

V3013

REPORT NUMBER: CAL-99-02

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

**CHRYSLER CORPORATION
1999 DODGE DURANGO
4 X 4 SLT**

NHTSA NUMBER: MX0300

CALSPAN TEST NUMBER: 8413-26

CALSPAN CORPORATION
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December 15, 1998

FINAL REPORT

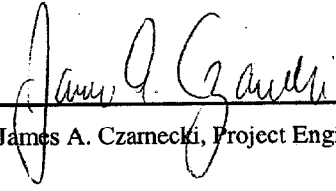
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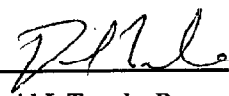
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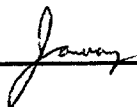
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NHTSA, Office of Crashworthiness Standards

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15. <i>Supplementary Notes</i>					
16. <i>Abstract</i> A frontal load cell barrier test of a 1999 Dodge Durango 4 x 4 SLT was performed at Calspan Corporation crash test facility in Buffalo, New York, on December 15, 1998. The impact velocity was 56.6 kph and the temperature at the barrier face was 21°C. The maximum post-test vehicle crush was 576 mm. The test vehicle was equipped with 3-point belt restraint system and supplemental airbags at each outboard seating position. This vehicle was equipped with next generation type airbags. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" the driver appeared to comply with femur requirements, the passenger appeared to comply with head, chest and femur requirements. The driver appeared to exceed head and chest requirements.					
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Section 1

PURPOSE AND SUMMARY OF TEST MX0300

PURPOSE

This 56.6 kph frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-96-D-02010. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

The 56.6 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards (OCWS) Laboratory Indicant Test procedure.

SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 1999 Dodge Durango 4 x 4 SLT at a velocity of 56.6 kph. The test was performed at the Calspan Corporation on December 15, 1998. 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. 245) and the right-front passenger (position 2) ATD (Serial No. 150) were used previous to this test. Injury criteria for ATD Serial No. 245 and No. 150 were not exceeded in the previous test (MX 5100). Certification details, along with instrumentation calibration data, are found in Appendix C.

The 133 channels of data were recorded on an onboard based data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces. The driver right ankle X and Z as well as the toe Z accelerometer data cable were damaged at 52 msec. The passenger left toe Z accelerometer data cable was damaged at 52 msec. The engine

vehicle, load cell barrier and dummy response data traces. The driver right ankle X and Z as well as the toe Z accelerometer data cable were damaged at 52 msec. The passenger left toe Z accelerometer data cable was damaged at 52 msec. The engine top (50 msec), engine bottom (57 msec) and instrument panel (65 msec) accelerometer data cables were also damaged during the impact event. Passenger belt spoolout data is questionable.

The driver's HIC was 1008.0. The maximum chest deceleration over 3 milliseconds was 60.8 g's and maximum chest deflection was 41.0 mm. Femur loads were 7012.1 Newtons on the left and 4293.7 Newtons on the right.

The right front passenger's HIC was 592.1. Maximum chest deceleration over 3 milliseconds was 54.2 g's and maximum chest deflection was 36.3 mm†. Femur loads were 5040.7 Newtons on the left and 5213.8 Newtons on the right.

† Chest deflection data from 38 to 40 ms was invalid, the reported value was taken from data outside of this range.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No. : MX0300 Test Mode : 56 kph Frontal Barrier

Test Date : December 15, 1998 Time: 10:30 Temperature : 21 °C

Vehicle Make/Model/Body Style : 1999 Dodge Durango 4 x 4 SLT

Vehicle Test Weight : 2393 kg

Vehicle/Barrier Impact Angle : 0 °

Impact Velocity : 56.6 kph

Maximum Static Crush : 576 mm

Vehicle Rebound : 495.7 mm

<u>DUMMIES:</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Type :	<u>572E</u>	<u>572E</u>
Restraint System :	<u>Airbag with 3-point belt system</u>	<u>Airbag with 3-point belt system</u>

Number of Data Channels : 133

Number of Cameras : 1 Real Time

16 High Speed

DOOR OPENING DATA :

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

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

<u>VISIBLE DUMMY CONTACT POINTS :</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Head :	<u>Head to airbag/ Back of head to headrest</u>	<u>Head to airbag/ Forehead to visor/ Back of head to headrest</u>
Abdomen :	<u>-</u>	<u>-</u>
Chest	<u>Airbag</u>	<u>Airbag</u>
Knees	<u>Knee Bolster</u>	<u>Knee Bolster</u>

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style : 1999 Dodge Durango 4 x 4 SLT
NHTSA No. : MX0300 ; VIN: 1B4H528Y7XF500535 ; Color : Black
Engine Data: 8 cylinders; - CID; 5.2 Liters; - cc
Placement : x Longitudinal or In-Line; - Transverse or Lateral
Transmission Data : 4 speeds; - Manual; x Automatic; x Overdrive
Final Drive : - Rear Wheel Drive; - Front Wheel Drive; x Four Wheel Drive
Major Options : x A/C; x Pwr.Strg.; x Pwr. Brakes
x Pwr. Windows; x Pwr. Door Locks; x Tilt Wheel
Date Received : 11/20/98 ; Odometer Reading 150 km
Selling Dealer : Pfuntner Chrysler Center Inc.
& Address: 106 Railroad Ave. Wellsville, N.Y. 14895

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : Chrysler Corporation
Date of Manufacture 7/98
GVWR : 2903 kg; GAWR: 1543 kg FRONT; 1747 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 241 kpa FRONT
282 kpa REAR
Recommended Tire Size : P235/75R15XL
* Recommended Cold Tire Pressure : 241 kpa FRONT; 282 kpa REAR
Size of Tires on Test Vehicle: P235/75R15 ; Manufacturer: Goodyear
Vehicle Capacity Data :
Type of Front Seats: - Bench; x Bucket; - Split Bench
Number of Occupants: 2 Front; 5 Rear; 7 Total
Vehicle Capacity Weight (VCW) = 791 kg
No. of Occupants x 68 kg = 476 kg
Rated Cargo/Luggage Weight (RCLW) = 315 kg Max. RCLW 136 kg

*Tire pressure used for test

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

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

Right Front	=	<u>584.5</u>	kg	Right Rear	=	<u>452.5</u>	kg
Left Front	=	<u>600.5</u>	kg	Left Rear	=	<u>474.5</u>	kg
TOTAL FRONT	=	<u>1,185.0</u>	kg	TOTAL REAR	=	<u>927.0</u>	kg
TOTAL DELIVERED WEIGHT	=	<u>2,112.0</u>	kg				
% of Total Front of Vehicle Weight	=	<u>56.1</u>	%	% of Total Rear Weight	=	<u>43.9</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW)	=	<u>2,112.0</u>	kg
Rated Cargo/Luggage Weight (RCLW)	=	<u>136.0</u>	kg Max. RCLW 136 kg
Weight of 2 p.572 Dummies @ 76 each	=	<u>152</u>	kg
TARGET TEST WEIGHT	=	<u>2,400.0</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 129 KG OF CARGO WEIGHT:

Right Front	=	<u>634</u>	kg	Right Rear	=	<u>573</u>	kg
Left Front	=	<u>615</u>	kg	Left Rear	=	<u>571</u>	kg
TOTAL FRONT	=	<u>1,249.0</u>	kg	TOTAL REAR	=	<u>1,144.0</u>	kg
TOTAL TEST WEIGHT	=	<u>2,393.0</u>	kg				
% of Total Front Weight	=	<u>52.2</u>	%	% of Total Rear Weight	=	<u>47.8</u>	%
Weight of Ballast Secured in Vehicle Trunk Area	=	<u>91</u>	kg				
Vehicle Components Removed for Weight Reduction:		<u>None</u>					

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	<u>889</u>	LF	<u>884</u>	RR	<u>920</u>	LR	<u>915</u>
FULLY LOADED :	RF	<u>883</u>	LF	<u>876</u>	RR	<u>886</u>	LR	<u>882</u>
AS TESTED :	RF	<u>884</u>	LF	<u>880</u>	RR	<u>886</u>	LR	<u>892</u>
Vehicle's Wheel Base :		<u>2940</u>	mm					
Location of Vehicle's C.G. :		<u>1,405.5</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>87.0</u>	to <u>88.9</u> liters
ACTUAL TEST VOLUME	=	<u>87.0</u>	liters (with entire fuel system filled)
Test Fluid Type:	<u>Stoddard Solution</u>	;	Spec. Grav. = <u>0.764</u>
Kinematic Viscosity	=	<u>0.96</u>	centistokes; Color = <u>Orange</u>
Type of Fuel Pump:	Electric- <u>x</u>	;	Mechanical- <u>-</u>
Does Electric Pump operate with ignition switch "ON" & engine "OFF"			Yes- <u>x</u> No- <u>-</u>
Details of Fuel System	<u>Fuel filler aft of rear axle on left side, fuel lines run along left frame rail and fuel tank</u>		

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°
Test Date : December 15, 1998 Time: 10:30 Temperature: 21 °C
Vehicle NHTSA No. : MX0300
Required Impact Velocity Range : 55.7 to 57.1 kph

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

Trap No. 1 = 56.6 kph; Trap No. 2 = 56.6 kph
Distance from vehicle to barrier : (1) entering trap = 813 mm
(2) exiting trap = 305 mm

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

Vehicle Length:

Pre-Test	Right =	<u>4876</u>	; C/L =	<u>4943</u>	; Left =	<u>4894</u>
Post-Test	Right =	<u>4354</u>	; C/L =	<u>4367</u>	; Left =	<u>4365</u>
Crush	Right =	<u>522.0</u>	; C/L =	<u>576.0</u>	; Left =	<u>529.0</u>
AVERAGE	=	<u>542.3</u>	mm			

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point :

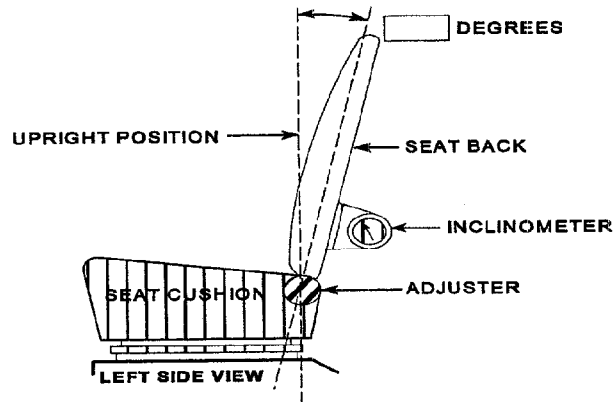
	Right =	<u>503</u>	; C/L =	<u>483</u>	; Left =	<u>501</u>
AVERAGE	=	<u>495.7</u>	mm			

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 1999 Vehicle Model: Dodge Durango Body Style : 4 x 4 SLT

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



FRONT SEAT ASSEMBLY

Seat back angle for driver's seat : 14

Measurement instructions : Lift recliner handle to bump seat back full forward, push seat back to full up (first lock) position. Cut away seat cover and padding, hold inclinometer against seat back frame tube and recline seat back to 14 degrees

Seat back angle for passenger's seat : 14

Measurement instructions : Lift recliner handle to bump seat back full forward, push seat back to full up (first lock) position. Cut away seat cover and padding, hold inclinometer against seat back frame tube and recline seat back to 14 degrees

2. **Seat Fore and Aft Positioning**

Positioning of the driver's seat : Located 23 positions - placed in 12th detent which is mechanical middle

Positioning of the passenger's seat (if applicable) : Located 23 positions - placed in 12th detent which is mechanical middle

3. **Fuel Tank Capacity Data**

3.1

A. "Usable Capacity" of the standard equipment fuel tank is 94.6 liters

B. "Usable Capacity" of the optional equipment fuel tank is - liters

C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 = 94.6 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 87.0 liters

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

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

When vehicle's electrical system is activated

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

4. STEERING COLUMN ADJUSTMENTS :

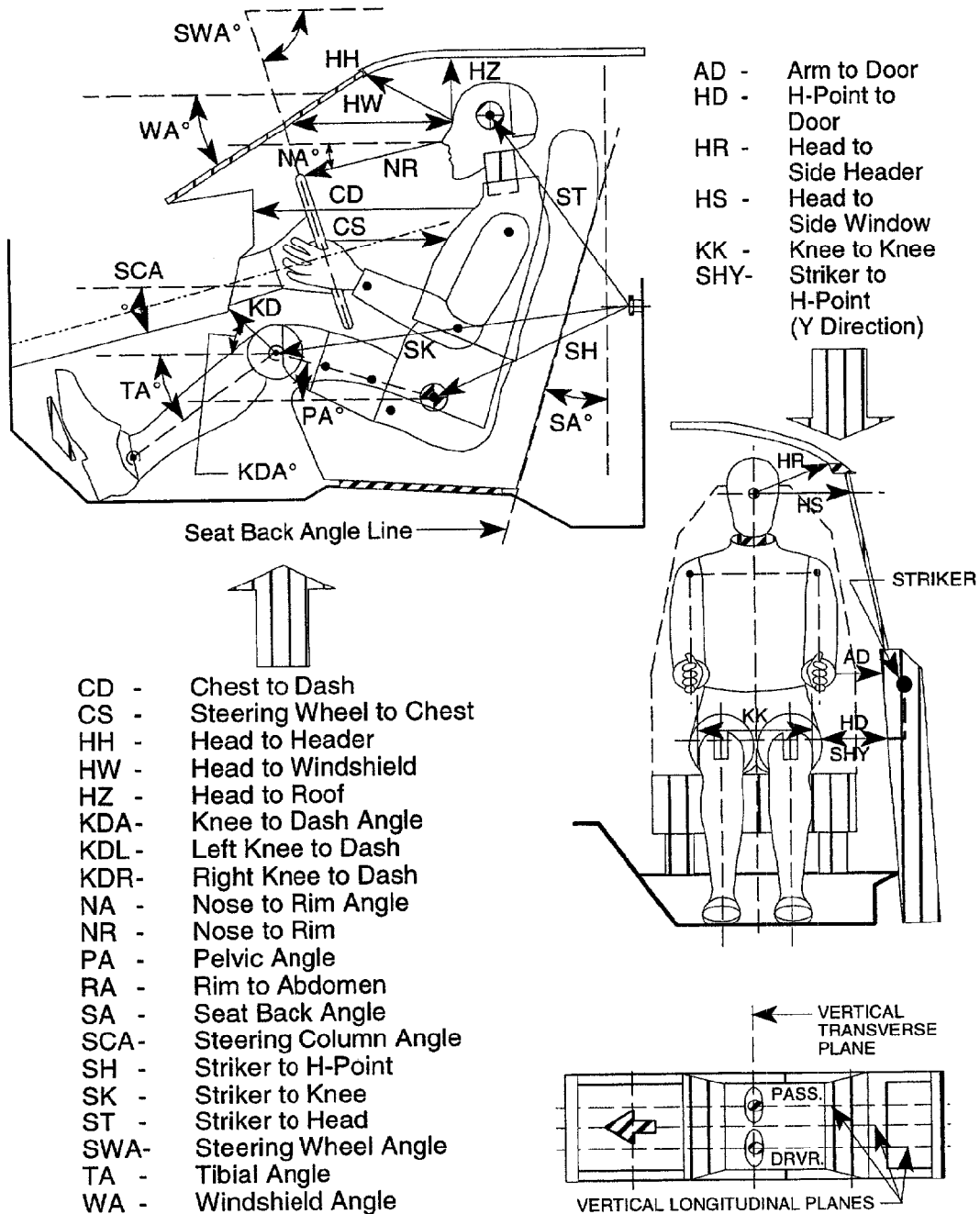
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions: Located 5 positions - placed in 3rd detent which is mechanical middle

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: Located 6 positions - placed in 3rd position from top

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

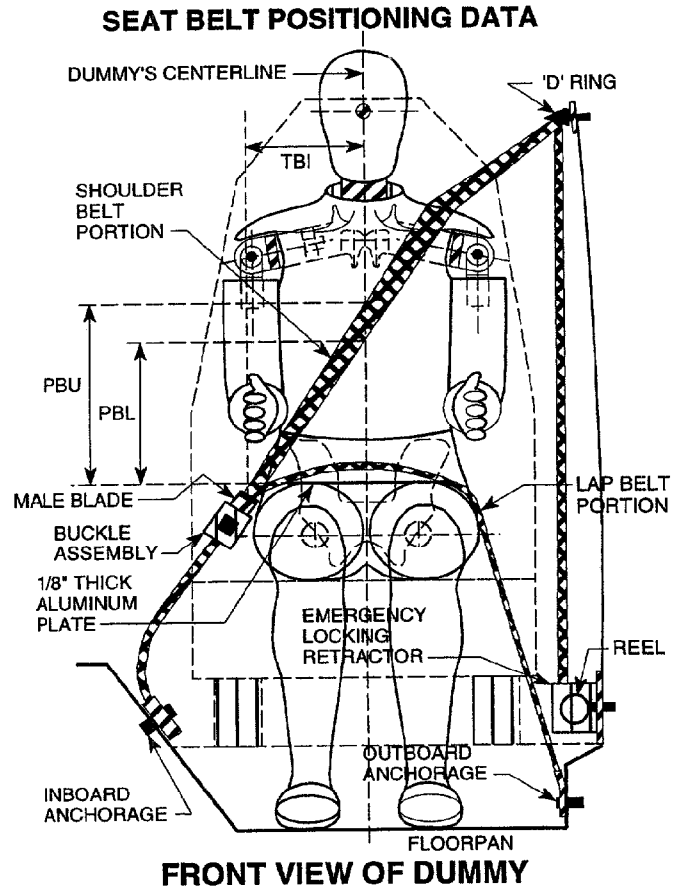


DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE

	DRIVER (Serial #245)			PASS. (Serial # 150)		
WA°	33 deg.			N/A		
SWA°	64 deg.			N/A		
SCA°	26 deg.			N/A		
SA°	14 deg.			14 deg.		
HZ	225			207		
HH	400			357		
HW	636			655		
HR	209			199		
NR	368	Angle	20 deg.	N/A		
CD	516			592		
CS	274			N/A		
RA	176			N/A		
KDL	157	Angle (KDA)	21 deg.	167		
KDR	156			174	Angle (KDA)	28 deg.
PA°	24 deg.			24 deg.		
TA°	-51 deg.			-44 deg.		
KK	305			260		
ST	580	Angle	11 deg.	595	Angle	13 deg.
SK	610	Angle	89 deg.	606	Angle	94 deg.
SH	207	Angle	116 deg.	209	Angle	125 deg.
SHY	238			240		
HS	331			331		
HD	166			169		
AD	41			97		

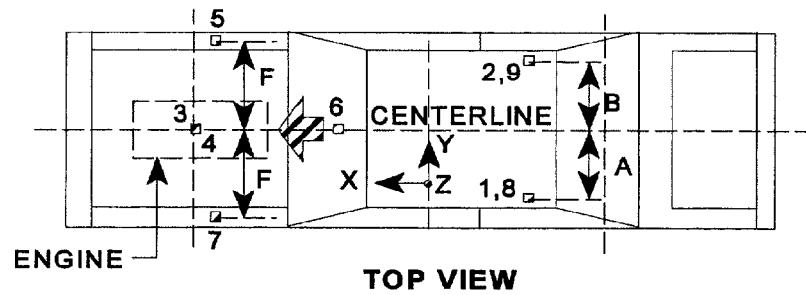
Dimensions in millimeters

DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

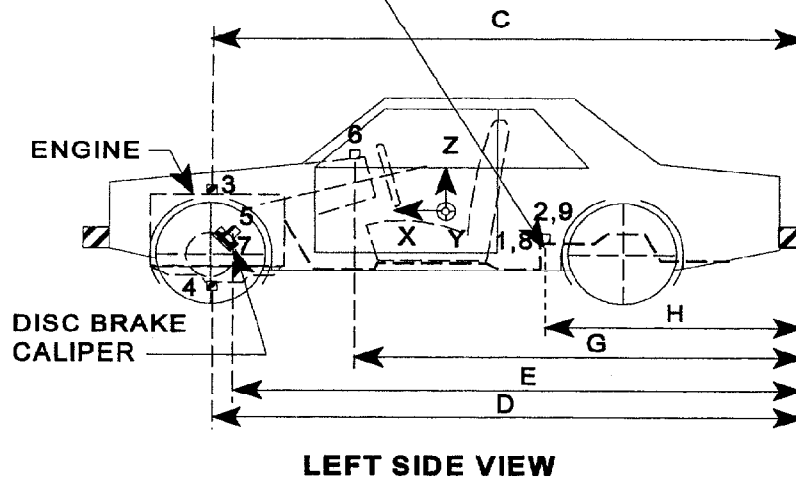


	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	303	311
PBL-- Top surface of alum. plate to belt lower edge	220	228
<u>LAP BELT TENSION</u>	10 nwts	10 nwts
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

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	627
B Right Rear Seat Crossmember Y	-630
C Top of Engine X	4176
D Bottom of Engine X	3356
E Disc Brake Calipers X	3940
F Disc Brake Calipers Y	470
G Instrument Panel X	3184
H Rear Seat Crossmembers X	2031

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	1.6	187.3	-37.3	39.5
2	Rear Seat X-Member @ Right Side	1.5	169.5	-35.0	35.8
3	Top of Engine Block	_*	_*	_*	_*
4	Bottom of Engine	_*	_*	_*	_*
5	Disc Brake Caliper @ Right Side	34.1	47.3	-153.0	41.9
6	Instrument Panel	_*	_*	_*	_*
7	Disc Brake Caliper @ Left Side	94.2	42.3	-64.1	50.4
8	Rear Seat X-Member @ Left-Redundant	1.5	187.9	-38.5	39.1
9	Rear Seat X-Member @ Right-Redundant	1.5	170.3	-35.6	35.7

* - data is questionable

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

NHTSA Test No.: MX0300 Vehicle: 1999 Dodge Durango 4 x 4 SLT

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec.	Neg.	msec.
Pos. 1 Head X	g's	21.0	124.6	-70.2	88.3
Pos. 1 Head Y	g's	6.0	199.6	-48.8	87.9
Pos. 1 Head Z	g's	30.2	55.1	-53.0	87.9
Pos. 1 Head Resultant	g's	99.9	88.1	0.0	-58.1
Pos. 2 Head X	g's	4.5	215.4	-50.6	97.1
Pos. 2 Head Y	g's	11.4	123.0	-3.9	83.6
Pos. 2 Head Z	g's	40.6	68.4	-28.5	113.5
Pos. 2 Head Resultant	g's	53.8	79.1	0.0	-52.3
Pos. 1 Chest X	g's	4.5	187.3	-58.2	67.4
Pos. 1 Chest Y	g's	5.9	104.3	-13.2	87.7
Pos. 1 Chest Z	g's	27.9	70.2	-18.2	121.3
Pos. 1 Chest Resultant	g's	63.7	67.5	0.0	-31.4
Pos. 1 Chest Displacement	mm	0.0	-82.3	-41.0	69.1
Pos. 2 Chest X	g's	3.6	356.9	-49.4	72.9
Pos. 2 Chest Y	g's	5.7	72.3	-7.9	127.6
Pos. 2 Chest Z	g's	30.2	76.8	-21.6	114.6
Pos. 2 Chest Resultant	g's	54.8	75.1	0.0	-50.4
Pos. 2 Chest Displacement	mm	0.0	-22.7	-36.3†	71.7†
Pos. 1 Left Femur	N	342.7	37.5	-7012.1	55.0
Pos. 1 Right Femur	N	561.0	39.4	-4293.7	76.7
Pos. 2 Left Femur	N	996.5	102.5	-5040.7	49.8
Pos. 2 Right Femur	N	433.0	113.0	-5213.8	58.9
Pos. 1 Left Belt Load	N	6349.0	54.6	-60.3	115.3
Pos. 1 Torso Belt Load	N	4360.9	70.1	-62.4	152.1
Pos. 2 Right Belt Load	N	6486.0	57.8	-26.2	116.4
Pos. 2 Torso Belt Load	N	7733.8	71.7	-36.9	302.7

† Data from 38 to 40 ms was invalid, minimum value was taken from data outside of this range.

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

NHTSA Test No.: MX0300 Vehicle: 1999 Dodge Durango 4 x 4 SLT

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	1008.0	59.7	94.0	61.3
Position #2 - Passenger	592.1	72.8	108.8	48.6

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

CLIP SUMMARY*				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	60.8	66.0	69.0	-
Position #2 - Passenger	54.2	74.5	77.8	-

* 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 Dodge Durango 4 x 4 SLT
 NHTSA Test No.: MX0300 Test Date: December 15, 1998

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Upper Neck Fx	N	720.5	124.6	-1106.7	89.7
Pos. 1 Upper Neck Fy	N	266.2	81.7	-263.2	150.2
Pos. 1 Upper Neck Fz	N	3432.3	70.9	-510.0	116.0
Pos. 1 Neck Force Result	N	3452.9	70.9	1.7	10.0
Pos. 1 Upper Neck Mx	N-m	21.4	190.7	-39.3	99.6
Pos. 1 Upper Neck My	N-m	16.5	358.5	-98.0	89.4
Pos. 1 Upper Neck Mz	N-m	49.0	107.6	-10.8	148.1
Pos. 1 Neck Moment Result	N-m	104.7	89.5	0.1	19.1
Pos. 2 Upper Neck Fx	N	514.2	91.4	-764.7	161.4
Pos. 2 Upper Neck Fy	N	467.6	93.0	-110.1	406.4
Pos. 2 Upper Neck Fz	N	1870.0	68.4	-1045.0	110.9
Pos. 2 Neck Force Result	N	1871.2	68.4	0.4	-50.0
Pos. 2 Upper Neck Mx	N-m	10.5	155.2	-38.0	91.0
Pos. 2 Upper Neck My	N-m	64.7	168.1	-41.4	122.8
Pos. 2 Upper Neck Mz	N-m	7.1	97.1	-14.7	134.0
Pos. 2 Neck Moment Result	N-m	64.9	168.1	0.0	-47.6
Pos. 1 Pelvic (X)	g's	4.0	140.4	-77.2	54.5
Pos. 1 Pelvic (Y)	g's	7.0	83.6	-11.9	52.2
Pos. 1 Pelvic (Z)	g's	10.9	82.3	-25.8	106.2
Pos. 1 Pelvic (R)	g's	77.6	54.5	0.0	-32.8
Pos. 2 Pelvic (X)	g's	7.2	138.8	-82.9	49.9
Pos. 2 Pelvic (Y)	g's	10.9	45.4	-14.8	50.9
Pos. 2 Pelvic (Z)	g's	13.0	45.0	-25.5	123.3
Pos. 2 Pelvic (R)	g's	83.0	49.9	0.0	-55.9

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

Vehicle Year/Make/Model/Body Style: 1999 Dodge Durango 4 x 4 SLT
 NHTSA Test No.: MX0300 Test Date: December 15, 1998

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
P1 Lt Upper Tibia Mx	N-m	50.4	58.9	-88.0	85.8
P1 Lt Upper Tibia My	N-m	113.5	50.1	-66.6	58.4
P1 Lt Lower Tibia Fz	N	597.2	46.1	-5590.5	84.0
P1 Lt Lower Tibia Mx	N	58.5	84.3	-56.5	87.7
P1 Lt Lower Tibia My	N-m	132.3	84.5	-179.0	57.1
P1 Rt Upper Tibia Mx	N-m	58.5	44.6	-31.0	206.0
P1 Rt Upper Tibia My	N-m	122.3	47.0	-15.1	130.1
P1 Rt Lower Tibia Fz	N	205.6	51.5	-2567.9	102.2
P1 Rt Lower Tibia Mx	N	39.2	54.6	-25.4	44.0
P1 Rt Lower Tibia My	N-m	79.9	103.8	-113.7	43.5
Pos. 2 Lt Upper Tibia Mx	N-m	25.9	86.0	-52.3	53.5
Pos. 2 Lt Upper Tibia My	N-m	22.7	59.2	-207.2	48.0
Pos. 2 Lt Lower Tibia Fz	N	1407.5	60.7	-4997.5	96.2
Pos. 2 Lt Lower Tibia Mx	N	88.5	99.0	-35.6	46.8
Pos. 2 Lt Lower Tibia My	N-m	55.9	93.2	-177.8	44.2
Pos. 2 Rt Upper Tibia Mx	N-m	29.5	121.9	-74.6	60.4
Pos. 2 Rt Upper Tibia My	N-m	74.7	59.0	-148.6	83.2
Pos. 2 Rt Lower Tibia Fz	N	651.9	60.7	-5167.5	82.0
Pos. 2 Rt Lower Tibia Mx	N	_*	_*	_*	_*
Pos. 2 Rt Lower Tibia My	N-m	79.9	94.8	-71.2	48.7

* - data is questionable

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

Vehicle Year/Make/Model/Body Style: 1999 Dodge Durango 4 x 4 SLT
 NHTSA Test No.: MX0300 Test Date: December 15, 1998

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Left Ankle X	g's	129.2	83.6	-264.8	54.2
Pos. 1 Left Ankle Z	g's	84.3	84.7	-111.1	54.2
Pos. 1 Left Toe Z	g's	151.8	87.0	-312.6	54.0
Pos. 1 Right Ankle X	g's	_*	_*	_*	_*
Pos. 1 Right Ankle Z	g's	_*	_*	_*	_*
Pos. 1 Right Toe Z	g's	_*	_*	_*	_*
Pos. 2 Left Ankle X	g's	47.5	96.5	-252.0	45.0
Pos. 2 Left Ankle Z	g's	93.1	51.0	-86.8	41.6
Pos. 2 Left Toe Z	g's	_*	_*	_*	_*
Pos. 2 Right Ankle X	g's	39.9	90.3	-240.1	46.6
Pos. 2 Right Ankle Z	g's	100.2	78.4	-32.8	46.1
Pos. 2 Right Toe Z	g's	66.7	51.3	-152.0	79.2

* - Data is questionable

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

NHTSA Test No.: MX0300 Vehicle: 1999 Dodge Durango 4 x 4 SLT

DESCRIPTION	UNIT	MAXIMUM VALUE			
		Pos.	msec	Neg.	msec
Pos. 1 Head X(R)	g's	18.3	124.2	-81.1	88.4
Pos. 1 Head Y(R)	g's	8.0	192.0	-58.9	88.2
Pos. 1 Head Z(R)	g's	36.0	56.3	-53.4	88.0
Pos. 1 Head Resultant(RR)	g's	112.5	88.0	0.0	-55.3
Pos. 2 Head X(R)	g's	4.7	283.7	-60.8	94.5
Pos. 2 Head Y(R)	g's	15.7	114.6	-6.5	63.1
Pos. 2 Head Z(R)	g's	49.6	78.6	-36.1	113.5
Pos. 2 Head Resultant(RR)	g's	66.4	78.7	0.0	-51.2
Pos. 1 Chest X(R)	g's	4.7	187.5	-62.1	67.3
Pos. 1 Chest Y(R)	g's	7.0	104.5	-13.8	87.6
Pos. 1 Chest Z(R)	g's	34.1	70.3	-22.3	121.3
Pos. 1 Chest Resultant(RR)	g's	69.8	67.3	0.0	-74.9
Pos. 2 Chest X(R)	g's	3.4	356.9	-45.6	72.7
Pos. 2 Chest Y(R)	g's	7.0	73.2	-8.5	127.6
Pos. 2 Chest Z(R)	g's	32.6	76.8	-21.3	114.1
Pos. 2 Chest Resultant(RR)	g's	52.9	76.4	0.0	-48.5

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

NHTSA Test No.: MX0300 Vehicle: 1999 Dodge Durango 4 x 4 SLT

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	1263.7	60.2	95.0	66.7
Position #2 - Passenger	961.5	72.6	108.6	59.0

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

CLIP SUMMARY* REDUNDANT				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	67.4	65.8	68.8	-
Position #2 - Passenger	51.9	74.9	77.9	-

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

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

	<u>Driver</u>	<u>Passenger</u>
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	<u>1596</u>	<u>1591</u>
Shoulder belt length as measured on Part 572 Dummy.	<u>785</u>	<u>775</u>
Lap belt length as measured on Part 572 Dummy.	<u>645</u>	<u>670</u>

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.	<u>170</u>	<u>225</u>
As determined mechanically.	<u>165</u>	<u>260</u>
As determined electronically.	<u>187.1</u>	<u>198.7</u>

BELT STRETCH DATA:

Measured electronically between shoulder belt load cell and the "D" ring.	<u>2.2 mm/M</u>	<u>2.2 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 25 mm molding.

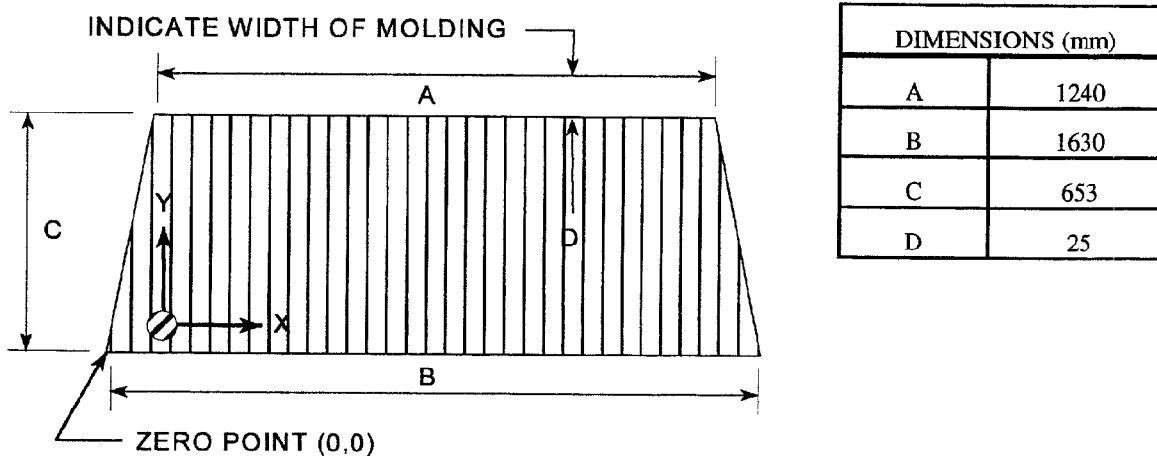
FMVSS 212 REQUIREMENTS:

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

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST(mm)	
RIGHT SIDE	2088	2088	100
LEFT SIDE	2088	2088	100
TOTAL	4,176	4,176	100

AREA OF RETENTION FAILURE:



FRONT VIEW OF WINDSHIELD

FAILURE DETAILS:

None

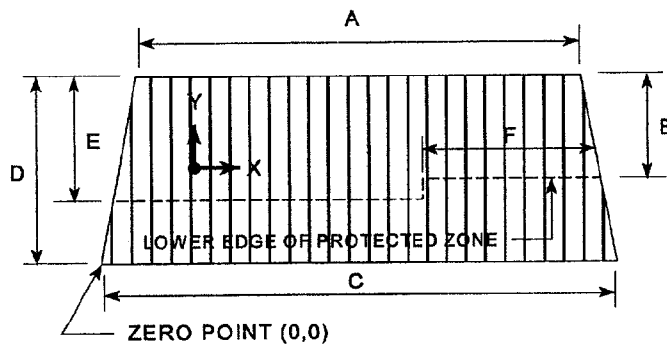
DATA SHEET NO. 11 FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA

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	1240
B	345
C	1630
D	653
E	441
F	940

FRONT VIEW OF WINDSHIELD

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

(Show location of penetration on the above sketch)

COORDINATES		
	X	Y
1.		
2.		
3.		
4.		

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

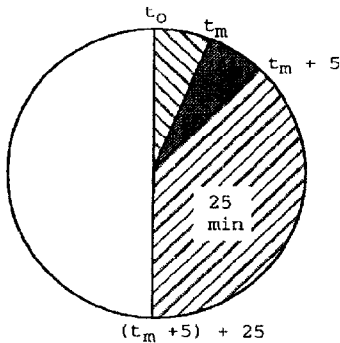
NHTSA TEST No.: MX0300 TEST DATE: December 15, 1998
VEHICLE MAKE/MODEL: 1999 Dodge Durango

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

=====

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

FUEL SPILLAGE MEASUREMENT:



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

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

SOLVENT SPILLAGE DETAILS:

None

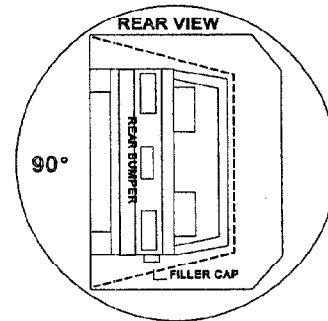
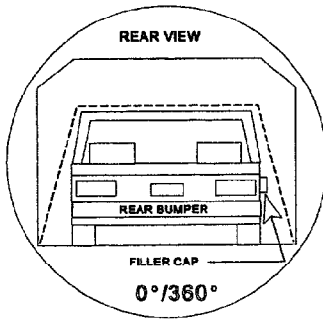
DATA SHEET NO. 13 FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

0-90 deg.

NHTSA Test No.:

MX0300



INDETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

1 minutes 09 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 9 seconds

Next whole minute interval

7 minutes 00 seconds

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

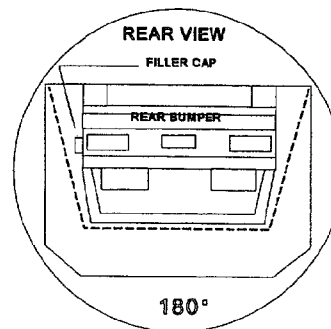
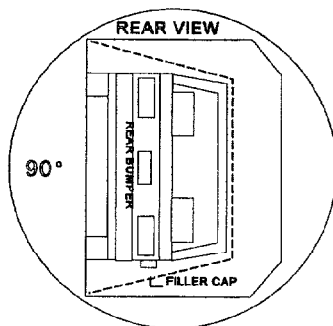
Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S): None

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

TEST PHASE:
90-180 deg.

NHTSA Test No.:
MX0300



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

1 minutes 5 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 5 seconds

Next whole minute interval

7 minutes 00 seconds

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

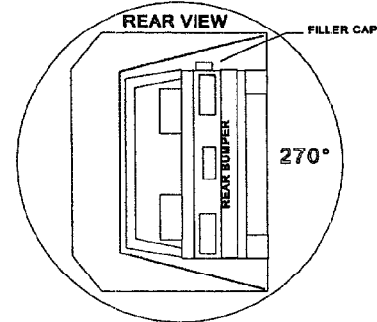
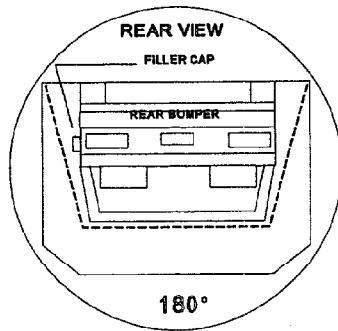
Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S): None

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

TEST PHASE:
180-270 deg.

NHTSA Test No.:
MX0300



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

1 minutes 4 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 4 seconds

Next whole minute interval

7 minutes 00 seconds

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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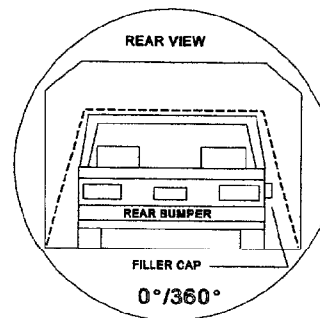
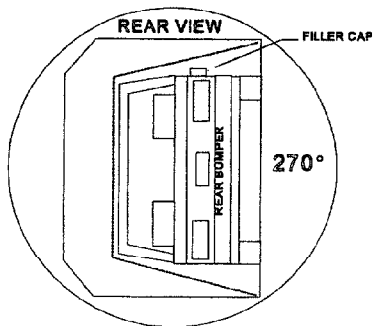
Note: Record spillage for whole minute intervals only as determined above.

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.:
MX0300



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

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

1 minutes 7 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 7 seconds

Next whole minute interval

7 minutes 00 seconds

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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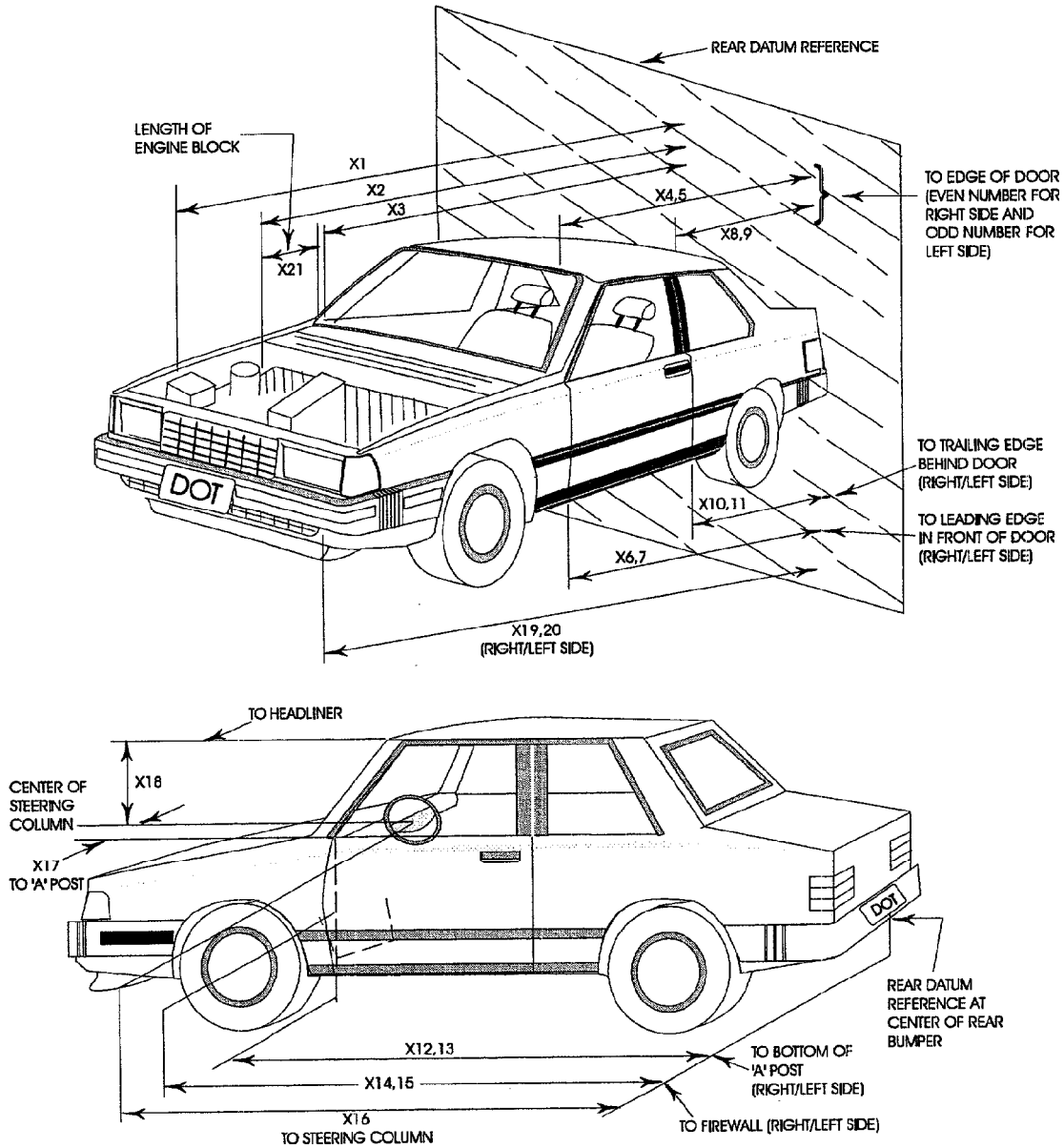
III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

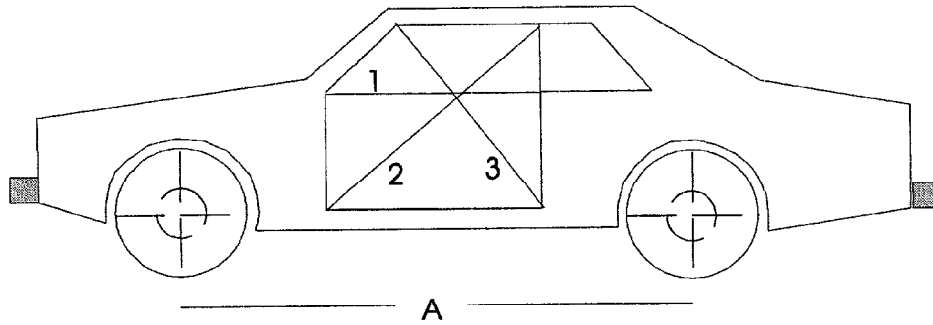
TEST VEHICLE MEASUREMENTS



DATA SHEET NO.14 VEHICLE MEASUREMENTS

No.		All Dimensions in mm		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4943.4	4367	576
X2	Rear Surface of Vehicle to Front of Engine	4233.4	3947	286
X3	Rear Surface of Vehicle to Firewall	3872.6	3786	87
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3519.7	3513	7
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3522.2	3532	-10
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3489.6	3511	-21
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3497.7	3534	-36
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2398.7	2402	-3
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2401.5	2412	-11
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2401	2424	-23
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2406.2	2455	-49
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3539.2	3550	-11
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3545	3579	-34
X14	Rear Surface of Vehicle to Firewall, Right Side	3859	3805	54
X15	Rear Surface of Vehicle to Firewall, Left Side	3859.6	3799	61
X16	Rear Surface of Vehicle to Steering Column	2976.8	2980	-3
X17	Center of Steering Column to "A" Post	378.5	357	22
X18	Center of Steering Column to Headliner	426.6	316	111
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4876.4	4354	522
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4894.3	4365	529
X21	Length of Engine Block	570	570	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3243	3193	50
CD	Rear Surface of Vehicle to Center of Dash Panel	3175	3112	63
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3213	3198	15

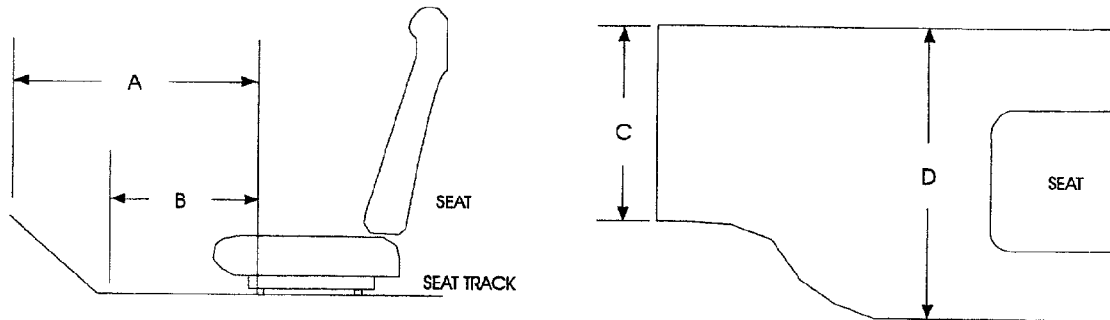
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
VEHICLE INTRUSION MEASUREMENTS
DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	989.1	1491.9	1125.5	994.9	1491.1	1129.5
AFTER TEST	959.4	1451.6	1177.3	978.7	1460.7	1180.9
DIFFERENCE	29.7	40.3	-51.8	16.2	30.4	-51.4

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2948.2	2952.0
AFTER TEST	2910.0	2904.7
DIFFERENCE	38.2	47.3

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



DRIVER

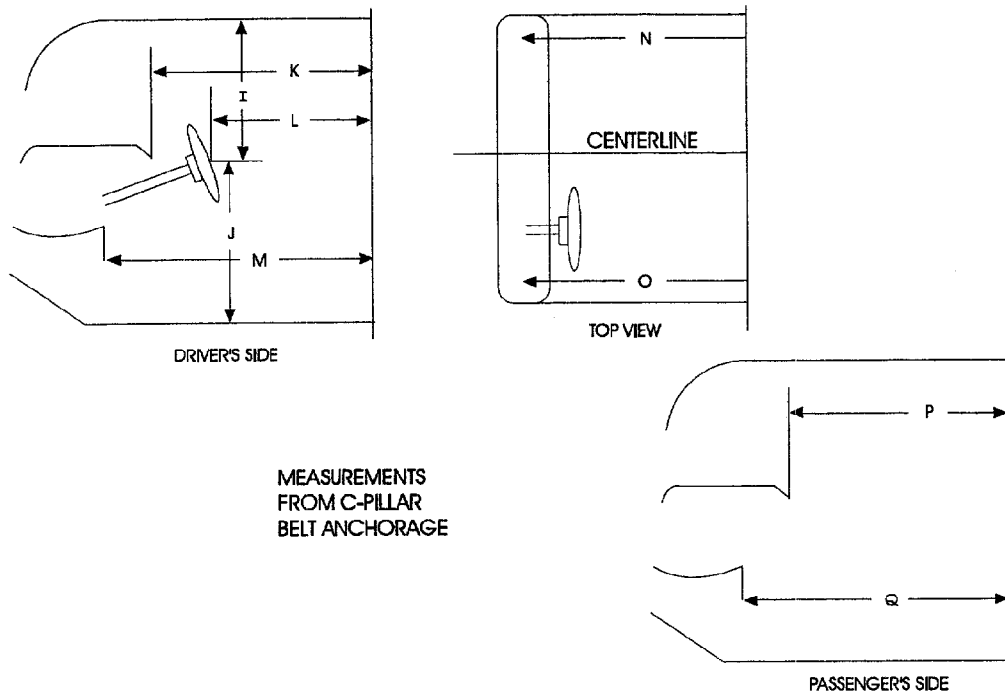
Measurement	Pre-Test	Post-Test	Difference
A	691.6	664.1	28
B	513.1	506.9	6
C	479.0	452.5	27
D	443.0	456.0	-13

PASSENGER

Measurement	Pre-Test	Post-Test	Difference
A	708.7	637.7	71
B	527.1	509.9	17
C	410.6	414.7	-4
D	465.7	437.8	28

Units = mm

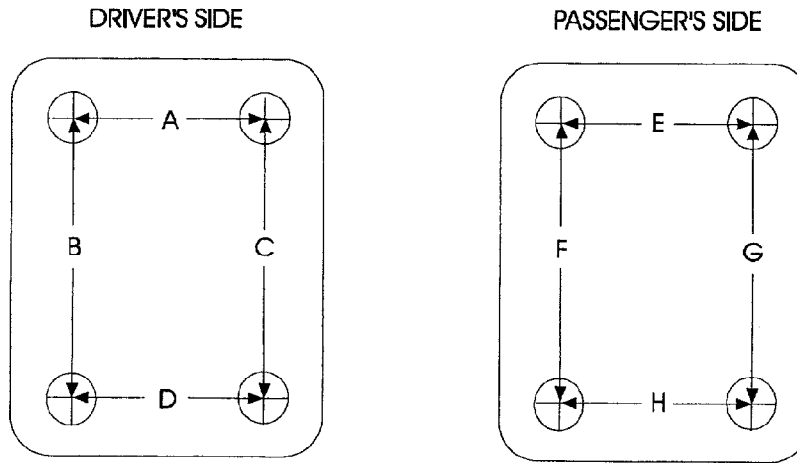
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
VEHICLE INTRUSION MEASUREMENTS
STATIC PASSENGER COMPARTMENT INTRUSION



Measurement	Pre-Test	Post-Test	Difference
I	464.9	360.5	104
J	632.7	834.0	-201
K	1793.4	1726.3	67
L	1589.8	1561.4	28
M	1848.6	1819.2	29
N	1817.8	1797.7	20
O	1817.6	1778.9	39
P = K (PASS.)	1843.6	1770.6	73
Q = M (PASS.)	1884.4	1858.6	26

Units = mm

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



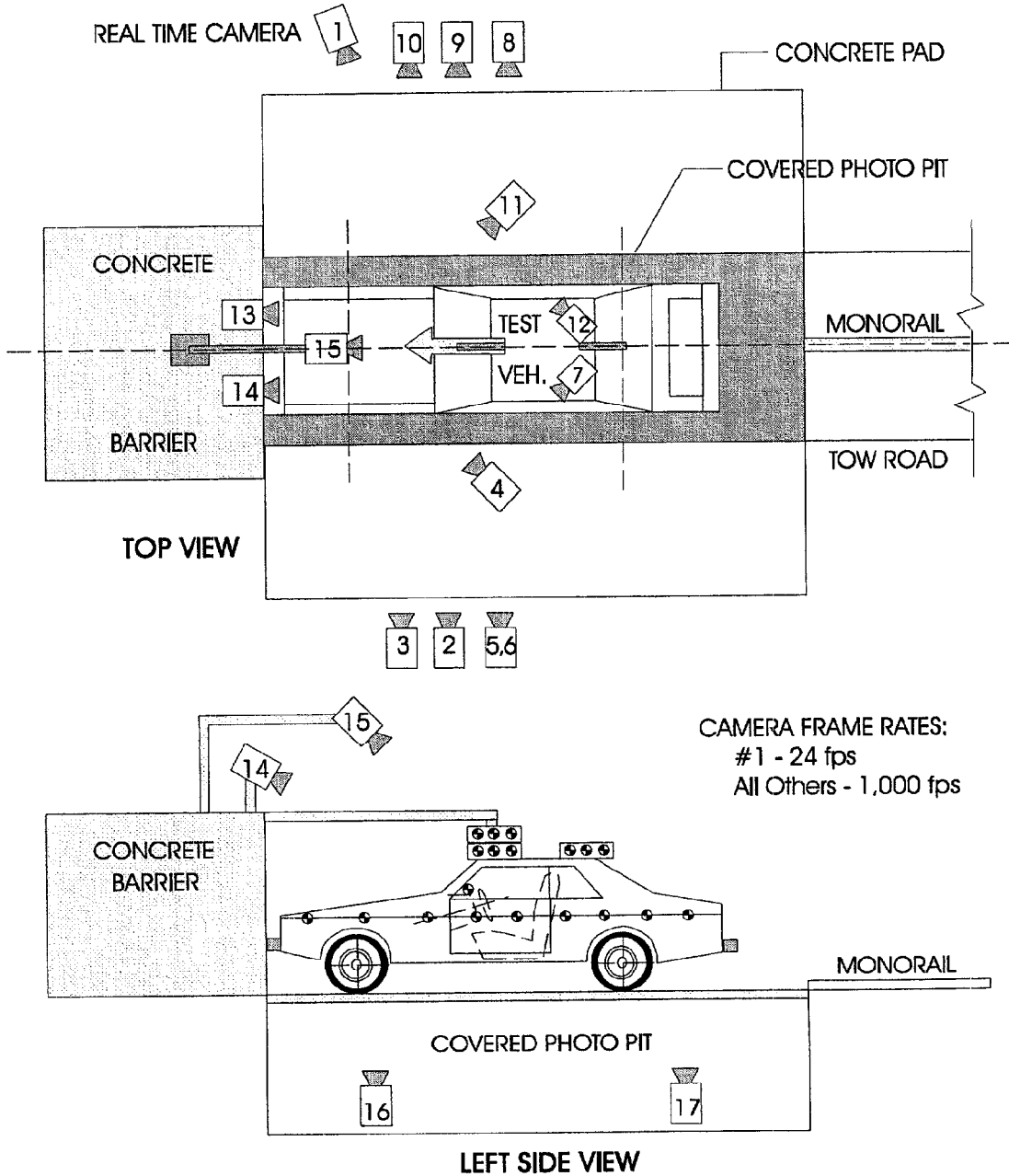
TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	193	190	3
B	791	775	16
C	812	801	11
D	190	188	2
E	189	185	4
F	824	810	14
G	838	829	9
H	281	277	4

Units = mm

CAMERA POSITIONS FOR FRONTAL IMPACTS

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



DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

NHTSA Test No.:

MX0300

Vehicle:

1999 Dodge Durango 4 x 4 SLT

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	6937	1693	1041	-3	7212	12	1020
3	Left Side View	7943	996	1074	-2	7668	25	1010
4	Driver and Interior View	4572	2942	2006	-12	-	25	1010
5	Steering Column (Bottom)	7611	1668	1169	-1	7336	25	1000
6	Steering Column (Top)	7611	1668	1776	-7	7336	25	1010
7	Left Belt	-	-	-	-	-	8	1020
8	Overall Right Side	7024	1997	1082	-3	6749	13	1020
9	Right Side View	8179	1467	1094	-2	7904	25	1010
10	Right Passenger View	8274	1877	1350	-2	7999	35	1010
11	Passenger and Interior View	4703	2888	2101	-10	-	25	1000
12	Right Belt	-	-	-	-	-	8	1000
13	Passenger Front View	580	0	2000	-33	-	8	1015
14	Driver Front View	580	0	2000	-32	-	8	1010
15	Windshield View	0	530	3048	-59	-	8	1010
16	Pit View of Engine	0	525	-3048	90	-	13	1000
17	Pit View of Fuel Tank	0	3395	-3048	90	-	13	1010

*X = film plane to monorail centerline

** = referenced to horizontal plane

Y = film plane to impact location

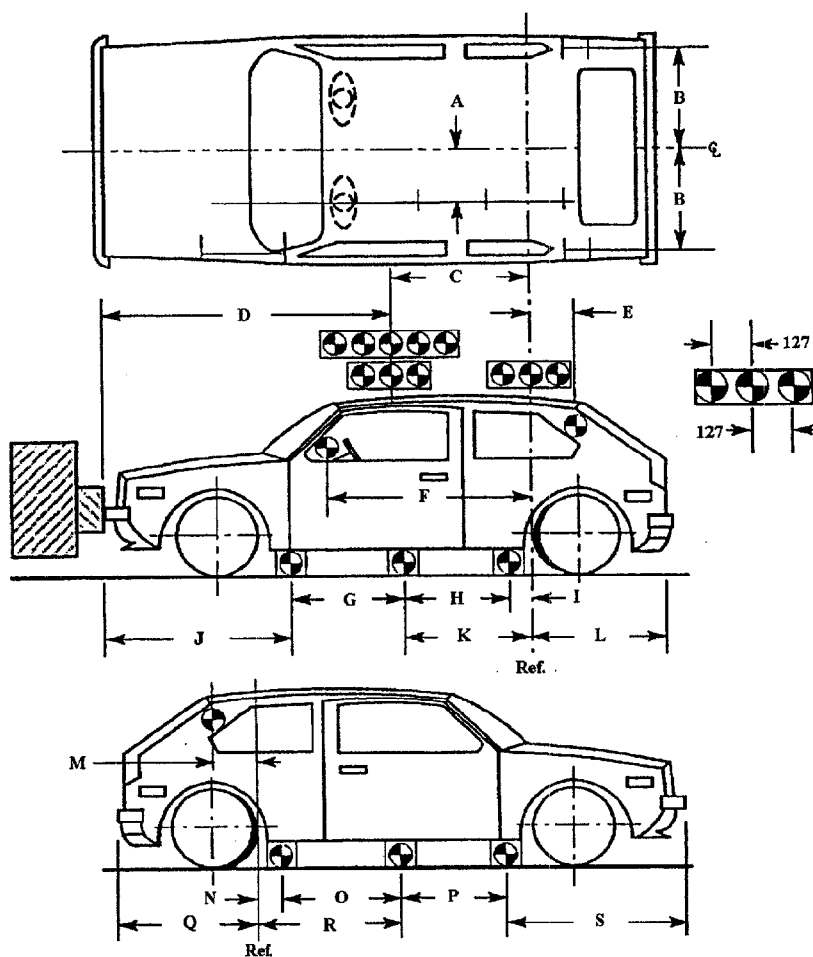
N.T. indicates No Timing

Z = film plane to ground

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

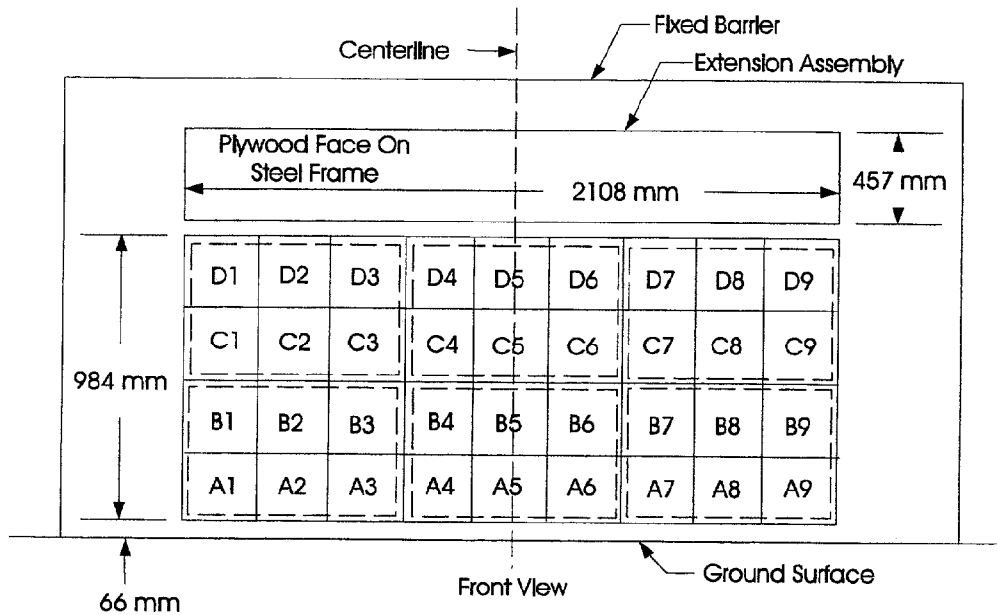
(Dimensions in millimeters)

A	351.7
B	692.2
C	1220.0
D	2253.6
E	356.1
F	1694.8
G	907.9
H	903.4
I	168.3
J	1469.1
K	1863.1
L	1478.8
M	438.6
N	104.6
O	909.3
P	892.3
Q	1536.4
R	1013.9
S	1484.9



DATA SHEET NO. 17 LOAD CELL LOCATIONS ON FIXED BARRIER

36 Load Cells
 4 Rows
 9 Columns
 6 Groupings (6 cells/group)



6 GROUPS OF 6 LOAD CELLS EACH

Group 4 C1 thru D3	Group 5 C4 thru D6	Group 6 C7 thru D9
Group 1 A1 thru B3	Group 2 A4 thru B6	Group 3 A7 thru B9

The following data is presented in Appendix B:

- (1) Data from 36 individual load cells
- (2) Total or Sum of 36 individual load cells
- (3) Data from 6 Groupings shown above (6 cells/group)

DATA SHEET NO. 18 POST TEST AIR BAG DATA

NHTSA No. : MX0300; Test Date: December 15, 1998; Technician: J. Cz.

