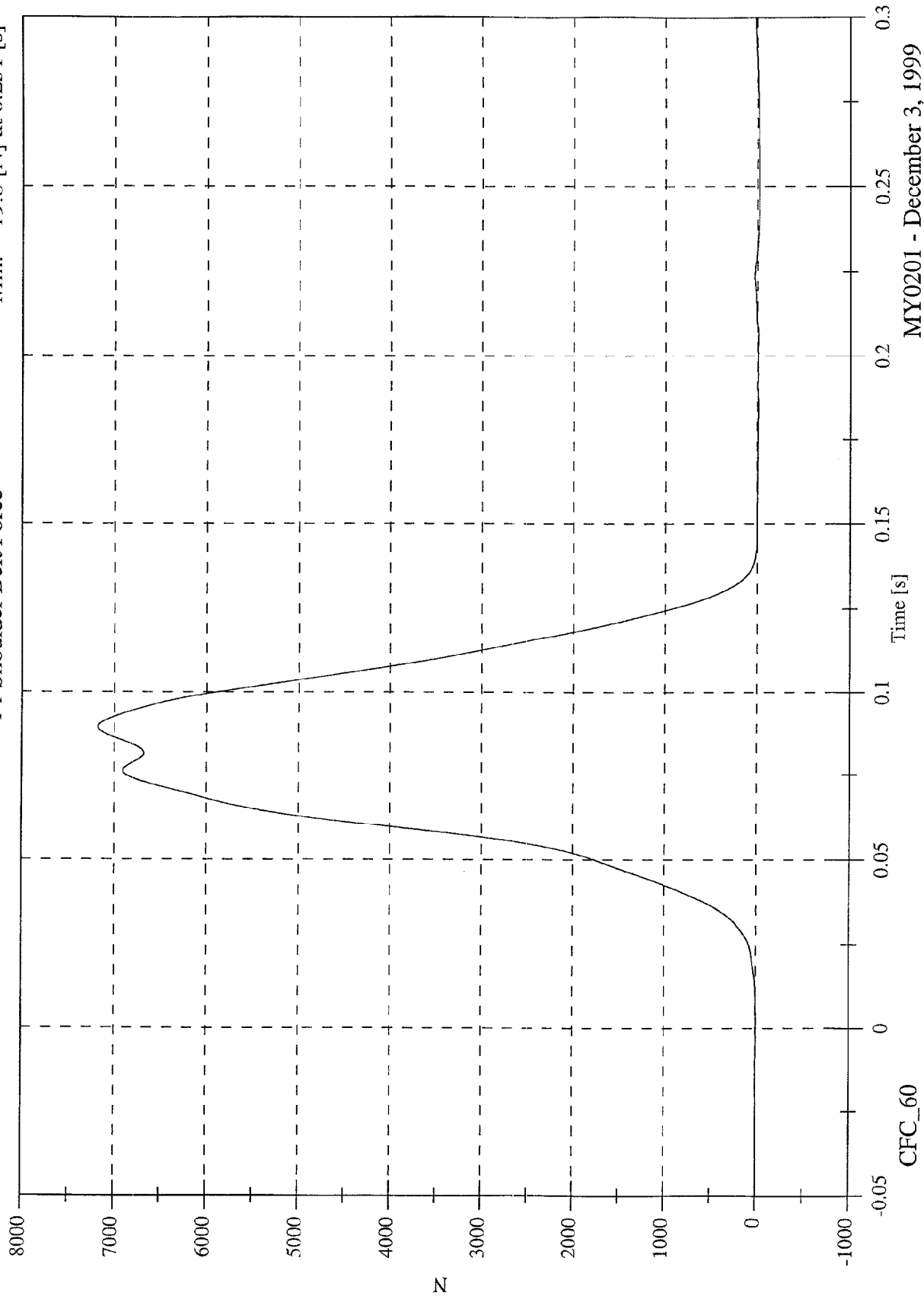
MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

P1 Shoulder Belt Force

Max: 7176.3 [N] at 0.089 [s]

Min: -19.6 [N] at 0.251 [s]

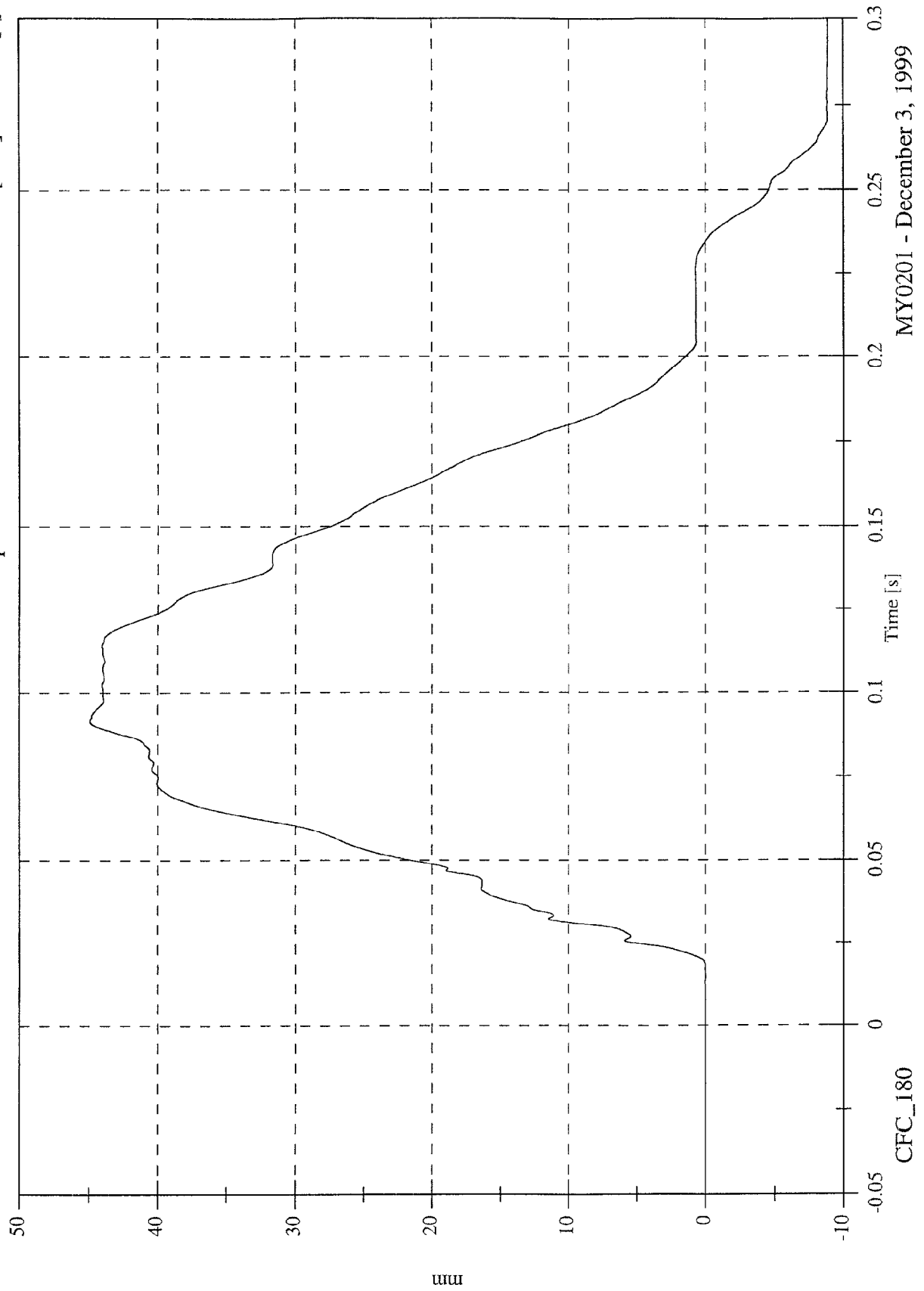


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 44.9 [mm] at 0.092 [s]
 Min: -8.9 [mm] at 0.298 [s]

P1 Shoulder Belt Spool-Off

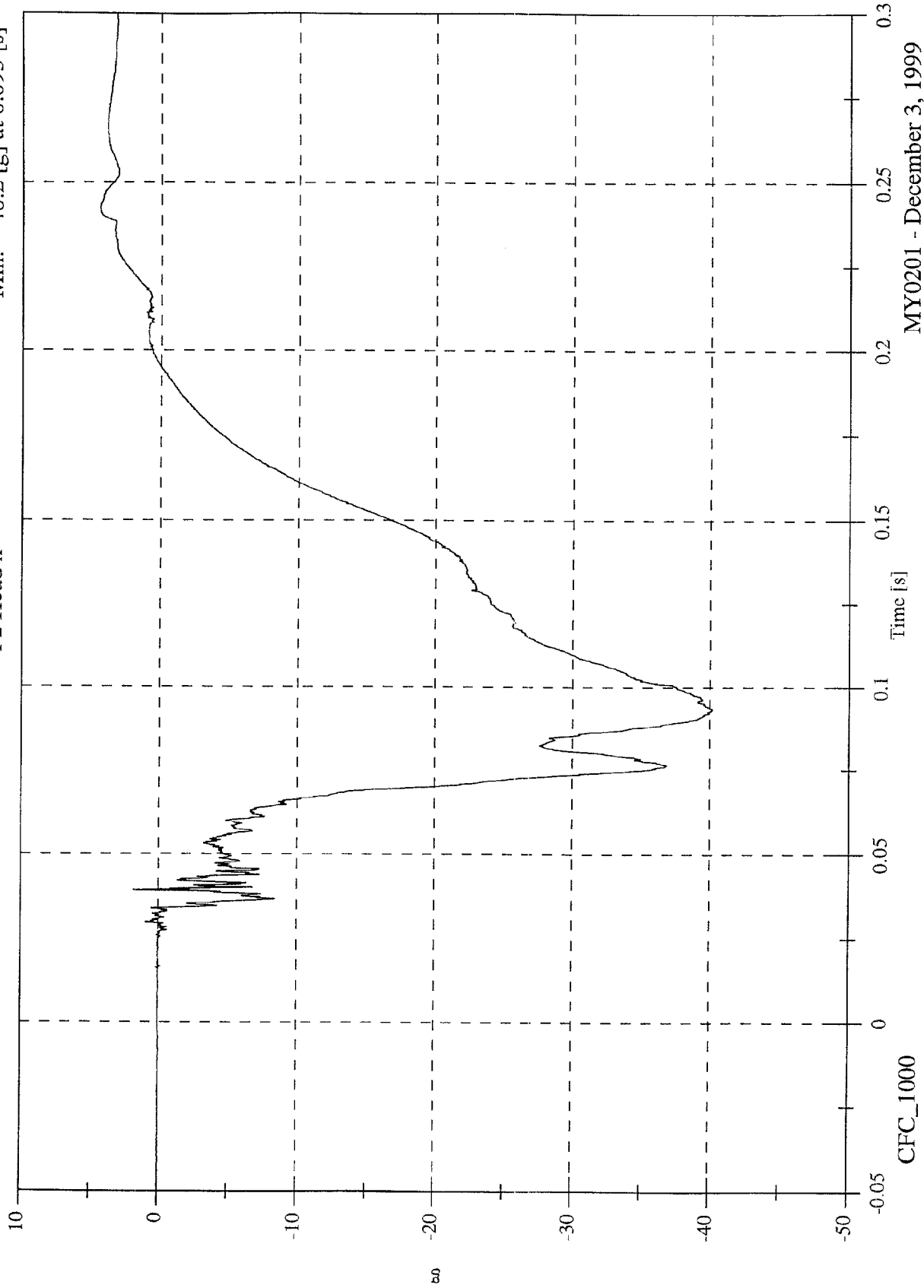


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 4.5 [g] at 0.243 [s]
 Min: -40.2 [g] at 0.093 [s]

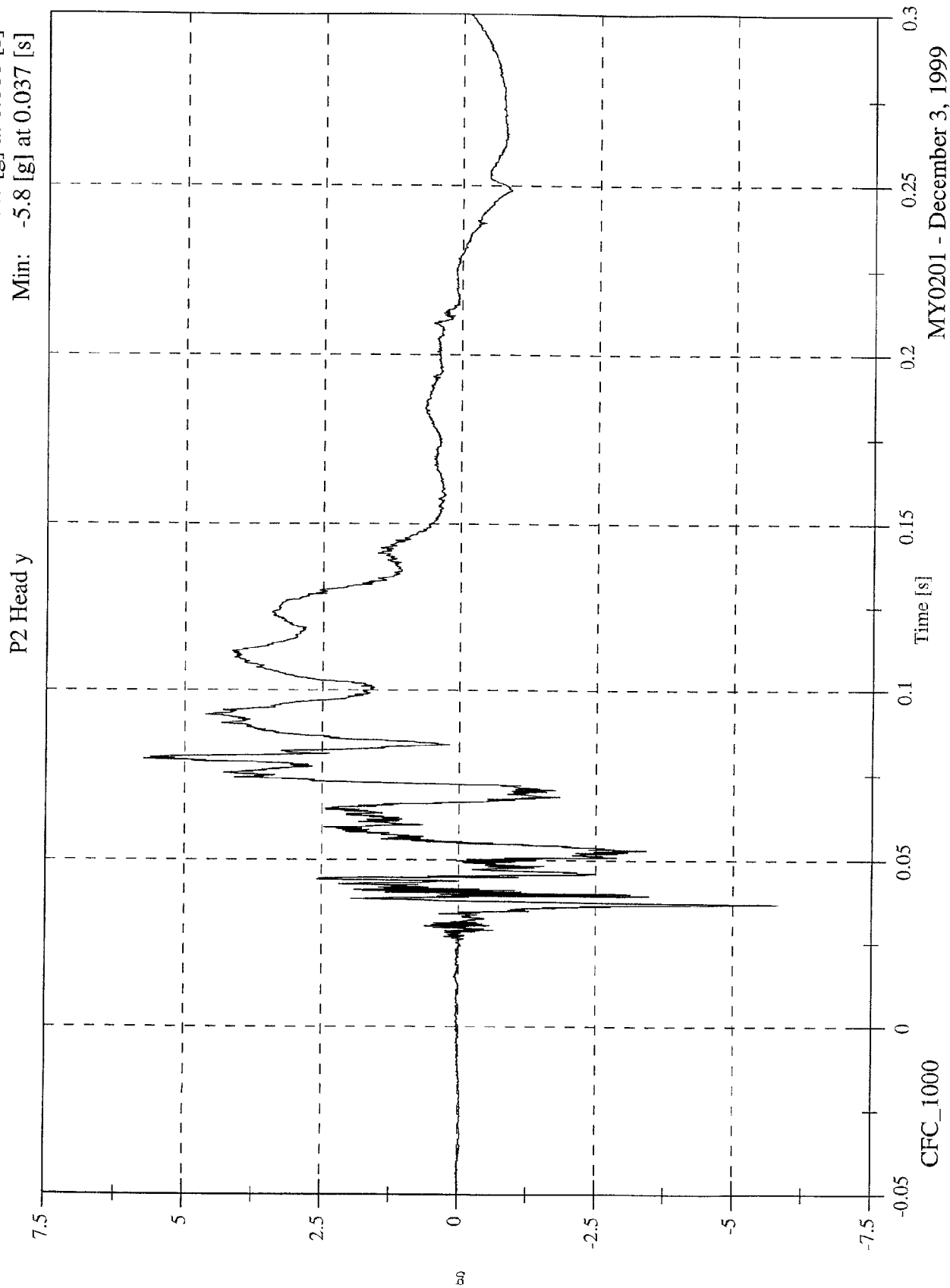
P2 Head x



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 5.7 [g] at 0.080 [s]
 Min: -5.8 [g] at 0.037 [s]

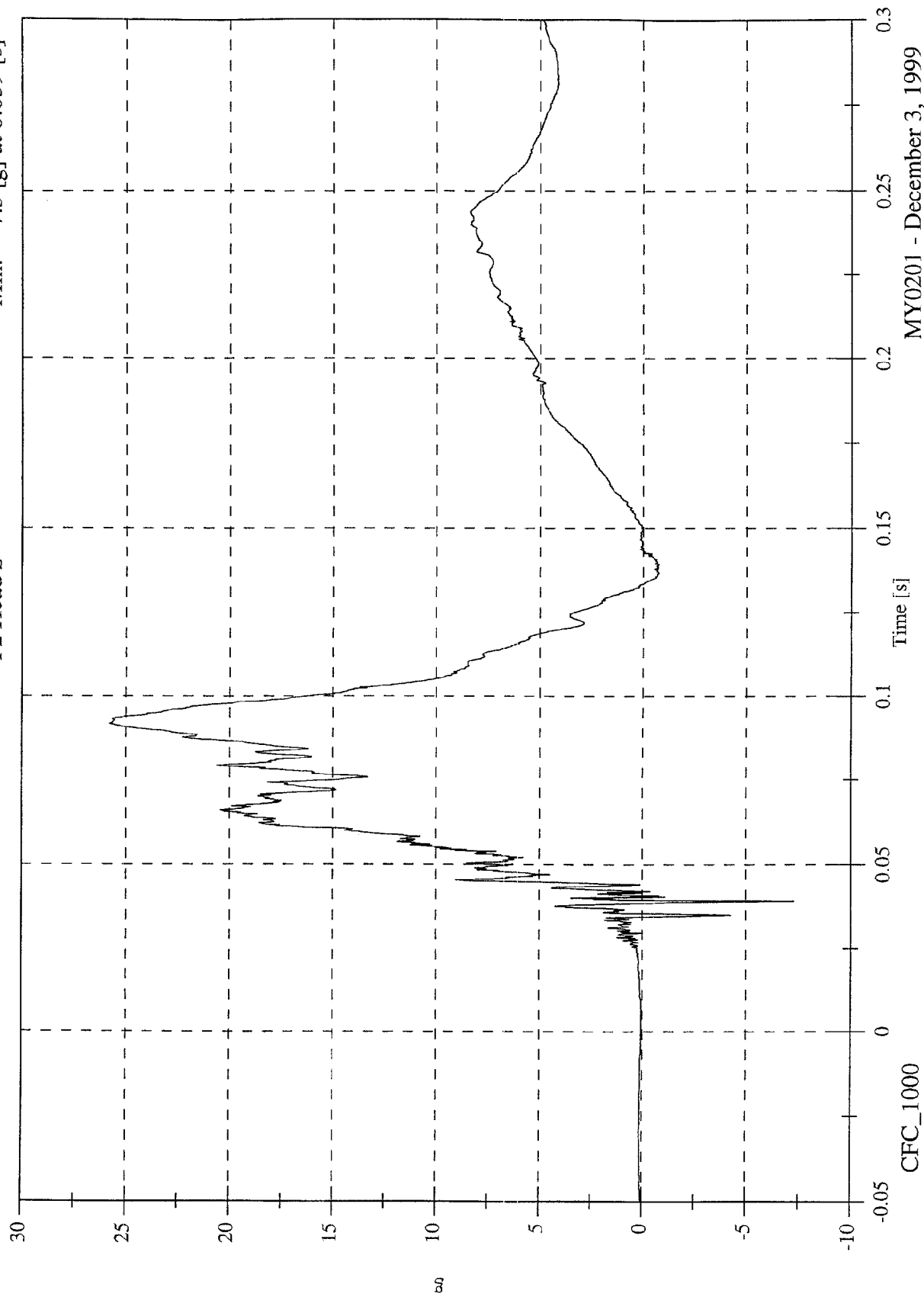


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 25.8 [g] at 0.092 [s]
 Min: -7.3 [g] at 0.039 [s]

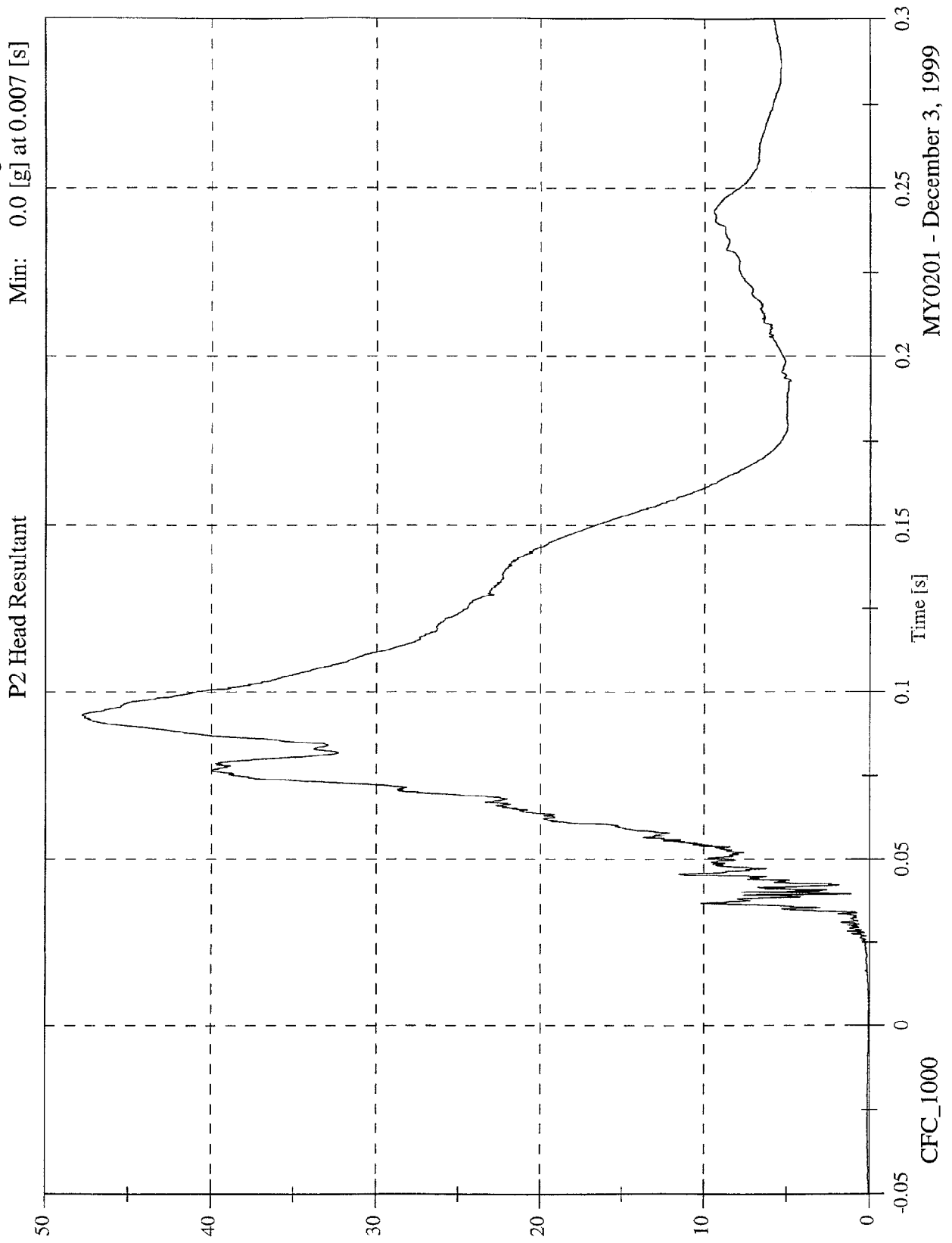
P2 Head z



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

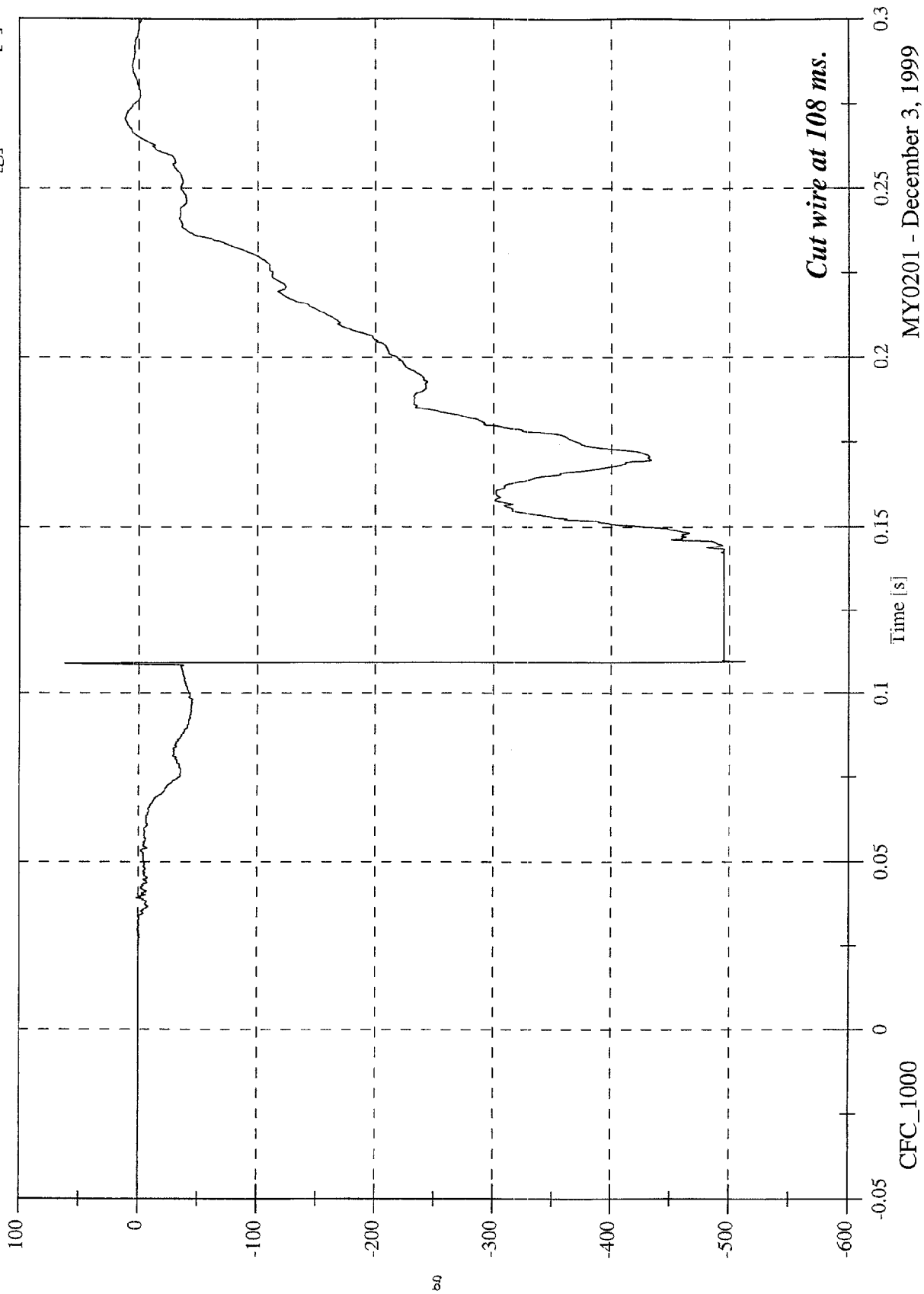
Max: 47.8 [g] at 0.093 [s]
Min: 0.0 [g] at 0.007 [s]



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 61.9 [g] at 0.109 [s]
Min: -513.4 [g] at 0.109 [s]

P2 Head Red x

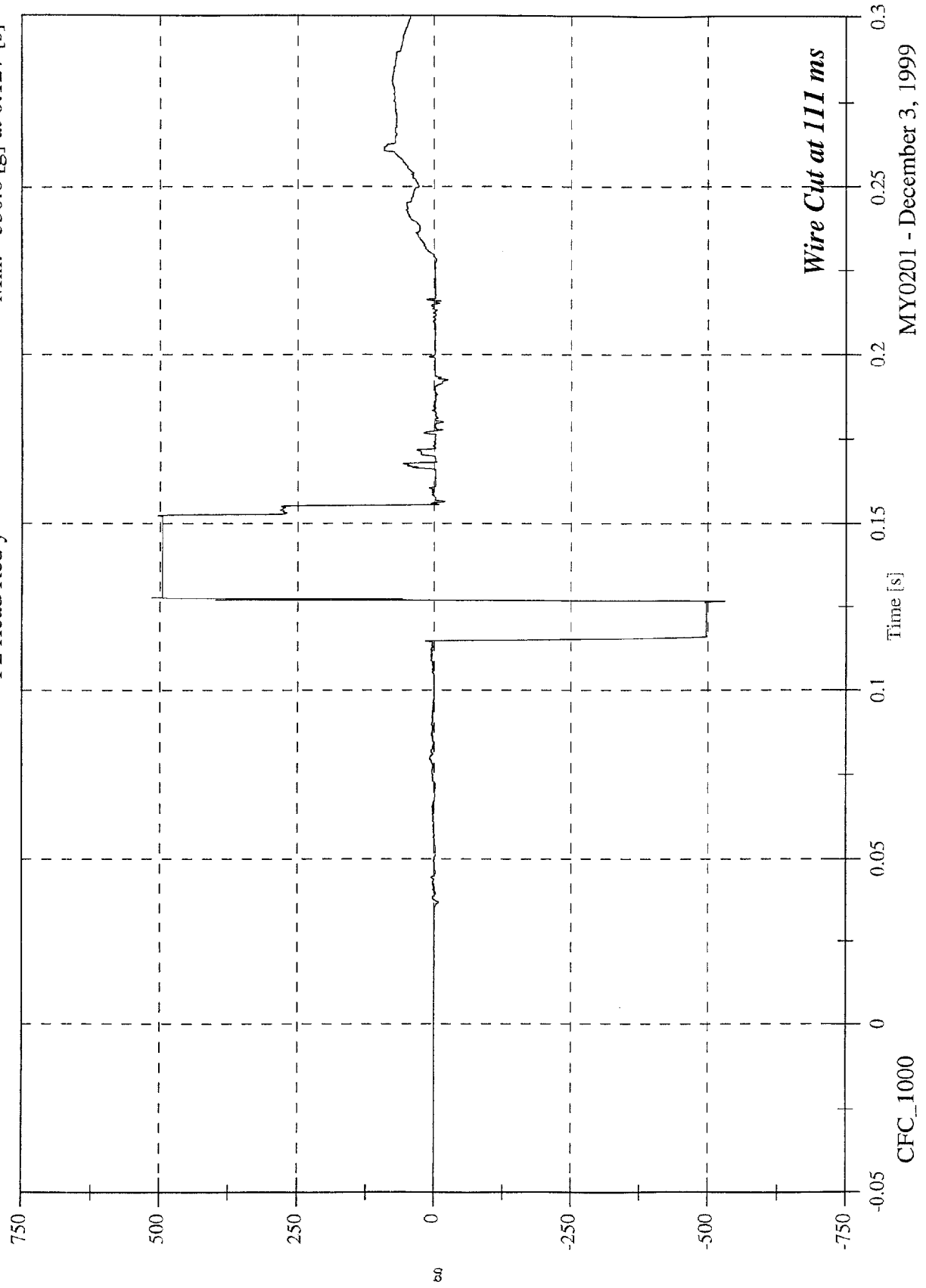


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 514.6 [g] at 0.128 [s]
Min: -530.0 [g] at 0.127 [s]

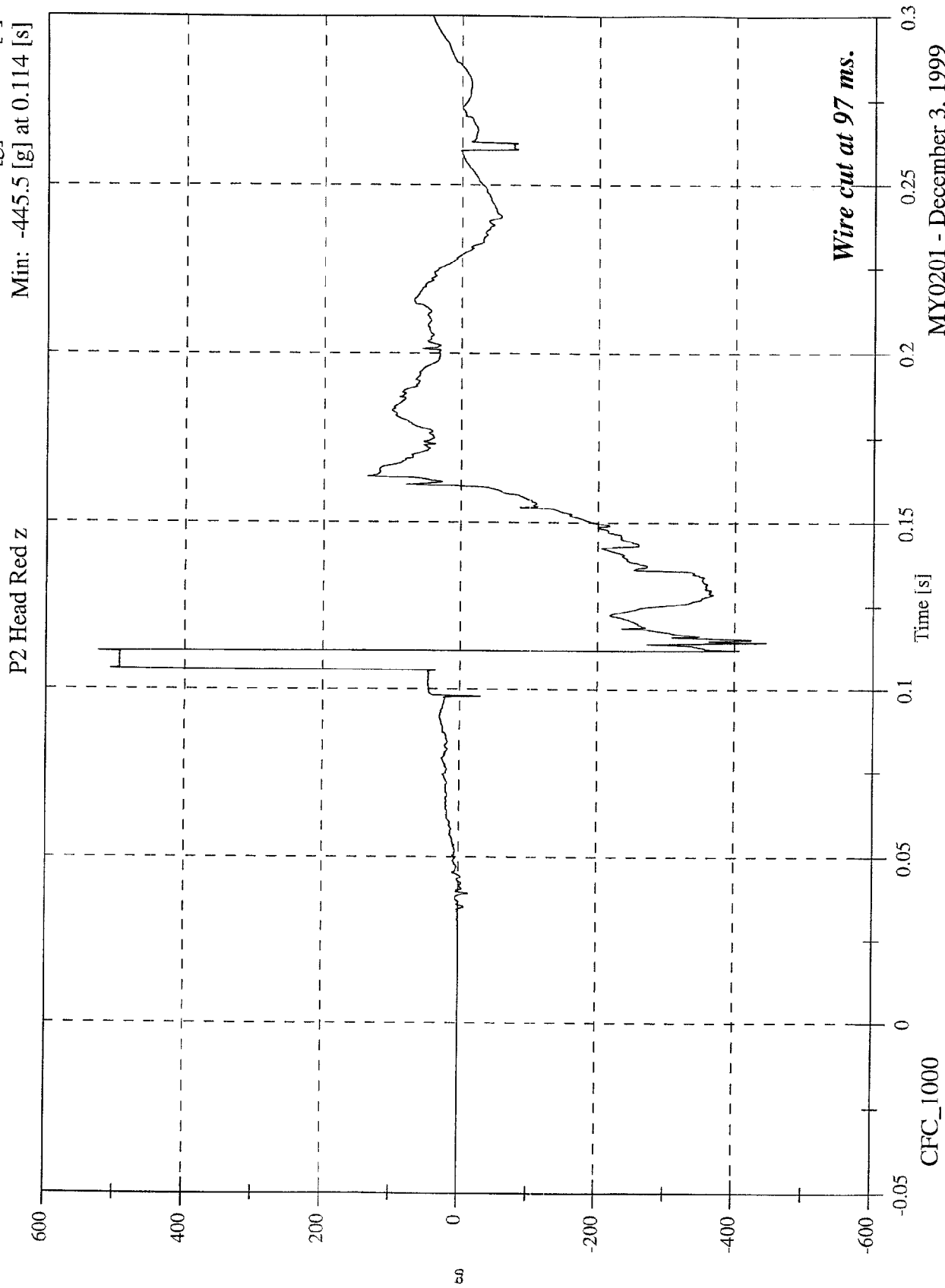
P2 Head Red y



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 524.8 [g] at 0.111 [s]
 Min: -445.5 [g] at 0.114 [s]

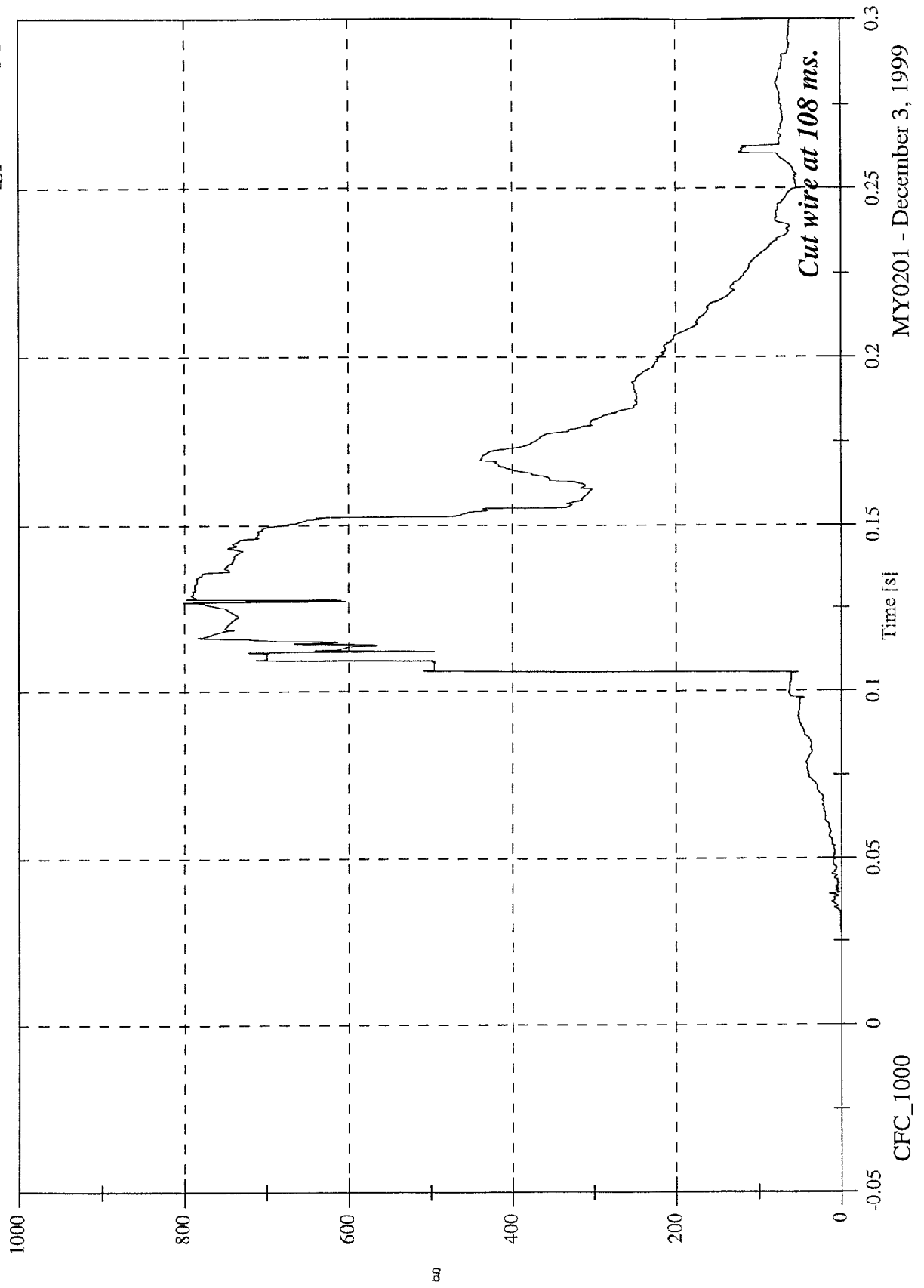


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 800.3 [g] at 0.127 [s]
Min: 0.0 [g] at 0.006 [s]

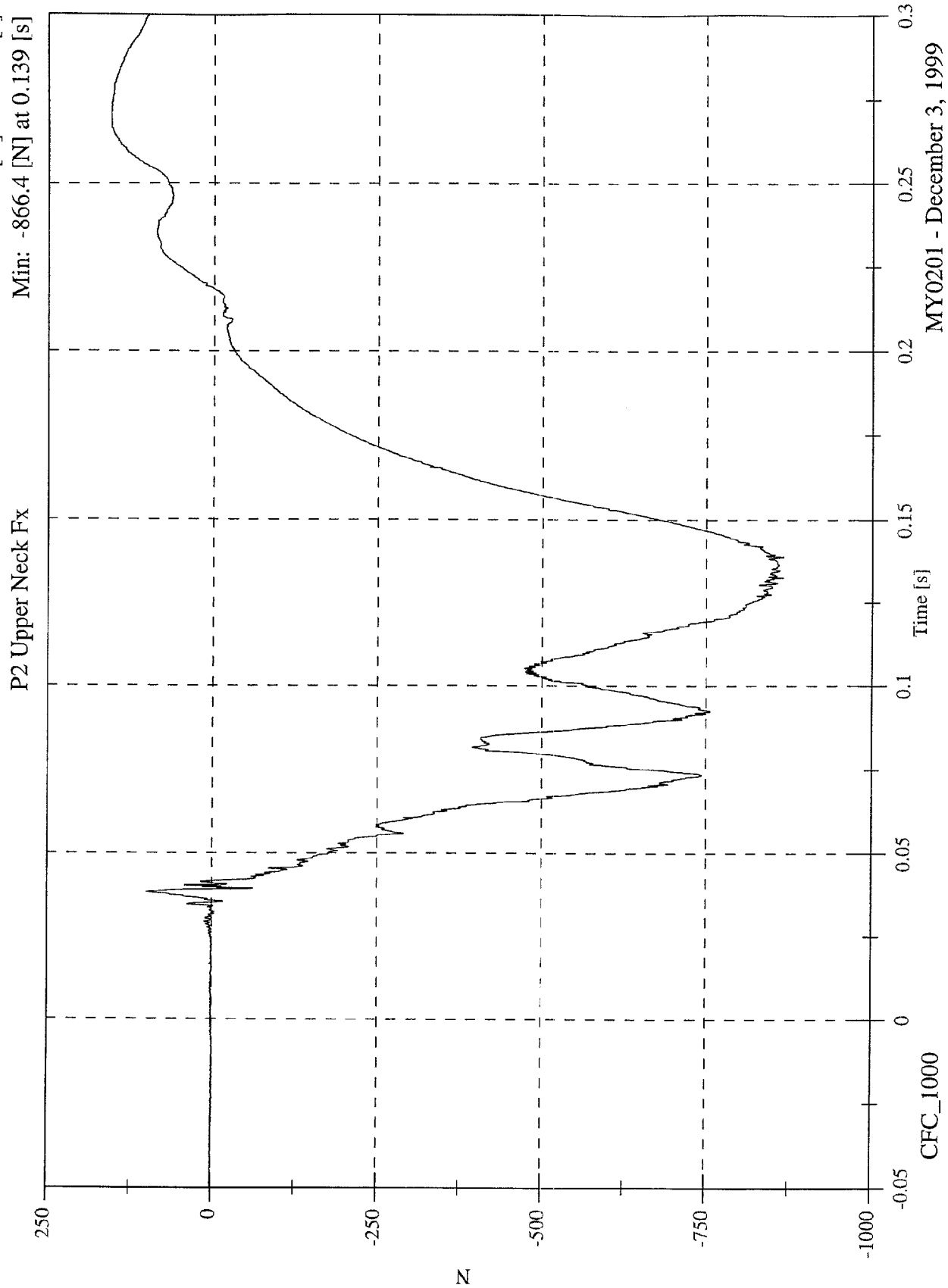
P2 Head Red Resultant



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 156.4 [N] at 0.271 [s]
 Min: -866.4 [N] at 0.139 [s]

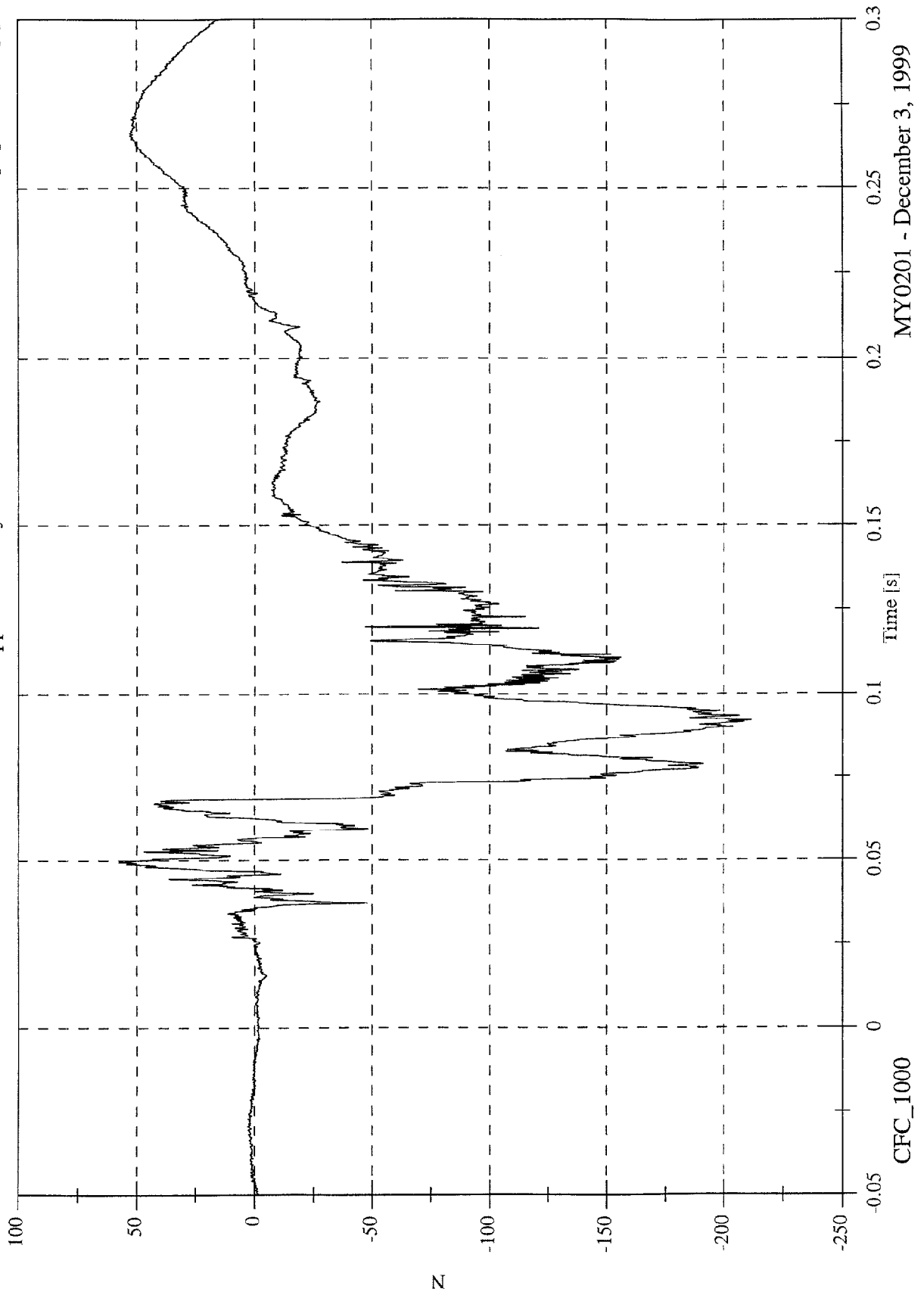


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 57.5 [N] at 0.049 [s]
 Min: -211.6 [N] at 0.092 [s]

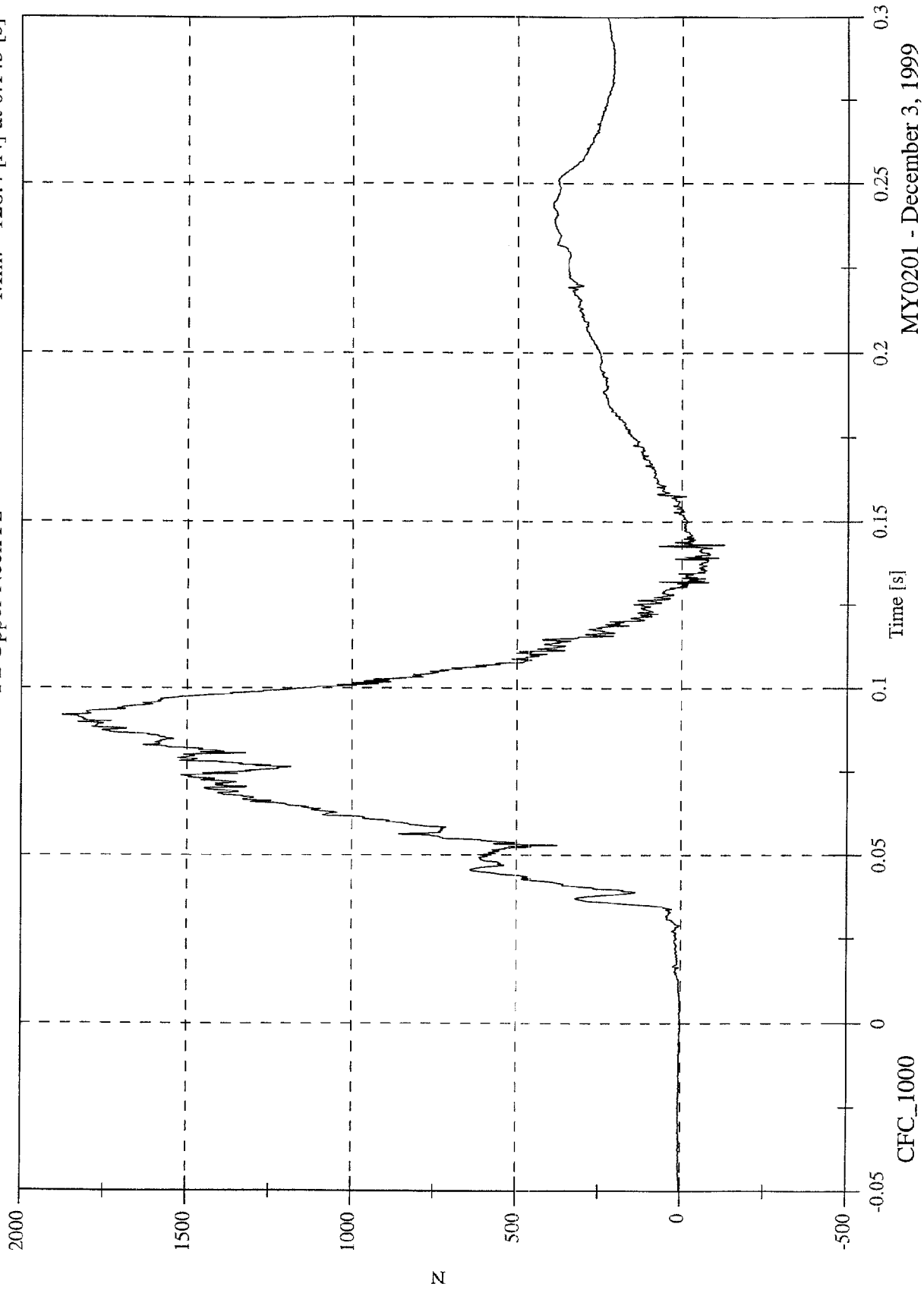
P2 Upper Neck Fy



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 1876.2 [N] at 0.092 [s]
Min: -128.4 [N] at 0.143 [s]

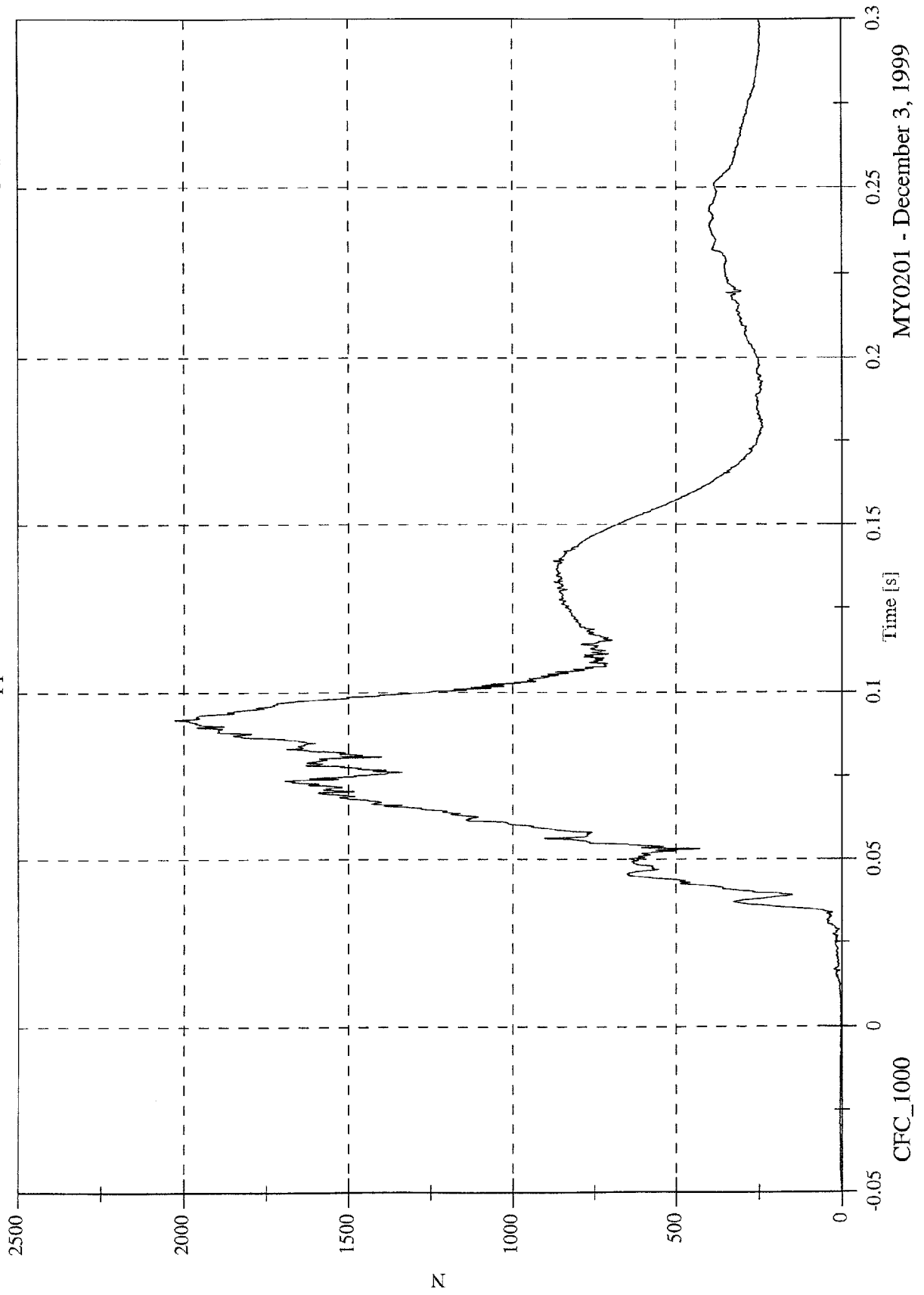
P2 Upper Neck Fz



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 2025.6 [N] at 0.092 [s]
Min: 1.6 [N] at -0.048 [s]

P2 Upper Neck F Resultant

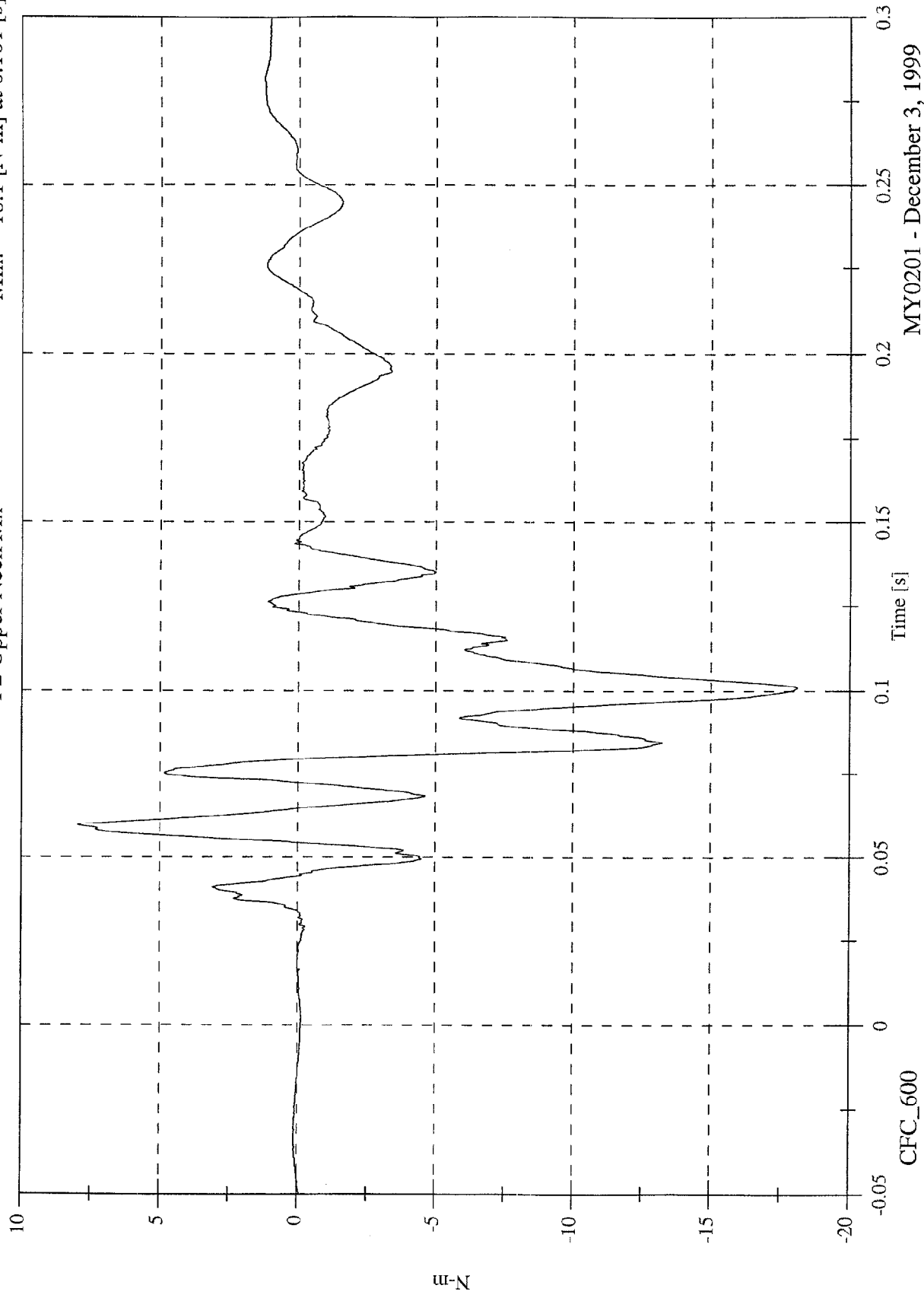


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 8.0 [N-m] at 0.060 [s]
 Min: -18.1 [N-m] at 0.101 [s]

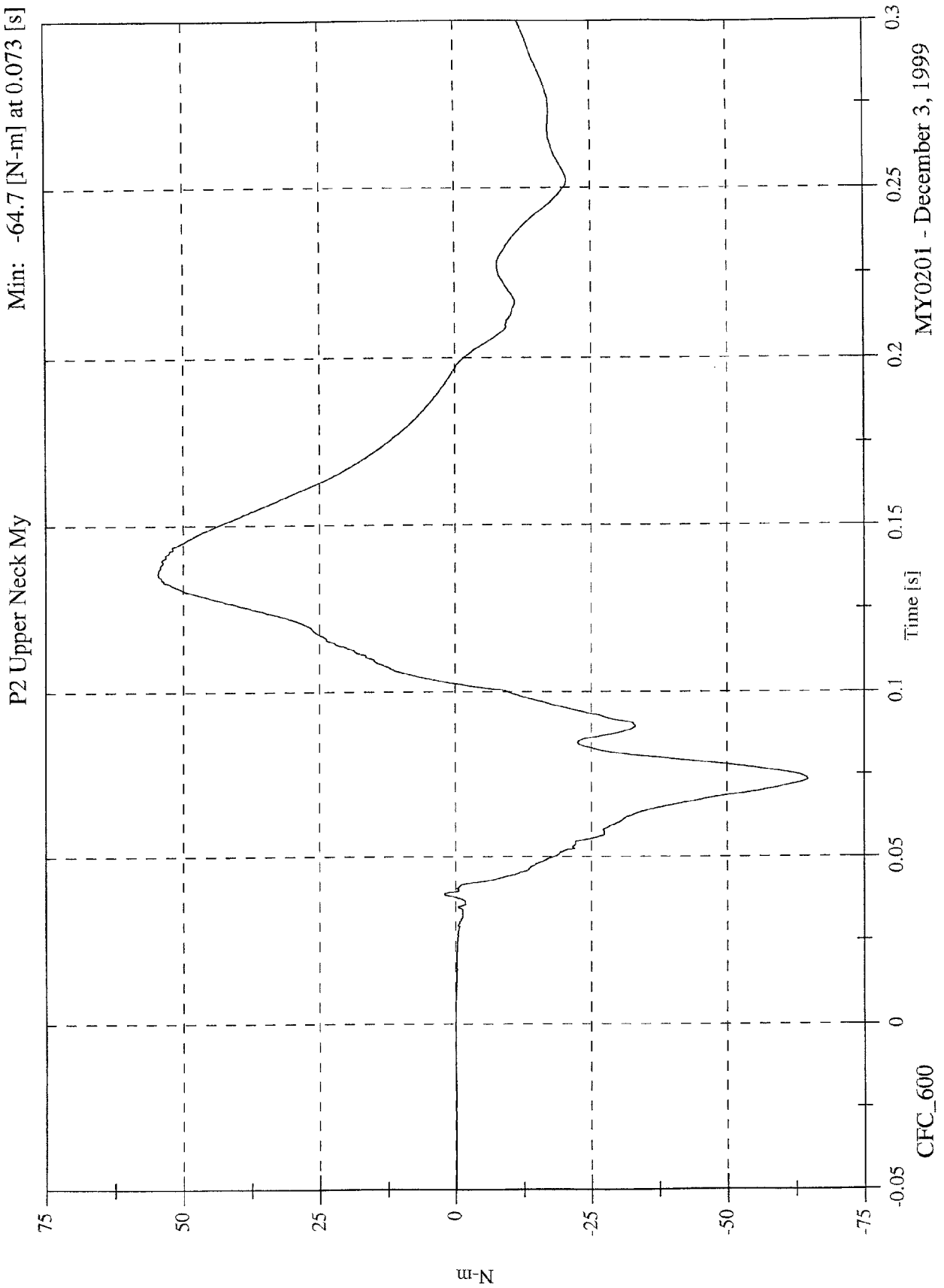
P2 Upper Neck Mx



MY0201 - December 3, 1999

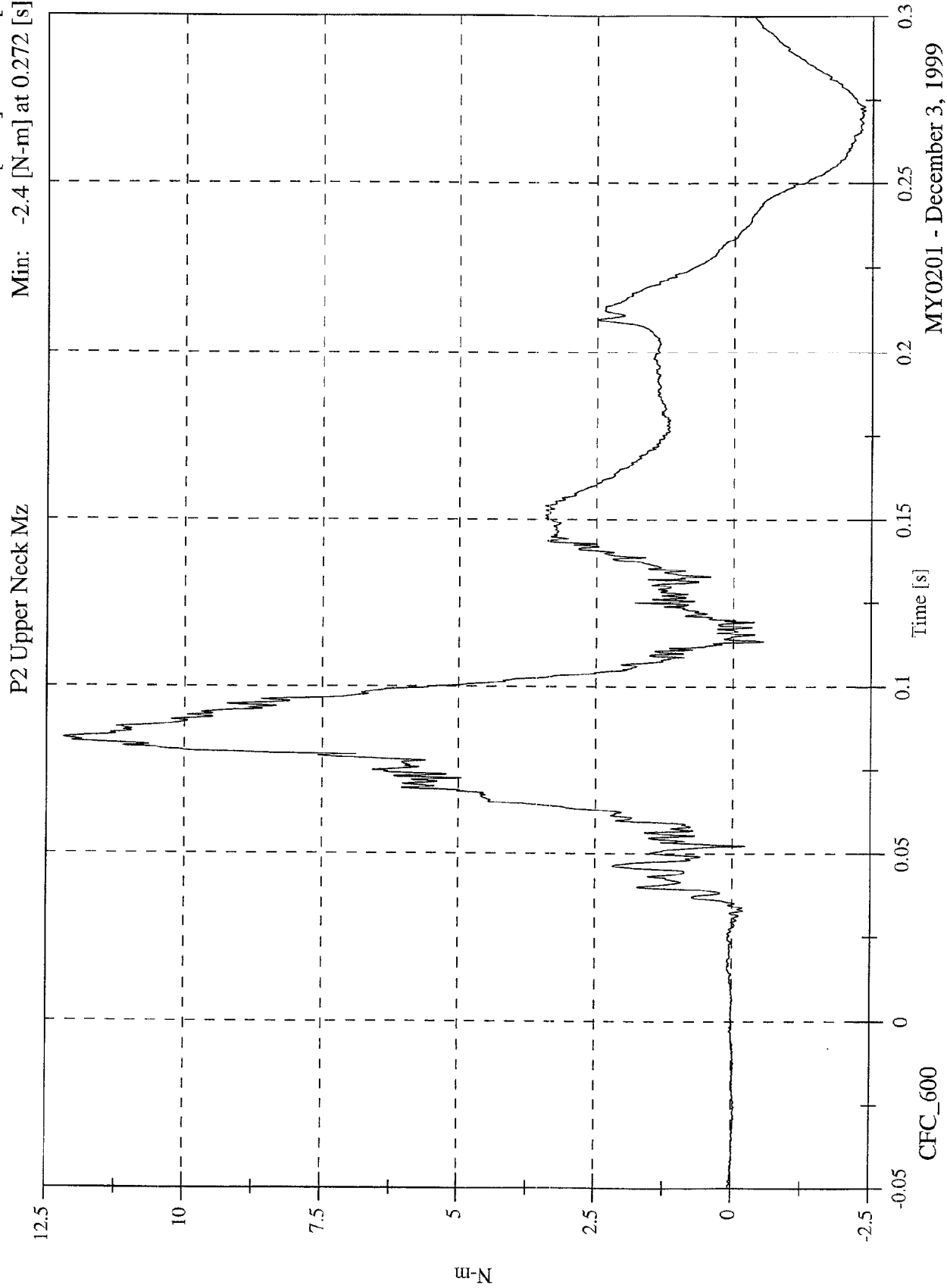
NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 54.7 [N-m] at 0.136 [s]
 Min: -64.7 [N-m] at 0.073 [s]



