

V 3046

REPORT NUMBER: CAL-99-11

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

**FORD MOTOR COMPANY OF CANADA INC.  
1999 FORD F-150 4X2  
REGULAR CAB**

NHTSA NUMBER: MX0202

CALSPAN TEST NUMBER: 8413-35

CALSPAN CORPORATION  
TRANSPORTATION SCIENCE CENTER  
P.O. BOX 400  
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February 11, 1999

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION  
National Highway Traffic Safety Administration  
Safety Performance Standards  
Office of Crashworthiness Standards  
Mail Code: NPS-10  
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15. <i>Supplementary Notes</i>					
16. <i>Abstract</i>  A frontal load cell barrier test of a 1999 Ford F-150 4X2 Regular Cab was performed at Calspan Corporation crash test facility in Buffalo, New York, on February 11, 1999.  The impact velocity was 55.8 kph and the temperature at the barrier face was 20.5°C. The maximum post-test vehicle crush was 683 mm. The test vehicle was equipped with a 3-point belt system and supplemental airbags at both front outboard seating positions.  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 MX0202

#### PURPOSE

This 55.8 kph frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-96-D-02010. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

The 55.8 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

#### SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 1999 Ford F-150 4X2 Regular Cab at a velocity of 55.8 kph. The test was performed at the Calspan Corporation on February 11, 1999. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

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

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

Both ATDs were fully instrumented with head, chest, and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 150) 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 133 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces. The driver left ankle Z, passenger right toe Z and right rear crossmember accelerometer data is questionable. The passenger right lower lower tibia force Z channel did not record correctly. The barrier load cell B3 did not appear to return to zero.

crossmember accelerometer data is questionable. The passenger right lower lower tibia force Z channel did not record correctly. The barrier load cell B3 did not appear to return to zero.

The driver's HIC was 517.3. The maximum chest deceleration over 3 milliseconds was 45.7 g's and maximum chest deflection was 44.6 mm. Femur loads were 6298 Newtons on the left and 5533 Newtons on the right.

The right front passenger's HIC was 634.2. Maximum chest deceleration over 3 milliseconds was 45.0 g's and maximum chest deflection was 42.4 mm. Femur loads were 5074 Newtons on the left and 4232 Newtons on the right.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No. : MX0202 Test Mode : 56.3 kph Frontal Barrier

Test Date : February 11, 1999 Time: 15:25 Temperature : 20.5 °C

Vehicle Make/Model/Body Style : 1999 Ford F-150 4X2 Regular Cab

Vehicle Test Weight : 2062 kg

Vehicle/Barrier Impact Angle : 0 °

Impact Velocity : 55.8 kph

Maximum Static Crush : 683 mm

Vehicle Rebound : 261.3 mm

DUMMIES:

DRIVER

PASSENGER

Type : 572E 572E

Restraint System : 3-point belt system with airbag 3-point belt system with airbag

Number of Data Channels : 133

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 : Airbag/ Back of head to headrest Airbag/ Back of head to headrest

Abdomen : - -

Chest Airbag Airbag

Knees Knee Bolster Knee Bolster

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 1999 Ford F-150 4X2 Regular Cab  
NHTSA No. : MX0202 ; VIN: 2FTZF1729XCA53270 ; Color : Gold  
Engine Data: 6 cylinders; - CID; 4.2 Liters; - cc  
Placement : - Longitudinal or In-Line; x Transverse or Lateral  
Transmission Data : 5 speeds; x Manual; - Automatic; x Overdrive  
Final Drive : x Rear Wheel Drive; - Front Wheel Drive; - Four Wheel Drive  
Major Options : - A/C; x Pwr.Strg.; x Pwr. Brakes  
- Pwr. Windows; - Pwr. Door Locks; - Tilt Wheel  
Date Received : 1/28/99 ; Odometer Reading 59 km  
Selling Dealer : Gambino Ford Inc.  
& Address: Lockport , N.Y. 14095

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : Ford Motor Company of Canada Inc.  
Date of Manufacture 1/99  
GVWR : 2540 kg; GAWR: 1133 kg FRONT; 1451 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 221 kpa FRONT  
241 kpa REAR  
Recommended Tire Size : P235/70R16SL  
\* Recommended Cold Tire Pressure : 221 kpa FRONT; 241 kpa REAR  
Size of Tires on Test Vehicle: P235/70R16SL ; Manufacturer: BF Goodrich  
Vehicle Capacity Data :  
Type of Front Seats: x Bench; - Bucket; - Split Bench  
Number of Occupants: 3 Front; - Rear; 3 Total  
Vehicle Capacity Weight (VCW) = 471.5 kg  
No. of Occupants x 68 kg = 204 kg  
Rated Cargo/Luggage Weight (RCLW) = 268 kg 136 kg maximum

\*Tire pressure used for test

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

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

Right Front	=	<u>493.5</u>	kg	Right Rear	=	<u>386.5</u>	kg
Left Front	=	<u>515</u>	kg	Left Rear	=	<u>385.5</u>	kg
TOTAL FRONT	=	<u>1,008.5</u>	kg	TOTAL REAR	=	<u>772.0</u>	kg
TOTAL DELIVERED WEIGHT	=	<u>1,780.5</u>	kg				
% of Total Front of Vehicle Weight	=	<u>56.6</u>	%	% of Total Rear Weight	=	<u>43.4</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW)	=	<u>1,780.5</u>	kg
Rated Cargo/Luggage Weight (RCLW)	=	<u>136.0</u>	kg 136 kg maximum
Weight of 2 p.572 Dummies @ 76 each	=	<u>152</u>	kg
TARGET TEST WEIGHT	=	<u>2,068.5</u>	kg

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

Right Front	=	<u>534</u>	kg	Right Rear	=	<u>492</u>	kg
Left Front	=	<u>541</u>	kg	Left Rear	=	<u>495</u>	kg
TOTAL FRONT	=	<u>1,075.0</u>	kg	TOTAL REAR	=	<u>987.0</u>	kg
TOTAL TEST WEIGHT	=	<u>2,062.0</u>	kg				
% of Total Front Weight	=	<u>52.1</u>	%	% of Total Rear Weight	=	<u>47.9</u>	%
Weight of Ballast Secured in Vehicle Trunk Area	=	<u>45</u>	kg				
Vehicle Components Removed for Weight Reduction:	=	<u>-</u>					

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	<u>848</u>	LF	<u>853</u>	RR	<u>922</u>	LR	<u>911</u>
FULLY LOADED :	RF	<u>844</u>	LF	<u>848</u>	RR	<u>871</u>	LR	<u>884</u>
AS TESTED :	RF	<u>844</u>	LF	<u>848</u>	RR	<u>881</u>	LR	<u>884</u>
Vehicle's Wheel Base :		<u>3058</u>	mm					
Location of Vehicle's C.G. :		<u>0.0</u>	mm rearward of front wheel center.					

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual	=	<u>94.6</u>	liters
Usable Capacity Figure Furnished by COTR	=	<u>94.6</u>	liters
Test Volume Range (92 to 94% of Usable Capacity)	=	<u>87.1</u>	to <u>89.0</u> liters
ACTUAL TEST VOLUME	=	<u>87.1</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 Fuel tank is fore of rear axle on left side, fuel lines run along left frame rail and fuel tank is located fore of rear axle and left of center.

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°  
Test Date : February 11, 1999 Time: 15:25 Temperature: 20.5 °C  
Vehicle NHTSA No. : MX0202  
Required Impact Velocity Range : 55.5 to 57.1 kph

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

Trap No. 1 = 55.8 kph; Trap No. 2 = 55.8 kph  
Distance from vehicle to barrier : (1) entering trap = 813 mm  
(2) exiting trap = 305 mm

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

Vehicle Length:

Pre-Test Right = 5250 ; C/L = 5288 ; Left = 5229  
Post-Test Right = 4597 ; C/L = 4605 ; Left = 4604  
Crush Right = 653.0 ; C/L = 683.0 ; Left = 625.0  
AVERAGE = 653.7 mm

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point :

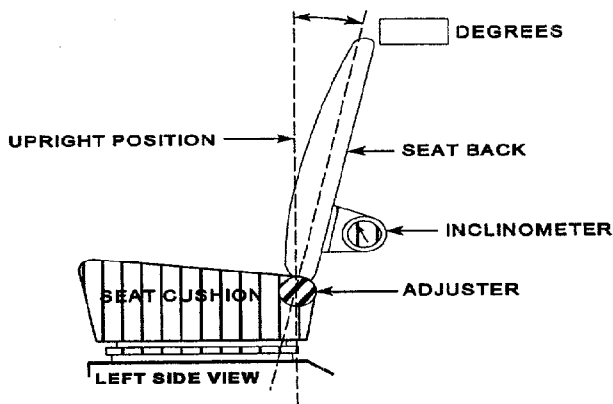
Right = 256 ; C/L = 261 ; Left = 267  
AVERAGE = 261.3 mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 1999 Vehicle Model: Ford F-150 4X2 Body Style : Regular Cab

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 : 21.4

Measurement instructions : Fixed

Seat back angle for passenger's seat : 21.4

Measurement instructions : Fixed

2. Seat Fore and Aft Positioning

Positioning of the driver's seat : Mechanical middle - 7 inches of seat travel - placed in 3.5 inch detent location

Positioning of the passenger's seat (if applicable) : Mechanical middle - 7 inches of seat travel - placed in 3.5 inch detent location

3. Fuel Tank Capacity Data

3.1

- |  |             |        |
|--|-------------|--------|
| A. "Usable Capacity" of the standard equipment fuel tank is  | <u>94.6</u> | liters |
| B. "Usable Capacity" of the optional equipment fuel tank is  | <u>-</u>    | liters |
| C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 = | <u>94.6</u> | liters |

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 87.1 liters

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

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

With ignition turned on

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

4. STEERING COLUMN ADJUSTMENTS :

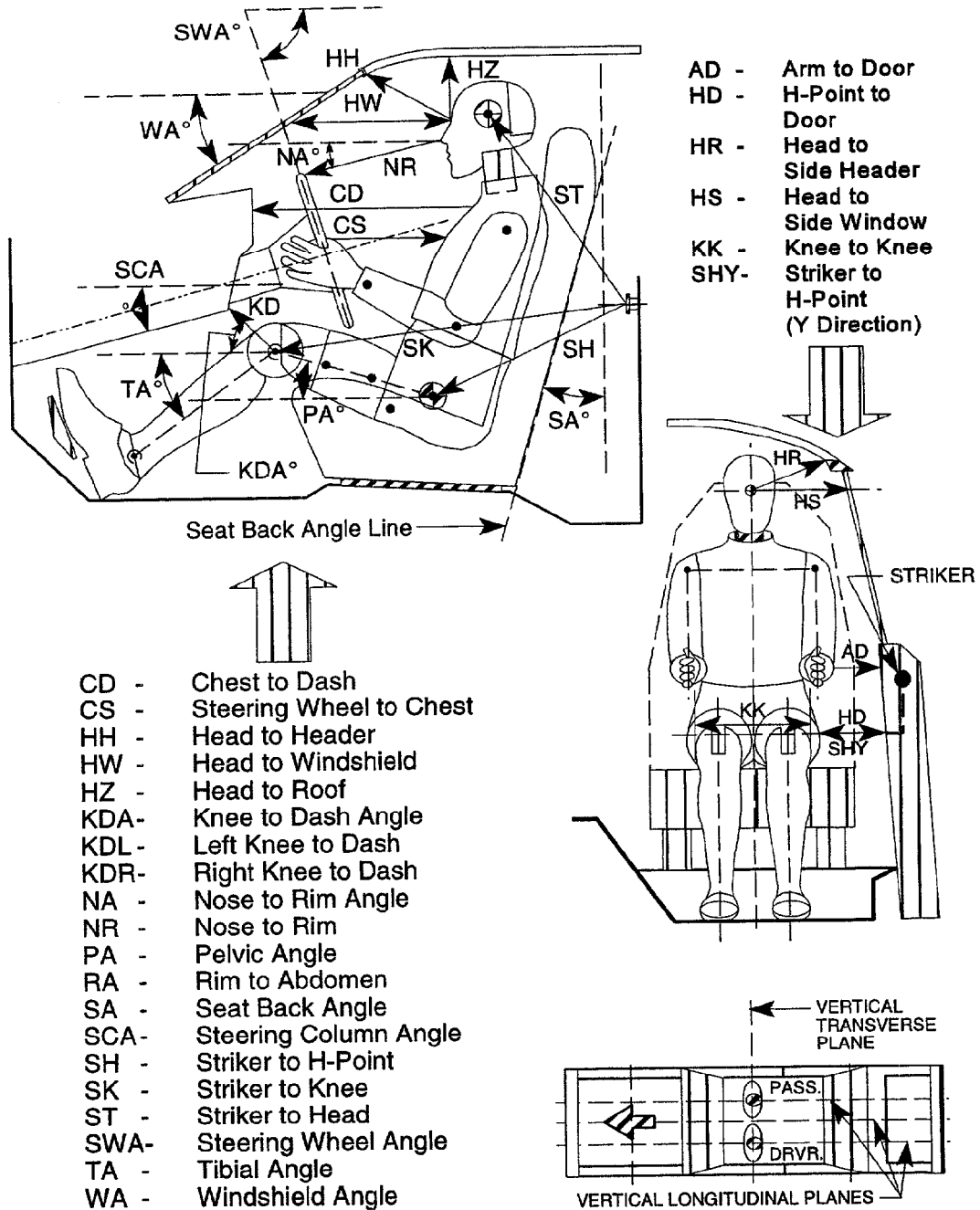
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions: N/A

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: 5 positions total - mechanical middle is 3<sup>rd</sup> detent

# DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



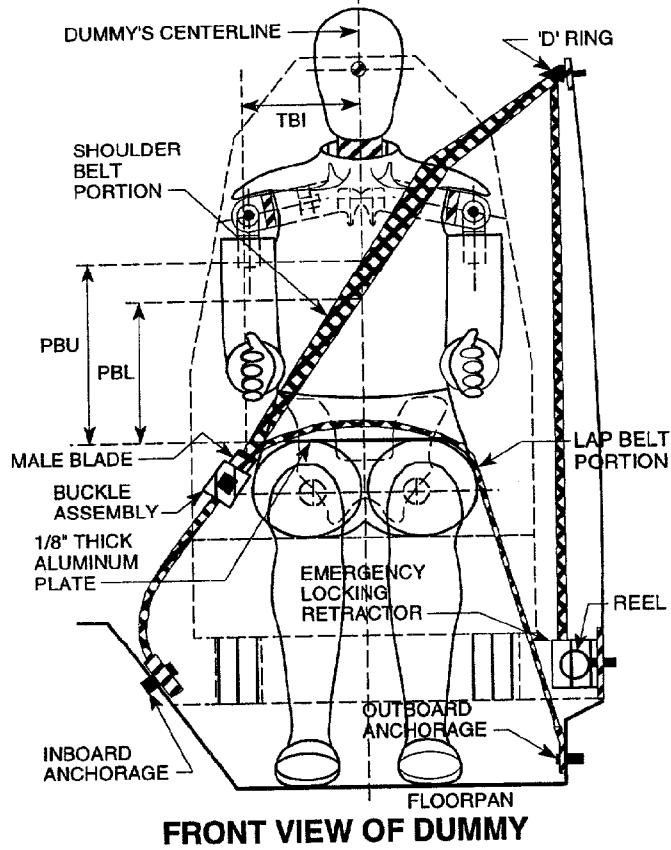
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE

	DRIVER (Serial #150)			PASS. (Serial # 064)		
WA°	35 deg.			N/A		
SWA°	70 deg.			N/A		
SCA°	20 deg.			N/A		
SA°	21.4 deg.			21.4 deg.		
HZ	244			236		
HH	406			409		
HW	644			646		
HR	257			256		
NR	406	Angle	-13 deg.	N/A		
CD	586			609		
CS	332			N/A		
RA	215			N/A		
KDL	255	Angle (KDA)	26 deg.	187		
KDR	250			191	Angle (KDA)	34 deg.
PA°	21 deg.			23 deg.		
TA°	-63 deg.			-55 deg.		
KK	340			272		
ST	654	Angle	28 deg.	673	Angle	27 deg.
SK	755	Angle	88 deg.	754	Angle	80 deg.
SH	376	Angle	93 deg.	374	Angle	93 deg.
SHY	273			261		
HS	357			343		
HD	196			171		
AD	132			123		

Dimensions in millimeters

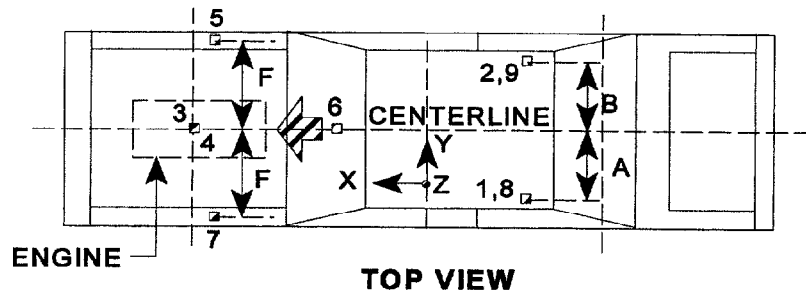
DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

**SEAT BELT POSITIONING DATA**

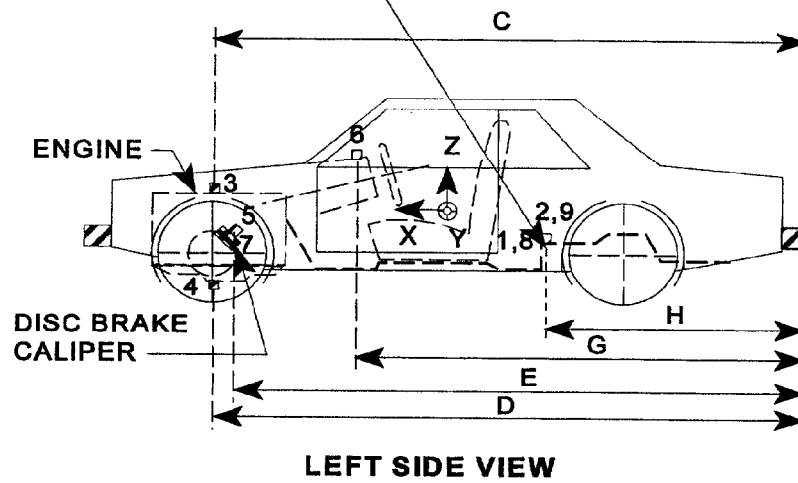


	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	316	320
PBL-- Top surface of alum. plate to belt lower edge	231	236
<u>LAP BELT TENSION</u>	10 nwts	10 nwts
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

## 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	492
B Right Rear Seat Crossmember Y	-492
C Top of Engine X	4337
D Bottom of Engine X	3980
E Disc Brake Calipers X	4031
F Disc Brake Calipers Y	+/- 413
G Instrument Panel X	3350
H Rear Seat Crossmembers X	2489

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	5.3	129.2	-37.6	25.9
2	Rear Seat X-Member @ Right Side	-*	-*	-*	-*
3	Top of Engine Block	6.9	67.6	-70.9	50.1
4	Bottom of Engine	21.5	75.8	-59.5	55.4
5	Disc Brake Caliper @ Right Side	89.9	17.4	-105.7	12.4
6	Instrument Panel	34.2	56.7	-89.3	74.3
7	Disc Brake Caliper @Left Side	40.5	488.9	-72.7	40.4
8	Rear Seat X-Member @ Left-Redundant	5.0	129.0	-37.3	19.1
9	Rear Seat X-Member @ Right-Redundant	26.1	21.0	-36.3	26.1

\* - Questionable data

**DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES**

NHTSA Test No.: MX0202 Vehicle: 1999 Ford F-150 4X2 Regular Cab

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec.	Neg.	msec.
Pos. 1 Head X	g's	24.7	243.5	-41.0	94.4
Pos. 1 Head Y	g's	3.5	173.3	-6.3	72.2
Pos. 1 Head Z	g's	40.1	82.3	-3.6	180.0
Pos. 1 Head Resultant	g's	52.6	93.5	0.1	-50.4
Pos. 2 Head X	g's	14.0	191.4	-52.5	94.1
Pos. 2 Head Y	g's	12.3	87.7	-6.6	169.3
Pos. 2 Head Z	g's	38.9	78.7	-10.1	152.7
Pos. 2 Head Resultant	g's	58.1	91.5	0.0	-54.6
Pos. 1 Chest X	g's	4.8	185.7	-43.4	61.0
Pos. 1 Chest Y	g's	2.9	49.0	-14.2	61.2
Pos. 1 Chest Z	g's	12.9	72.4	-9.7	159.4
Pos. 1 Chest Resultant	g's	46.5	60.9	0.0	-54.2
Pos. 1 Chest Displacement	mm	0.0	-70.6	-44.6	77.7
Pos. 2 Chest X	g's	8.4	179.2	-44.7	79.0
Pos. 2 Chest Y	g's	17.6	85.2	-7.1	142.7
Pos. 2 Chest Z	g's	11.6	67.9	-10.9	155.1
Pos. 2 Chest Resultant	g's	46.3	77.9	0.0	-58.5
Pos. 2 Chest Displacement	mm	0.0	-16.8	-42.4	88.9
Pos. 1 Left Femur	N	321.6	44.4	-6298.1	48.8
Pos. 1 Right Femur	N	375.0	46.2	-5533.4	58.5
Pos. 2 Left Femur	N	166.8	44.3	-5074.4	61.8
Pos. 2 Right Femur	N	184.6	47.2	-4232.4	56.1
Pos. 1 Left Belt Load	N	4744.7	62.3	-20.3	598.3
Pos. 1 Torso Belt Load	N	8377.0	79.9	-17.9	599.9
Pos. 2 Right Belt Load	N	5934.5	69.3	-2.9	-65.8
Pos. 2 Torso Belt Load	N	9364.1	82.3	-99.4	303.4

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

NHTSA Test No.: MX0202 Vehicle: 1999 Ford F-150 4X2 Regular Cab

HEAD INJURY CRITERIA (HIC)				
	HIC**	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	Average Acceleration t <sub>1</sub> to t <sub>2</sub>
Position #1 - Driver	517.3	69.0	105.0	46.0
Position #2 - Passenger	634.2	69.9	105.9	49.9

\*\* HIC is as defined in FMVSS 208. The maximum time interval from t<sub>1</sub> to t<sub>2</sub> is 36 milliseconds.

CLIP SUMMARY*				
	CLIP (g's)	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	CSI
Position #1 - Driver	45.7	60.0	63.4	466.8
Position #2 - Passenger	45.0	76.8	79.8	442.7

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

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

Vehicle Year/Make/Model/Body Style: 1999 Ford F-150 4X2 Regular Cab

NHTSA Test No.: MX0202 Test Date: February 11, 1999

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Upper Neck Fx	N	84.6	598.5	-541.9	88.0
Pos. 1 Upper Neck Fy	N	162.1	182.0	-203.9	79.9
Pos. 1 Upper Neck Fz	N	2304.6	82.5	-579.9	262.8
Pos. 1 Neck Force Result	N	2359.1	82.5	1.6	-59.3
Pos. 1 Upper Neck Mx	N-m	9.6	179.2	-22.4	93.2
Pos. 1 Upper Neck My	N-m	59.9	105.8	-57.0	264.5
Pos. 1 Upper Neck Mz	N-m	2.8	356.8	-7.3	70.5
Pos. 1 Neck Moment Result	N-m	60.6	105.7	0.1	-50.5
Pos. 2 Upper Neck Fx	N	123.8	222.3	-621.6	95.1
Pos. 2 Upper Neck Fy	N	210.1	88.1	-286.4	169.2
Pos. 2 Upper Neck Fz	N	2033.9	78.8	-436.8	153.1
Pos. 2 Neck Force Result	N	2100.9	78.8	2.1	-58.2
Pos. 2 Upper Neck Mx	N-m	18.2	96.5	-19.8	176.7
Pos. 2 Upper Neck My	N-m	26.9	157.8	-24.6	73.6
Pos. 2 Upper Neck Mz	N-m	9.2	119.9	-11.9	166.3
Pos. 2 Neck Moment Result	N-m	31.5	164.7	0.1	-56.9
Pos. 1 Pelvic (X)	g's	7.2	154.4	-66.1	52.1
Pos. 1 Pelvic (Y)	g's	9.7	46.3	-12.9	55.7
Pos. 1 Pelvic (Z)	g's	5.5	49.6	-11.3	61.9
Pos. 1 Pelvic (R)	g's	66.7	52.1	0.0	-55.2
Pos. 2 Pelvic (X)	g's	9.3	139.2	-60.0	62.1
Pos. 2 Pelvic (Y)	g's	10.8	71.6	-8.8	129.2
Pos. 2 Pelvic (Z)	g's	3.5	45.6	-12.3	59.5
Pos. 2 Pelvic (R)	g's	61.2	62.1	0.0	-63.5

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

Vehicle Year/Make/Model/Body Style: 1999 Ford F-150 4X2 Regular Cab  
 NHTSA Test No.: MX0202 Test Date: February 11, 1999

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
P1 Lt Upper Tibia Mx	N-m	24.4	47.6	-36.5	87.9
P1 Lt Upper Tibia My	N-m	138.6	82.1	-34.2	52.2
P1 Lt Lower Tibia Fz	N	1117.8	64.6	-736.5	59.2
P1 Lt Lower Tibia Mx	N-m	15.8	88.5	-16.5	64.8
P1 Lt Lower Tibia My	N-m	43.2	54.4	-73.2	86.8
P1 Rt Upper Tibia Mx	N-m	33.0	52.8	-28.6	77.7
P1 Rt Upper Tibia My	N-m	98.8	51.5	-143.9	63.5
P1 Rt Lower Tibia Fz	N	604.0	31.2	-4637.1	64.0
P1 Rt Lower Tibia Mx	N-m	*	*	*	*
P1 Rt Lower Tibia My	N-m	51.2	48.6	-123.7	68.9
Pos. 2 Lt Upper Tibia Mx	N-m	18.6	298.1	-41.0	56.8
Pos. 2 Lt Upper Tibia My	N-m	25.5	170.0	-112.4	70.0
Pos. 2 Lt Lower Tibia Fz	N	139.7	73.7	-1995.1	47.1
Pos. 2 Lt Lower Tibia Mx	N-m	16.3	52.2	-12.1	579.4
Pos. 2 Lt Lower Tibia My	N-m	72.7	69.4	-13.6	52.5
Pos. 2 Rt Upper Tibia Mx	N-m	10.7	338.8	-38.4	81.5
Pos. 2 Rt Upper Tibia My	N-m	153.4	51.0	-22.9	47.3
Pos. 2 Rt Lower Tibia Fz	N	*	*	*	*
Pos. 2 Rt Lower Tibia Mx	N-m	14.5	50.9	-15.9	70.0
Pos. 2 Rt Lower Tibia My	N-m	9.5	47.3	-108.6	51.1

\* - Channel did not record correctly

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

Vehicle Year/Make/Model/Body Style: 1999 Ford F-150 4X2 Regular Cab  
 NHTSA Test No.: MX0202      Test Date: February 11, 1999

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Left Ankle X	g's	16.0	134.5	-71.2	56.0
Pos. 1 Left Ankle Z	g's	*	*	*	*
Pos. 1 Left Toe Z	g's	30.9	69.5	-95.3	64.4
Pos. 1 Right Ankle X	g's	17.6	68.0	-126.4	47.9
Pos. 1 Right Ankle Z	g's	10.0	74.5	-100.0	60.3
Pos. 1 Right Toe Z	g's	84.5	54.3	-165.3	47.8
Pos. 2 Left Ankle X	g's	18.2	101.2	-128.3	48.4
Pos. 2 Left Ankle Z	g's	18.1	88.7	-51.3	68.8
Pos. 2 Left Toe Z	g's	68.7	79.4	-109.8	67.7
Pos. 2 Right Ankle X	g's	18.8	106.9	-230.1	51.3
Pos. 2 Right Ankle Z	g's	52.0	51.9	-71.7	51.2
Pos. 2 Right Toe Z	g's	*	*	*	*

\* - Questionable data

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

NHTSA Test No.: MX0202 Vehicle: 1999 Ford F-150 4X2 Regular Cab

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Head X(R)	g's	25.7	243.5	-54.3	94.5
Pos. 1 Head Y(R)	g's	4.2	174.7	-10.1	74.0
Pos. 1 Head Z(R)	g's	46.0	83.1	-6.5	185.8
Pos. 1 Head Resultant(RR)	g's	64.8	93.5	0.0	-55.2
Pos. 2 Head X(R)	g's	9.6	212.6	-52.2	89.7
Pos. 2 Head Y(R)	g's	13.0	209.3	-8.2	168.9
Pos. 2 Head Z(R)	g's	11.0	153.2	-40.9	76.5
Pos. 2 Head Resultant(RR)	g's	57.6	84.0	0.1	-54.7
Pos. 1 Chest X(R)	g's	4.7	184.6	-41.3	62.0
Pos. 1 Chest Y(R)	g's	3.4	48.8	-15.6	61.0
Pos. 1 Chest Z(R)	g's	13.6	72.1	-10.3	158.7
Pos. 1 Chest Resultant(RR)	g's	44.8	60.8	0.0	-53.5
Pos. 2 Chest X(R)	g's	9.0	152.3	-43.2	78.9
Pos. 2 Chest Y(R)	g's	16.6	85.2	-7.2	142.8
Pos. 2 Chest Z(R)	g's	11.8	75.9	-11.5	155.7
Pos. 2 Chest Resultant(RR)	g's	45.0	78.0	0.0	-61.0

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

NHTSA Test No.: MX0202 Vehicle: 1999 Ford F-150 4X2 Regular Cab

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	Average Acceleration t <sub>1</sub> to t <sub>2</sub>
Position #1 - Driver	820.4	66.1	102.1	55.3
Position #2 - Passenger	639.5	68.9	104.9	50.1

\*\* HIC is as defined in FMVSS 208. The maximum time interval from t<sub>1</sub> to t<sub>2</sub> is 36 milliseconds.

CLIP SUMMARY* REDUNDANT				
	CLIP (g's)	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	CSI
Position #1 - Driver	43.9	59.7	62.7	413.7
Position #2 - Passenger	44.1	68.5	71.5	421.4

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

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

	<u>Driver</u>	<u>Passenger</u>
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	<u>2082</u>	<u>2113</u>
Shoulder belt length as measured on Part 572 Dummy.	<u>916</u>	<u>924</u>
Lap belt length as measured on Part 572 Dummy.	<u>892</u>	<u>915</u>

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.	<u>-</u>	<u>-</u>
As determined mechanically.	<u>40</u>	<u>25</u>
As determined electronically.	<u>39.2</u>	<u>11.4</u>

BELT STRETCH DATA:

Measured electronically between shoulder belt load cell and the "D" ring.	<u>2.2 mm/M</u>	<u>3.3 mm/M</u>
Measured mechanically.	<u>1 mm</u>	<u>1 mm</u>

\_\_\_\_\_   
 Dimensions in millimeters

DATA SHEET NO.10 SUMMARY OF FMVSS 212 DATA

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

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

Windshield is bonded in place and covered with 28 mm molding.

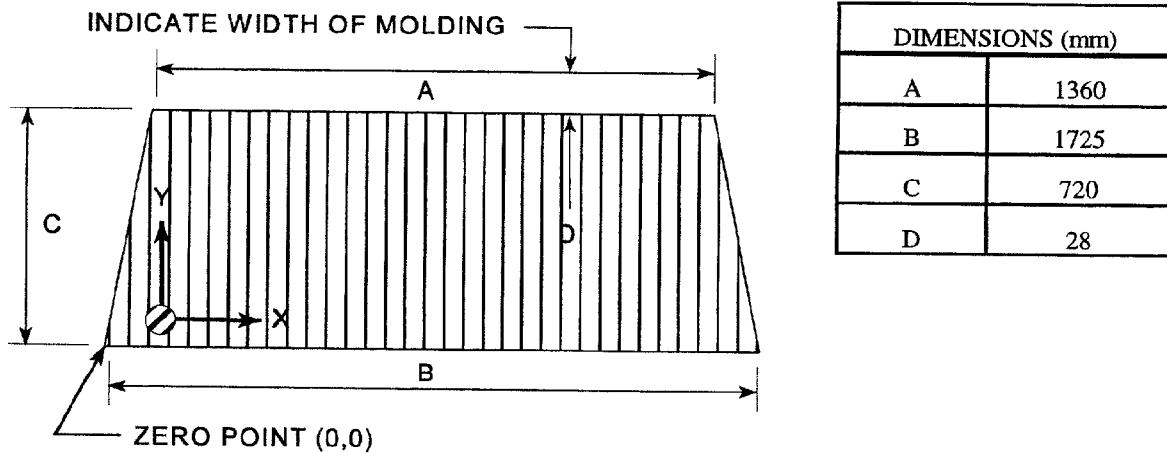
FMVSS 212 REQUIREMENTS:

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	2262.5	2262.5	100
LEFT SIDE	2262.5	2262.5	100
TOTAL	4,525	4,525	100

AREA OF RETENTION FAILURE:



**FRONT VIEW OF WINDSHIELD**

FAILURE DETAILS: None

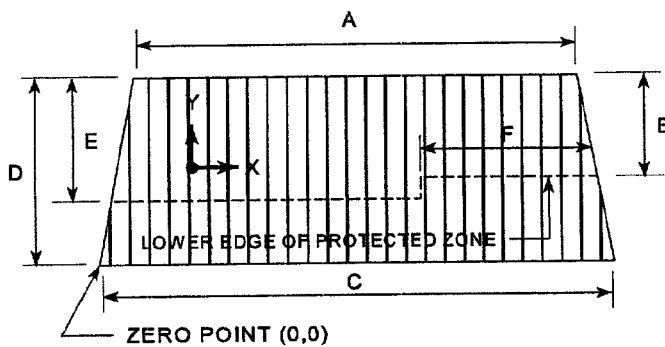
DATA SHEET NO. 11 FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA

PROTECTED ZONE LOWER EDGE REQUIREMENT:

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

FMVSS 219 TEST DATA:

(Dimensions in mm)



DIMENSIONS	
A	1360
B	430
C	1725
D	720
E	535
F	750

FRONT VIEW OF WINDSHIELD

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm:

(Show location of penetration on the above sketch)

	COORDINATES	
	X	Y
1.		
2.		
3.		
4.		

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

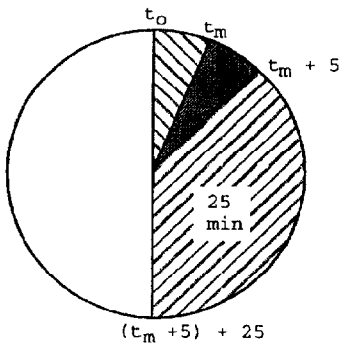
NHTSA TEST No.: MX0202 TEST DATE: February 11, 1999  
VEHICLE MAKE/MODEL: 1999 Ford F-150 4X2

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

=====

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

FUEL SPILLAGE MEASUREMENT:



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

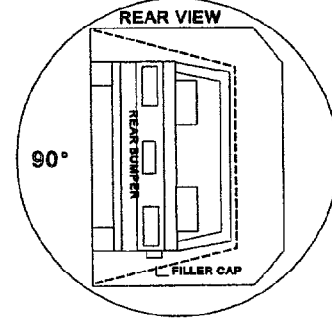
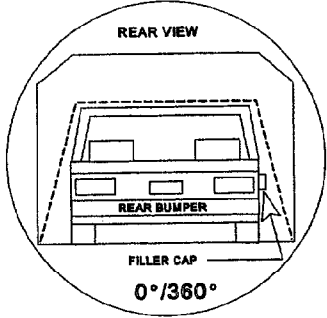
ACTUAL	MAX ALLOWED
0	28 g
0	141 g
0	28 g/min.

SOLVENT SPILLAGE DETAILS: None

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

**TEST PHASE:**  
0-90 deg.

**NHTSA Test No.:**  
MX0202



**INDETERMINATION OF SOLVENT COLLECTION TIME PERIOD:**

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u> minutes	<u>13</u> seconds
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>00</u> seconds
<b>TOTAL</b>	<u>6</u> minutes	<u>13</u> seconds
Next whole minute interval	<u>7</u> minutes	<u>00</u> seconds

**II. FMVSS 301 REQUIREMENTS:**

(1) Time Period

First 5 min. from onset of rotation	6th min.	7th min.	8th min. if reqd.
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(2) Maximum Allowable Solvent Spillage

141 g	28 g	28 g	28 g
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**III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:**

0	0	0	n/a
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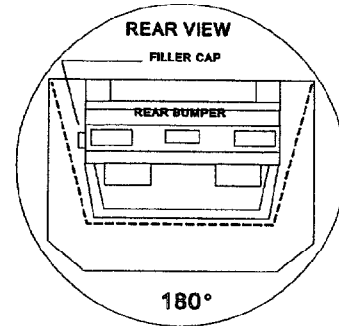
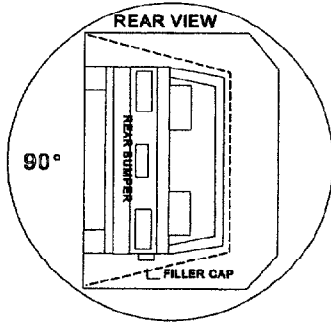
Note: Record spillage for whole minute intervals only as determined above.

**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.:  
MX0202



**I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:**

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u>	minutes	<u>16</u>	seconds
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>00</u>	seconds
<b>TOTAL</b>	<u>6</u>	minutes	<u>16</u>	seconds
Next whole minute interval	<u>7</u>	minutes	<u>00</u>	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
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**III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:**

0	0	0	n/a
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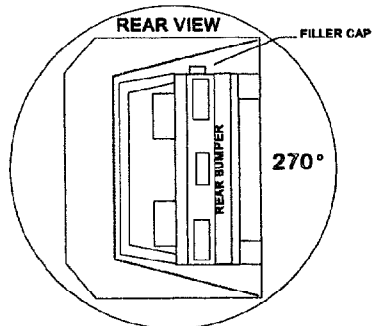
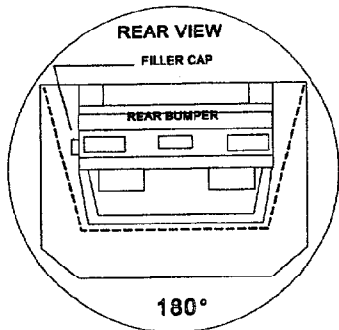
Note: Record spillage for whole minute intervals only as determined above.

**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.:**  
MX0202



**I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:**

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u>	minutes	<u>10</u>	seconds
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>00</u>	seconds
<b>TOTAL</b>	<u>6</u>	minutes	<u>10</u>	seconds
Next whole minute interval	<u>7</u>	minutes	<u>00</u>	seconds

**II. FMVSS 301 REQUIREMENTS:**

(1) Time Period

First 5 min. from onset of rotation	6th min.	7th min.	8th min. if reqd.
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(2) Maximum Allowable Solvent Spillage

141 g	28 g	28 g	28 g
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**III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:**

0	0	0	n/a
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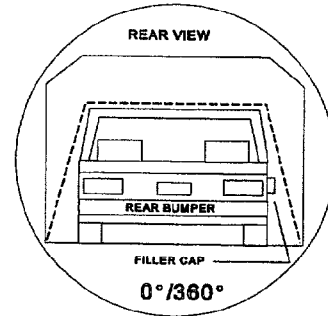
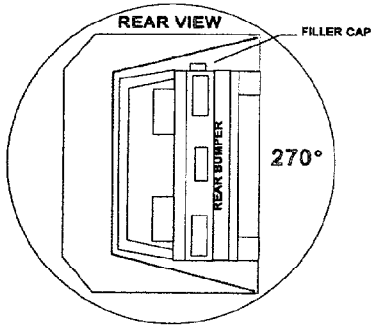
Note: Record spillage for whole minute intervals only as determined above.

**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.:  
MX0202



**I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:**

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u>	minutes	<u>11</u>	seconds
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>00</u>	seconds
<b>TOTAL</b>	<u>6</u>	minutes	<u>11</u>	seconds
Next whole minute interval	<u>7</u>	minutes	<u>00</u>	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
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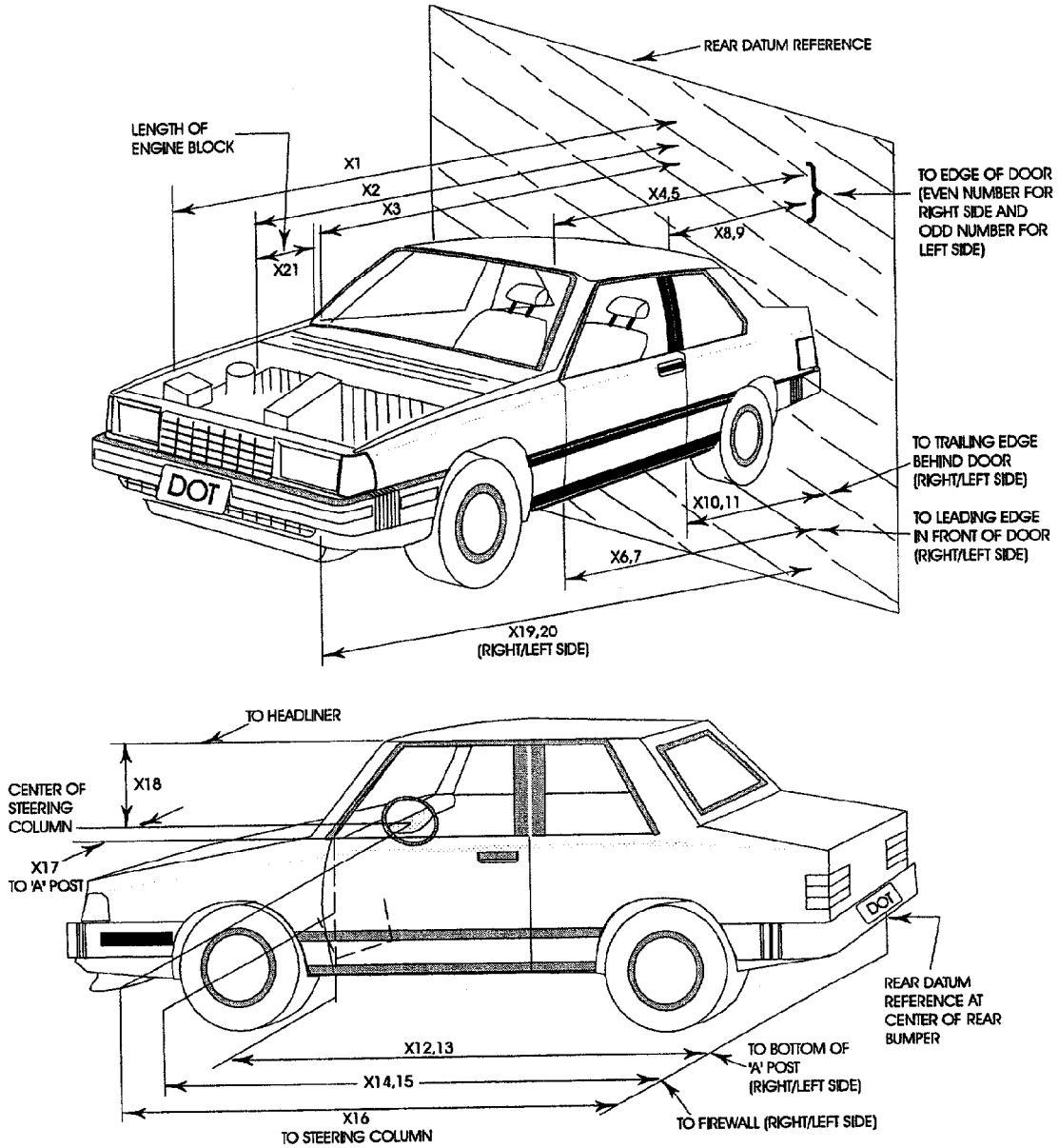
**III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:**

0	0	0	n/a
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Note: Record spillage for whole minute intervals only as determined above.

**IV. SOLVENT SPILLAGE LOCATION(S):** None

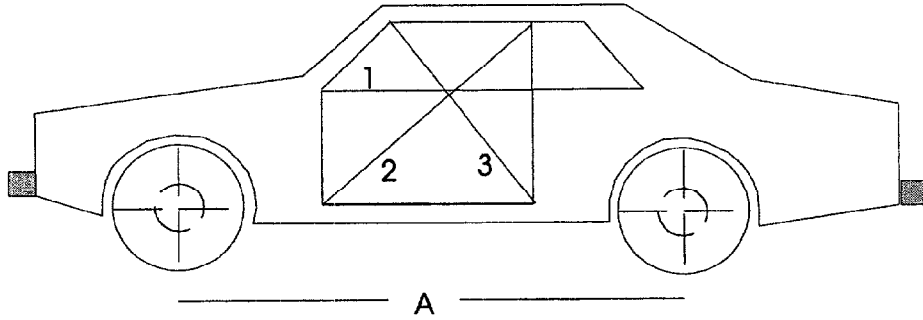
## TEST VEHICLE MEASUREMENTS



DATA SHEET NO.14 VEHICLE MEASUREMENTS

All Dimensions in mm				
No.		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	5288	4605	683
X2	Rear Surface of Vehicle to Front of Engine	4373	4257	116
X3	Rear Surface of Vehicle to Firewall	4068	4101	-33
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3640	3706	-66
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3686	3724	-38
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3498	3582	-84
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3600	3623	-23
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2364	2431	-67
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2412	2451	-39
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2383	2464	-81
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2485	2492	-7
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3631	3718	-87
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3727	3739	-12
X14	Rear Surface of Vehicle to Firewall, Right Side	4021	4050	-29
X15	Rear Surface of Vehicle to Firewall, Left Side	4066	4096	-30
X16	Rear Surface of Vehicle to Steering Column	3198	3299	-101
X17	Center of Steering Column to "A" Post	387	385	2
X18	Center of Steering Column to Headliner	481	494	-13
X19	Rear Surface of Vehicle to Right Side of Front Bumper	5250	4597	653
X20	Rear Surface of Vehicle to Left Side of Front Bumper	5229	4604	625
X21	Length of Engine Block	550	550	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3457	3524	-67
CD	Rear Surface of Vehicle to Center of Dash Panel	3410	3441	-31
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3377	3412	-35

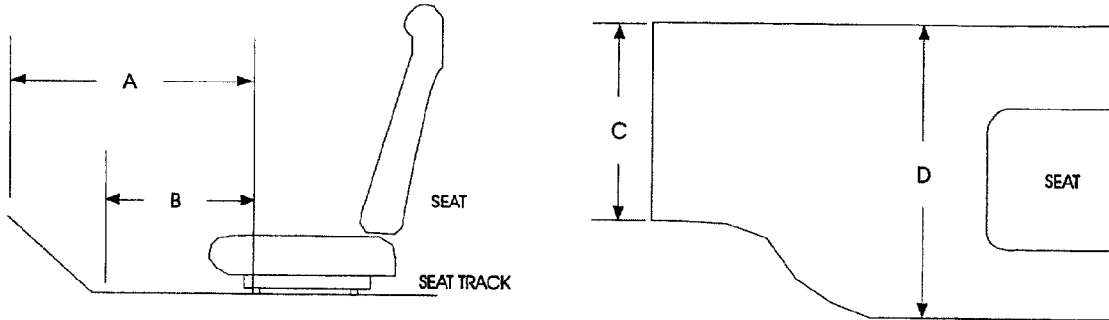
**DATA SHEET NO.14    VEHICLE MEASUREMENTS (cont.)**  
**VEHICLE INTRUSION MEASUREMENTS**  
**DOOR OPENING WIDTH**



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1153	1607	1312	1151	1592	1315
AFTER TEST	1164	1595	1318	1144	1595	1318
DIFFERENCE	-11	12	-6	7	-3	-3

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	3059	3056
AFTER TEST	2947	3003
DIFFERENCE	112	53

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



**DRIVER**

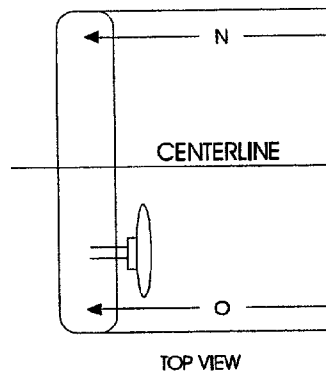
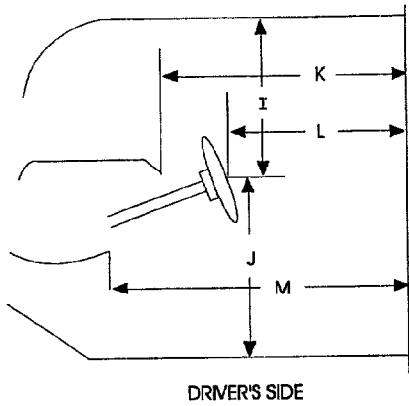
Measurement	Pre-Test	Post-Test	Difference
A	710	707	3
B	505	488	17
C	480	477	3
D	500	511	-11

**PASSENGER**

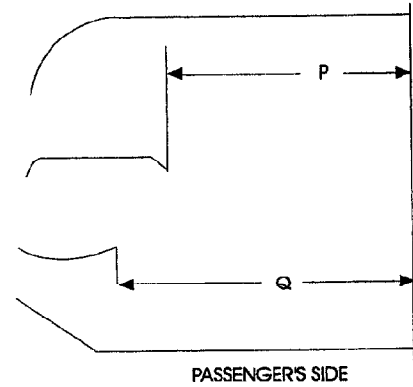
Measurement	Pre-Test	Post-Test	Difference
A	712	676	36
B	511	500	11
C	480	476	4
D	516	505	11

Units = mm

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



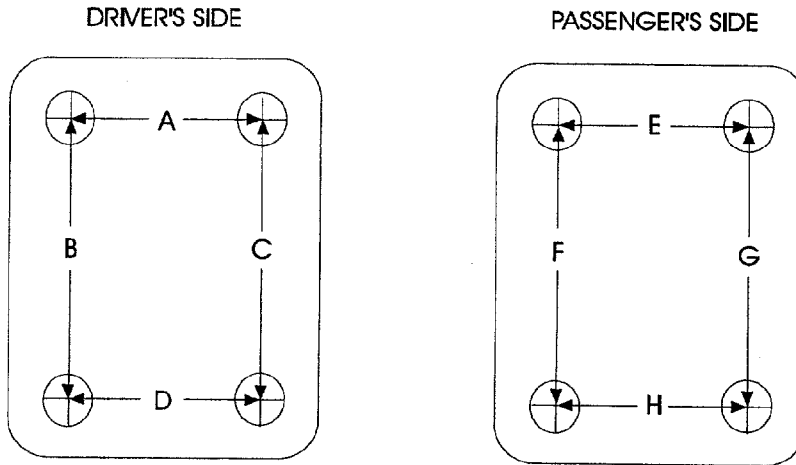
MEASUREMENTS  
FROM C-PILLAR  
BELT ANCHORAGE



Measurement	Pre-Test	Post-Test	Difference
I	554	561	-7
J	701	723	-22
K	992	971	21
L	740	806	-66
M	946	978	-32
N	914	952	-38
O	911	917	-6
P = K (PASS.)	996	1009	-13
Q = M (PASS.)	944	1008	-64

Units = mm

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

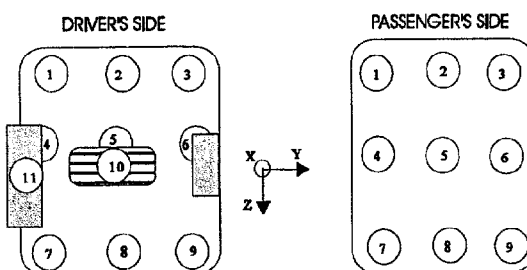


TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	295	291	4
B	870	869	1
C	860	859	1
D	275	276	-1
E	380	378	2
F	810	805	5
G	955	954	1
H	280	279	1

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	3813	3752	61	585	547	38
2	3810	3746	64	595	553	42
3	3808	3740	68	594	555	39
4	3756	3704	52	542	518	24
5	3755	3691	64	549	504	45
6	3768	3691	77	555	510	45
7	3691	3639	52	522	475	47
8	3704	3635	69	525	477	48
9	3689	3626	63	528	481	47
10	3656	3656	0	515	478	37
11	3703	3669	34	526	489	37

**Passenger Side Floorpan Measurements**

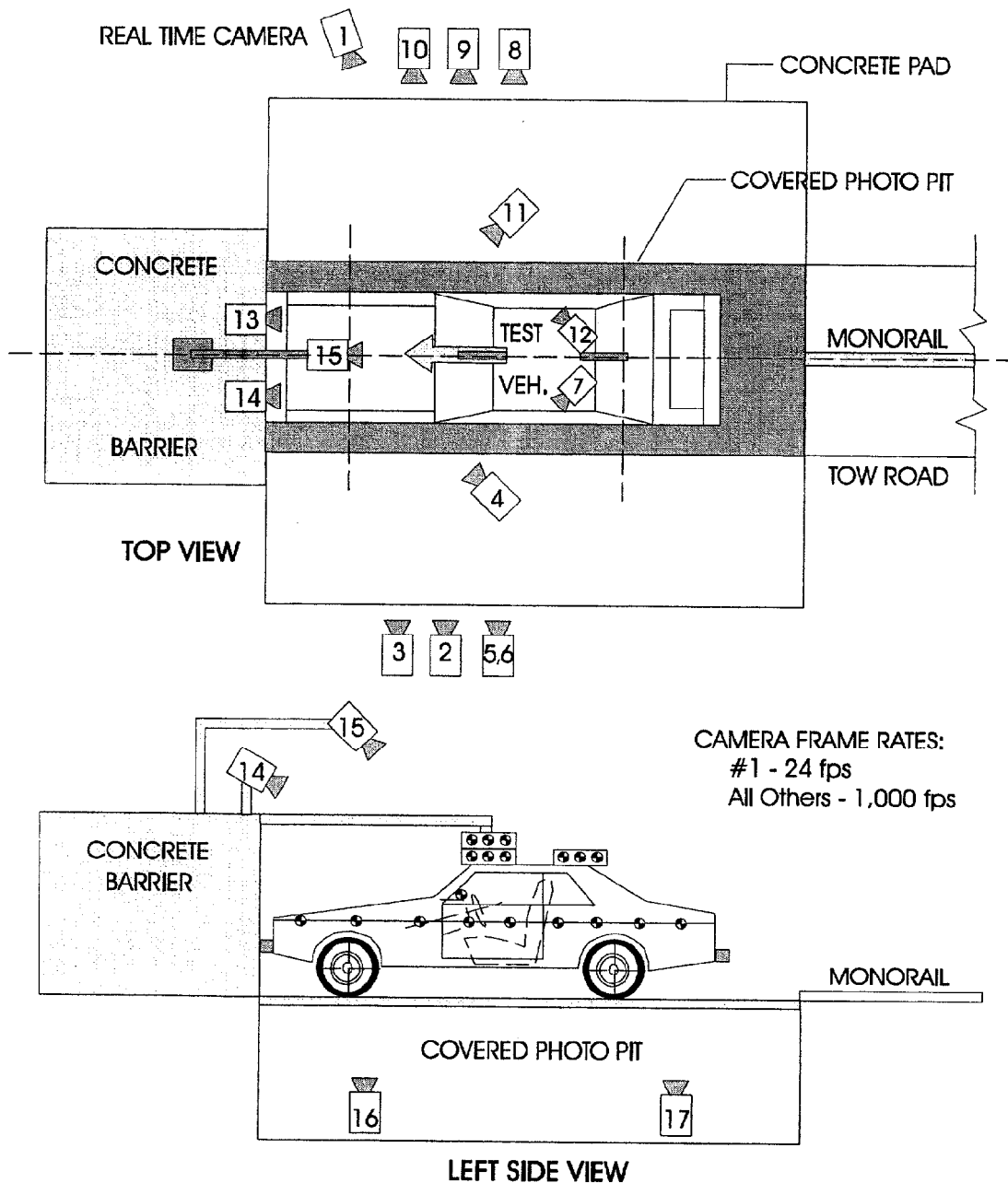
Reference: X = Rear Bumper; Z = Ground

Floorpan Location	X Deformation			Z Deformation		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3665	3681	-16	556	586	-30
2	3716	3701	15	546	579	-33
3	3704	3706	-2	546	589	-43
4	3611	3643	-32	495	509	-14
5	3665	3660	5	504	518	-14
6	3654	3665	-11	505	516	-11
7	3571	3565	6	450	463	-13
8	3559	3590	-31	461	472	-11
9	3576	3591	-15	464	461	3

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

1999 Ford F-150 4X2 Regular Cab

Vehicle:

MX0202

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	7590	1813	1051	-4	7238	1020	
3	Left Side View	8628	1097	1099	-3	8276	1000	
4	Driver and Interior View	4845	3379	2065	-14	-	1010	
5	Steering Column (Bottom)	8133	2064	1170	-3	7781	1005	
6	Steering Column (Top)	8133	2064	1772	-7	7781	1000	
7	Left Belt	-	-	-	-	-	-	
8	Overall Right Side	7386	2173	1140	-4	7034	1015	
9	Right Side View	8720	1585	1080	-3	8368	1005	
10	Right Passenger View	8376	2031	1405	-3	8024	1000	
11	Passenger and Interior View	4882	3380	1945	-11	-	1000	
12	Right Belt	-	-	-	-	-	-	
13	Passenger Front View	545	-450	2000	-45	-	1005	
14	Driver Front View	545	450	2000	-45	-	1010	
15	Windshield View	0	0	3374	-59	-	1000	
16	Pit View of Engine	0	930	-3048	90	-	1000	
17	Pit View of Fuel Tank	0	2475	-3048	90	-	1005	

\*\* = referenced to horizontal plane

\*X = film plane to monorail centerline

Y = film plane to impact location

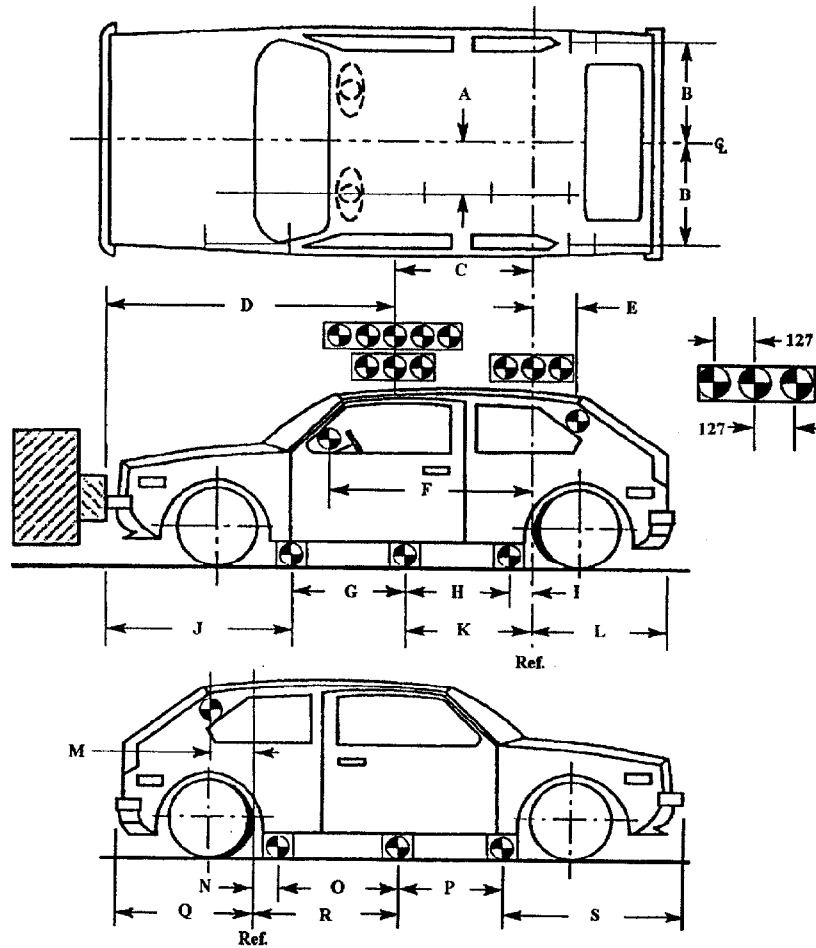
Z = film plane to ground

N.T. indicates No Timing

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

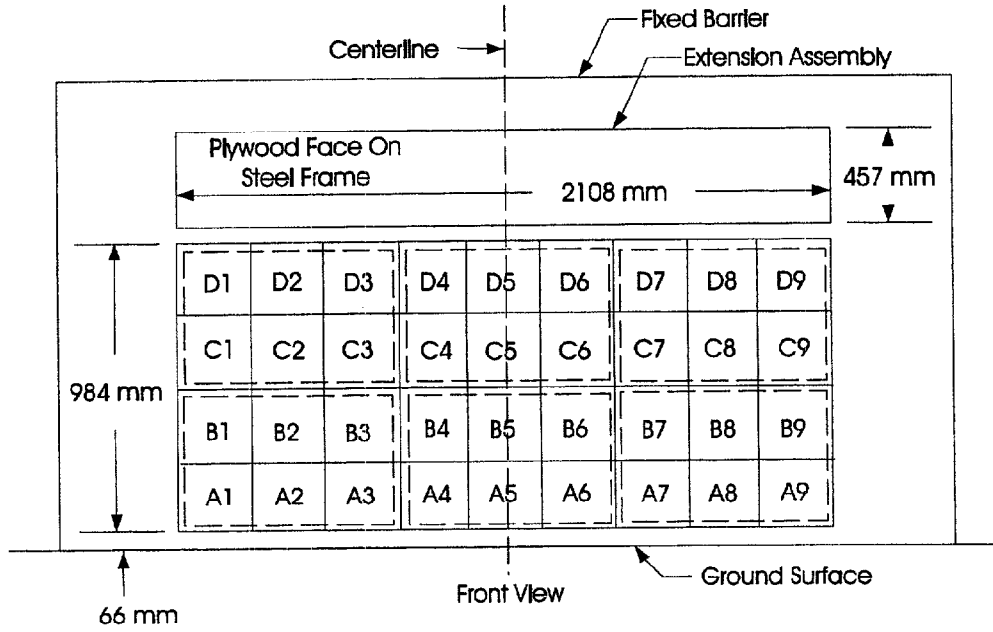
(Dimensions in millimeters)

A	428
B	801
C	908
D	2148
E	-
F	1144
G	950
H	974
I	162
J	1602
K	1133
L	1602
M	-
N	185
O	953
P	953
Q	1600
R	1138
S	1600



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. : MX0202; Test Date: February 11, 1999; Technician: J.Cz

Vehicle Model Year/Make/Model: 1999 Ford F-150 4X2

A. No. of vent holes: 2 -Driver 0 -Passenger

B. Size of vent holes: (mm<sup>2</sup>) 30 -Driver 0 -Passenger

C. Total vent area: (mm<sup>2</sup>) 60 -Driver 0 -Passenger

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

Driver: - -Length; - -Width; 650 -Diameter

Passenger: 700 -Height; 600 -Width; 350 -Depth

E. Is the air bag tethered?

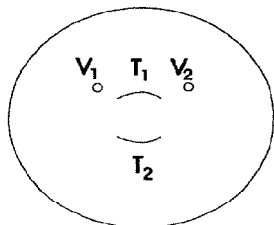
Driver: x -Yes; - -No; If yes, record length of tether- 270

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

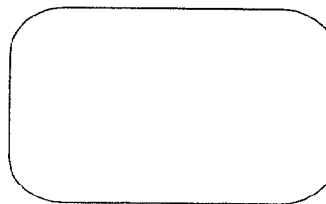
Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.

(Note: Not to scale; V<sub>n</sub> = Vent hole<sub>n</sub>, T<sub>n</sub> = Tether<sub>n</sub>).

**DRIVER**  
vents underneath bag



**PASSENGER**  
vents underneath bag



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

Driver: Air bag: -

Generator: 1Z56349L31403

Passenger: Air bag: -

Generator: XL3A15044A74AAAYA0

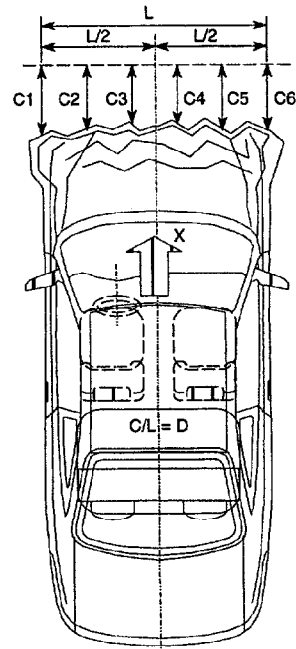
DATA SHEET NO.19 ACCIDENT INVESTIGATION DIVISION DATA

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Ford F-150 4X2 Regular Cab  
 NHTSA Test No.: MX0202 VIN: 2FTZF1729XCA53270  
 Model Year: 1999 Build Date: 1/99 Test Date: February 11, 1999  
 Vehicle Size Category: Pick-Up Test Weight: 2062 kg  
 Vehicle Wheelbase: 3058 mm; Front Overhang: 1602 mm; Overall Width: 2019 mm  
 Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	5143	4528	-615	mm
C2 =	5261	4522	-739	mm
C3 =	5288	4529	-759	mm
C4 =	5283	4497	-786	mm
C5 =	5267	4535	-732	mm
C6 =	5149	4524	-625	mm



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region:  
 L1= 2019 mm  
 L2= 1009 mm  
 L3= 673 mm

Appendix A  
**PHOTOGRAPHS**

PHOTOGRAPHS

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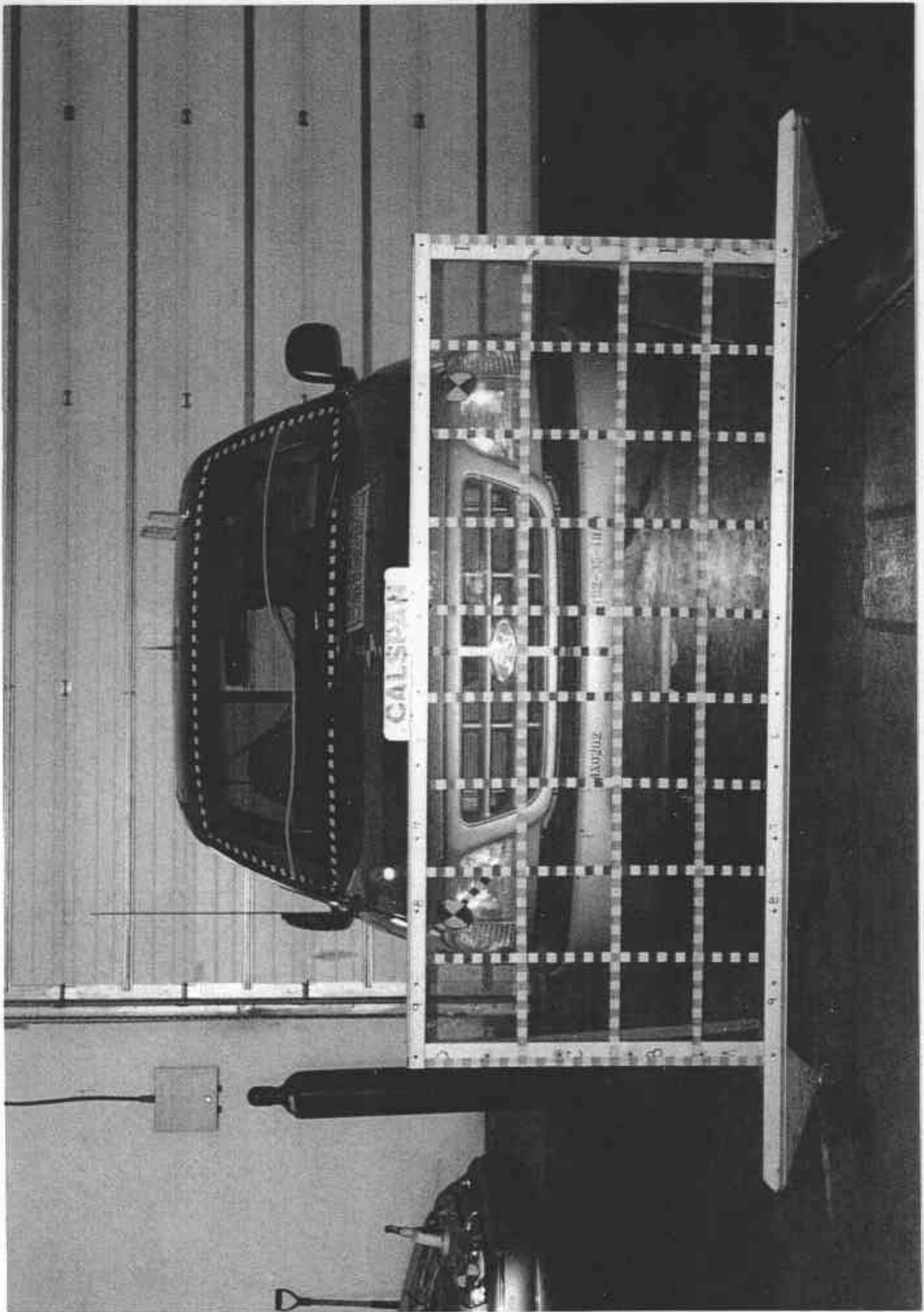