Vehicle Model Year/Make/Model: 1999 Dodge Durango

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

B. Size of vent holes: (mm²) 0 -Driver 0 -Passenger

C. Total vent area: (mm²) 0 -Driver 0 -Passenger

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

Driver: - -Length; - -Width; 590 -Diameter

Passenger: 610 -Height; 505 -Width; 490 -Depth

E. Is the air bag tethered?

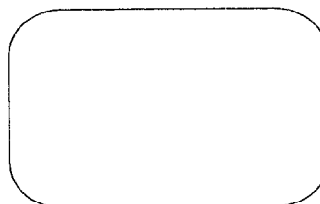
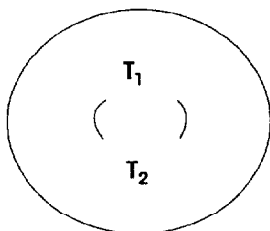
Driver: x -Yes; - -No; If yes, record length of tether- 150

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

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

DRIVER
vents underneath bag

PASSENGER
vents underneath bag



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

Driver: Air bag: P118137-02C TMJ176861707

Generator: P5G013DX9AB TATDM1808B0207

Passenger: Air bag: P121949-02C TMJ1698D0716

Generator: P5S314816AD TAEPM 173850220

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Dodge Durango 4 x 4 SLT

NHTSA Test No.: MX0300 VIN: 1B4H528Y7XF500535

Model Year: 1999 Build Date: 7/98 Test Date: December 15, 1998

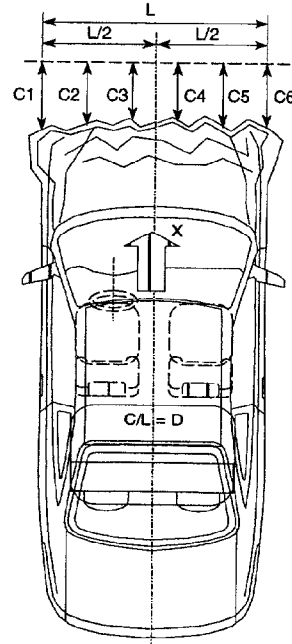
Vehicle Size Category: SUV Test Weight: 2393 kg

Vehicle Wheelbase: 2940 mm; Front Overhang: 1485 mm; Overall Width: 1811 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	4880.1	4345.4	-534.7	mm
C2 =	4936.9	4338.6	-598.3	mm
C3 =	4951.1	4329.6	-621.5	mm
C4 =	4933.8	4308.1	-625.7	mm
C5 =	4923.5	4301.4	-622.1	mm
C6 =	4878.2	4286.3	-591.9	mm



Midpoint of Damage: $D = \frac{\text{Vehicle Centerline}}{(\text{Longitudinal})}$

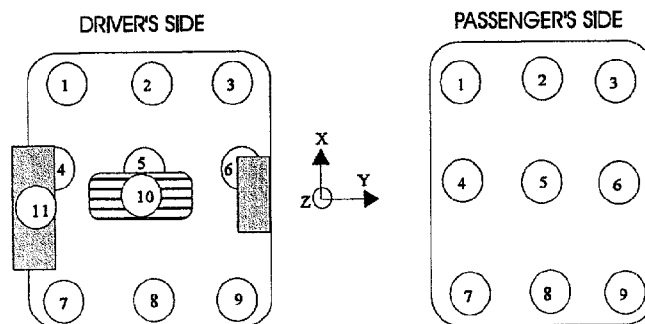
Length of Damaged
Region:

L1= _____ mm

L2= _____ mm

L3= _____ mm

DATA SHEET NO.20 VEHICLE MEASUREMENTS
TOE-PAN INTRUSION



Driver Side Floorpan Measurements

Reference: Rear of vehicle and floor

Floorpan Location	X Deformation			Z Deformation		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3659	3612	47	640	721	-81
2	3665	3611	54	628	730	-102
3	3664	3578	86	341	719	-378
4	3621	3606	15	585	662	-77
5	3623	3603	20	581	660	-79
6	3622	3590	32	585	659	-74
7	3554	3529	25	538	604	-66
8	3543	3529	14	537	601	-64
9	3543	3521	22	531	594	-63
10	3581	3559	22	601	670	-69
11	3470	3414	56	670	756	-86

Passenger Side Floorpan Measurements

Reference: Rear of vehicle and floor

Floorpan Location	X Deformation			Z Deformation		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3596	3534	62	601	642	-41
2	3596	3533	63	608	652	-44
3	3611	3569	42	606	634	-28
4	3549	3485	64	574	593	-19
5	3573	3531	42	558	592	-34
6	3579	3546	33	571	580	-9
7	3483	3468	15	528	547	-19
8	3498	3476	22	529	540	-11
9	3502	3493	9	518	522	-4

Units in mm

Appendix A
PHOTOGRAPHS

PHOTOGRAPHS

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Figure A-1 LOAD CELL LOCATIONS