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 12.2 [N-m] at 0.085 [s]
 Min: -2.4 [N-m] at 0.272 [s]

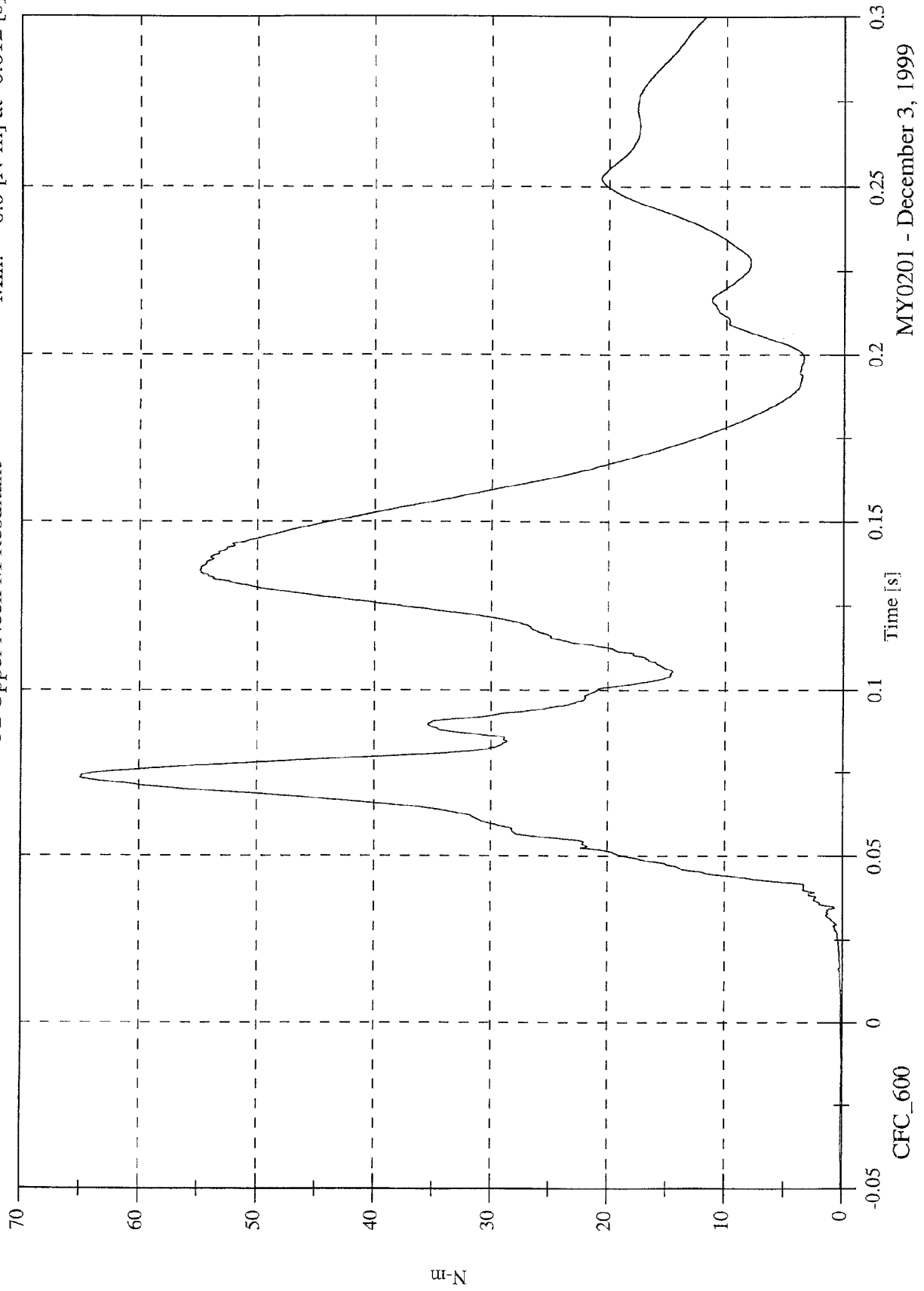


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 65.0 [N-m] at 0.073 [s]
 Min: 0.0 [N-m] at -0.012 [s]

P2 Upper Neck M Resultant

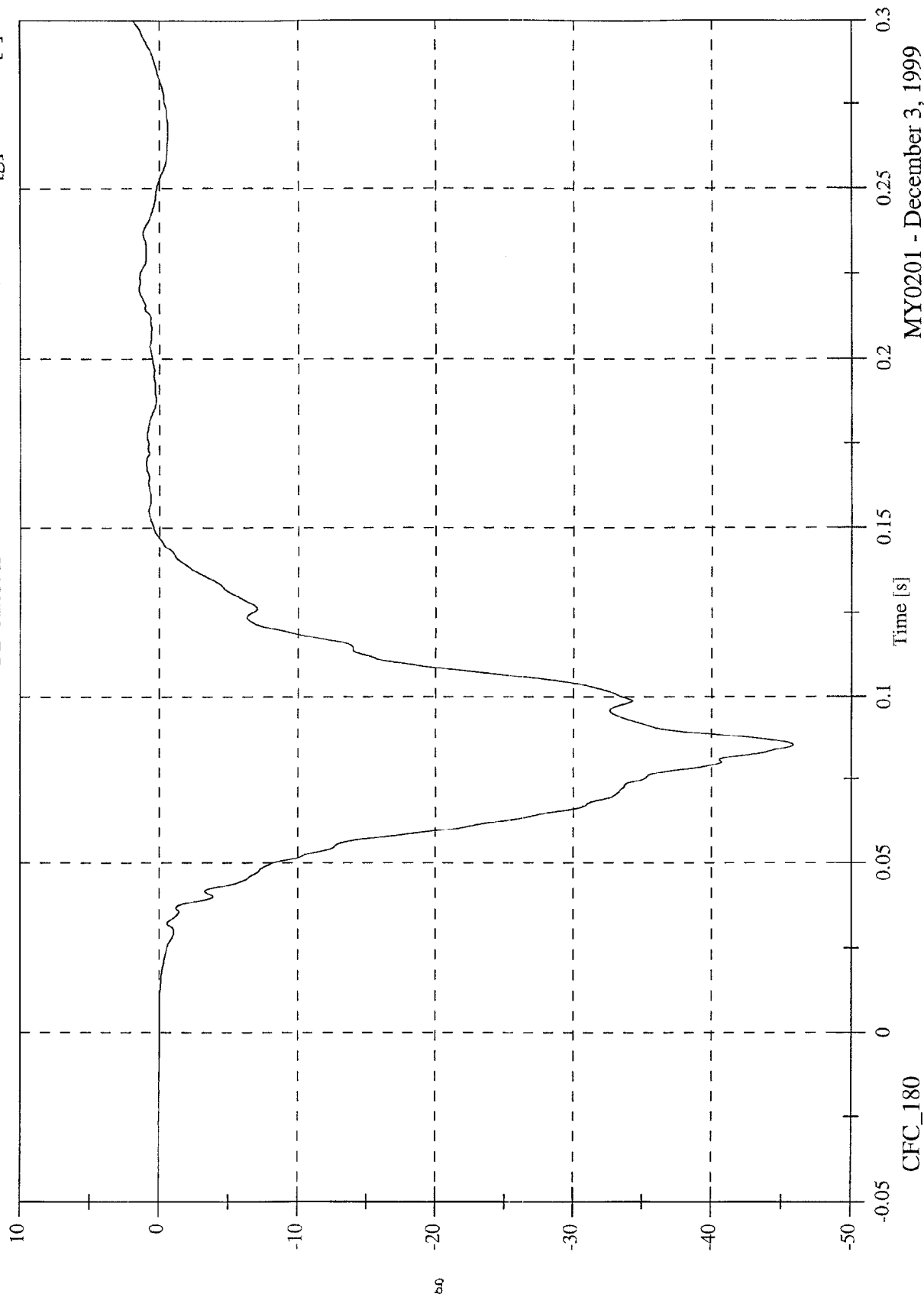


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 1.9 [g] at 0.300 [s]
 Min: -45.8 [g] at 0.085 [s]

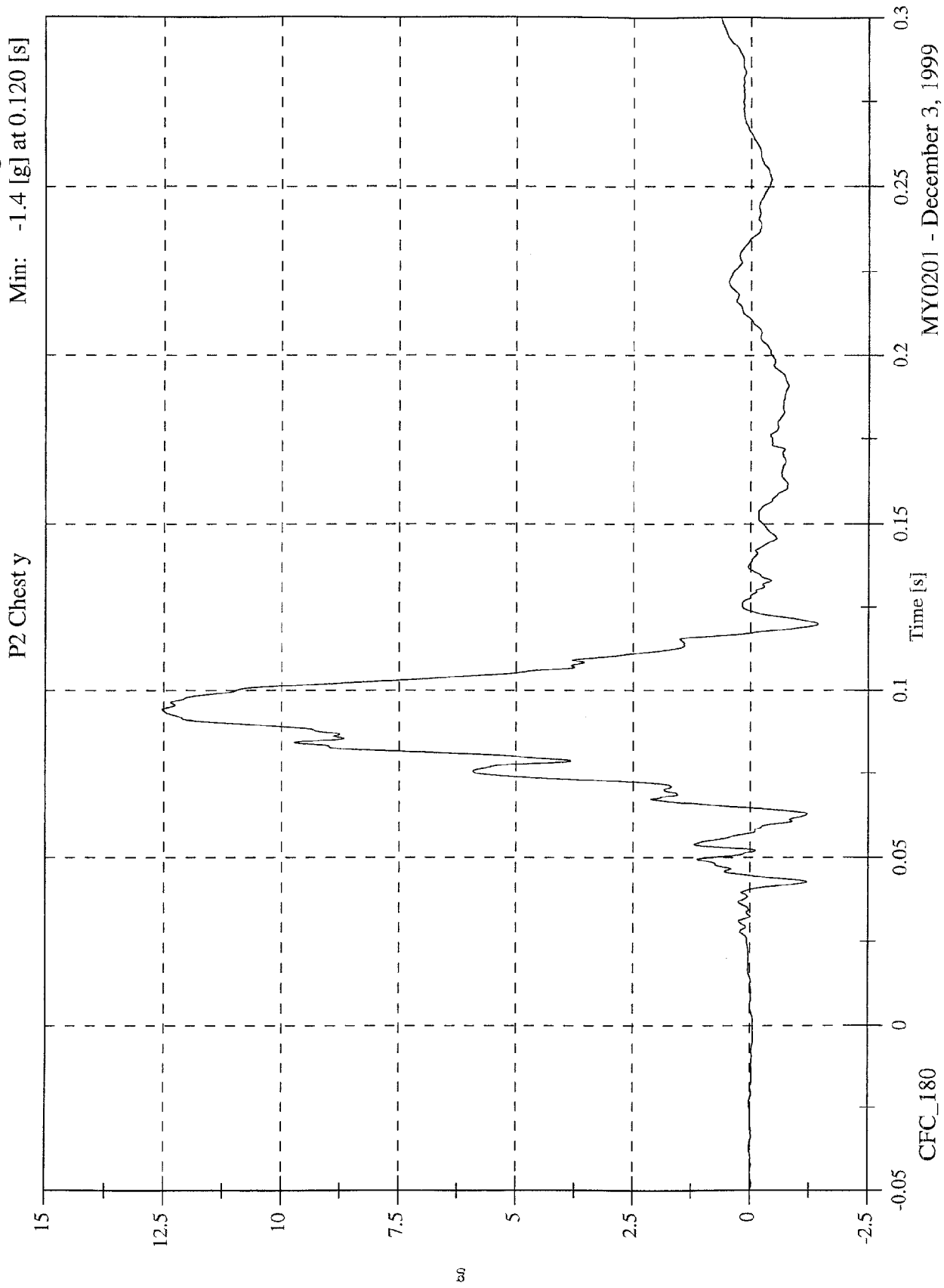
P2 Chest x



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

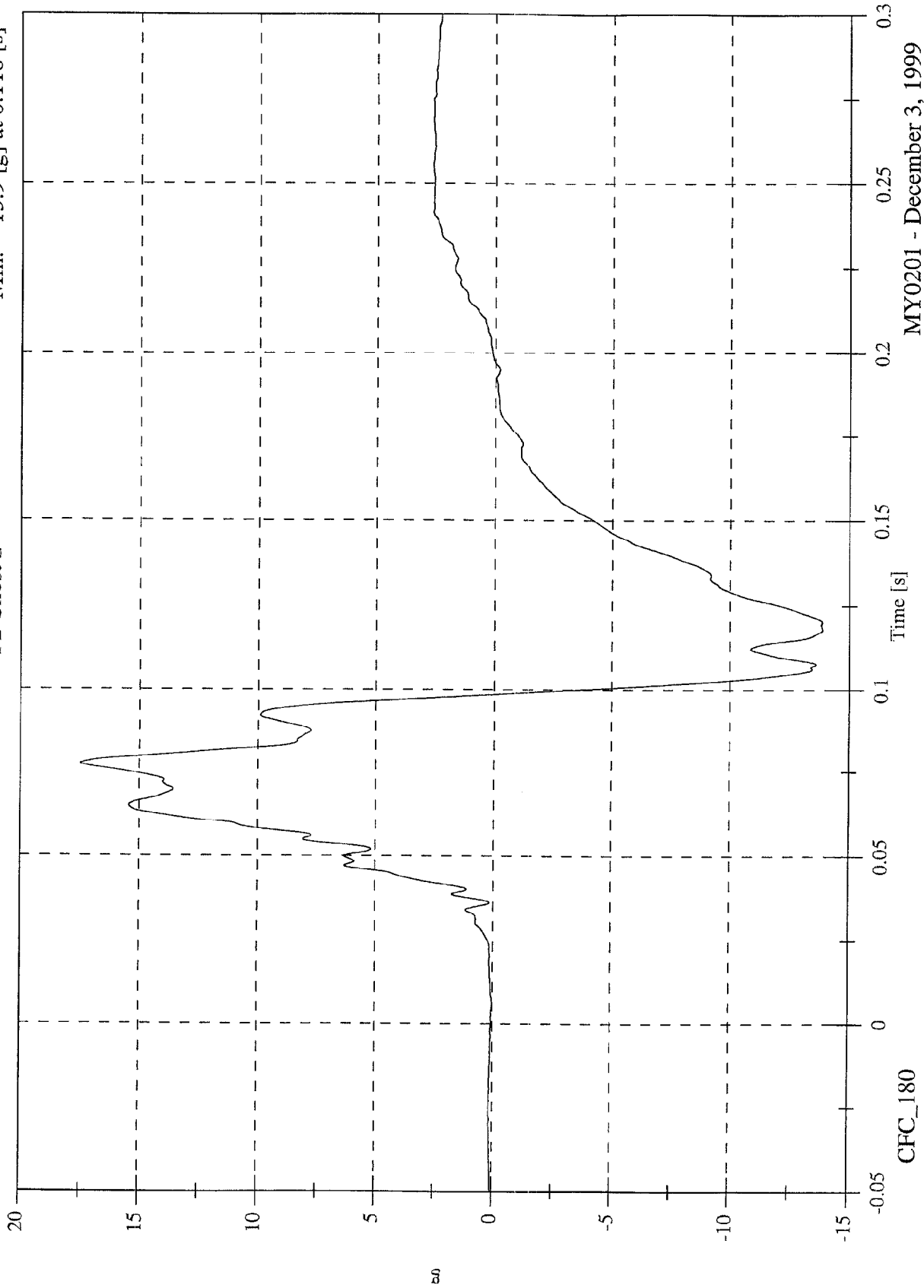
Max: 12.5 [g] at 0.094 [s]
Min: -1.4 [g] at 0.120 [s]



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 17.5 [g] at 0.077 [s]
 Min: -13.9 [g] at 0.118 [s]

P2 Chest z

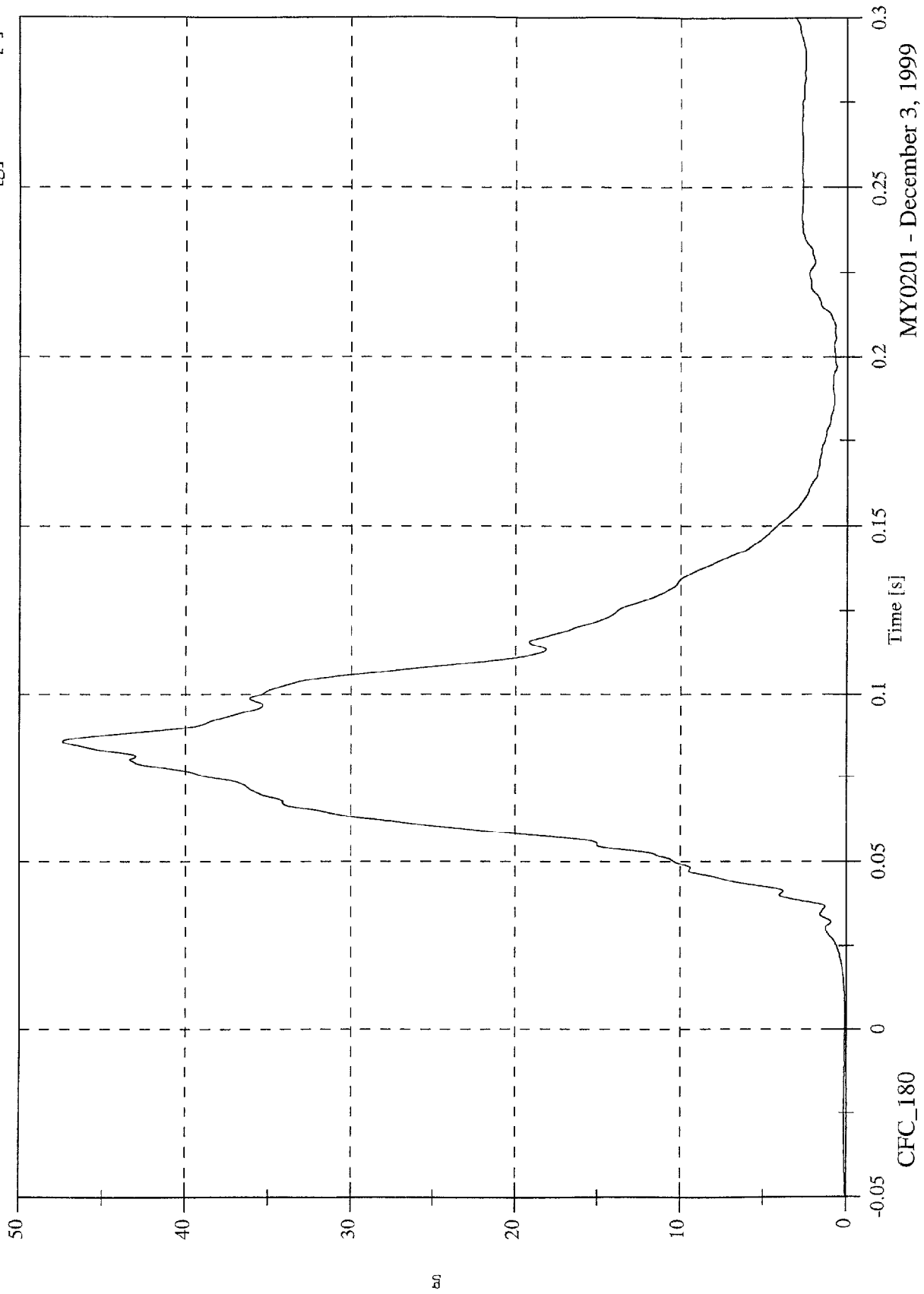


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 47.4 [g] at 0.085 [s]
 Min: 0.1 [g] at -0.050 [s]

P2 Chest Resultant

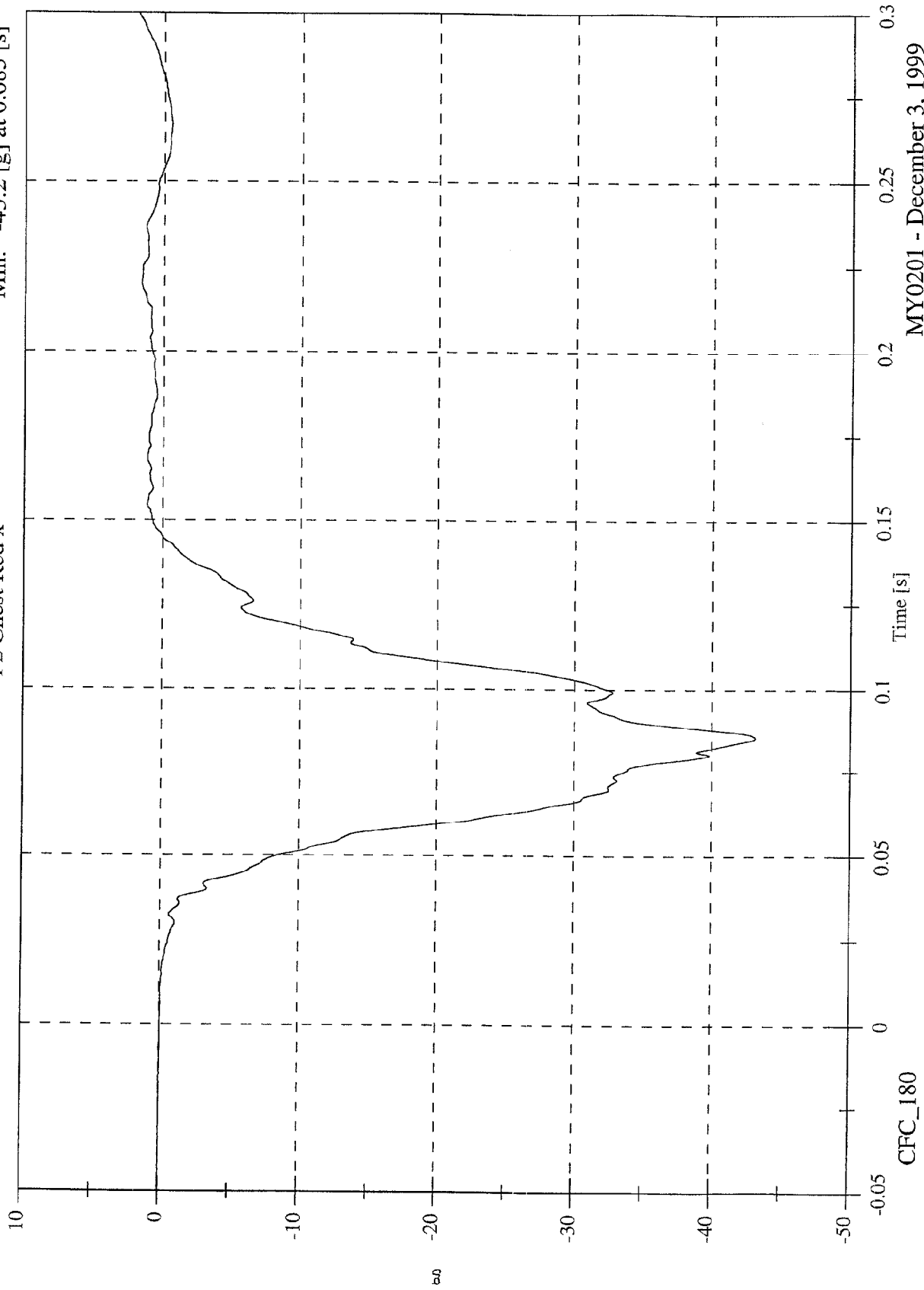


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 1.9 [g] at 0.300 [s]
 Min: -43.2 [g] at 0.085 [s]

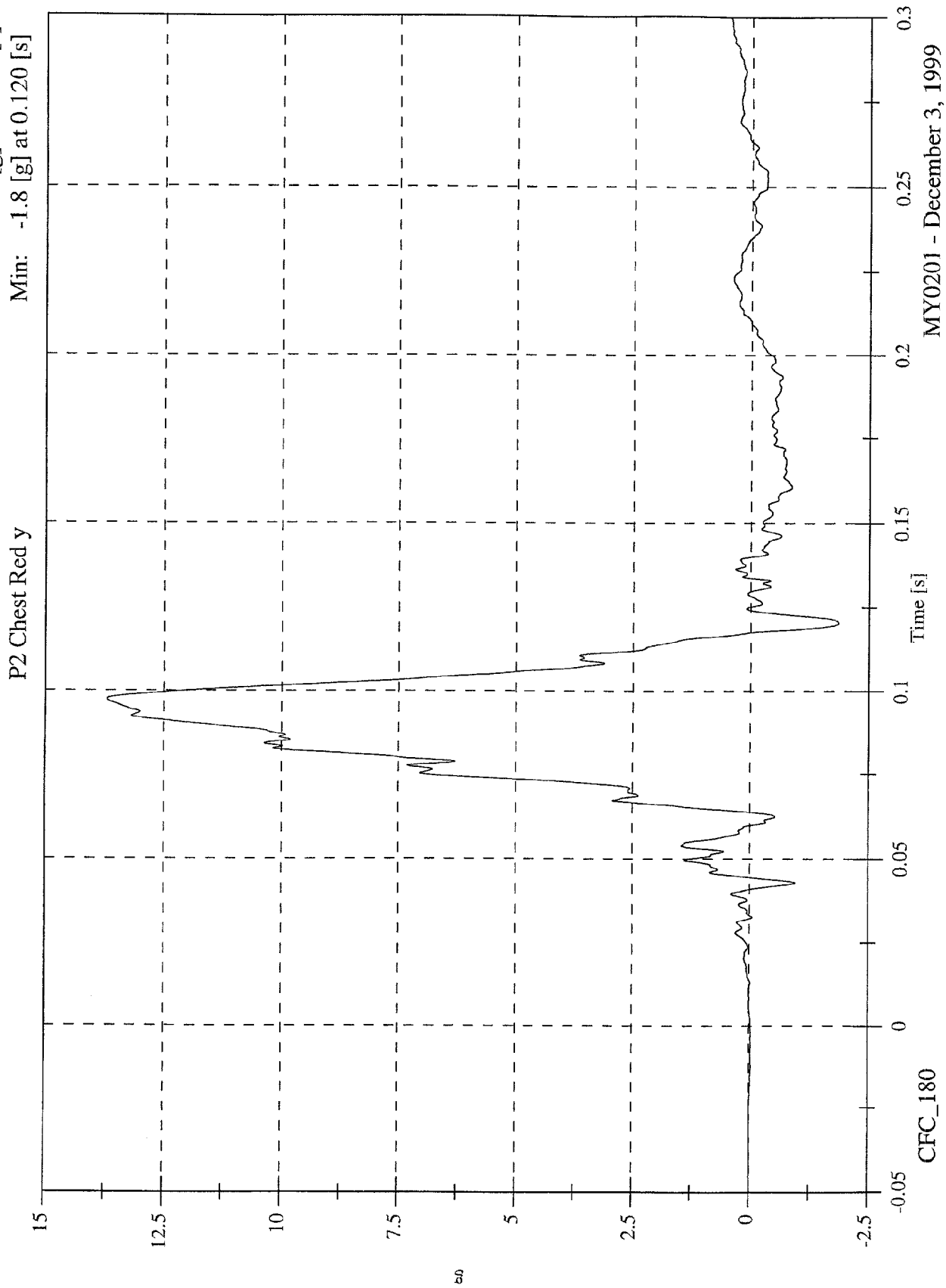
P2 Chest Red x



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

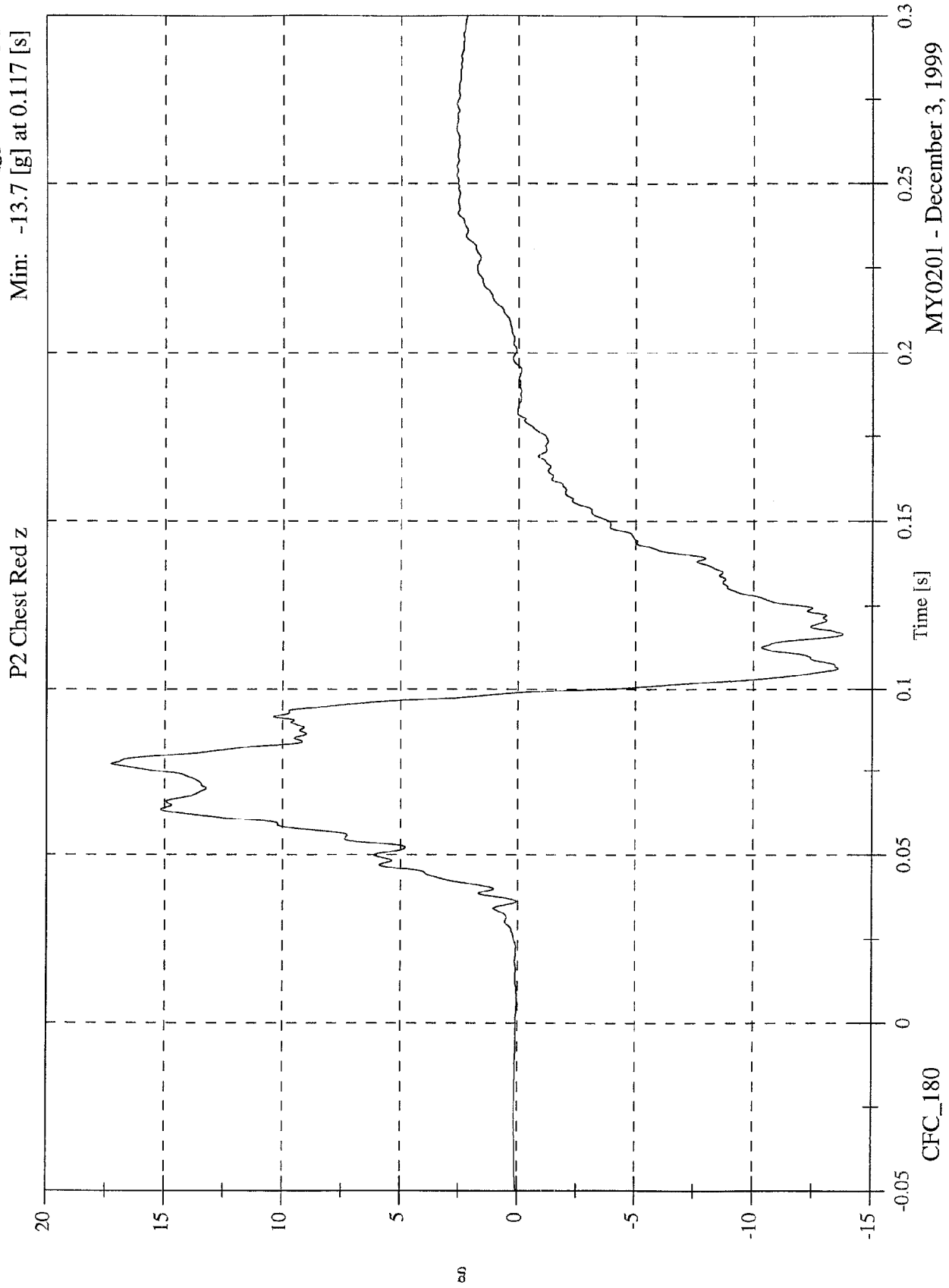
Max: 13.7 [g] at 0.097 [s]
Min: -1.8 [g] at 0.120 [s]



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

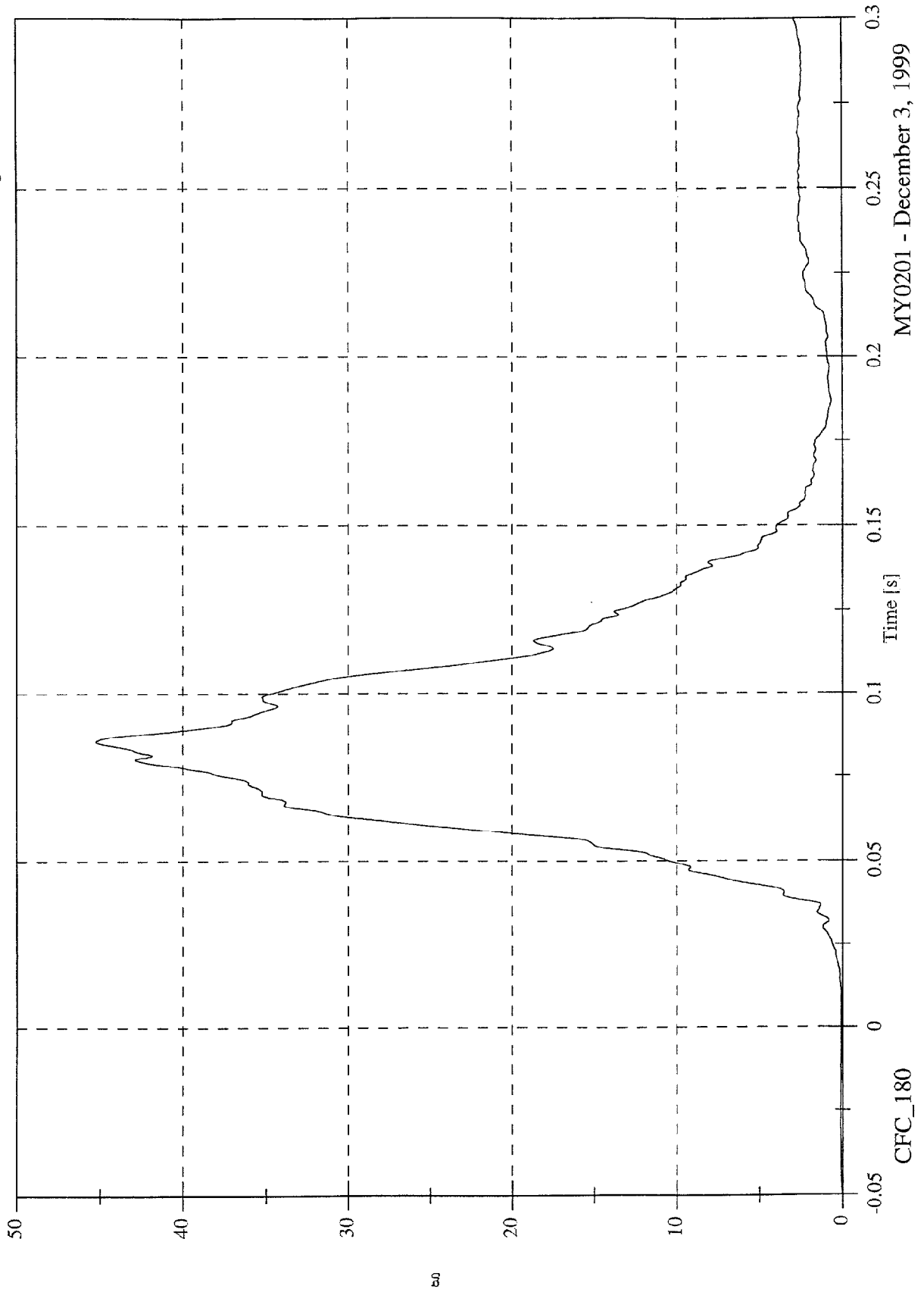
Max: 17.3 [g] at 0.077 [s]
 Min: -13.7 [g] at 0.117 [s]



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 45.3 [g] at 0.085 [s]
 Min: 0.1 [g] at -0.050 [s]

P2 Chest Red Resultant

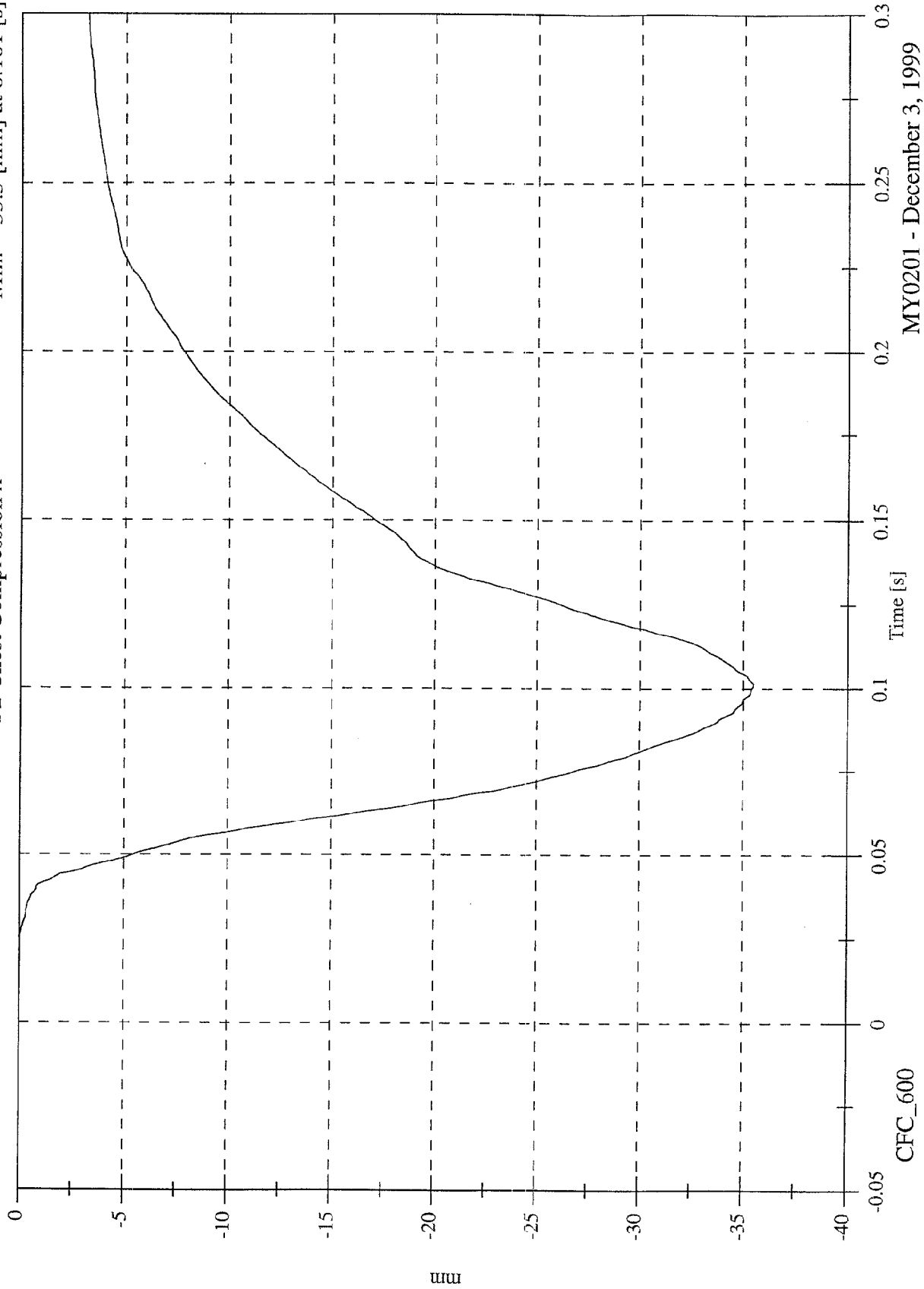


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 0.0 [mm] at -0.026 [s]
 Min: -35.5 [mm] at 0.101 [s]

P2 Chest Compression x

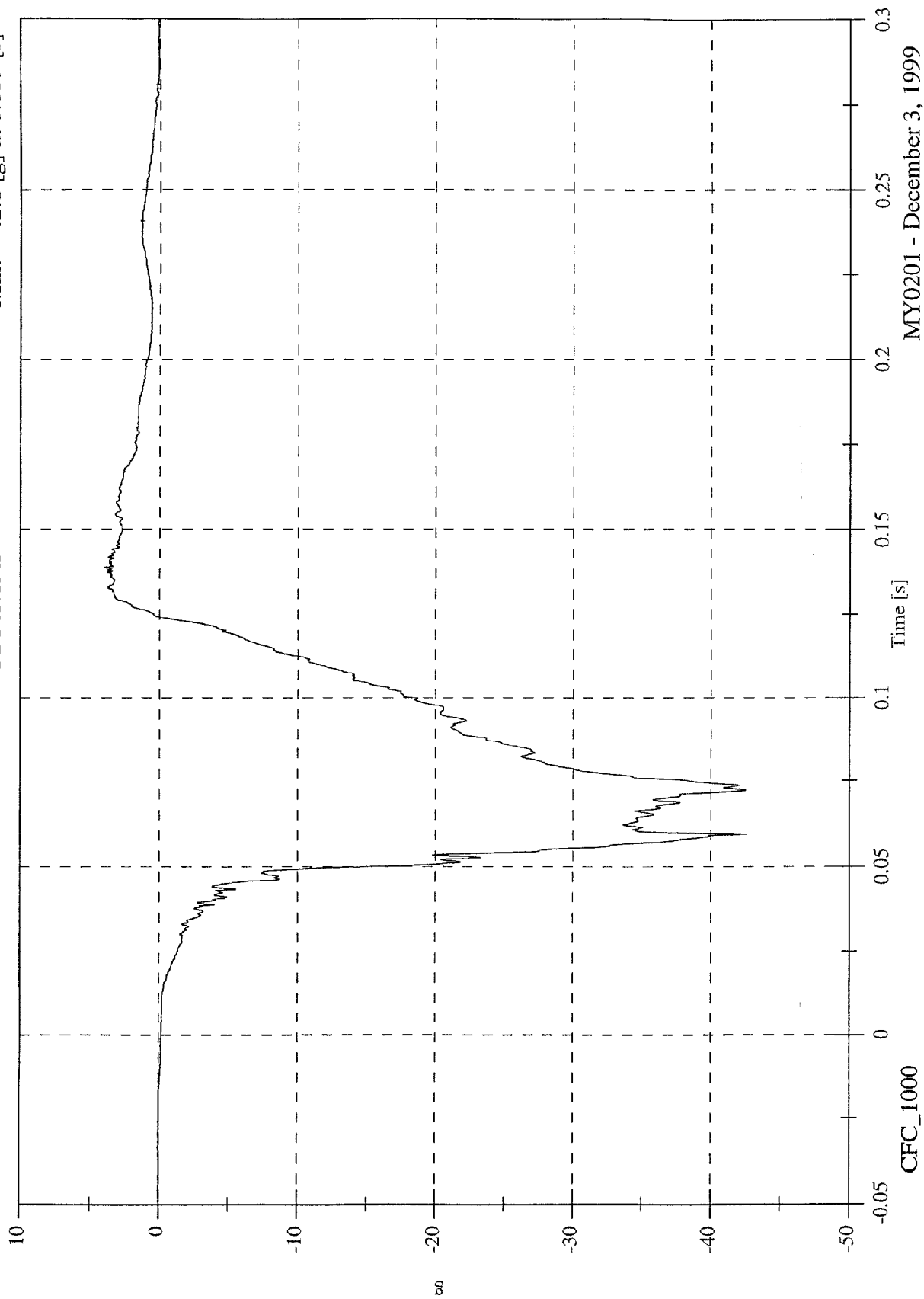


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 4.0 [g] at 0.139 [s]
Min: -42.6 [g] at 0.059 [s]

P2 Pelvic x



CFC_1000

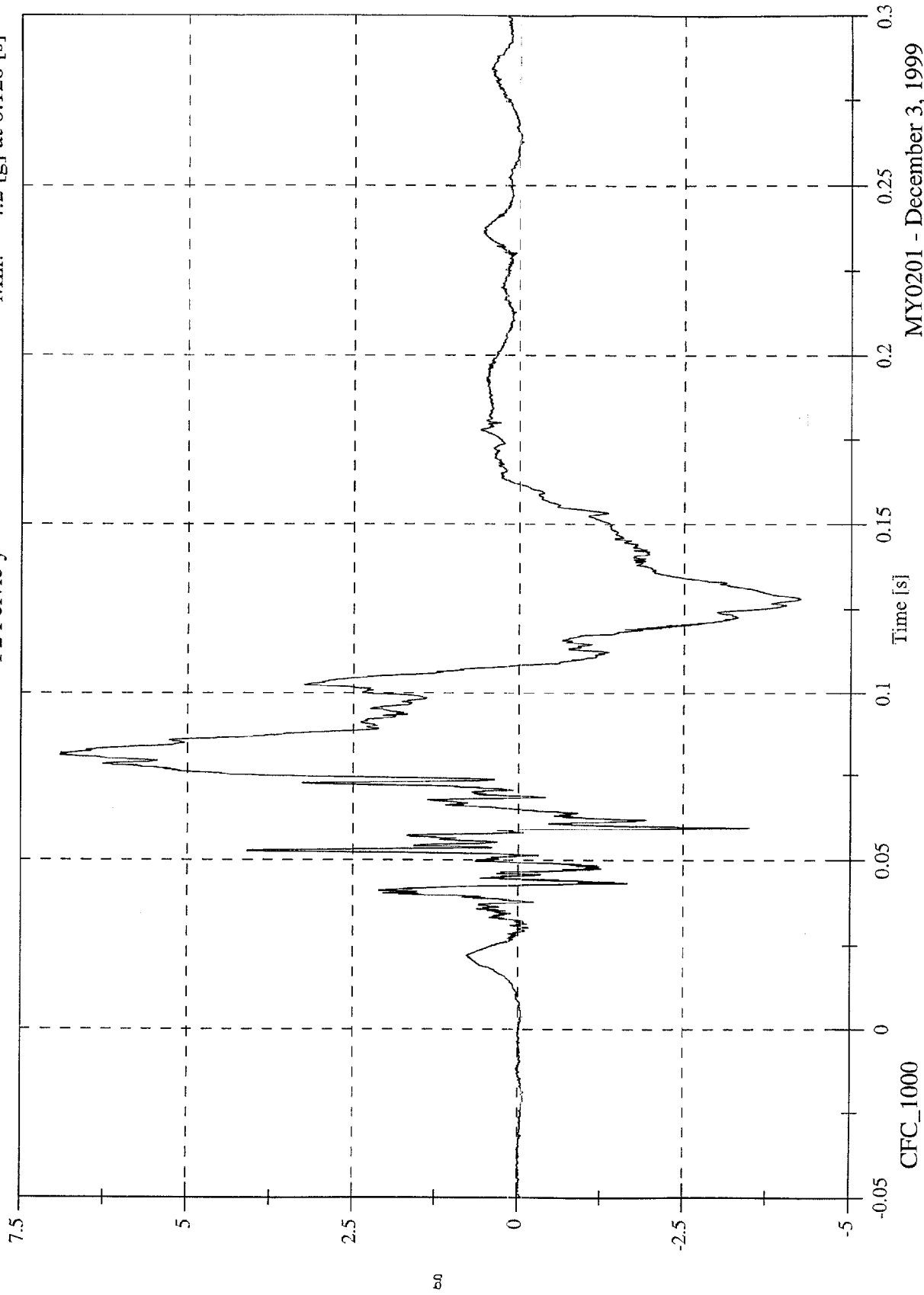
Time [s]

MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 6.9 [g] at 0.081 [s]
 Min: -4.2 [g] at 0.128 [s]

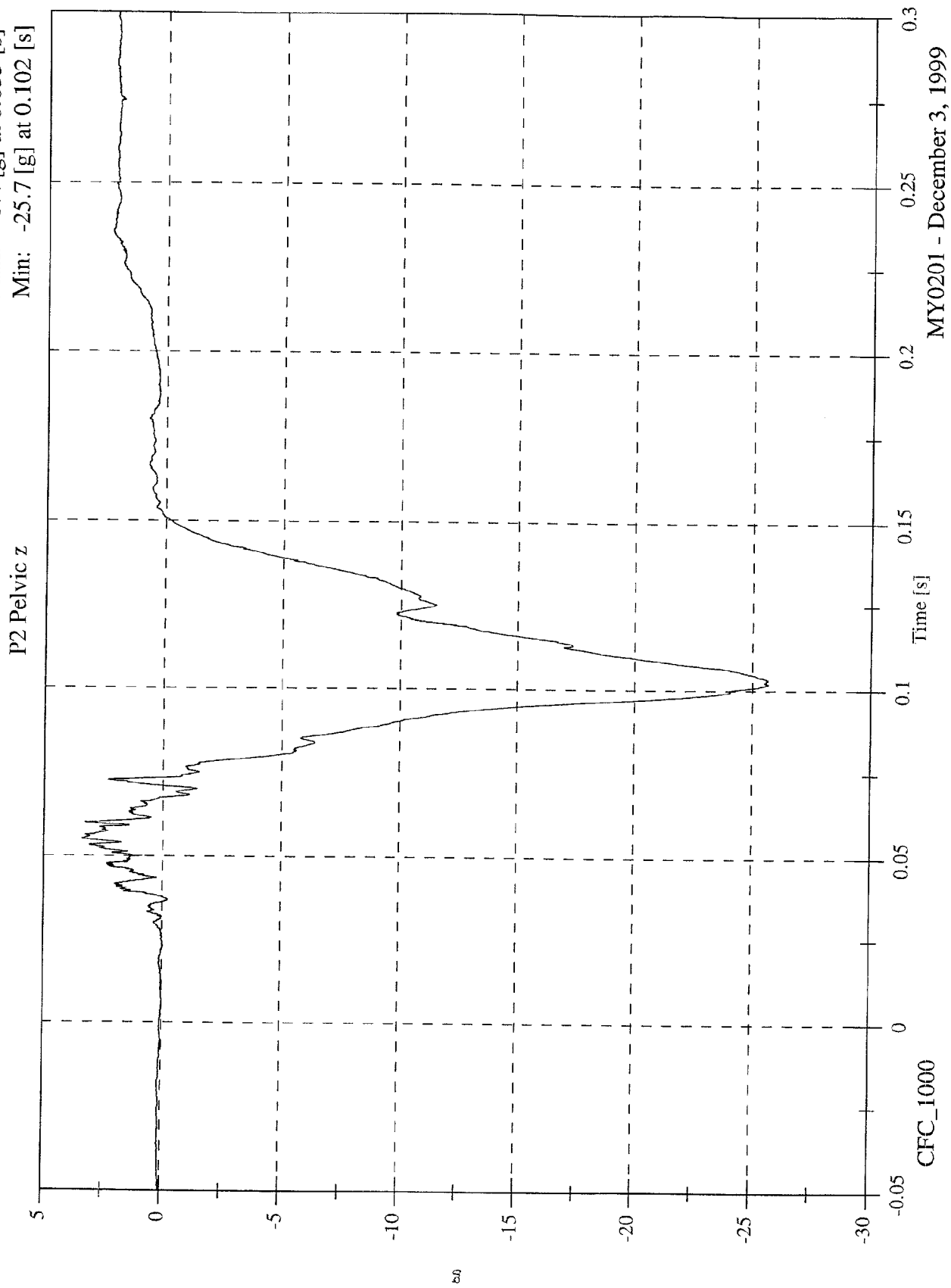
P2 Pelvic y



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 3.4 [g] at 0.055 [s]
Min: -25.7 [g] at 0.102 [s]

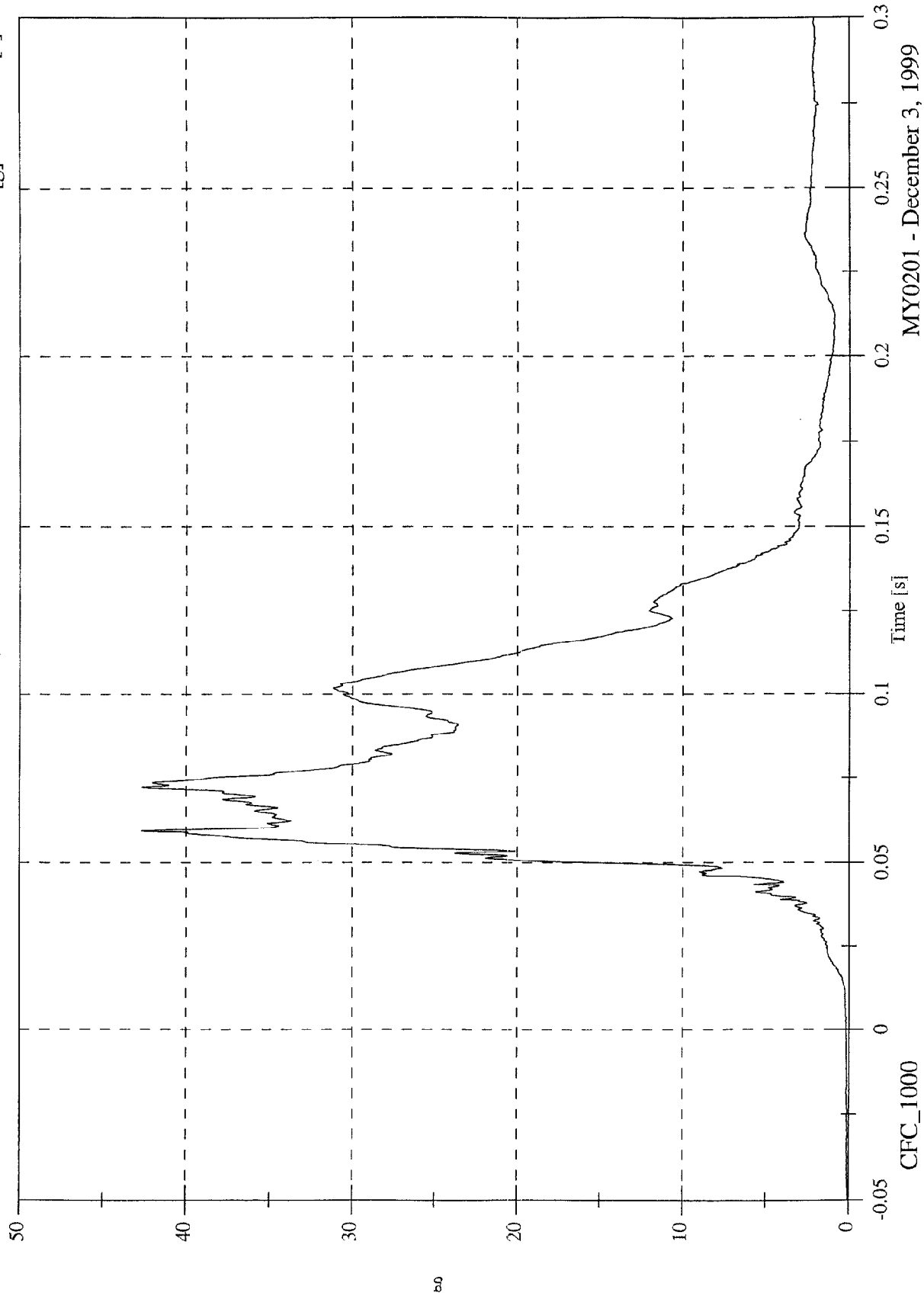


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 42.7 [g] at 0.059 [s]
 Min: 0.0 [g] at -0.049 [s]

P2 Pelvic Resultant

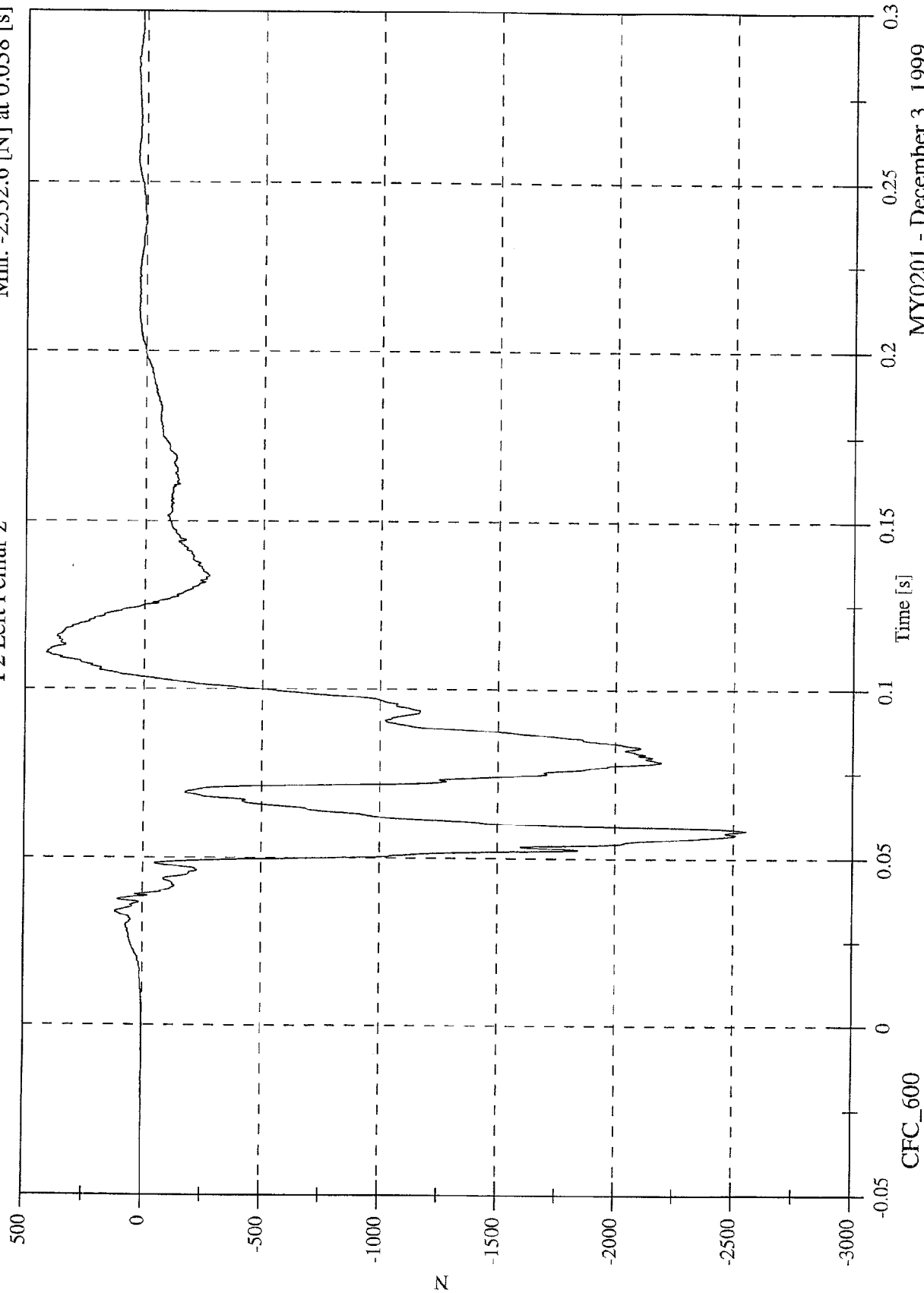


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 409.7 [N] at 0.110 [s]
 Min: -2552.6 [N] at 0.058 [s]