Figure A-1 LOAD CELL LOCATIONS

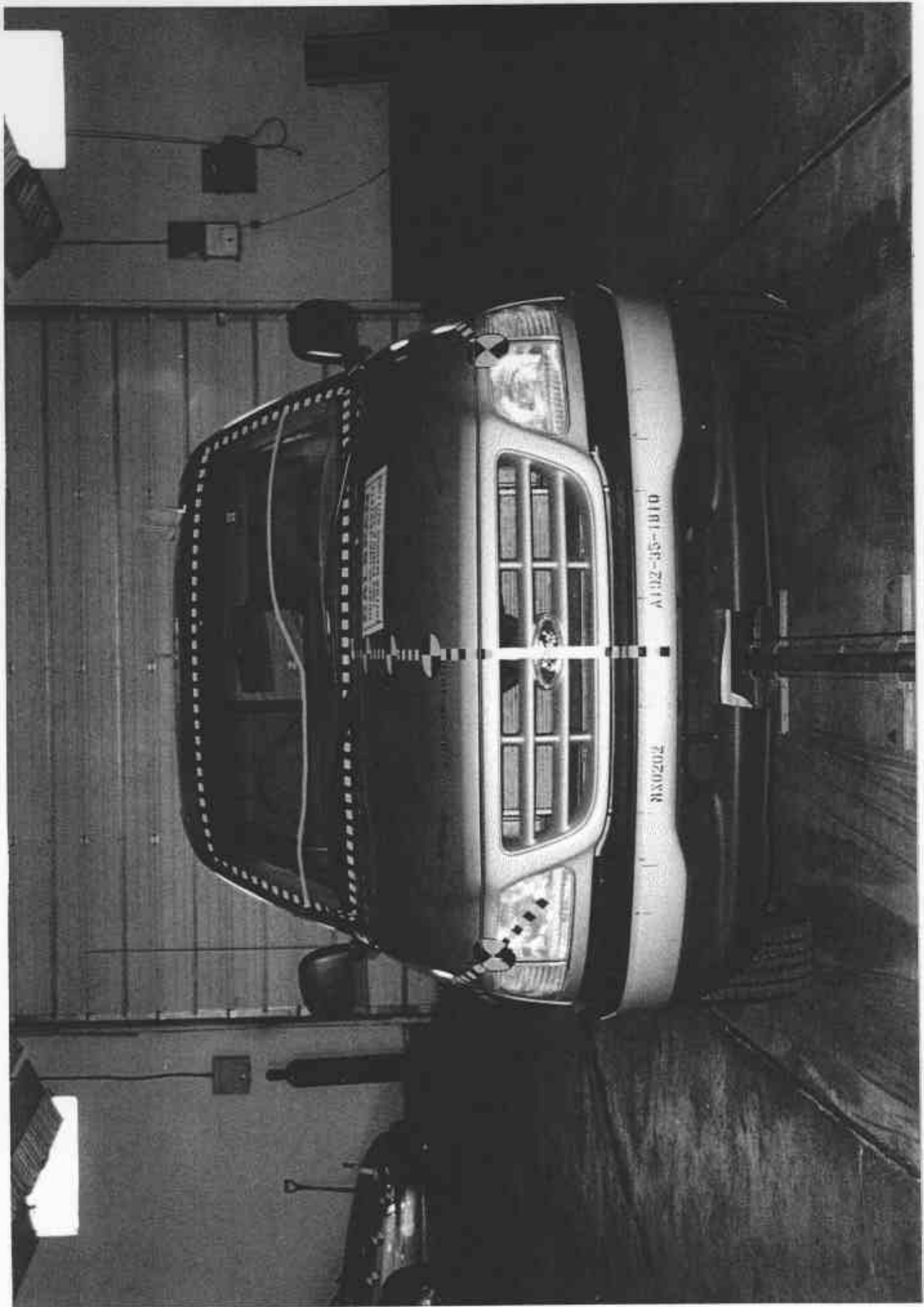


Figure A-2 PRE-TEST FRONT VIEW



Figure A-3 POST-TEST FRONT VIEW

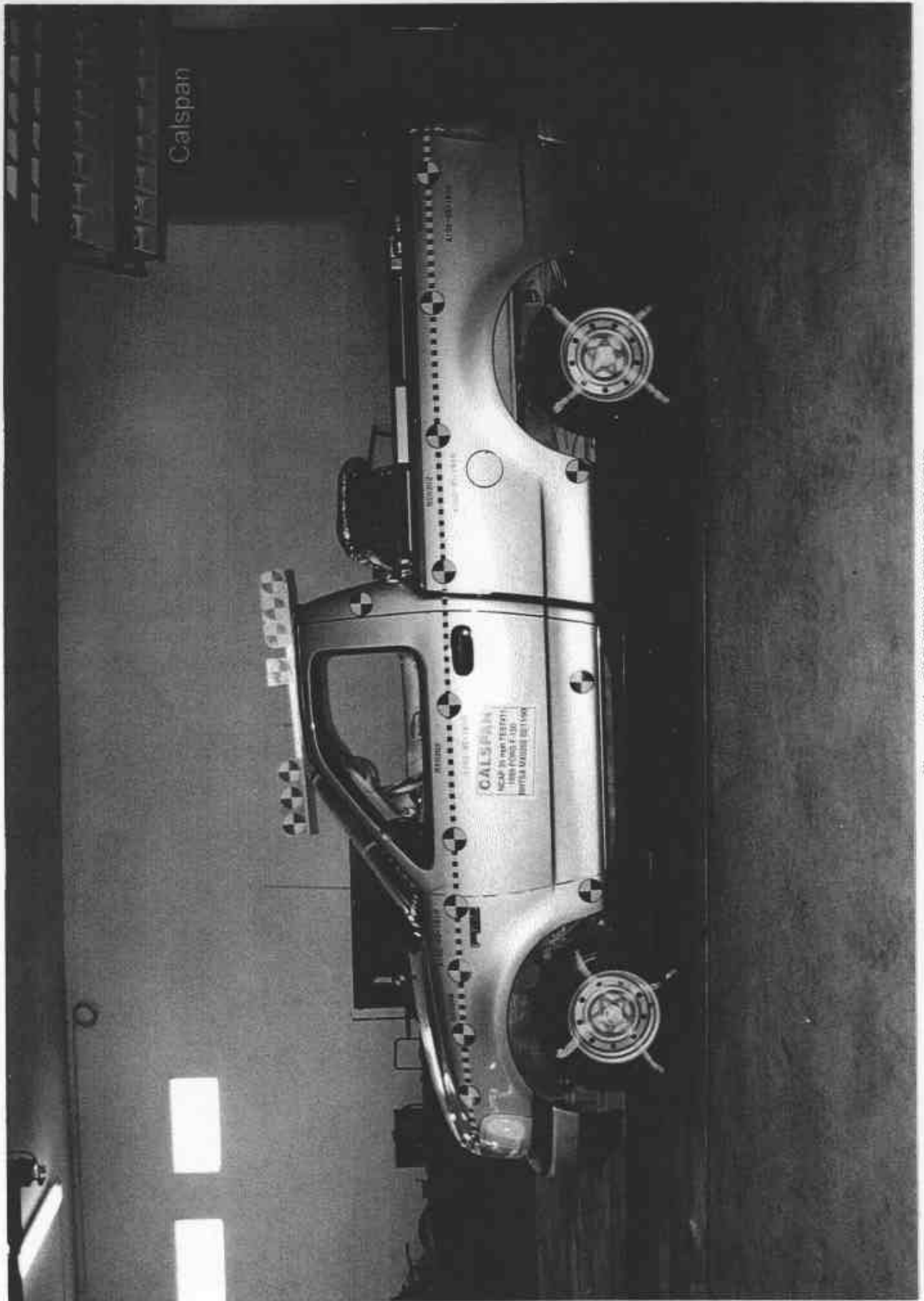


Figure A-4 PRE-TEST LEFT SIDE VIEW



Figure A-5 POST-TEST LEFT SIDE VIEW

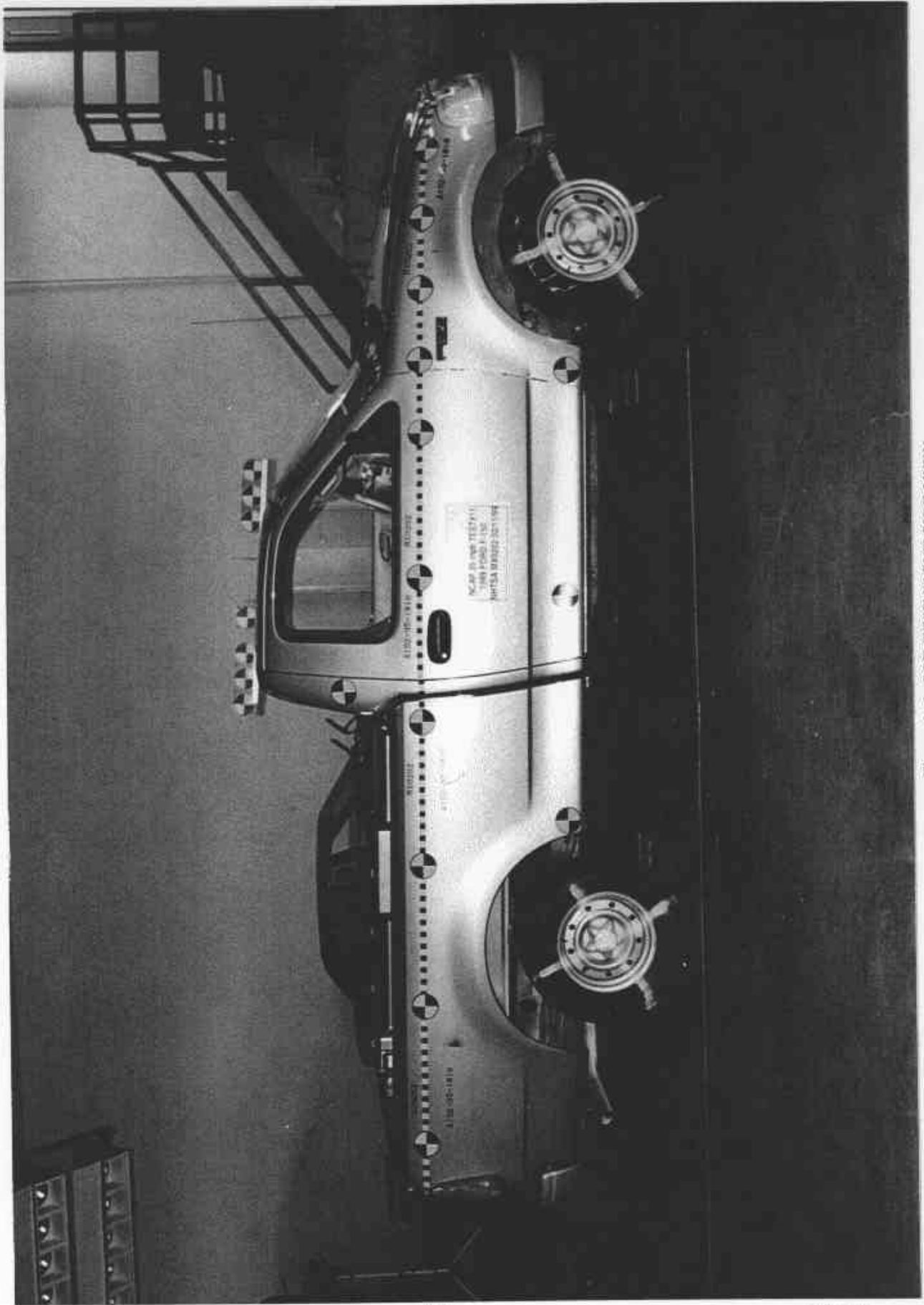


Figure A-6 PRE-TEST RIGHT SIDE VIEW



Figure A-7 POST-TEST RIGHT SIDE VIEW

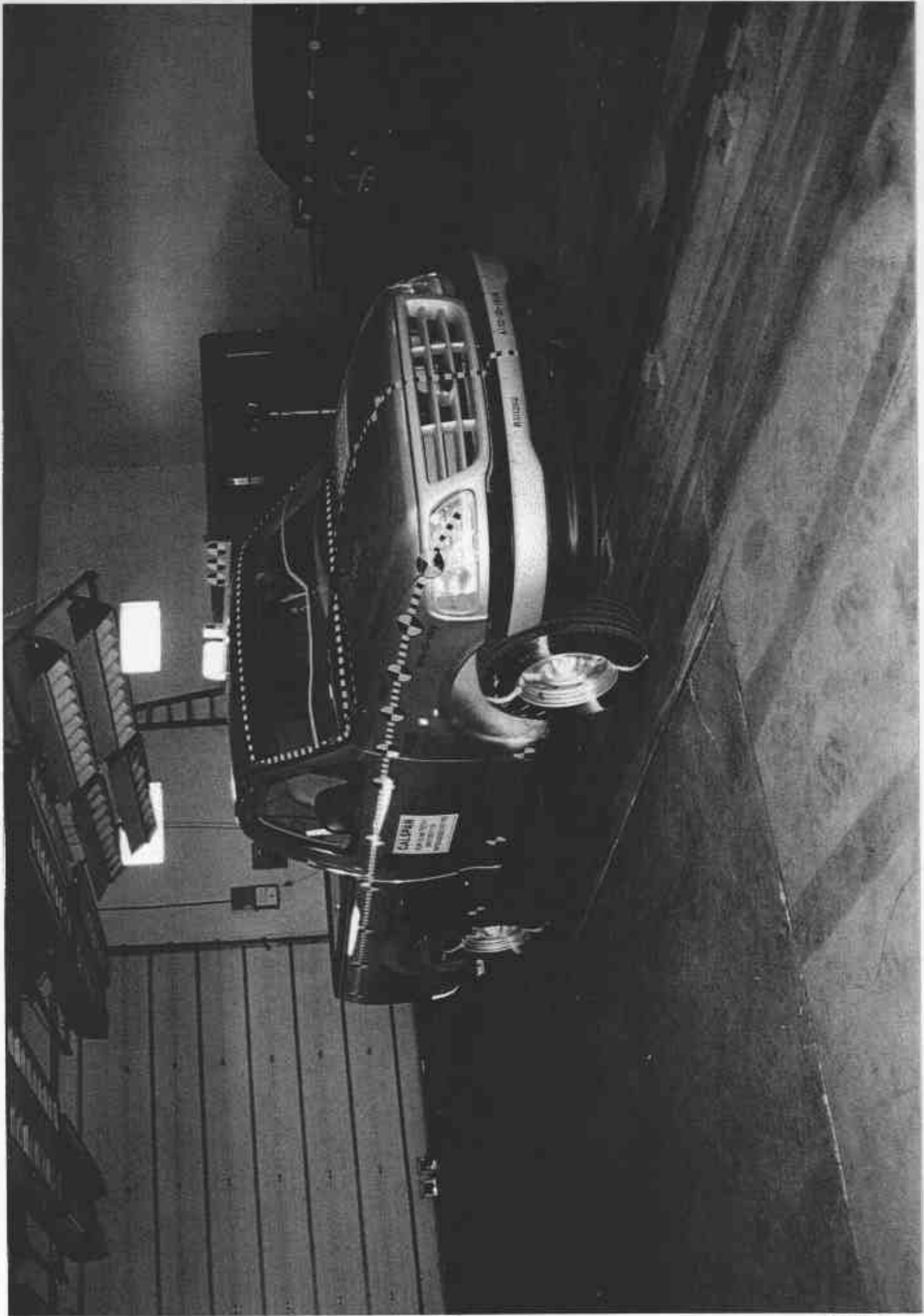


Figure A-8 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



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

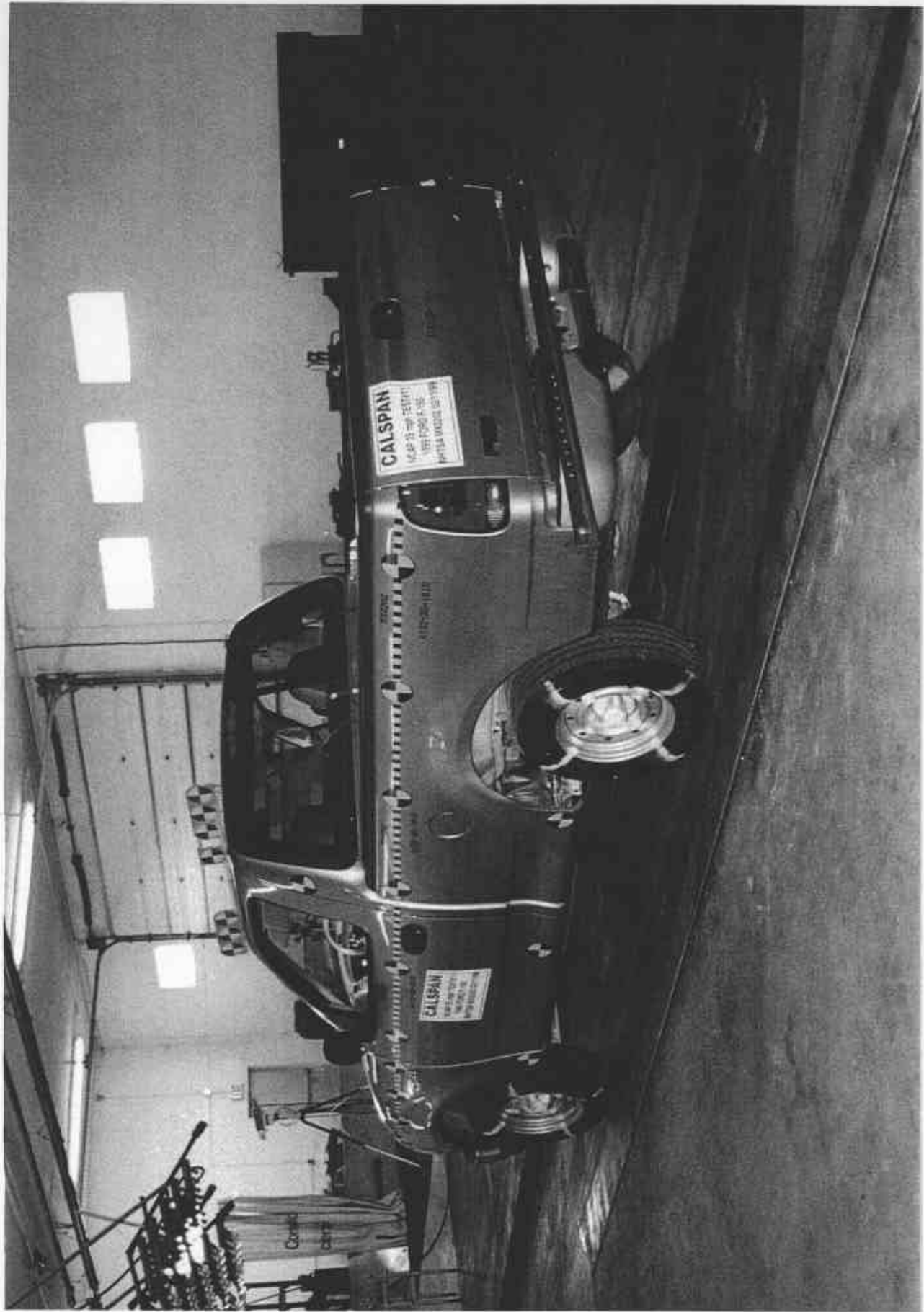


Figure A-10 PRE-TEST LEFT REAR THREE-QUARTER VIEW



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

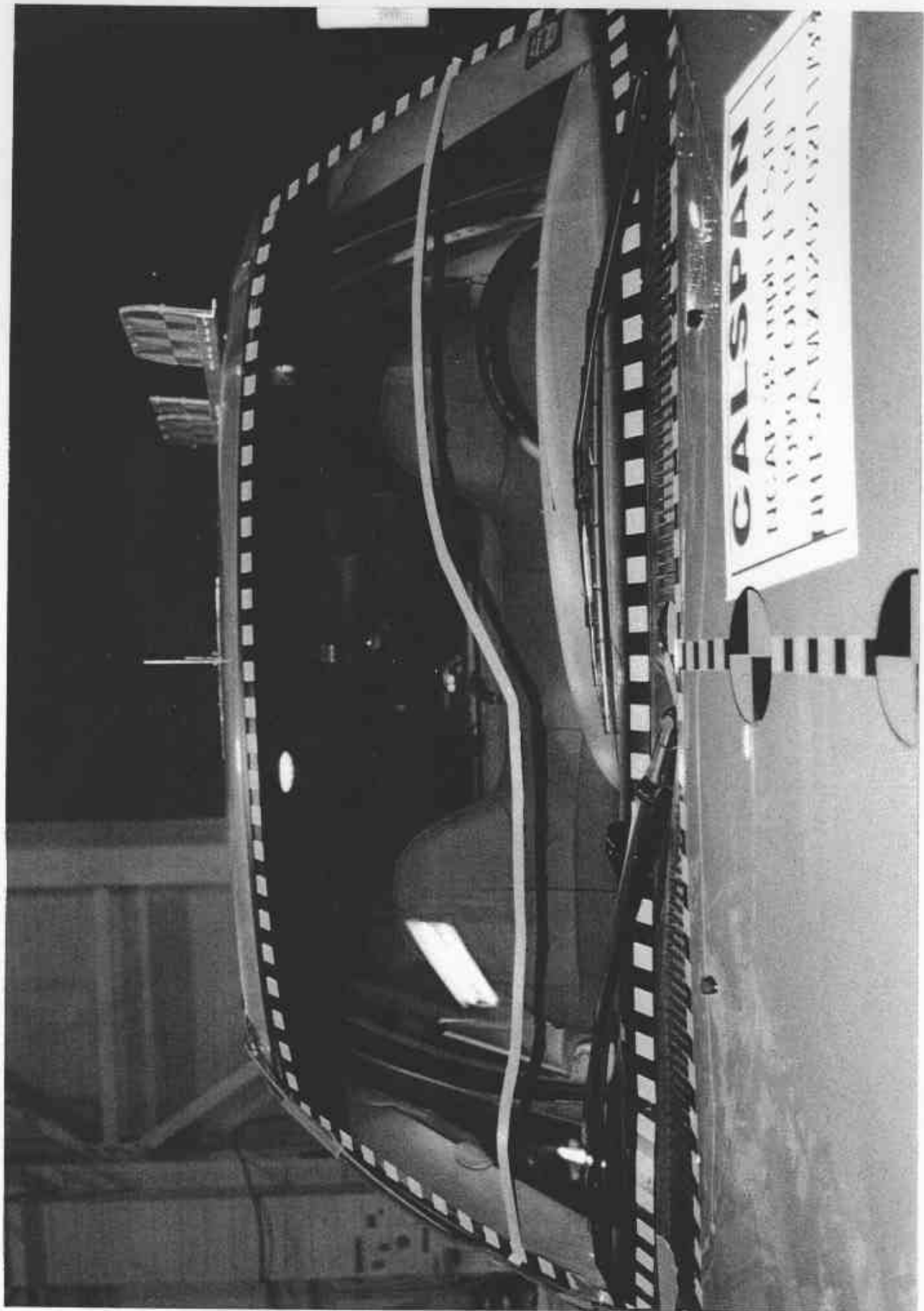


Figure A-12 PRE-TEST WINDSHIELD VIEW

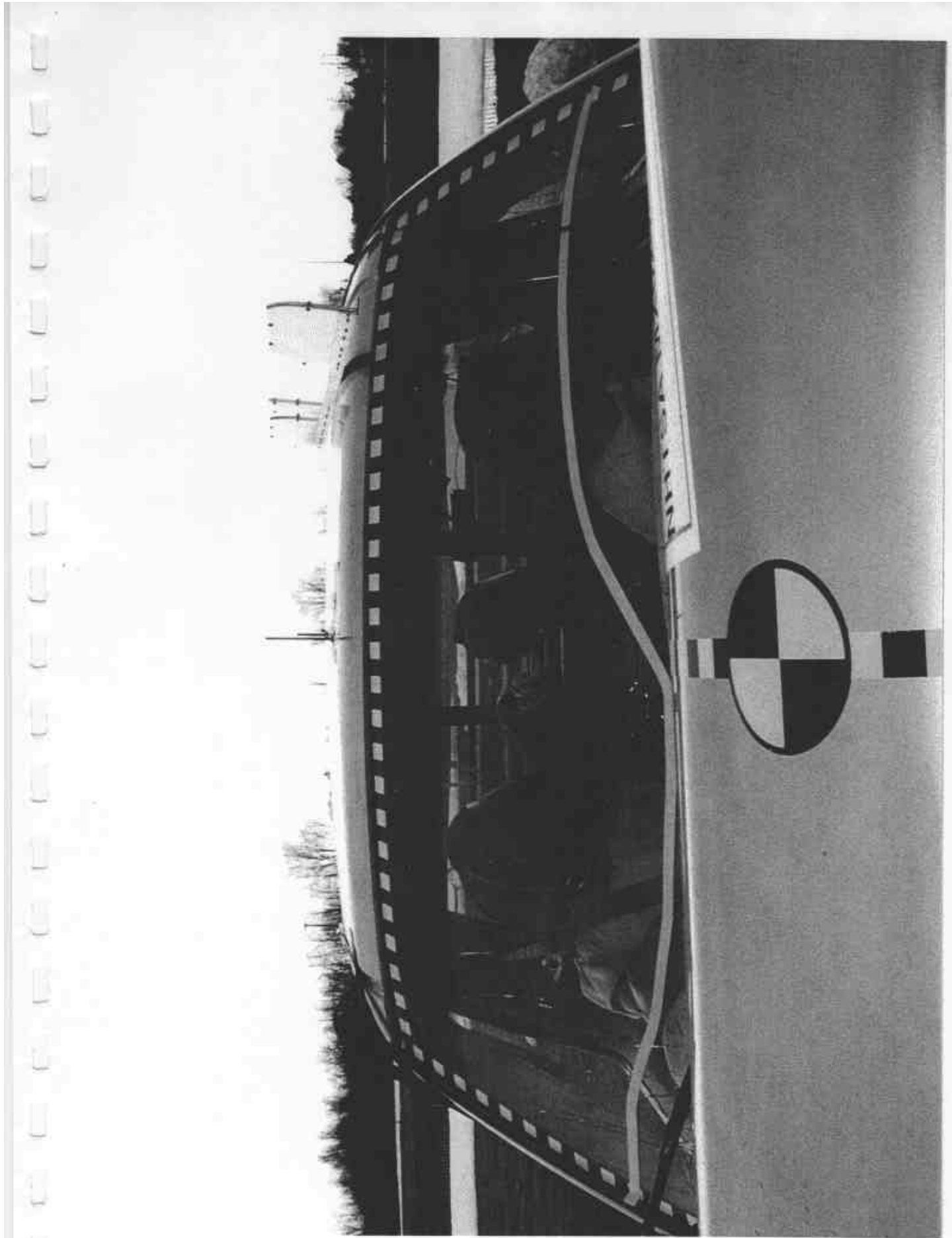


Figure A-13 POST-TEST WINDSHIELD VIEW

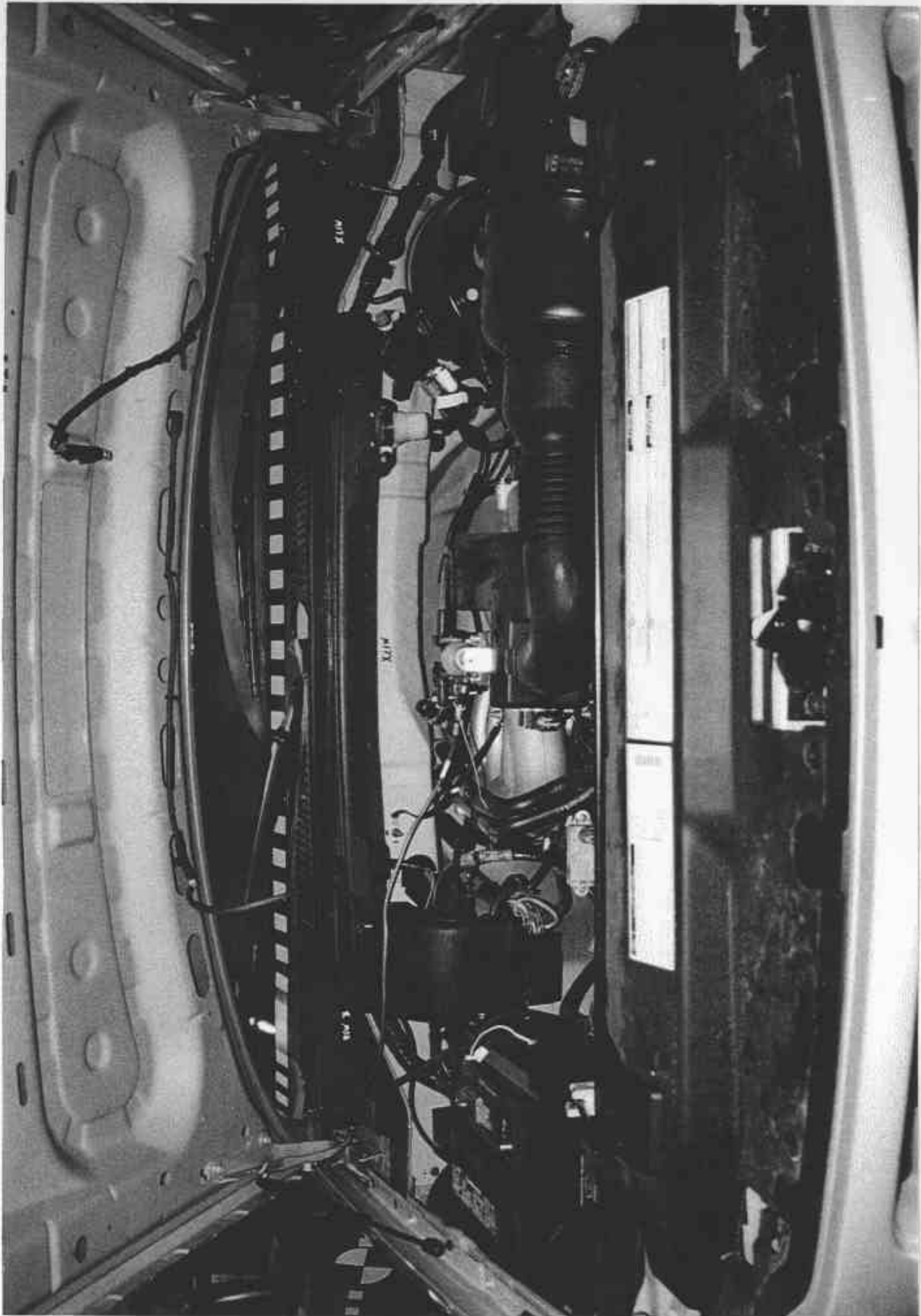


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

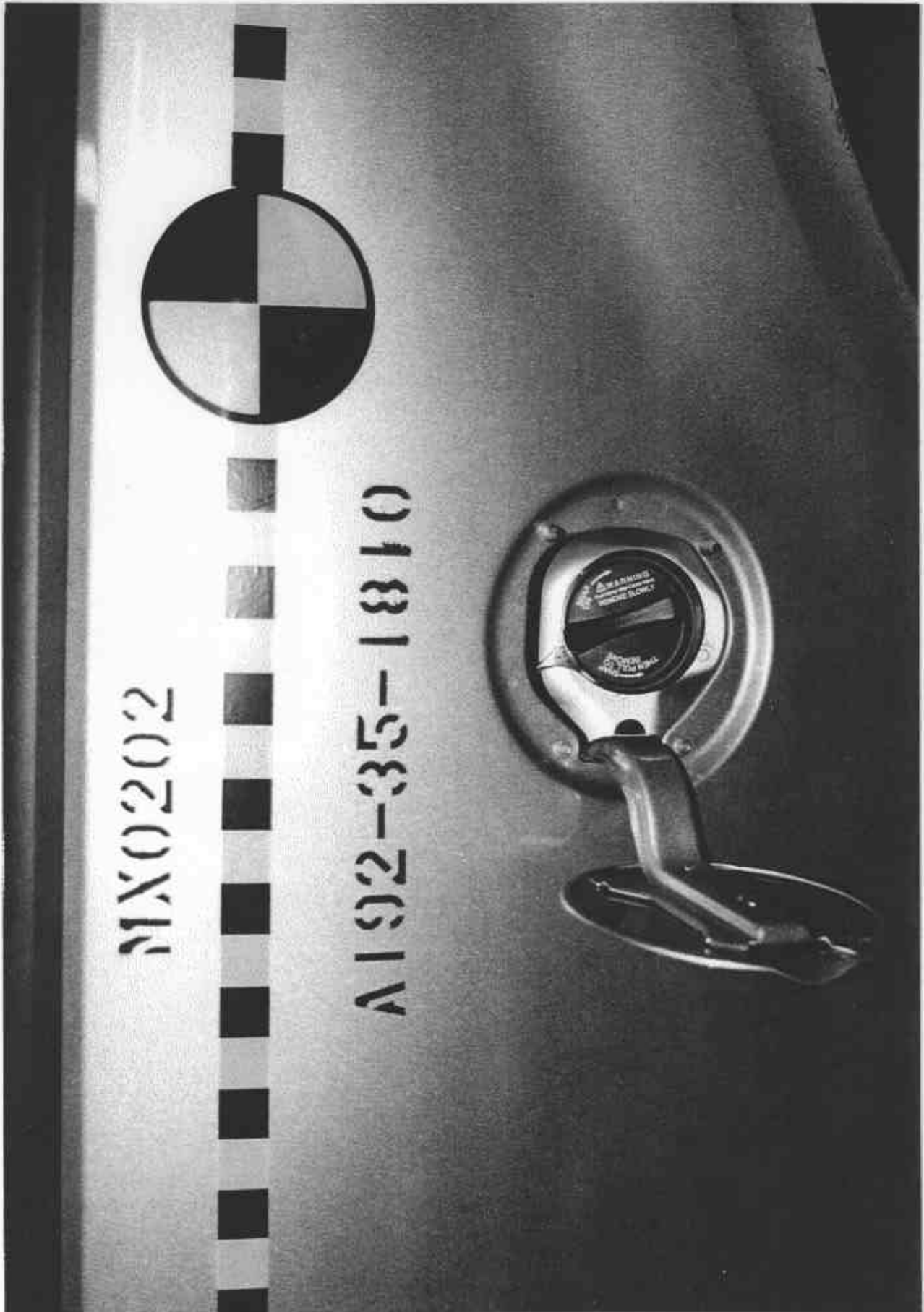


Figure A-15 FUEL CAP VIEW

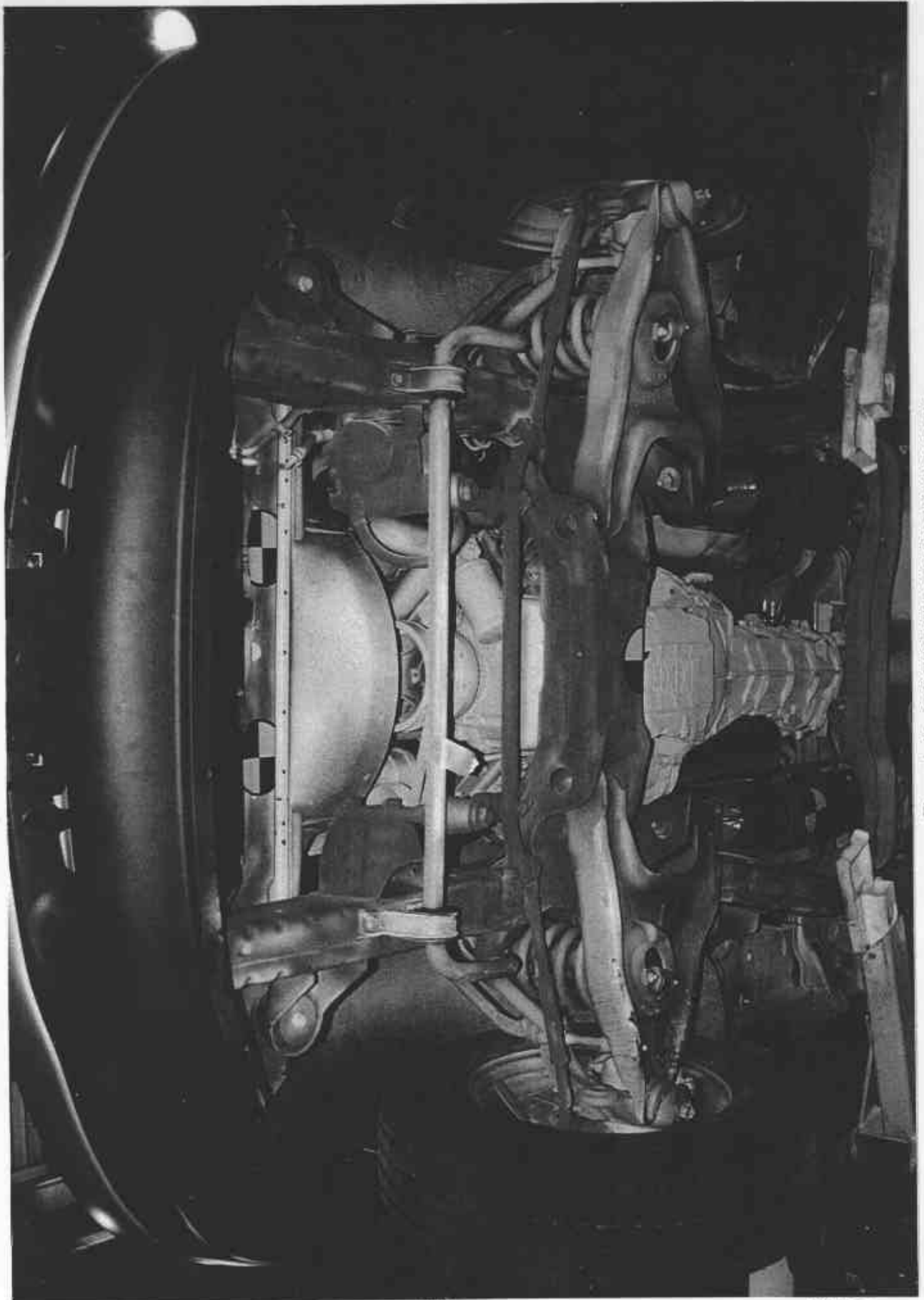


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

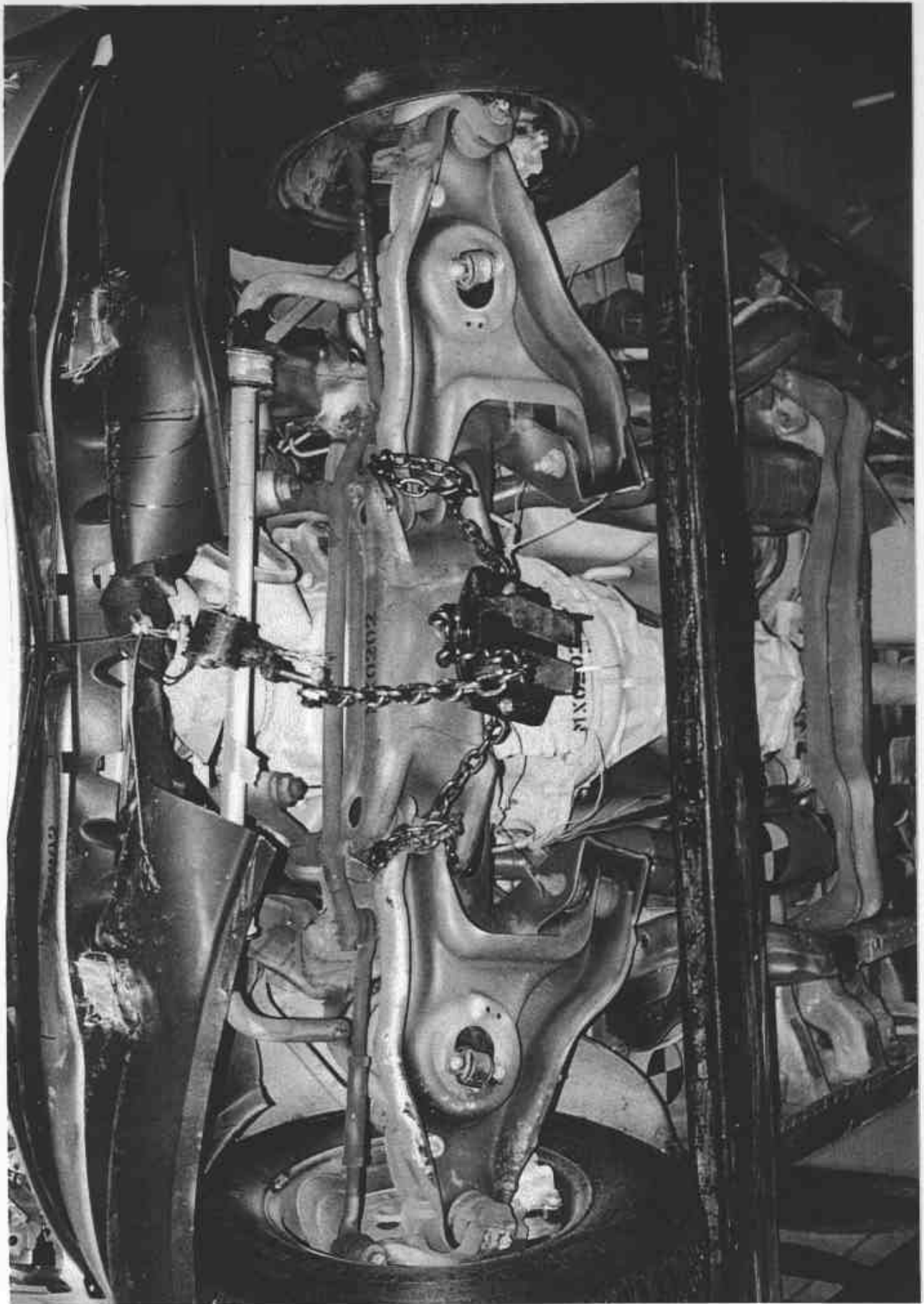


Figure A-17 POST-TEST FRONT UNDERBODY VIEW

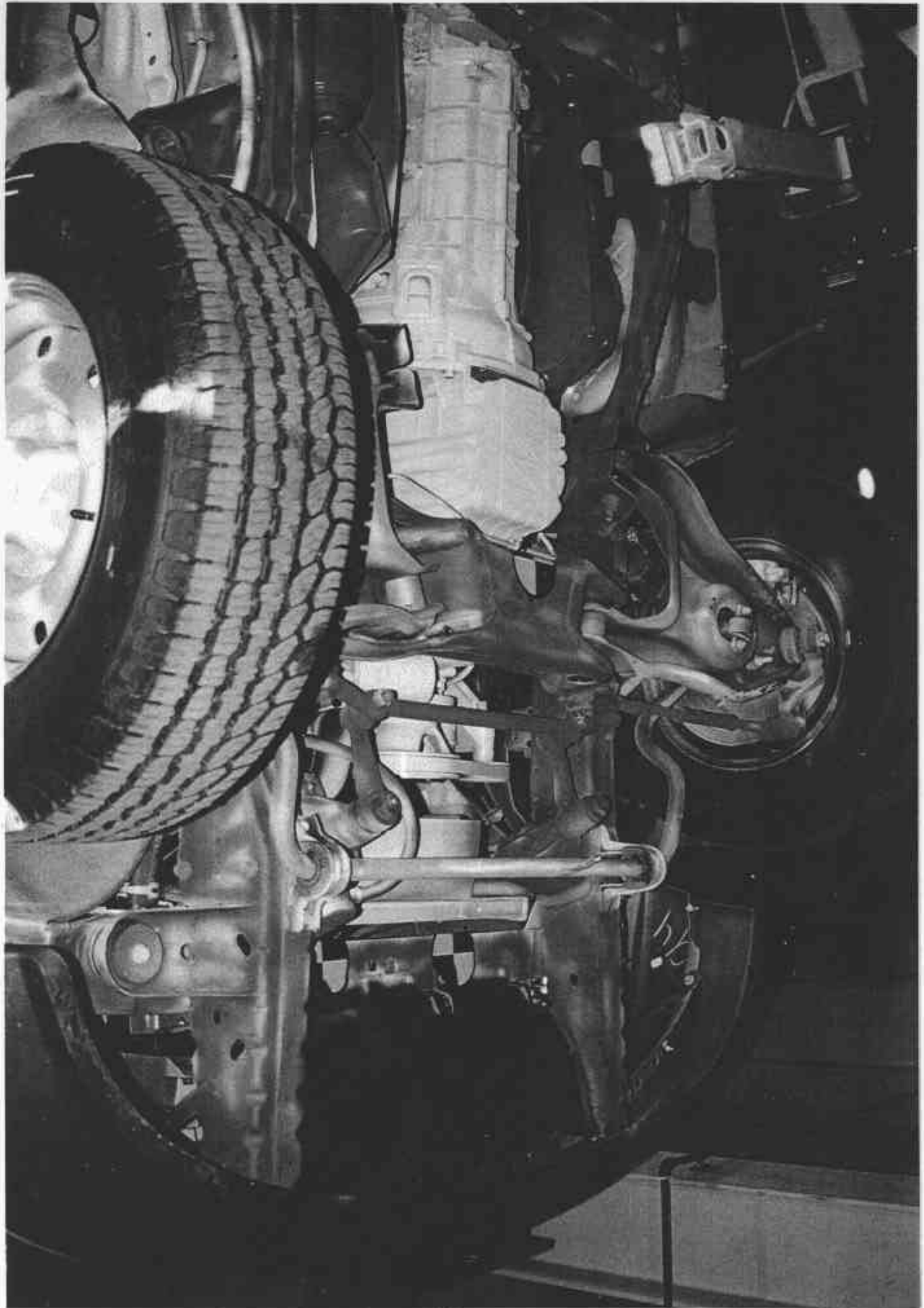


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW



Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

NCAP 35 mph TEST#11  
1999 FORD F-150  
NHTSA MX0202 02/11/99

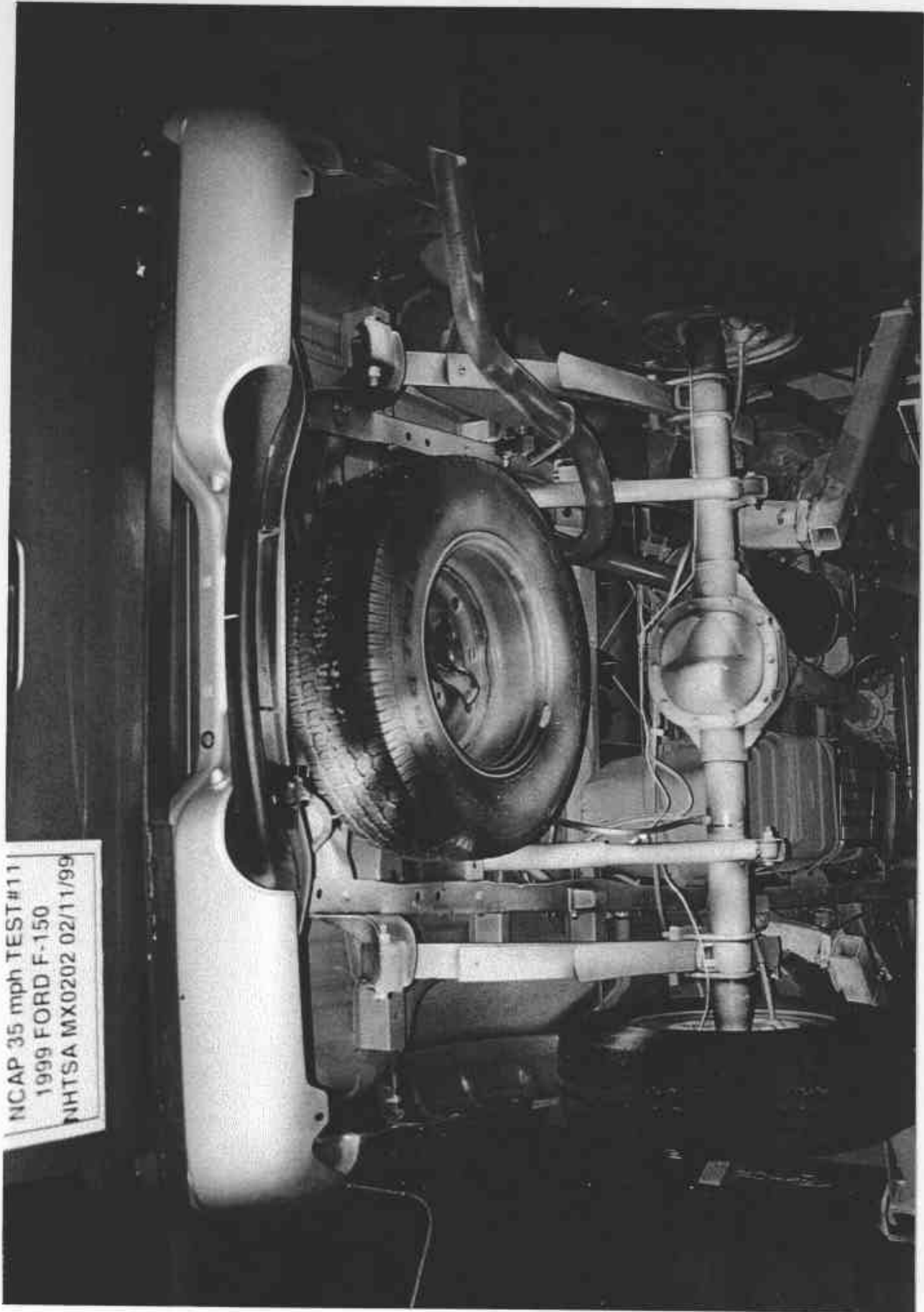


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

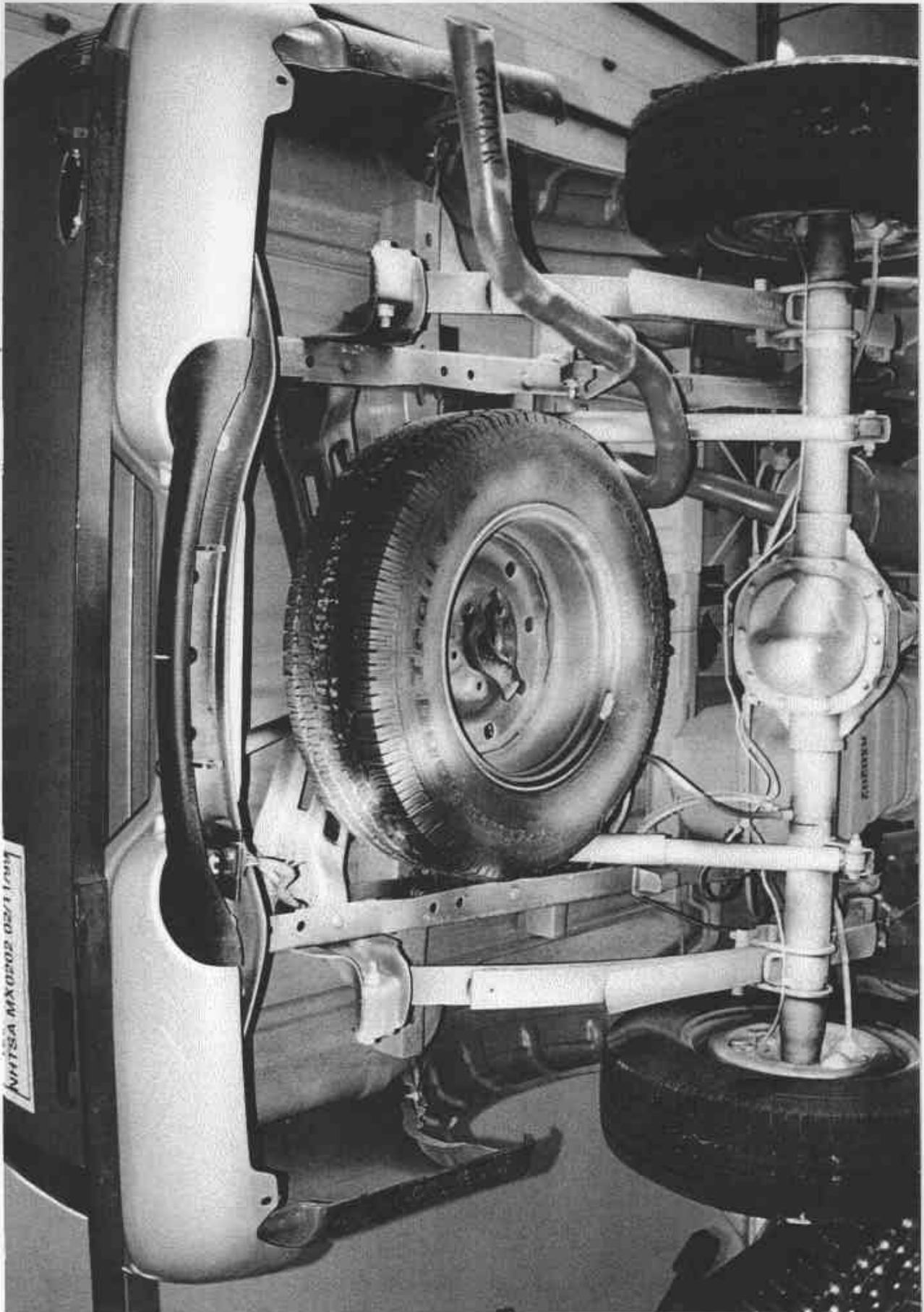


Figure A-21 POST-TEST REAR UNDERBODY VIEW



MX0202

A 192-35-1810

**CALSPAN**

NCAP 35 mph TEST#11

1999 FORD F-150

NHTSA MX0202 02/11/99

Figure A-22 PRE-TEST DRIVER POSITION VIEW



Figure A-23 POST-TEST DRIVER POSITION VIEW

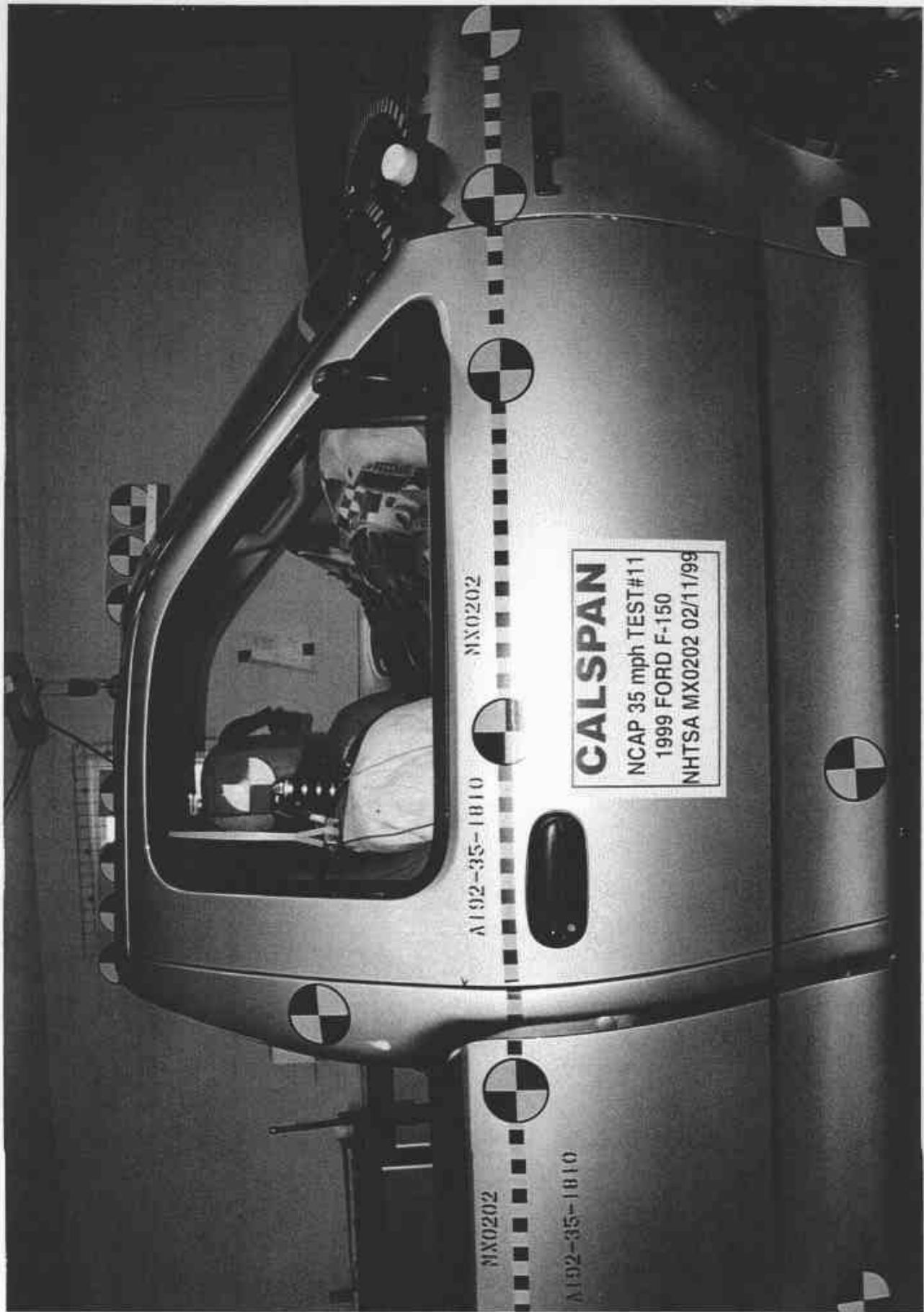


Figure A-24 PRE-TEST PASSENGER POSITION VIEW

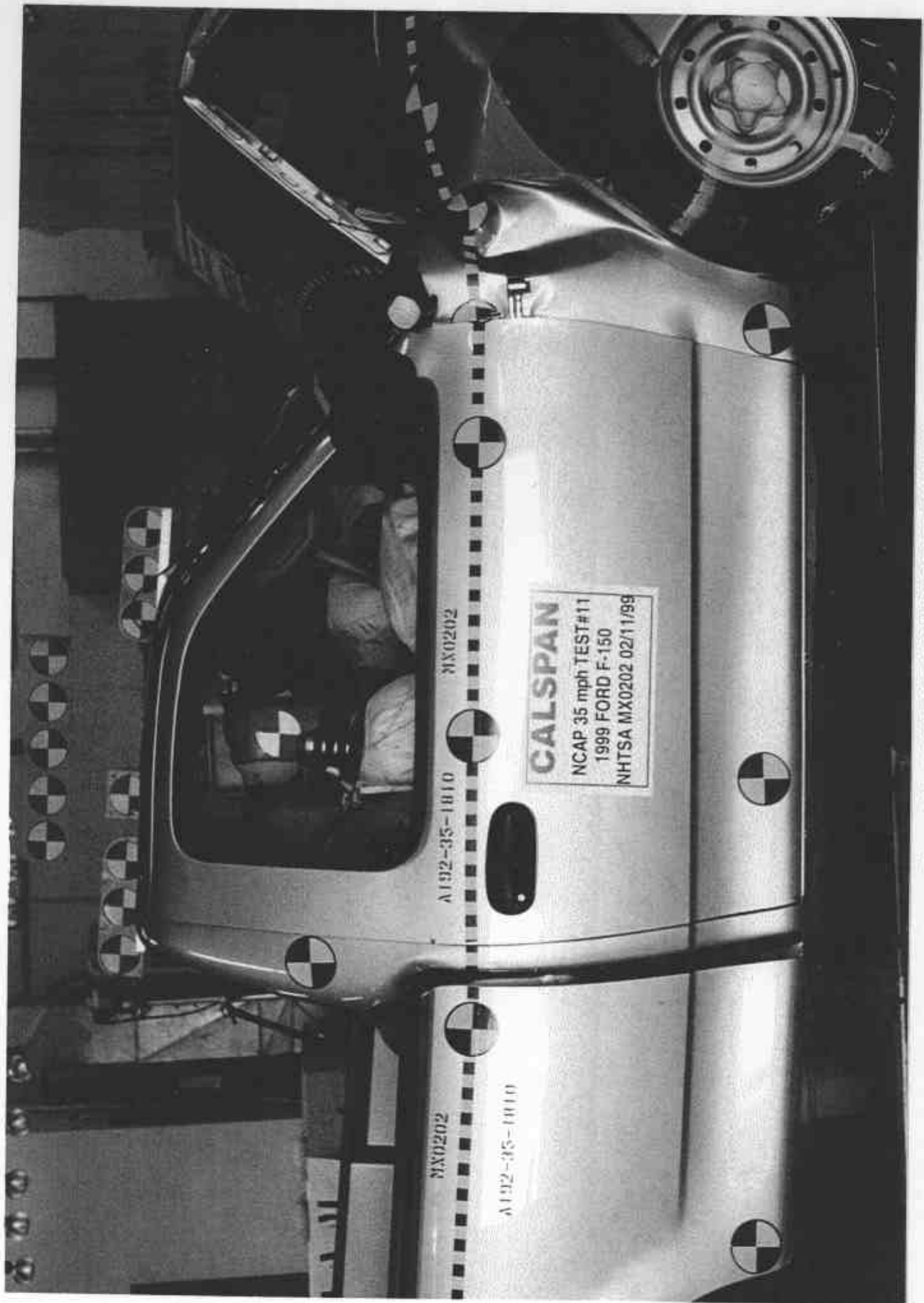


Figure A-25 POST-TEST PASSENGER POSITION VIEW

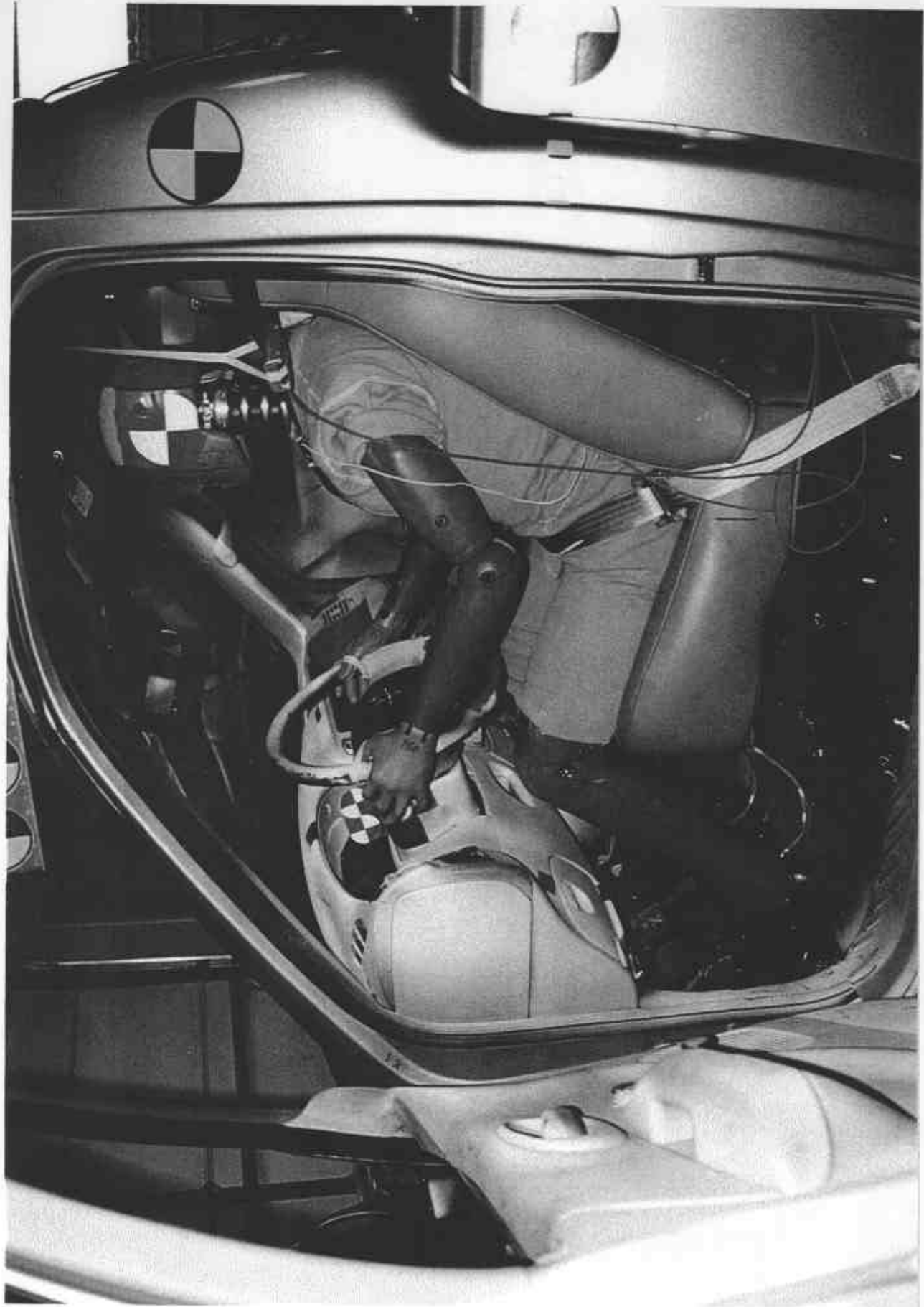


Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

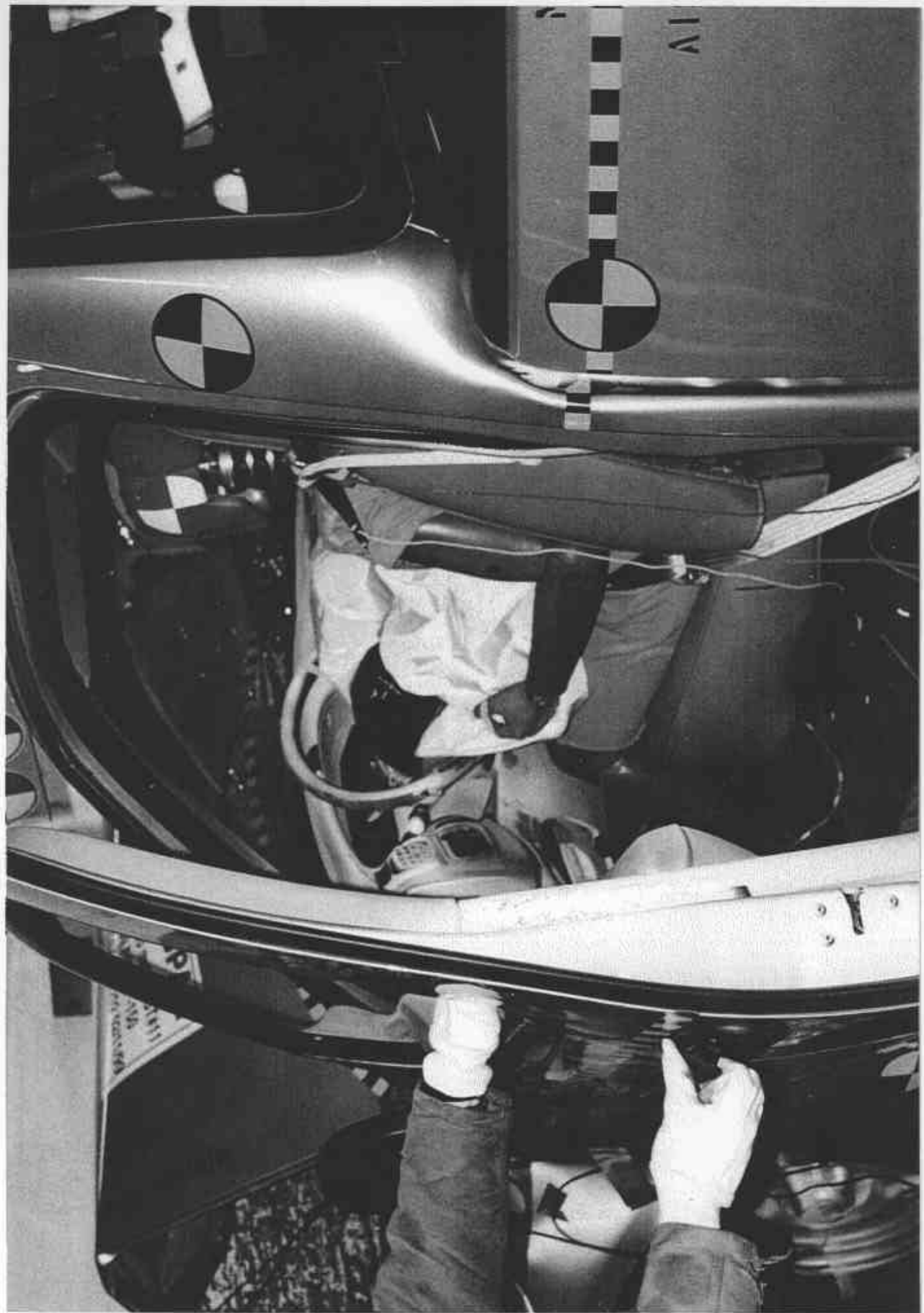


Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW



Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW



Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

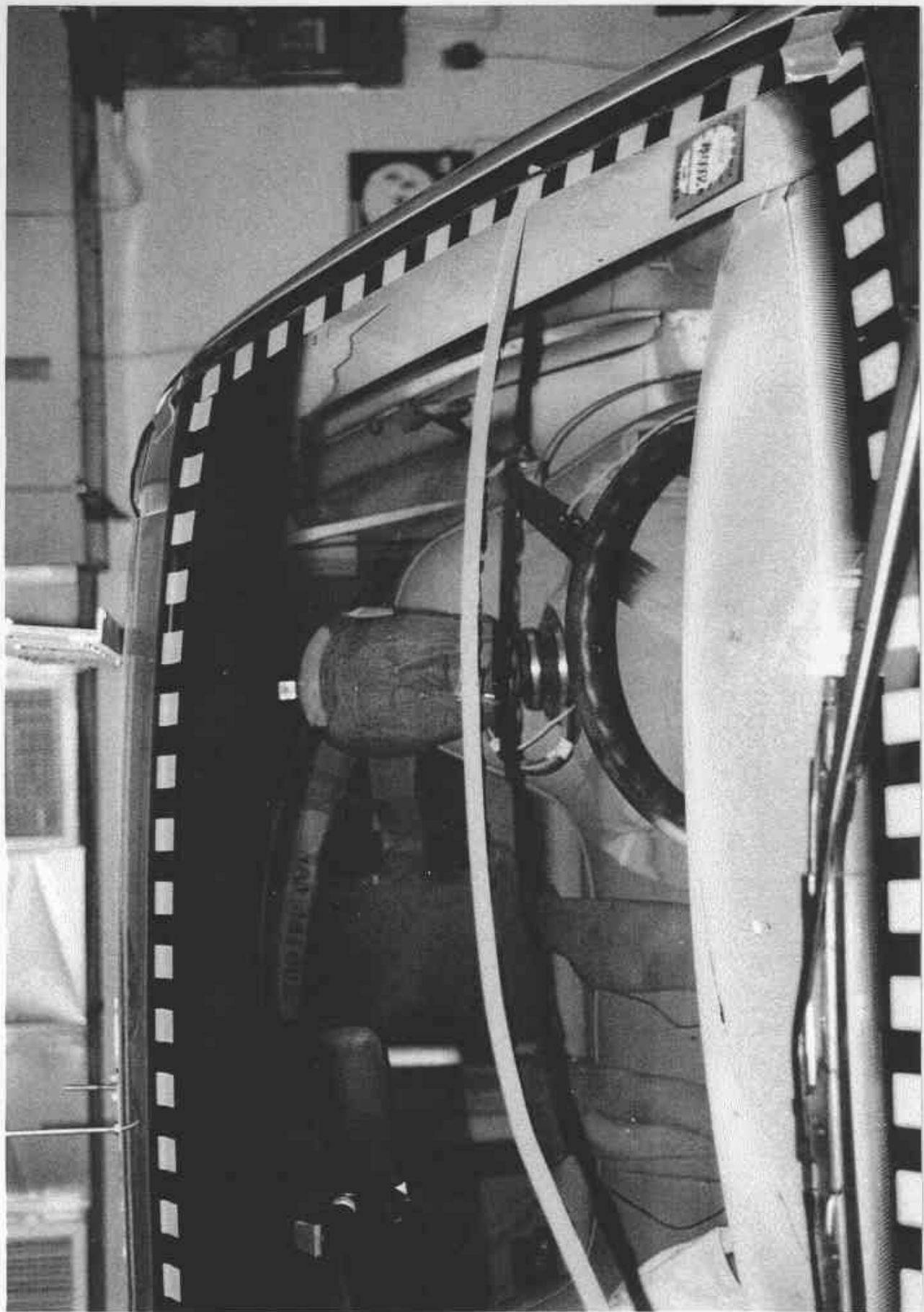


Figure A-30 PRE-TEST DRIVER HEAD LOCATION

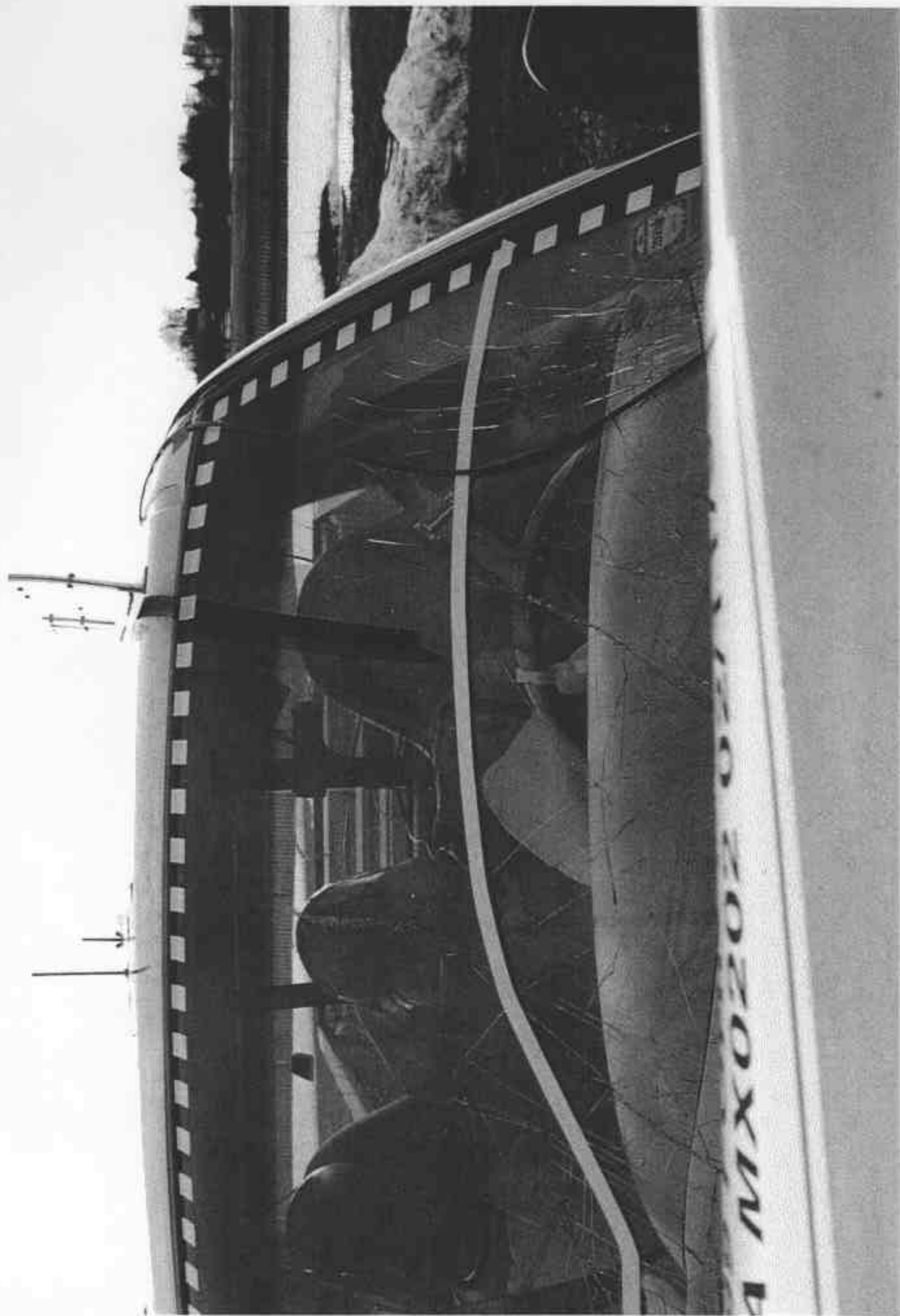


Figure A-31 POST-TEST DRIVER HEAD LOCATION

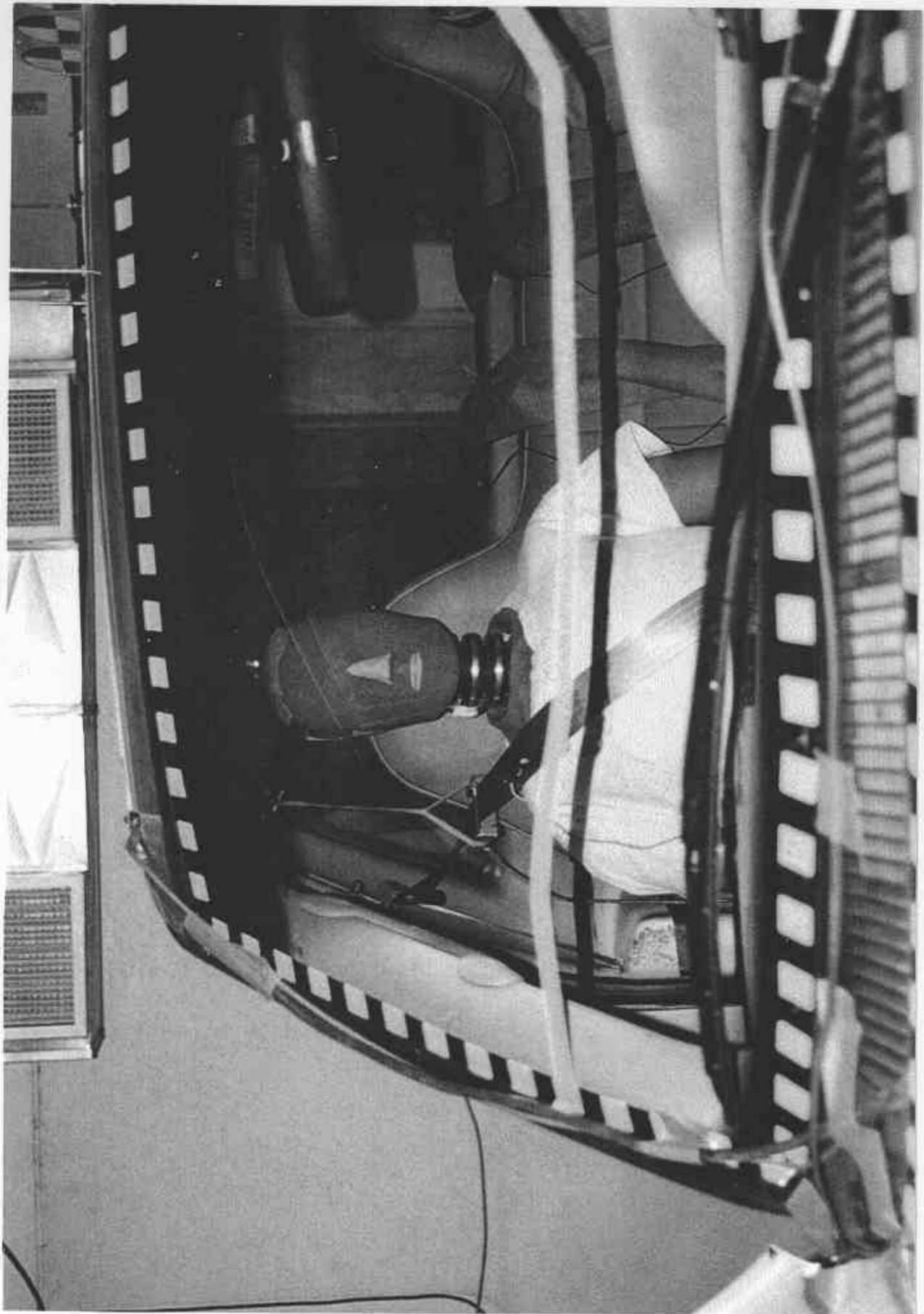


Figure A-32 PRE-TEST PASSENGER HEAD LOCATION

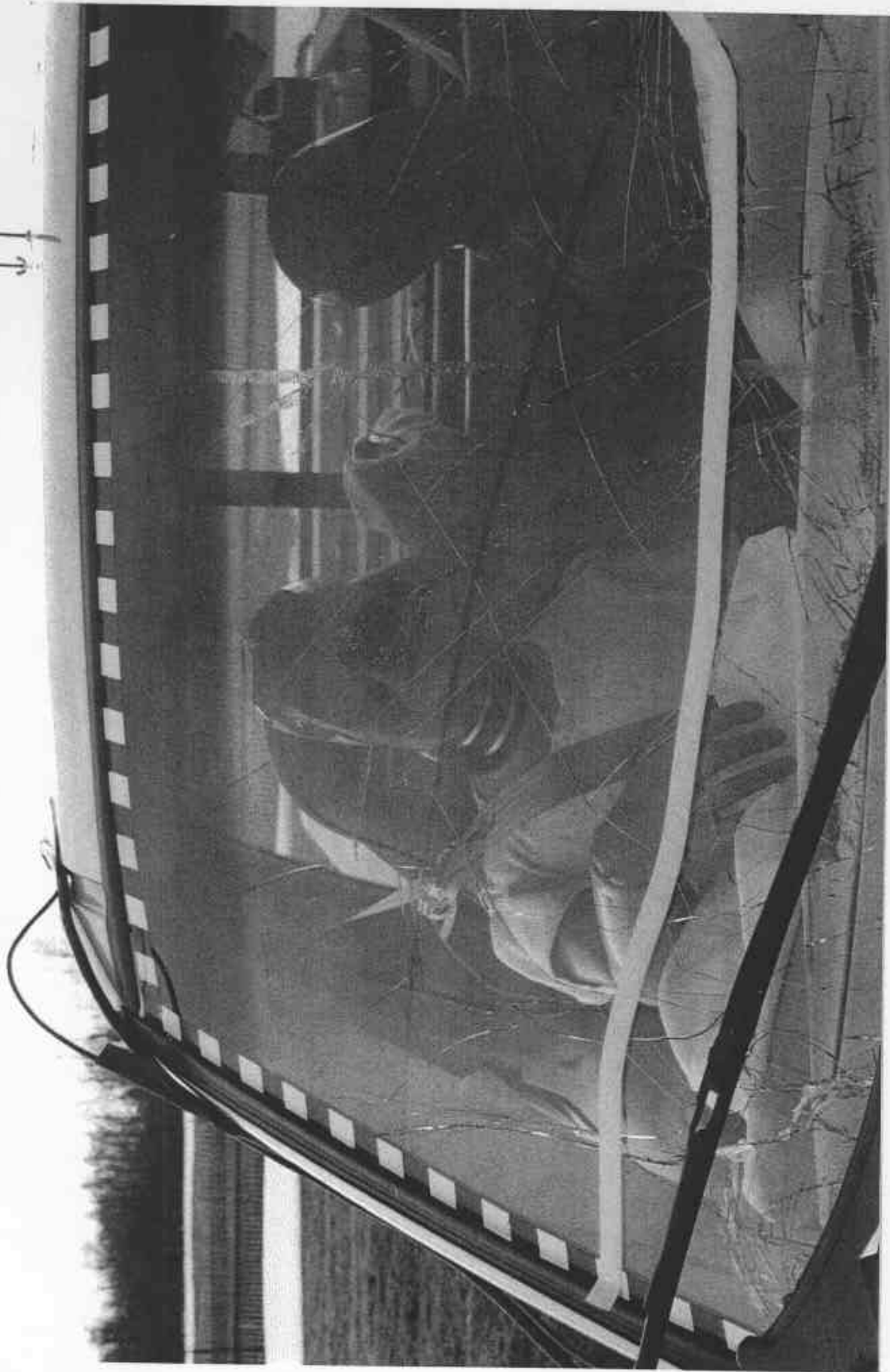


Figure A-33 POST-TEST PASSENGER HEAD LOCATION



Figure A-34 PRE-TEST DRIVER FLOOR PAN VIEW



Figure A-35 POST-TEST DRIVER FLOOR PAN VIEW

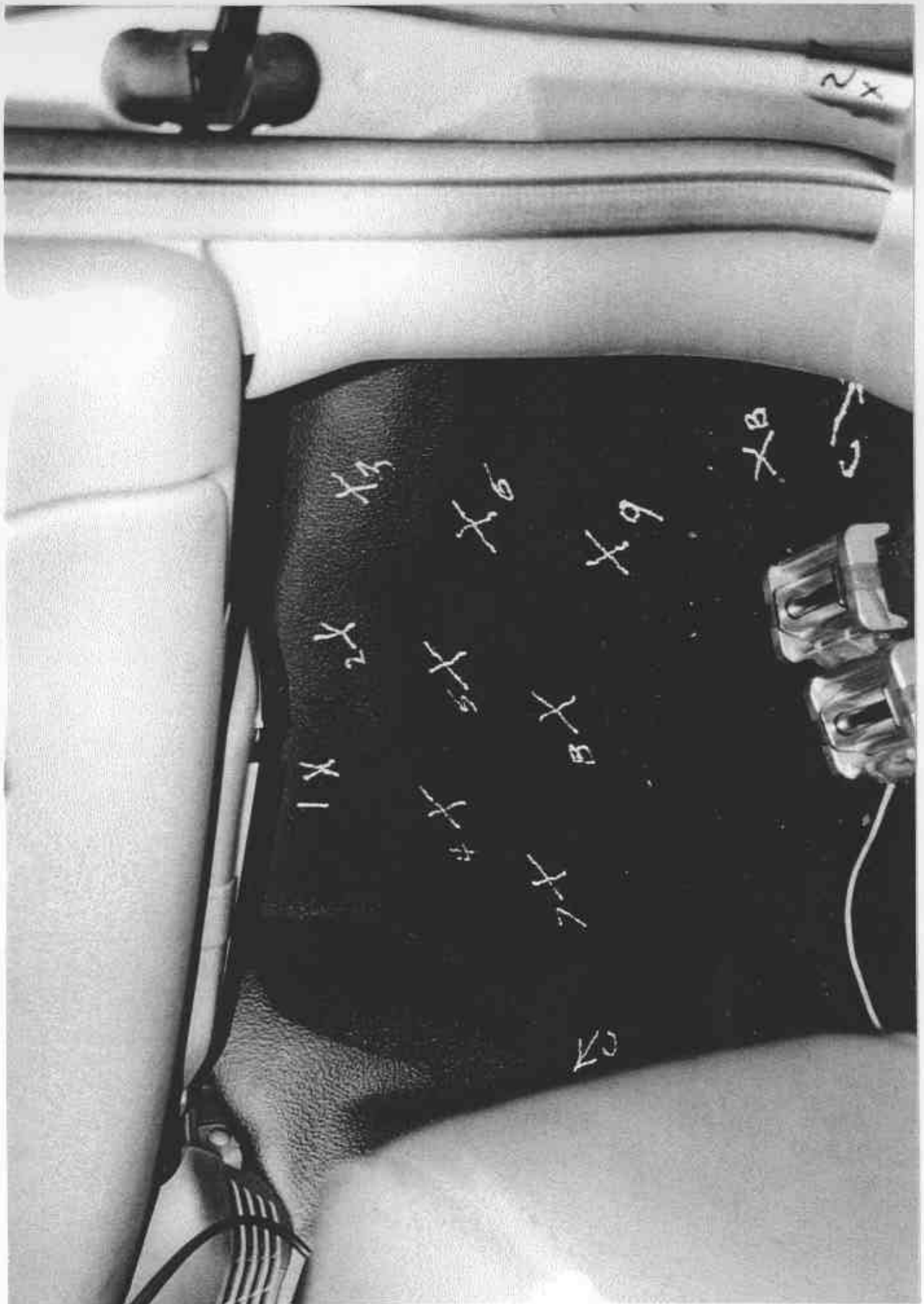


Figure A-36 PRE-TEST PASSENGER FLOOR PAN VIEW

PHOTOGRAPH NOT AVAILABLE

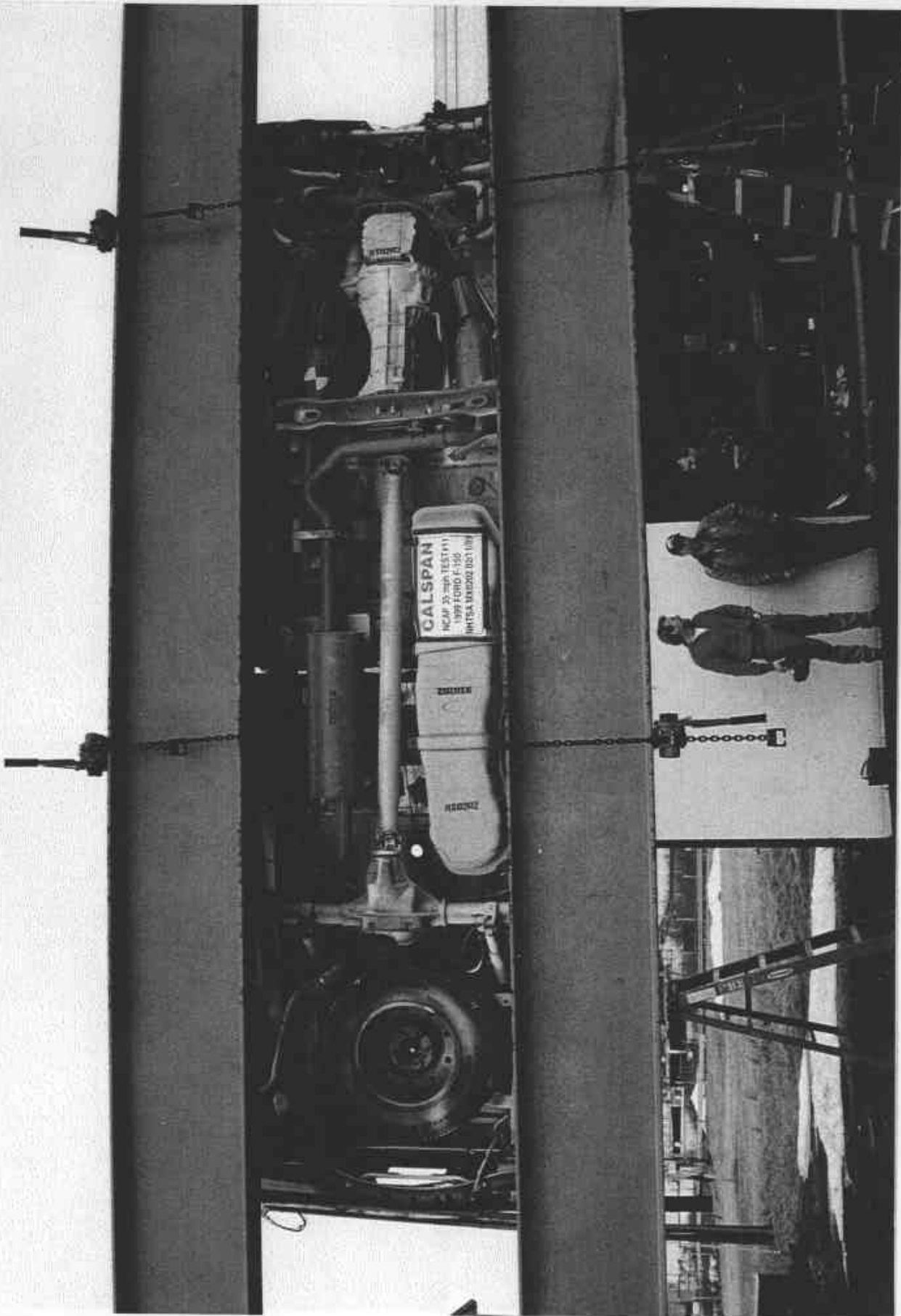


Figure A-38 ROLLOVER VIEW

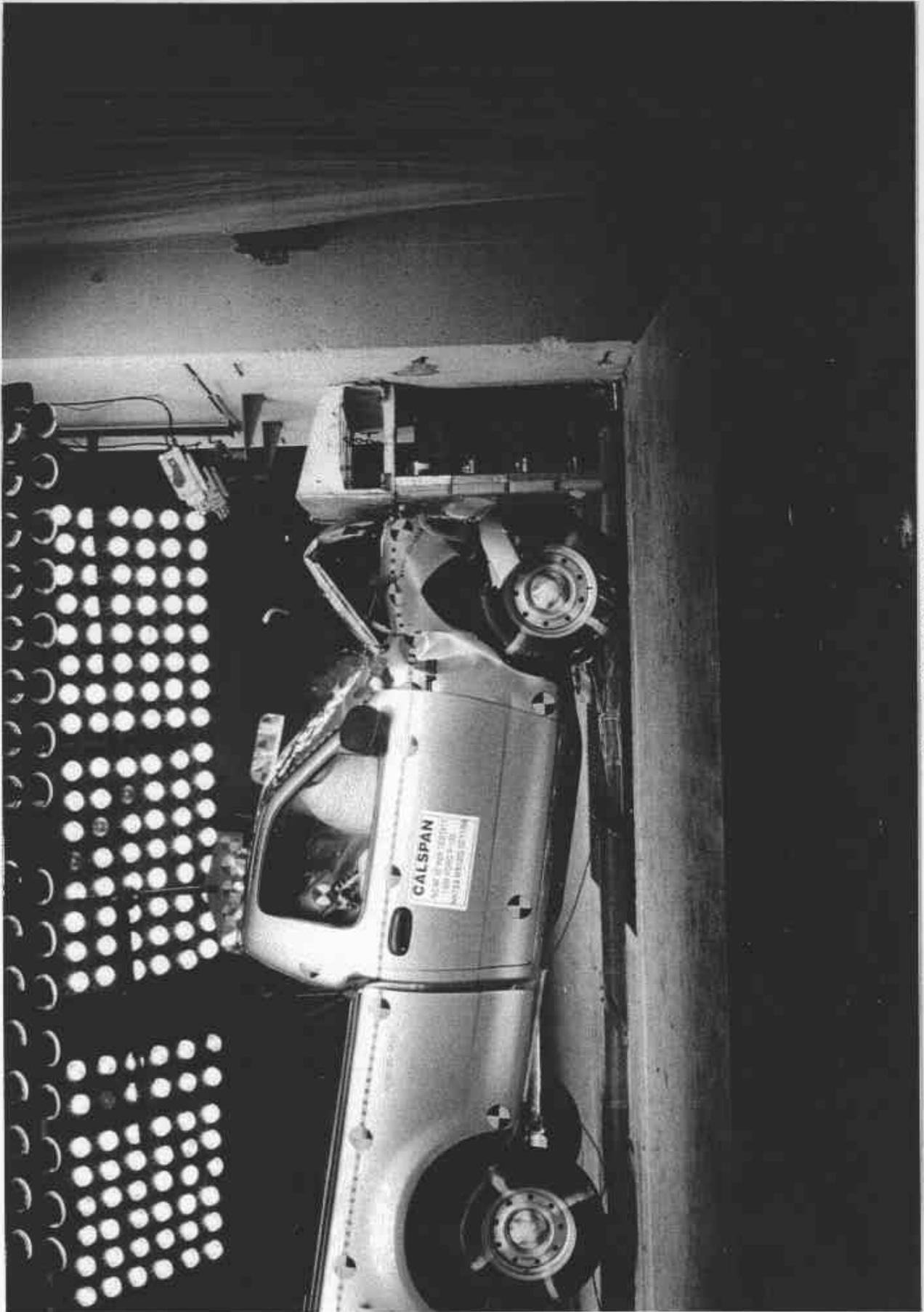


Figure A-39 IMPACT VIEW

A-42

8314-35

Appendix B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

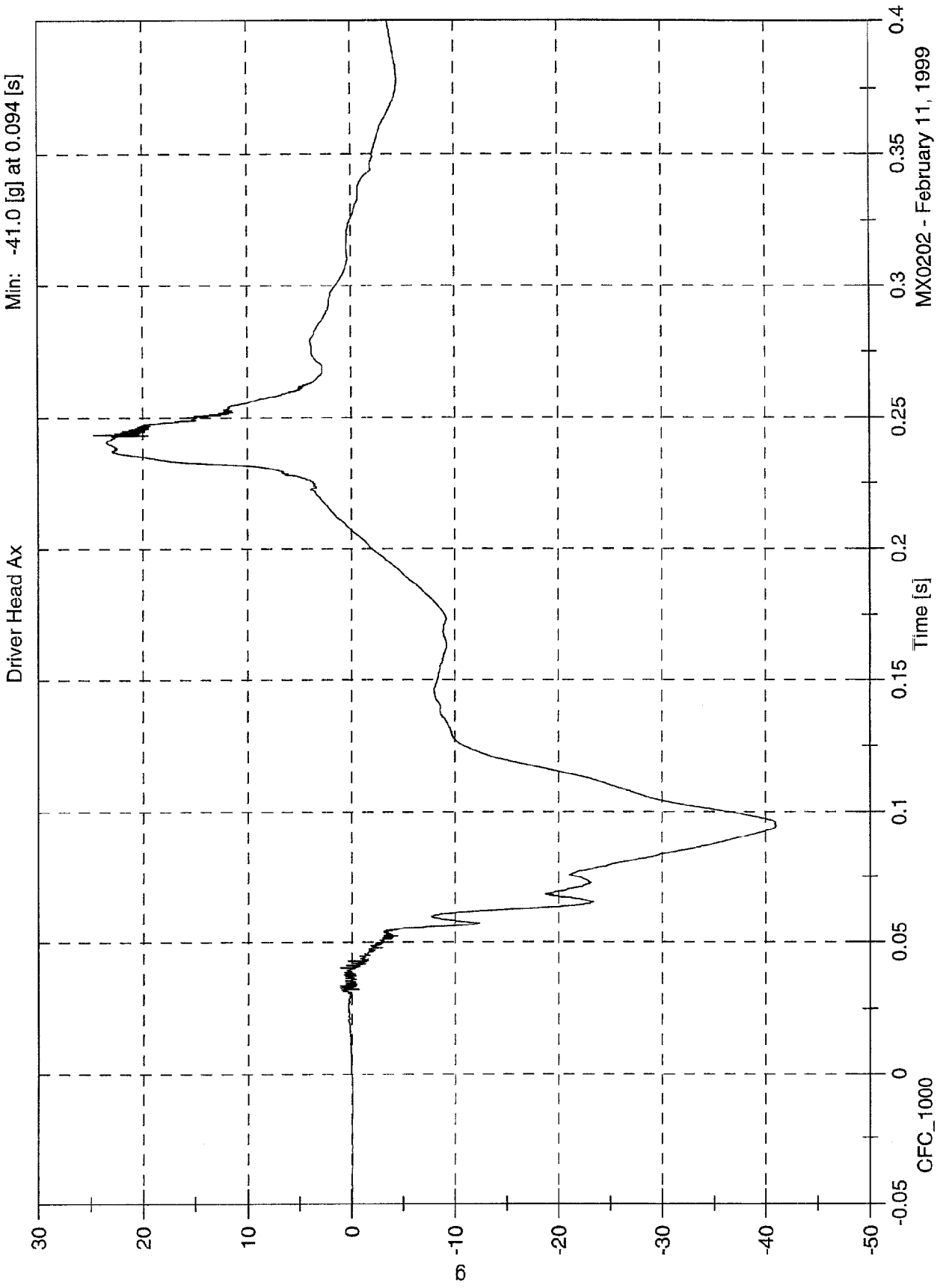
NHTSA TEST NO. MX0202

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 #11 - 1999 Ford F150 Pickup

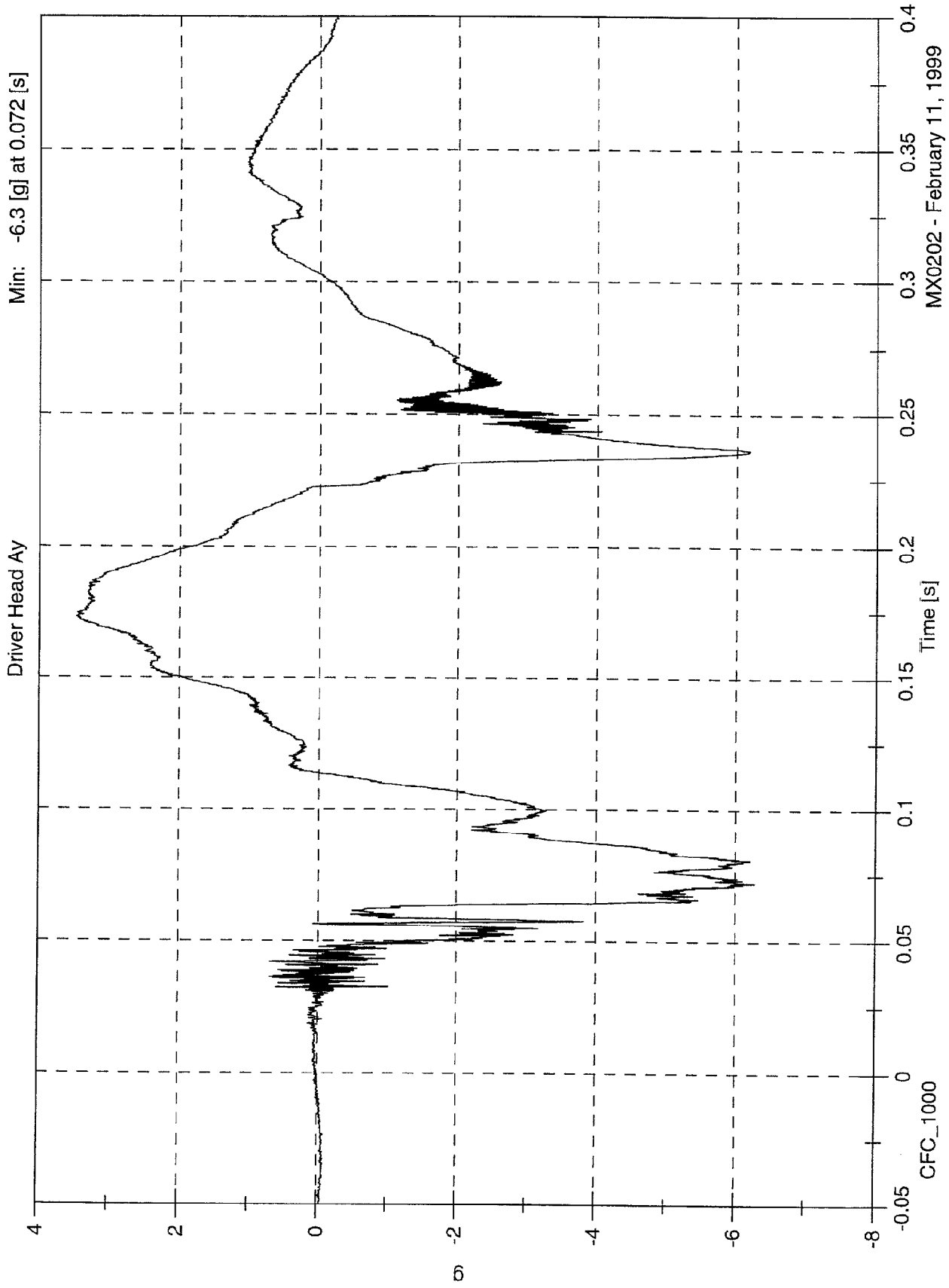
Max: 24.7 [g] at 0.244 [s]  
Min: -41.0 [g] at 0.094 [s]



MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

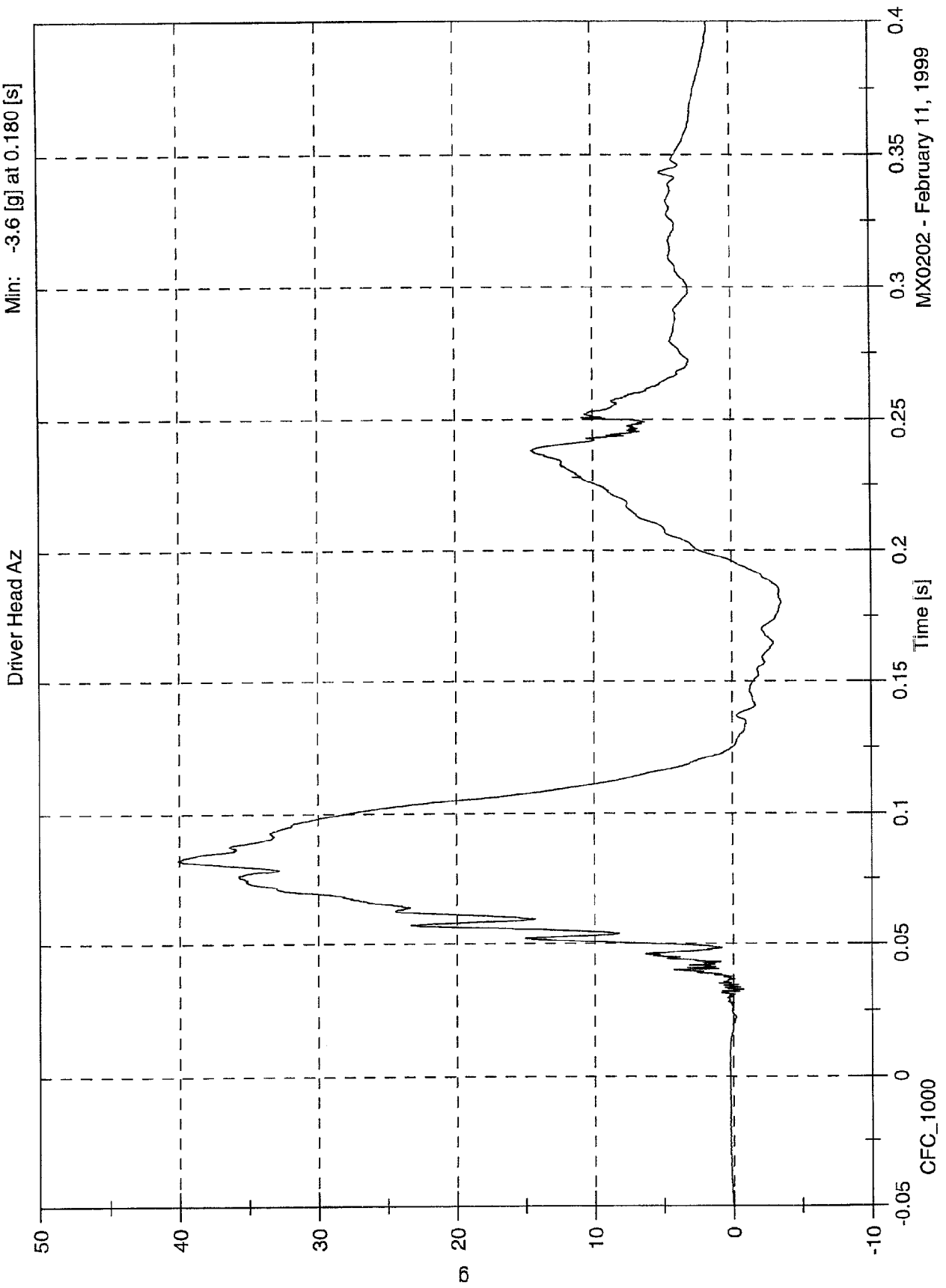
Max: 3.5 [g] at 0.173 [s]  
Min: -6.3 [g] at 0.072 [s]



MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 40.1 [g] at 0.082 [s]  
Min: -3.6 [g] at 0.180 [s]

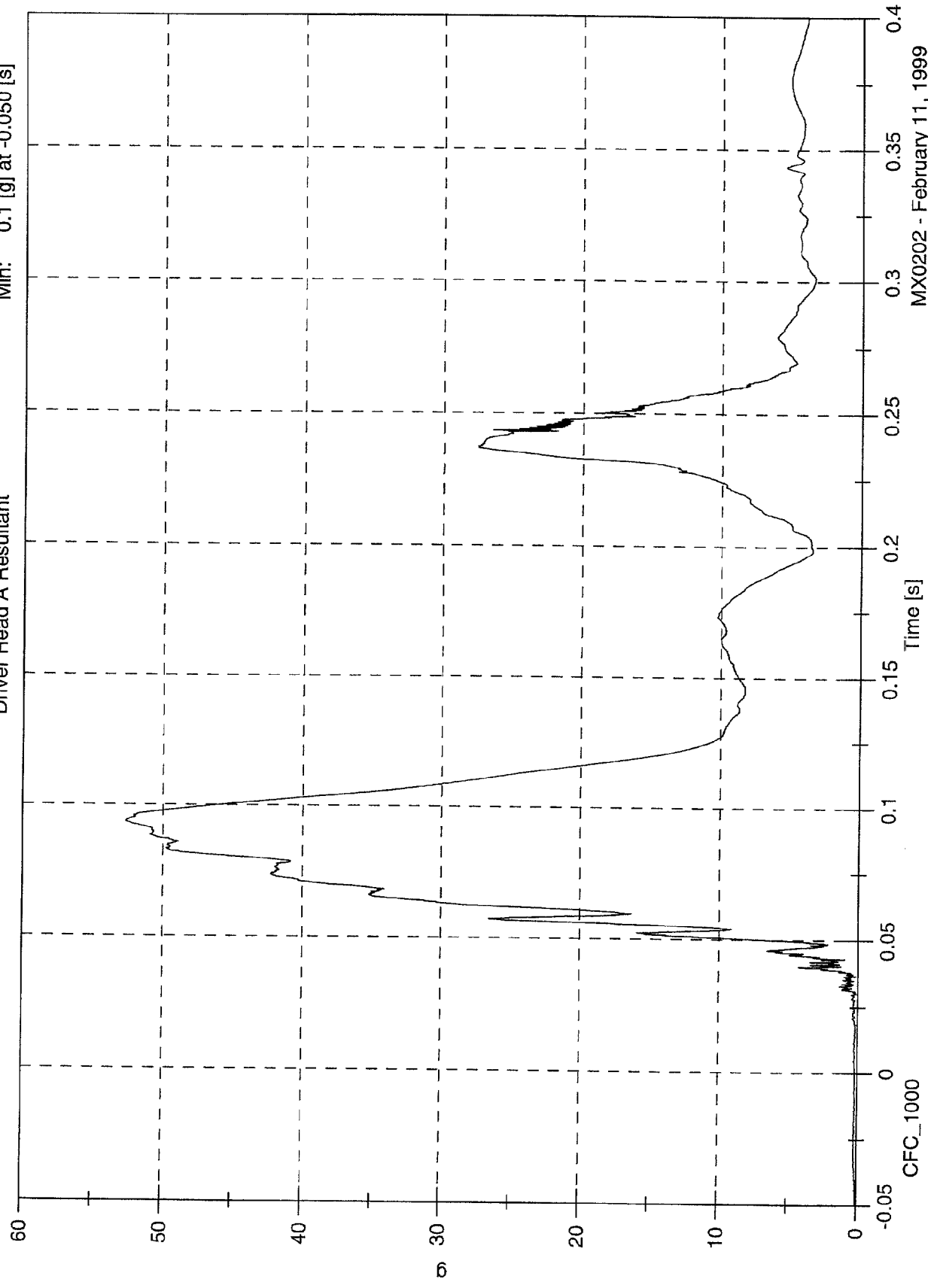


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 52.6 [g] at 0.093 [s]  
Min: 0.1 [g] at -0.050 [s]

Driver Head A Resultant



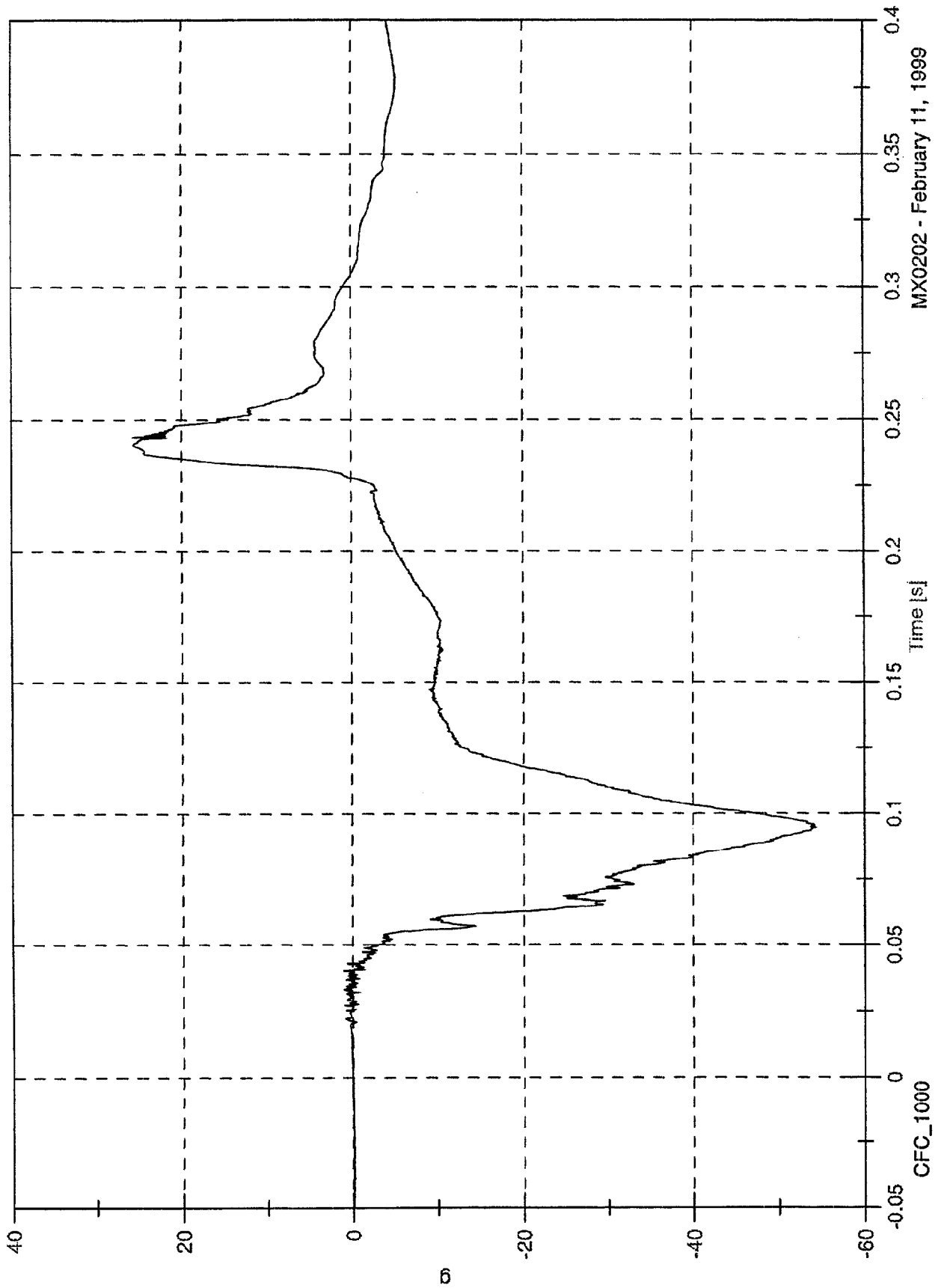
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Driver Head Ax Redundant

Max: 25.7 [g] at 0.243 [s]

Min: -54.3 [g] at 0.094 [s]

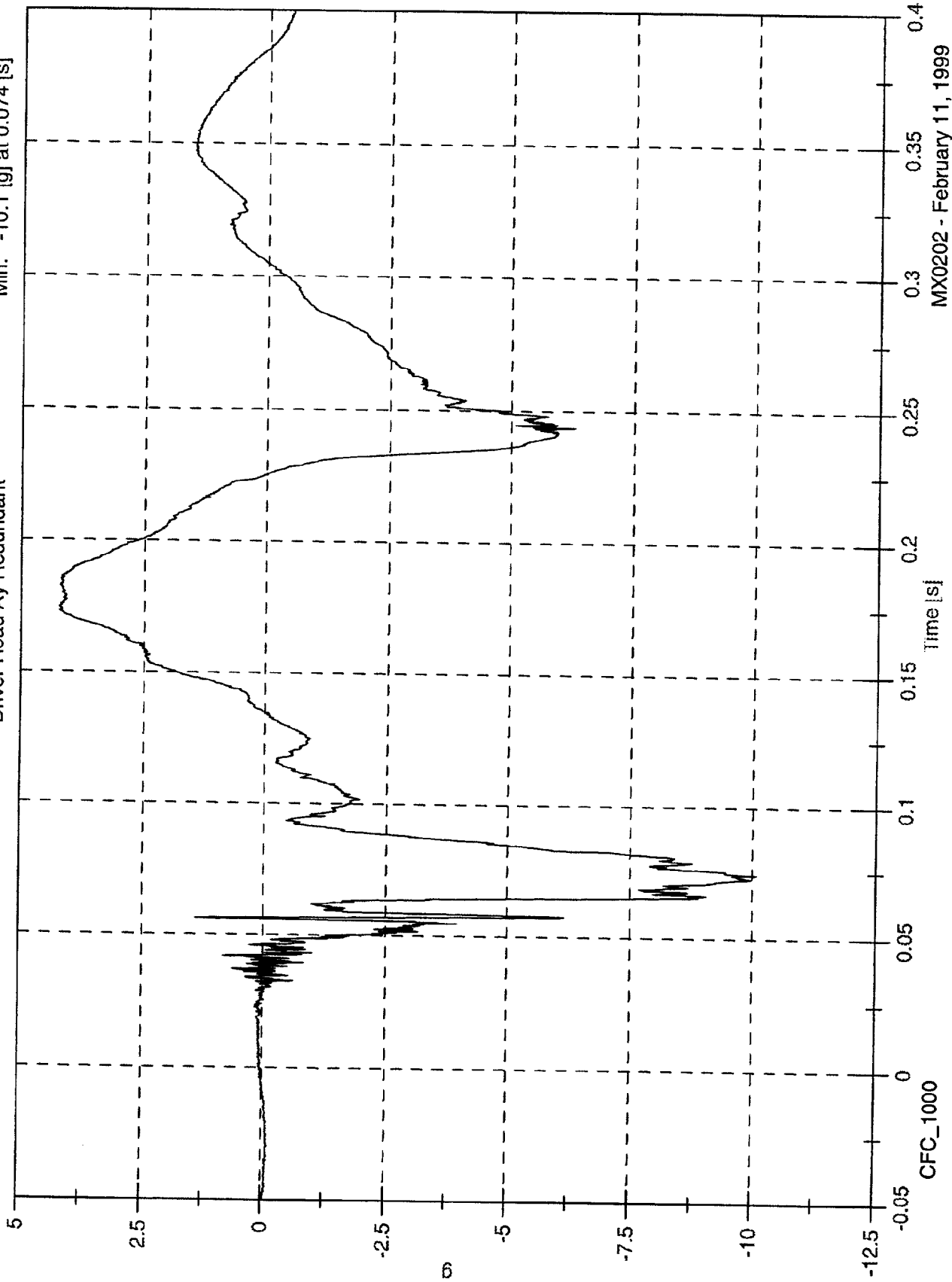


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 4.2 [g] at 0.175 [s]  
Min: -10.1 [g] at 0.074 [s]

Driver Head Ay Redundant

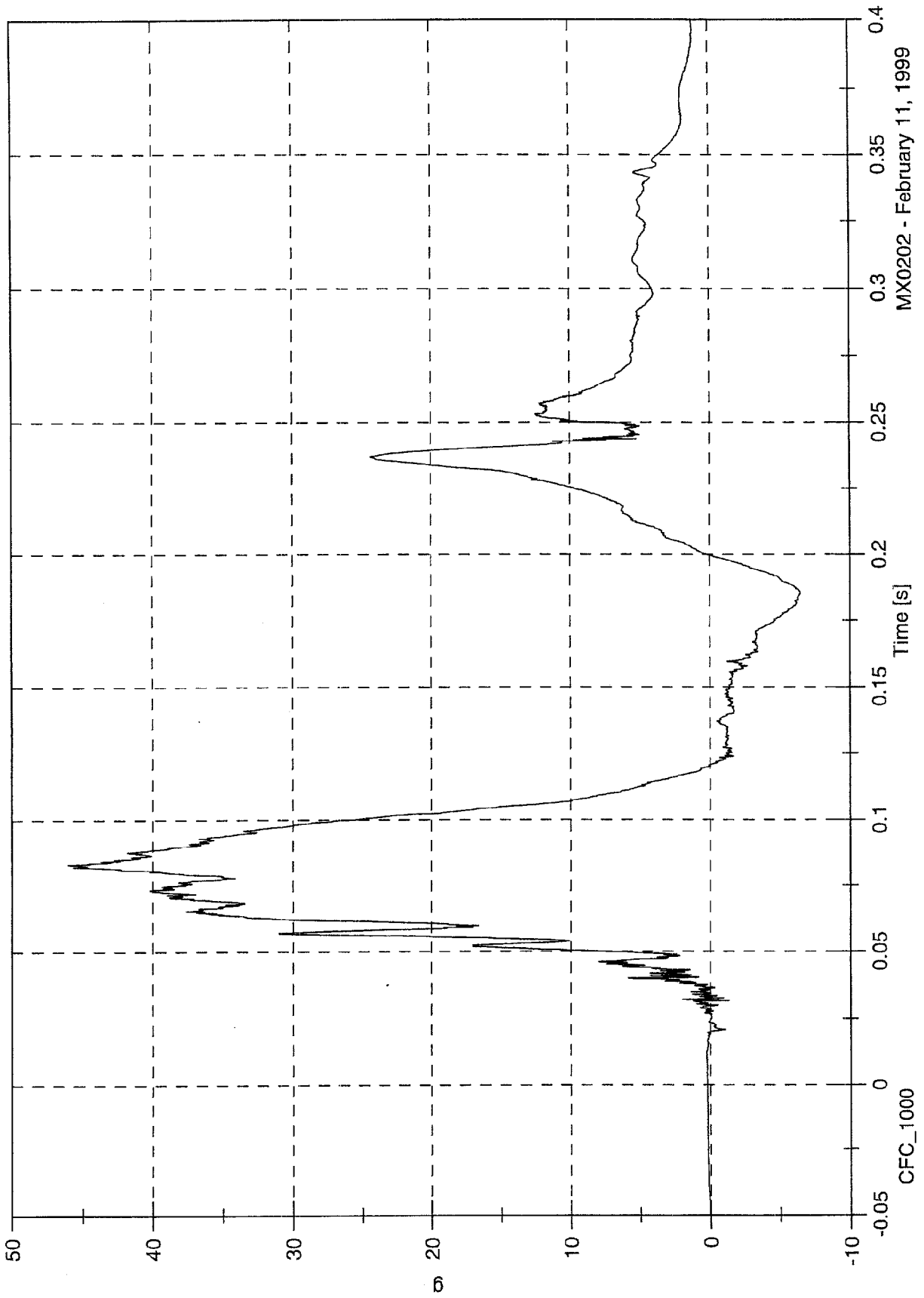


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 46.0 [g] at 0.083 [s]  
Min: -6.5 [g] at 0.186 [s]

Driver Head Az Redundant

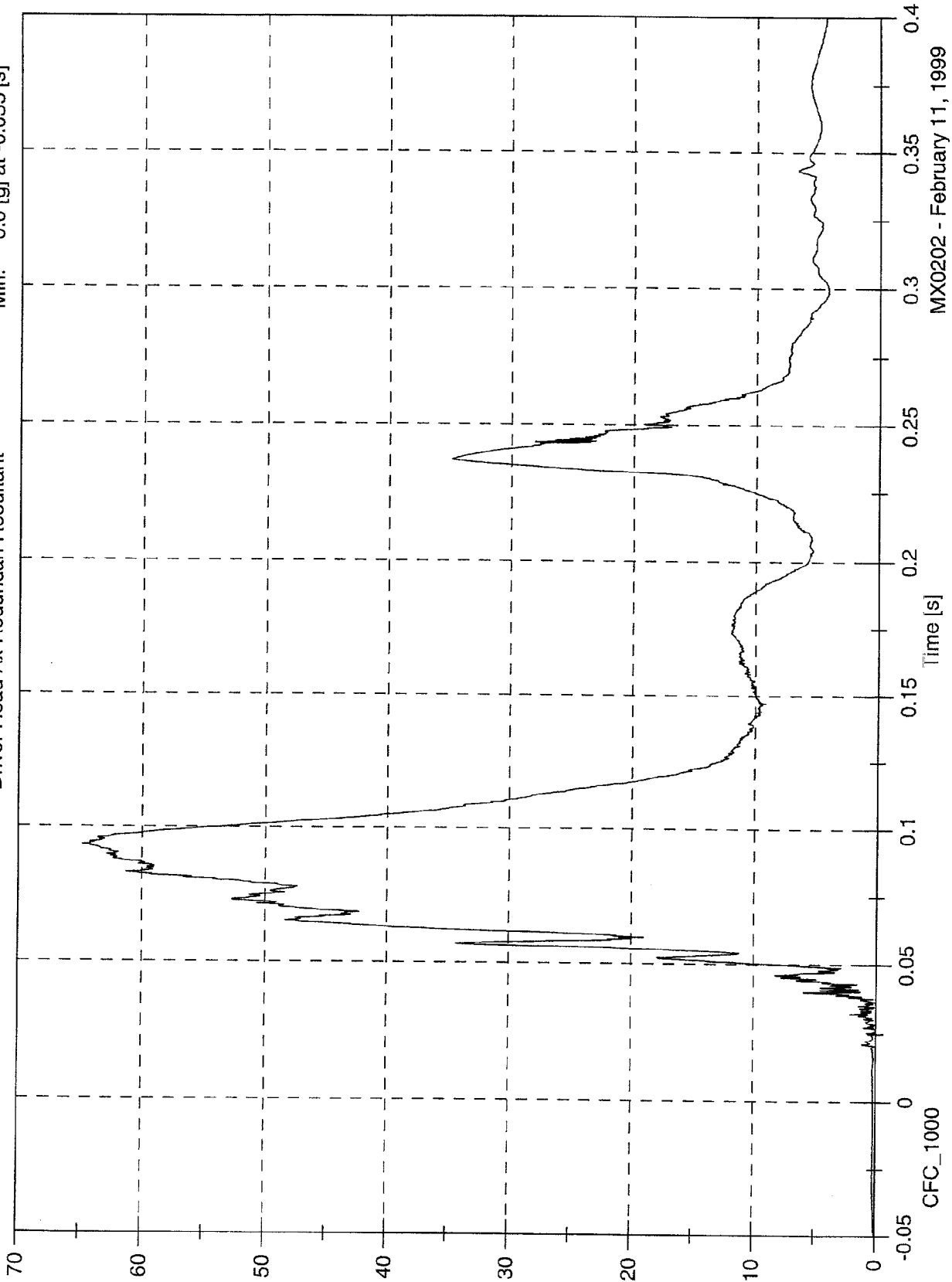


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 64.8 [g] at 0.093 [s]  
Min: 0.0 [g] at -0.055 [s]

Driver Head Ax Redundan Resultant

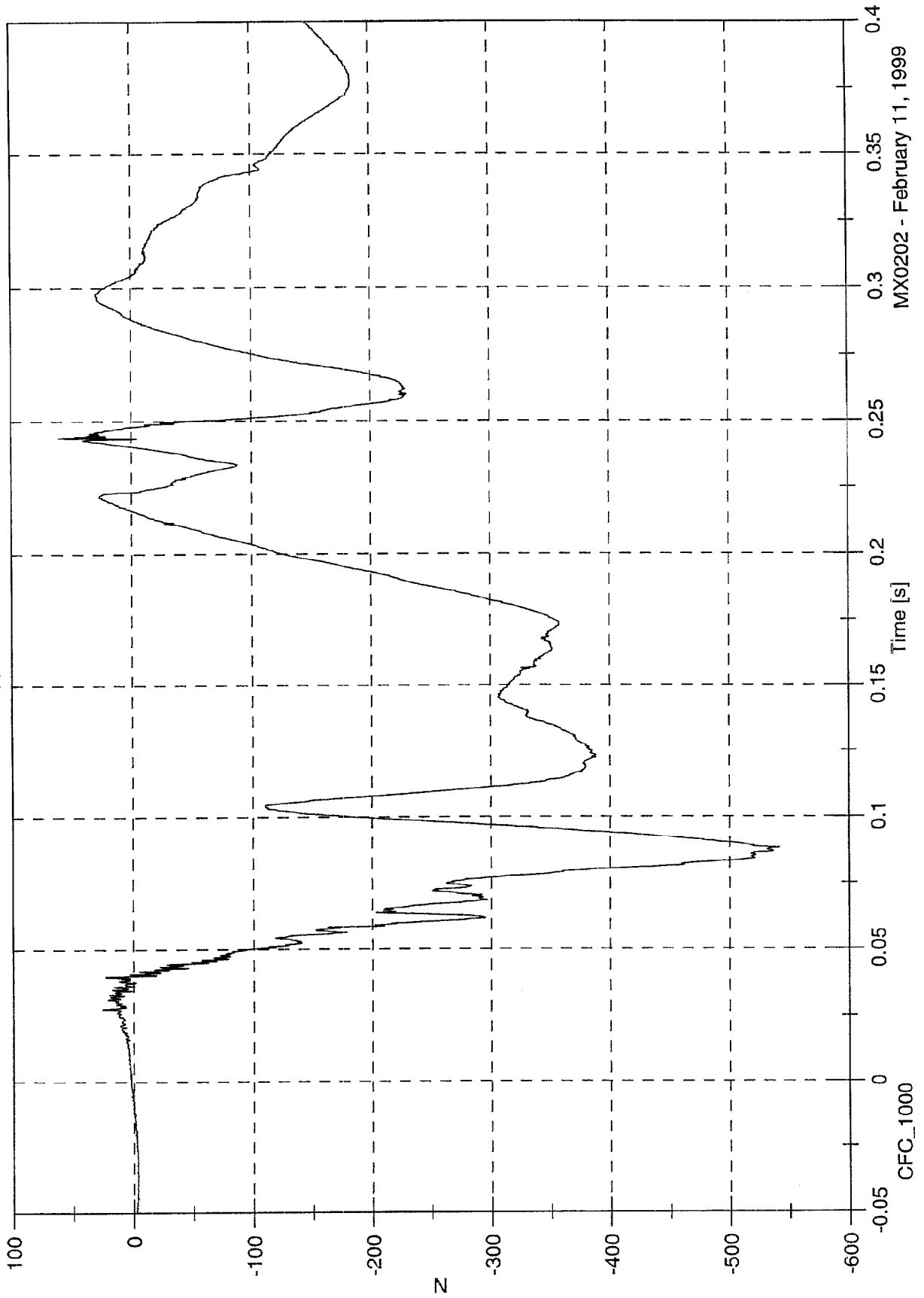


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 84.6 [N] at 0.599 [s]  
Min: -541.9 [N] at 0.088 [s]

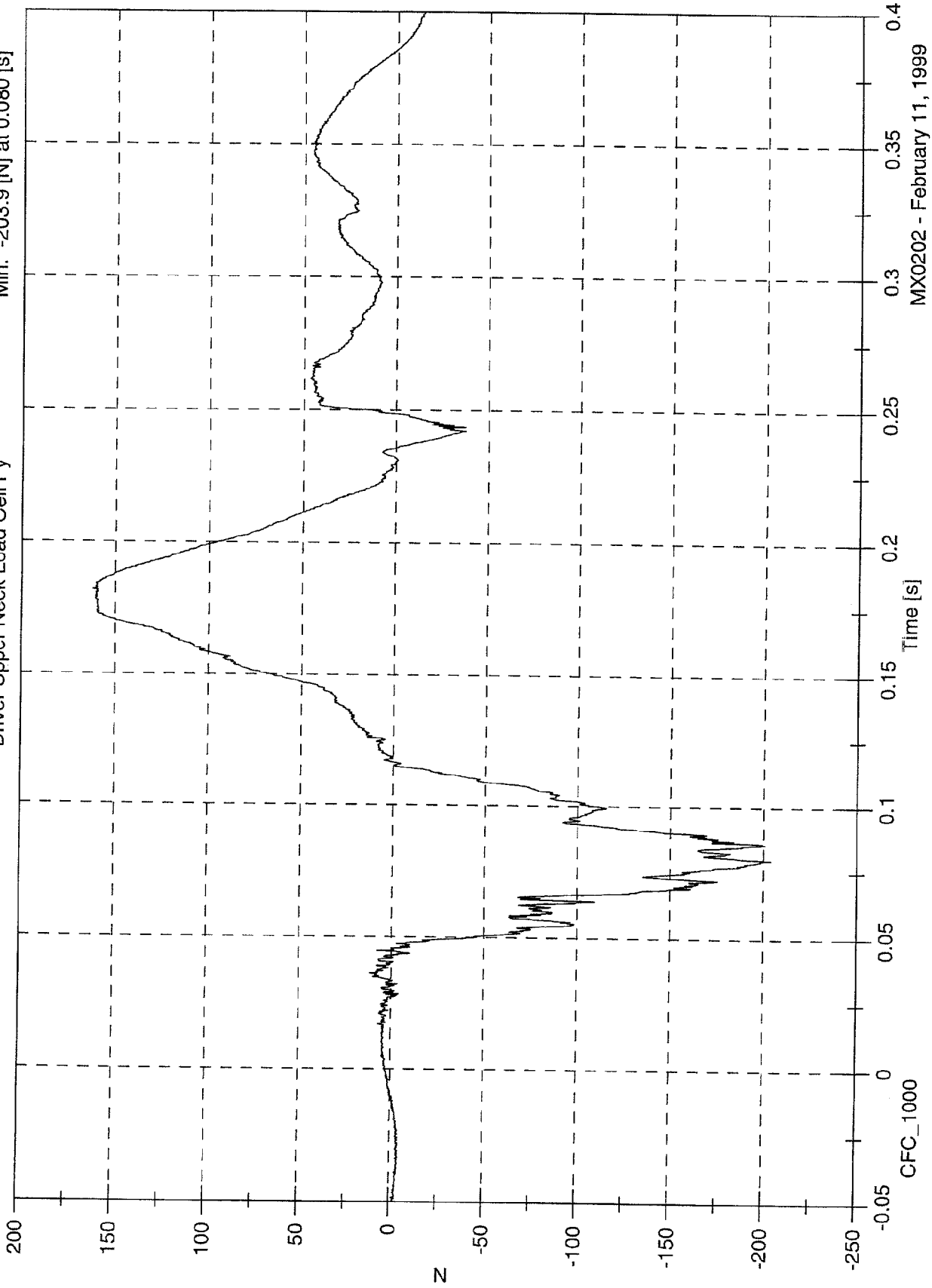
Driver Upper Neck Load Cell Fx



NCAP #11 - 1999 Ford F150 Pickup

Max: 162.1 [N] at 0.182 [s]  
Min: -203.9 [N] at 0.080 [s]

Driver Upper Neck Load Cell Fy

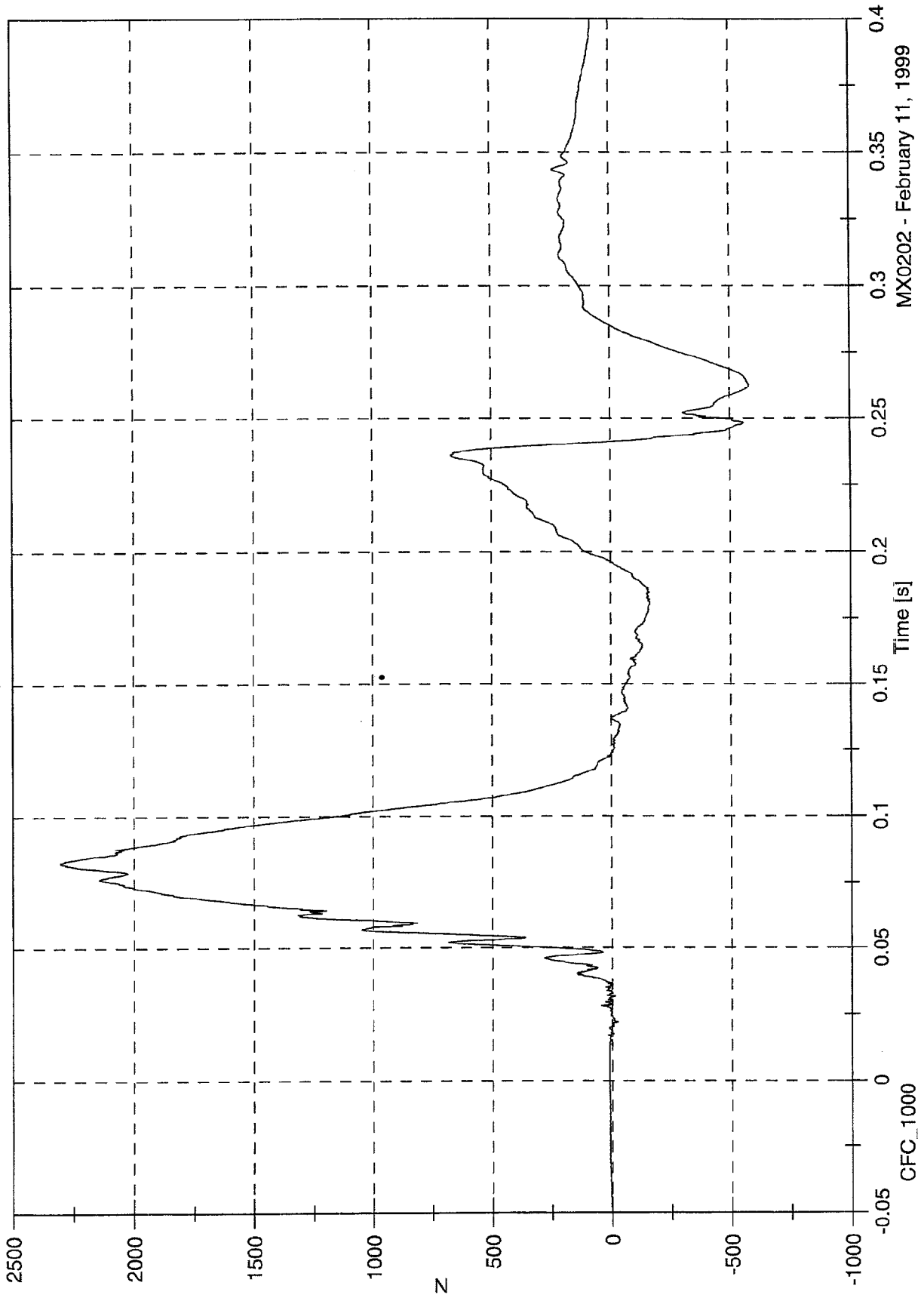


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Driver Upper Neck Load Cell Fz

Max: 2304.6 [N] at 0.082 [s]  
Min: -579.9 [N] at 0.263 [s]



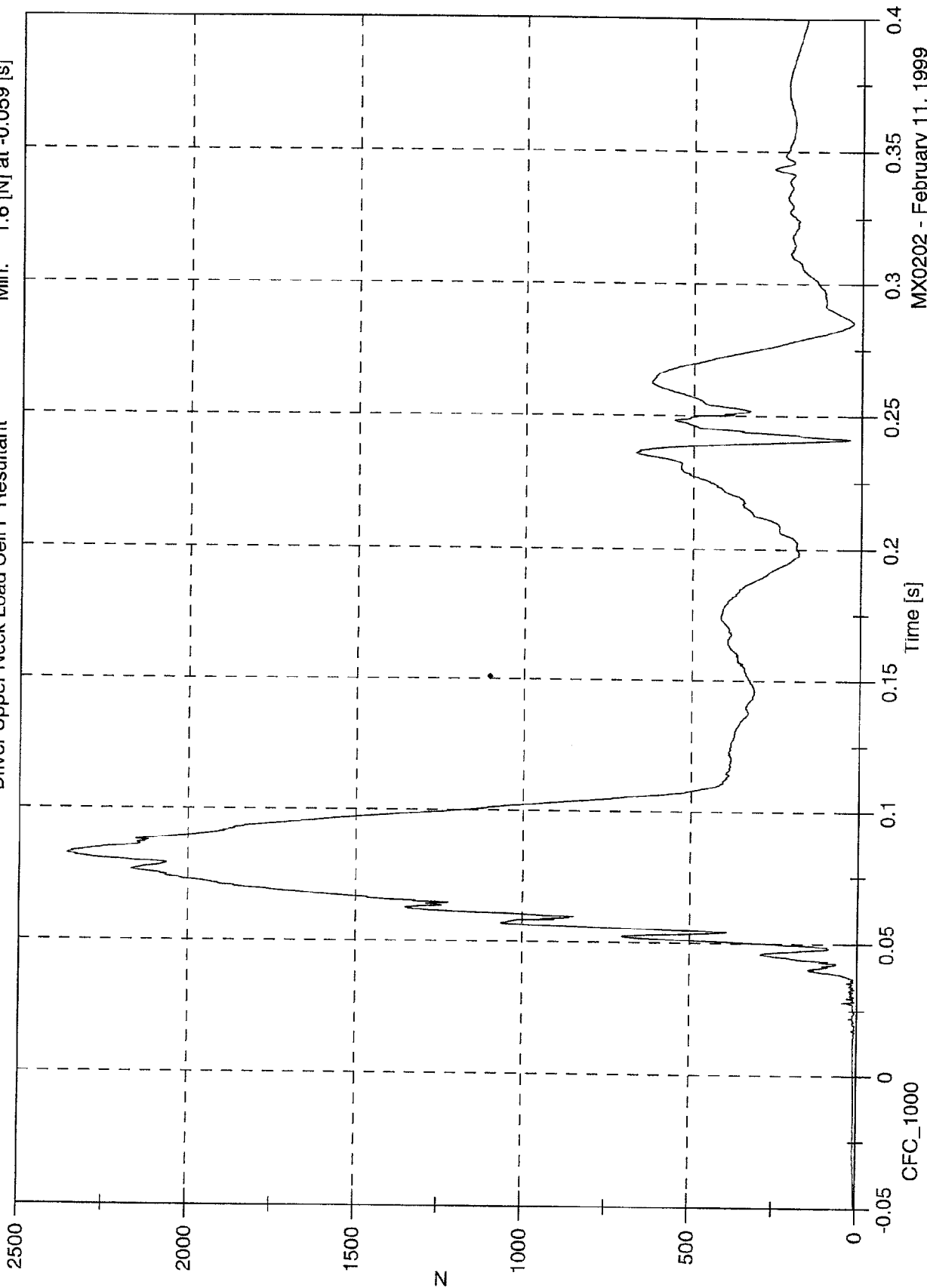
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 2359.1 [N] at 0.082 [s]

Min: 1.6 [N] at -0.059 [s]

Driver Upper Neck Load Cell F Resultant

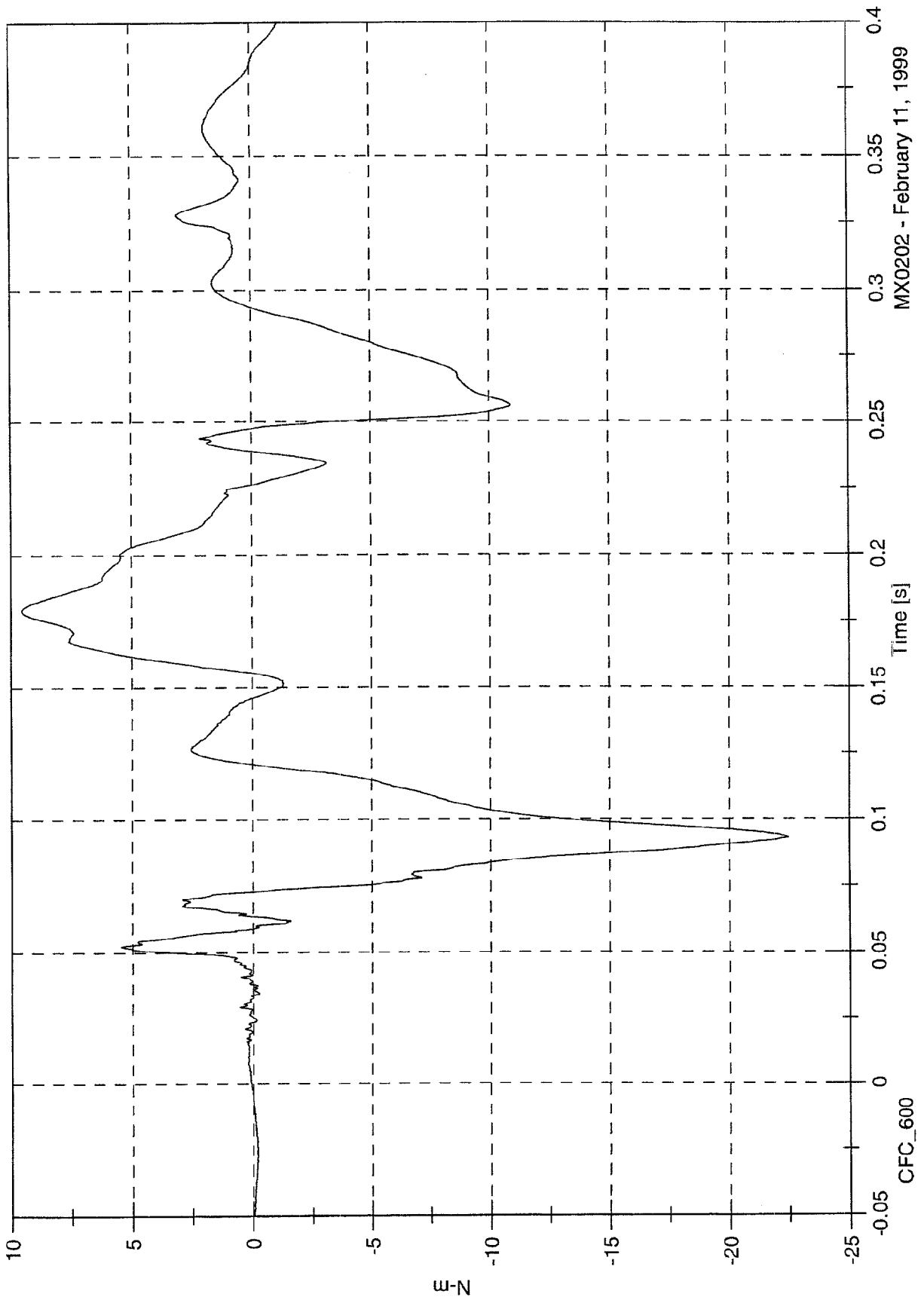


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Driver Upper Neck Load Cell Mx

