

V 3044

REPORT NUMBER: CAL-99-8

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

**GENERAL MOTORS CORPORATION
1999 CHEVROLET S-10
EXTENDED CAB FLEETSIDE PICK-UP**

NHTSA NUMBER: MX0112

CALSPAN TEST NUMBER: 8413-32

**CALSPAN CORPORATION
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January 19, 1999

FINAL REPORT

PREPARED FOR:

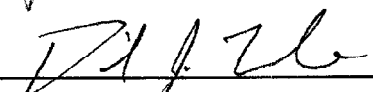
**U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Performance Standards
Office of Crashworthiness Standards
Mail Code: NPS-10
400 Seventh Street, SW, Room No. 5313
Washington, DC 20590**

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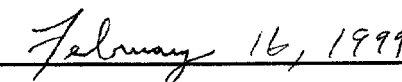
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February 16, 1999

FINAL REPORT ACCEPTANCE BY OCS:

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NHTSA, Office of Crashworthiness Standards

Date of Report Acceptance

COTR, New Car Assessment Program (NCAP)
NHTSA, Office of Crashworthiness Standards

Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1. <i>Report No.</i> CAL-99-8	2. <i>Government Accession No.</i>	3. <i>Recipient's Catalog No.</i>	
4. <i>Title and Subtitle</i> Final Report of NEW CAR ASSESSMENT PROGRAM (NCAP) Testing of a 1999 Chevrolet S-10 Extended Cab Fleetside Pick-up NHTSA No. MX0112		5. <i>Report Date</i> January 19, 1999	
		6. <i>Performing Organization Code</i> CAL	
7. <i>Author(s)</i> David J. Travale, Program Manager James A. Czarnecki, Project Engineer		8. <i>Performing Organization Report No.</i> 8413-32	
9. <i>Performing Organization Name and Address</i> Calspan Corporation 4455 Genesee Street Buffalo, New York 14225		10. <i>Work Unit No.</i>	
		11. <i>Contract or Grant No.</i> DTNH22-96-D-02010	
12. <i>Sponsoring Agency Name and Address</i> U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards Mail Code: NPS-10 400 Seventh, SW, Room 5313 Washington, D.C. 20590		13. <i>Type of Report and Period Covered</i> Final Report Jan - Feb 1999	
		14. <i>Sponsoring Agency Code</i> NPS-10	
15. <i>Supplementary Notes</i>			
16. <i>Abstract</i> A frontal load cell barrier test of a 1999 Chevrolet S-10 Extended Cab Fleetside Pick-up was performed at Calspan Corporation crash test facility in Buffalo, New York, on January 19, 1999. The impact velocity was 56.2 kph and the temperature at the barrier face was 20°C. The maximum post-test vehicle crush was 752 mm. The test vehicle was equipped with 3-point belt system and airbags on both driver and passenger outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" the driver appears to comply with head and femur requirements, but exceeds on the chest requirements. The passenger appears to comply with head, chest and femur requirements.			
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	
19. <i>Security Classif. (of this report)</i> UNCLASSIFIED	20. <i>Security Classif. (of this page)</i> UNCLASSIFIED	21. <i>No. of Pages</i> 287	22. <i>Price</i>

Form DOT F1700.7 (8-69)

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Section 1

PURPOSE AND SUMMARY OF TEST MX0112

PURPOSE

This 56.2 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 56.2 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 1999 Chevrolet S-10 Extended Cab Fleetside Pick-up at a velocity of 56.2 kph. The test was performed at the Calspan Corporation on January 19, 1999. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

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

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

Both ATDs were fully instrumented with head, chest, and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 061) was calibrated previous to this test. The front right passenger (position 2) ATD (Serial No. 245) was used in two previous tests where it did not exceed FMVSS 208 injury criteria. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 133 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 redundant head x data is questionable. The passenger right lower tibia Fz and right toe Z acceleration is not accurate. The engine top and right brake caliper accelerometers had their data

load cell barrier and dummy response data traces. The driver redundant head x data is questionable. The passenger right lower tibia Fz and right toe Z acceleration is not accurate. The engine top and right brake caliper accelerometers had their data cables damaged at 0.035 sec. Data after this point is questionable. The engine bottom and redundant right rear crossmember data is inaccurate.

The driver's HIC was 901.4. The maximum chest deceleration over 3 milliseconds was 71.2 g's and maximum chest deflection was 50.9 mm. Femur loads were 7467.1 Newtons on the left and 7981.8 Newtons on the right.

The right front passenger's HIC was 588.3. Maximum chest deceleration over 3 milliseconds was 59.0 g's and maximum chest deflection was 37.8 mm. Femur loads were 7155.3 Newtons on the left and 2677.5 Newtons on the right.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No. : MX0112 Test Mode : 56.3 kph Frontal Barrier
 Test Date : January 19, 1999 Time: 15:20 Temperature : 20 °C
 Vehicle Make/Model/Body Style : 1999 Chevrolet S-10 Extended Cab Fleetside Pick-up
 Vehicle Test Weight : 1885 kg
 Vehicle/Barrier Impact Angle : 0 °
 Impact Velocity : 56.2 kph
 Maximum Static Crush : 752 mm
 Vehicle Rebound : 558.7 mm

DUMMIES:

	<u>DRIVER</u>	<u>PASSENGER</u>
Type :	<u>572E</u>	<u>572E</u>
Restraint System :	<u>3-point belt system with airbag</u>	<u>3-point belt system with airbag</u>
Number of Data Channels :	<u>133</u>	
Number of Cameras :	<u>1</u> Real Time	
	<u>16</u> High Speed	

DOOR OPENING DATA :

<u>Closed/Inoperable</u>	- Left Front
<u>Closed/Inoperable</u>	- Right Front

Front Seat(s) Data :

	<u>DRIVER</u>	<u>PASSENGER</u>
Seat Track Failure :(mm of shift)	<u>0</u>	<u>0</u>
Seat Back Failure :	<u>None</u>	<u>None</u>

VISIBLE DUMMY CONTACT POINTS :

	<u>DRIVER</u>	<u>PASSENGER</u>
Head :	<u>Airbag/ Back of head to headrest</u>	<u>Airbag/ Back of head to headrest</u>
Abdomen :	<u>-</u>	<u>-</u>
Chest	<u>Airbag</u>	<u>Airbag</u>
Knees	<u>Knee Bolster</u>	<u>Knee Bolster</u>

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 1999 Chevrolet S-10 Extended Cab Fleetside Pick-up
NHTSA No. : MX0112 ; VIN: 1GCCS19X7XK148884 ; Color : Black
Engine Data: 6 cylinders; - CID; 4.3 Liters; - cc
Placement : - Longitudinal or In-Line; x 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
- Pwr. Windows; - Pwr. Door Locks; x Tilt Wheel
Date Received : 1/11/99 ; Odometer Reading 30 km
Selling Dealer : West Herr Chevrolet Inc.
& Address: P.O. Box 158 Eden, N.Y. 14057

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : General Motors Corporation
Date of Manufacture 12/98
GVWR : 2087 kg; GAWR: 1134 kg FRONT; 1225 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 240 kpa FRONT
240 kpa REAR
Recommended Tire Size : P205/75R15
* Recommended Cold Tire Pressure : 240 kpa FRONT; 240 kpa REAR
Size of Tires on Test Vehicle: P205/75R15 ; Manufacturer: Uniroyal
Vehicle Capacity Data :
Type of Front Seats: - Bench; x Bucket; - Split Bench
Number of Occupants: 2 Front; 2 Rear; 4 Total
Vehicle Capacity Weight (VCW) = 483.5 kg
No. of Occupants x 68 kg = 272 kg
Rated Cargo/Luggage Weight (RCLW) = 212 kg 136 kg maximum

*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>476.5</u>	kg	Right Rear	=	<u>312</u>	kg
Left Front	=	<u>488</u>	kg	Left Rear	=	<u>327</u>	kg
TOTAL FRONT	=	<u>964.5</u>	kg	TOTAL REAR	=	<u>639.0</u>	kg
TOTAL DELIVERED WEIGHT	=	<u>1,603.5</u>	kg				
% of Total Front of Vehicle Weight	=	<u>60.2</u>	%	% of Total Rear Weight	=	<u>39.9</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW)	=	<u>1,603.5</u>	kg		
Rated Cargo/Luggage Weight (RCLW)	=	<u>136.0</u>	kg	136 kg maximum	
Weight of 2 p.572 Dummies @ 76 each	=	<u>152</u>	kg		
TARGET TEST WEIGHT	=	<u>1,891.5</u>	kg		

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 130 KG OF CARGO WEIGHT:

Right Front	=	<u>506</u>	kg	Right Rear	=	<u>421</u>	kg
Left Front	=	<u>530</u>	kg	Left Rear	=	<u>428</u>	kg
TOTAL FRONT	=	<u>1,036.0</u>	kg	TOTAL REAR	=	<u>849.0</u>	kg
TOTAL TEST WEIGHT	=	<u>1,885.0</u>	kg				
% of Total Front Weight	=	<u>55.0</u>	%	% of Total Rear Weight	=	<u>45.0</u>	%
Weight of Ballast Secured in Vehicle Trunk Area	=	<u>0</u>	kg				
Vehicle Components Removed for Weight Reduction:	=	<u>-</u>					

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	<u>777</u>	LF	<u>763</u>	RR	<u>844</u>	LR	<u>832</u>
FULLY LOADED :	RF	<u>765</u>	LF	<u>753</u>	RR	<u>807</u>	LR	<u>800</u>
AS TESTED :	RF	<u>771</u>	LF	<u>757</u>	RR	<u>807</u>	LR	<u>803</u>
Vehicle's Wheel Base :		<u>3122</u>	mm					
Location of Vehicle's C.G. :		<u>1,406.1</u>	mm rearward of front wheel center.					

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual	=	<u>69.3</u>	liters		
Usable Capacity Figure Furnished by COTR	=	<u>69.3</u>	liters		
Test Volume Range (92 to 94% of Usable Capacity)	=	<u>63.6</u>	to	<u>65.1</u>	liters
ACTUAL TEST VOLUME	=	<u>64.5</u>	liters (with entire fuel system filled)		
Test Fluid Type:	<u>Stoddard Solution</u>	;	Spec. Grav. =	<u>0.764</u>	
	Kinematic Viscosity =	<u>0.96</u>	centistokes;	Color =	<u>Orange</u>
Type of Fuel Pump:	Electric- <u>x</u>	;	Mechanical- <u>-</u>		
Does Electric Pump operate with ignition switch "ON" & engine "OFF"			Yes- <u>x</u>	No- <u>-</u>	
Details of Fuel System	<u>Fuel filler is on left side fore of rear axle, fuel lines run along left frame rail and fuel tank is left of center and fore of rear axle.</u>				

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°
Test Date : January 19, 1999 Time: 15:20 Temperature: 20 °C
Vehicle NHTSA No. : MX0112
Required Impact Velocity Range : 55.5 to 57.1 kph

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

Trap No. 1 = 56.2 kph; Trap No. 2 = 56.2 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 = 5197 ; C/L = 5298 ; Left = 5182
Post-Test Right = 4598 ; C/L = 4546 ; Left = 4556
Crush Right = 599.0 ; C/L = 752.0 ; Left = 626.0
AVERAGE = 659.0 mm

VEHICLE REBOUND: (From rigid barrier only.)

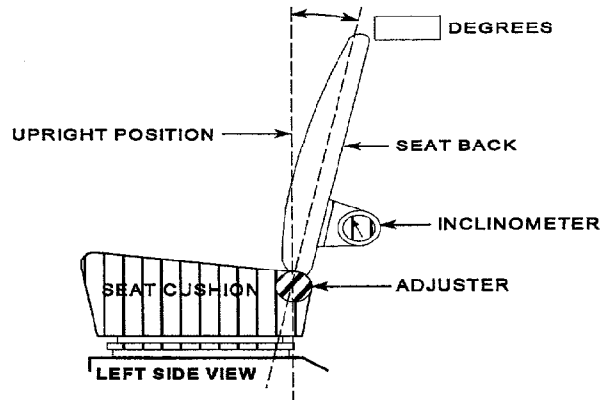
Distance from front of test vehicle to impact point :
Right = 536 ; C/L = 569 ; Left = 571
AVERAGE = 558.7 mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 1999 Vehicle Model: Chevrolet S-10 Body Style : Extended Cab
Fleetside Pick-up

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



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat : 23
Measurement instructions : Place inclinometer on seat back frame 9 inches above seat hinge point and adjust seat to 23 degrees

Seat back angle for passenger's seat : 23
Measurement instructions : Place inclinometer on seat back frame 9 inches above seat hinge point and adjust seat to 23 degrees

2. Seat Fore and Aft Positioning

Positioning of the driver's seat : Mechanical middle - 21 detents - placed in 11th position

Positioning of the passenger's seat (if applicable) : Mechanical middle - 21 detents - placed in 11th position

3. Fuel Tank Capacity Data

3.1

A. "Usable Capacity" of the standard equipment fuel tank is 69.3 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 = 65.9 liters

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

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

If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.
With ignition turned on.

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

4. STEERING COLUMN ADJUSTMENTS :

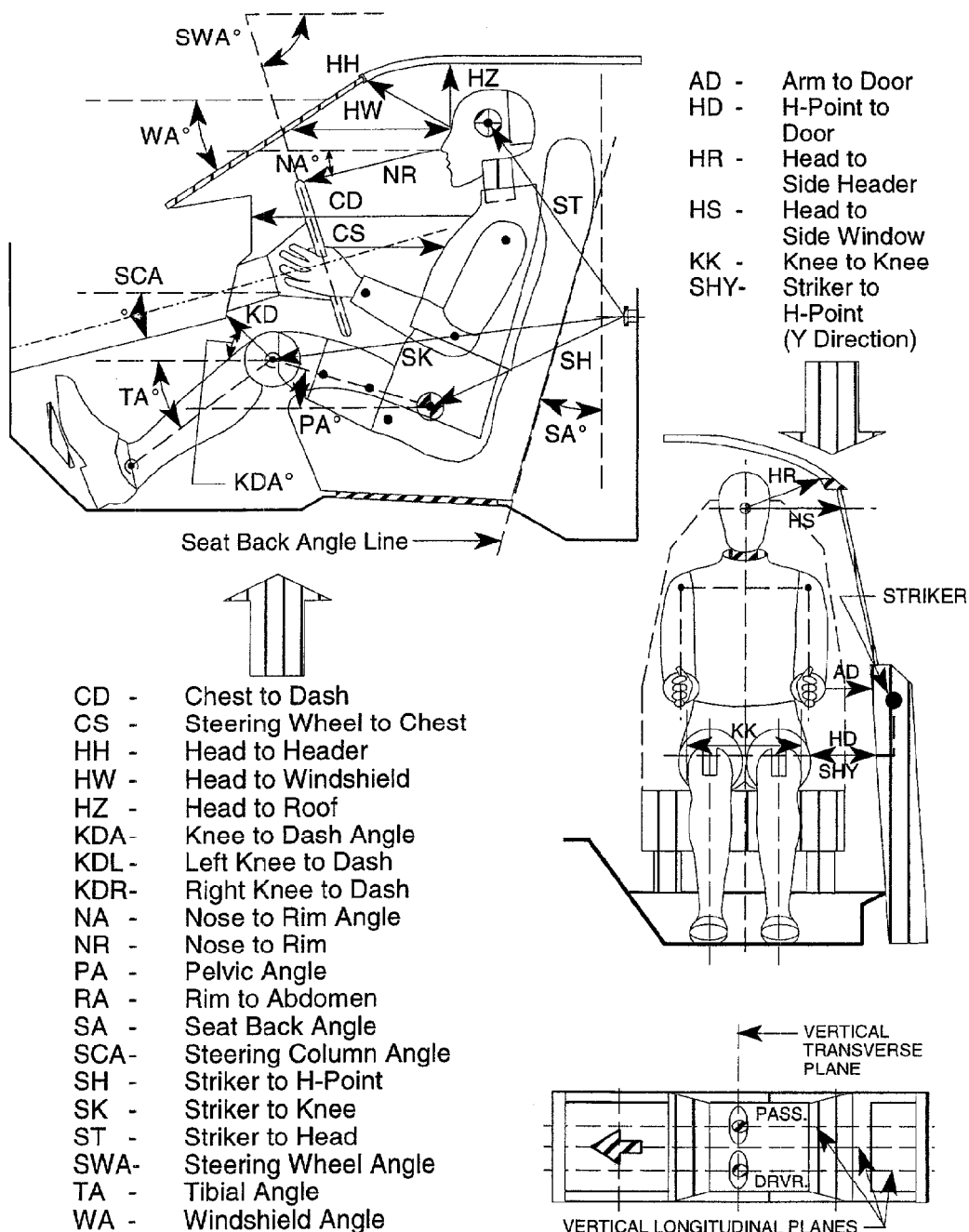
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions: n/a

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: n/a

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



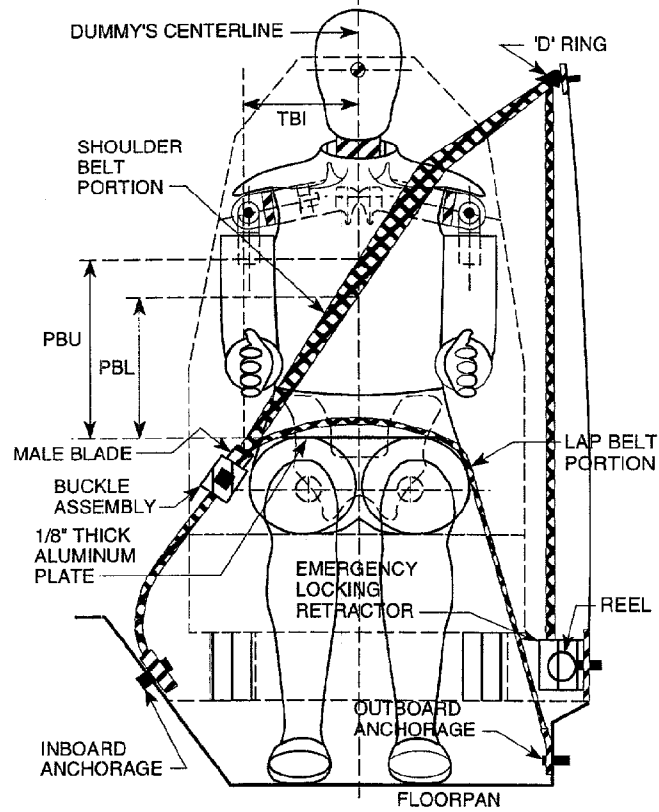
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE

	DRIVER (Serial #061)			PASS. (Serial # 245)		
WA°	36 deg.			N/A		
SWA°	65 deg.			N/A		
SCA°	25 deg.			N/A		
SA°	23 deg.			23 deg.		
HZ	204			222		
HH	450			443		
HW	623			633		
HR	269			262		
NR	370	Angle	12 deg.	N/A		
CD	526			423		
CS	296			N/A		
RA	153			N/A		
KDL	165	Angle (KDA)	36 deg.	164		
KDR	160			165	Angle (KDA)	36 deg.
PA°	23 deg.			23 deg.		
TA°	43 deg.			43 deg.		
KK	179			266		
ST	601	Angle	17 deg.	575	Angle	18 deg.
SK	709	Angle	90 deg.	682	Angle	87 deg.
SH	343	Angle	107 deg.	318	Angle	108 deg.
SHY	237			216		
HS	346			342		
HD	154			163		
AD	129			122		

Dimensions in millimeters

DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

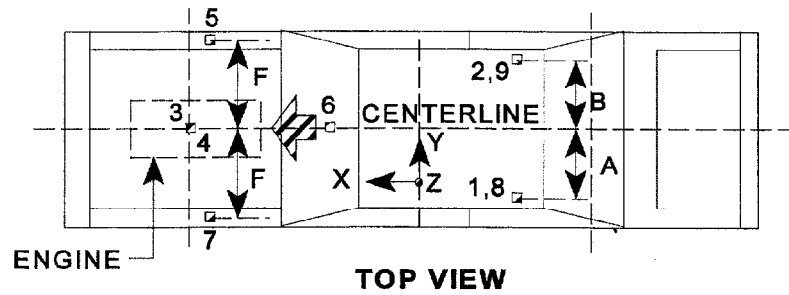
SEAT BELT POSITIONING DATA



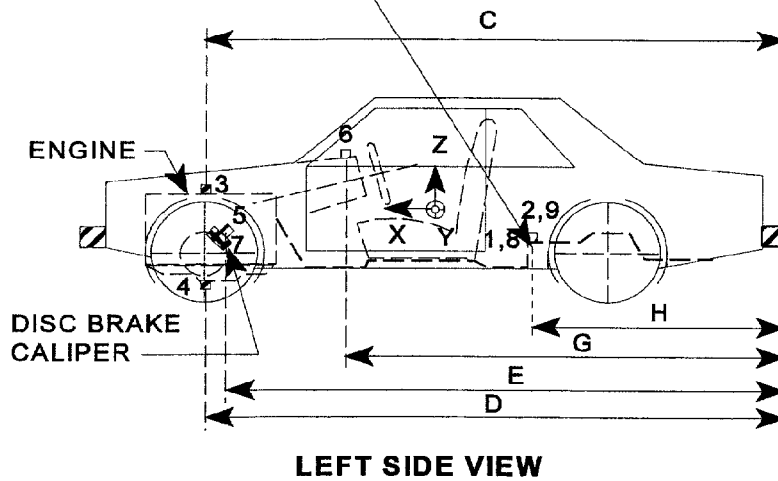
FRONT VIEW OF DUMMY

	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	303	320
PBL-- Top surface of alum. plate to belt lower edge	207	230
<u>LAP BELT TENSION</u>	10 nwt	10 nwt
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



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

DATA SHEET NO. 7 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

DIMENSION	LENGTH (mm)
	PRE-TEST VALUES
A Left Rear Seat Crossmember Y	490
B Right Rear Seat Crossmember Y	510
C Top of Engine X	4489
D Bottom of Engine X	4064
E Disc Brake Calipers X	4107
F Disc Brake Calipers Y	378
G Instrument Panel X	3483
H Rear Seat Crossmembers X	2549

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	3.6	125.4	-50.5	53.9
2	Rear Seat X-Member @ Right Side	3.7	182.9	-42.4	51.8
3	Top of Engine Block	*	*	*	*
4	Bottom of Engine	**	**	**	**
5	Disc Brake Caliper @ Right Side	*	*	*	*
6	Instrument Panel	515.9	269.9	-520.6	109.9
7	Disc Brake Caliper @ Left Side	9.2	55.4	-72.2	39.8
8	Rear Seat X-Member @ Left-Redundant	4.0	125.2	-50.6	53.8
9	Rear Seat X-Member @ Right-Redundant	**	**	**	**

* Data cable damaged at 35 ms.

** Questionable data

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

NHTSA Test No.: MX0112 Vehicle: 1999 Chevrolet S-10 Extended Cab Fleetside Pick-up

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec.	Neg.	msec.
Pos. 1 Head X	g's	17.5	190.4	-75.3	77.7
Pos. 1 Head Y	g's	7.9	154.8	-13.5	76.7
Pos. 1 Head Z	g's	29.6	72.1	-10.1	127.0
Pos. 1 Head Resultant	g's	80.4	76.7	0.0	3.6
Pos. 2 Head X	g's	9.2	227.3	-47.7	71.3
Pos. 2 Head Y	g's	33.4	88.0	-5.9	279.3
Pos. 2 Head Z	g's	28.6	72.6	-6.1	594.8
Pos. 2 Head Resultant	g's	57.7	72.6	0.0	-58.0
Pos. 1 Chest X	g's	9.2	159.3	-72.2	76.7
Pos. 1 Chest Y	g's	3.7	59.3	-8.8	81.3
Pos. 1 Chest Z	g's	21.1	71.8	-14.3	126.1
Pos. 1 Chest Resultant	g's	74.2	76.5	0.0	-62.4
Pos. 1 Chest Displacement**	mm	0.0	2.3	-50.9	72.6
Pos. 2 Chest X	g's	3.3	155.7	-54.5	67.0
Pos. 2 Chest Y	g's	18.5	83.7	-4.9	117.8
Pos. 2 Chest Z	g's	22.5	71.6	-14.5	122.8
Pos. 2 Chest Resultant	g's	59.5	69.9	0.0	-2.5
Pos. 2 Chest Displacement	mm	0.0	-67.4	-37.8	76.7
Pos. 1 Left Femur	N	134.4	35.3	-7467.1	60.2
Pos. 1 Right Femur	N	95.5	25.1	-7981.8	52.3
Pos. 2 Left Femur	N	431.3	47.9	-7155.3	60.2
Pos. 2 Right Femur	N	486.4	48.5	-2677.5	54.0
Pos. 1 Left Belt Load	N	4964.2	61.3	-48.6	119.3
Pos. 1 Torso Belt Load	N	4177.2	76.5	-29.3	599.9
Pos. 2 Right Belt Load	N	9123.8	63.1	-16.6	189.1
Pos. 2 Torso Belt Load	N	9034.5	73.9	-61.5	296.1

** Data is saturated at 72 ms

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

NHTSA Test No.: MX0112 Vehicle: 1999 Chevrolet S-10 Extended Cab Fleetside Pick-up

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	901.4	61.4	90.5	62.6
Position #2 - Passenger	588.3	58.0	94.0	48.5

** 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	71.2	75.1	78.1	-
Position #2 - Passenger	59.0	69.0	72.0	-

* 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.)
HYBRID III NECK AND PELVIC DATA SHEET

Vehicle Year/Make/Model/Body Style: 1999 Chevrolet S-10 Extended Cab Fleetside Pick-up

NHTSA Test No.: MX0112 Test Date: January 19, 1999

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Upper Neck Fx	N	925.6	73.9	-295.8	141.4
Pos. 1 Upper Neck Fy	N	320.8	157.7	-141.1	74.4
Pos. 1 Upper Neck Fz	N	2629.1	72.4	-443.7	113.6
Pos. 1 Neck Force Result	N	2782.0	72.4	0.5	-4.0
Pos. 1 Upper Neck Mx	N-m	21.1	164.7	-23.0	94.7
Pos. 1 Upper Neck My	N-m	50.3	73.5	-37.8	227.5
Pos. 1 Upper Neck Mz	N-m	18.4	99.6	-10.5	220.7
Pos. 1 Neck Moment Result	N-m	50.6	73.5	0.1	8.4
Pos. 2 Upper Neck Fx	N	124.2	233.9	-1007.2	60.3
Pos. 2 Upper Neck Fy	N	563.3	114.4	-121.6	190.4
Pos. 2 Upper Neck Fz	N	2594.4	72.6	-335.1	287.6
Pos. 2 Neck Force Result	N	2657.3	72.6	0.2	-53.9
Pos. 2 Upper Neck Mx	N-m	41.7	115.1	-7.4	187.2
Pos. 2 Upper Neck My	N-m	45.5	147.6	-82.9	60.5
Pos. 2 Upper Neck Mz	N-m	21.7	148.8	-36.1	100.3
Pos. 2 Neck Moment Result	N-m	83.0	60.5	0.1	-56.0
Pos. 1 Pelvic (X)	g's	6.9	127.4	-77.8	52.1
Pos. 1 Pelvic (Y)	g's	14.6	60.5	-10.0	47.5
Pos. 1 Pelvic (Z)	g's	5.1	41.8	-18.3	110.7
Pos. 1 Pelvic (R)	g's	78.6	52.1	0.0	-48.3
Pos. 2 Pelvic (X)	g's	6.9	119.0	-80.2	54.2
Pos. 2 Pelvic (Y)	g's	16.0	54.5	-6.6	108.9
Pos. 2 Pelvic (Z)	g's	3.1	297.0	-17.5	109.1
Pos. 2 Pelvic (R)	g's	82.1	54.1	0.0	-60.7

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)
HYBRID III LOWER LEG DATA SHEET

Vehicle Year/Make/Model/Body Style: 1999 Chevrolet S-10 Extended Cab Fleetside Pick-up
 NHTSA Test No.: MX0112 Test Date: January 19, 1999

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
P1 Lt Upper Tibia Mx	N-m	56.5	66.8	-48.8	56.6
P1 Lt Upper Tibia My	N-m	98.6	58.2	-147.6	46.3
P1 Lt Lower Tibia Fz	N	436.0	60.2	-4478.8	46.8
P1 Lt Lower Tibia Mx	N-m	9.7	124.5	-13.1	66.9
P1 Lt Lower Tibia My	N-m	28.5	45.7	-23.5	82.2
P1 Rt Upper Tibia Mx	N-m	92.7	44.4	-69.2	45.4
P1 Rt Upper Tibia My	N-m	116.1	59.1	-192.3	44.7
P1 Rt Lower Tibia Fz	N	236.4	115.9	-6245.2	47.4
P1 Rt Lower Tibia Mx	N-m	*	*	*	*
P1 Rt Lower Tibia My	N-m	70.2	40.7	-209.6	53.5
Pos. 2 Lt Upper Tibia Mx	N-m	14.1	173.1	-77.9	47.6
Pos. 2 Lt Upper Tibia My	N-m	27.9	141.7	-110.3	42.4
Pos. 2 Lt Lower Tibia Fz	N	379.2	68.8	-2276.8	42.6
Pos. 2 Lt Lower Tibia Mx	N-m	35.8	48.8	-80.7	53.1
Pos. 2 Lt Lower Tibia My	N-m	51.4	42.3	-49.7	53.9
Pos. 2 Rt Upper Tibia Mx	N-m	26.3	80.8	-19.0	94.3
Pos. 2 Rt Upper Tibia My	N-m	17.3	132.1	-114.4	51.6
Pos. 2 Rt Lower Tibia Fz	N	*	*	*	*
Pos. 2 Rt Lower Tibia Mx	N-m	6.8	55.6	-20.3	107.3
Pos. 2 Rt Lower Tibia My	N-m	51.8	38.7	-50.2	102.9

* Data is not accurate

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

Vehicle Year/Make/Model/Body Style: 1999 Chevrolet S-10 Extended Cab Fleetside Pick-up
 NHTSA Test No.: MX0112 Test Date: January 19, 1999

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Left Ankle X	g's	12.9	61.7	-98.2	45.8
Pos. 1 Left Ankle Z	g's	12.1	61.7	-115.4	45.3
Pos. 1 Left Toe Z	g's	86.0	53.7	-181.0	47.4
Pos. 1 Right Ankle X	g's	66.8	44.4	-186.1	41.5
Pos. 1 Right Ankle Z	g's	203.1	44.2	-162.9	44.7
Pos. 1 Right Toe Z	g's	497.4	44.4	-496.9	44.8
Pos. 2 Left Ankle X	g's	24.6	127.4	-108.4	43.0
Pos. 2 Left Ankle Z	g's	57.9	51.8	-92.8	48.8
Pos. 2 Left Toe Z	g's	107.2	51.6	-131.8	39.0
Pos. 2 Right Ankle X	g's	26.3	100.7	-110.4	43.8
Pos. 2 Right Ankle Z	g's	8.4	32.4	-61.9	48.3
Pos. 2 Right Toe Z	g's	*	*	*	*

* Data is not accurate

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

NHTSA Test No.: MX0112 Vehicle: 1999 Chevrolet S-10 Extended Cab Fleetside Pick-up

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Head X(R)	g's	*	*	*	*
Pos. 1 Head Y(R)	g's	8.2	59.2	-18.2	75.8
Pos. 1 Head Z(R)	g's	32.1	67.1	-11.9	157.1
Pos. 1 Head Resultant(RR)	g's	*	*	*	*
Pos. 2 Head X(R)	g's	8.7	230.1	-52.8	79.2
Pos. 2 Head Y(R)	g's	7.2	279.0	-28.5	83.7
Pos. 2 Head Z(R)	g's	32.2	59.3	-6.8	150.3
Pos. 2 Head Resultant(RR)	g's	62.8	72.7	0.0	-44.0
Pos. 1 Chest X(R)	g's	9.0	159.2	-73.5	76.6
Pos. 1 Chest Y(R)	g's	4.7	70.4	-9.3	45.9
Pos. 1 Chest Z(R)	g's	23.5	71.9	-14.6	126.1
Pos. 1 Chest Resultant(RR)	g's	76.4	76.5	0.0	-67.9
Pos. 2 Chest X(R)	g's	4.1	177.6	-60.2	67.0
Pos. 2 Chest Y(R)	g's	20.9	83.7	-5.6	121.0
Pos. 2 Chest Z(R)	g's	28.6	71.6	-17.7	122.6
Pos. 2 Chest Resultant(RR)	g's	66.1	72.1	0.0	-62.4

* Data is not accurate

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

NHTSA Test No.: MX0112 Vehicle: 1999 Chevrolet S-10 Extended Cab Fleetside Pick-up

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	a	a	a	a
Position #2 - Passenger	669.1	57.4	93.4	51.0

** HIC is as defined in FMVSS 208. The maximum time interval from t₁ to t₂ is 36 milliseconds.
a - Redundant head x data not accurate, HIC not calculated.

CLIP SUMMARY* REDUNDANT				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	72.6	75.0	78.0	819.3
Position #2 - Passenger	64.9	66.7	69.7	865.7

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

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

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

Driver

Passenger

1977

1987

Shoulder belt length as measured
on Part 572 Dummy.

831

838

Lap belt length as measured
on Part 572 Dummy.

817

820

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.

116

196

As determined mechanically.

129

211

As determined electronically.

151.9

74.2

BELT STRETCH DATA:

Measured electronically between shoulder
belt load cell and the "D" ring.

0.3

1.8

Measured mechanically.

1

1

Dimensions in millimeters

DATA SHEET NO.10 SUMMARY OF FMVSS 212 DATA

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

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

Windshield is bonded in place and covered with 16 mm molding.

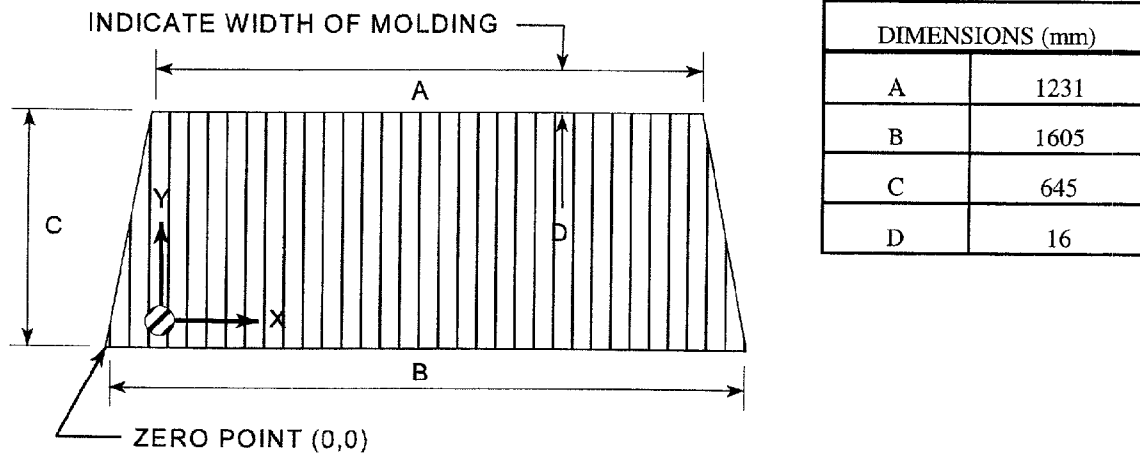
FMVSS 212 REQUIREMENTS:

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	2063	2063	100
LEFT SIDE	2063	2063	100
TOTAL	4,126	4,126	100

AREA OF RETENTION FAILURE:



FRONT VIEW OF WINDSHIELD

FAILURE DETAILS: None

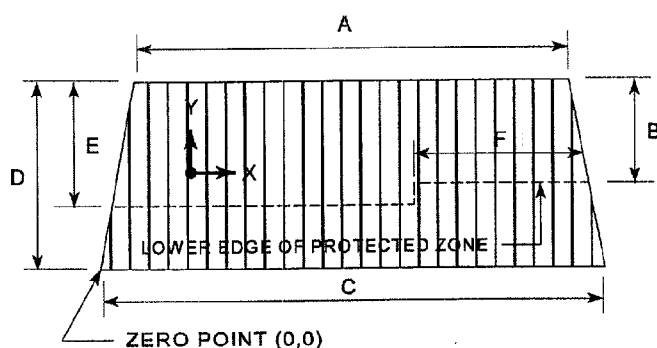
DATA SHEET NO. 11 FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA

PROTECTED ZONE LOWER EDGE REQUIREMENT:

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

FMVSS 219 TEST DATA:

(Dimensions in mm)



DIMENSIONS	
A	1231
B	340
C	1605
D	645
E	372
F	763

FRONT VIEW OF WINDSHIELD

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm:

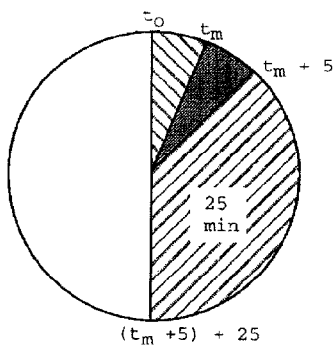
(Show location of penetration on the above sketch)

	COORDINATES	
	X	Y
1.		
2.		
3.		
4.		

NHTSA TEST No.: MX0112 TEST DATE: January 19, 1999
VEHICLE MAKE/MODEL: 1999 Chevrolet S-10

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443
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FUEL SPILLAGE MEASUREMENT:



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

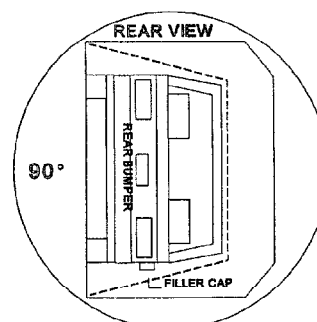
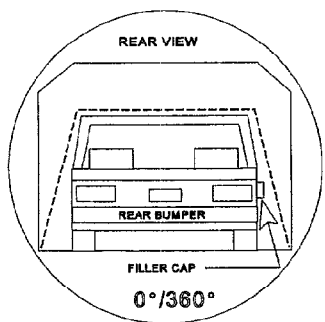
ACTUAL	MAX ALLOWED
0	28 g
0	141 g
0	28 g/min.

None

DATA SHEET NO. 13 FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:
0-90 deg.

NHTSA Test No.:
MX0112



INDETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)

1 minutes 8 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 8 seconds

Next whole minute interval

7 minutes 00 seconds

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min. from onset of rotation	6th min.	7th min.	8th min. if reqd.
-------------------------------------	----------	----------	-------------------

(2) Maximum Allowable Solvent Spillage

141 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	n/a
---	---	---	-----

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

IV. SOLVENT SPILLAGE LOCATION(S): None

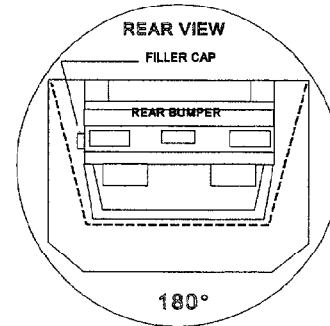
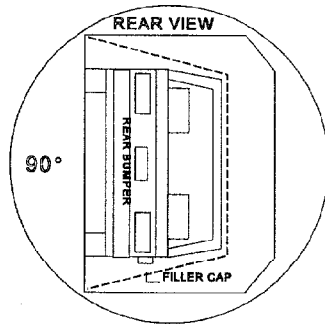
TEST SHEET NO. 13 FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:

90-180 deg.

NHTSA Test No.:

MX0112



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)

1 minutes

4 seconds

FMVSS 301 Position Hold Time +

5 minutes

00 seconds

TOTAL

6 minutes

4 seconds

Next whole minute interval

7 minutes

00 seconds

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min. from onset of rotation	6th min.	7th min.	8th min. if reqd.
-------------------------------------	----------	----------	-------------------

(2) Maximum Allowable Solvent Spillage

141 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	n/a
---	---	---	-----

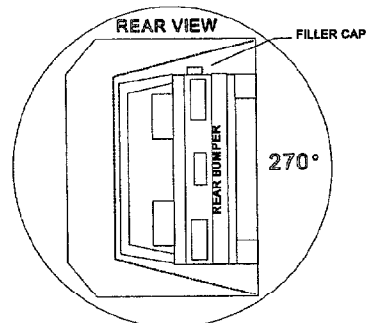
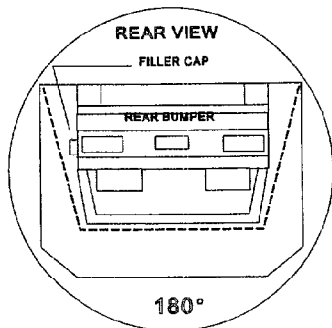
Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S): None

TEST SHEET NO. 13 FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:
180-270 deg.

NHTSA Test No.:
MX0112



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)

1 minutes 1 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 1 seconds

Next whole minute interval

7 minutes 00 seconds

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min. from onset of rotation	6th min.	7th min.	8th min. if reqd.
-------------------------------------	----------	----------	-------------------

(2) Maximum Allowable Solvent Spillage

141 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	n/a
---	---	---	-----

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

IV. SOLVENT SPILLAGE LOCATION(S): None

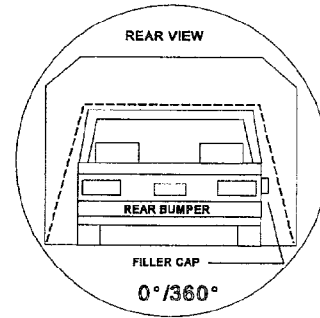
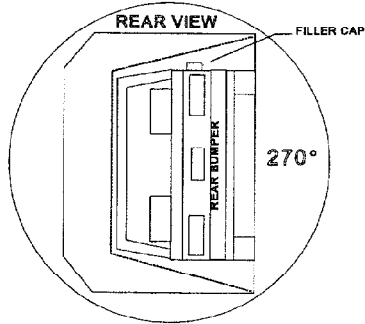
TEST SHEET NO. 13 FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:

270-360 deg.

NHTSA Test No.:

MX0112



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)

1 minutes 15 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 15 seconds

Next whole minute interval

7 minutes 00 seconds

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min. from onset of rotation	6th min.	7th min.	8th min. if reqd.
-------------------------------------	----------	----------	-------------------

(2) Maximum Allowable Solvent Spillage

141 g	28 g	28 g	28 g
-------	------	------	------

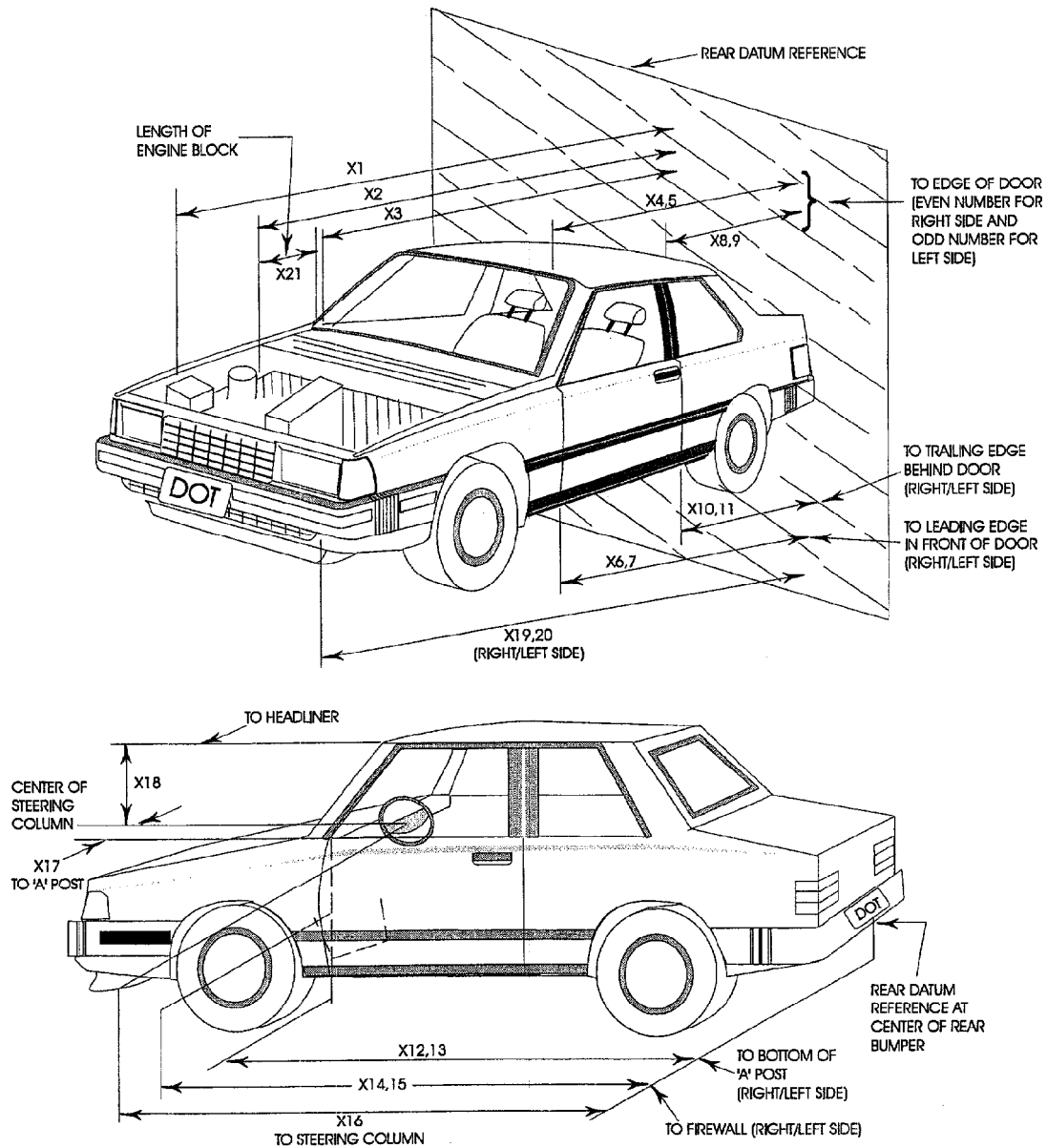
III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	n/a
---	---	---	-----

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

IV. SOLVENT SPILLAGE LOCATION(S): None

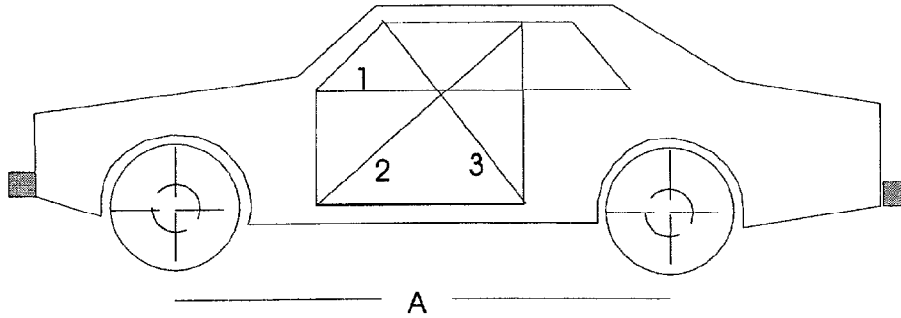
TEST VEHICLE MEASUREMENTS



DATA SHEET NO.14 VEHICLE MEASUREMENTS

No.		All Dimensions in mm		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	5298	4546	752
X2	Rear Surface of Vehicle to Front of Engine	4634	4314	320
X3	Rear Surface of Vehicle to Firewall	4137	4012	125
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3862	3852	10
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3860	3812	48
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3847	3804	43
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3833	3745	88
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2734	2739	-5
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2724	2671	53
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2734	2670	64
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2706	2617	89
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3905	3855	50
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3889	3777	112
X14	Rear Surface of Vehicle to Firewall, Right Side	4049	4060	-11
X15	Rear Surface of Vehicle to Firewall, Left Side	4092	4026	66
X16	Rear Surface of Vehicle to Steering Column	3349	3374	-25
X17	Center of Steering Column to "A" Post	419	378	41
X18	Center of Steering Column to Headliner	363	414	-51
X19	Rear Surface of Vehicle to Right Side of Front Bumper	5197	4598	599
X20	Rear Surface of Vehicle to Left Side of Front Bumper	5182	4556	626
X21	Length of Engine Block	500	500	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3585	3548	37
CD	Rear Surface of Vehicle to Center of Dash Panel	3547	3506	41
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3589	3514	75

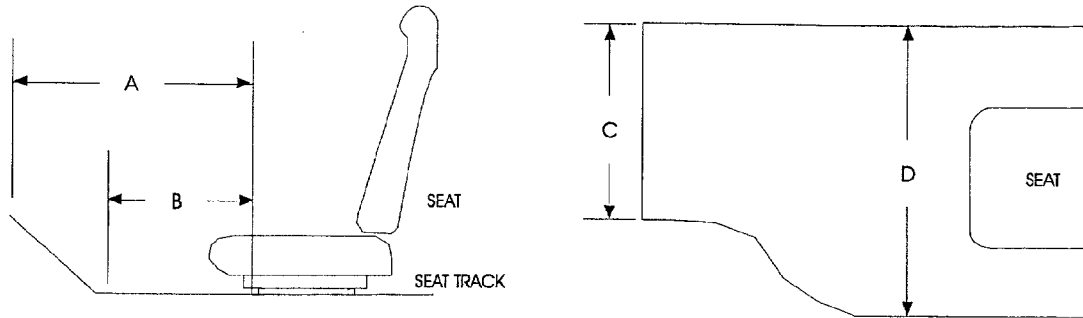
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
VEHICLE INTRUSION MEASUREMENTS
DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1063	1460	1178	1057	1462	1169
AFTER TEST	1017	1429	1219	1040	1453	1186
DIFFERENCE	46	31	-41	17	9	-17

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	3133	3122
AFTER TEST	2934	3013
DIFFERENCE	199	109

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



DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	614	504	110
B	512	446	66
C	410	385	25
D	381	363	18

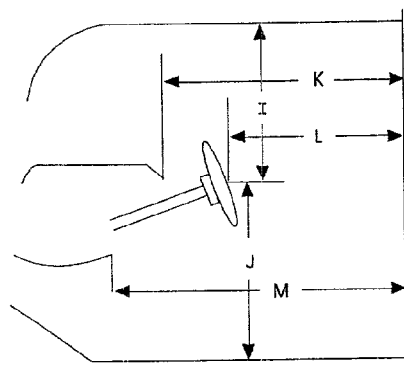
PASSENGER

Measurement	Pre-Test	Post-Test	Difference
A	585	521	64
B	476	458	18
C	388	371	17
D	397	402	-5

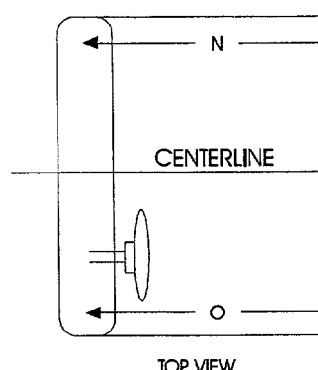
Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

**VEHICLE INTRUSION MEASUREMENTS
STATIC PASSENGER COMPARTMENT INTRUSION**

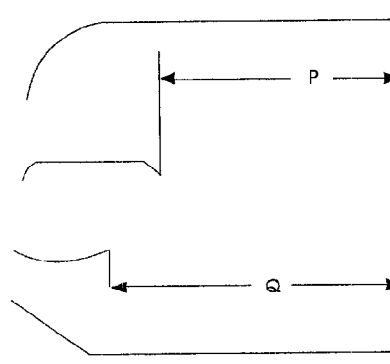


DRIVER'S SIDE



TOP VIEW

MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE

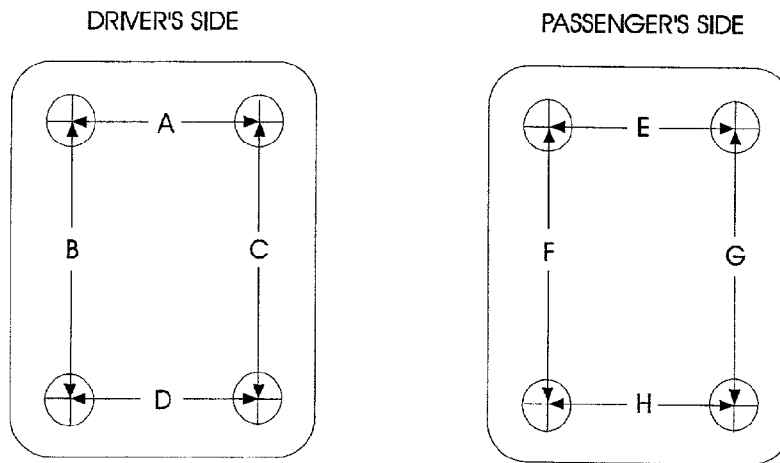


PASSENGER'S SIDE

Measurement	Pre-Test	Post-Test	Difference
I	531	501	30
J	607	773	-166
K	860	813	47
L	629	671	-42
M	889	835	54
N	831	836	-5
O	818	749	69
P = K (PASS.)	818	802	16
Q = M (PASS.)	882	884	-2

Units = mm

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

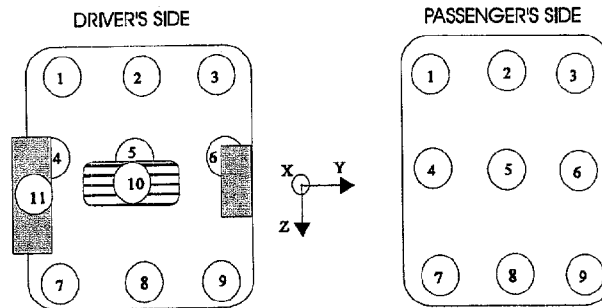


TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	330	365	-35
B	530	515	15
C	565	550	15
D	320	310	10
E	330	300	30
F	550	545	5
G	585	565	20
H	440	445	-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	3967	3792	175	600	523	77
2	4002	3829	173	567	515	52
3	3994	3828	166	539	529	10
4	3957	3783	174	520	461	59
5	3959	3780	179	510	477	33
6	3944	3804	140	504	444	60
7	3901	3749	152	473	401	72
8	3900	3739	161	466	412	54
9	3906	3764	142	466	399	67
10	3912	3757	155	534	454	80
11	3850	3632	218	584	556	28

Passenger Side Floorpan Measurements

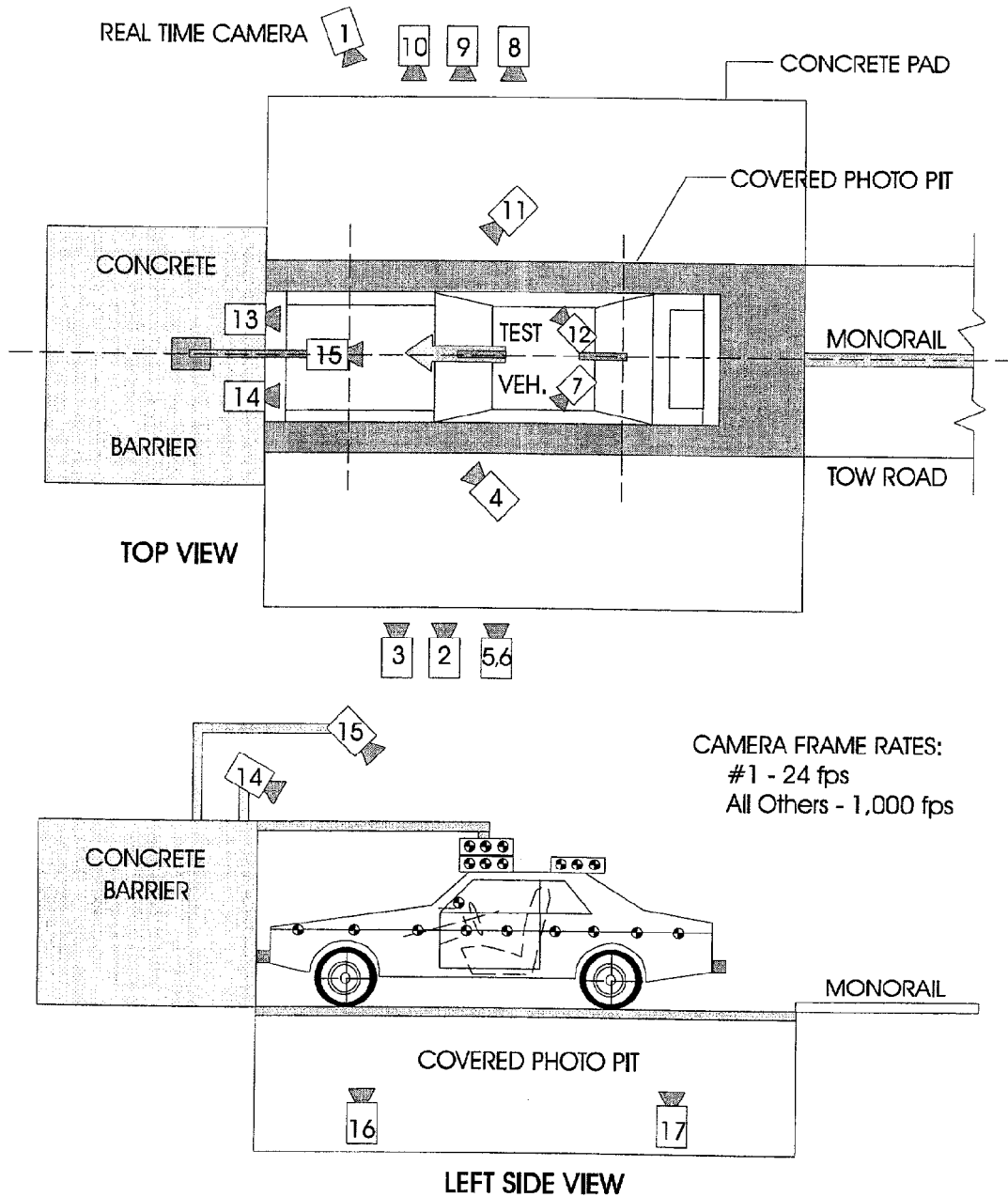
Reference: X = Rear Bumper; Z = Ground

Floorpan Location	X Deformation			Z Deformation		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3977	3772	205	605	539	66
2	3986	3789	197	599	524	75
3	3936	3804	132	618	521	97
4	3912	3721	191	560	500	60
5	3936	3761	175	553	481	72
6	3913	3783	130	576	481	95
7	3876	3736	140	496	429	67
8	3896	3763	133	506	417	89
9	3880	3774	106	511	416	95

Units in mm

CAMERA POSITIONS FOR FRONTAL IMPACTS

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



DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

NHTSA Test No.:

MX0112

Vehicle:

1999 Chevrolet S-10 Extended Cab Fleetside Pick-up

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	6842	1499	1047	-4	6585	12.5	1000
3	Left Side View	7842	1164	1076	-3	7585	25	1010
4	Driver and Interior View	4086	2866	1991	-12	-	25	1005
5	Steering Column (Bottom)	6769	2041	1166	-3	6512	25	1010
6	Steering Column (Top)	6769	2041	1777	-6	6512	25	1010
7	Left Belt	-	-	-	-	-	13	625
8	Overall Right Side	7009	1846	1080	-5	6752	13	1005
9	Right Side View	8096	1317	1101	-3	7839	25	1000
10	Right Passenger View	8105	1668	1352	-4	7848	35	1000
11	Passenger and Interior View	5089	2083	2009	-12	-	25	1015
12	Right Belt	-	-	-	-	-	13	825
13	Passenger Front View	-450	-60	1089	-50	-	13	1000
14	Driver Front View	-450	-60	1093	-52	-	13	1000
15	Windshield View	0	0	3374	-58	-	13	1005
16	Pit View of Engine	0	1075	-3048	90	-	8	1000
17	Pit View of Fuel Tank	0	2855	-3048	90	-	8	1000

*X = film plane to monorail centerline

Y = film plane to impact location

Z = film plane to ground

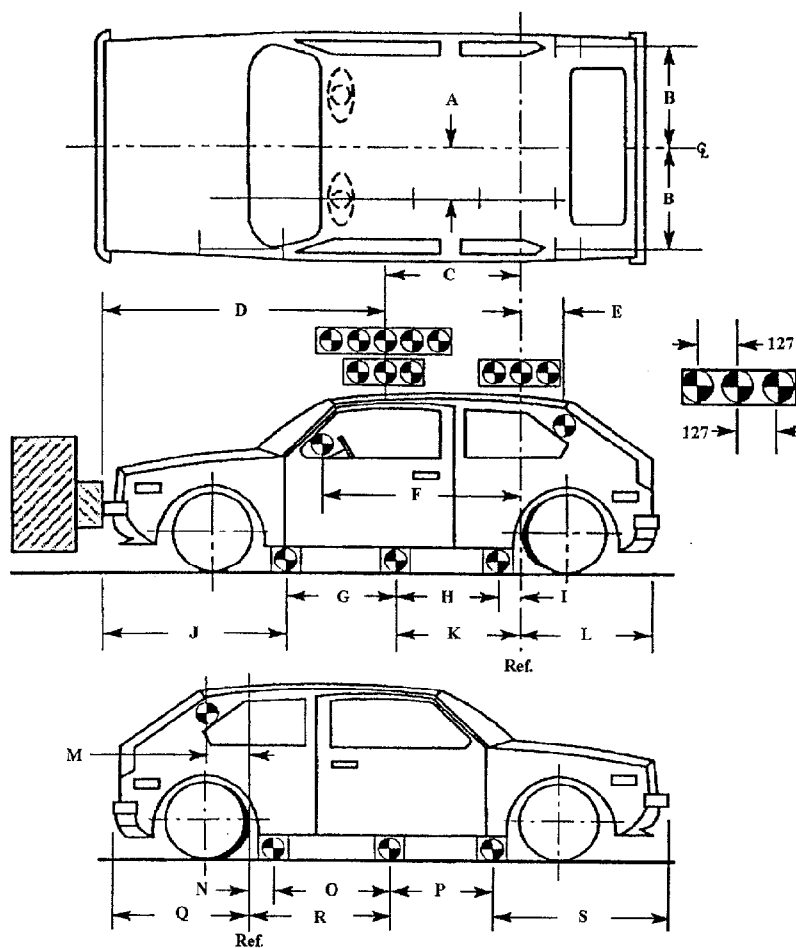
** = referenced to horizontal plane

N.T. indicates No Timing

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

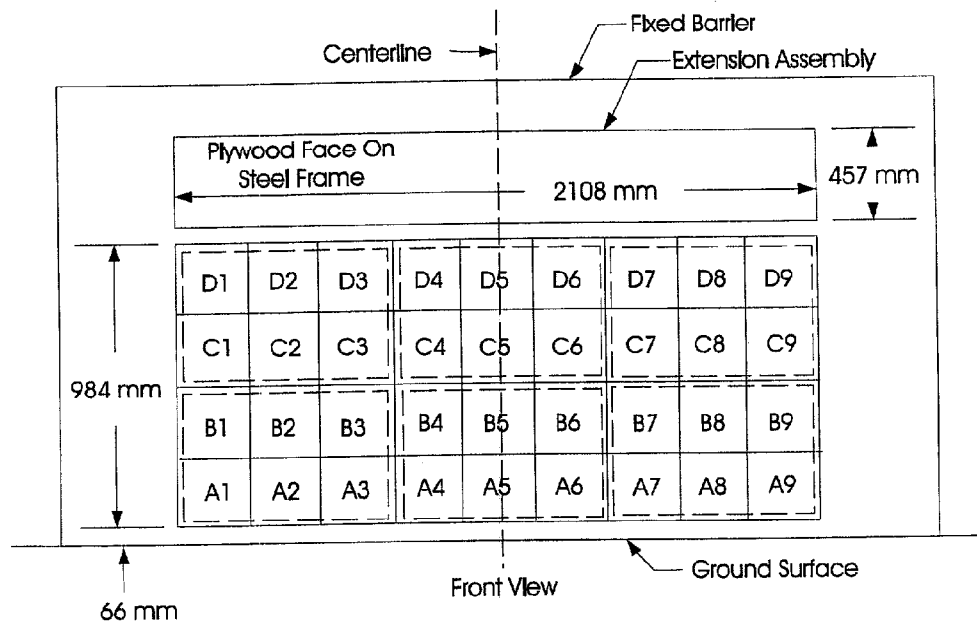
(Dimensions in millimeters)

A	333
B	694
C	914
D	2021
E	70
F	1152
G	767
H	762
I	675
J	1517
K	1827
L	1566
M	1085
N	667
O	765
P	782
Q	1587
R	1432
S	1484



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

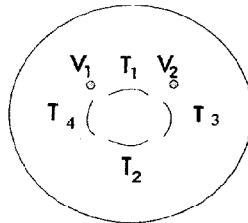
NHTSA No. : MX0112; Test Date: January 19, 1999; Technician: J. Cz.

Vehicle Model Year/Make/Model: 1999 Chevrolet S-10

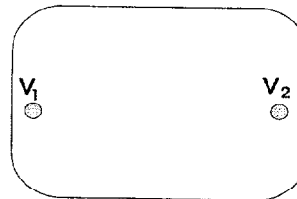
- A. No. of vent holes: 2 -Driver 2 -Passenger
- B. Size of vent holes: (mm²) 25 -Driver 50 -Passenger
- C. Total vent area: (mm²) 50 -Driver 100 -Passenger
- D. Deflated air bag length and width dimensions or, if round, diameter. (mm)
- Driver: - -Length; - -Width; 640 -Diameter
- Passenger: 530 -Height; 510 -Width; 590 -Depth
- E. Is the air bag tethered?
- Driver: x -Yes; - -No; If yes, record length of tether- 100
- 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
vents underneath bag



PASSENGER
vents underneath bag



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

Driver: Air bag: TRBK80382364

Generator: AB4224QWSCMF9

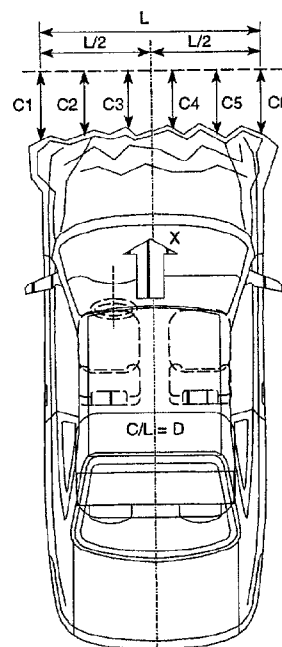
Passenger: Air bag: TRAV81004782

Generator: AL3742Q2SCCLVD

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	5119	4503	-616	mm
C2 =	5193	4504	-689	mm
C3 =	5247	4496	-751	mm
C4 =	5249	4505	-744	mm
C5 =	5200	4533	-667	mm
C6 =	5141	4585	-556	mm



L1= - mm
L2= - mm
L3= - mm

Appendix A
PHOTOGRAPHS

PHOTOGRAPHS

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A-3	POST-TEST FRONT VIEW.	A-6
A-4	PRE-TEST LEFT SIDE VIEW	A-7
A-5	POST-TEST LEFT SIDE VIEW	A-8
A-6	PRE-TEST RIGHT SIDE VIEW	A-9
A-7	POST-TEST RIGHT SIDE VIEW	A-10
A-8	PRE-TEST RIGHT FRONT THREE-QUARTER VIEW	A-11
A-9	POST-TEST RIGHT FRONT THREE-QUARTER VIEW	A-12
A-10	PRE-TEST LEFT REAR THREE-QUARTER VIEW	A-13
A-11	POST-TEST LEFT REAR THREE-QUARTER VIEW	A-14
A-12	PRE-TEST WINDSHIELD VIEW	A-15
A-13	POST-TEST WINDSHIELD VIEW	A-16
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A-19	POST-TEST FRONT SIDE UNDERBODY VIEW	A-22
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A-21	POST-TEST REAR UNDERBODY VIEW	A-24
A-22	PRE-TEST DRIVER POSITION VIEW	A-25
A-23	POST-TEST DRIVER POSITION VIEW	A-26
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A-25	POST-TEST PASSENGER POSITION VIEW.	A-28

PHOTOGRAPHS (continued)

<u>Figure</u>	<u>Title</u>	<u>Page</u>
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A-27	POST-TEST DRIVER AND INTERIOR VIEW	A-30
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A-29	POST-TEST PASSENGER AND INTERIOR VIEW	A-32
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A-32	PRE-TEST PASSENGER HEAD LOCATION	A-35
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A-36	PRE-TEST PASSENGER FLOOR PAN VIEW	A-39
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A-38	ROLLOVER VIEW	A-41
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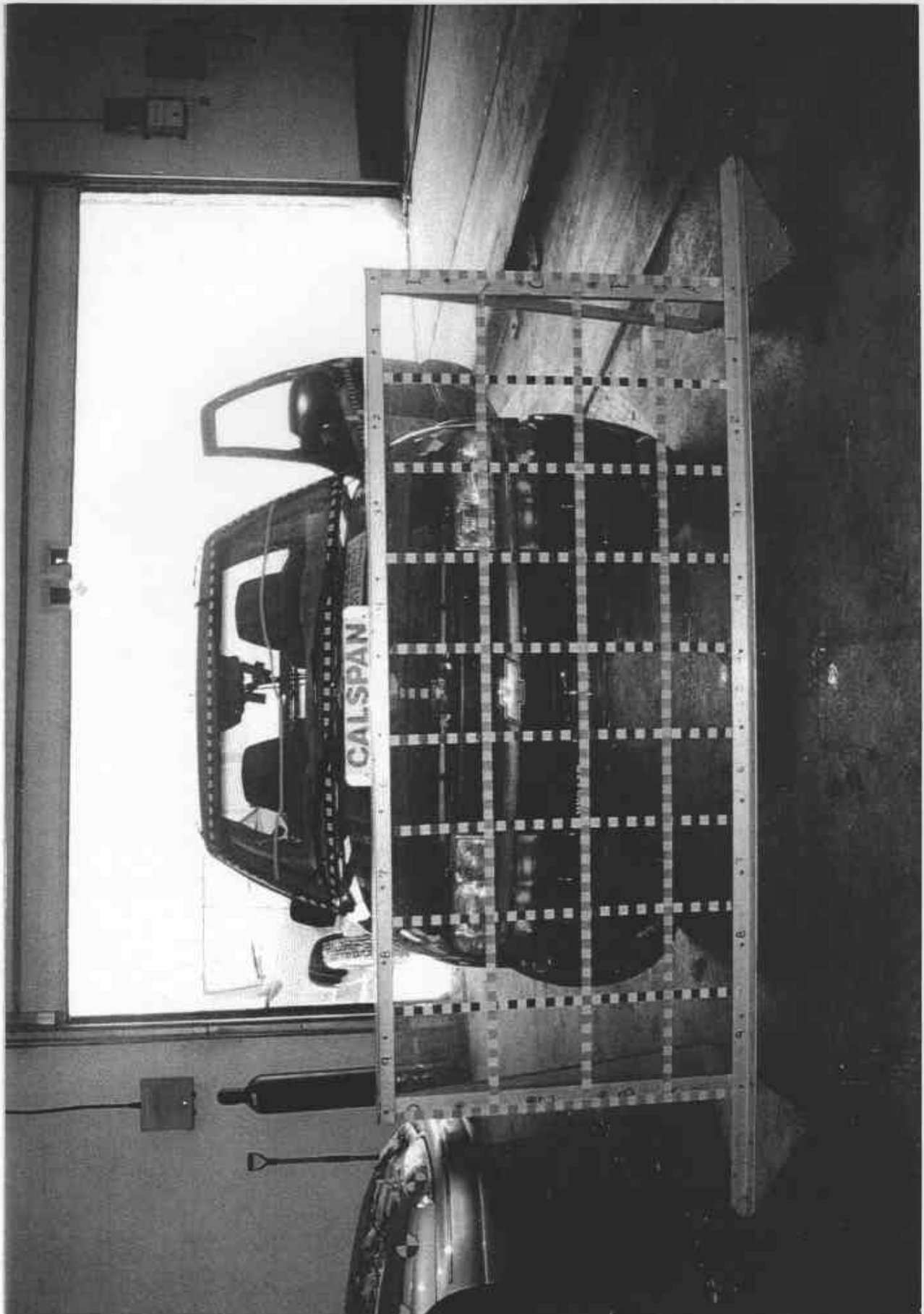