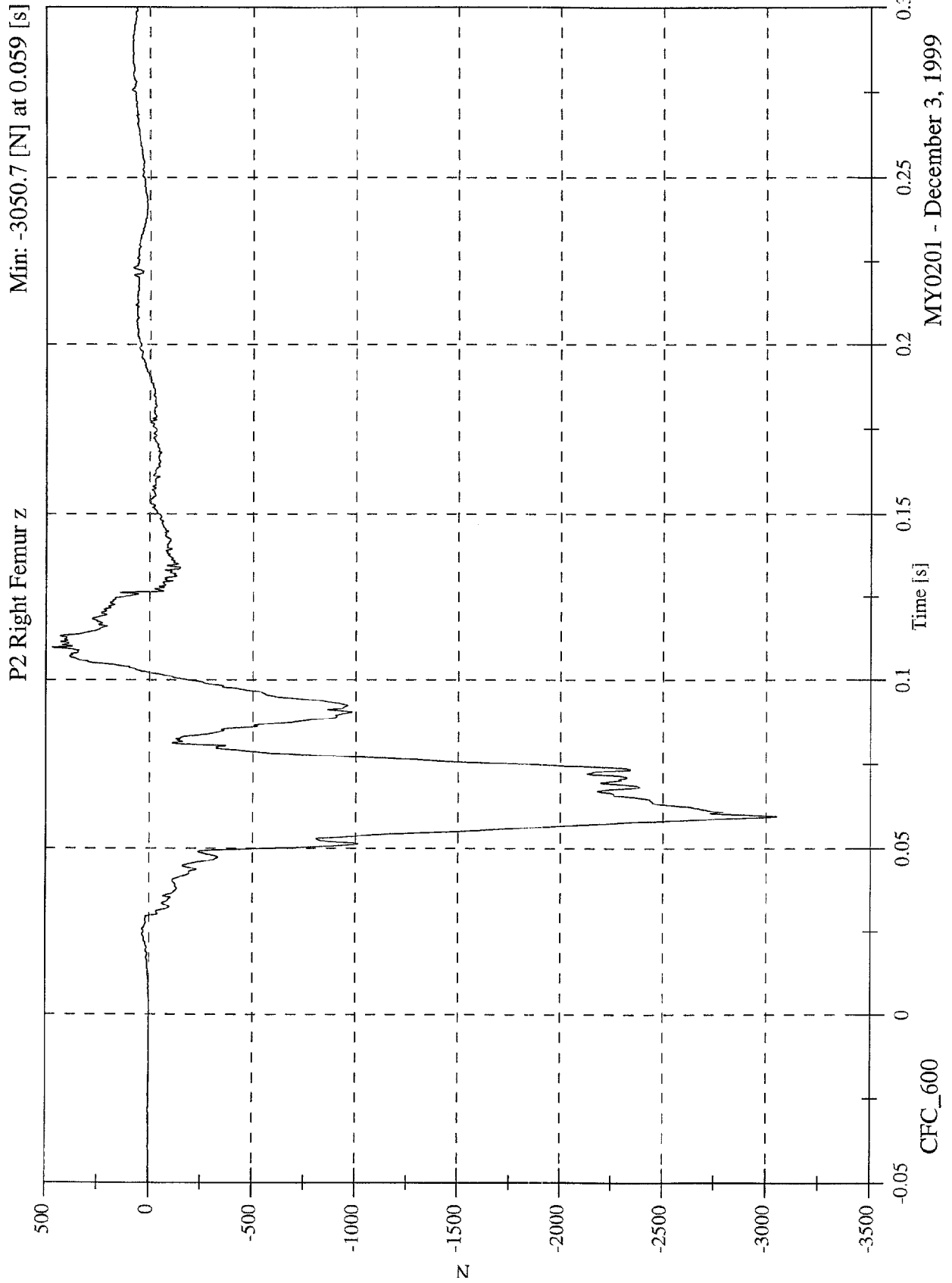
P2 Left Femur z



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

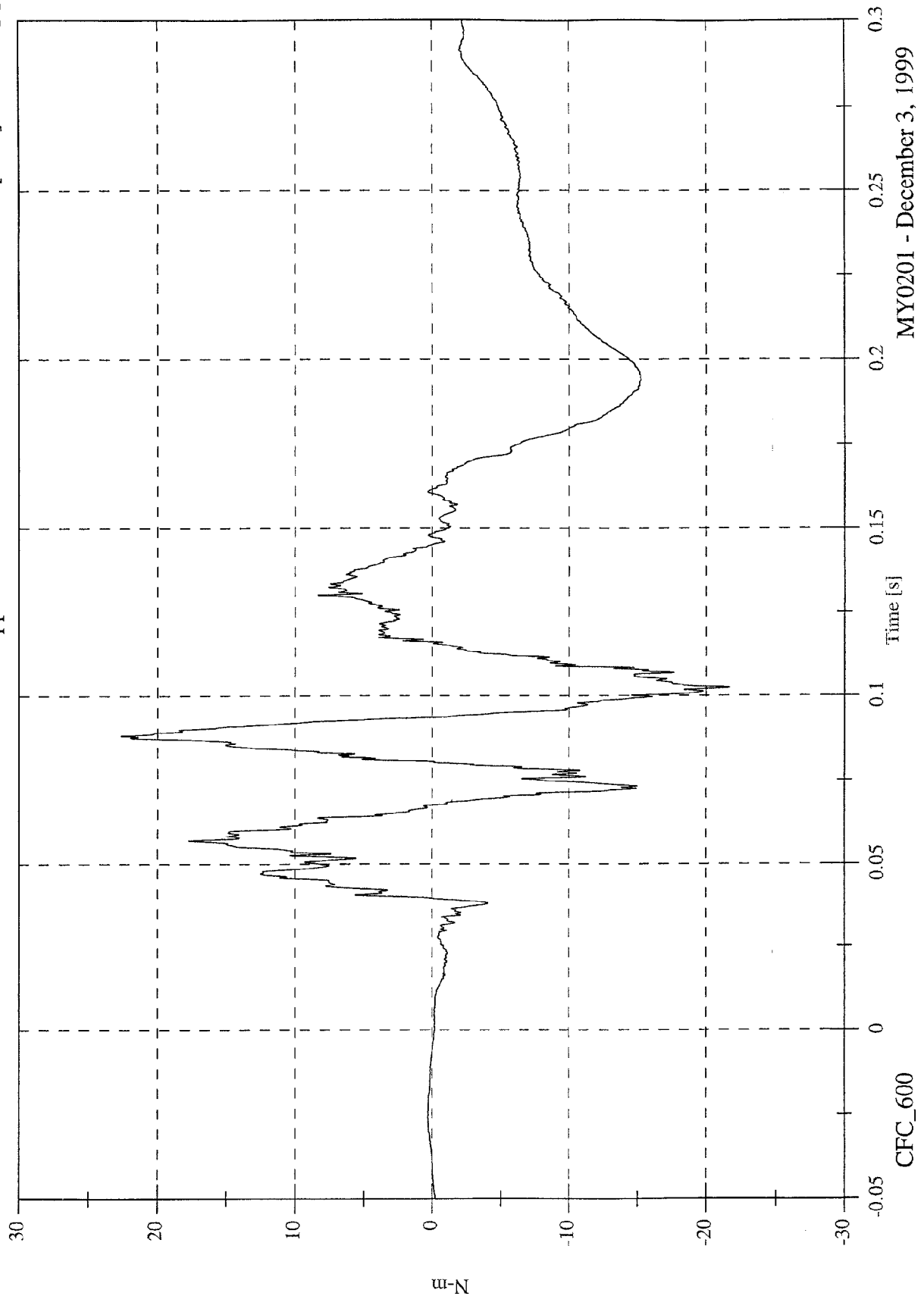
Max: 471.1 [N] at 0.110 [s]
Min: -3050.7 [N] at 0.059 [s]



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 22.6 [N-m] at 0.088 [s]
Min: -21.7 [N-m] at 0.102 [s]

P2 Left Upper Tibia Mx

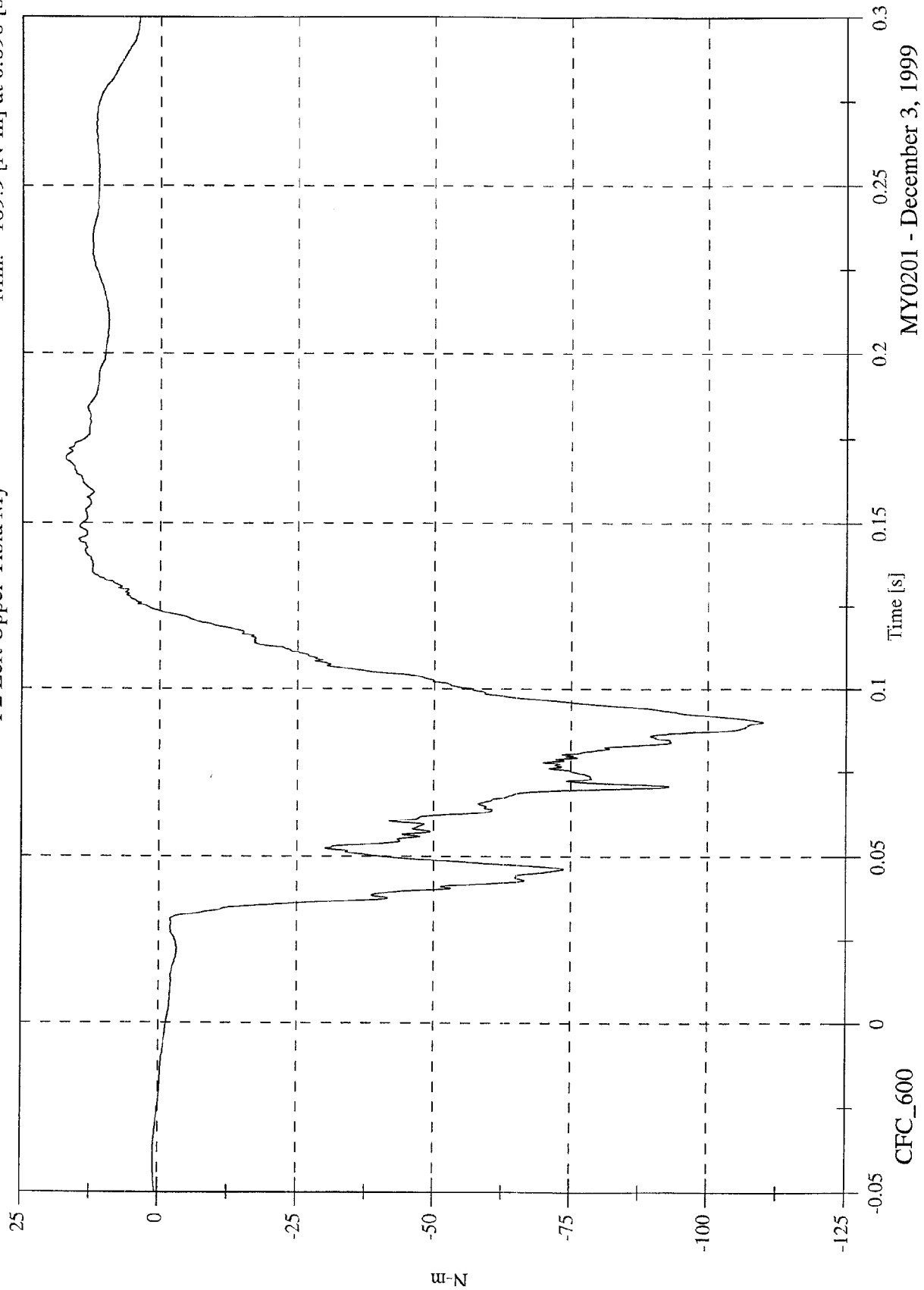


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 17.2 [N-m] at 0.169 [s]
 Min: -109.9 [N-m] at 0.090 [s]

P2 Left Upper Tibia My

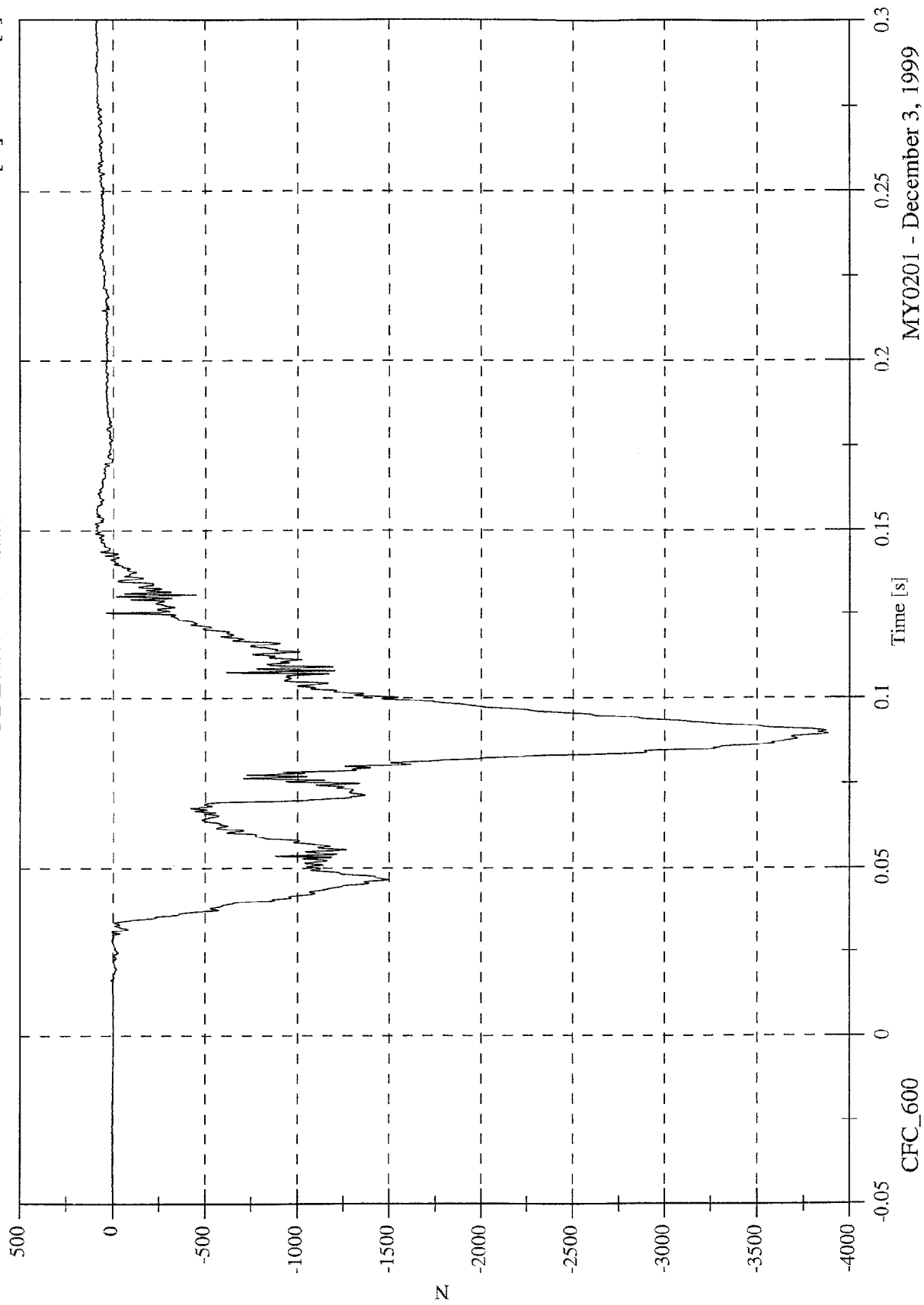


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NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 97.3 [N] at 0.152 [s]
Min: -3882.0 [N] at 0.090 [s]

P2 Left Lower Tibia Fz

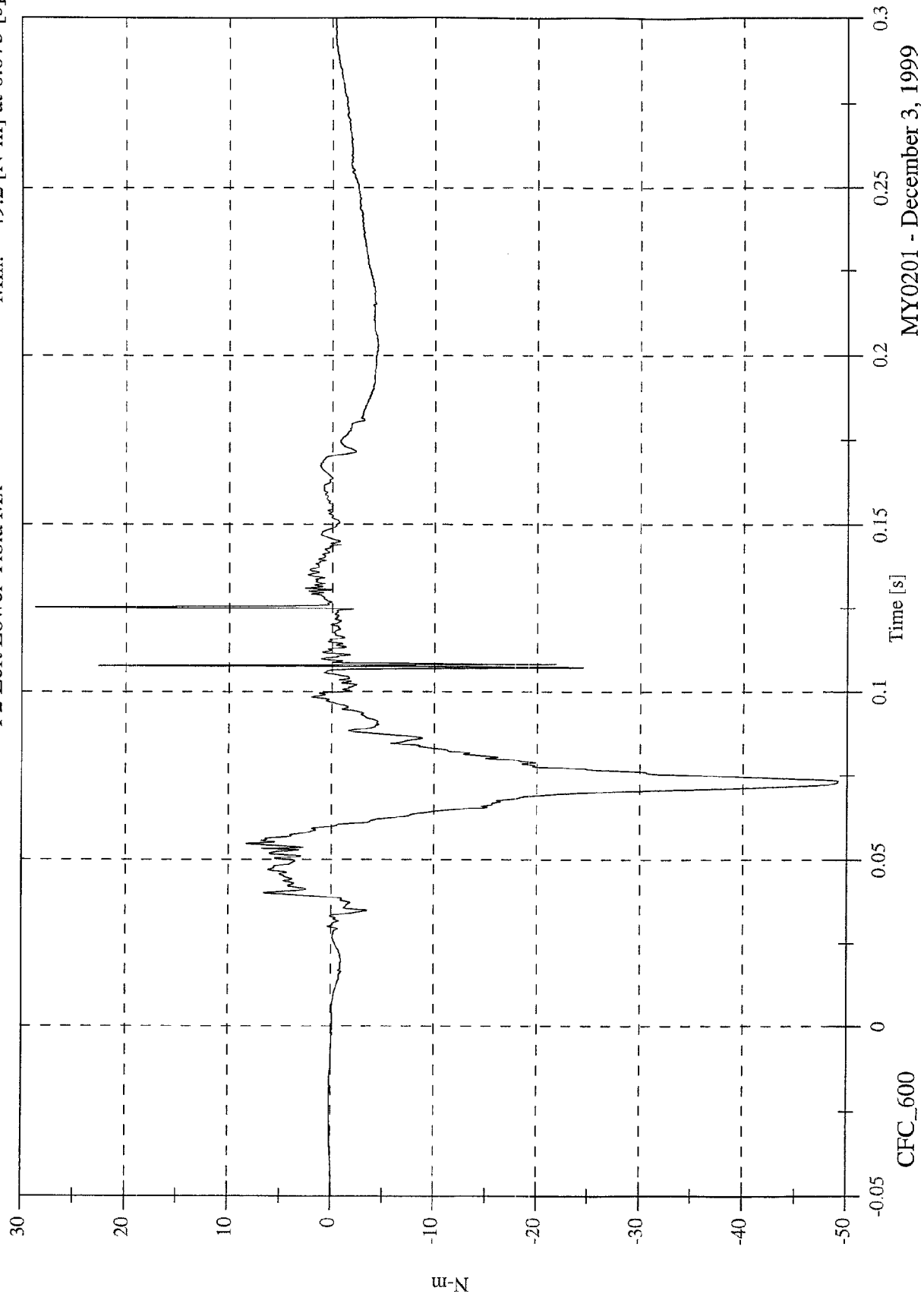


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 28.8 [N-m] at 0.125 [s]
 Min: -49.2 [N-m] at 0.073 [s]

P2 Left Lower Tibia Mx



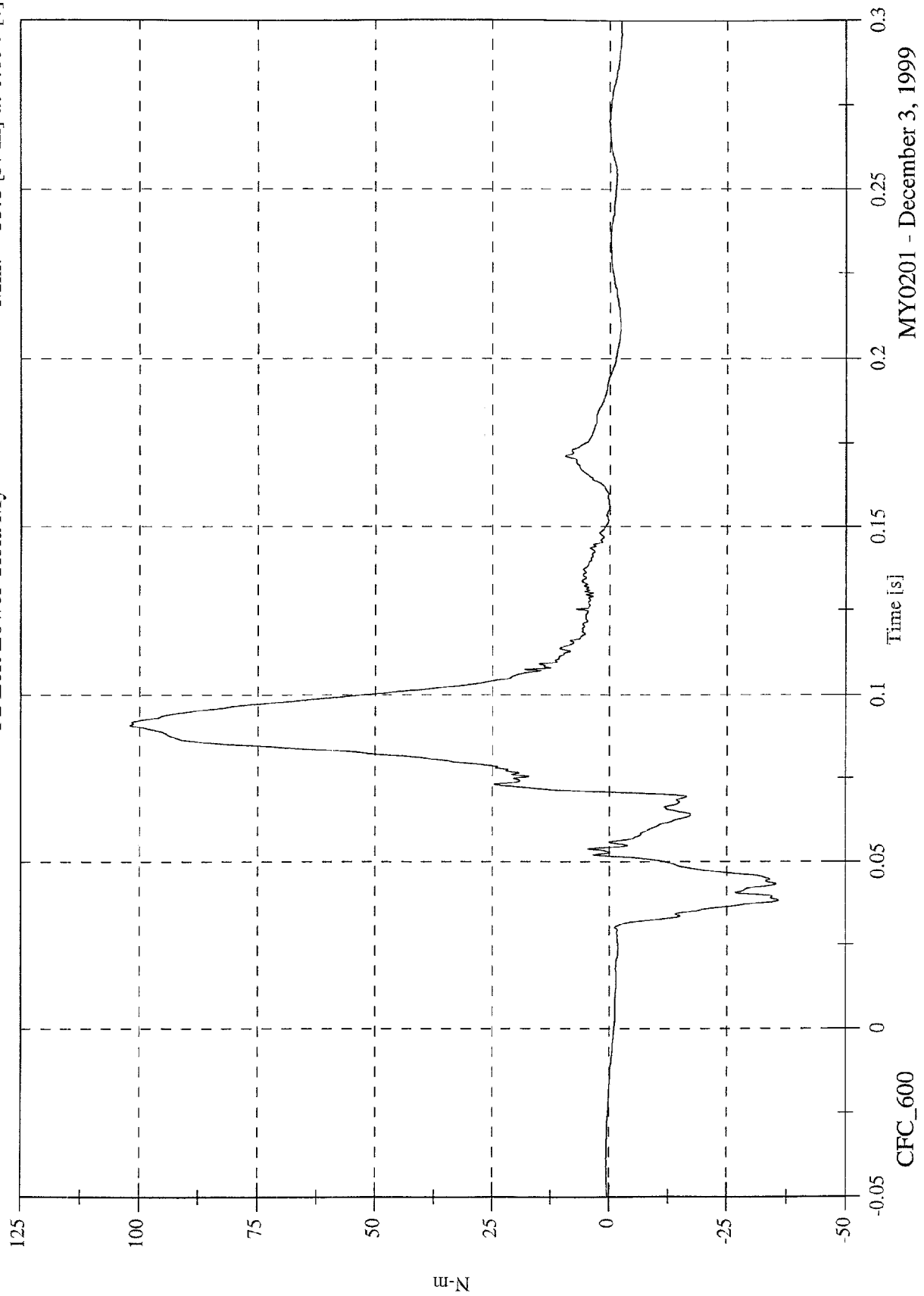
MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 102.1 [N-m] at 0.091 [s]

Min: -35.8 [N-m] at 0.038 [s]

P2 Left Lower Tibia My

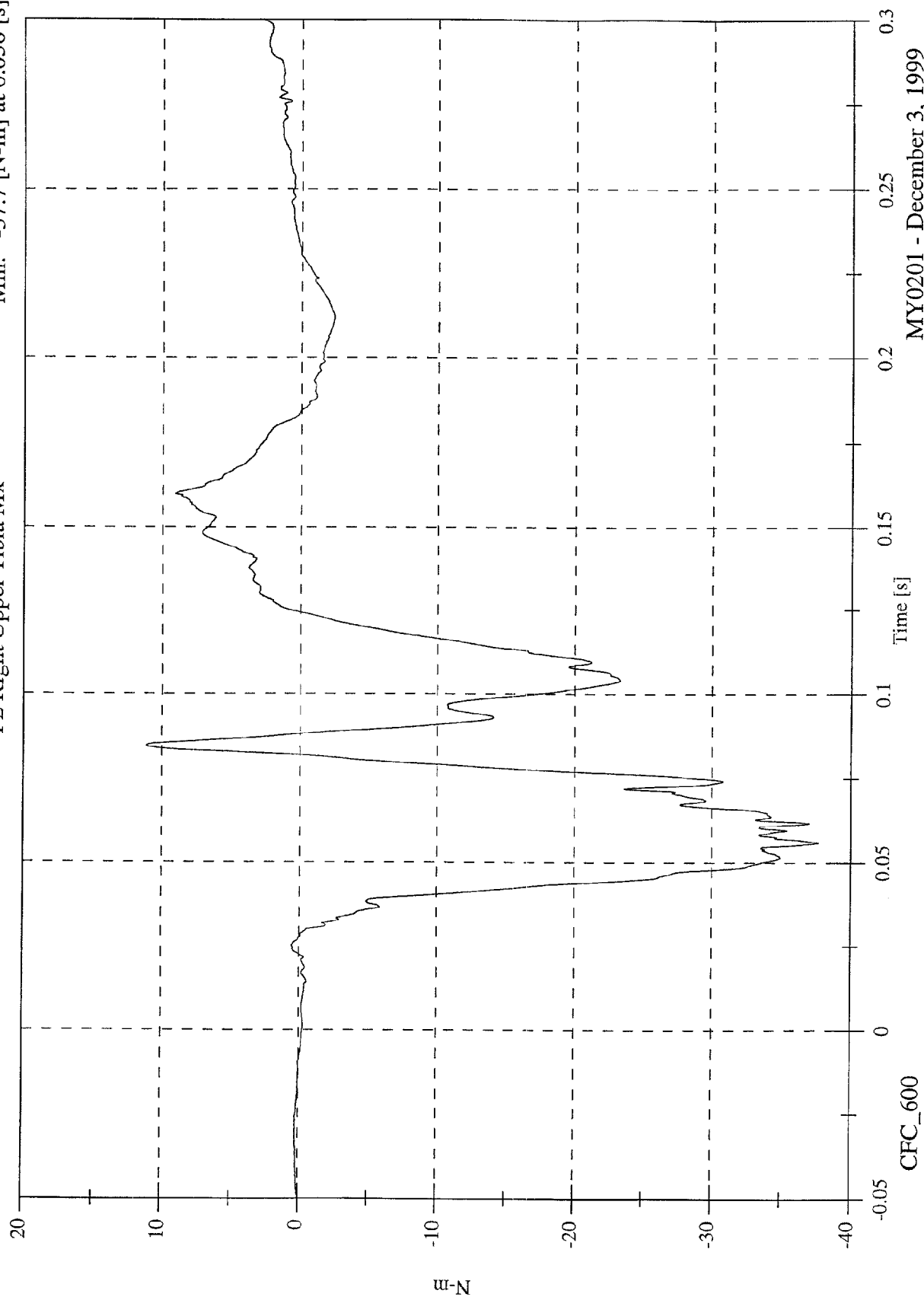


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

P2 Right Upper Tibia Mx

Max: 11.1 [N-m] at 0.085 [s]
Min: -37.7 [N-m] at 0.056 [s]

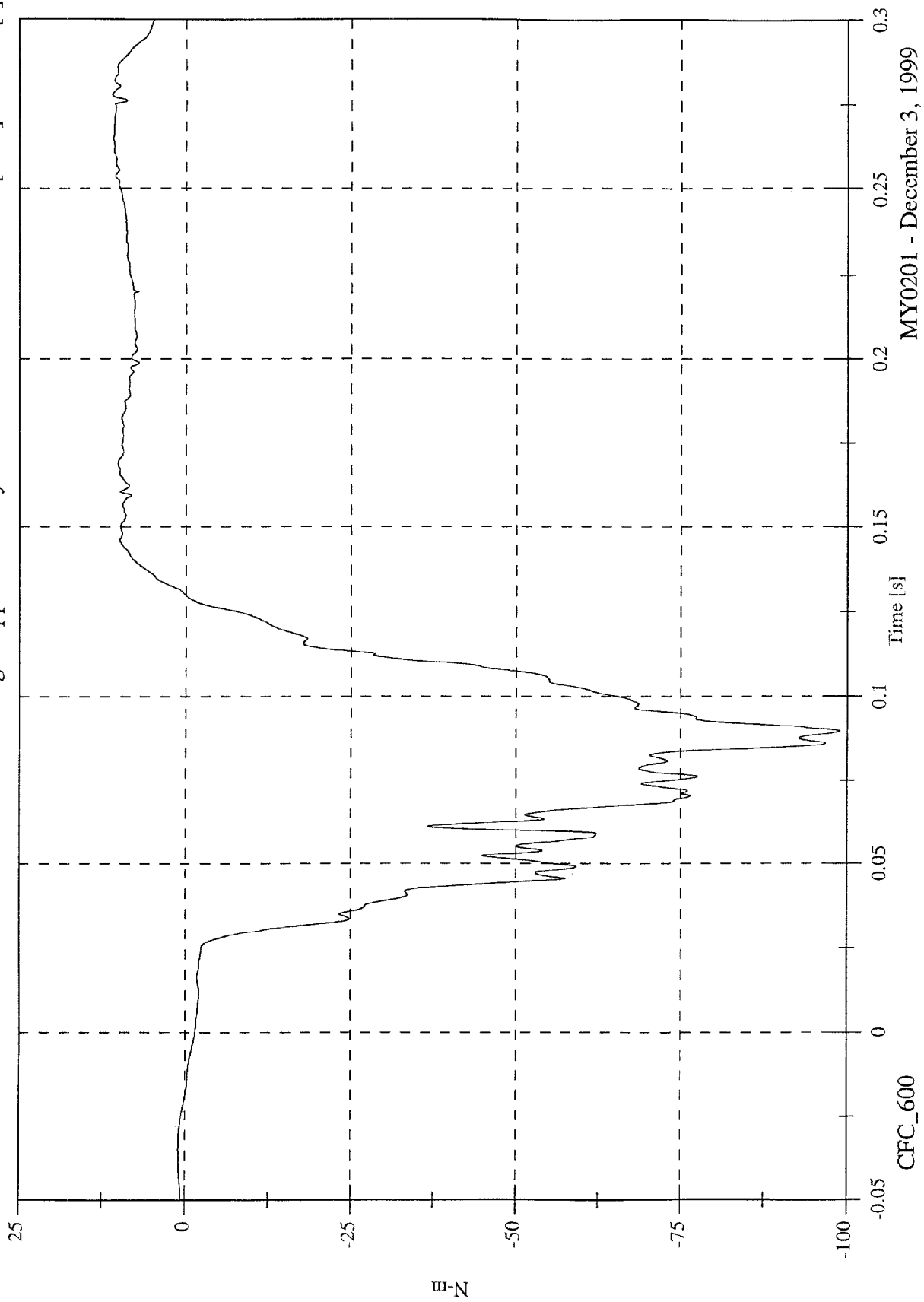


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 11.1 [N-m] at 0.278 [s]
 Min: -98.9 [N-m] at 0.090 [s]

P2 Right Upper Tibia My

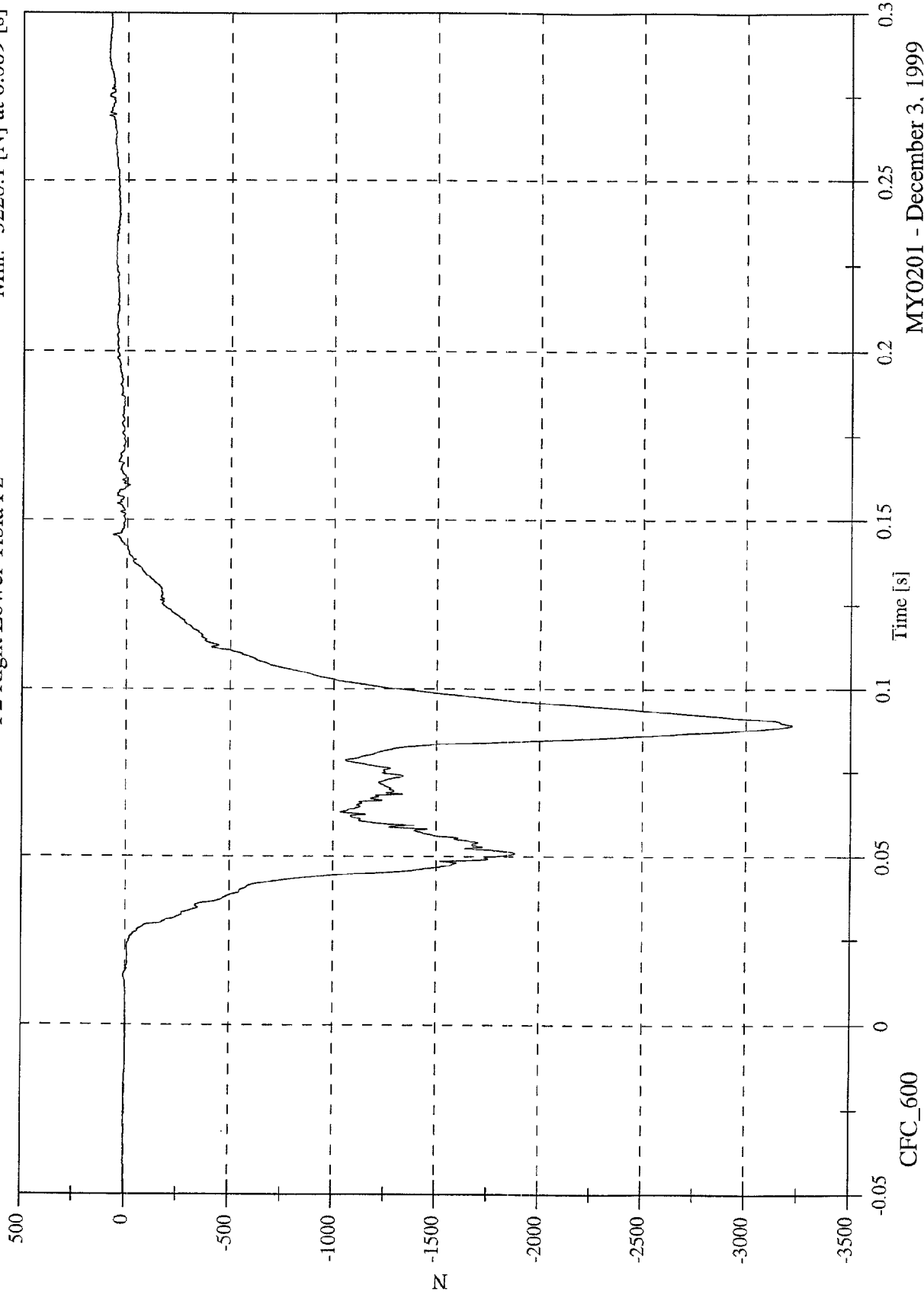


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 88.9 [N] at 0.269 [s]
Min: -3220.1 [N] at 0.089 [s]

P2 Right Lower Tibia Fz

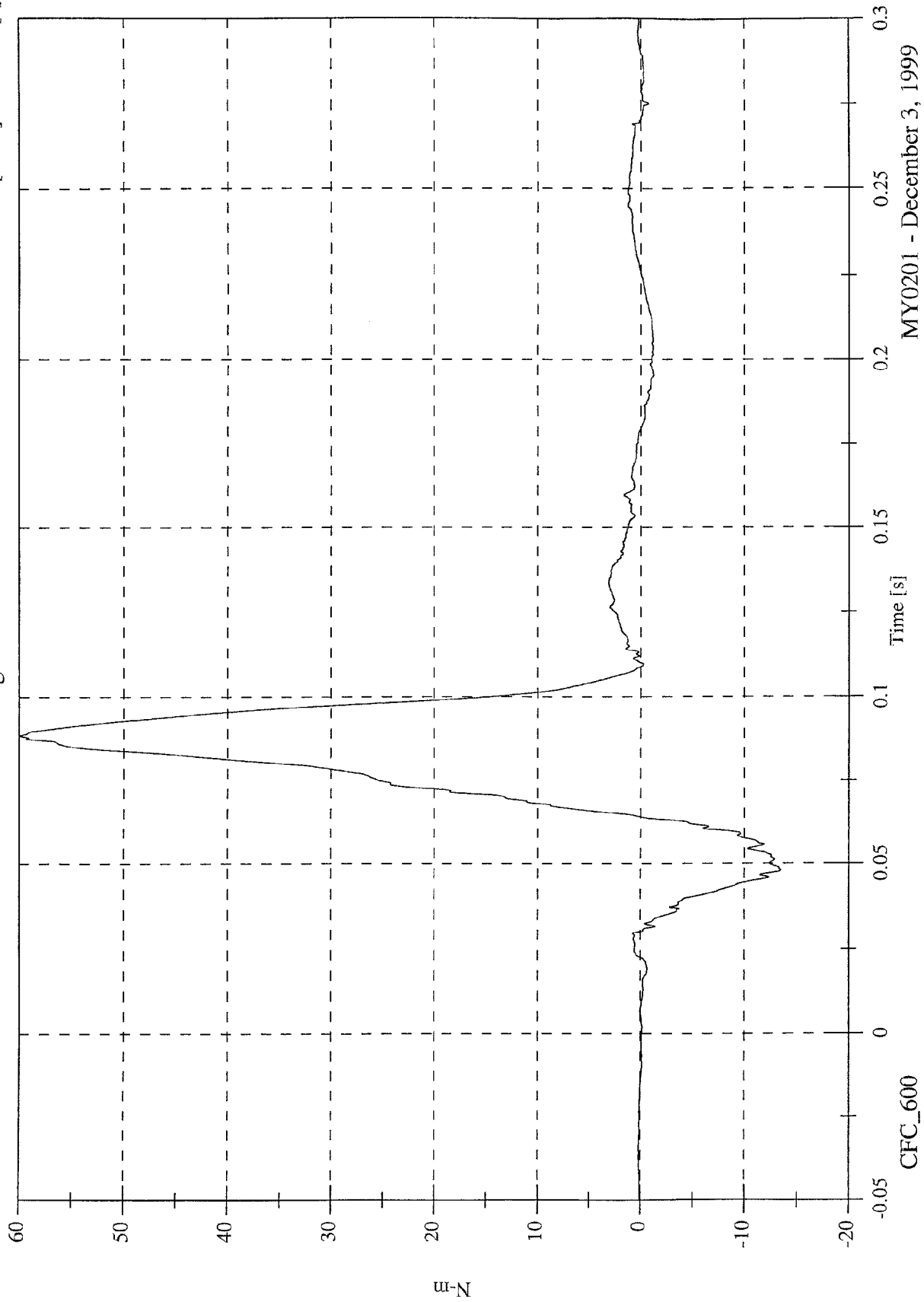


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 59.9 [N-m] at 0.088 [s]
 Min: -13.5 [N-m] at 0.048 [s]

P2 Right Lower Tibia Mx

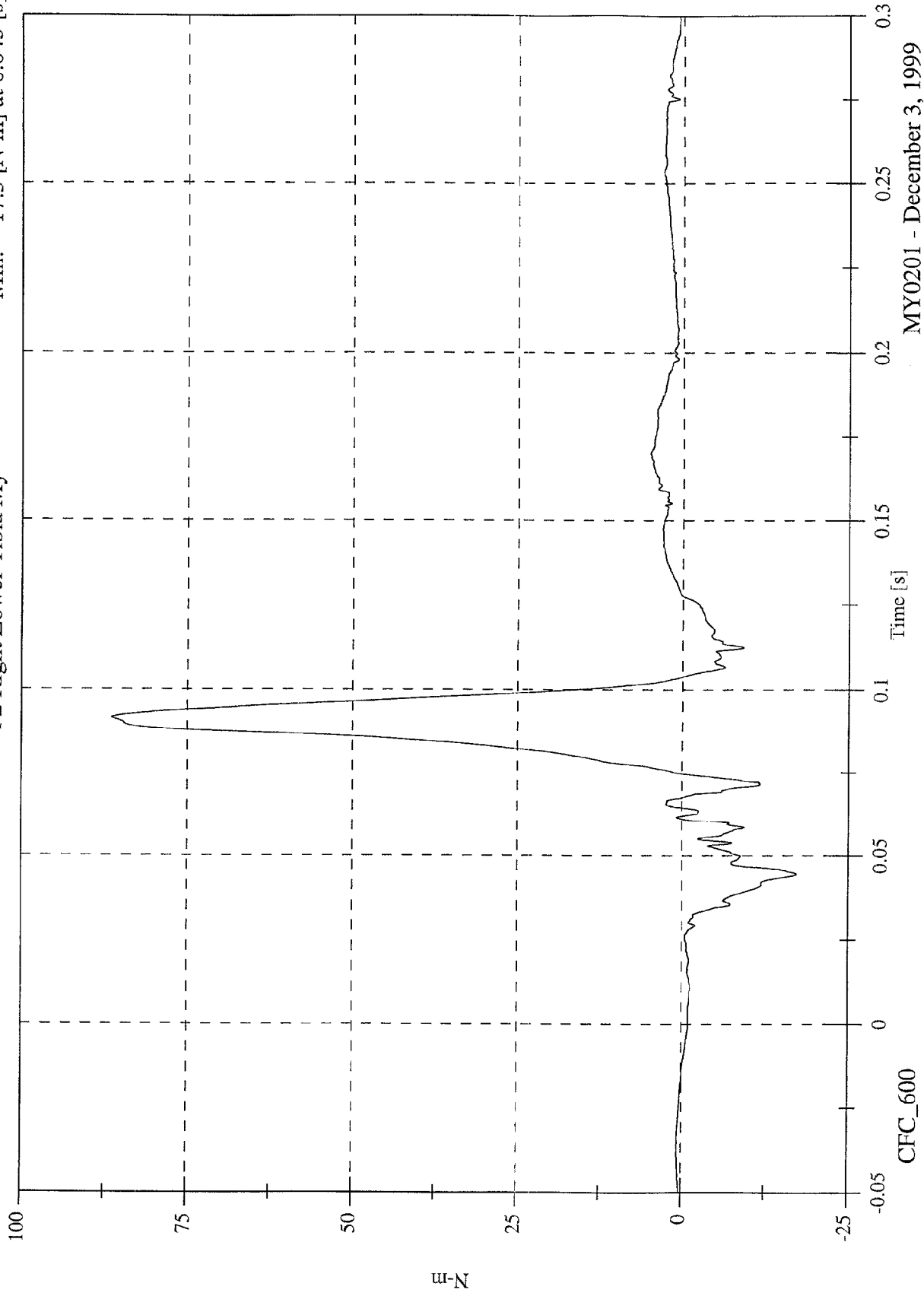


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 86.4 [N-m] at 0.092 [s]
 Min: -17.3 [N-m] at 0.045 [s]

P2 Right Lower Tibia My

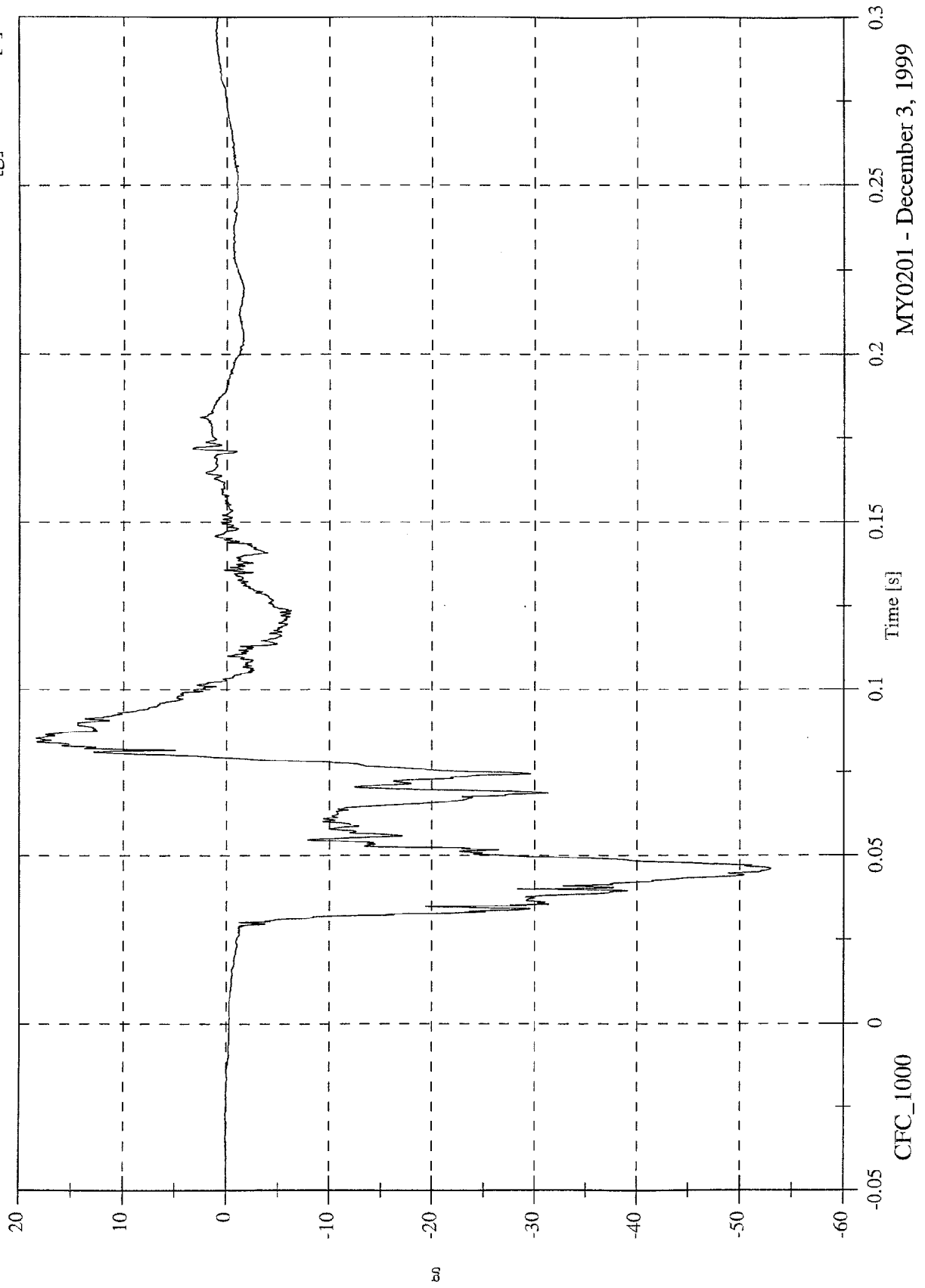


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 18.4 [g] at 0.085 [s]
 Min: -53.0 [g] at 0.046 [s]

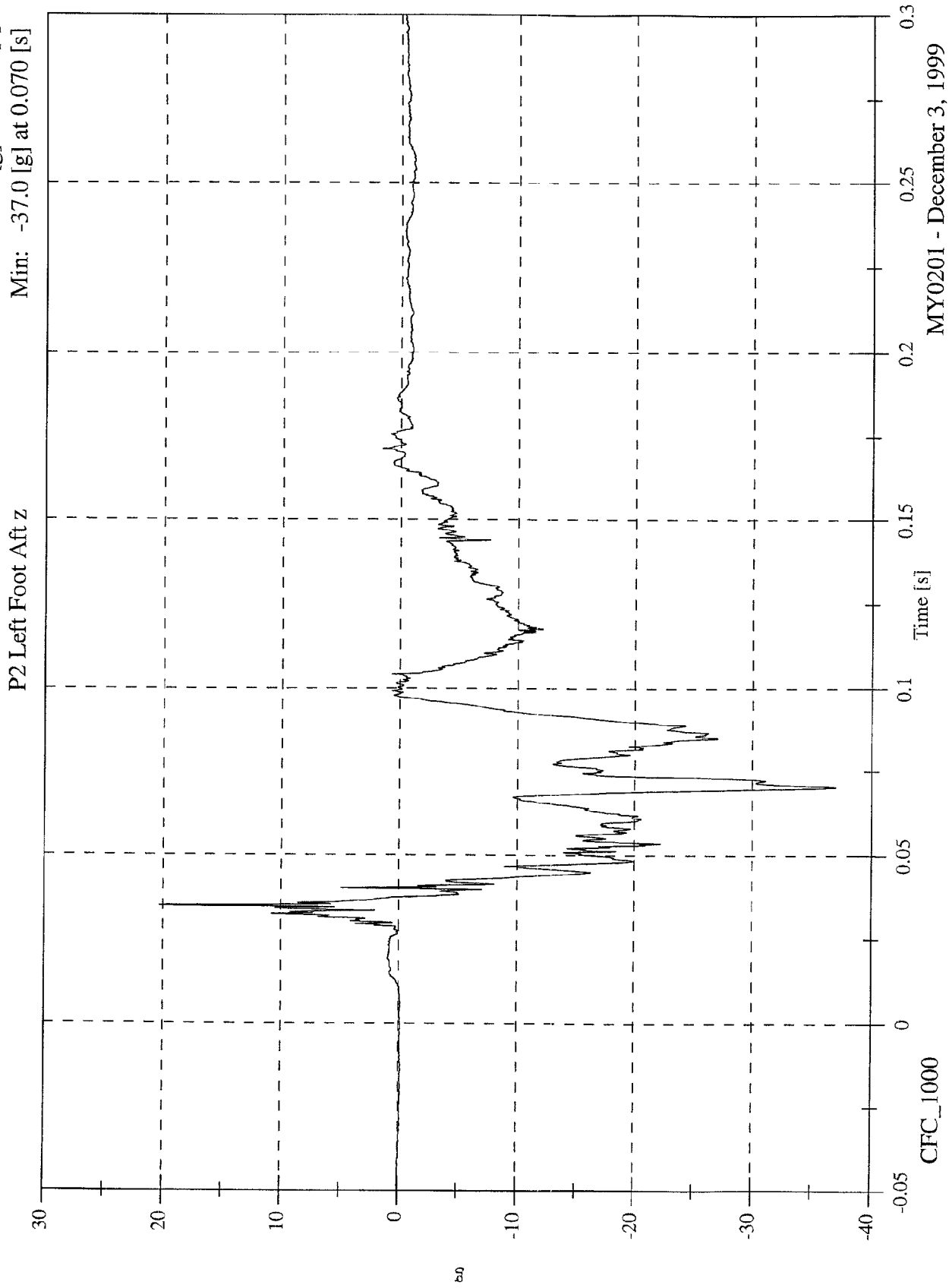
P2 Left Foot Aft x



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

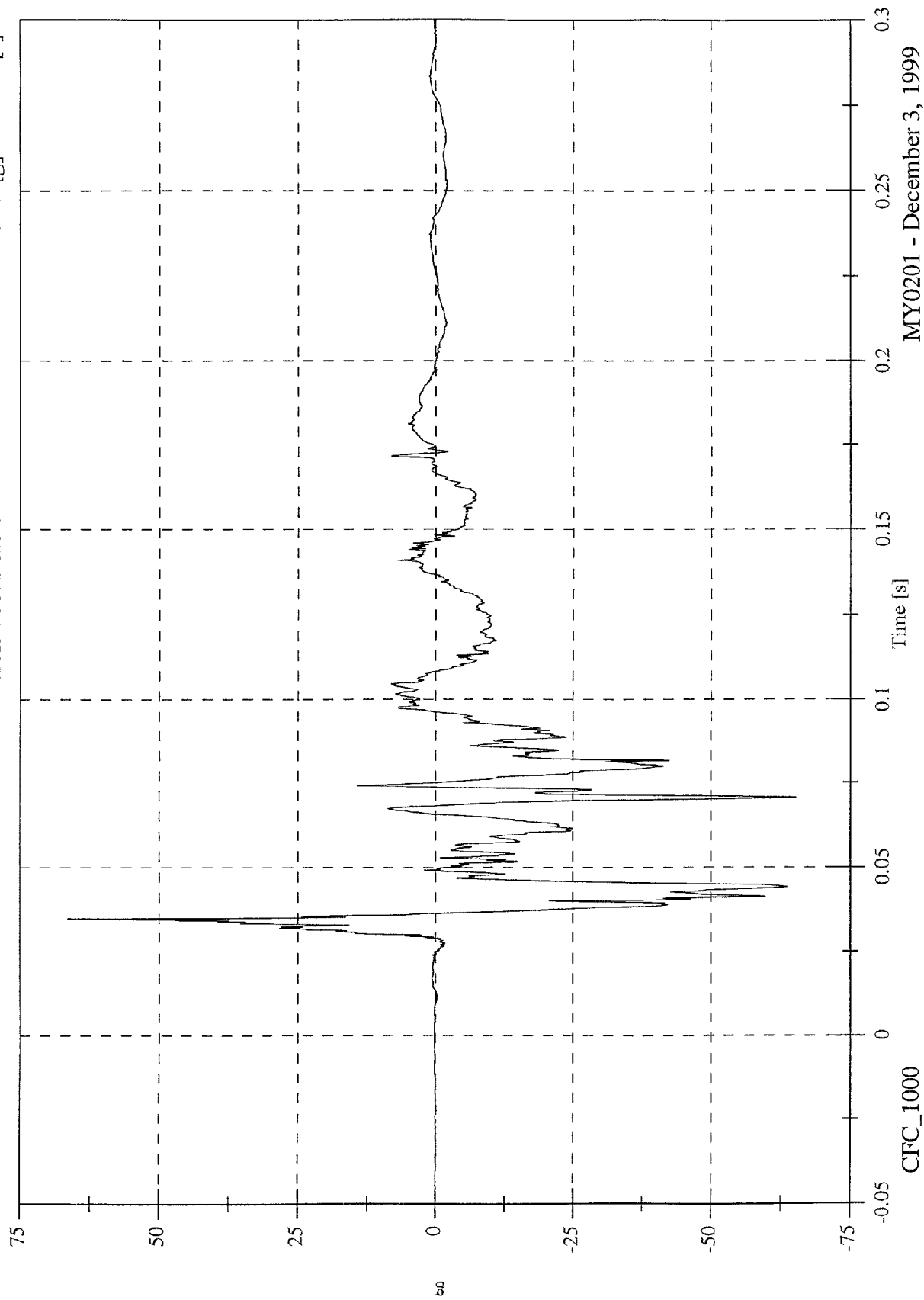
Max: 20.3 [g] at 0.035 [s]
Min: -37.0 [g] at 0.070 [s]



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 66.4 [g] at 0.035 [s]
Min: -65.3 [g] at 0.070 [s]

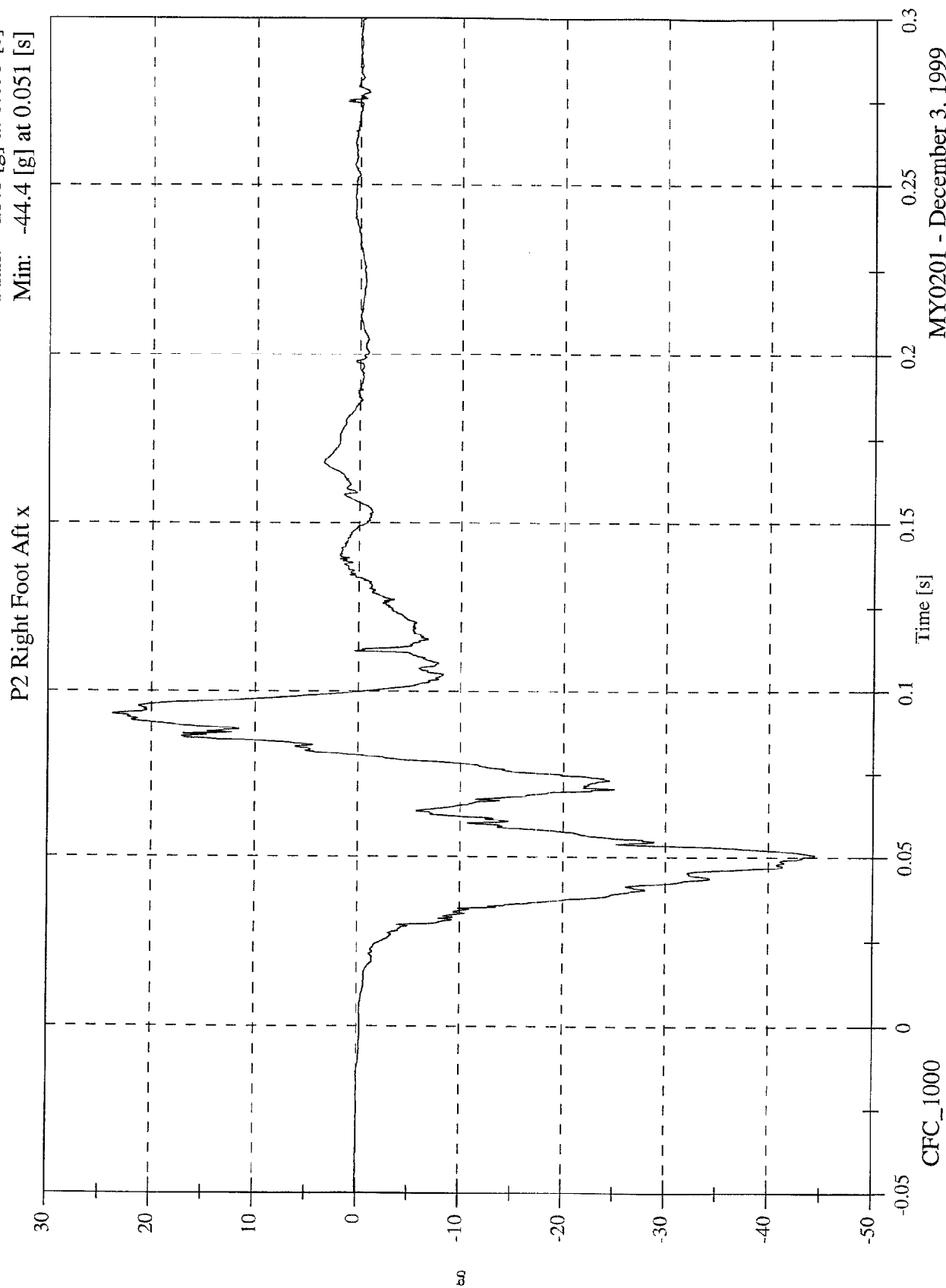
P2 Left Foot Fore z



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 23.8 [g] at 0.093 [s]
 Min: -44.4 [g] at 0.051 [s]

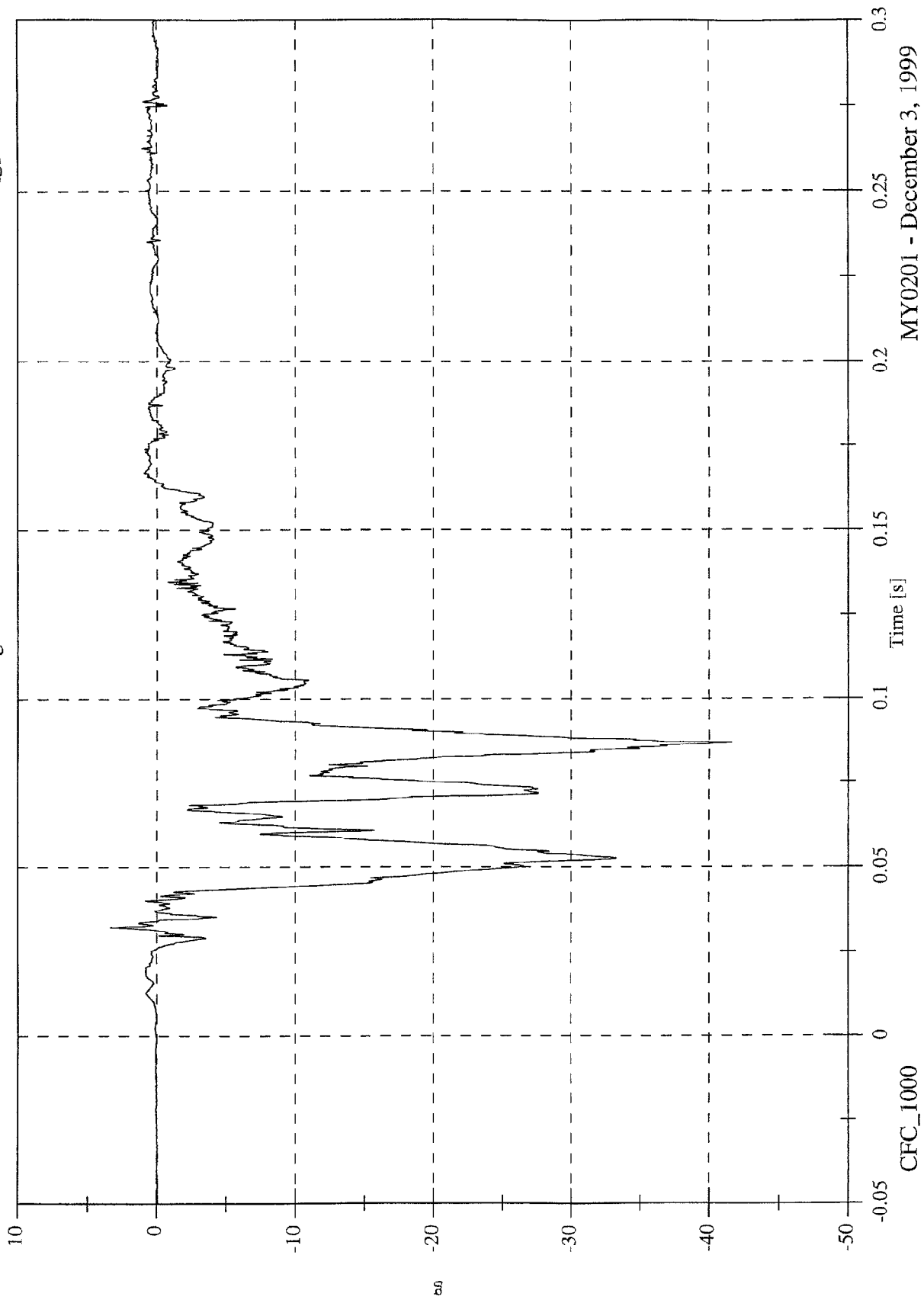


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 3.3 [g] at 0.032 [s]
 Min: -41.6 [g] at 0.087 [s]

P2 Right Foot Aft z

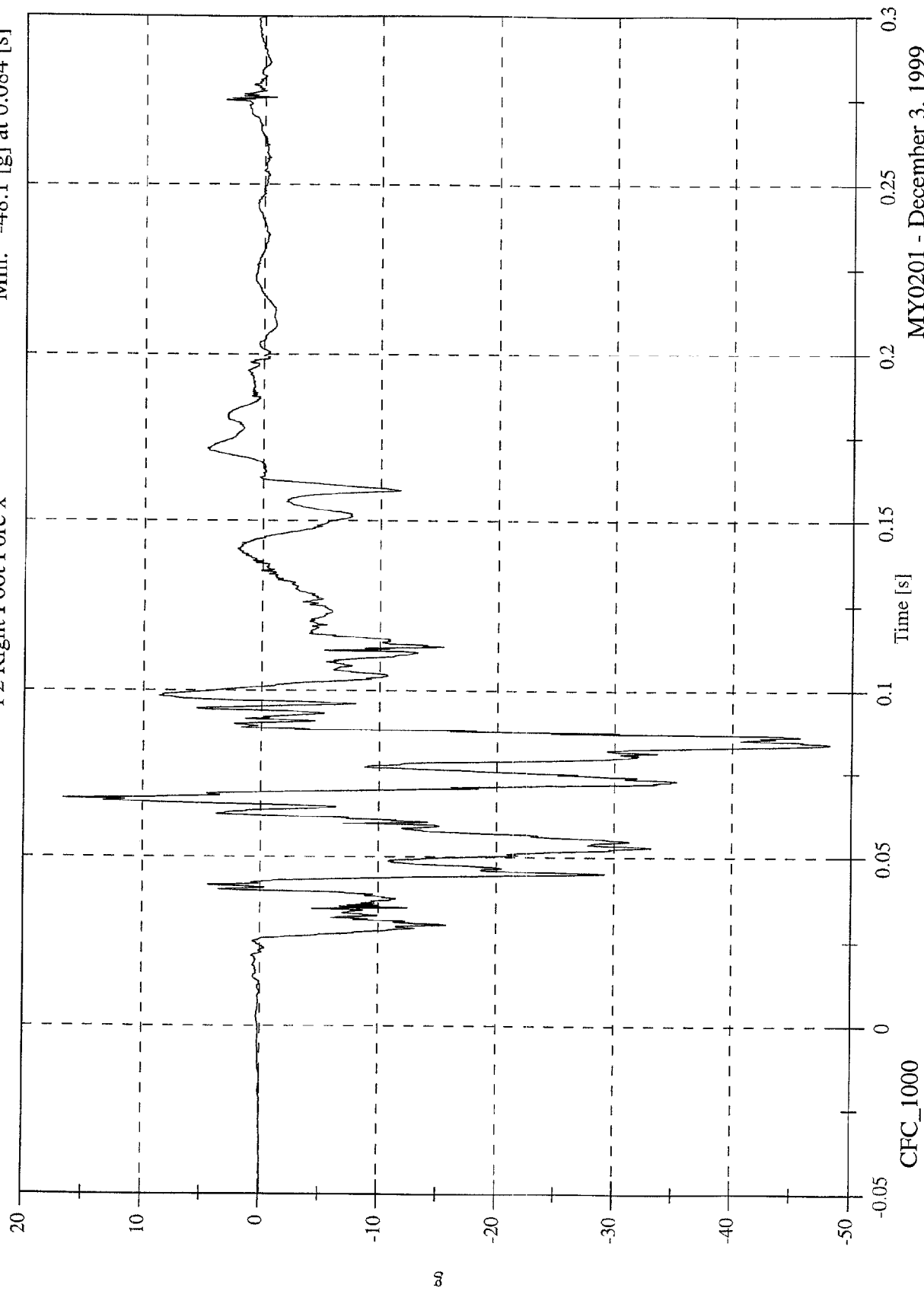


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 16.7 [g] at 0.067 [s]
 Min: -48.1 [g] at 0.084 [s]