Max: 9.6 [N-m] at 0.179 [s]  
Min: -22.4 [N-m] at 0.093 [s]



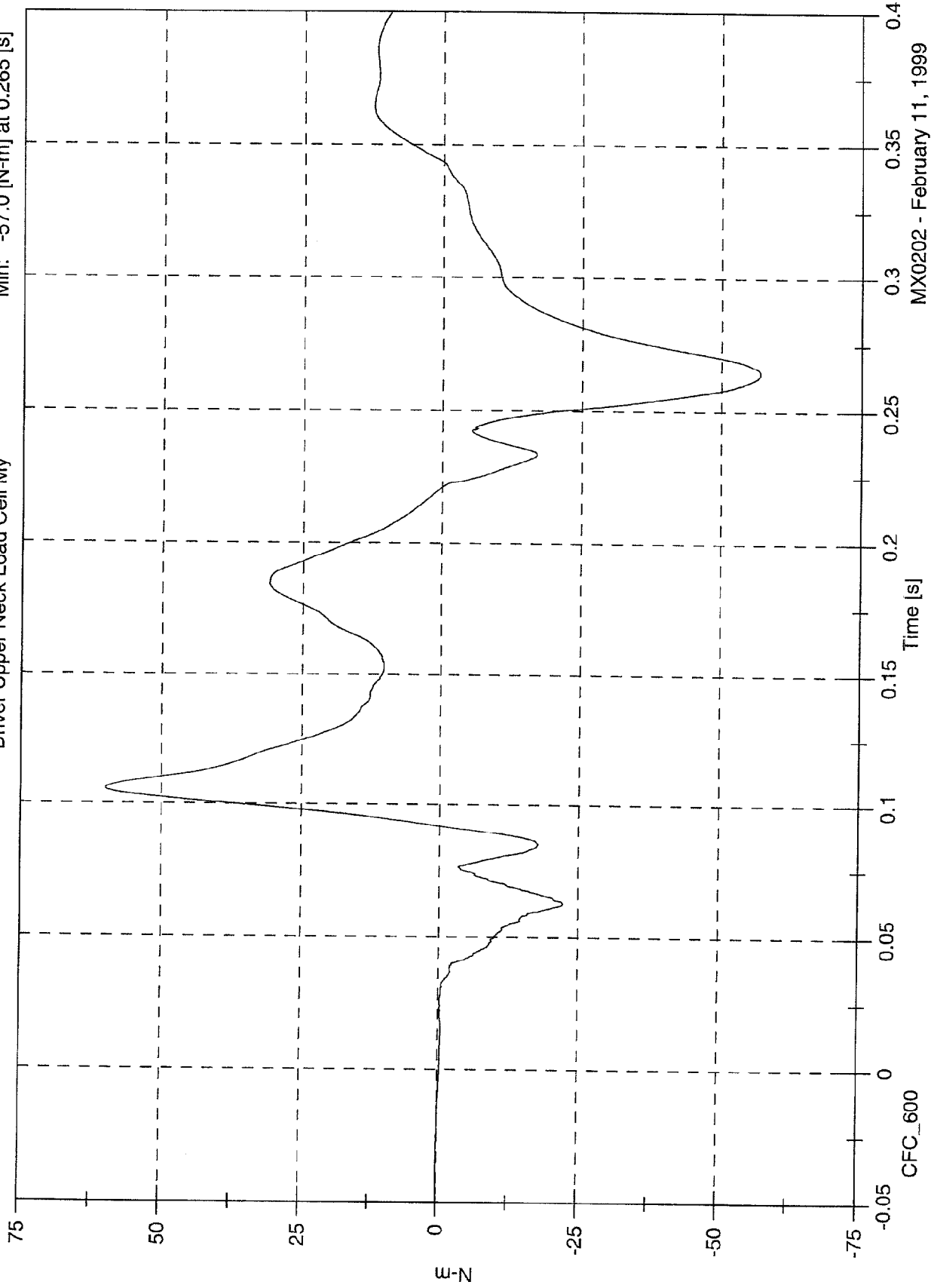
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Driver Upper Neck Load Cell My

Max: 59.9 [N-m] at 0.106 [s]

Min: -57.0 [N-m] at 0.265 [s]

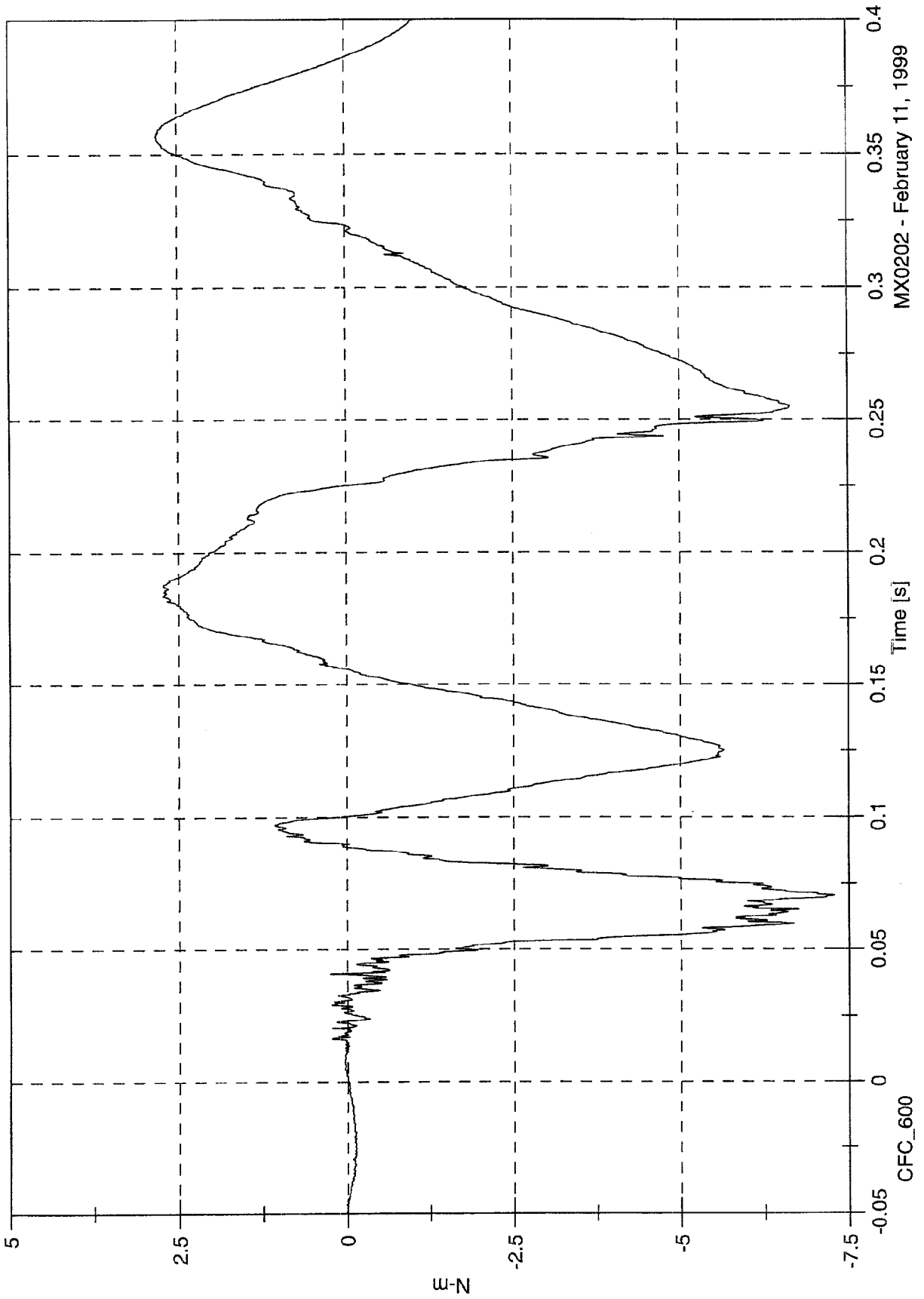


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 2.8 [N-m] at 0.357 [s]  
Min: -7.3 [N-m] at 0.071 [s]

Driver Upper Neck Load Cell Mz



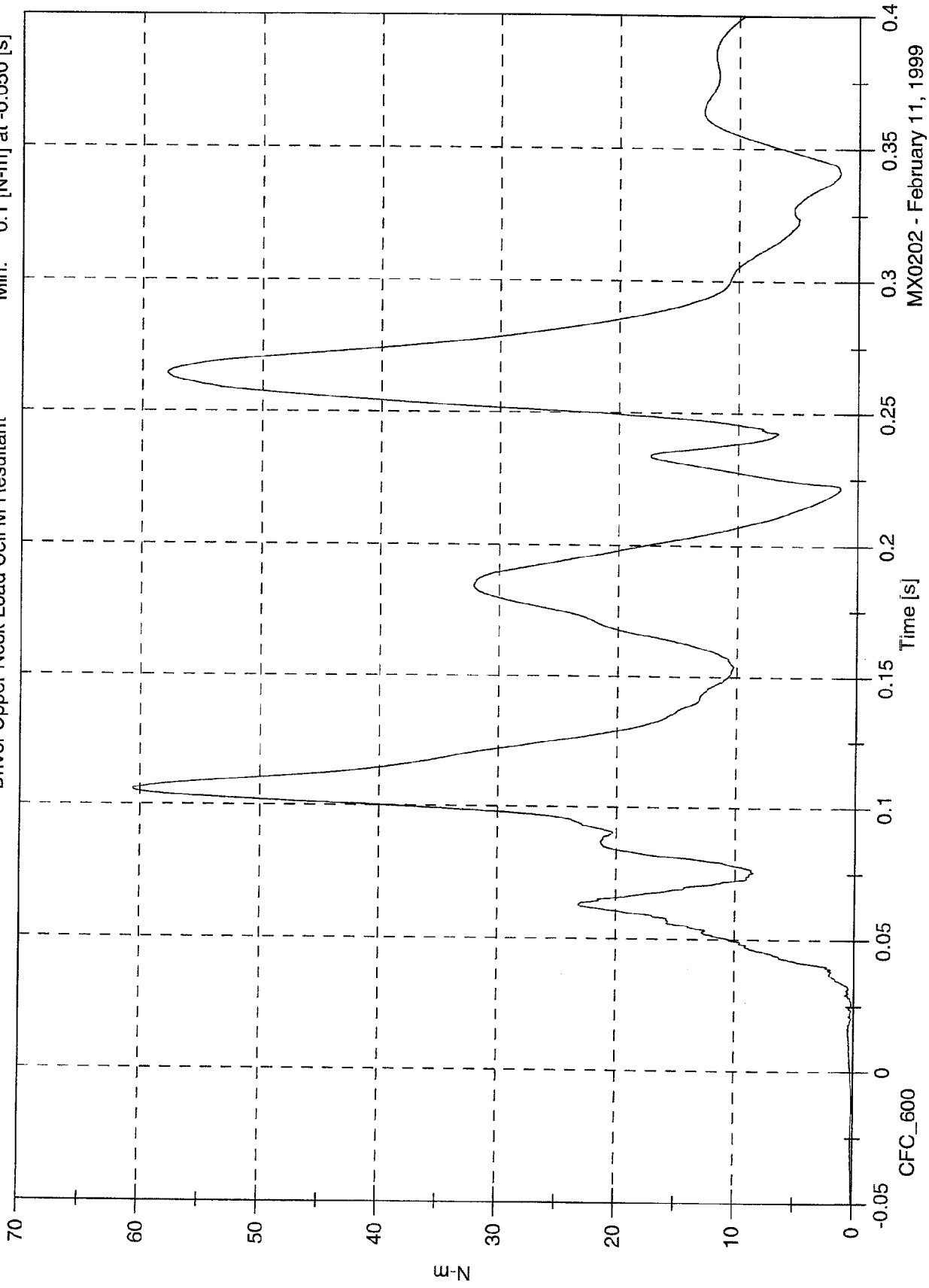
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Driver Upper Neck Load Cell M Resultant

Max: 60.6 [N-m] at 0.106 [s]

Min: 0.1 [N-m] at -0.050 [s]



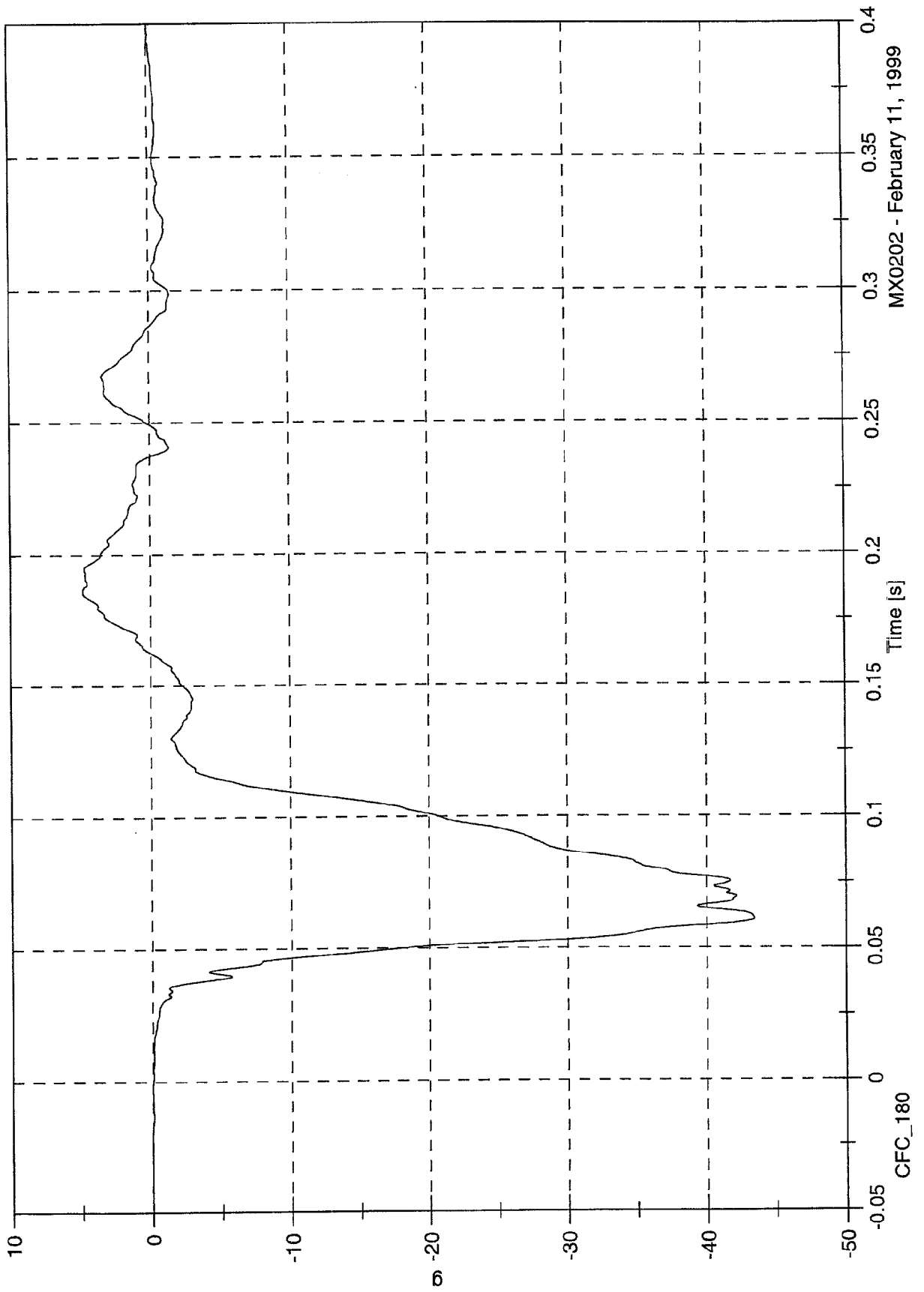
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 4.8 [g] at 0.186 [s]

Min: -43.4 [g] at 0.061 [s]

Driver Chest Ax

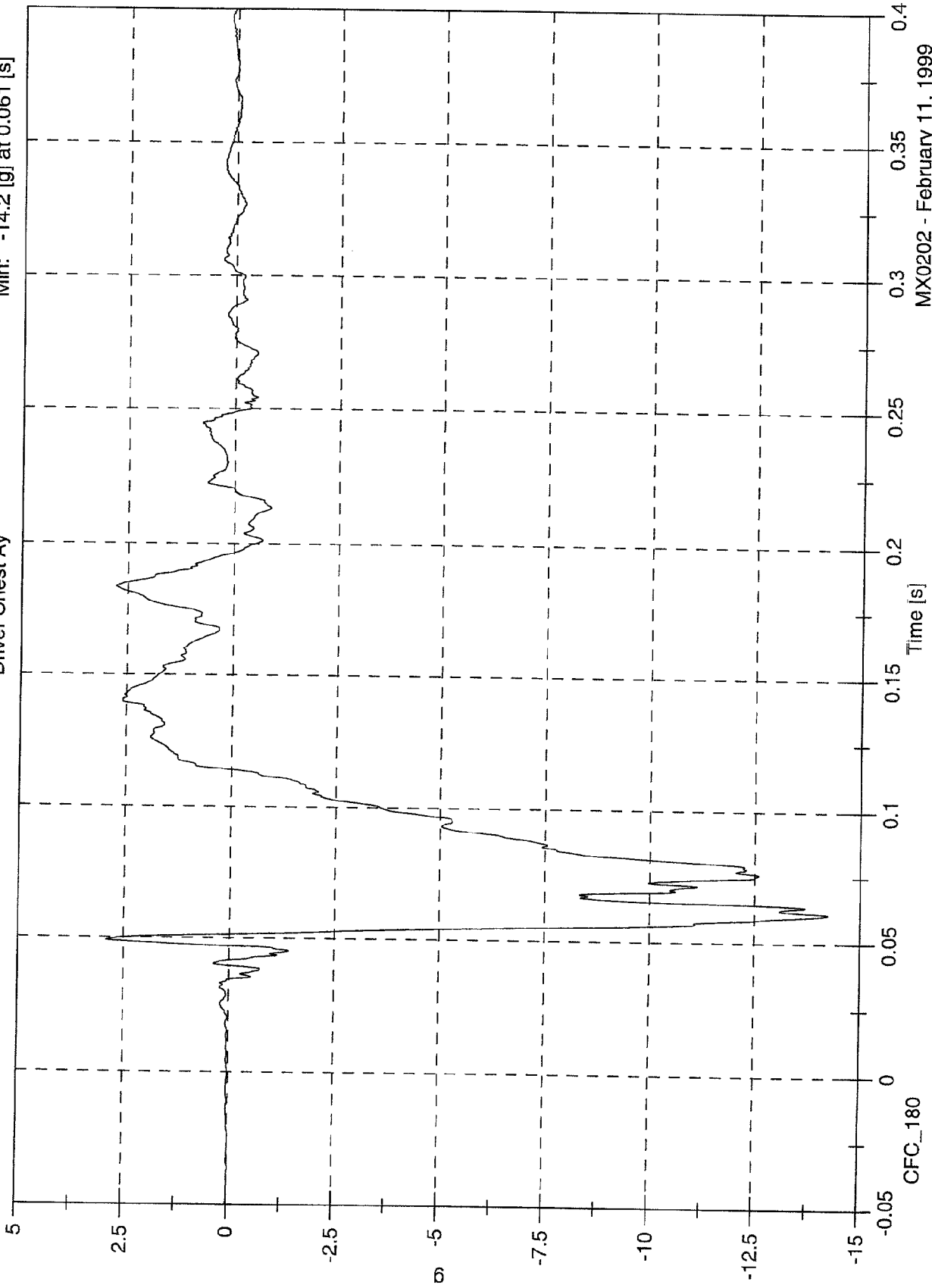


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 2.9 [g] at 0.049 [s]  
Min: -14.2 [g] at 0.061 [s]

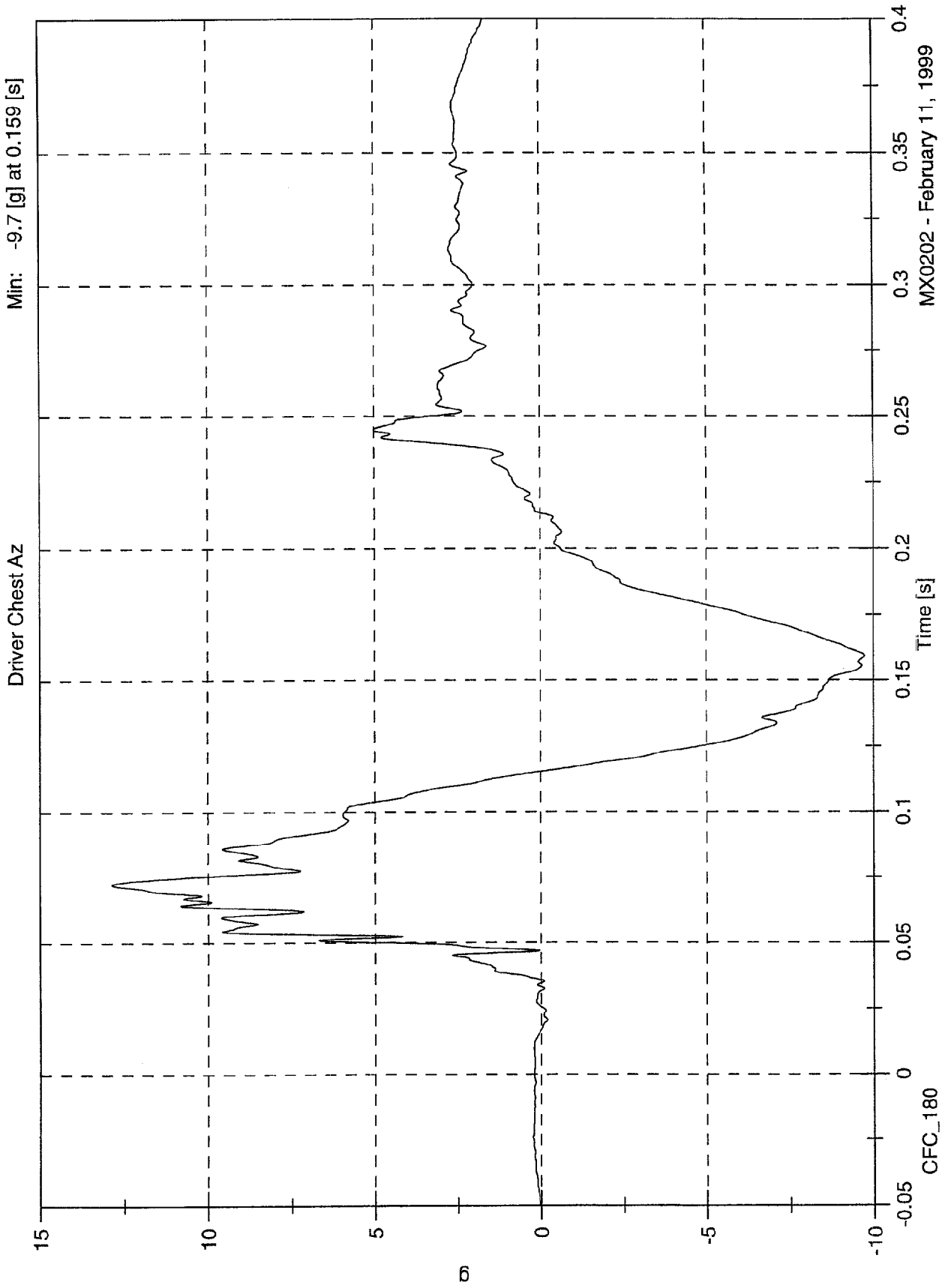
Driver Chest Ay



MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 12.9 [g] at 0.072 [s]  
Min: -9.7 [g] at 0.159 [s]



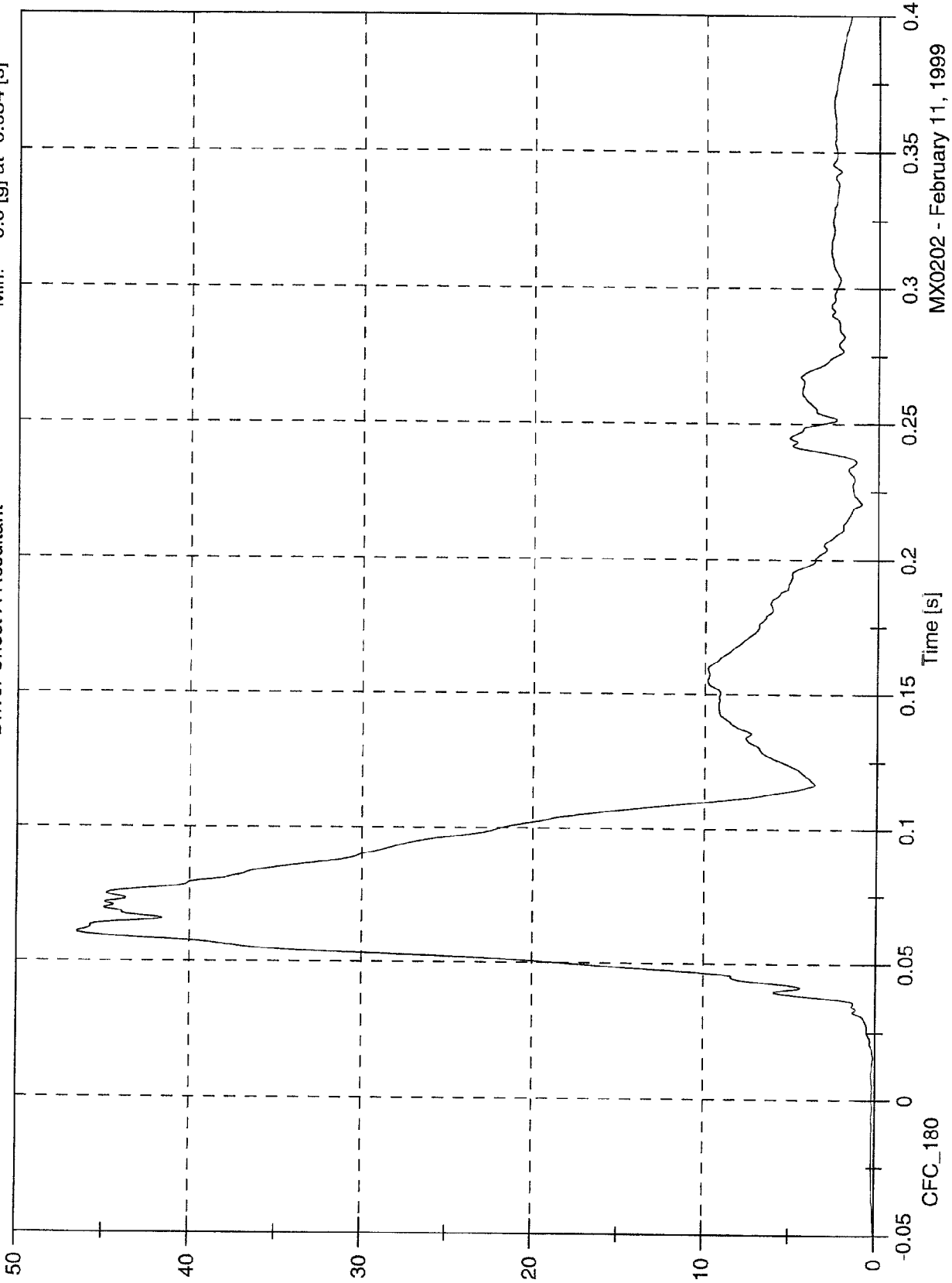
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Driver Chest A Resultant

Max: 46.5 [g] at 0.061 [s]

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



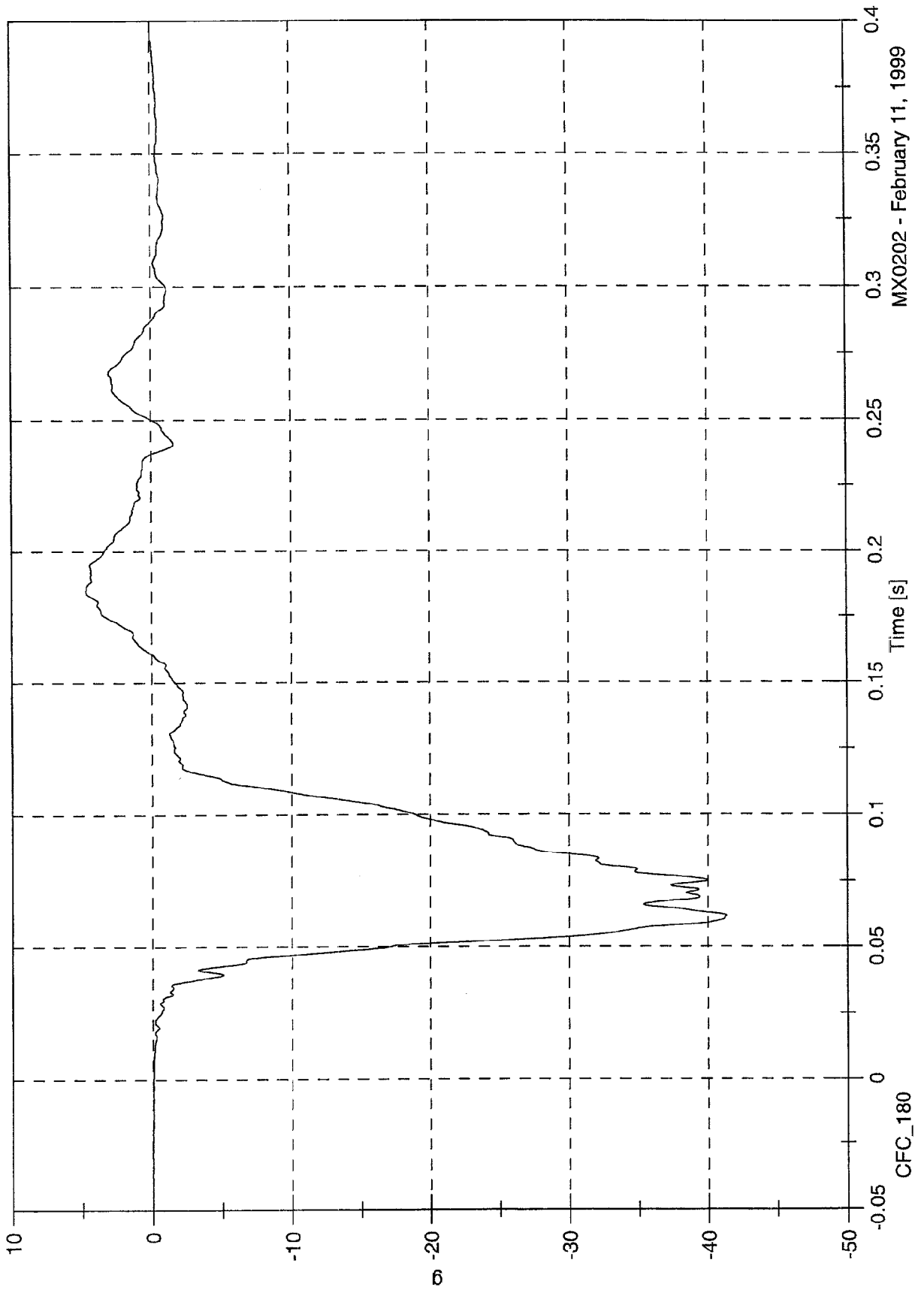
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 4.7 [g] at 0.185 [s]

Min: -41.3 [g] at 0.062 [s]

Driver Chest Ax Redundant



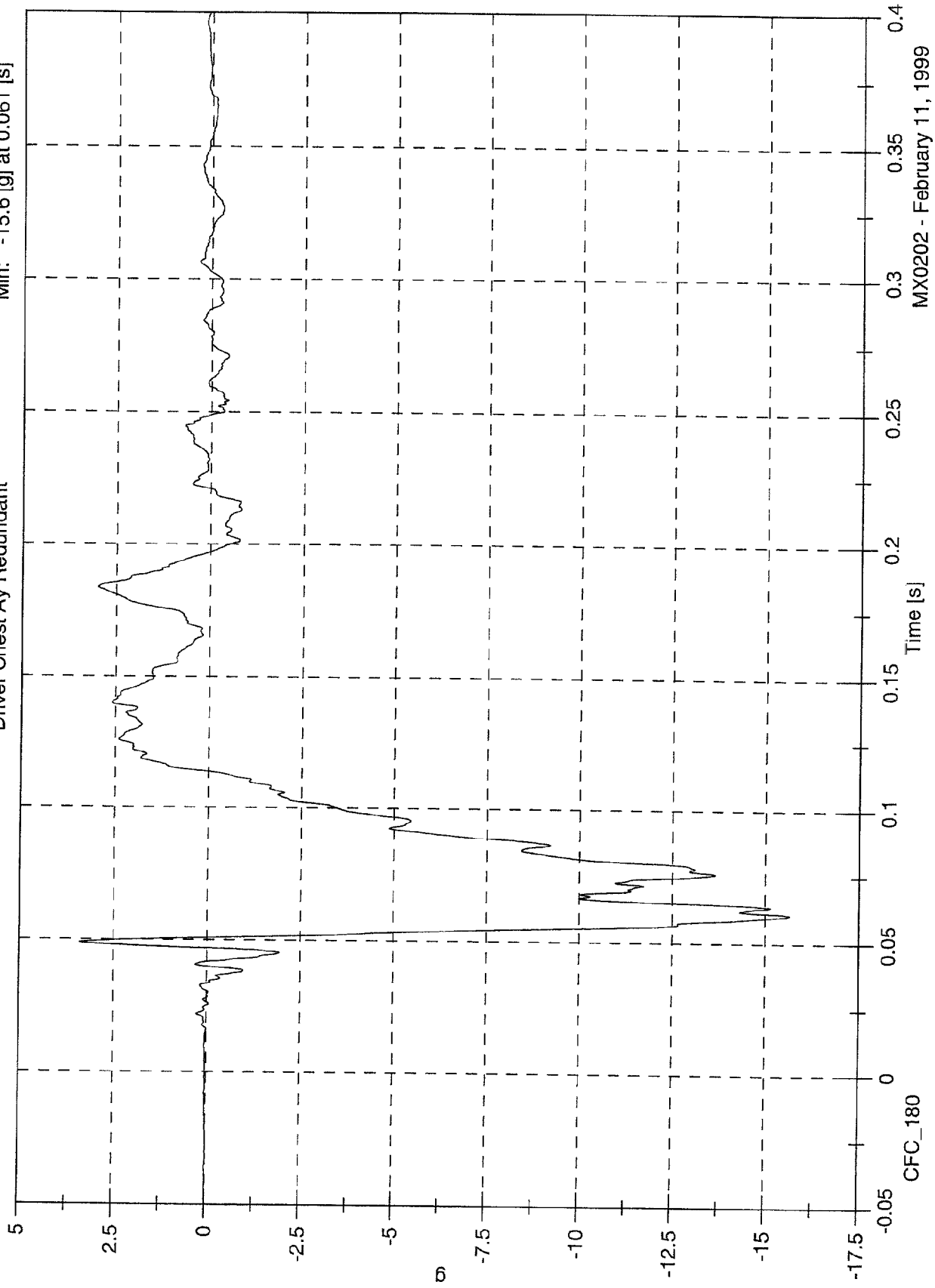
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Driver Chest Ay Redundant

Max: 3.4 [g] at 0.049 [s]

Min: -15.6 [g] at 0.061 [s]

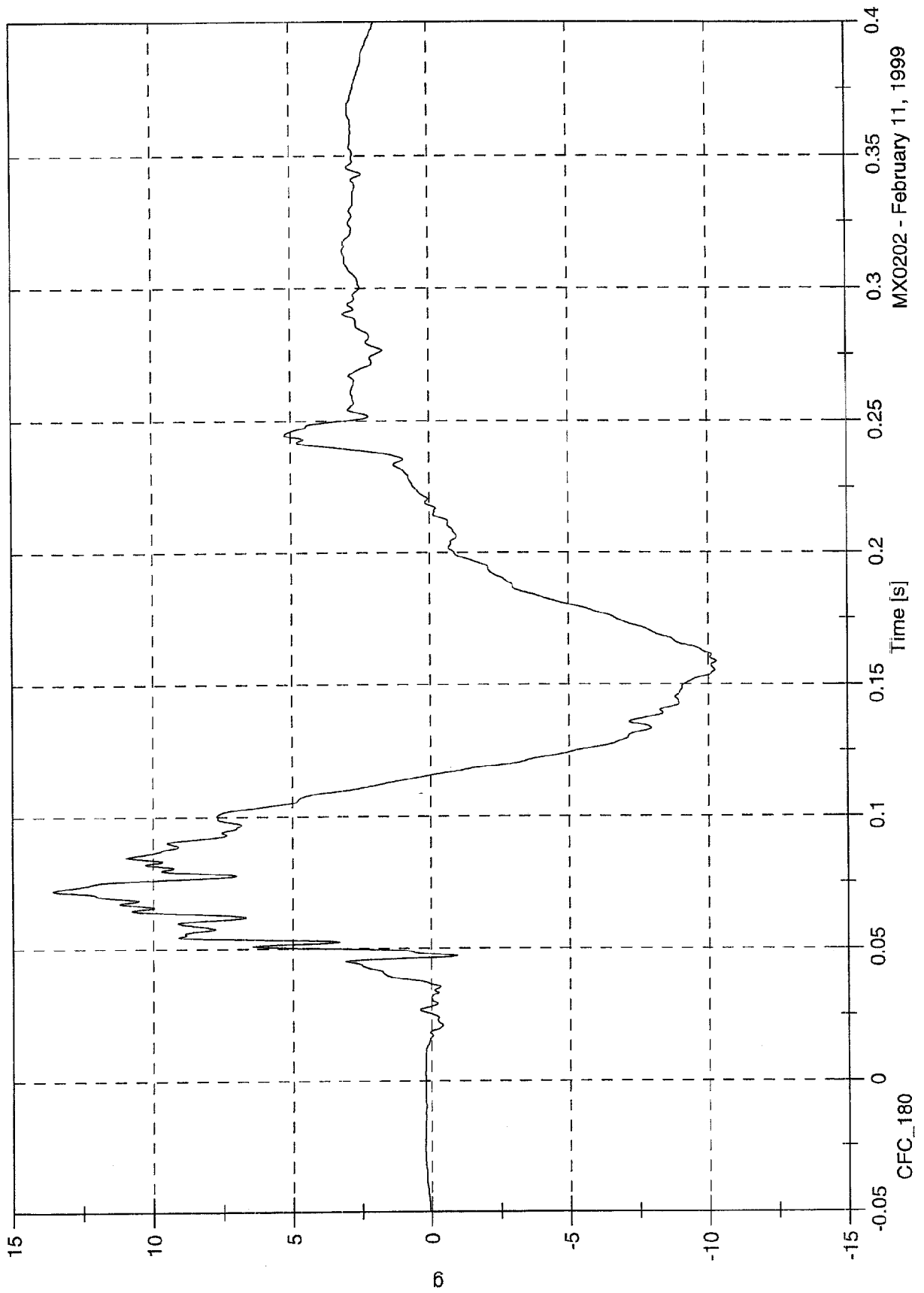


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 13.6 [g] at 0.072 [s]  
Min: -10.3 [g] at 0.159 [s]

Driver Chest Az Redundant

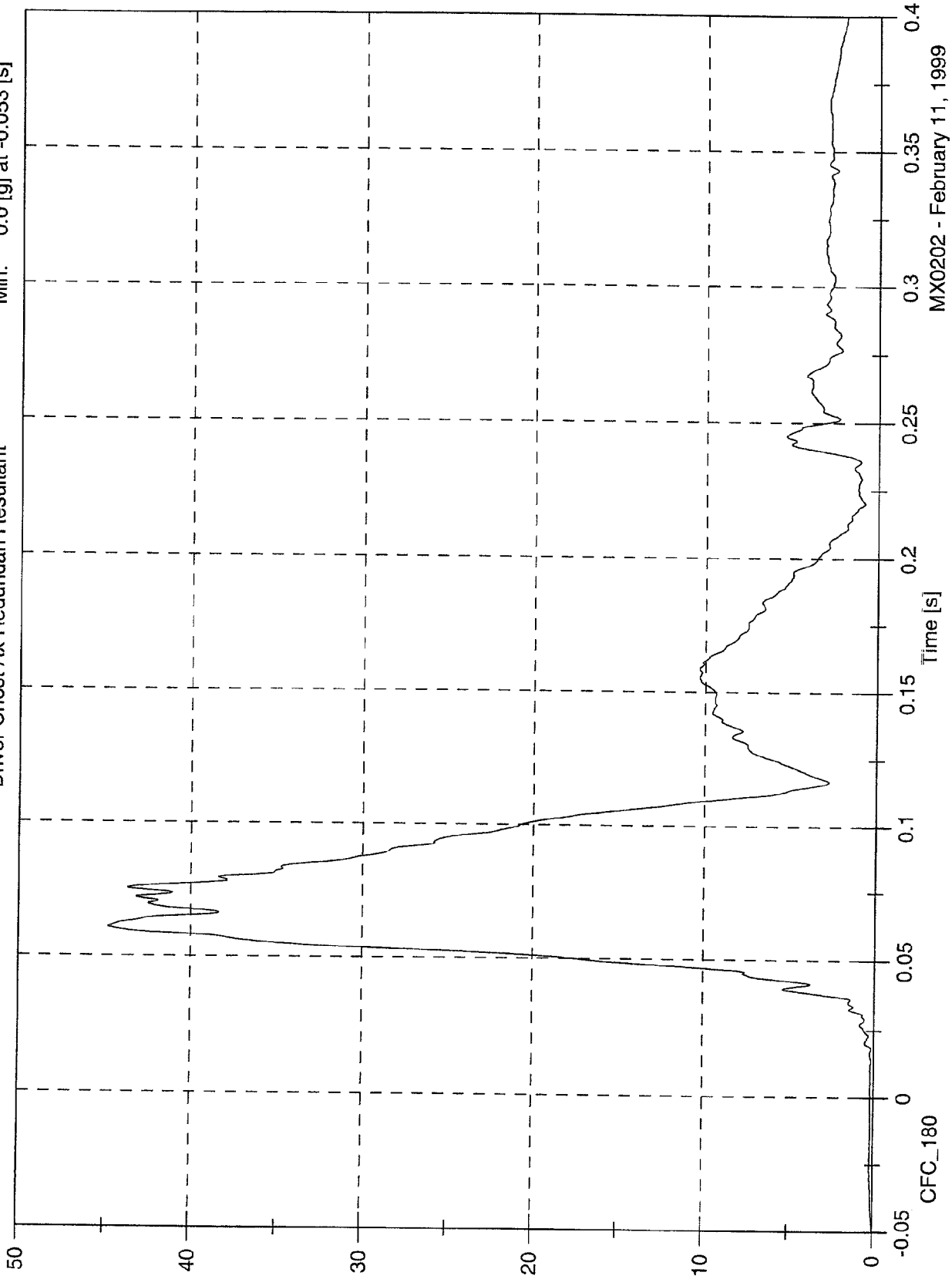


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 44.8 [g] at 0.061 [s]  
Min: 0.0 [g] at -0.053 [s]

Driver Chest Ax Redundan Resultant

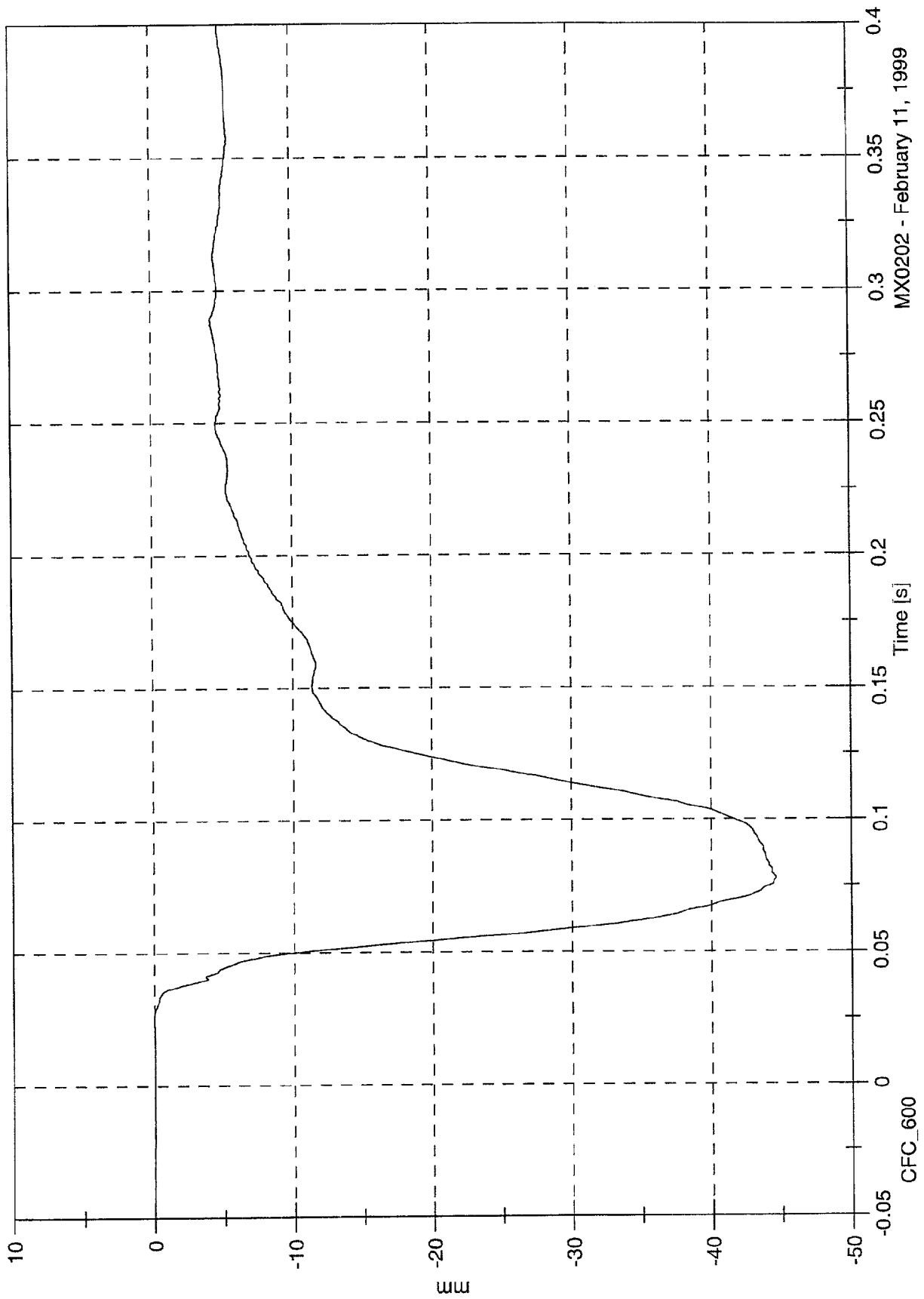


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Driver Chest Displacement

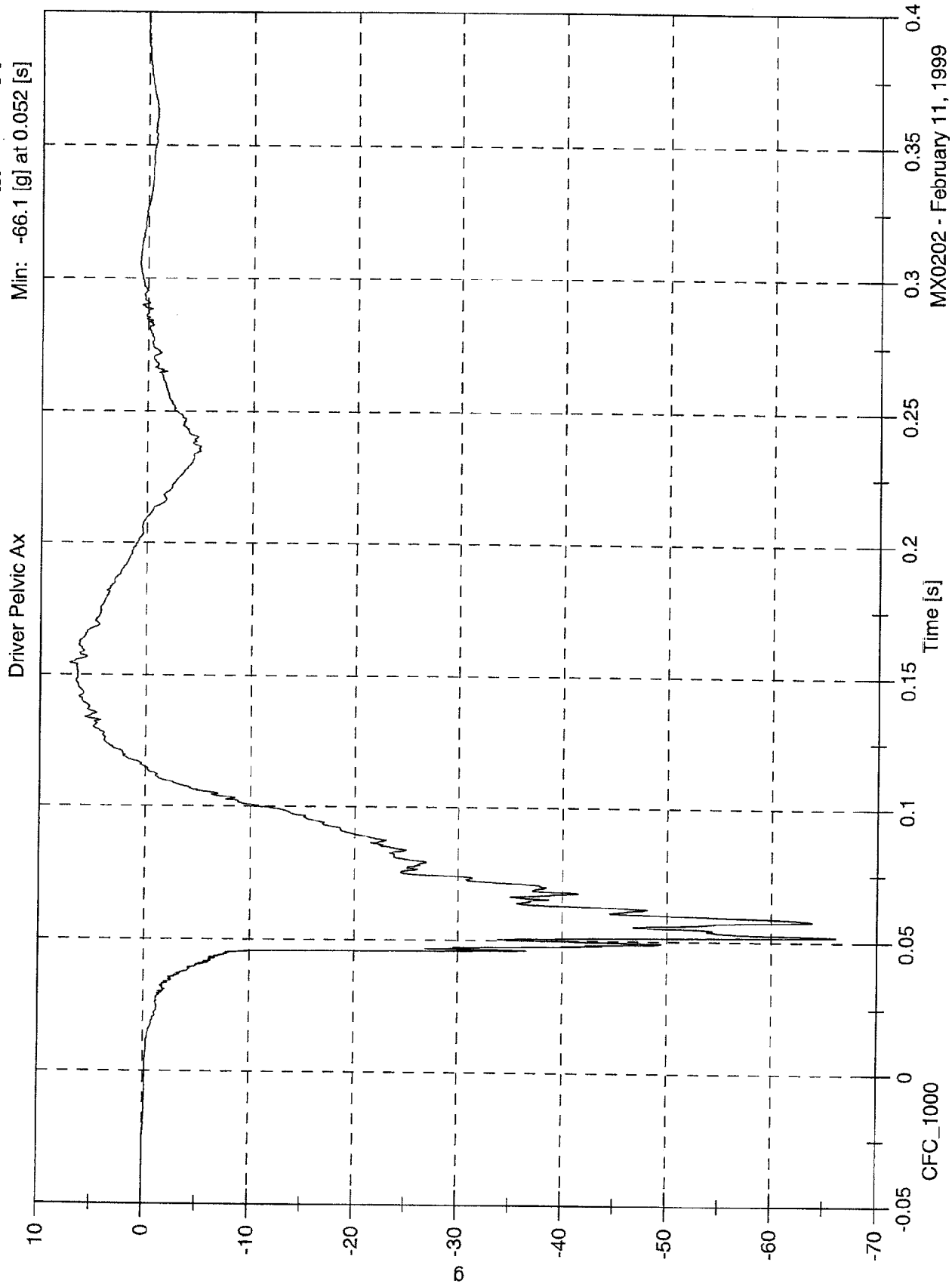
Max: 0.0 [mm] at -0.071 [s]  
Min: -44.6 [mm] at 0.078 [s]



MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 7.2 [g] at 0.154 [s]  
Min: -66.1 [g] at 0.052 [s]

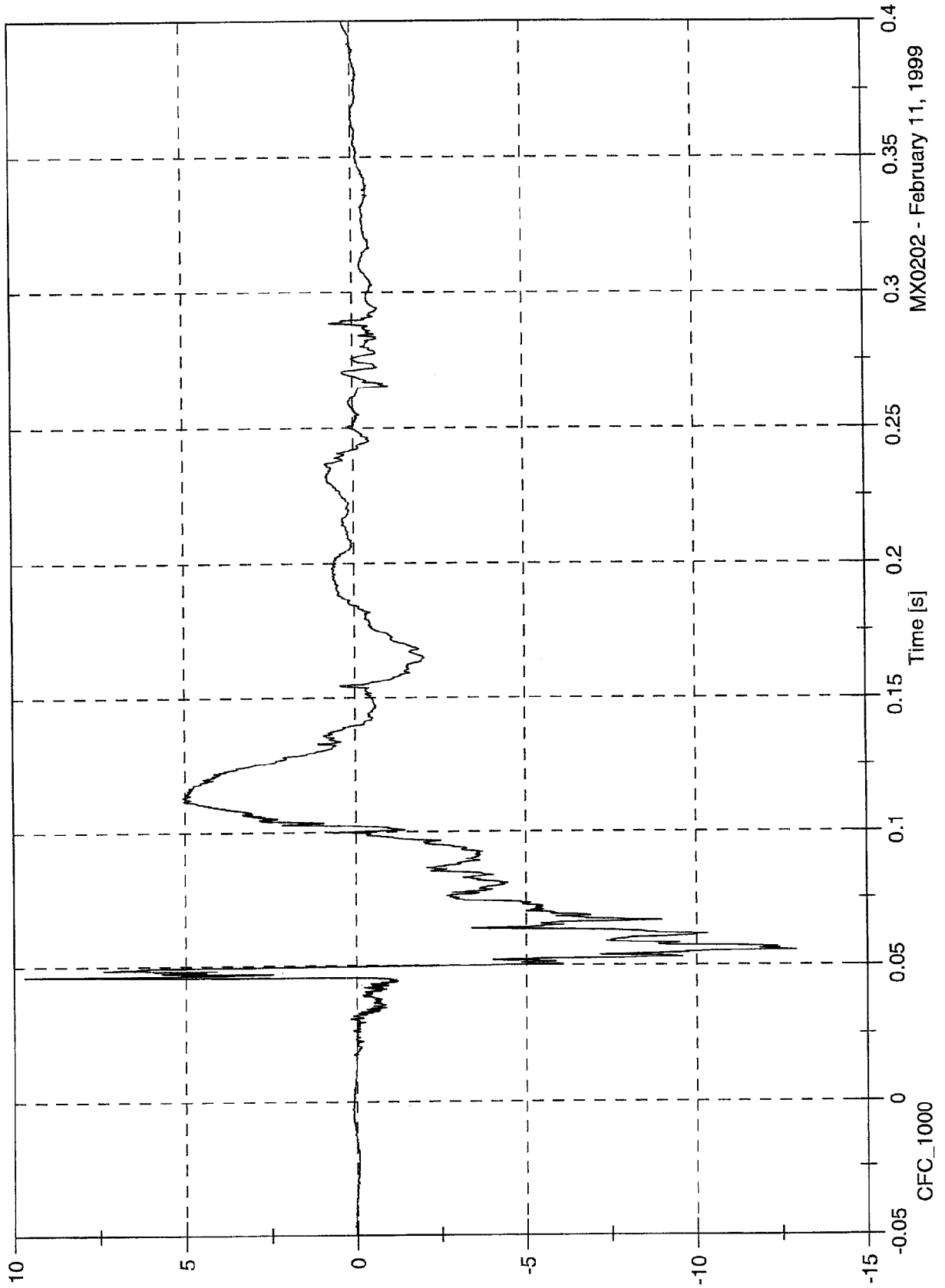


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 9.7 [g] at 0.046 [s]  
Min: -12.9 [g] at 0.056 [s]

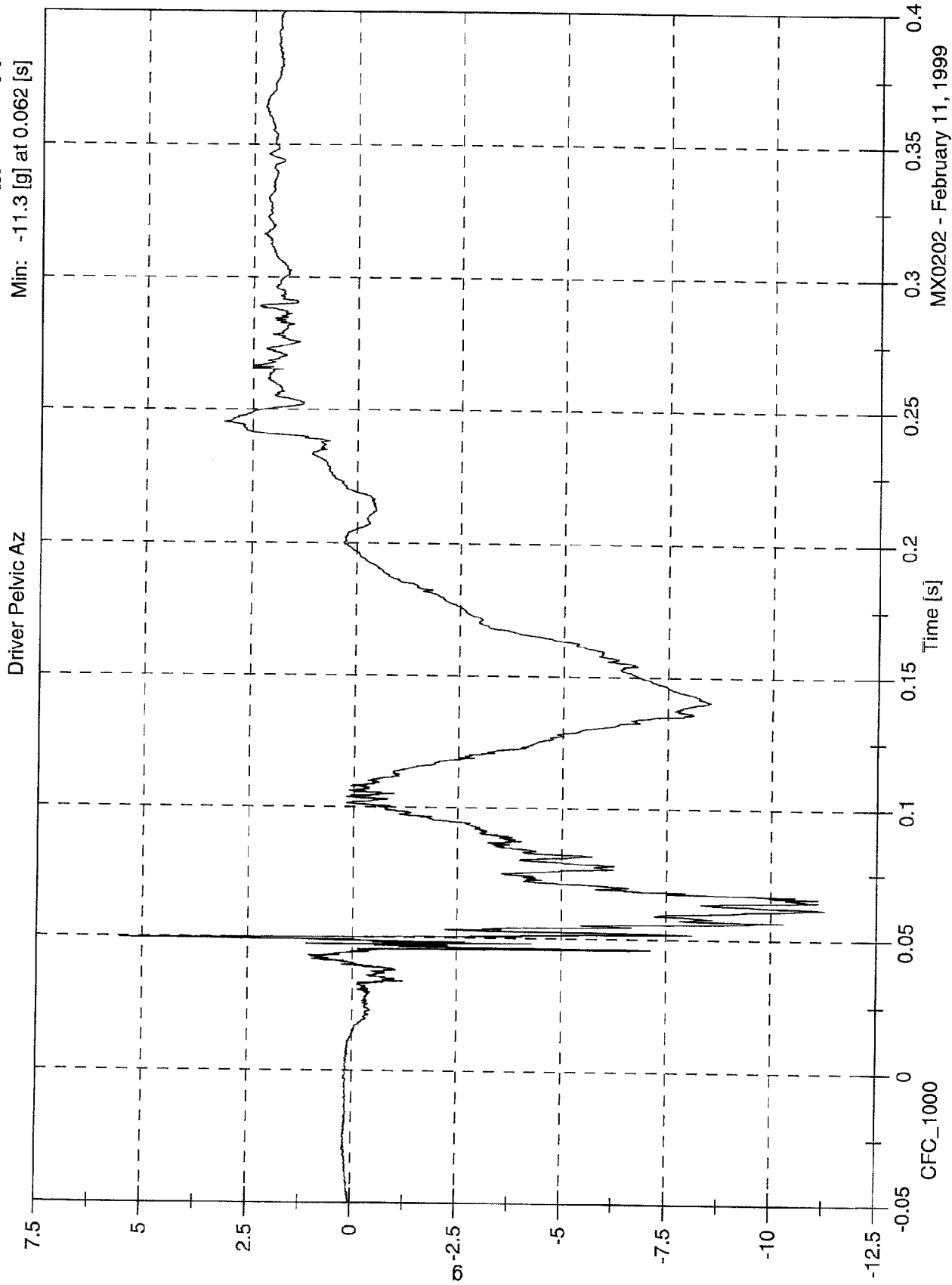
Driver Pelvic Ay



MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 5.5 [g] at 0.050 [s]  
Min: -11.3 [g] at 0.062 [s]

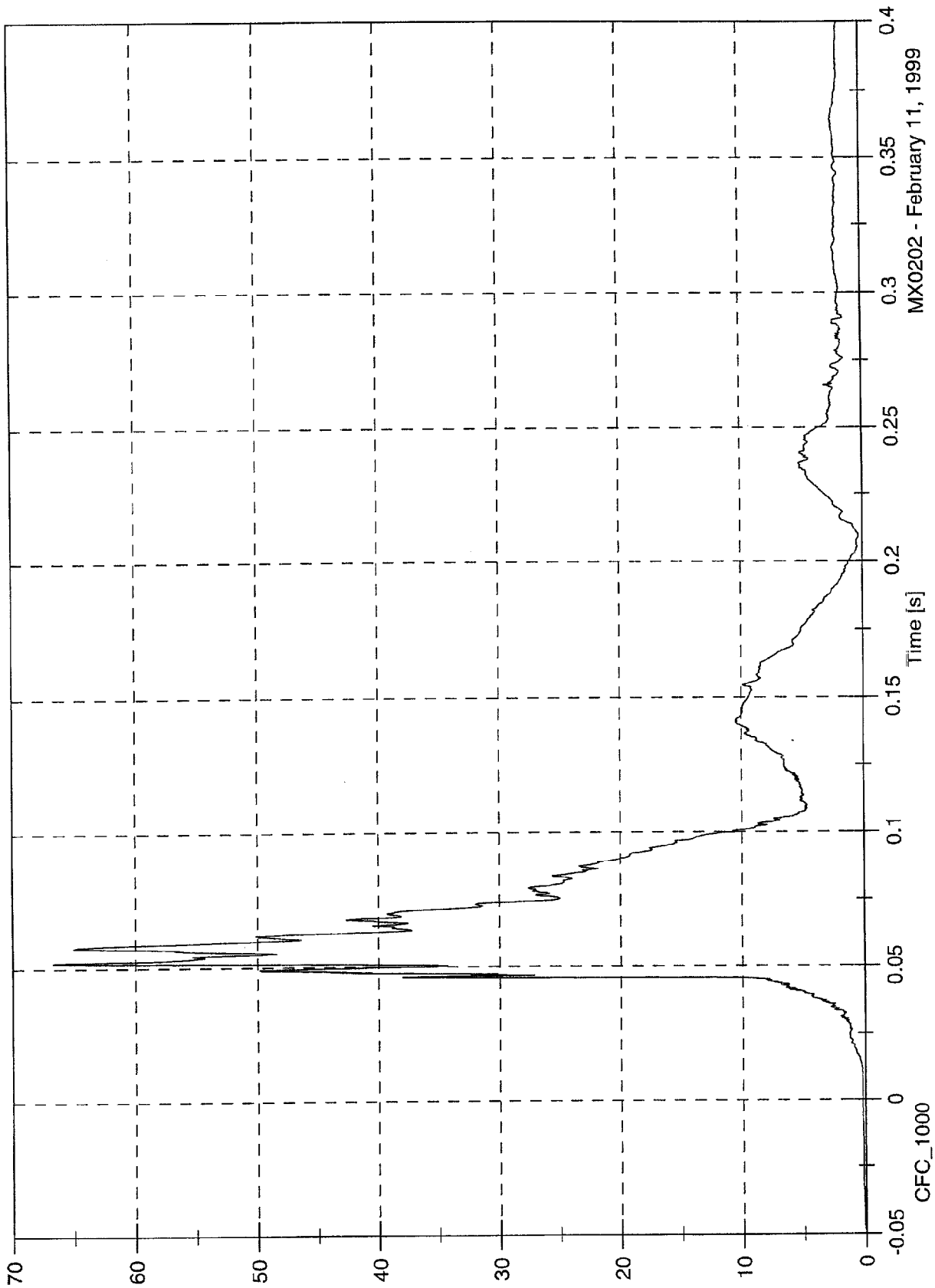


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 66.7 [g] at 0.052 [s]  
Min: 0.0 [g] at -0.055 [s]

Driver Pelvic A Resultant

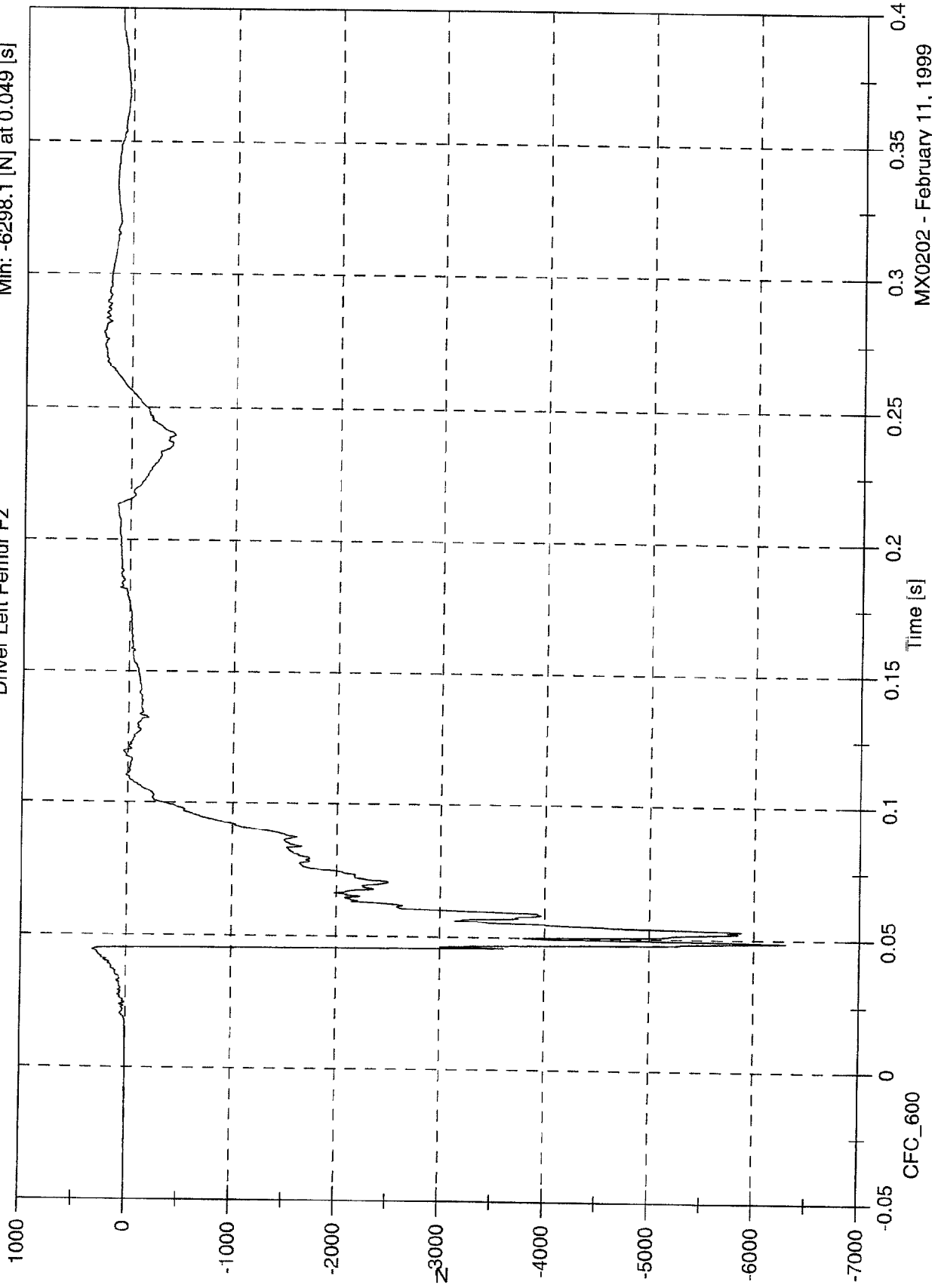


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 321.6 [N] at 0.044 [s]  
Min: -6298.1 [N] at 0.049 [s]

Driver Left Femur Fz

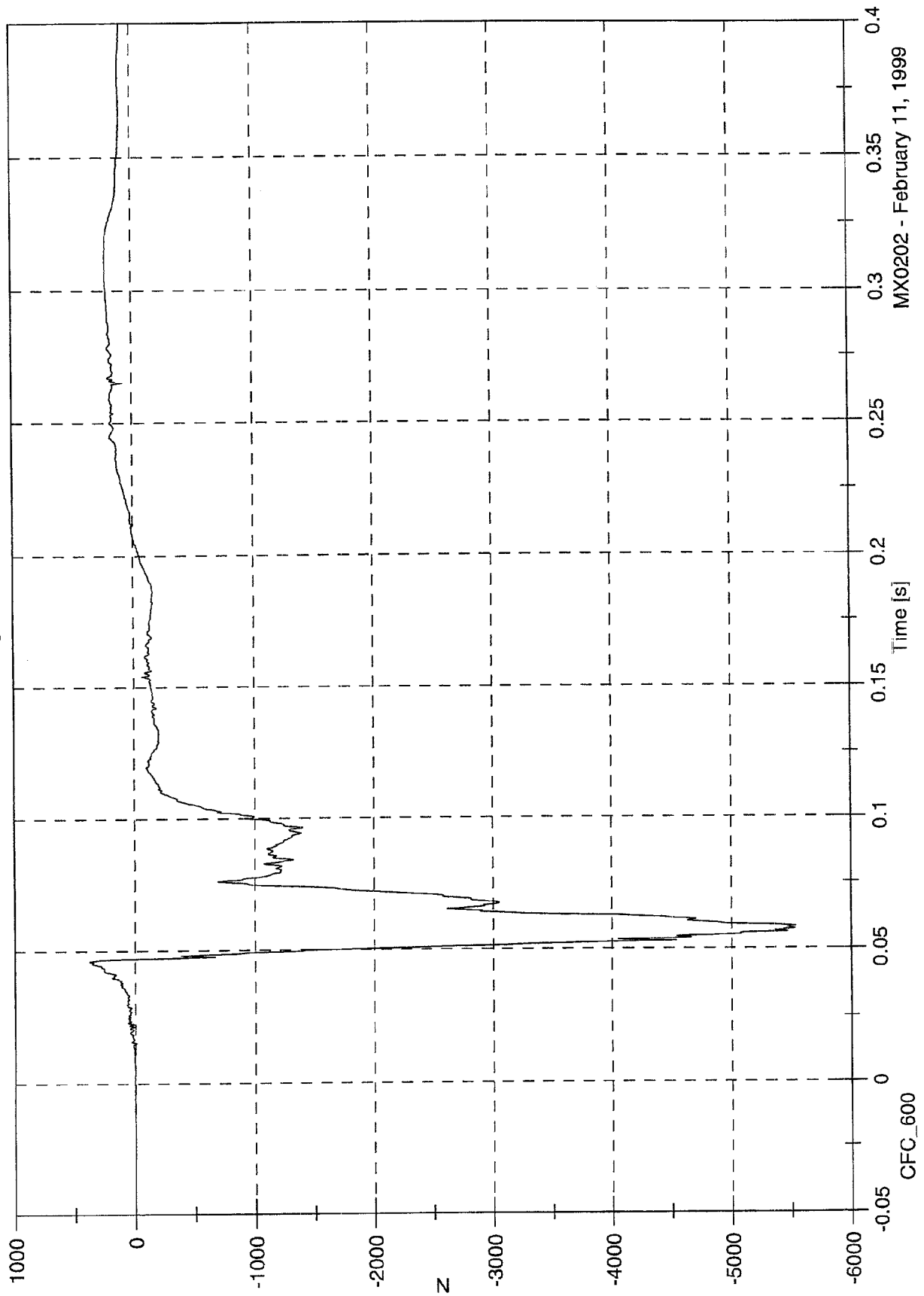


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 375.0 [N] at 0.046 [s]  
Min: -5533.4 [N] at 0.058 [s]

Driver Right Femur Fz

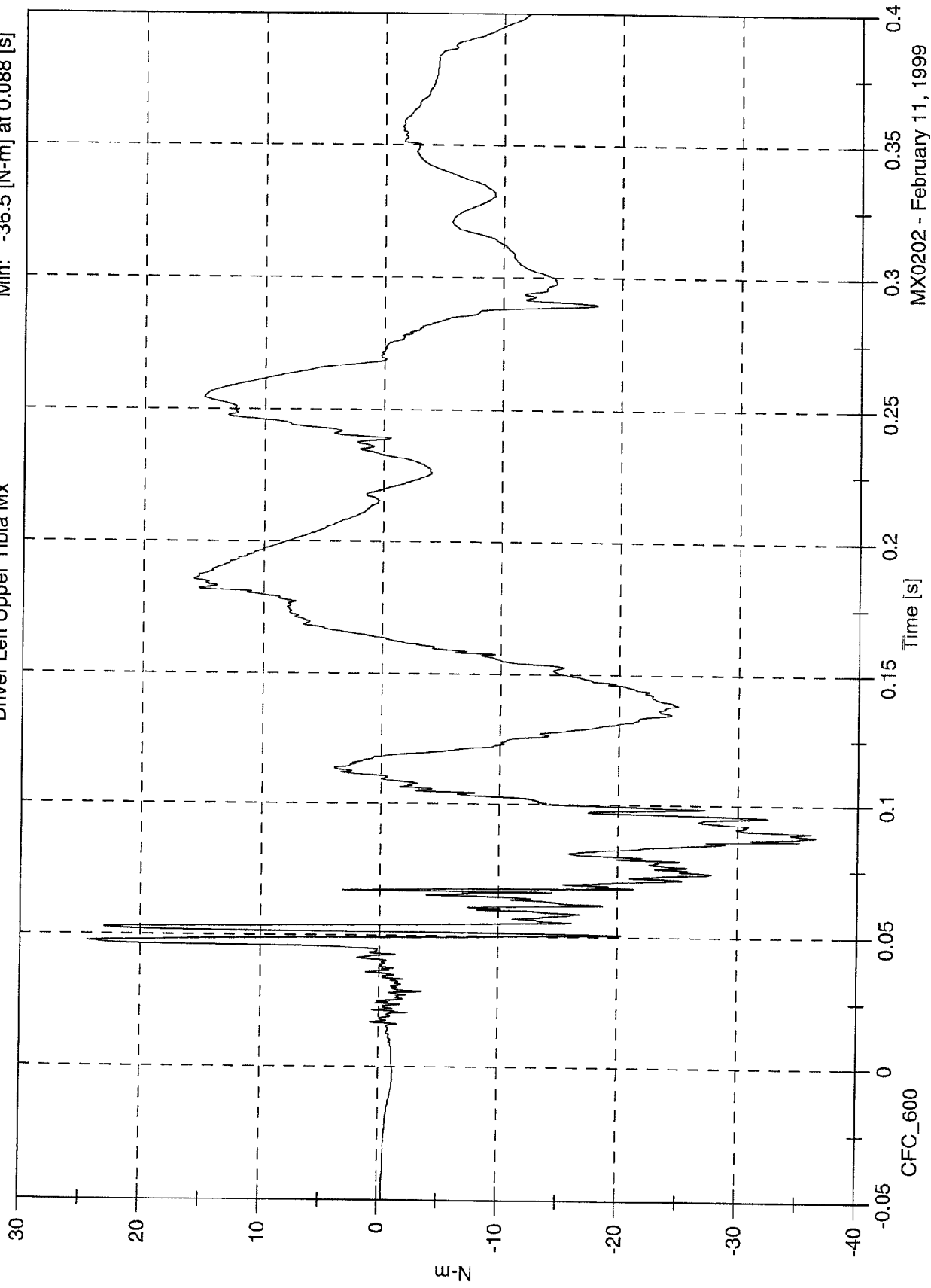


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Driver Left Upper Tibia Mx

Max: 24.4 [N-m] at 0.048 [s]  
Min: -36.5 [N-m] at 0.088 [s]



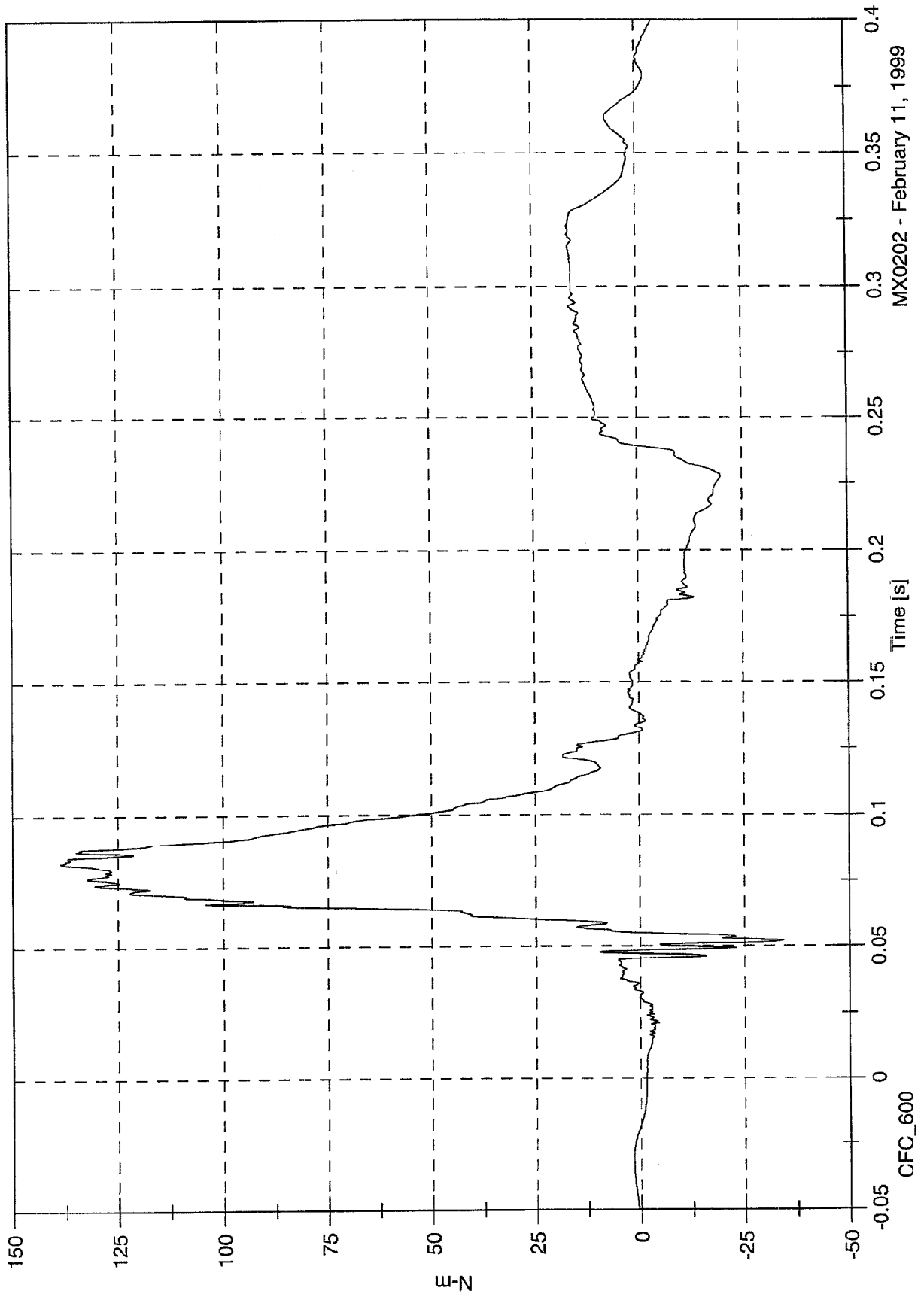
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 138.6 [N-m] at 0.082 [s]

Min: -34.2 [N-m] at 0.052 [s]

Driver Left Upper Tibia My

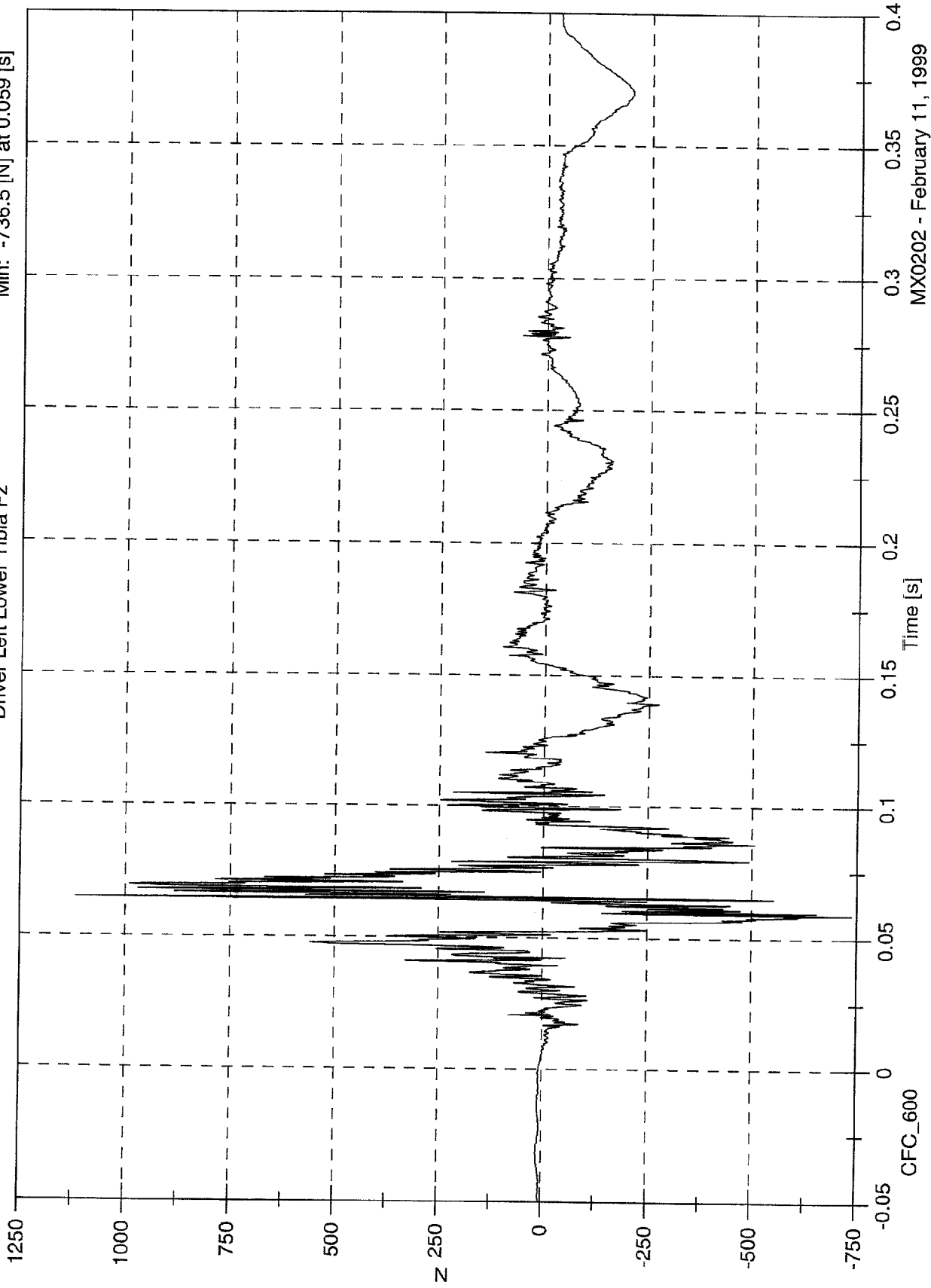


NCAP #11 - 1999 Ford F150 Pickup

Max: 1117.8 [N] at 0.065 [s]

Min: -736.5 [N] at 0.059 [s]

Driver Left Lower Tibia Fz

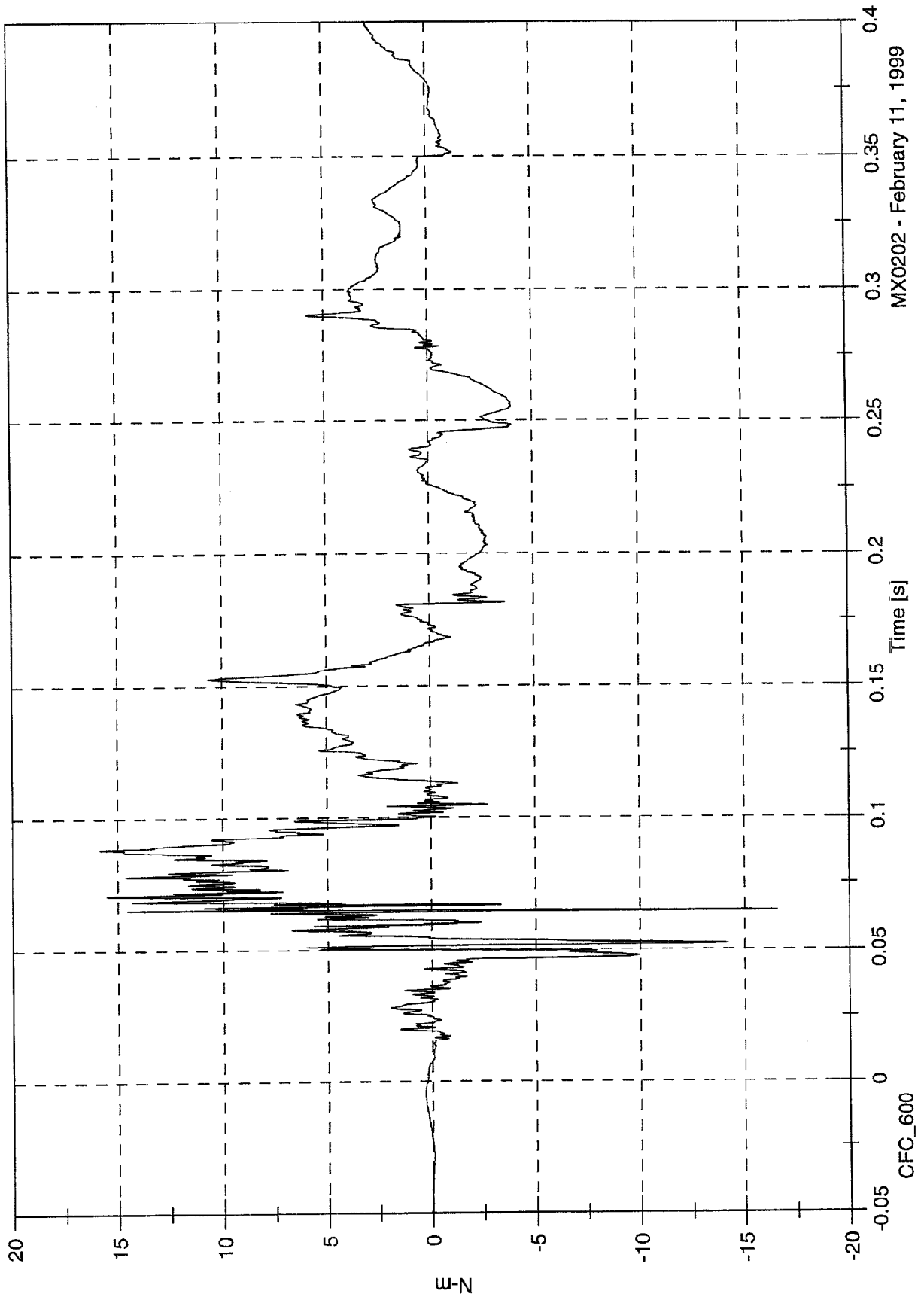


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Driver Left Lower Tibia Mx

Max: 15.8 [N-m] at 0.088 [s]  
Min: -16.5 [N-m] at 0.065 [s]

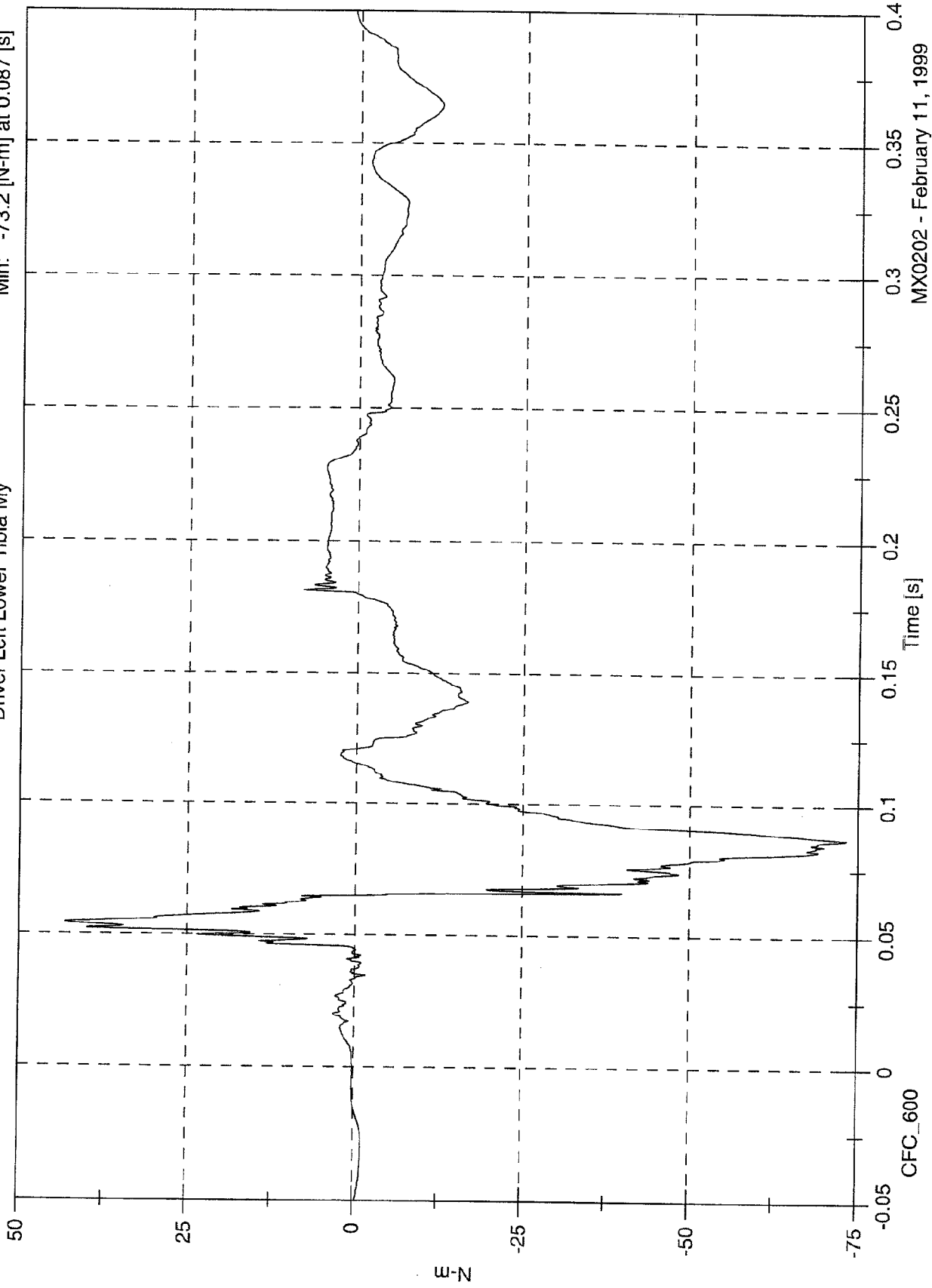


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Driver Left Lower Tibia My

Max: 43.2 [N-m] at 0.054 [s]  
Min: -73.2 [N-m] at 0.087 [s]

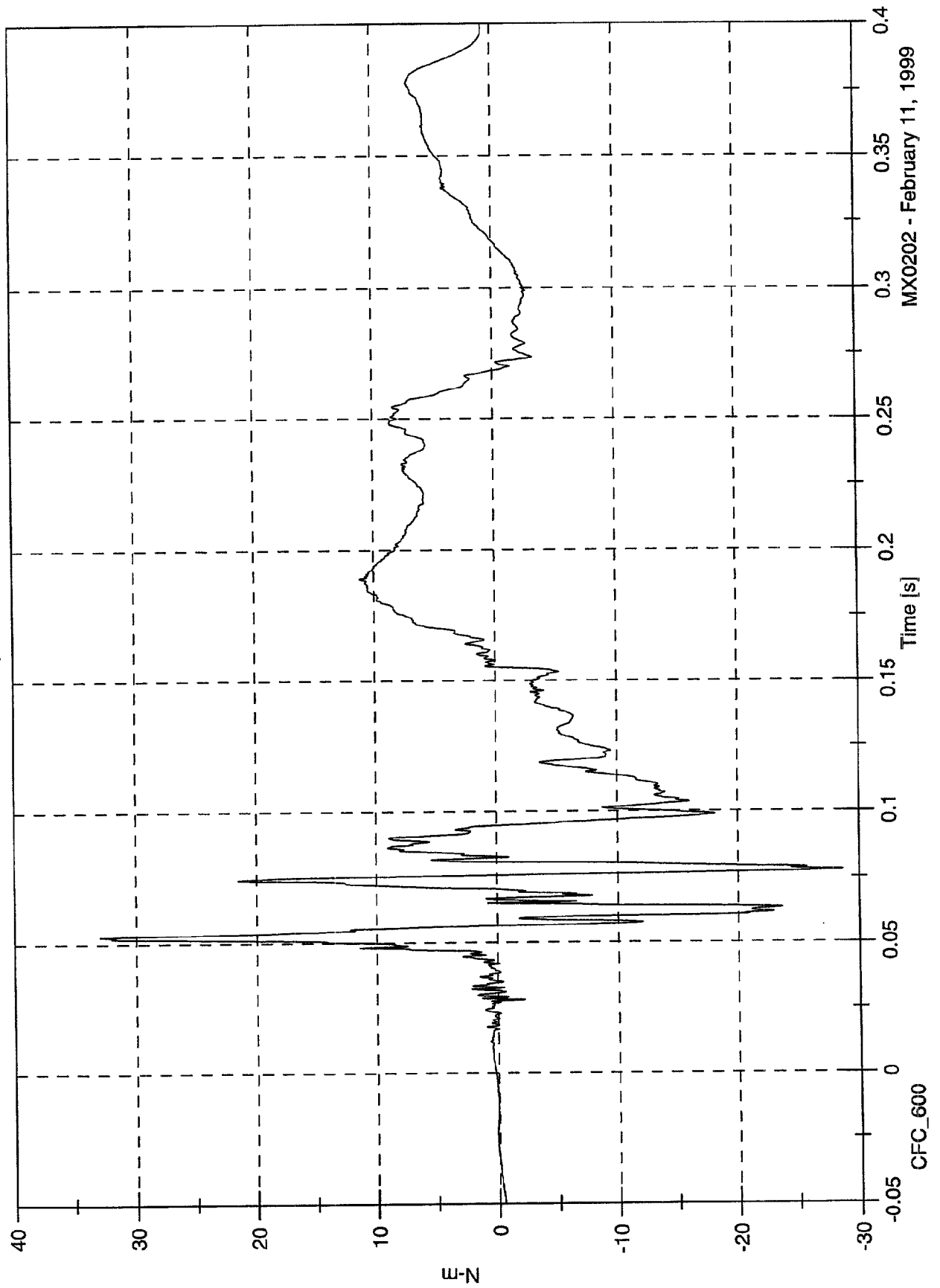


MX0202 - February 11, 1999

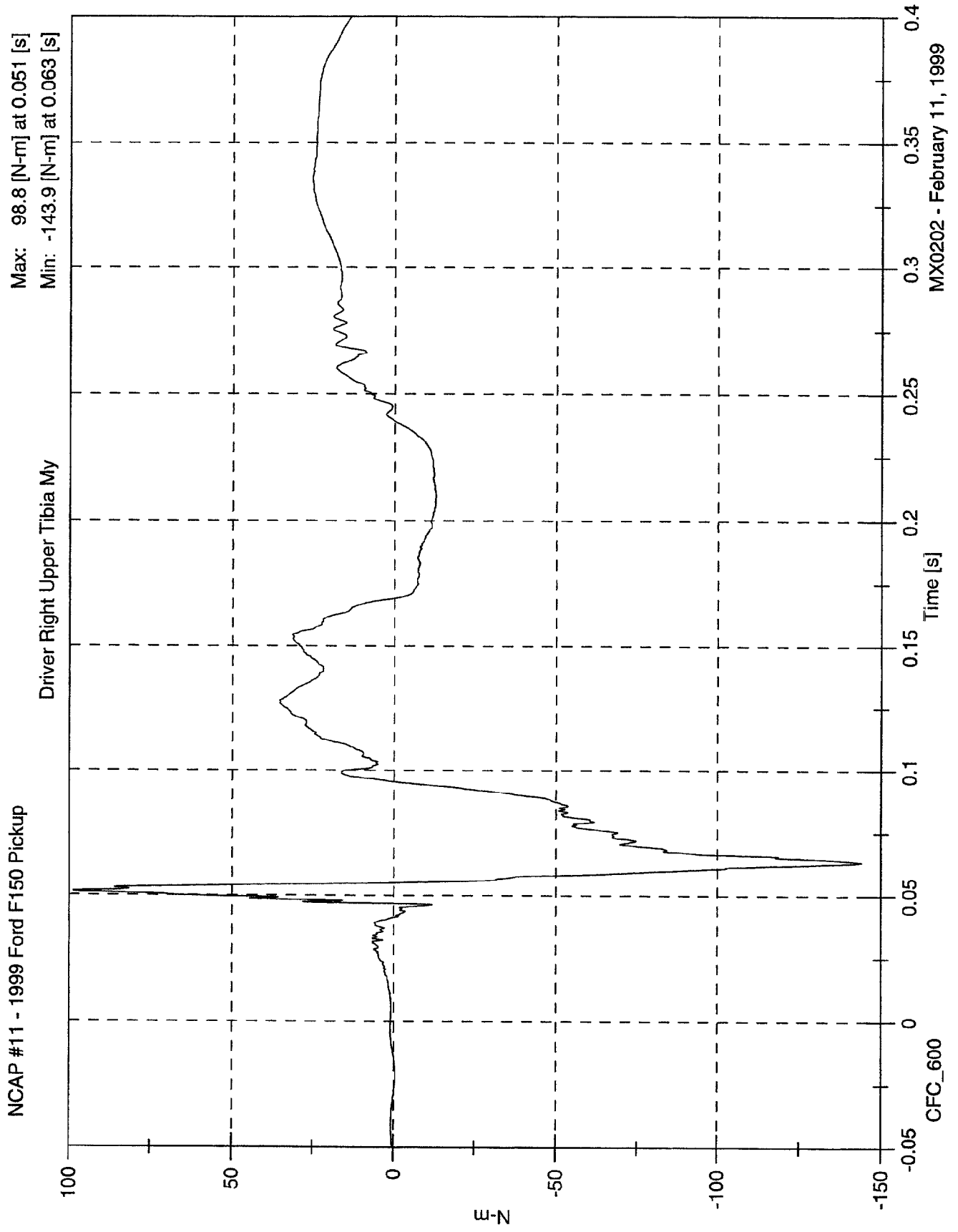
NCAP #11 - 1999 Ford F150 Pickup

Driver Right Upper Tibia Mx

Max: 33.0 [N-m] at 0.053 [s]  
Min: -28.6 [N-m] at 0.078 [s]



MX0202 - February 11, 1999

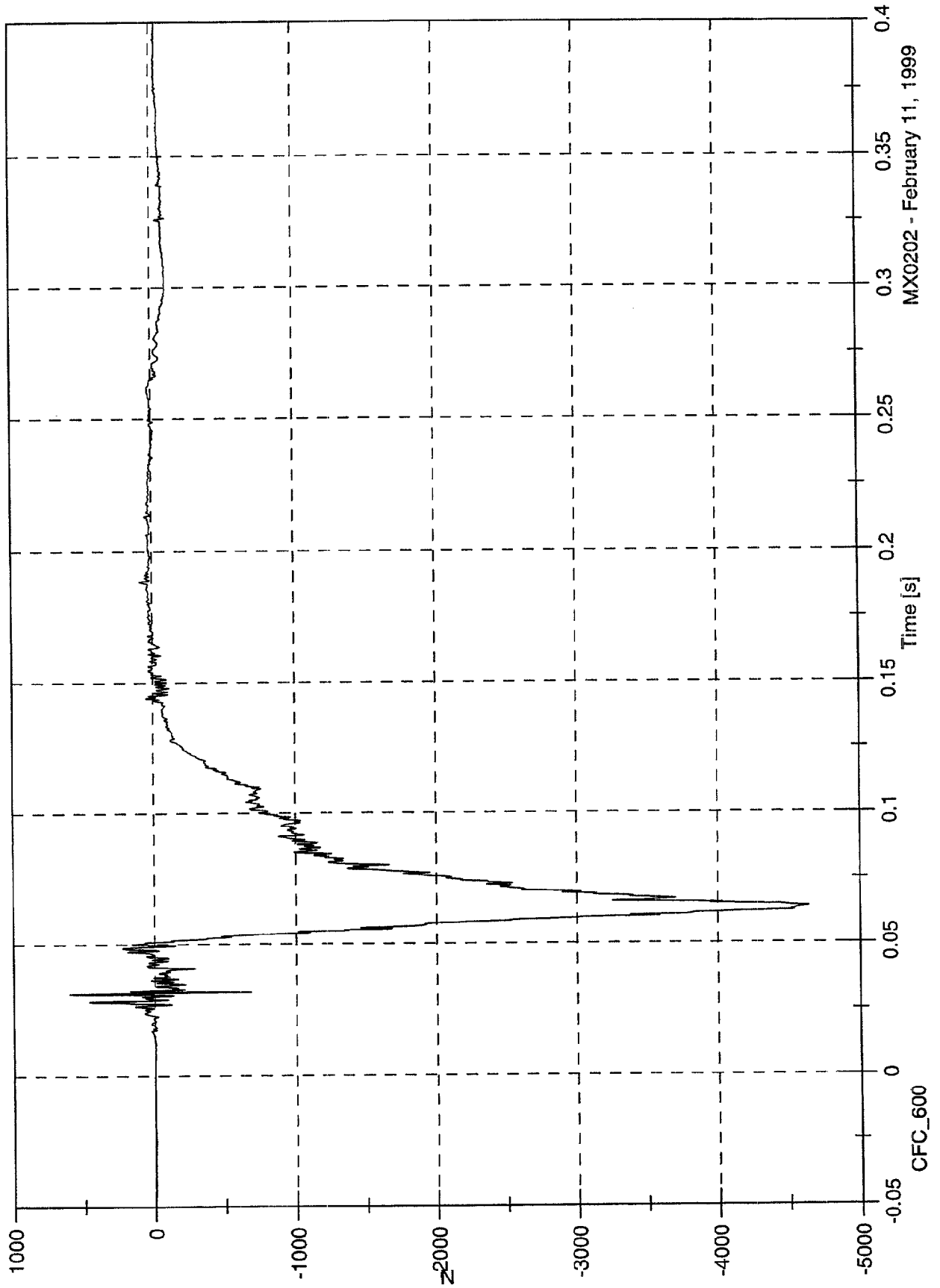


MX0202 - February 11, 1999

Max: 604.0 [N] at 0.031 [s]  
Min: -4637.1 [N] at 0.064 [s]

Driver Right Lower Tibia Fz

NCAP #11 - 1999 Ford F150 Pickup

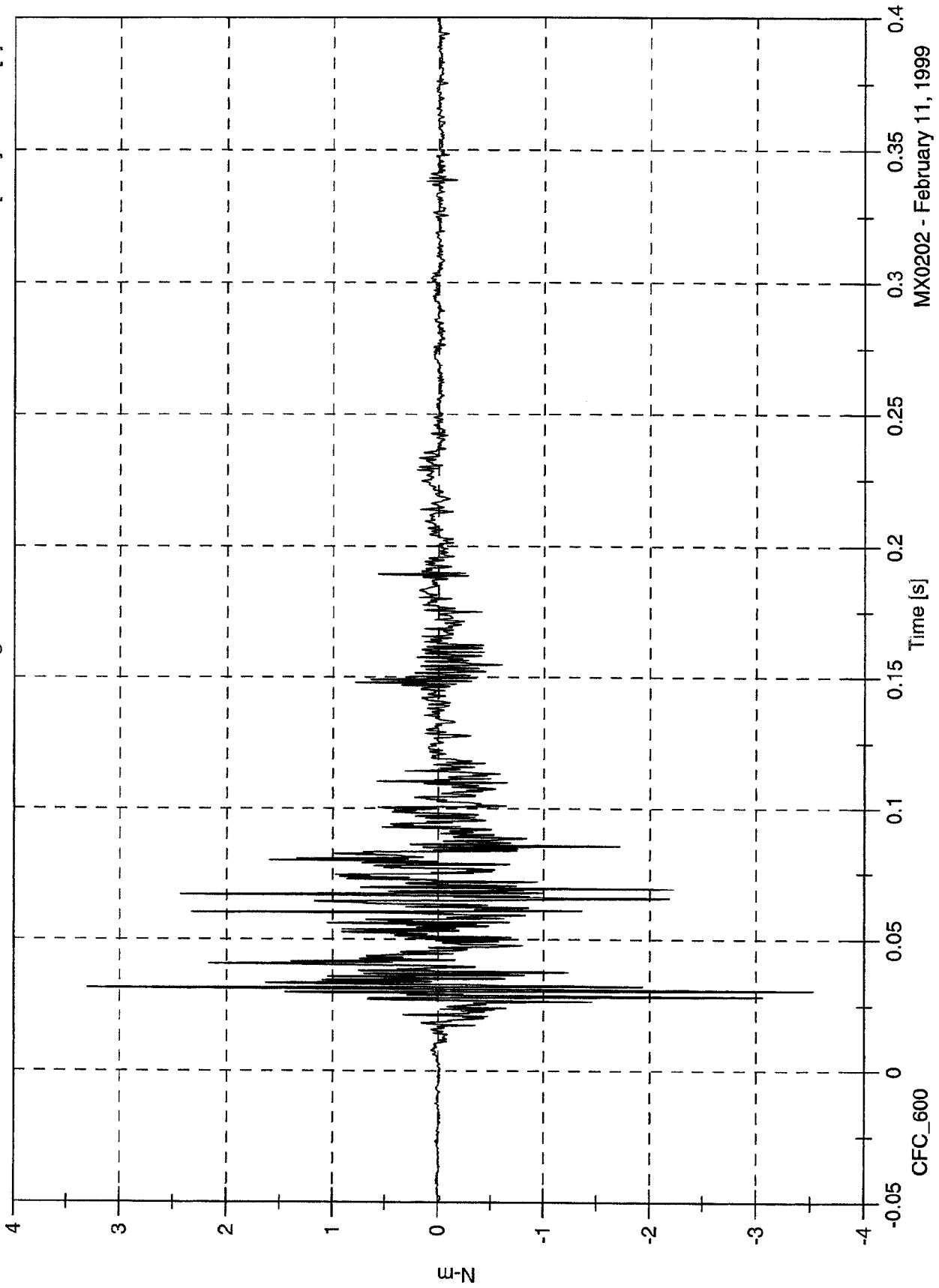


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 3.3 [N-m] at 0.031 [s]  
Min: -3.5 [N-m] at 0.031 [s]