Figure A-1 LOAD CELL LOCATIONS



Figure A-2 PRE-TEST FRONT VIEW

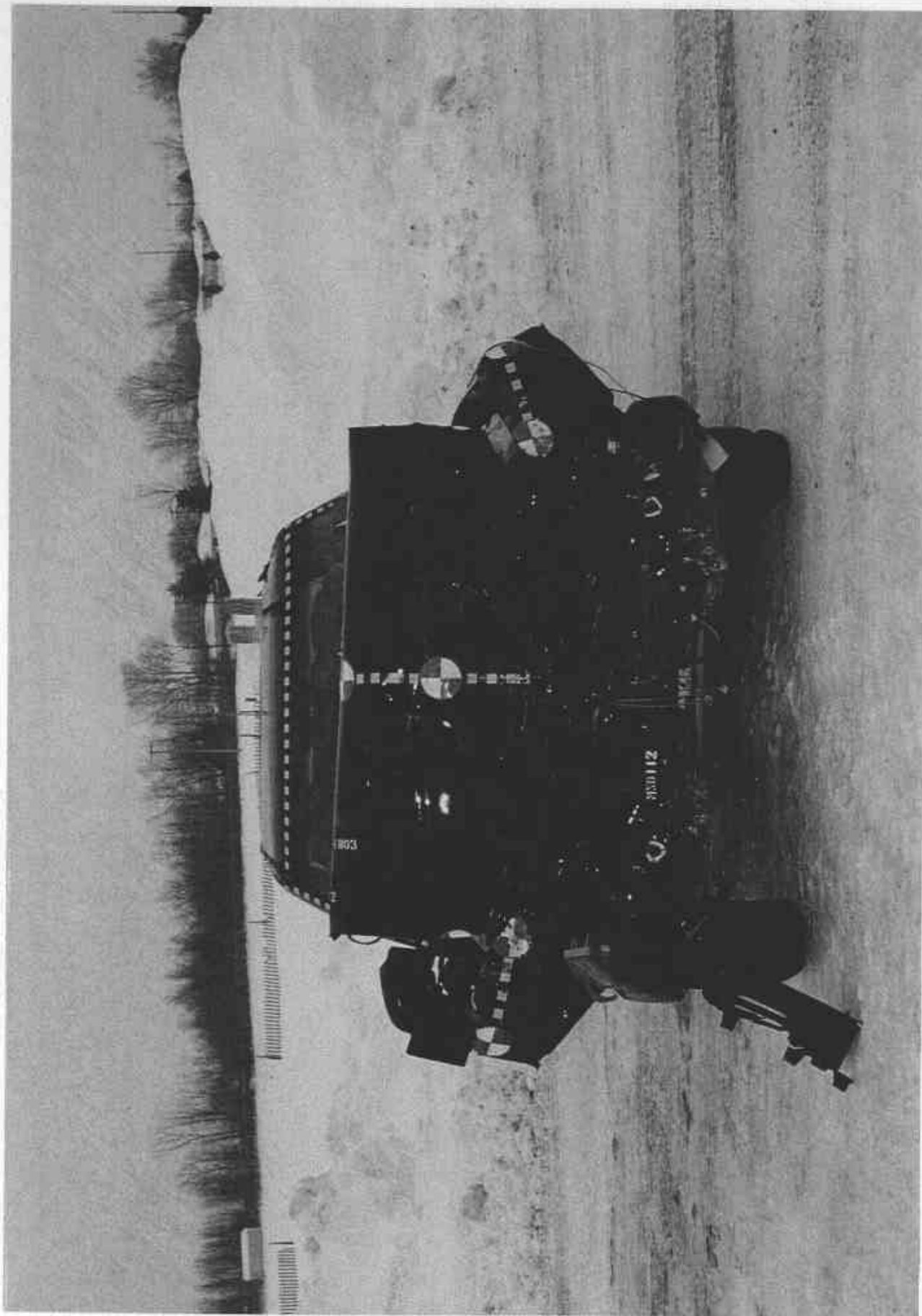


Figure A-3 POST-TEST FRONT VIEW

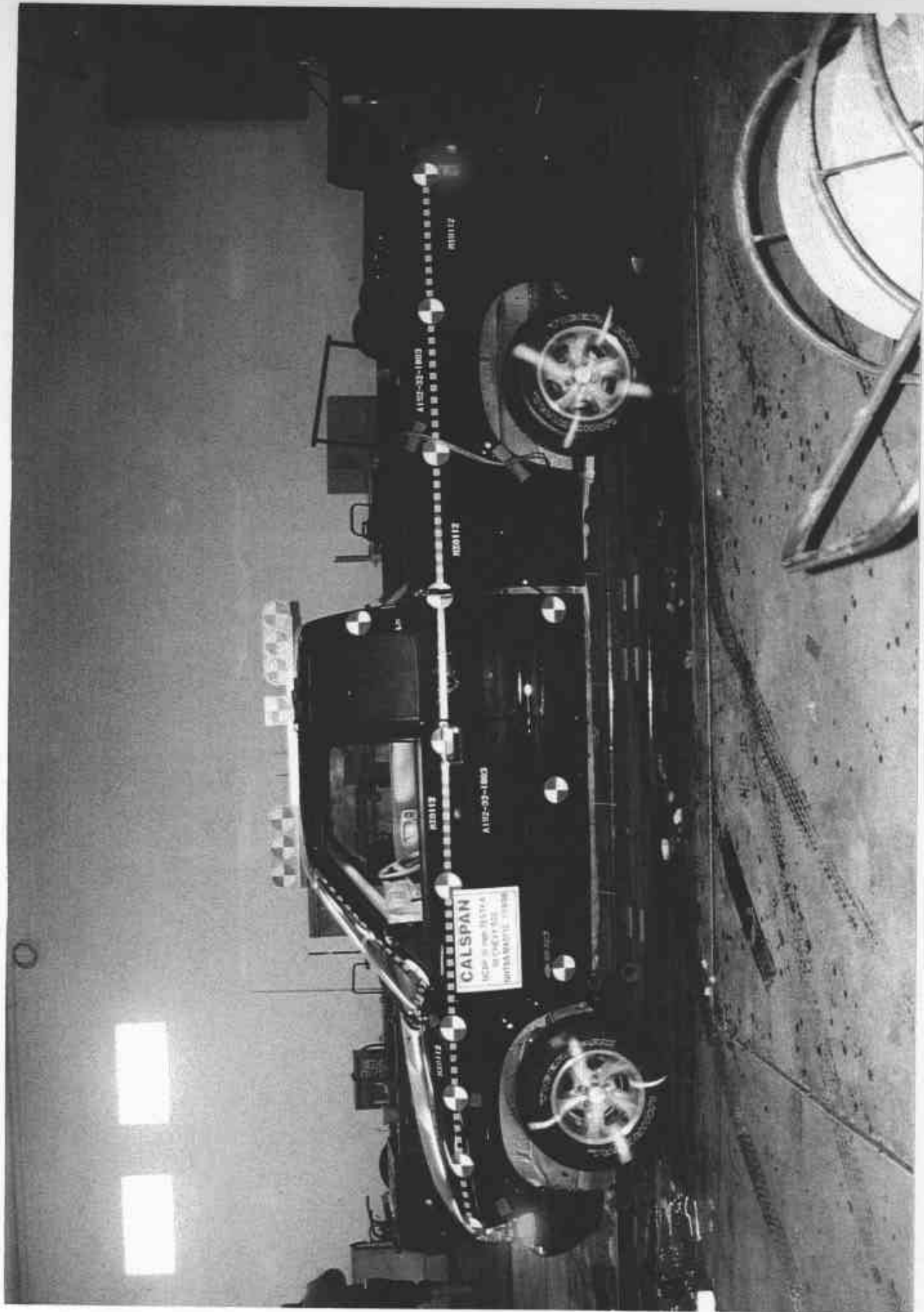


Figure A-4 PRE-TEST LEFT SIDE VIEW

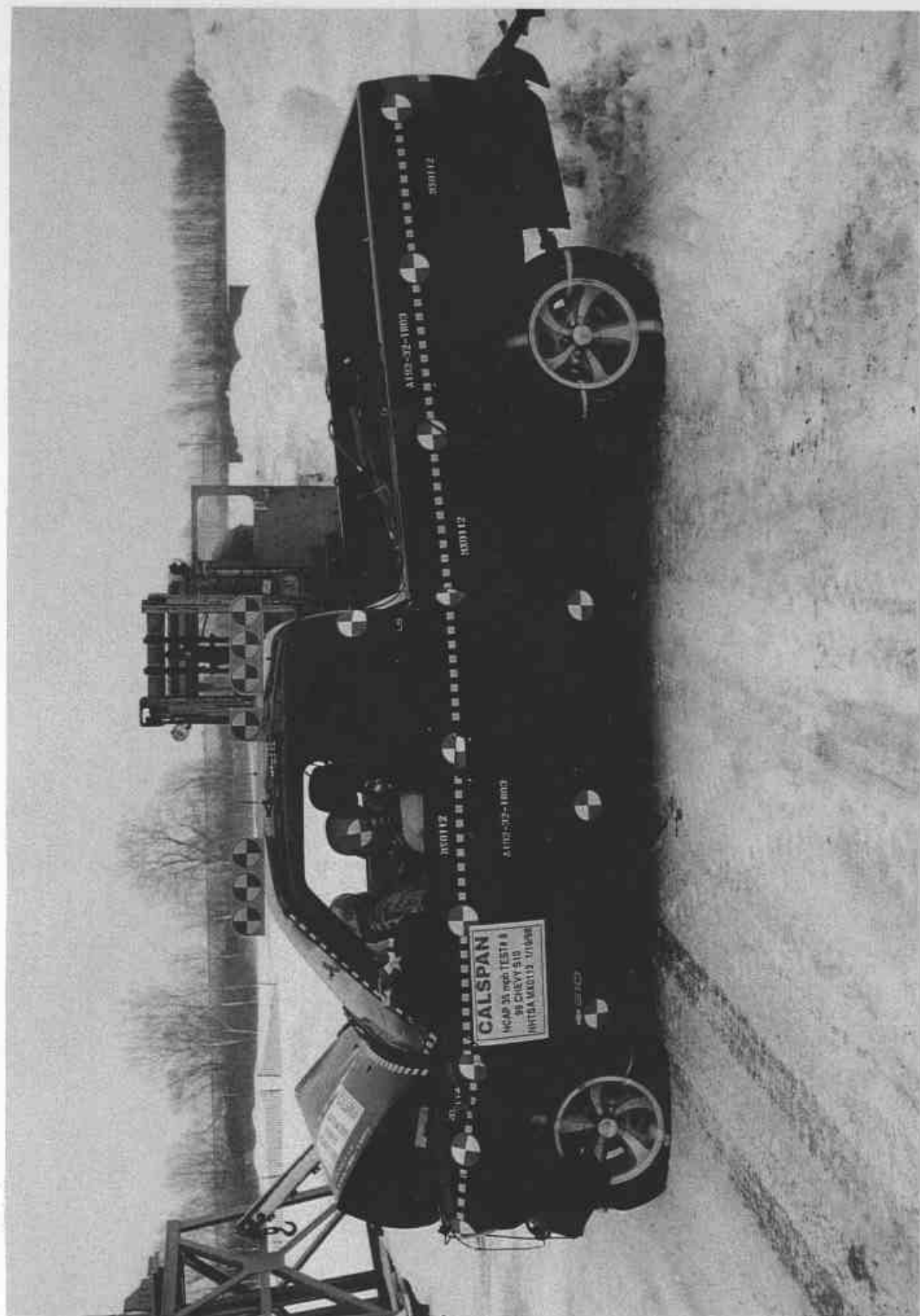


Figure A-5 POST-TEST LEFT SIDE VIEW

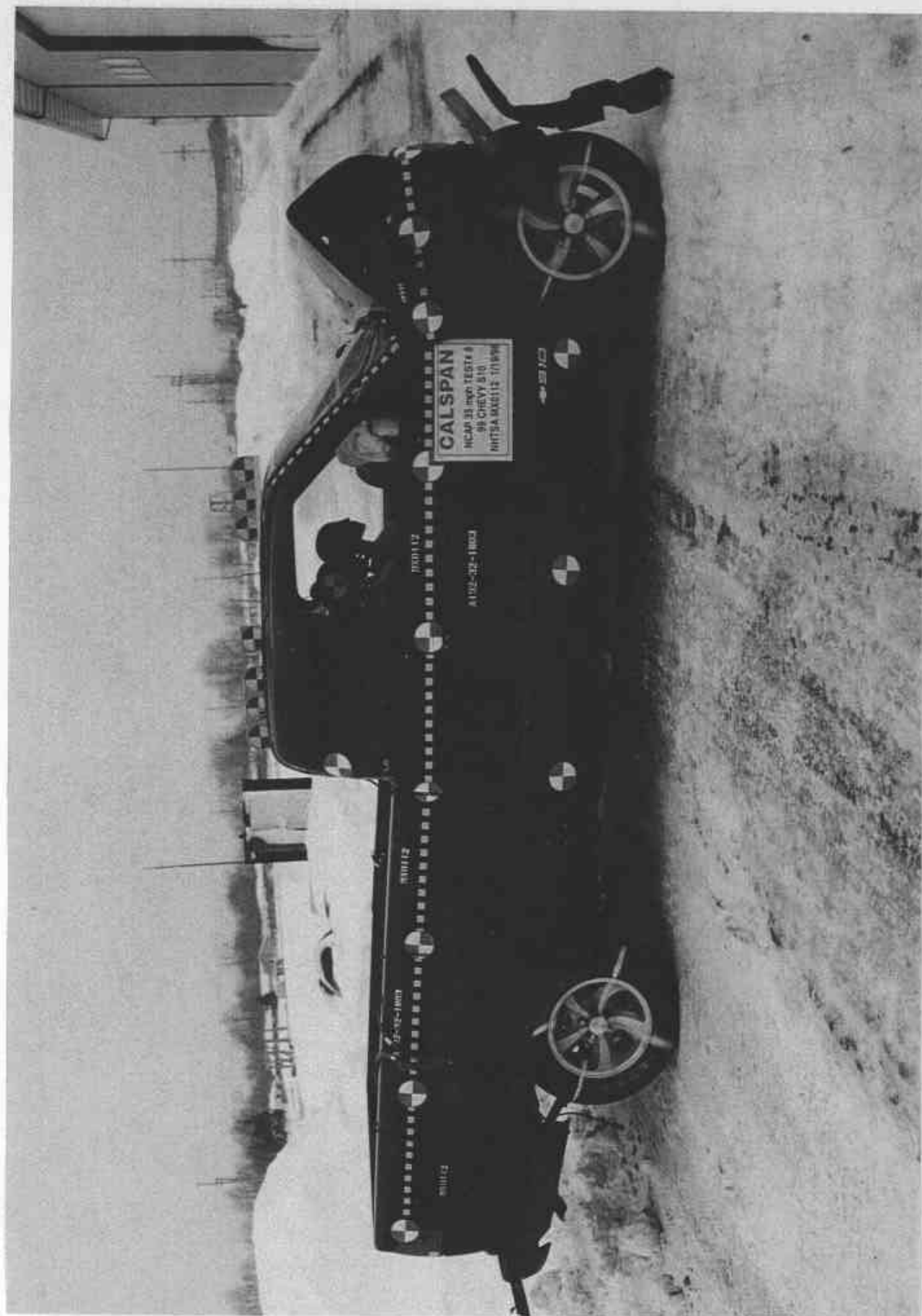


Figure A-7 POST-TEST RIGHT SIDE VIEW



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

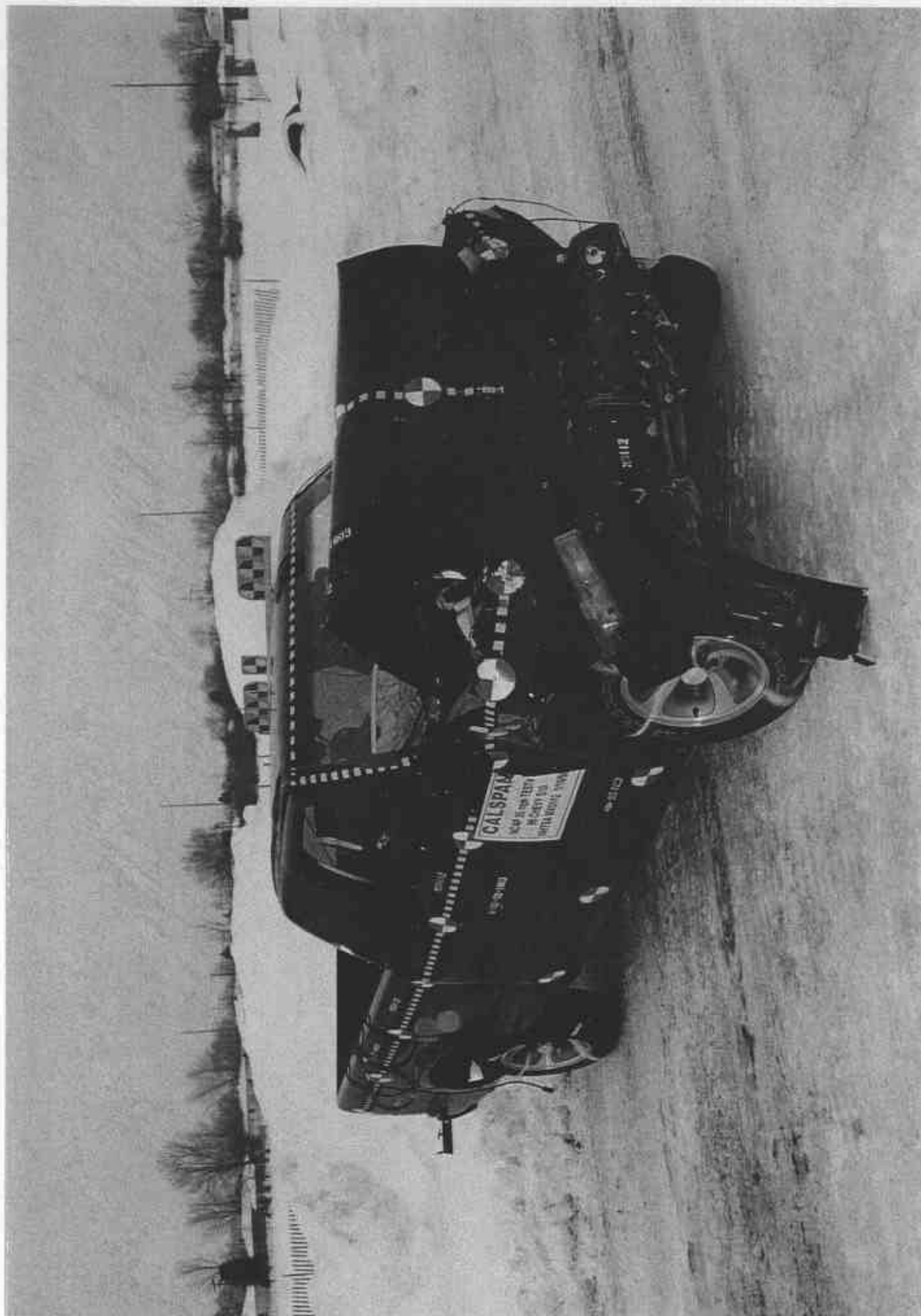


Figure A-9 POST-TEST RIGHT FRONT THREE-QUARTER VIEW



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

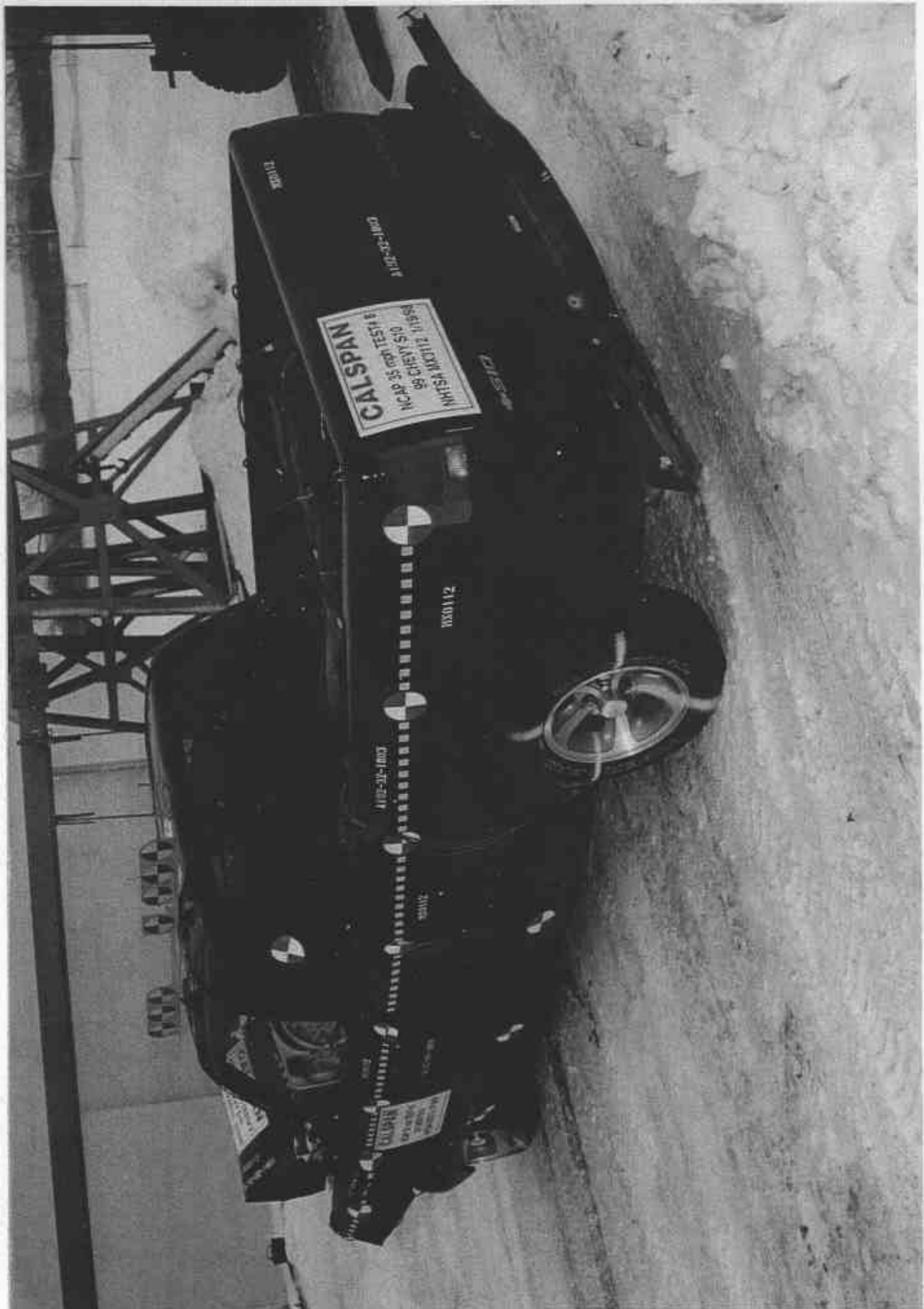


Figure A-11 POST-TEST LEFT REAR THREE-QUARTER VIEW

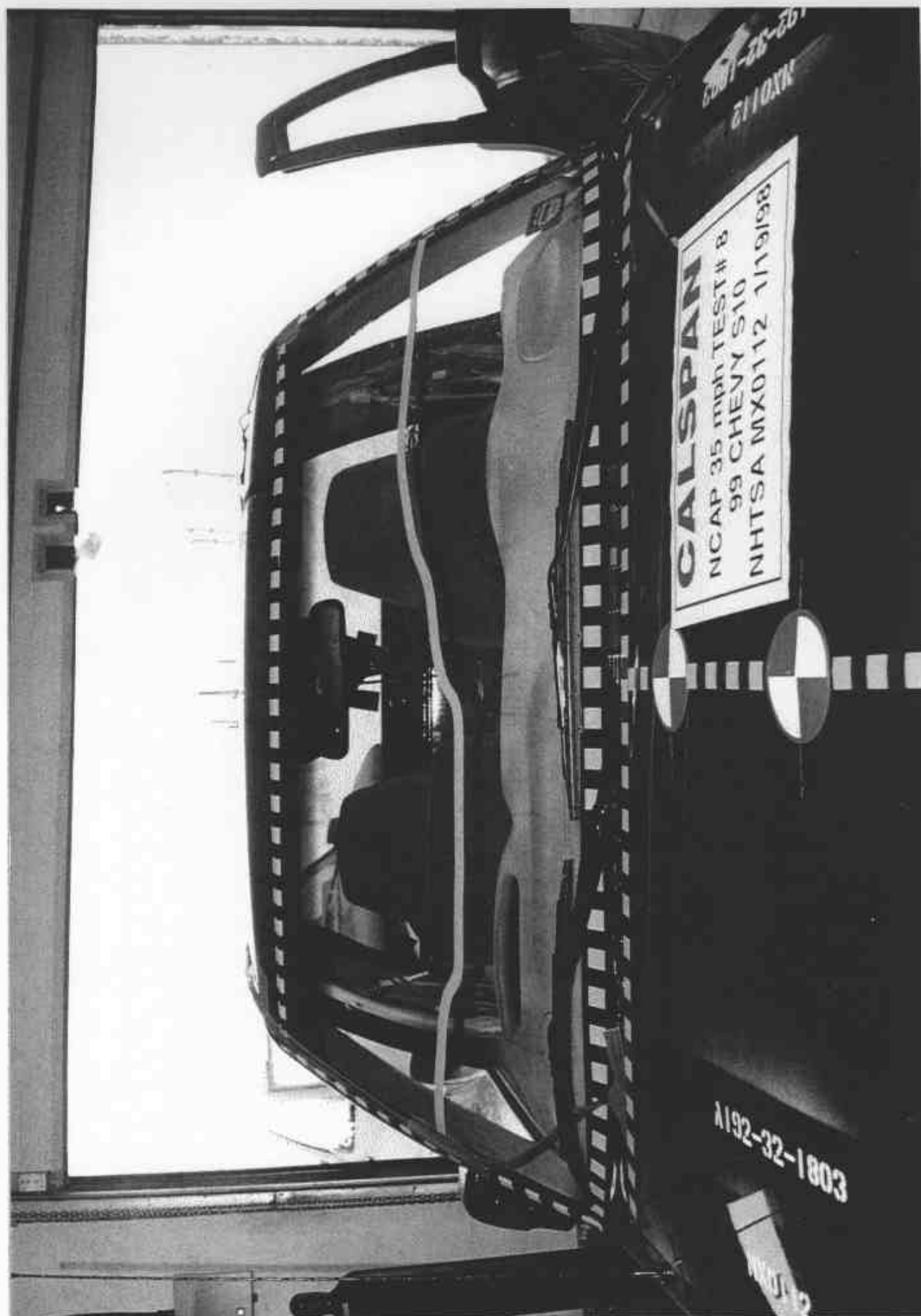


Figure A-12 PRE-TEST WINDSHIELD VIEW

PHOTOGRAPH NOT AVAILABLE

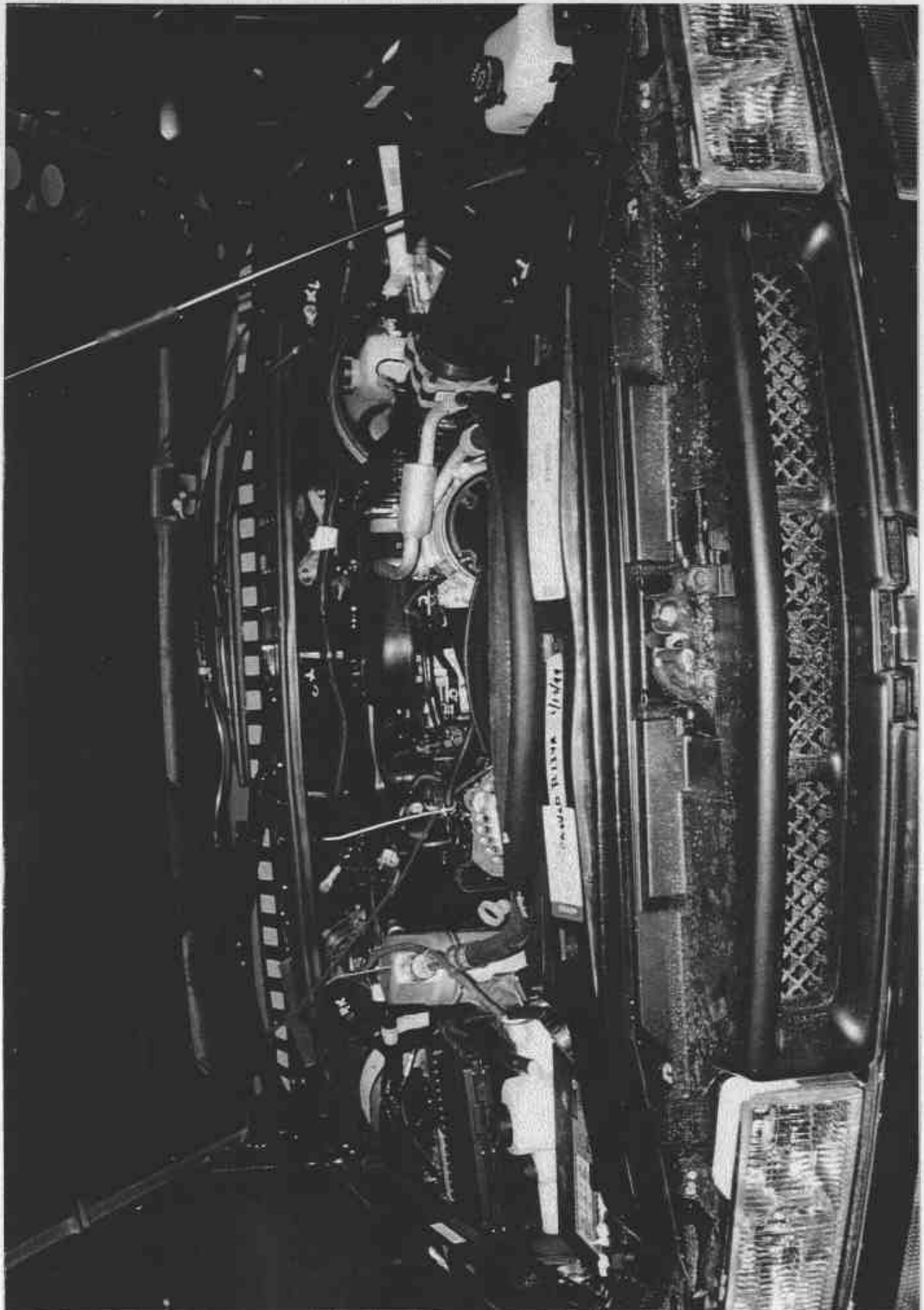


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

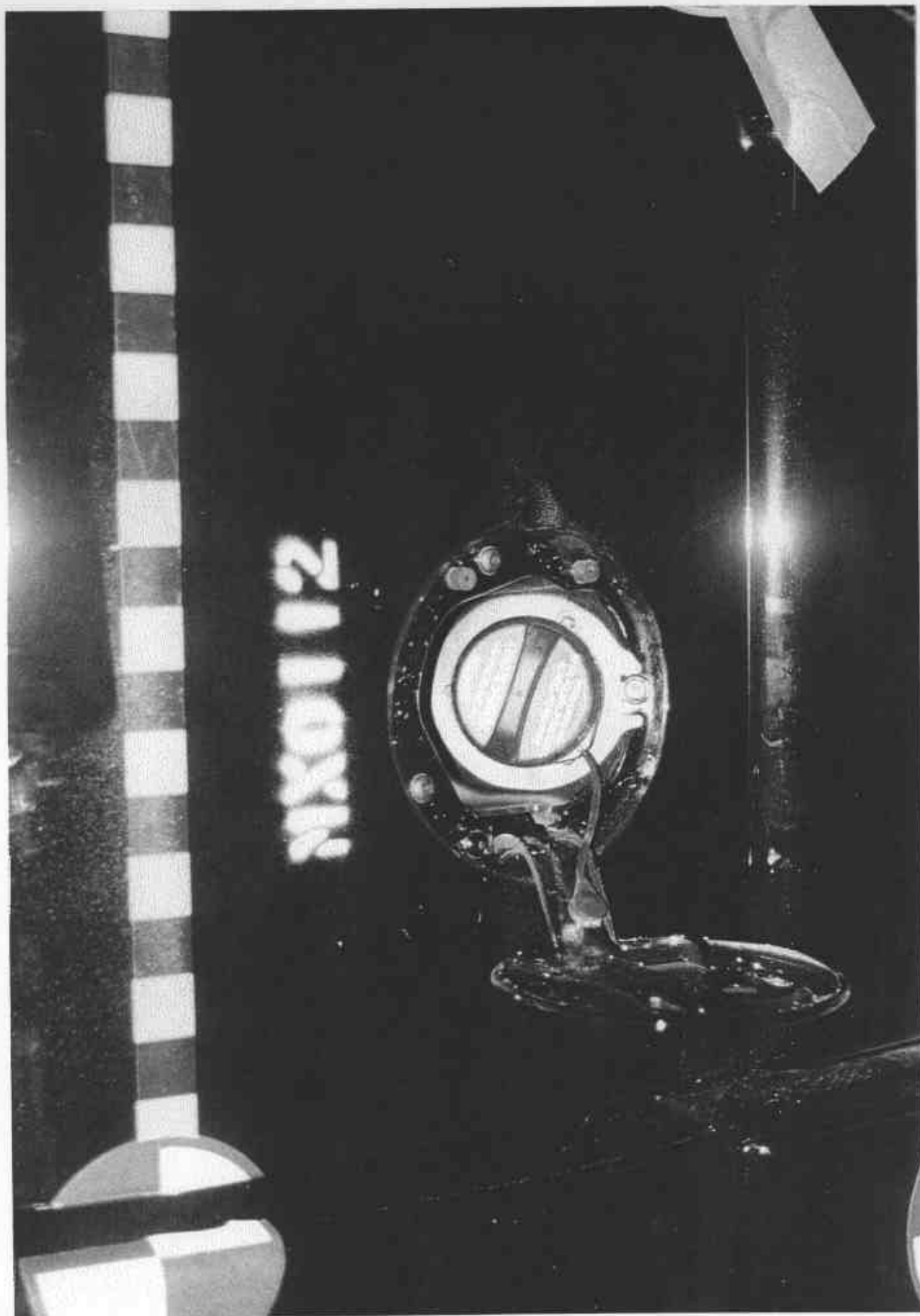


Figure A-15 FUEL CAP VIEW

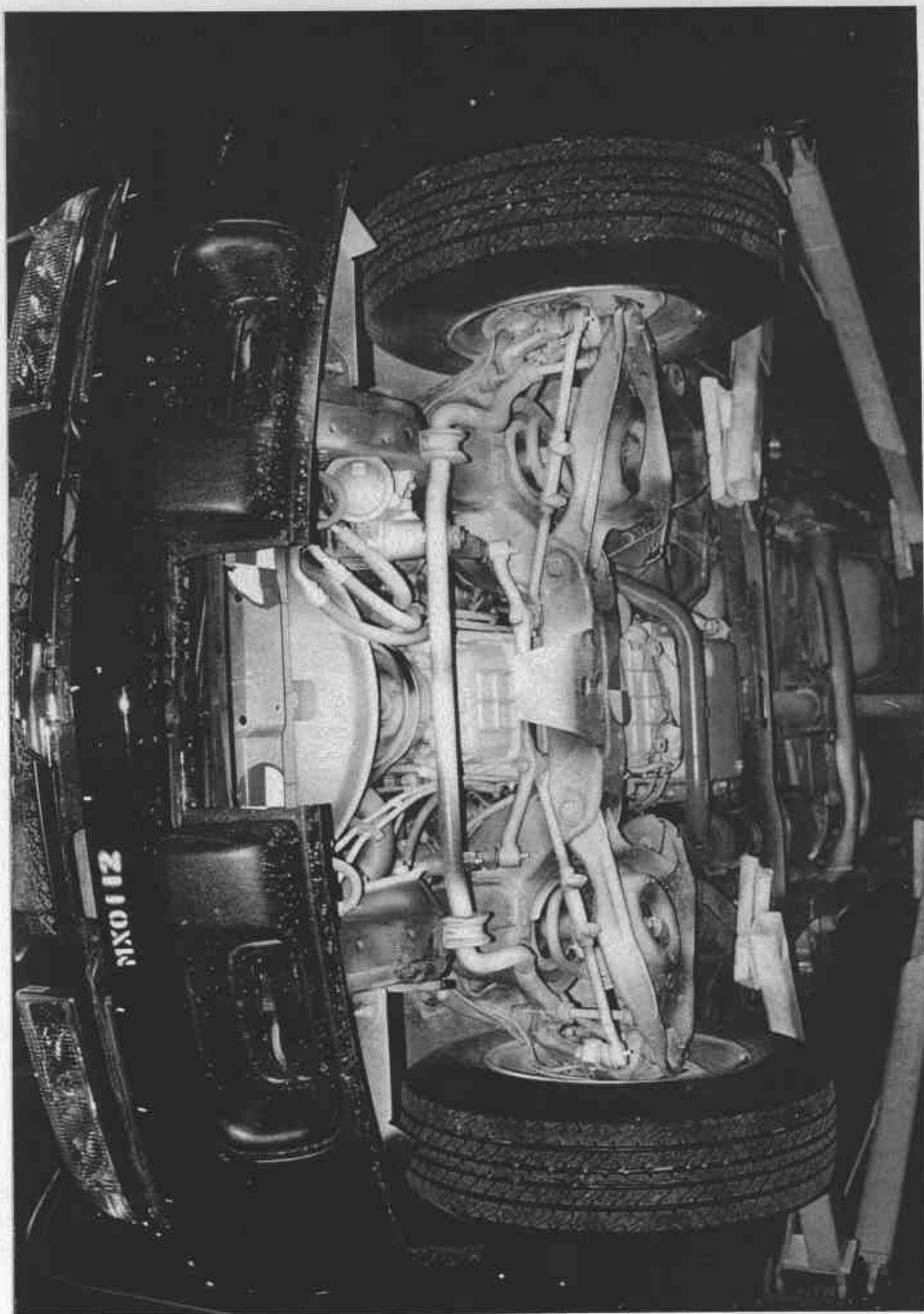


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

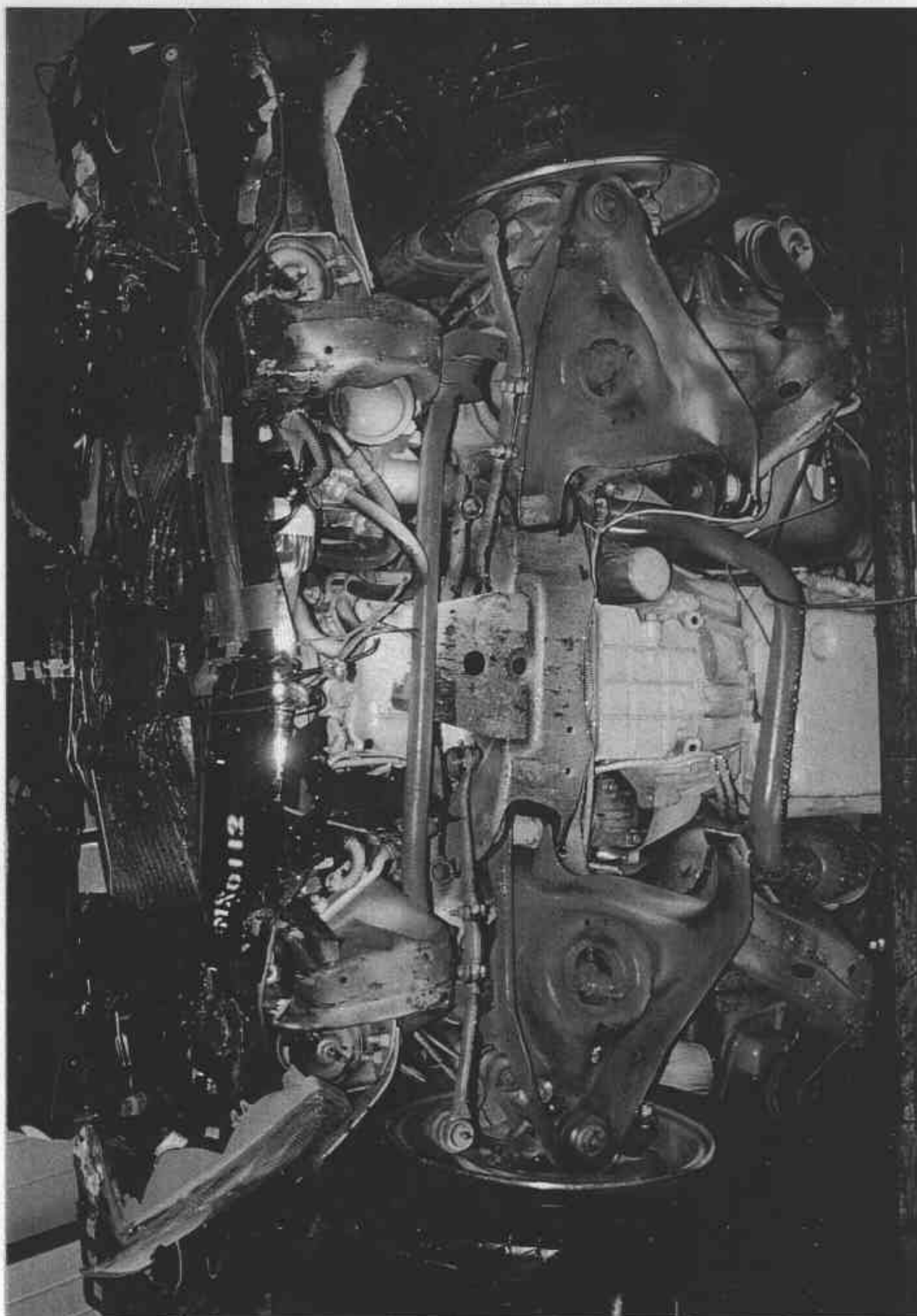


Figure A-17 POST-TEST FRONT UNDERBODY VIEW

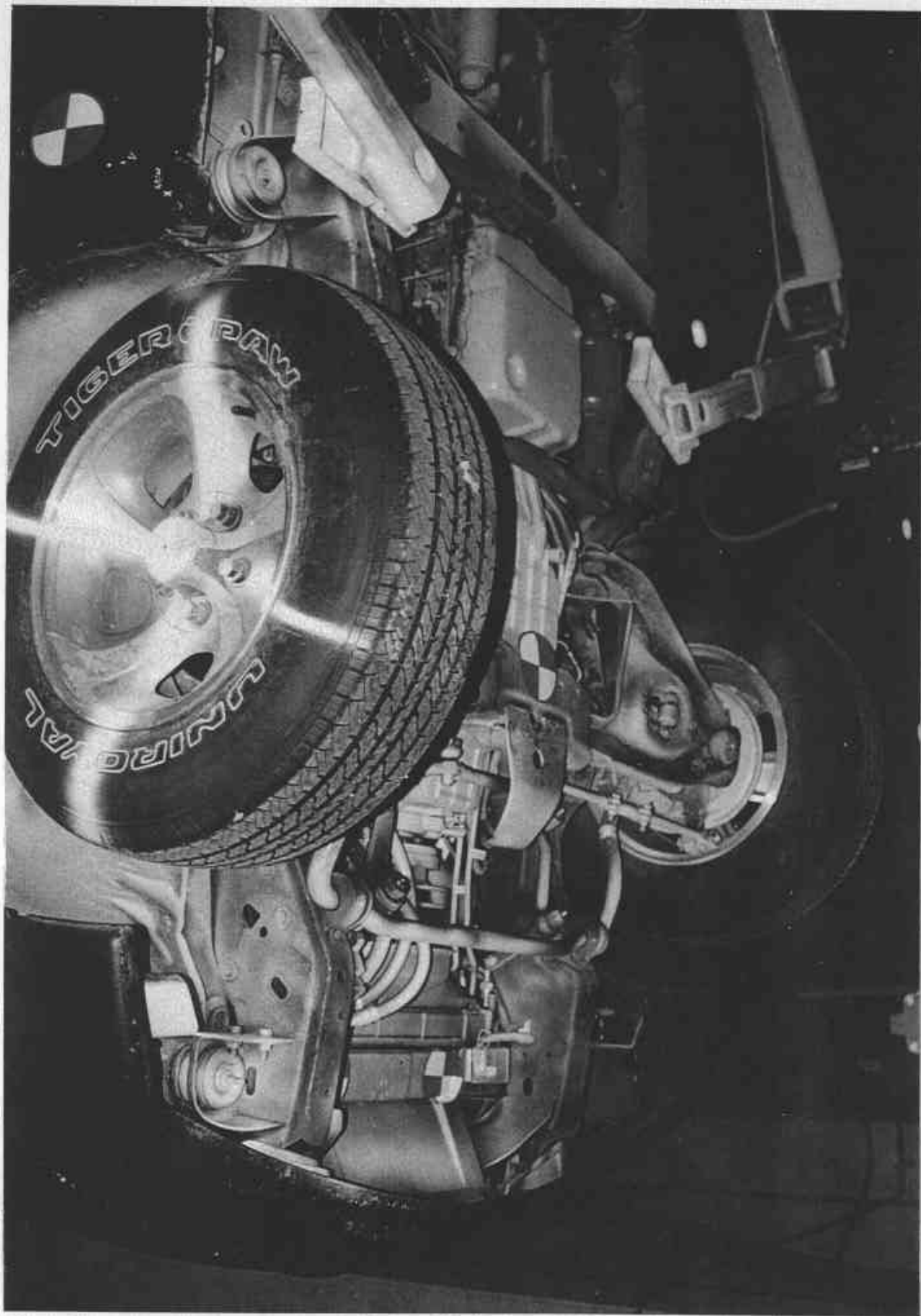


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW

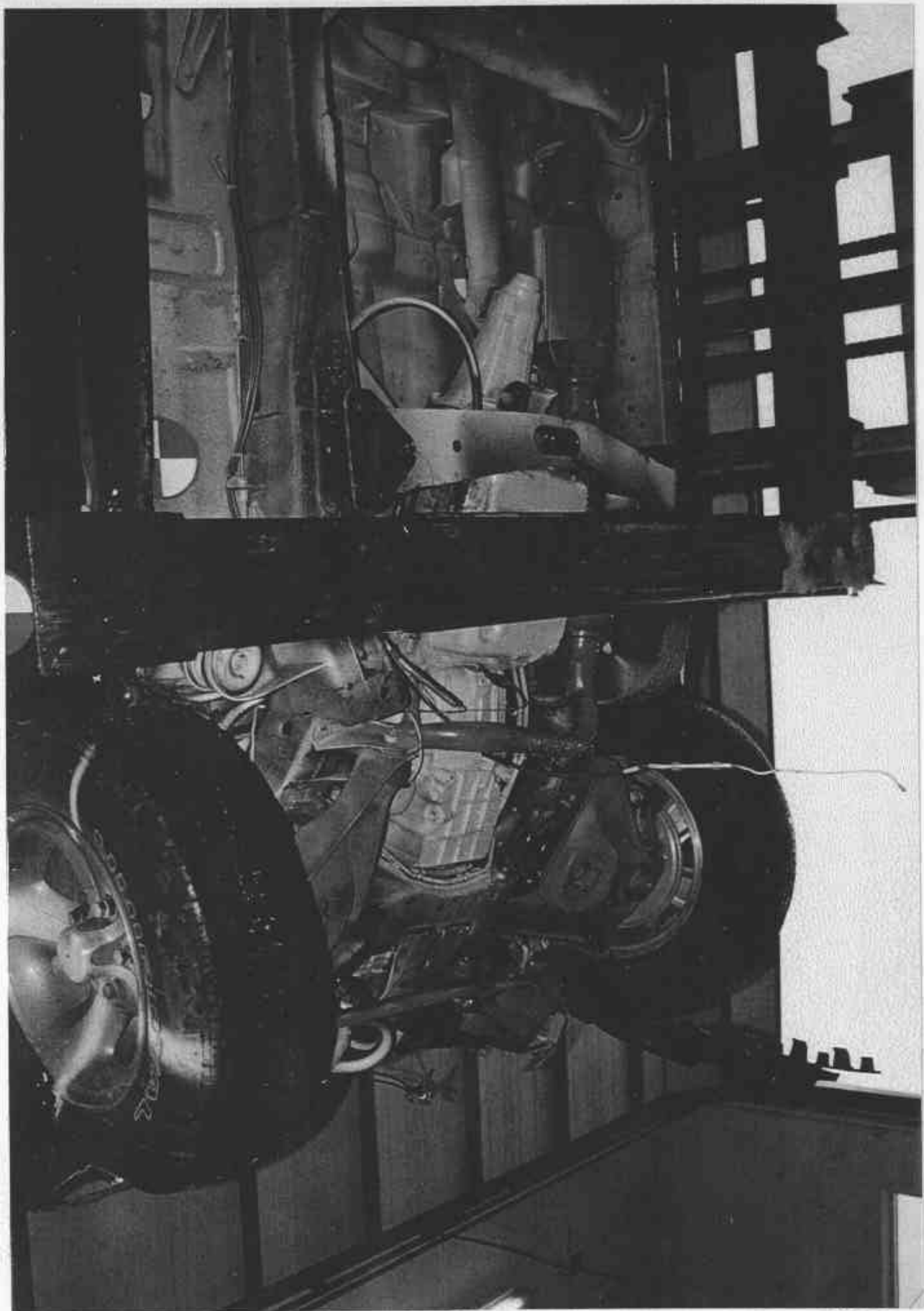


Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

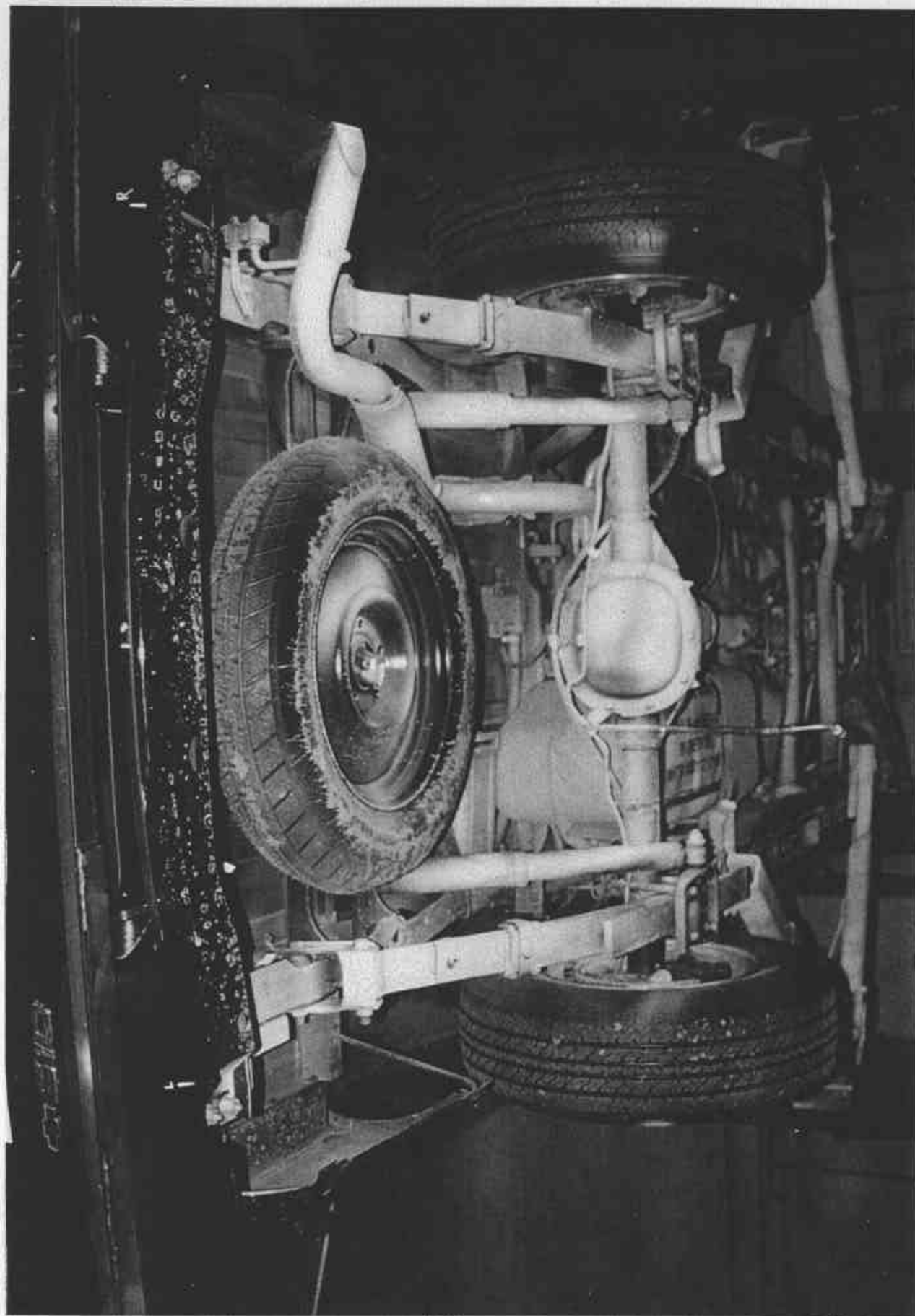


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

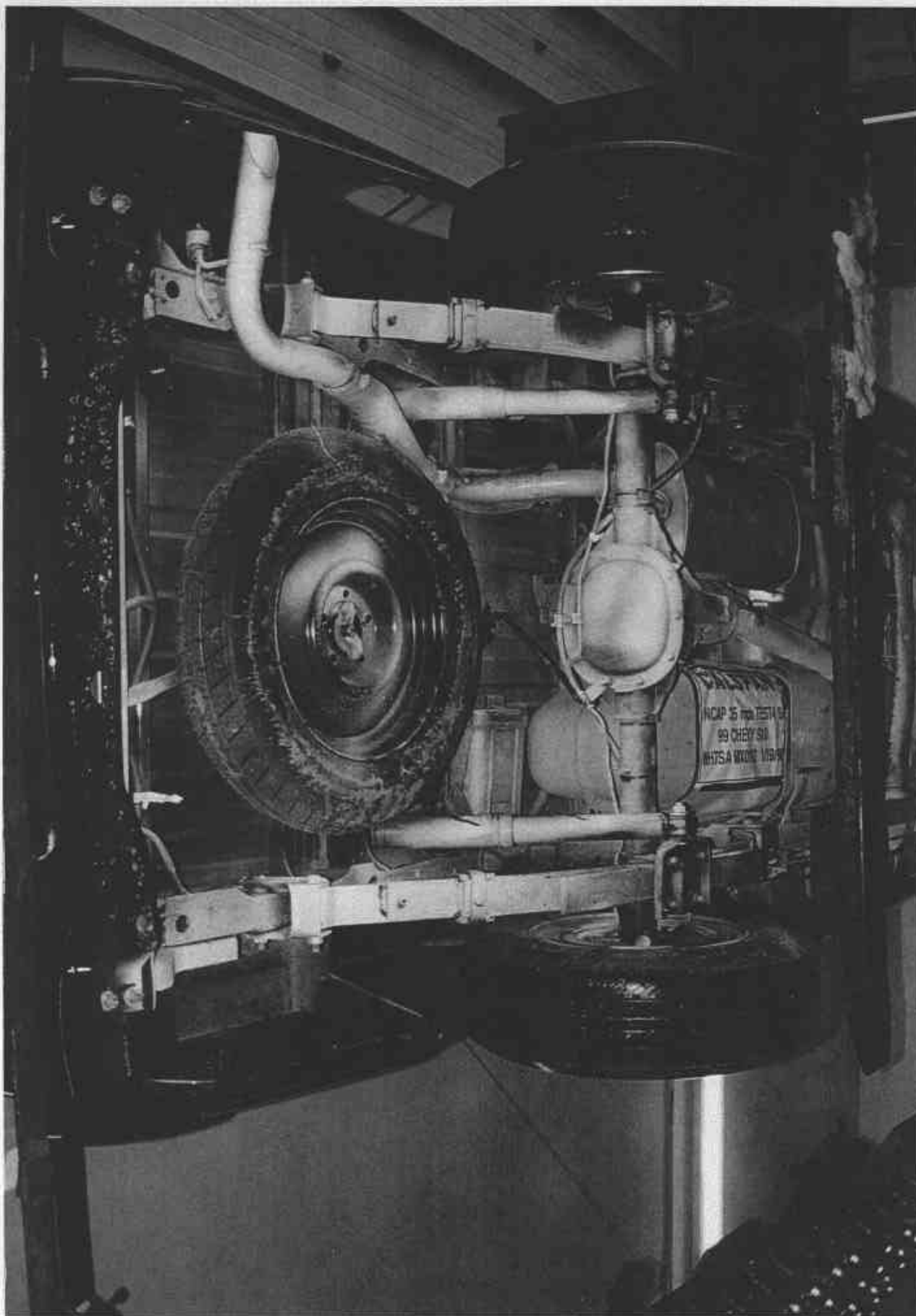


Figure A-21 POST-TEST REAR UNDERBODY VIEW

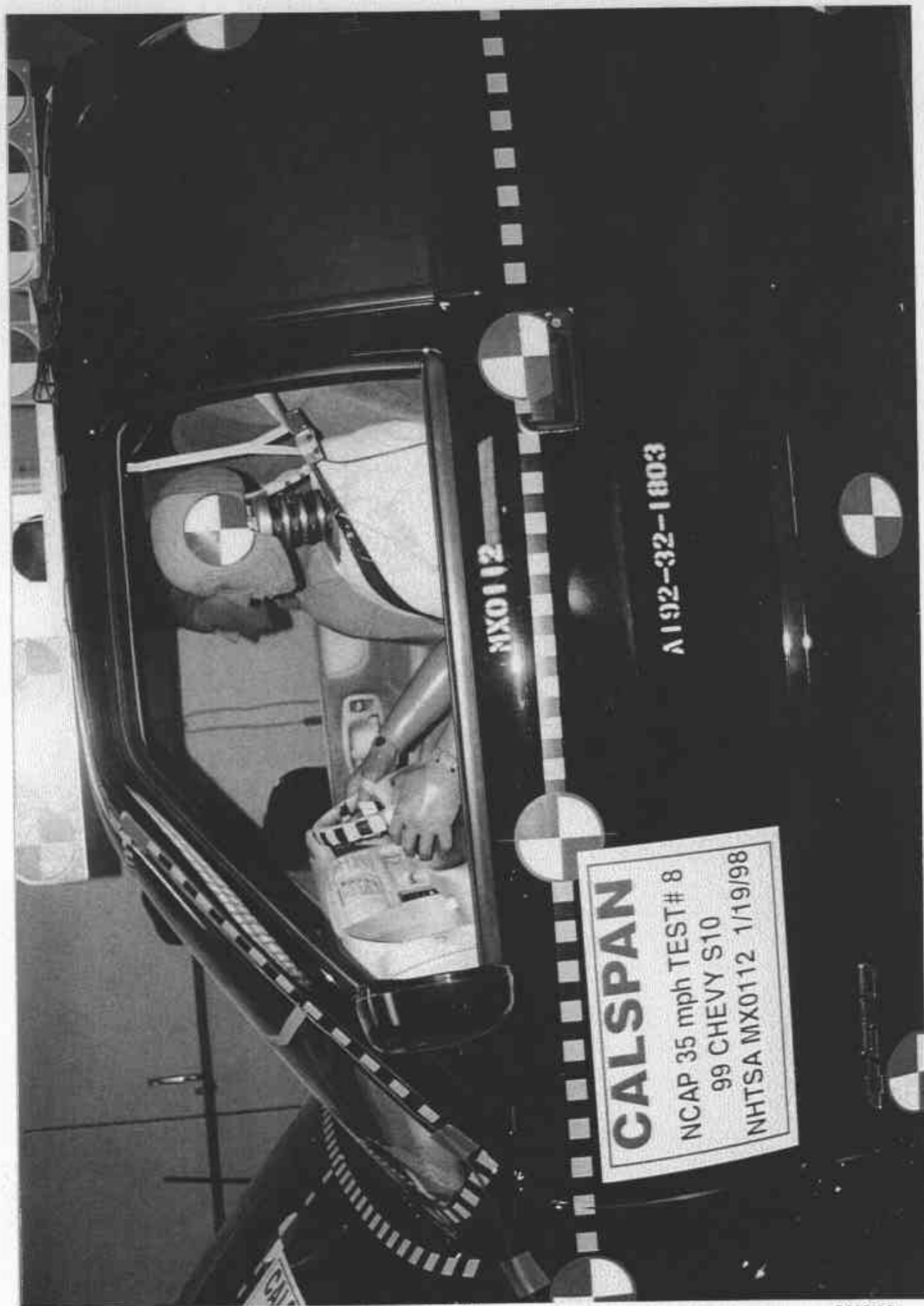


Figure A-22 PRE-TEST DRIVER POSITION VIEW

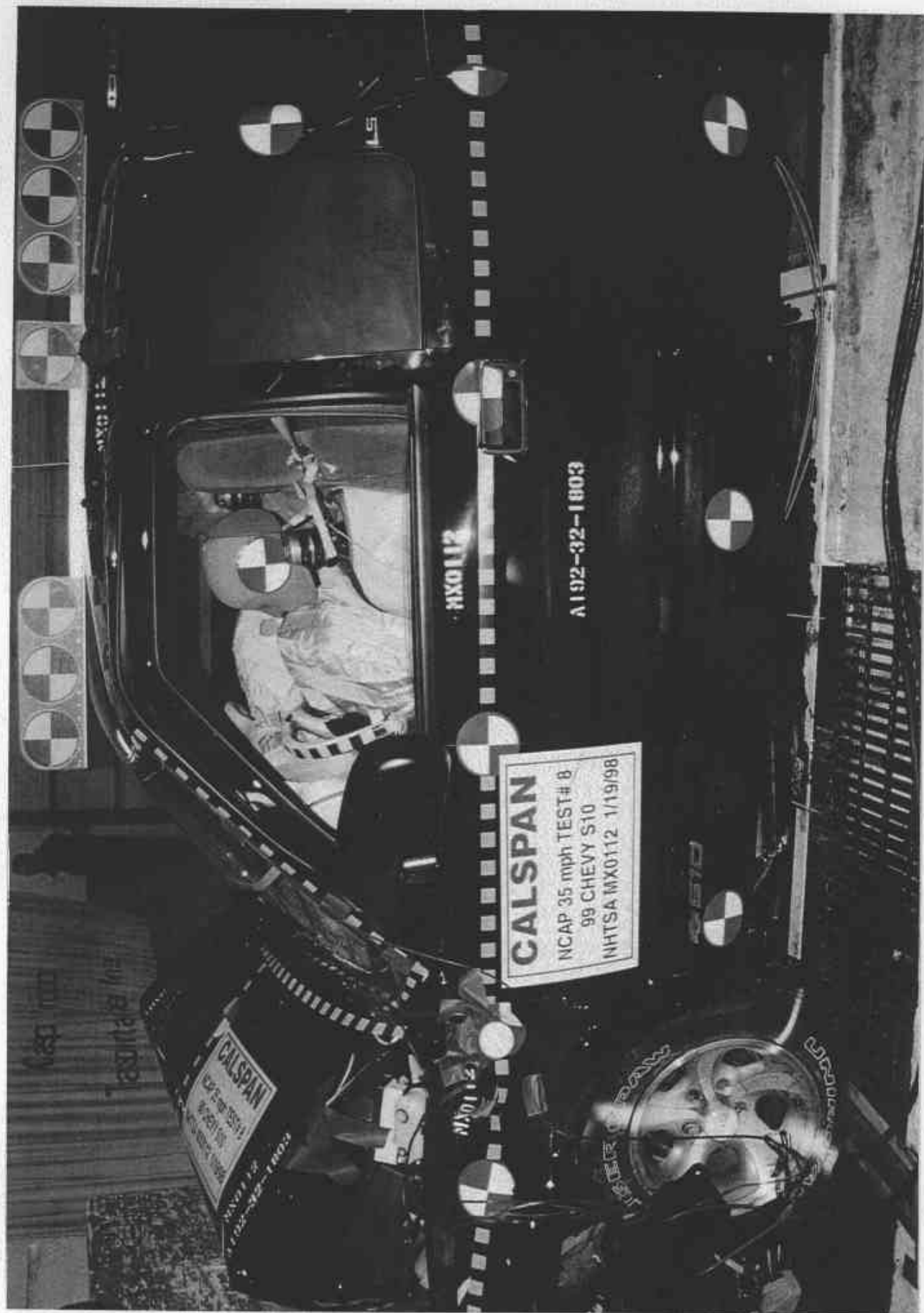


Figure A-23 POST-TEST DRIVER POSITION VIEW

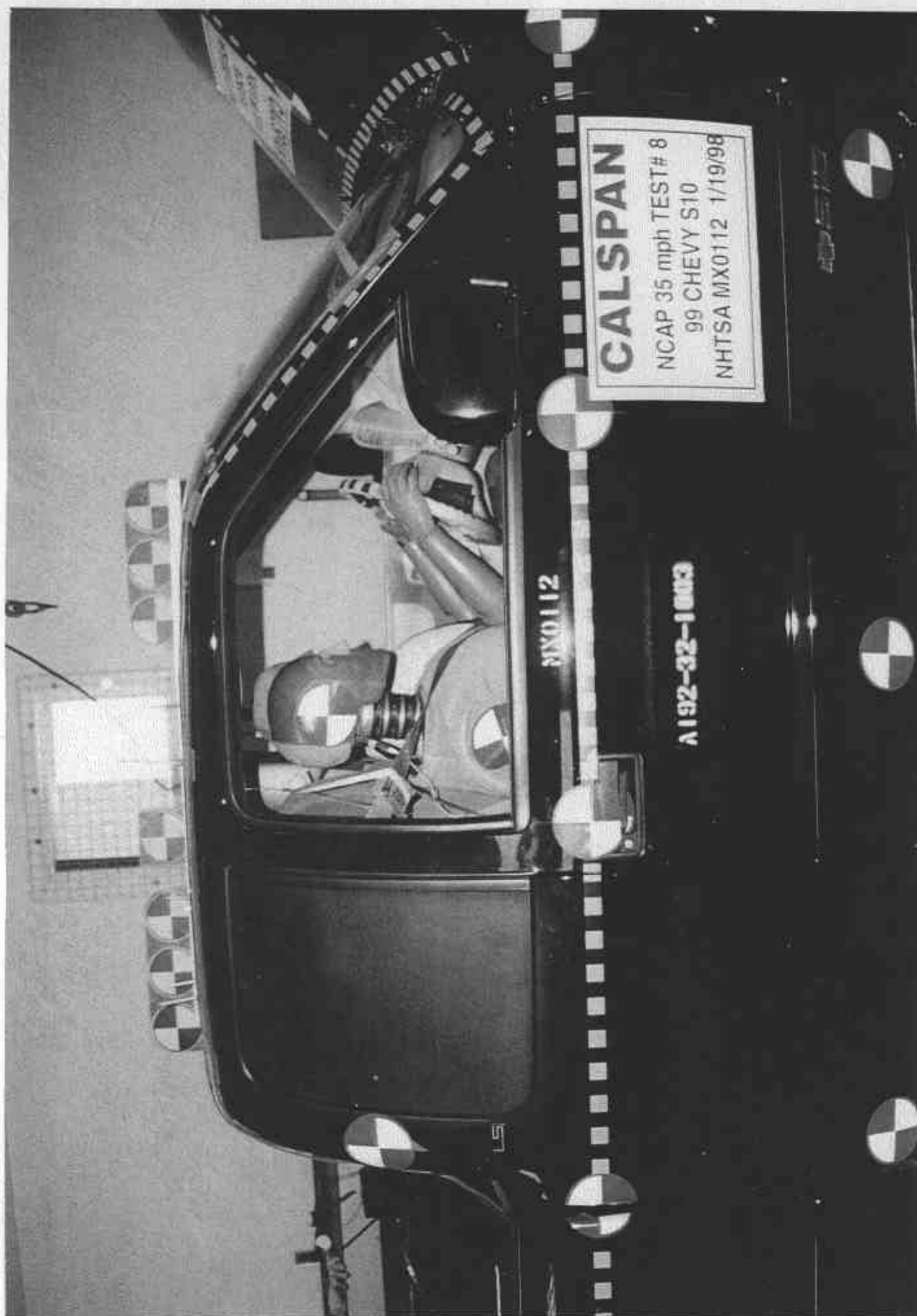


Figure A-24 PRE-TEST PASSENGER POSITION VIEW

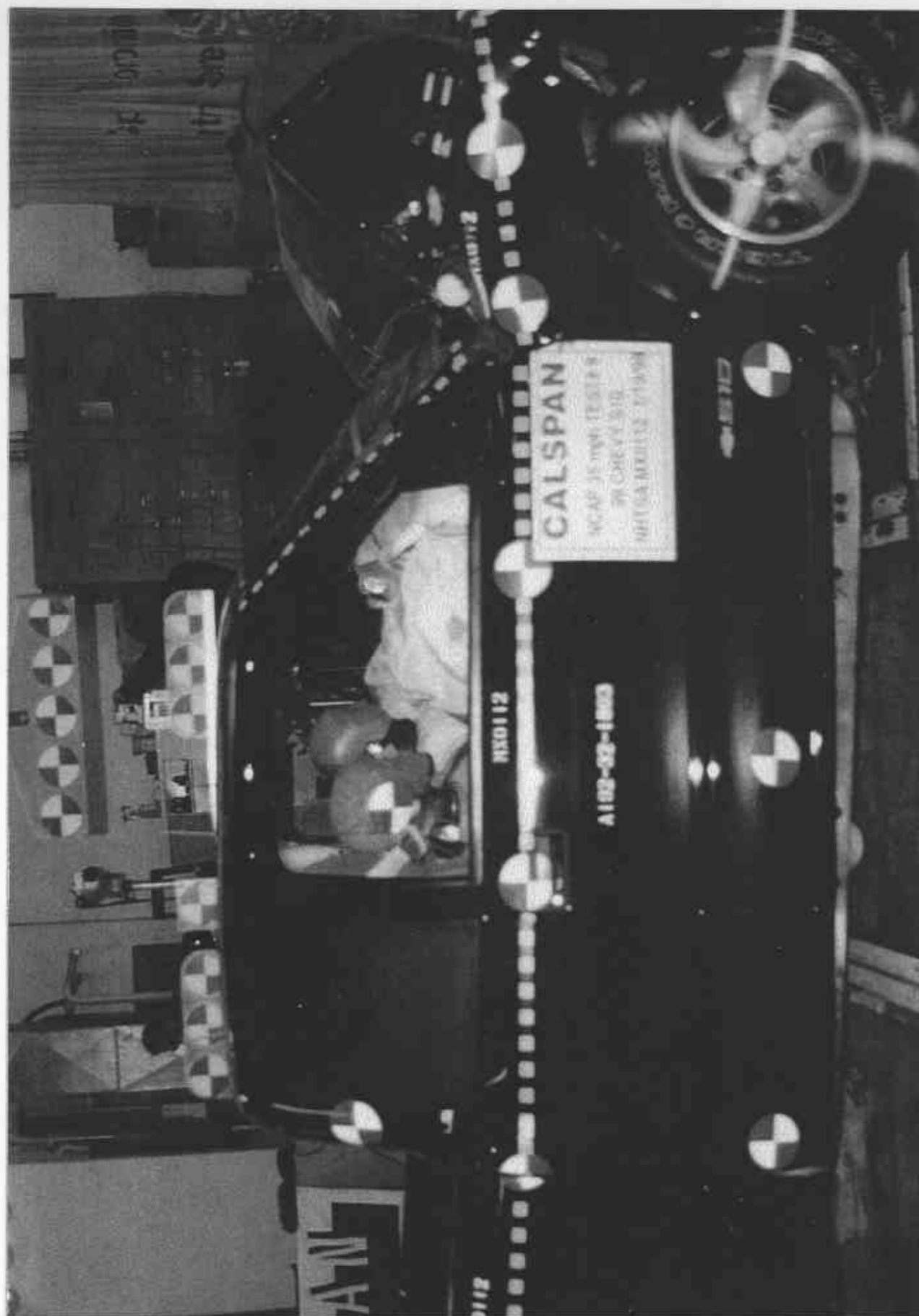


Figure A-25 POST-TEST PASSENGER POSITION VIEW



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

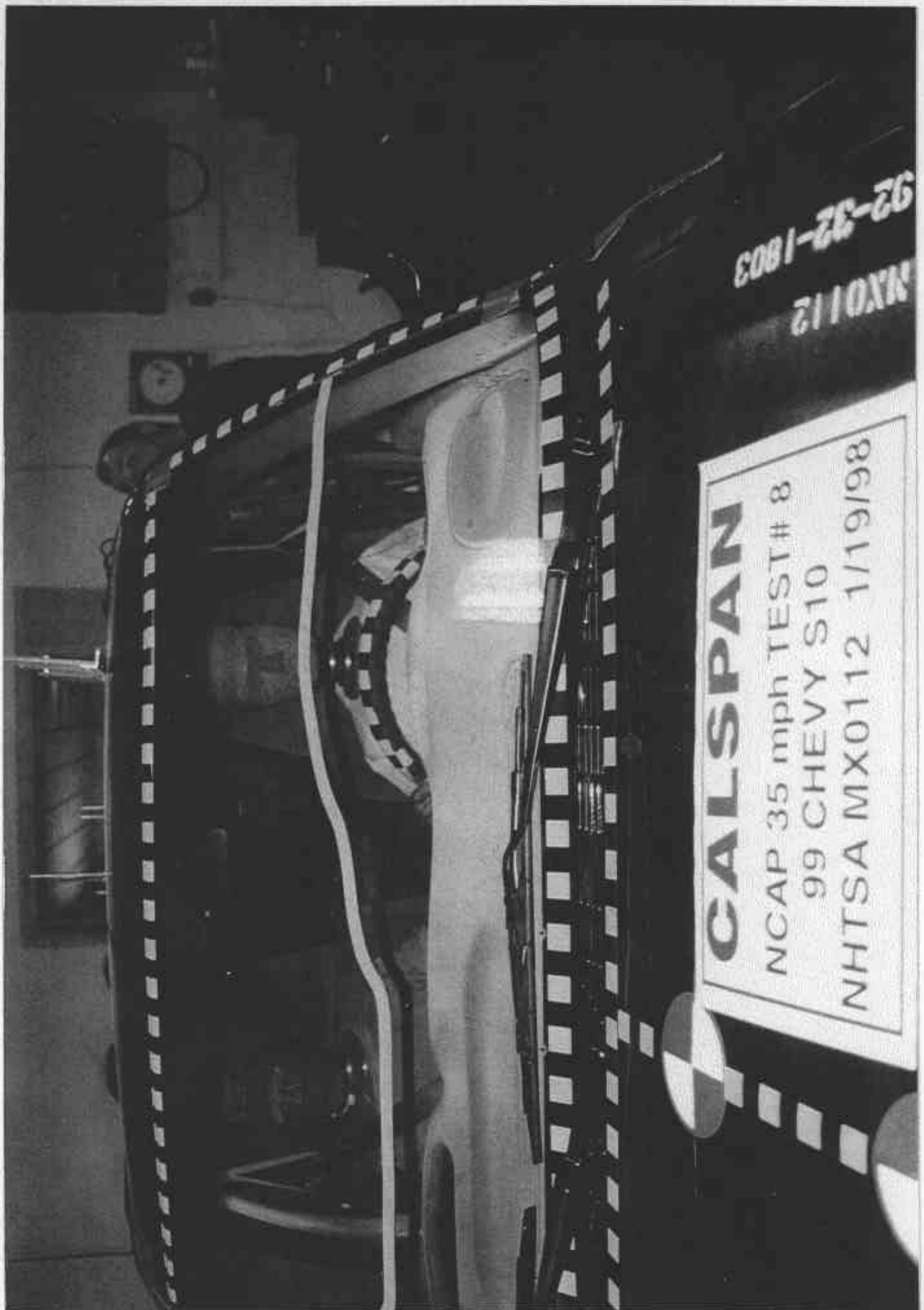


Figure A-30 PRE-TEST DRIVER HEAD LOCATION

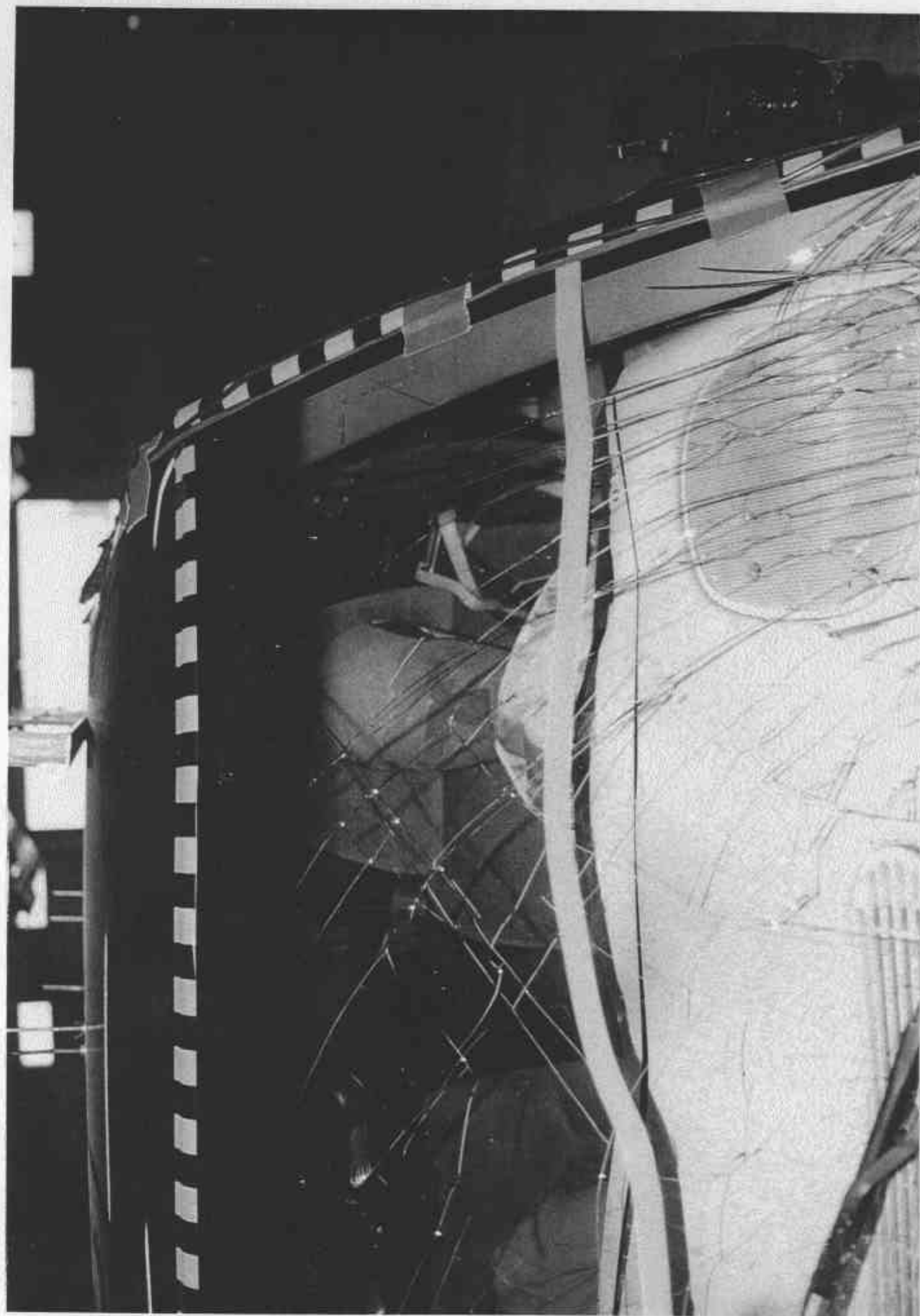


Figure A-31 POST-TEST DRIVER HEAD LOCATION

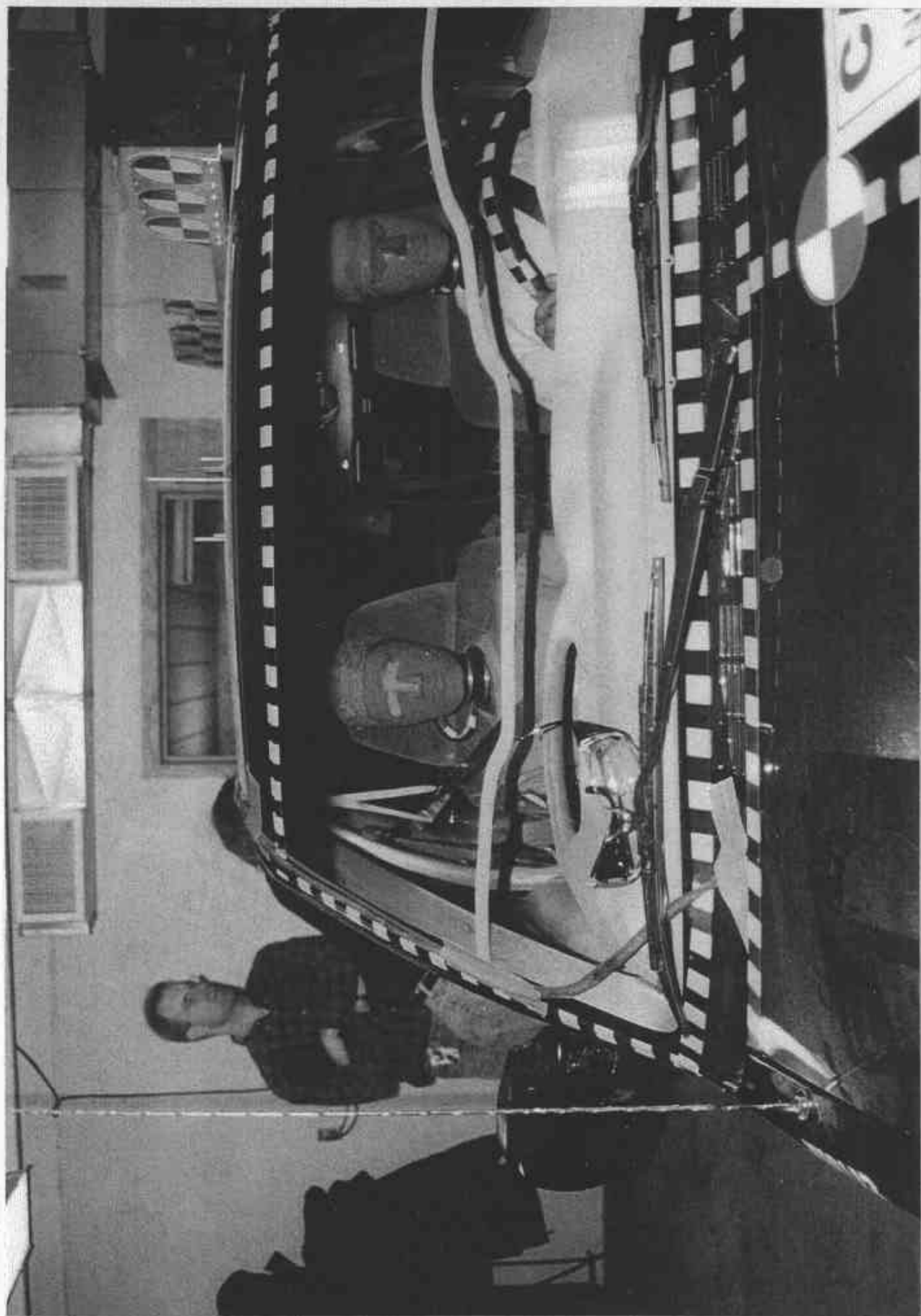


Figure A-32 PRE-TEST PASSENGER HEAD LOCATION



Figure A-33 POST-TEST PASSENGER HEAD LOCATION



Figure A-34 PRE-TEST DRIVER FLOOR PAN VIEW



Figure A-35 POST-TEST DRIVER FLOOR PAN VIEW



Figure A-36 PRE-TEST PASSENGER FLOOR PAN VIEW

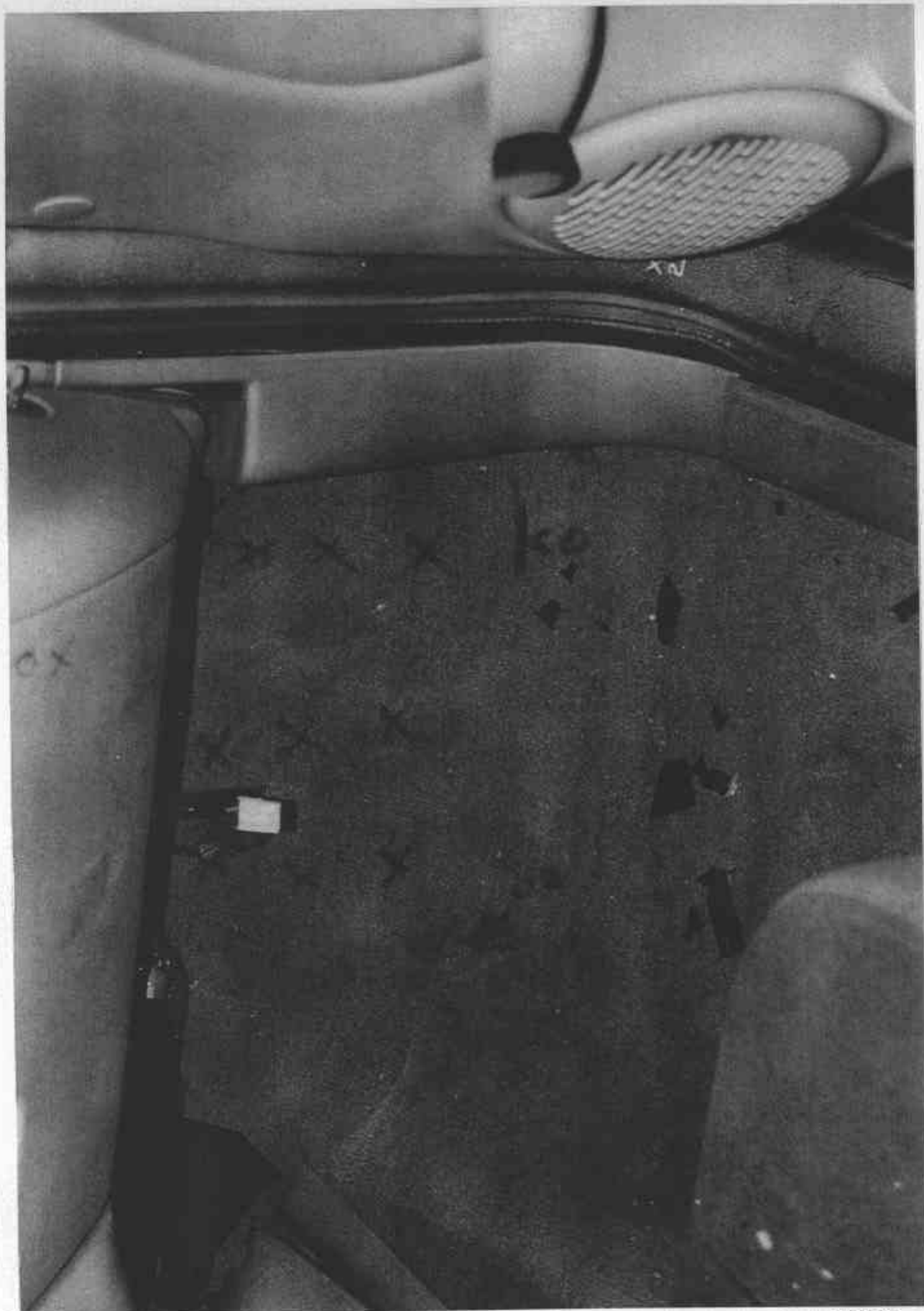


Figure A-37 POST-TEST PASSENGER FLOOR PAN VIEW

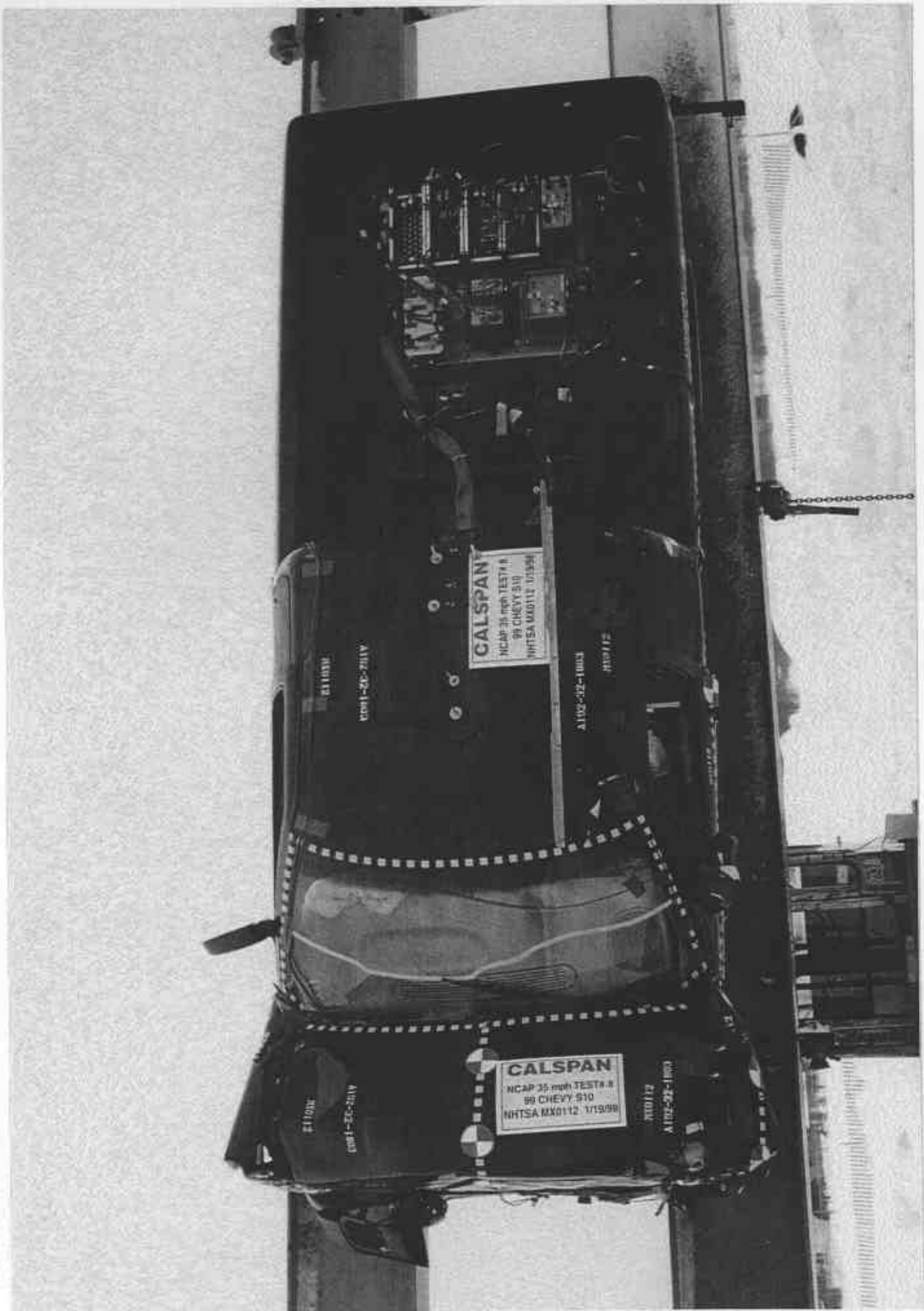


Figure A-38 ROLLOVER VIEW

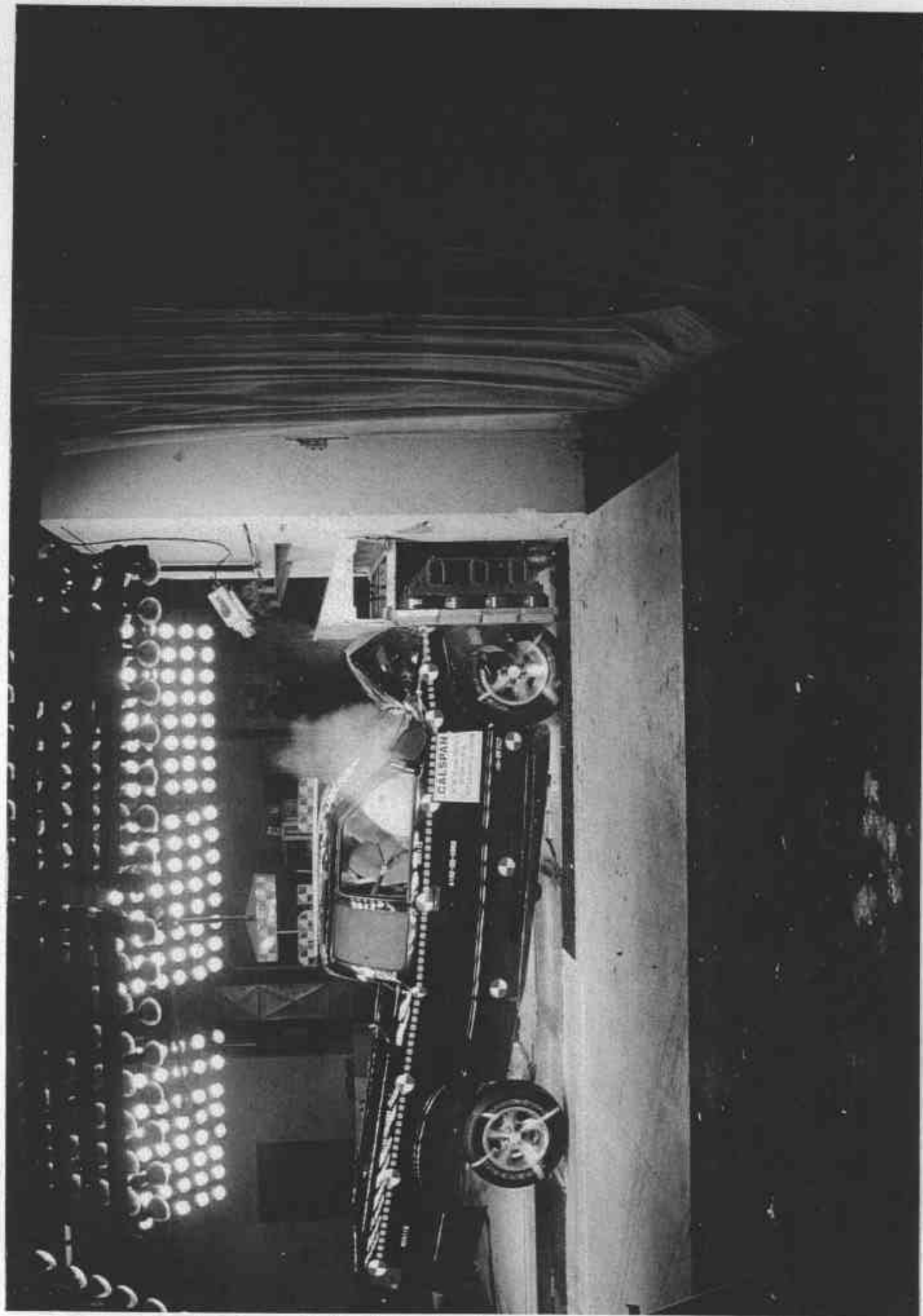


Figure A-39 IMPACT VIEW

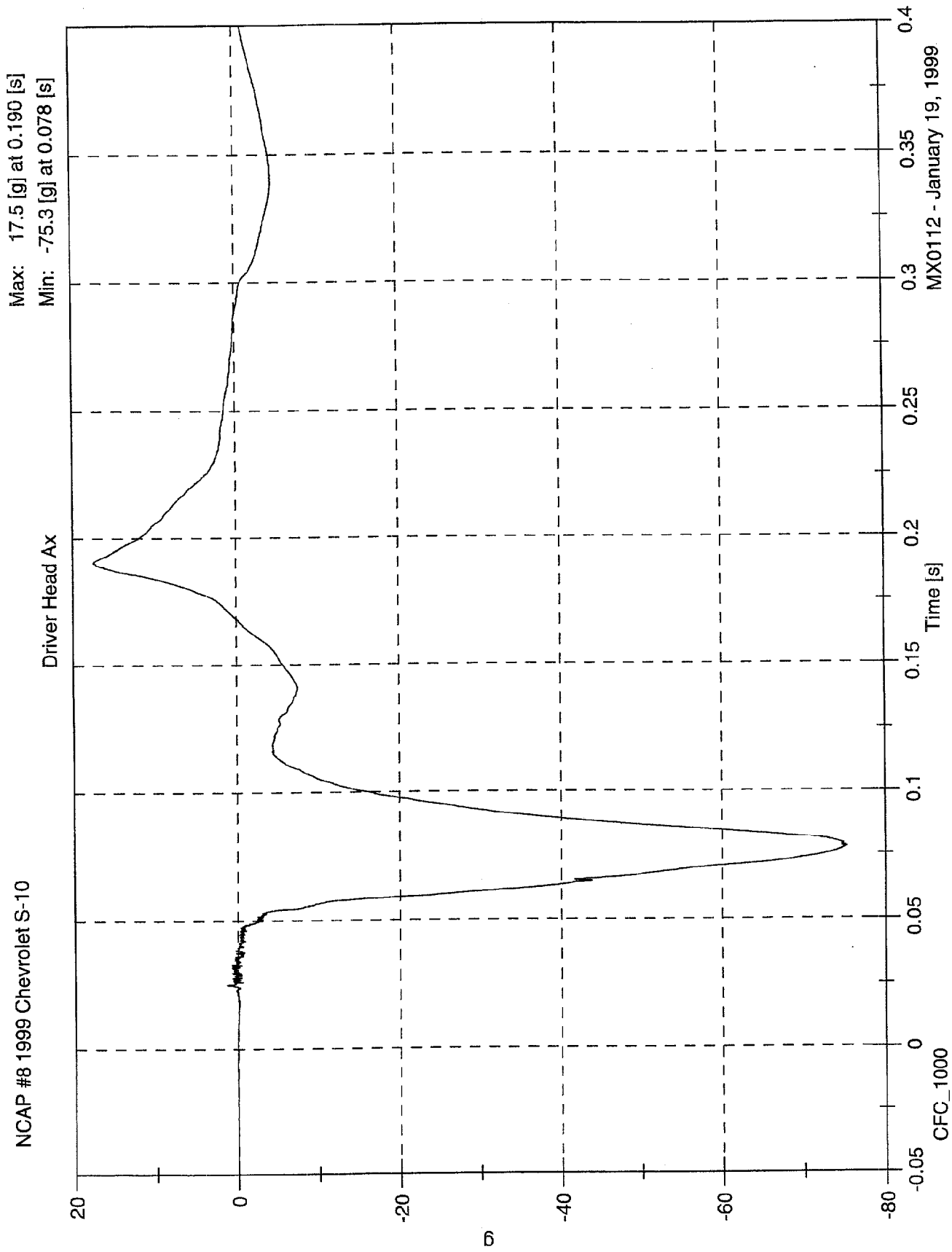
Appendix B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

NHTSA TEST NO. MX0112

DUMMY DATA

CLASS	FILTER CHANNEL
Head Accelerations	1000
Chest Accelerations	180
Chest Displacements	60
Femur Forces	600
Belt Loads	60
Belt Displacements	180
Neck Forces	1000
Neck Moments	600

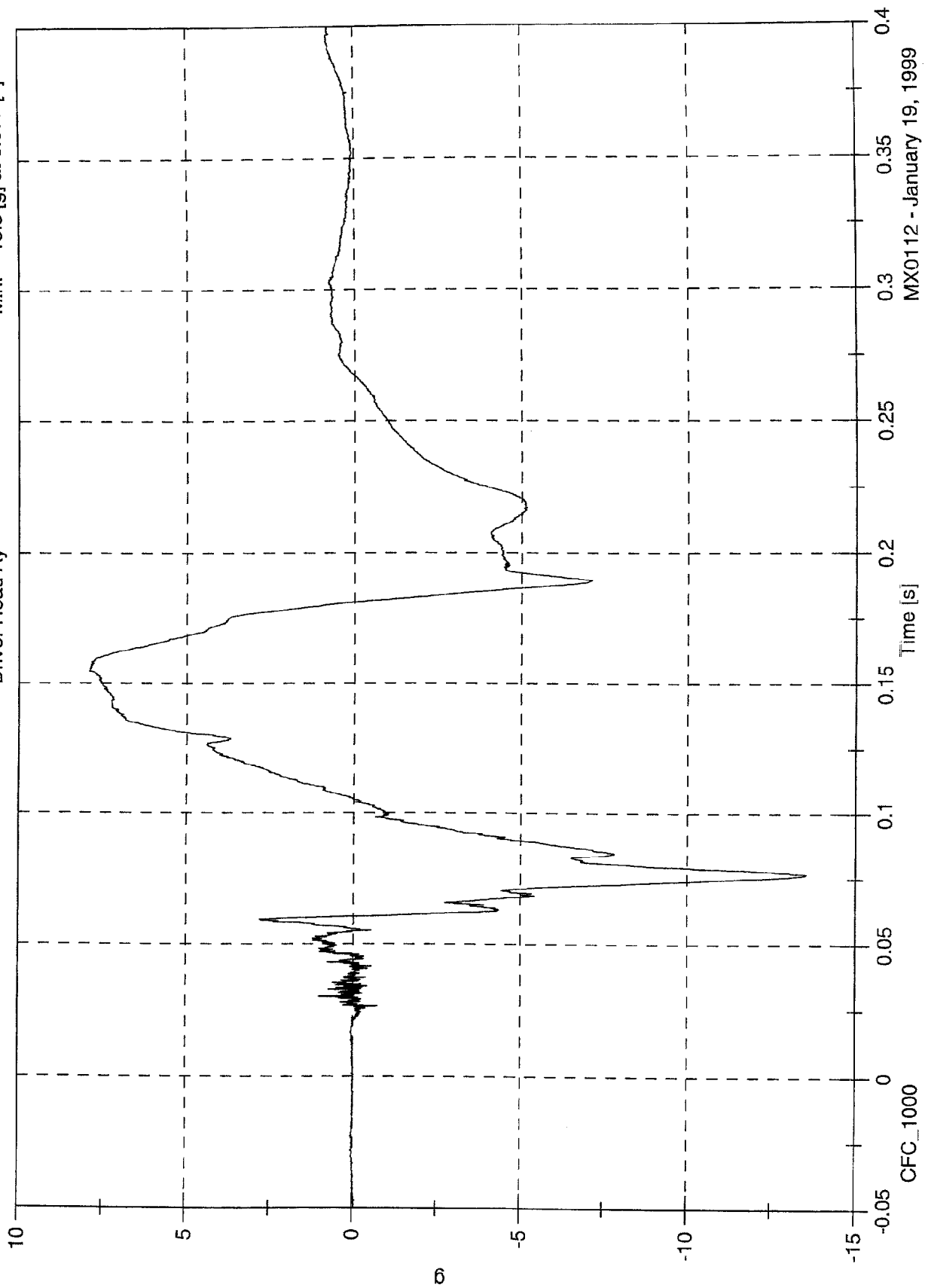


NCAP #8 1999 Chevrolet S-10

Max: 7.9 [g] at 0.155 [s]

Min: -13.5 [g] at 0.077 [s]

Driver Head Ay

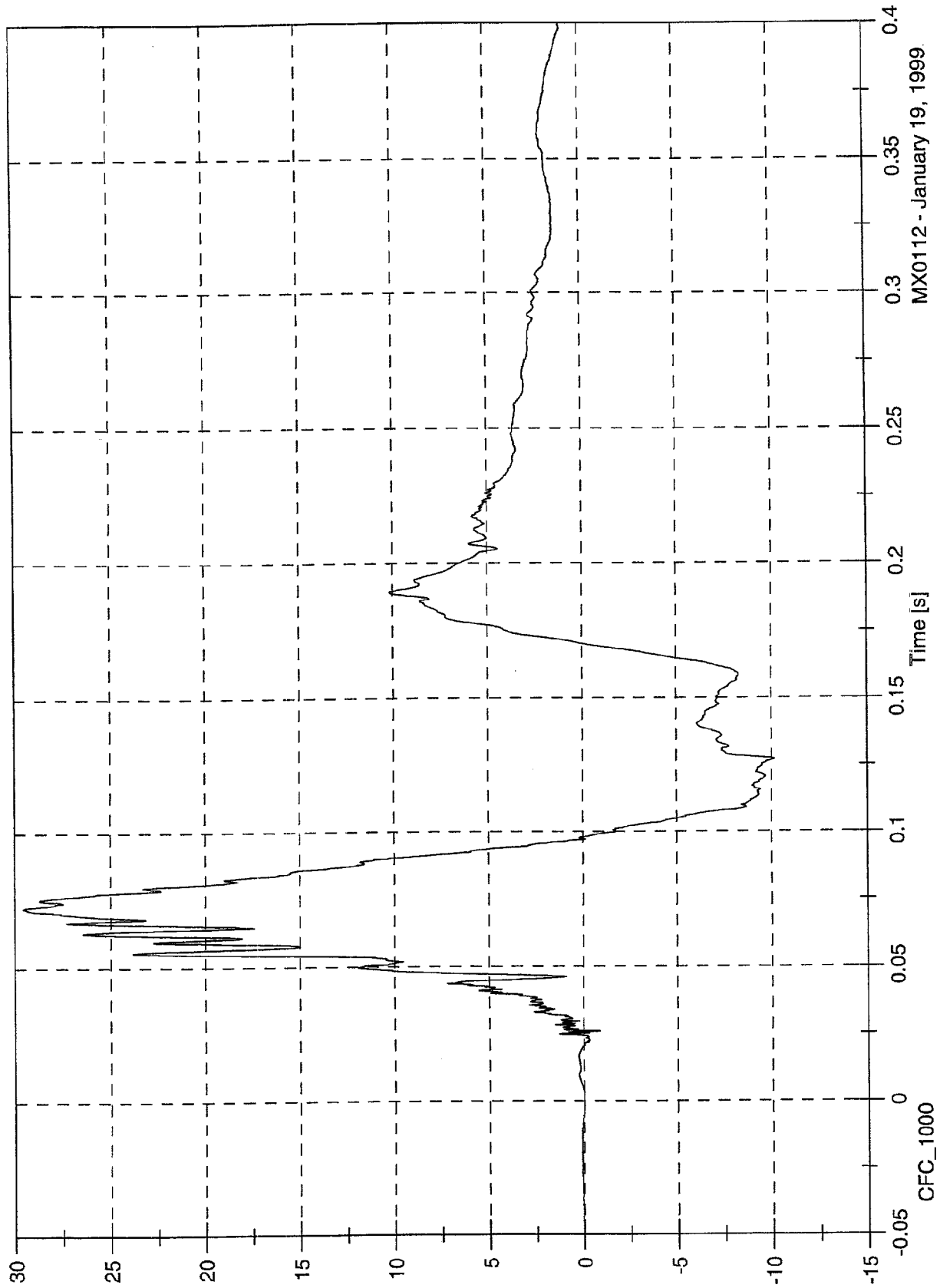


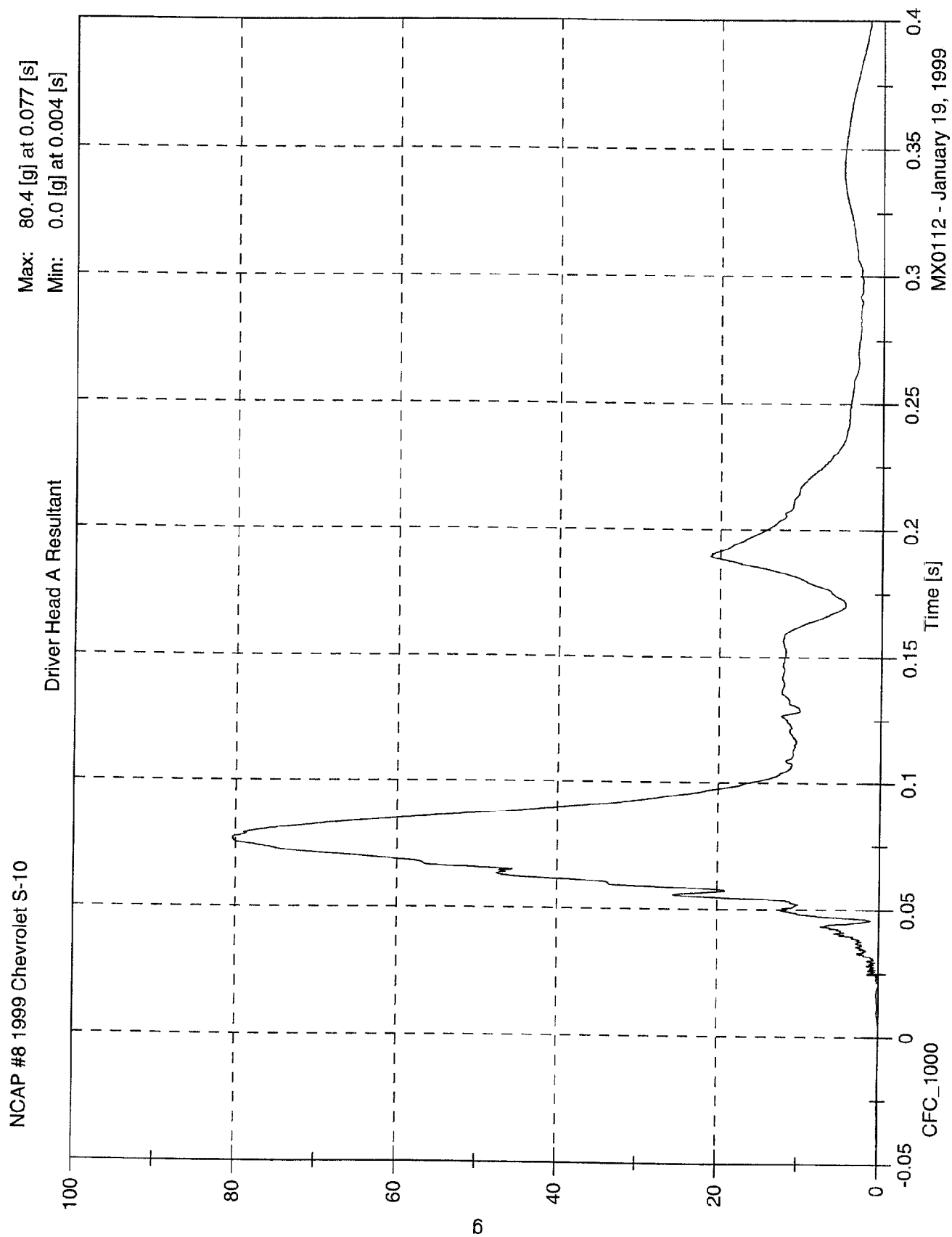
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Max: 29.6 [g] at 0.072 [s]
Min: -10.1 [g] at 0.127 [s]

Driver Head Az





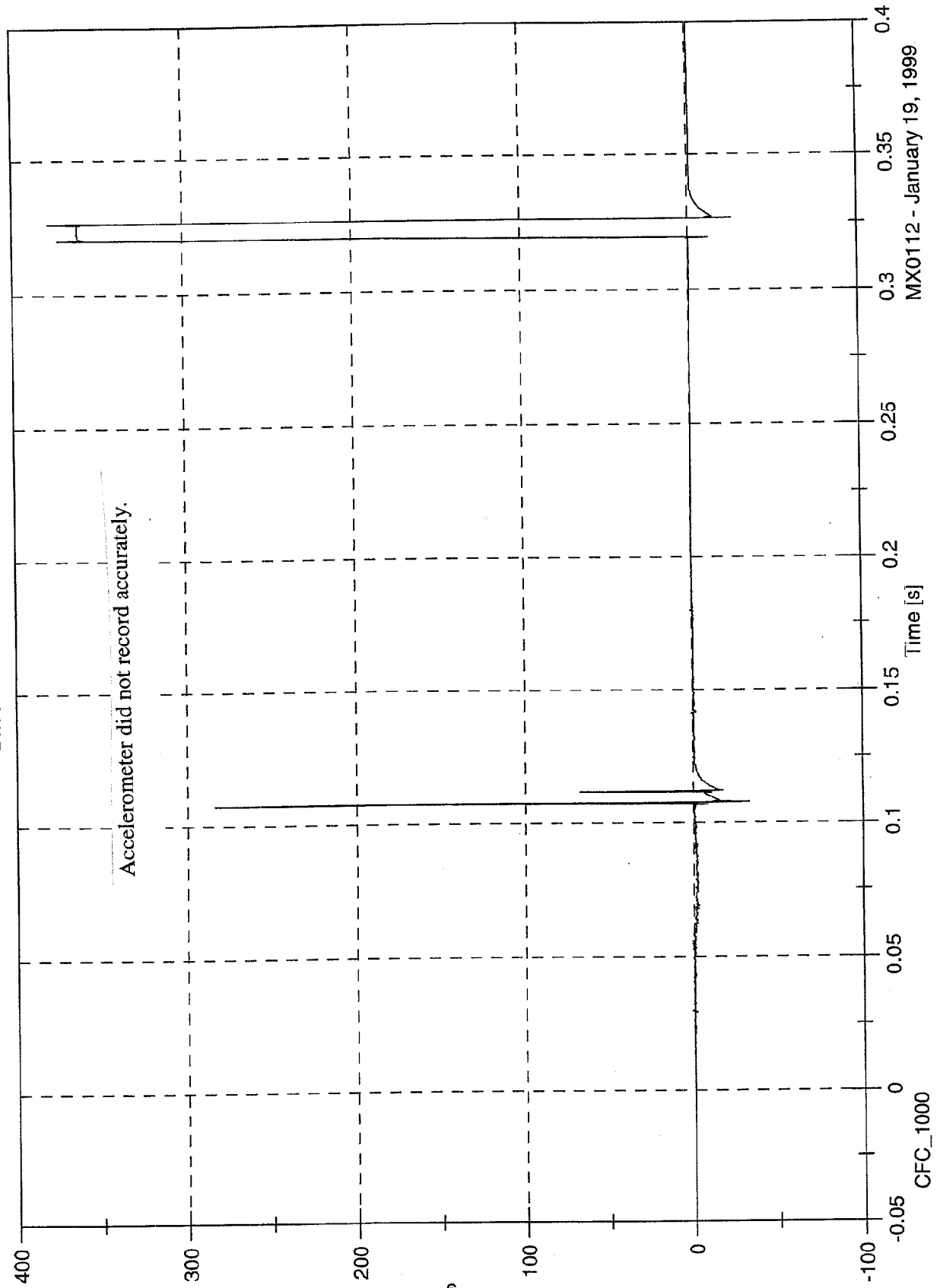
NCAP #8 1999 Chevrolet S-10

Driver Head Ax Redundant

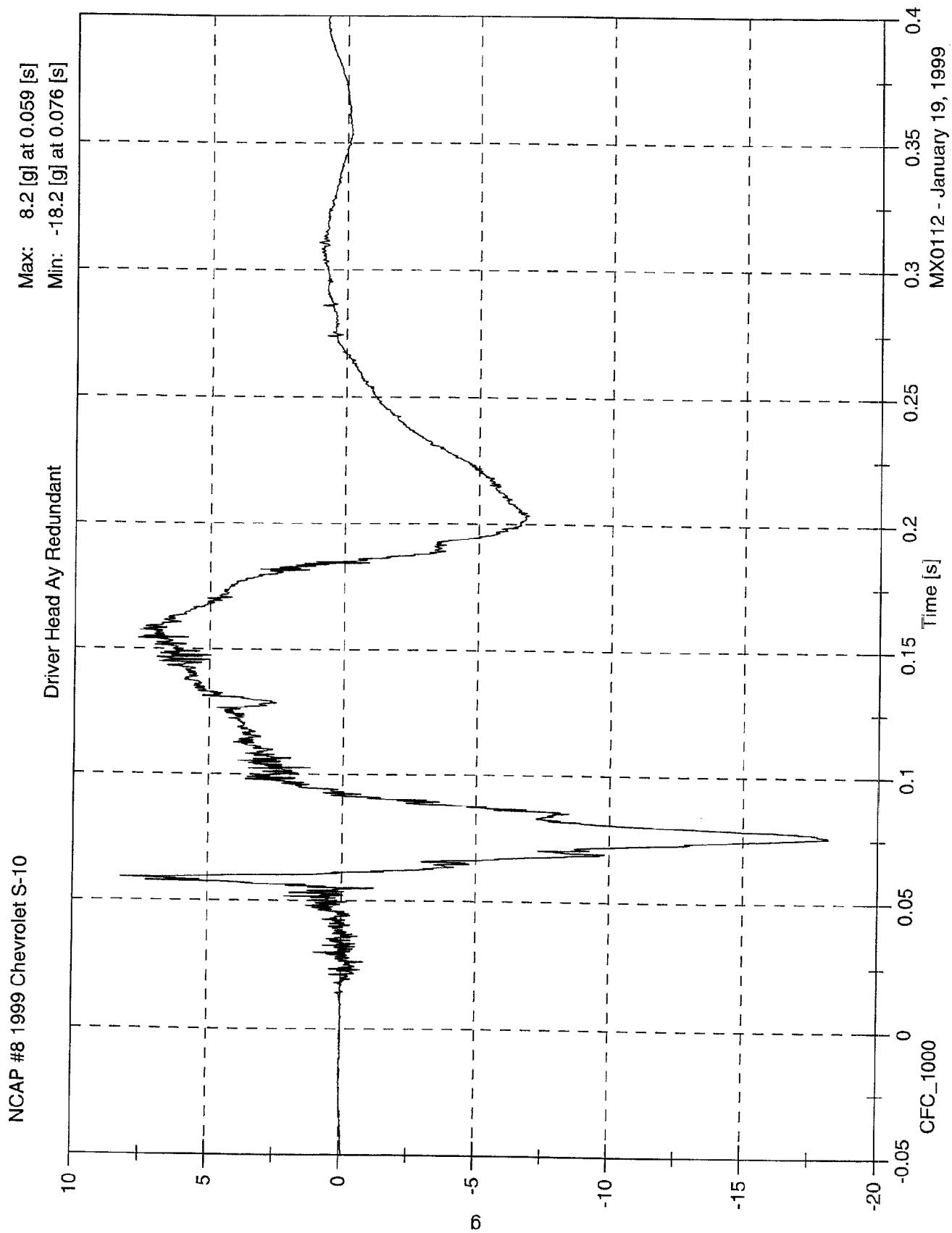
Max: 378.8 [g] at 0.326 [s]

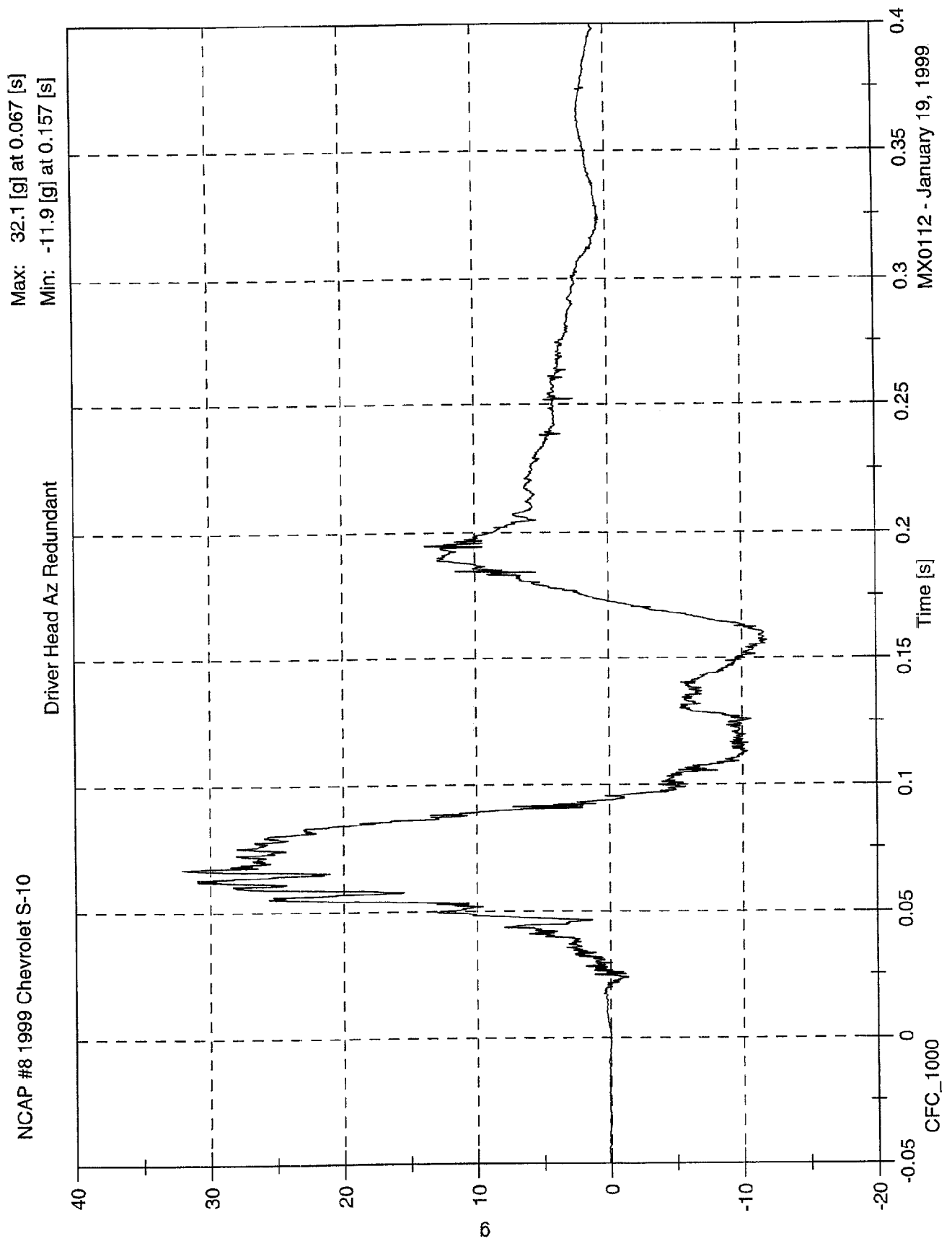
Min: -32.9 [g] at 0.108 [s]

Accelerometer did not record accurately.