Figure A-2 PRE-TEST FRONT VIEW

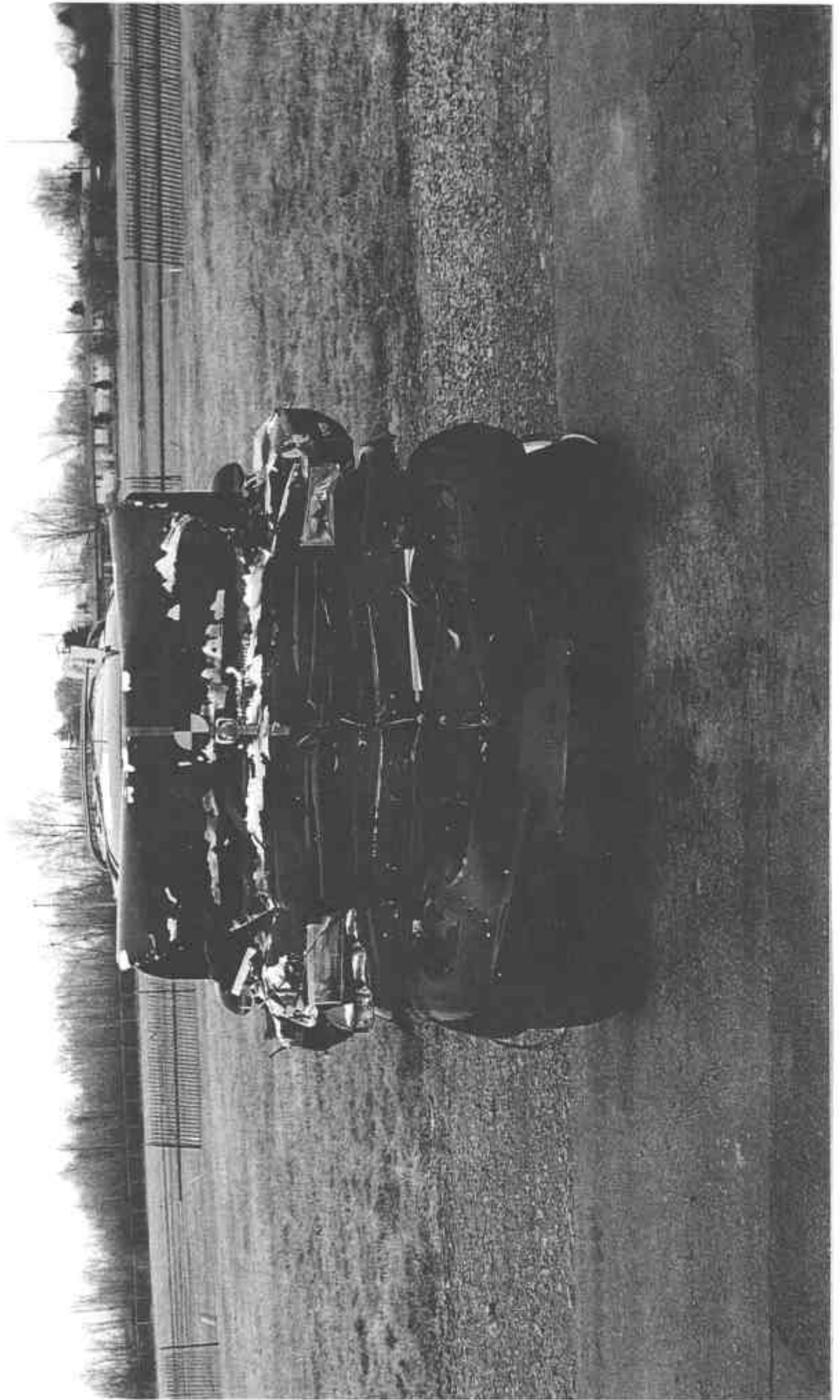


Figure A-3 POST-TEST FRONT VIEW



Figure A-4 PRE-TEST LEFT SIDE VIEW

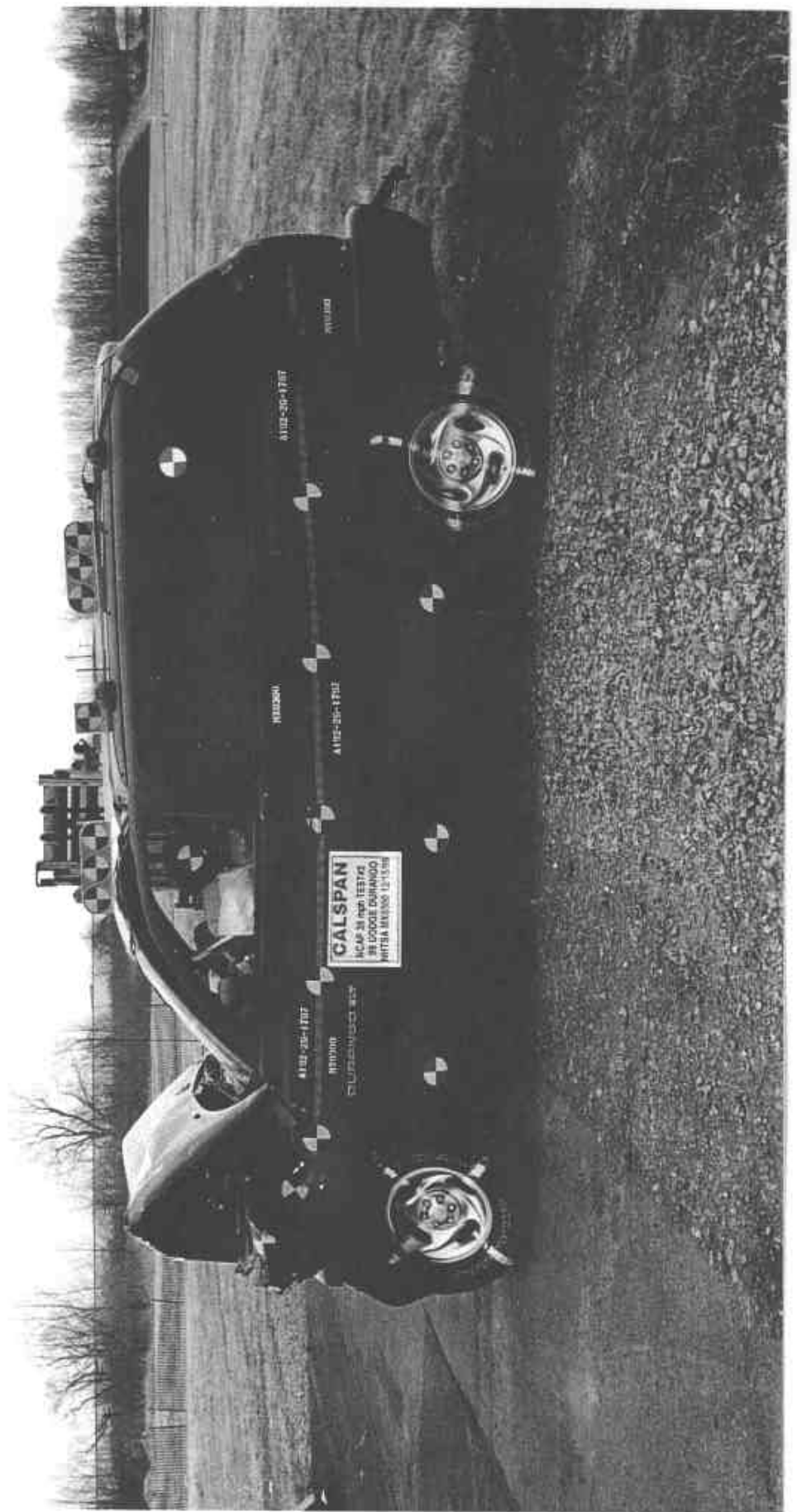


Figure A-5 POST-TEST LEFT SIDE VIEW

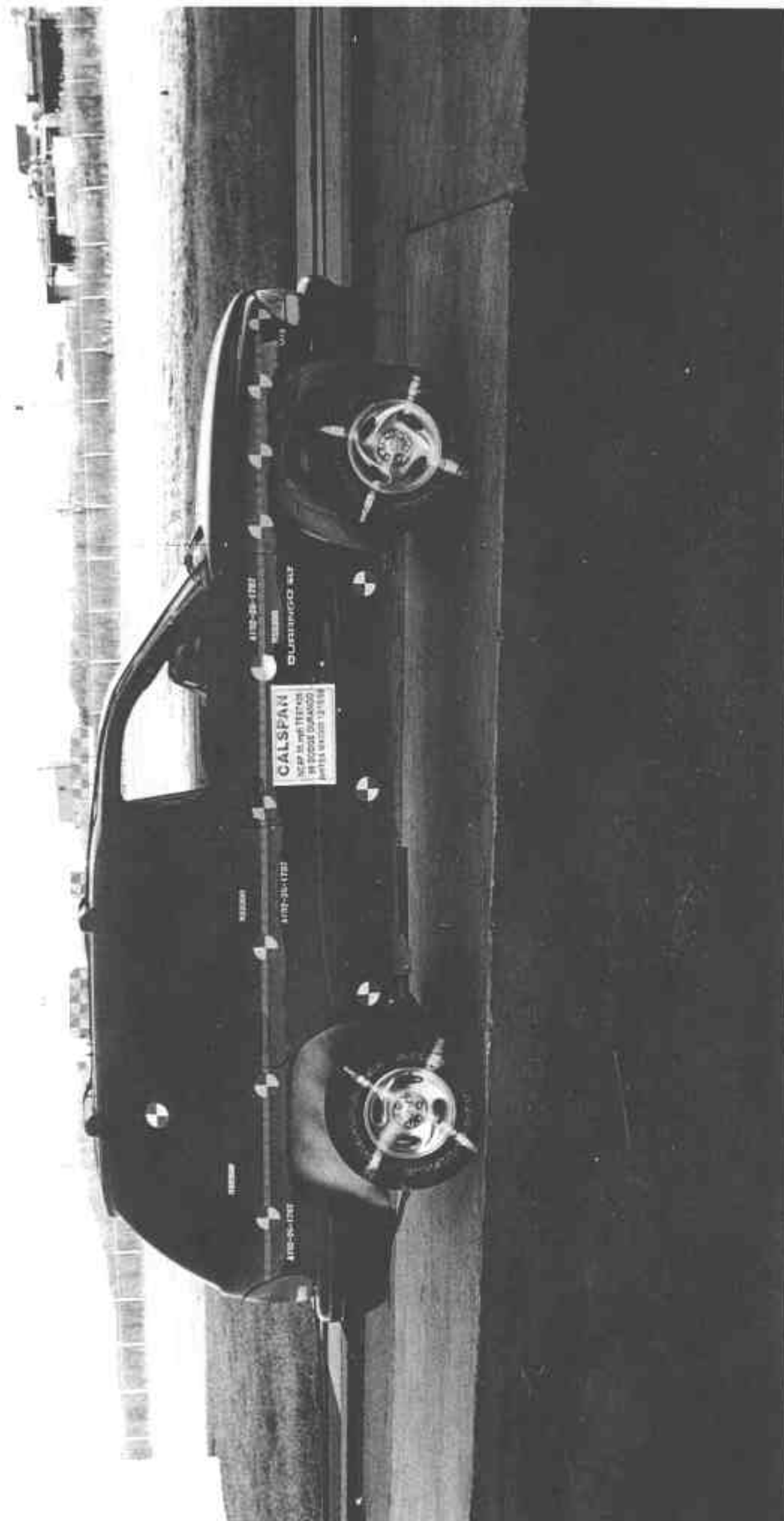




Figure A-7 POST-TEST RIGHT SIDE VIEW



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



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



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



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



Figure A-12 PRE-TEST WINDSHIELD VIEW

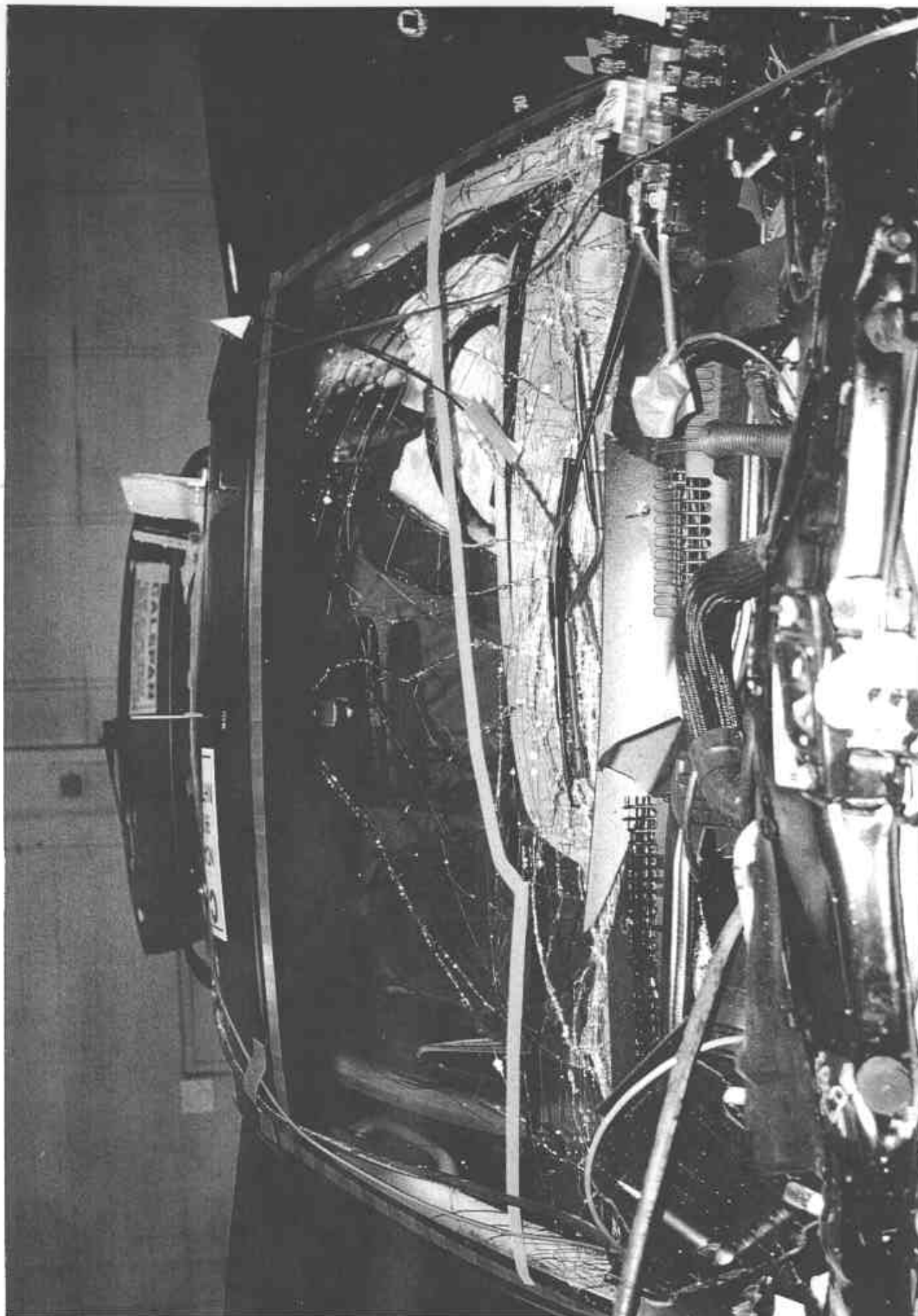


Figure A-13 POST-TEST WINDSHIELD VIEW

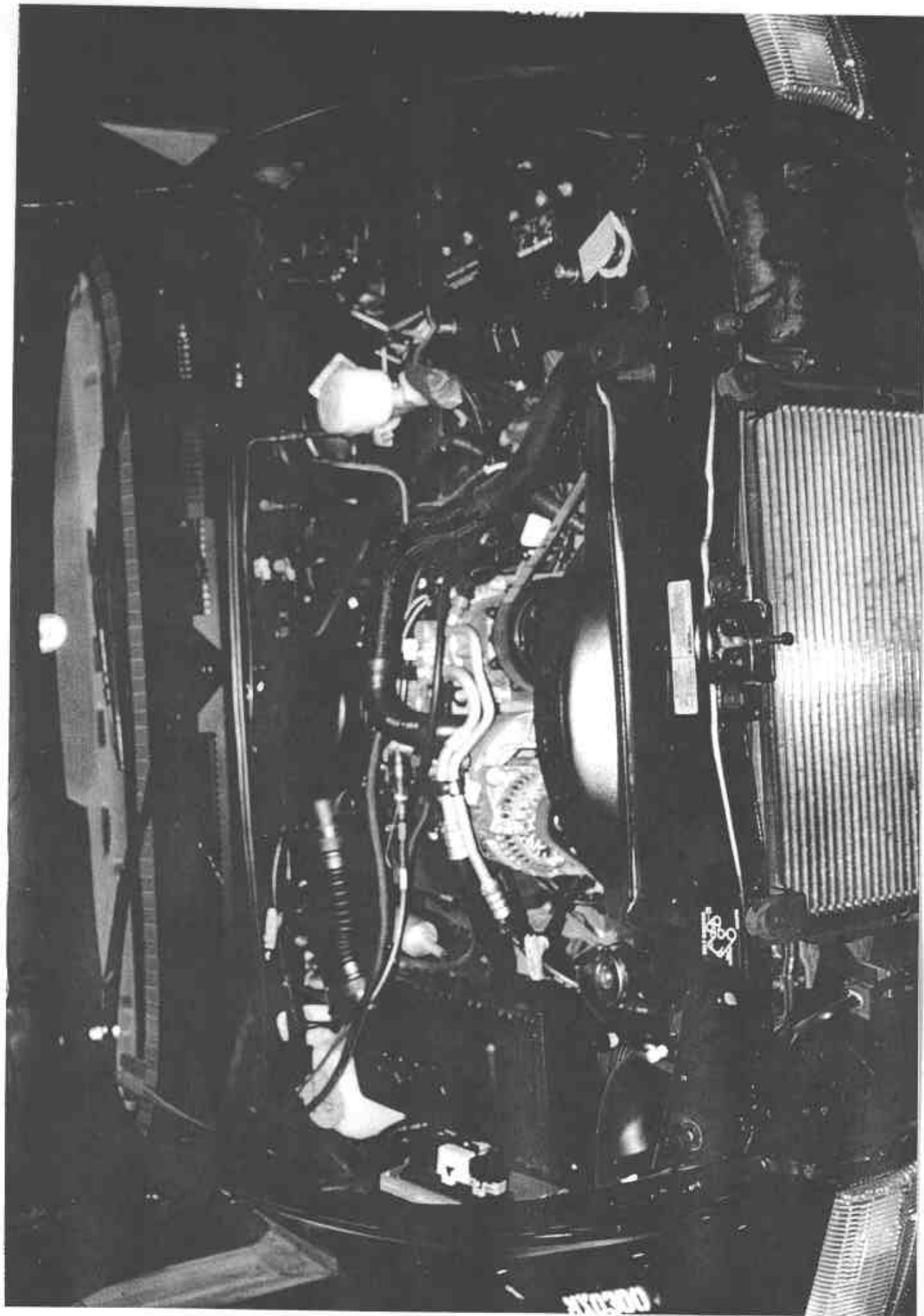


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW



Figure A-15 FUEL CAP VIEW

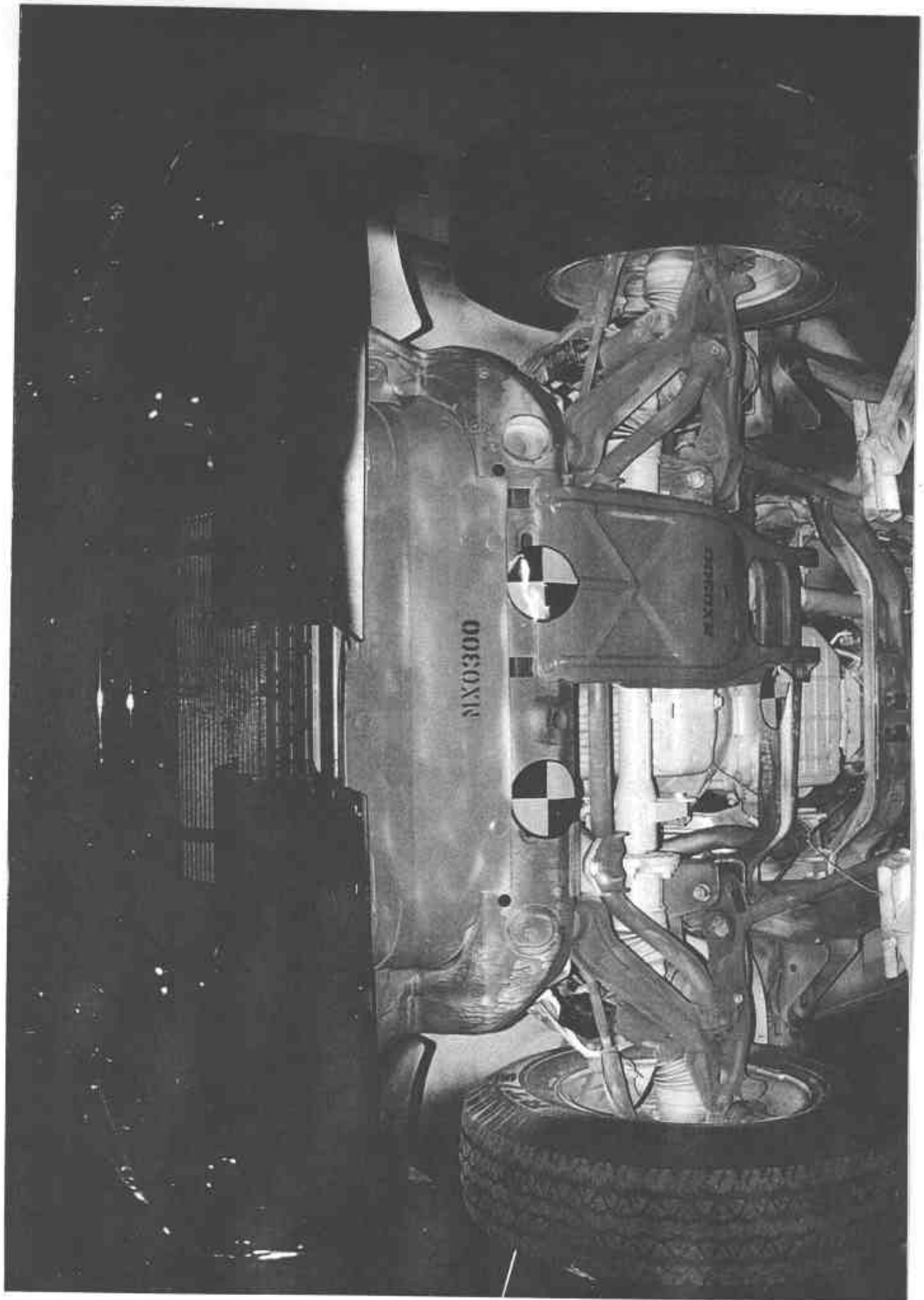


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

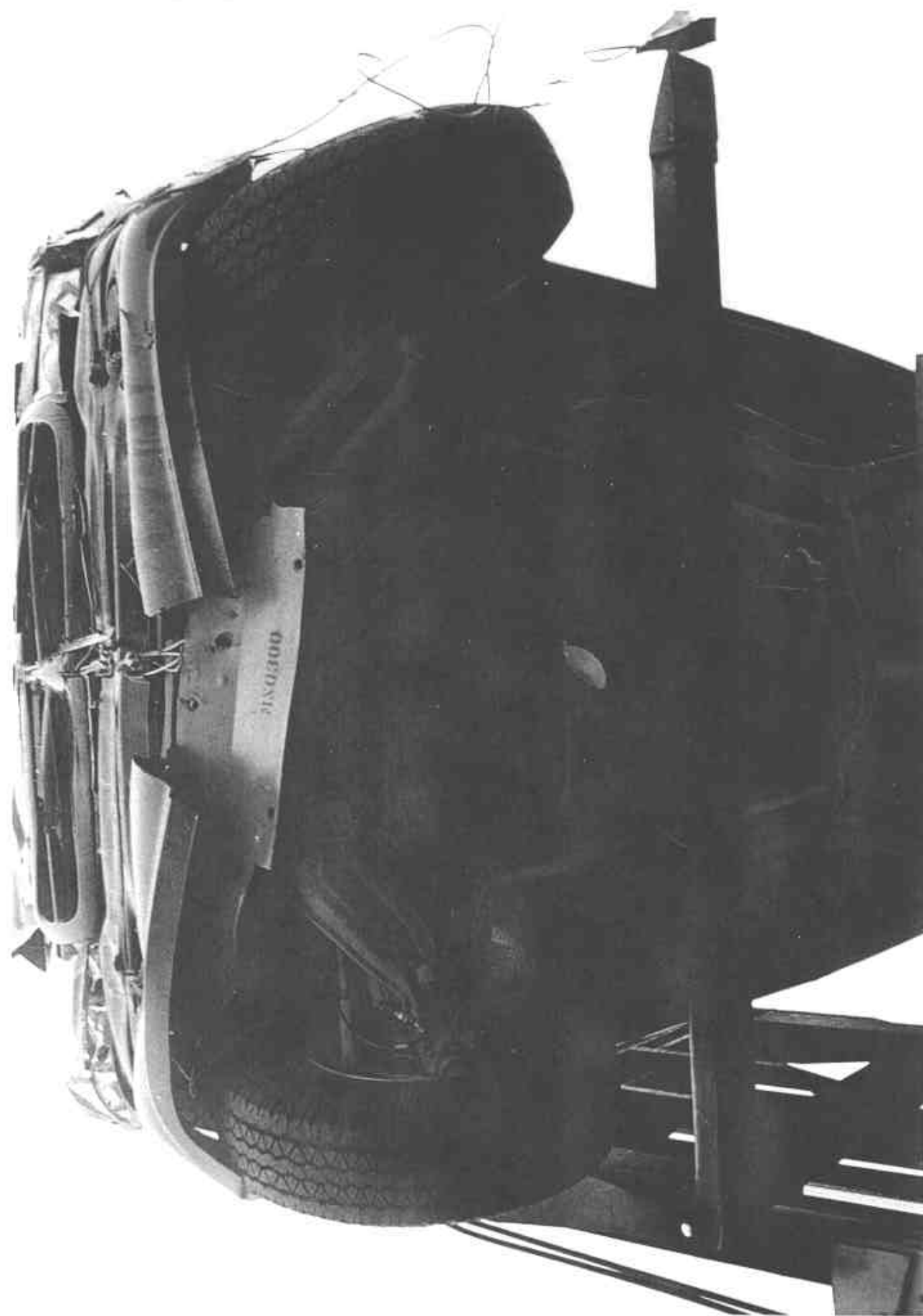


Figure A-17 POST-TEST FRONT UNDERBODY VIEW

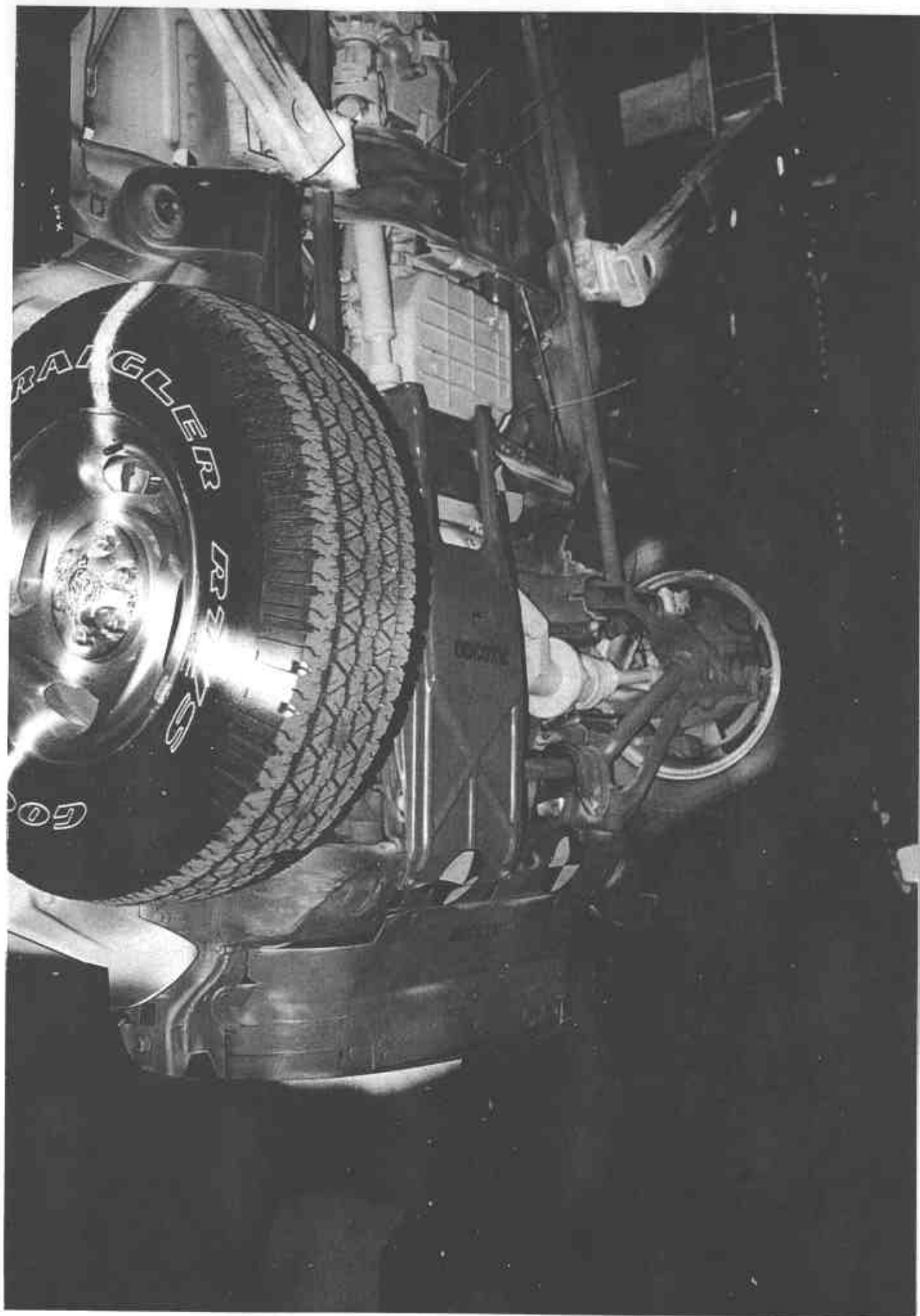


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW



Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

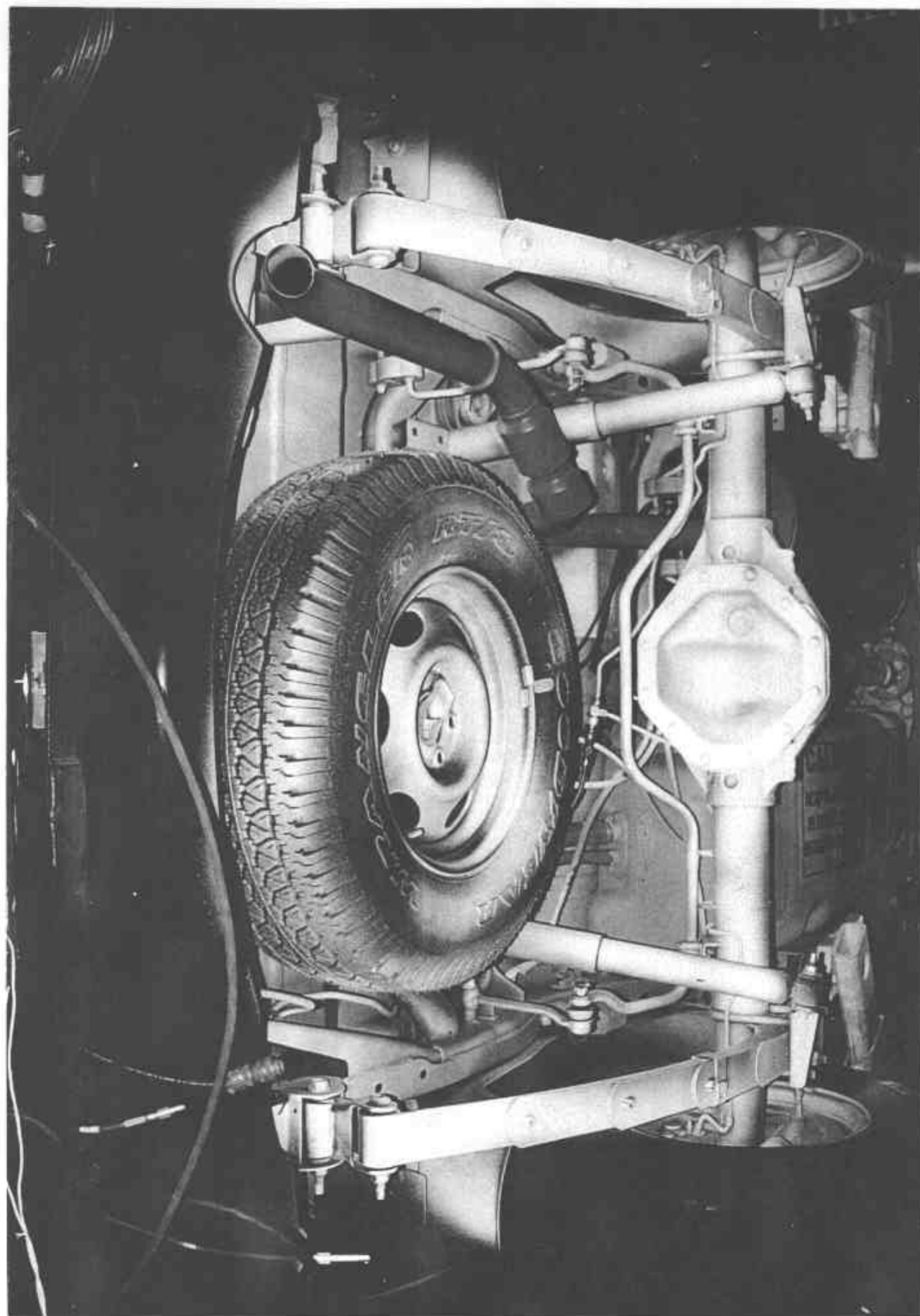


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

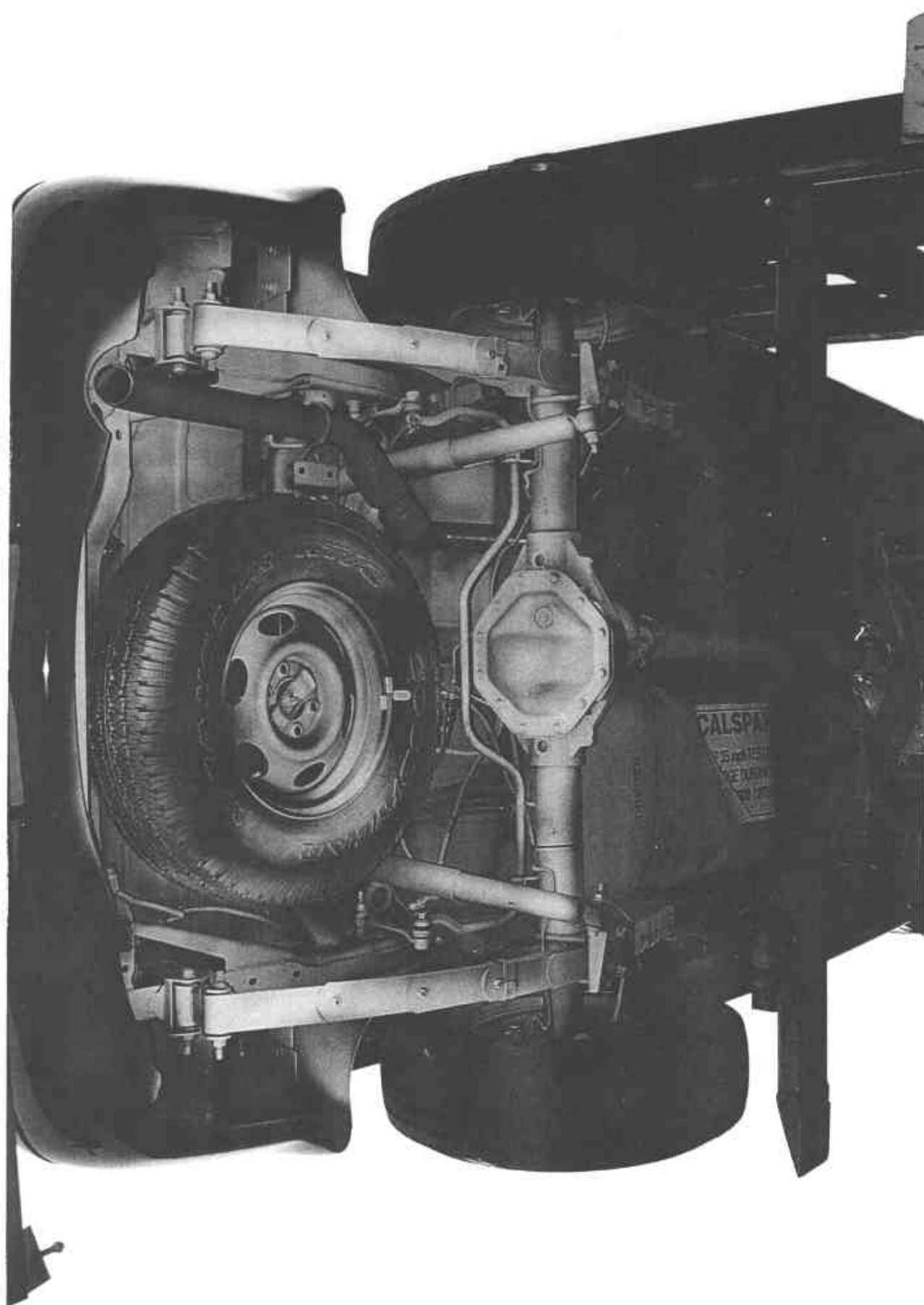


Figure A-21 POST-TEST REAR UNDERBODY VIEW



Figure A-22 PRE-TEST DRIVER POSITION VIEW



Figure A-23 POST-TEST DRIVER POSITION VIEW

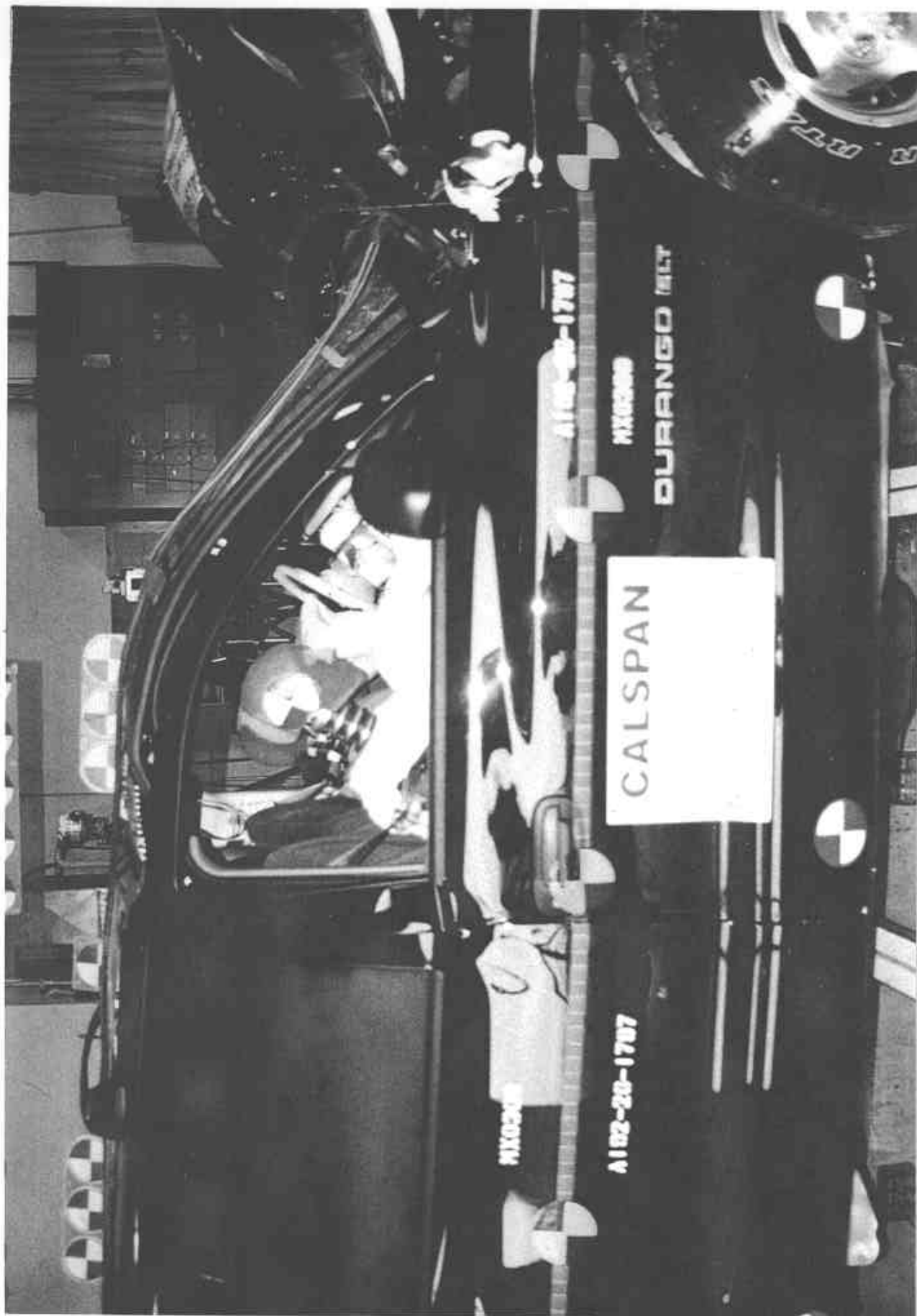


Figure A-25 POST-TEST PASSENGER POSITION VIEW

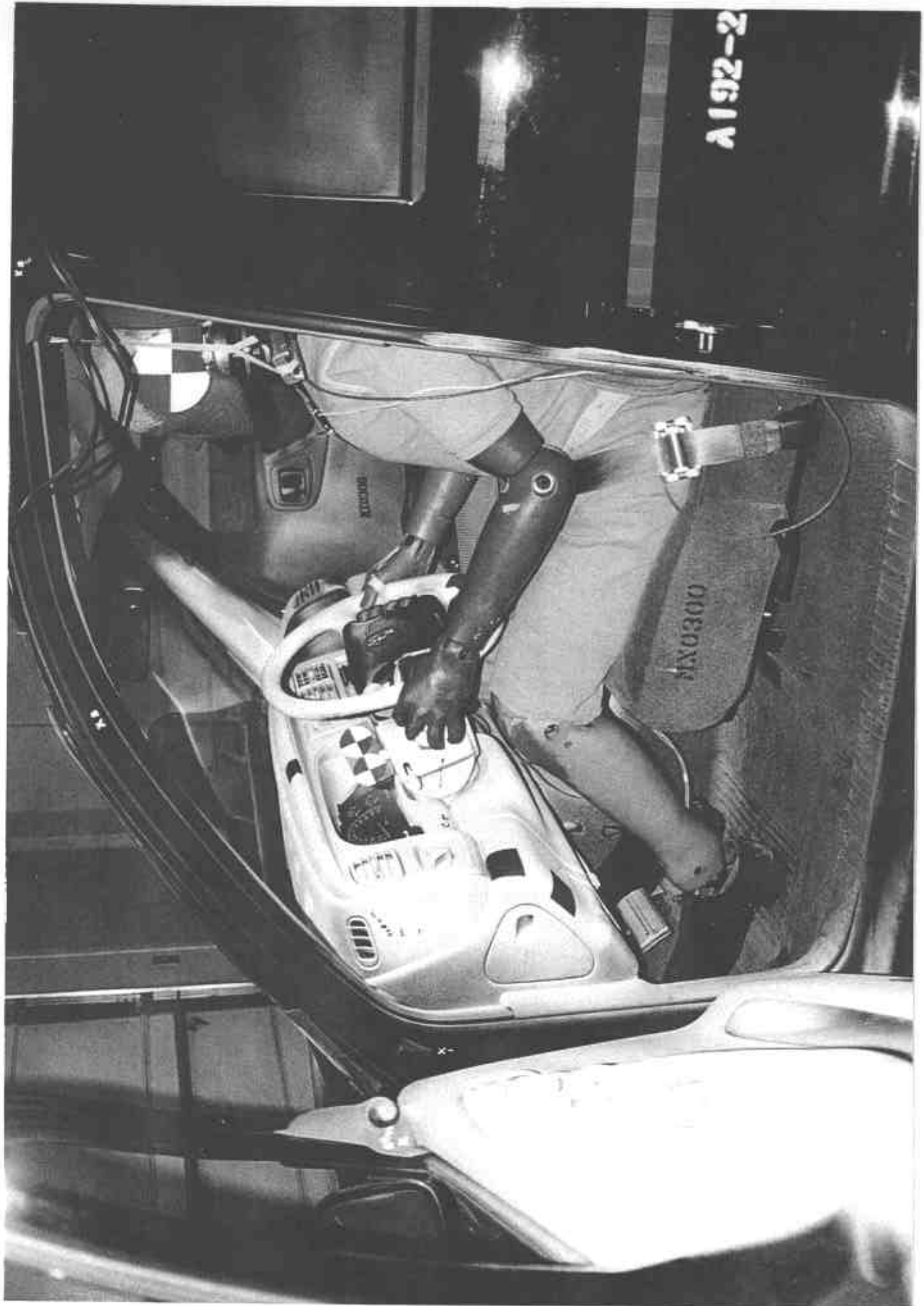


Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

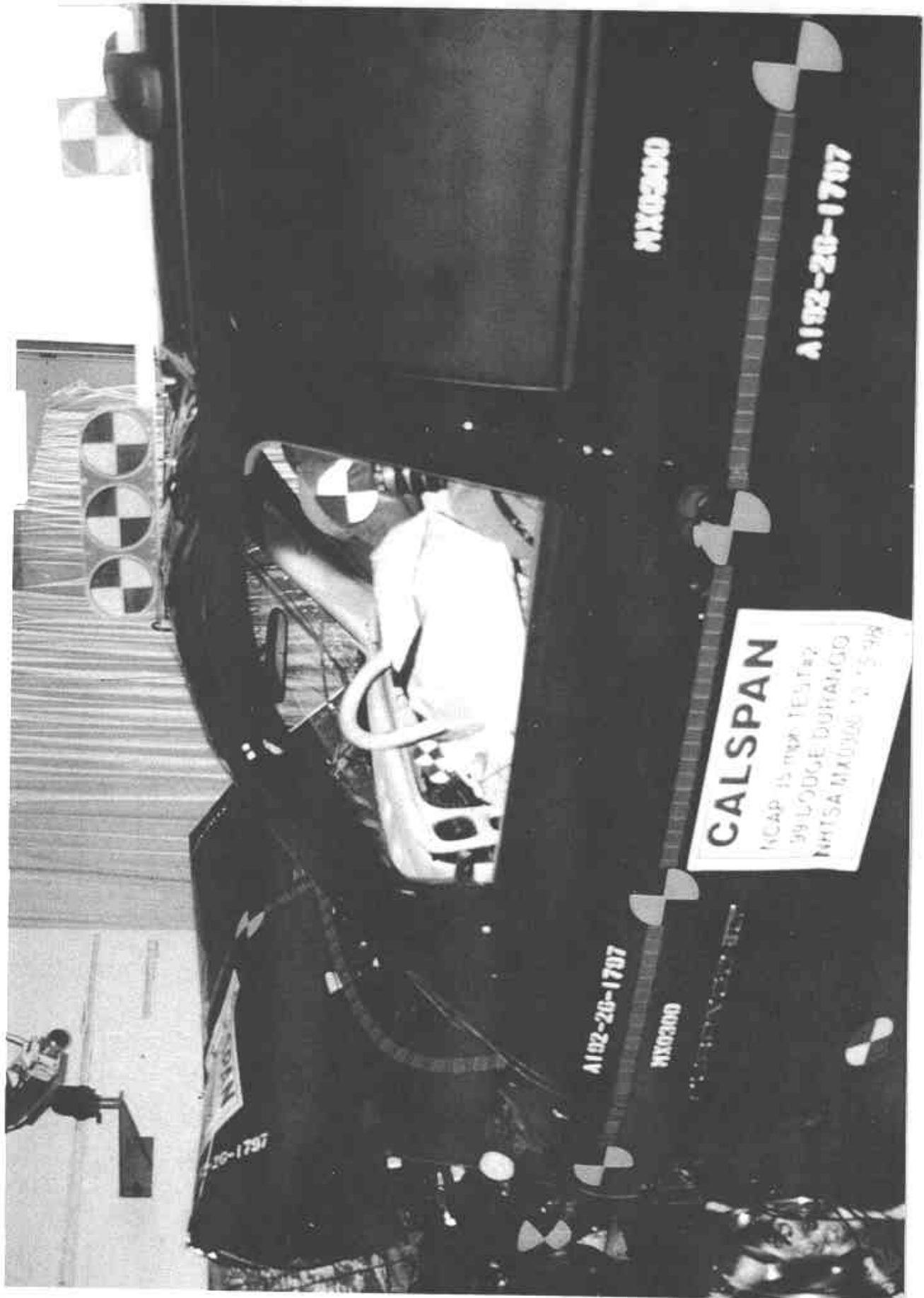


Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW

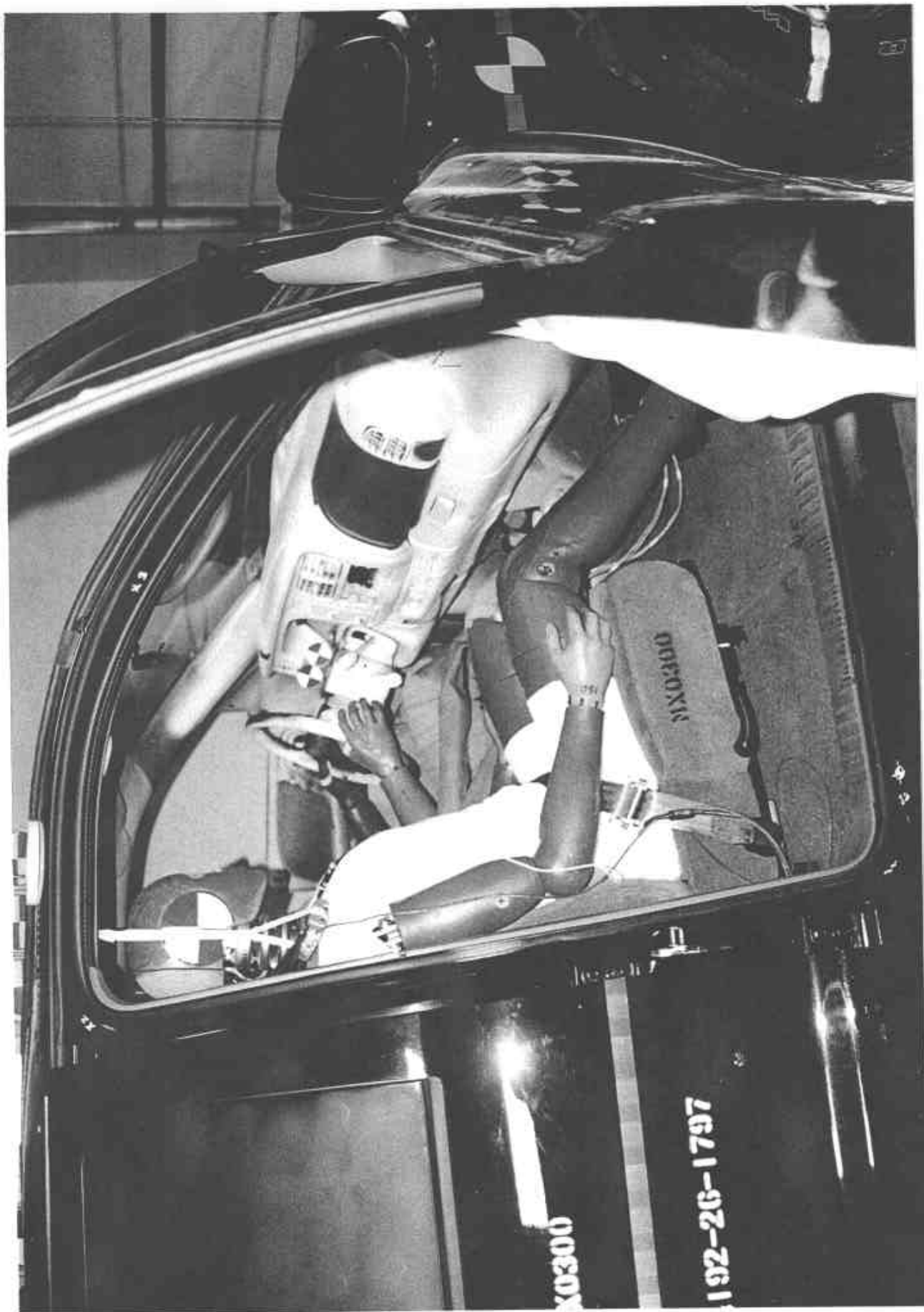


Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW



Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

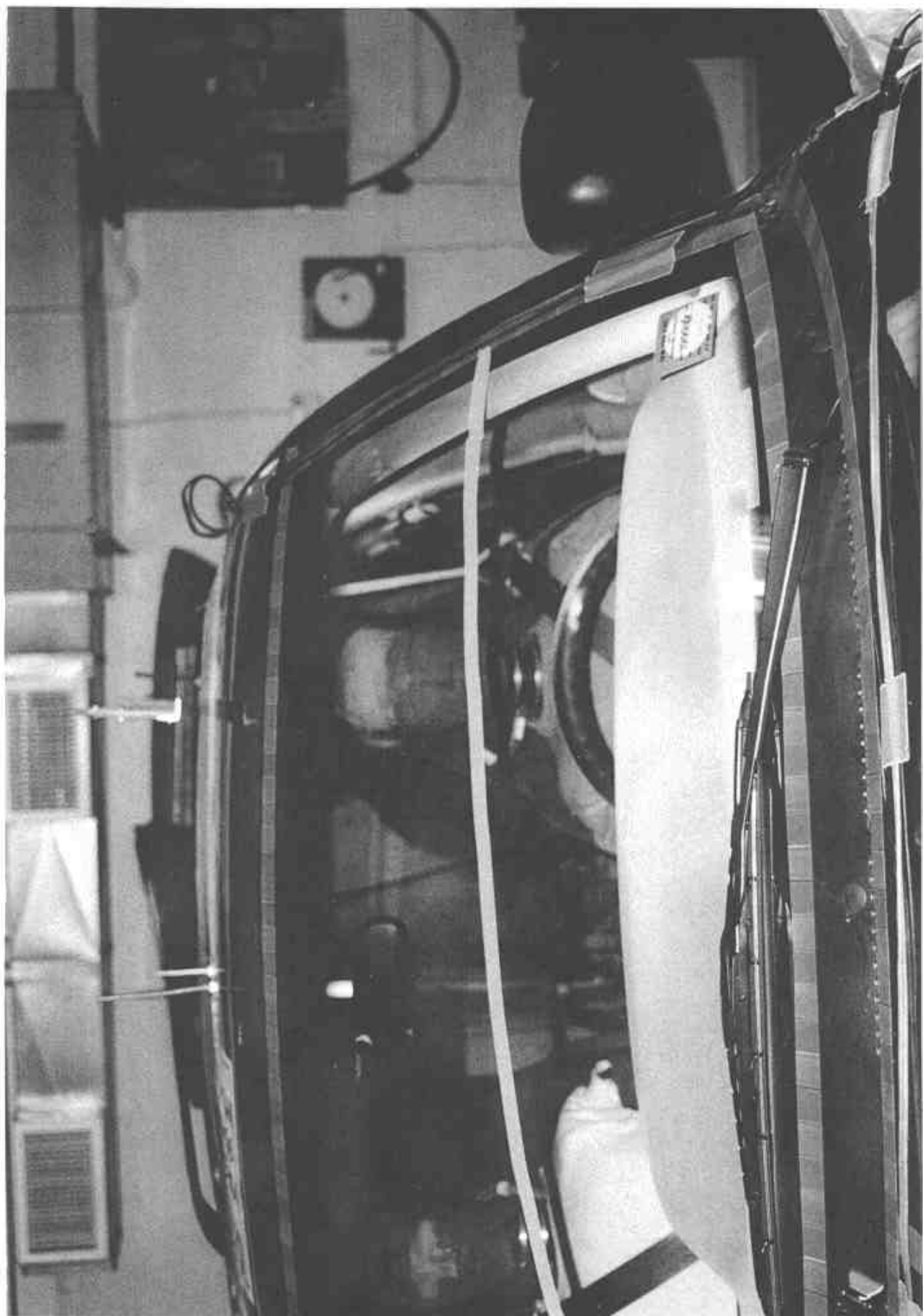


Figure A-30 PRE-TEST DRIVER HEAD LOCATION



Figure A-31 POST-TEST DRIVER HEAD LOCATION

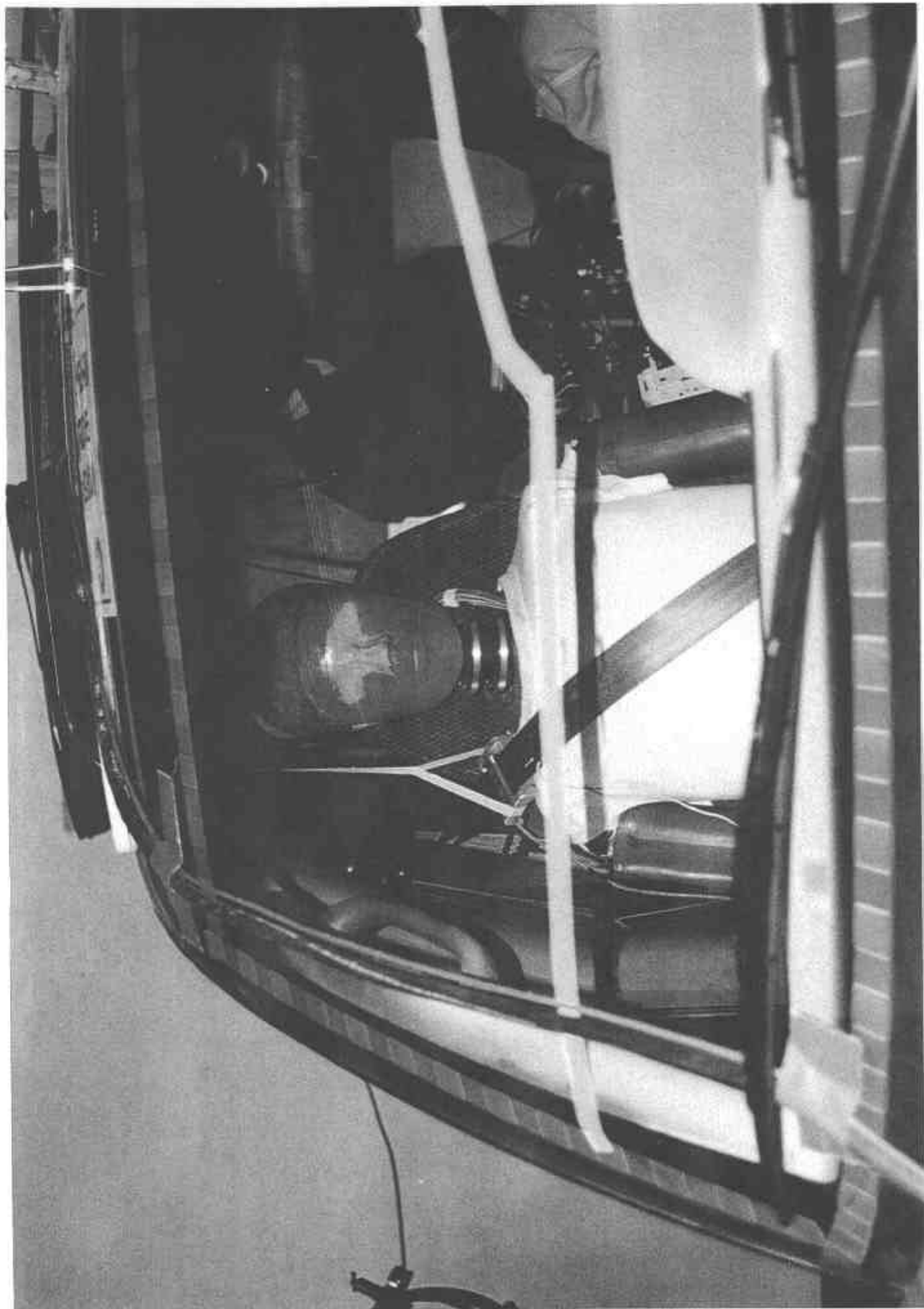


Figure A-32 PRE-TEST PASSENGER HEAD LOCATION



Figure A-33 POST-TEST PASSENGER HEAD LOCATION



Figure A-34 PRE-TEST DRIVER FLOOR PAN VIEW

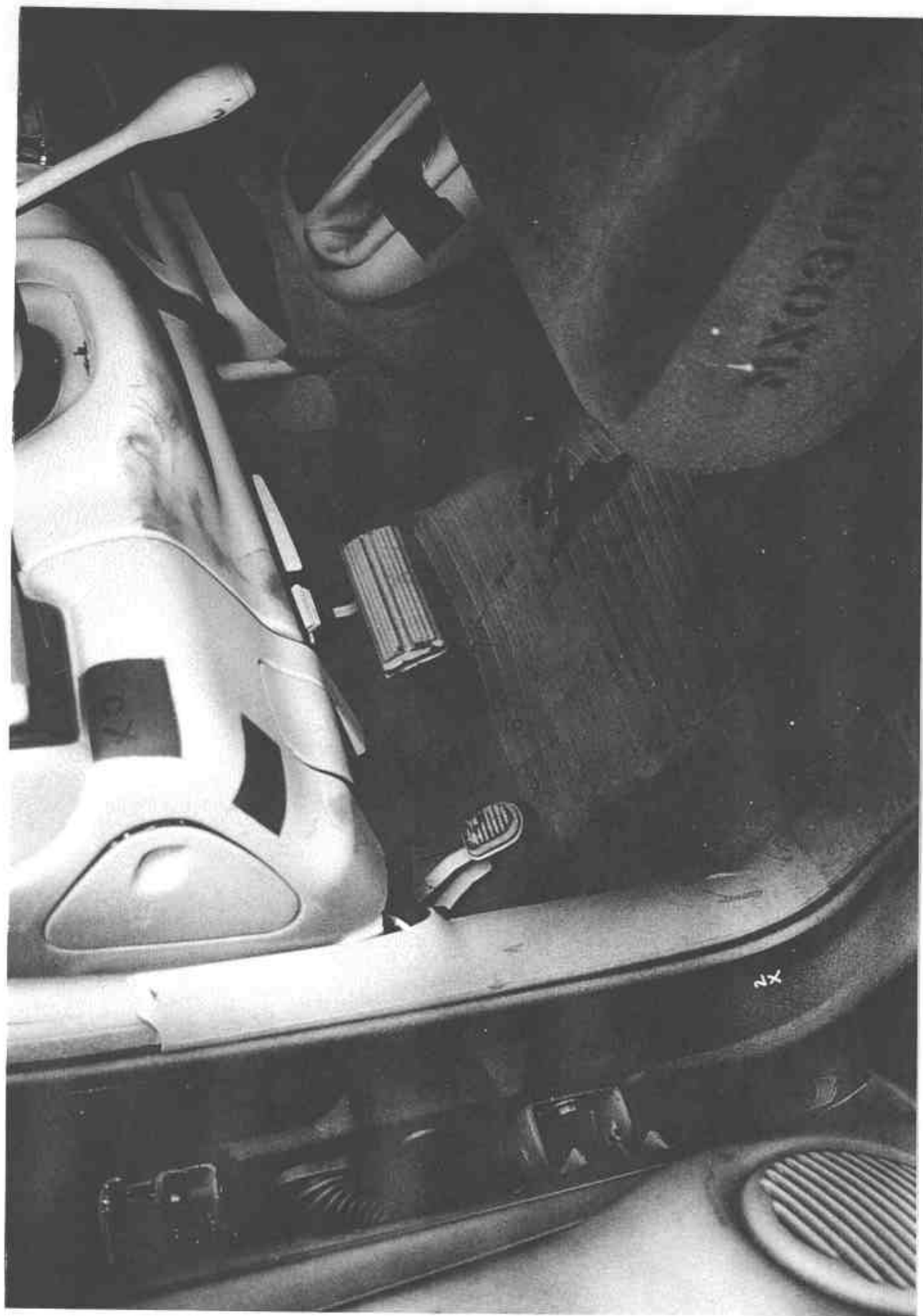


Figure A-35 POST-TEST DRIVER FLOOR PAN VIEW

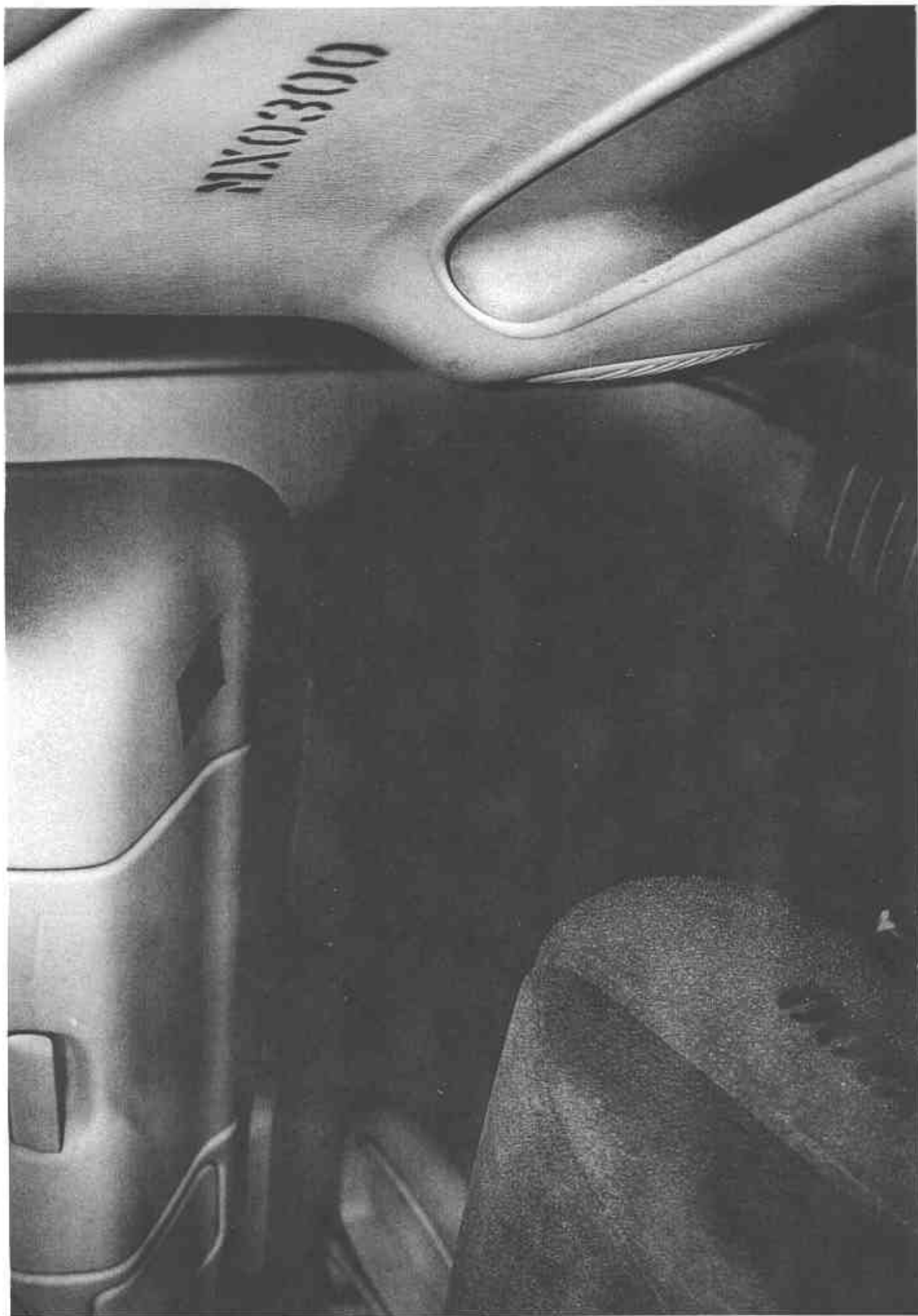


Figure A-36 PRE-TEST PASSENGER FLOOR PAN VIEW



Figure A-37 POST-TEST PASSENGER FLOOR PAN VIEW

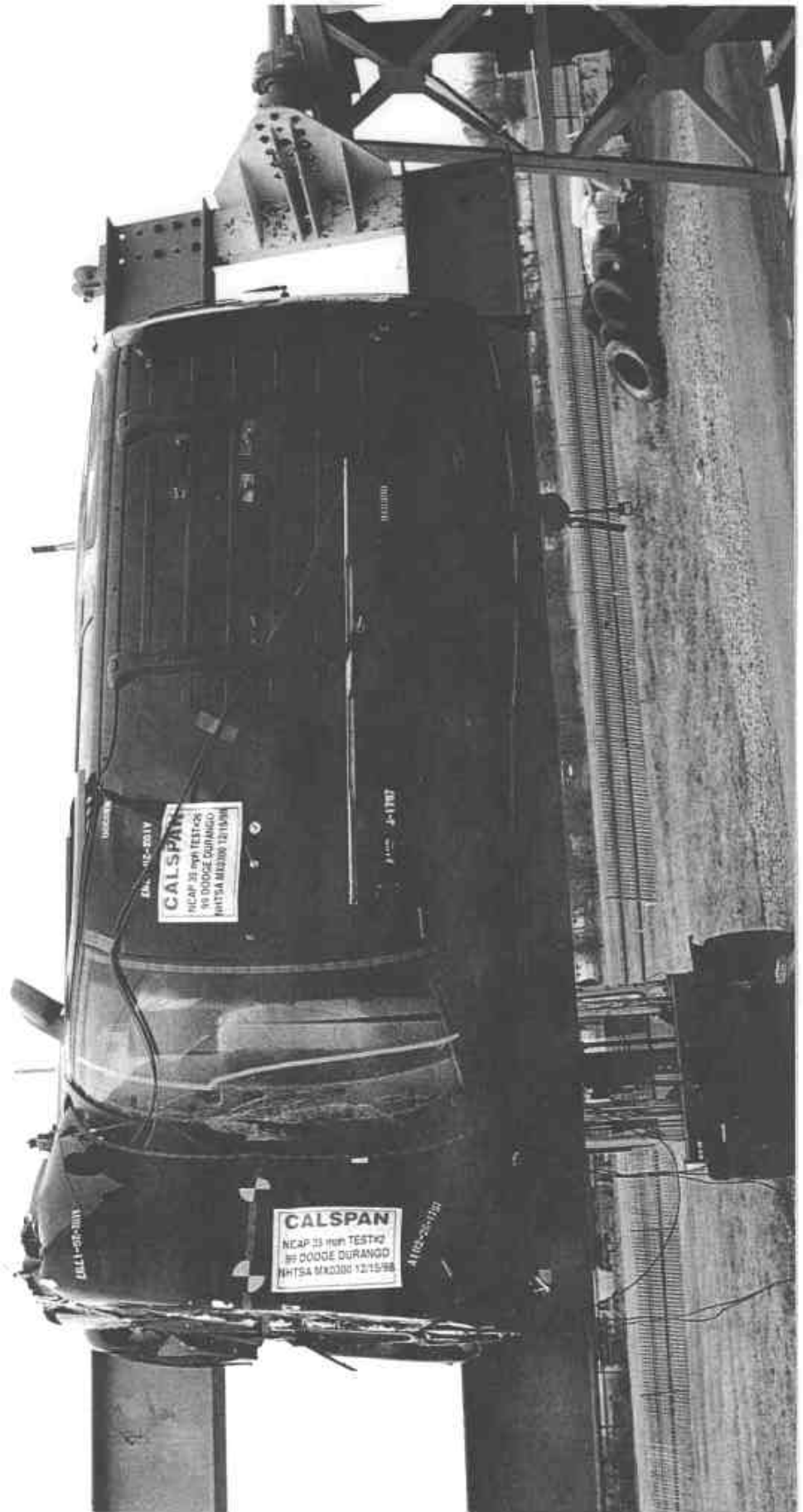


Figure A-38 ROLLOVER VIEW

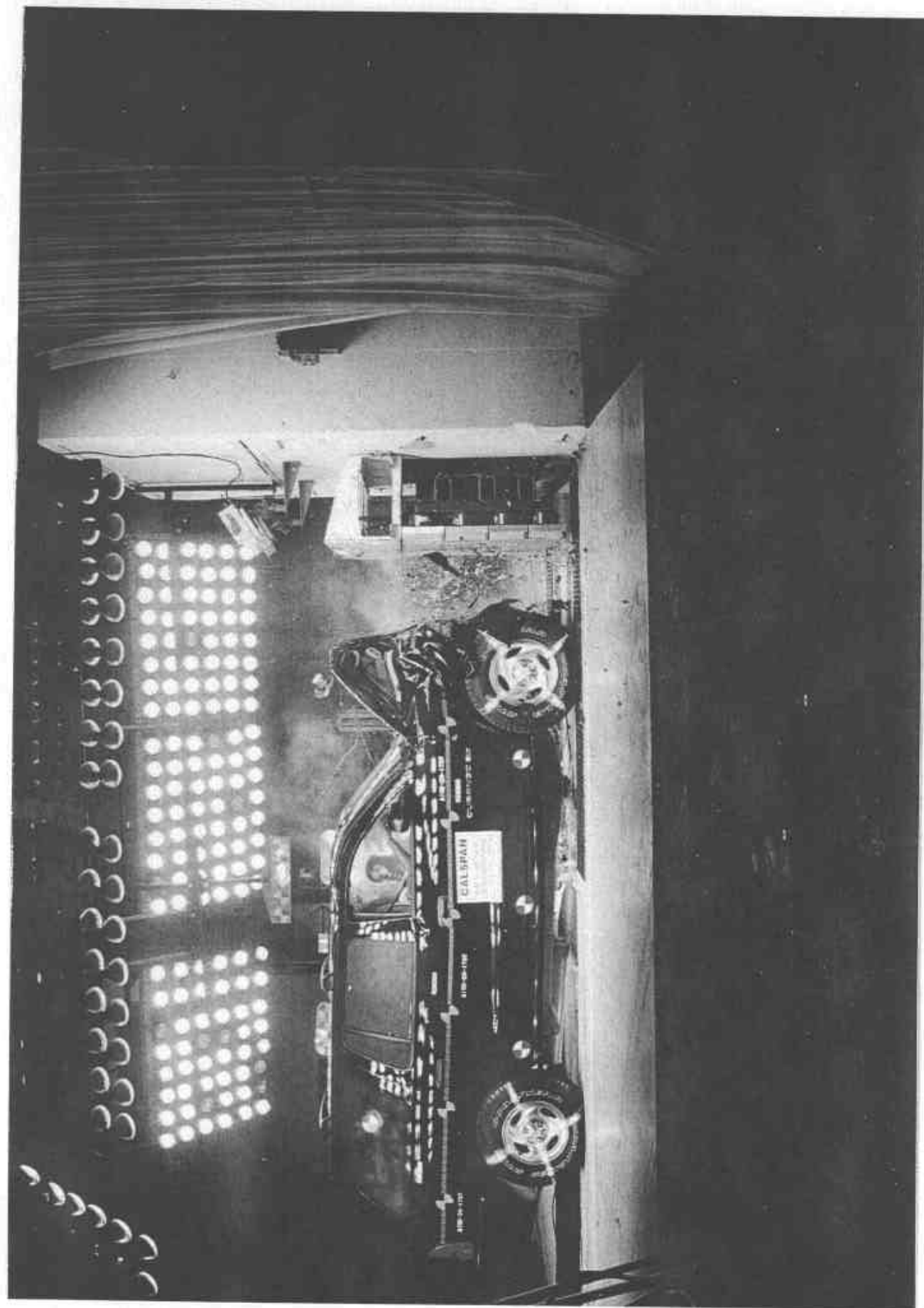


Figure A-39 IMPACT VIEW

Appendix B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

NHTSA TEST NO. MX0300

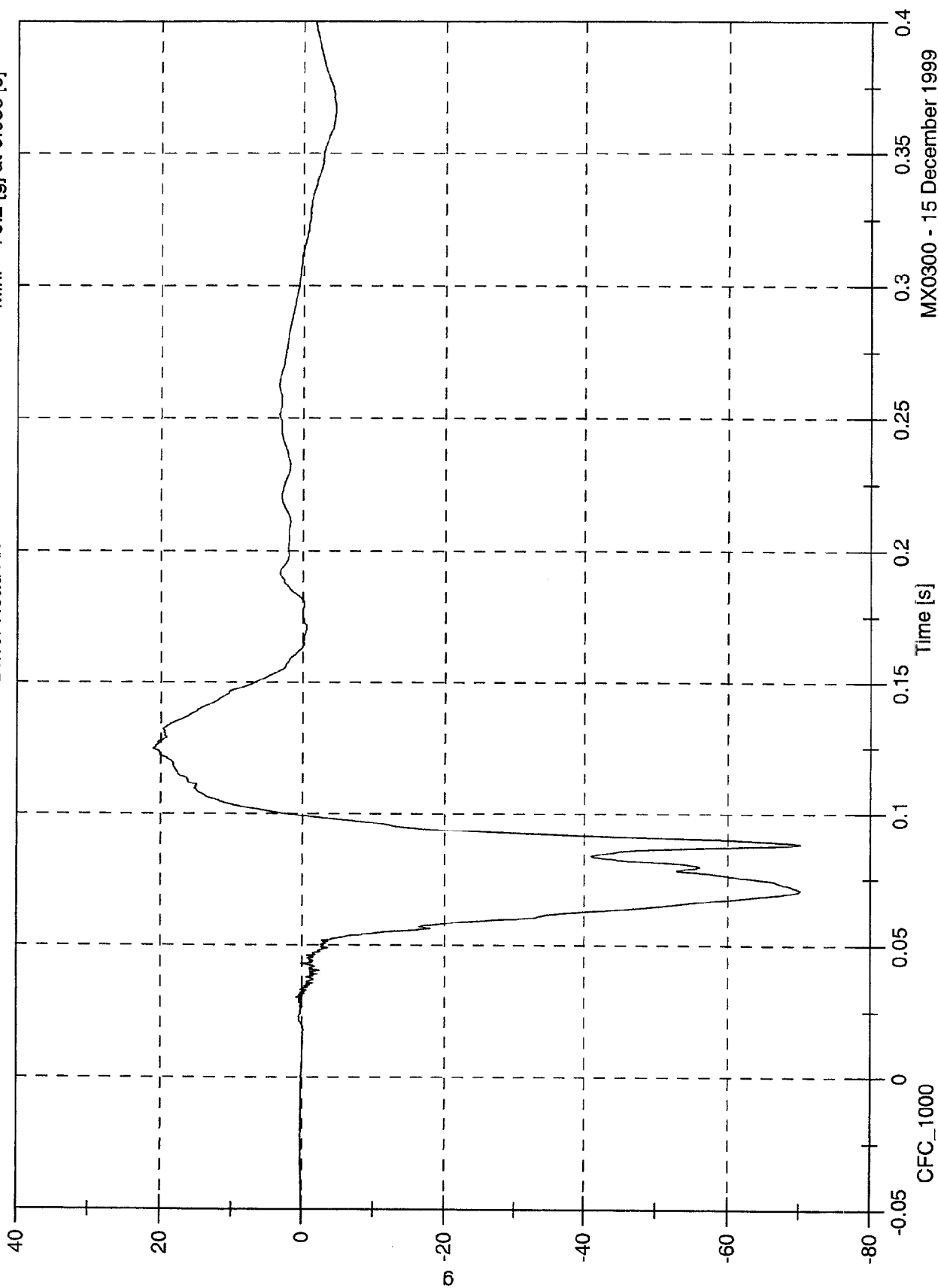
DUMMY DATA

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 TEST #2 - 1999 Dodge Durango

Max: 21.0 [g] at 0.125 [s]
Min: -70.2 [g] at 0.088 [s]

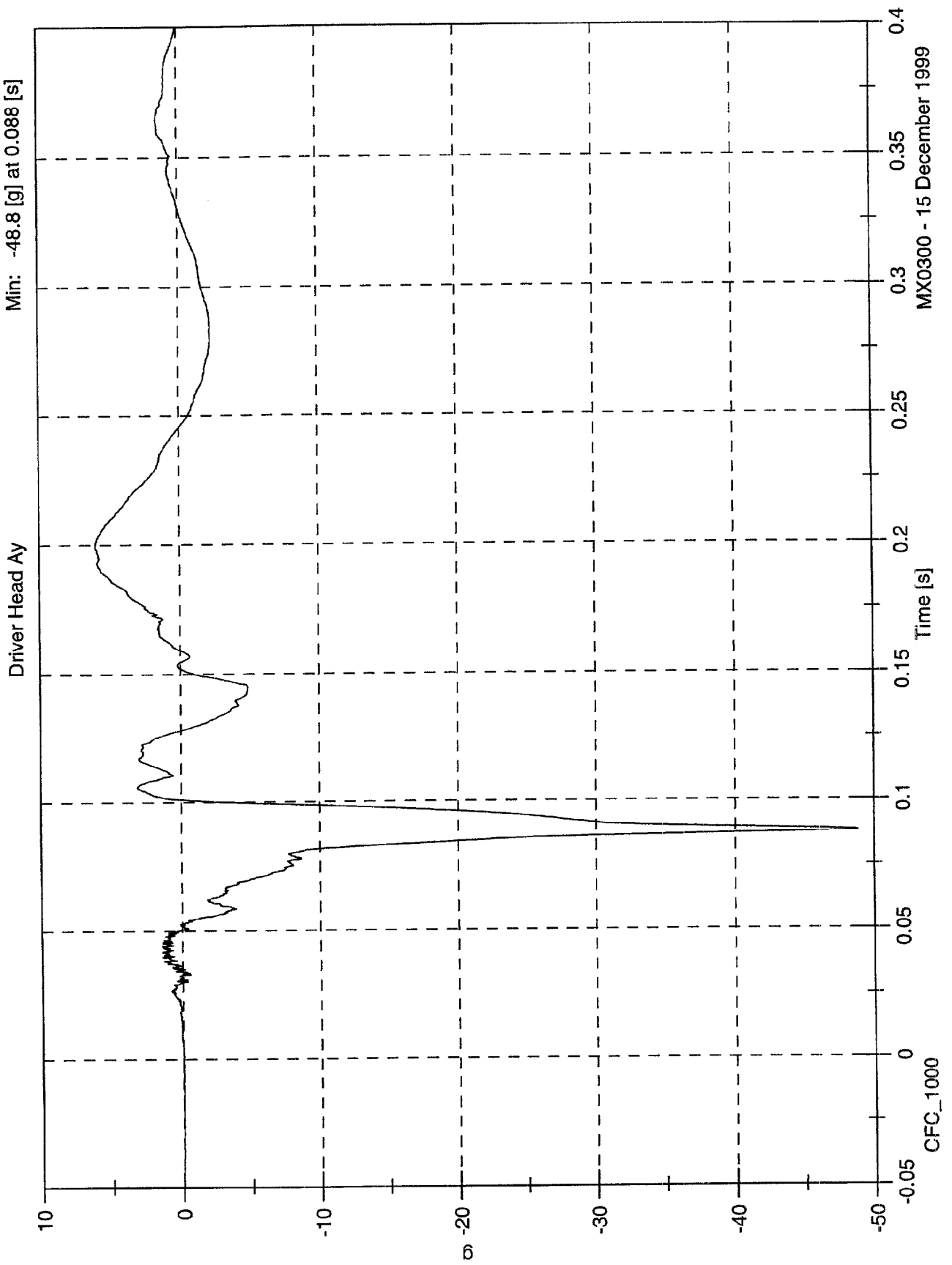
Driver Head Ax



MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 6.0 [g] at 0.200 [s]
Min: -48.8 [g] at 0.088 [s]

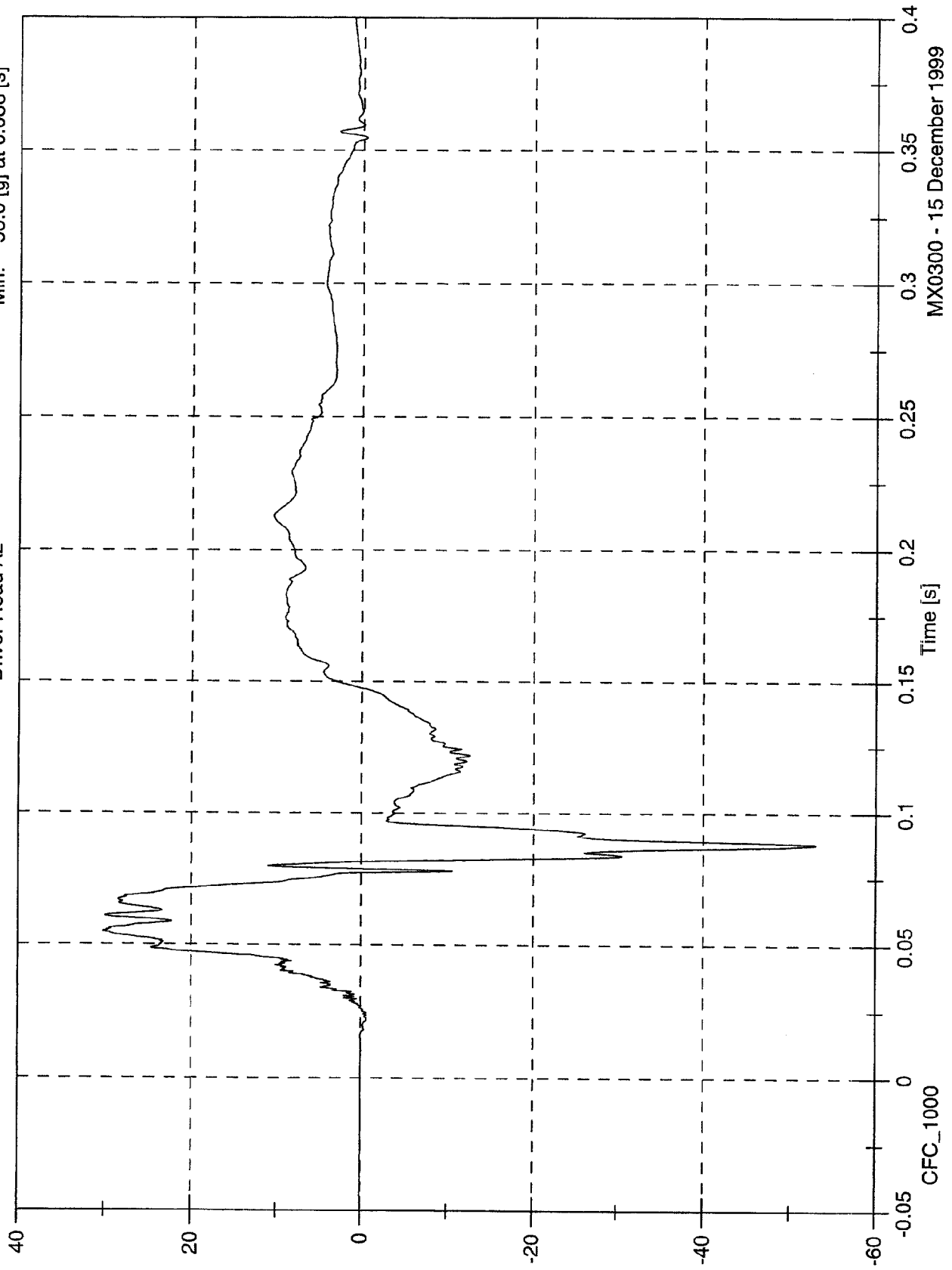


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 30.2 [g] at 0.055 [s]
Min: -53.0 [g] at 0.088 [s]

Driver Head Az

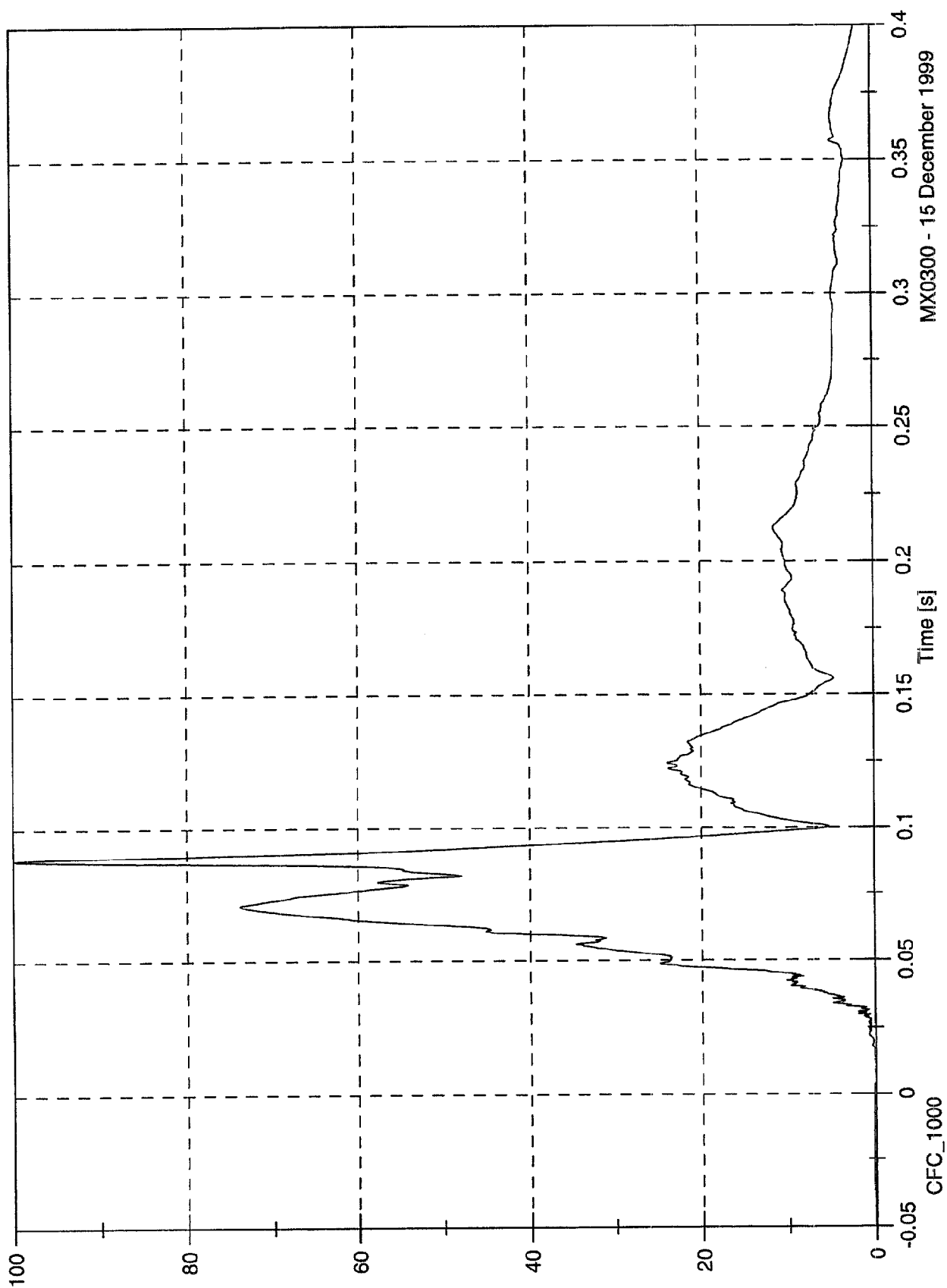


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 99.9 [g] at 0.088 [s]
Min: 0.0 [g] at -0.058 [s]

Driver Head A Resultant

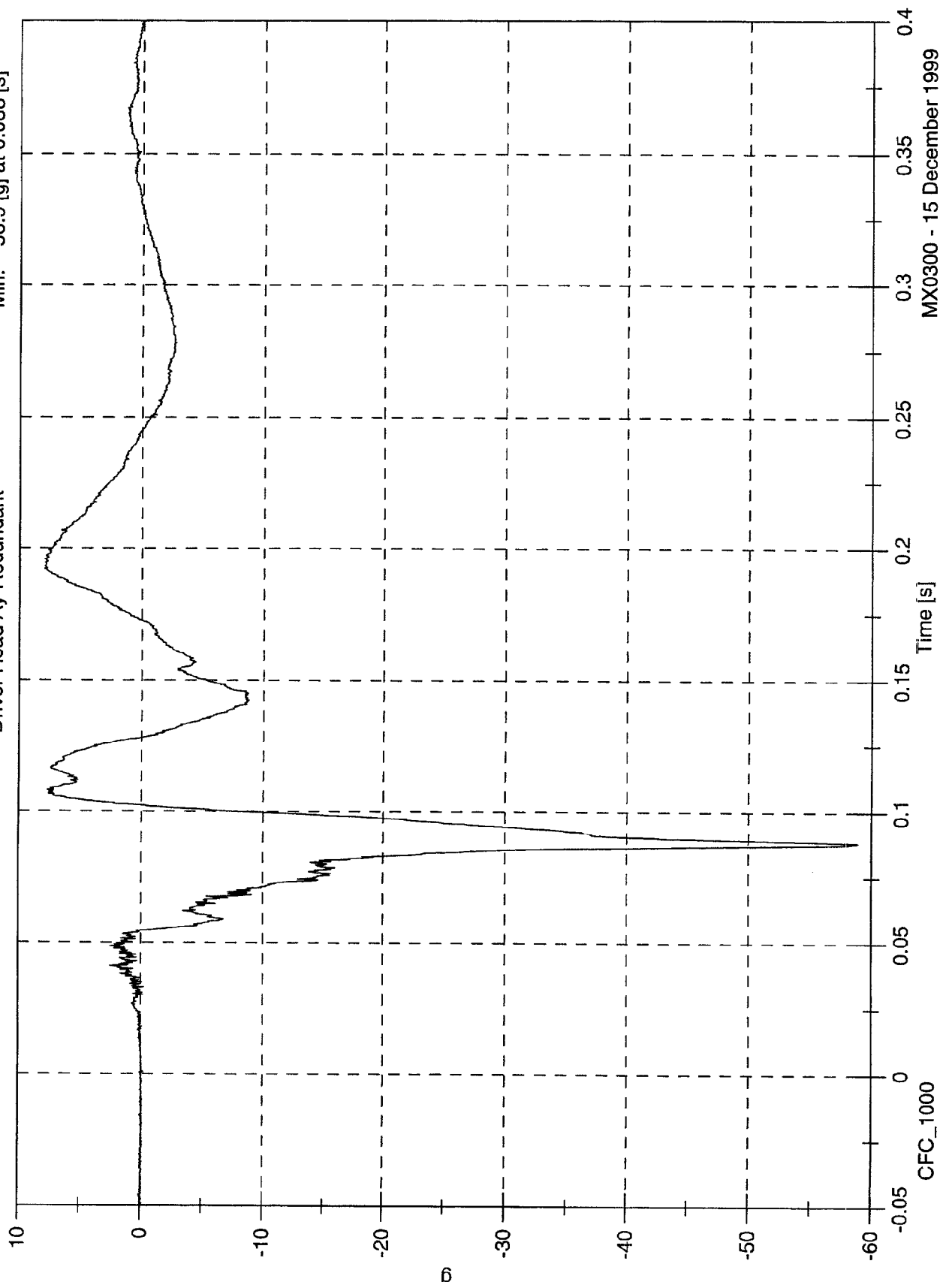


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 8.0 [g] at 0.192 [s]
Min: -58.9 [g] at 0.088 [s]

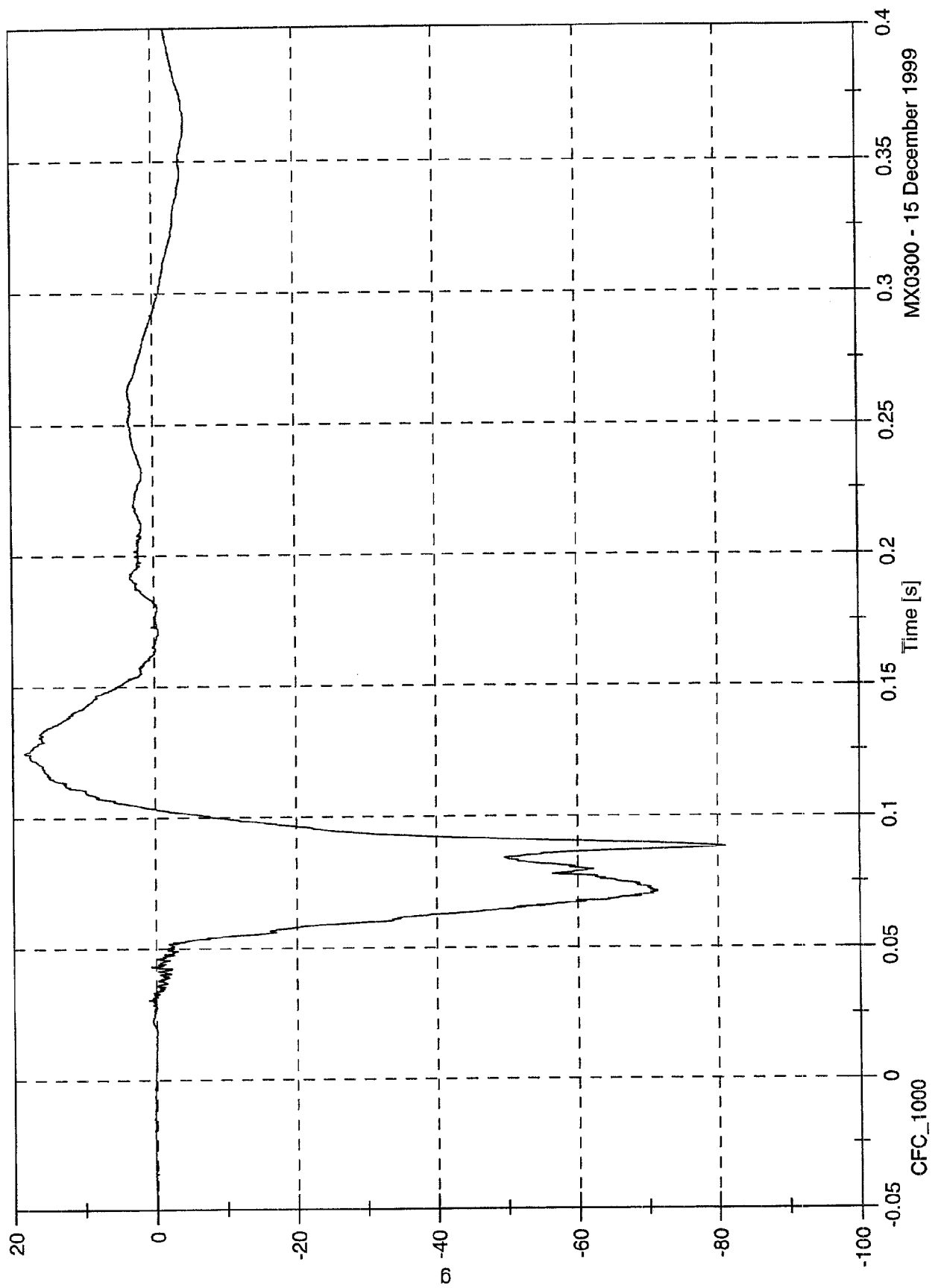
Driver Head Ay Redundant



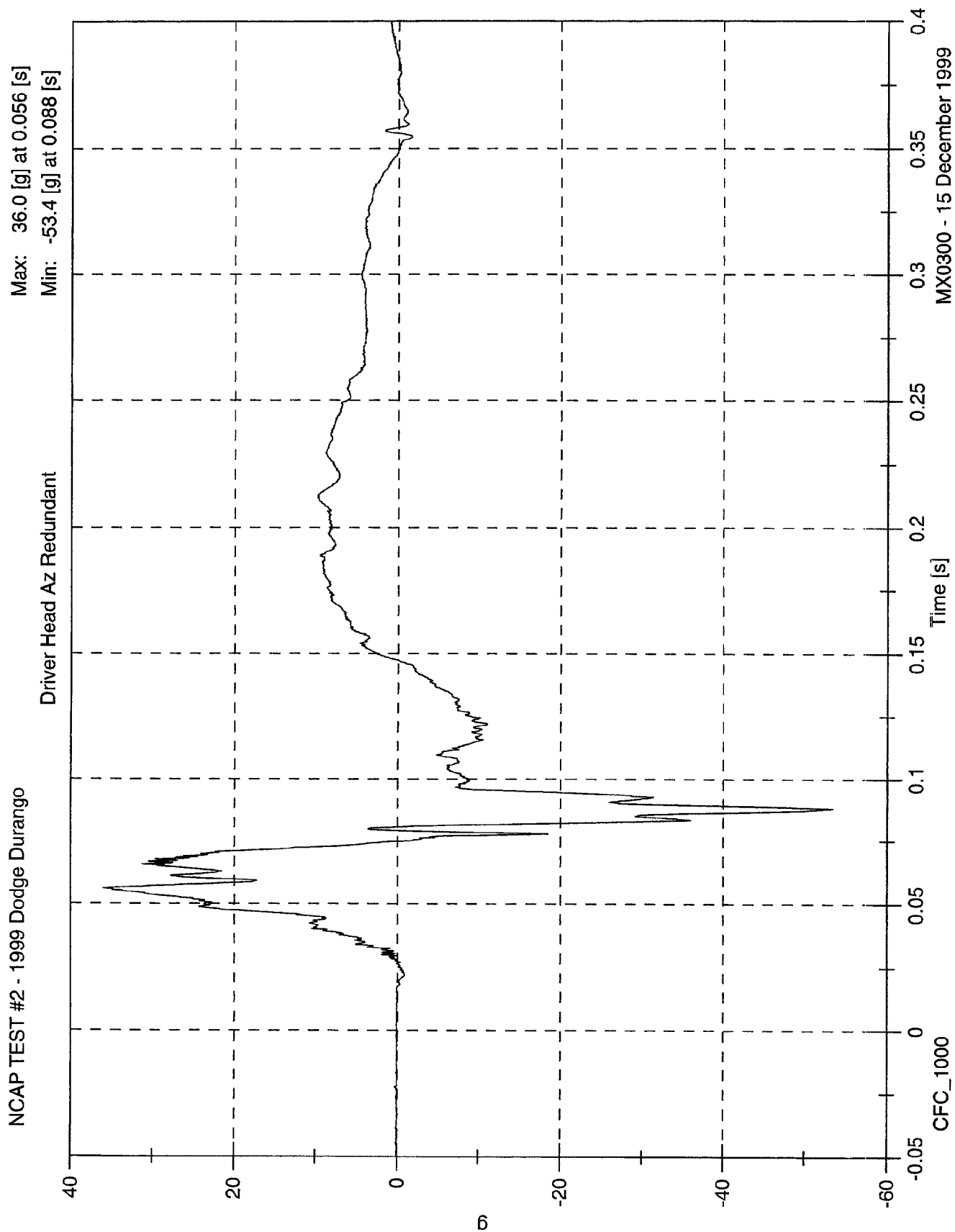
NCAP TEST #2 - 1999 Dodge Durango

Max: 18.3 [g] at 0.124 [s]
Min: -81.1 [g] at 0.088 [s]

Driver Head Ax Redundant



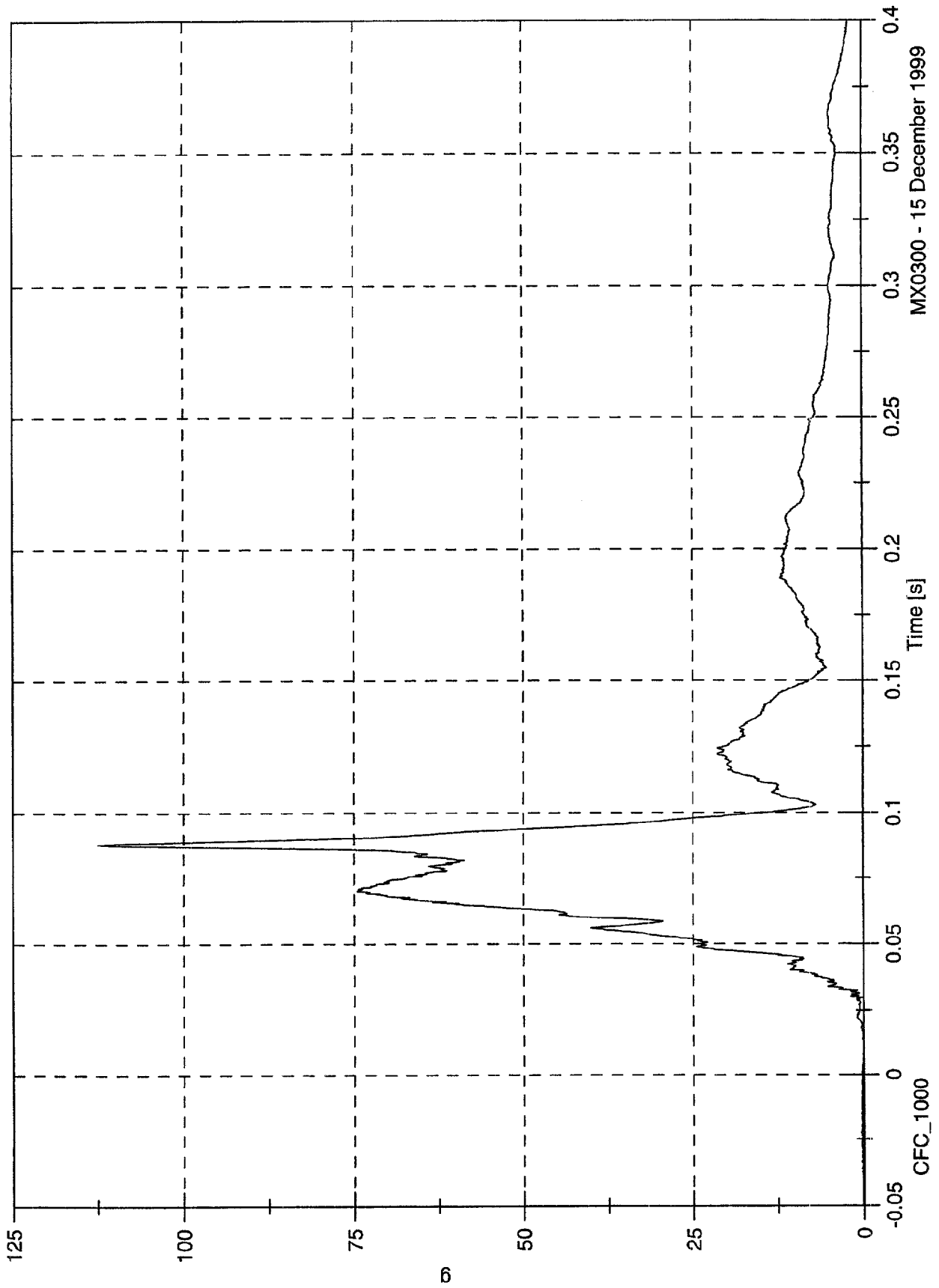
MX0300 - 15 December 1999



NCAP TEST #2 - 1999 Dodge Durango

Driver Head Ax Redundan Resultant

Max: 112.5 [g] at 0.088 [s]
Min: 0.0 [g] at -0.055 [s]