Driver Right Lower Tibia Mx



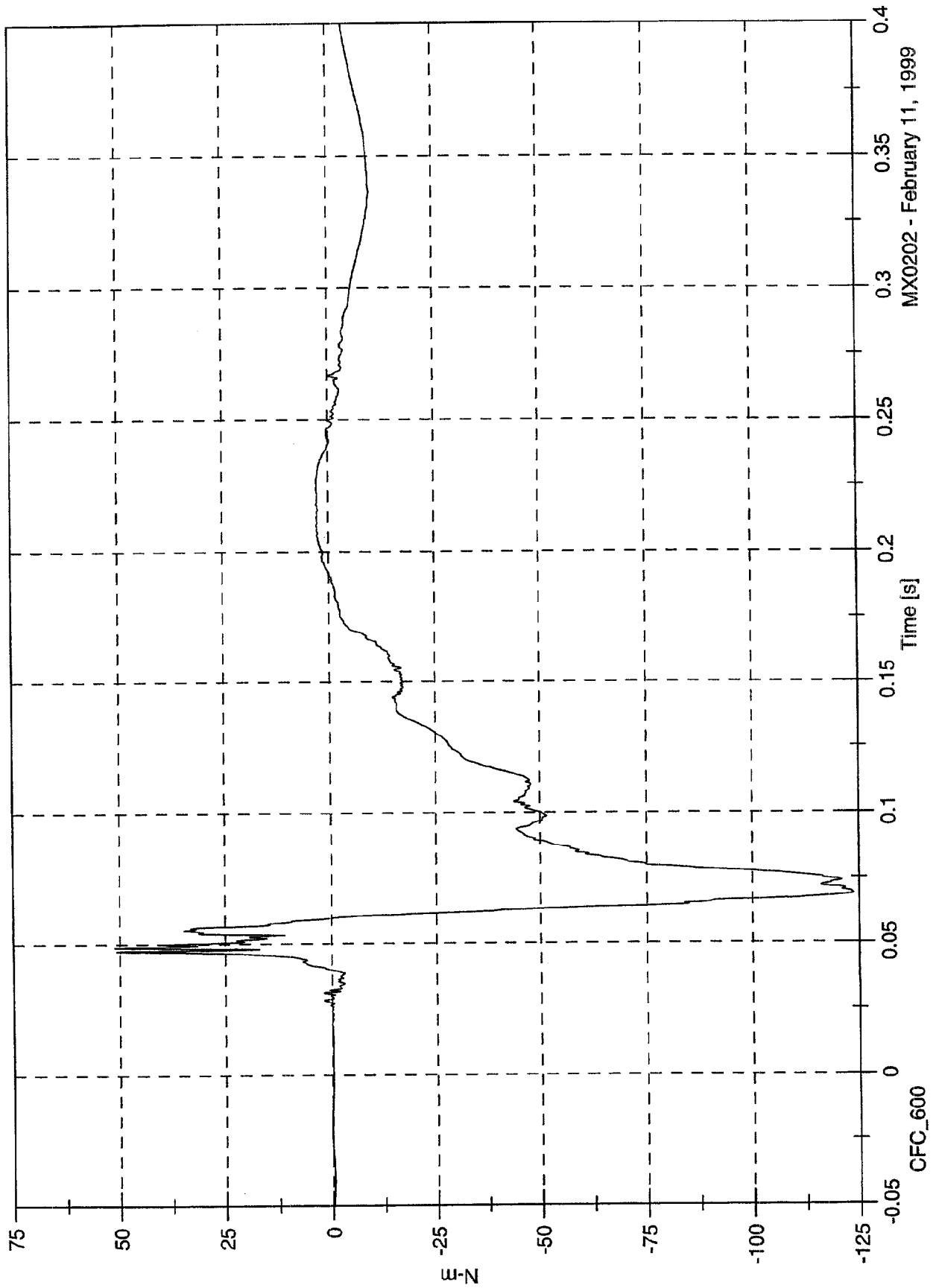
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Driver Right Lower Tibia My

Max: 51.2 [N-m] at 0.049 [s]

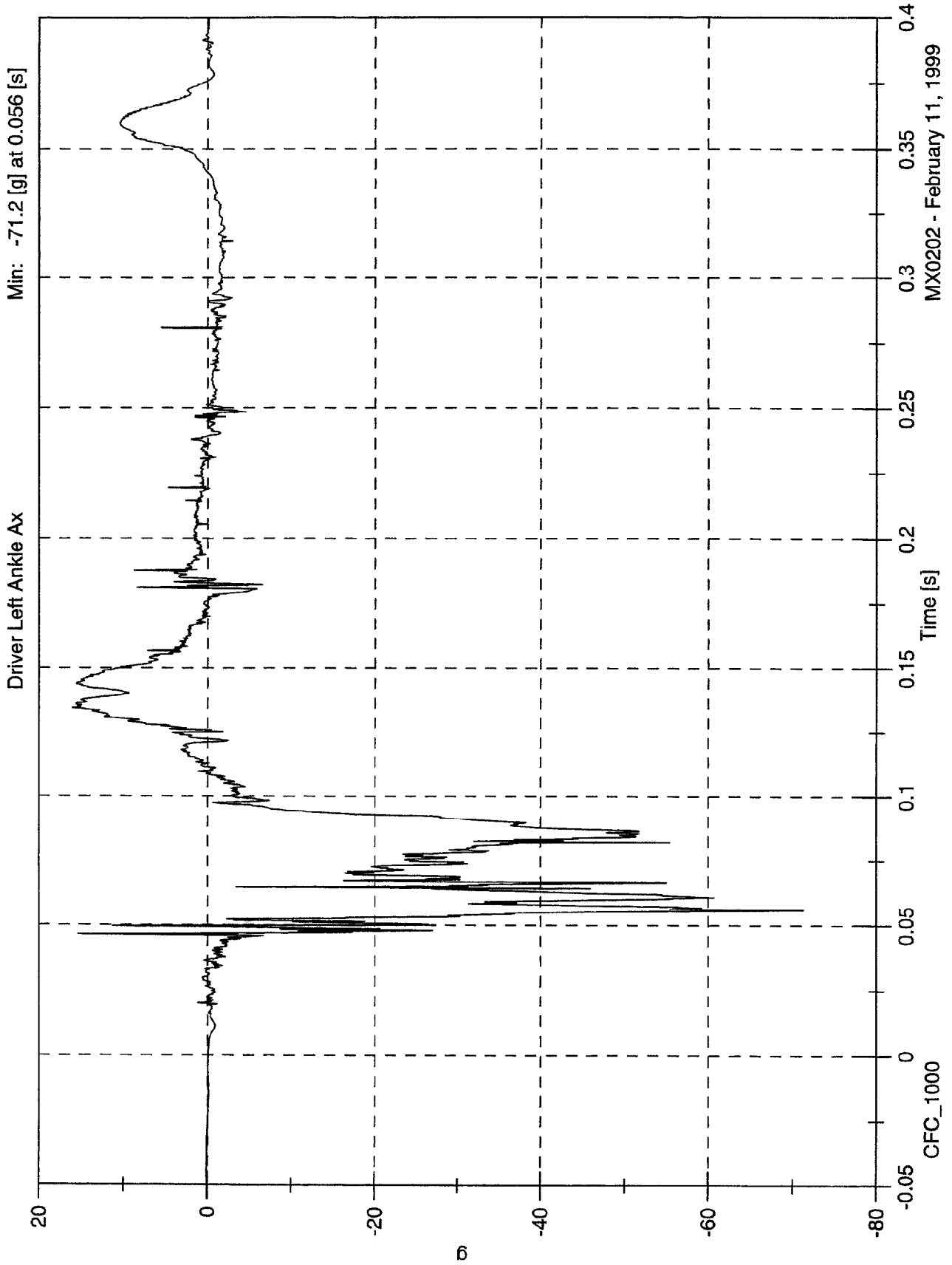
Min: -123.7 [N-m] at 0.069 [s]



MX0202 - February 11, 1999

Max: 16.0 [g] at 0.134 [s]  
Min: -71.2 [g] at 0.056 [s]

NCAP #11 - 1999 Ford F150 Pickup

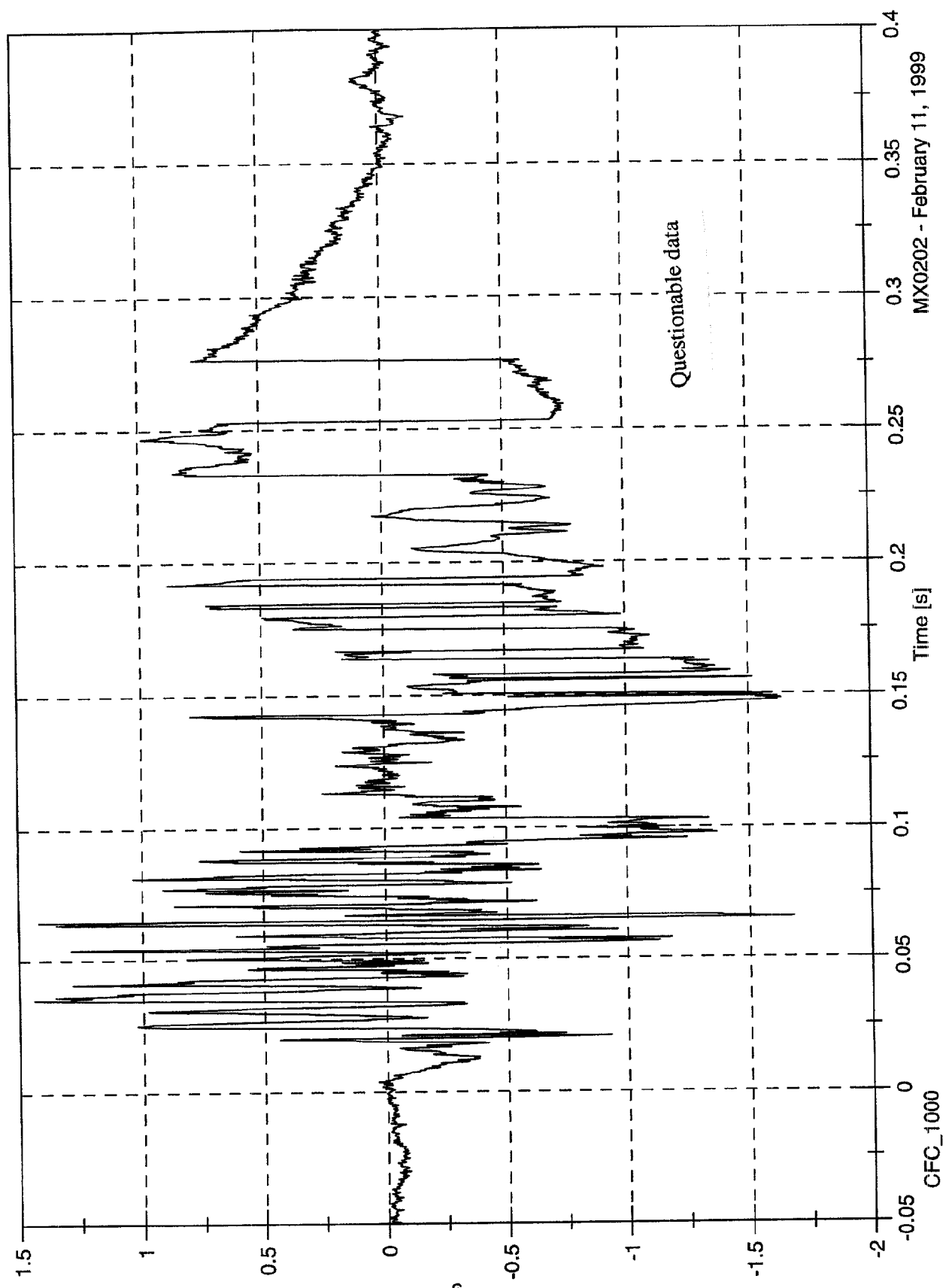


MX0202 - February 11, 1999

Max: 1.4 [g] at 0.035 [s]  
Min: -1.7 [g] at 0.066 [s]

NCAP #11 - 1999 Ford F150 Pickup

Driver Left Ankle Az



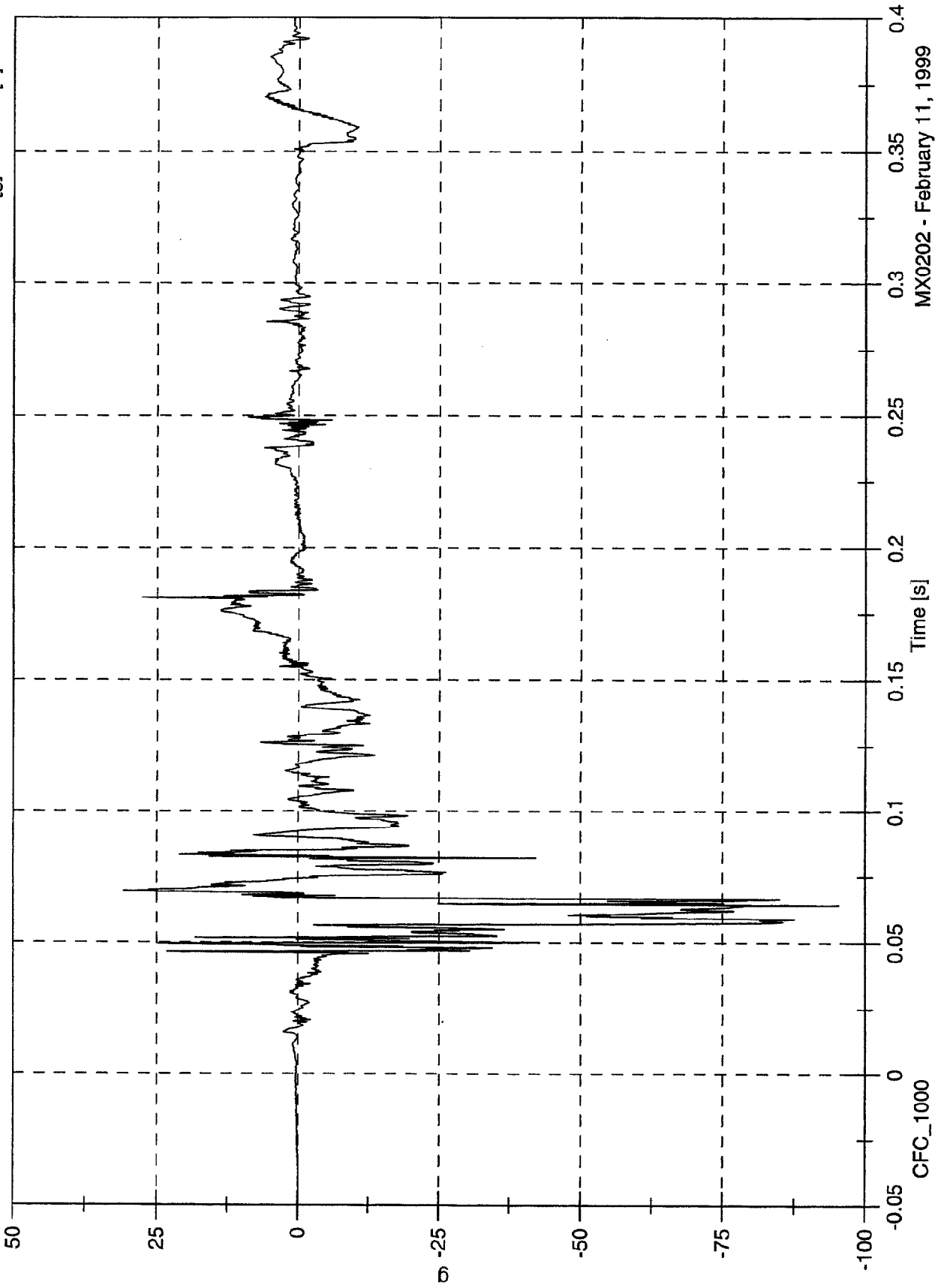
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 30.9 [g] at 0.069 [s]

Min: -95.3 [g] at 0.064 [s]

Driver Left Toe Az

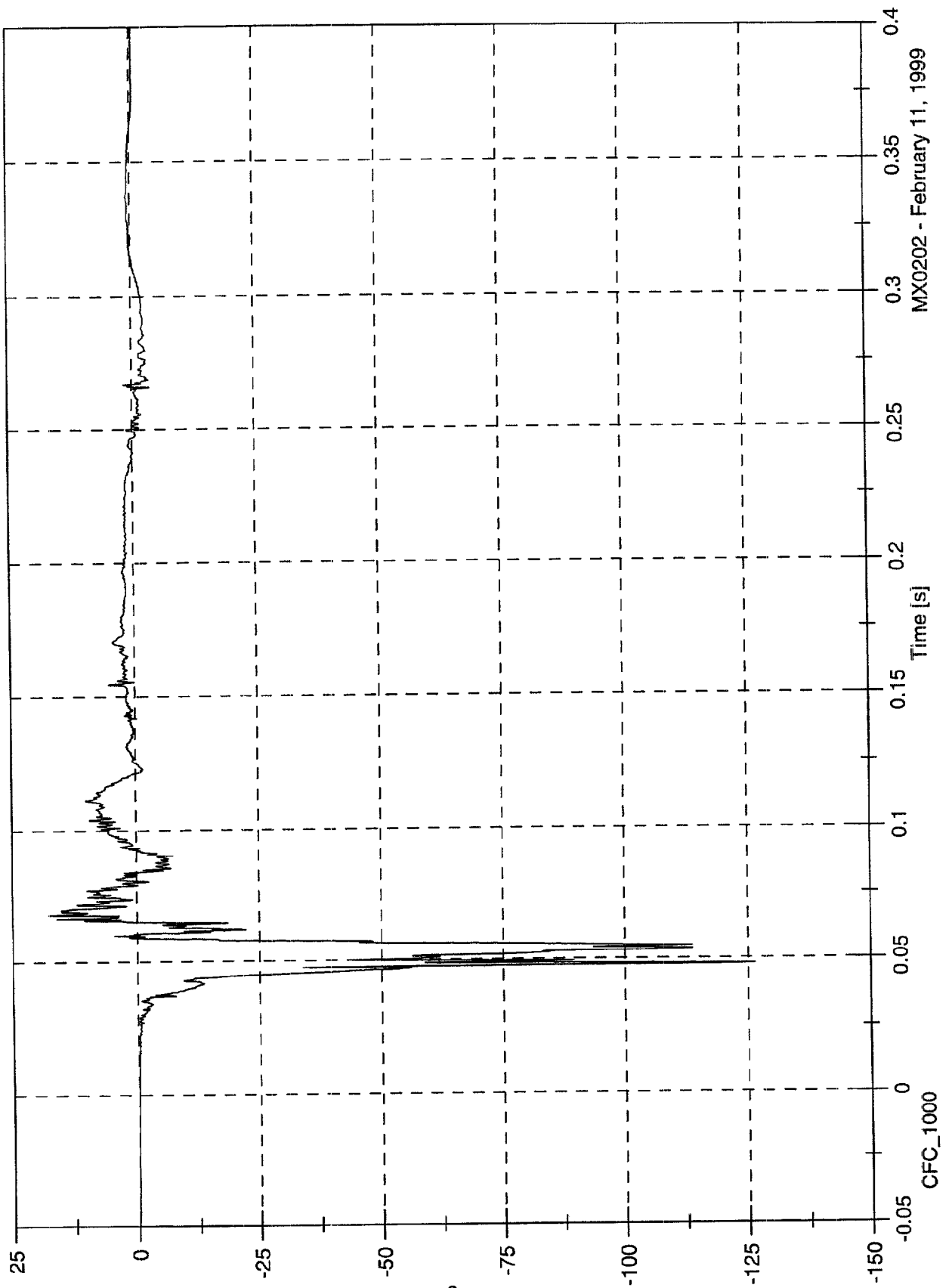


MX0202 - February 11, 1999

Max: 17.6 [g] at 0.068 [s]  
Min: -126.4 [g] at 0.048 [s]

NCAP #11 - 1999 Ford F150 Pickup

Driver Right Ankle Ax

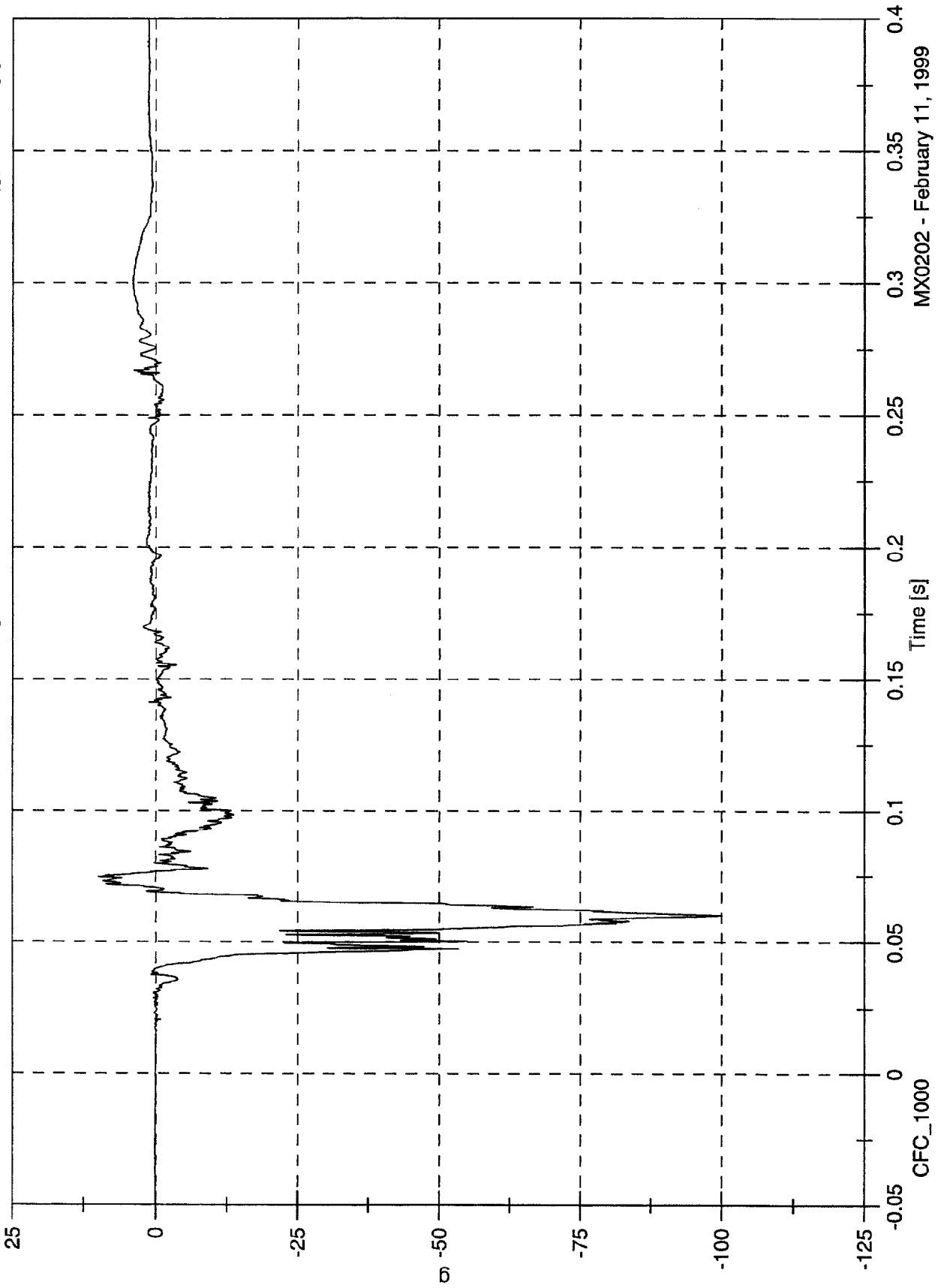


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 10.0 [g] at 0.074 [s]  
Min: -100.0 [g] at 0.060 [s]

Driver Right Ankle Az



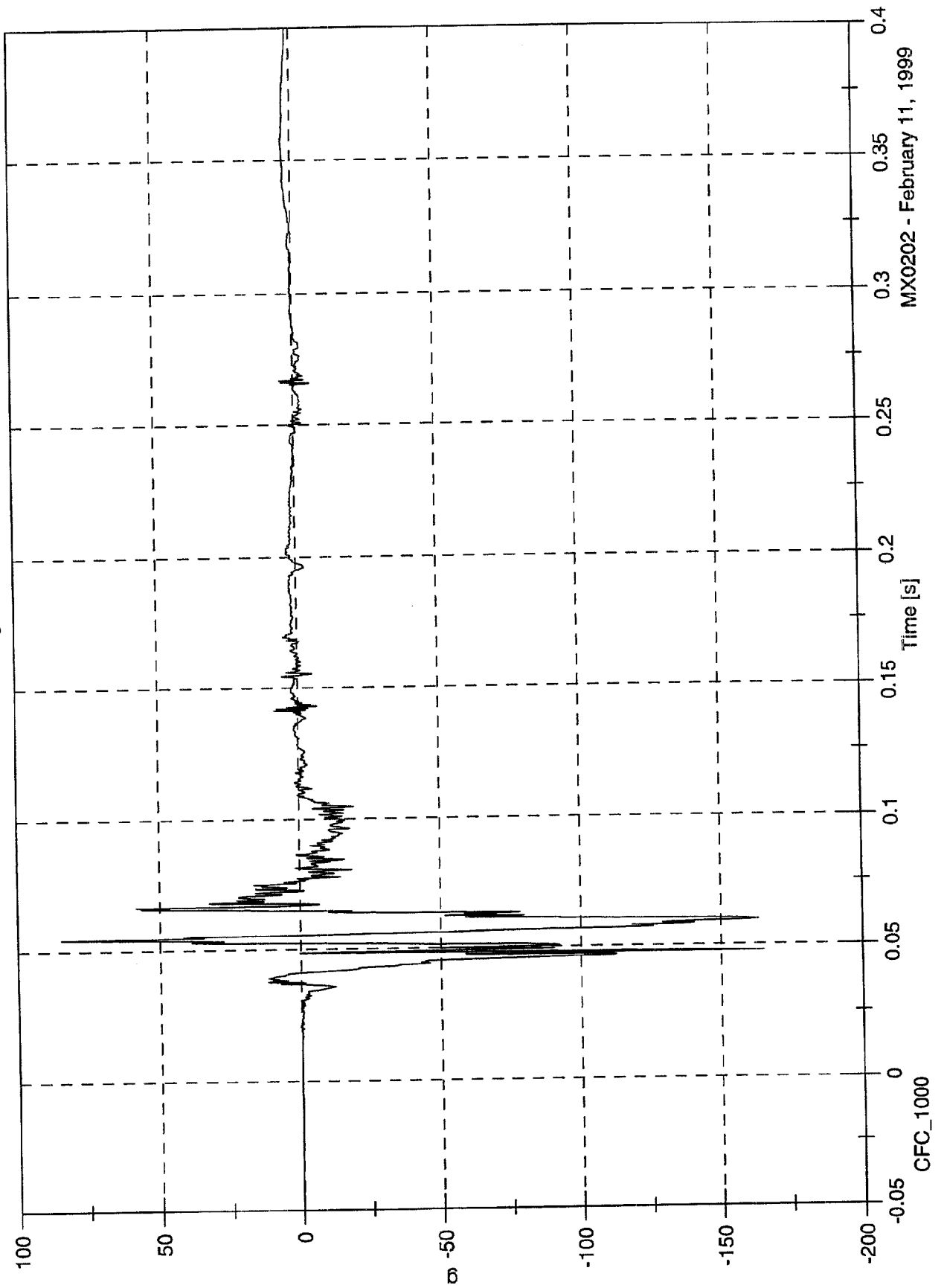
MX0202 - February 11, 1999

Max: 84.5 [g] at 0.054 [s]

Min: -165.3 [g] at 0.048 [s]

Driver Right Toe Az

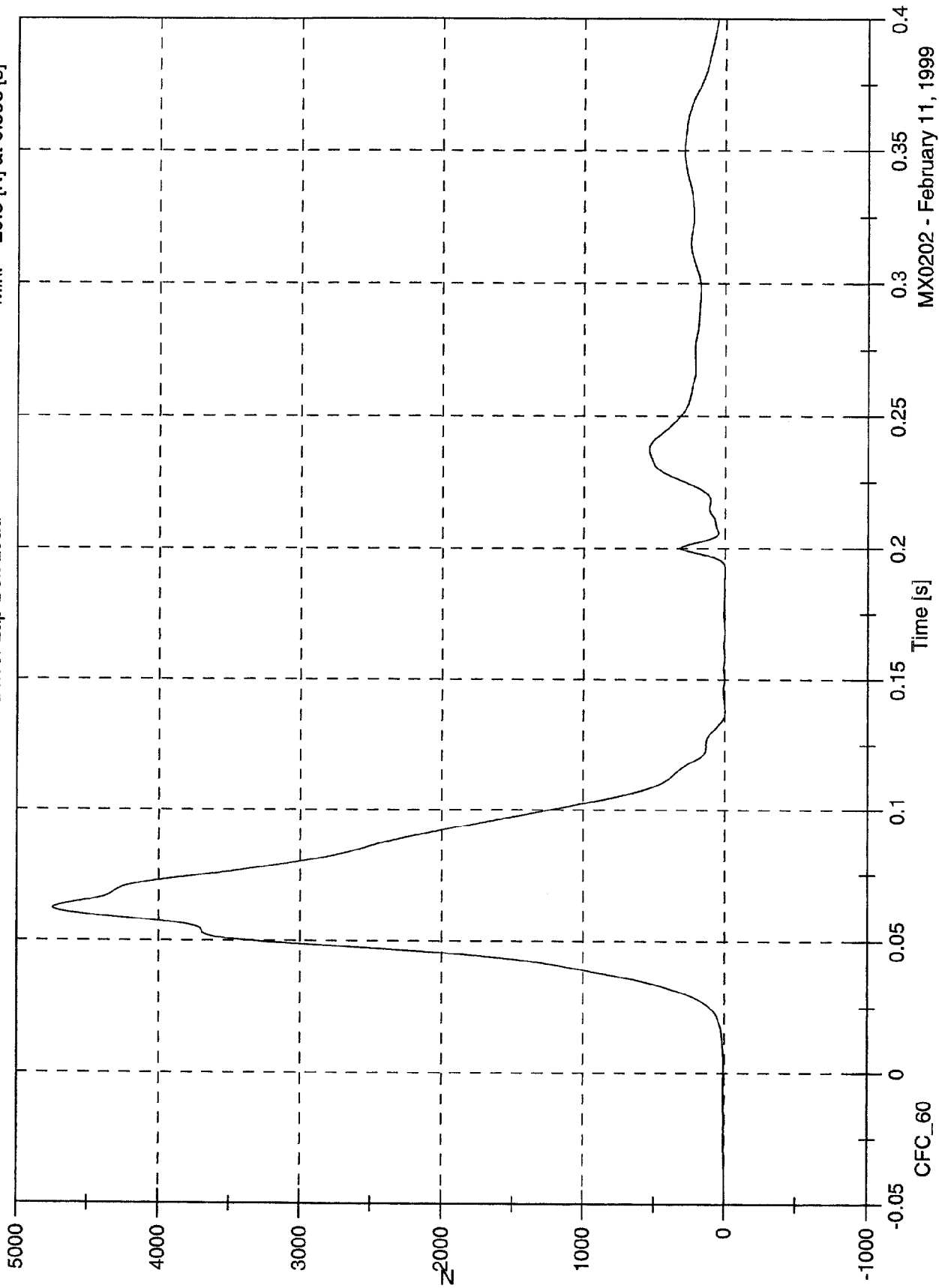
NCAP #11 - 1999 Ford F150 Pickup



NCAP #11 - 1999 Ford F150 Pickup

Max: 4744.7 [N] at 0.062 [s]  
Min: -20.3 [N] at 0.598 [s]

Driver Lap Belt Load

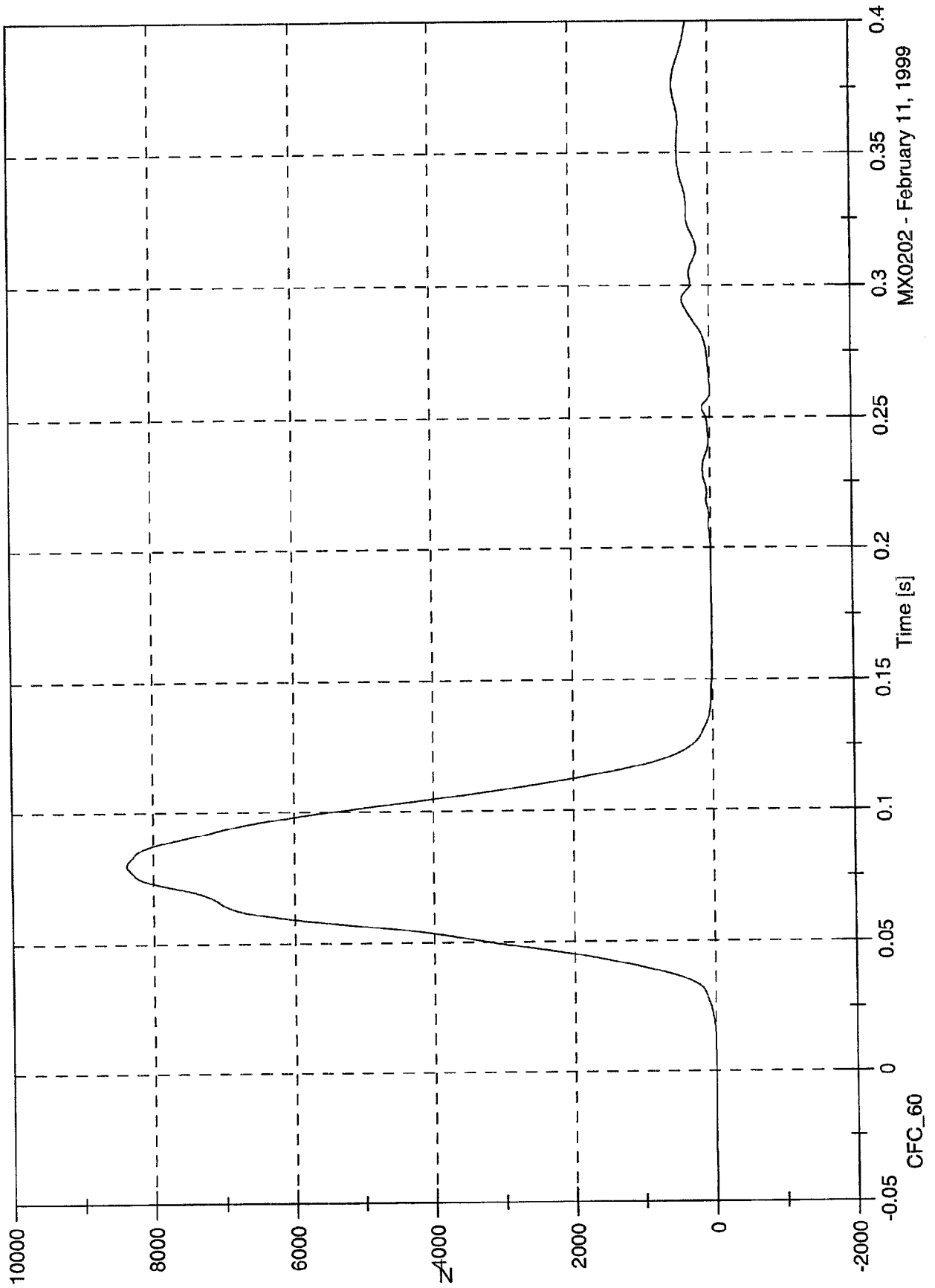


MX0202 - February 11, 1999

Max: 8377.0 [N] at 0.080 [s]  
Min: -17.9 [N] at 0.600 [s]

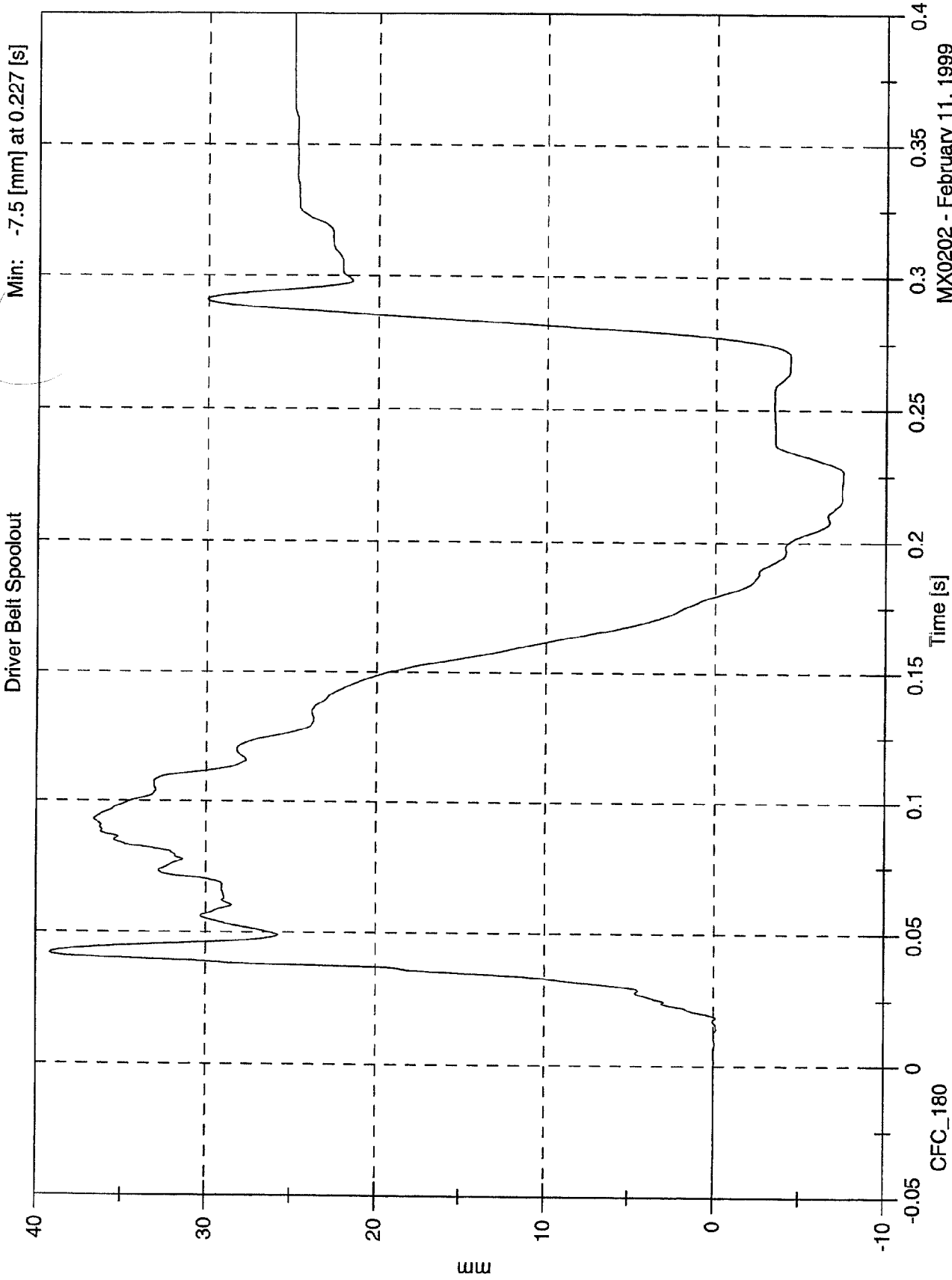
NCAP #11 - 1999 Ford F150 Pickup

Driver Torso Belt



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NCAP #11 - 1999 Ford F150 Pickup

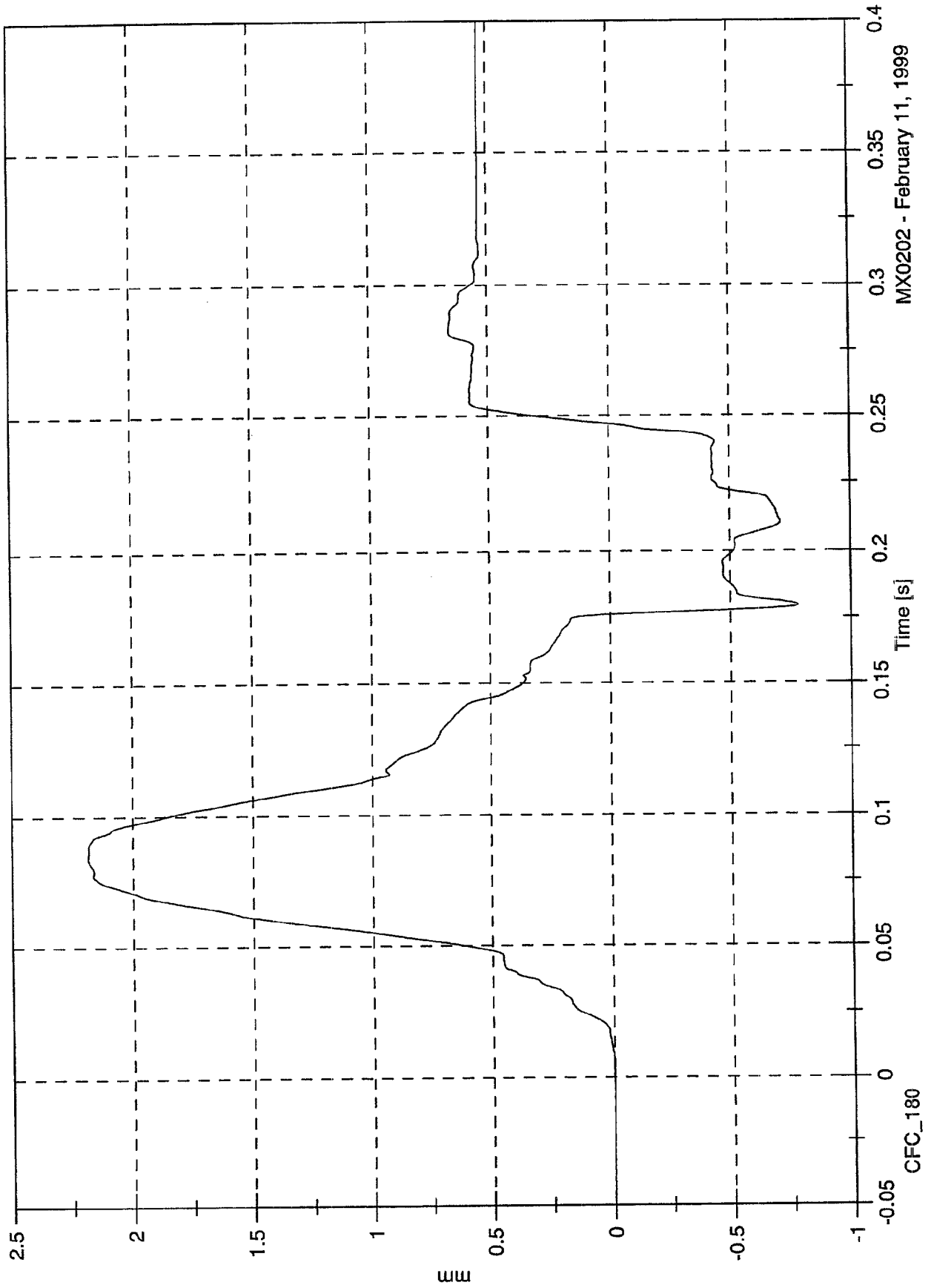


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 2.2 [mm] at 0.084 [s]  
Min: -0.8 [mm] at 0.179 [s]

Driver Belt Elongation

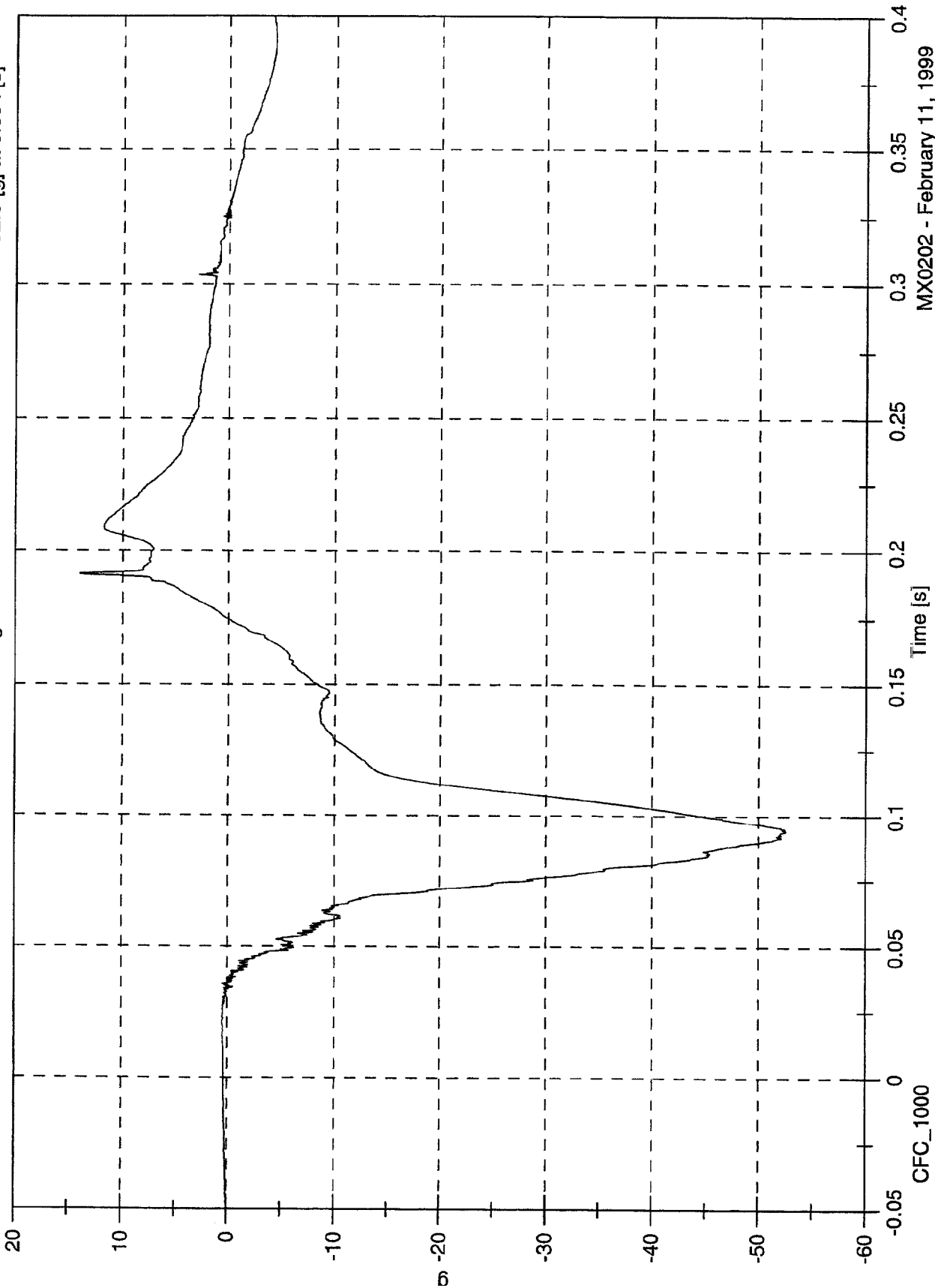


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Passenger Head Ax

Max: 14.0 [g] at 0.191 [s]  
Min: -52.5 [g] at 0.094 [s]

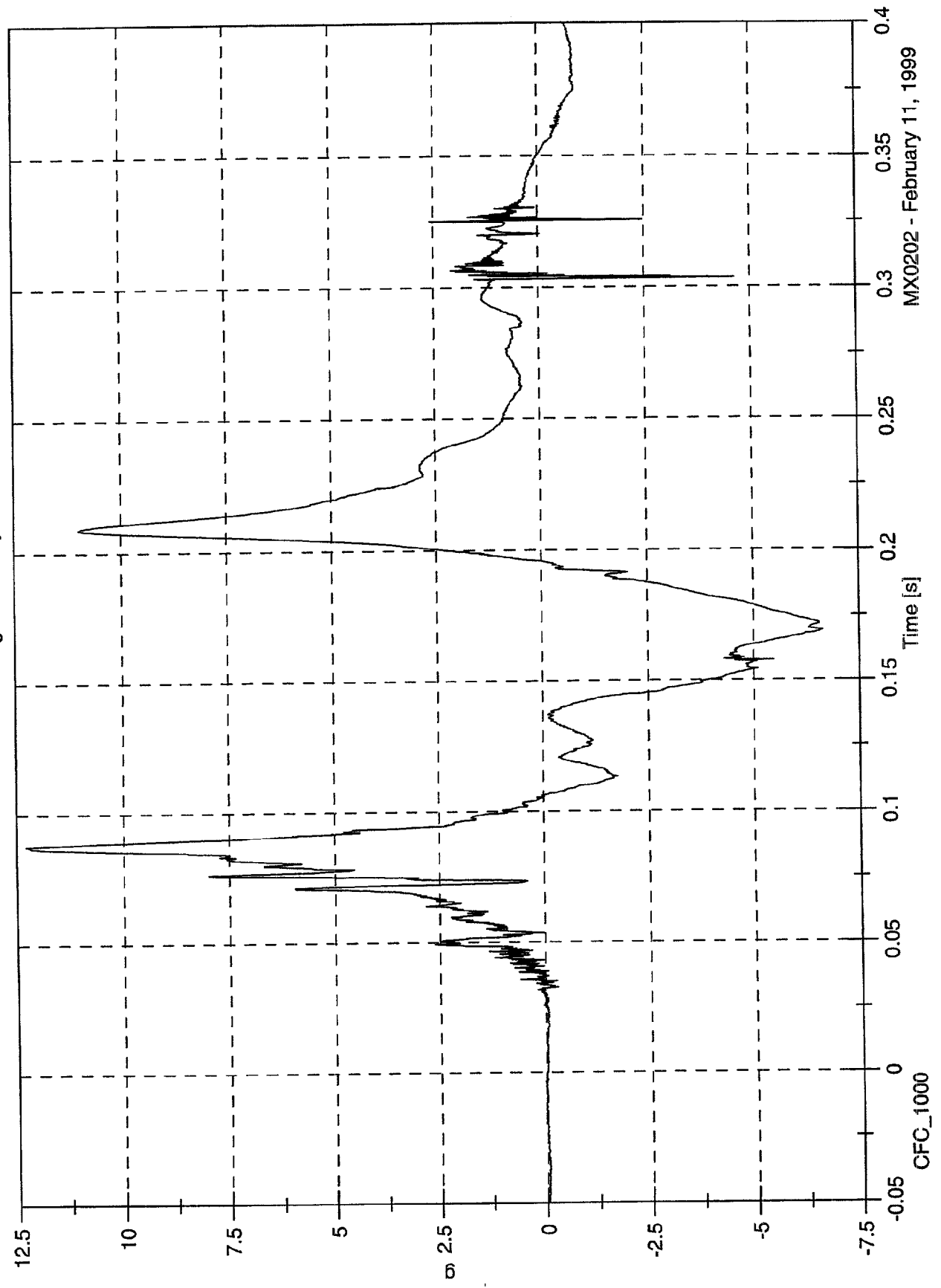


MX0202 - February 11, 1999

Max: 12.3 [g] at 0.088 [s]  
Min: -6.6 [g] at 0.169 [s]

NCAP #11 - 1999 Ford F150 Pickup

Passenger Head Ay



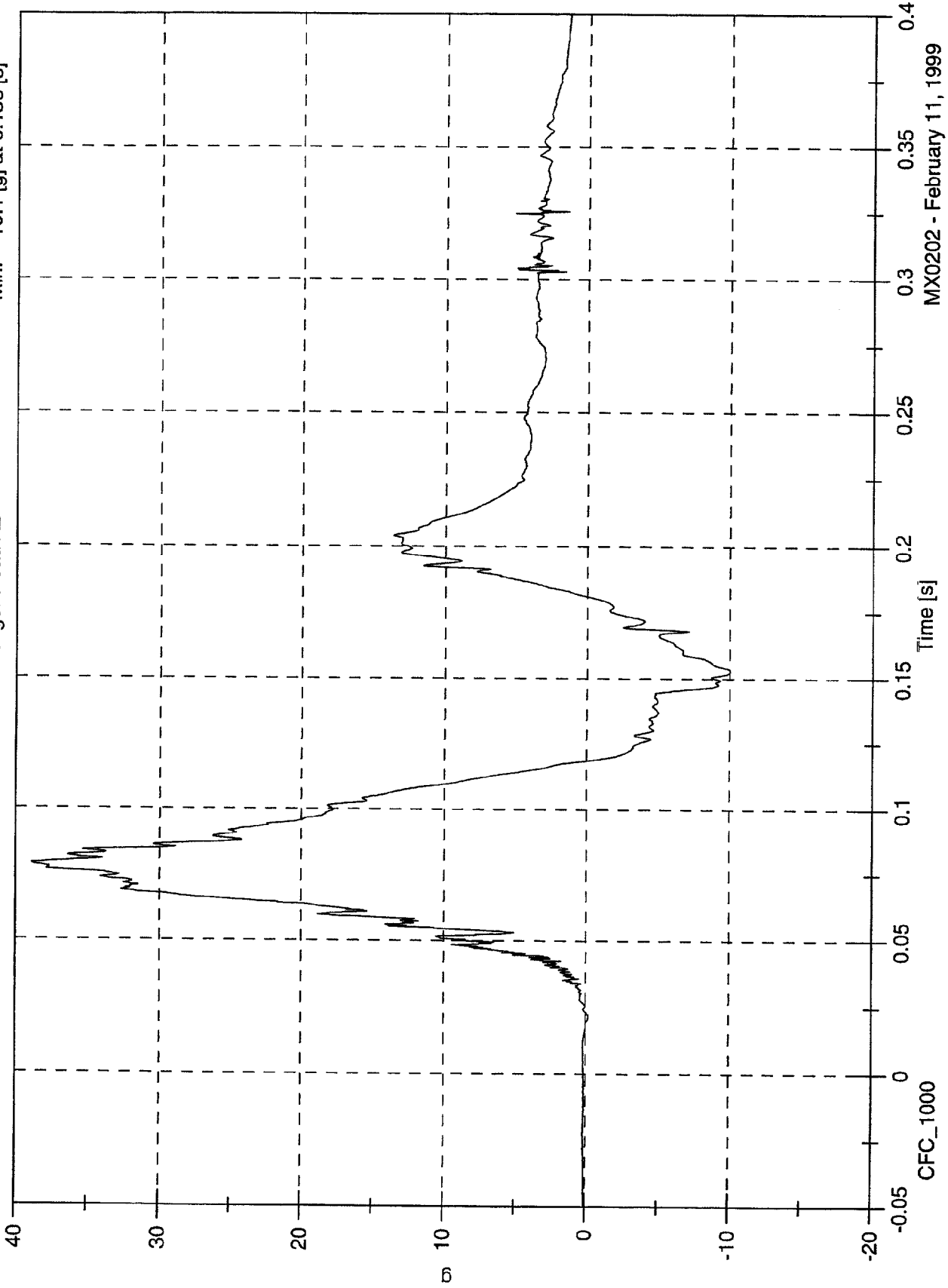
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 38.9 [g] at 0.079 [s]

Min: -10.1 [g] at 0.153 [s]

Passenger Head Az



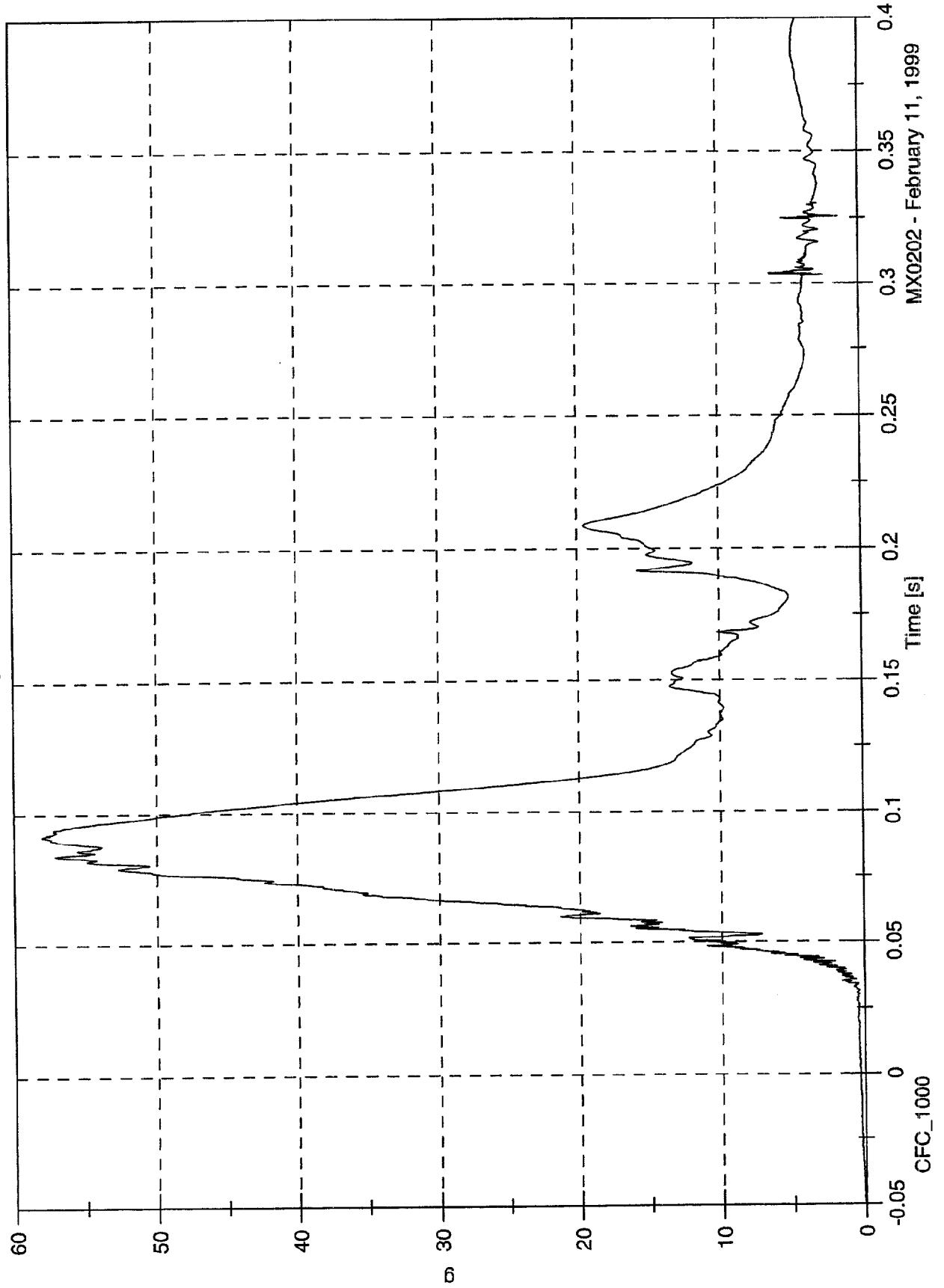
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Passenger Head A Resultant

Max: 58.1 [g] at 0.091 [s]

Min: 0.0 [g] at -0.055 [s]

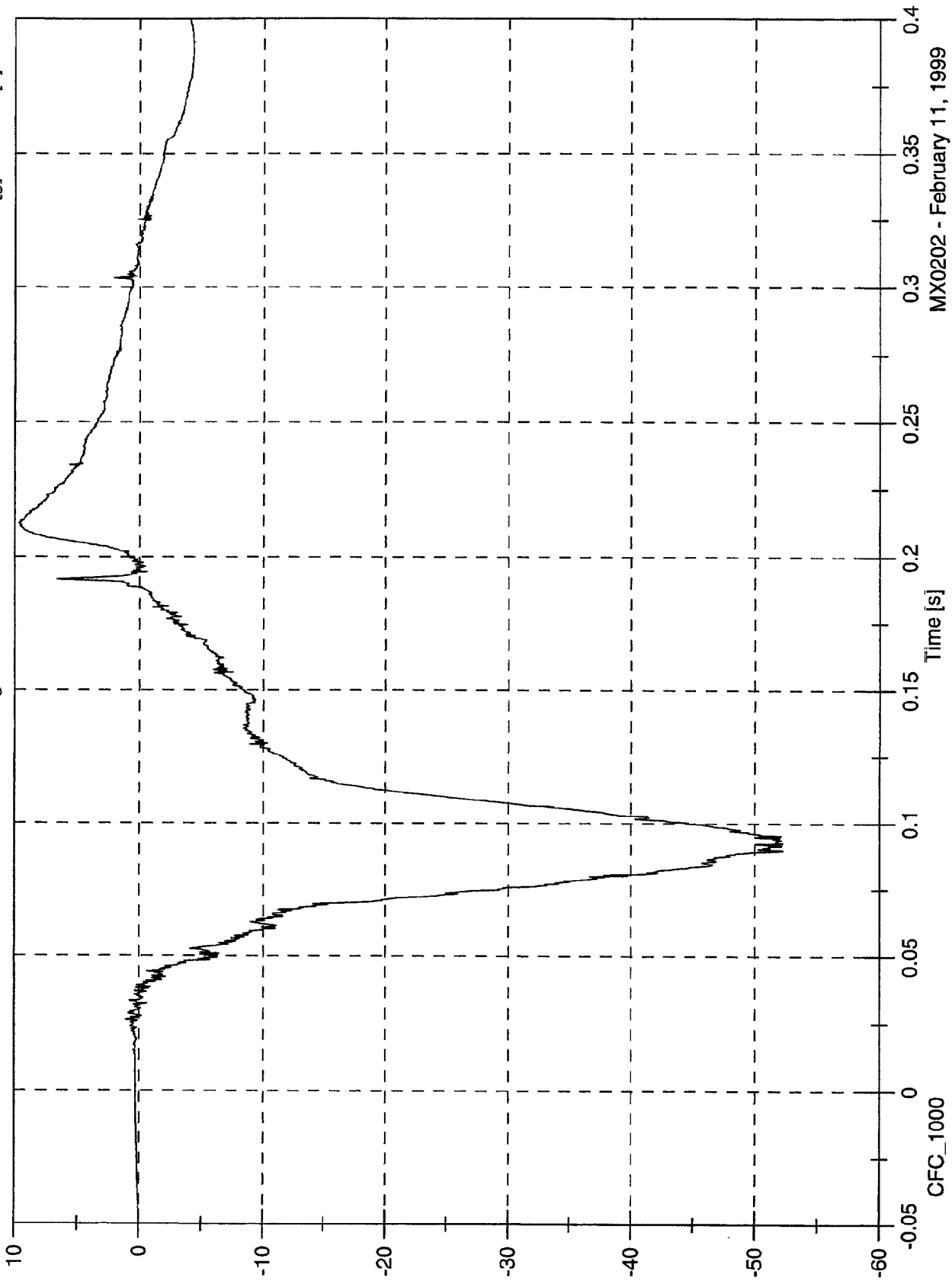


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 9.6 [g] at 0.213 [s]  
Min: -52.2 [g] at 0.090 [s]

Passenger Head Ax Redundant

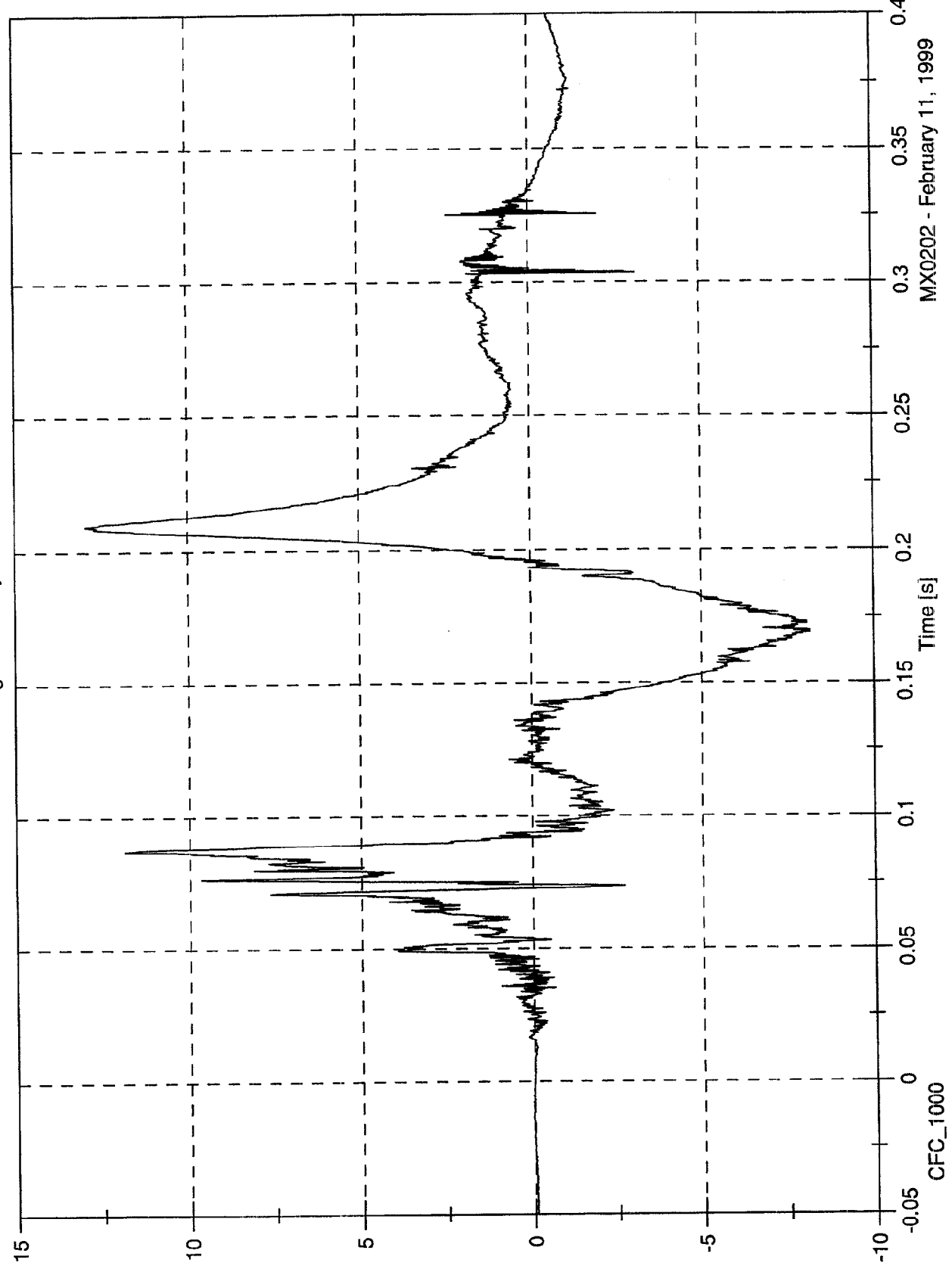


MX0202 - February 11, 1999

Max: 13.0 [g] at 0.209 [s]  
Min: -8.2 [g] at 0.169 [s]

Passenger Head Ay Redundant

NCAP #11 - 1999 Ford F150 Pickup



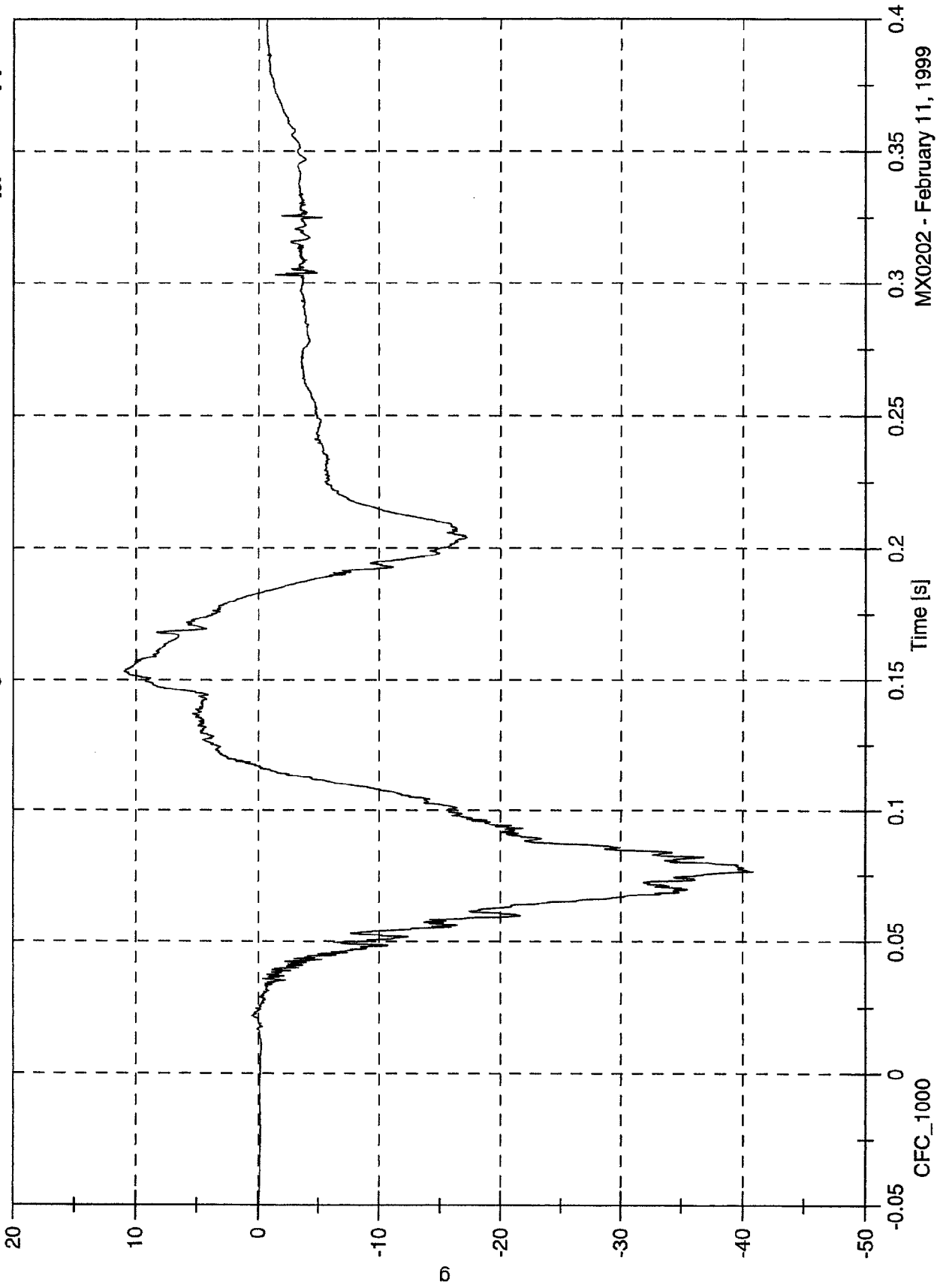
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Passenger Head Az Redundant

Max: 11.0 [g] at 0.153 [s]

Min: -40.9 [g] at 0.077 [s]



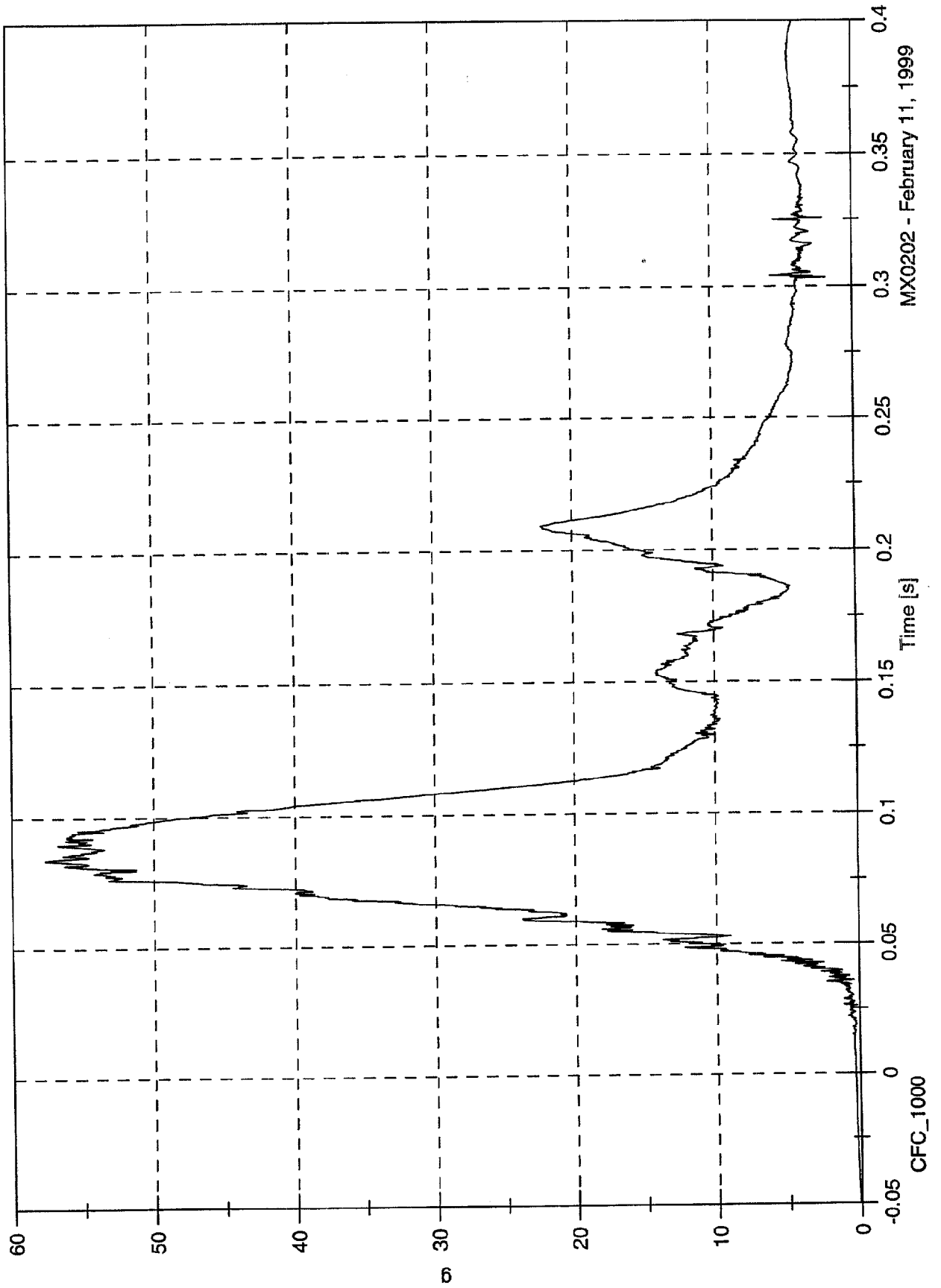
MX0202 - February 11, 1999

Max: 57.6 [g] at 0.084 [s]

Min: 0.1 [g] at -0.055 [s]

NCAP #11 - 1999 Ford F150 Pickup

Passenger Head Ax Redundan Resultant



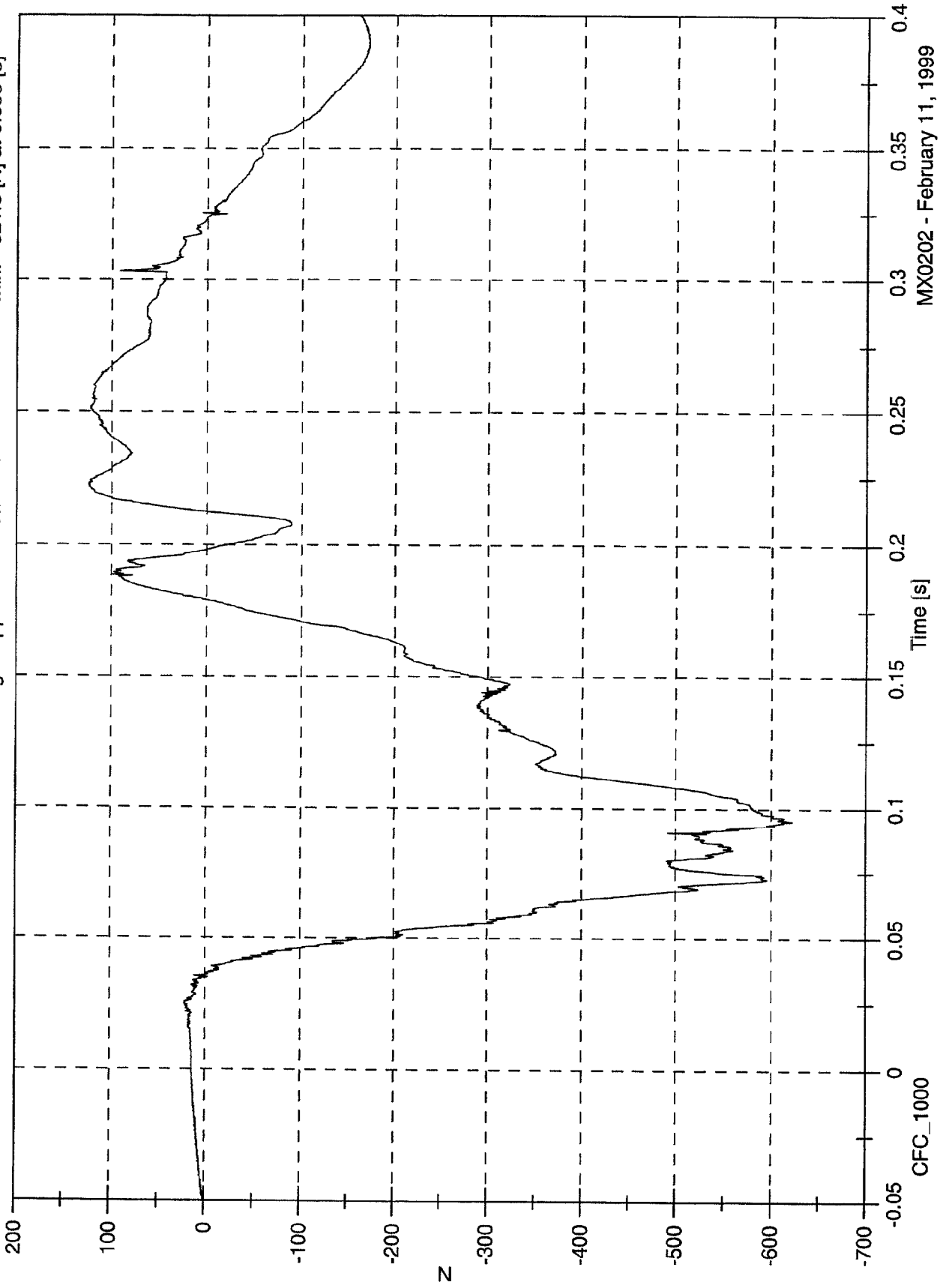
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Passenger Upper Neck Load Fx

Max: 123.8 [N] at 0.222 [s]

Min: -621.6 [N] at 0.095 [s]

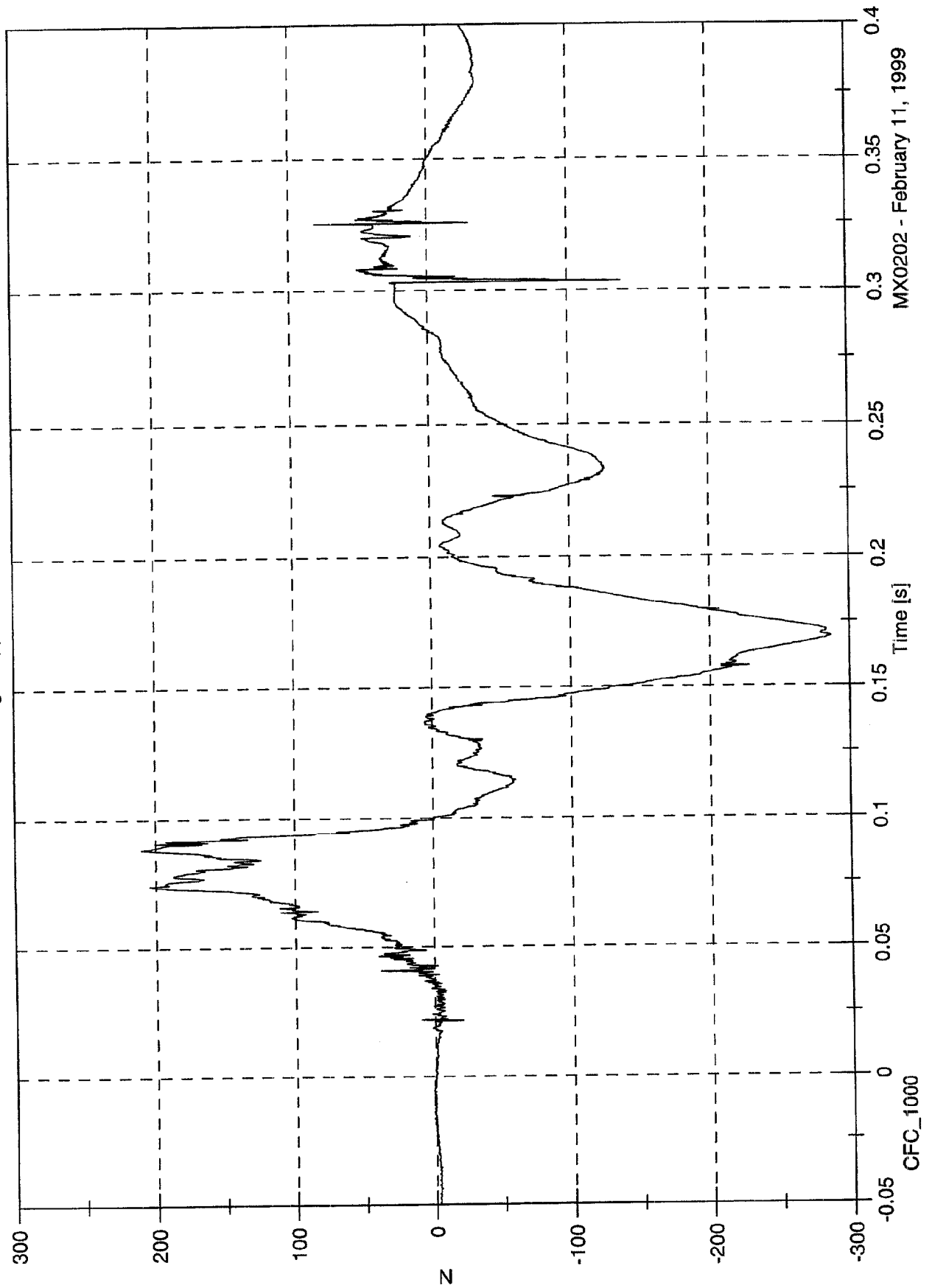


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 210.1 [N] at 0.088 [s]  
Min: -286.4 [N] at 0.169 [s]

Passenger Upper Neck Load Fy



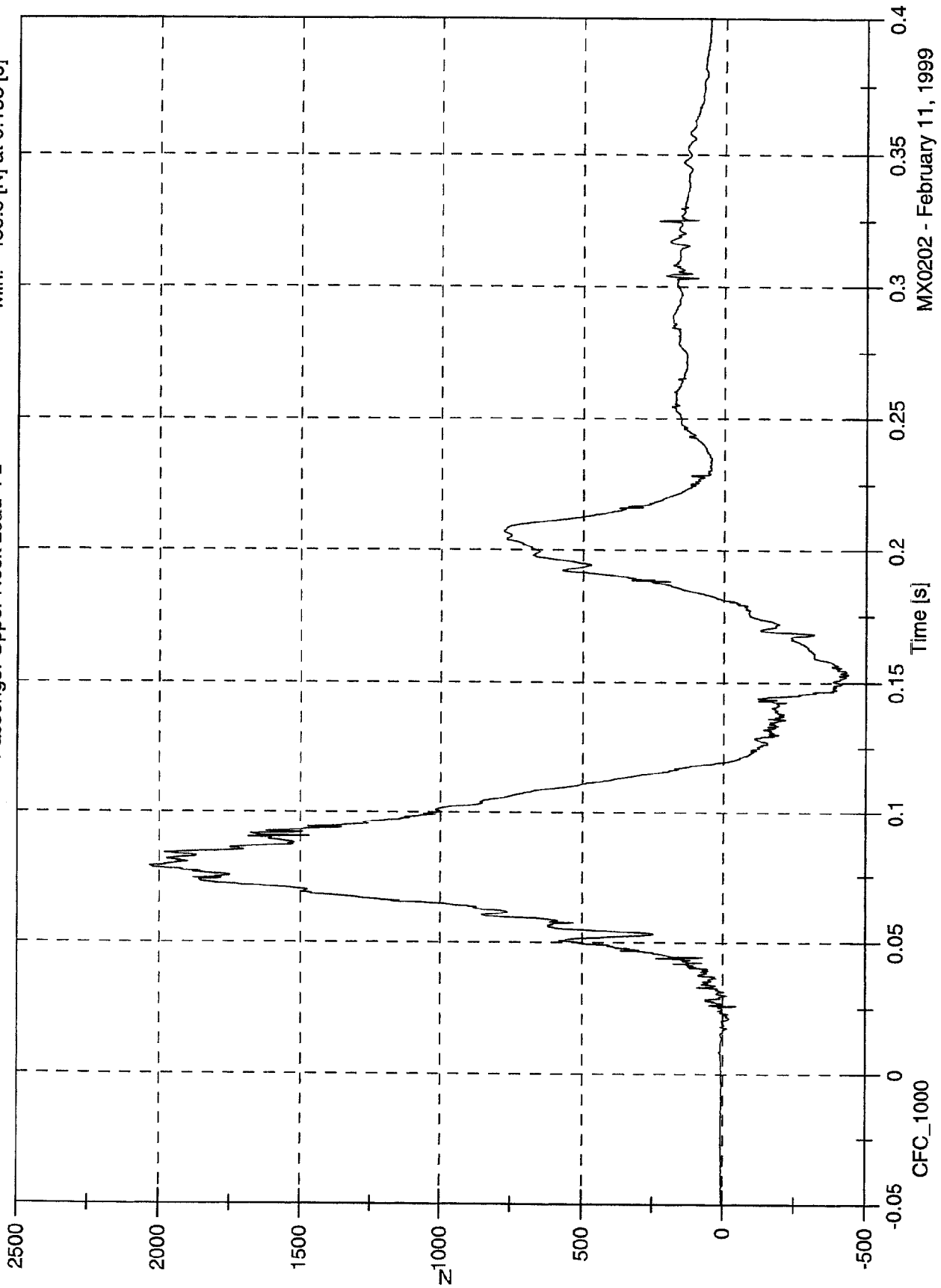
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 2033.9 [N] at 0.079 [s]

Min: -436.8 [N] at 0.153 [s]

Passenger Upper Neck Load Fz

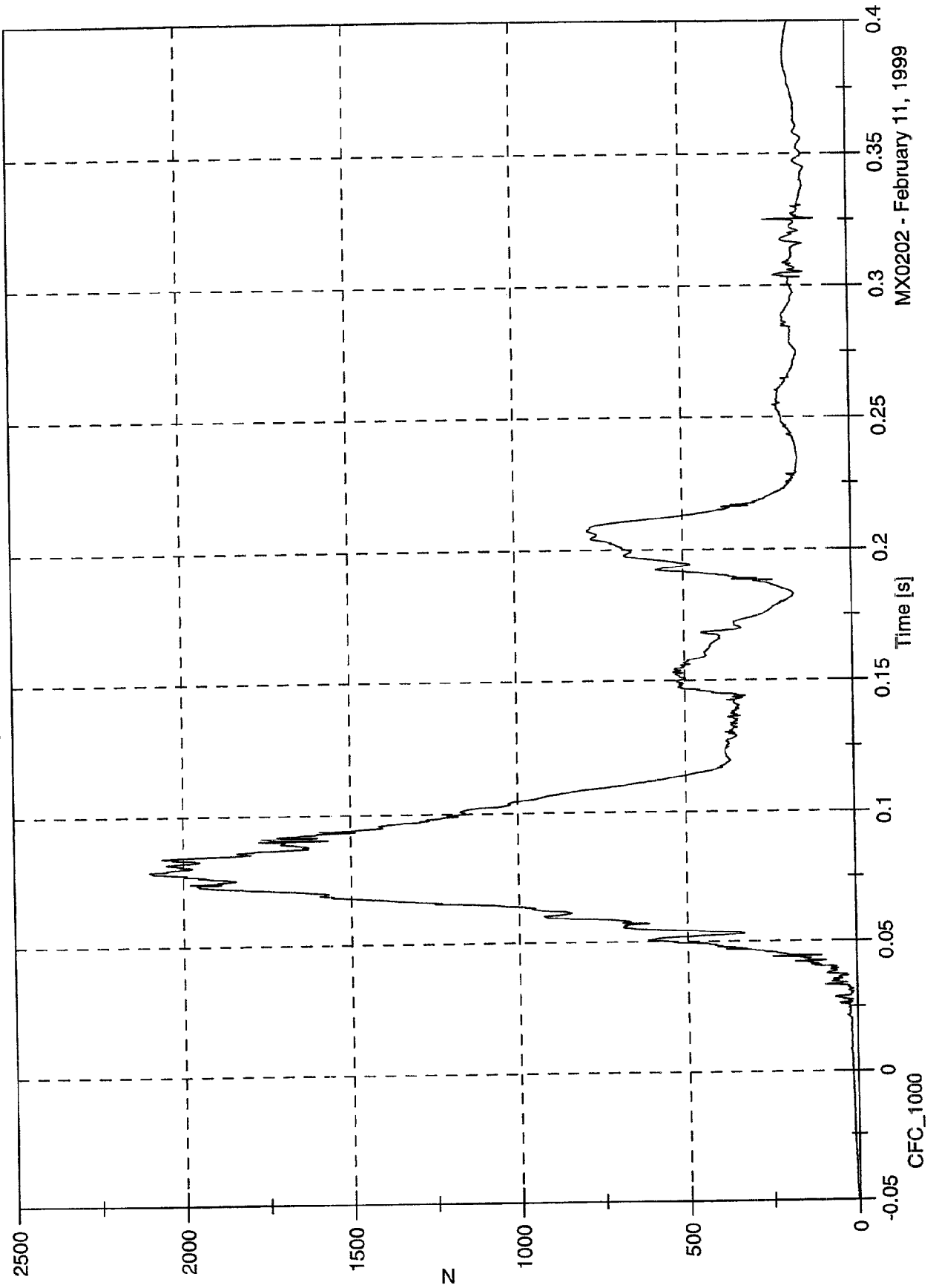


MX0202 - February 11, 1999

Max: 2100.9 [N] at 0.079 [s]  
Min: 2.1 [N] at -0.058 [s]

Passenger Upper Neck Load F Resultant

NCAP #11 - 1999 Ford F150 Pickup



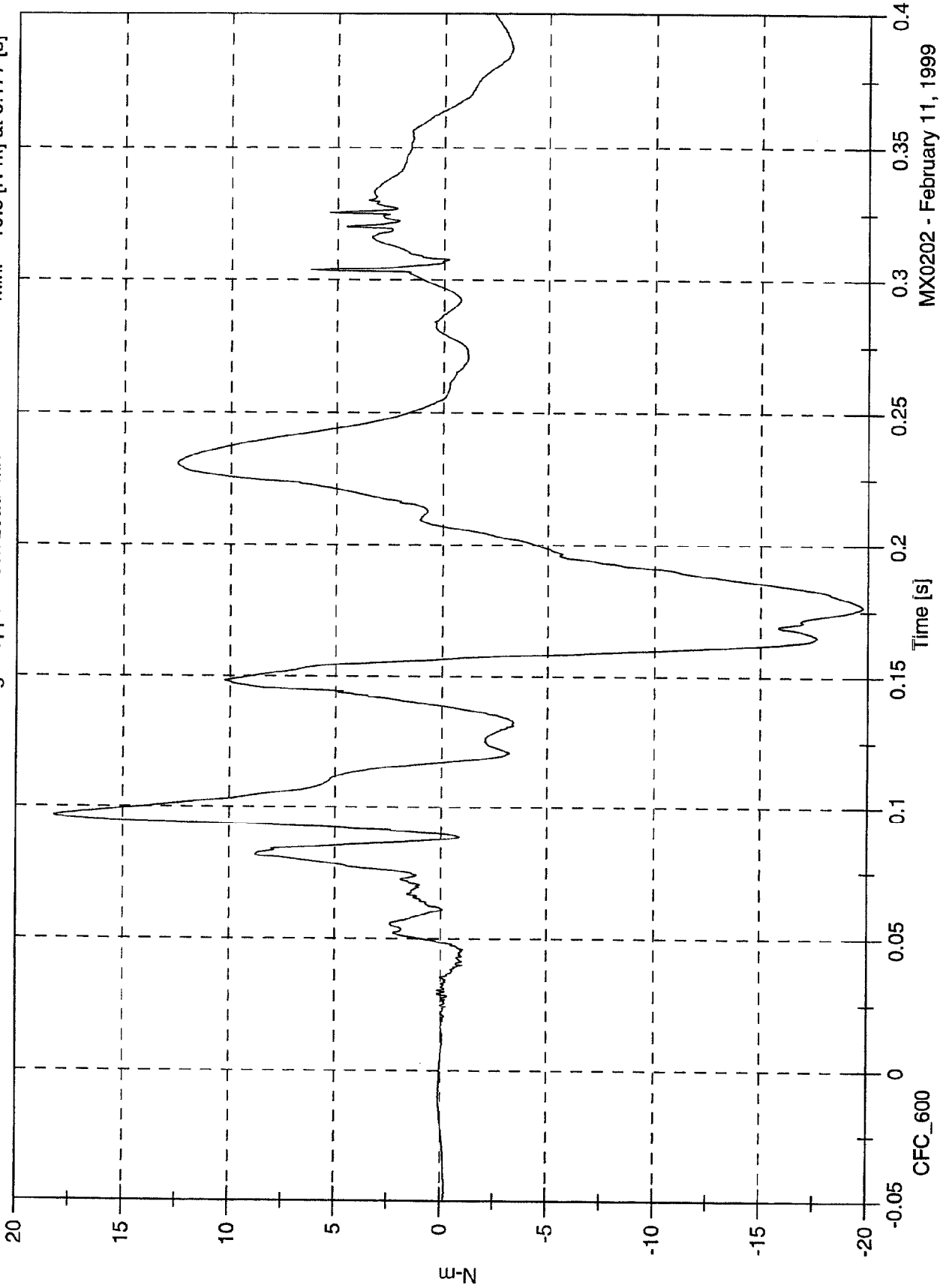
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Passenger Upper Neck Load Mx

Max: 18.2 [N-m] at 0.096 [s]

Min: -19.8 [N-m] at 0.177 [s]

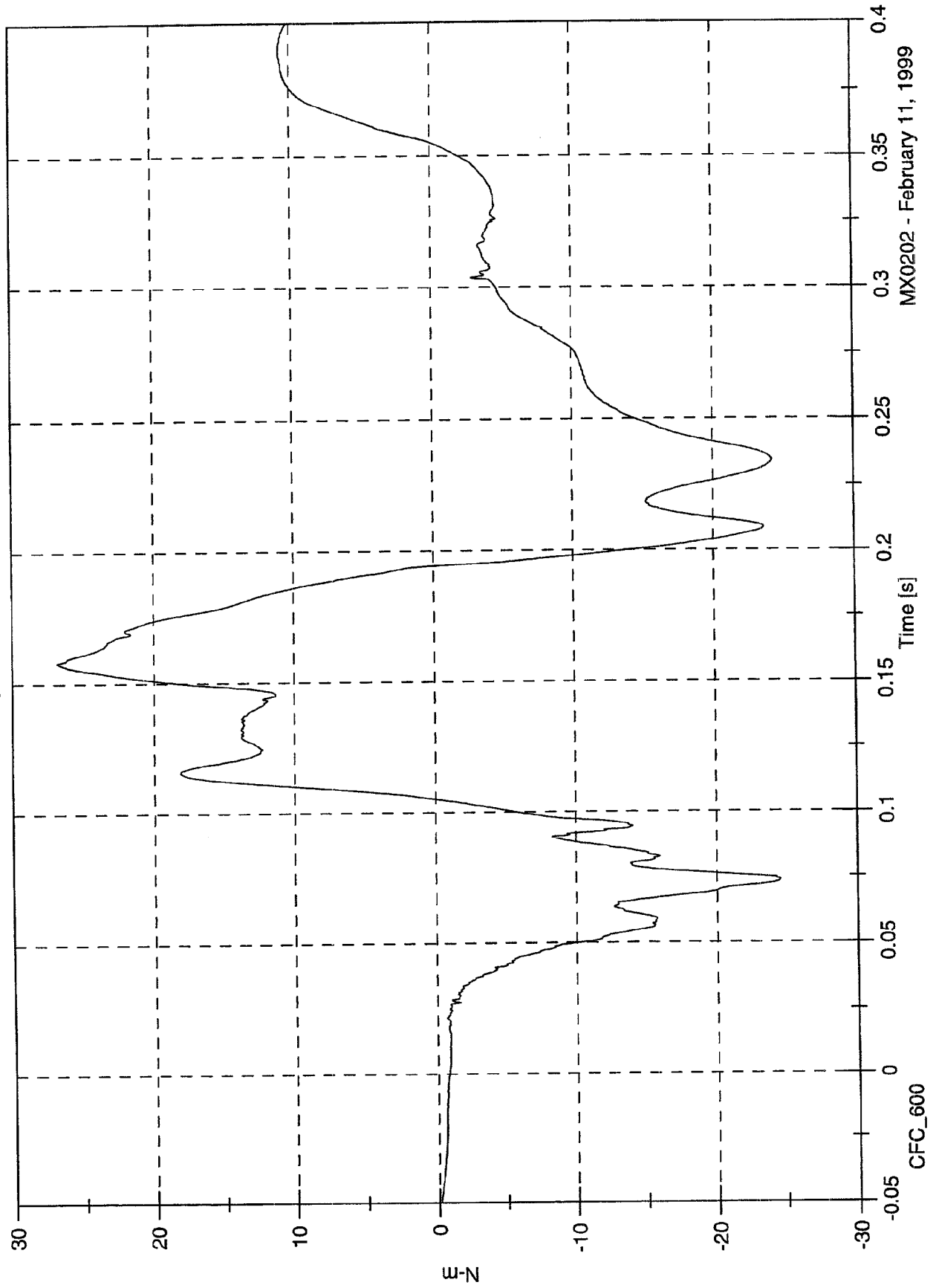


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Passenger Upper Neck Load My

Max: 26.9 [N-m] at 0.158 [s]  
Min: -24.6 [N-m] at 0.074 [s]

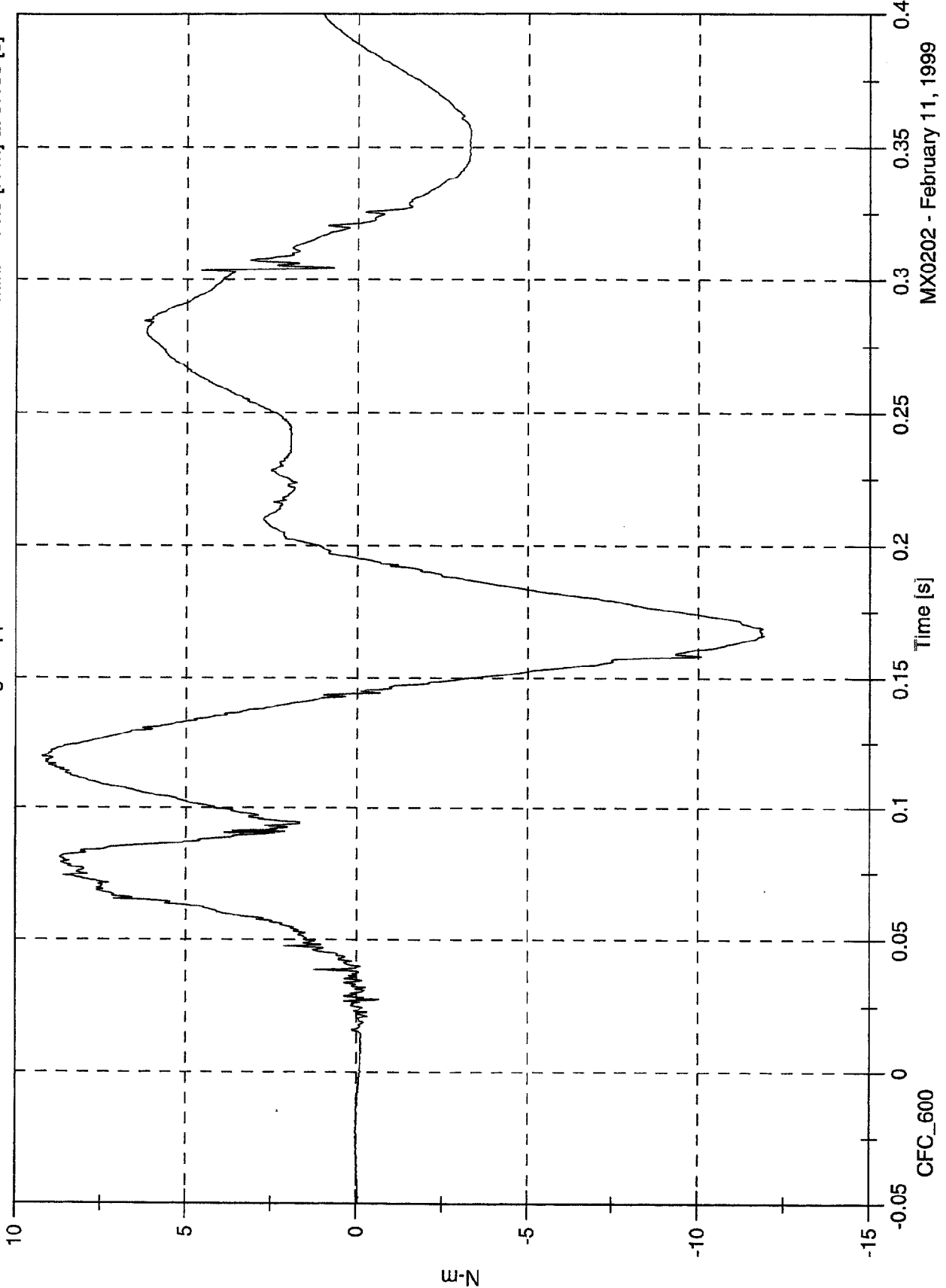


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 9.2 [N-m] at 0.120 [s]  
Min: -11.9 [N-m] at 0.166 [s]

Passenger Upper Neck Load Mz



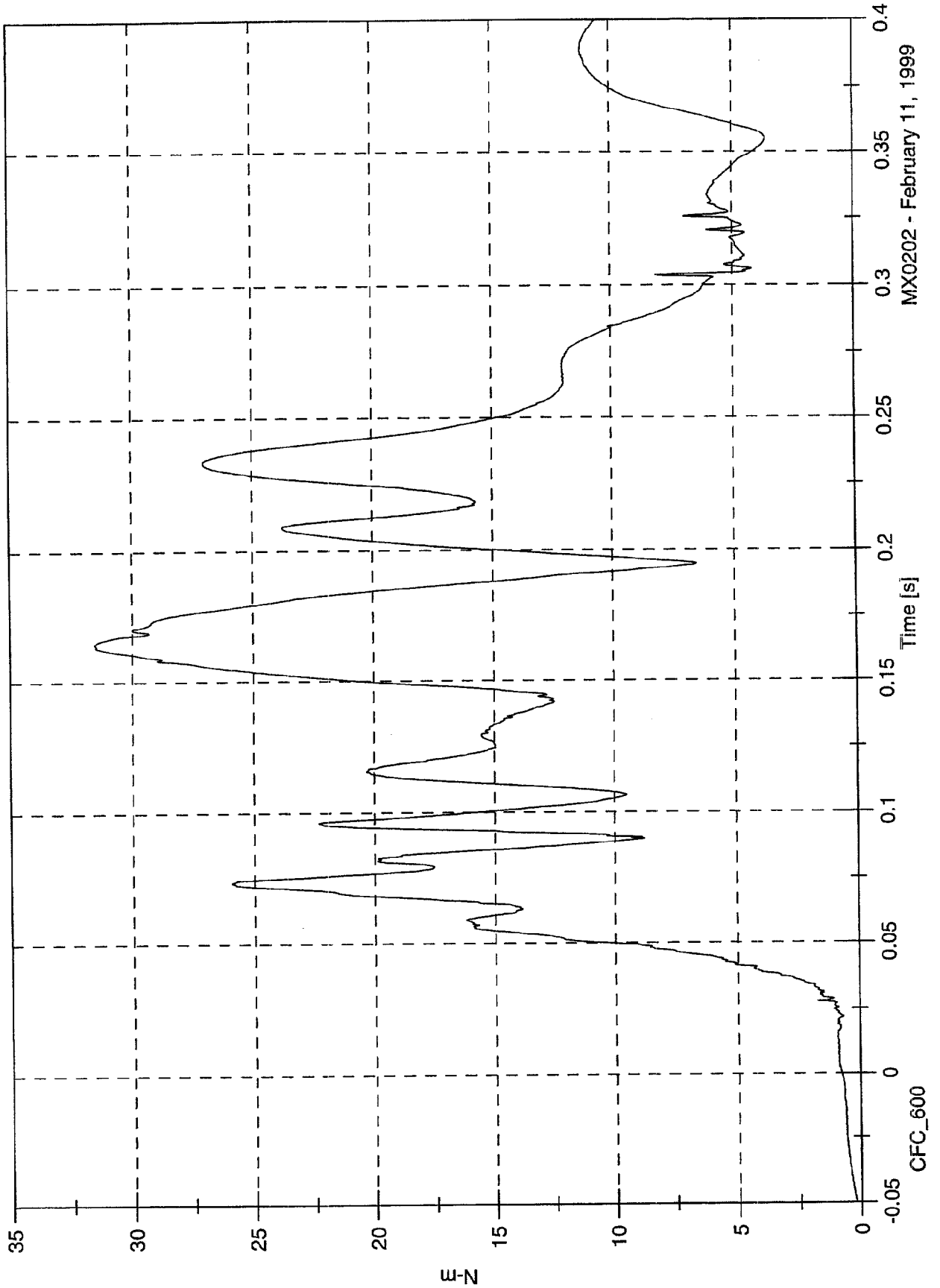
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 31.5 [N-m] at 0.165 [s]

Min: 0.1 [N-m] at -0.057 [s]