P2 Right Foot Fore x

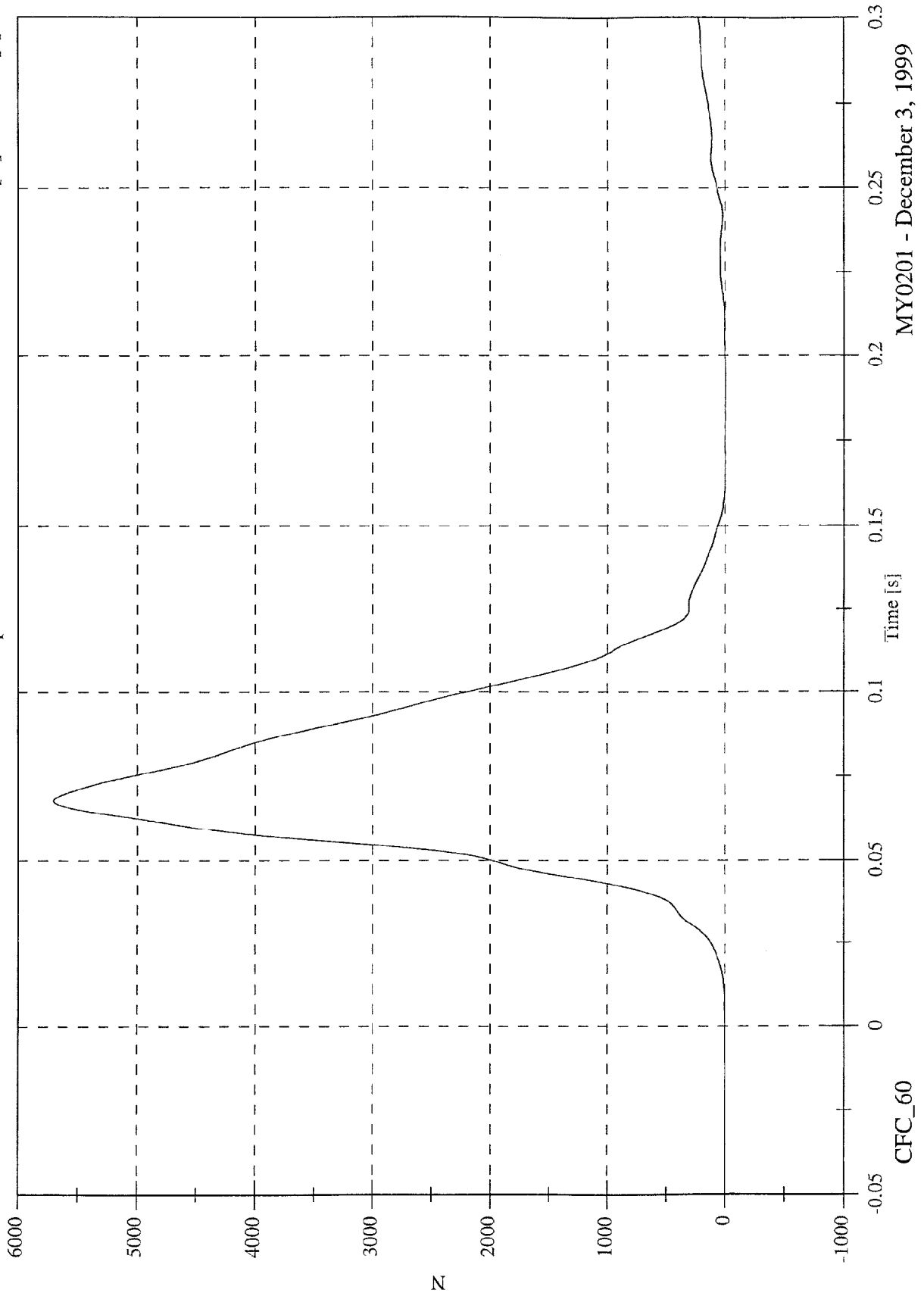


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 5700.6 [N] at 0.068 [s]
Min: -1.7 [N] at 0.191 [s]

P2 Lap Belt Force

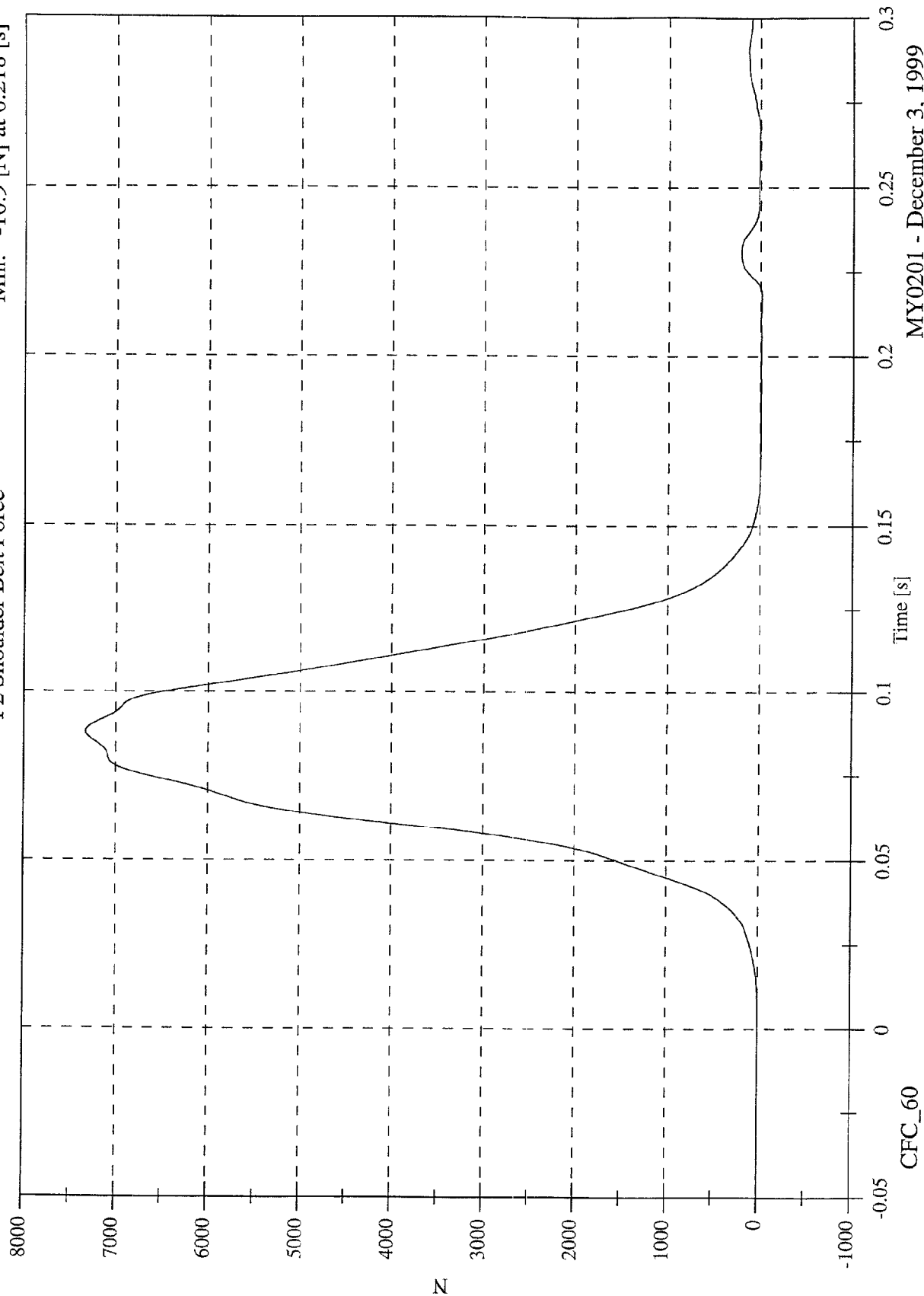


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 7330.2 [N] at 0.088 [s]
 Min: -10.9 [N] at 0.218 [s]

P2 Shoulder Belt Force

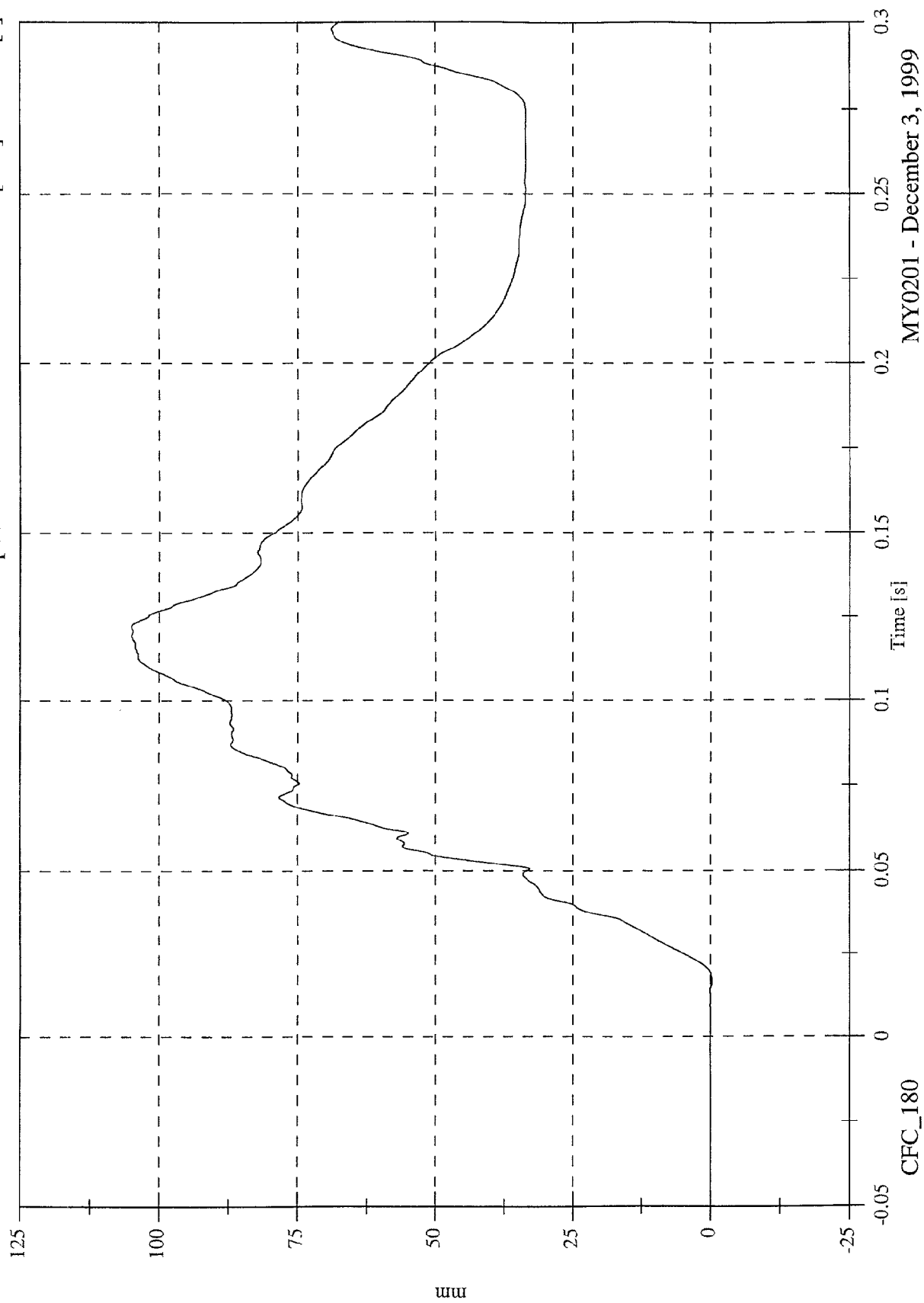


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 105.0 [mm] at 0.122 [s]
Min: -0.3 [mm] at 0.017 [s]

P2 Shoulder Belt Spoolout

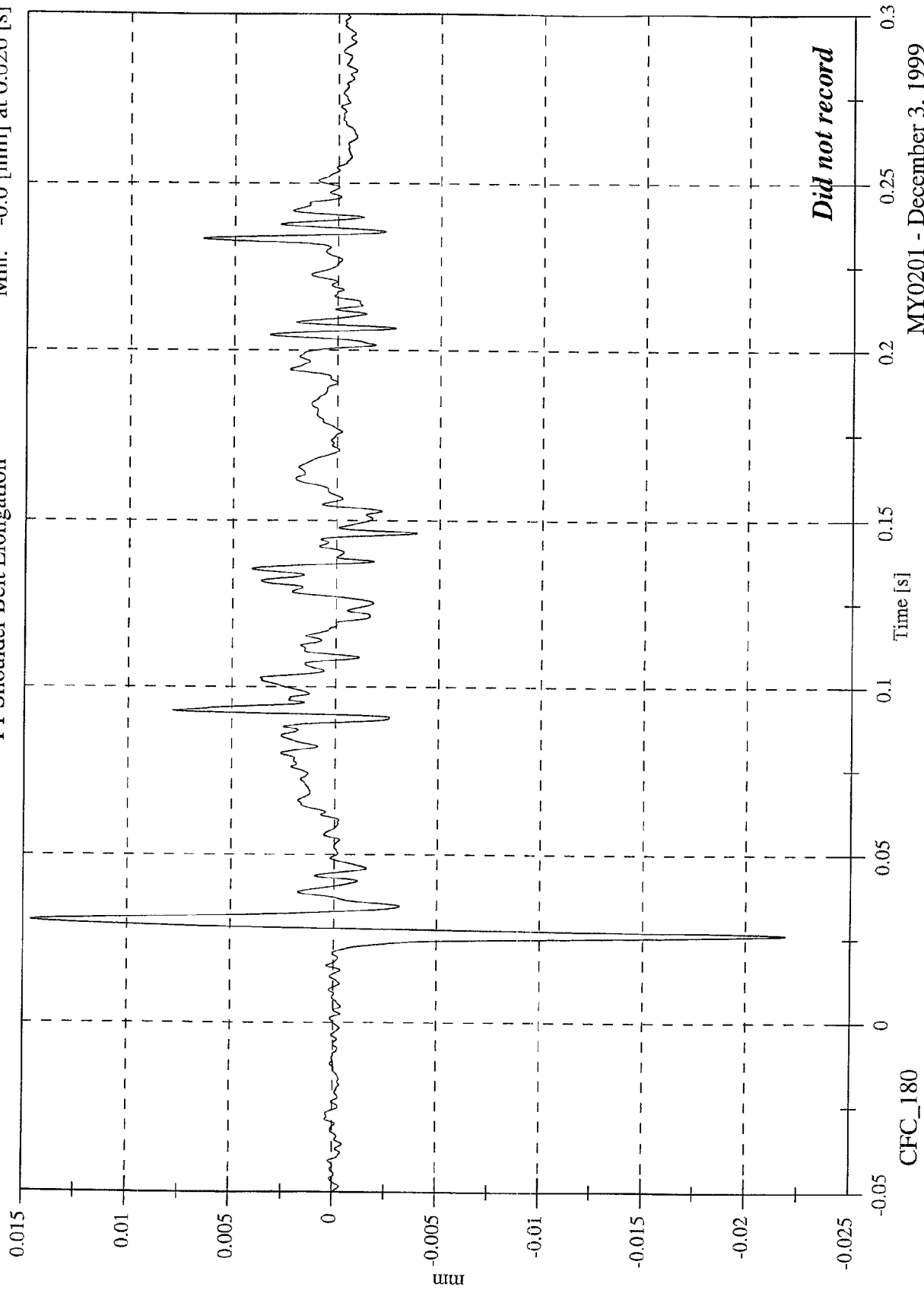


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

P1 Shoulder Belt Elongation

Max: 0.0 [mm] at 0.030 [s]
Min: -0.0 [mm] at 0.026 [s]



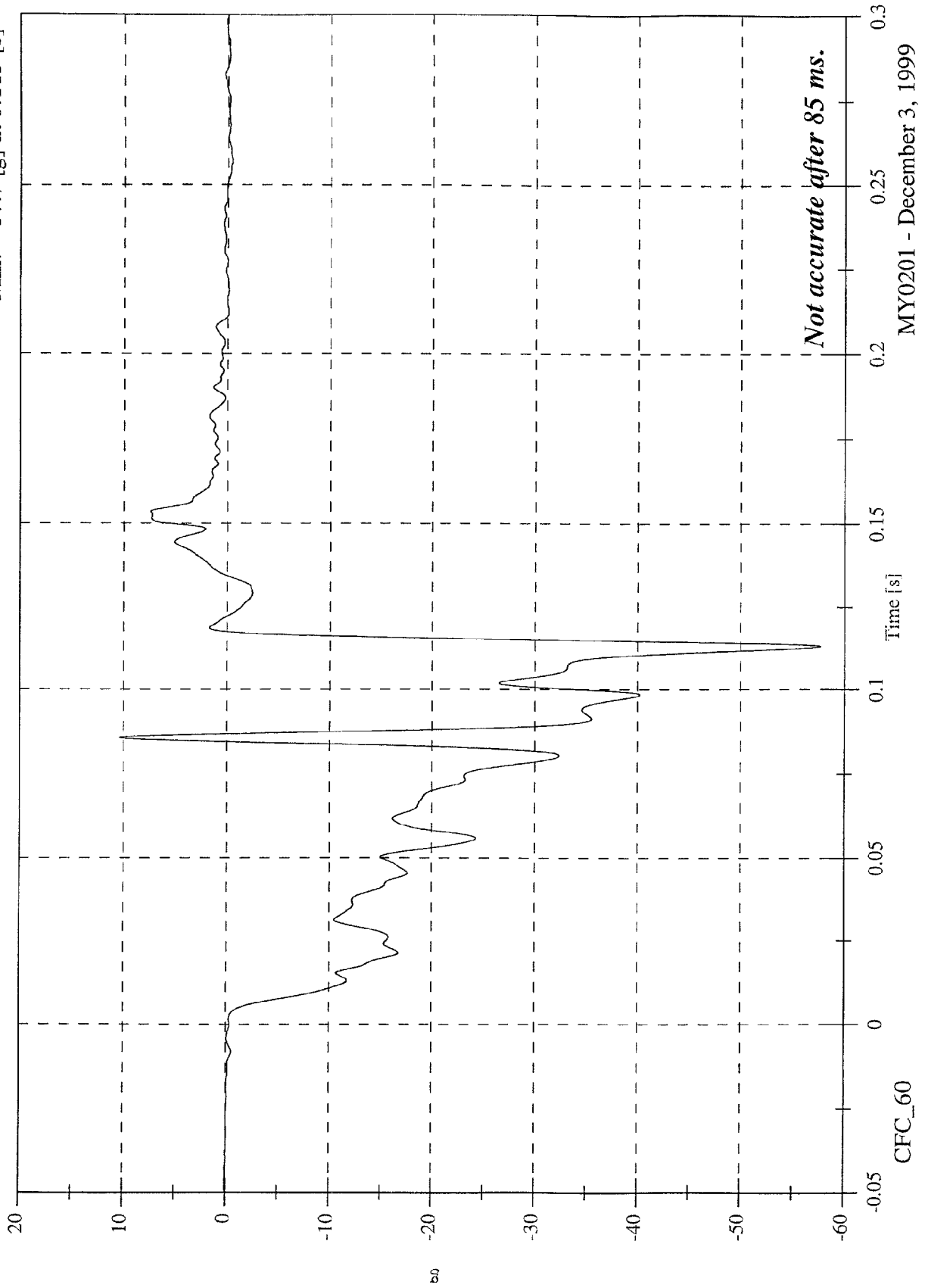
Did not record

MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 10.4 [g] at 0.085 [s]
 Min: -57.7 [g] at 0.113 [s]

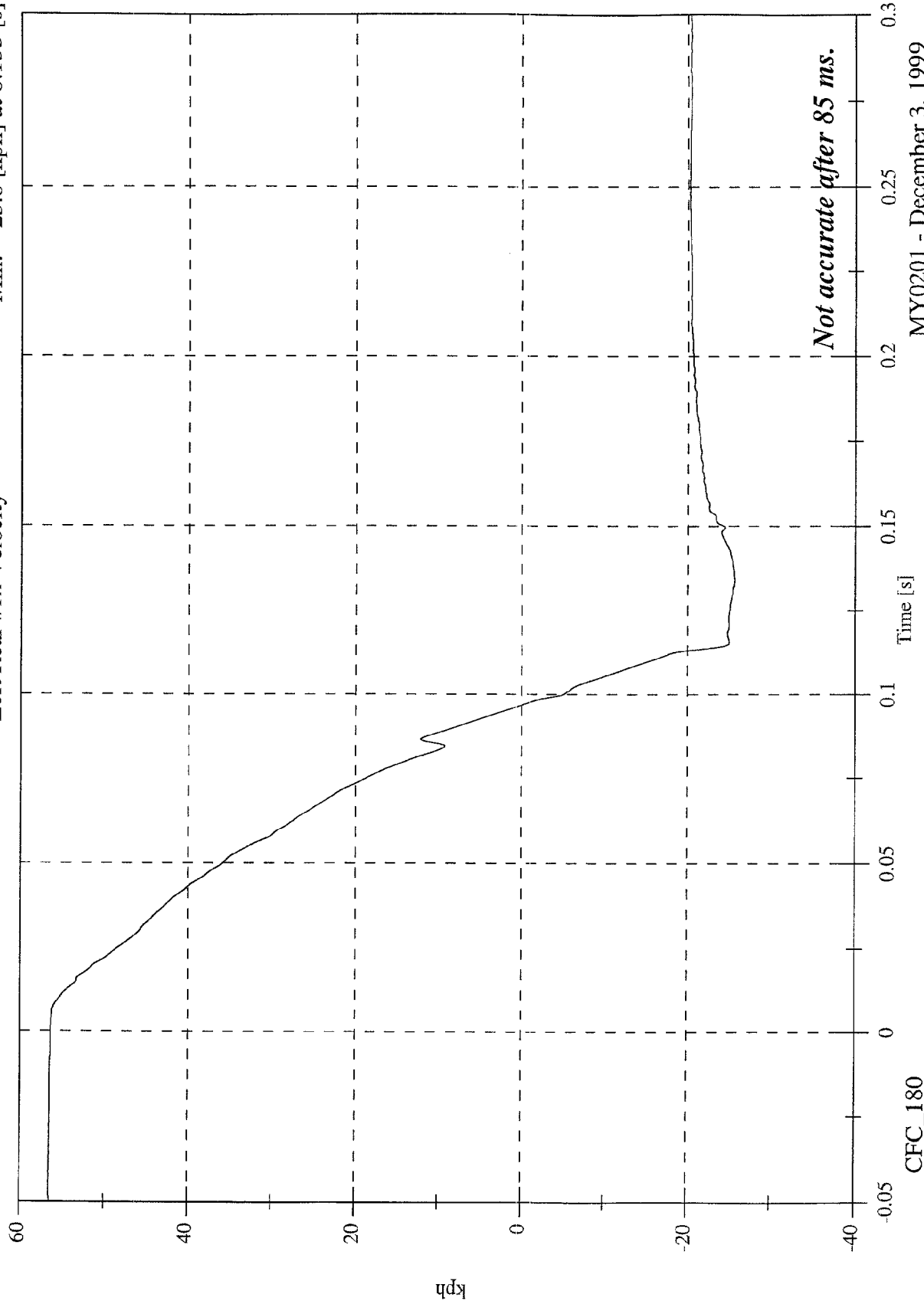
Left Rear #1x



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 56.5 [kph] at -0.037 [s]
Min: -25.6 [kph] at 0.133 [s]

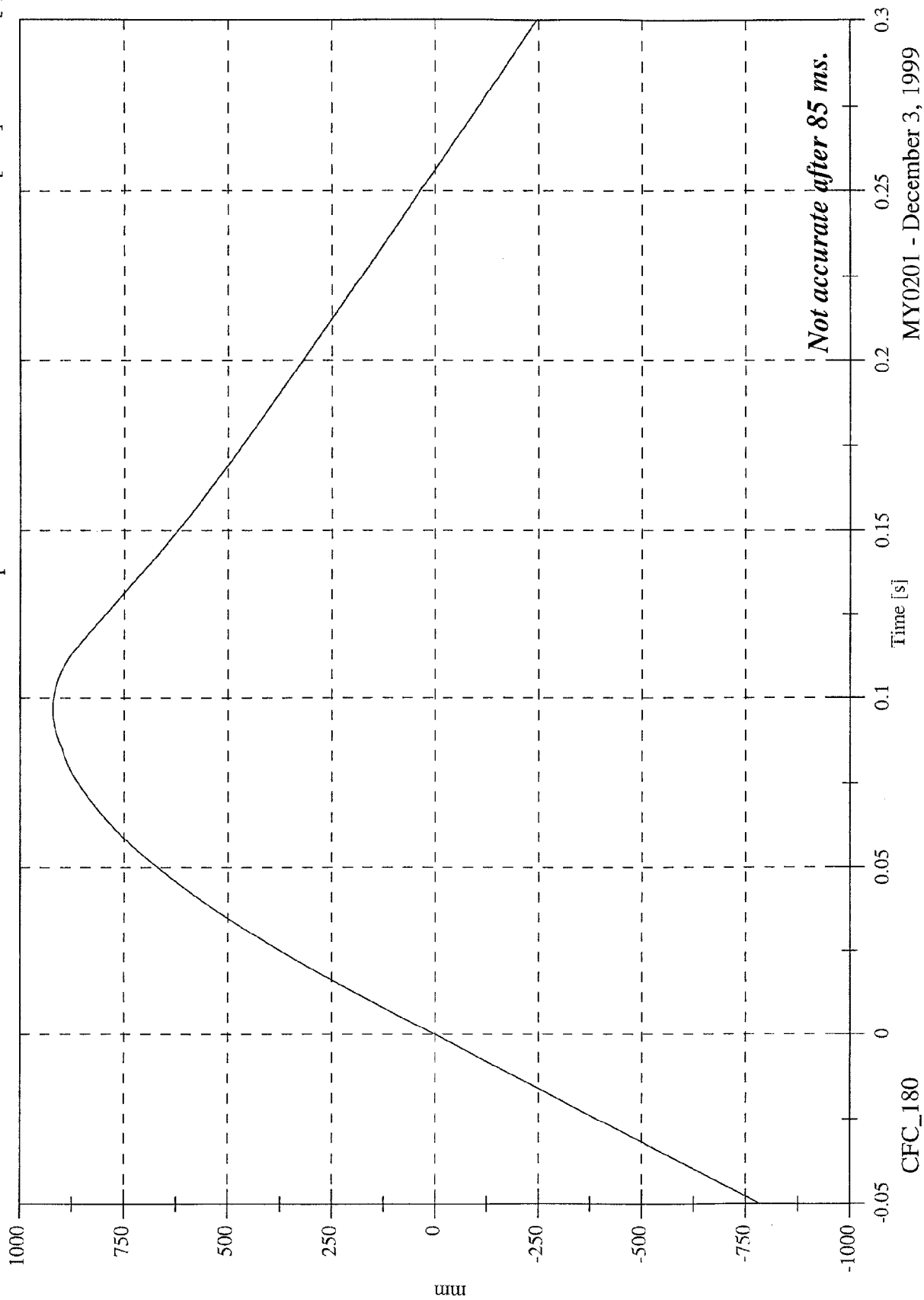
Left Rear #1x Velocity



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 921.0 [mm] at 0.097 [s]
 Min: -784.7 [mm] at -0.050 [s]

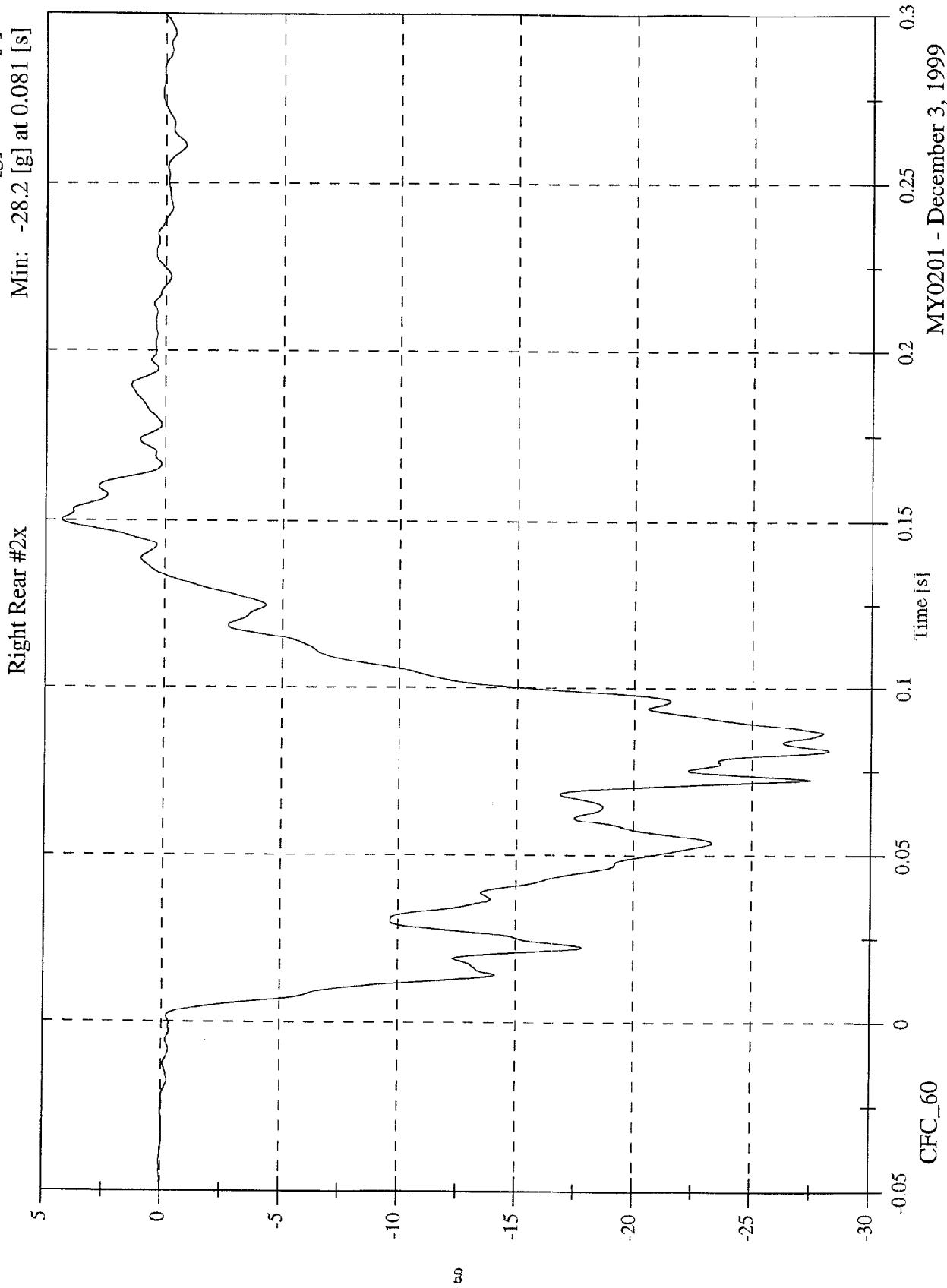
Left Rear #1x Displacement



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

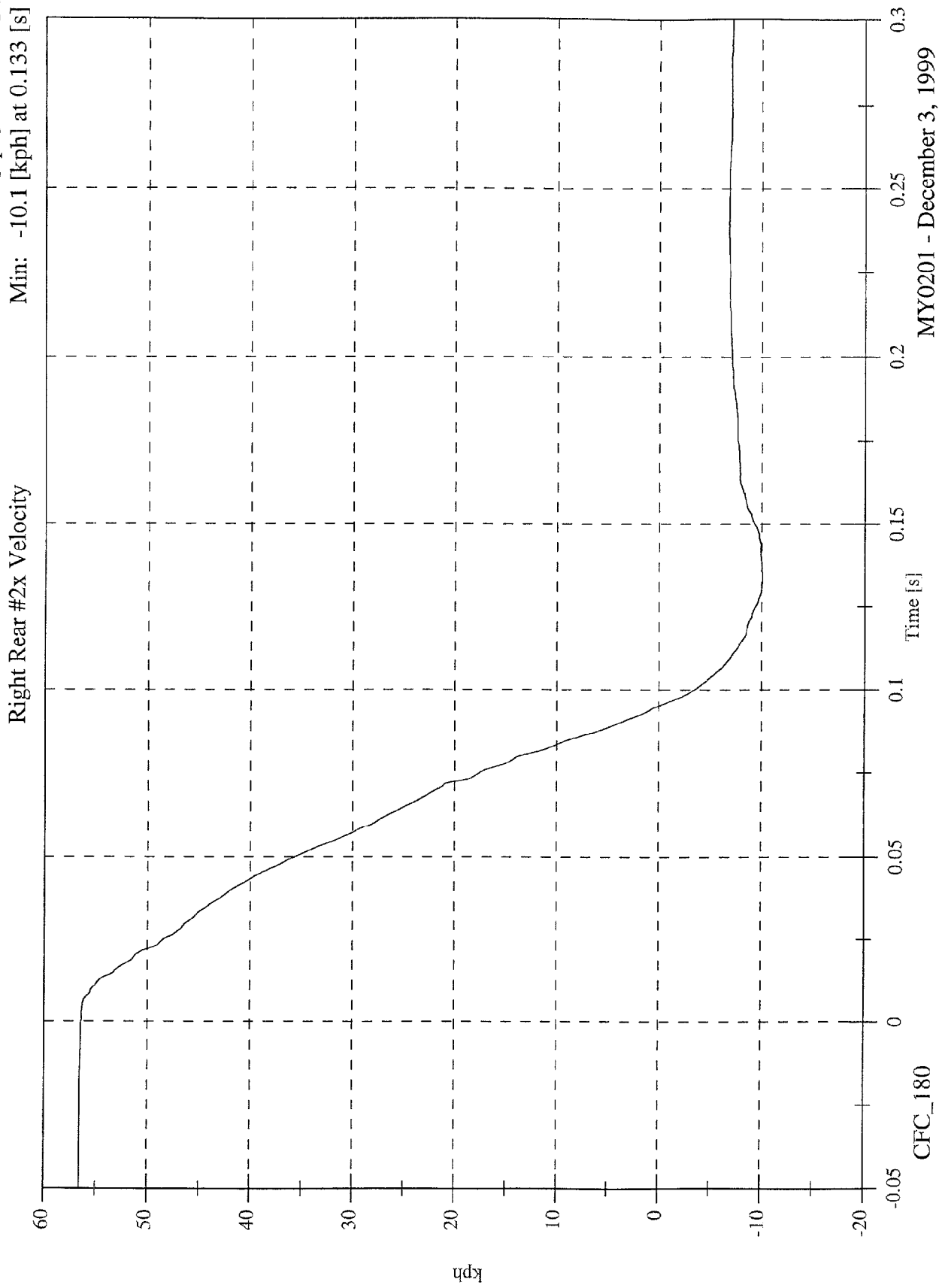
Max: 4.3 [g] at 0.150 [s]
Min: -28.2 [g] at 0.081 [s]



MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 56.5 [kph] at -0.025 [s]
Min: -10.1 [kph] at 0.133 [s]

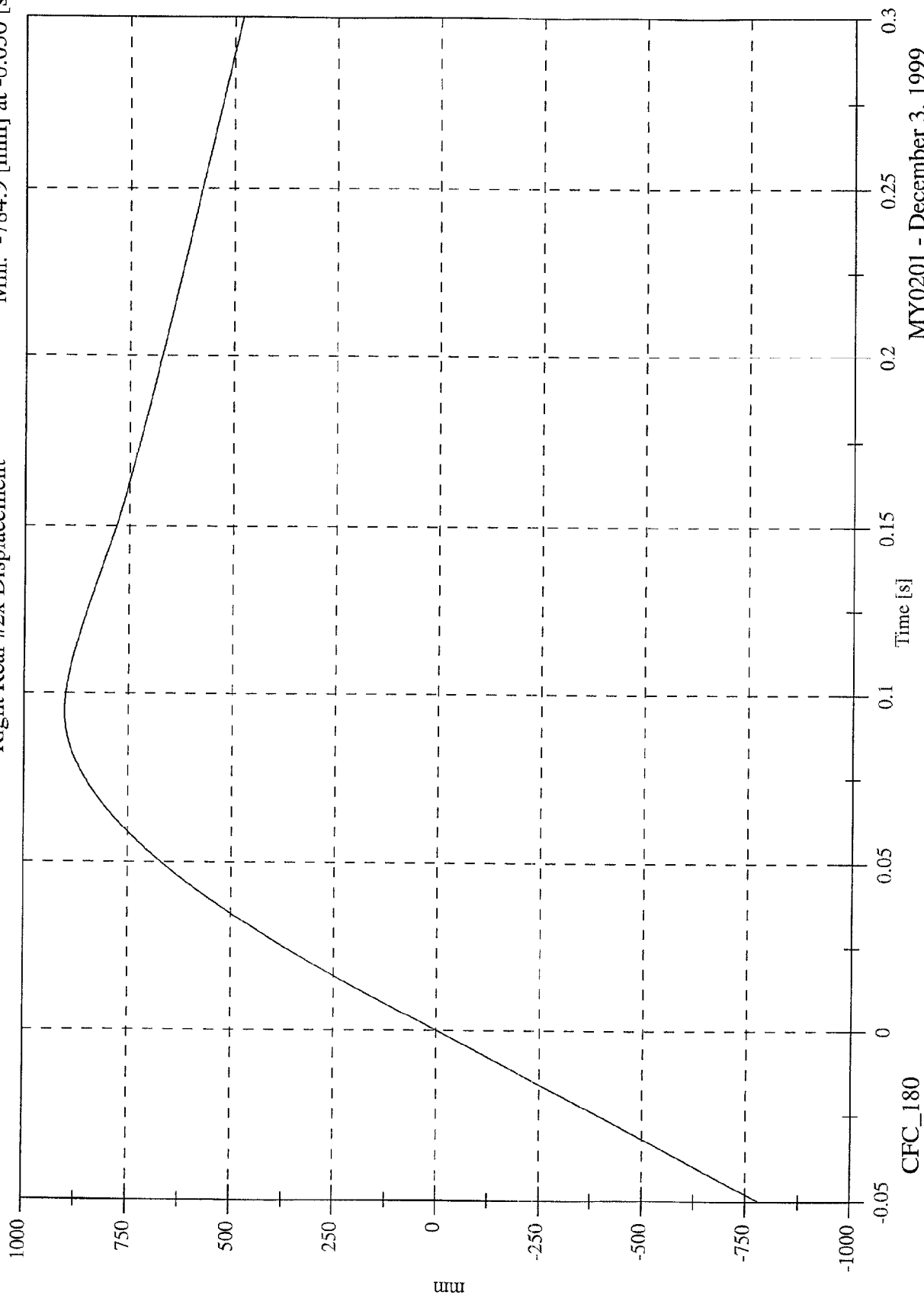


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 902.5 [mm] at 0.095 [s]
 Min: -784.9 [mm] at -0.050 [s]

Right Rear #2x Displacement

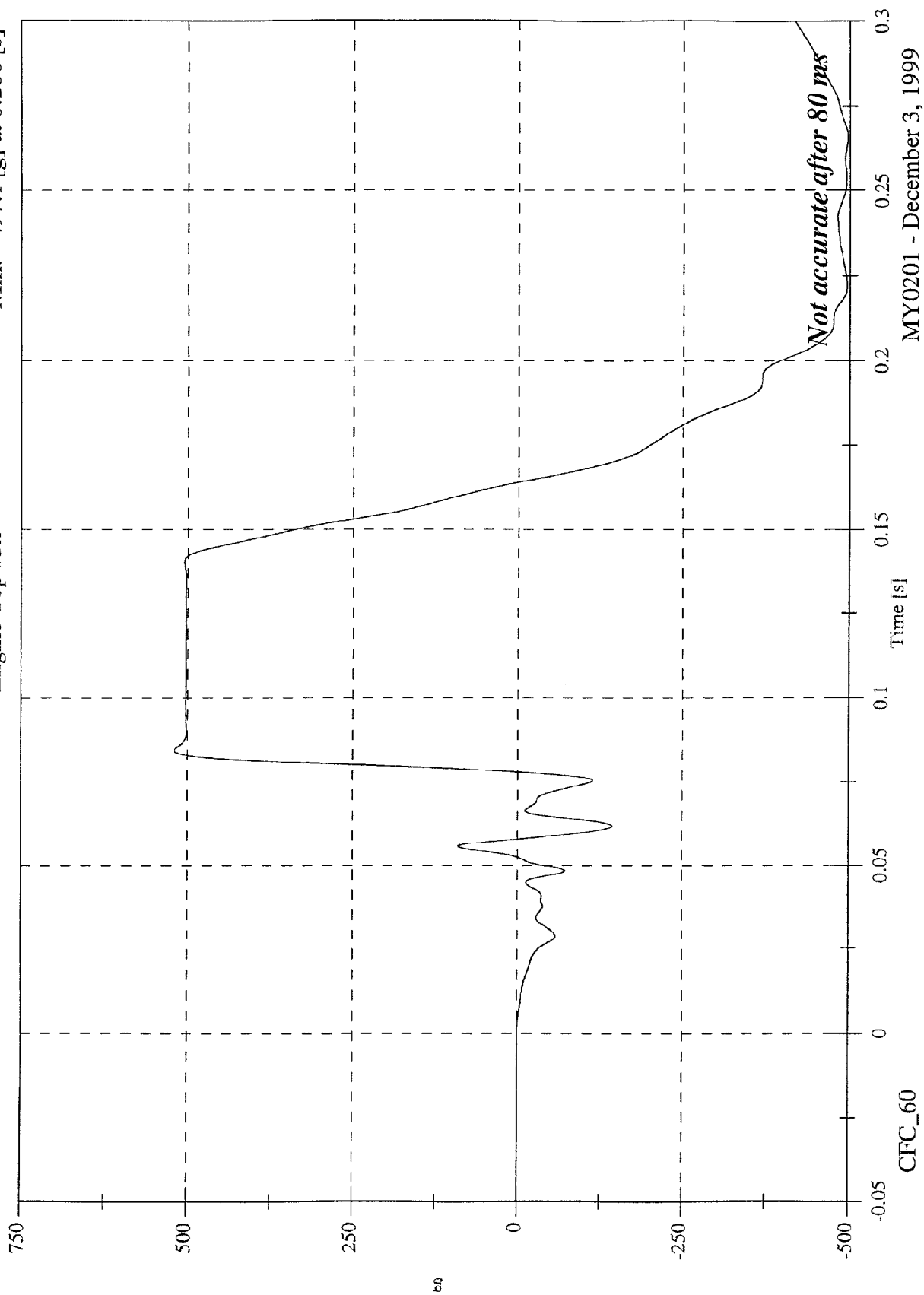


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 519.7 [g] at 0.084 [s]
 Min: -497.1 [g] at 0.266 [s]

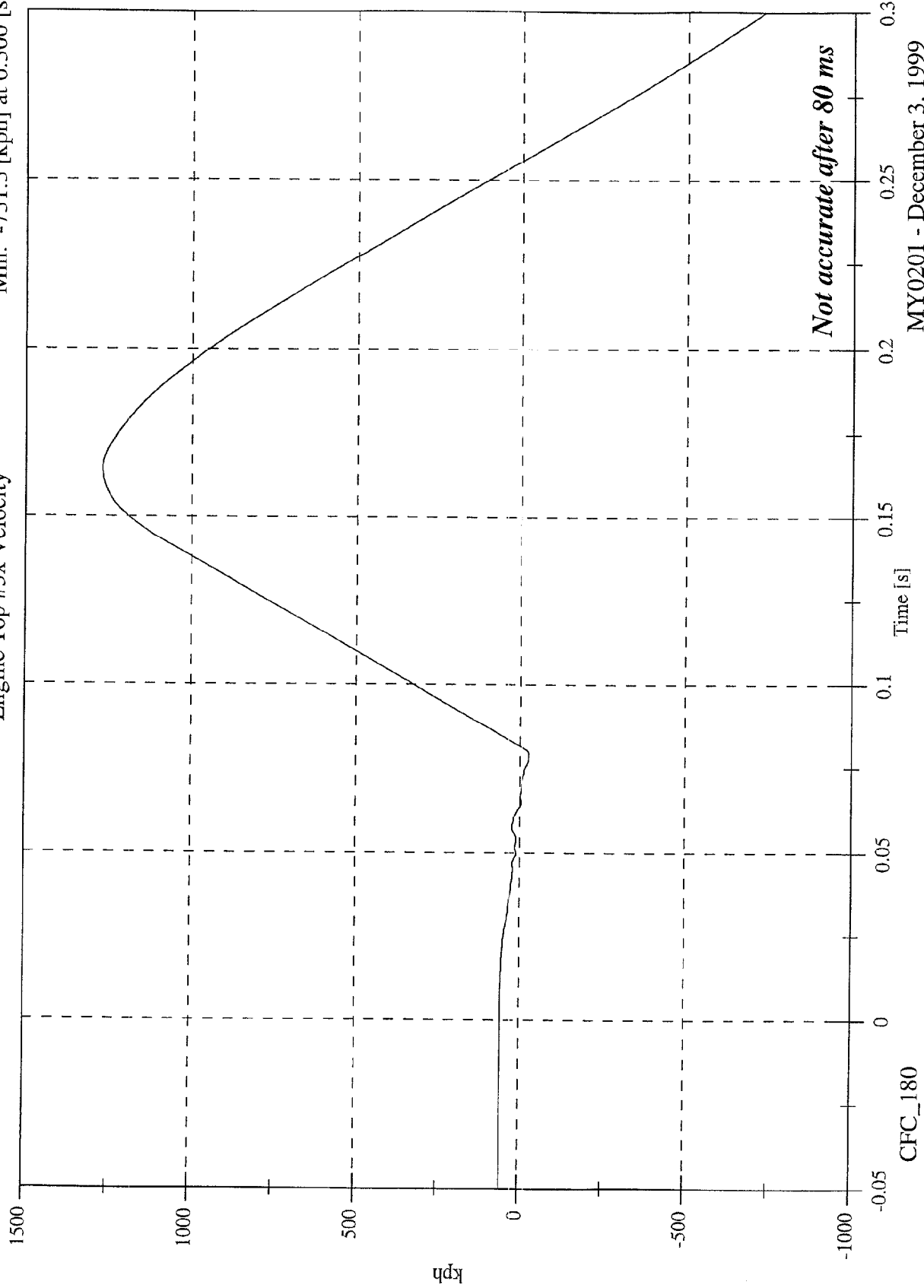
Engine Top #3x



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 1269.9 [kph] at 0.164 [s]
 Min: -731.3 [kph] at 0.300 [s]

Engine Top #3x Velocity



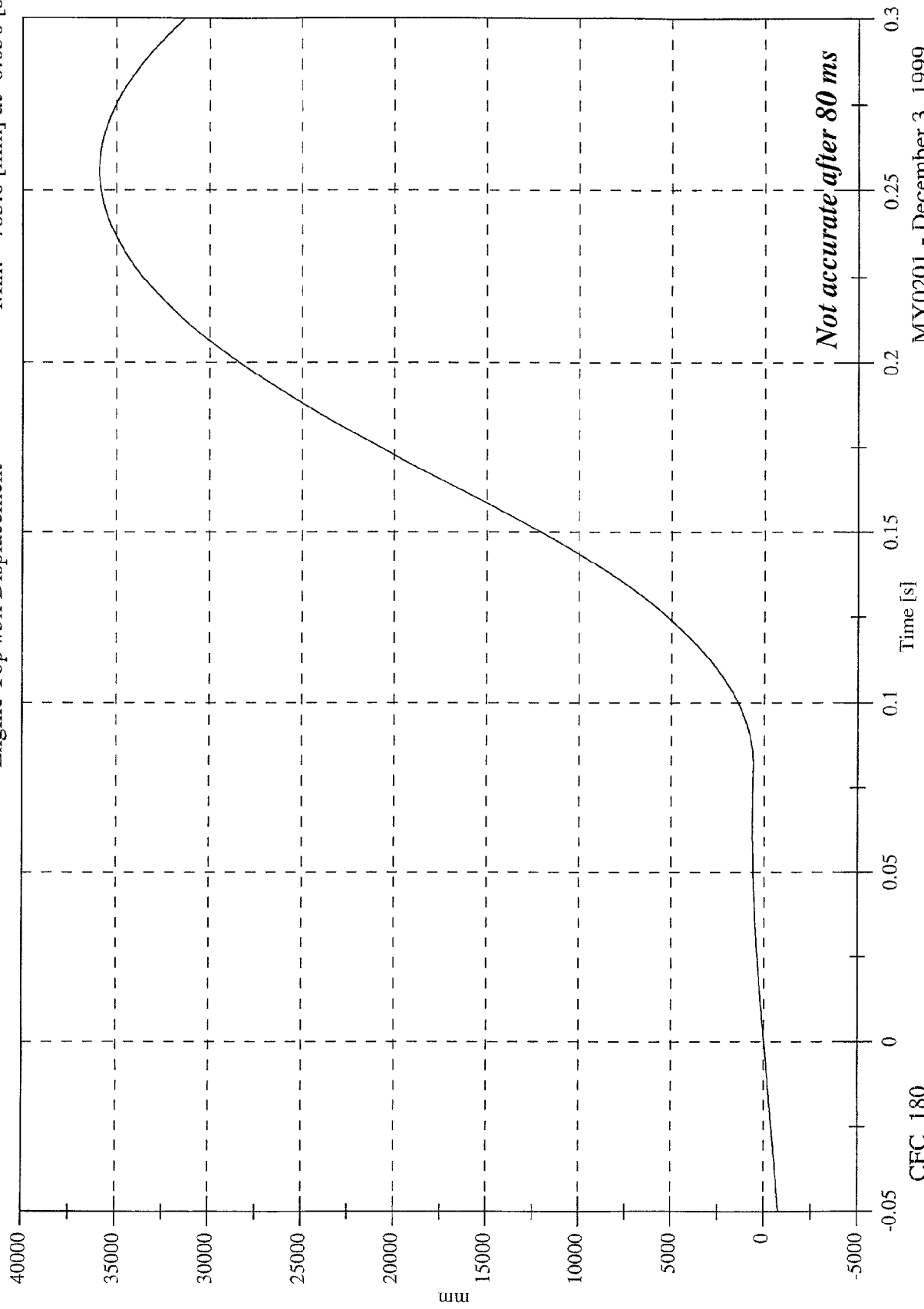
Not accurate after 80 ms

MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 35898.7 [mm] at 0.256 [s]
 Min: -785.0 [mm] at -0.050 [s]

Engine Top #3x Displacement

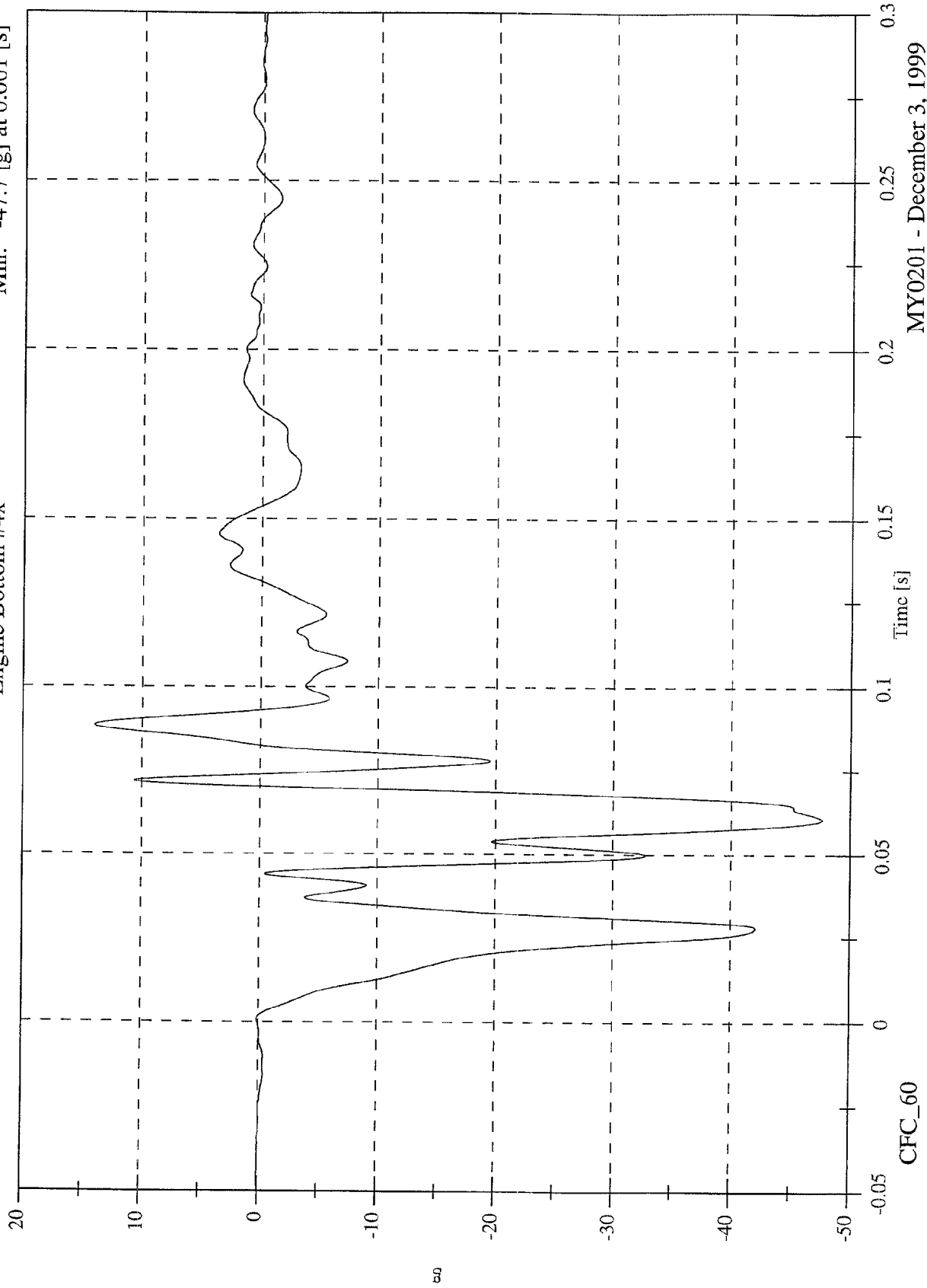


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 14.0 [g] at 0.089 [s]
 Min: -47.7 [g] at 0.061 [s]

Engine Bottom #4x

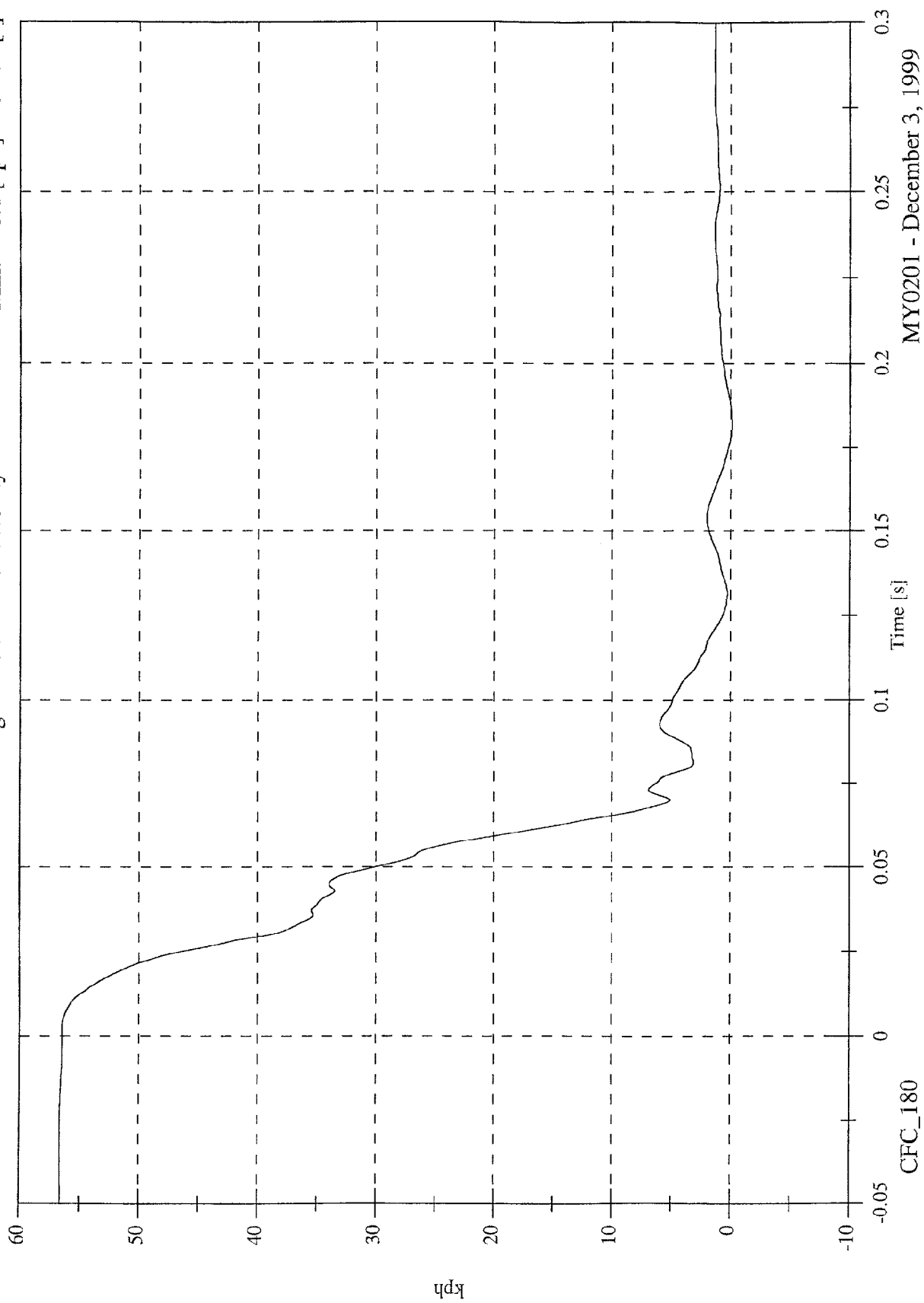


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 56.6 [kph] at -0.031 [s]
Min: -0.1 [kph] at 0.182 [s]

Engine Bottom #4x Velocity

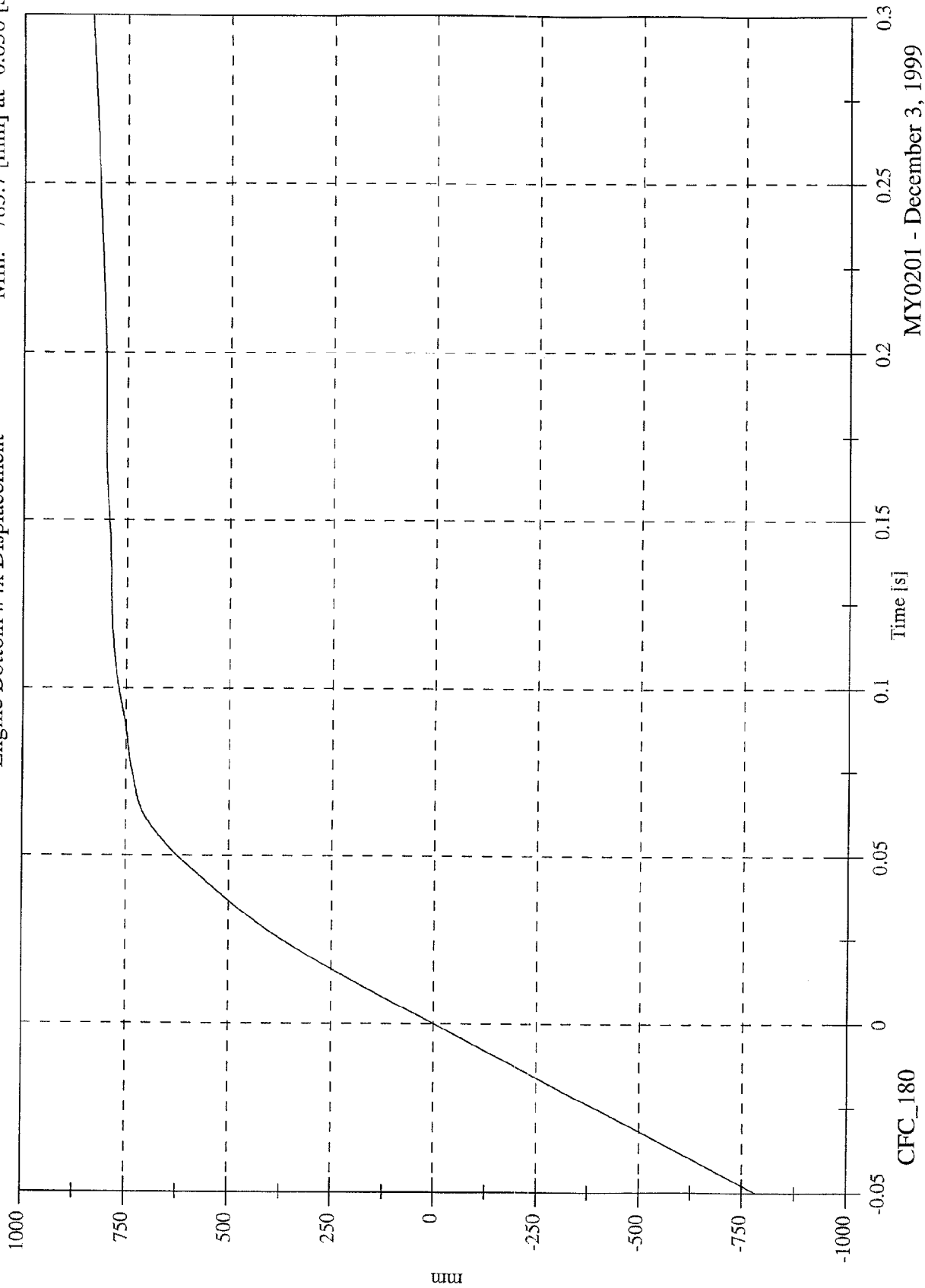


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Engine Bottom #4x Displacement