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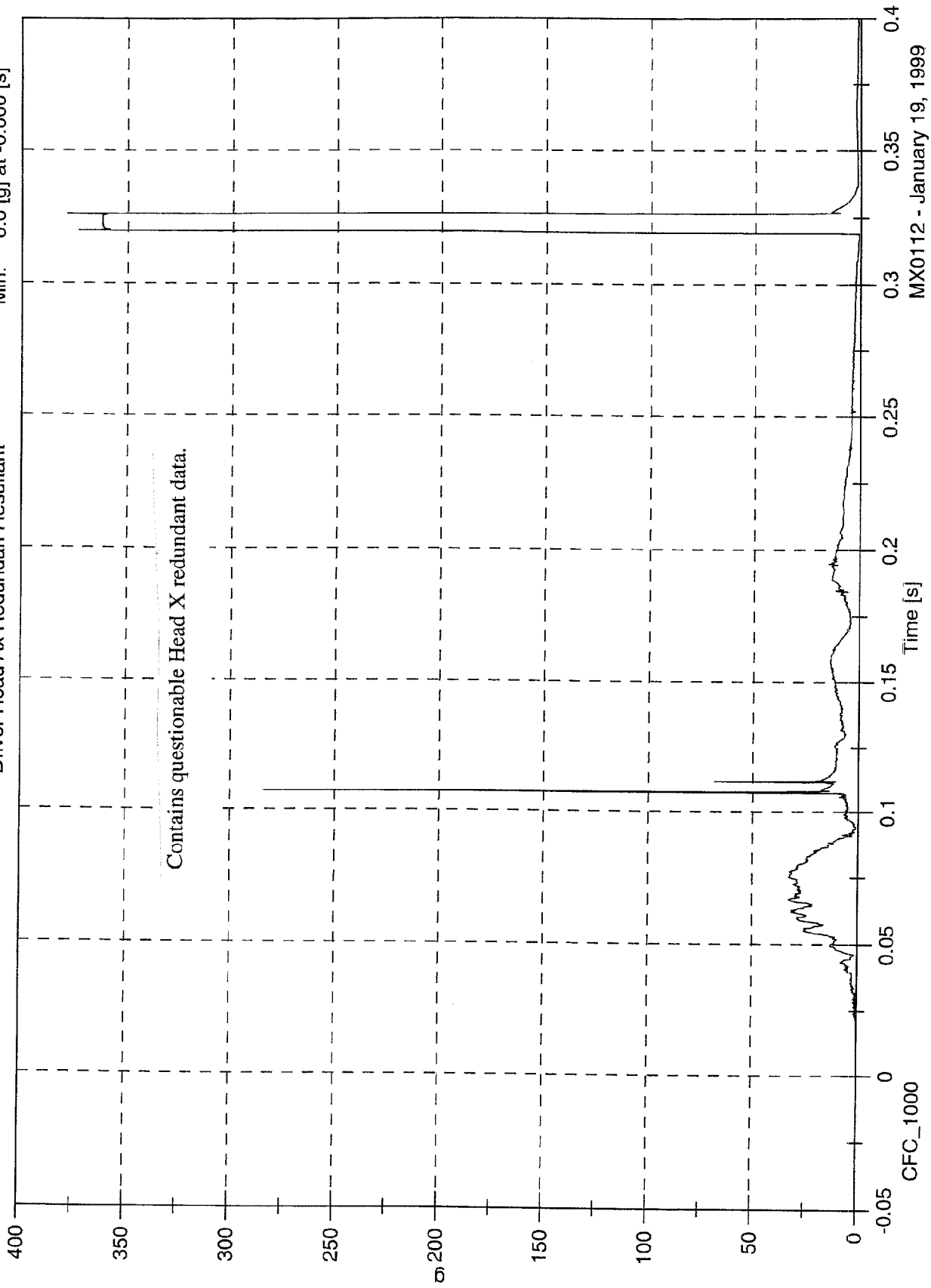


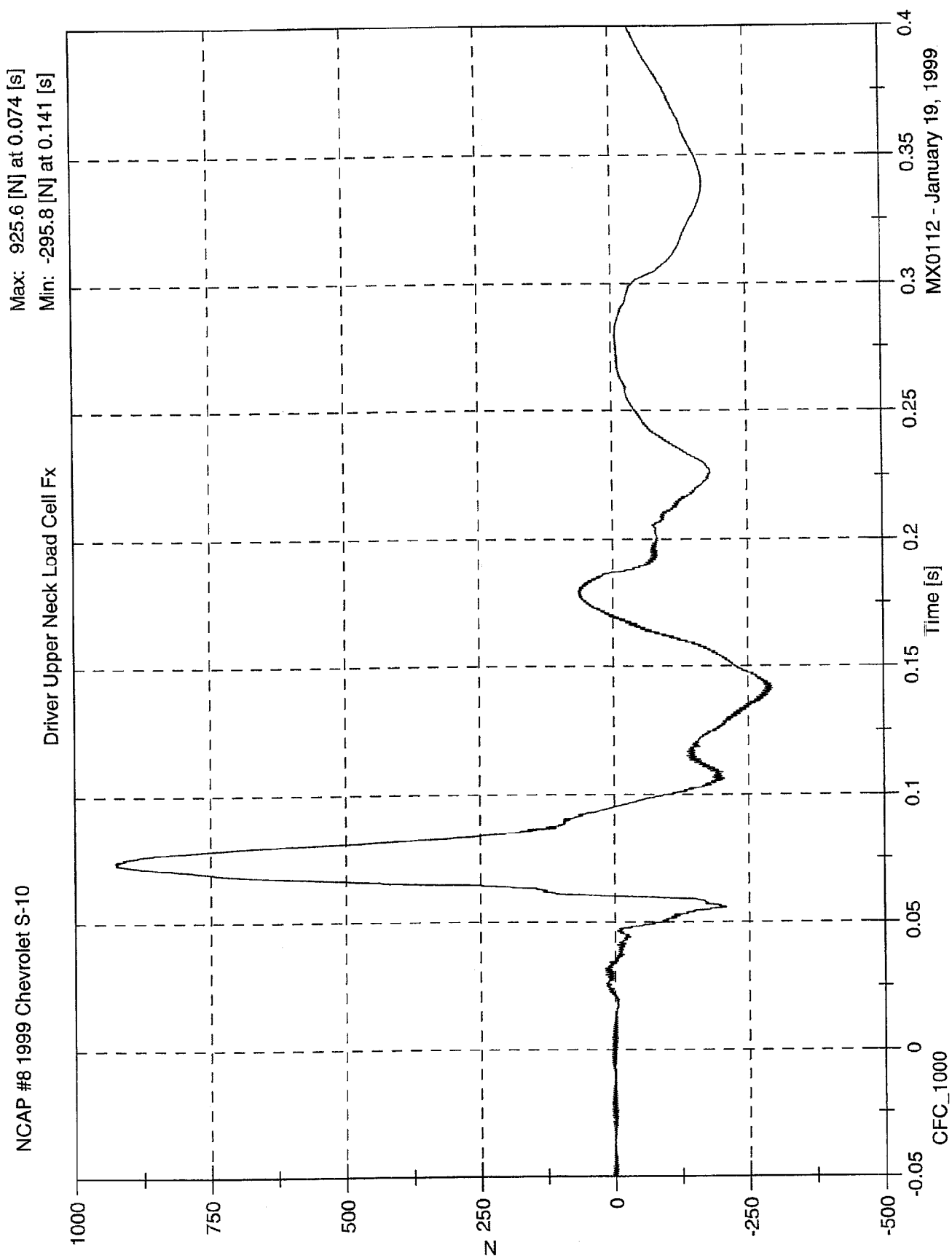
NCAP #8 1999 Chevrolet S-10

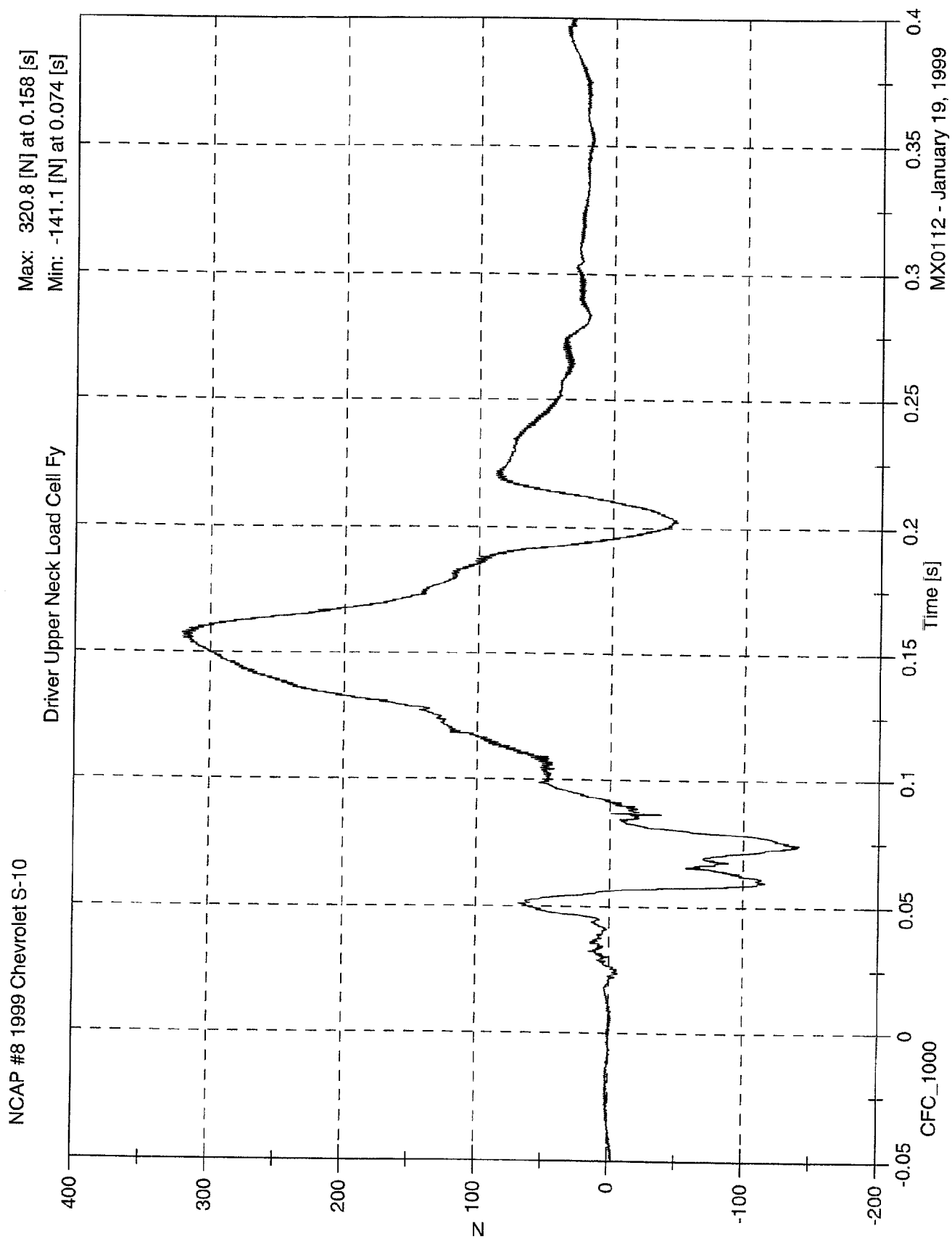
Driver Head Ax Redundan Resultant

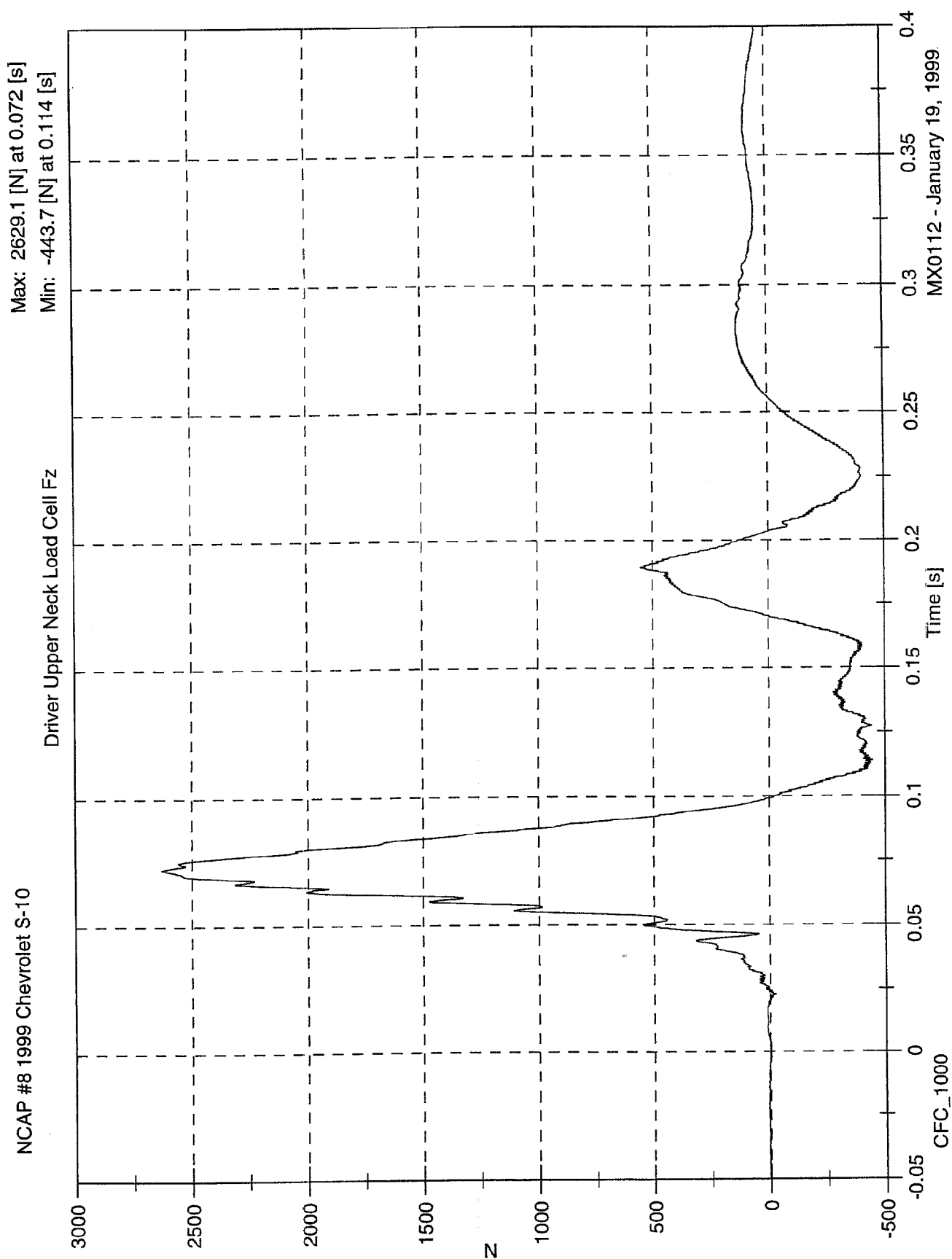
Max: 378.8 [g] at 0.326 [s]

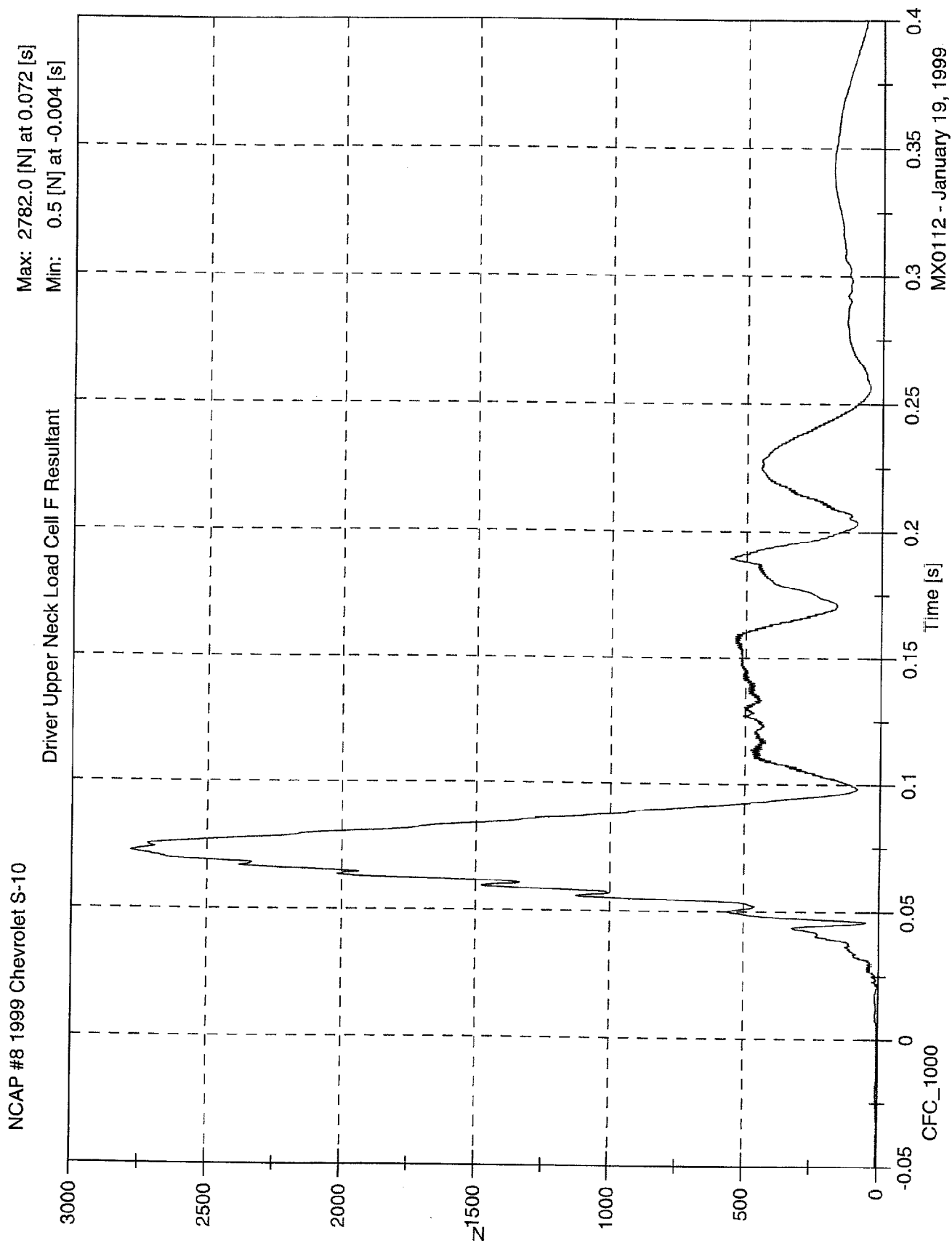
Min: 0.0 [g] at -0.000 [s]







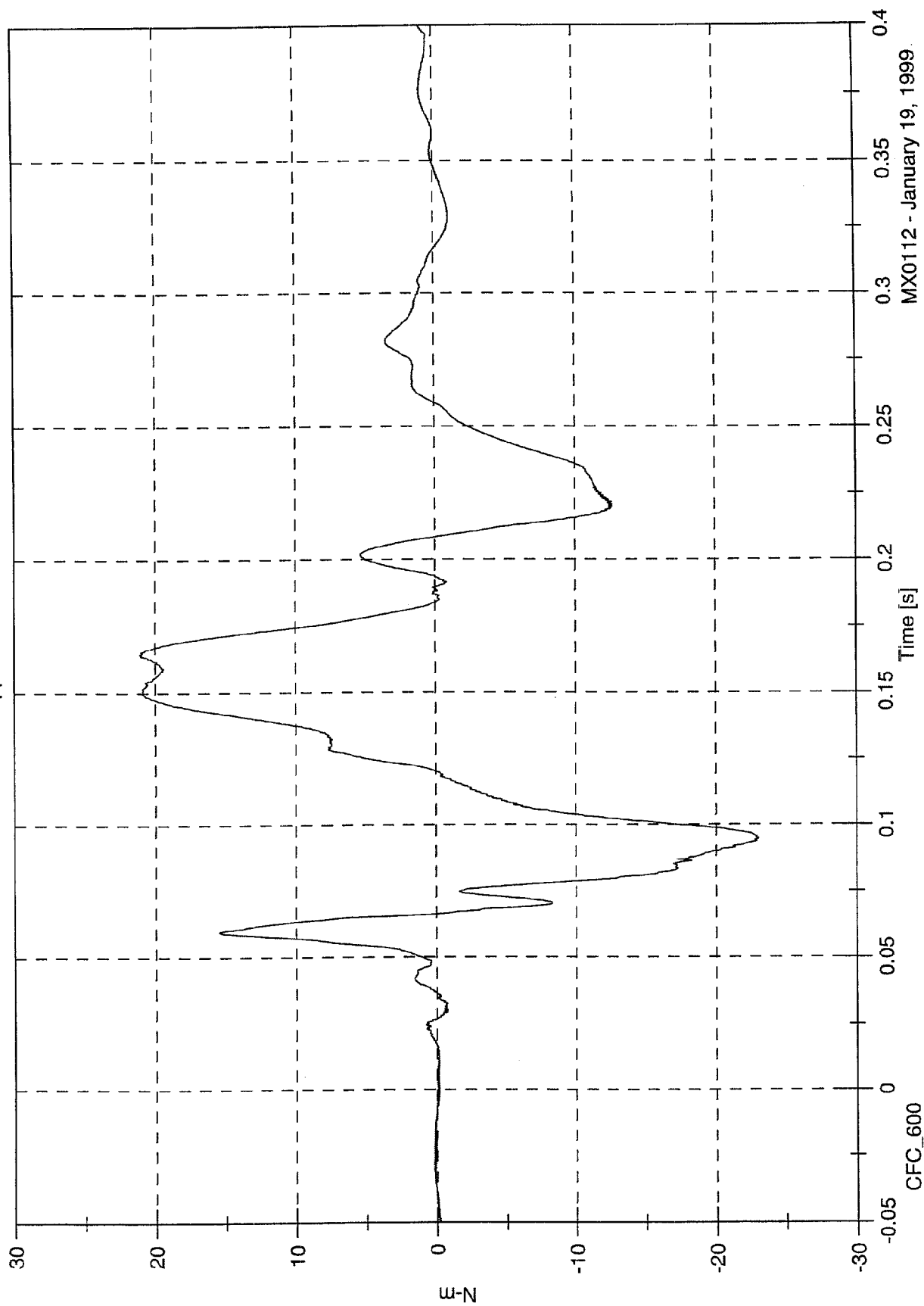




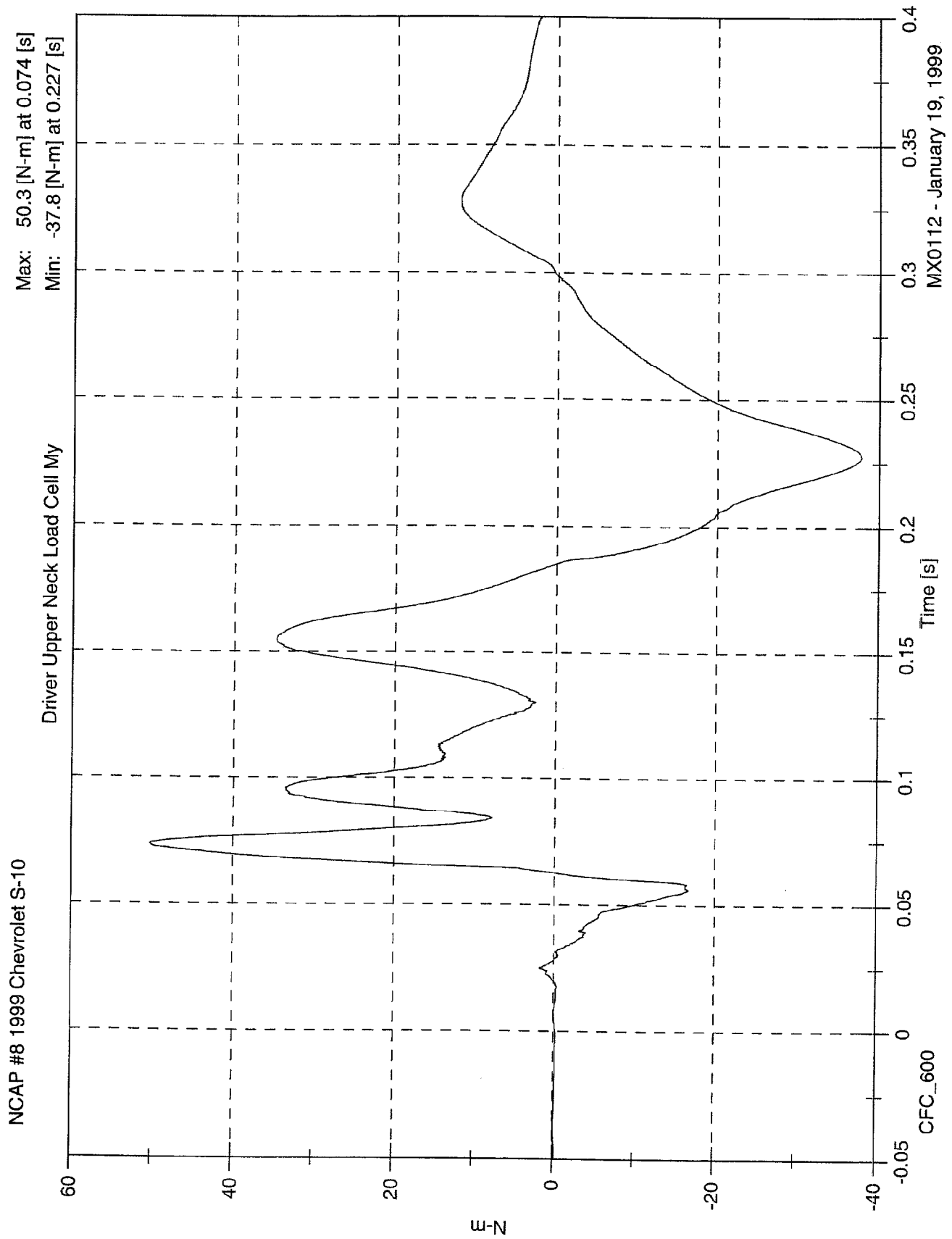
NCAP #8 1999 Chevrolet S-10

Driver Upper Neck Load Cell Mx

Max: 21.1 [N-m] at 0.165 [s]
Min: -23.0 [N-m] at 0.095 [s]



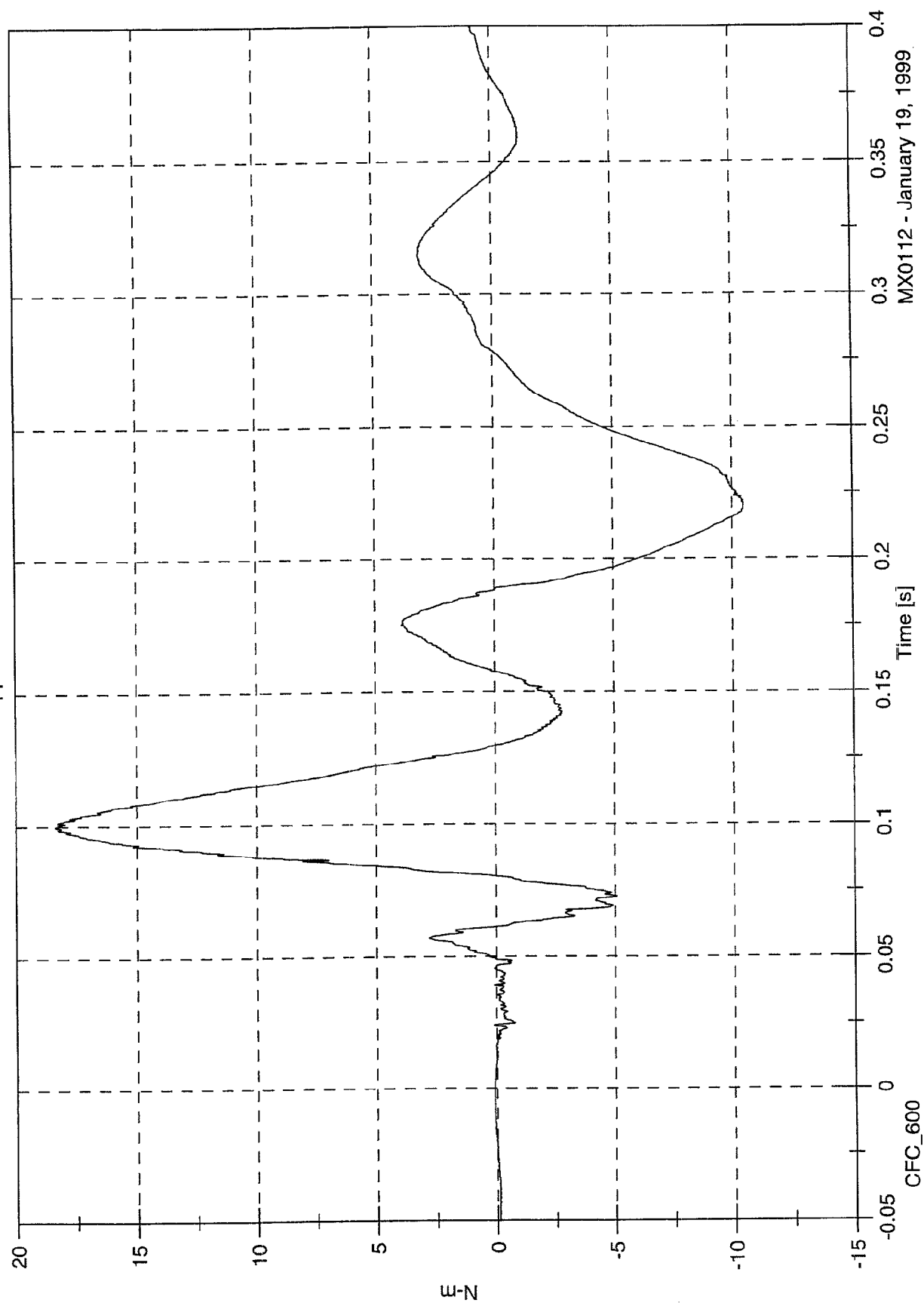
MX0112 - January 19, 1999



NCAP #8 1999 Chevrolet S-10

Driver Upper Neck Load Cell Mz

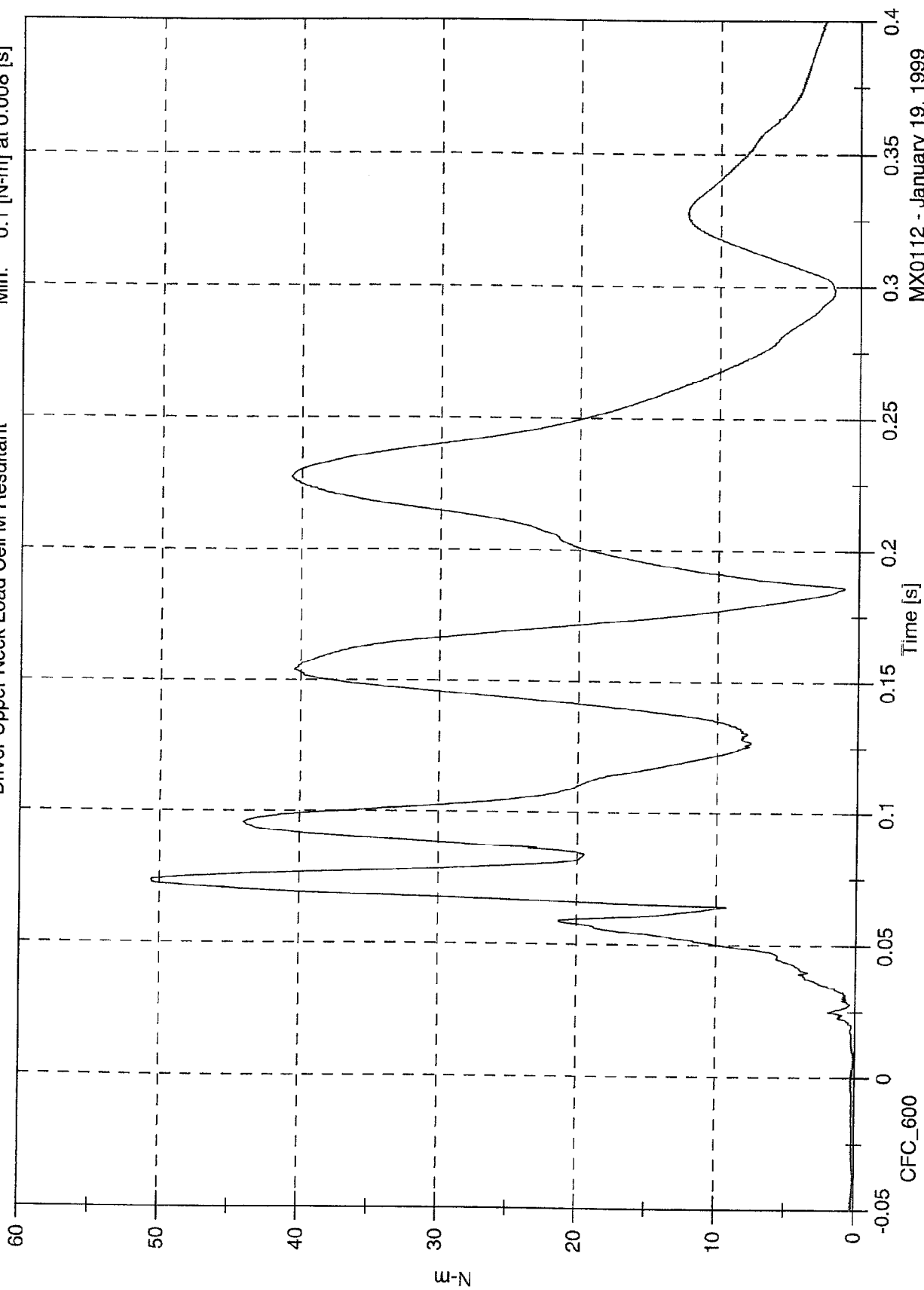
Max: 18.4 [N-m] at 0.100 [s]
Min: -10.5 [N-m] at 0.221 [s]



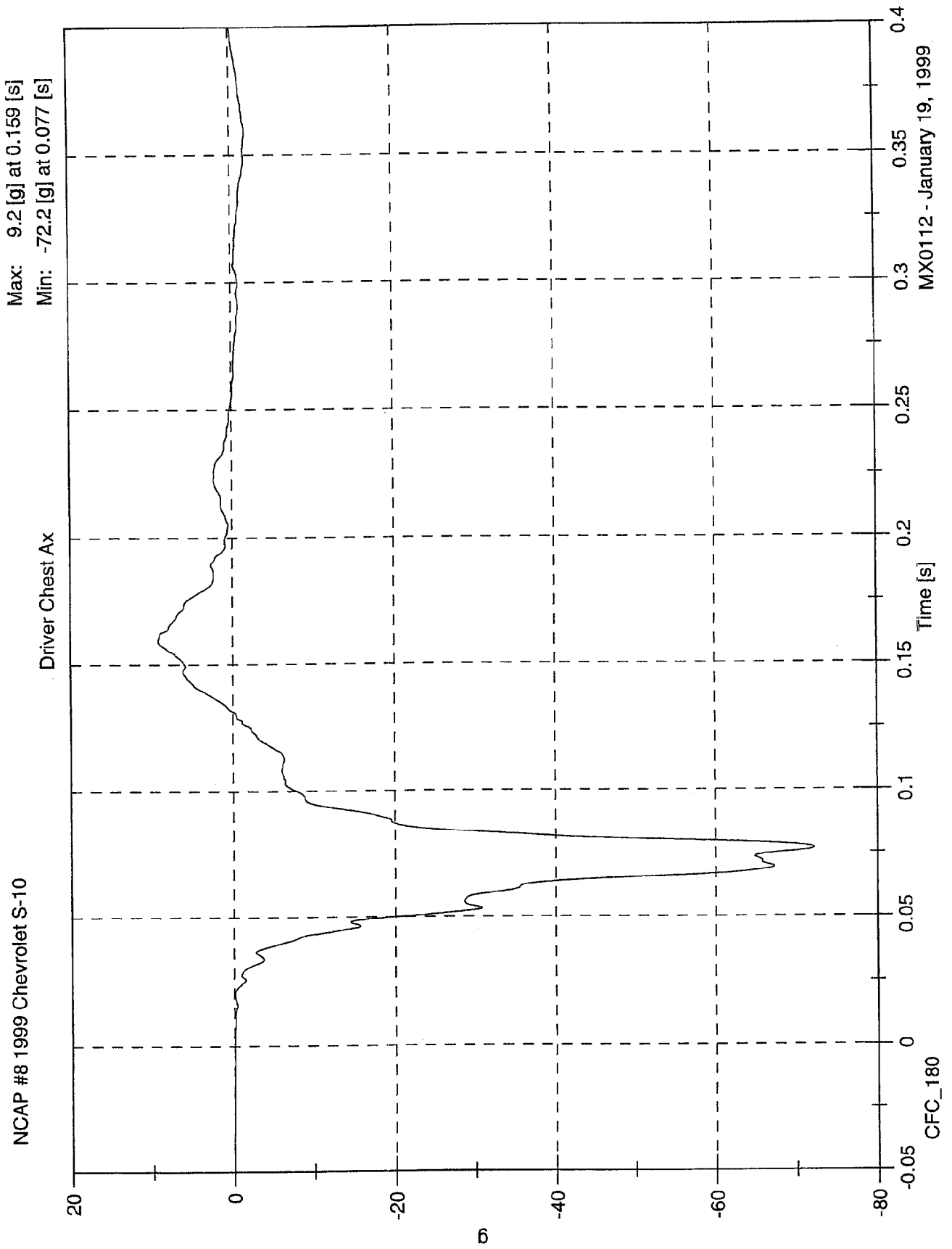
NCAP #8 1999 Chevrolet S-10

Driver Upper Neck Load Cell M Resultant

Max: 50.6 [N-m] at 0.074 [s]
Min: 0.1 [N-m] at 0.008 [s]



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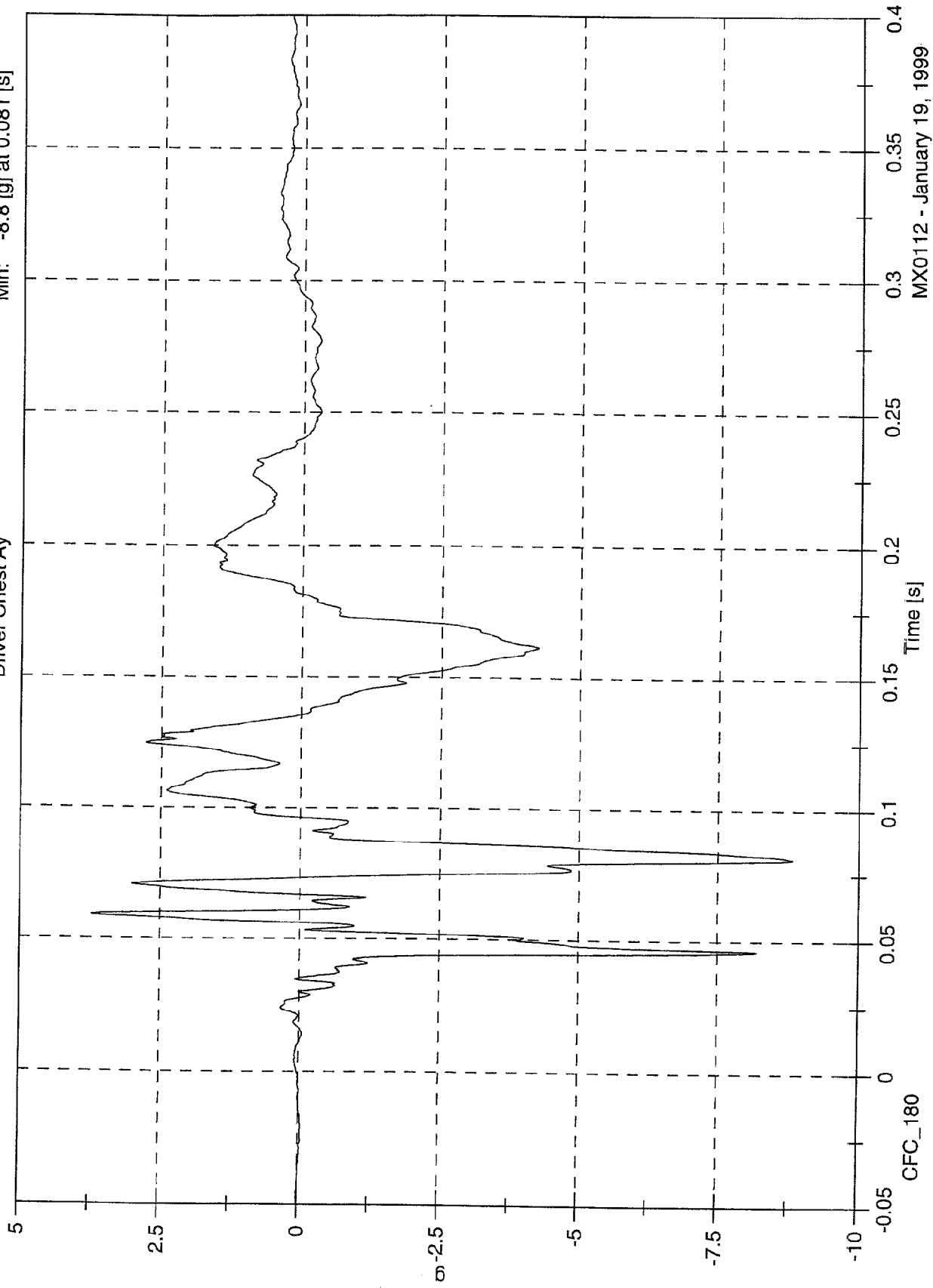


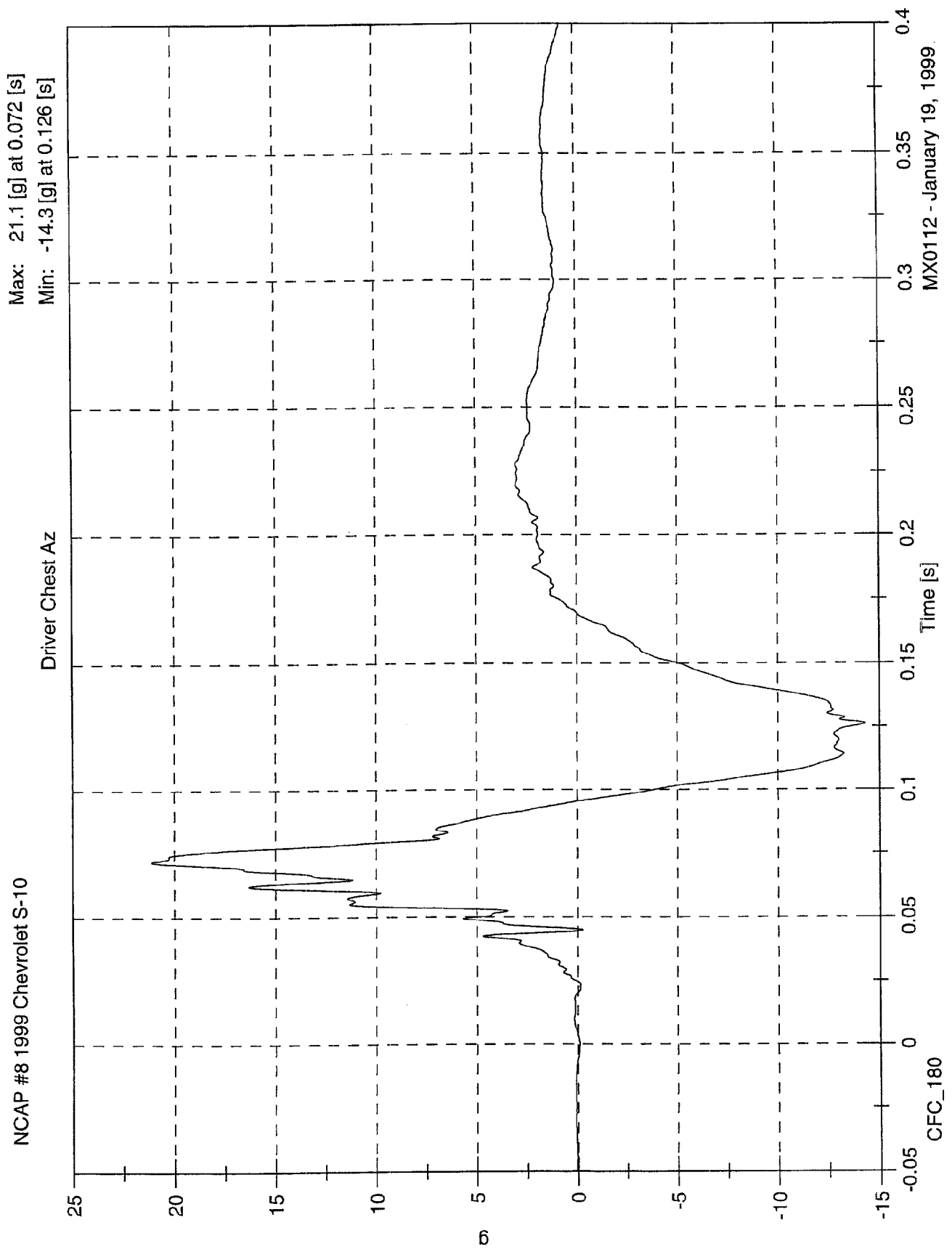
NCAP #8 1999 Chevrolet S-10

Max: 3.7 [g] at 0.059 [s]

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

Driver Chest Ay



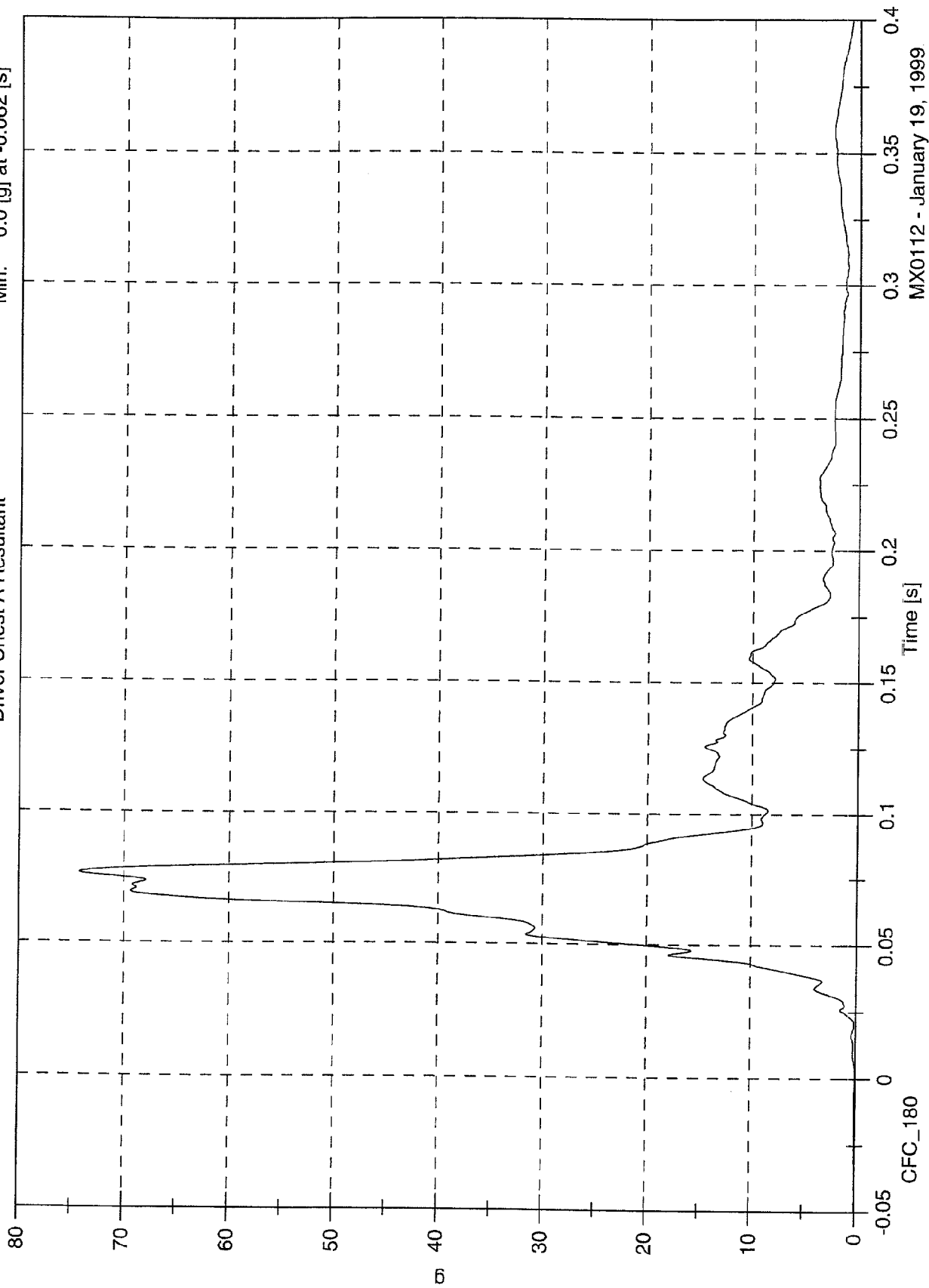


NCAP #8 1999 Chevrolet S-10

Driver Chest A Resultant

Max: 74.2 [g] at 0.077 [s]

Min: 0.0 [g] at -0.062 [s]



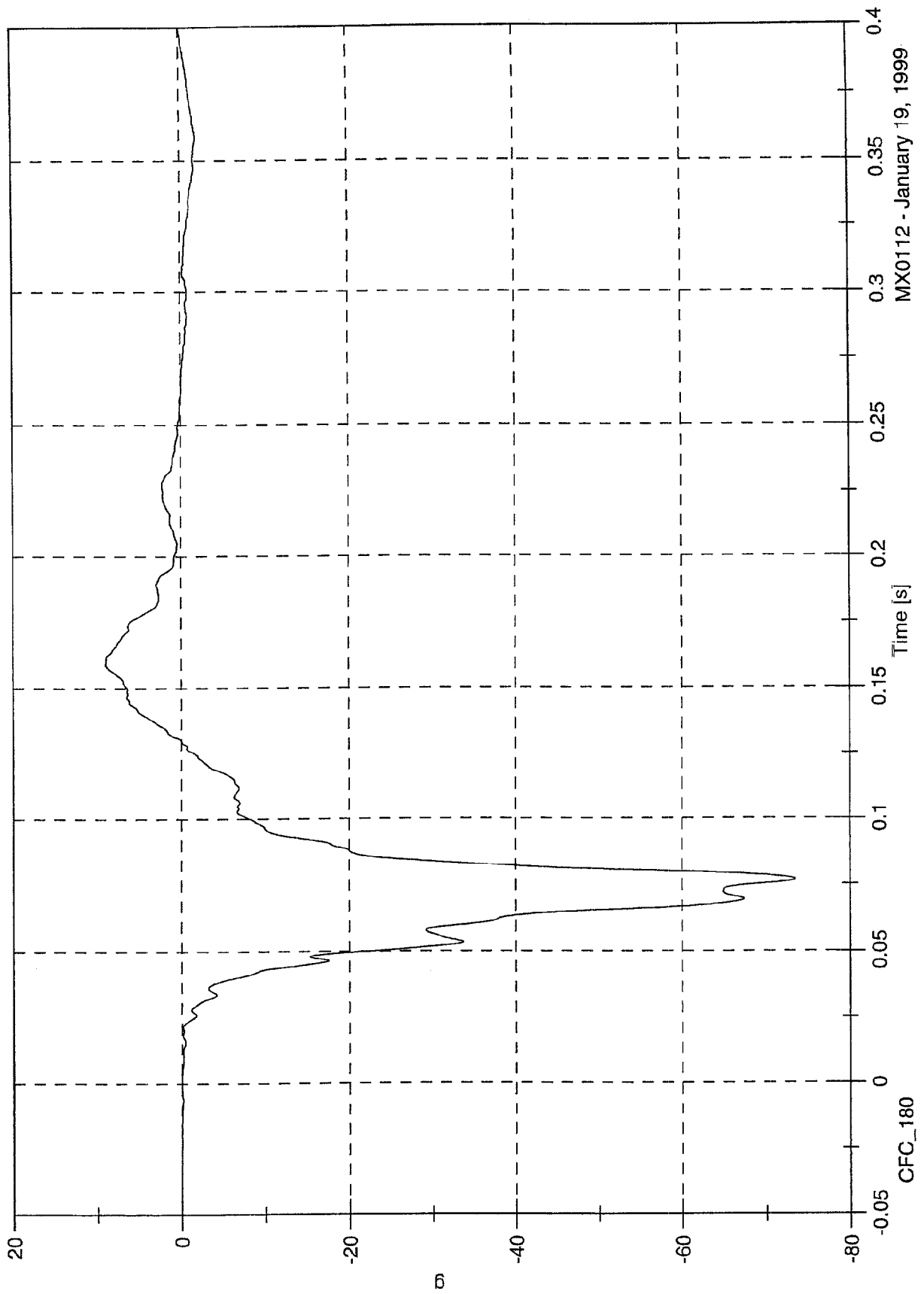
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Driver Chest Ax Redundant

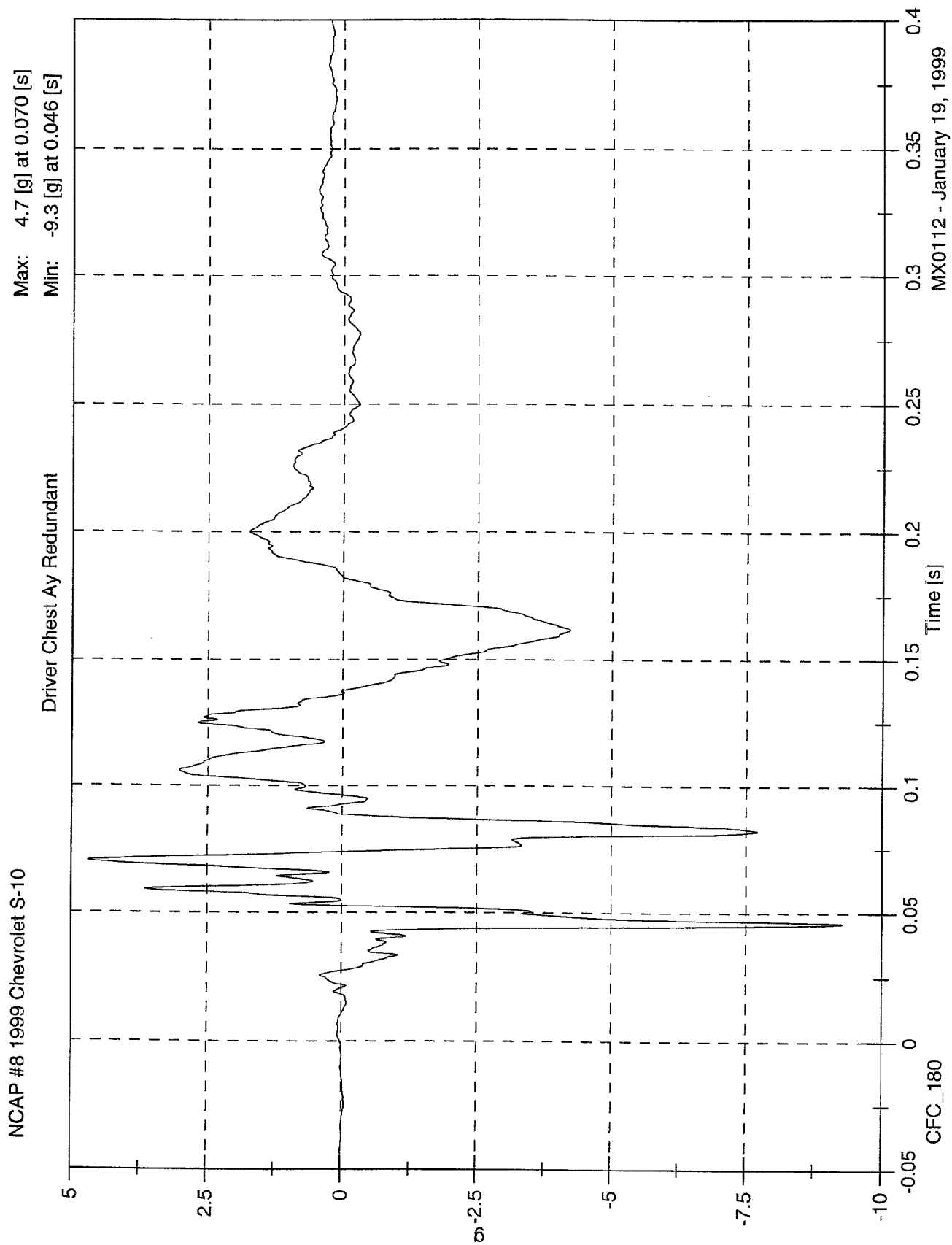
Max: 9.0 [g] at 0.159 [s]

Min: -73.5 [g] at 0.077 [s]



CFC_180

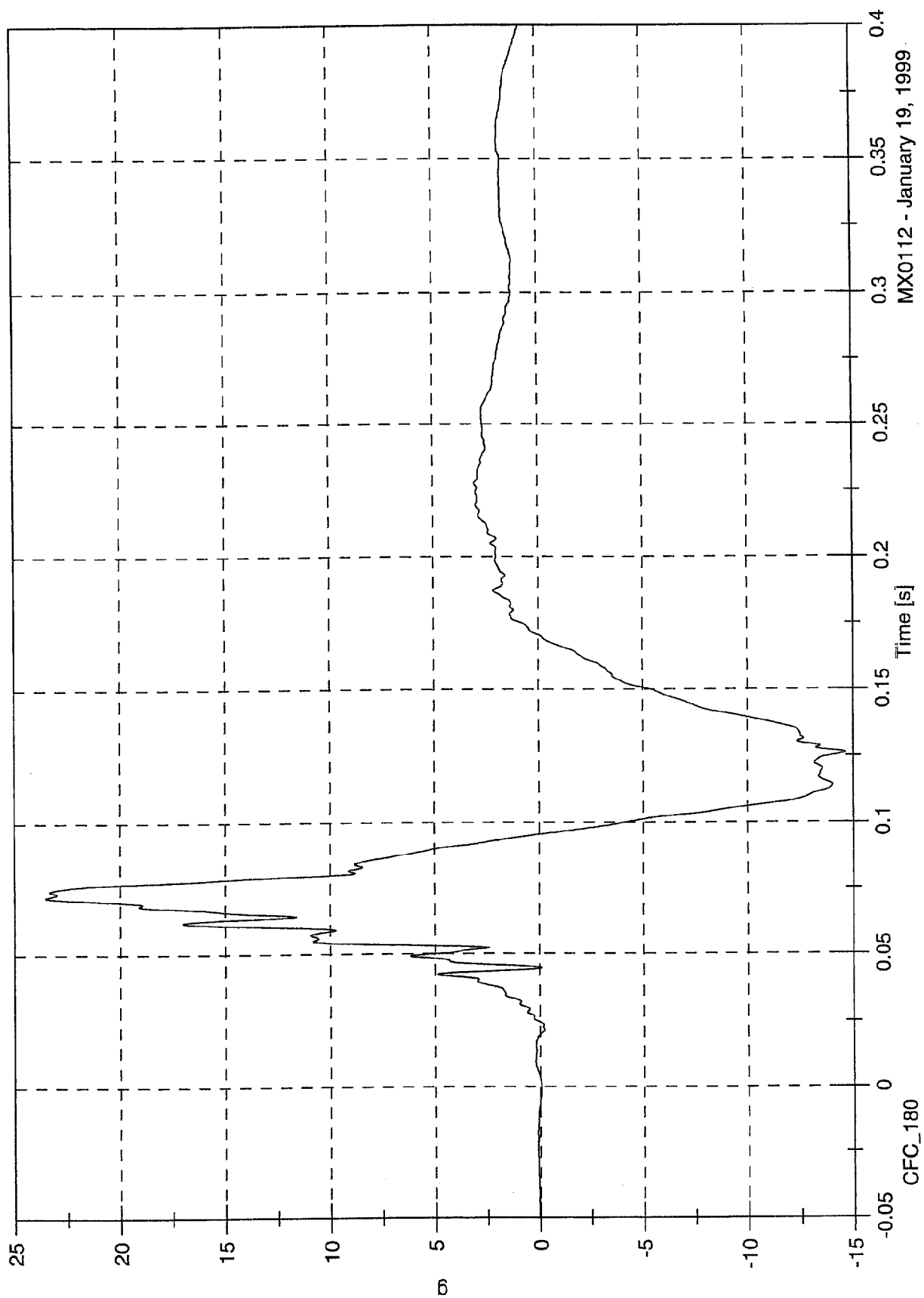
MX0112 - January 19, 1999



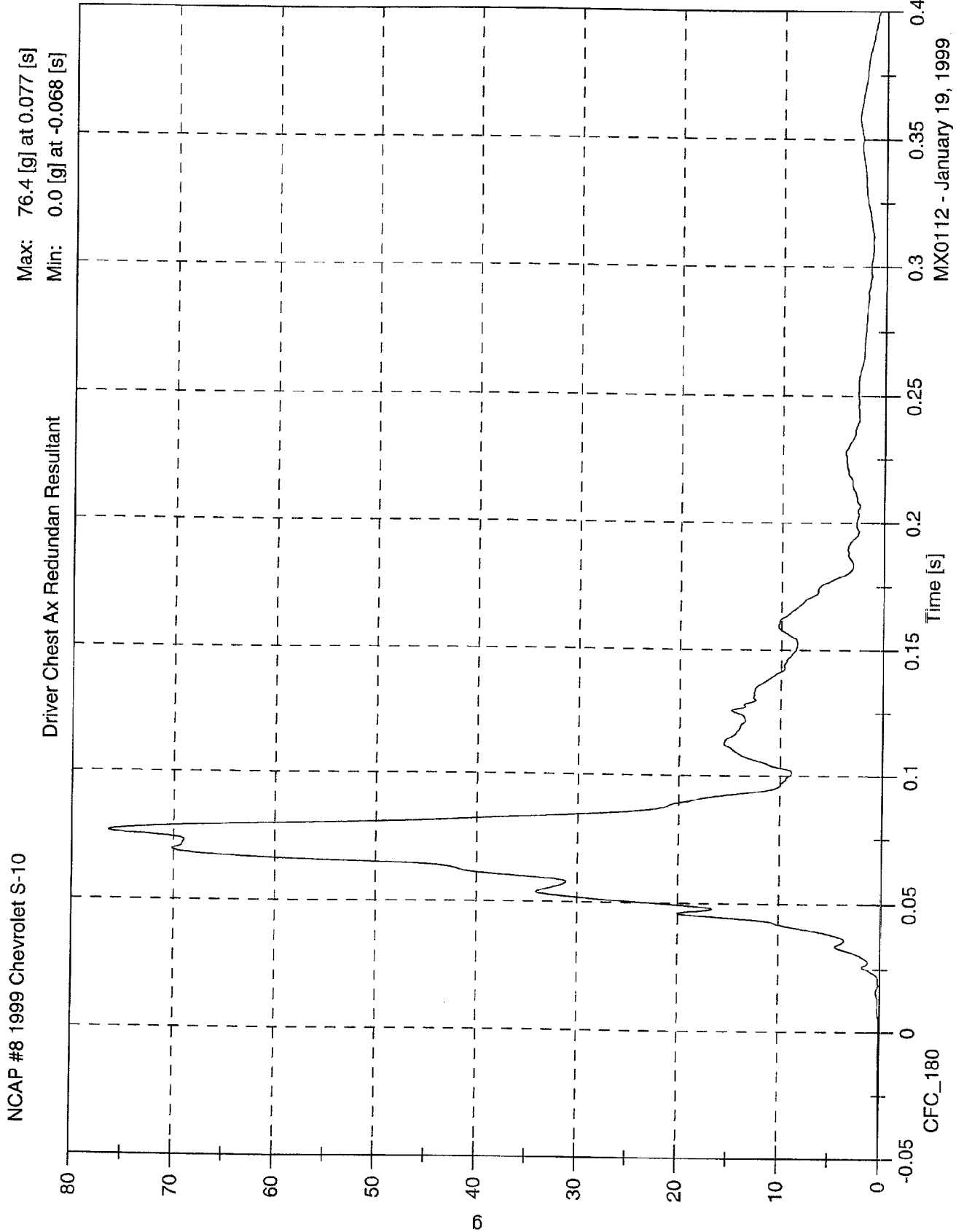
NCAP #8 1999 Chevrolet S-10

Driver Chest Az Redundant

Max: 23.5 [g] at 0.072 [s]
Min: -14.6 [g] at 0.126 [s]



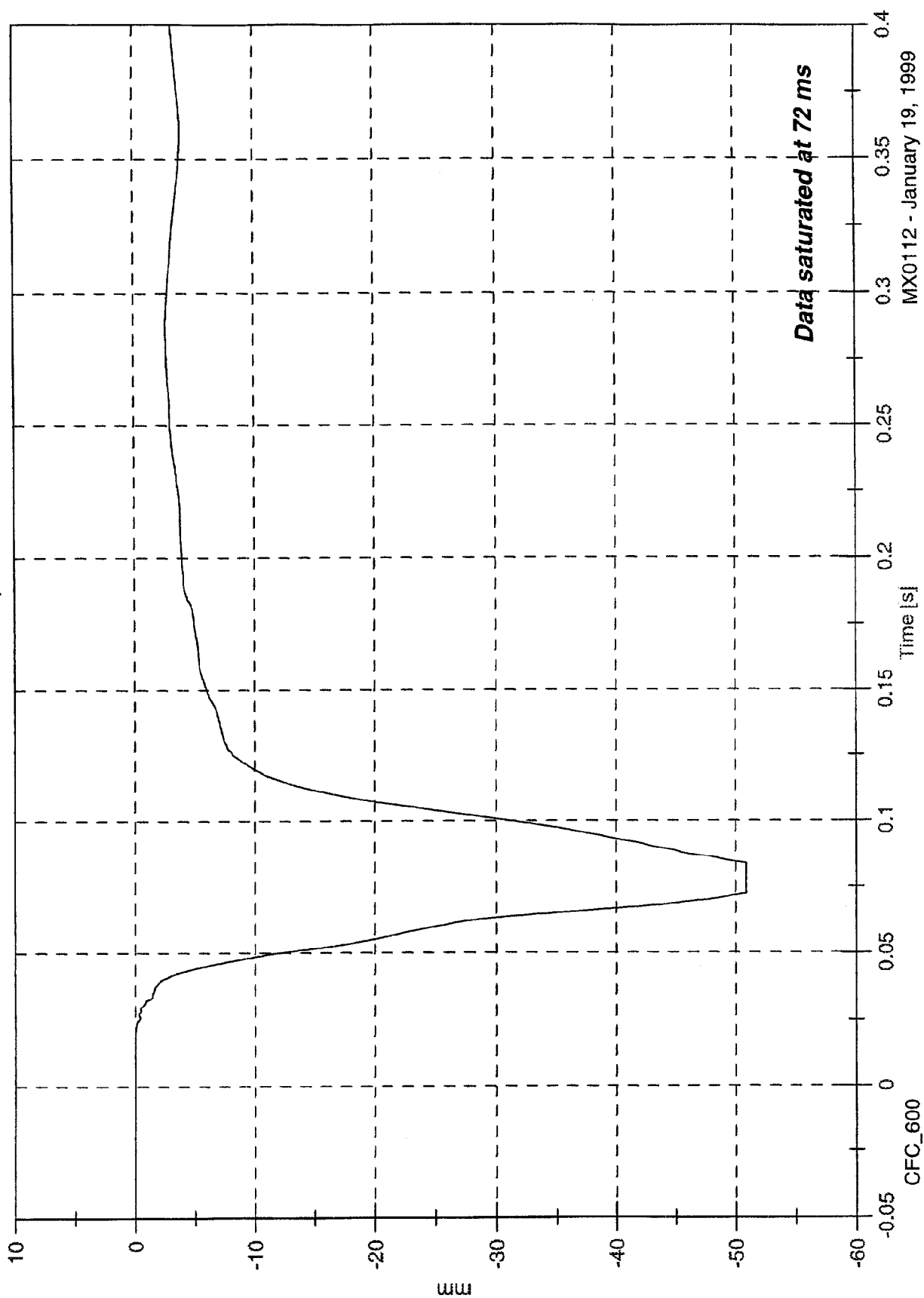
MX0112 - January 19, 1999

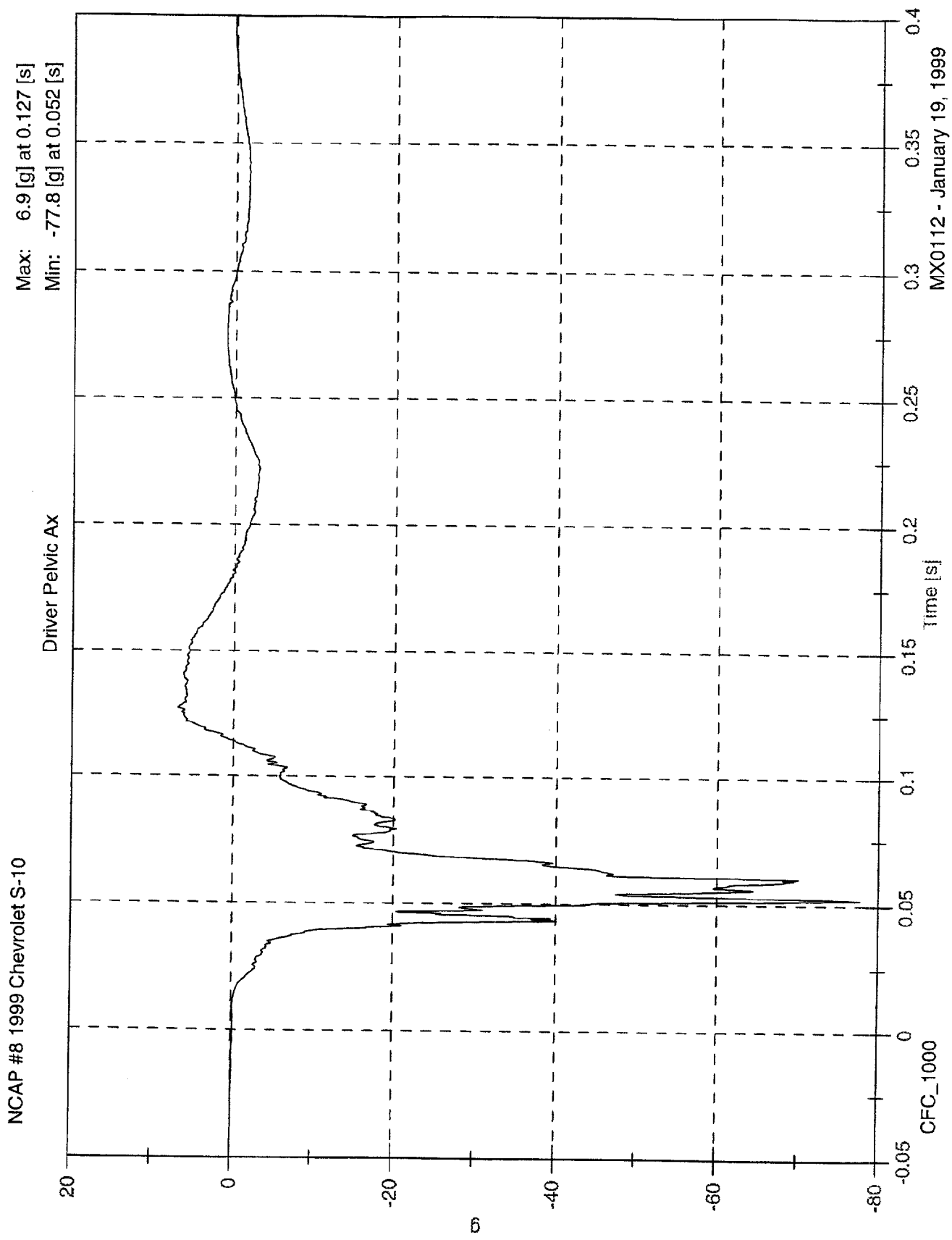


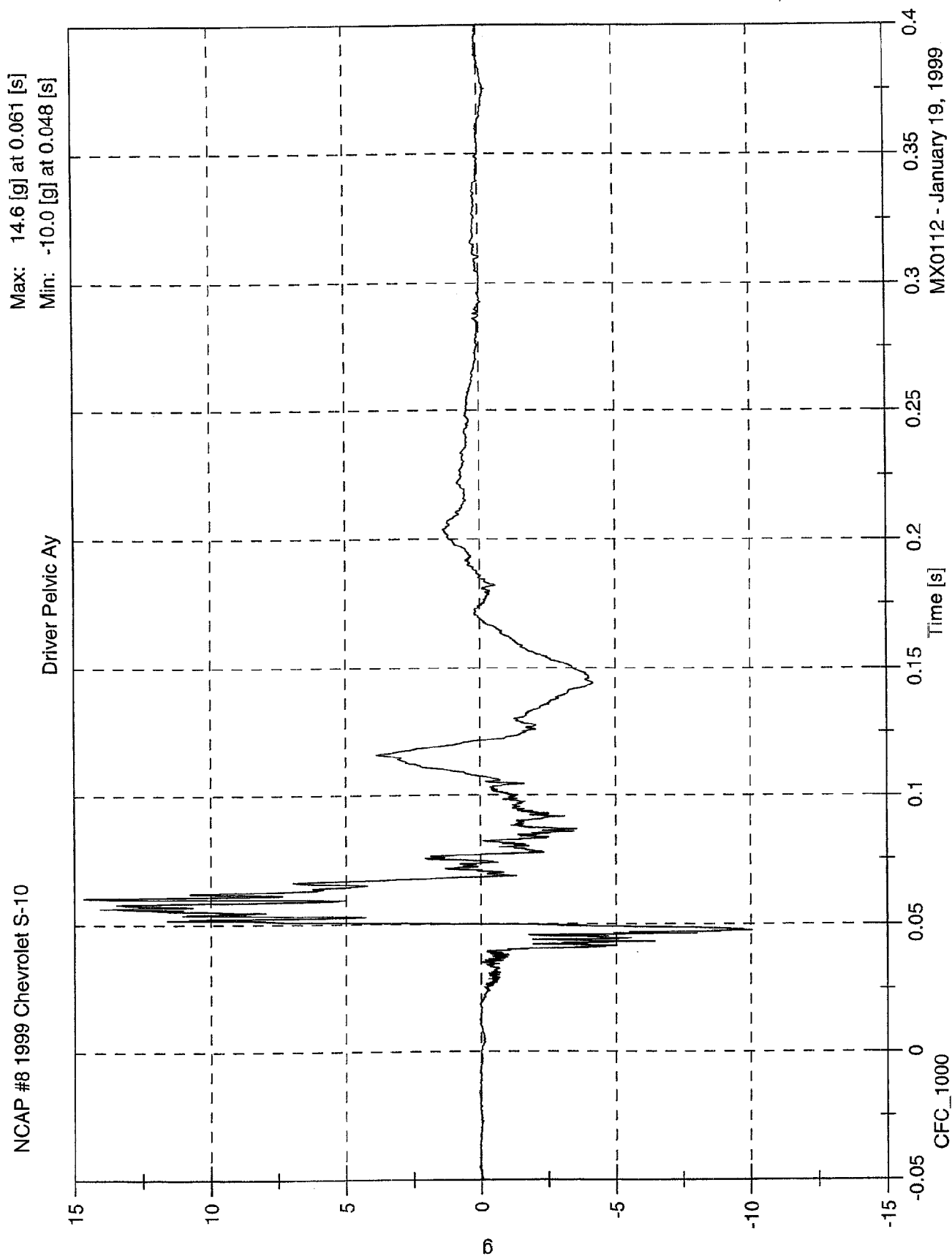
NCAP #8 1999 Chevrolet S-10

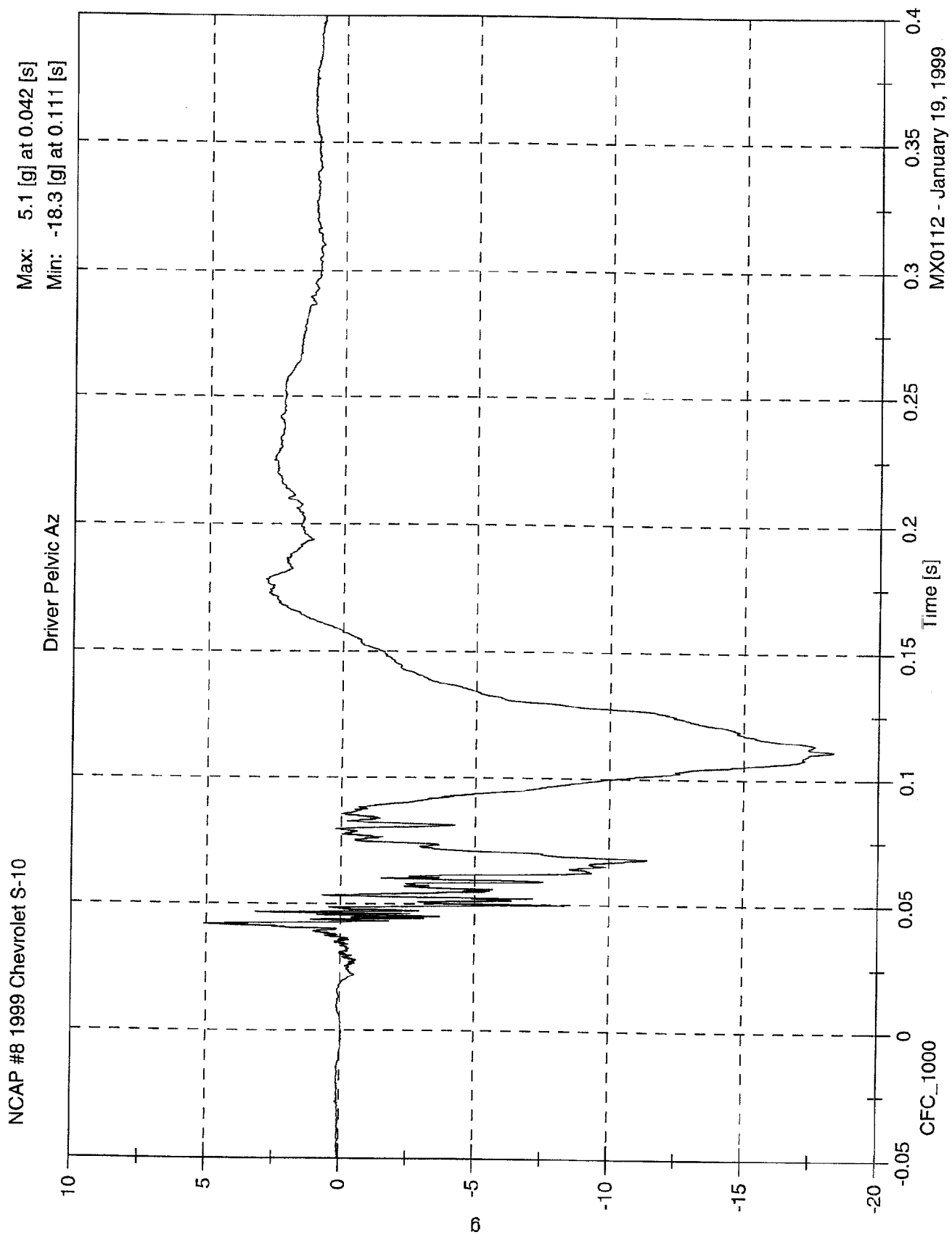
Max: 0.0 [mm] at 0.002 [s]
Min: -50.9 [mm] at 0.073 [s]

Driver Chest Displacement





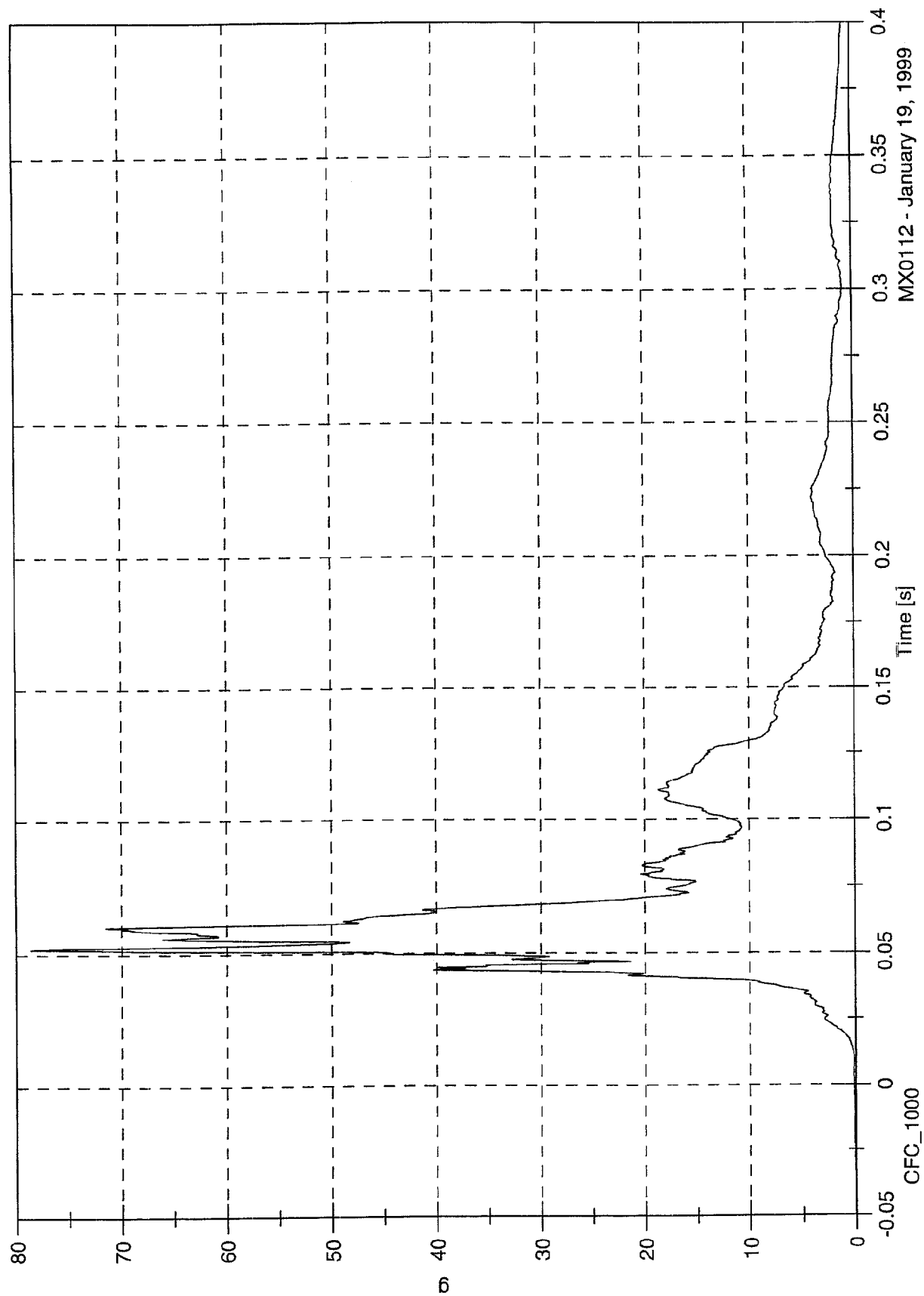




NCAP #8 1999 Chevrolet S-10

Driver Pelvic A Resultant

Max: 78.6 [g] at 0.052 [s]
Min: 0.0 [g] at -0.048 [s]

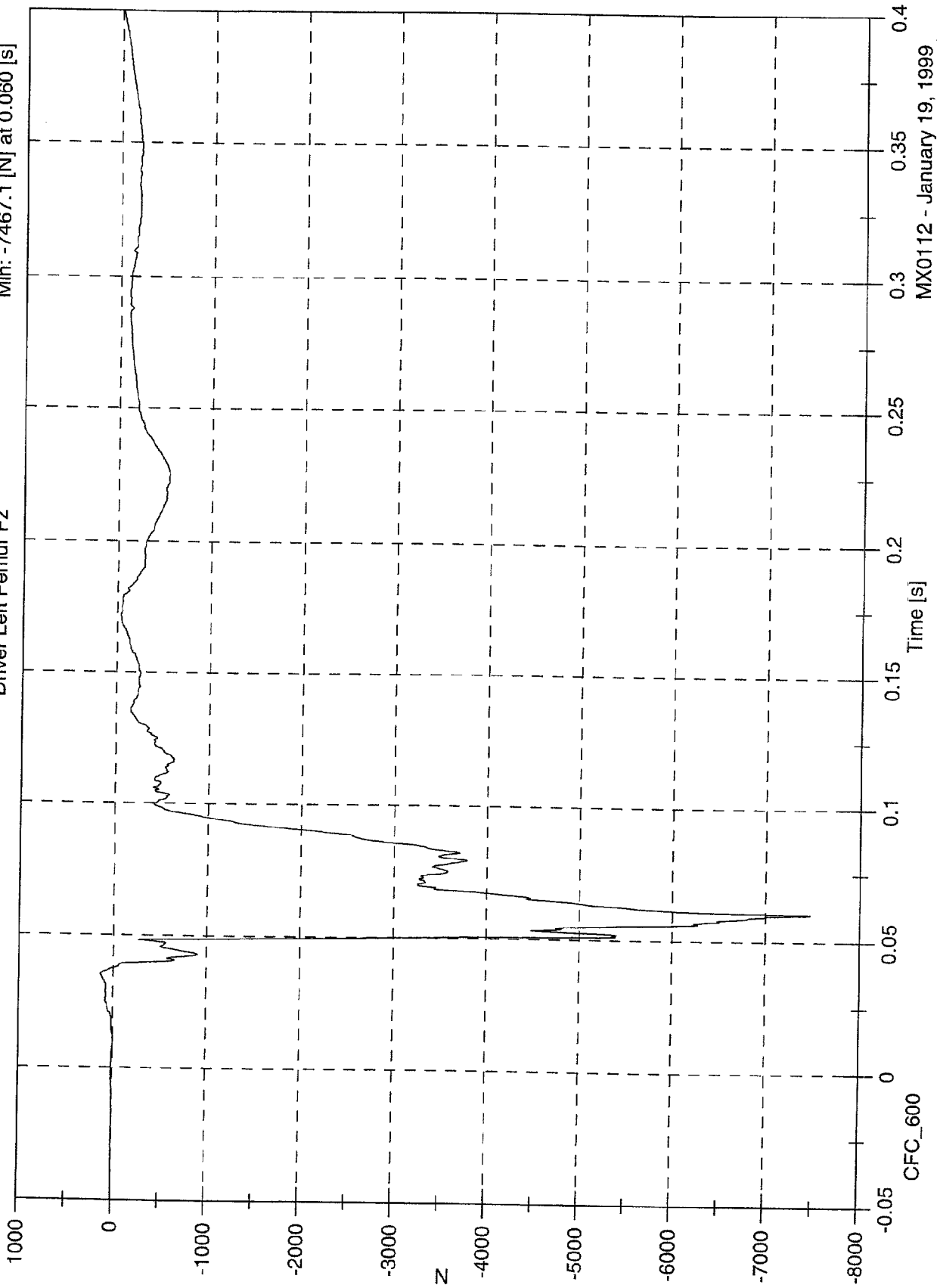


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NCAP #8 1999 Chevrolet S-10

Driver Left Femur Fz

Max: 134.4 [N] at 0.035 [s]
Min: -7467.1 [N] at 0.060 [s]



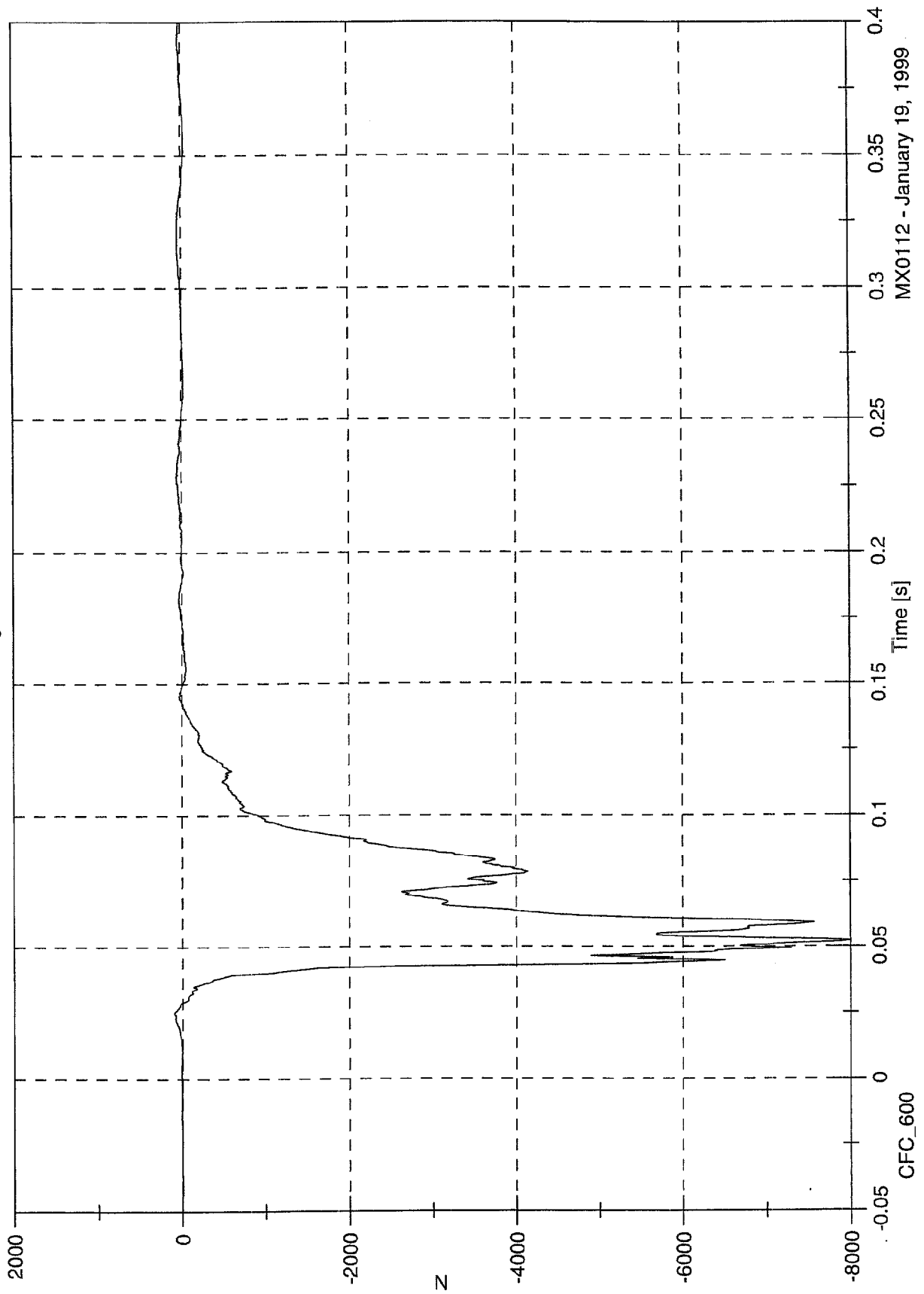
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Max: 95.5 [N] at 0.025 [s]

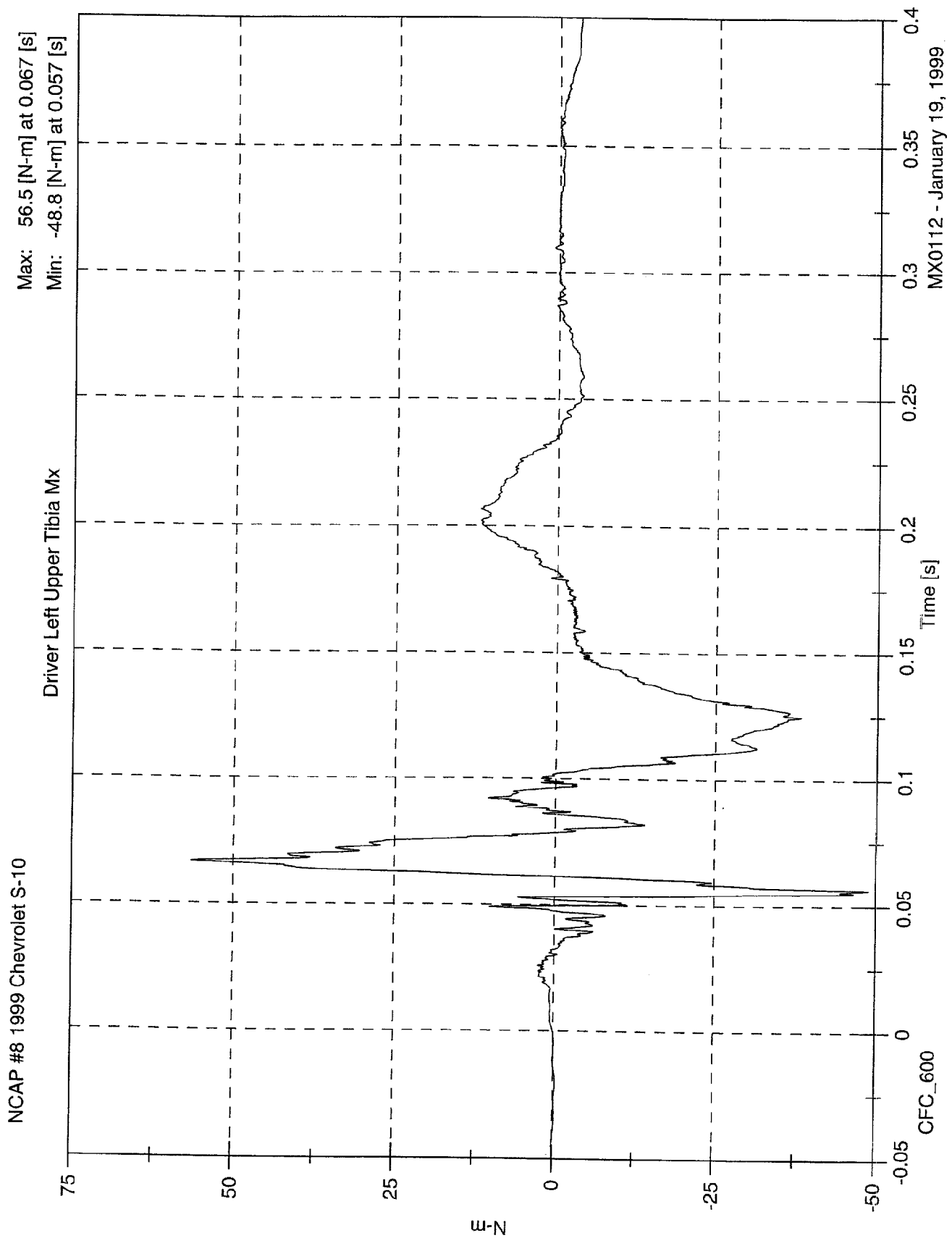
Min: -7981.8 [N] at 0.052 [s]

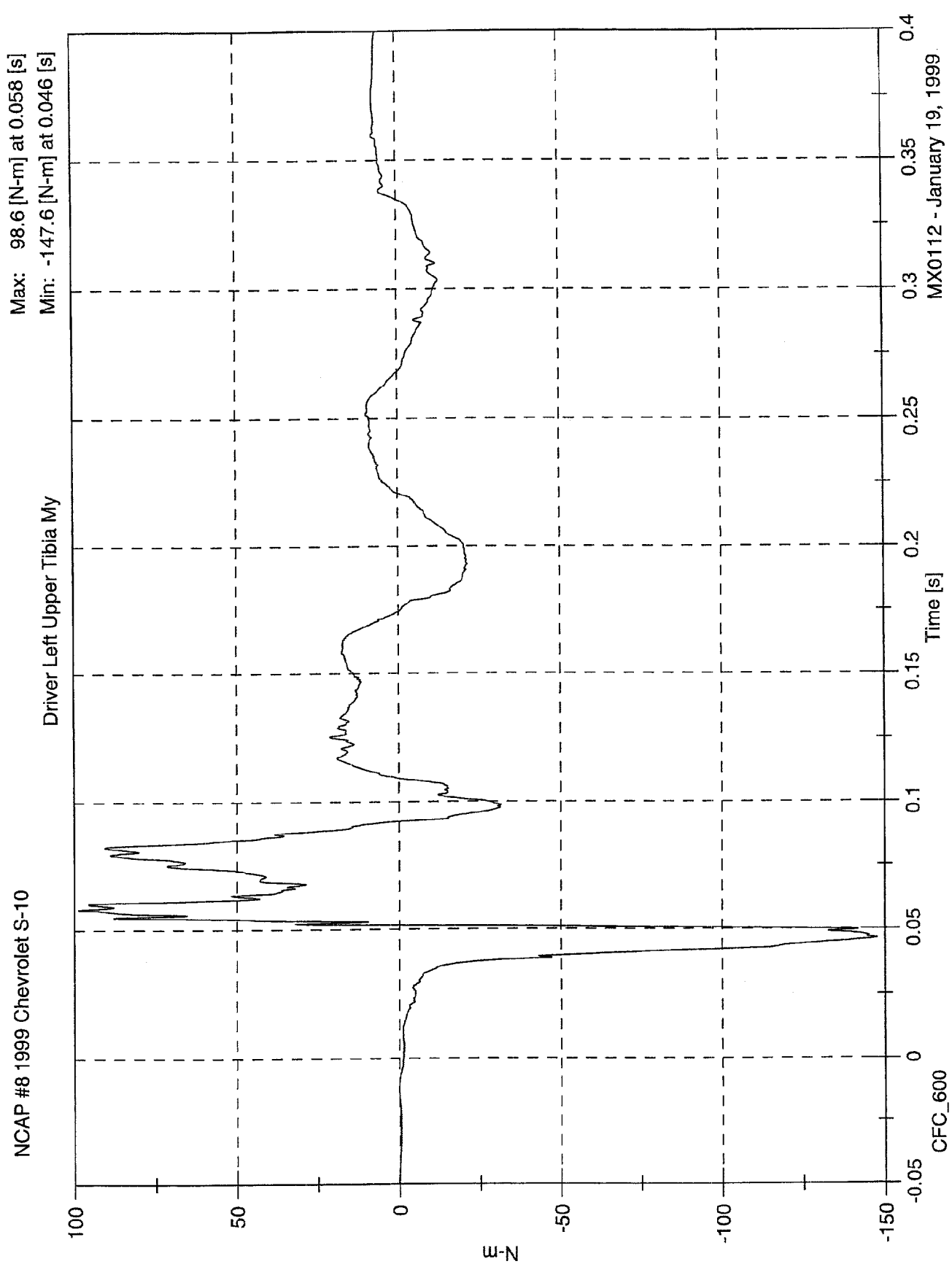
Driver Right Femur Fz



CFC_600

MX0112 - January 19, 1999

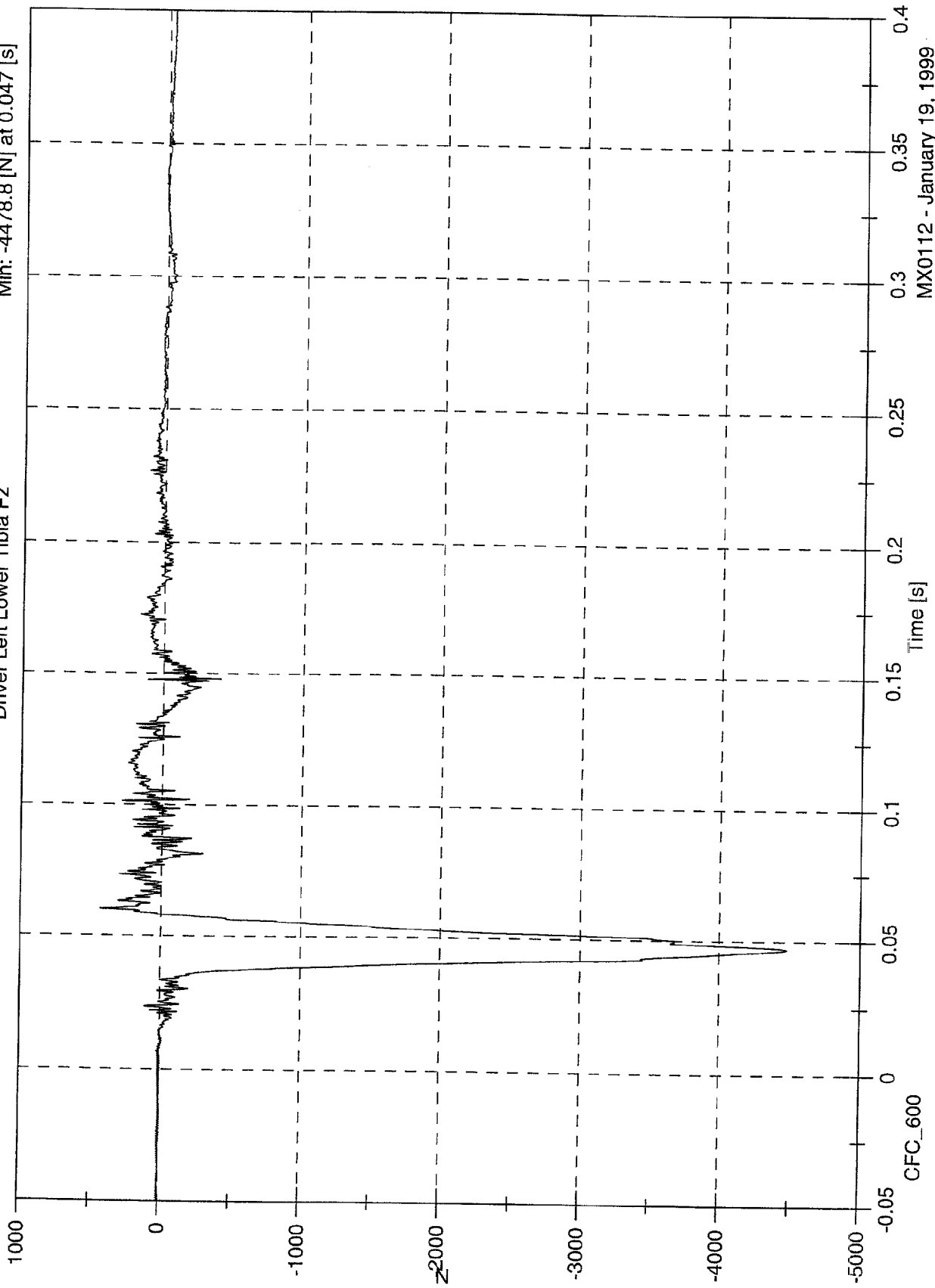




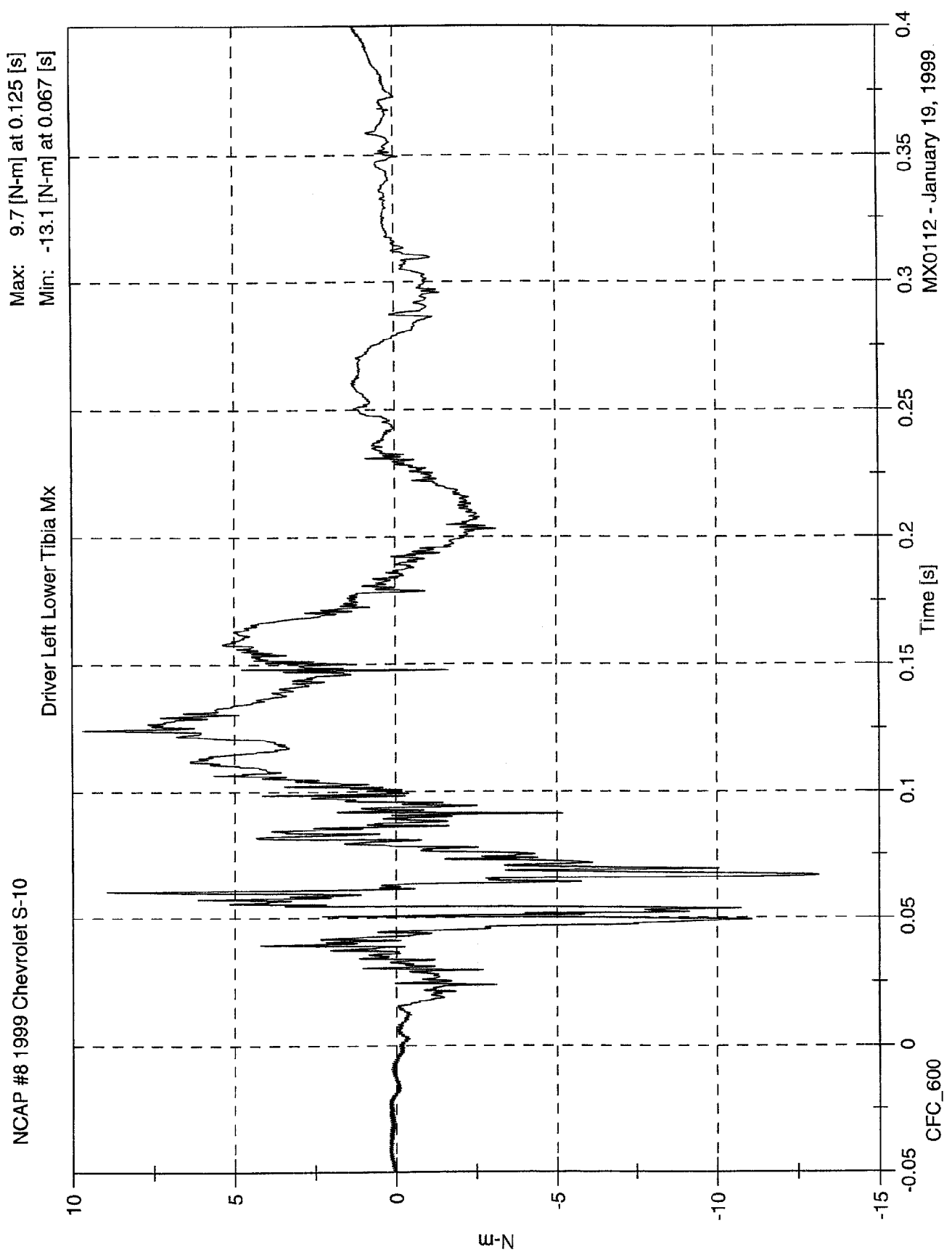
NCAP #8 1999 Chevrolet S-10

Max: 436.0 [N] at 0.060 [s]
Min: -4478.8 [N] at 0.047 [s]

Driver Left Lower Tibia Fz



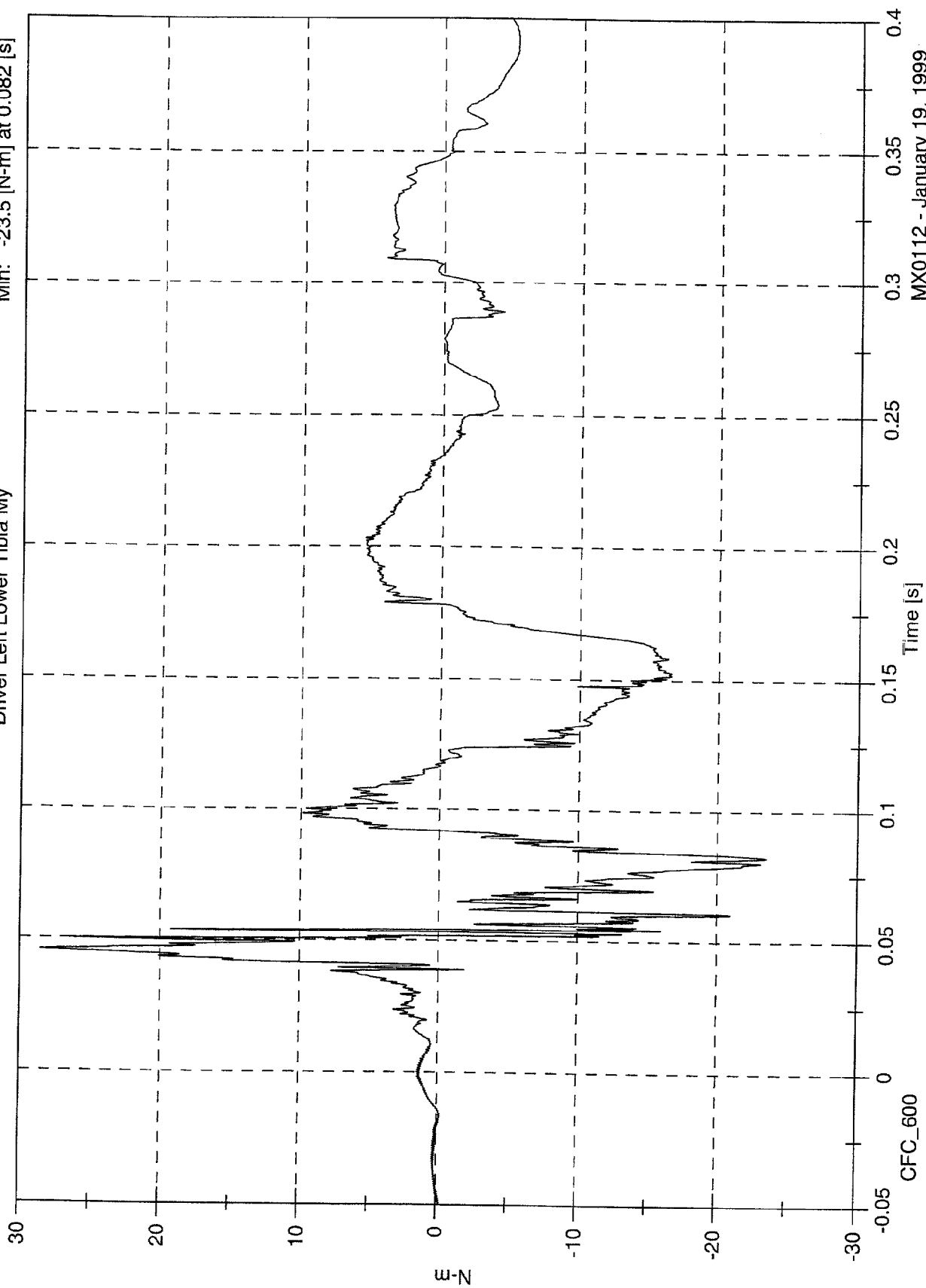
MX0112 - January 19, 1999



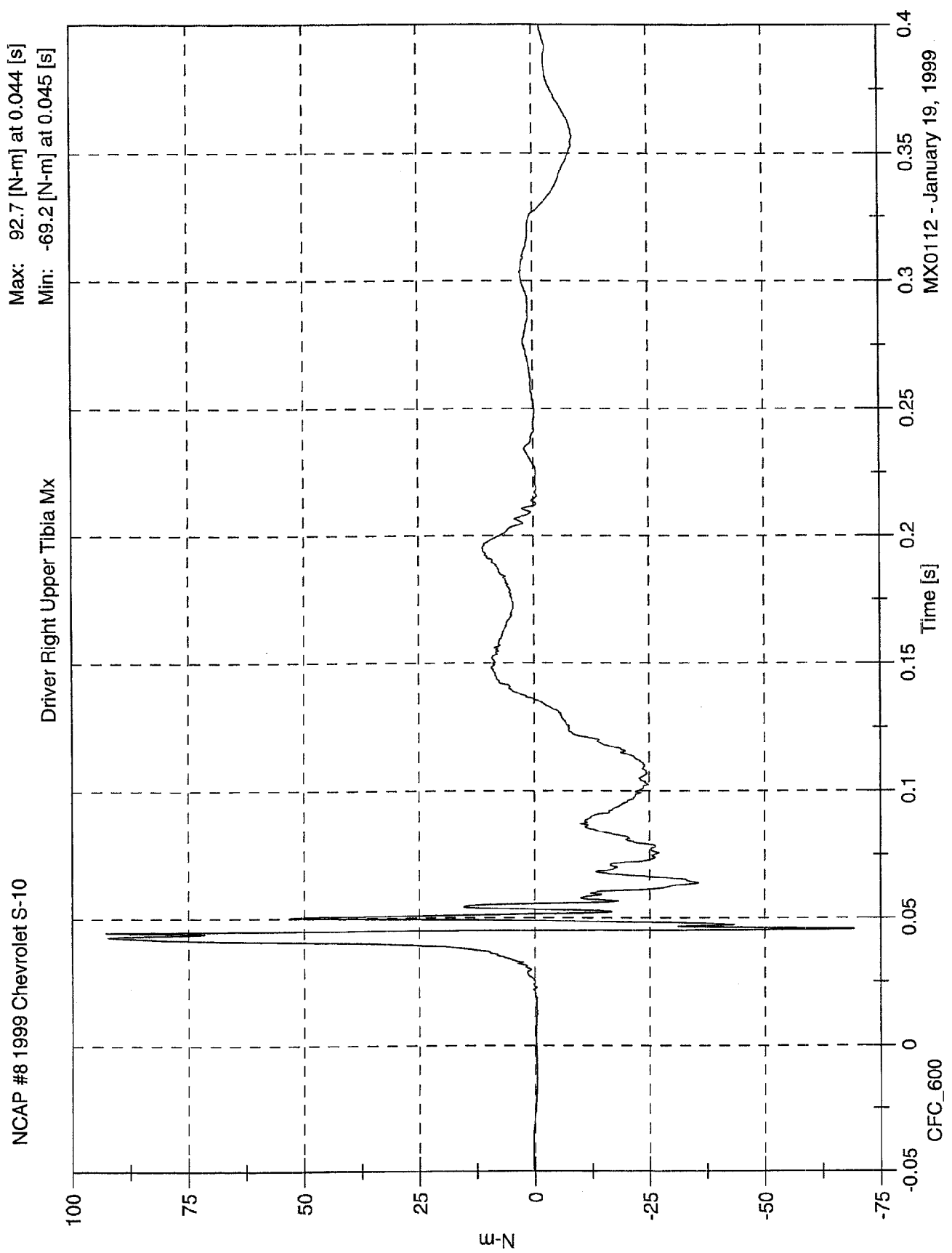
NCAP #8 1999 Chevrolet S-10

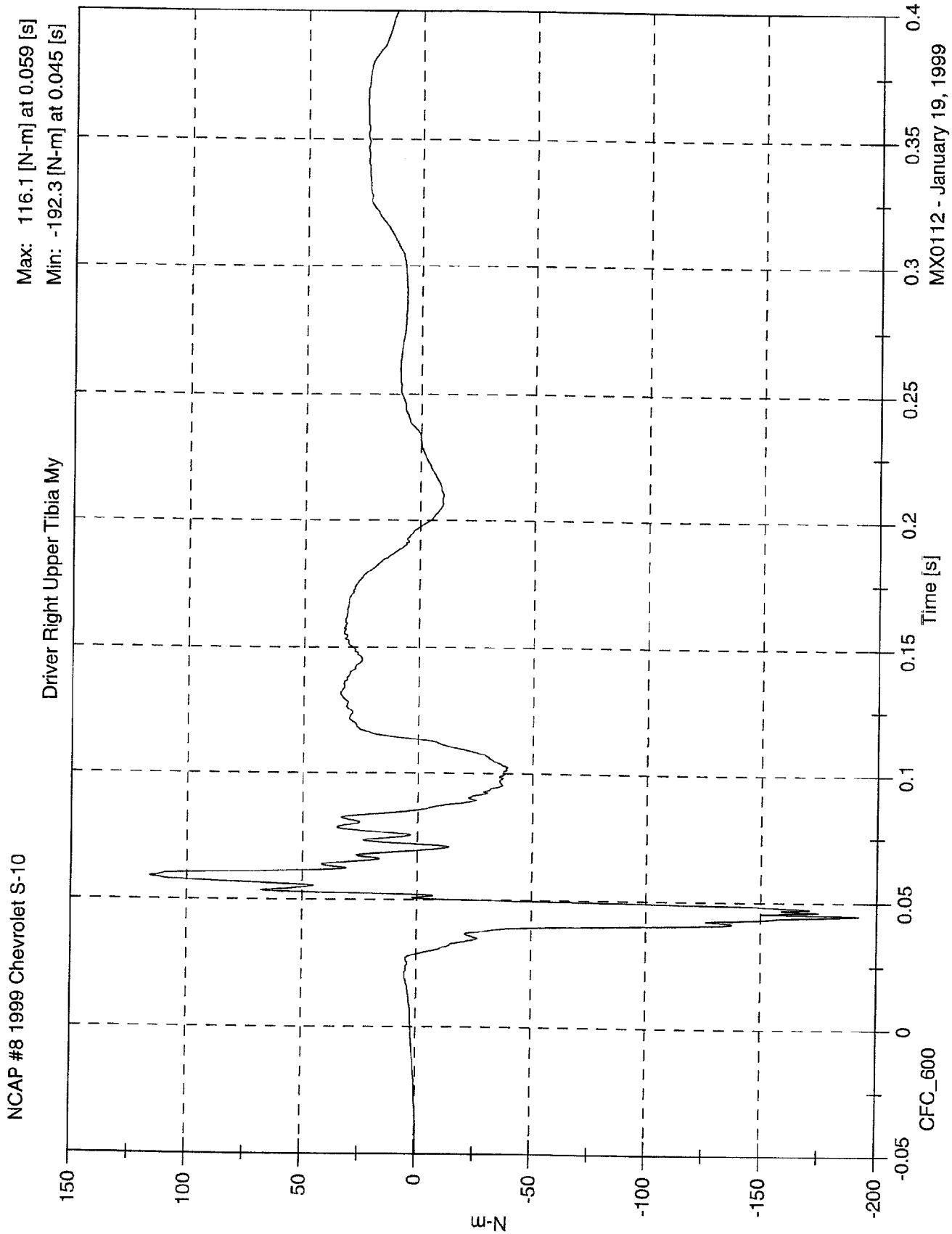
Driver Left Lower Tibia My

Max: 28.5 [N-m] at 0.046 [s]
Min: -23.5 [N-m] at 0.082 [s]



MX0112 - January 19, 1999

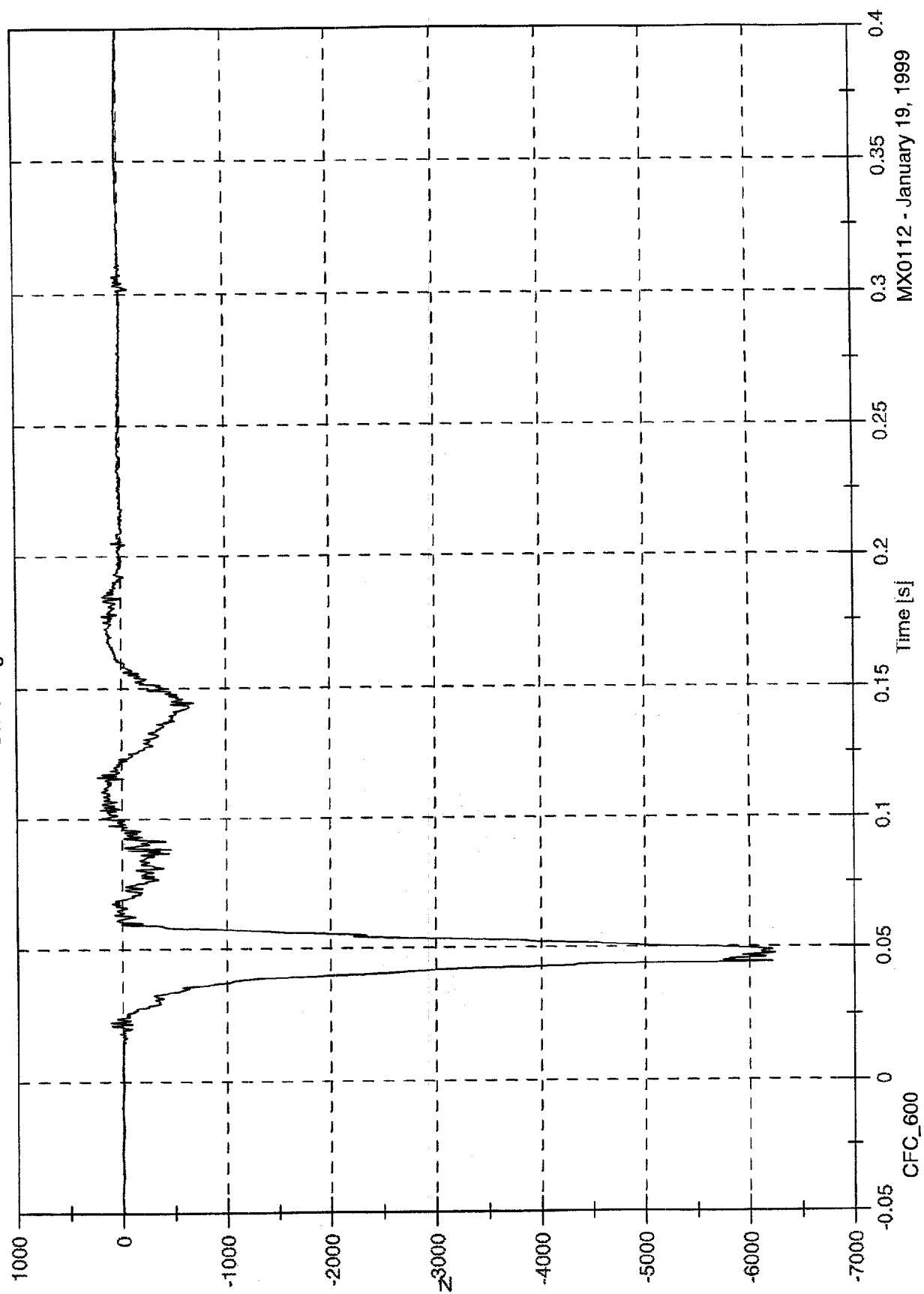




NCAP #8 1999 Chevrolet S-10

Driver Right Lower Tibia Fz

Max: 236.4 [N] at 0.116 [s]
Min: -6245.2 [N] at 0.047 [s]



