

V3063

REPORT NUMBER: CAL-99-14

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

**NISSAN MOTOR CO., LTD.
1999 NISSAN PATHFINDER
4-DOOR MPV**

NHTSA NUMBER: MX5203

CALSPAN TEST NUMBER: 8413-38

**CALSPAN CORPORATION
TRANSPORTATION SCIENCE CENTER
P.O. BOX 400
BUFFALO, NEW YORK 14225**



April 1, 1999

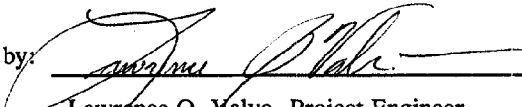
FINAL REPORT

PREPARED FOR:

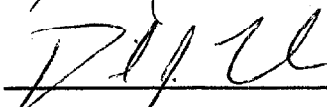
**U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Performance Standards
Office of Crashworthiness Standards
Mail Code: NPS-10
400 Seventh Street, SW, Room No. 5313
Washington, DC 20590**

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NHTSA, Office of Crashworthiness Standards

Date of Report Acceptance

COTR, New Car Assessment Program (NCAP)
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15. <i>Supplementary Notes</i>					
16. <i>Abstract</i> A frontal load cell barrier test of a 1999 Nissan Pathfinder 4-Door MPV was performed at Calspan Corporation crash test facility in Buffalo, New York, on April 1, 1999. The impact velocity was 56.5 kph and the temperature at the barrier face was 21.7°C. The maximum post-test vehicle crush was 620 mm. The test vehicle was equipped with a driver and right front passenger pretensioning/load limiting 3-point seat belt system and second generation frontal airbag. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria," both the driver and passenger appear to comply with the head, chest, and femur requirements.					
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Section 1

PURPOSE AND SUMMARY OF TEST MX5203

PURPOSE

This 56.5 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 56.5 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 Nissan Pathfinder 4-Door MPV at a velocity of 56.5 kph. The test was performed at the Calspan Corporation on April 1, 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 instrumentation was not installed on this vehicle to prevent interference with the seat belt pretensioner system. The driver (position 1) ATD (Serial No. 061) and the right-front passenger (position 2) ATD (Serial No. 064) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 88 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces.

The driver's HIC was 834.5. The maximum chest deceleration over 3 milliseconds was 44.4 g's and maximum chest deflection was -38.7 mm. Femur loads were -1812.7 Newtons on the left and -1537.8 Newtons on the right.

The right front passenger's HIC was 363.5. Maximum chest deceleration over 3 milliseconds was 43.4 g's and maximum chest deflection was -38.6 mm. Femur loads were -2172.8 Newtons on the left and -2879.1 Newtons on the right.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No. : MX5203 Test Mode : 56.3 kph Frontal Barrier

Test Date : April 1, 1999 Time: 13:50 Temperature : 21.7 °C

Vehicle Make/Model/Body Style : 1999 Nissan Pathfinder 4-Door MPV

Vehicle Test Weight : 2140.0 kg

Vehicle/Barrier Impact Angle : 0 °

Impact Velocity : 56.5 kph

Maximum Static Crush : 620 mm

Vehicle Rebound : 409 mm

DUMMIES:

DRIVER

PASSENGER

Type :

572E

572E

Restraint System :

Airbag/3-point belt system
with pretensioner/load limiter

Airbag/3-point belt system
with pretensioner/load limiter

Number of Data Channels : 88

Number of Cameras : 1 Real Time

16 High Speed

DOOR OPENING DATA :

Closed/Operable - Left Front

Closed/Operable - Right Front

Front Seat(s) Data :

DRIVER

PASSENGER

Seat Track Failure :(mm of shift)

0

0

Seat Back Failure :

None

None

VISIBLE DUMMY CONTACT POINTS :

DRIVER

PASSENGER

Head :

Face to lower center of
airbag; Back of head to
outboard side of head restraint

Face to right one-third of
airbag; Back of head to center
of head restraint

Abdomen :

None

None

Chest

Airbag

Airbag

Knees

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

Left knee to left one-third of
glove compartment door; Right
knee to right one-third of glove
compartment door

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 1999 Nissan Pathfinder 4-Door MPV

NHTSA No. : MX5203 ; VIN: JN8AR07YXXW351869 ; Color : Blue

Engine Data: 6 cylinders; - CID; 3.3 Liters; - cc

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

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

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

Major Options : X A/C; X Pwr.Strg.; X Pwr. Brakes
X Pwr. Windows; X Pwr. Door Locks; X Tilt Wheel

Date Received : 3/5/99 ; Odometer Reading 32 km

Selling Dealer : Autoplace Nissan

& Address: 8137 Main Street, Williamsville, NY 14221

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : Nissan Motor Co., Ltd.

Date of Manufacture 12/98

GVWR : 2336.0 kg; GAWR: 1179.4 kg FRONT; 1292.8 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 350 kpa FRONT
350 kpa REAR

Recommended Tire Size : P245/70R16

* Recommended Cold Tire Pressure : 180 kpa FRONT; 180 kpa REAR

Size of Tires on Test Vehicle: P245/70R16 ; Manufacturer: Dunlop

Vehicle Capacity Data :

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

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

Vehicle Capacity Weight (VCW) = 455.5 kg

No. of Occupants x 68 kg = 340.0 kg

Rated Cargo/Luggage Weight (RCLW) = 115.5 kg

*Tire pressure used for test

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

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

Right Front = <u>503.5</u> kg	Right Rear = <u>417.5</u> kg
Left Front = <u>527.5</u> kg	Left Rear = <u>432.0</u> kg
TOTAL FRONT = <u>1031.0</u> kg	TOTAL REAR = <u>849.5</u> kg
TOTAL DELIVERED WEIGHT = <u>1880.5</u> kg	
% of Total Front of Vehicle Weight = <u>54.8</u> %	% of Total Rear Weight = <u>45.2</u> %

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW)	=	<u>1880.5</u> kg
Rated Cargo/Luggage Weight (RCLW)	=	<u>115.5</u> kg
Weight of 2 p.572 Dummies @ 76 each	=	<u>152.0</u> kg
TARGET TEST WEIGHT	=	<u>2148.0</u> kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 108 KG OF CARGO WEIGHT:

Right Front = <u>534.5</u> kg	Right Rear = <u>516.0</u> kg
Left Front = <u>561.0</u> kg	Left Rear = <u>528.5</u> kg
TOTAL FRONT = <u>1095.5</u> kg	TOTAL REAR = <u>1044.5</u> kg
TOTAL TEST WEIGHT = <u>2140.0</u> kg	
% of Total Front Weight = <u>51.2</u> %	% of Total Rear Weight = <u>48.8</u> %
Weight of Ballast Secured in Vehicle Trunk Area	= <u>26</u> kg
Vehicle Components Removed for Weight Reduction:	<u>None</u>

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	<u>858</u>	LF	<u>847</u>	RR	<u>886</u>	LR	<u>876</u>
FULLY LOADED :	RF	<u>842</u>	LF	<u>834</u>	RR	<u>846</u>	LR	<u>833</u>
AS TESTED :	RF	<u>842</u>	LF	<u>834</u>	RR	<u>847</u>	LR	<u>838</u>
Vehicle's Wheel Base :	<u>2701</u> mm							
Location of Vehicle's C.G. :	<u>1318</u> mm rearward of front wheel center.							

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual	=	<u>80</u> liters
Usable Capacity Figure Furnished by COTR	=	<u>79.1</u> liters
Test Volume Range (92 to 94 % of Usable Capacity)	=	<u>72.8</u> to <u>74.4</u> liters
ACTUAL TEST VOLUME	=	<u>73.8</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 aft of rear axle on left rear quarter panel; Fuel tank fore of rear axle and inboard of left frame rail; Fuel lines run along inboard side of right frame rail</u>		

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°
Test Date : April 1, 1999 Time: 13:50 Temperature: 21.7 °C
Vehicle NHTSA No. : MX5203
Required Impact Velocity Range : 55.5 to 57.1 kph

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

Trap No. 1 = 56.5 kph; Trap No. 2 = 56.5 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 = 4535 ; C/L = 4616 ; Left = 4535
Post-Test Right = 4019 ; C/L = 4044 ; Left = 4012
Crush Right = 516 ; C/L = 572 ; Left = 523
AVERAGE = 537 mm

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point :

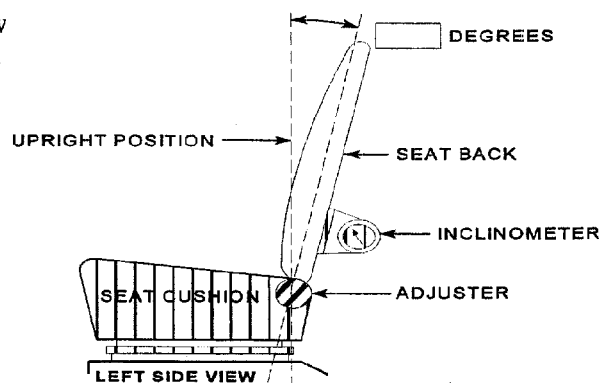
Right = 430 ; C/L = 400 ; Left = 398
AVERAGE = 409 mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 1999 Vehicle Model: Nissan Pathfinder Body Style : 4-Door MPV

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 : 24°

Measurement instructions : Place the seat back in detent 7, where the forward-most position is designated as detent 0.

Seat back angle for passenger's seat : 24°

Measurement instructions : Place the seat back in detent 7, where the forward-most position is designated as detent 0.

2. Seat Fore and Aft Positioning

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

Positioning of the passenger's seat (if applicable) : Place the seat track in detent 10, where the forward-most position is designated as detent 0.

3. Fuel Tank Capacity Data

3.1

- A. "Usable Capacity" of the standard equipment fuel tank is 79.1 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 = 79.1 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 73.8 liters

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

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

- The fuel pump operates:
- 1) for 1 second after the ignition is switched on
 - 2) while the engine is running.
 - 3) for 1 second after the engine stops.

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:

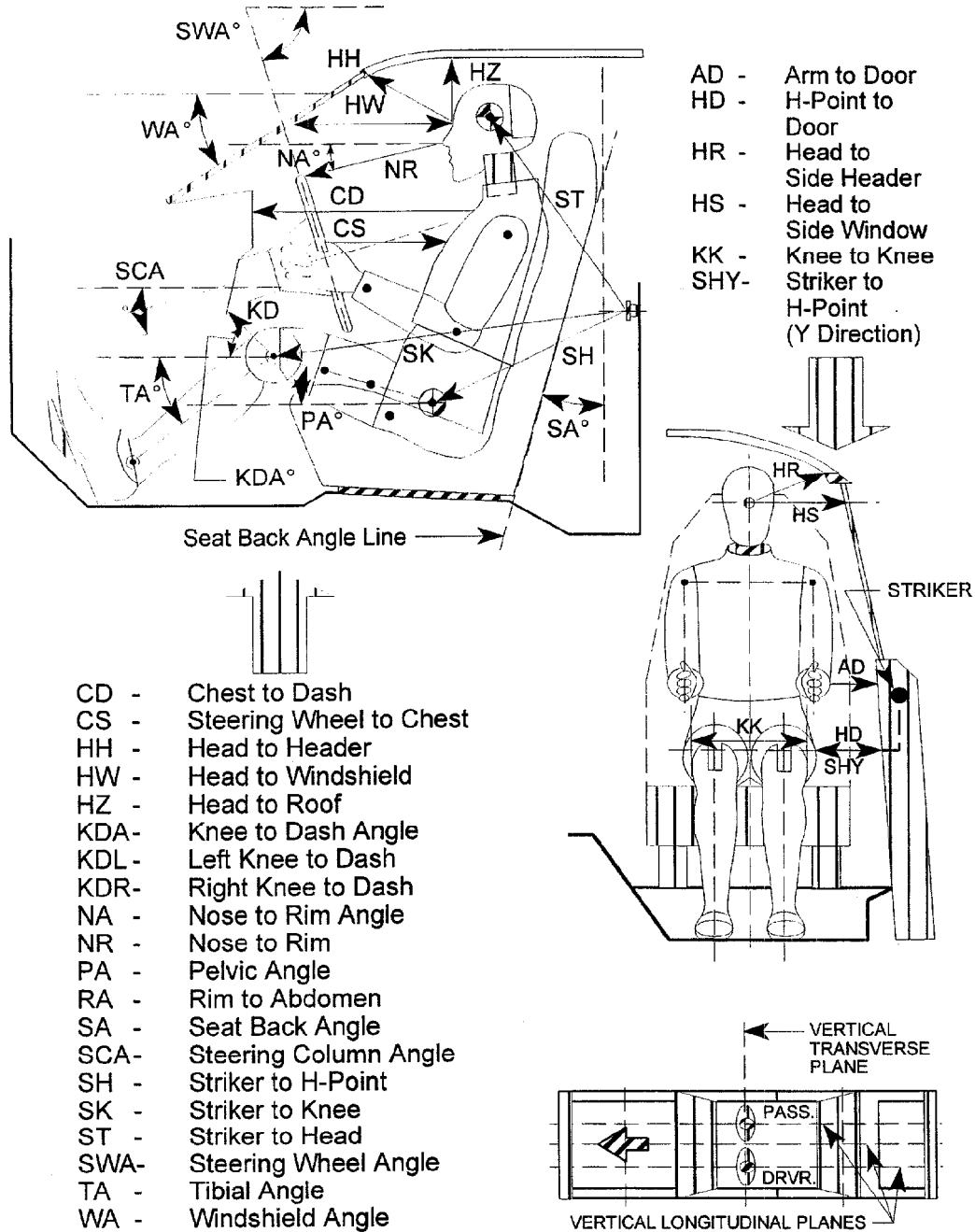
Place the steering column in mid-position. With the vehicle level, the steering column angle should read 24°.

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position:

Place the upper anchorage in detent 1, where the upper-most position is designated as detent 0.

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

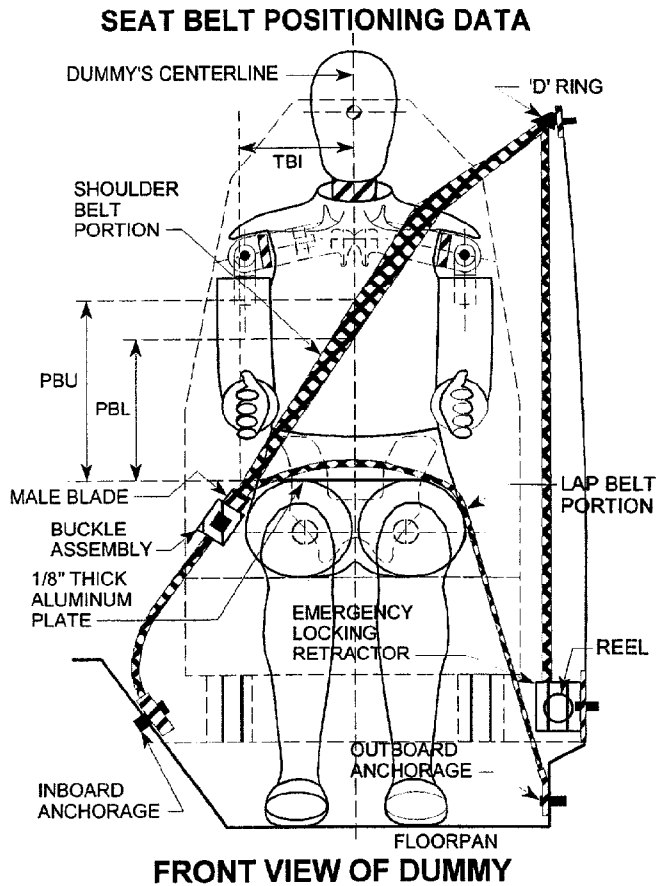


DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE

	DRIVER (Serial #061)			PASS. (Serial # 064)		
WA ^o	36 deg.			N/A		
SWA ^o	66 deg.			N/A		
SCA ^o	24 deg.			N/A		
SA ^o	24 deg.			24 deg.		
HZ	183			151		
HH	360			352		
HW	575			478		
HR	230			225		
NR	405	Angle	14 deg.	N/A		
CD	549			531		
CS	291			N/A		
RA	188			N/A		
KDL	169	Angle (KDA)	32 deg.	144		
KDR	150			143	Angle (KDA)	25 deg.
PA ^o	24.5 deg.			24.5 deg.		
TA ^o	32 deg.			40 deg.		
KK	321			272		
ST	564	Angle	9 deg.	562	Angle	9 deg.
SK	618	Angle	91 deg.	624	Angle	88 deg.
SH	259	Angle	115 deg.	251	Angle	109 deg.
SHY	212			202		
HS	310			305		
HD	184			168		
AD	91			93		

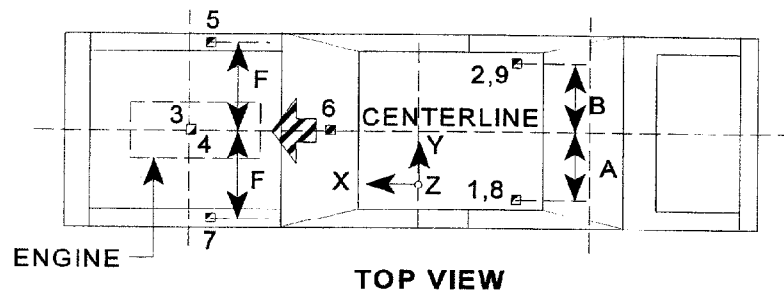
Dimensions in millimeters

DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

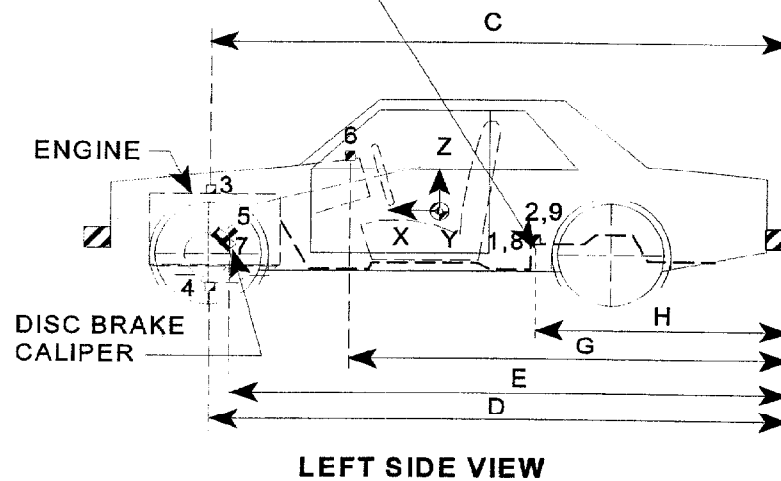


	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	309	306
PBL-- Top surface of alum. plate to belt lower edge	236	229
<u>LAP BELT TENSION</u>	10 N	10 N
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

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	-438
B Right Rear Seat Crossmember Y	437
C Top of Engine X	3834
D Bottom of Engine X	3583
E Disc Brake Calipers X	3693
F Disc Brake Calipers Y	±638
G Instrument Panel X	2897
H Rear Seat Crossmembers X	1758

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	2.4	163.2	-47.1	63.9
2	Rear Seat X-Member @ Right Side	3.9	162.9	-33.7	65.2
3	Top of Engine Block	43.3	52.3	-153.9	41.5
4	Bottom of Engine	49.1	50.6	-128.8	42.1
5	Disc Brake Caliper @ Right Side	49.6	69.3	-88.3	46.5
6	Instrument Panel	34.8	43.4	-100.2	55.0
7	Disc Brake Caliper @ Left Side	4.0	162.6	-34.4	65.3
8	Rear Seat X-Member @ Left-Redundant	2.8	163.2	-37.9	64.9
9	Rear Seat X-Member @ Right-Redundant	36.2	47.0	†	†

† Data cable was damaged during the impact, data is invalid after 50 ms.

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

NHTSA Test No.: MX5203 Vehicle: 1999 Nissan Pathfinder 4-Door MPV
 NHTSA Test No.: MX5203 Test Date: April 1, 1999

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec.	Neg.	msec.
Pos. 1 Head X	g's	19.2	205.2	-77.1	79.2
Pos. 1 Head Y	g's	2.9	152.0	-11.9	83.0
Pos. 1 Head Z	g's	27.2	72.3	-7.4	113.9
Pos. 1 Head Resultant	g's	79.4	79.0	0.0	-57.3
Pos. 2 Head X	g's	3.7	251.8	-38.5	70.8
Pos. 2 Head Y	g's	6.7	58.9	-17.0	84.9
Pos. 2 Head Z	g's	30.8	58.2	-5.3	133.6
Pos. 2 Head Resultant	g's	49.2	70.9	0.0	20.5
Pos. 1 Chest X	g's	4.0	183.0	-45.0	71.2
Pos. 1 Chest Y	g's	10.1	70.6	-6.8	46.3
Pos. 1 Chest Z	g's	9.4	38.6	-10.3	113.2
Pos. 1 Chest Resultant	g's	46.1	71.1	0.0	-98.3
Pos. 1 Chest Displacement	mm	0.0	13.1	-38.7	81.0
Pos. 2 Chest X	g's	2.9	330.8	-45.2	65.2
Pos. 2 Chest Y	g's	8.6	70.9	-6.7	84.2
Pos. 2 Chest Z	g's	10.1	54.3	-12.3	128.3
Pos. 2 Chest Resultant	g's	45.3	65.2	0.0	-70.1
Pos. 2 Chest Displacement	mm	0.0	11.7	-38.6	76.5
Pos. 1 Left Femur	N	338.0	35.4	-1812.7	61.2
Pos. 1 Right Femur	N	707.5	31.3	-1537.8	50.8
Pos. 2 Left Femur	N	314.3	35.0	-2172.8	76.3
Pos. 2 Right Femur	N	343.0	29.8	-2879.1	53.0
Pos. 1 Left Belt Load	N	†	†	†	†
Pos. 1 Torso Belt Load	N	†	†	†	†
Pos. 2 Right Belt Load	N	†	†	†	†
Pos. 2 Torso Belt Load	N	†	†	†	†

† To prevent interference with the vehicle seat belt pretensioner system, the transducer was not installed on the vehicle.

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

NHTSA Test No.: MX5203 Vehicle: 1999 Nissan Pathfinder 4-Door MPV

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	834.5	66.1	92.8	62.8
Position #2 - Passenger	363.5	56.7	92.7	40.0

** 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	44.4	69.9	72.9	404.1
Position #2 - Passenger	43.4	64.3	68.6	378.2

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

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)
HYBRID III NECK AND PELVIC DATA SHEET

Vehicle Year/Make/Model/Body Style: 1999 Nissan Pathfinder 4-Door MPV
NHTSA Test No.: MX5203 Test Date: April 1, 1999

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Upper Neck Fx	N	214.6	85.1	-335.9	48.8
Pos. 1 Upper Neck Fy	N	131.5	149.0	-195.0	79.1
Pos. 1 Upper Neck Fz	N	1920.1	72.4	-390.0	230.6
Pos. 1 Neck Force Result	N	1935.4	72.4	1.5	-47.0
Pos. 1 Upper Neck Mx	N-m	12.2	51.2	-10.3	94.3
Pos. 1 Upper Neck My	N-m	30.9	146.1	-38.4	228.8
Pos. 1 Upper Neck Mz	N-m	13.6	111.0	-6.5	78.3
Pos. 1 Neck Moment Result	N-m	38.7	228.8	0.0	-8.6
Pos. 2 Upper Neck Fx	N	359.8	65.6	-574.1	134.6
Pos. 2 Upper Neck Fy	N	370.5	57.5	-274.5	87.7
Pos. 2 Upper Neck Fz	N	1258.7	57.2	-242.3	134.1
Pos. 2 Neck Force Result	N	1322.3	58.0	2.6	-61.3
Pos. 2 Upper Neck Mx	N-m	10.1	85.0	-28.6	57.9
Pos. 2 Upper Neck My	N-m	57.9	65.7	-22.1	230.9
Pos. 2 Upper Neck Mz	N-m	23.7	71.4	-8.7	129.4
Pos. 2 Neck Moment Result	N-m	61.5	66.2	0.0	-59.3
Pos. 1 Pelvic (X)	g's	8.0	104.3	-49.6	53.5
Pos. 1 Pelvic (Y)	g's	12.2	64.5	-9.8	54.3
Pos. 1 Pelvic (Z)	g's	2.9	219.3	-20.3	62.8
Pos. 1 Pelvic (R)	g's	52.1	61.4	0.0	-38.1
Pos. 2 Pelvic (X)	g's	8.7	120.3	-46.5	53.2
Pos. 2 Pelvic (Y)	g's	8.4	60.6	-8.1	96.8
Pos. 2 Pelvic (Z)	g's	3.1	30.3	-20.6	66.9
Pos. 2 Pelvic (R)	g's	47.3	53.2	0.1	-72.6

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

Vehicle Year/Make/Model/Body Style: 1999 Nissan Pathfinder 4-Door MPV
 NHTSA Test No.: MX5203 Test Date: April 1, 1999

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
P1 Lt Upper Tibia Mx	N-m	10.7	58.3	-78.3	49.1
P1 Lt Upper Tibia My	N-m	37.9	168.4	-59.7	43.7
P1 Lt Lower Tibia Fz	N	118.5	139.6	-3386.3	55.0
P1 Lt Lower Tibia Mx	N-m	75.1	54.5	-16.5	44.4
P1 Lt Lower Tibia My	N-m	40.0	109.8	-33.6	44.7
P1 Rt Upper Tibia Mx	N-m	111.8	44.1	-28.0	55.0
P1 Rt Upper Tibia My	N-m	43.7	81.2	-108.2	52.6
P1 Rt Lower Tibia Fz	N	131.1	226.2	-5723.9	52.7
P1 Rt Lower Tibia Mx	N-m	23.3	39.0	-209.2	54.1
P1 Rt Lower Tibia My	N-m	129.0	57.2	-33.6	35.2
Pos. 2 Lt Upper Tibia Mx	N-m	19.6	342.0	-55.1	71.0
Pos. 2 Lt Upper Tibia My	N-m	99.0	81.4	-83.1	33.9
Pos. 2 Lt Lower Tibia Fz	N	195.3	328.8	-2176.9	54.9
Pos. 2 Lt Lower Tibia Mx	N-m	14.7	52.9	-60.6	71.0
Pos. 2 Lt Lower Tibia My	N-m	106.7	76.8	-41.9	51.6
Pos. 2 Rt Upper Tibia Mx	N-m	12.3	40.5	-43.0	66.5
Pos. 2 Rt Upper Tibia My	N-m	49.4	67.8	-59.0	34.5
Pos. 2 Rt Lower Tibia Fz	N	325.6	162.0	-2487.5	55.9
Pos. 2 Rt Lower Tibia Mx	N-m	†	†	†	†
Pos. 2 Rt Lower Tibia My	N-m	32.4	73.3	-38.1	35.2

† No data. Transducer was damaged.

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

Vehicle Year/Make/Model/Body Style: 1999 Nissan Pathfinder 4-Door MPV
 NHTSA Test No.: MX5203 Test Date: April 1, 1999

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Left Ankle X	g's	21.7	105.3	-81.4	44.4
Pos. 1 Left Ankle Z	g's	6.7	112.0	-52.9	44.8
Pos. 1 Left Toe Z	g's	24.9	53.1	-77.9	26.3
Pos. 1 Right Ankle X	g's	28.9	56.5	-97.7	51.3
Pos. 1 Right Ankle Z	g's	11.5	70.4	-146.7	51.7
Pos. 1 Right Toe Z	g's	†	†	†	†
Pos. 2 Left Ankle X	g's	23.8	72.7	-98.3	50.4
Pos. 2 Left Ankle Z	g's	‡	‡	‡	‡
Pos. 2 Left Toe Z	g's	45.4	55.4	-145.8	49.0
Pos. 2 Right Ankle X	g's	15.1	80.5	-80.8	37.6
Pos. 2 Right Ankle Z	g's	12.9	24.0	-47.2	53.5
Pos. 2 Right Toe Z	g's	48.2	23.7	-68.3	37.6

† Data is questionable after 37 ms.

‡ Data is questionable.

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

NHTSA Test No.: MX5203 Vehicle: 1999 Nissan Pathfinder 4-Door MPV
NHTSA Test No.: MX5203 Test Date: April 1, 1999

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Head X(R)	g's	19.0	207.0	-77.4	79.5
Pos. 1 Head Y(R)	g's	3.6	114.2	-16.4	83.0
Pos. 1 Head Z(R)	g's	31.3	72.5	-7.6	114.0
Pos. 1 Head Resultant(RR)	g's	80.0	78.6	0.1	-51.2
Pos. 2 Head X(R)	g's	3.8	250.5	-43.1	70.8
Pos. 2 Head Y(R)	g's	6.6	42.6	-21.0	53.1
Pos. 2 Head Z(R)	g's	37.0	58.8	-7.0	145.4
Pos. 2 Head Resultant(RR)	g's	51.7	70.9	0.1	-60.7
Pos. 1 Chest X(R)	g's	4.3	183.0	-45.0	74.8
Pos. 1 Chest Y(R)	g's	10.6	70.6	-6.4	40.3
Pos. 1 Chest Z(R)	g's	10.1	38.5	-10.7	113.1
Pos. 1 Chest Resultant(RR)	g's	45.8	71.1	0.0	-100.0
Pos. 2 Chest X(R)	g's	2.9	337.8	-43.7	65.1
Pos. 2 Chest Y(R)	g's	9.5	71.2	-6.7	85.6
Pos. 2 Chest Z(R)	g's	10.9	55.2	-12.1	128.3
Pos. 2 Chest Resultant(RR)	g's	43.9	65.1	0.0	-72.0

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

NHTSA Test No.: MX5203 Vehicle: 1999 Nissan Pathfinder 4-Door MPV

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	870.3	65.4	93.0	63.0
Position #2 - Passenger	413.0	52.7	88.7	42.1

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

CLIP SUMMARY* REDUNDANT				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	45.0	70.3	75.8	452.9
Position #2 - Passenger	41.8	63.9	68.8	371.6

* 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

1844

1816

Shoulder belt length as measured
on Part 572 Dummy.

915

906

Lap belt length as measured
on Part 572 Dummy.

929

910

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.

79

64

As determined mechanically.

†

†

As determined electronically.

†

†

BELT STRETCH DATA:

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

†

†

Measured mechanically.

10 mm/M

6 mm/M

Dimensions in millimeters

† To prevent interference with the vehicle seat belt pretensioner system, the transducer was not installed on the vehicle.

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 12 mm molding.

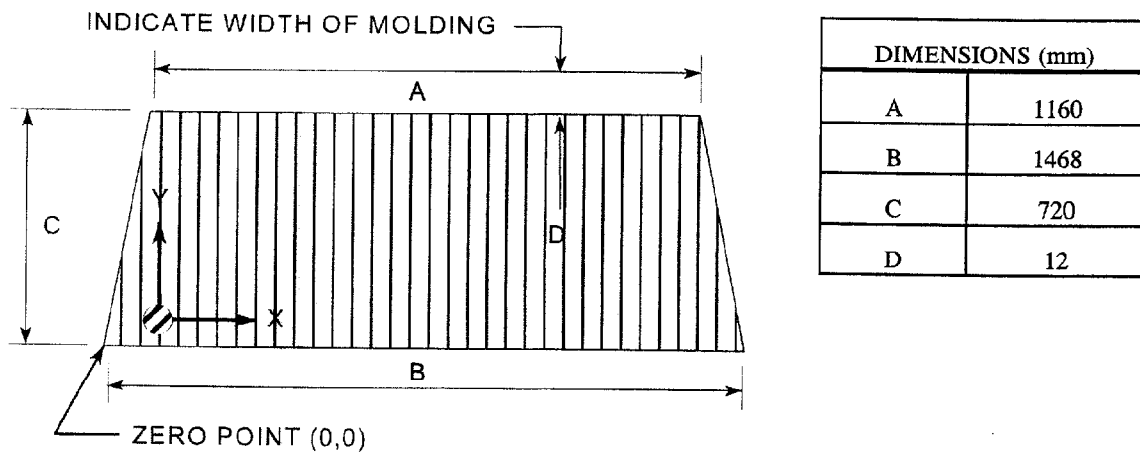
FMVSS 212 REQUIREMENTS:

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	2034	2034	100
LEFT SIDE	2034	2034	100
TOTAL	4,068	4,068	100

AREA OF RETENTION FAILURE:



FRONT VIEW OF WINDSHIELD

FAILURE DETAILS: None

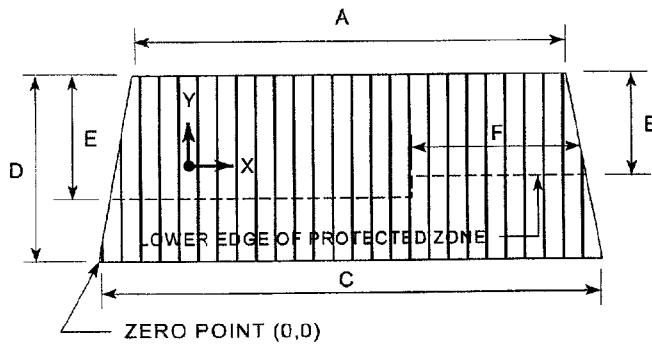
DATA SHEET NO. 11 FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA

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)



FRONT VIEW OF WINDSHIELD

DIMENSIONS	
A	1160
B	382
C	1468
D	720
E	468
F	840

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

(Show location of penetration on the above sketch)

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

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

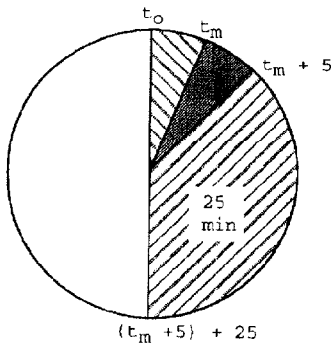
NHTSA TEST No.: MX5203 TEST DATE: April 1, 1999
VEHICLE MAKE/MODEL: 1999 Nissan Pathfinder

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

[illegible]

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

FUEL SPILLAGE MEASUREMENT:



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

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

SOLVENT SPILLAGE DETAILS: None

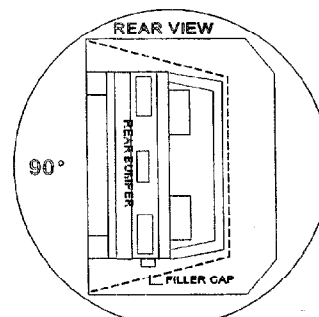
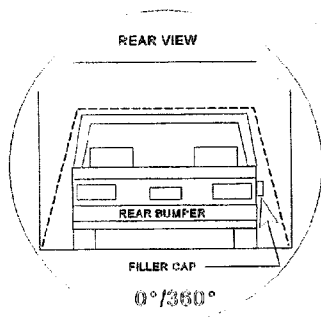
DATA SHEET NO. 13 FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

0-90 deg.

NHTSA Test No.:

MX5203



INDETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

1 minutes 13 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 13 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 g	0 g	0 g	0 g
-----	-----	-----	-----

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

IV. SOLVENT SPILLAGE LOCATION(S): None

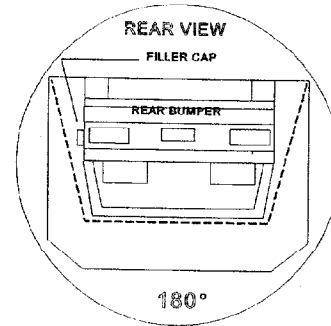
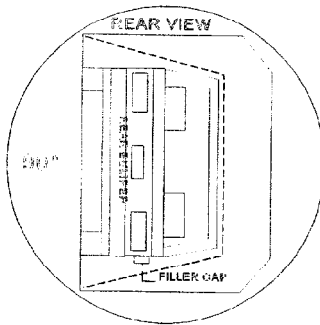
TEST SHEET NO. 13 FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:

90-180 deg.

NHTSA Test No.:

MX5203



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 g	0 g	0 g	0 g
-----	-----	-----	-----

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

IV. SOLVENT SPILLAGE LOCATION(S): None

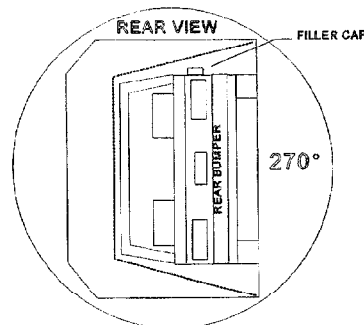
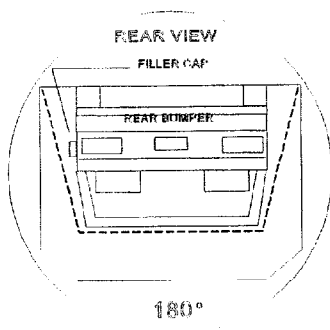
TEST SHEET NO. 13 FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:

180-270 deg.

NHTSA Test No.:

MX5203



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 g	0 g	0 g	0 g
-----	-----	-----	-----

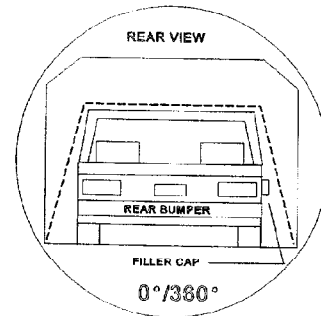
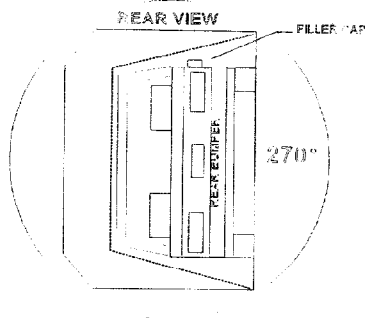
Note: Record spillage for whole minute intervals only as determined above.

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.:
MX5203



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

1 minutes 10 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 10 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
-------	------	------	------

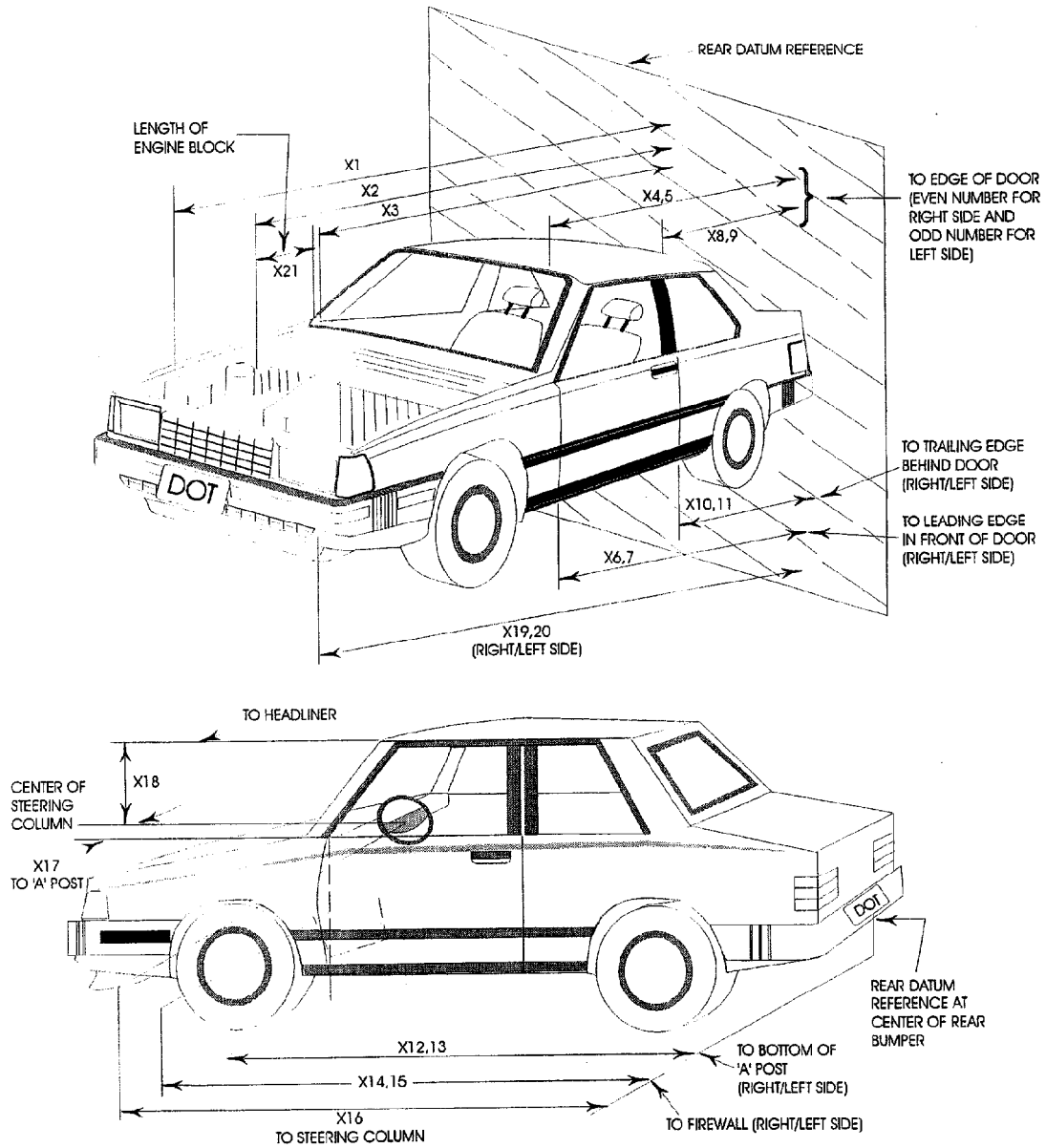
III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 g	0 g	0 g	0 g
-----	-----	-----	-----

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

IV. SOLVENT SPILLAGE LOCATION(S): None

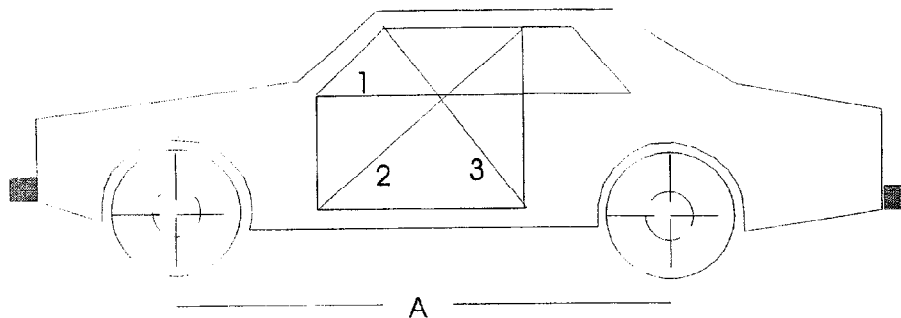
TEST VEHICLE MEASUREMENTS



DATA SHEET NO.14 VEHICLE MEASUREMENTS

No.		All Dimensions in mm		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4616	4044	572
X2	Rear Surface of Vehicle to Front of Engine	4033	3796	237
X3	Rear Surface of Vehicle to Firewall	3457	3316	141
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3252	3247	5
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3253	3237	16
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3201	3184	17
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3196	3176	20
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2115	2111	4
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2109	2100	9
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2096	2092	4
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2091	2079	12
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3194	3214	-20
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3200	3182	18
X14	Rear Surface of Vehicle to Firewall, Right Side	3436	3323	113
X15	Rear Surface of Vehicle to Firewall, Left Side	3453	3356	97
X16	Rear Surface of Vehicle to Steering Column	2738	2759	-21
X17	Center of Steering Column to "A" Post	272	261	11
X18	Center of Steering Column to Headliner	427	344	83
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4535	4019	516
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4535	4012	523
X21	Length of Engine Block	559	559	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2958	2939	19
CD	Rear Surface of Vehicle to Center of Dash Panel	2974	2948	26
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2954	2925	29

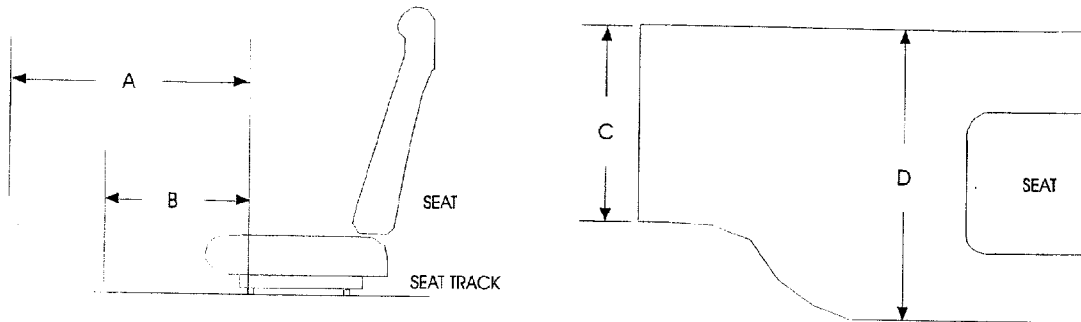
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
VEHICLE INTRUSION MEASUREMENTS
DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1028	1471	1101	1028	1464	1103
AFTER TEST	1015	1468	1104	1013	1466	1102
DIFFERENCE	13	3	-3	15	-2	1

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2701	2701
AFTER TEST	2607	2624
DIFFERENCE	94	77

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



DRIVER

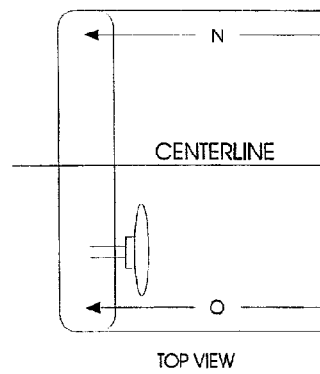
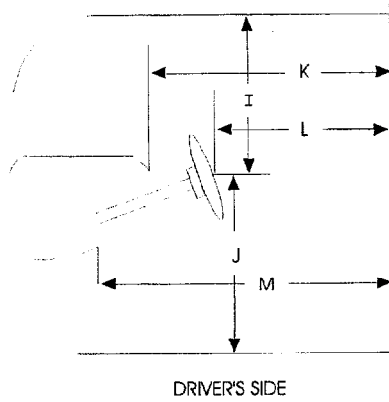
Measurement	Pre-Test	Post-Test	Difference
A	758	651	107
B	535	518	17
C	453	446	7
D	537	531	6

PASSENGER

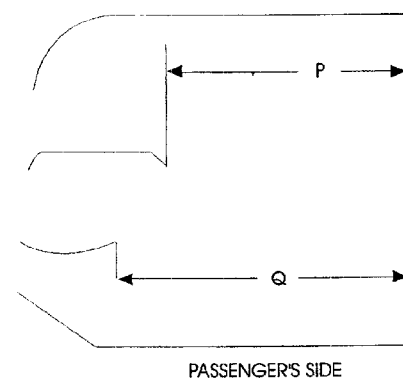
Measurement	Pre-Test	Post-Test	Difference
A	724	581	143
B	492	460	32
C	403	401	2
D	525	530	-5

Units = mm

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



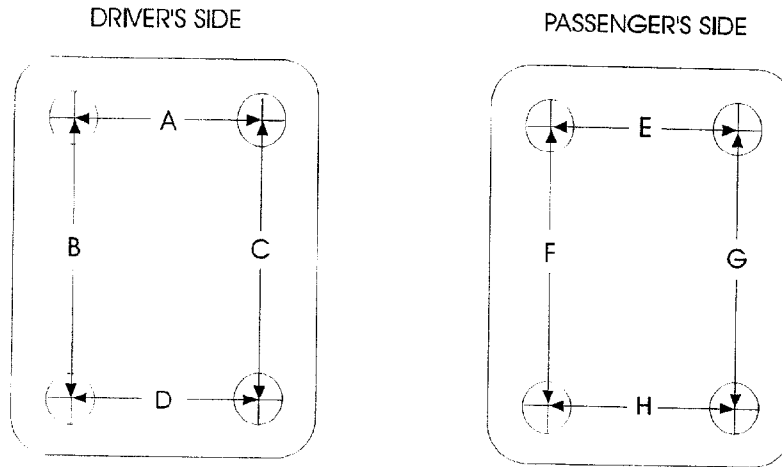
MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



Measurement	Pre-Test	Post-Test	Difference
I	427	344	83
J	604	666	-62
K	1911	1886	25
L	1677	1704	-27
M	1886	1863	23
N	1896	1884	12
O	1895	1871	24
P = K (PASS.)	1895	1879	16
Q = M (PASS.)	1981	1942	39

Units = mm

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

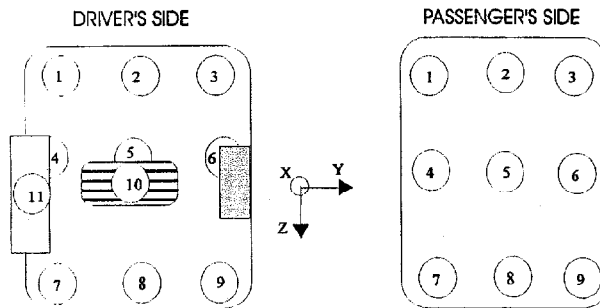


TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	454	395	59
B	896	880	16
C	875	832	43
D	518	513	5
E	406	382	24
F	882	848	34
G	896	896	0
H	506	500	6

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	3425	3314	111	-735	-760	25
2	3442	3319	123	-675	-694	19
3	3398	3287	111	-680	-700	20
4	3364	3280	84	-569	-611	42
5	3375	3239	136	-568	-591	23
6	3338	3240	98	-586	-581	-5
7	3236	3209	27	-493	-491	-2
8	3241	3208	33	-500	-515	15
9	3248	3186	62	-514	-476	-38
10	3236	3107	129	-668	-680	12
11	3307	3262	45	-588	-615	27

Passenger Side Floorpan Measurements

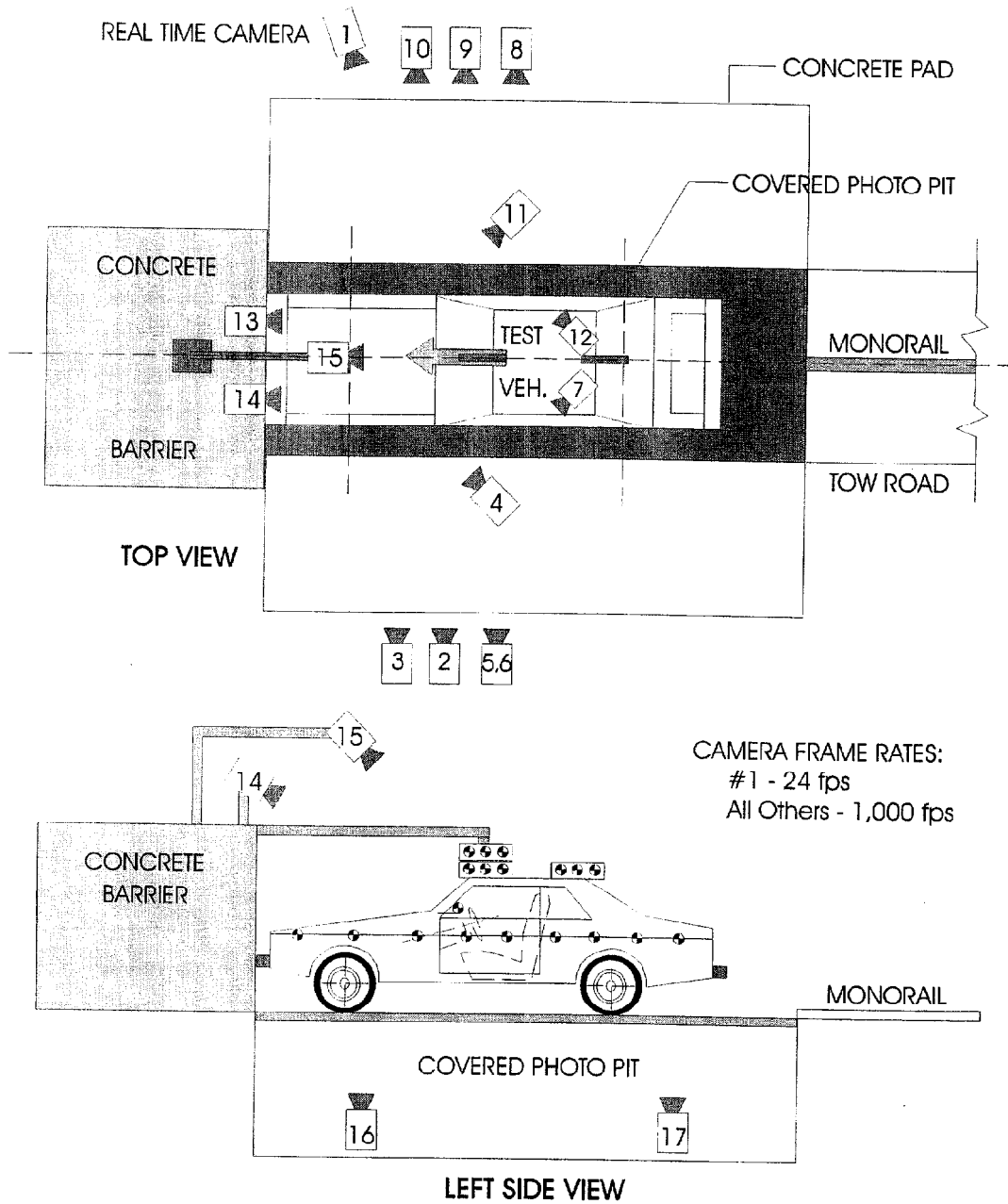
Reference: X = Rear Bumper; Z = Ground

Floorpan Location	X Deformation			Z Deformation		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3376	3283	93	-634	-679	45
2	3400	3280	120	-627	-669	42
3	3374	3288	86	-640	-662	22
4	3286	3219	67	-550	-558	8
5	3313	3221	92	-525	-595	70
6	3314	3249	65	-533	-573	40
7	3201	3151	50	-502	-495	-7
8	3204	3166	38	-490	-469	-21
9	3207	3175	32	-479	-464	-15

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

Vehicle: 1999 Nissan Pathfinder 4-Door MPV

Vehicle:

MX5203

NHTSA Test No.:

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	7034	1519	1095	-4	6584	12.5	1025
3	Left Side View	8346	897	1095	-1	7896	25	1025
4	Driver and Interior View	4826	2945	2084	-11	-	25	1025
5	Steering Column (Bottom)	7397	1756	1175	-2	6947	25	1025
6	Steering Column (Top)	7397	1756	1802	-8	6947	25	1025
7	Left Belt	-	-	-	-	-	13	1025
8	Overall Right Side	6926	1907	1095	-4	6476	12.5	1025
9	Right Side View	8611	1400	1155	-2	8161	25	1020
10	Right Passenger View	8141	1817	1412	-3	7691	35	1005
11	Passenger and Interior View	4650	3166	1936	-11	-	25	1025
12	Right Belt	-	-	-	-	-	13	1020
13	Passenger Front View	580	-25	1975	-31	-	13	1015
14	Driver Front View	580	-25	1975	-34	-	13	1015
15	Windshield View	0	-92	3558	-48	-	13	1020
16	Pit View of Engine	0	565	-3048	90	-	13	1030
17	Pit View of Fuel Tank	0	2205	-3048	90	-	13	1120

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

Y = film plane to impact location

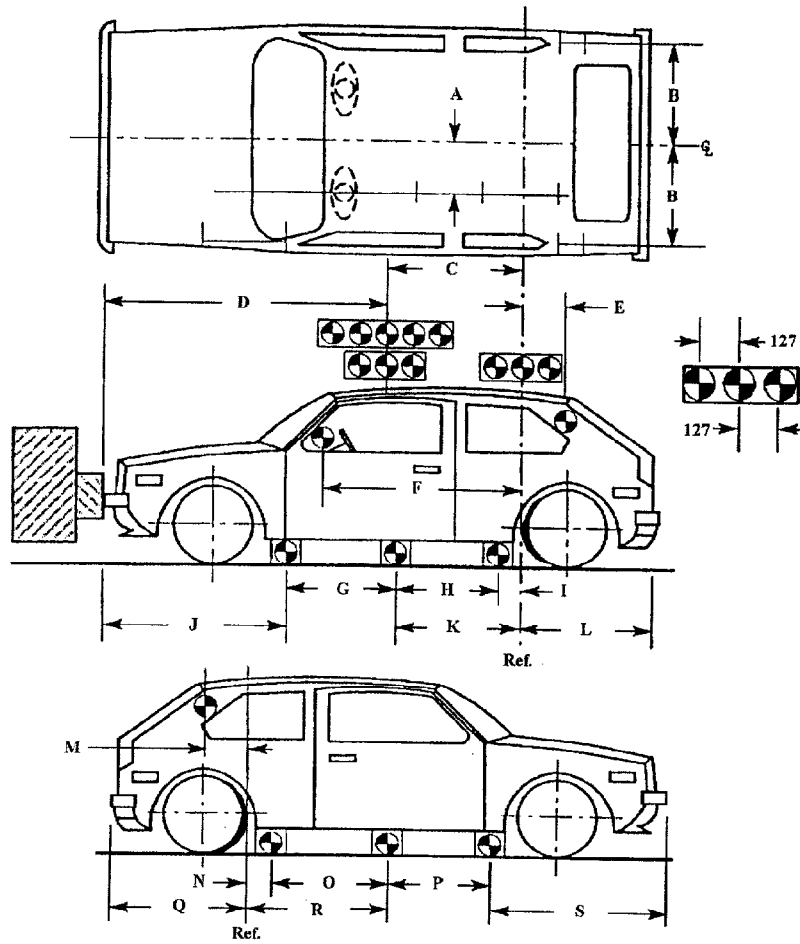
N.T. indicates No Timing

Z = film plane to ground

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

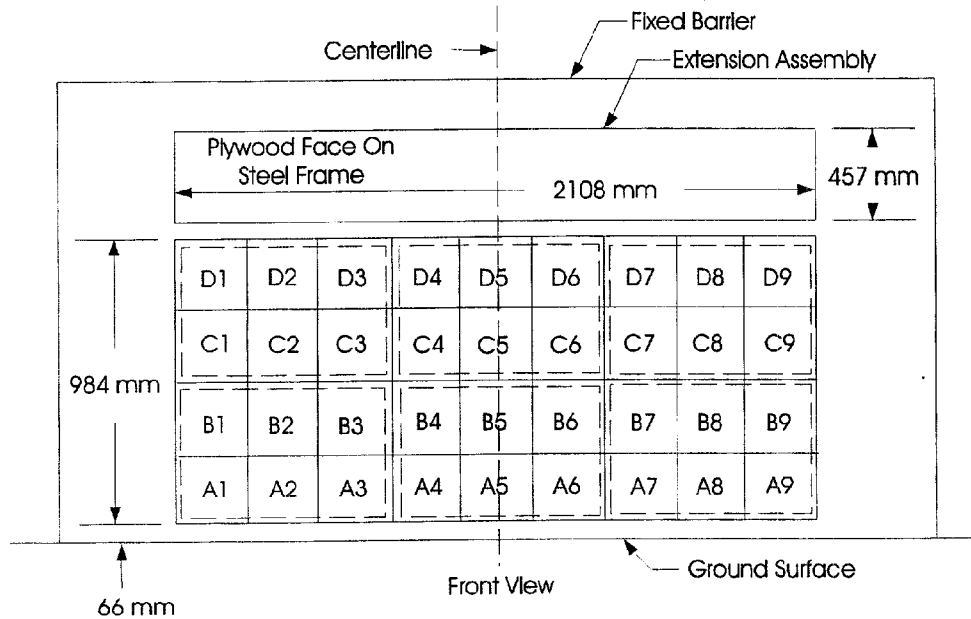
(Dimensions in millimeters)

A	374
B	519
C	1220
D	2336
E	377
F	1866
G	778
H	775
I	146
J	1480
K	921
L	1437
M	1445
N	137
O	779
P	780
Q	1445
R	916
S	1475



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. : MX5203; Test Date: April 1, 1999; Technician: LQV

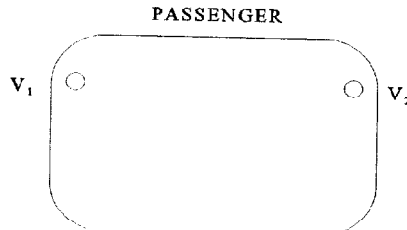
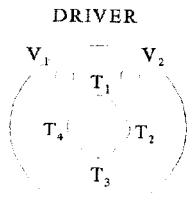
Vehicle Model Year/Make/Model: 1999 Nissan Pathfinder

A. No. of vent holes: 2 -Driver 2 -Passenger
 B. Size of vent holes: (mm²) 707 -Driver 2376 -Passenger
 C. Total vent area: (mm²) 1414 -Driver 4752 -Passenger

D. Deflated air bag length and width dimensions or, if round, diameter. (mm)
 Driver: - -Length; - -Width; 670 -Diameter
 Passenger: 505 -Height; 405 -Width; 580 -Depth

E. Is the air bag tethered?
 Driver: X -Yes; - -No; If yes, record length of tether- 260
 Passenger: - -Yes; X -No; If yes, record length of tether- -

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



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

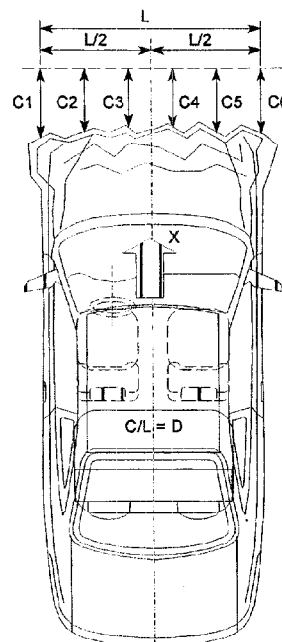
Driver: Air bag: None
Generator: WM2W698Y116709; 2020618A
 Passenger: Air bag: None
Generator: WP0W098X202304; 30305474A

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

Vehicle Make/Model/Body Style: Nissan Pathfinder 4-Door MPV
 NHTSA Test No.: MX5203 VIN: JN8AR07YXXW351869
 Model Year: 1999 Build Date: 12/98 Test Date: April 1, 1999
 Vehicle Size Category: MPV Test Weight: 2140.0 kg
 Vehicle Wheelbase: 2701 mm; Front Overhang: 1346 mm; Overall Width: 1746 mm
 Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	4469	4041	-428	mm
C2 =	4596	3981	-615	mm
C3 =	4617	3997	-620	mm
C4 =	4617	4010	-607	mm
C5 =	4595	3976	-619	mm
C6 =	4469	4067	-402	mm



Midpoint of Damage: D = Vehicle Centerline
(Longitudinal)

Length of Damaged Region:
 L1 = 1746 mm
 L2 = 873 mm
 L3 = 582 mm

Appendix A
PHOTOGRAPHS

PHOTOGRAPHS

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A-13	POST-TEST WINDSHIELD VIEW	A-16
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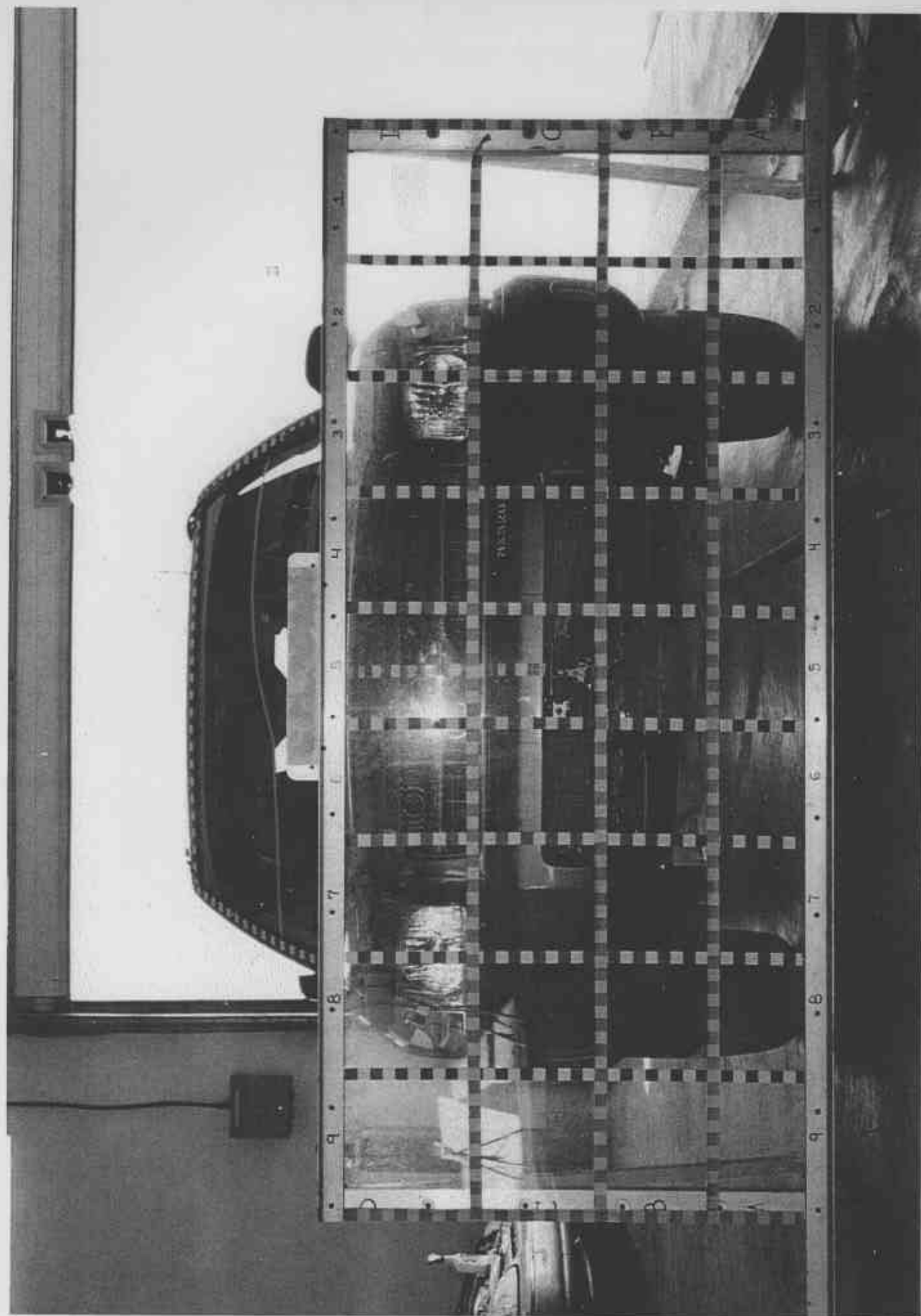