Max: 834.1 [mm] at 0.300 [s]
Min: -785.7 [mm] at -0.050 [s]

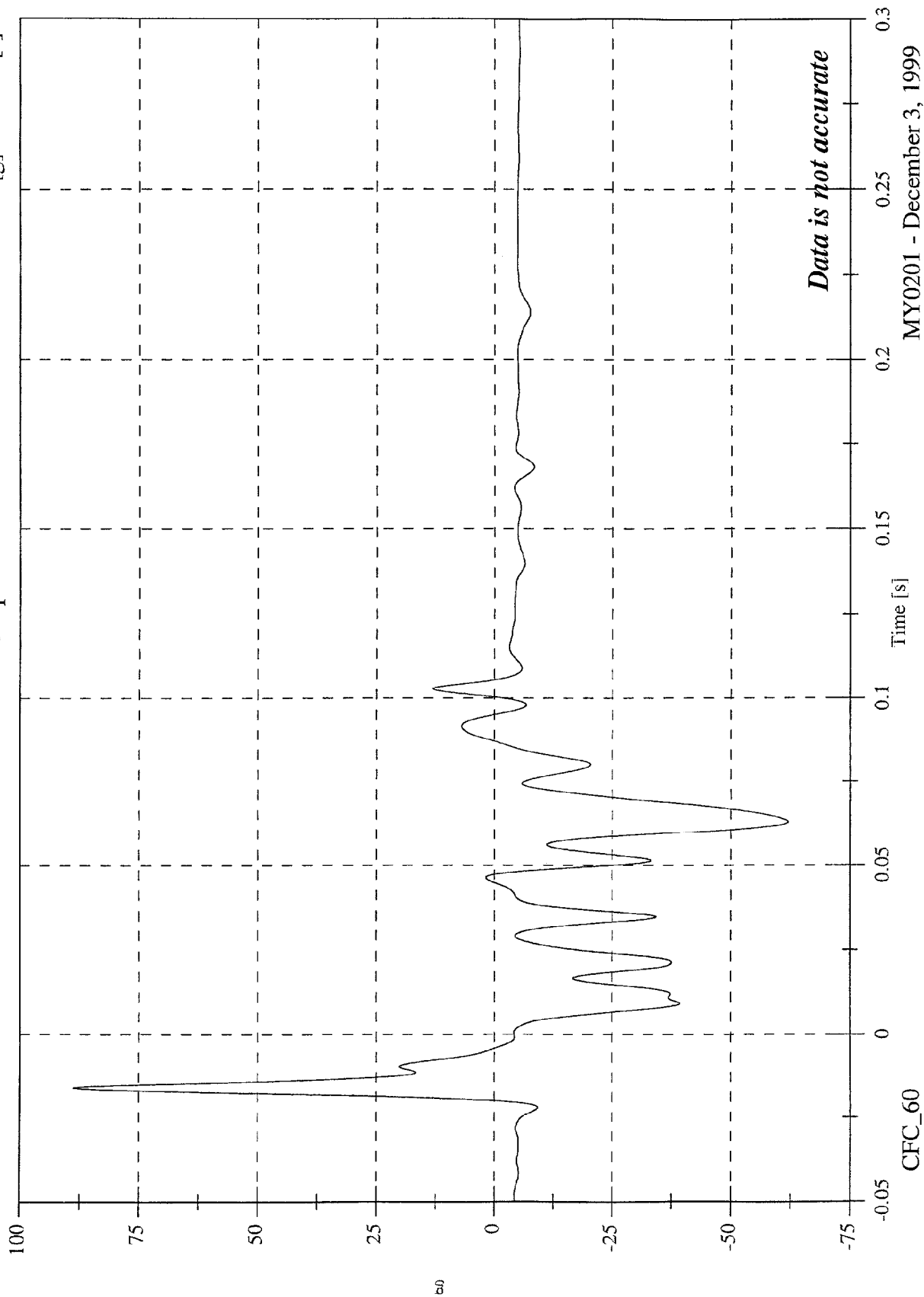


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 88.7 [g] at -0.016 [s]
 Min: -62.0 [g] at 0.063 [s]

Left Caliper #5x

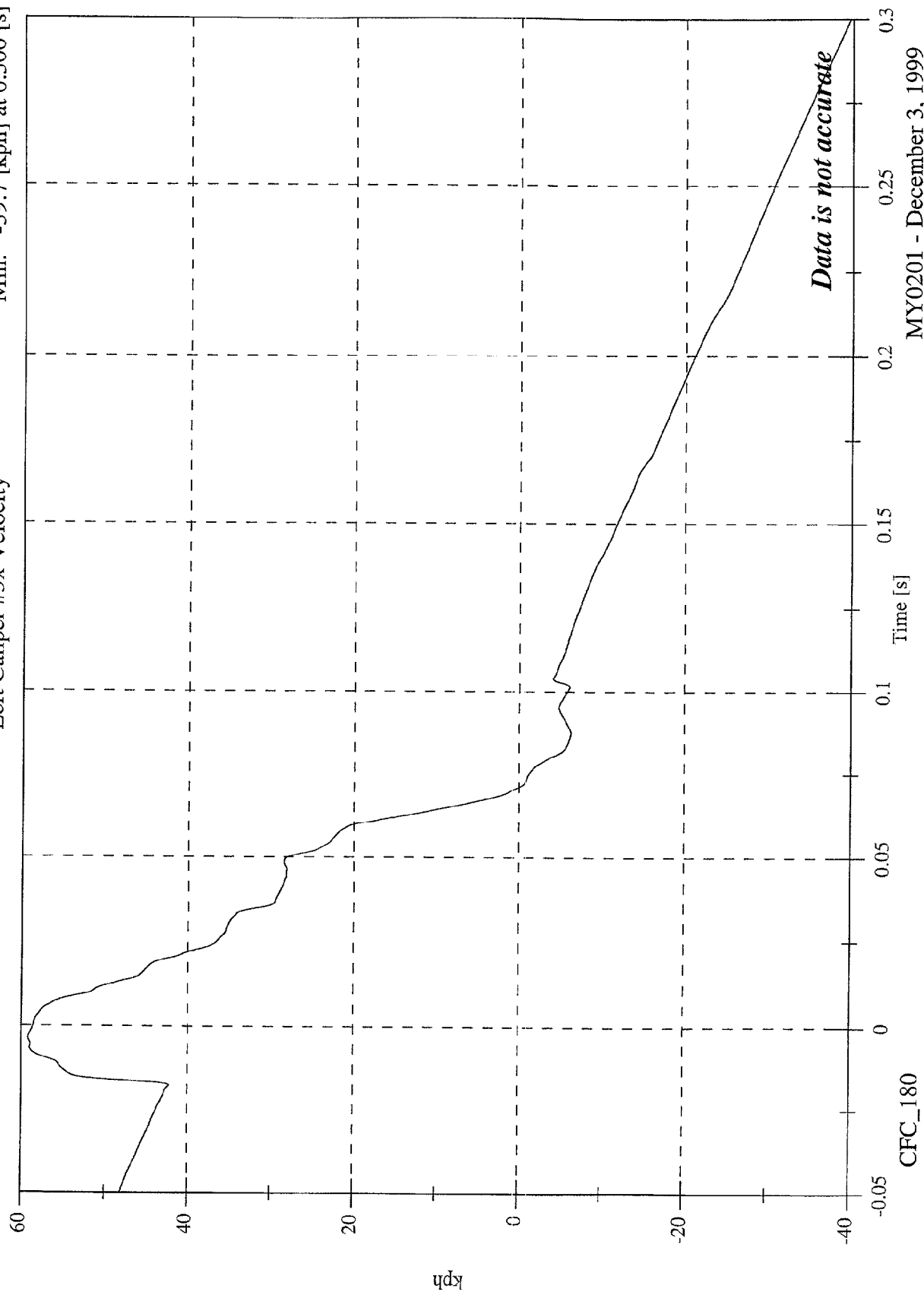


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 59.2 [kph] at -0.003 [s]
Min: -39.7 [kph] at 0.300 [s]

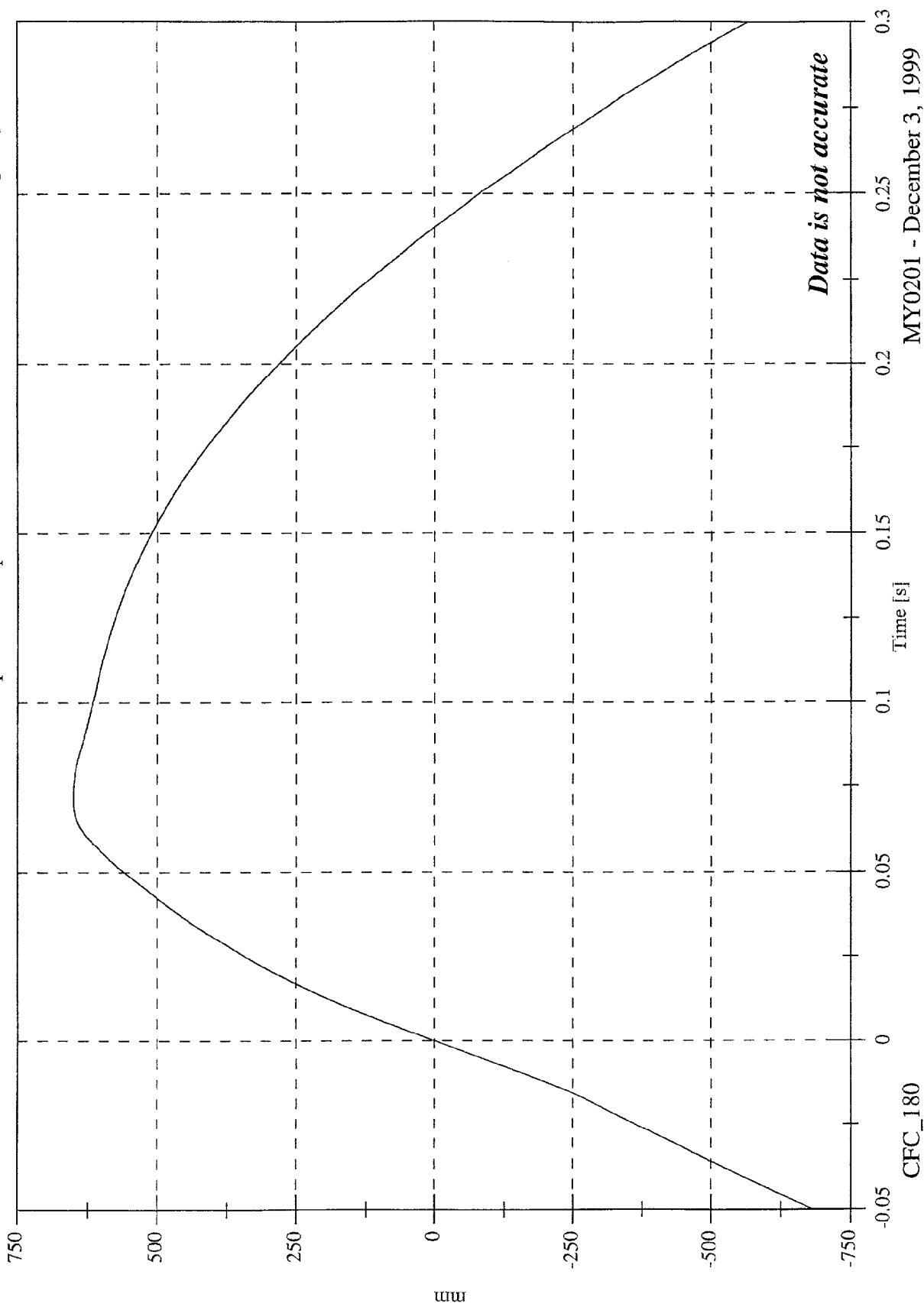
Left Caliper #5x Velocity



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 649.8 [mm] at 0.071 [s]
Min: -682.0 [mm] at -0.050 [s]

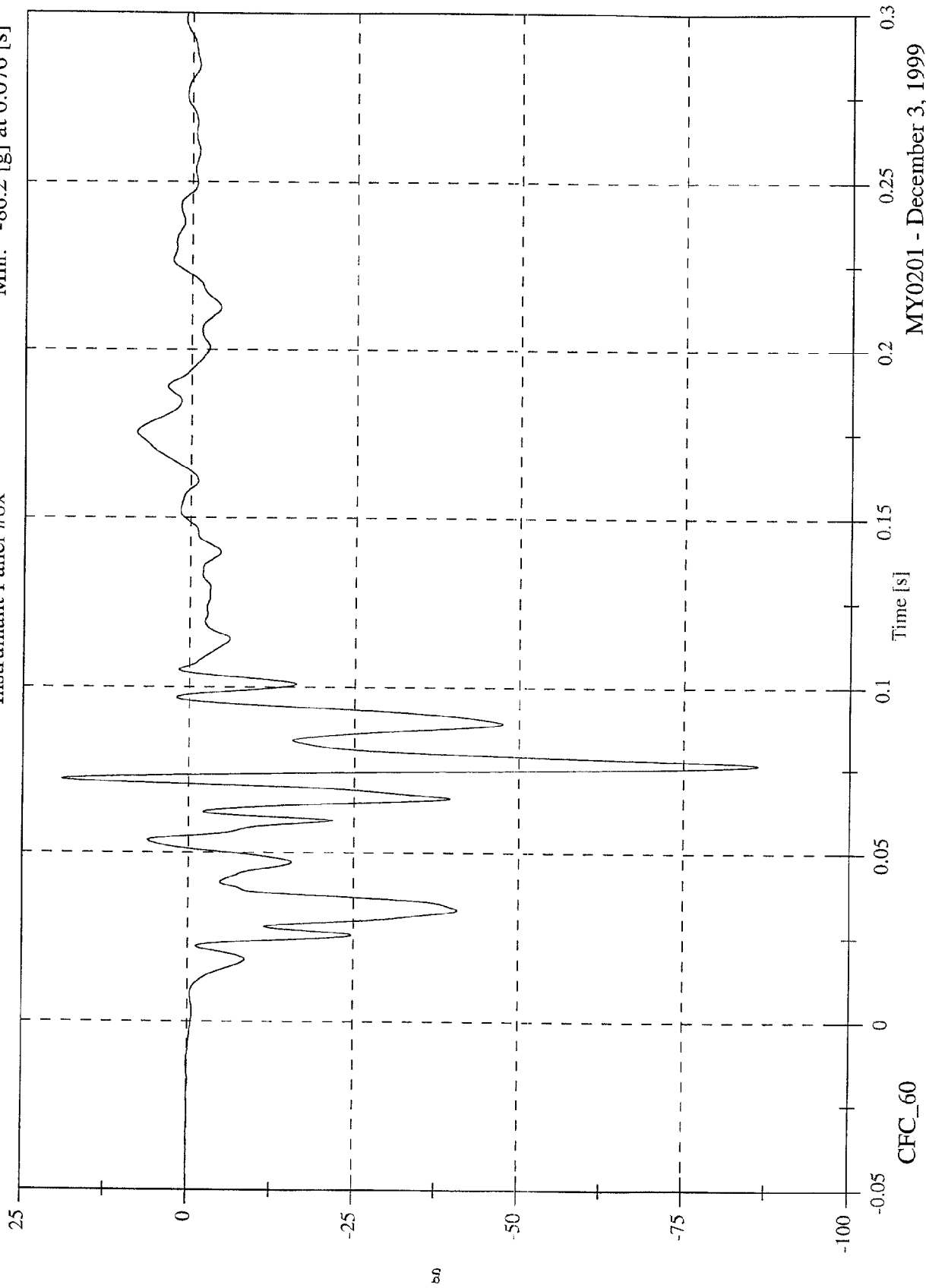
Left Caliper #5x Displacement



NCAP 2000 Test#5 - 2000 Lincoln Town Car

Instrument Panel #6x

Max: 19.0 [g] at 0.072 [s]
Min: -86.2 [g] at 0.076 [s]

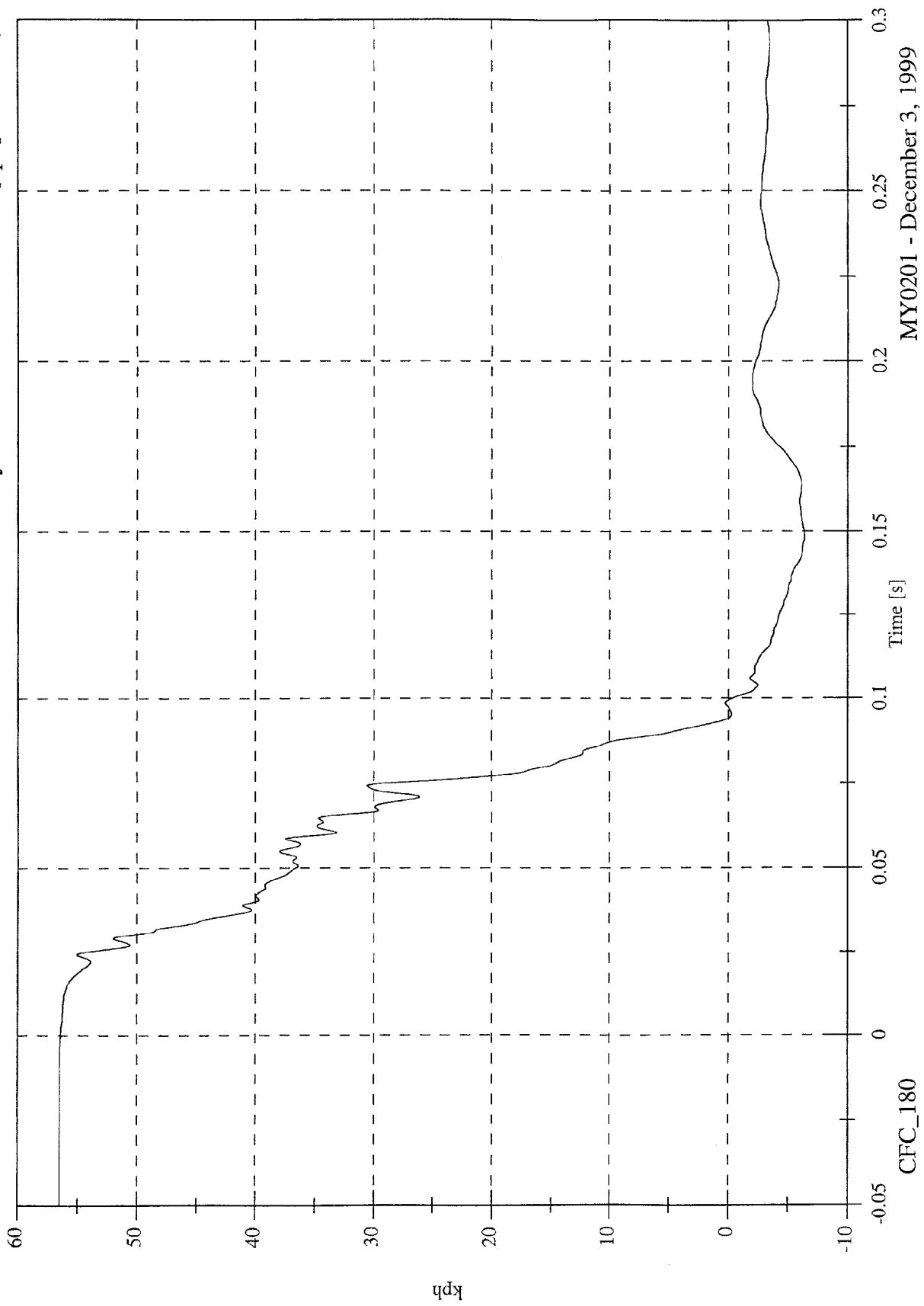


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 56.5 [kph] at -0.050 [s]
Min: -6.4 [kph] at 0.148 [s]

Instrument Panel #6x Velocity

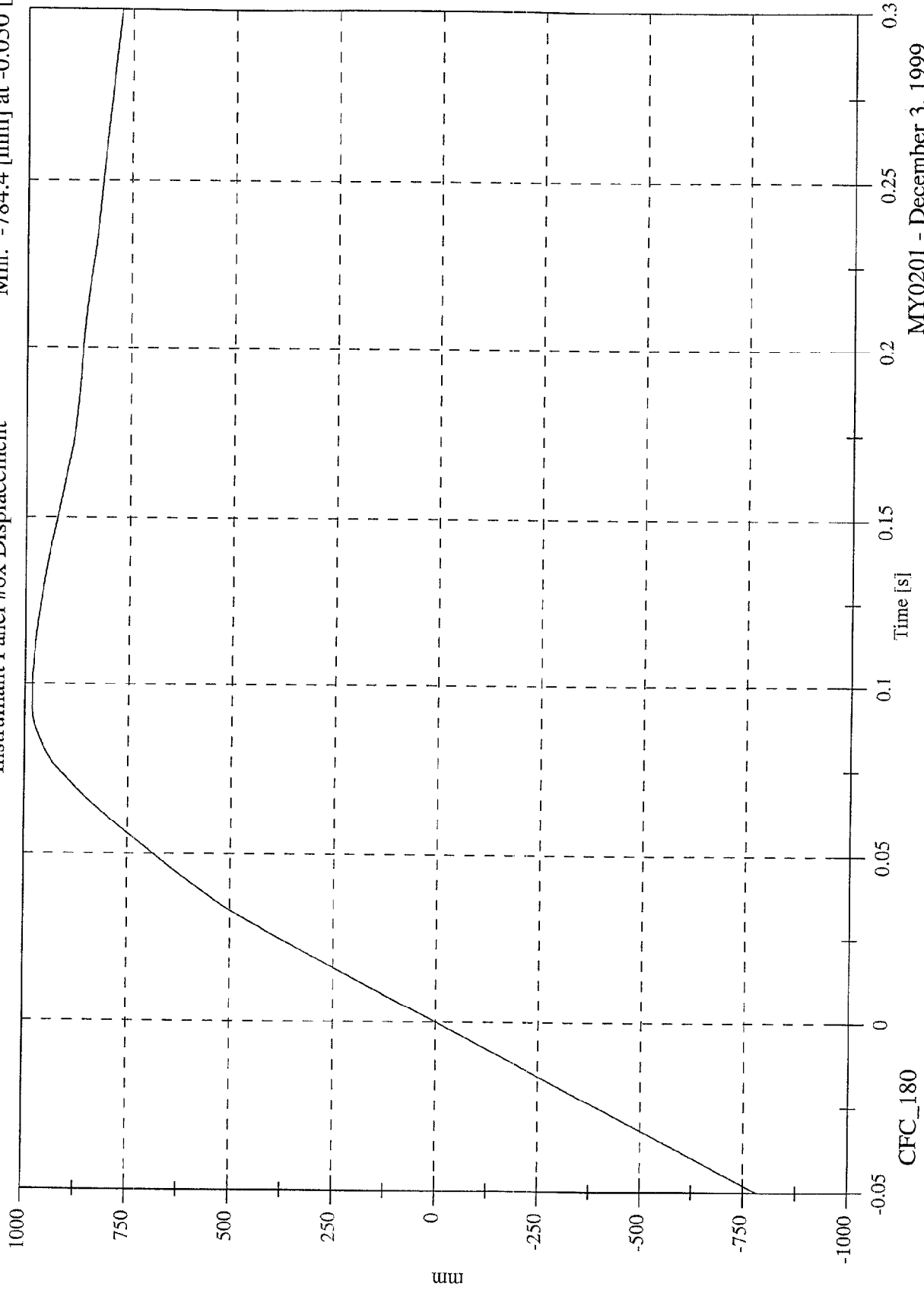


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 982.3 [mm] at 0.094 [s]
Min: -784.4 [mm] at -0.050 [s]

Instrument Panel #6x Displacement

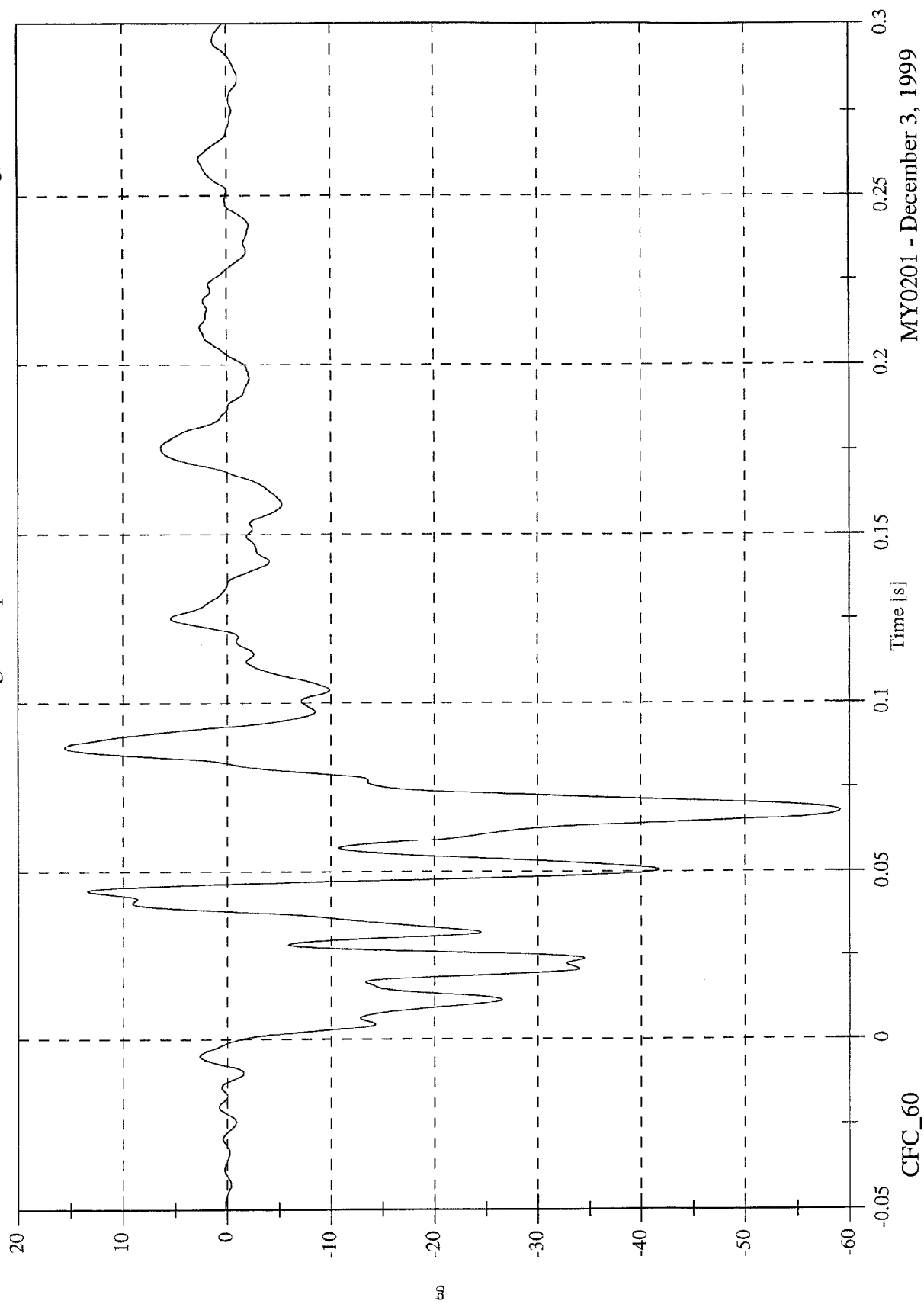


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 15.5 [g] at 0.087 [s]
 Min: -59.1 [g] at 0.068 [s]

Right Caliper #7x

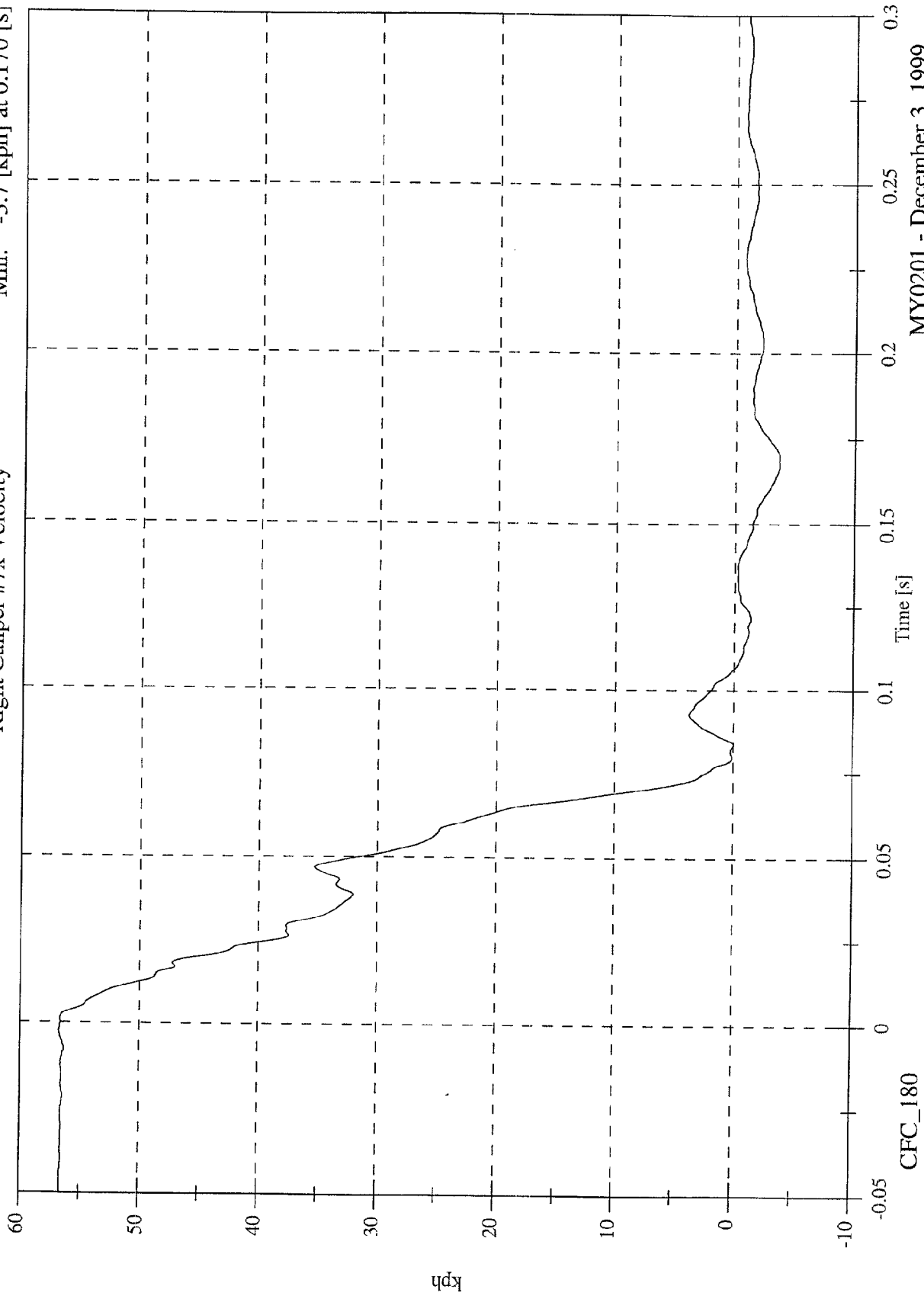


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 56.8 [kph] at -0.003 [s]
Min: -3.7 [kph] at 0.170 [s]

Right Caliper #7x Velocity

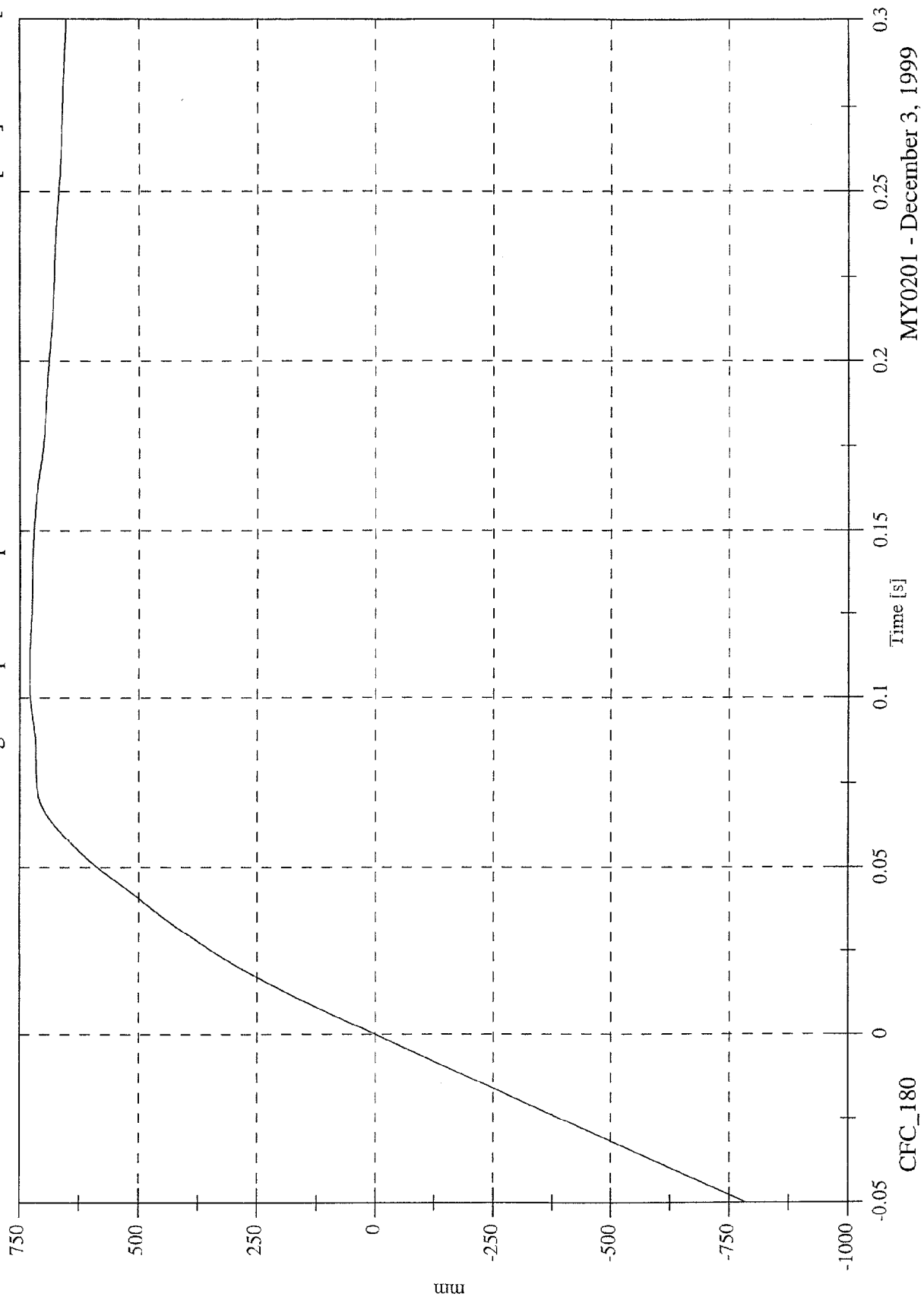


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 729.2 [mm] at 0.106 [s]
Min: -785.6 [mm] at -0.050 [s]

Right Caliper #7x Displacement

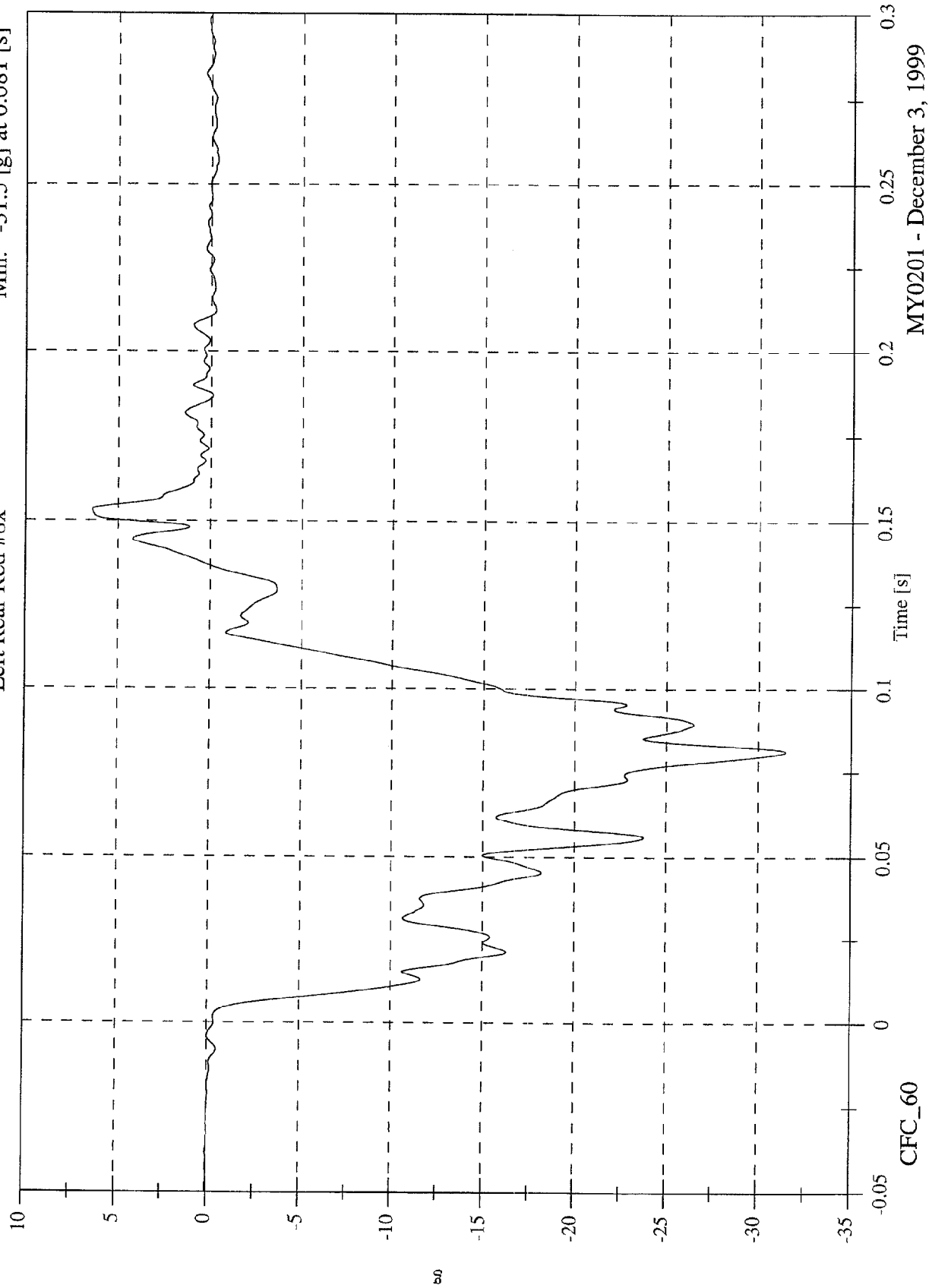


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 6.4 [g] at 0.153 [s]
Min: -31.5 [g] at 0.081 [s]

Left Rear Red #8x

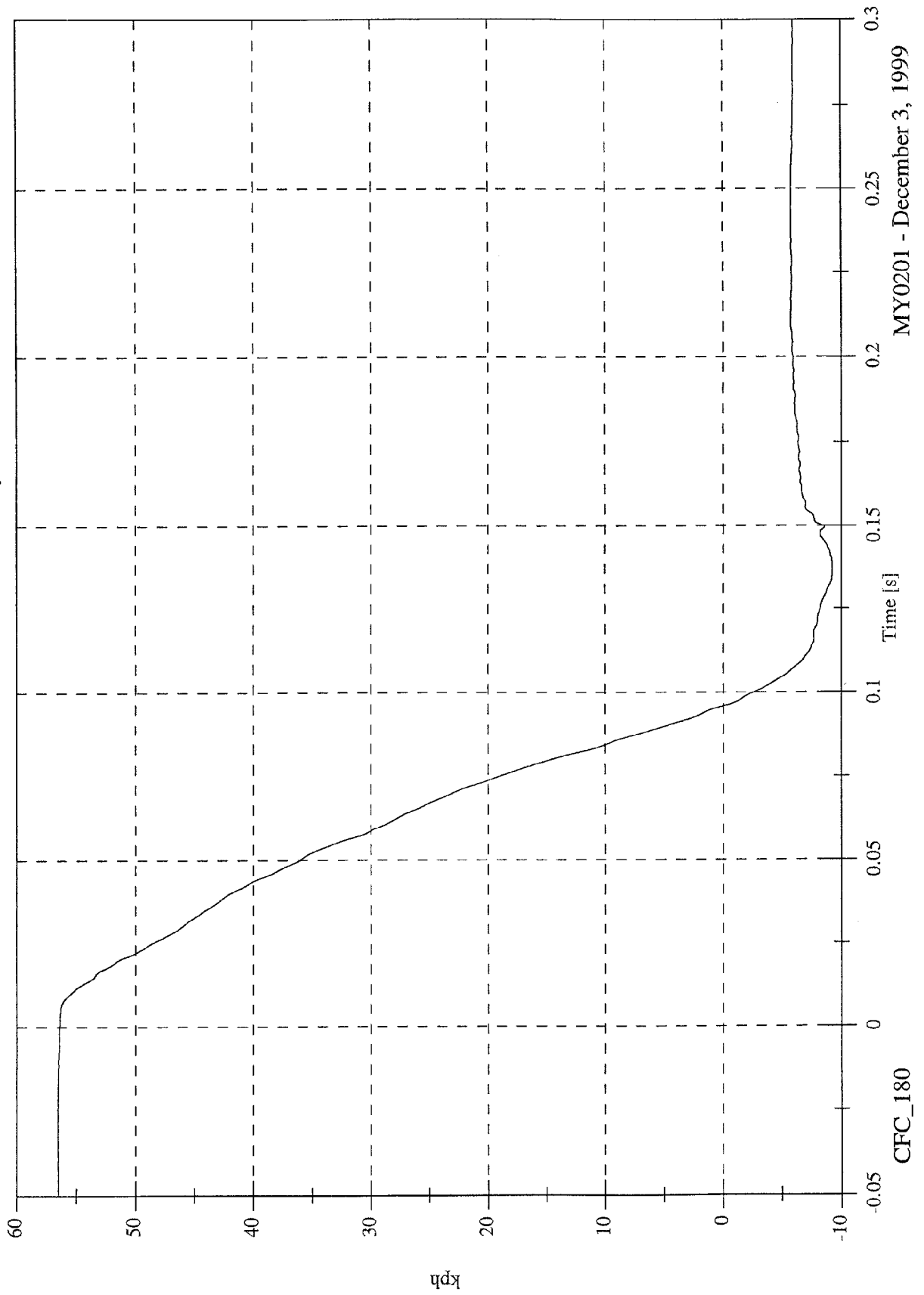


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 56.5 [kph] at -0.037 [s]
Min: -9.2 [kph] at 0.136 [s]

Left Rear Red #8x Velocity

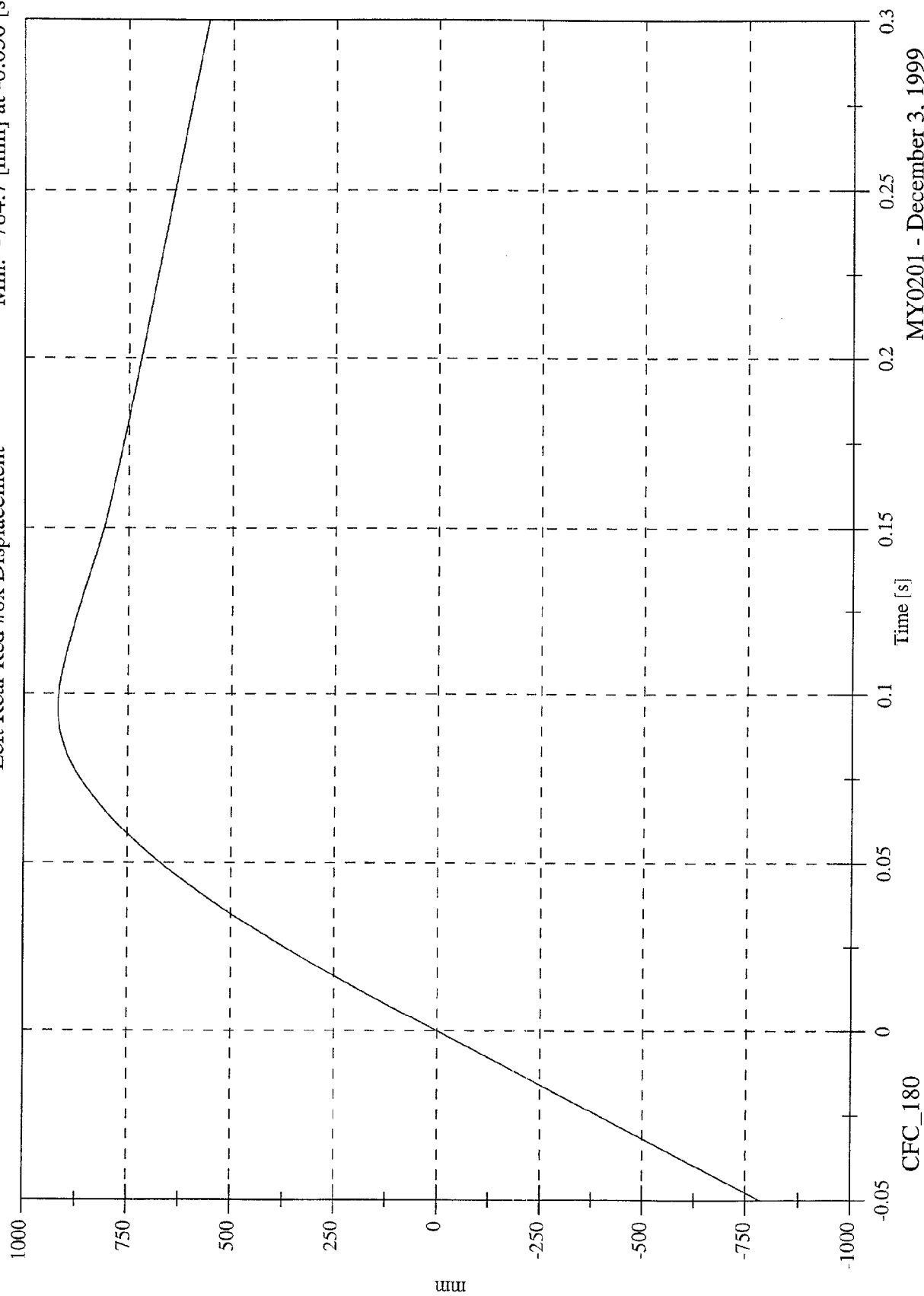


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 917.8 [mm] at 0.096 [s]
Min: -784.7 [mm] at -0.050 [s]

Left Rear Red #8x Displacement



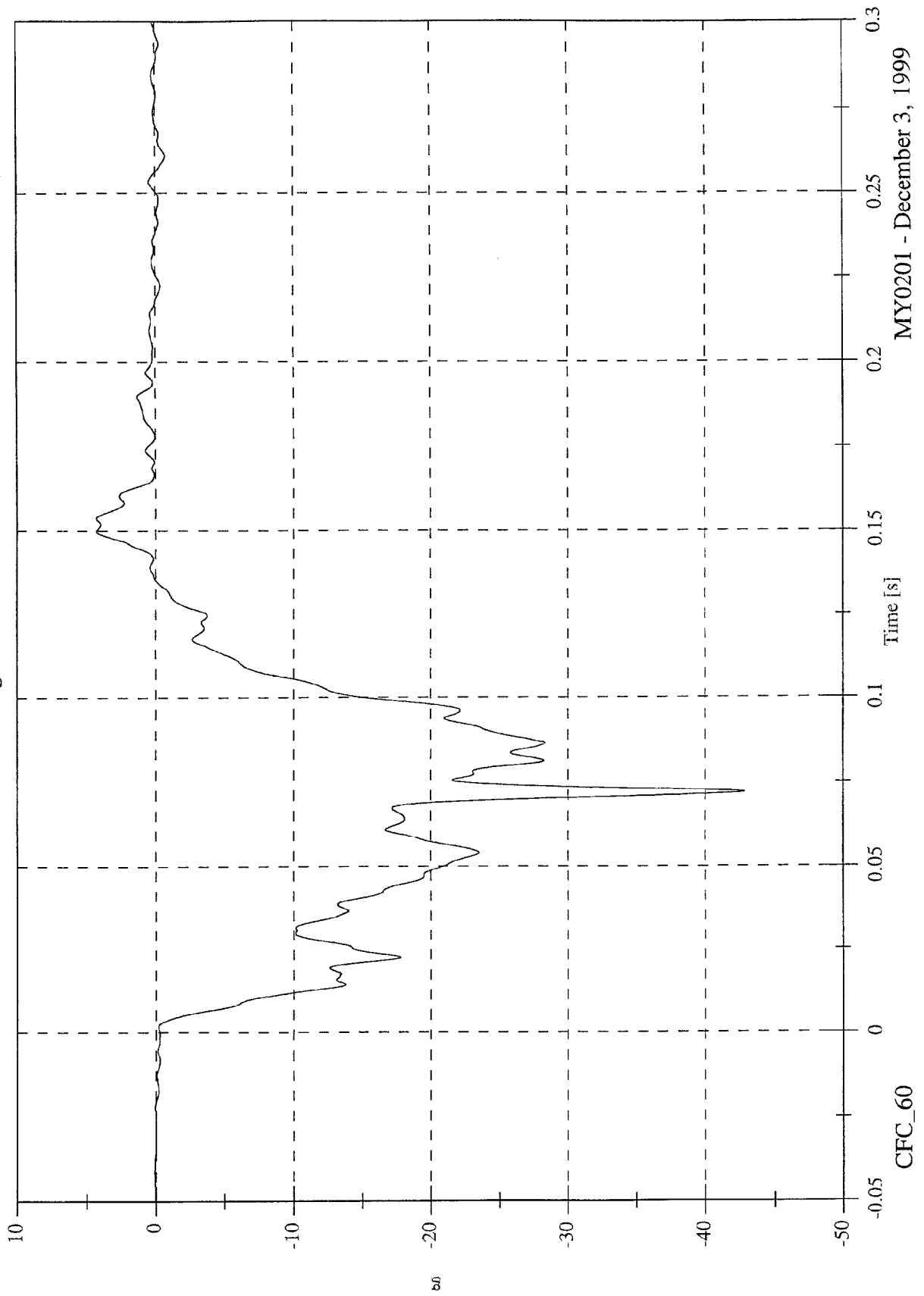
MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 4.3 [g] at 0.150 [s]

Min: -42.8 [g] at 0.072 [s]

Right Rear Red #9x

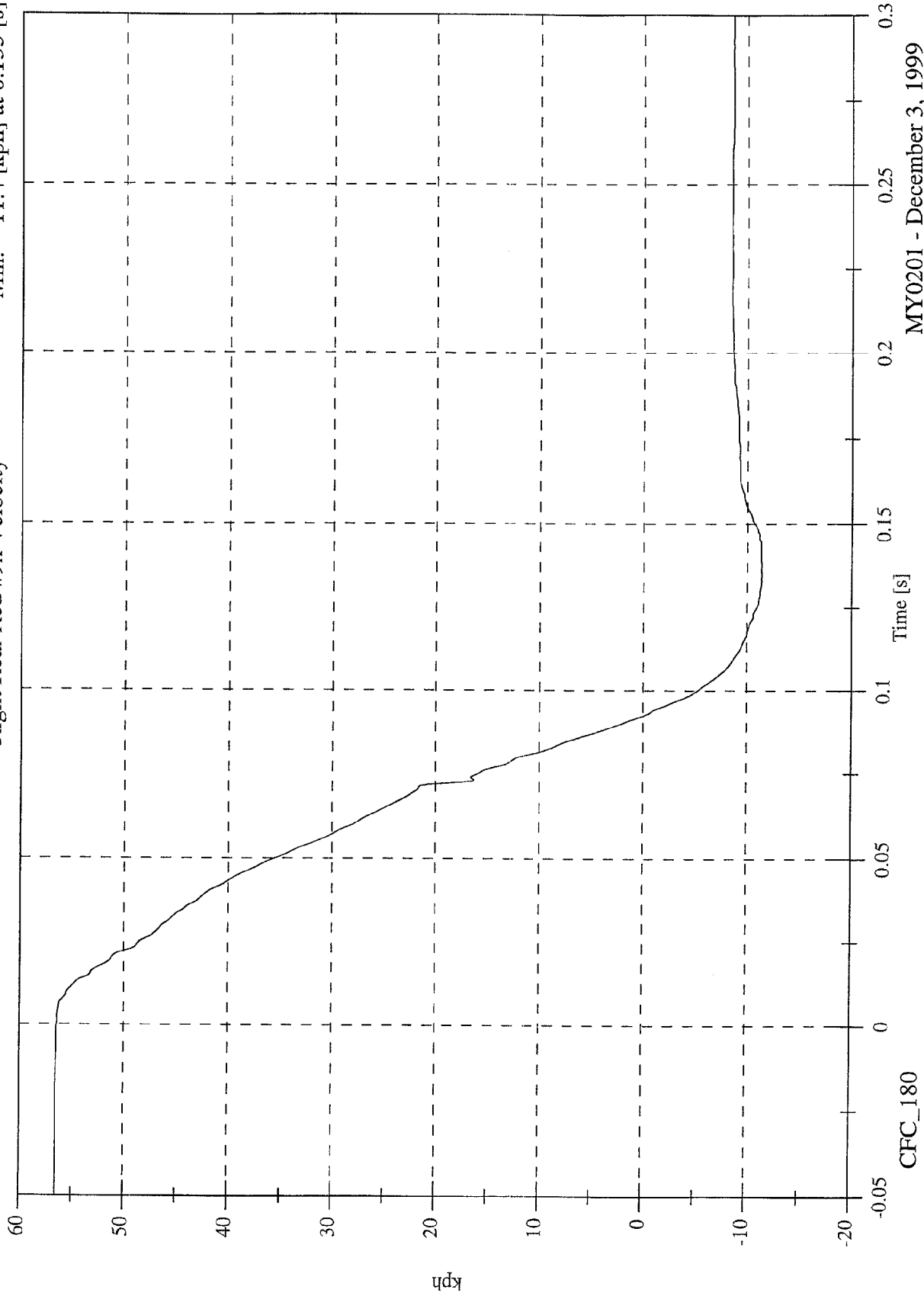


MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 56.5 [kph] at -0.037 [s]
Min: -11.4 [kph] at 0.135 [s]

Right Rear Red #9x Velocity



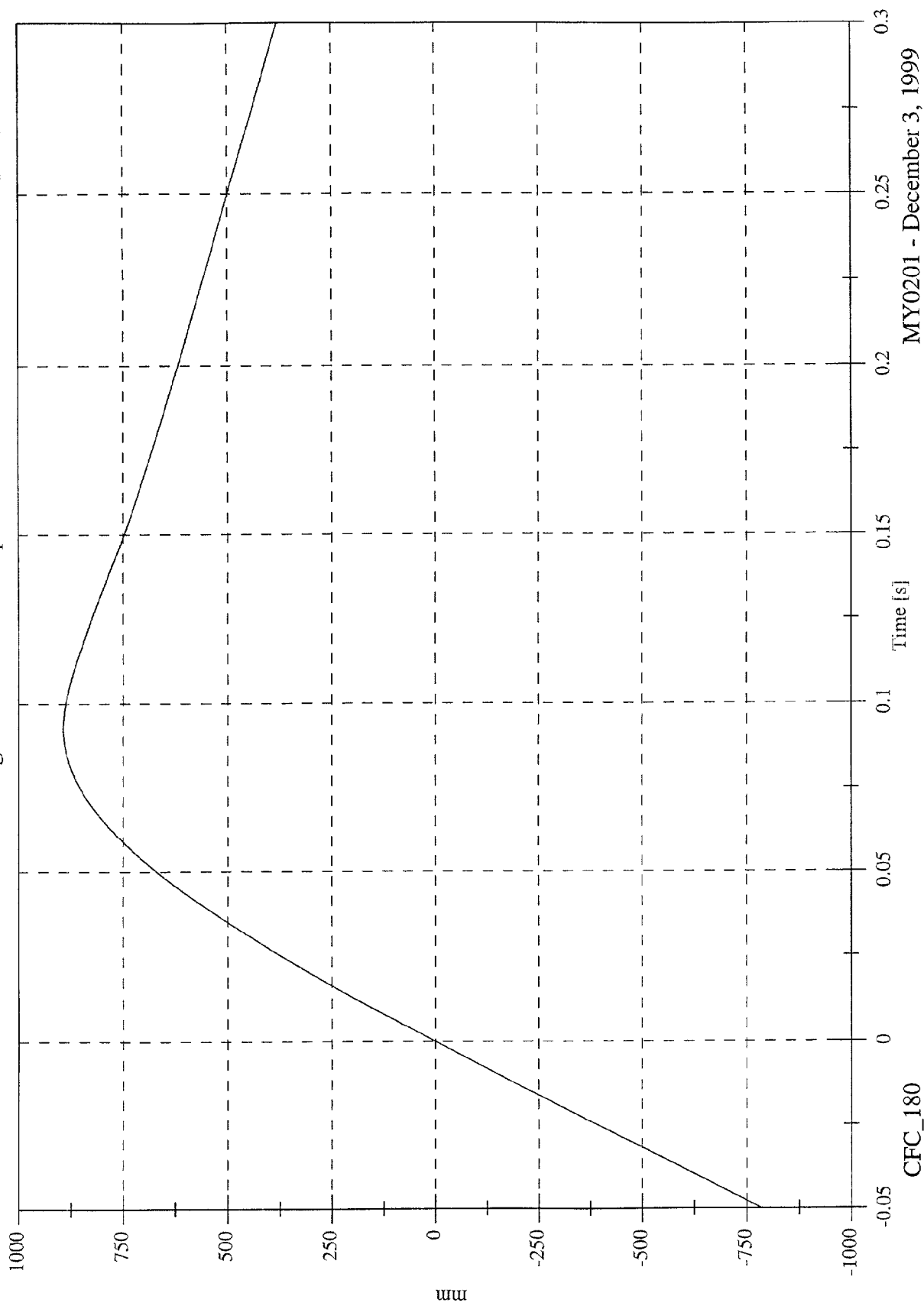
MY0201 - December 3, 1999

NCAP 2000 Test#5 - 2000 Lincoln Town Car

Max: 892.1 [mm] at 0.093 [s]