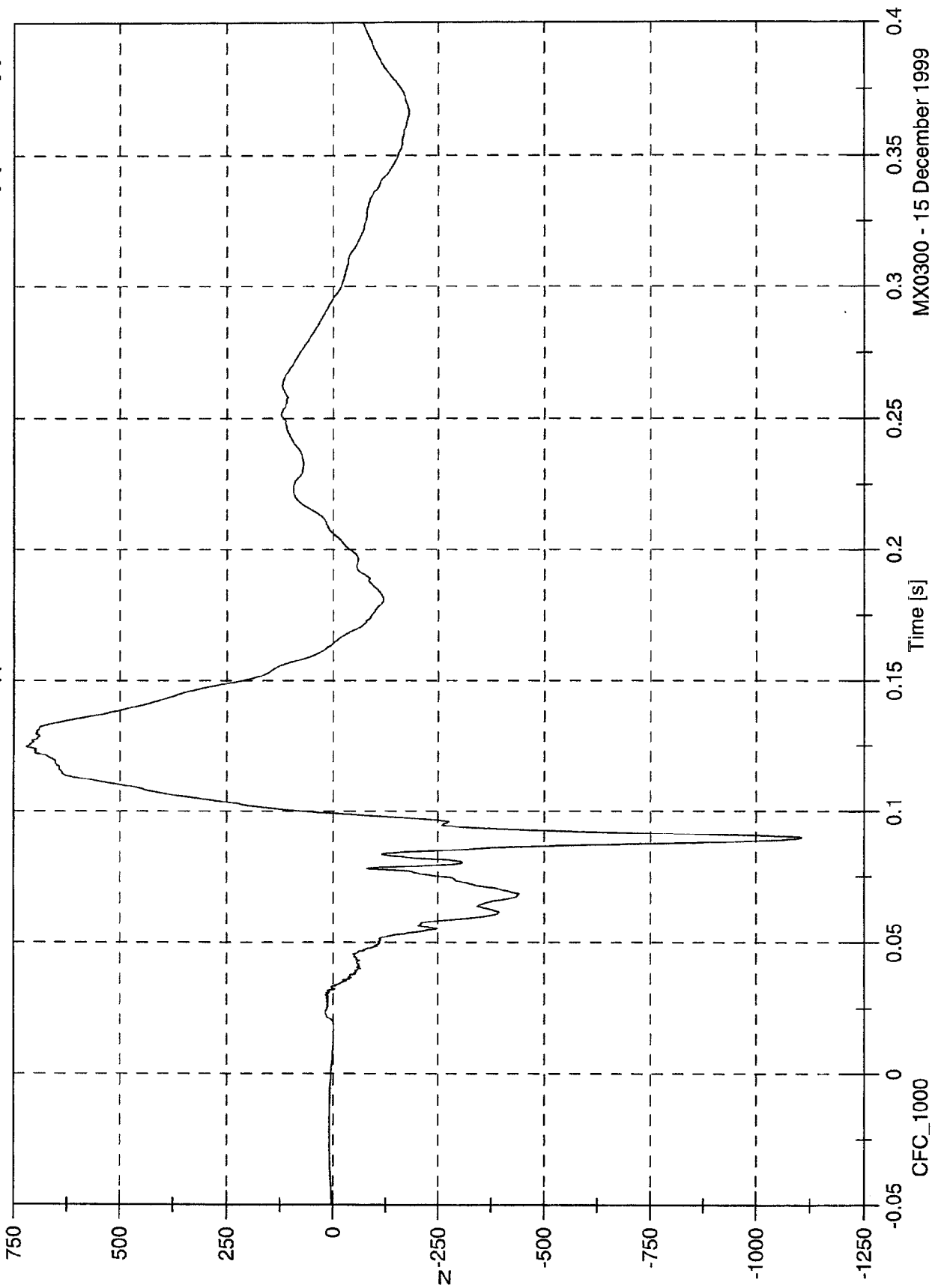


MX0300 - 15 December 1999

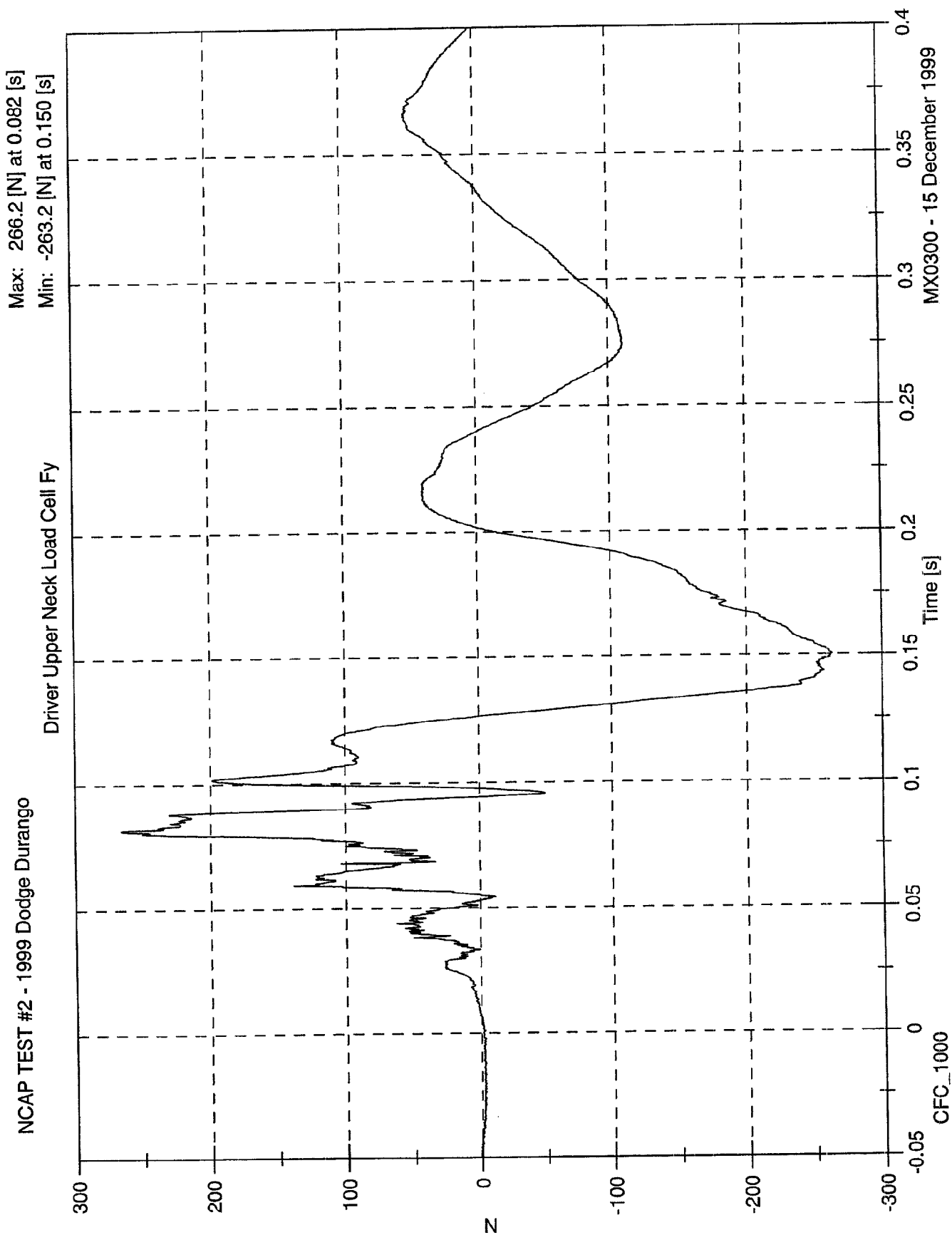
NCAP TEST #2 - 1999 Dodge Durango

Max: 720.5 [N] at 0.125 [s]
Min: -1106.7 [N] at 0.090 [s]

Driver Upper Neck Load Cell Fx



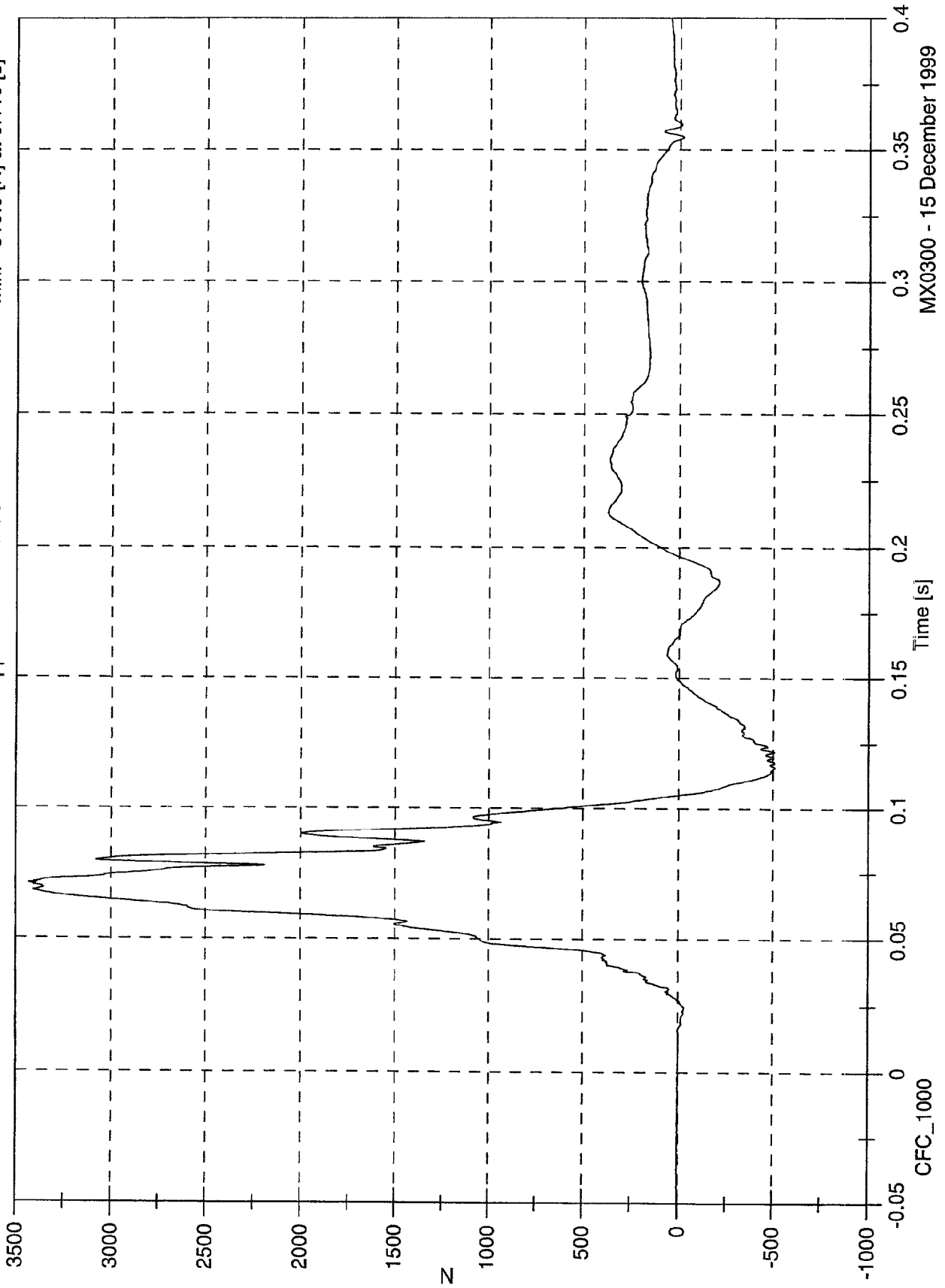
MX0300 - 15 December 1999



NCAP TEST #2 - 1999 Dodge Durango

Driver Upper Neck Load Cell Fz

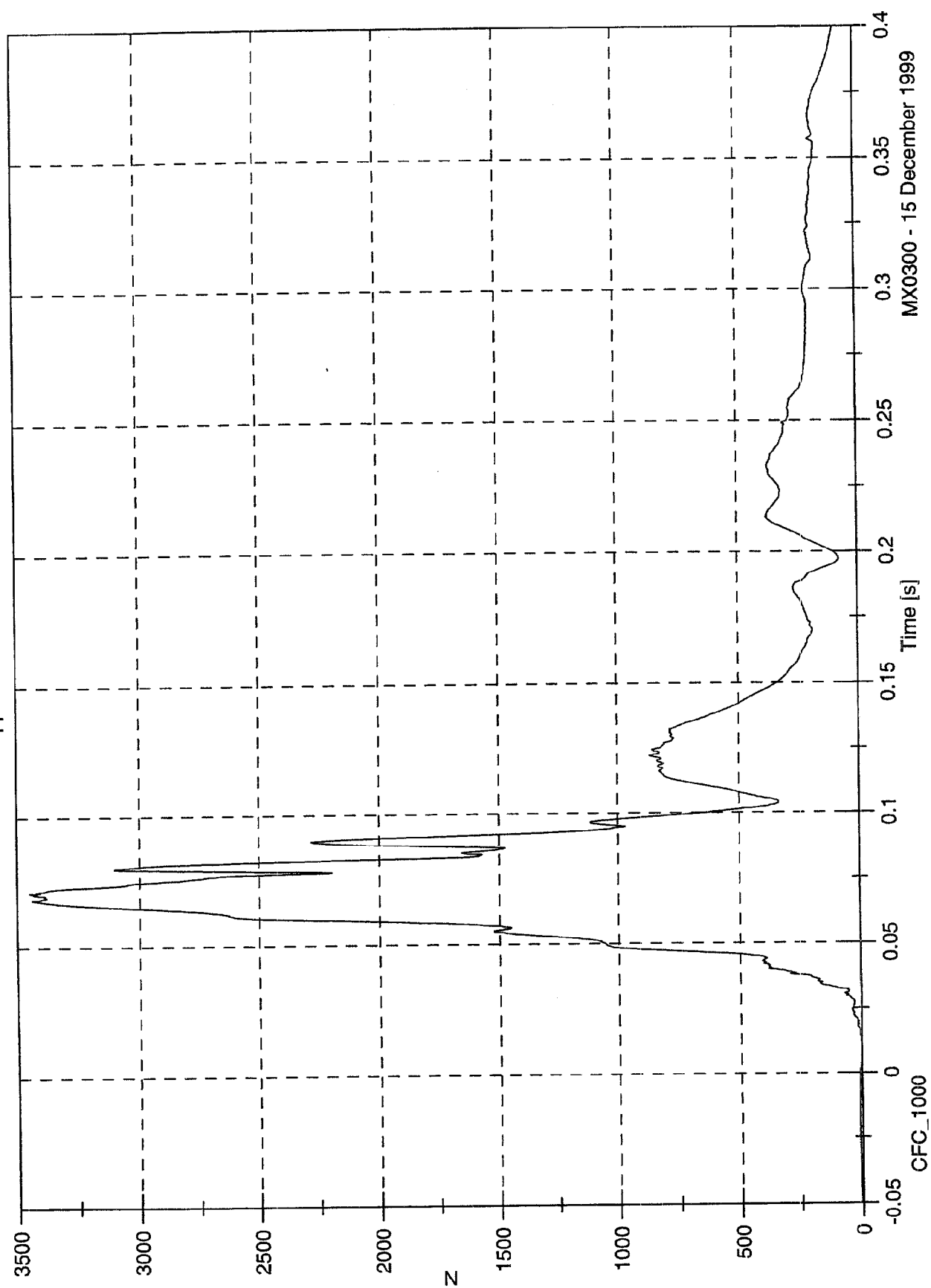
Max: 3432.3 [N] at 0.071 [s]
Min: -510.0 [N] at 0.116 [s]



Max: 3452.9 [N] at 0.071 [s]
Min: 1.7 [N] at 0.010 [s]

Driver Upper Neck Load Cell F Resultant

NCAP TEST #2 - 1999 Dodge Durango

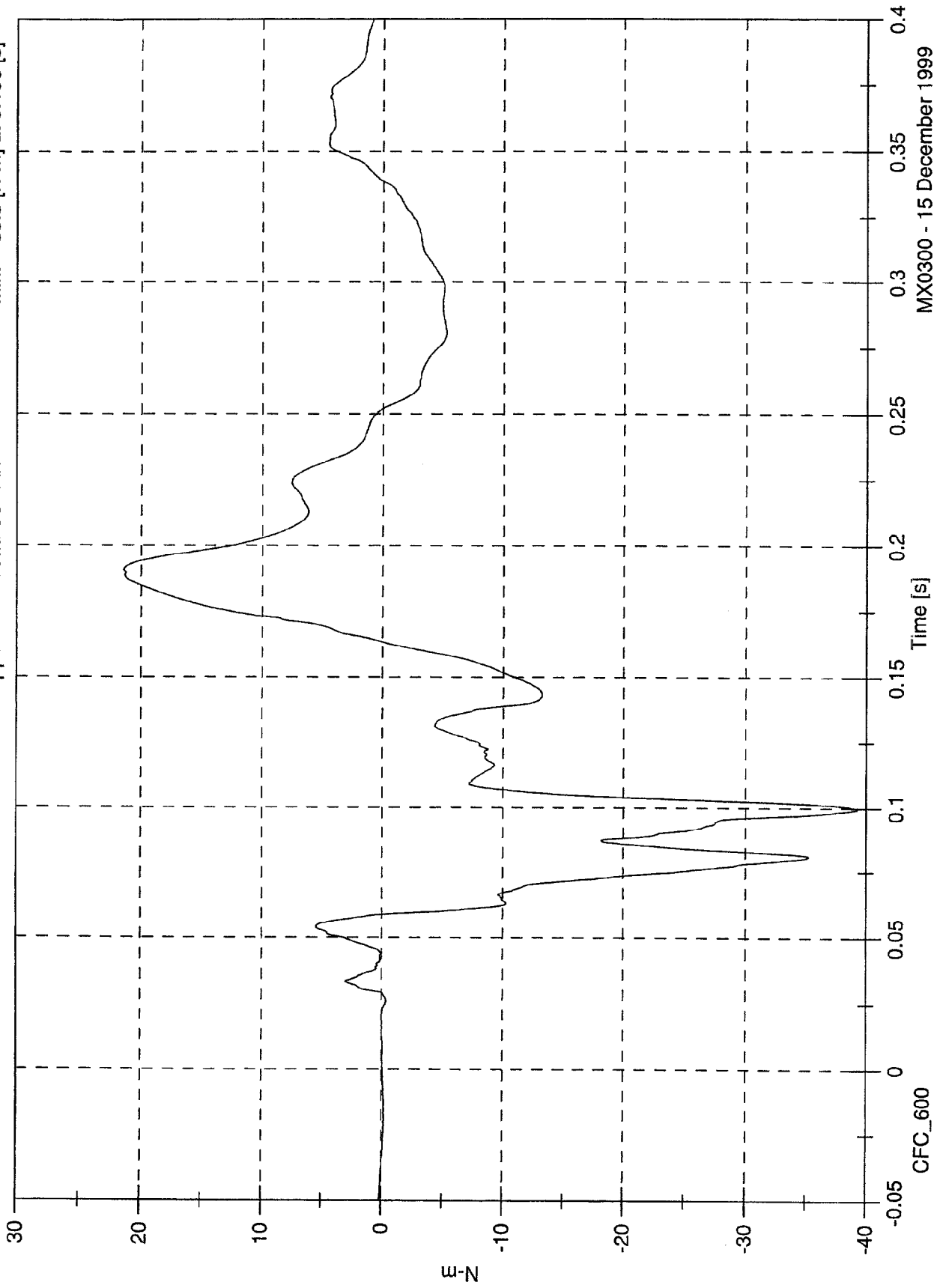


NCAP TEST #2 - 1999 Dodge Durango

Driver Upper Neck Load Cell Mx

Max: 21.4 [N-m] at 0.191 [s]

Min: -39.3 [N-m] at 0.100 [s]



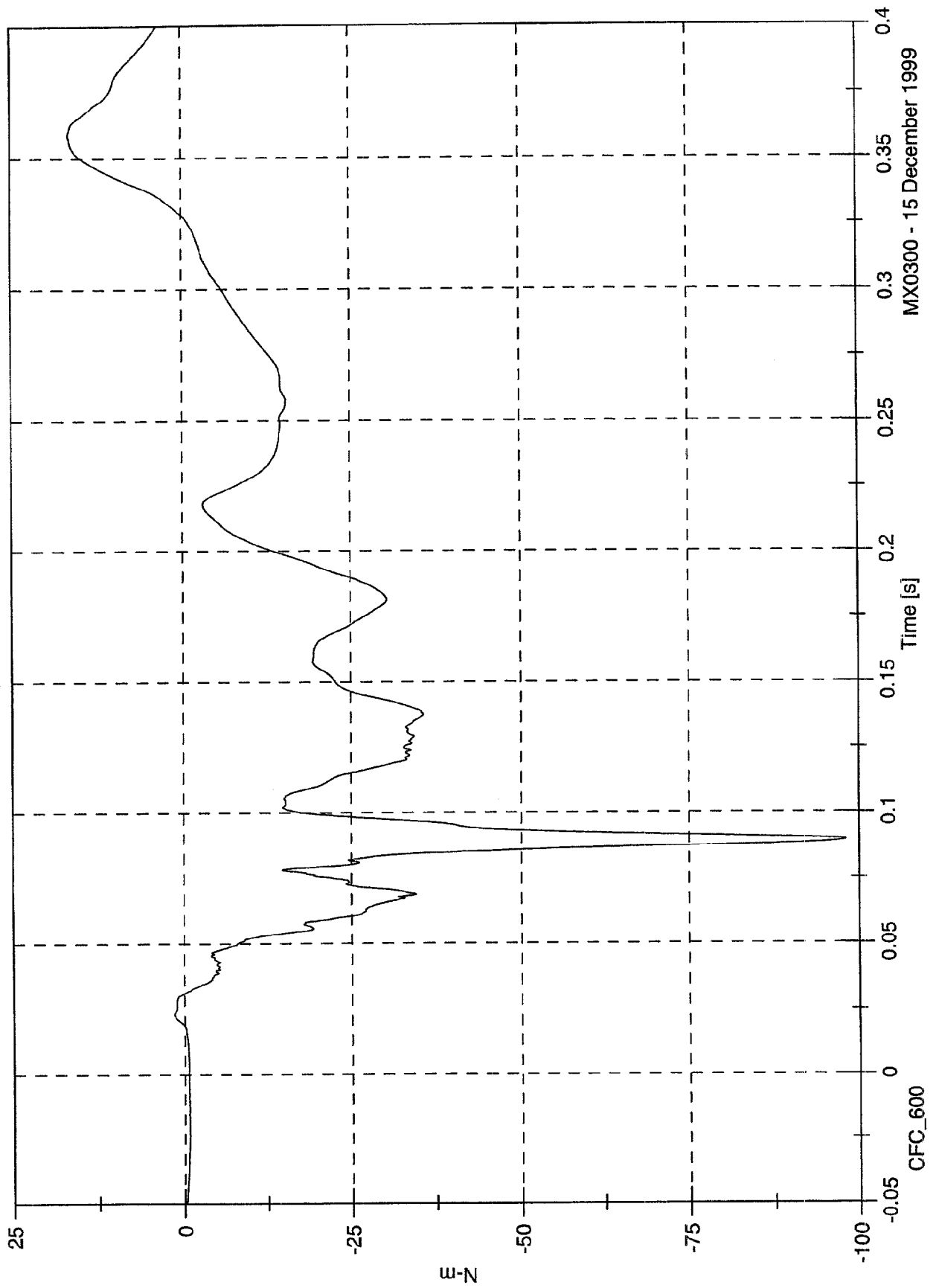
MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Driver Upper Neck Load Cell My

Max: 16.5 [N-m] at 0.358 [s]

Min: -98.0 [N-m] at 0.089 [s]

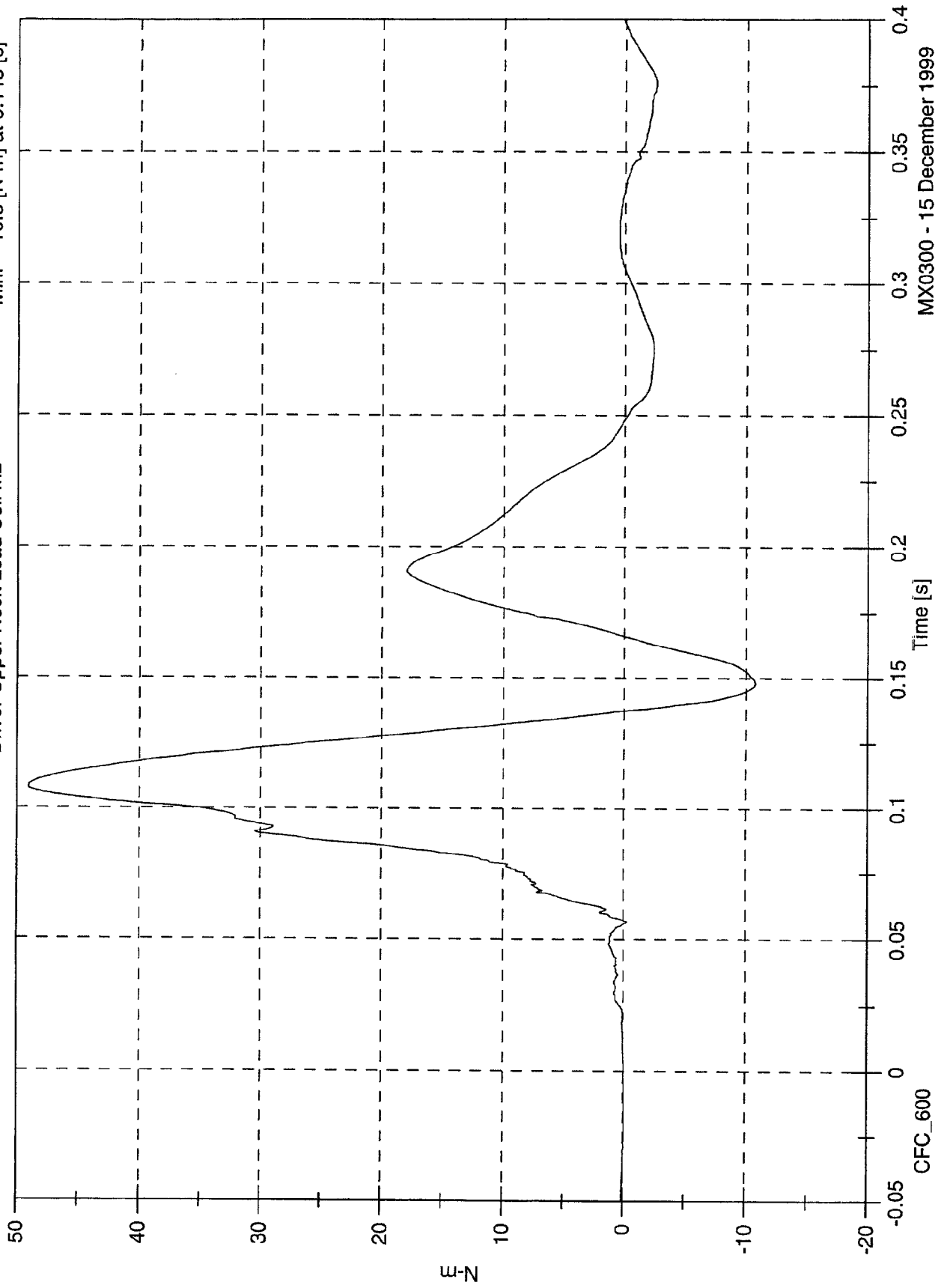


MX0300 - 15 December 1999

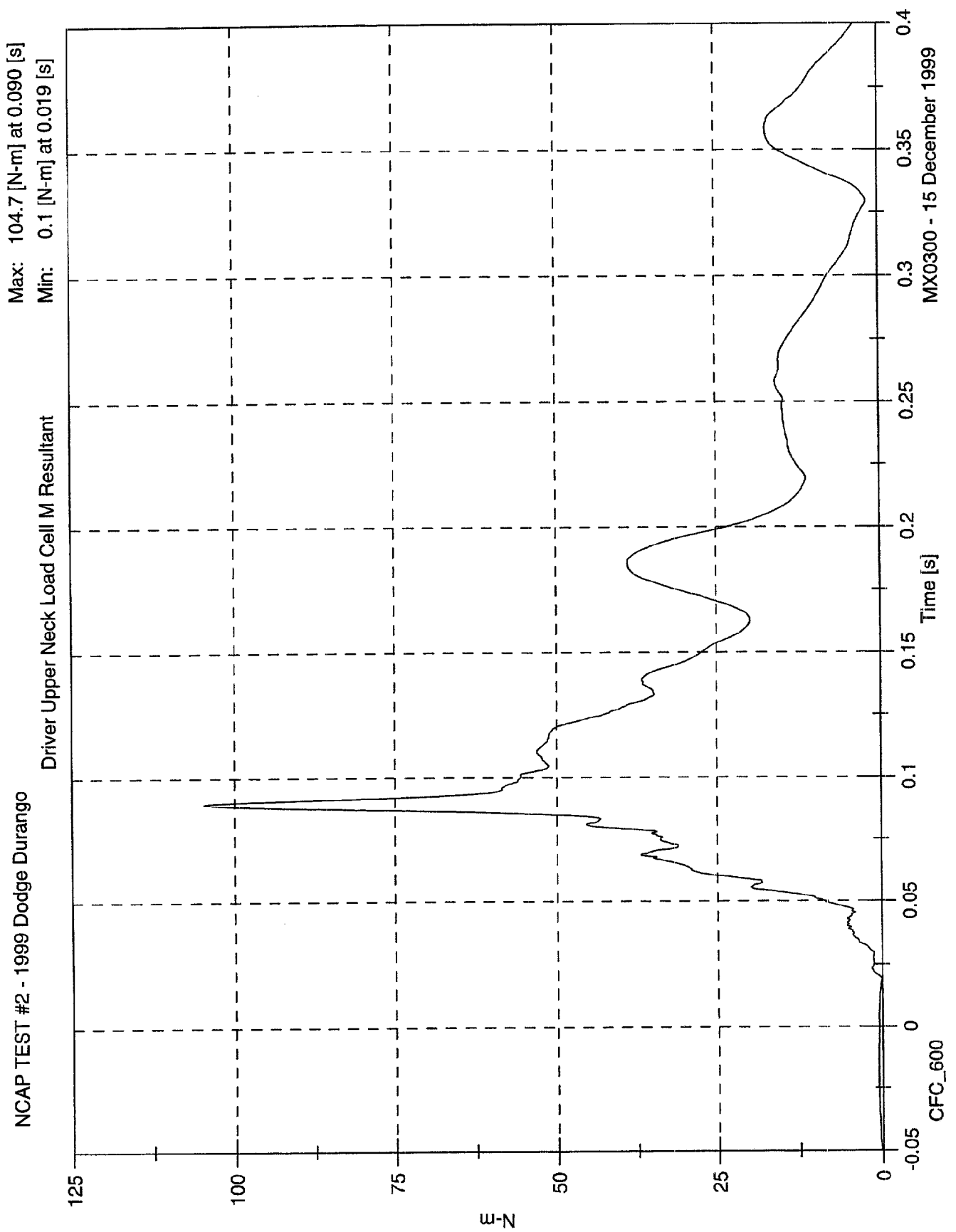
NCAP TEST #2 - 1999 Dodge Durango

Driver Upper Neck Load Cell Mz

Max: 49.0 [N-m] at 0.108 [s]
Min: -10.8 [N-m] at 0.148 [s]



MX0300 - 15 December 1999

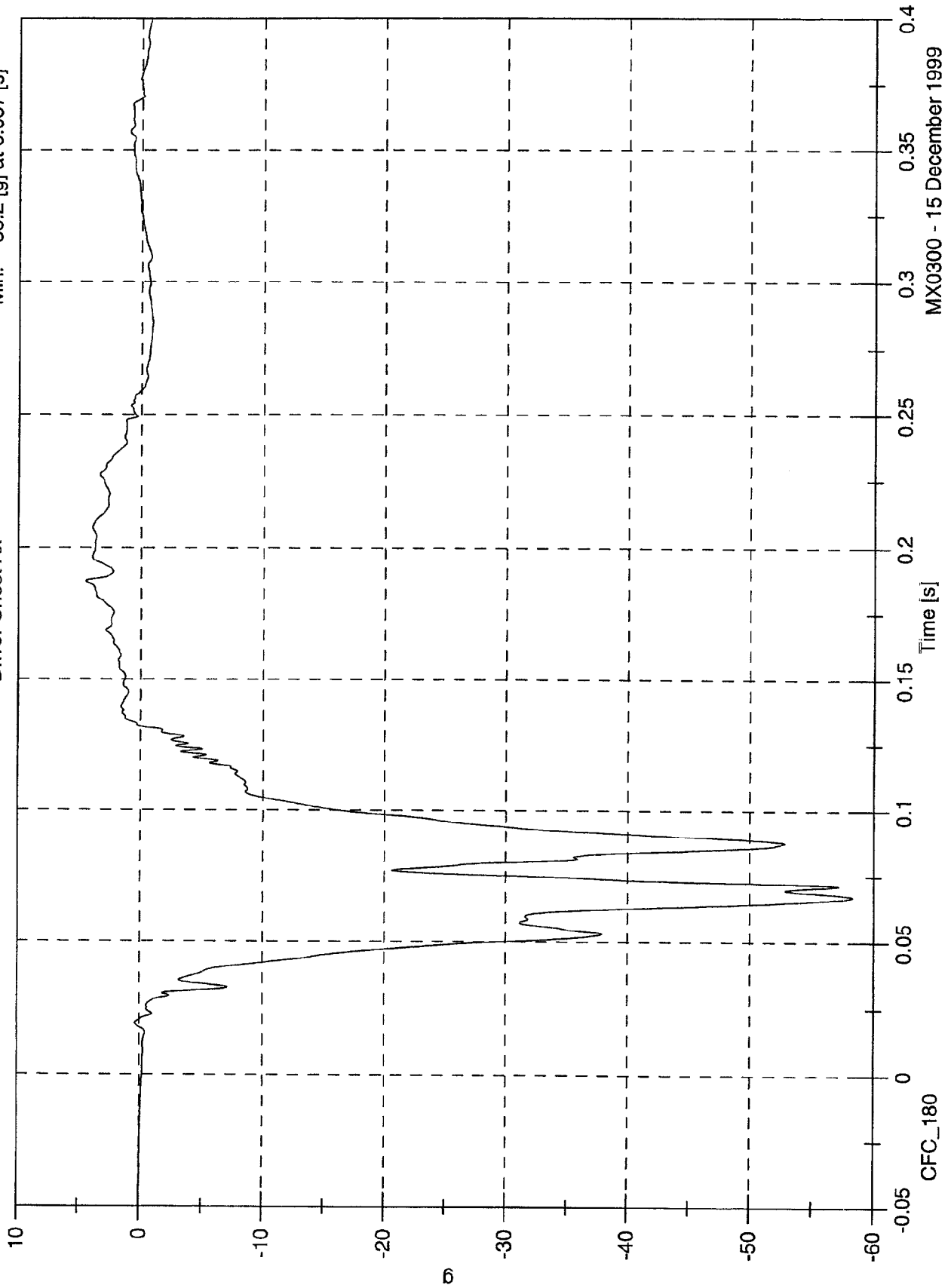


NCAP TEST #2 - 1999 Dodge Durango

Max: 4.5 [g] at 0.187 [s]

Min: -58.2 [g] at 0.067 [s]

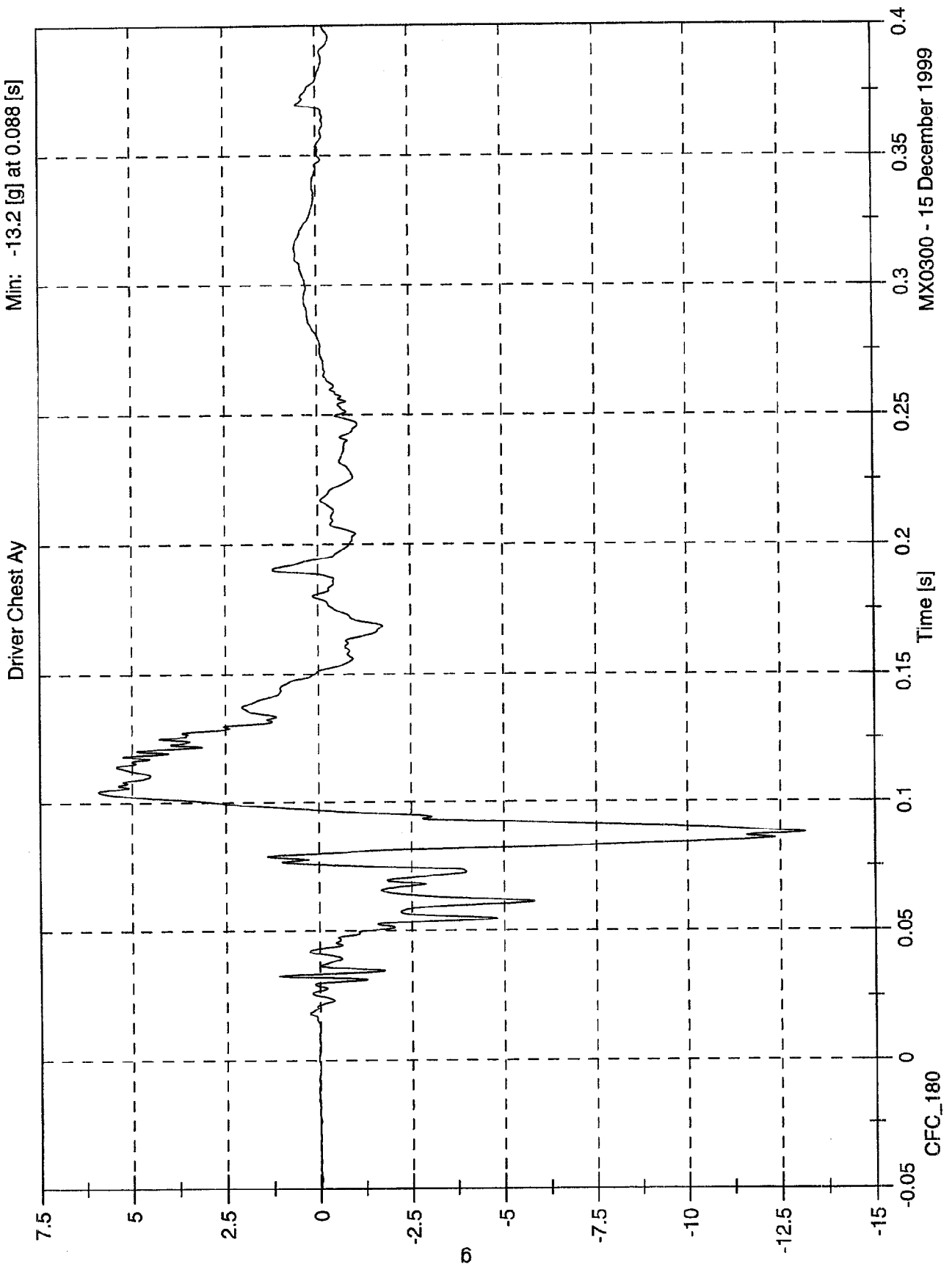
Driver Chest Ax



MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 5.9 [g] at 0.104 [s]
Min: -13.2 [g] at 0.088 [s]

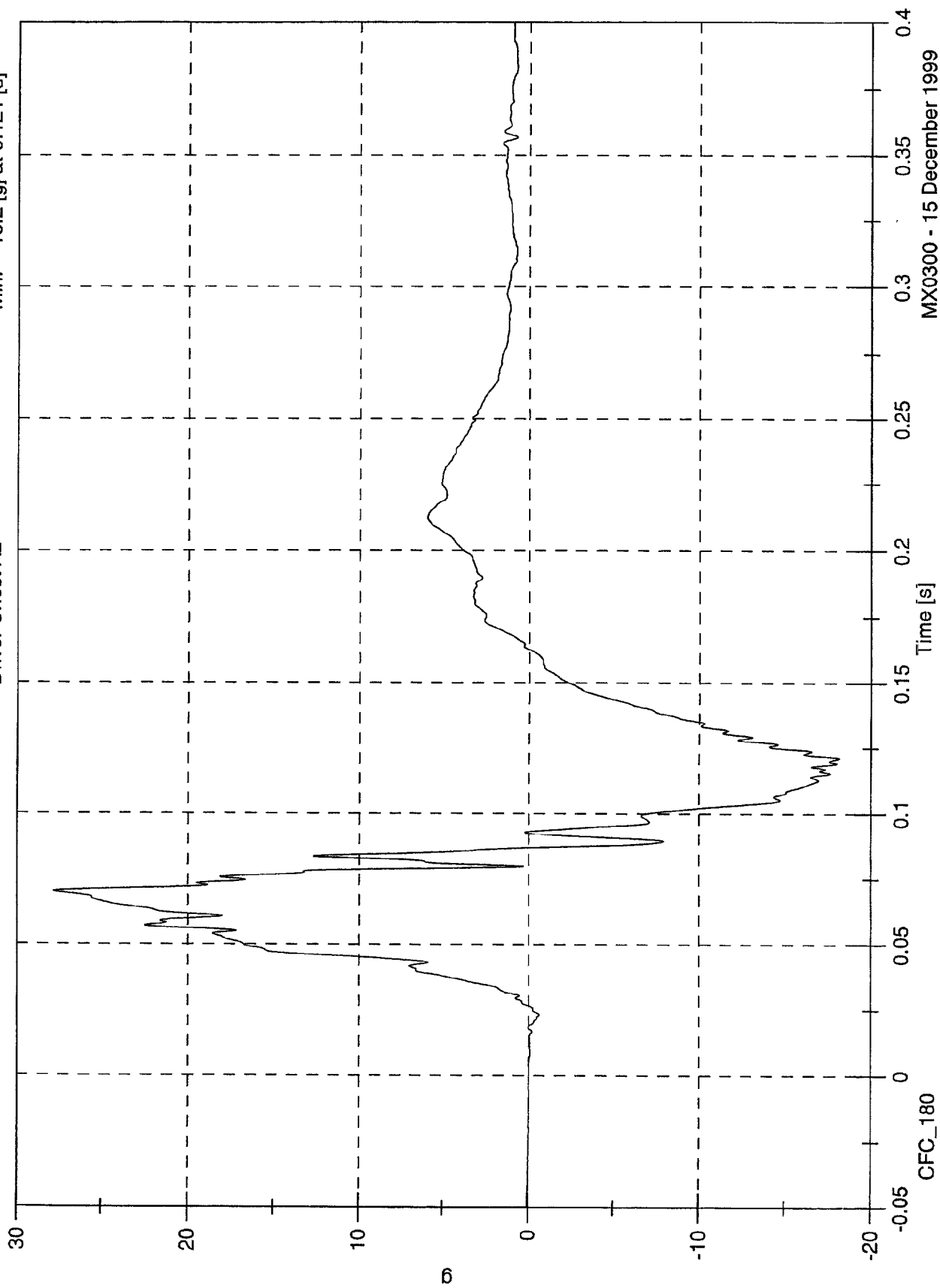


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 27.9 [g] at 0.070 [s]
Min: -18.2 [g] at 0.121 [s]

Driver Chest Az

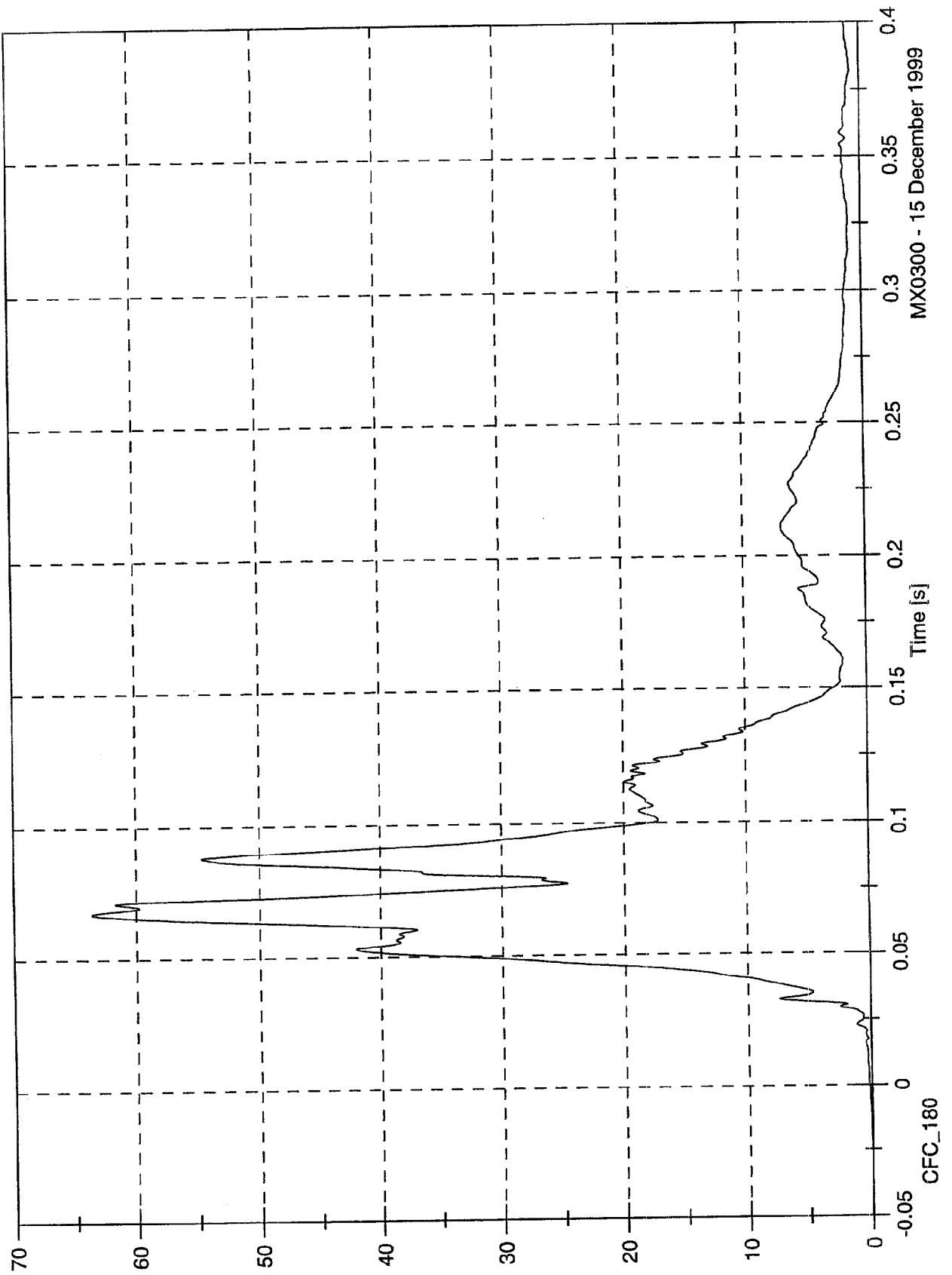


MX0300 - 15 December 1999

Max: 63.7 [g] at 0.067 [s]
Min: 0.0 [g] at -0.031 [s]

Driver Chest A Resultant

NCAP TEST #2 - 1999 Dodge Durango

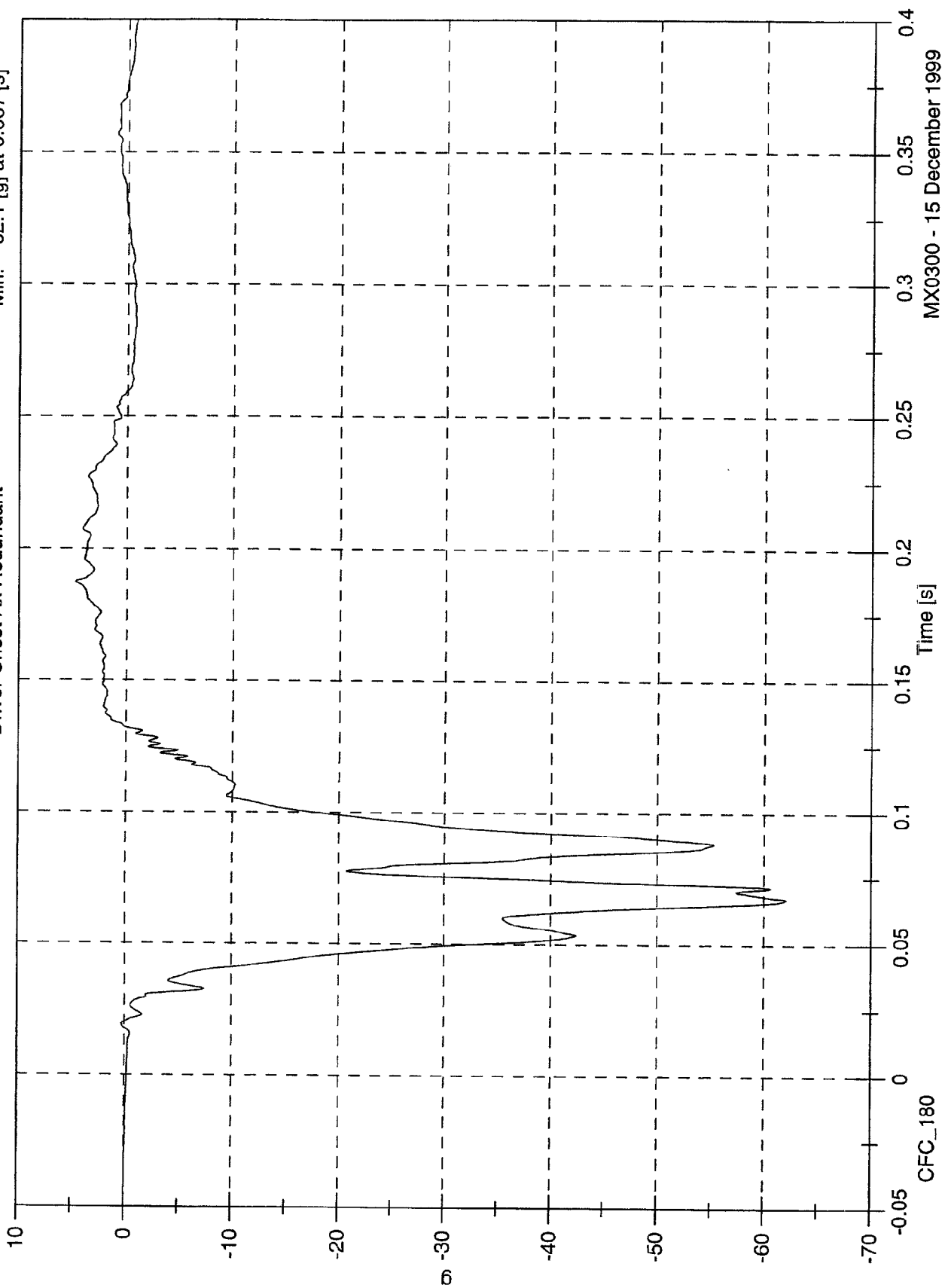


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 4.7 [g] at 0.188 [s]
Min: -62.1 [g] at 0.067 [s]

Driver Chest Ax Redundant

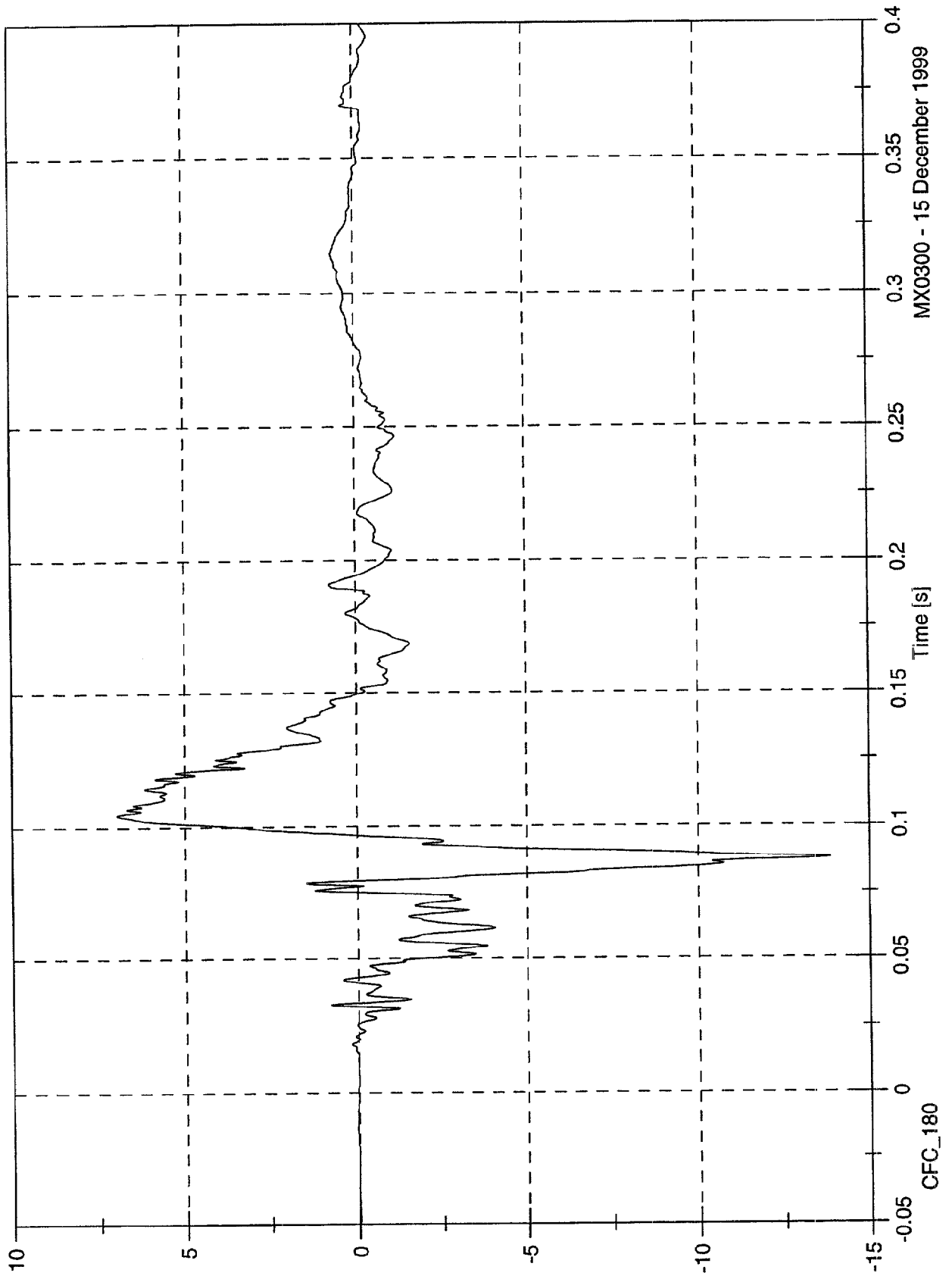


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

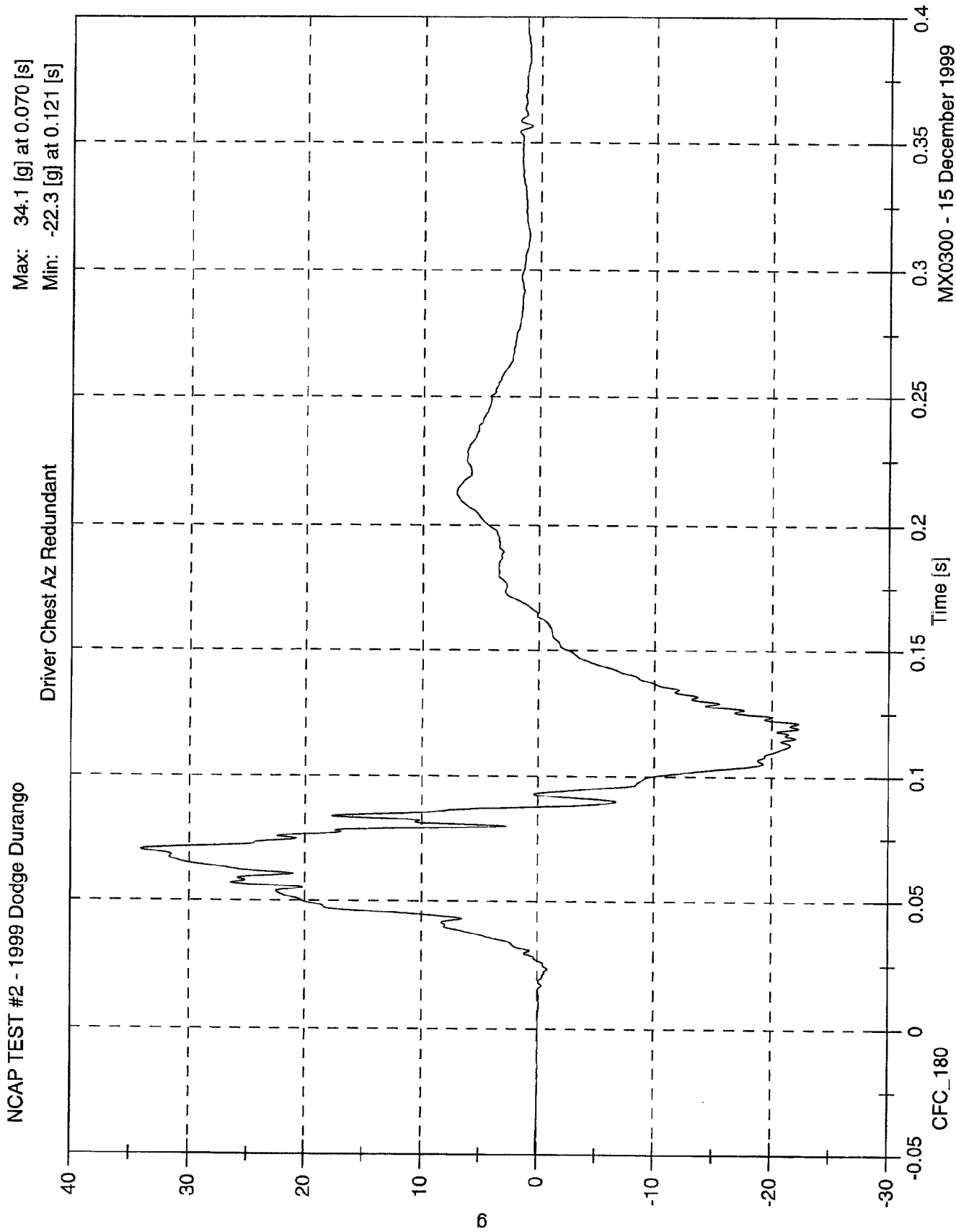
Max: 7.0 [g] at 0.105 [s]
Min: -13.8 [g] at 0.088 [s]