Figure A-1 LOAD CELL LOCATIONS



Figure A-2 PRE-TEST FRONT VIEW

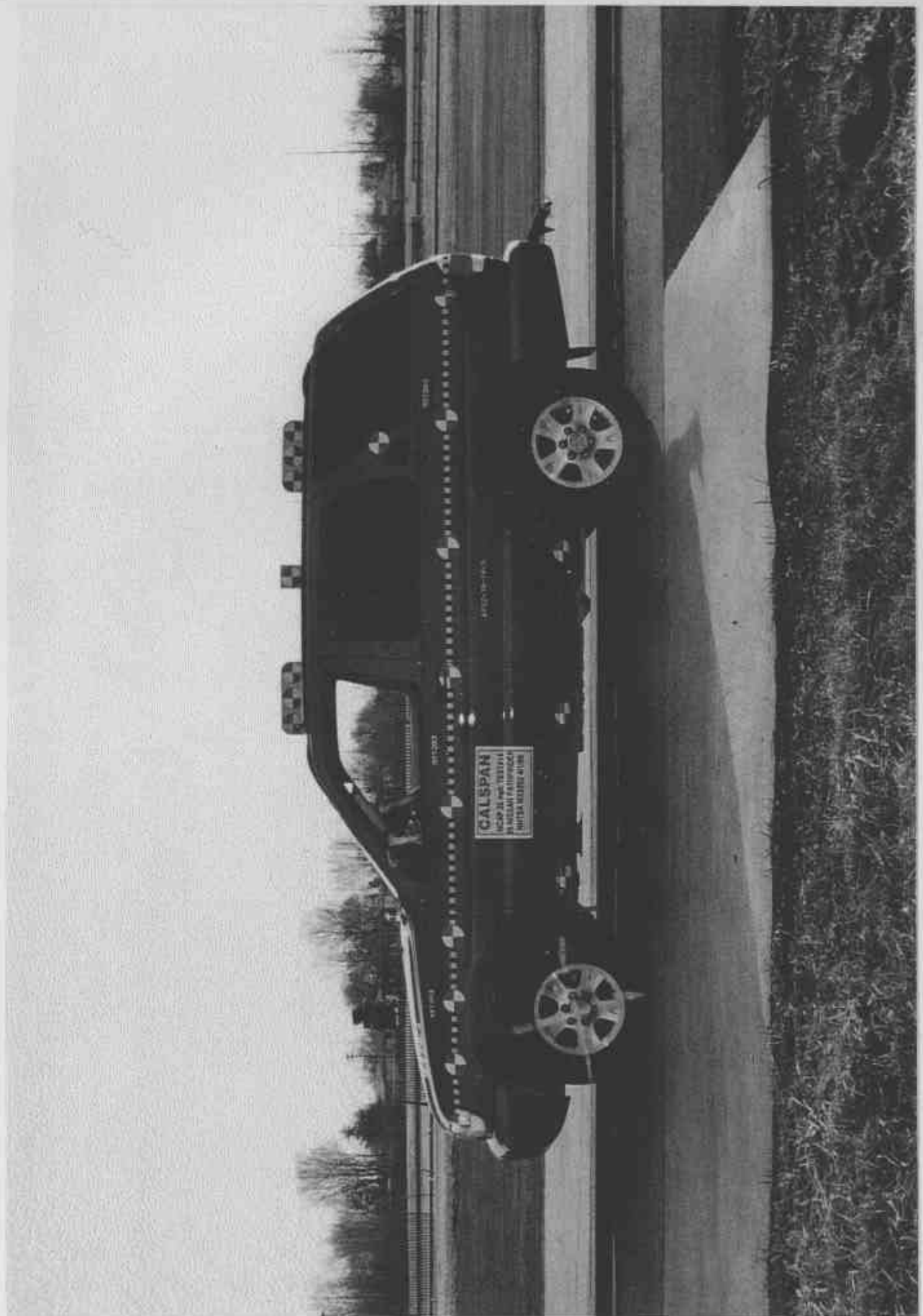


Figure A-4 PRE-TEST LEFT SIDE VIEW

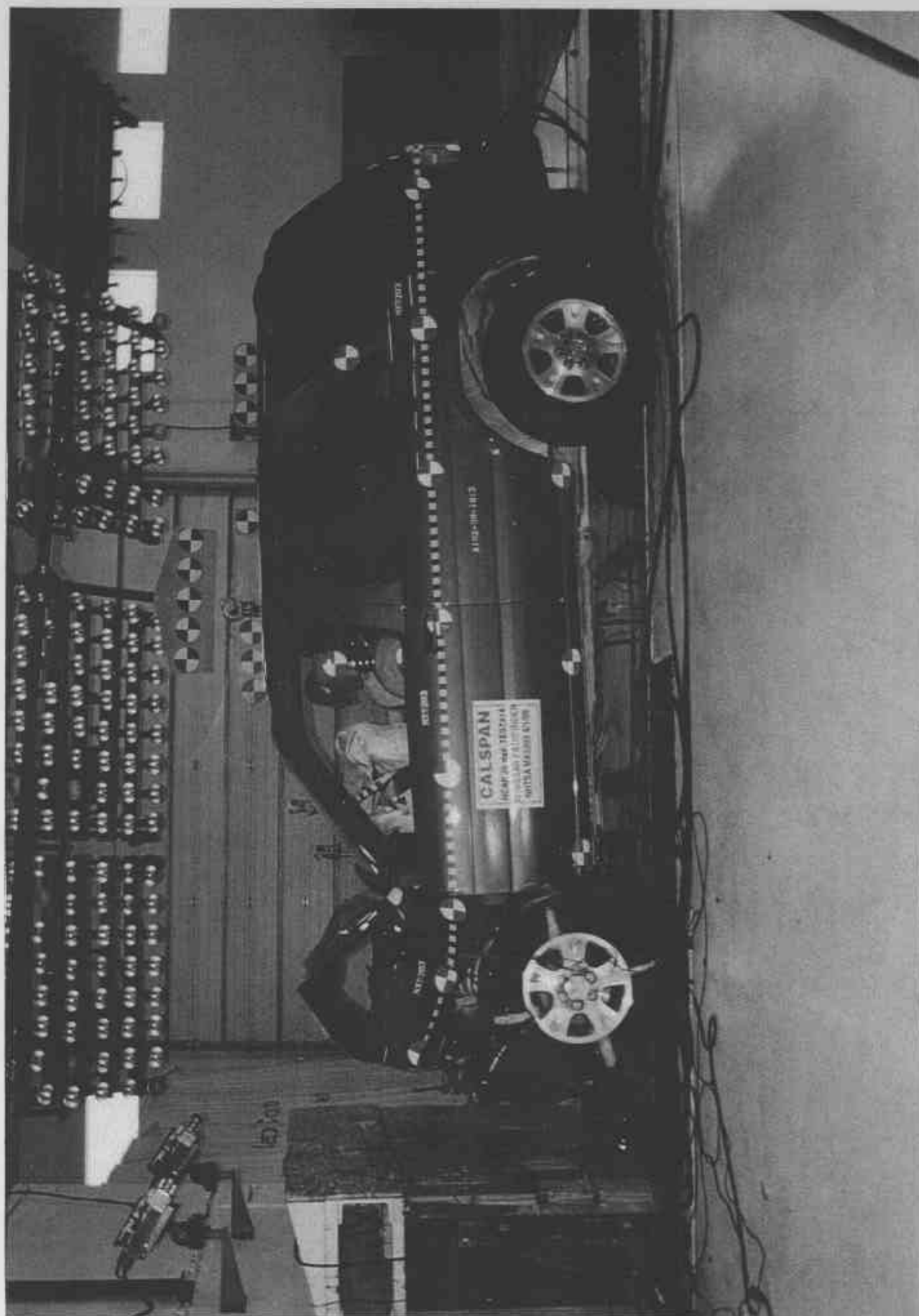


Figure A-5 POST-TEST LEFT SIDE VIEW

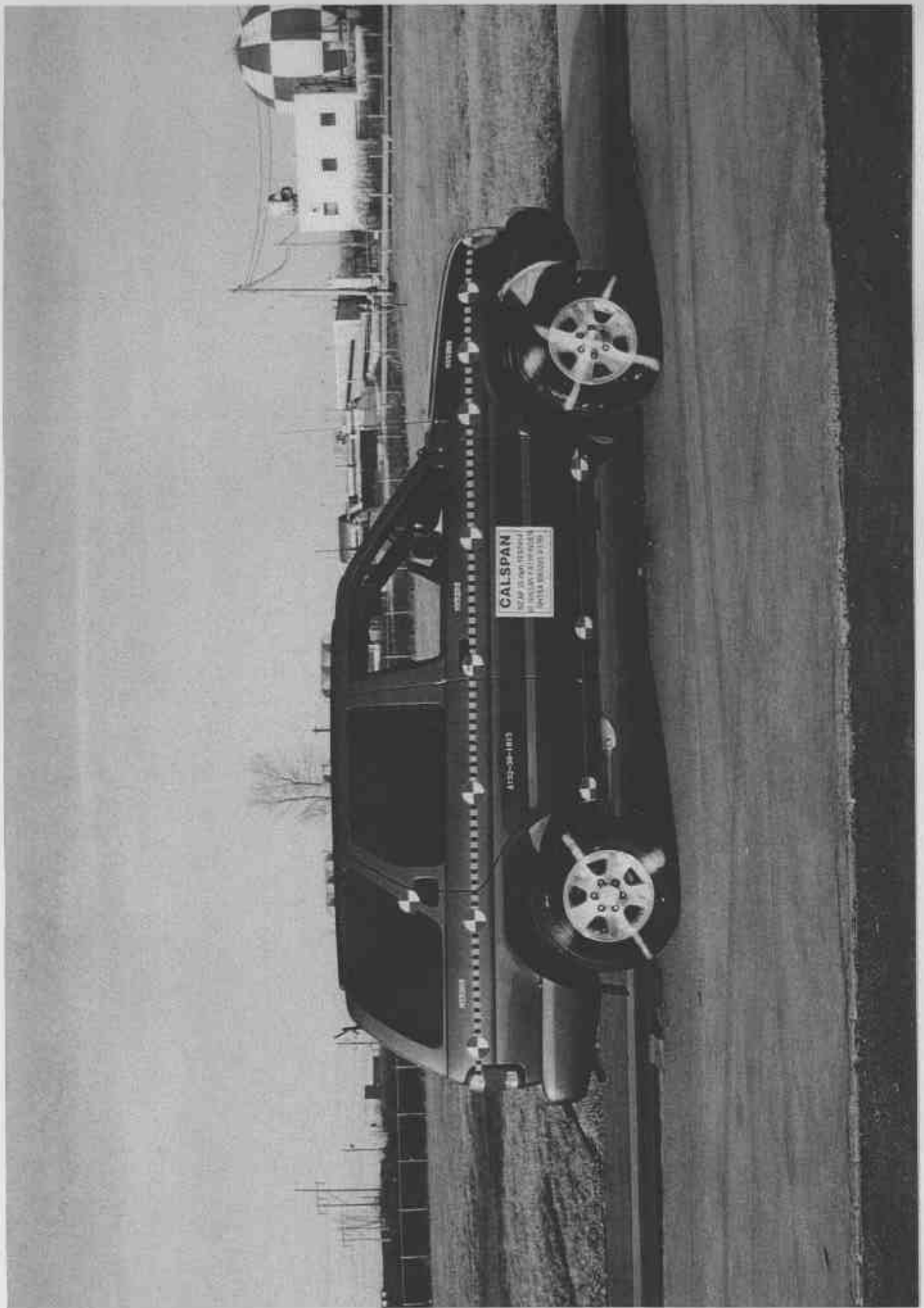


Figure A-6 PRE-TEST RIGHT SIDE VIEW

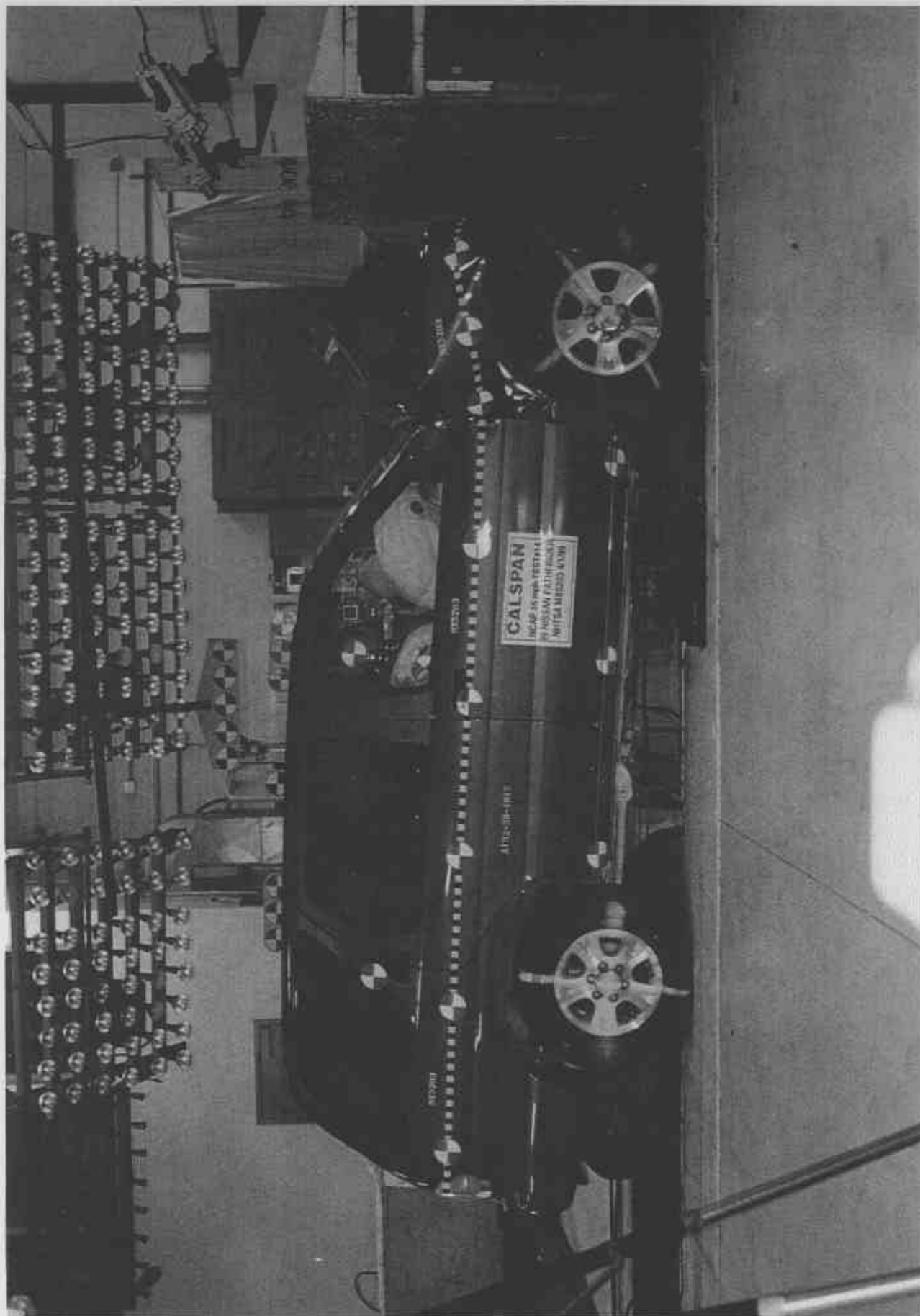


Figure A-7 POST-TEST RIGHT SIDE VIEW

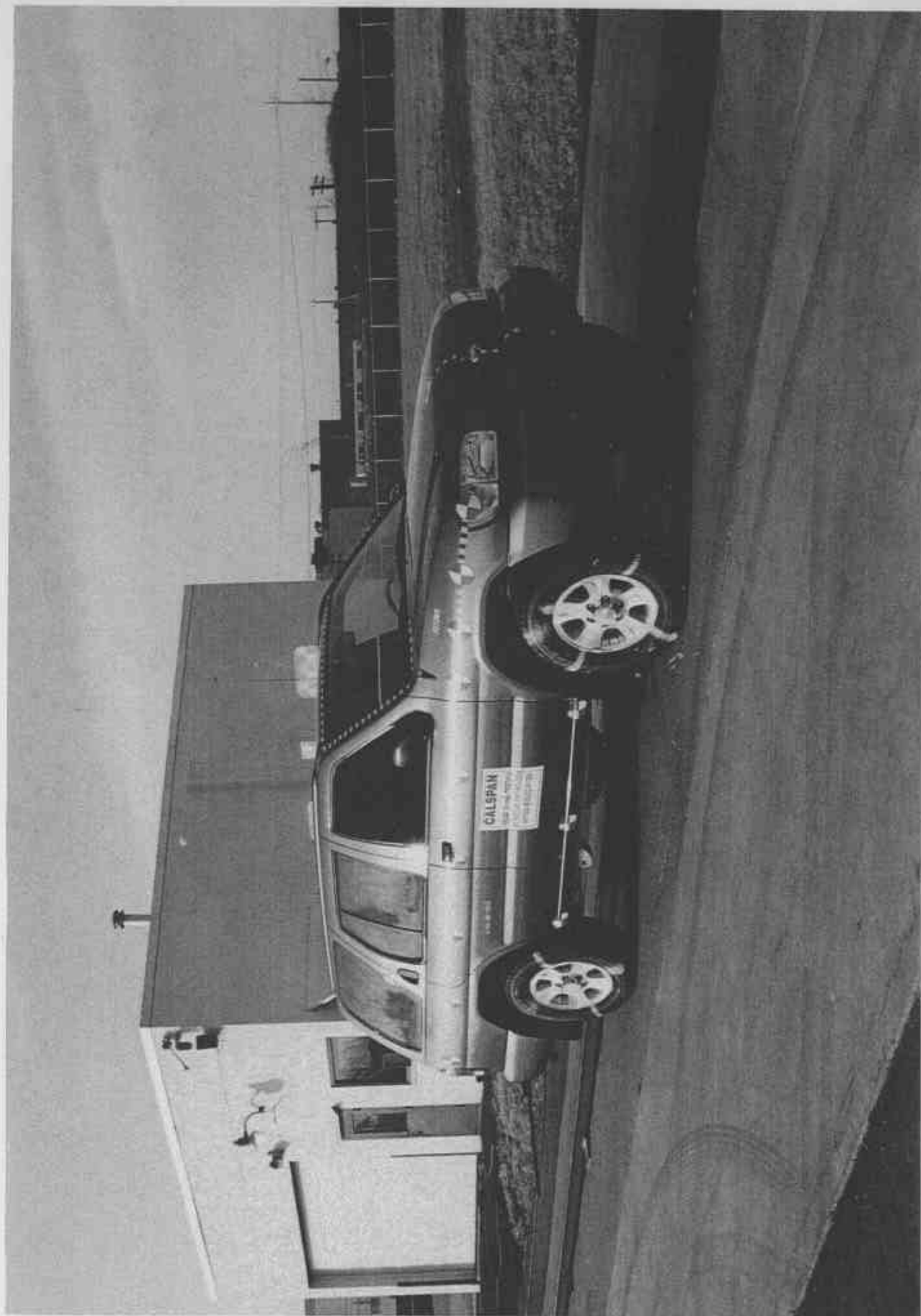


Figure A-8 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



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

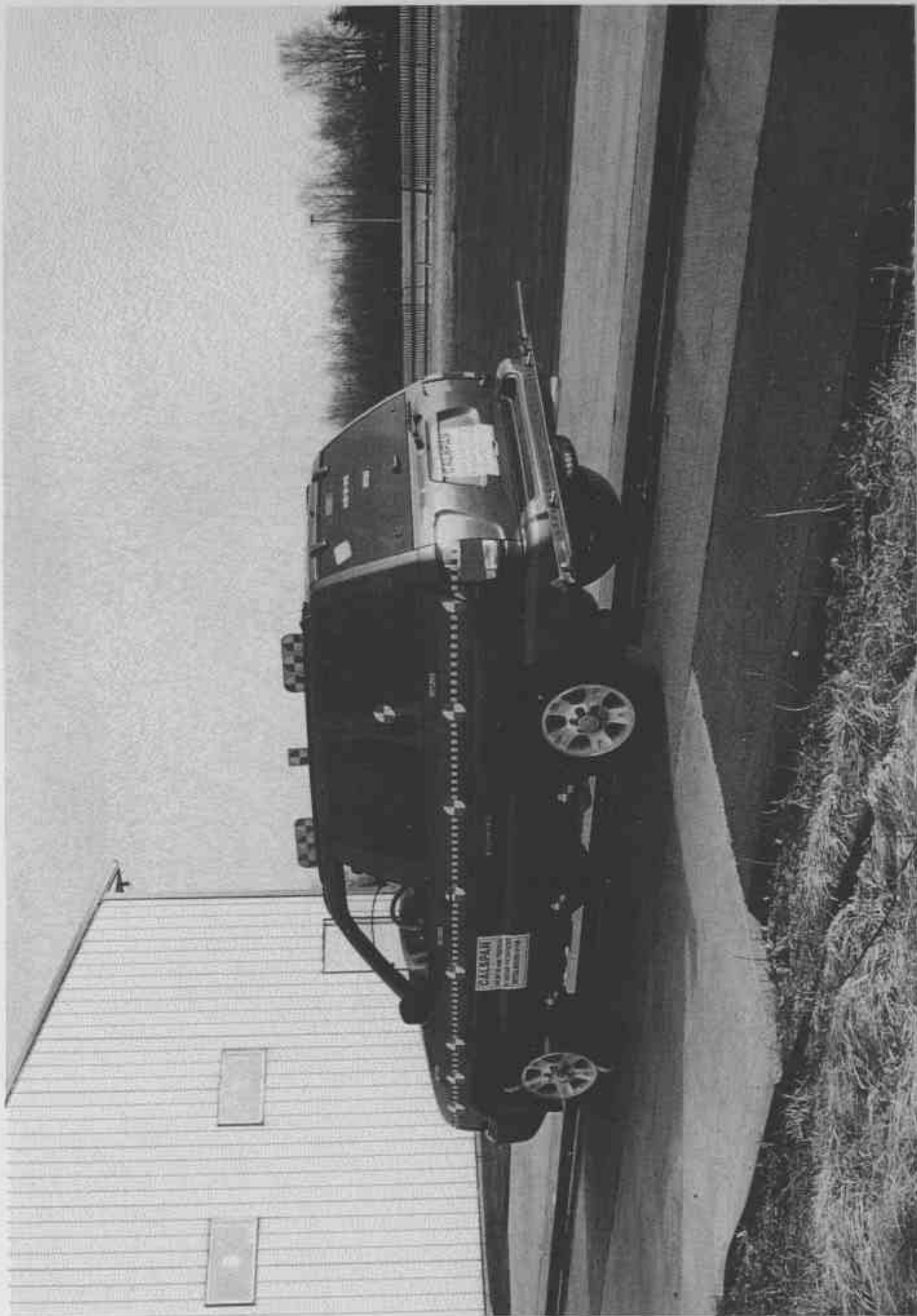


Figure A-10 PRE-TEST LEFT REAR THREE-QUARTER VIEW

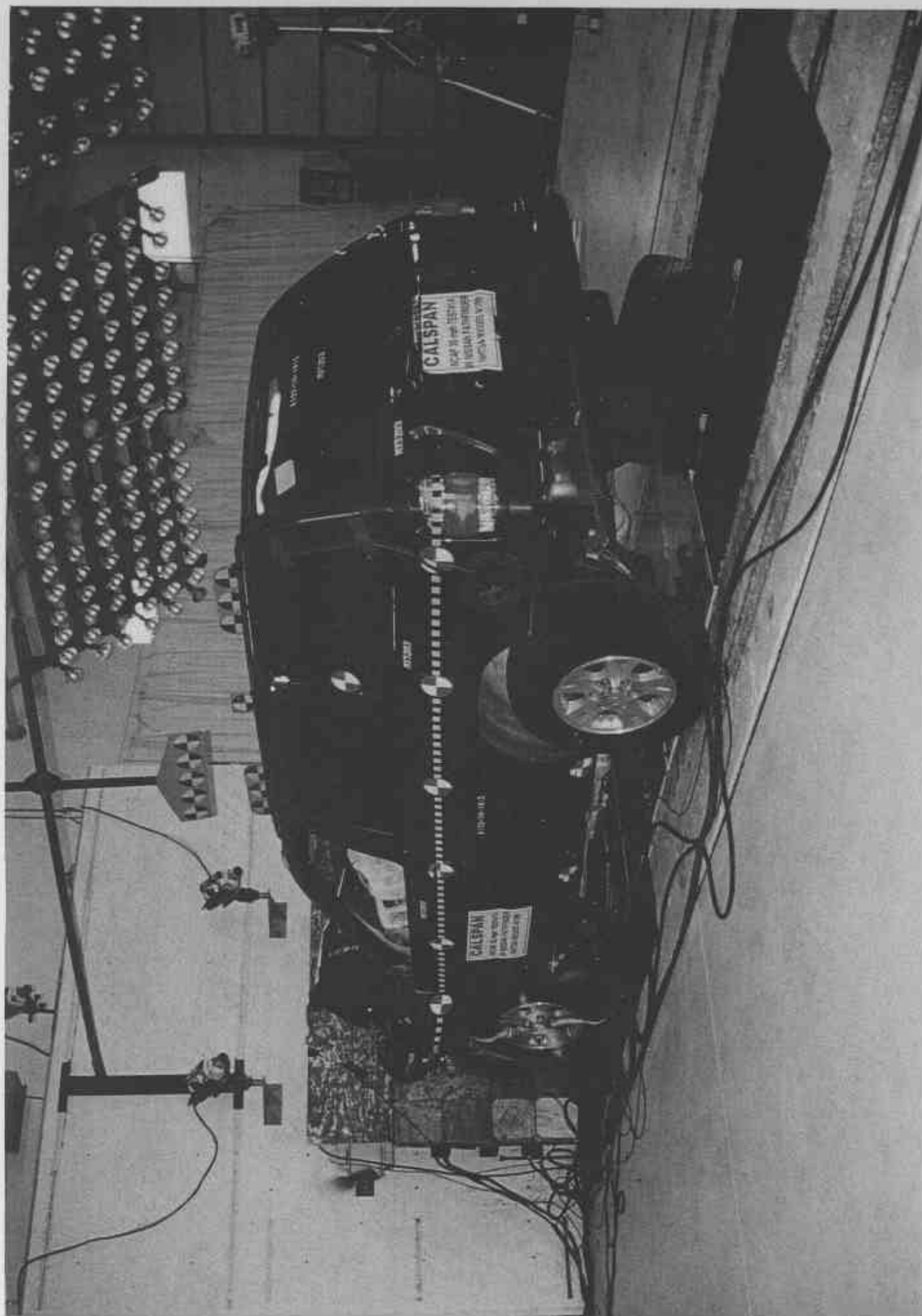


Figure A-11 POST-TEST LEFT REAR THREE-QUARTER VIEW

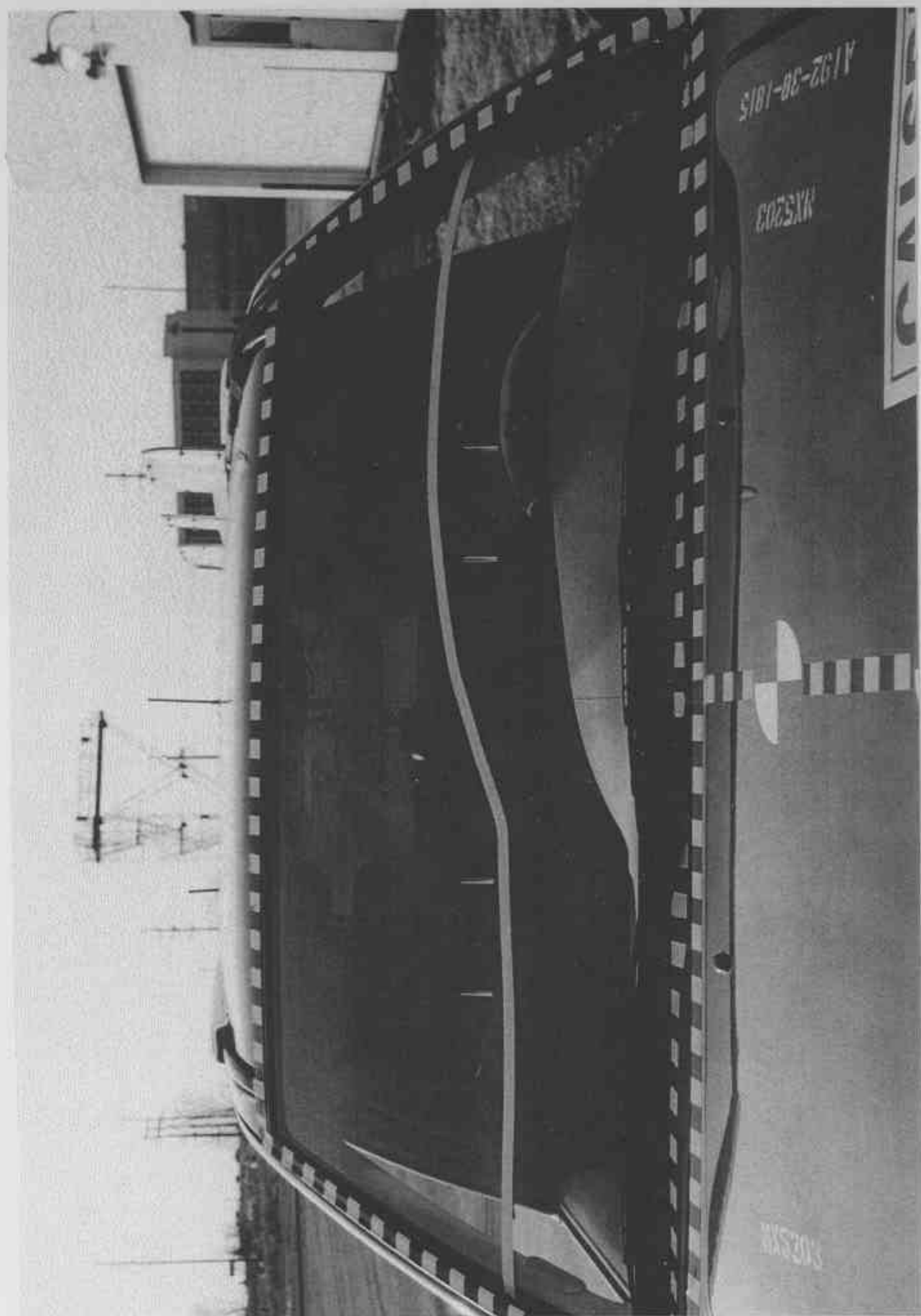


Figure A-12 PRE-TEST WINDSHIELD VIEW

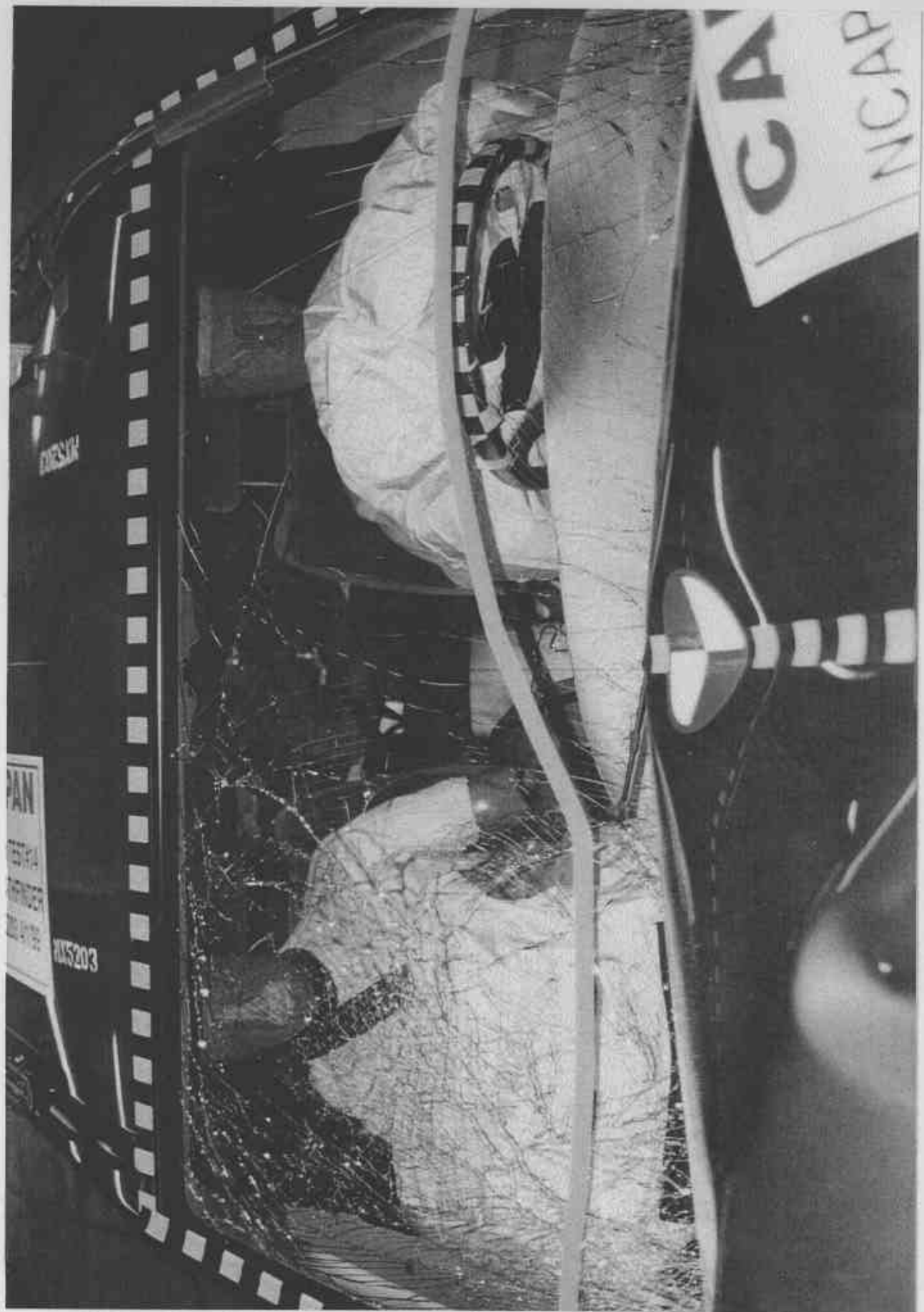


Figure A-13 POST-TEST WINDSHIELD VIEW

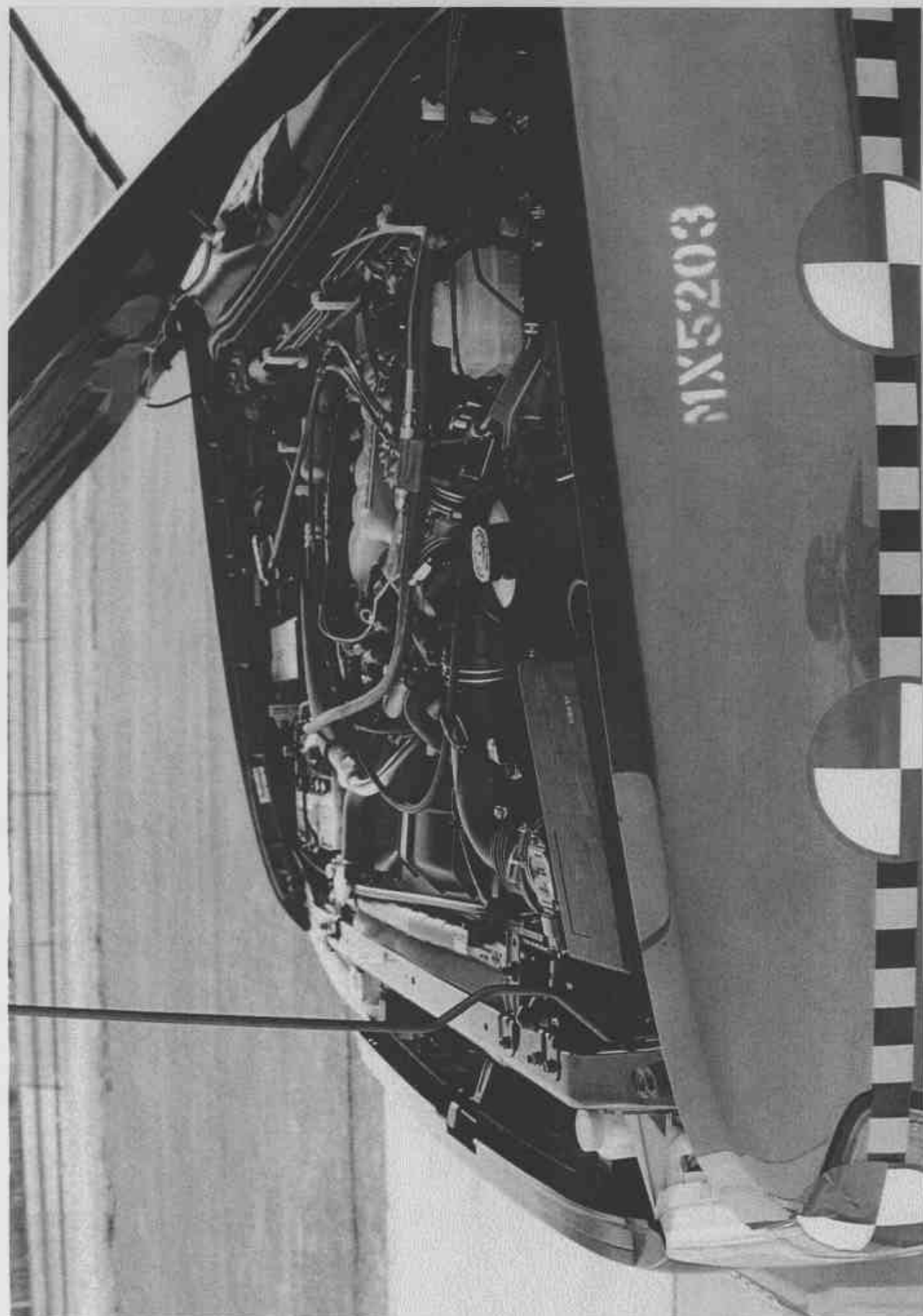


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW



Figure A-15 FUEL CAP VIEW



Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

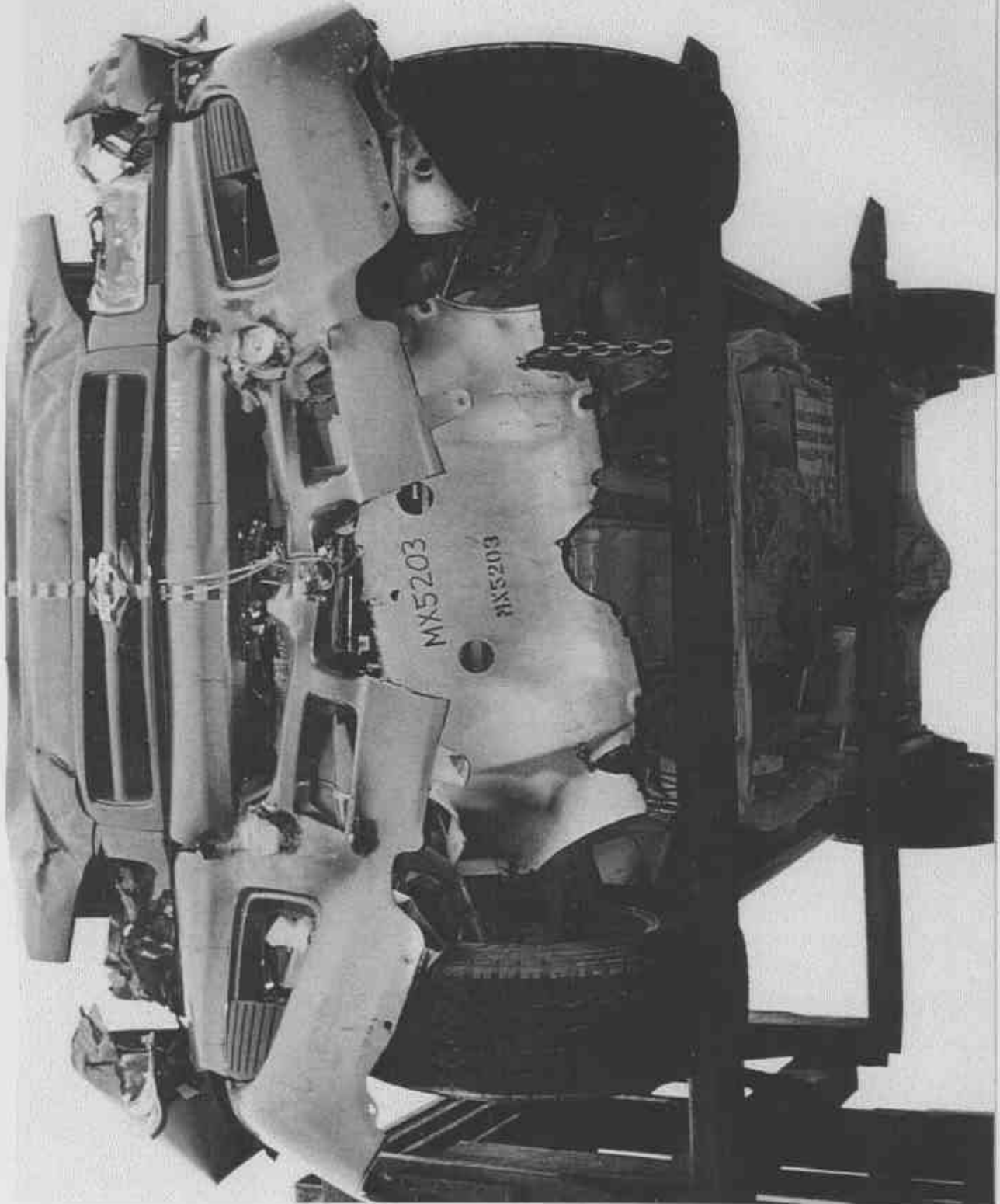


Figure A-17 POST-TEST FRONT UNDERBODY VIEW



Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW



Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

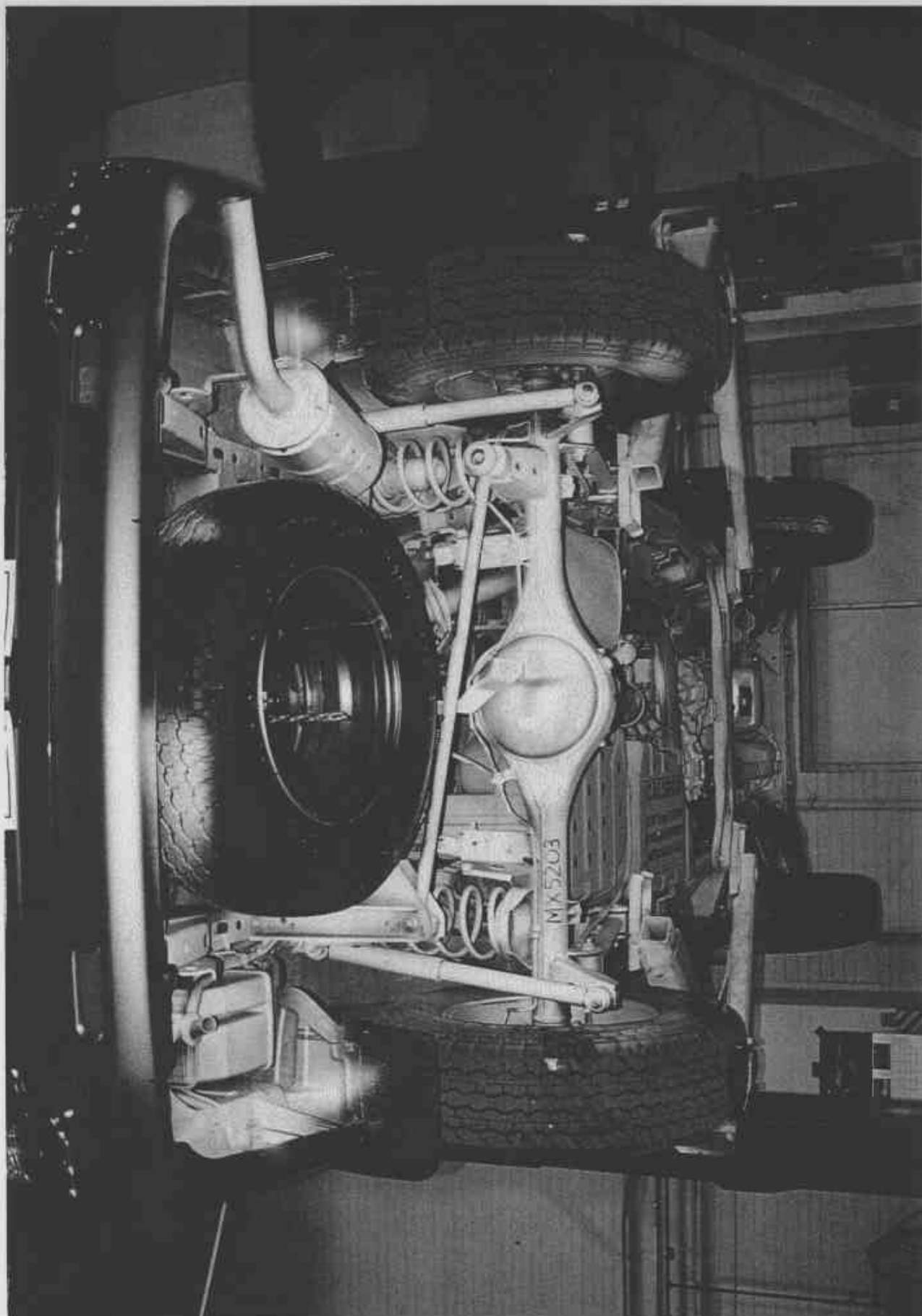


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

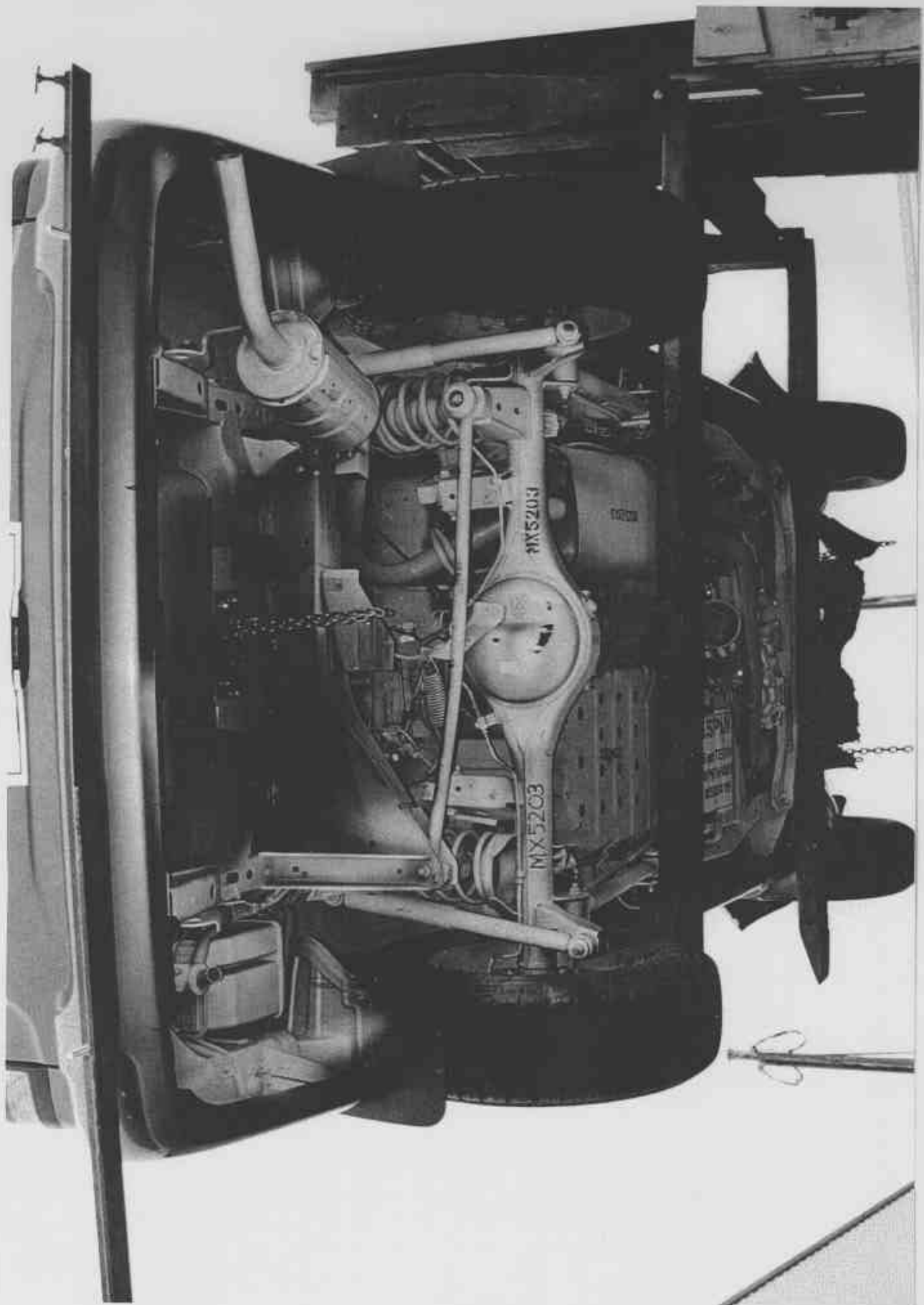


Figure A-21 POST-TEST REAR UNDERBODY VIEW

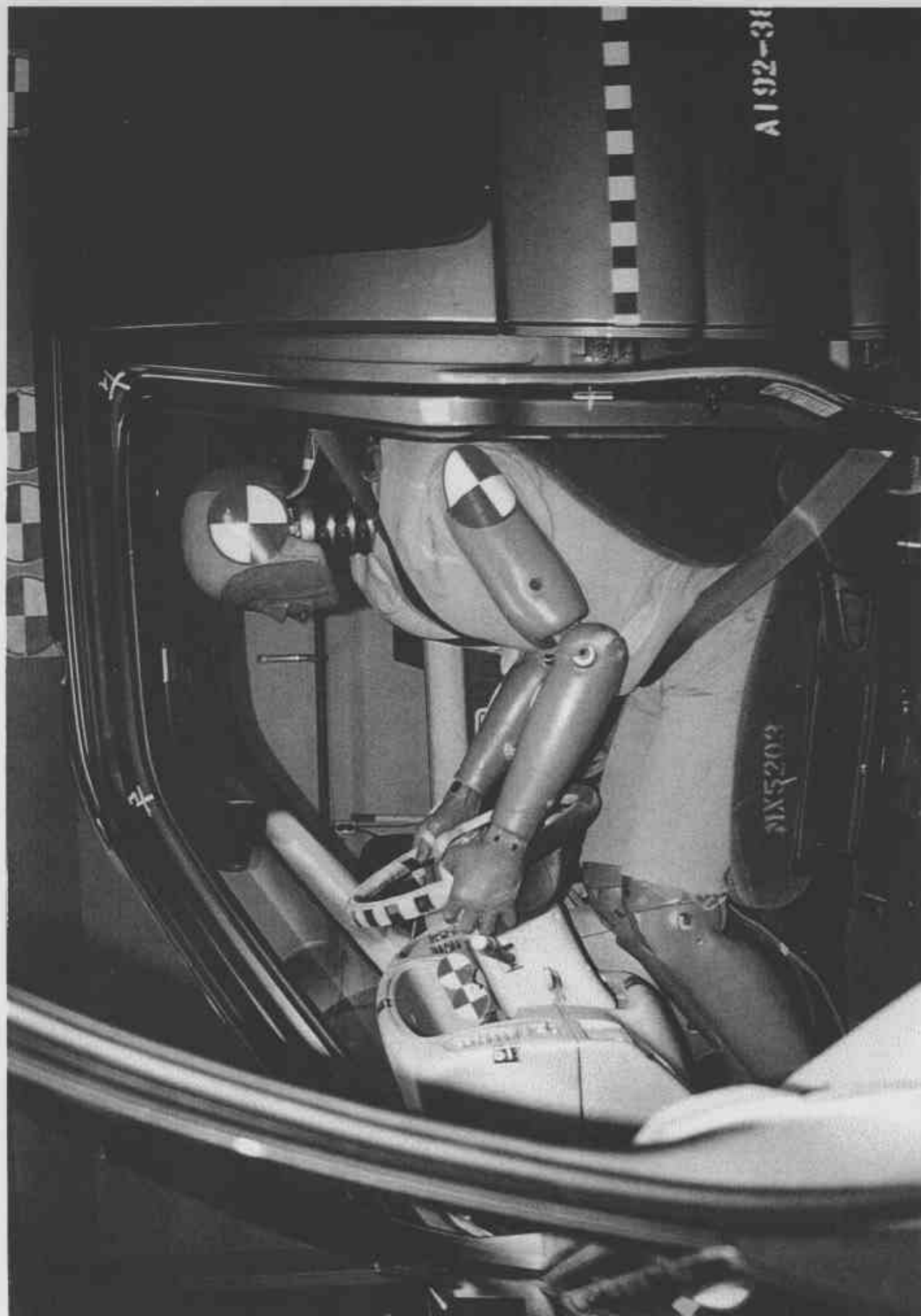


Figure A-22 PRE-TEST DRIVER POSITION VIEW



Figure A-23 POST-TEST DRIVER POSITION VIEW



Figure A-24 PRE-TEST PASSENGER POSITION VIEW



Figure A-25 POST-TEST PASSENGER POSITION VIEW

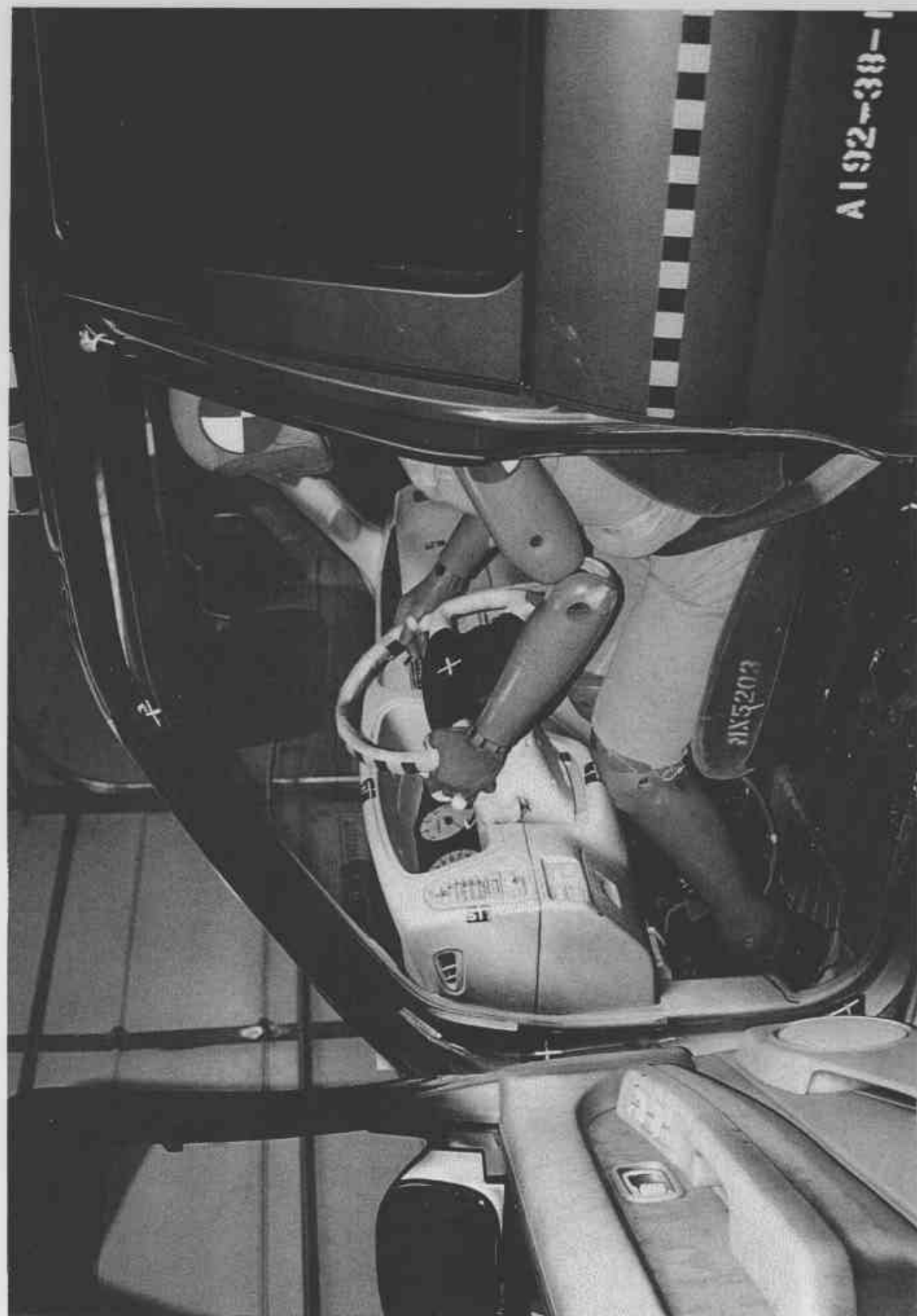


Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

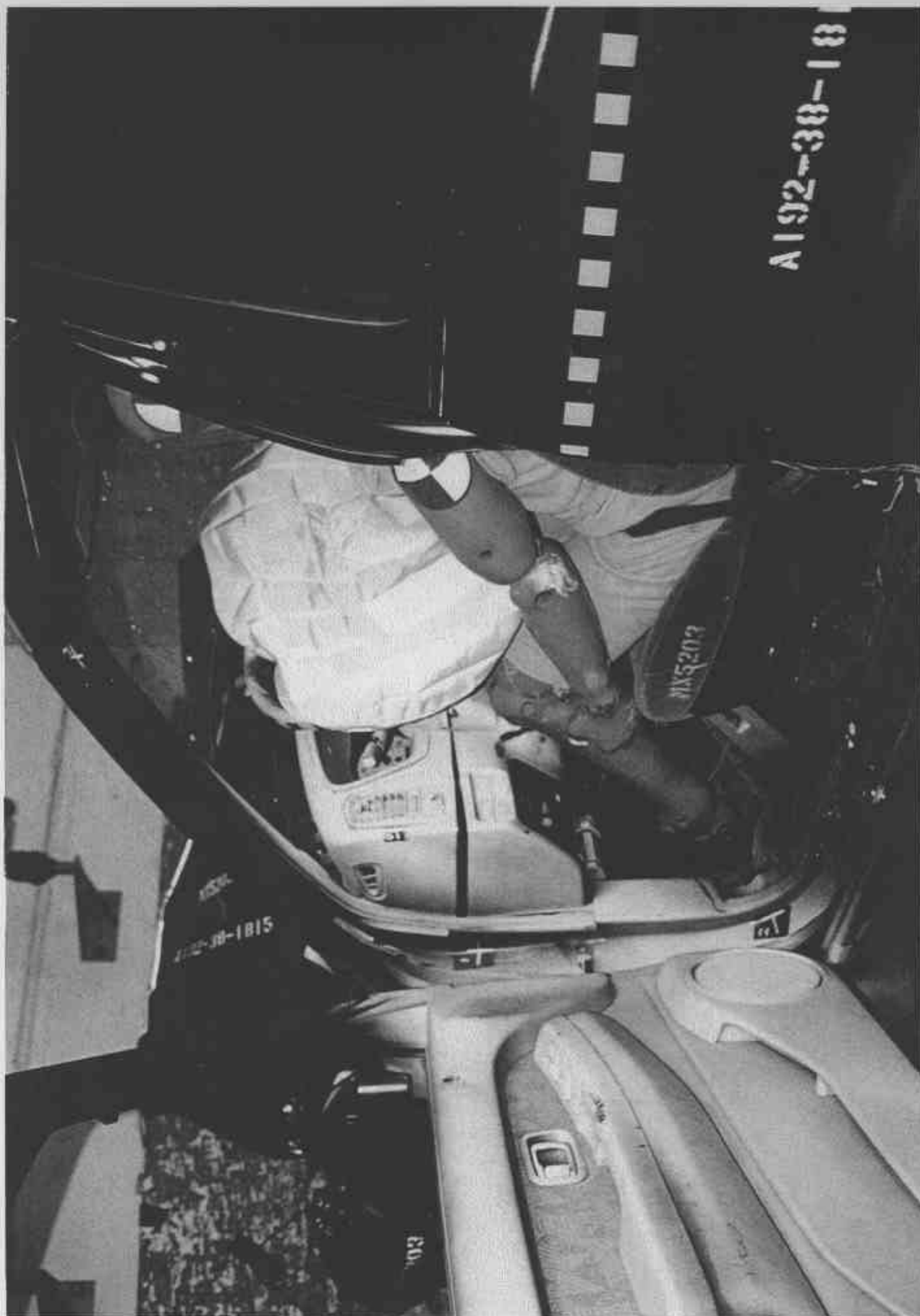


Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW

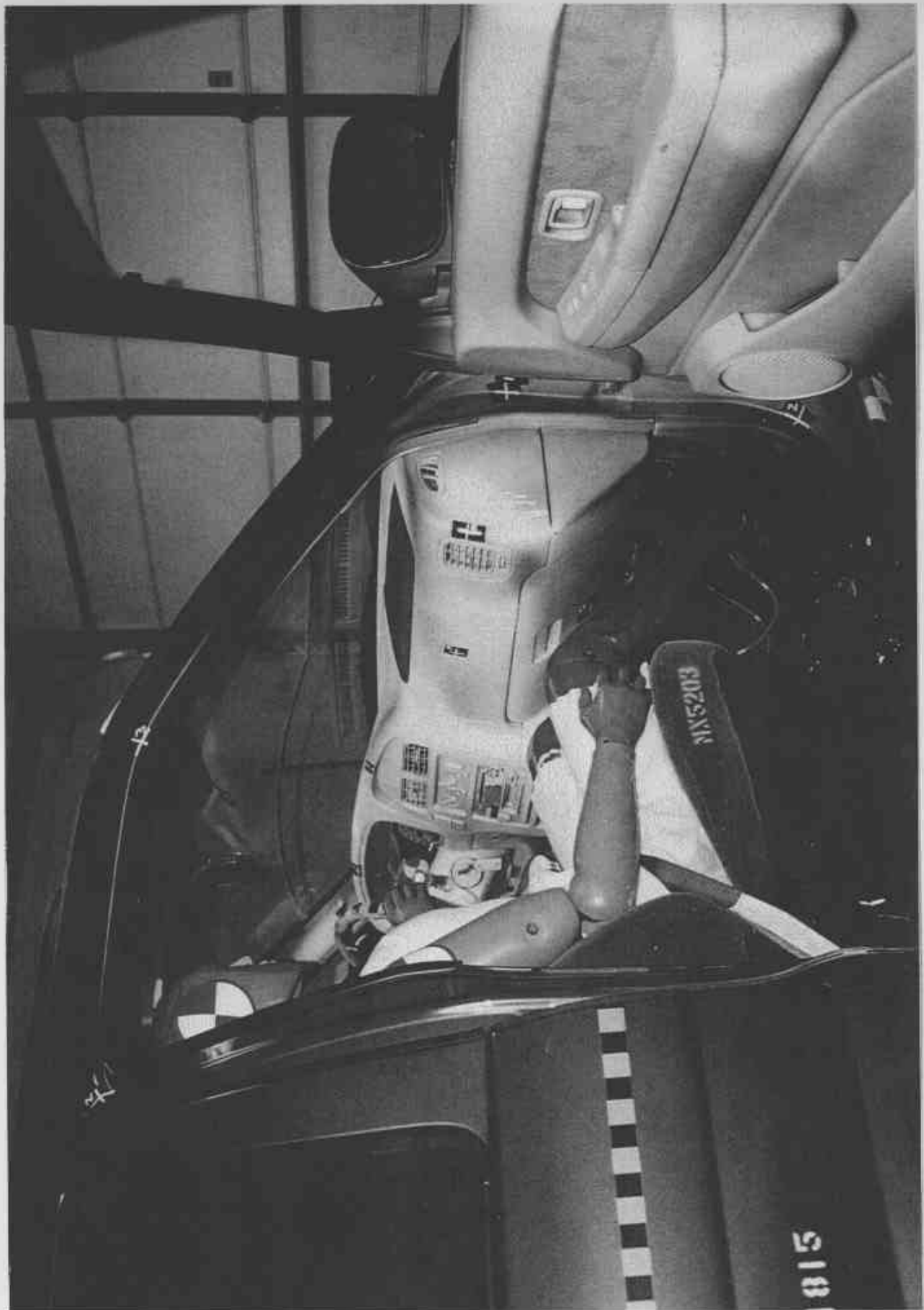


Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW



Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

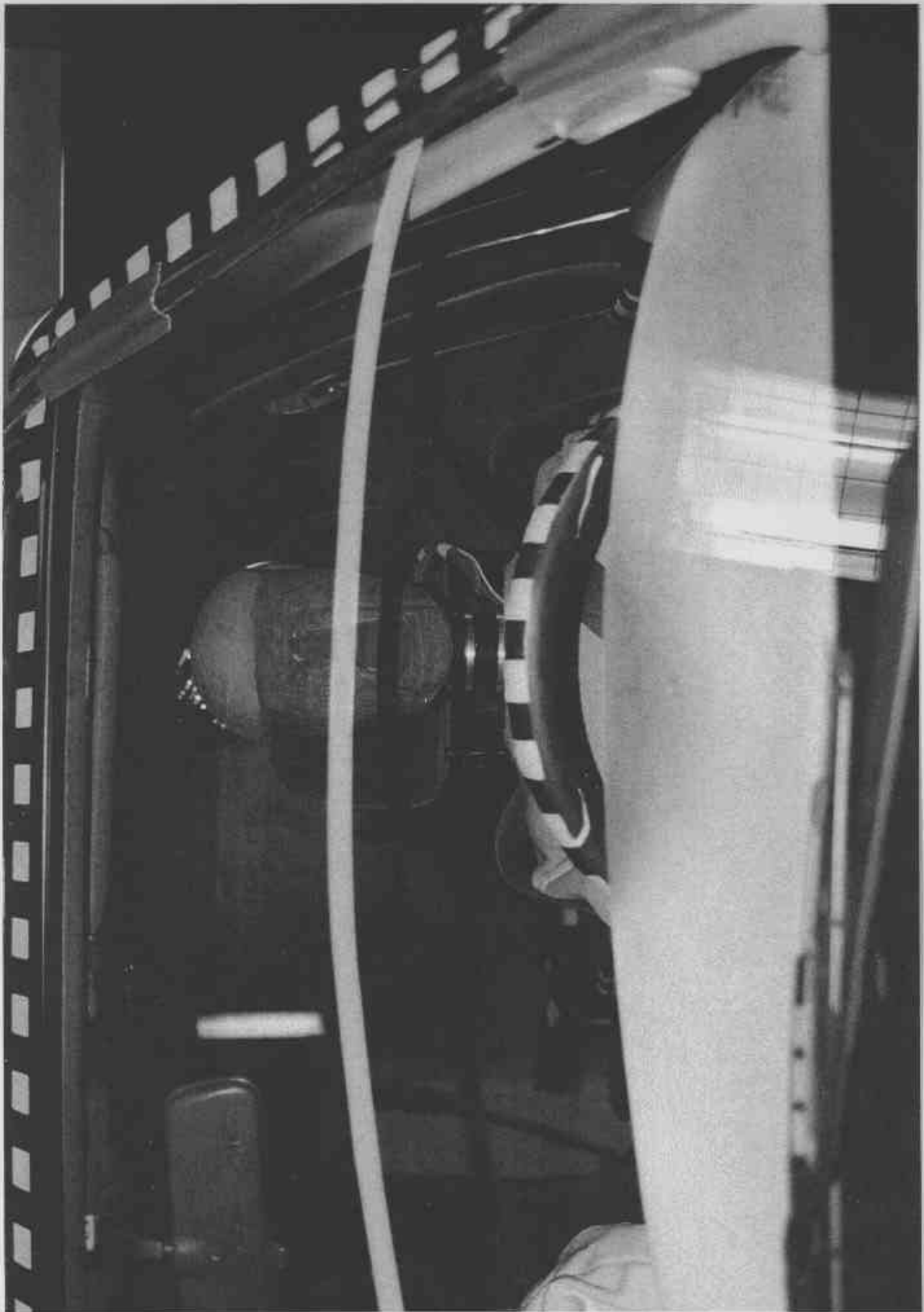


Figure A-30 PRE-TEST DRIVER HEAD LOCATION

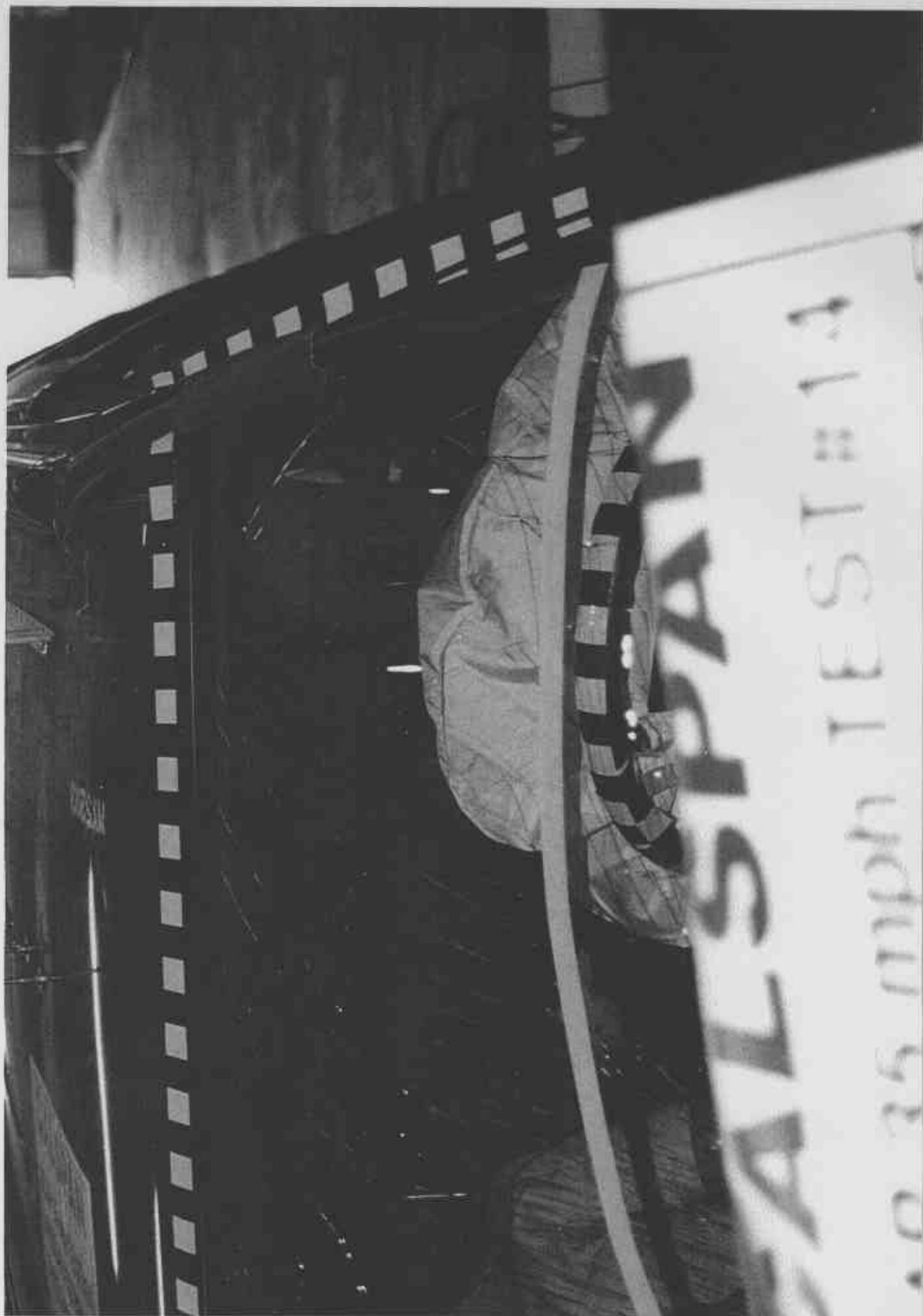


Figure A-31 POST-TEST DRIVER HEAD LOCATION

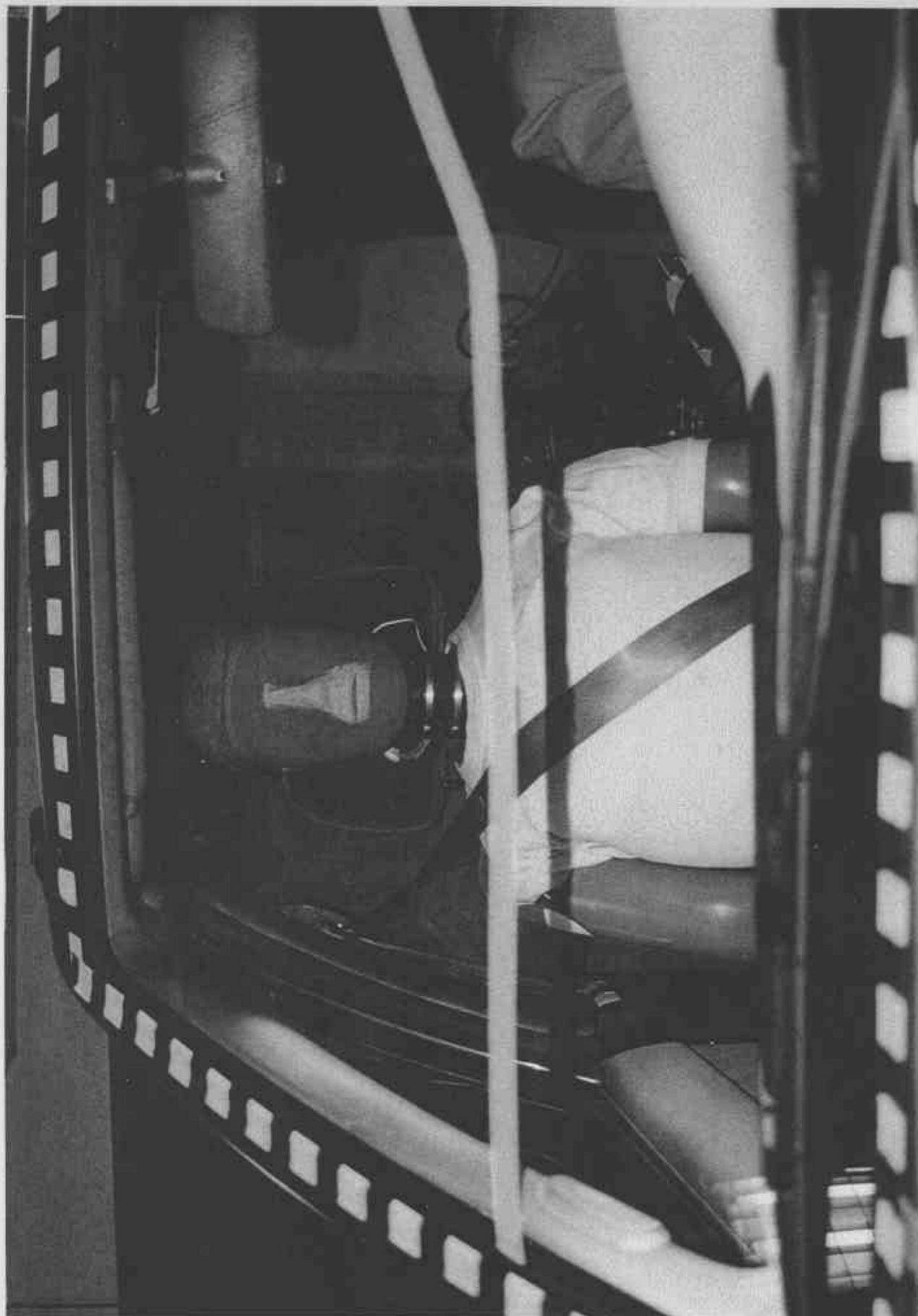


Figure A-32 PRE-TEST PASSENGER HEAD LOCATION



Figure A-33 POST-TEST PASSENGER HEAD LOCATION

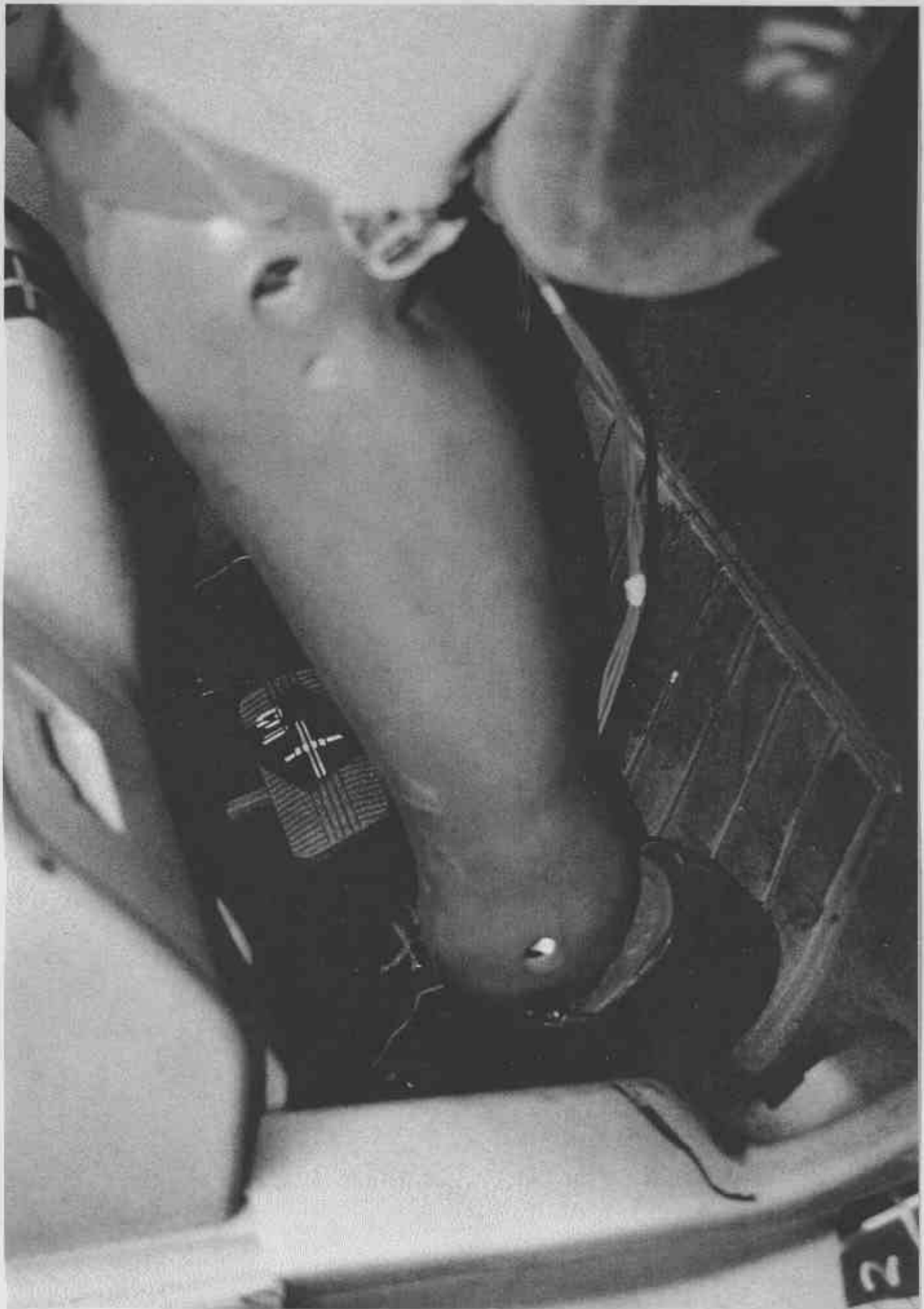


Figure A-34 PRE-TEST DRIVER FLOOR PAN VIEW

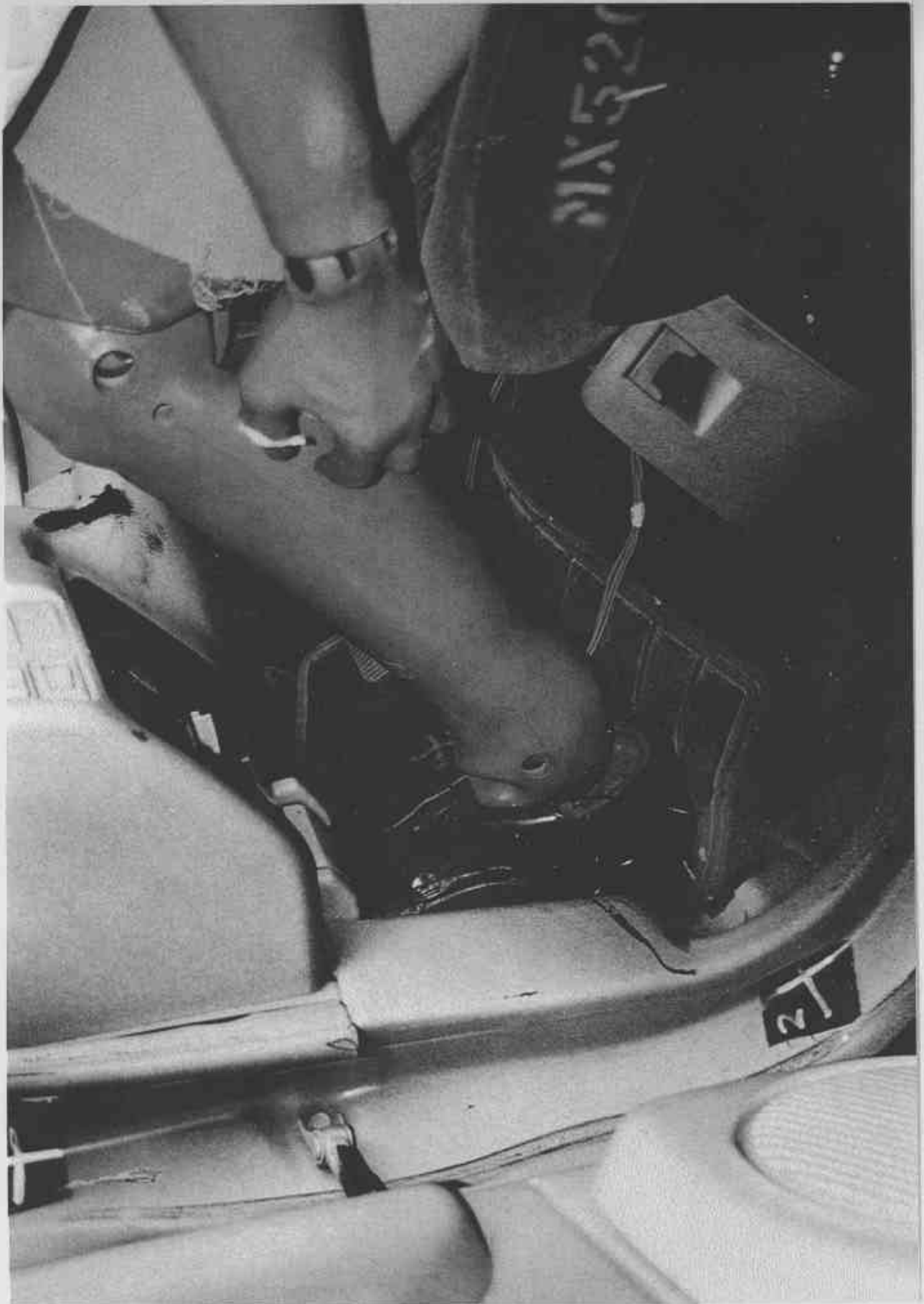


Figure A-35 POST-TEST DRIVER FLOOR PAN VIEW



Figure A-36 PRE-TEST PASSENGER FLOOR PAN VIEW



Figure A-37 POST-TEST PASSENGER FLOOR PAN VIEW

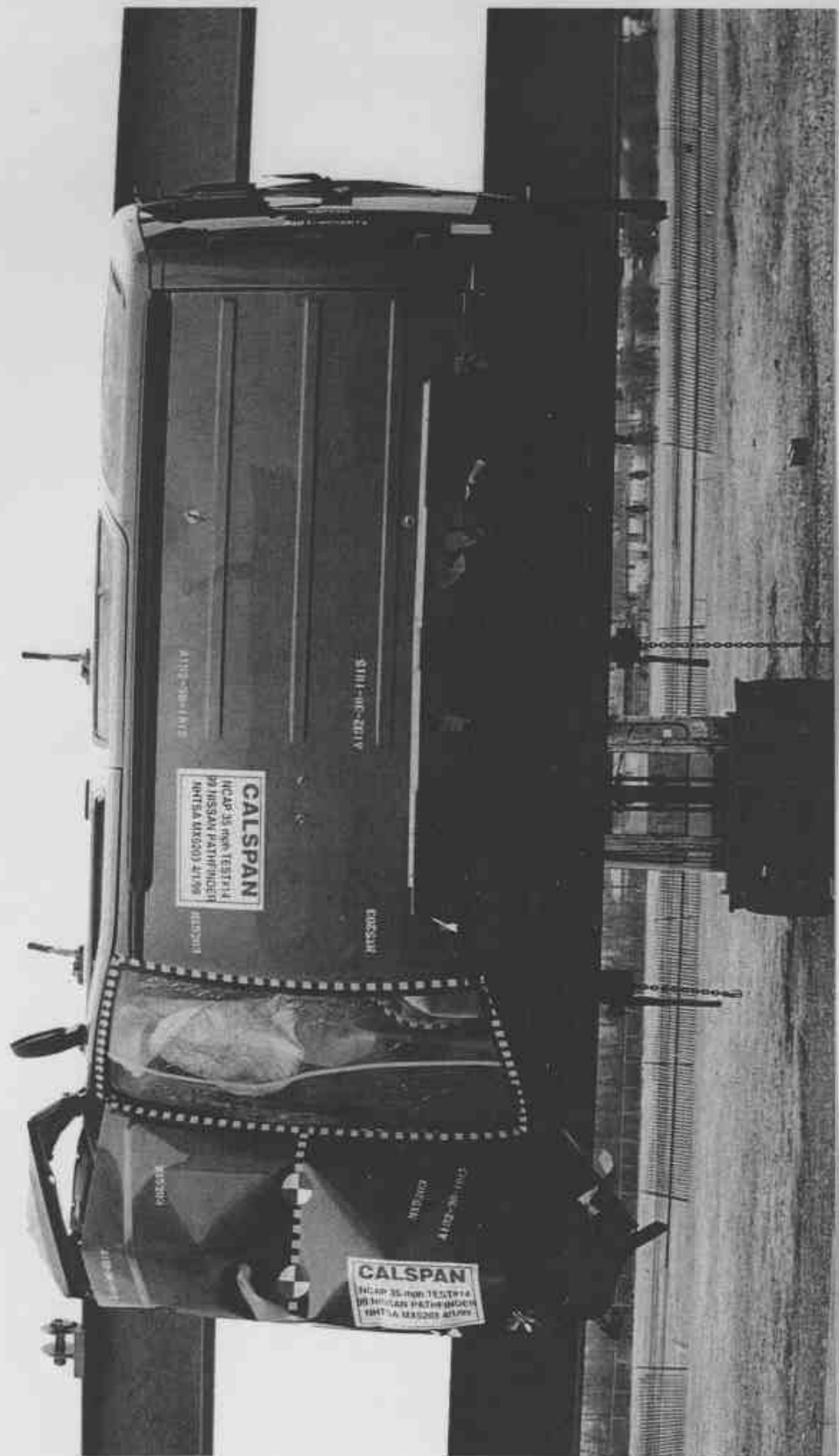


Figure A-38 ROLLOVER VIEW

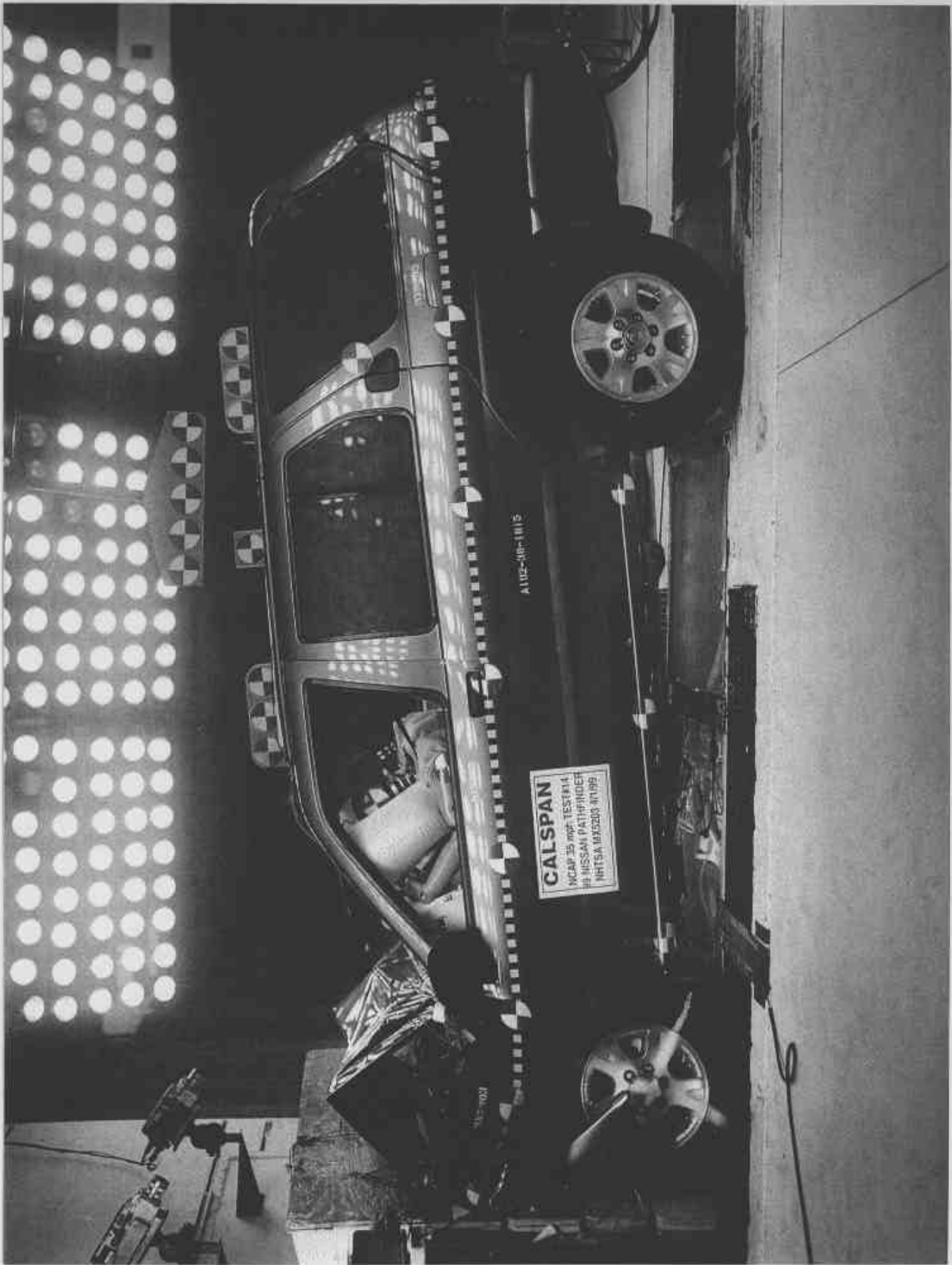


Figure A-39 IMPACT VIEW

Appendix B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

**Hybrid III Dummy Sign Conventions
Load Cells and Special Transducers**

Transducer	SAE Sign Convention (positive unless noted)
Upper Neck Load Cell	Fx Head rearward Fy Head left Fz Neck in tension Mx Left ear to left shoulder My Chin to chest (flexion) Mz Chin to left shoulder (look left)
Chest Displacement Potentiometer	Compression is negative
Pelvic Load Cell (Lower Lumbar)	Fx Chest rearward Fy Chest left Fz Spine in tension
Femur Load Cell	Compression is negative
Upper Tibia Load Cell (right and left leg)	Mx Support tibia at ends, load left side center My Support tibia at ends, load front (shin) center
Lower Tibia Load Cell (right and left leg)	Fz Tibia in tension Mx Support tibia at ends, load left side center My Support tibia at ends, load front (shin) center

NHTSA TEST NO. MX5203

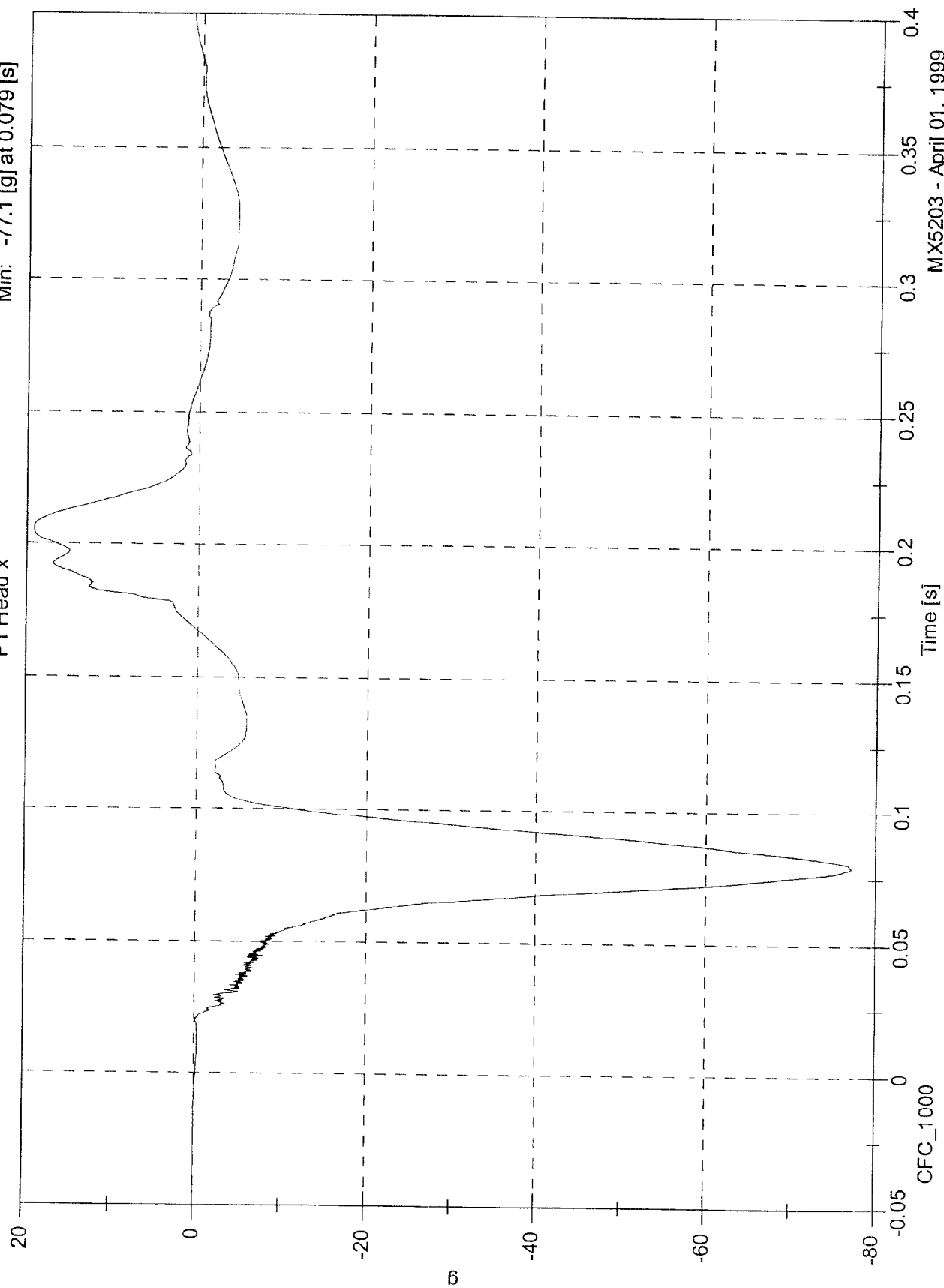
DUMMY DATA

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 #14 - 1999 Nissan Pathfinder

Max: 19.2 [g] at 0.205 [s]
Min: -77.1 [g] at 0.079 [s]

P1 Head x

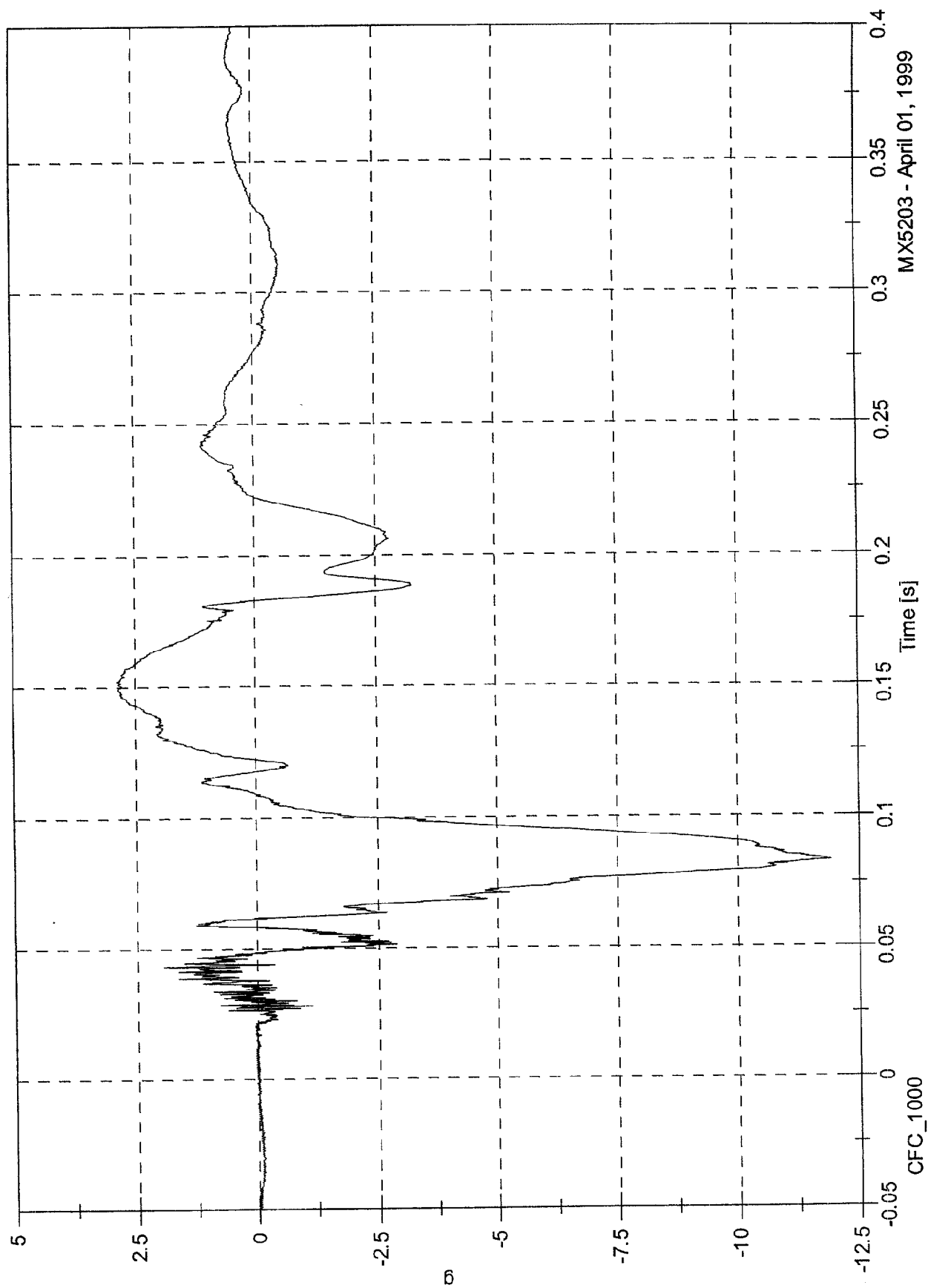


MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

Max: 2.9 [g] at 0.152 [s]
Min: -11.9 [g] at 0.083 [s]

P1 Head y

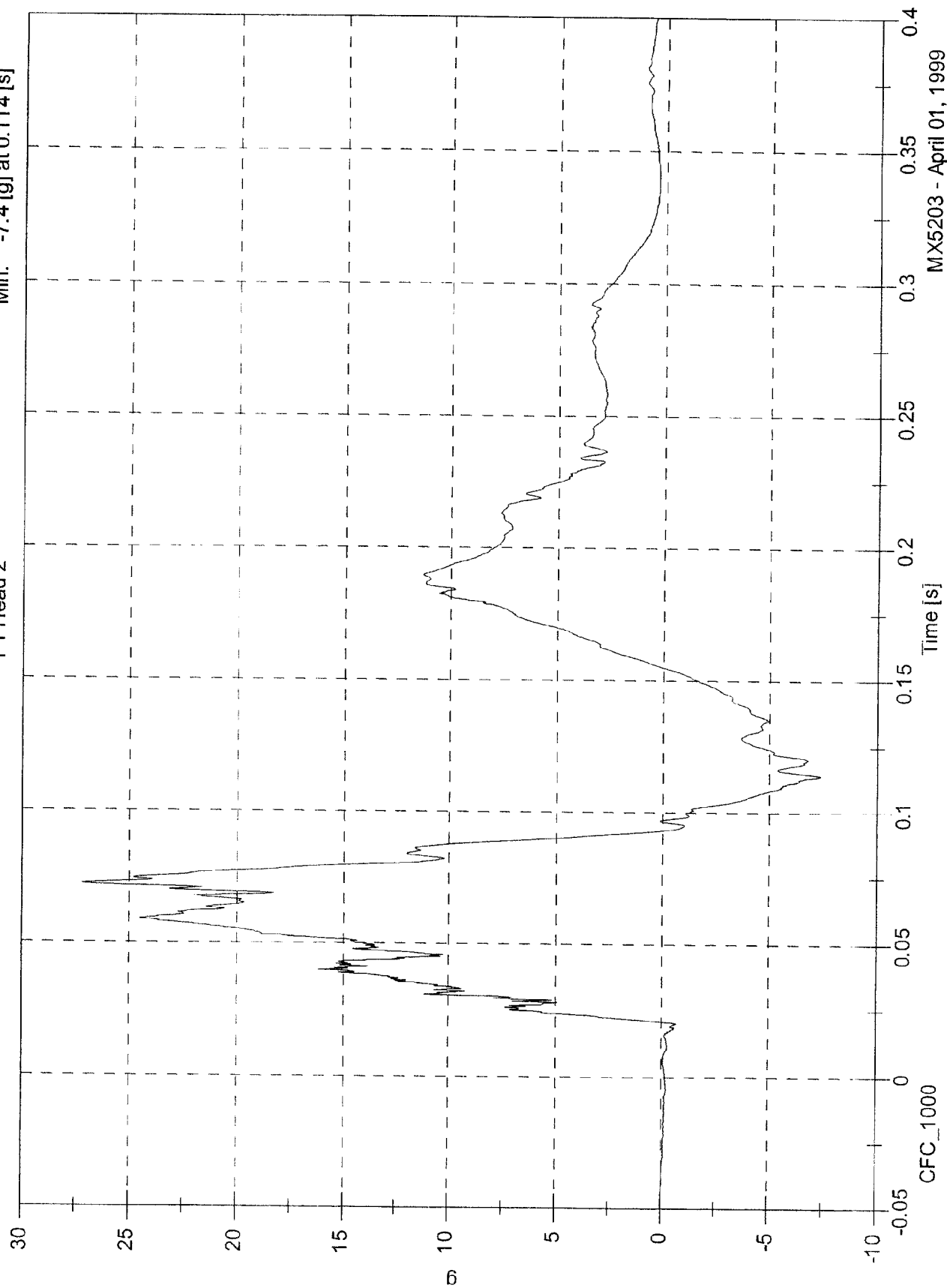


MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

Max: 27.2 [g] at 0.072 [s]
Min: -7.4 [g] at 0.114 [s]

P1 Head z

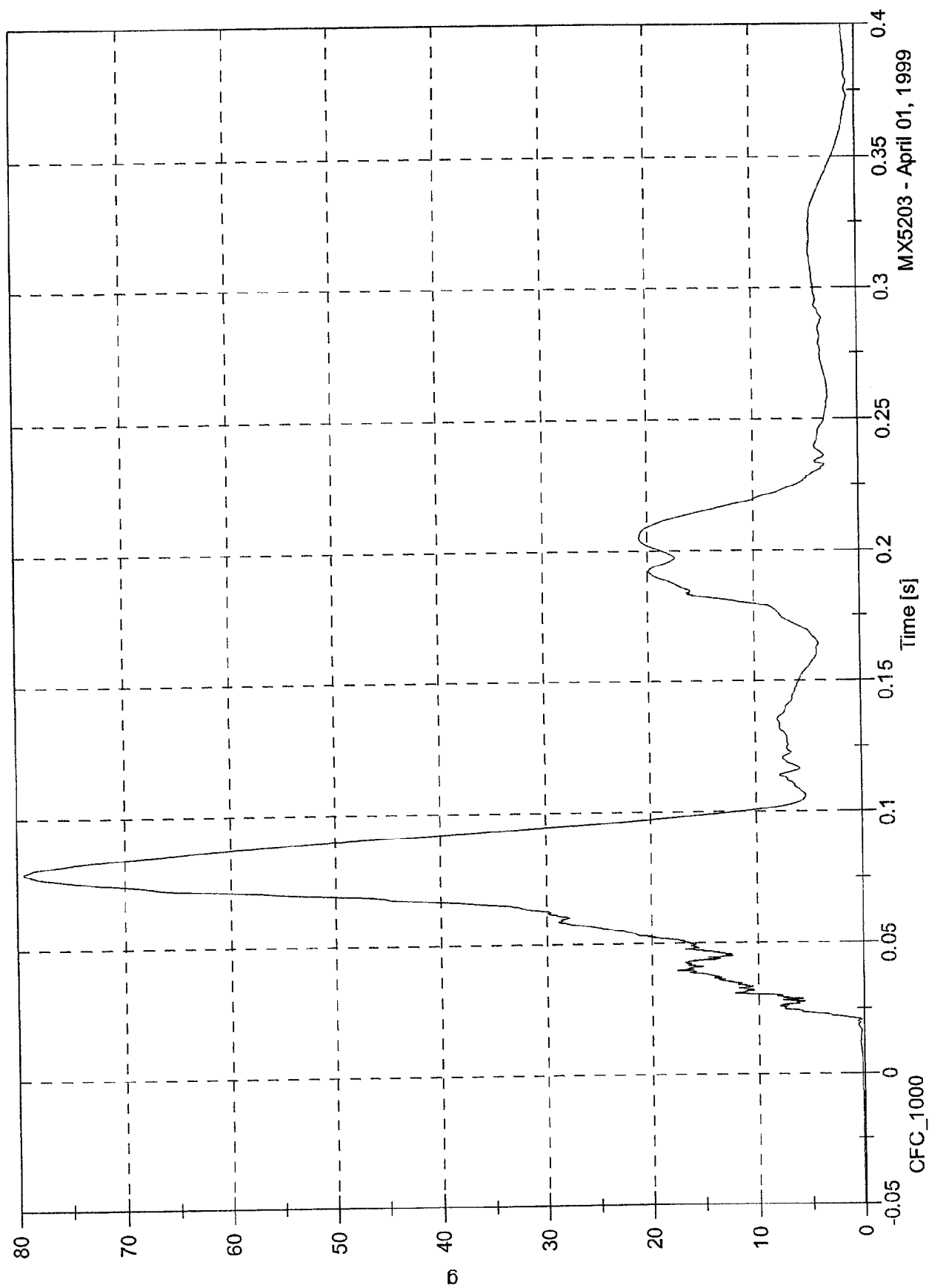


MX5203 - April 01, 1999

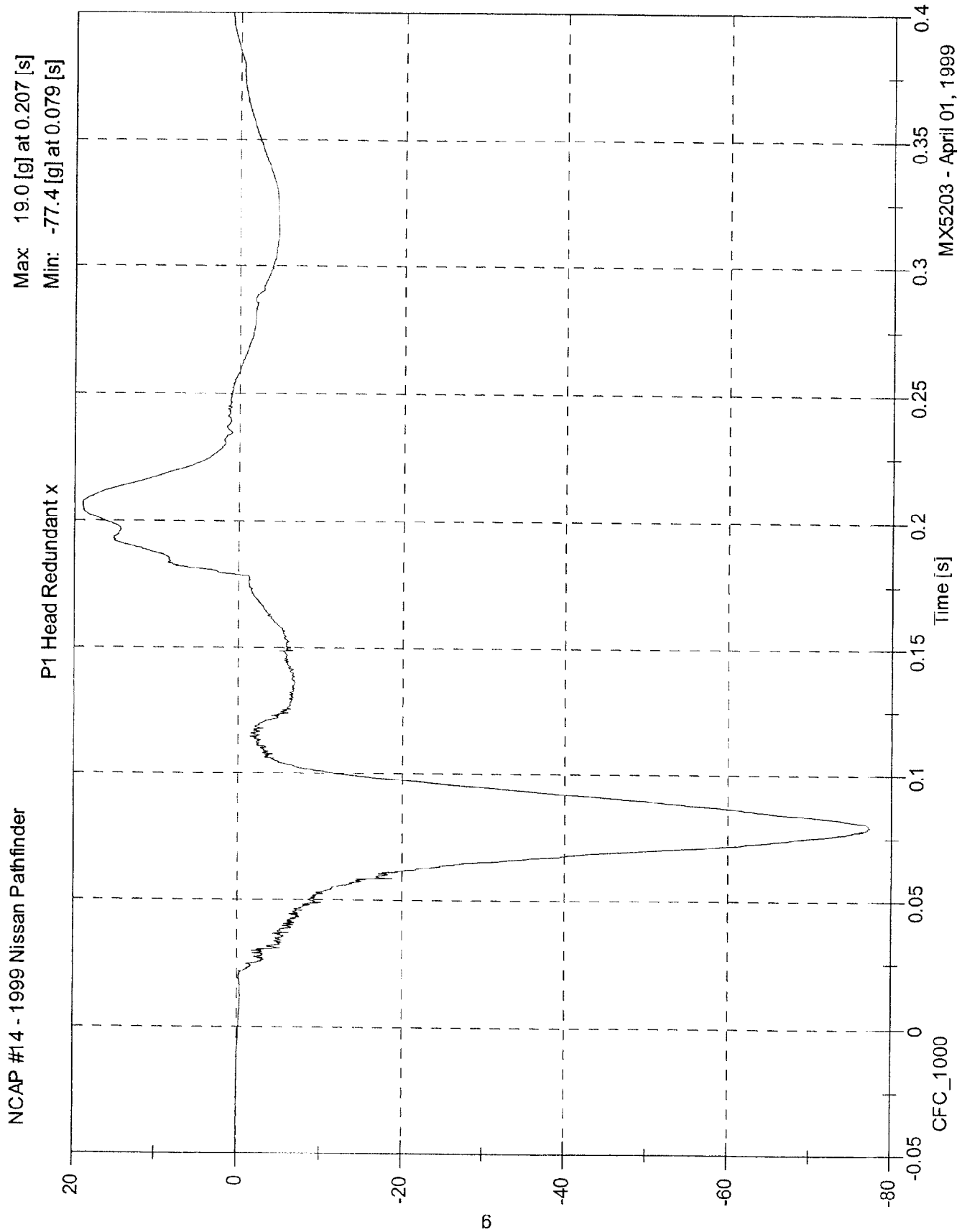
Max 79.4 [g] at 0.079 [s]
Min: 0.0 [g] at -0.057 [s]

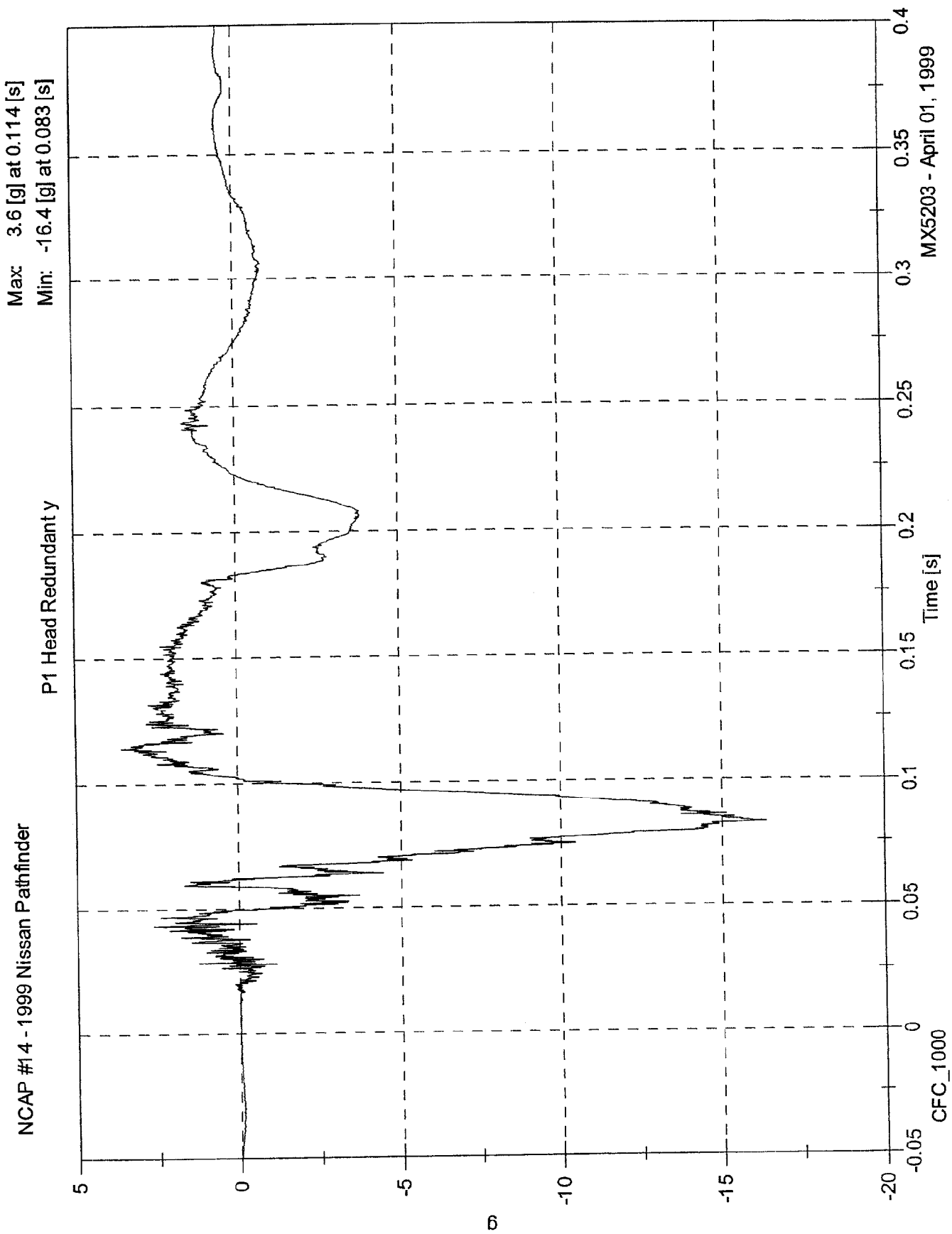
P1 Head Resultant

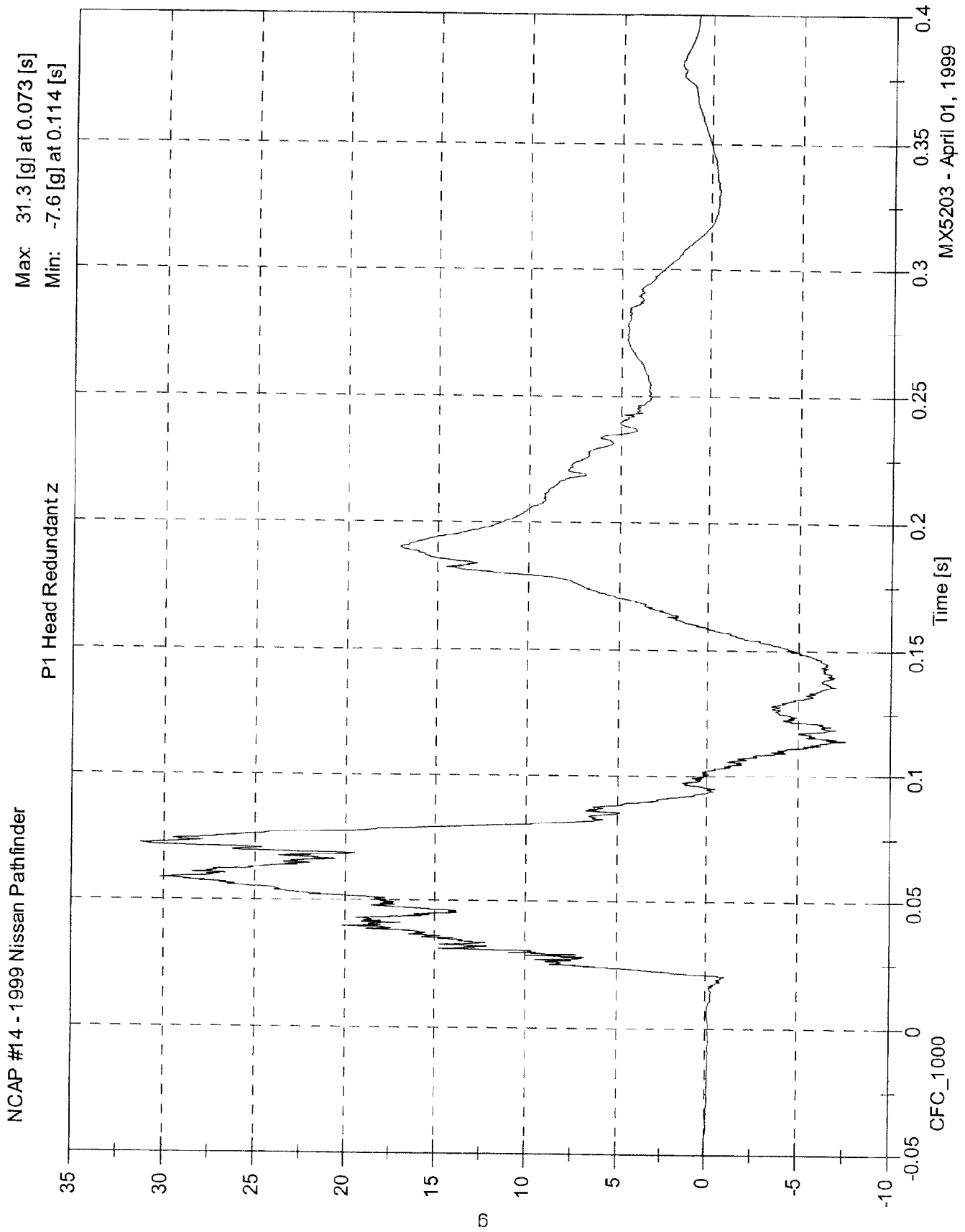
NCAP #14 - 1999 Nissan Pathfinder



MX5203 - April 01, 1999



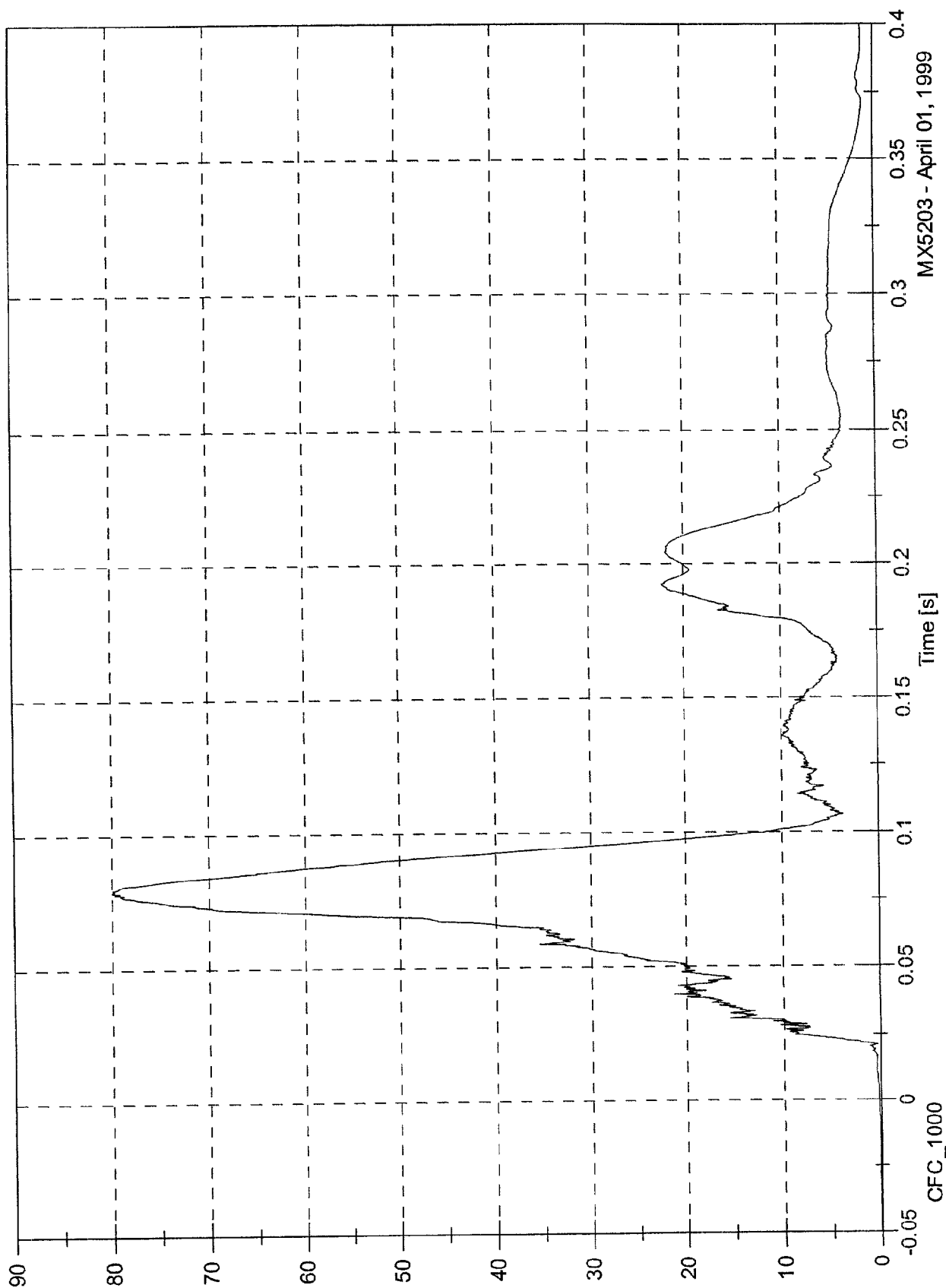




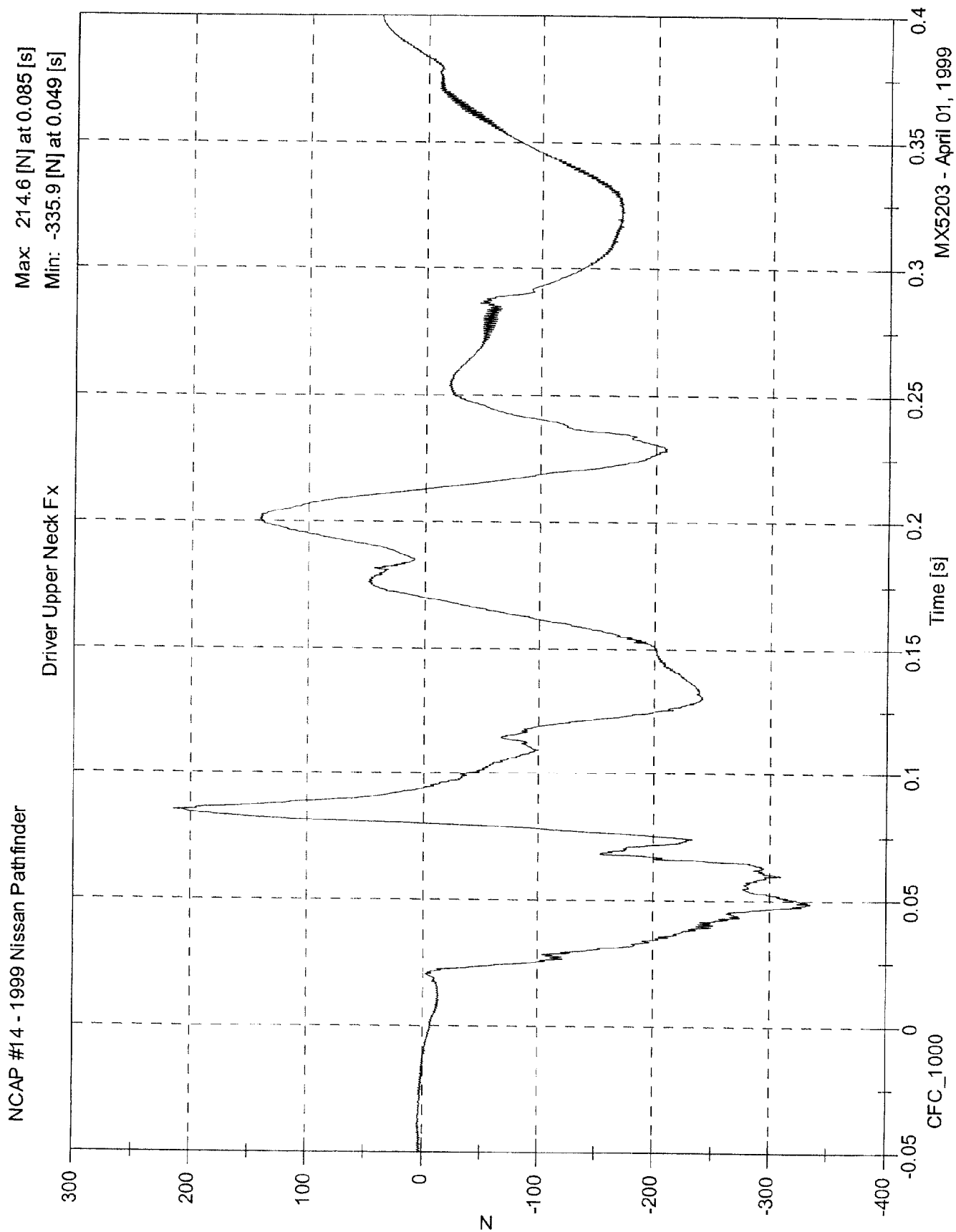
Max: 80.0 [g] at 0.079 [s]
Min: 0.1 [g] at -0.051 [s]

P1 Head Redundant Resultant

NCAP #14 - 1999 Nissan Pathfinder



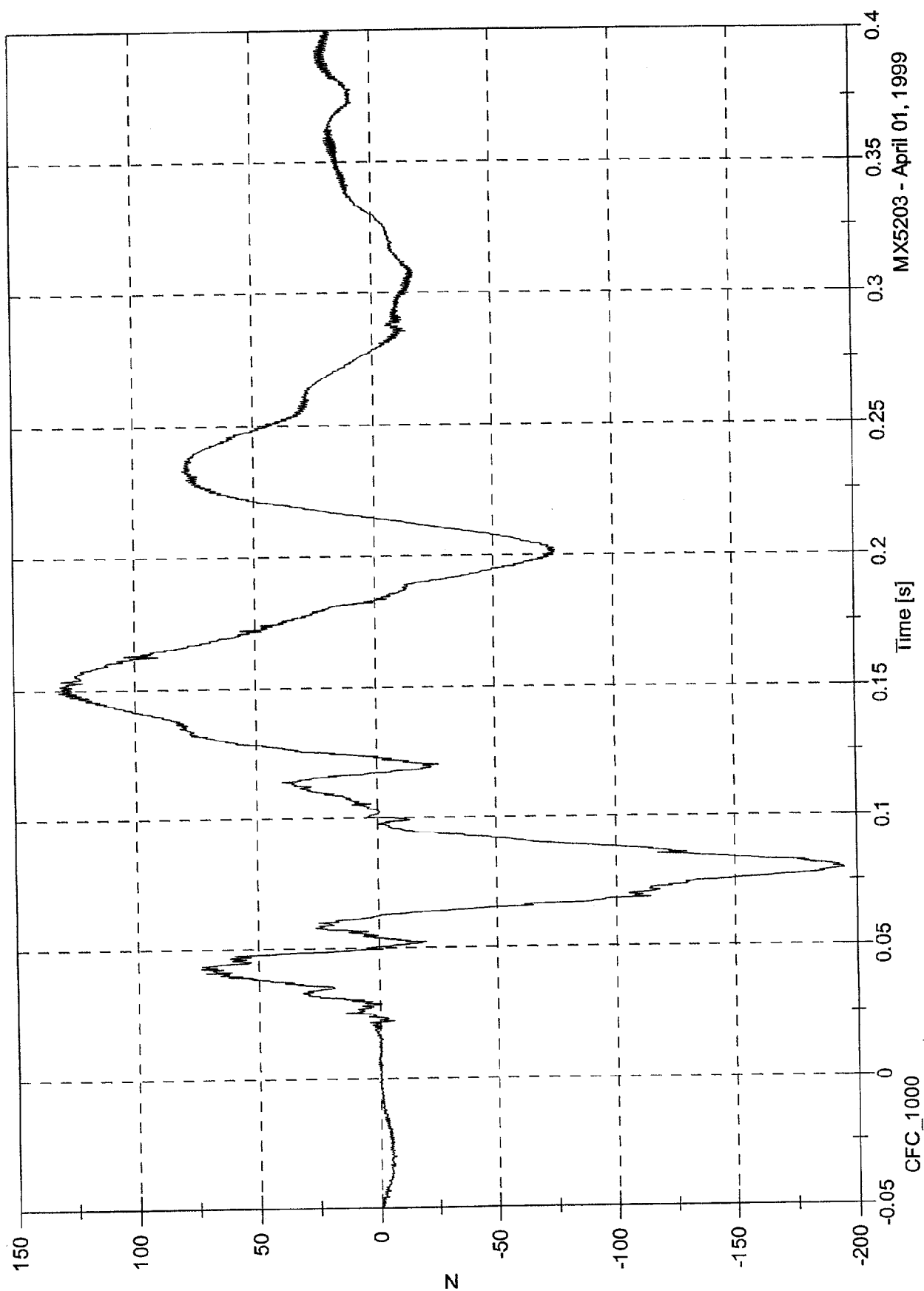
MX5203 - April 01, 1999



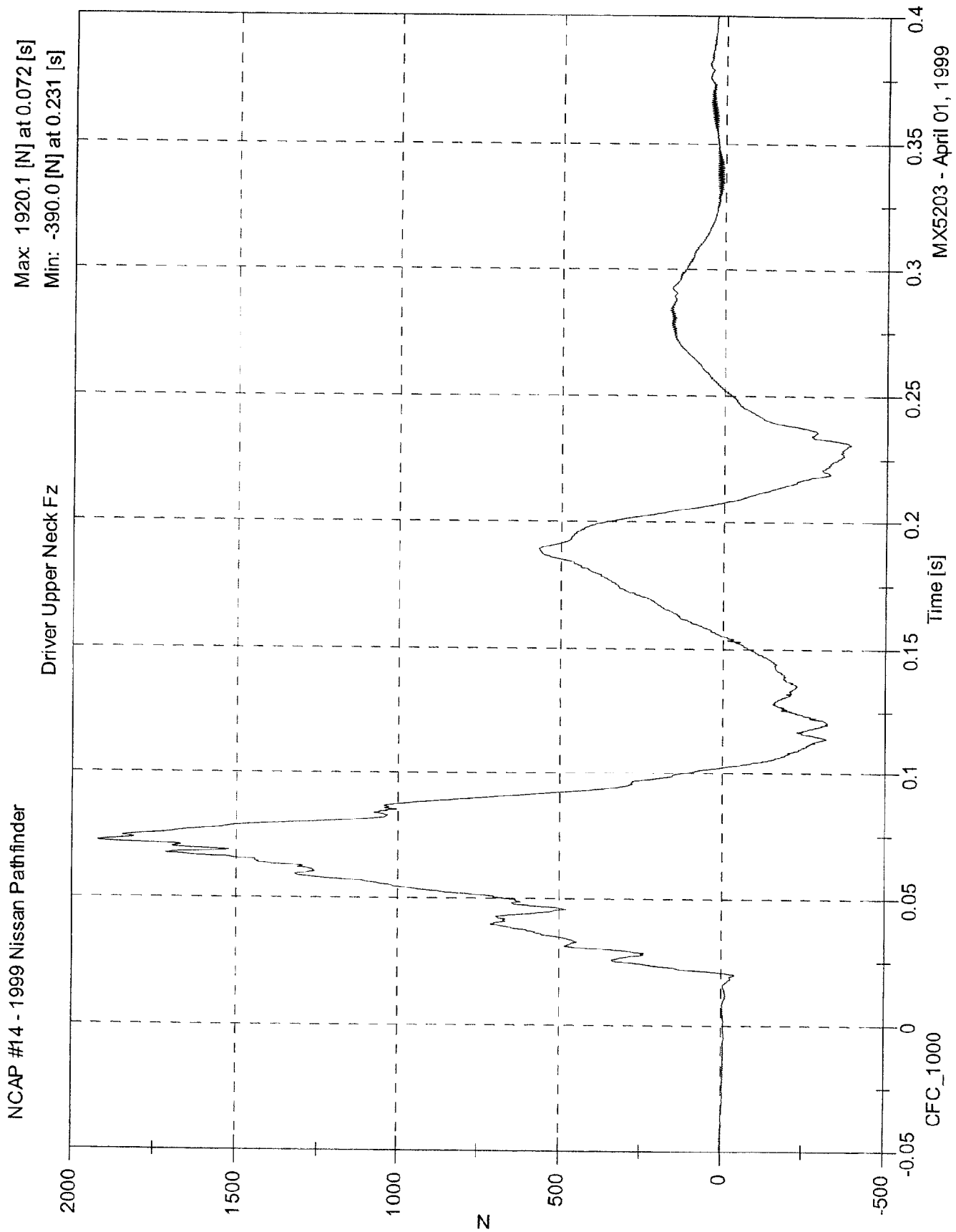
Max: 131.5 [N] at 0.149 [s]
Min: -195.0 [N] at 0.079 [s]