Right Rear Red #9x Displacement

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

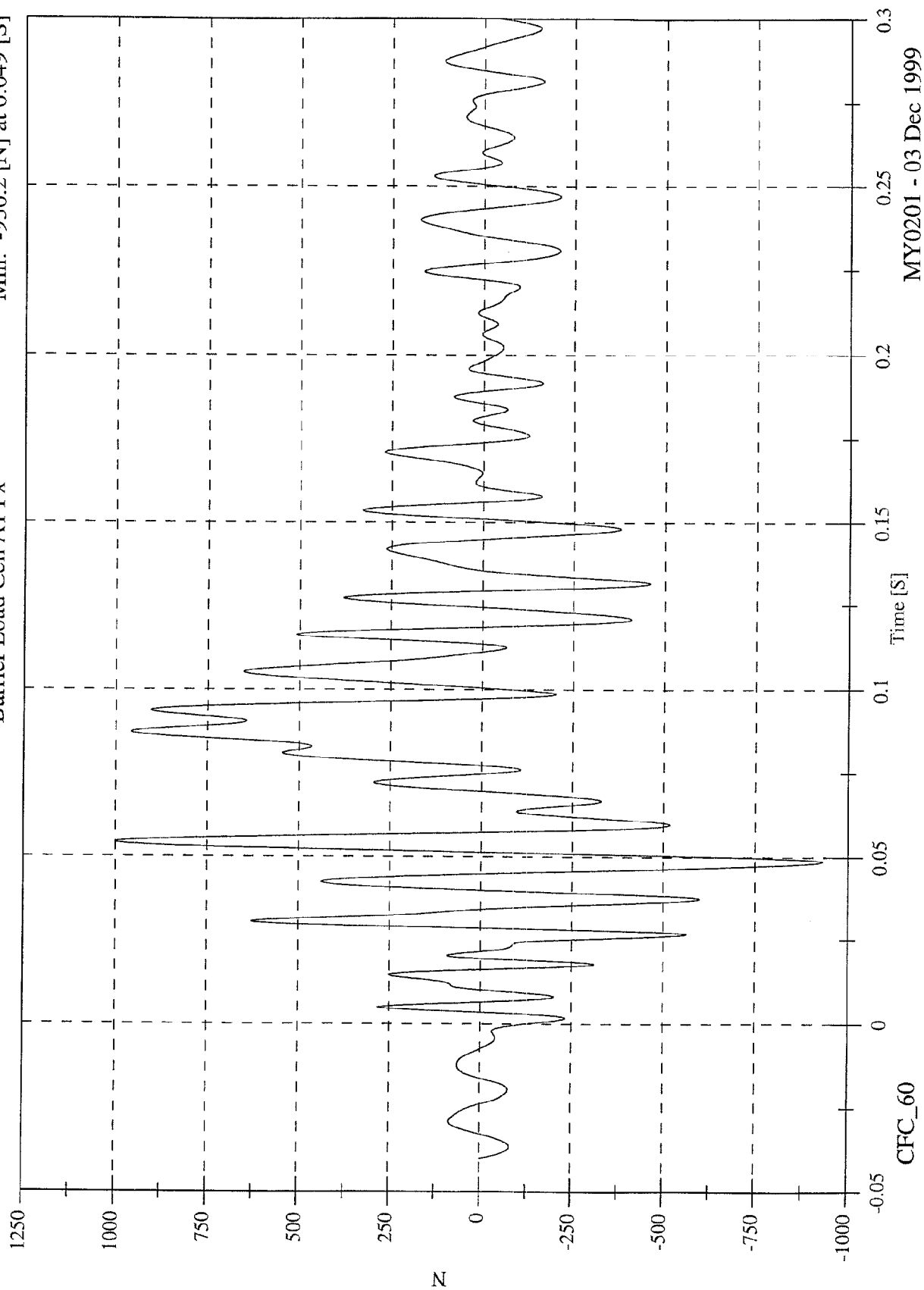


MY0201 - December 3, 1999

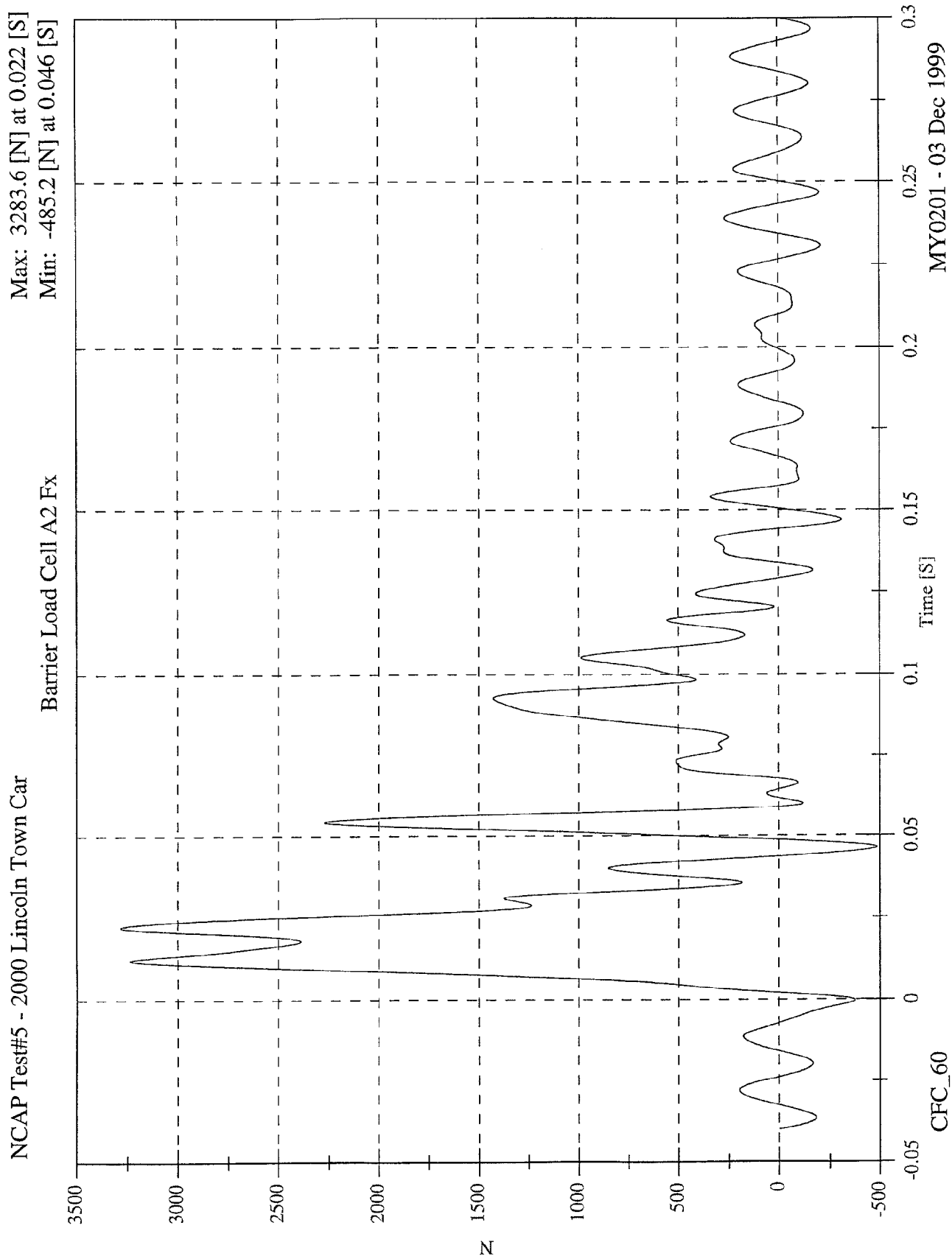
NCAP Test#5 - 2000 Lincoln Town Car

Max: 1000.4 [N] at 0.054 [S]
Min: -930.2 [N] at 0.049 [S]

Barrier Load Cell A1 Fx



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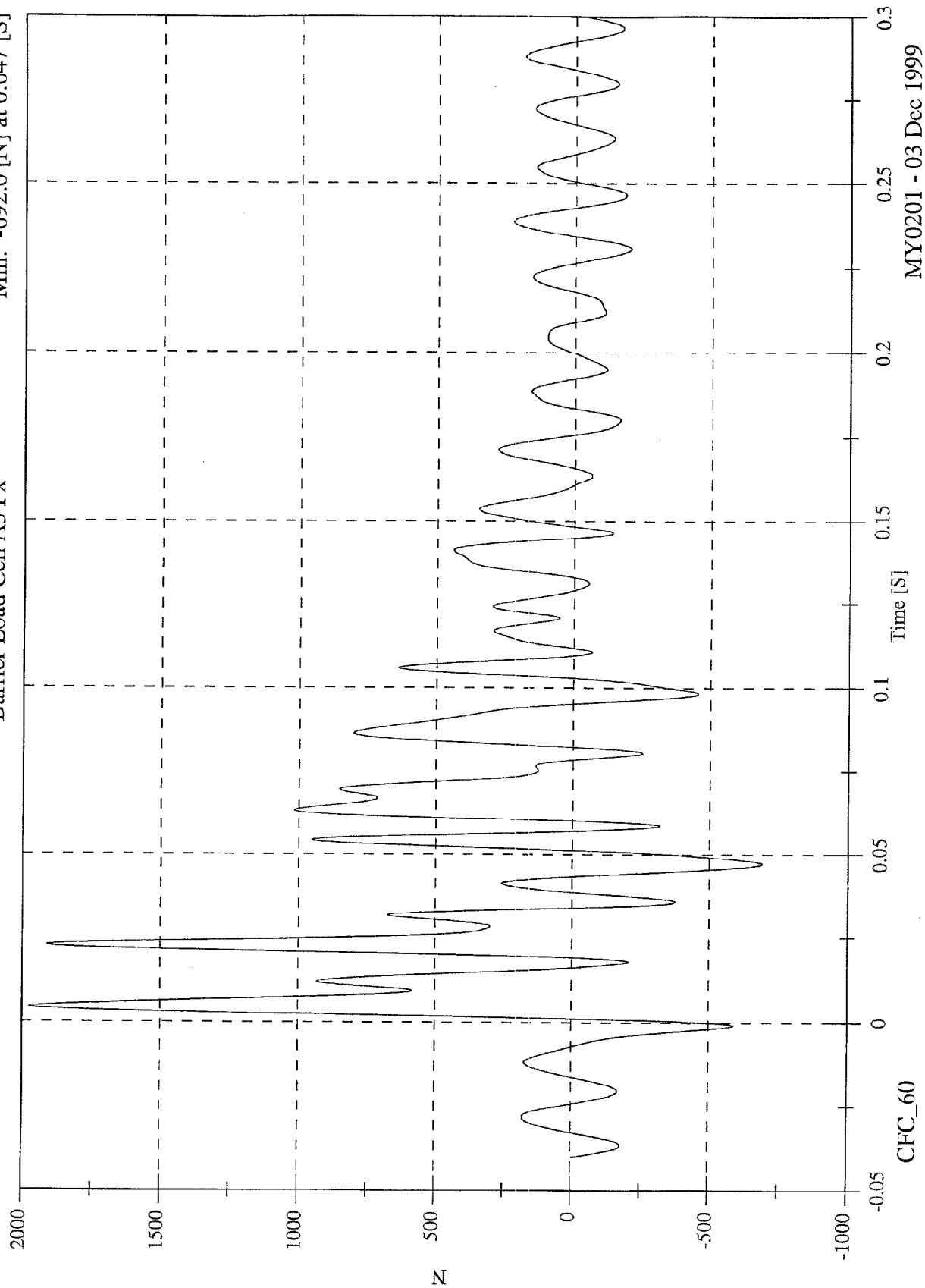


NCAP Test#5 - 2000 Lincoln Town Car

Max: 1975.5 [N] at 0.005 [S]

Min: -692.0 [N] at 0.047 [S]

Barrier Load Cell A3 Fx

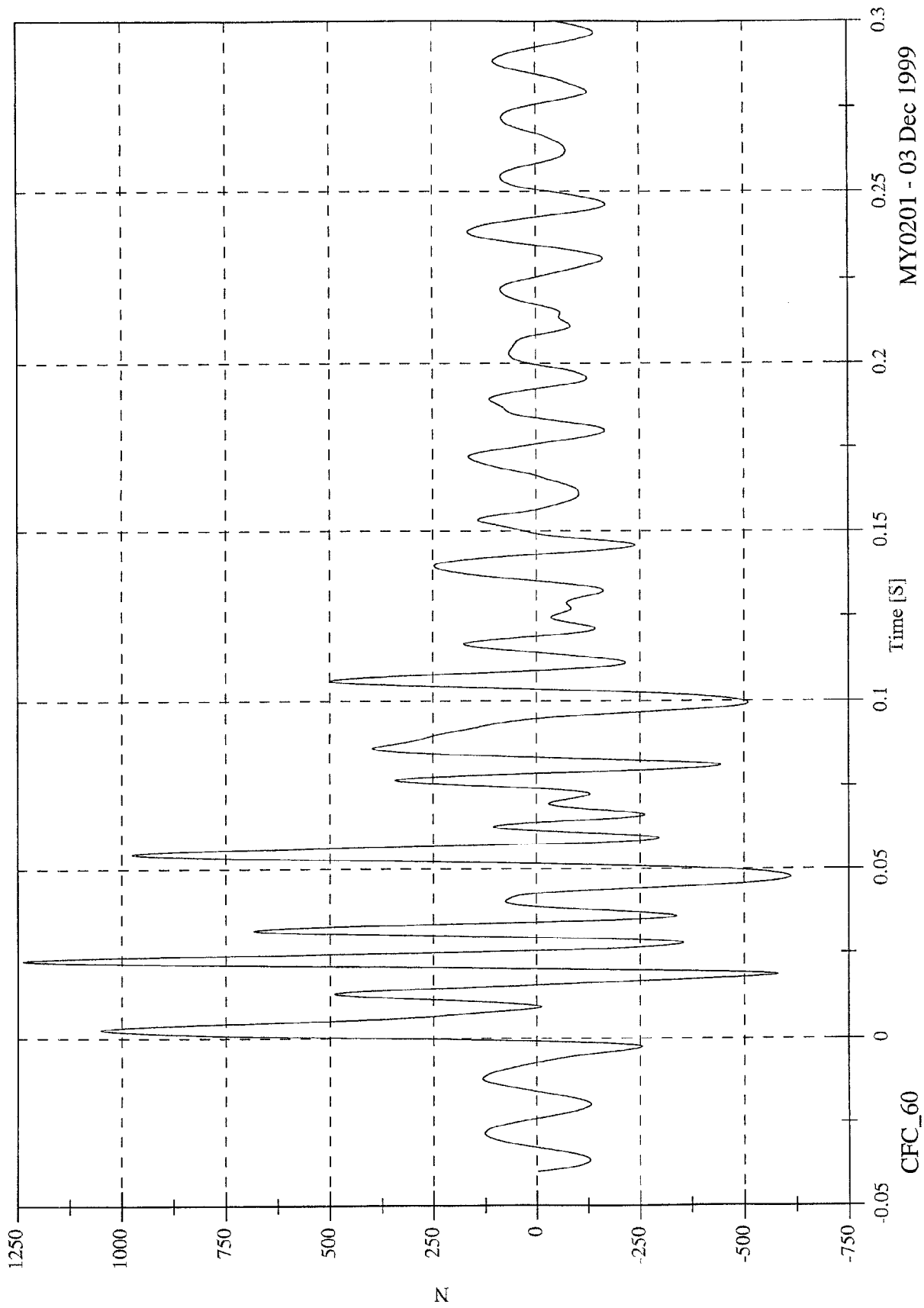


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NCAP Test#5 - 2000 Lincoln Town Car

Max: 1235.5 [N] at 0.023 [S]
 Min: -611.2 [N] at 0.047 [S]

Barrier Load Cell A4 Fx

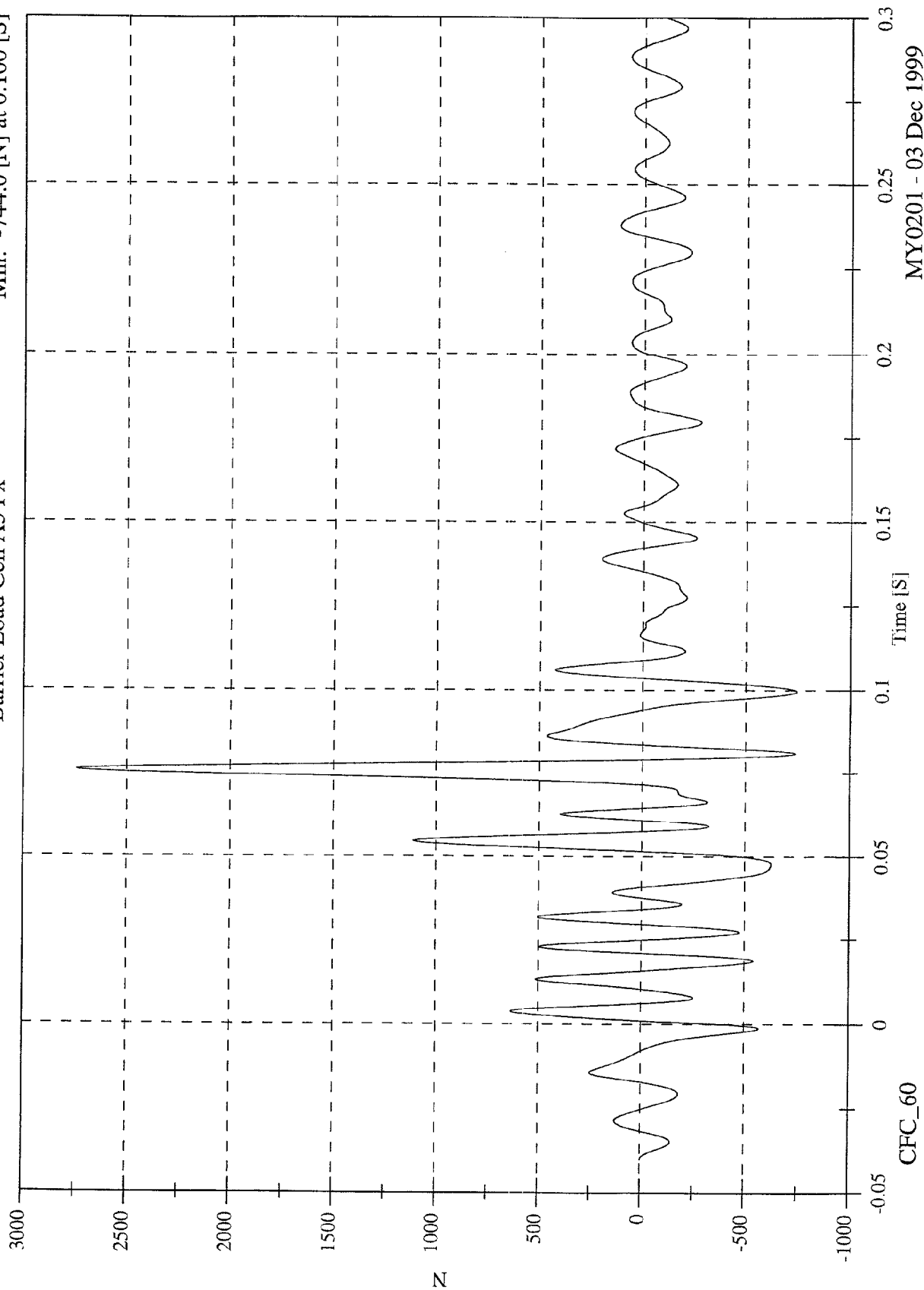


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 2741.6 [N] at 0.076 [S]
 Min: -744.0 [N] at 0.100 [S]

Barrier Load Cell A5 Fx

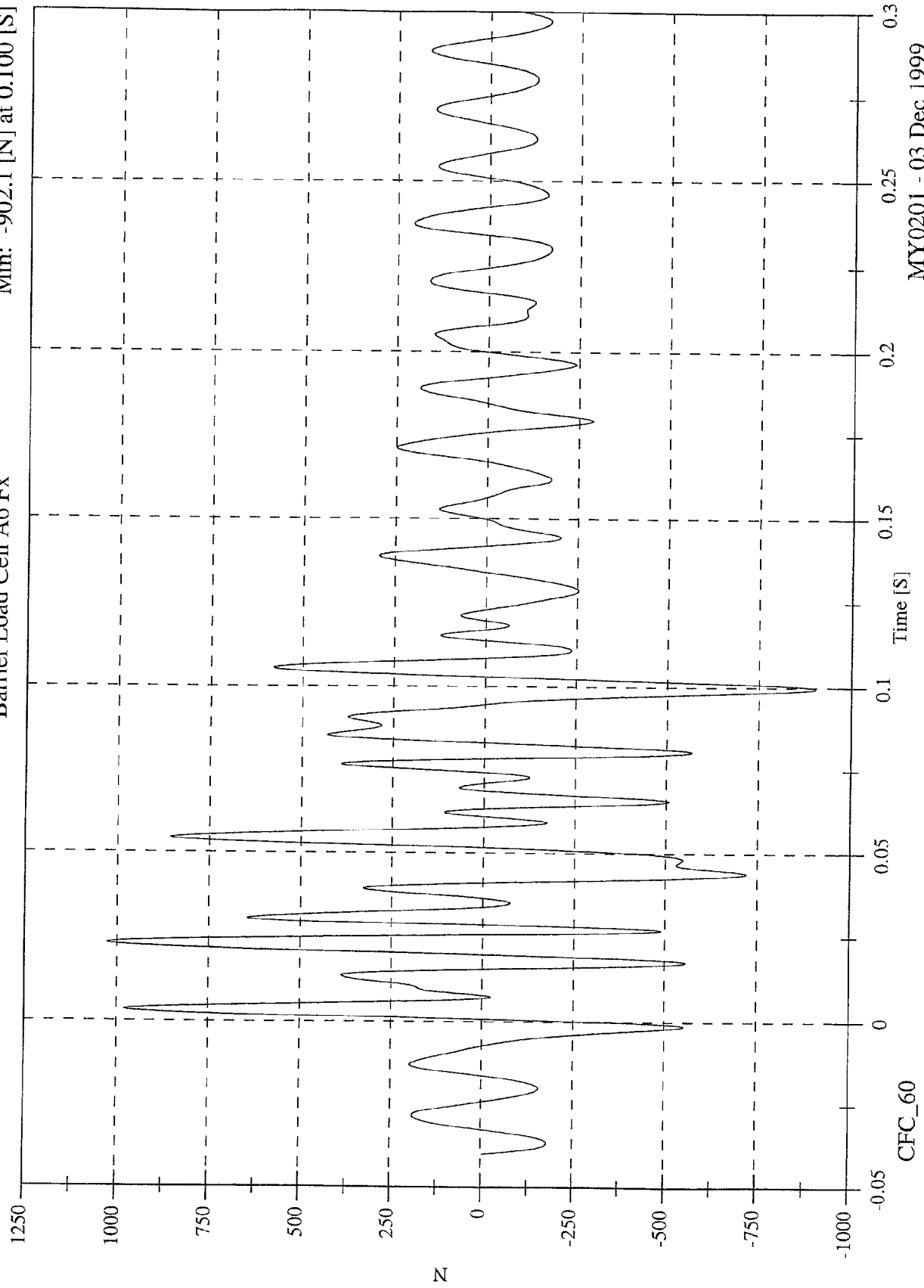


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NCAP Test#5 - 2000 Lincoln Town Car

Max: 1026.4 [N] at 0.023 [S]
 Min: -902.1 [N] at 0.100 [S]

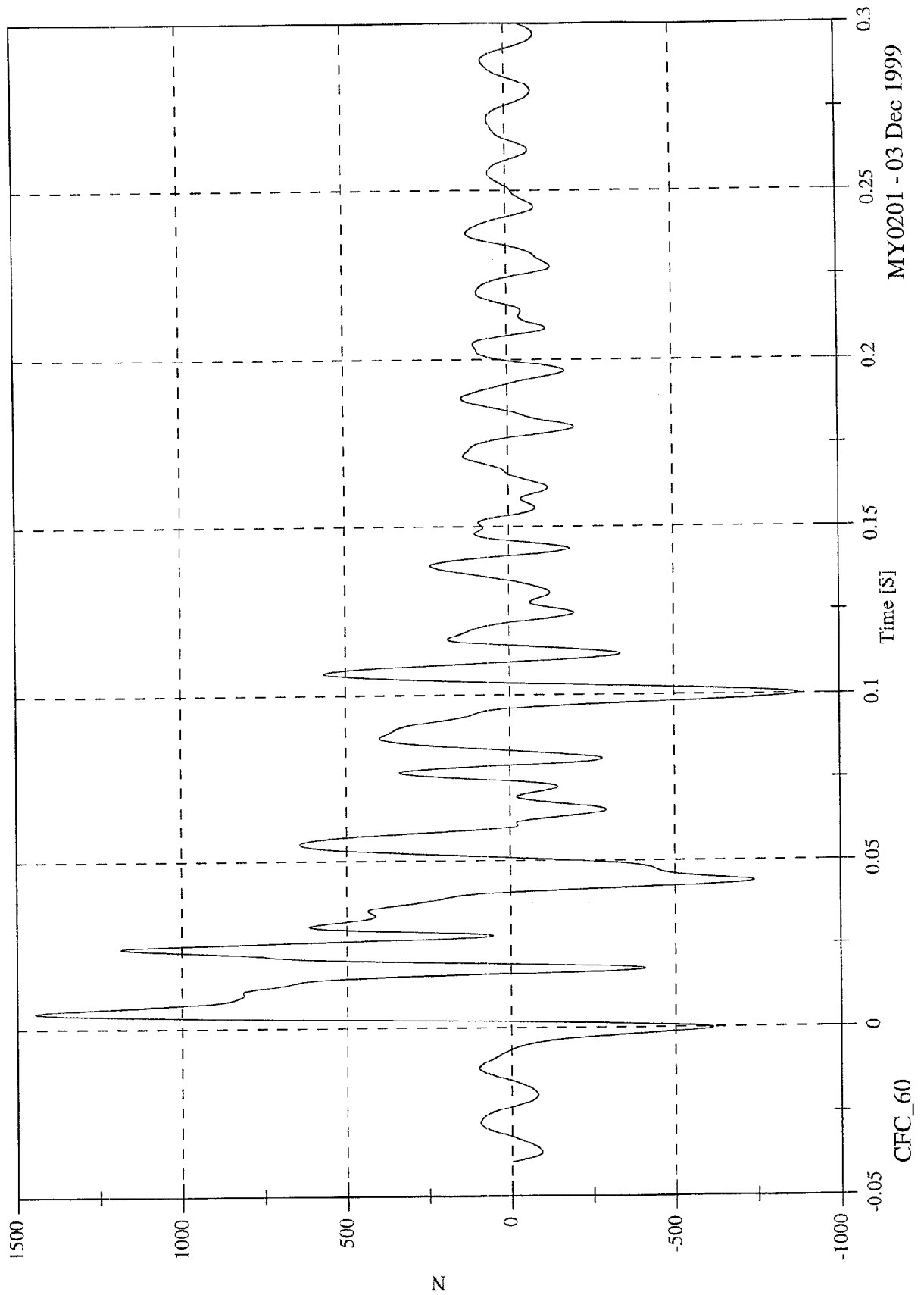
Barrier Load Cell A6 Fx



Max: 1445.0 [N] at 0.005 [S]
Min: -877.5 [N] at 0.100 [S]

NCAP Test#5 - 2000 Lincoln Town Car

Barrier Load Cell A7 Fx

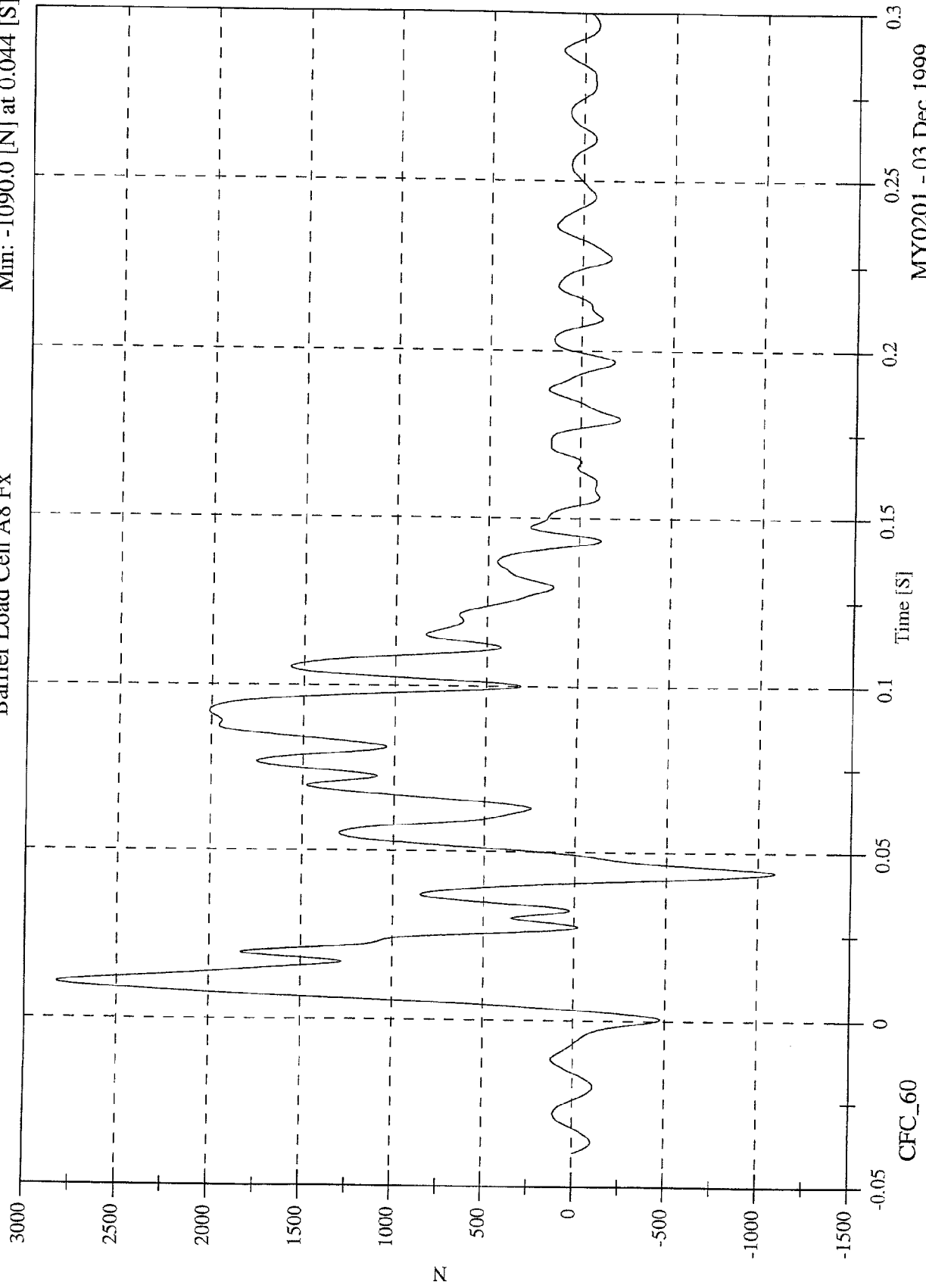


MY0201 - 03 Dec 1999

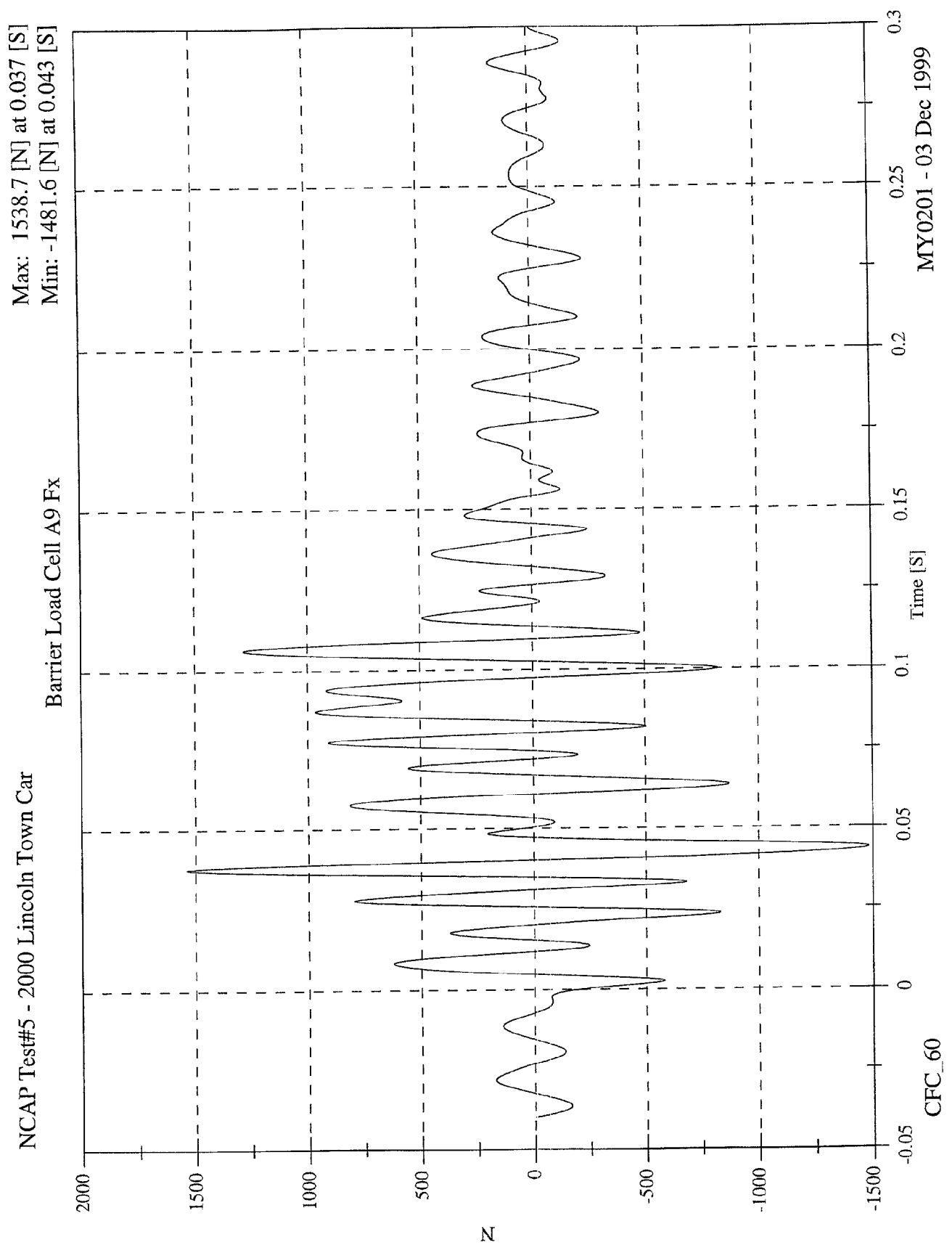
NCAP Test#5 - 2000 Lincoln Town Car

Max: 2824.8 [N] at 0.011 [S]
Min: -1090.0 [N] at 0.044 [S]

Barrier Load Cell A8 Fx



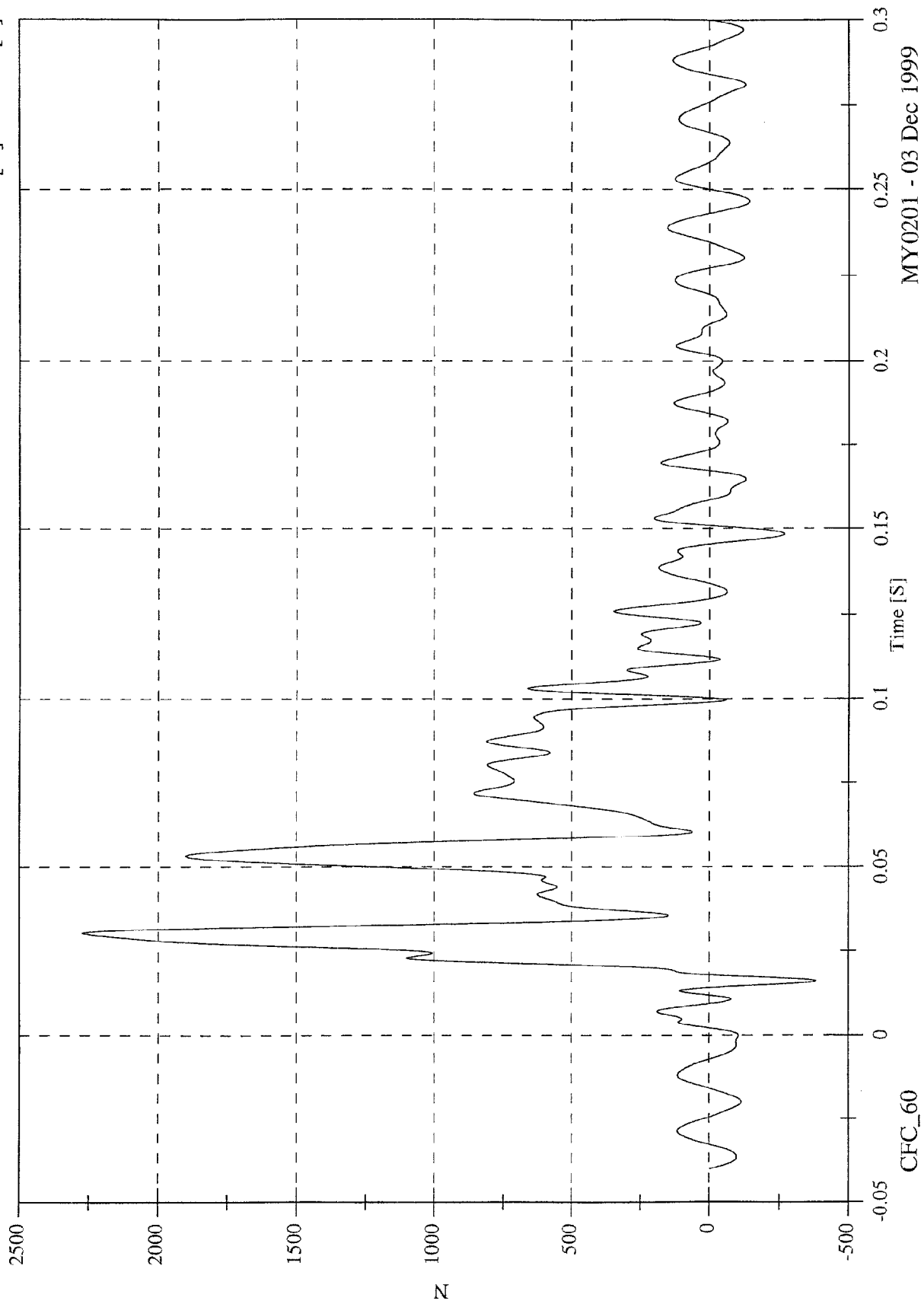
MY0201 -03 Dec 1999



NCAP Test#5 - 2000 Lincoln Town Car

Max: 2274.4 [N] at 0.030 [S]
 Min: -382.2 [N] at 0.016 [S]

Barrier Load Cell B1 Fx



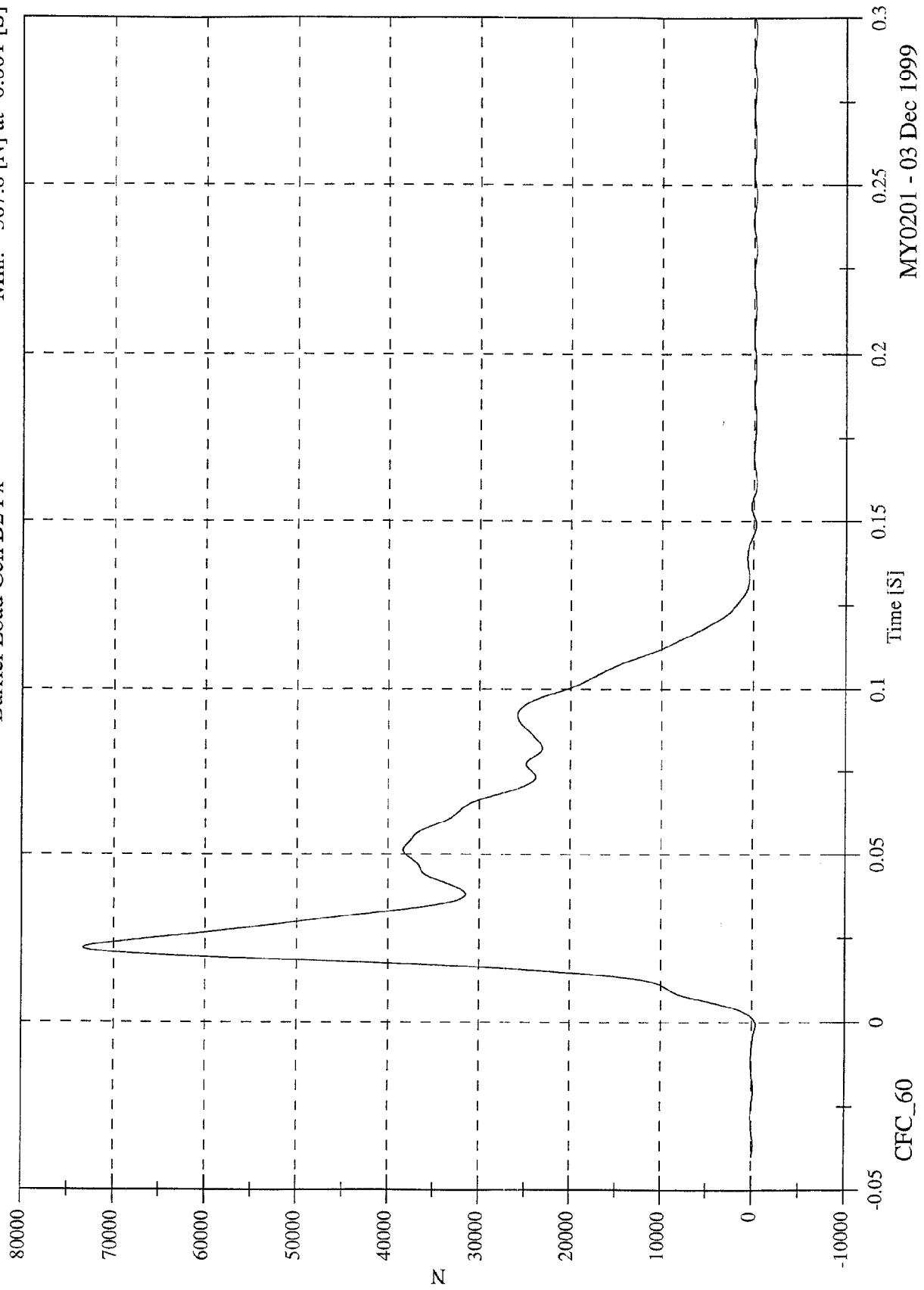
CFC_60

MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 73315.4 [N] at 0.022 [S]
Min: -367.8 [N] at -0.001 [S]

Barrier Load Cell B2 Fx

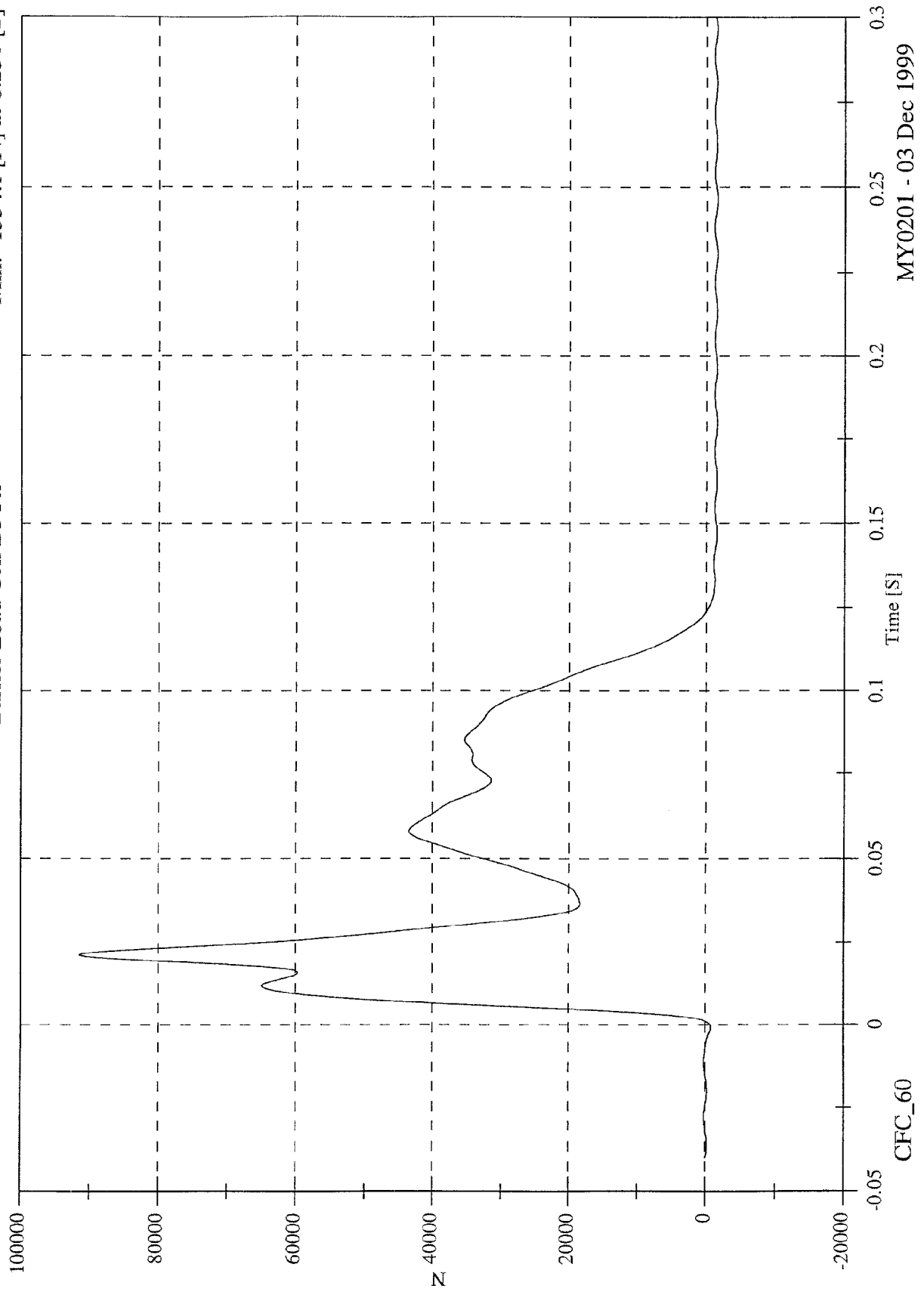


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 91434.9 [N] at 0.021 [S]
Min: -1554.1 [N] at 0.230 [S]

Barrier Load Cell B3 Fx

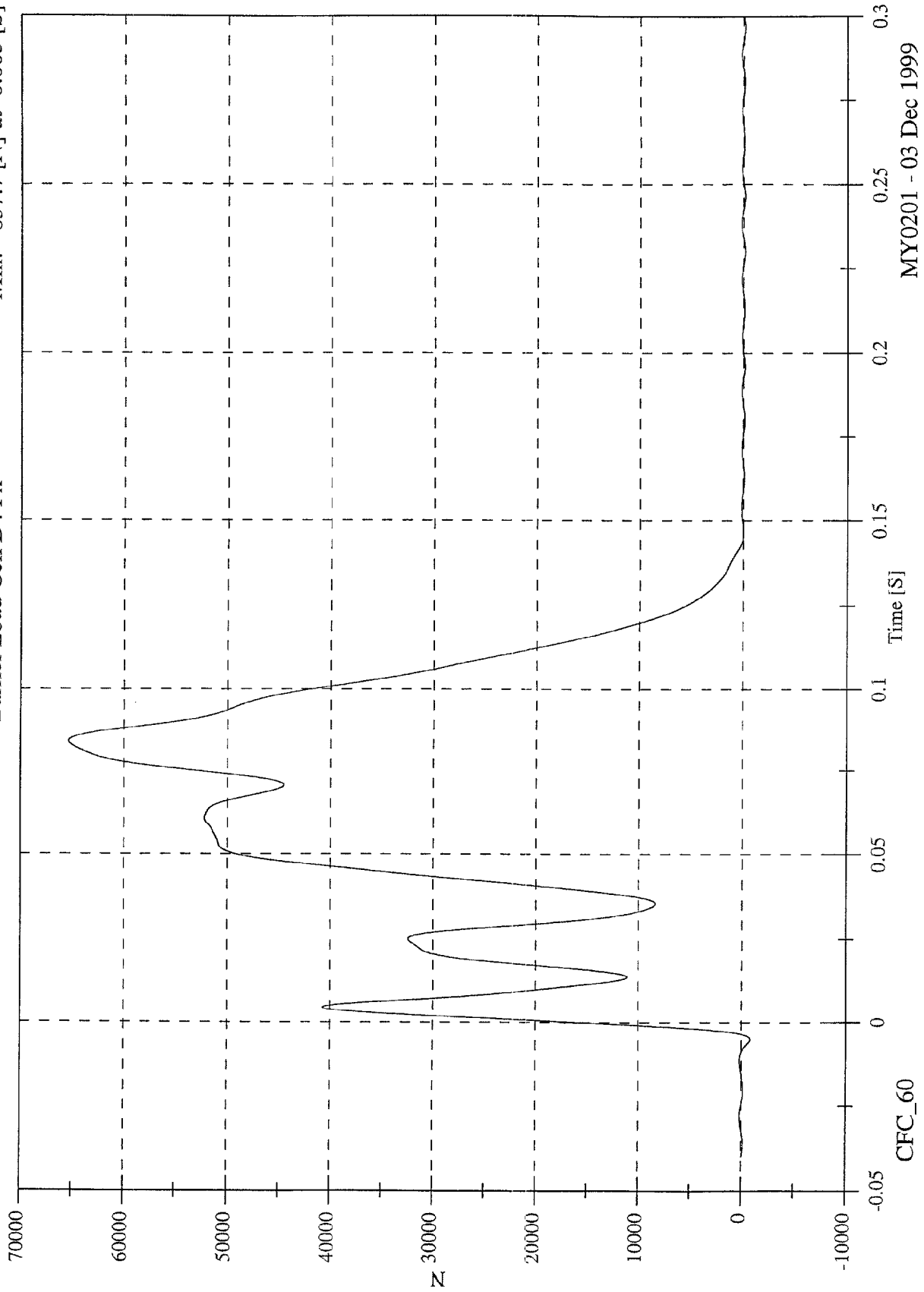


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 65354.4 [N] at 0.084 [S]
Min: -837.7 [N] at -0.005 [S]

Barrier Load Cell B4 Fx

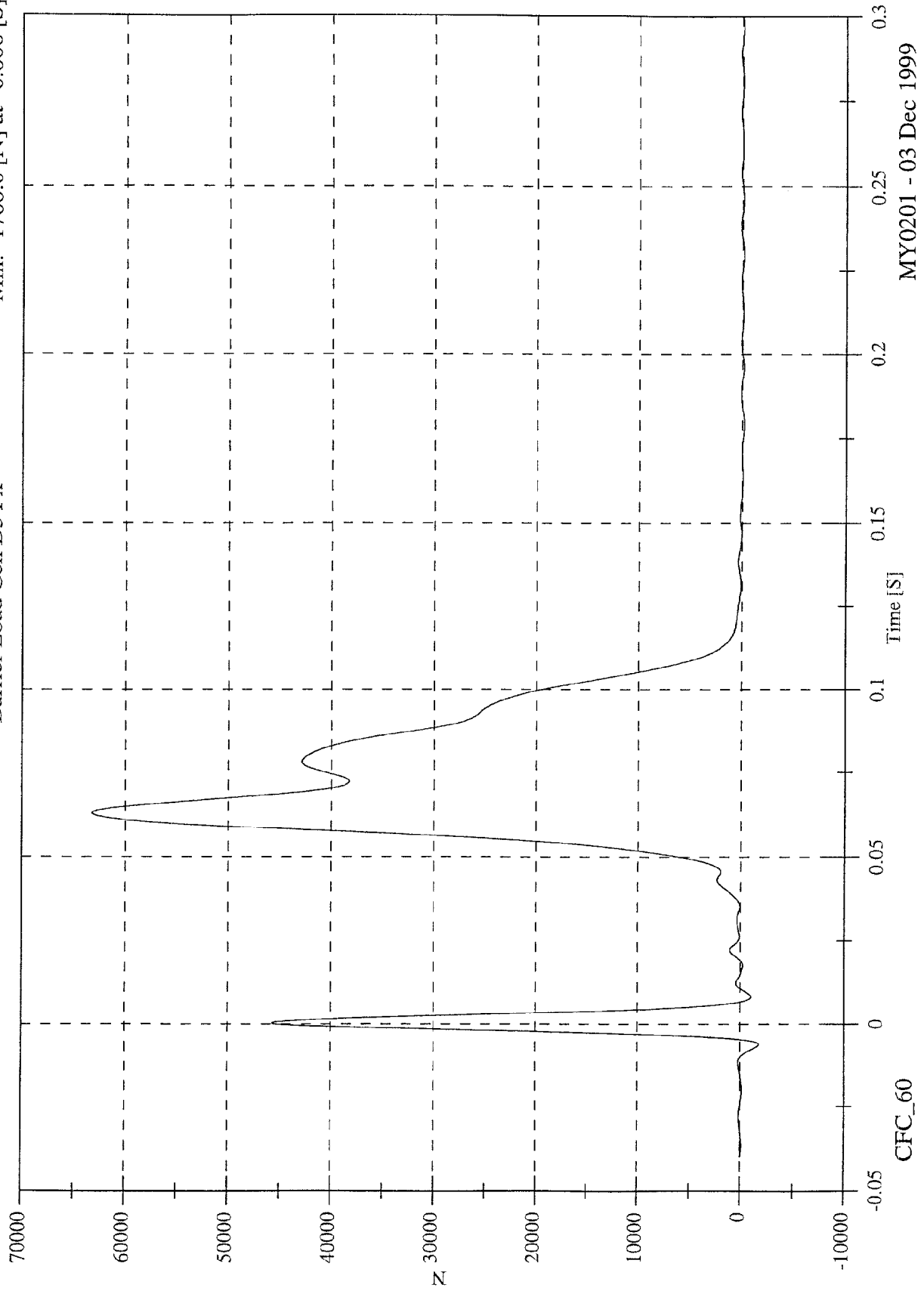


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 63228.2 [N] at 0.063 [S]
 Min: -1766.8 [N] at -0.006 [S]

Barrier Load Cell B5 Fx

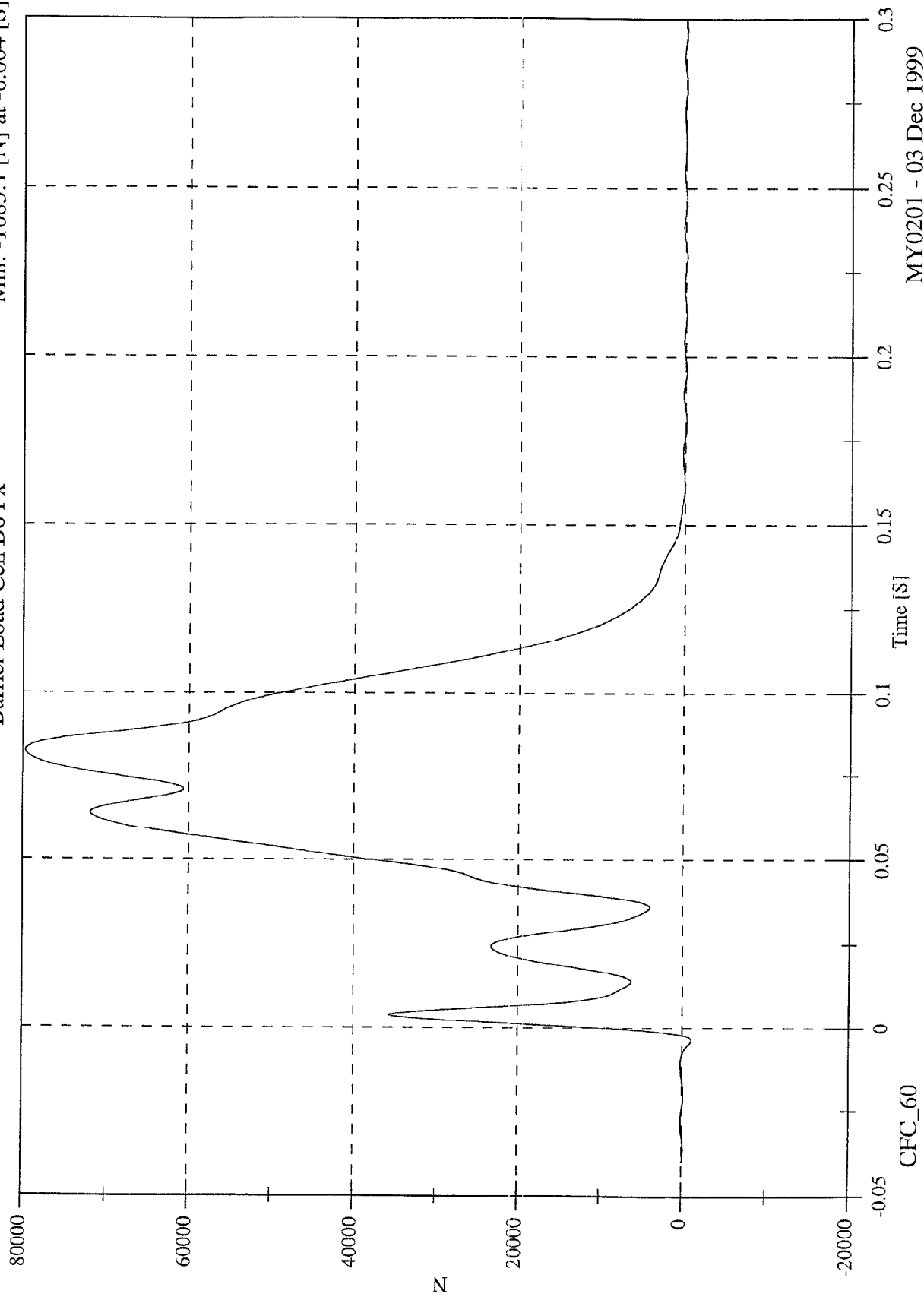


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 79684.3 [N] at 0.082 [S]
Min: -1085.1 [N] at -0.004 [S]

Barrier Load Cell B6 Fx

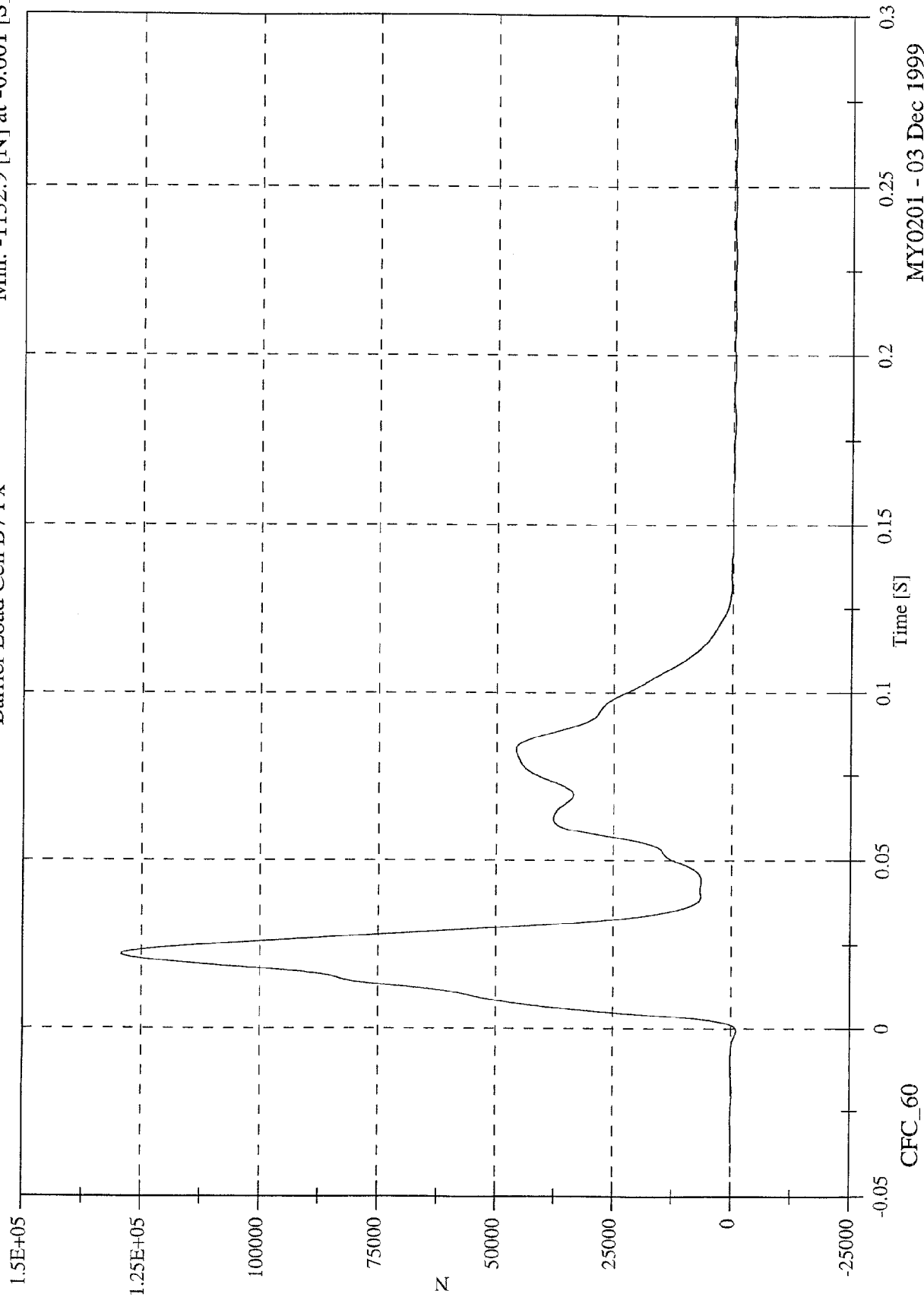


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 129318.4 [N] at 0.022 [S]
 Min: -1132.9 [N] at -0.001 [S]

Barrier Load Cell B7 Fx

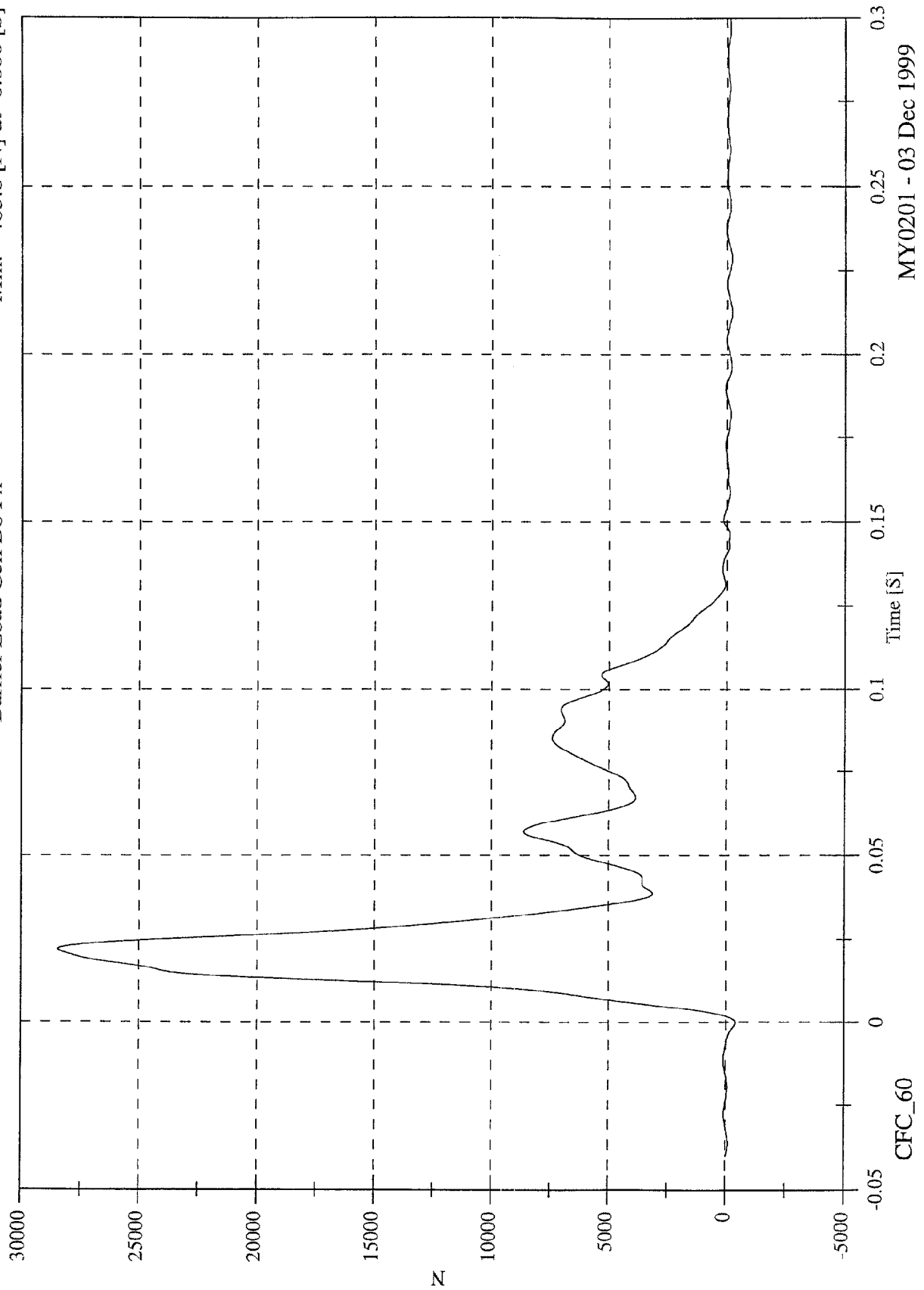


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 28436.8 [N] at 0.022 [S]
Min: -405.6 [N] at -0.000 [S]