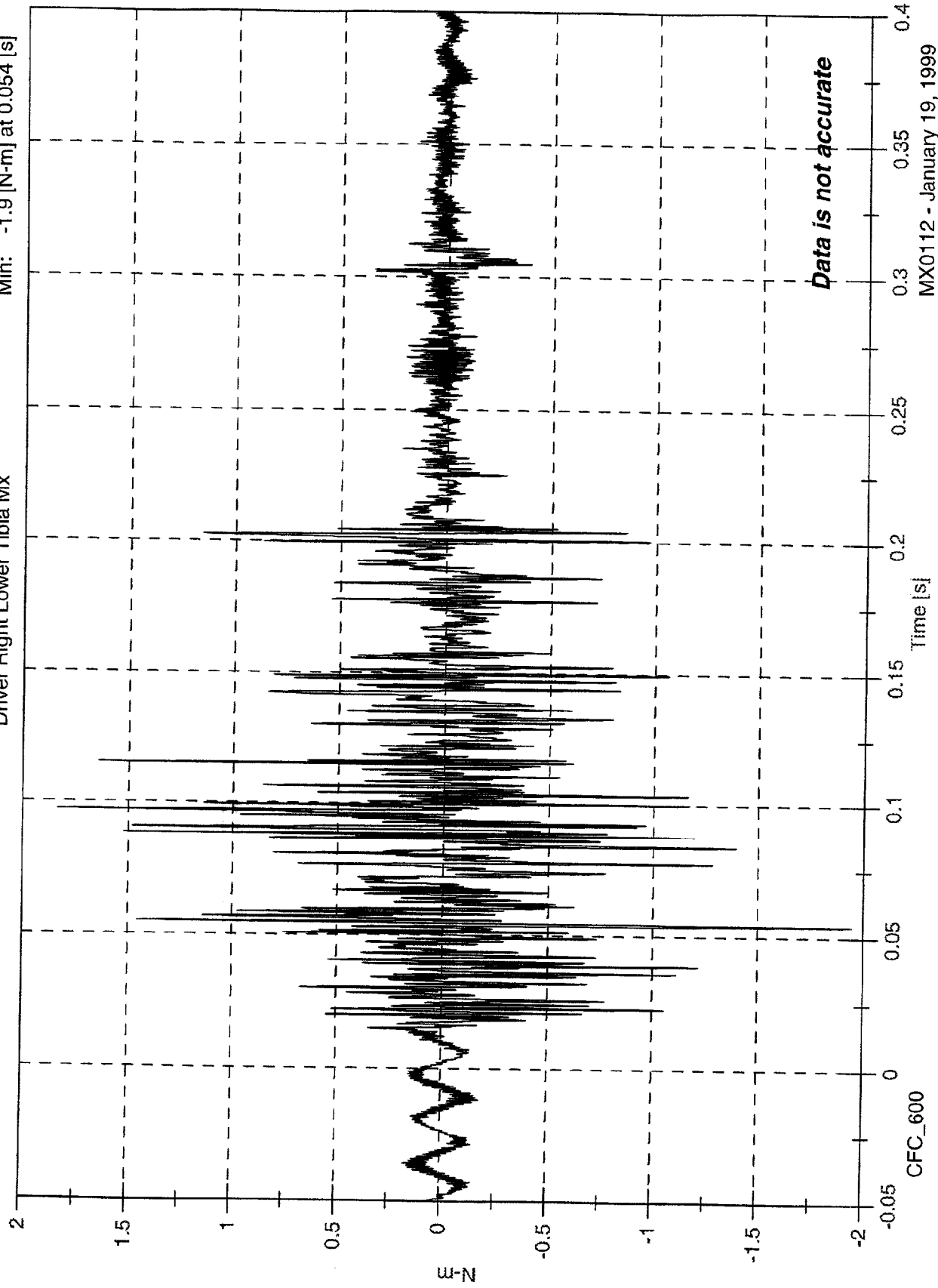
MX0112 - January 19, 1999

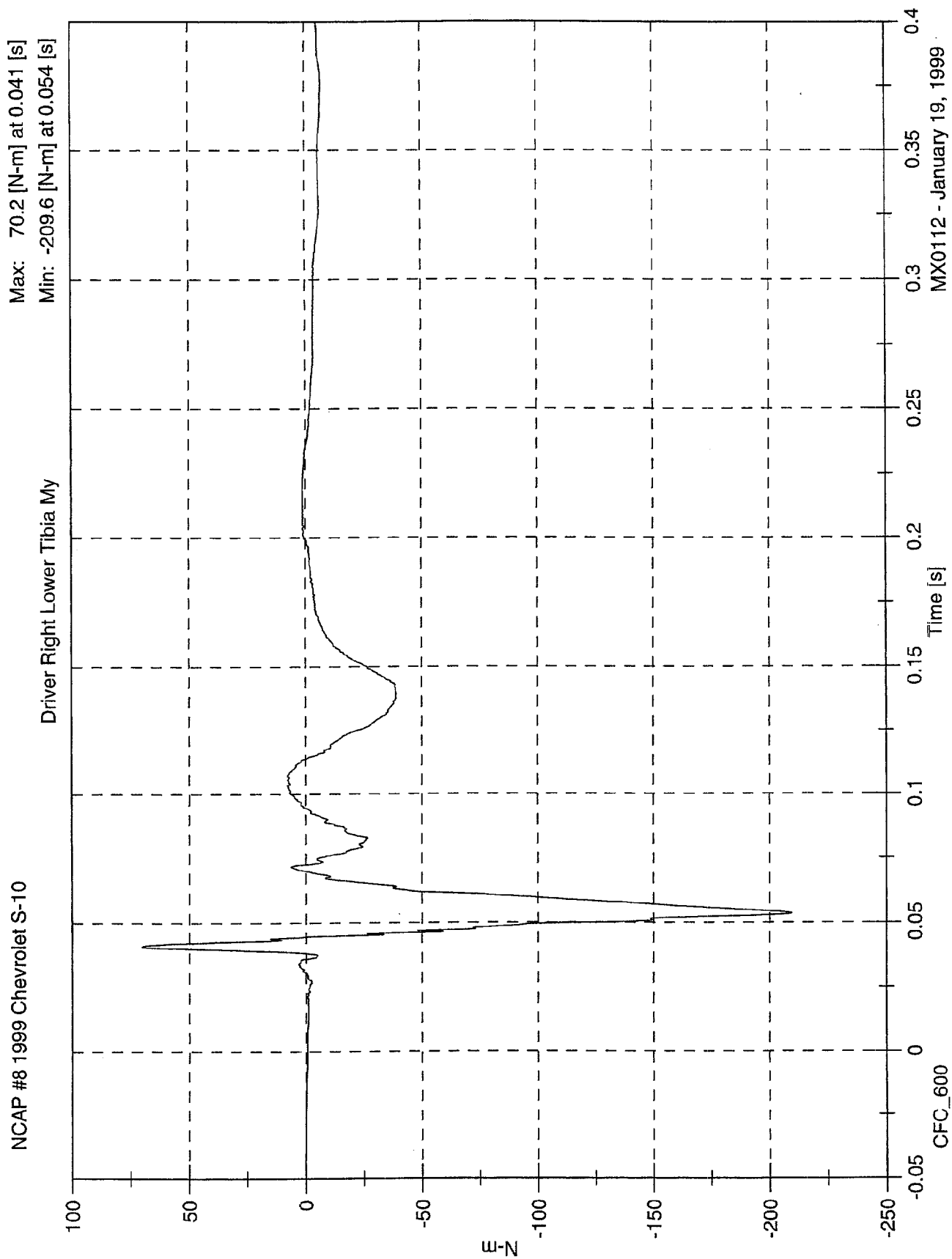
NCAP #8 1999 Chevrolet S-10

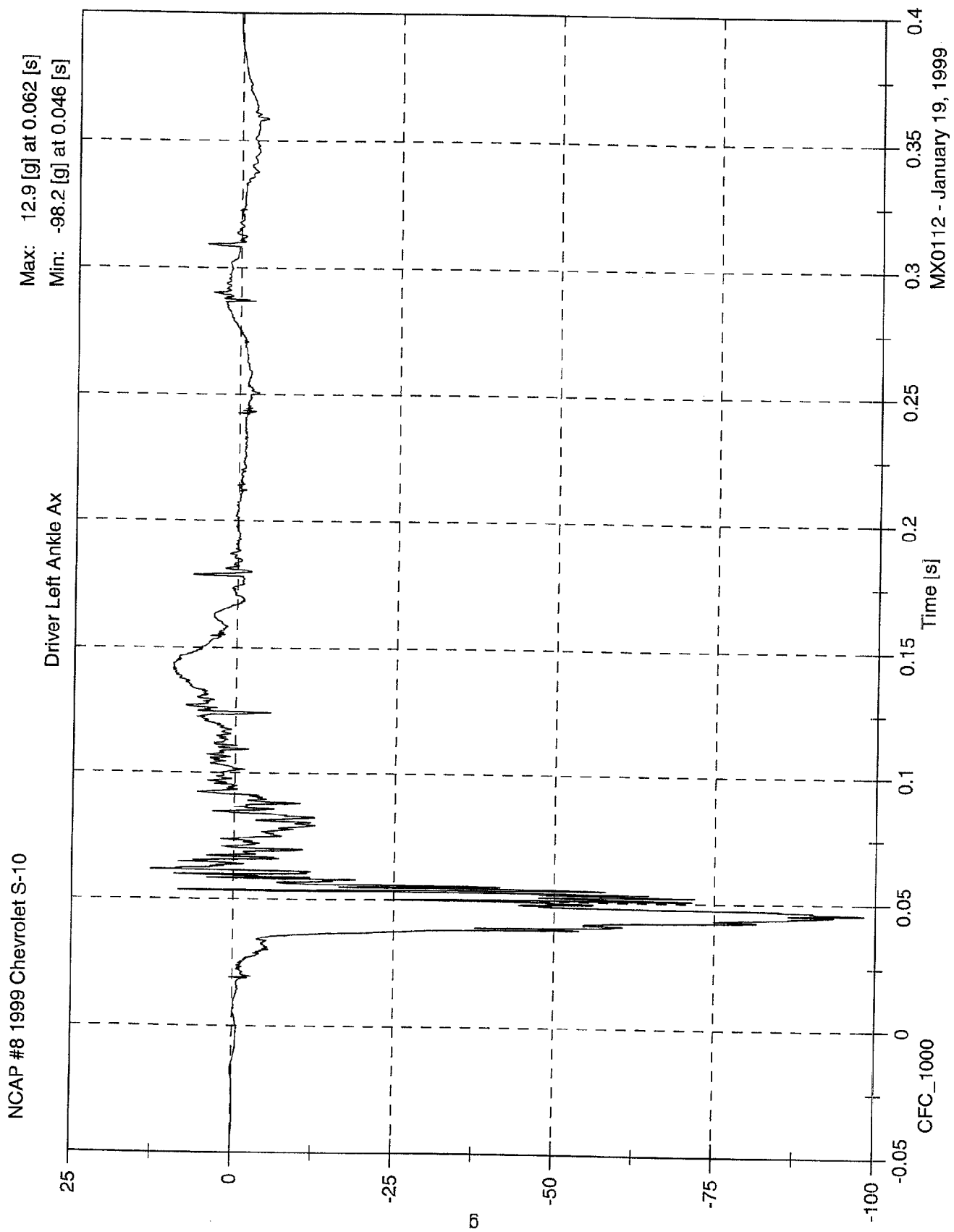
Max: 1.8 [N-m] at 0.097 [s]

Min: -1.9 [N-m] at 0.054 [s]

Driver Right Lower Tibia Mx





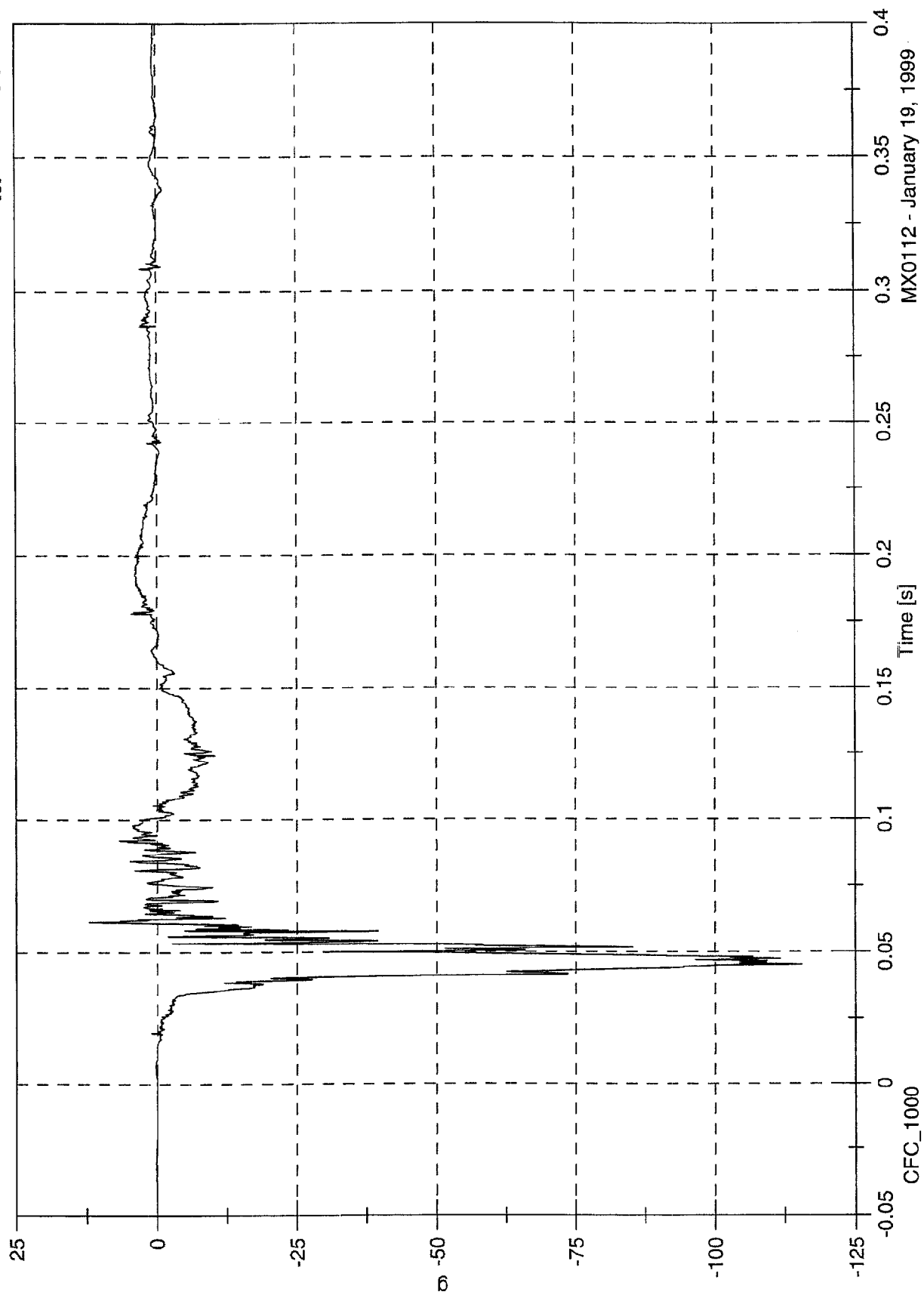


NCAP #8 1999 Chevrolet S-10

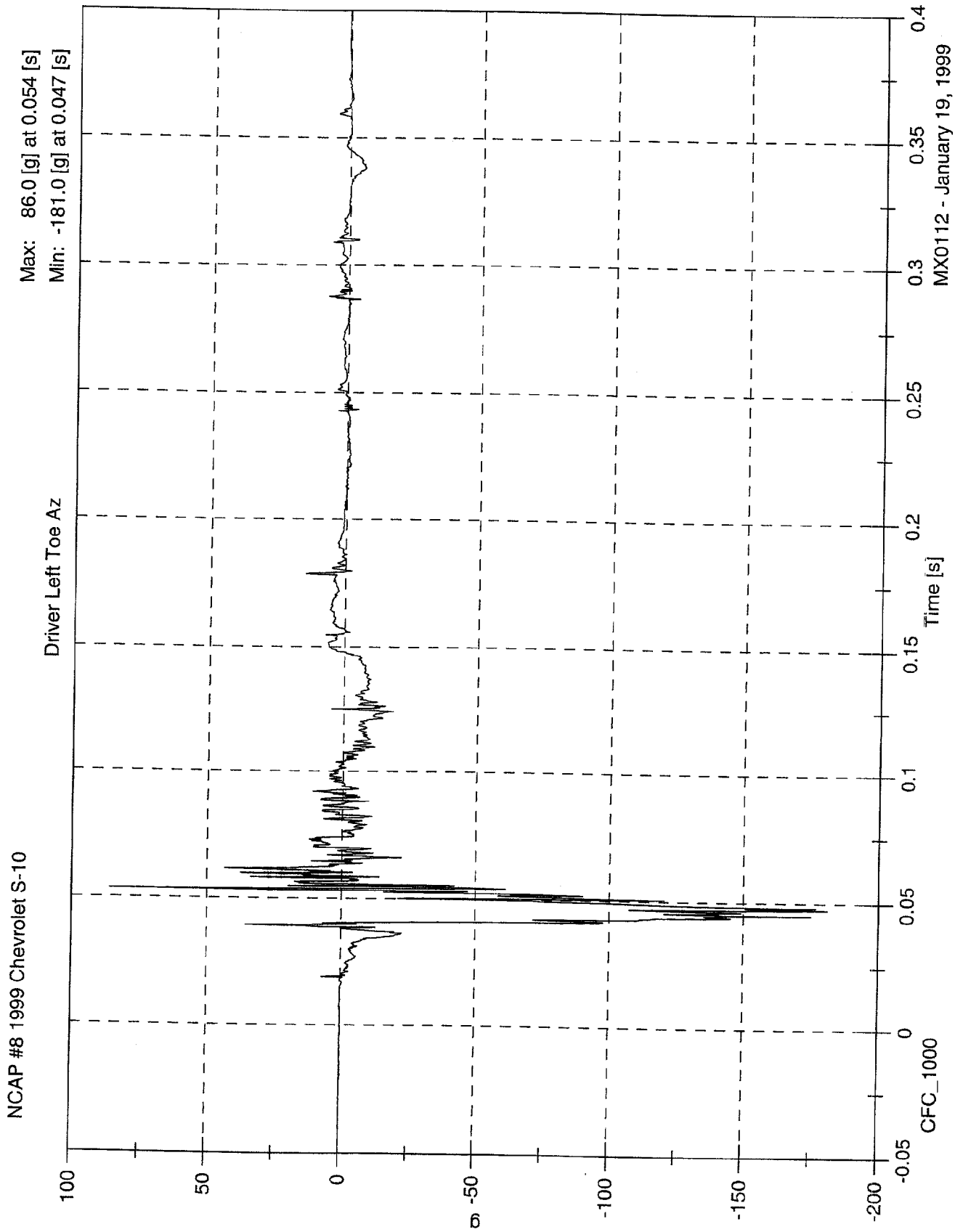
Max: 12.1 [g] at 0.062 [s]

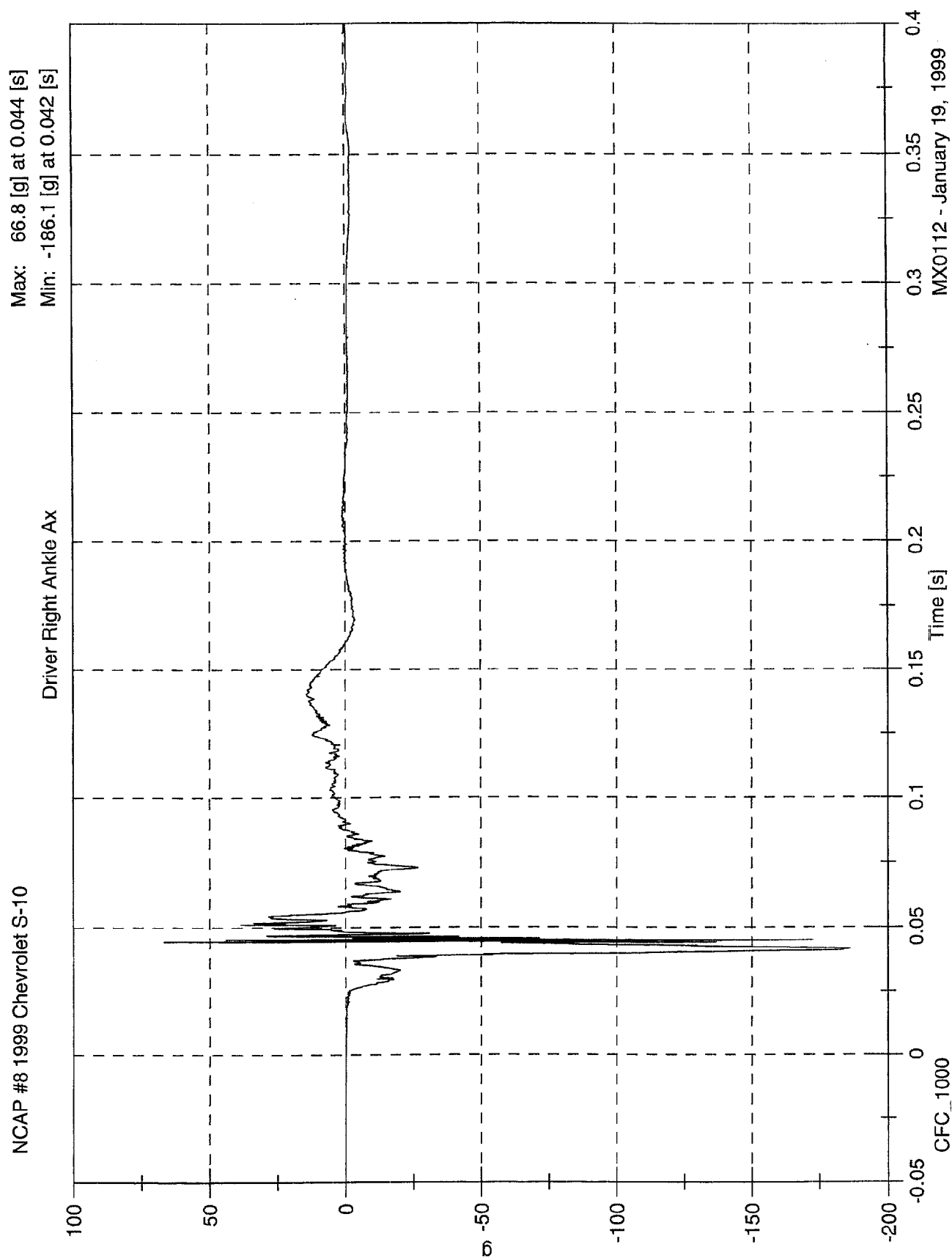
Min: -115.4 [g] at 0.045 [s]

Driver Left Ankle Az



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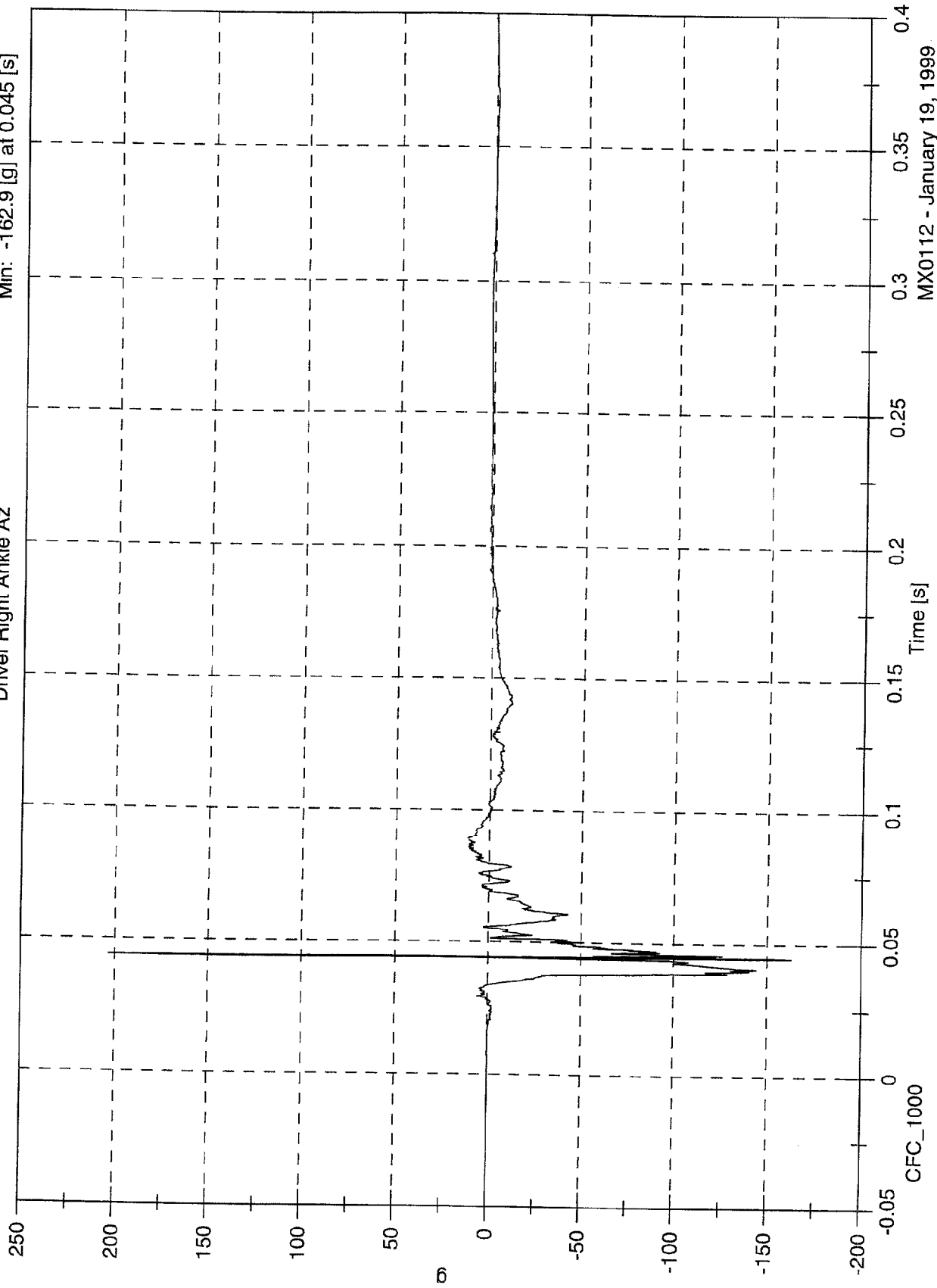


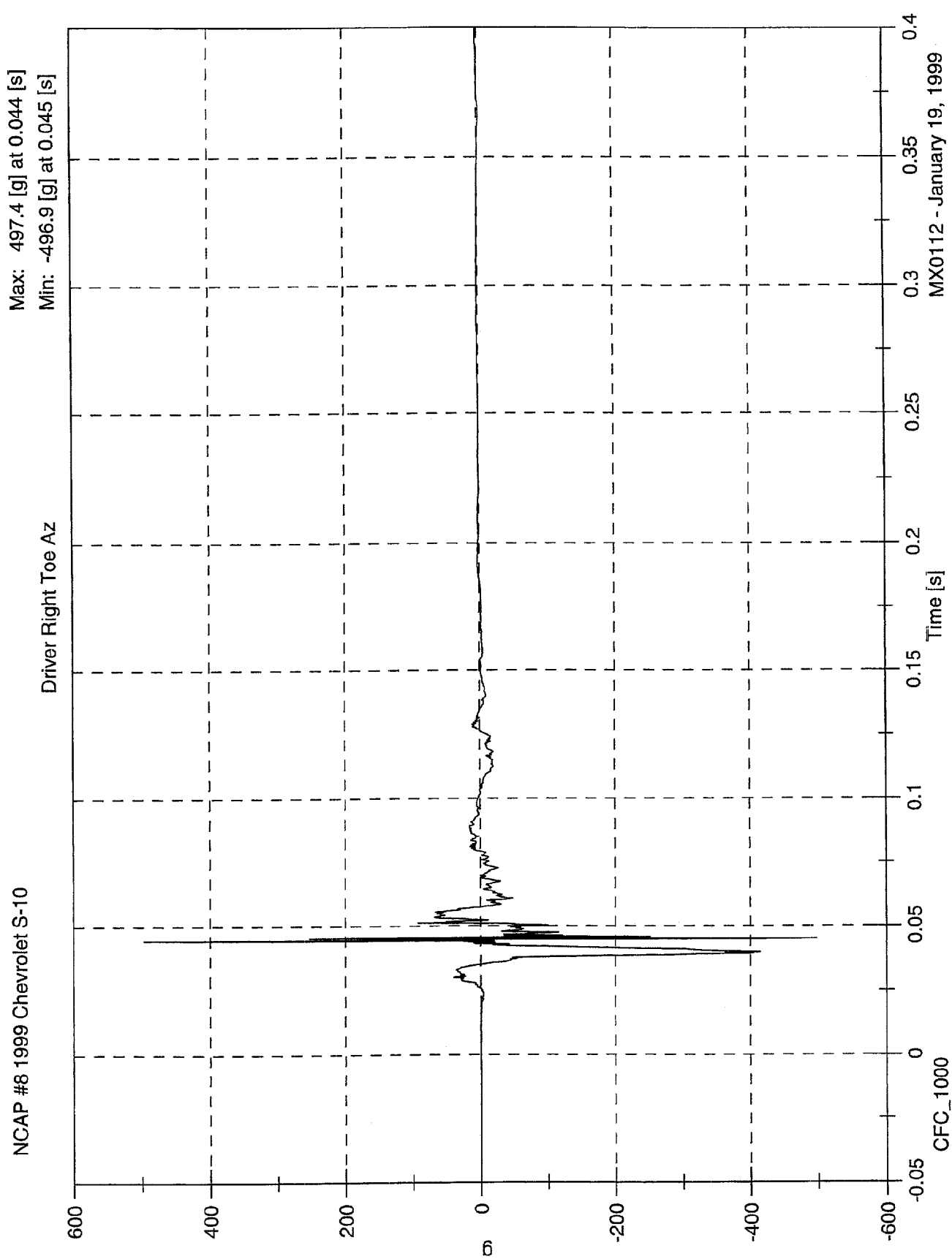
NCAP #8 1999 Chevrolet S-10

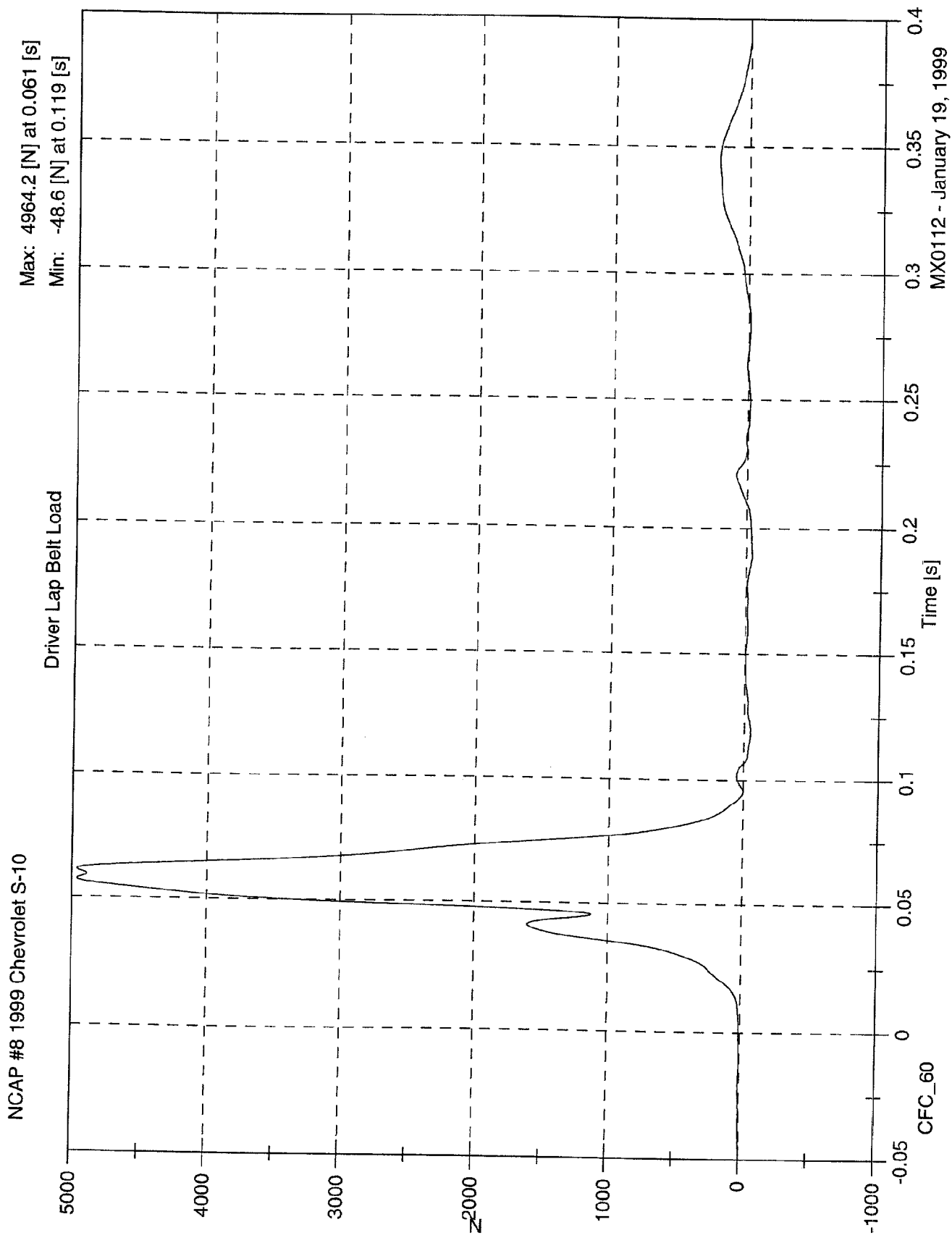
Max: 203.1 [g] at 0.044 [s]

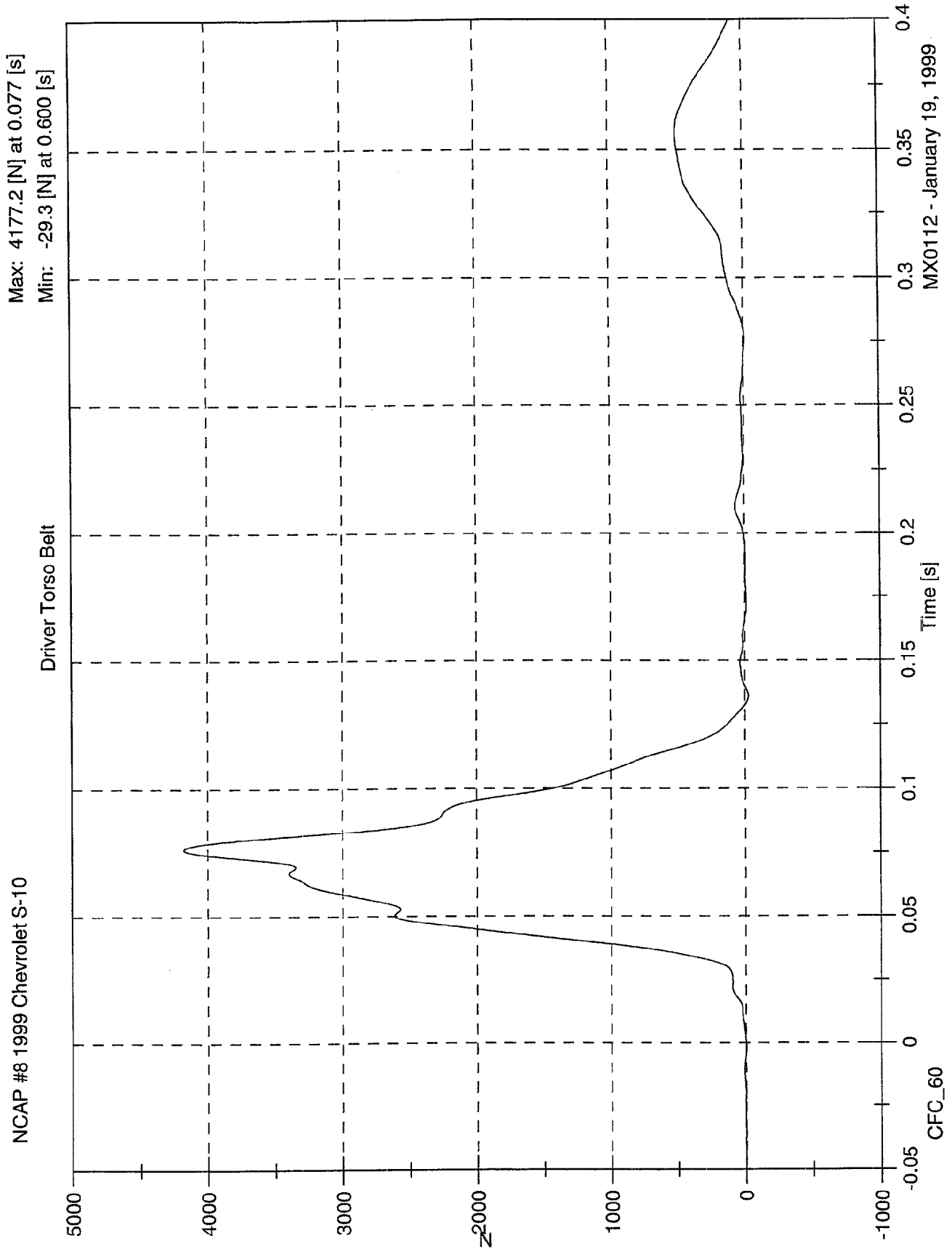
Min: -162.9 [g] at 0.045 [s]

Driver Right Ankle Az





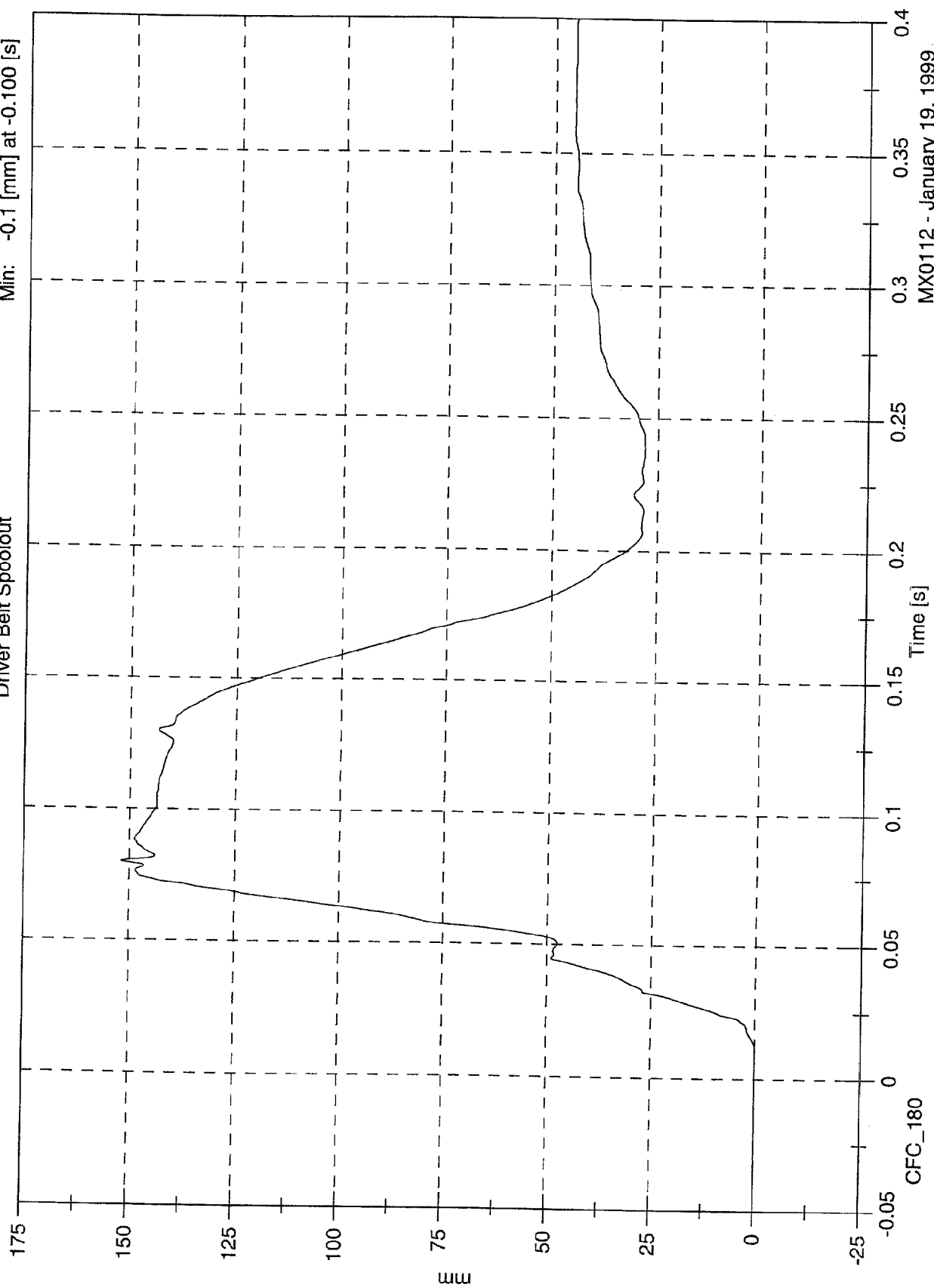




NCAP #8 1999 Chevrolet S-10

Driver Belt Spoolout

Max: 151.9 [mm] at 0.080 [s]
Min: -0.1 [mm] at -0.100 [s]

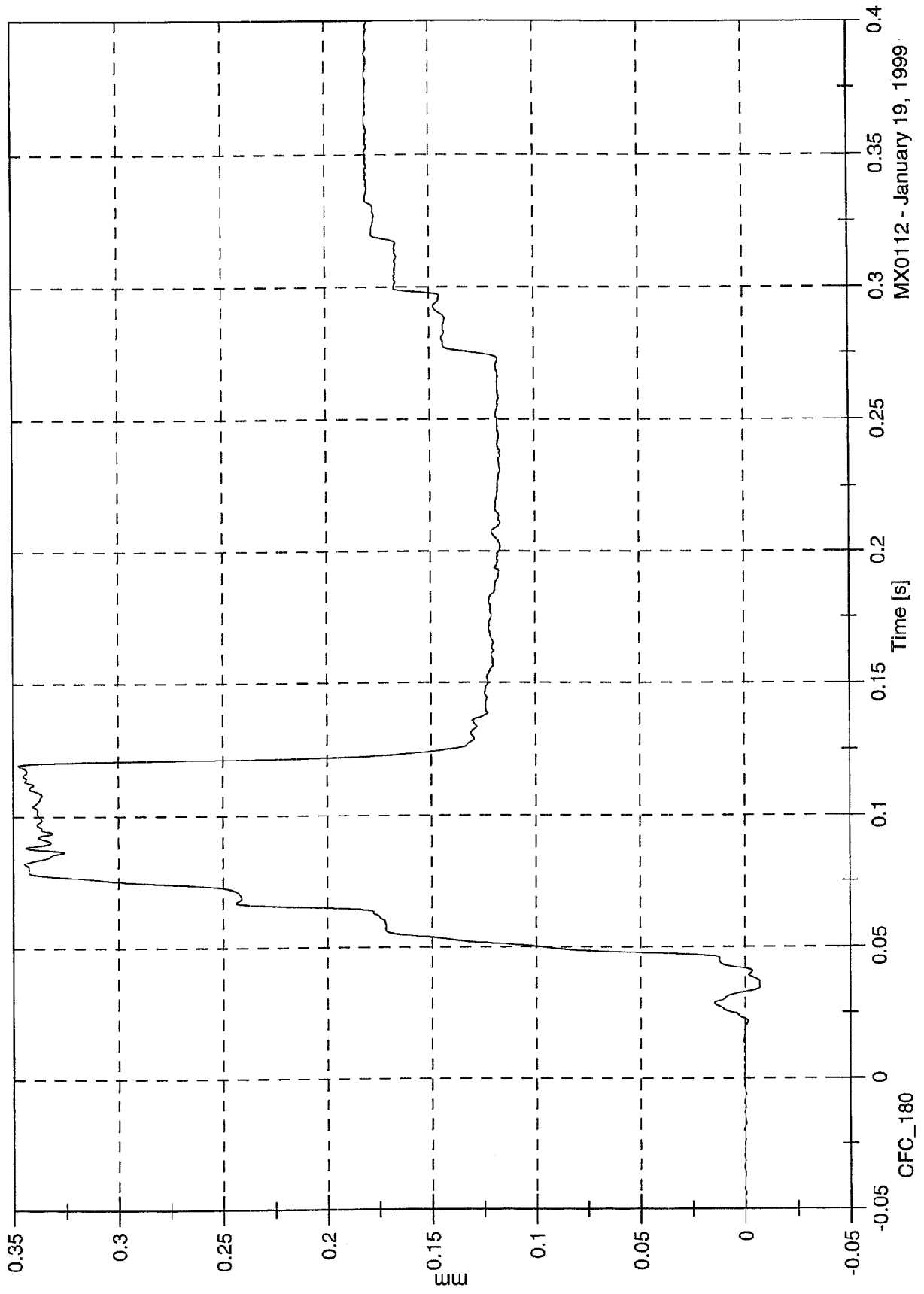


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NCAP #8 1999 Chevrolet S-10

Driver Belt Elongation

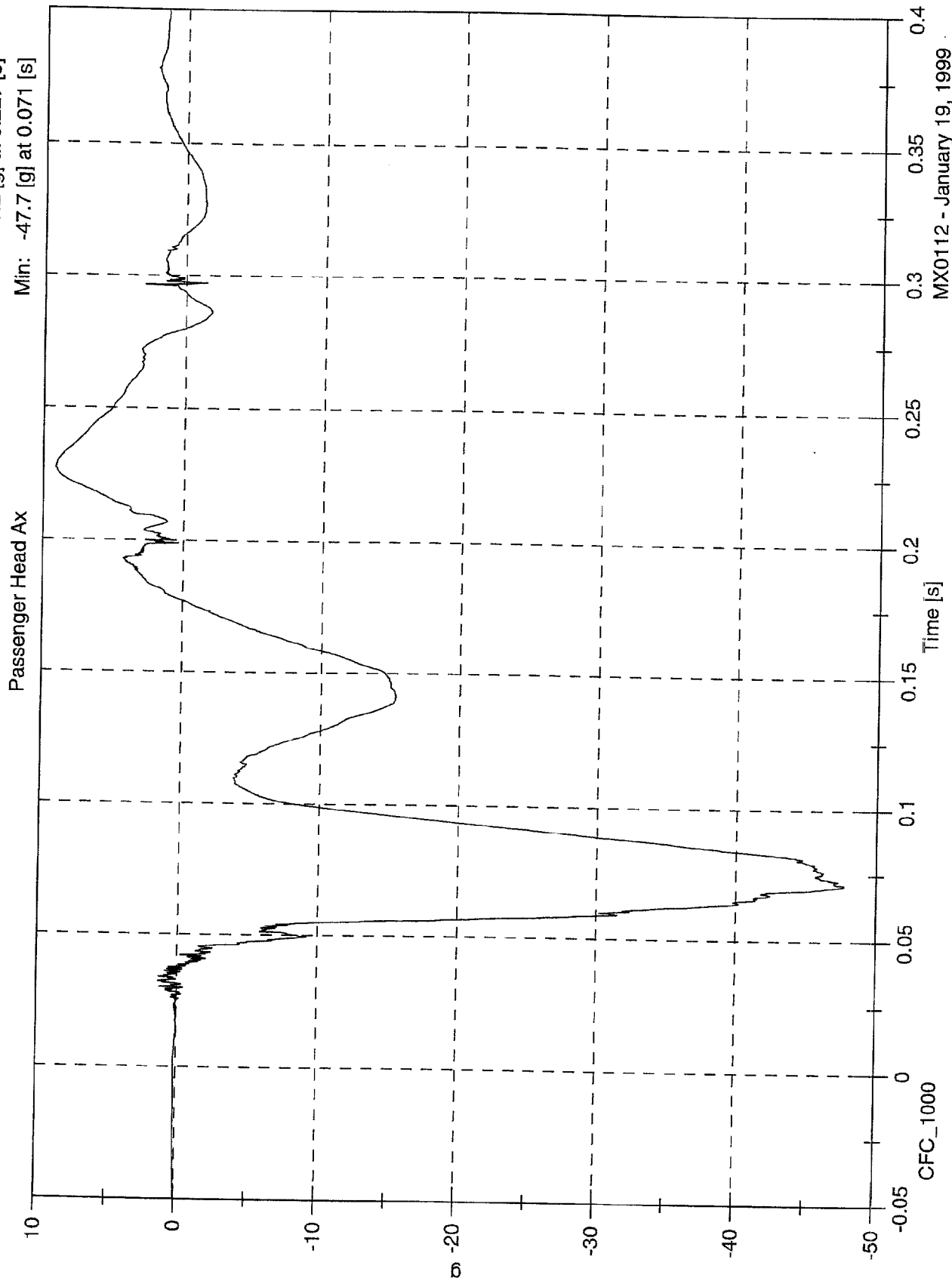
Max: 0.3 [mm] at 0.119 [s]
Min: -0.0 [mm] at 0.035 [s]



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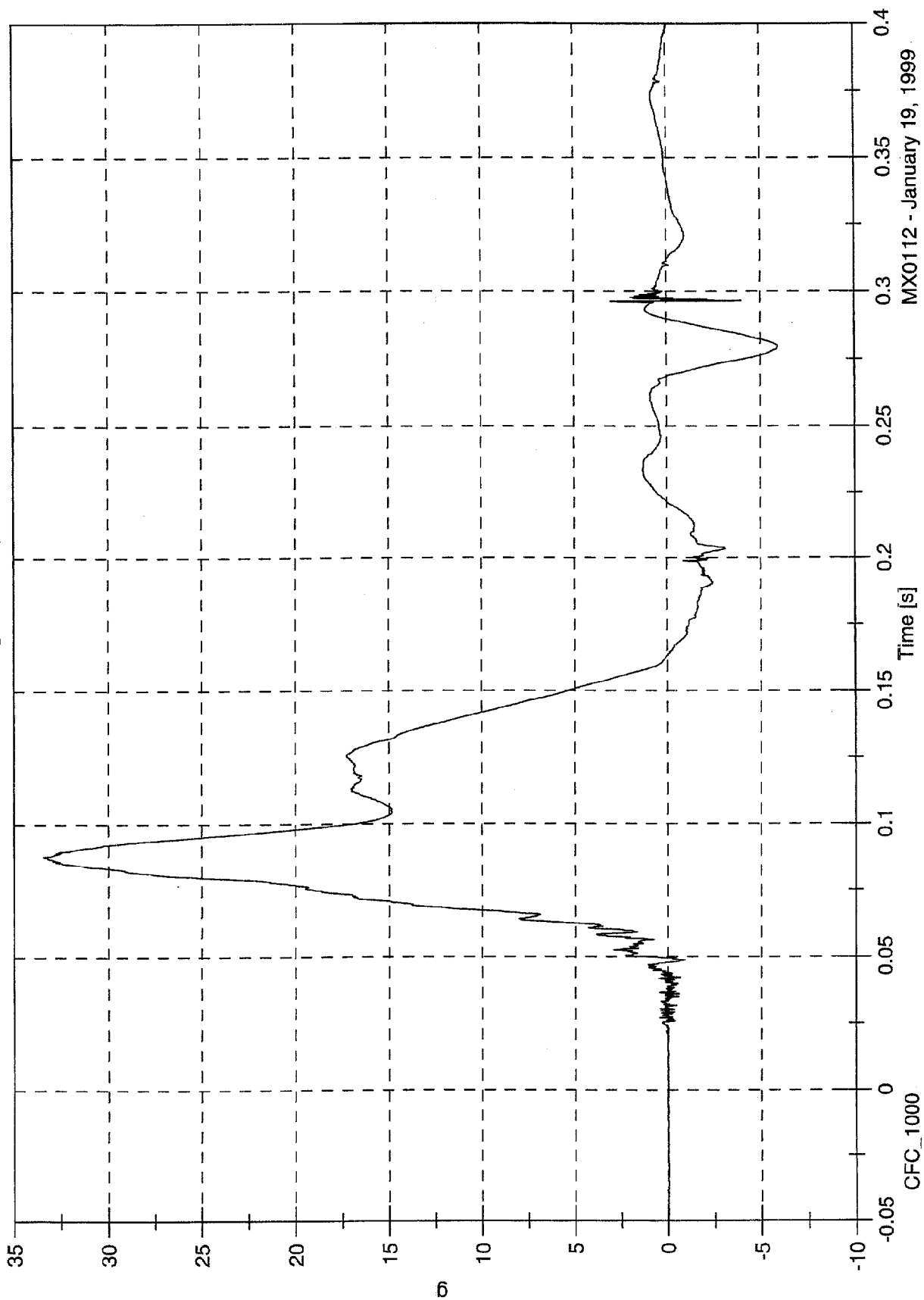
Max: 9.2 [g] at 0.227 [s]
Min: -47.7 [g] at 0.071 [s]



NCAP #8 1999 Chevrolet S-10

Passenger Head Ay

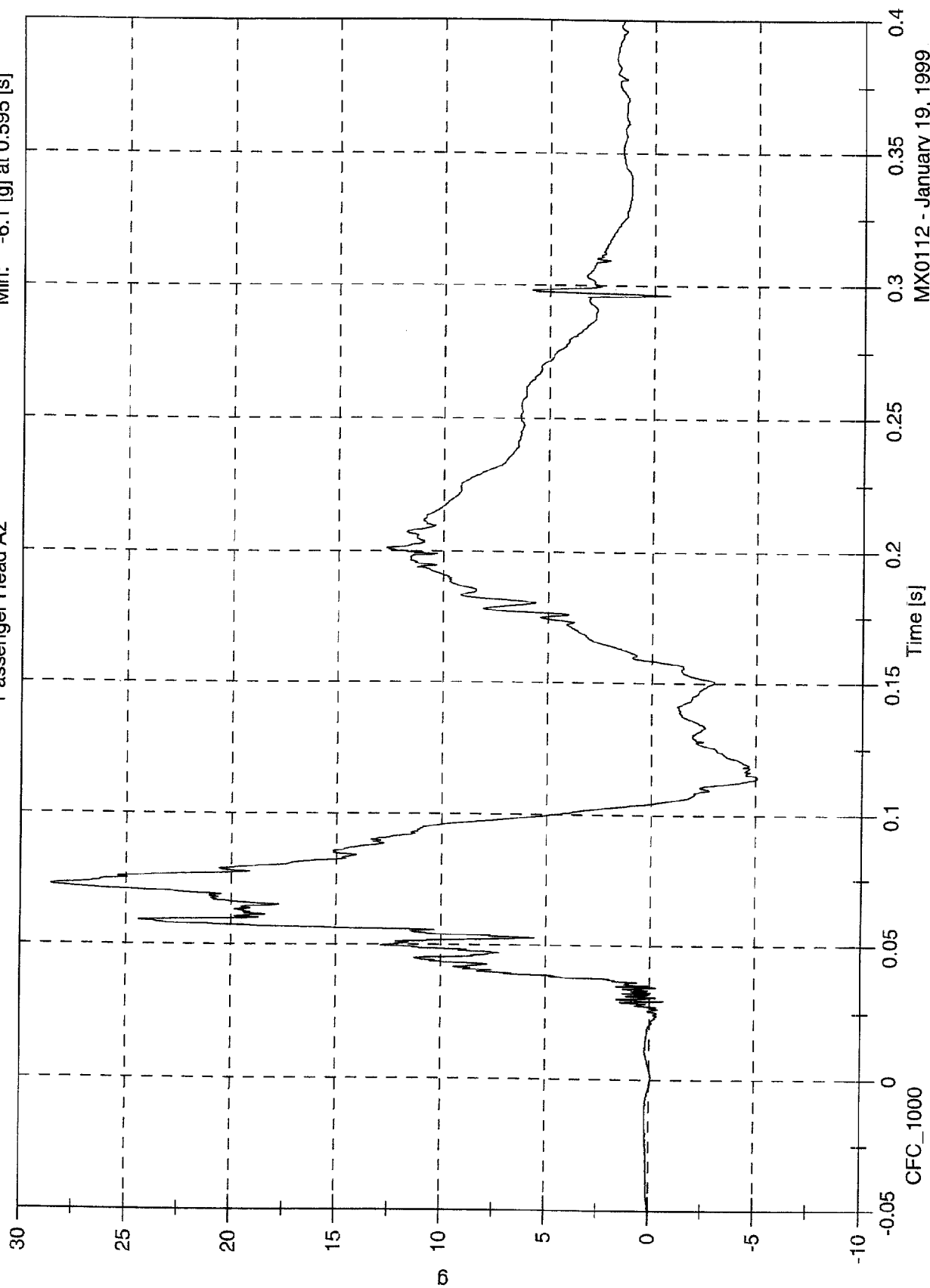
Max: 33.4 [g] at 0.088 [s]
Min: -5.9 [g] at 0.279 [s]



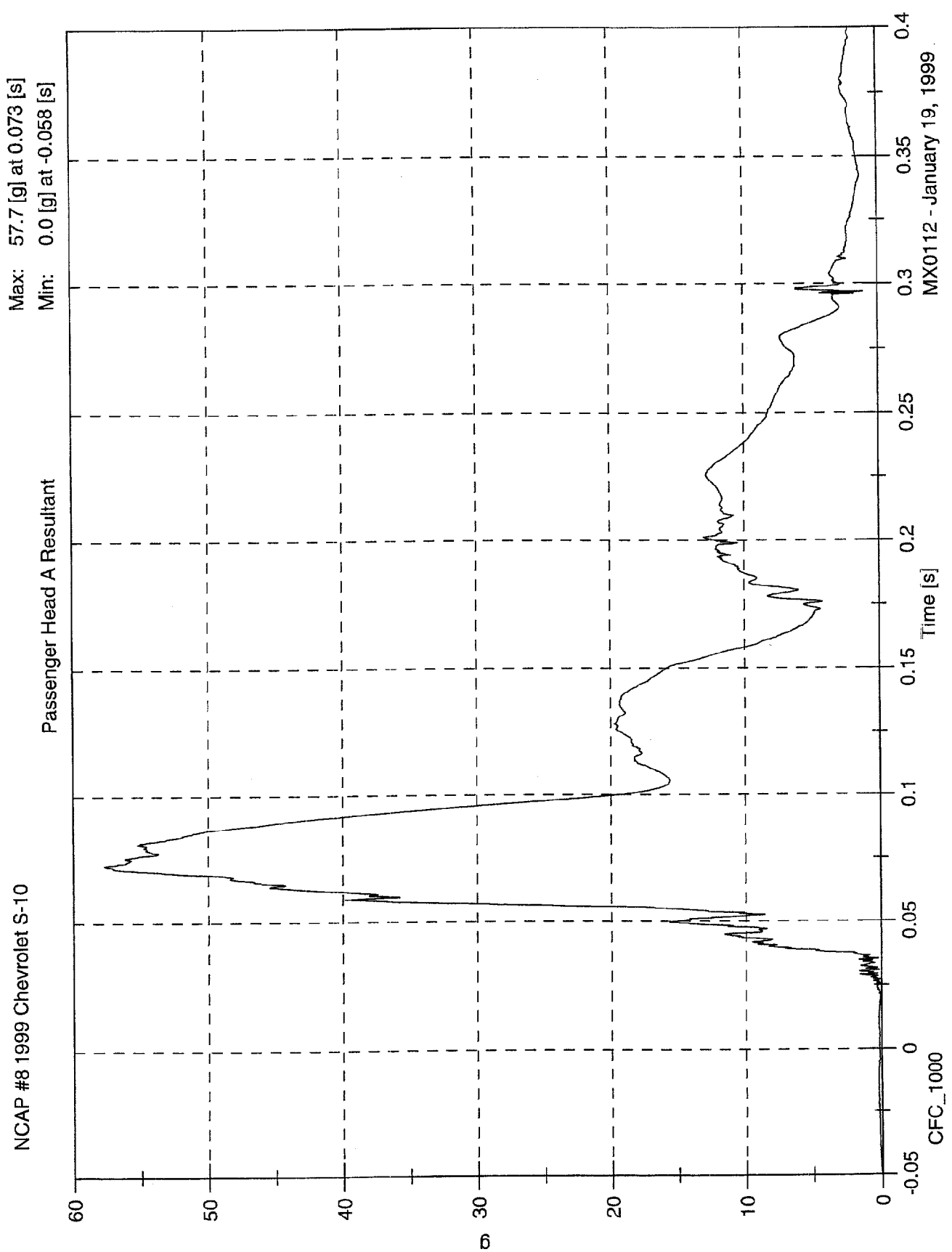
NCAP #8 1999 Chevrolet S-10

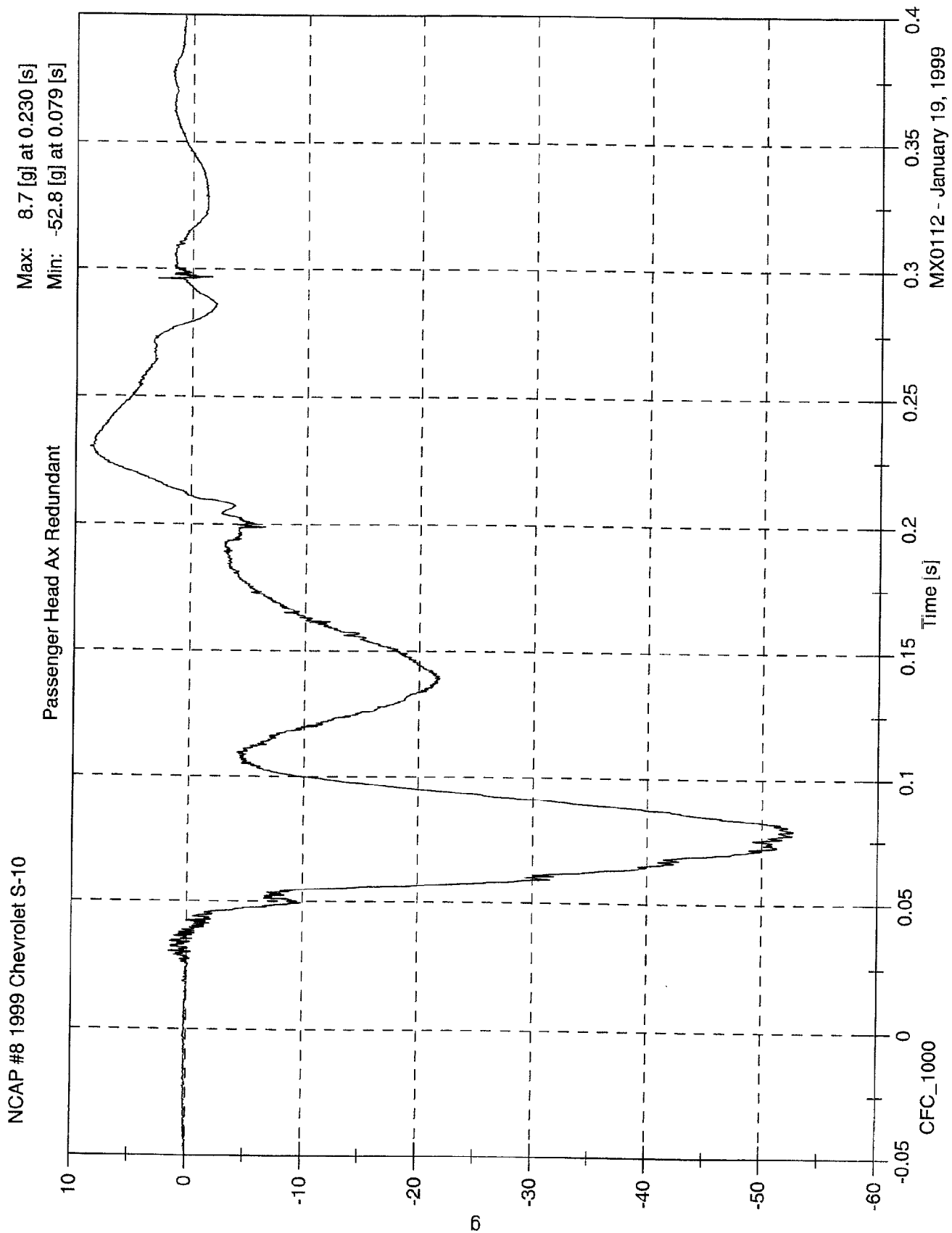
Max: 28.6 [g] at 0.073 [s]
Min: -6.1 [g] at 0.595 [s]

Passenger Head Az



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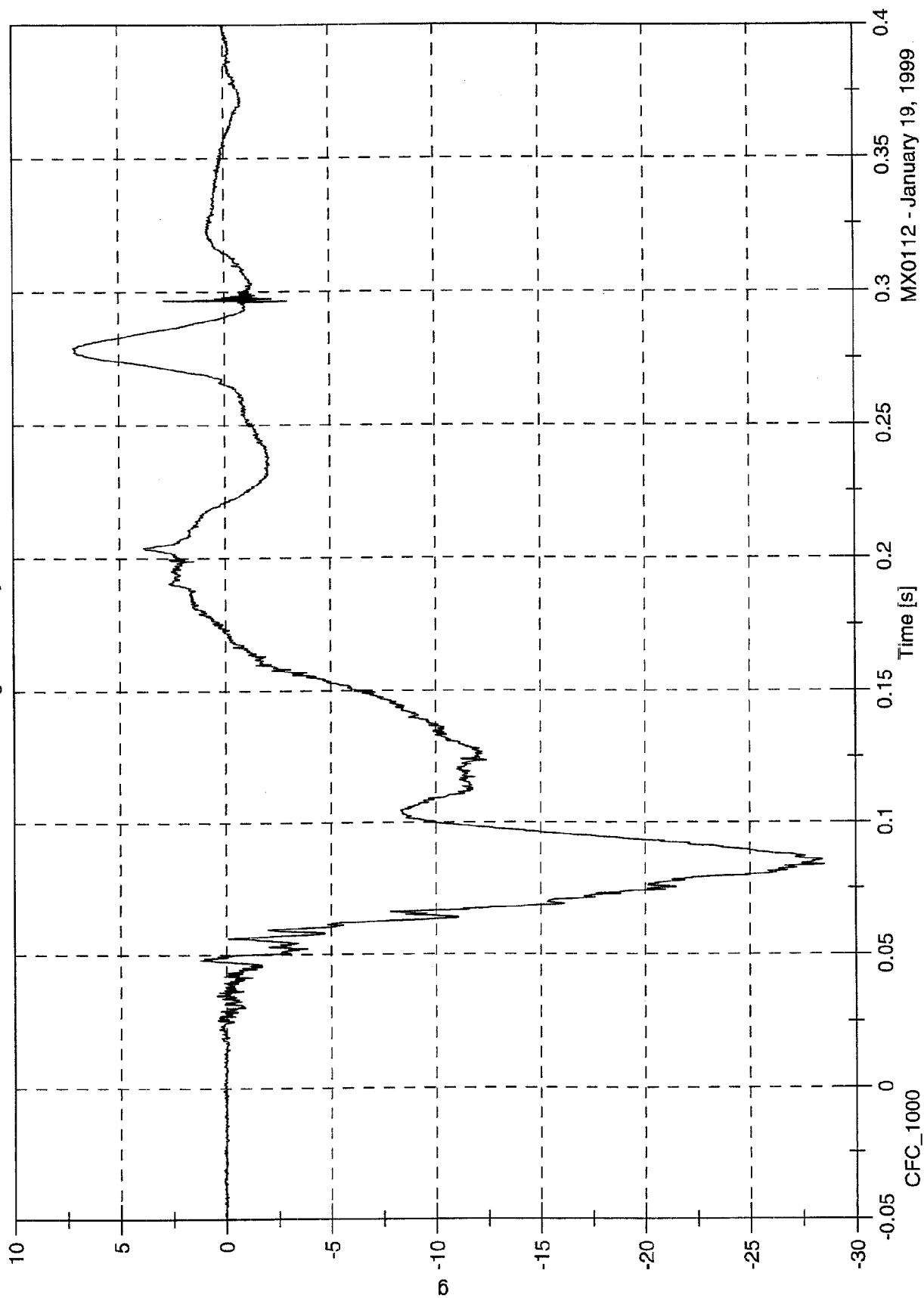


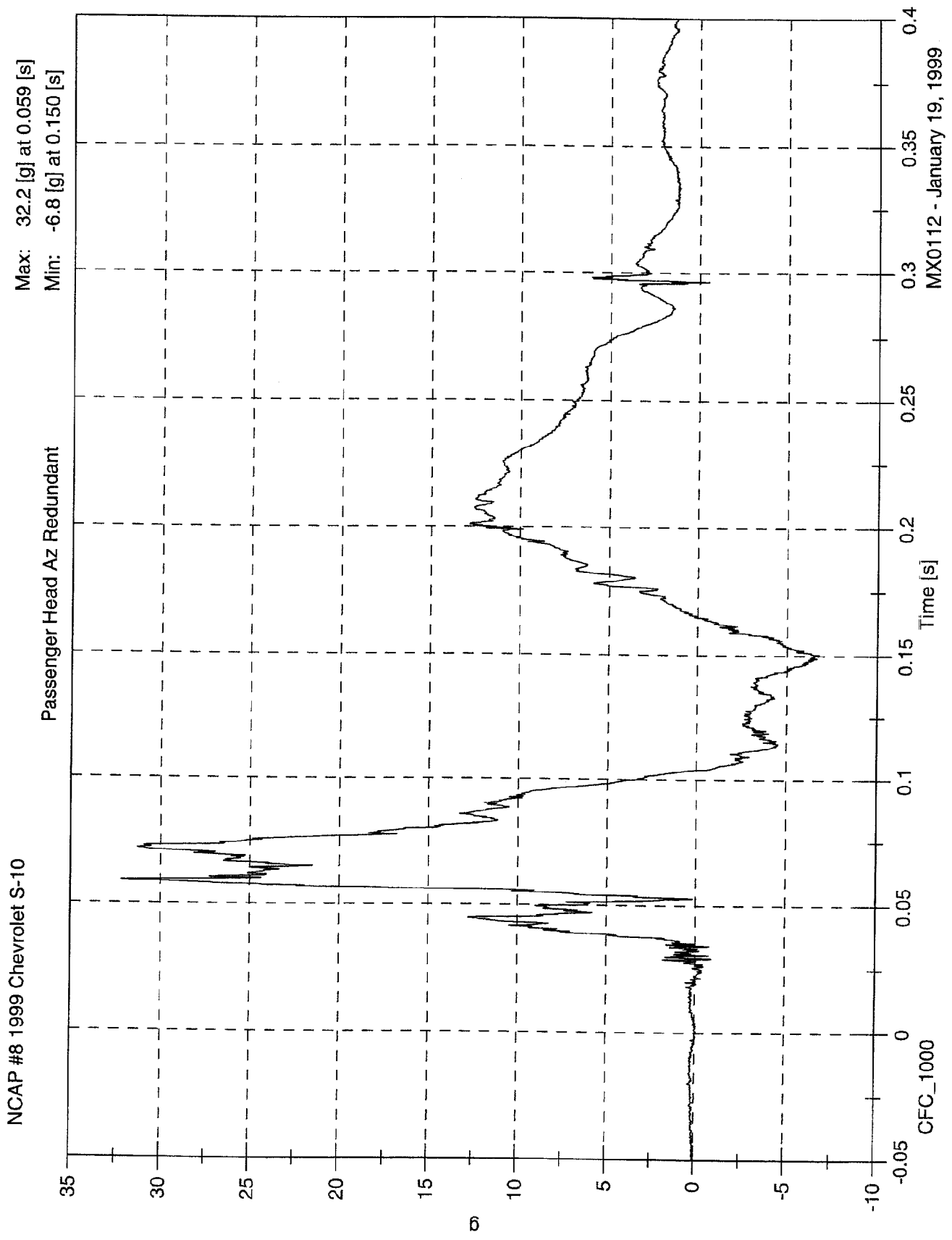
NCAP #8 1999 Chevrolet S-10

Passenger Head Ay Redundant

Max: 7.2 [g] at 0.279 [s]

Min: -28.5 [g] at 0.084 [s]



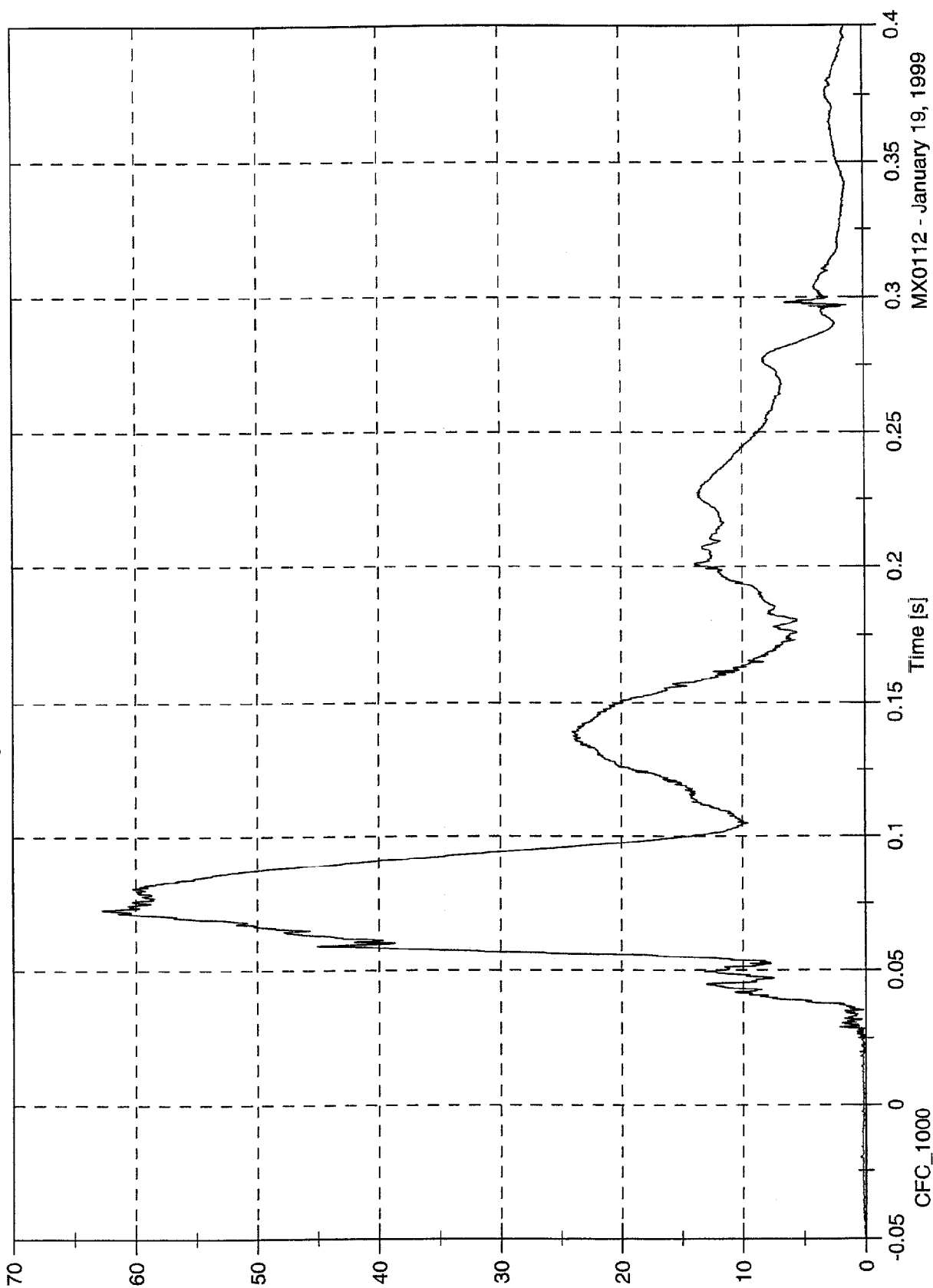


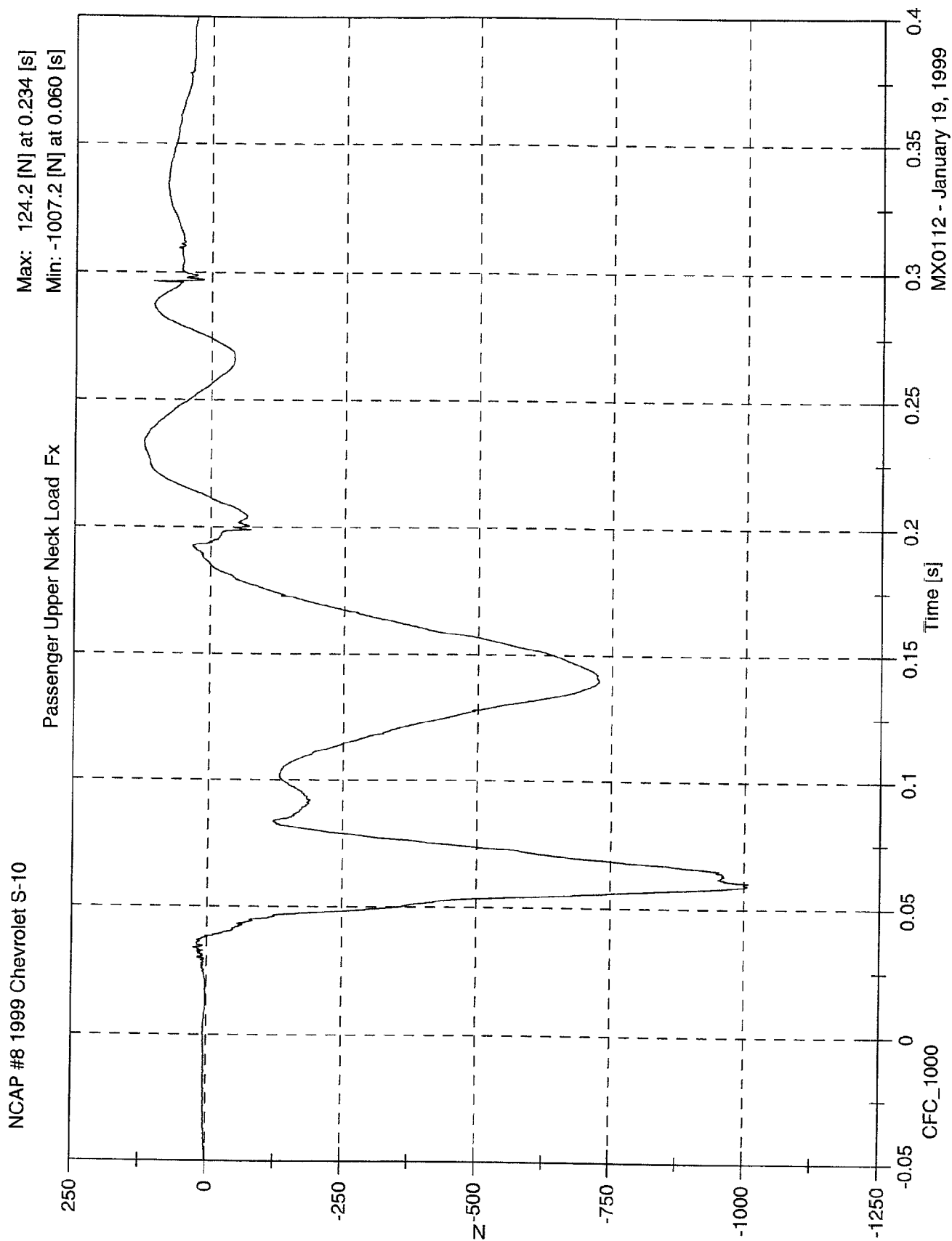
NCAP #8 1999 Chevrolet S-10

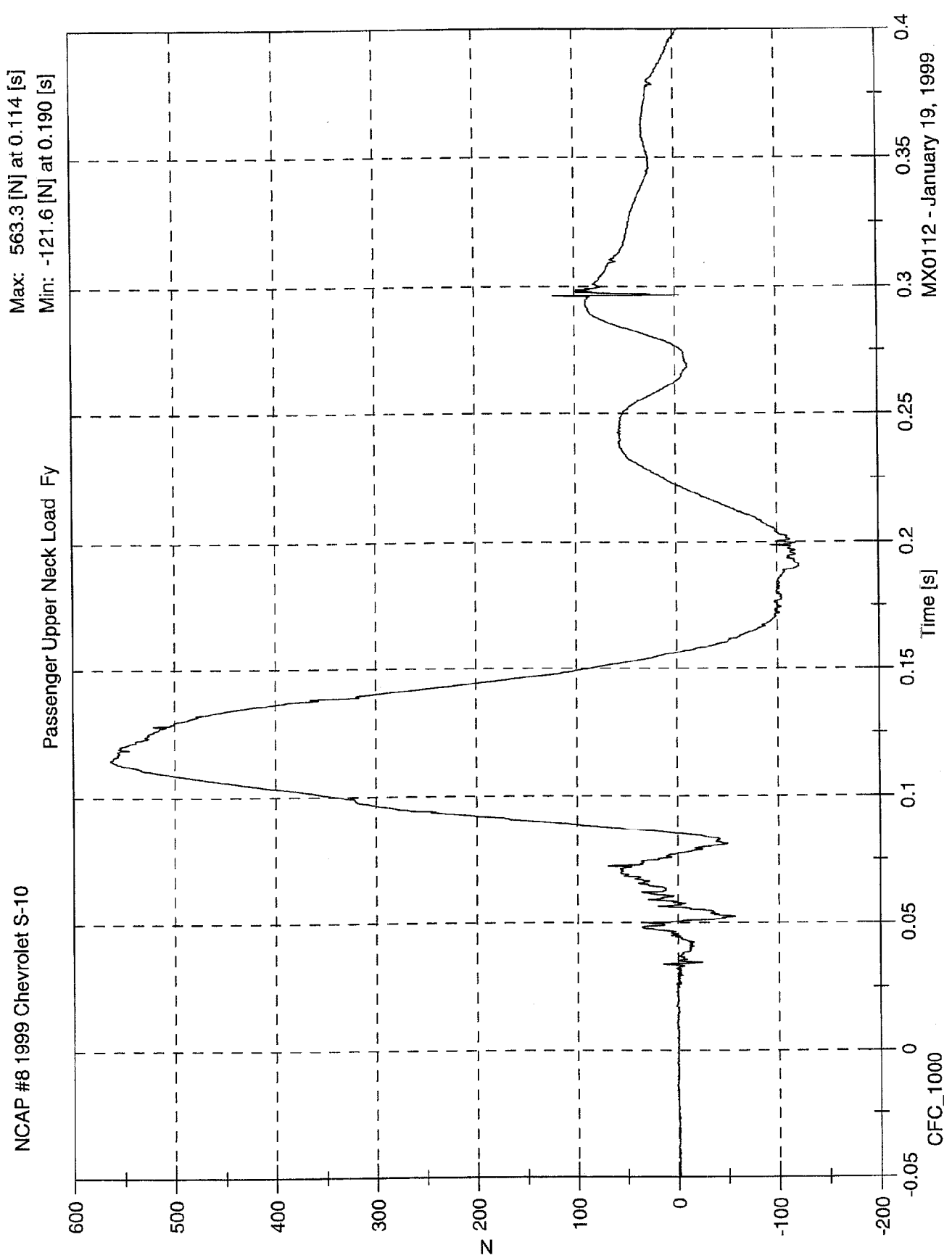
Passenger Head Ax Redundan Resultant

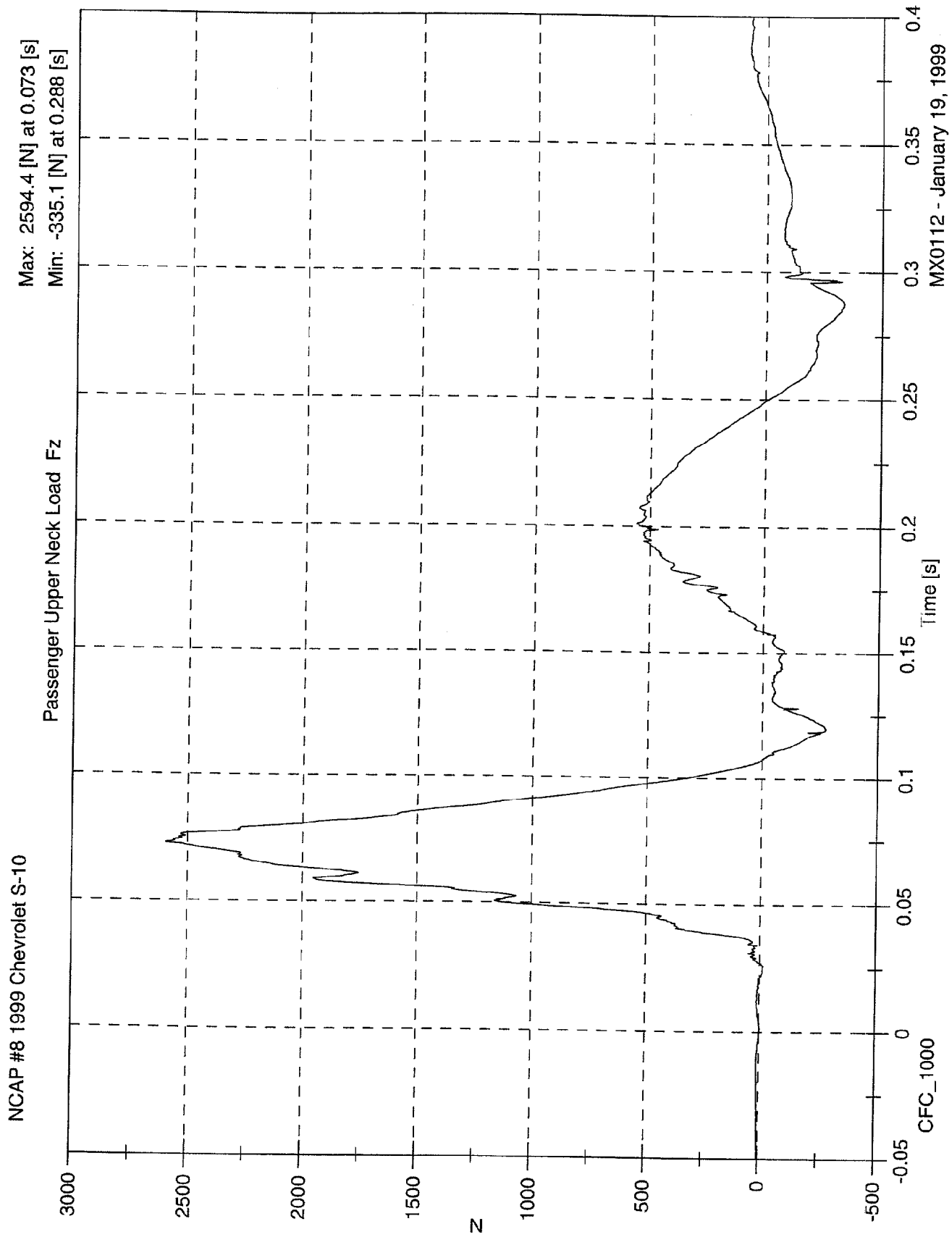
Max: 62.8 [g] at 0.073 [s]

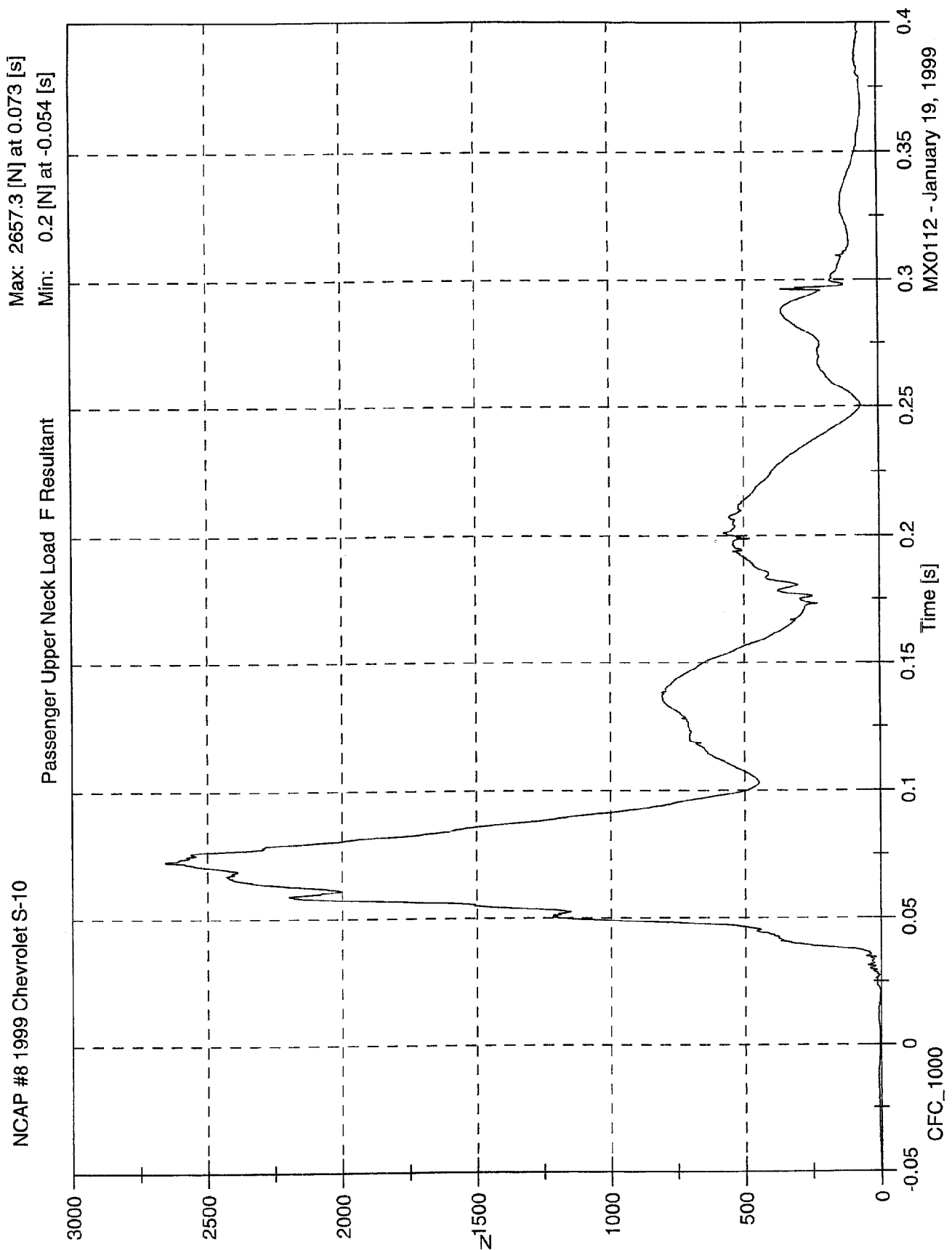
Min: 0.0 [g] at -0.044 [s]







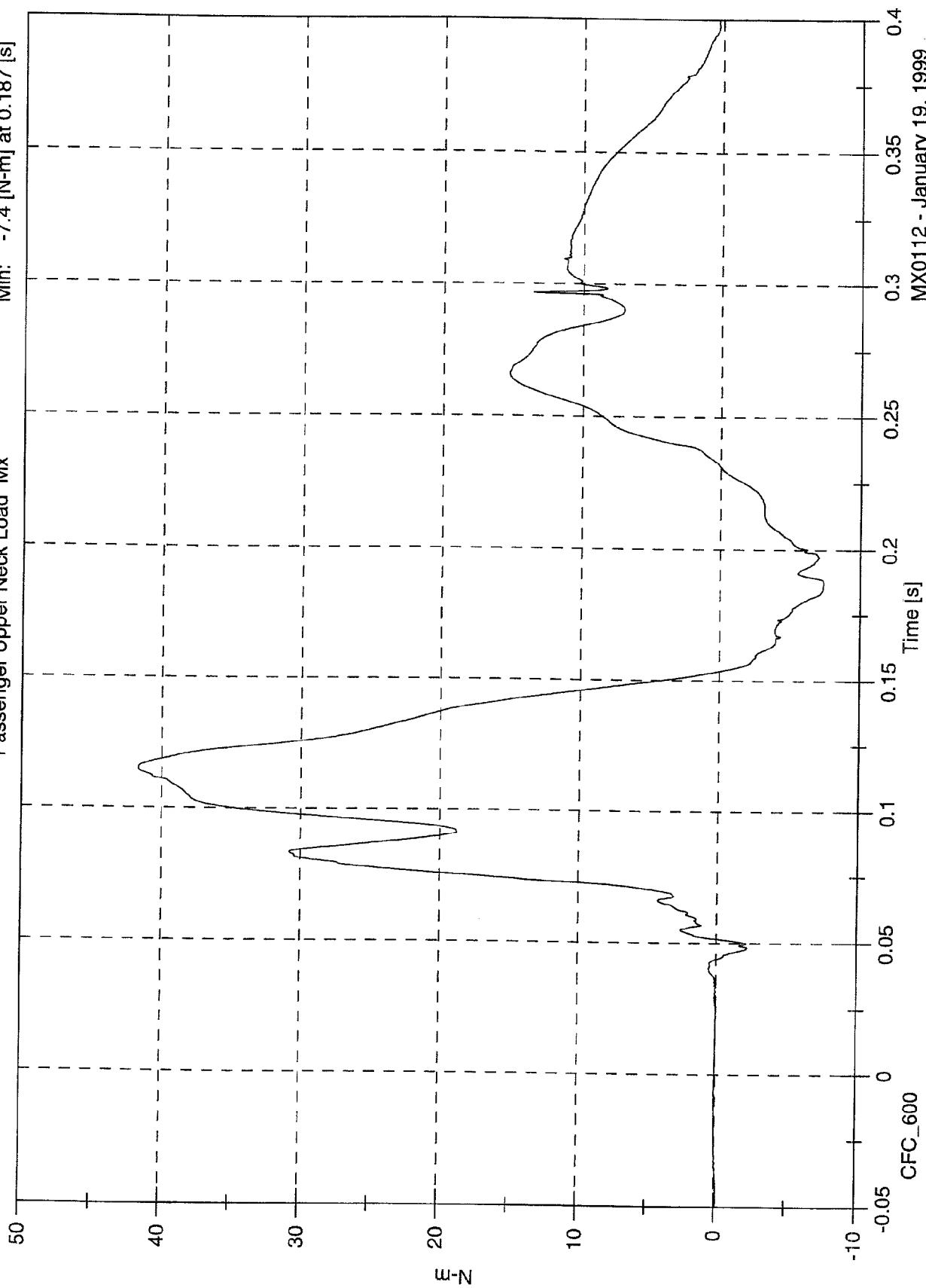




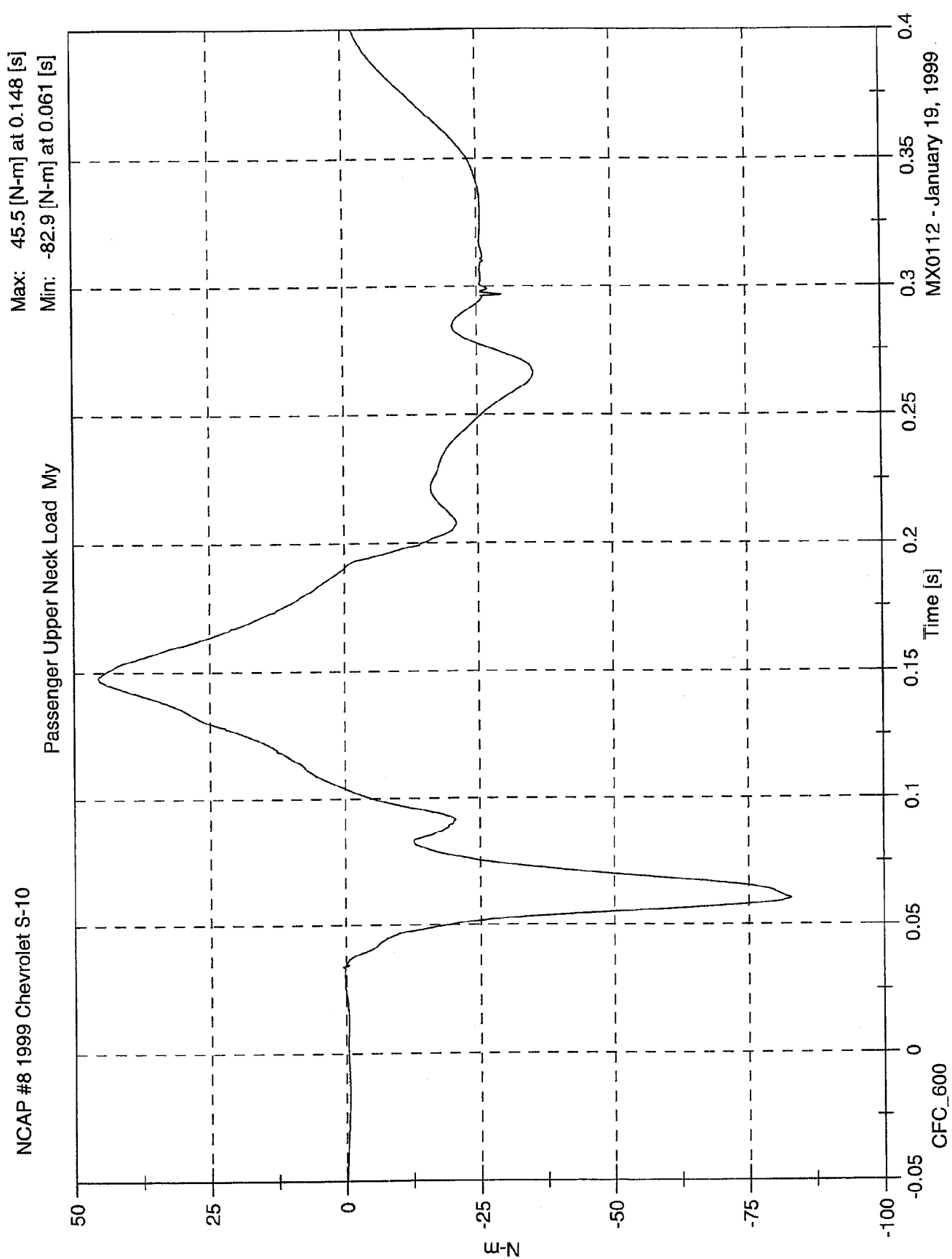
NCAP #8 1999 Chevrolet S-10

Max: 41.7 [N-m] at 0.115 [s]
Min: -7.4 [N-m] at 0.187 [s]

Passenger Upper Neck Load Mx



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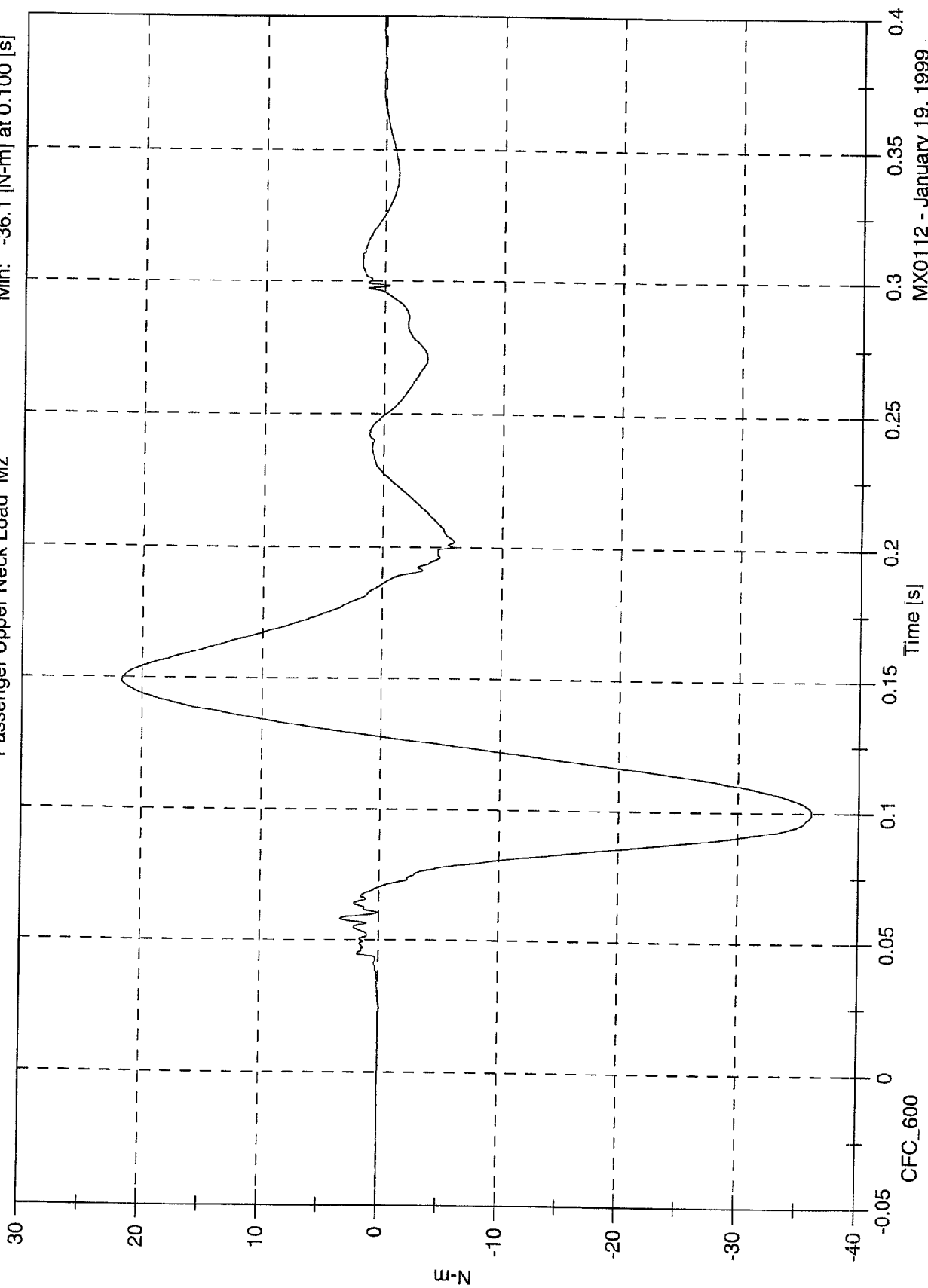


NCAP #8 1999 Chevrolet S-10

Max: 21.7 [N-m] at 0.149 [s]

Min: -36.1 [N-m] at 0.100 [s]