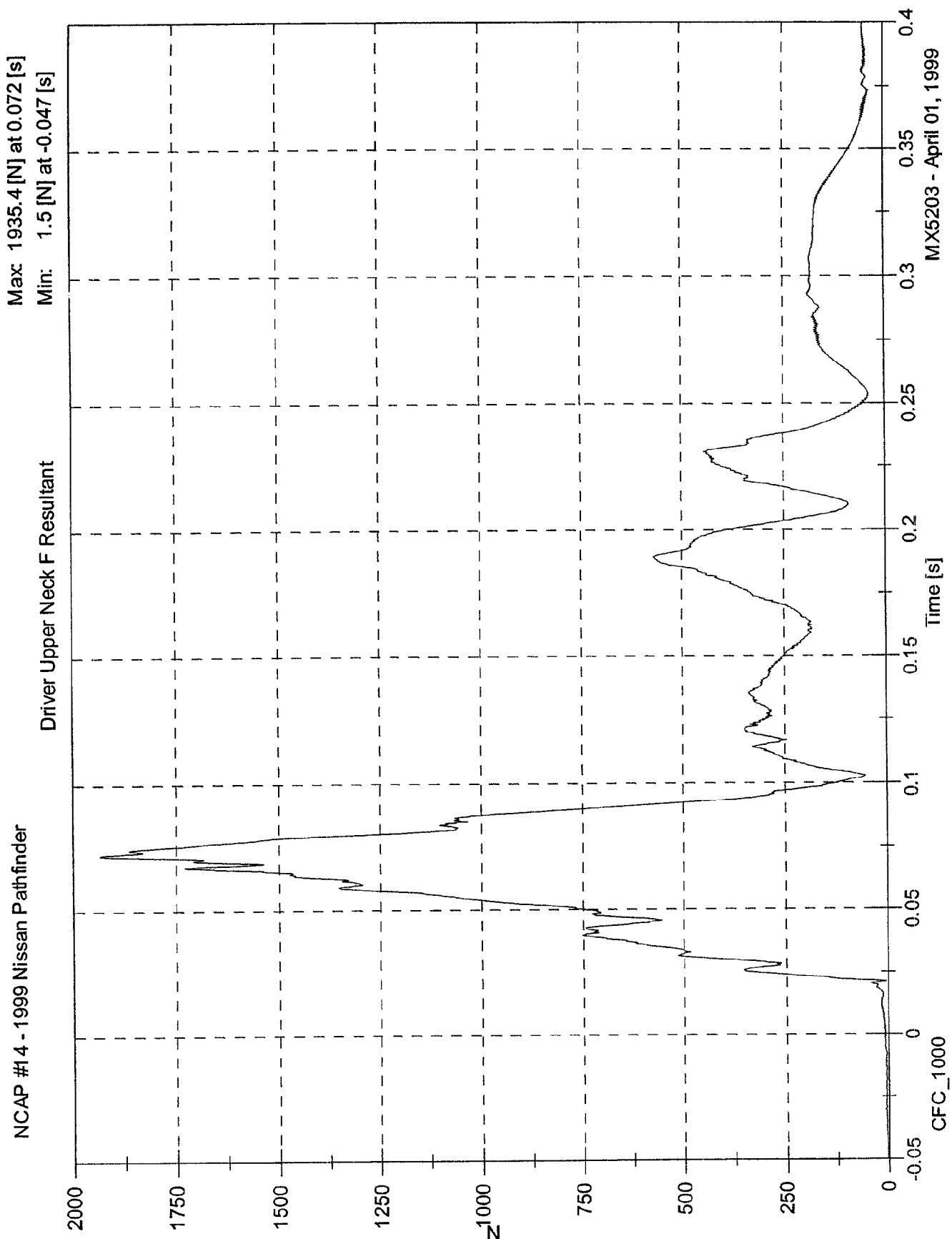
Driver Upper Neck Fy

NCAP #14 - 1999 Nissan Pathfinder



MX5203 - April 01, 1999

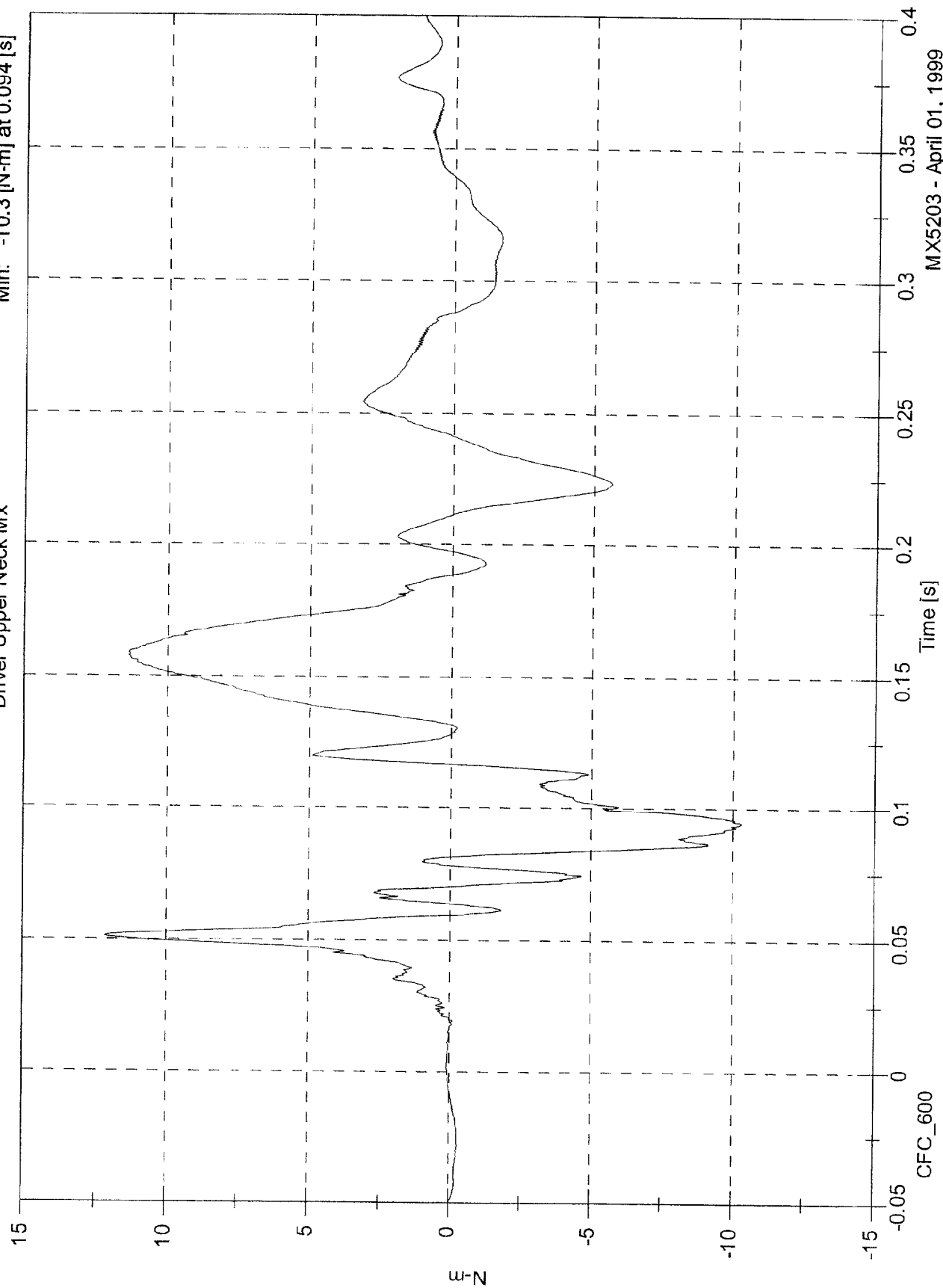




NCAP #14 - 1999 Nissan Pathfinder

Max: 12.2 [N-m] at 0.051 [s]
Min: -10.3 [N-m] at 0.094 [s]

Driver Upper Neck Mx

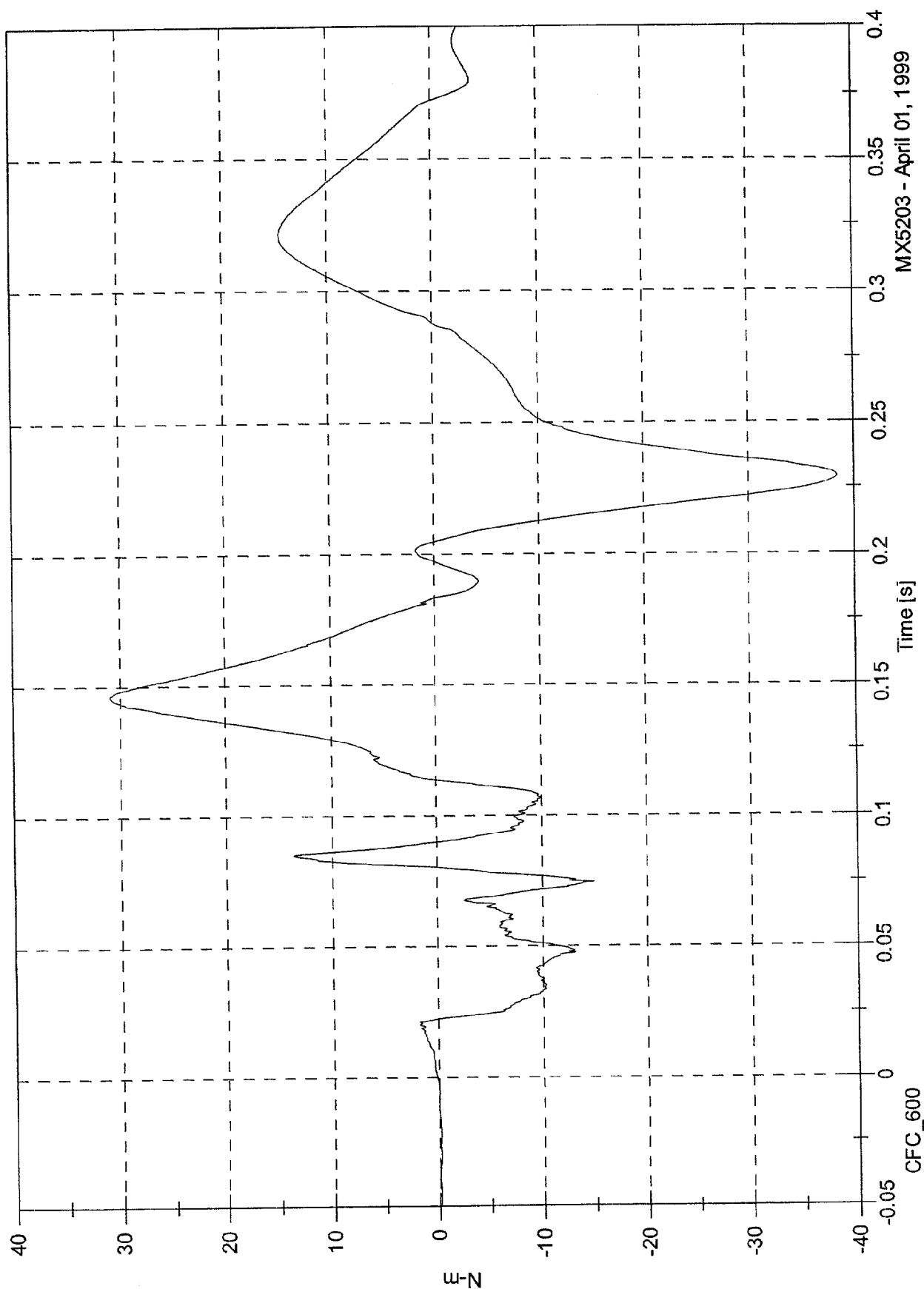


MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

Max: 30.9 [N-m] at 0.146 [s]
Min: -38.4 [N-m] at 0.229 [s]

Driver Upper Neck My

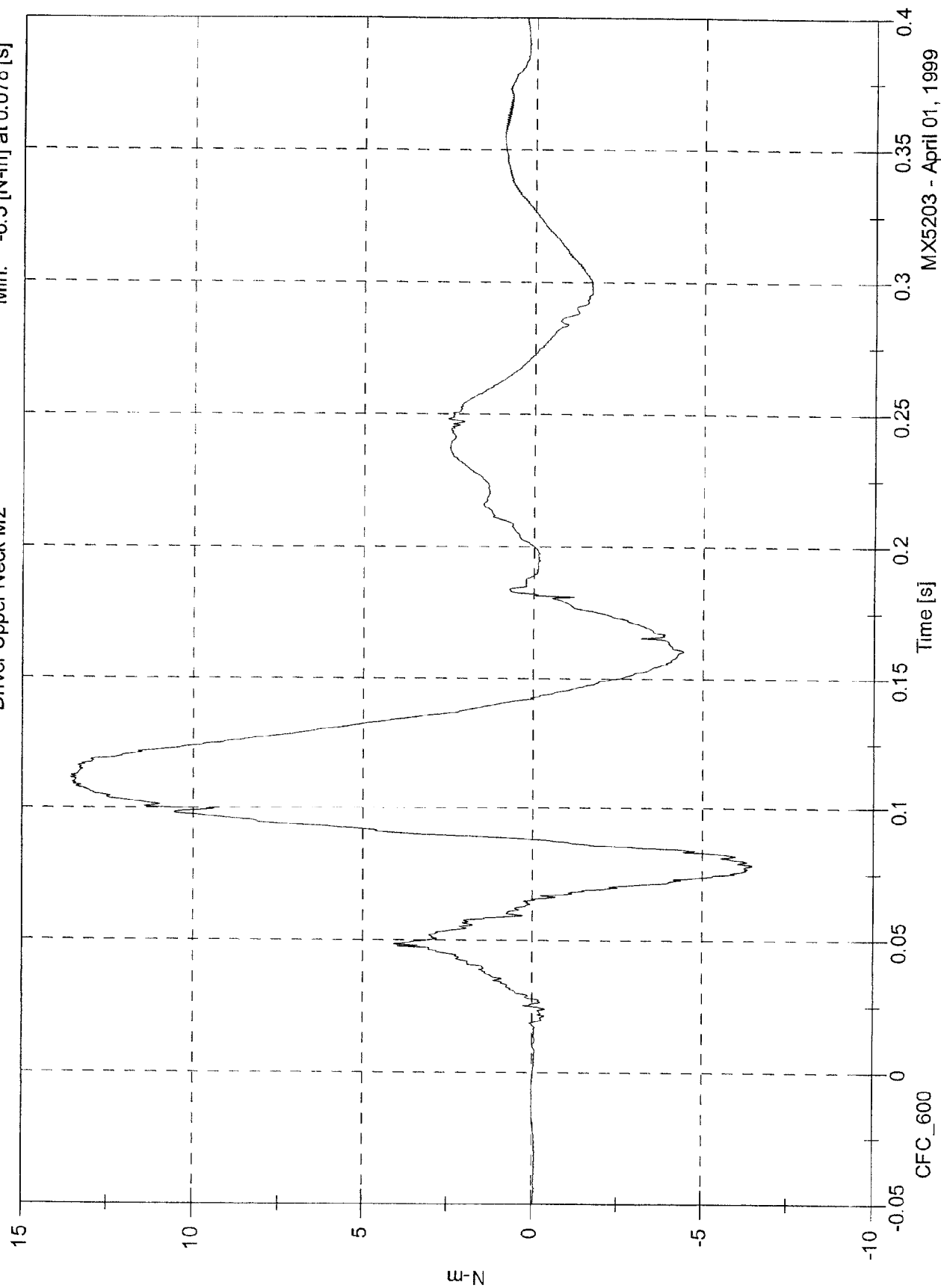


NCAP #14 - 1999 Nissan Pathfinder

Max: 13.6 [N-m] at 0.111 [s]

Min: -6.5 [N-m] at 0.078 [s]

Driver Upper Neck Mz

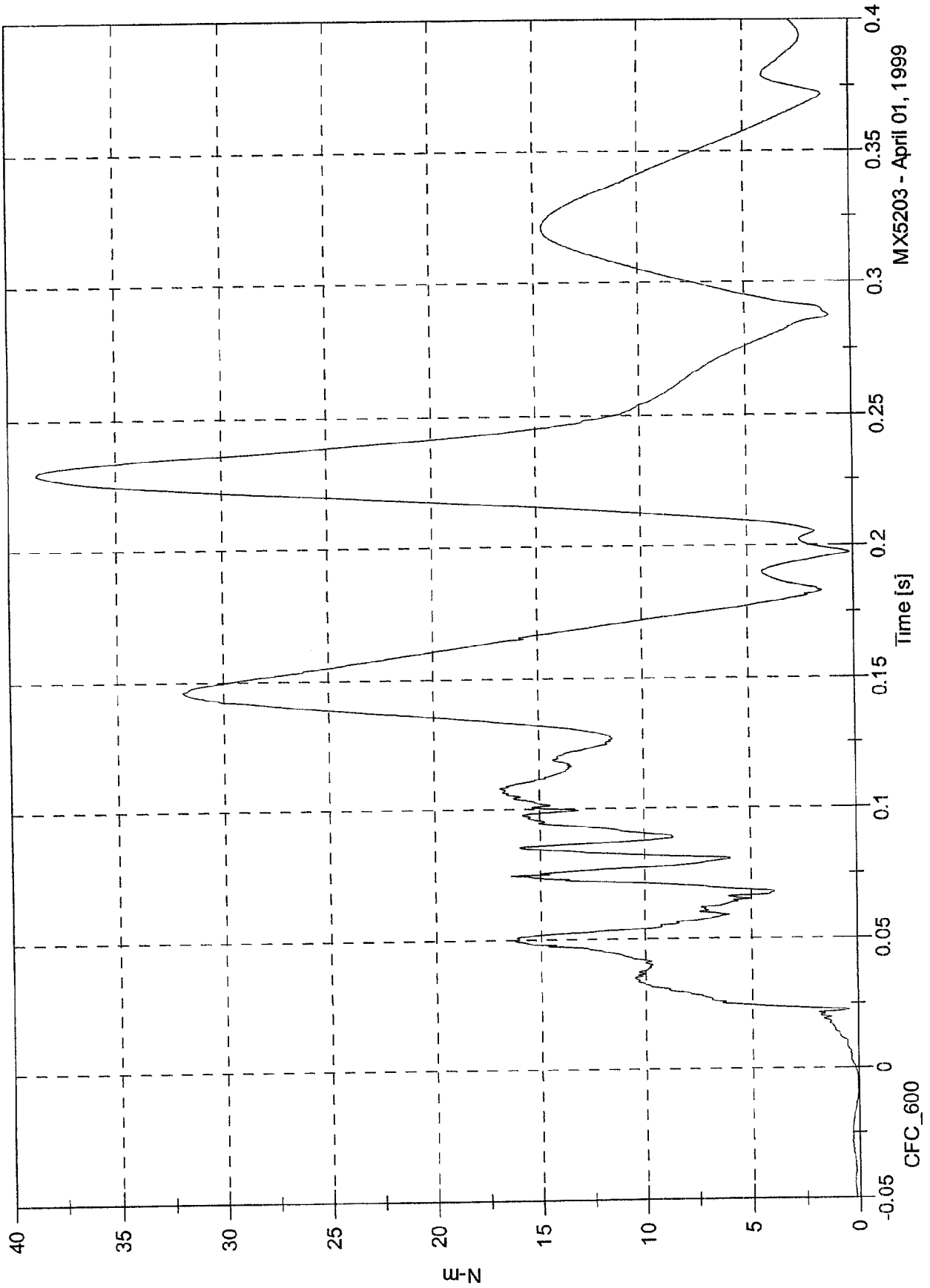


MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

Driver Upper Neck M Resultant

Max: 38.7 [N-m] at 0.229 [s]
Min: 0.0 [N-m] at -0.009 [s]

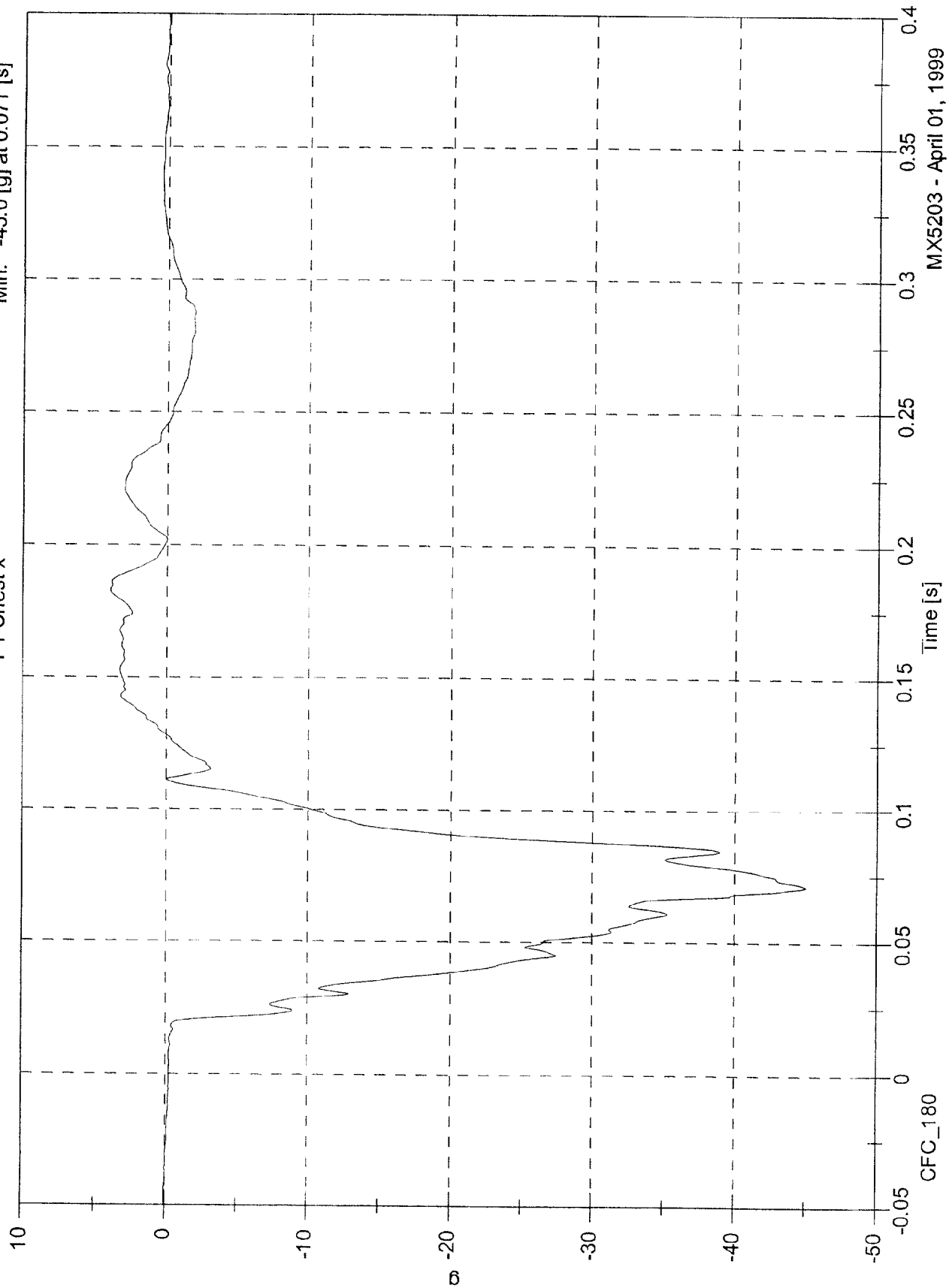


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NCAP #14 - 1999 Nissan Pathfinder

Max: 4.0 [g] at 0.183 [s]
Min: -45.0 [g] at 0.071 [s]

P1 Chest x

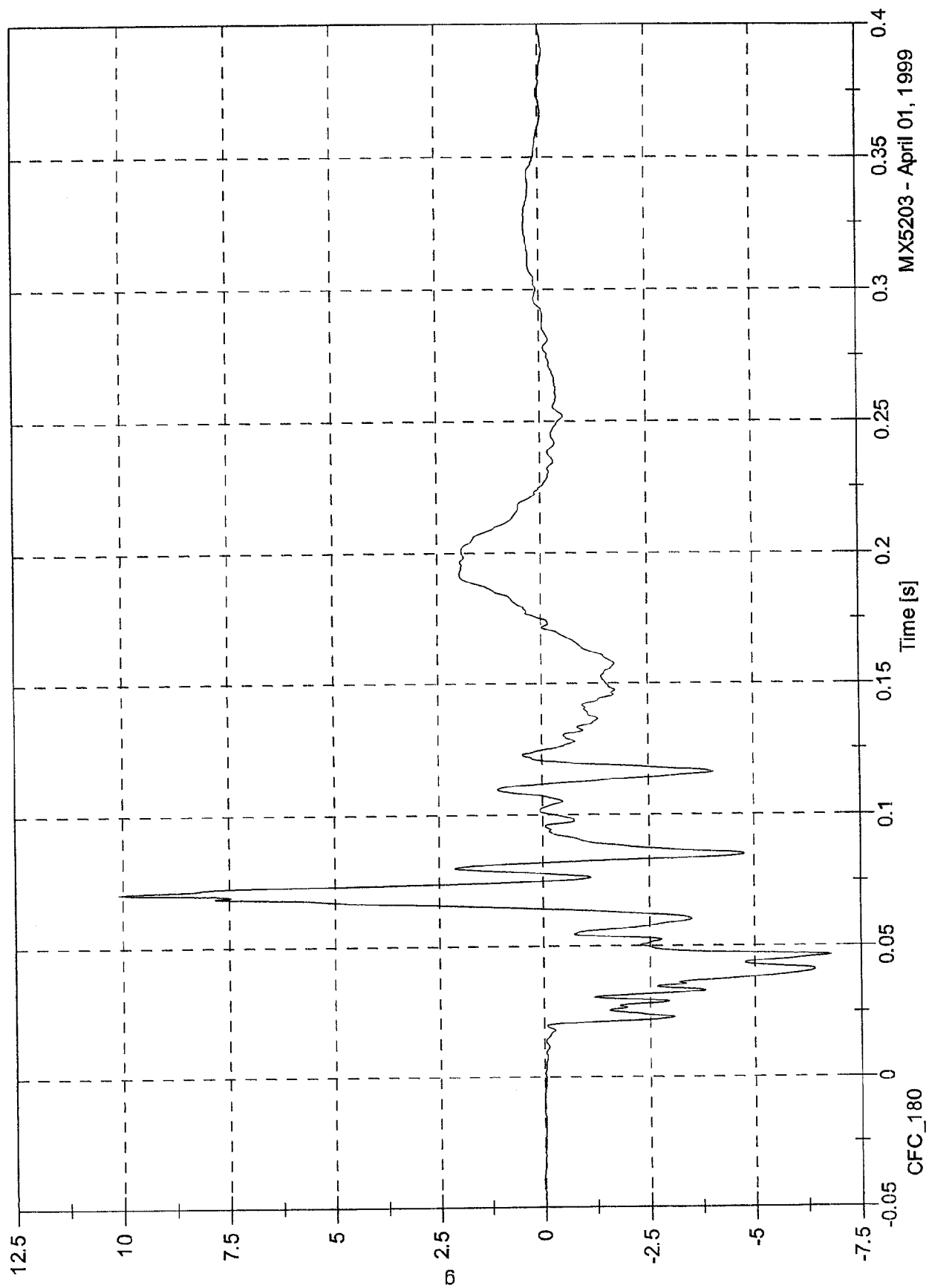


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NCAP #14 - 1999 Nissan Pathfinder

P1 Chest y

Max: 10.1 [g] at 0.071 [s]
Min: -6.8 [g] at 0.046 [s]



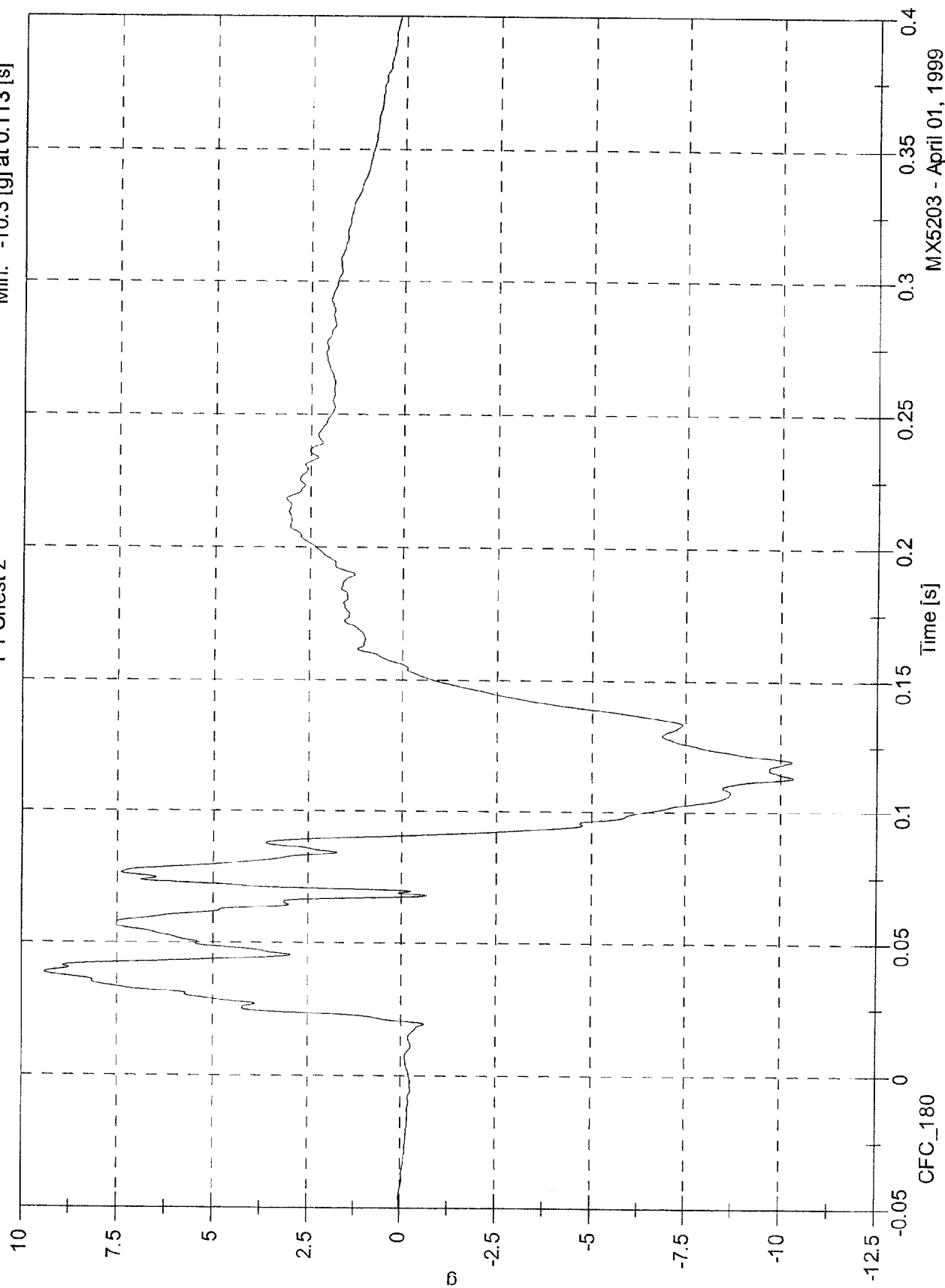
MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

Max: 9.4 [g] at 0.039 [s]

Min: -10.3 [g] at 0.113 [s]

P1 Chest z

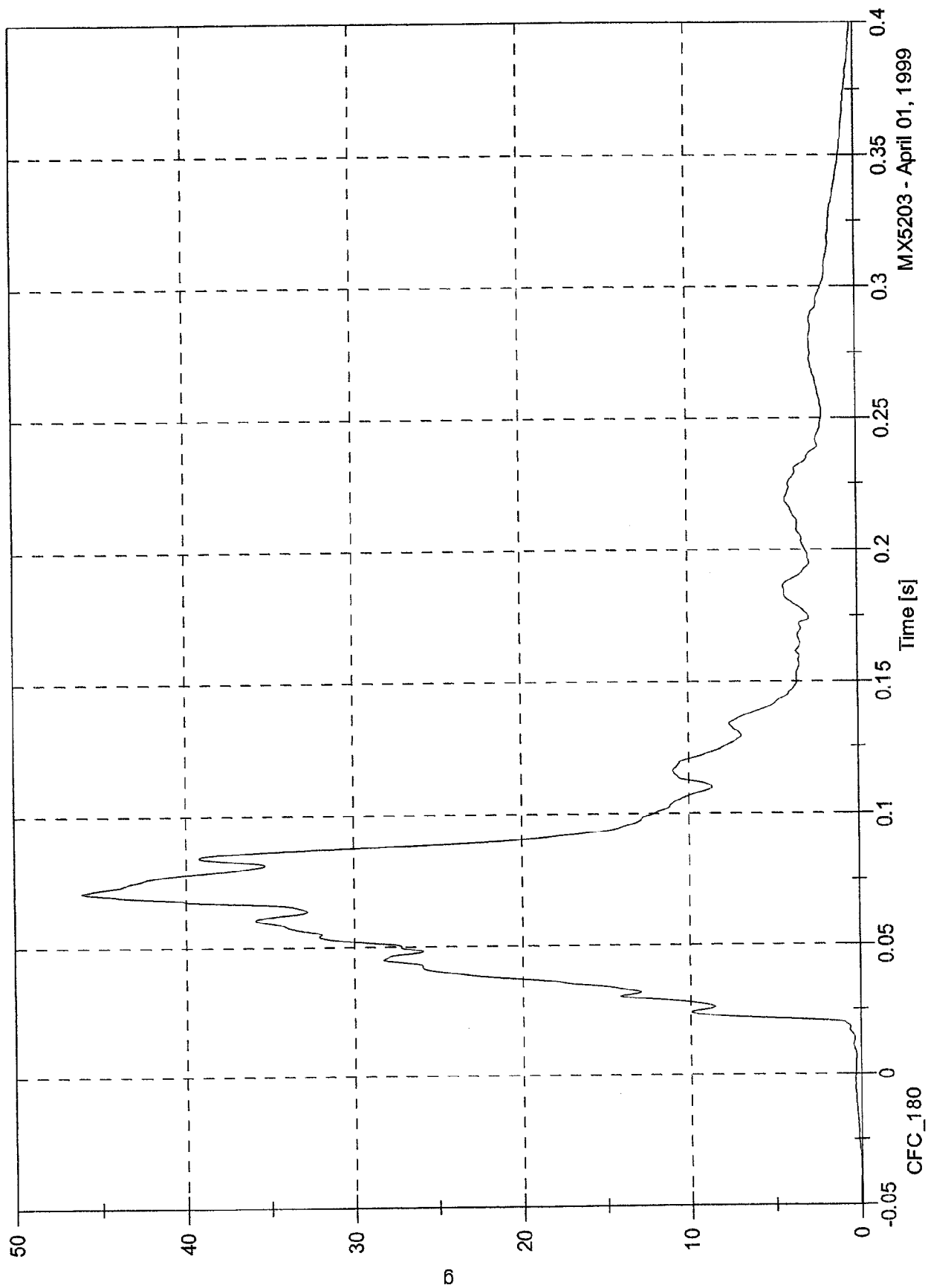


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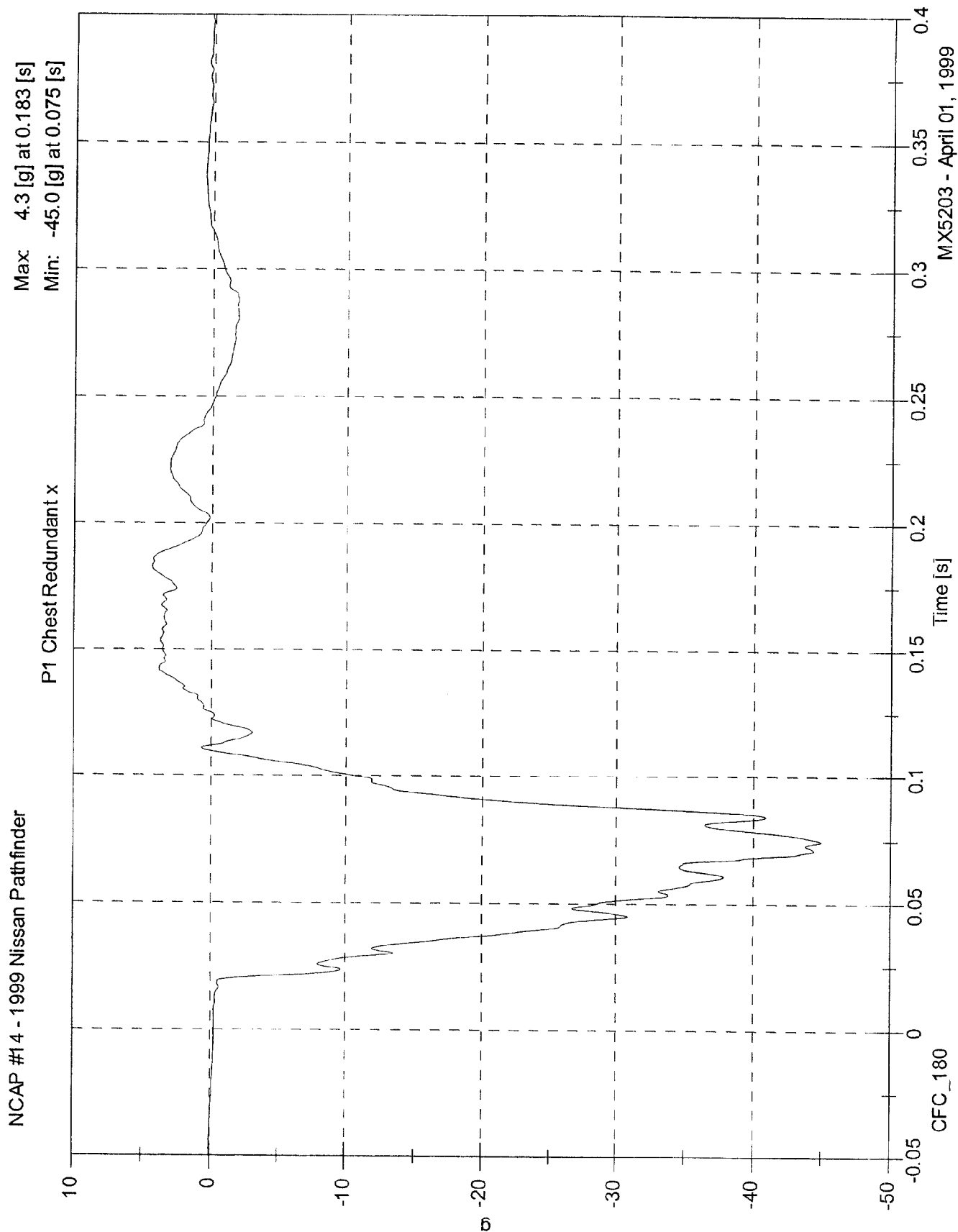
NCAP #14 - 1999 Nissan Pathfinder

P1 Chest Resultant

Max: 46.1 [g] at 0.071 [s]
Min: 0.0 [g] at -0.098 [s]



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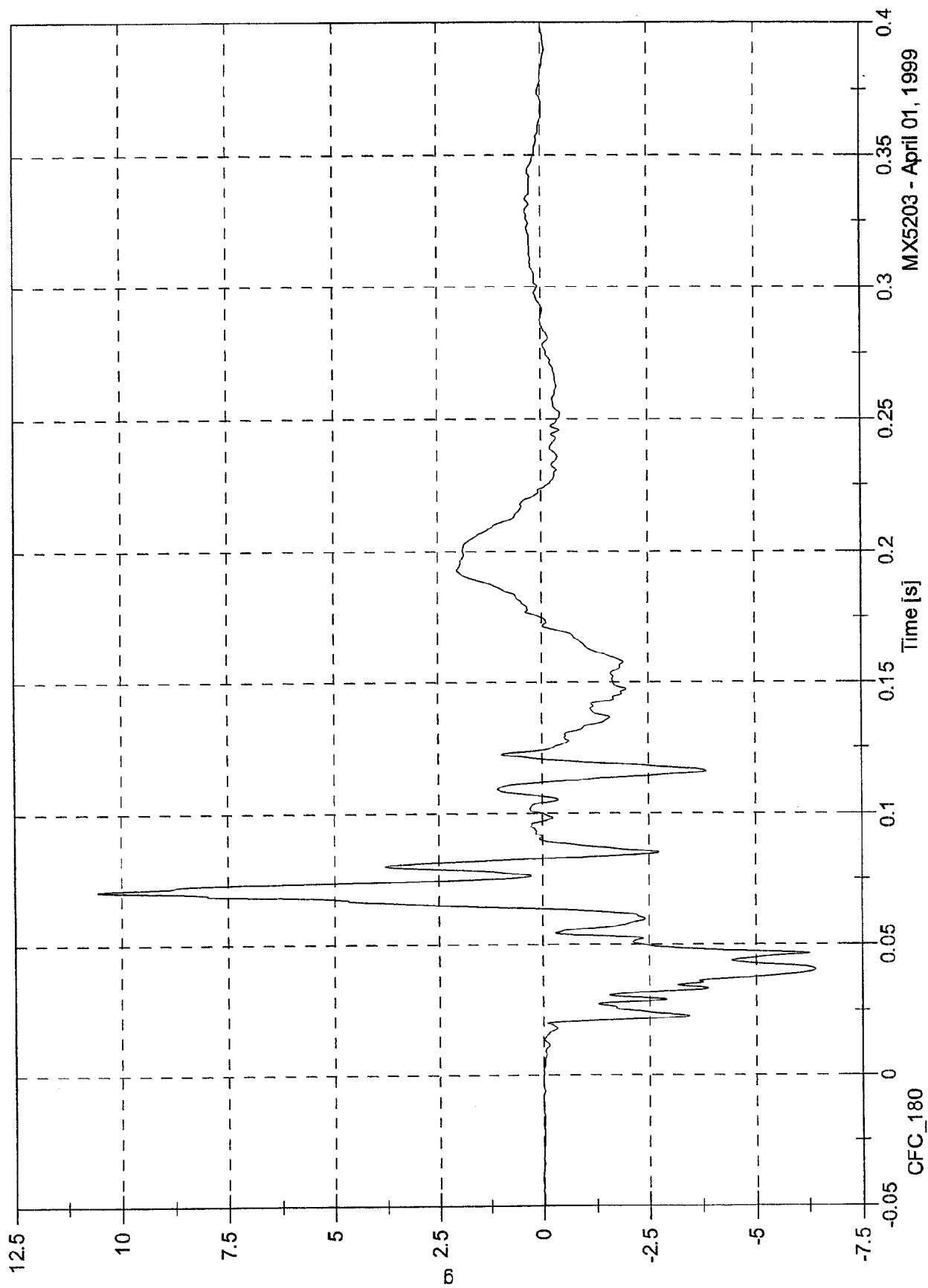


NCAP #14 - 1999 Nissan Pathfinder

P1 Chest Redundant y

Max: 10.6 [g] at 0.071 [s]

Min: -6.4 [g] at 0.040 [s]

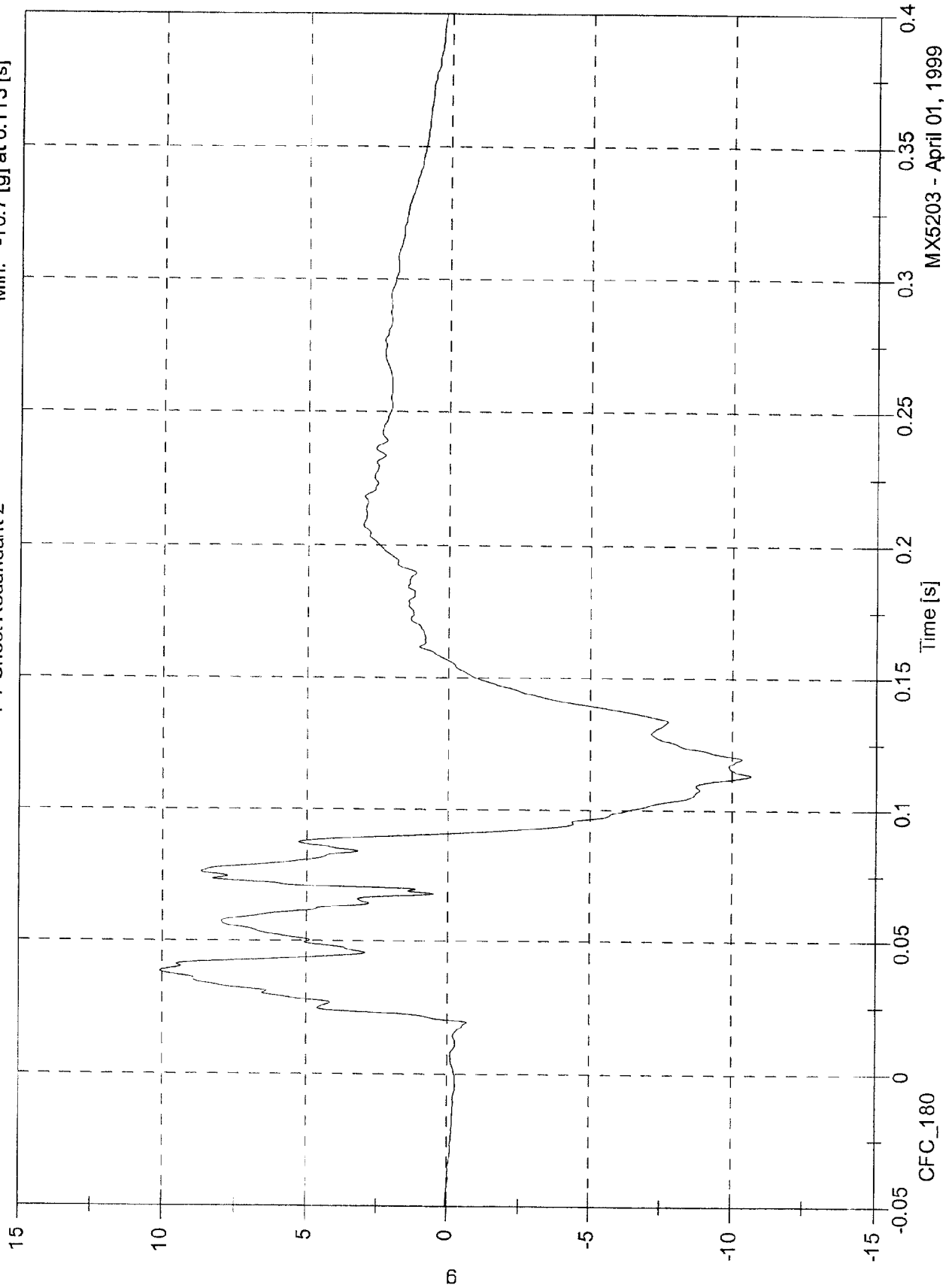


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NCAP #14 - 1999 Nissan Pathfinder

P1 Chest Redundant z

Max: 10.1 [g] at 0.038 [s]
Min: -10.7 [g] at 0.113 [s]

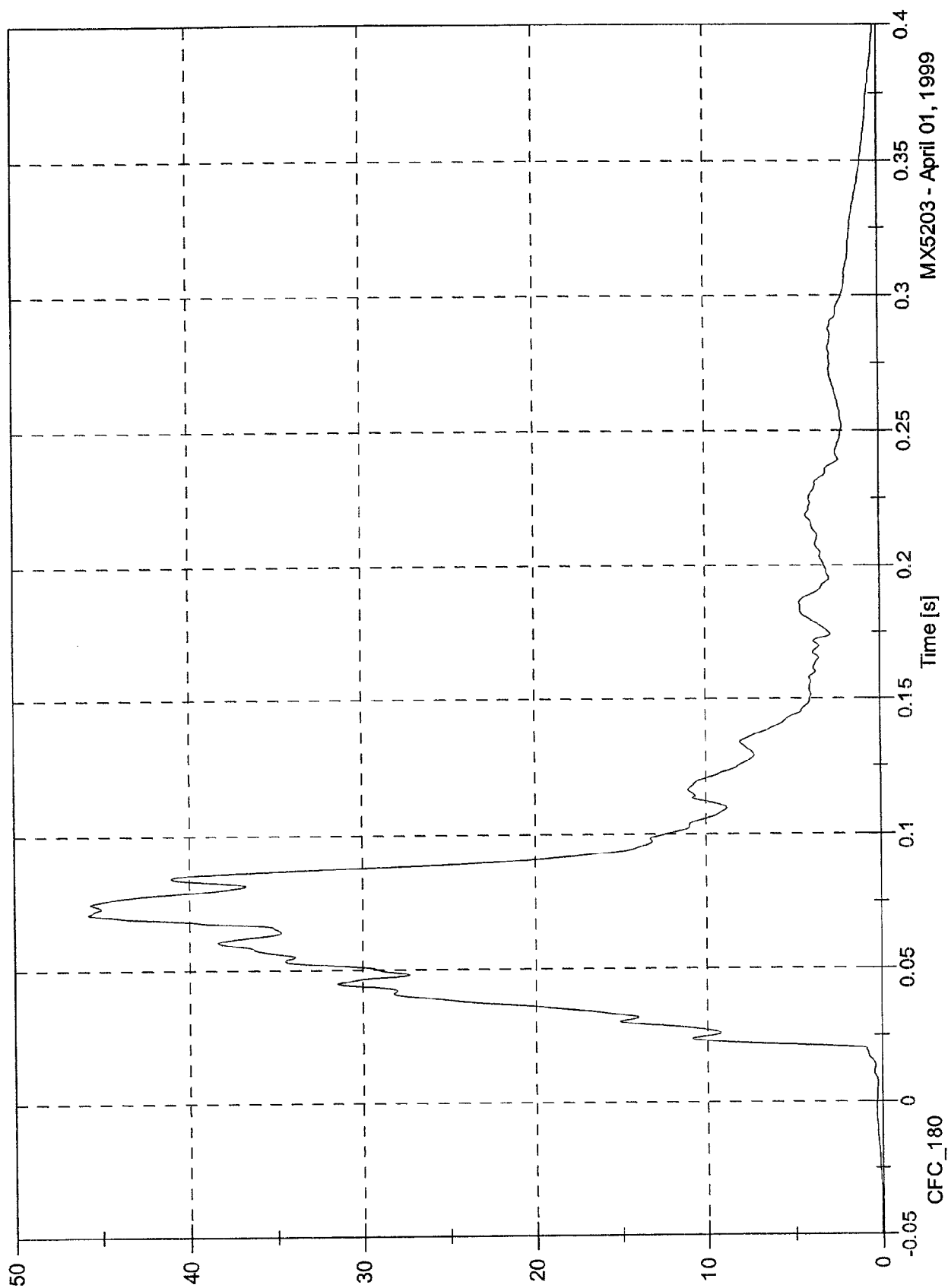


MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

P1 Chest Redundant Resultant

Max: 45.8 [g] at 0.071 [s]
Min: 0.0 [g] at -0.100 [s]

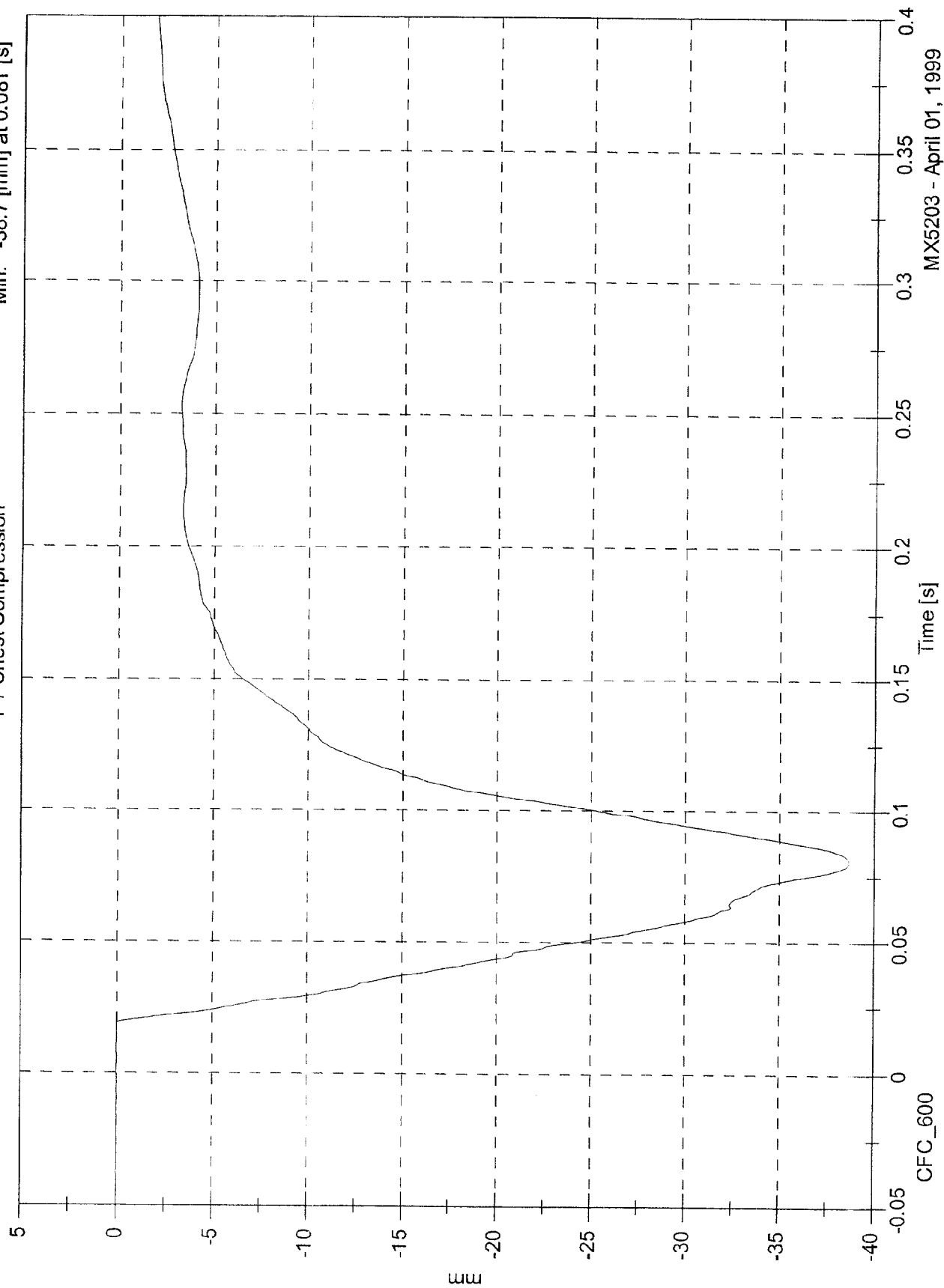


MX5203 - April 01, 1999

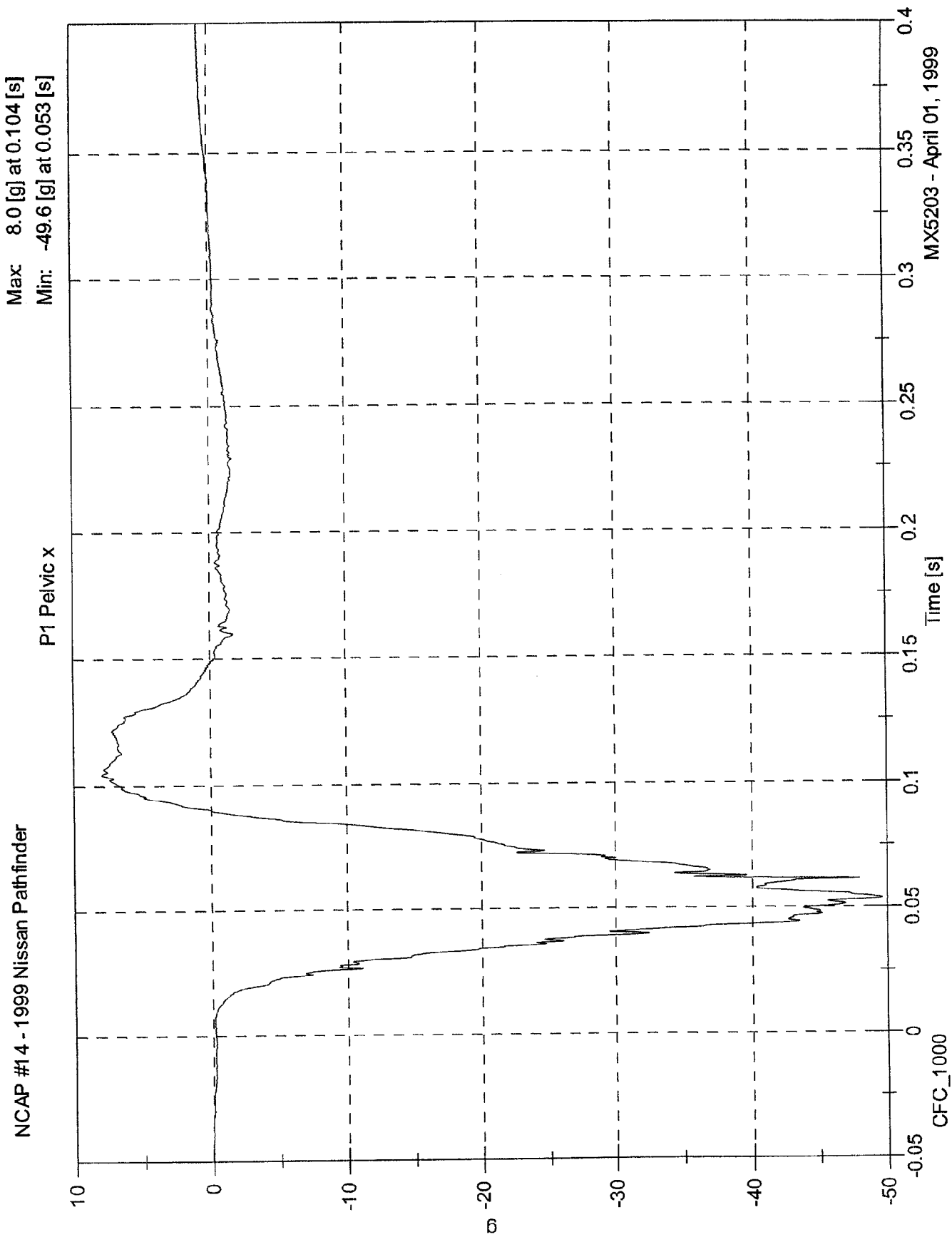
NCAP #14 - 1999 Nissan Pathfinder

Max: 0.0 [mm] at 0.013 [s]
Min: -38.7 [mm] at 0.081 [s]

P1 Chest Compression



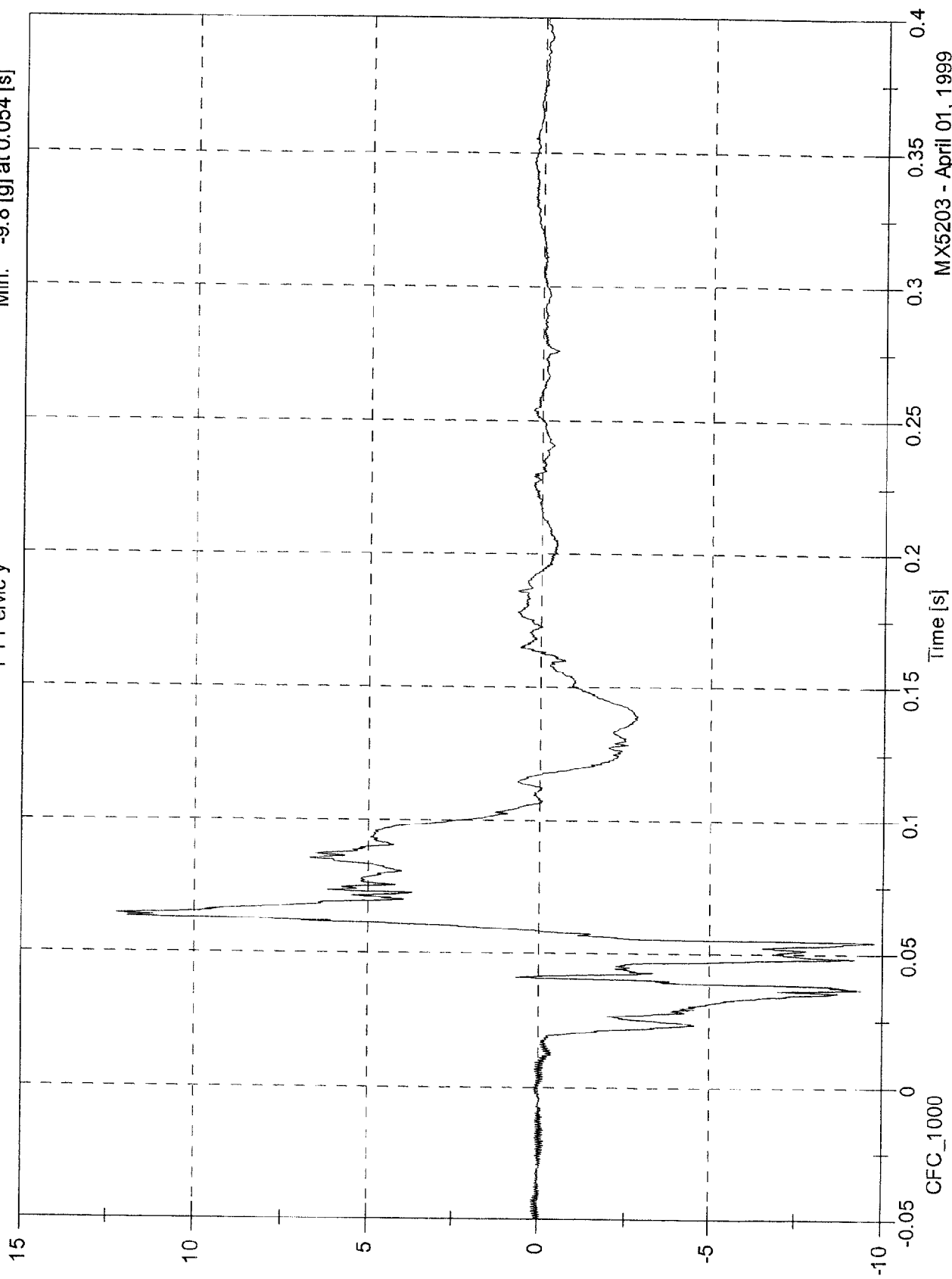
MX5203 - April 01, 1999



NCAP #14 - 1999 Nissan Pathfinder

Max: 12.2 [g] at 0.064 [s]
Min: -9.8 [g] at 0.054 [s]

P1 Pelvic y

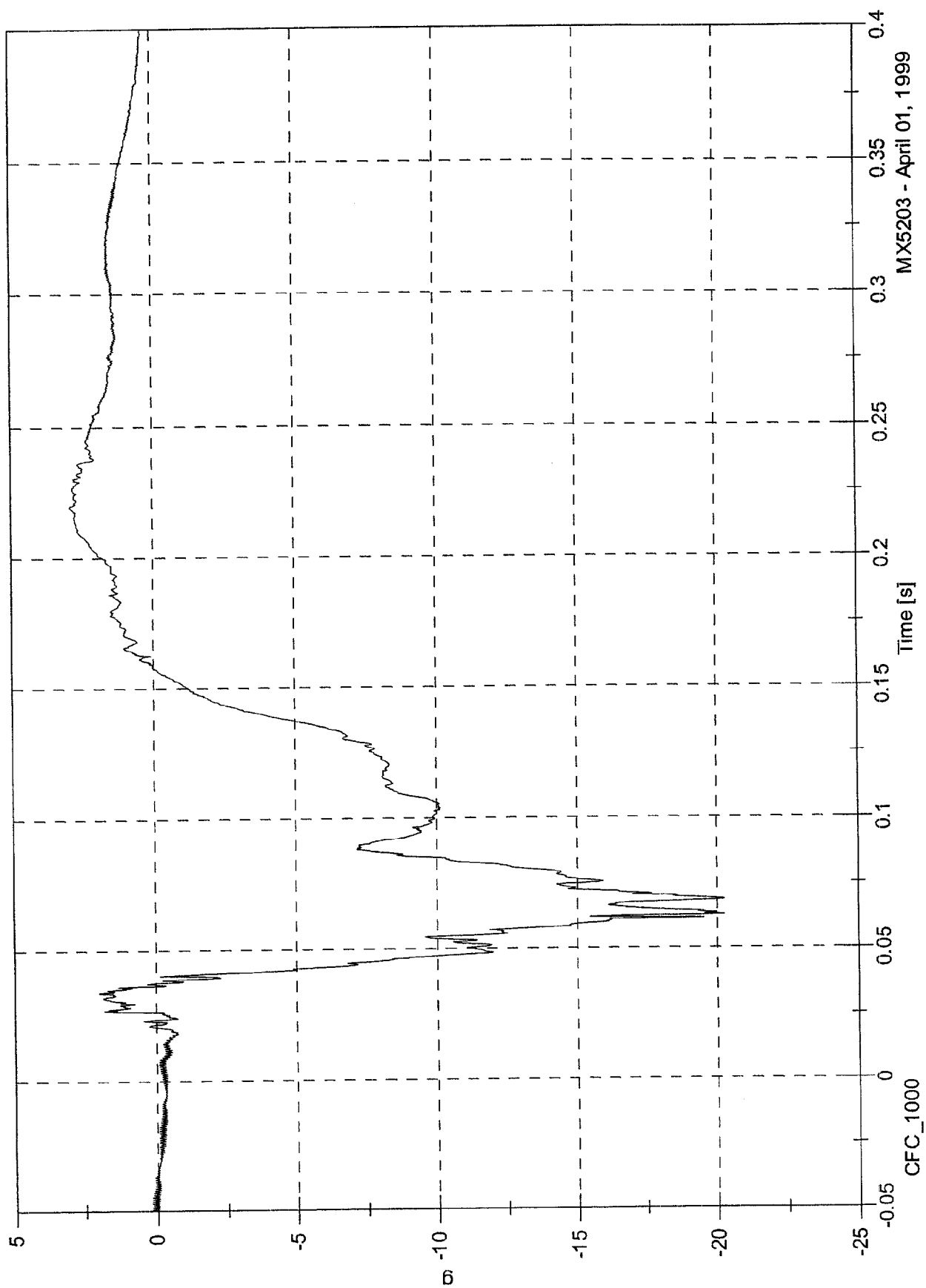


MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

Max 2.9 [g] at 0.219 [s]
Min: -20.3 [g] at 0.063 [s]

P1 Pelvic z

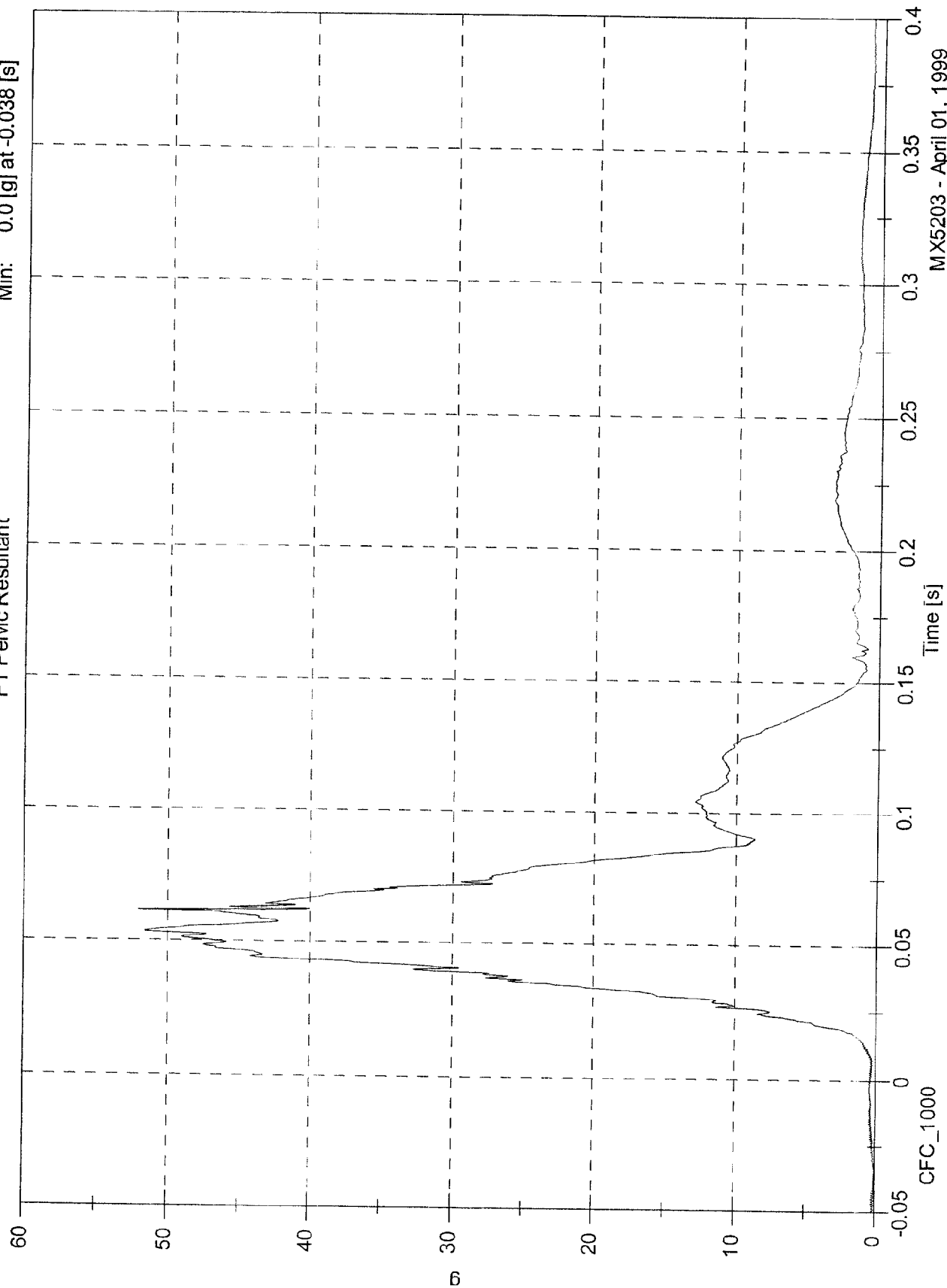


MX5203 - April 01, 1999

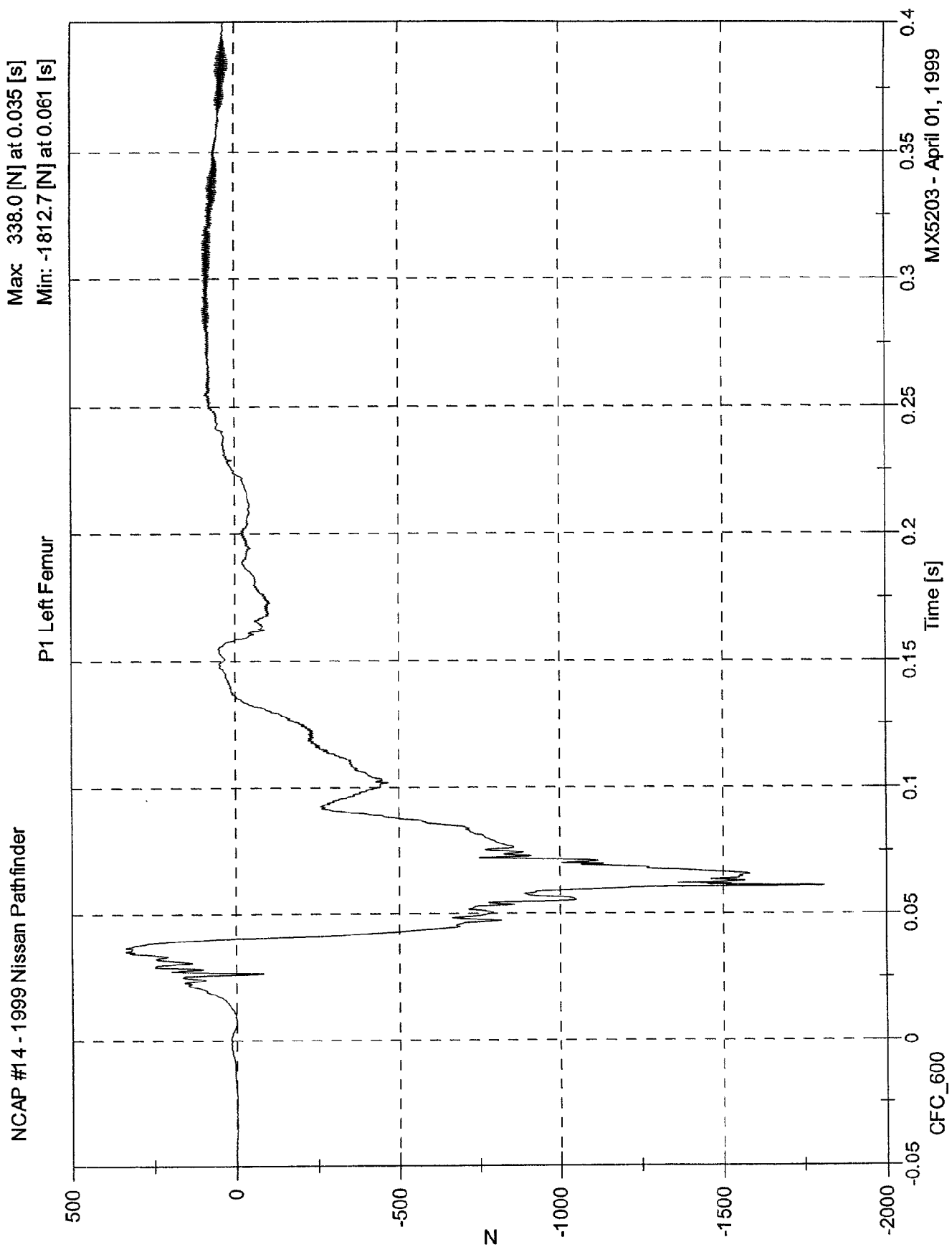
NCAP #14 - 1999 Nissan Pathfinder

Max 52.1 [g] at 0.061 [s]
Min: 0.0 [g] at -0.038 [s]

P1 Pelvic Resultant



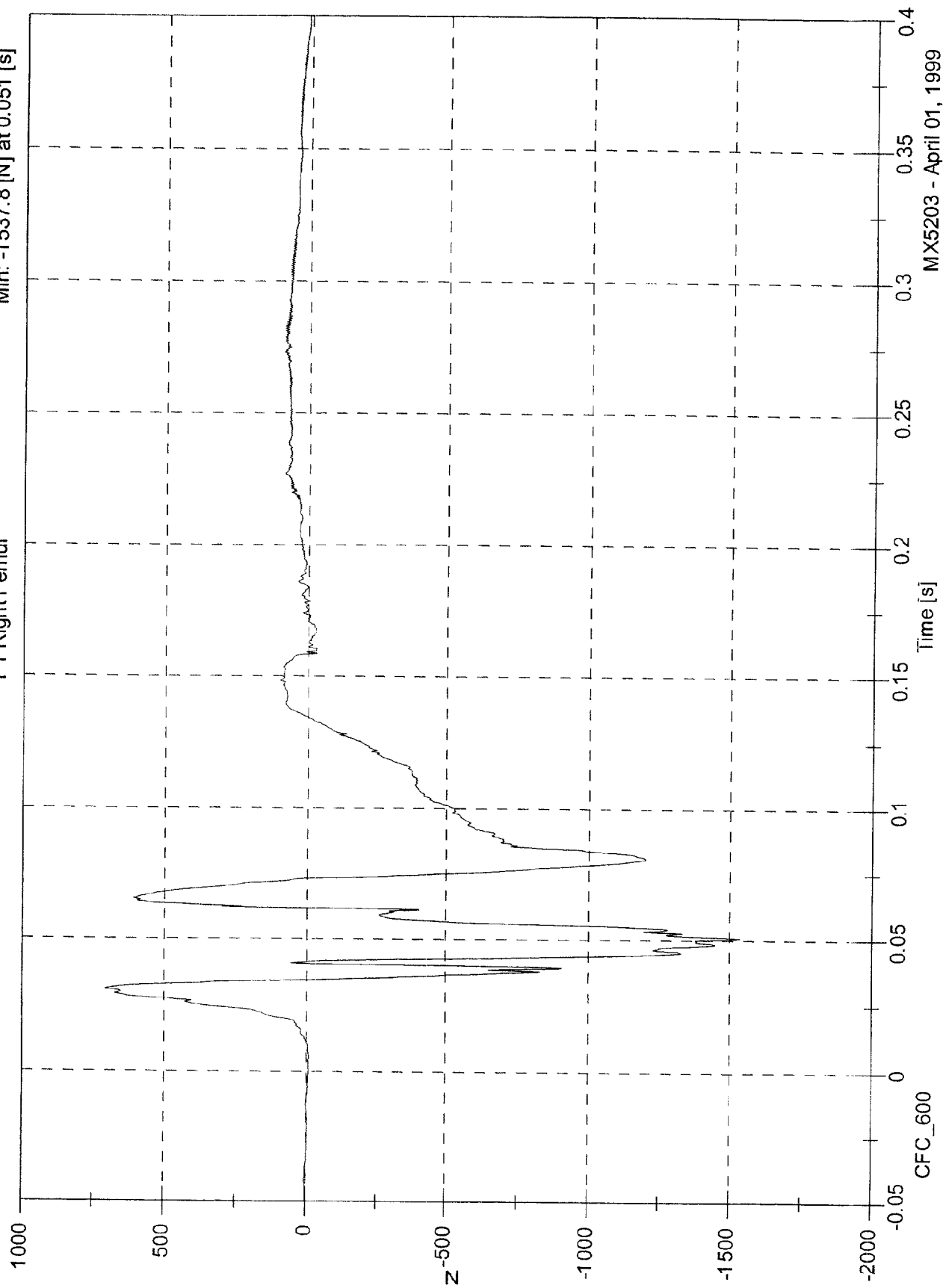
MX5203 - April 01, 1999



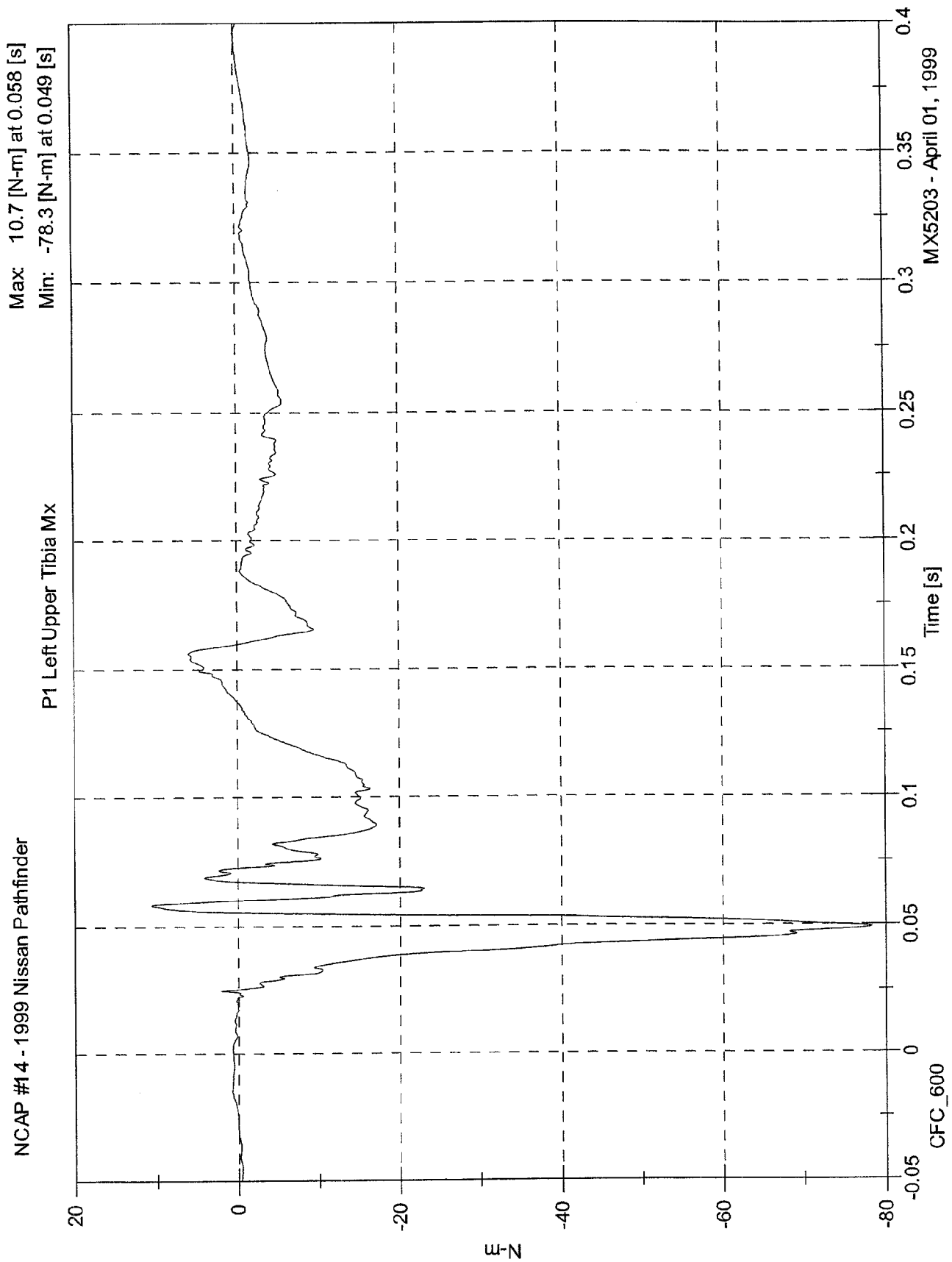
NCAP #14 - 1999 Nissan Pathfinder

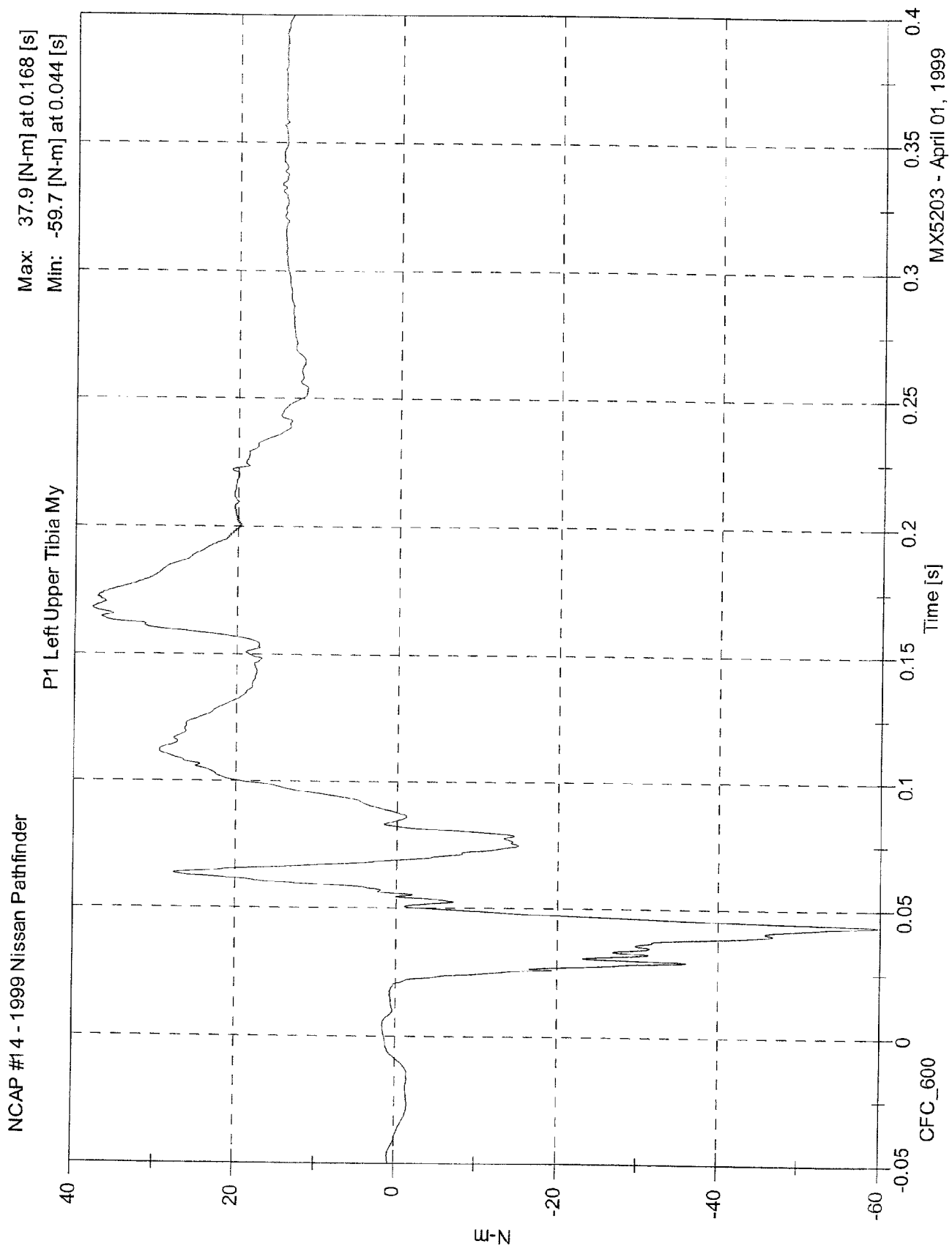
Max: 707.5 [N] at 0.031 [s]
Min: -1537.8 [N] at 0.051 [s]

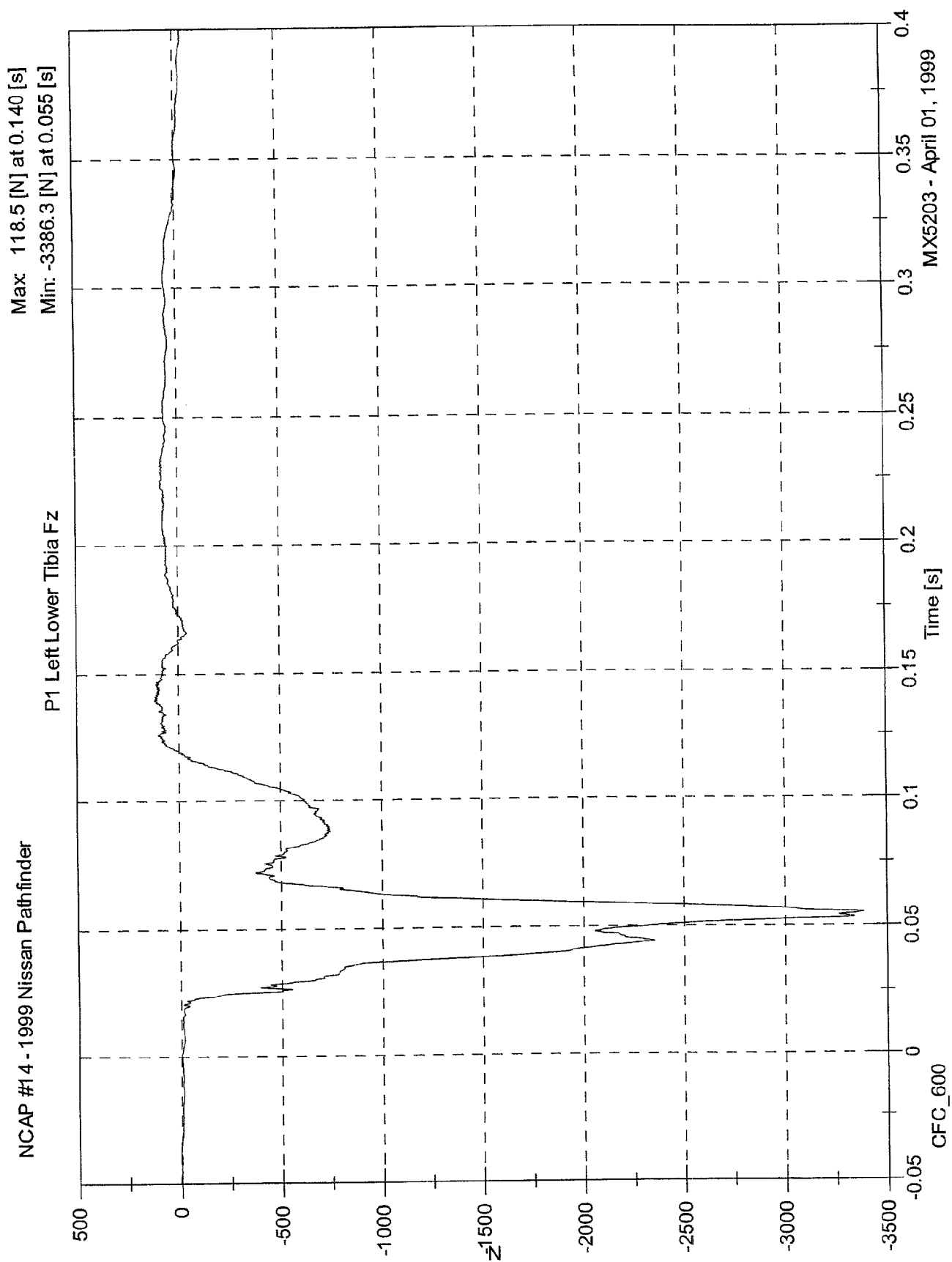
P1 Right Femur

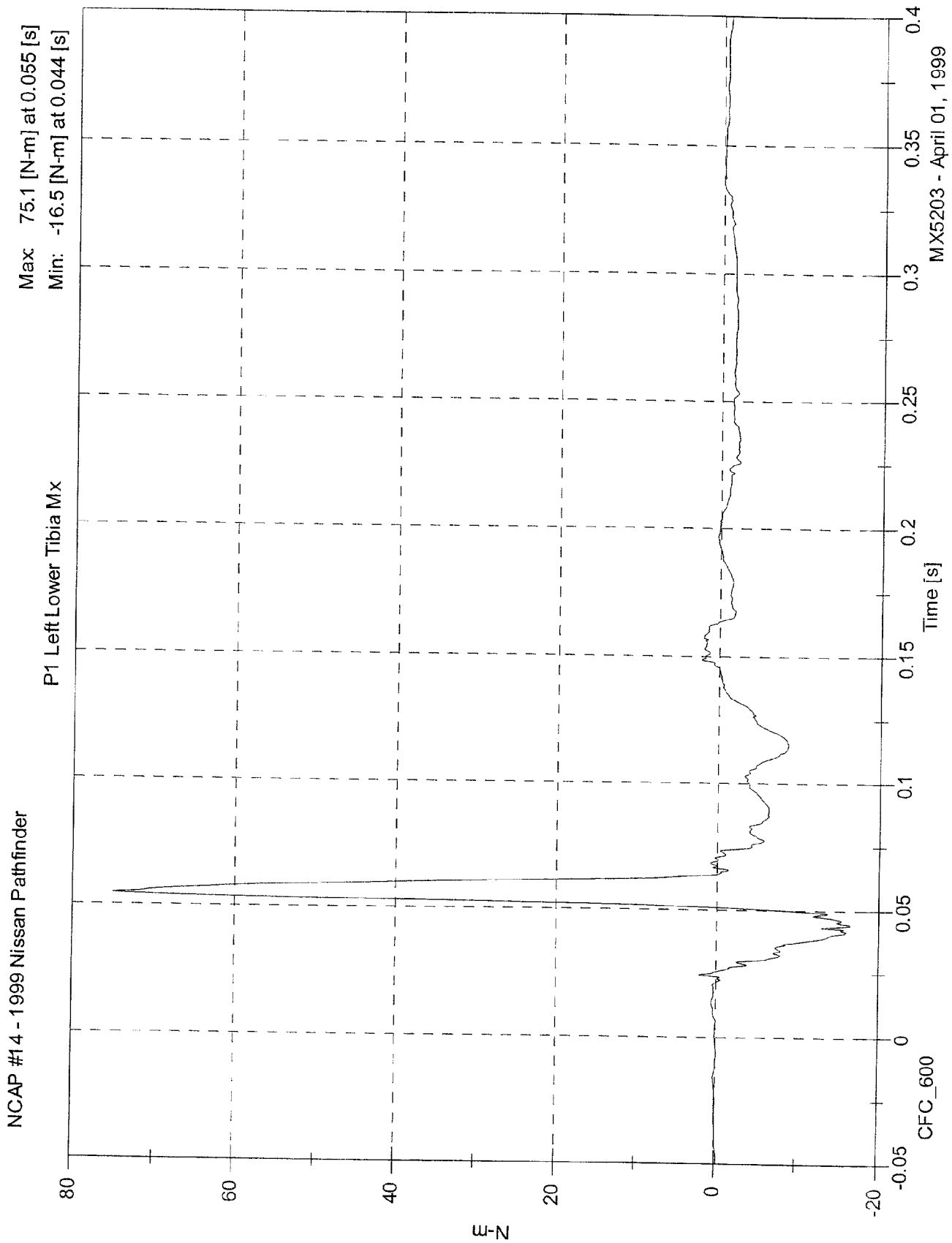


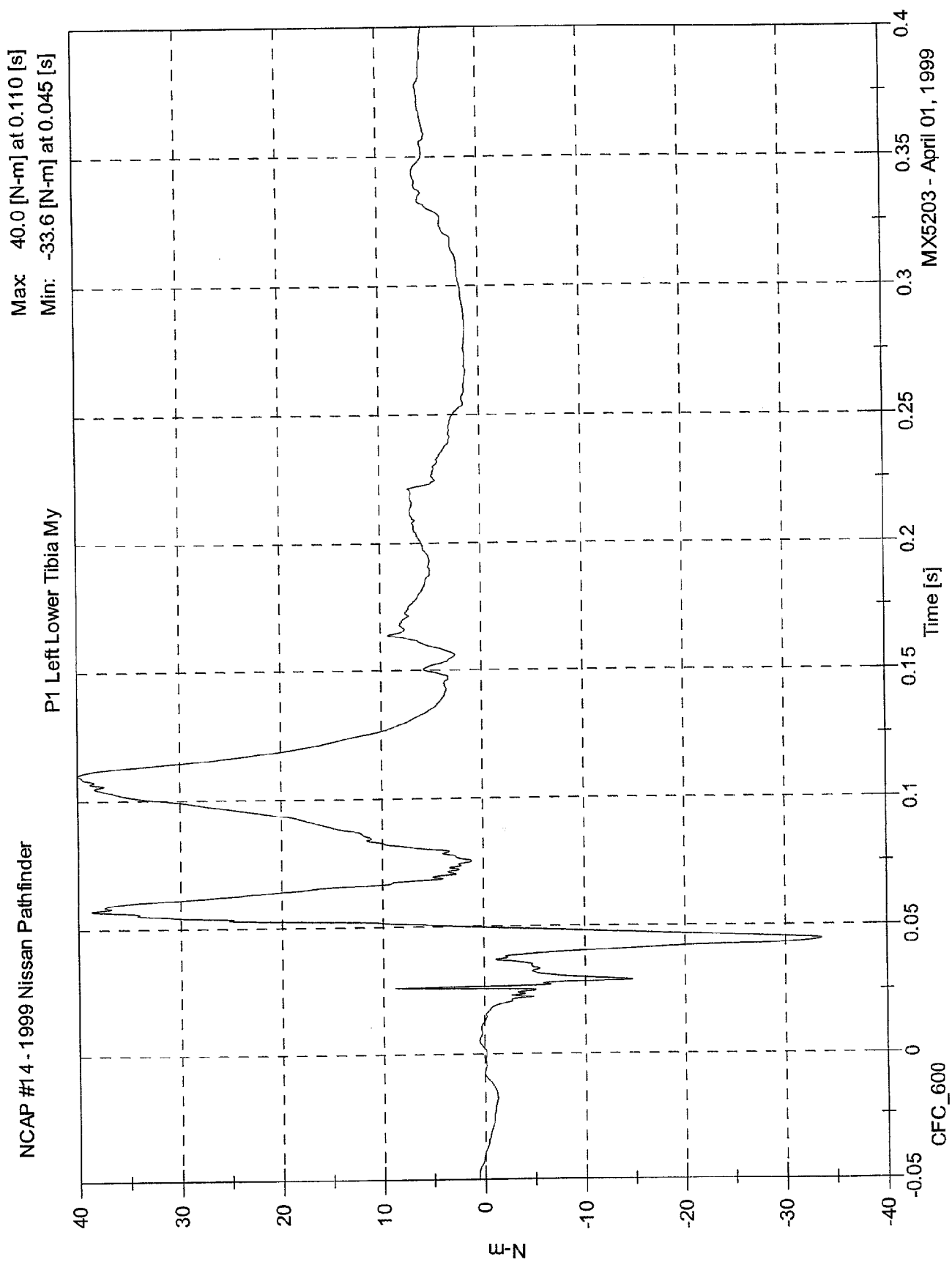
MX5203 - April 01, 1999

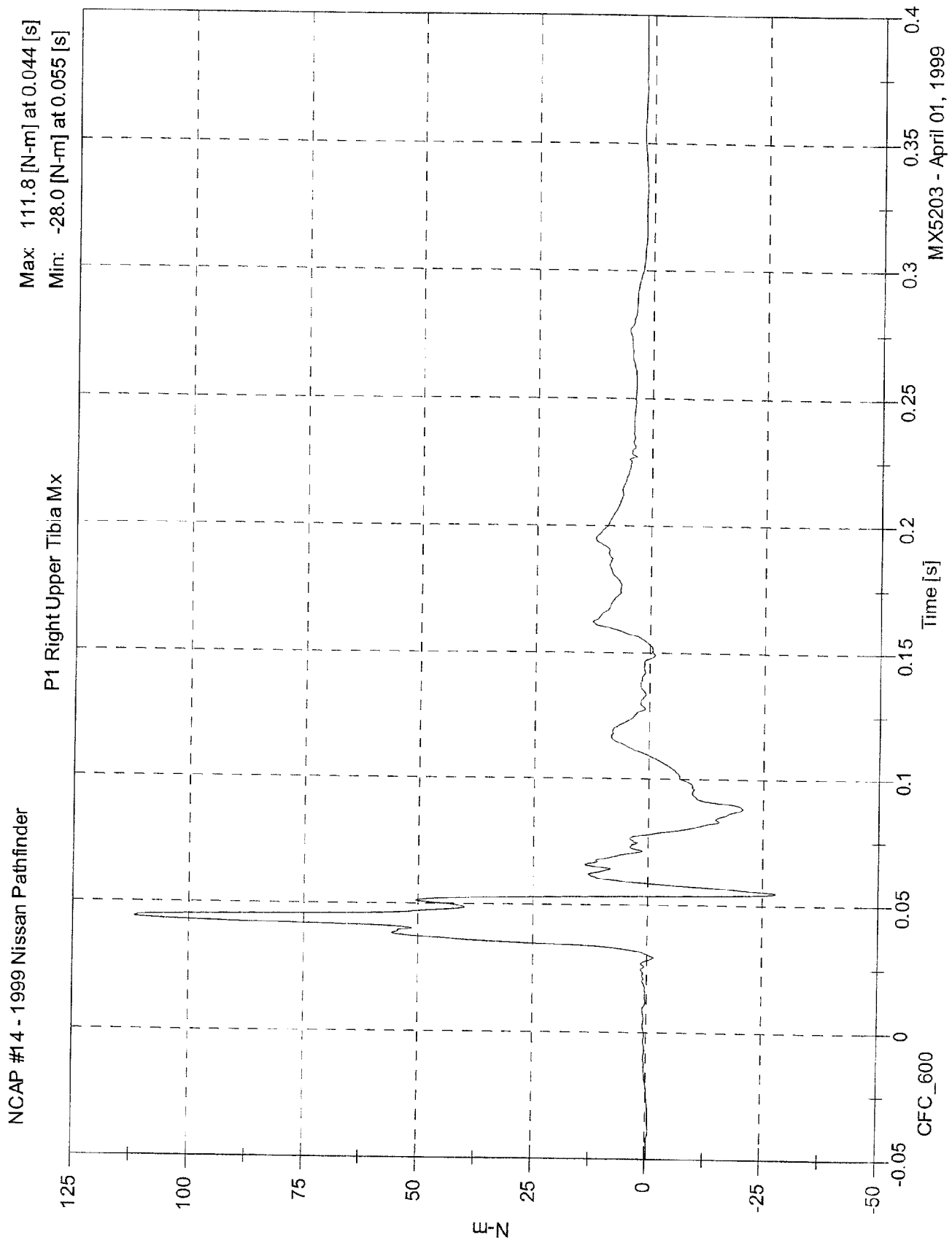


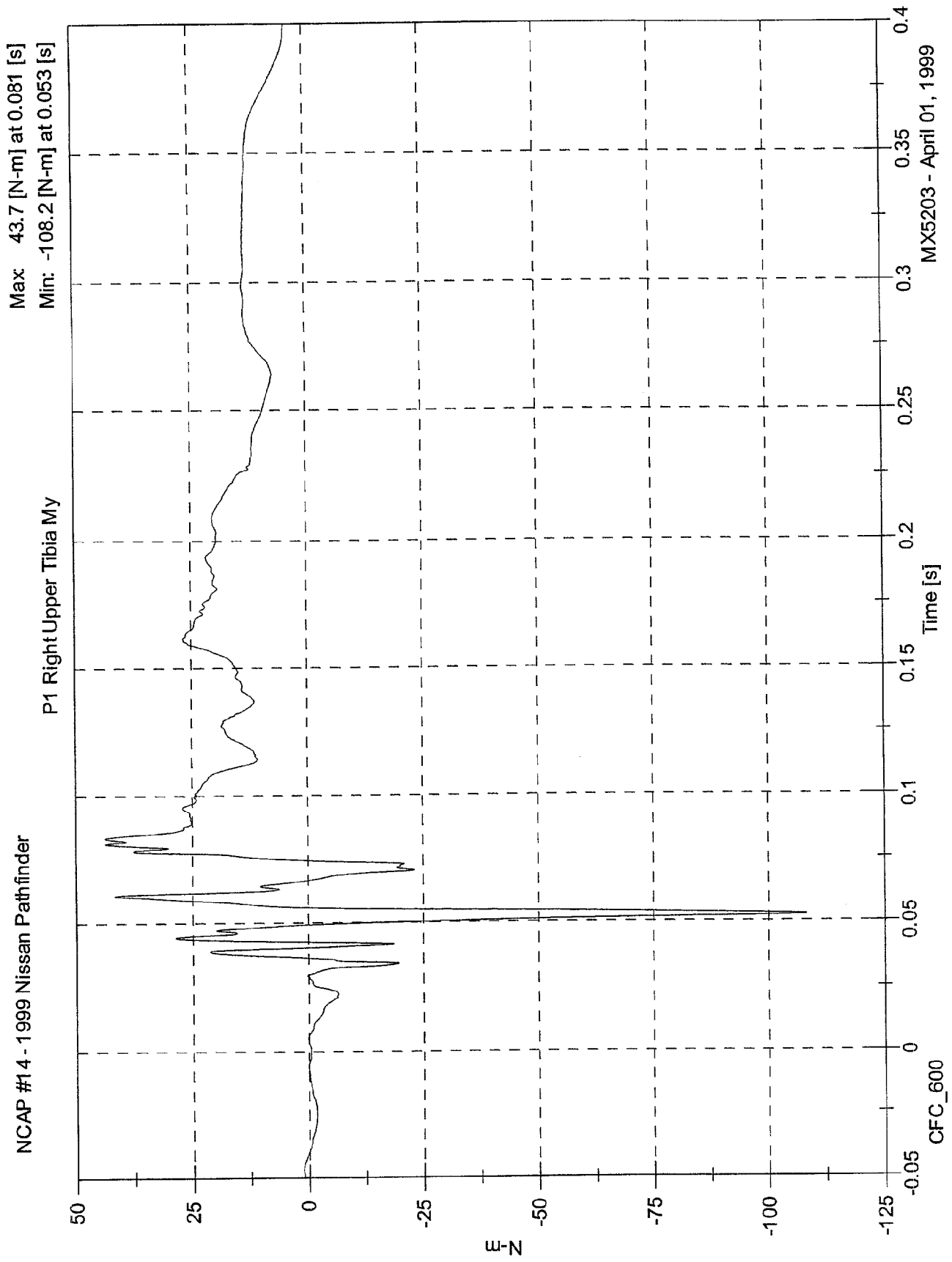


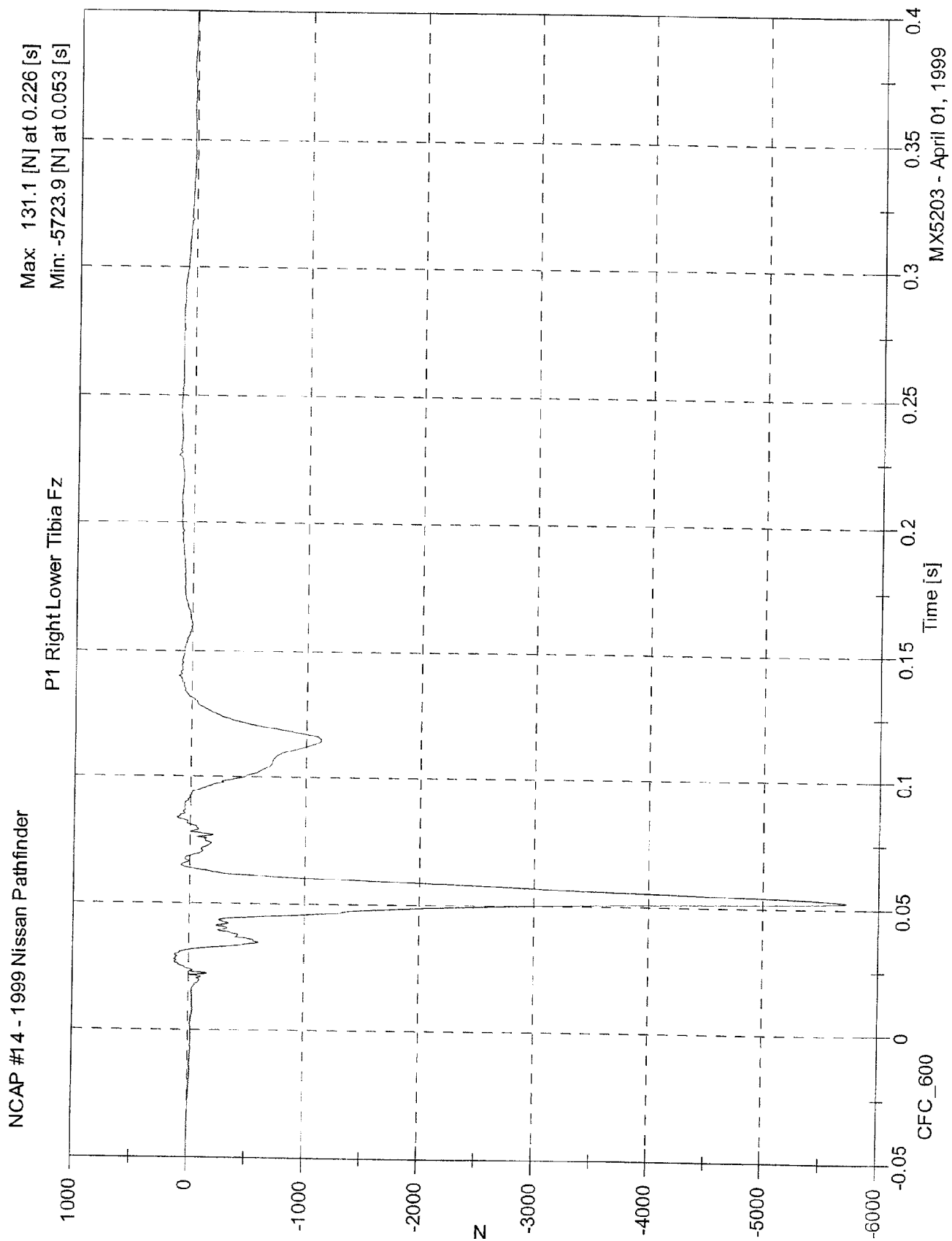










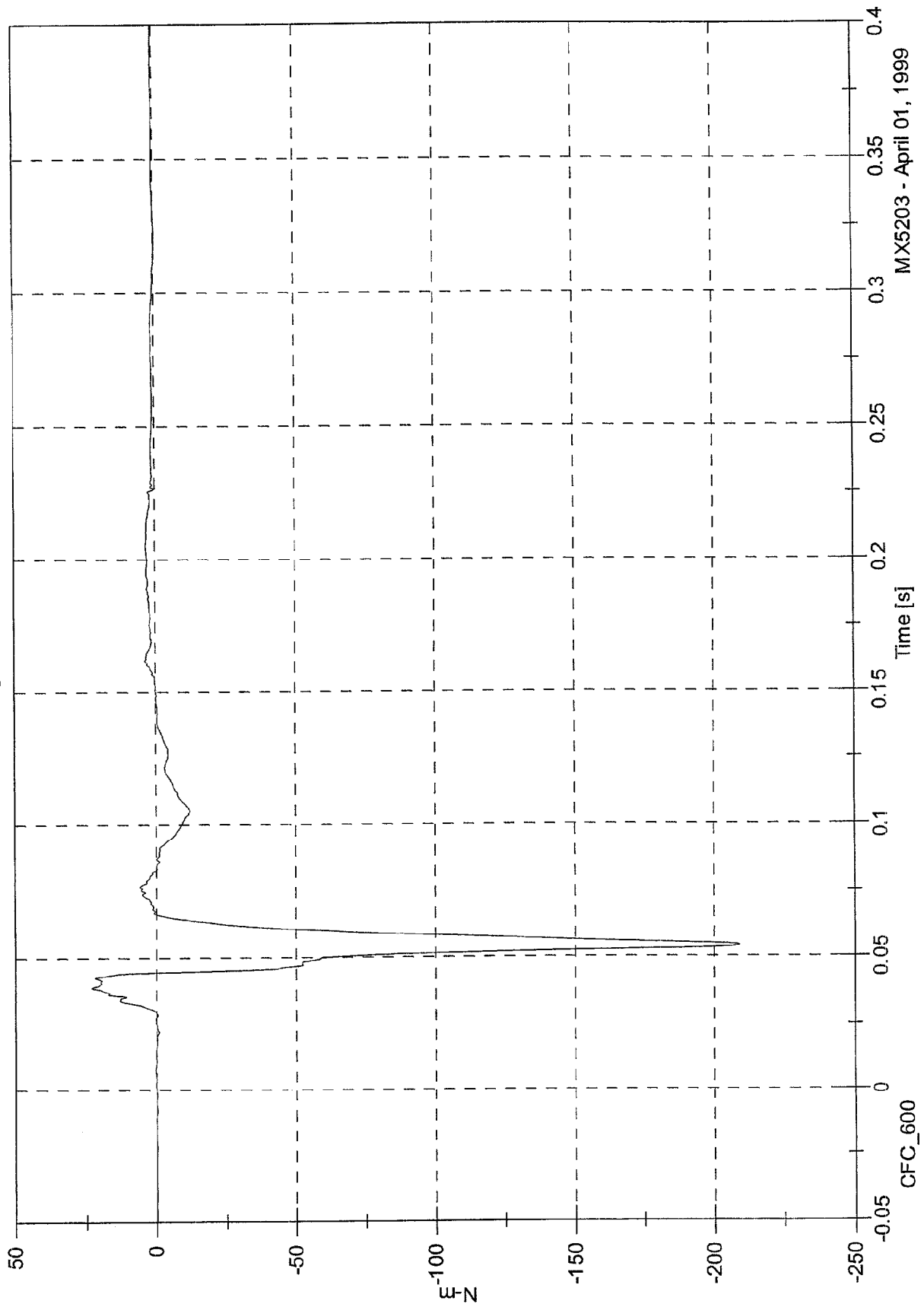


NCAP #14 - 1999 Nissan Pathfinder

P1 Right Lower Tibia Mx

Max: 23.3 [N-m] at 0.039 [s]