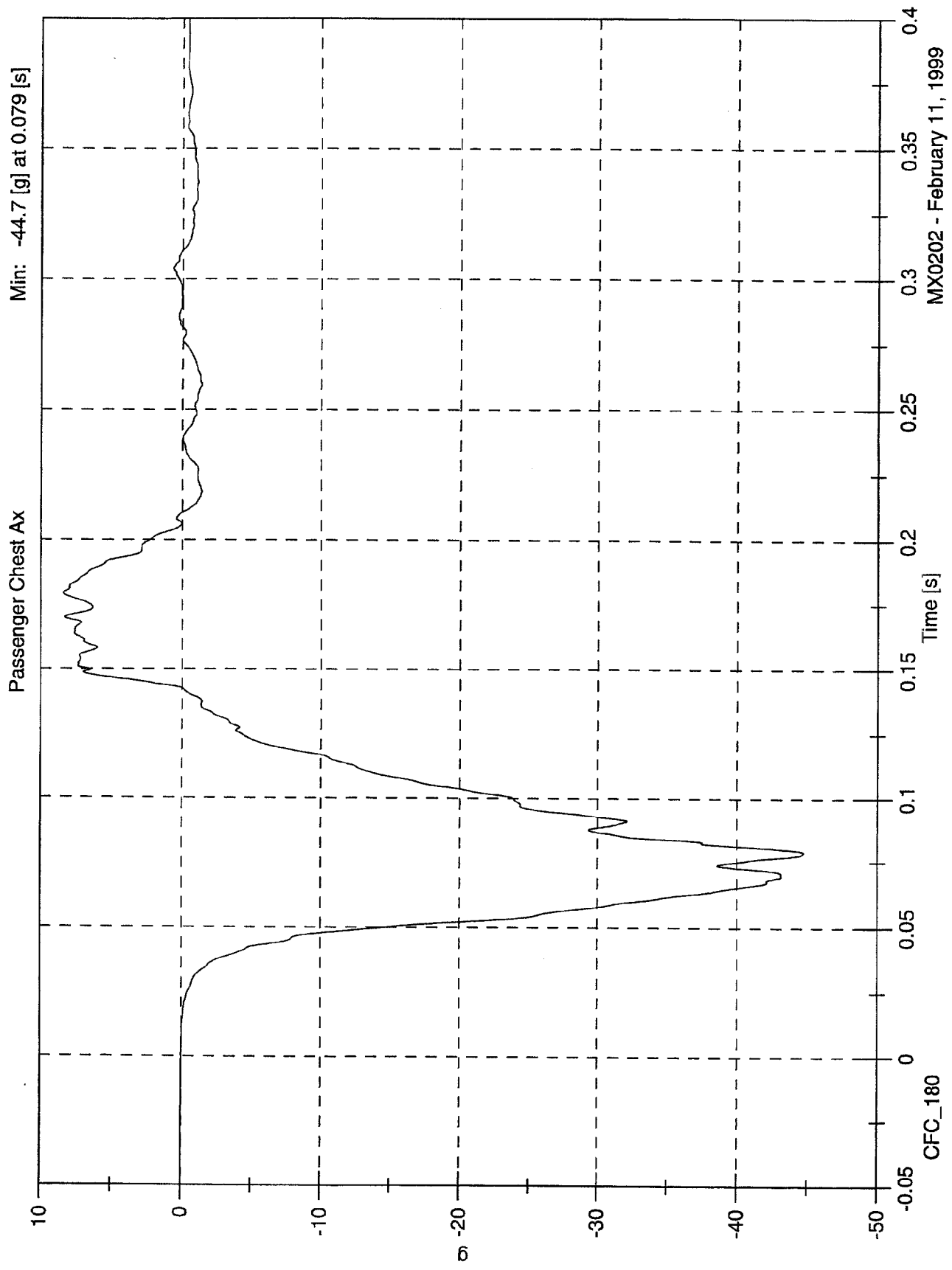
Passenger Upper Neck Load M Resultant



MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 8.4 [g] at 0.179 [s]  
Min: -44.7 [g] at 0.079 [s]

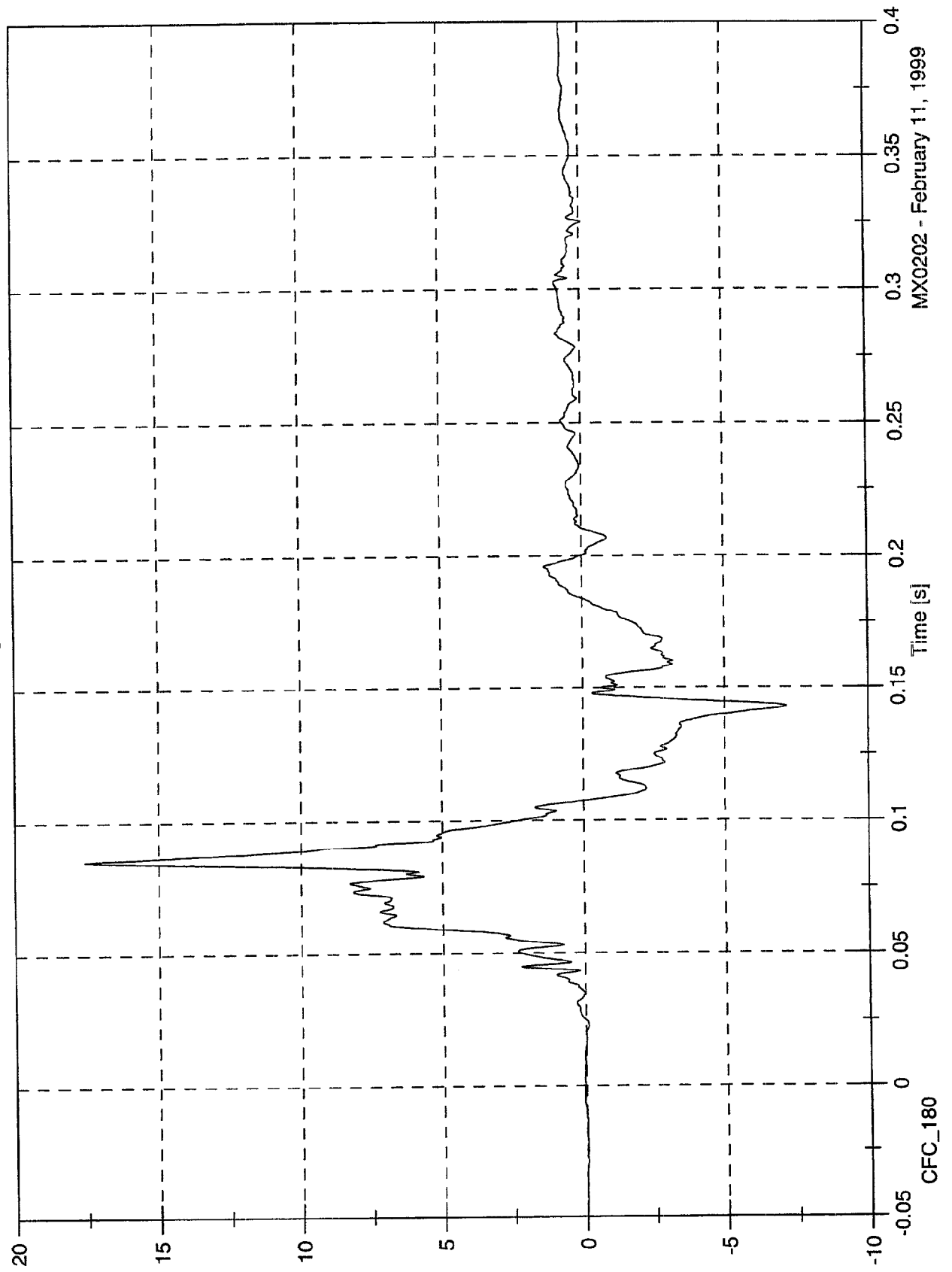


MX0202 - February 11, 1999

Max: 17.6 [g] at 0.085 [s]  
Min: -7.1 [g] at 0.143 [s]

NCAP #11 - 1999 Ford F150 Pickup

Passenger Chest Ay

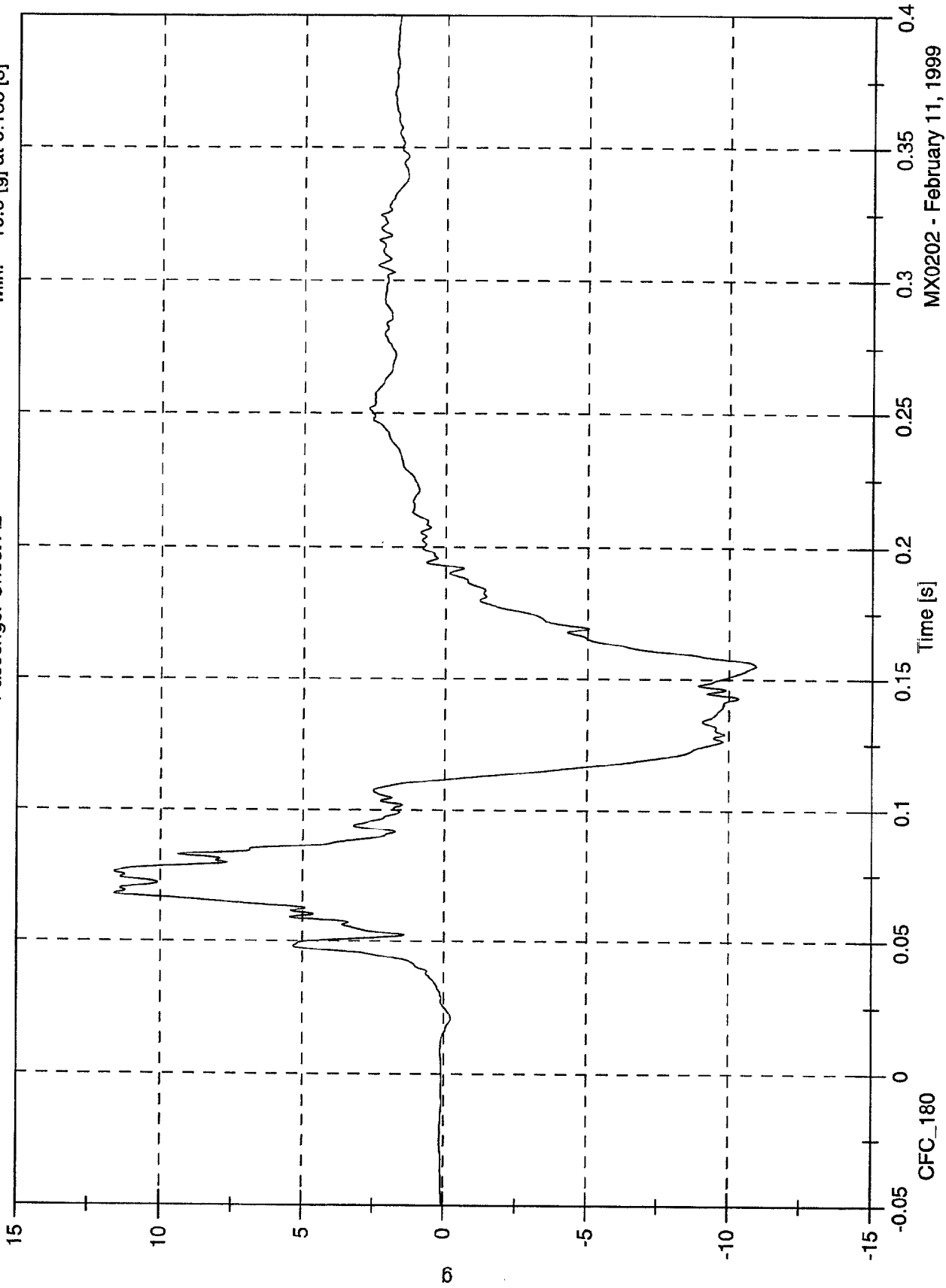


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 11.6 [g] at 0.068 [s]  
Min: -10.9 [g] at 0.155 [s]

Passenger Chest Az



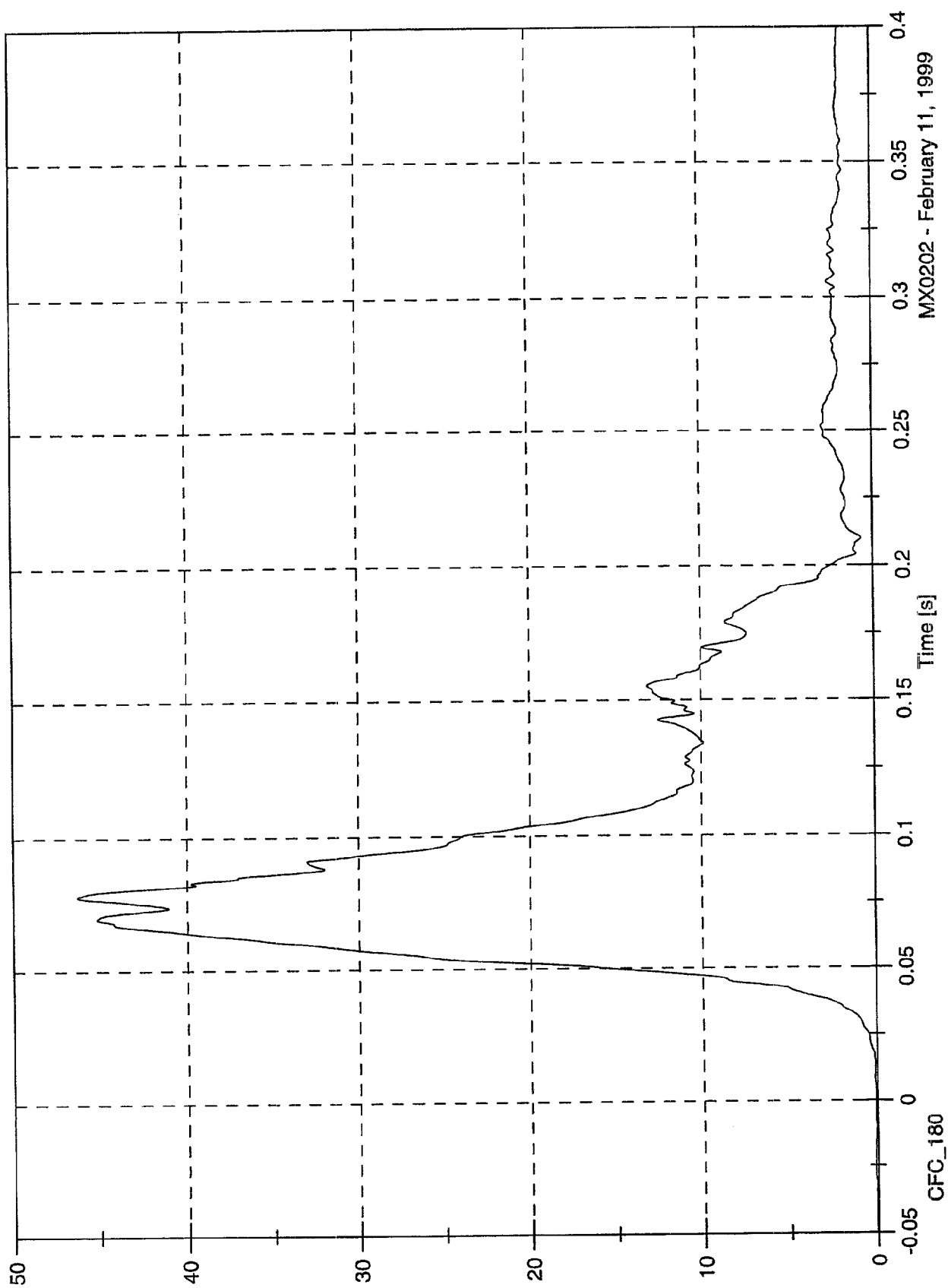
MX0202 - February 11, 1999

Max: 46.3 [g] at 0.078 [s]

Min: 0.0 [g] at -0.058 [s]

Passenger Chest A Resultant

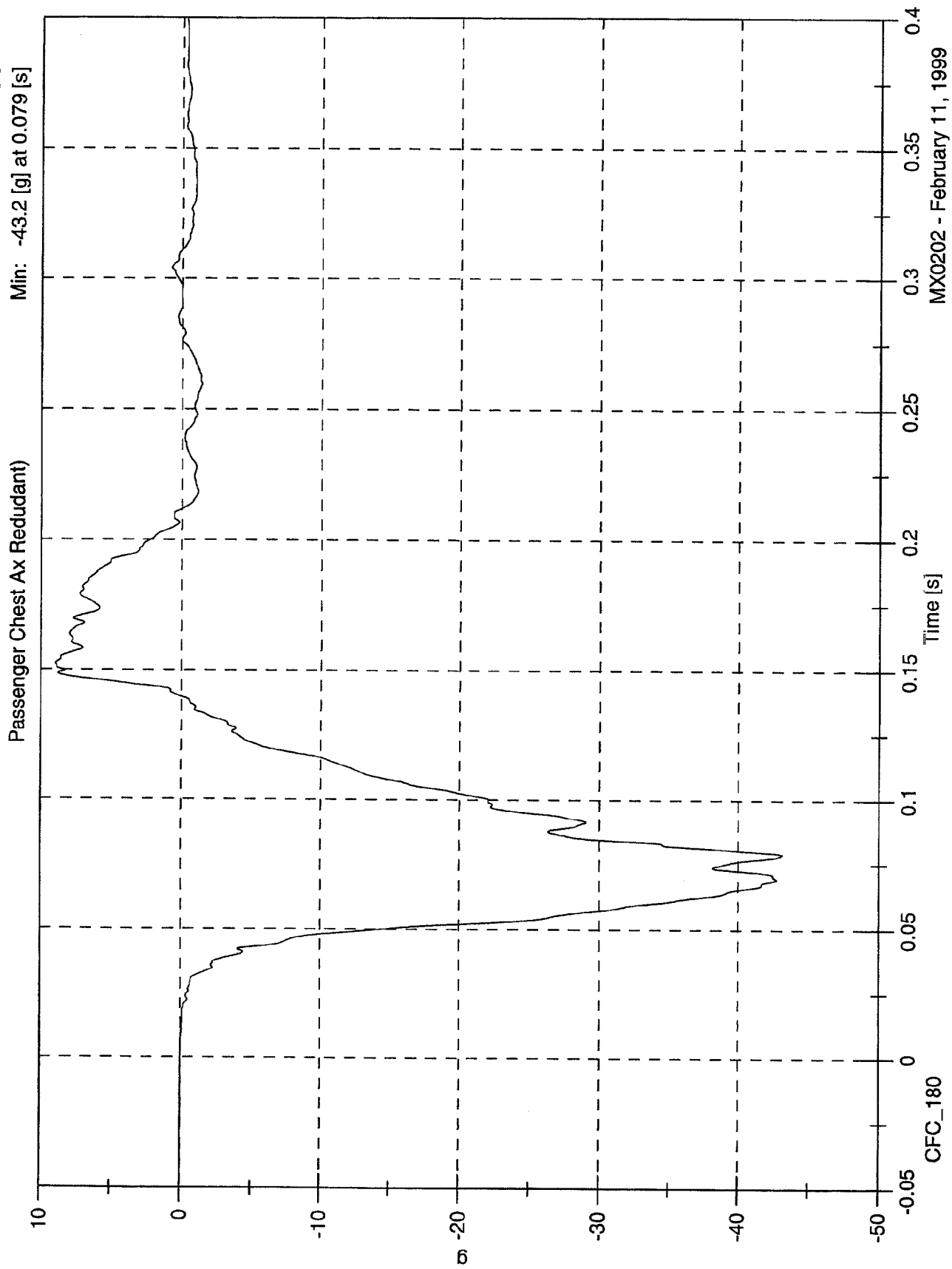
NCAP #11 - 1999 Ford F150 Pickup



MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 9.0 [g] at 0.152 [s]  
Min: -43.2 [g] at 0.079 [s]

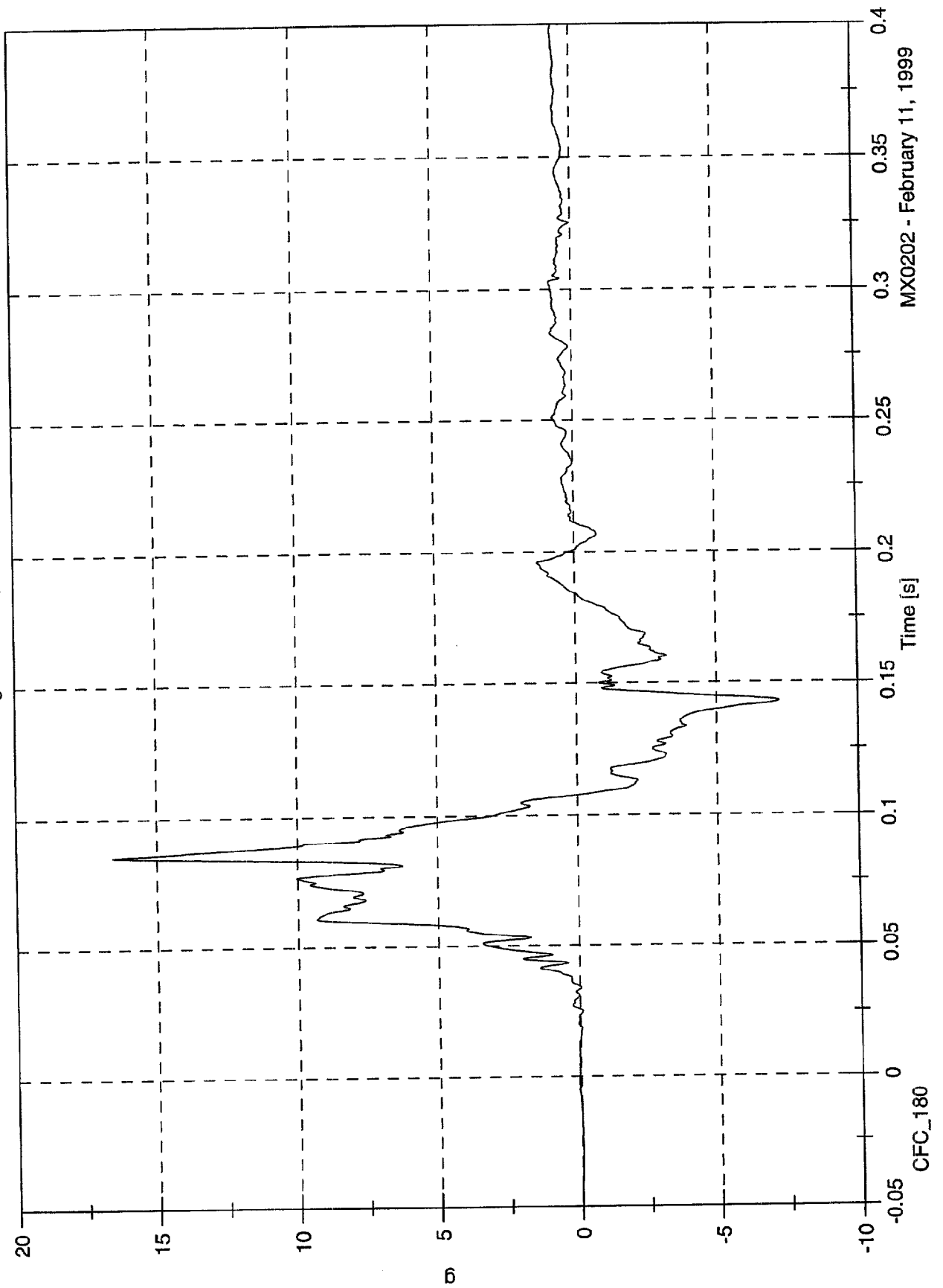


MX0202 - February 11, 1999

Max: 16.6 [g] at 0.085 [s]  
Min: -7.2 [g] at 0.143 [s]

NCAP #11 - 1999 Ford F150 Pickup

Passenger Chest Ay Redundant



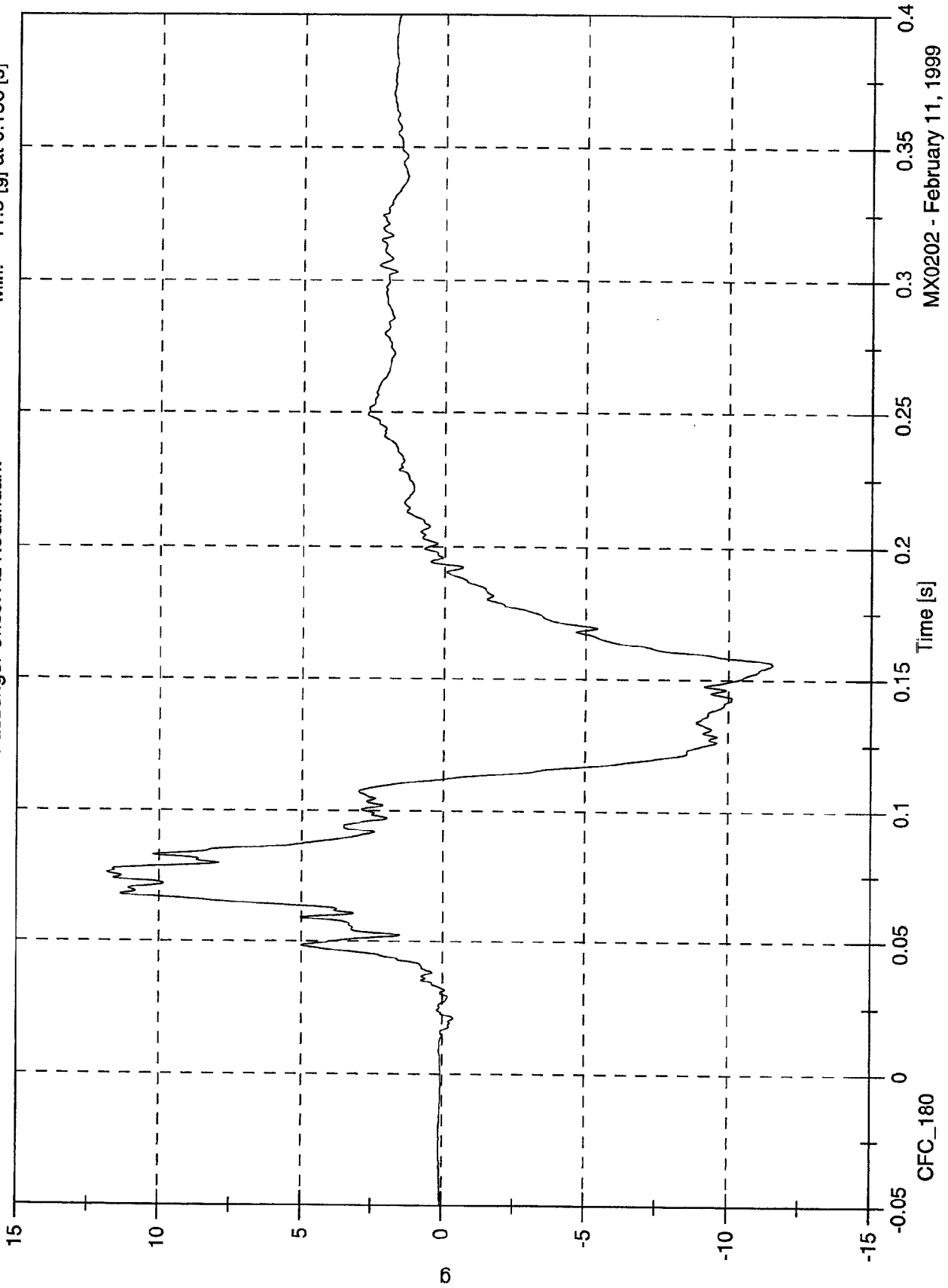
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Passenger Chest Az Redundant

Max: 11.8 [g] at 0.076 [s]

Min: -11.5 [g] at 0.156 [s]

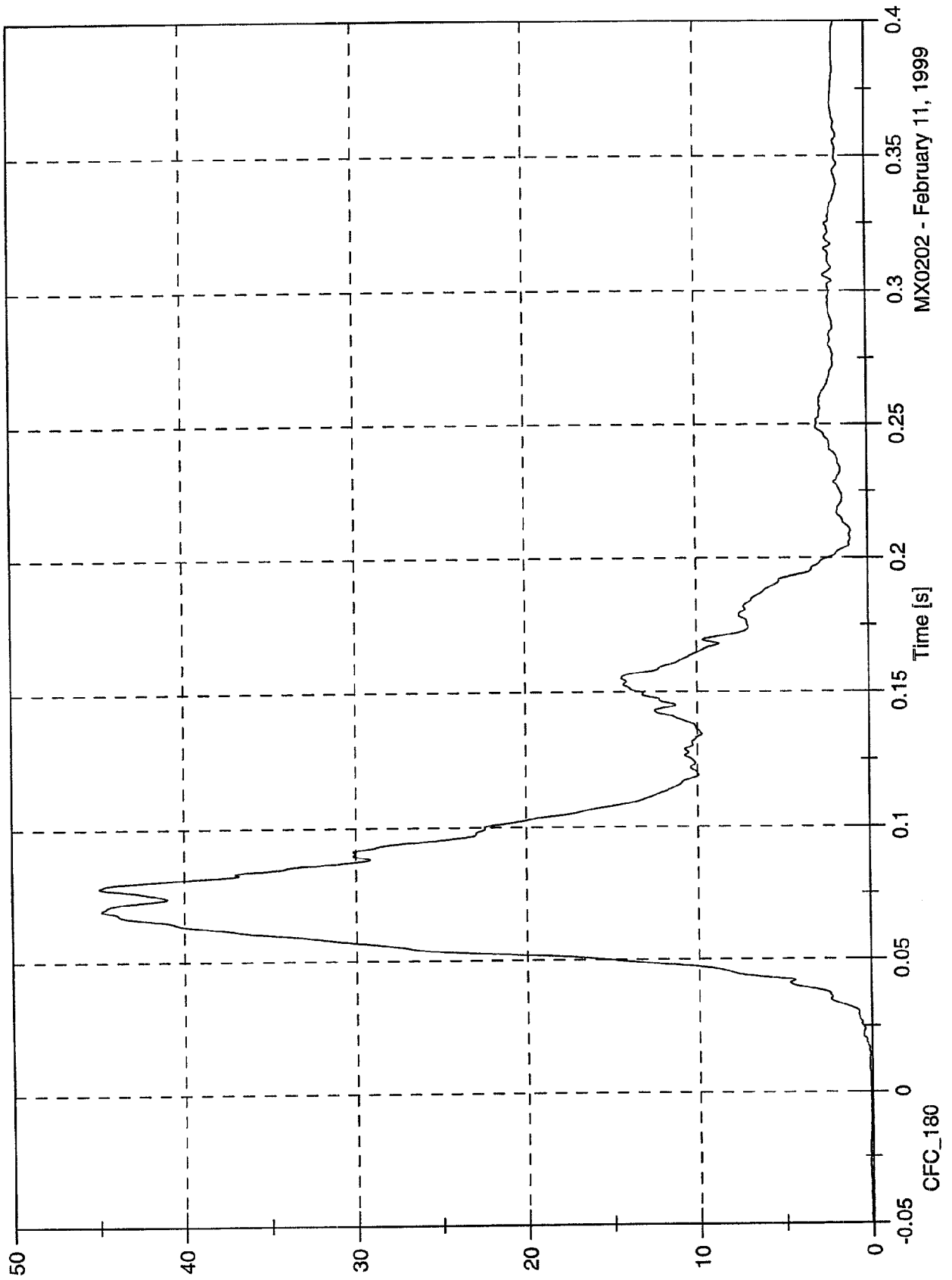


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 45.0 [g] at 0.078 [s]  
Min: 0.0 [g] at -0.061 [s]

Passenger Chest Ax Redundant Resultant

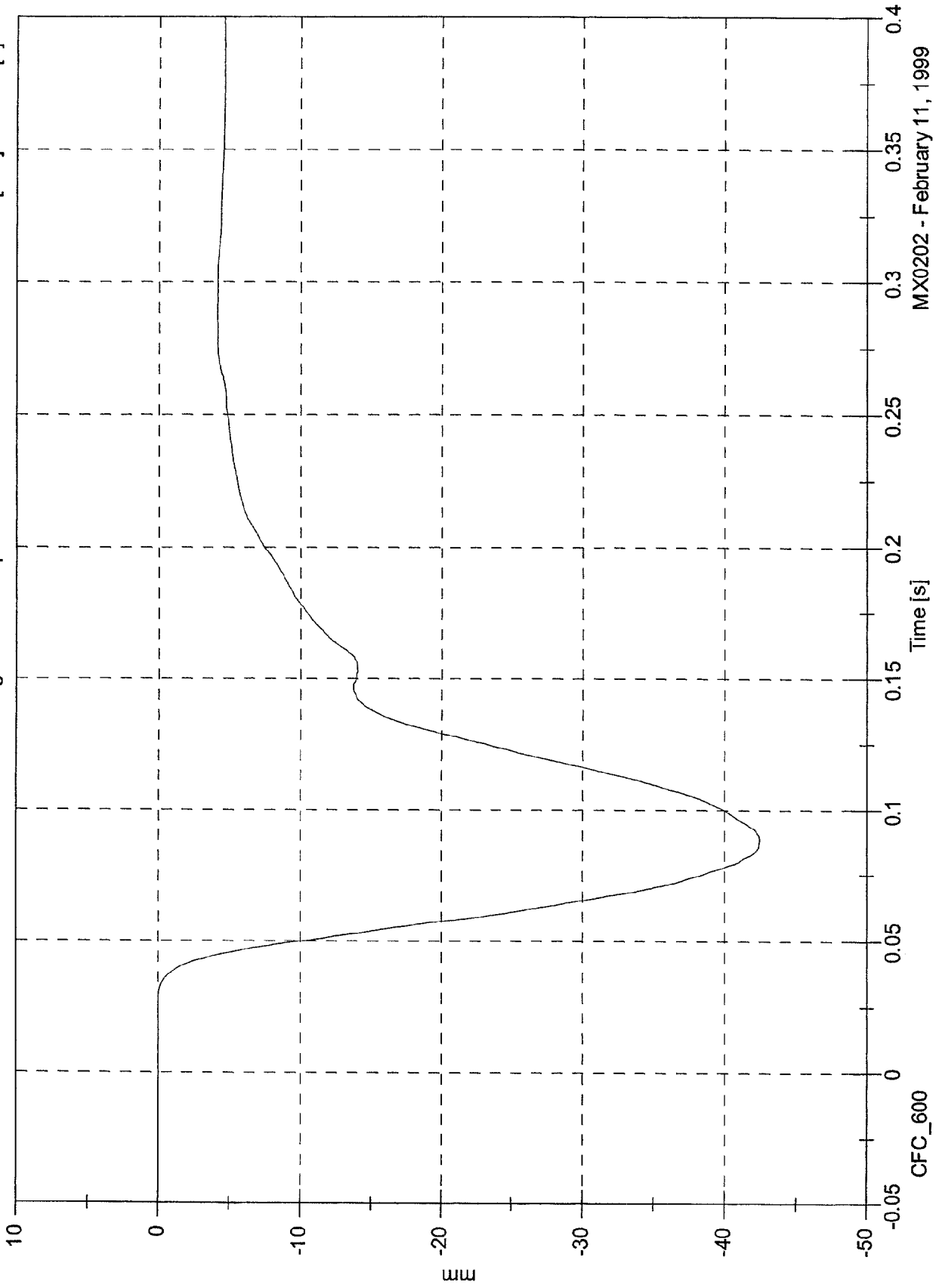


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 0.0 [mm] at -0.017 [s]  
Min: -42.4 [mm] at 0.089 [s]

Passenger Chest Displacement

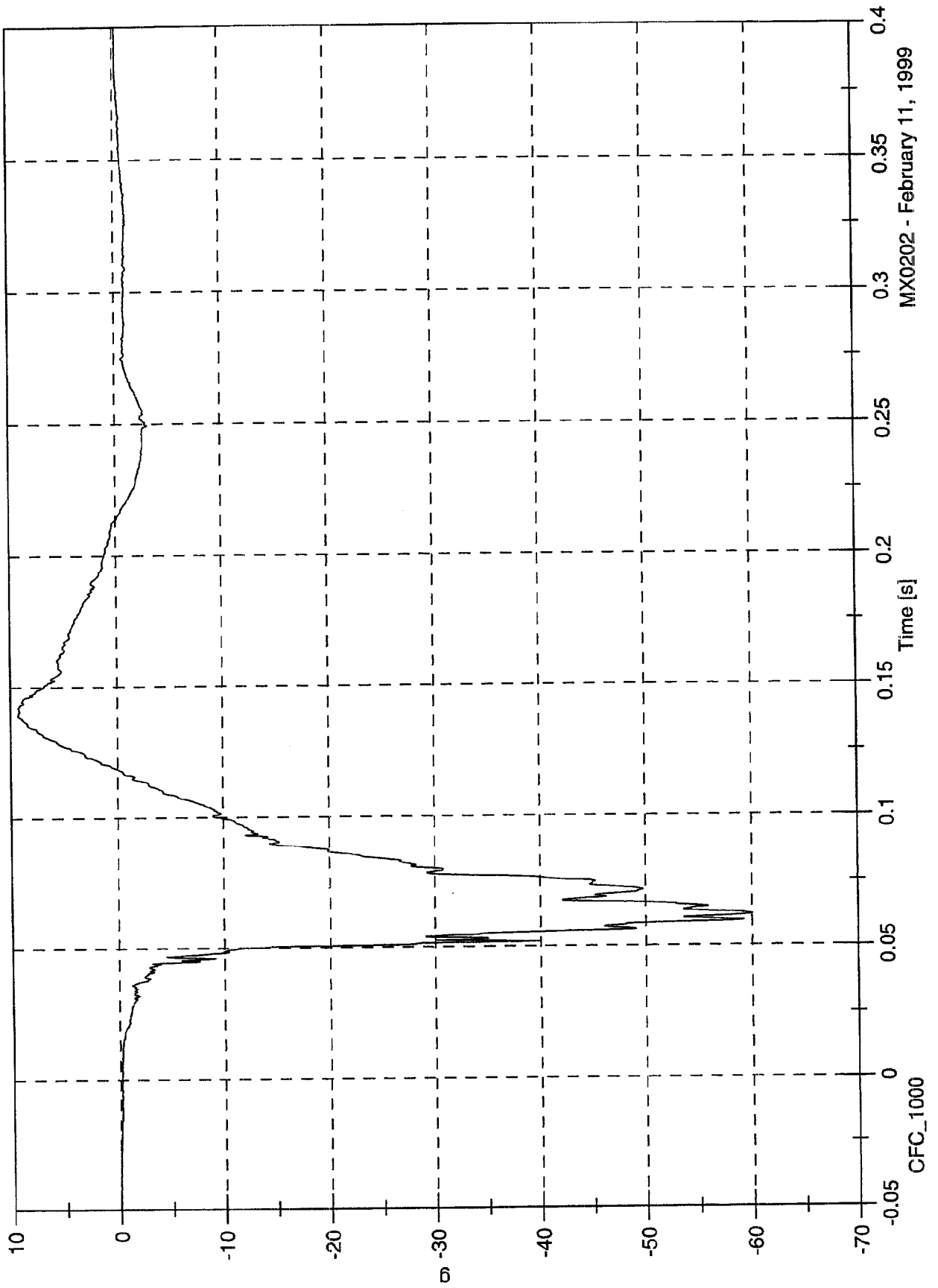


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 9.3 [g] at 0.139 [s]  
Min: -60.0 [g] at 0.062 [s]

Passenger Pelvic Ax



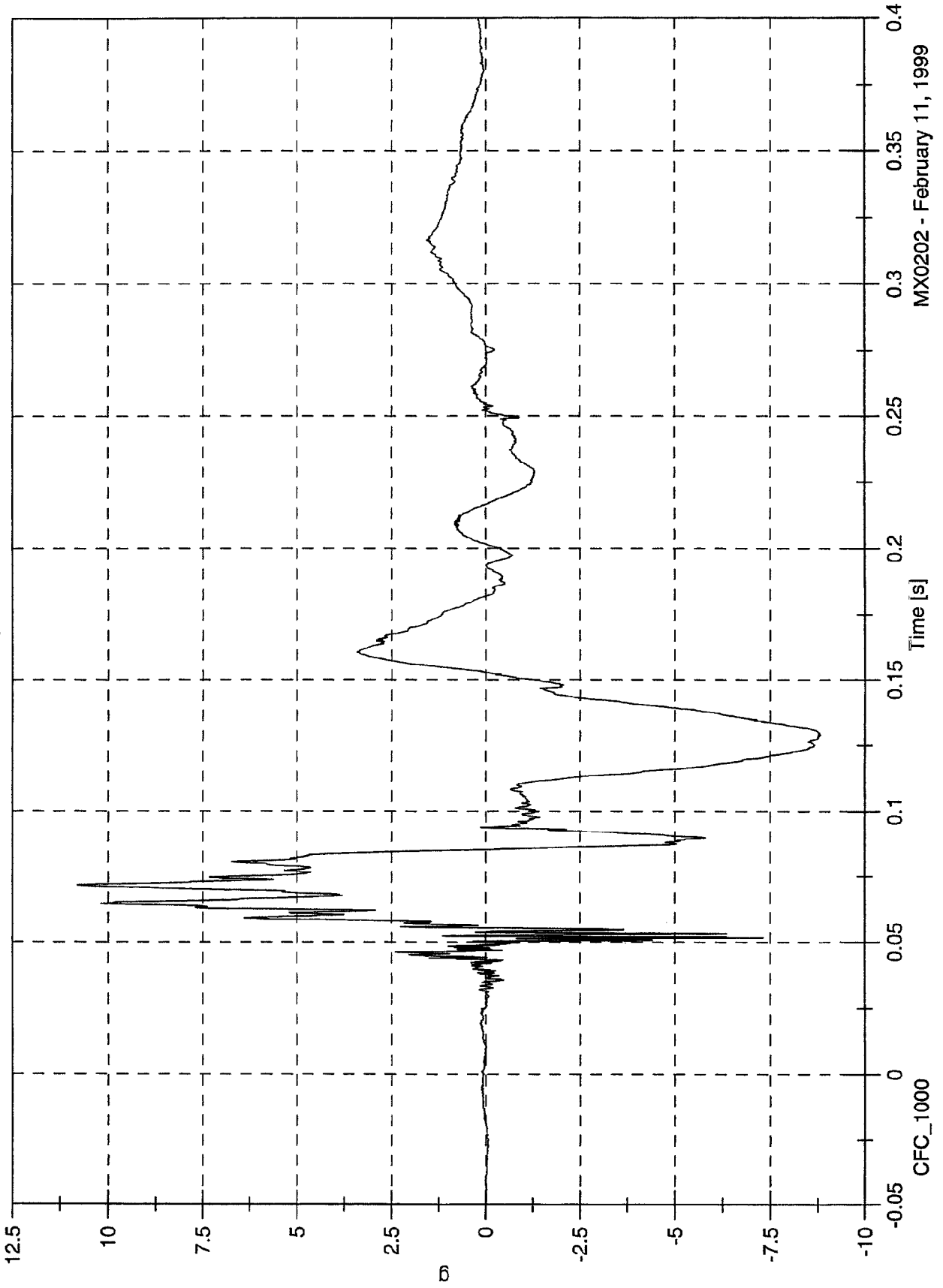
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 10.8 [g] at 0.072 [s]

Min: -8.8 [g] at 0.129 [s]

Passenger Pelvic Ay

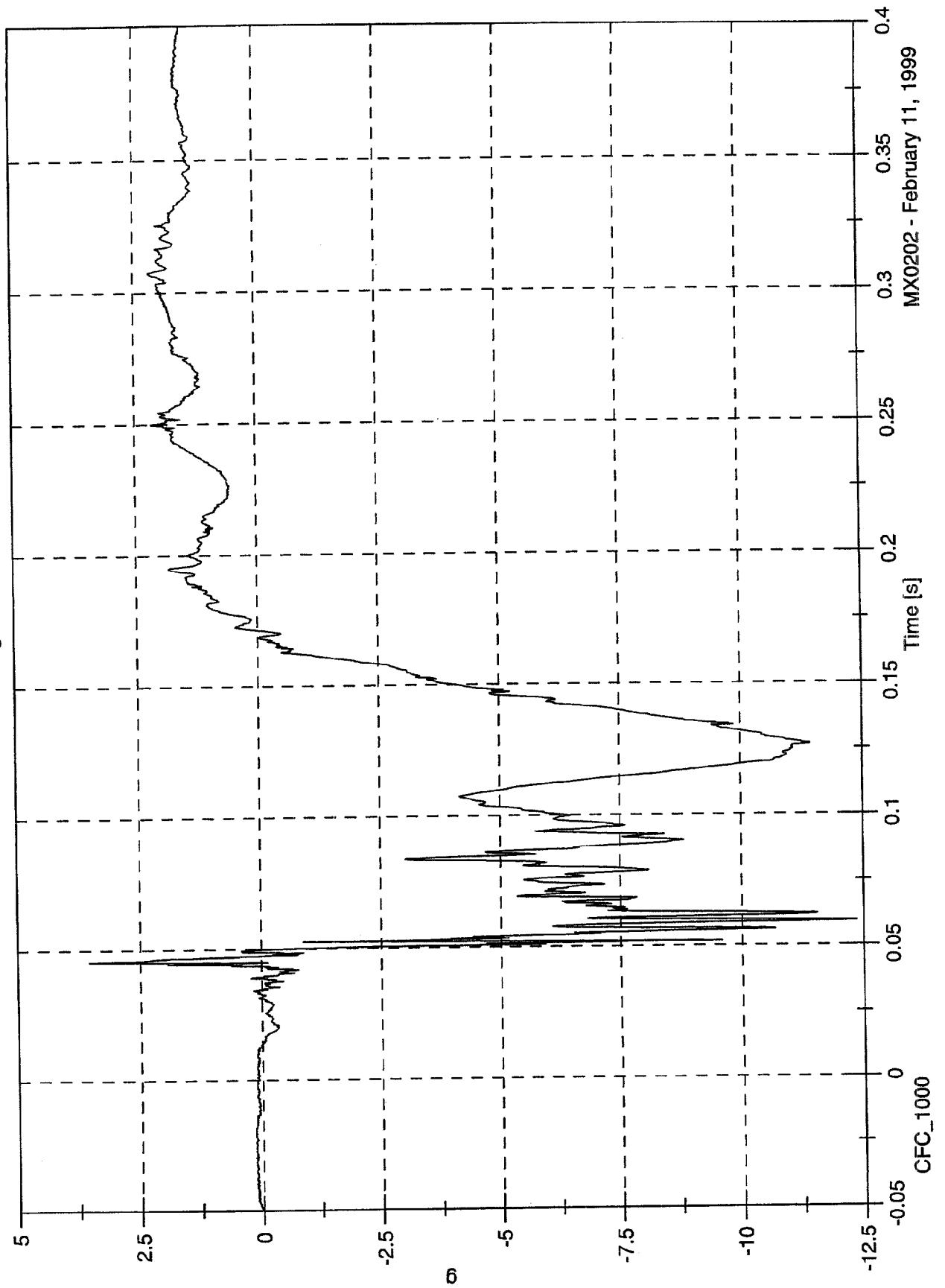


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 3.5 [g] at 0.046 [s]  
Min: -12.3 [g] at 0.060 [s]

Passenger Pelvic Az



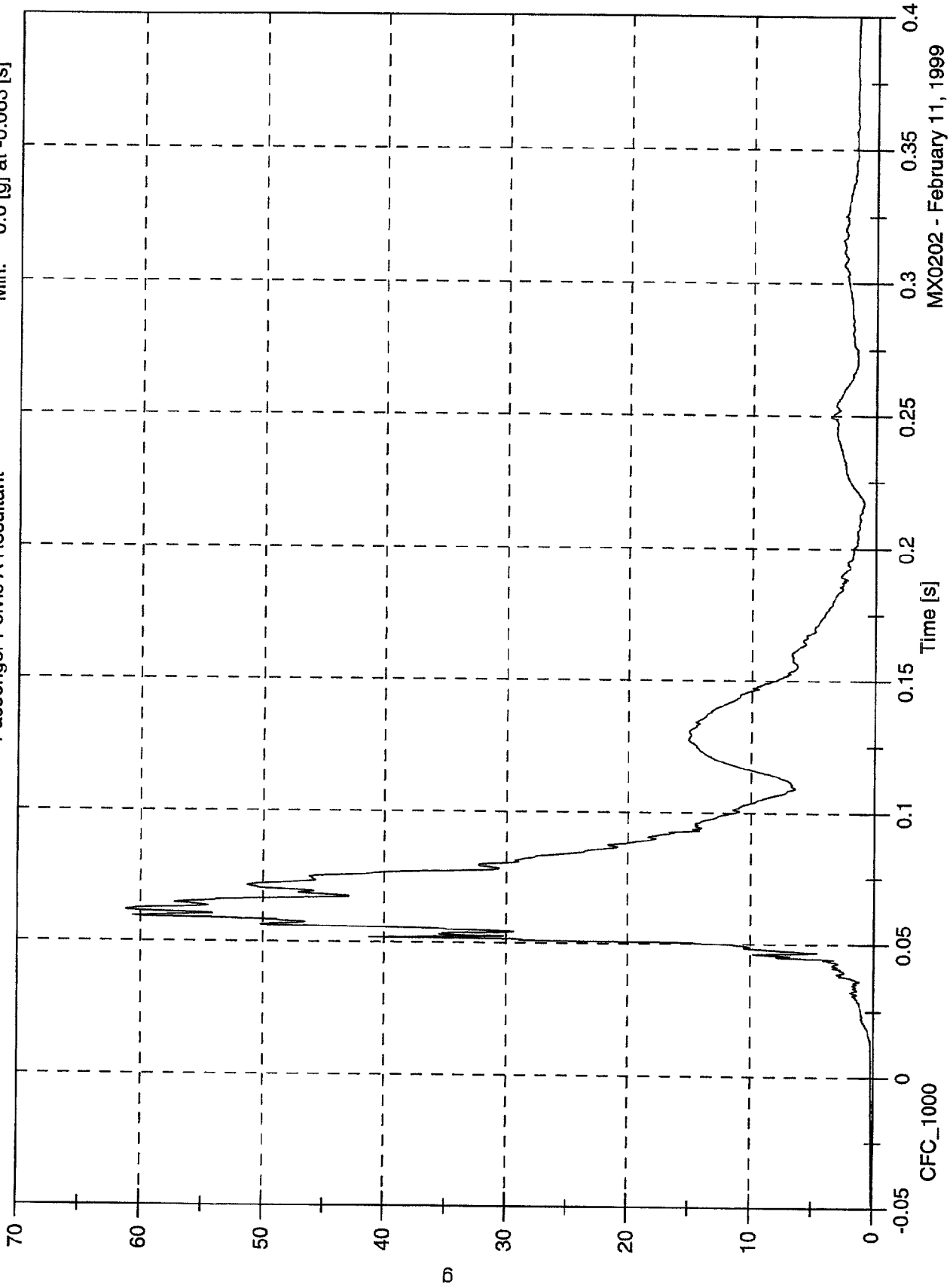
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Passenger Pelvic A Resultant

Max: 61.2 [g] at 0.062 [s]

Min: 0.0 [g] at -0.063 [s]

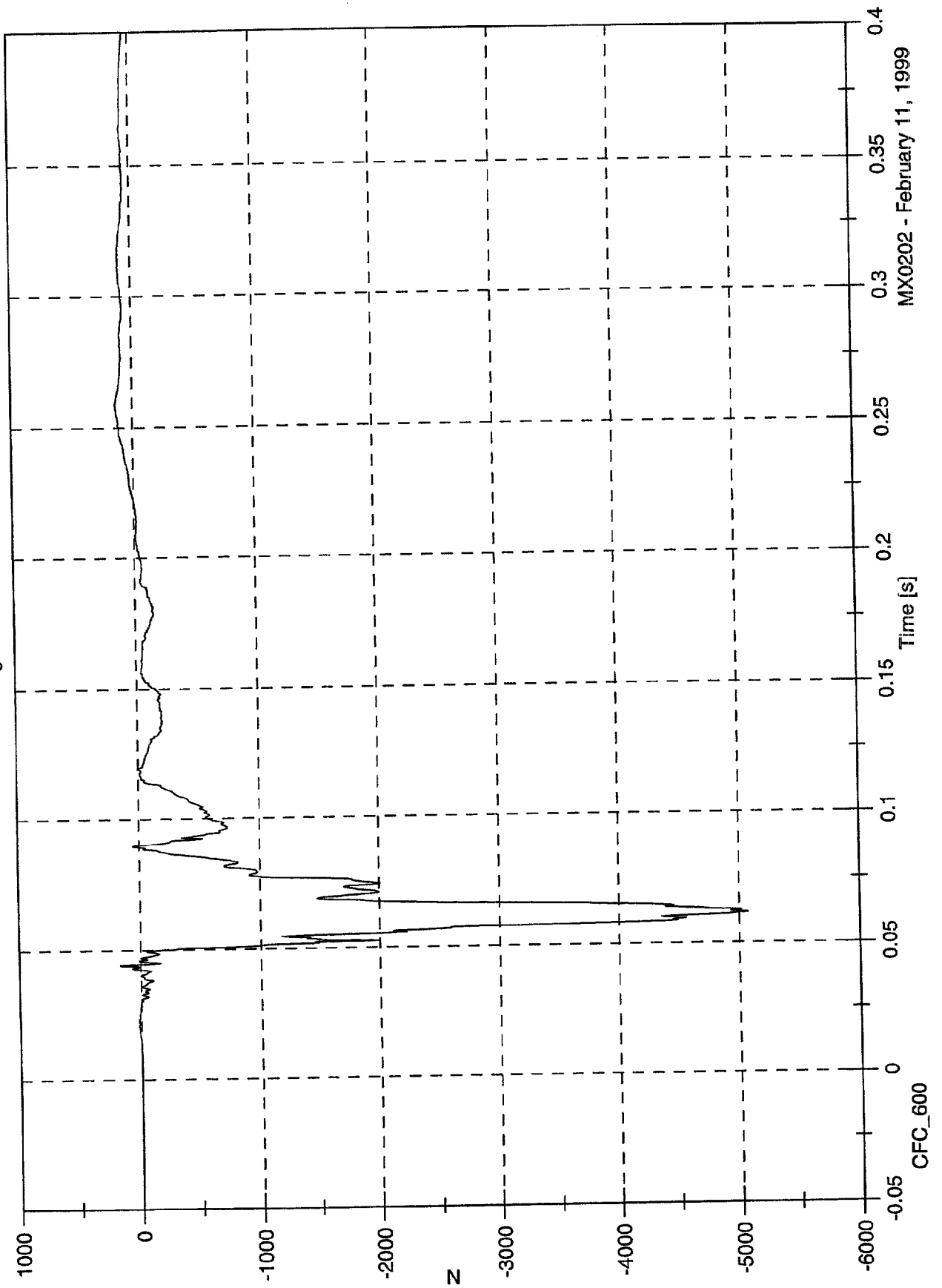


MX0202 - February 11, 1999

Max: 166.8 [N] at 0.044 [s]  
Min: -5074.4 [N] at 0.062 [s]

Passenger Left Femur Fz

NCAP #11 - 1999 Ford F150 Pickup

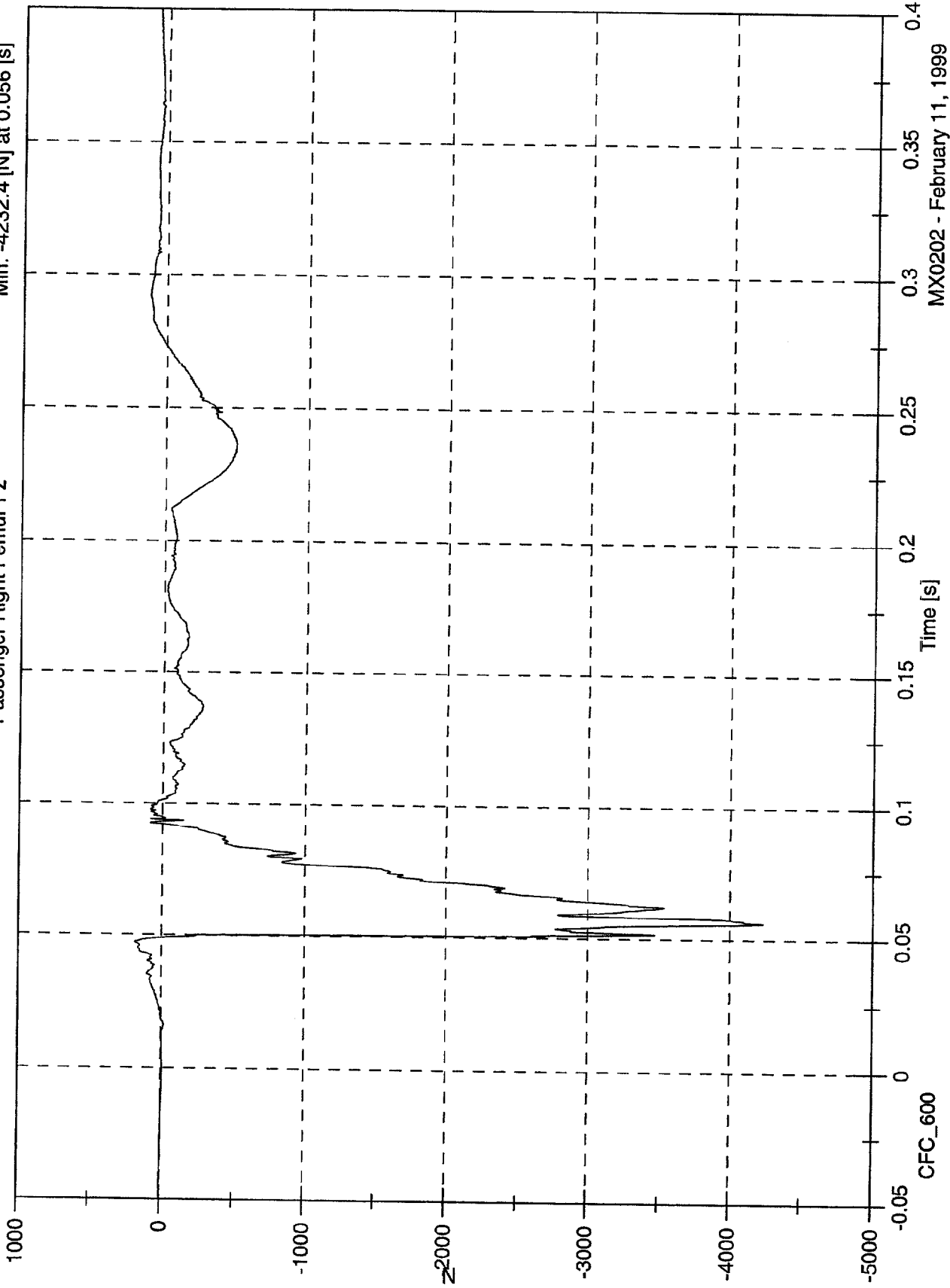


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 184.6 [N] at 0.047 [s]  
Min: -4232.4 [N] at 0.056 [s]

Passenger Right Femur Fz

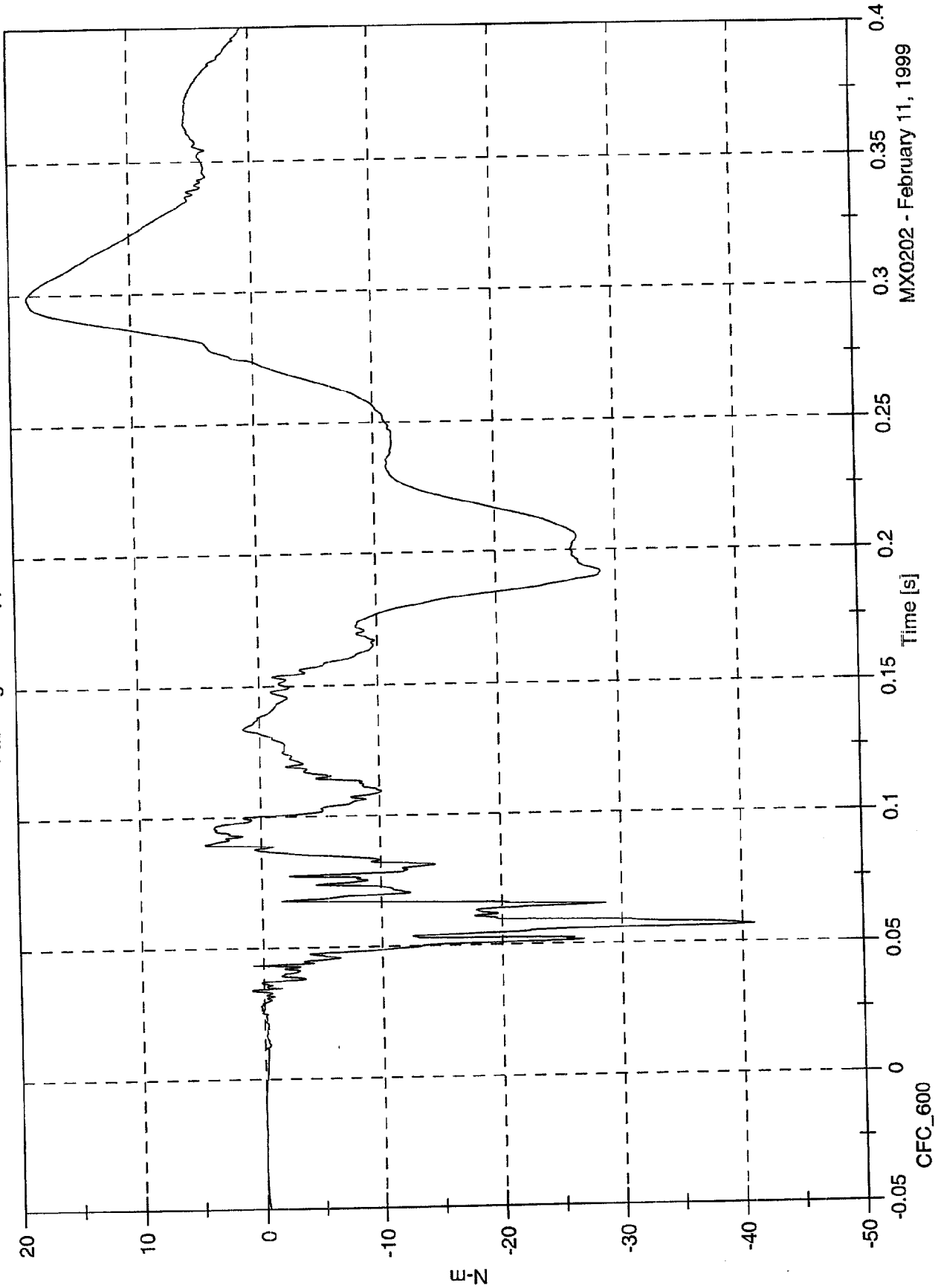


MX0202 - February 11, 1999

Max: 18.6 [N-m] at 0.298 [s]  
Min: -41.0 [N-m] at 0.057 [s]

NCAP #11 - 1999 Ford F150 Pickup

Passenger Left Upper Tibia Mx

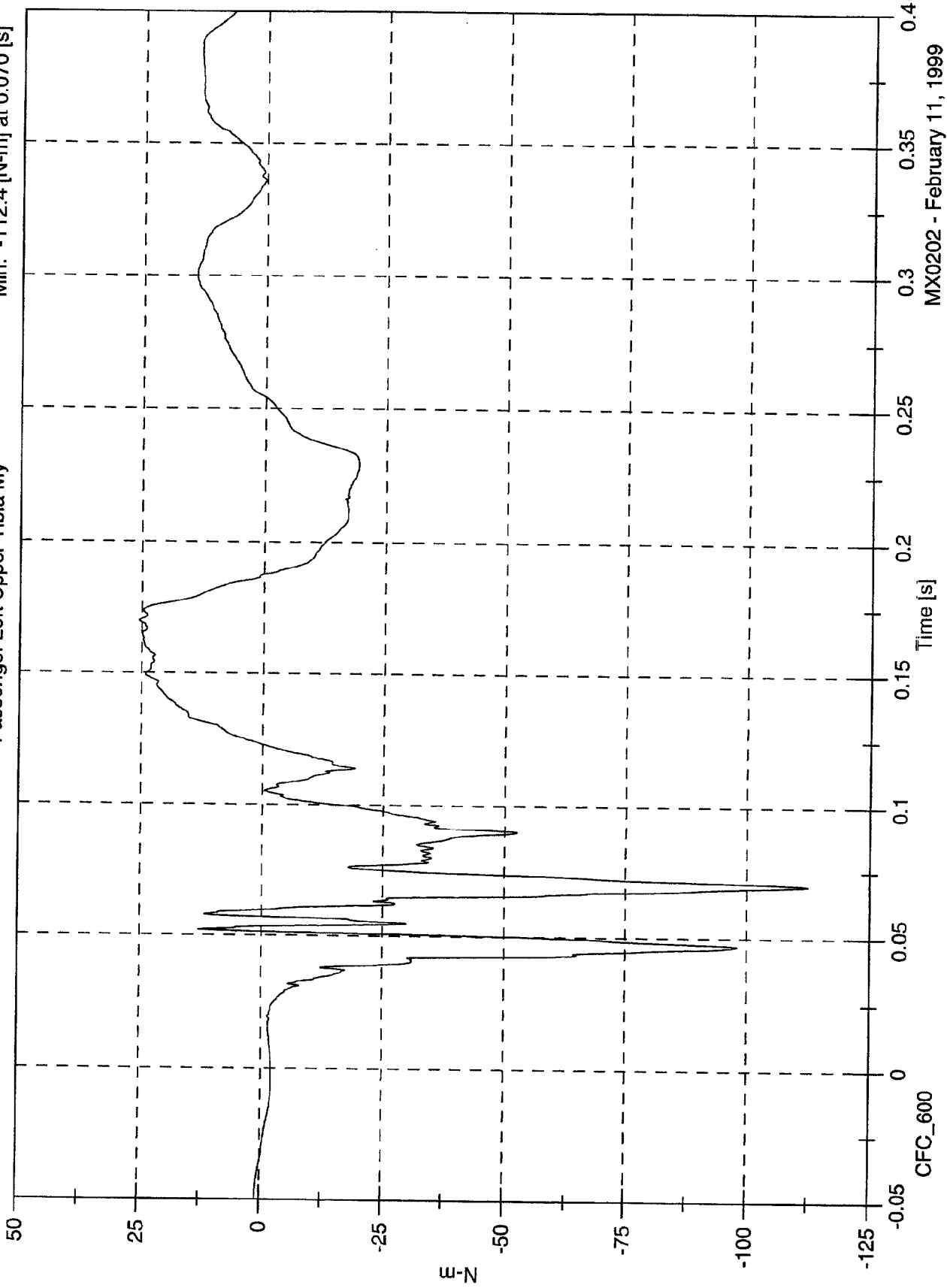


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Passenger Left Upper Tibia My

Max: 25.5 [N-m] at 0.170 [s]  
Min: -112.4 [N-m] at 0.070 [s]

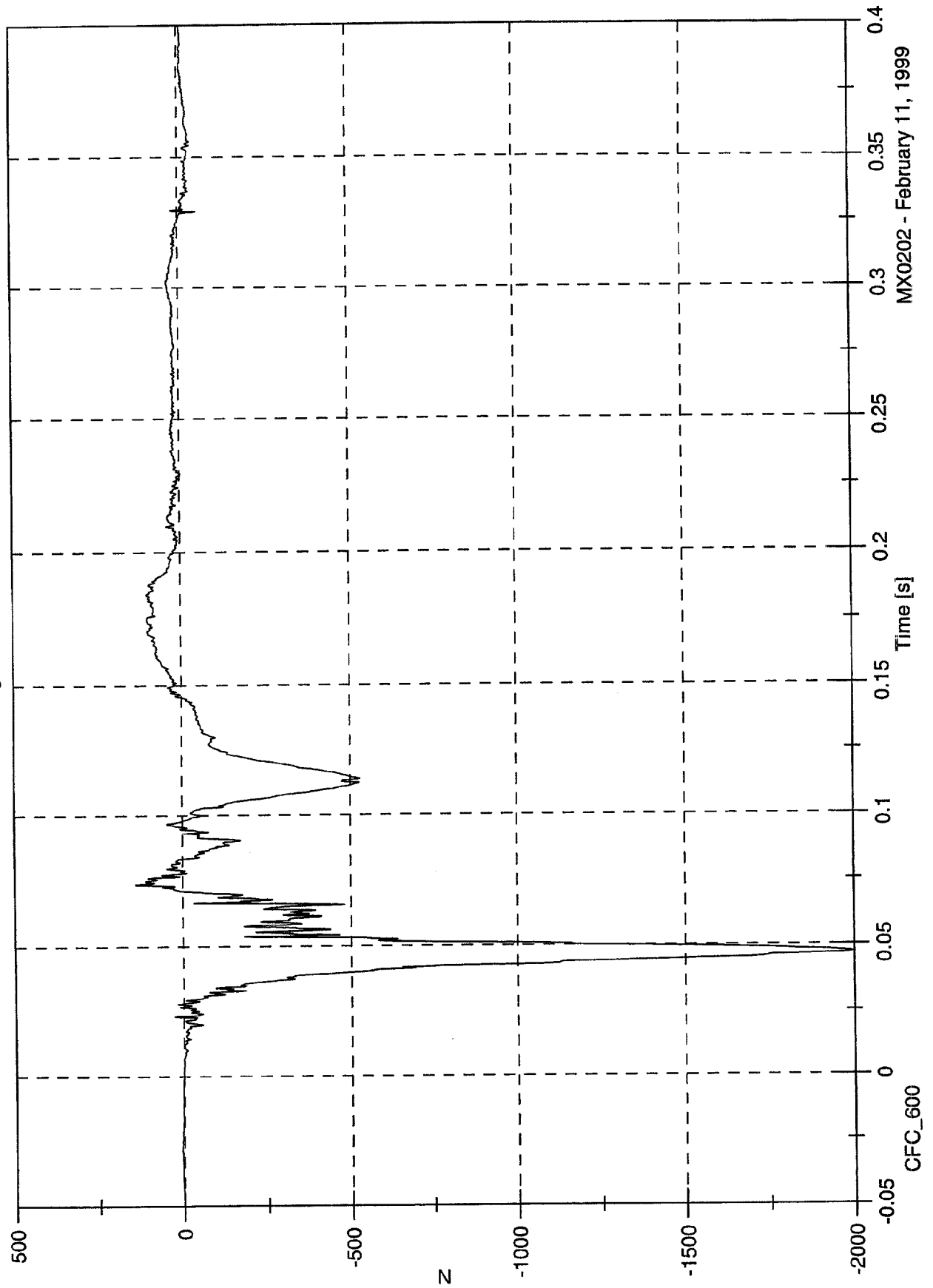


MX0202 - February 11, 1999

Max: 139.7 [N] at 0.074 [s]  
Min: -1995.1 [N] at 0.047 [s]

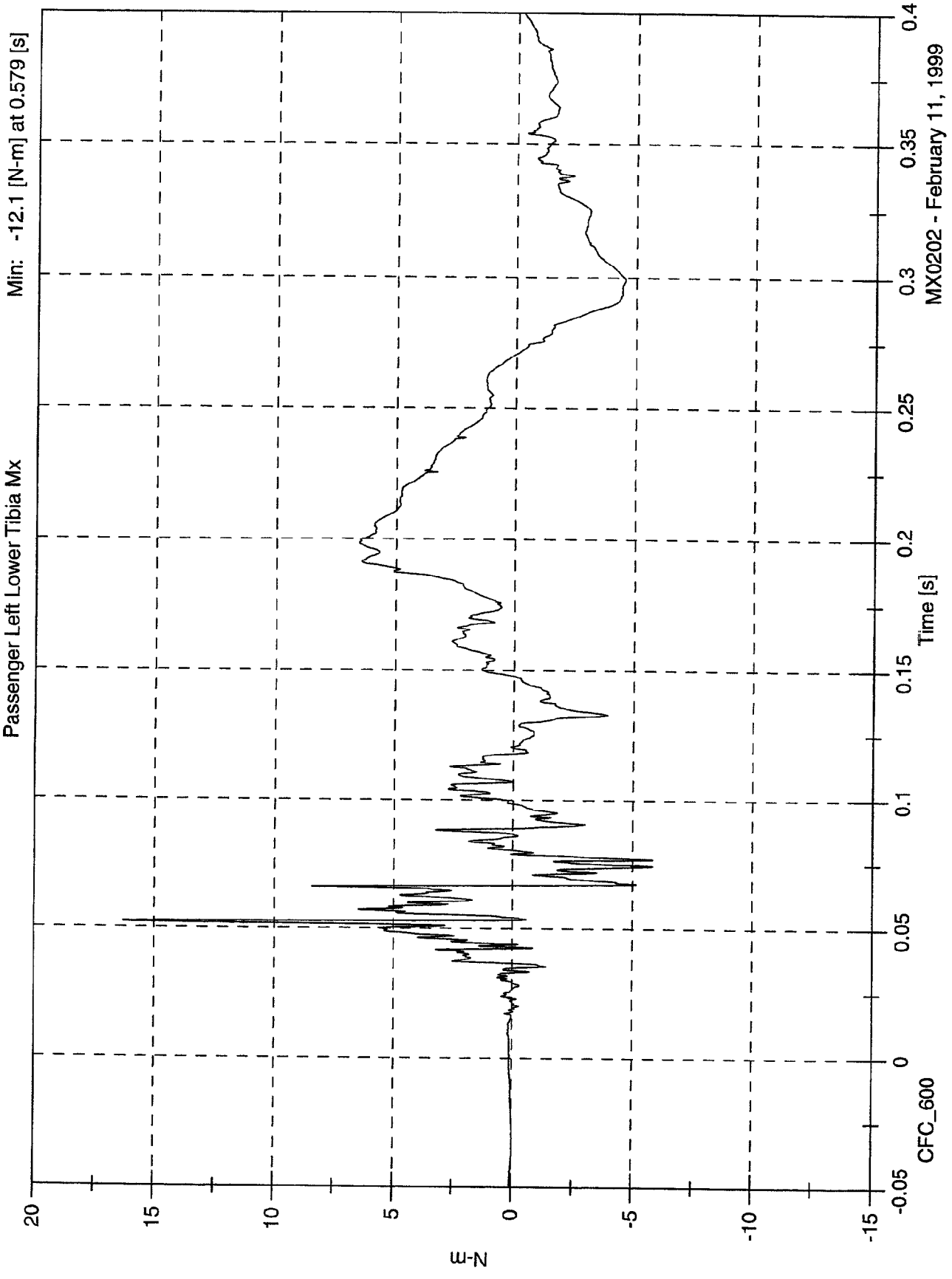
Passenger Left Lower Tibia Fz

NCAP #11 - 1999 Ford F150 Pickup



MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

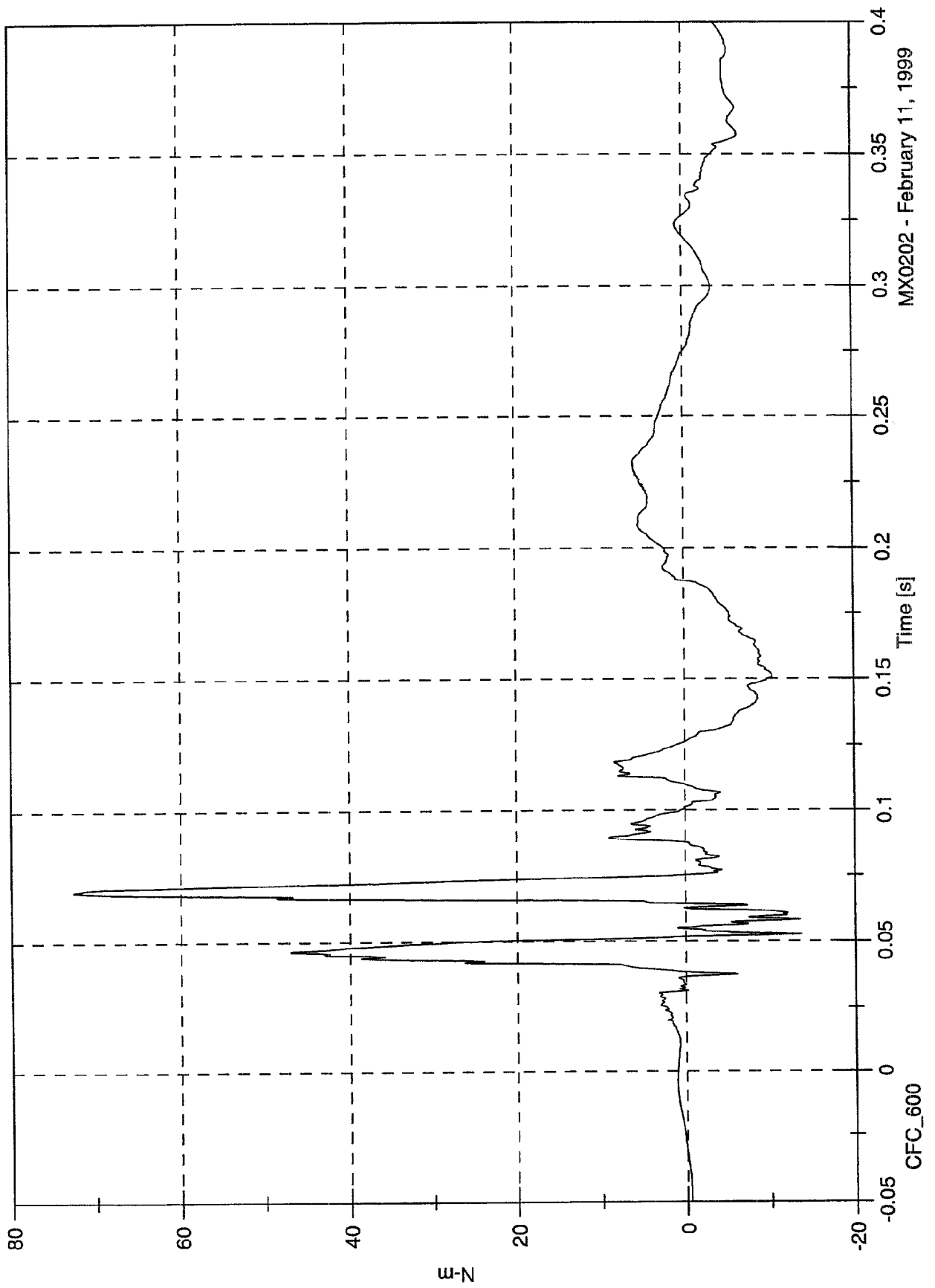


NCAP #11 - 1999 Ford F150 Pickup

Max: 72.7 [N-m] at 0.069 [s]

Min: -13.6 [N-m] at 0.053 [s]

Passenger Left Lower Tibia My



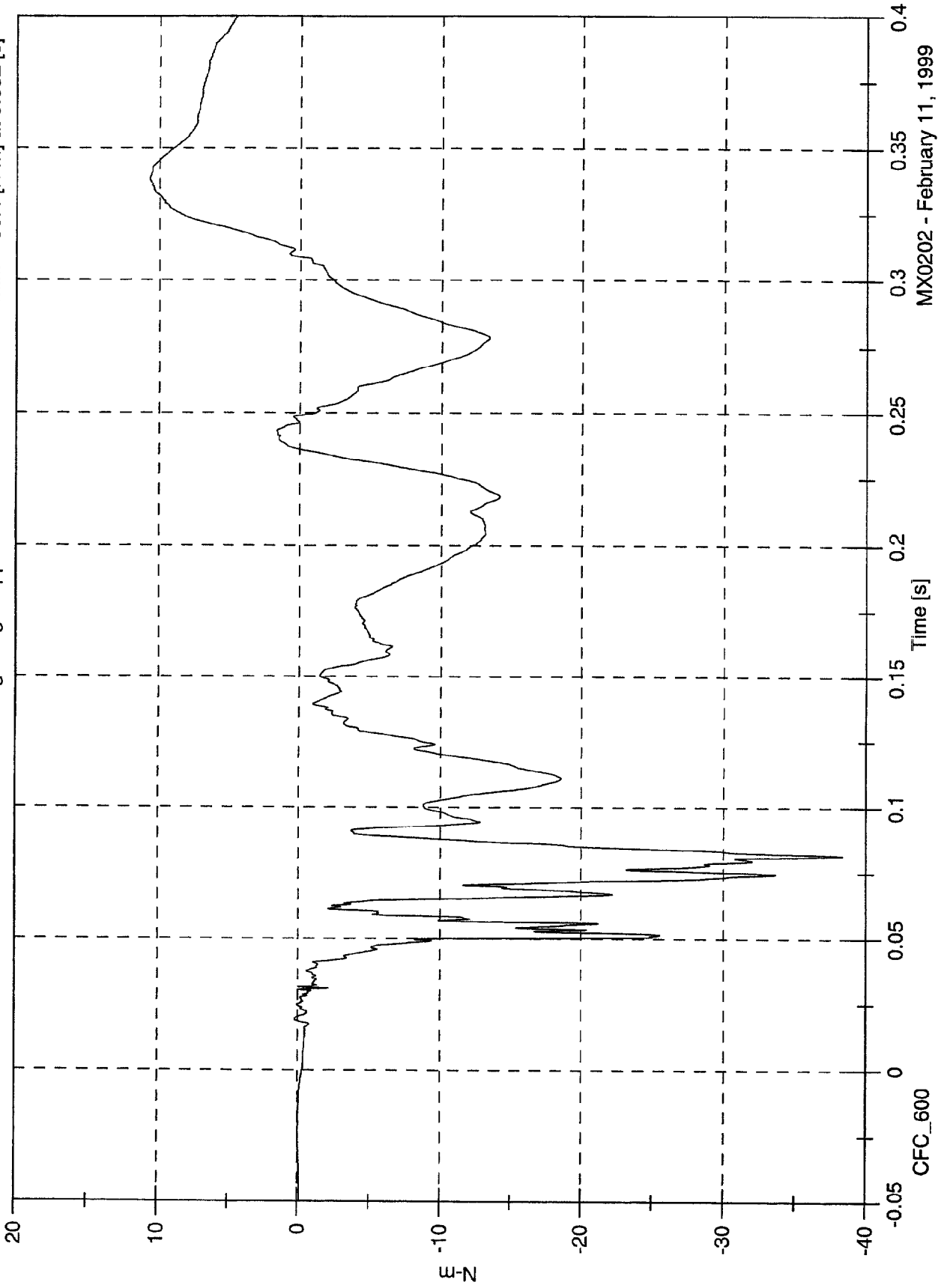
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 10.7 [N-m] at 0.339 [s]

Min: -38.4 [N-m] at 0.082 [s]

Passenger Right Upper Tibia Mx

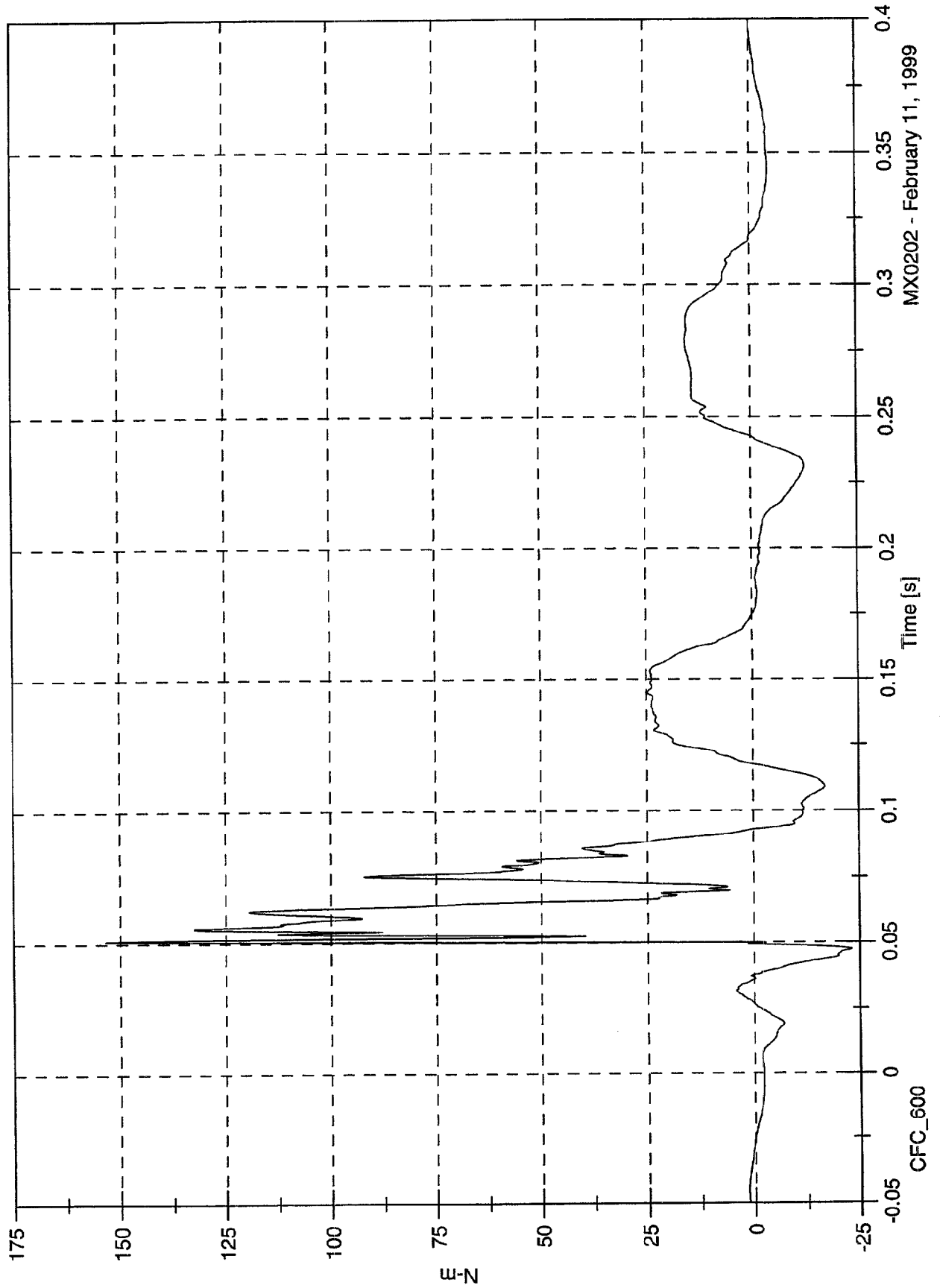


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 153.4 [N-m] at 0.051 [s]  
Min: -22.9 [N-m] at 0.047 [s]

Passenger Right Upper Tibia My



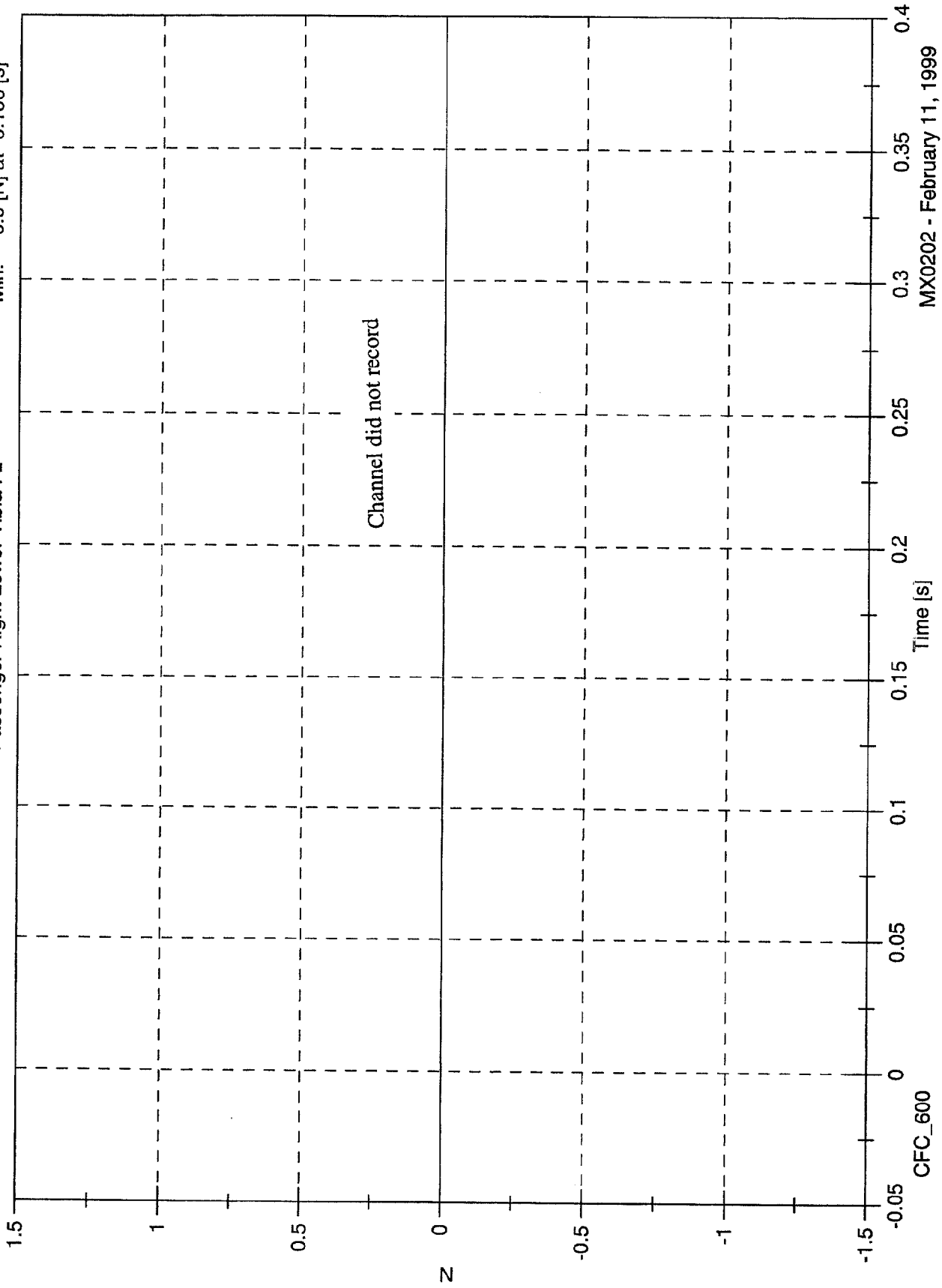
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 0.0 [N] at -0.100 [s]

Min: 0.0 [N] at -0.100 [s]

Passenger Right Lower Tibia Fz



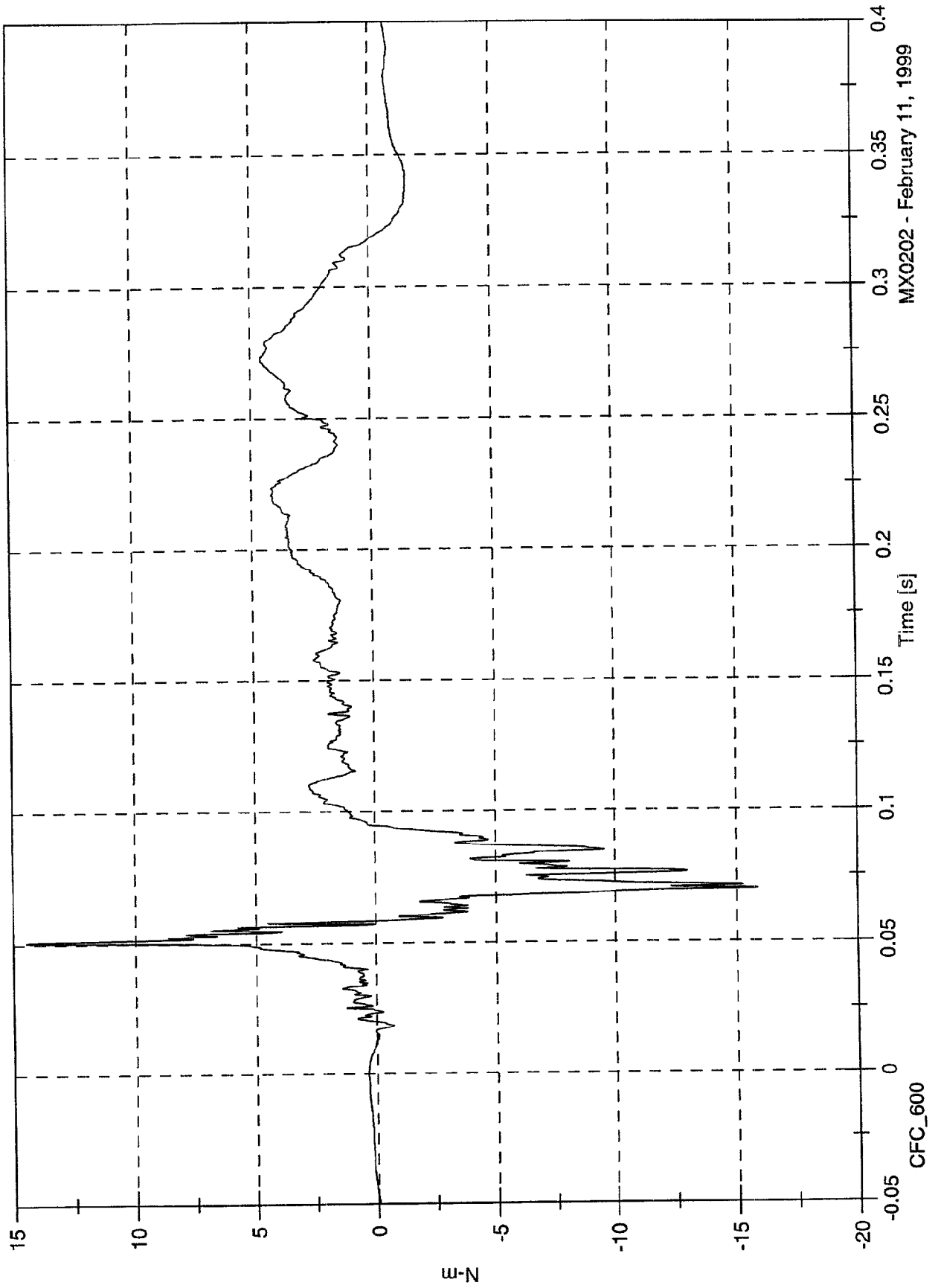
MX0202 - February 11, 1999

Max: 14.5 [N-m] at 0.051 [s]

Min: -15.9 [N-m] at 0.070 [s]

Passenger Right Lower Tibia Mx

NCAP #11 - 1999 Ford F150 Pickup



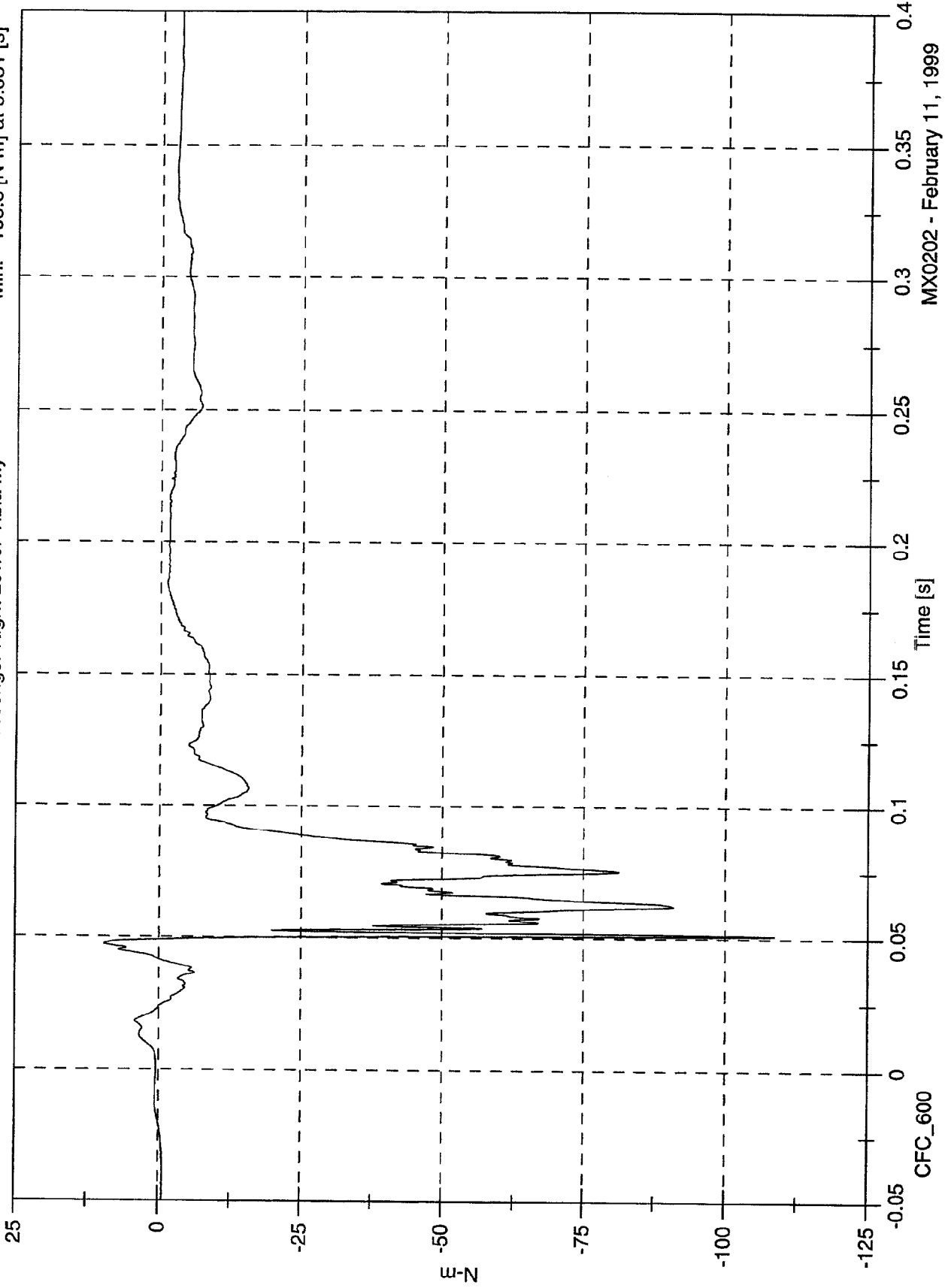
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Passenger Right Lower Tibia My

Max: 9.5 [N-m] at 0.047 [s]

Min: -108.6 [N-m] at 0.051 [s]

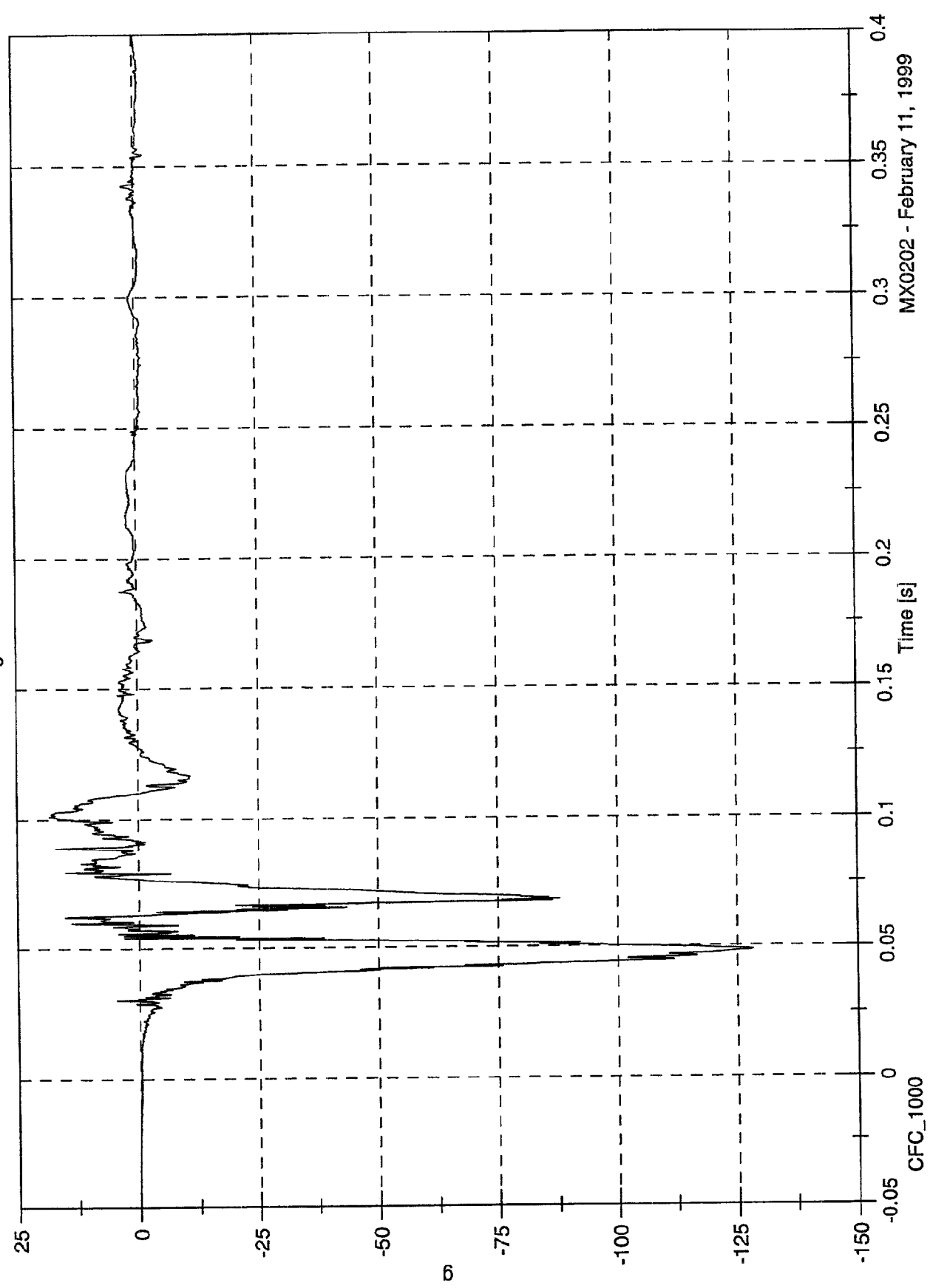


MX0202 - February 11, 1999

Max: 18.2 [g] at 0.101 [s]  
Min: -128.3 [g] at 0.048 [s]

Passenger Left Ankle Ax

NCAP #11 - 1999 Ford F150 Pickup



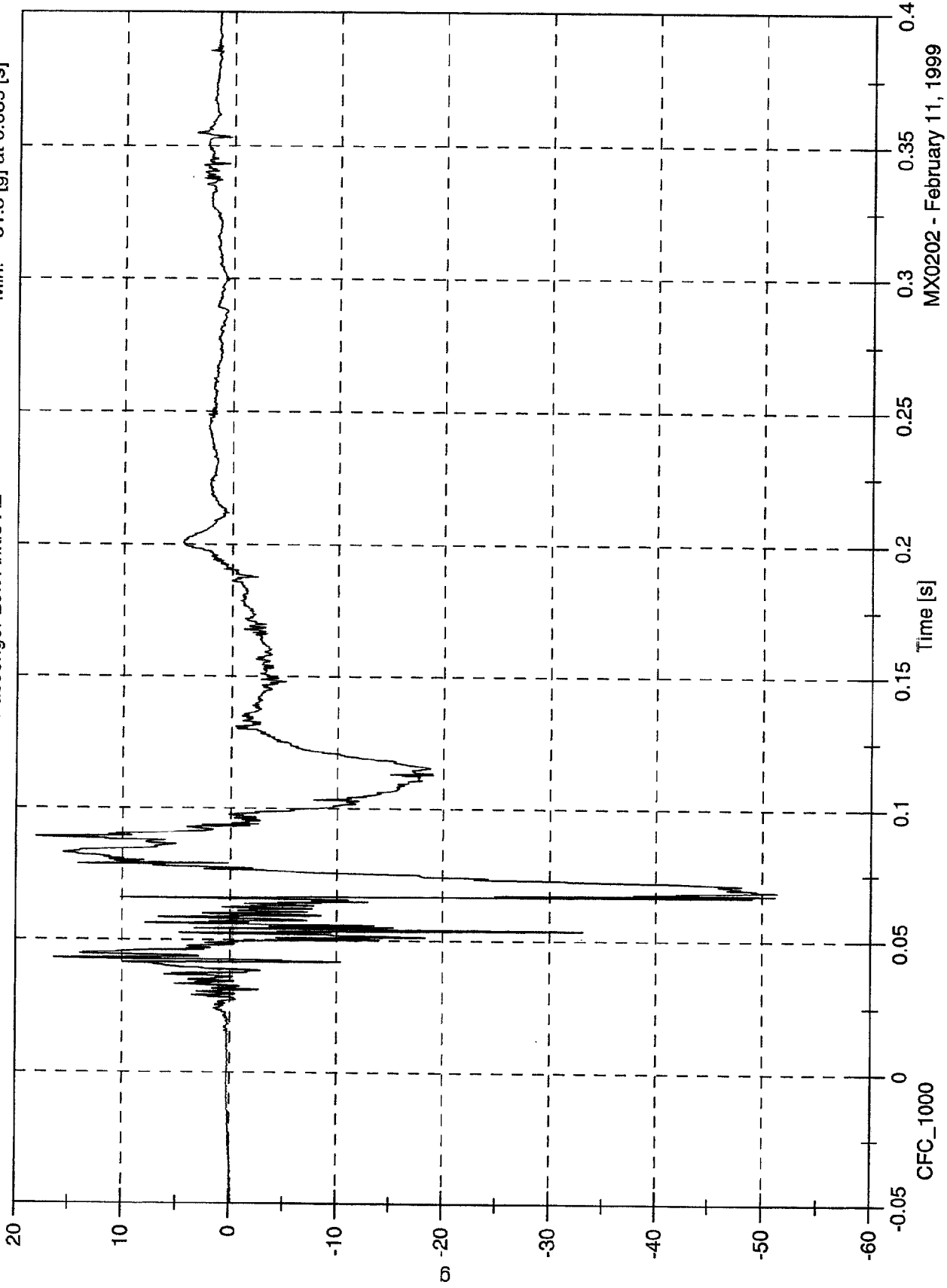
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 18.1 [g] at 0.089 [s]

Min: -51.3 [g] at 0.069 [s]