Passenger Upper Neck Load Mz

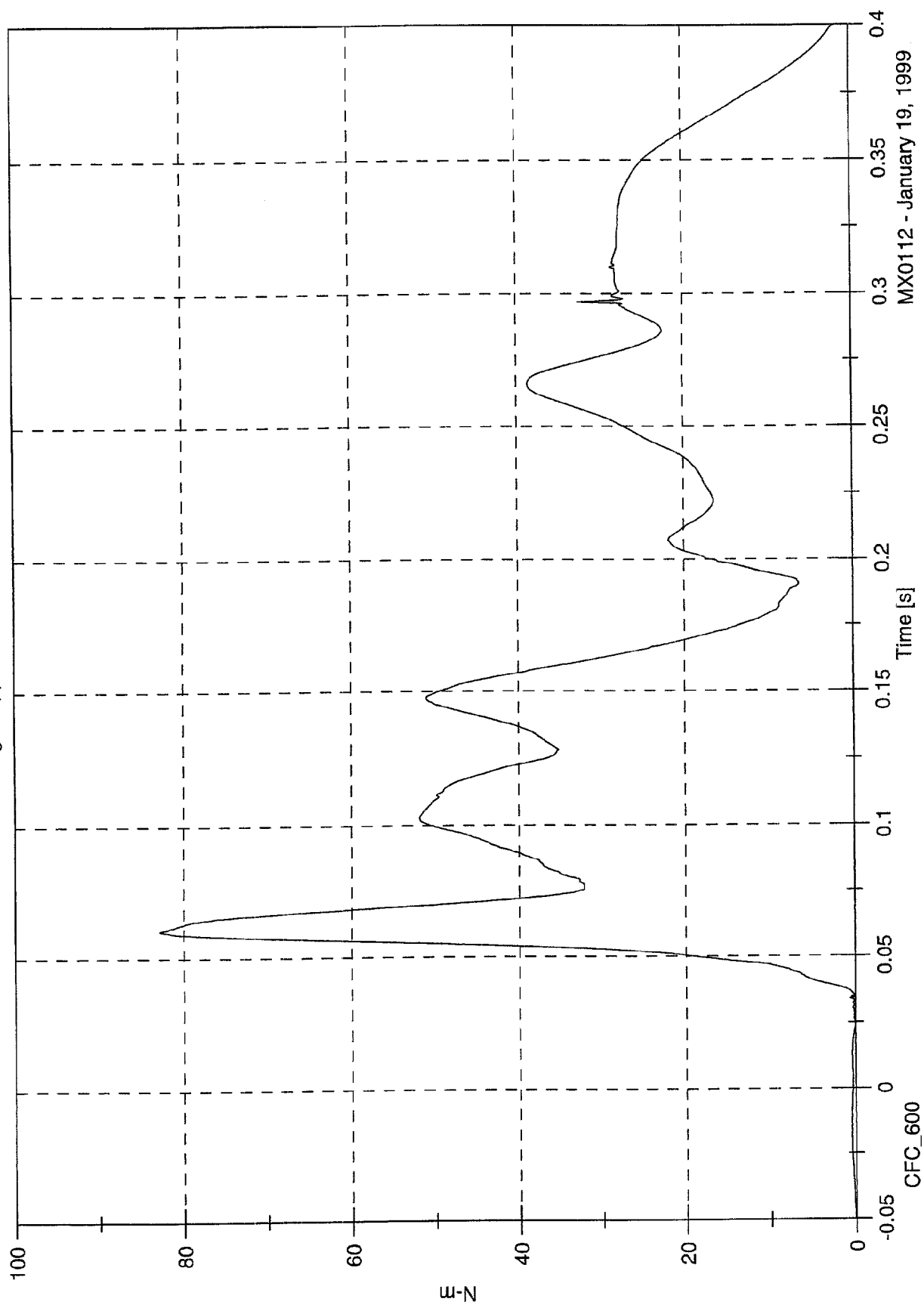


MX0112 - January 19, 1999

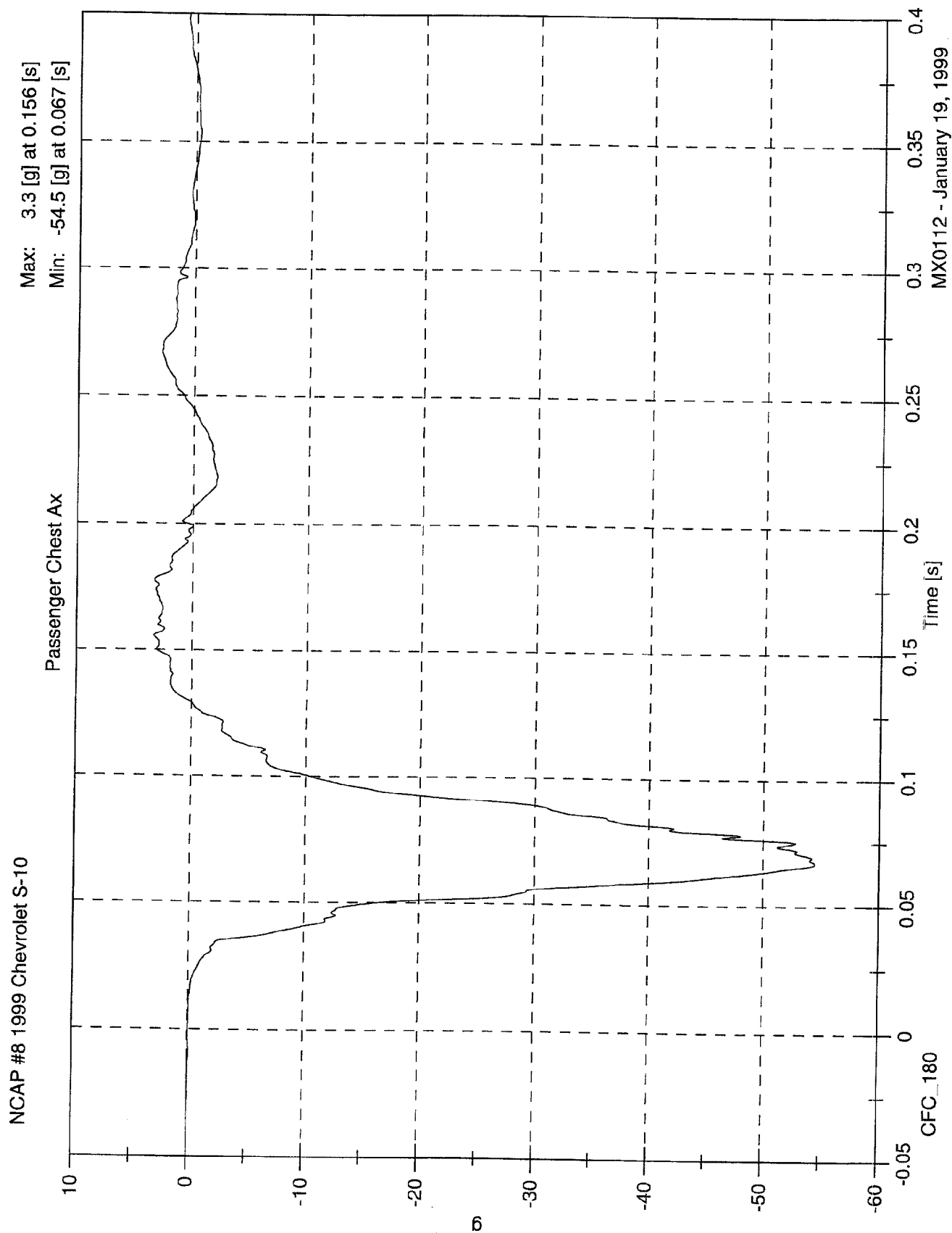
NCAP #8 1999 Chevrolet S-10

Max: 83.0 [N-m] at 0.061 [s]
Min: 0.1 [N-m] at -0.056 [s]

Passenger Upper Neck Load M Resultant



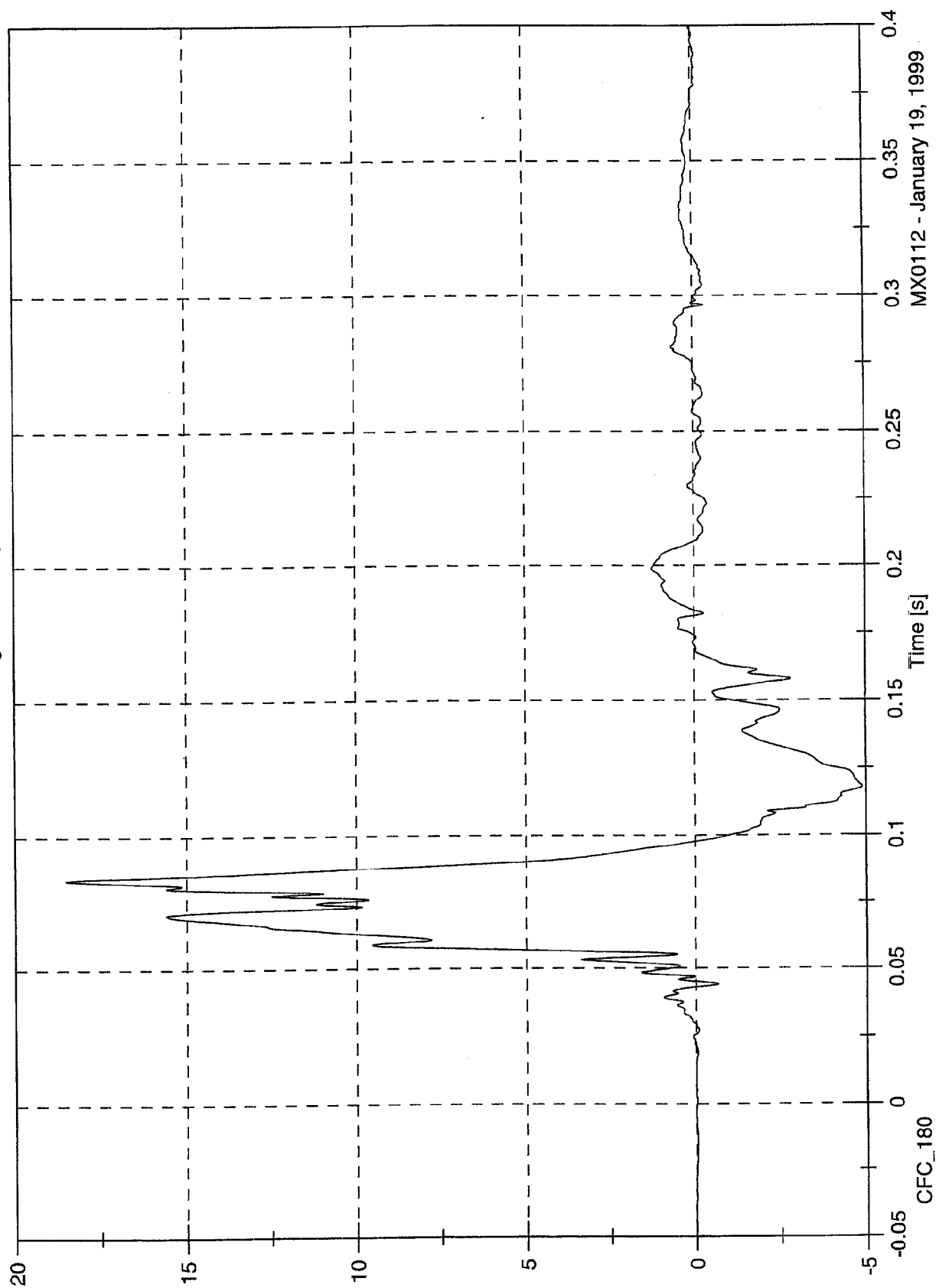
MX0112 - January 19, 1999

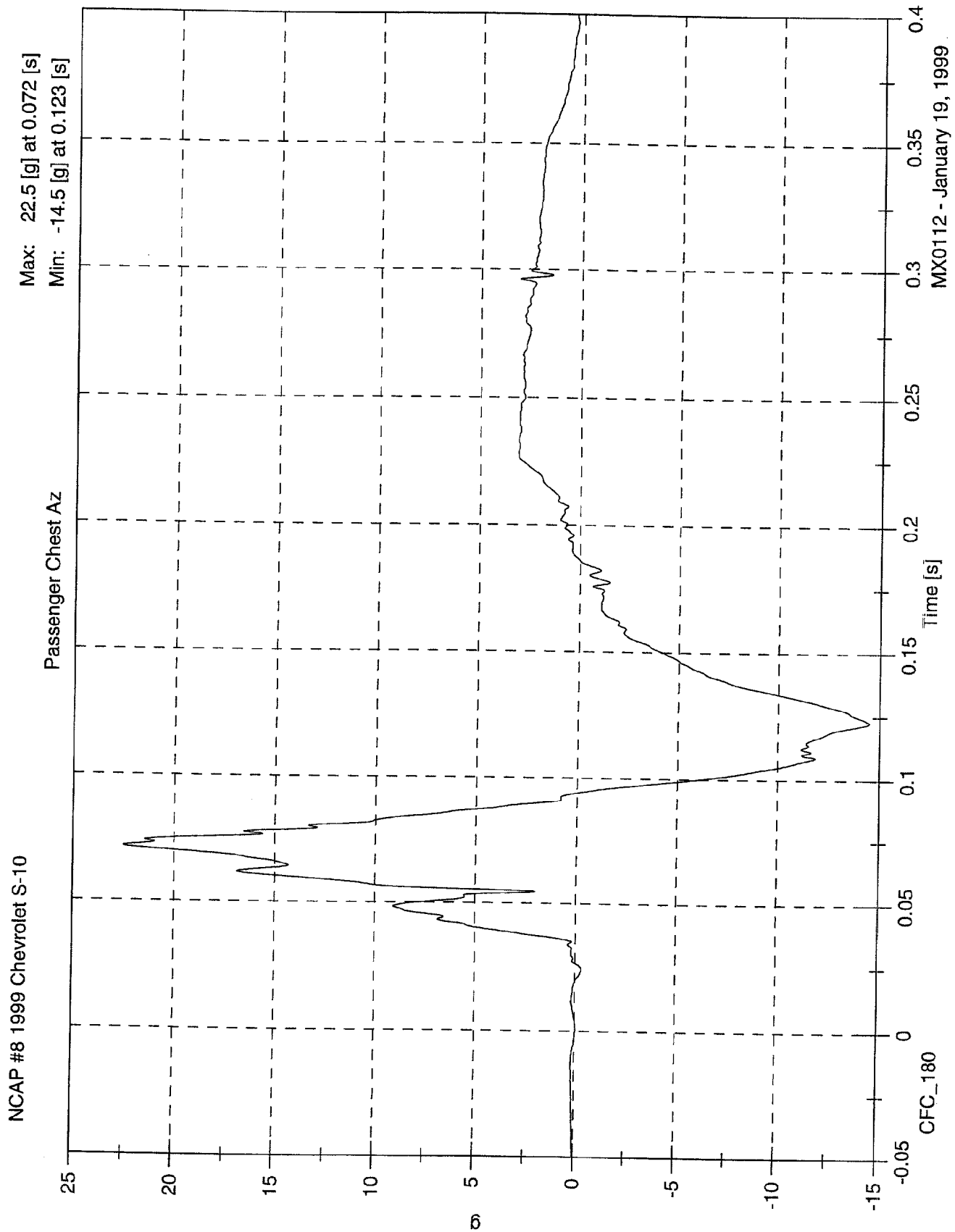


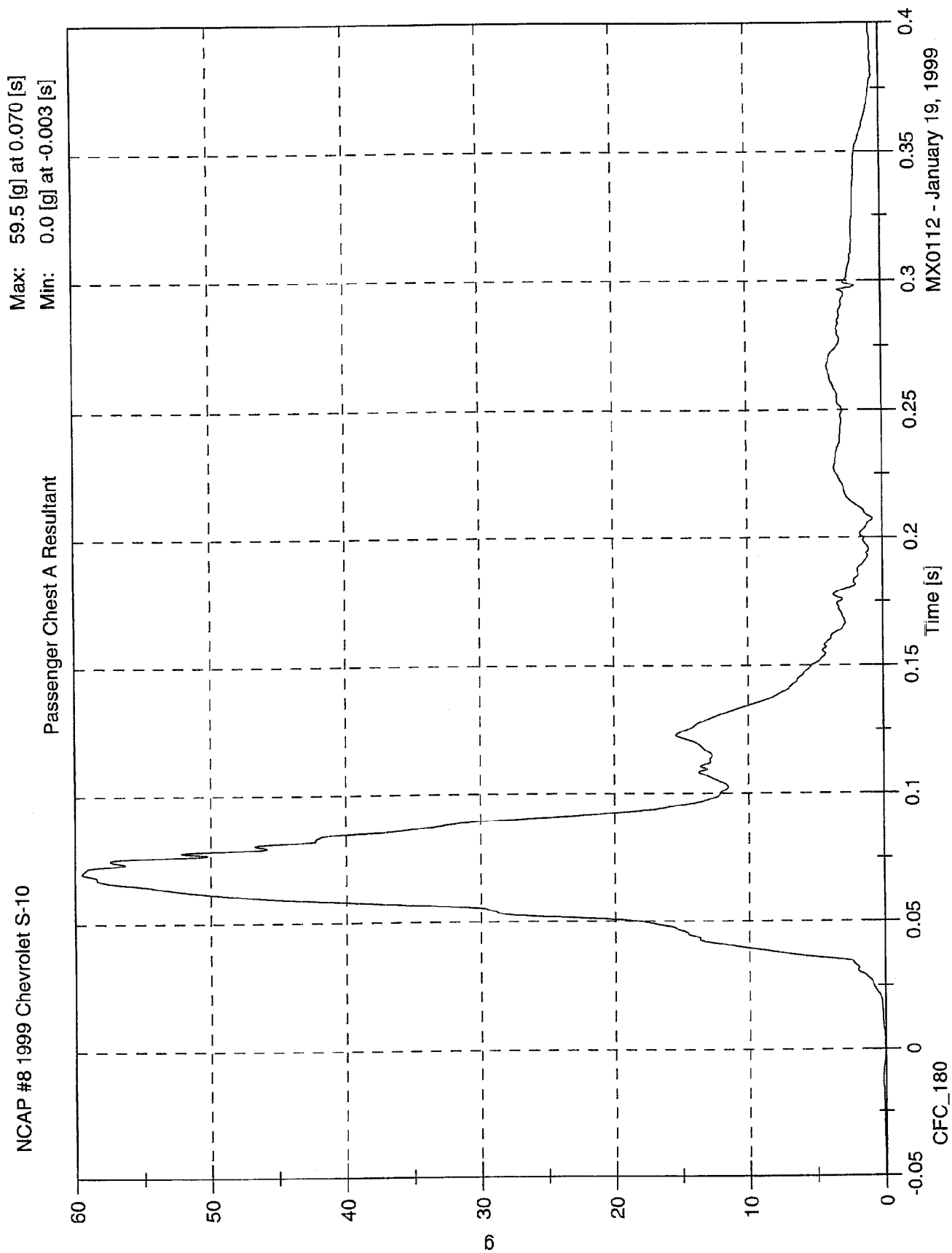
NCAP #8 1999 Chevrolet S-10

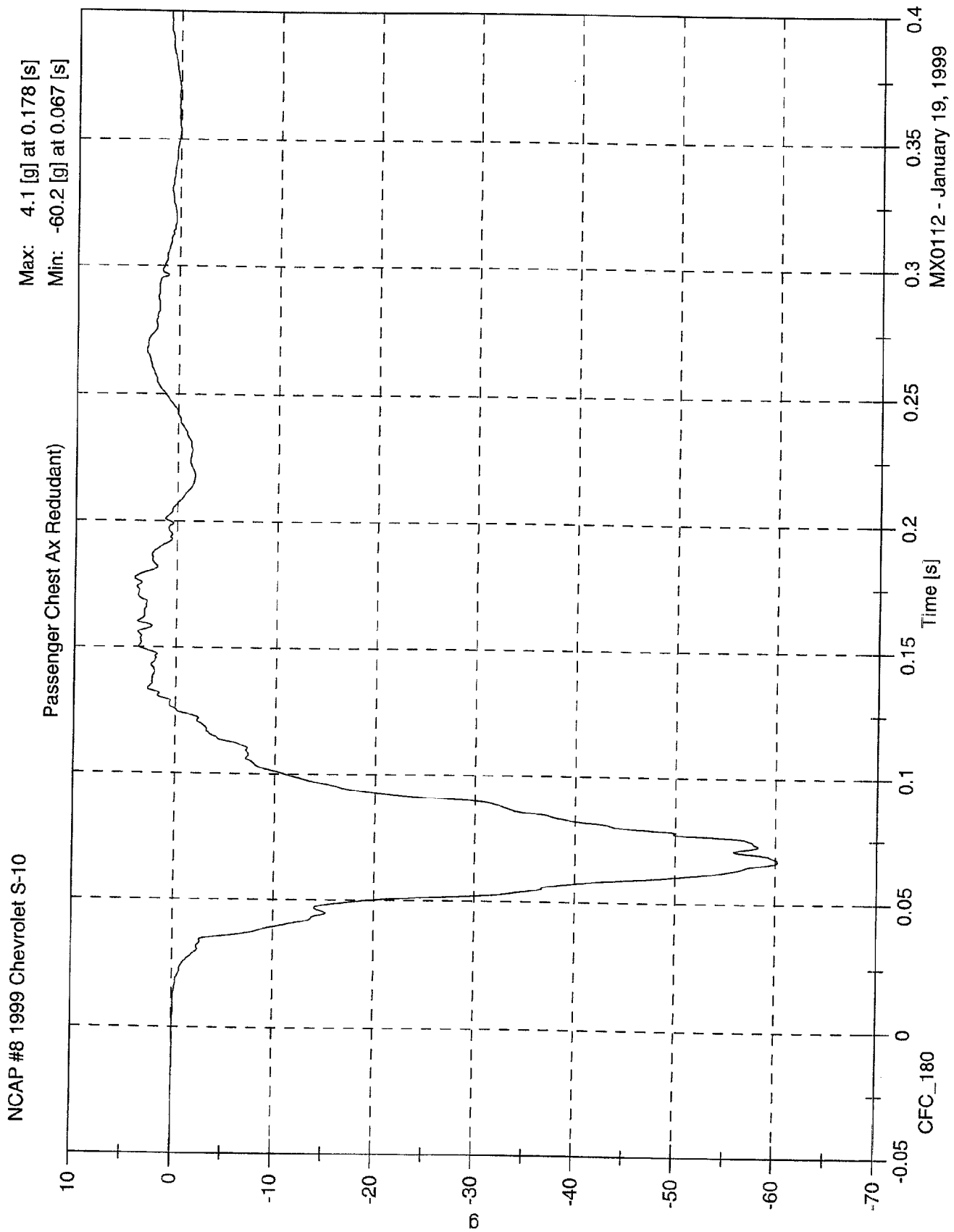
Passenger Chest Ay

Max: 18.5 [g] at 0.084 [s]
Min: -4.9 [g] at 0.118 [s]





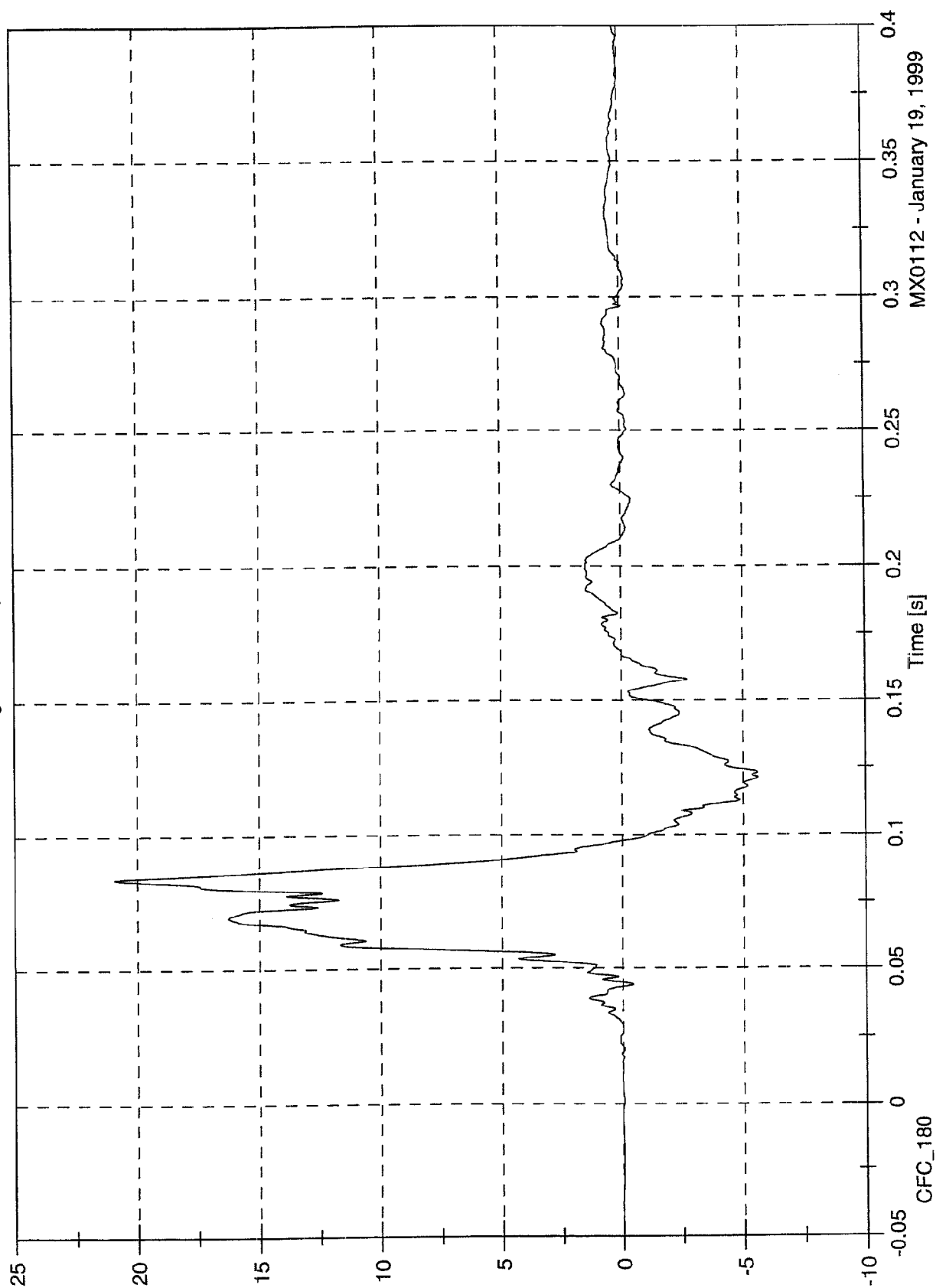




NCAP #8 1999 Chevrolet S-10

Passenger Chest Ay Redundant

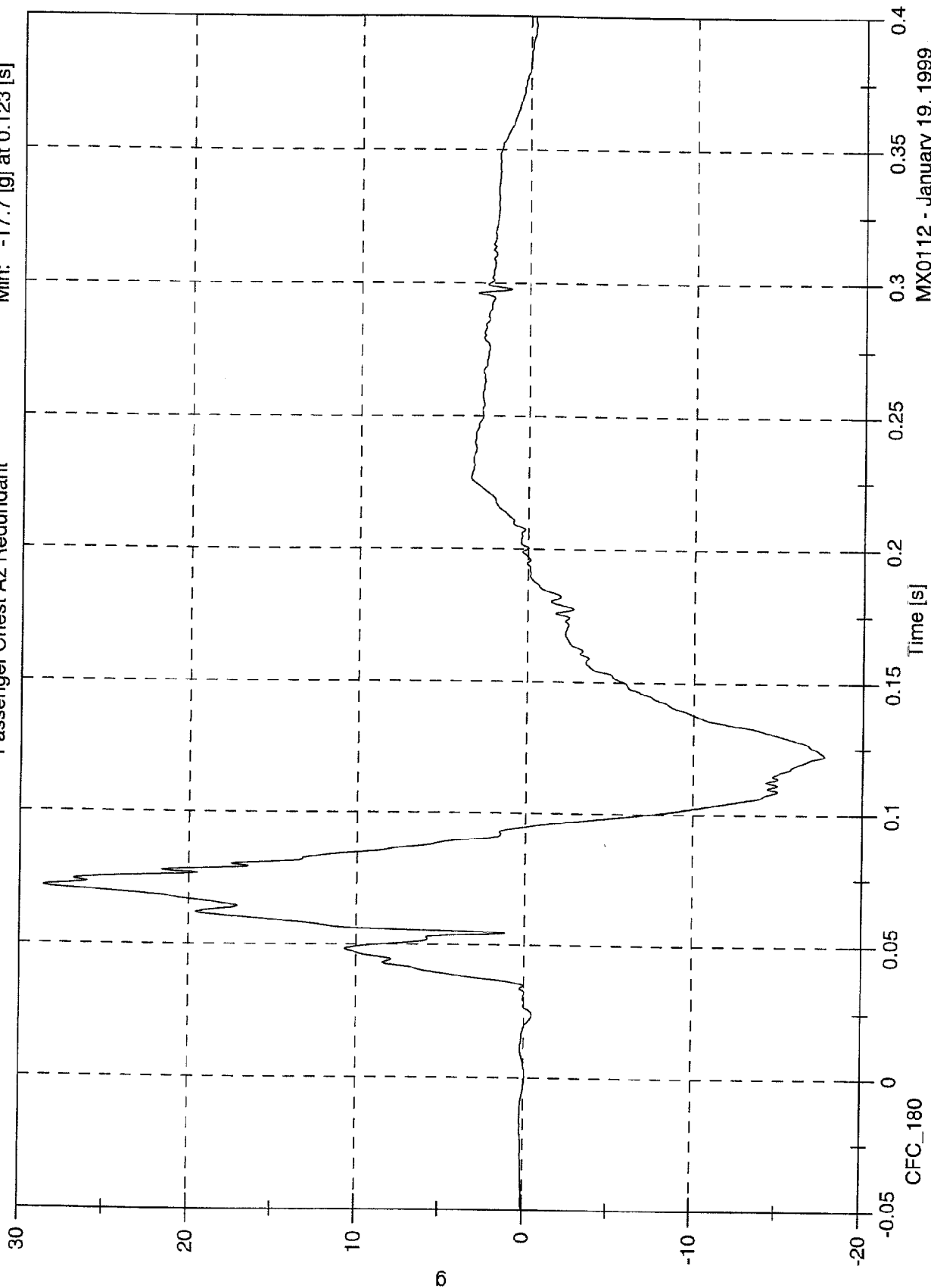
Max: 20.9 [g] at 0.084 [s]
Min: -5.6 [g] at 0.121 [s]



NCAP #8 1999 Chevrolet S-10

Passenger Chest Az Redundant

Max: 28.6 [g] at 0.072 [s]
Min: -17.7 [g] at 0.123 [s]



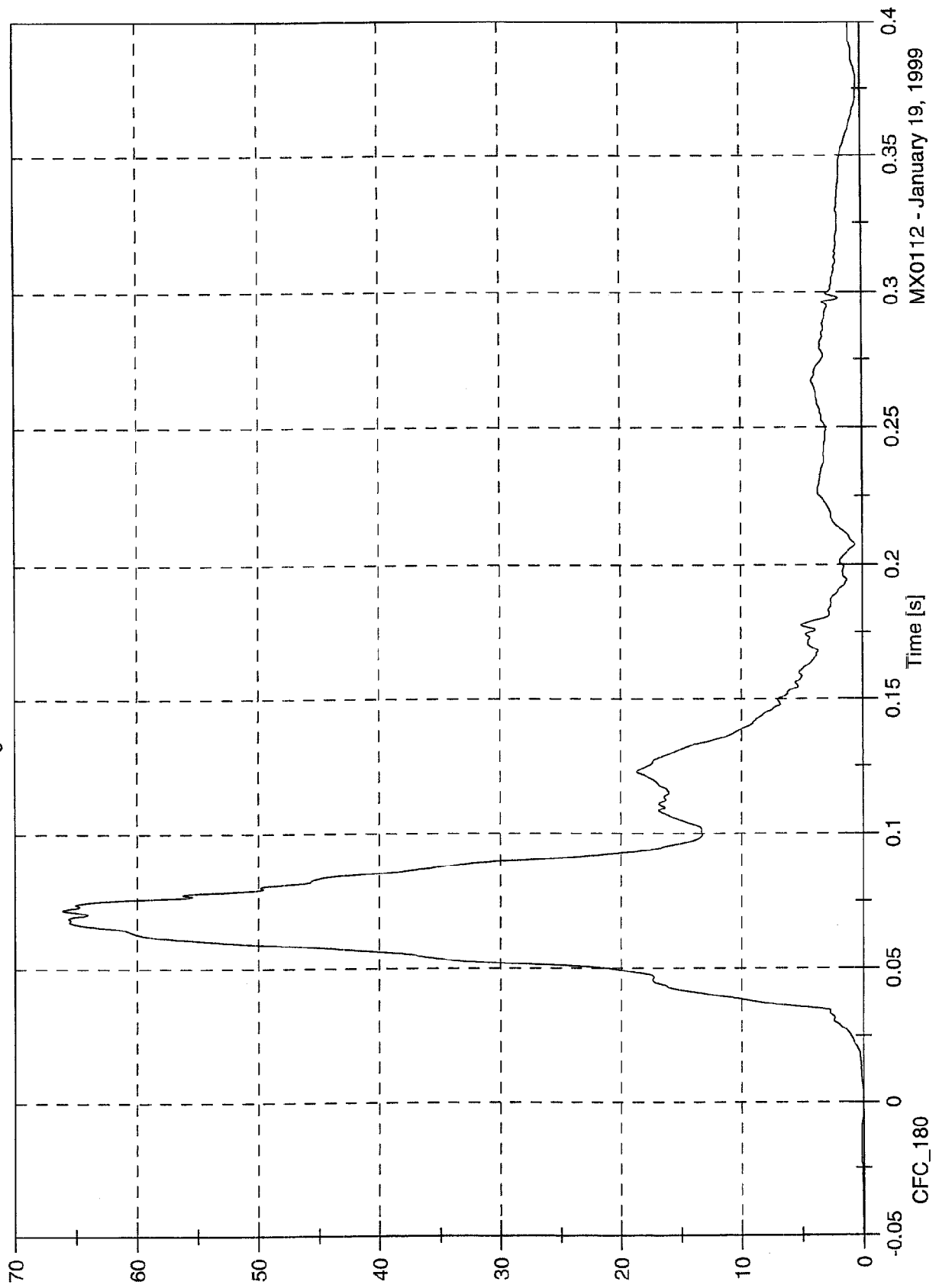
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Passenger Chest Ax Redundant Resultant

Max: 66.1 [g] at 0.072 [s]

Min: 0.0 [g] at -0.062 [s]



CFC_180

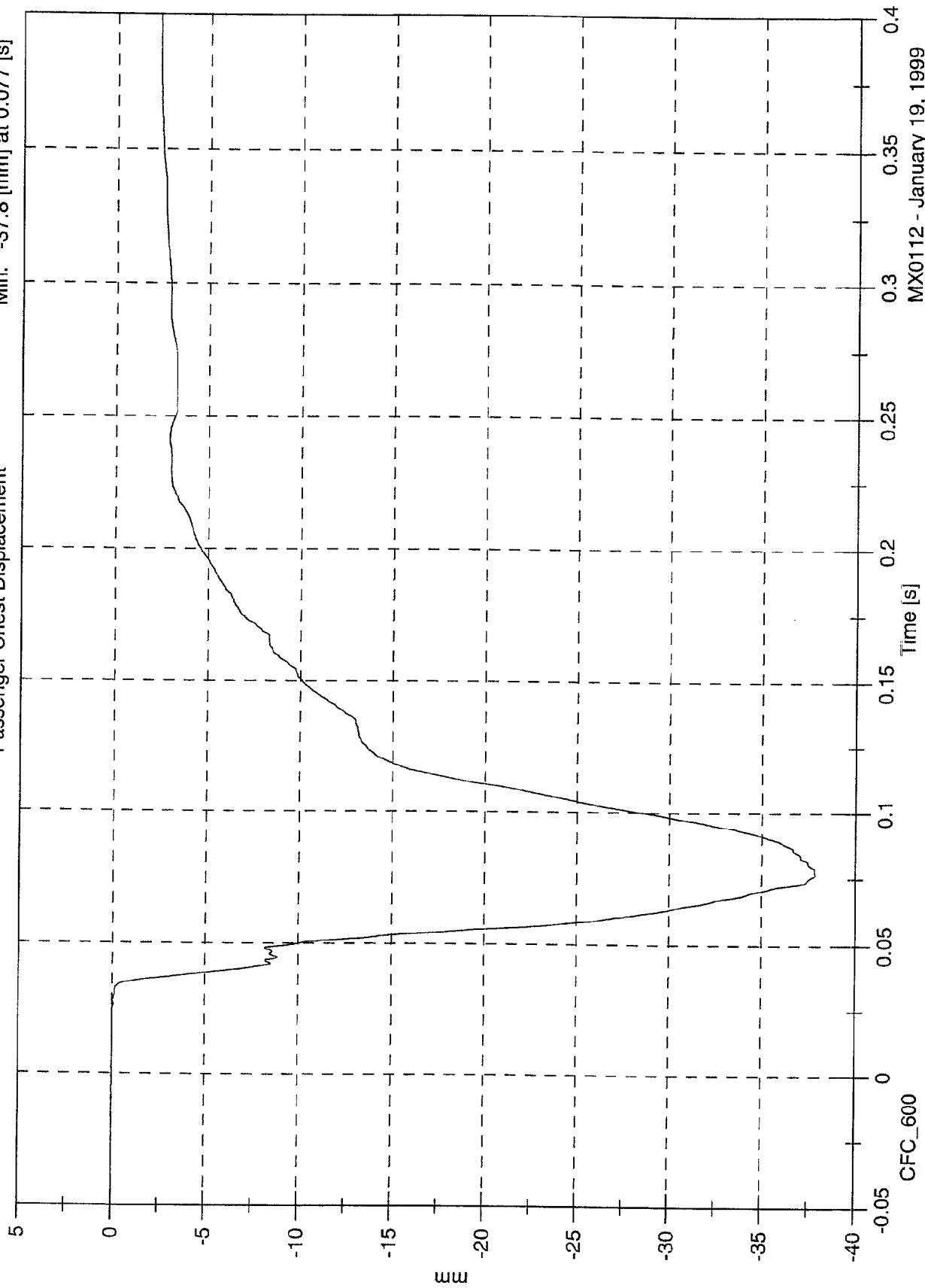
Time [s]

MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Max: 0.0 [mm] at -0.067 [s]
Min: -37.8 [mm] at 0.077 [s]

Passenger Chest Displacement



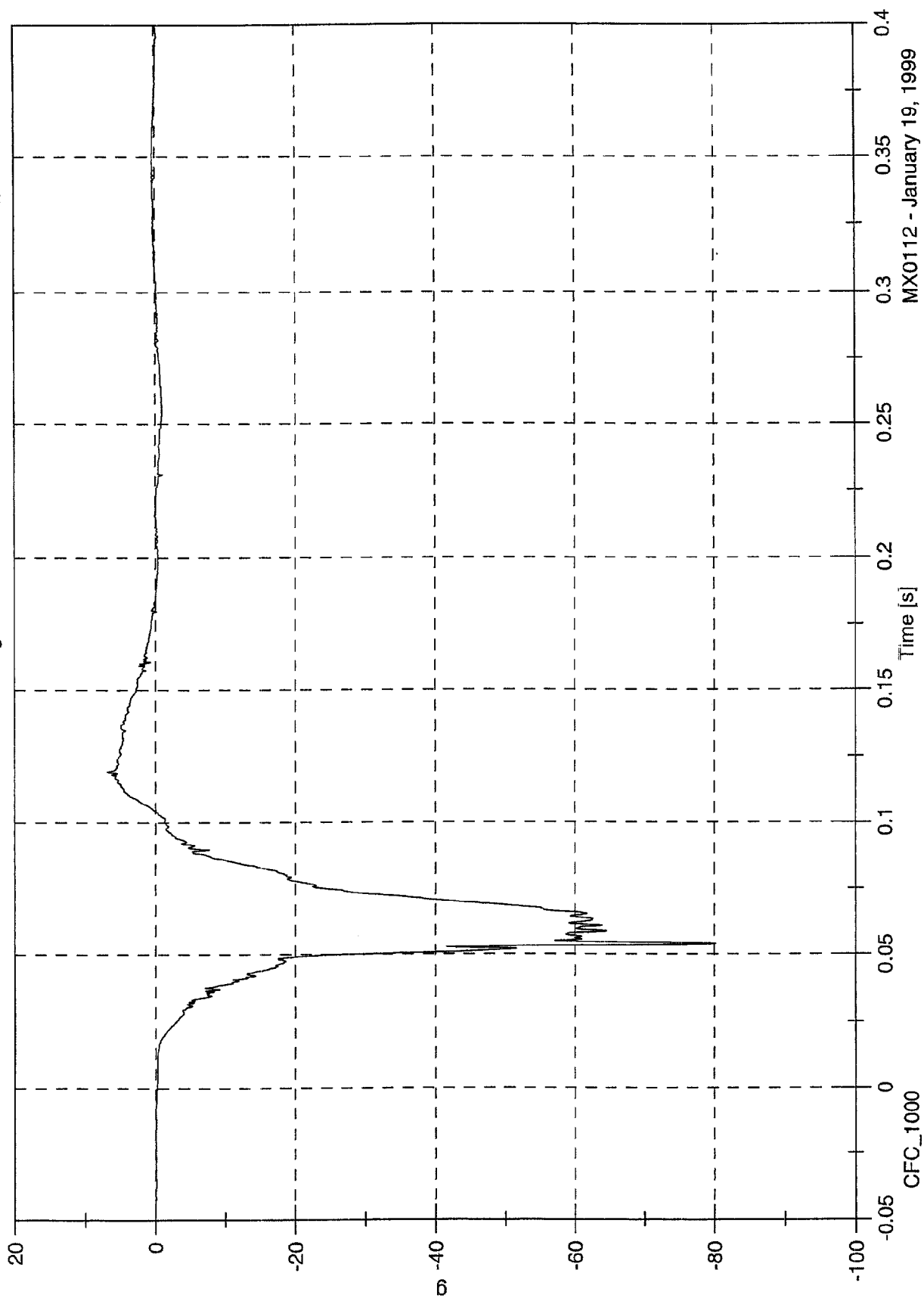
MX0112 - January 19, 1999

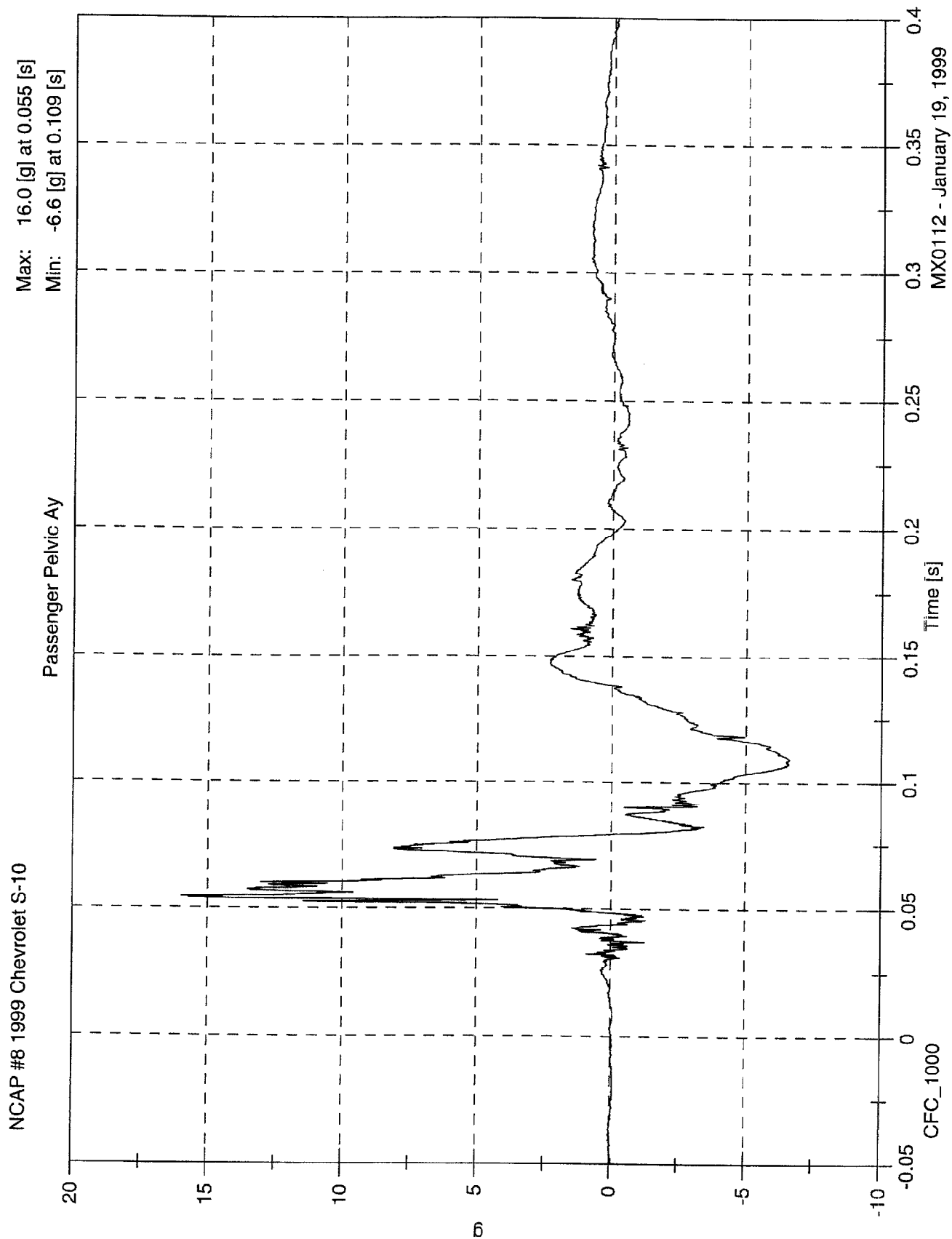
NCAP #8 1999 Chevrolet S-10

Max: 6.9 [g] at 0.119 [s]

Min: -80.2 [g] at 0.054 [s]

Passenger Pelvic Ax



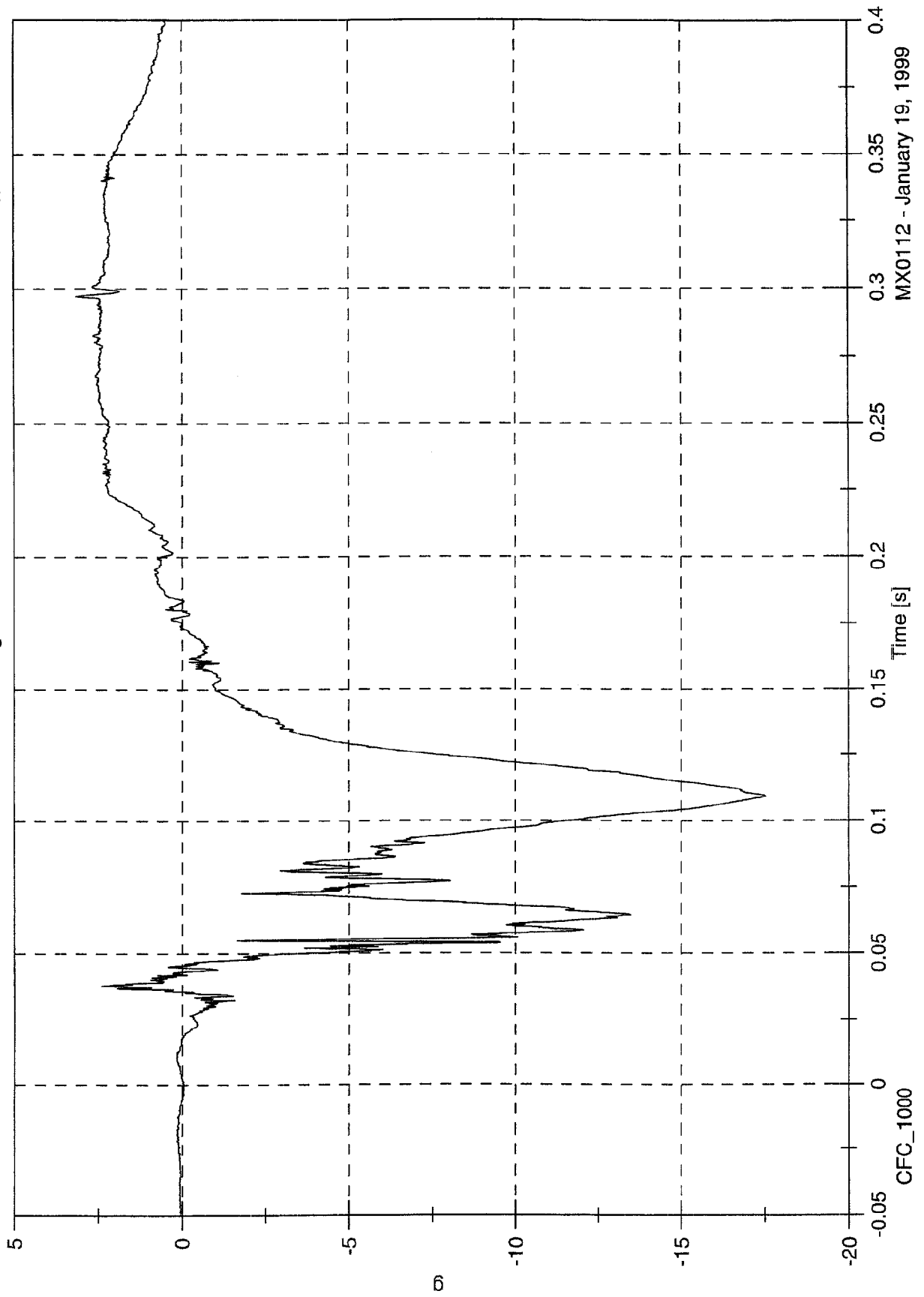


NCAP #8 1999 Chevrolet S-10

Passenger Pelvic Az

Max: 3.1 [g] at 0.297 [s]

Min: -17.5 [g] at 0.109 [s]

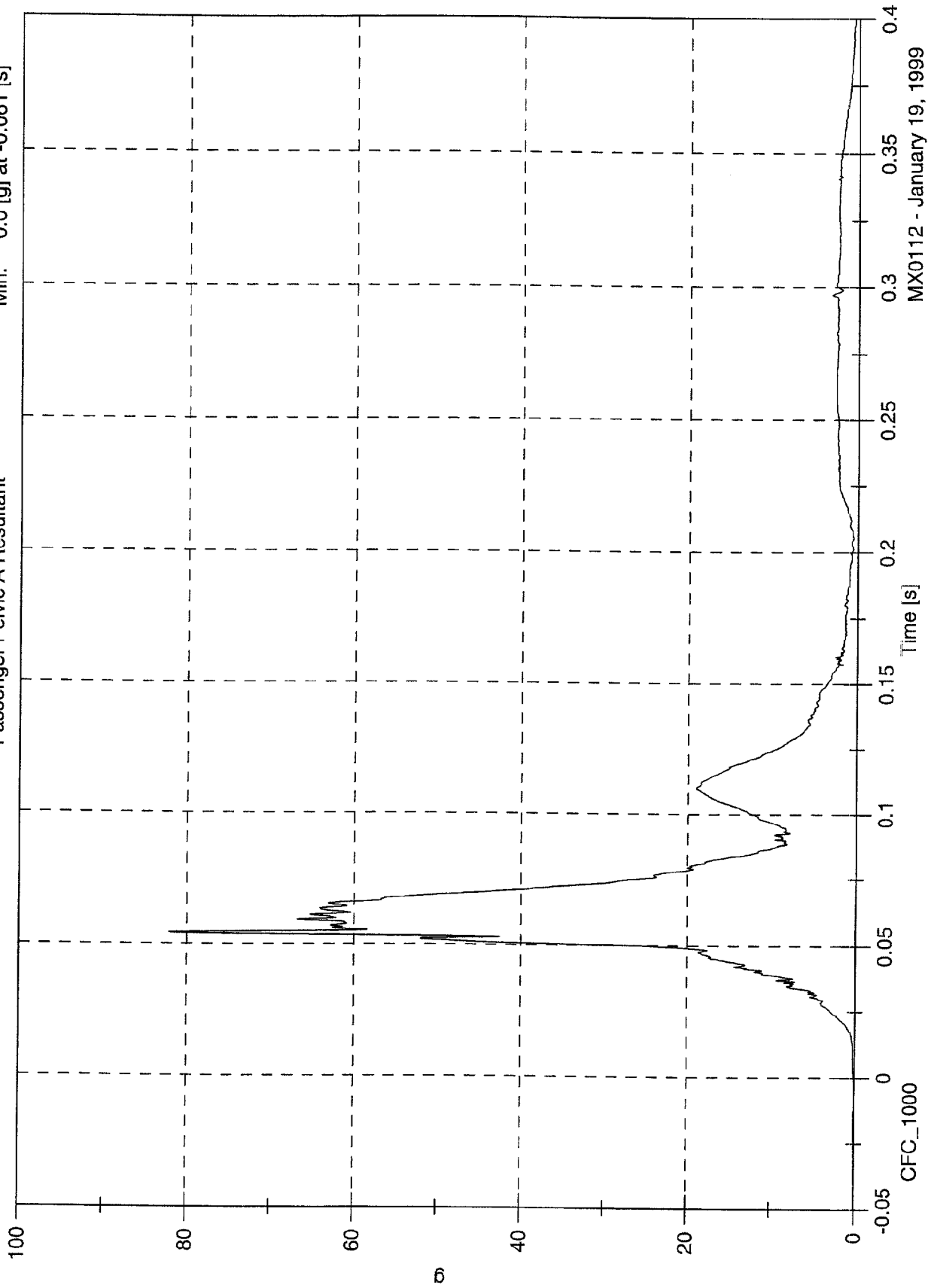


MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Max: 82.1 [g] at 0.054 [s]
Min: 0.0 [g] at -0.061 [s]

Passenger Pelvic A Resultant

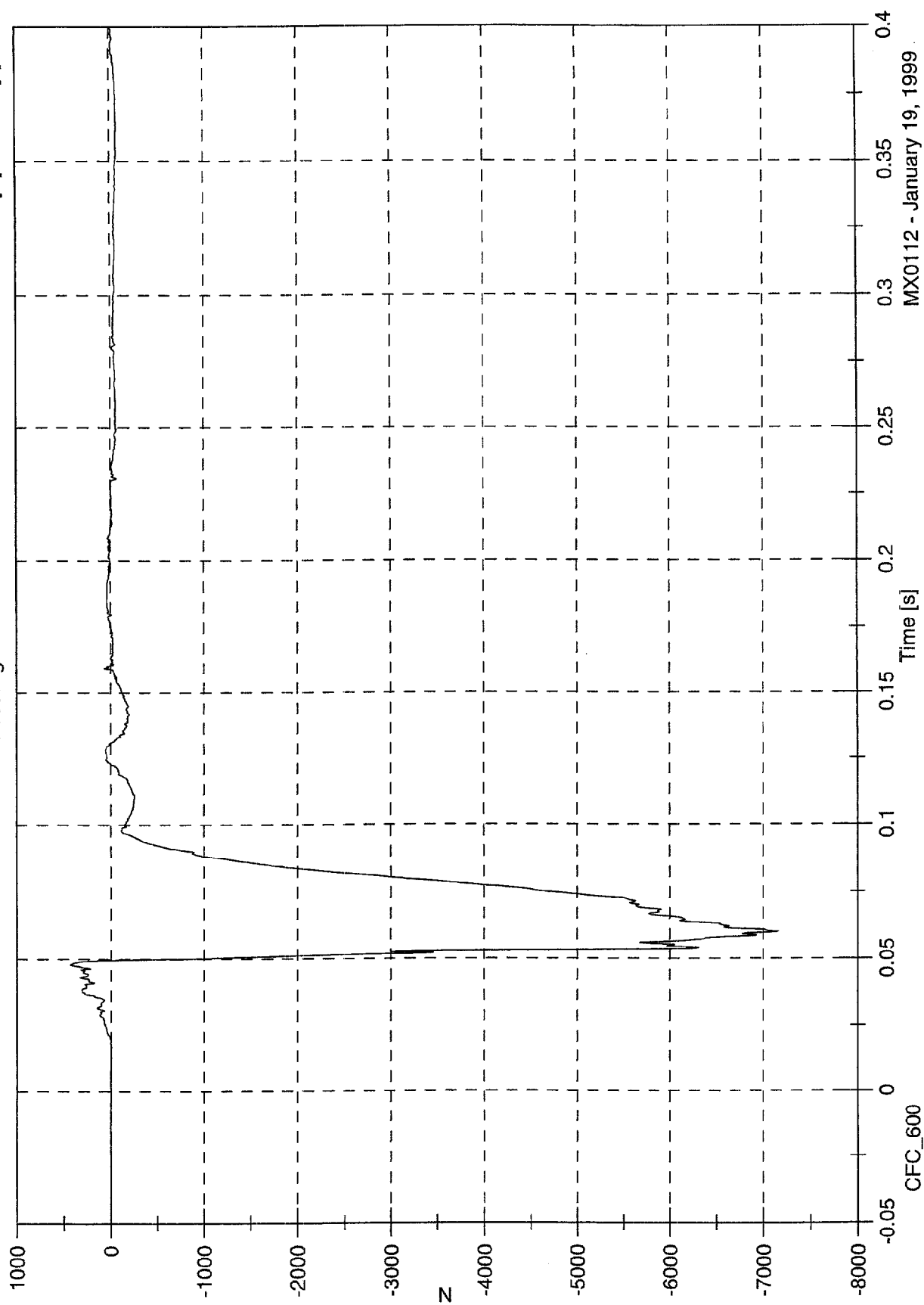


MX0112 - January 19, 1999

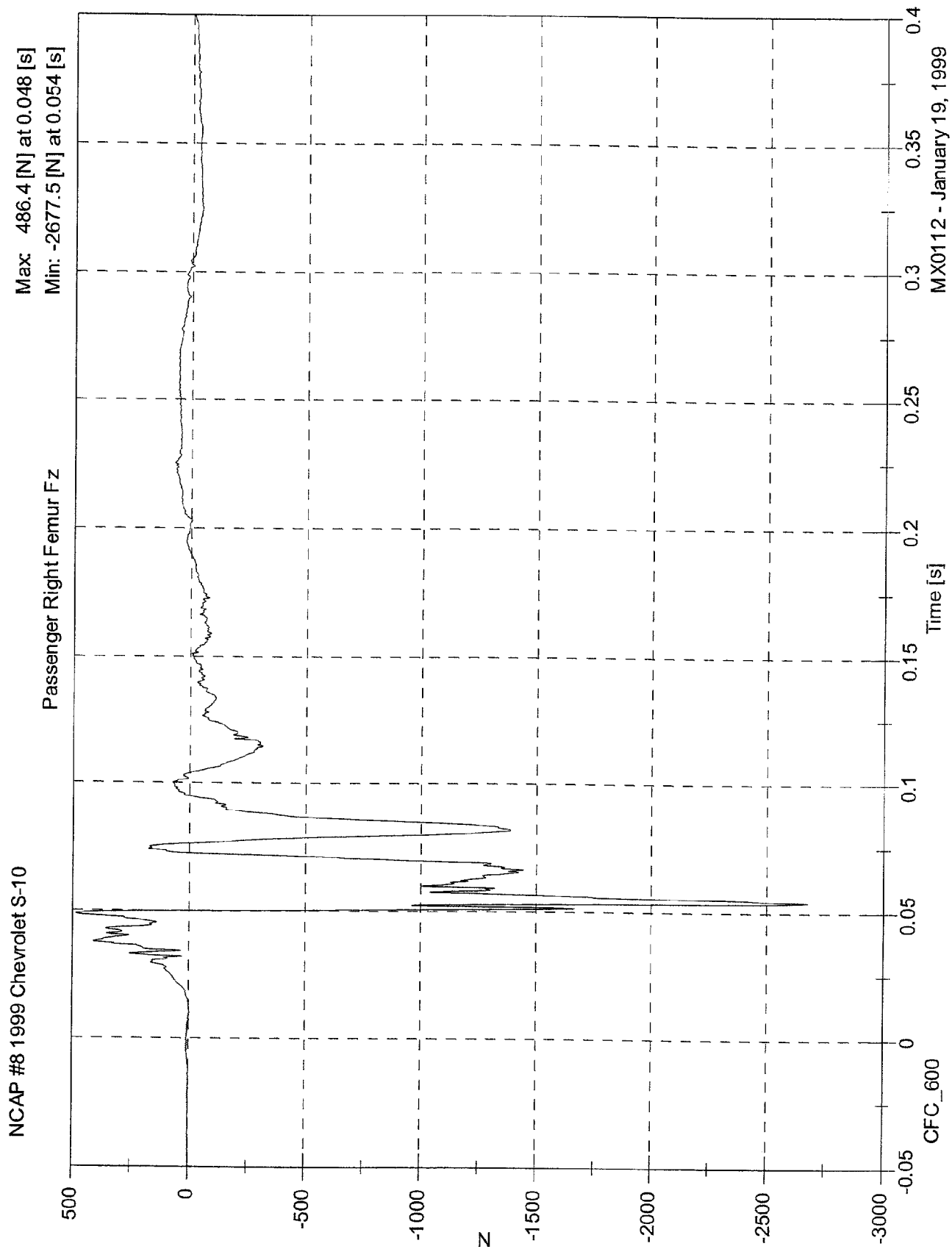
NCAP #8 1999 Chevrolet S-10

Max: 431.3 [N] at 0.048 [s]
Min: -7155.3 [N] at 0.060 [s]

Passenger Left Femur Fz



MX0112 - January 19, 1999

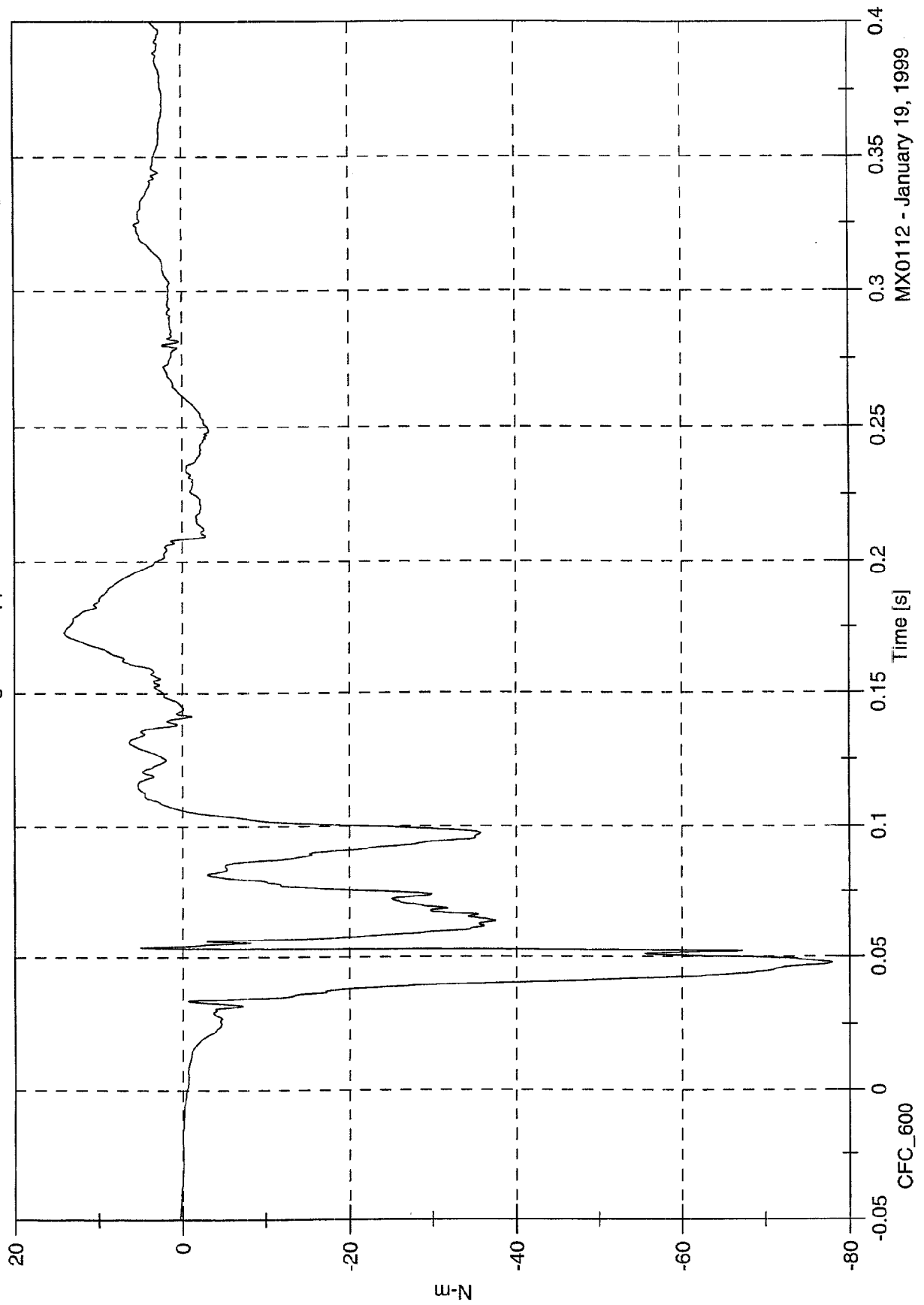


NCAP #8 1999 Chevrolet S-10

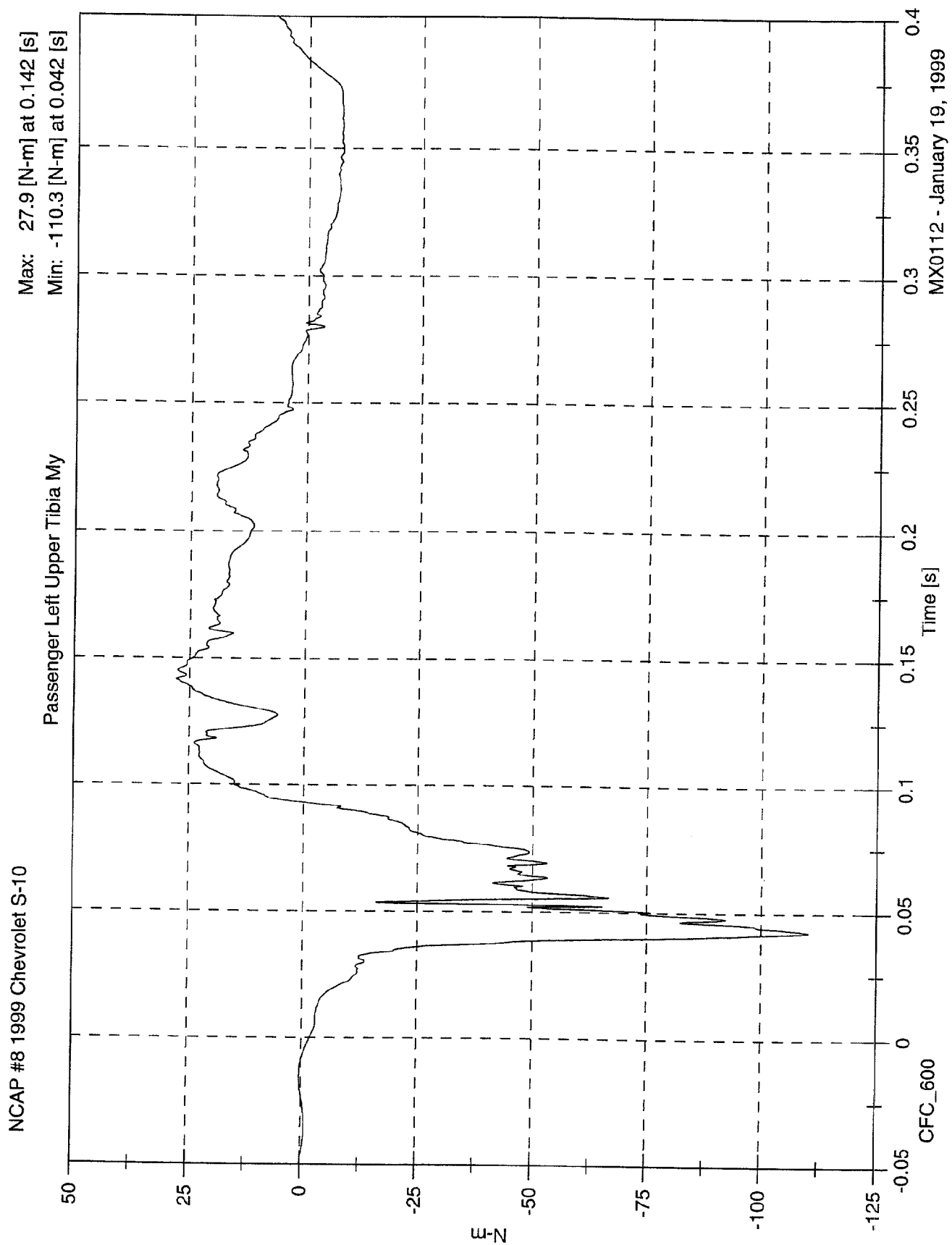
Passenger Left Upper Tibia Mx

Max: 14.1 [N-m] at 0.173 [s]

Min: -77.9 [N-m] at 0.048 [s]



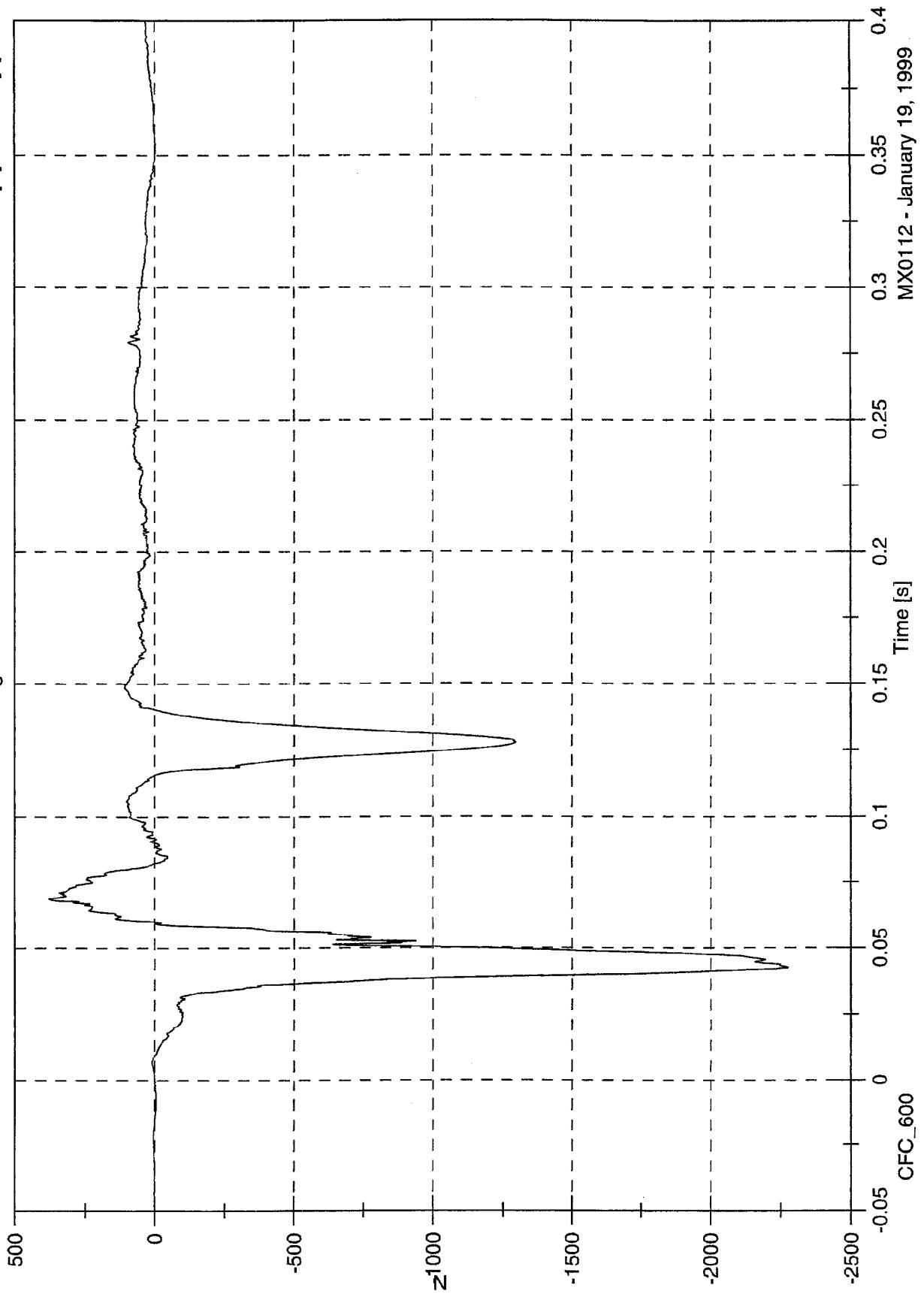
MX0112 - January 19, 1999



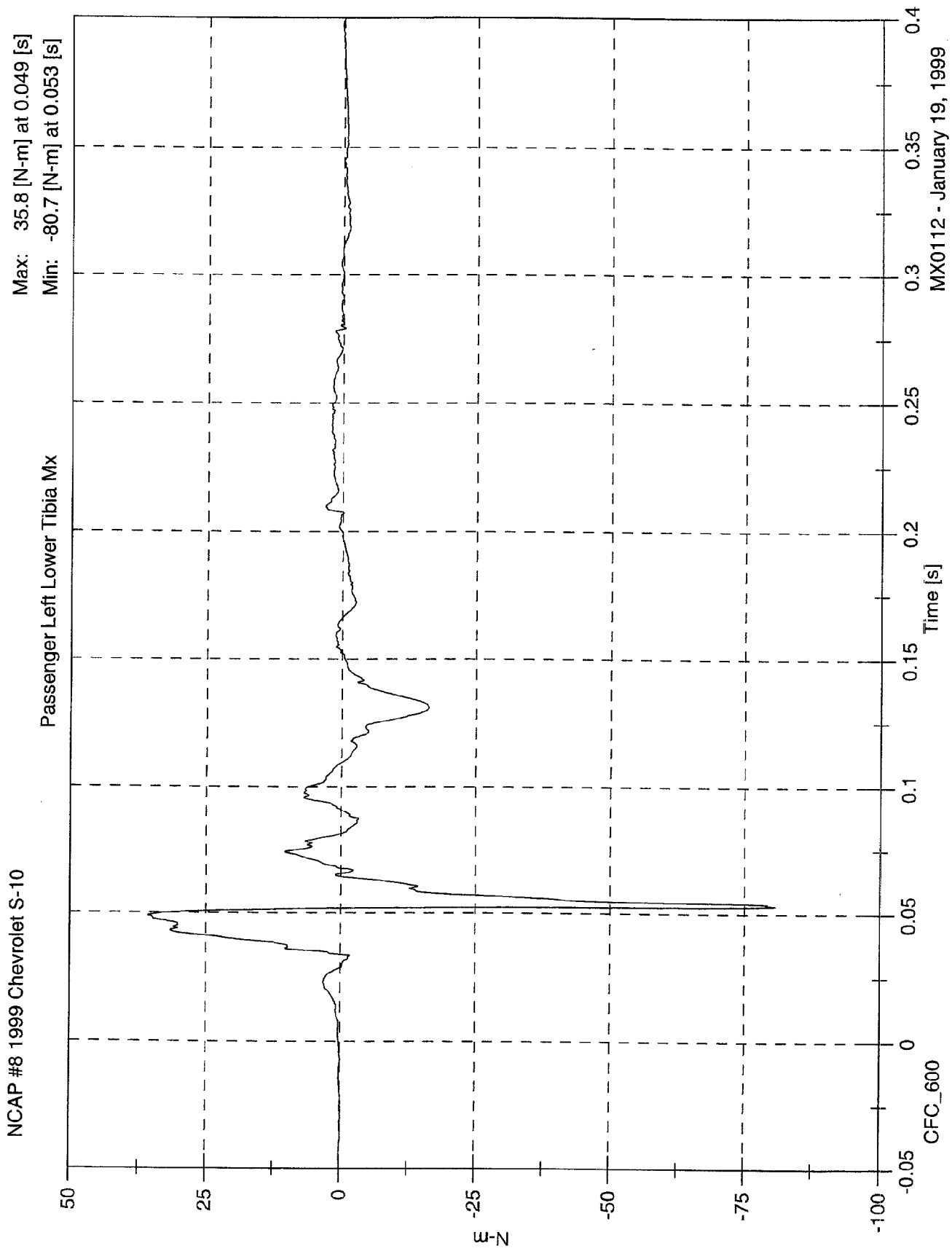
NCAP #8 1999 Chevrolet S-10

Passenger Left Lower Tibia Fz

Max: 379.2 [N] at 0.069 [s]
Min: -2276.8 [N] at 0.043 [s]



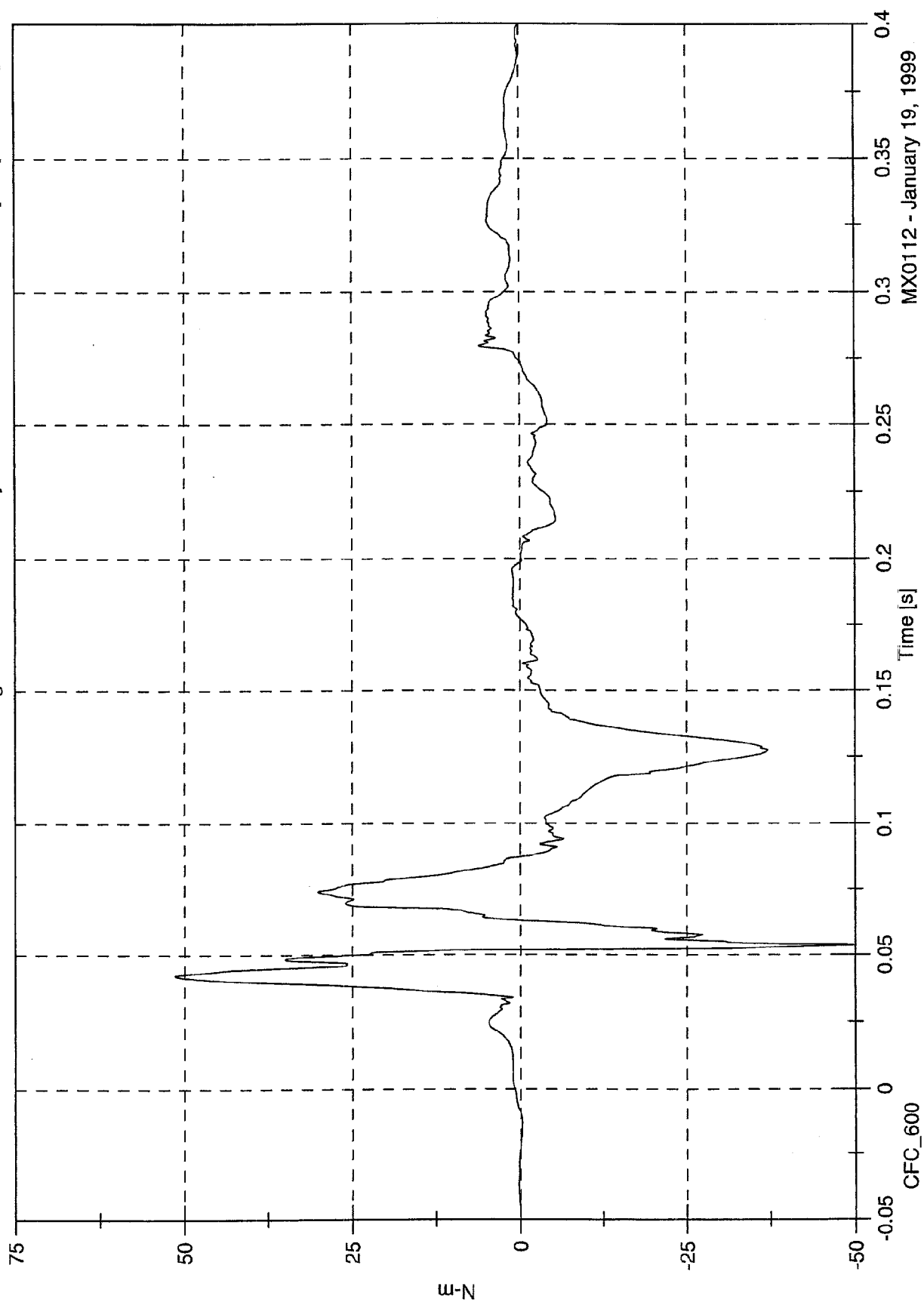
MX0112 - January 19, 1999



NCAP #8 1999 Chevrolet S-10

Passenger Left Lower Tibia My

Max: 51.4 [N-m] at 0.042 [s]
Min: -49.7 [N-m] at 0.054 [s]



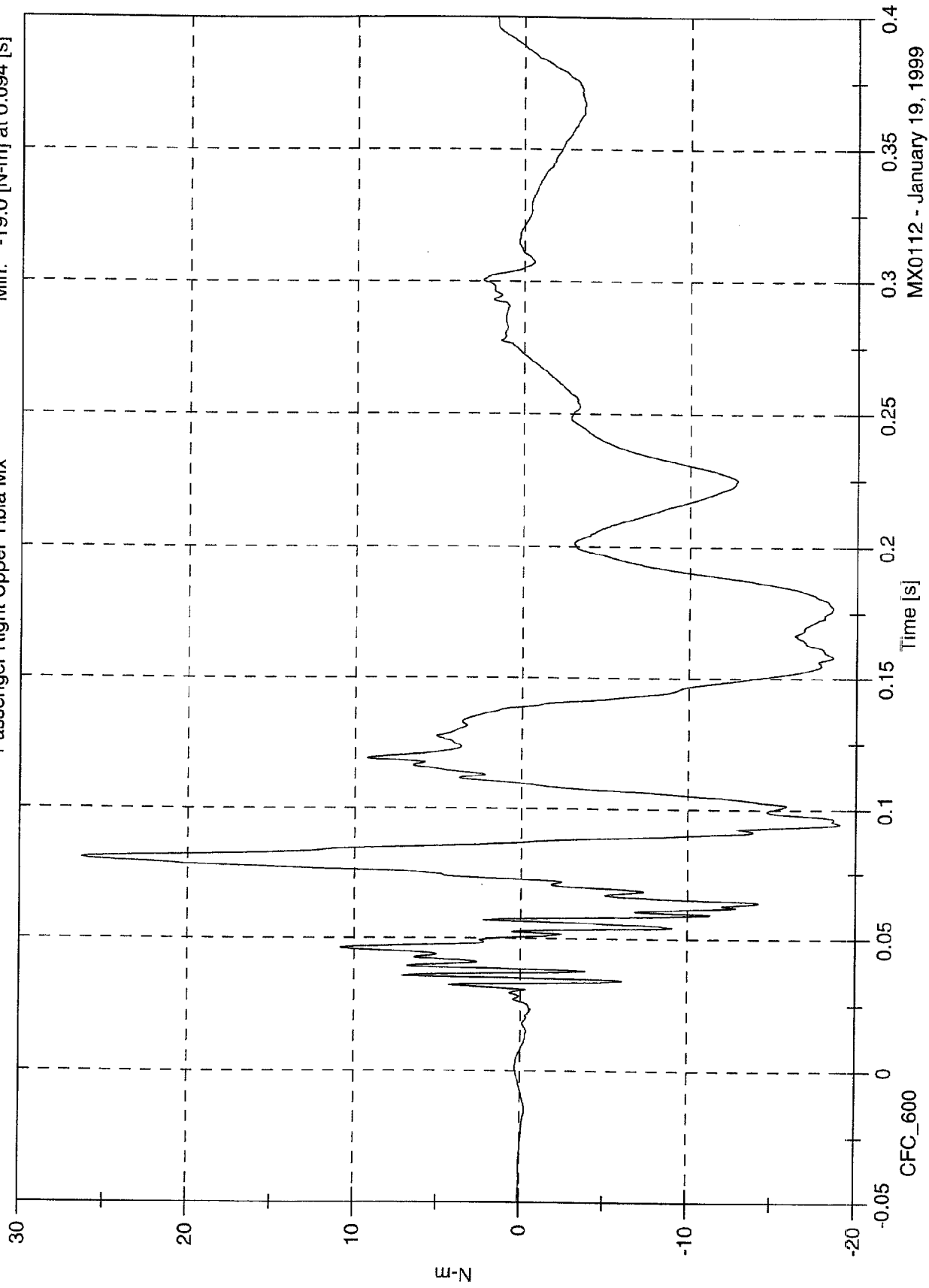
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Passenger Right Upper Tibia Mx

Max: 26.3 [N-m] at 0.081 [s]

Min: -19.0 [N-m] at 0.094 [s]

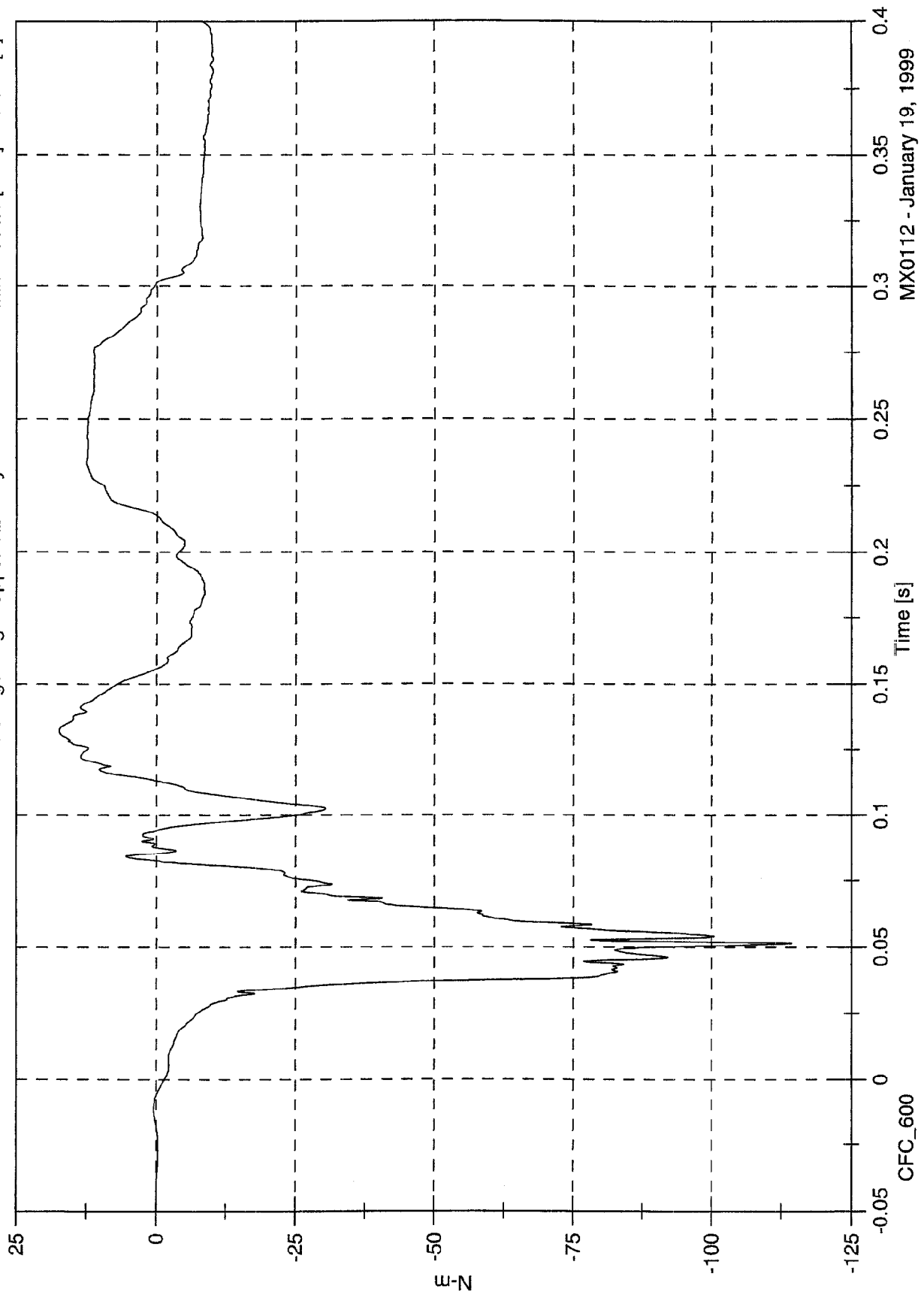


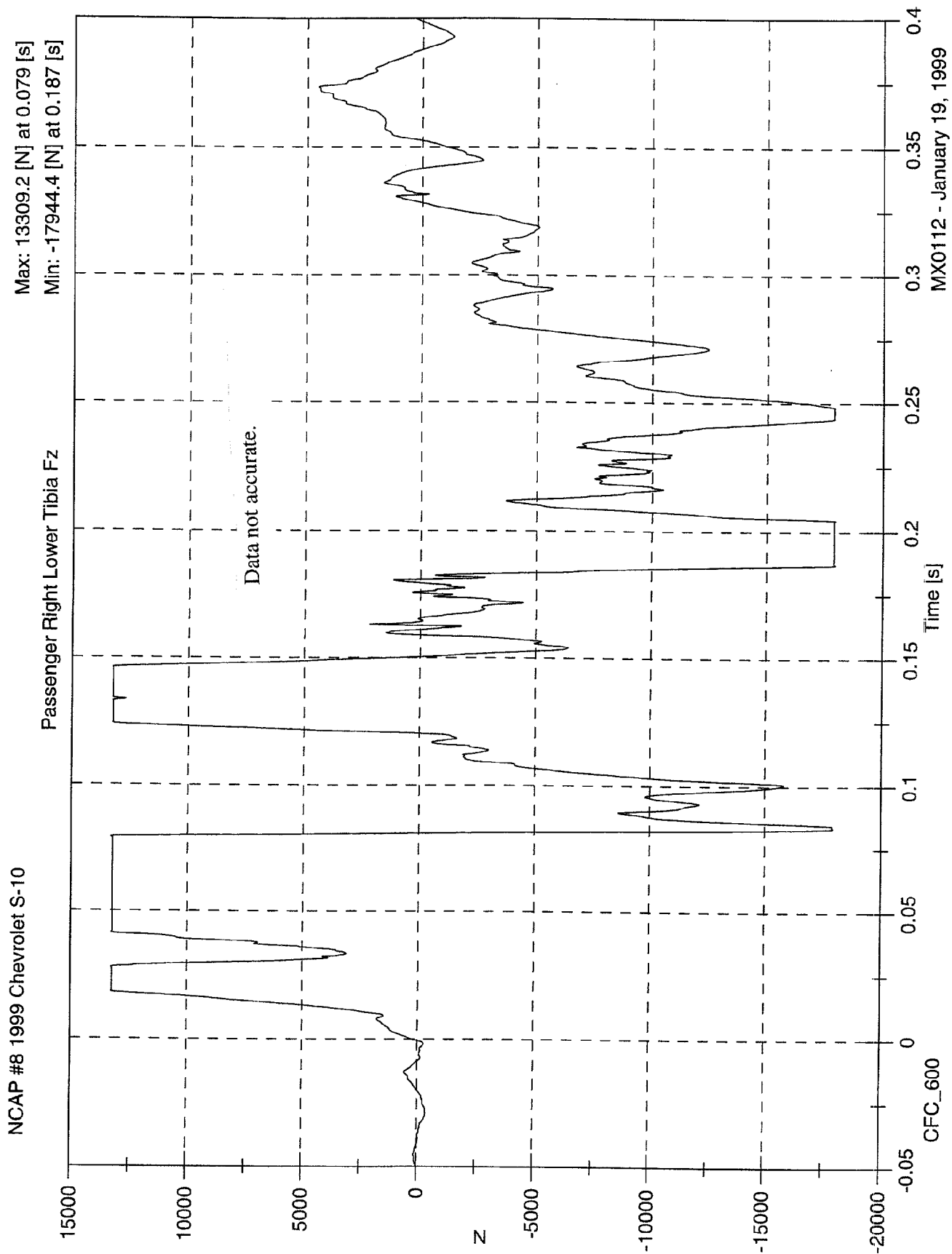
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Passenger Right Upper Tibia My

Max: 17.3 [N-m] at 0.132 [s]
Min: -114.4 [N-m] at 0.052 [s]

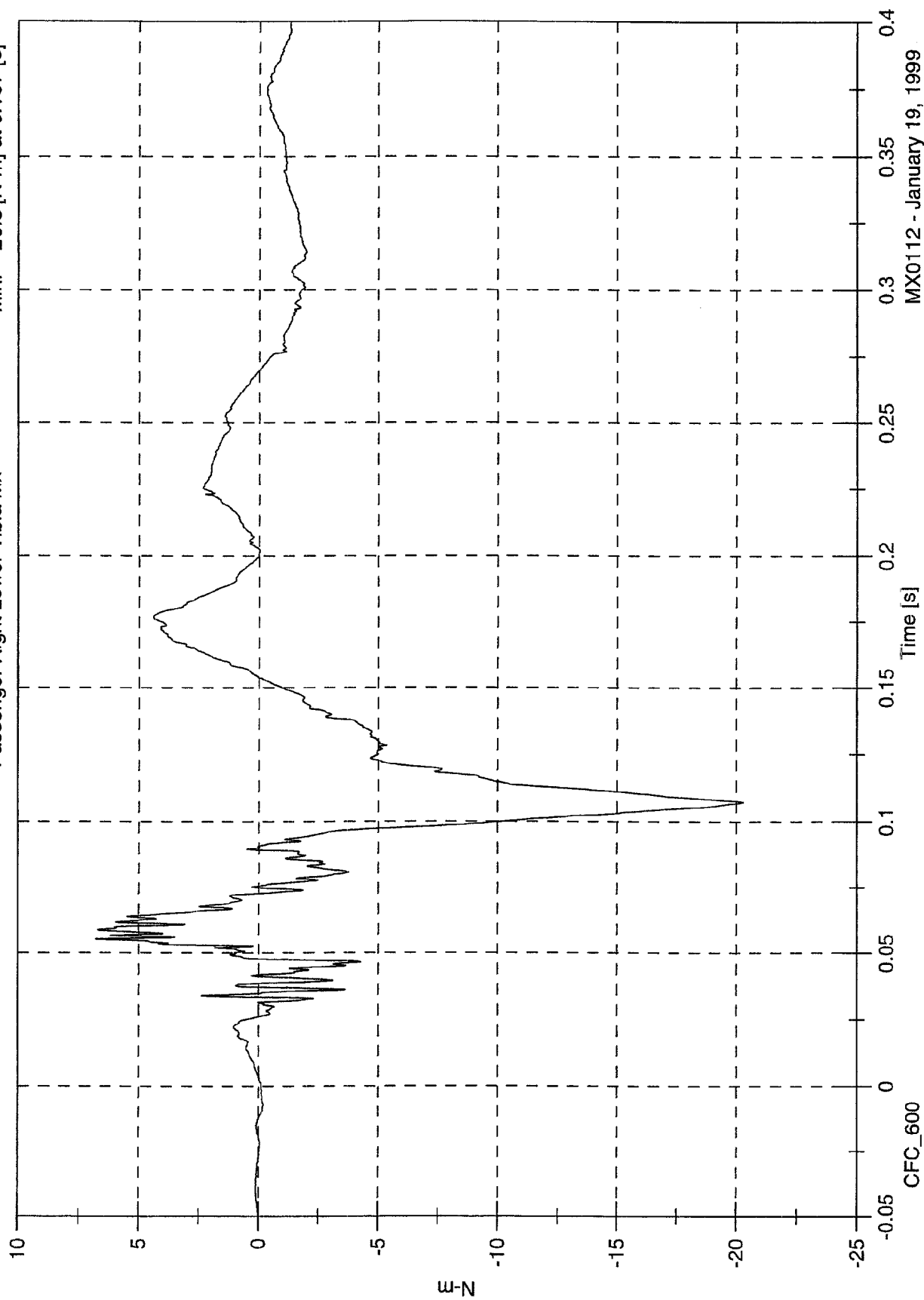




NCAP #8 1999 Chevrolet S-10

Max: 6.8 [N-m] at 0.056 [s]
Min: -20.3 [N-m] at 0.107 [s]

Passenger Right Lower Tibia Mx



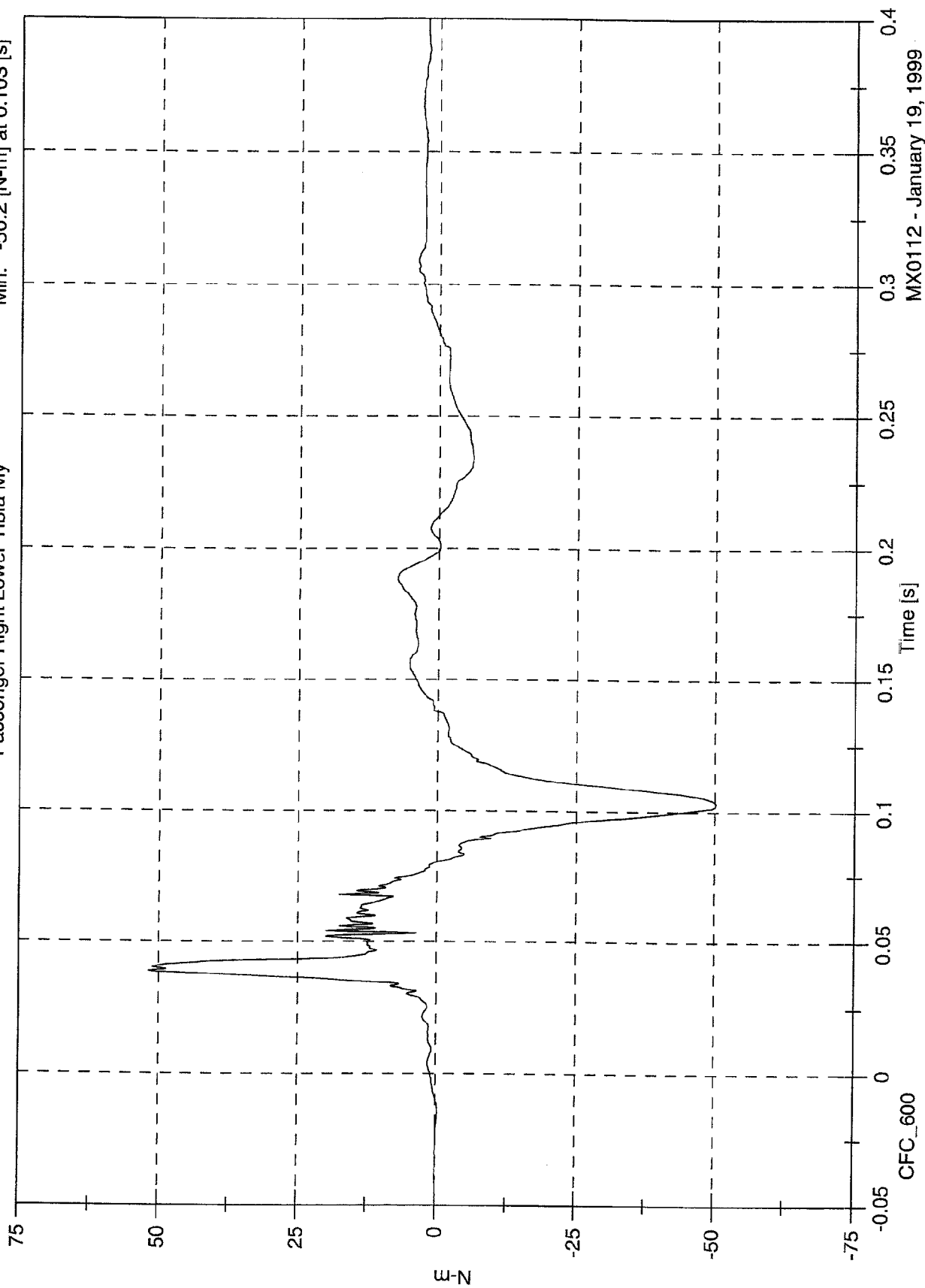
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Passenger Right Lower Tibia My

Max: 51.8 [N-m] at 0.039 [s]

Min: -50.2 [N-m] at 0.103 [s]



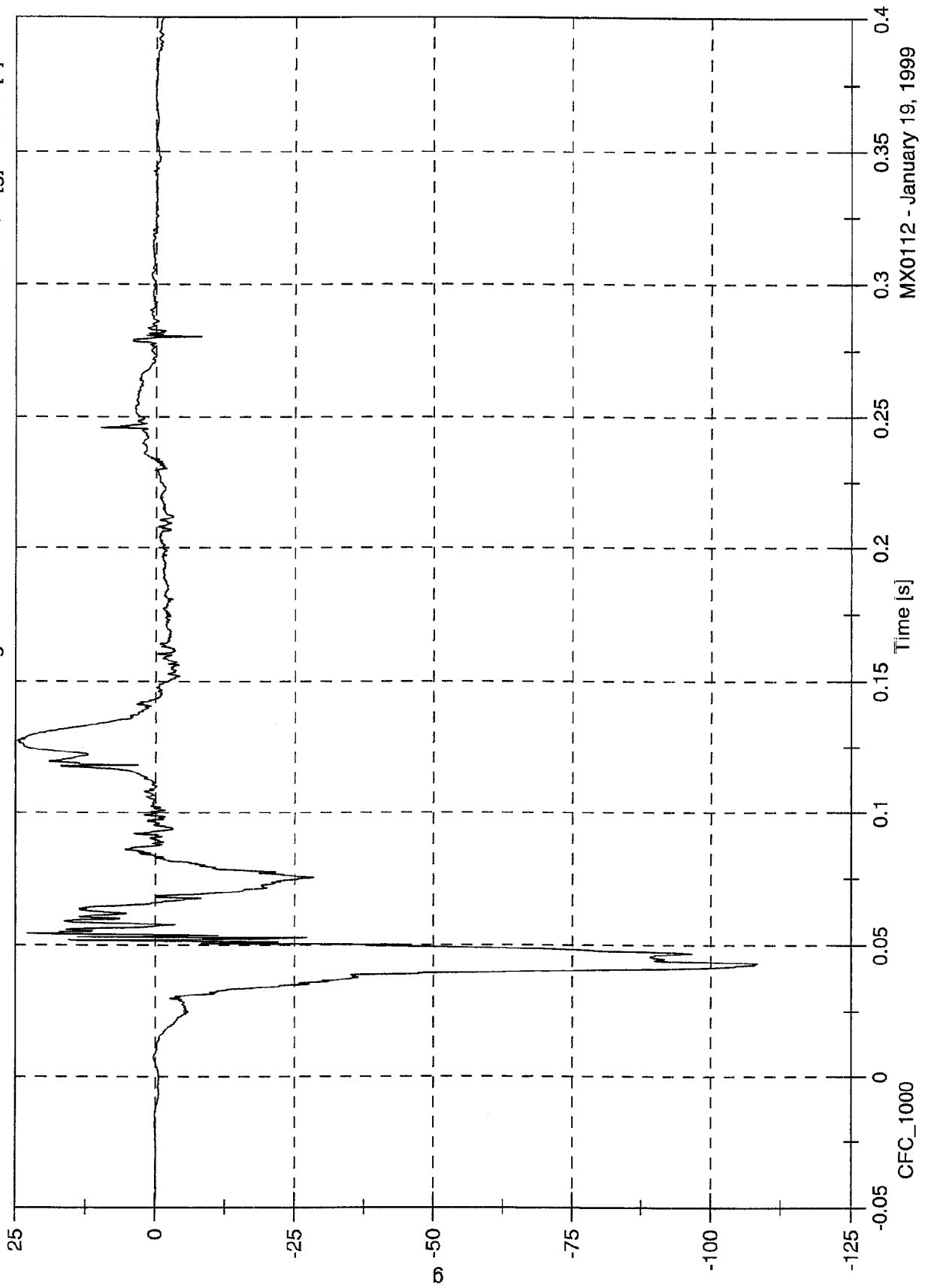
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Passenger Left Ankle Ax

Max: 24.6 [g] at 0.127 [s]

Min: -108.4 [g] at 0.043 [s]