Min: -209.2 [N-m] at 0.054 [s]



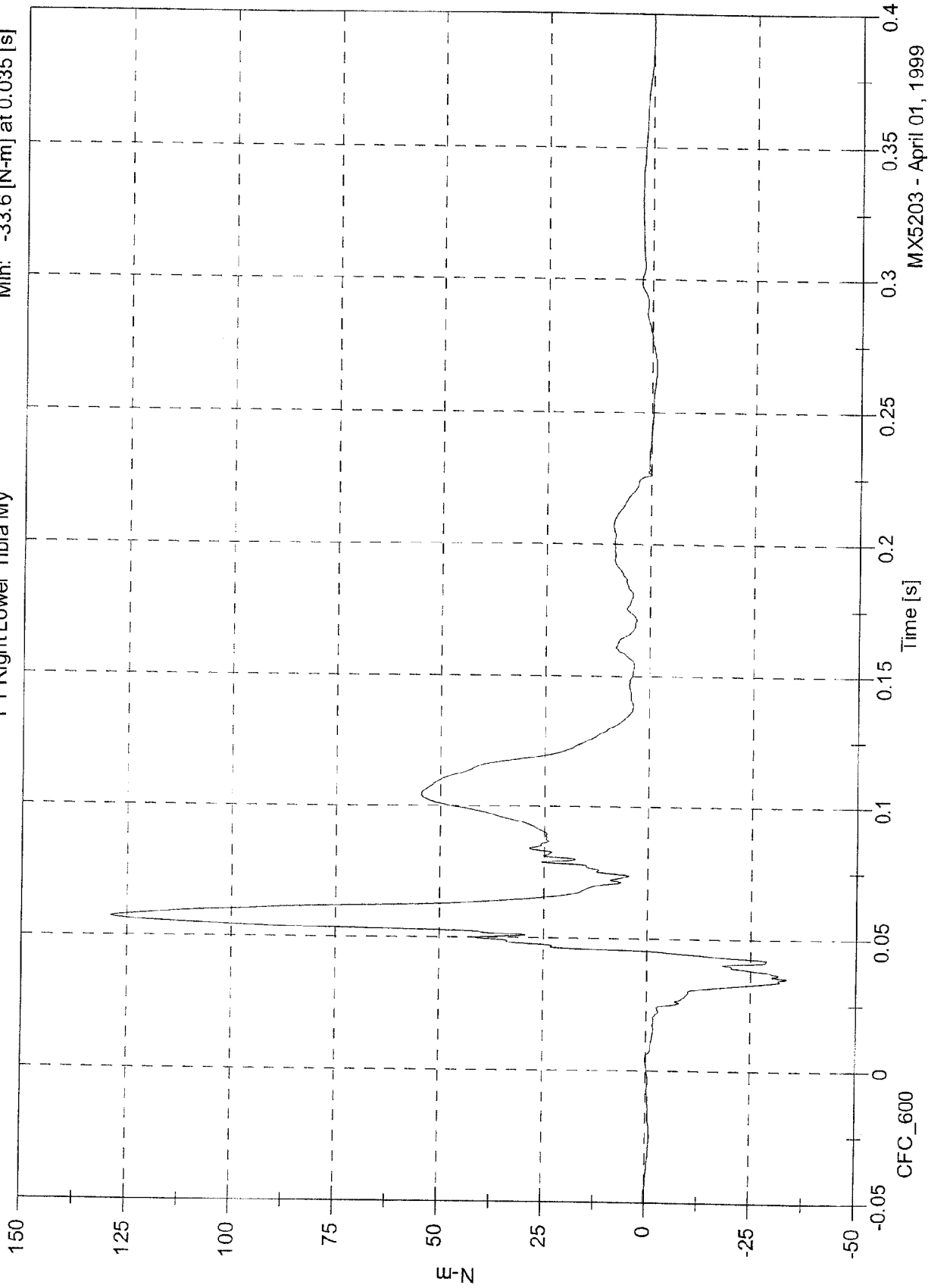
MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

Max: 129.0 [N-m] at 0.057 [s]

Min: -33.6 [N-m] at 0.035 [s]

P1 Right Lower Tibia My



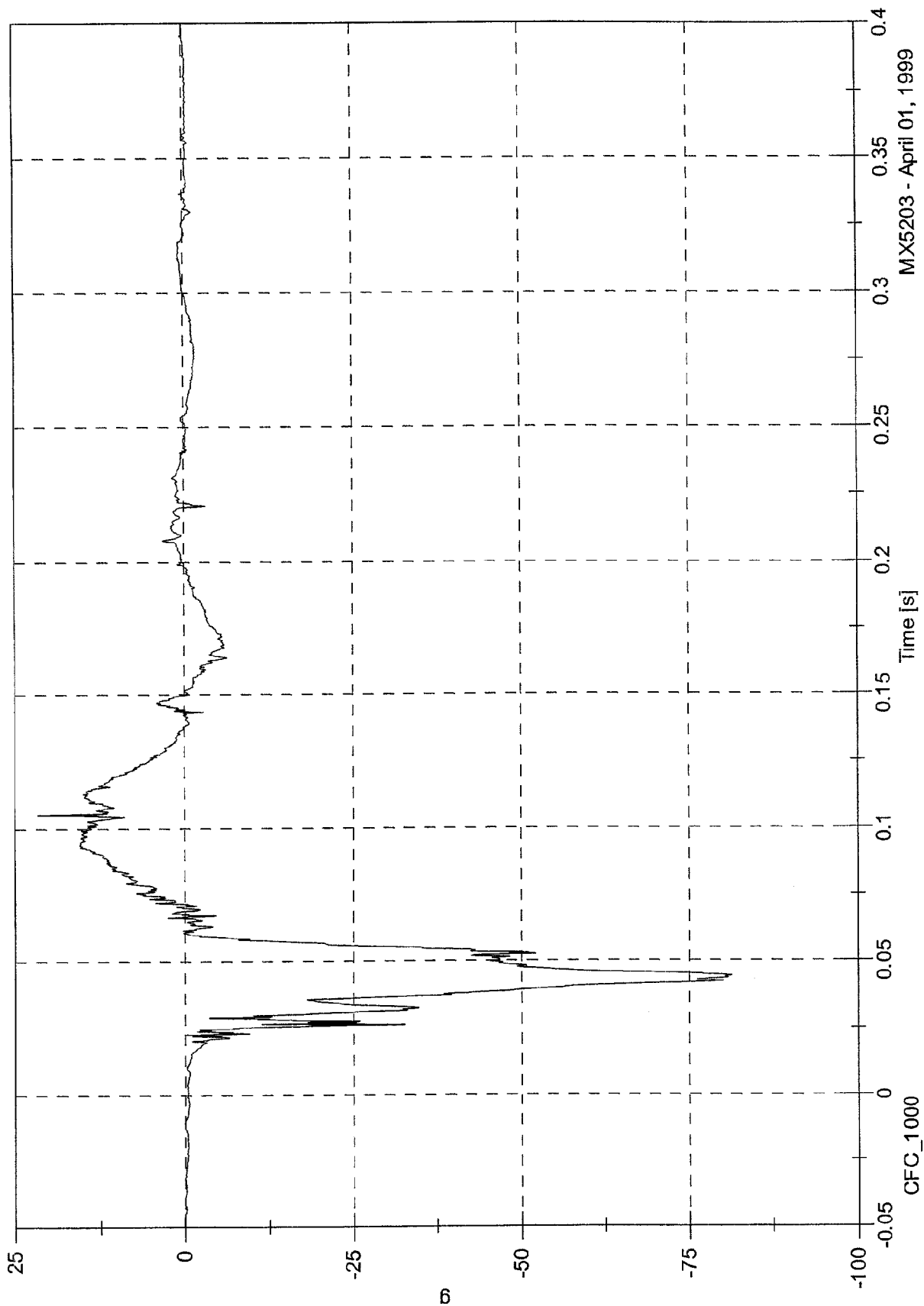
MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

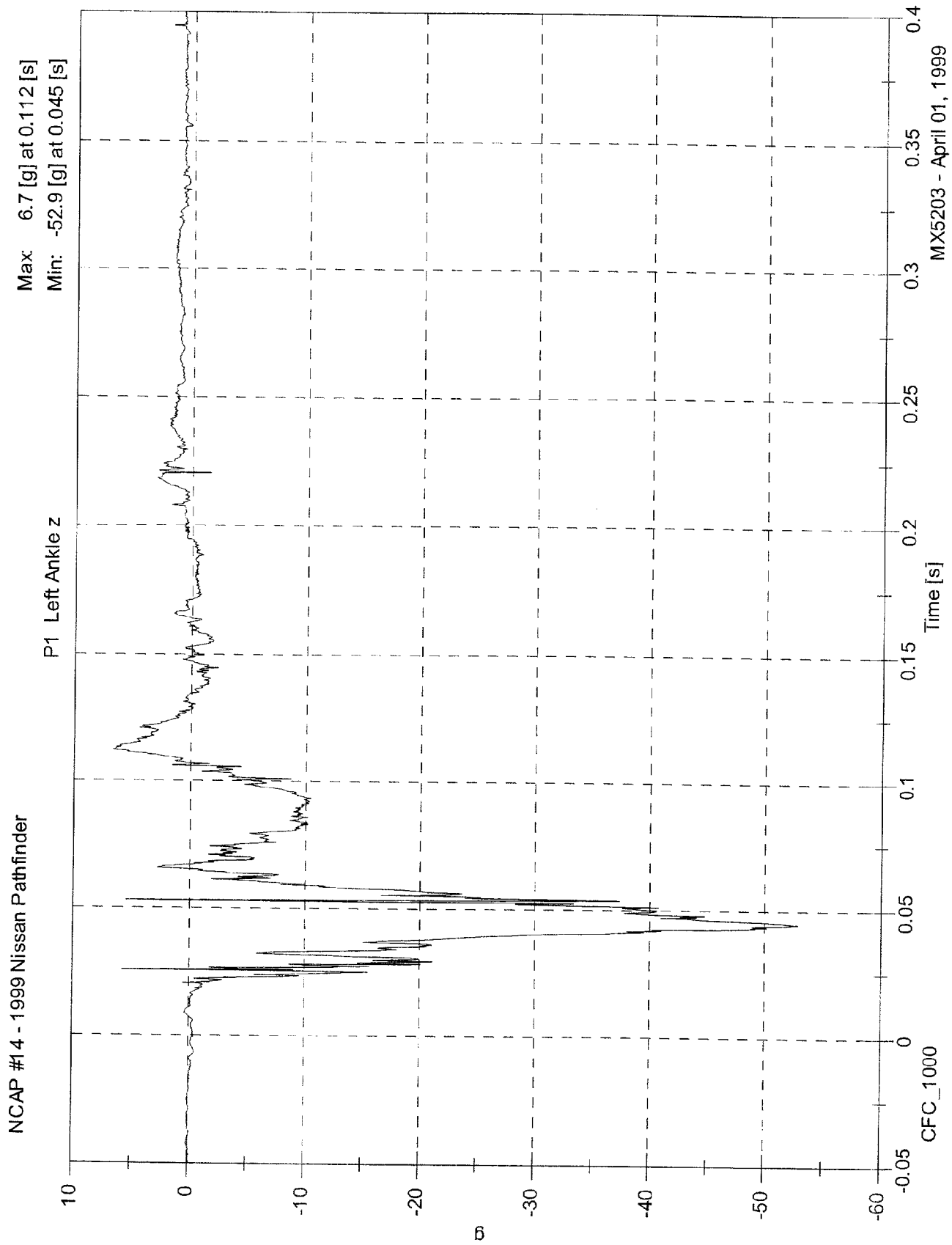
P1 Left Ankle x

Max: 21.7 [g] at 0.105 [s]

Min: -81.4 [g] at 0.044 [s]



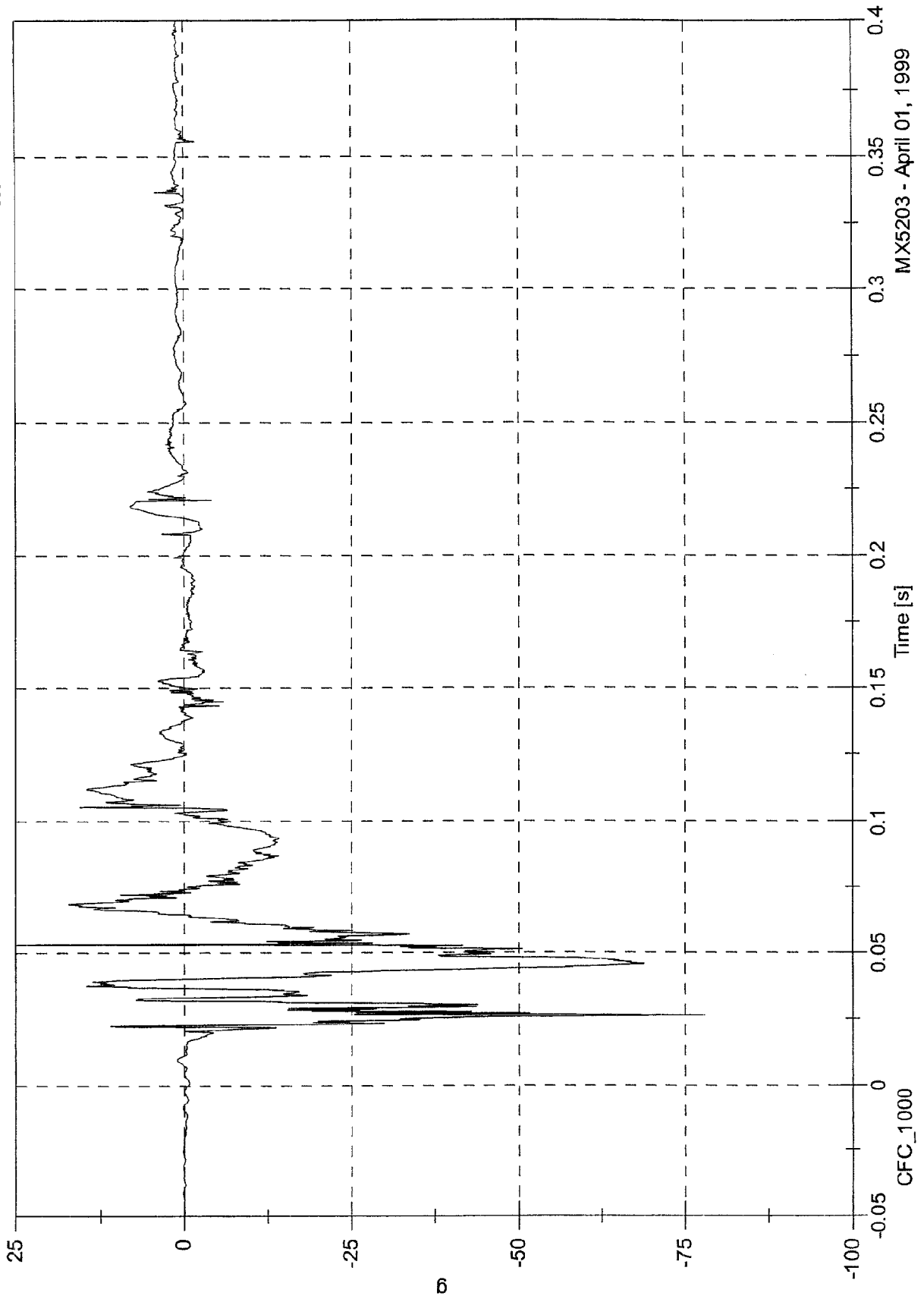
MX5203 - April 01, 1999



NCAP #14 - 1999 Nissan Pathfinder

Max: 24.9 [g] at 0.053 [s]
Min: -77.9 [g] at 0.026 [s]

P1 Left Toe z

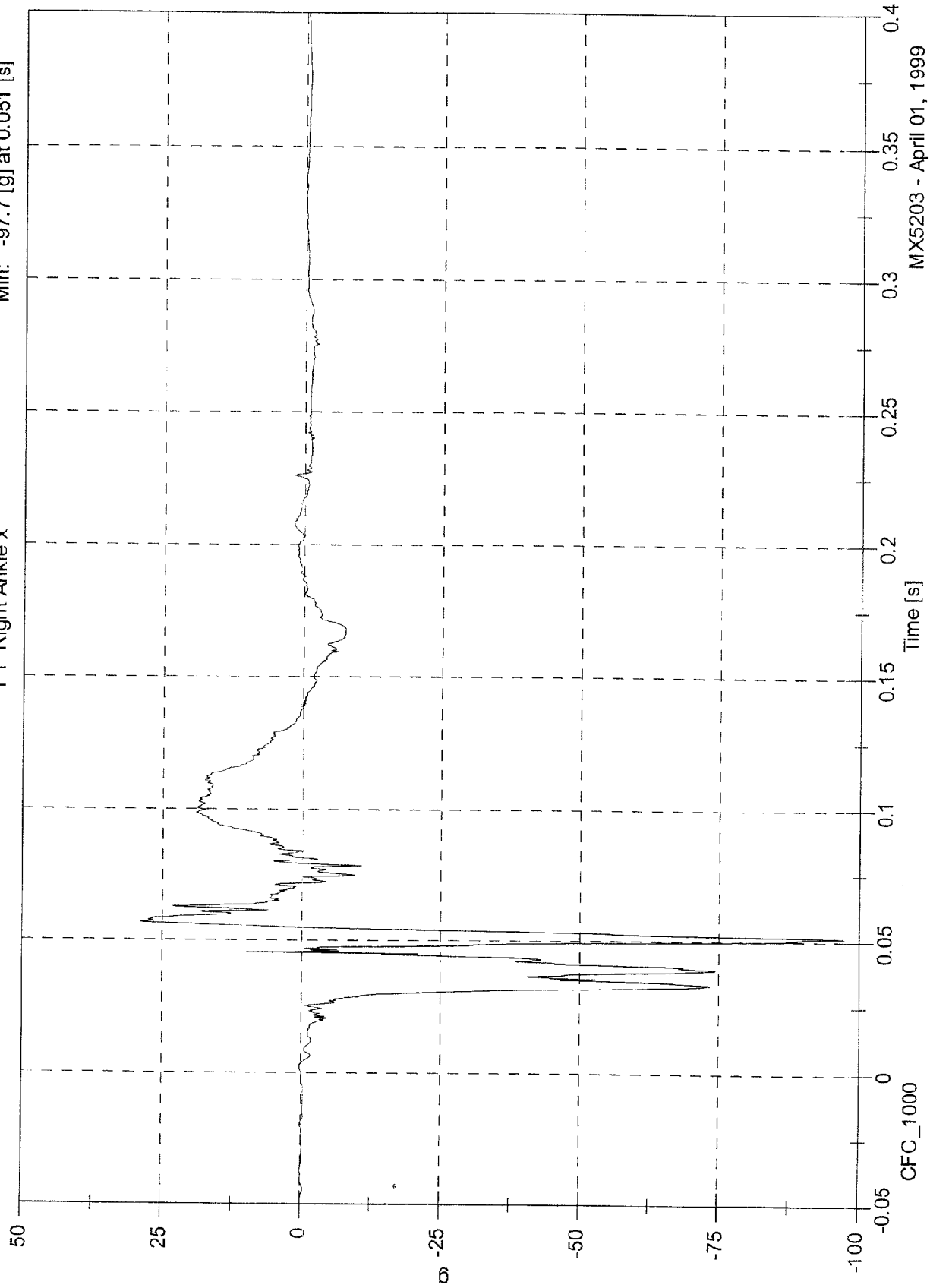


MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

Max: 28.9 [g] at 0.056 [s]
Min: -97.7 [g] at 0.051 [s]

P1 Right Ankle x

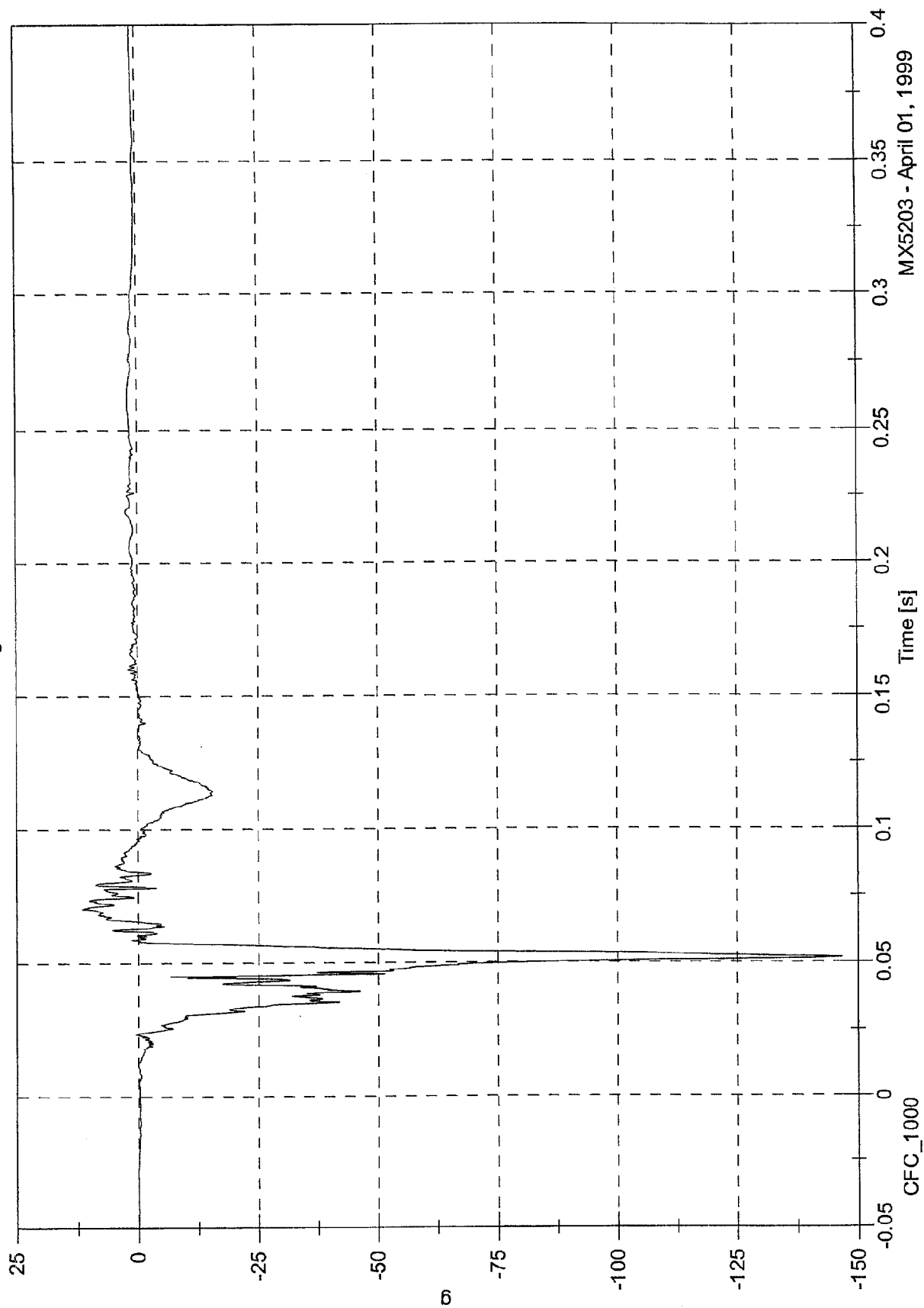


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NCAP #14 - 1999 Nissan Pathfinder

P1 Right Ankle z

Max: 11.5 [g] at 0.070 [s]
Min: -146.7 [g] at 0.052 [s]

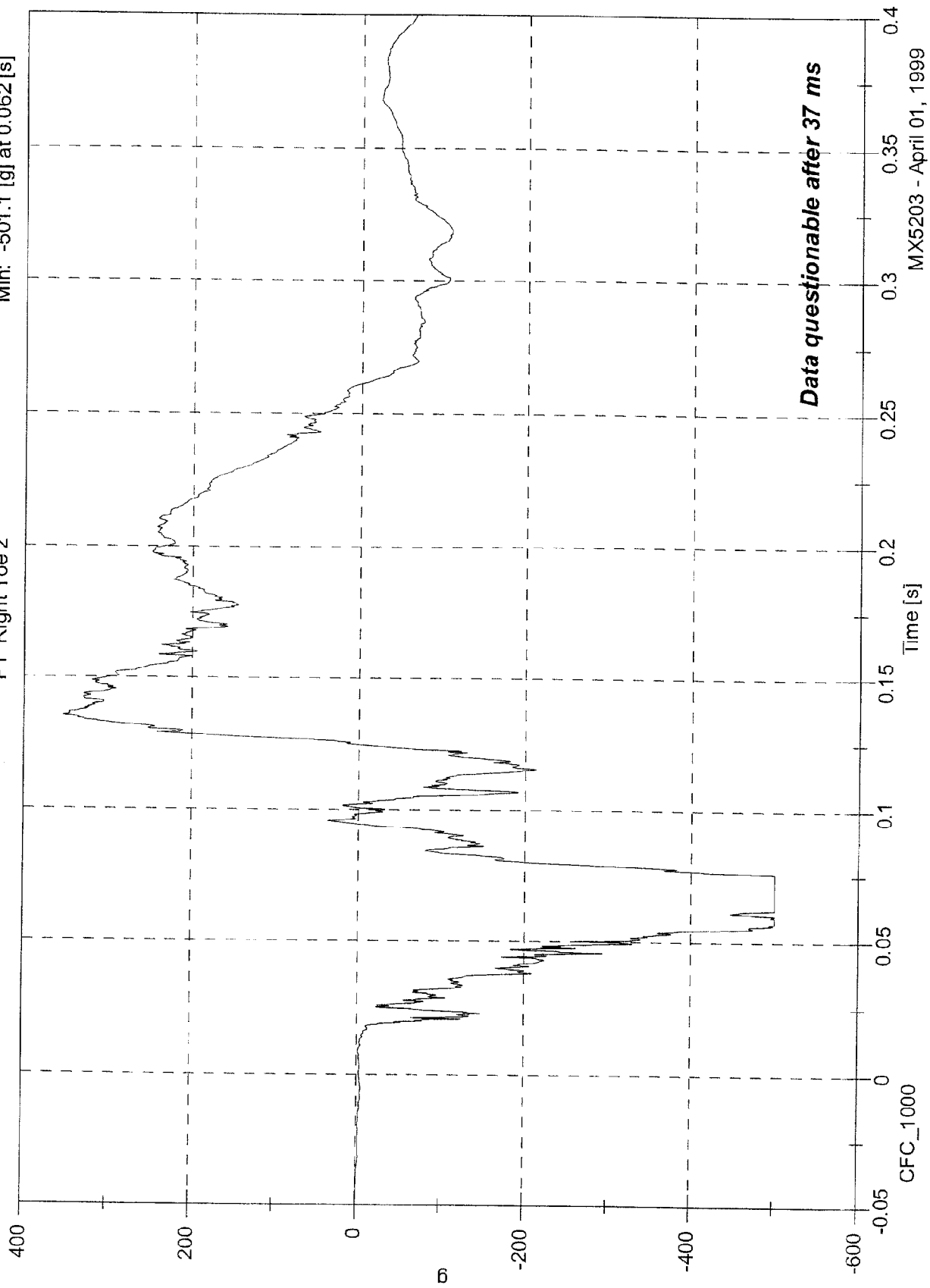


MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

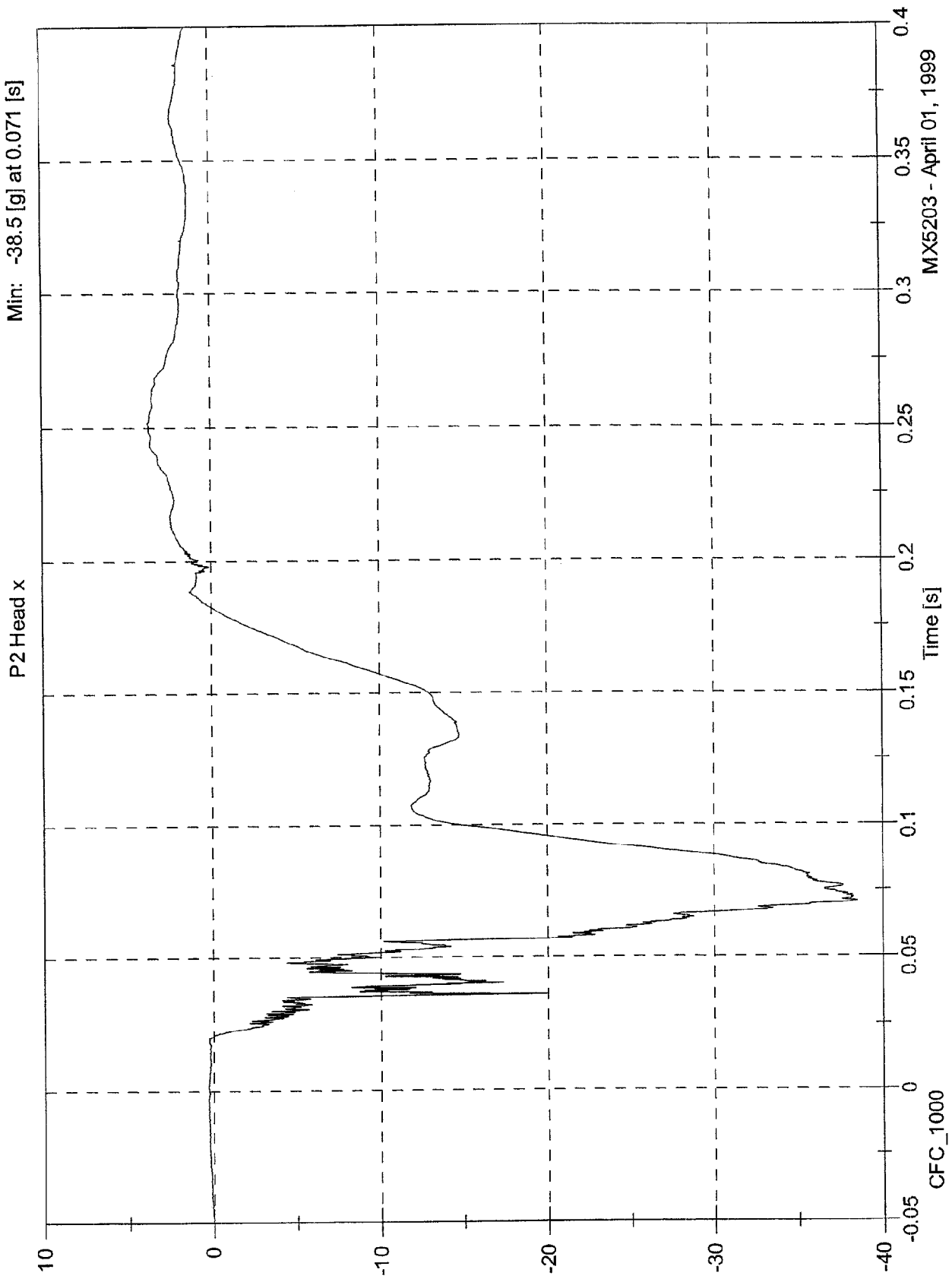
Max: 353.6 [g] at 0.136 [s]
Min: -501.1 [g] at 0.062 [s]

P1 Right Toe z



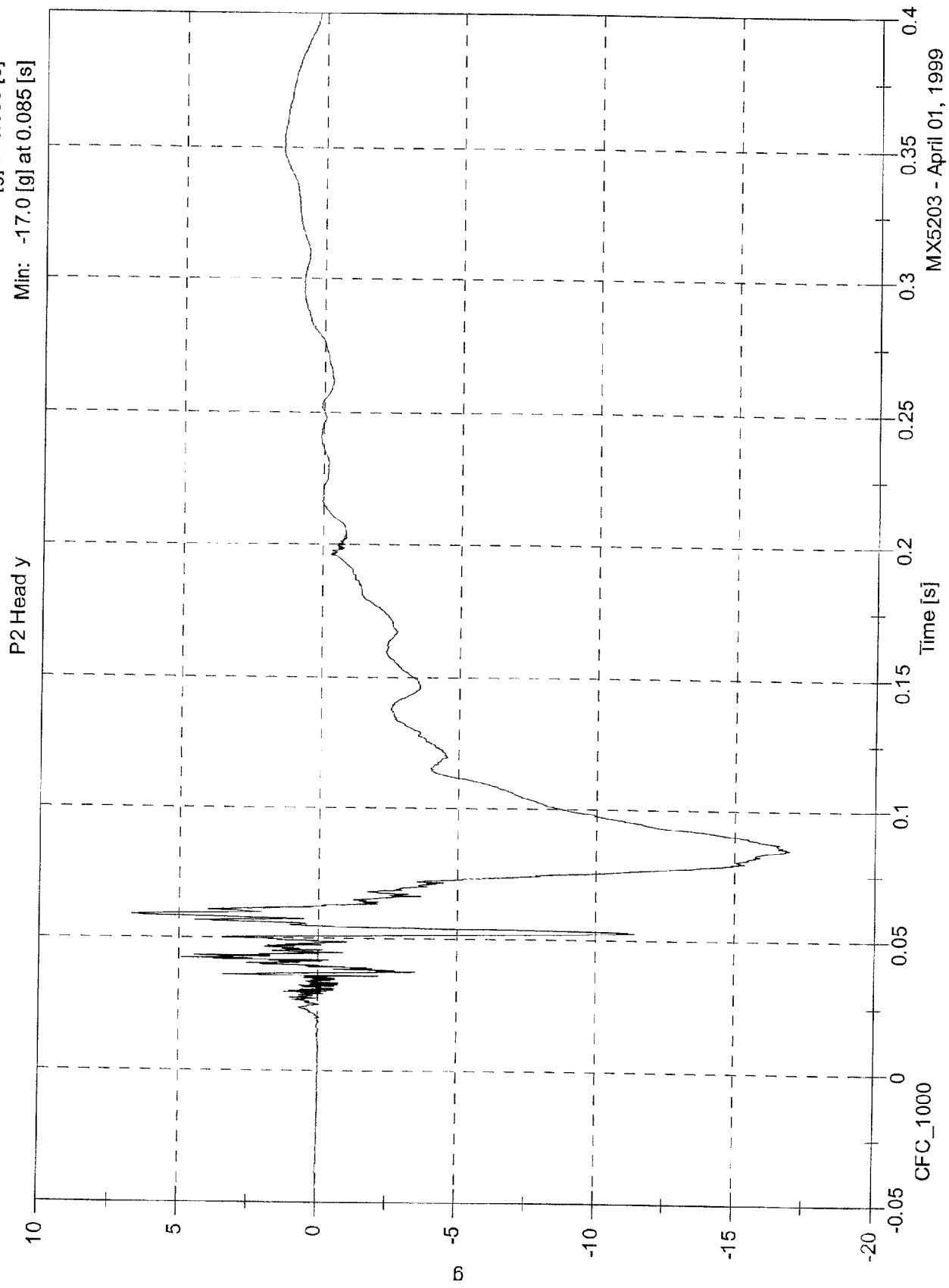
NCAP #14 - 1999 Nissan Pathfinder

Max: 3.7 [g] at 0.252 [s]
Min: -38.5 [g] at 0.071 [s]



NCAP #14 - 1999 Nissan Pathfinder

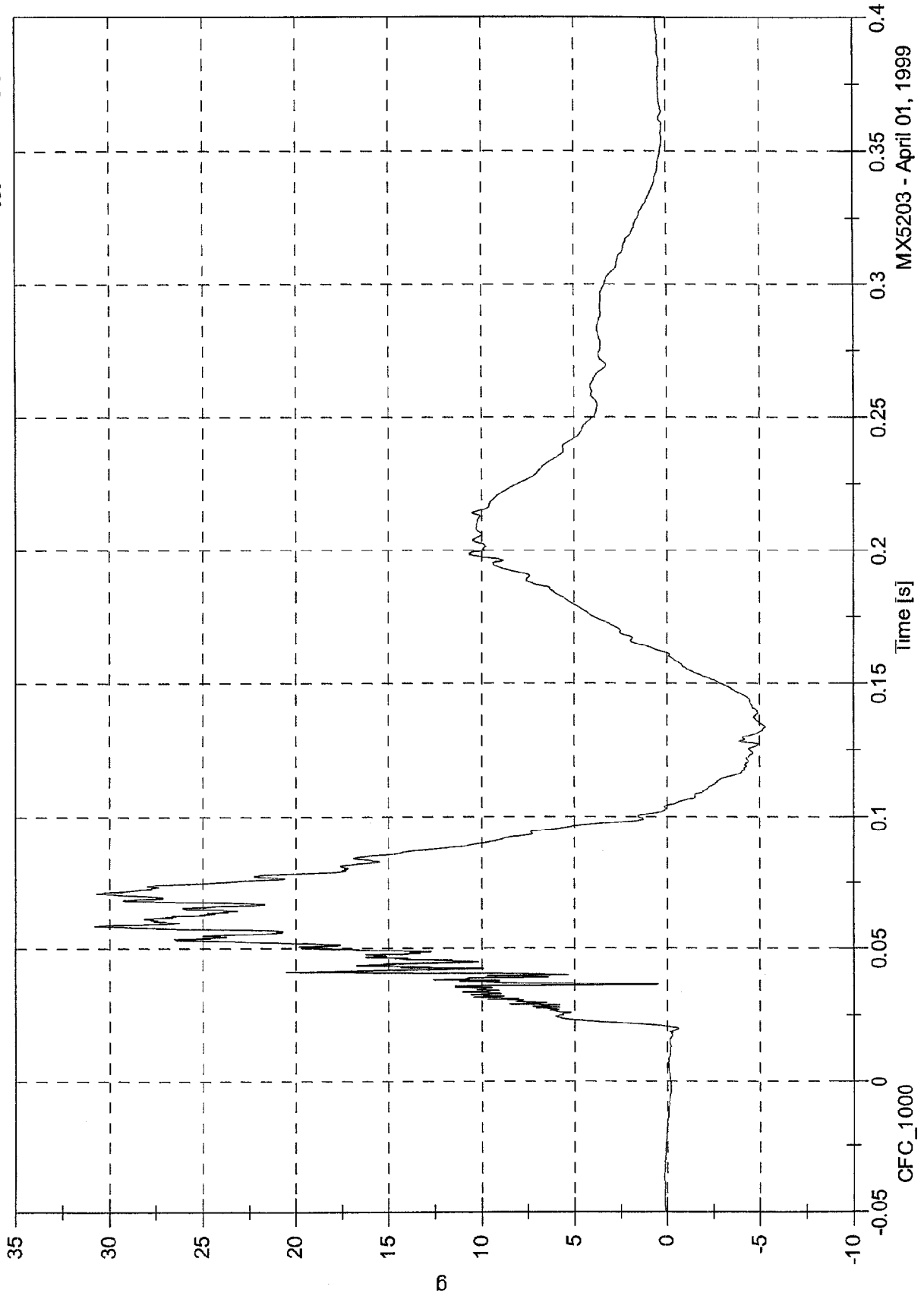
Max: 6.7 [g] at 0.059 [s]
Min: -17.0 [g] at 0.085 [s]

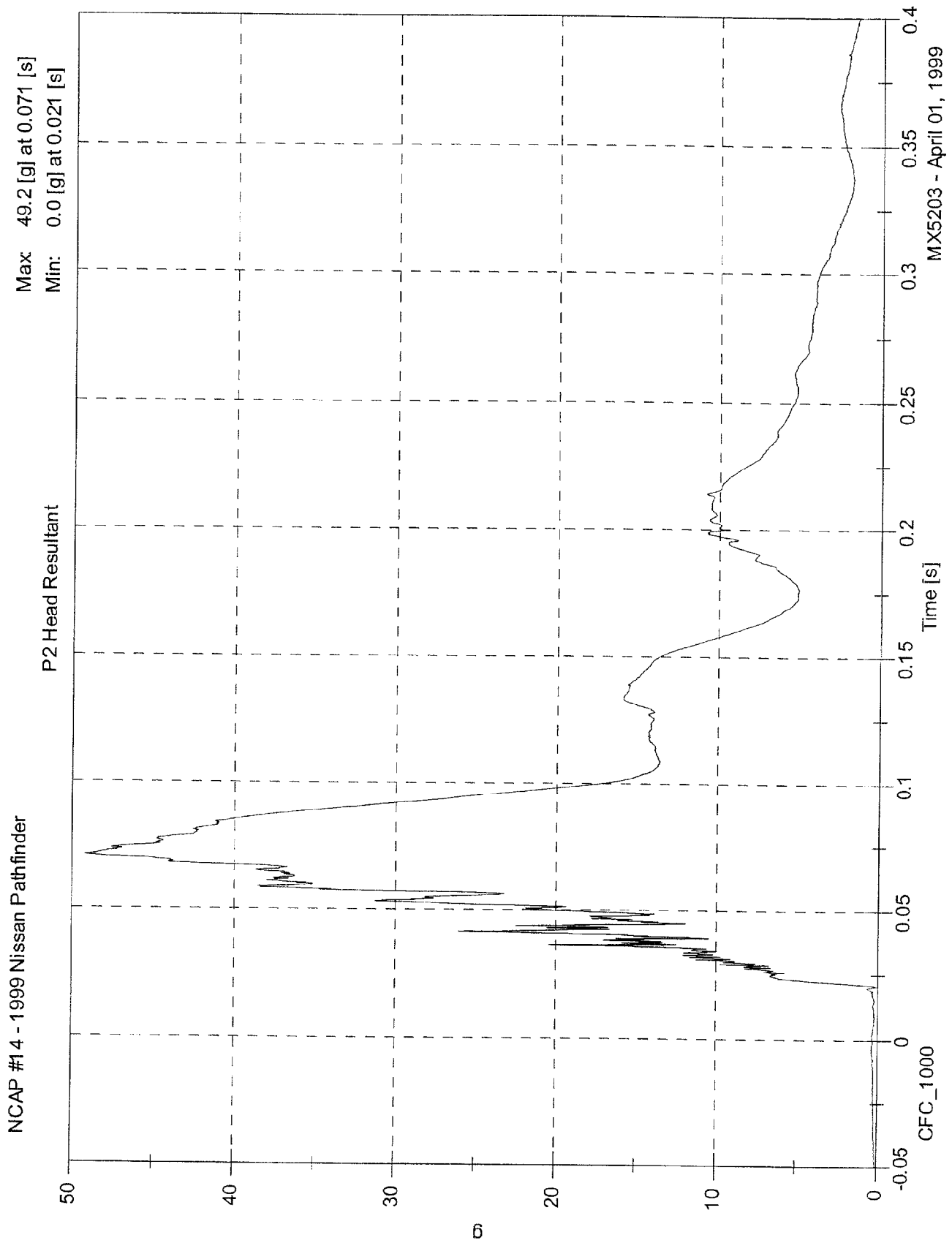


NCAP #14 - 1999 Nissan Pathfinder

P2 Head z

Max: 30.8 [g] at 0.058 [s]
Min: -5.3 [g] at 0.134 [s]

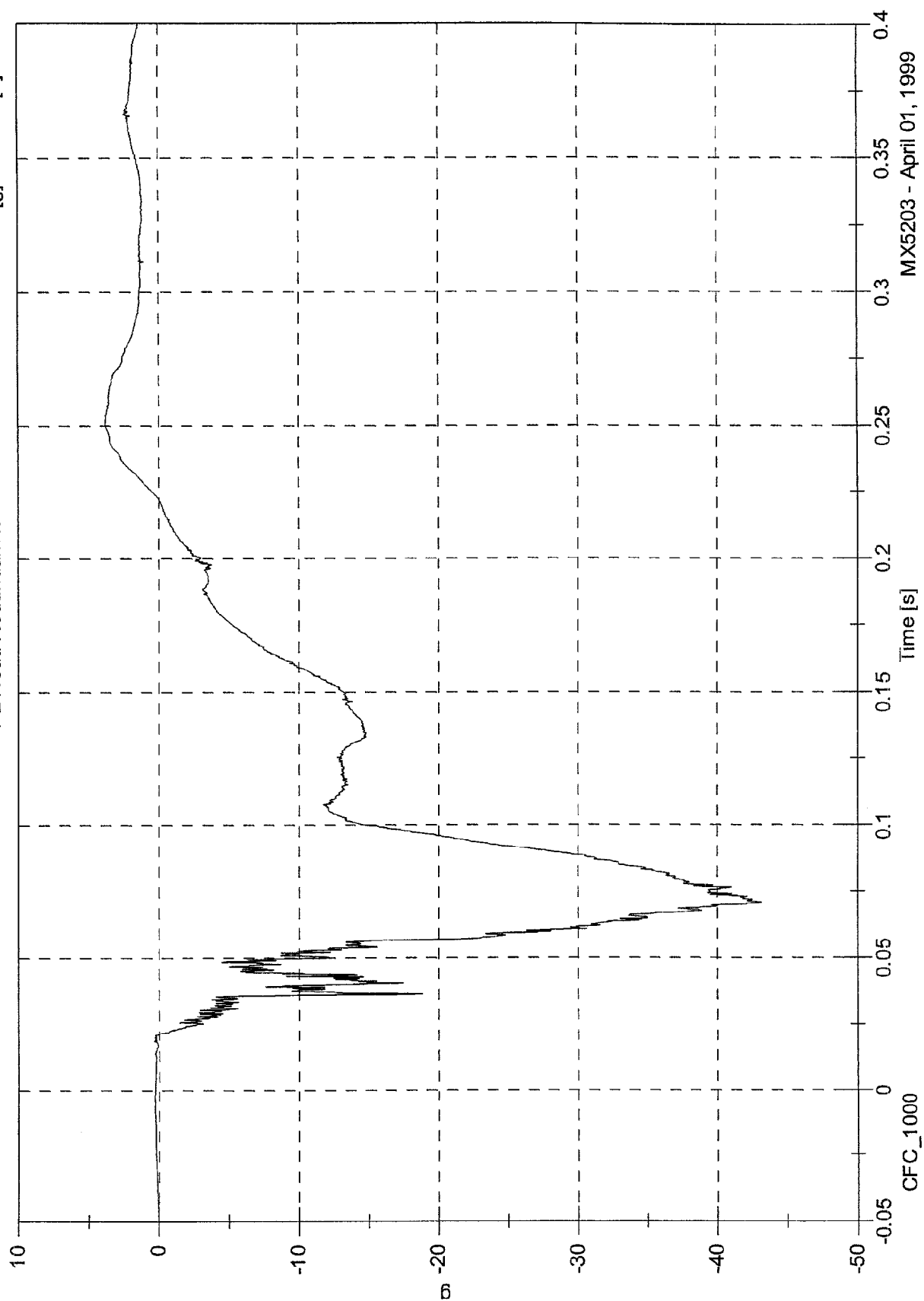




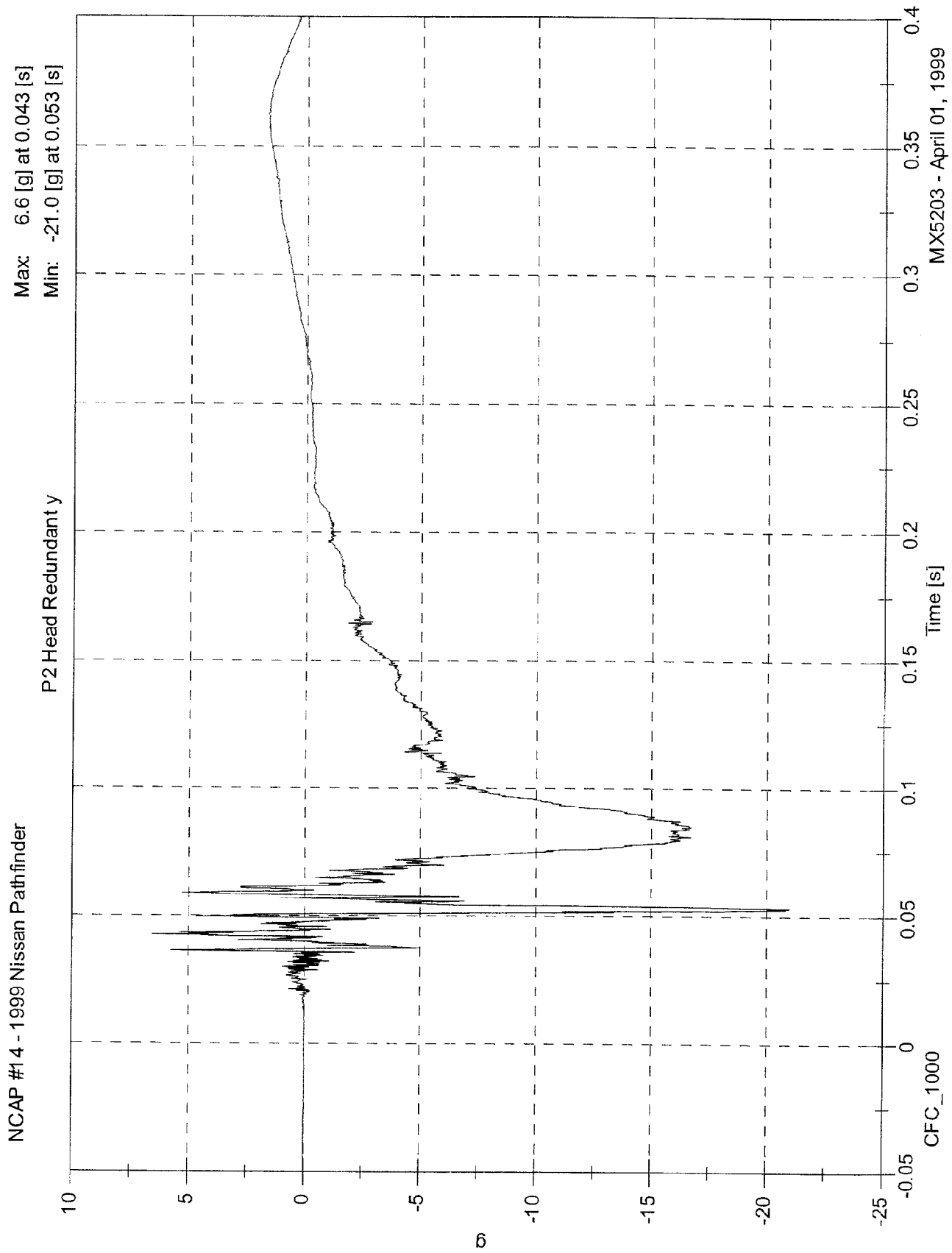
NCAP #14 - 1999 Nissan Pathfinder

Max: 3.8 [g] at 0.250 [s]
Min: -43.1 [g] at 0.071 [s]

P2 Head Redundant x



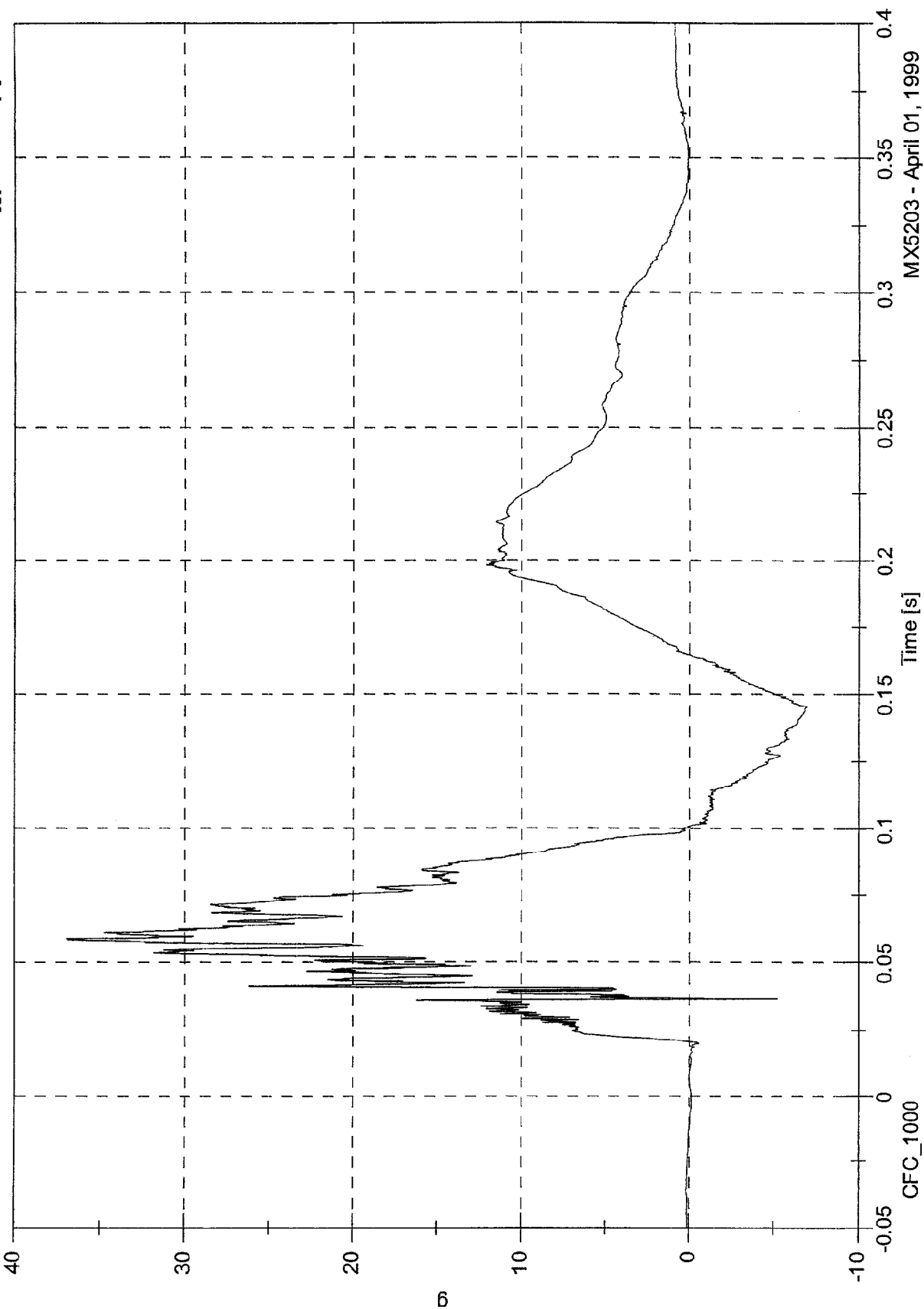
MX5203 - April 01, 1999



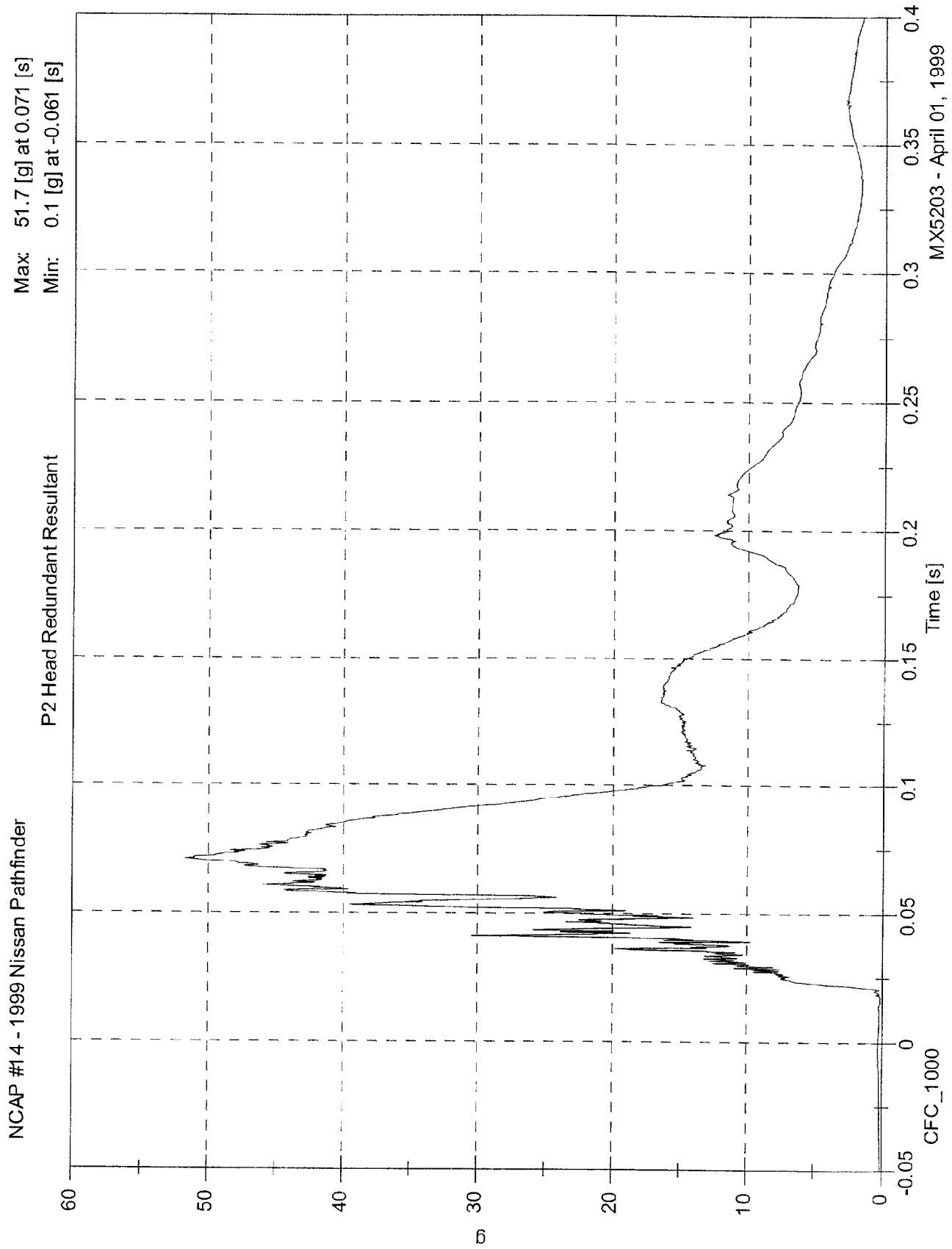
Max: 37.0 [g] at 0.059 [s]
Min: -7.0 [g] at 0.145 [s]

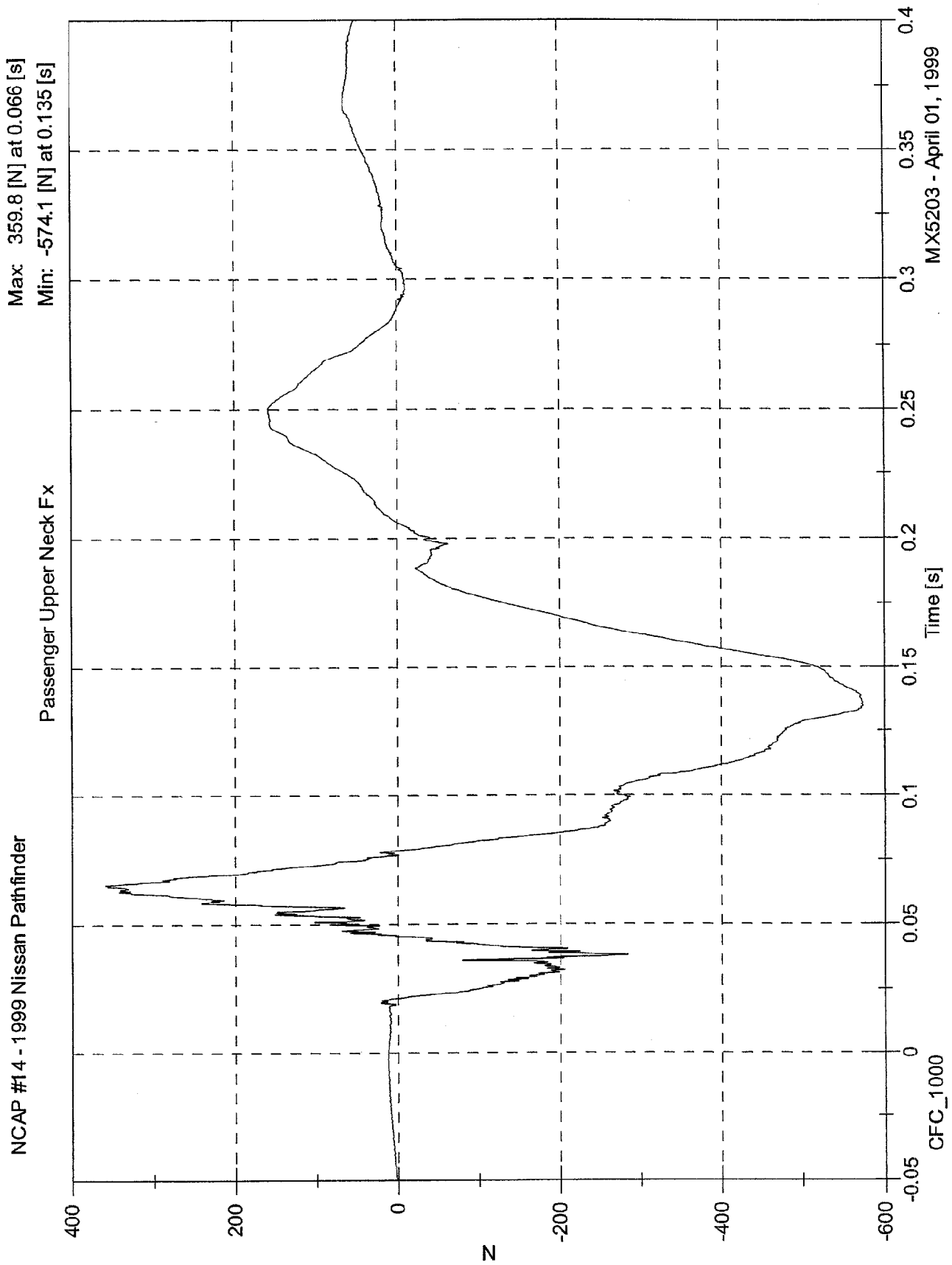
NCAP #14 - 1999 Nissan Pathfinder

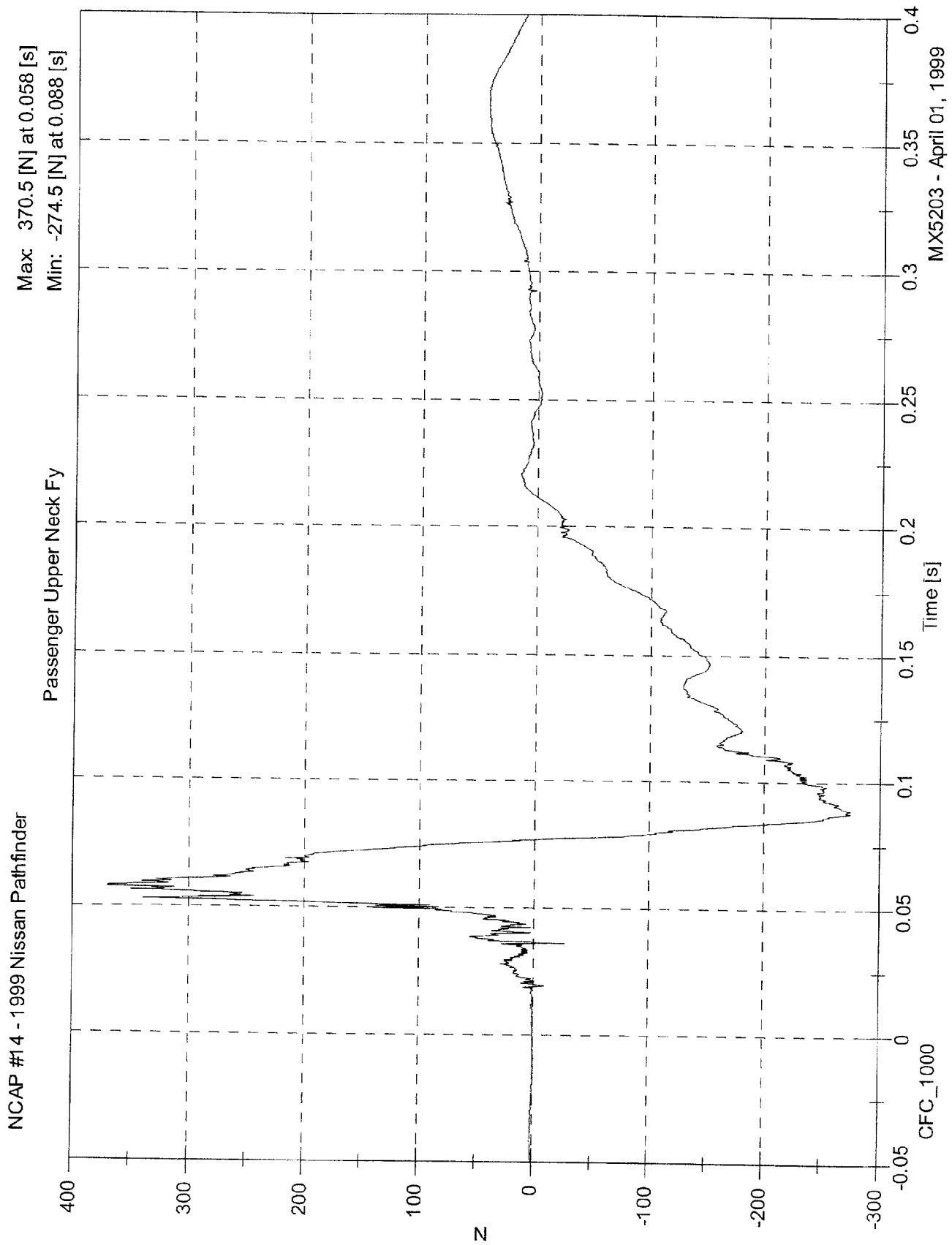
P2 Head Redundant z



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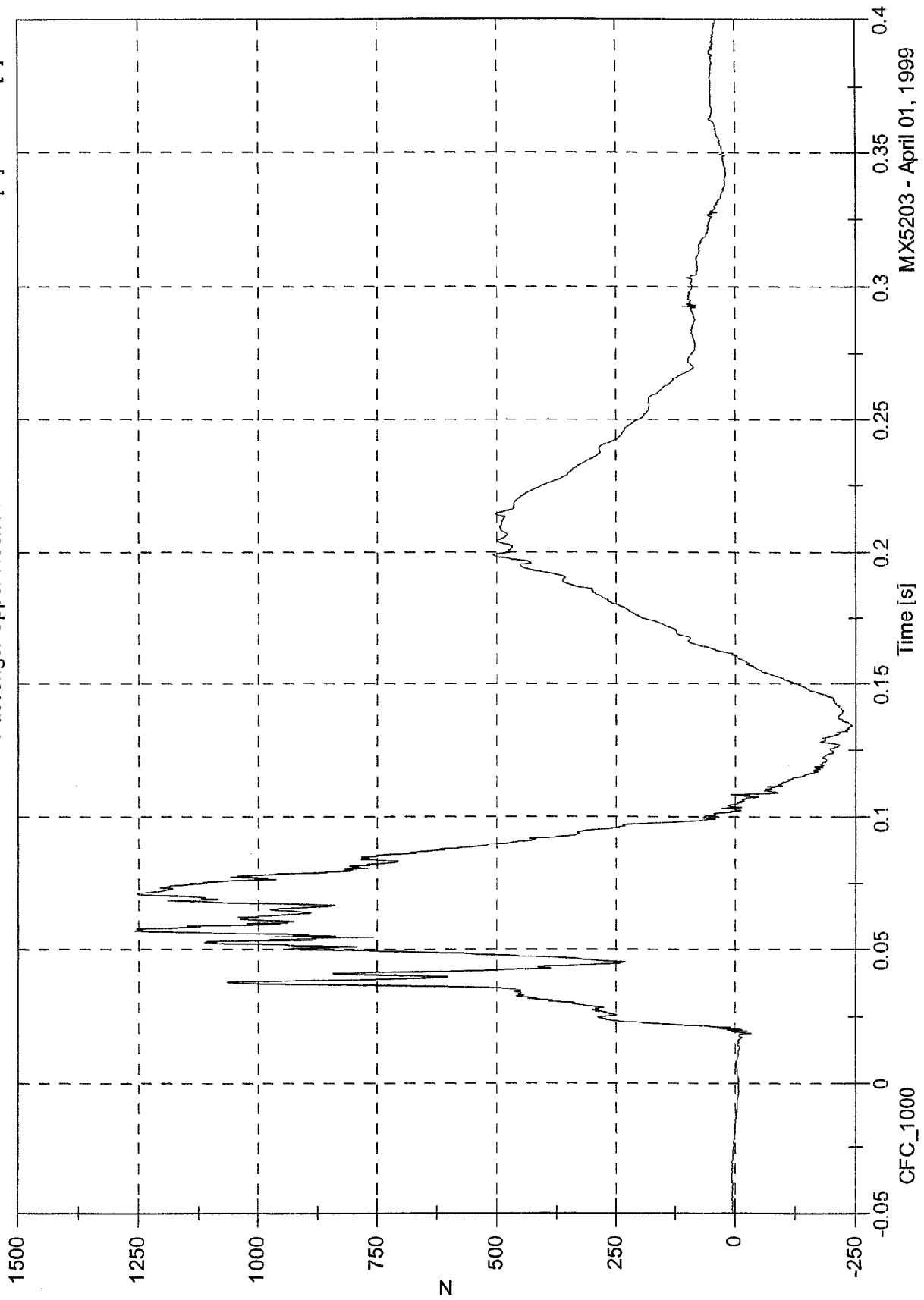




NCAP #14 - 1999 Nissan Pathfinder

Passenger Upper Neck Fz

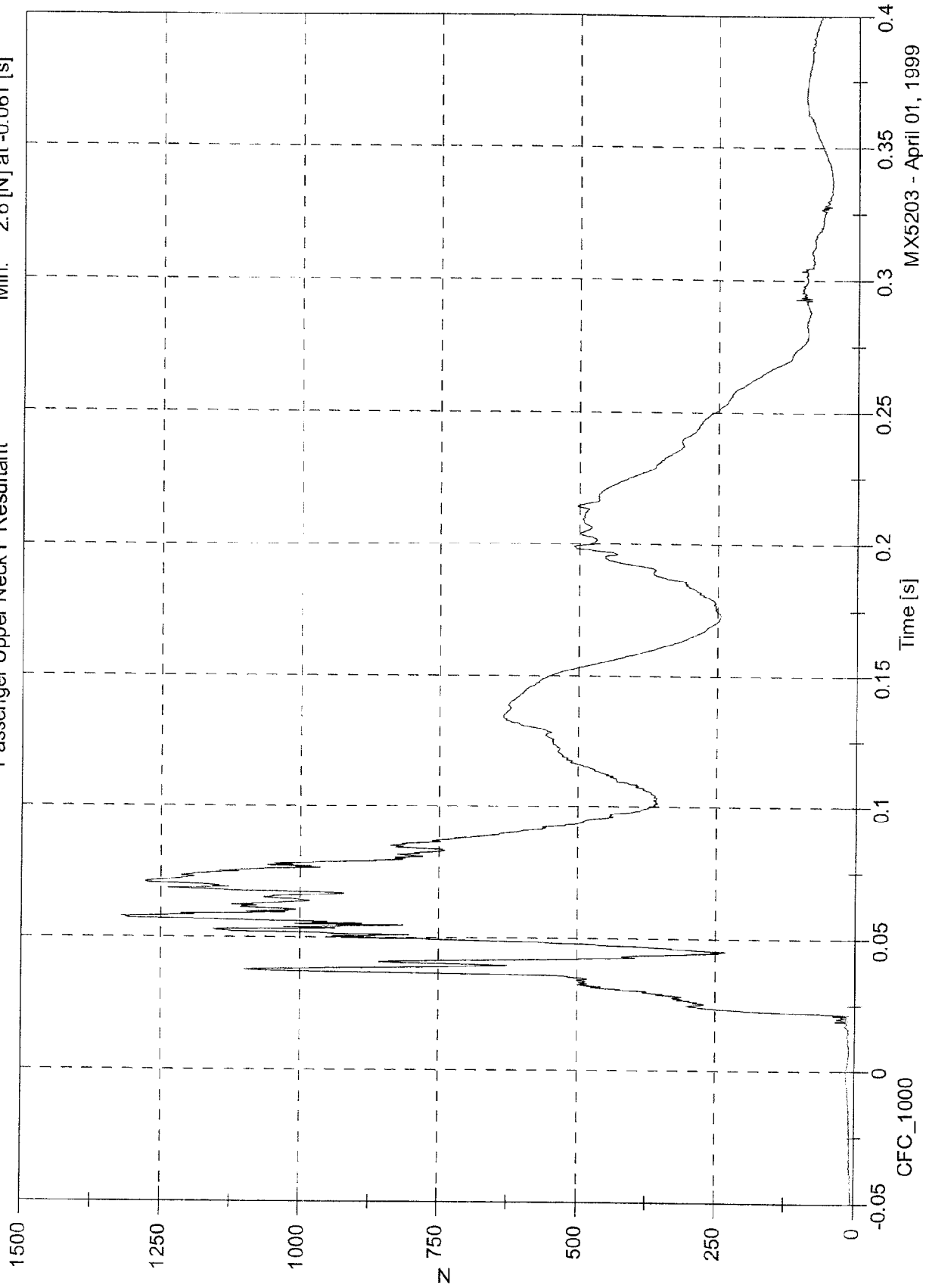
Max: 1258.7 [N] at 0.057 [s]
Min: -242.3 [N] at 0.134 [s]



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Passenger Upper Neck F Resultant

Max: 1322.3 [N] at 0.058 [s]
Min: 2.6 [N] at -0.061 [s]



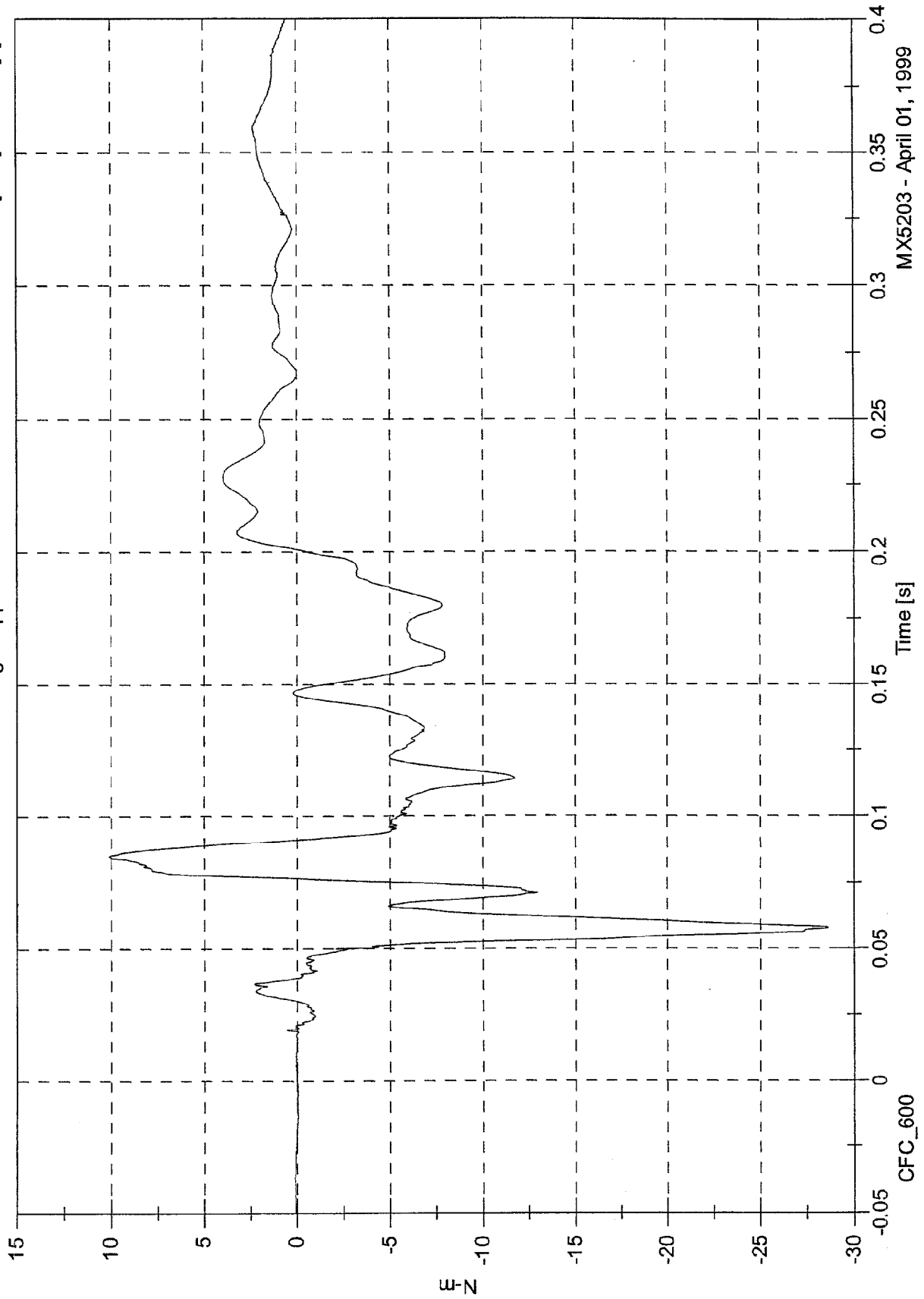
MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

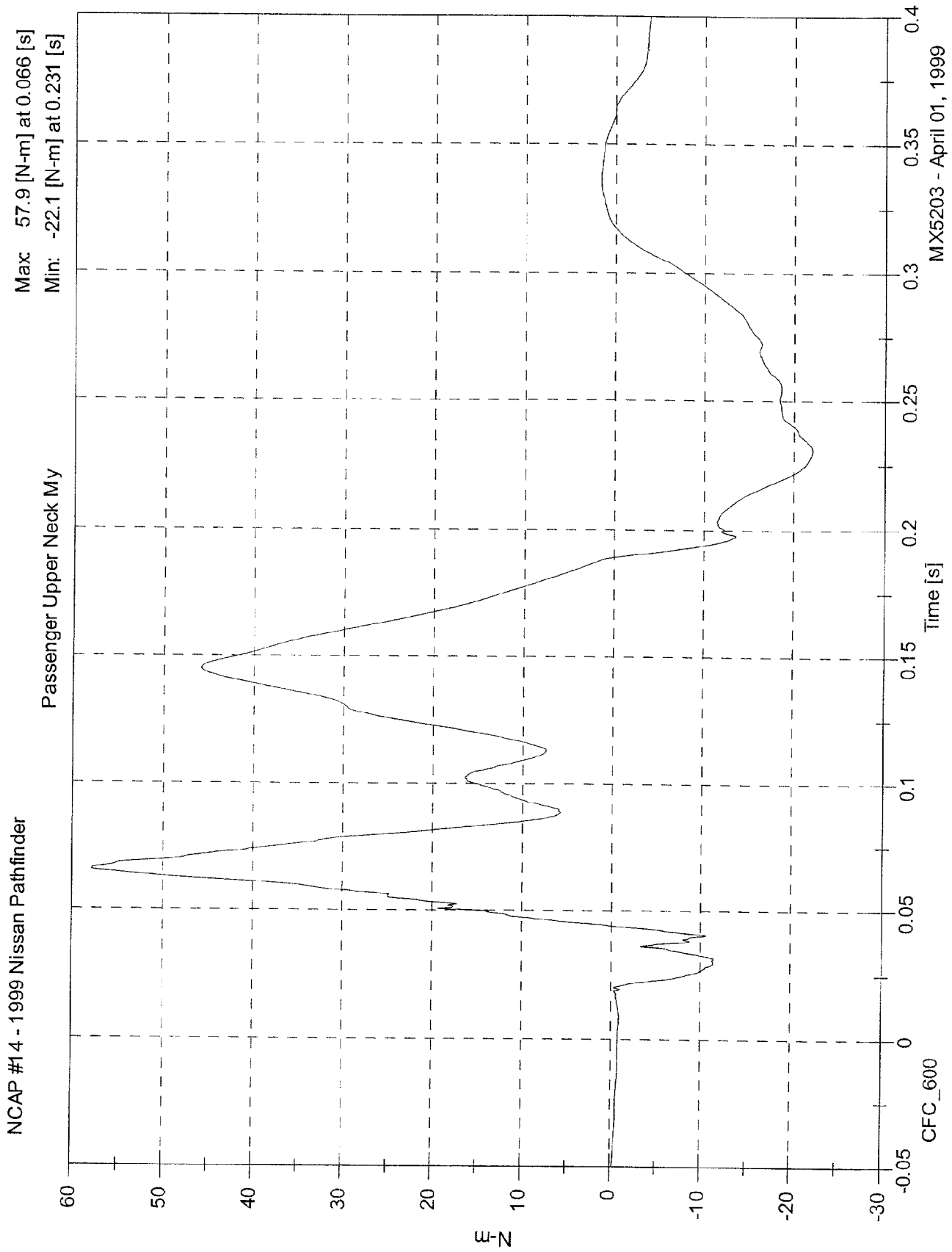
Passenger Upper Neck Mx

Max: 10.1 [N-m] at 0.085 [s]

Min: -28.6 [N-m] at 0.058 [s]



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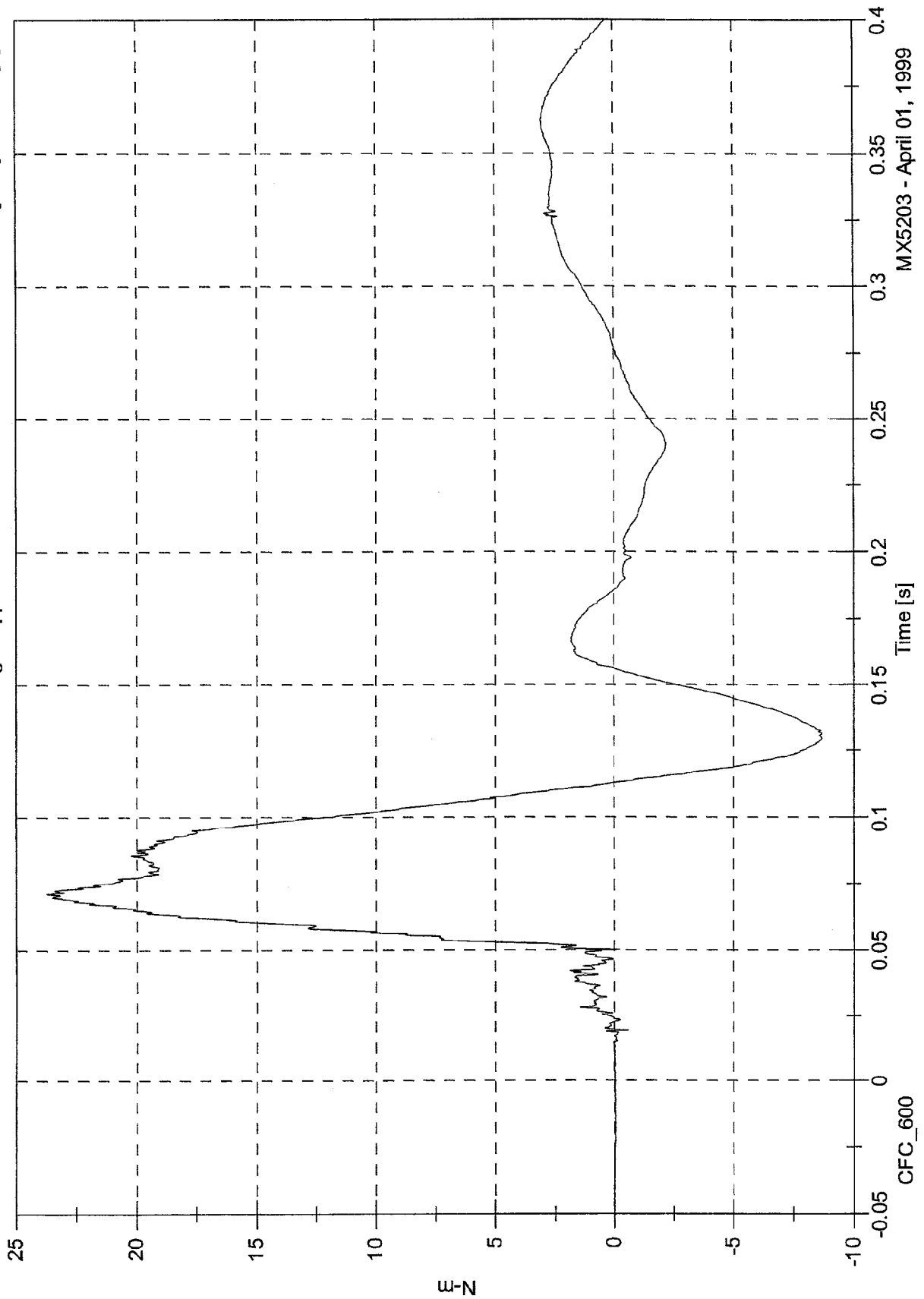


NCAP #14 - 1999 Nissan Pathfinder

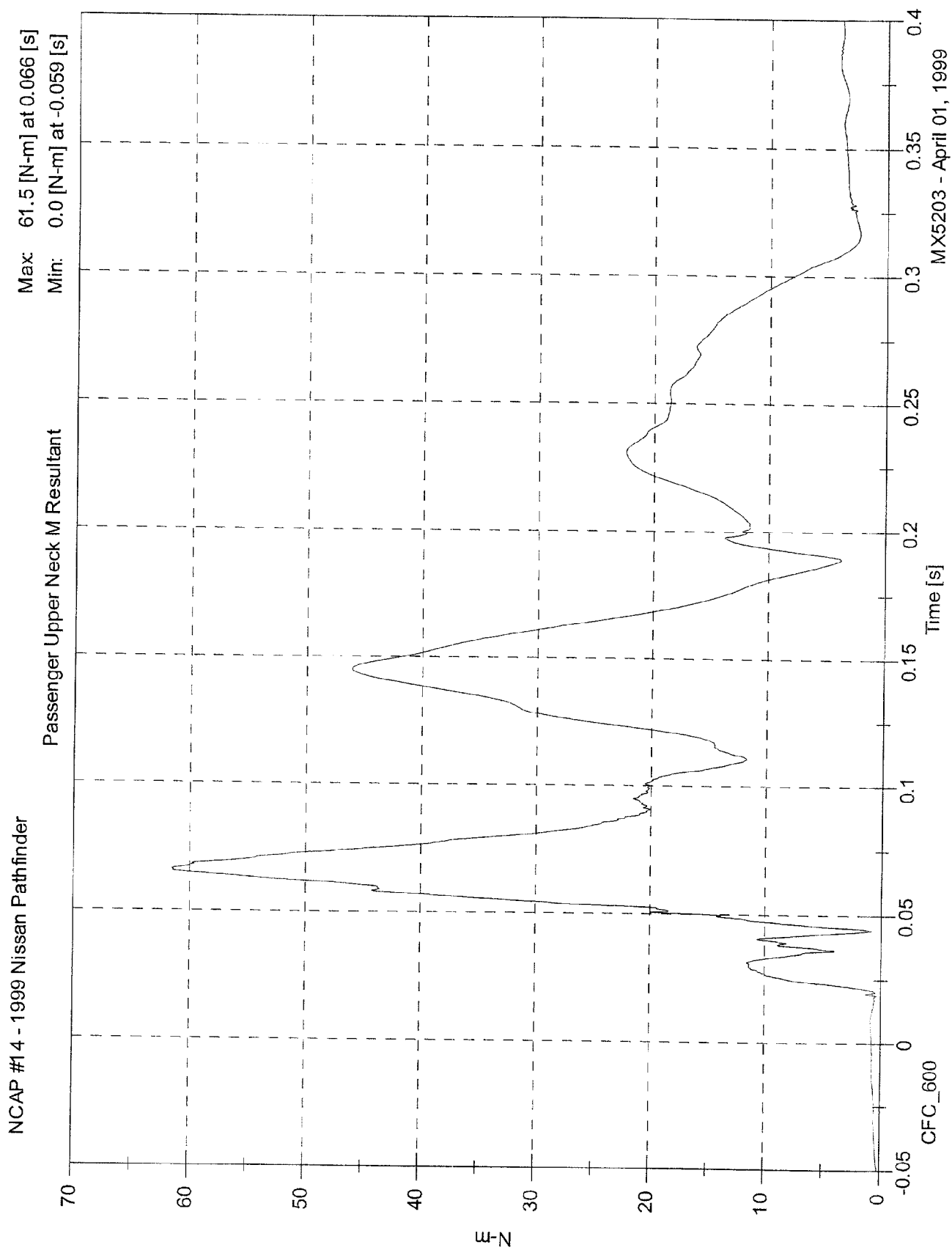
Passenger Upper Neck Mz

Max: 23.7 [N-m] at 0.071 [s]

Min: -8.7 [N-m] at 0.129 [s]