Barrier Load Cell B8 Fx

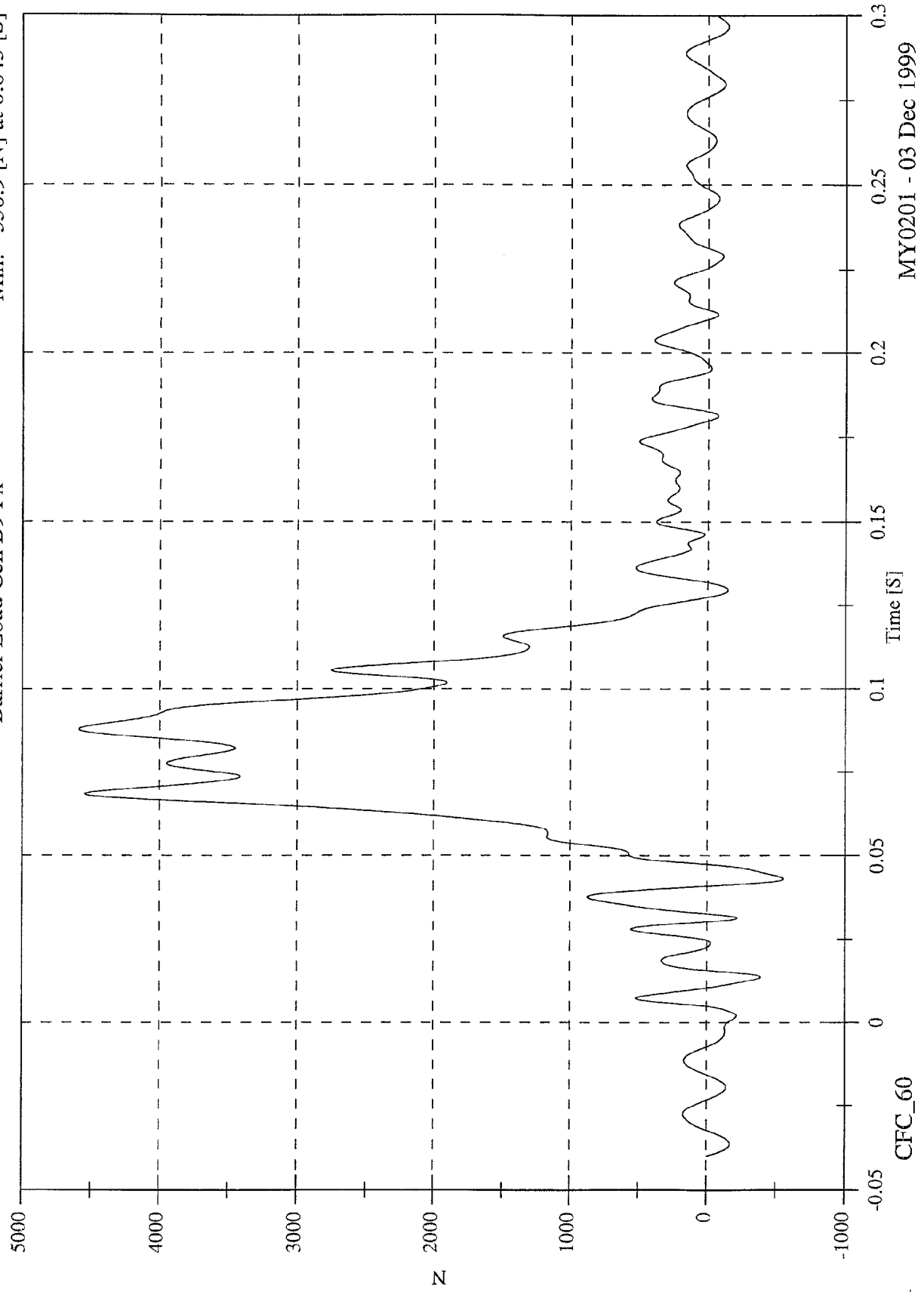


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 4588.6 [N] at 0.088 [S]
Min: -556.9 [N] at 0.043 [S]

Barrier Load Cell B9 Fx

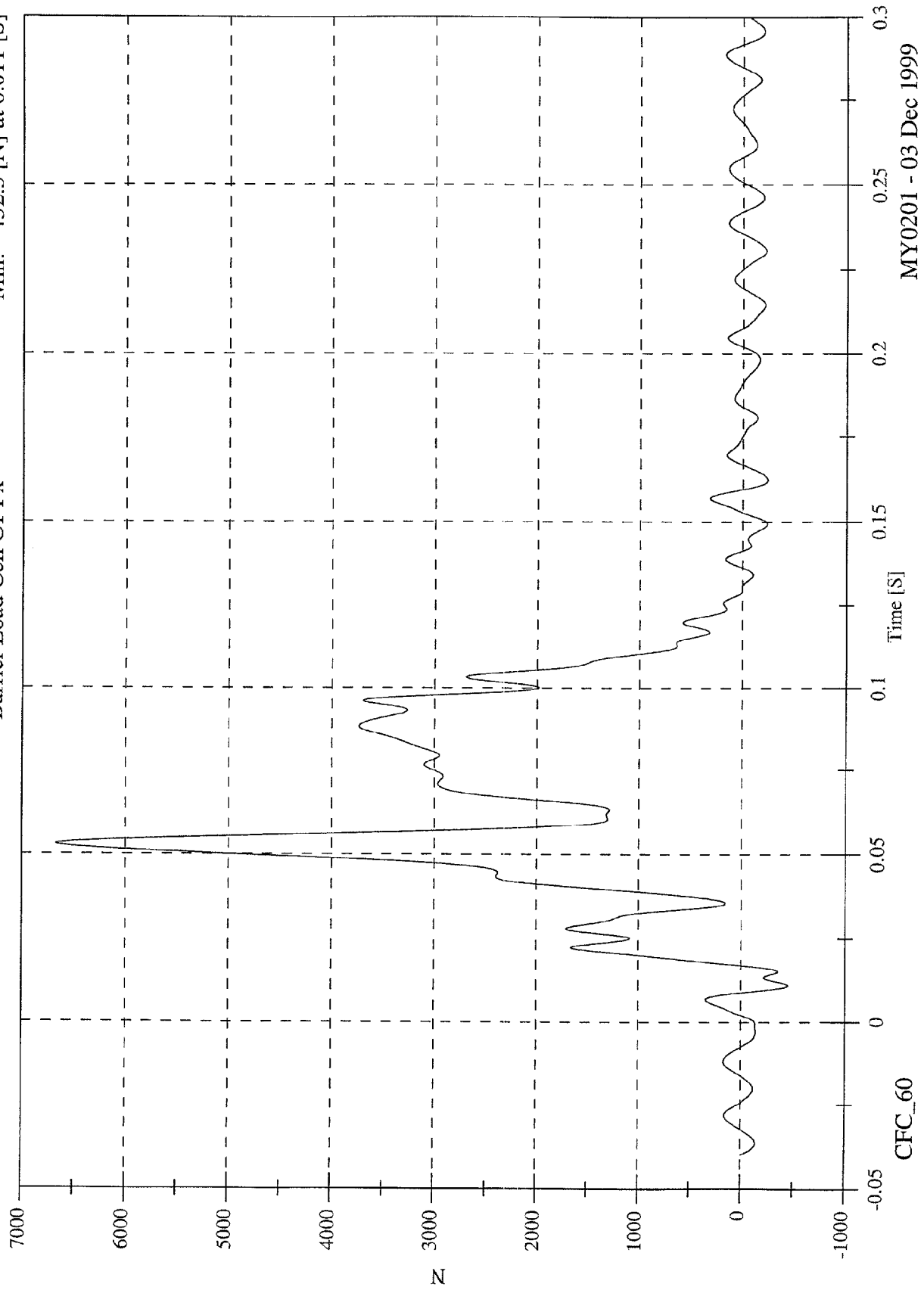


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 6669.8 [N] at 0.053 [S]
 Min: -452.3 [N] at 0.011 [S]

Barrier Load Cell C1 Fx

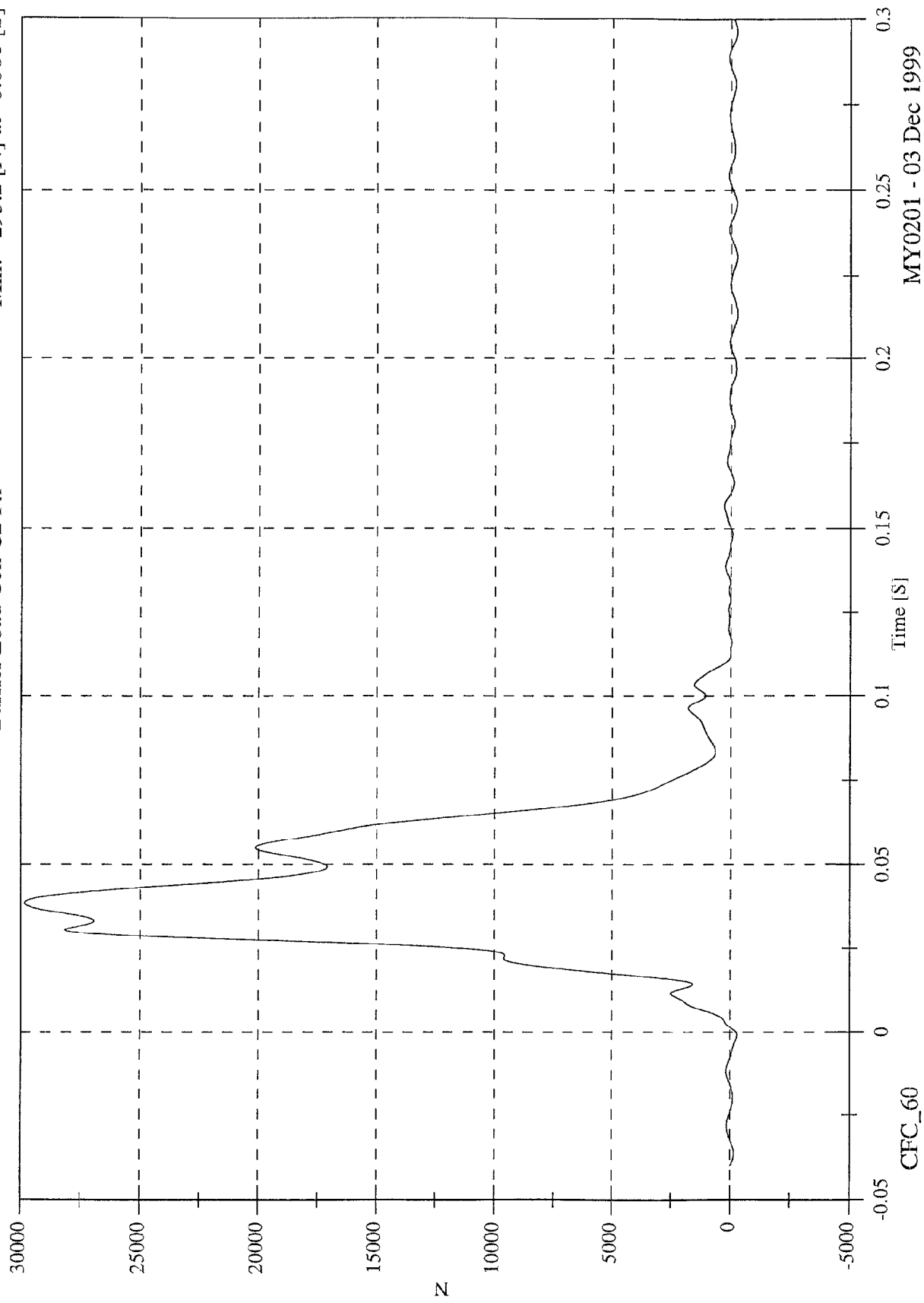


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 29833.4 [N] at 0.039 [S]
Min: -293.2 [N] at -0.001 [S]

Barrier Load Cell C2 Fx

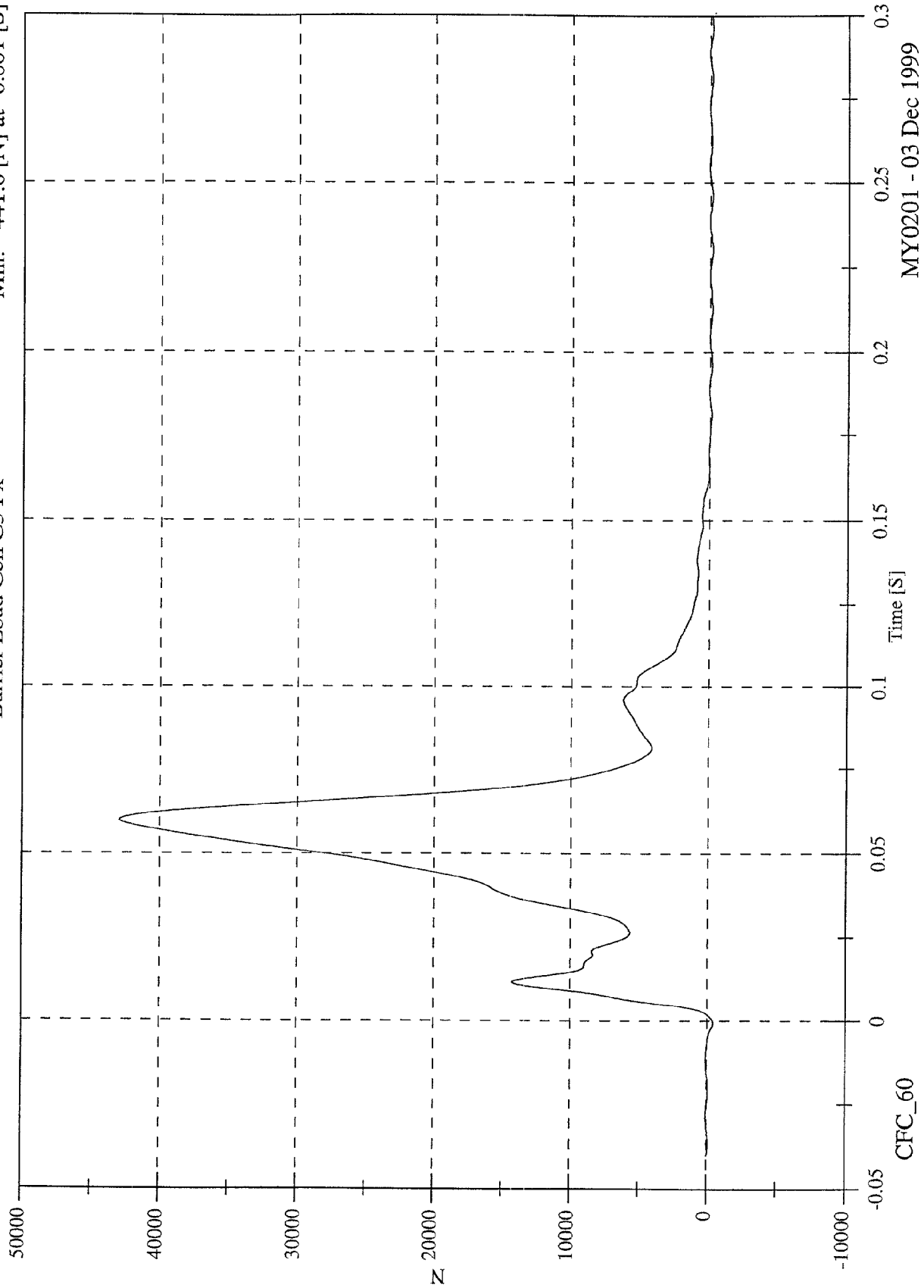


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Barrier Load Cell C3 Fx

Max: 42959.6 [N] at 0.060 [S]
Min: -441.6 [N] at -0.001 [S]

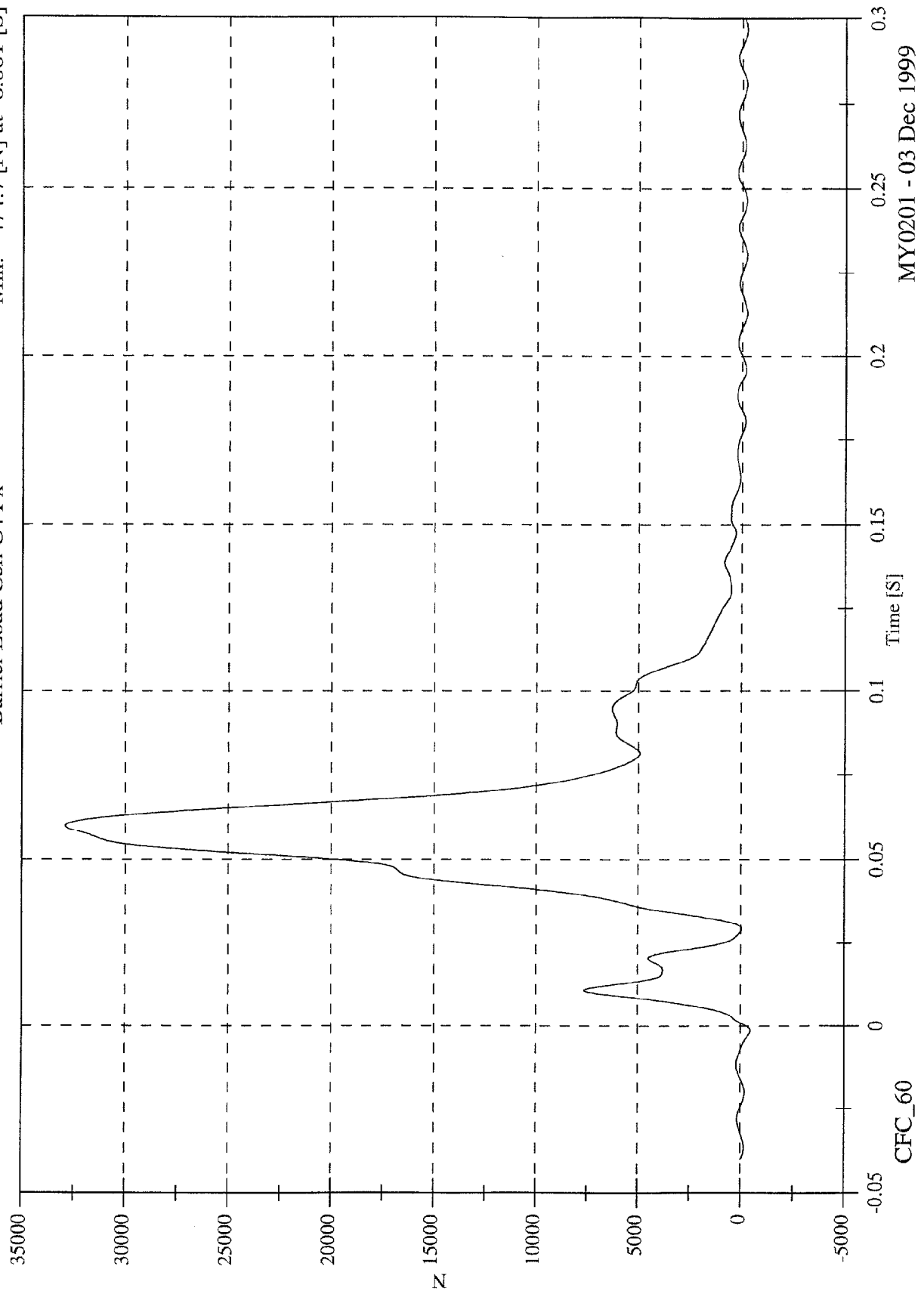


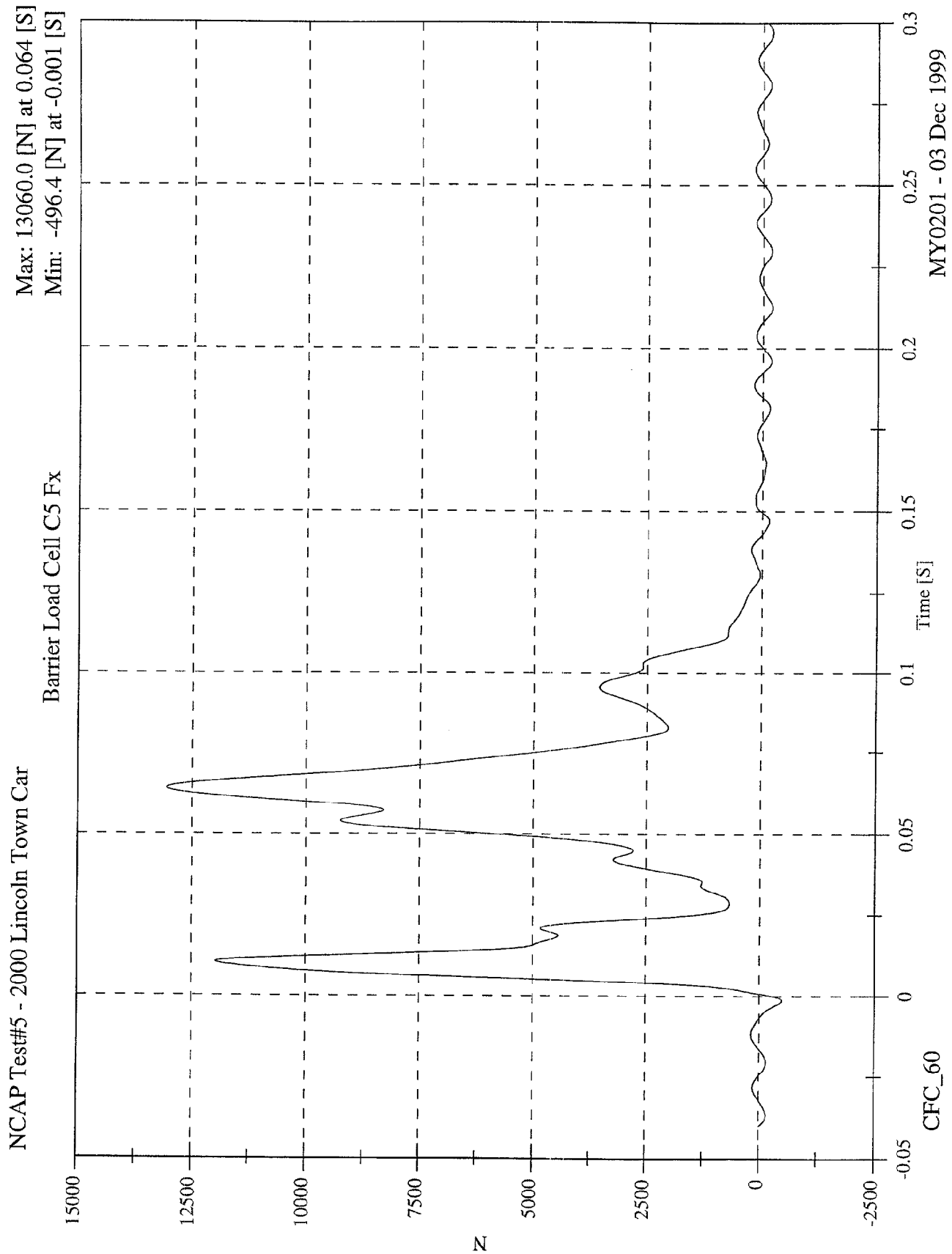
MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 32910.7 [N] at 0.060 [S]
Min: -474.7 [N] at -0.001 [S]

Barrier Load Cell C4 Fx

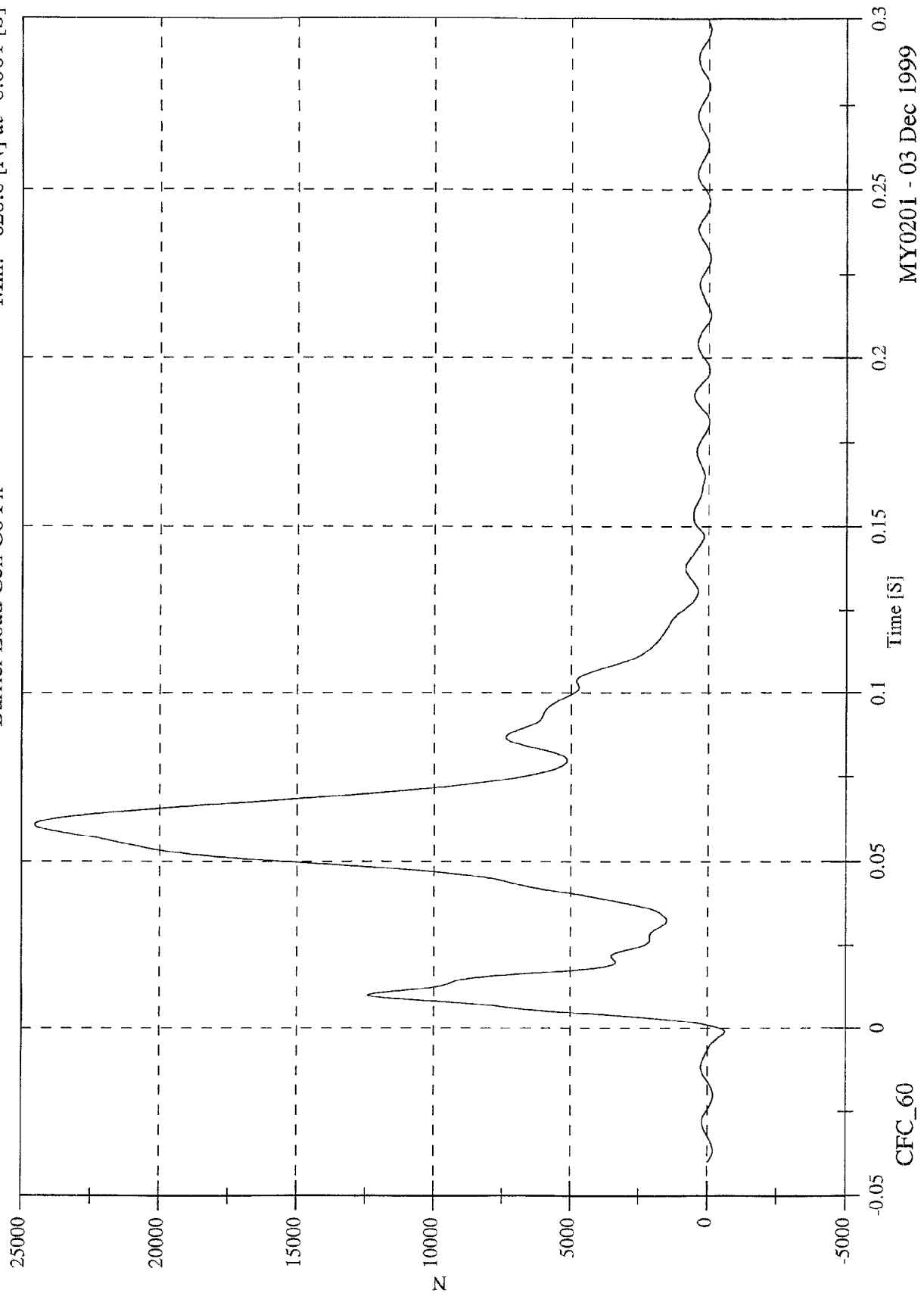




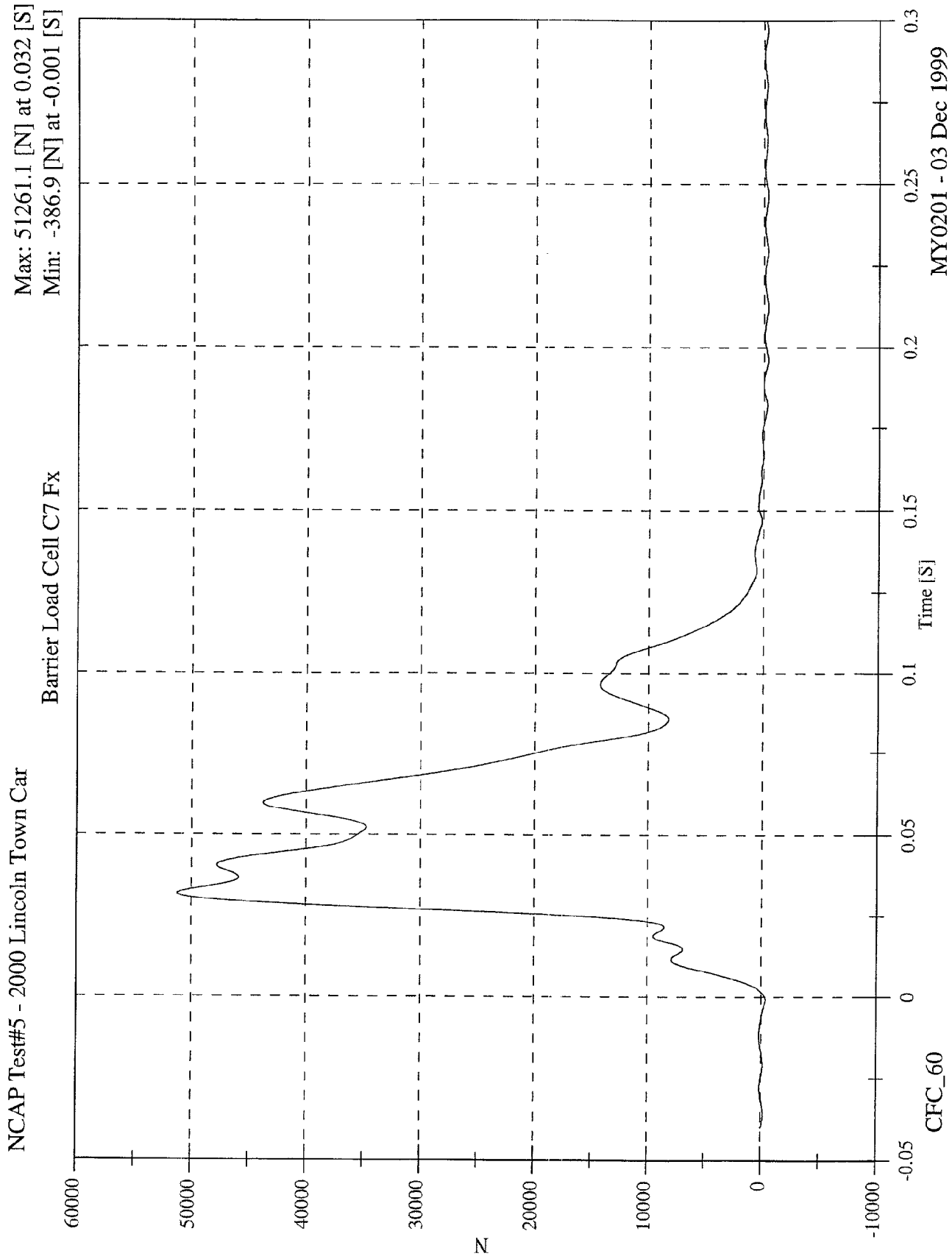
NCAP Test#5 - 2000 Lincoln Town Car

Max: 24541.3 [N] at 0.061 [S]
 Min: -628.8 [N] at -0.001 [S]

Barrier Load Cell C6 Fx



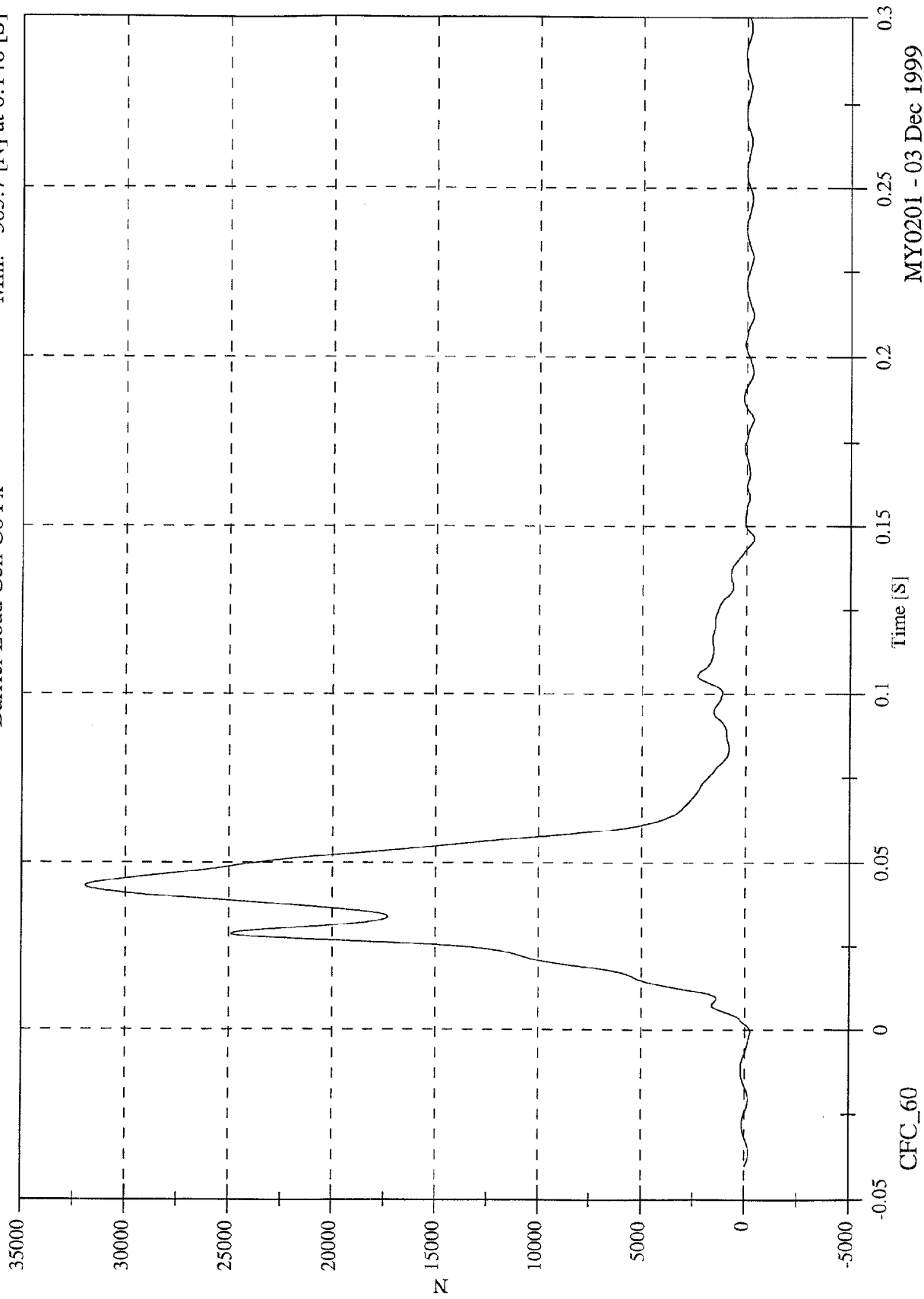
MY0201 - 03 Dec 1999



NCAP Test#5 - 2000 Lincoln Town Car

Max: 31948.7 [N] at 0.043 [S]
Min: -365.7 [N] at 0.146 [S]

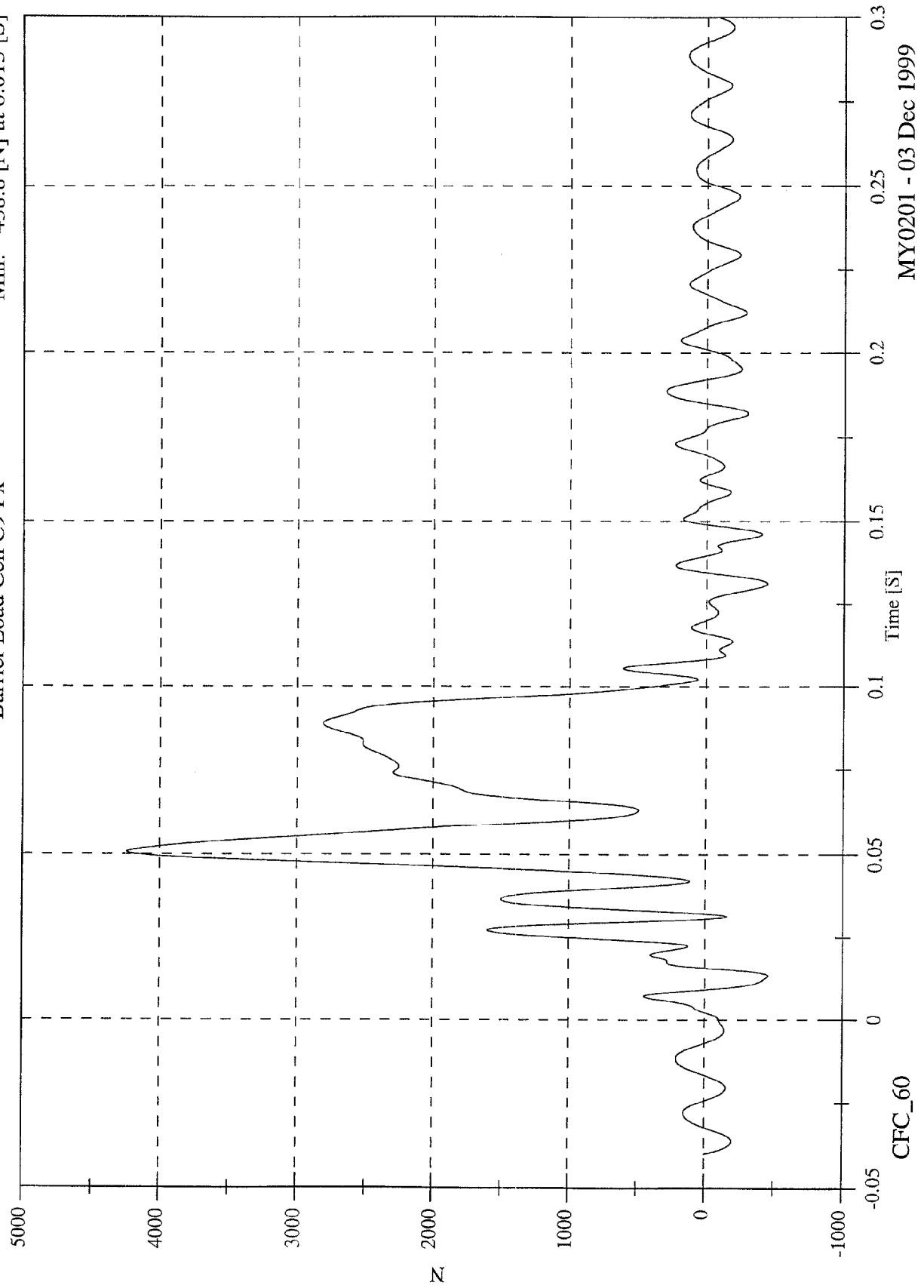
Barrier Load Cell C8 Fx



NCAP Test#5 - 2000 Lincoln Town Car

Max: 4240.2 [N] at 0.051 [S]
Min: -458.8 [N] at 0.013 [S]

Barrier Load Cell C9 Fx

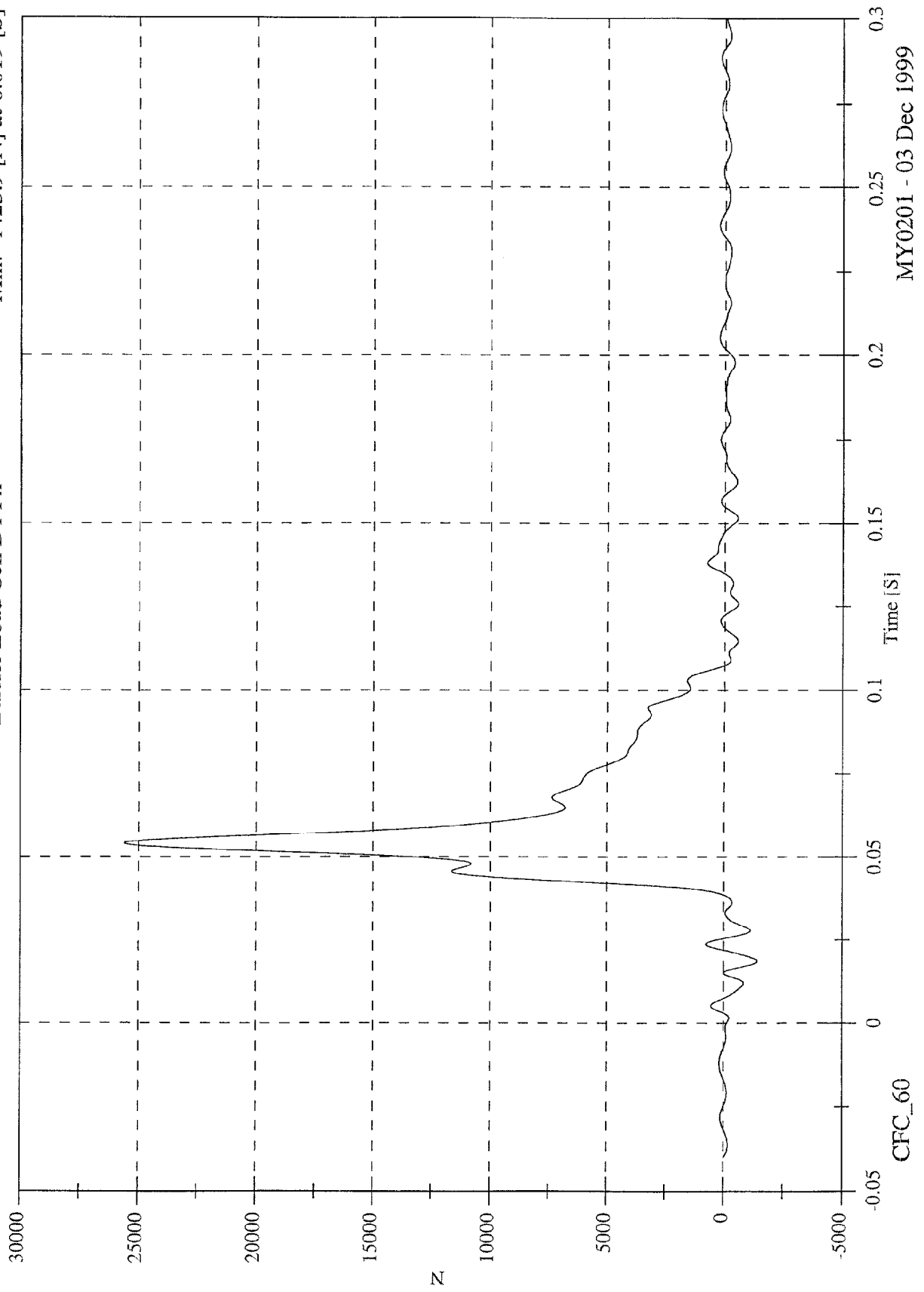


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 25604.7 [N] at 0.054 [S]
Min: -1425.9 [N] at 0.019 [S]

Barrier Load Cell D1 Fx

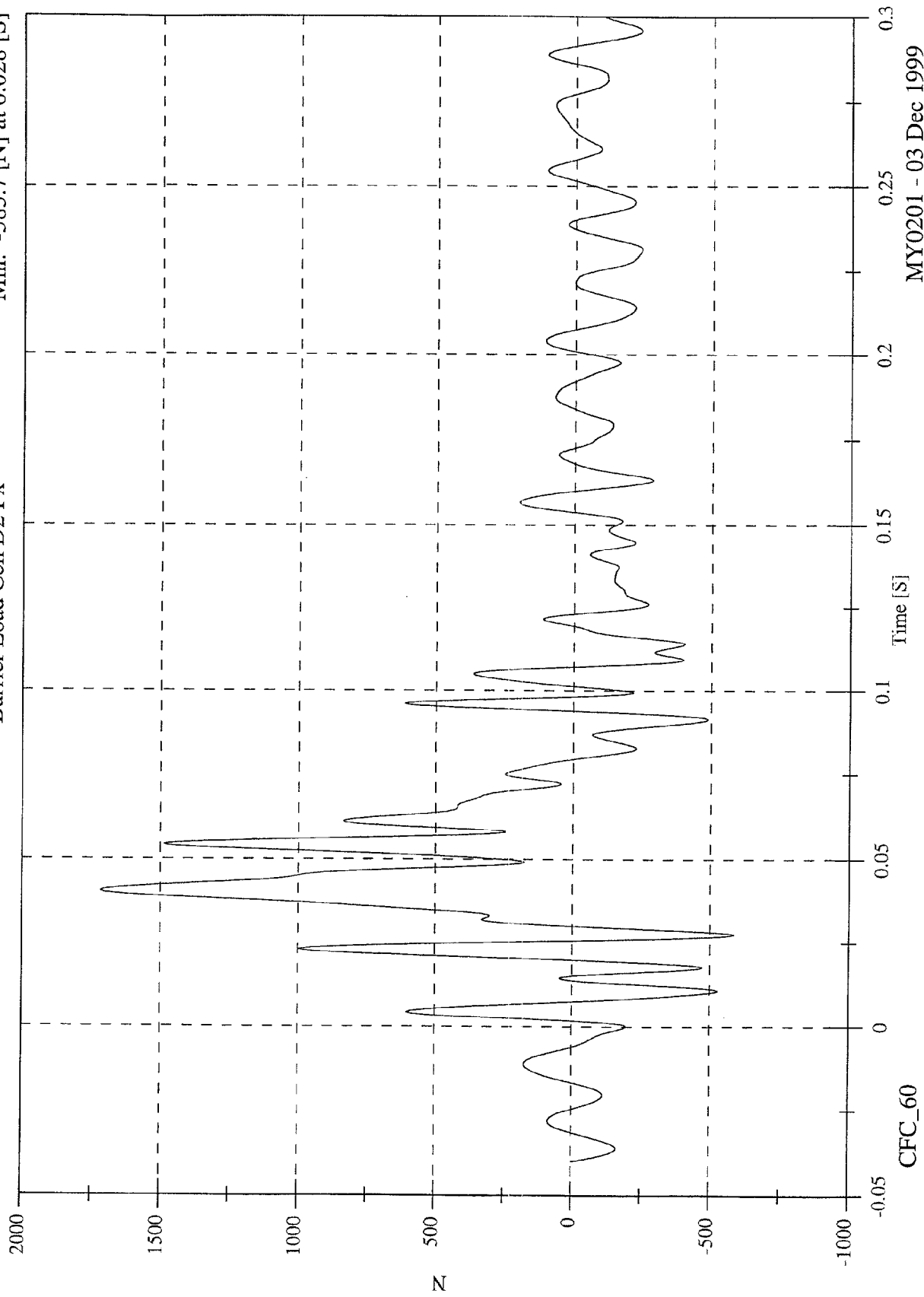


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NCAP Test#5 - 2000 Lincoln Town Car

Max: 1716.1 [N] at 0.040 [S]
Min: -585.7 [N] at 0.028 [S]

Barrier Load Cell D2 Fx

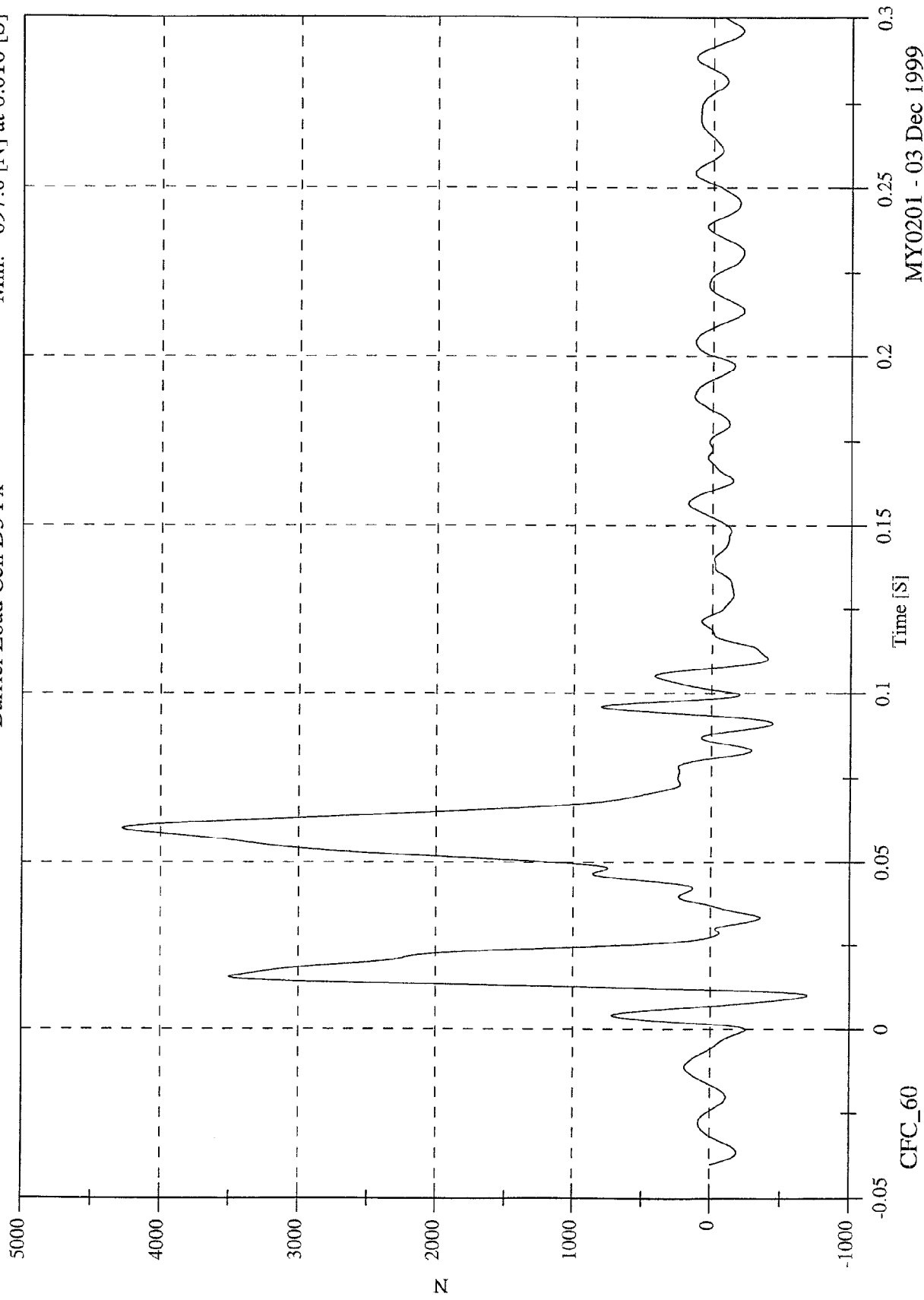


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 4277.6 [N] at 0.060 [S]
Min: -697.8 [N] at 0.010 [S]

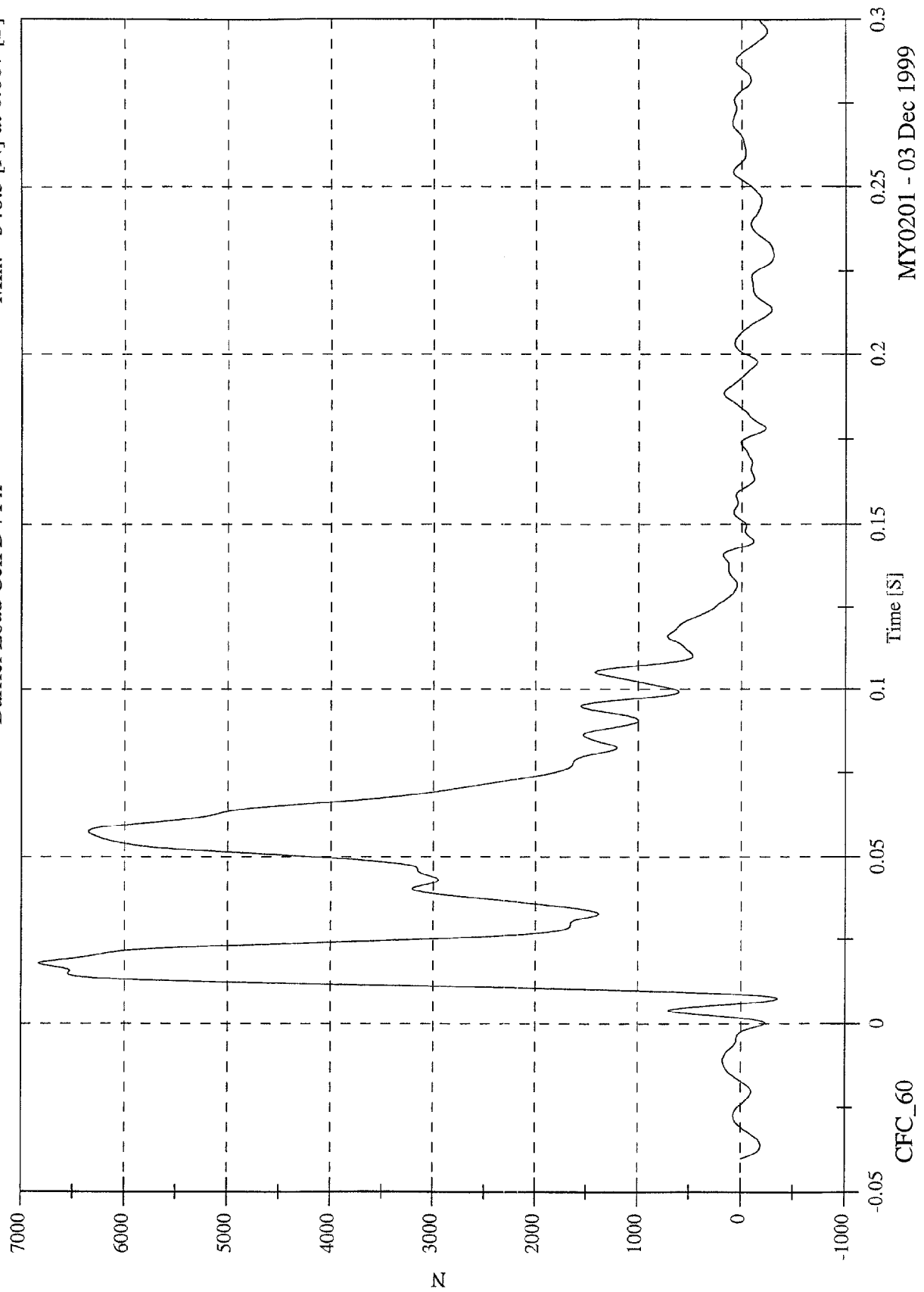
Barrier Load Cell D3 Fx



NCAP Test#5 - 2000 Lincoln Town Car

Max: 6831.1 [N] at 0.018 [S]
Min: -348.5 [N] at 0.007 [S]

Barrier Load Cell D4 Fx

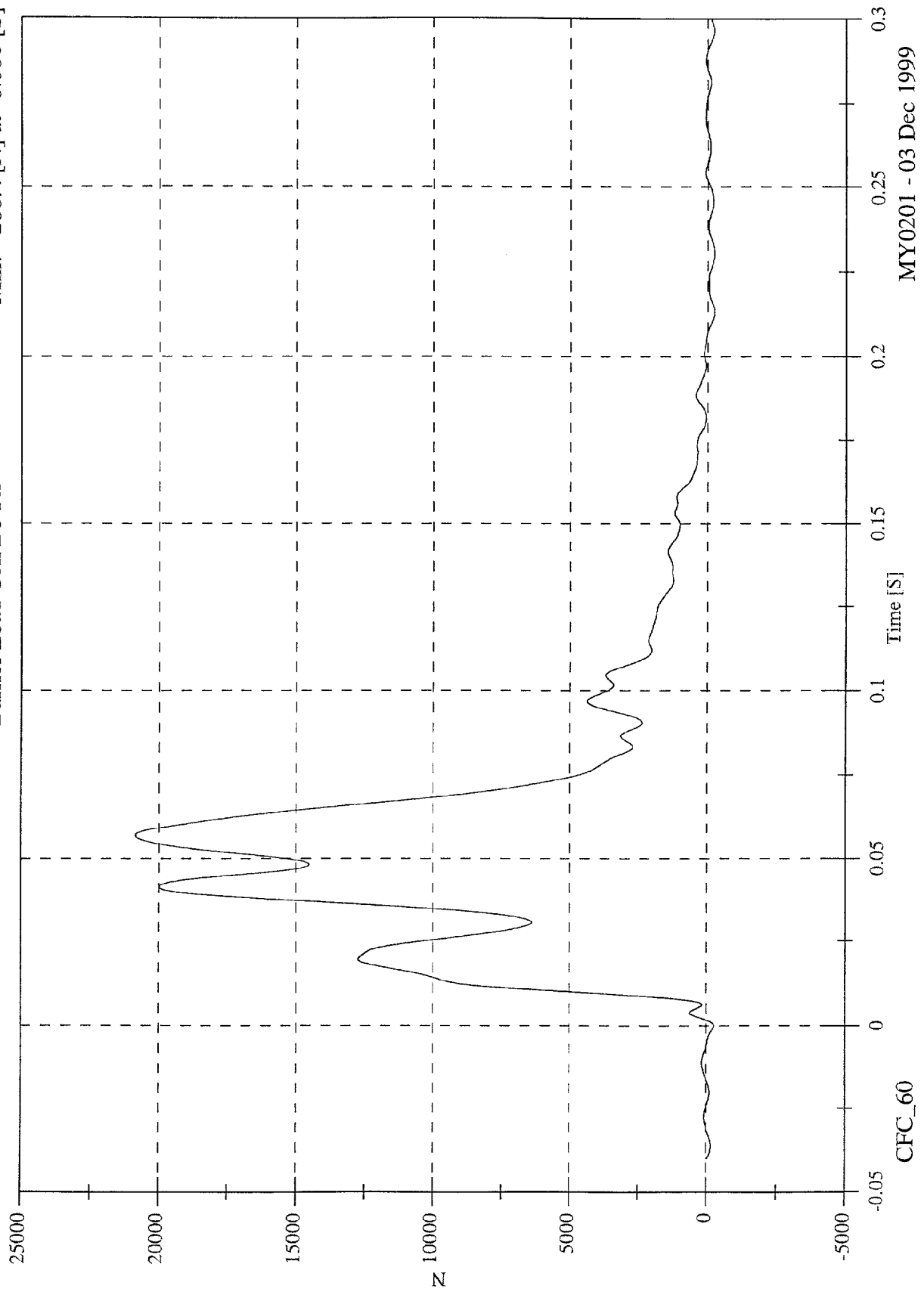


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NCAP Test#5 - 2000 Lincoln Town Car

Max: 20868.9 [N] at 0.057 [S]
Min: -266.4 [N] at -0.000 [S]

Barrier Load Cell D5 Fx

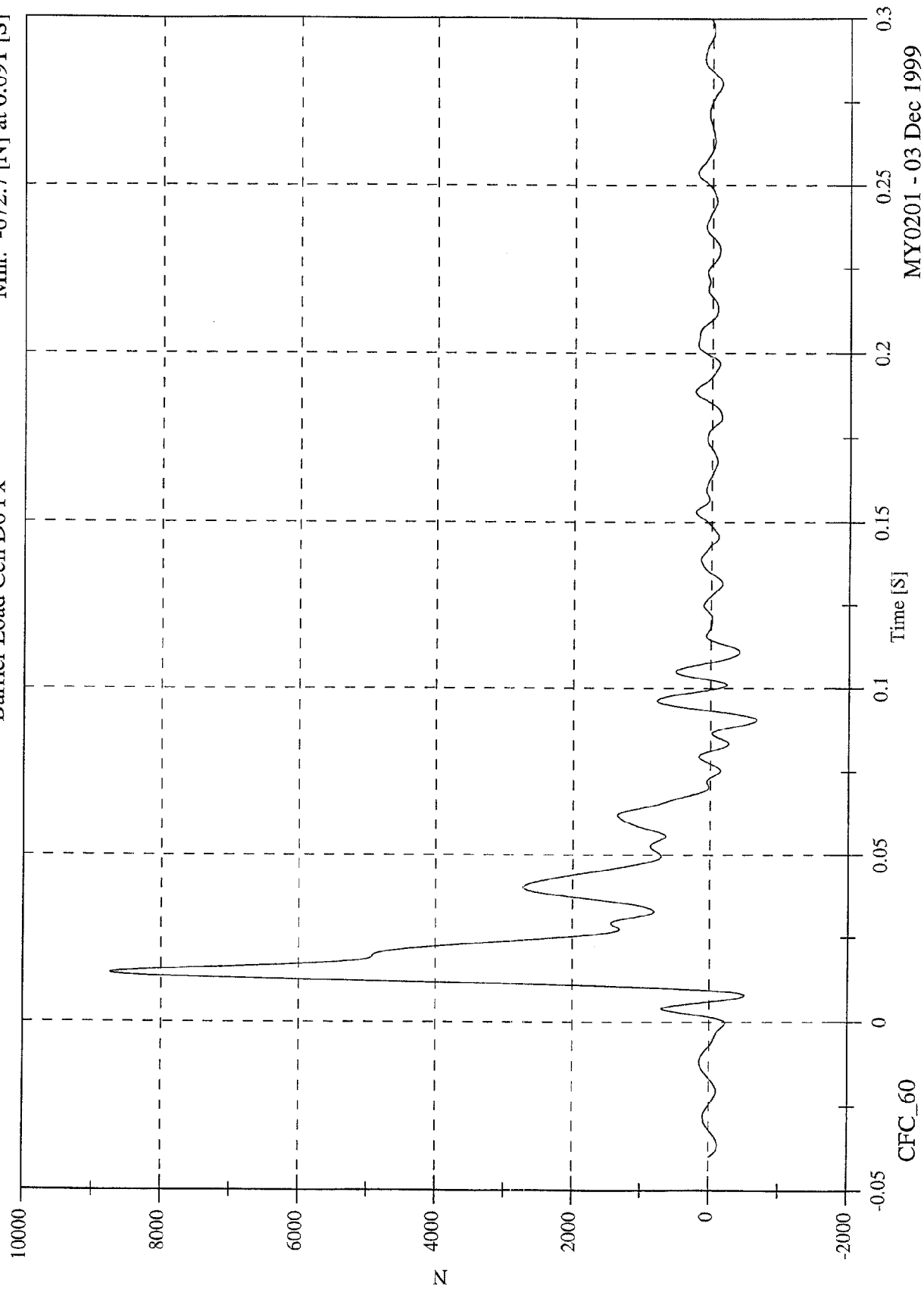


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 8739.4 [N] at 0.014 [S]
Min: -672.7 [N] at 0.091 [S]