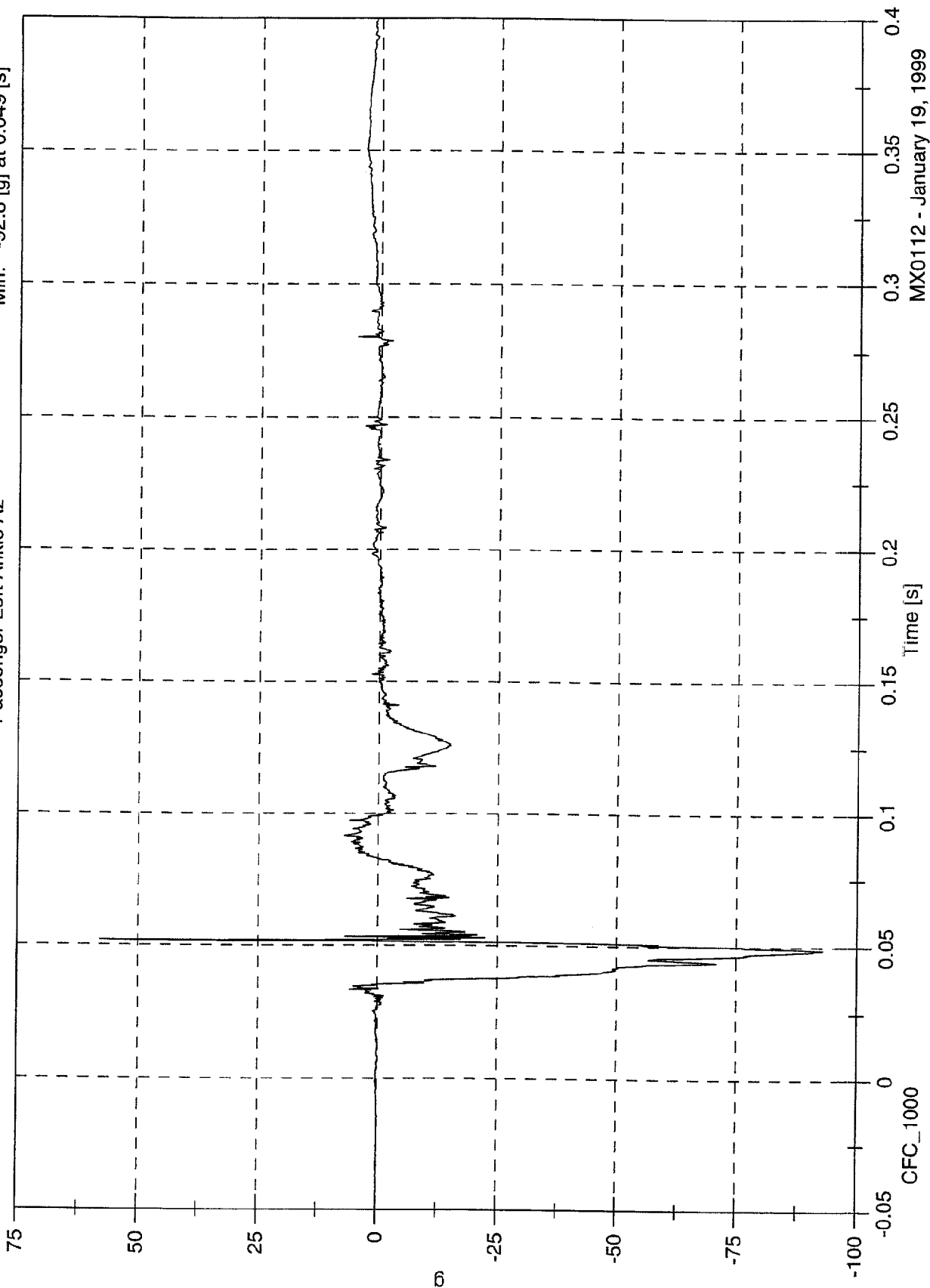
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Max: 57.9 [g] at 0.052 [s]

Min: -92.8 [g] at 0.049 [s]

Passenger Left Ankle Az

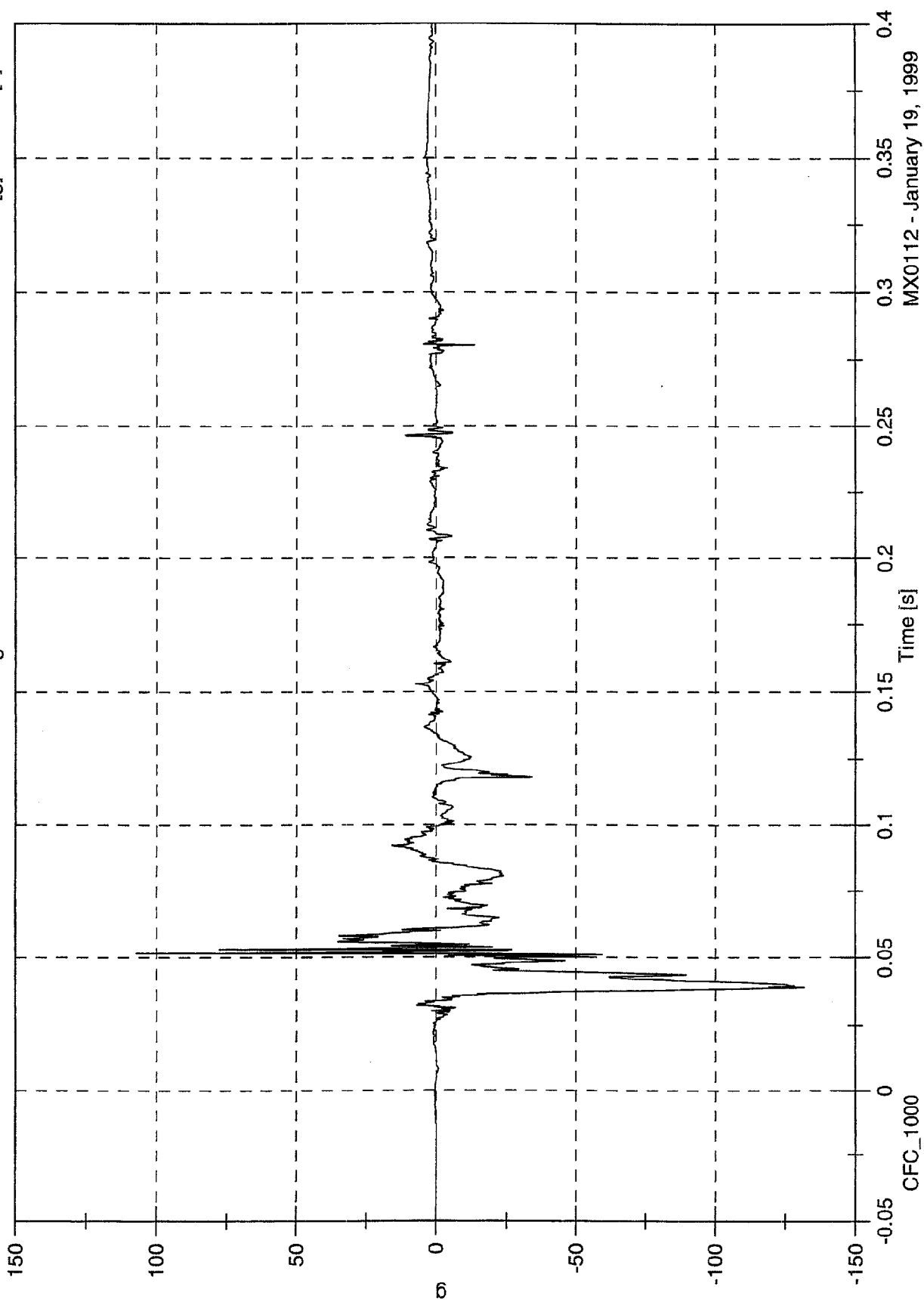


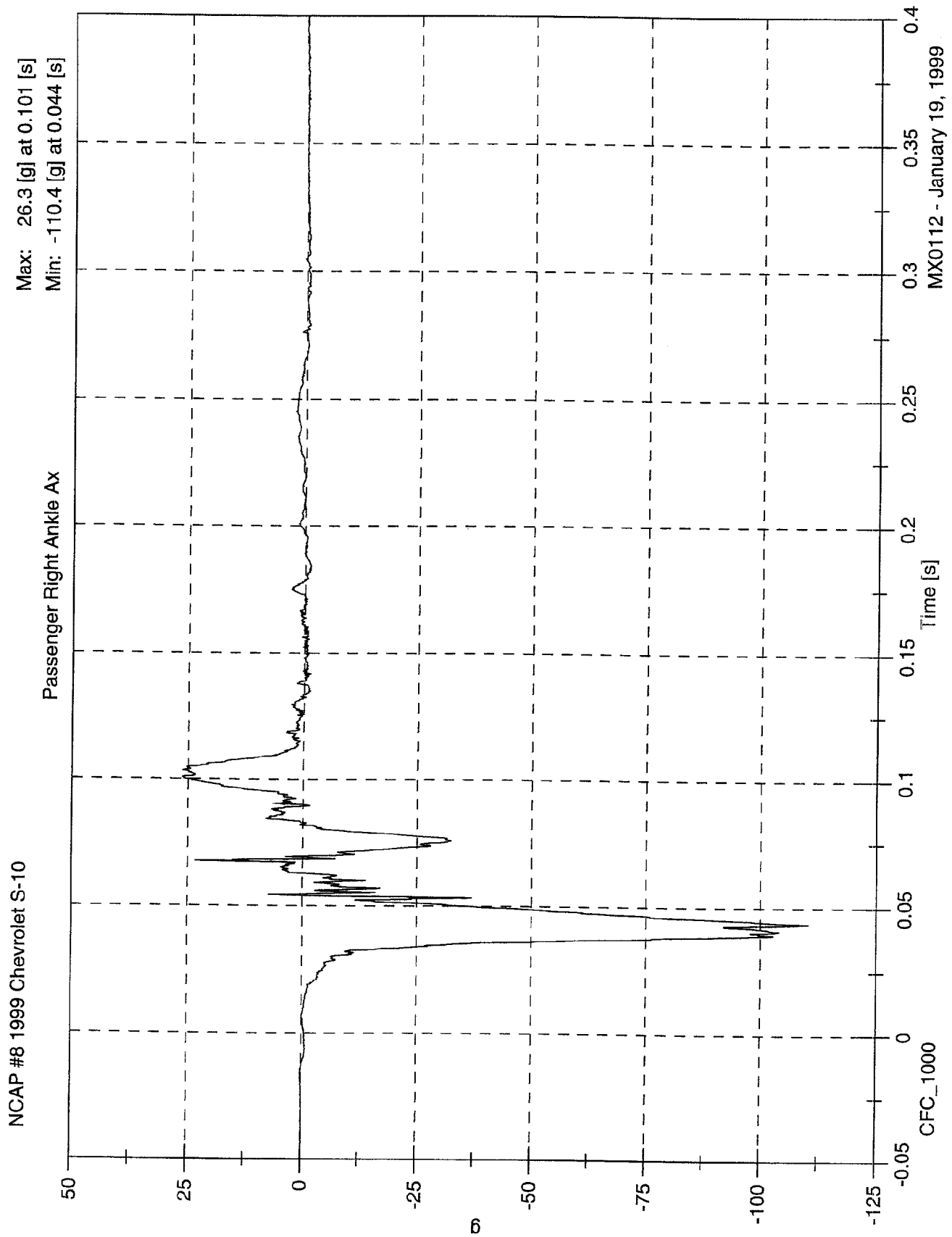
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Max: 107.2 [g] at 0.052 [s]
Min: -131.8 [g] at 0.039 [s]

Passenger Left Toe Az

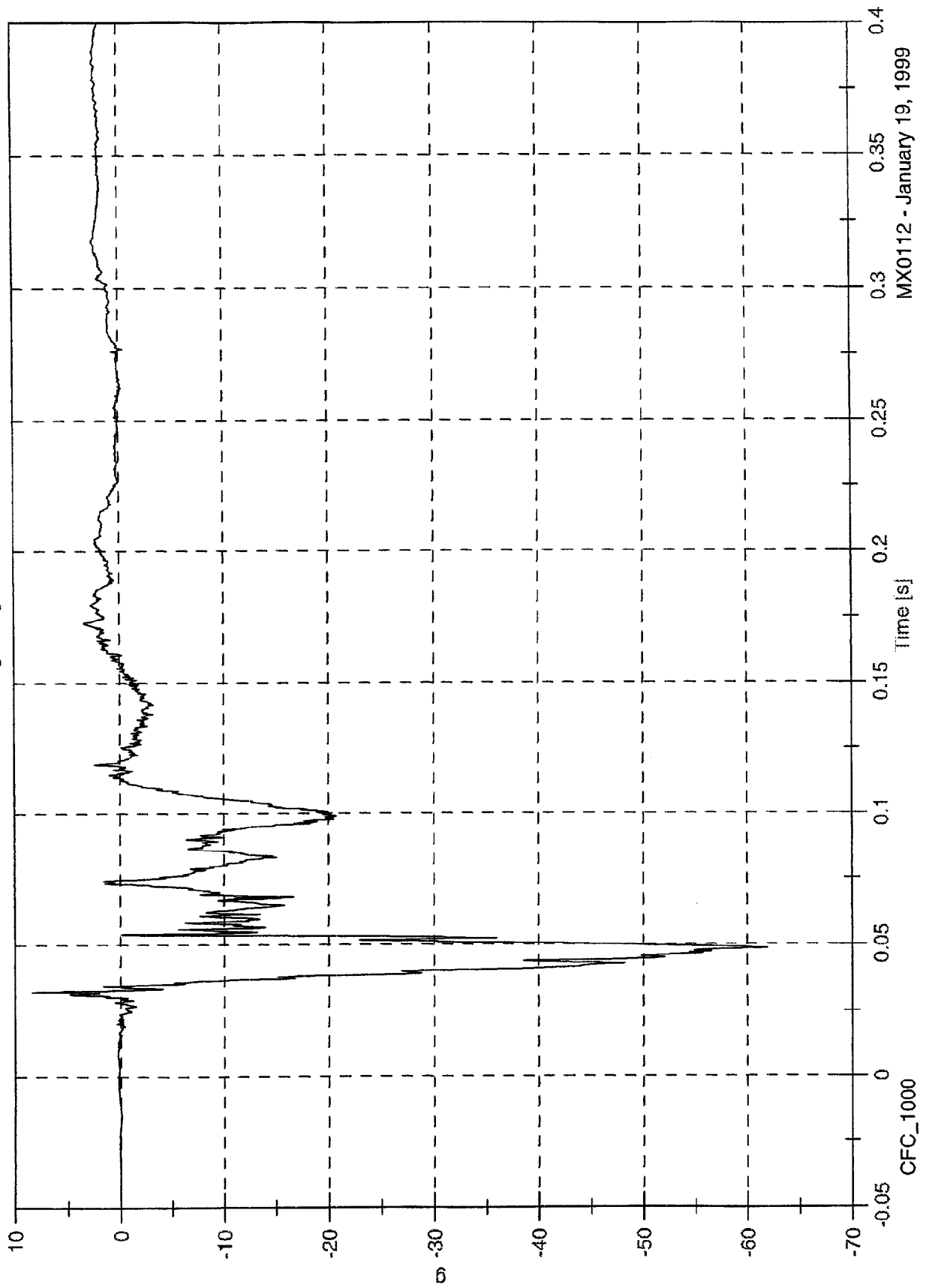




NCAP #8 1999 Chevrolet S-10

Max: 8.4 [g] at 0.032 [s]
Min: -61.9 [g] at 0.048 [s]

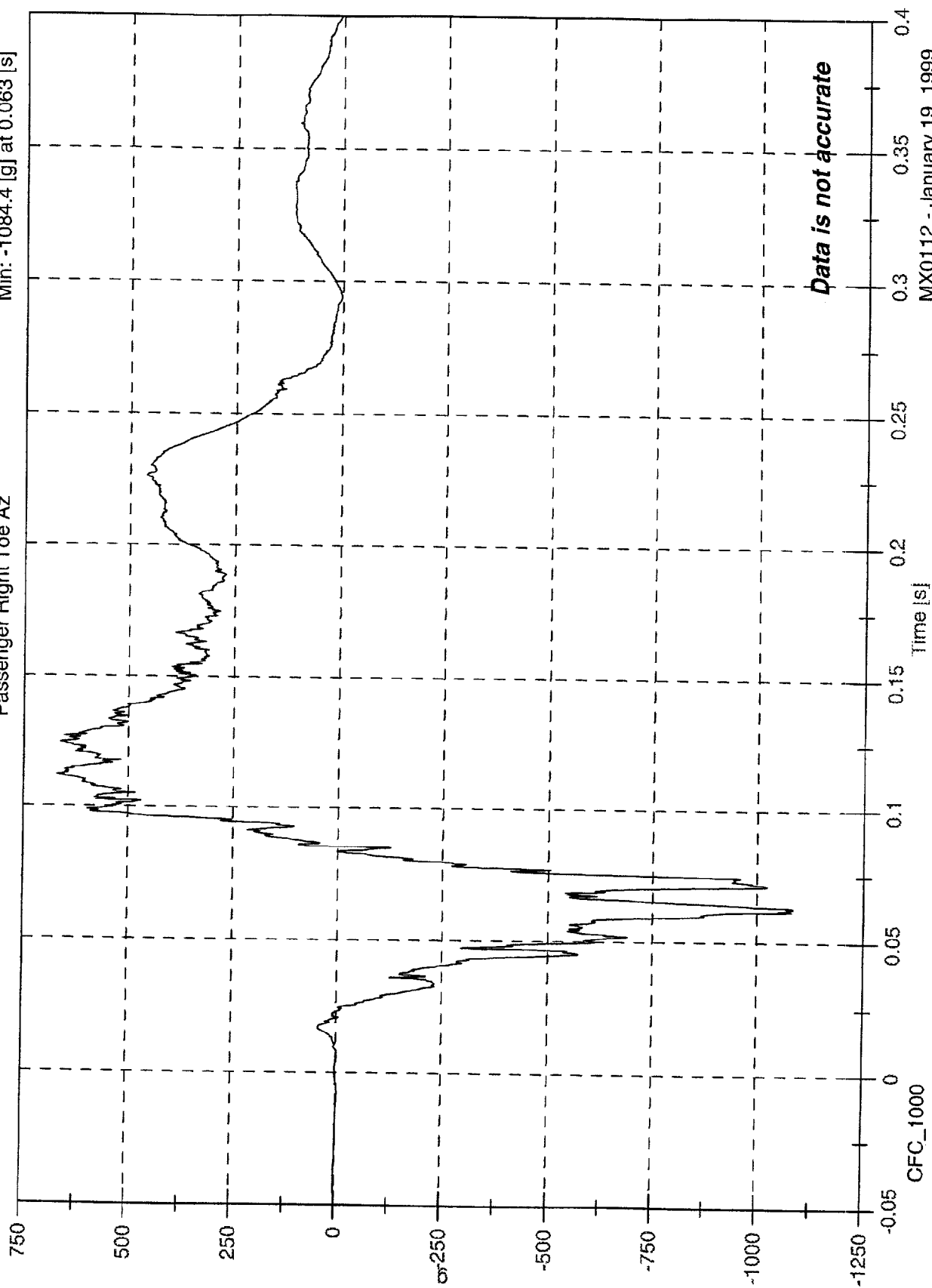
Passenger Right Ankle Az



NCAP #8 1999 Chevrolet S-10

Max: 671.5 [g] at 0.112 [s]
Min: -1084.4 [g] at 0.063 [s]

Passenger Right Toe Az



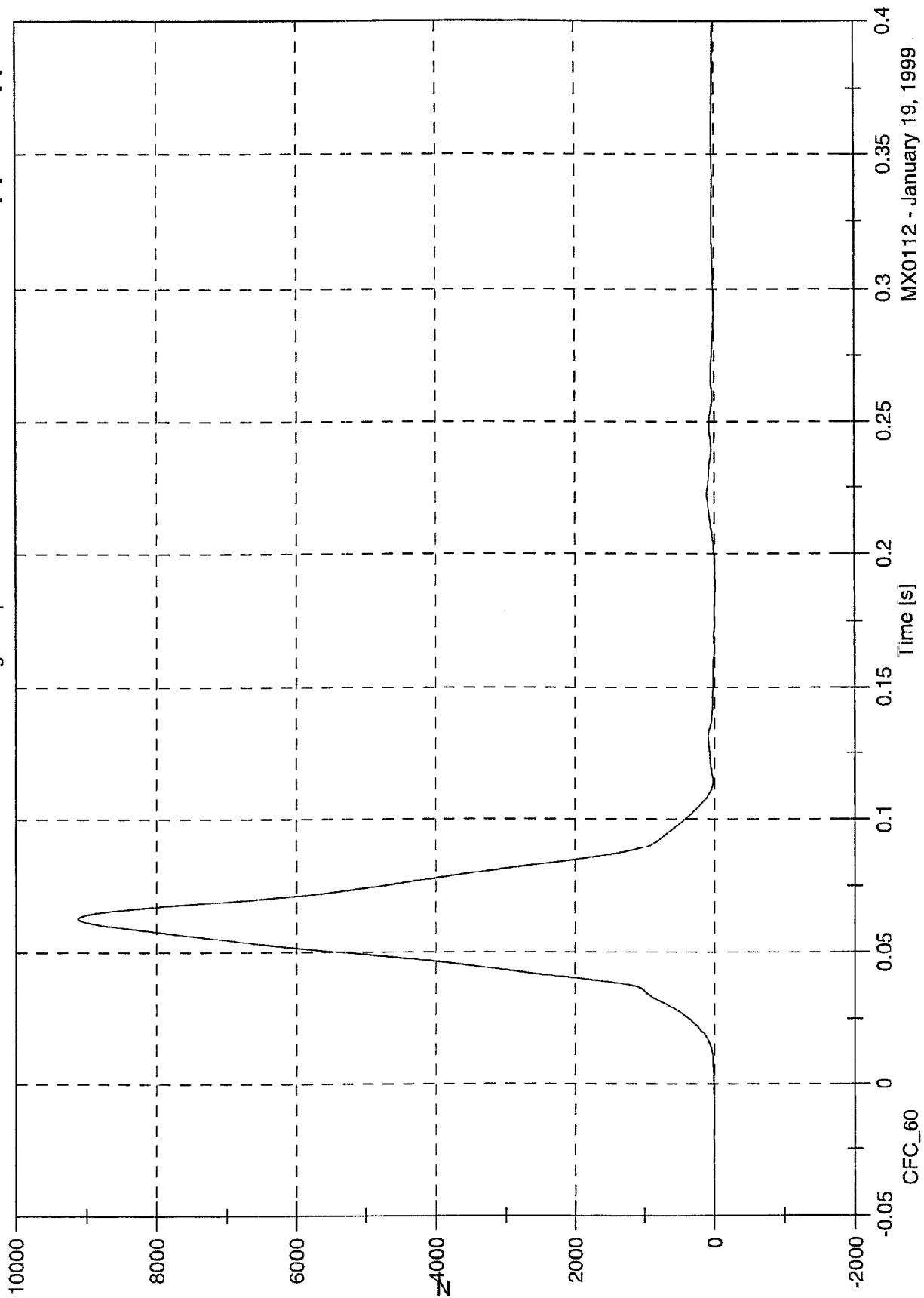
Data is not accurate

MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Max: 9123.8 [N] at 0.063 [s]
Min: -16.6 [N] at 0.189 [s]

Passenger Lap Belt Load



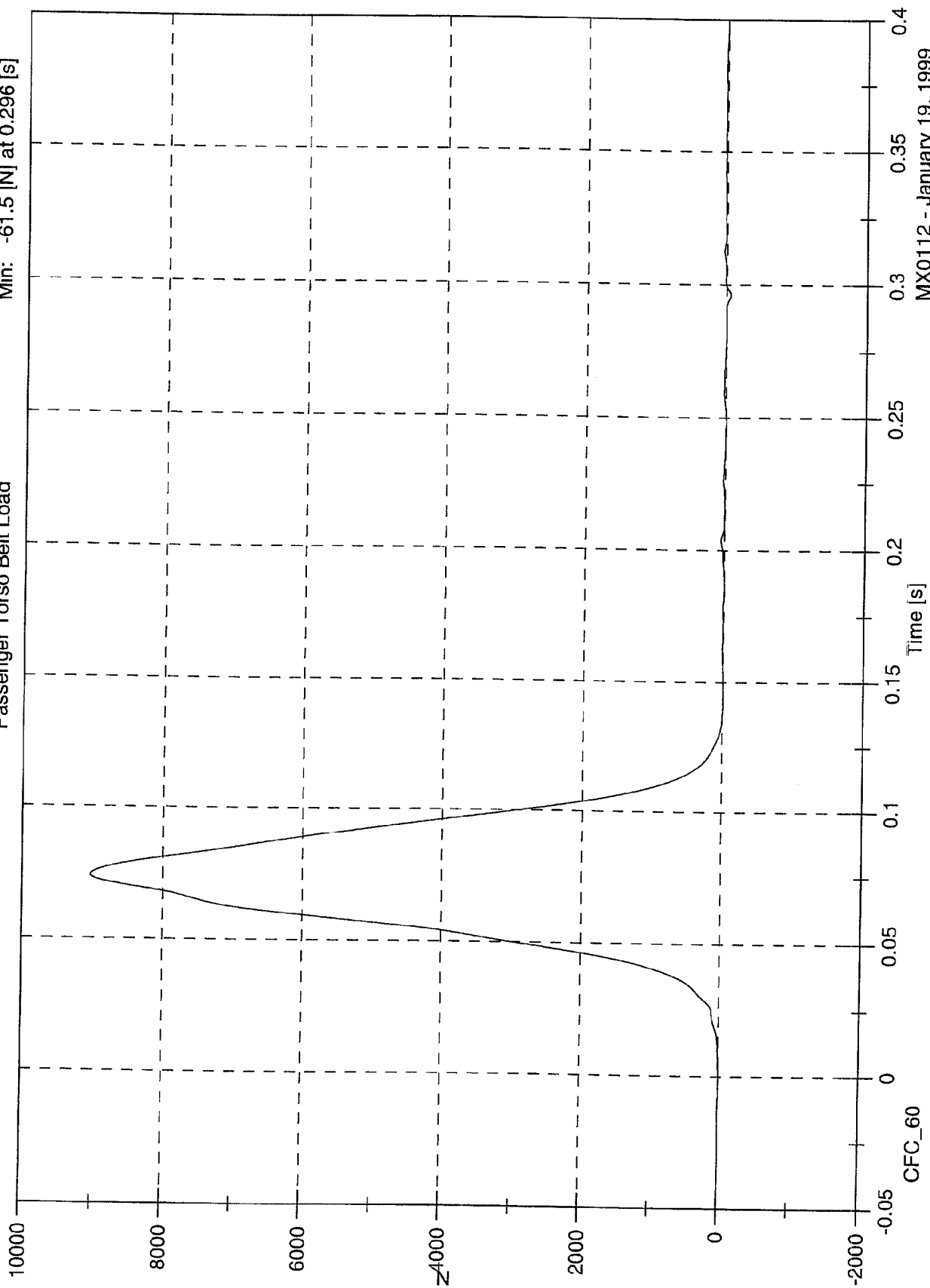
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Max: 9034.5 [N] at 0.074 [s]

Min: -61.5 [N] at 0.296 [s]

Passenger Torso Belt Load



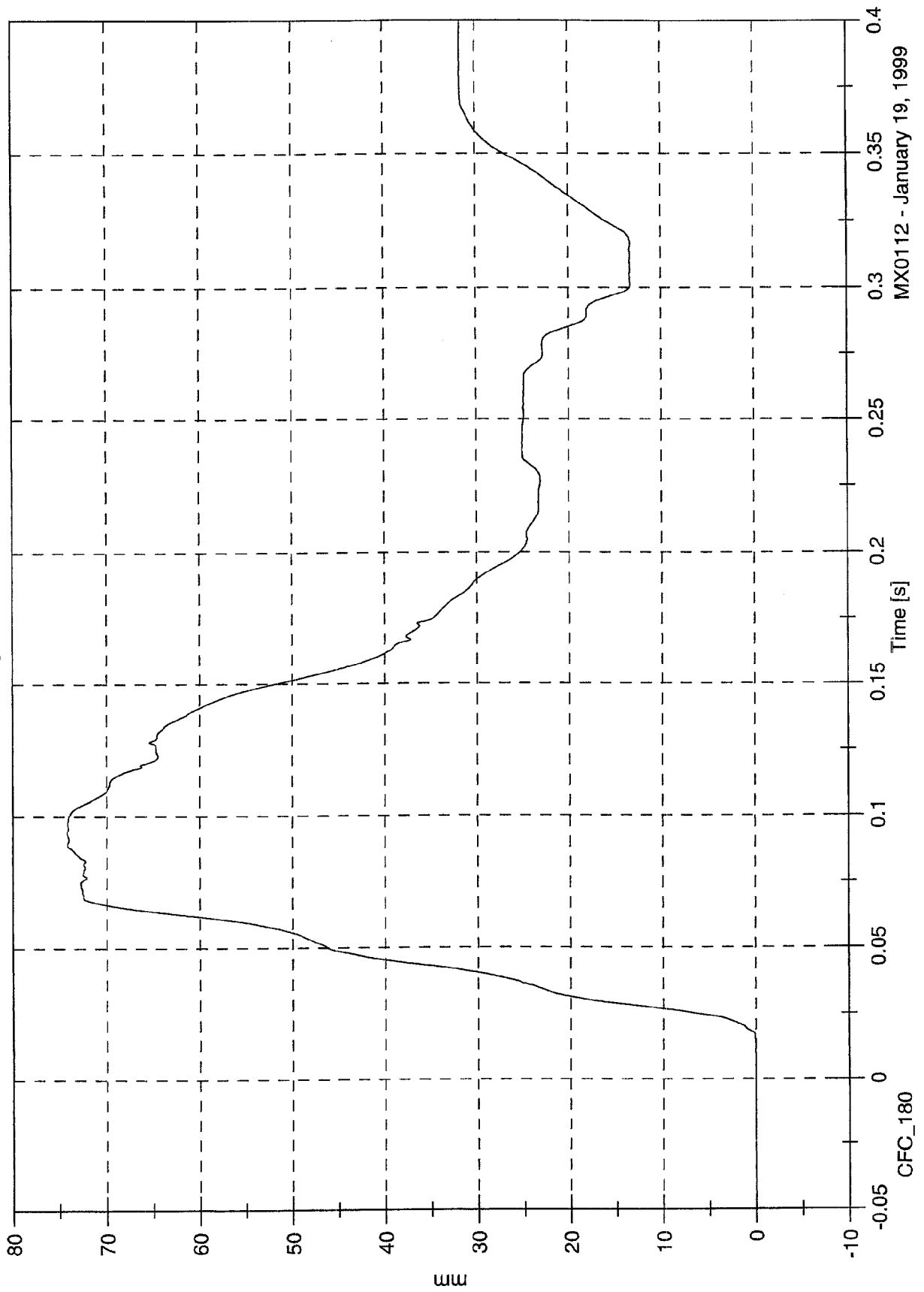
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Passenger Belt Spoolout

Max: 74.2 [mm] at 0.094 [s]

Min: -0.0 [mm] at -0.054 [s]



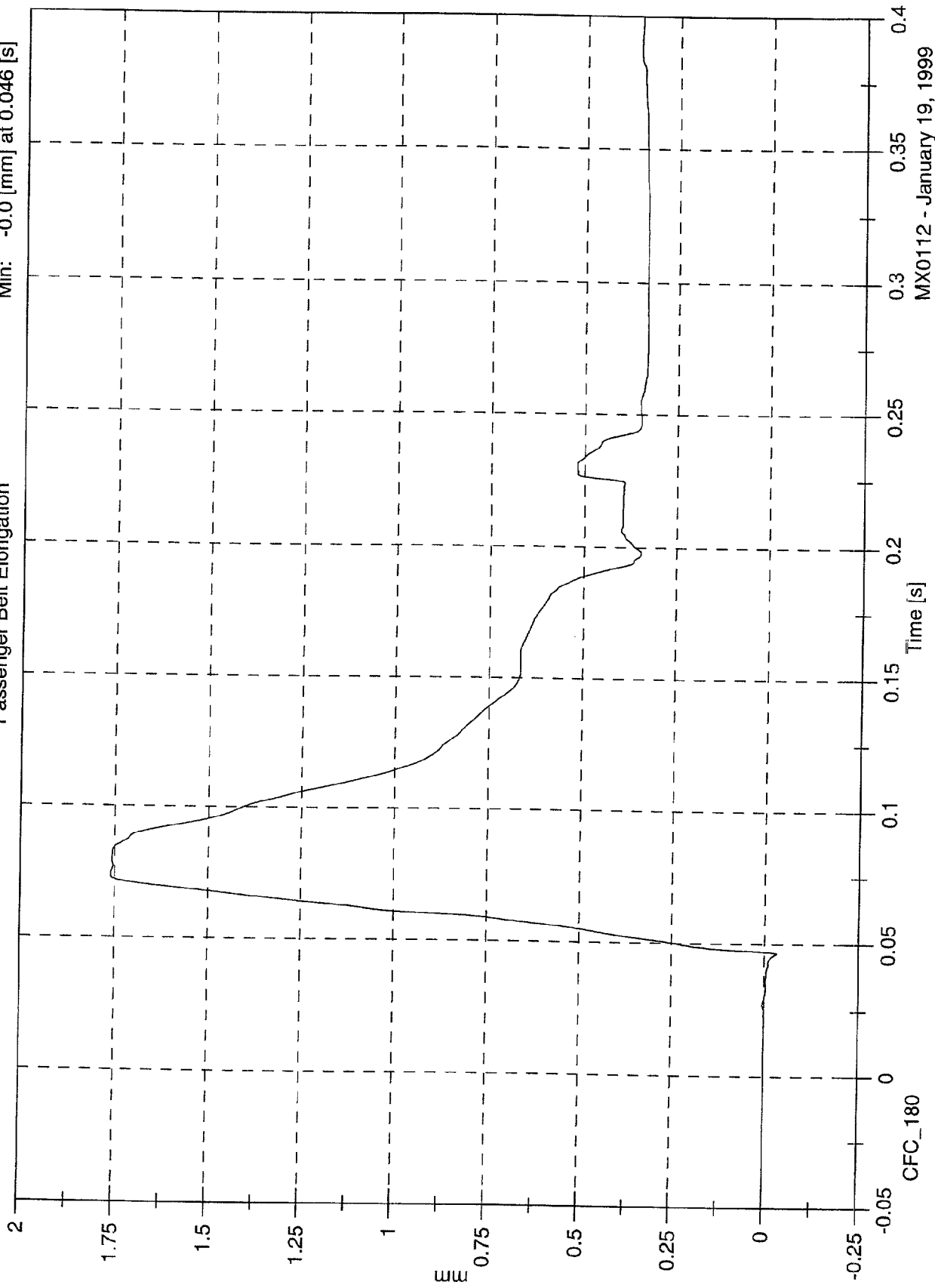
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Passenger Belt Elongation

Max: 1.8 [mm] at 0.074 [s]

Min: -0.0 [mm] at 0.046 [s]



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NHTSA TEST NO. MX0112

VEHICLE DATA

FILTER CHANNEL CLASS

Acceleration

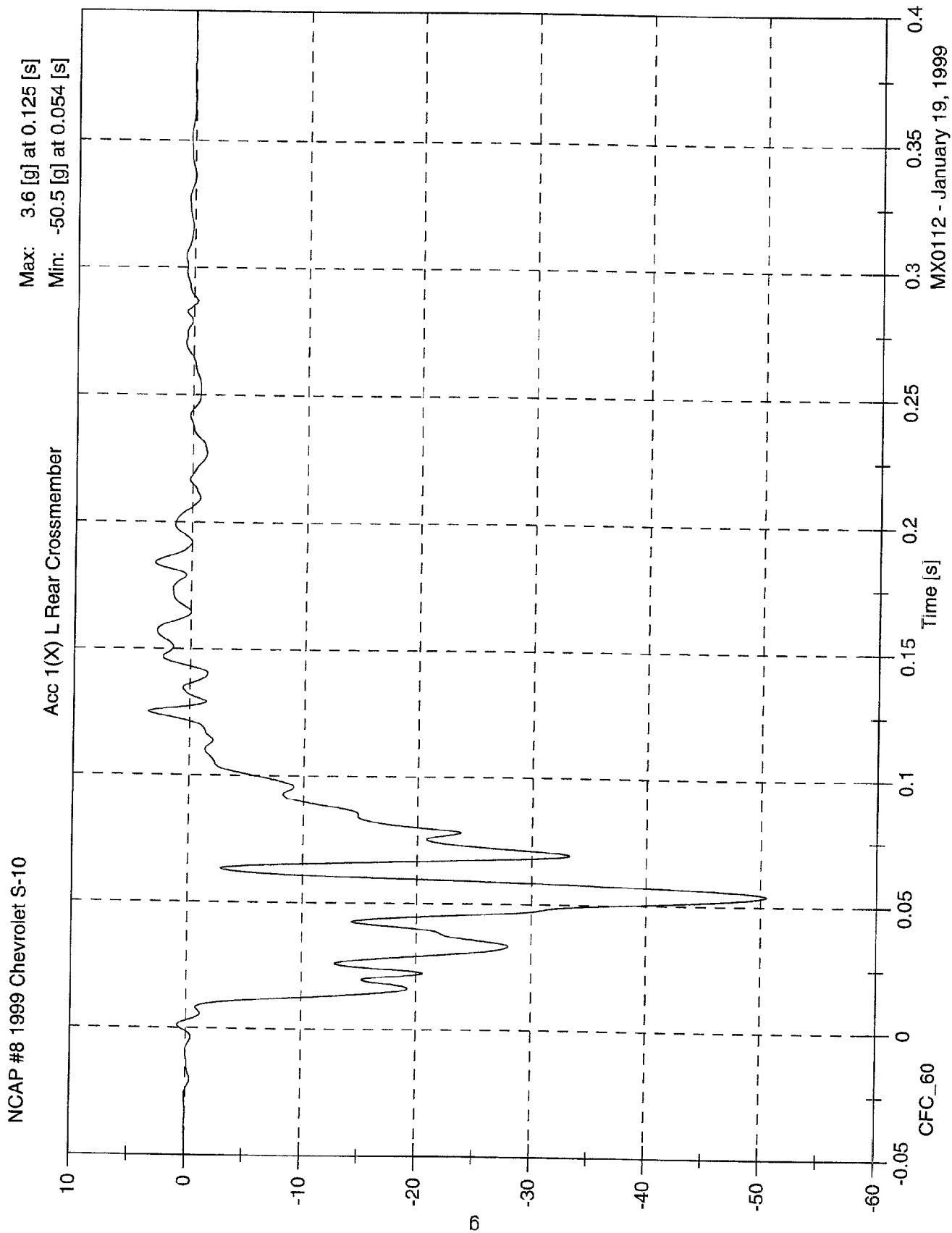
60

Velocity

180

Displacement

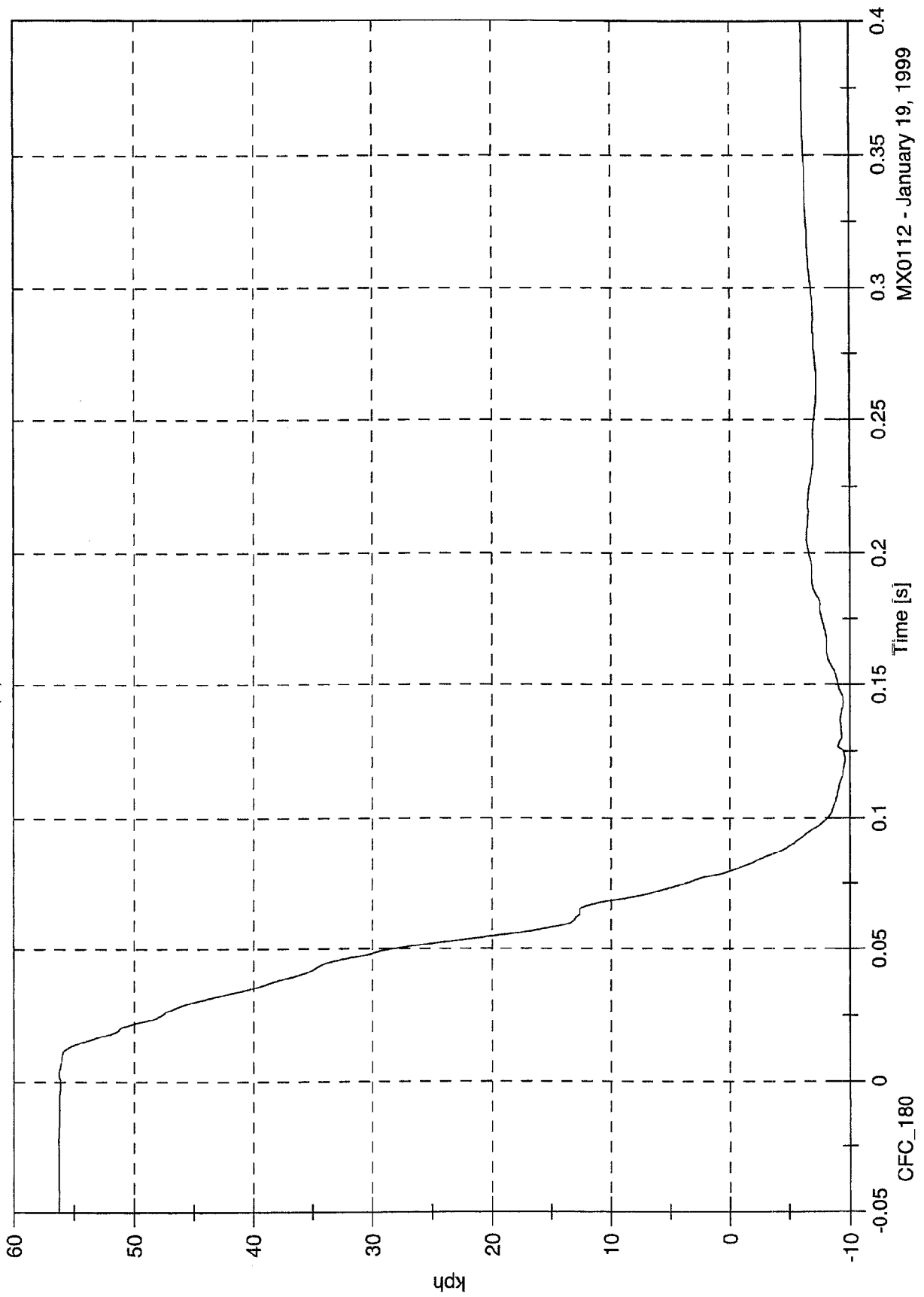
180



NCAP #8 1999 Chevrolet S-10

Acc 1(X) L Rear Crossmember

Max: 56.3 [kph] at -0.023 [s]
Min: -9.6 [kph] at 0.122 [s]

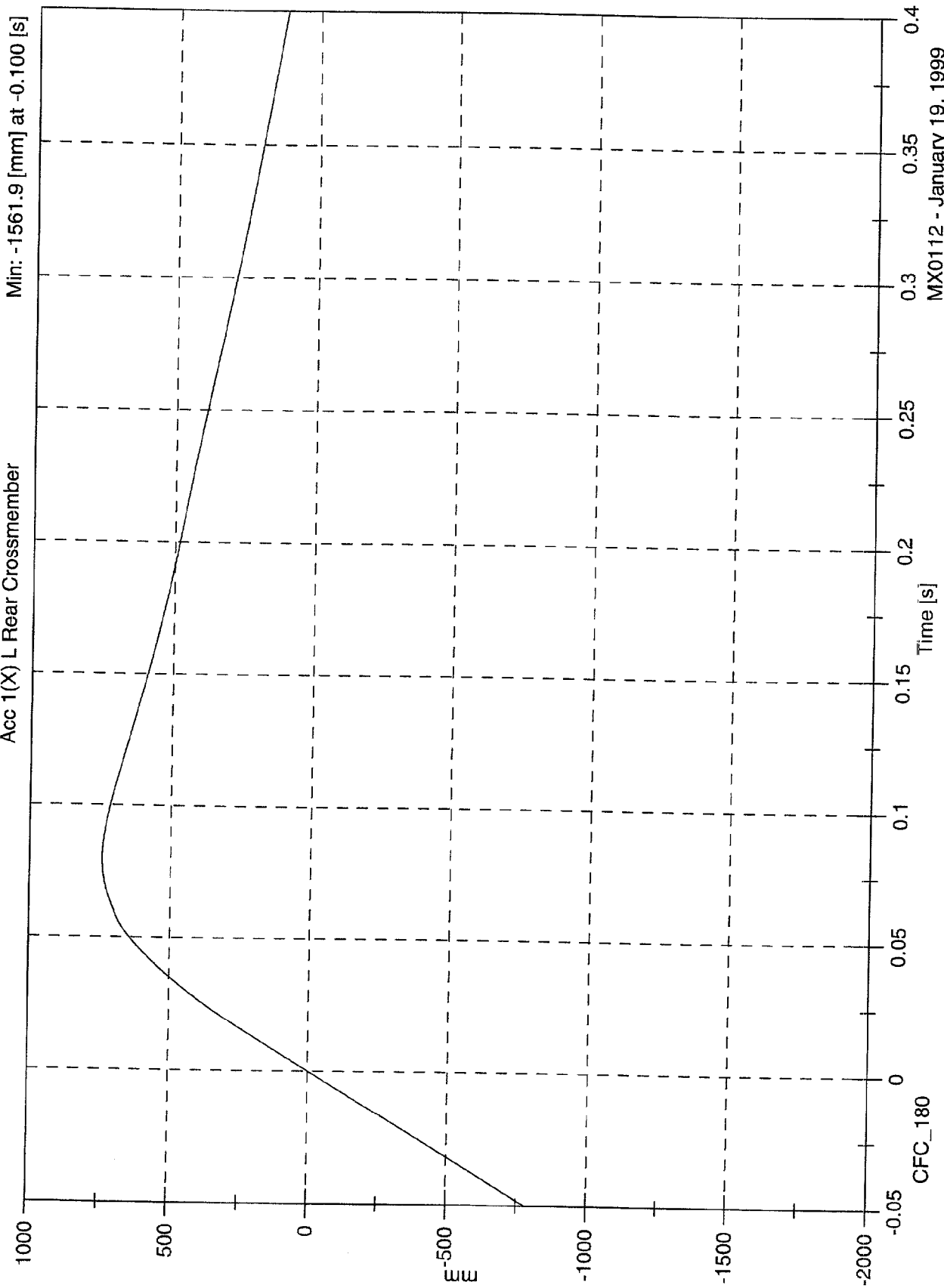


NCAP #8 1999 Chevrolet S-10

Acc 1(X) L Rear Crossmember

Max: 743.5 [mm] at 0.080 [s]

Min: -1561.9 [mm] at -0.100 [s]

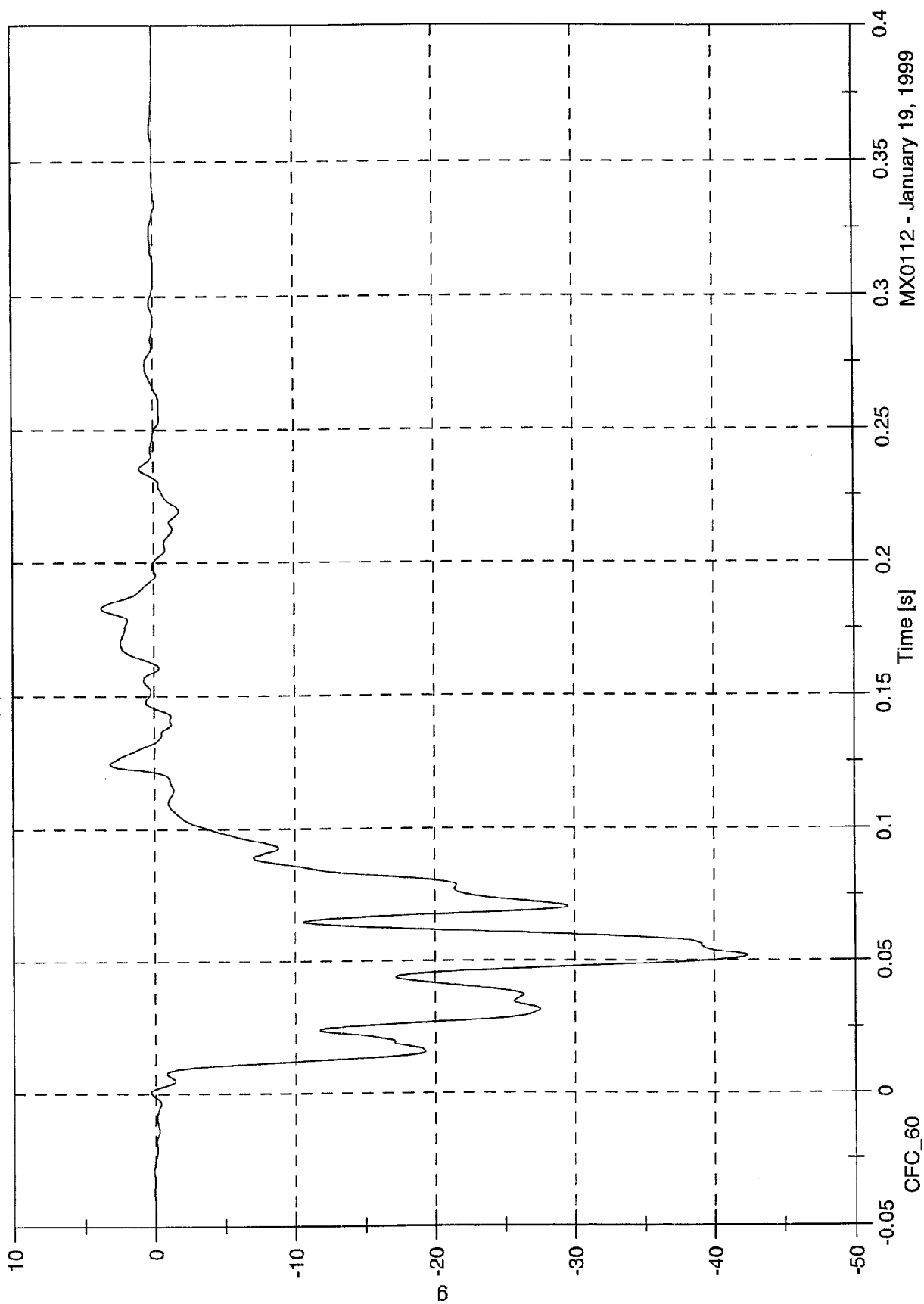


MX0112 - January 19, 1999

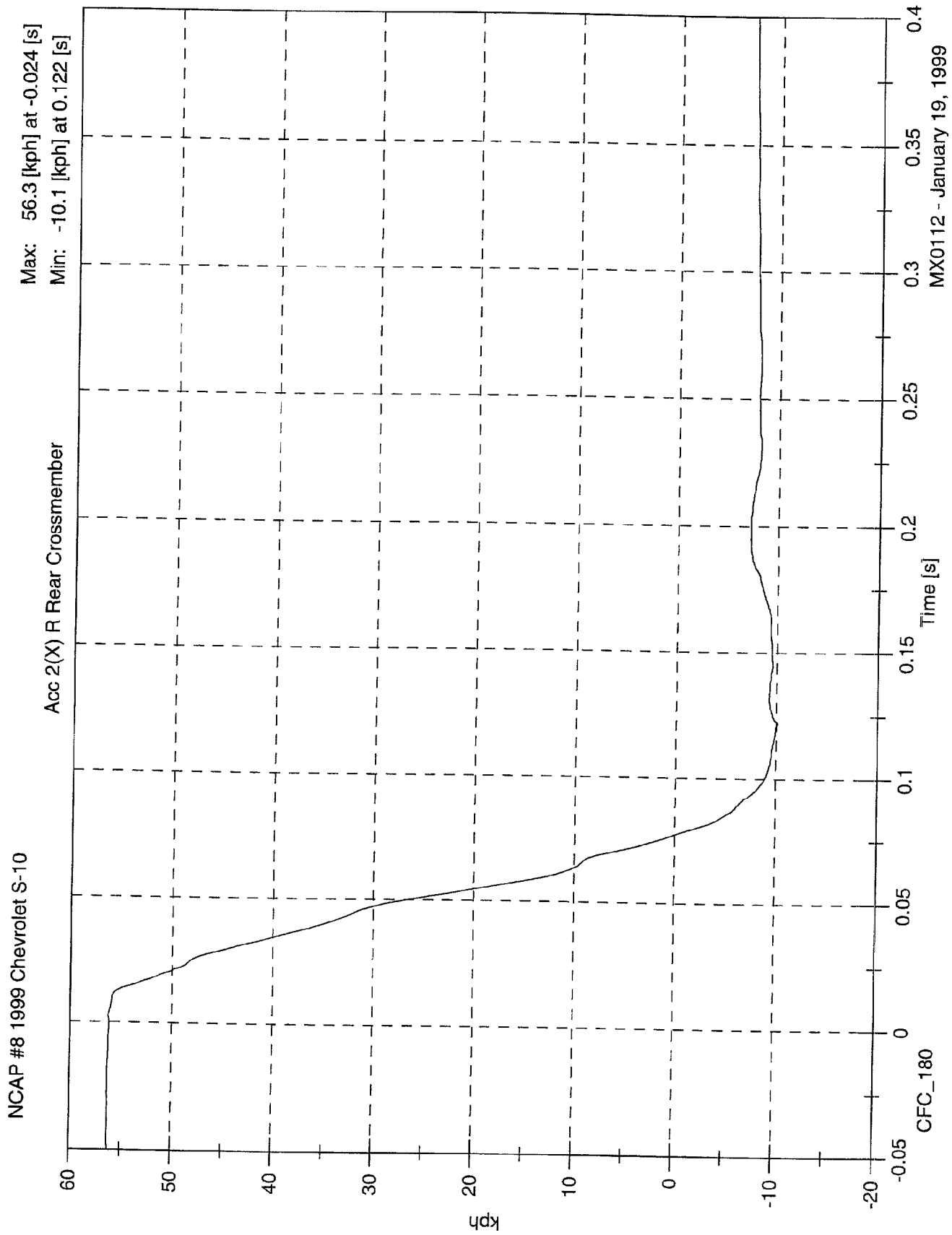
NCAP #8 1999 Chevrolet S-10

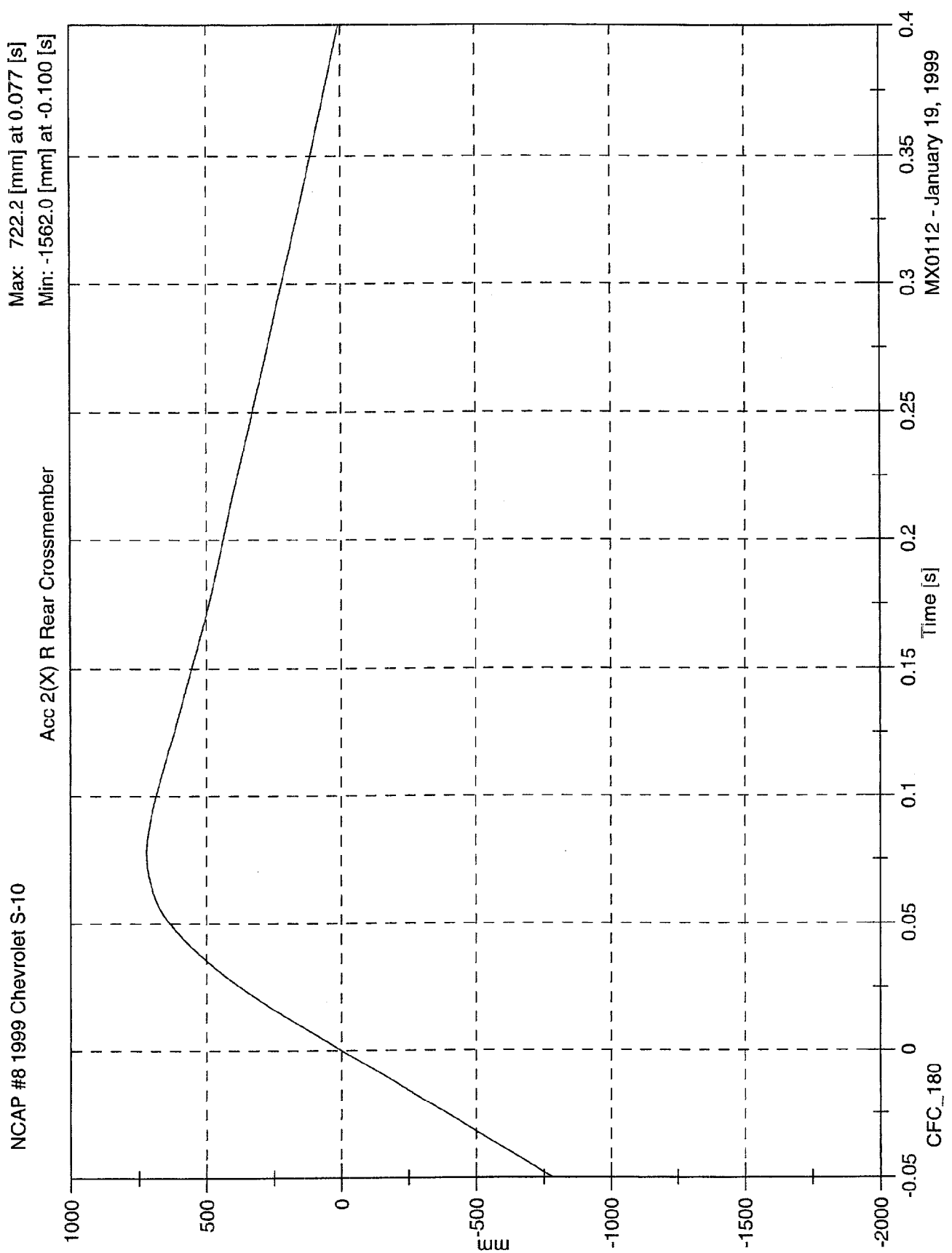
Acc 2(X) R Rear Crossmember

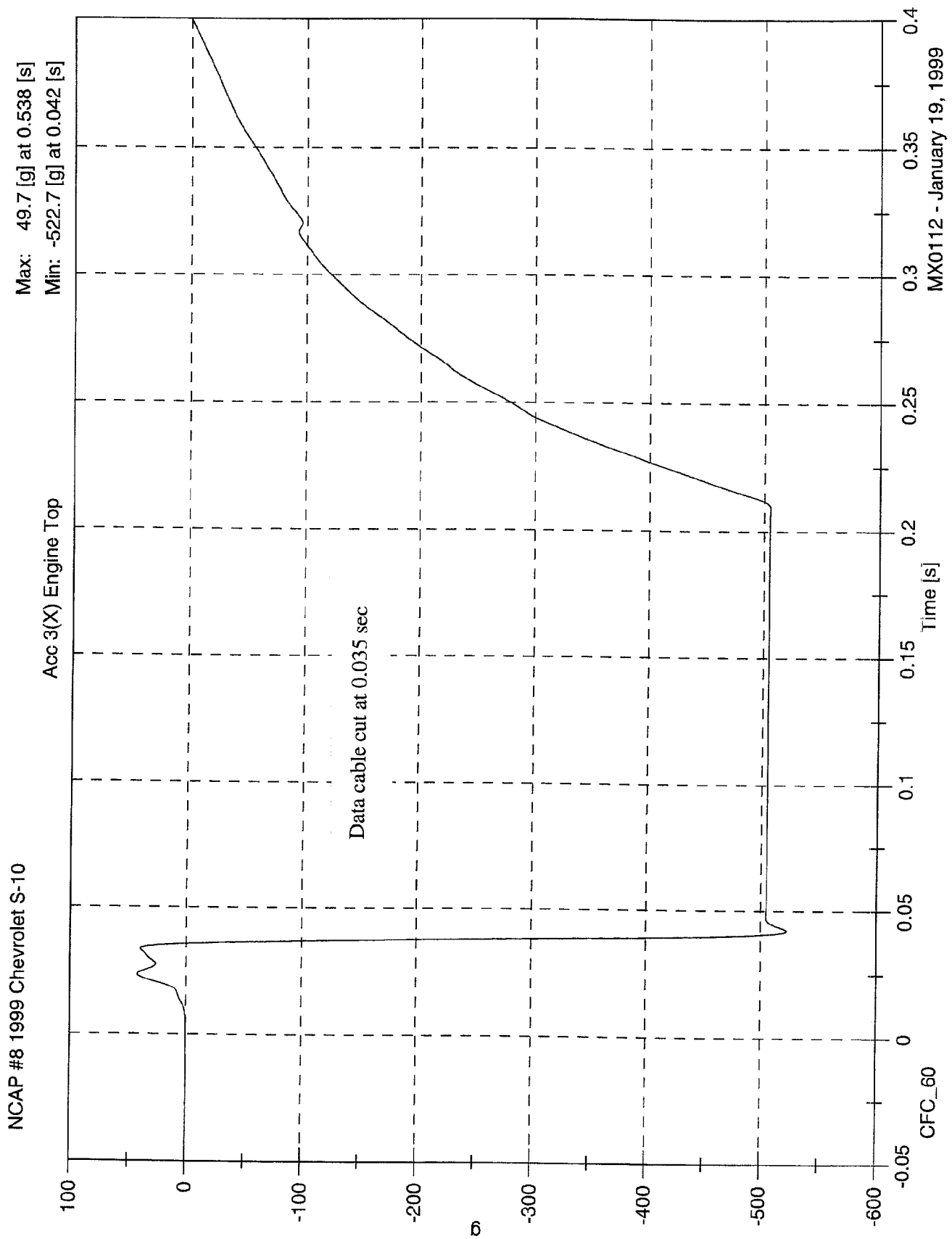
Max: 3.7 [g] at 0.183 [s]
Min: -42.4 [g] at 0.052 [s]

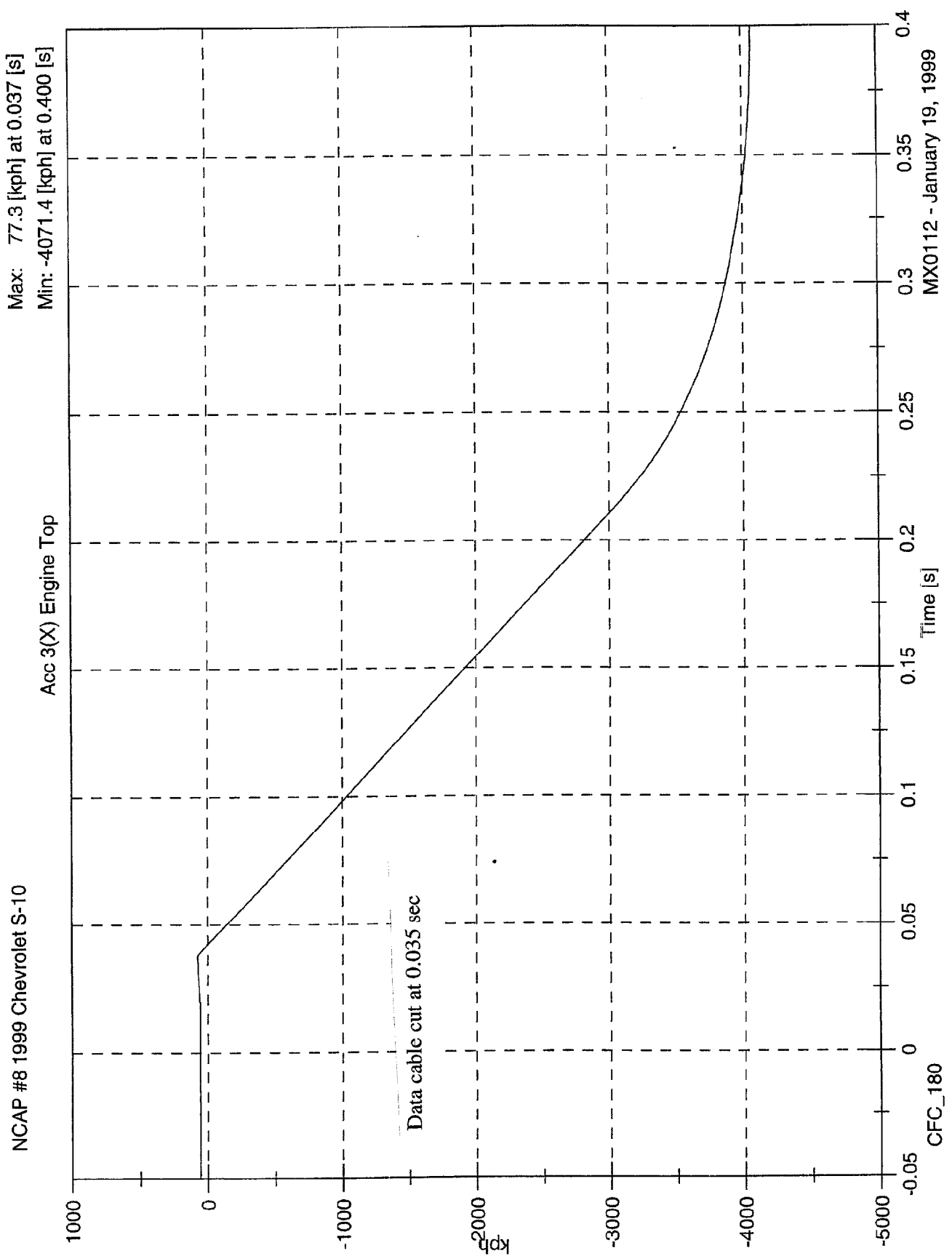


MX0112 - January 19, 1999





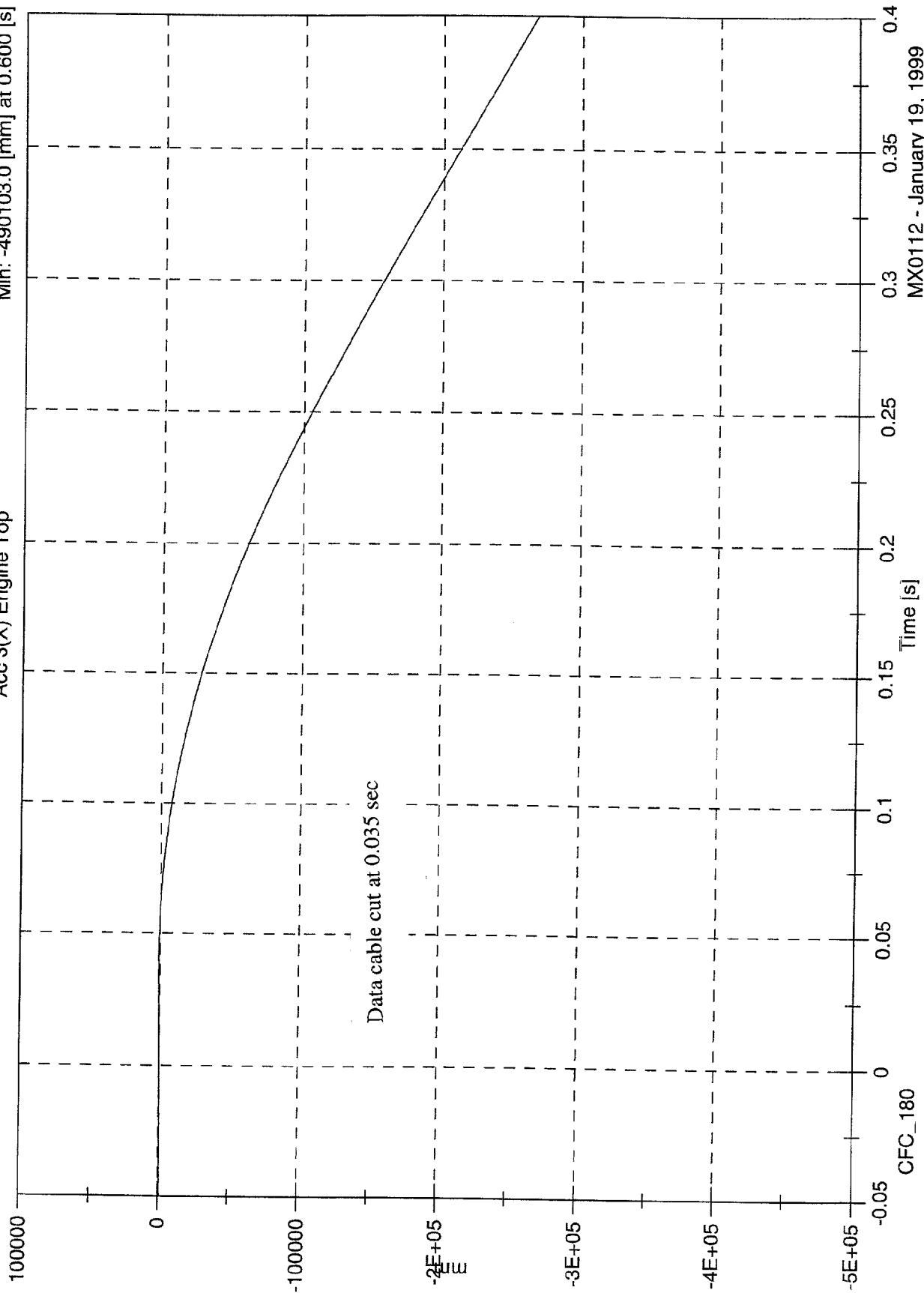




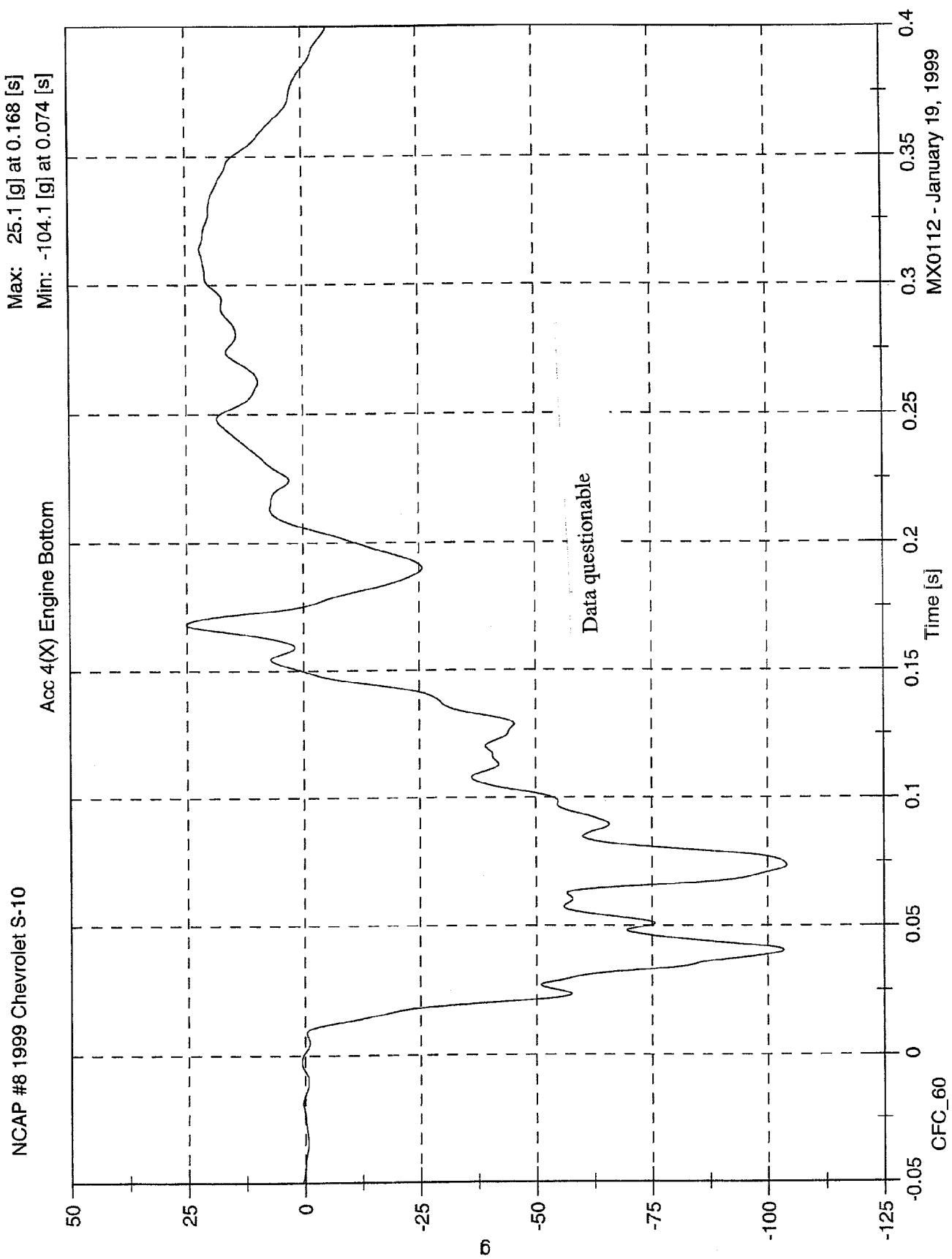
NCAP #8 1999 Chevrolet S-10

Acc 3(X) Engine Top

Max: 705.6 [mm] at 0.042 [s]
Min: -490103.0 [mm] at 0.600 [s]



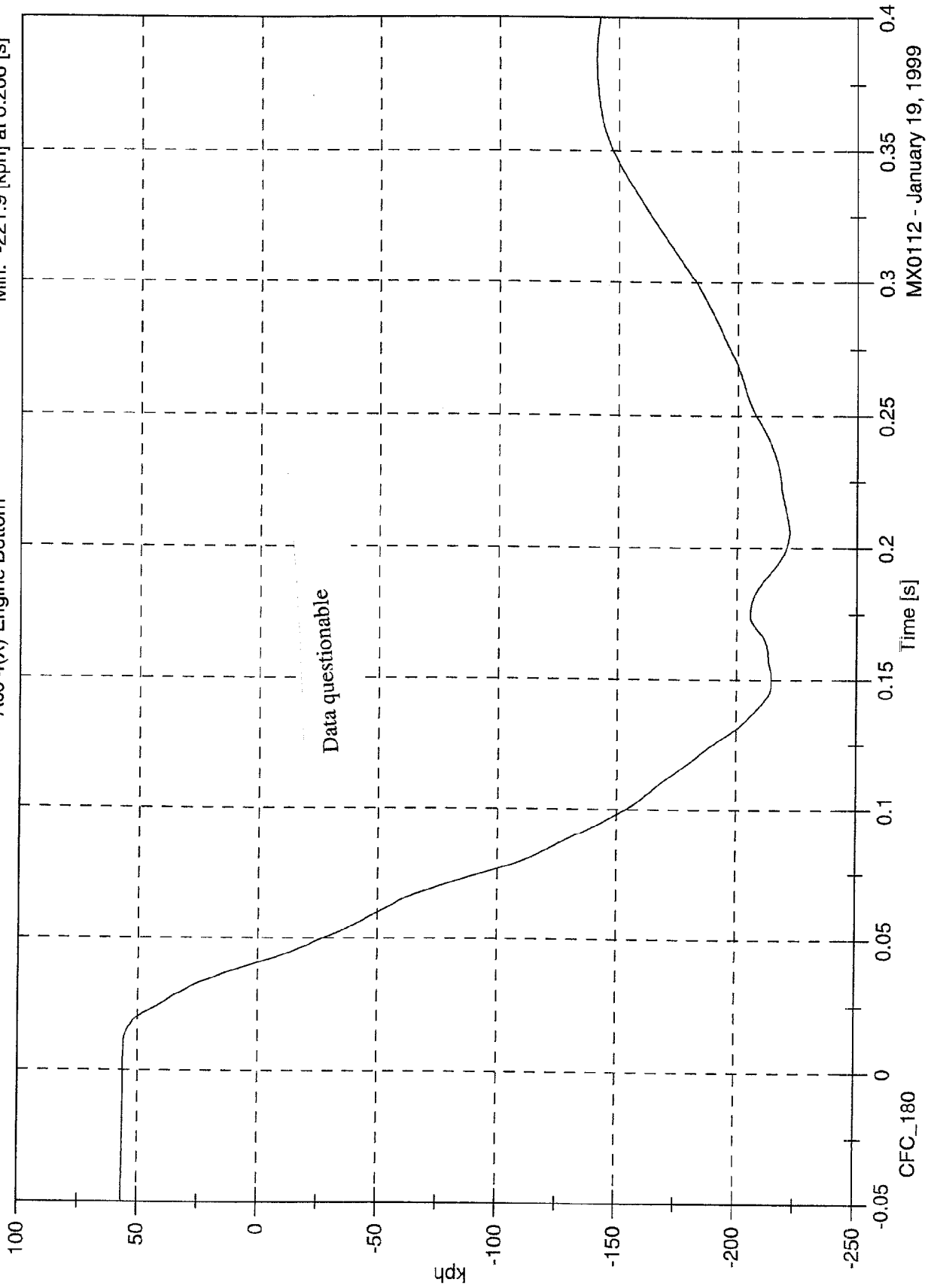
MX0112 - January 19, 1999



NCAP #8 1999 Chevrolet S-10

Acc 4(X) Engine Bottom

Max: 56.5 [kph] at -0.047 [s]
Min: -221.9 [kph] at 0.206 [s]

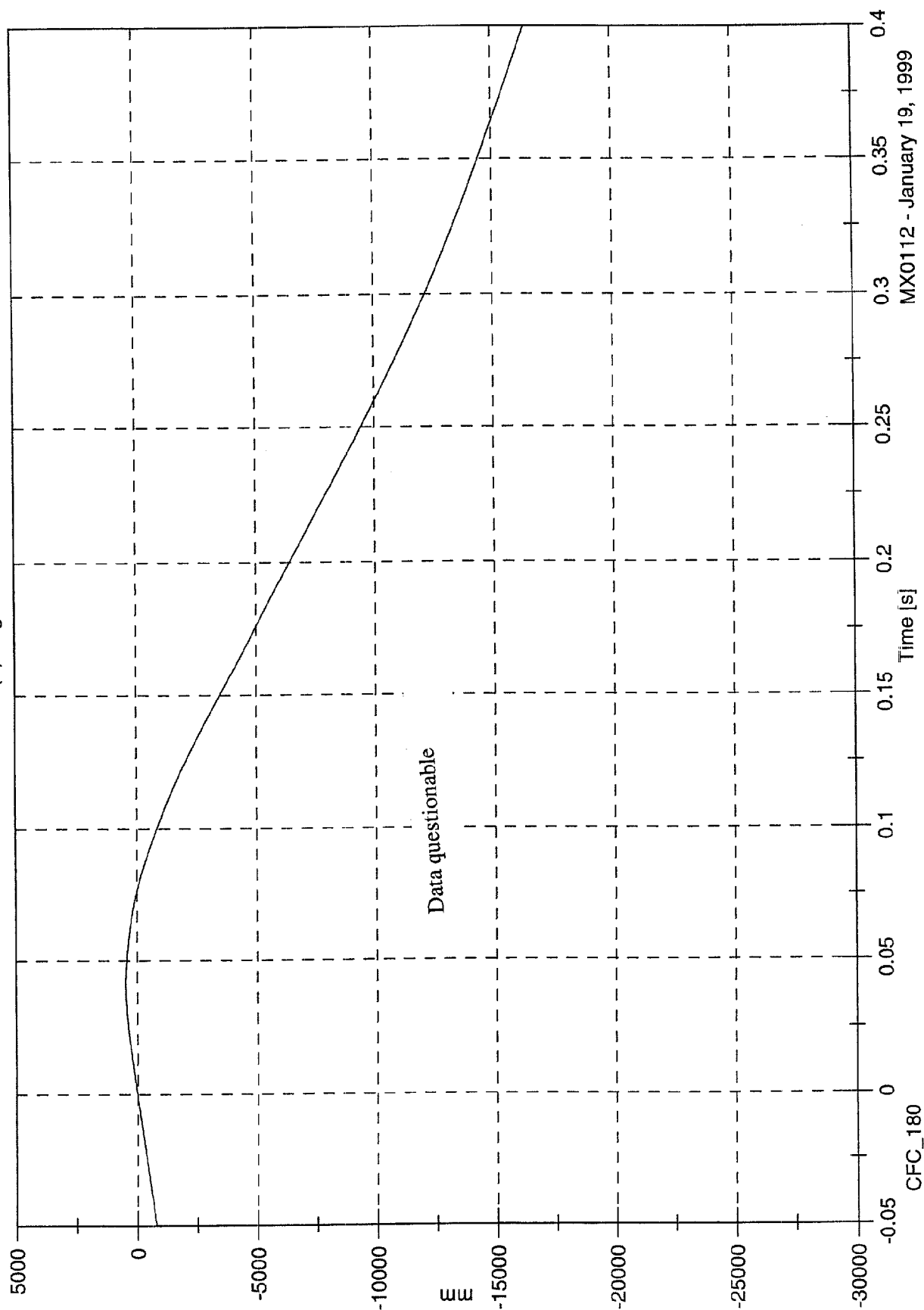


MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

Acc 4(X) Engine Bottom

Max: 471.2 [mm] at 0.041 [s]
Min: -25158.4 [mm] at 0.600 [s]



CFC_180

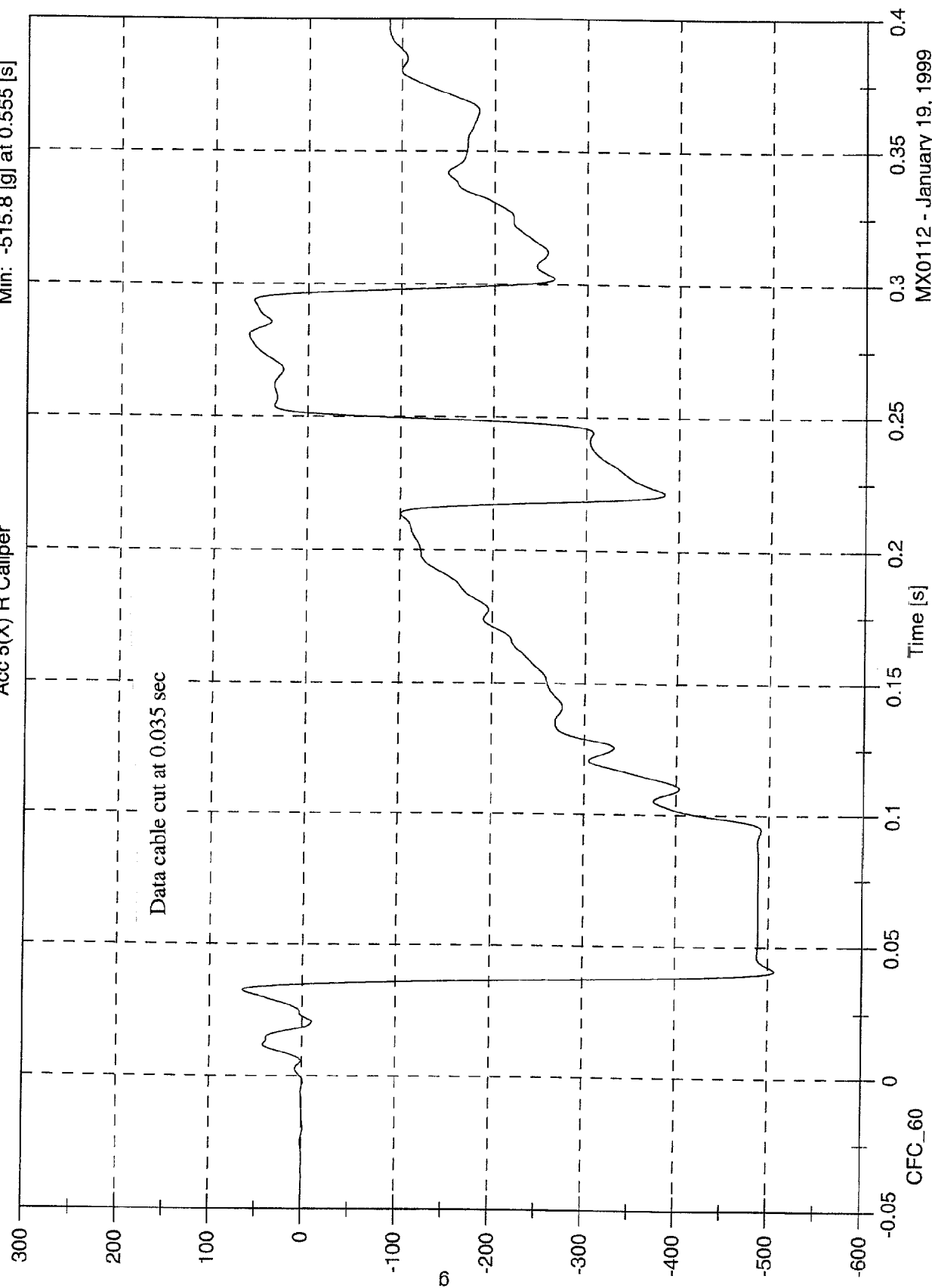
MX0112 - January 19, 1999

NCAP #8 1999 Chevrolet S-10

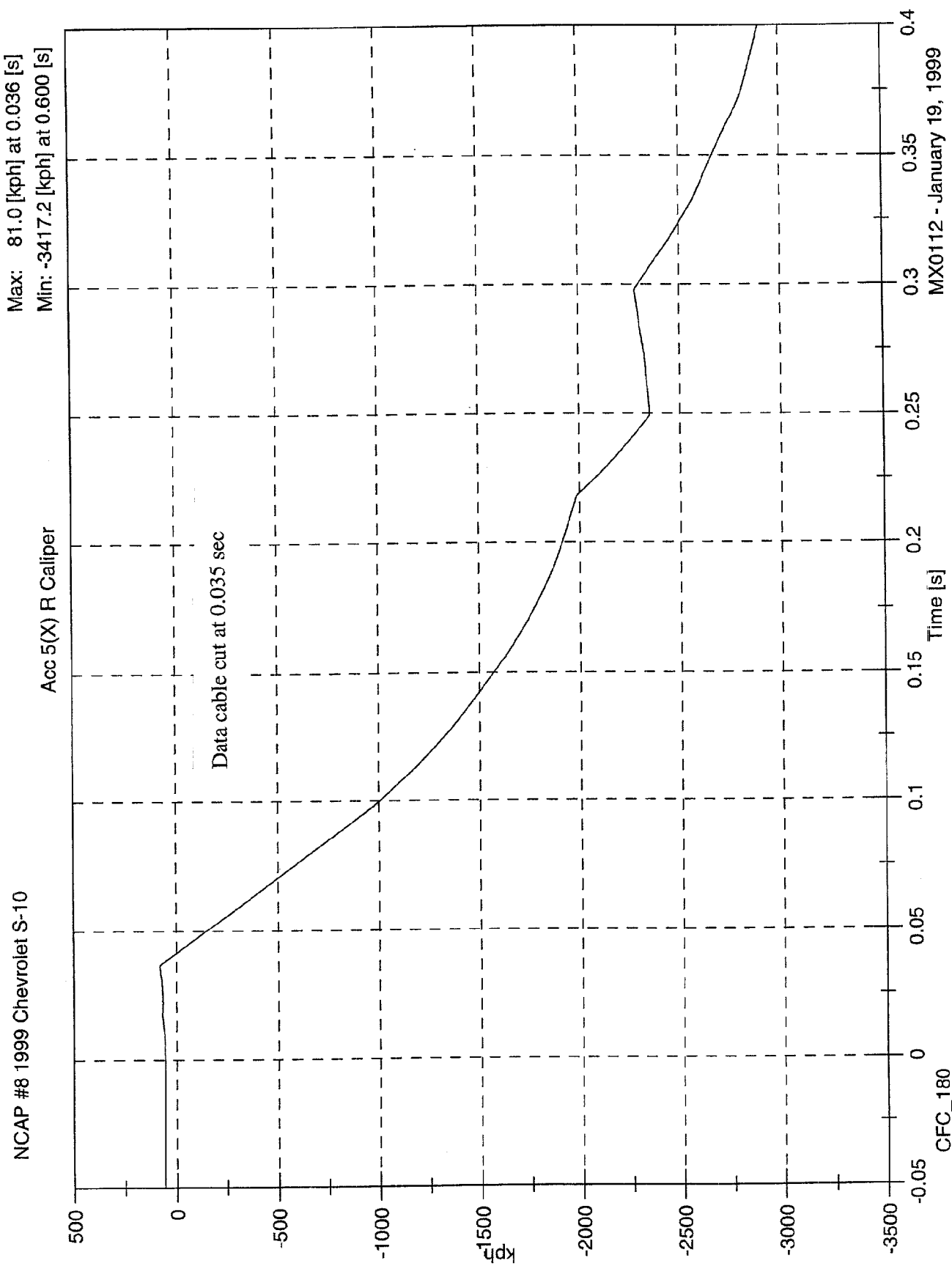
Acc 5(X) R Caliper

Max: 249.0 [g] at 0.548 [s]

Min: -515.8 [g] at 0.555 [s]



MX0112 - January 19, 1999

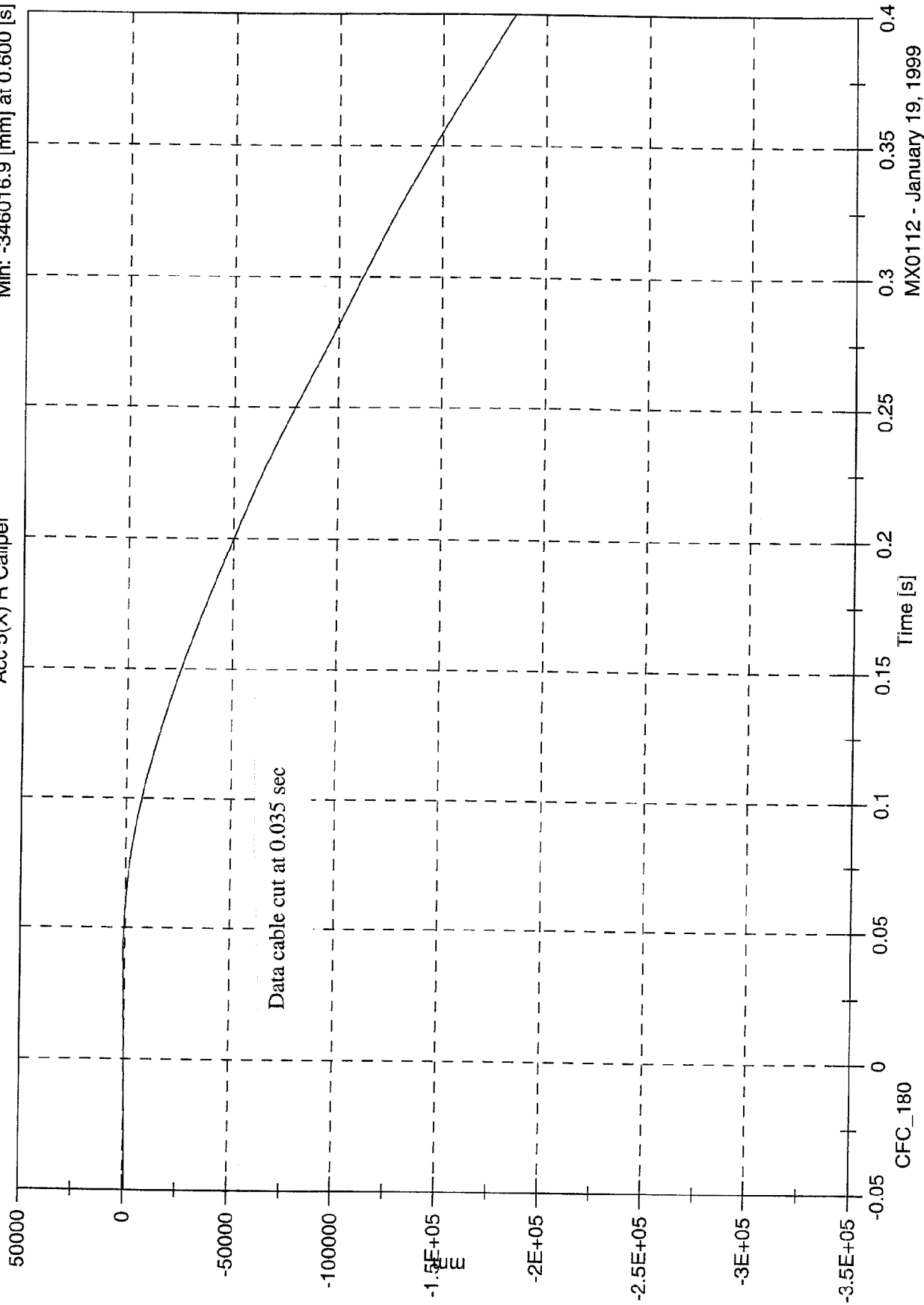


NCAP #8 1999 Chevrolet S-10

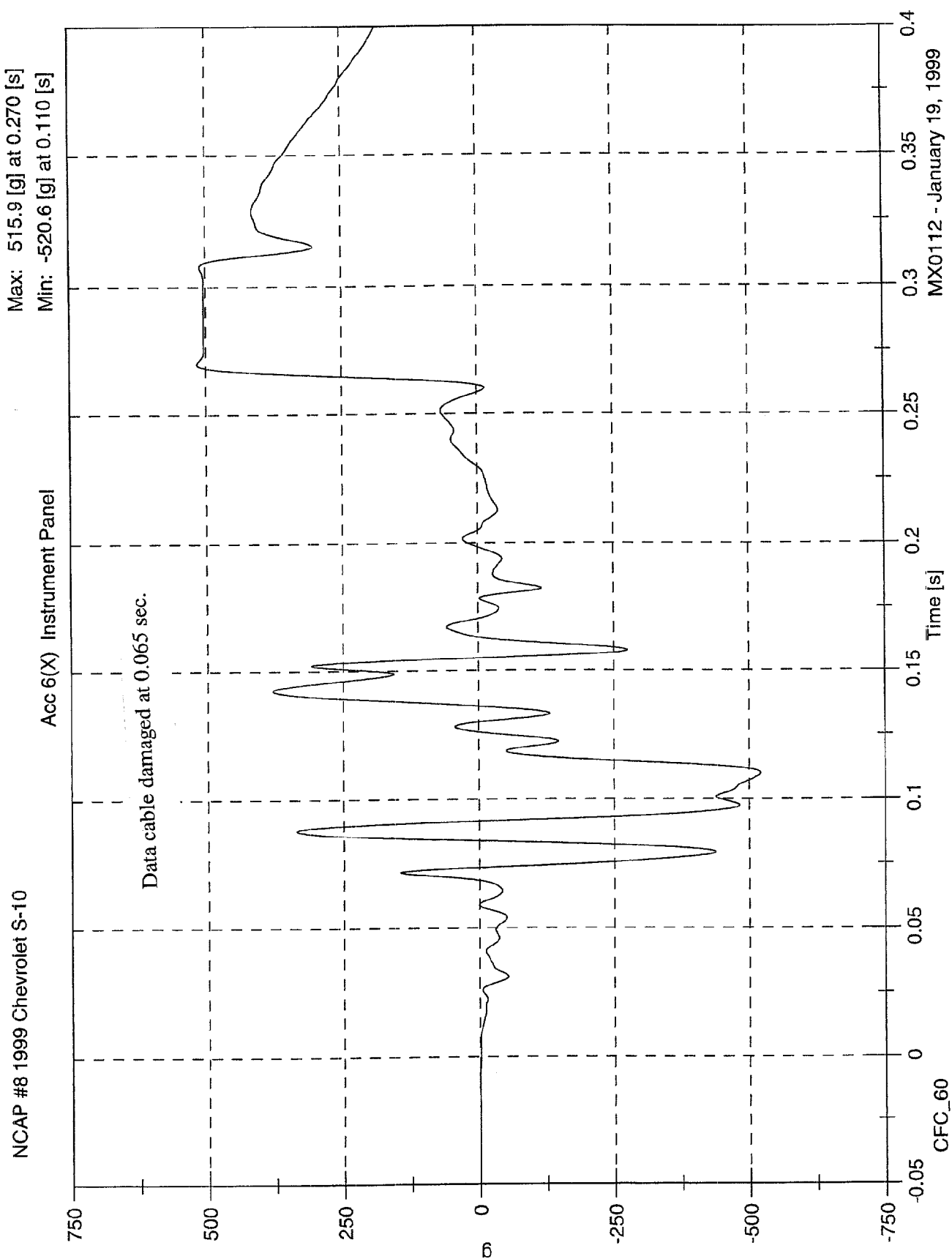
Max: 729.5 [mm] at 0.042 [s]

Min: -346016.9 [mm] at 0.600 [s]

Acc 5(X) R Caliper



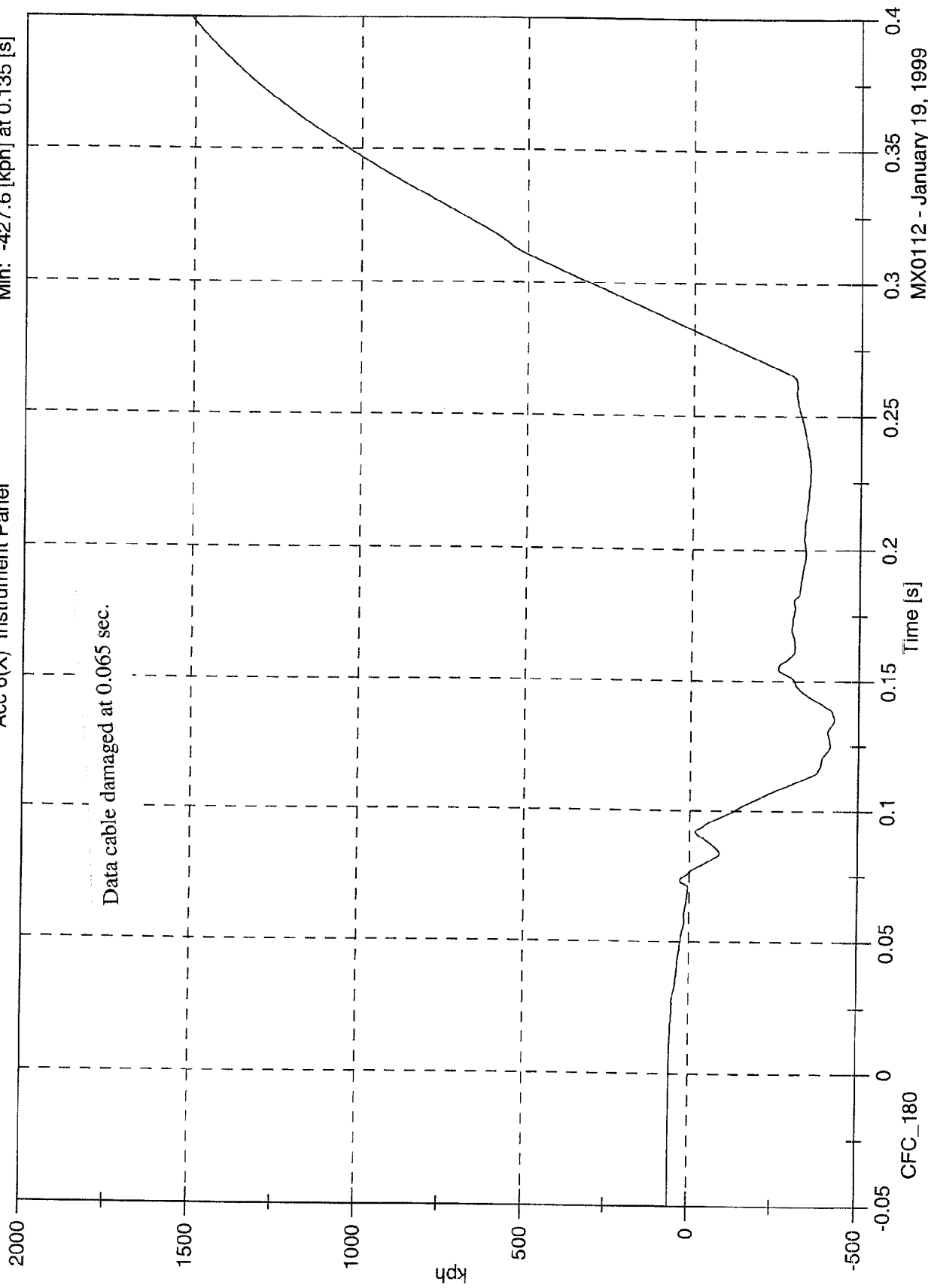
MX0112 - January 19, 1999



NCAP #8 1999 Chevrolet S-10

Acc 6(X) Instrument Panel

Max: 1949.5 [kph] at 0.523 [s]
Min: -427.6 [kph] at 0.135 [s]