Driver Chest Ay Redundant



CFC_180

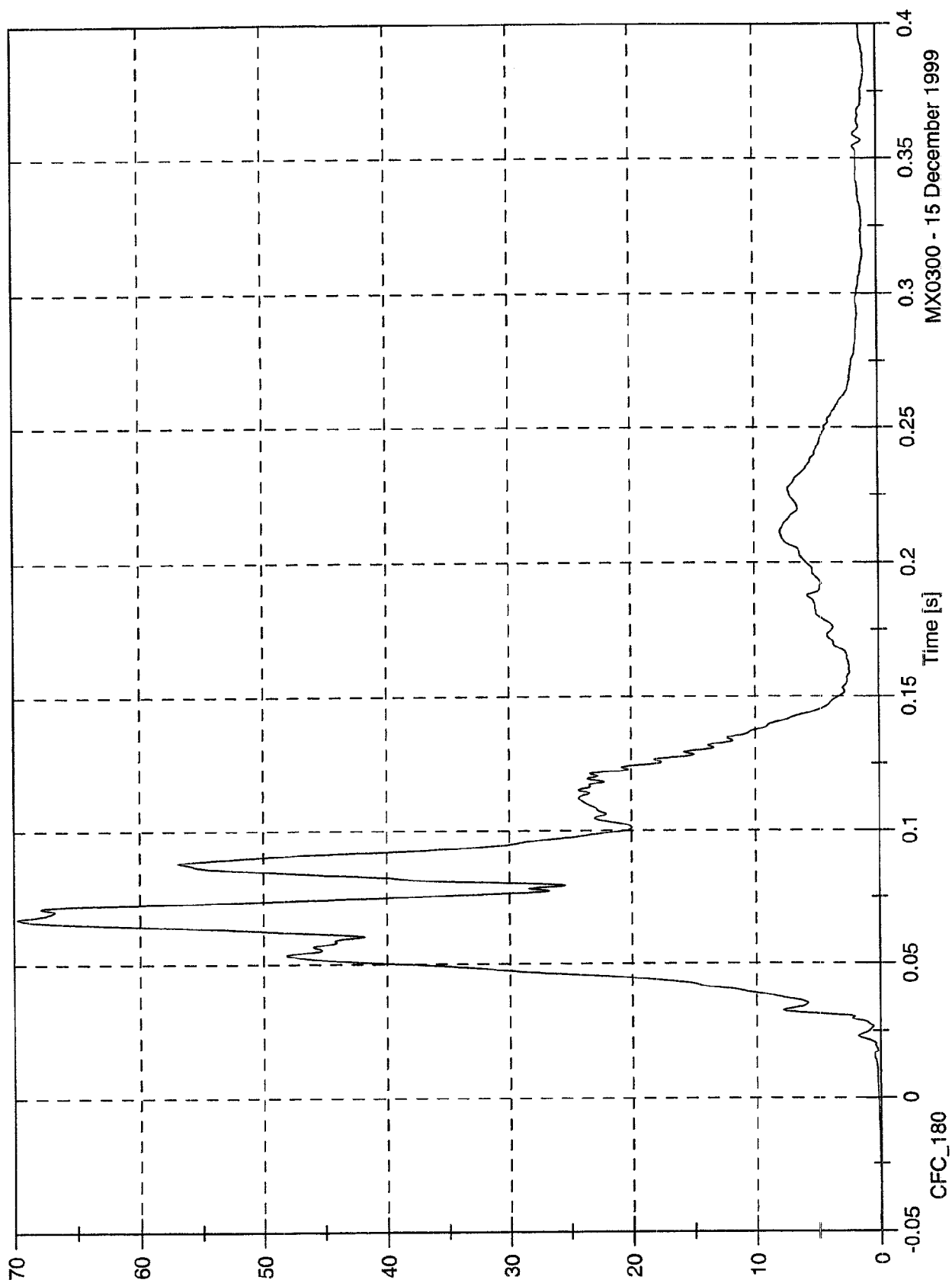
MX0300 - 15 December 1999

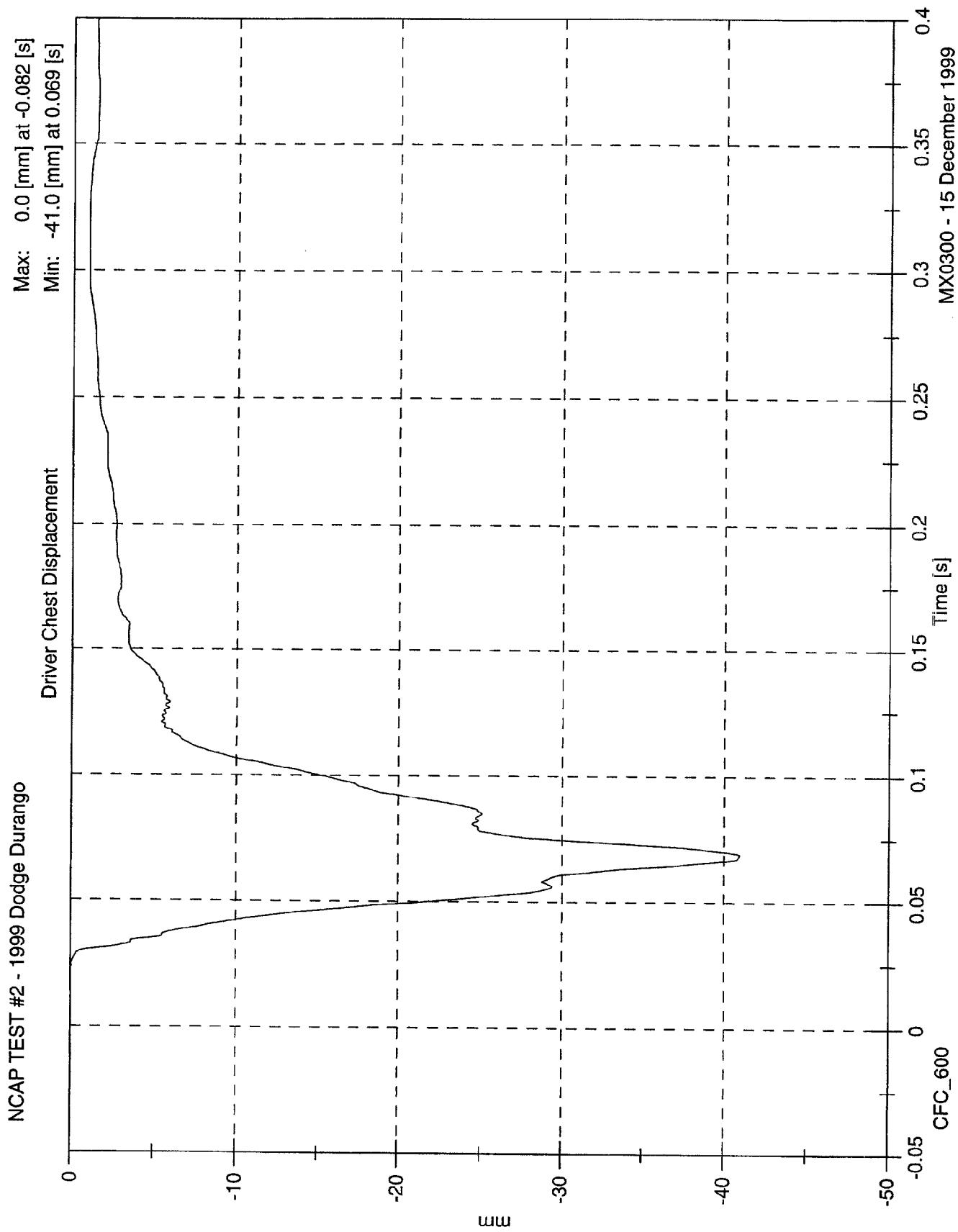


NCAP TEST #2 - 1999 Dodge Durango

Max: 69.8 [g] at 0.067 [s]
Min: 0.0 [g] at -0.075 [s]

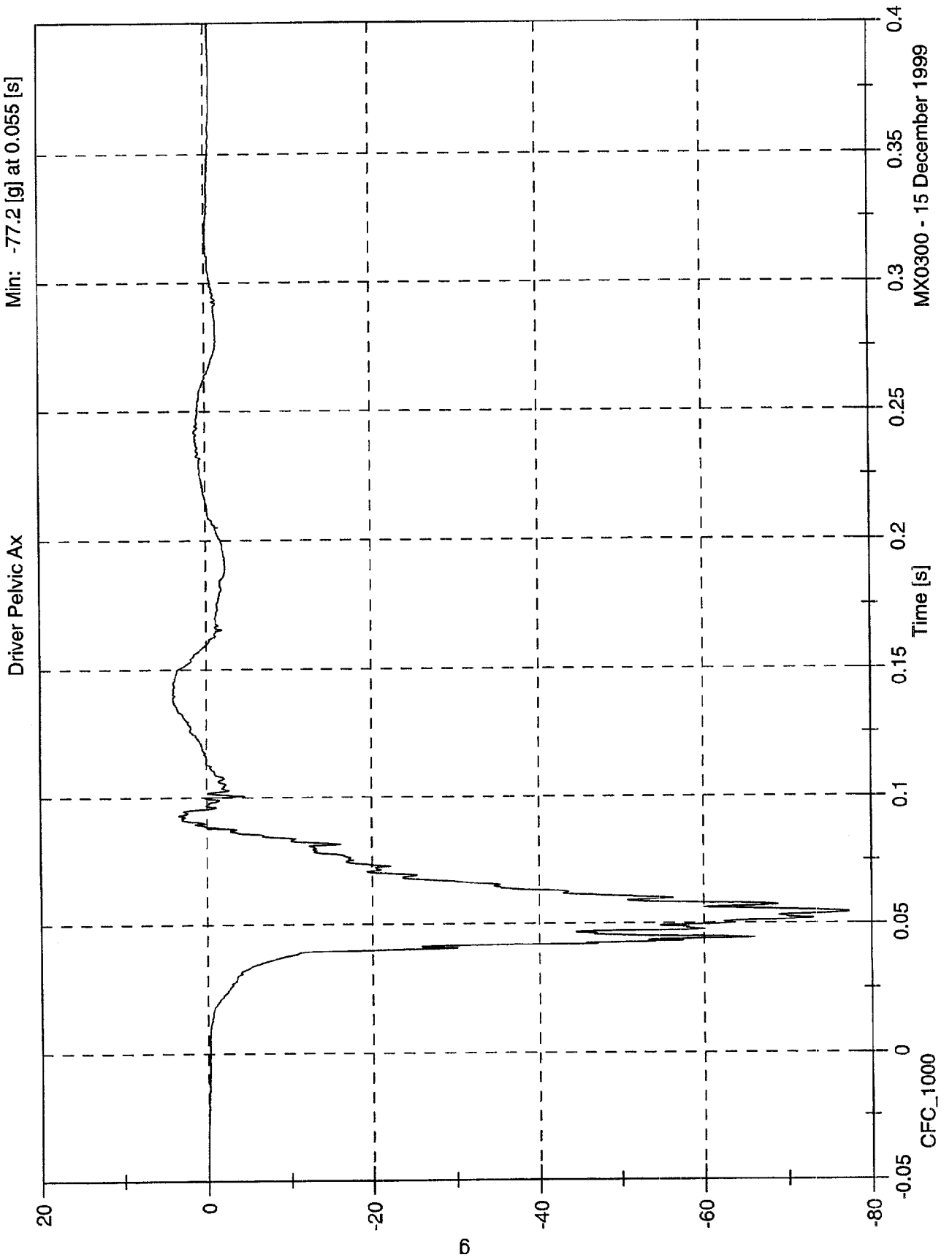
Driver Chest Ax Redundan Resultant





NCAP TEST #2 - 1999 Dodge Durango

Max: 4.0 [g] at 0.140 [s]
Min: -77.2 [g] at 0.055 [s]

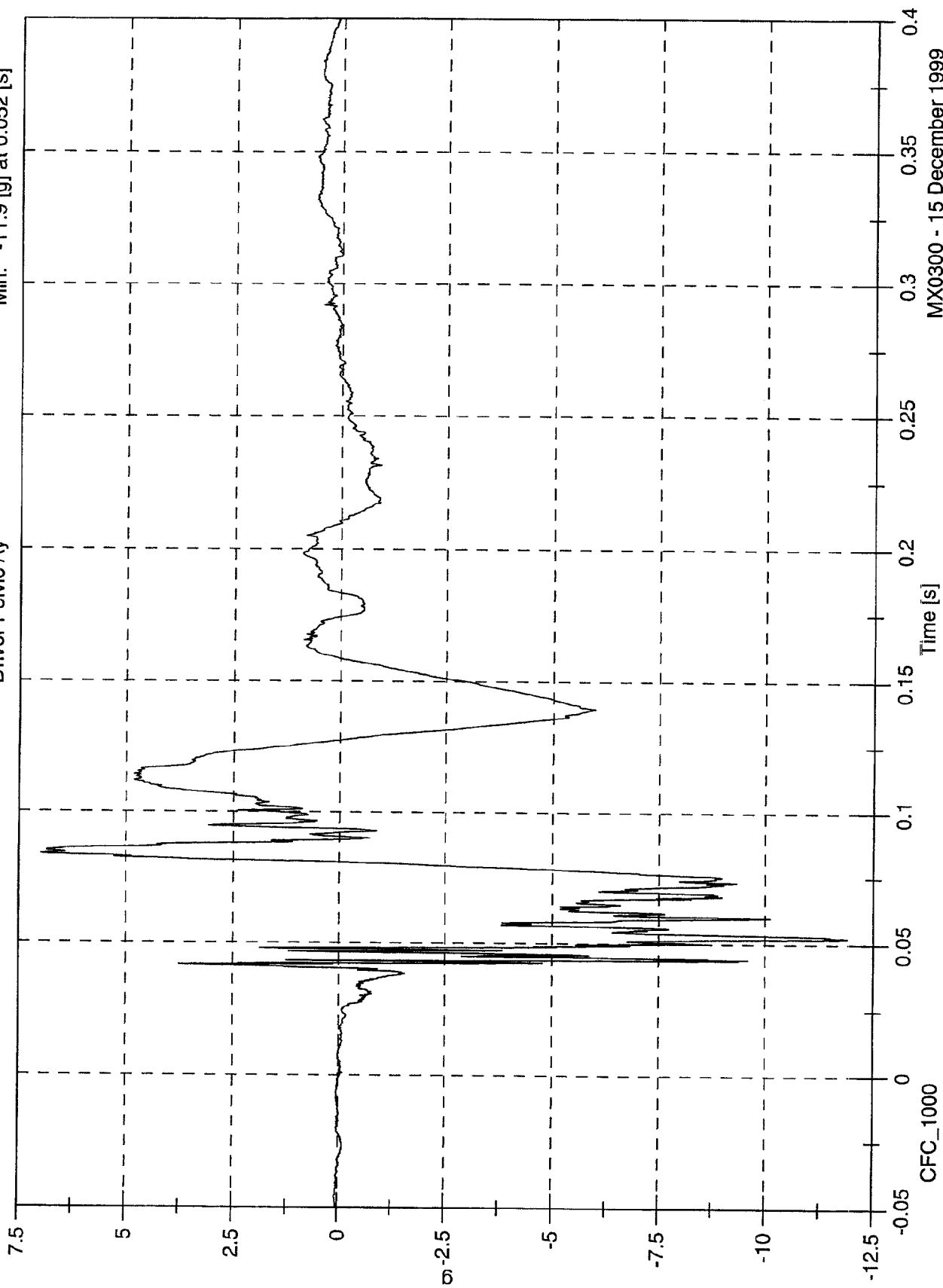


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 7.0 [g] at 0.084 [s]
Min: -11.9 [g] at 0.052 [s]

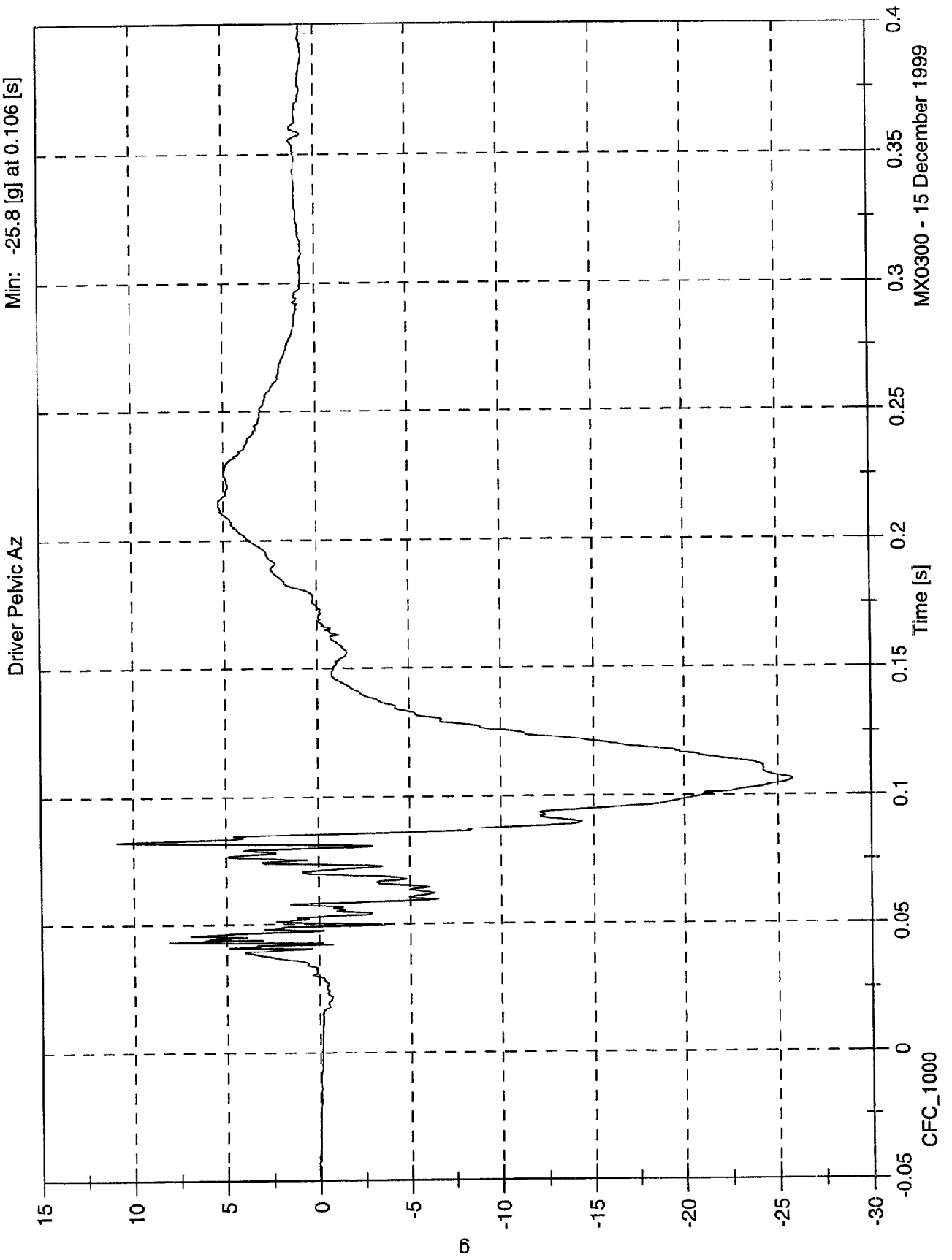
Driver Pelvic Ay



MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 10.9 [g] at 0.082 [s]
Min: -25.8 [g] at 0.106 [s]

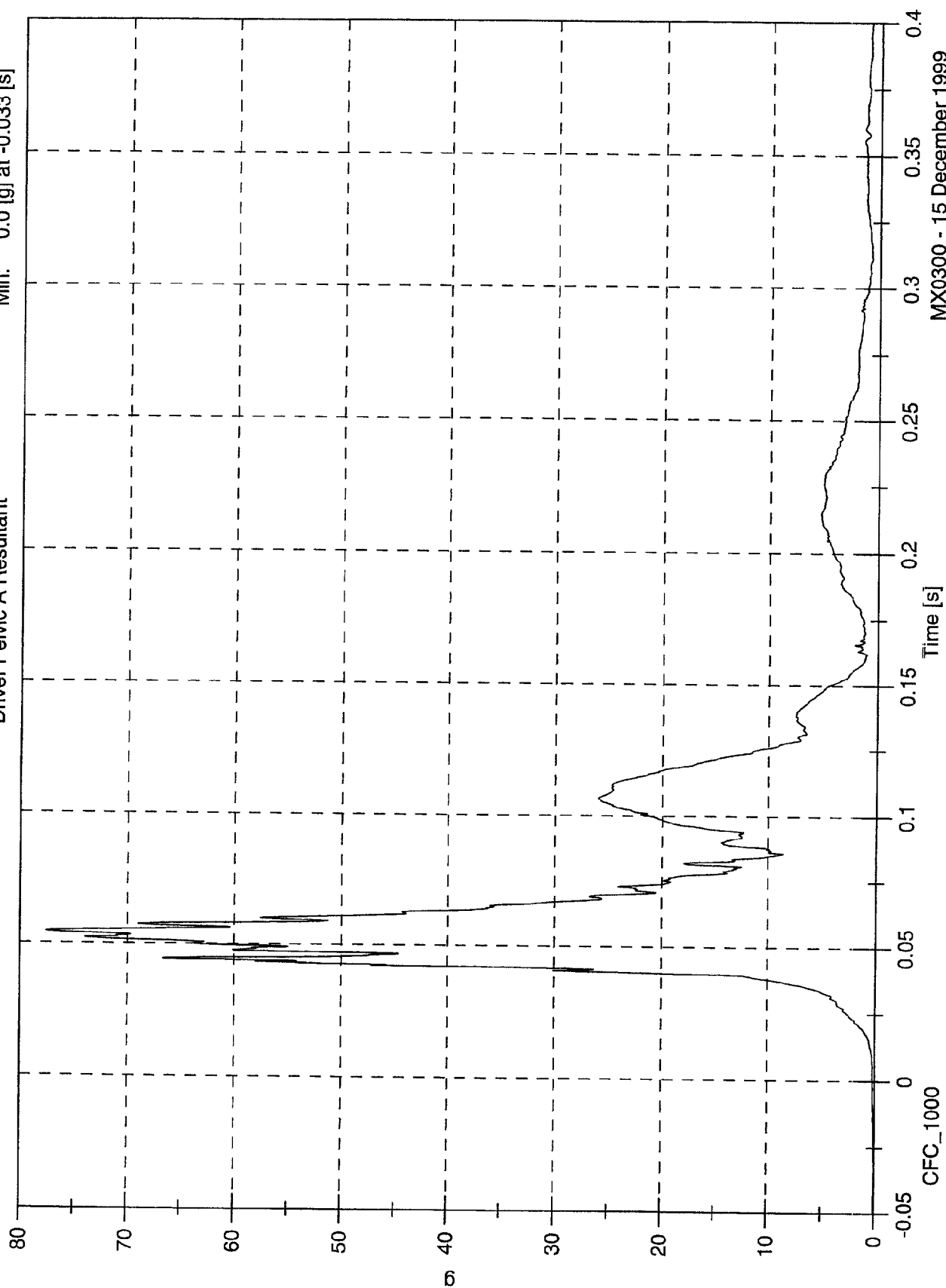


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

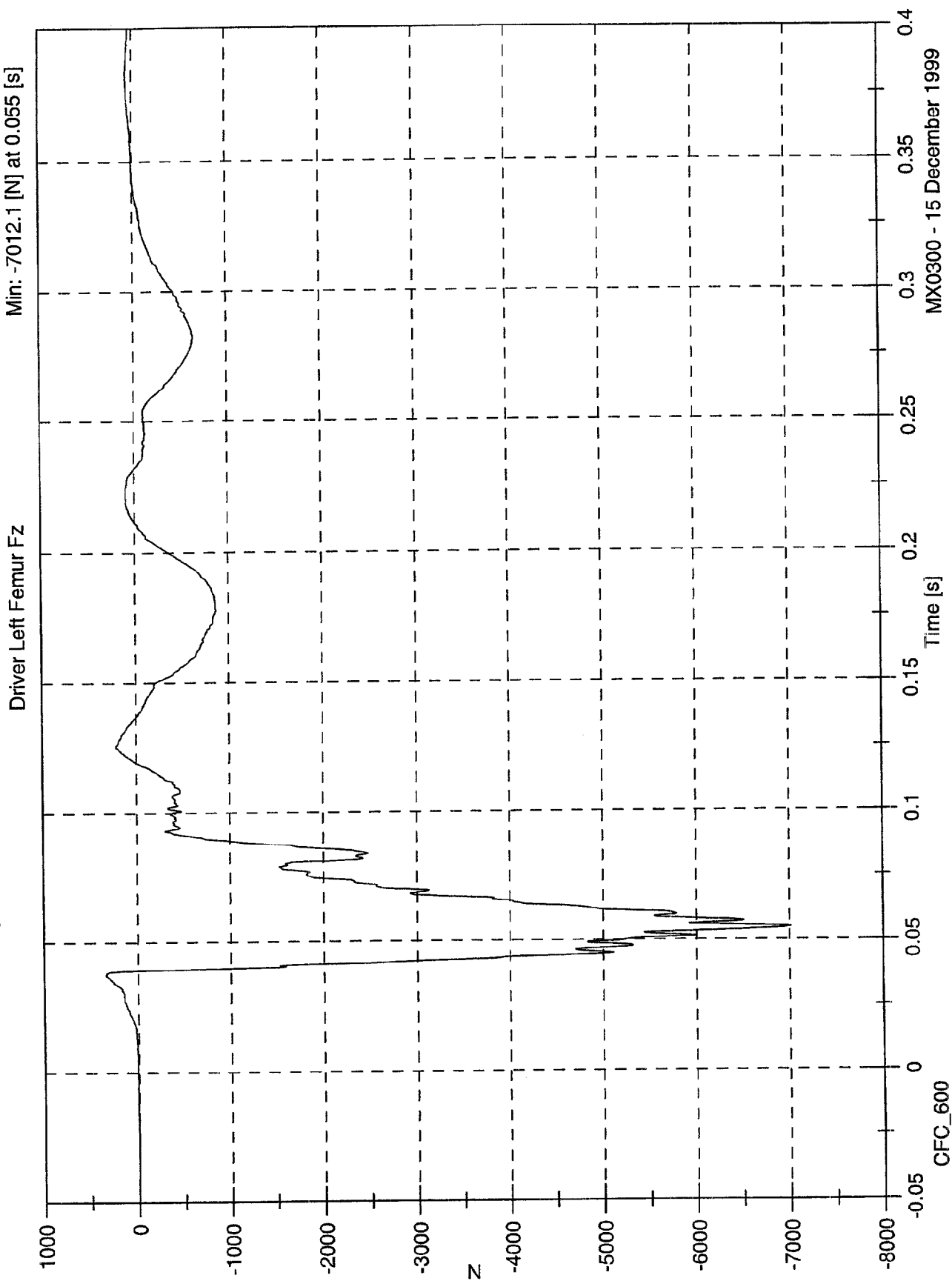
Driver Pelvic A Resultant

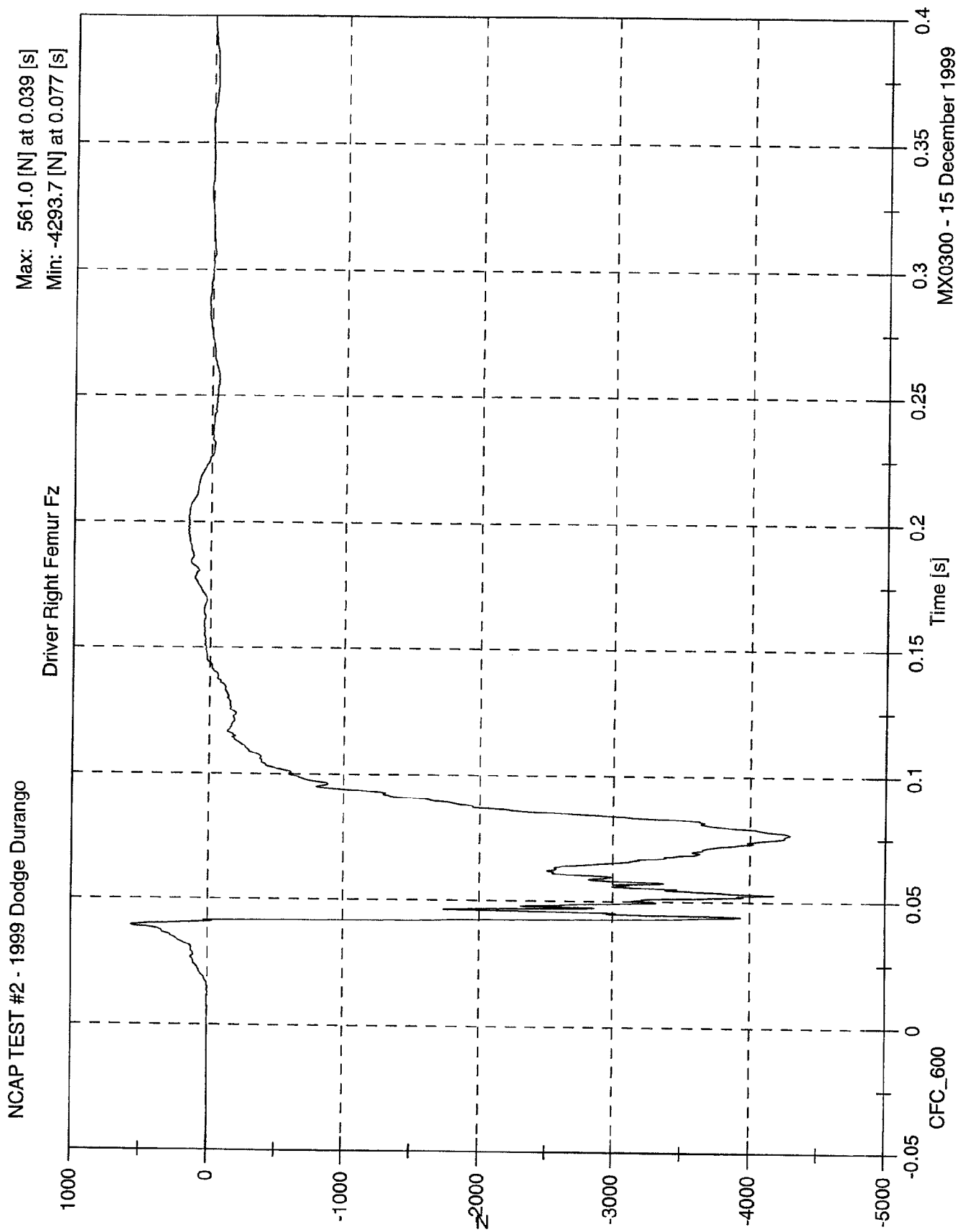
Max: 77.6 [g] at 0.055 [s]
Min: 0.0 [g] at -0.033 [s]



MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

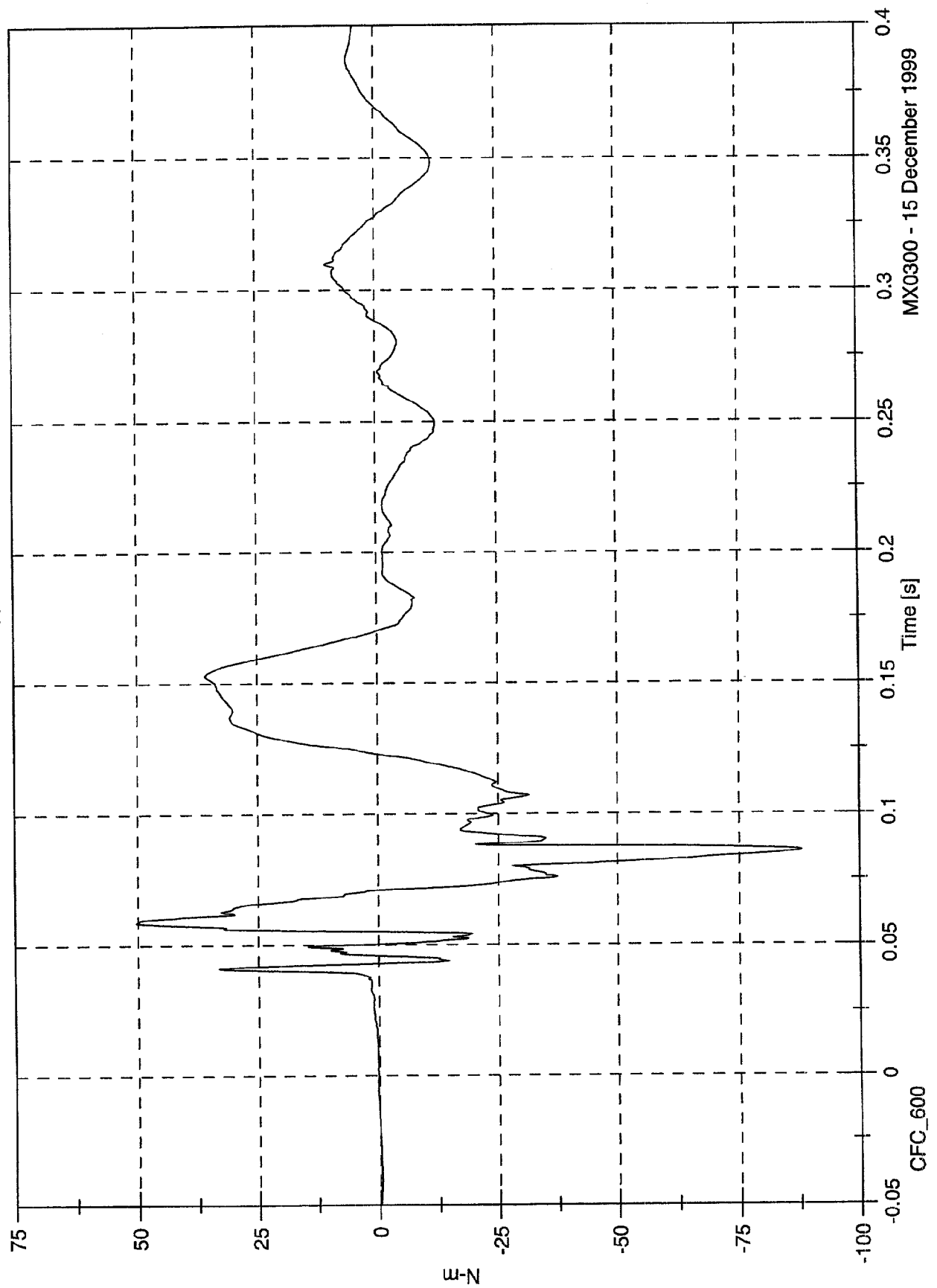




NCAP TEST #2 - 1999 Dodge Durango

Max: 50.4 [N-m] at 0.059 [s]
 Min: -88.0 [N-m] at 0.086 [s]

Driver Left Upper Tibia Mx

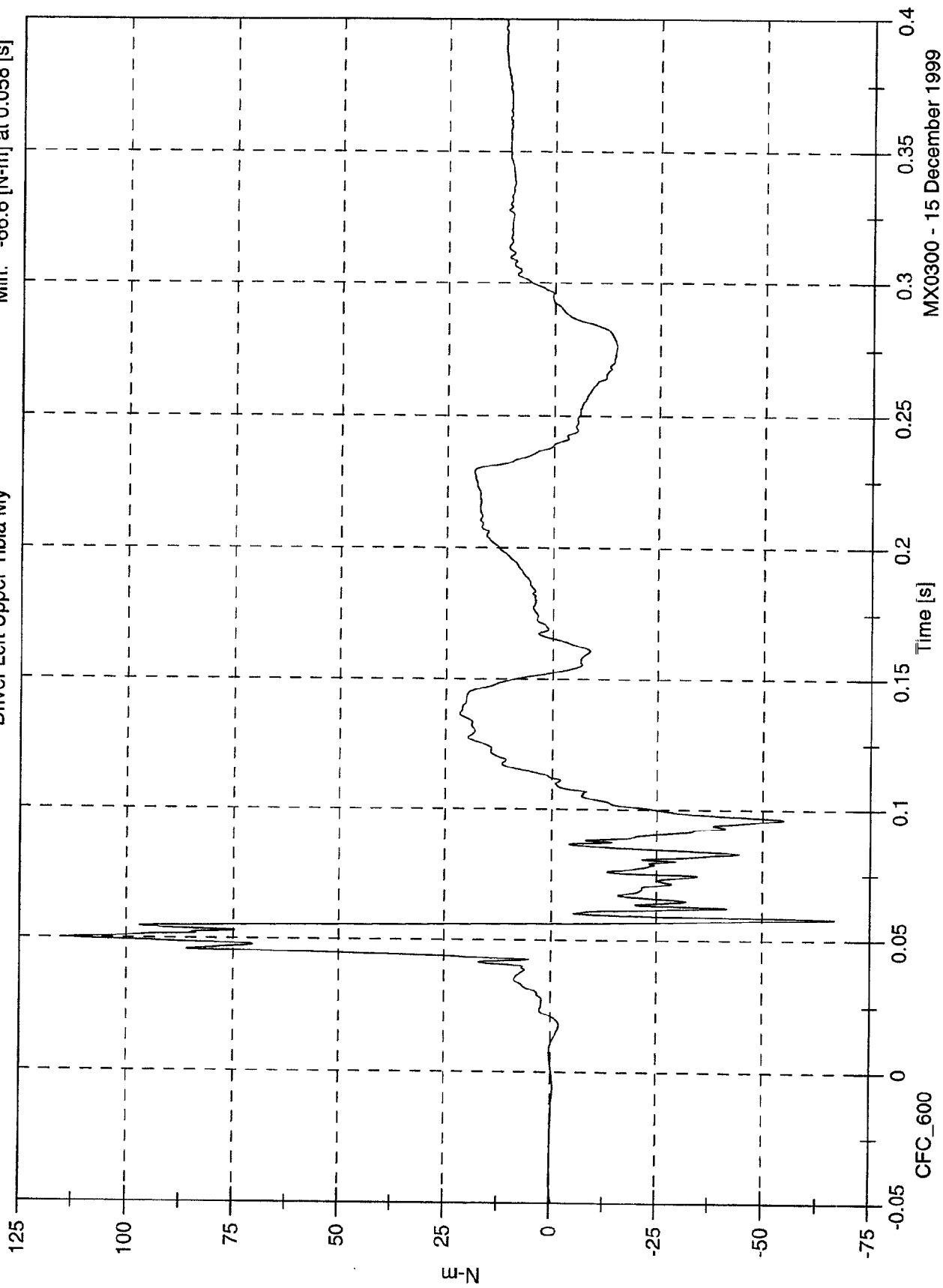


MX0300 - 15 December 1999

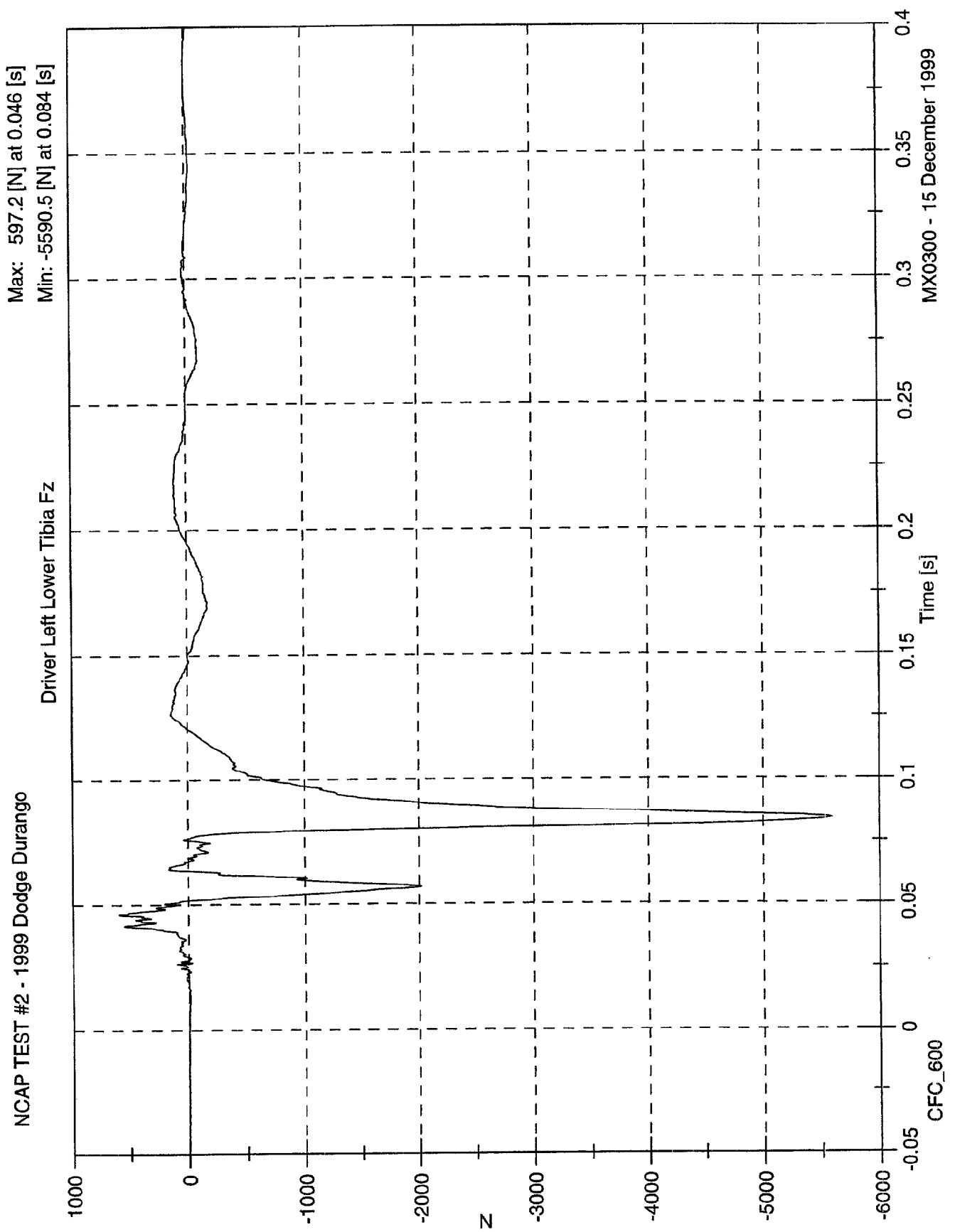
NCAP TEST #2 - 1999 Dodge Durango

Driver Left Upper Tibia My

Max: 113.5 [N-m] at 0.050 [s]
Min: -66.6 [N-m] at 0.058 [s]



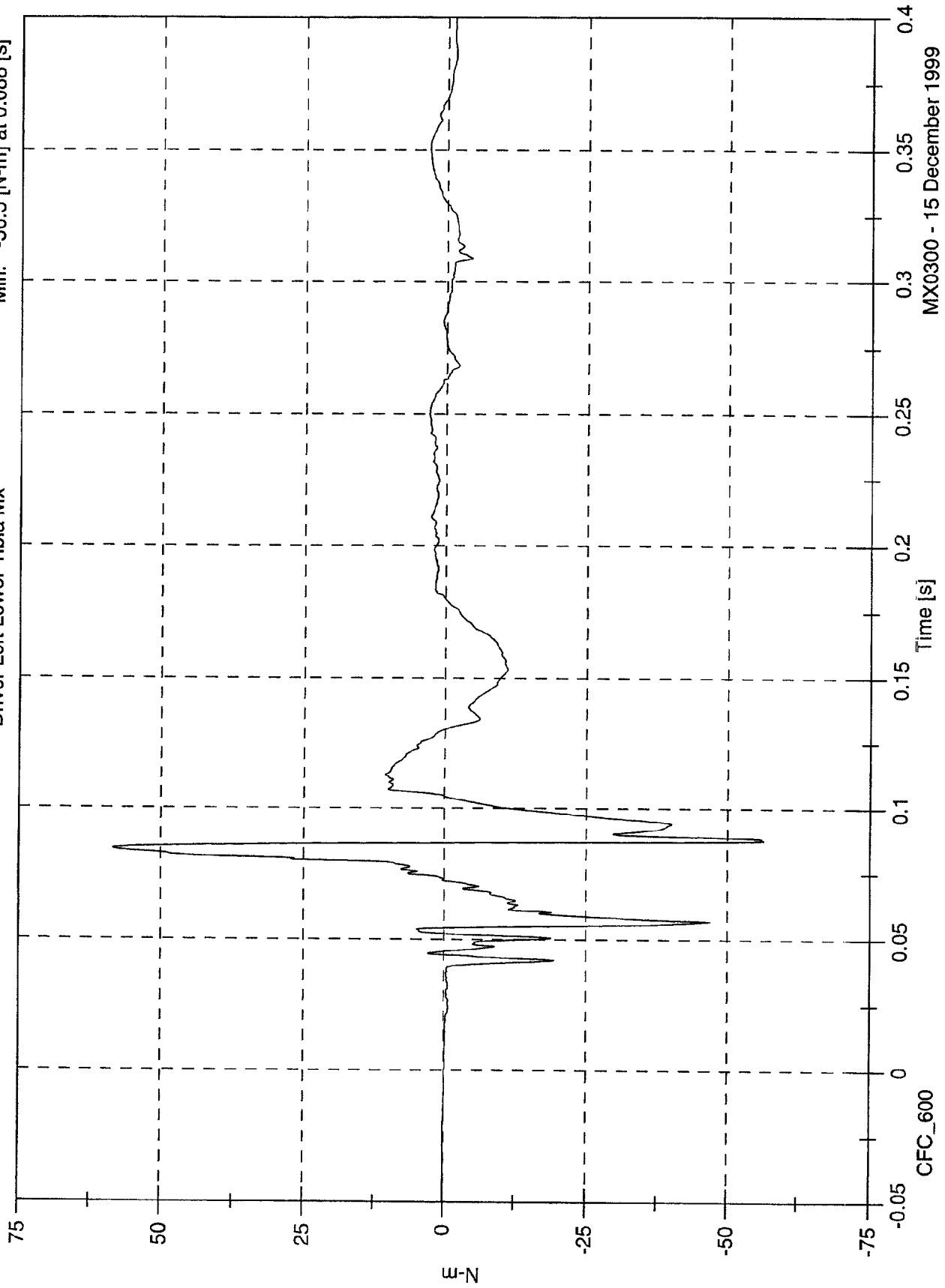
MX0300 - 15 December 1999



NCAP TEST #2 - 1999 Dodge Durango

Driver Left Lower Tibia Mx

Max: 58.5 [N-m] at 0.084 [s]
Min: -56.5 [N-m] at 0.088 [s]

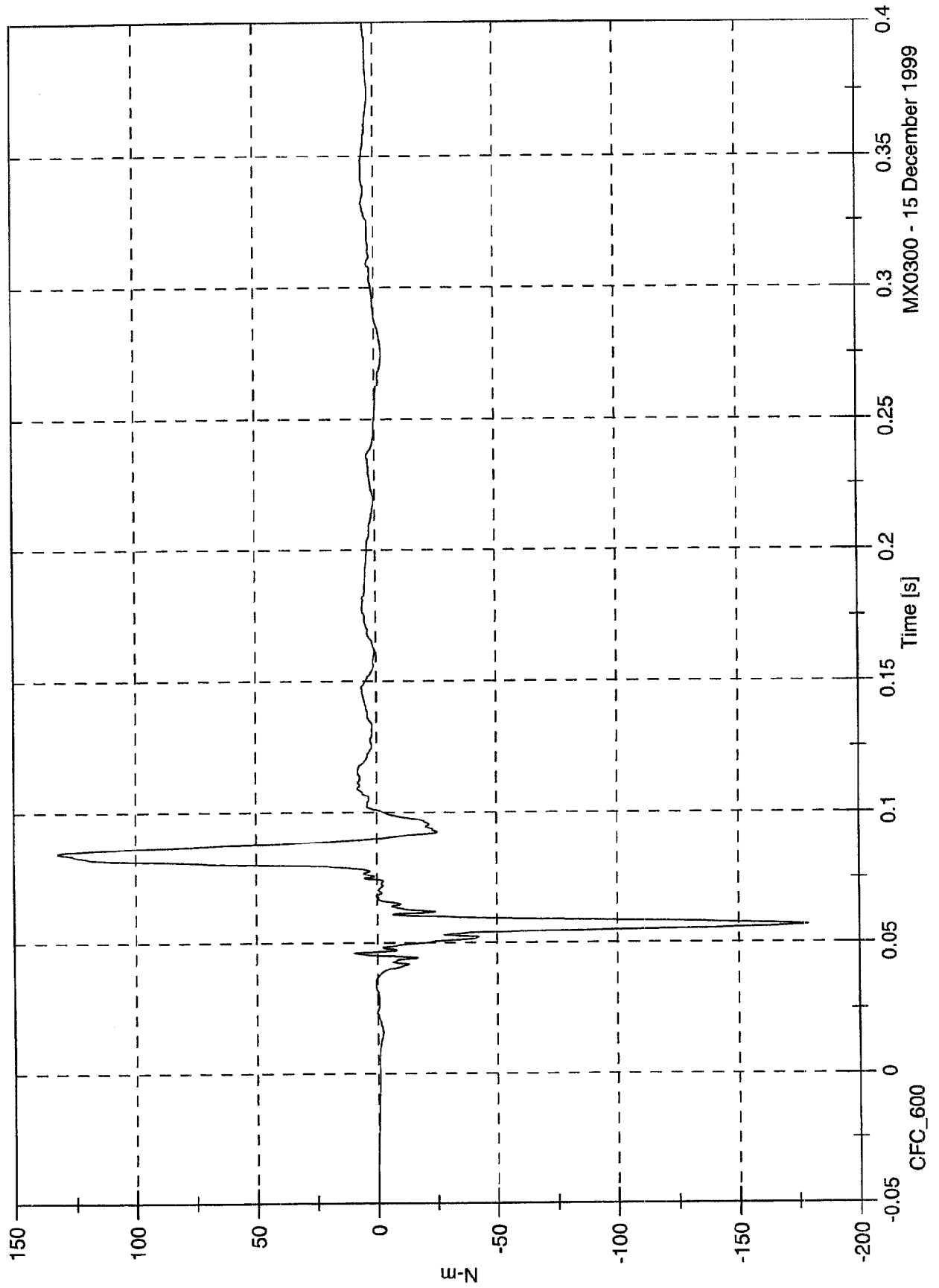


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 132.3 [N-m] at 0.085 [s]
Min: -179.0 [N-m] at 0.057 [s]

Driver Left Lower Tibia My

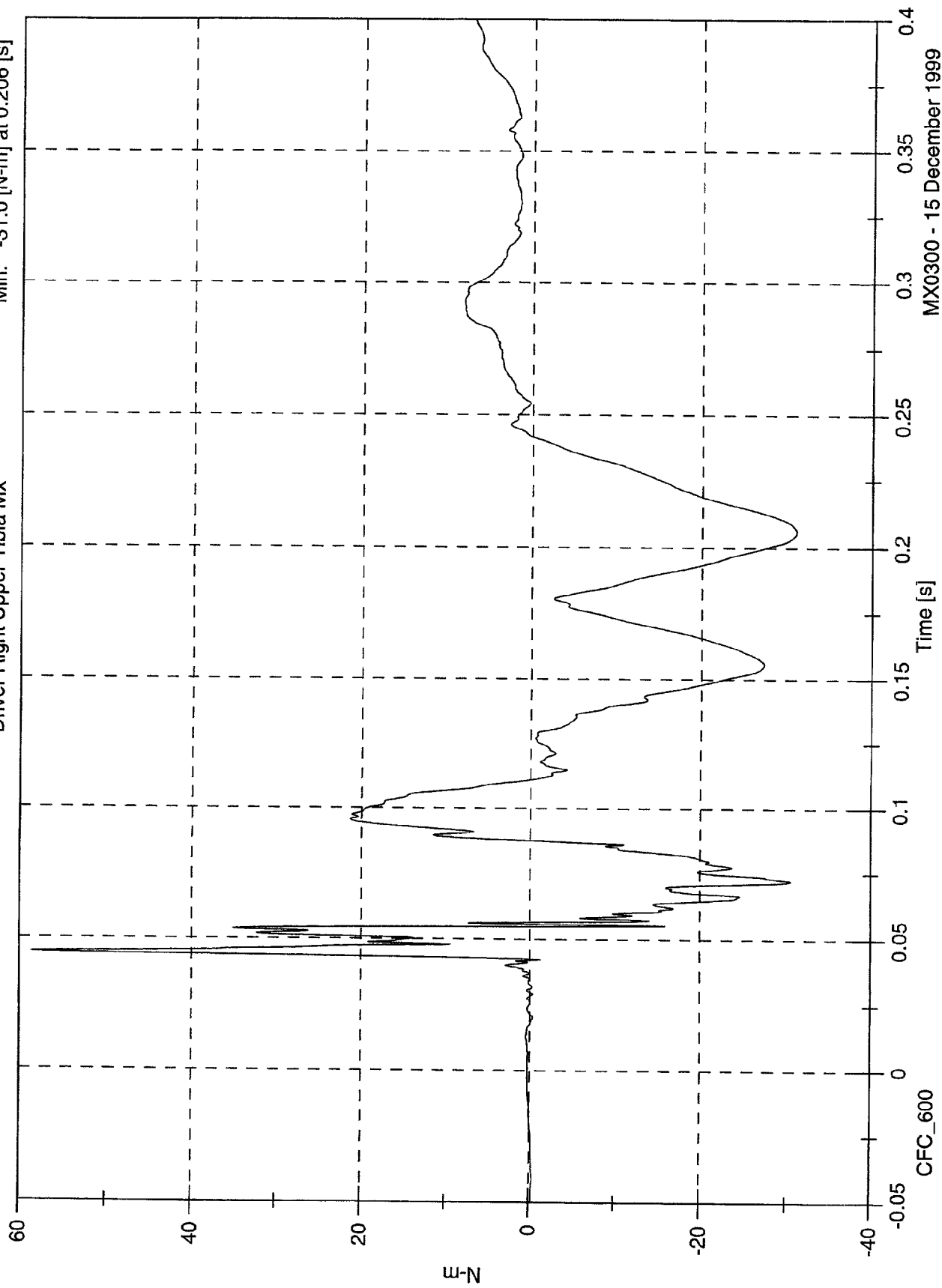


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Driver Right Upper Tibia Mx

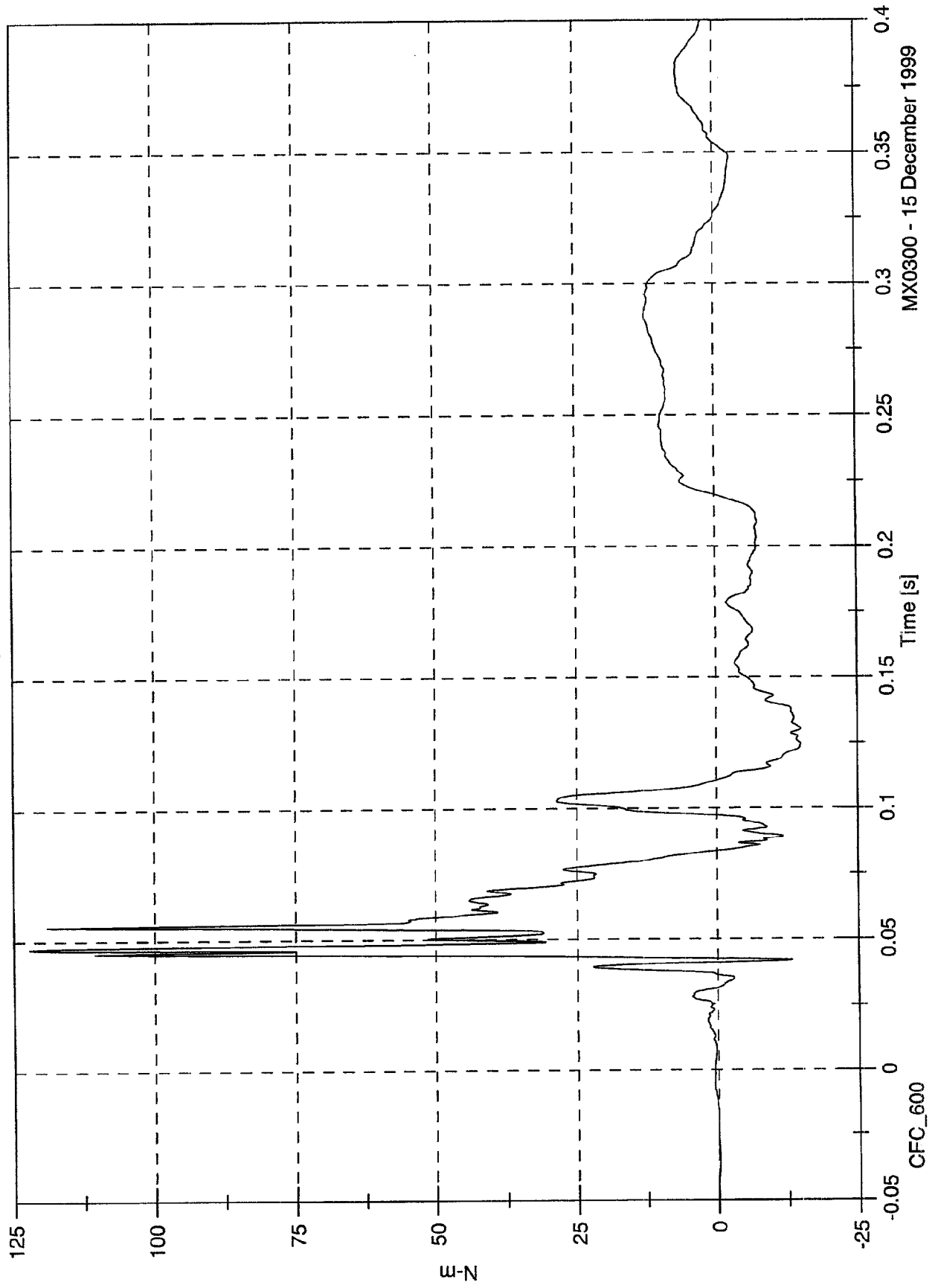
Max: 58.5 [N-m] at 0.045 [s]
Min: -31.0 [N-m] at 0.206 [s]