Barrier Load Cell D6 Fx

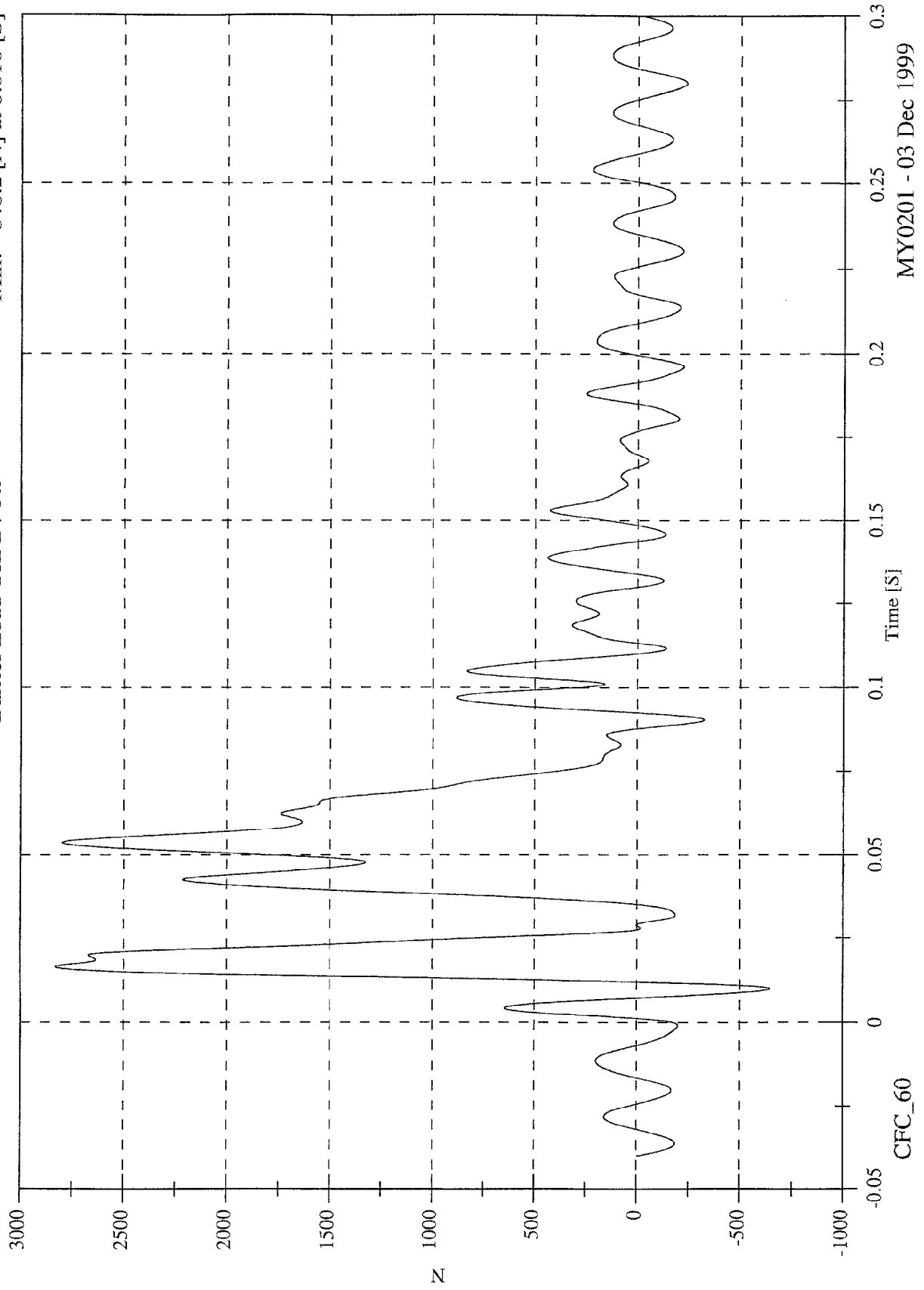


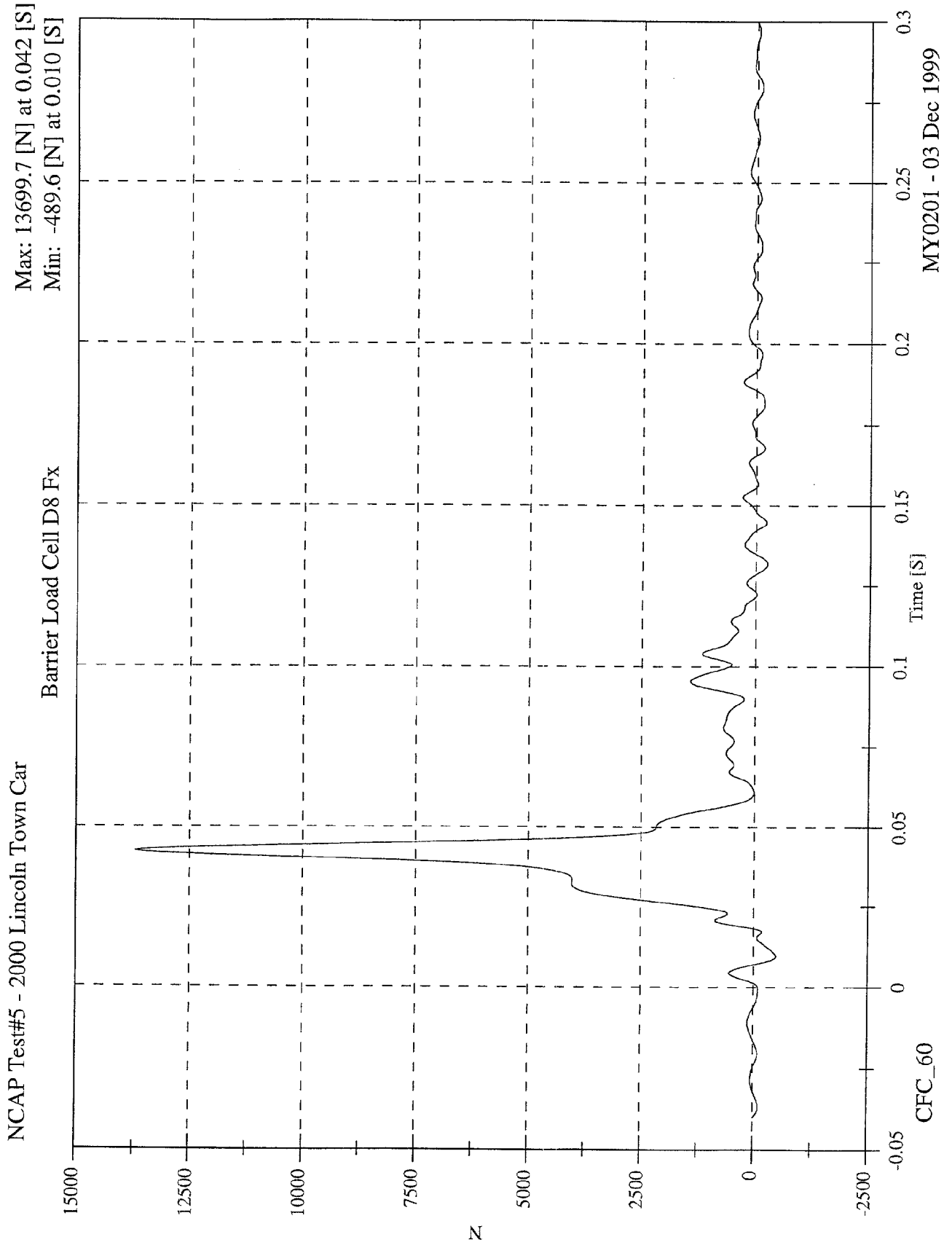
MY0201 - 03 Dec 1999

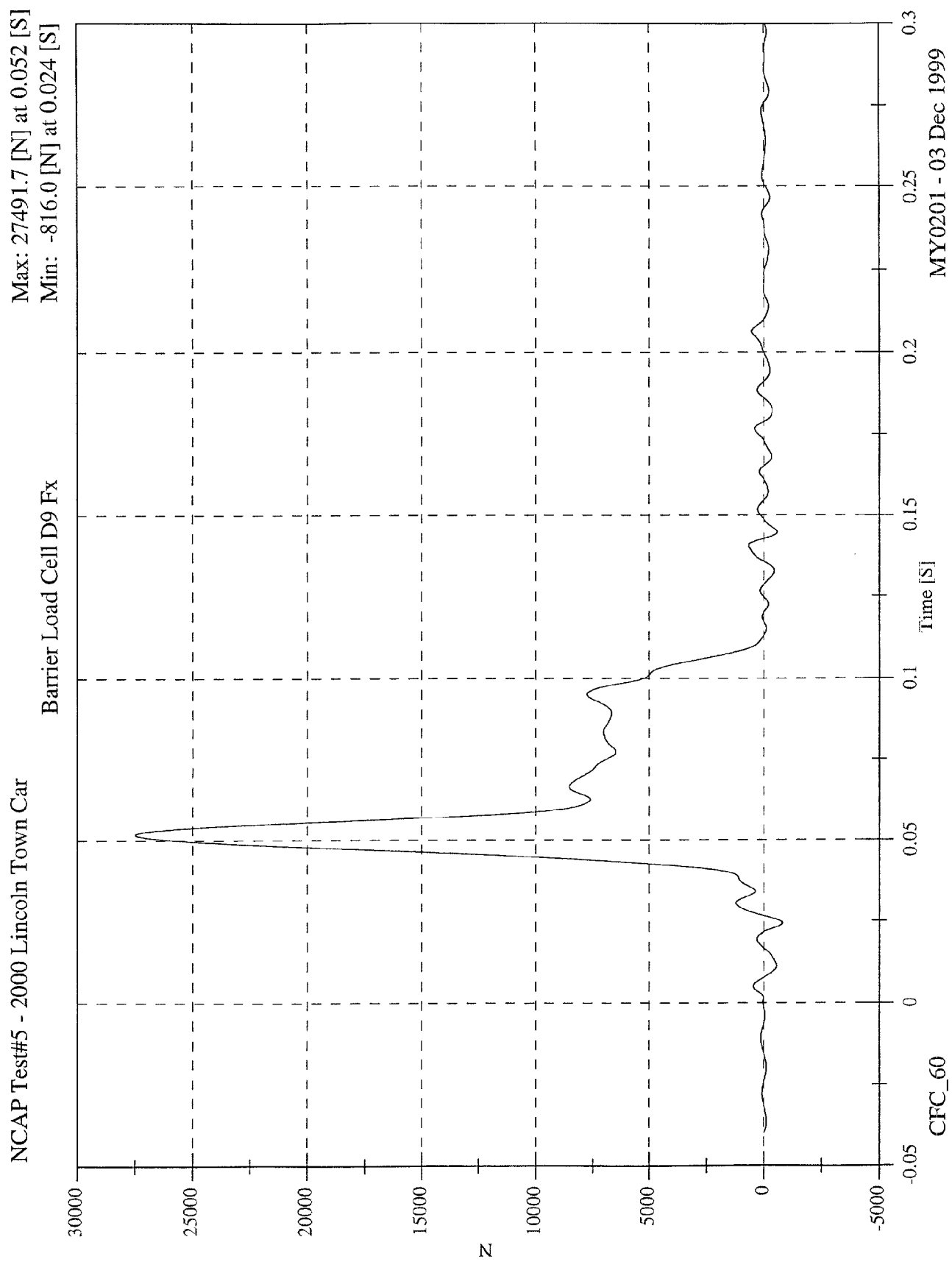
NCAP Test#5 - 2000 Lincoln Town Car

Max: 2830.7 [N] at 0.016 [S]
 Min: -646.2 [N] at 0.010 [S]

Barrier Load Cell D7 Fx



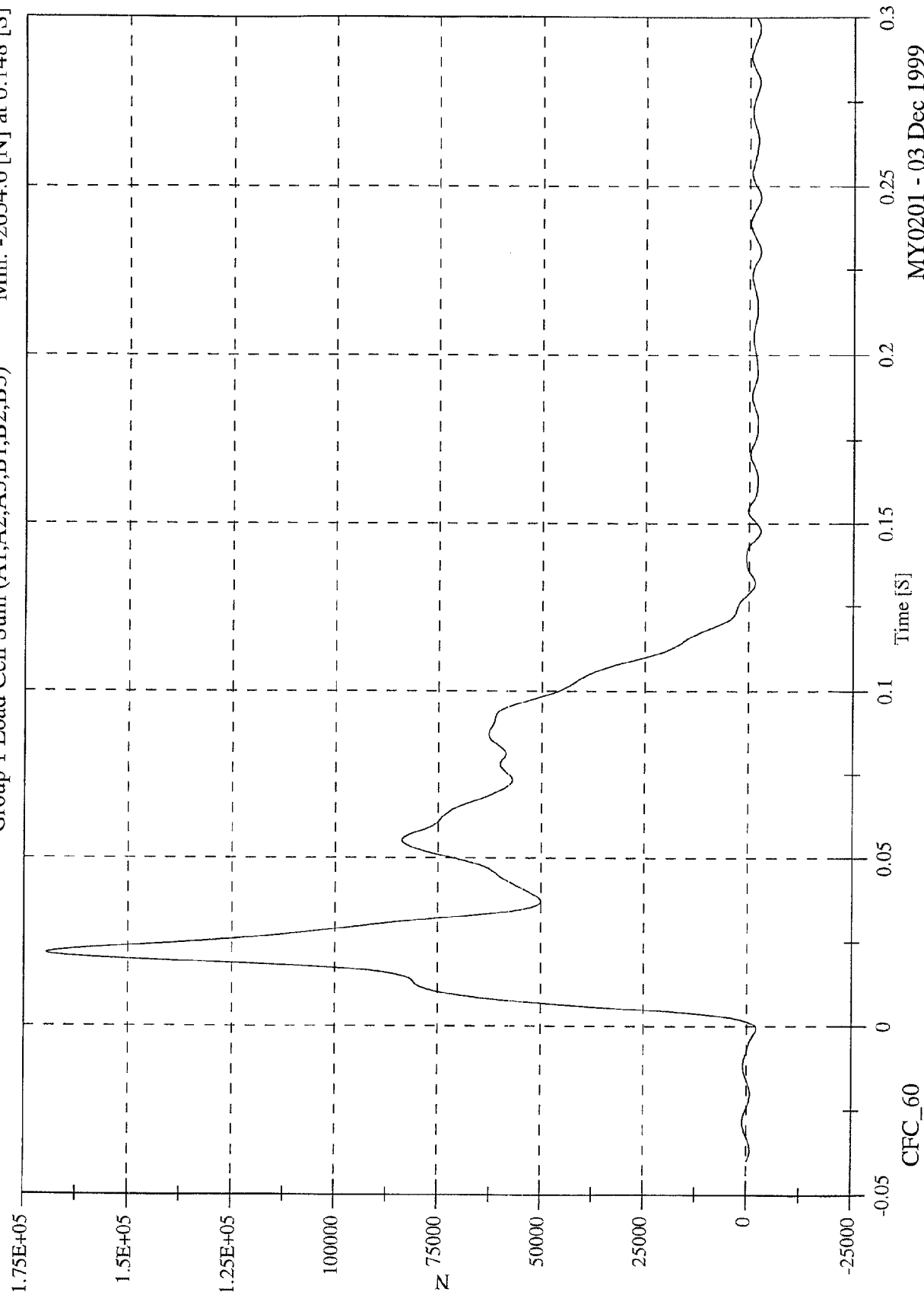




NCAP Test#5 - 2000 Lincoln Town Car

Max: 169560.1 [N] at 0.022 [S]
 Min: -2654.6 [N] at 0.148 [S]

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

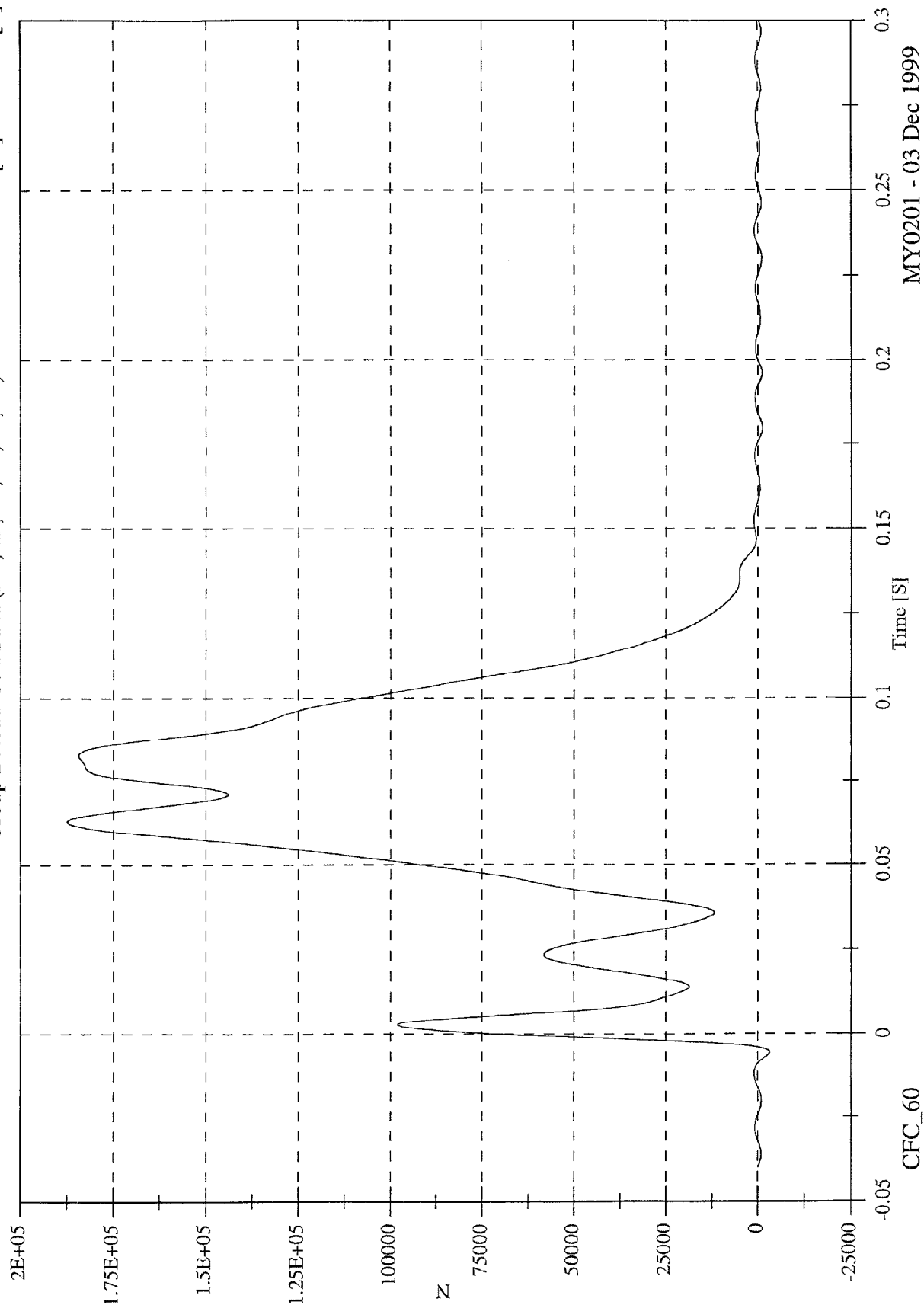


NCAP Test#5 - 2000 Lincoln Town Car

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

Max: 187380.9 [N] at 0.063 [S]

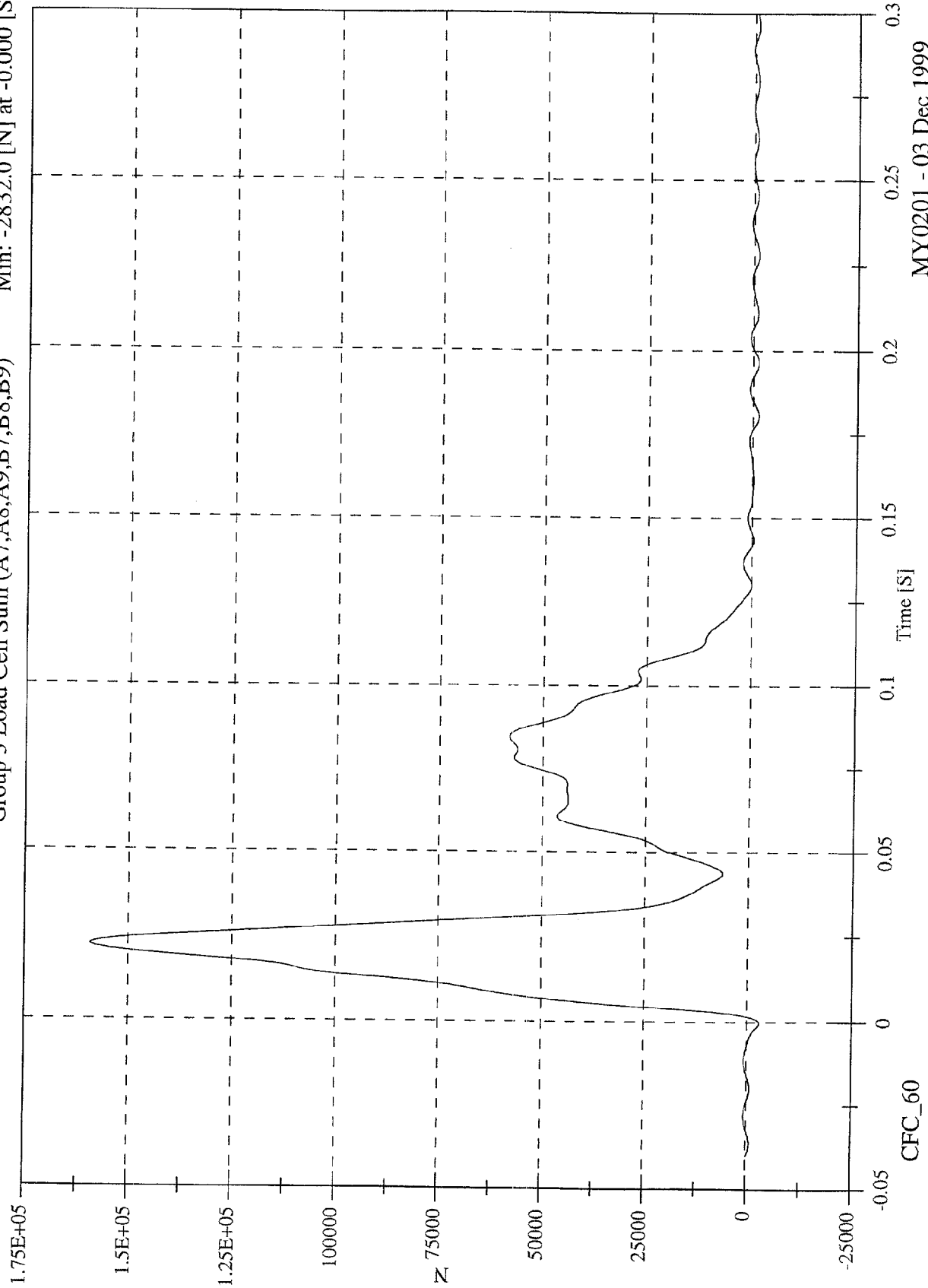
Min: -3146.8 [N] at -0.006 [S]



NCAP Test#5 - 2000 Lincoln Town Car

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

Max: 159256.9 [N] at 0.022 [S]
Min: -2832.0 [N] at -0.000 [S]

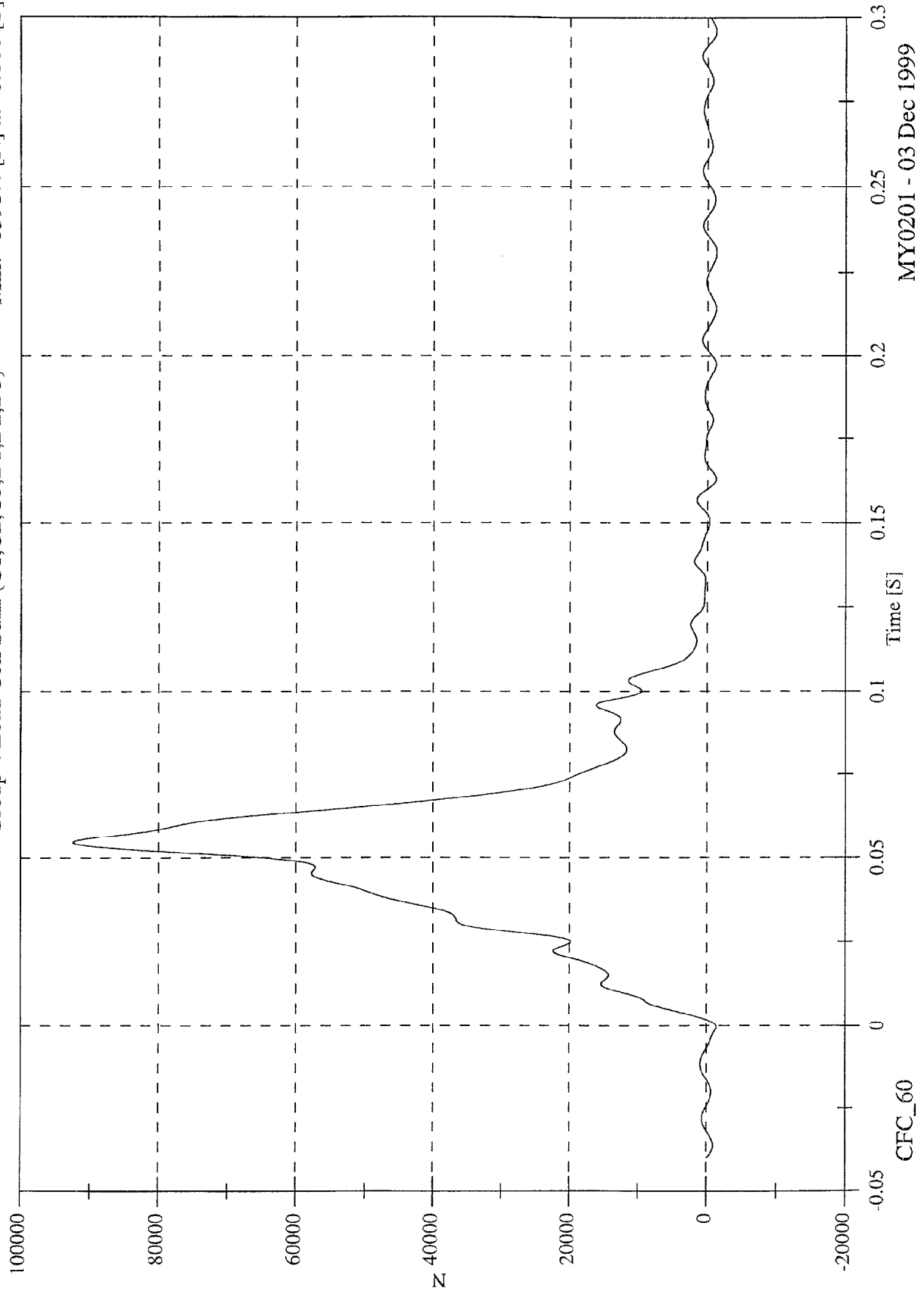


MY0201 - 03 Dec 1999

NCAP Test#5 - 2000 Lincoln Town Car

Max: 92447.9 [N] at 0.054 [S]
Min: -1393.4 [N] at -0.000 [S]

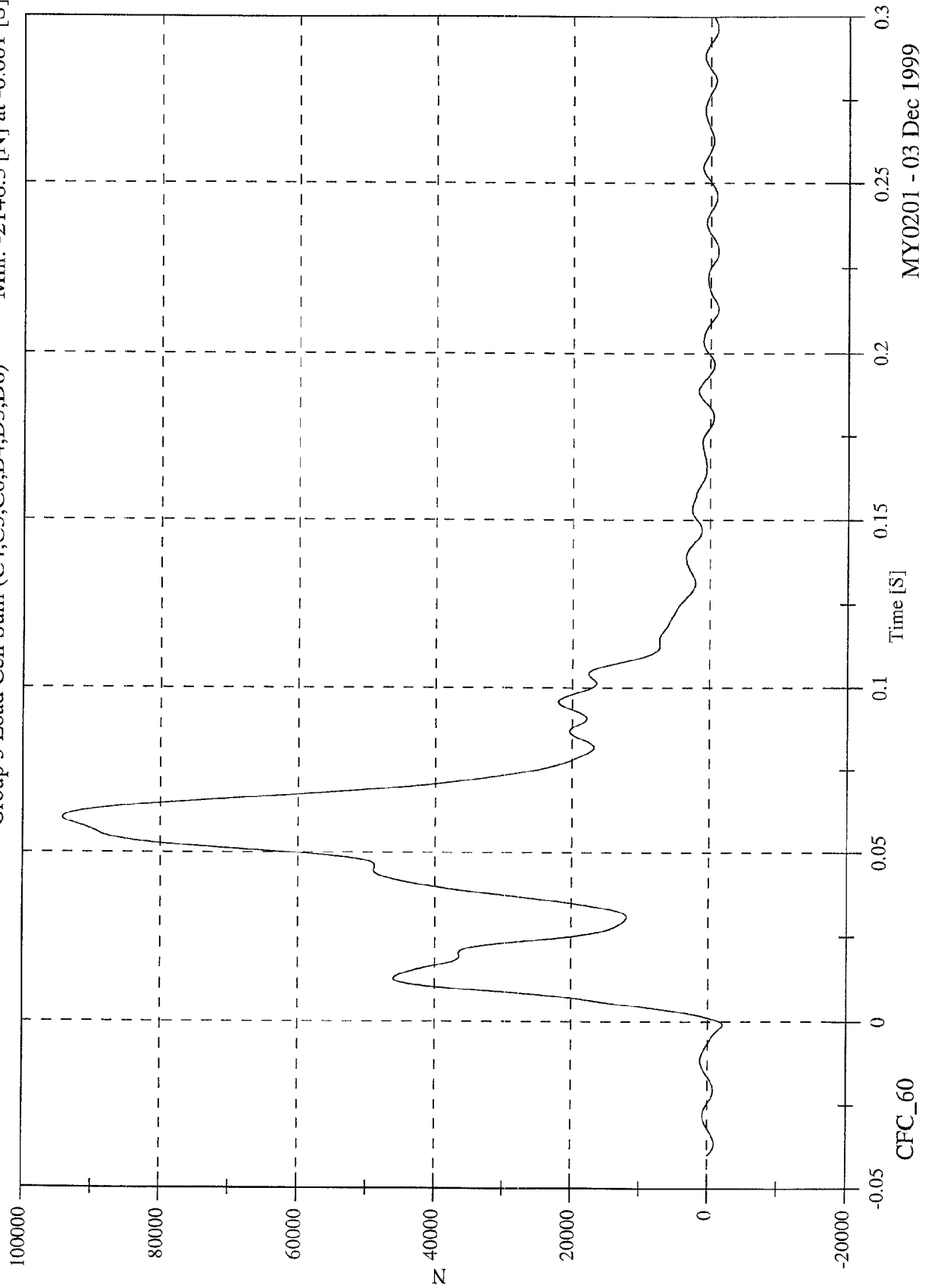
Group 4 Load Cell Sum (C1,C2,C3,D1,D2,D3)



NCAP Test#5 - 2000 Lincoln Town Car

Max: 94195.9 [N] at 0.060 [S]
 Min: -2146.3 [N] at -0.001 [S]

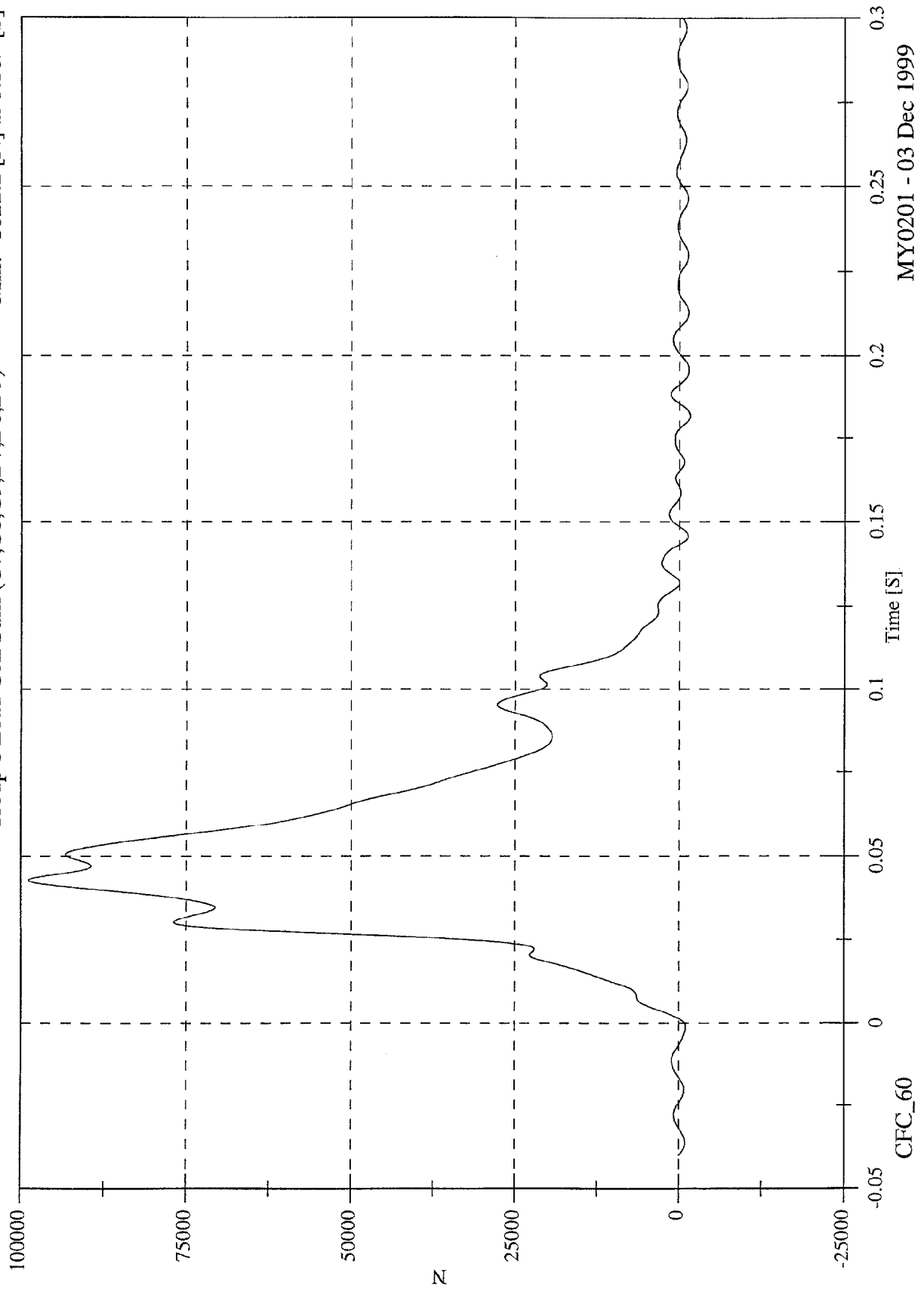
Group 5 Load Cell Sum (C4,C5,C6,D4,D5,D6)



NCAP Test#5 - 2000 Lincoln Town Car

Max: 98876.8 [N] at 0.043 [S]
Min: -1622.2 [N] at 0.182 [S]

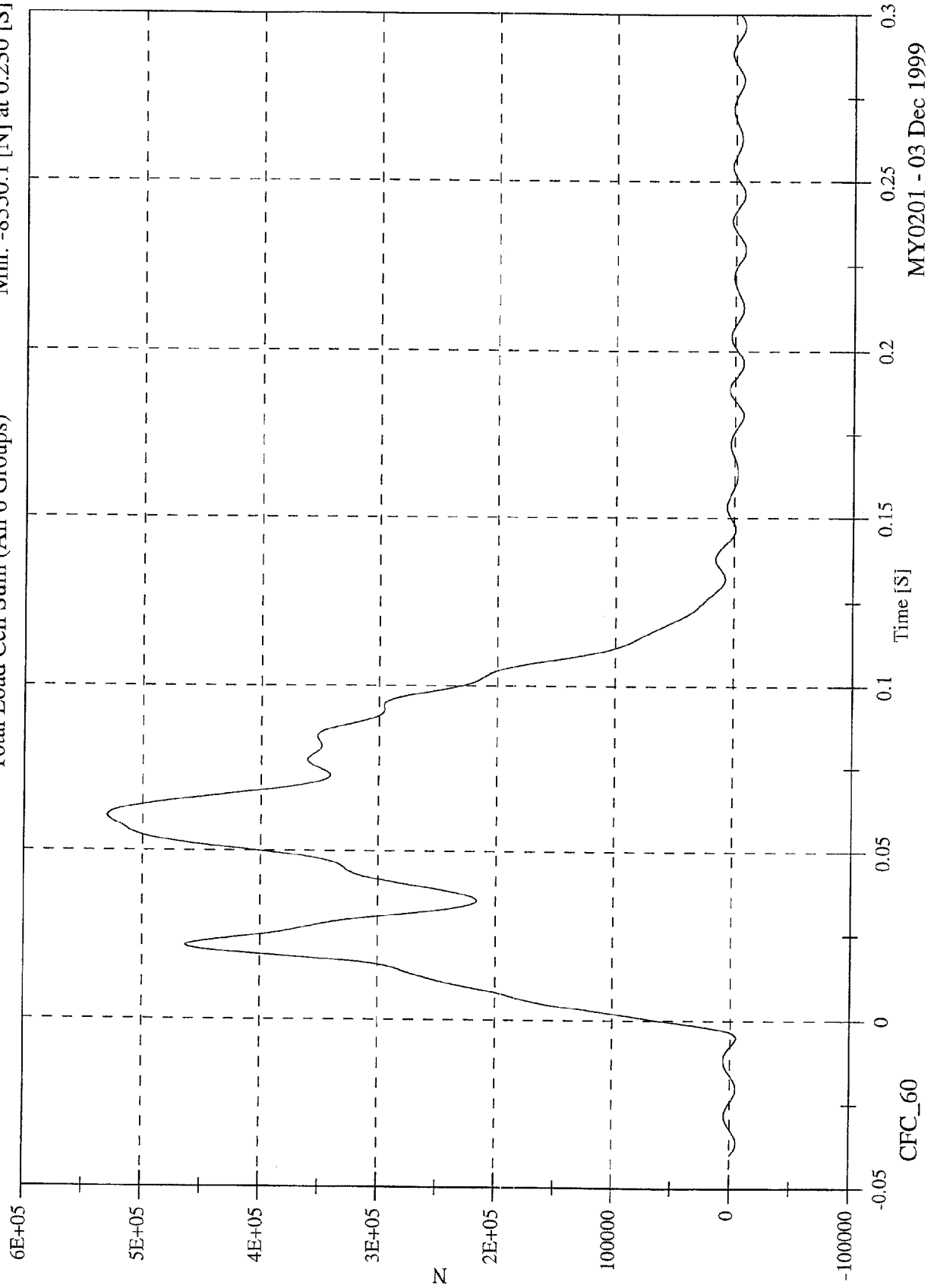
Group 6 Load Cell Sum (C7,C8,C9,D7,D8,D9)



NCAP Test#5 - 2000 Lincoln Town Car

Max: 530008.1 [N] at 0.060 [S]
 Min: -8350.1 [N] at 0.230 [S]

Total Load Cell Sum (All 6 Groups)

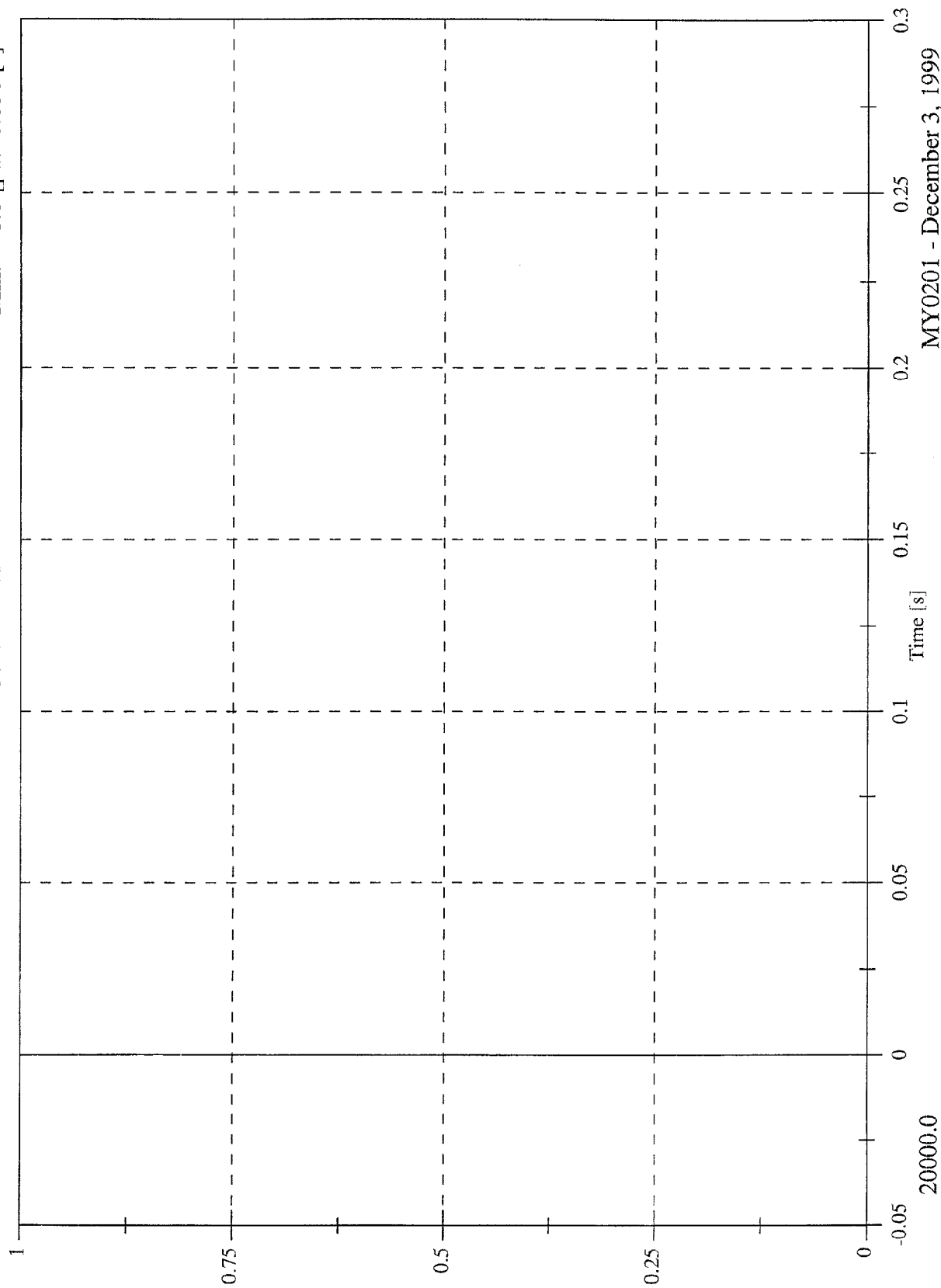


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NCAP 2000 Test#5 - 2000 Lincoln Town Car

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

Contact Time



MY0201 - December 3, 1999

APPENDIX C

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

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

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

Dummy serial numbers and certification dates are:

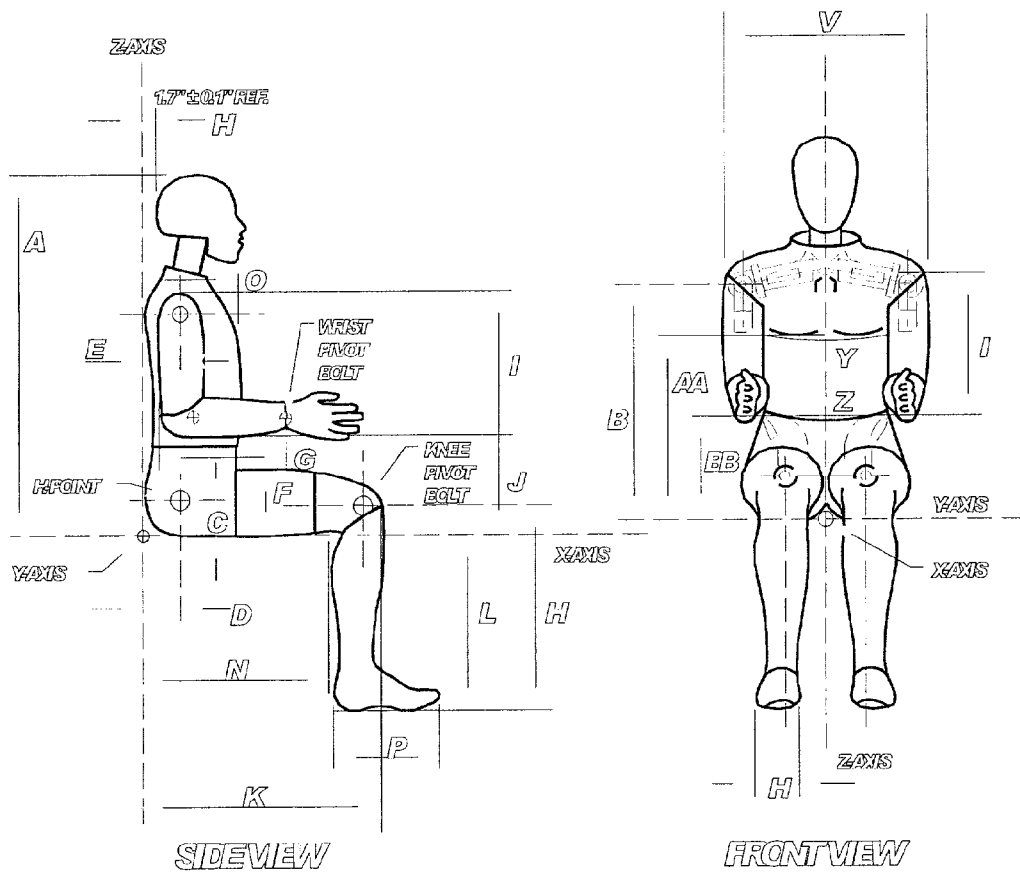
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	061	11/21/99
#2/Right Front Passenger	064	11/21/99

Electronic Test Equipment

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

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS SPECIFICATIONS



NOTE: Figure is referenced to the erect seated position. The curved lumbar does not allow the Hybrid III to be positioned in a perfect erect attitude. (REF: S57231(A)(6))

PART 572E
HEAD DROP TEST

Dummy Serial Number 061
Sequential Test Number 5
Date November 13, 1999
Workfile 061599.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	72
Relative Humidity	10% - 70%	33
Peak Resultant Acceleration	225-275 G's	239.2
Peak Lateral Acceleration	15 G's Max	6.2
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number 061

Sequential Test Number 5

Date November 18, 1999

Workfile 061599.nfl

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	22.63
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.57
	20 ms	17.60 - 22.60 G's	19.46
	30 ms	12.50 - 18.50 G's	15.68
Max Pendulum G's Above 30 ms		29 G's Max	15.68
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.13
D Plane Rotation	Max	64 - 78 Deg	73.21
	Time	57 - 64 ms	63.25
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	73.22
	Time	47 - 58 ms	54.25
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	121.13
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	102.25

Remarks:

Laboratory Technician: B. Swicicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	061	
Sequential Test Number	5	
Date	November 18, 1999	6 Axis Neck Transducer
Workfile	061599.nex	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71
Relative Humidity		10% - 70%	30
Impact Velocity		19.50 - 20.30 Ft/s	19.77
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.60
	20 ms	14.00 - 19.00 G's	17.31
	30 ms	11.00 - 16.00 G's	14.13
Max Pendulum G's Above 30 ms		22 G's Max	14.13
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	41.63
D Plane Rotation	Max	81 - 106 Deg	96.62
	Time	72 - 82 ms	73.00
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-54.18
	Time	65 - 79 ms	67.63
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	147.63
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	135.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 061
Sequential Test Number 5
Date November 19, 1999
Workfile 061599.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	21.90
Maximum Deflection	2.50 - 2.86 in	2.57
Maximum Resistive Force	1160 - 1325 Lbs	1255.31
Internal Hysteresis	69 - 85 %	73.47

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 061
Sequential Test Number 5
Date November 21, 1999
Workfile 061599.lf;061599.rf

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	31
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1097.0
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	31
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1134.0

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 061
Sequential Test Number 5
Date November 21, 1999

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	39.2
Waist Circumference	Z	32.9 - 34.1 in	33.4
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.1
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.7
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.5
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.1
Elbow Rest Height	J	7.5 - 8.3 in	7.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.4
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 064
Sequential Test Number 5
Date November 13, 1999
Workfile 064599.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	72
Relative Humidity	10% - 70%	33
Peak Resultant Acceleration	225-275 G's	259.5
Peak Lateral Acceleration	15 G's Max	4.1
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	064	
Sequential Test Number	5	
Date	November 14, 1999	6 Axis Neck Transducer
Workfile	064599.nfl	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71
Relative Humidity		10% - 70%	31
Impact Velocity		22.60 - 23.40 Ft/s	22.67
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.18
	20 ms	17.60 - 22.60 G's	20.30
	30 ms	12.50 - 18.50 G's	16.06
Max Pendulum G's Above 30 ms		29 G's Max	16.06
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	38.38
D Plane Rotation	Max	64 - 78 Deg	71.57
	Time	57 - 64 ms	57.88
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	73.46
	Time	47 - 58 ms	52.63
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	124.00
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	102.00

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	064	
Sequential Test Number	5	
Date	November 14, 1999	6 Axis Neck Transducer
Workfile	064599.nex	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	69
Relative Humidity		10% - 70%	32
Impact Velocity		19.50 - 20.30 Ft/s	19.64
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.57
	20 ms	14.00 - 19.00 G's	17.11
	30 ms	11.00 - 16.00 G's	14.03
Max Pendulum G's Above 30 ms		22 G's Max	14.03
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	41.75
D Plane Rotation	Max	81 - 106 Deg	96.04
	Time	72 - 82 ms	72.50
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-53.13
	Time	65 - 79 ms	68.88
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	148.00
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	136.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 064
Sequential Test Number 5
Date November 19, 1999
Workfile 064599.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	21.67
Maximum Deflection	2.50 - 2.86 in	2.58
Maximum Resistive Force	1160 - 1325 Lbs	1235.76
Internal Hysteresis	69 - 85 %	75.09

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 064
Sequential Test Number 5
Date November 21, 1999
Workfile 064599.lf/064599.rf

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	31
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1141.0
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	31
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1187.0

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 064
Sequential Test Number 5
Date November 21, 1999

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	38.8
Waist Circumference	Z	32.9 - 34.1 in	33.4
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

APPENDIX D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-AL553	08-Nov-99	08-May-00
	Y	ENDEVCO	AC-A83G	08-Nov-99	08-May-00
	Z	ENDEVCO	AC-C14901	08-Nov-99	08-May-00
Head	X (R)	ENDEVCO	AC-A13939	08-Nov-99	08-May-00
	Y (R)	ENDEVCO	AC-A14181	08-Nov-99	08-May-00
	Z (R)	ENDEVCO	AC-A14124	08-Nov-99	08-May-00
Neck Load Cell	X	DENTON	LC-205Fx	06-Aug-99	06-Feb-00
	Y	DENTON	LC-205Fy	06-Aug-99	06-Feb-00
	Z	DENTON	LC-205Fz	06-Aug-99	06-Feb-00
Neck Moment	X	DENTON	LC-205Mx	06-Aug-99	06-Feb-00
	Y	DENTON	LC-205My	06-Aug-99	06-Feb-00
	Z	DENTON	LC-205Mz	06-Aug-99	06-Feb-00
Chest	X	ENDEVCO	AC-FP90	08-Nov-99	08-May-00
	Y	ENDEVCO	AC-A26A	08-Nov-99	08-May-00
	Z	ENDEVCO	AC-AL6H7	08-Nov-99	08-May-00
Chest	X (R)	ENDEVCO	AC-B11407	08-Nov-99	08-May-00
	Y (R)	ENDEVCO	AC-B11408	08-Nov-99	08-May-00
	Z (R)	ENDEVCO	AC-B10827	08-Nov-99	08-May-00
Chest Deflection Gauge		SERVO	DS-061	06-Aug-99	06-Feb-00
Hybrid III Use Only					
Pelvic	X	ENDEVCO	AC-ADMB8	08-Nov-99	08-May-00
	Y	ENDEVCO	AC-ADL44	08-Nov-99	08-May-00
	Z	ENDEVCO	AC-ACT12	08-Nov-99	08-May-00

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 061)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell		GSE	LC-418	20-Oct-99	20-Apr-00
Right Femur Load Cell		GSE	LC-420	19-Oct-99	19-Apr-00
Left Upper Tibia	Mx	DENTON	LC-045Mx	16-Sep-99	16-Mar-00
	My	DENTON	LC-045My	16-Sep-99	16-Mar-00
Left Lower Tibia	Fz	DENTON	LC-125Fz	16-Sep-99	16-Mar-00
	Mx	DENTON	LC-125Mx	16-Sep-99	16-Mar-00
	My	DENTON	LC-125My	16-Sep-99	16-Mar-00
Right Upper Tibia	Mx	DENTON	LC-038Mx	16-Sep-99	16-Mar-00
	My	DENTON	LC-038My	16-Sep-99	16-Mar-00
Right Lower Tibia	Fz	DENTON	LC-124Fz	16-Sep-99	16-Mar-00
	Mx	DENTON	LC-124Mx	16-Sep-99	16-Mar-00
	My	DENTON	LC-124My	16-Sep-99	16-Mar-00
Left Foot Rear	X	ENDEVCO	AC-J32176	11-Oct-99	11-Apr-00
	Z	ENDEVCO	AC-J31042	11-Oct-99	11-Apr-00
Left Foot Front	Z	ENDEVCO	AC-J31009	11-Oct-99	11-Apr-00
Right Foot Rear	X	ENDEVCO	AC-J31050	11-Oct-99	11-Apr-00
	Z	ENDEVCO	AC-J31060	11-Oct-99	11-Apr-00
Right Foot Front	Z	ENDEVCO	AC-J32143	11-Oct-99	11-Apr-00
Lap Belt Load Cells		LEBOW	LC-706	19-Oct-99	19-Apr-00
Shoulder Belt Load Cells		LEBOW	LC-707	19-Oct-99	19-Apr-00
Spool-Out Potentiometer		-	DS-M5	04-Nov-99	04-May-00
Belt Stretch Transducer		-	-	-	-

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Head	X	ENDEVCO	AC-AD4A9	01-Jul-99	01-Jan-00
	Y	ENDEVCO	AC-AE8T7	01-Jul-99	01-Jan-00
	Z	ENDEVCO	AC-AF5R1	01-Jul-99	01-Jan-00
Head	X (R)	ENDEVCO	AC-A13924	01-Jul-99	01-Jan-00
	Y (R)	ENDEVCO	AC-A13827	01-Jul-99	01-Jan-00
	Z (R)	ENDEVCO	AC-A13921	01-Jul-99	01-Jan-00
Neck Load Cell	X	DENTON	LC-440Fx	06-Aug-99	06-Feb-00
	Y	DENTON	LC-440Fy	06-Aug-99	06-Feb-00
	Z	DENTON	LC-440Fz	06-Aug-99	06-Feb-00
Neck Moment	X	DENTON	LC-440Mx	06-Aug-99	06-Feb-00
	Y	DENTON	LC-440My	06-Aug-99	06-Feb-00
	Z	DENTON	LC-440Mz	06-Aug-99	06-Feb-00
Chest	X	ENDEVCO	AC-A08A	01-Jul-99	06-Feb-00
	Y	ENDEVCO	AC-ADL42	01-Jul-99	01-Jan-00
	Z	ENDEVCO	AC-A28F	01-Jul-99	01-Jan-00
Chest	X (R)	ENDEVCO	AC-A14077	01-Jul-99	01-Jan-00
	Y (R)	ENDEVCO	AC-A13882	01-Jul-99	01-Jan-00
	Z (R)	ENDEVCO	AC-ACCW0	01-Jul-99	01-Jan-00
Chest Deflection Gauge		SERVO	DS-064	06-Aug-99	06-Feb-00
Hybrid III Use Only					
Pelvic	X	ENDEVCO	AC-AF480	01-Jul-99	01-Jan-00
	Y	ENDEVCO	AC-AC2M6	01-Jul-99	01-Jan-00
	Z	ENDEVCO	AC-AF5C1	01-Jul-99	01-Jan-00

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load Cell		GSE	LC-954	20-Oct-99	20-Apr-00
Right Femur Load Cell		GSE	LC-955	19-Oct-99	19-Apr-00
Left Upper Tibia	Mx	DENTON	LC-016Mx	16-Sep-99	16-Mar-00
	My	DENTON	LC-016My	16-Sep-99	16-Mar-00
Left Lower Tibia	Fz	DENTON	LC-123Fz	16-Sep-99	16-Mar-00
	Mx	DENTON	LC-123Mx	16-Sep-99	16-Mar-00
	My	DENTON	LC-123My	16-Sep-99	16-Mar-00
Right Upper Tibia	Mx	DENTON	LC-023Mx	12-Oct-99	12-Apr-00
	My	DENTON	LC-023My	12-Oct-99	12-Apr-00
Right Lower Tibia	Fz	DENTON	LC-111Fz	12-Oct-99	12-Apr-00
	Mx	DENTON	LC-111Mx	12-Oct-99	12-Apr-00
	My	DENTON	LC-111My	12-Oct-99	12-Apr-00
Left Foot Rear	X	ENDEVCO	AC-J32185	11-Oct-99	11-Apr-00
	Z	ENDEVCO	AC-J32184	11-Oct-99	11-Apr-00
Left Foot Front	Z	ENDEVCO	AC-J31011	11-Oct-99	11-Apr-00
Right Foot Rear	X	ENDEVCO	AC-J31059	11-Oct-99	11-Apr-00
	Z	ENDEVCO	AC-J31101	11-Oct-99	11-Apr-00
Right Foot Front	Z	ENDEVCO	AC-J31020	11-Oct-99	11-Apr-00
Lap Belt Load Cells		LEBOW	LC-711	19-Oct-99	19-Apr-00
Shoulder Belt Load Cells		LEBOW	LC-712	19-Oct-99	19-Apr-00
Spool-Out Potentiometer		-	DS-M6	04-Nov-99	04-May-00
Belt Stretch Transducer		-	-	-	-

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember	ICS	AC-Y17	25-Jun-99	25-Dec-99
Right Rear Seat Crossmember	ICS	AC-D79	12-Jul-99	12-Jan-00
Top of Engine	ICS	AC-D73	19-Jun-99	19-Dec-99
Bottom of Engine	ICS	AC-D75	14-Sep-99	14-Mar-00
Right Disc Brake Caliper	ICS	AC-Y171	23-Nov-99	23-May-00
Instrument Panel	ICS	AC-D53	23-Nov-99	23-May-00
Left Disc Brake Caliper	ICS	AC-D28	23-Nov-99	23-May-00
Left Seat Rear Crossmember (R)	ICS	AC-X26	01-Sep-99	01-Mar-00
Right Seat Rear Crossmember (R)	ICS	AC-X88	12-Jul-99	12-Jan-00

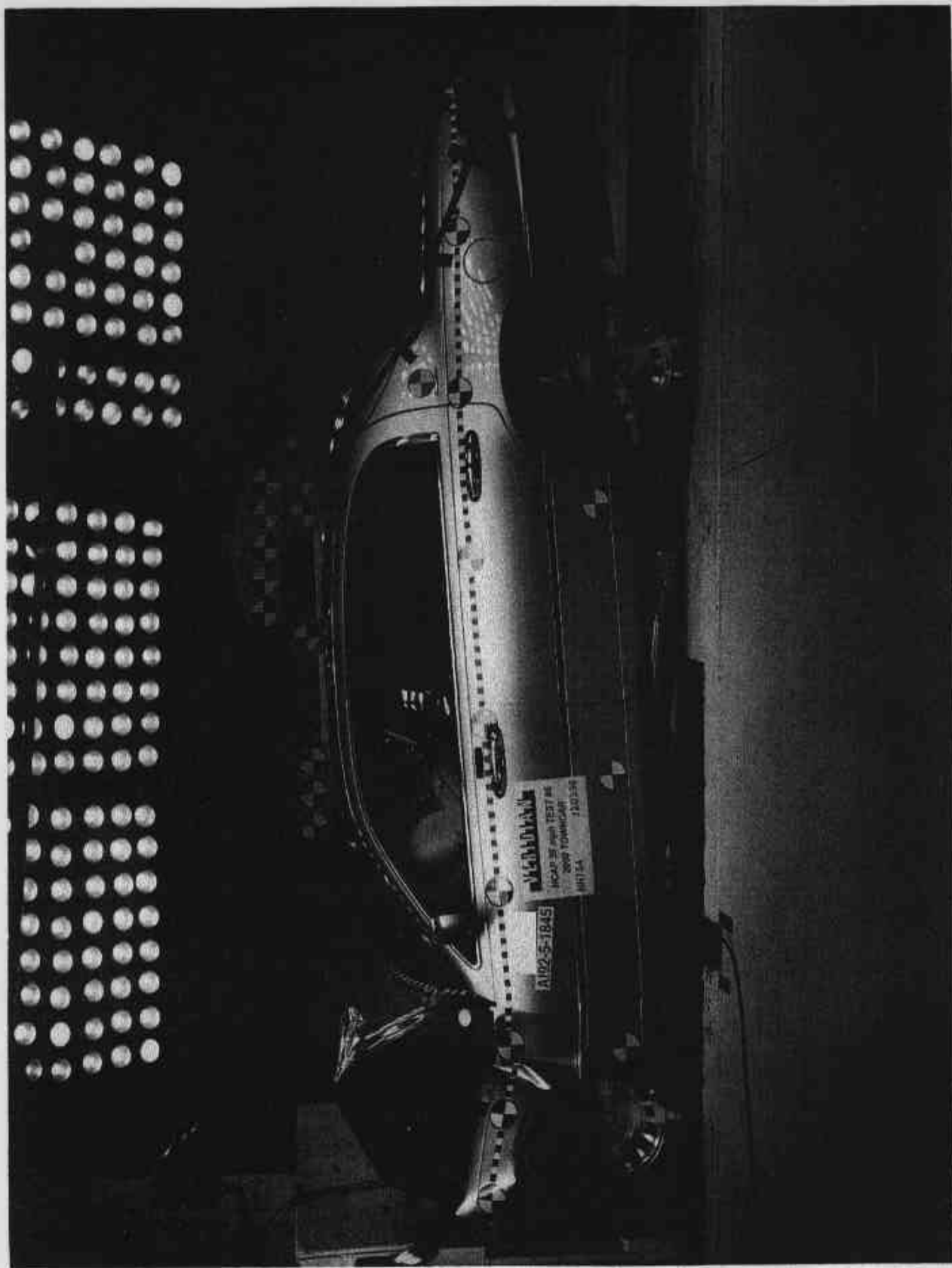


Figure A-39 IMPACT VIEW