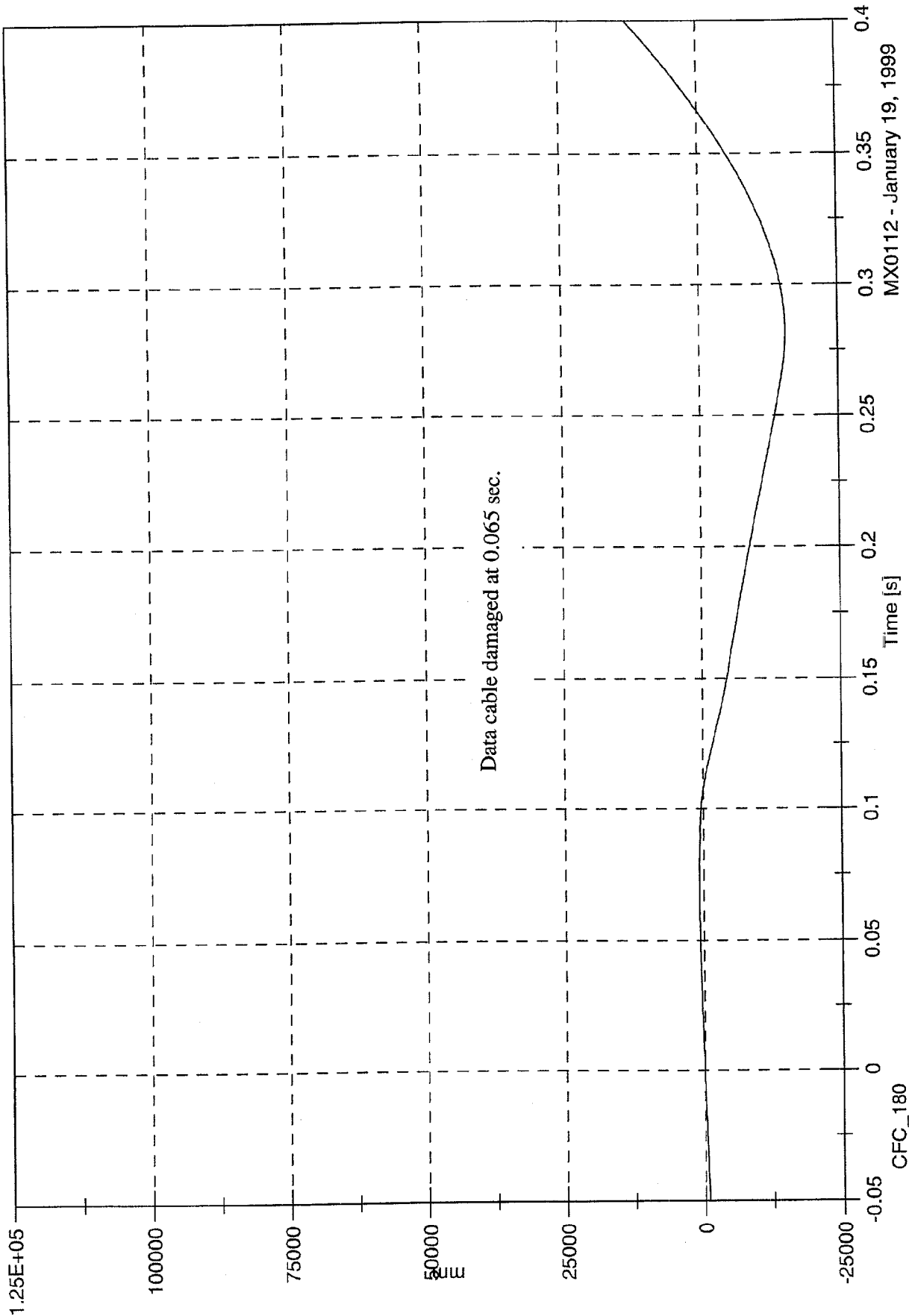


MX0112 - January 19, 1999

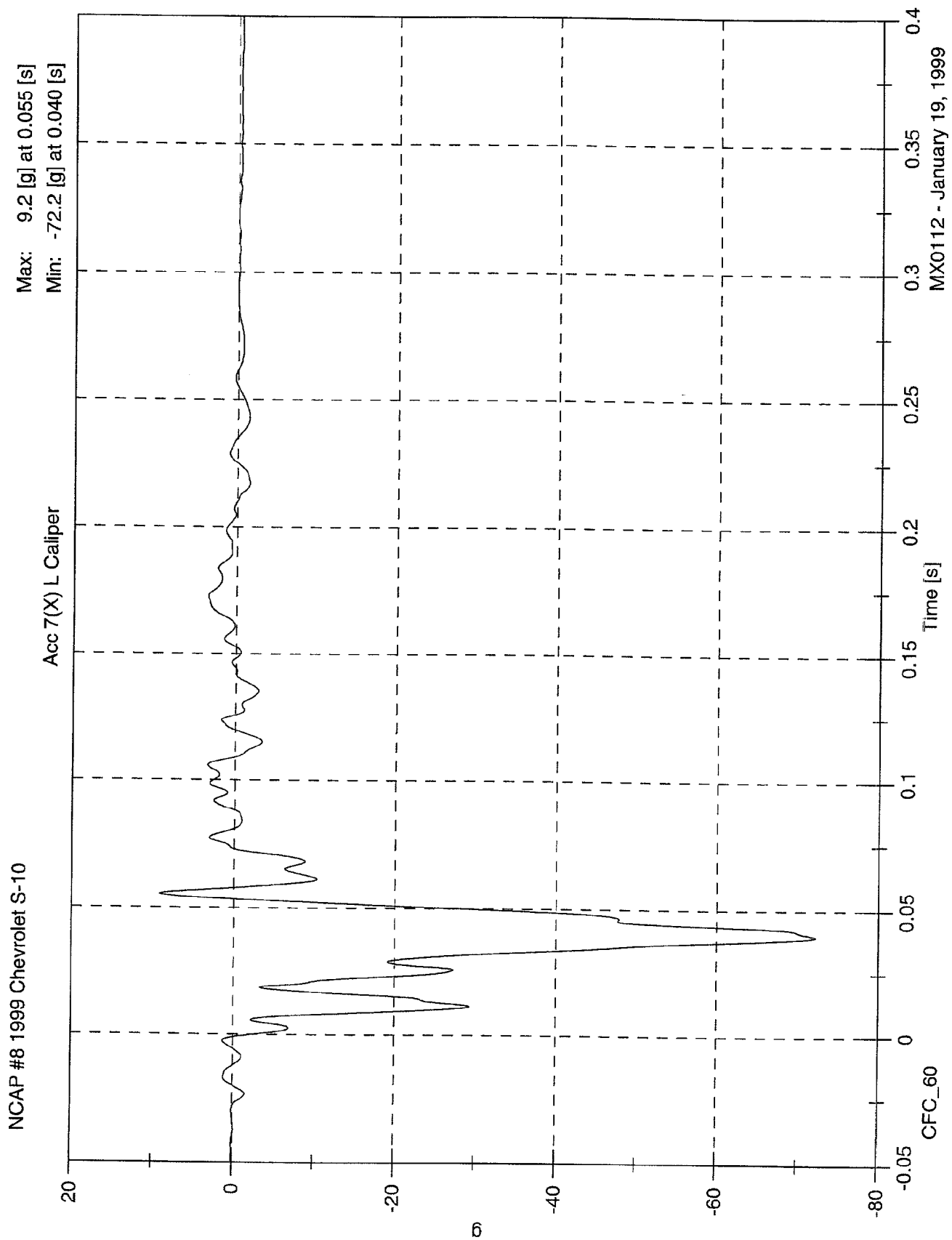
NCAP #8 1999 Chevrolet S-10

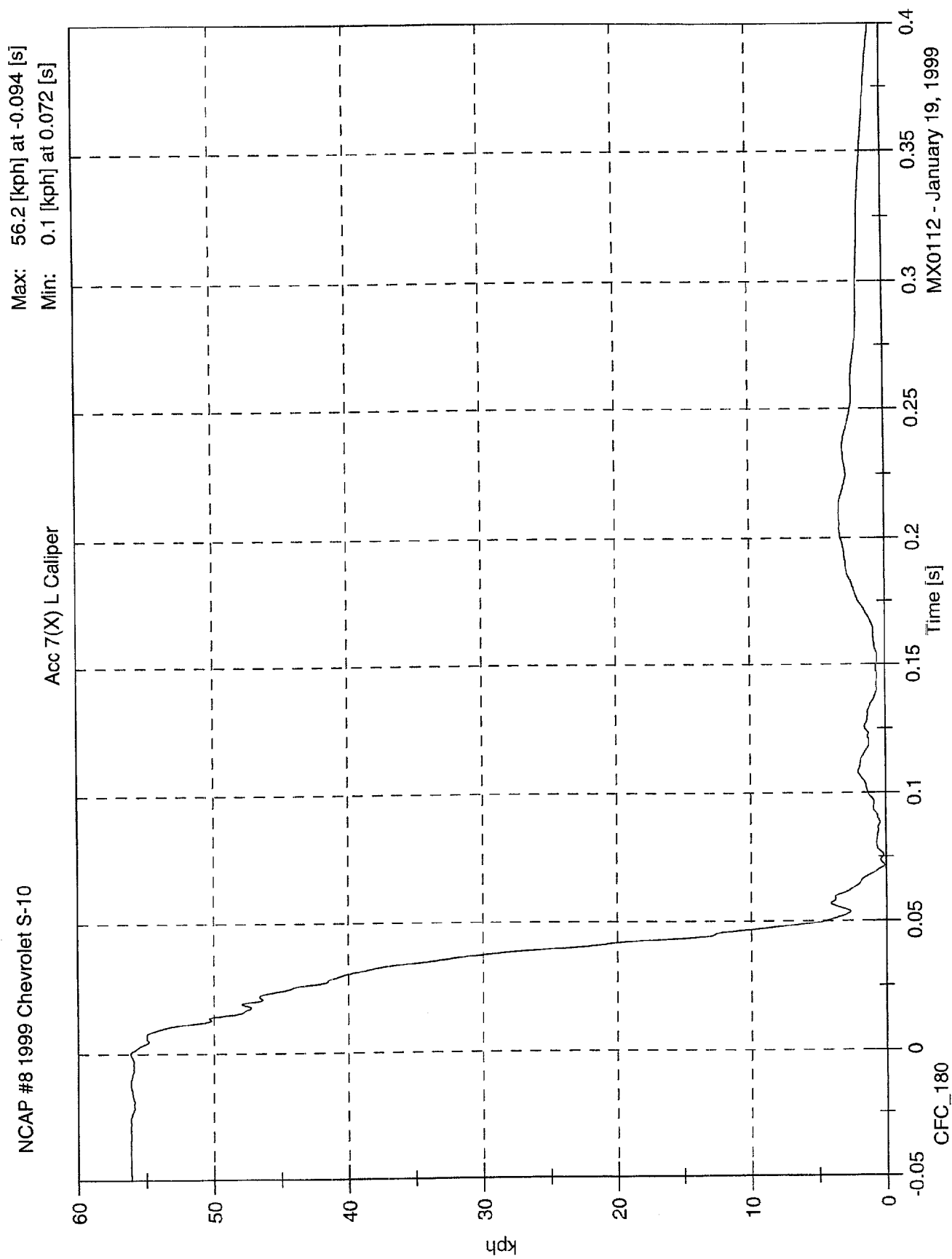
Acc 6(X) Instrument Panel

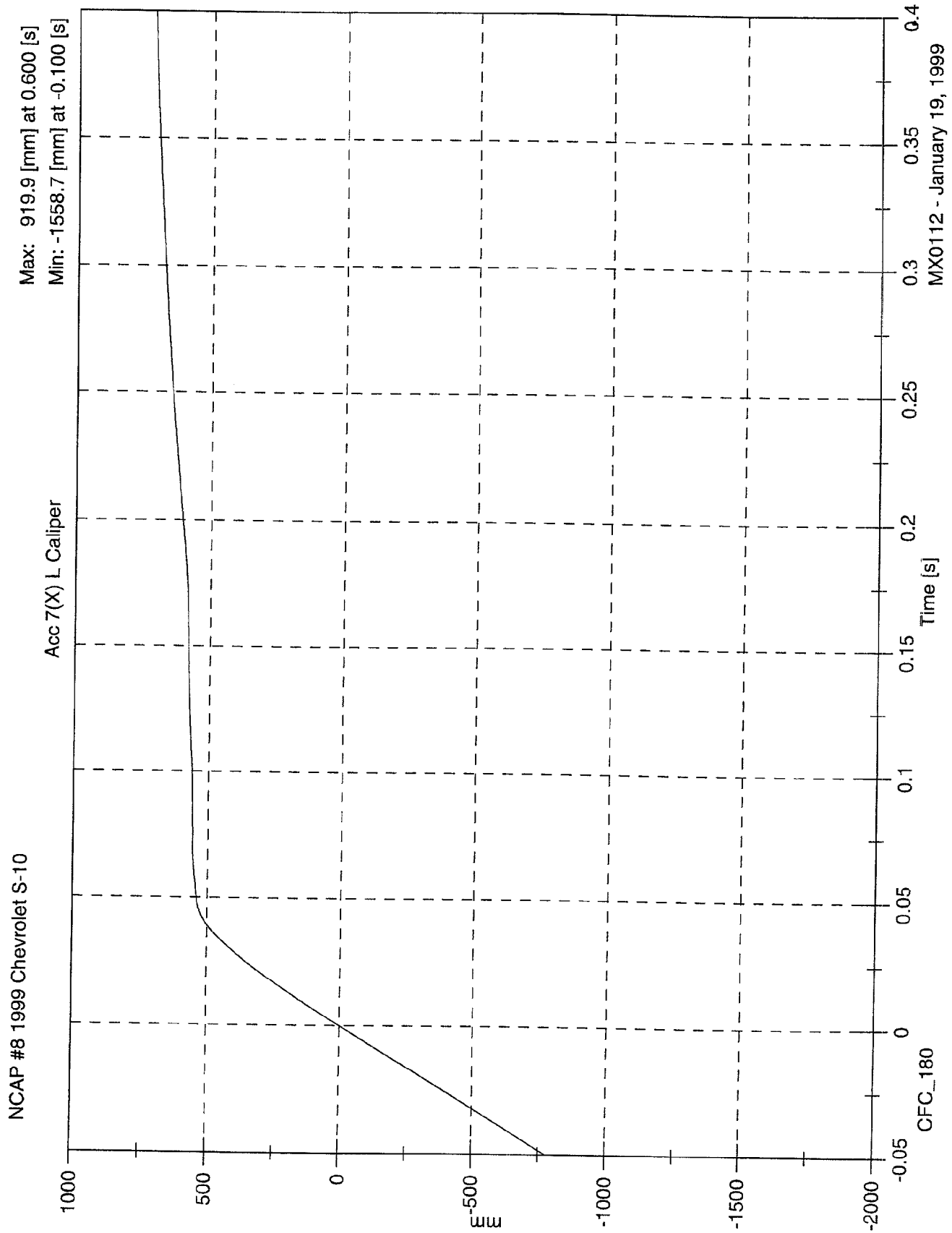
Max: 113975.3 [mm] at 0.600 [s]
Min: -15555.5 [mm] at 0.282 [s]

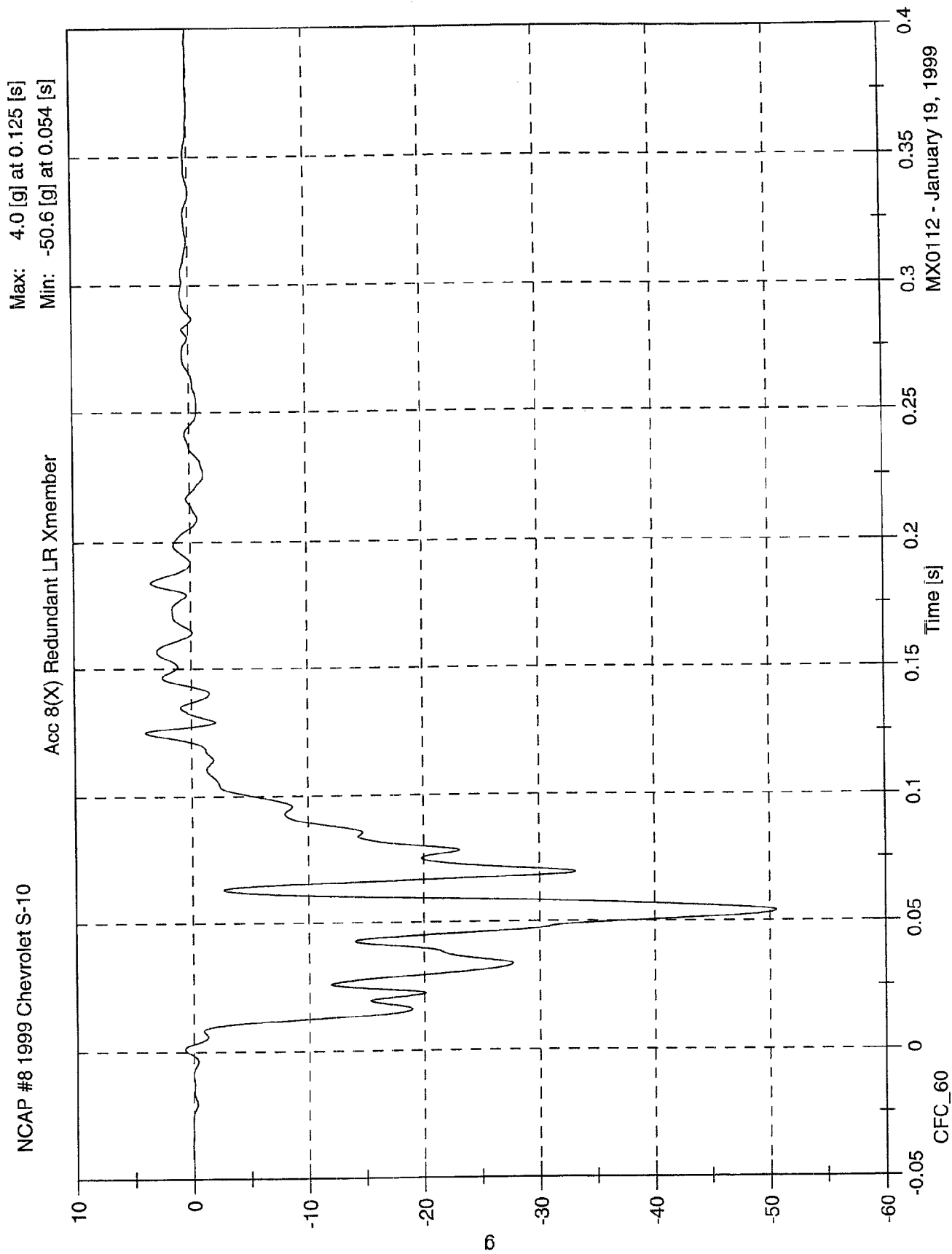


MX0112 - January 19, 1999







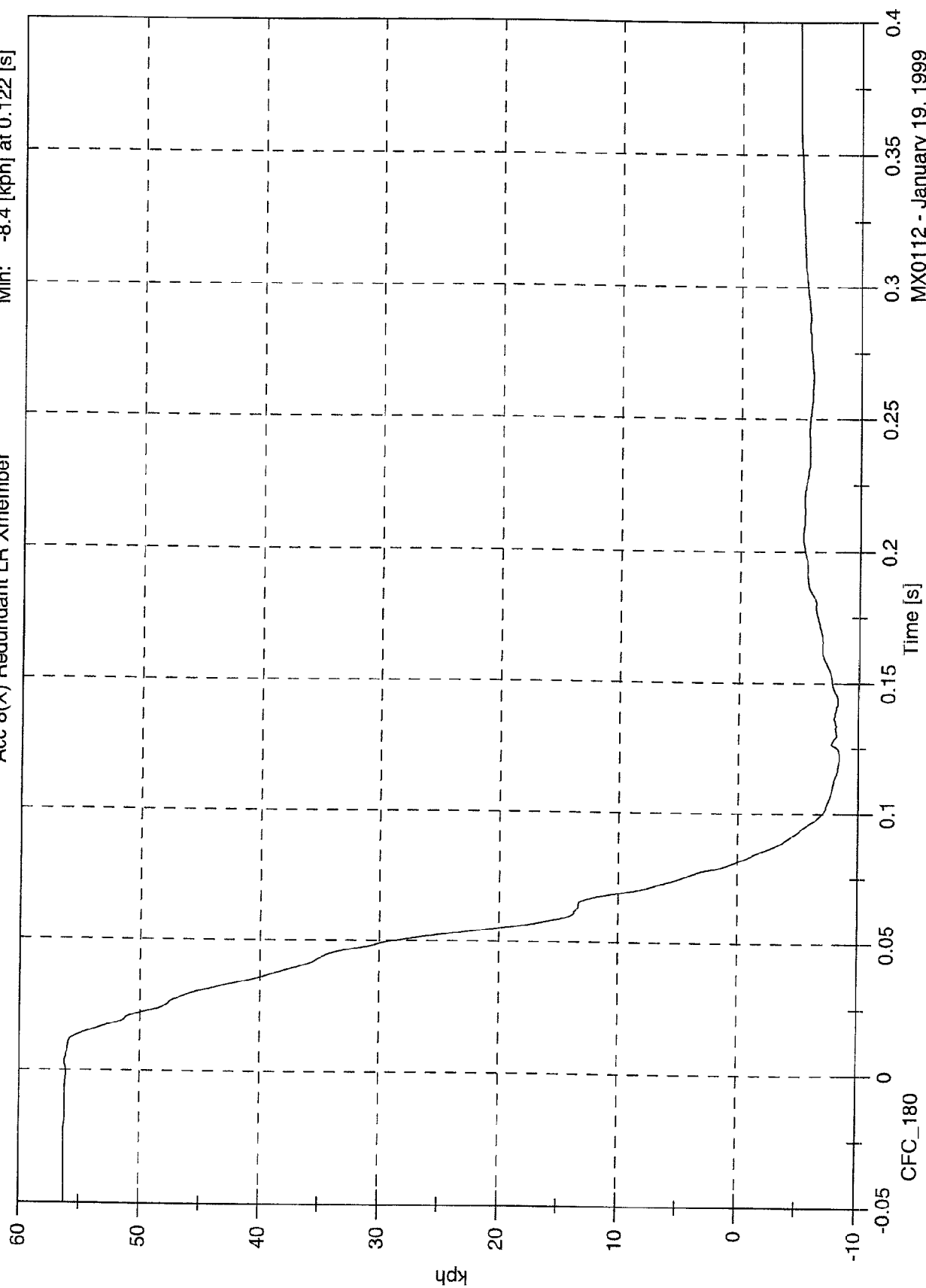


NCAP #8 1999 Chevrolet S-10

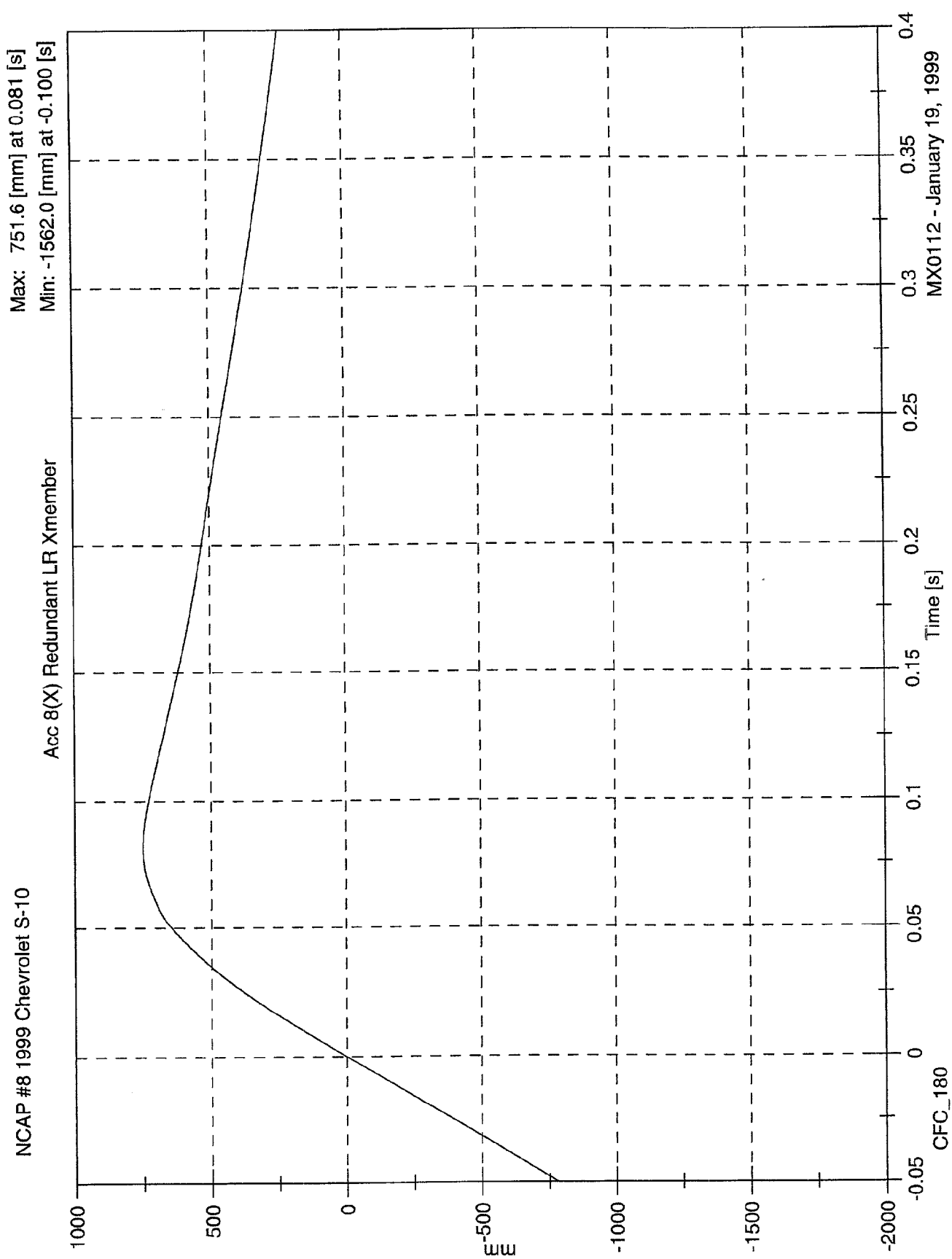
Acc 8(X) Redundant LR Xmember

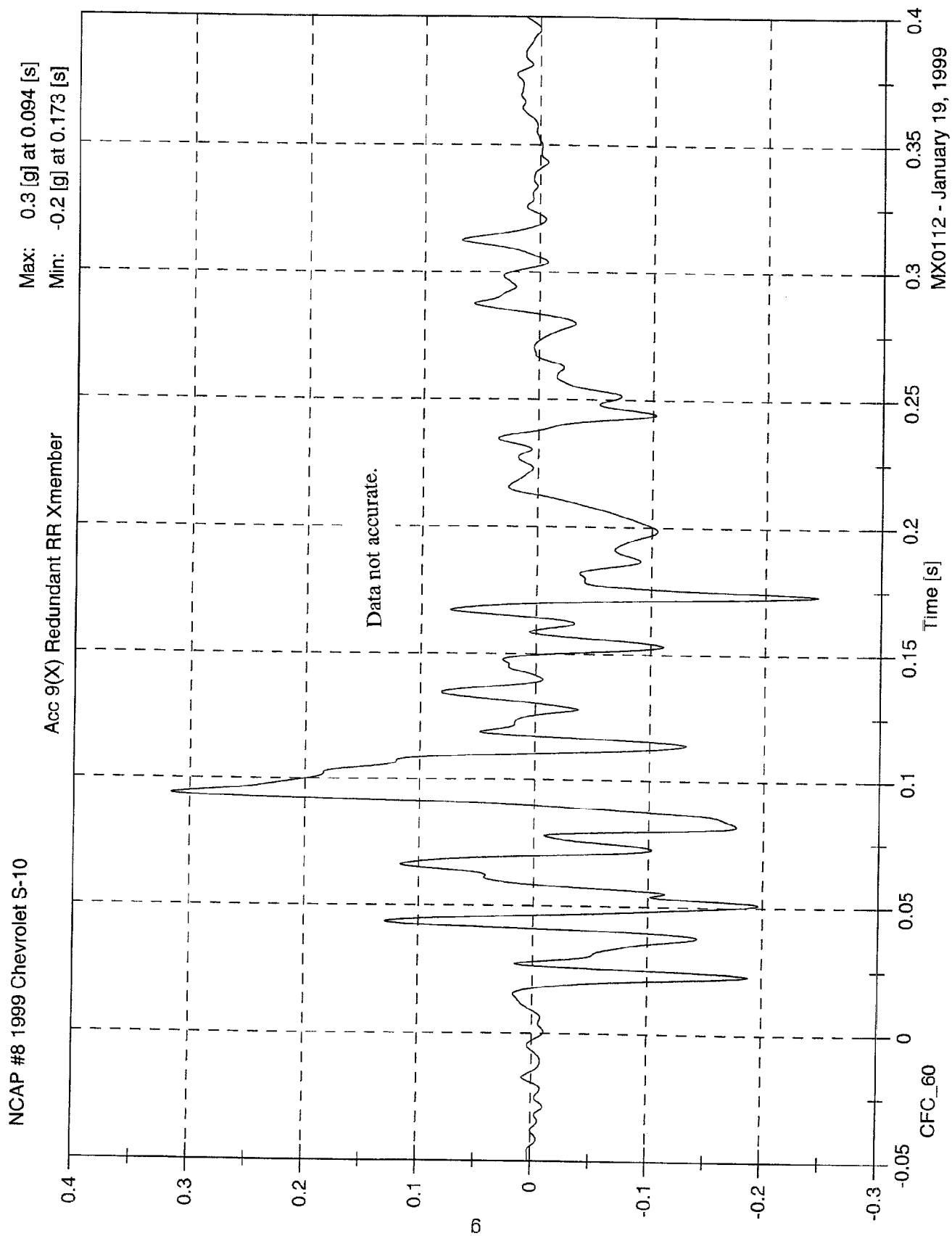
Max: 56.3 [kph] at -0.024 [s]

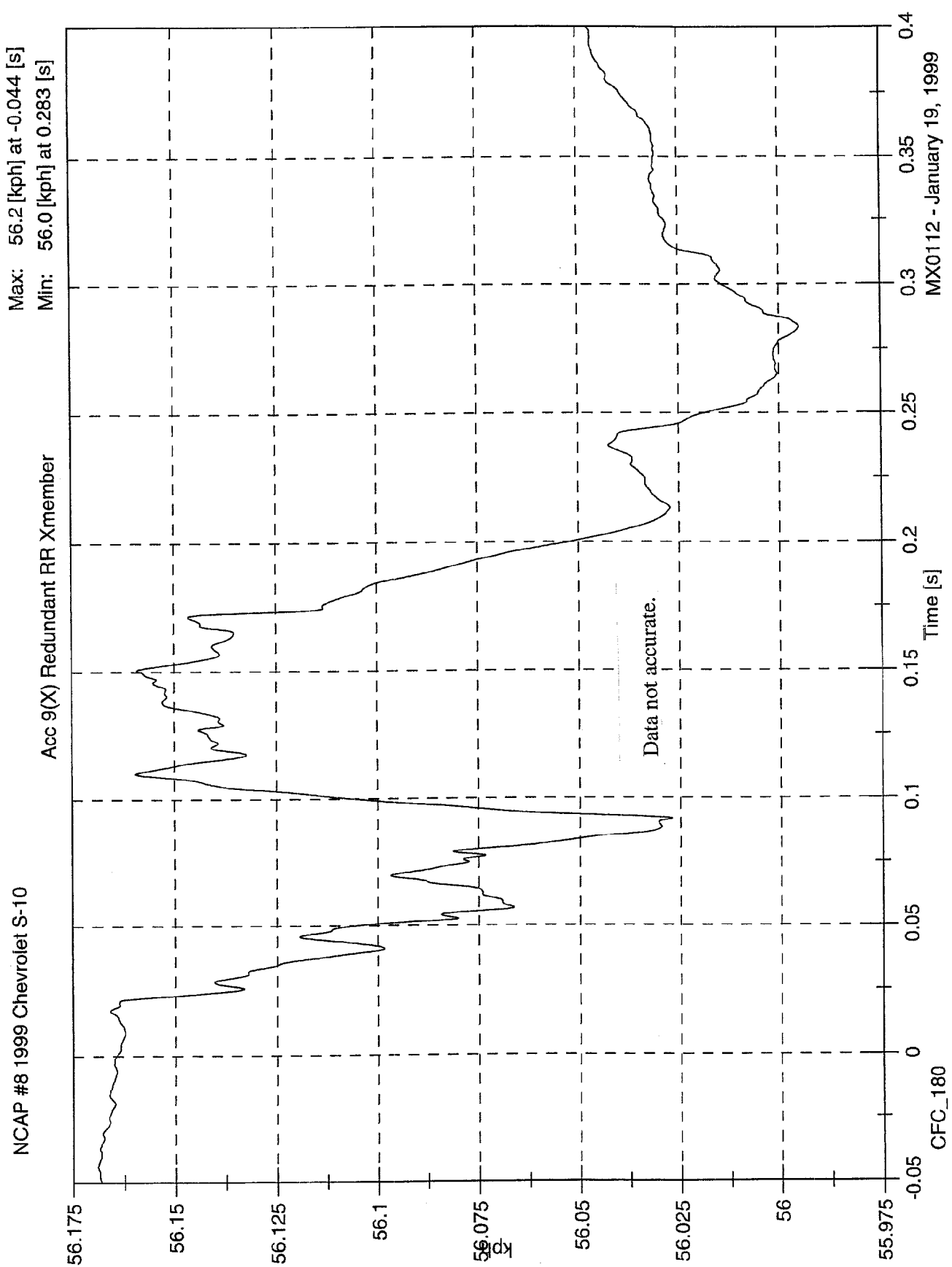
Min: -8.4 [kph] at 0.122 [s]



MX0112 - January 19, 1999



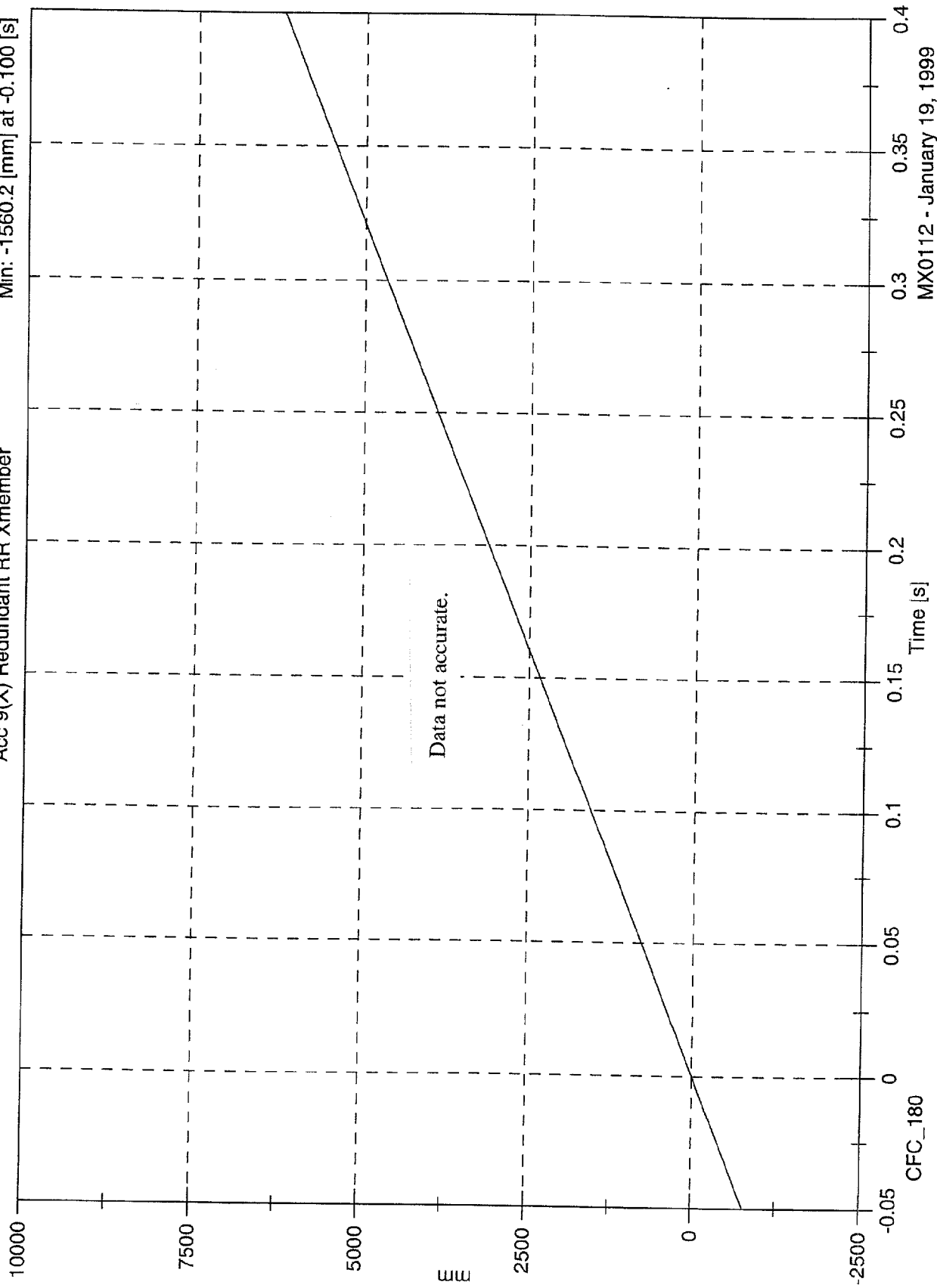




NCAP #8 1999 Chevrolet S-10

Acc 9(X) Redundant RR Xmember

Max: 9343.5 [mm] at 0.600 [s]
Min: -1560.2 [mm] at -0.100 [s]



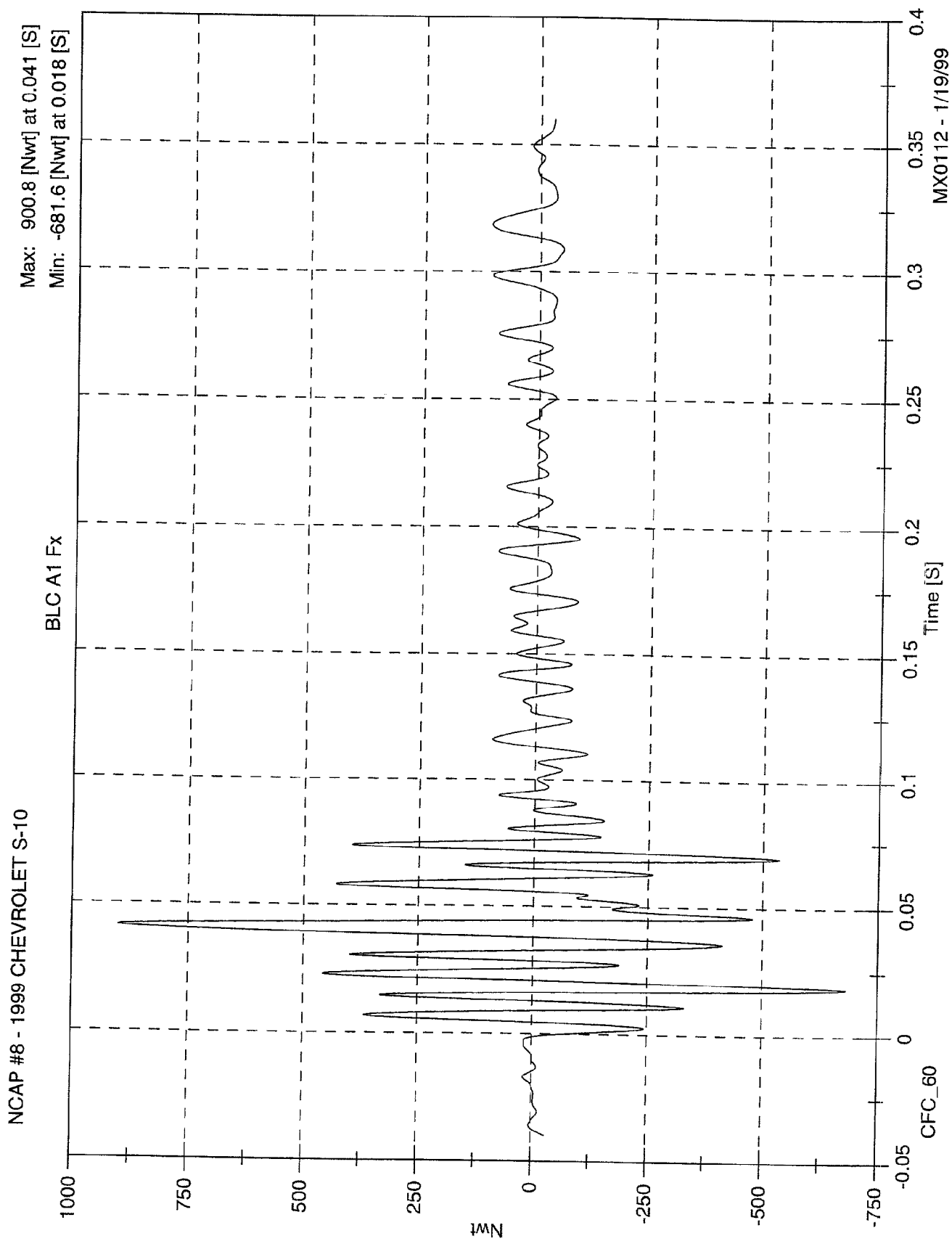
MX0112 - January 19, 1999

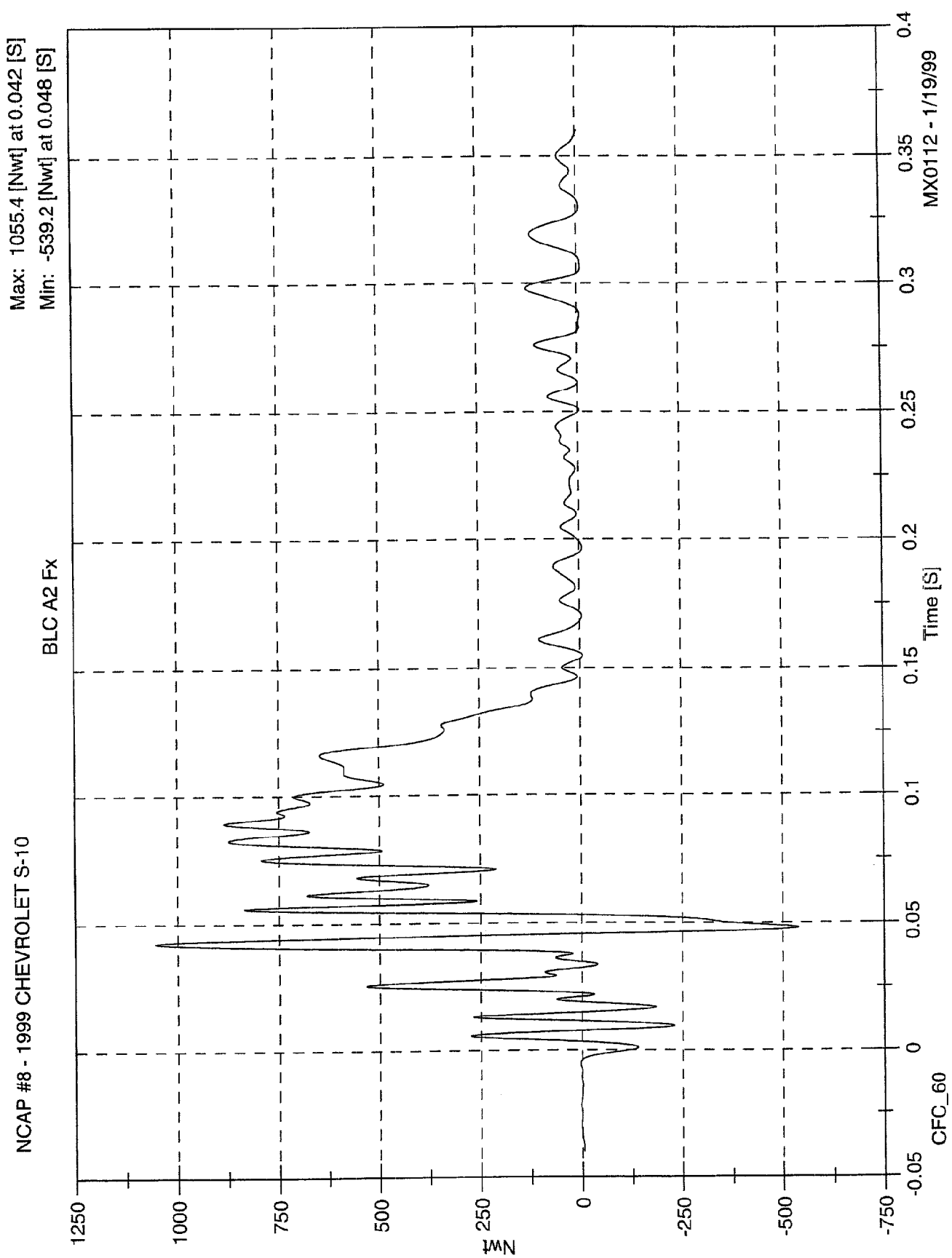
NHTSA TEST NO. MX0112

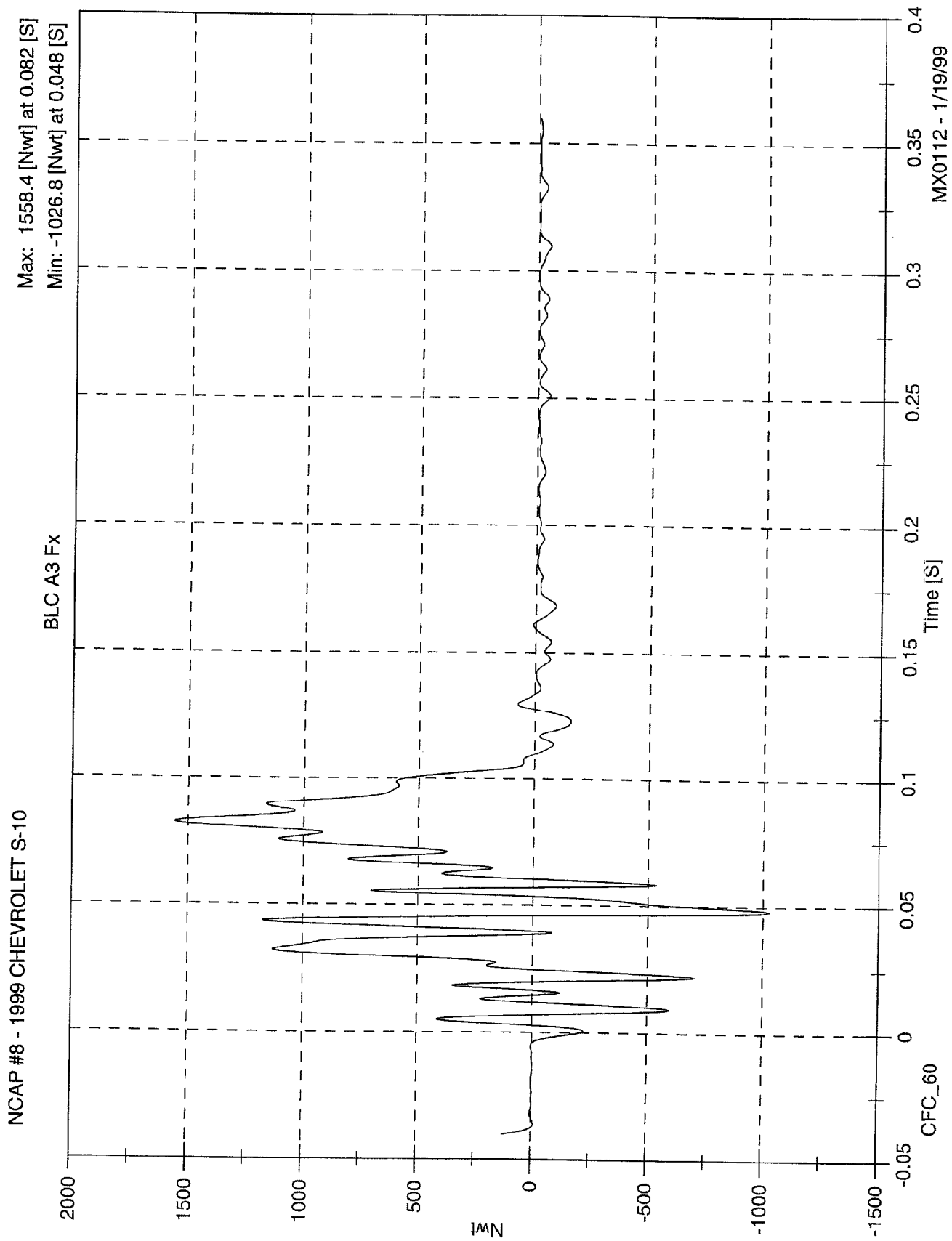
LOAD CELL BARRIER DATA

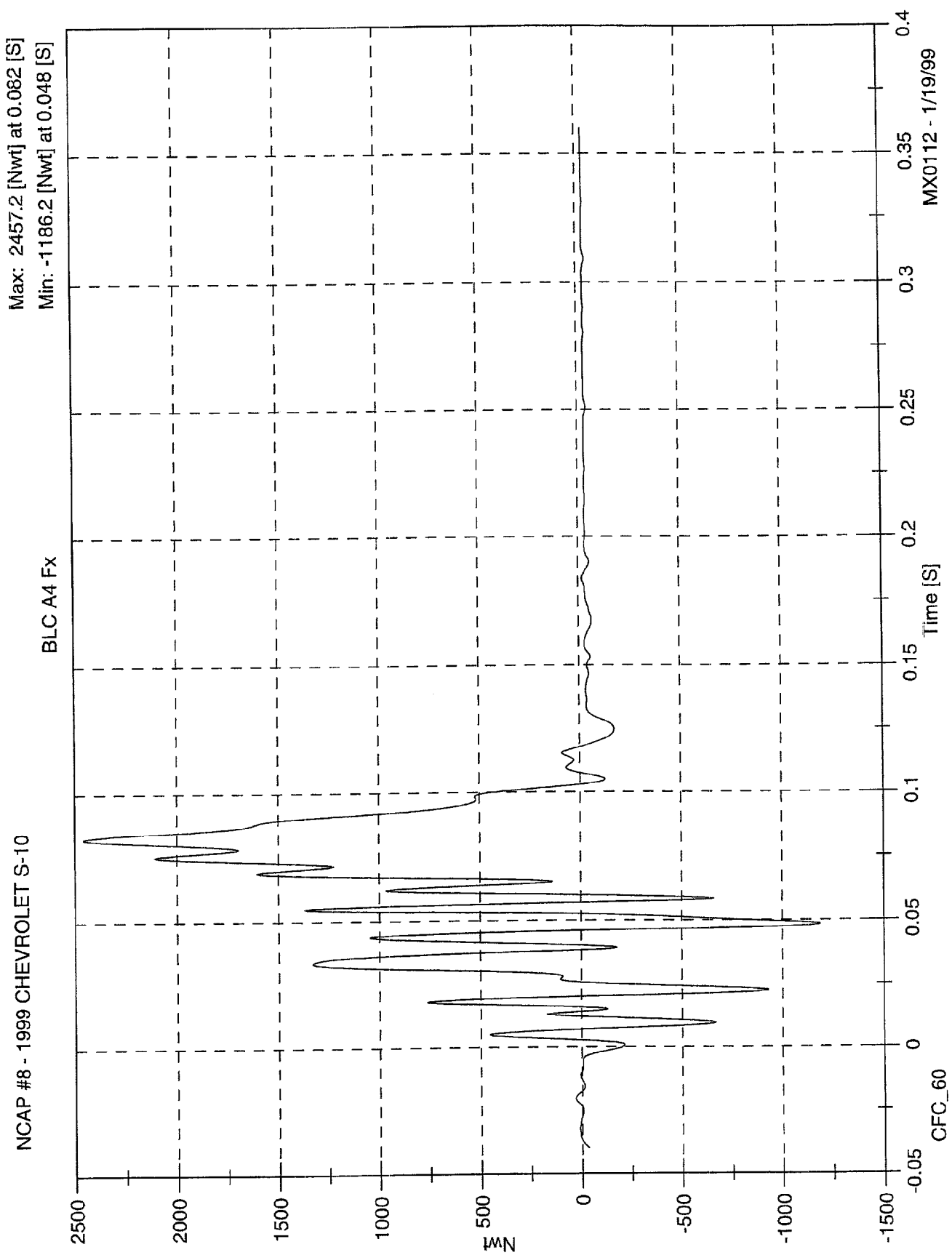
FILTER CHANNEL CLASS

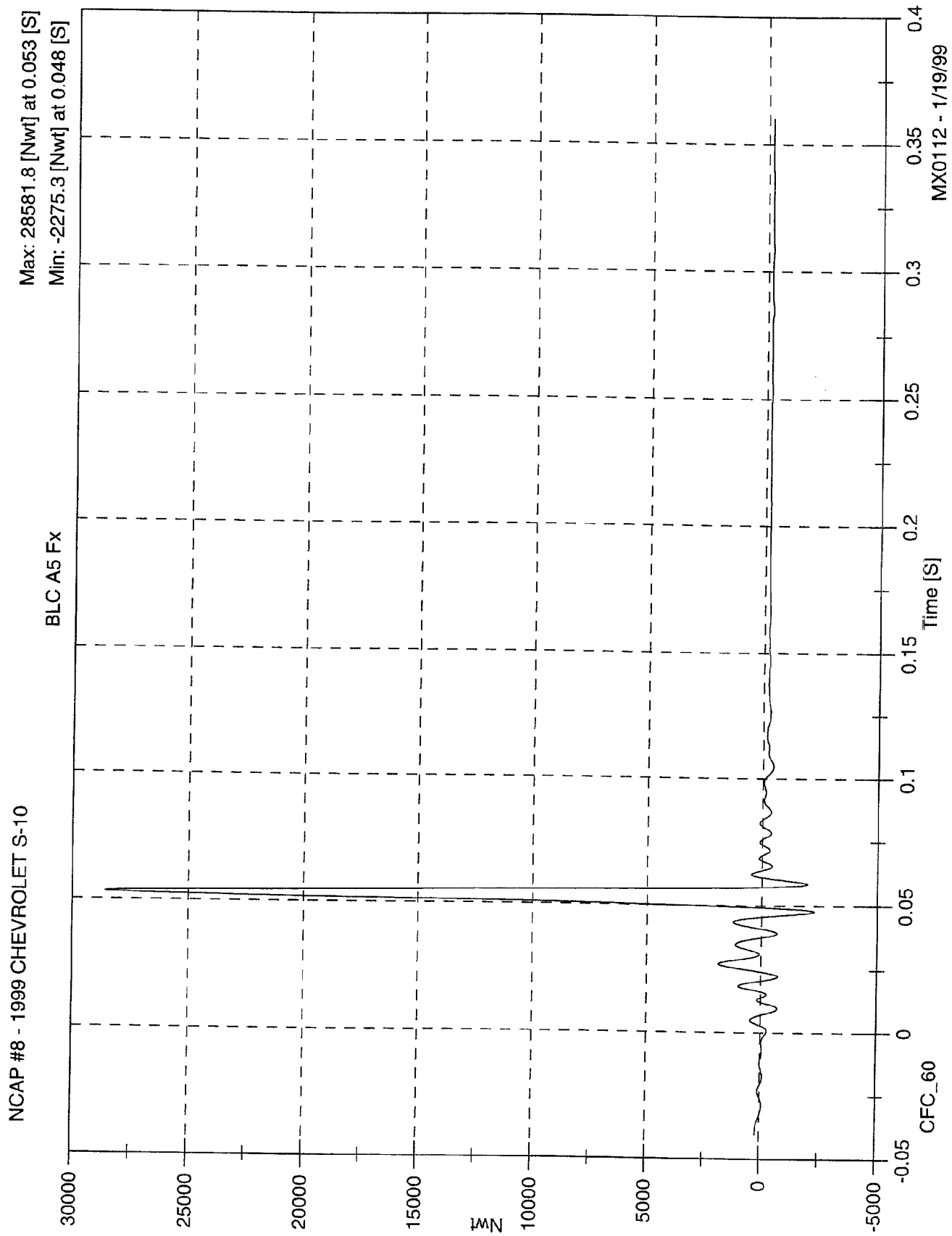
60







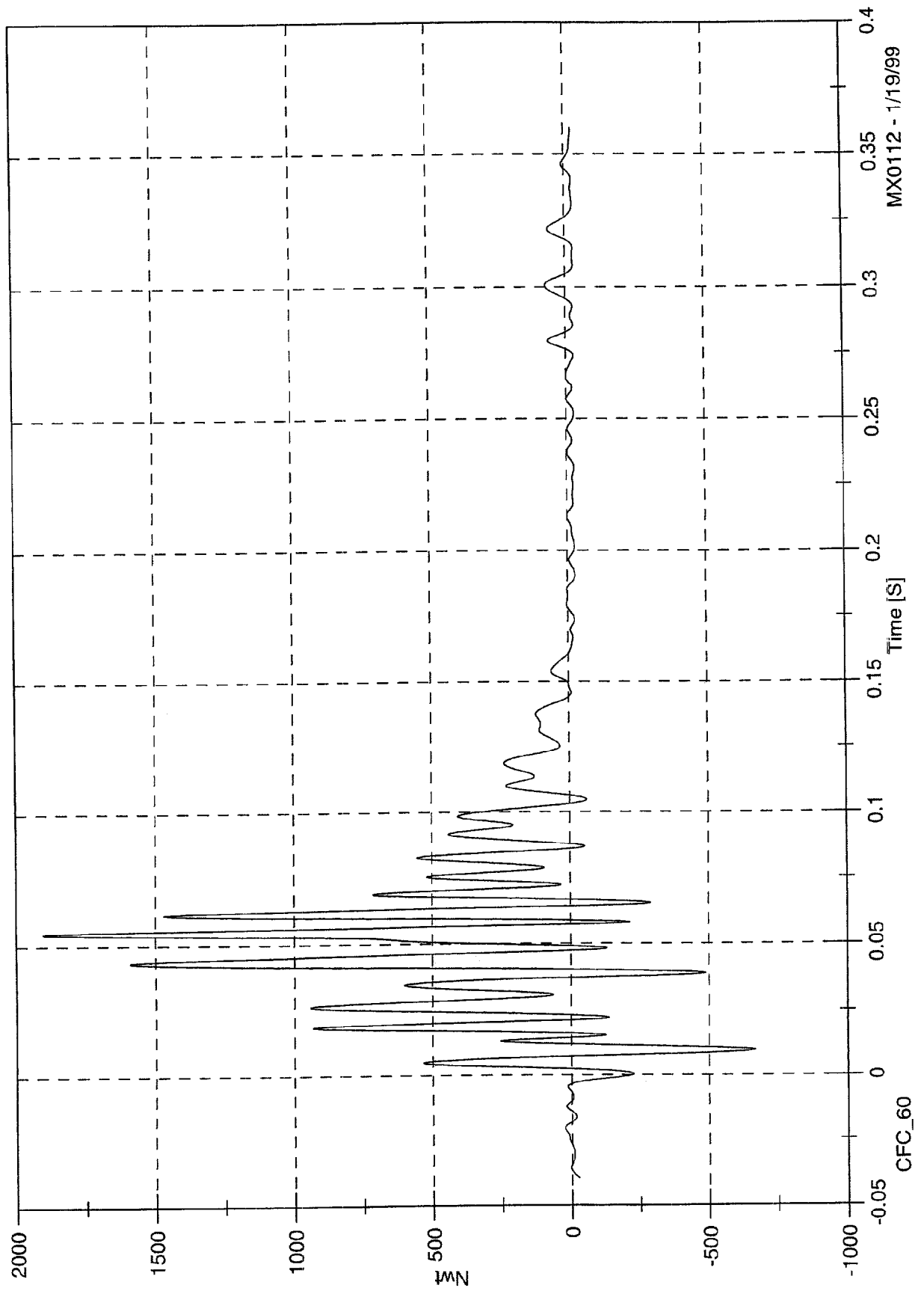




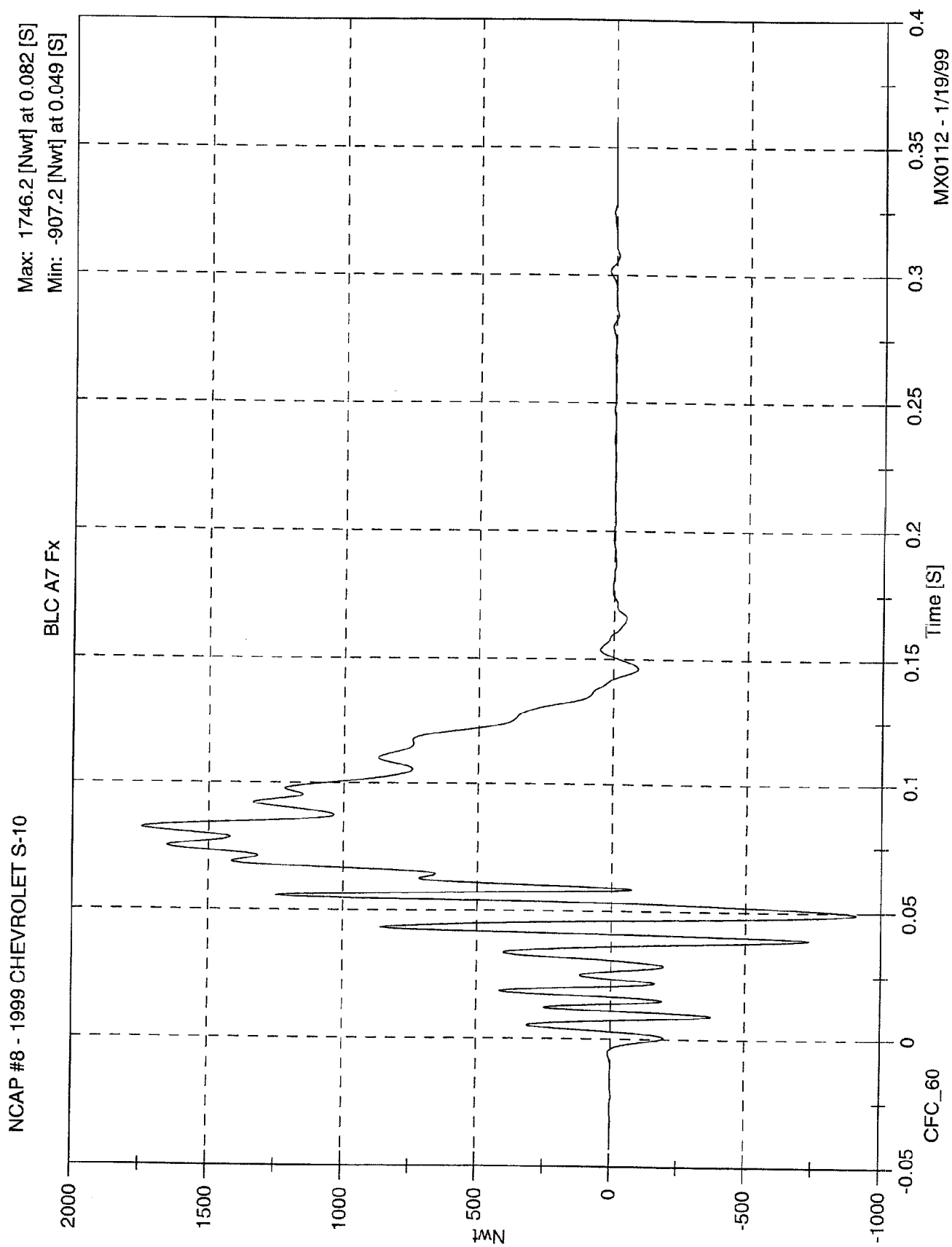
NCAP #8 - 1999 CHEVROLET S-10

Max: 1904.4 [Nwt] at 0.055 [S]
Min: -665.9 [Nwt] at 0.009 [S]

BLC A6 Fx



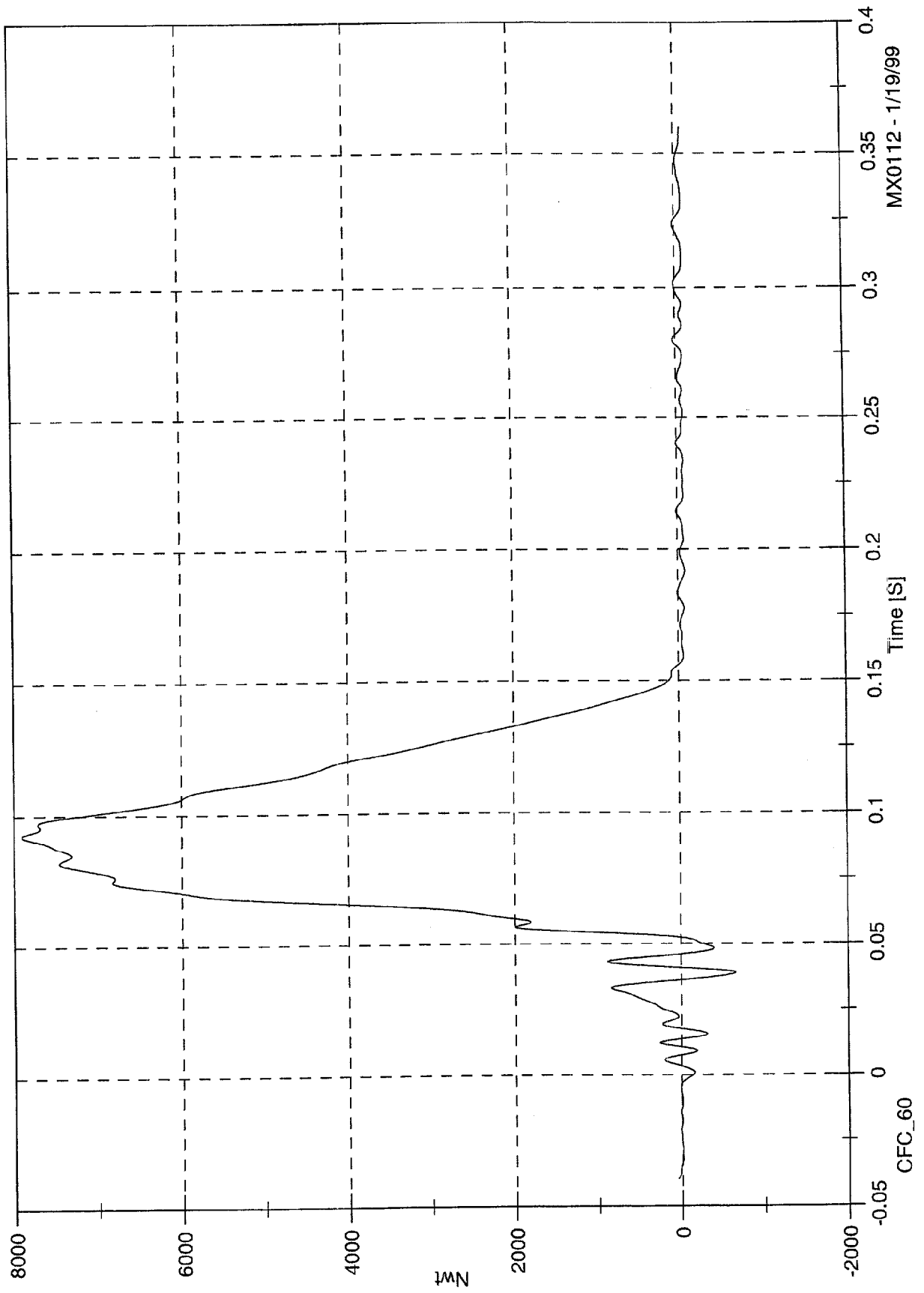
MX0112 - 1/19/99



NCAP #8 - 1999 CHEVROLET S-10

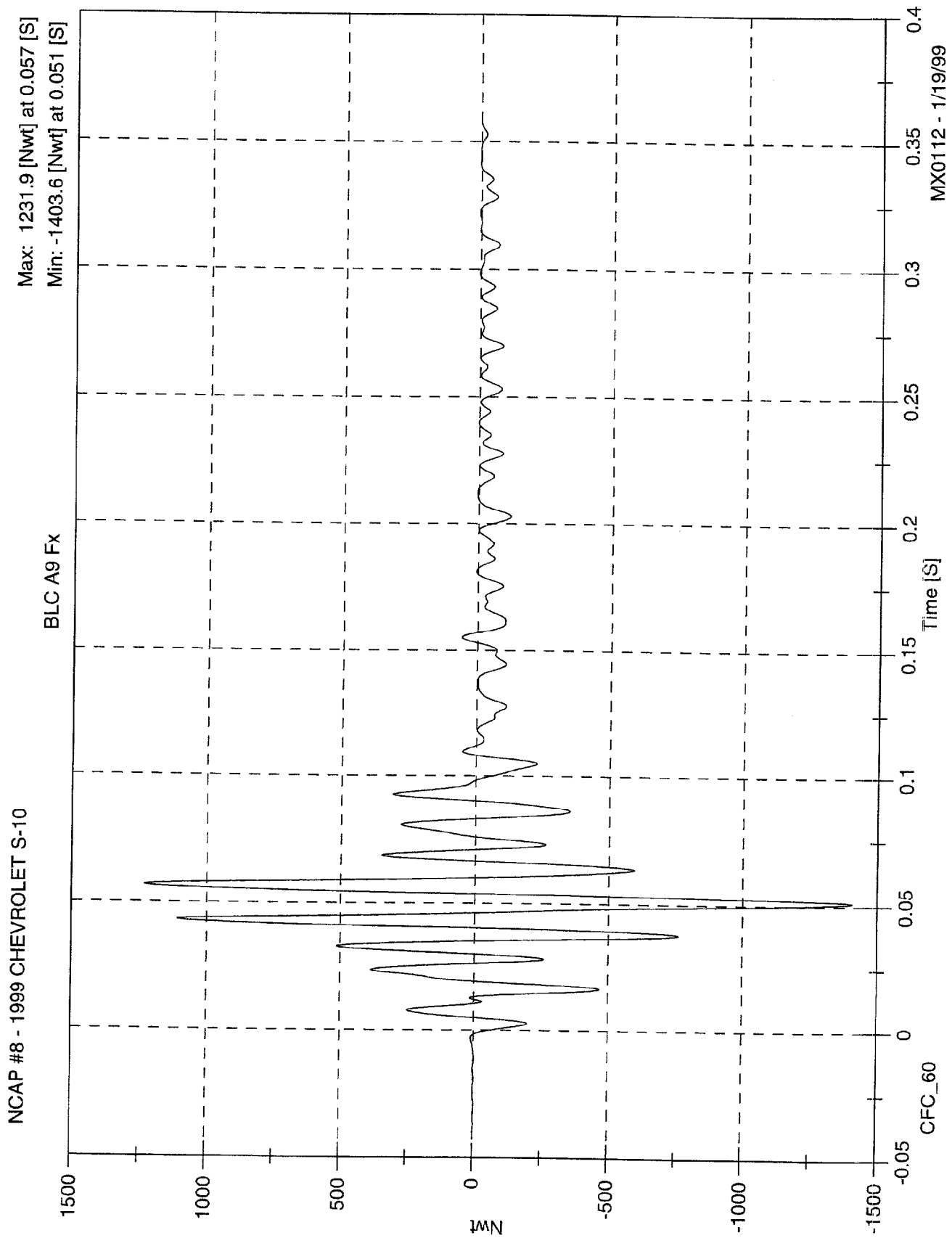
Max: 7909.3 [Nwt] at 0.092 [S]
Min: -652.2 [Nwt] at 0.039 [S]