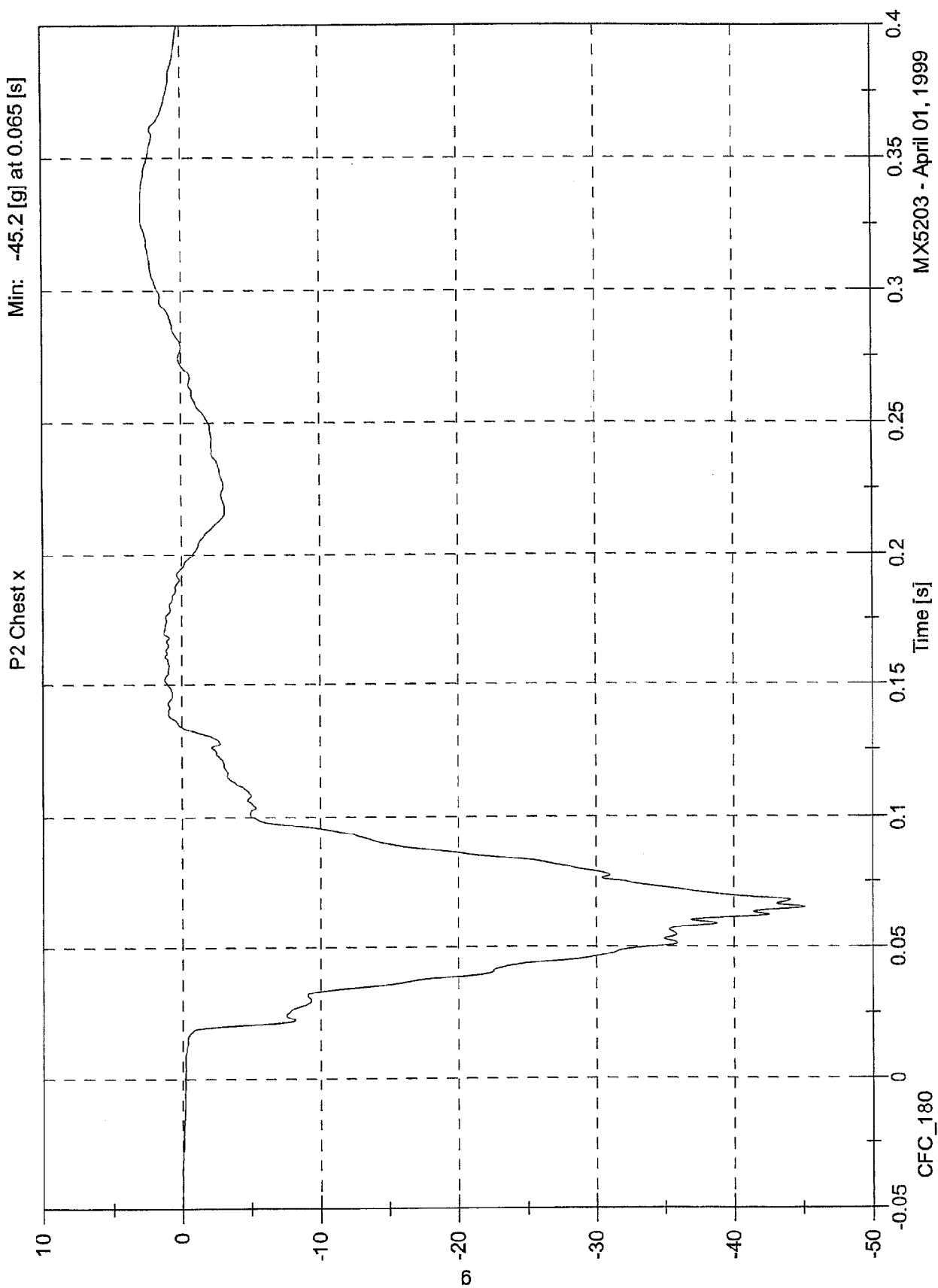


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NCAP #14 - 1999 Nissan Pathfinder

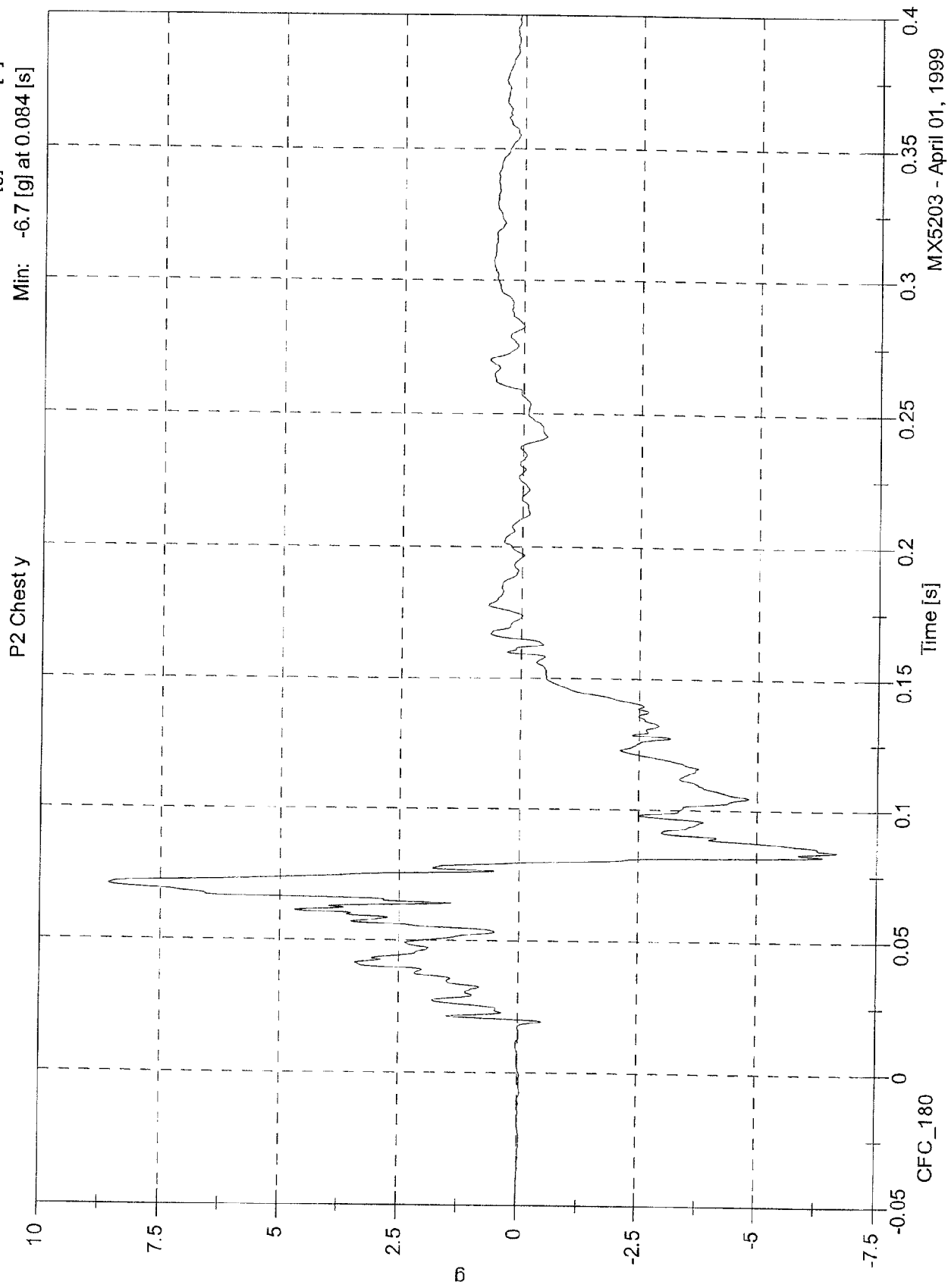
Max: 2.9 [g] at 0.331 [s]
Min: -45.2 [g] at 0.065 [s]



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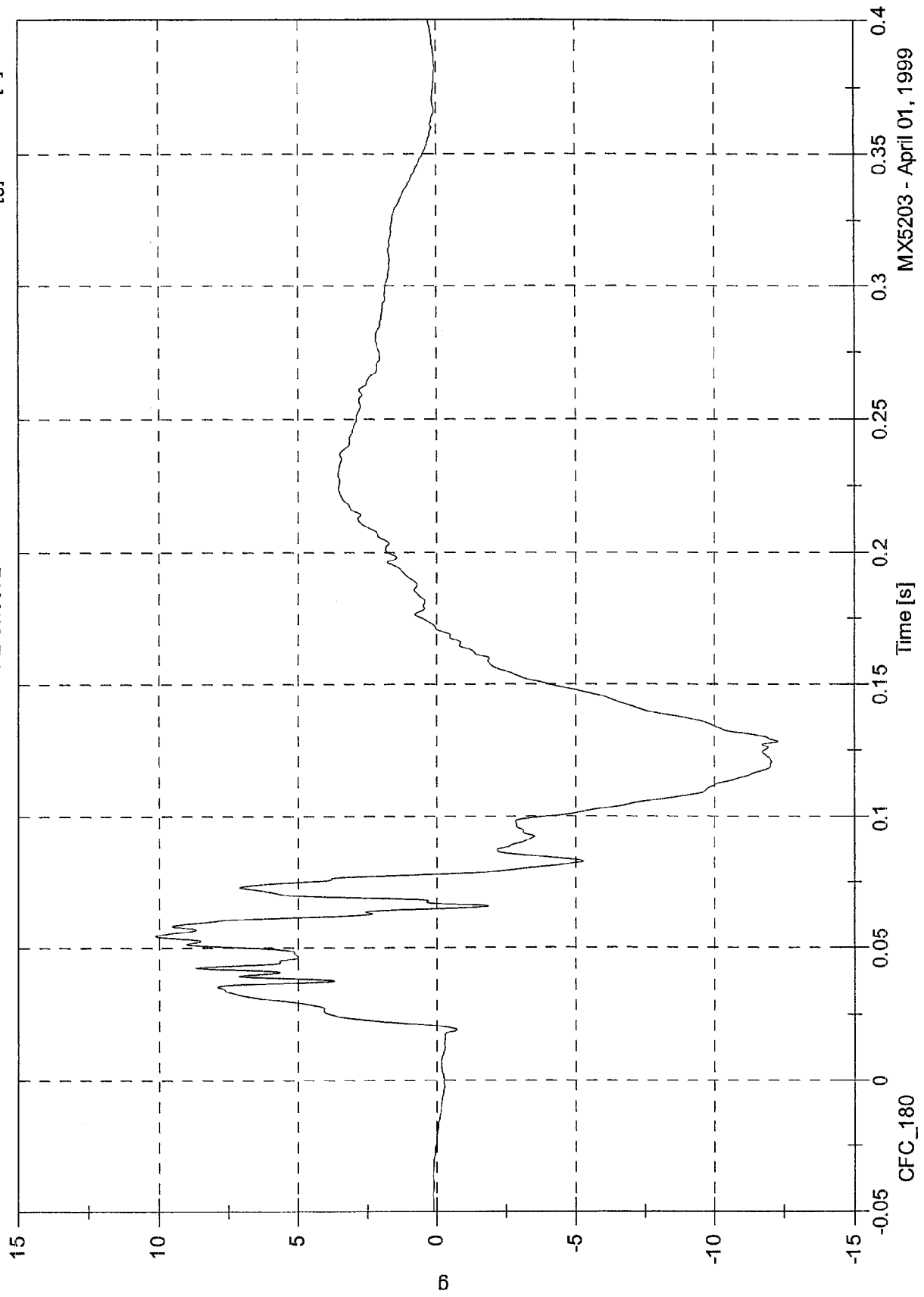
Max: 8.6 [g] at 0.071 [s]
Min: -6.7 [g] at 0.084 [s]



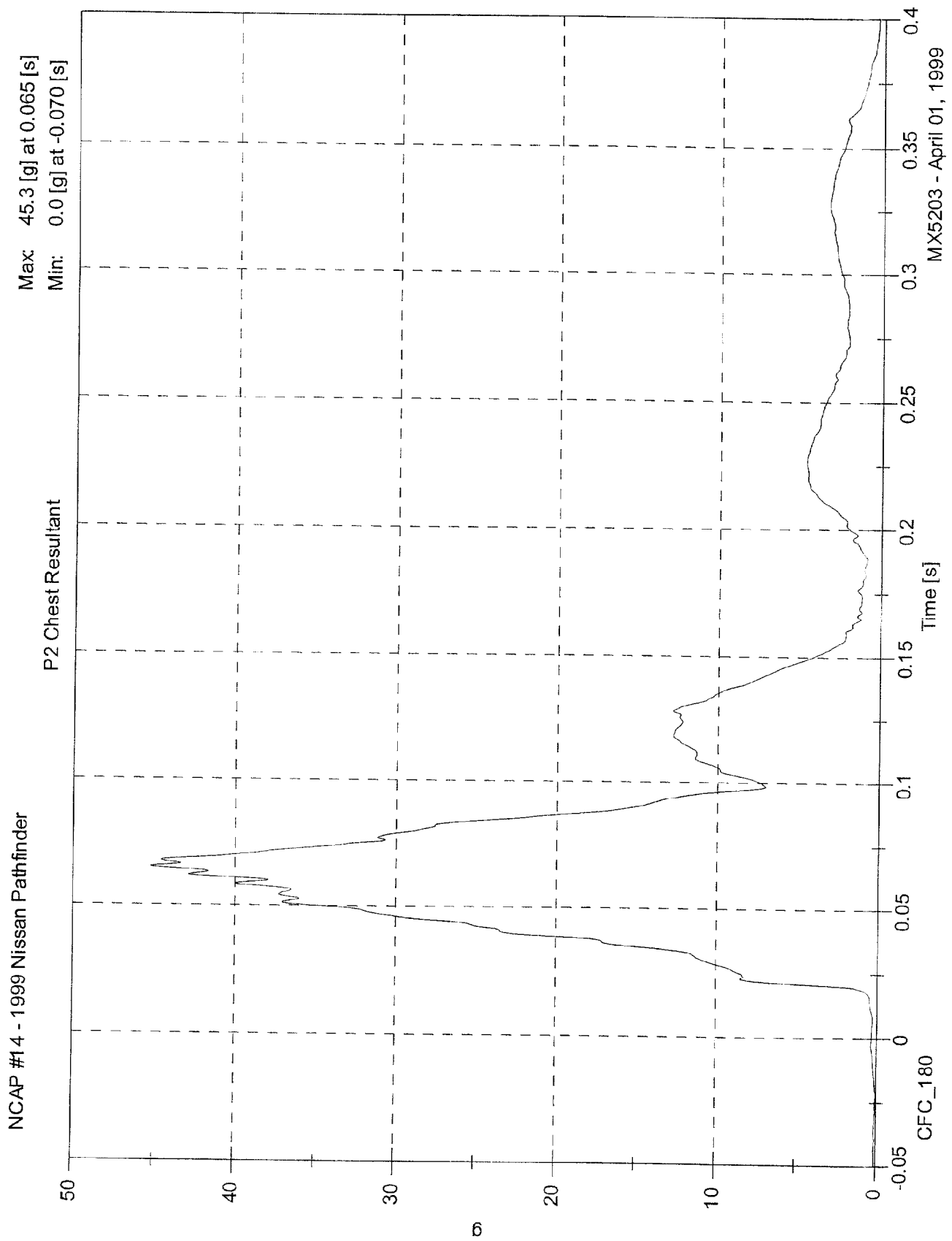
NCAP #14 - 1999 Nissan Pathfinder

P2 Chest z

Max 10.1 [g] at 0.054 [s]
Min: -12.3 [g] at 0.128 [s]



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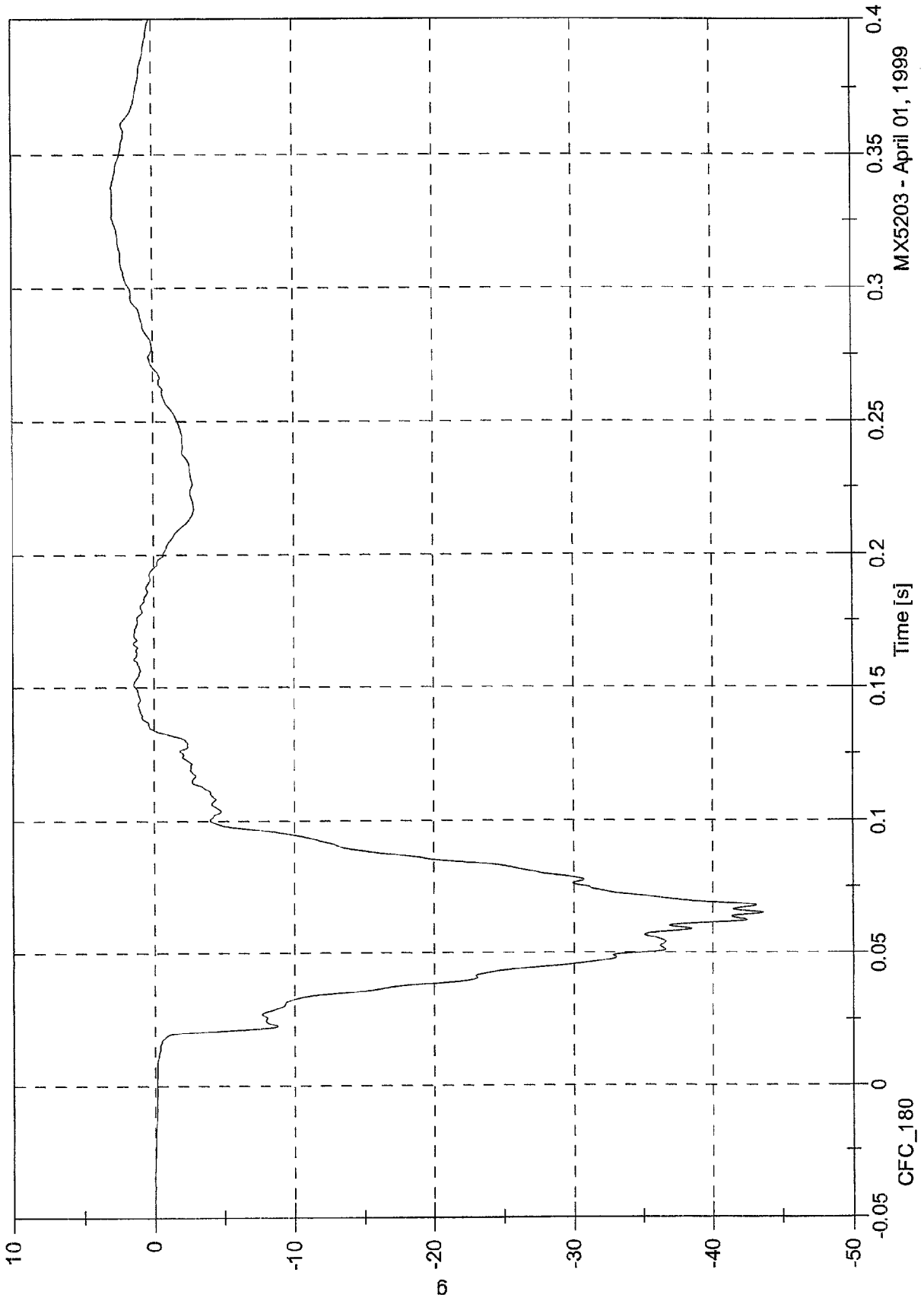


NCAP #14 - 1999 Nissan Pathfinder

P2 Chest Redundant x

Max: 2.9 [g] at 0.338 [s]

Min: -43.7 [g] at 0.065 [s]

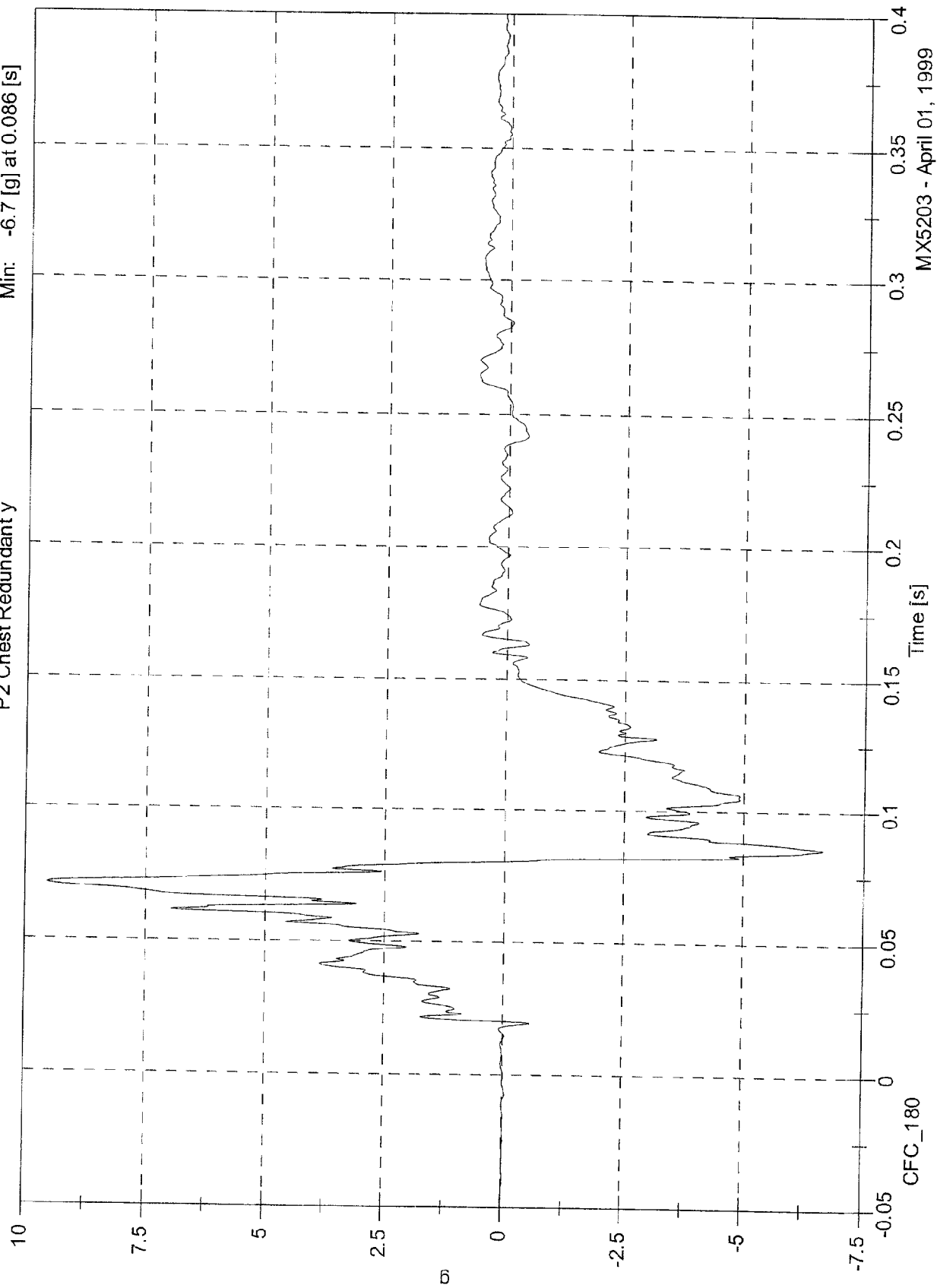


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NCAP #14 - 1999 Nissan Pathfinder

P2 Chest Redundant y

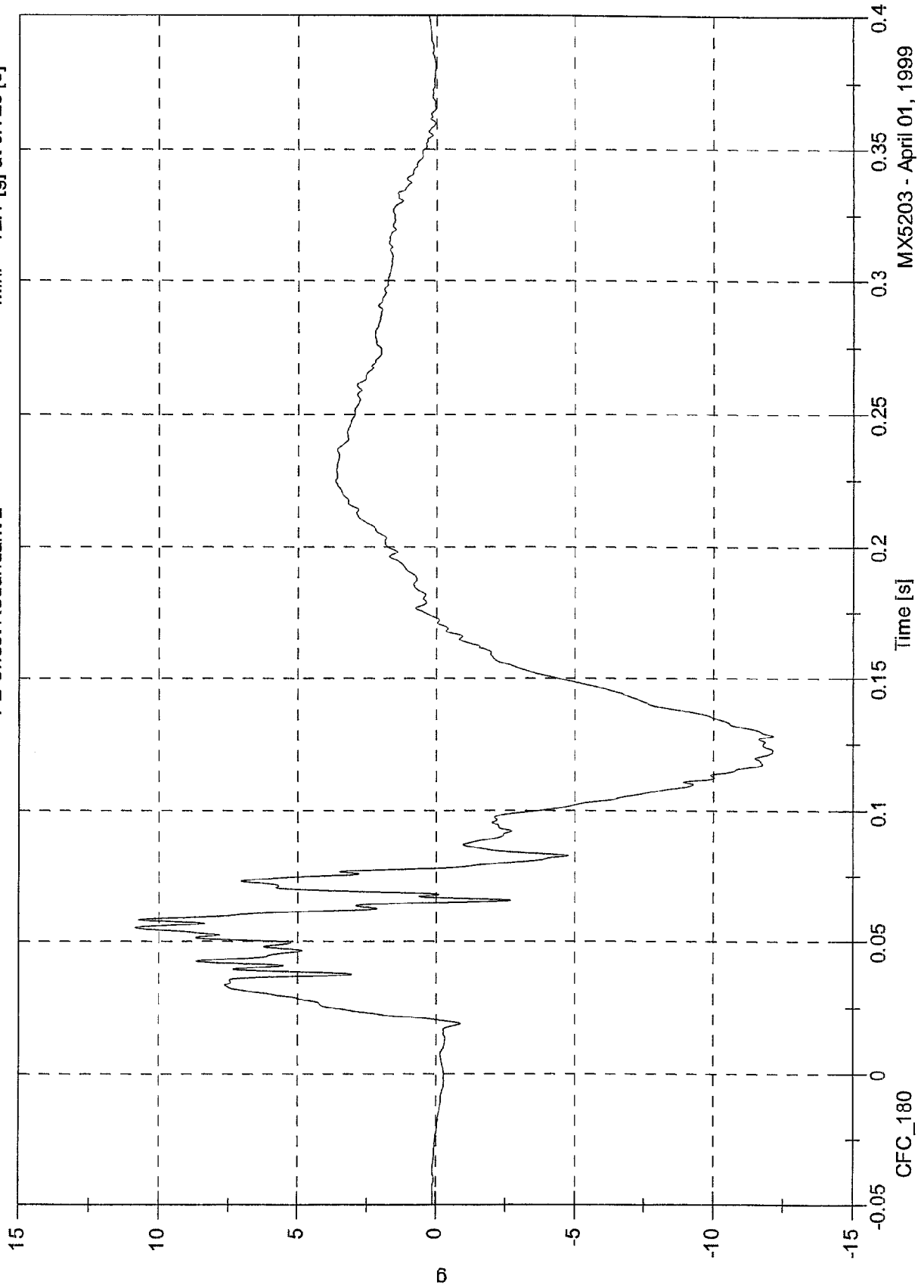
Max: 9.5 [g] at 0.071 [s]
Min: -6.7 [g] at 0.086 [s]



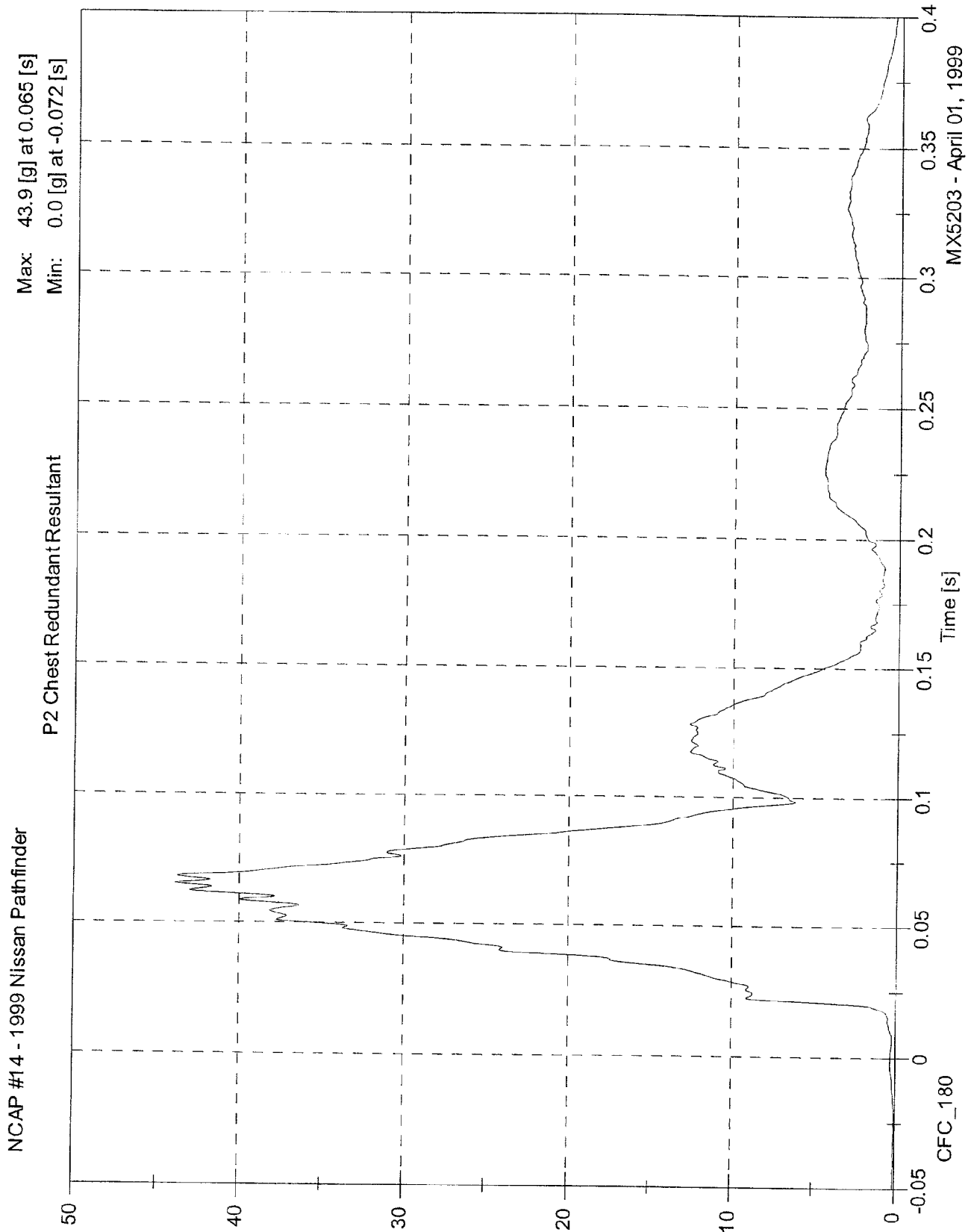
NCAP #14 - 1999 Nissan Pathfinder

Max: 10.9 [g] at 0.055 [s]
Min: -12.1 [g] at 0.128 [s]

P2 Chest Redundant z



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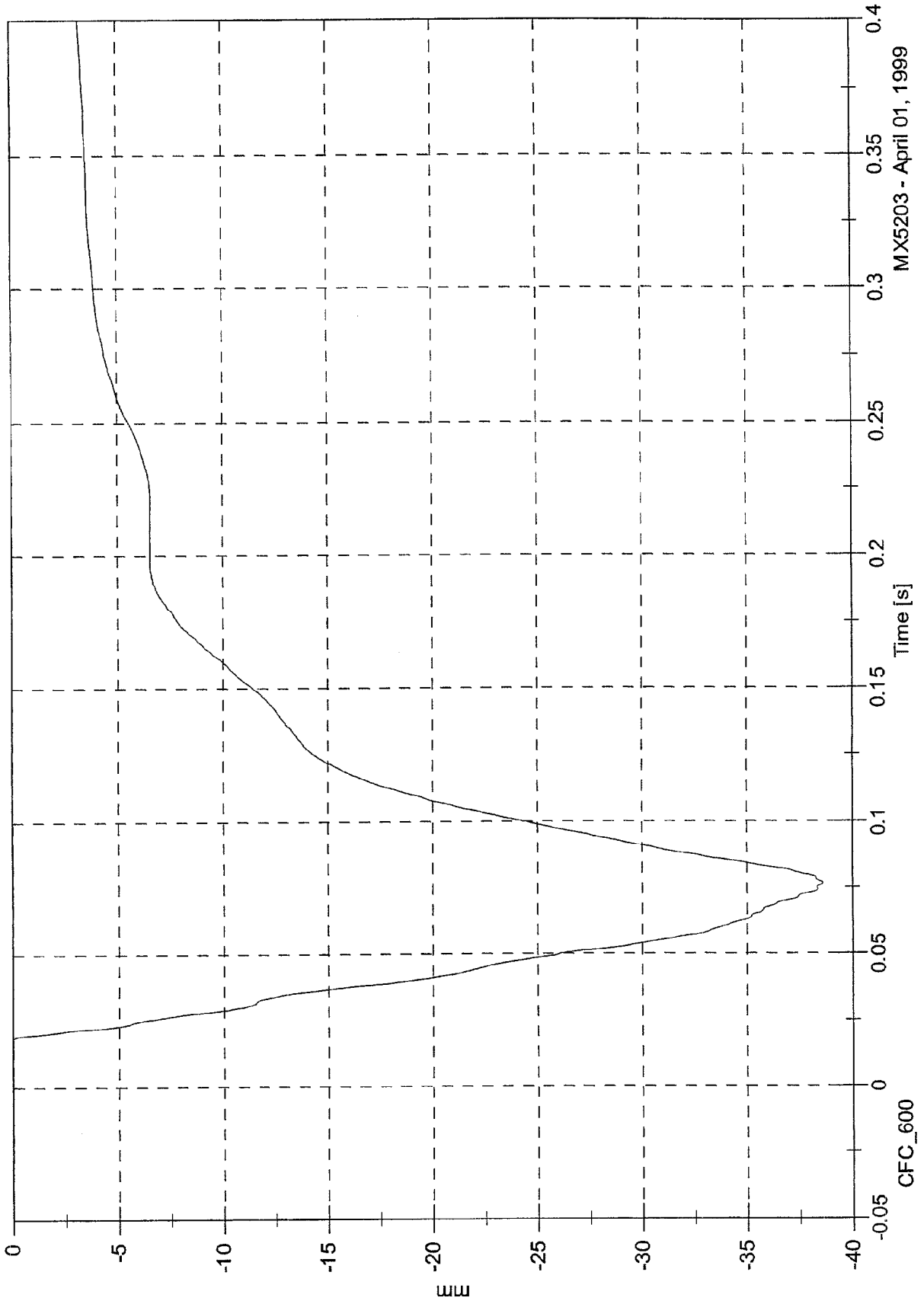


NCAP #14 - 1999 Nissan Pathfinder

P2 Chest Compression

Max: 0.0 [mm] at 0.012 [s]

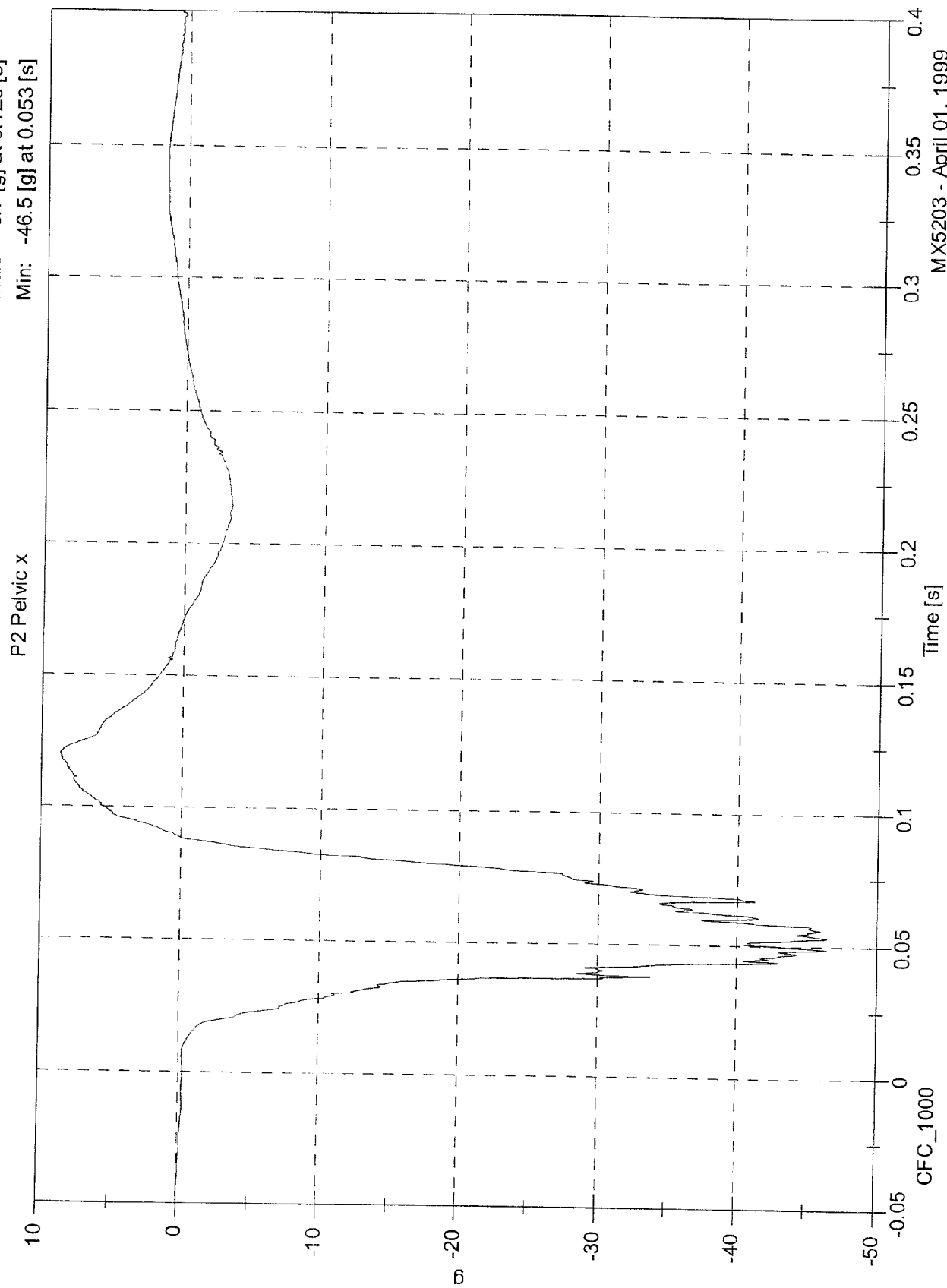
Min: -38.6 [mm] at 0.077 [s]



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Max: 8.7 [g] at 0.120 [s]
Min: -46.5 [g] at 0.053 [s]



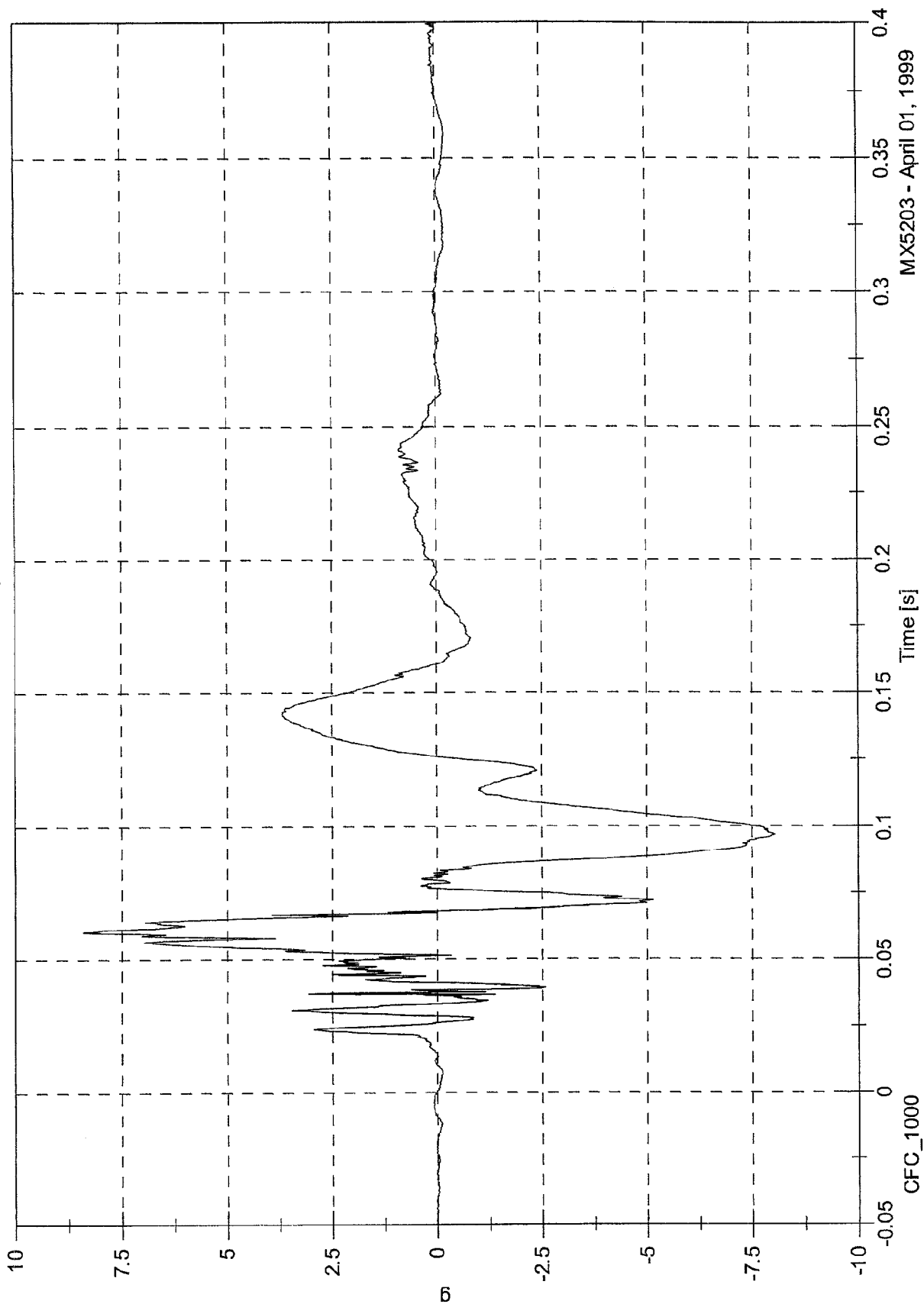
MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

P2 Pelvic y

Max: 8.4 [g] at 0.061 [s]

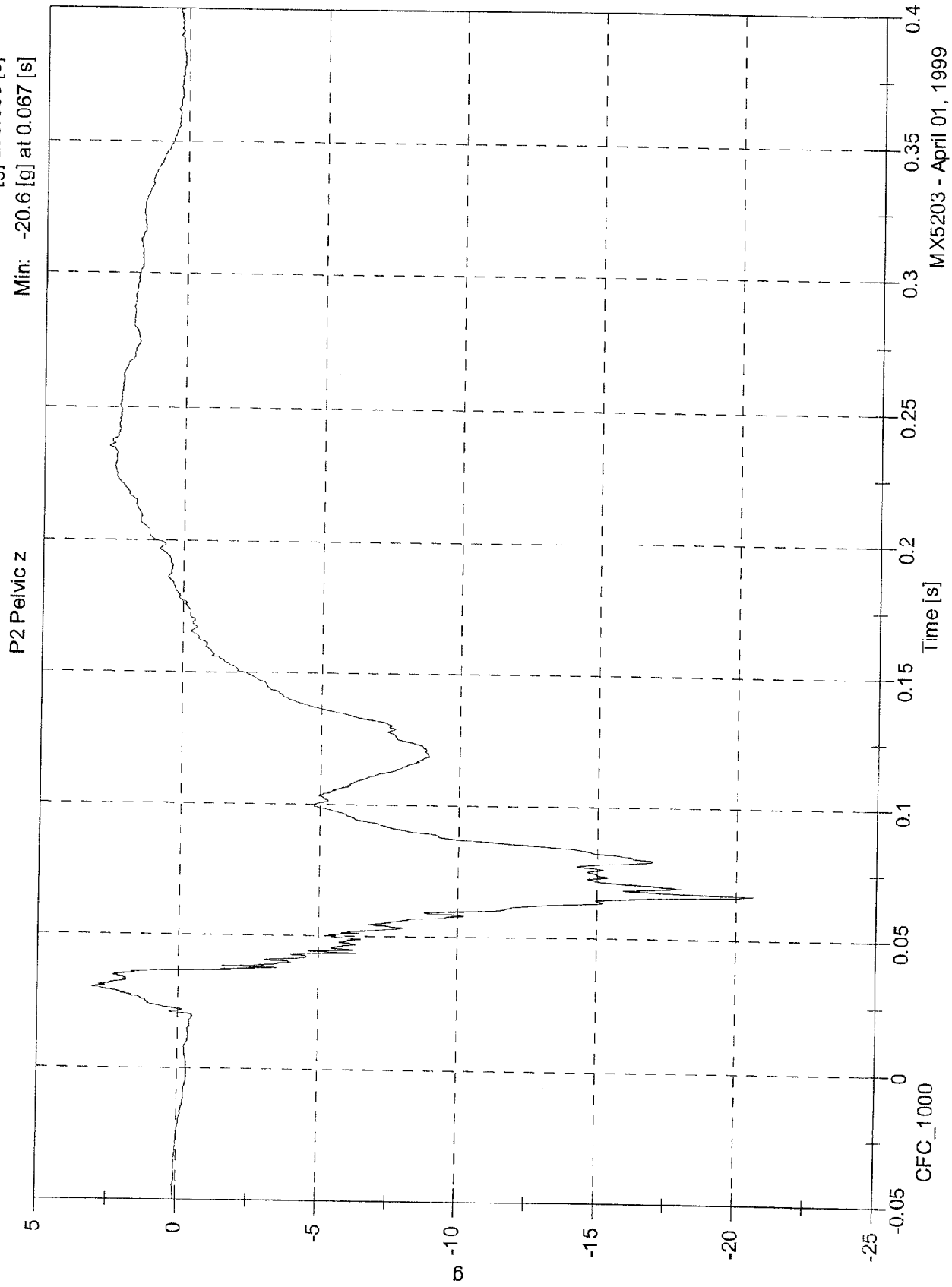
Min: -8.1 [g] at 0.097 [s]



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NCAP #14 - 1999 Nissan Pathfinder

Max: 3.1 [g] at 0.030 [s]
Min: -20.6 [g] at 0.067 [s]

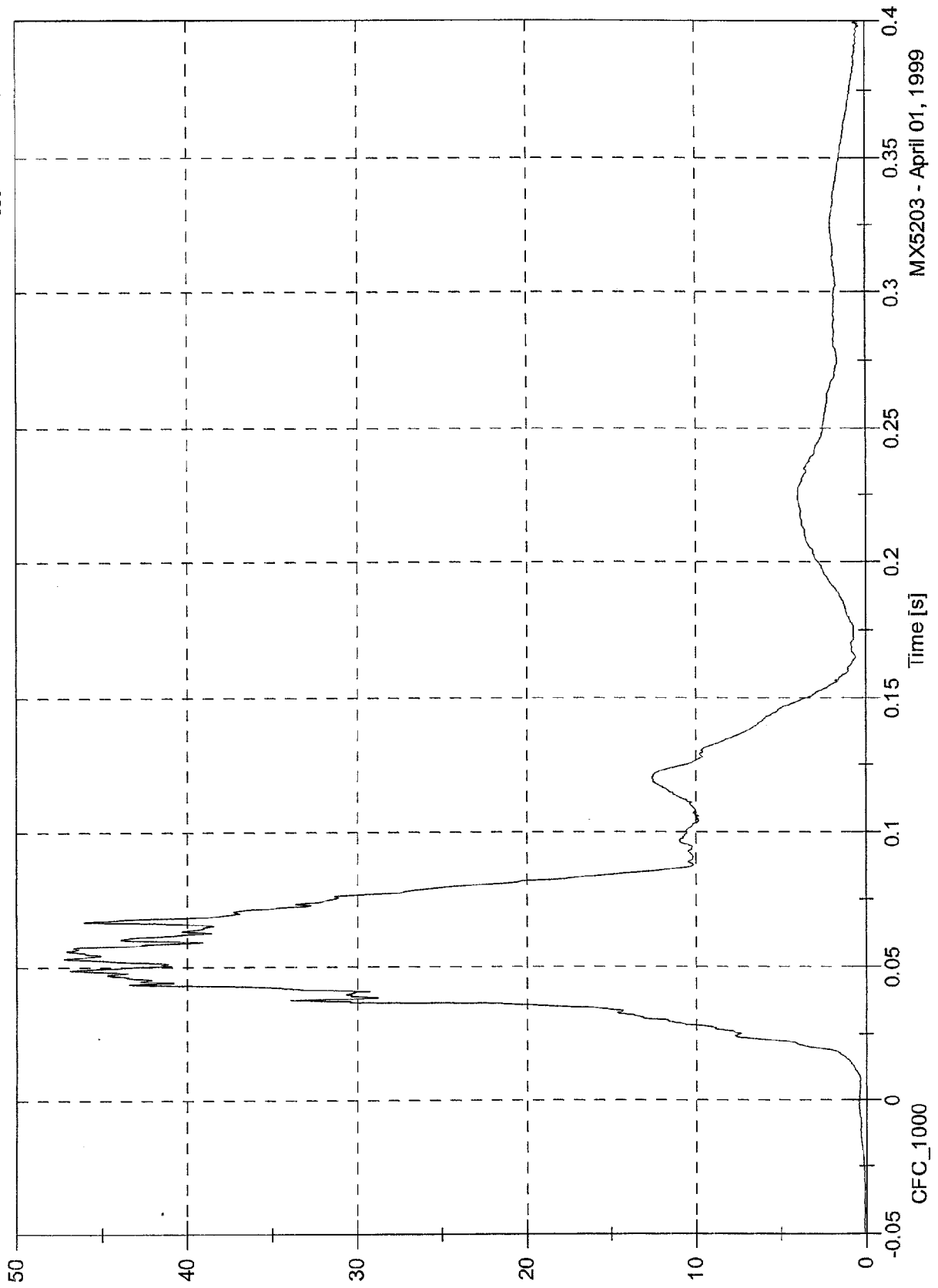


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NCAP #14 - 1999 Nissan Pathfinder

Max: 47.3 [g] at 0.053 [s]
Min: 0.1 [g] at -0.073 [s]

P2 Pelvic Resultant

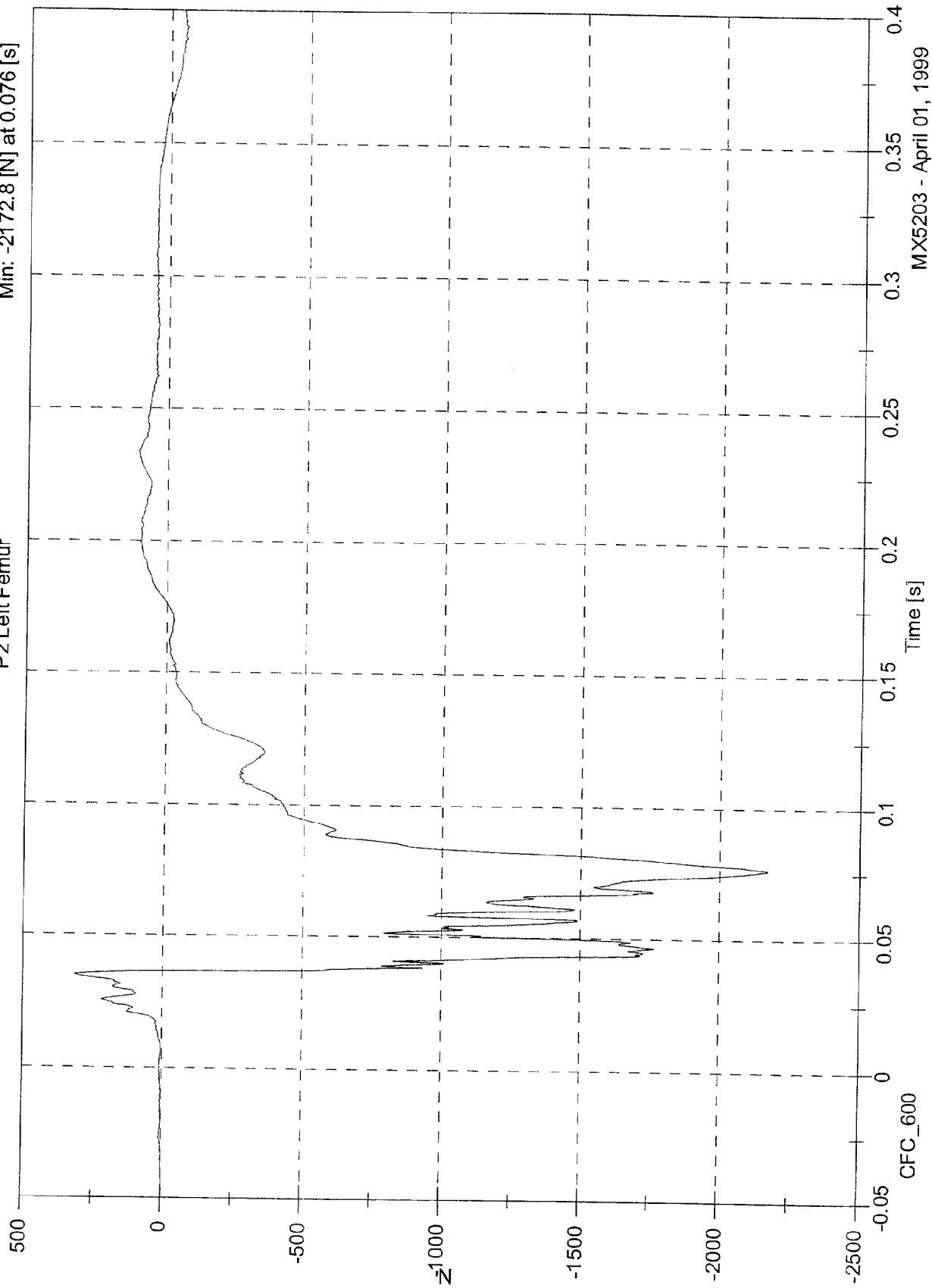


MX5203 - April 01, 1999

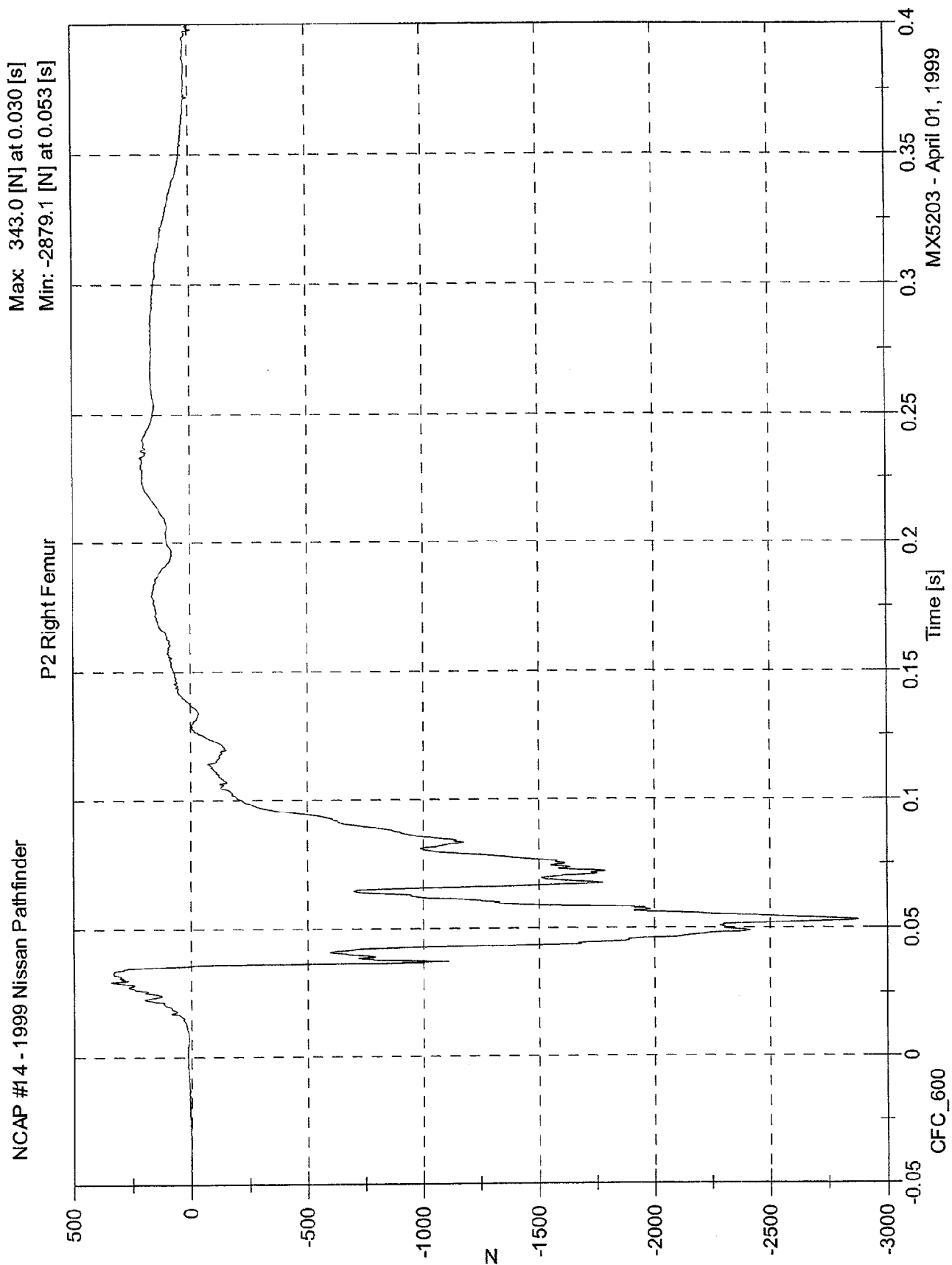
NCAP #14 - 1999 Nissan Pathfinder

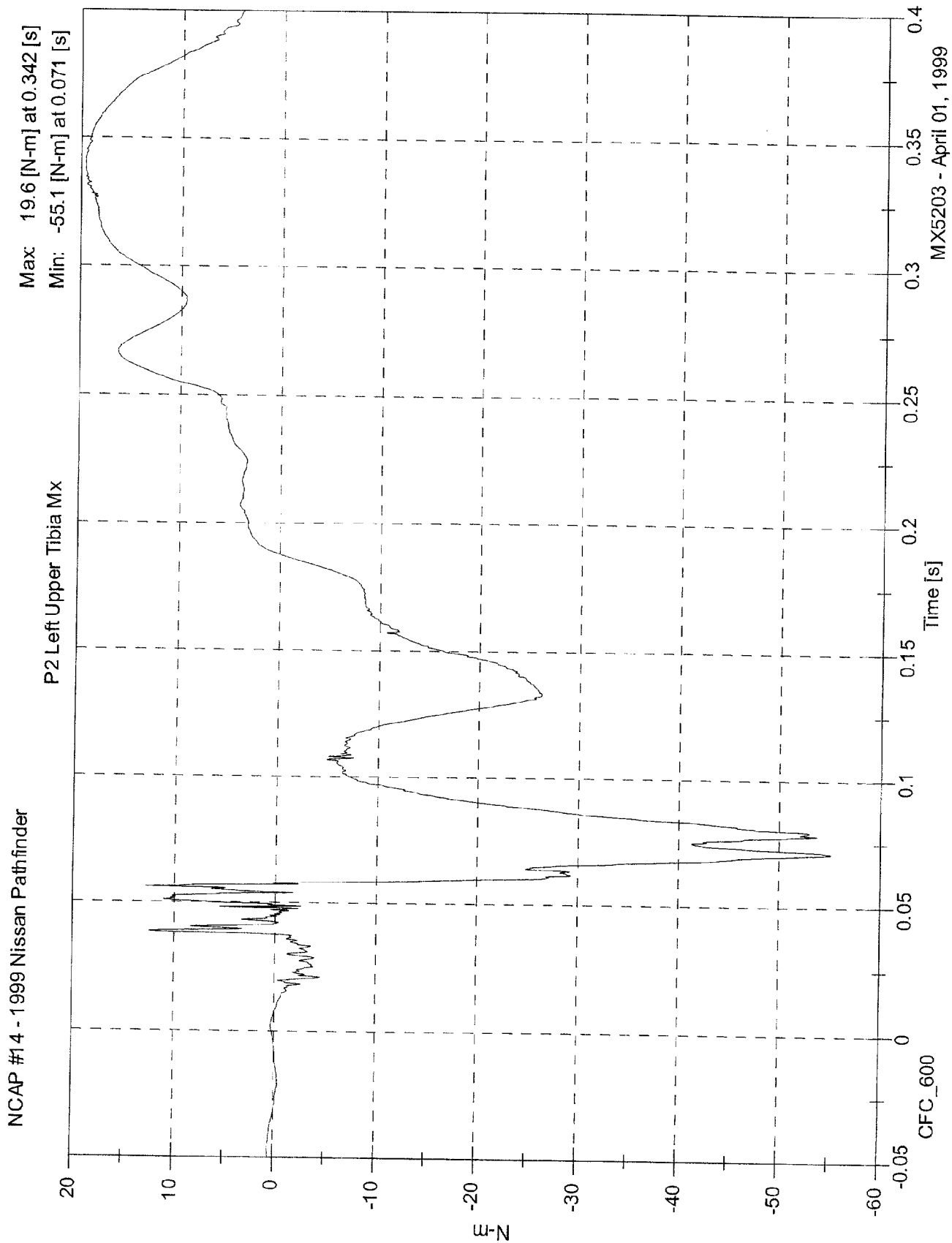
Max: 314.3 [N] at 0.035 [s]
Min: -2172.8 [N] at 0.076 [s]

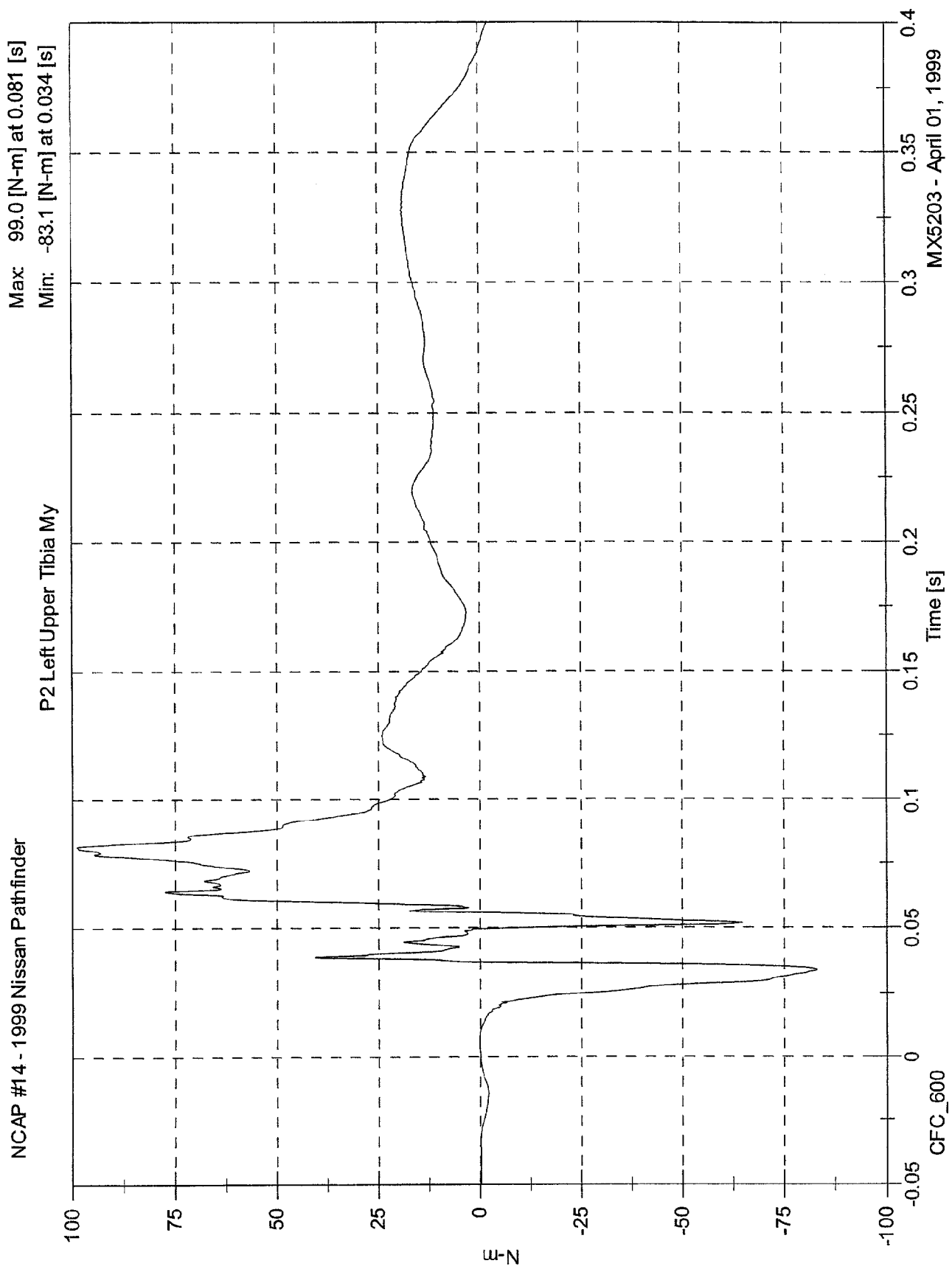
P2 Left Femur

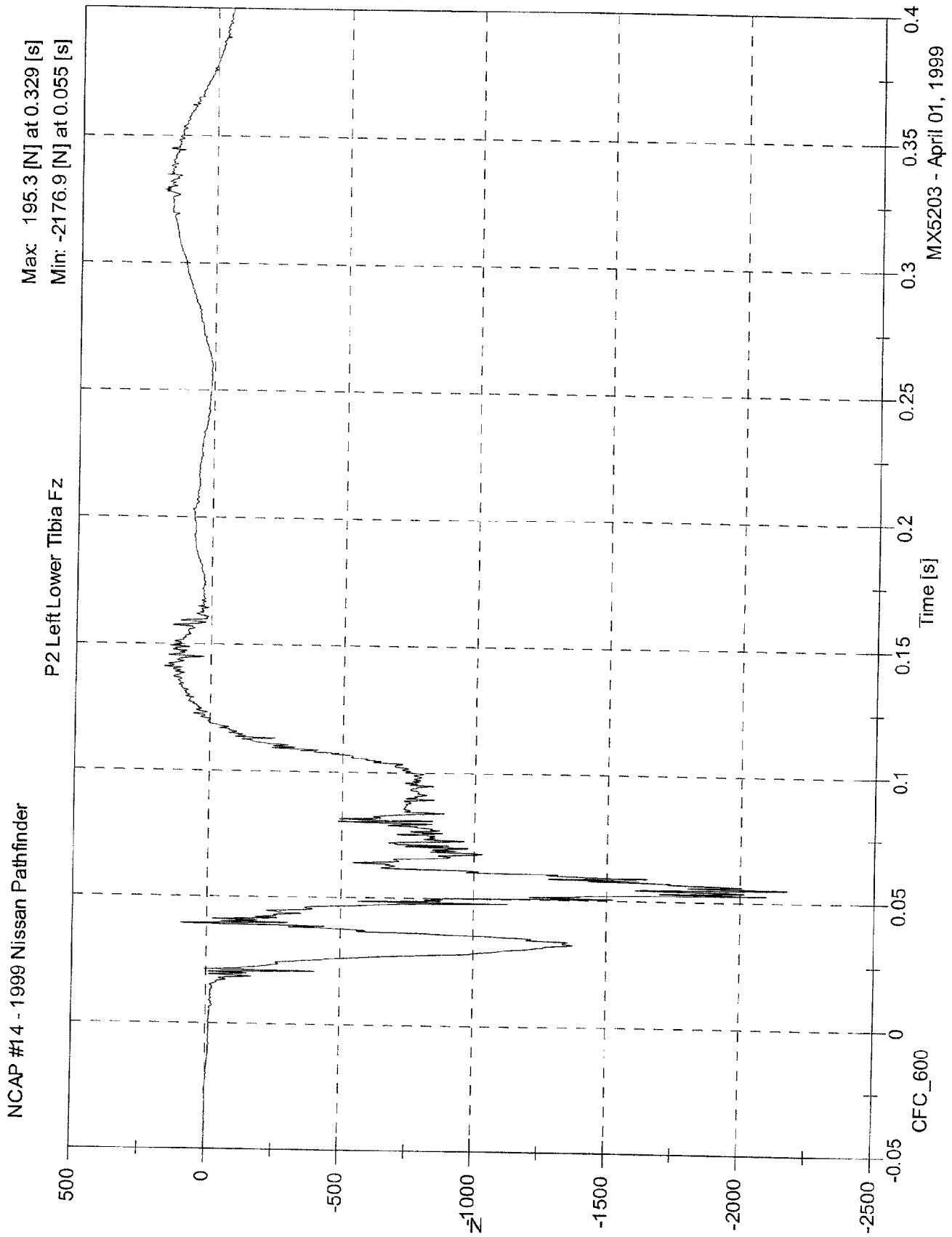


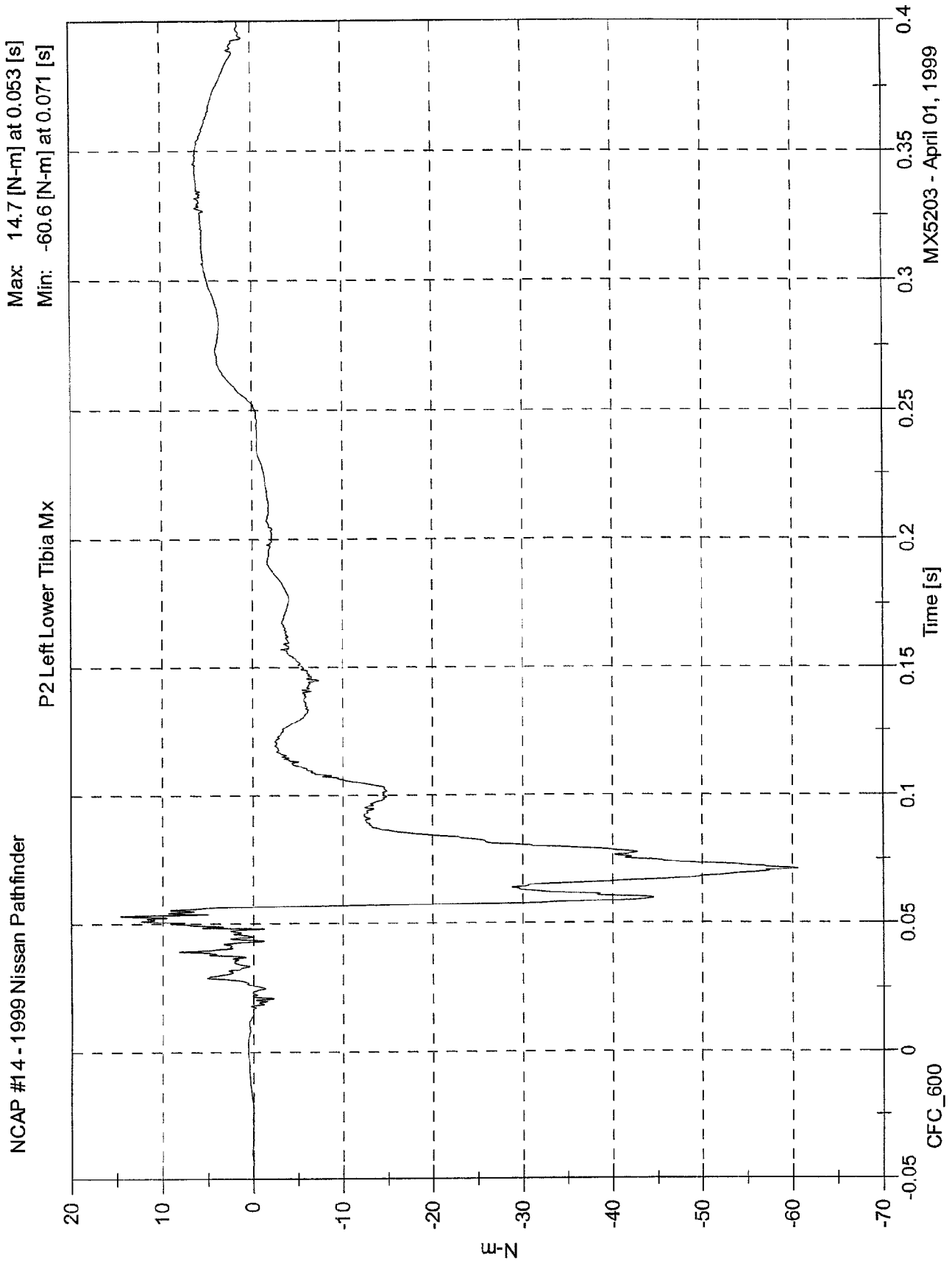
MX5203 - April 01, 1999









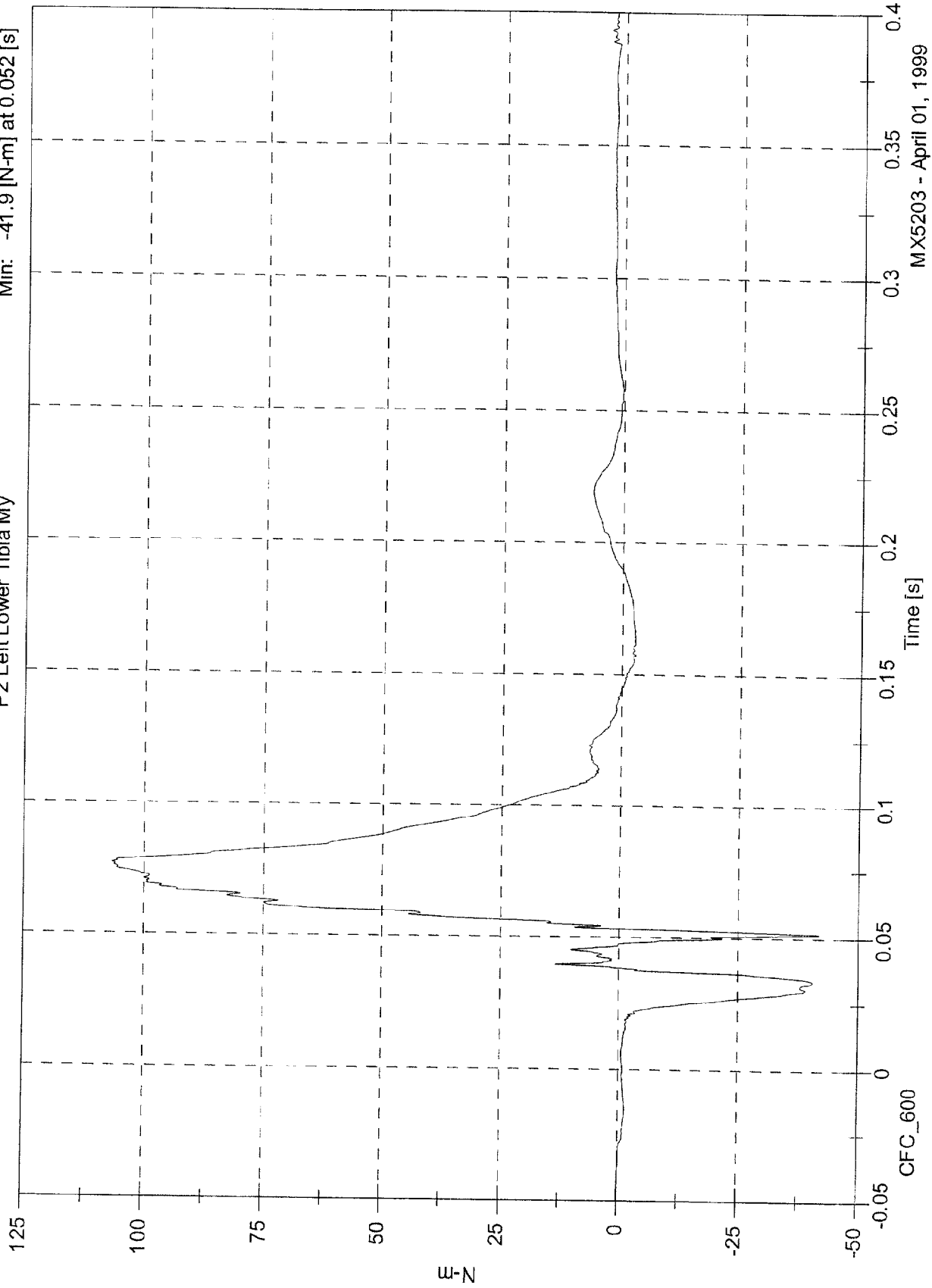


NCAP #14 - 1999 Nissan Pathfinder

Max: 106.7 [N-m] at 0.077 [s]

Min: -41.9 [N-m] at 0.052 [s]

P2 Left Lower Tibia My

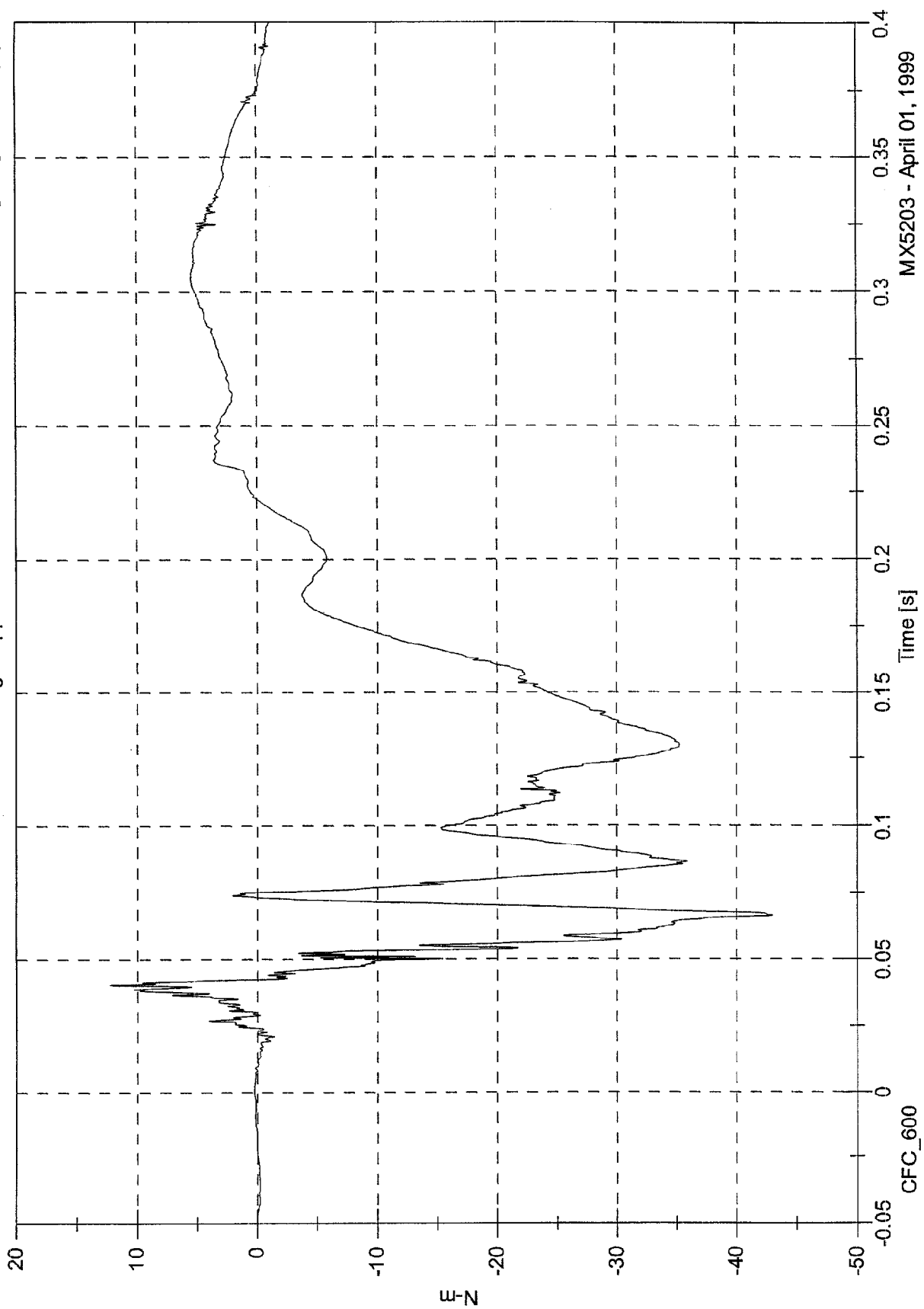


MX5203 - April 01, 1999

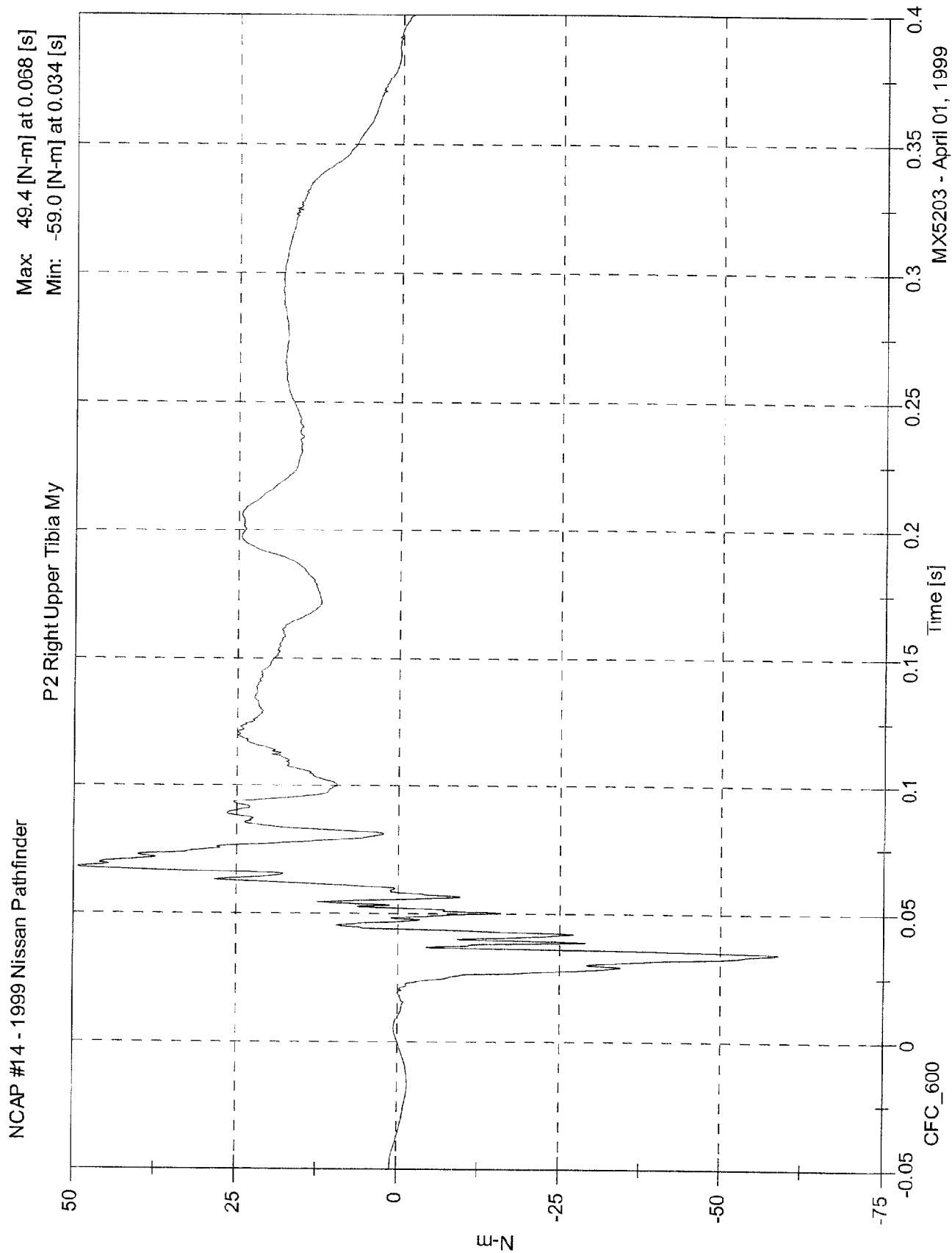
NCAP #14 - 1999 Nissan Pathfinder

P2 Right Upper Tibia Mx

Max: 12.3 [N-m] at 0.041 [s]
Min: -43.0 [N-m] at 0.066 [s]



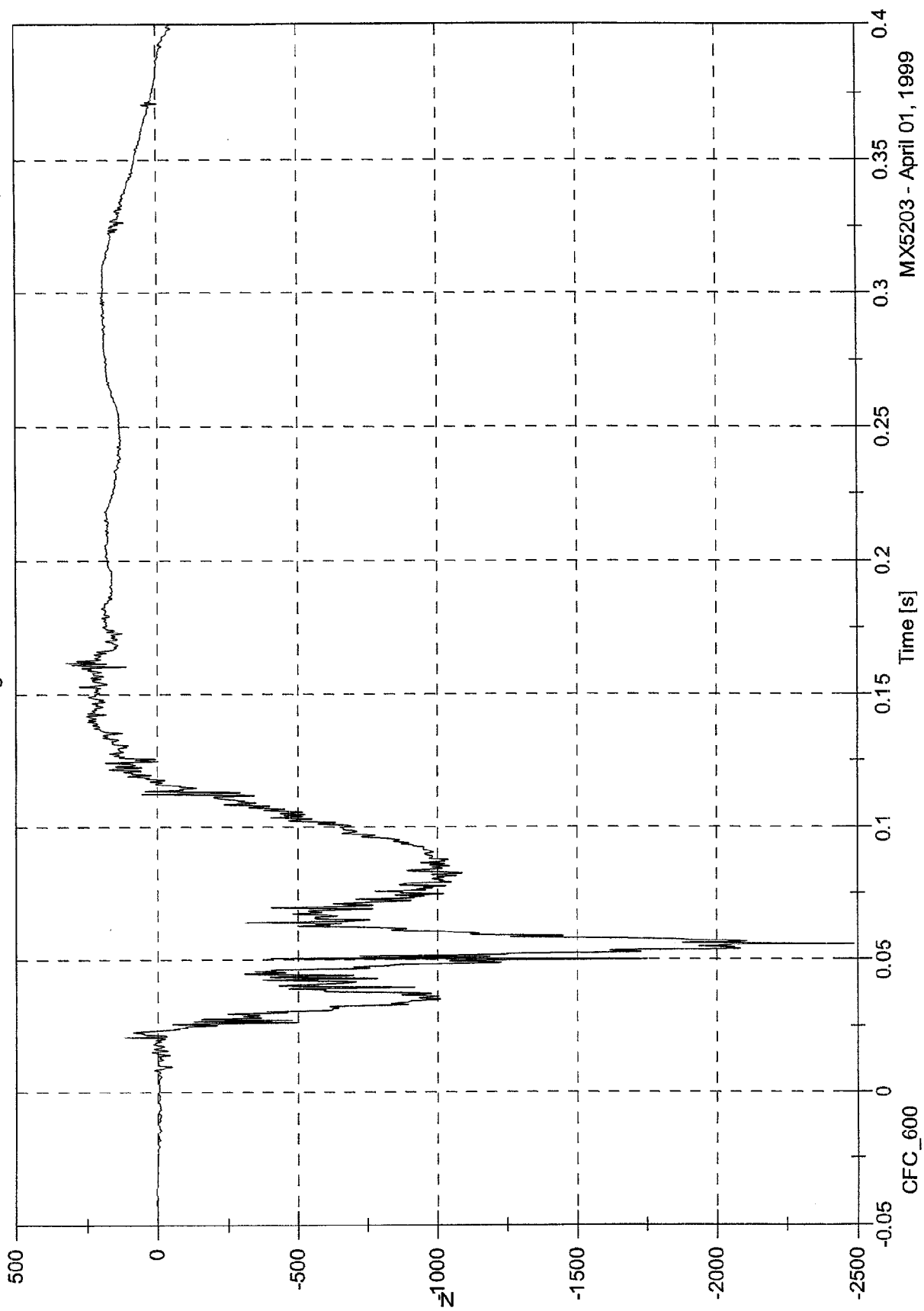
MX5203 - April 01, 1999



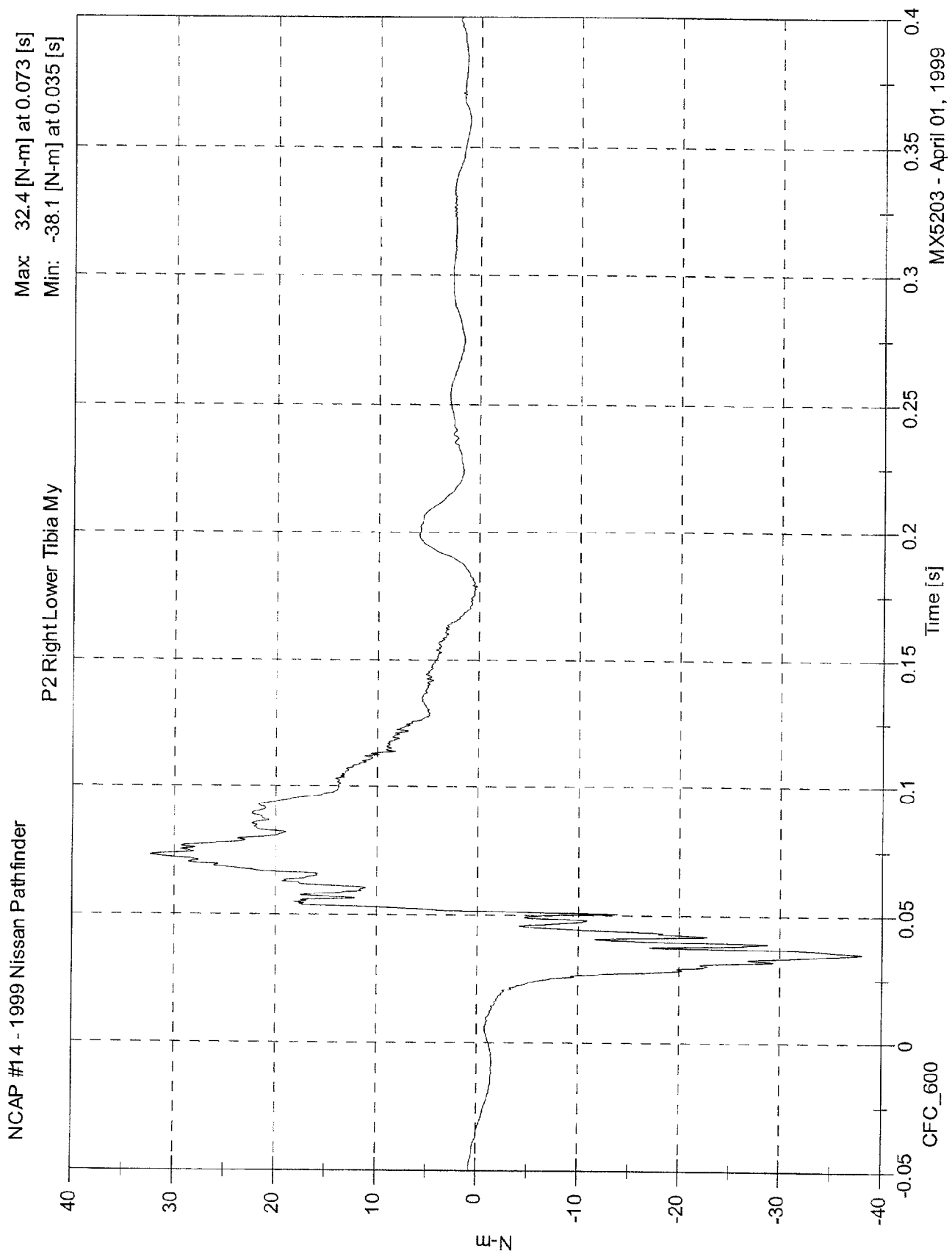
NCAP #14 - 1999 Nissan Pathfinder

P2 Right Lower Tibia Fz

Max 325.6 [N] at 0.162 [s]
Min: -2487.5 [N] at 0.056 [s]



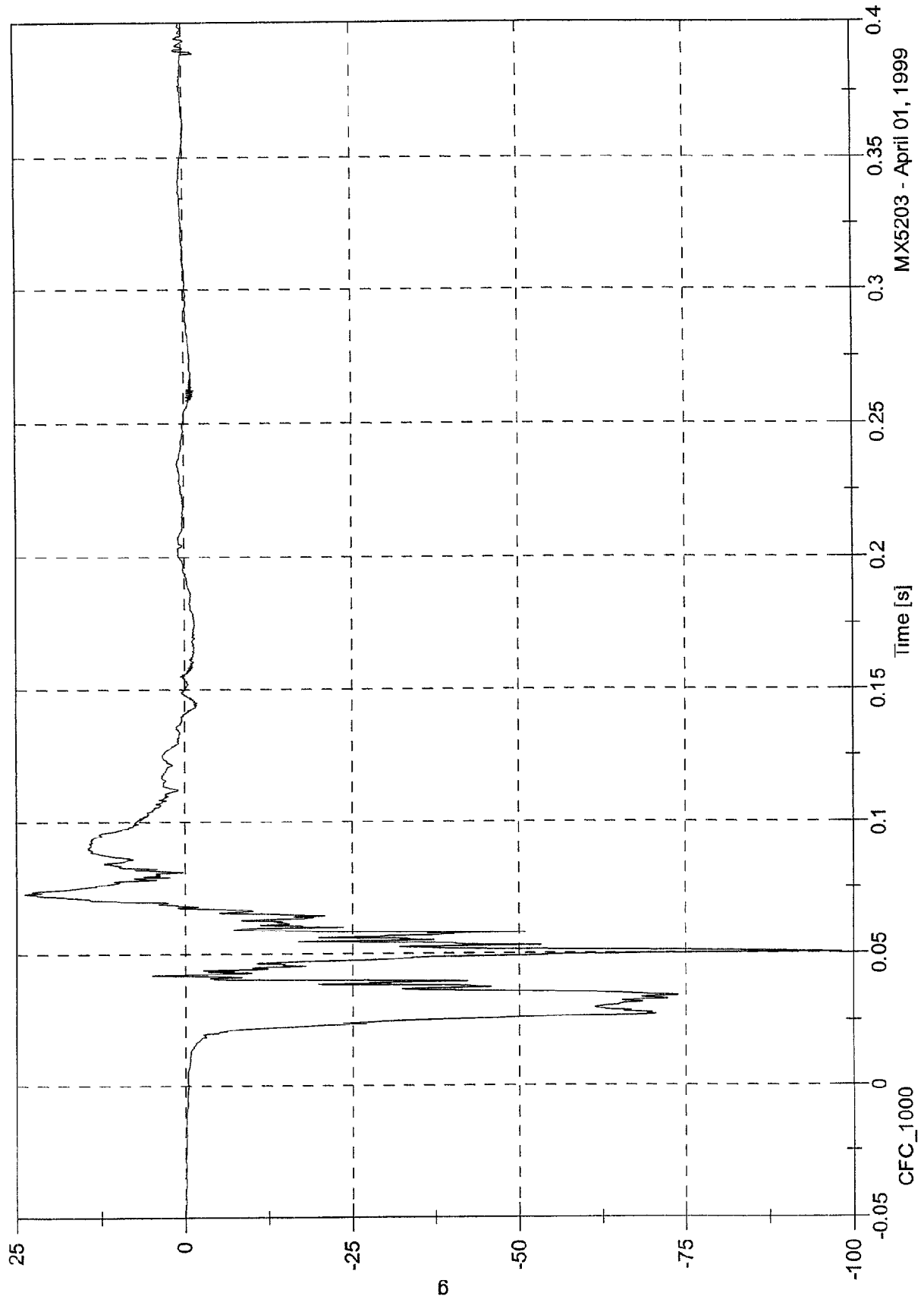
MX5203 - April 01, 1999



NCAP #14 - 1999 Nissan Pathfinder

Max: 23.8 [g] at 0.073 [s]
Min: -98.3 [g] at 0.050 [s]

P2 Left Ankle x

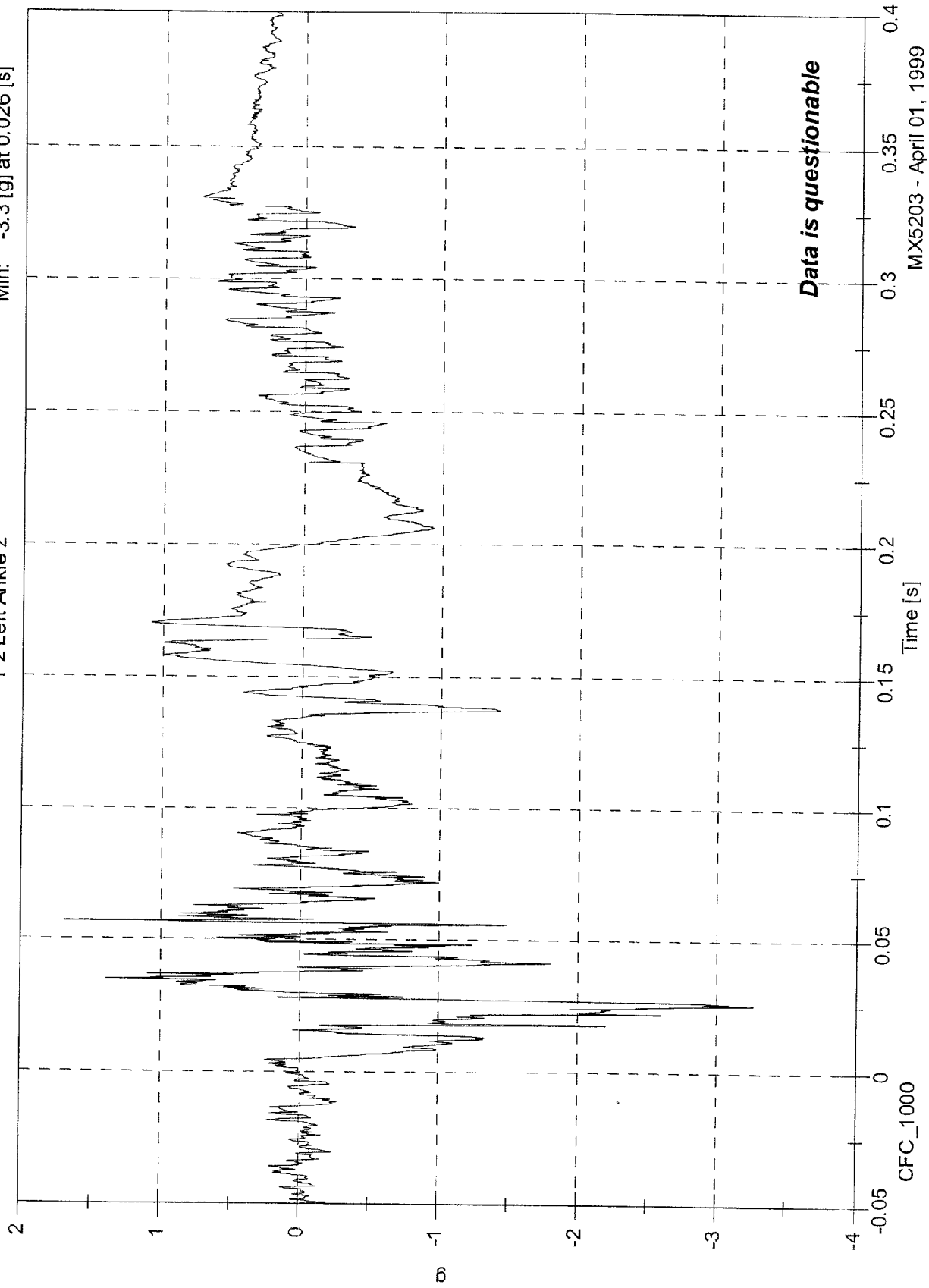


MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

Max: 1.7 [g] at 0.057 [s]
Min: -3.3 [g] at 0.026 [s]