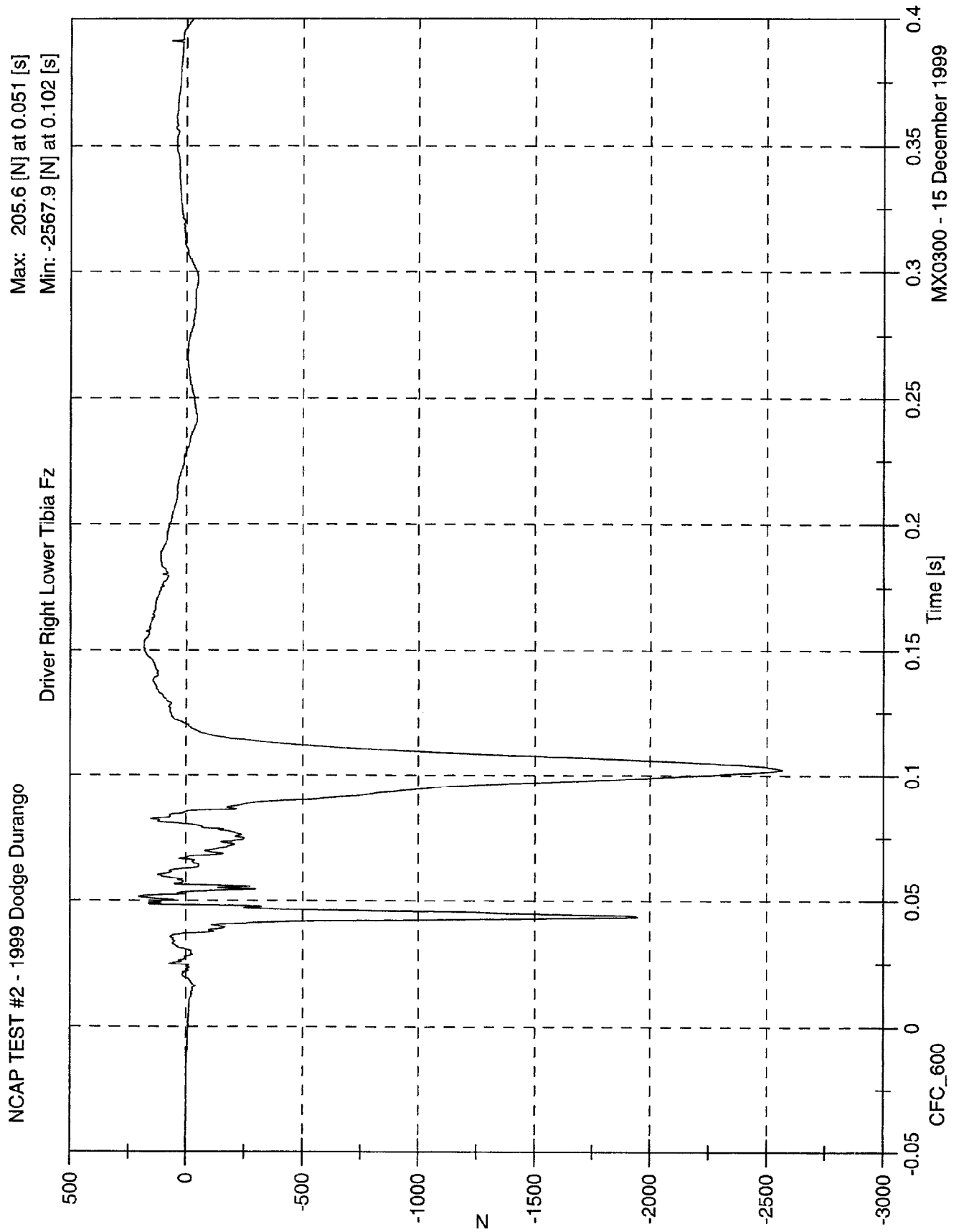


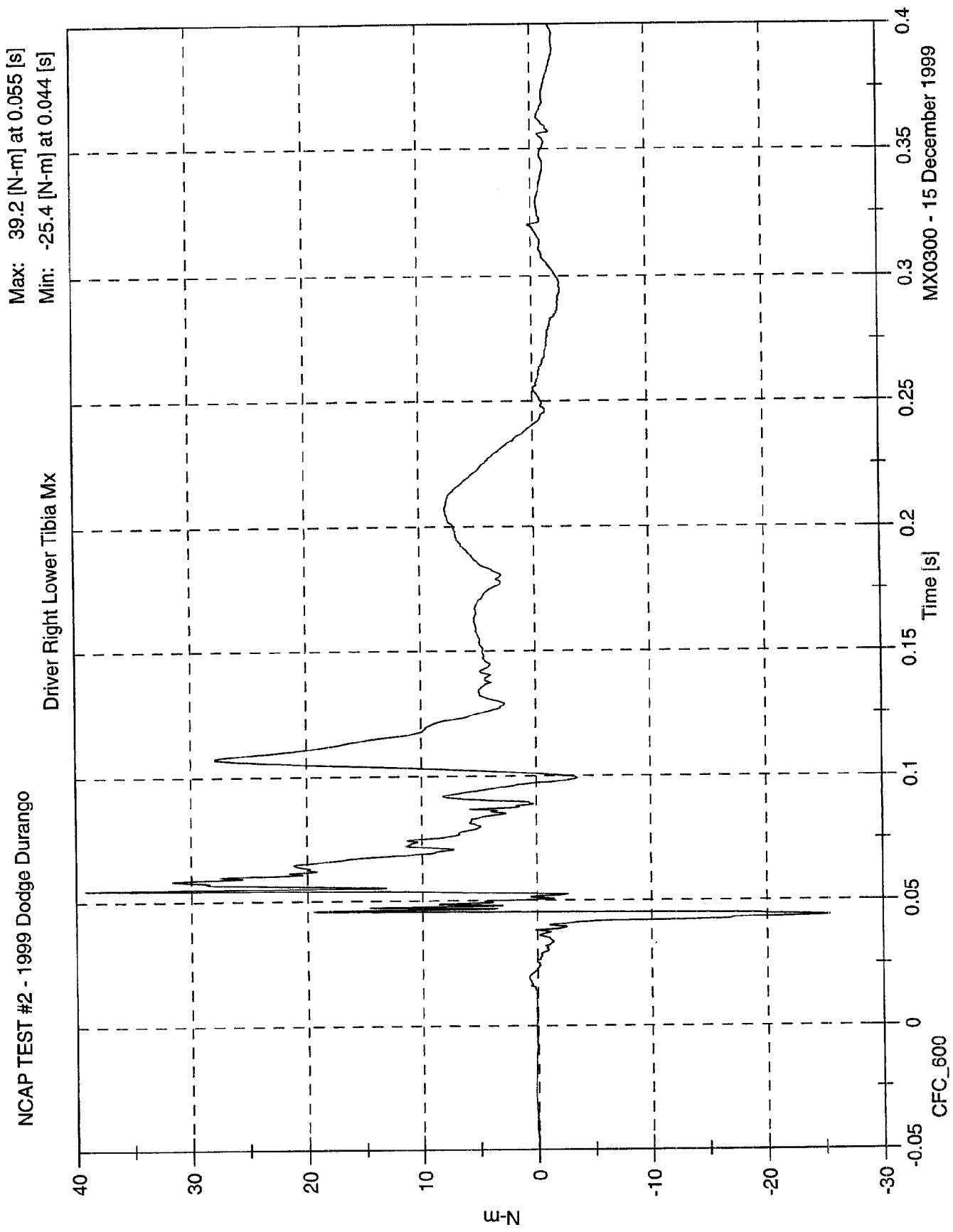
NCAP TEST #2 - 1999 Dodge Durango

Max: 122.3 [N-m] at 0.047 [s]
Min: -15.1 [N-m] at 0.130 [s]

Driver Right Upper Tibia My





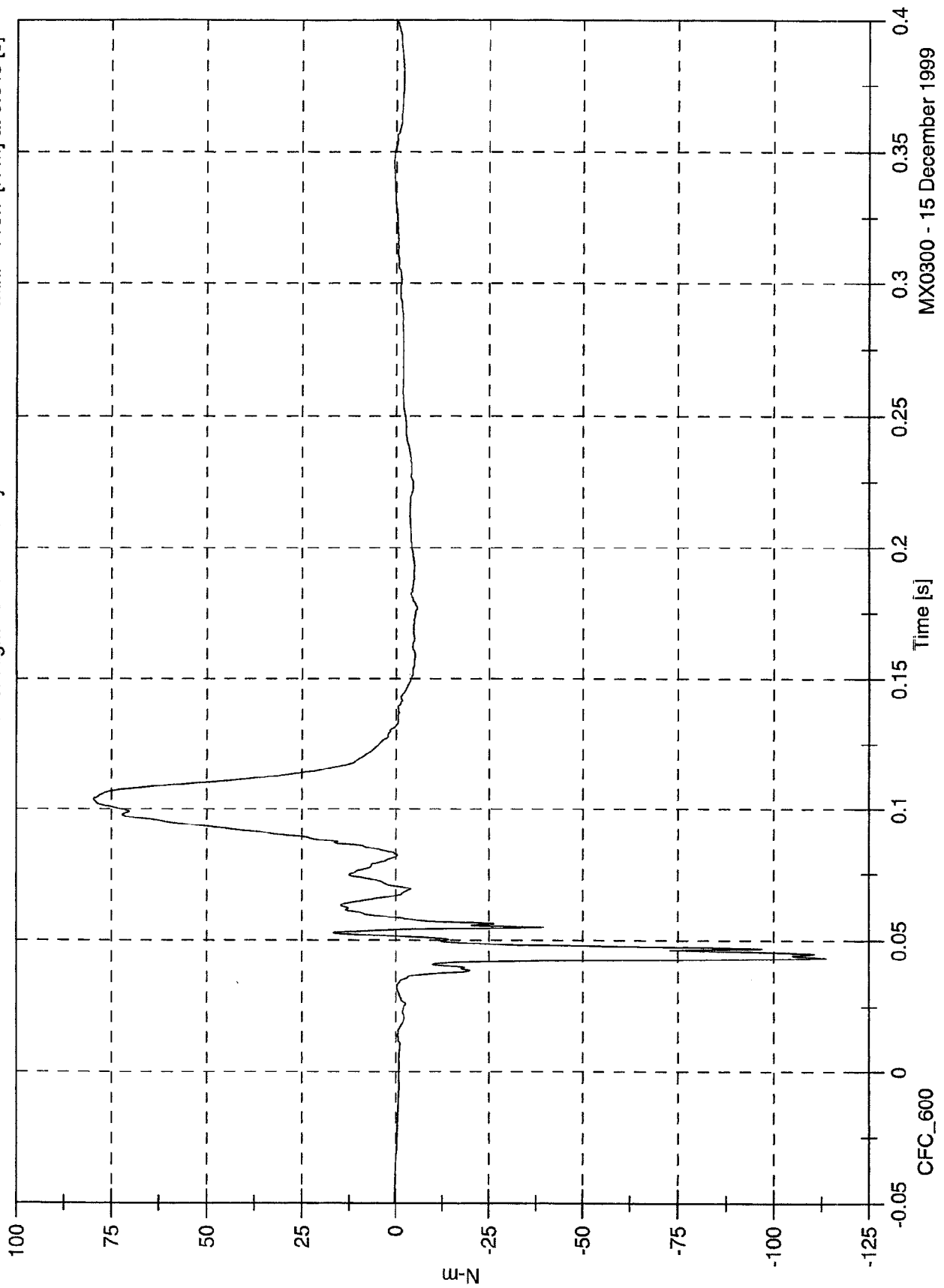


NCAP TEST #2 - 1999 Dodge Durango

Driver Right Lower Tibia My

Max: 79.9 [N-m] at 0.104 [s]

Min: -113.7 [N-m] at 0.043 [s]

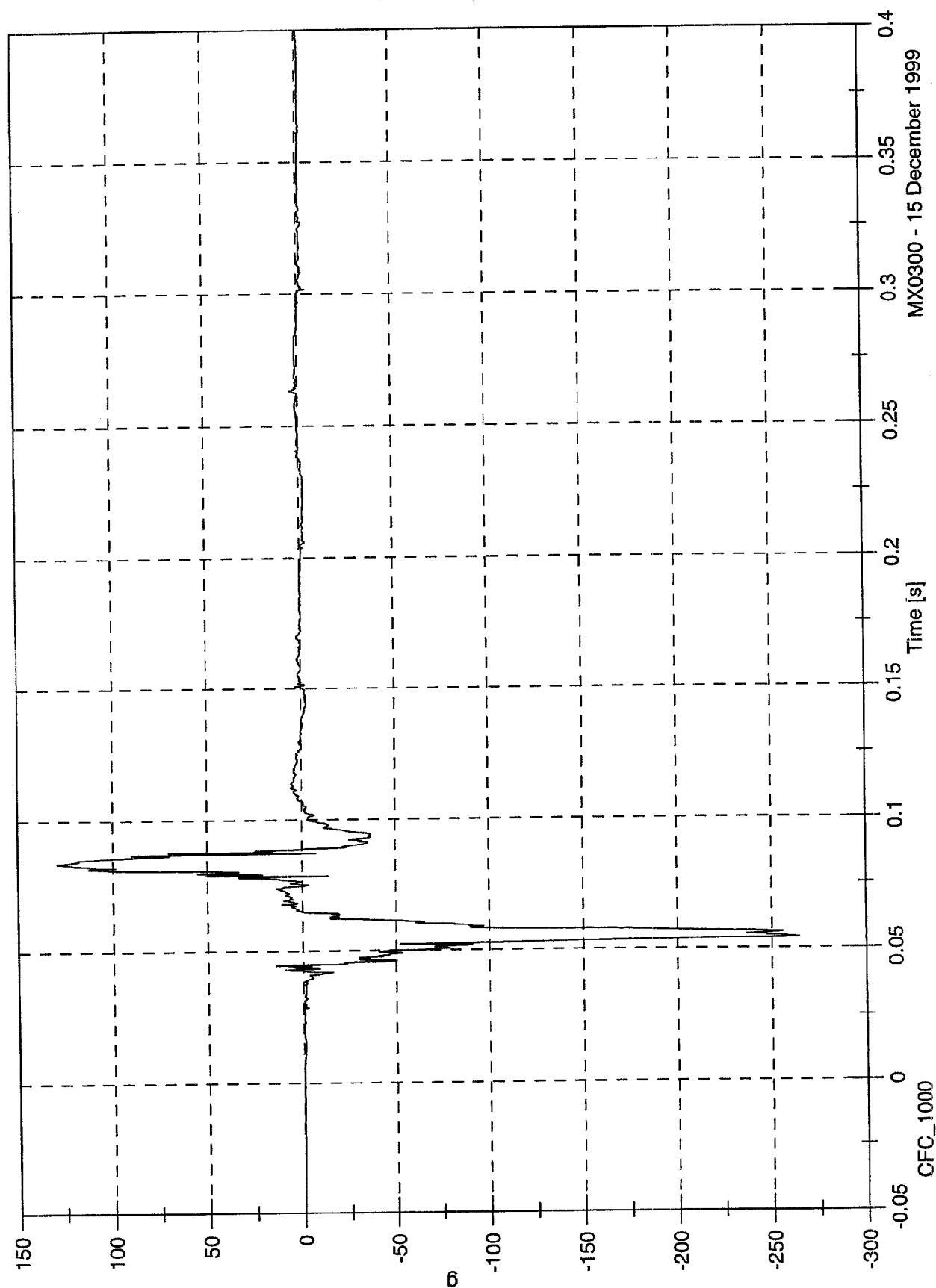


MX0300 - 15 December 1999

Max: 129.2 [g] at 0.084 [s]
Min: -264.8 [g] at 0.054 [s]

NCAP TEST #2 - 1999 Dodge Durango

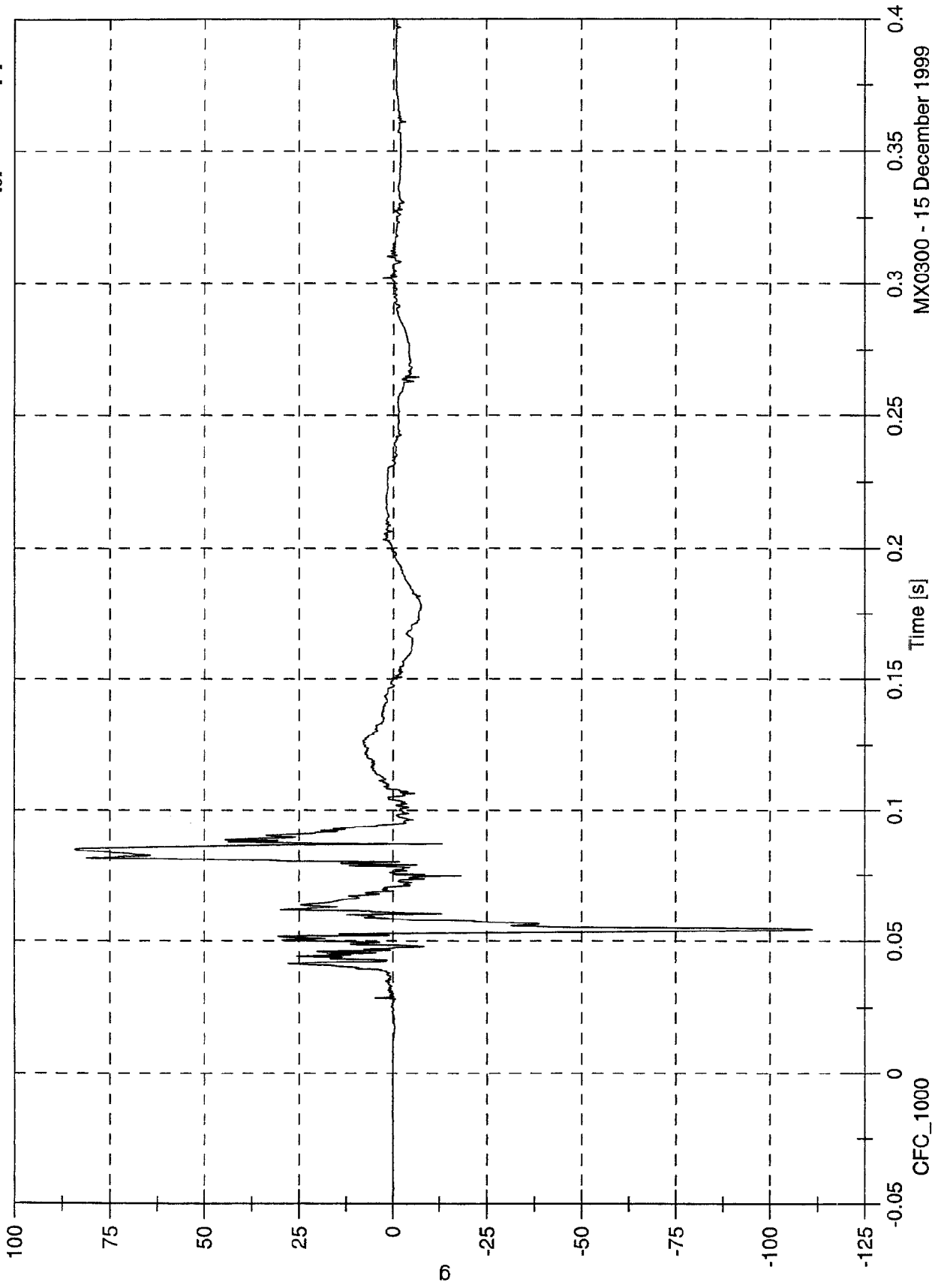
Driver Left Ankle Ax



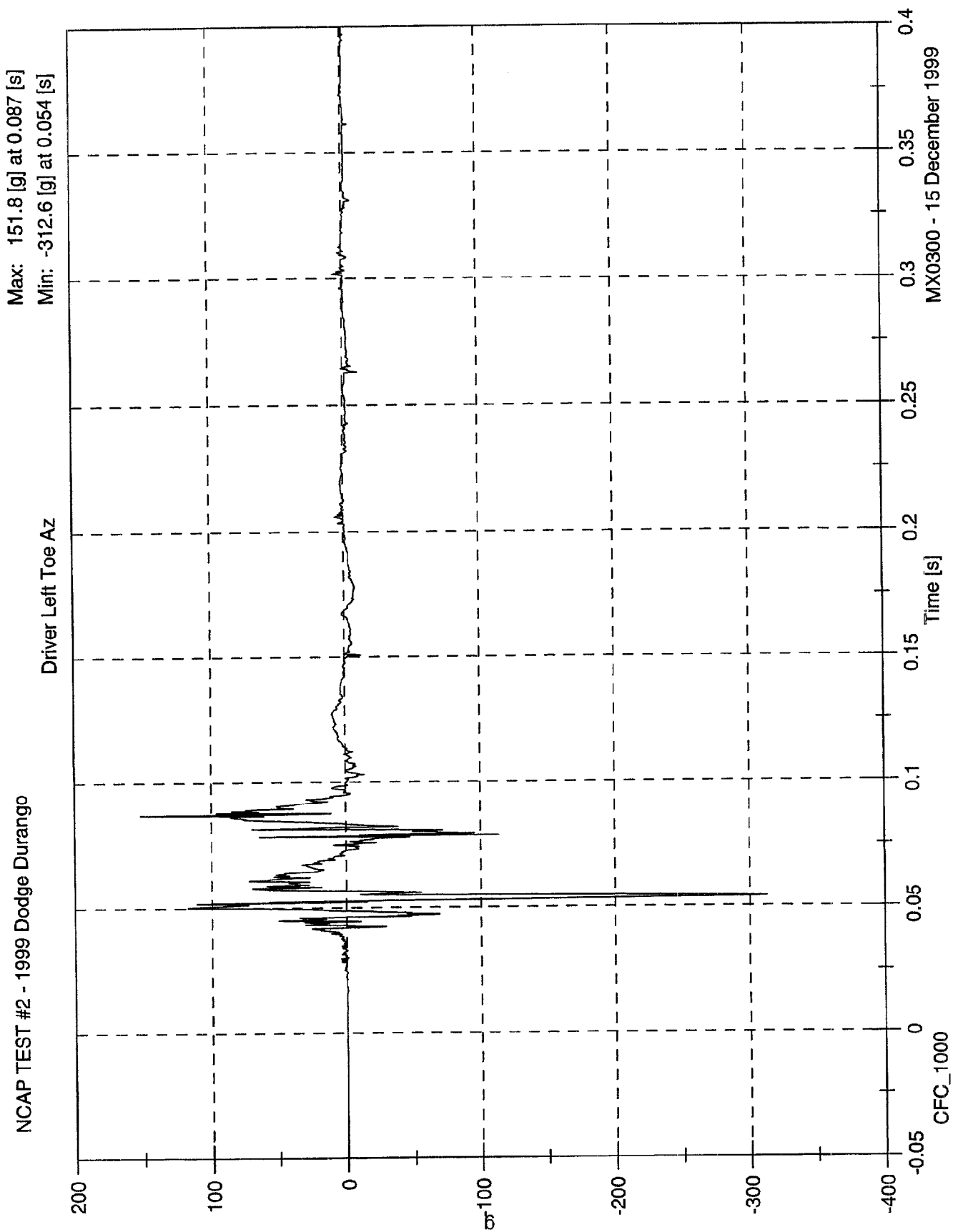
NCAP TEST #2 - 1999 Dodge Durango

Max: 84.3 [g] at 0.085 [s]
Min: -111.1 [g] at 0.054 [s]

Driver Left Ankle Az



MX0300 - 15 December 1999

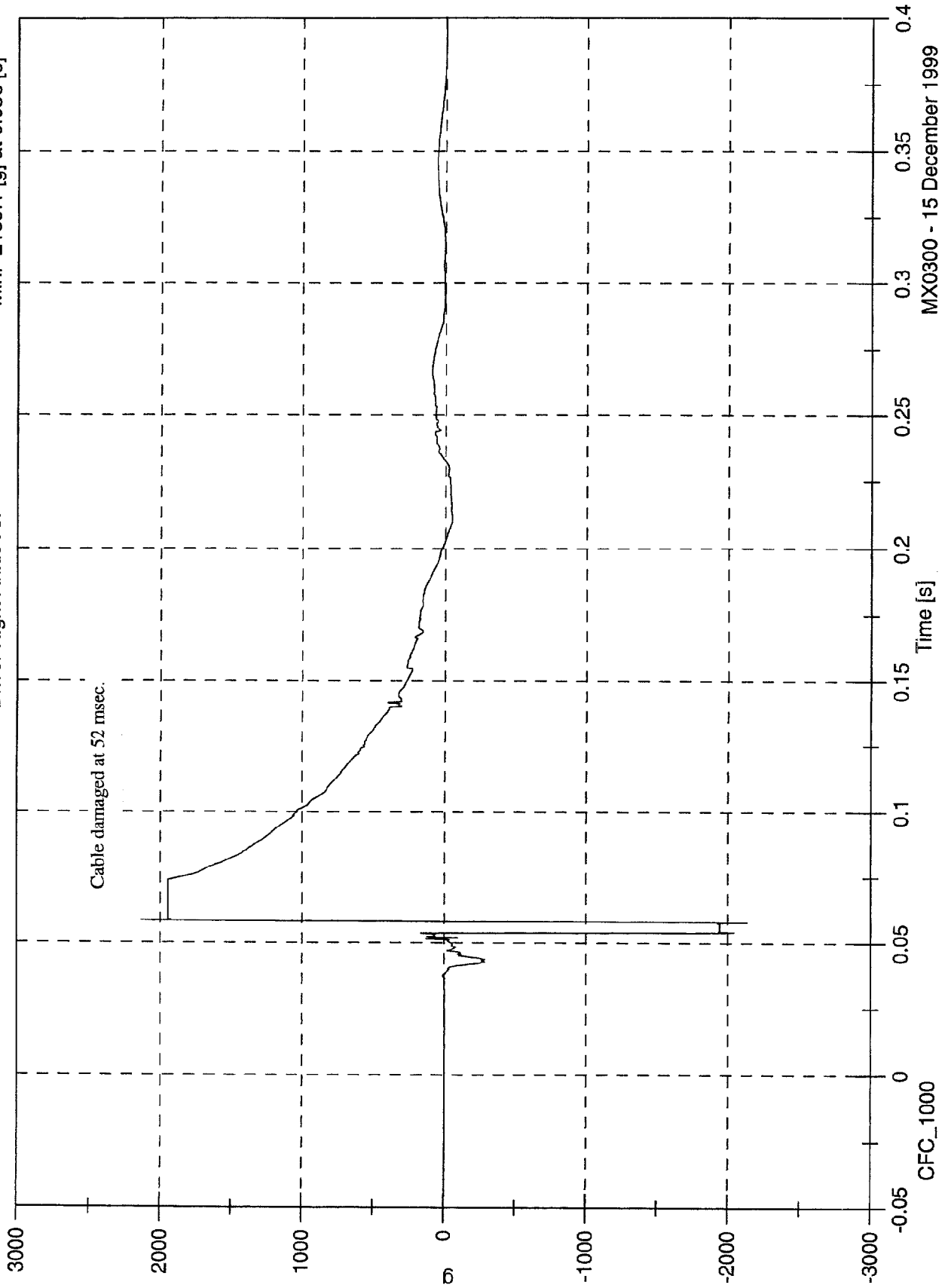


NCAP TEST #2 - 1999 Dodge Durango

Driver Right Ankle Ax

Max: 2136.3 [g] at 0.058 [s]

Min: -2135.1 [g] at 0.058 [s]



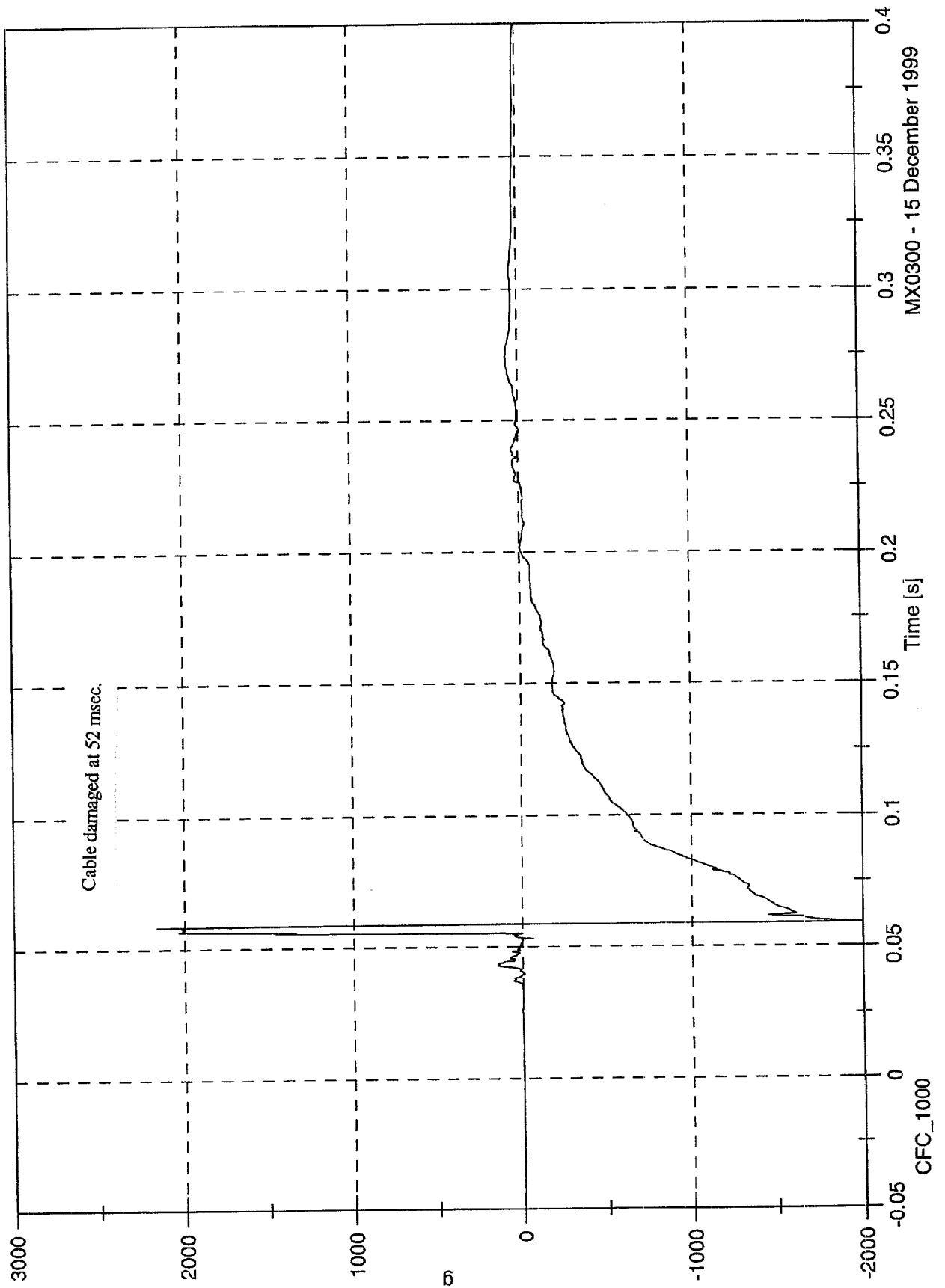
Cable damaged at 52 msec.

MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 2163.2 [g] at 0.059 [s]
Min: -1989.6 [g] at 0.059 [s]

Driver Right Ankle Az



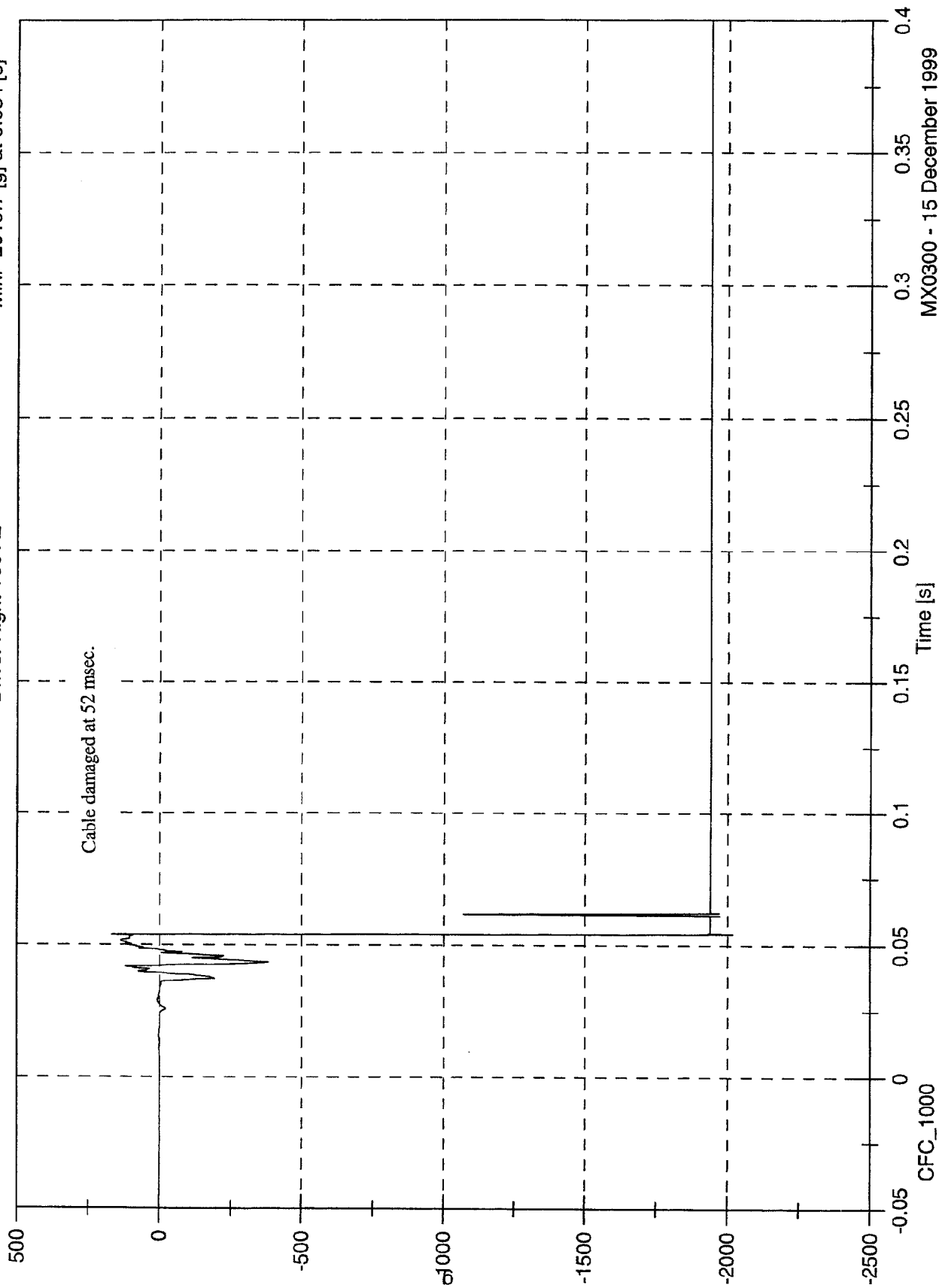
MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Driver Right Toe Az

Max: 168.9 [g] at 0.054 [s]

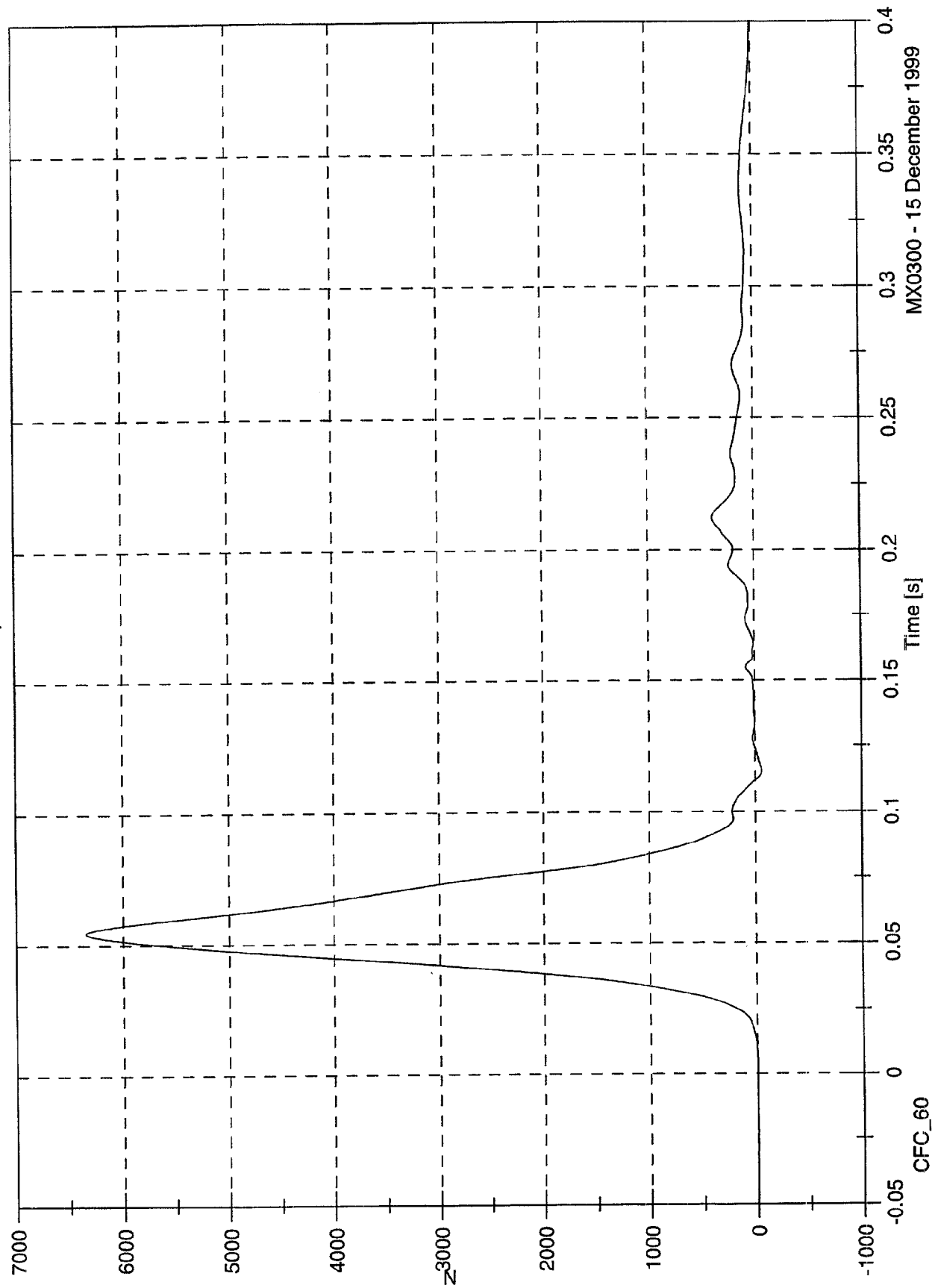
Min: -2019.7 [g] at 0.054 [s]



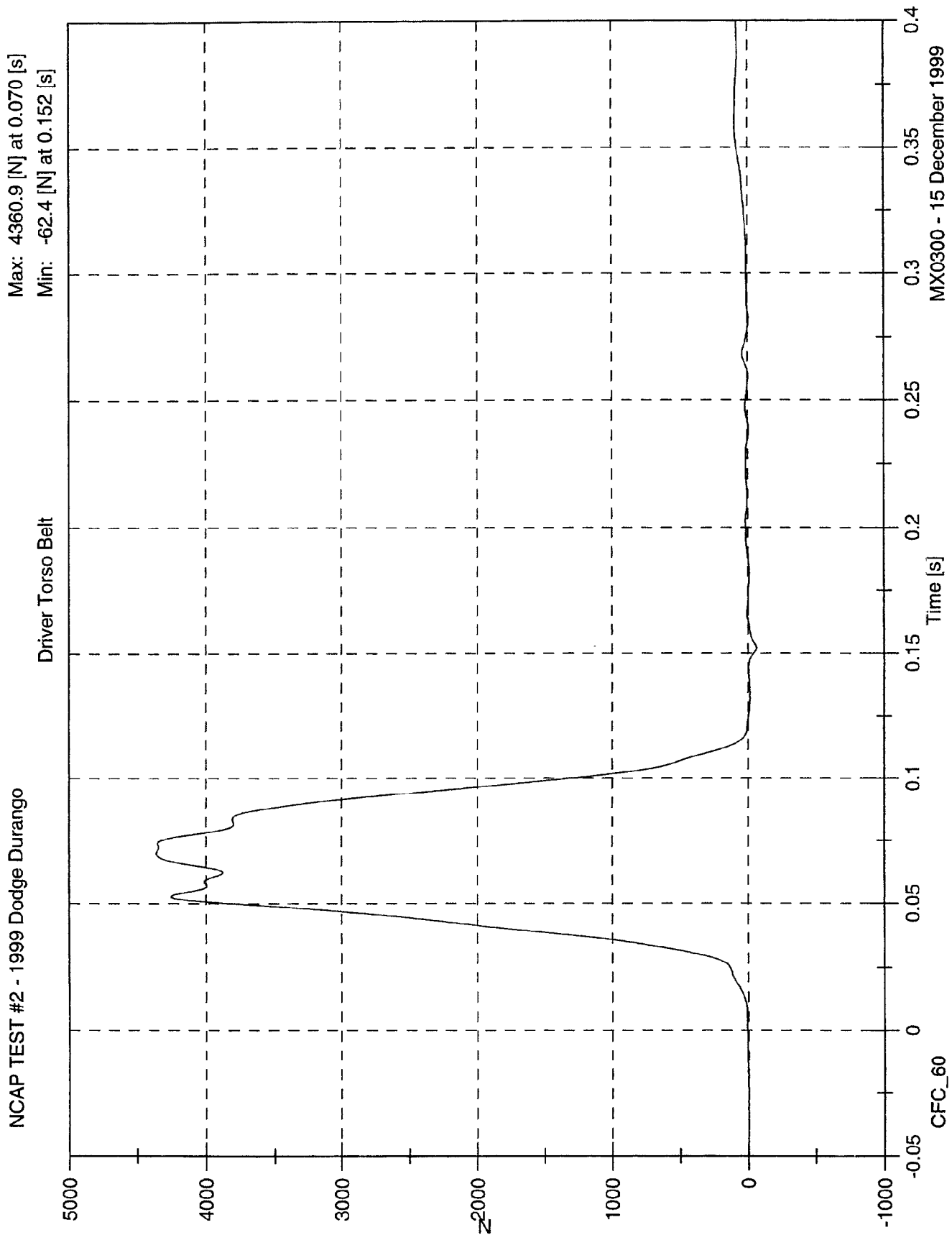
NCAP TEST #2 - 1999 Dodge Durango

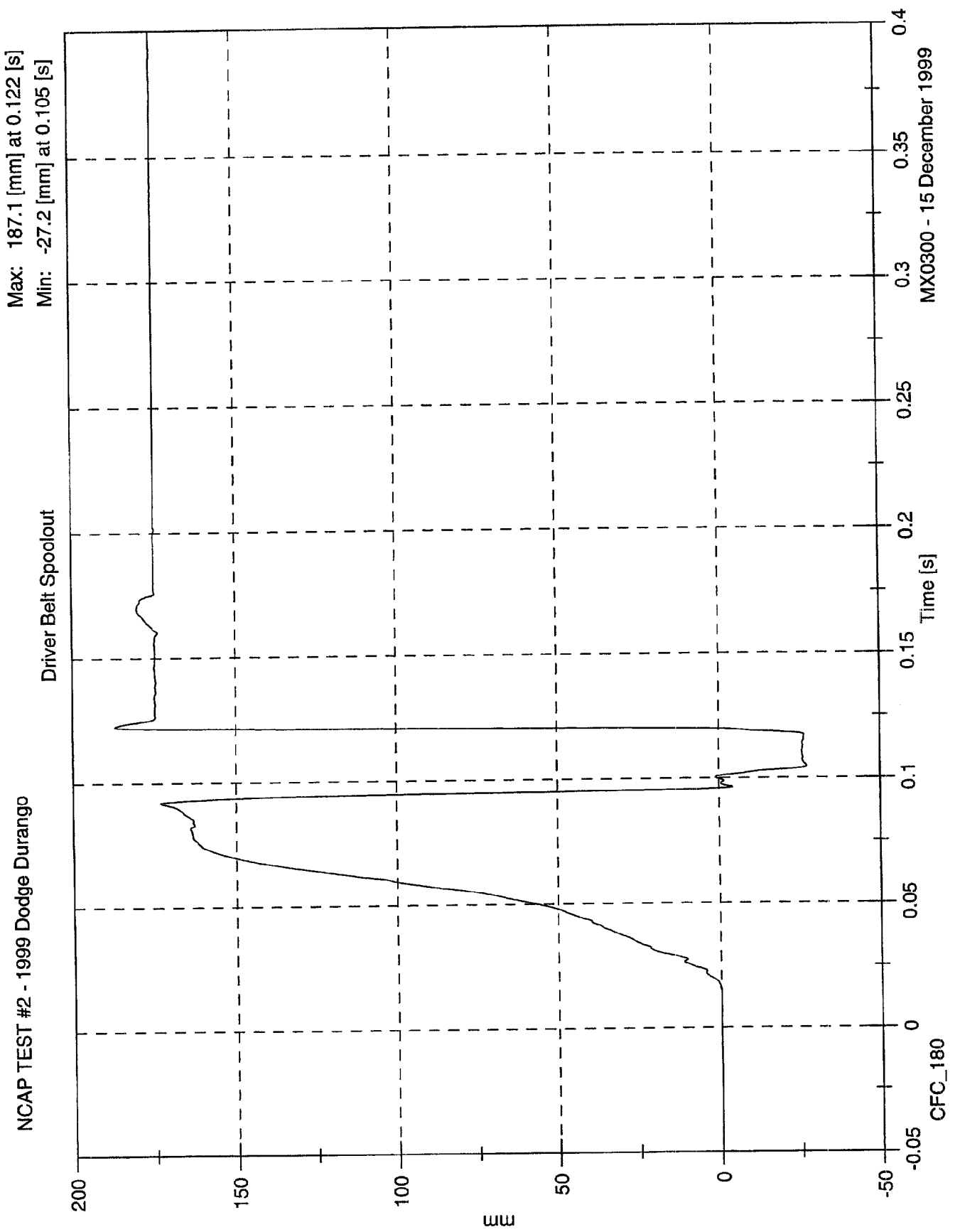
Max: 6349.0 [N] at 0.055 [s]
 Min: -60.3 [N] at 0.115 [s]

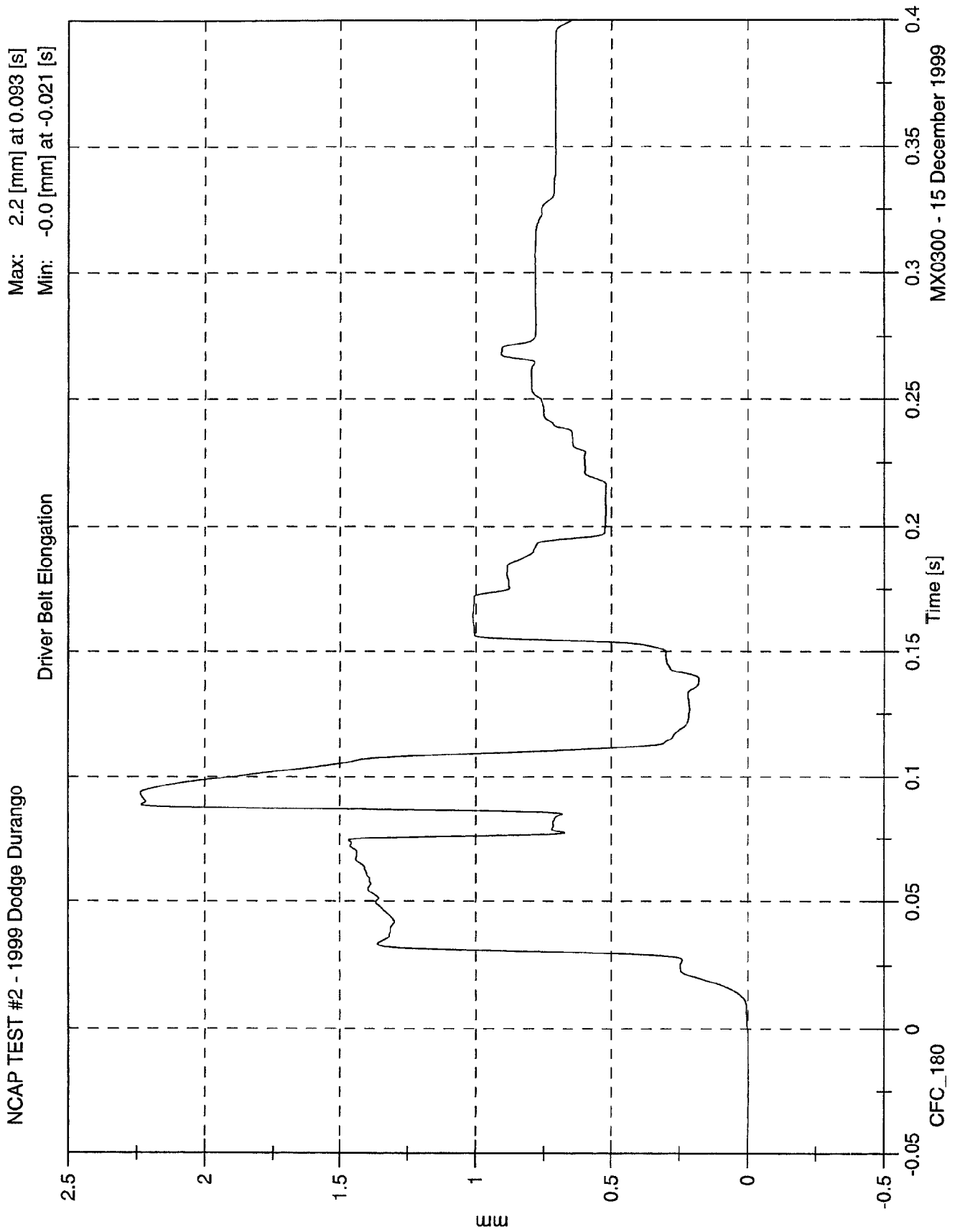
Driver Lap Belt Load

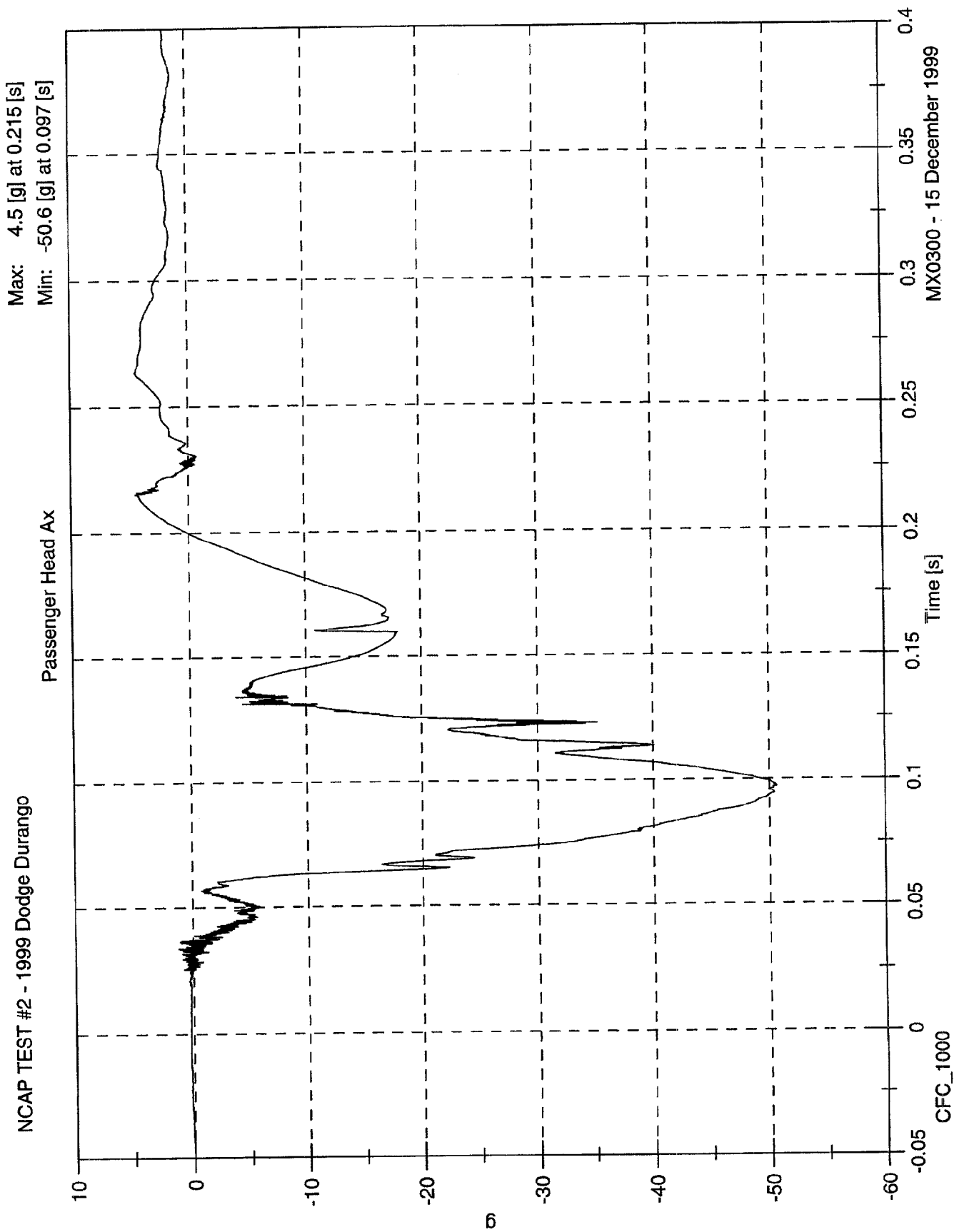


MX0300 - 15 December 1999



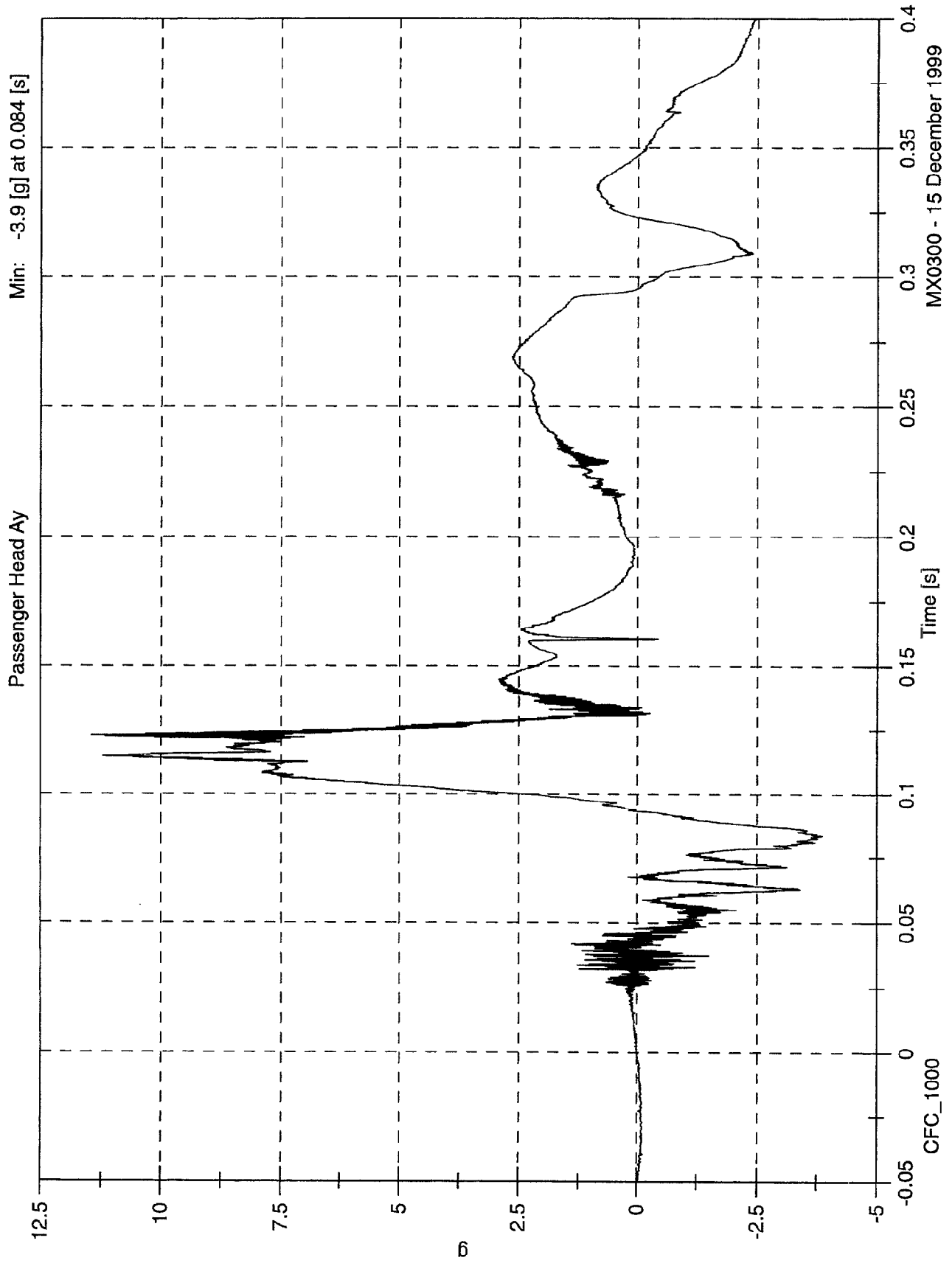


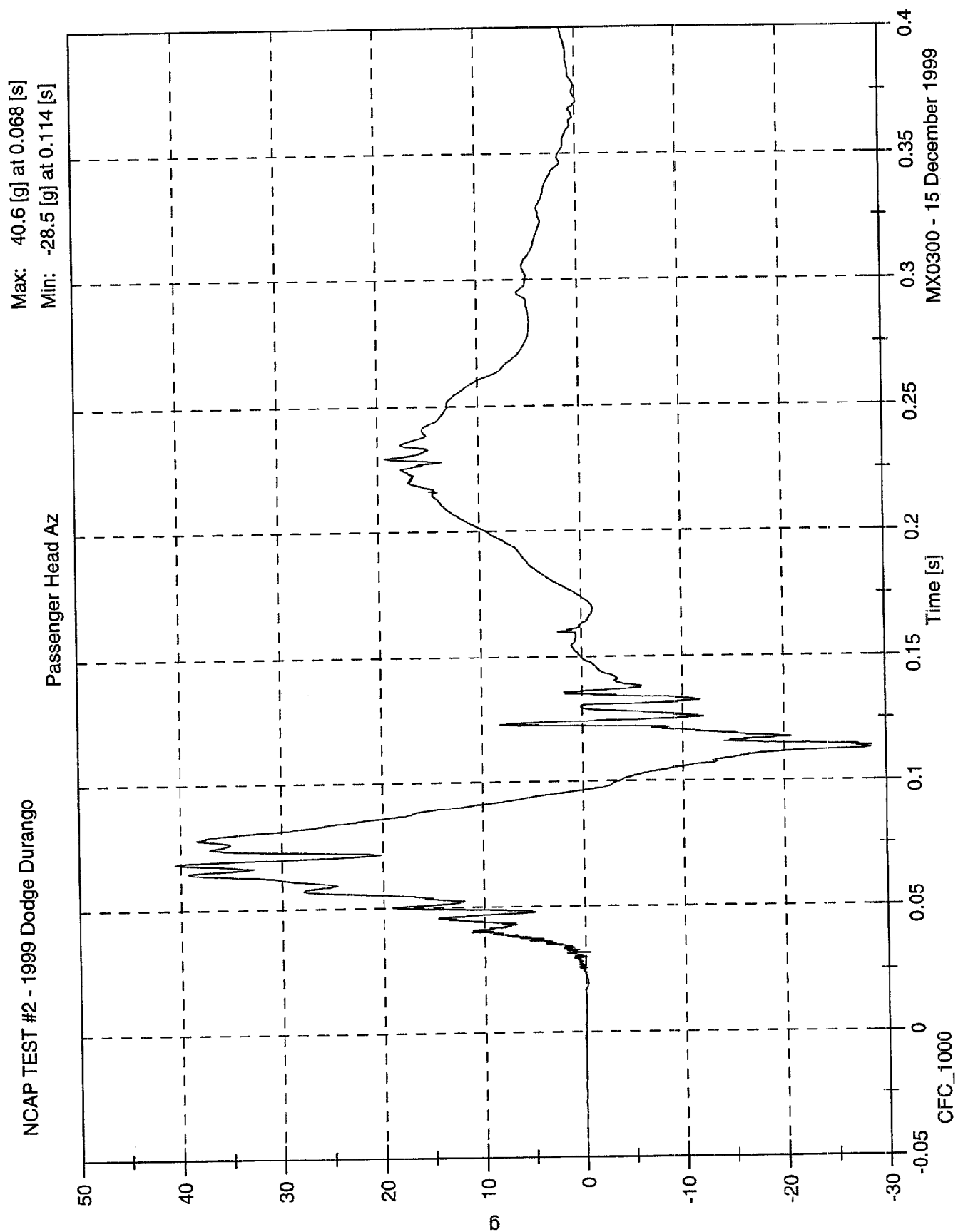




NCAP TEST #2 - 1999 Dodge Durango

Max: 11.4 [g] at 0.123 [s]
Min: -3.9 [g] at 0.084 [s]