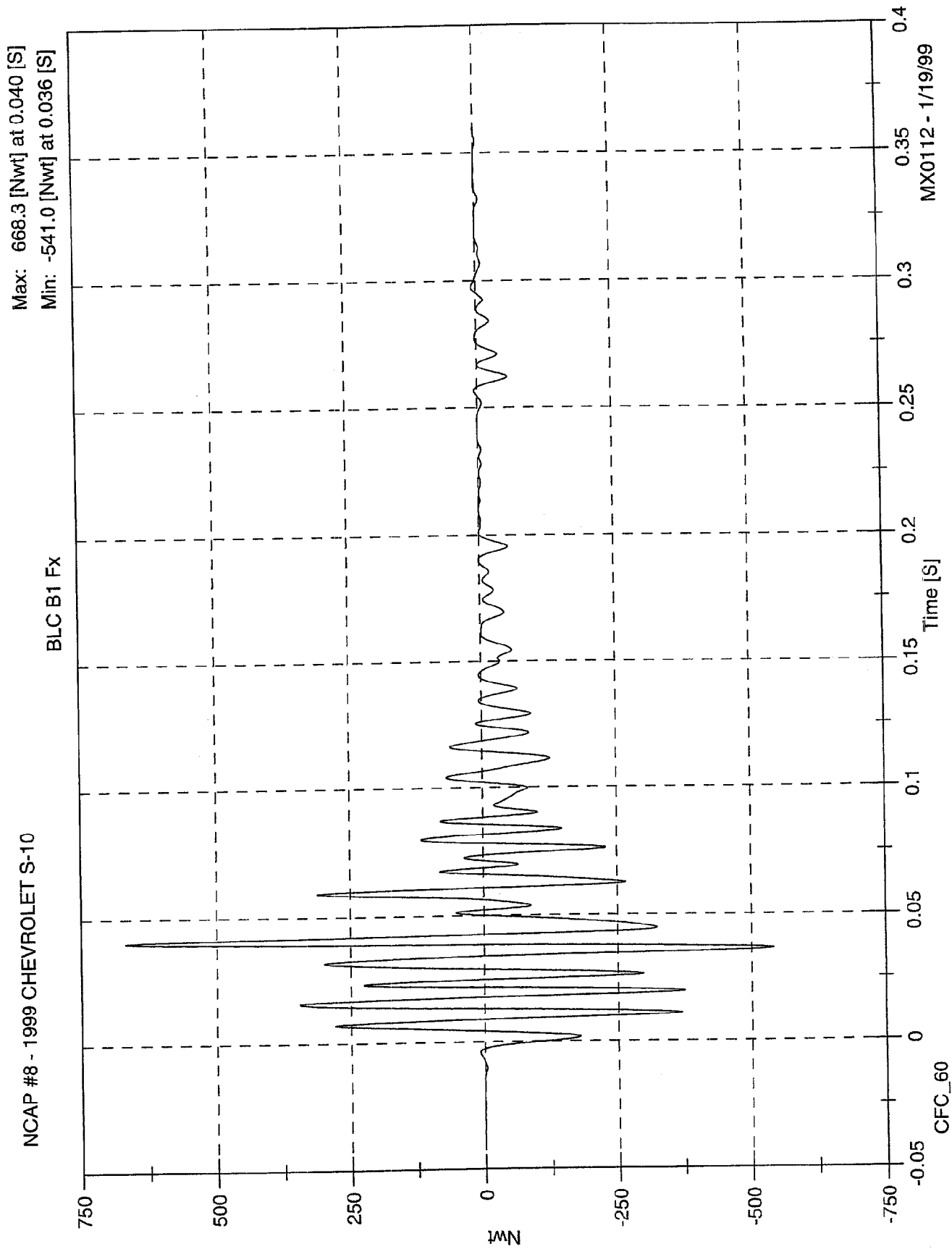
BLC A8 Fx

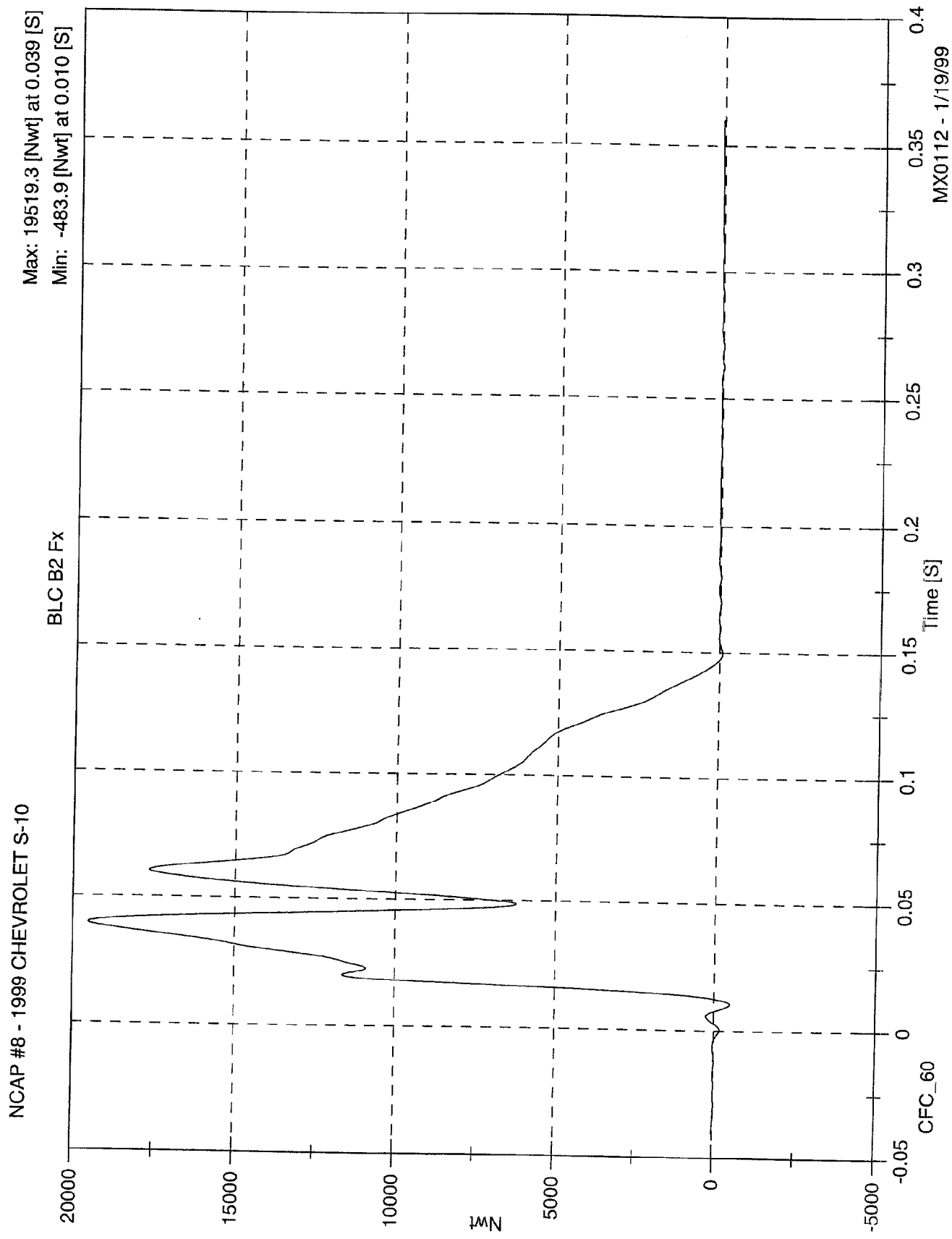


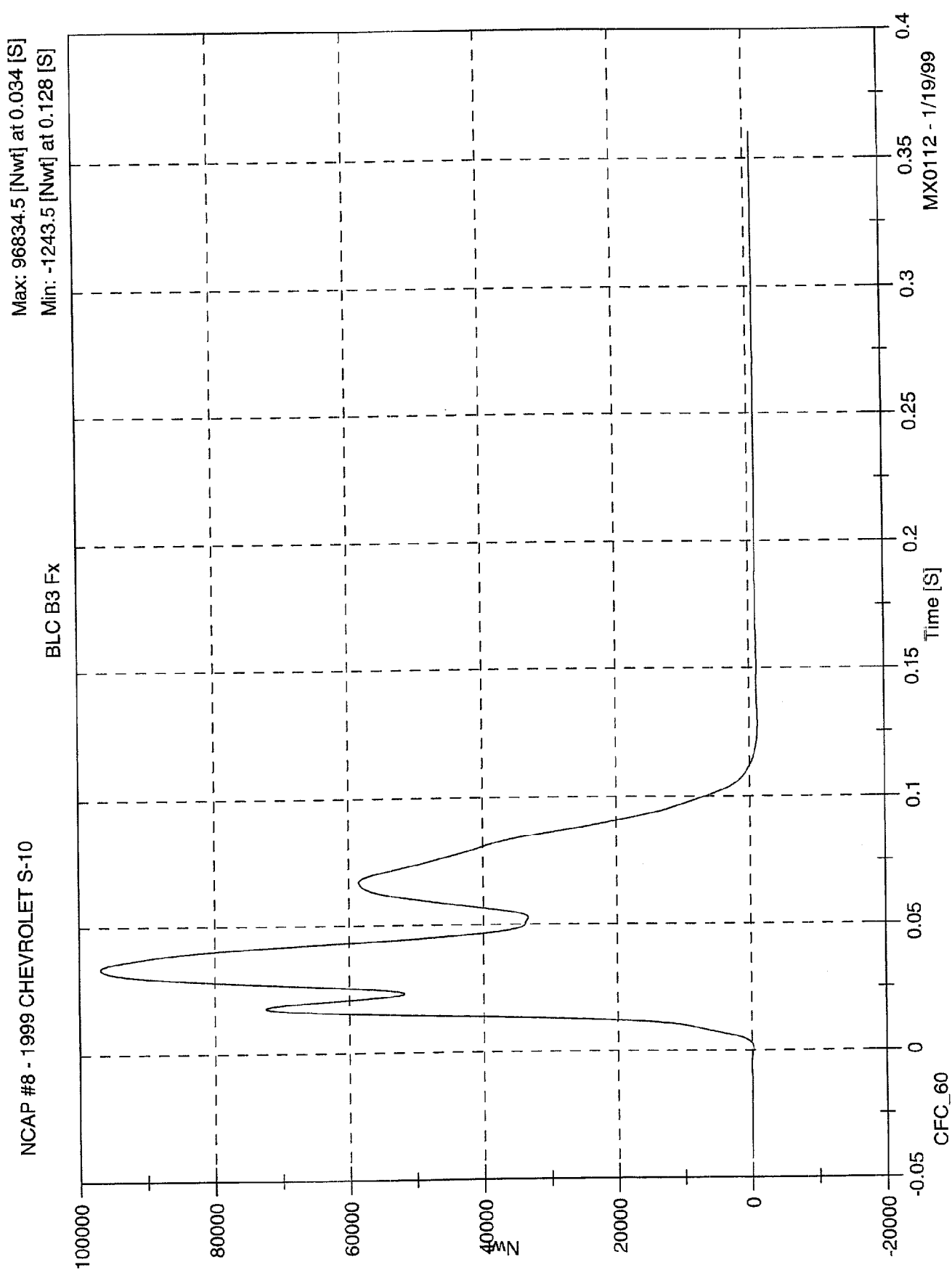
CFC_60

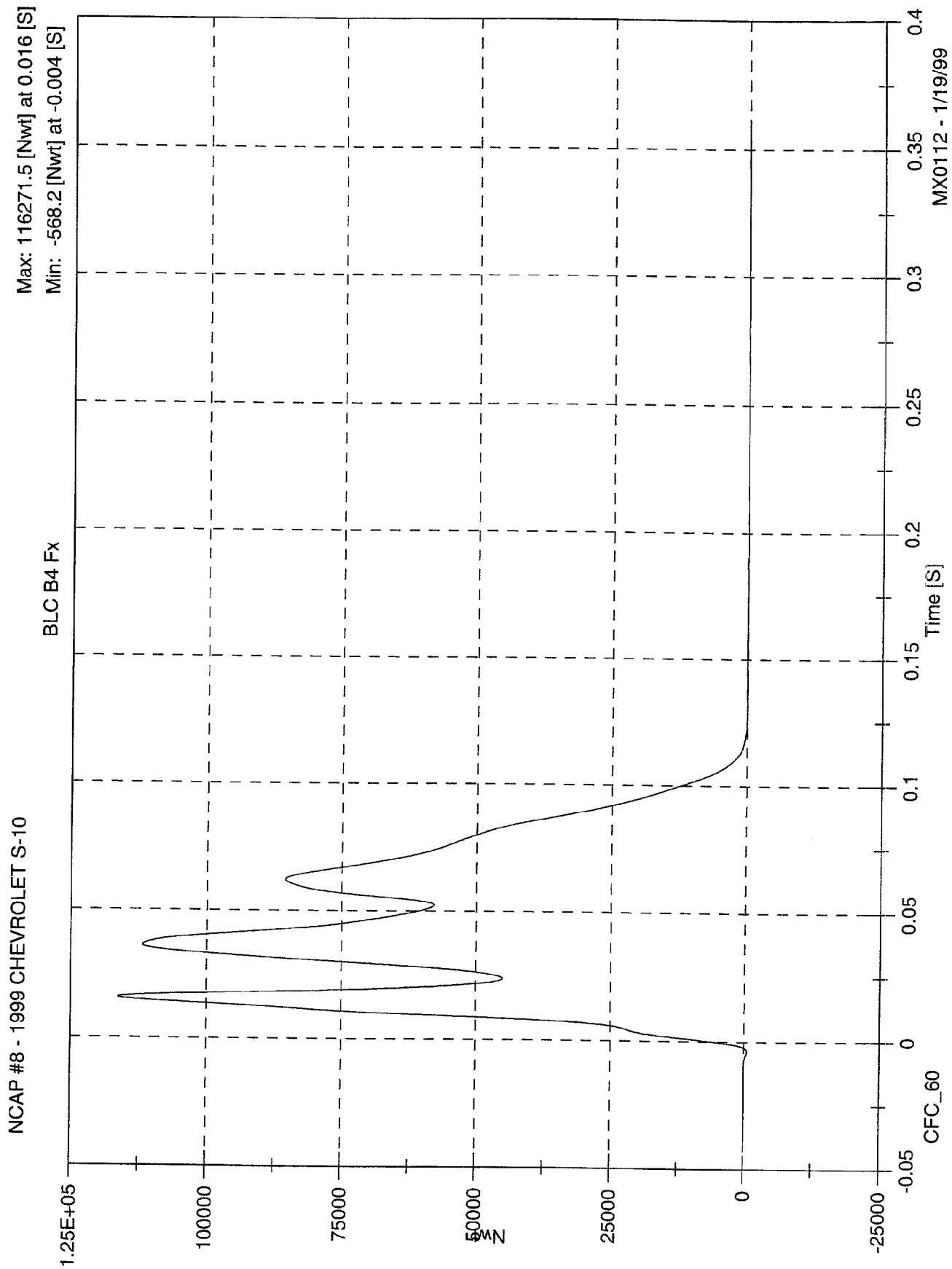
MX0112 - 1/19/99

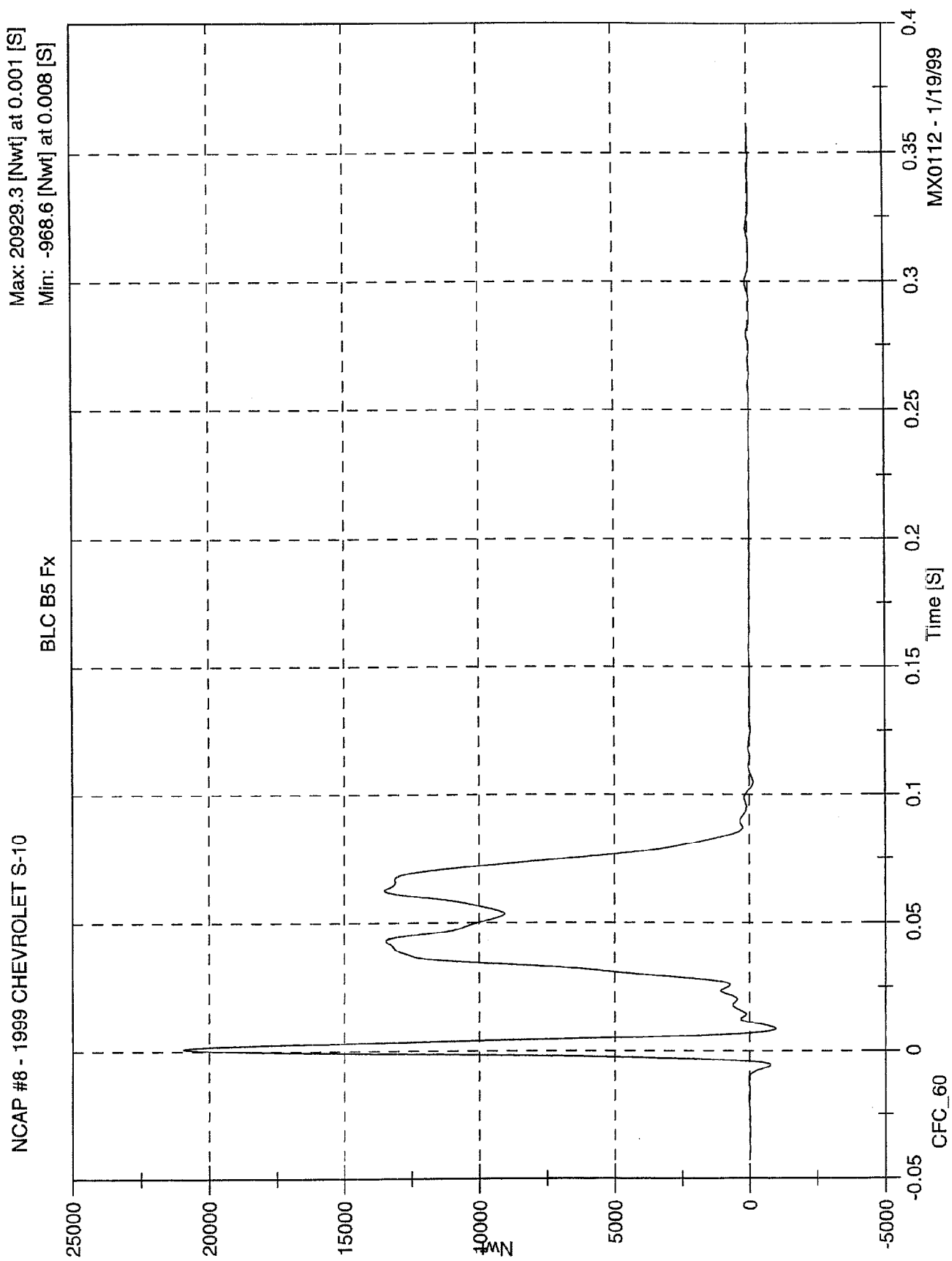


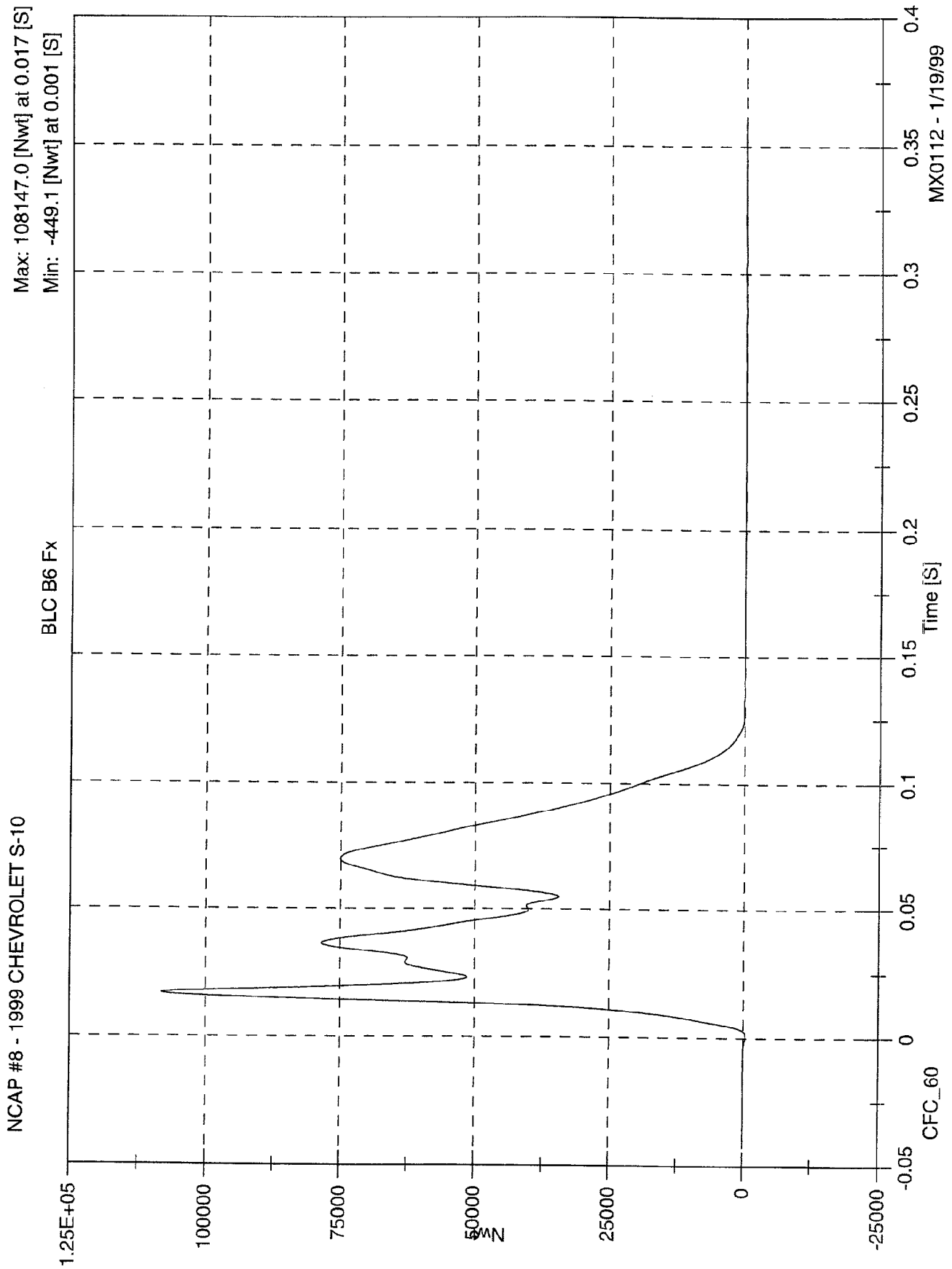


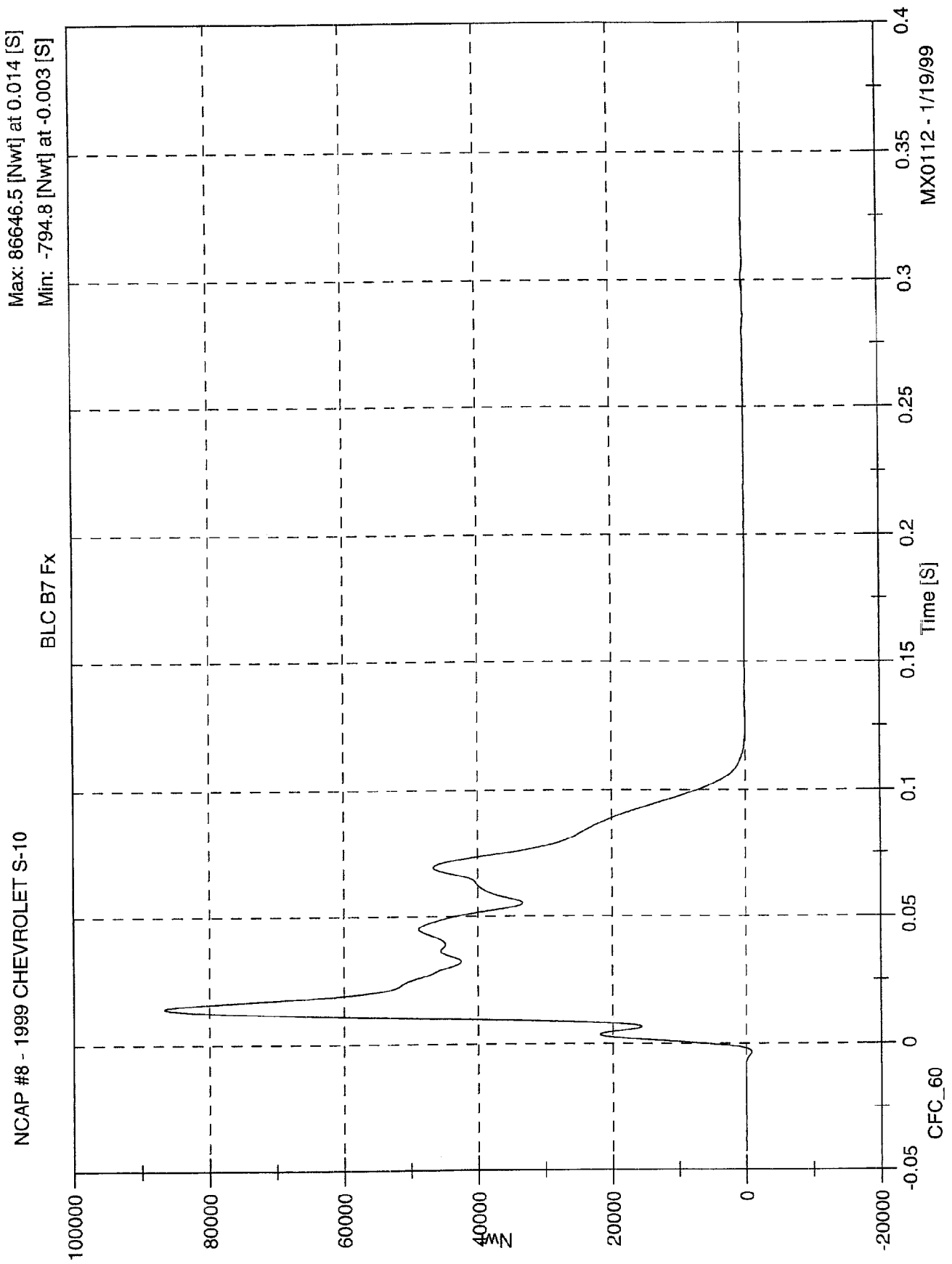


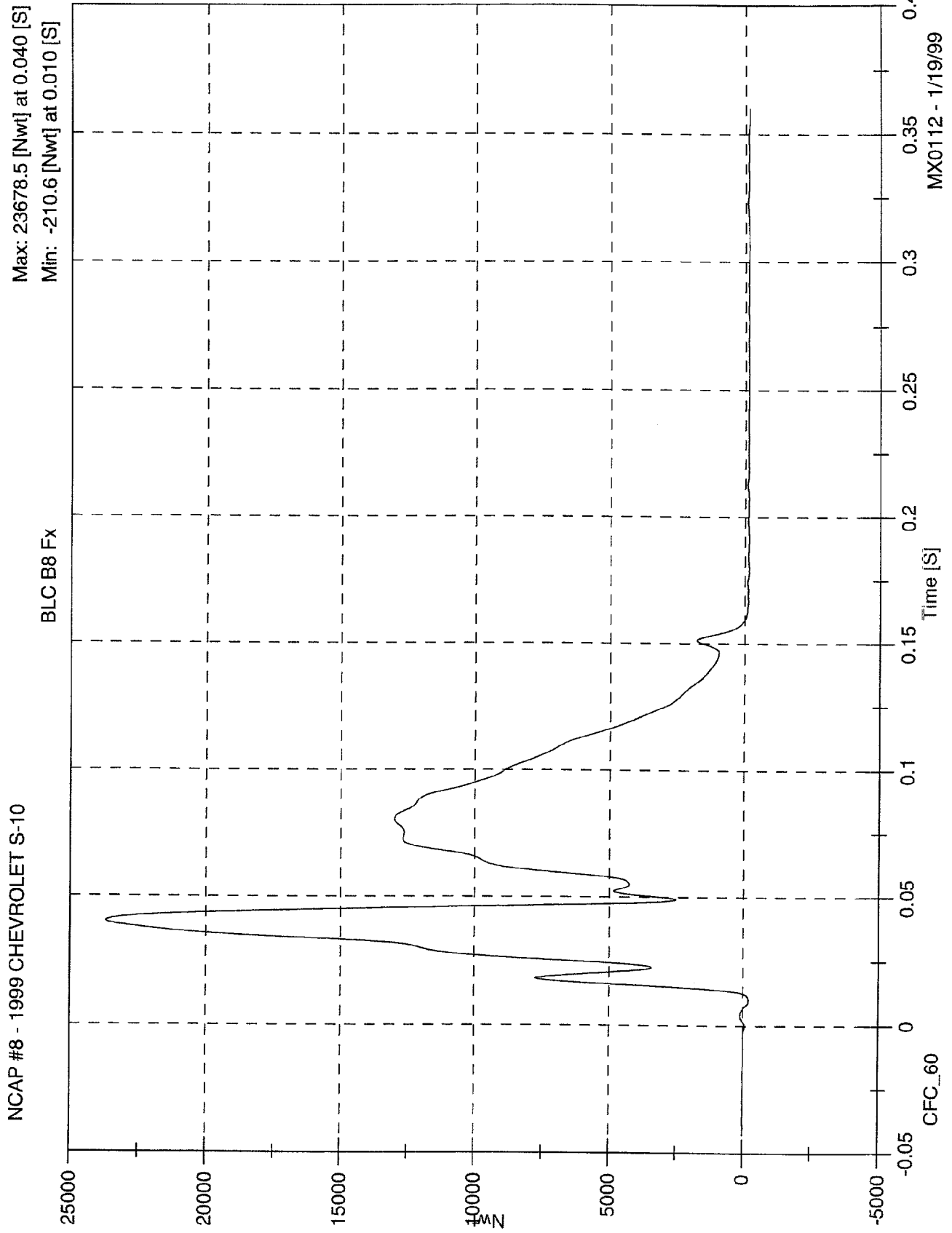


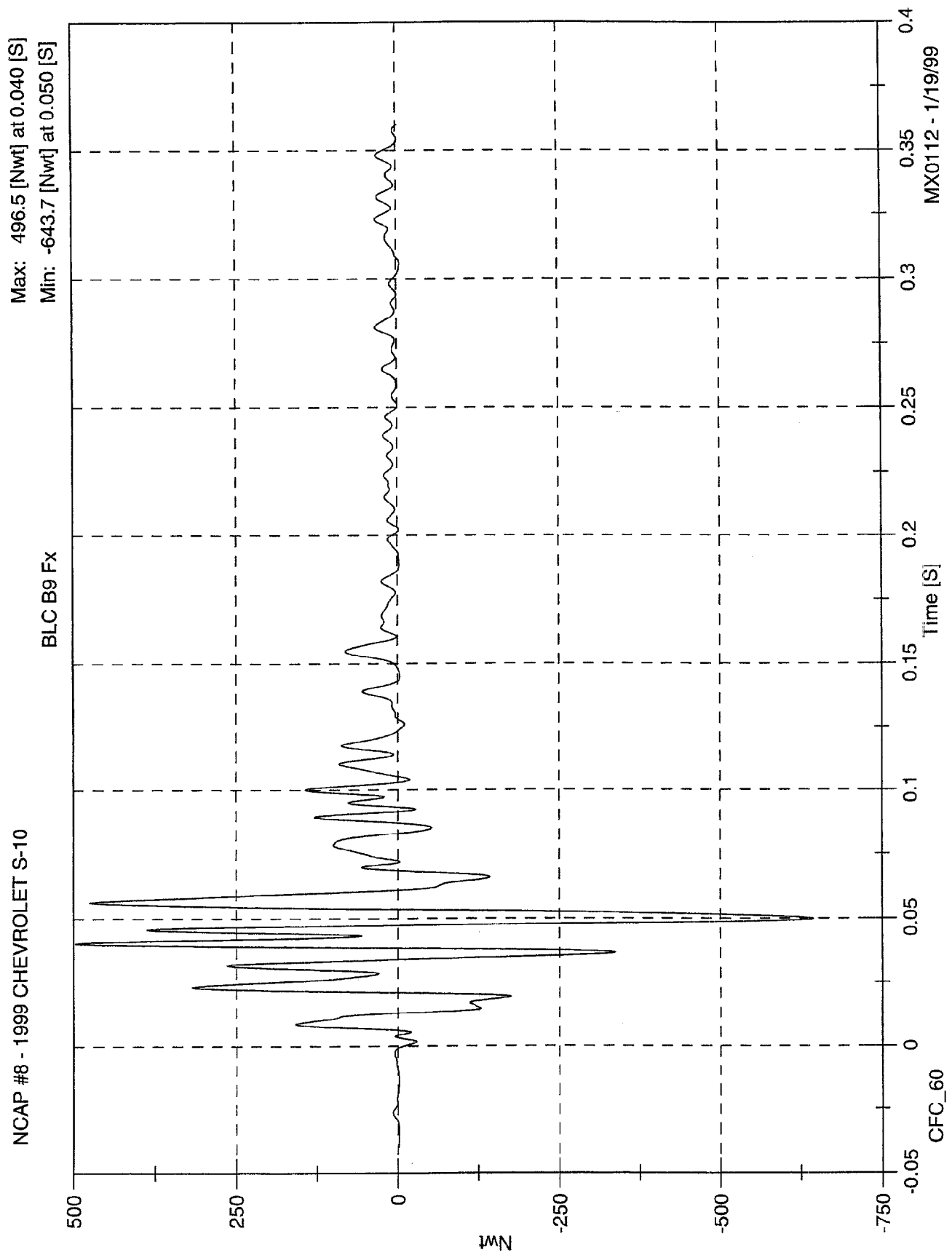


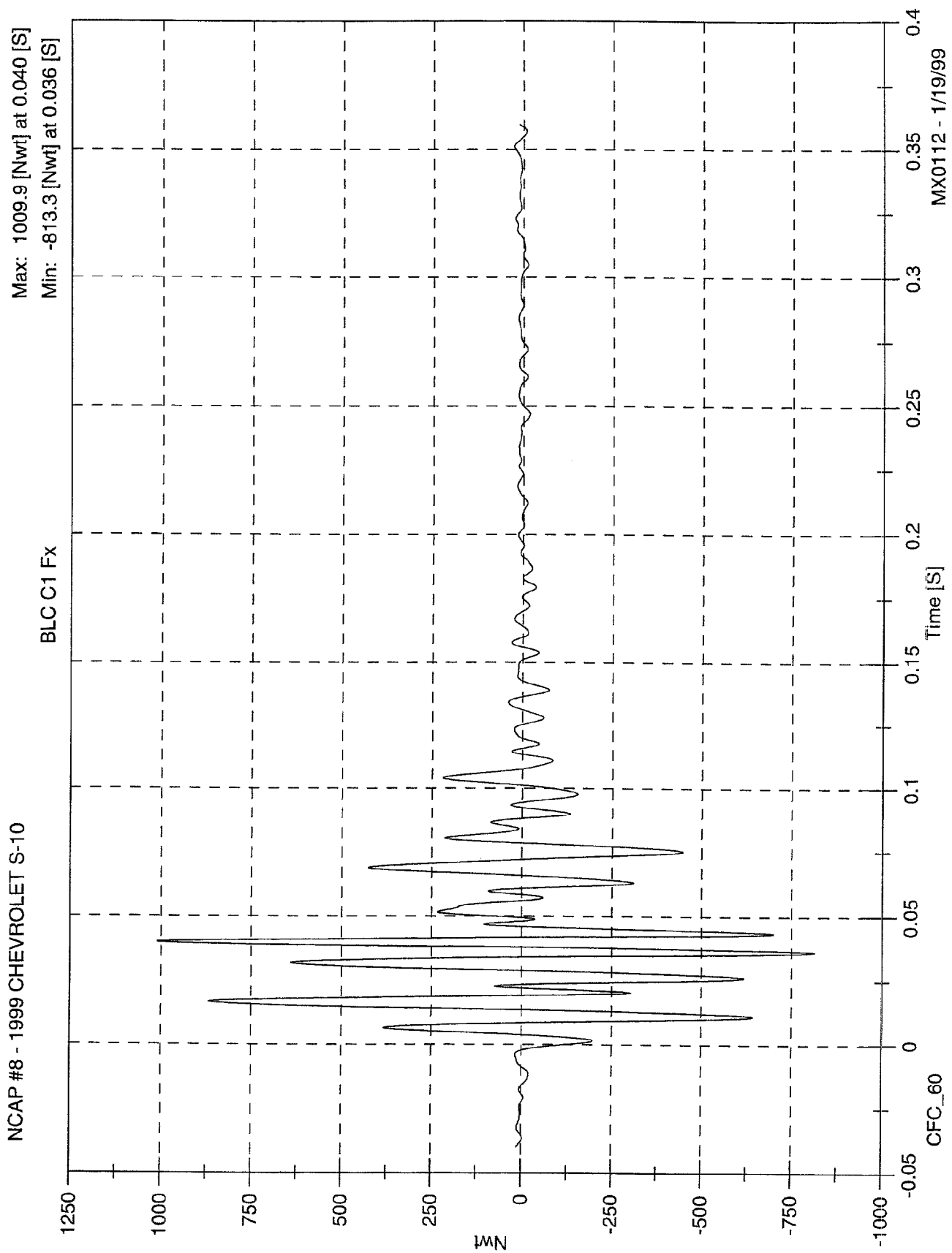


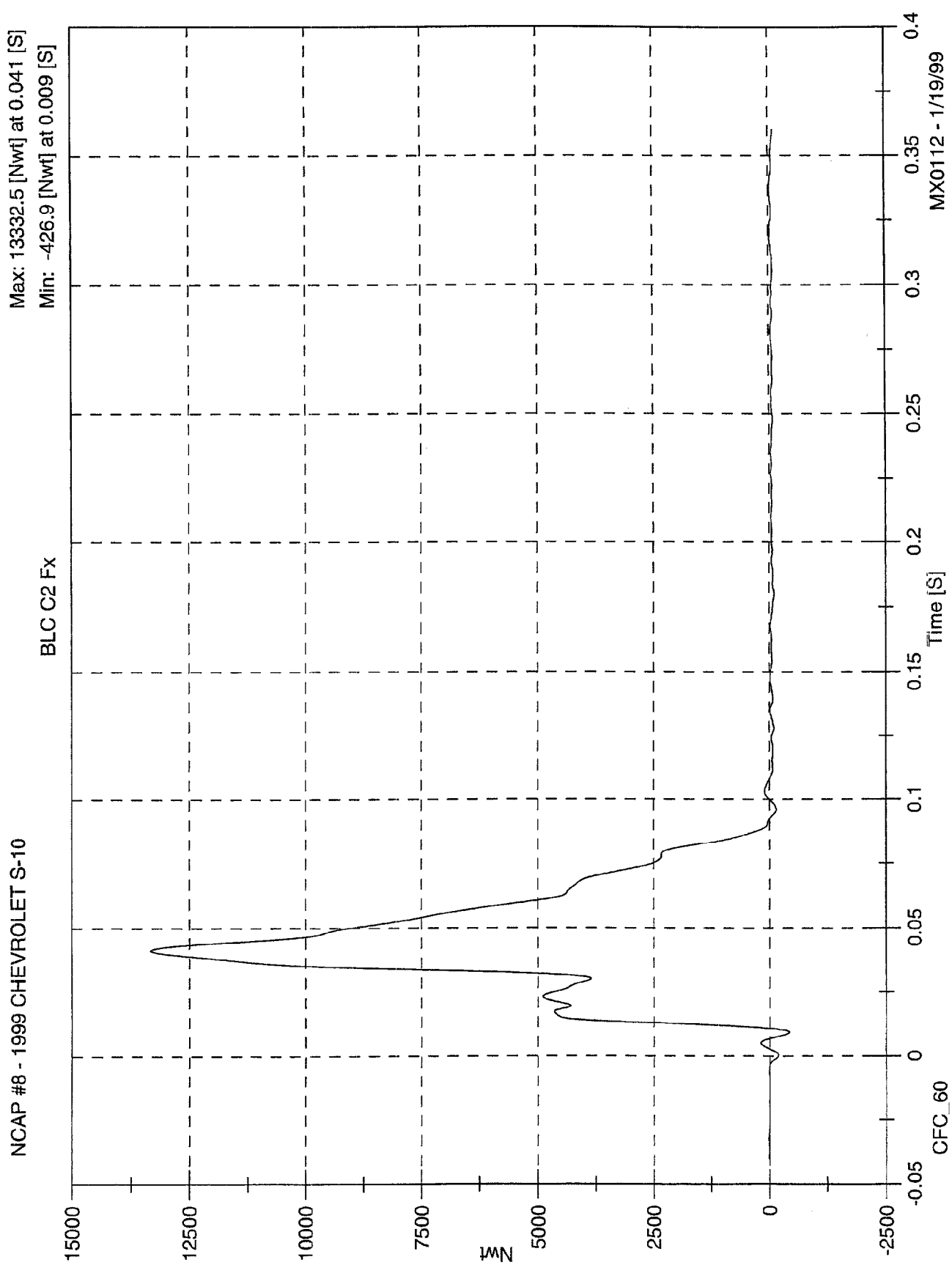


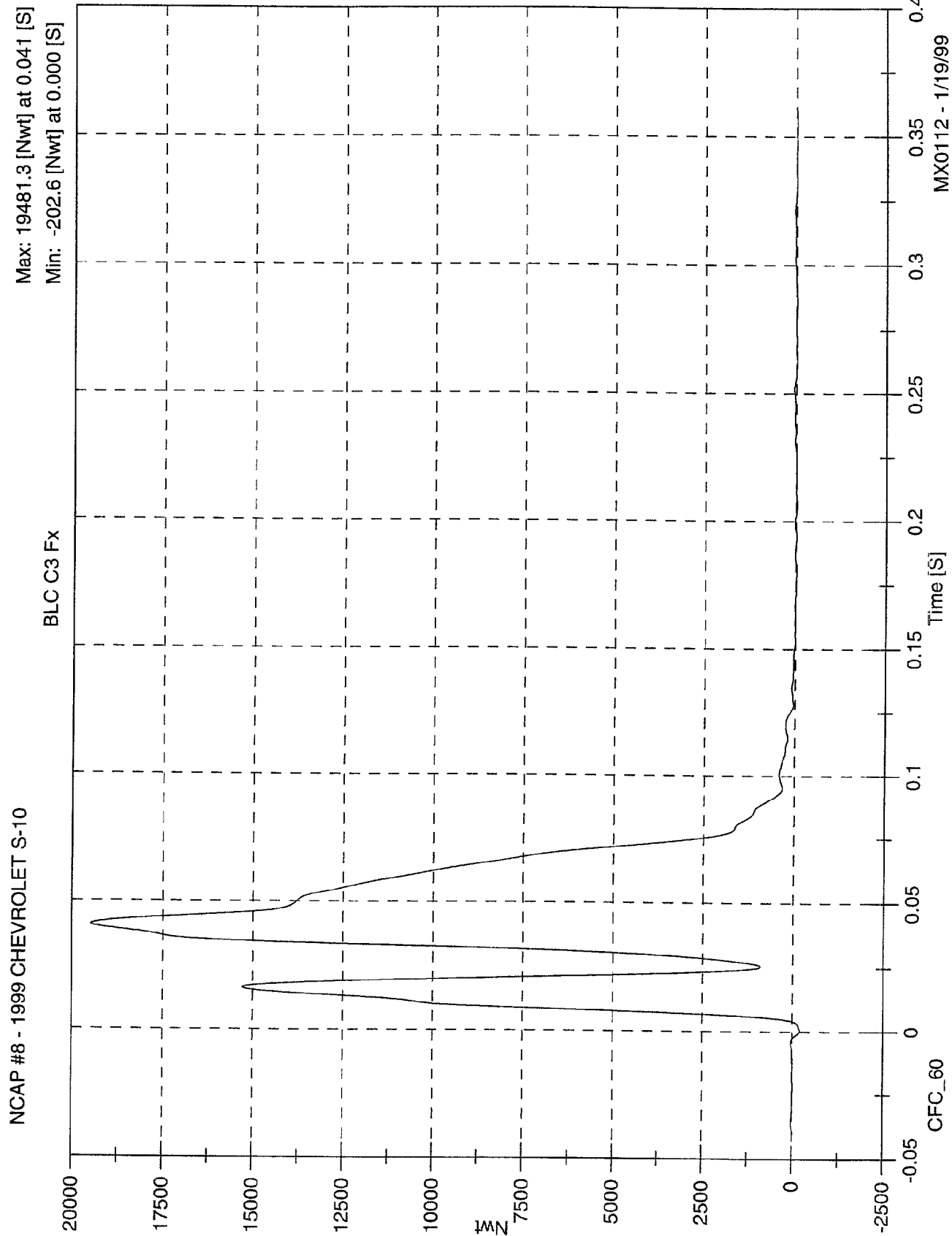


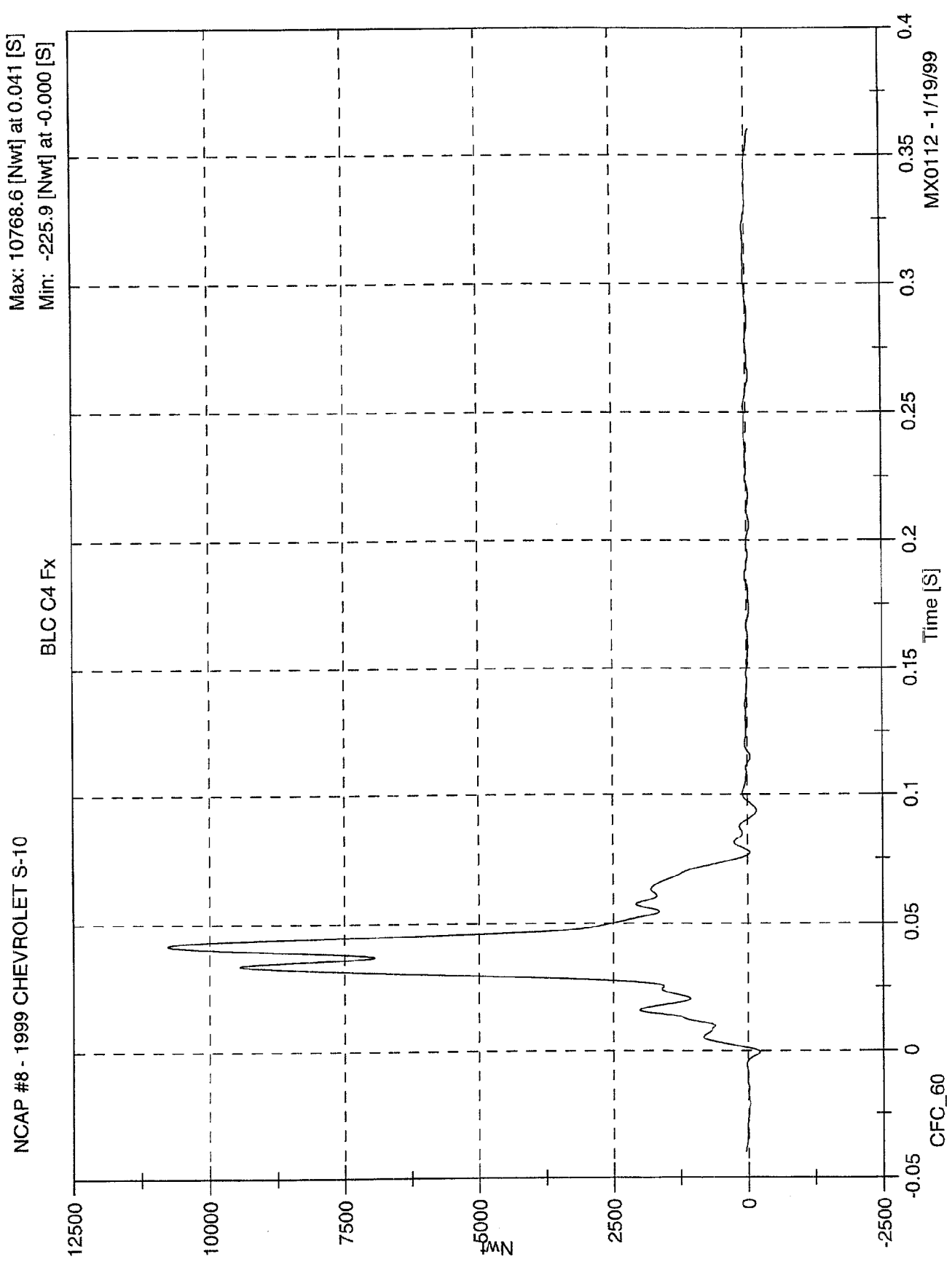


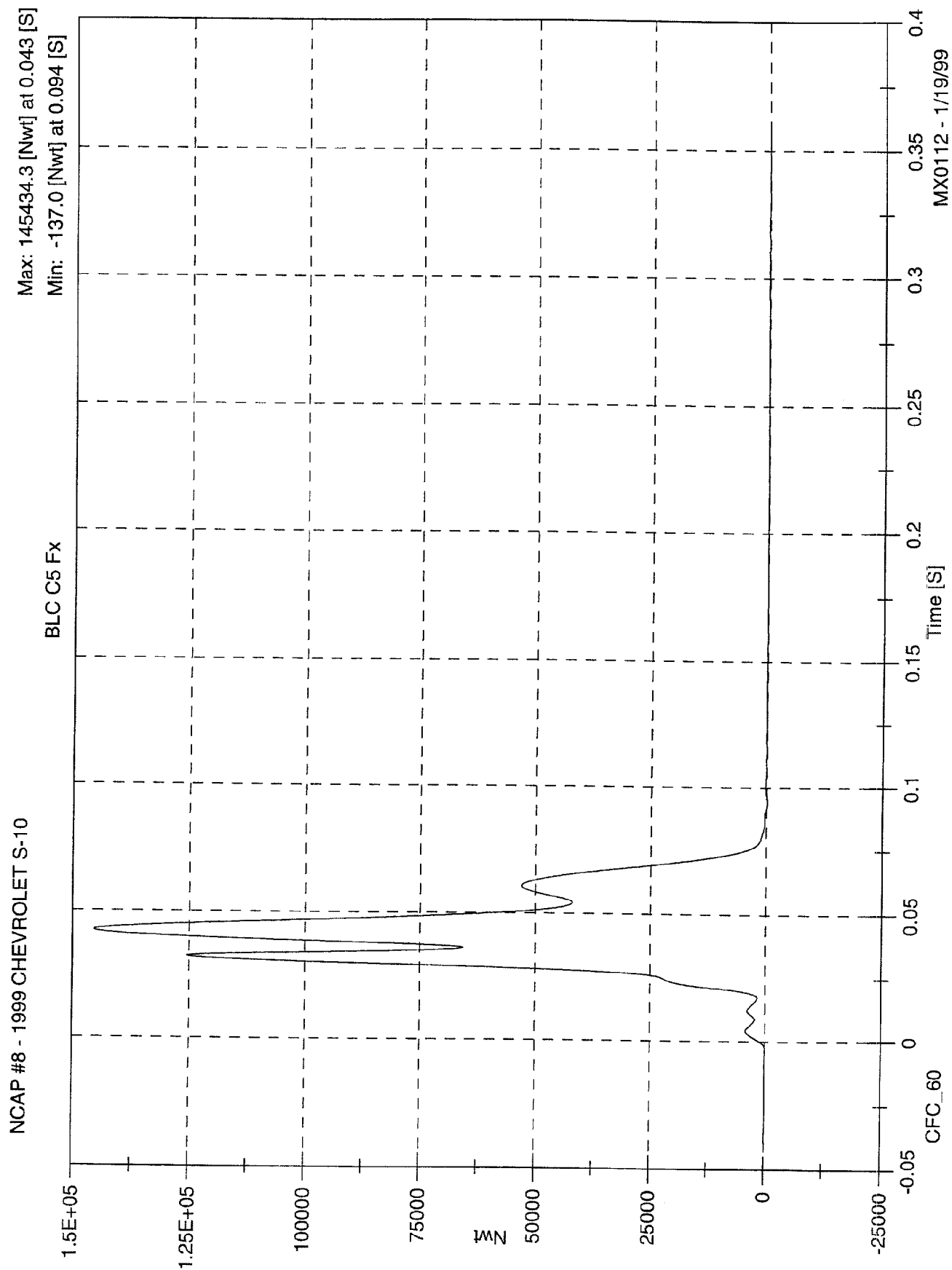


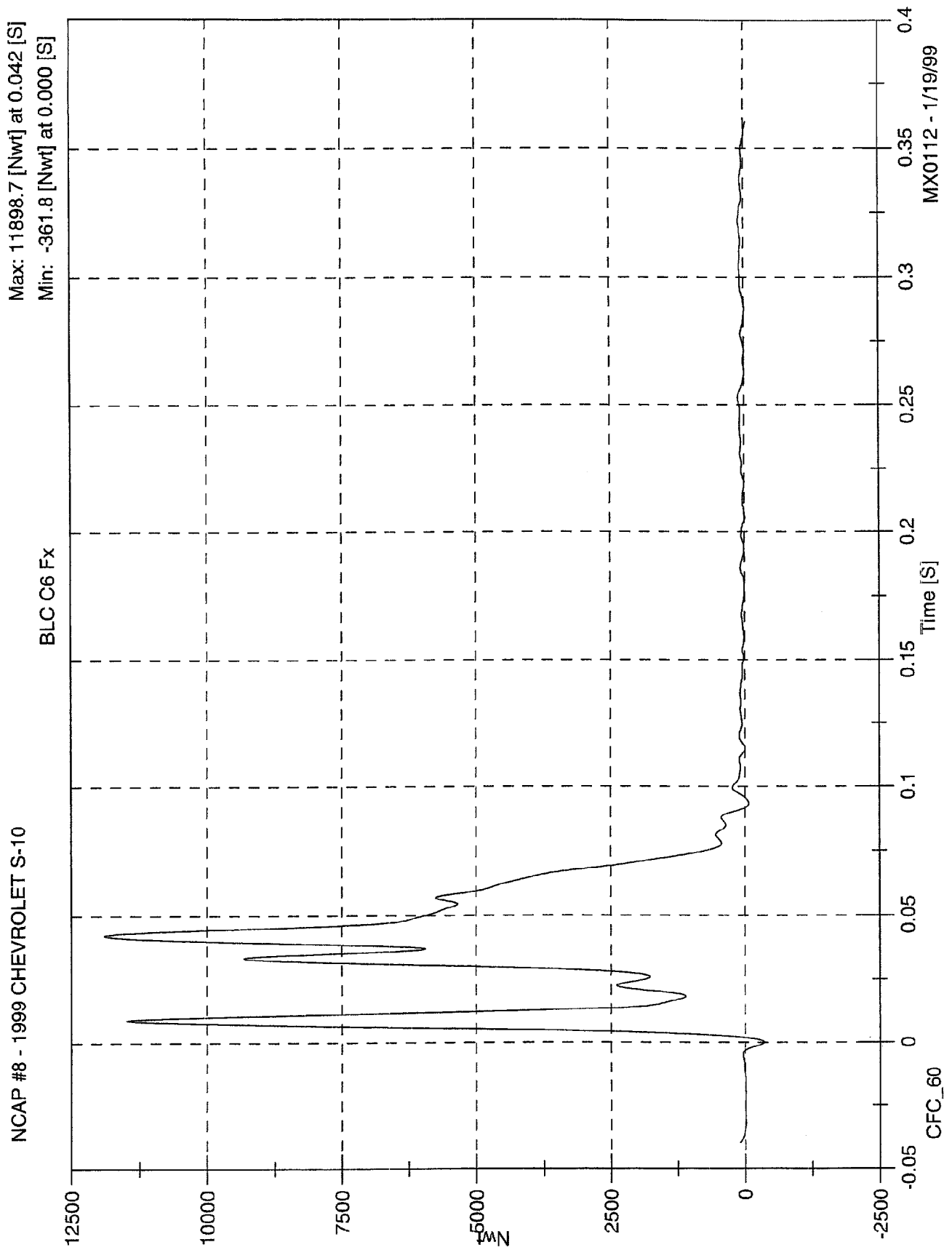


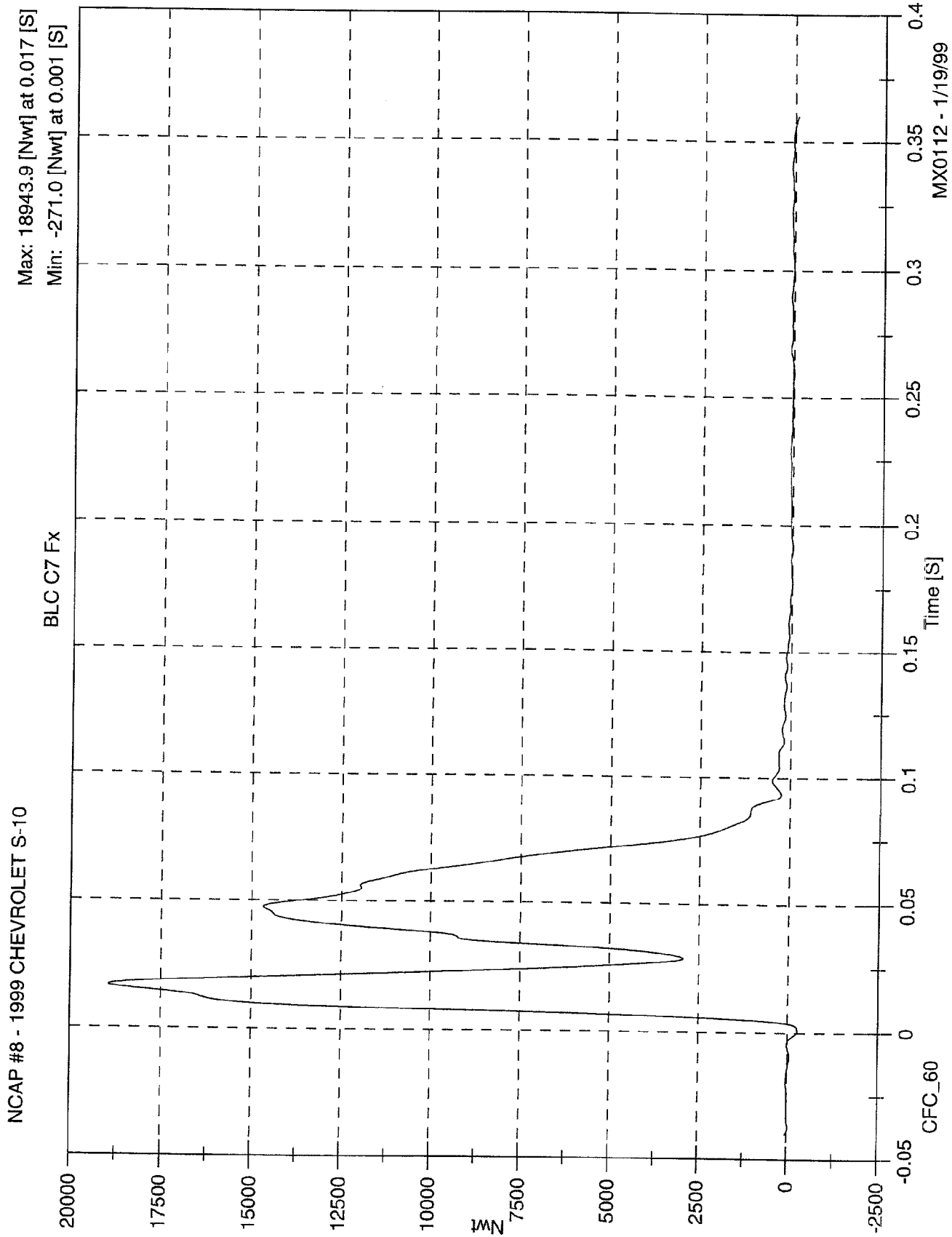








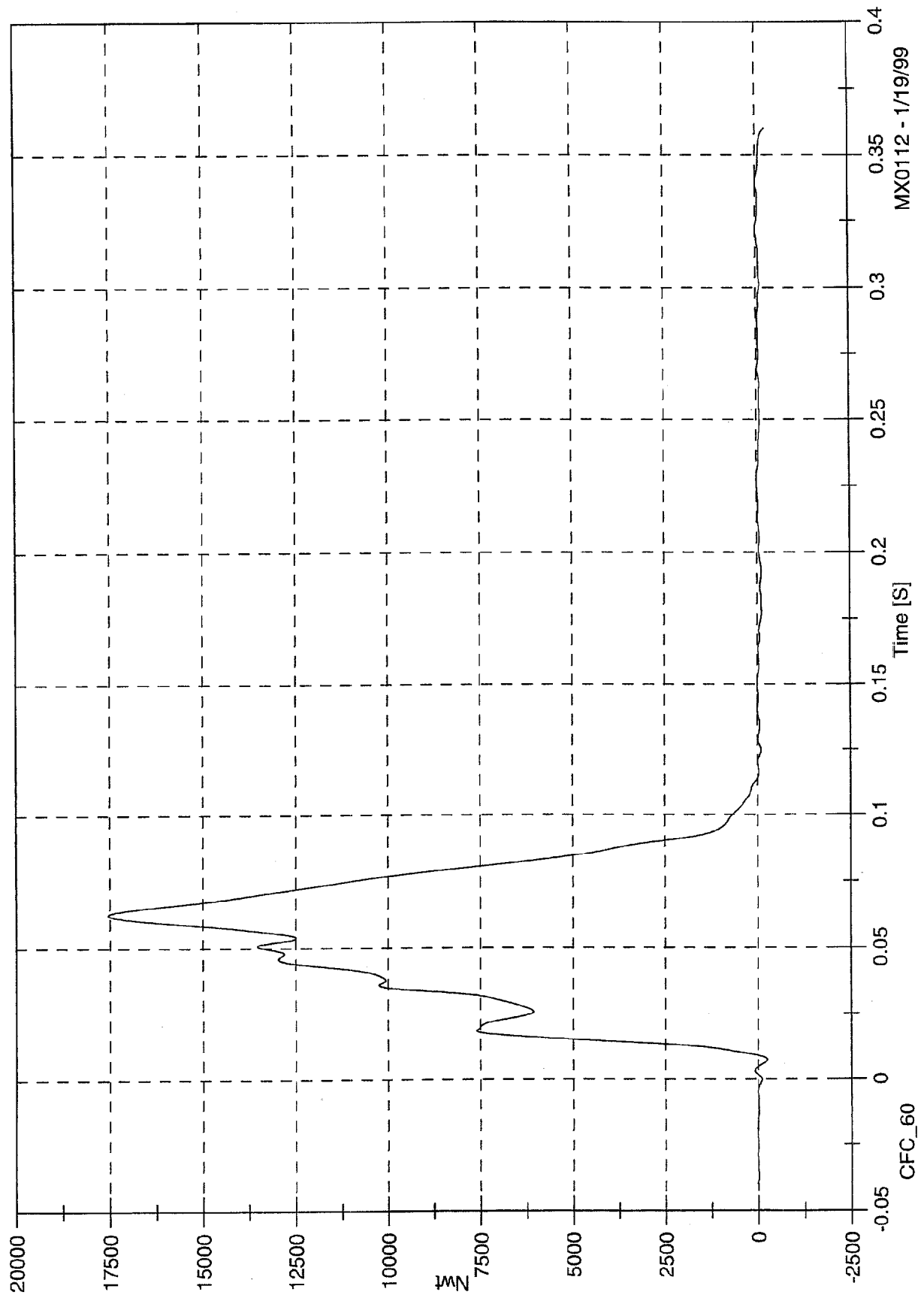




NCAP #8 - 1999 CHEVROLET S-10

BLC C8 Fx

Max: 17542.1 [Nwt] at 0.063 [S]
Min: -253.8 [Nwt] at 0.360 [S]

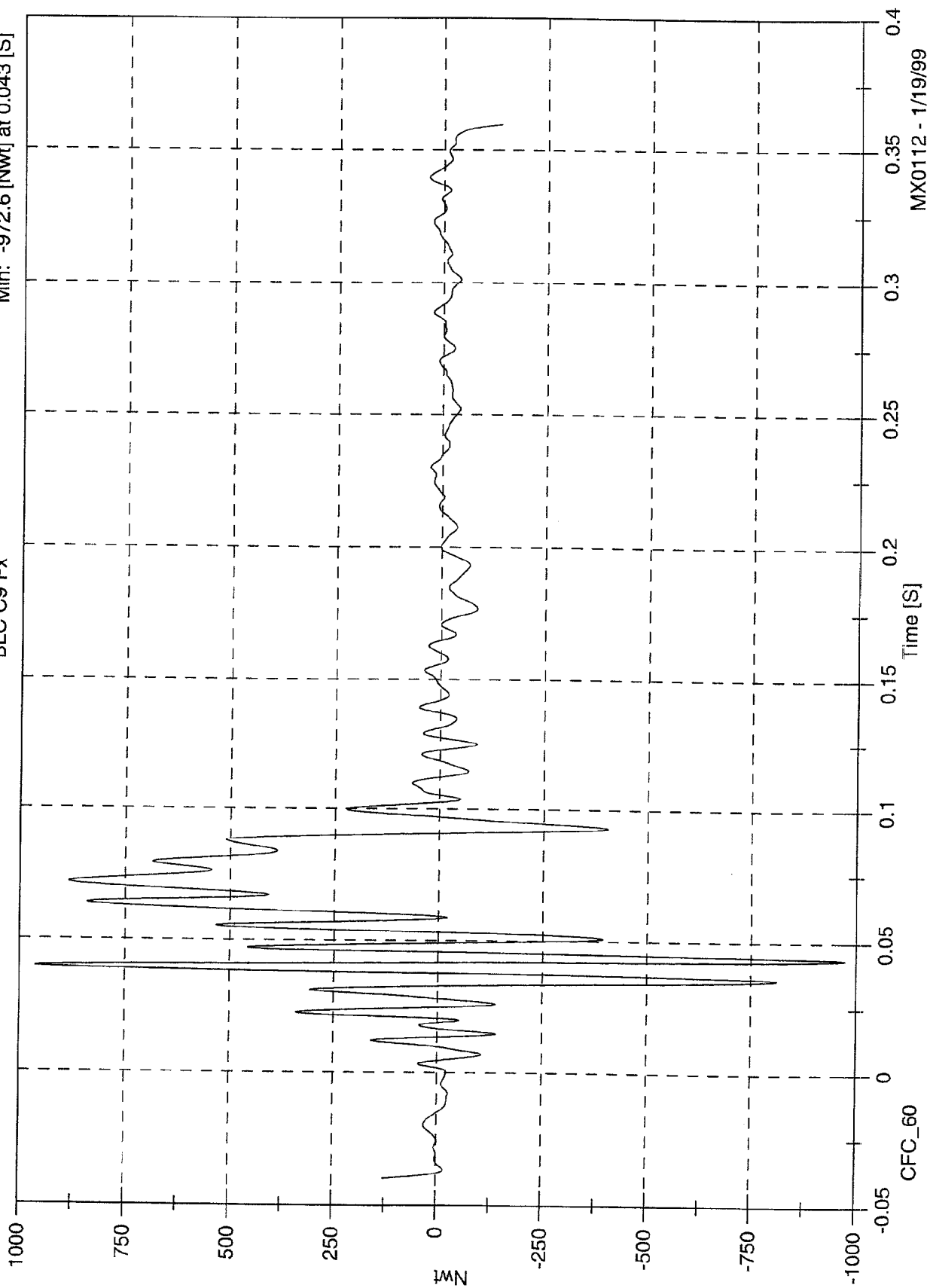


NCAP #8 - 1999 CHEVROLET S-10

Max: 963.0 [Nwt] at 0.040 [S]

Min: -972.6 [Nwt] at 0.043 [S]

BLC C9 Fx

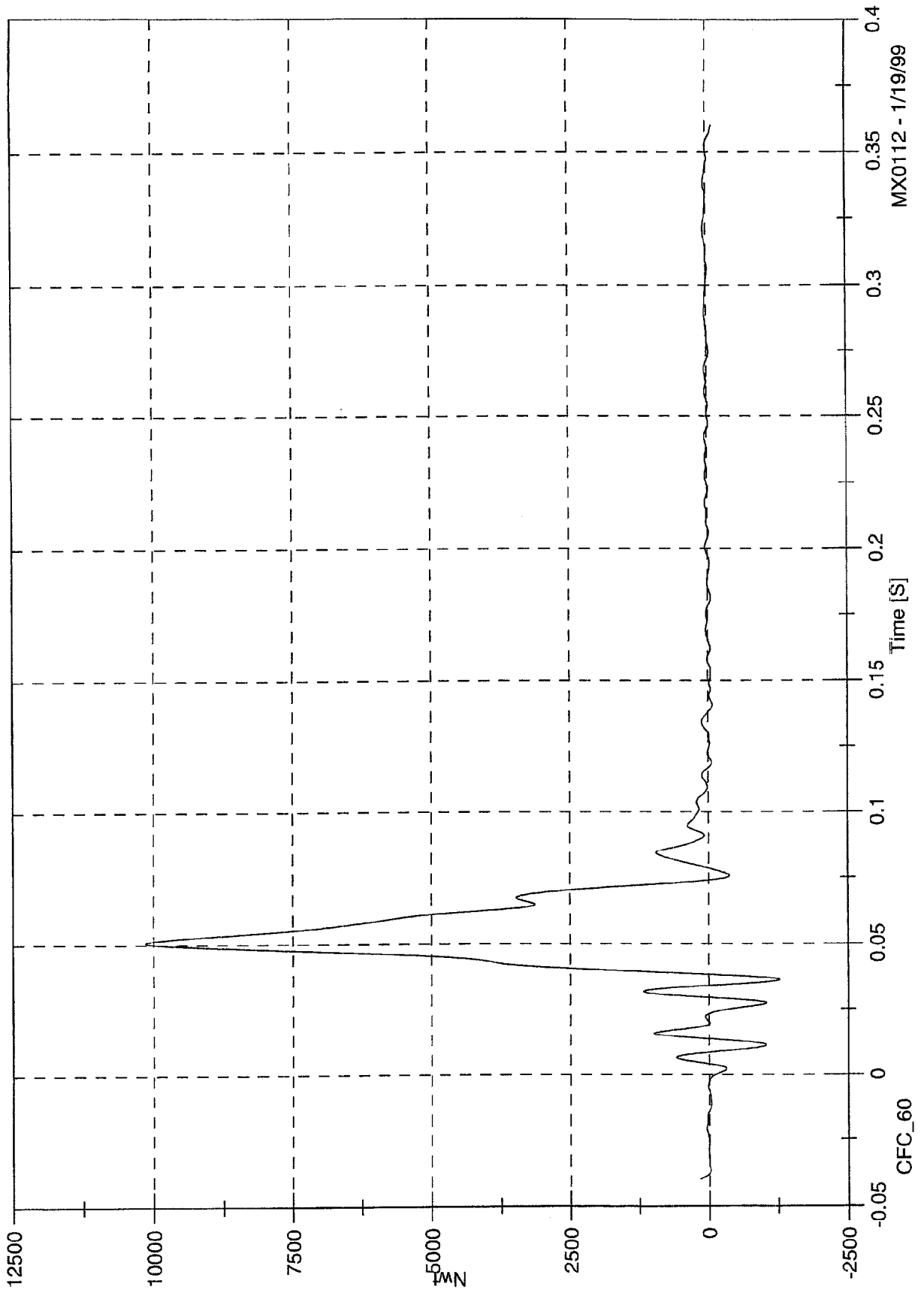


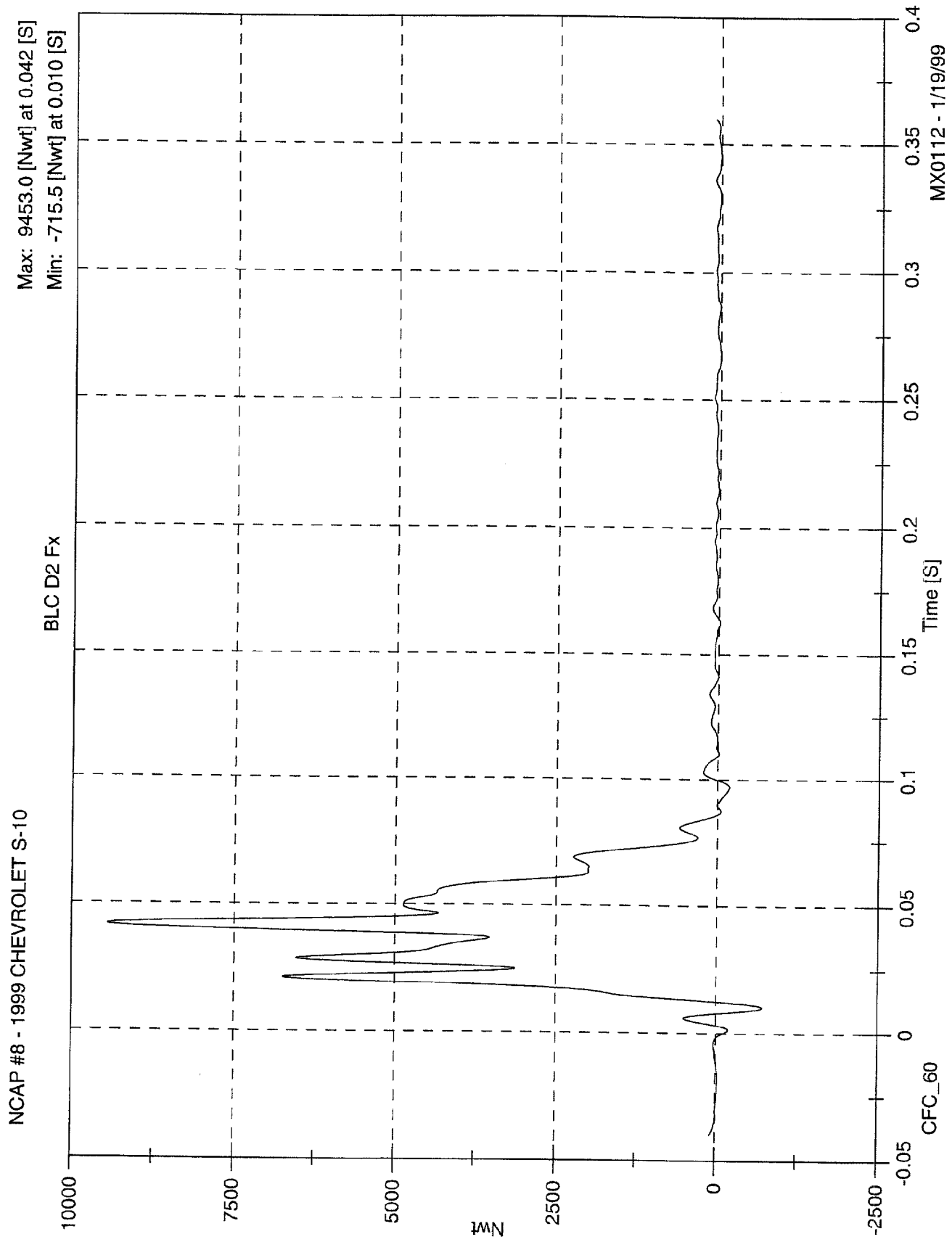
MX0112 - 1/19/99

NCAP #8 - 1999 CHEVROLET S-10

Max: 10149.4 [Nwt] at 0.051 [S]
Min: -1273.4 [Nwt] at 0.036 [S]

BLC D1 Fx

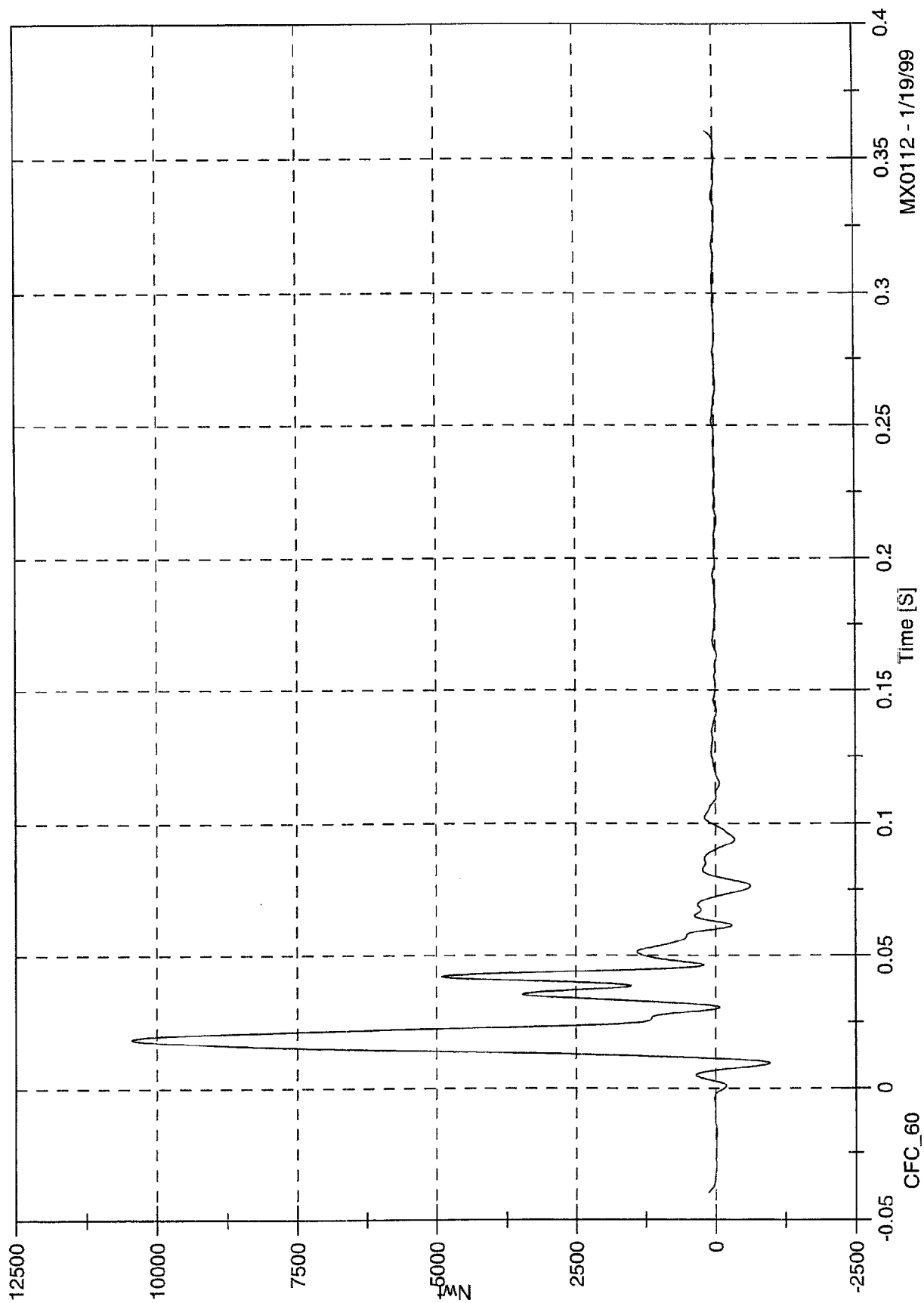


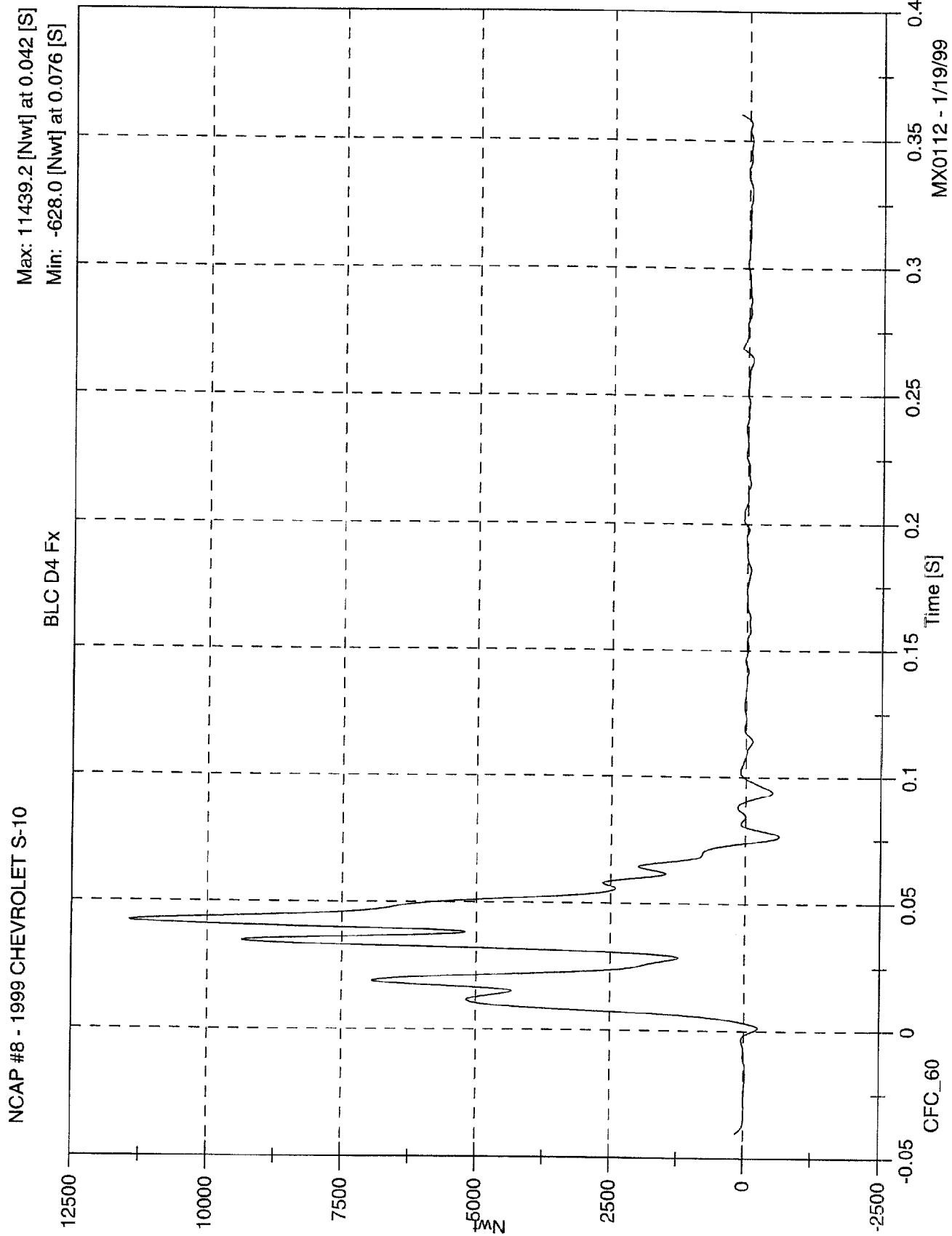


NCAP #8 - 1999 CHEVROLET S-10

BLC D3 Fx

Max: 10452.2 [Nwt] at 0.019 [S]
Min: -965.4 [Nwt] at 0.010 [S]

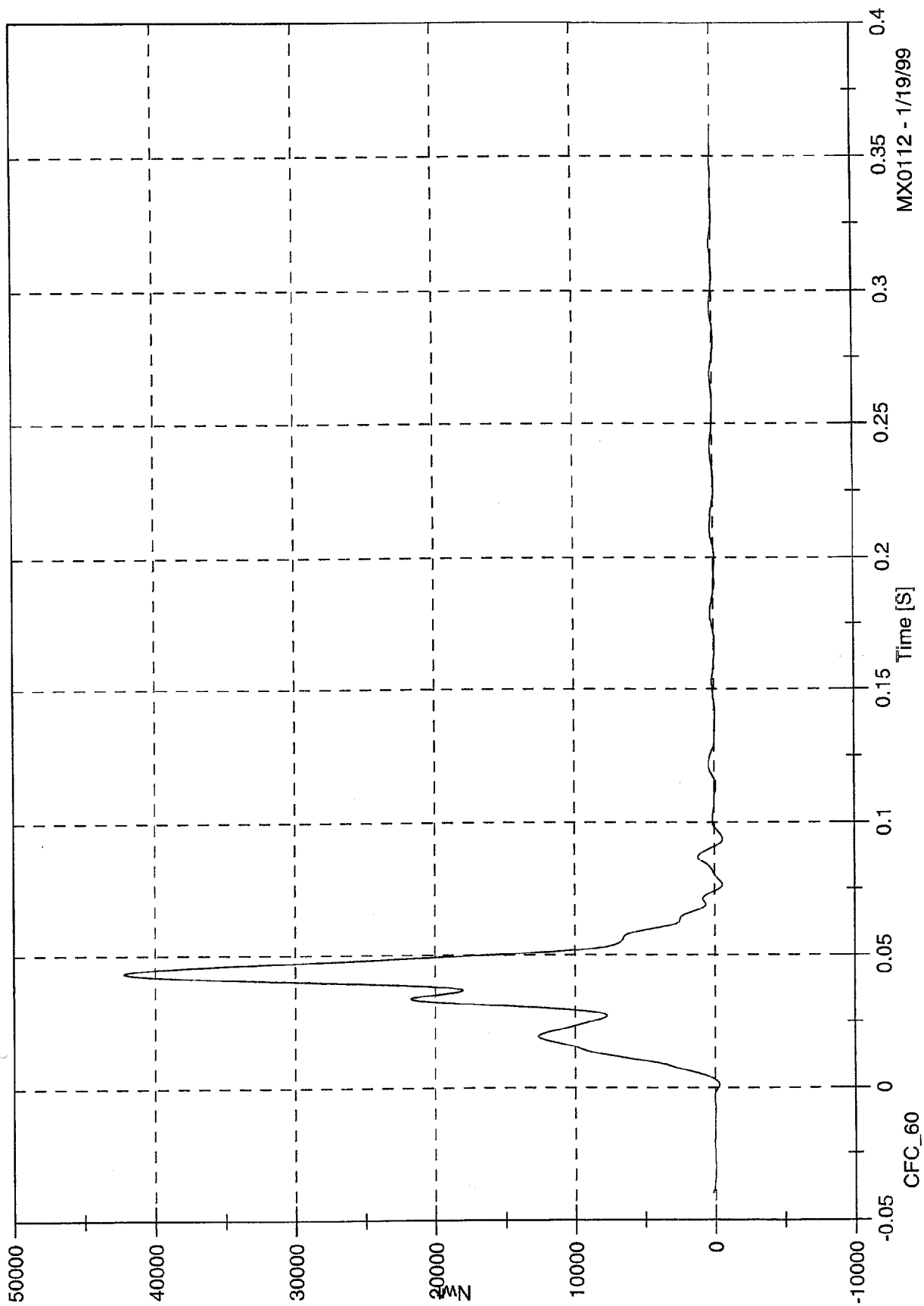


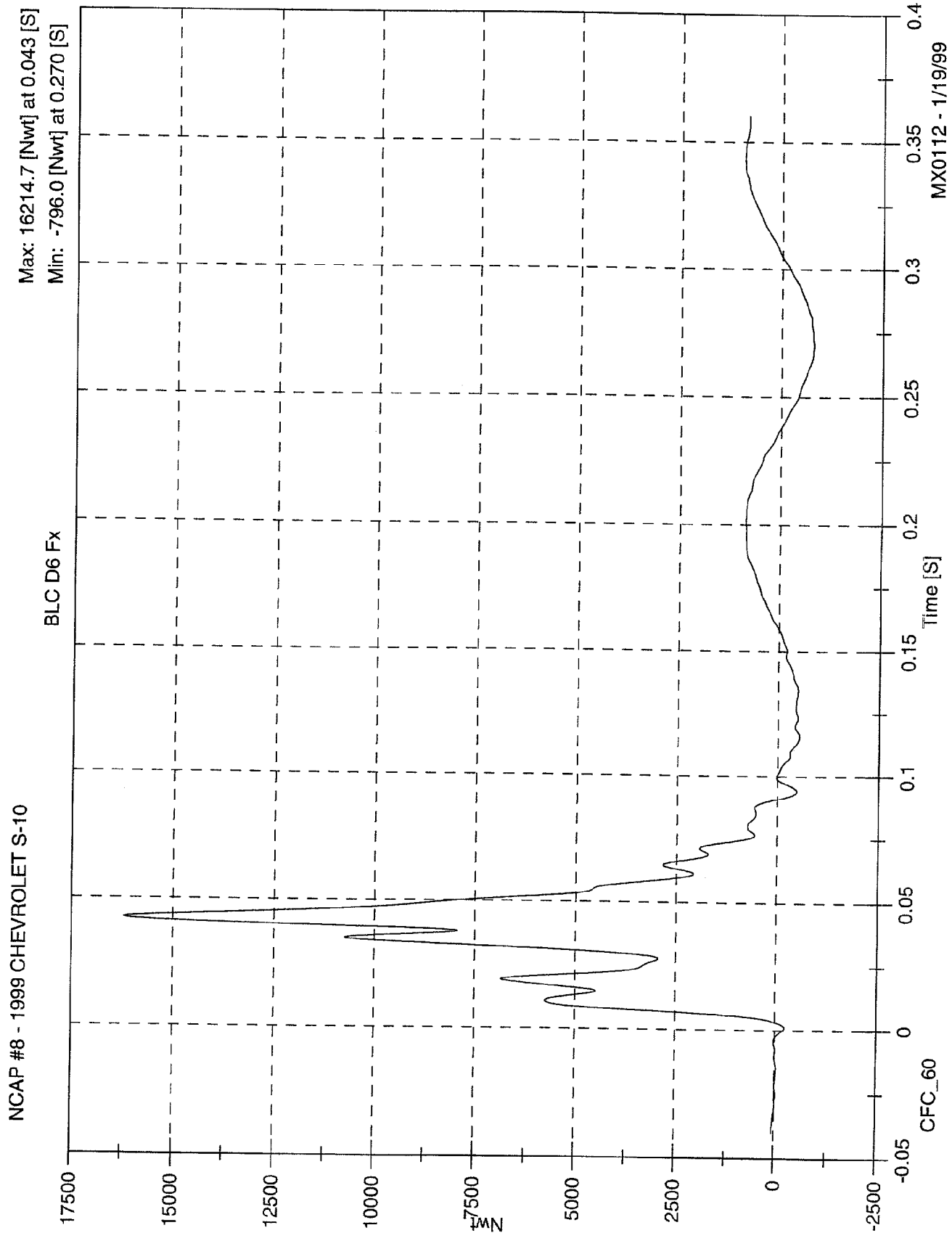


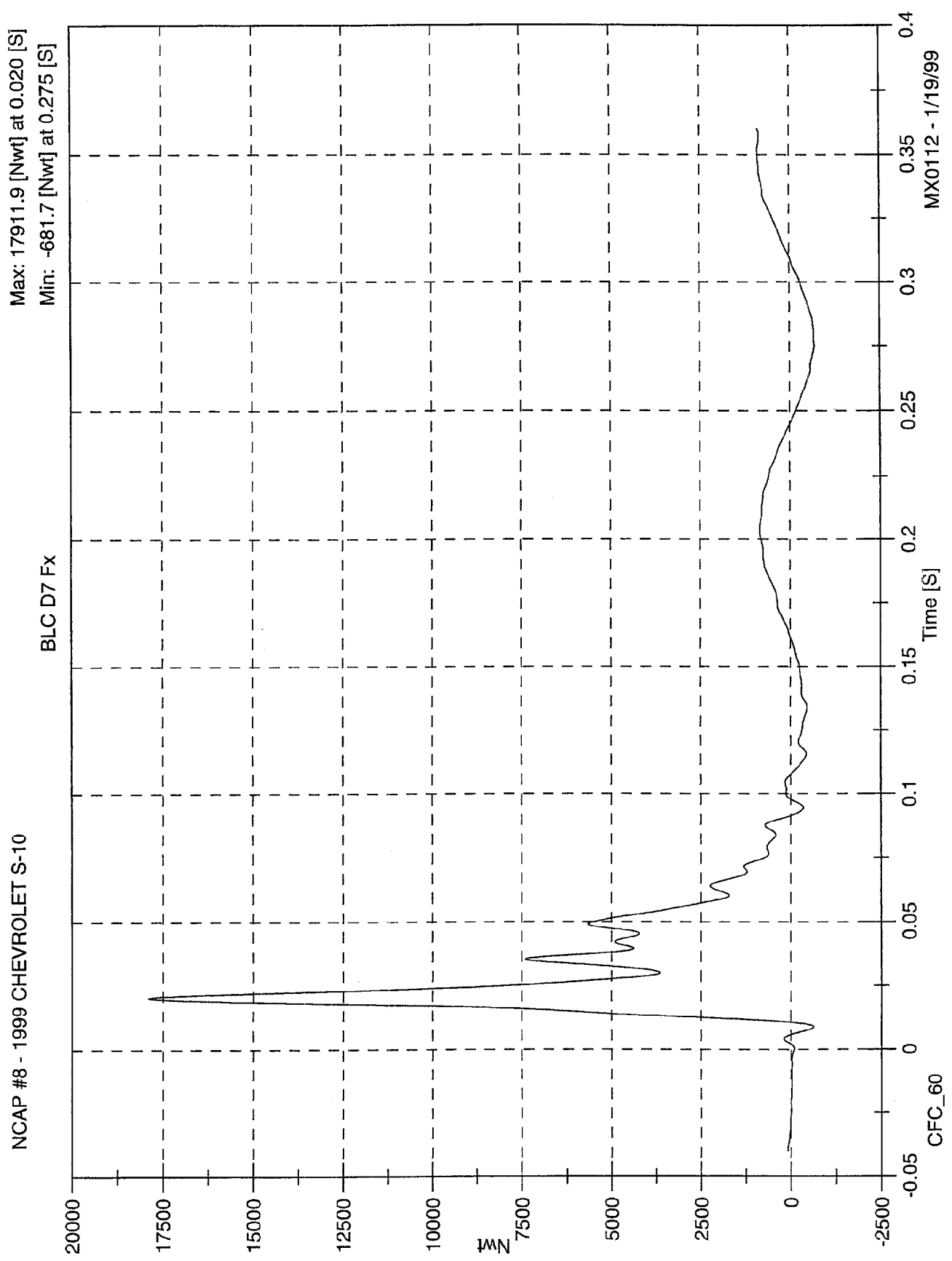
NCAP #8 - 1999 CHEVROLET S-10

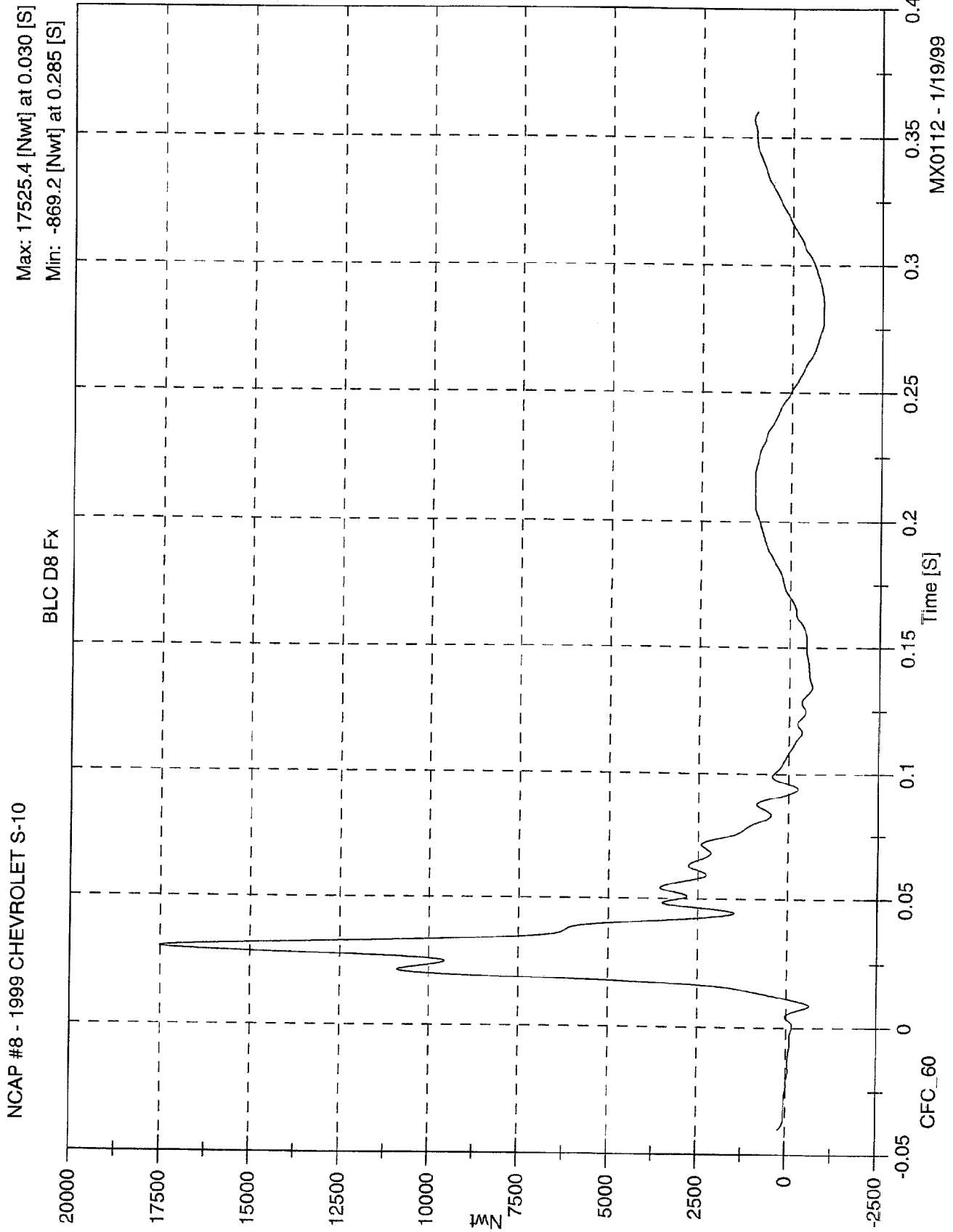
BLC D5 Fx

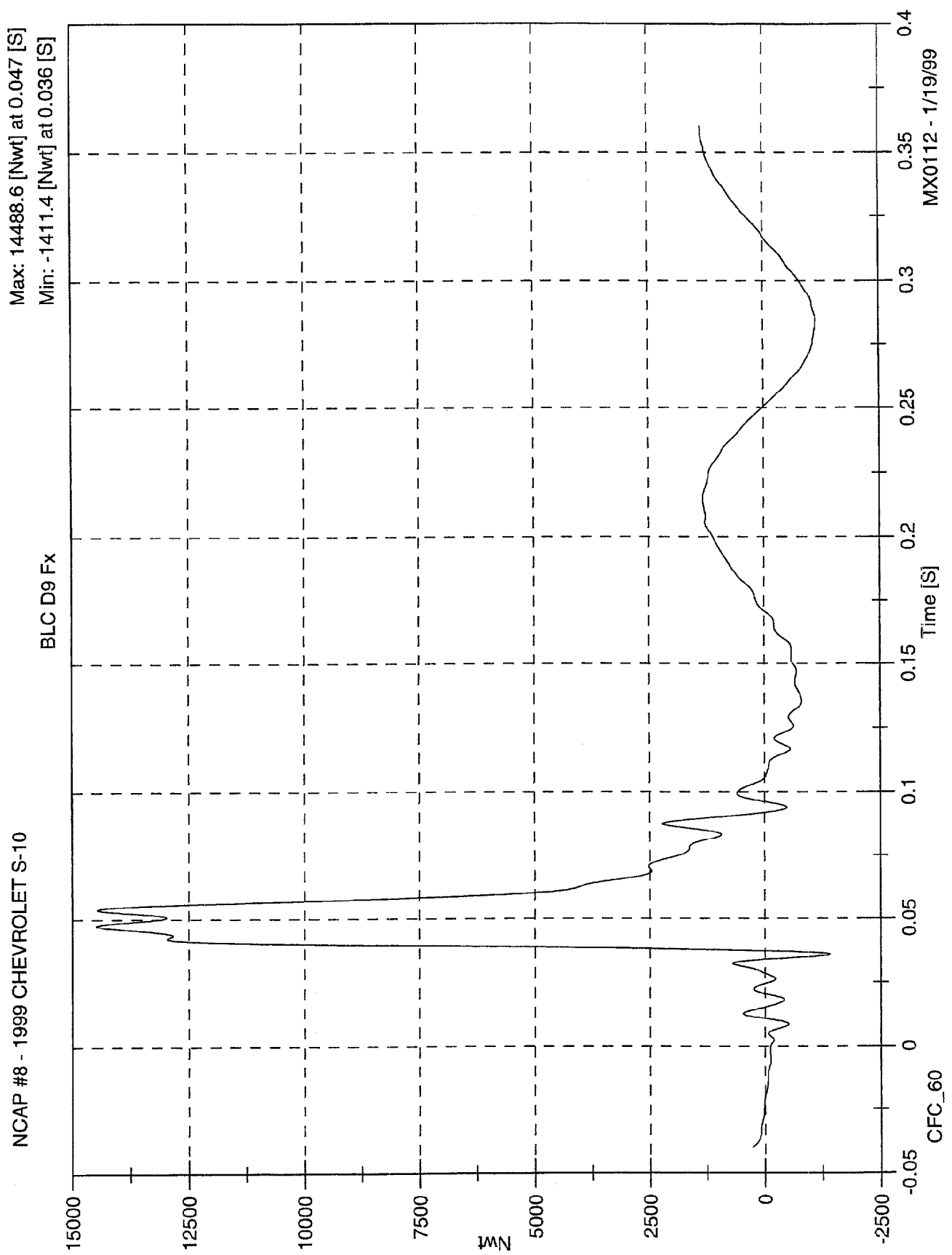
Max: 42200.1 [Nwt] at 0.043 [S]
Min: -577.6 [Nwt] at 0.094 [S]







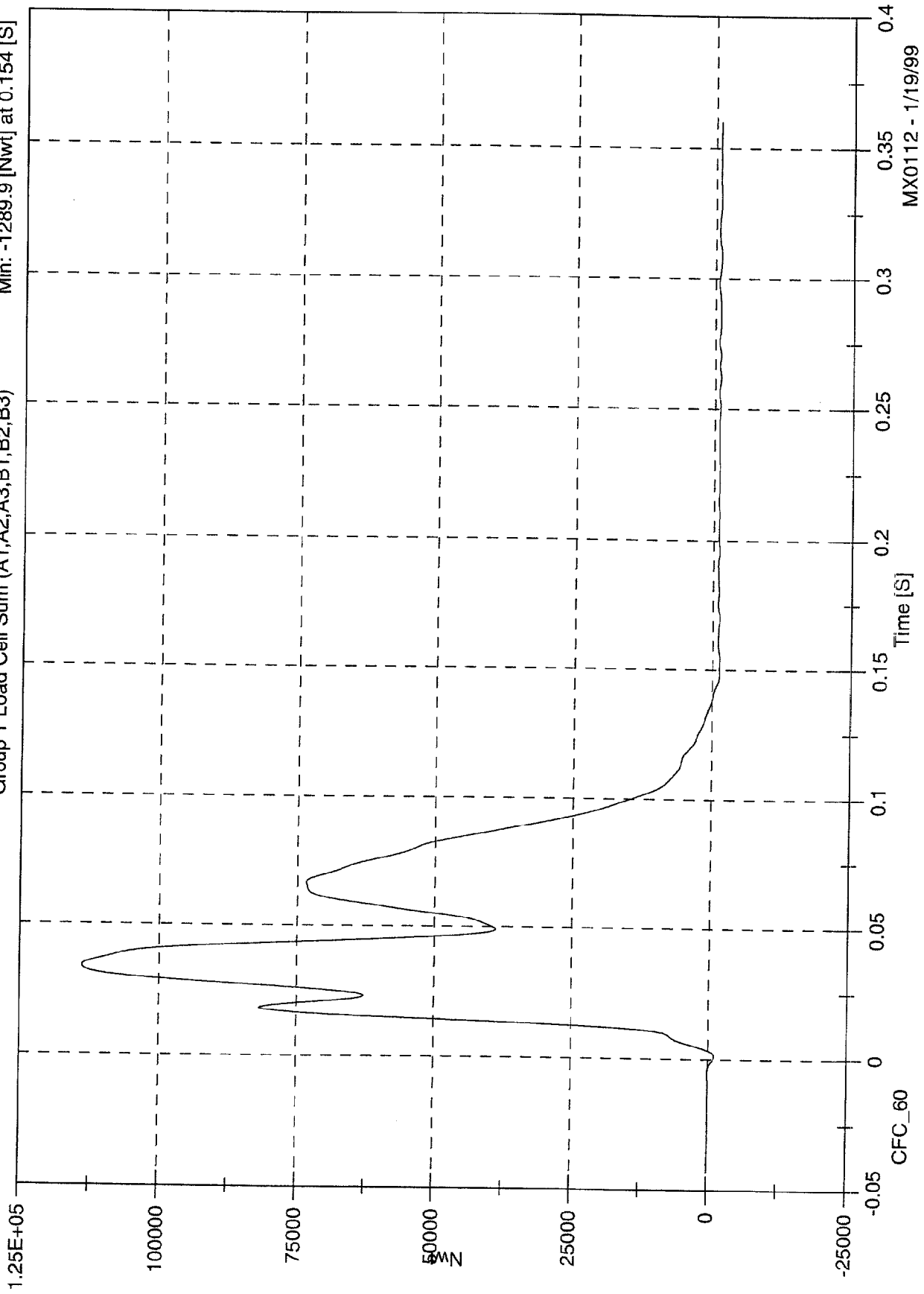




NCAP #8 - 1999 CHEVROLET S-10

Max: 113809.0 [Nwt] at 0.034 [S]
 Min: -1289.9 [Nwt] at 0.154 [S]

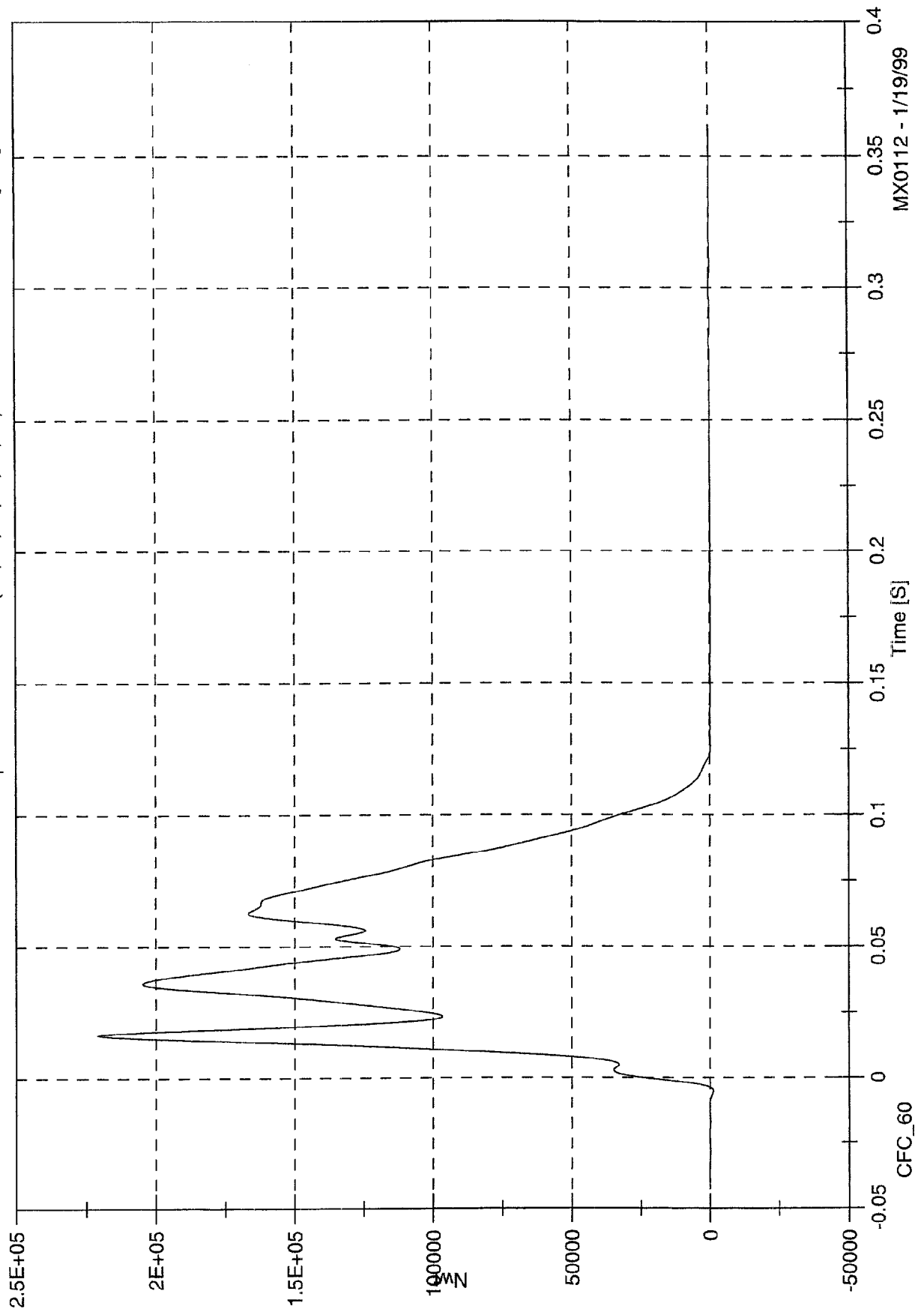
Group 1 Load Cell Sum (A1,A2,A3,B1,B2,B3)

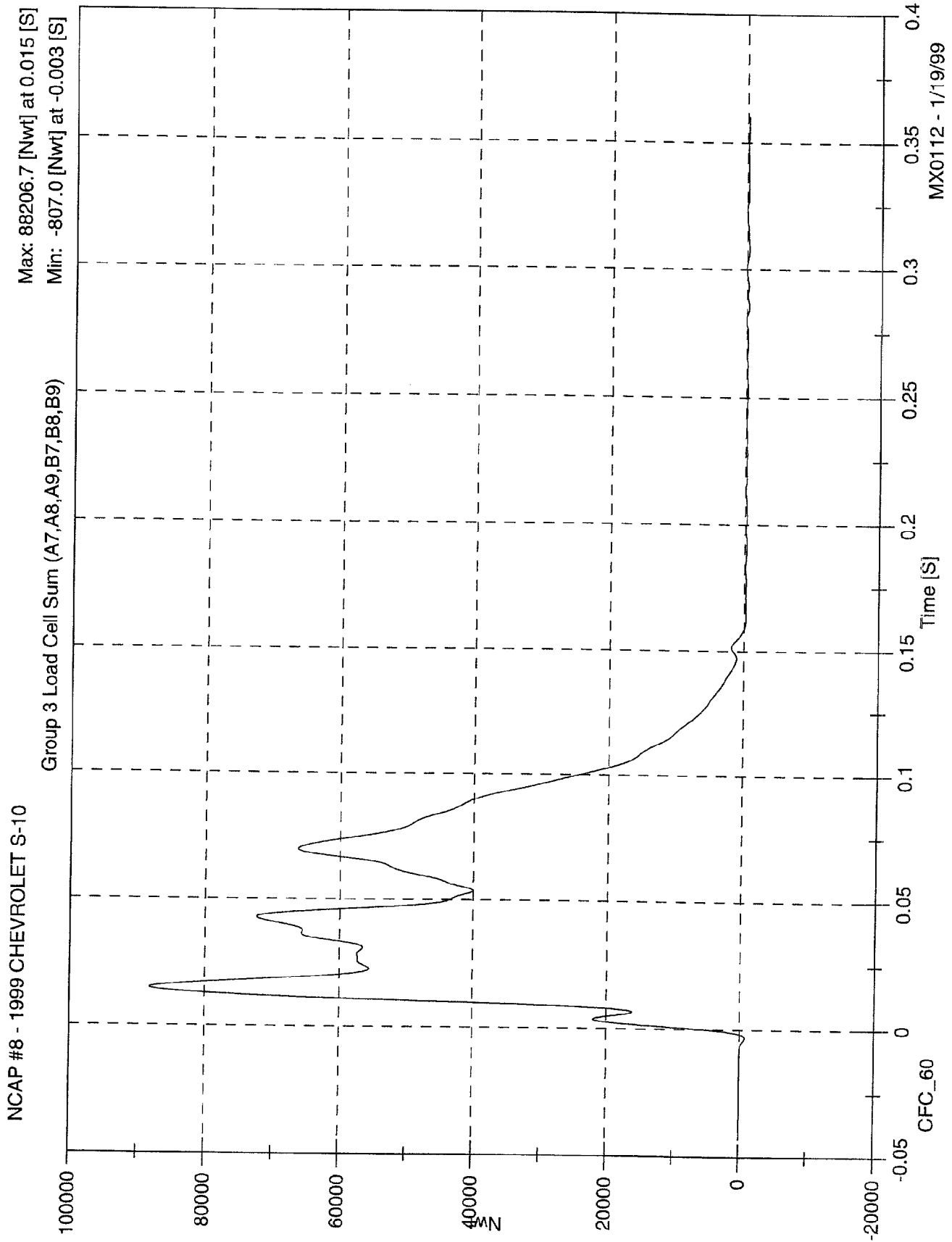


NCAP #8 - 1999 CHEVROLET S-10

Max: 220887.5 [Nwt] at 0.017 [S]
 Min: -1146.1 [Nwt] at -0.005 [S]

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



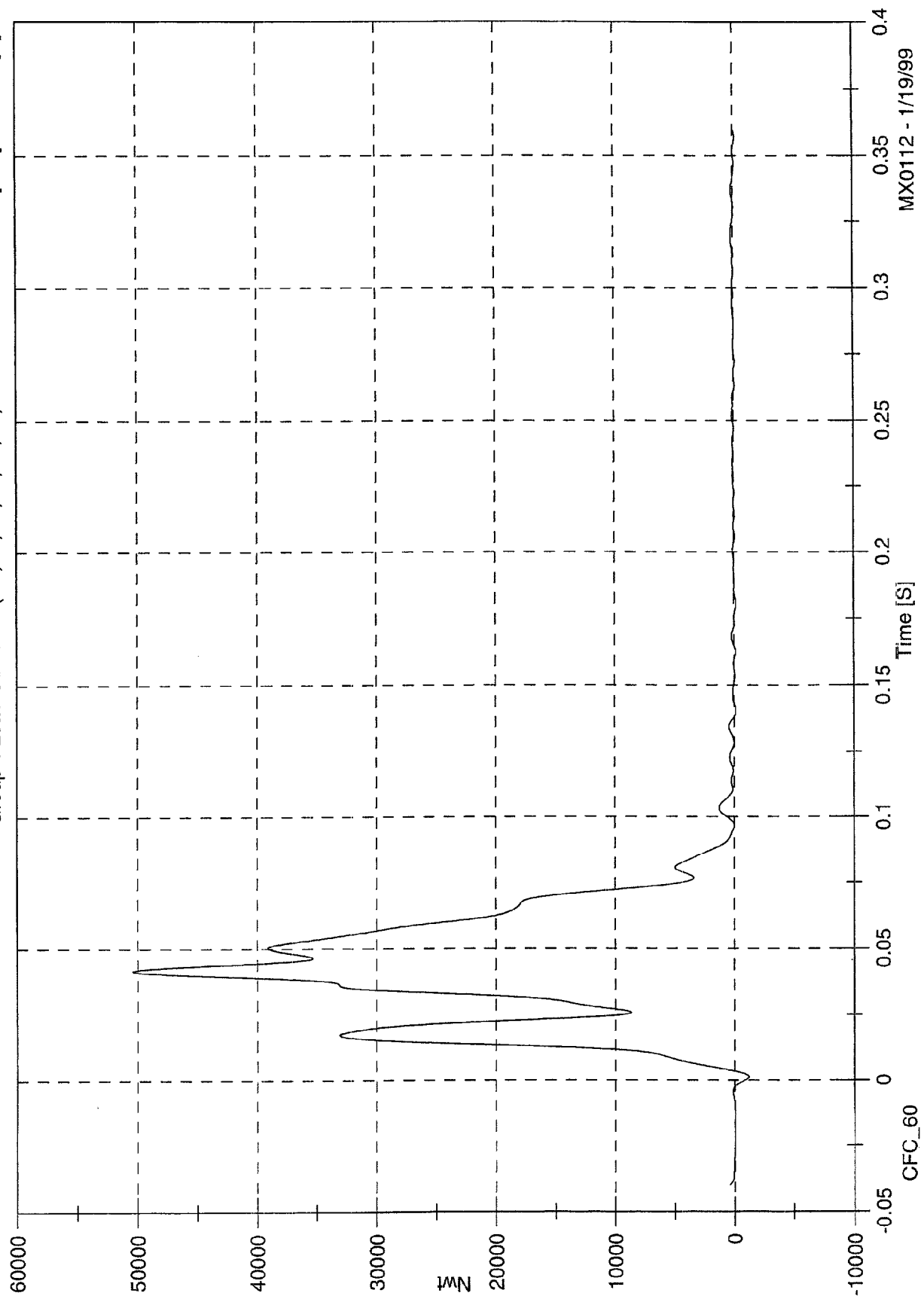


NCAP #8 - 1999 CHEVROLET S-10

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

Max: 50385.7 [Nwt] at 0.042 [S]

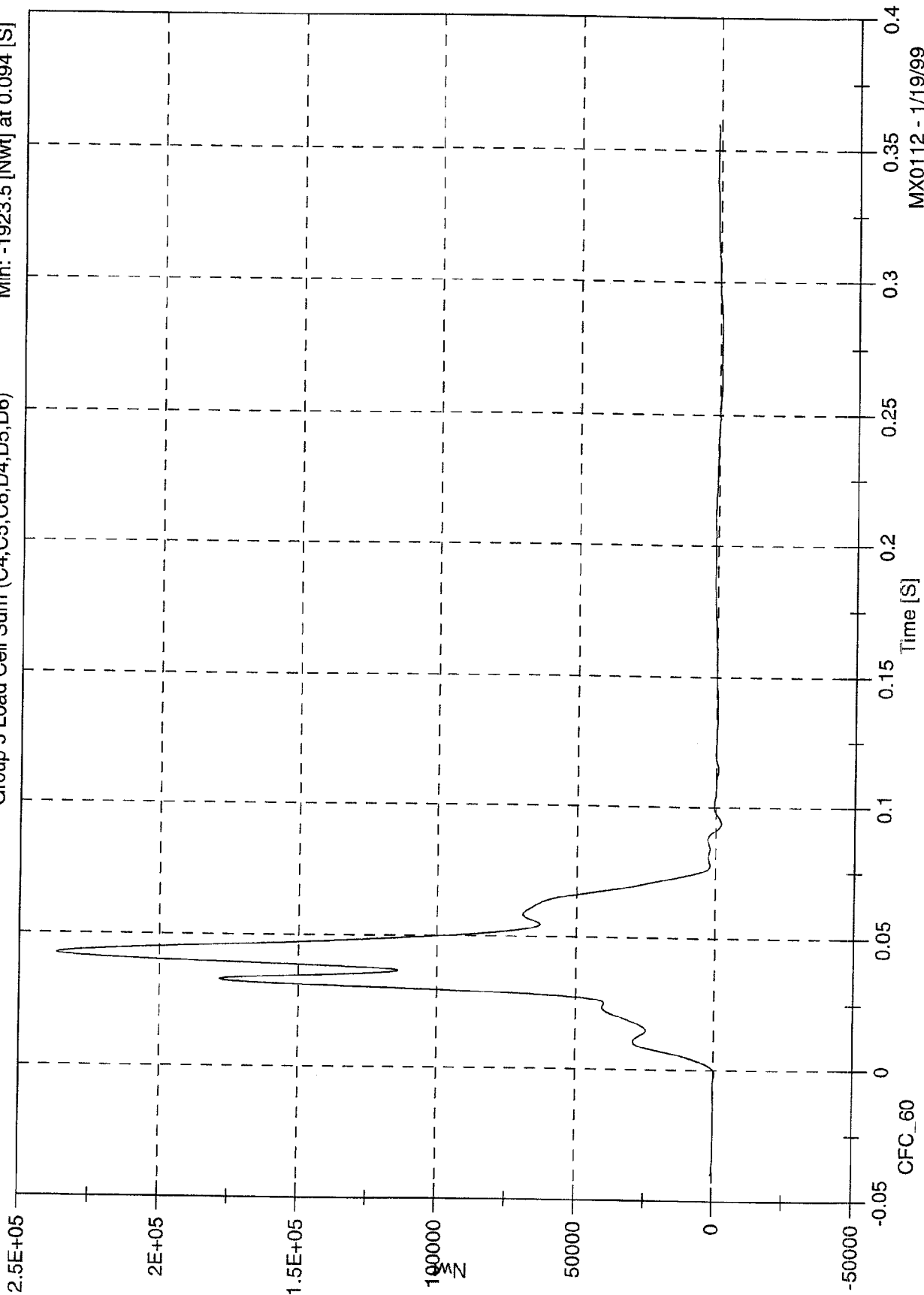
Min: -1180.3 [Nwt] at 0.001 [S]



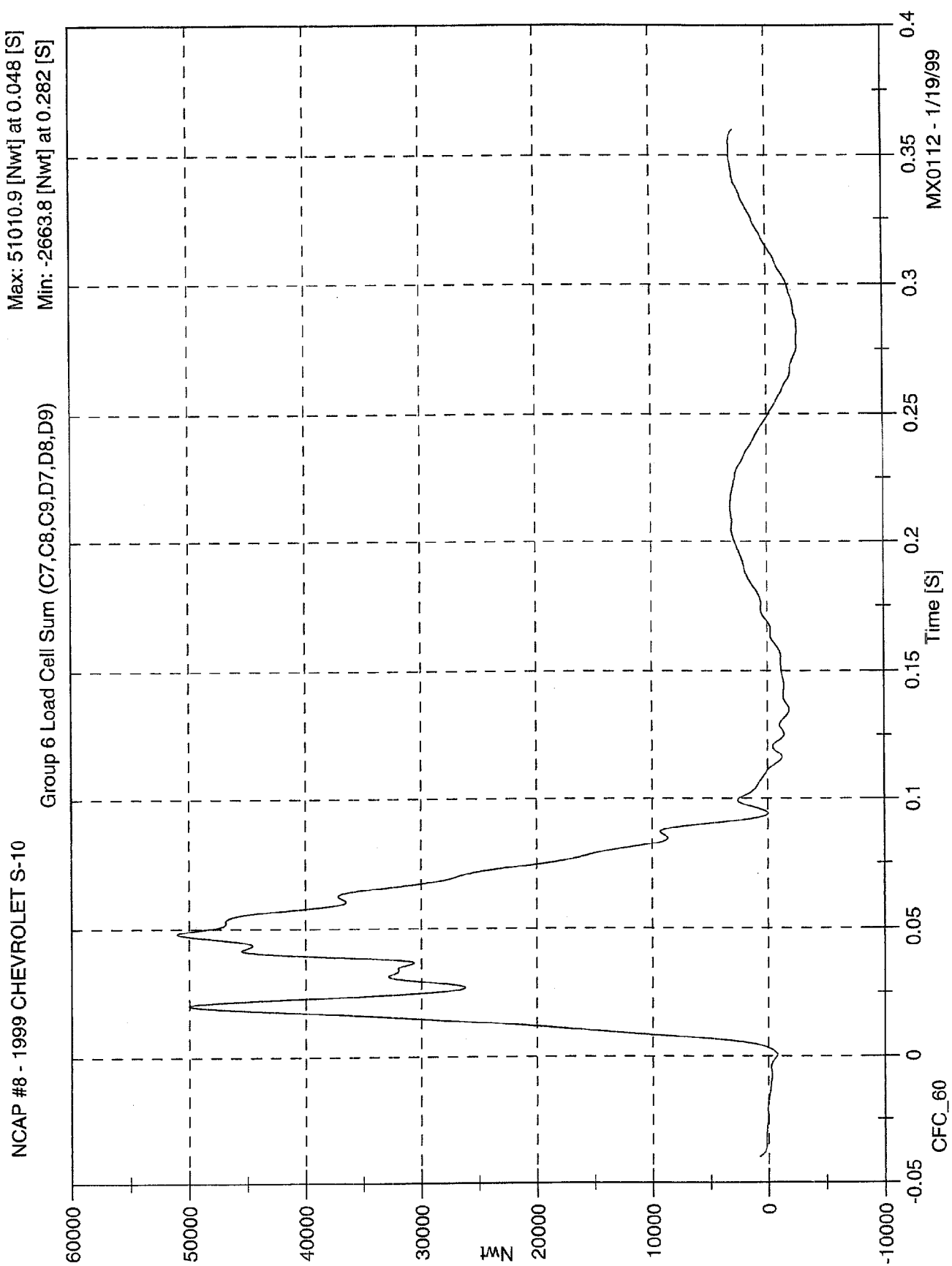
NCAP #8 - 1999 CHEVROLET S-10

Max: 236661.3 [Nwt] at 0.043 [S]
 Min: -1923.5 [Nwt] at 0.094 [S]

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



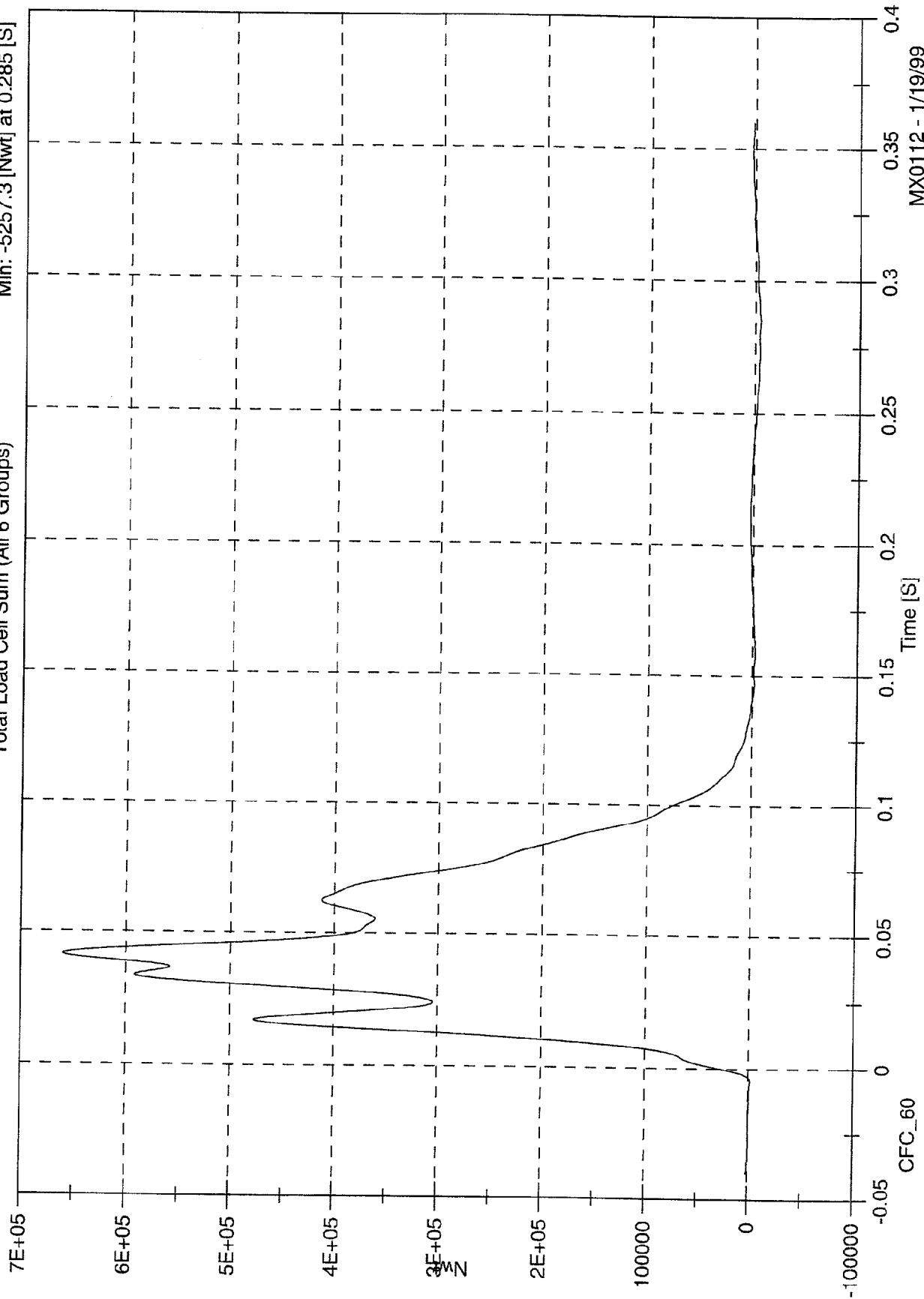
MX0112 - 1/19/99



NCAP #8 - 1999 CHEVROLET S-10

Max: 659972.2 [Nwt] at 0.042 [S]
 Min: -5257.3 [Nwt] at 0.285 [S]

Total Load Cell Sum (All 6 Groups)



MX0112 - 1/19/99

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 Calspan Corporation. A summary of the test results, and Part 572 specifications are included in this Appendix.

Dummy serial numbers and certification dates are:

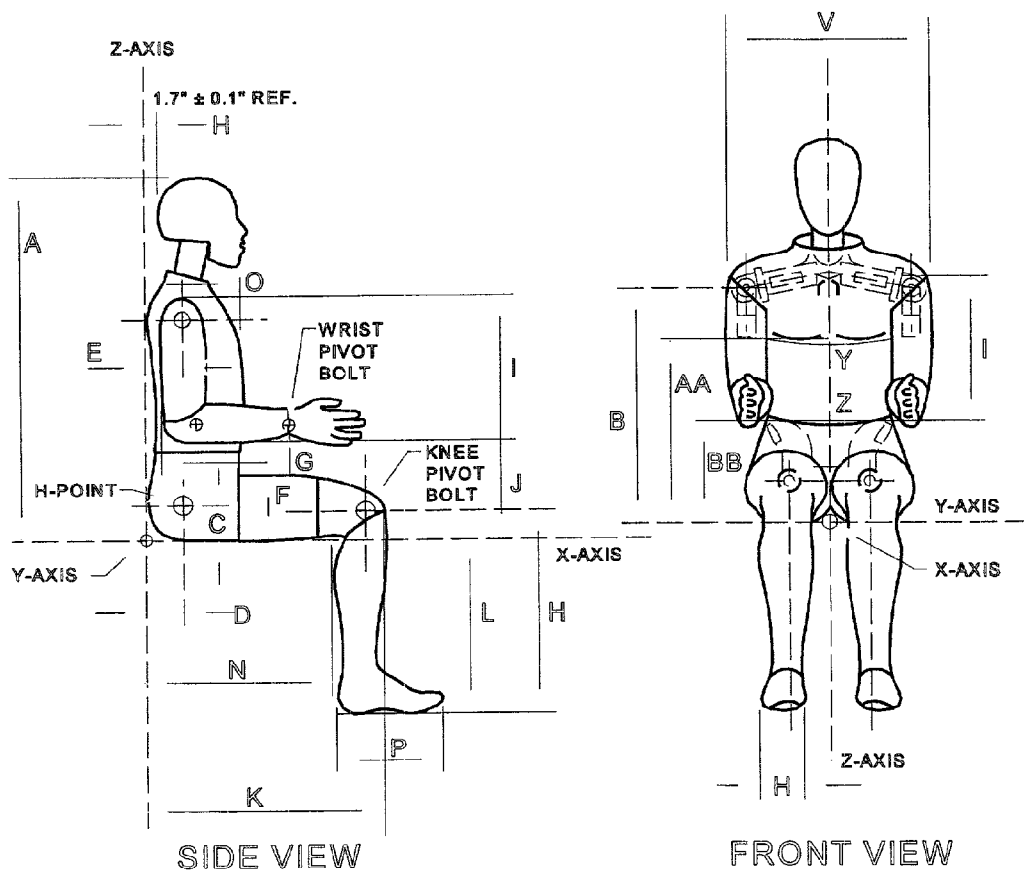
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	061	1/15/99
#2/Right Front Passenger	245	1/5/99

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

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS SPECIFICATIONS



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

PART 572E
HEAD DROP TEST

Dummy Serial Number 061
Calspan Sequential Test Number 1
Date 1/11/99
Workfile 061199.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	71
Relative Humidity	10% - 70%	15
Peak Resultant Acceleration	225-275 G's	240.1
Peak Lateral Acceleration	15 G's Max	3.8
Is Acceleration Curve Unimodal?	YES	yes

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number 061
Calspan Sequential Test Number 1
Date 1/14/99
Workfile 061199.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71
Relative Humidity		10% - 70%	12
Impact Velocity		22.60 - 23.40 Ft/s	22.80
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	25.47
	20 ms	17.60 - 22.60 G's	20.73
	30 ms	12.50 - 18.50 G's	12.81
Max Pendulum G's Above 30 ms		29 G's Max	12.81
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.75
D Plane Rotation	Max	64 - 78 Deg	74.86
	Time	57 - 64 ms	57.63
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	73.01
	Time	47 - 58 ms	54.88
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	121.00
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	103.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number 061
 Calspan Sequential Test Number 1
 Date 1/13/99
 Workfile 061199.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	15
Impact Velocity		19.50 - 20.30 Ft/s	19.82
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.48
	20 ms	14.00 - 19.00 G's	16.44
	30 ms	11.00 - 16.00 G's	13.12
Max Pendulum G's Above 30 ms		22 G's Max	13.12
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	43.75
D Plane Rotation	Max	81 - 106 Deg	92.00
	Time	72 - 82 ms	74.88
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-57.90
	Time	65 - 79 ms	67.75
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	149.50
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	140.63

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 061
Calspan Sequential Test Number 1
Date 1/15/99
Workfile 061199.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	16
Pendulum Velocity	21.6 - 22.4 Ft/s	21.70
Maximum Deflection	2.50 - 2.86 in	2.50
Maximum Resistive Force	1160 - 1325 Lbs	1239.04
Internal Hysteresis	69 - 85 %	72.4

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 061
Calspan Sequential Test Number 1
Date 1/15/99
Workfile 061199

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	15
Probe Velocity	6.8 - 7.0 Ft/s	6.90
Peak Knee Impact Force	1060 - 1300 Lbs	1081
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	15
Probe Velocity	6.8 - 7.0 Ft/s	6.90
Peak Knee Impact Force	1060 - 1300 Lbs	1124

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 061
Calspan Sequential Test Number 1
Date 1/15/99

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			15
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.4
Waist Circumference	Z	32.9 - 34.1 in	33.5
Chest Depth	O	8.4 - 9.0 in	8.5
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.1
Buttock Knee Length	K	22.8 - 23.8 in	23.3
Buttock Popliteal Length	N	17.8 - 18.8 in	18.3
Popliteal Height	L	16.9 - 17.9 in	17.7
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.5
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.1
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 245
Calspan Sequential Test Number 4
Date 1/5/99
Workfile 245498.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	32
Peak Resultant Acceleration	225-275 G's	233.0
Peak Lateral Acceleration	15 G's Max	7.6
Is Acceleration Curve Unimodal?	YES	yes

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number 245
 Calspan Sequential Test Number 4
 Date 12/18/98
 Workfile 245498.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	20
Impact Velocity		22.60 - 23.40 Ft/s	22.90
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.25
	20 ms	17.60 - 22.60 G's	20.96
	30 ms	12.50 - 18.50 G's	14.36
Max Pendulum G's Above 30 ms		29 G's Max	14.36
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.13
D Plane Rotation	Max	64 - 78 Deg	74.95
	Time	57 - 64 ms	63.00
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	65.24
	Time	47 - 58 ms	54.63
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	120.50
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	105.88

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number 245
 Calspan Sequential Test Number 4
 Date 12/18/98
 Workfile 245498.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	20
Impact Velocity		19.50 - 20.30 Ft/s	20.00
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.43
	20 ms	14.00 - 19.00 G's	15.81
	30 ms	11.00 - 16.00 G's	13.38
Max Pendulum G's Above 30 ms		22 G's Max	13.38
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	44.25
D Plane Rotation	Max	81 - 106 Deg	89.73
	Time	72 - 82 ms	73.63
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-52.02
	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	131.63

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 245
Calspan Sequential Test Number 4
Date 12/18/98
Workfile 245498.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	20
Pendulum Velocity	21.6 - 22.4 Ft/s	21.70
Maximum Deflection	2.50 - 2.86 in	2.55
Maximum Resistive Force	1160 - 1325 Lbs	1226.59
Internal Hysteresis	69 - 85 %	74.7

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 245
Calspan Sequential Test Number 4
Date 1/5/99
Workfile 245498

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	30
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1242
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	30
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1179

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 245
Calspan Sequential Test Number 4
Date 12/18/98

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			71
Relative Humidity			15
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	39.0
Waist Circumference	Z	32.9 - 34.1 in	33.7
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	34.9
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.3
Popliteal Height	L	16.9 - 17.9 in	17.5
Knee Pivot Height	M	19.1 - 19.7 in	19.2
Foot Length	P	9.9 - 10.5 in	10.2
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swiecicki

Appendix D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 061)	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X	AL533	ENDEVCO	8/98	2/99
Y	A83G	ENDEVCO	12/98	6/99
Z	C14901	ENDEVCO	8/98	2/99
Chest				
X	A26A	ENDEVCO	8/98	2/99
Y	FP90	ENDEVCO	12/98	6/99
Z	AL6H7	ENDEVCO	12/98	6/99
Right Femur Load Cell	FP54	GSE	9/98	3/99
Left Femur Load Cell	FP55	GSE	9/98	3/99
Neck Load Cell	205	DENTON	8/98	2/99
Y	205	DENTON	8/98	2/99
Z	205	DENTON	8/98	2/99
Neck Moment	205	DENTON	8/98	2/99
Y	205	DENTON	8/98	2/99
Z	205	DENTON	8/98	2/99
Chest Deflection Gauge	CP061	HUMANOID	10/98	4/99
Hybrid III Use Only				
Lap Belt Load Cells	706	LEBOW	9/98	3/99
Shoulder Belt Load Cells	707	LEBOW	9/98	3/99
Spool-Out Potentiometer	M6	MAGNETEK	10/98	4/99
Belt Stretch Transducer	E2	CALSPAN	10/98	4/99

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X (R)	APBF4	ENDEVCO	10/98	4/99
Y (R)	APBD9	ENDEVCO	10/98	4/99
Z (R)	APIA2	ENDEVCO	10/98	4/99
Chest				
X (R)	B11407	ENDEVCO	12/98	6/99
Y (R)	B11408	ENDEVCO	9/98	3/99
Z (R)	B10827	ENDEVCO	8/98	2/99
Pelvic				
X	ADMB8	ENDEVCO	10/98	4/99
Y	ADL44	ENDEVCO	10/98	4/99
Z	ACT12	ENDEVCO	10/98	4/99
Left Upper Tibia				
Mx	016	DENTON	9/98	3/99
Left Upper Tibia				
My	016	DENTON	9/98	3/99
Left Lower Tibia				
Fz	123	DENTON	8/98	2/99
Left Lower Tibia				
Mx	123	DENTON	8/98	2/99
Left Lower Tibia				
My	123	DENTON	8/98	2/99
Right Upper Tibia				
Mx	015	DENTON	9/98	3/99
Right Upper Tibia				
My	015	DENTON	9/98	3/99
Right Lower Tibia				
Fz	122	DENTON	8/98	2/99
Right Lower Tibia				
Mx	122	DENTON	8/98	2/99
Right Lower Tibia				
My	122	DENTON	8/98	2/99

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacture	Calibration	
			Last	Next
Left Foot Front Z	A14239	ENDEVCO	12/98	6/99
Left Foot Rear X	A14488	ENDEVCO	12/98	6/99
Left Foot Rear Z	A14306	ENDEVCO	12/98	6/99
Right Foot Front Z	A14484	ENDEVCO	12/98	6/99
Right Foot Rear X	A14481	ENDEVCO	12/98	6/99
Right Foot Rear Z	A14433	ENDEVCO	12/98	6/99

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 245)	Serial #	Manufacturer	Calibration	
			Last	Next
Head	X	ENDEVCO	9/98	3/99
	Y	ENDEVCO	10/98	4/99
	Z	ENDEVCO	10/98	4/99
Chest	X	ENDEVCO	10/98	4/99
	Y	ENDEVCO	11/98	5/99
	Z	ENDEVCO	10/98	4/99
Right Femur Load Cell	F723	GSE	9/98	3/99
	F420	GSE	9/98	3/99
Left Femur Load Cell	269	DENTON	10/98	4/99
	269	DENTON	10/98	4/99
	269	DENTON	10/98	4/99
Neck Moment	X	DENTON	10/98	4/99
	Y	DENTON	10/98	4/99
	Z	DENTON	10/98	4/99
Chest Deflection Gauge	245	HUMANOID	10/98	4/99
	711	LEBOW	9/98	3/99
Lap Belt Load Cells	712	LEBOW	9/98	3/99
Shoulder Belt Load Cells	M10	MAGNETEK	10/98	4/99
Spool-Out Potentiometer	E4	CALSPAN	10/98	4/99
Belt Stretch Transducer				

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head	X (R)	ENDEVCO	11/98	5/99
	Y (R)	ENDEVCO	11/98	5/99
	Z (R)	ENDEVCO	11/98	5/99
Chest	X (R)	ENDEVCO	10/98	4/99
	Y (R)	ENDEVCO	10/98	4/99
	Z (R)	ENDEVCO	10/98	4/99
Pelvic	X	ENDEVCO	9/98	3/99
	Y	ENDEVCO	9/98	3/99
	Z	ENDEVCO	9/98	3/99
Left Upper Tibia	Mx	DENTON	9/98	3/99
	My	DENTON	9/98	3/99
	Fz	DENTON	8/98	2/99
Left Lower Tibia	Mx	DENTON	8/98	2/99
	My	DENTON	8/98	2/99
	Fz	DENTON	8/98	2/99
Right Upper Tibia	Mx	DENTON	9/98	3/99
	My	DENTON	9/98	3/99
	Fz	DENTON	8/98	2/99
Right Lower Tibia	Mx	DENTON	8/98	2/99
	My	DENTON	8/98	2/99
	Fz	DENTON	8/98	2/99

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacture	Calibration	
			Last	Next
Left Foot Front Z	A14307	ENDEVCO	12/98	6/99
Left Foot Rear X	A14510	ENDEVCO	12/98	6/99
Left Foot Rear Z	A14383	ENDEVCO	12/98	6/99
Right Foot Front Z	A14485	ENDEVCO	12/98	6/99
Right Foot Rear X	A14321	ENDEVCO	12/98	6/99
Right Foot Rear Z	A14381	ENDEVCO	12/98	6/99

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	D82	ICS	1/99	7/99
Right Rear Seat Crossmember	D77	ICS	1/99	7/99
Top of Engine	AN15	ICS	11/98	5/99
Bottom of Engine	AN25	ICS	12/98	6/99
Left Disc Brake Caliper	MB18	CEC	11/98	5/99
Right Disc Brake Caliper	Z08	CEC	11/98	5/99
Instrument Panel	Z02	CEC	11/98	5/99
Left Seat Rear Crossmember (R)	D86	ICS	1/99	7/99
Right Seat Rear Crossmember (R)	D88	ICS	1/99	7/99