Passenger Left Ankle Az

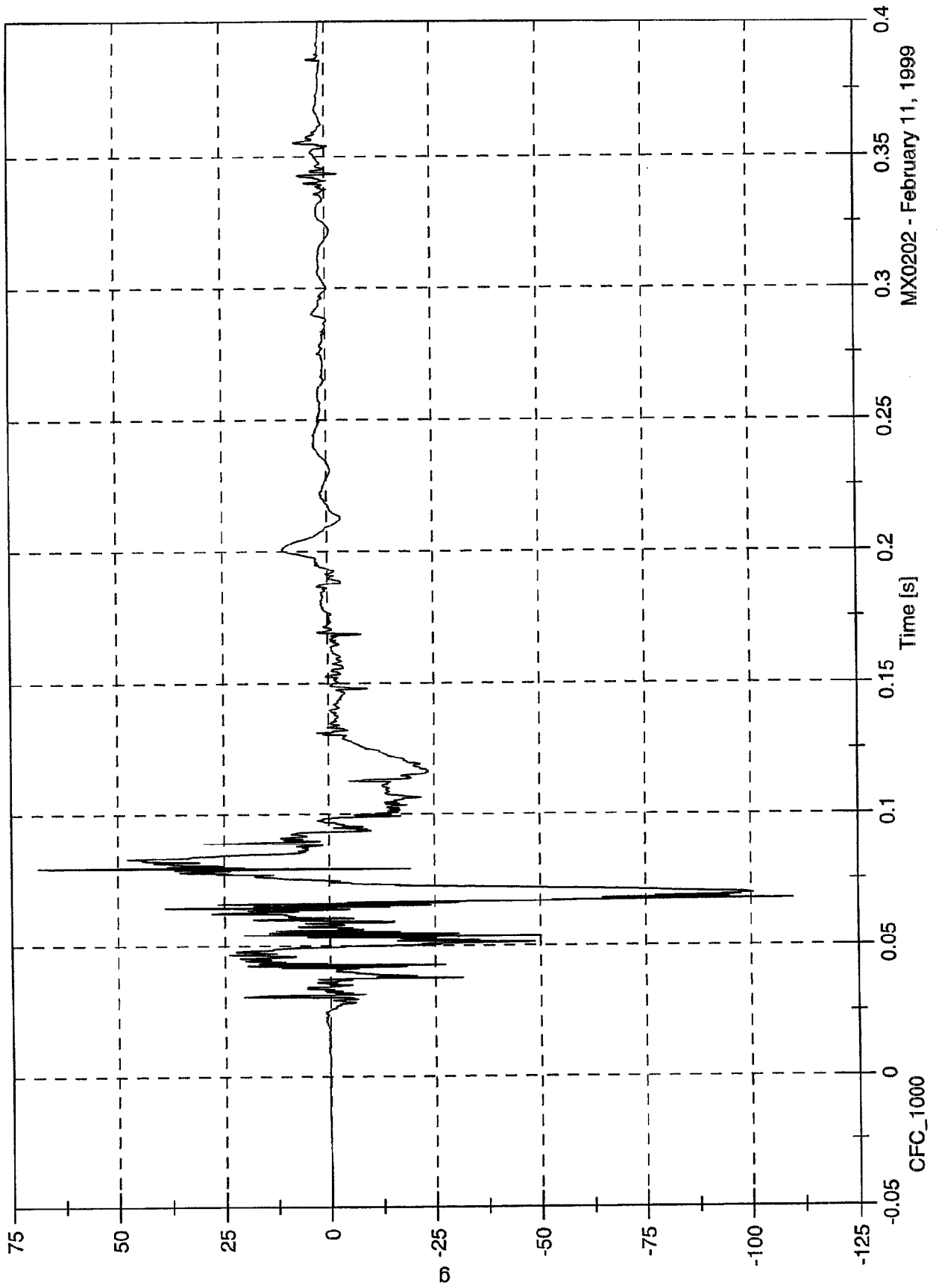


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 68.7 [g] at 0.079 [s]  
Min: -109.8 [g] at 0.068 [s]

Passenger Left Toe Az

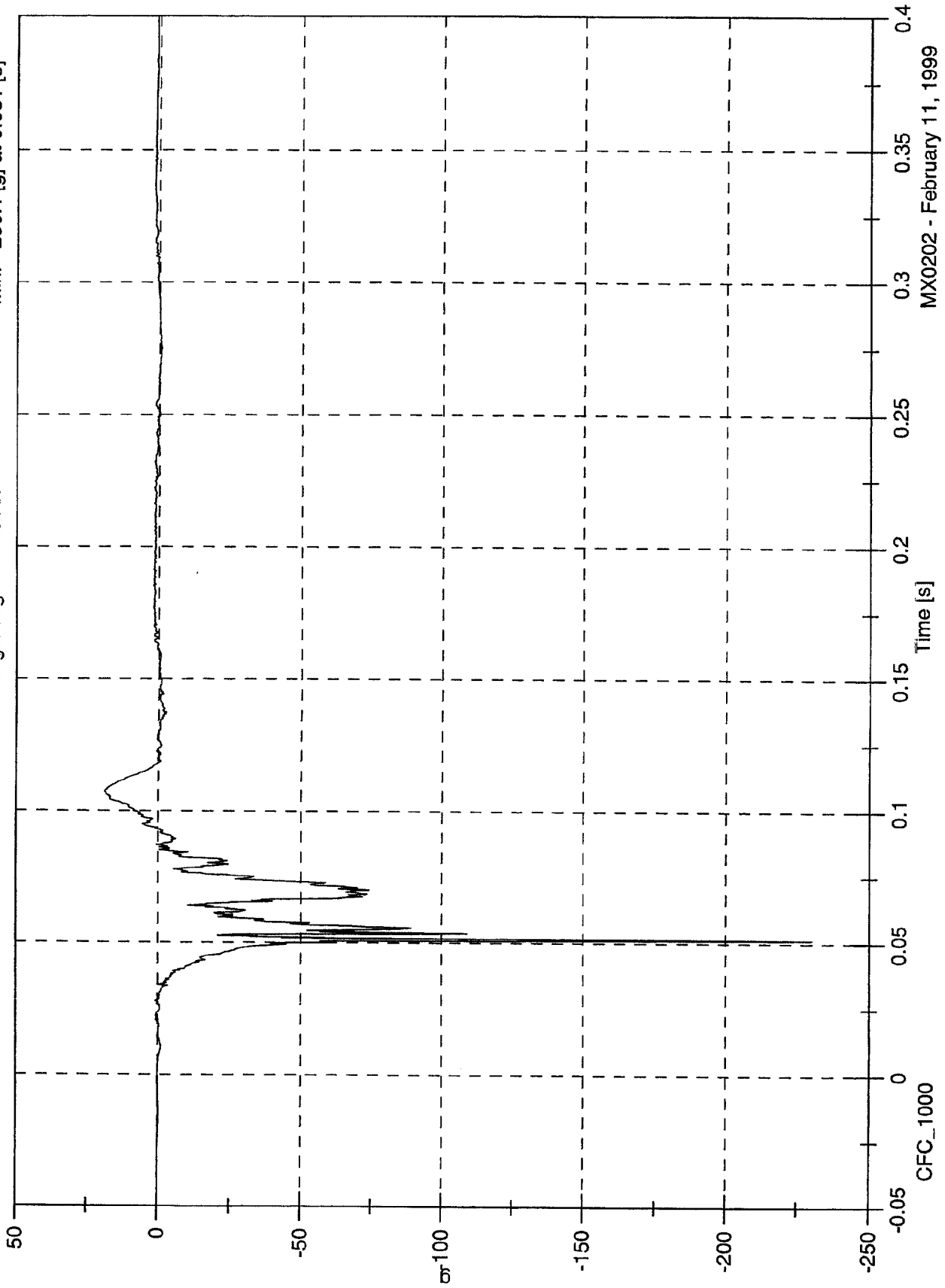


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 18.8 [g] at 0.107 [s]  
Min: -230.1 [g] at 0.051 [s]

Passenger Right Ankle Ax



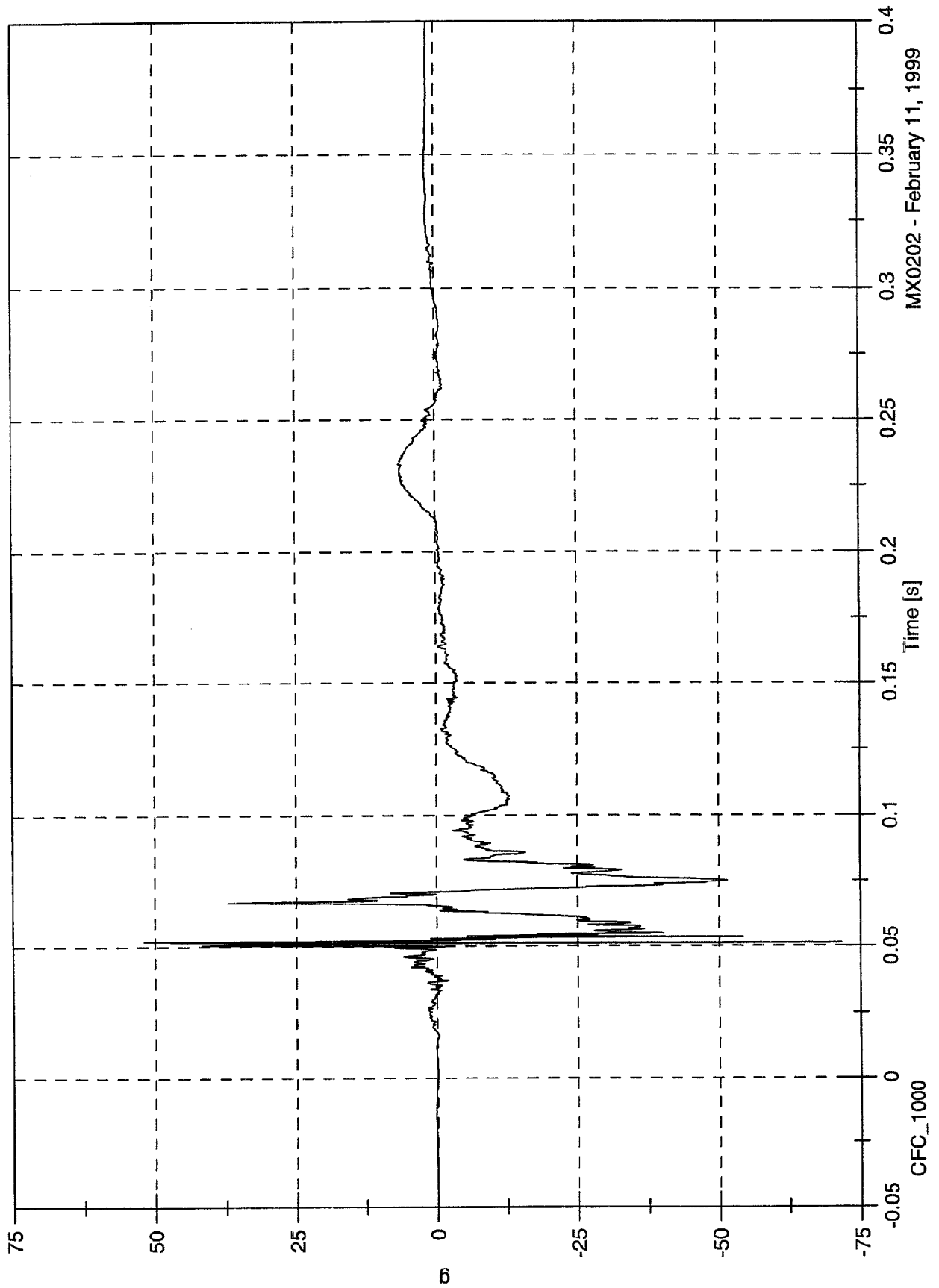
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 52.0 [g] at 0.052 [s]

Min: -71.7 [g] at 0.051 [s]

Passenger Right Ankle Az



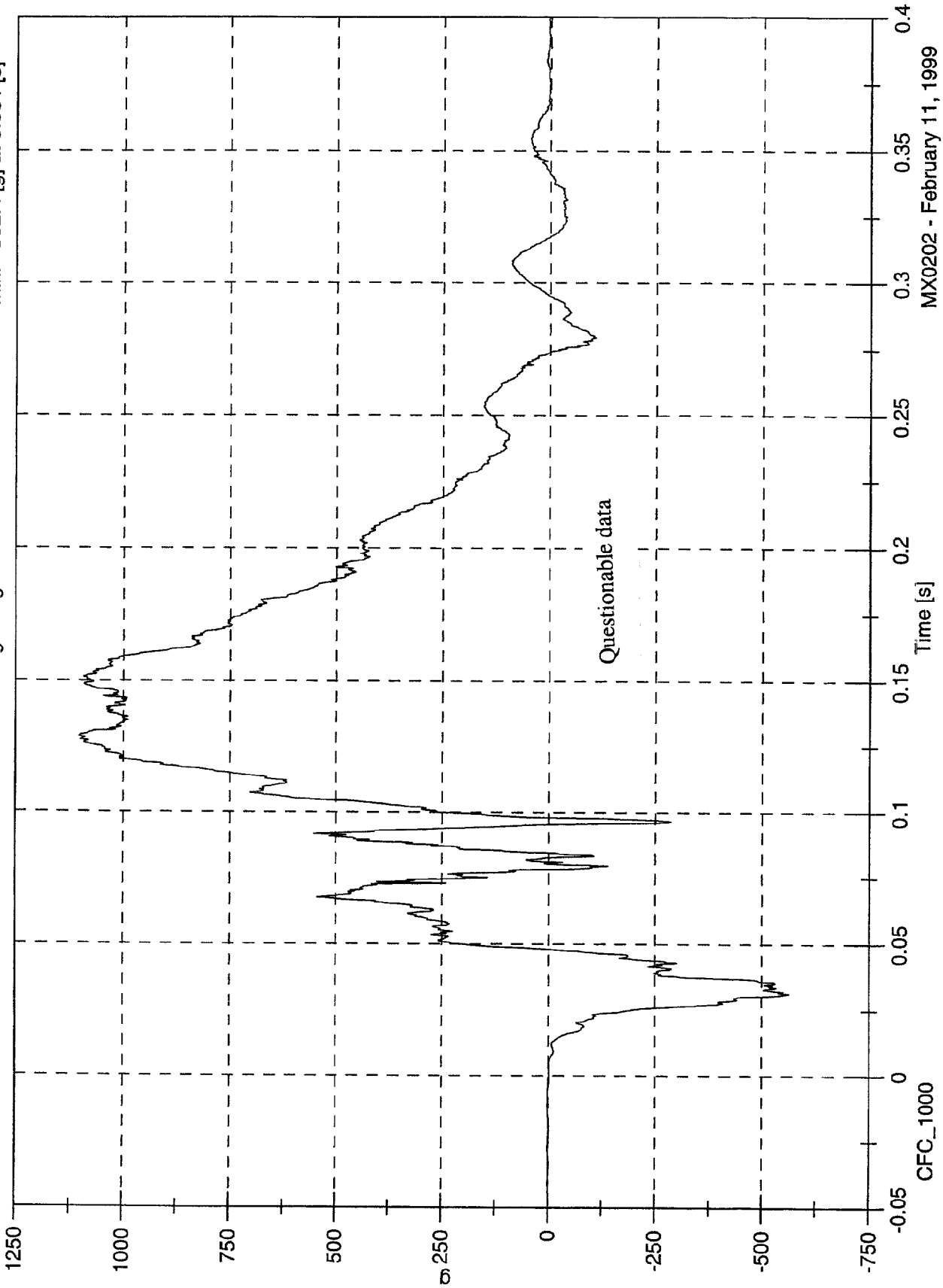
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 1104.8 [g] at 0.129 [s]

Min: -562.4 [g] at 0.031 [s]

Passenger Right Toe Az

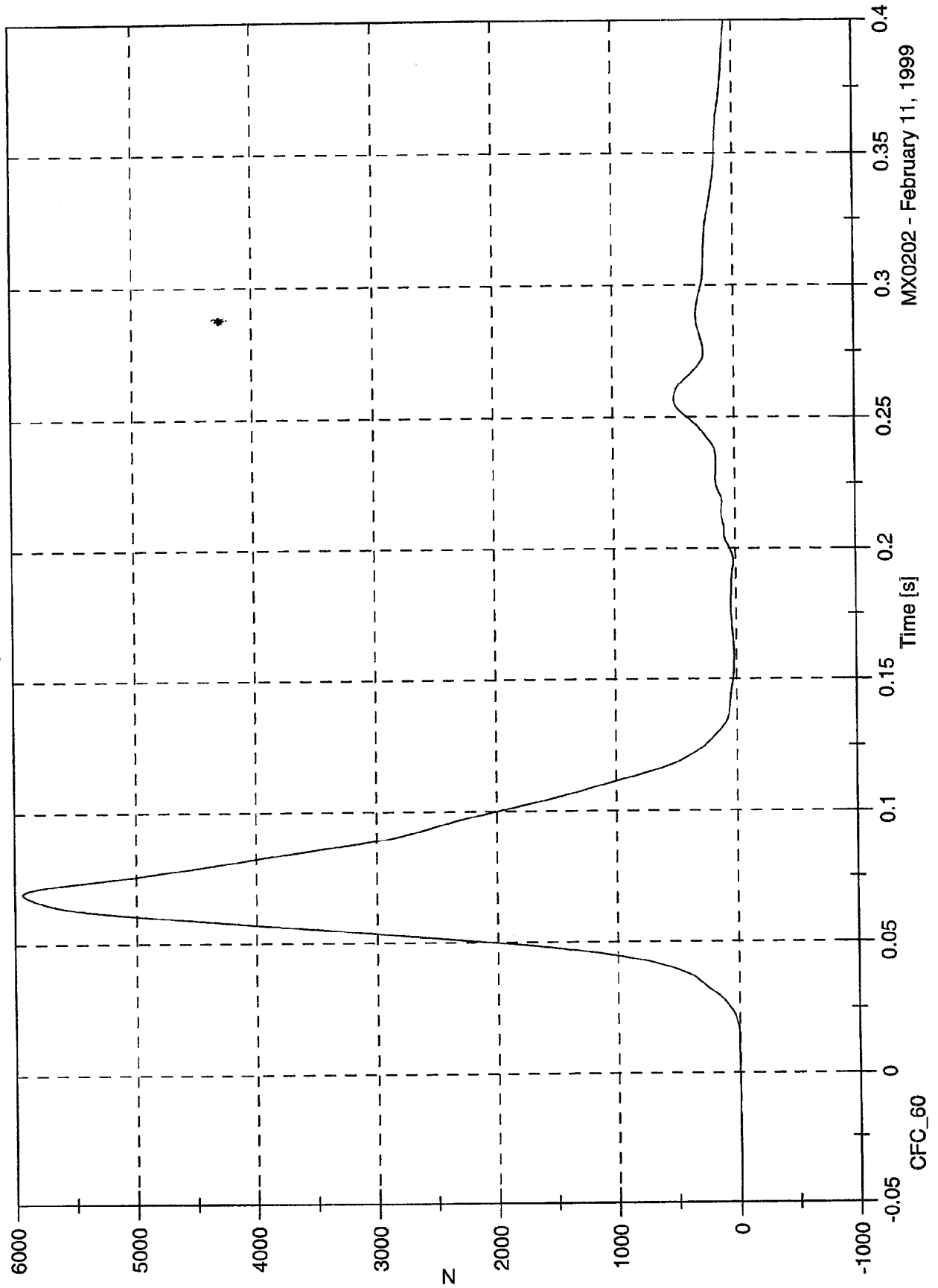


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Passenger Lap Belt Load

Max: 5934.5 [N] at 0.069 [s]  
Min: -2.9 [N] at -0.066 [s]

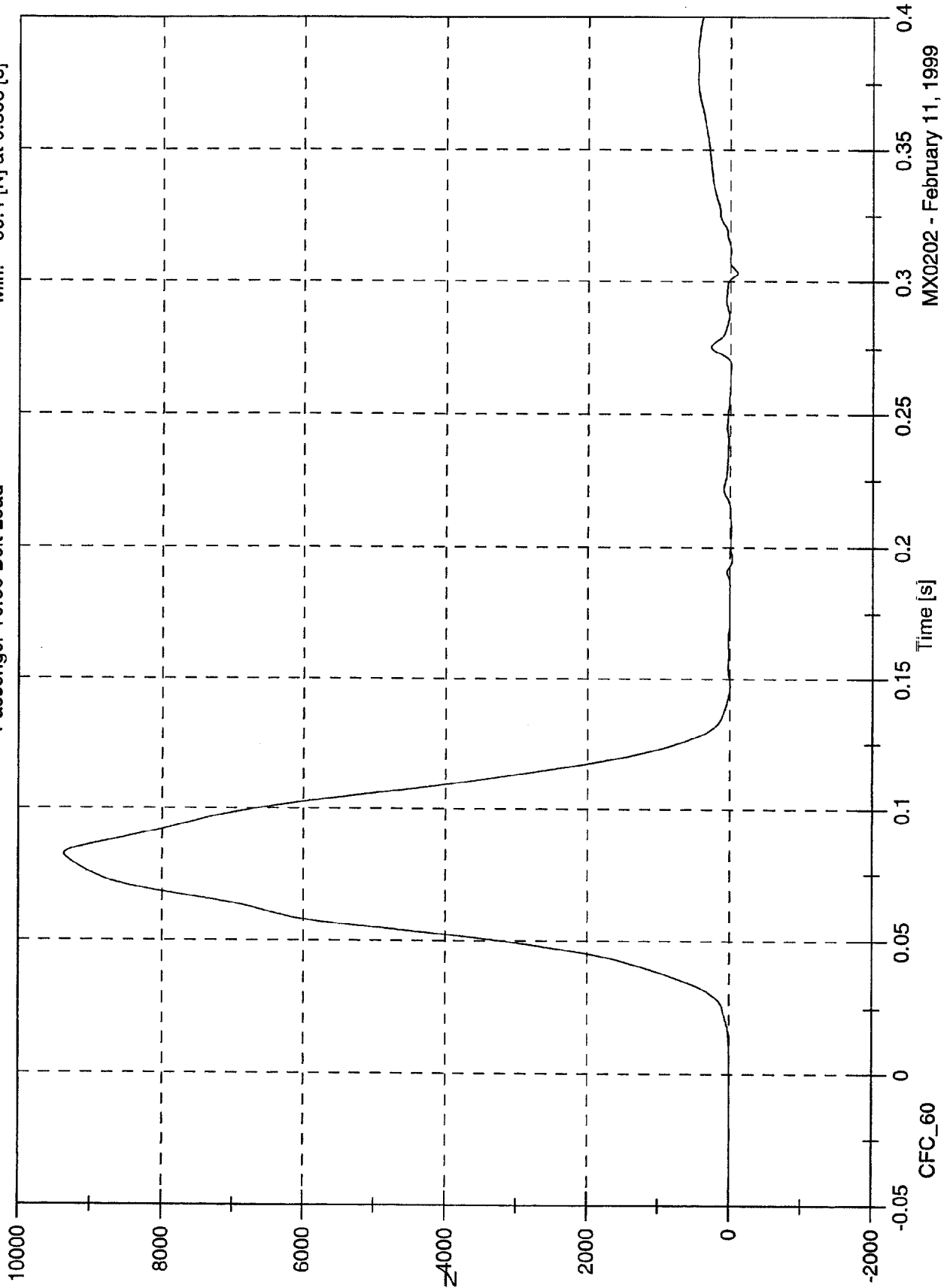


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 9364.1 [N] at 0.082 [s]  
Min: -99.4 [N] at 0.303 [s]

Passenger Torso Belt Load



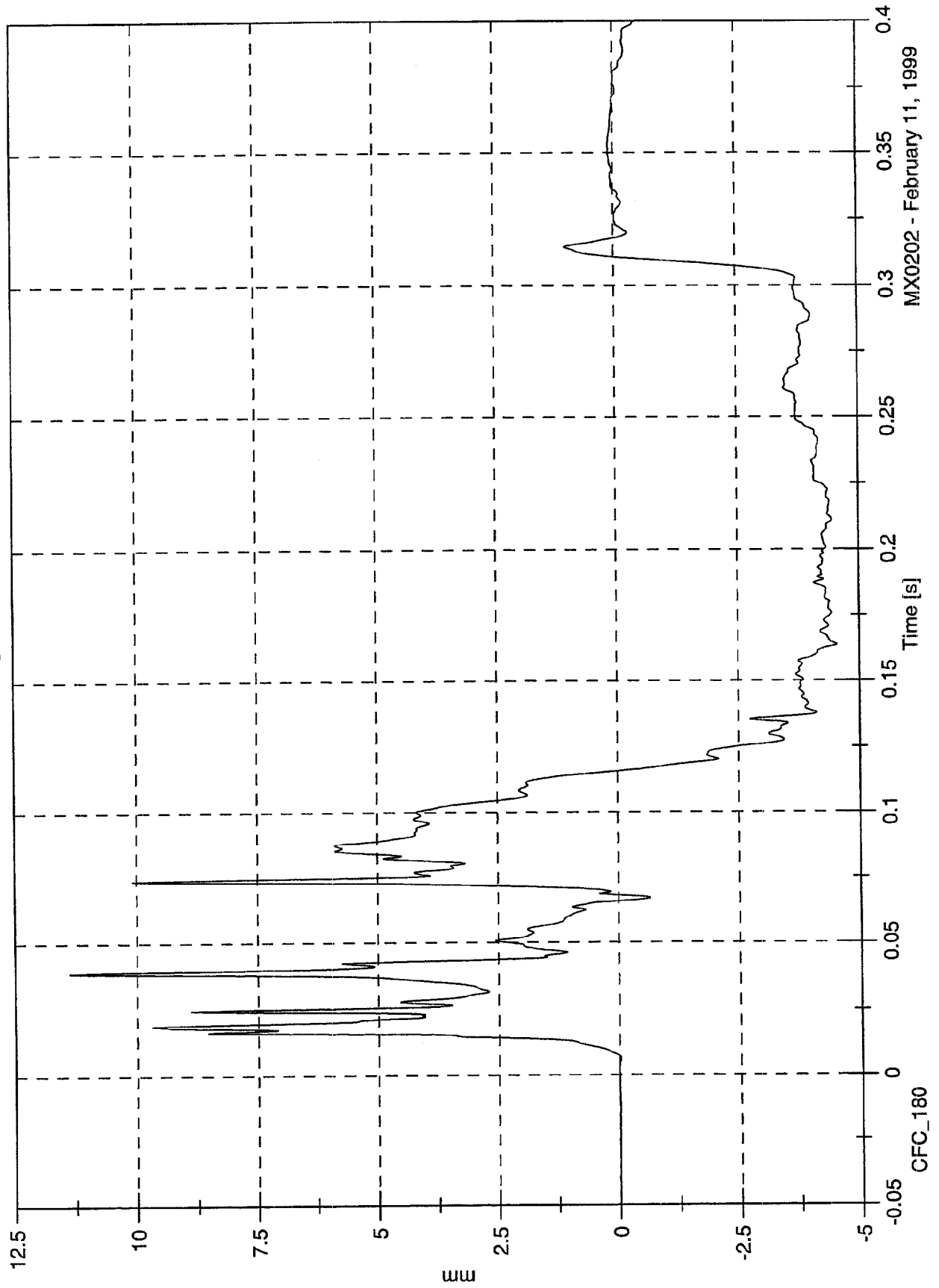
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 11.4 [mm] at 0.039 [s]

Min: -4.7 [mm] at 0.600 [s]

Passenger Belt Spoolout



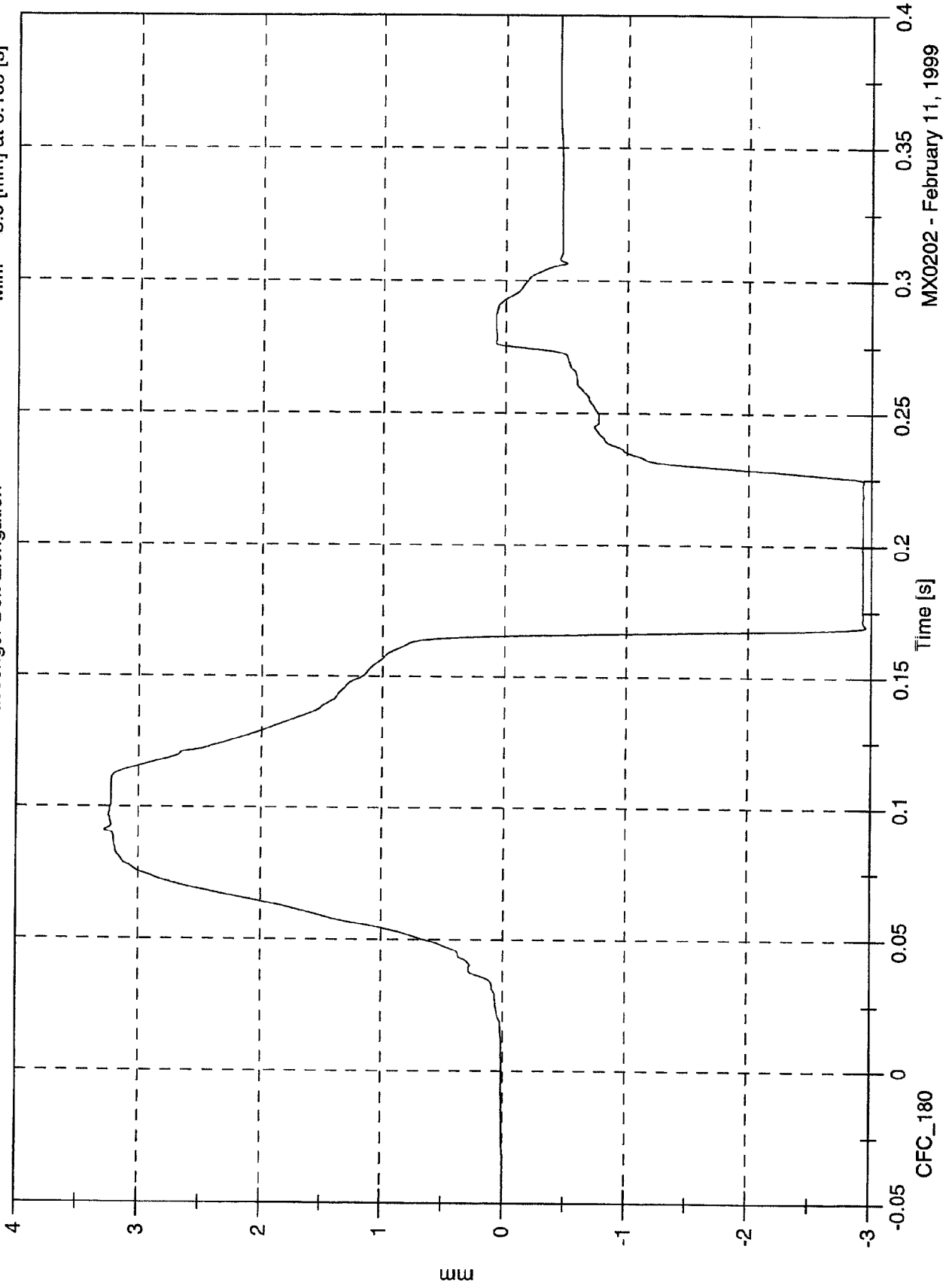
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 3.3 [mm] at 0.091 [s]

Min: -3.0 [mm] at 0.169 [s]

Passenger Belt Elongation



MX0202 - February 11, 1999

NHTSA TEST NO. MX0202

VEHICLE DATA

FILTER CHANNEL CLASS

Acceleration

60

Velocity

180

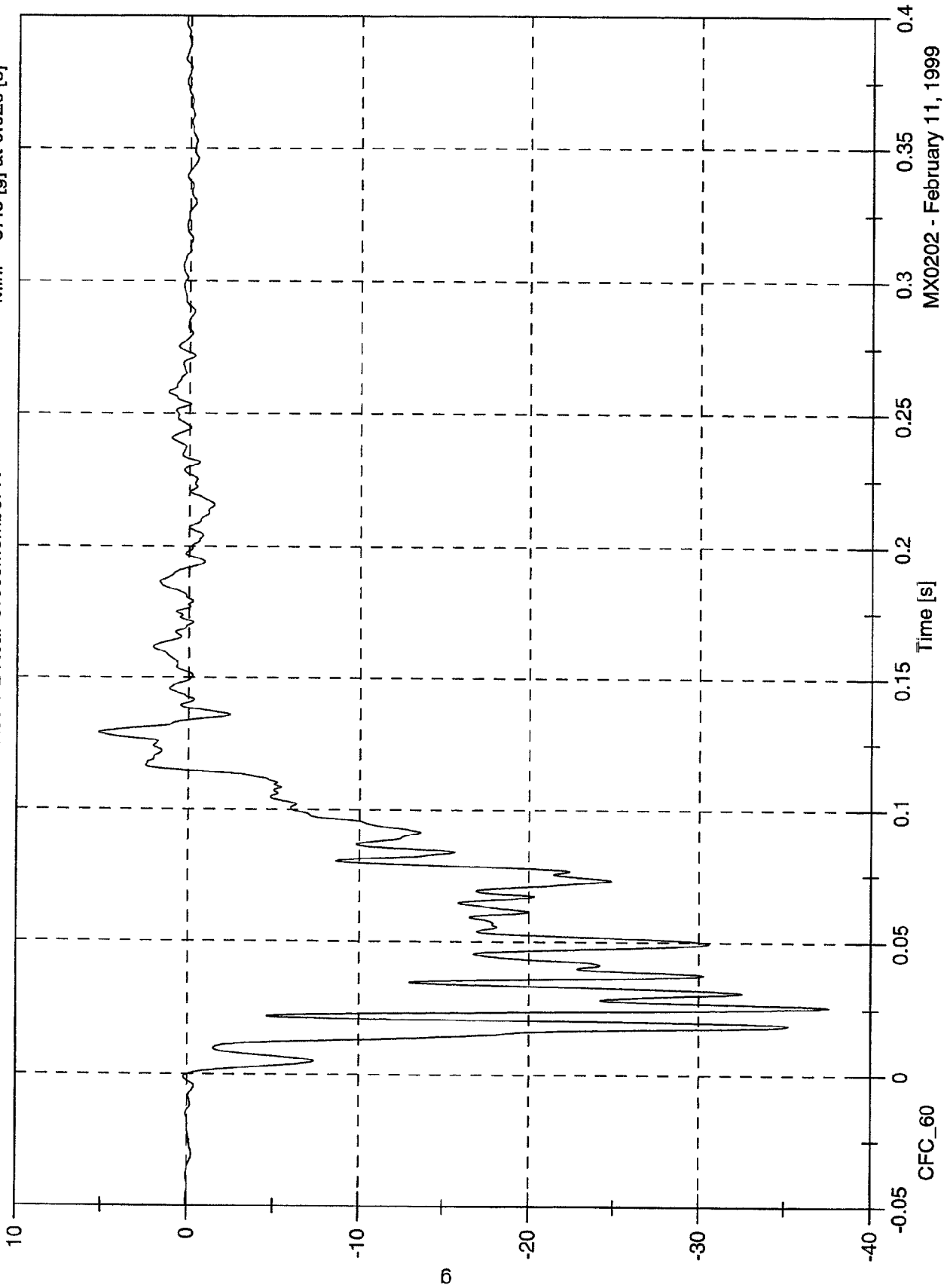
Displacement

180

NCAP #11 - 1999 Ford F150 Pickup

Max: 5.3 [g] at 0.129 [s]  
Min: -37.6 [g] at 0.026 [s]

Acc 1 L Rear Crossmember X

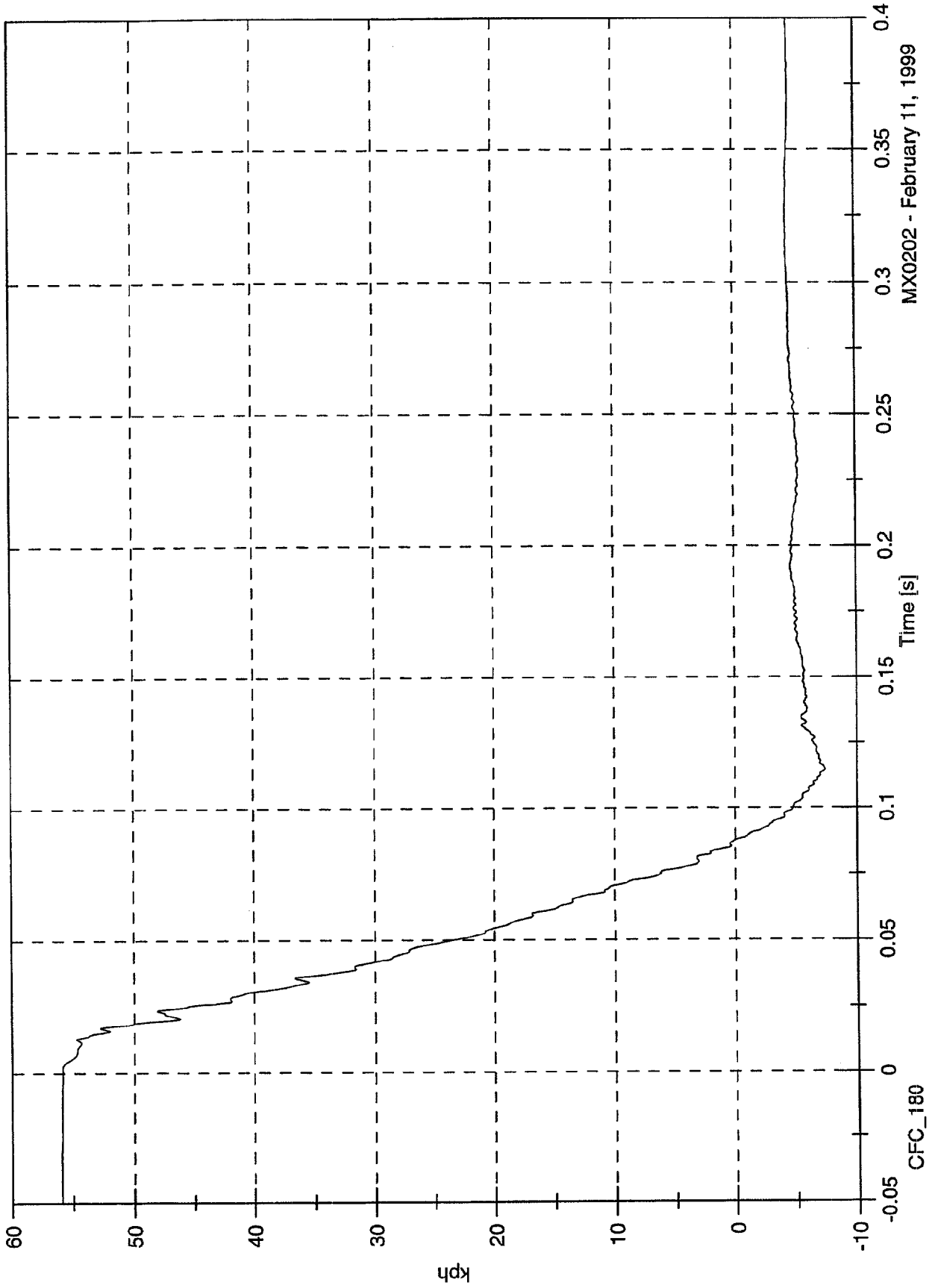


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Acc 1 L Rear Crossmember X

Max: 56.0 [kph] at -0.034 [s]  
Min: -7.3 [kph] at 0.115 [s]



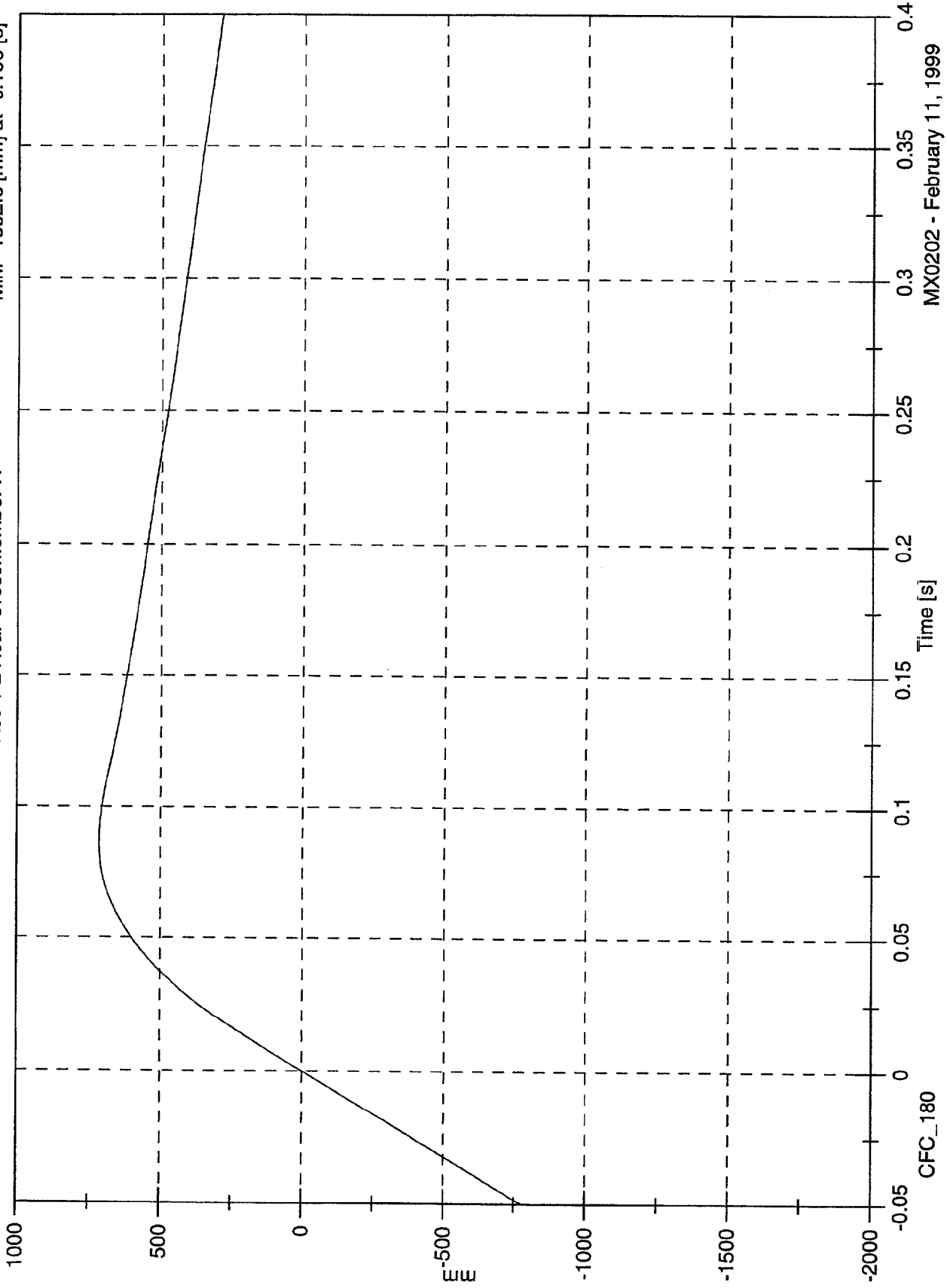
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Acc 1 L Rear Crossmember X

Max: 713.4 [mm] at 0.088 [s]

Min: -1552.6 [mm] at -0.100 [s]

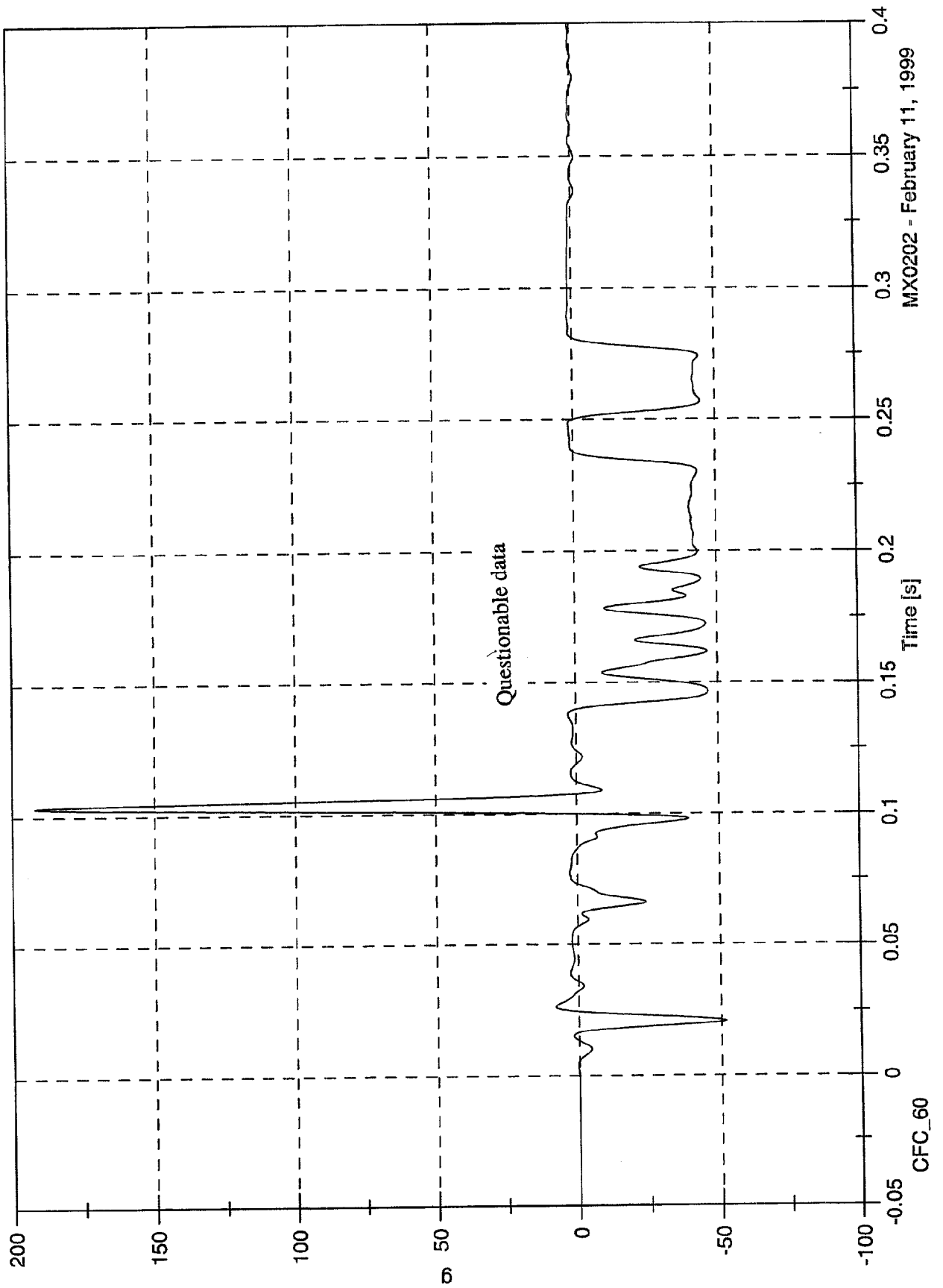


MX0202 - February 11, 1999

Max: 192.0 [g] at 0.103 [s]  
Min: -51.9 [g] at 0.021 [s]

Acc 2 R Rear Crossmember X

NCAP #11 - 1999 Ford F150 Pickup



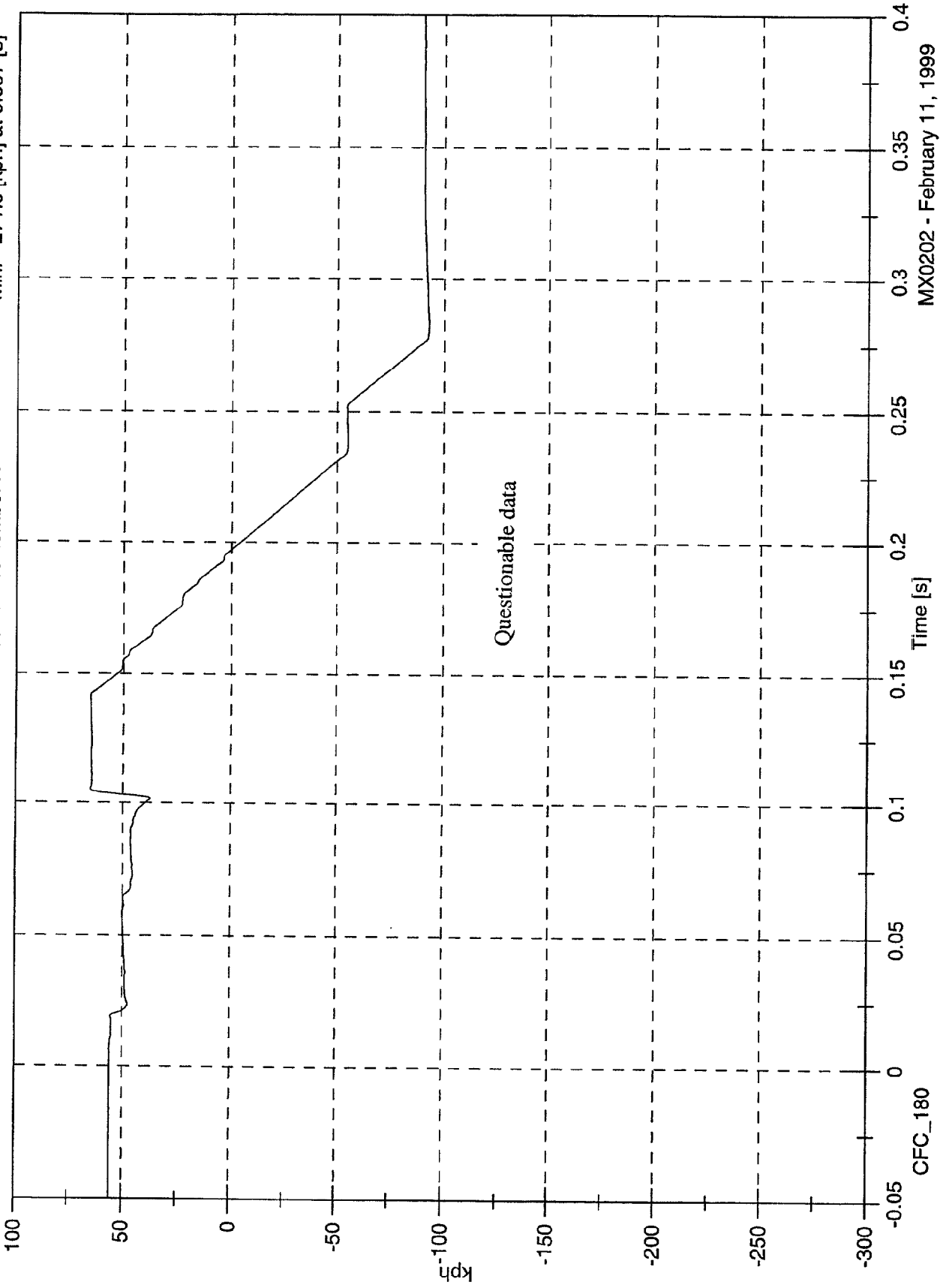
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Acc 2 R Rear Crossmember X

Max: 65.2 [kph] at 0.141 [s]

Min: -271.9 [kph] at 0.597 [s]

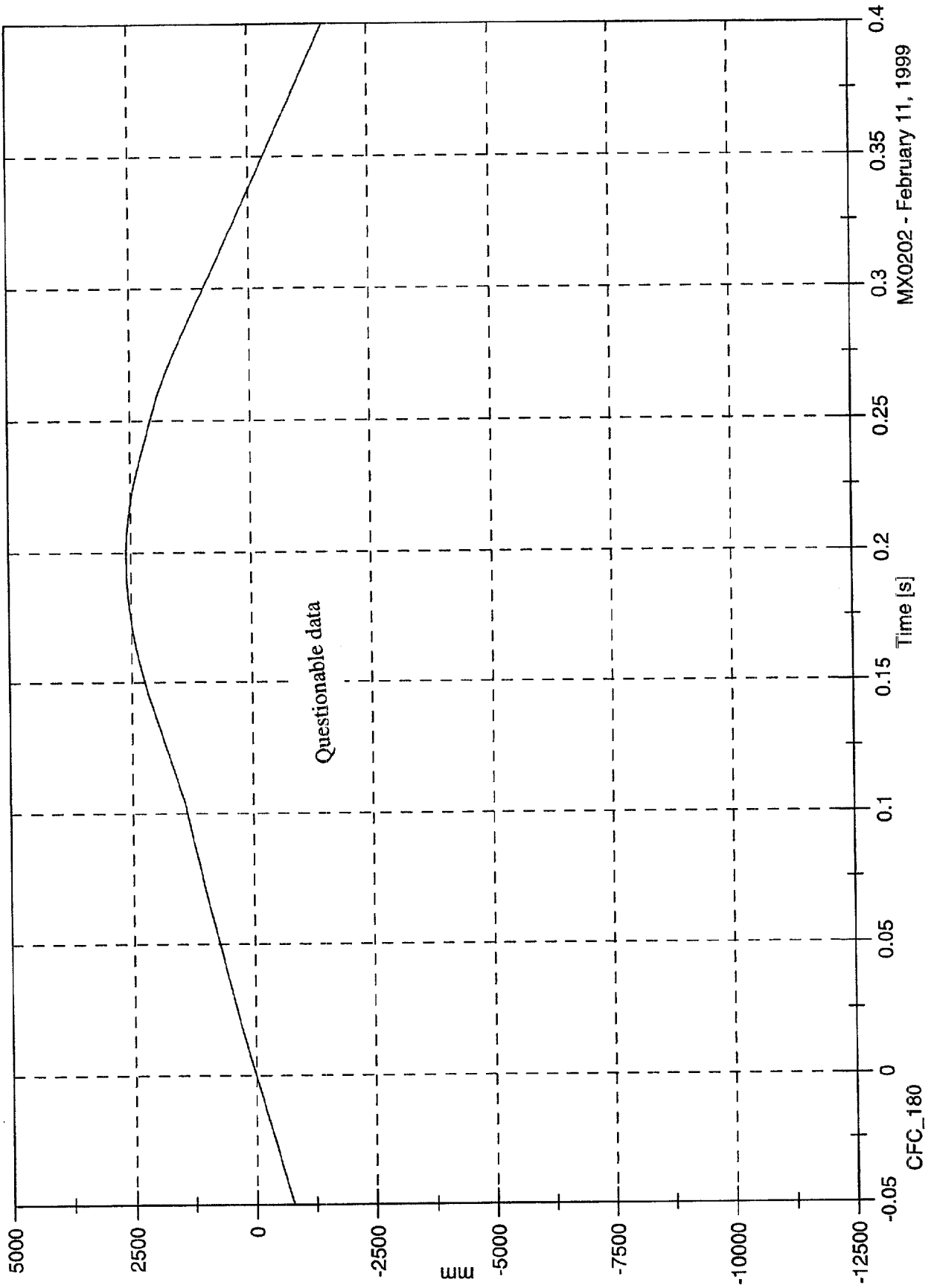


Max: 2595.8 [mm] at 0.197 [s]

Min: -11492.7 [mm] at 0.600 [s]

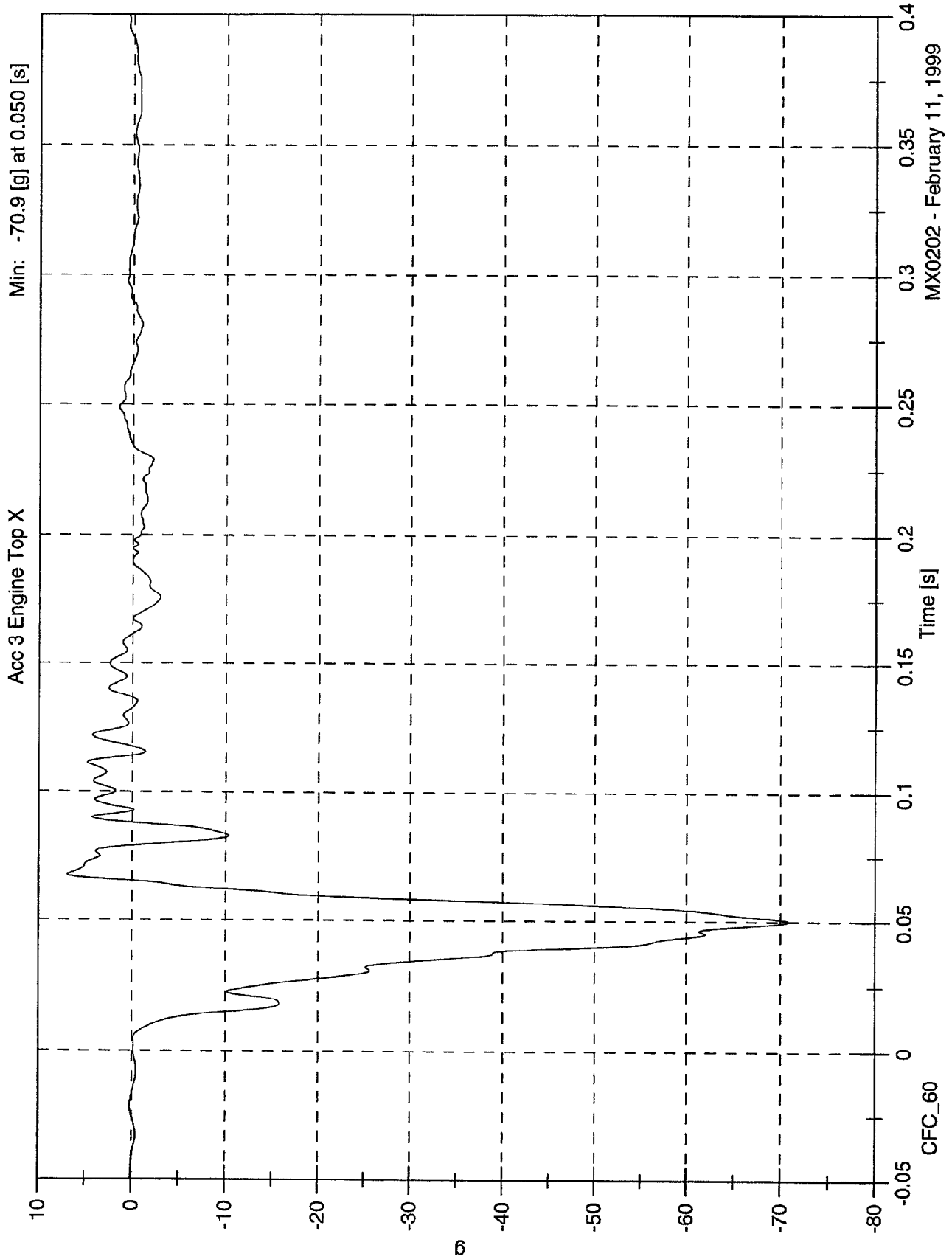
Acc 2 R Rear Crossmember X

NCAP #11 - 1999 Ford F150 Pickup



MX0202 - February 11, 1999

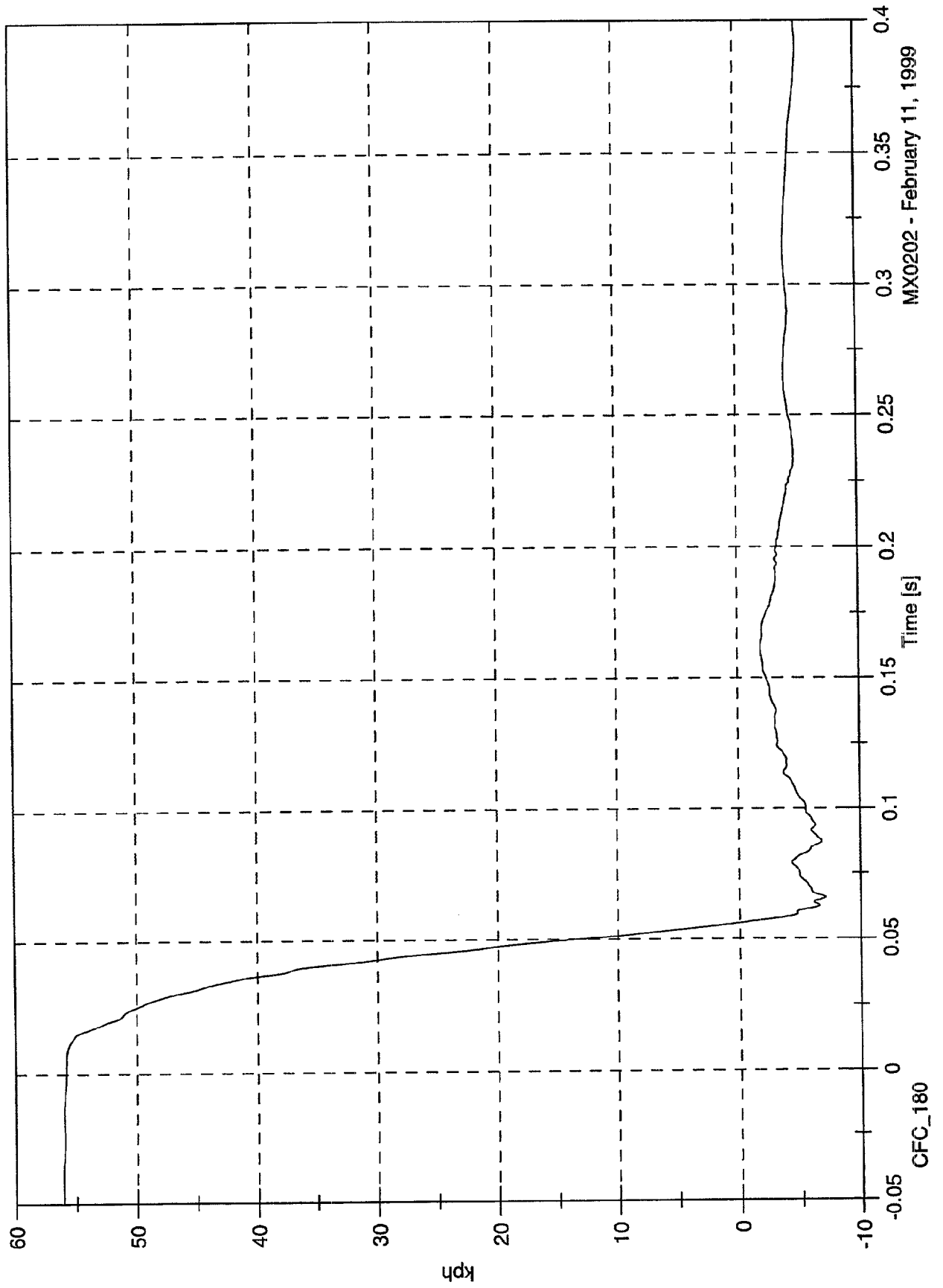
NCAP #11 - 1999 Ford F150 Pickup



NCAP #11 - 1999 Ford F150 Pickup

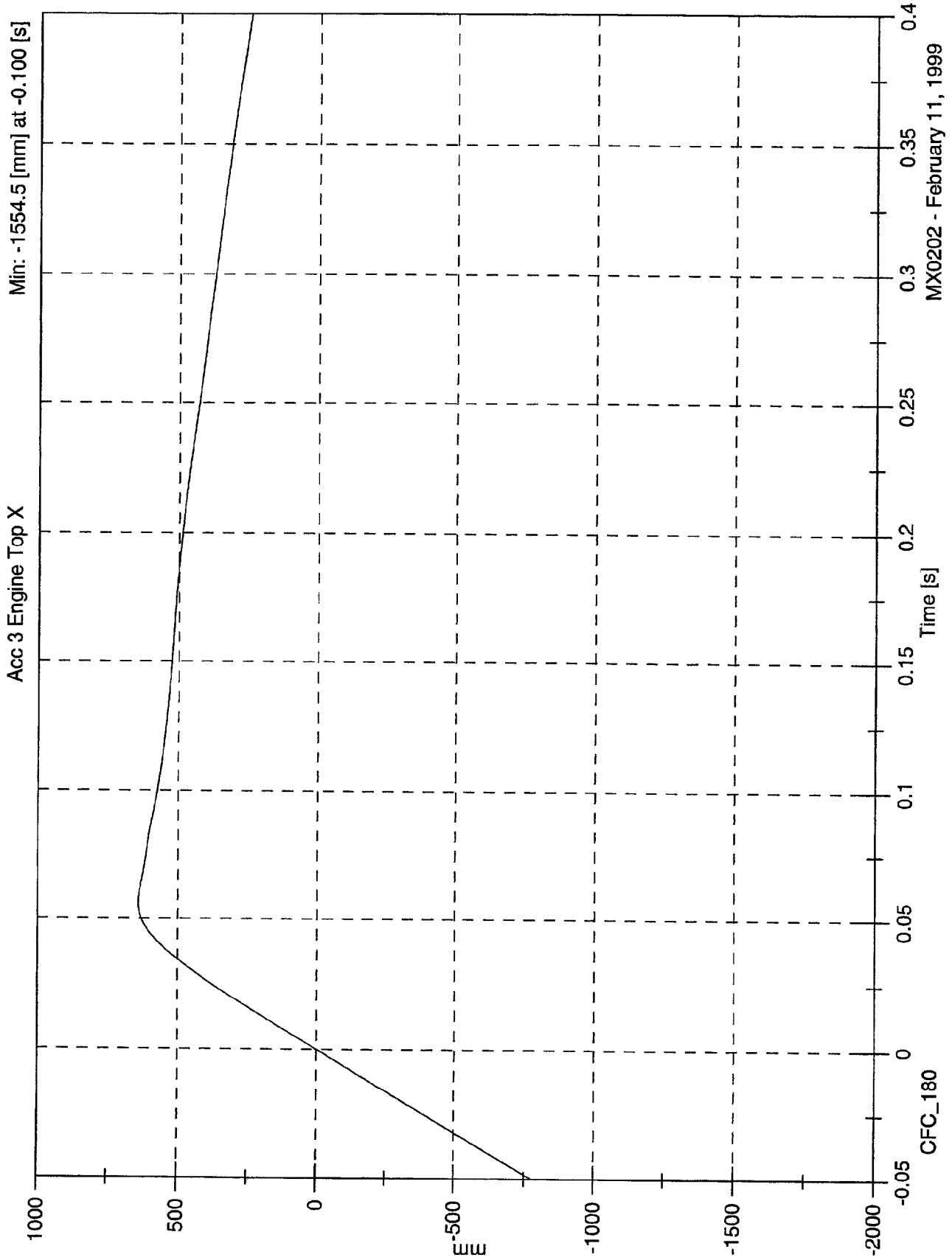
Acc 3 Engine Top X

Max: 56.1 [kph] at -0.041 [s]  
Min: -7.0 [kph] at 0.066 [s]



MX0202 - February 11, 1999

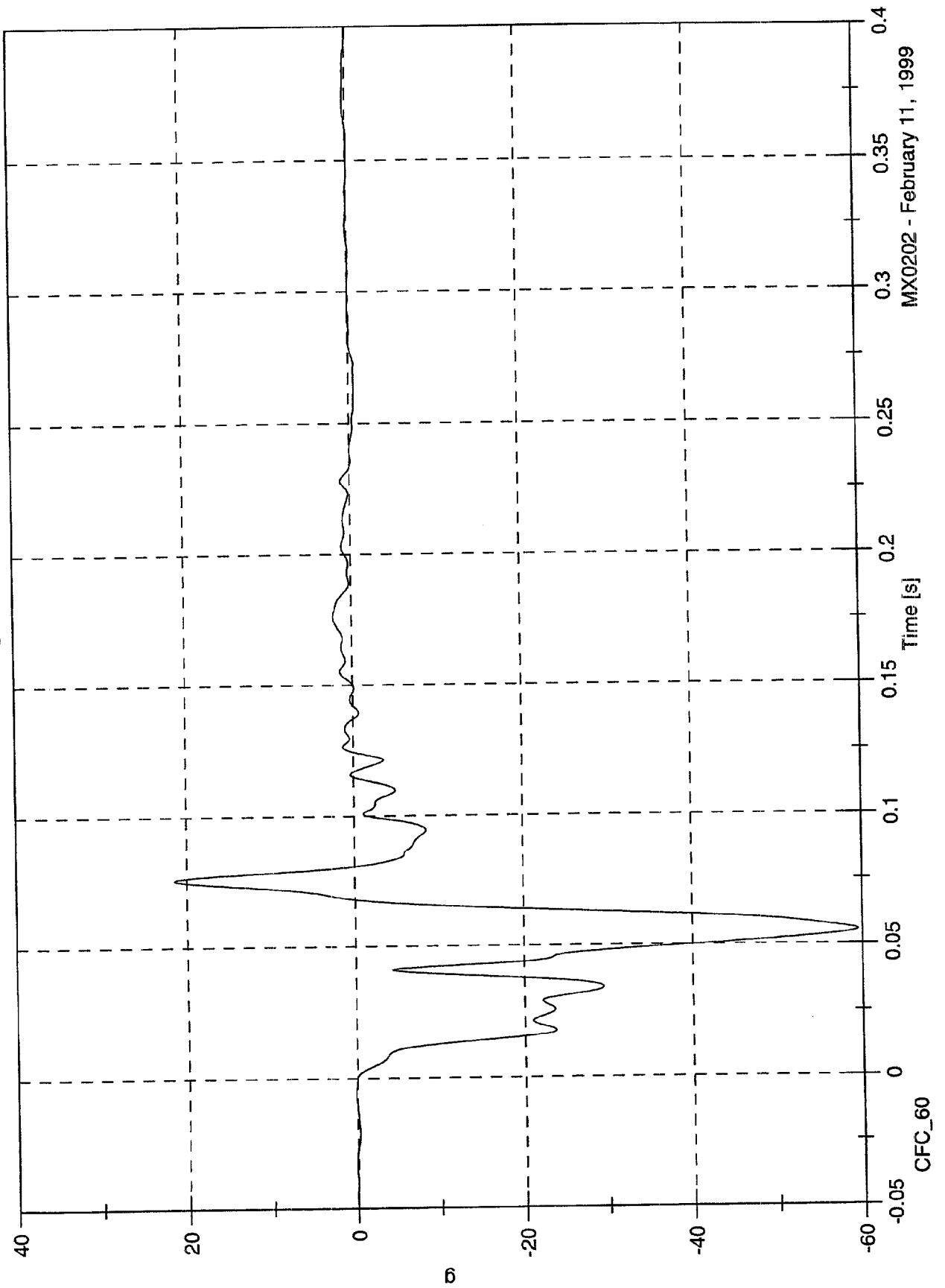
NCAP #11 - 1999 Ford F150 Pickup



Max: 21.5 [g] at 0.076 [s]  
Min: -59.5 [g] at 0.055 [s]

Acc 4 Engine Bottom X

NCAP #11 - 1999 Ford F150 Pickup

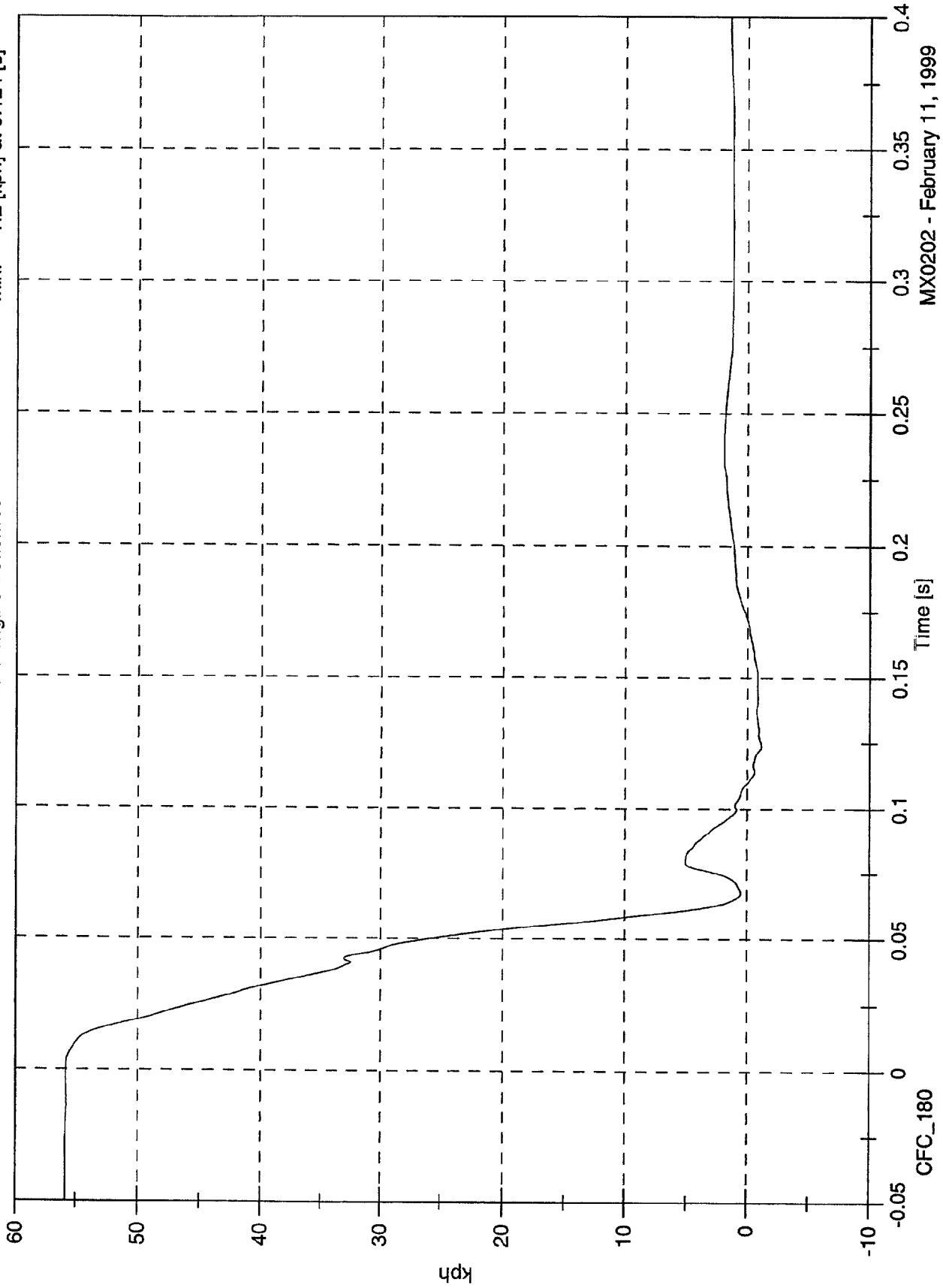


MX0202 - February 11, 1999

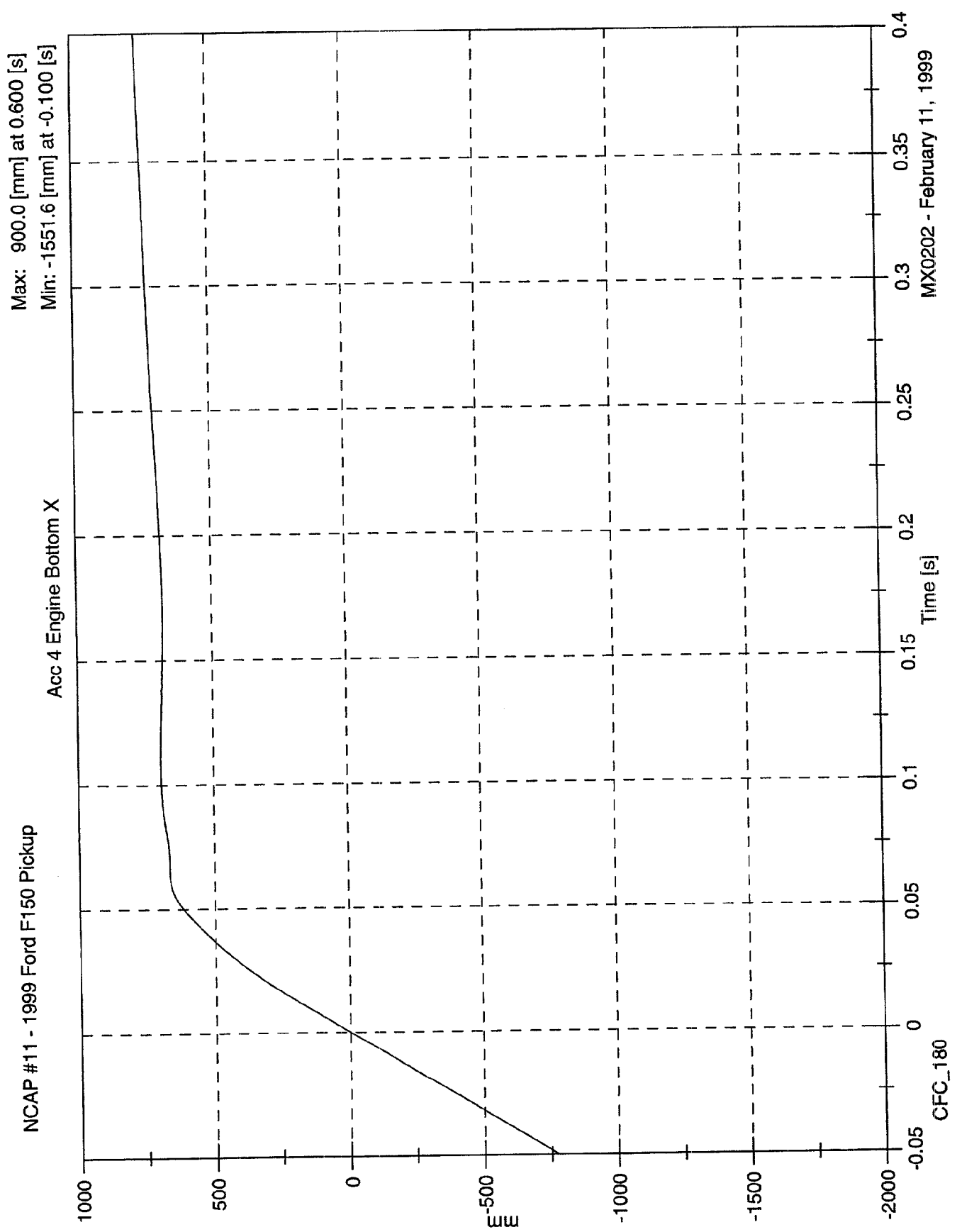
NCAP #11 - 1999 Ford F150 Pickup

Acc 4 Engine Bottom X

Max: 55.9 [kph] at -0.028 [s]  
Min: -1.2 [kph] at 0.124 [s]



MX0202 - February 11, 1999

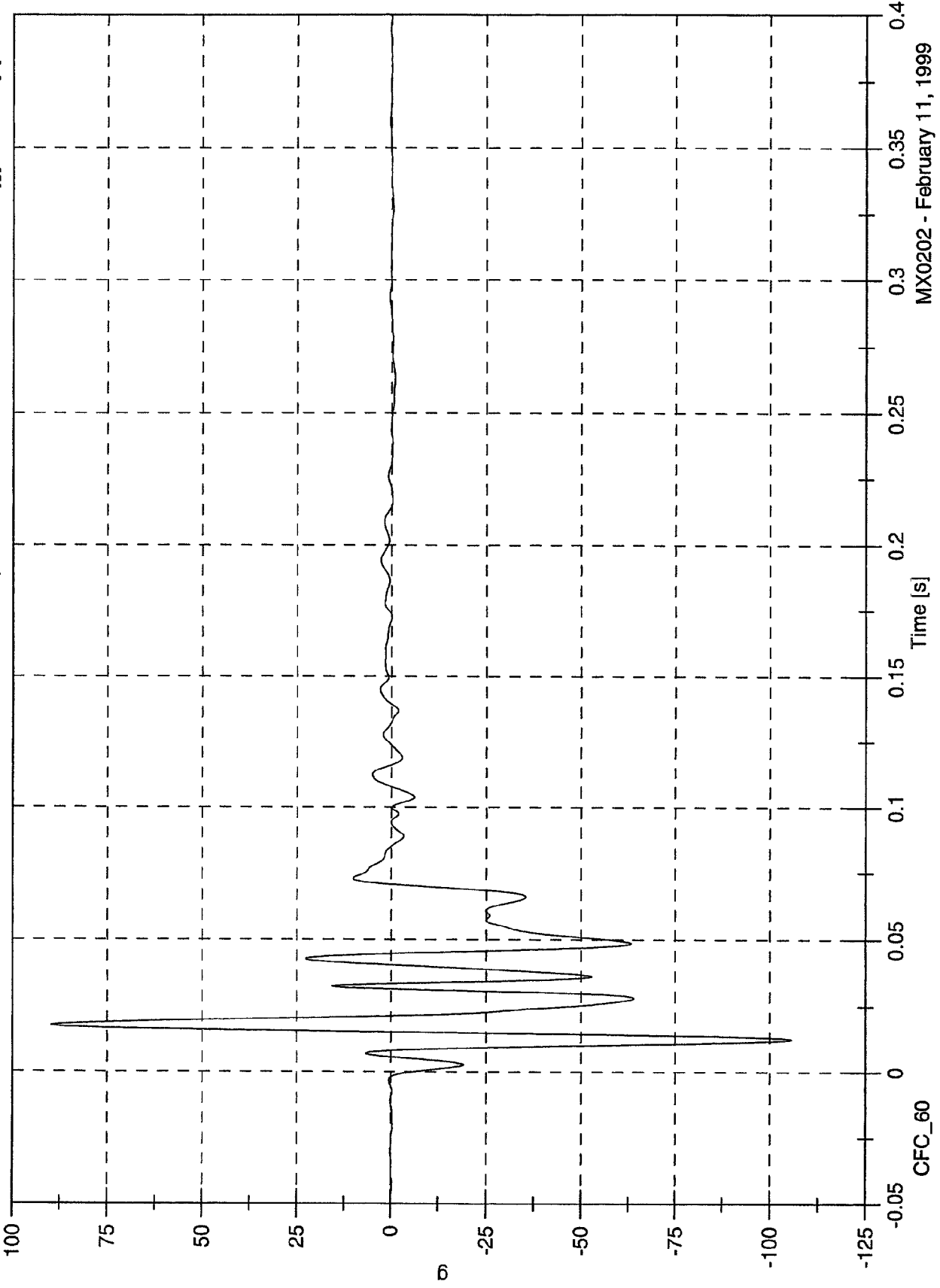


NCAP #11 - 1999 Ford F150 Pickup

Acc 5 R Caliper X

Max: 89.9 [g] at 0.017 [s]

Min: -105.7 [g] at 0.012 [s]

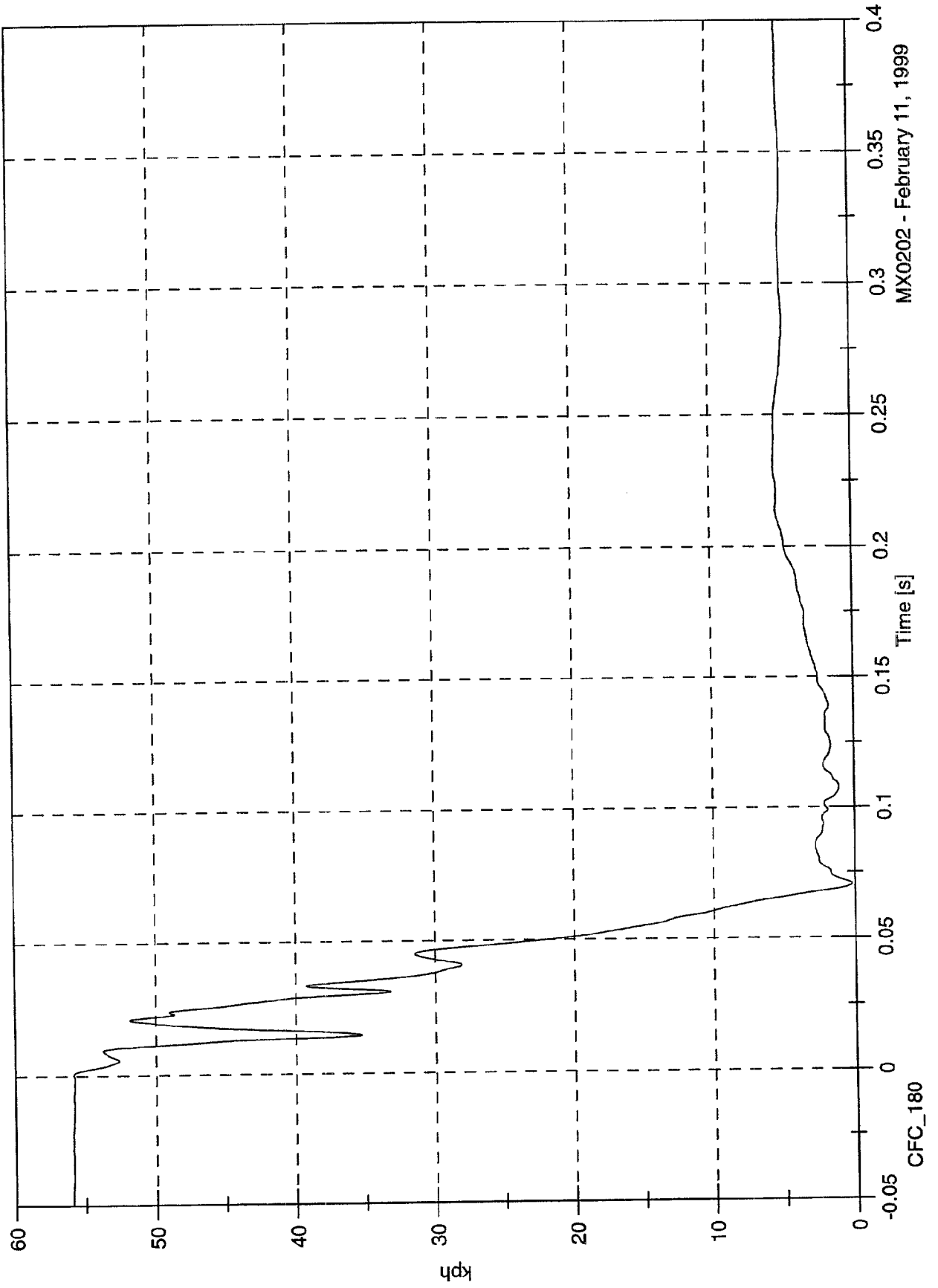


MX0202 - February 11, 1999

Max: 55.9 [kph] at -0.050 [s]  
Min: 0.2 [kph] at 0.071 [s]

NCAP #11 - 1999 Ford F150 Pickup

Acc 5 R Caliper X



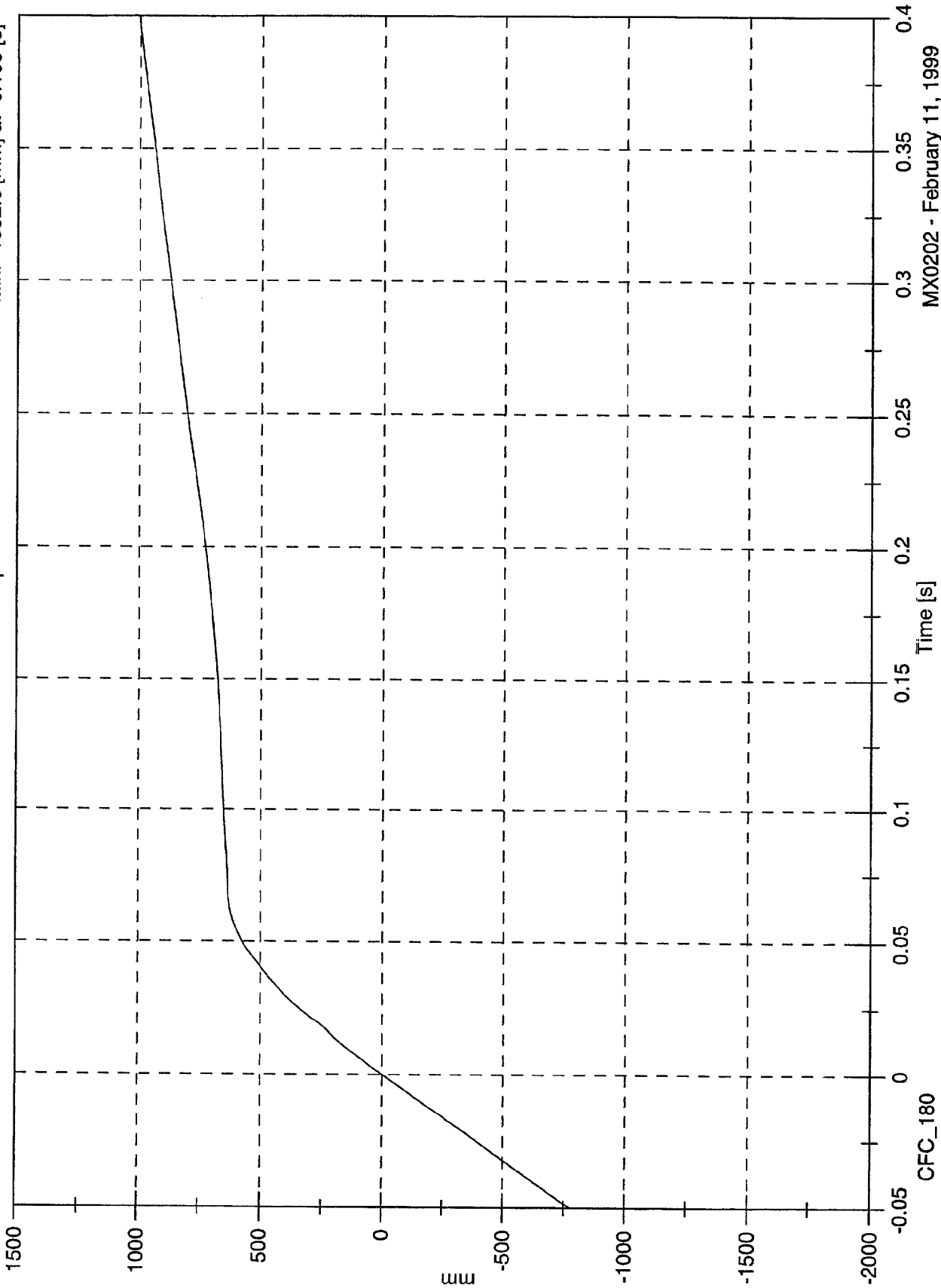
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Acc 5 R Caliper X

Max: 1385.5 [mm] at 0.600 [s]

Min: -1552.0 [mm] at -0.100 [s]

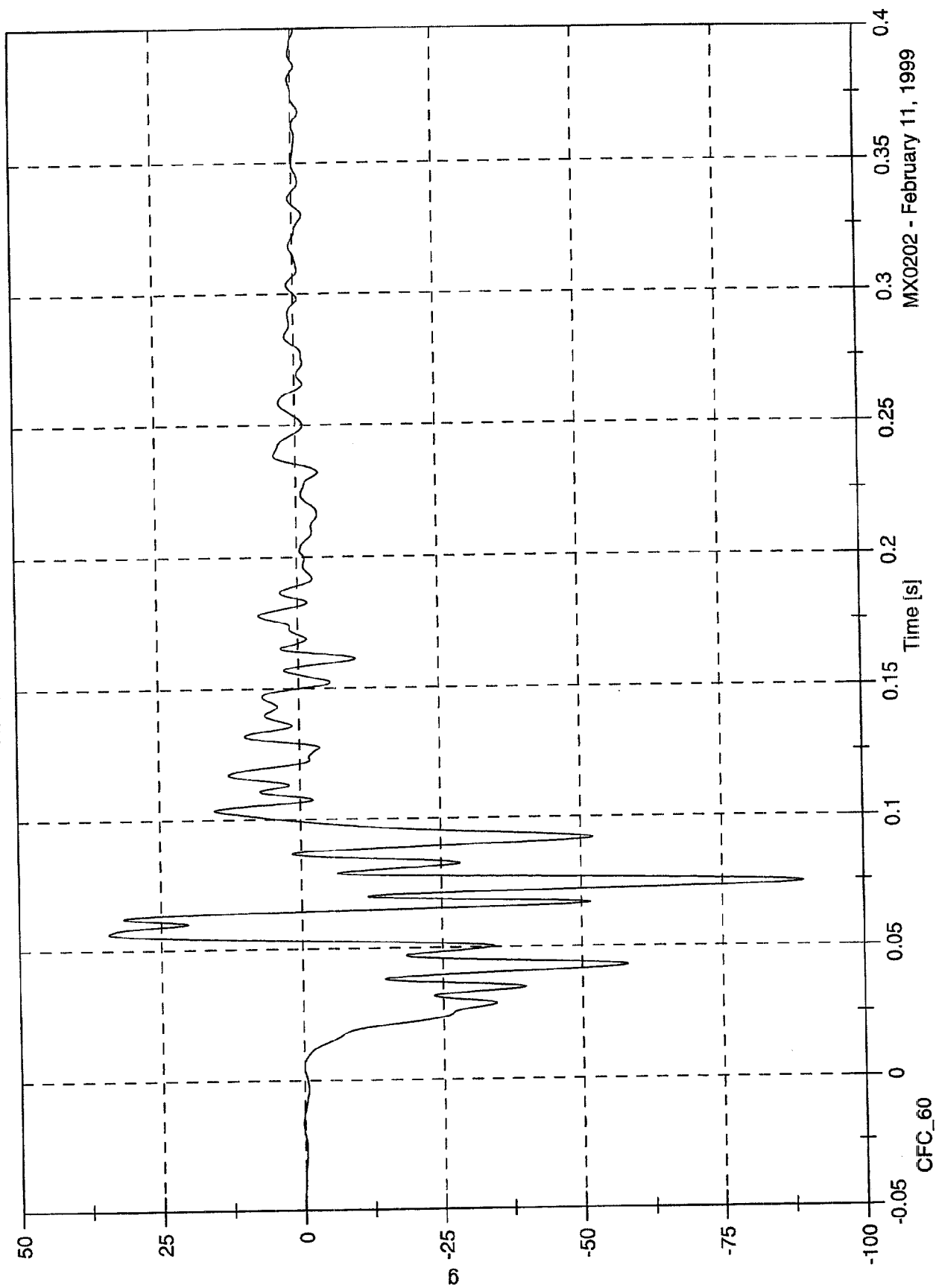


MX0202 - February 11, 1999

Max: 34.2 [g] at 0.057 [s]  
Min: -89.3 [g] at 0.074 [s]

NCAP #11 - 1999 Ford F150 Pickup

Acc 6 Instrument Panel X



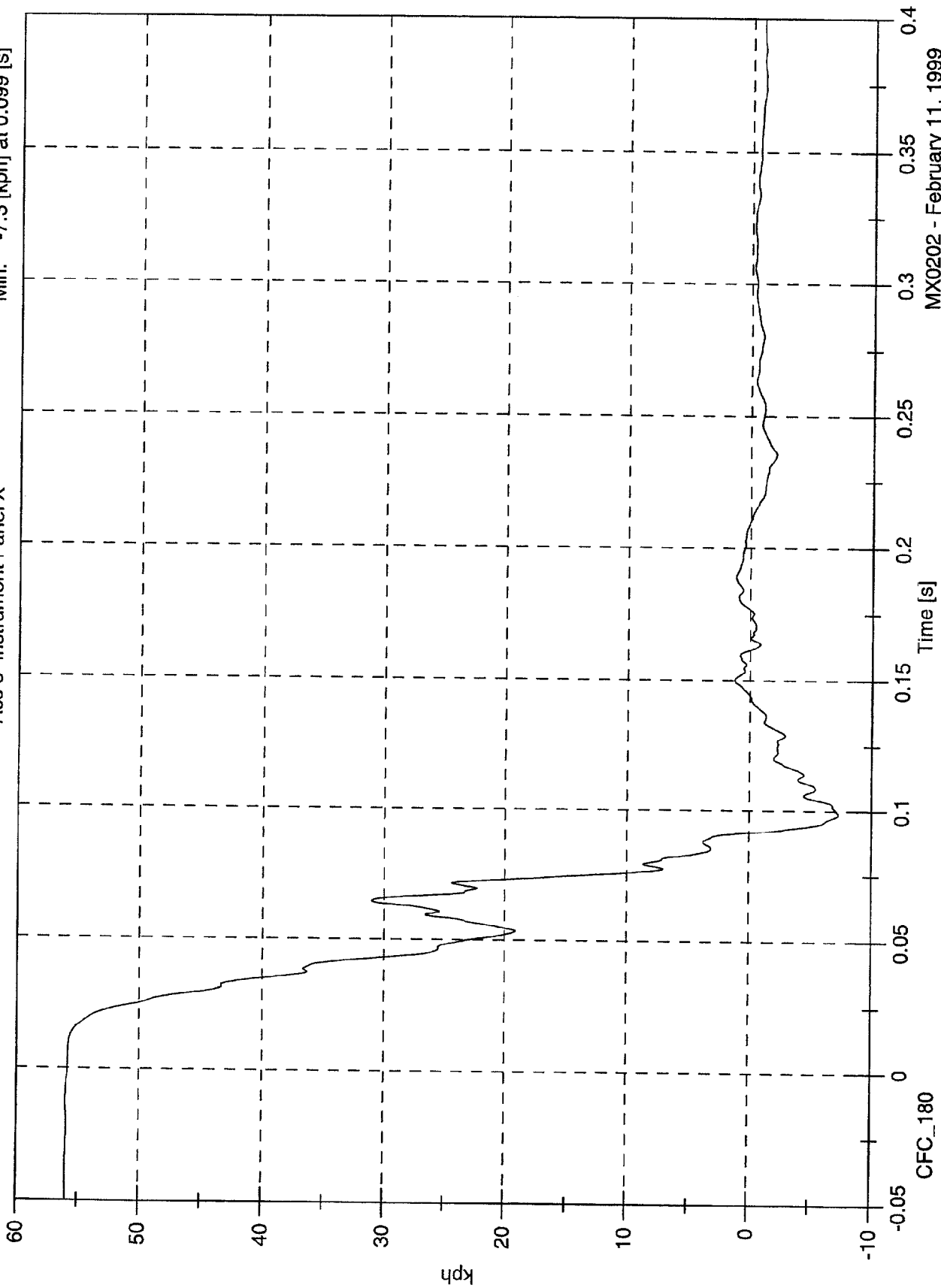
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Acc 6 Instrument Panel X

Max: 56.0 [kph] at -0.012 [s]

Min: -7.3 [kph] at 0.099 [s]

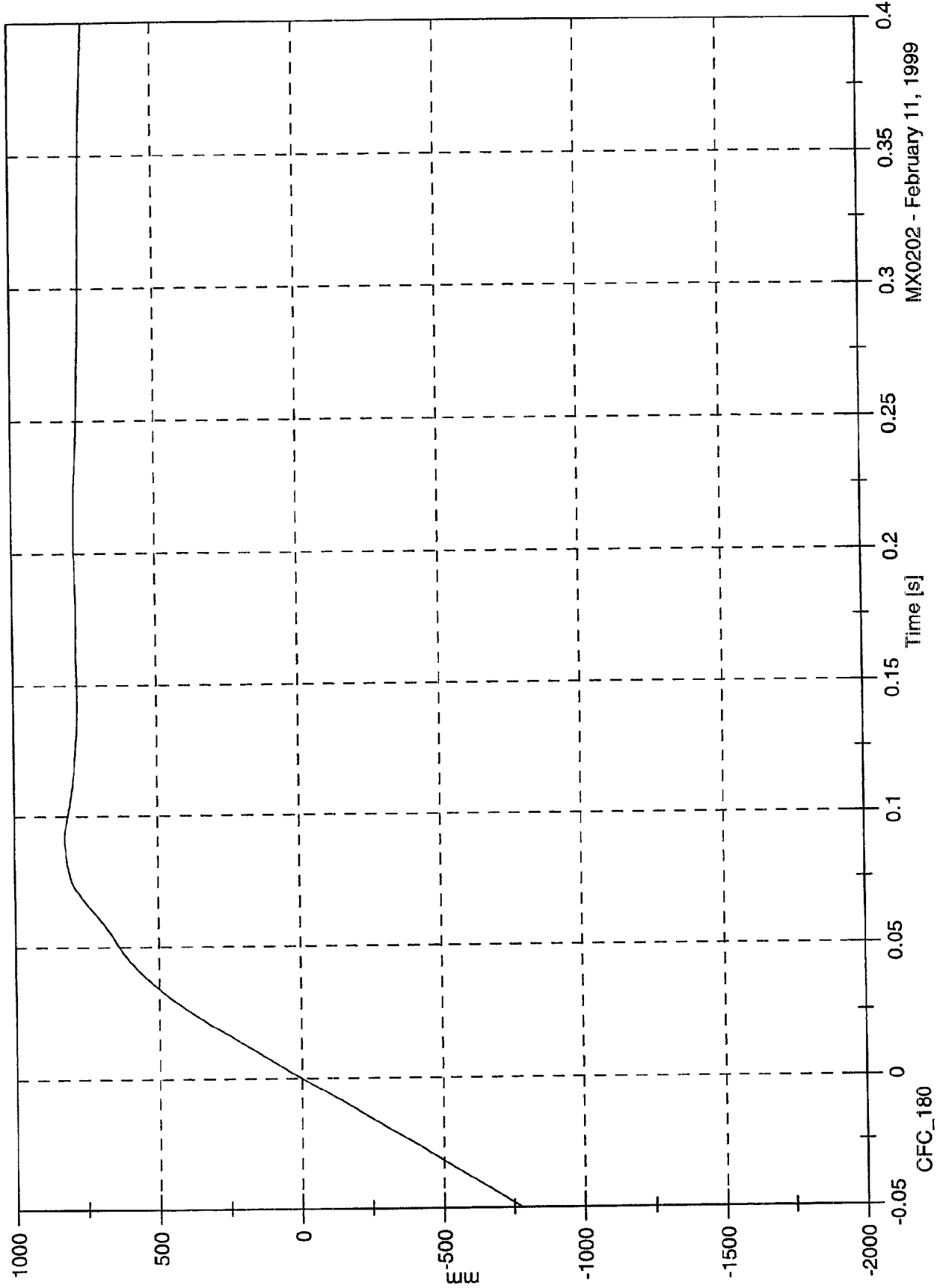


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Acc 6 Instrument Panel X

Max: 825.9 [mm] at 0.091 [s]  
Min: -1553.5 [mm] at -0.100 [s]



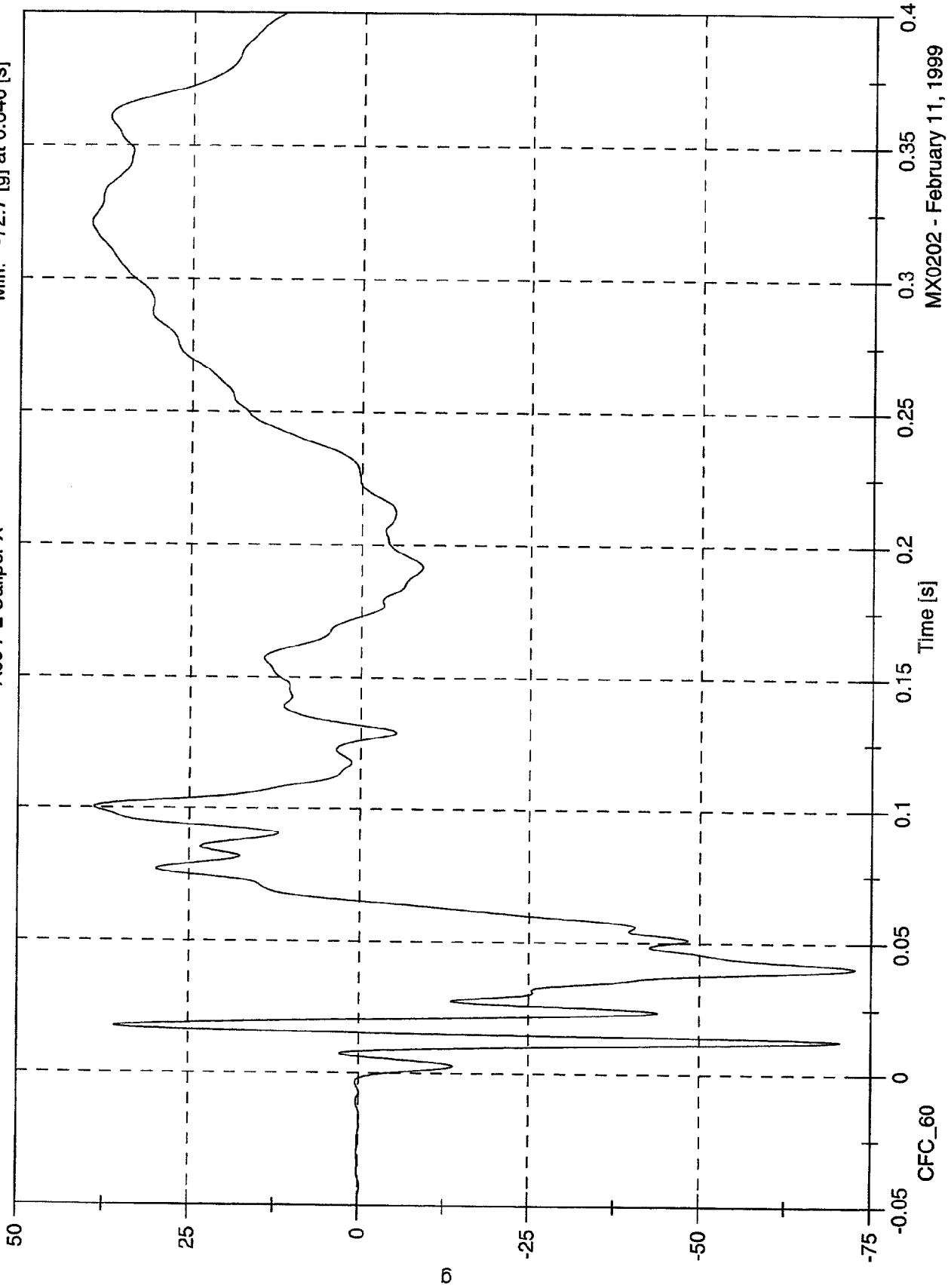
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Acc 7 L Caliper X

Max: 40.5 [g] at 0.489 [s]

Min: -72.7 [g] at 0.040 [s]