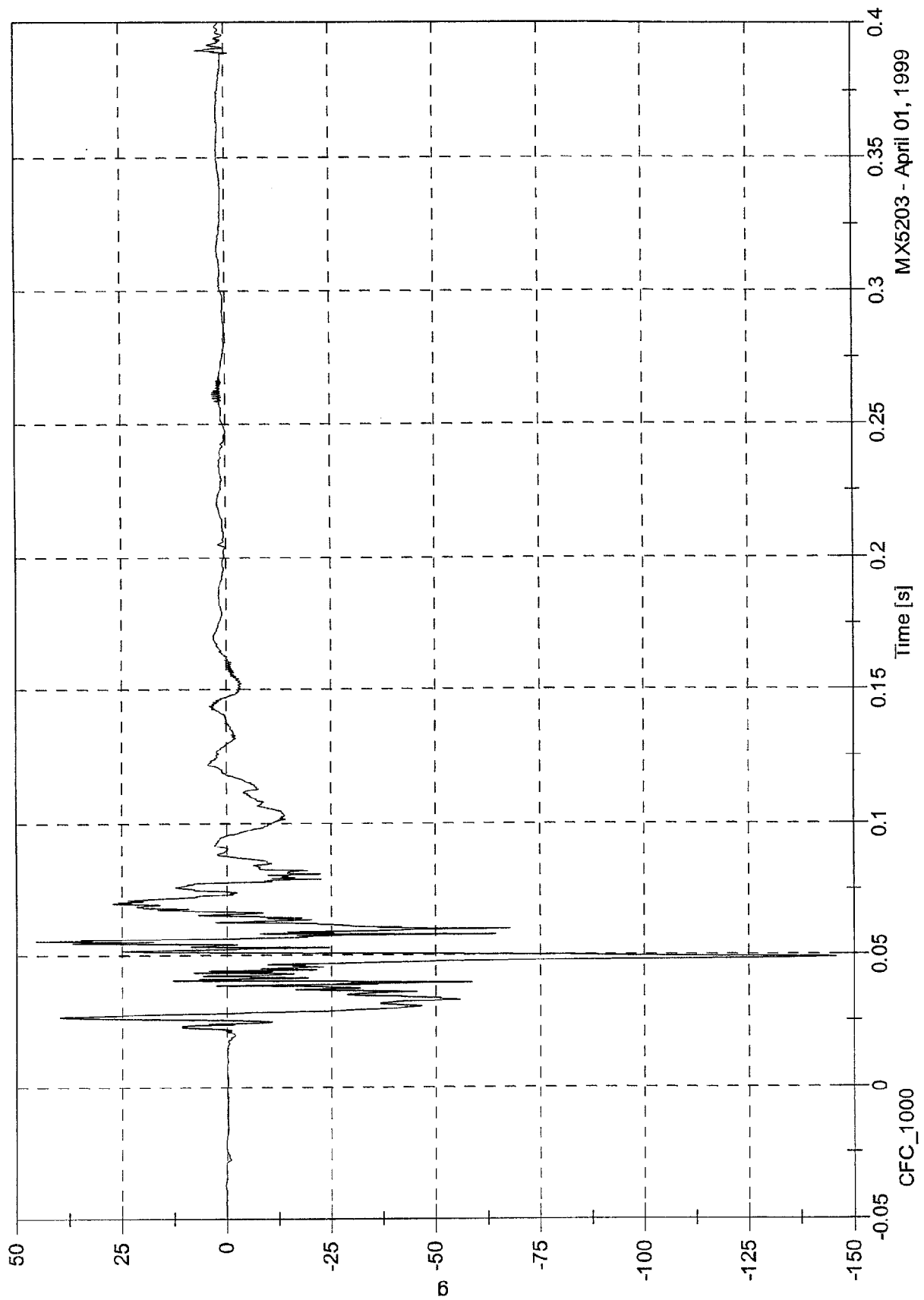
P2 Left Ankle z



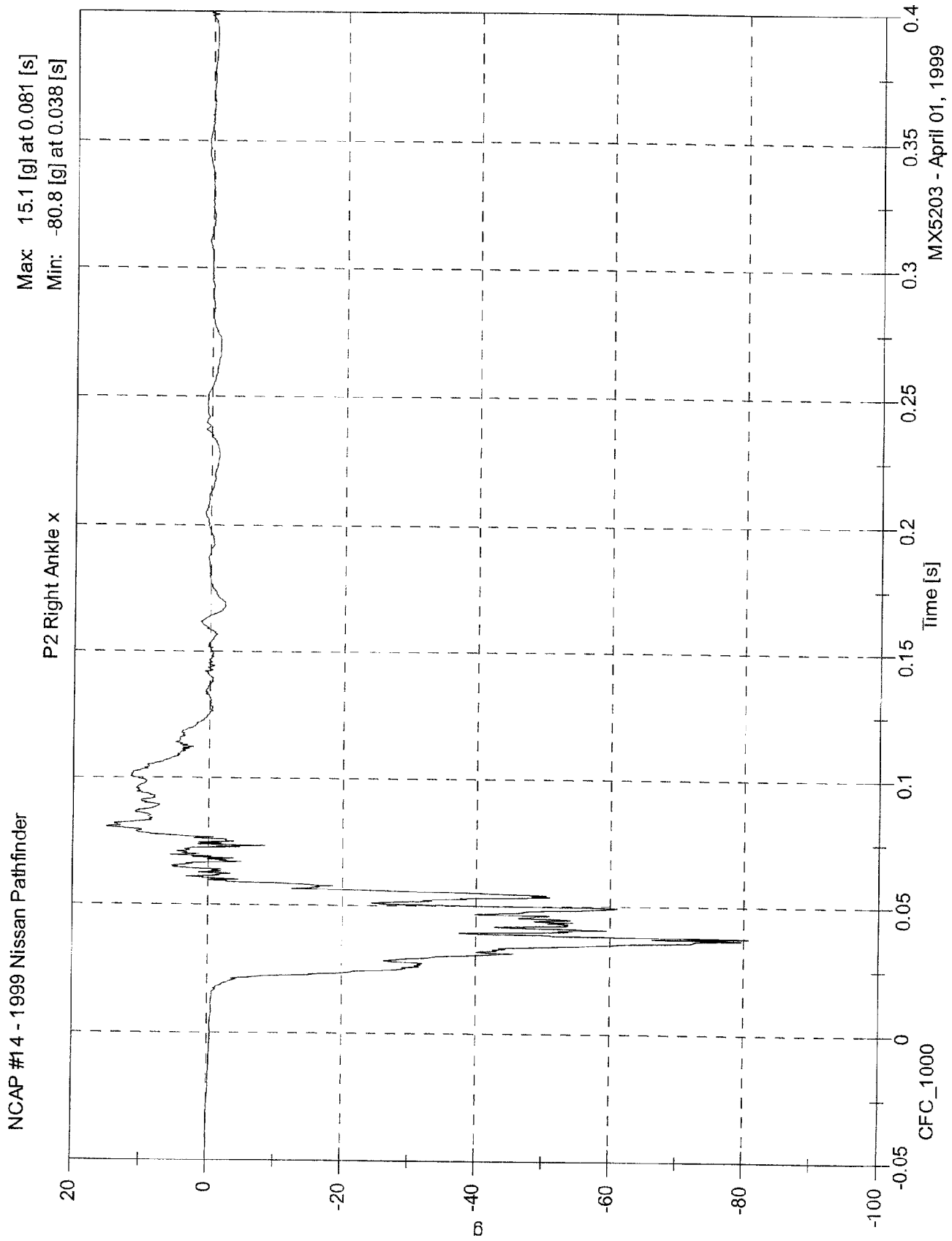
NCAP #14 - 1999 Nissan Pathfinder

Max: 45.4 [g] at 0.055 [s]
Min: -145.8 [g] at 0.049 [s]

P2 Left Toe z



MX5203 - April 01, 1999

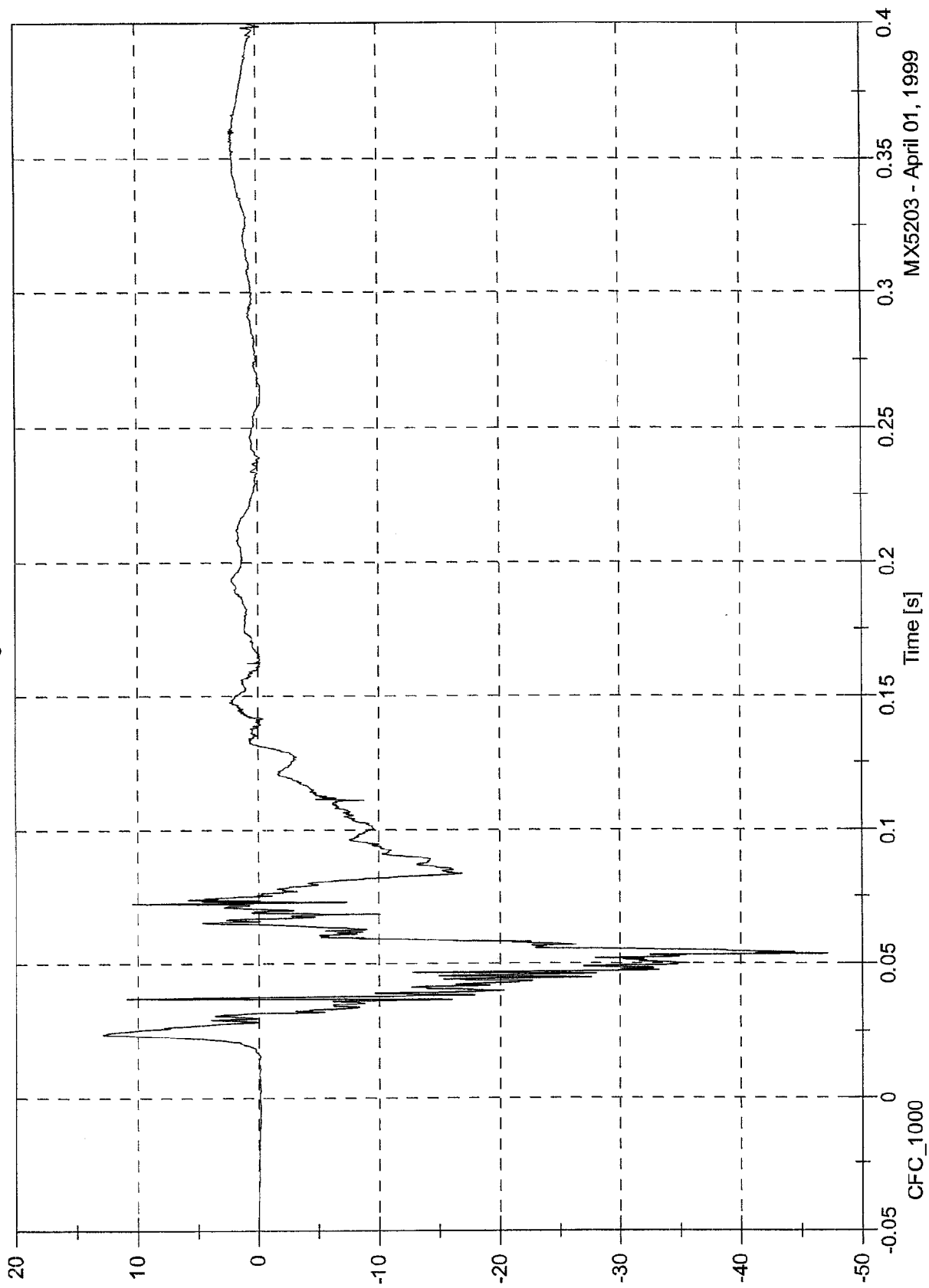


NCAP #14 - 1999 Nissan Pathfinder

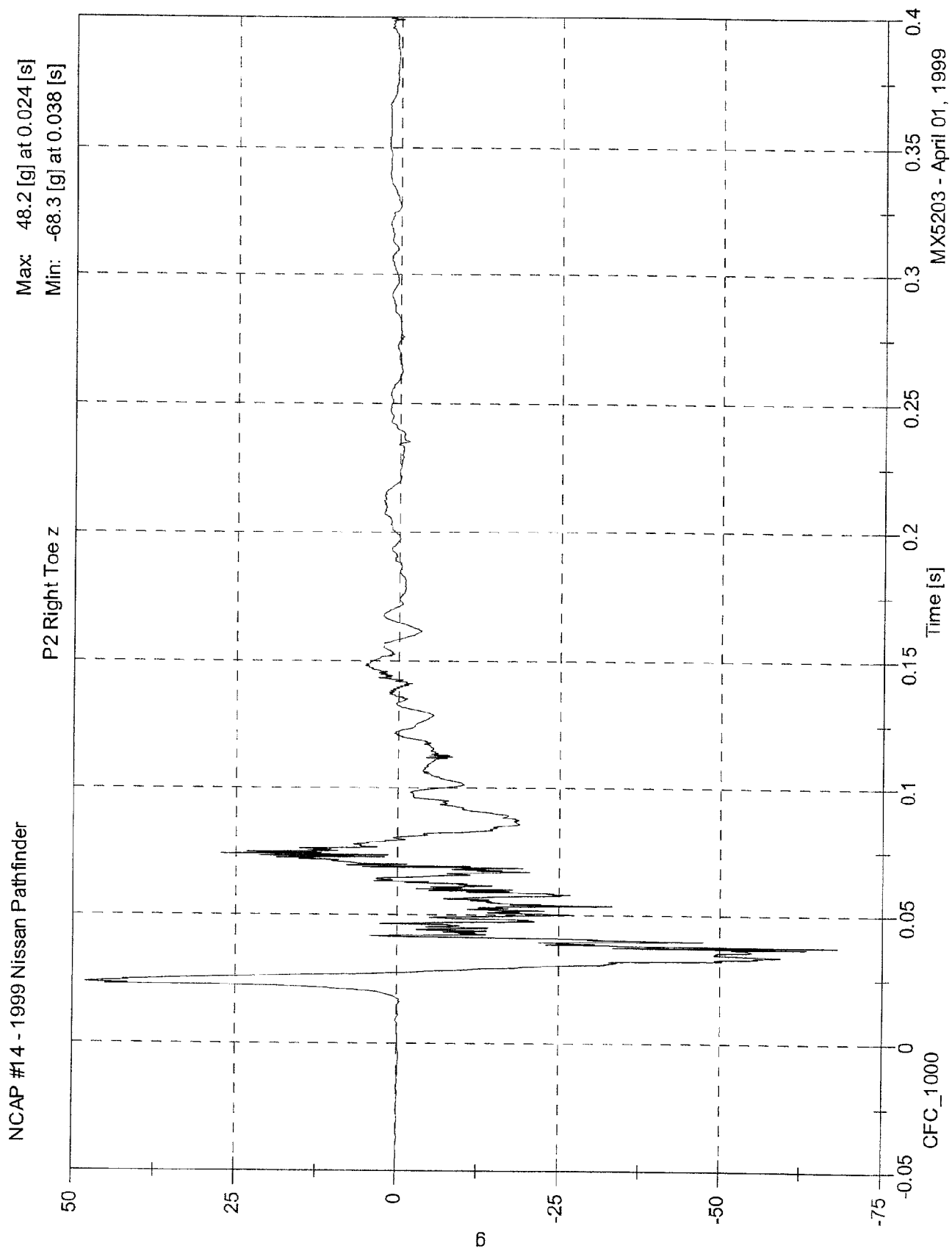
P2 Right Ankle z

Max: 12.9 [g] at 0.024 [s]

Min: -47.2 [g] at 0.053 [s]



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NHTSA TEST NO. MX5203

VEHICLE DATA

FILTER CHANNEL CLASS

Acceleration

60

Velocity

180

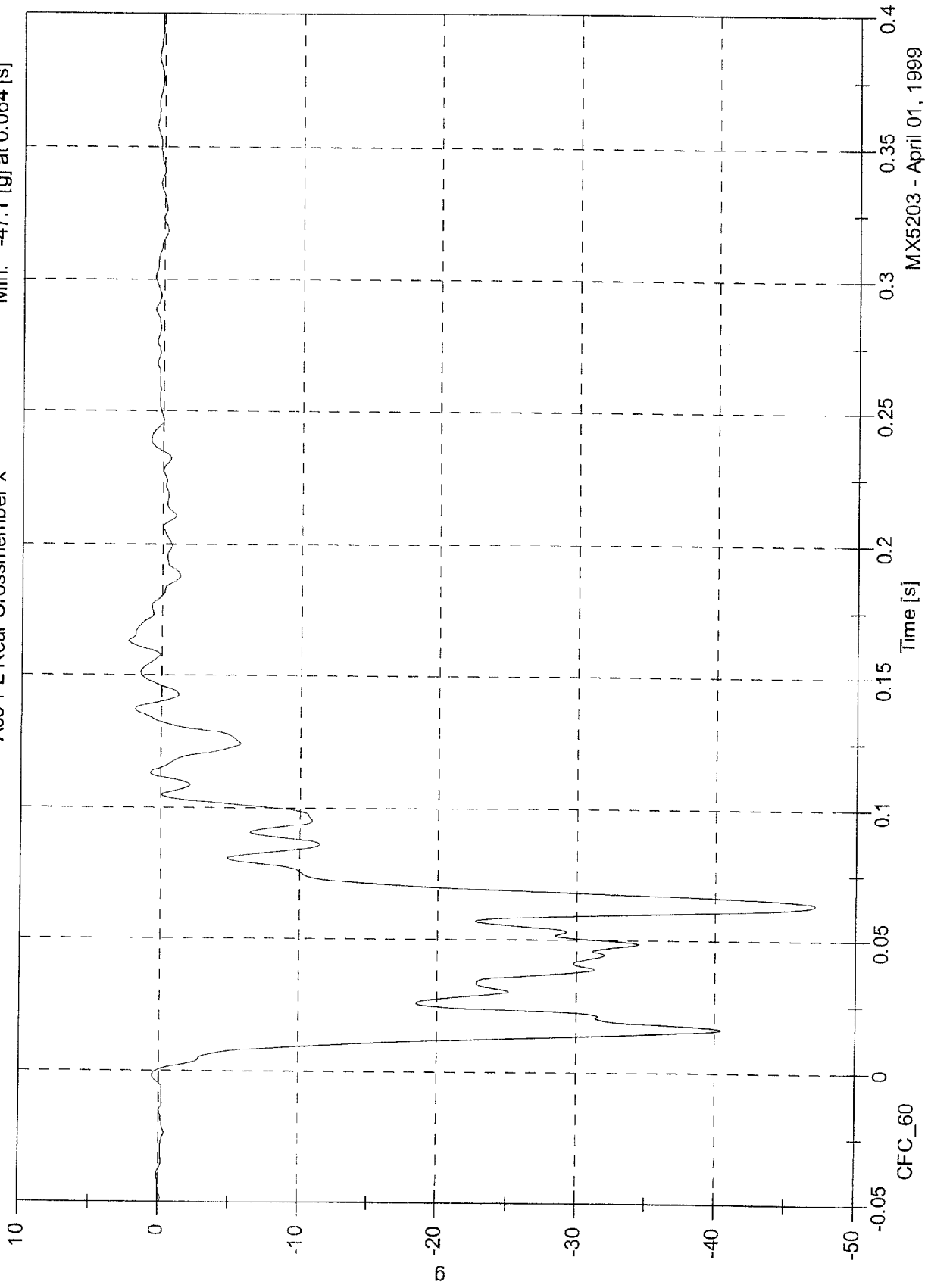
Displacement

180

NCAP #14 - 1999 Nissan Pathfinder

Acc 1 L Rear Crossmember x

Max: 2.4 [g] at 0.163 [s]
Min: -47.1 [g] at 0.064 [s]



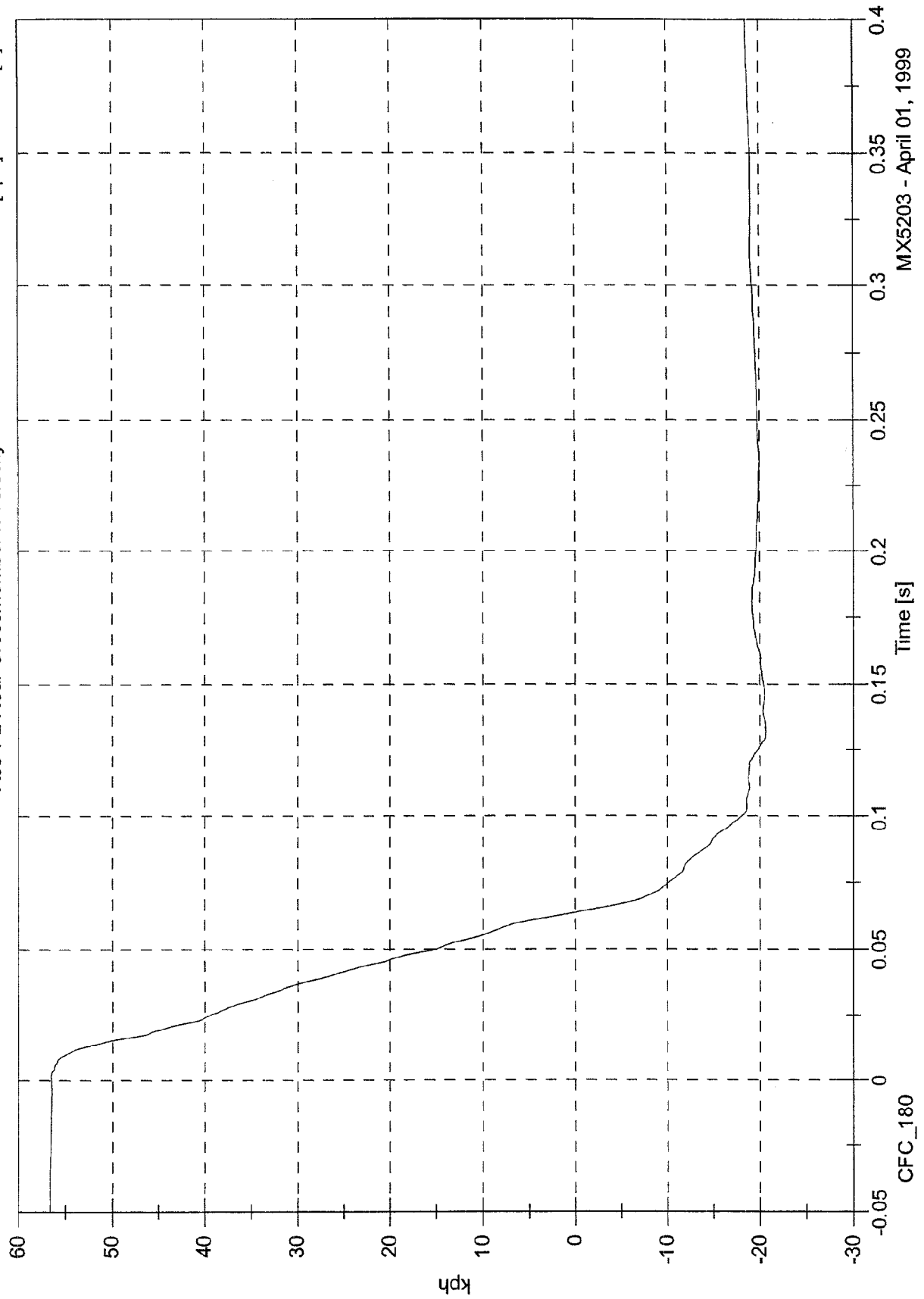
MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

Max 56.7 [kph] at -0.038 [s]

Min: -20.6 [kph] at 0.132 [s]

Acc 1 L Rear Crossmember x Velocity



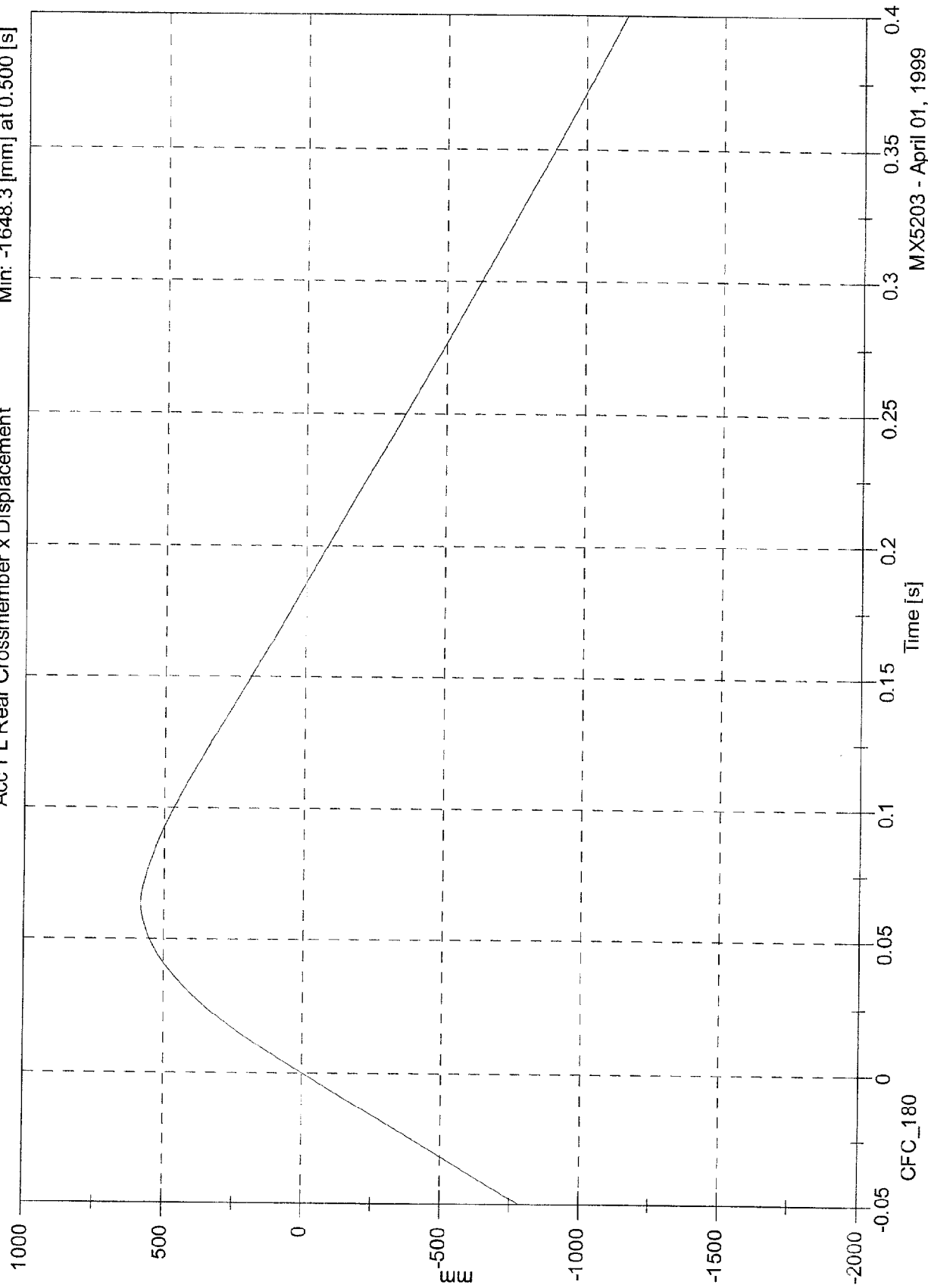
MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

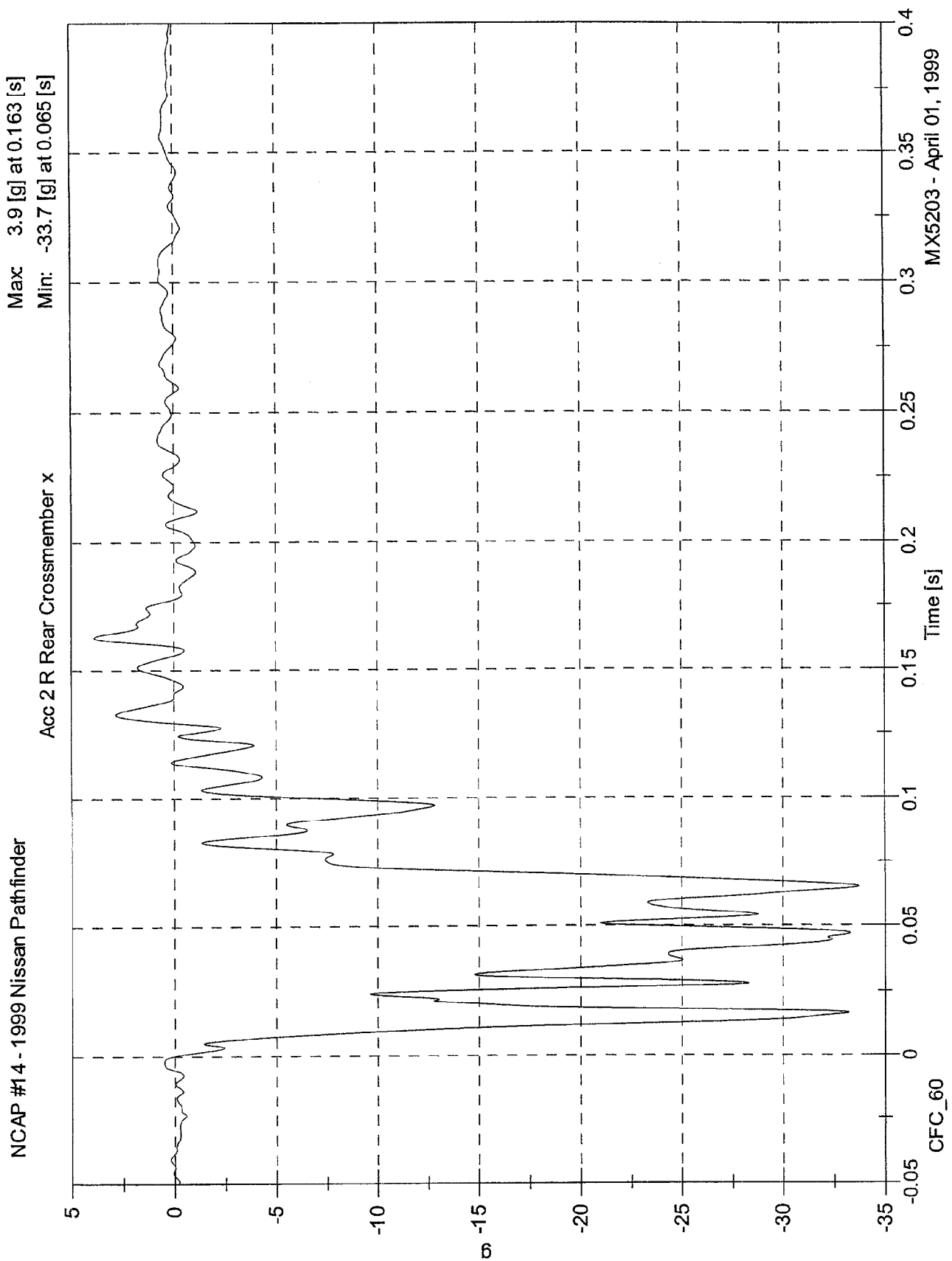
Max: 584.4 [mm] at 0.064 [s]

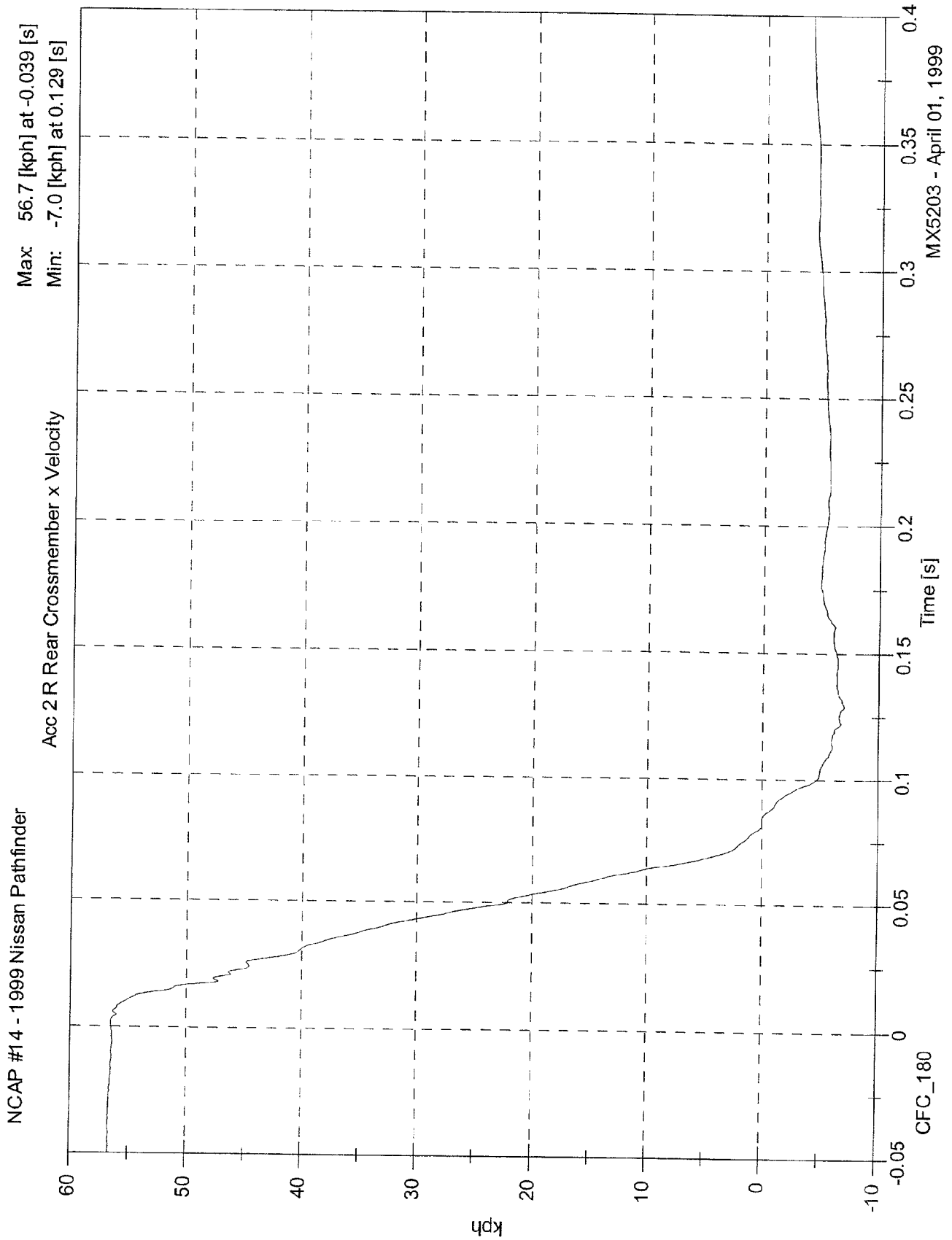
Min: -1648.3 [mm] at 0.500 [s]

Acc 1 L Rear Crossmember x Displacement



MX5203 - April 01, 1999

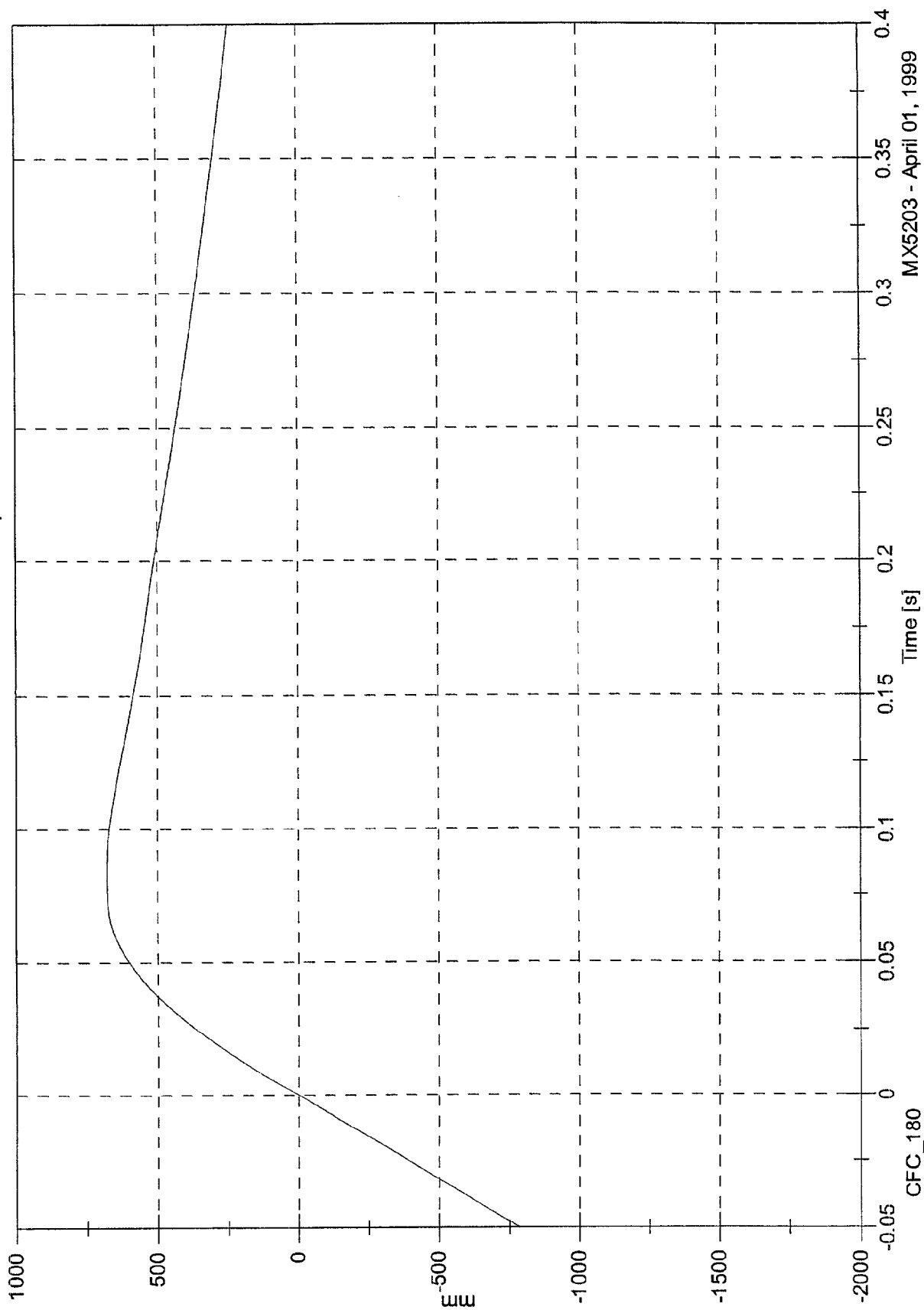




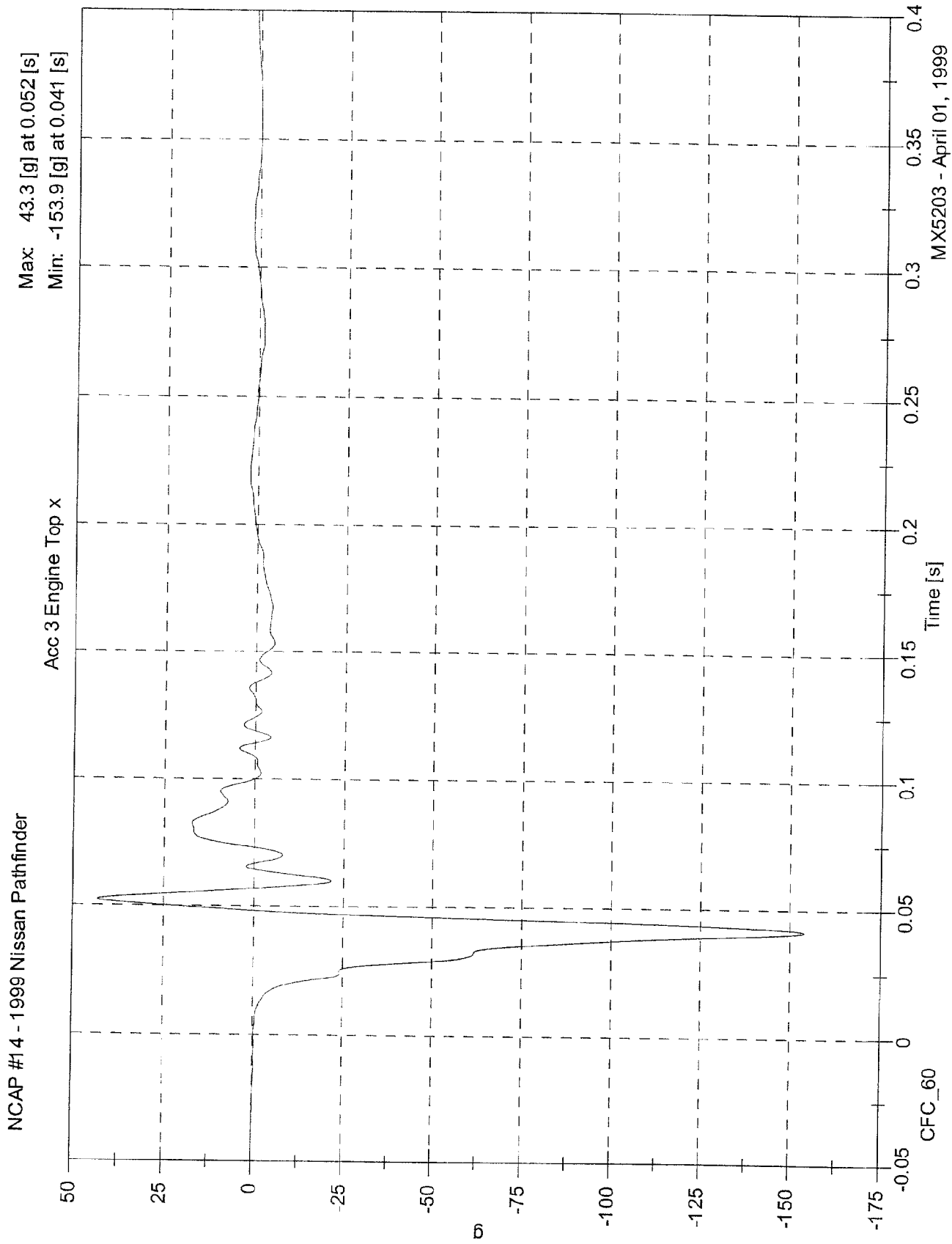
NCAP #14 - 1999 Nissan Pathfinder

Max: 681.0 [mm] at 0.085 [s]
 Min: -1571.9 [mm] at -0.100 [s]

Acc 2 R Rear Crossmember x Displacement



MX5203 - April 01, 1999

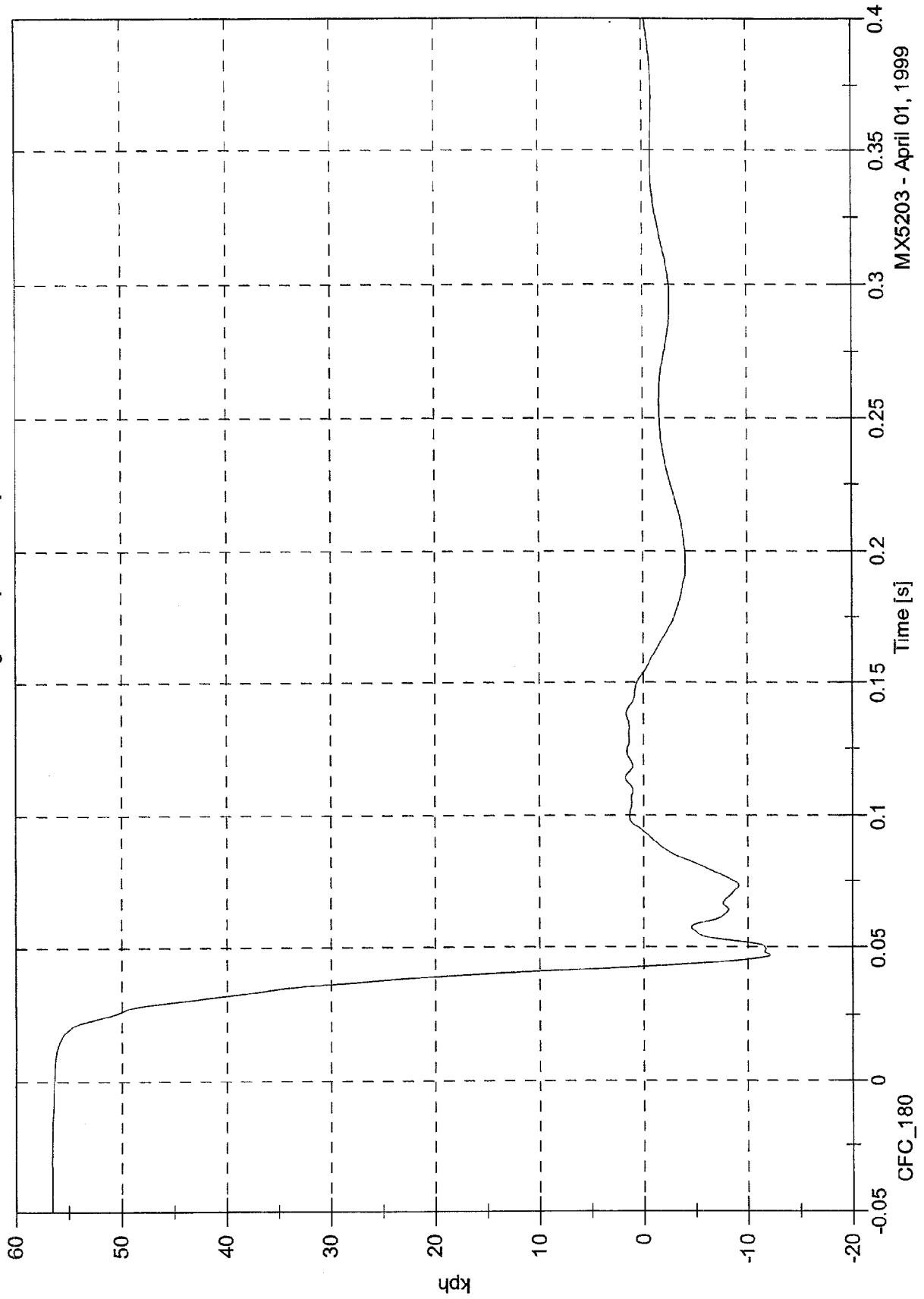


NCAP #14 - 1999 Nissan Pathfinder

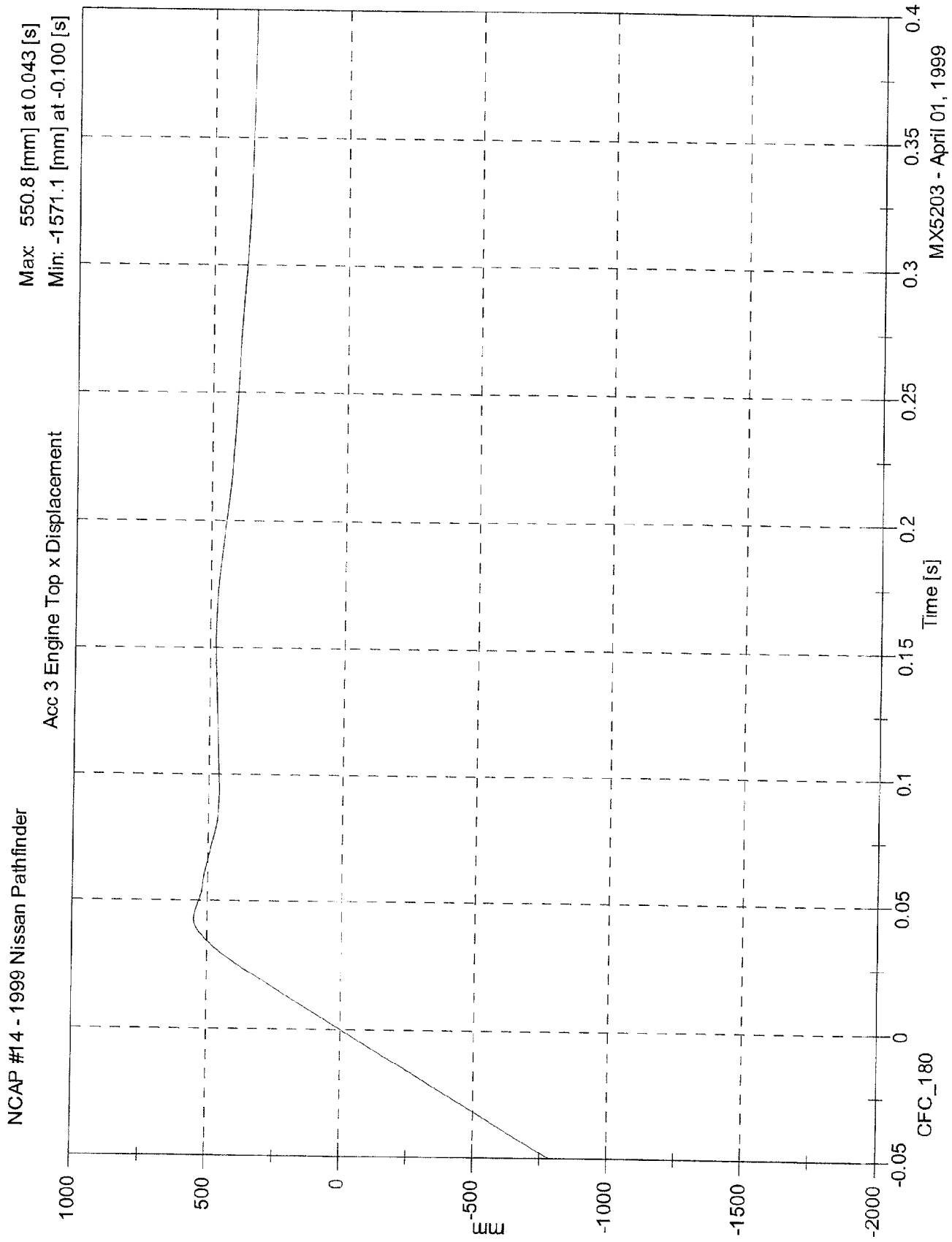
Acc 3 Engine Top x Velocity

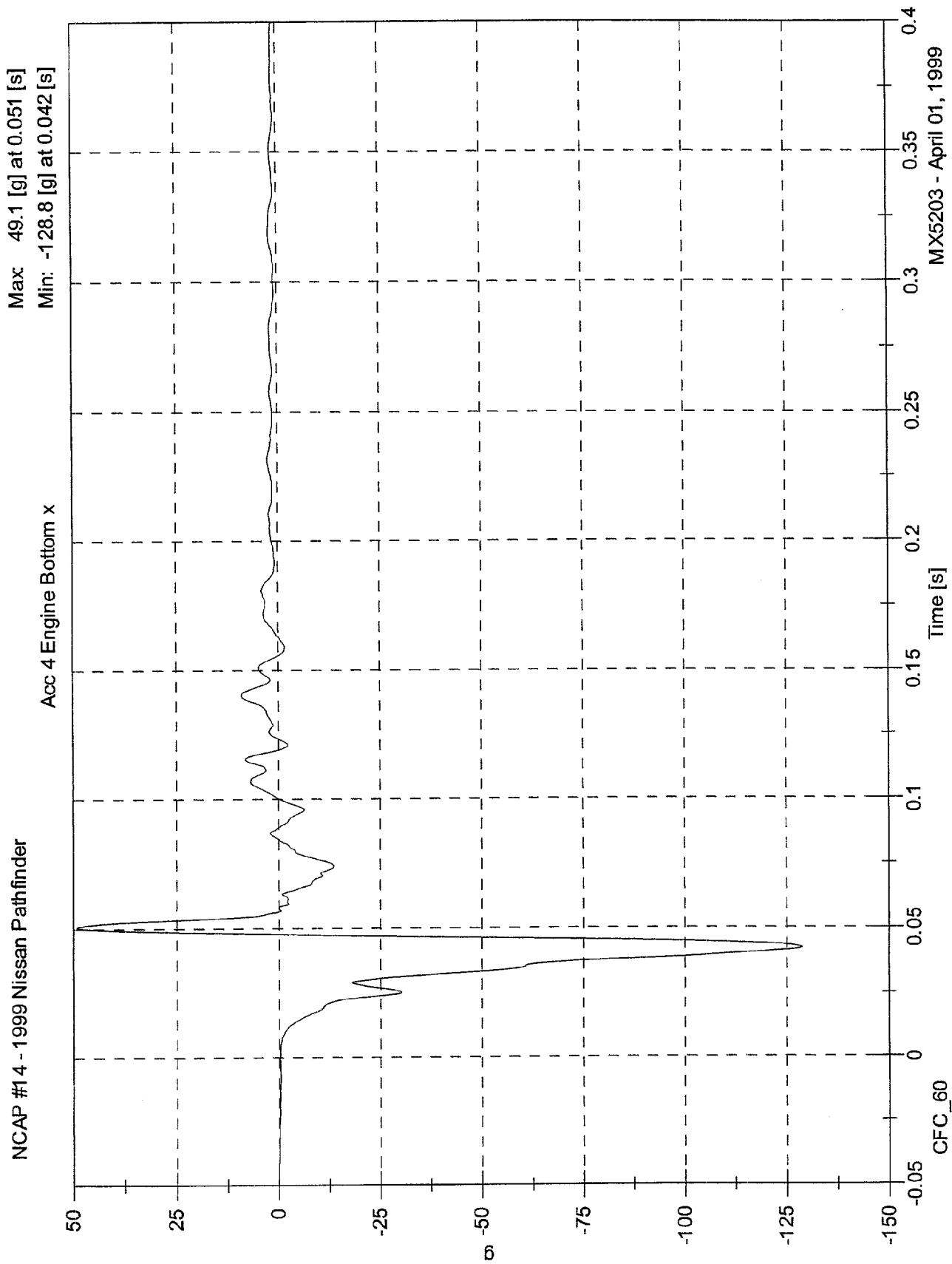
Max: 56.6 [kph] at -0.031 [s]

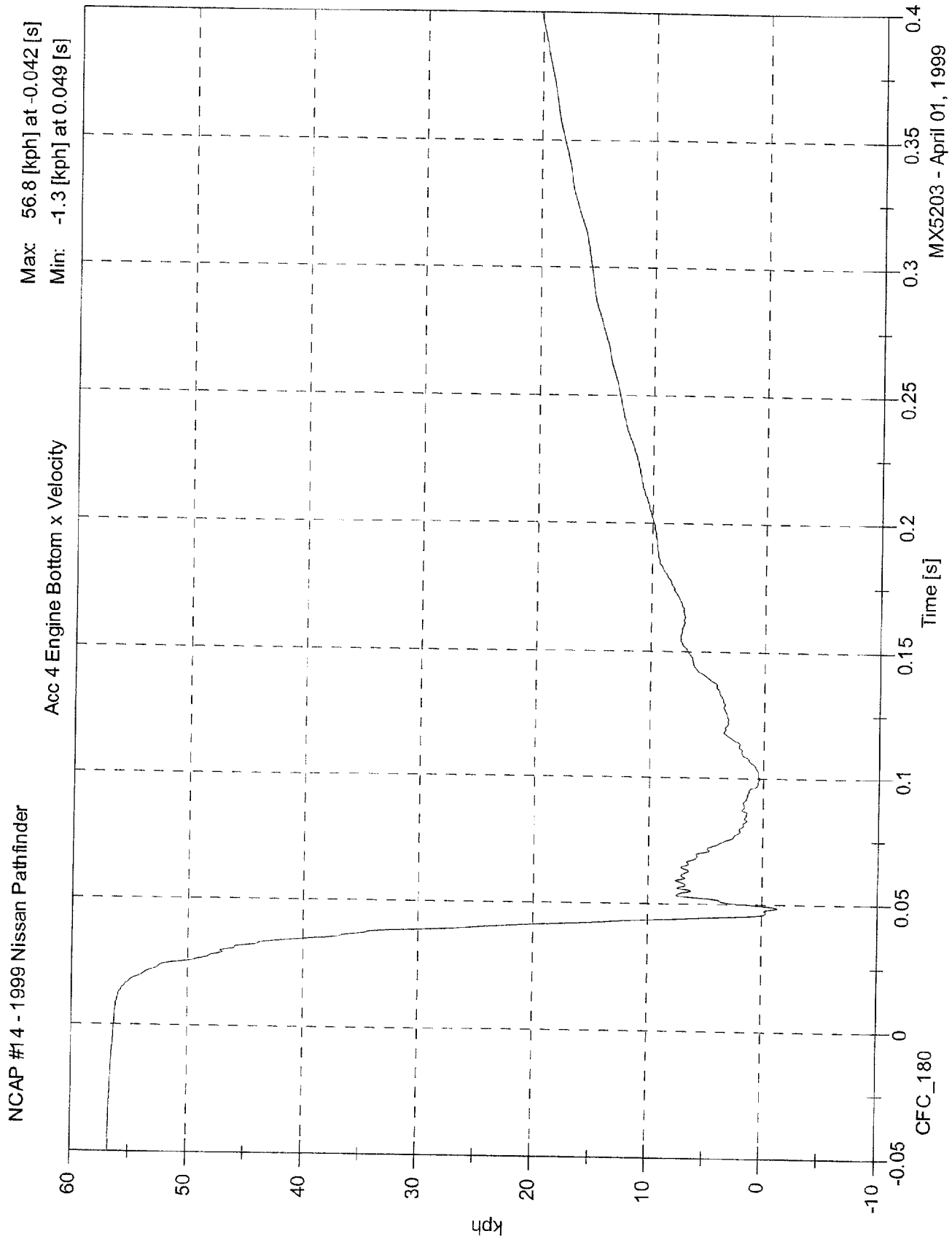
Min: -12.1 [kph] at 0.047 [s]



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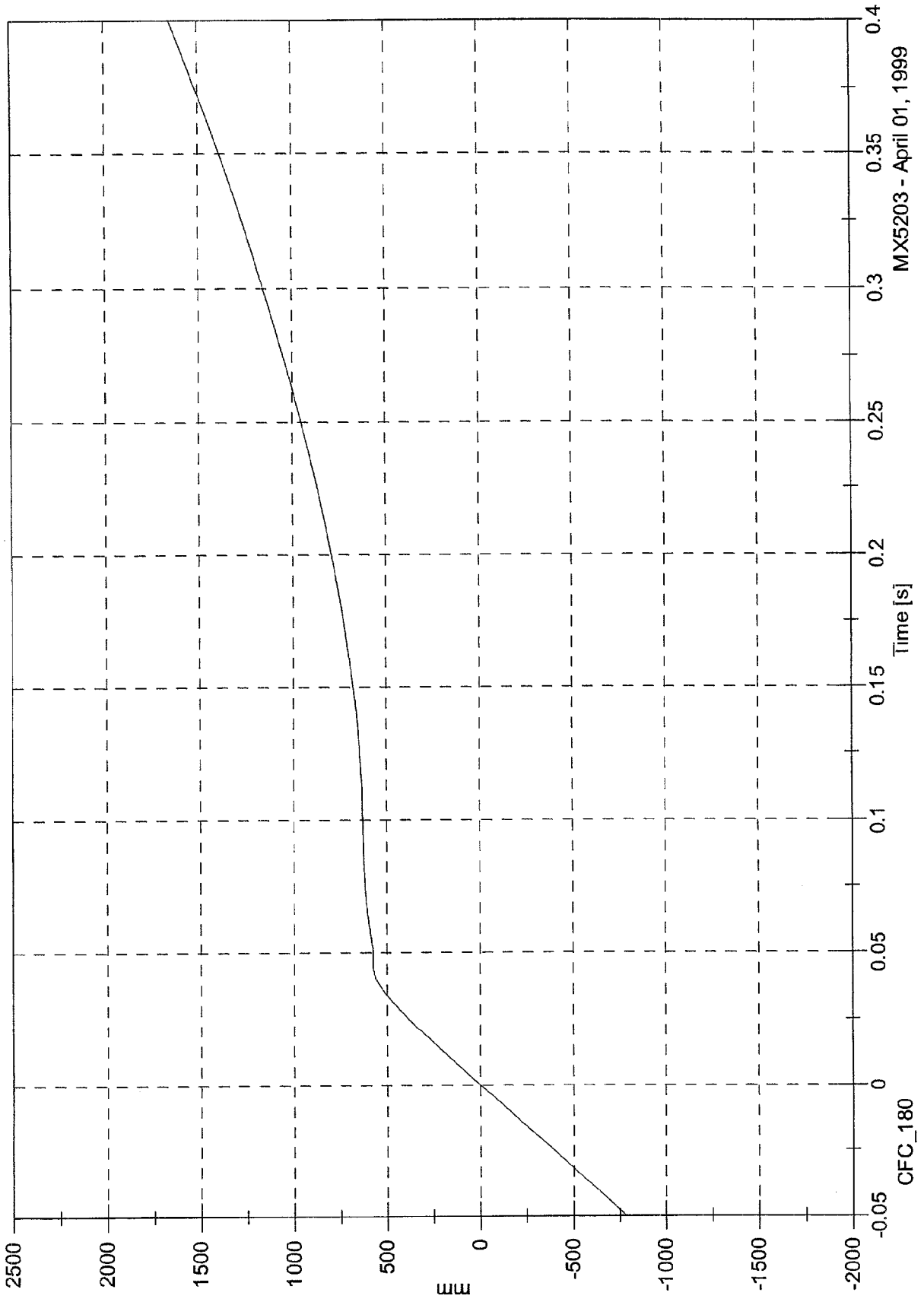


NCAP #14 - 1999 Nissan Pathfinder

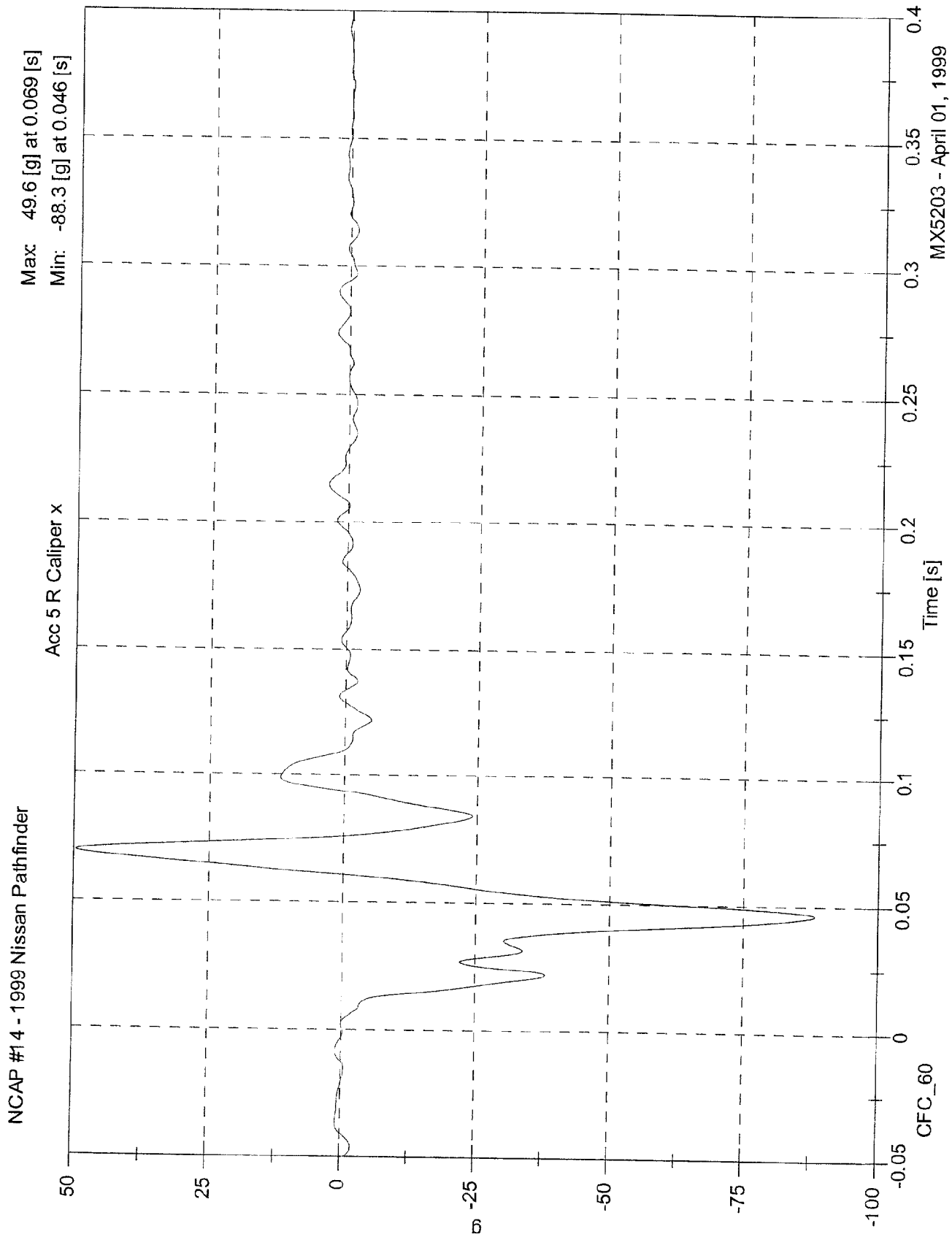
Acc 4 Engine Bottom x Displacement

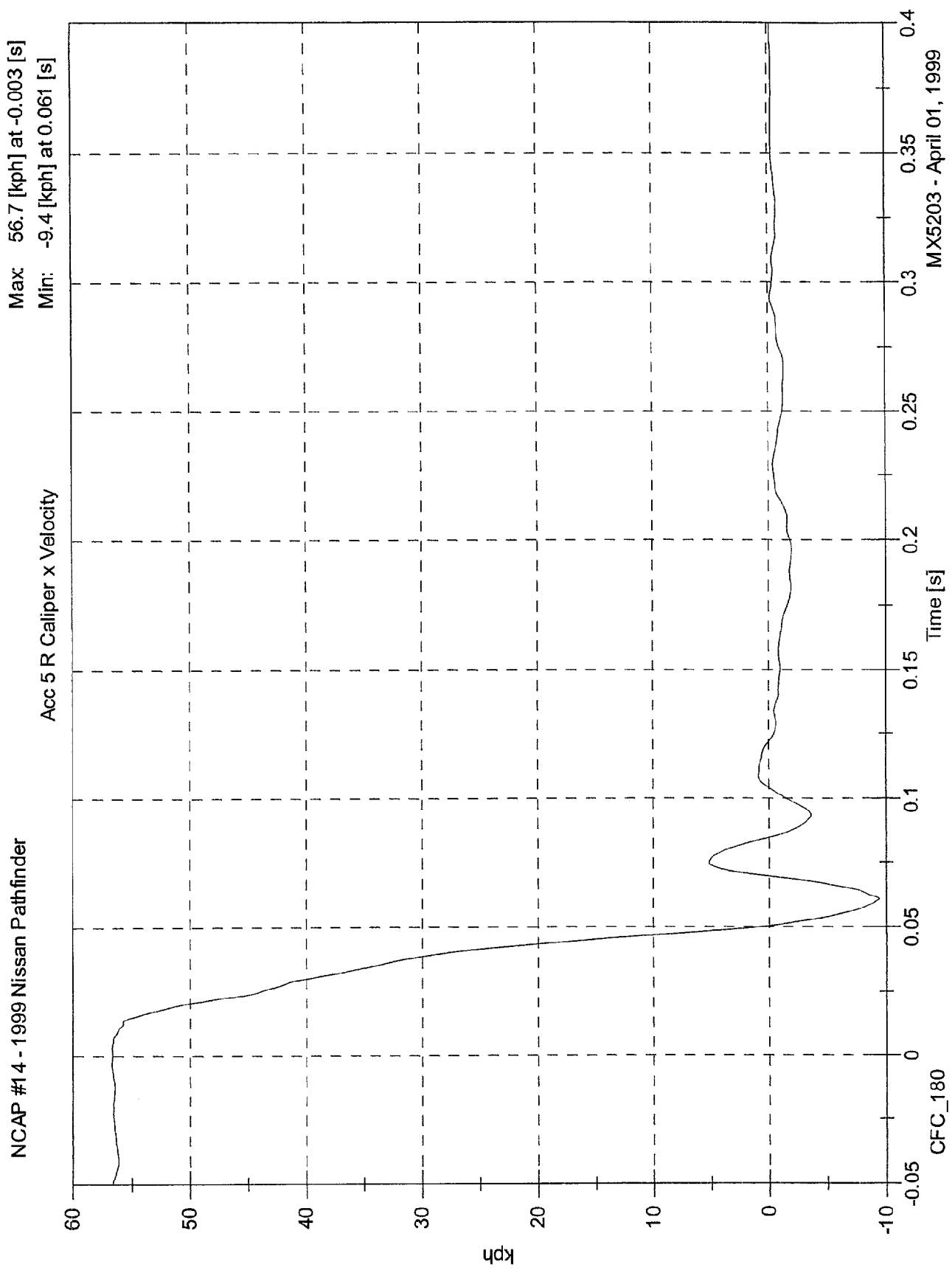
Max: 2268.9 [mm] at 0.500 [s]

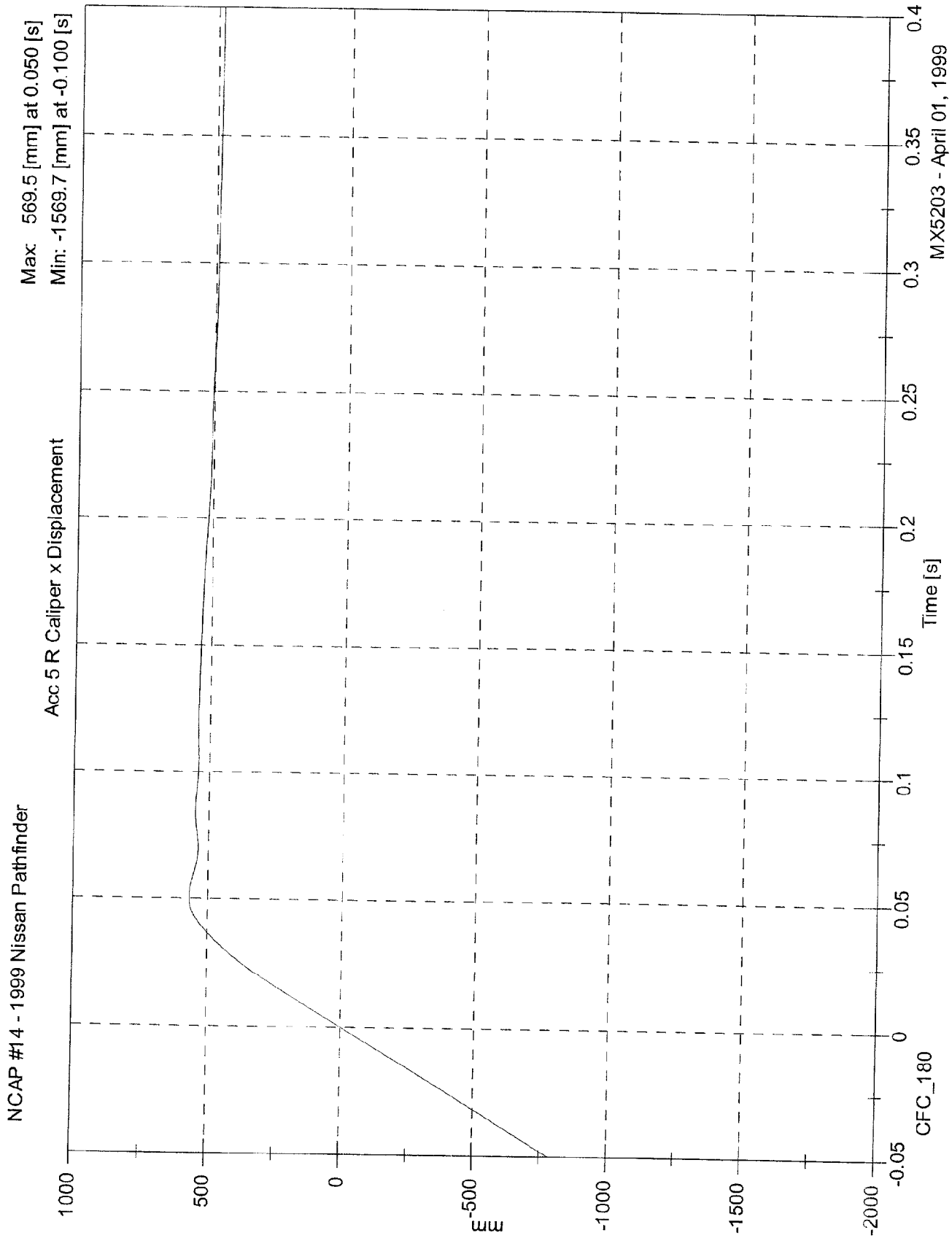
Min: -1572.4 [mm] at -0.100 [s]



MX5203 - April 01, 1999





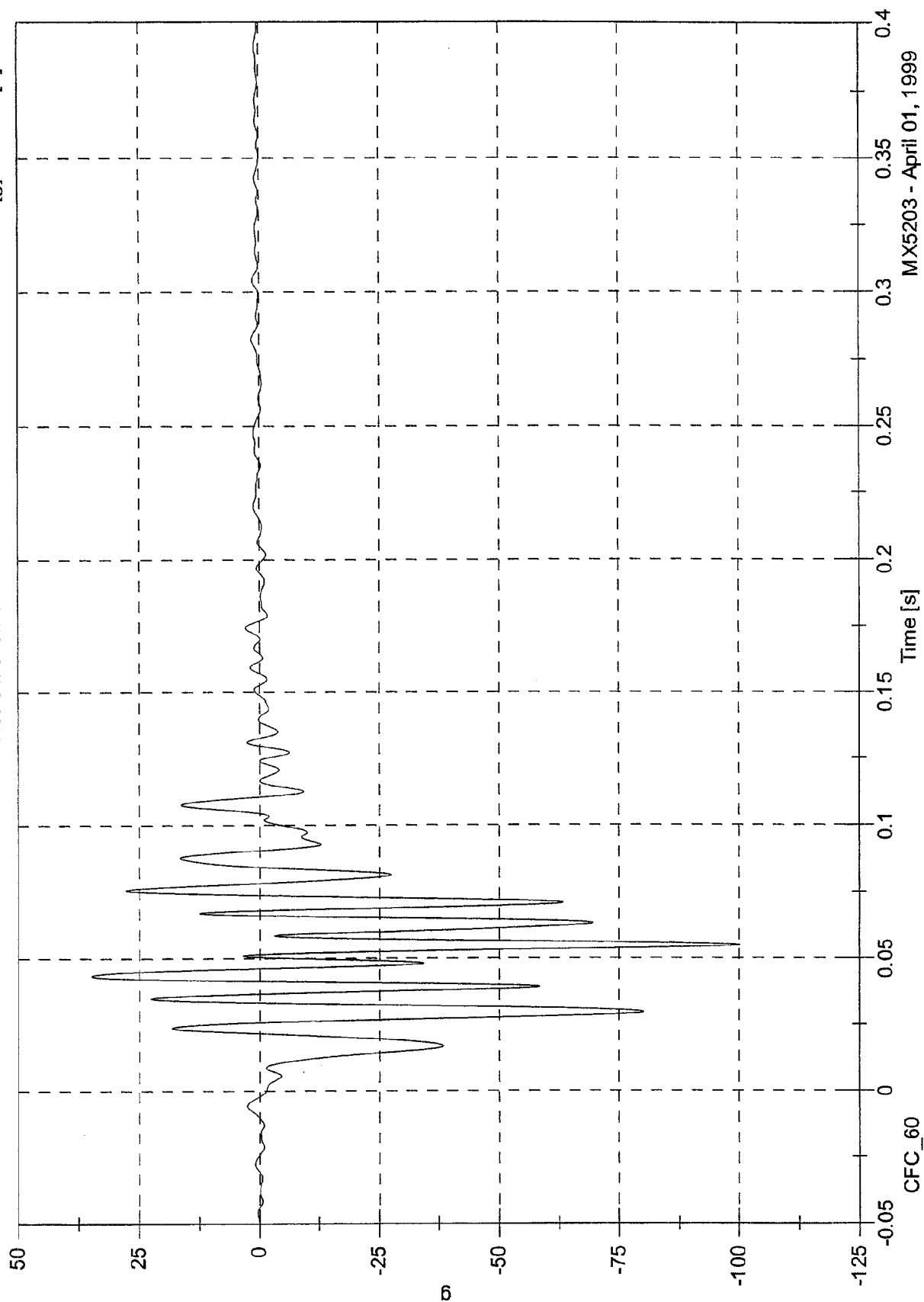


NCAP #14 - 1999 Nissan Pathfinder

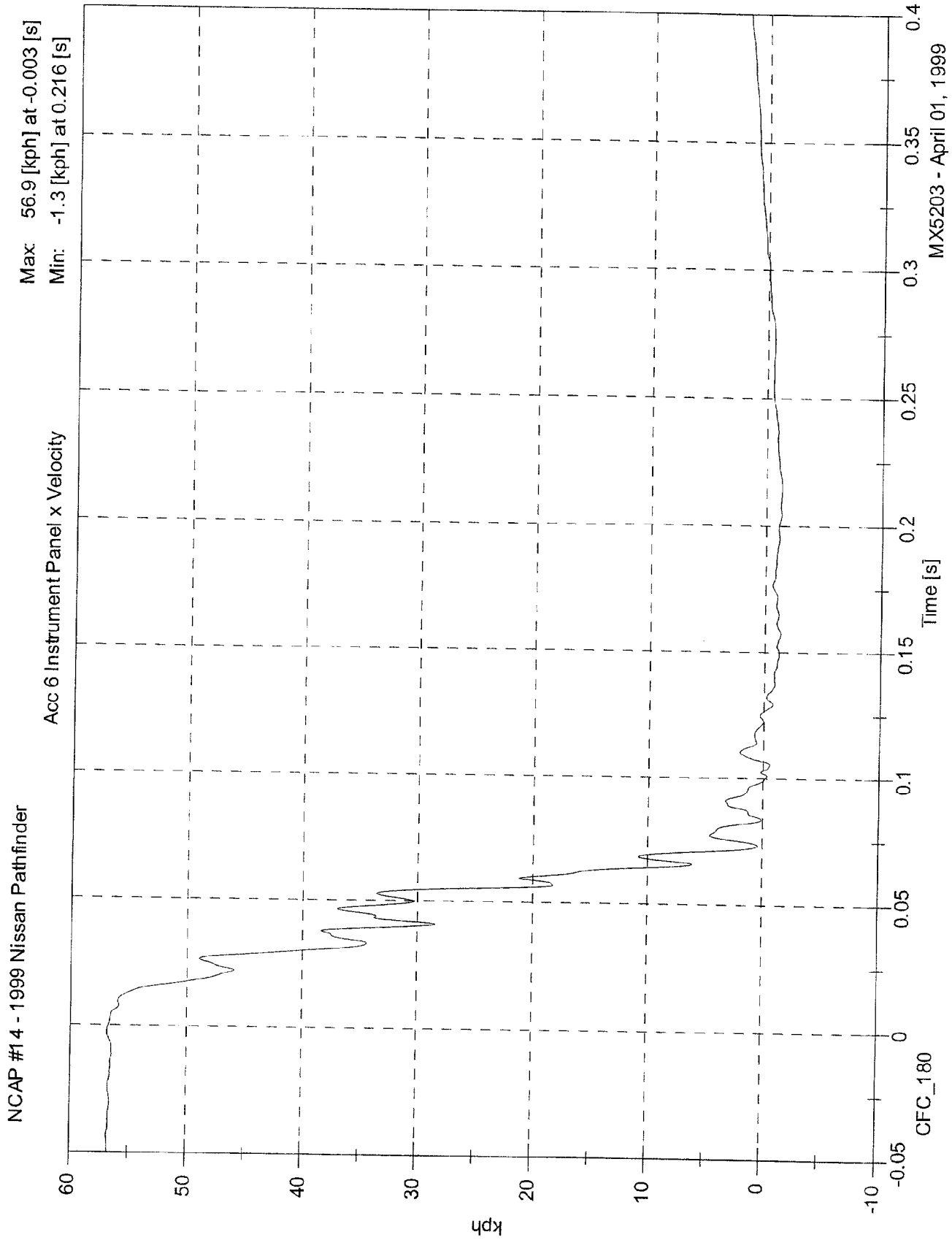
Acc 6 Instrument Panel x

Max: 34.8 [g] at 0.043 [s]

Min: -100.2 [g] at 0.055 [s]



MX5203 - April 01, 1999

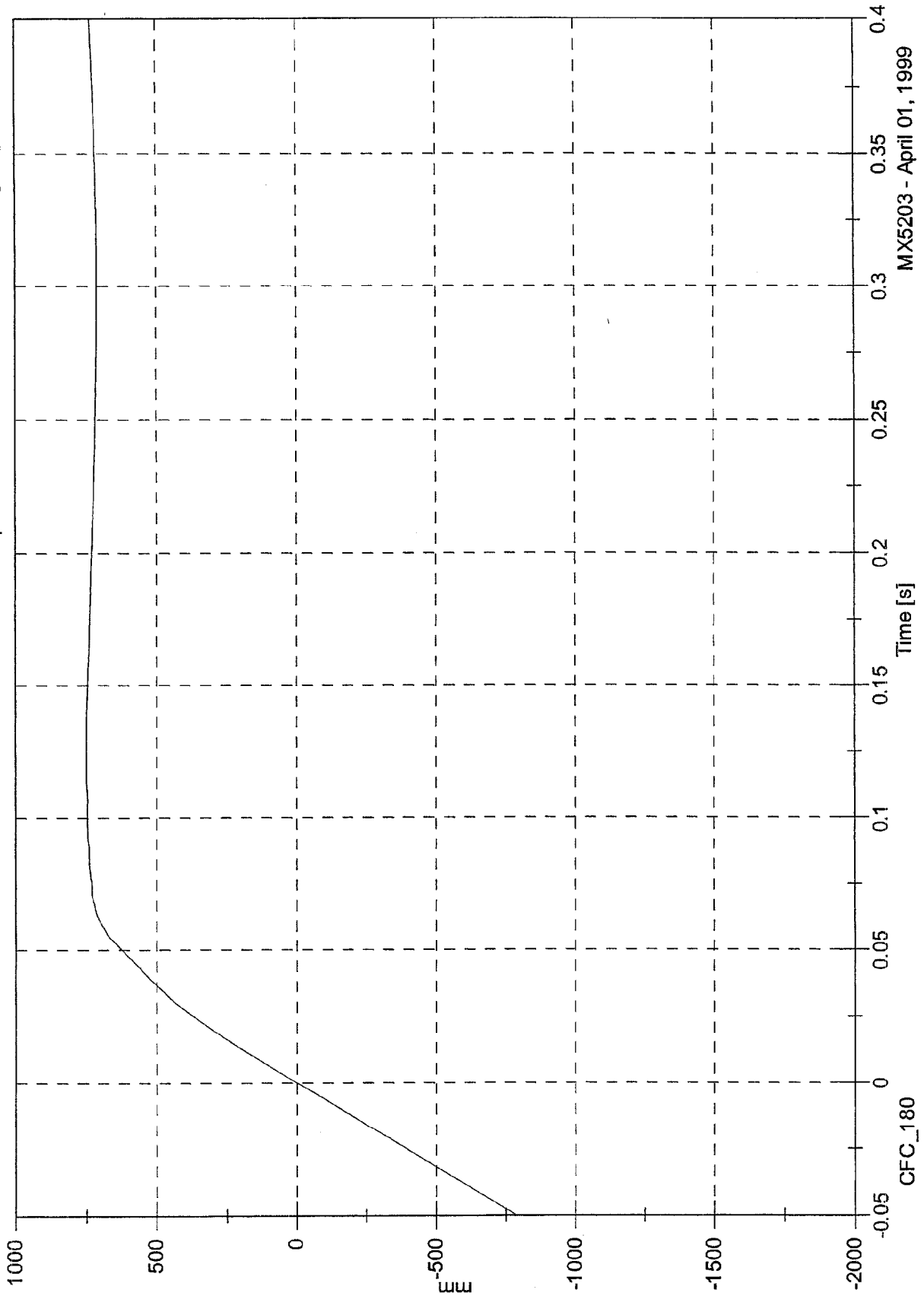


NCAP #14 - 1999 Nissan Pathfinder

Max: 813.6 [mm] at 0.500 [s]

Min: -1573.7 [mm] at -0.100 [s]

Acc 6 Instrument Panel x Displacement

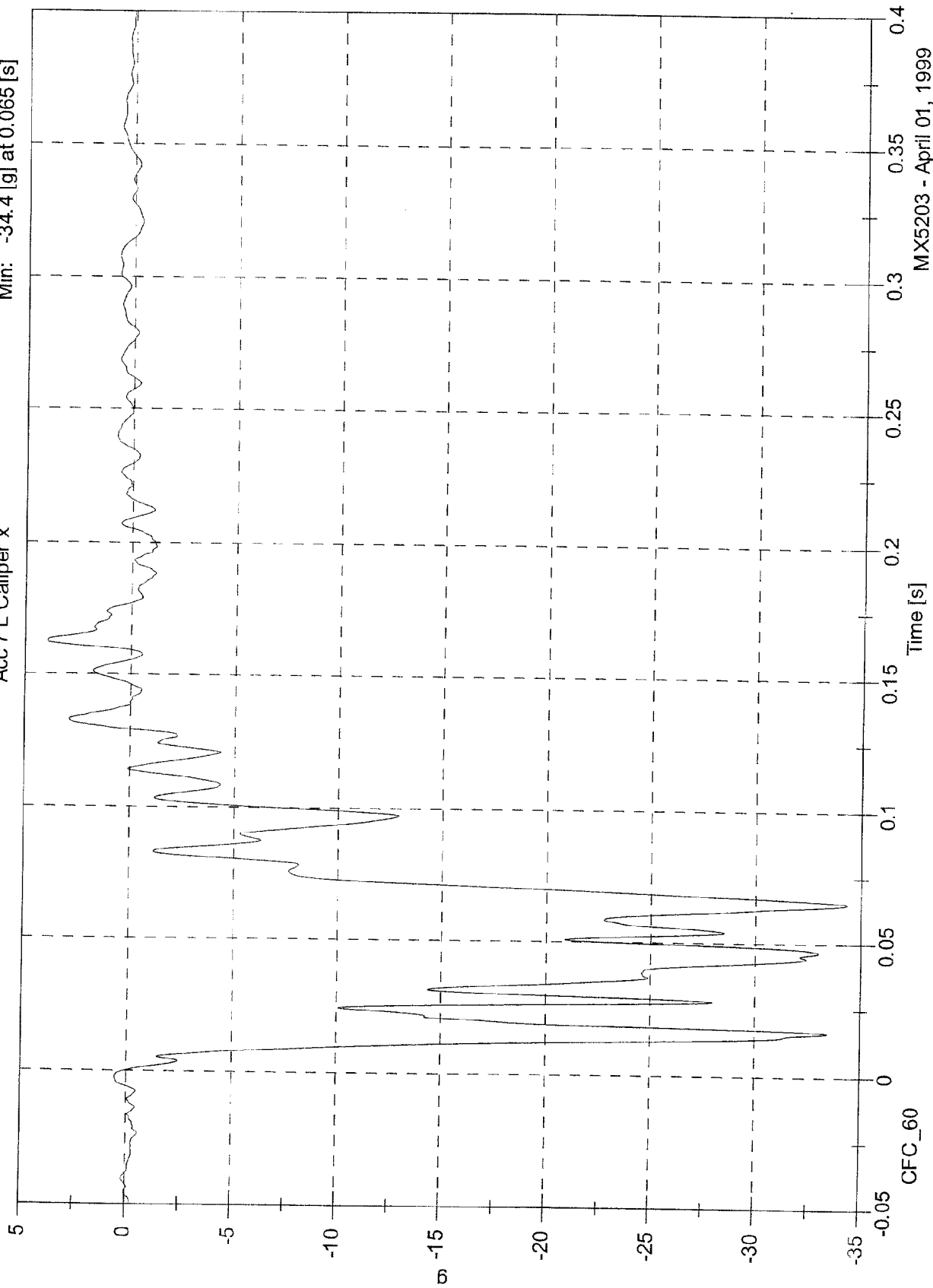


MX5203 - April 01, 1999

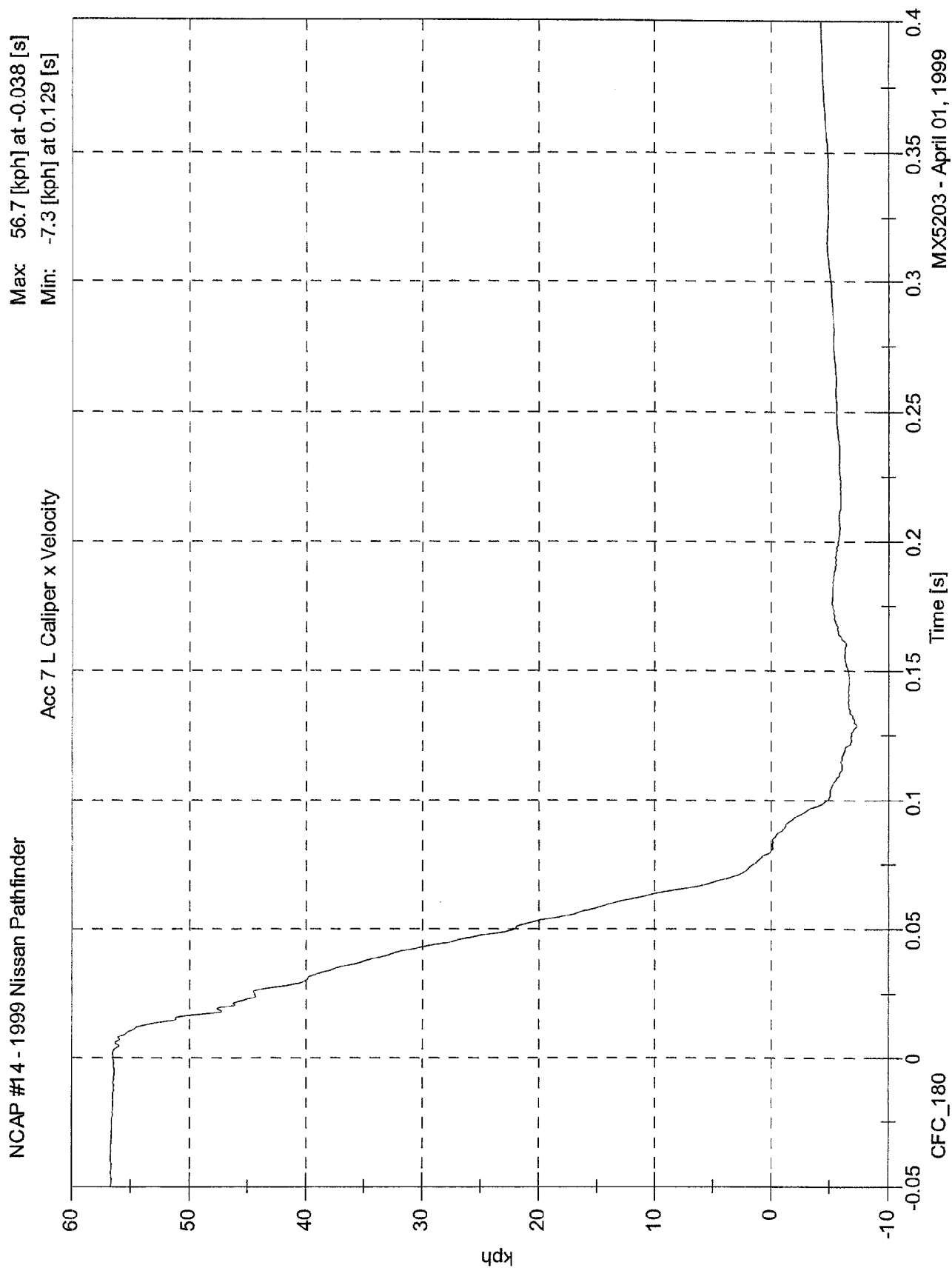
NCAP #14 - 1999 Nissan Pathfinder

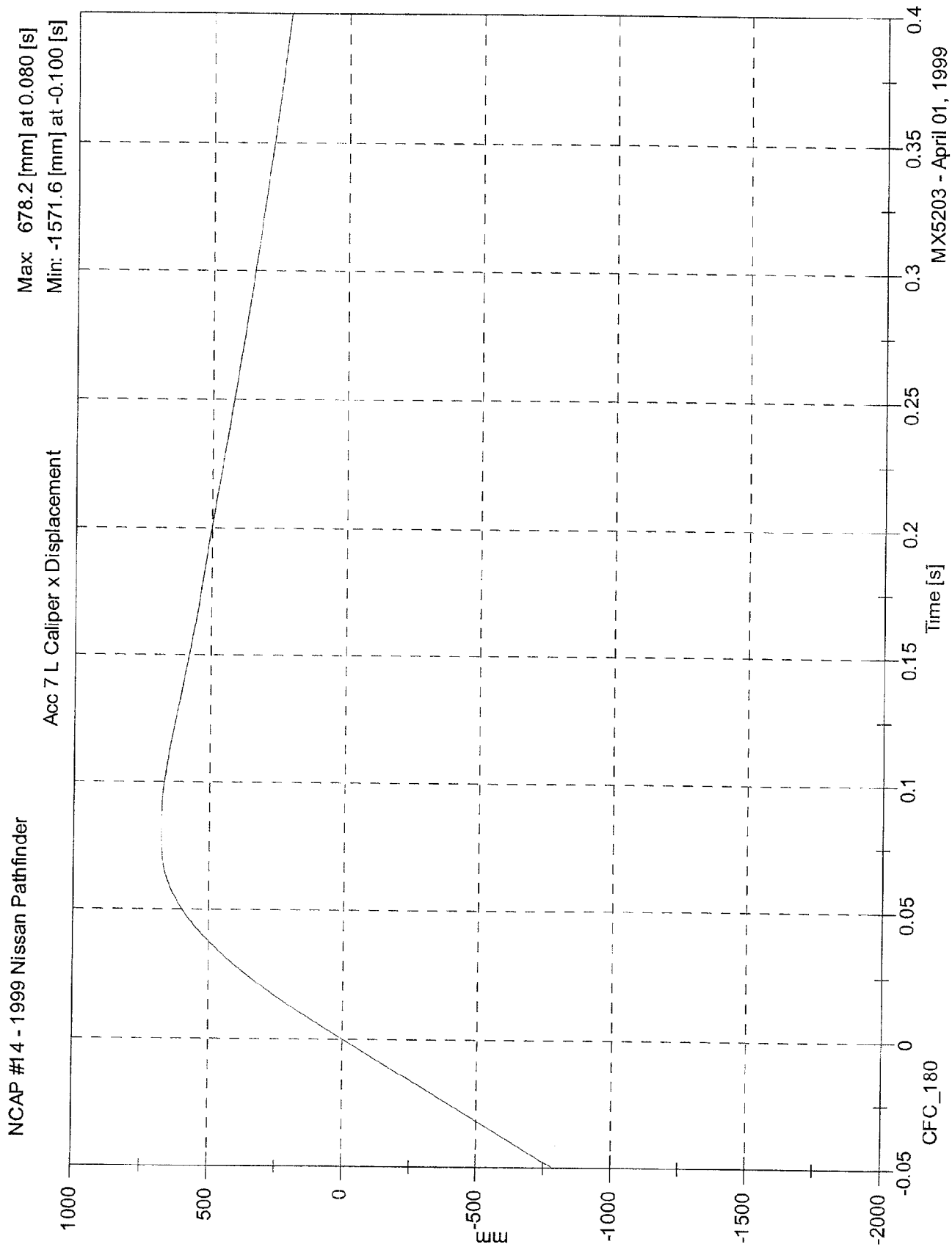
Max: 4.0 [g] at 0.163 [s]
Min: -34.4 [g] at 0.065 [s]

Acc 7 L Caliper x



MX5203 - April 01, 1999

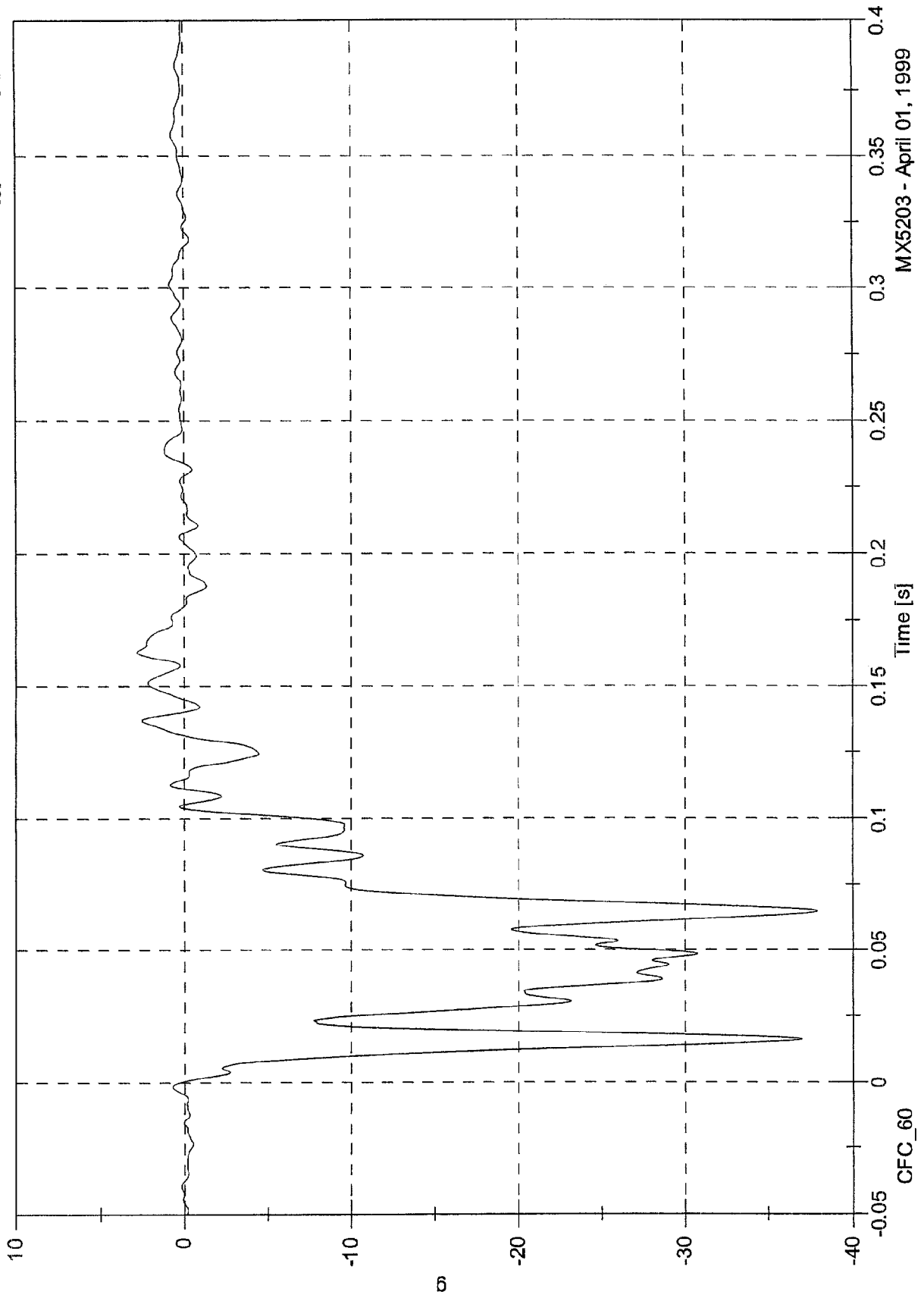




NCAP #14 - 1999 Nissan Pathfinder

Max: 2.8 [g] at 0.163 [s]
Min: -37.9 [g] at 0.065 [s]

Acc 8 Redundant LR Xmember x

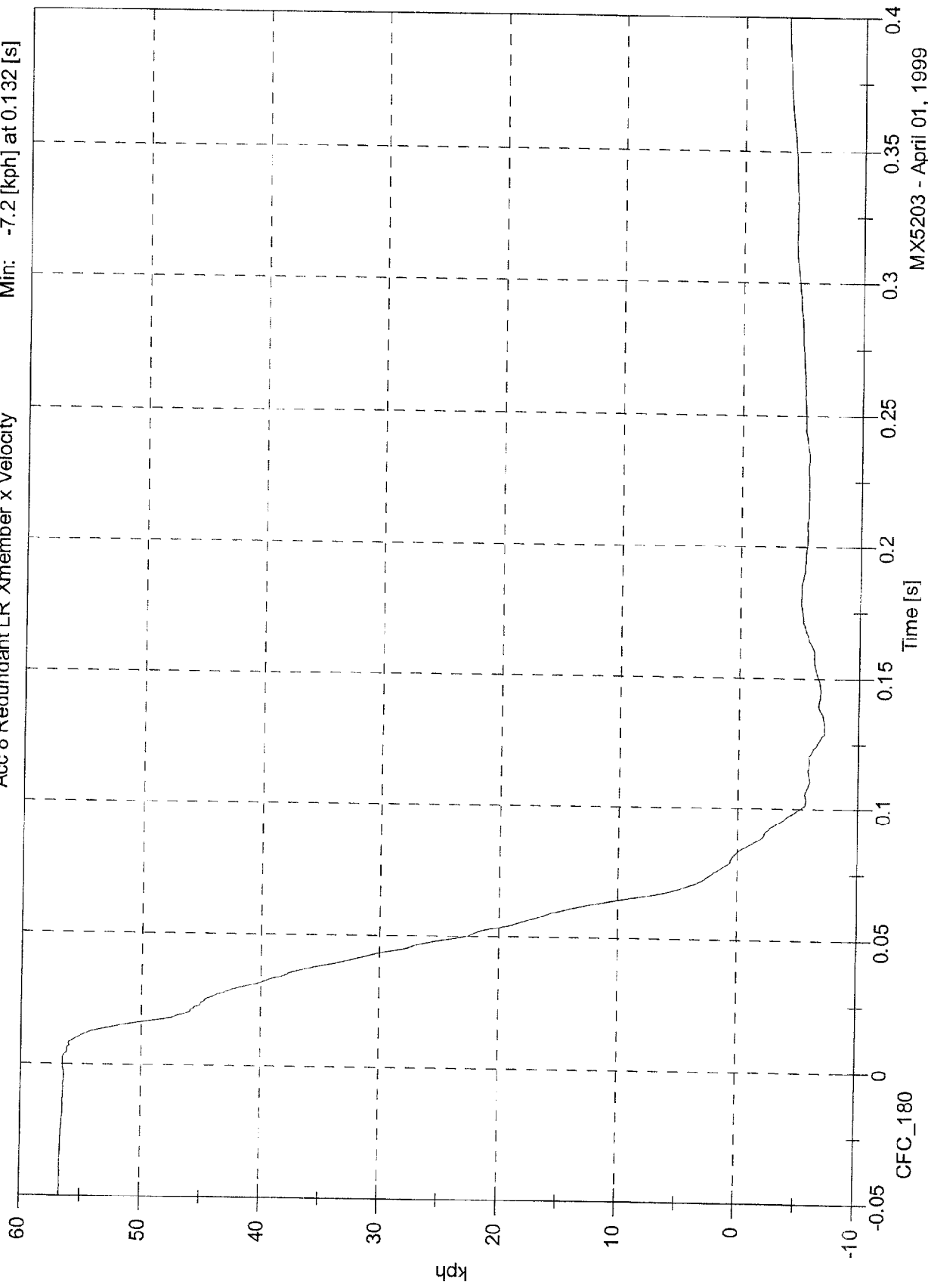


MX5203 - April 01, 1999

NCAP #14 - 1999 Nissan Pathfinder

Max: 56.7 [kph] at -0.050 [s]
 Min: -7.2 [kph] at 0.132 [s]