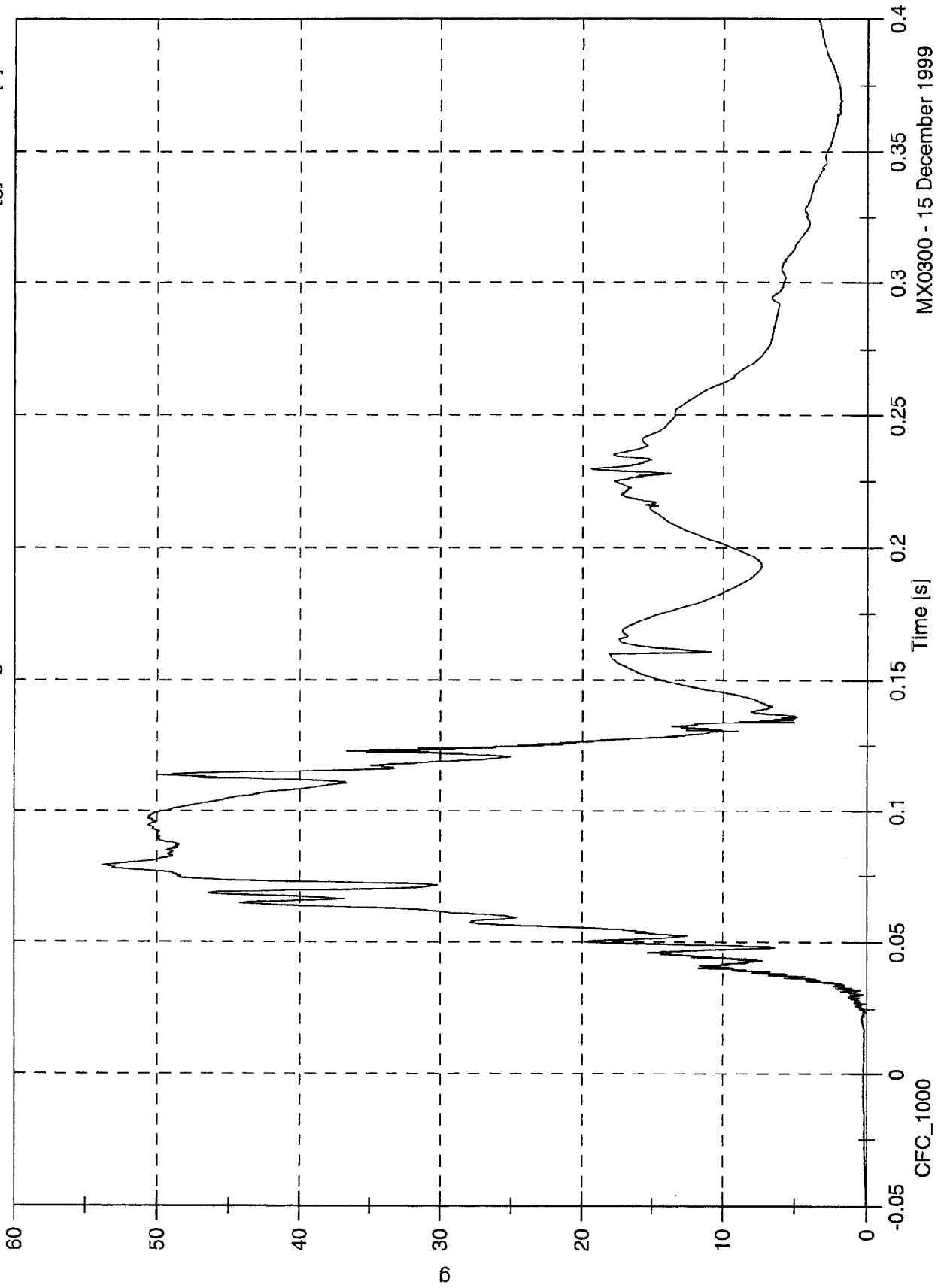


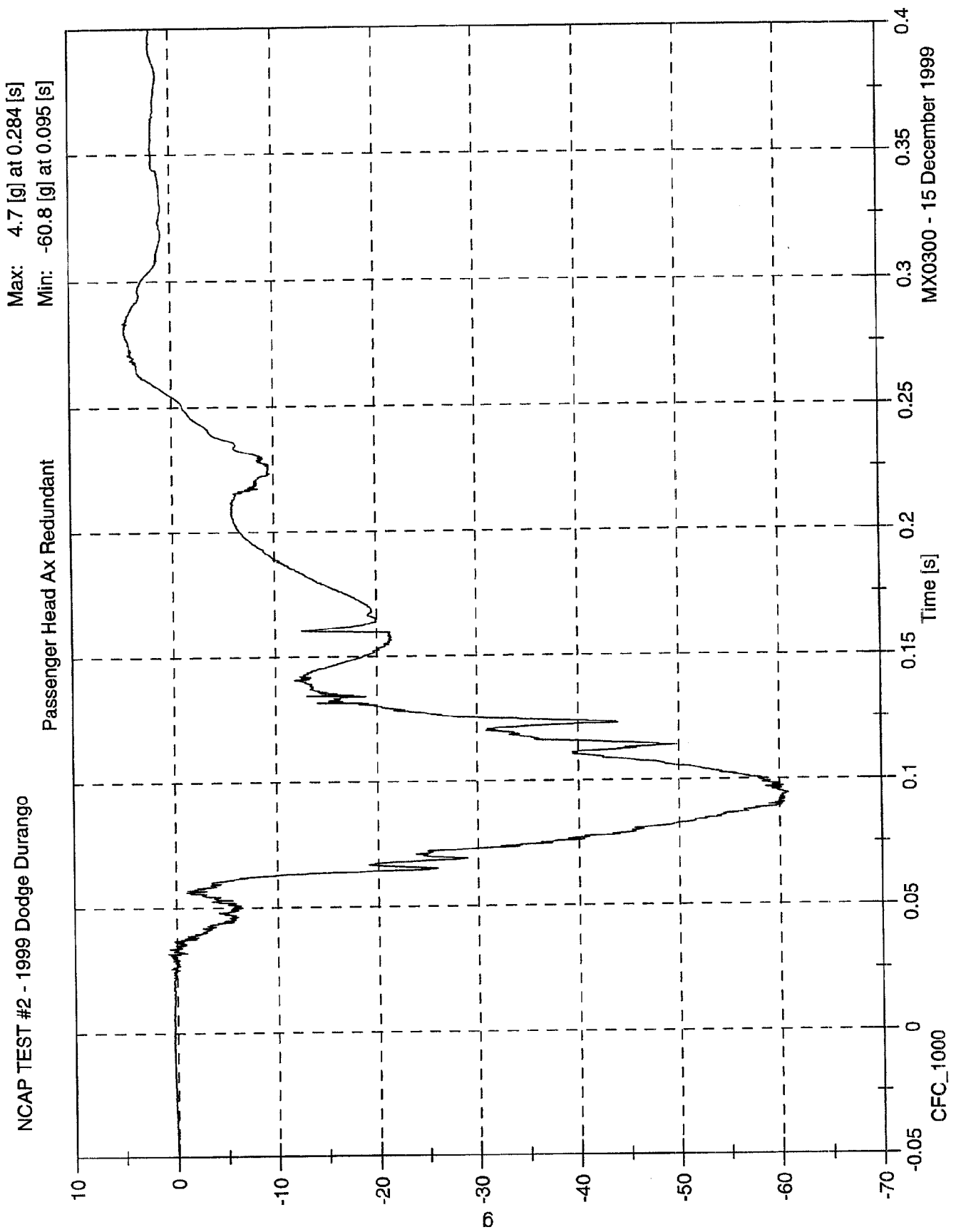


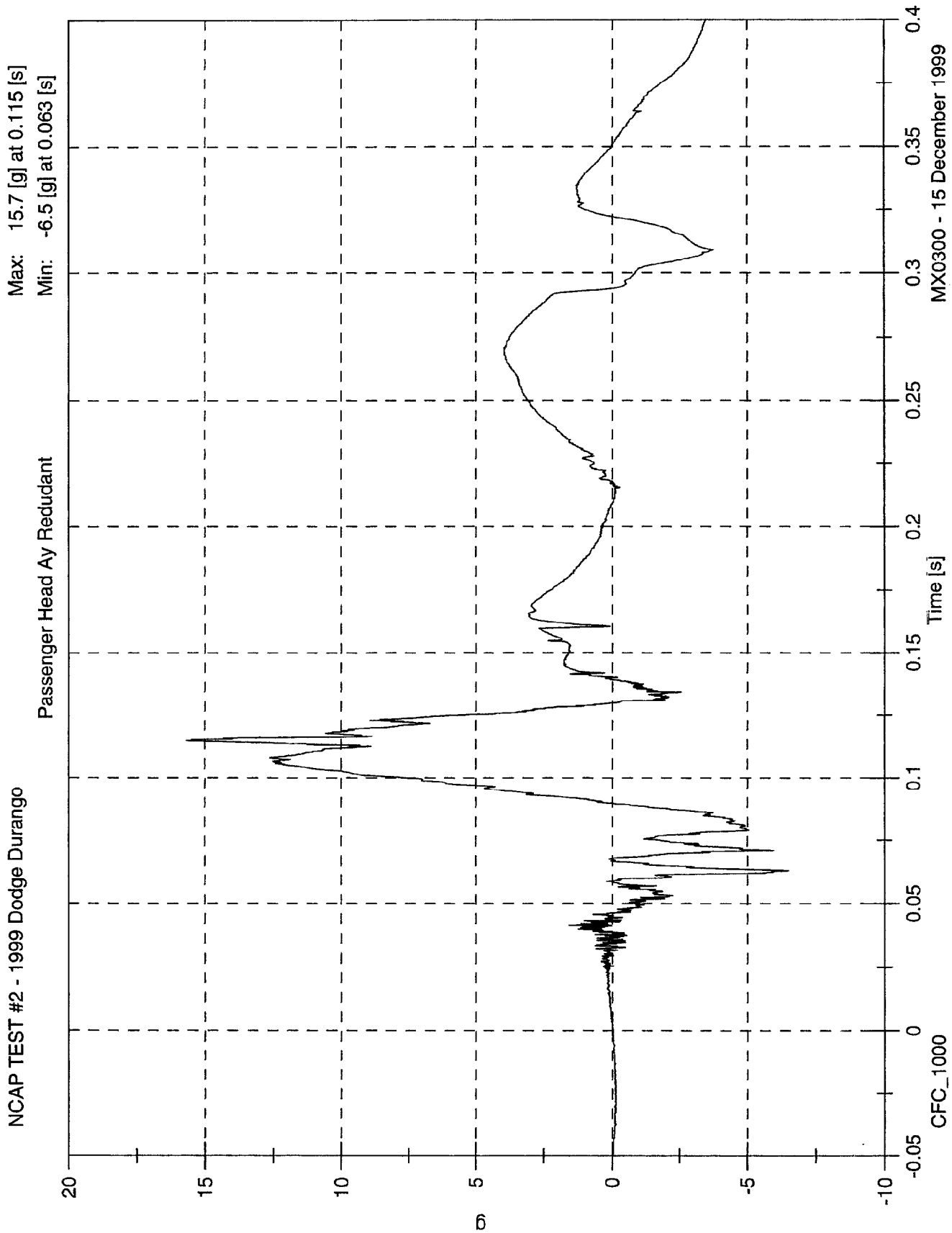
NCAP TEST #2 - 1999 Dodge Durango

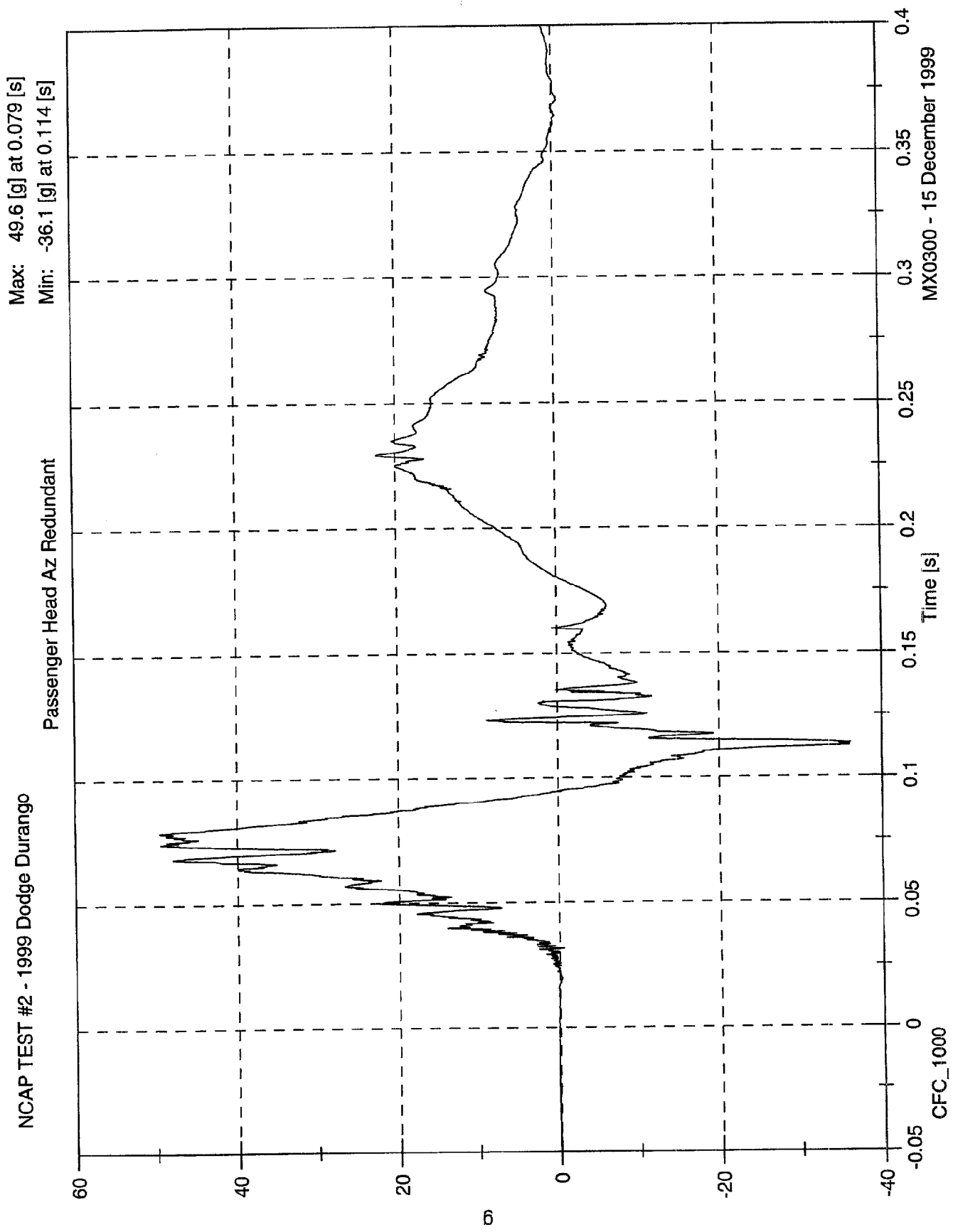
Passenger Head A Resultant

Max: 53.8 [g] at 0.079 [s]
Min: 0.0 [g] at -0.052 [s]





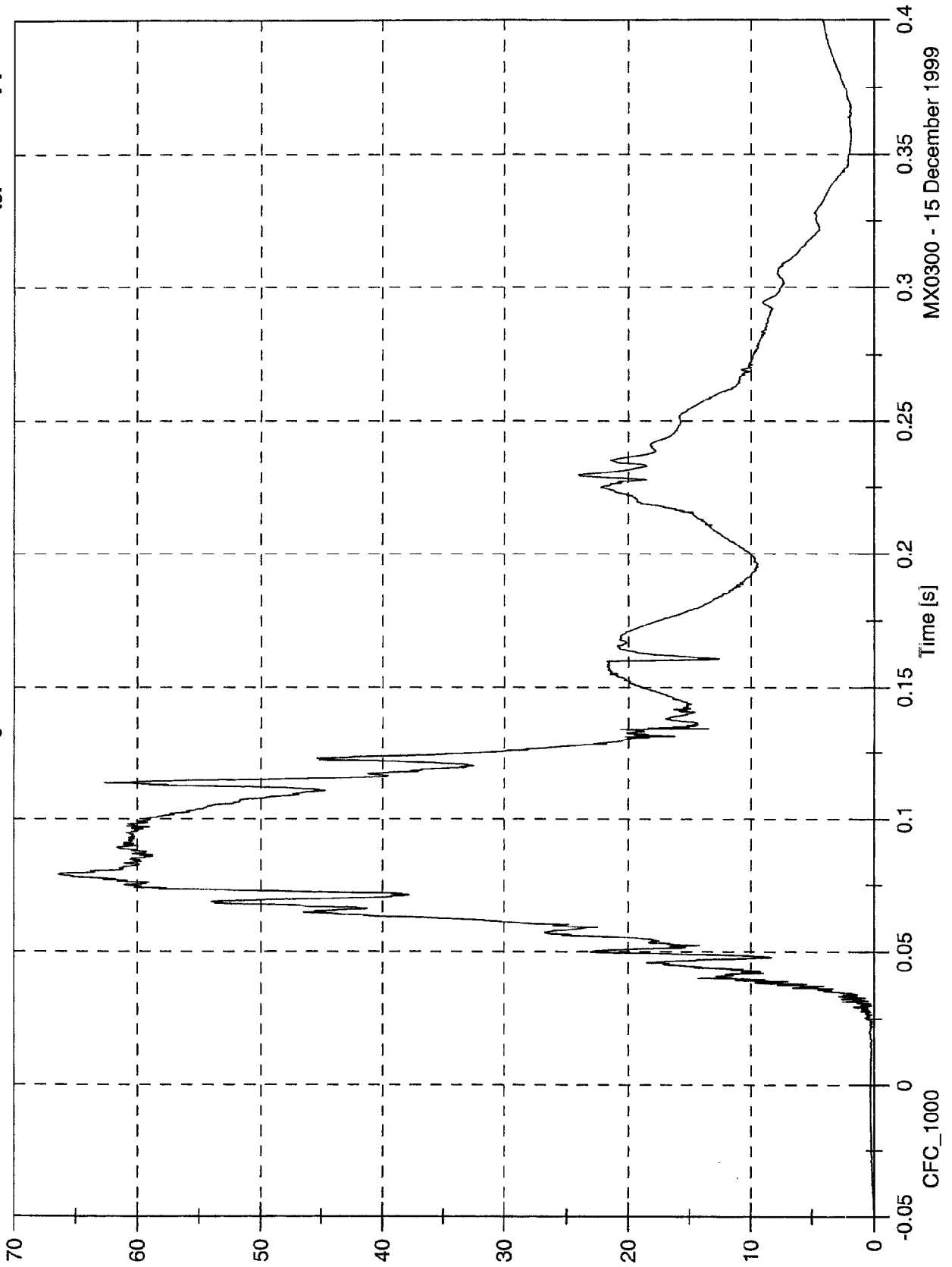




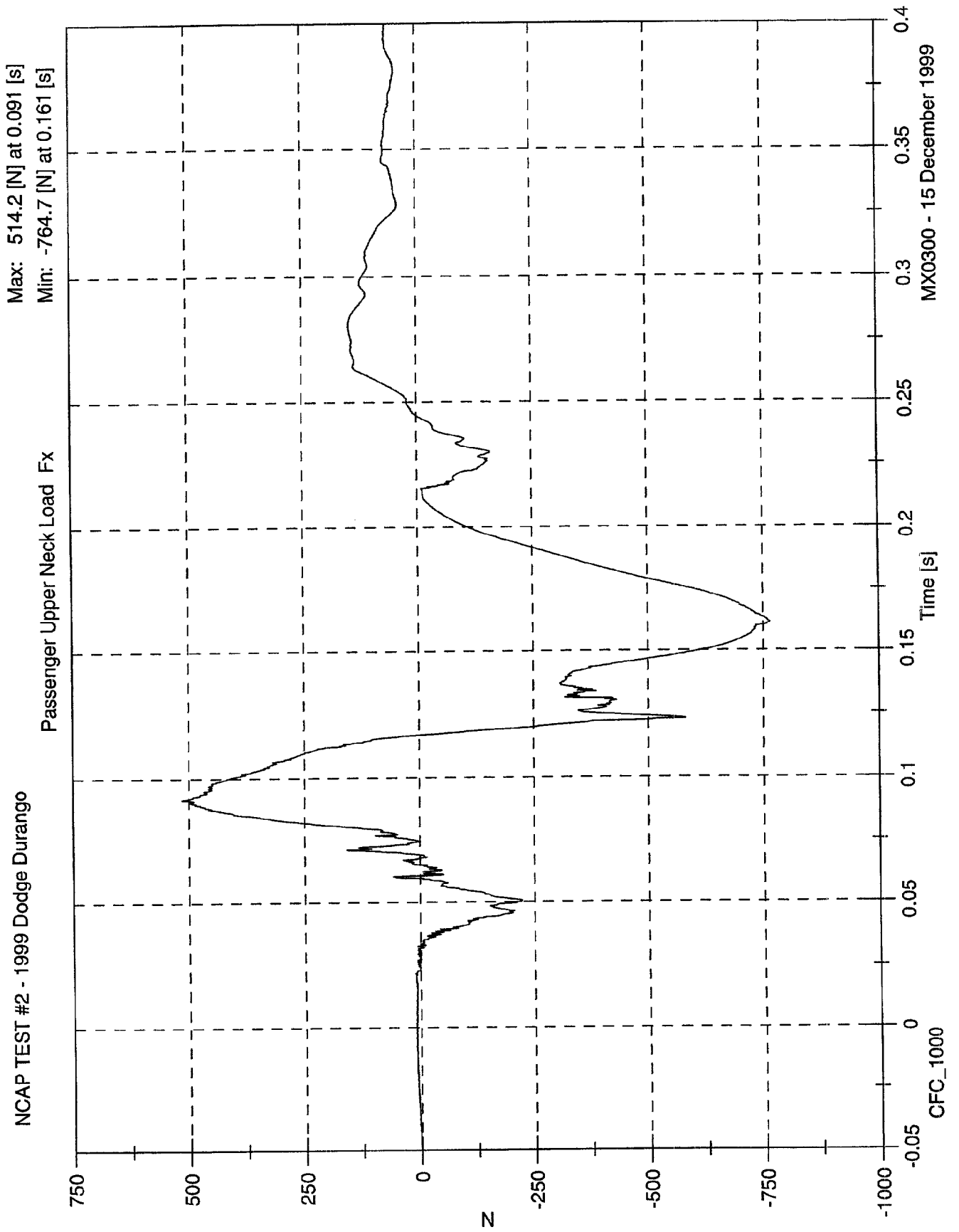
NCAP TEST #2 - 1999 Dodge Durango

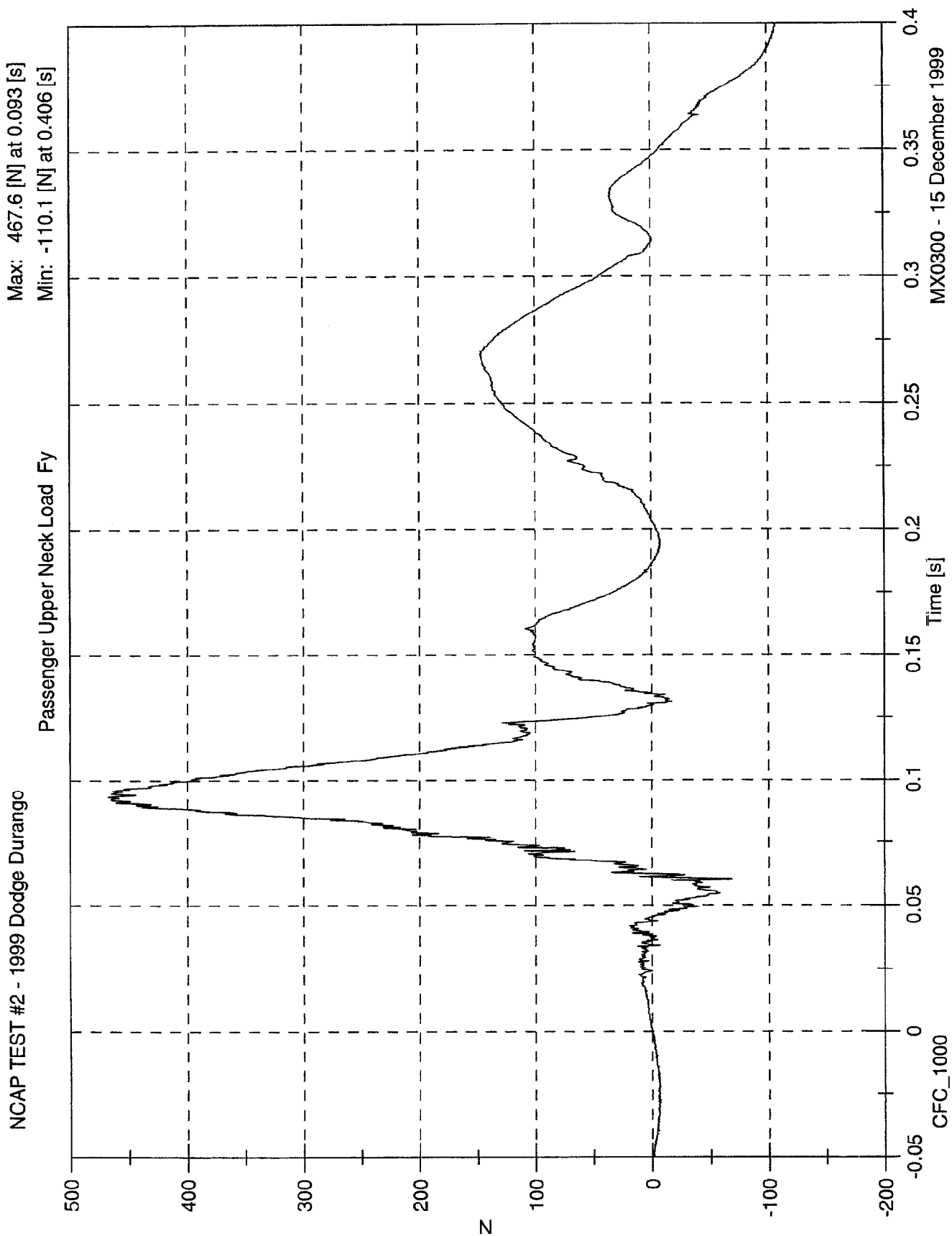
Max: 66.4 [g] at 0.079 [s]
 Min: 0.0 [g] at -0.051 [s]

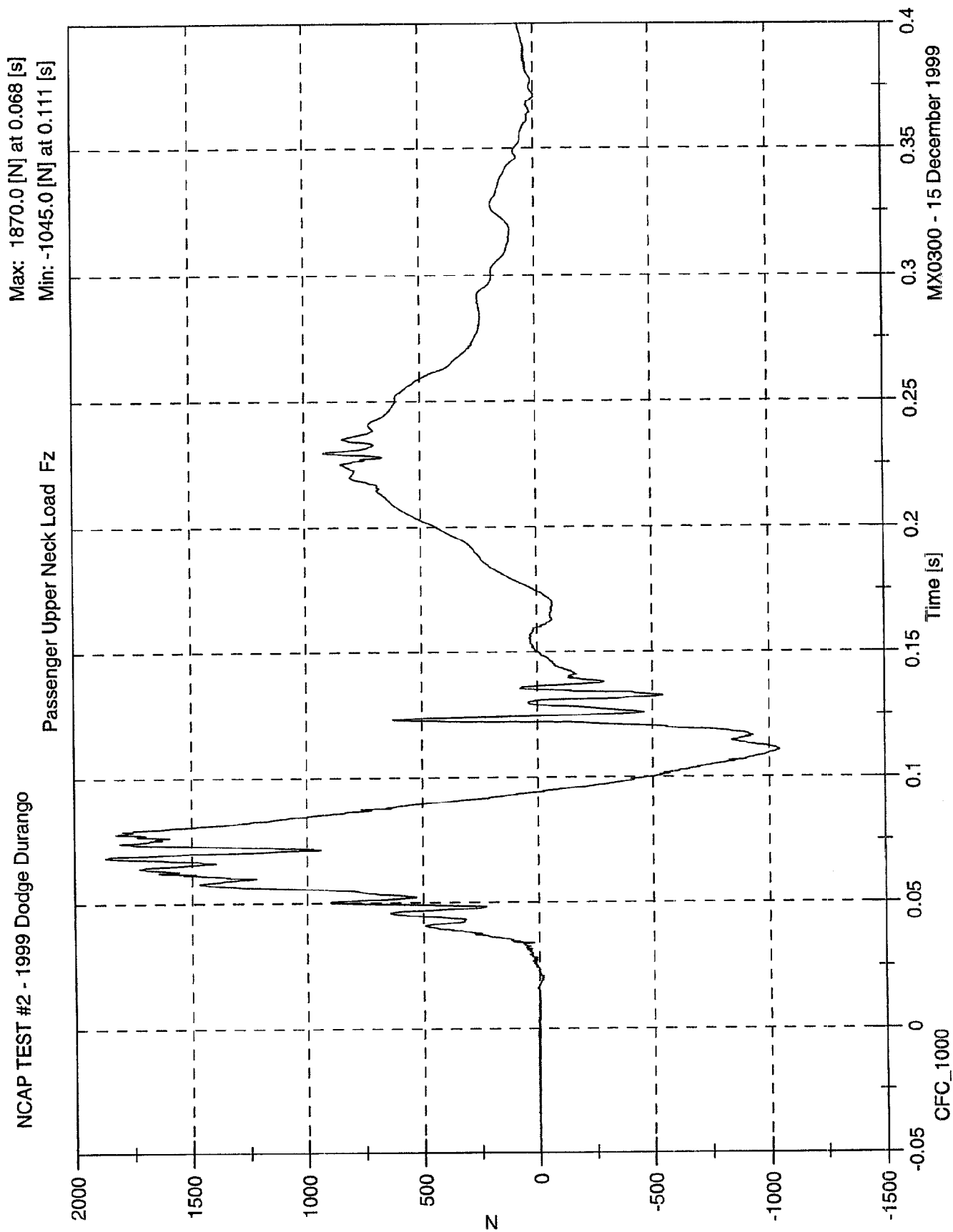
Passenger Head Ax Redundan Resultant



MX0300 - 15 December 1999



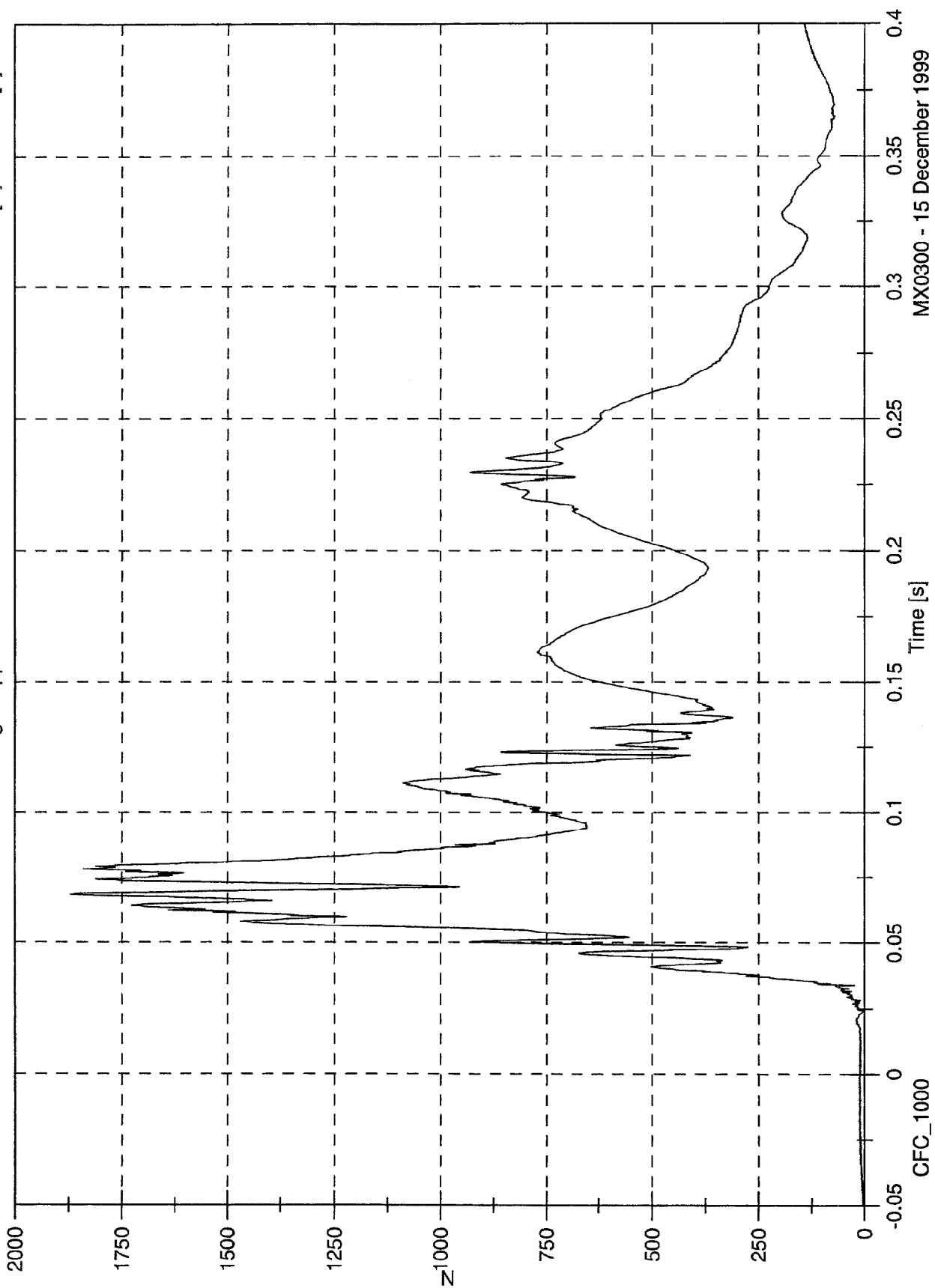




NCAP TEST #2 - 1999 Dodge Durango

Passenger Upper Neck Load F Resultant

Max: 1871.2 [N] at 0.068 [s]
Min: 0.4 [N] at -0.050 [s]

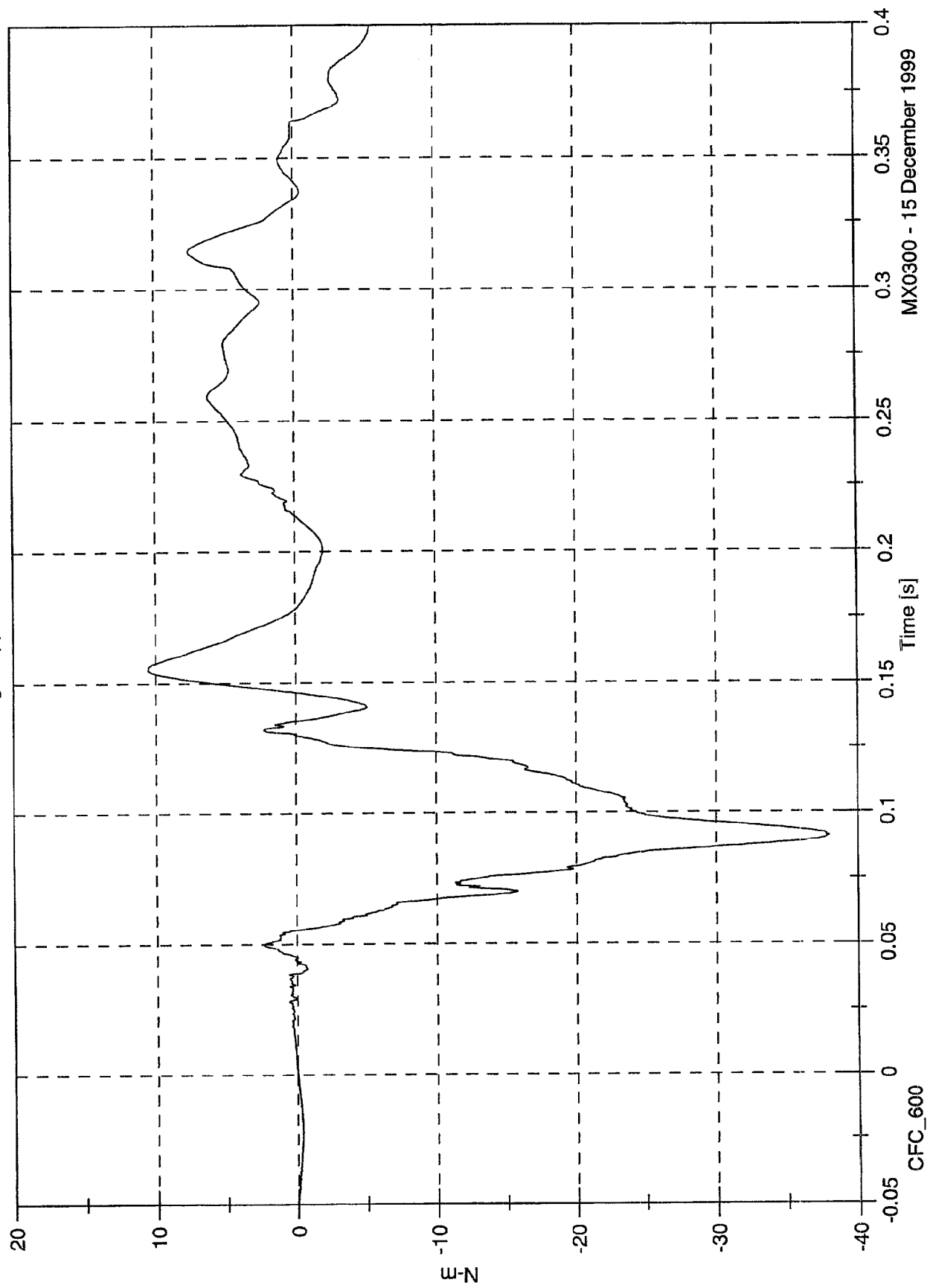


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Passenger Upper Neck Load Mx

Max: 10.5 [N-m] at 0.155 [s]
Min: -38.0 [N-m] at 0.091 [s]

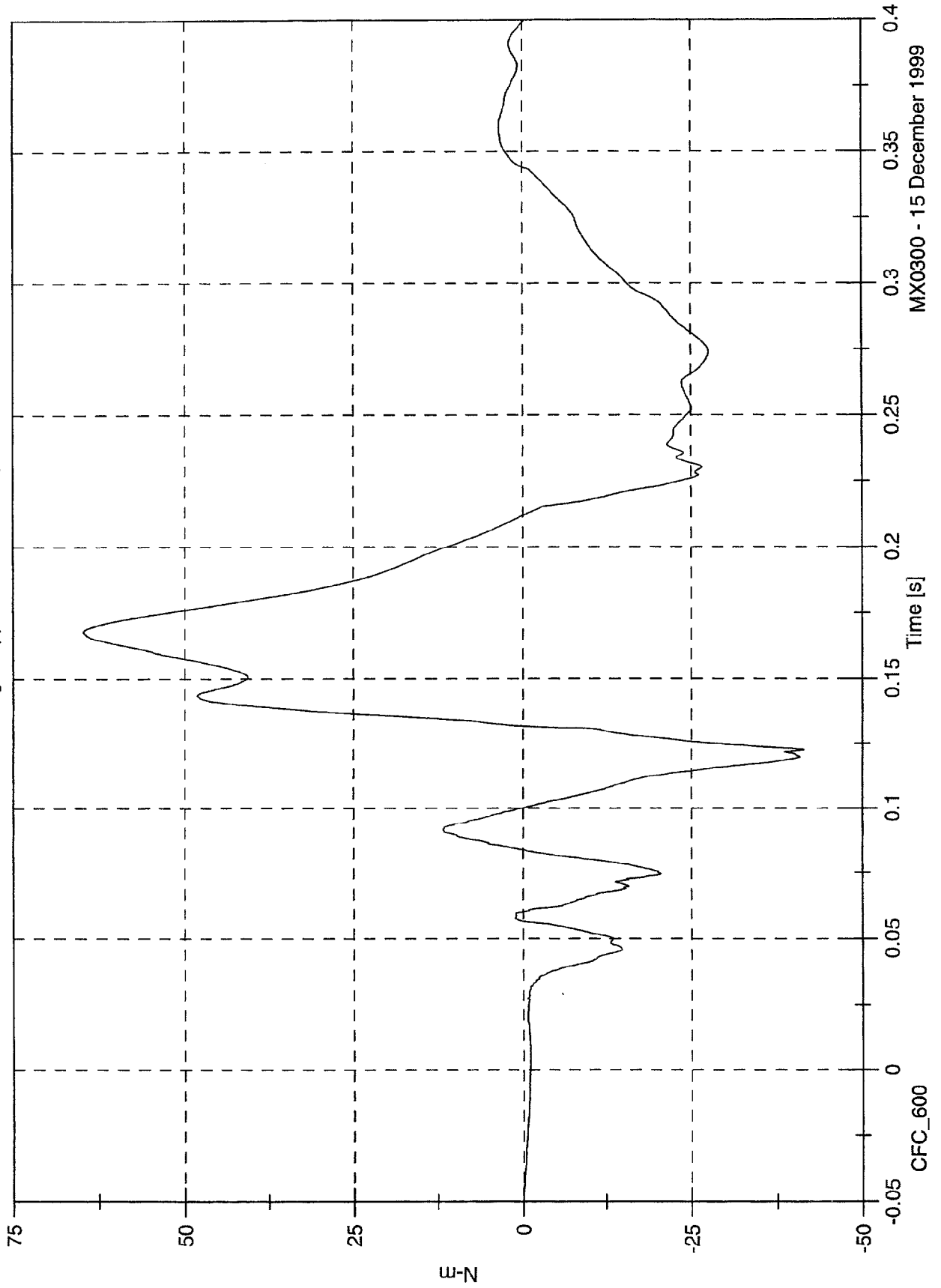


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 64.7 [N-m] at 0.168 [s]
 Min: -41.4 [N-m] at 0.123 [s]

Passenger Upper Neck Load My

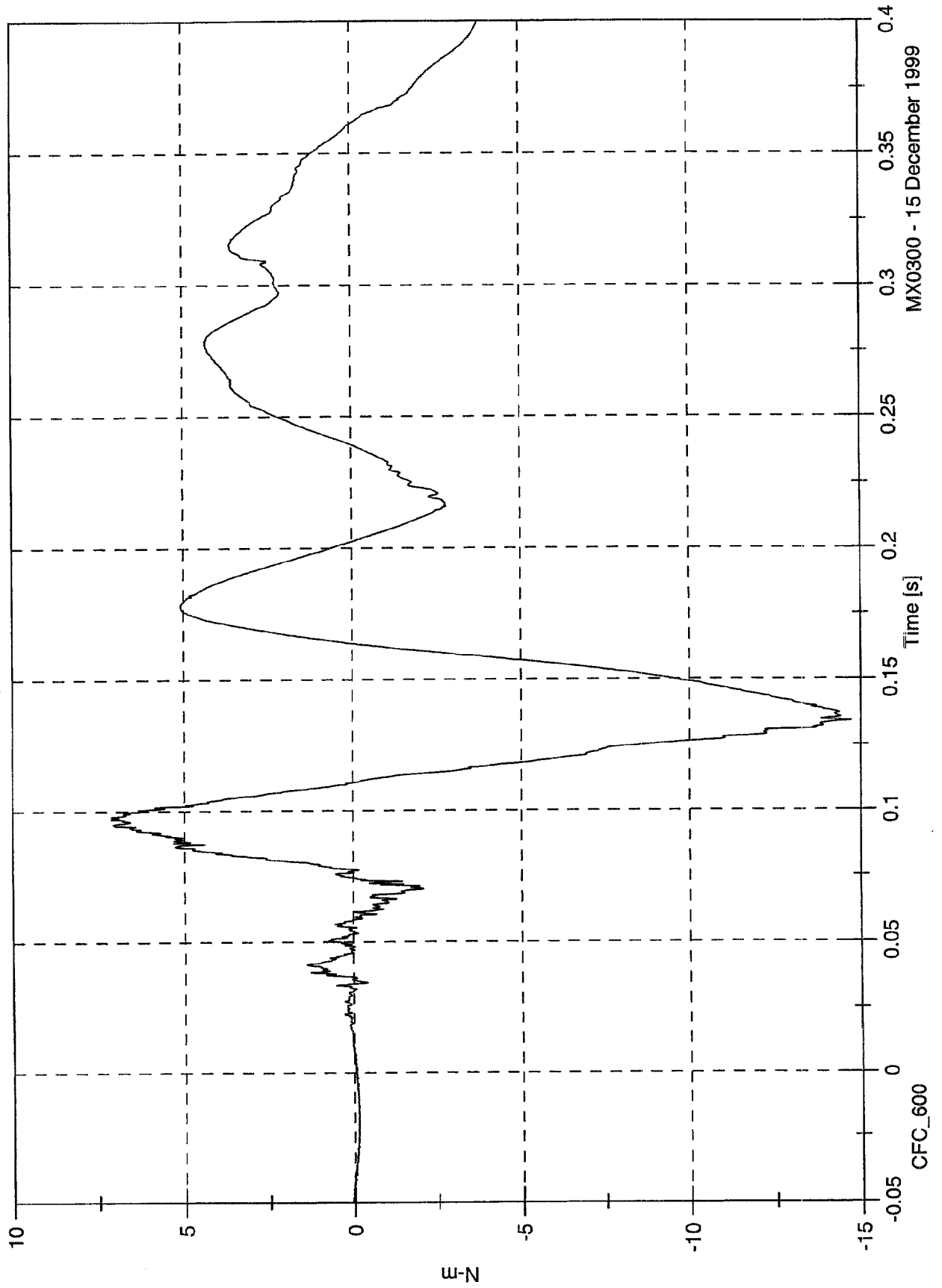


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 7.1 [N-m] at 0.097 [s]
 Min: -14.7 [N-m] at 0.134 [s]

Passenger Upper Neck Load Mz



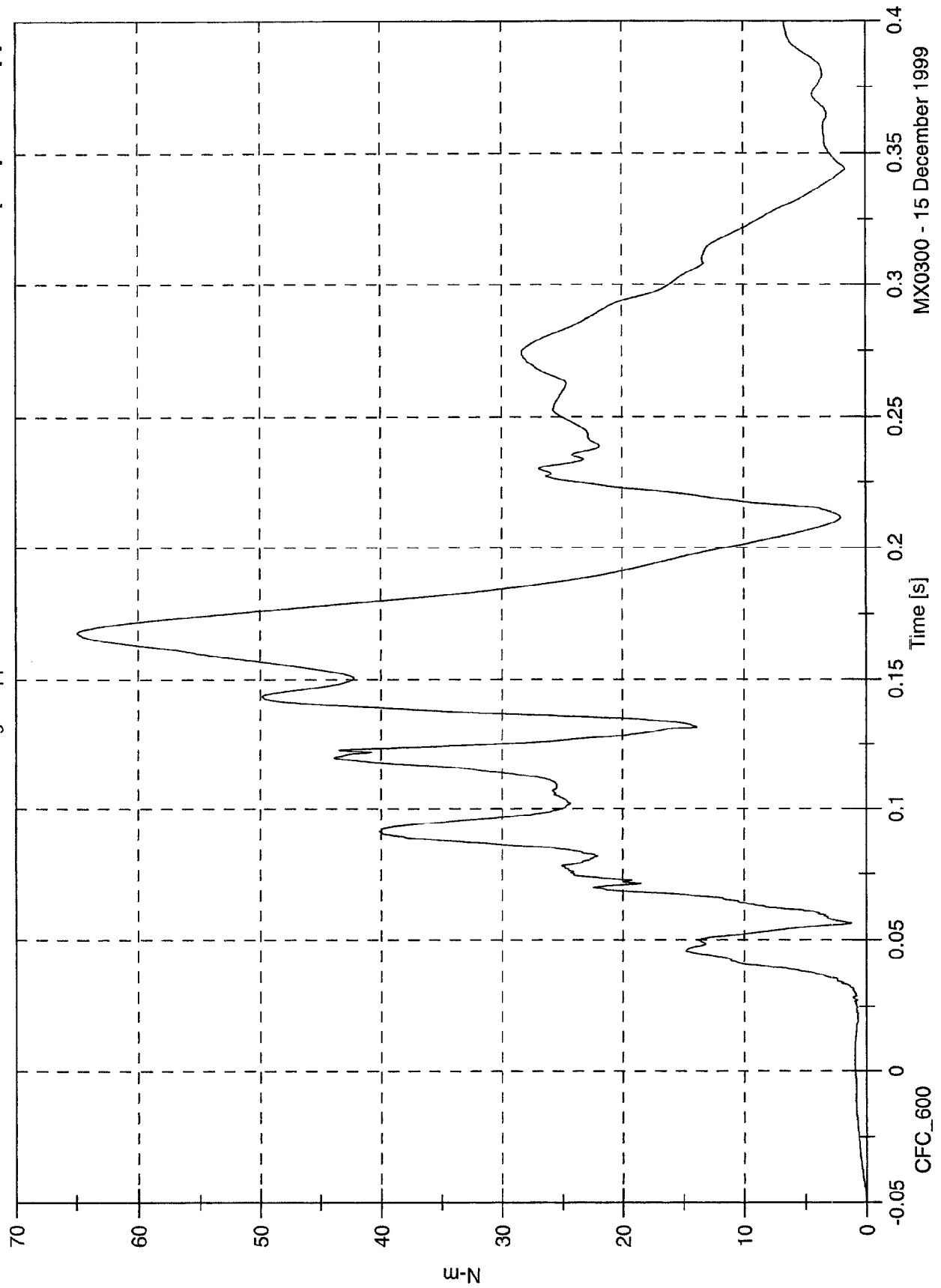
MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Passenger Upper Neck Load M Resultant