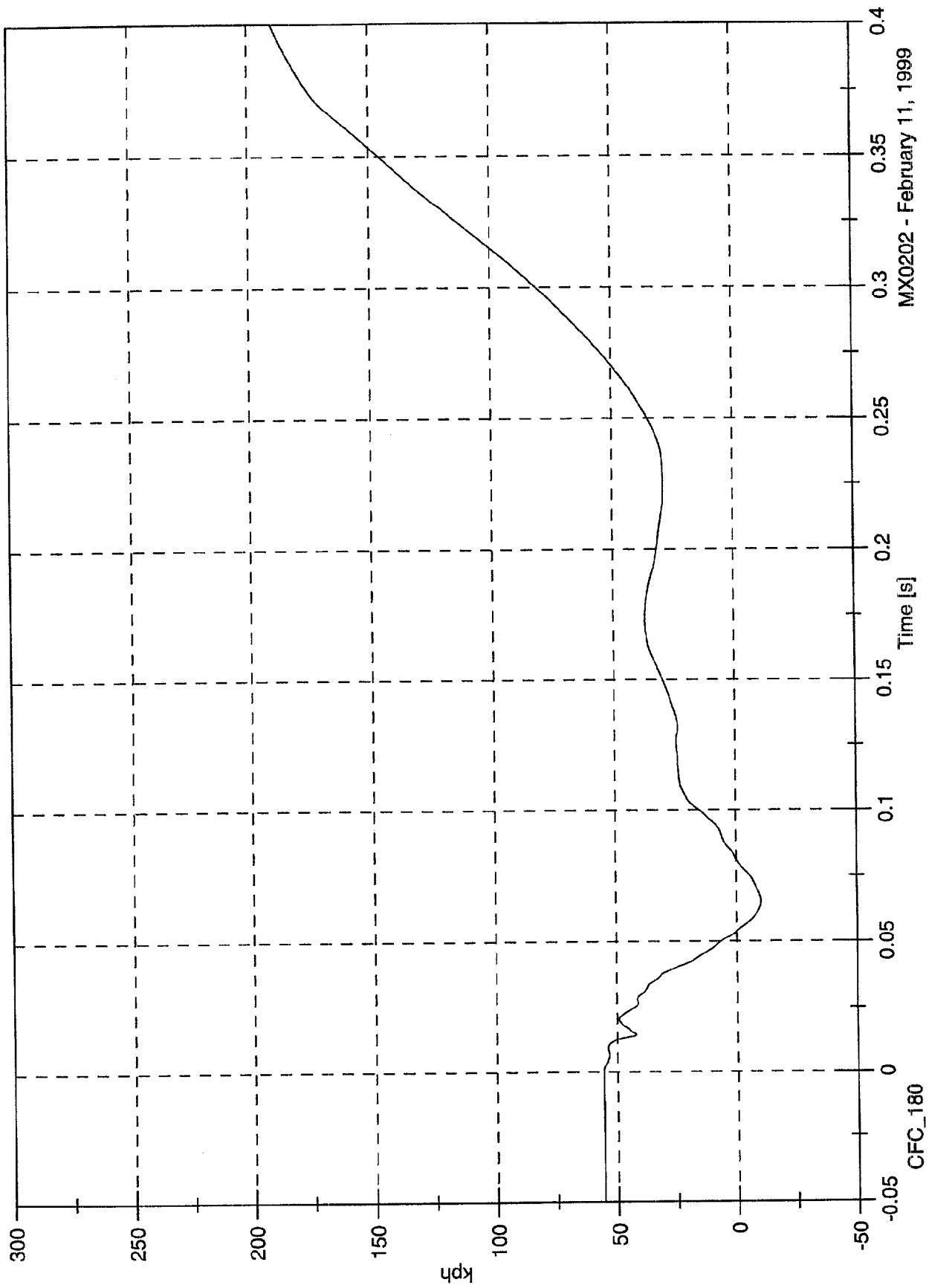


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Acc 7 L Caliper X

Max: 279.9 [kph] at 0.557 [s]  
Min: -10.4 [kph] at 0.066 [s]



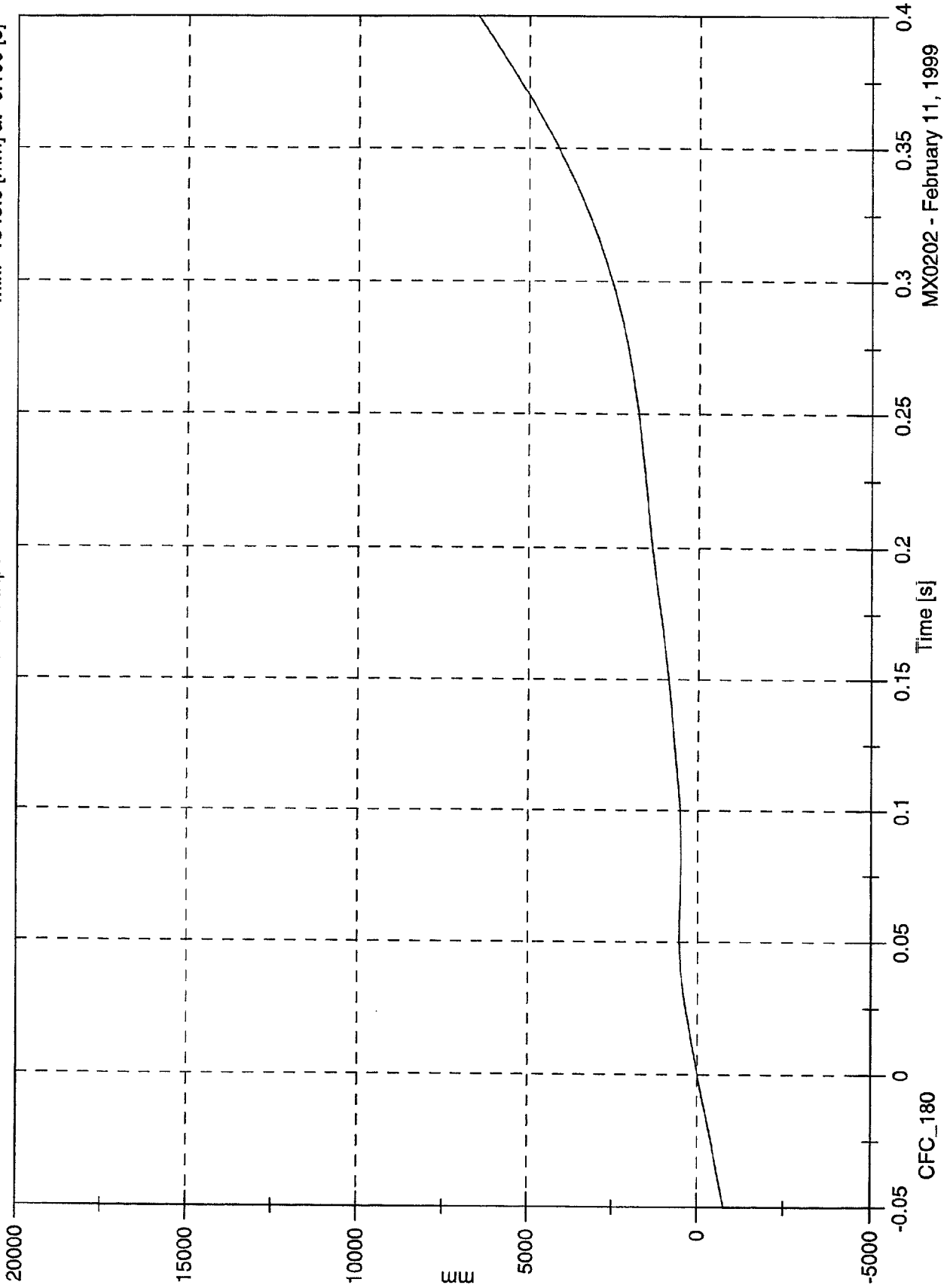
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Acc 7 L Caliper X

Max: 19665.3 [mm] at 0.600 [s]

Min: -1548.9 [mm] at -0.100 [s]

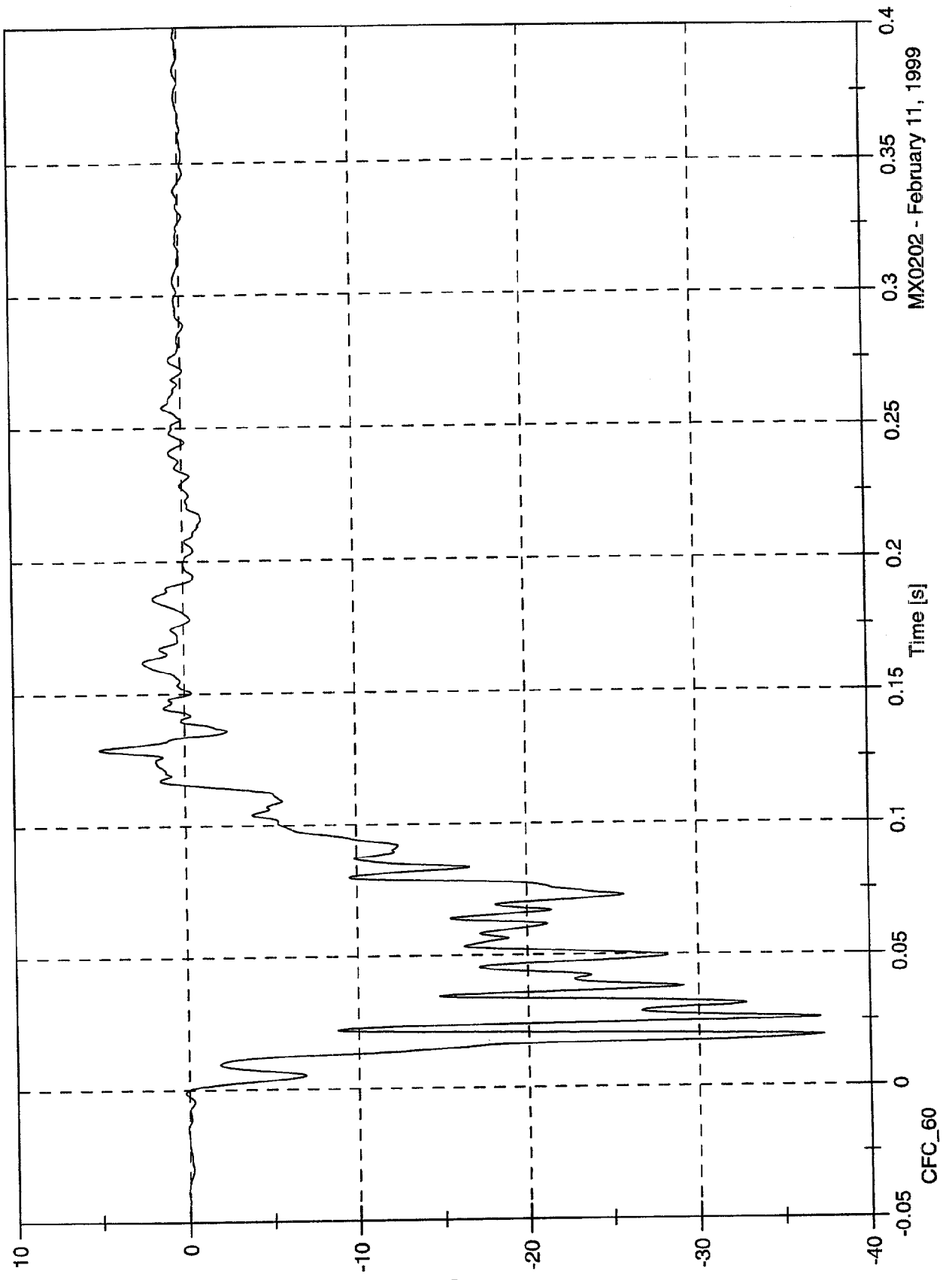


MX0202 - February 11, 1999

Max: 5.0 [g] at 0.129 [s]  
Min: -37.3 [g] at 0.019 [s]

NCAP #11 - 1999 Ford F150 Pickup

Acc 8 Redundant LR Xmember X



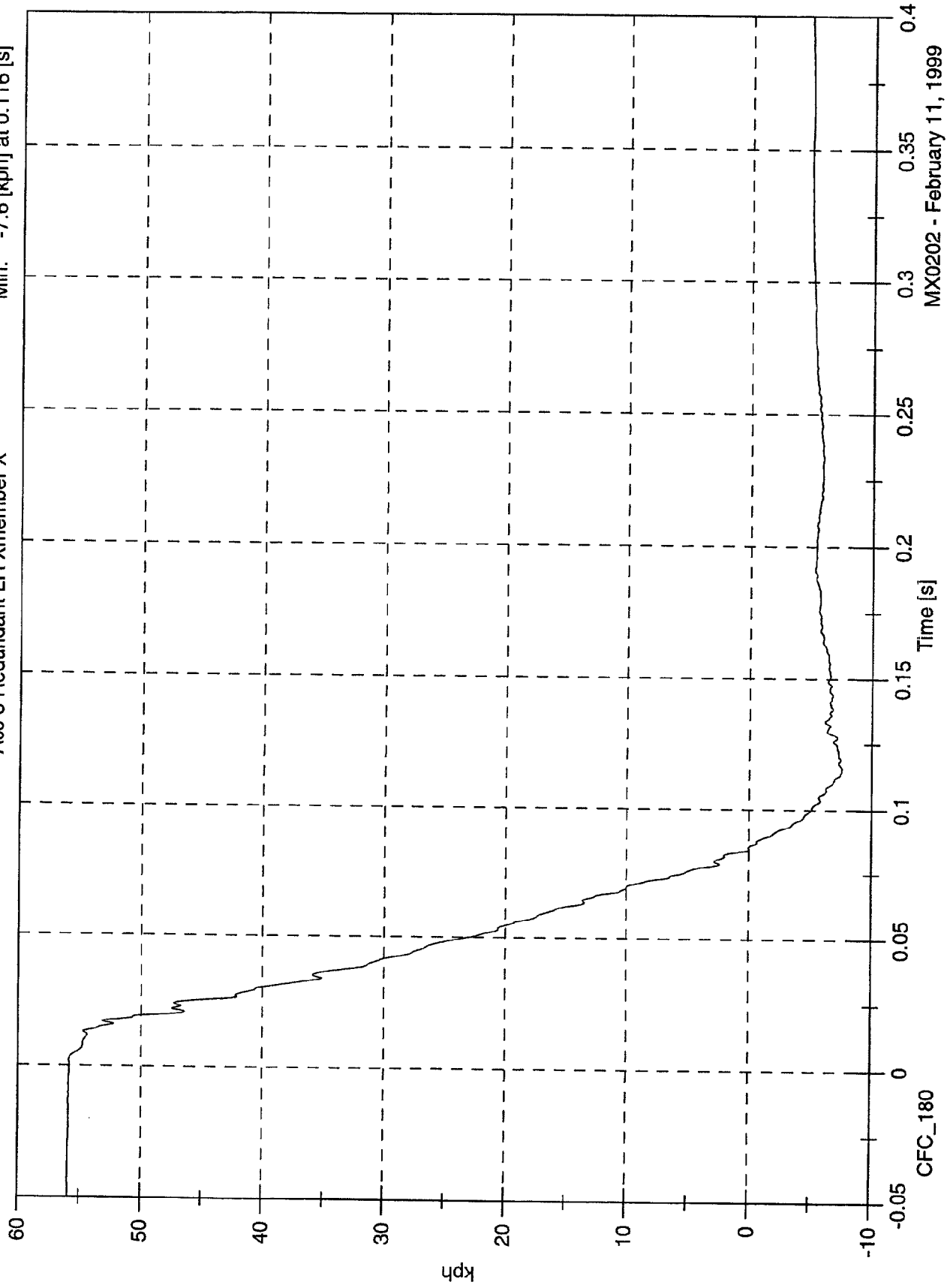
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Acc 8 Redundant LR Xmember X

Max: 56.0 [kph] at -0.034 [s]

Min: -7.6 [kph] at 0.116 [s]

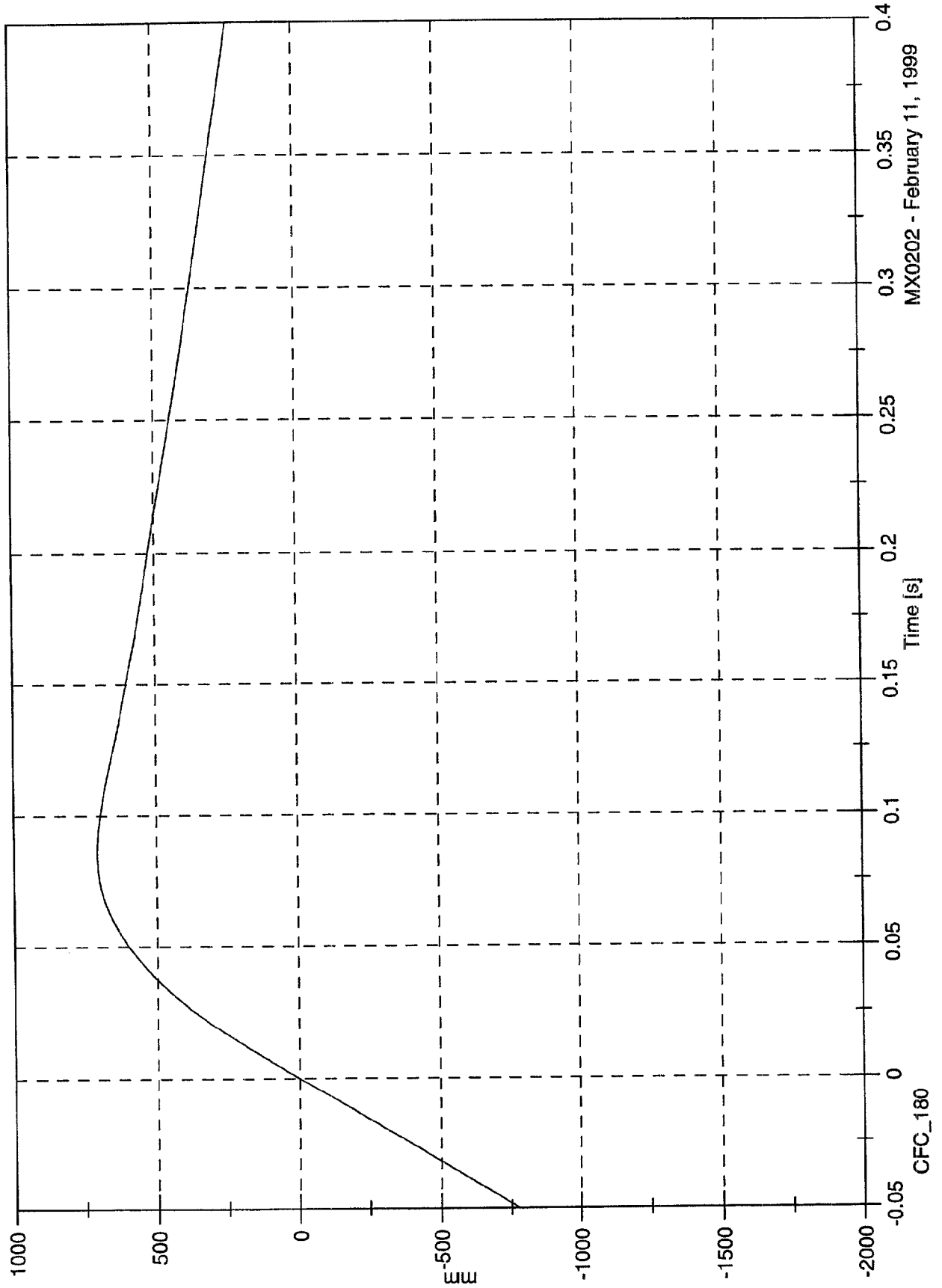


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Acc 8 Redundant LR Xmember X

Max: 706.6 [mm] at 0.084 [s]  
Min: -1552.4 [mm] at -0.100 [s]



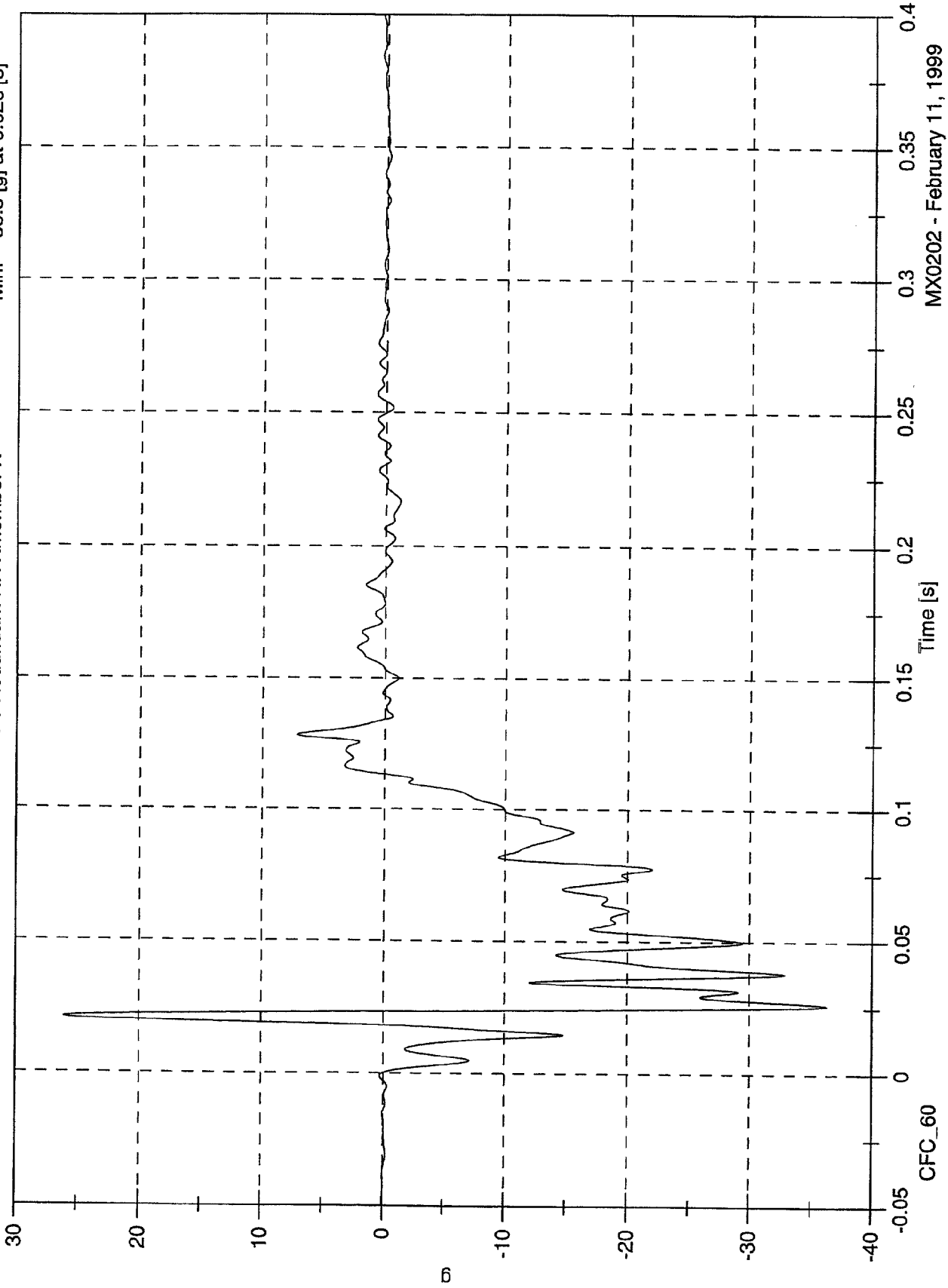
MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Max: 26.1 [g] at 0.021 [s]

Min: -36.3 [g] at 0.026 [s]

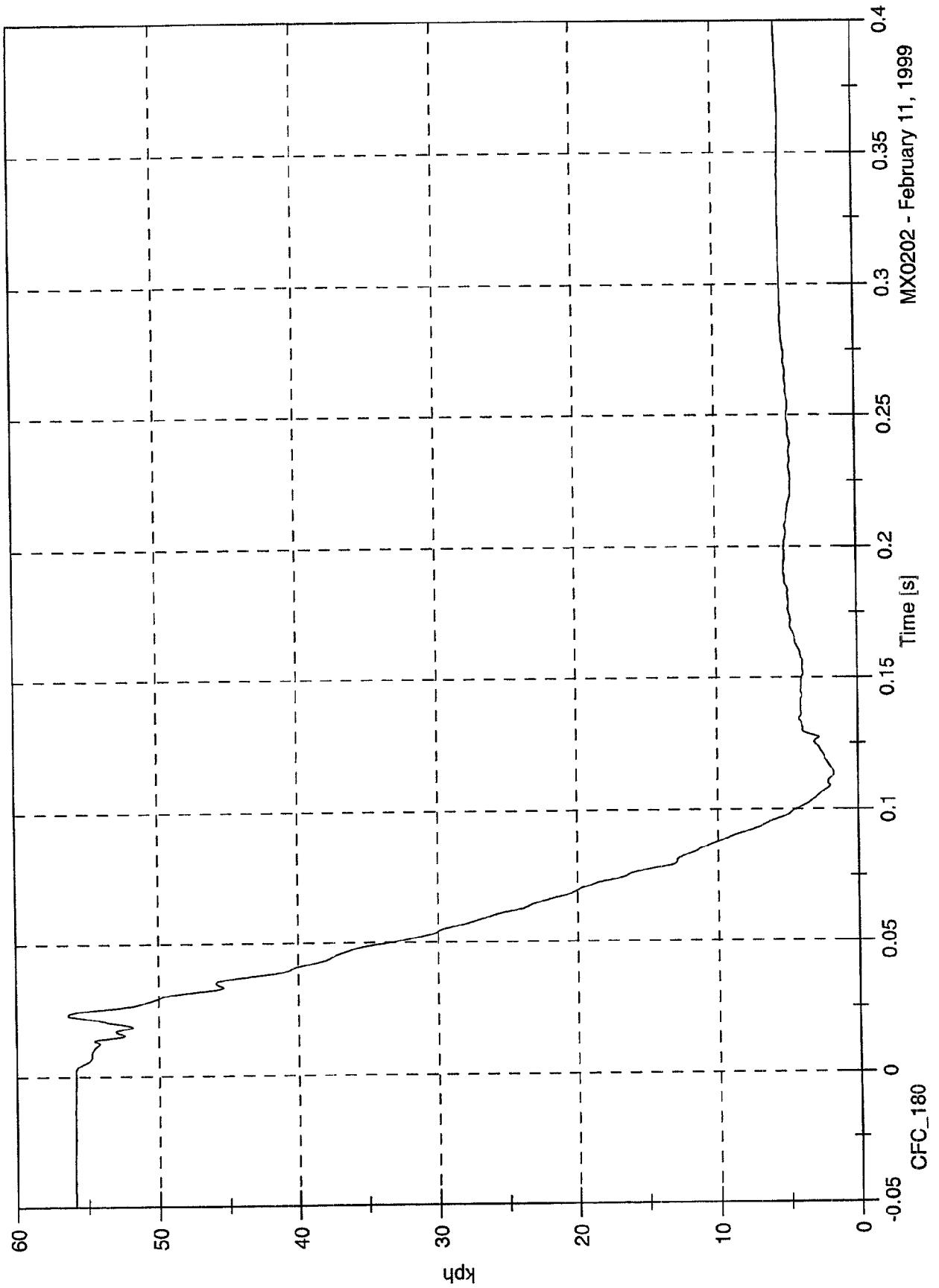
Acc 9 Redundant RR Xmember X



Max: 56.4 [kph] at 0.023 [s]  
Min: 1.7 [kph] at 0.113 [s]

Acc 9 Redundant RFR Xmember X

NCAP #11 - 1999 Ford F150 Pickup

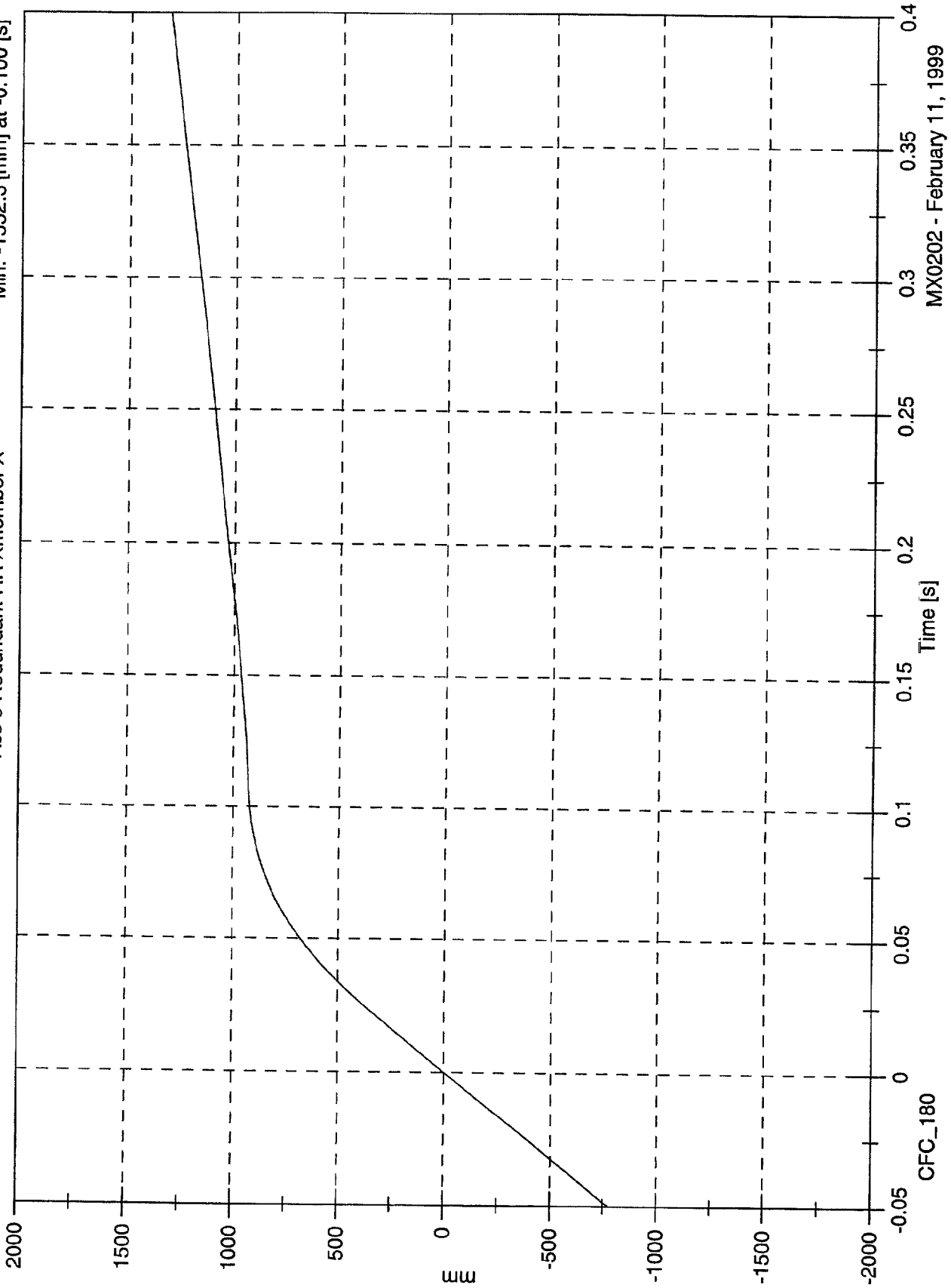


MX0202 - February 11, 1999

NCAP #11 - 1999 Ford F150 Pickup

Acc 9 Redundant RR Xmember X

Max: 1728.0 [mm] at 0.600 [s]  
Min: -1552.3 [mm] at -0.100 [s]



MX0202 - February 11, 1999

NHTSA TEST NO. MX0202

LOAD CELL BARRIER DATA

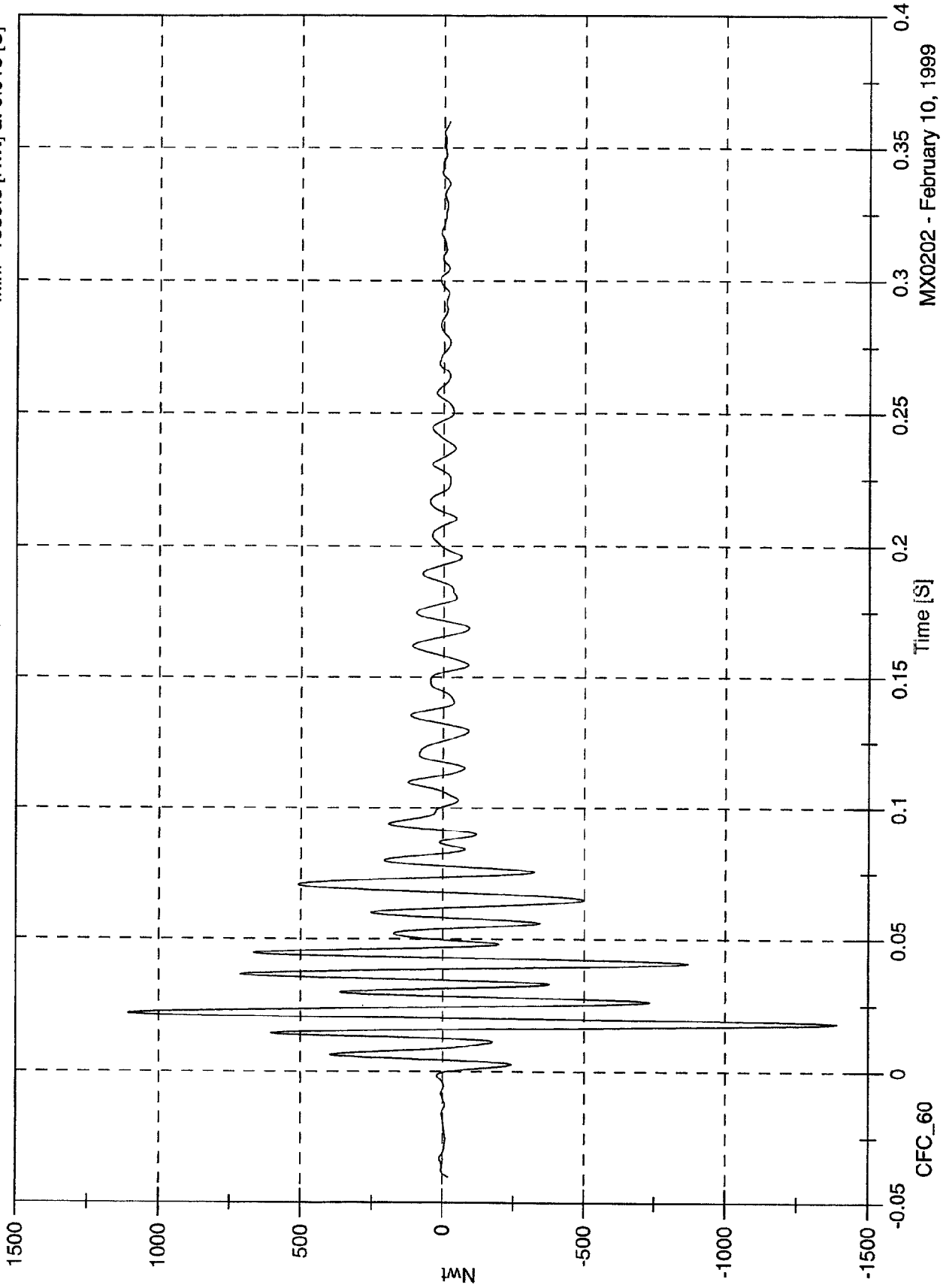
FILTER CHANNEL CLASS

60

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 1108.0 [Nwt] at 0.022 [S]  
Min: -1388.5 [Nwt] at 0.018 [S]

BLC A1 Fx

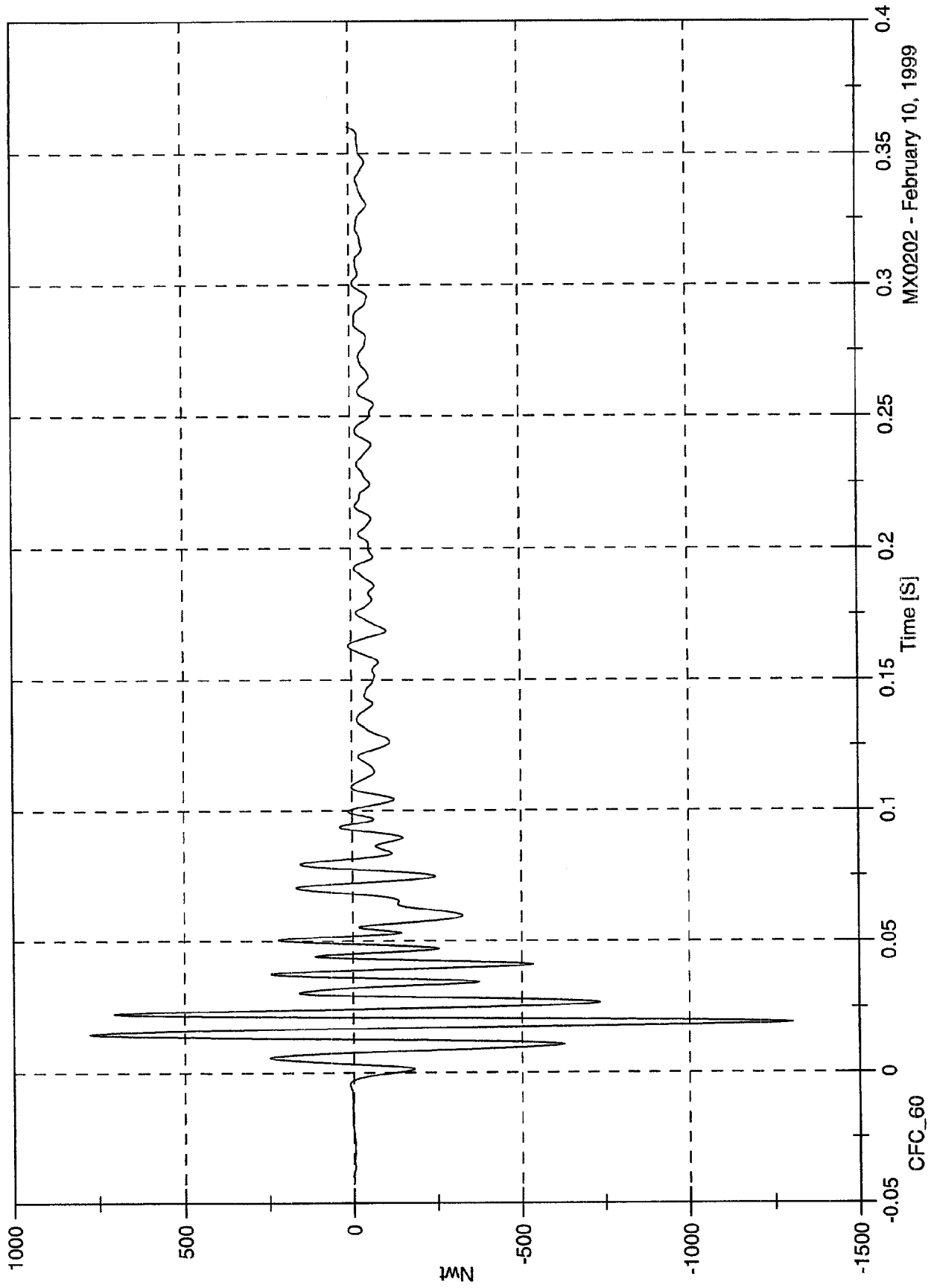


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 777.5 [Nwt] at 0.015 [S]  
Min: -1303.8 [Nwt] at 0.019 [S]

BLC A2 Fx

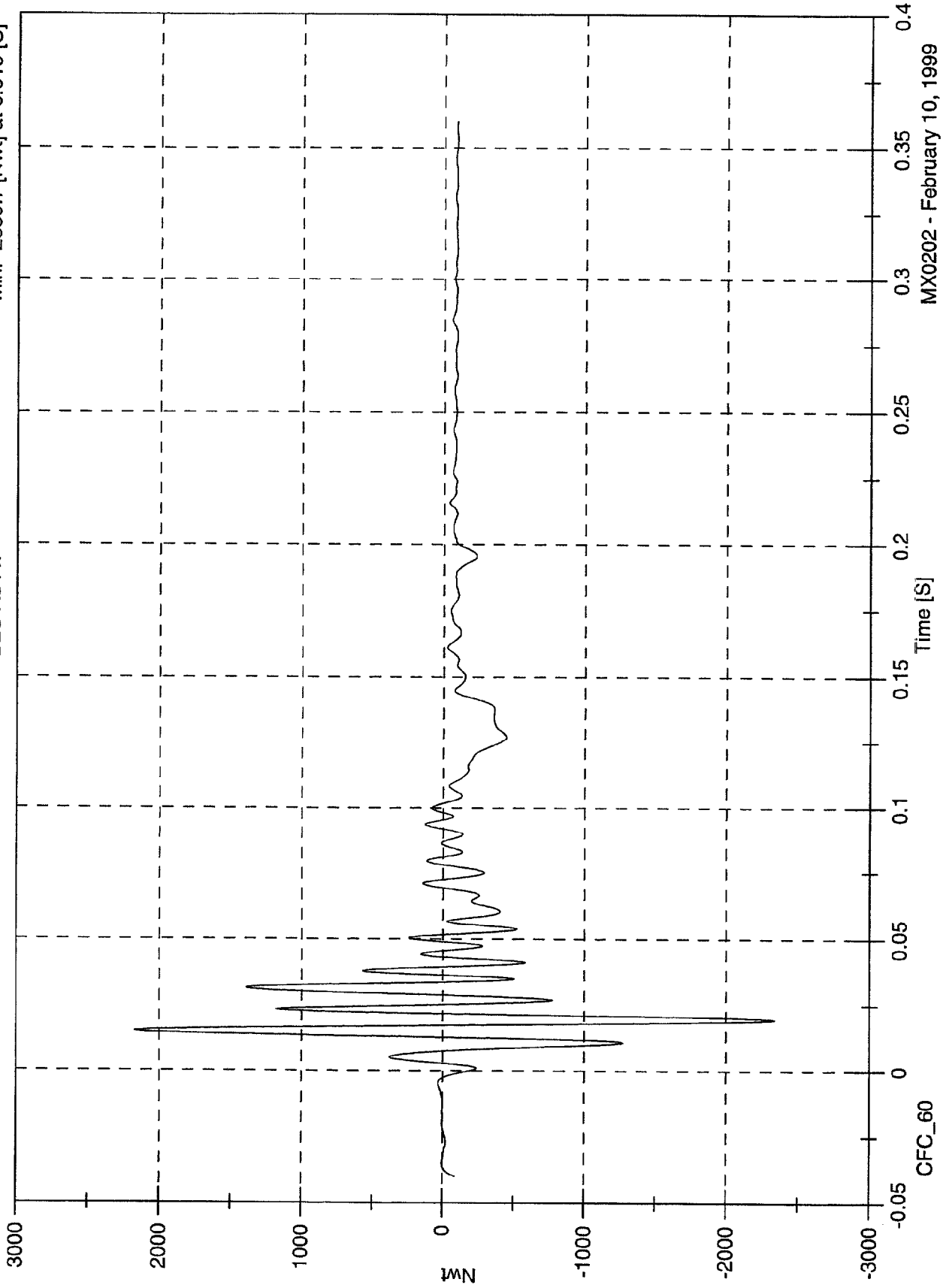


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 2171.0 [Nwt] at 0.015 [S]  
Min: -2339.7 [Nwt] at 0.019 [S]

BLC A3 Fx

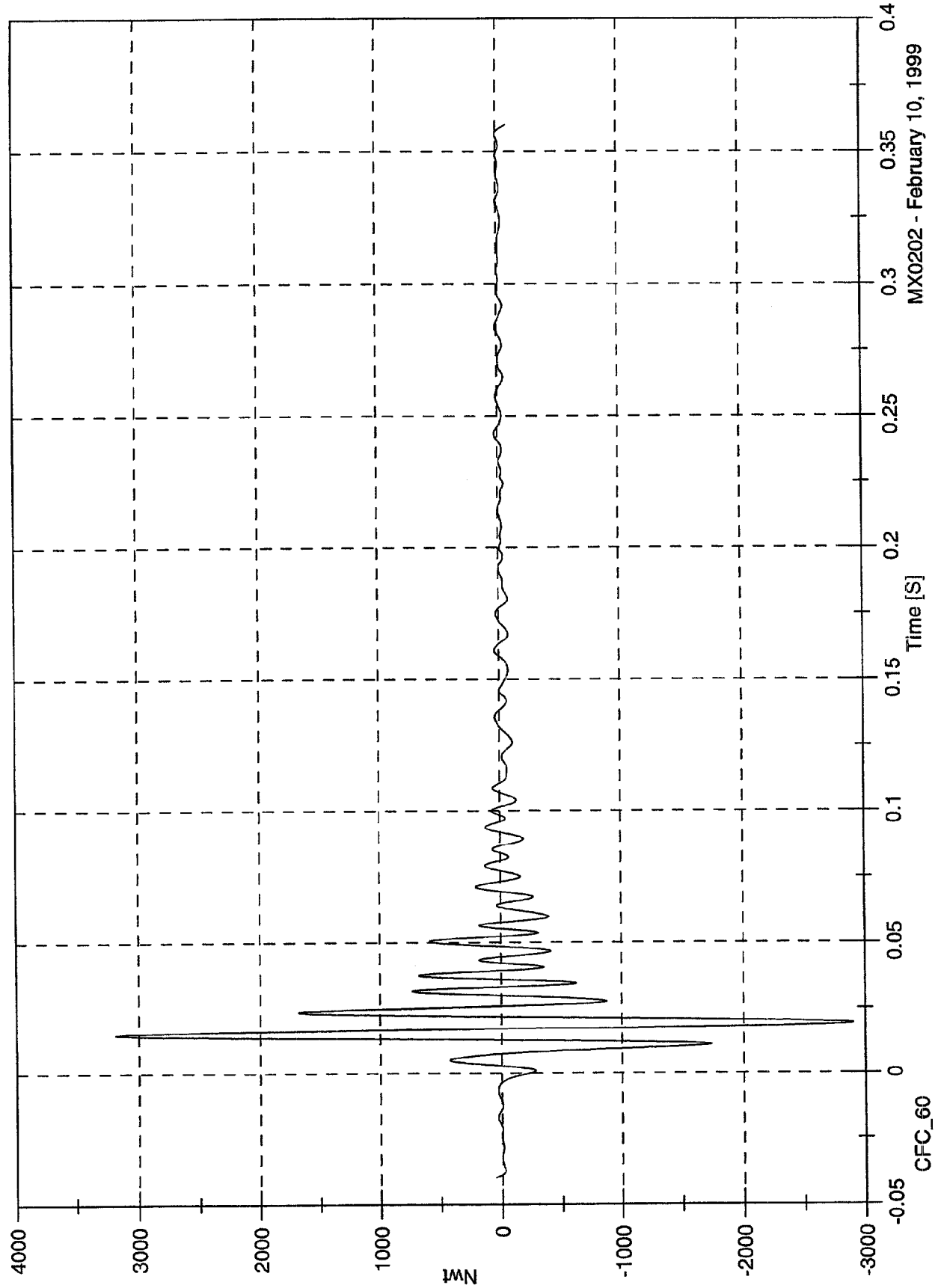


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

BLC A4 Fx

Max: 3191.7 [Nwt] at 0.015 [S]  
Min: -2900.7 [Nwt] at 0.019 [S]

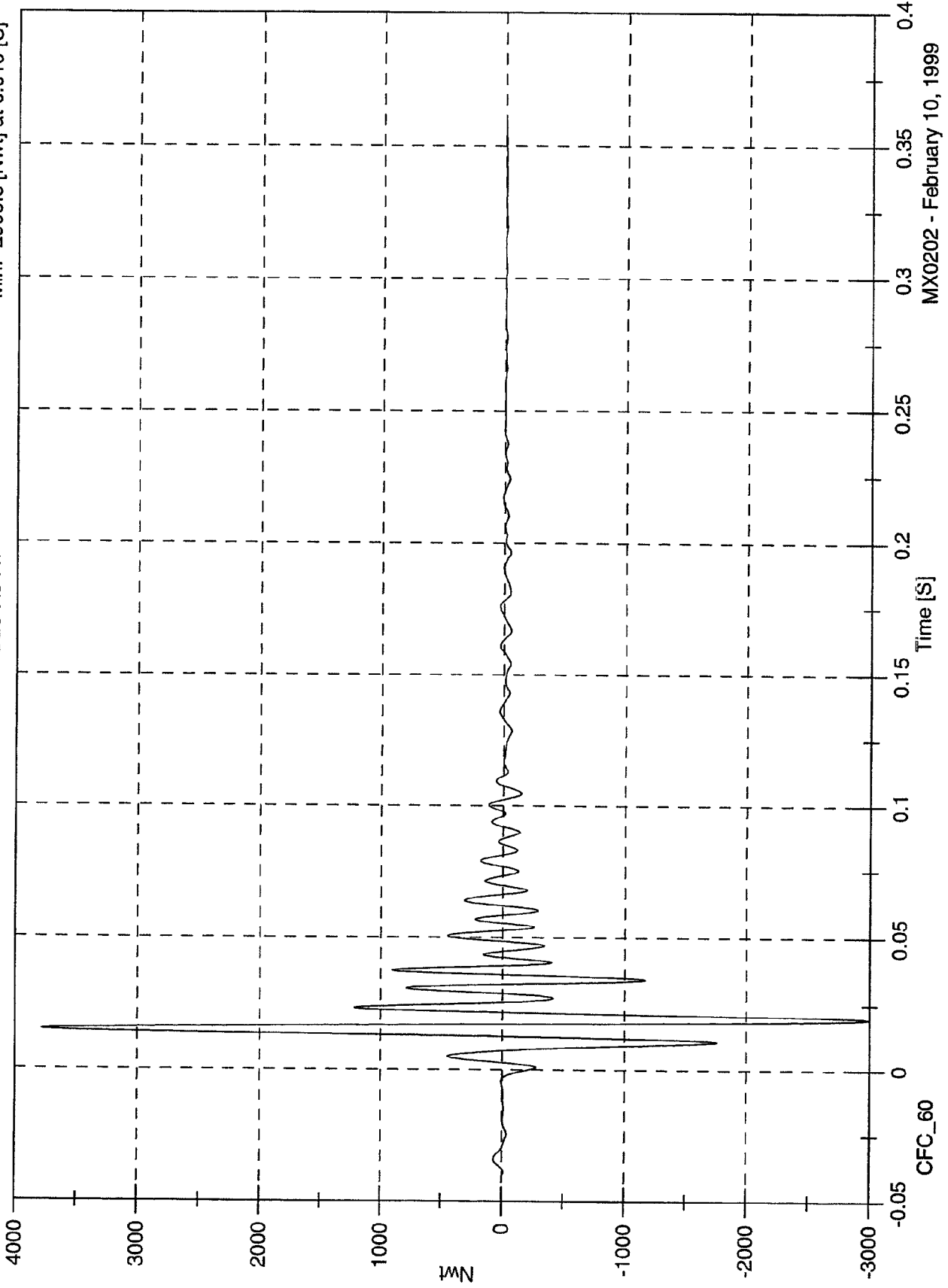


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 3780.2 [Nwt] at 0.015 [S]  
Min: -2995.3 [Nwt] at 0.019 [S]

BLC A5 Fx

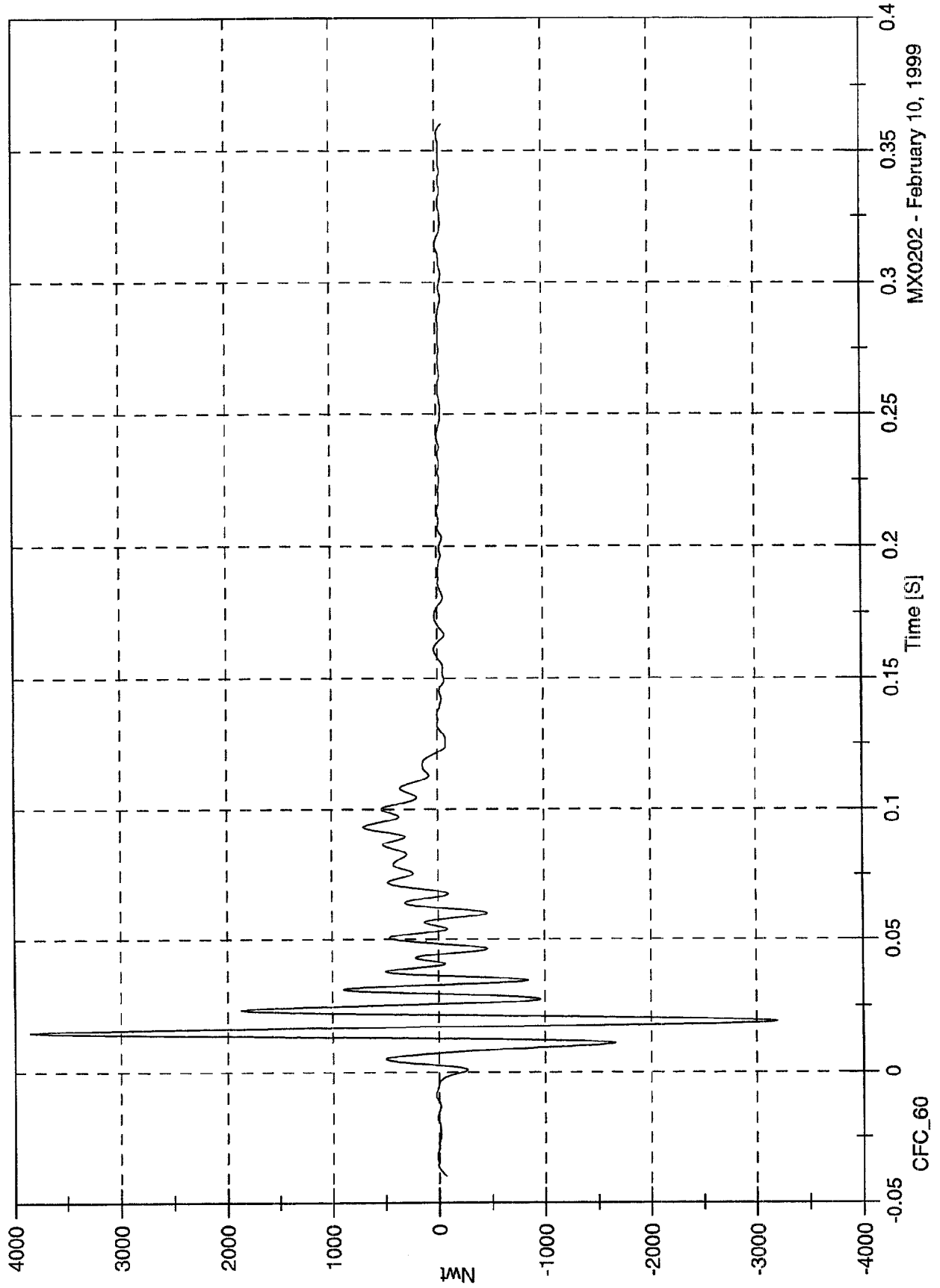


MX0202 - February 10, 1999

NCAP TEST #11 - 1999 FORD F150 PICKUP

Max: 3857.3 [Nwt] at 0.015 [S]  
Min: -3192.1 [Nwt] at 0.019 [S]

BLC A6 Fx

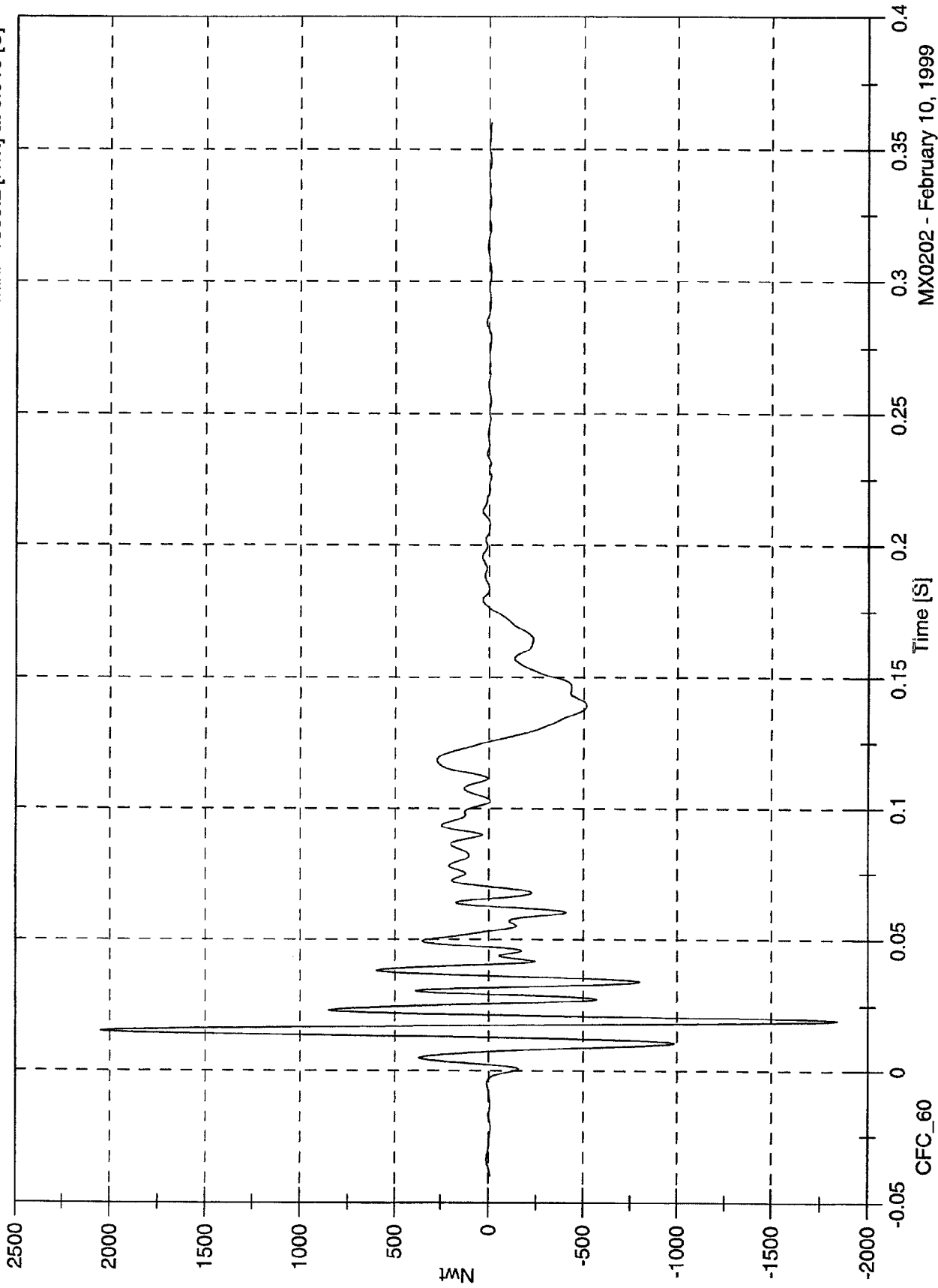


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

BLC A7 Fx

Max: 2048.5 [Nwt] at 0.015 [S]  
Min: -1839.2 [Nwt] at 0.019 [S]

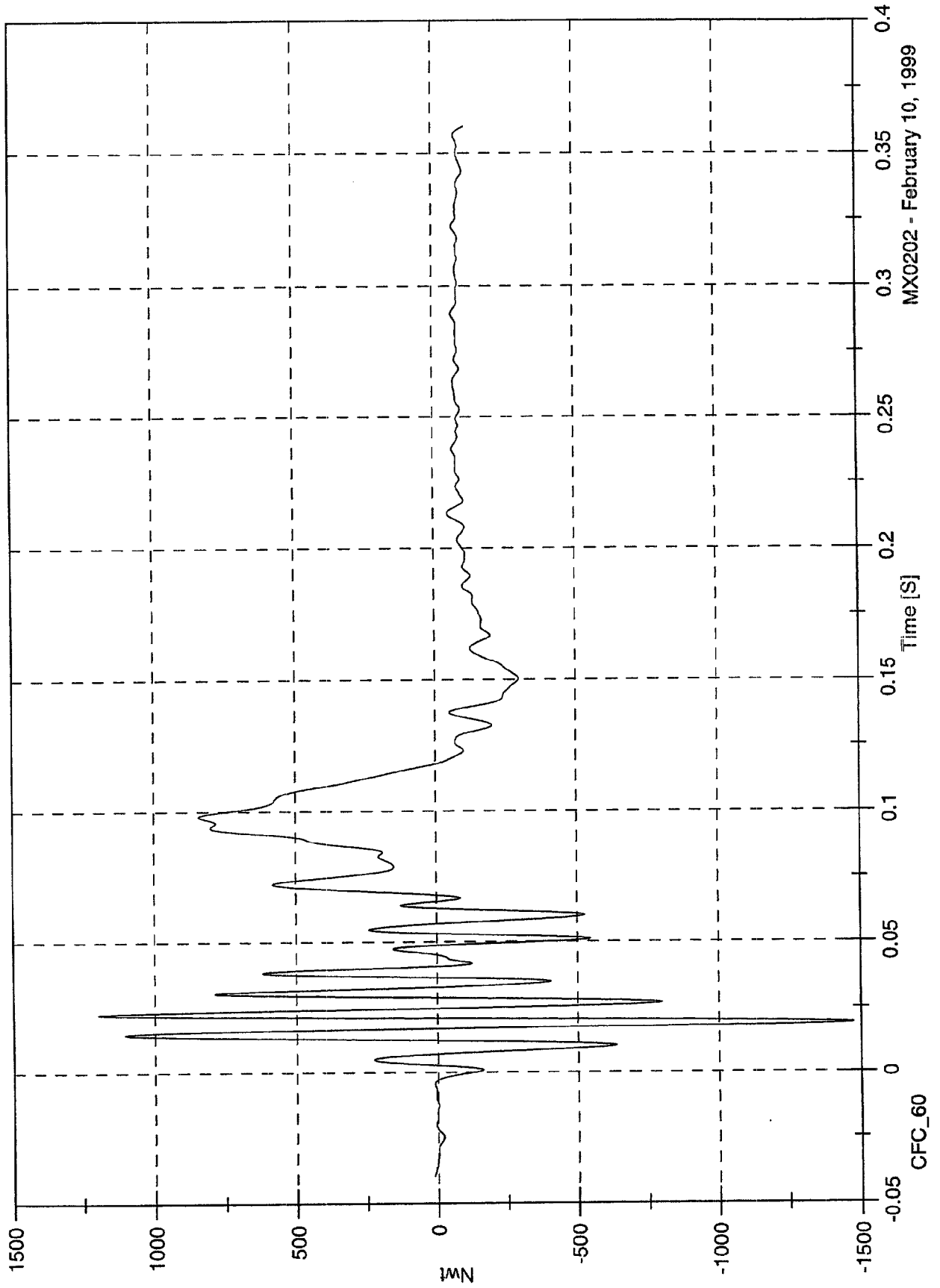


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 1200.7 [Nwt] at 0.023 [S]  
Min: -1472.9 [Nwt] at 0.019 [S]

BLC A8 Fx

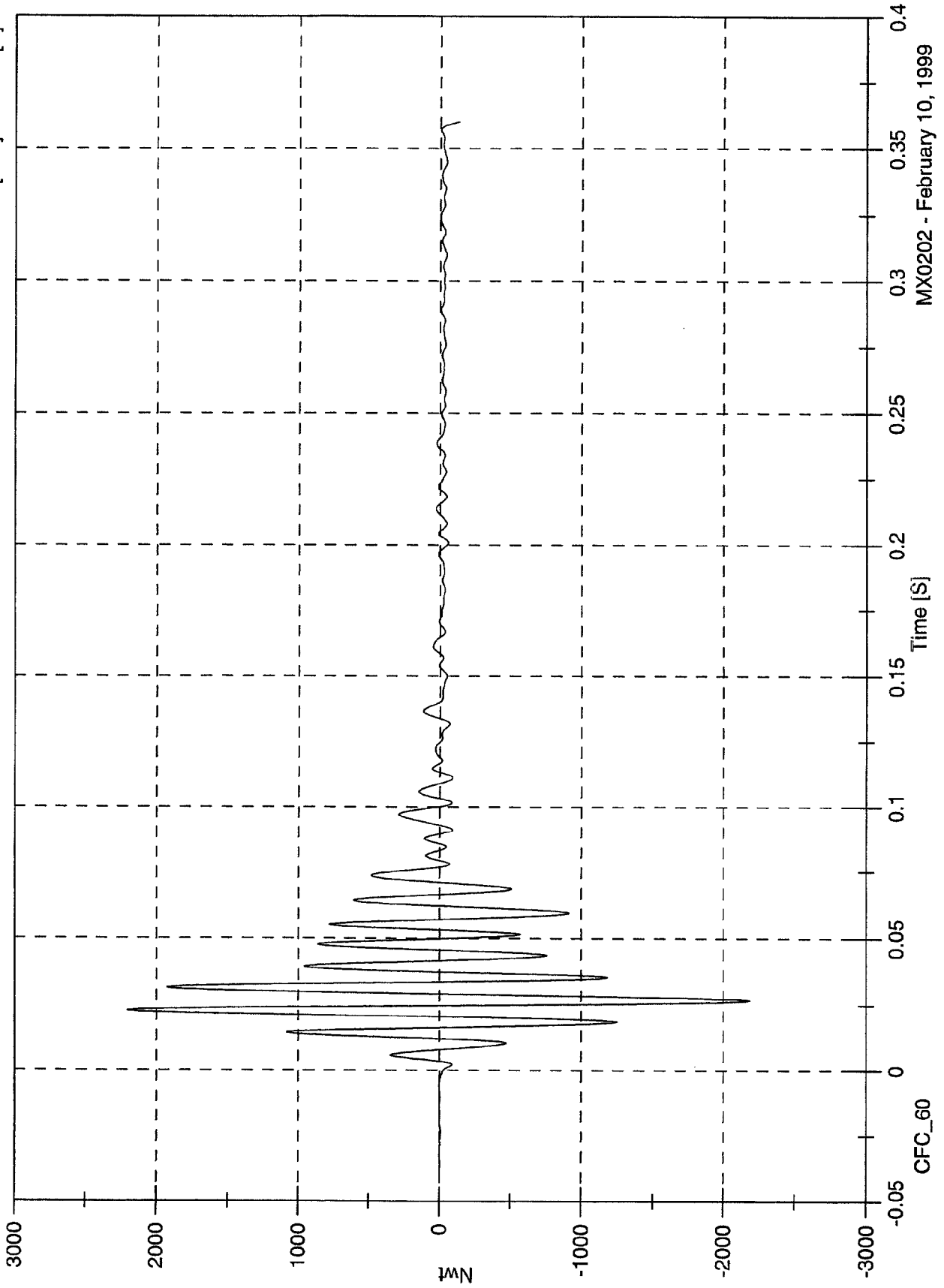


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

BLC A9 Fx

Max: 2202.2 [Nwt] at 0.023 [S]  
Min: -2187.6 [Nwt] at 0.027 [S]

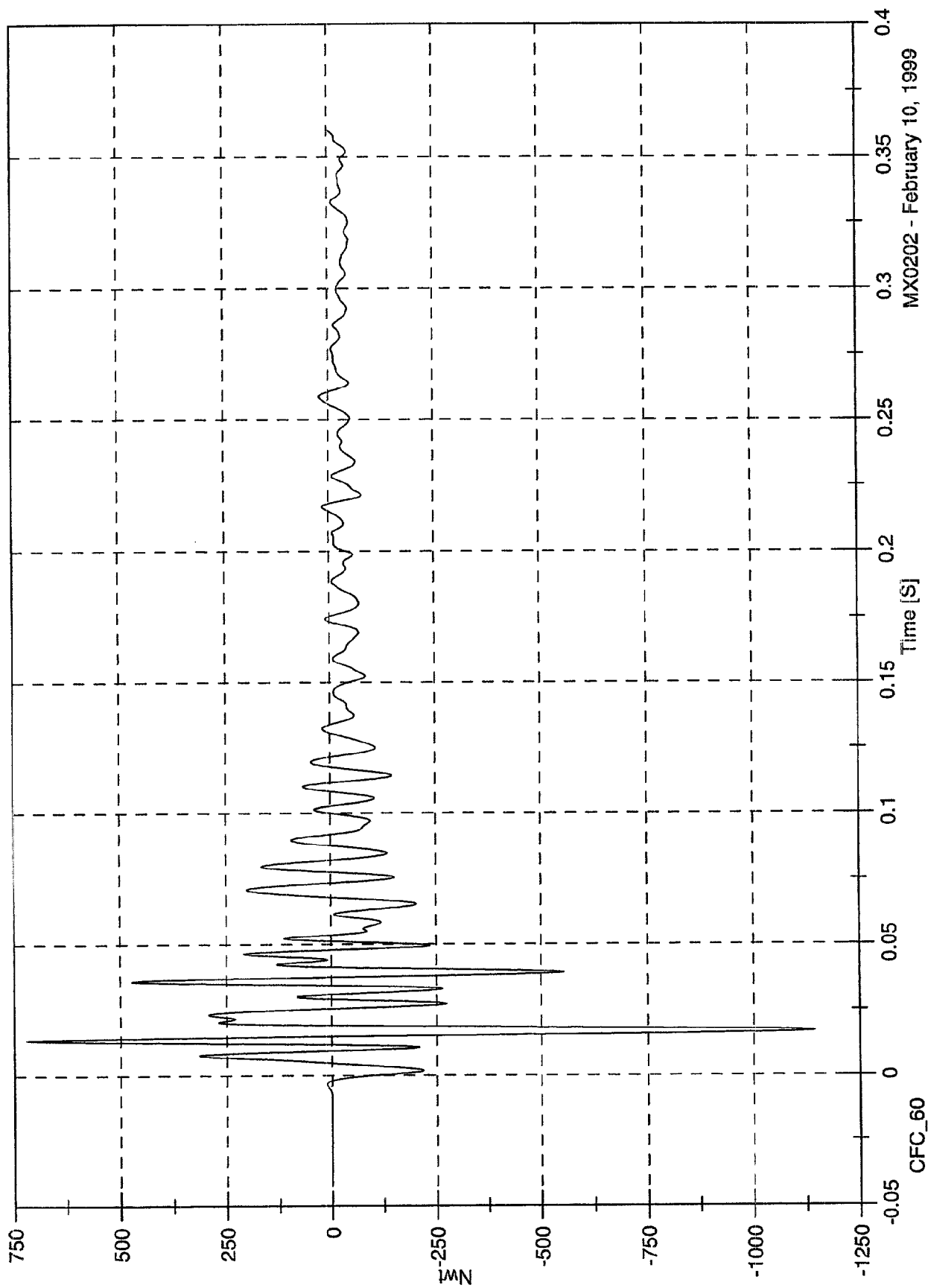


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 721.6 [Nwt] at 0.013 [S]  
Min: -1142.9 [Nwt] at 0.017 [S]

BLC B1 Fx

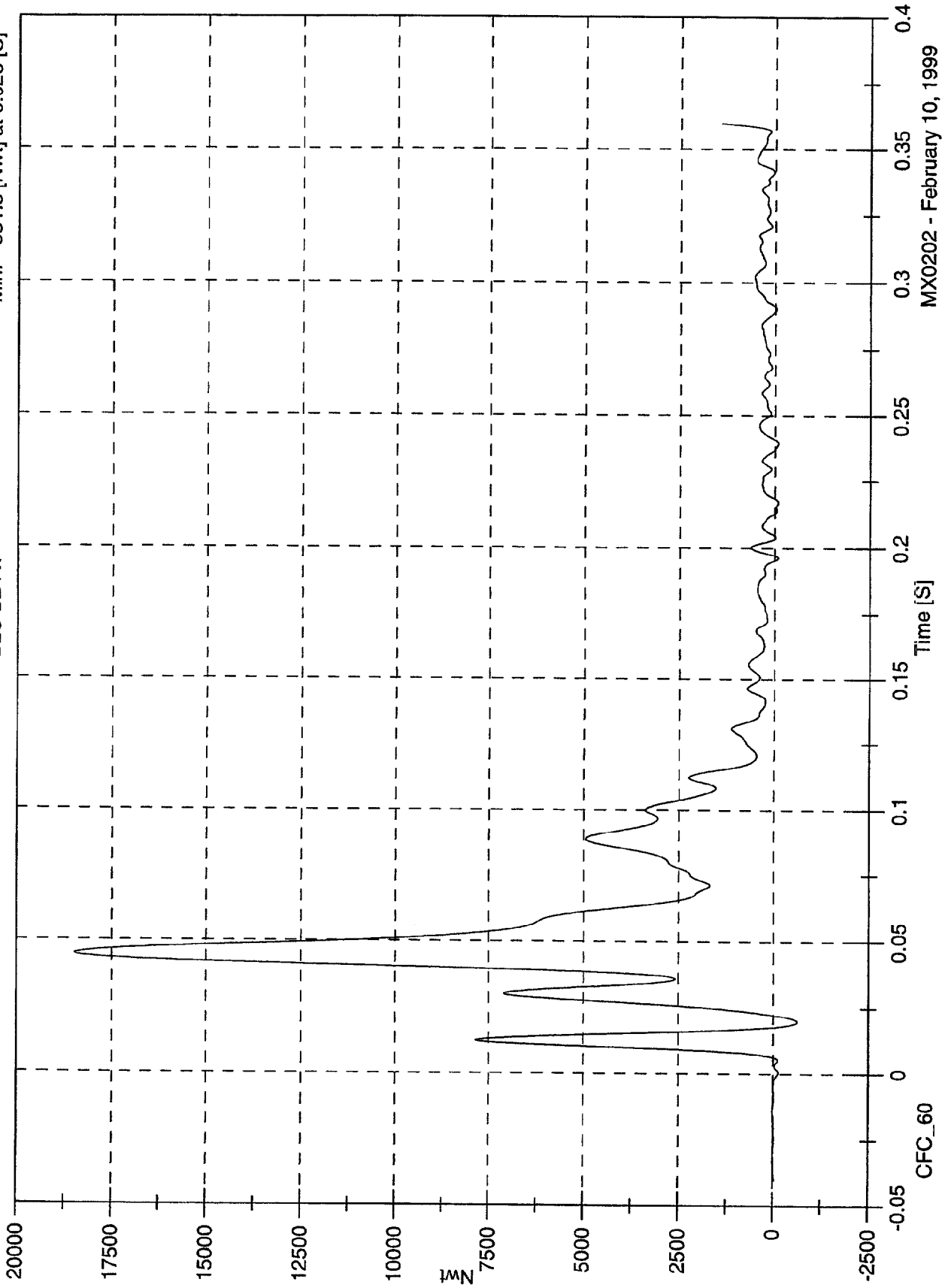


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

BLC B2 Fx

Max: 18482.2 [Nwt] at 0.045 [S]  
Min: -631.5 [Nwt] at 0.020 [S]



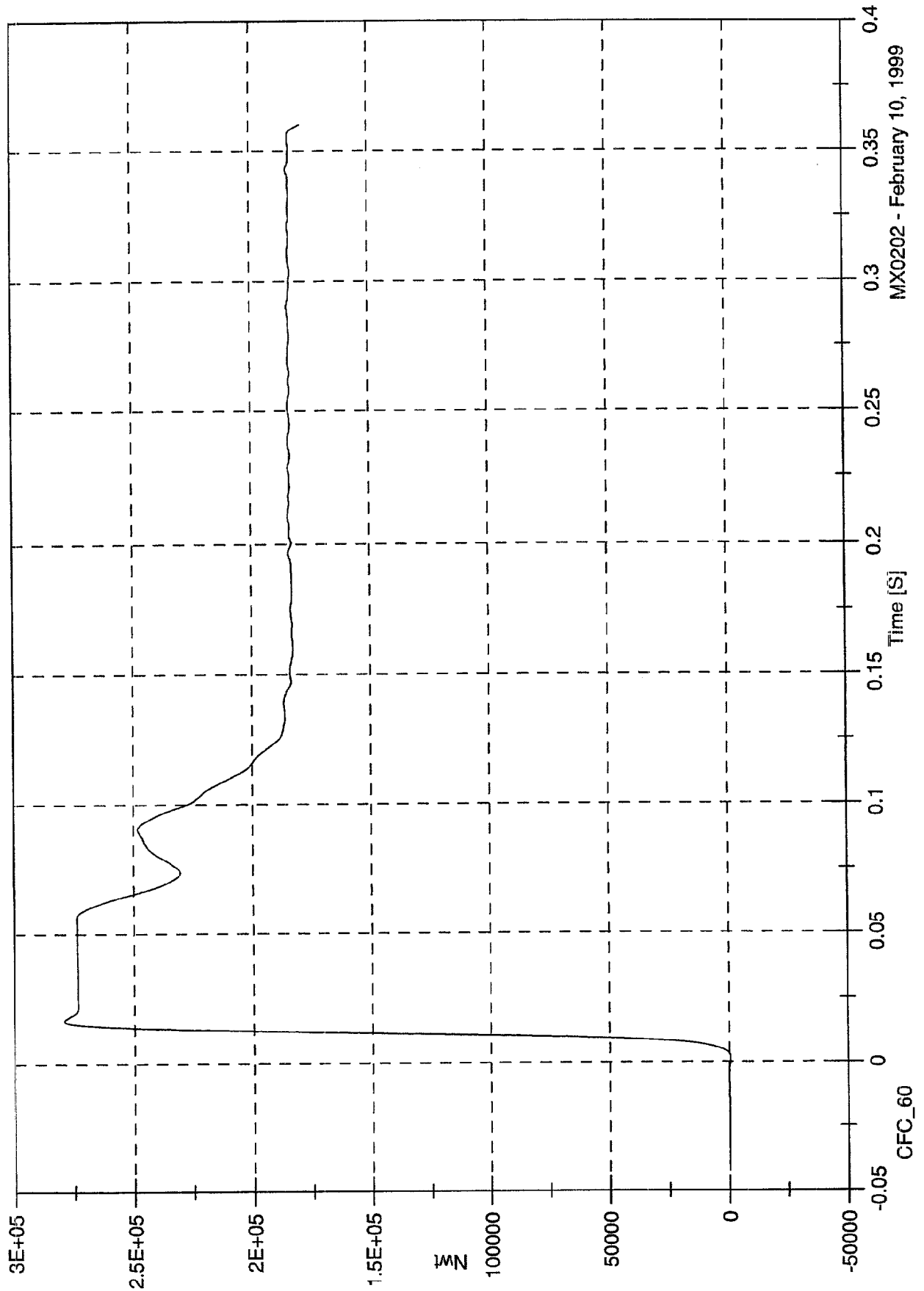
MX0202 - February 10, 1999

Max: 279417.0 [Nwt] at 0.017 [S]

Min: -585.0 [Nwt] at 0.001 [S]

### NCAP TEST #11- 1999 FORD F150 PICKUP

BLC B3 Fx

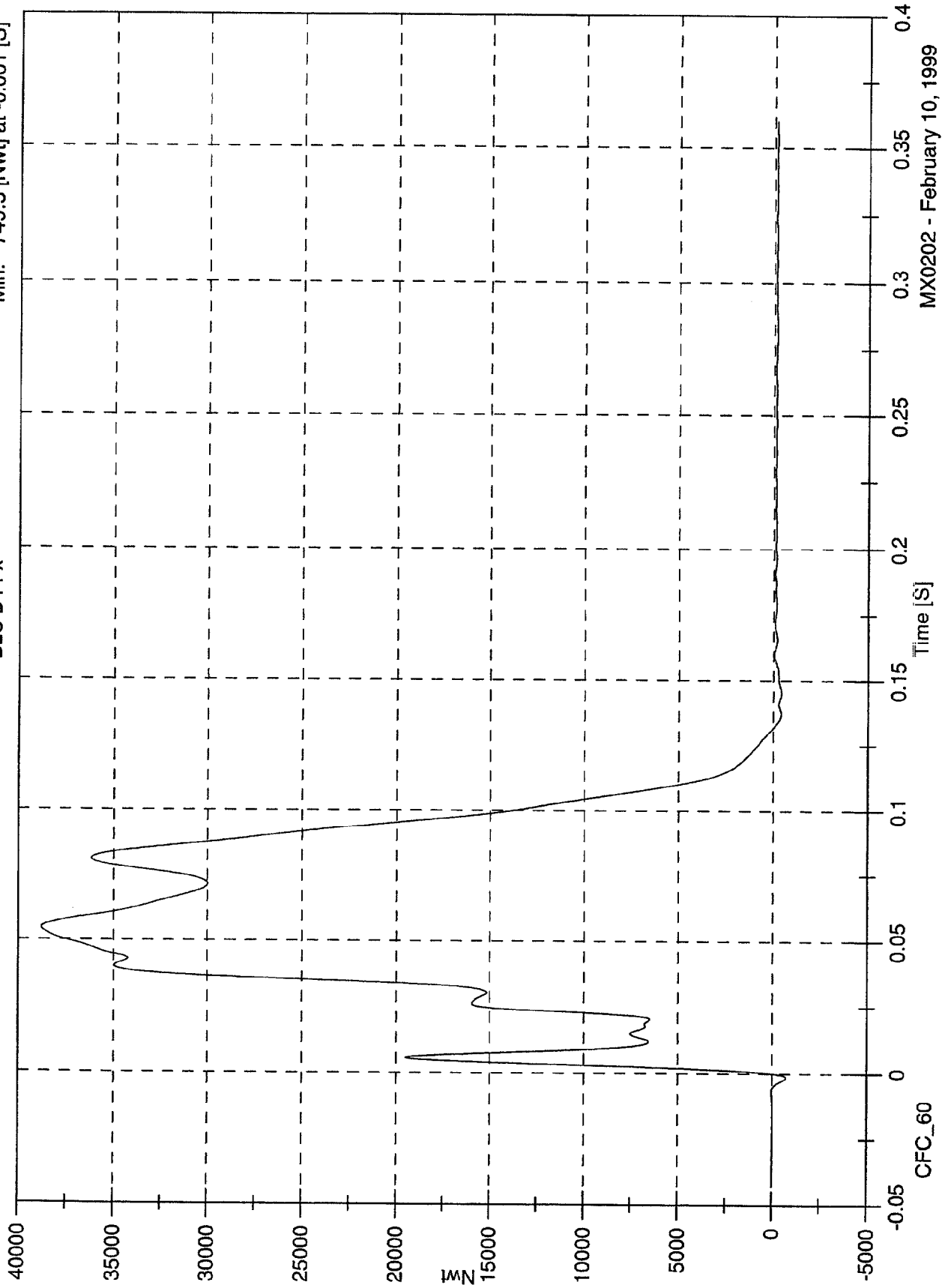


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

BLC B4 Fx

Max: 38795.1 [Nwt] at 0.055 [S]  
Min: -749.5 [Nwt] at -0.001 [S]



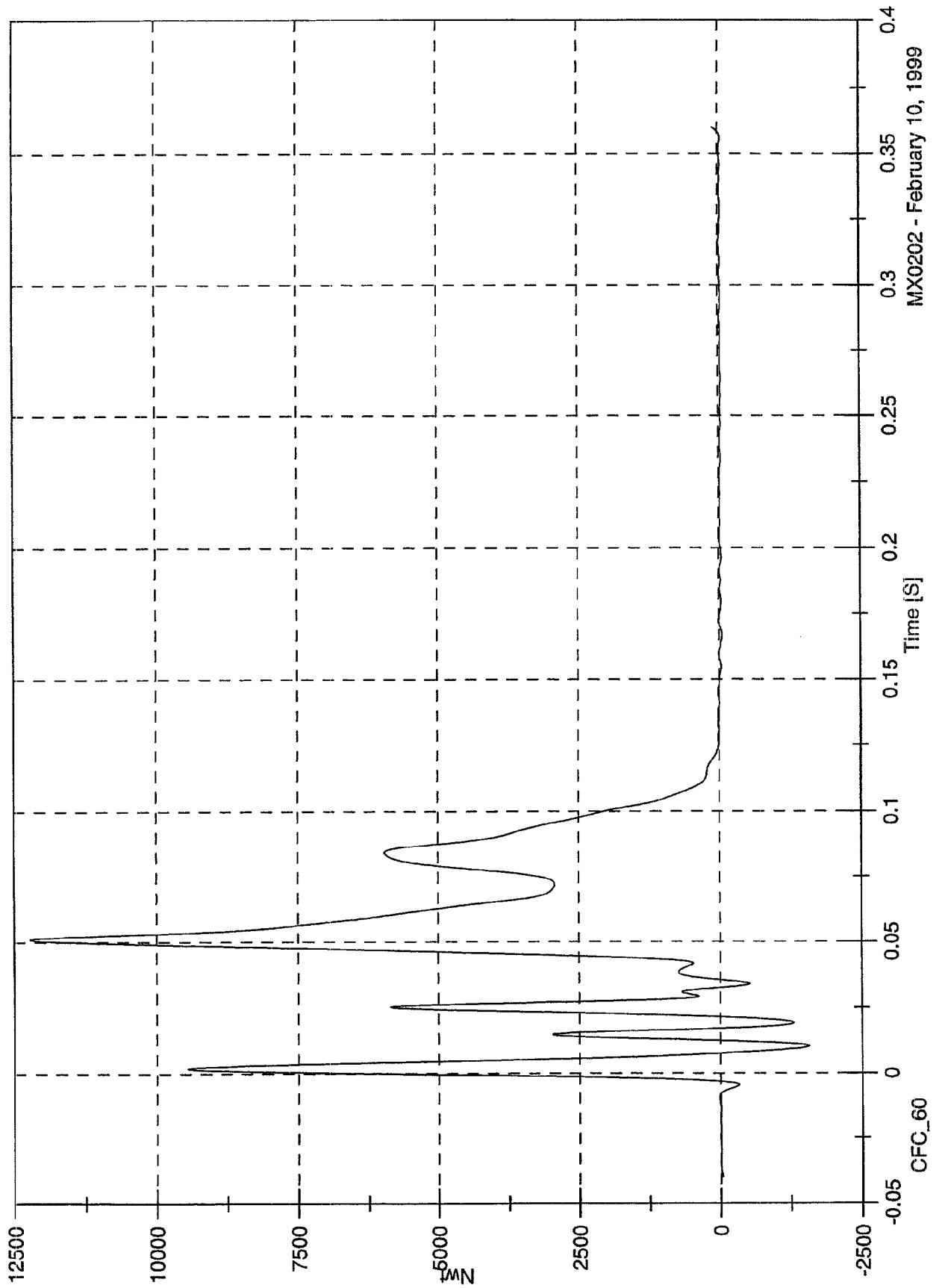
MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

BLC B5 Fx

Max: 12227.2 [Nwt] at 0.051 [S]

Min: -1565.4 [Nwt] at 0.010 [S]

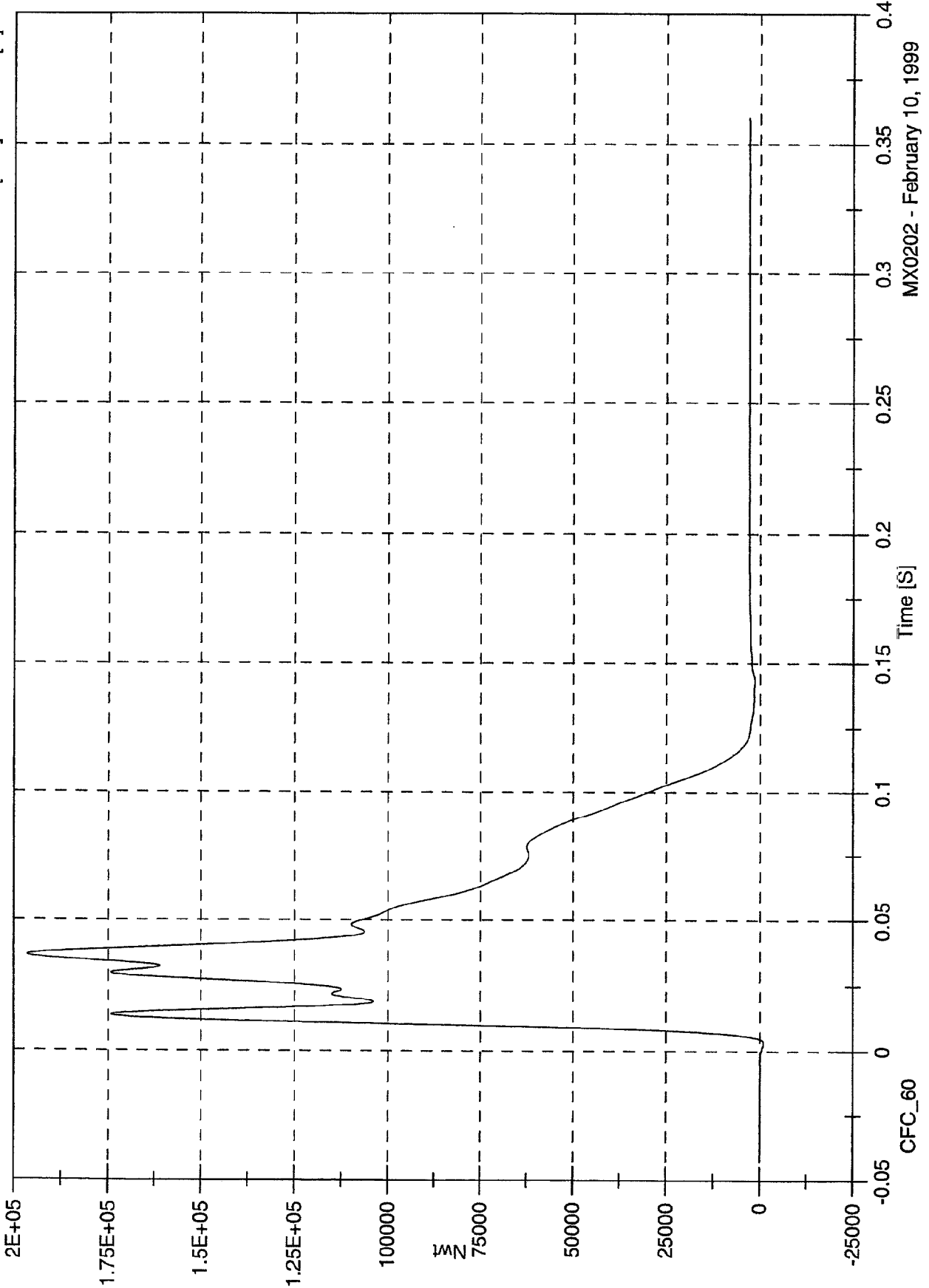


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 196544.6 [Nwt] at 0.037 [S]  
Min: -998.7 [Nwt] at 0.003 [S]

BLC B6 Fx

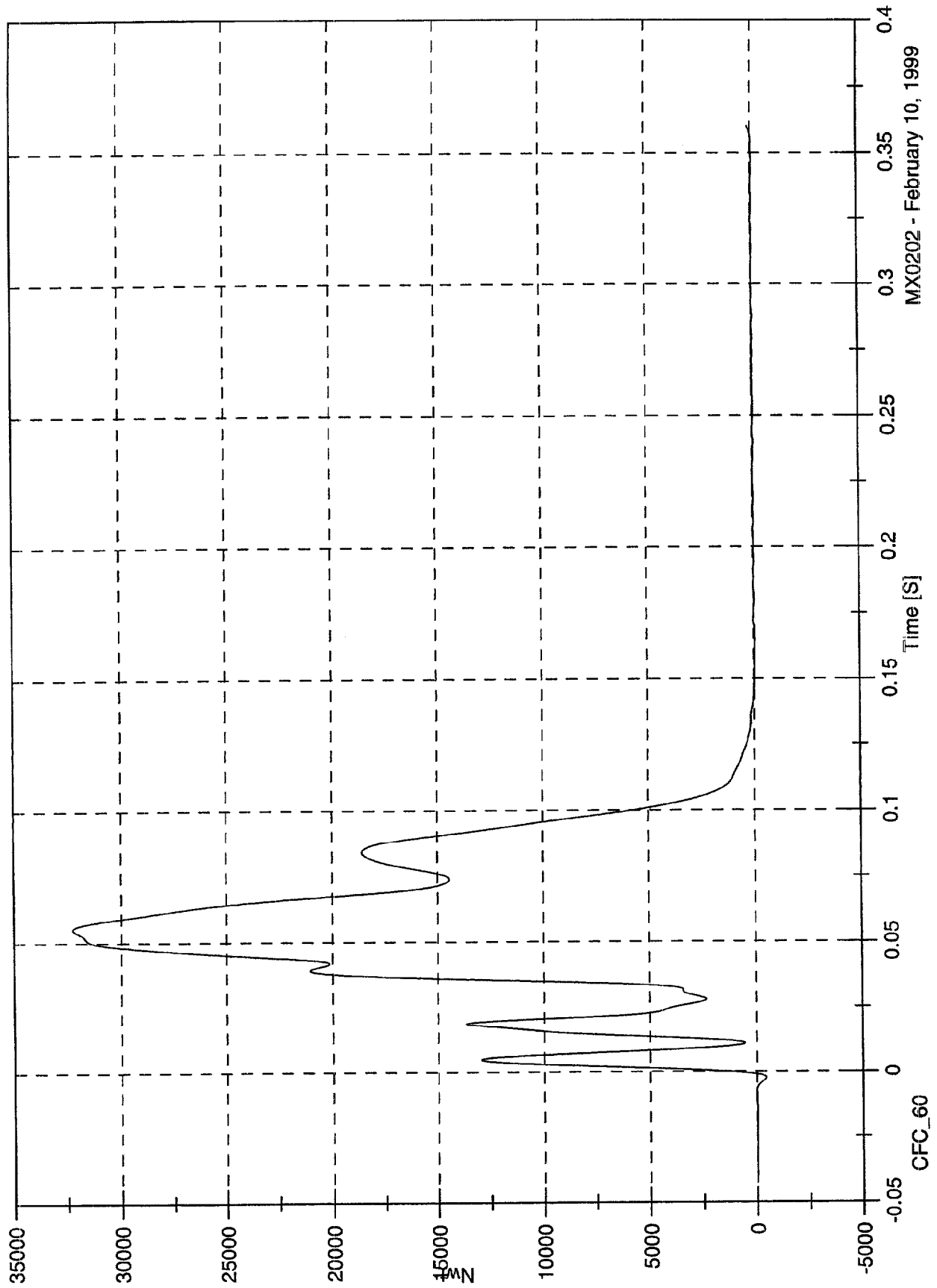


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

BLC B7 Fx

Max: 32256.2 [Nwt] at 0.055 [S]  
Min: -435.2 [Nwt] at -0.002 [S]

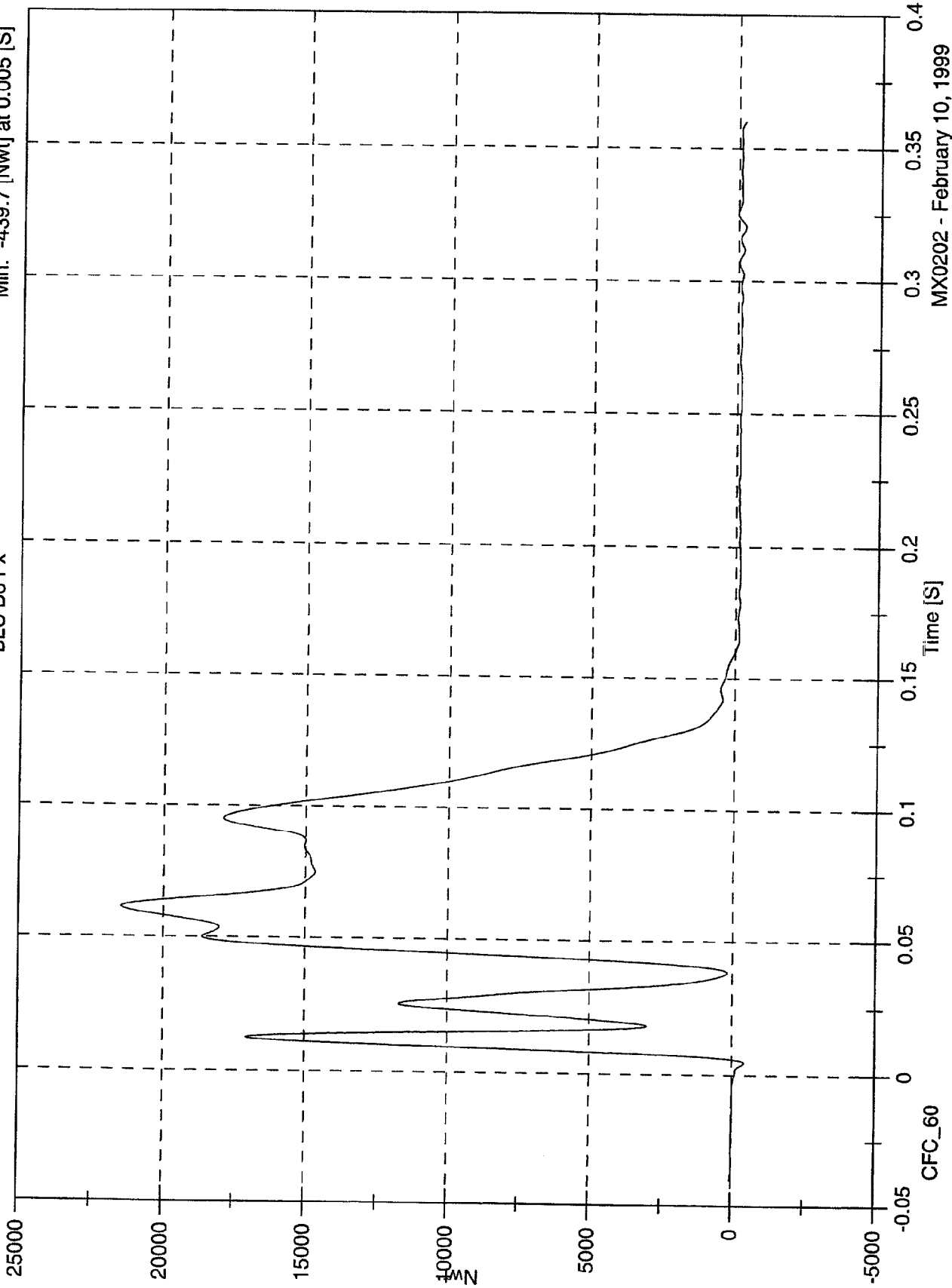


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

BLC B8 Fx

Max: 21465.9 [Nwt] at 0.061 [S]  
Min: -439.7 [Nwt] at 0.005 [S]

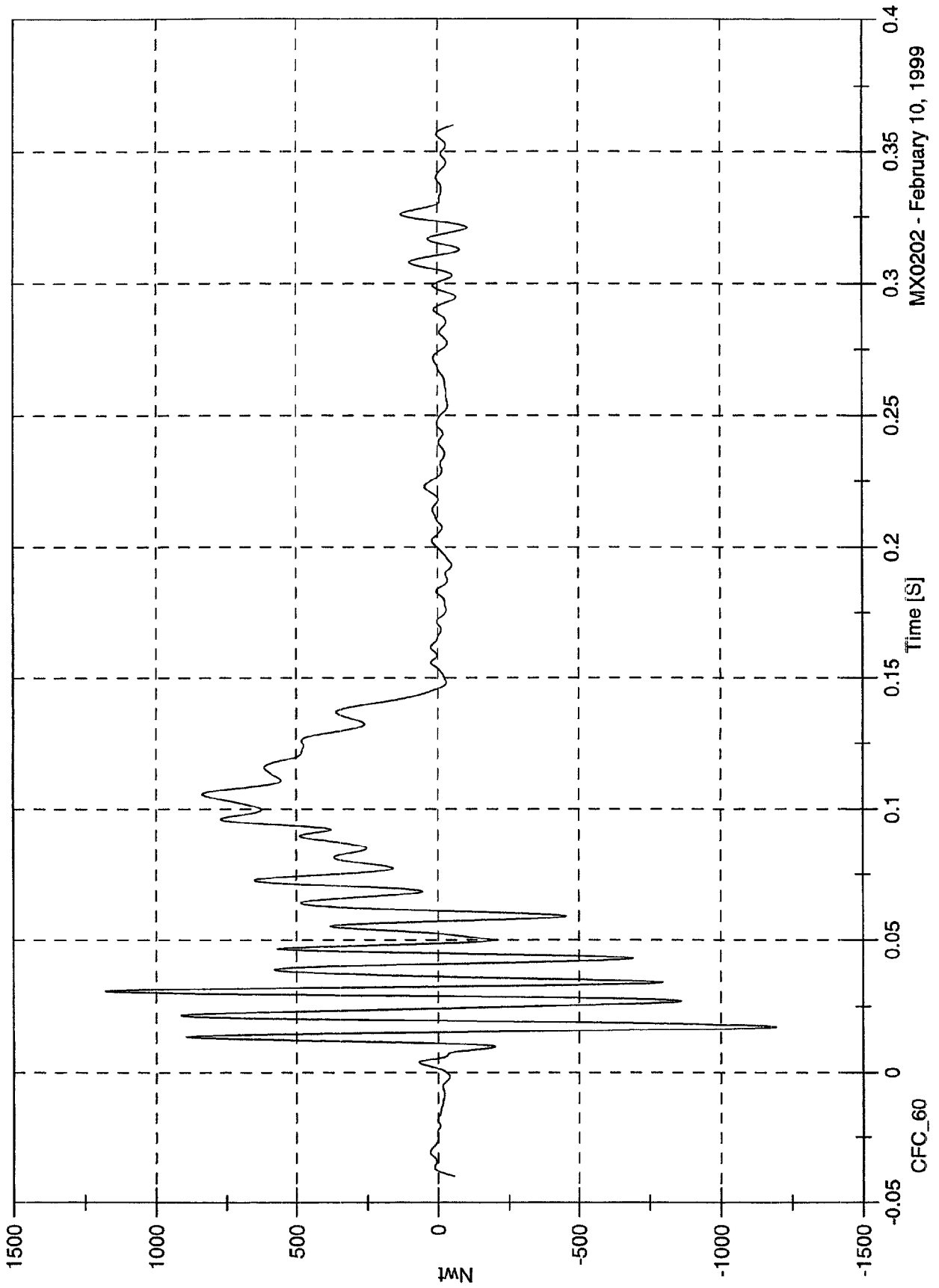


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 1177.9 [Nwt] at 0.031 [S]  
Min: -1194.1 [Nwt] at 0.017 [S]

BLC B9 Fx

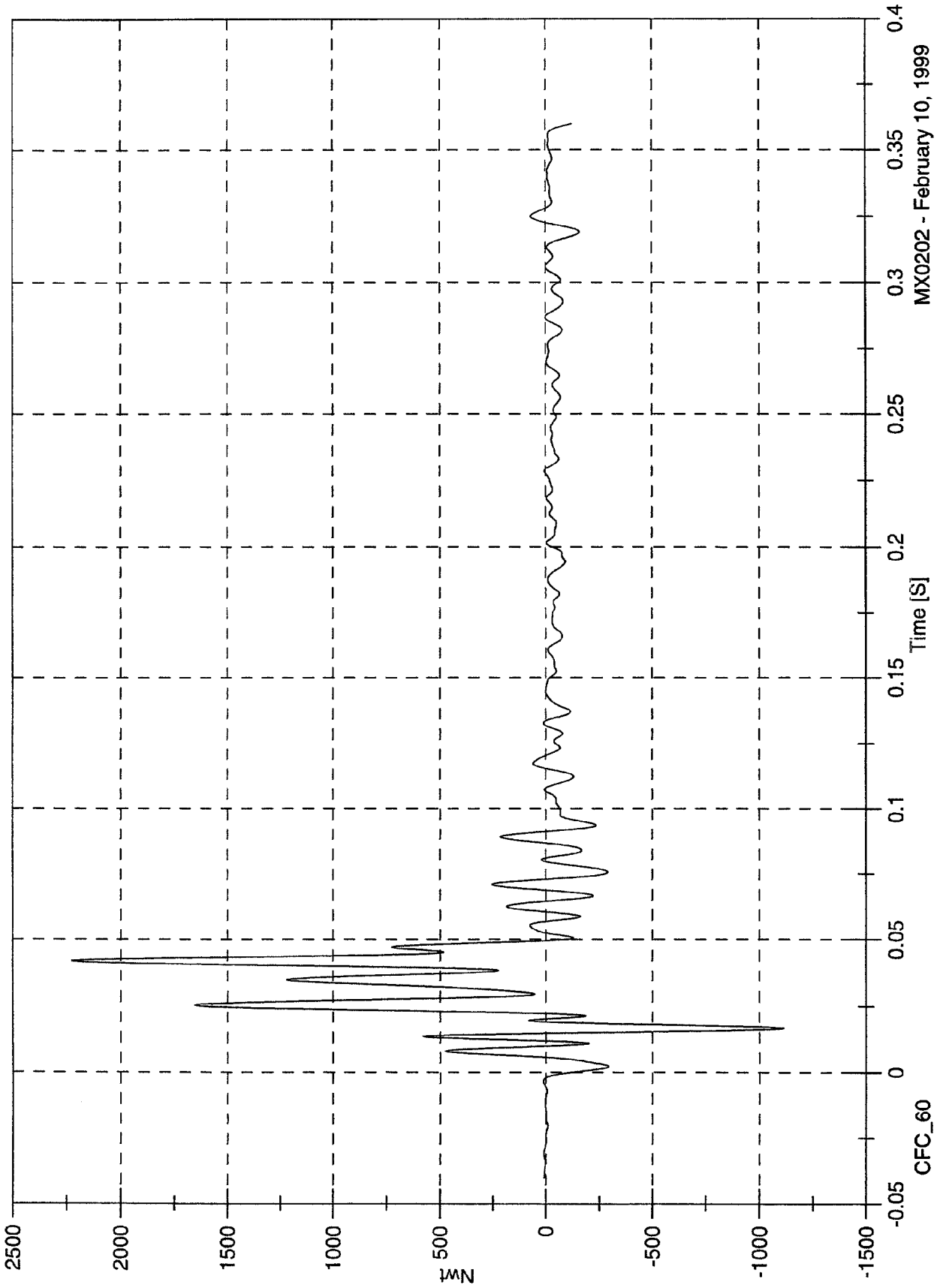


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 2226.5 [Nwt] at 0.042 [S]  
Min: -1111.7 [Nwt] at 0.017 [S]

BLC C1 Fx

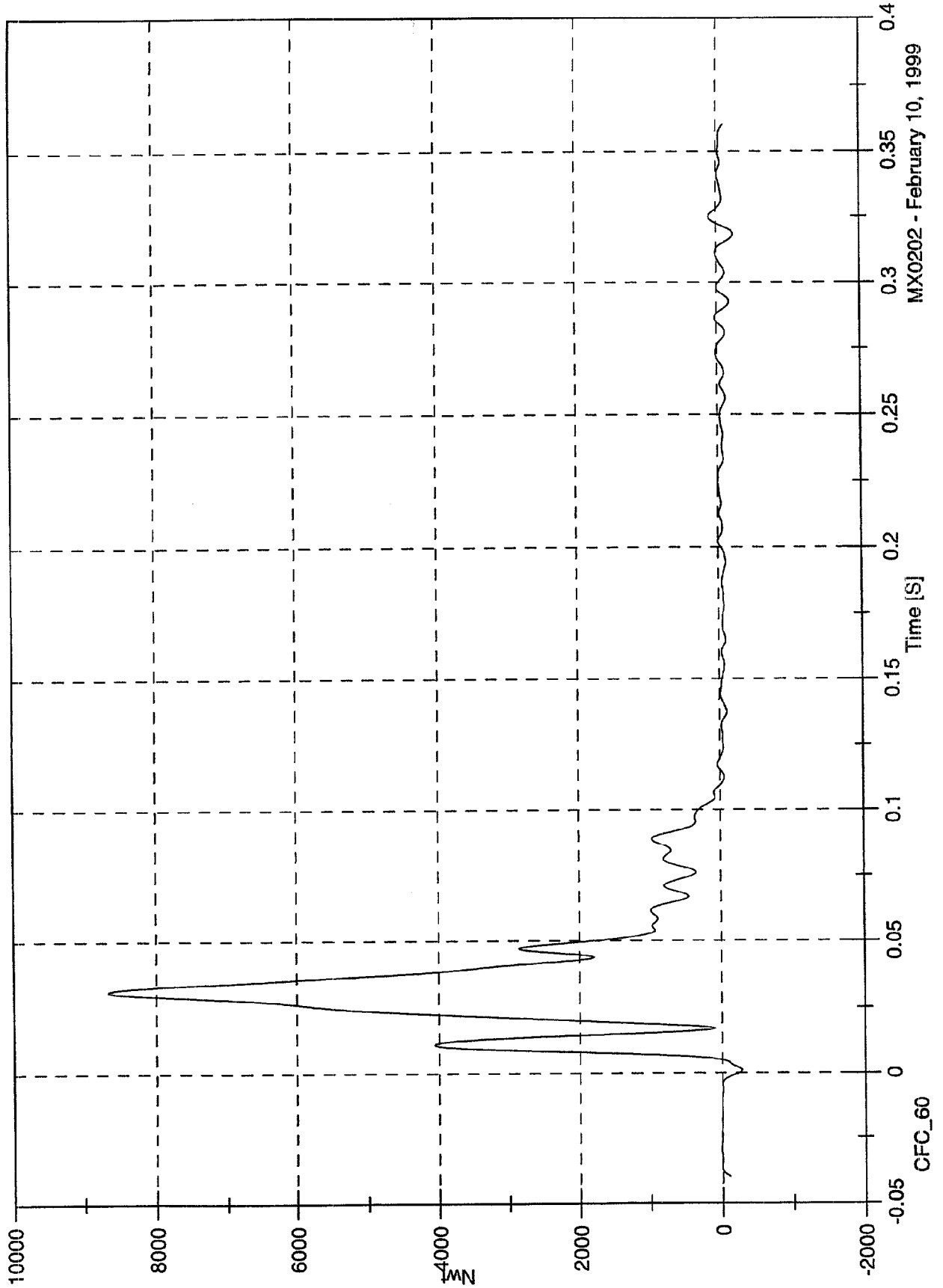


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 8669.4 [Nwt] at 0.031 [S]  
Min: -278.6 [Nwt] at 0.001 [S]