Acc 8 Redundant LR Xmember x Velocity

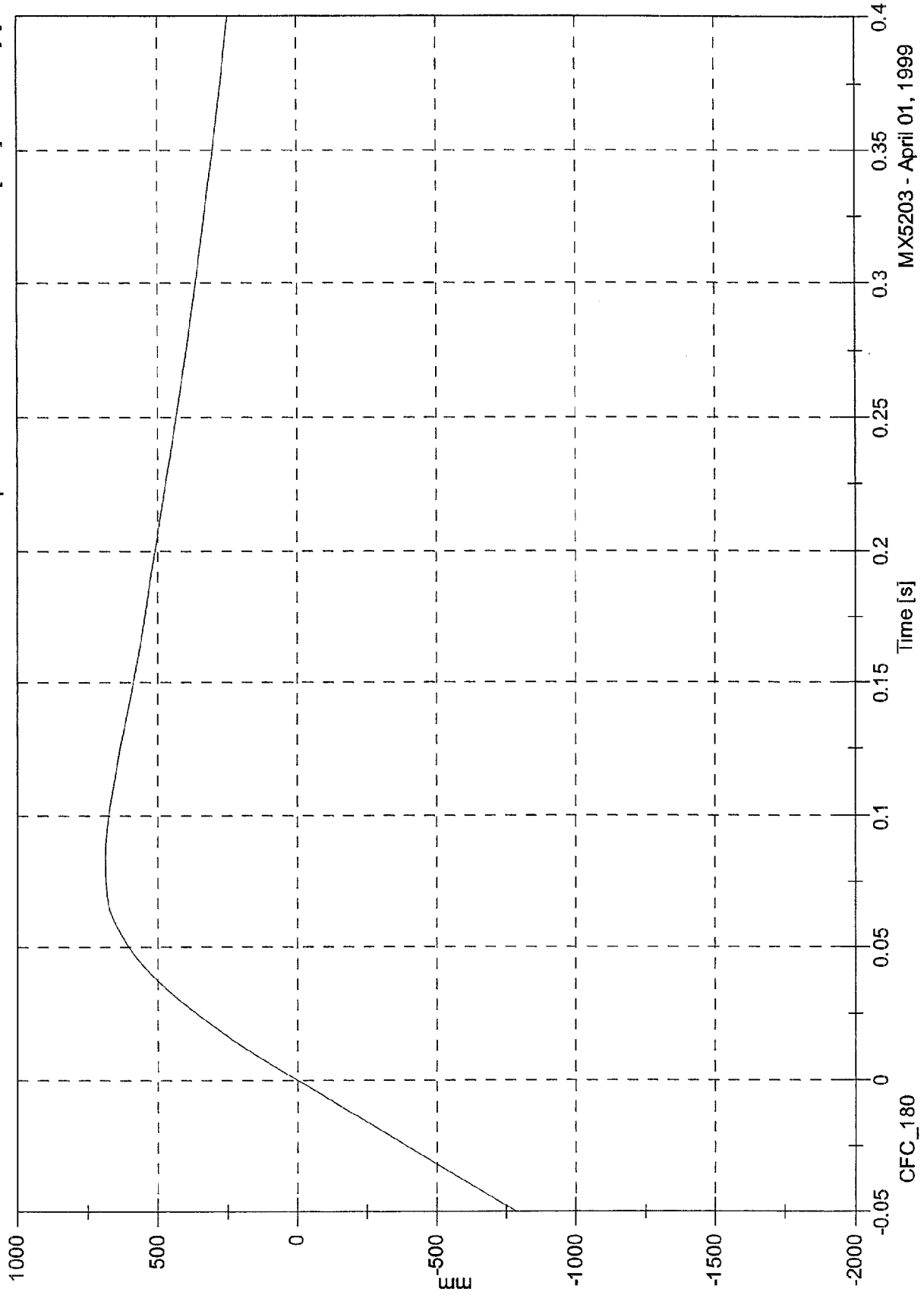


MX5203 - April 01, 1999

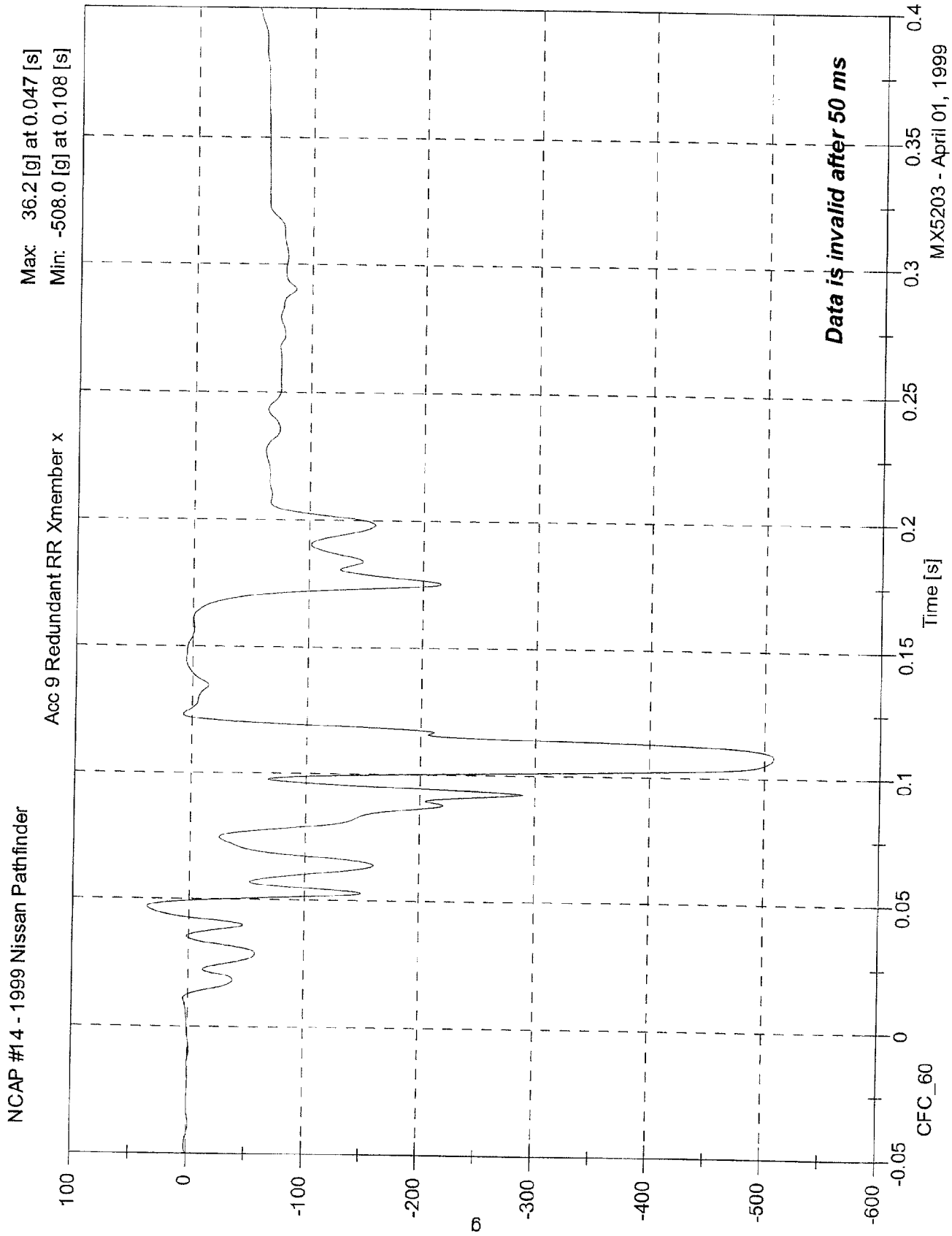
NCAP #14 - 1999 Nissan Pathfinder

Max: 688.5 [mm] at 0.083 [s]
 Min: -1572.0 [mm] at -0.100 [s]

Acc 8 Redundant LR Xmember x Displacement



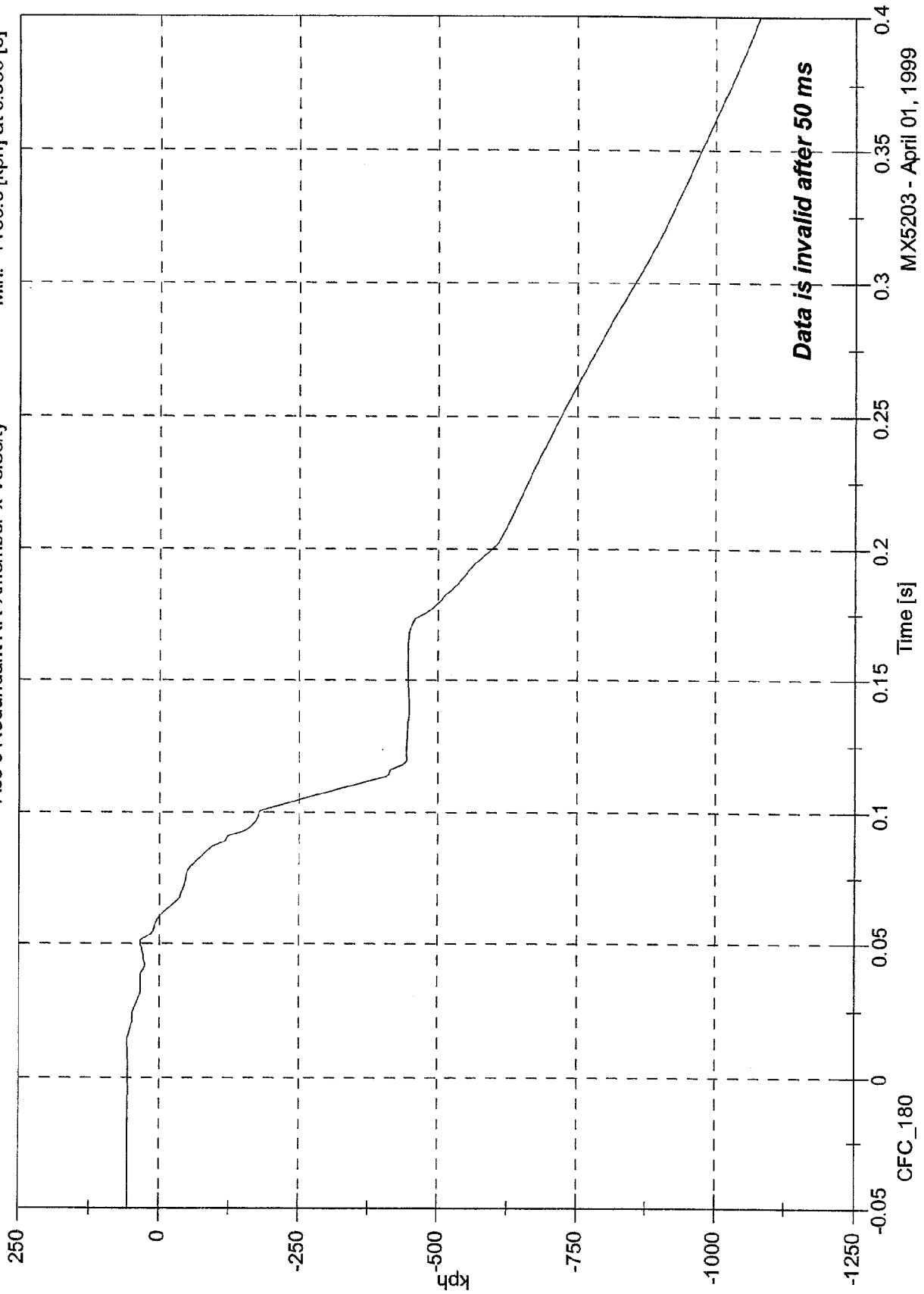
MX5203 - April 01, 1999



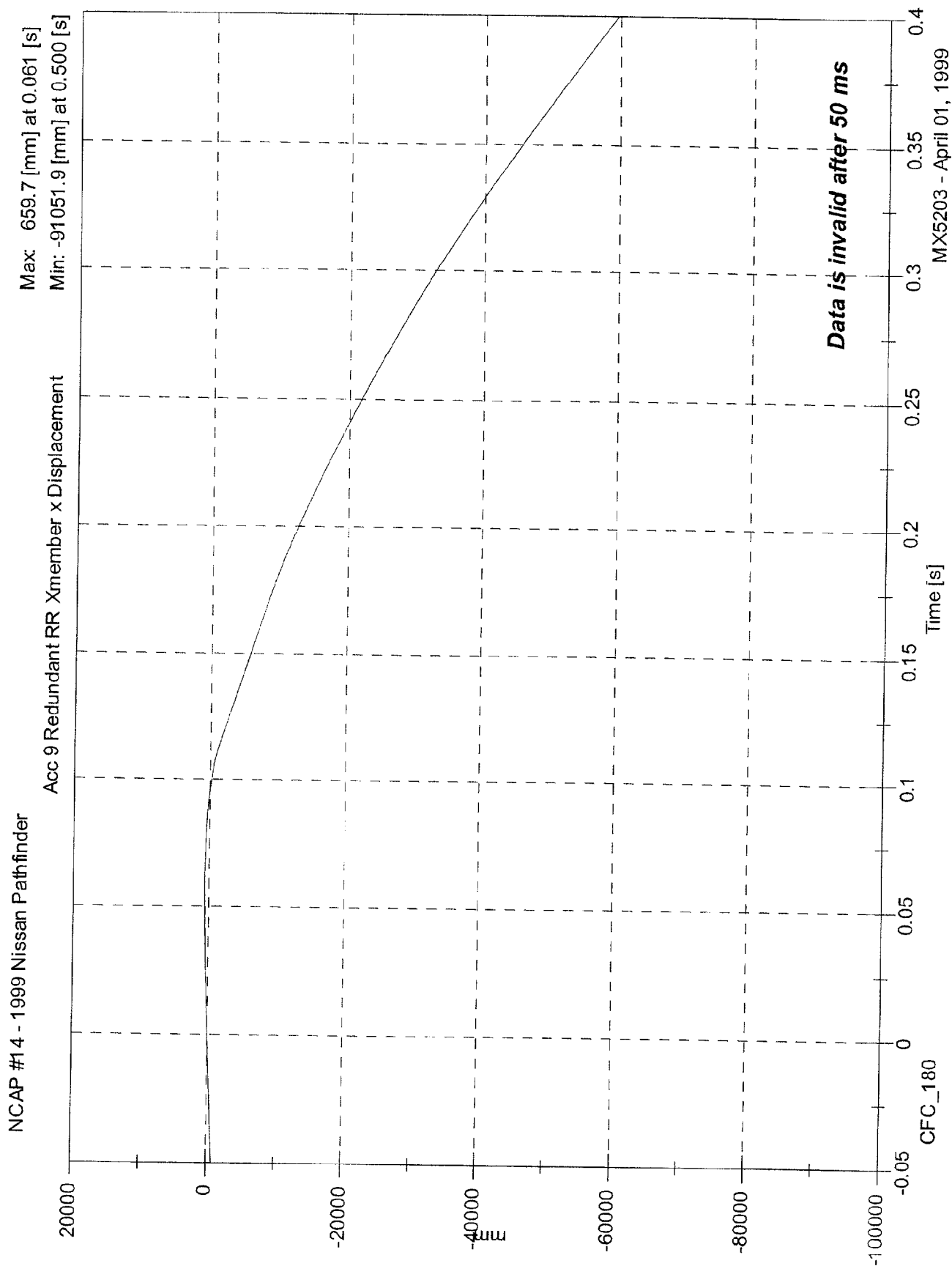
NCAP #14 - 1999 Nissan Pathfinder

Max: 57.5 [kph] at 0.013 [s]
Min: -1180.5 [kph] at 0.500 [s]

Acc 9 Redundant RR Xmember x Velocity



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NHTSA TEST NO. MX5203

LOAD CELL BARRIER DATA

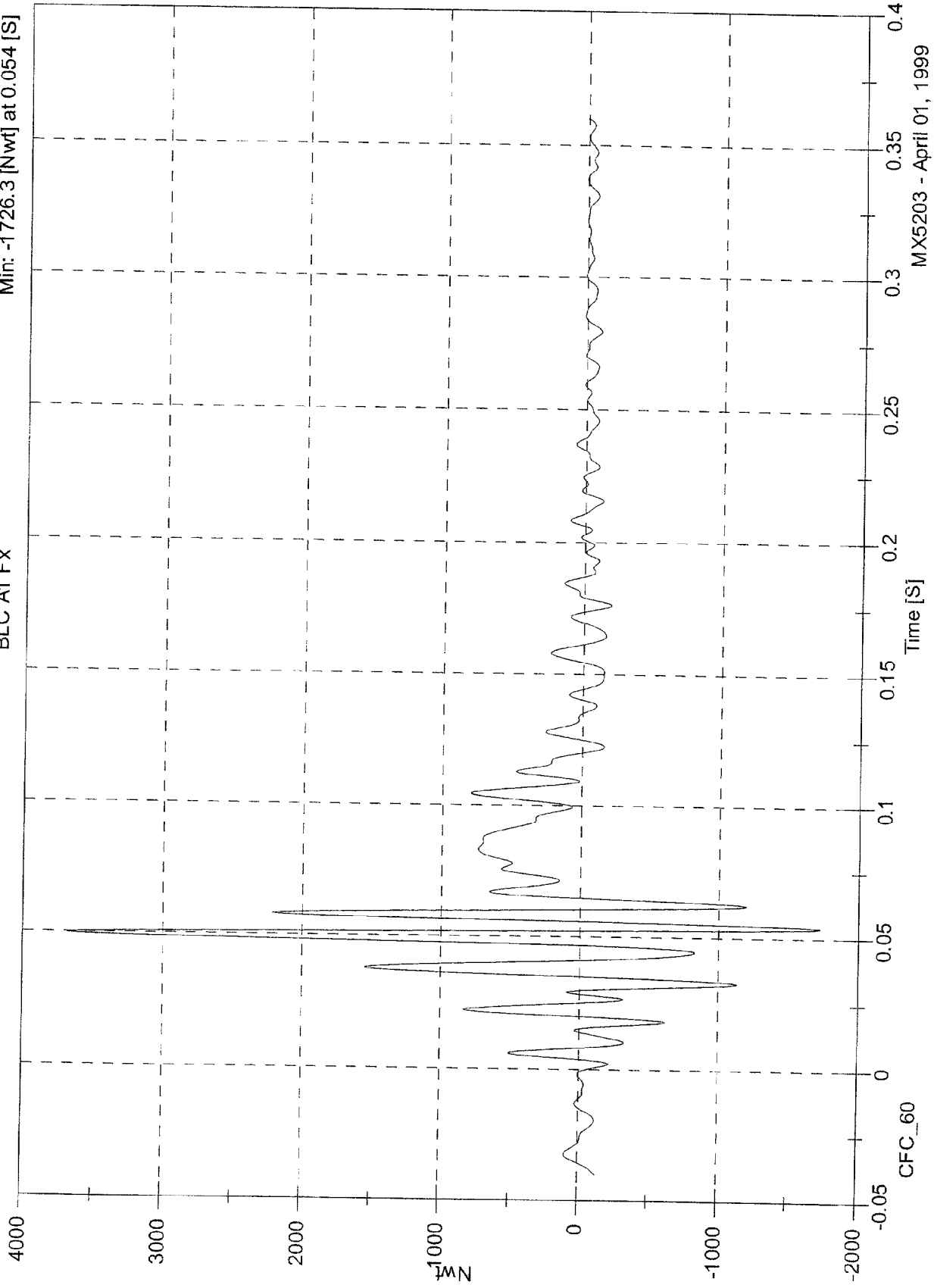
FILTER CHANNEL CLASS

60

NCAP TEST #14- 1999 Nissan Pathfinder

Max: 3683.3 [Nwt] at 0.050 [S]
 Min: -1726.3 [Nwt] at 0.054 [S]

BLC A1 Fx

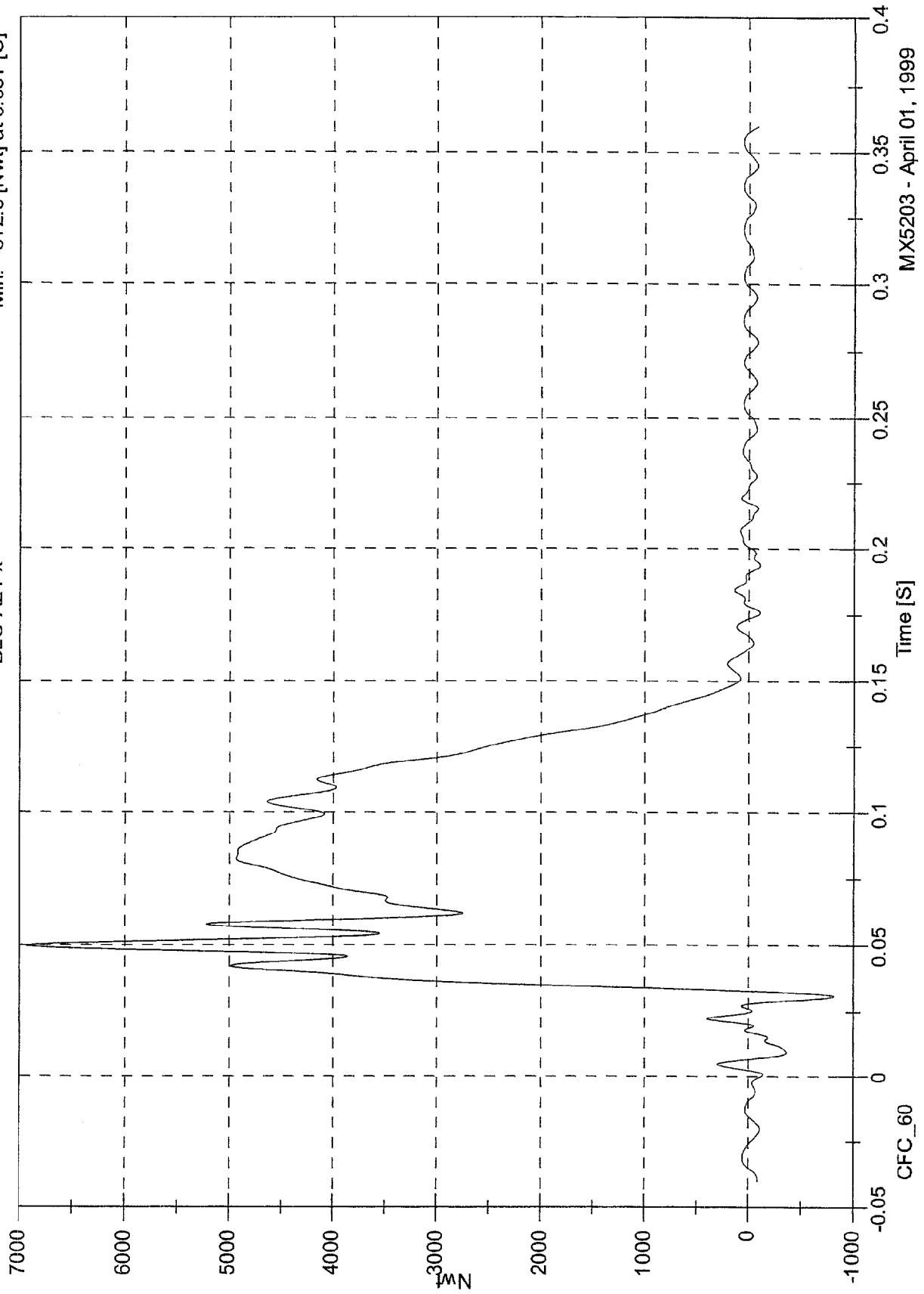


MX5203 - April 01, 1999

NCAP TEST #14- 1999 Nissan Pathfinder

Max: 6942.6 [Nwt] at 0.050 [S]
 Min: -812.5 [Nwt] at 0.031 [S]

BLC A2 Fx

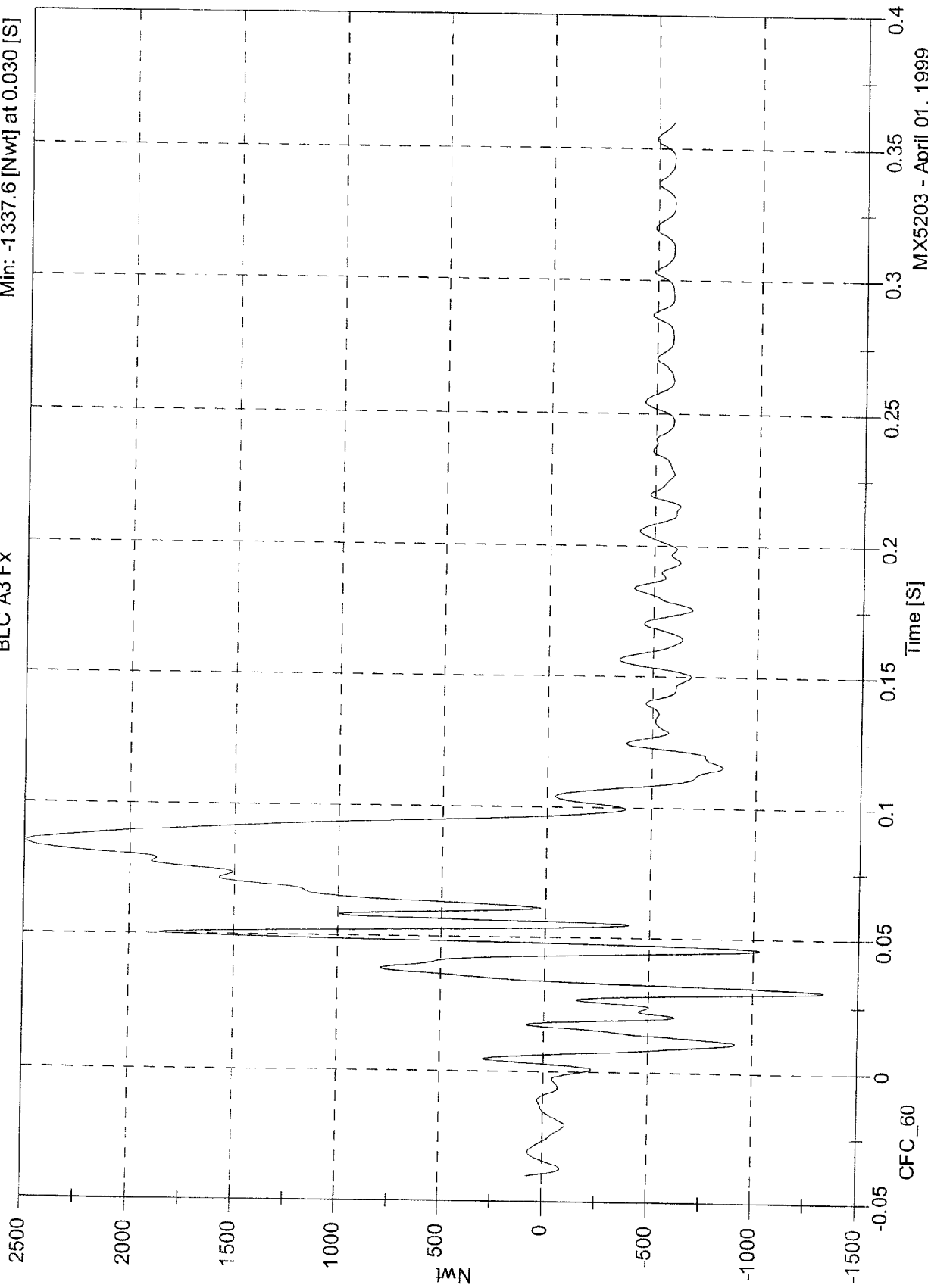


MX5203 - April 01, 1999

NCAP TEST #14- 1999 Nissan Pathfinder

BLC A3 Fx

Max: 2490.9 [Nwt] at 0.085 [S]
Min: -1337.6 [Nwt] at 0.030 [S]

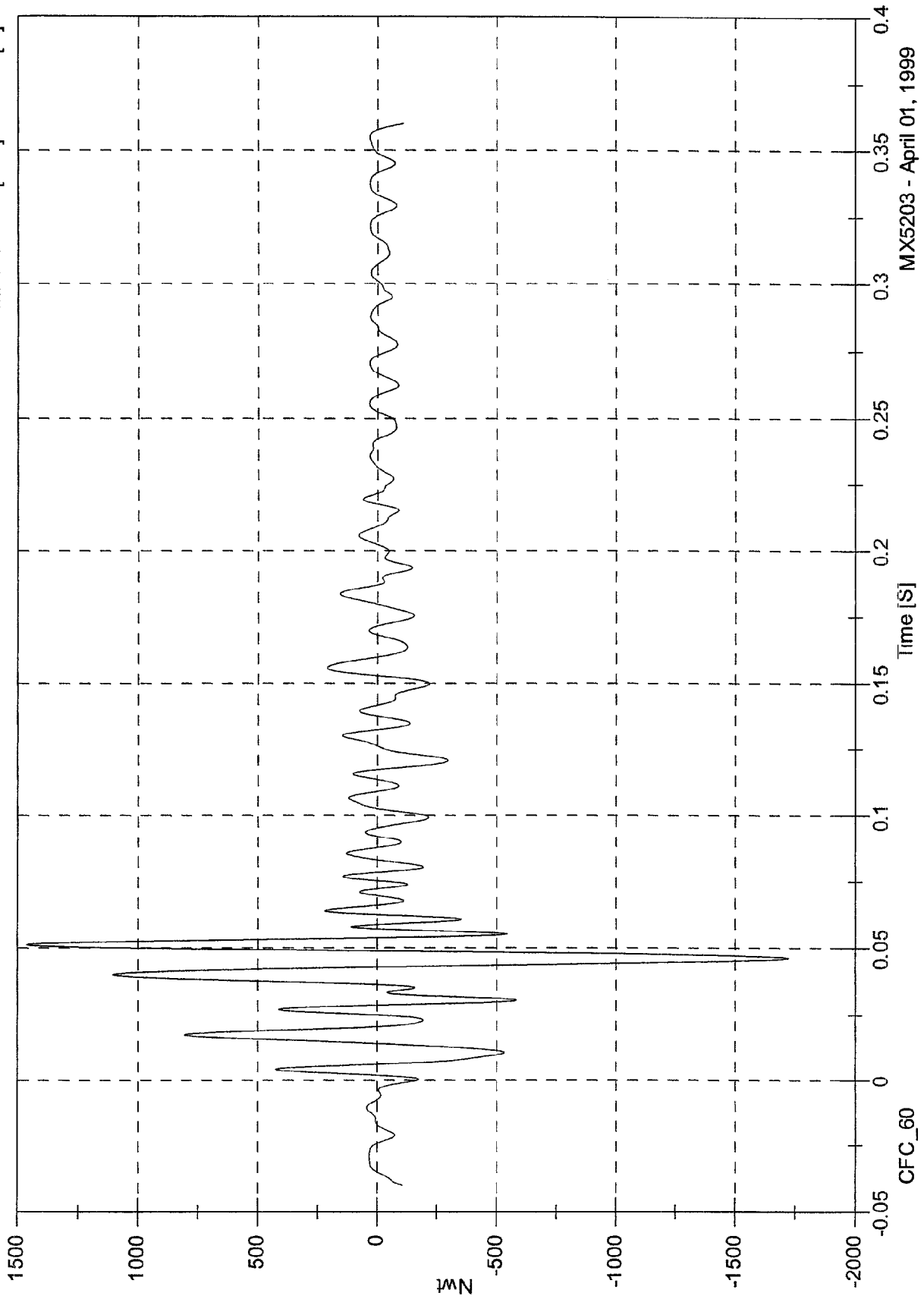


MX5203 - April 01, 1999

NCAP TEST #14-1999 Nissan Pathfinder

Max: 1463.4 [Nwt] at 0.051 [S]
 Min: -1726.4 [Nwt] at 0.046 [S]

BLC A4 Fx

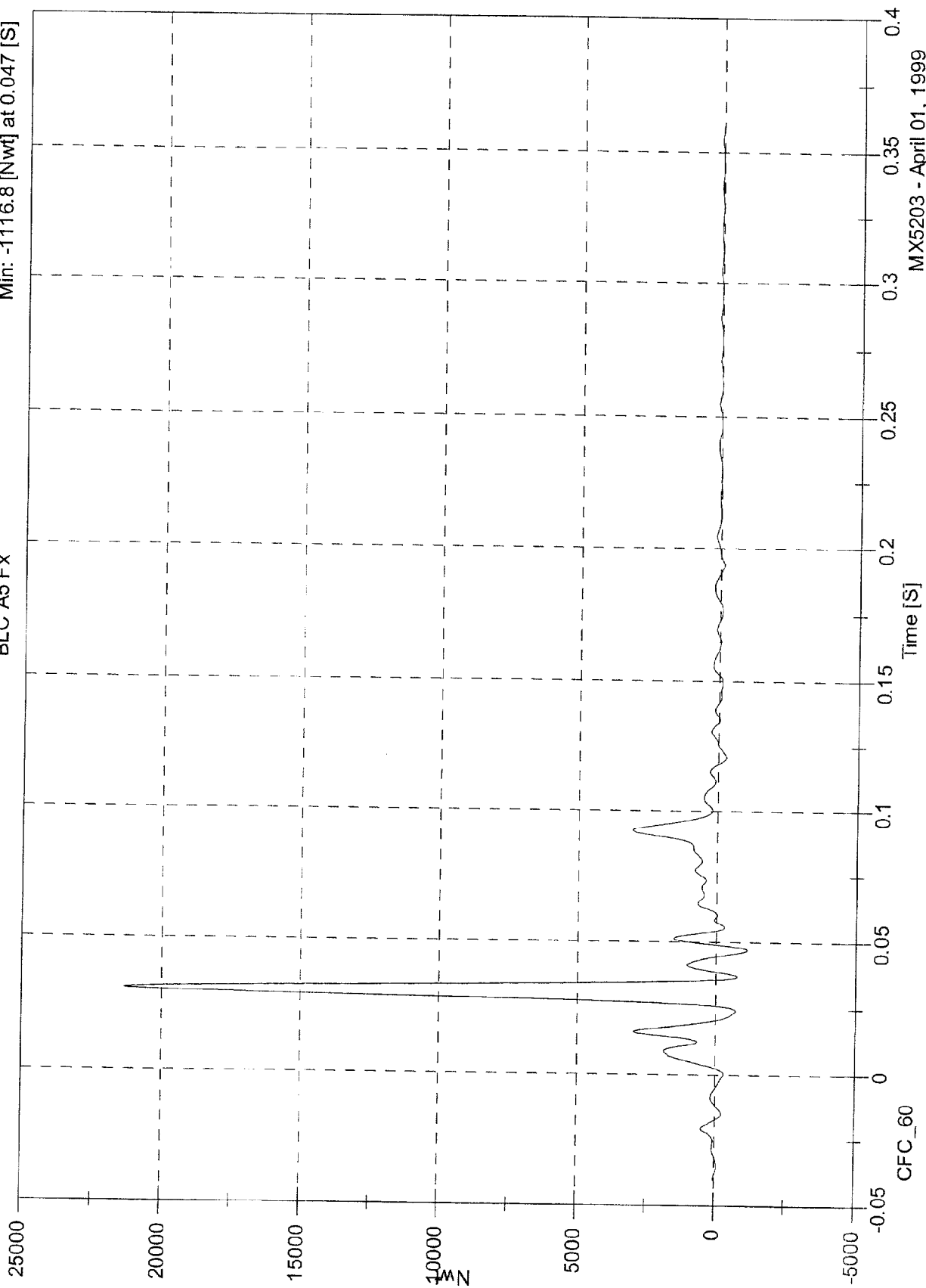


MX5203 - April 01, 1999

NCAP TEST #14- 1999 Nissan Pathfinder

Max: 21347.6 [Nwt] at 0.031 [S]
 Min: -1116.8 [Nwt] at 0.047 [S]

BLC A5 Fx

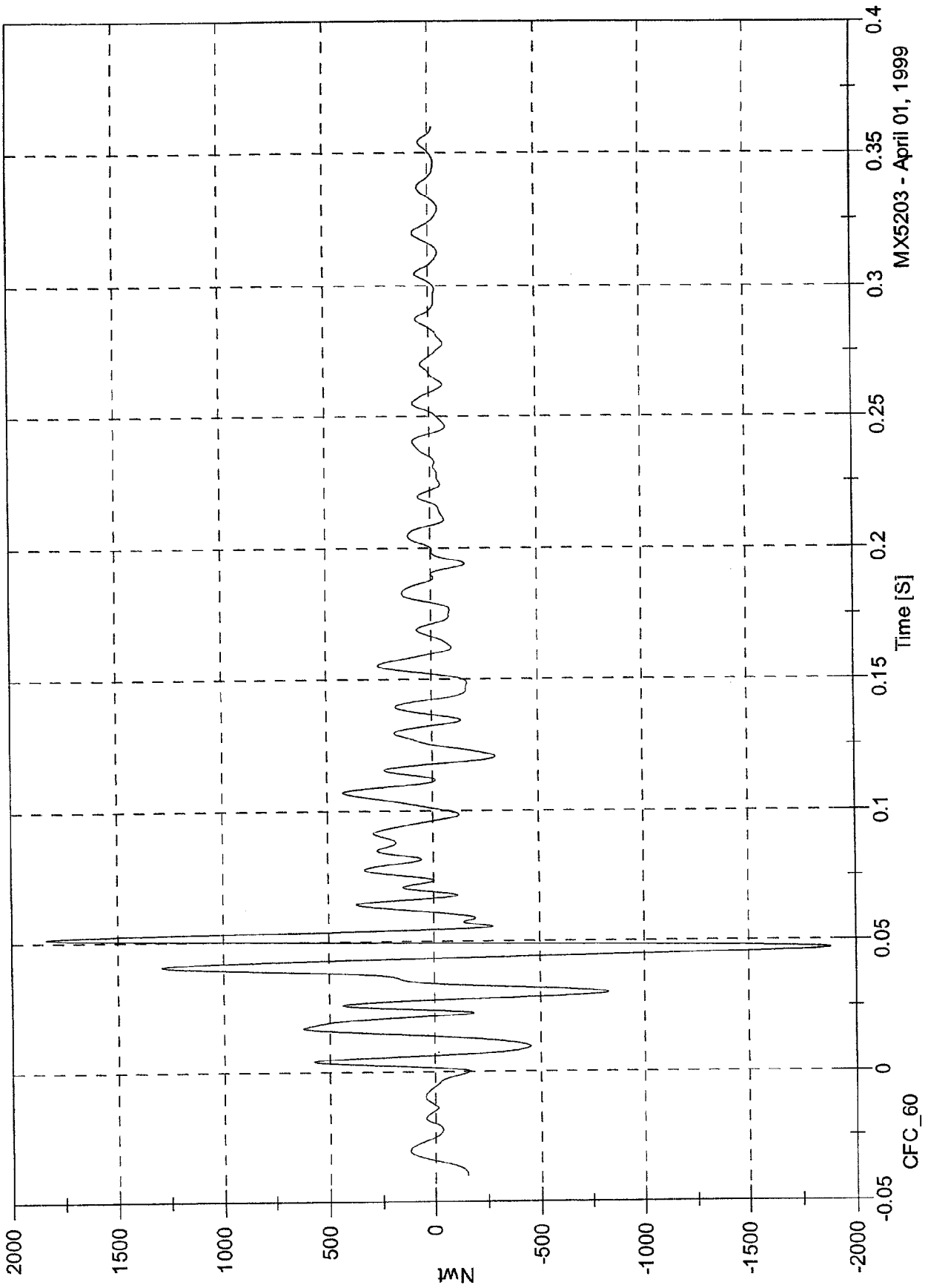


MX5203 - April 01, 1999

NCAP TEST #14-1999 Nissan Pathfinder

Max: 1841.7 [Nwt] at 0.051 [S]
Min: -1885.6 [Nwt] at 0.047 [S]

BLC A6 Fx

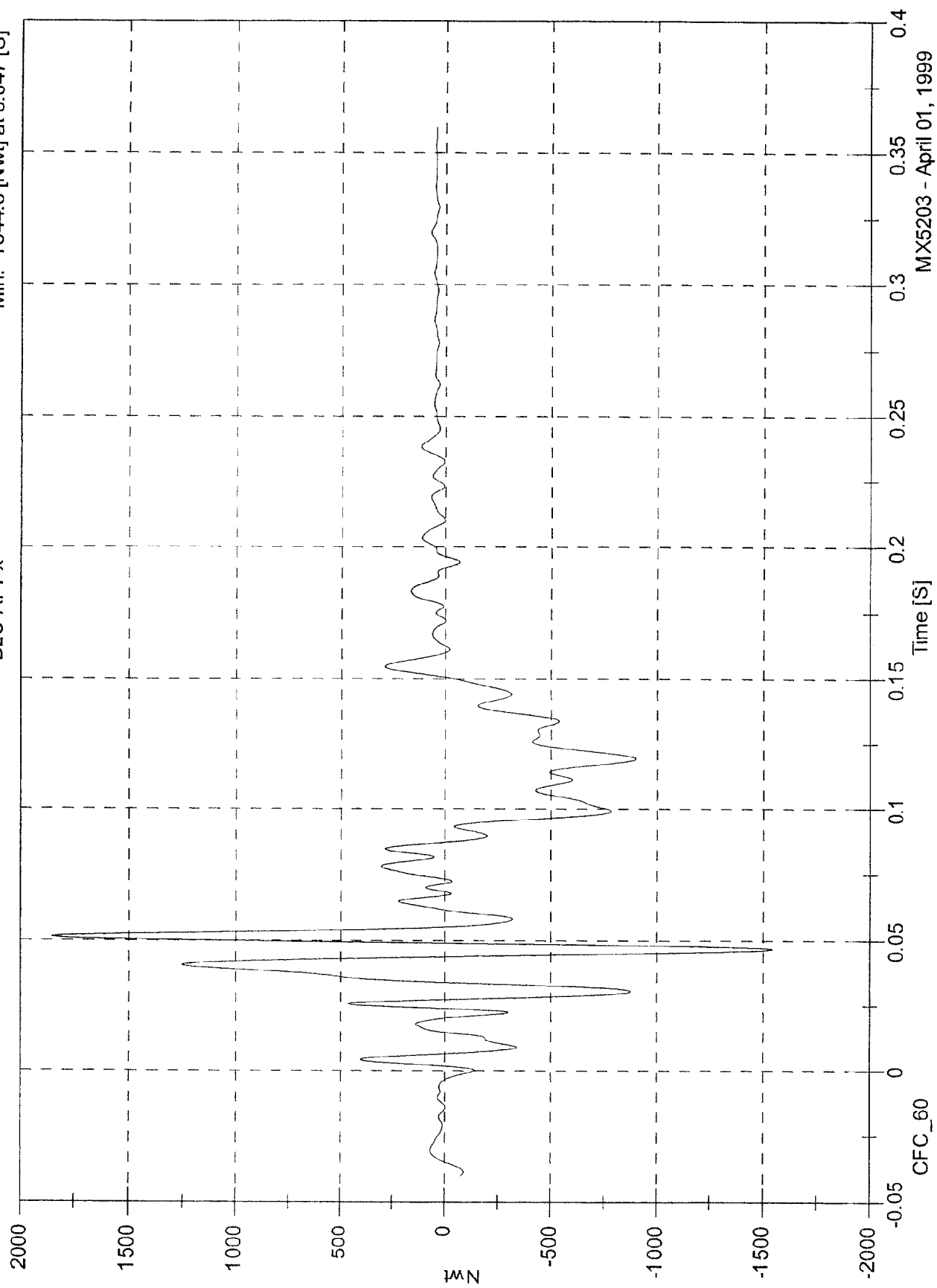


MX5203 - April 01, 1999

NCAP TEST #14- 1999 Nissan Pathfinder

Max: 1852.7 [Nwt] at 0.051 [S]
Min: -1544.8 [Nwt] at 0.047 [S]

BLC A7 Fx

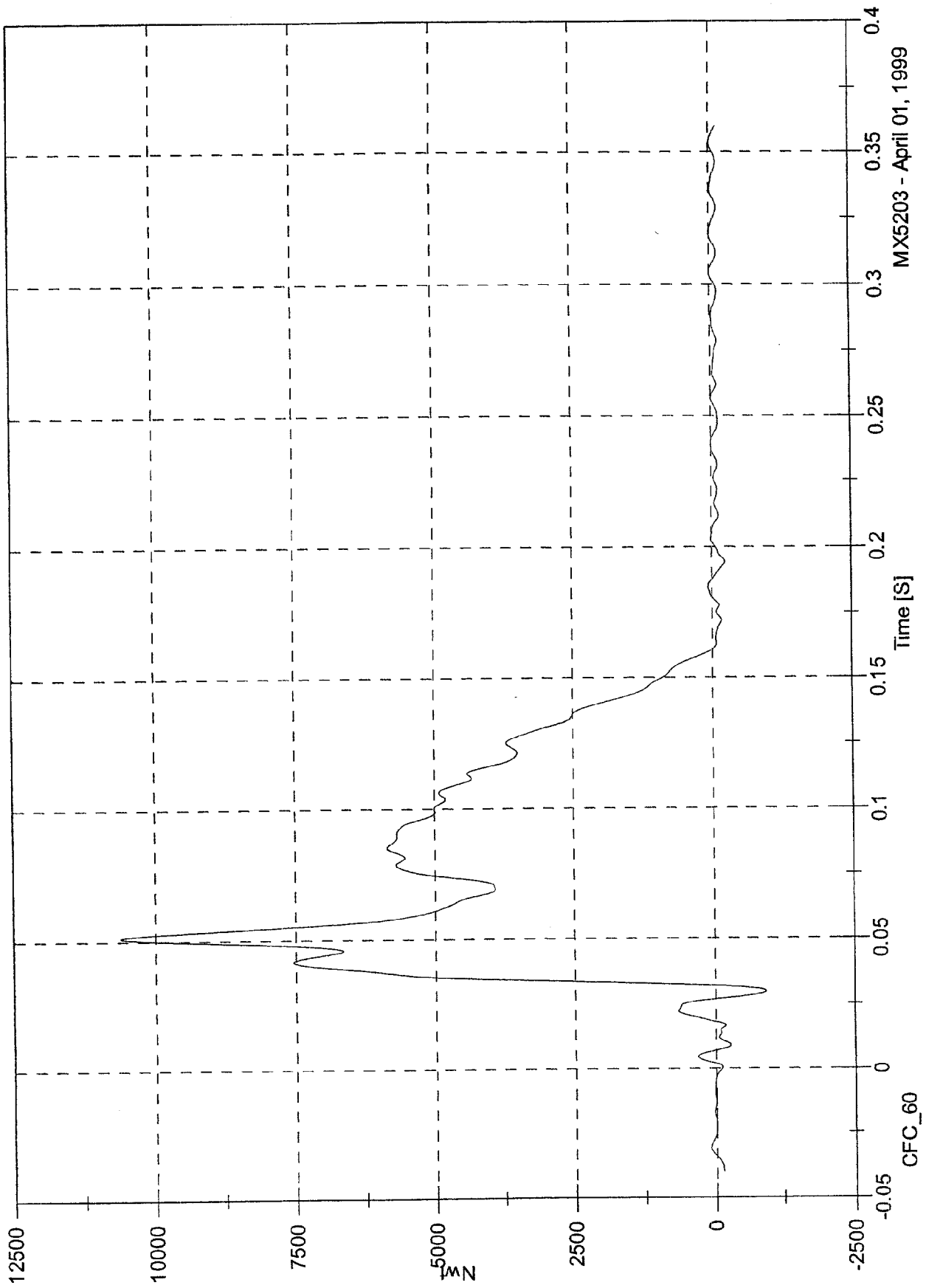


MX5203 - April 01, 1999

NCAP TEST #14-1999 Nissan Pathfinder

Max 10621.9 [Nwt] at 0.051 [S]
Min: -938.4 [Nwt] at 0.030 [S]

BLC A8 Fx

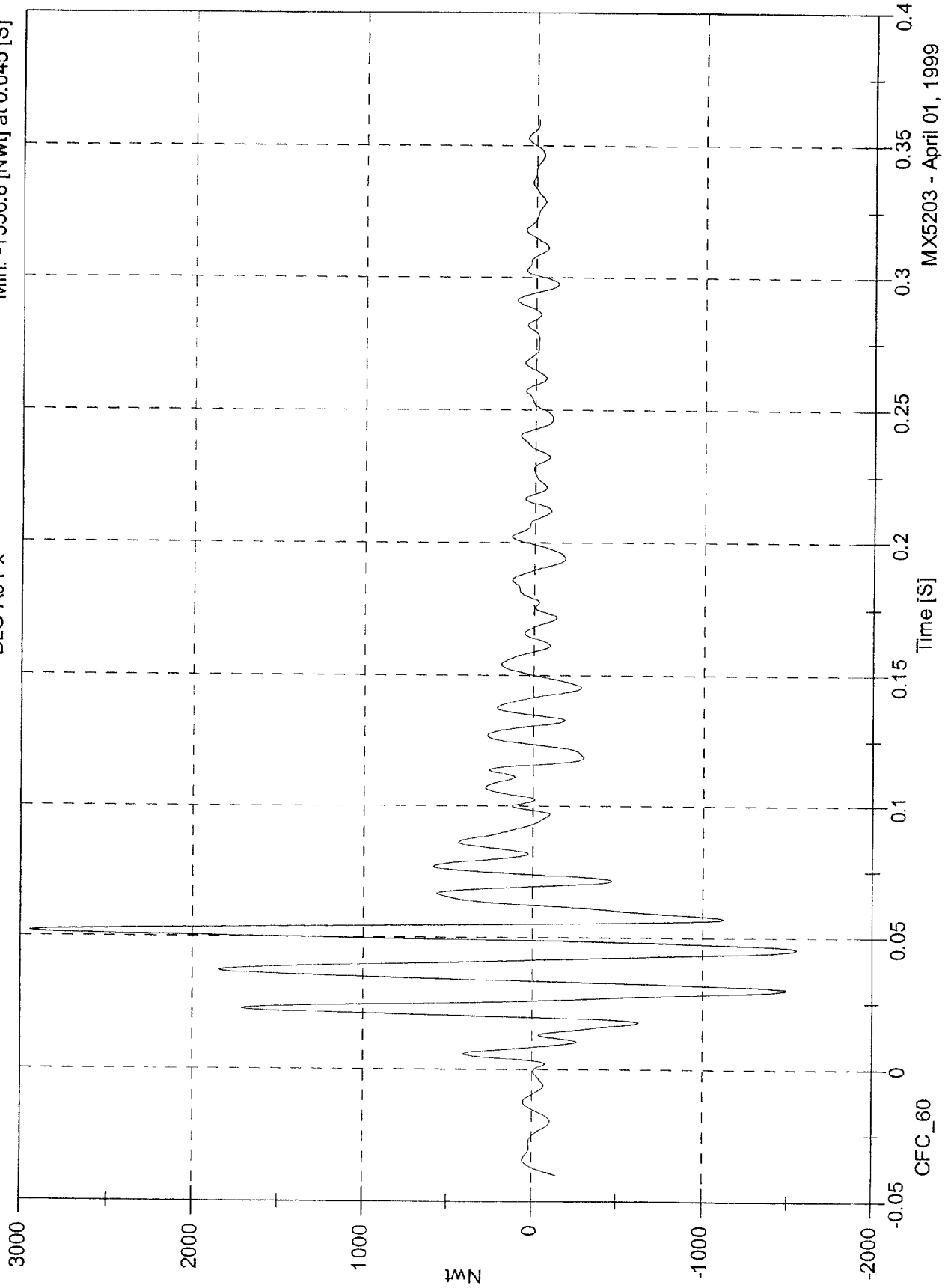


MX5203 - April 01, 1999

NCAP TEST #14- 1999 Nissan Pathfinder

Max: 2948.6 [Nwt] at 0.052 [S]
Min: -1556.8 [Nwt] at 0.045 [S]

BLC A9 Fx

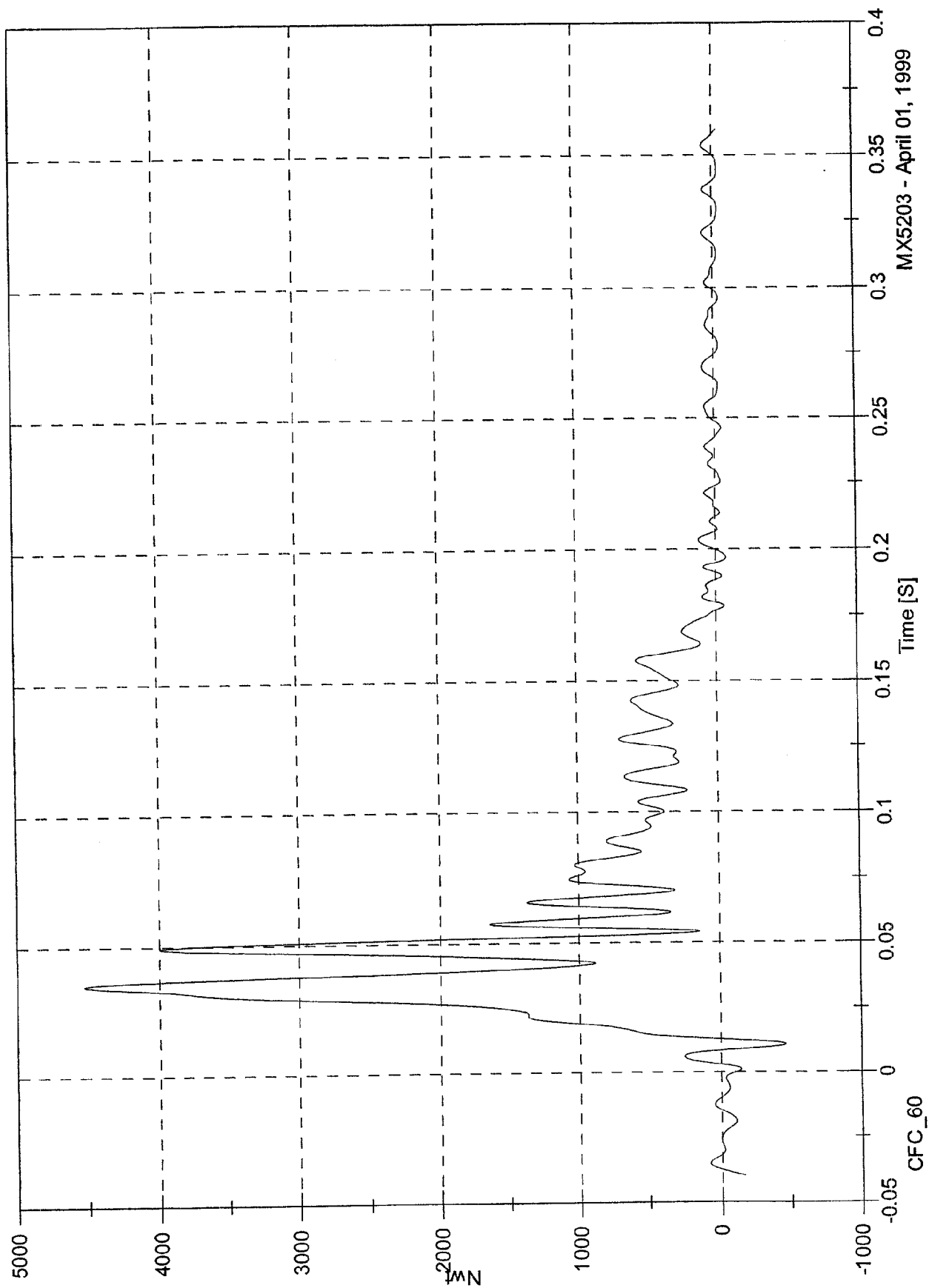


MX5203 - April 01, 1999

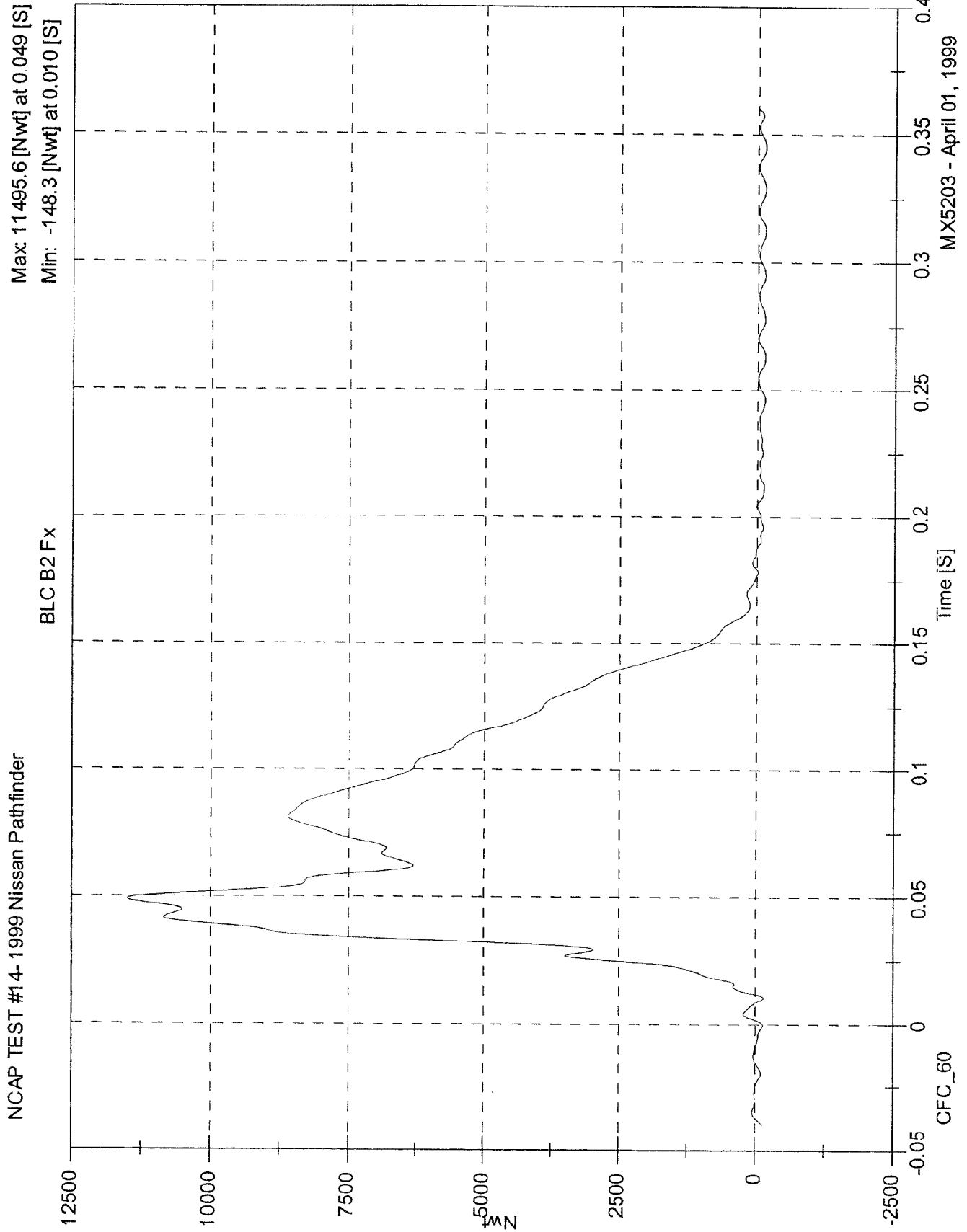
NCAP TEST #14-1999 Nissan Pathfinder

Max: 4525.4 [Nwt] at 0.035 [S]
 Min: -465.5 [Nwt] at 0.011 [S]

BLC B1 Fx



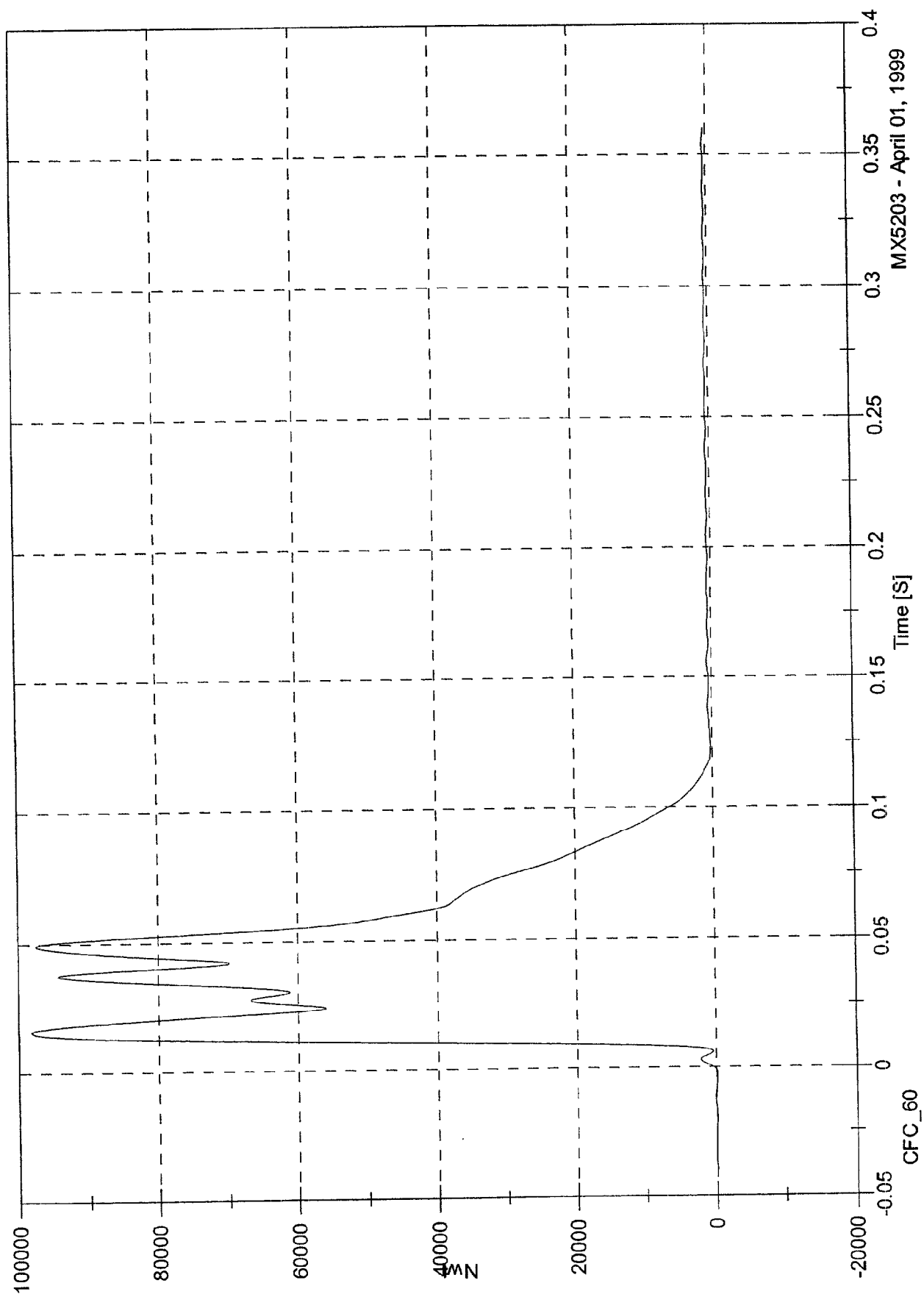
MX5203 - April 01, 1999



Max 98324.4 [Nwt] at 0.016 [S]
Min: -167.4 [Nwt] at -0.003 [S]

NCAP TEST #14-1999 Nissan Pathfinder

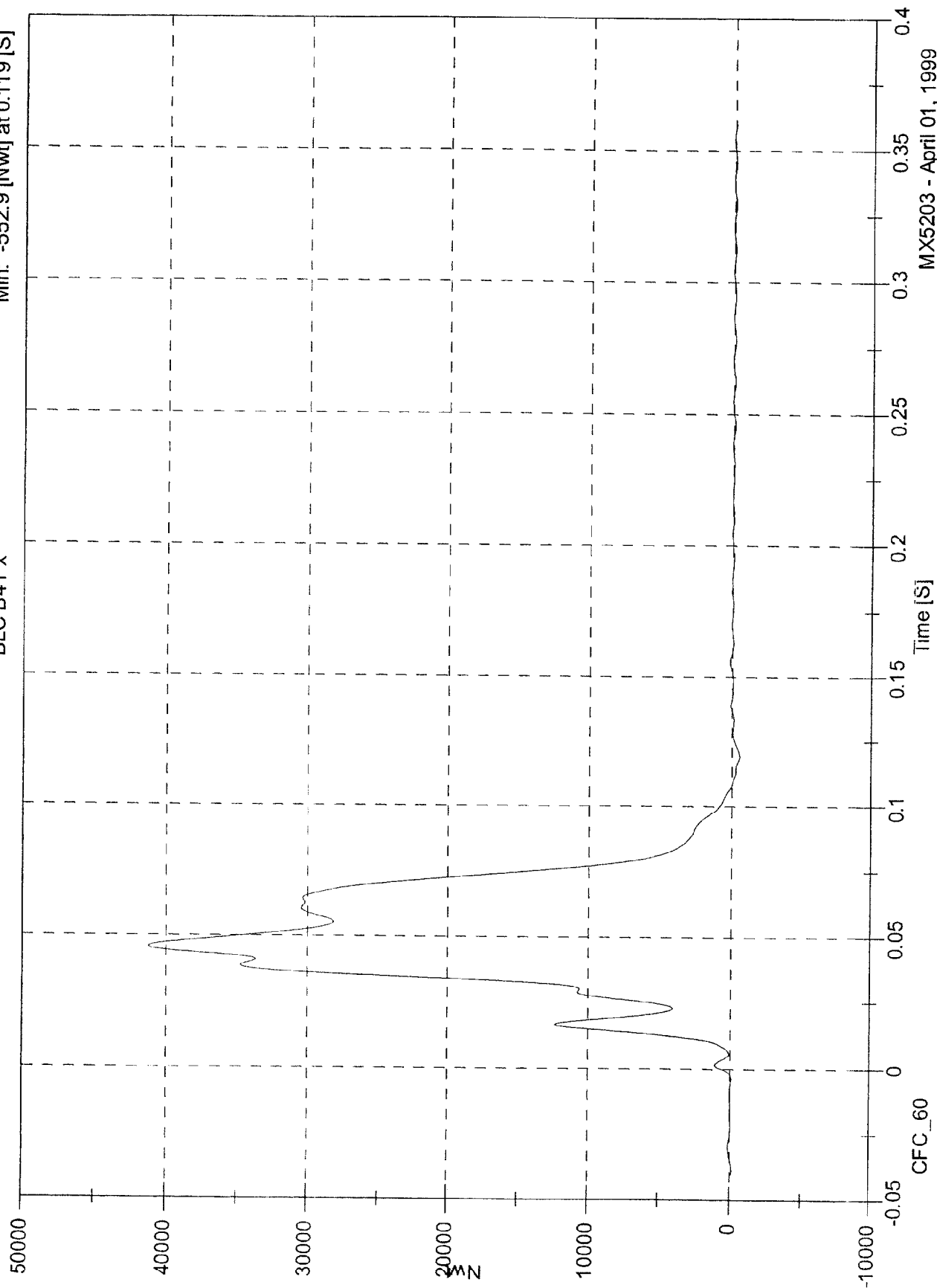
BLC B3 Fx



NCAP TEST #14-1999 Nissan Pathfinder

Max: 41233.9 [Nwt] at 0.046 [S]
Min: -552.9 [Nwt] at 0.119 [S]

BLC B4 Fx

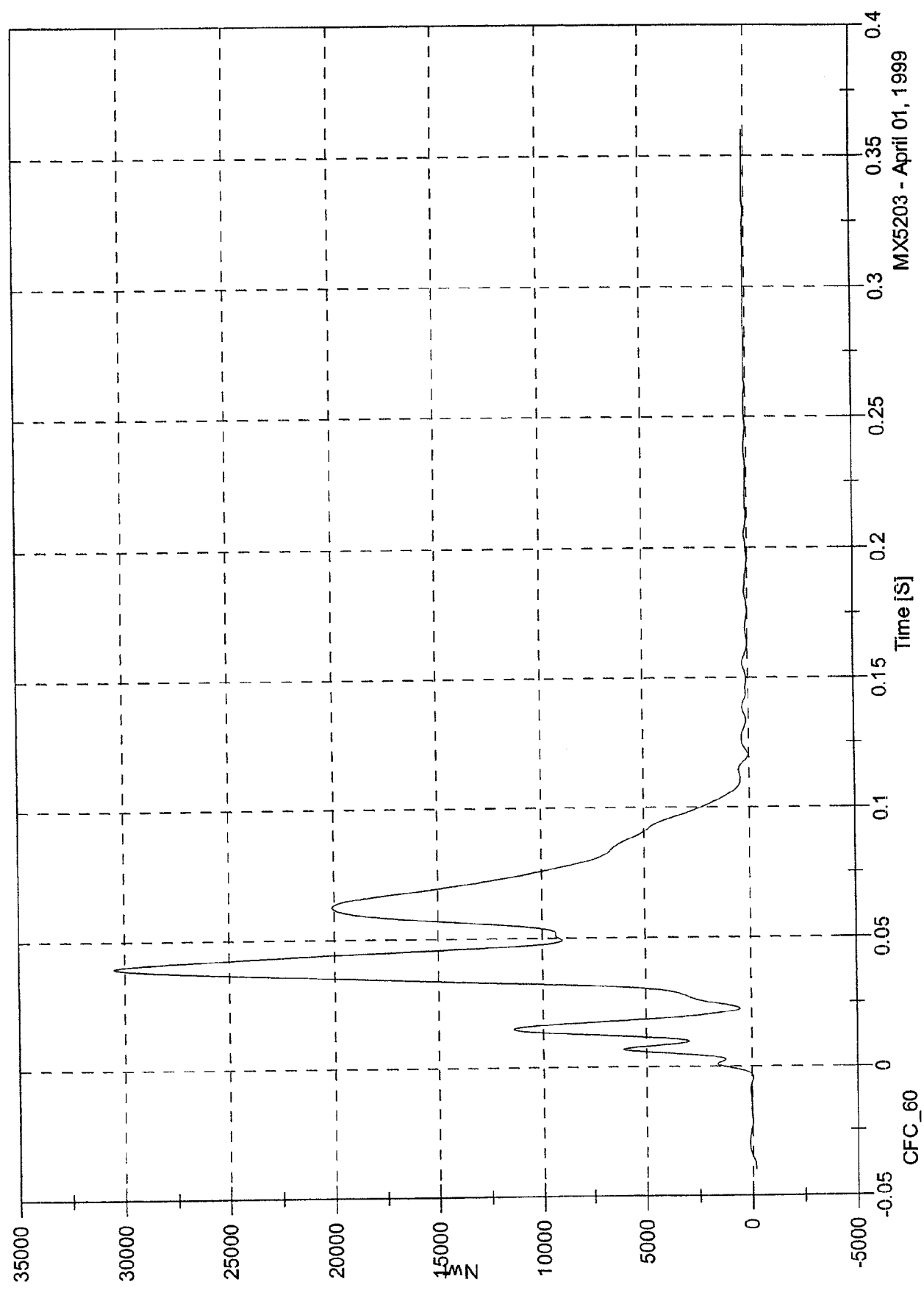


MX5203 - April 01, 1999

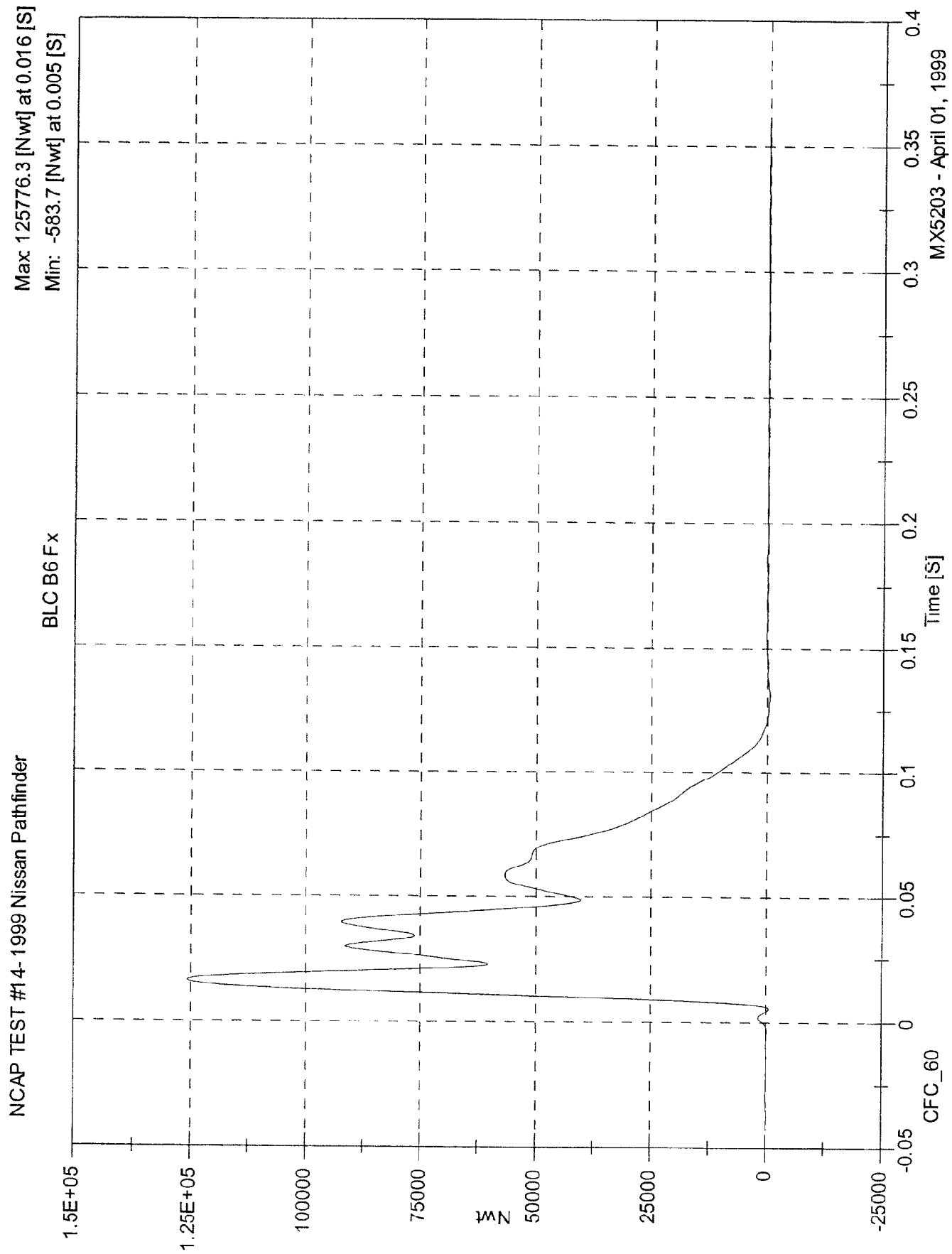
Max 30521.5 [Nwt] at 0.040 [S]
Min: -159.8 [Nwt] at -0.040 [S]

NCAP TEST #14-1999 Nissan Pathfinder

BLC B5 Fx



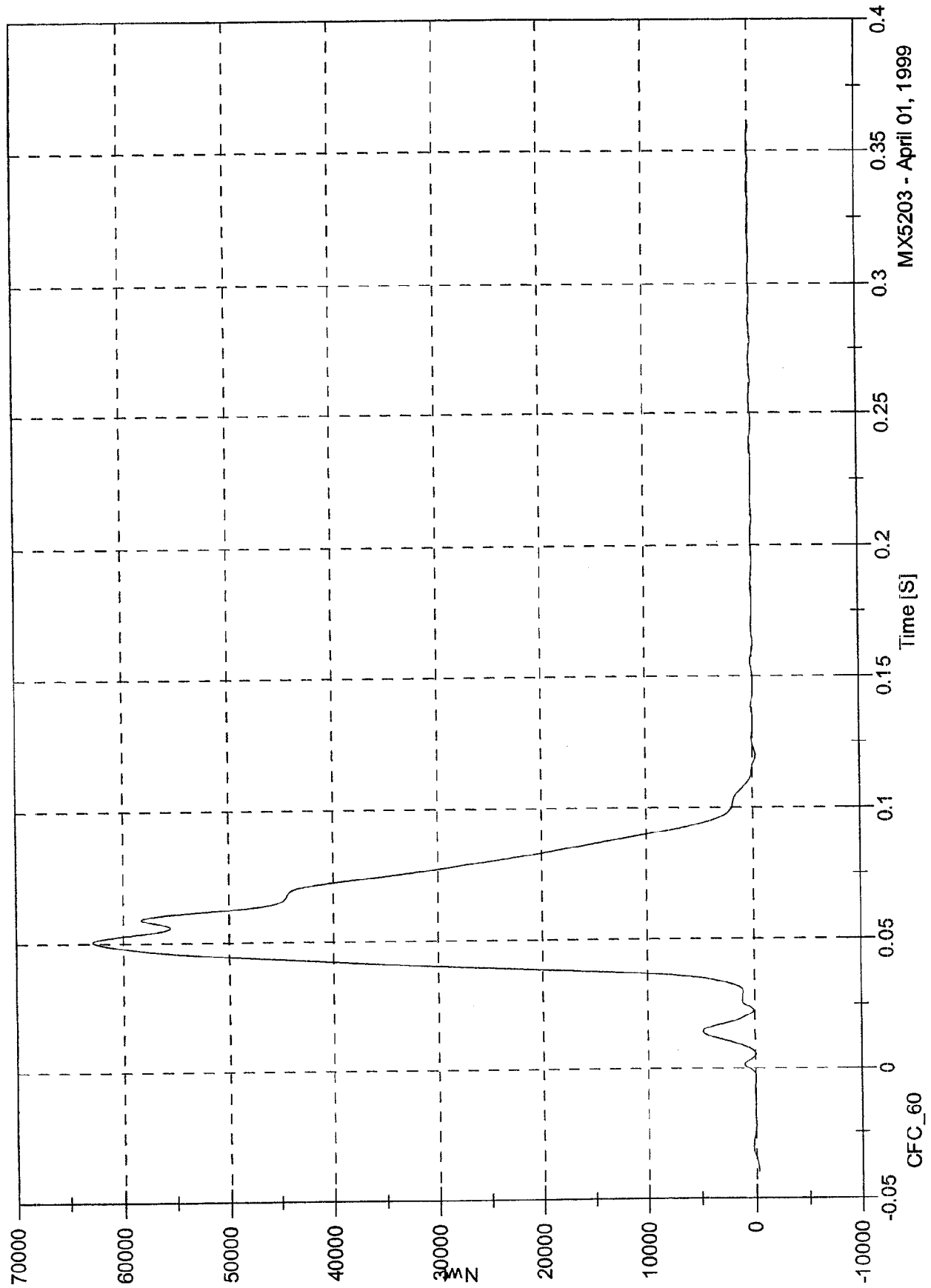
MX5203 - April 01, 1999



Max: 62805.4 [Nwt] at 0.051 [S]
Min: -283.7 [Nwt] at 0.120 [S]

BLC B7 Fx

NCAP TEST #14- 1999 Nissan Pathfinder

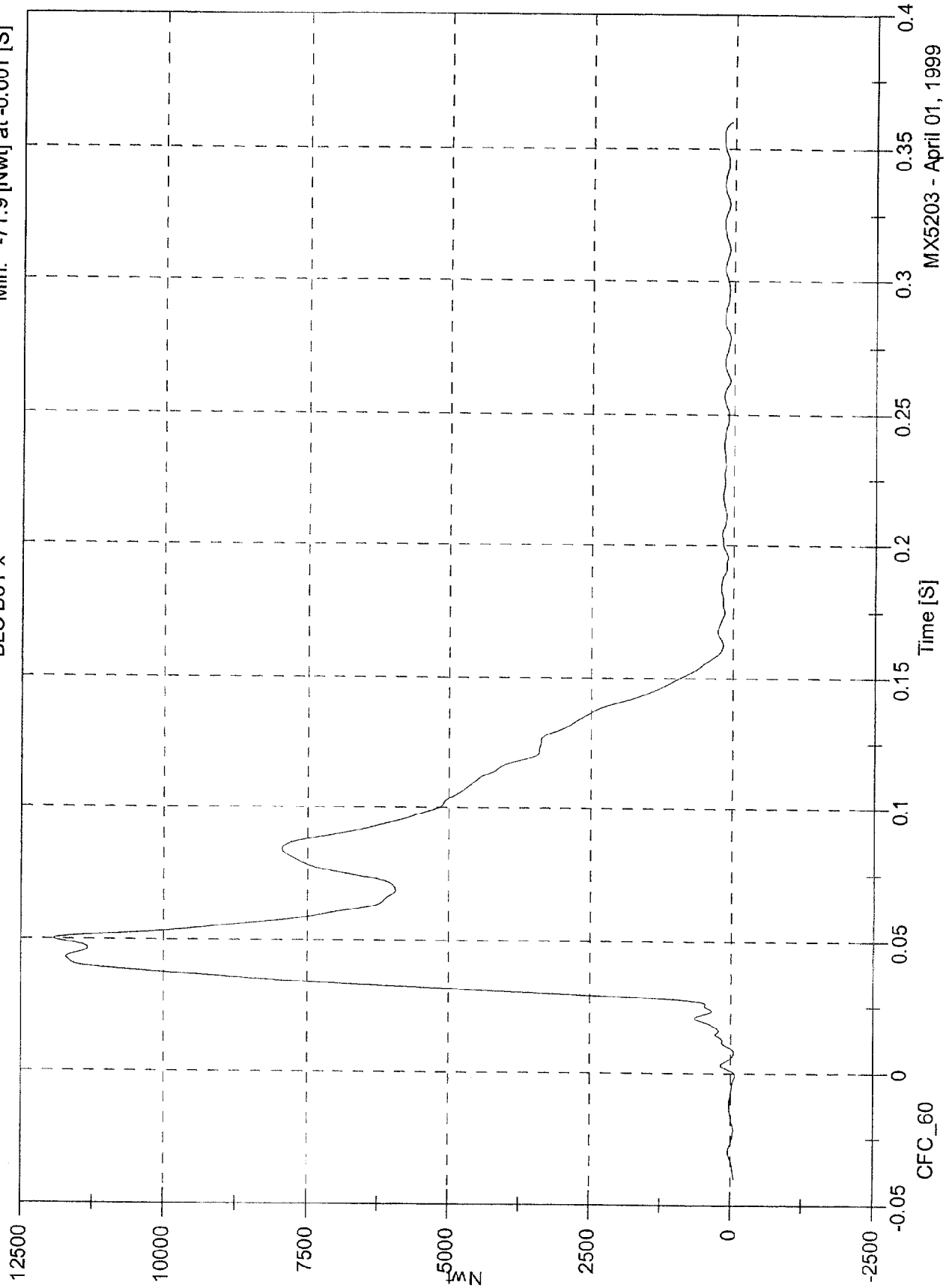


MX5203 - April 01, 1999

NCAP TEST #14- 1999 Nissan Pathfinder

Max 11933.2 [Nwt] at 0.050 [S]
Min: -71.9 [Nwt] at -0.001 [S]

BLC B8 Fx

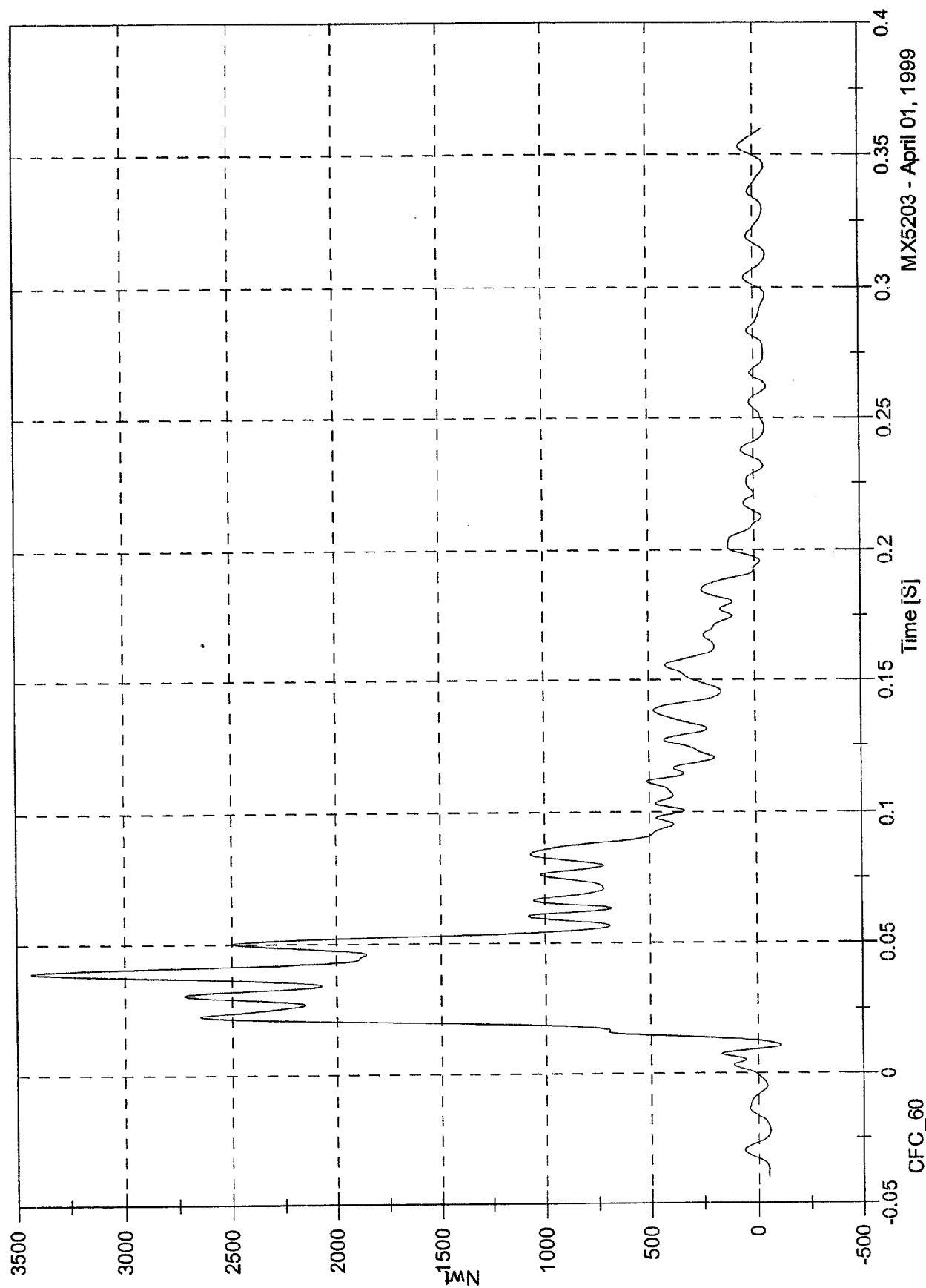


MX5203 - April 01, 1999

NCAP TEST #14-1999 Nissan Pathfinder

BLC B9 Fx

Max: 3433.9 [Nwt] at 0.039 [S]
Min: -109.6 [Nwt] at 0.011 [S]

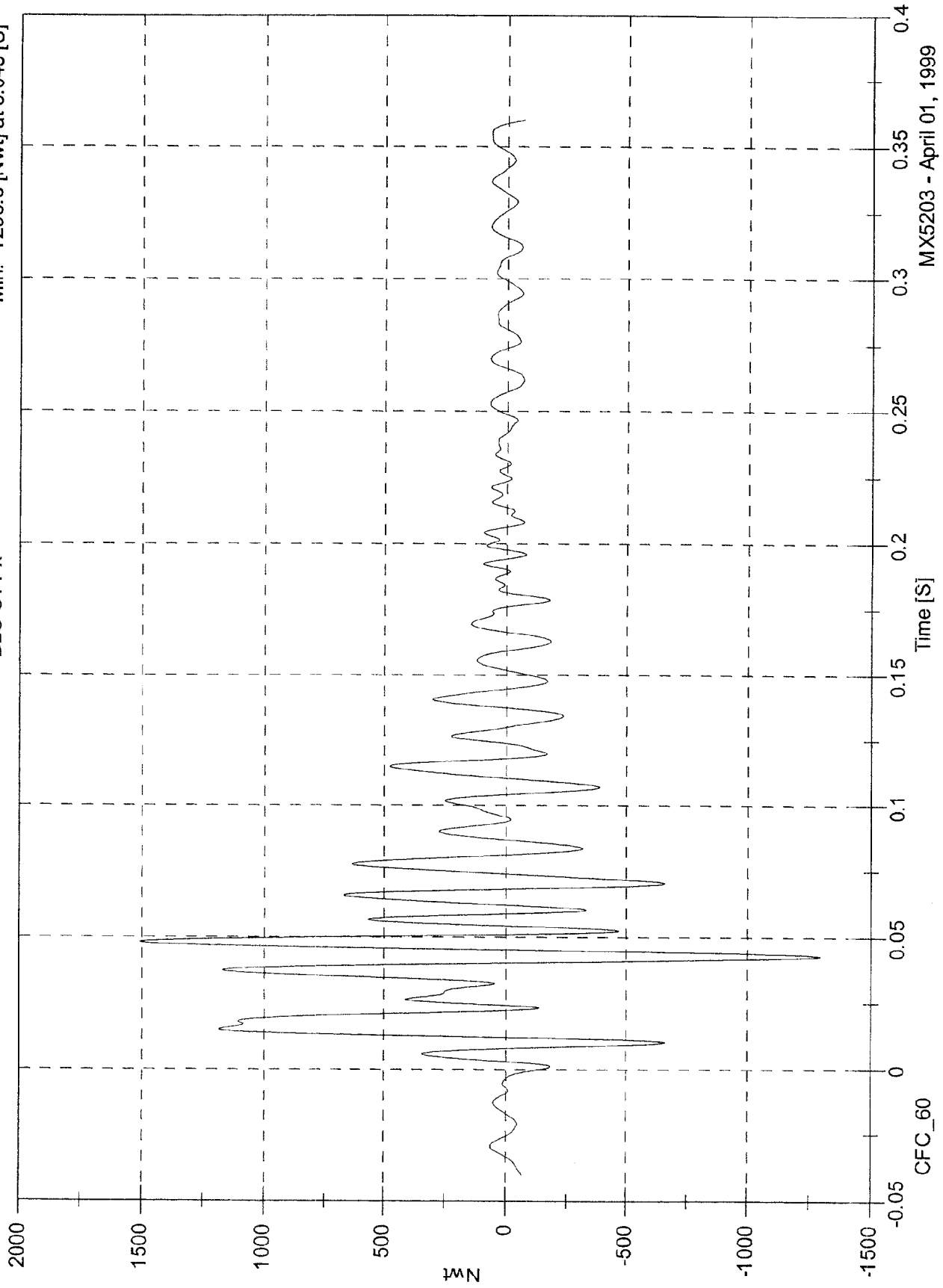


MX5203 - April 01, 1999

NCAP TEST #14- 1999 Nissan Pathfinder

Max: 1508.0 [Nwt] at 0.048 [S]
Min: -1296.6 [Nwt] at 0.043 [S]

BLC C1 Fx

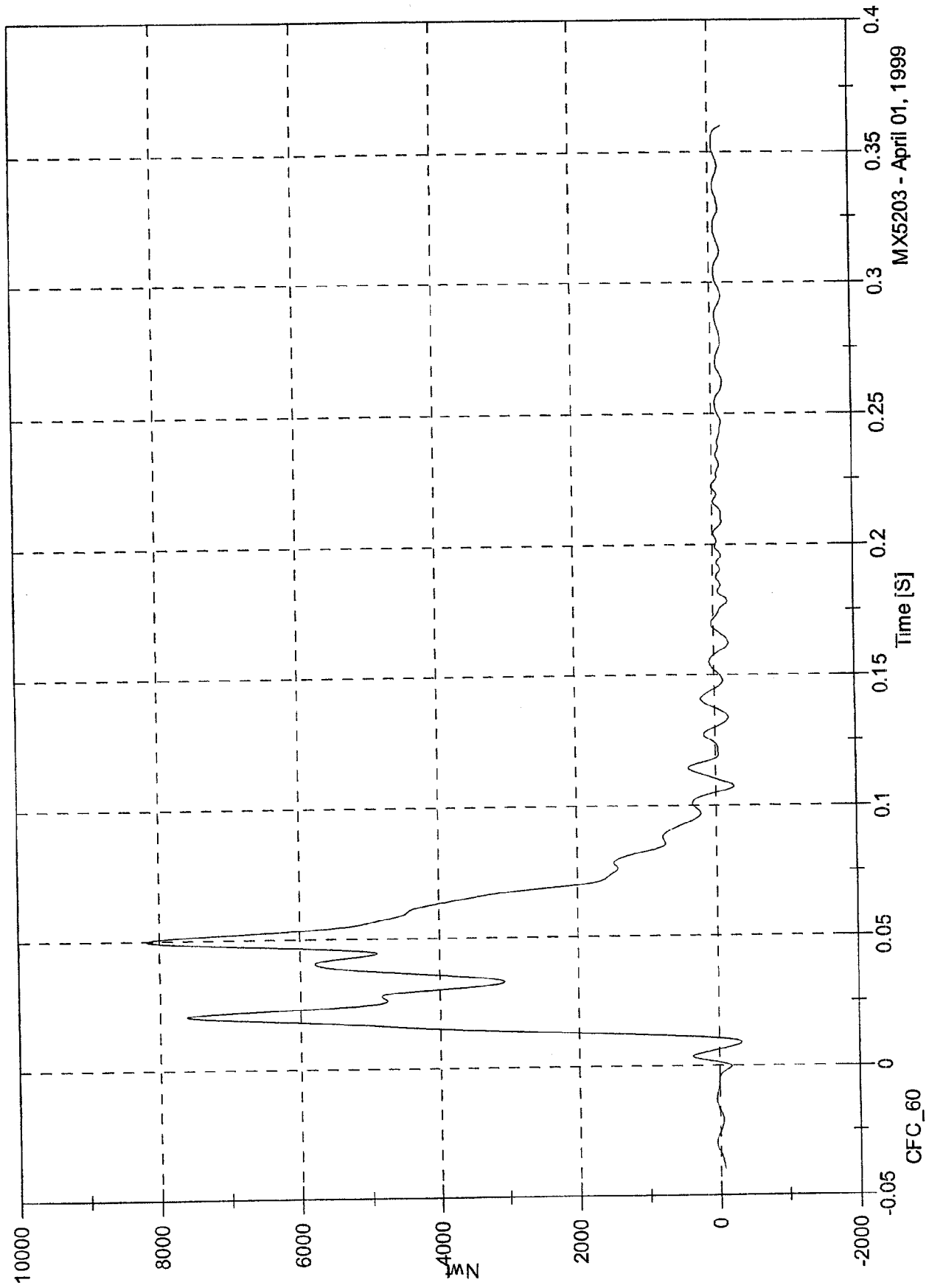


MX5203 - April 01, 1999

NCAP TEST #14- 1999 Nissan Pathfinder

Max: 8182.6 [Nwt] at 0.050 [S]
Min: -322.0 [Nwt] at 0.009 [S]

BLC C2 Fx

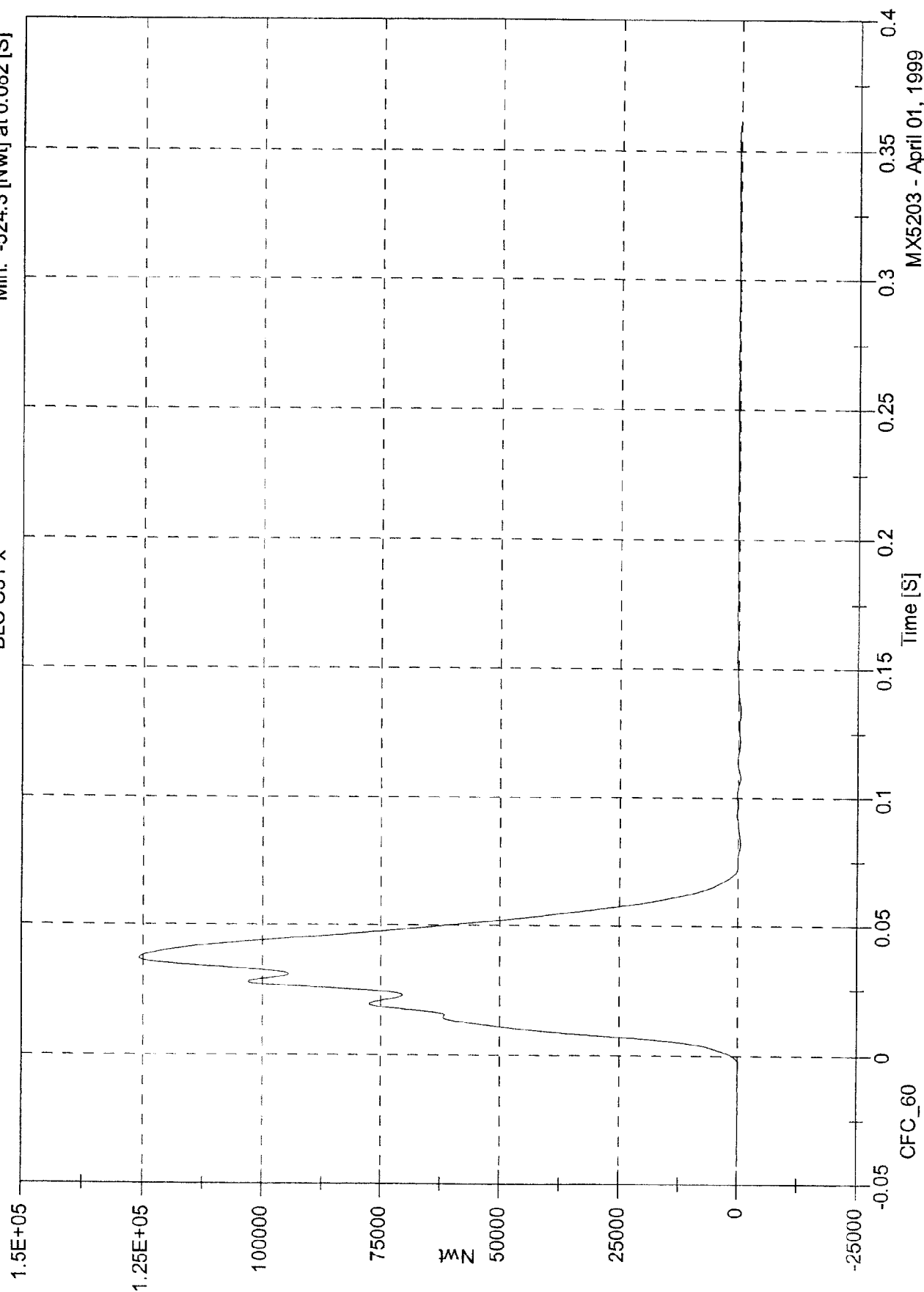


MX5203 - April 01, 1999

Max: 125788.3 [Nwt] at 0.037 [S]
Min: -524.3 [Nwt] at 0.082 [S]

BLC C3 Fx

NCAP TEST #14-1999 Nissan Pathfinder

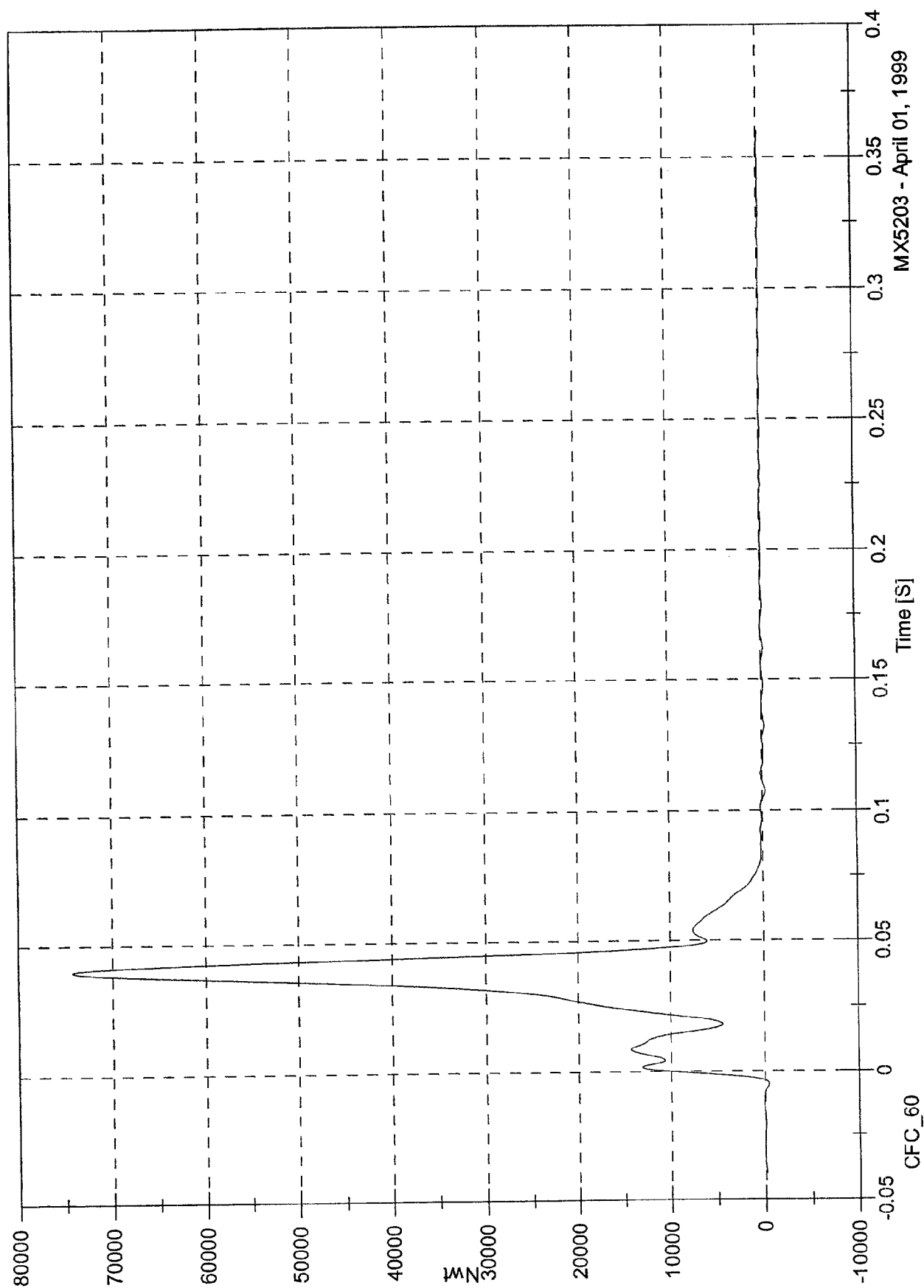


MX5203 - April 01, 1999

Max: 74240.3 [Nwt] at 0.040 [S]
Min: -410.5 [Nwt] at -0.005 [S]

NCAP TEST #14-1999 Nissan Pathfinder

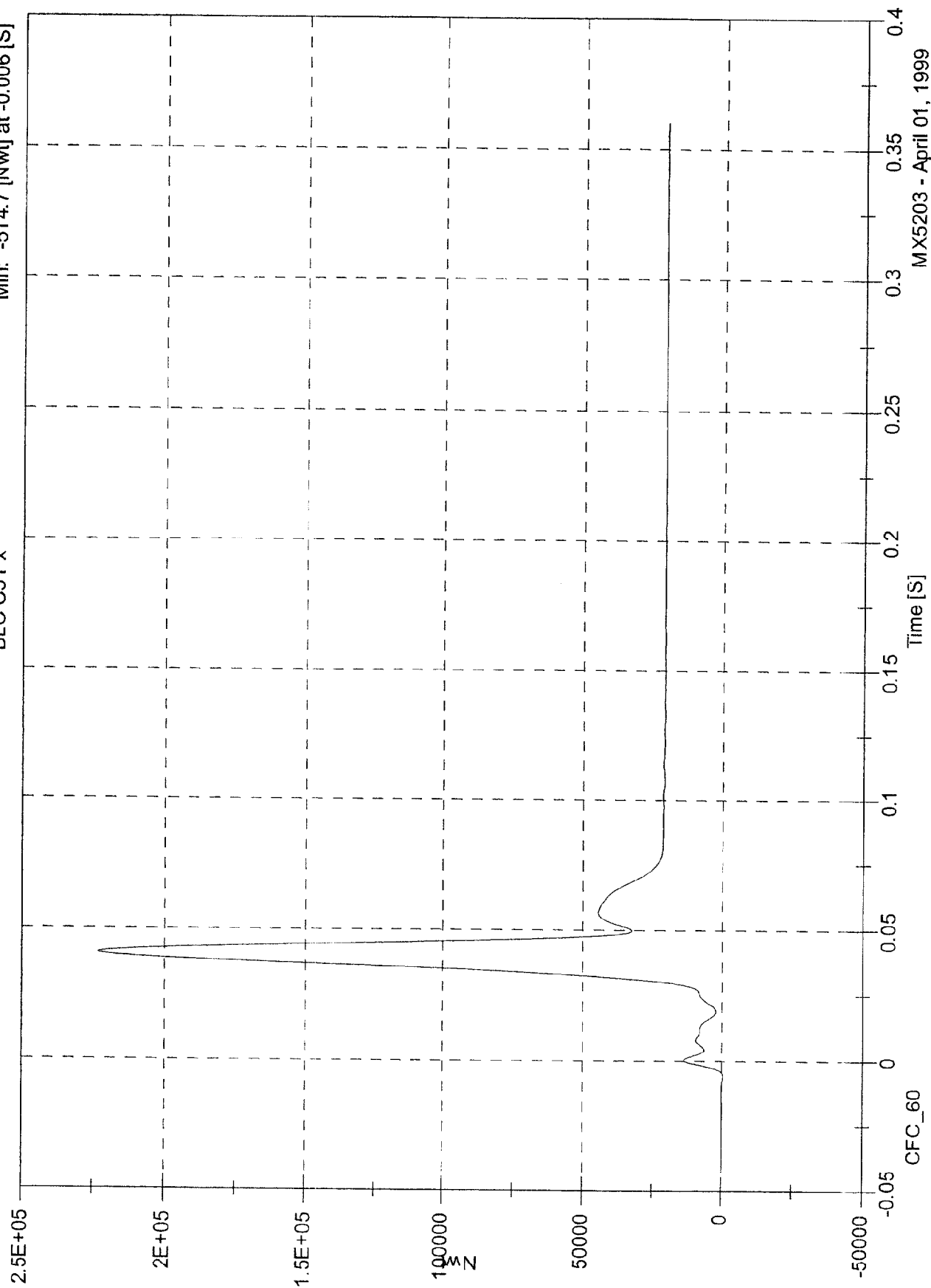
BLC C4Fx



NCAP TEST #14-1999 Nissan Pathfinder

Max: 223169.3 [Nwt] at 0.041 [S]
 Min: -514.7 [Nwt] at -0.006 [S]

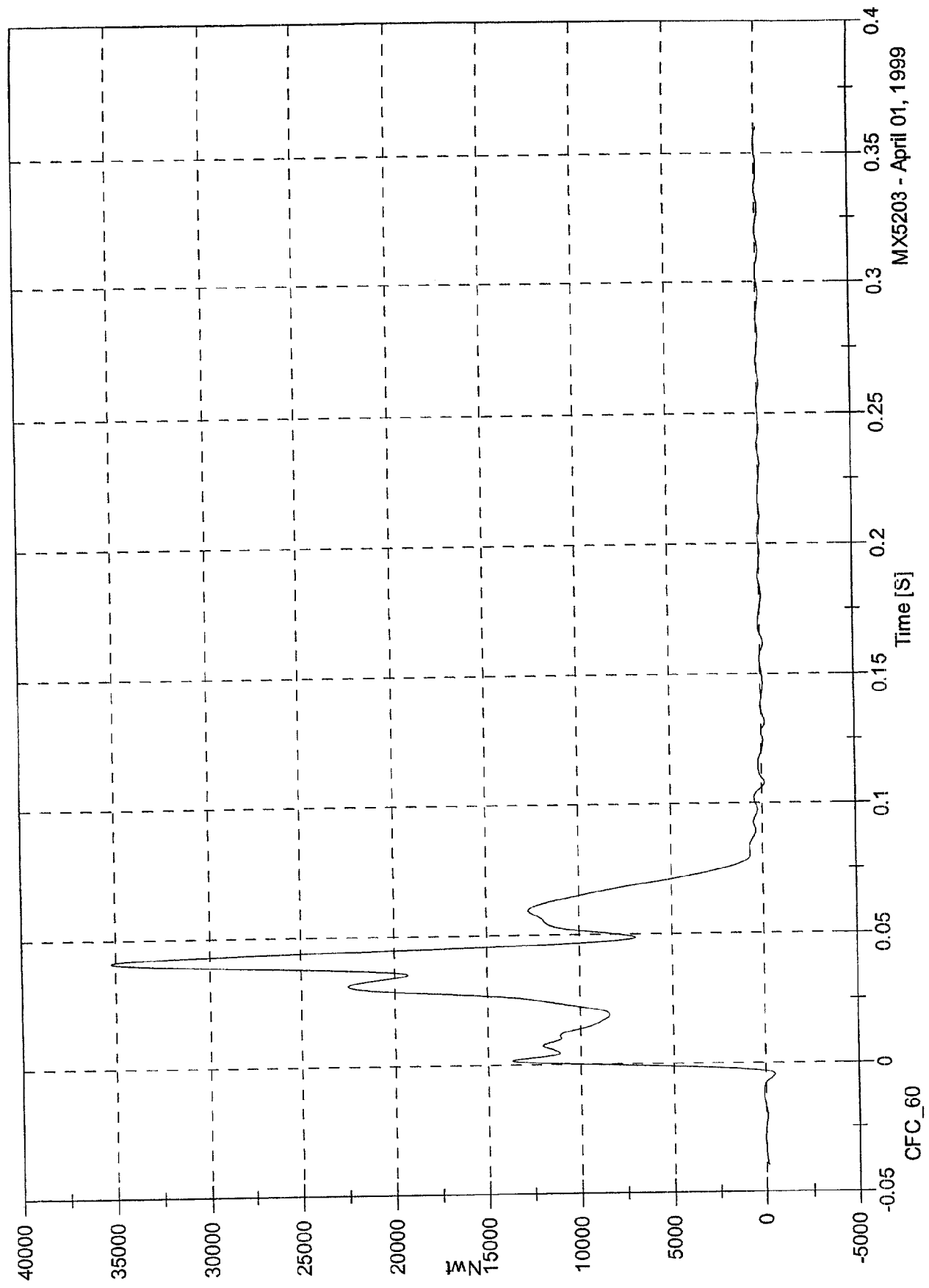
BLC C5 Fx



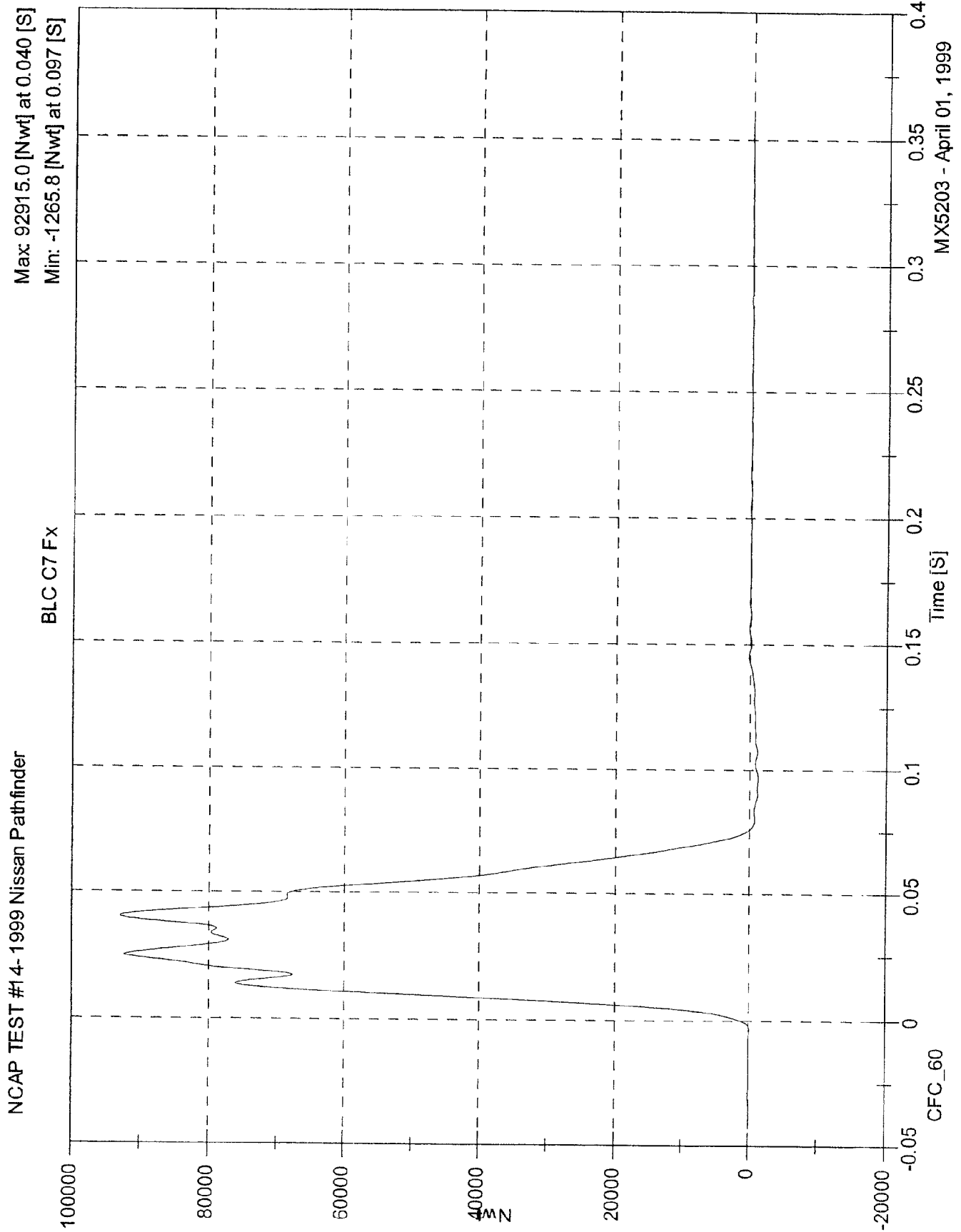
Max 35254.6 [Nwt] at 0.041 [S]
Min: -472.8 [Nwt] at -0.005 [S]

NCAP TEST #14-1999 Nissan Pathfinder

BLC C6 Fx



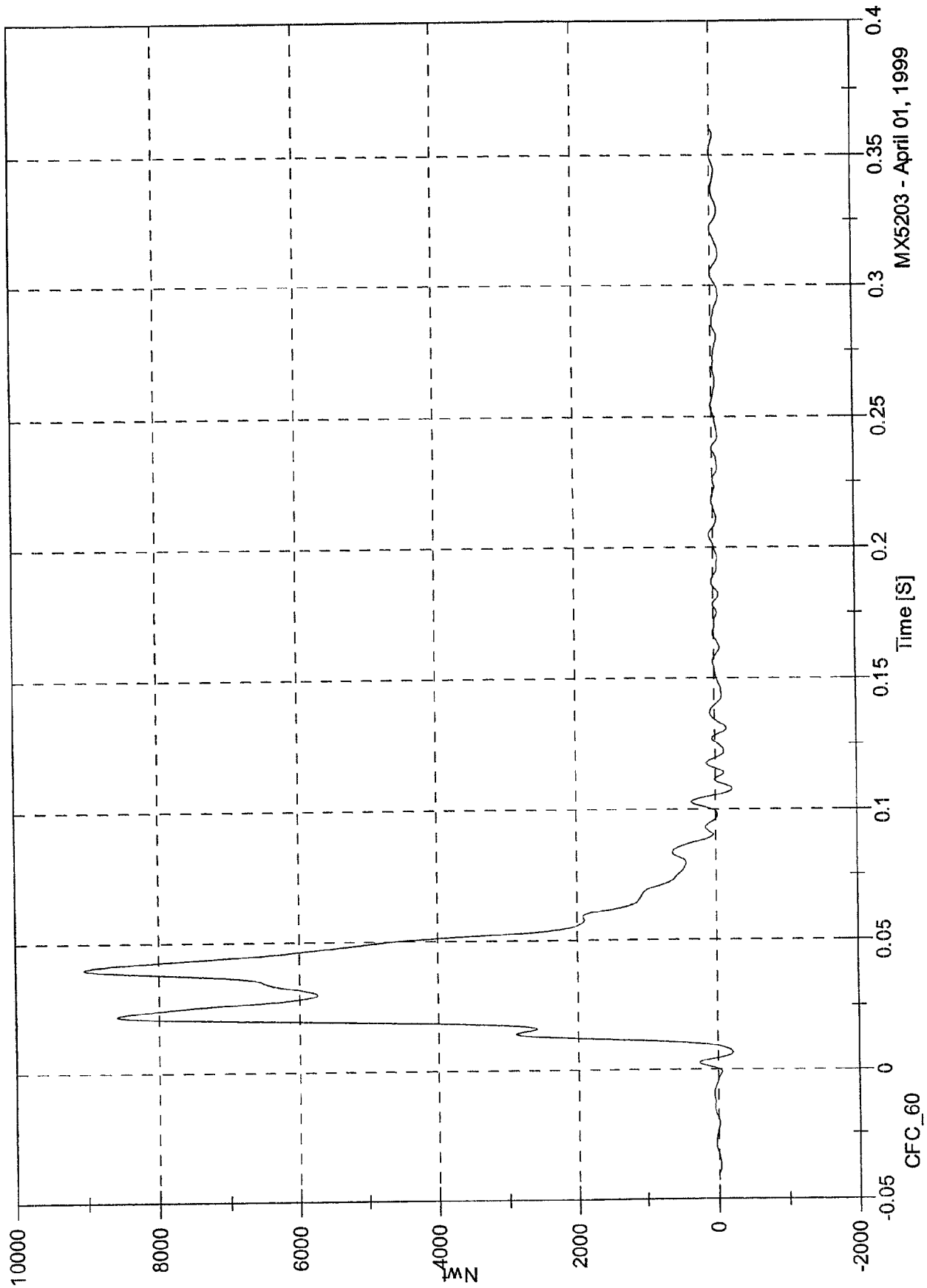
MX5203 - April 01, 1999



NCAP TEST #14-1999 Nissan Pathfinder

BLC C8 Fx

Max: 9046.3 [Nwt] at 0.040 [S]
Min: -235.0 [Nwt] at 0.108 [S]

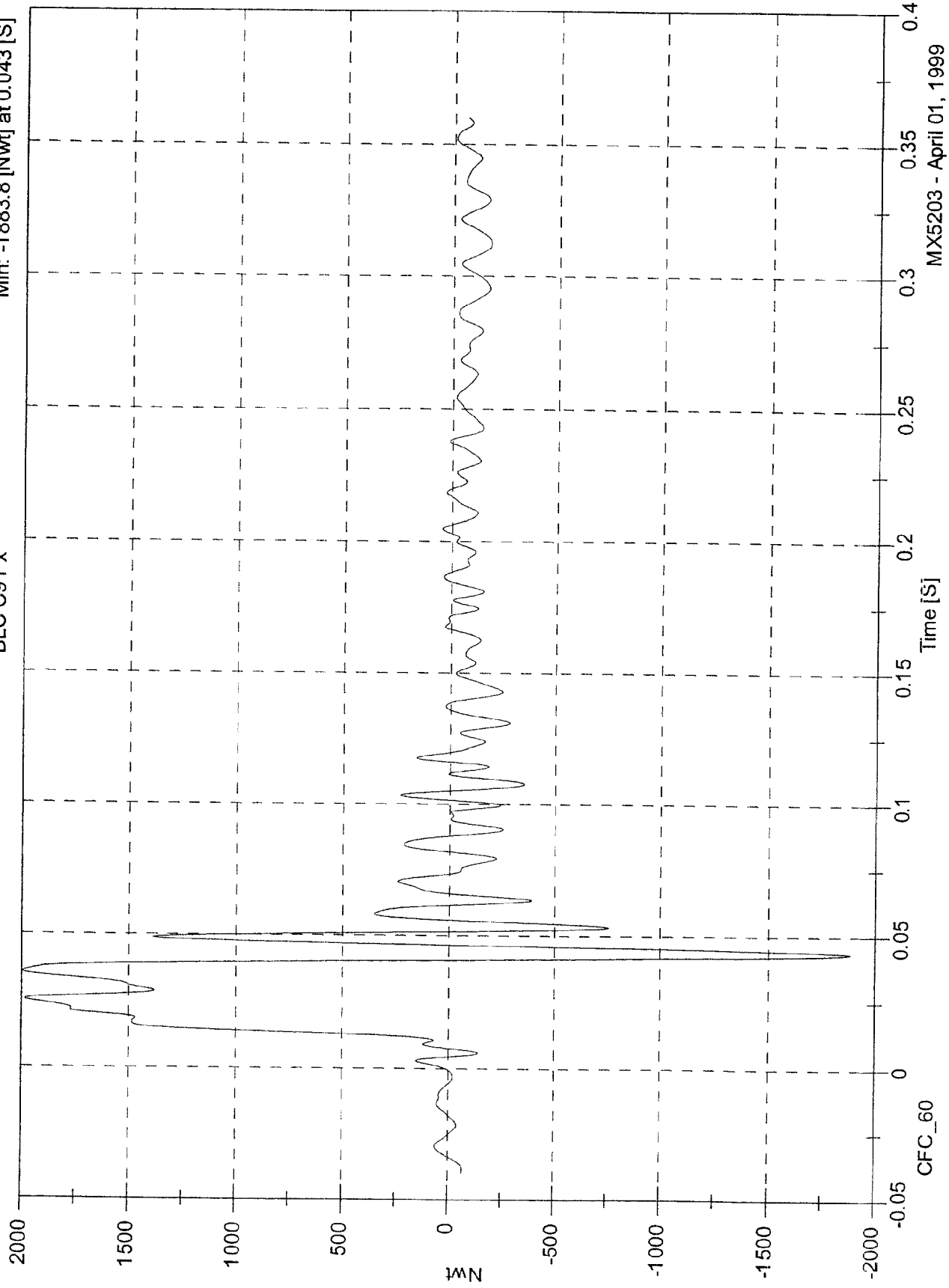


MX5203 - April 01, 1999

NCAP TEST #14-1999 Nissan Pathfinder

BLC C9 Fx

Max: 1995.7 [Nwt] at 0.036 [S]
Min: -1883.8 [Nwt] at 0.043 [S]

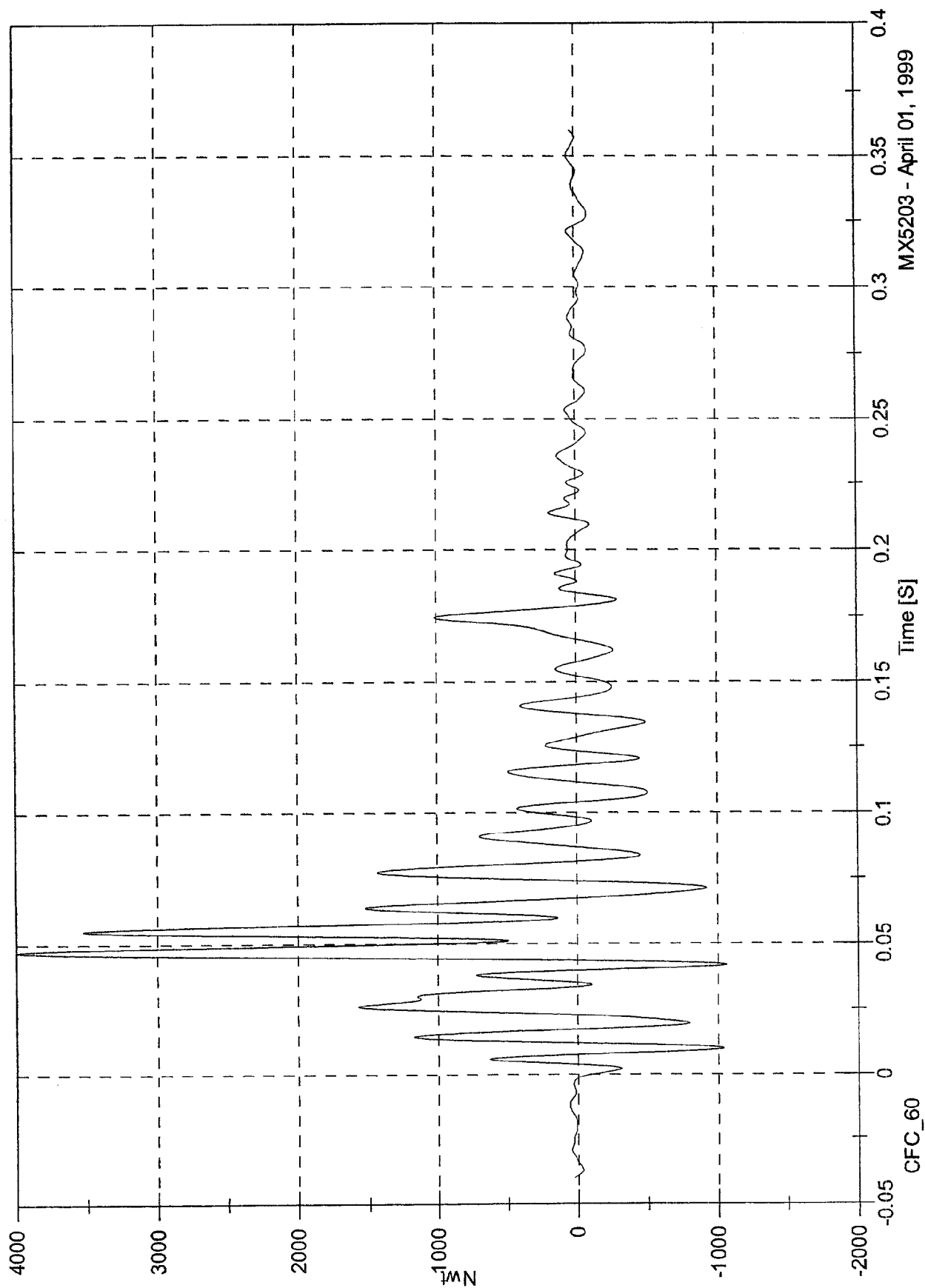


MX5203 - April 01, 1999

NCAP TEST #14-1999 Nissan Pathfinder

Max: 3991.1 [Nwt] at 0.047 [S]
Min: -1067.2 [Nwt] at 0.042 [S]

BLC D1 Fx

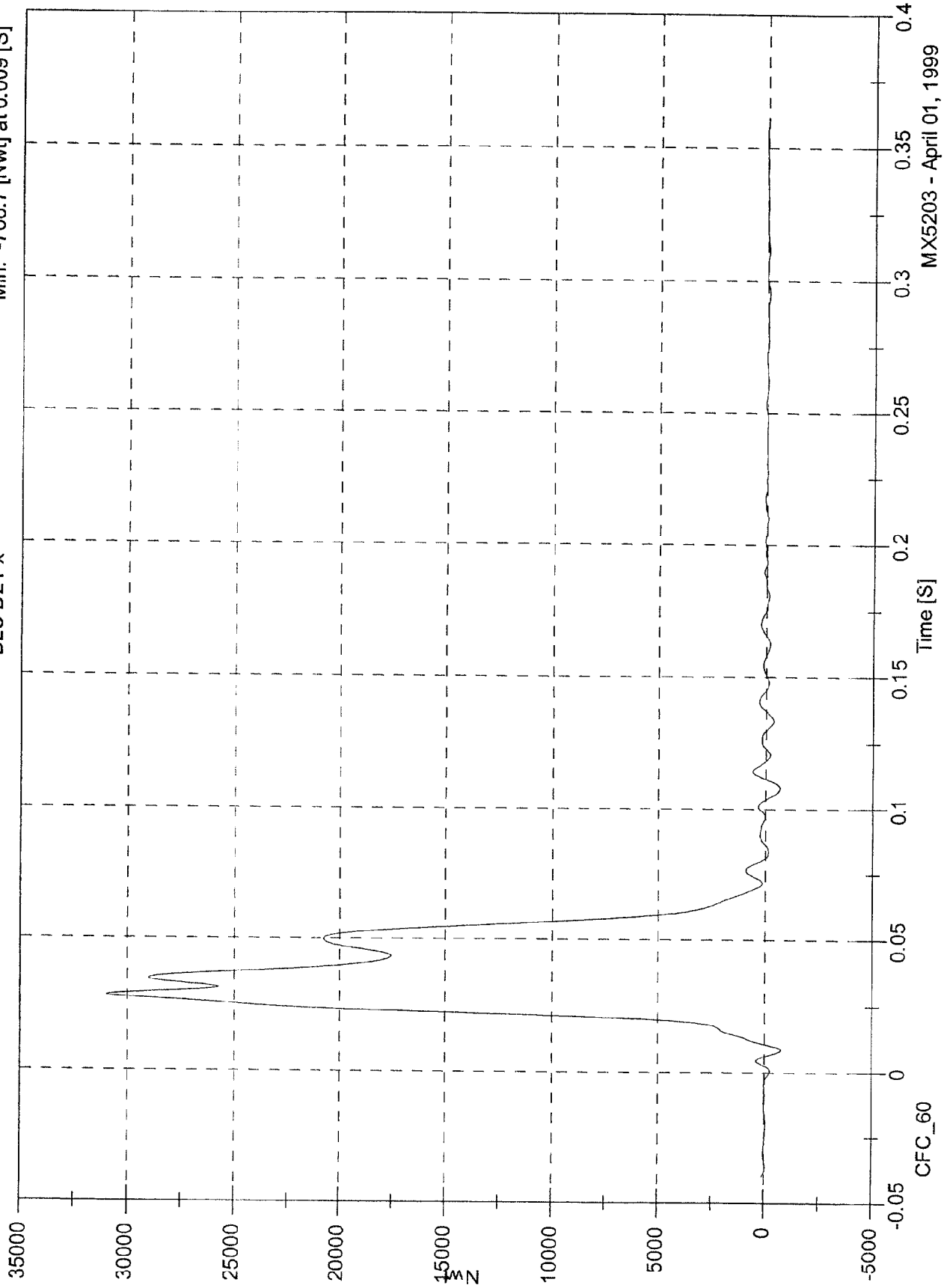


MX5203 - April 01, 1999

NCAP TEST #14- 1999 Nissan Pathfinder

Max 30987.4 [Nwt] at 0.029 [S]
Min: -768.7 [Nwt] at 0.009 [S]

BLC D2 Fx

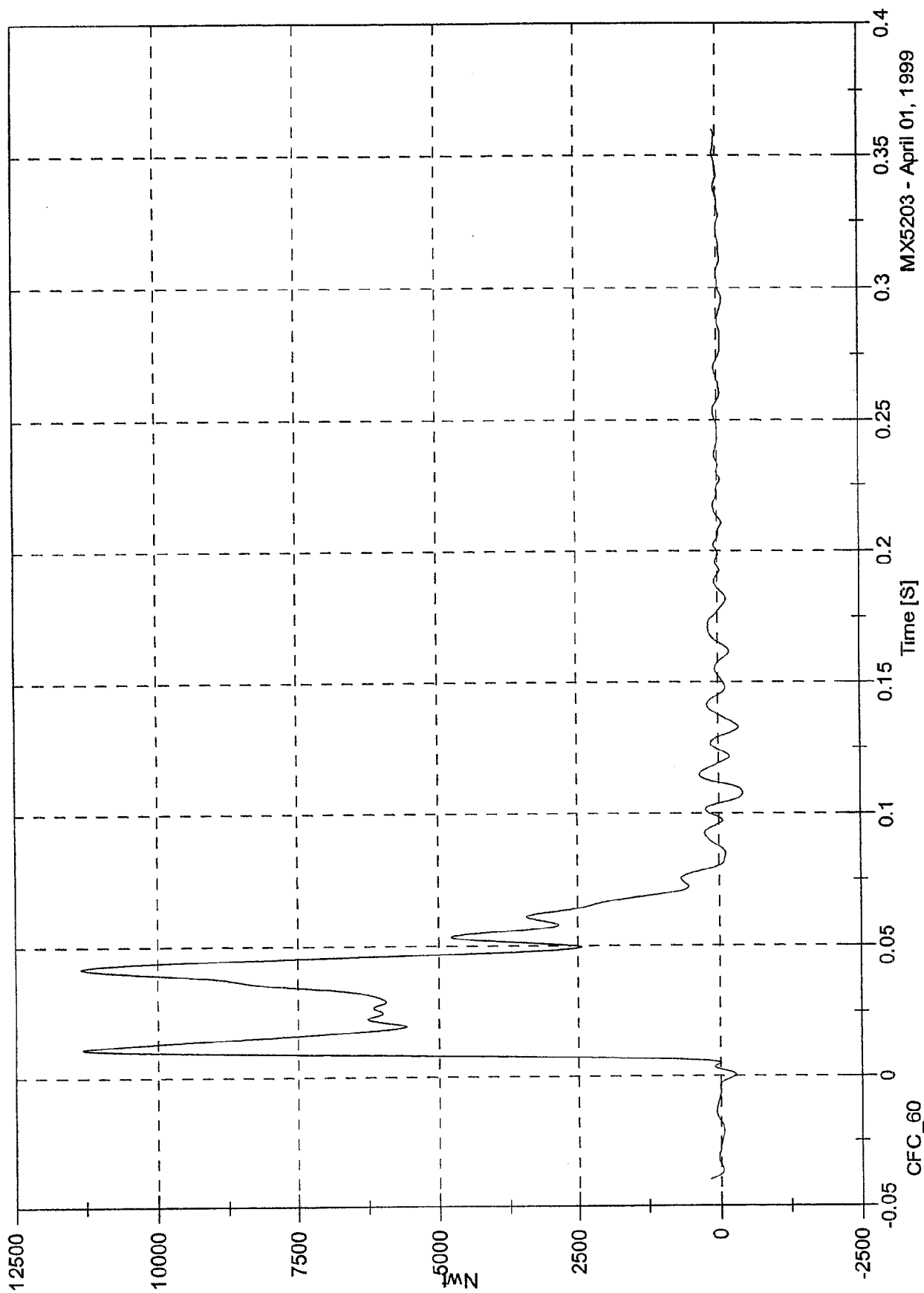


MX5203 - April 01, 1999

NCAP TEST #14-1999 Nissan Pathfinder

Max: 11341.2 [Nwt] at 0.042 [S]
Min: -425.0 [Nwt] at 0.108 [S]

BLC D3 Fx

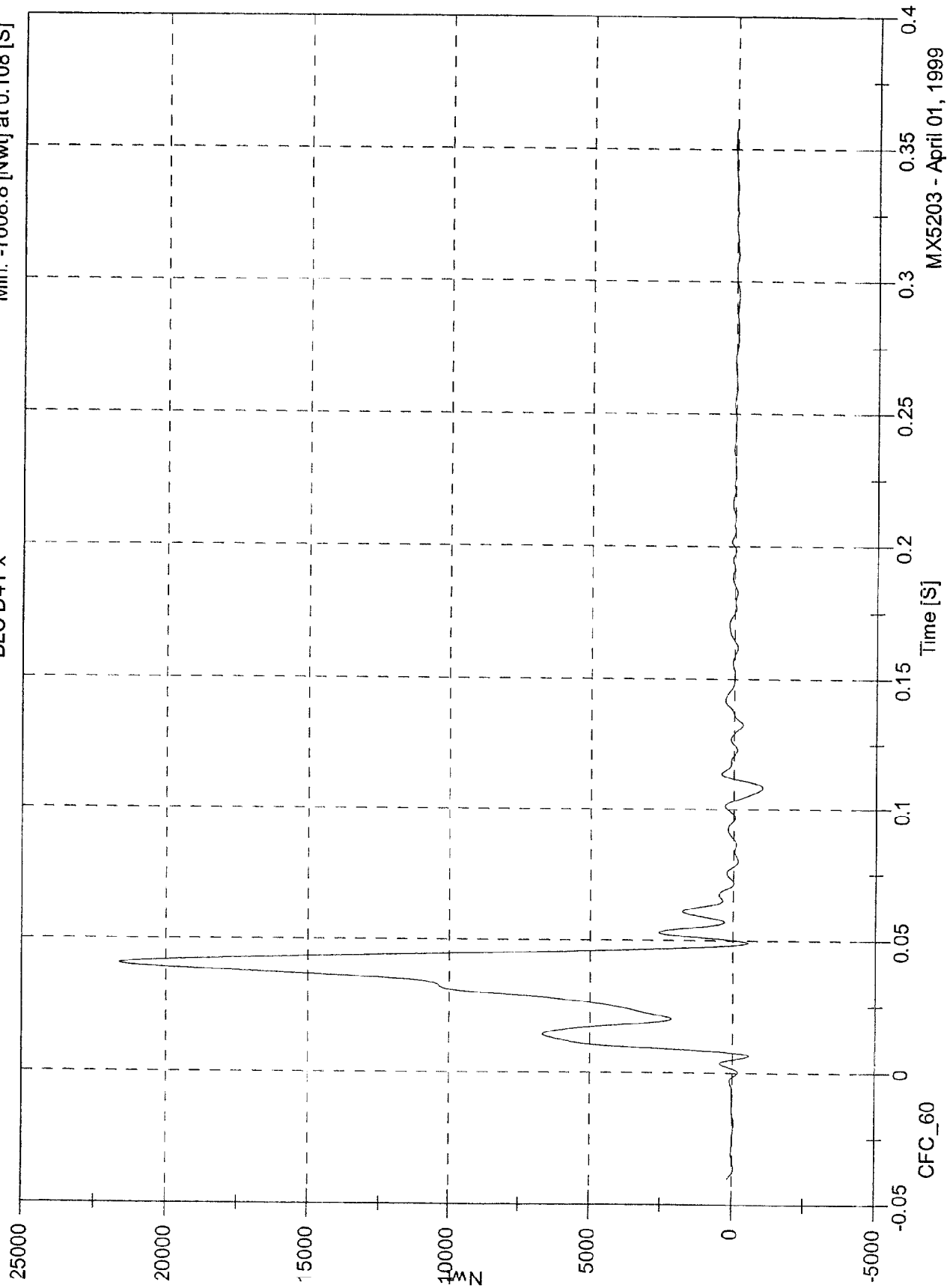


MX5203 - April 01, 1999

NCAP TEST #14-1999 Nissan Pathfinder

BLC D4 Fx

Max: 21633.0 [Nwt] at 0.041 [S]
Min: -1008.8 [Nwt] at 0.108 [S]

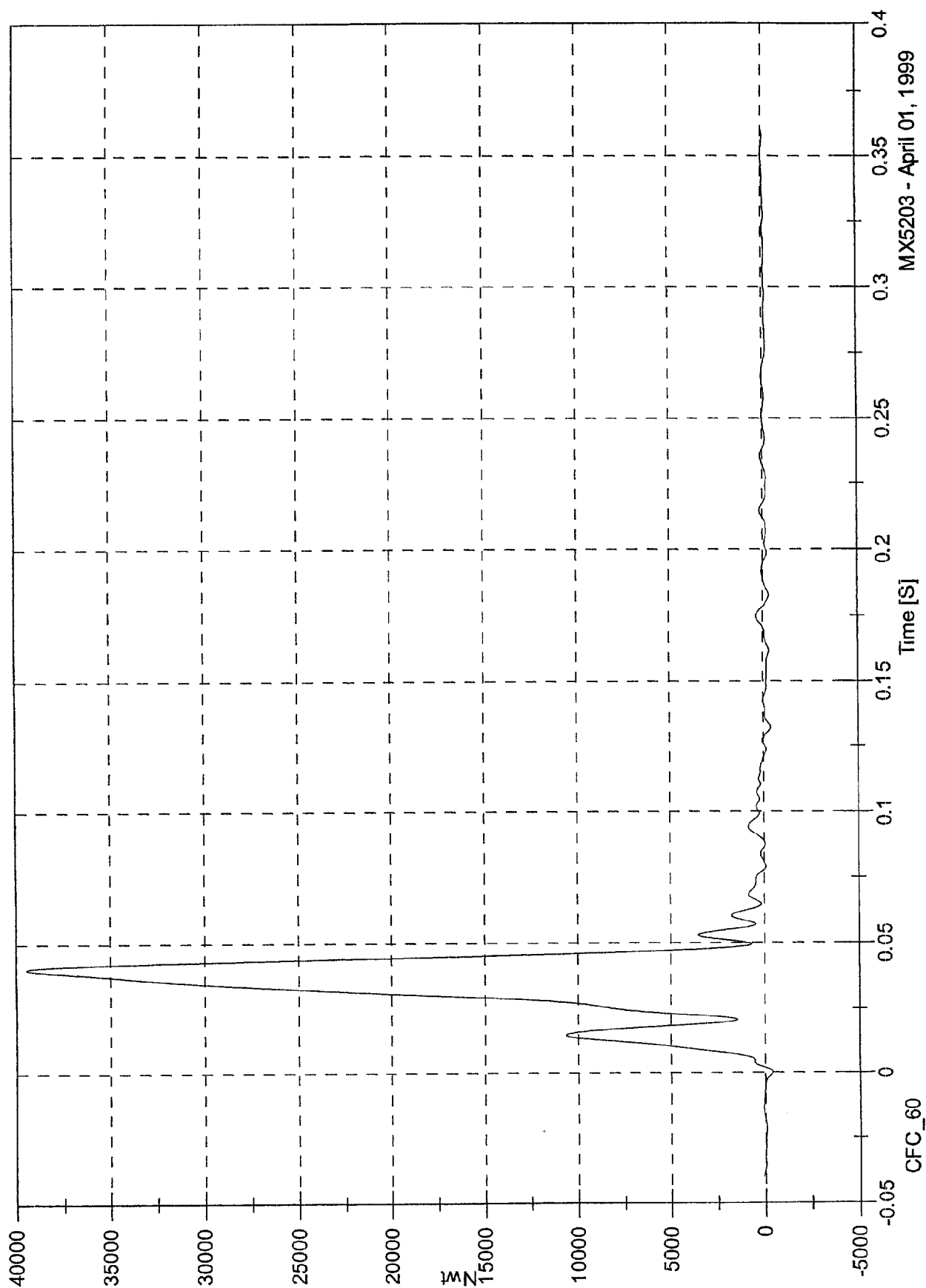


MX5203 - April 01, 1999

NCAP TEST #14-1999 Nissan Pathfinder

Max: 39479.5 [Nwt] at 0.040 [S]
Min: -395.5 [Nwt] at 0.132 [S]

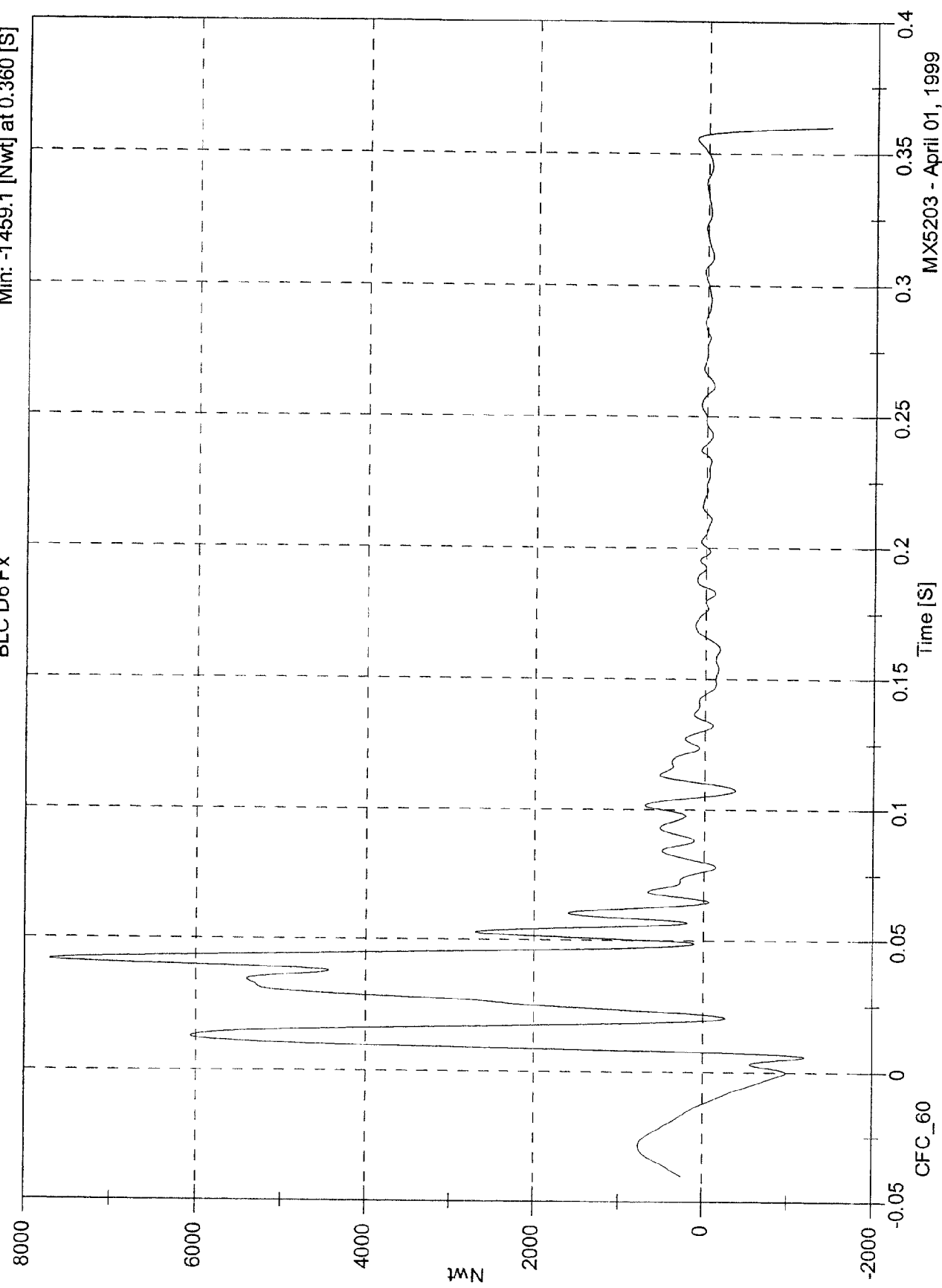
BLC D5 Fx



NCAP TEST #14-1999 Nissan Pathfinder

Max: 7711.7 [Nwt] at 0.042 [S]
 Min: -1459.1 [Nwt] at 0.360 [S]

BLC D6 Fx

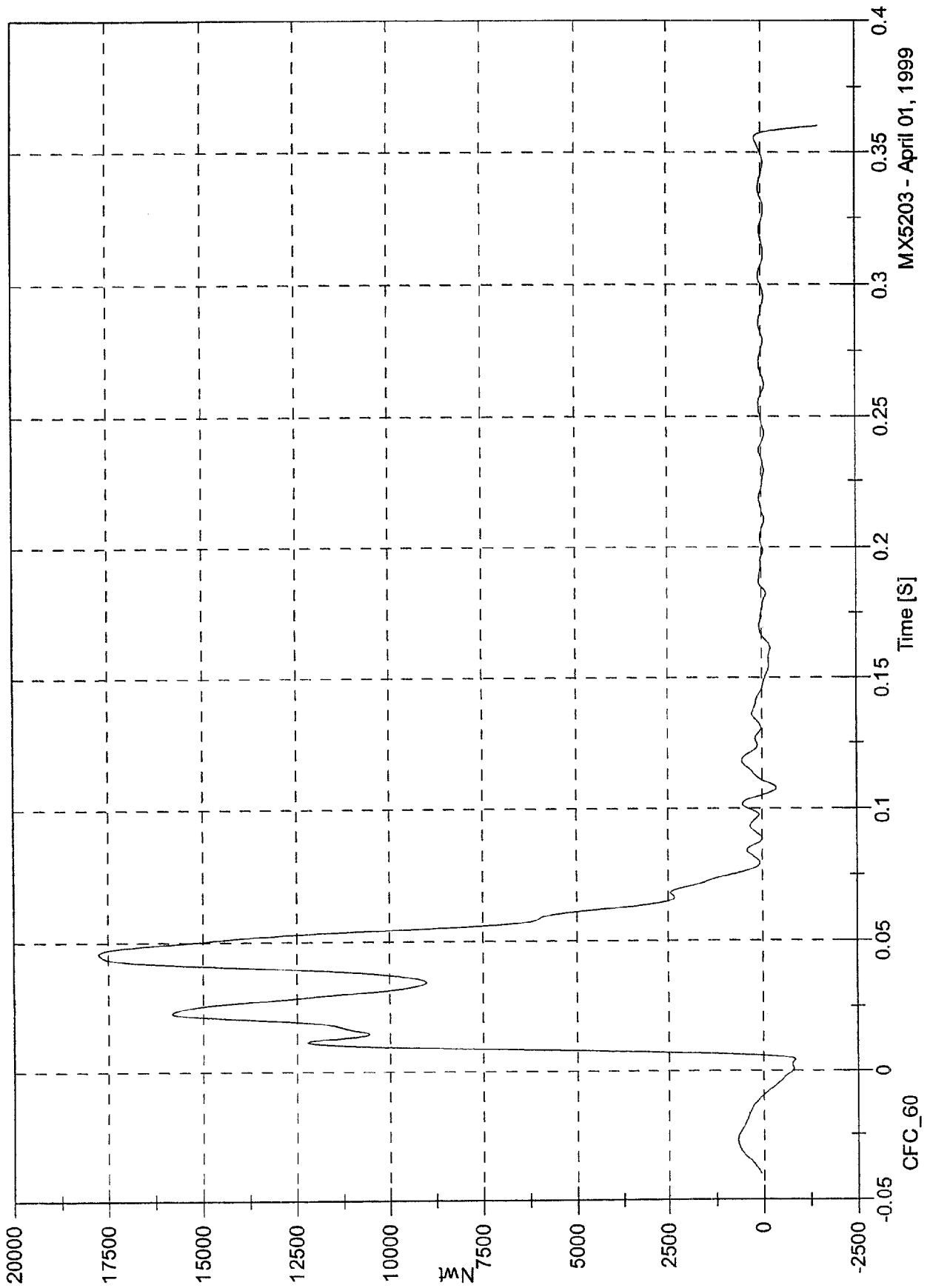


MX5203 - April 01, 1999

NCAP TEST #14-1999 Nissan Pathfinder

Max: 17786.1 [Nwt] at 0.046 [S]
Min: -1524.2 [Nwt] at 0.360 [S]

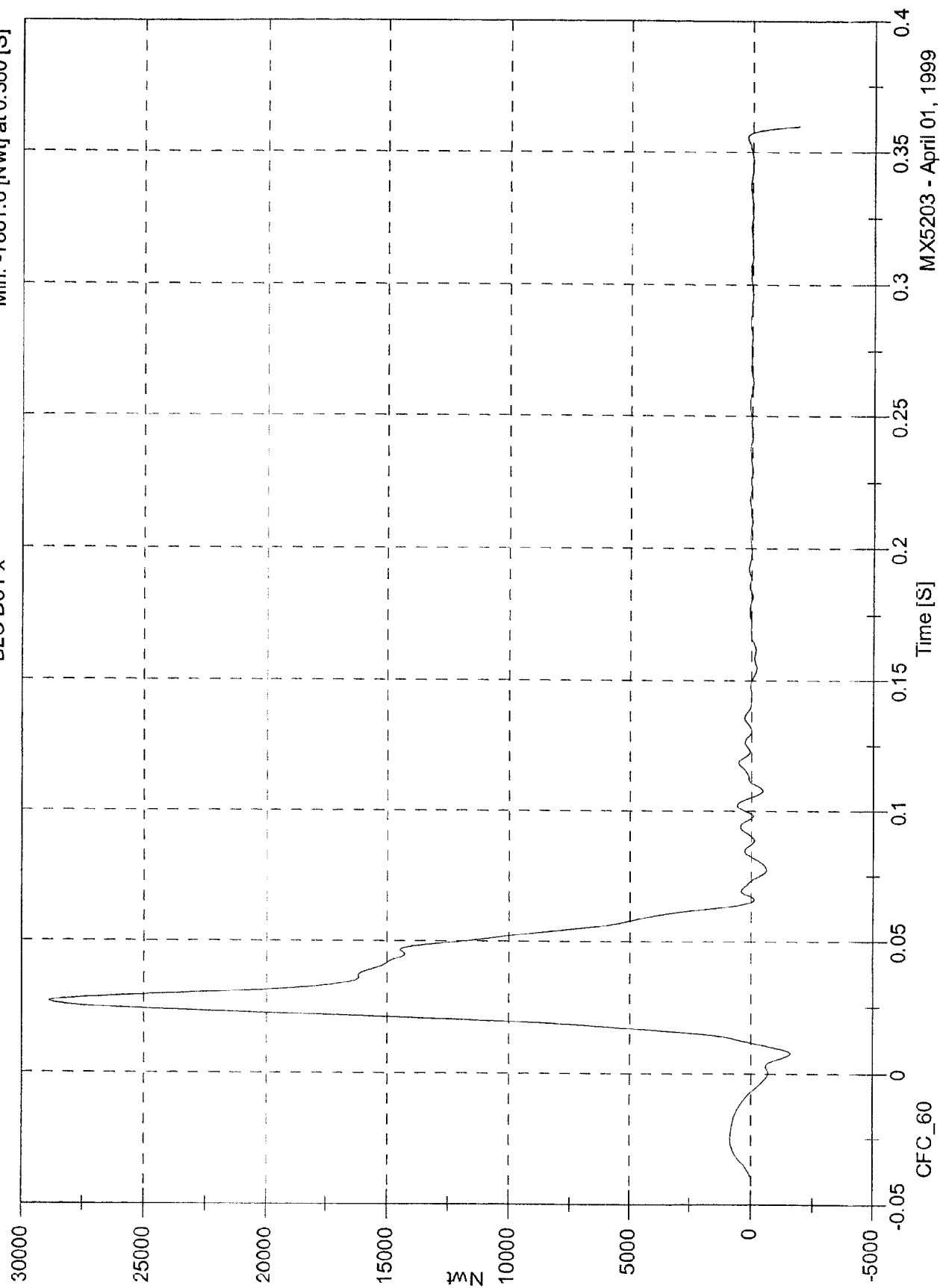
BLC D7 Fx



NCAP TEST #14- 1999 Nissan Pathfinder

Max: 28864.7 [Nwt] at 0.027 [S]
Min: -1881.6 [Nwt] at 0.360 [S]

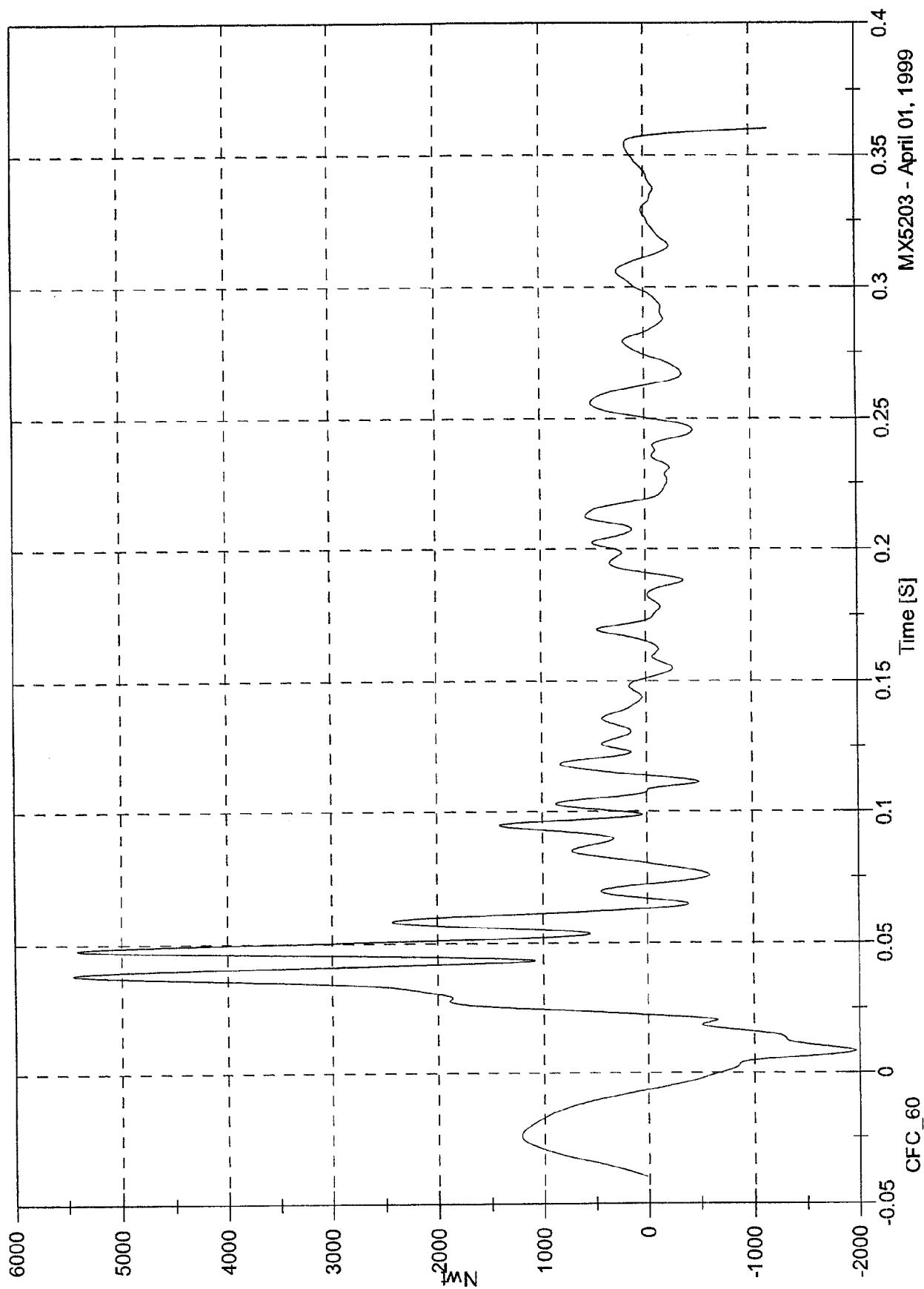
BLC D8 Fx



NCAP TEST #14-1999 Nissan Pathfinder

Max: 5460.0 [Nwt] at 0.038 [S]
Min: -1964.1 [Nwt] at 0.008 [S]

BLC D9 Fx

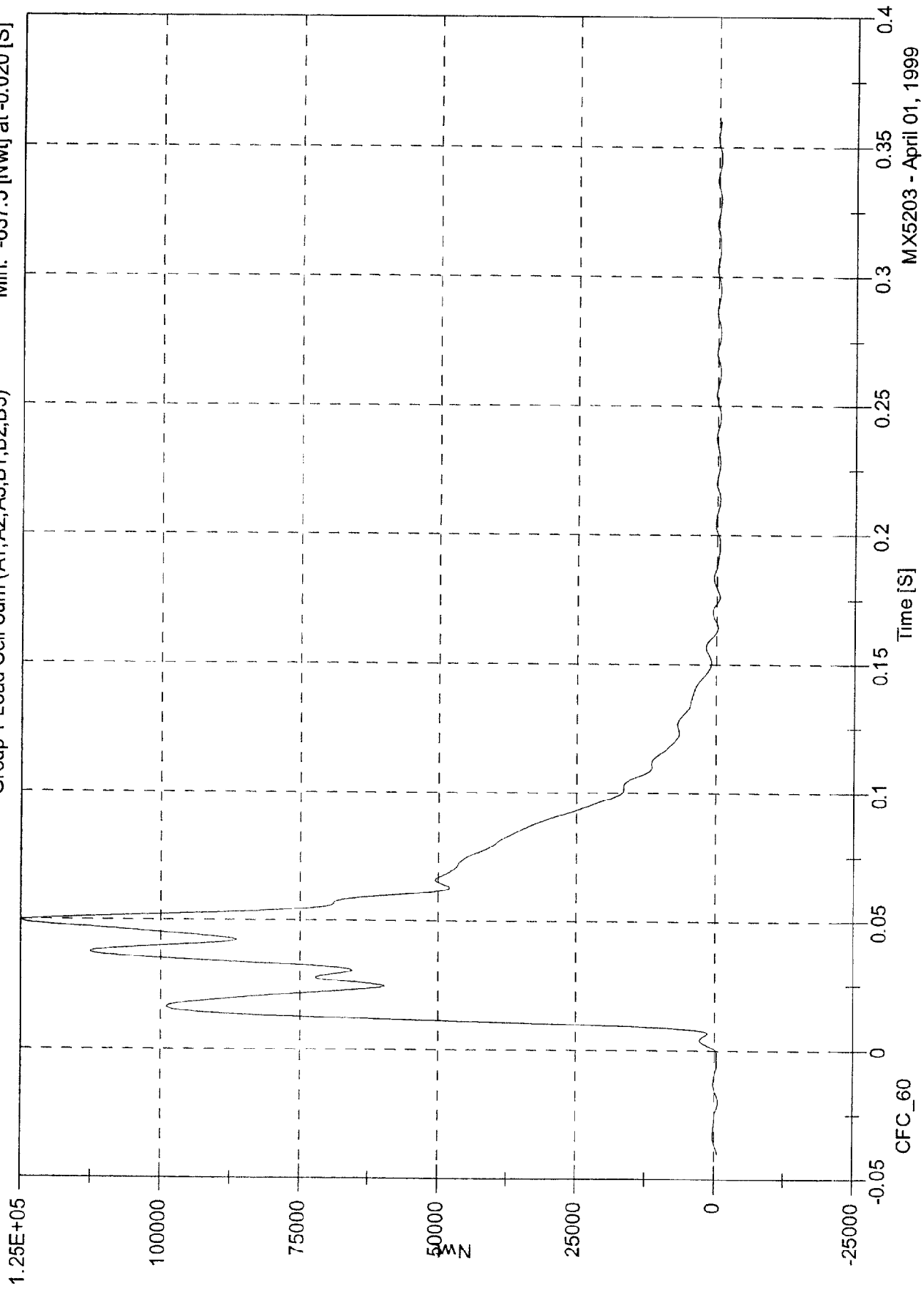


MX5203 - April 01, 1999

NCAP TEST #14-1999 Nissan Pathfinder

Max: 124837.0 [Nwt] at 0.049 [S]
 Min: -637.5 [Nwt] at -0.020 [S]

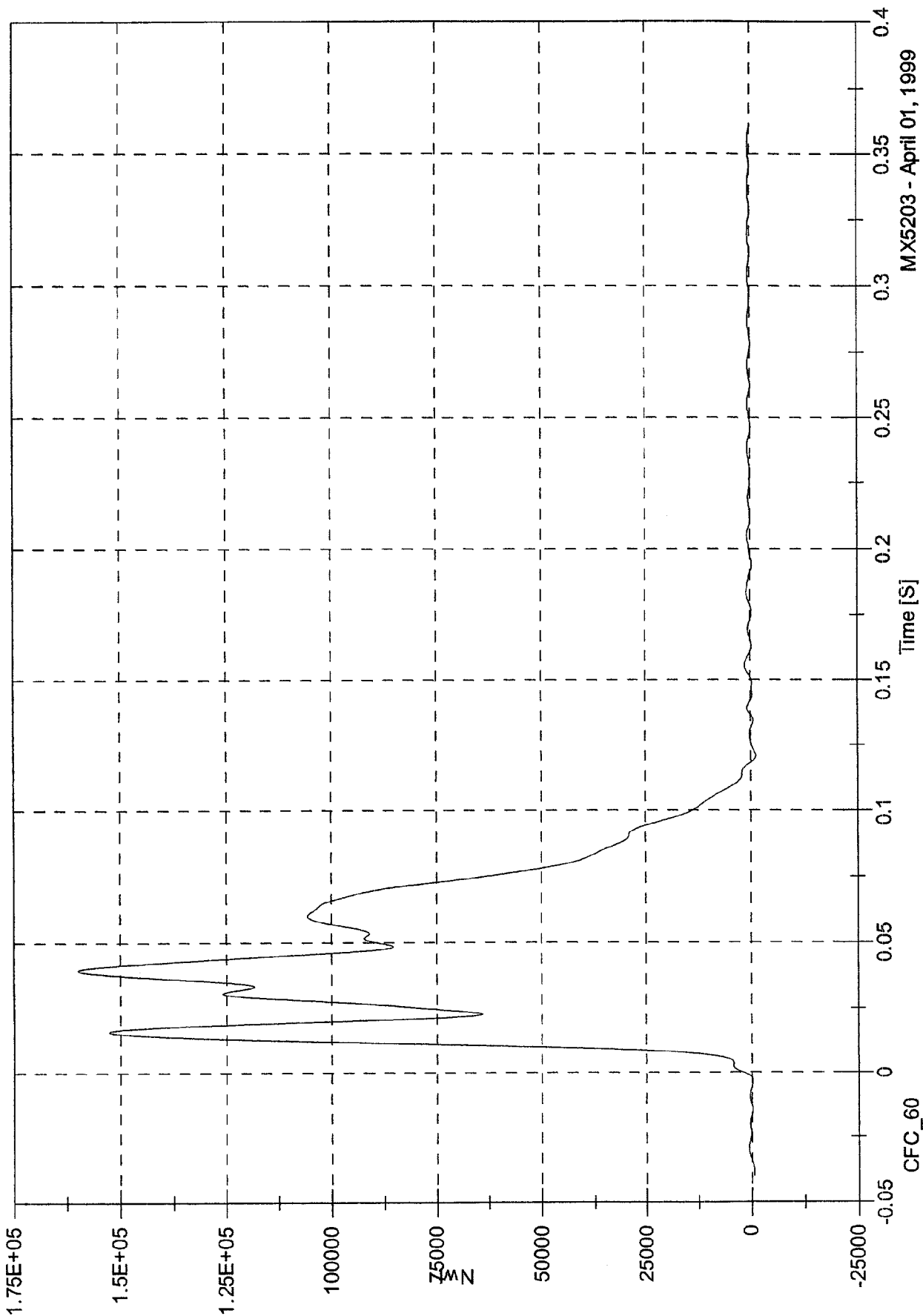
Group 1 Load Cell Sum (A1,A2,A3,B1,B2,B3)



NCAP TEST #14- 1999 Nissan Pathfinder

Max: 159911.1 [Nwt] at 0.039 [S]
 Min: -1274.4 [Nwt] at 0.121 [S]

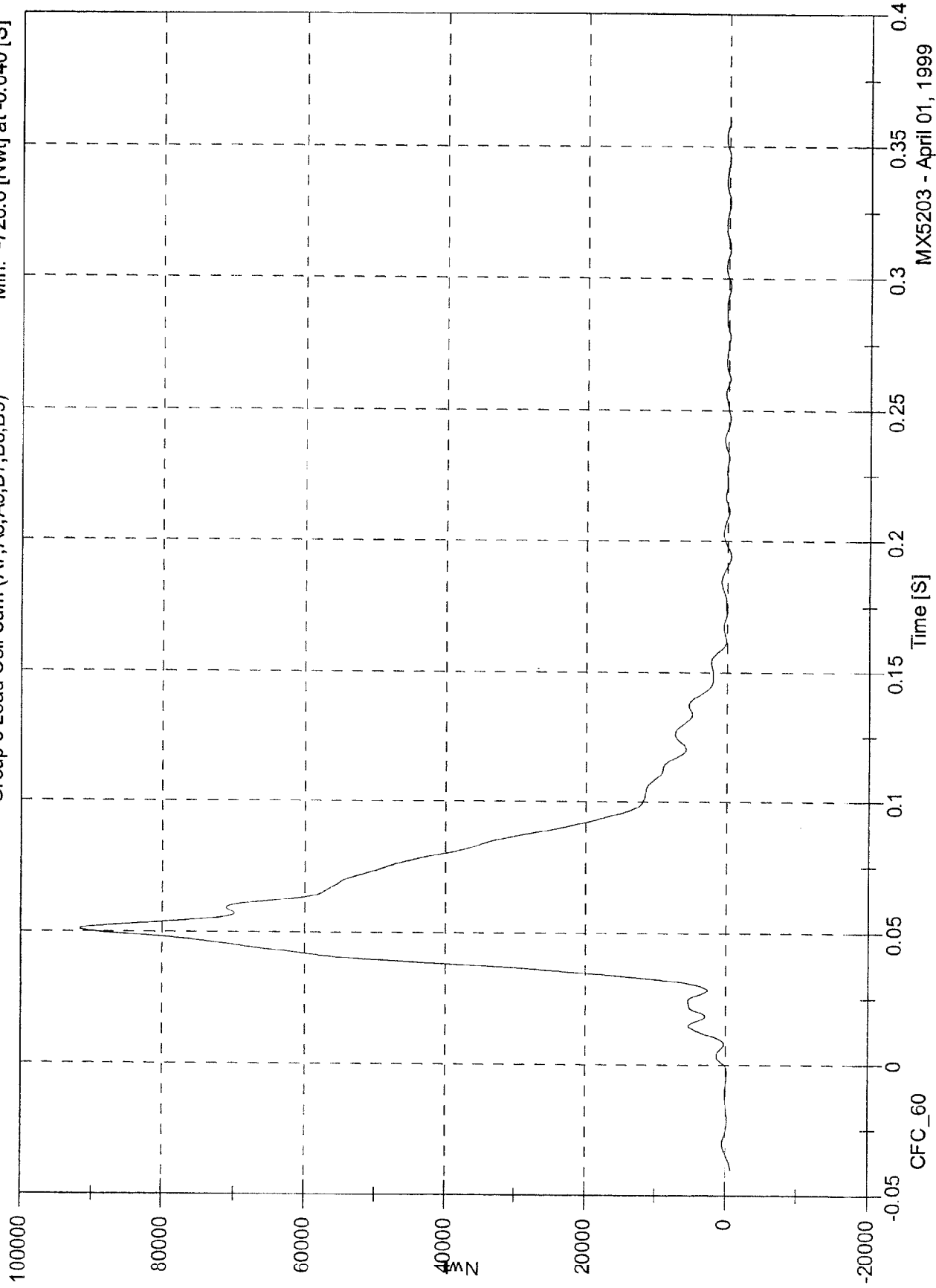
Group 2 Load Cell Sum (A4,A5,A6,B4,B5,B6)



NCAP TEST #14- 1999 Nissan Pathfinder

Max 91690.9 [Nwt] at 0.051 [S]
Min: -728.6 [Nwt] at -0.040 [S]

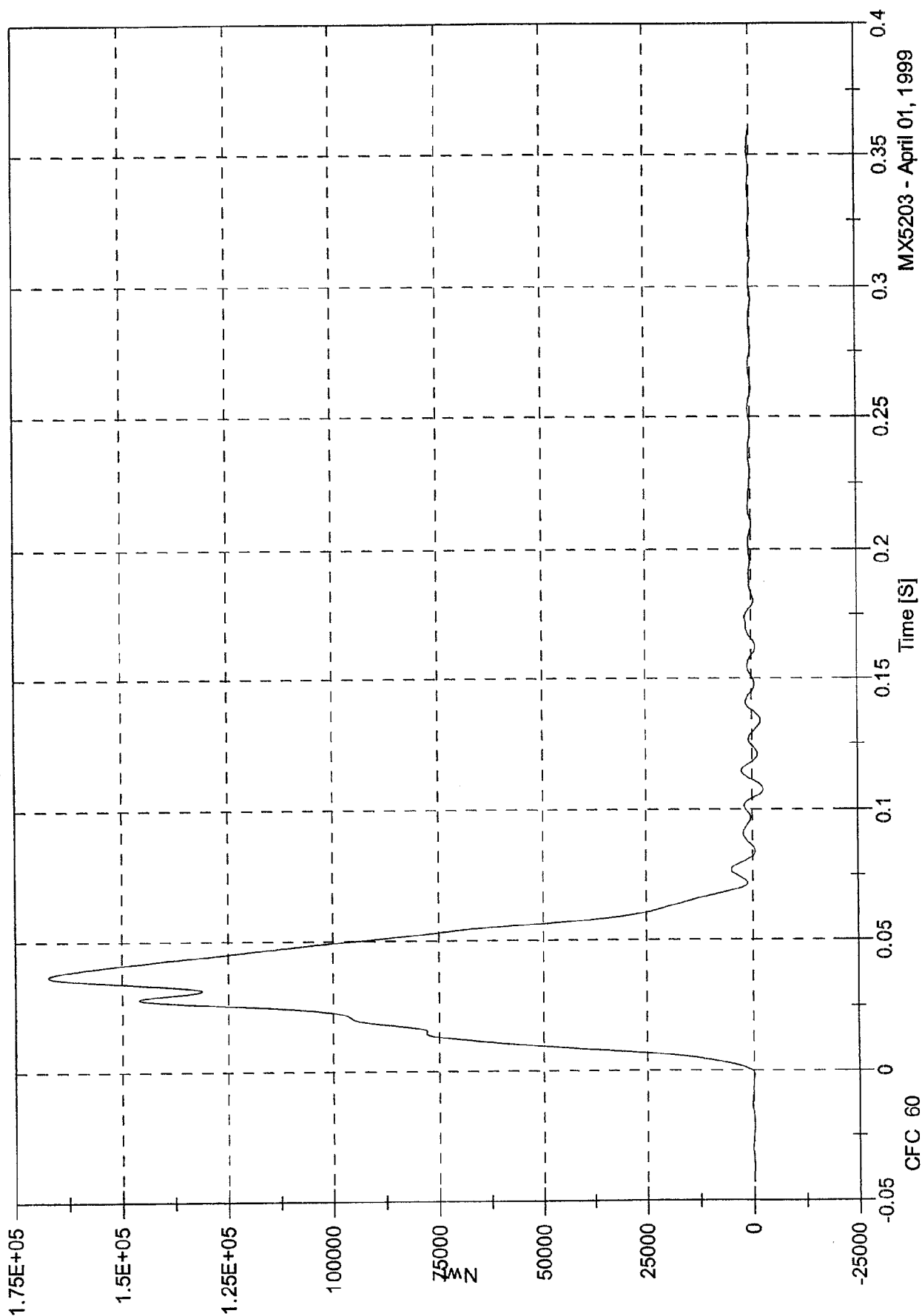
Group 3 Load Cell Sum (A7,A8,A9,B7,B8,B9)



MX5203 - April 01, 1999

NCAP TEST #14- 1999 Nissan Pathfinder

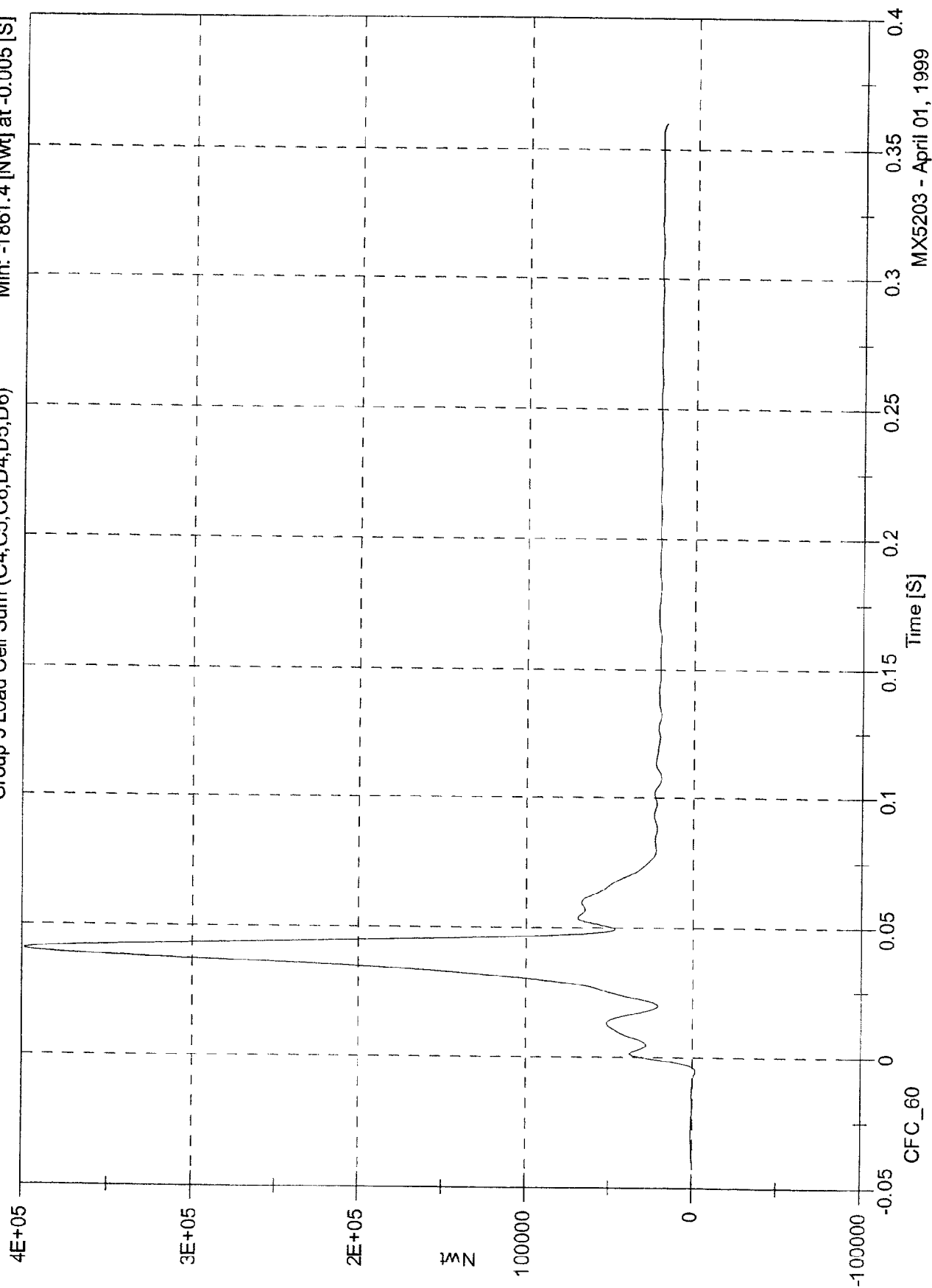
Group 4 Load Cell Sum (C1,C2,C3,D1,D2,D3)



NCAP TEST #14- 1999 Nissan Pathfinder

Max: 398561.3 [Nwt] at 0.041 [S]
 Min: -1861.4 [Nwt] at -0.005 [S]

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

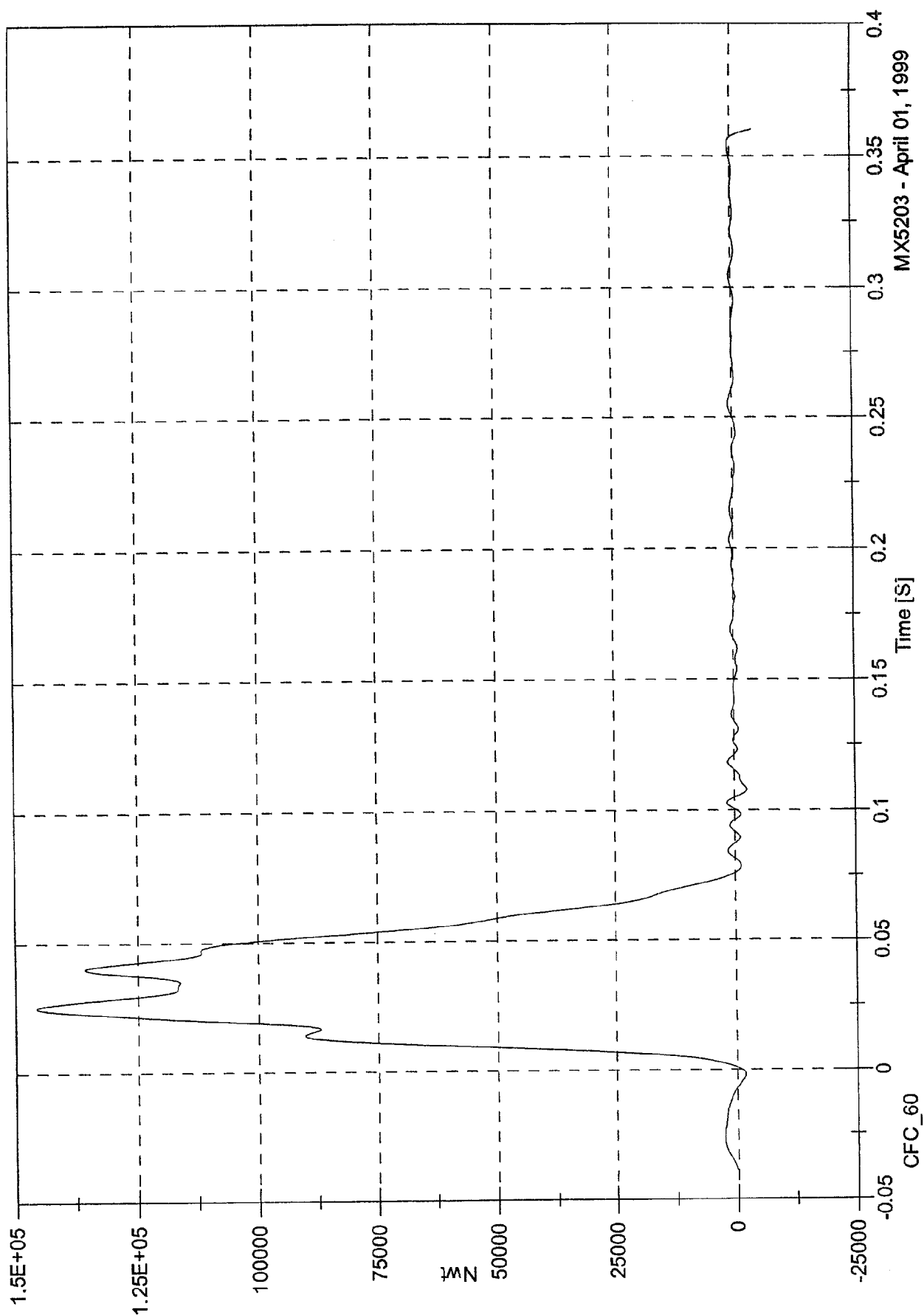


MX5203 - April 01, 1999

Max: 145817.9 [Nwt] at 0.025 [S]
Min: -4694.1 [Nwt] at 0.360 [S]

NCAP TEST #14-1999 Nissan Pathfinder

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

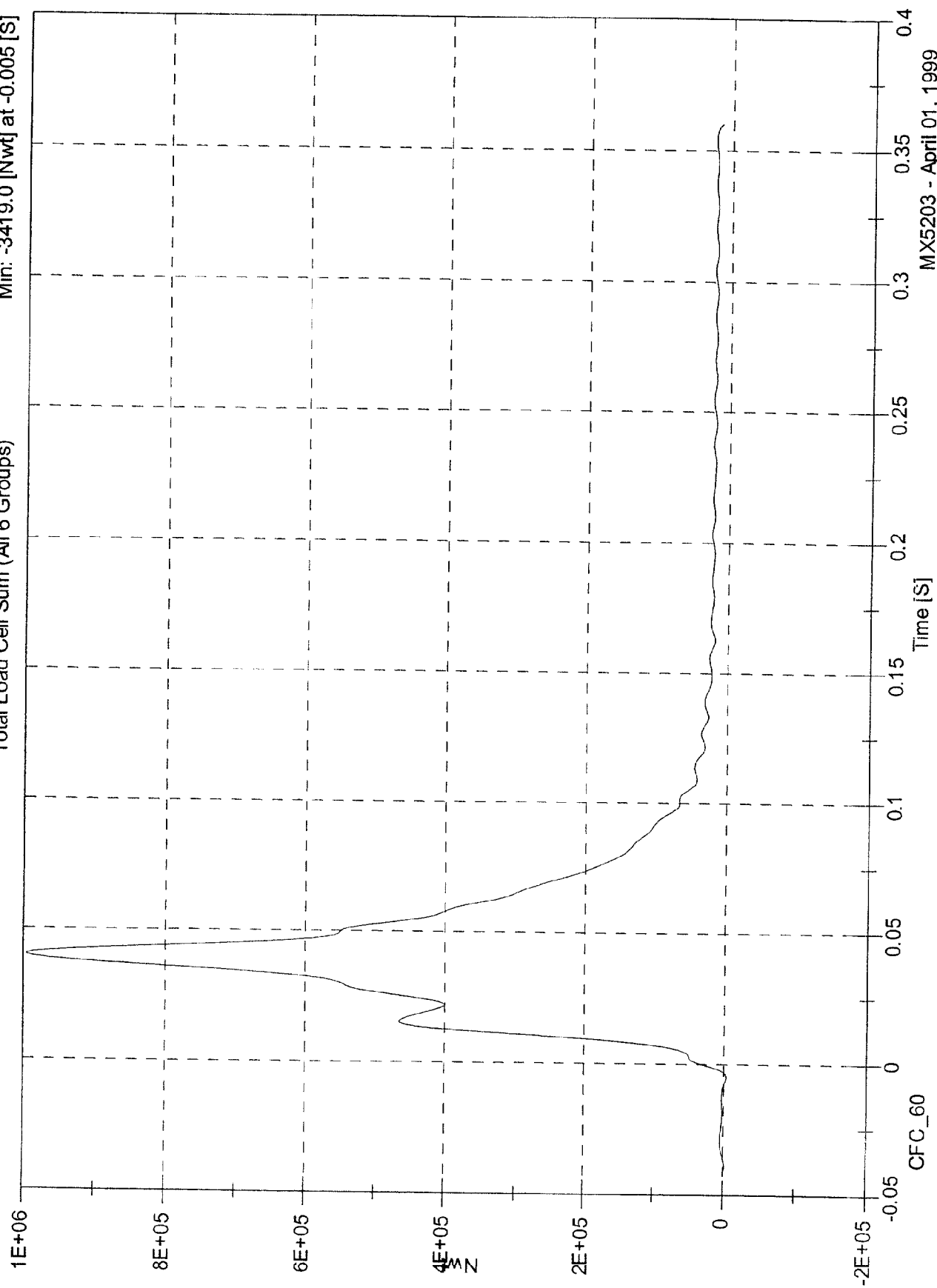


MX5203 - April 01, 1999

NCAP TEST #14- 1999 Nissan Pathfinder

Max: 995958.7 [Nwt] at 0.040 [S]
 Min: -3419.0 [Nwt] at -0.005 [S]

Total Load Cell Sum (All 6 Groups)



MX5203 - April 01, 1999

Appendix C

PART 572B/E DUMMY CONFIGURATION

AND PERFORMANCE VERIFICATION DATA SHEETS

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

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

Dummy serial numbers and certification dates are:

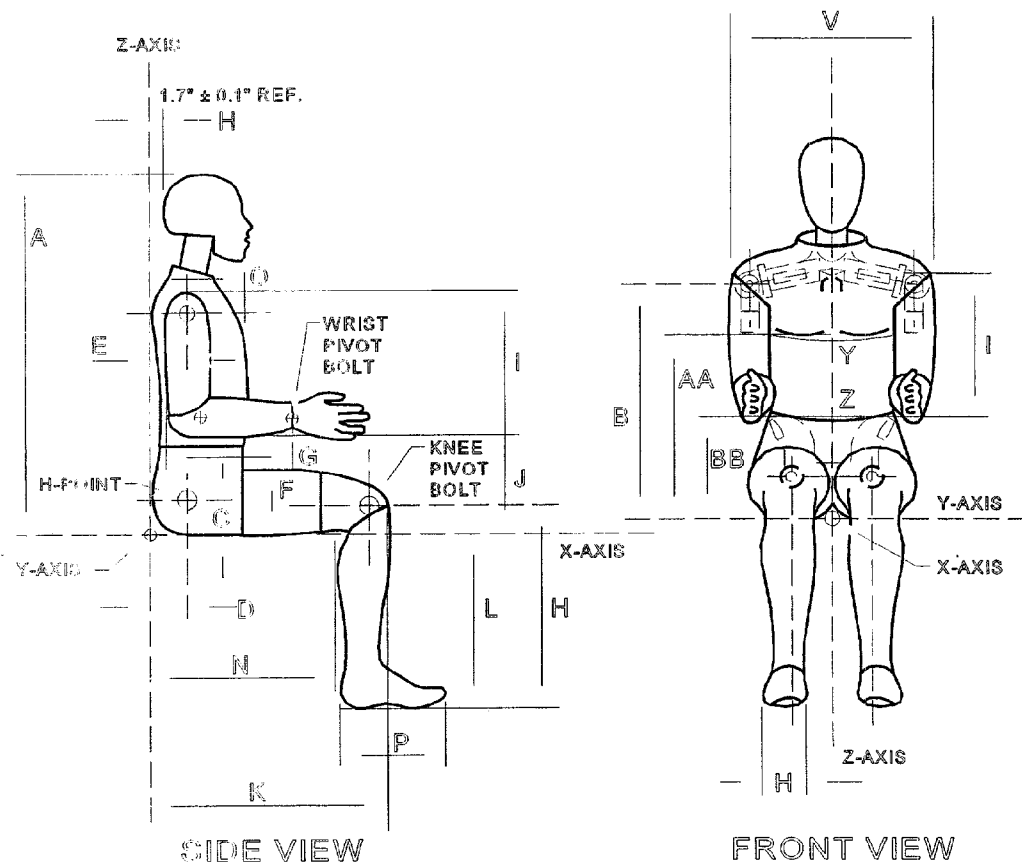
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	061	03/04/99
#2/Right Front Passenger	064	03/29/99

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: 0572.31(A)(6))

PART 572E
HEAD DROP TEST

Dummy Serial Number 061
Calspan Sequential Test Number 3
Date 02/03/99
Workfile 061399.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	25
Peak Resultant Acceleration	225-275 G's	235.7
Peak Lateral Acceleration	15 G's Max	11.9
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number 061
Calspan Sequential Test Number 3
Date 02/09/99
Workfile 061399.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	18
Impact Velocity		22.60 - 23.40 Ft/s	23.13
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	25.45
	20 ms	17.60 - 22.60 G's	21.43
	30 ms	12.50 - 18.50 G's	15.50
Max Pendulum G's Above 30 ms		29 G's Max	15.50
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	38.00
D Plane Rotation	Max	64 - 78 Deg	75.53
	Time	57 - 64 ms	61.50
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	74.25
	Time	47 - 58 ms	53.25
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	121.50
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	101.75

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number 061
Calspan Sequential Test Number 3
Date 02/09/99
Workfile 061399.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	18
Impact Velocity		19.50 - 20.30 Ft/s	20.14
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.07
	20 ms	14.00 - 19.00 G's	15.89
	30 ms	11.00 - 16.00 G's	13.58
Max Pendulum G's Above 30 ms		22 G's Max	13.58
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	46.00
D Plane Rotation	Max	81 - 106 Deg	86.05
	Time	72 - 82 ms	74.75
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-55.20
	Time	65 - 79 ms	66.13
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	148.88
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	139.88

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 061
Calspan Sequential Test Number 3
Date 02/09/99
Workfile 061399.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	22.00
Maximum Deflection	2.50 - 2.86 in	2.51
Maximum Resistive Force	1160 - 1325 Lbs	1180.94
Internal Hysteresis	69 - 85 %	77.9

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 061
Calspan Sequential Test Number 3
Date 02/12/99
Workfile 061399

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	22
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1293.0
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	22
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1241.0

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 061
Calspan Sequential Test Number 3
Date 03/04/99

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	39.2
Waist Circumference	Z	32.9 - 34.1 in	33.5
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.1
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.7
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.5
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.1
Elbow Rest Height	J	7.5 - 8.3 in	7.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.4
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 064
Calspan Sequential Test Number 3
Date 3/22/99
Workfile 064399.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Peak Resultant Acceleration	225-275 G's	233.2
Peak Lateral Acceleration	15 G's Max	4.2
Is Acceleration Curve Unimodal?	YES	Yes

Remarks:

Laboratory Technician: B. Swiecicki

**PART 572E
NECK FLEXION TEST**

Dummy Serial Number 064
 Calspan Sequential Test Number 3
 Date 3/25/99
 Workfile 064399.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	30
Impact Velocity		22.60 - 23.40 Ft/s	22.70
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.69
	20 ms	17.60 - 22.60 G's	20.92
	30 ms	12.50 - 18.50 G's	15.76
Max Pendulum G's Above 30 ms		29 G's Max	15.76
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	38.00
D Plane Rotation	Max	64 - 78 Deg	71.79
	Time	57 - 64 ms	62.63
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	75.88
	Time	47 - 58 ms	52.13
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	123.00
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.88

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number 064
 Calspan Sequential Test Number 3
 Date 3/25/99
 Workfile 064399.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	30
Impact Velocity		19.50 - 20.30 Ft/s	19.77
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.79
	20 ms	14.00 - 19.00 G's	16.89
	30 ms	11.00 - 16.00 G's	11.81
Max Pendulum G's Above 30 ms		22 G's Max	11.81
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	45.88
D Plane Rotation	Max	81 - 106 Deg	96.09
	Time	72 - 82 ms	74.25
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-58.77
	Time	65 - 79 ms	66.13
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	147.63
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	134.63

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 064
Calspan Sequential Test Number 3
Date 3/29/99
Workfile 064399.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	30
Pendulum Velocity	21.6 - 22.4 Ft/s	21.80
Maximum Deflection	2.50 - 2.86 in	2.56
Maximum Resistive Force	1160 - 1325 Lbs	1199.79
Internal Hysteresis	69 - 85 %	78.3

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 064
Calspan Sequential Test Number 3
Date 3/29/99
Workfile 064399.lf, 064399.rf

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	1286
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	1159

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 064
Calspan Sequential Test Number 3
Date 3/29/99

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			30
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.8
Waist Circumference	Z	32.9 - 34.1 in	33.2
Chest Depth	O	8.4 - 9.0 in	8.6
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.5
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.3
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.3
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swiecicki

Appendix D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 061)	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X	AC-AL553	ENDEVCO	3/99	9/99
Y	AC-A83G	ENDEVCO	12/98	6/99
Z	AC-C14901	ENDEVCO	3/99	9/99
Chest				
X	AC-A26A	ENDEVCO	3/99	9/99
Y	AC-FP90	ENDEVCO	12/98	6/99
Z	AC-AL6H7	ENDEVCO	12/98	6/99
Right Femur Load Cell	LC-420	GSE	3/99	9/99
Left Femur Load Cell	LC-418	GSE	3/99	9/99
Neck Load Cell	LC-205	DENTON	2/99	8/99
X	LC-205	DENTON	2/99	8/99
Y	LC-205	DENTON	2/99	8/99
Z	LC-205	DENTON	2/99	8/99
Neck Moment	LC-205	DENTON	2/99	8/99
X	LC-205	DENTON	2/99	8/99
Y	LC-205	DENTON	2/99	8/99
Z	LC-205	DENTON	2/99	8/99
Chest Deflection Gauge	DS-061	SERVO	10/98	4/99
Hybrid III Use Only				
Lap Belt Load Cells	-	LEBOW	-	-
Shoulder Belt Load Cells	-	LEBOW	-	-
Spool-Out Potentiometer	-	MAGNETEK	-	-
Belt Stretch Transducer	-	CALSPAN	-	-

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X (R)	AC-A13939	ENDEVCO	12/98	6/99
Y (R)	AC-A14181	ENDEVCO	3/99	9/99
Z (R)	AC-A14124	ENDEVCO	3/99	9/99
Chest				
X (R)	AC-B11407	ENDEVCO	12/98	6/99
Y (R)	AC-B11408	ENDEVCO	3/99	9/99
Z (R)	AC-B10827	ENDEVCO	3/99	9/99
Pelvic				
X	AC-ADMB8	ENDEVCO	10/98	4/99
Y	AC-ADL44	ENDEVCO	10/98	4/99
Z	AC-ACT12	ENDEVCO	10/98	4/99
Left Upper Tibia				
Mx	LC-045	DENTON	3/99	9/99
Left Upper Tibia				
My	LC-045	DENTON	3/99	9/99
Left Lower Tibia				
Fz	LC-125	DENTON	3/99	9/99
Left Lower Tibia				
Mx	LC-125	DENTON	3/99	9/99
Left Lower Tibia				
My	LC-125	DENTON	3/99	9/99
Right Upper Tibia				
Mx	LC-038	DENTON	3/99	9/99
Right Upper Tibia				
My	LC-038	DENTON	3/99	9/99
Right Lower Tibia				
Fz	LC-124	DENTON	3/99	9/99
Right Lower Tibia				
Mx	LC-124	DENTON	3/99	9/99
Right Lower Tibia				
My	LC-124	DENTON	3/99	9/99

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacture	Calibration	
			Last	Next
Left Foot Front Z	AC-A14239	ENDEVCO	12/98	6/99
Left Foot Rear X	AC-A14488	ENDEVCO	12/98	6/99
Left Foot Rear Z	AC-A14306	ENDEVCO	12/98	6/99
Right Foot Front Z	AC-A13995	ENDEVCO	2/99	8/99
Right Foot Rear X	AC-A14481	ENDEVCO	12/98	6/99
Right Foot Rear Z	AC-A14433	ENDEVCO	12/98	6/99

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X	AC-AD4A9	ENDEVCO	11/98	5/99
Y	AC-AF8T7	ENDEVCO	11/98	5/99
Z	AC-AF5R1	ENDEVCO	11/98	5/99
Chest				
X	AC-A08A	ENDEVCO	11/98	5/99
Y	AC-ADL42	ENDEVCO	11/98	5/99
Z	AC-A28F	ENDEVCO	11/98	5/99
Right Femur Load Cell	LC-955	GSE	3/99	9/99
Left Femur Load Cell	LC-954	GSE	3/99	9/99
Neck Load Cell	LC-076	DENTON	2/99	8/99
X	LC-076	DENTON	2/99	8/99
Y	LC-076	DENTON	2/99	8/99
Z	LC-076	DENTON	2/99	8/99
Neck Moment	LC-076	DENTON	2/99	8/99
X	LC-076	DENTON	2/99	8/99
Y	LC-076	DENTON	2/99	8/99
Z	LC-076	DENTON	2/99	8/99
Chest Deflection Gauge	DS-064	SERVO	10/98	4/99
Hybrid III Use Only				
Lap Belt Load Cells	-	LEBOW	-	-
Shoulder Belt Load Cells	-	LEBOW	-	-
Spool-Out Potentiometer	-	MAGNETEK	-	-
Belt Stretch Transducer	-	CALSPAN	-	-

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X (R)	AC-A13924	ENDEVCO	12/98	6/99
Y (R)	AC-A13827	ENDEVCO	11/98	5/99
Z (R)	AC-A13921	ENDEVCO	11/98	5/99
Chest				
X (R)	AC-A14077	ENDEVCO	11/98	5/99
Y (R)	AC-A13882	ENDEVCO	11/98	5/99
Z (R)	AC-ACCW0	ENDEVCO	11/98	5/99
Pelvic				
X	AC-AF480	ENDEVCO	12/98	6/99
Y	AC-AC2M6	ENDEVCO	12/98	6/99
Z	AC-AF5C1	ENDEVCO	12/98	6/99
Left Upper Tibia	Mx	DENTON	3/99	9/99
Left Upper Tibia	My	DENTON	3/99	9/99
Left Lower Tibia	Fz	DENTON	3/99	9/99
Left Lower Tibia	Mx	DENTON	3/99	9/99
Left Lower Tibia	My	DENTON	3/99	9/99
Right Upper Tibia	Mx	DENTON	3/99	9/99
Right Upper Tibia	My	DENTON	3/99	9/99
Right Lower Tibia	Fz	DENTON	3/99	9/99
Right Lower Tibia	Mx	DENTON	3/99	9/99
Right Lower Tibia	My	DENTON	3/99	9/99

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacture	Calibration	
			Last	Next
Left Foot Front	Z	AC-A14307	12/98	6/99
Left Foot Rear	X	AC-A14510	12/98	6/99
Left Foot Rear	Z	AC-A14383	12/98	6/99
Right Foot Front	Z	AC-A14485	12/98	6/99
Right Foot Rear	X	AC-A14321	12/98	6/99
Right Foot Rear	Z	AC-A14381	2/99	8/99

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	AC-D54	ICS	1/99	7/99
Right Rear Seat Crossmember	AC-D69	ICS	2/99	8/99
Top of Engine	AC-Y13	ICS	1/99	7/99
Bottom of Engine	AC-D19	ENTRAN	1/99	7/99
Left Disc Brake Caliper	AC-J18408	ENDEVCO	10/98	4/99
Right Disc Brake Caliper	AC-J18577	ENDEVCO	1/99	7/99
Instrument Panel	AC-D71	ICS	2/99	8/99
Left Seat Rear Crossmember (R)	AC-D33	ICS	11/98	5/99
Right Seat Rear Crossmember (R)	AC-AC814	ENDEVCO	1/99	7/99