BLC C2 Fx

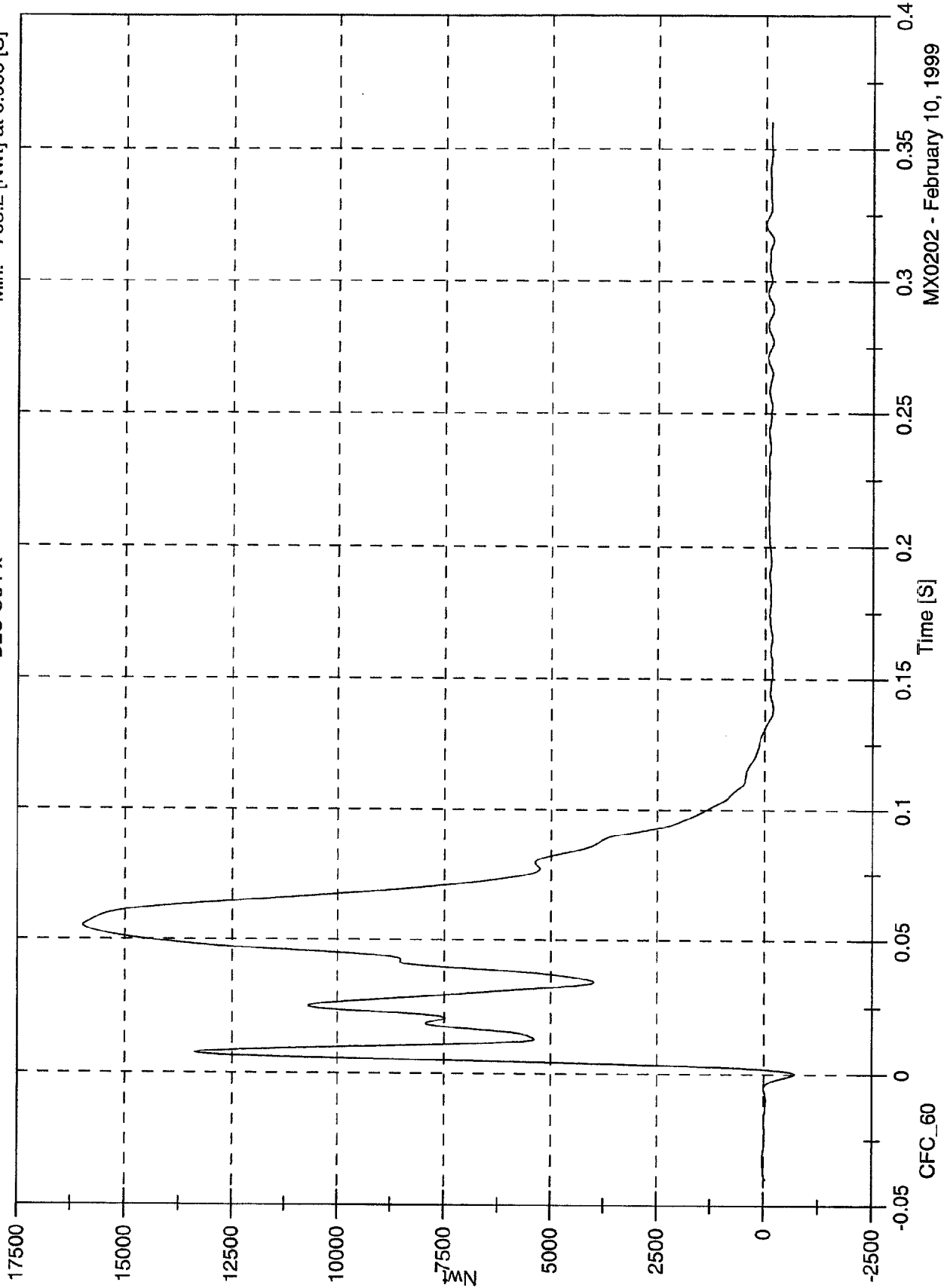


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 15966.8 [Nwt] at 0.055 [S]  
Min: -705.2 [Nwt] at 0.000 [S]

BLC C3 Fx

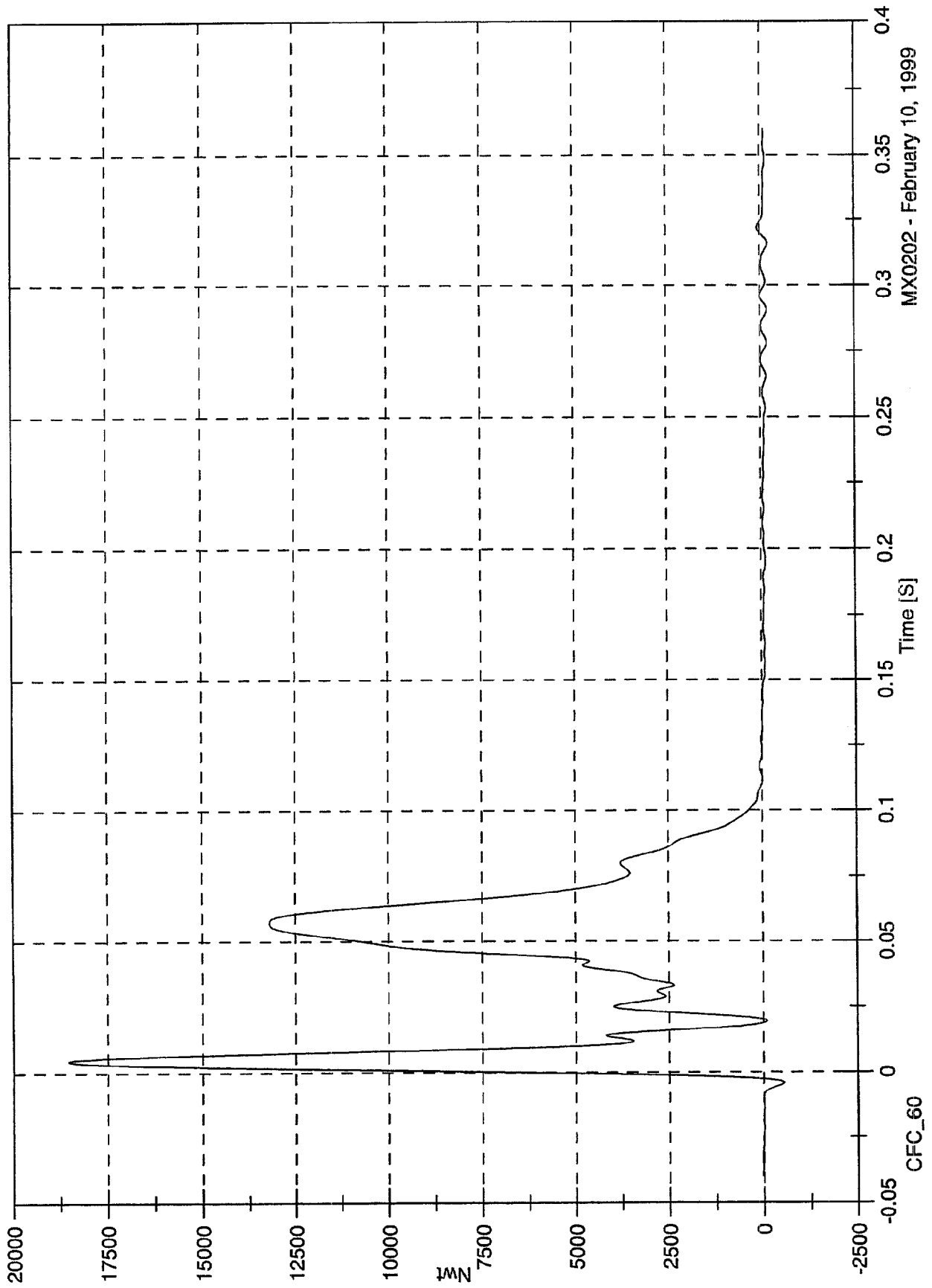


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 18543.2 [Nwt] at 0.004 [S]  
Min: -541.8 [Nwt] at -0.004 [S]

BLC C4 Fx

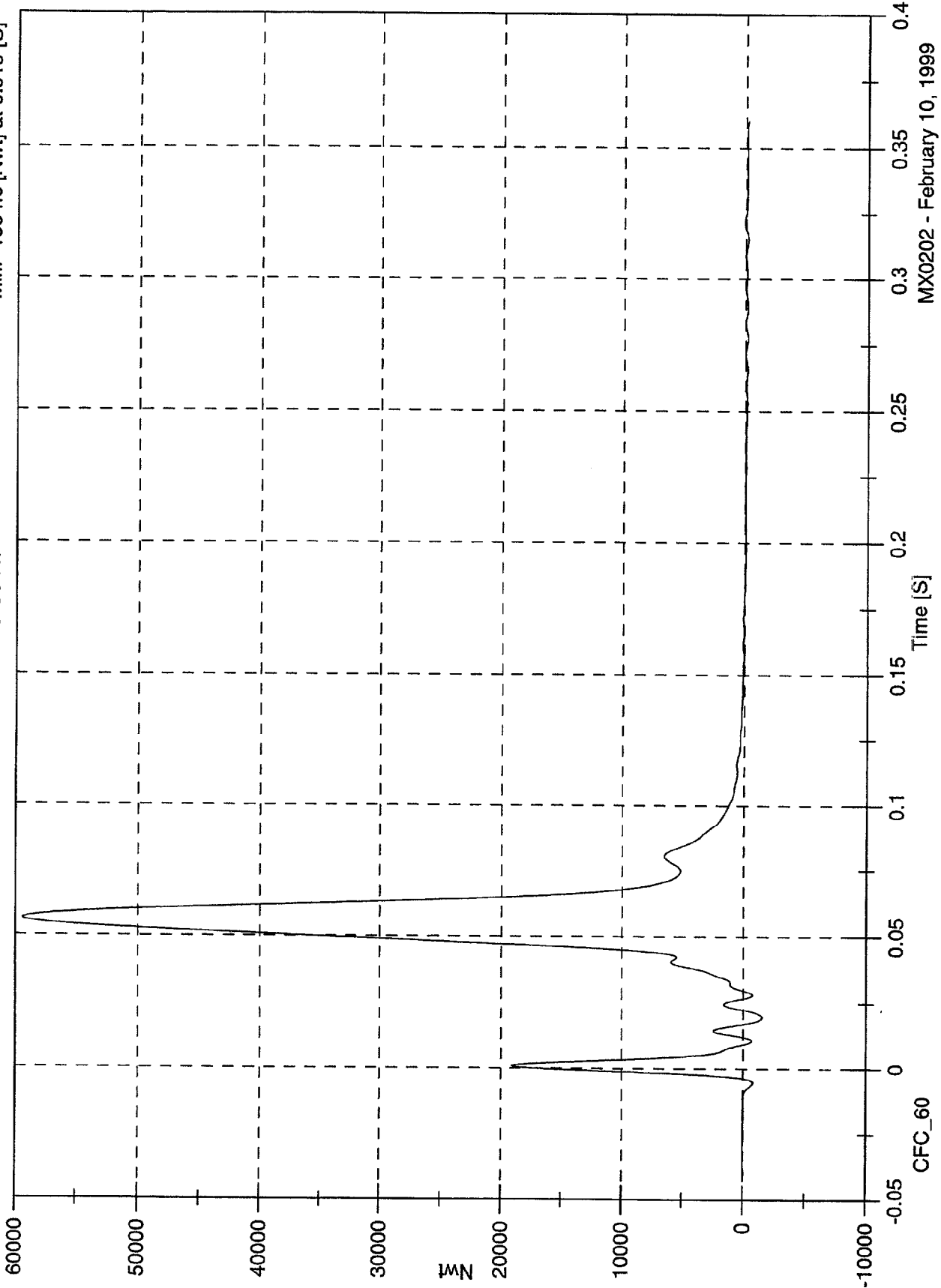


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 59400.7 [Nwt] at 0.057 [S]  
Min: -1554.0 [Nwt] at 0.019 [S]

BLC C5 Fx

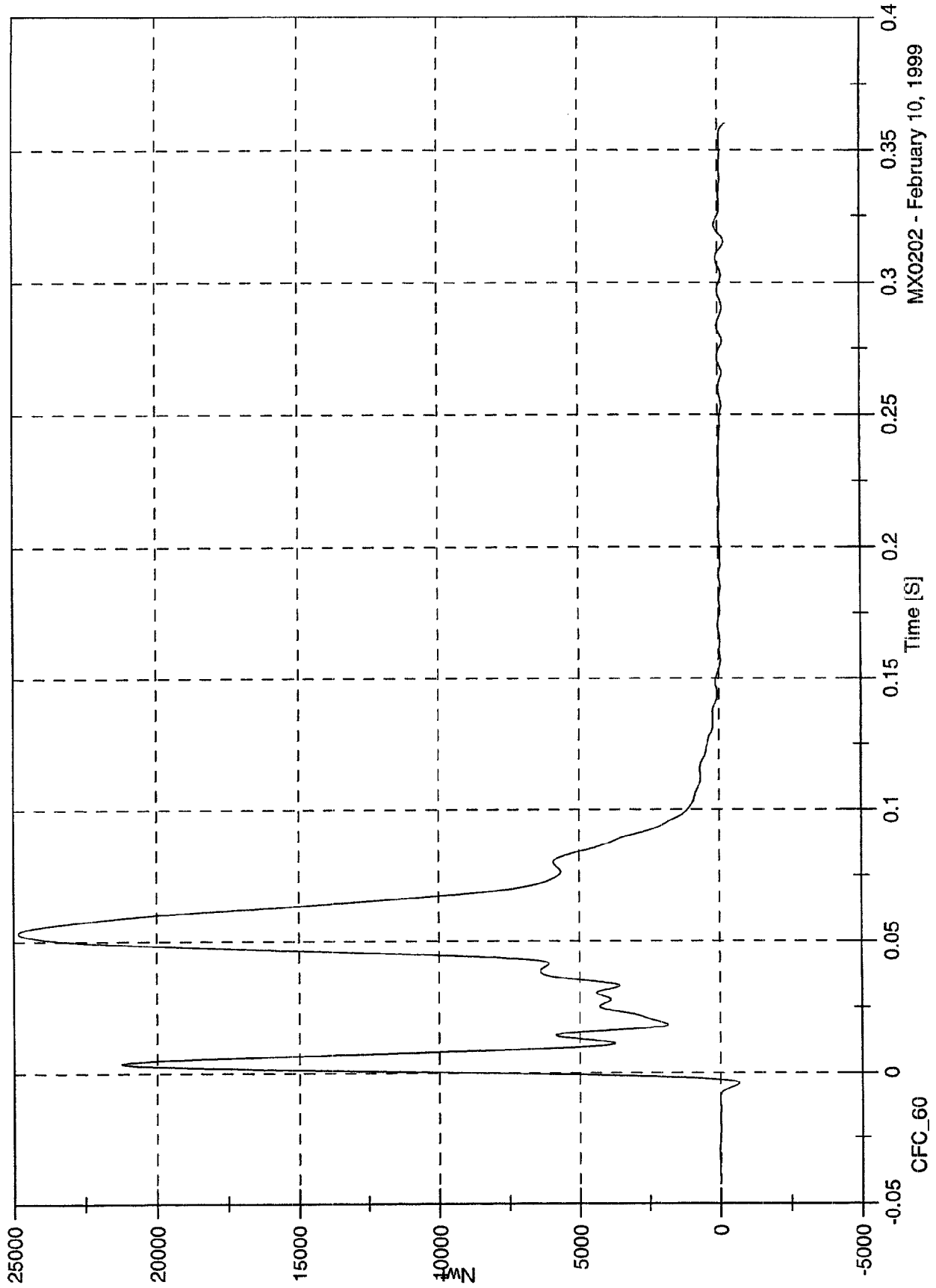


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 24846.1 [Nwt] at 0.053 [S]  
Min: -667.8 [Nwt] at -0.004 [S]

BLC C6 Fx

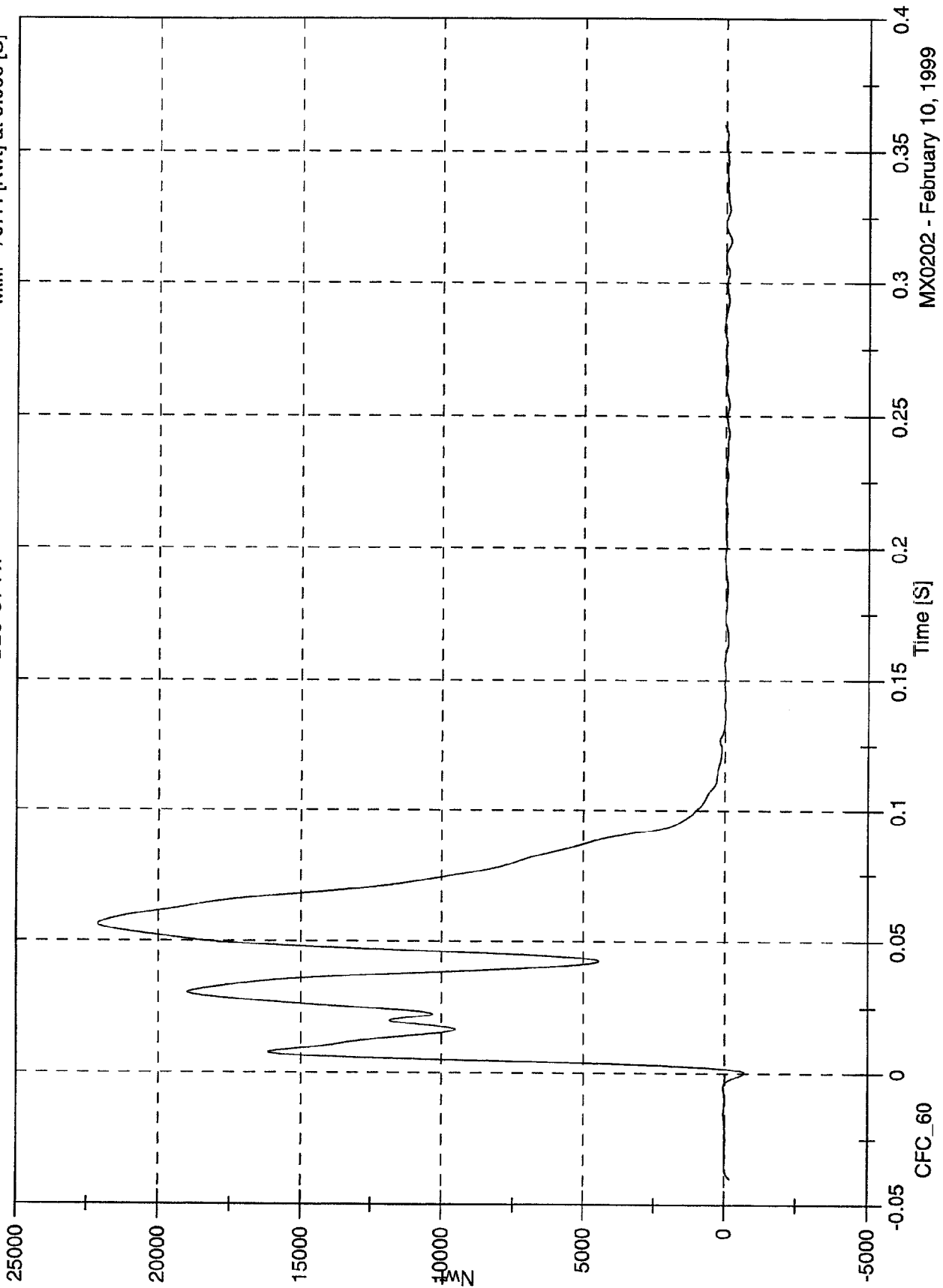


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 22127.6 [Nwt] at 0.056 [S]  
Min: -707.4 [Nwt] at 0.000 [S]

BLC C7 Fx



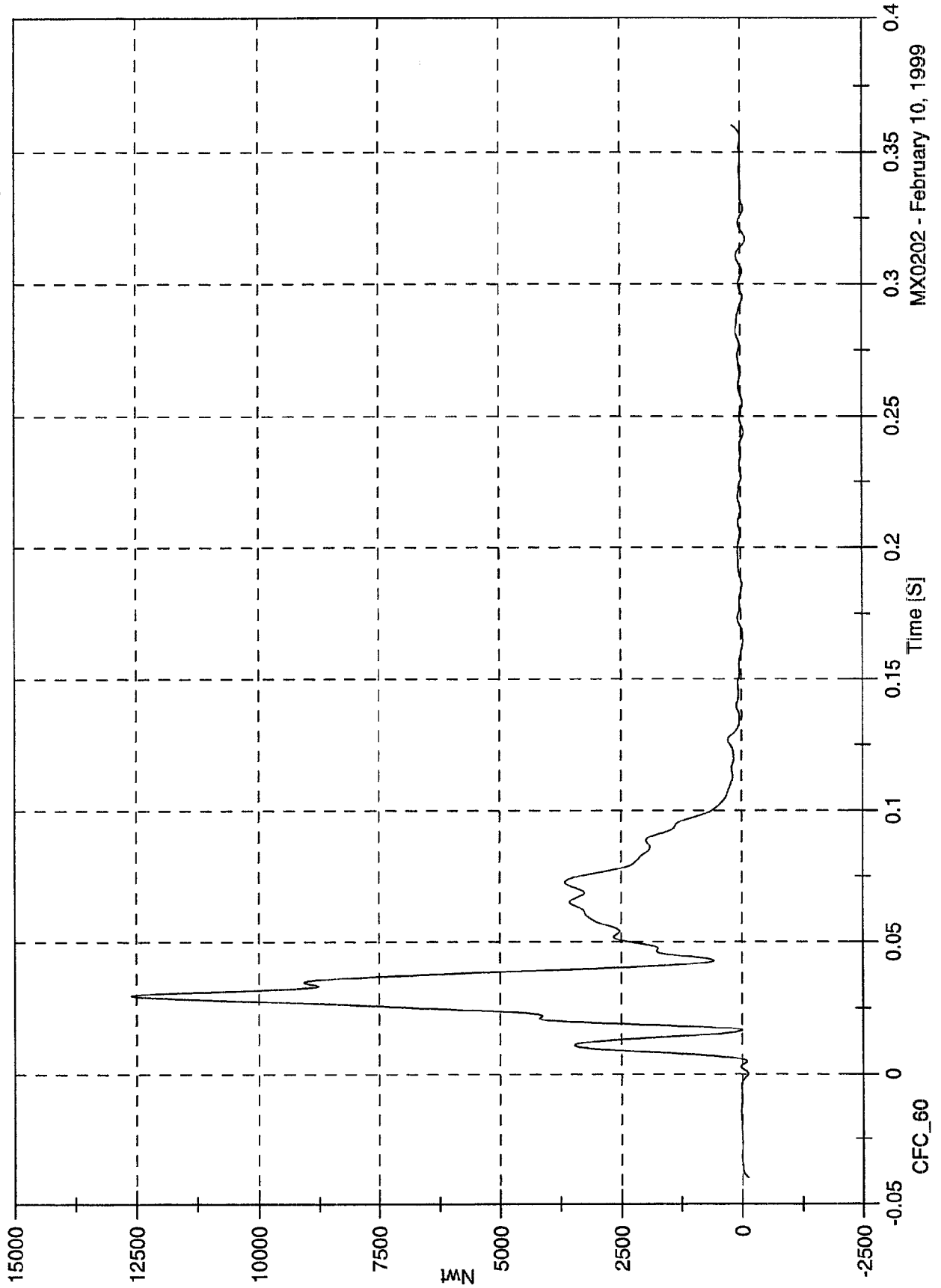
MX0202 - February 10, 1999

CFC\_60

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 12609.6 [Nwt] at 0.030 [S]  
Min: -124.3 [Nwt] at -0.040 [S]

BLC C8 Fx

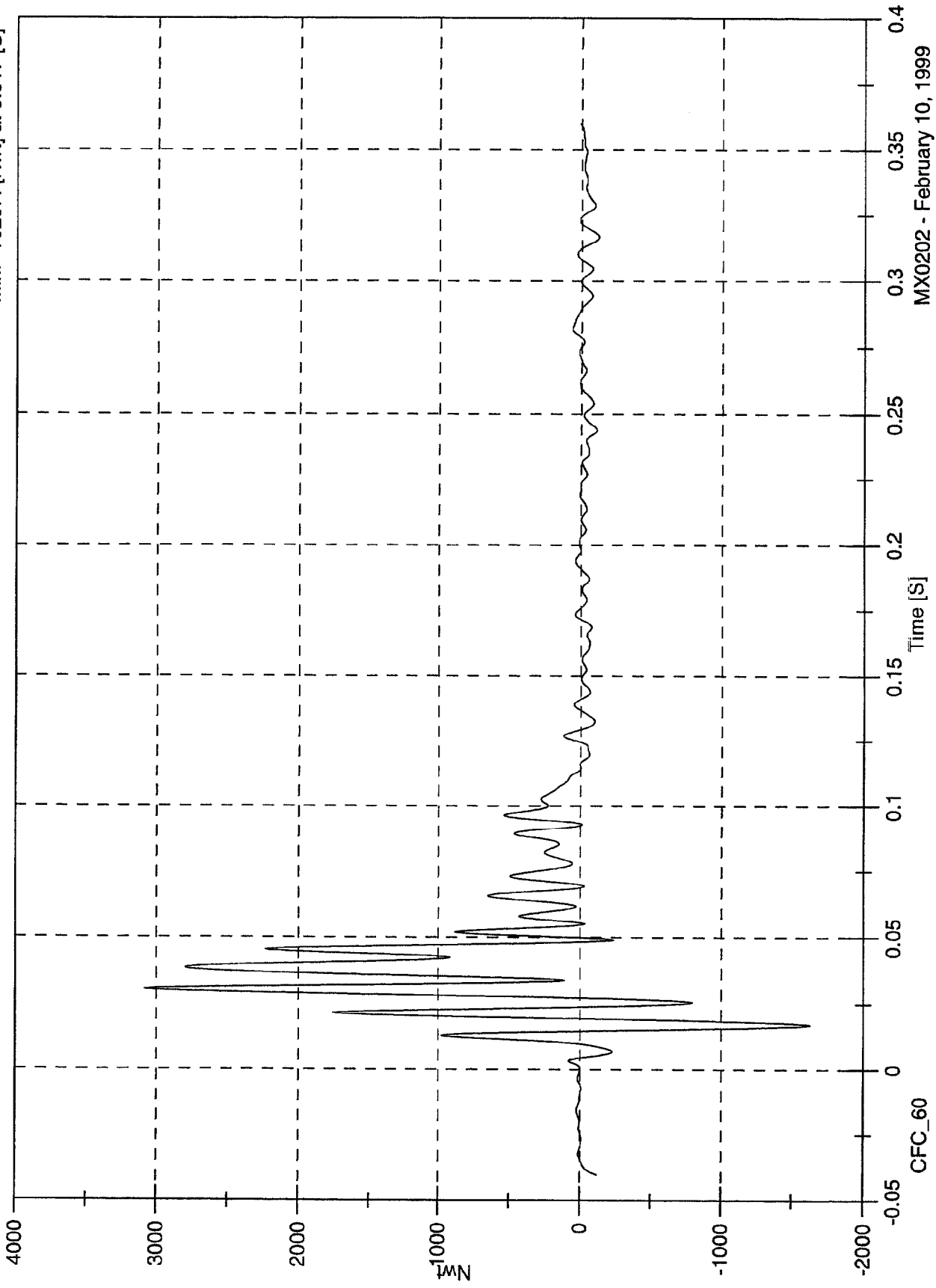


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

BLC C9 Fx

Max: 3083.8 [Nwt] at 0.030 [S]  
Min: -1629.4 [Nwt] at 0.017 [S]

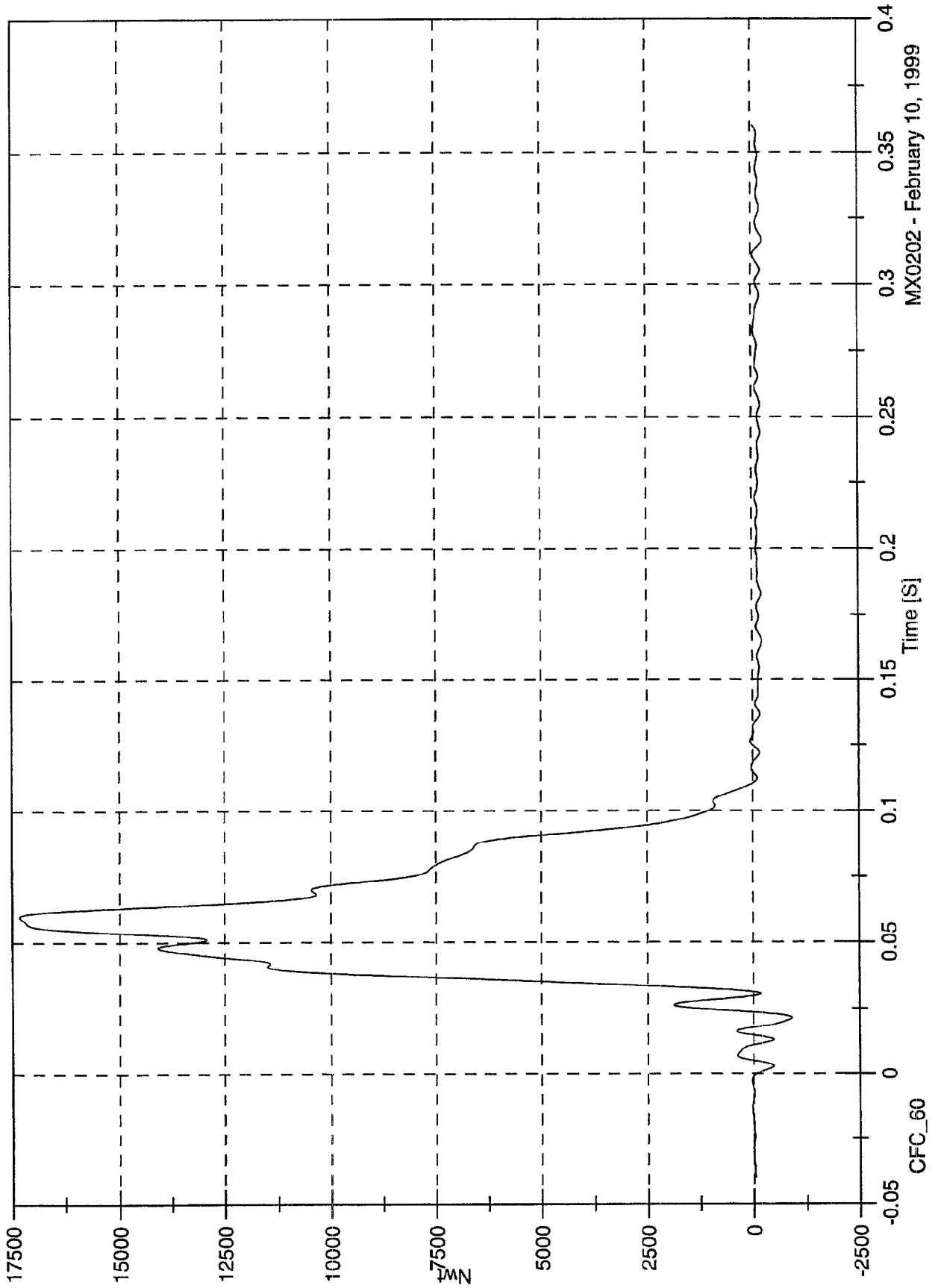


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 17331.7 [Nwt] at 0.060 [S]  
Min: -901.5 [Nwt] at 0.021 [S]

BLC D1 Fx



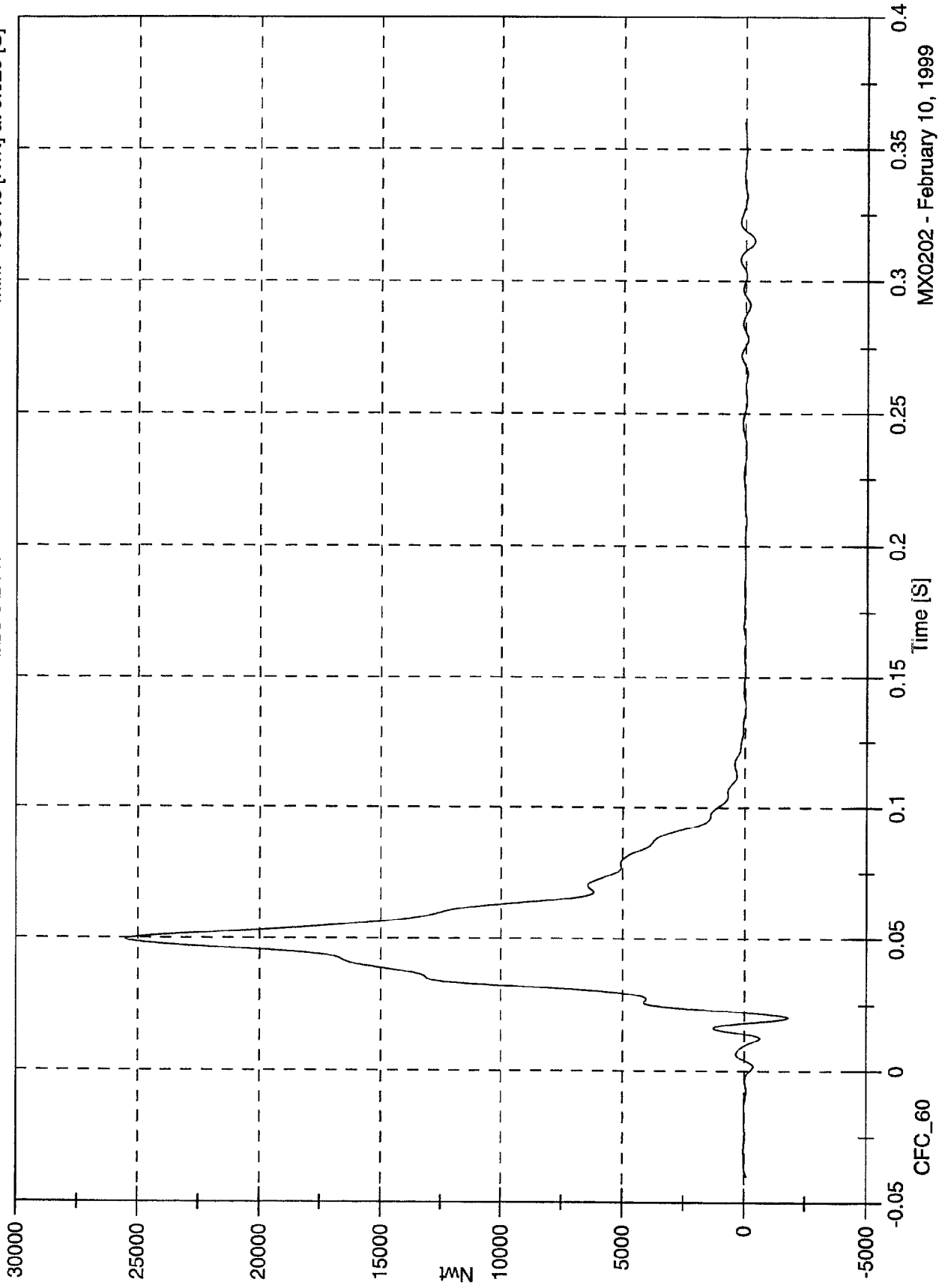
MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

BLC D2 Fx

Max: 25510.3 [Nwt] at 0.049 [S]

Min: -1807.3 [Nwt] at 0.020 [S]

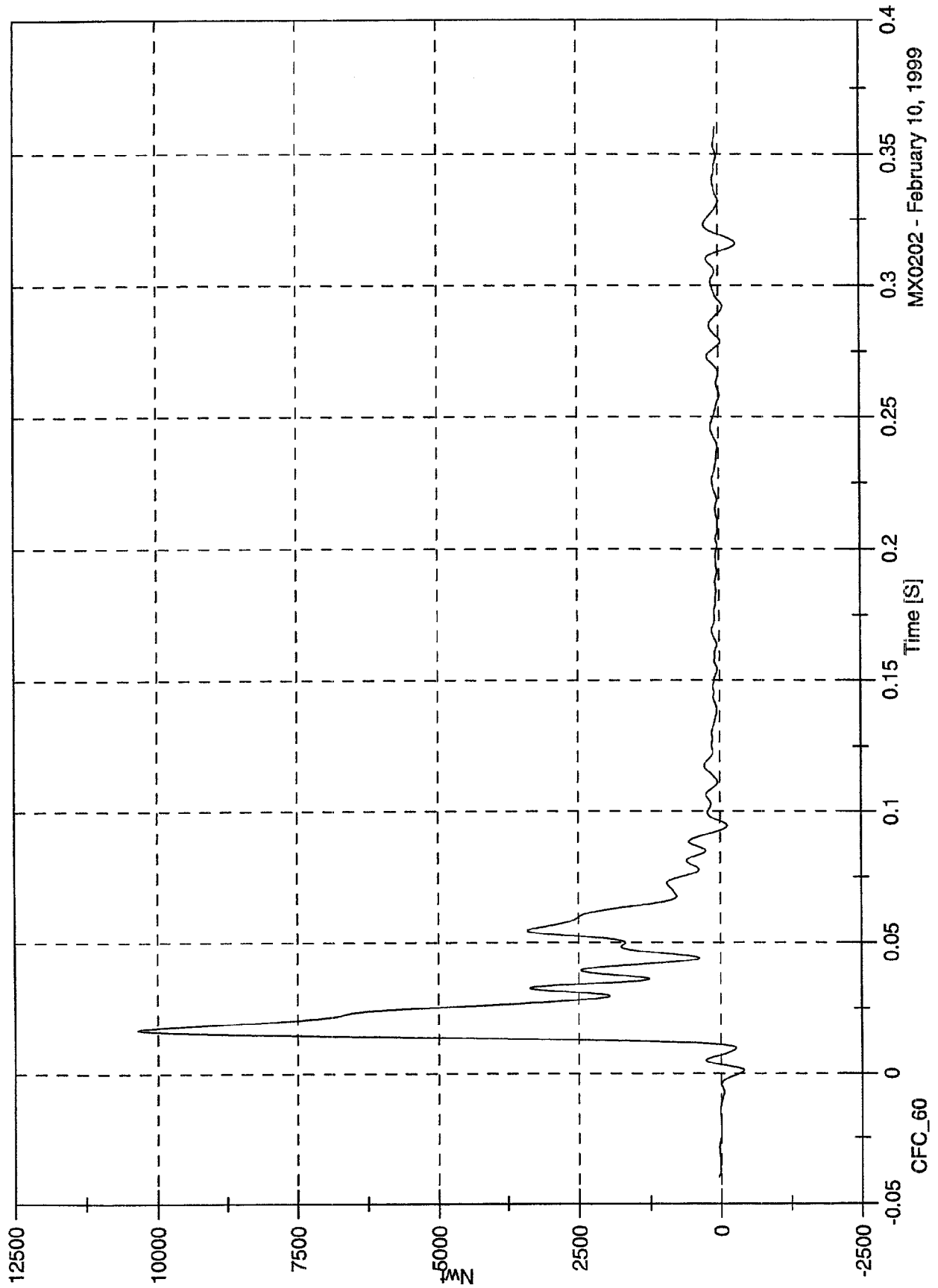


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

BLC D3 Fx

Max: 10352.8 [Nwt] at 0.017 [S]  
Min: -413.0 [Nwt] at 0.001 [S]

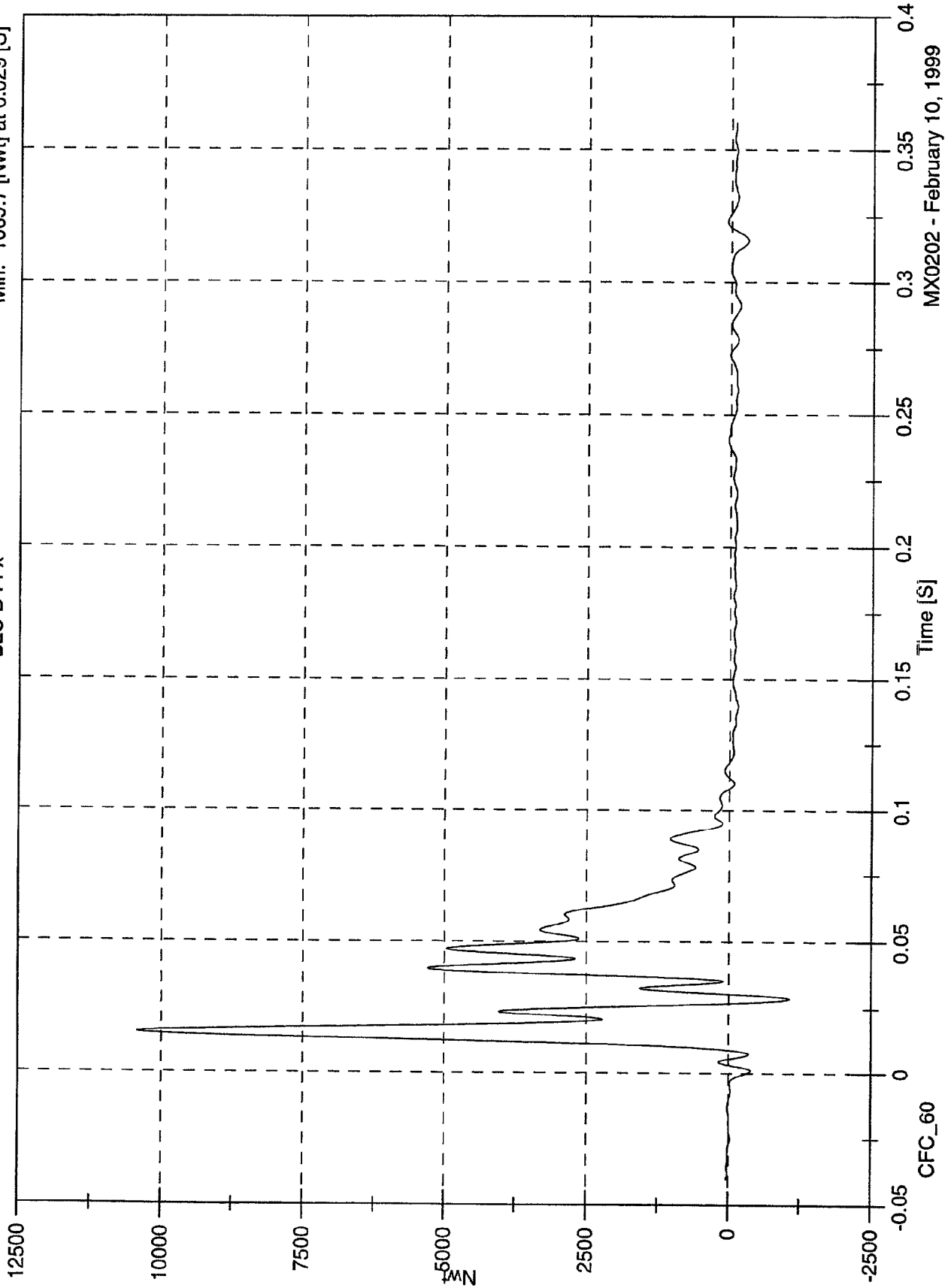


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

BLC D4 Fx

Max: 10424.9 [Nwt] at 0.015 [S]  
Min: -1069.7 [Nwt] at 0.029 [S]

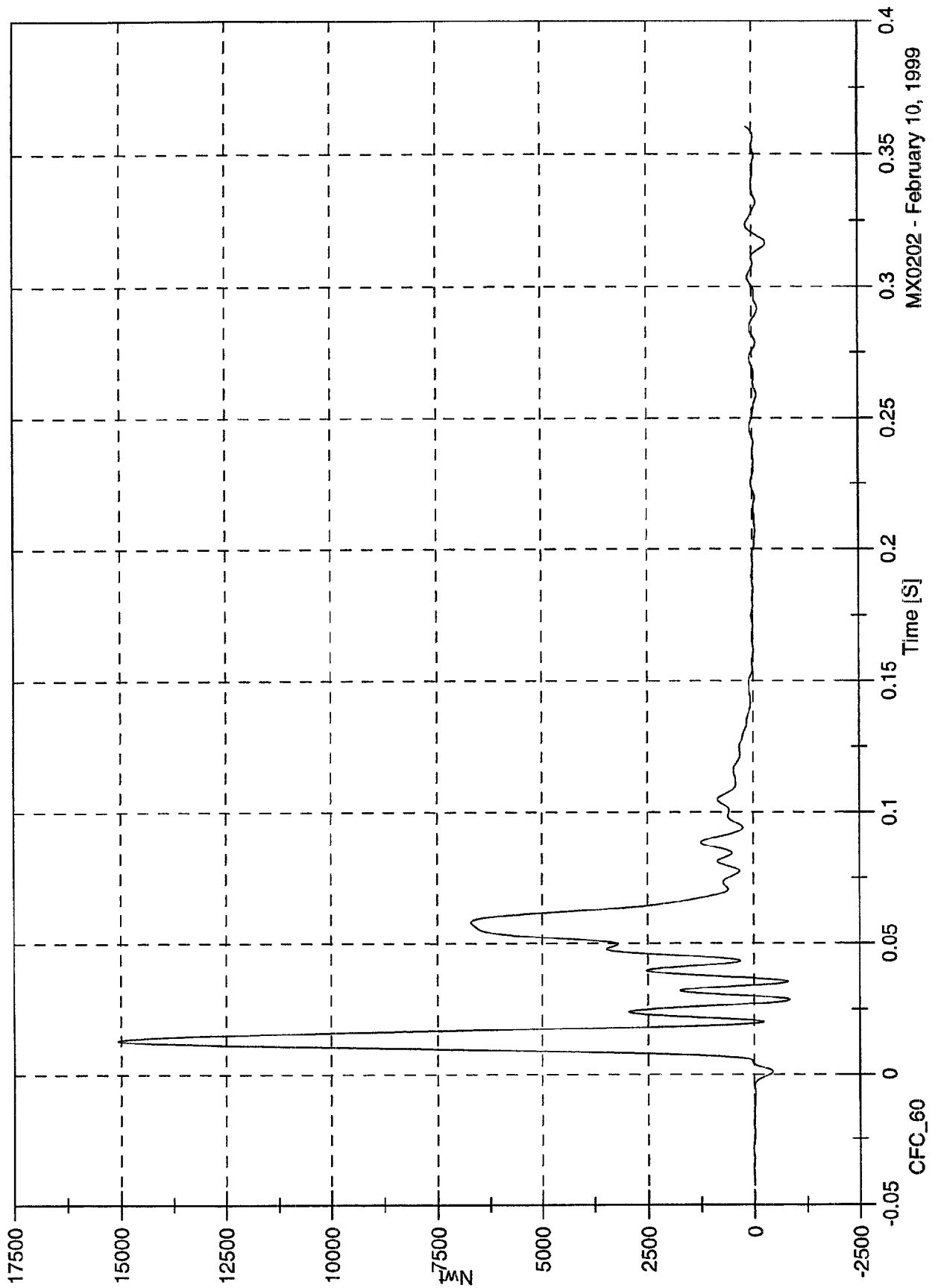


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 15068.8 [Nwt] at 0.013 [S]  
Min: -844.0 [Nwt] at 0.029 [S]

BLC D5 Fx

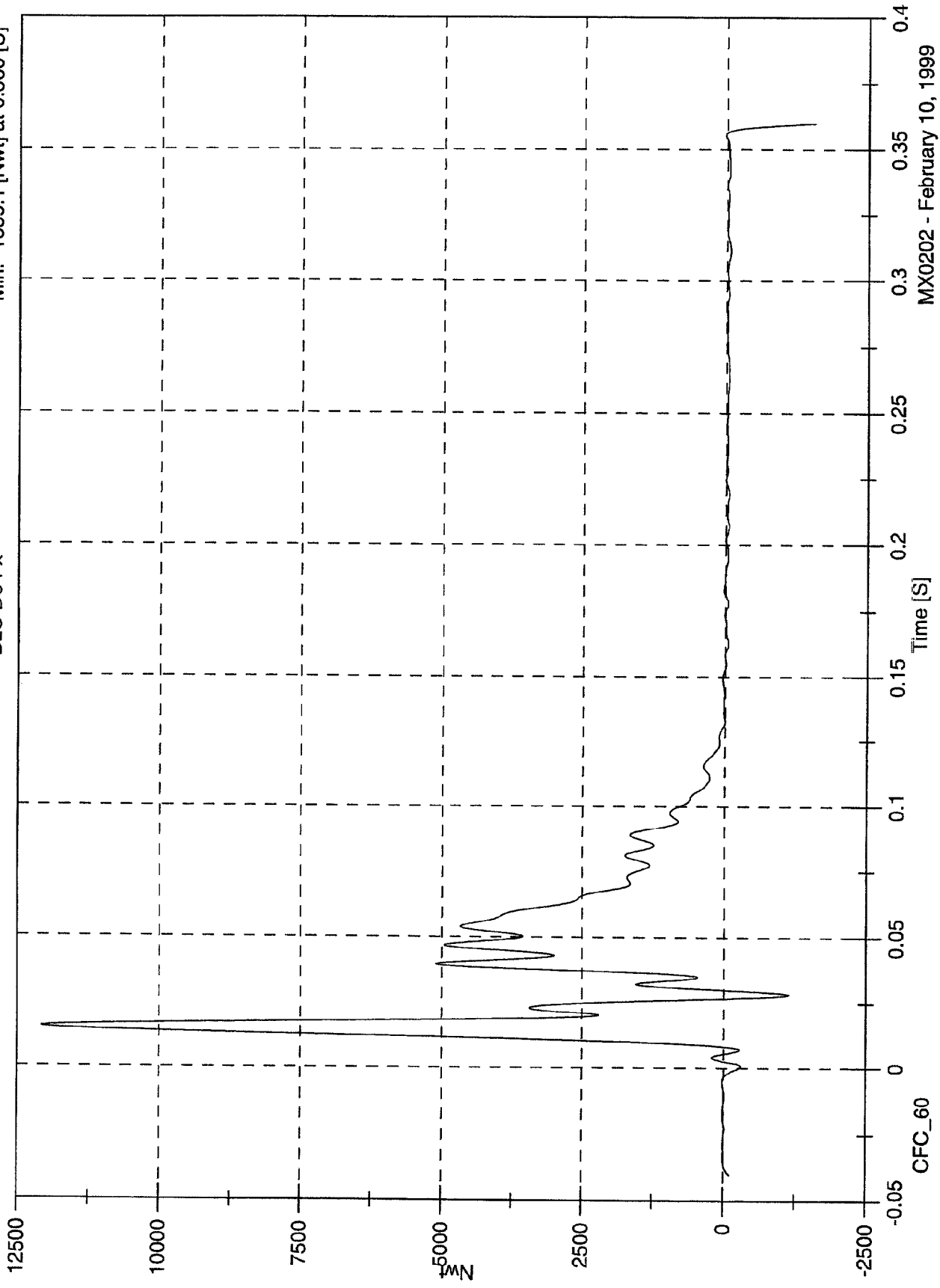


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 12070.9 [Nwt] at 0.015 [S]  
Min: -1555.1 [Nwt] at 0.360 [S]

BLC D6 Fx

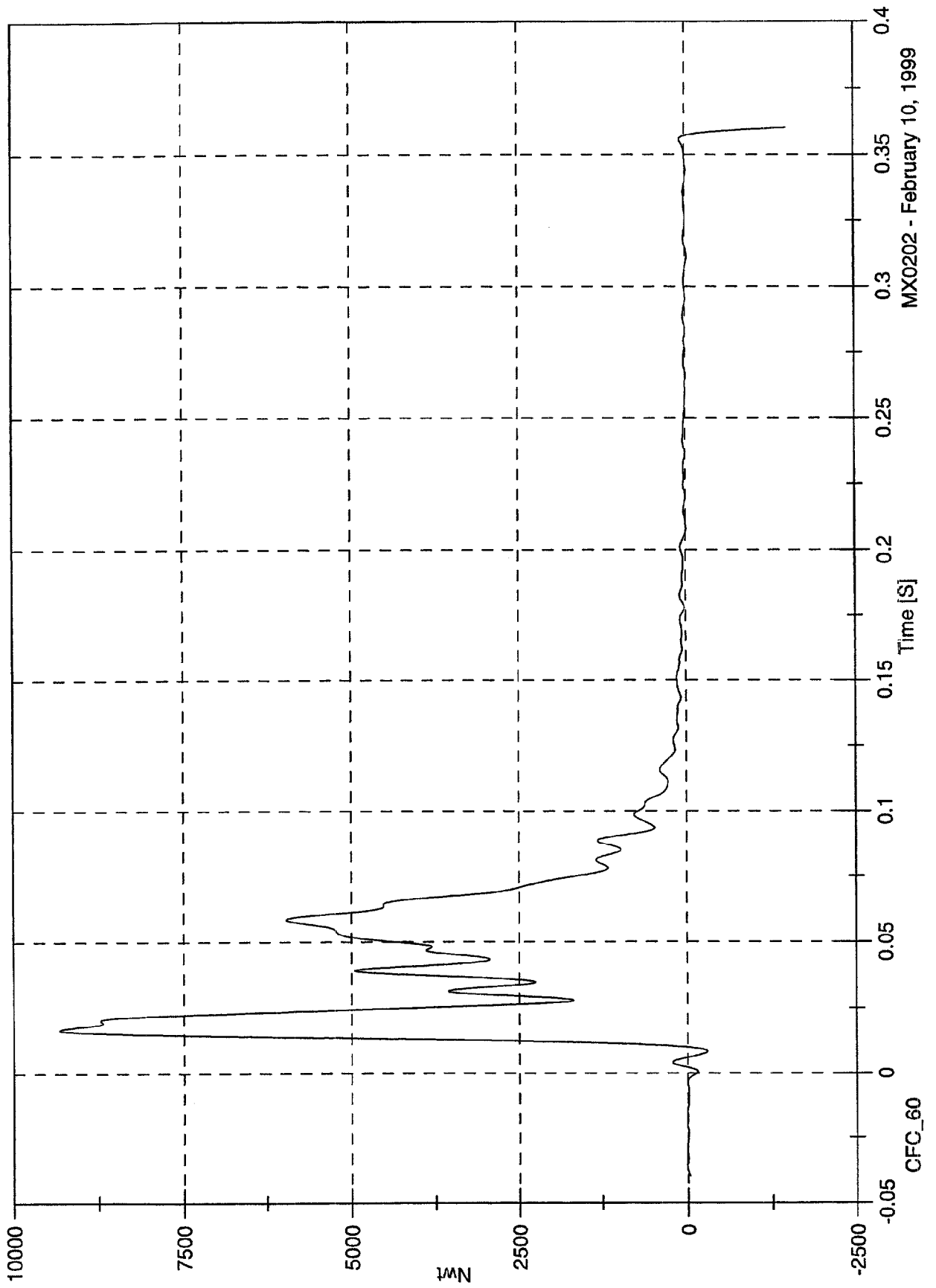


Time [S]  
CFC\_60  
MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

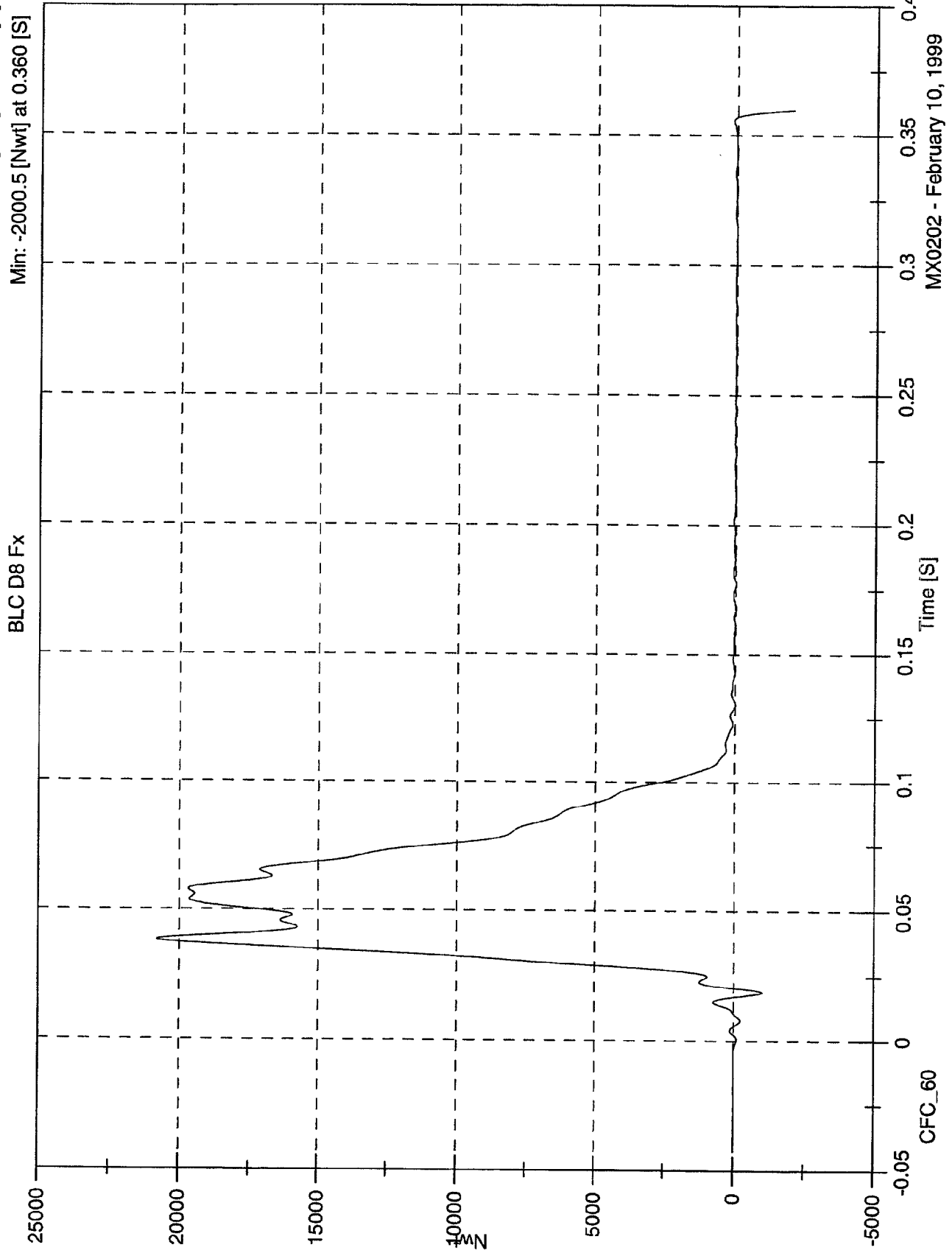
Max: 9327.5 [Nwt] at 0.017 [S]  
Min: -1487.3 [Nwt] at 0.360 [S]

BLC D7 Fx



MX0202 - February 10, 1999

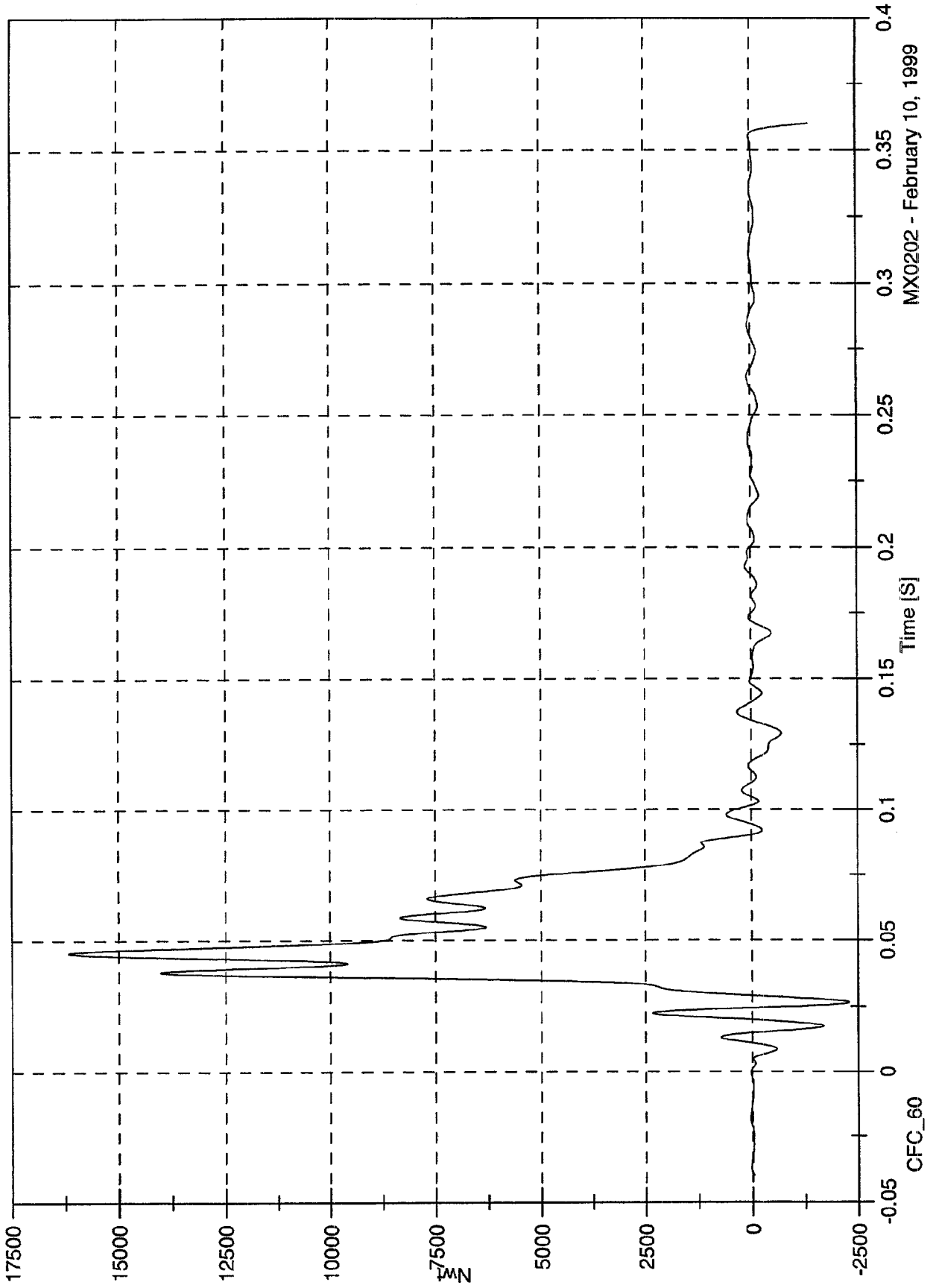
NCAP TEST #11- 1999 FORD F150 PICKUP



NCAP TEST #11- 1999 FORD F150 PICKUP

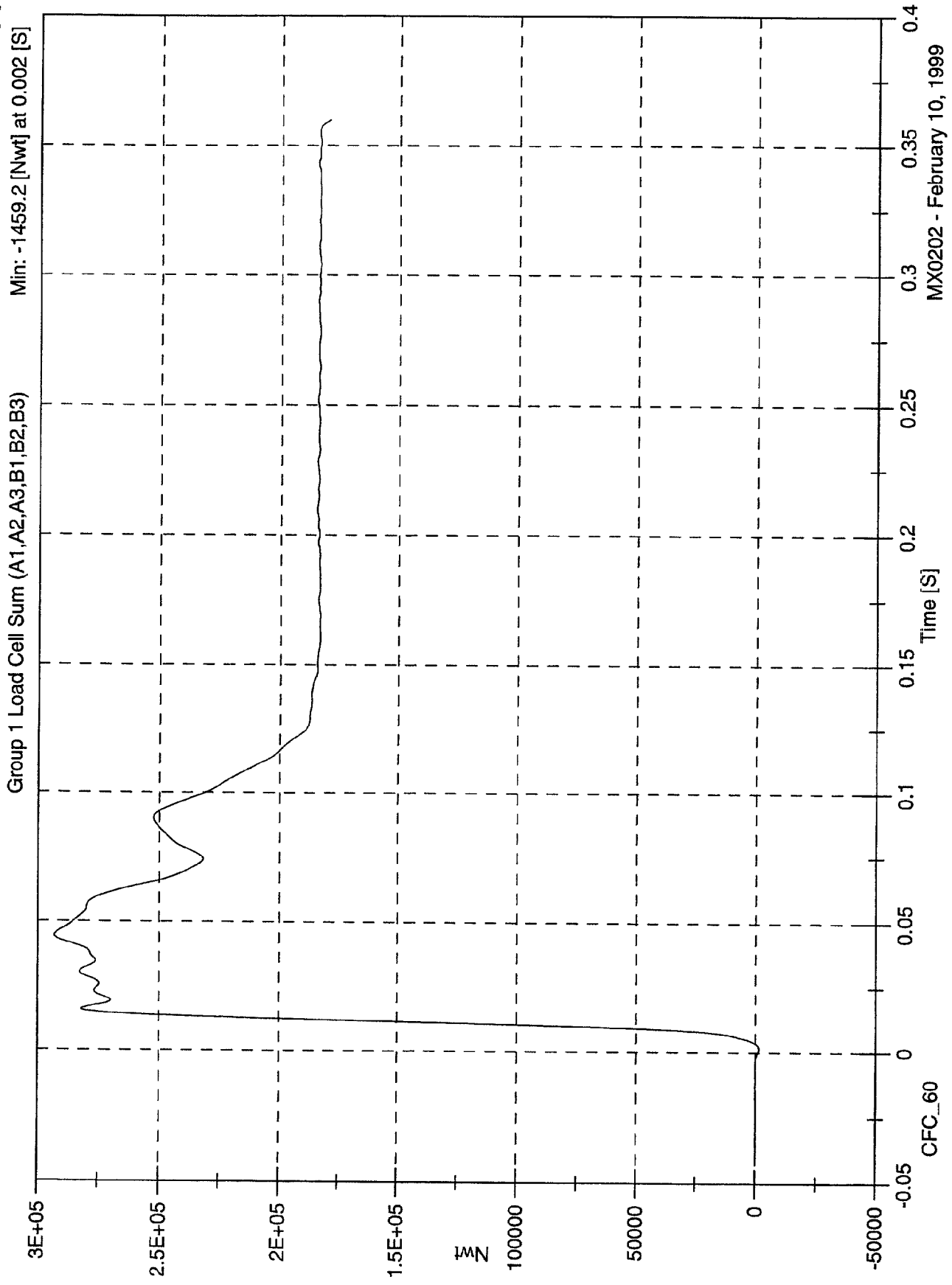
Max: 16163.1 [Nwt] at 0.045 [S]  
Min: -2281.7 [Nwt] at 0.026 [S]

BLC D9 Fx



MX0202 - February 10, 1999

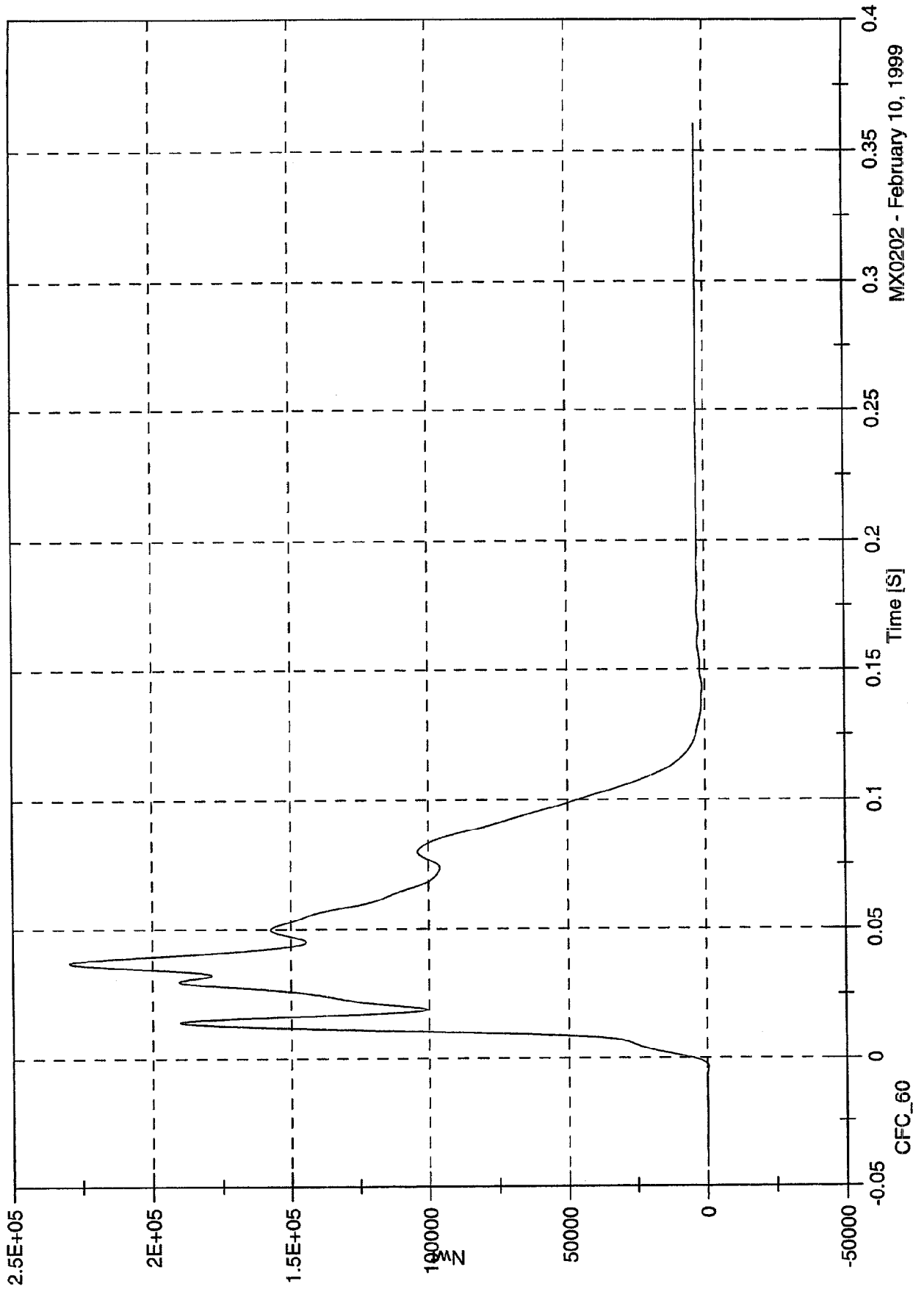
NCAP TEST #11- 1999 FORD F150 PICKUP



NCAP TEST #11- 1999 FORD F150 PICKUP

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

Max: 229657.1 [Nwt] at 0.037 [S]  
Min: -478.7 [Nwt] at -0.004 [S]



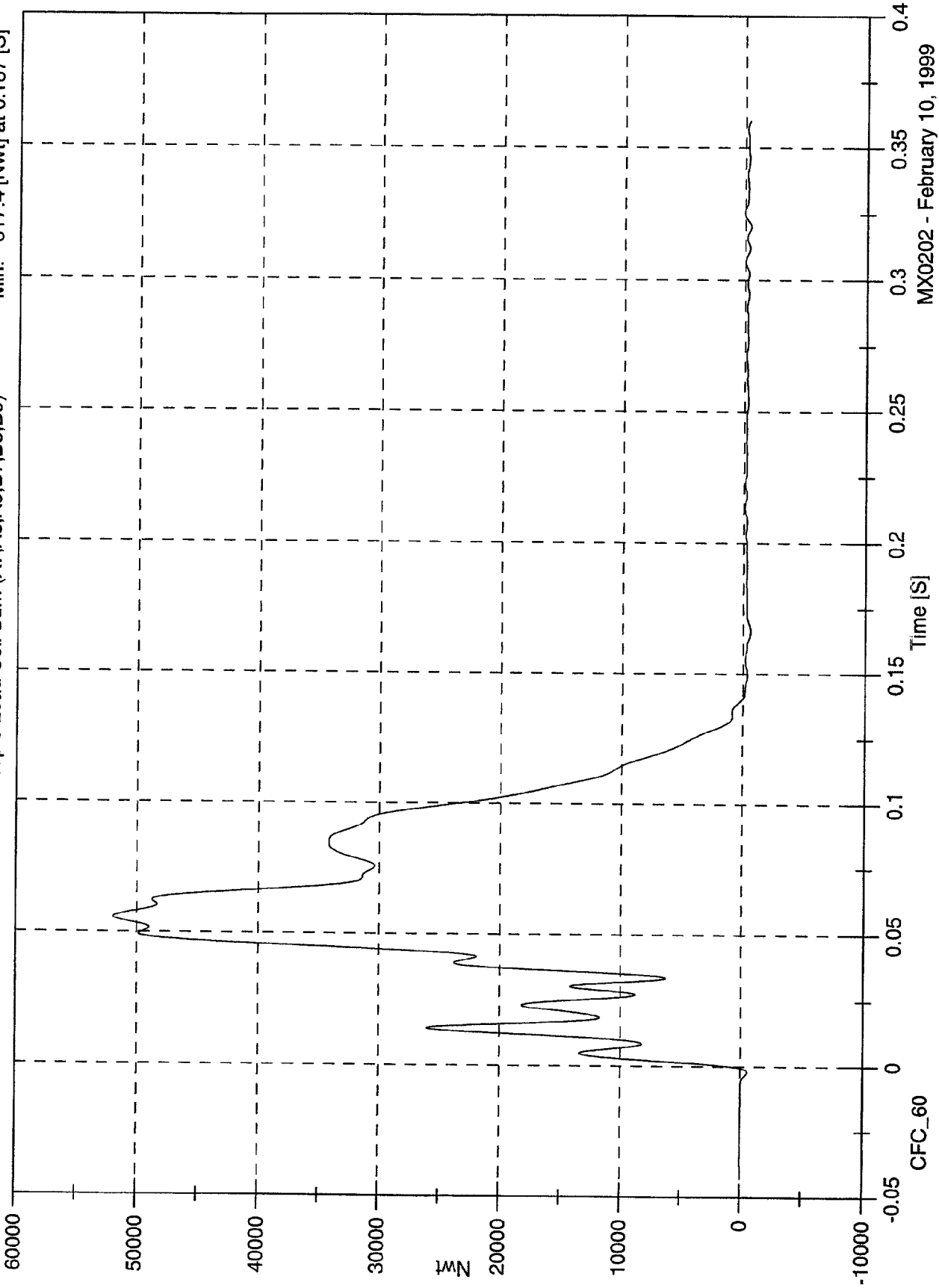
MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

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

Max: 51914.3 [Nwt] at 0.056 [S]

Min: -617.4 [Nwt] at 0.167 [S]

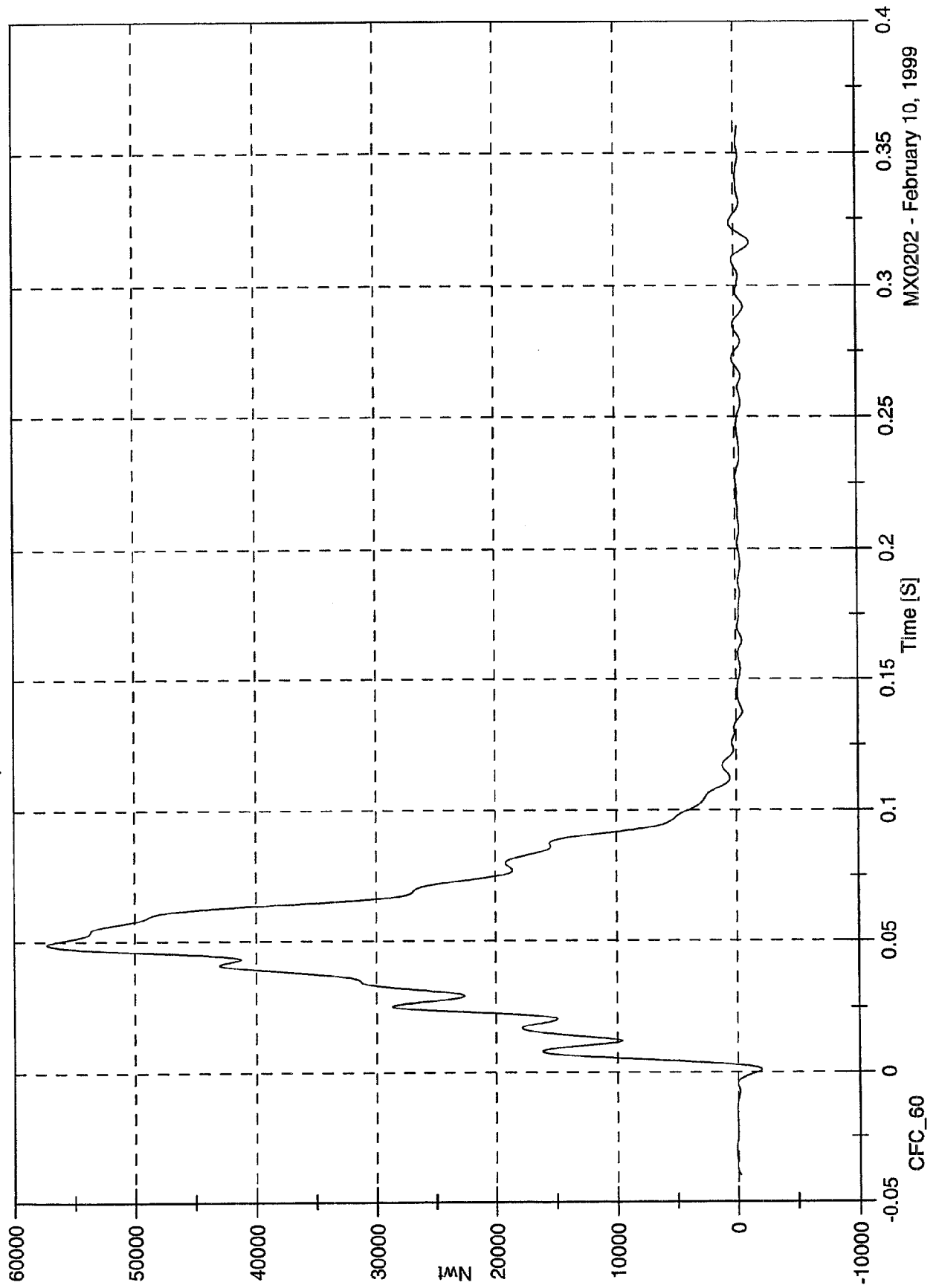


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

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

Max: 57282.8 [Nwt] at 0.049 [S]  
Min: -2005.1 [Nwt] at 0.001 [S]



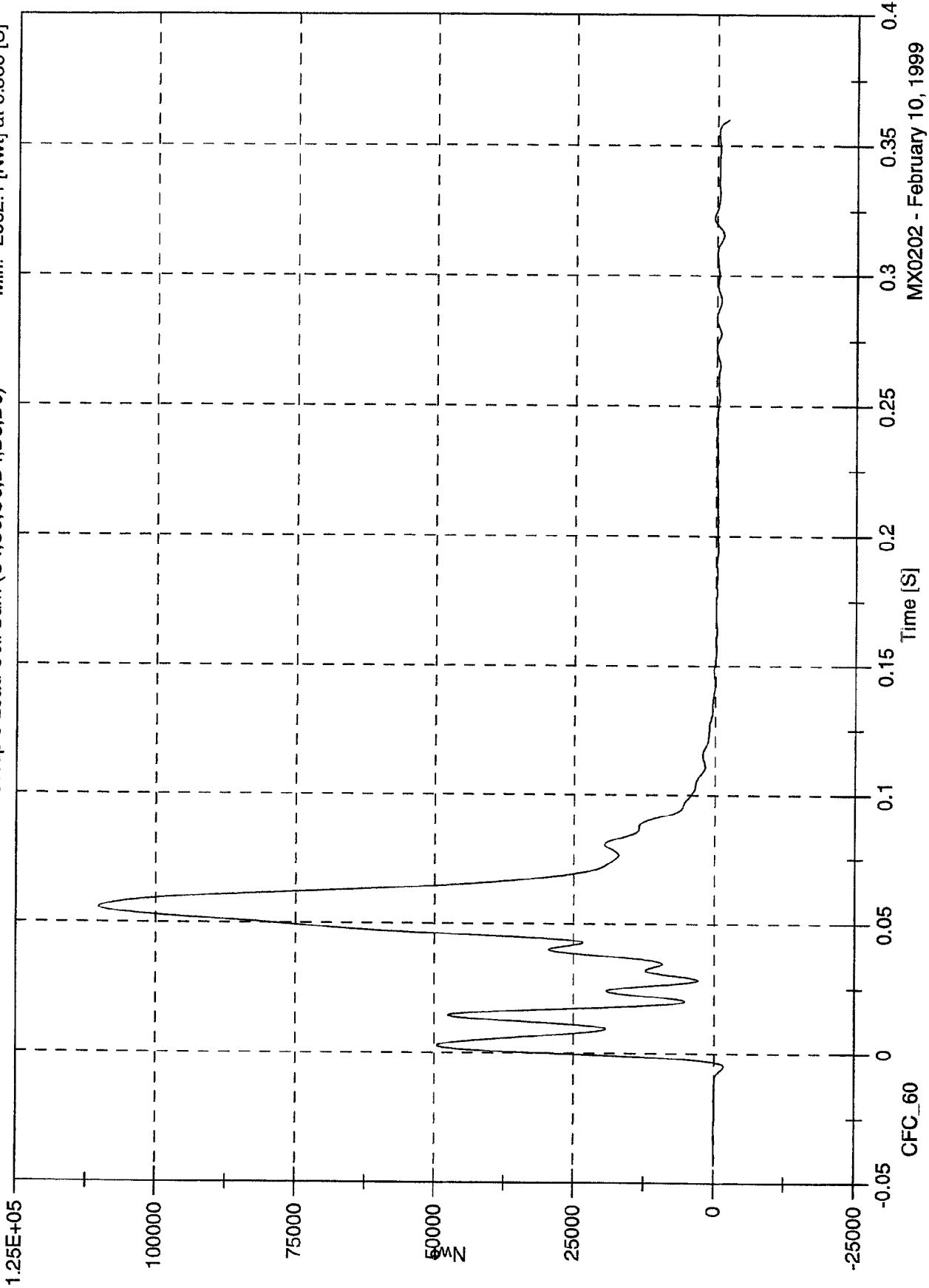
MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

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

Max: 110224.8 [Nwt] at 0.056 [S]

Min: -2062.1 [Nwt] at 0.360 [S]



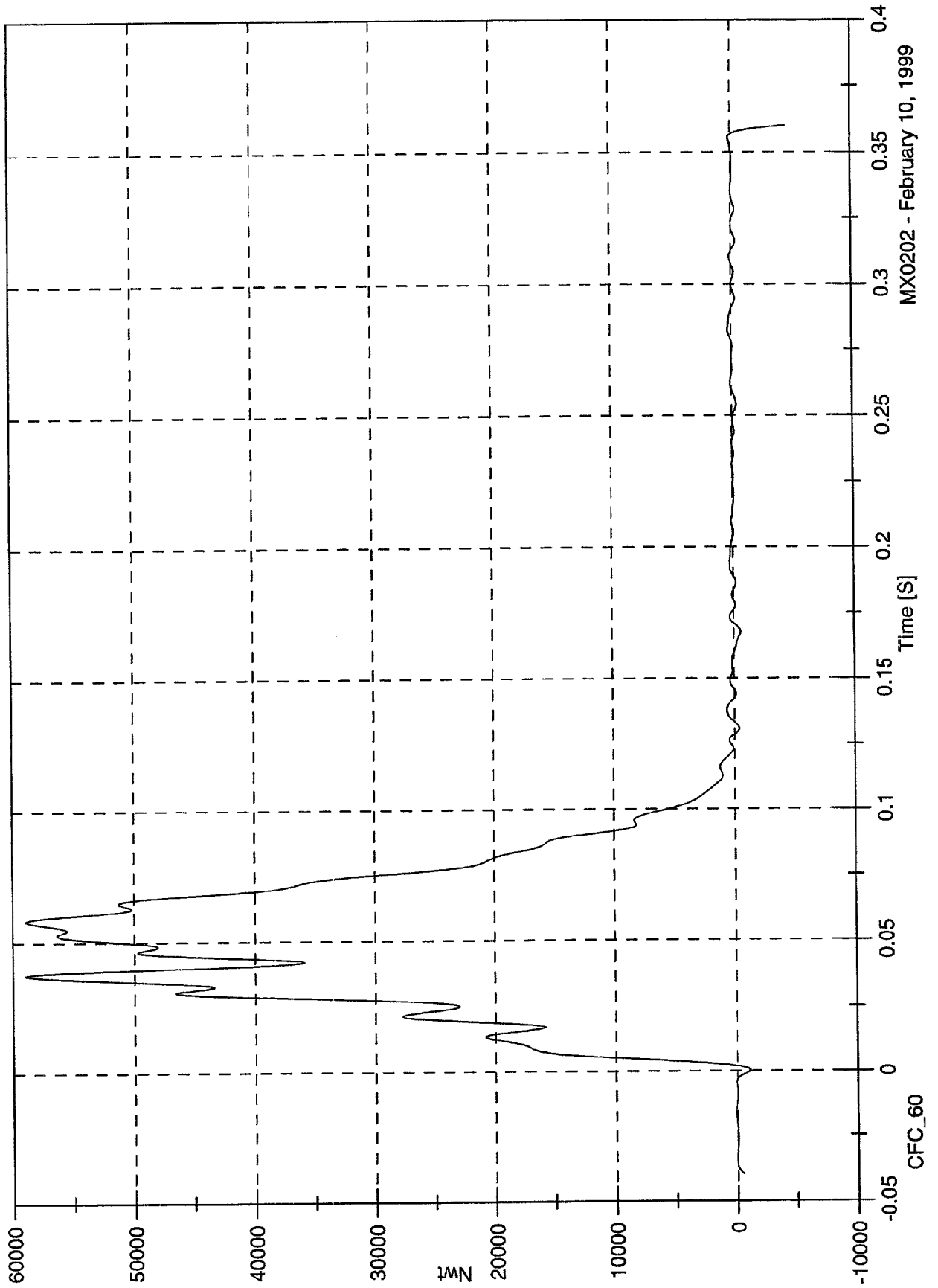
MX0202 - February 10, 1999

CFC\_60

NCAP TEST #11- 1999 FORD F150 PICKUP

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

Max: 58987.9 [Nwt] at 0.038 [S]  
Min: -4624.7 [Nwt] at 0.360 [S]

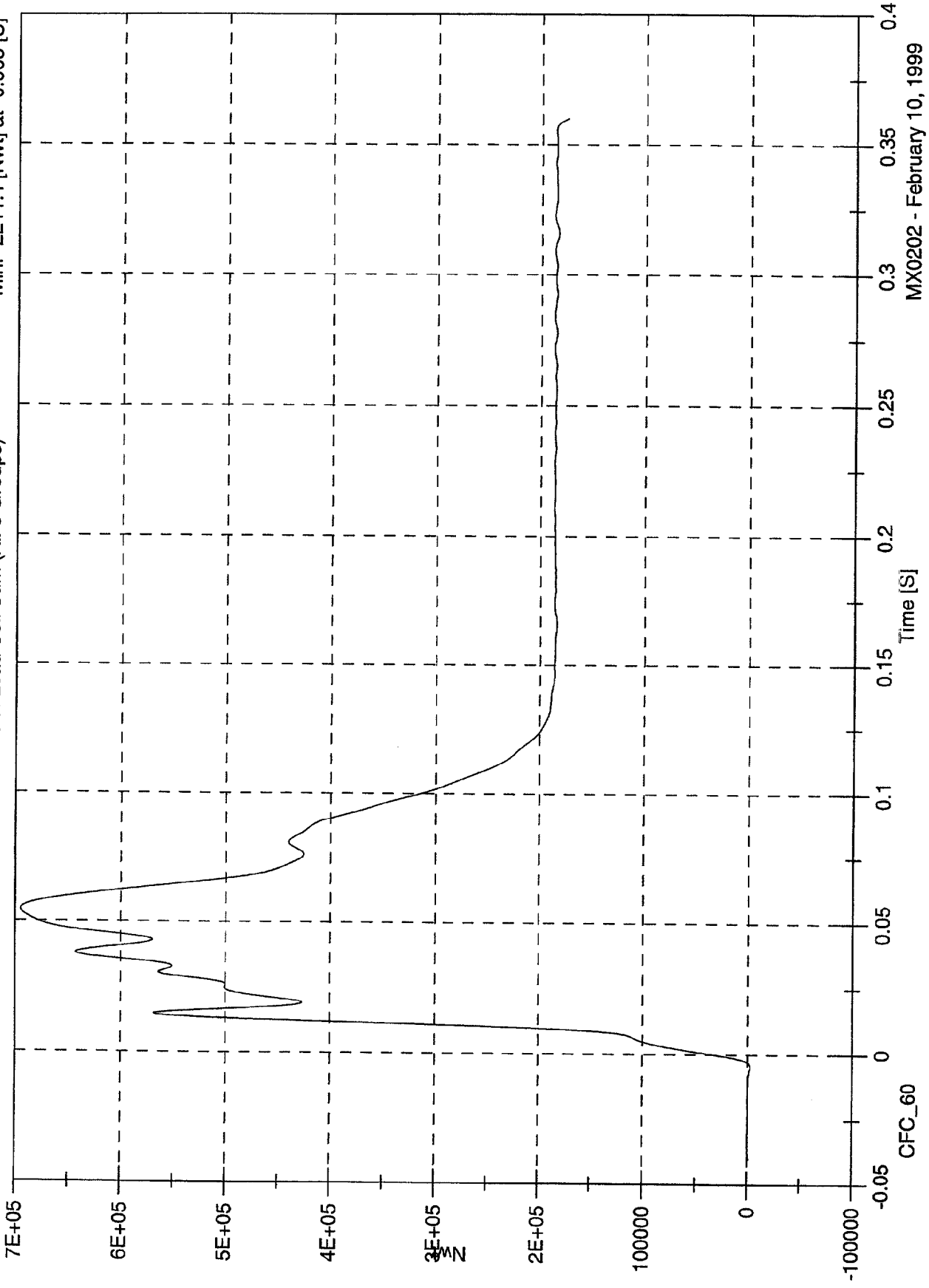


MX0202 - February 10, 1999

NCAP TEST #11- 1999 FORD F150 PICKUP

Max: 694898.4 [Nwt] at 0.055 [S]  
Min: -2211.1 [Nwt] at -0.005 [S]

Total Load Cell Sum (All 6 Groups)



MX0202 - February 10, 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:

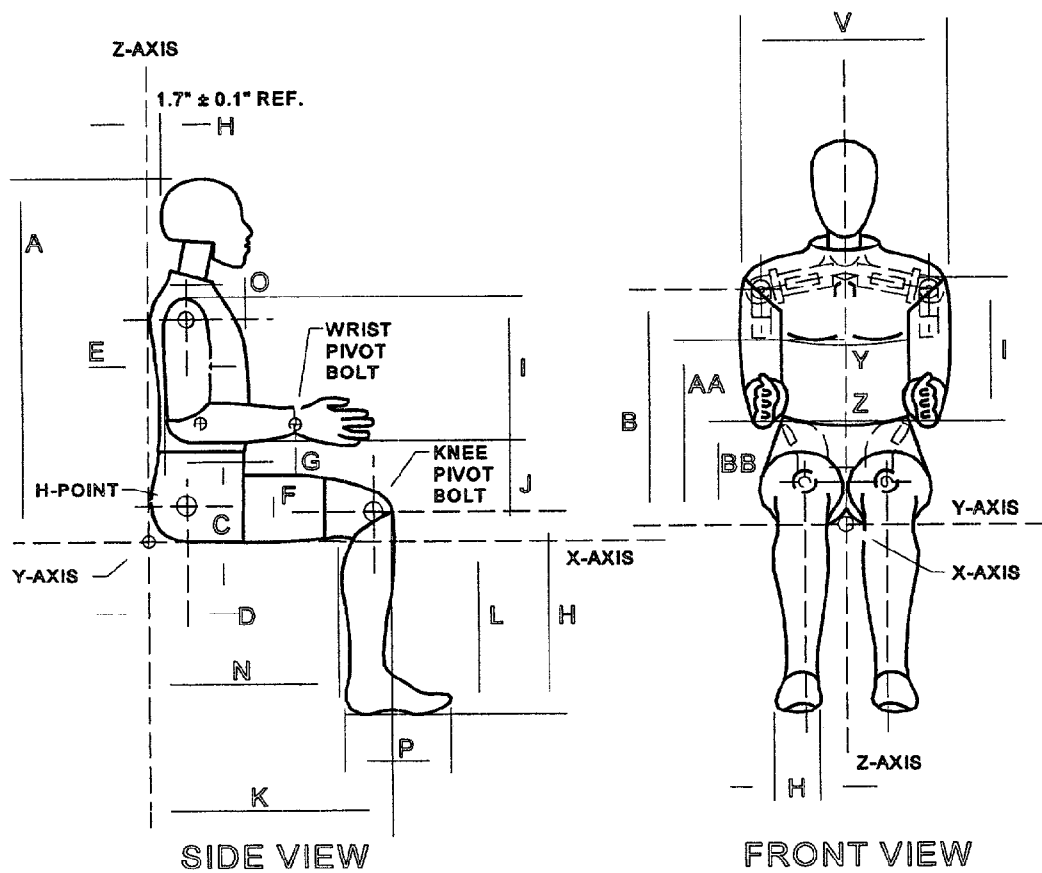
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	150	2/03/99
#2/Right Front Passenger	064	2/09/99

#### Electronic Test Equipment

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

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS  
SPECIFICATIONS



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

PART 572E  
HEAD DROP TEST

Dummy Serial Number 150  
Calspan Sequential Test Number 1  
Date 2/03/99  
Workfile 150199.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	72
Relative Humidity	10% - 70%	25
Peak Resultant Acceleration	225-275 G's	249.7
Peak Lateral Acceleration	15 G's Max	4.6
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E  
NECK FLEXION TEST

Dummy Serial Number 150  
 Calspan Sequential Test Number 1  
 Date 2/1/99  
 Workfile 150199.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	22.94
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.95
	20 ms	17.60 - 22.60 G's	20.57
	30 ms	12.50 - 18.50 G's	14.64
Max Pendulum G's Above 30 ms		29 G's Max	14.64
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.00
D Plane Rotation	Max	64 - 78 Deg	70.48
	Time	57 - 64 ms	71.45
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	63.25
	Time	47 - 58 ms	53.88
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	118.38
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	102.75

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E  
NECK EXTENSION TEST

Dummy Serial Number 150  
 Calspan Sequential Test Number 1  
 Date 2/3/99  
 Workfile 150199.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71
Relative Humidity		10% - 70%	25
Impact Velocity		19.50 - 20.30 Ft/s	19.95
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.55
	20 ms	14.00 - 19.00 G's	16.53
	30 ms	11.00 - 16.00 G's	14.08
Max Pendulum G's Above 30 ms		22 G's Max	14.08
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	42.00
D Plane Rotation	Max	81 - 106 Deg	95.07
	Time	72 - 82 ms	73.50
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-50.64
	Time	65 - 79 ms	71.13
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	148.13
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	135.25

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E  
THORAX IMPACT TEST

Dummy Serial Number 150  
Calspan Sequential Test Number 1  
Date 2/3/99  
Workfile 150199.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	25
Pendulum Velocity	21.6 - 22.4 Ft/s	21.65
Maximum Deflection	2.50 - 2.86 in	2.70
Maximum Resistive Force	1160 - 1325 Lbs	1168.35
Internal Hysteresis	69 - 85 %	75.4

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E  
KNEE IMPACT TEST

Dummy Serial Number        150  
 Calspan Sequential Test Number    1  
 Date                                2/1/99  
 Workfile                            150199

TEST PARAMETER	SPECIFICATION	TEST RESULTS
<b>LEFT KNEE</b>		
Temperature	66 - 78 Deg F	72
Relative Humidity	10% - 70%	25
Probe Velocity	6.8 - 7.0 Ft/s	6.90
Peak Knee Impact Force	1060 - 1300 Lbs	1215.0
<b>RIGHT KNEE</b>		
Temperature	66 - 78 Deg F	72
Relative Humidity	10% - 70%	25
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1207.0

Remarks:

Laboratory Technician:     B. Swiccicki

PART 572E  
EXTERNAL DIMENSIONS

Dummy Serial Number      150  
 Calspan Sequential Test Number      1  
 Date      2/3/99

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			25
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	34.0
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	5.7
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.5
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.1
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician:     B. Swiecicki

PART 572E  
HEAD DROP TEST

Dummy Serial Number 064  
Calspan Sequential Test Number 2  
Date 2/3/99  
Workfile 064299.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	25
Peak Resultant Acceleration	225-275 G's	234.0
Peak Lateral Acceleration	15 G's Max	13.3
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E  
NECK FLEXION TEST

Dummy Serial Number      064  
 Calspan Sequential Test Number      2  
 Date      2/9/99  
 Workfile      064299.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	24
Impact Velocity		22.60 - 23.40 Ft/s	23.32
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	25.29
	20 ms	17.60 - 22.60 G's	21.04
	30 ms	12.50 - 18.50 G's	12.63
Max Pendulum G's Above 30 ms		29 G's Max	12.63
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	41.25
D Plane Rotation	Max	64 - 78 Deg	75.71
	Time	57 - 64 ms	57.00
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	79.77
	Time	47 - 58 ms	55.00
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	126.38
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	98.88

Remarks:

Laboratory Technician:     B. Swiecicki

PART 572E  
NECK EXTENSION TEST

Dummy Serial Number      064  
 Calspan Sequential Test Number      2  
 Date      2/9/99  
 Workfile      064299.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	24
Impact Velocity		19.50 - 20.30 Ft/s	20.14
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.38
	20 ms	14.00 - 19.00 G's	16.60
	30 ms	11.00 - 16.00 G's	13.62
Max Pendulum G's Above 30 ms		22 G's Max	13.62
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	44.88
D Plane Rotation	Max	81 - 106 Deg	97.32
	Time	72 - 82 ms	72.25
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-58.37
	Time	65 - 79 ms	67.75
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	147.13
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	137.75

Remarks:

Laboratory Technician:     B. Swiecicki

PART 572E  
THORAX IMPACT TEST

Dummy Serial Number 064  
Calspan Sequential Test Number 2  
Date 2/9/99  
Workfile 064299.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	24
Pendulum Velocity	21.6 - 22.4 Ft/s	21.65
Maximum Deflection	2.50 - 2.86 in	2.51
Maximum Resistive Force	1160 - 1325 Lbs	1186.34
Internal Hysteresis	69 - 85 %	80.7

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E  
KNEE IMPACT TEST

Dummy Serial Number 064  
Calspan Sequential Test Number 2  
Date 2/9/99  
Workfile 064299

TEST PARAMETER	SPECIFICATION	TEST RESULTS
<b>LEFT KNEE</b>		
Temperature	66 - 78 Deg F	71
Relative Humidity	10% - 70%	20
Probe Velocity	6.8 - 7.0 Ft/s	6.90
Peak Knee Impact Force	1060 - 1300 Lbs	1238.0
<b>RIGHT KNEE</b>		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	20
Probe Velocity	6.8 - 7.0 Ft/s	6.98
Peak Knee Impact Force	1060 - 1300 Lbs	1204.0

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E  
EXTERNAL DIMENSIONS

Dummy Serial Number      064  
 Calspan Sequential Test Number      2  
 Date      2/9/99

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			24
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	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.3
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.3
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician:     B. Swiecicki

Appendix D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

**INSTRUMENT CALIBRATION FOR DRIVER DUMMY**

( 6 Month Calibration Minimum )

DRIVER DUMMY (S/N 150)	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X	AF5P8	ENDEVCO	10/98	4/99
Y	C14948	ENDEVCO	10/98	4/99
Z	AH5F3	ENDEVCO	12/98	6/99
Chest				
X	ADL50	ENDEVCO	12/98	6/99
Y	AC2P5	ENDEVCO	12/98	6/99
Z	AL6C8	ENDEVCO	12/98	6/99
Right Femur Load Cell	F551	GSE	9/98	3/99
Left Femur Load Cell	F548	GSE	9/98	3/99
Neck Load Cell	076	DENTON	8/98	2/99
Y	076	DENTON	8/98	2/99
Z	076	DENTON	8/98	2/99
Neck Moment	076	DENTON	8/98	2/99
Y	076	DENTON	8/98	2/99
Z	076	DENTON	8/98	2/99
Chest Deflection Gauge	CP150	HUMANOID	9/98	3/99
Hybrid III Use Only				
Lap Belt Load Cells	706	LEBOW	9/98	3/99
Shoulder Belt Load Cells	707	LEBOW	9/98	3/99
Spool-Out Potentiometer	M10	MAGNETEK	10/98	4/99
Belt Stretch Transducer	E5	CALSPAN	10/98	4/99

**INSTRUMENT CALIBRATION FOR DRIVER DUMMY**

( 6 Month Calibration Minimum )

DRIVER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X (R)	A14150	ENDEVCO	10/98	4/99
Y (R)	B10954	ENDEVCO	10/98	4/99
Z (R)	A14126	ENDEVCO	10/98	4/99
Chest				
X (R)	A13939	ENDEVCO	10/98	4/99
Y (R)	A14181	ENDEVCO	10/98	4/99
Z (R)	A14124	ENDEVCO	10/98	4/99
Pelvic				
X	C15018	ENDEVCO	9/98	3/99
Y	C14883	ENDEVCO	9/98	3/99
Z	C14972	ENDEVCO	9/98	3/99
Left Upper Tibia				
Mx	016	DENTON	9/98	3/99
My	016	DENTON	9/98	3/99
Left Lower Tibia				
Fz	123	DENTON	8/98	2/99
Mx	123	DENTON	8/98	2/99
My	123	DENTON	8/98	2/99
Right Upper Tibia				
Mx	015	DENTON	9/98	3/99
My	015	DENTON	9/98	3/99
Right Lower Tibia				
Fz	122	DENTON	8/98	2/99
Mx	122	DENTON	8/98	2/99
My	122	DENTON	8/98	2/99

**INSTRUMENT CALIBRATION FOR DRIVER DUMMY**

( 6 Month Calibration Minimum )

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

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

( 6 Month Calibration Minimum )

PASSENGER DUMMY (S/N 064)	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X	AD4A9	ENDEVCO	11/98	5/99
Y	AE8T7	ENDEVCO	11/98	5/99
Z	AF5R1	ENDEVCO	11/98	5/99
Chest				
X	A08A	ENDEVCO	11/98	5/99
Y	ADL42	ENDEVCO	11/98	5/99
Z	A28F	ENDEVCO	11/98	5/99
Right Femur Load Cell	659	GSE	9/98	3/99
Left Femur Load Cell	658	GSE	9/98	3/99
Neck Load Cell	440	DENTON	9/98	3/99
Y	440	DENTON	9/98	3/99
Z	440	DENTON	9/98	3/99
Neck Moment	440	DENTON	9/98	3/99
Y	440	DENTON	9/98	3/99
Z	440	DENTON	9/98	3/99
Chest Deflection Gauge	064	HUMANOID	10/98	4/99
Hybrid III Use Only				
Lap Belt Load Cells	711	LEBOW	9/98	3/99
Shoulder Belt Load Cells	712	LEBOW	9/98	3/99
Spool-Out Potentiometer	M6	MAGNETEK	10/98	4/99
Belt Stretch Transducer	E6	CALSPAN	10/98	4/99

**INSTRUMENT CALIBRATION FOR PASSENGER DUMMY**

( 6 Month Calibration Minimum )

PASSENGER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X (R)	A13924	ENDEVCO	12/98	6/99
Y (R)	A13827	ENDEVCO	11/98	5/99
Z (R)	A13921	ENDEVCO	11/98	5/99
Chest				
X (R)	A14077	ENDEVCO	11/98	5/99
Y (R)	A13882	ENDEVCO	11/98	5/99
Z (R)	ACCW0	ENDEVCO	11/98	5/99
Pelvic				
X	AF480	ENDEVCO	12/98	6/99
Y	AC2M6	ENDEVCO	12/98	6/99
Z	AF5C1	ENDEVCO	12/98	6/99
Left Upper Tibia				
Mx	045	DENTON	9/98	3/99
My	045	DENTON	9/98	3/99
Left Lower Tibia				
Fz	0125	DENTON	8/98	2/99
Left Lower Tibia				
Mx	0125	DENTON	8/98	2/99
Left Lower Tibia				
My	0125	DENTON	8/98	2/99
Right Upper Tibia				
Mx	038	DENTON	9/98	3/99
Right Upper Tibia				
My	038	DENTON	9/98	3/99
Right Lower Tibia				
Fz	0124	DENTON	9/98	3/99
Right Lower Tibia				
Mx	0124	DENTON	8/98	2/99
Right Lower Tibia				
My	0124	DENTON	8/98	2/99

**INSTRUMENT CALIBRATION FOR PASSENGER DUMMY**

( 6 Month Calibration Minimum )

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

**INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS**

( 6 Month Calibration Minimum )

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	D71	ICS	2/99	8/99
Right Rear Seat Crossmember	D63	ICS	2/99	8/99
Top of Engine	D33	ICS	11/98	5/99
Bottom of Engine	J18624	ICS	10/98	4/99
Left Disc Brake Caliper	AP057	CEC	2/99	7/99
Right Disc Brake Caliper	D53	CEC	8/98	4/99
Instrument Panel	BA65	CEC	2/99	8/99
Left Seat Rear Crossmember (R)	D80	ICS	12/98	6/99
Right Seat Rear Crossmember (R)	D74	ICS	10/98	4/99