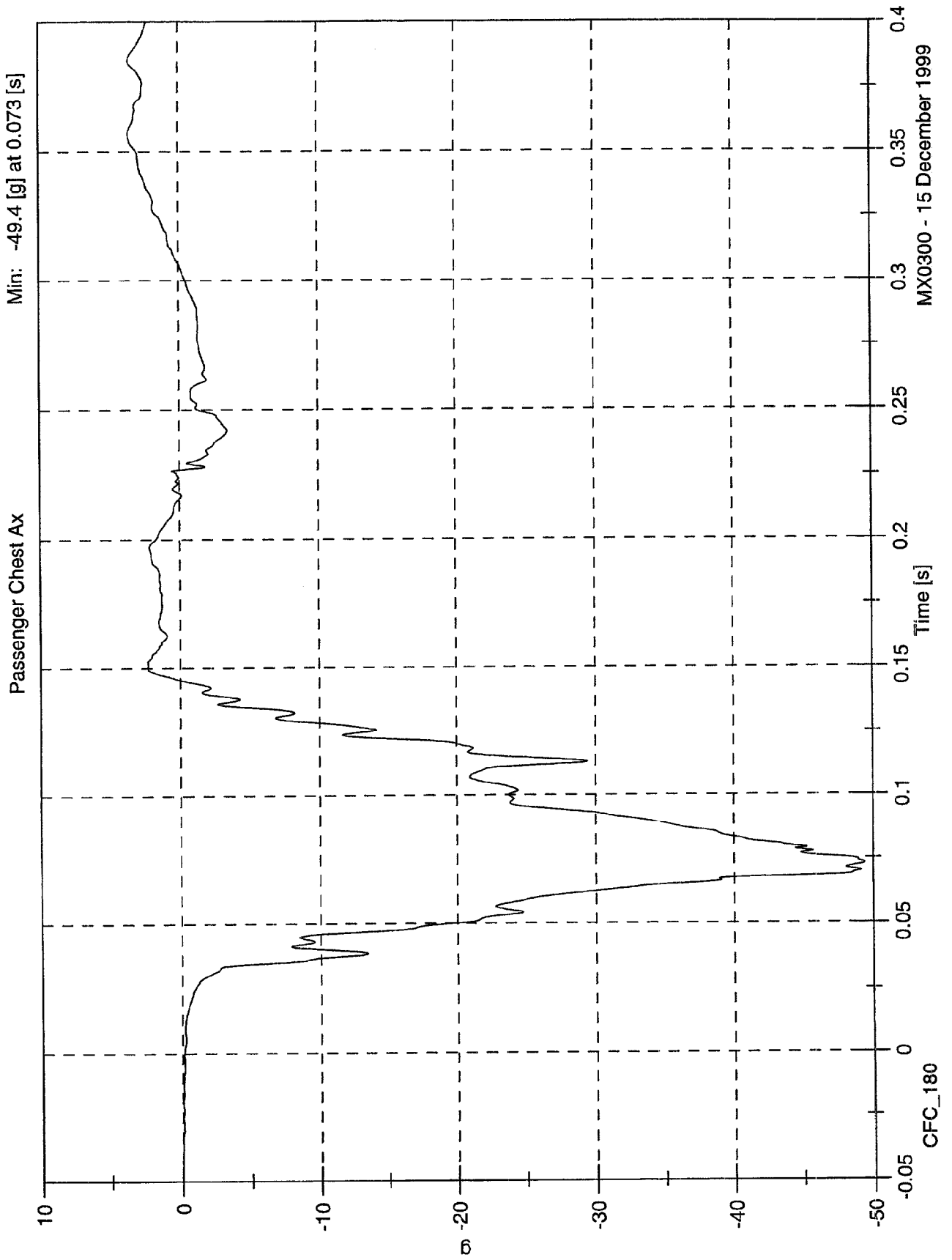
Max: 64.9 [N-m] at 0.168 [s]

Min: 0.0 [N-m] at -0.048 [s]



NCAP TEST #2 - 1999 Dodge Durango

Max: 3.6 [g] at 0.357 [s]
Min: -49.4 [g] at 0.073 [s]

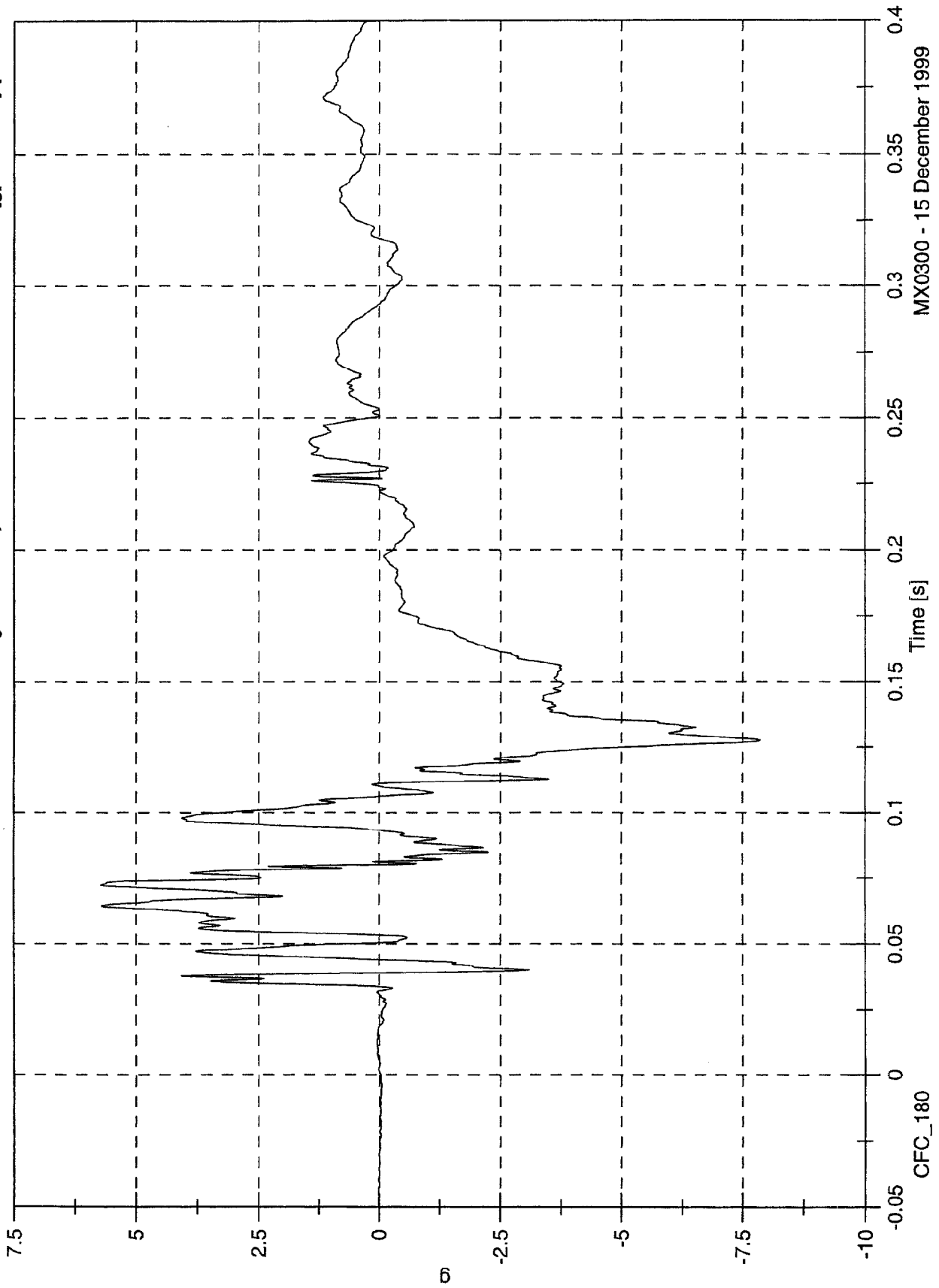


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Passenger Chest Ay

Max: 5.7 [g] at 0.072 [s]
Min: -7.9 [g] at 0.128 [s]

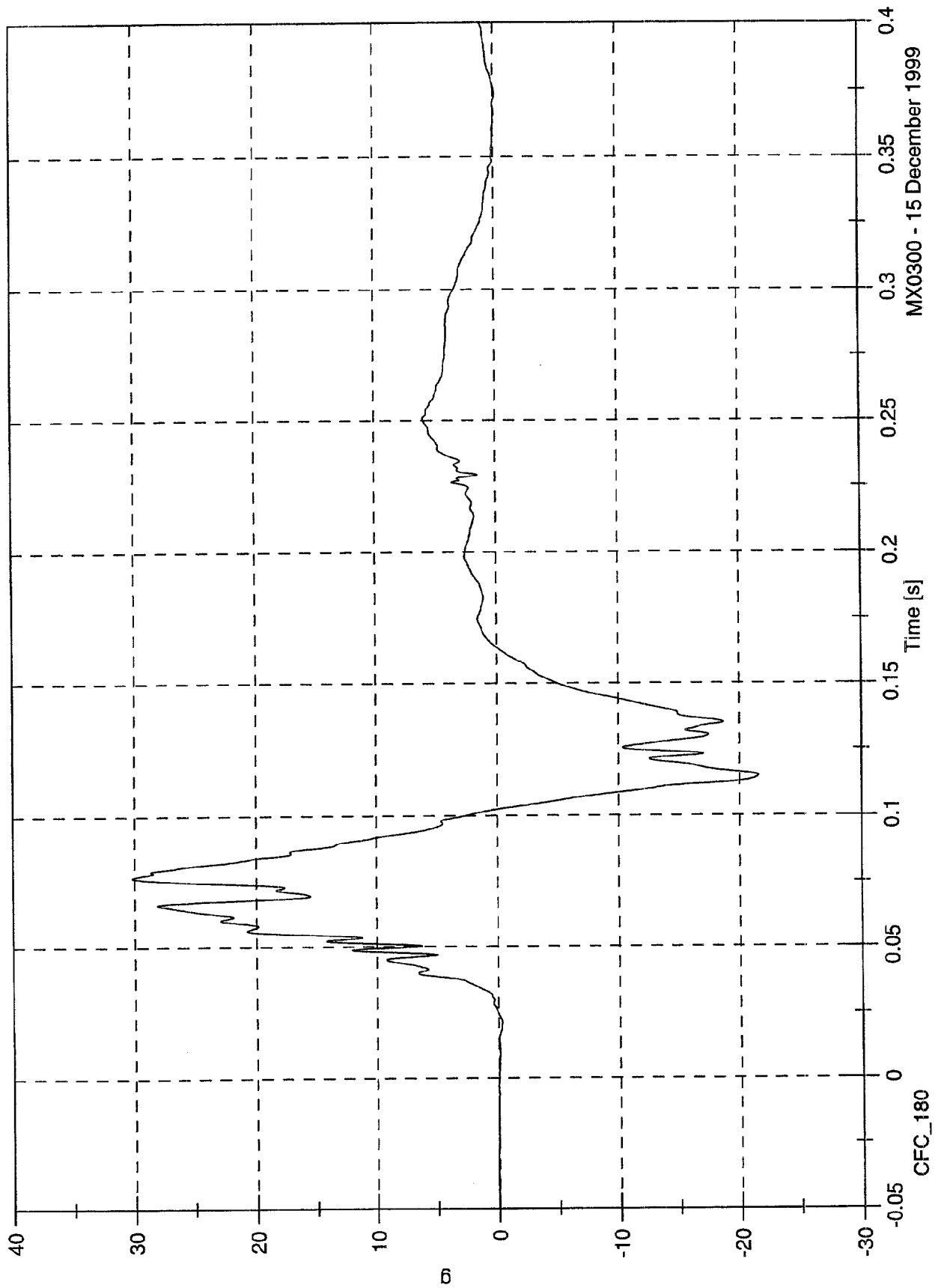


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 30.2 [g] at 0.077 [s]
Min: -21.6 [g] at 0.115 [s]

Passenger Chest Az

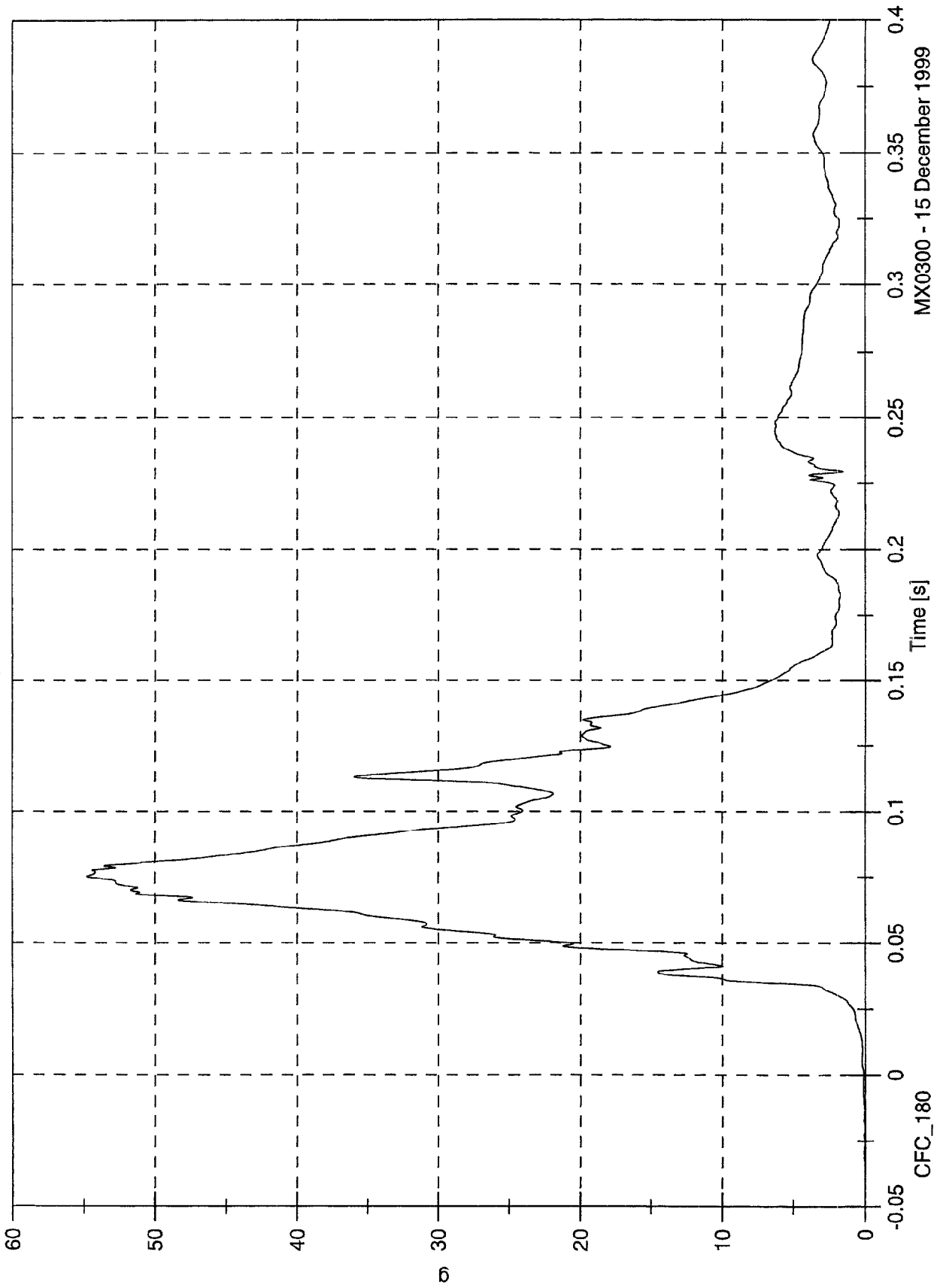


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Passenger Chest A Resultant

Max: 54.8 [g] at 0.075 [s]
Min: 0.0 [g] at -0.050 [s]

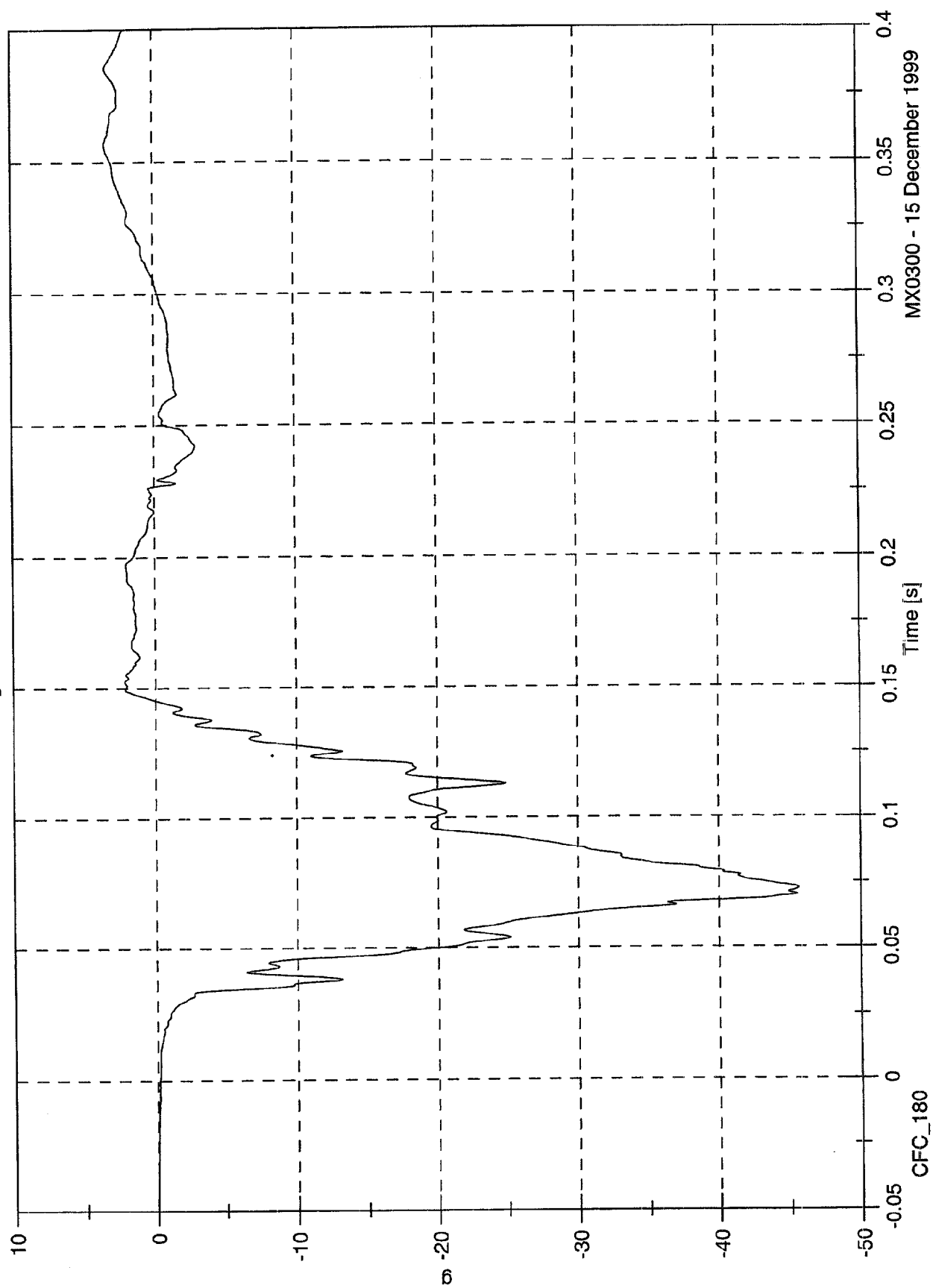


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 3.4 [g] at 0.357 [s]
Min: -45.6 [g] at 0.073 [s]

Passenger Chest Ax Redundant

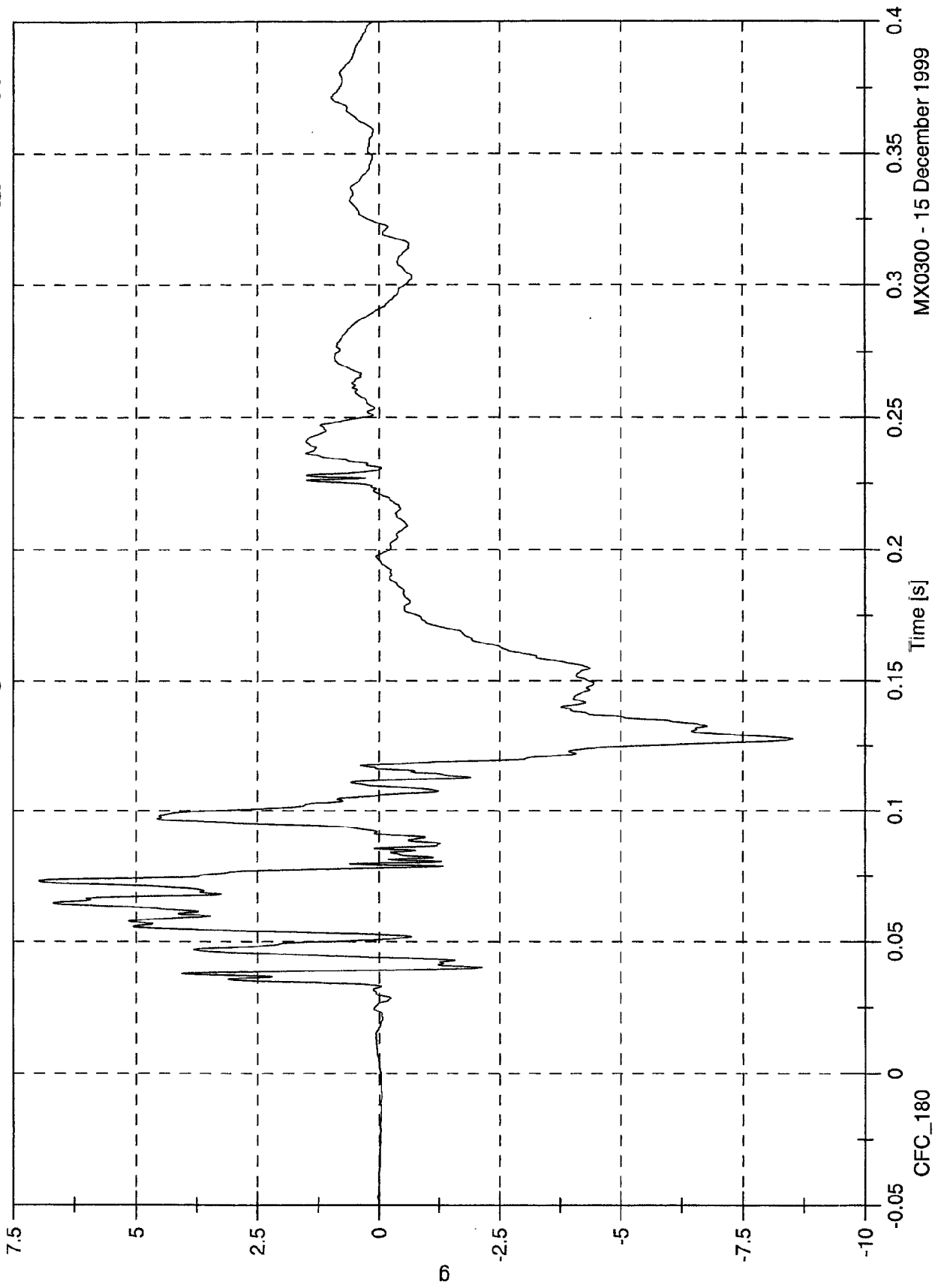


MX0300 - 15 December 1999

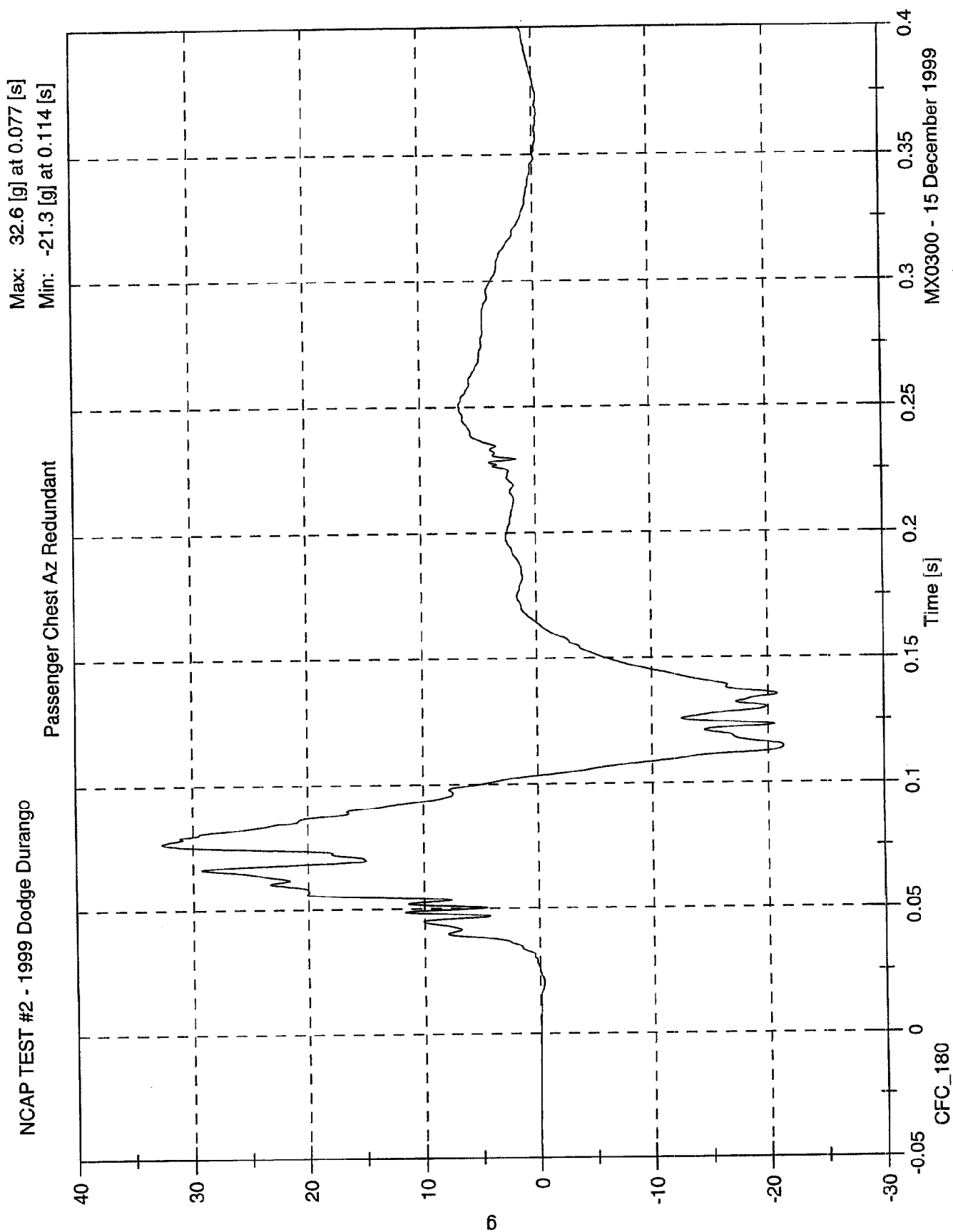
NCAP TEST #2 - 1999 Dodge Durango

Passenger Chest Ax Redundant

Max: 7.0 [g] at 0.073 [s]
Min: -8.5 [g] at 0.128 [s]



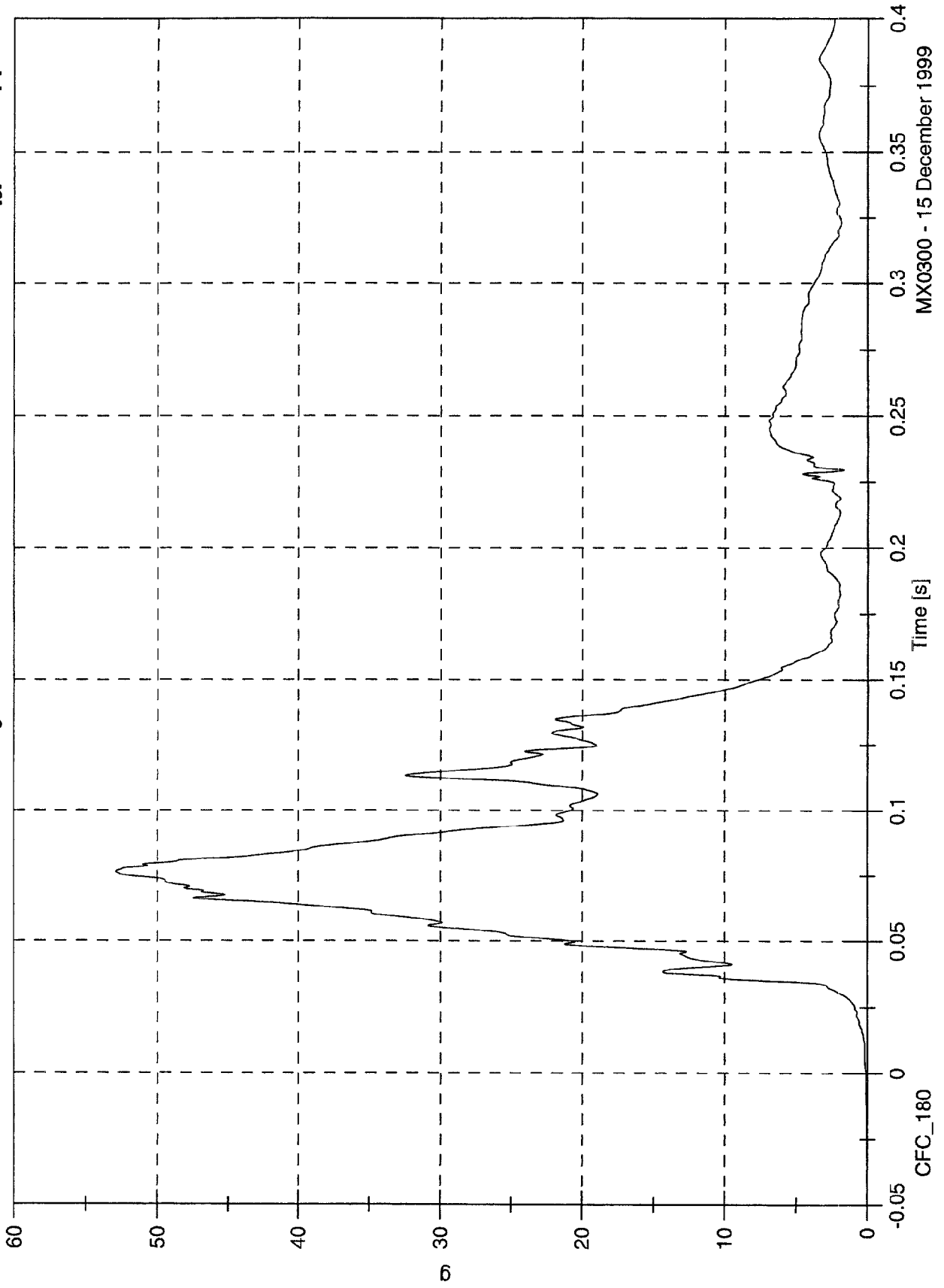
MX0300 - 15 December 1999



NCAP TEST #2 - 1999 Dodge Durango

Passenger Chest Ax Redundant Resultant

Max: 52.9 [g] at 0.076 [s]
Min: 0.0 [g] at -0.048 [s]

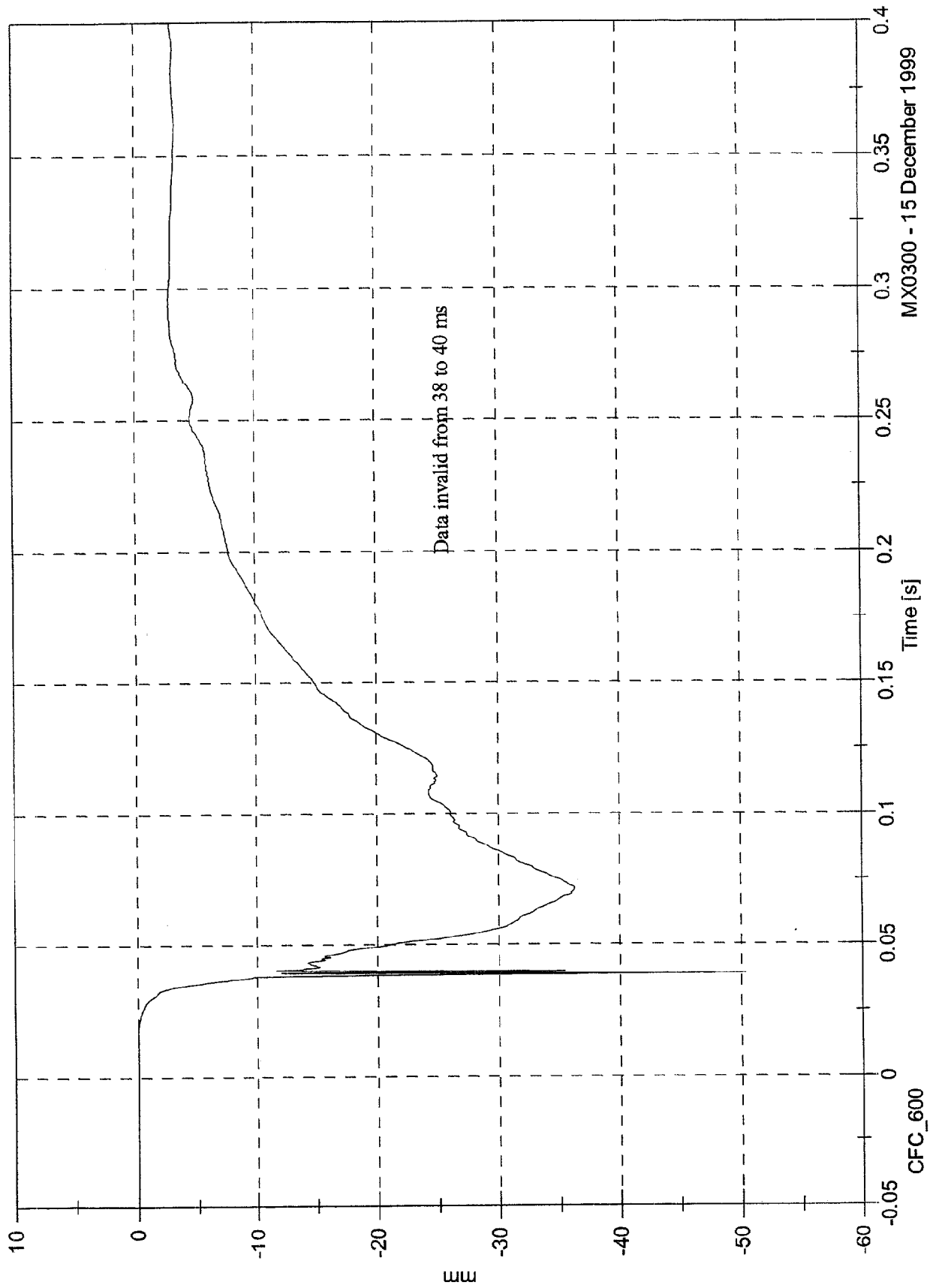


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Passenger Chest Displacement

Max: 0.0 [mm] at -0.023 [s]
Min: -50.4 [mm] at 0.039 [s]



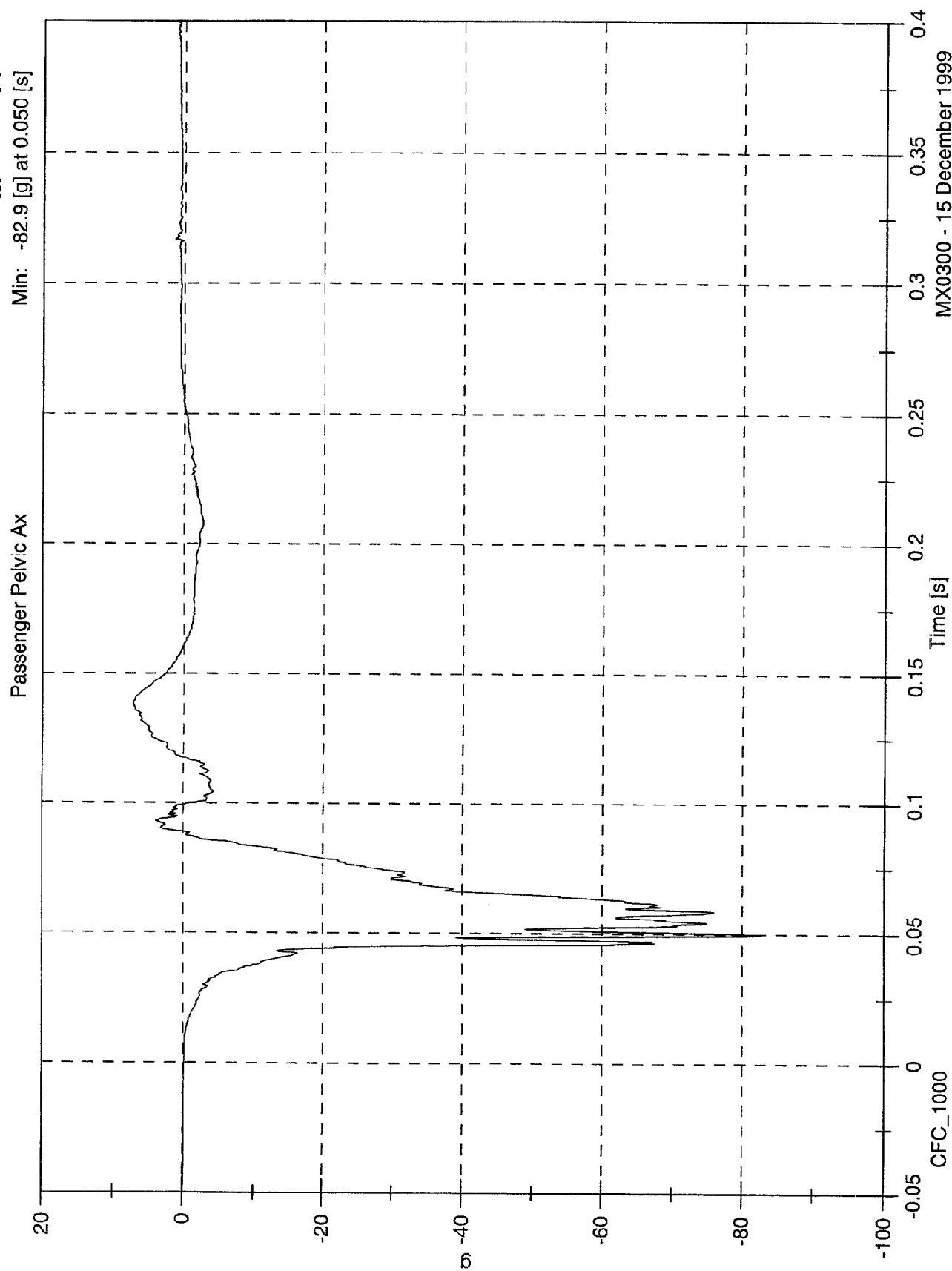
CFC_600

Time [s]

MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 7.2 [g] at 0.139 [s]
Min: -82.9 [g] at 0.050 [s]

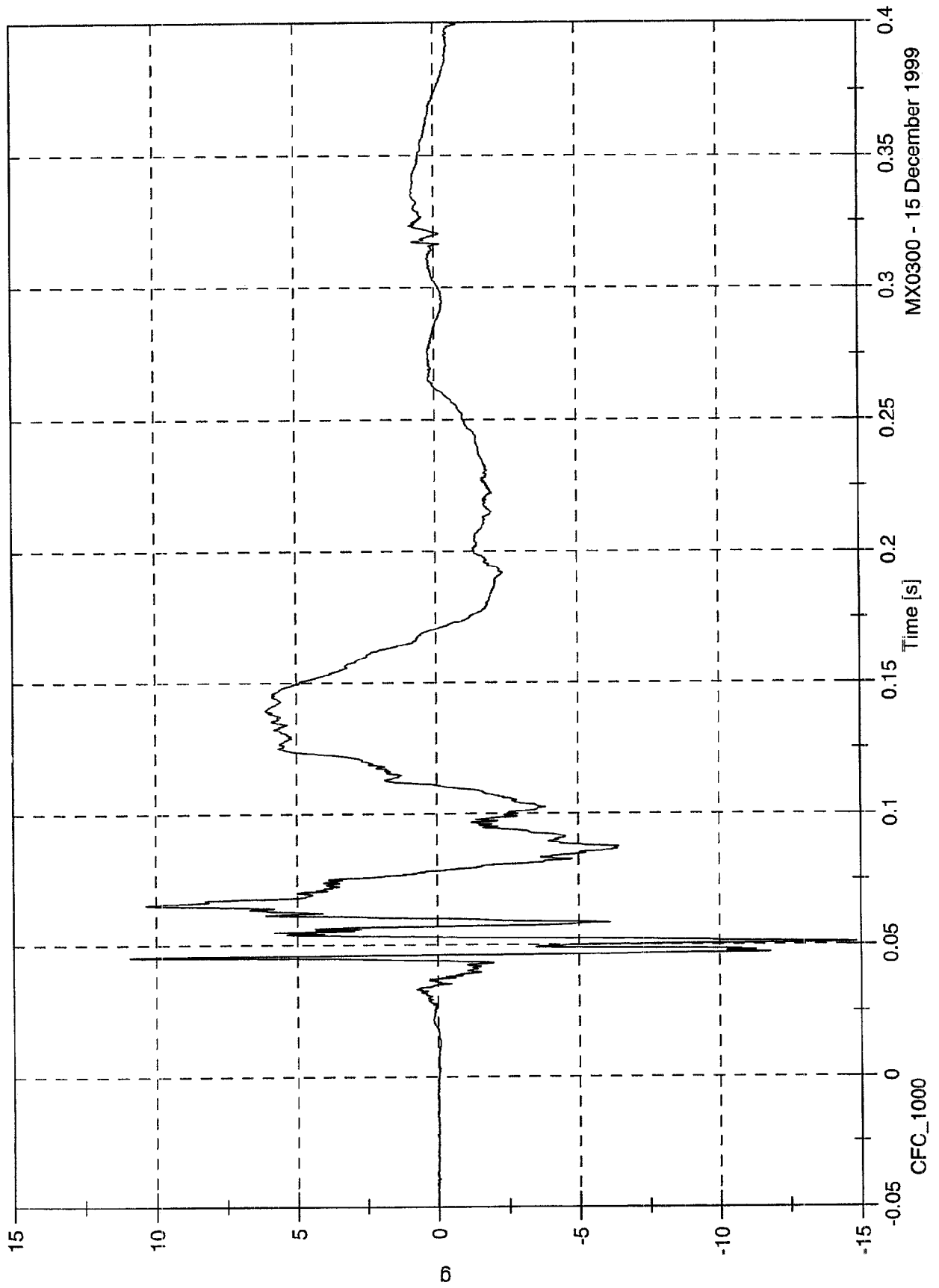


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 10.9 [g] at 0.045 [s]
Min: -14.8 [g] at 0.051 [s]

Passenger Pelvic Ay

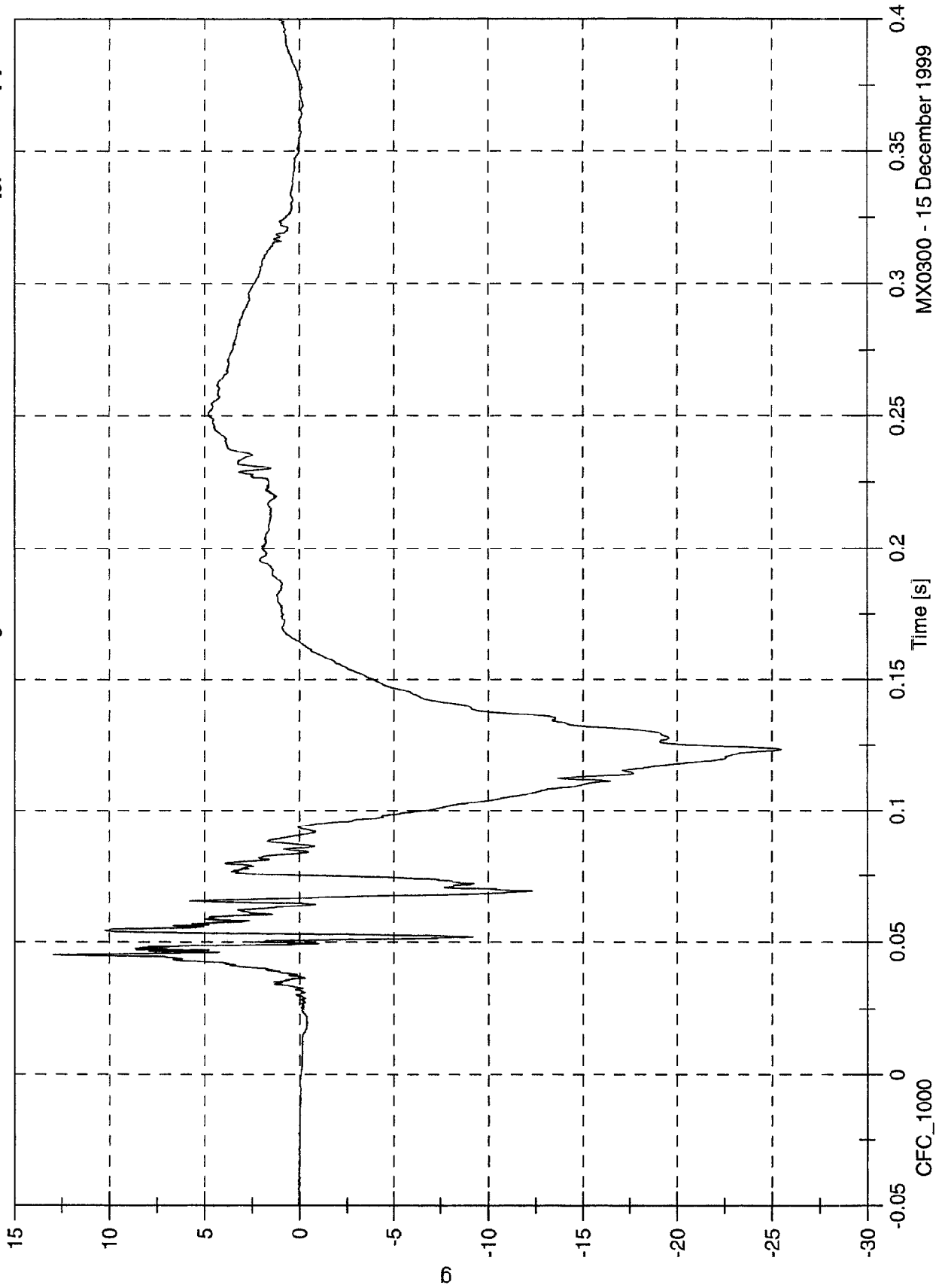


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 13.0 [g] at 0.045 [s]
Min: -25.5 [g] at 0.123 [s]

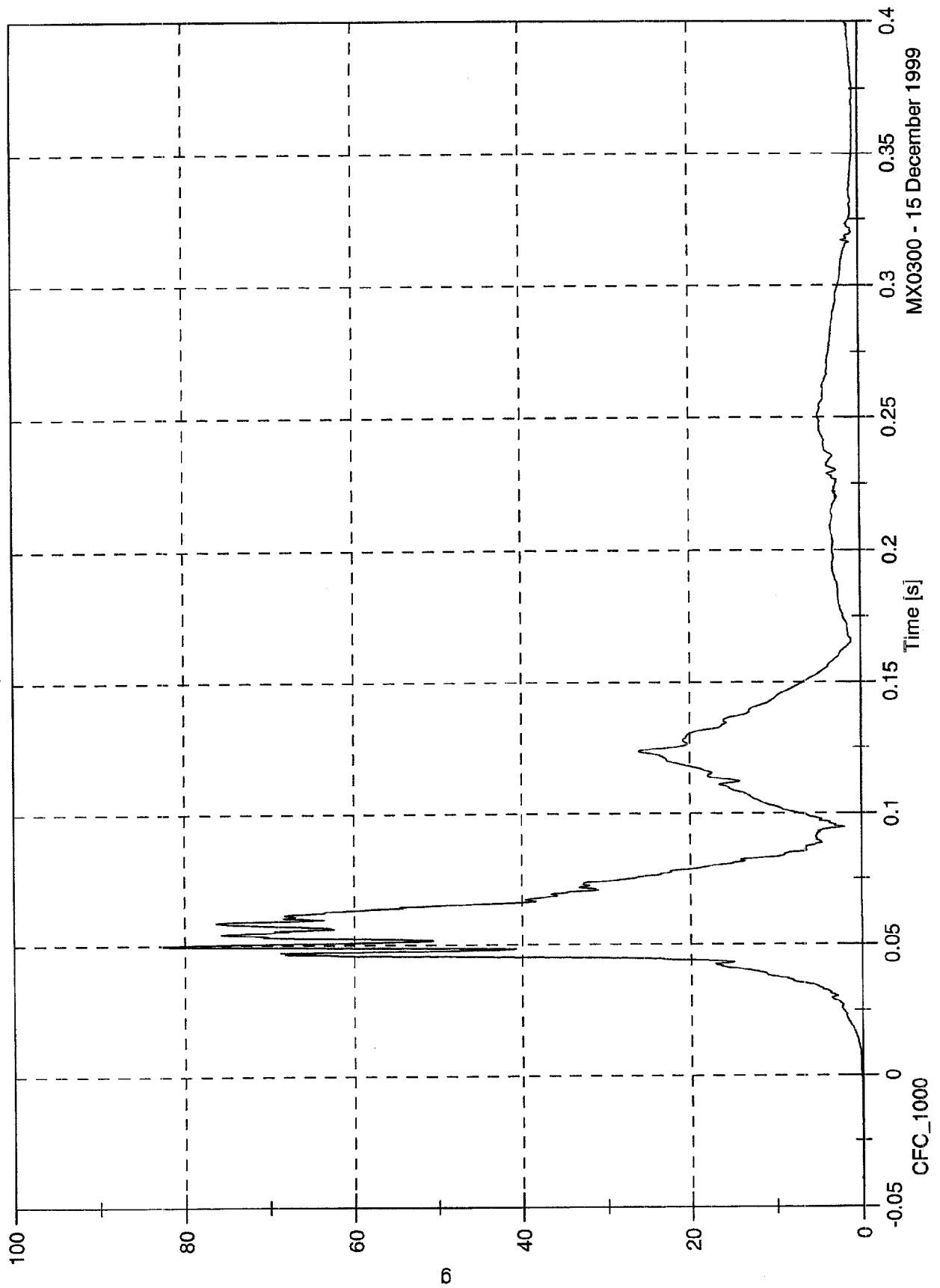
Passenger Pelvic Az



NCAP TEST #2 - 1999 Dodge Durango

Max: 83.0 [g] at 0.050 [s]
Min: 0.0 [g] at -0.056 [s]

Passenger Pelvic A Resultant

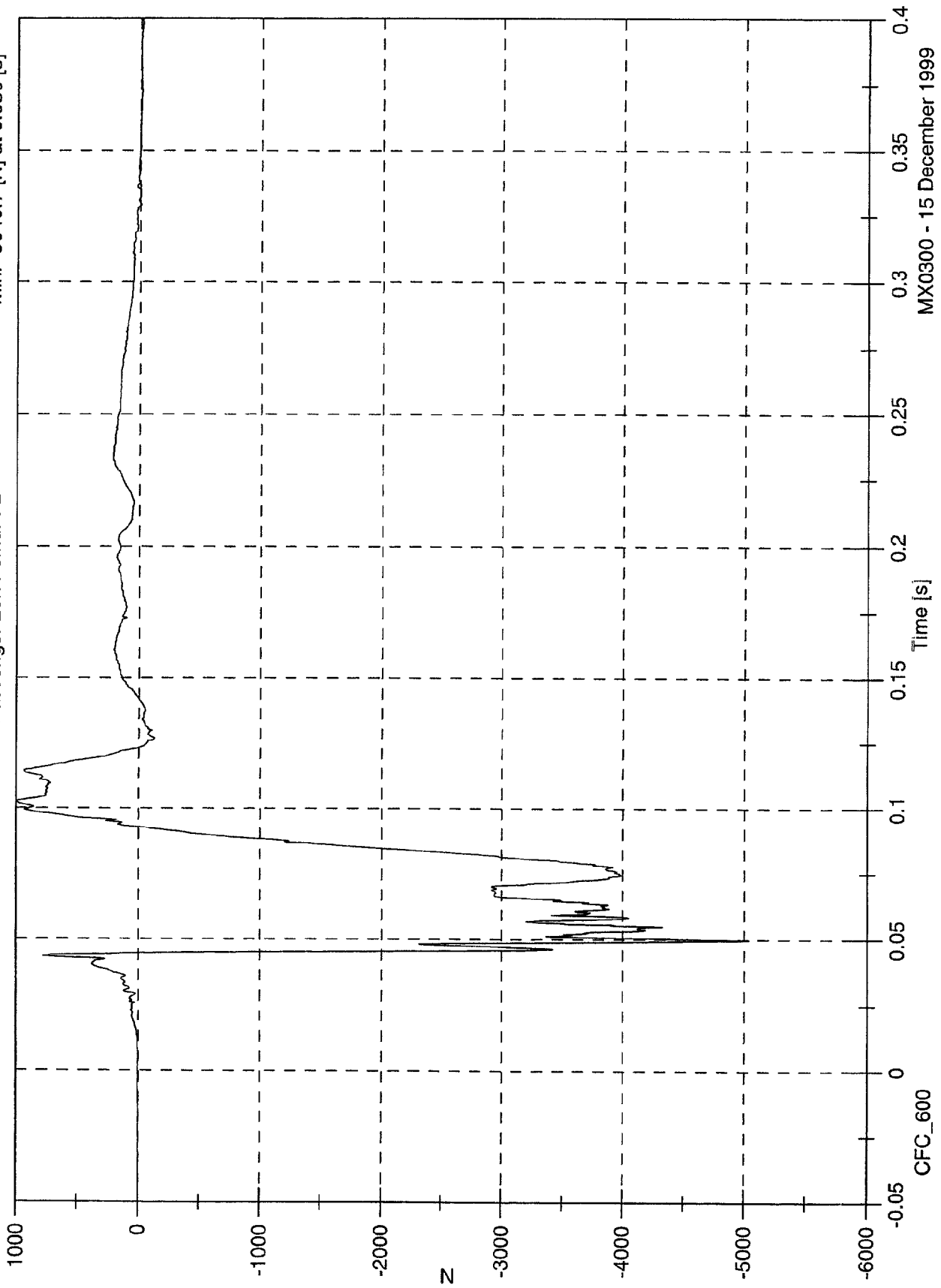


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 996.5 [N] at 0.102 [s]
Min: -5040.7 [N] at 0.050 [s]

Passenger Left Femur Fz

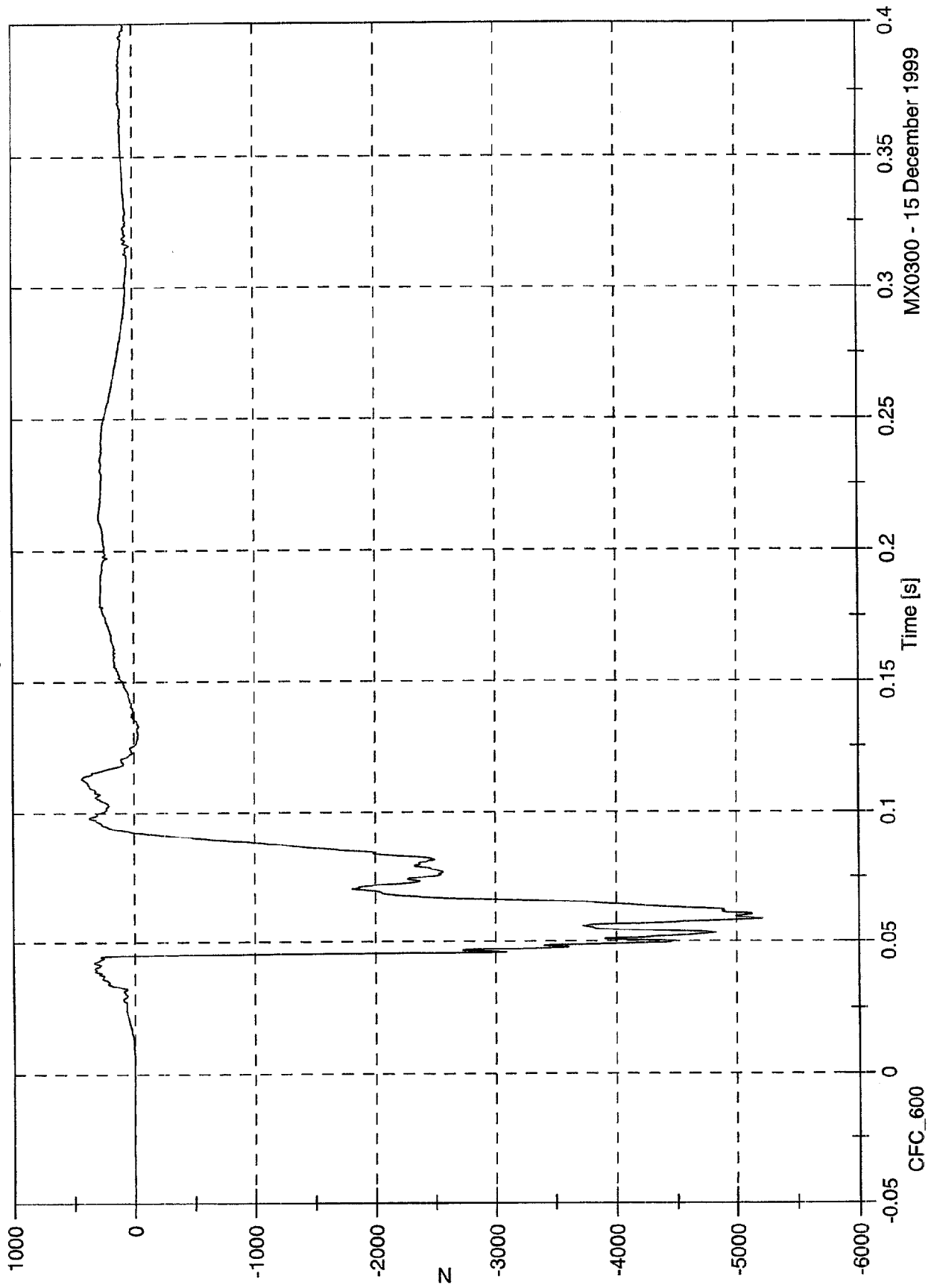


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 433.0 [N] at 0.113 [s]
Min: -5213.8 [N] at 0.059 [s]

Passenger Right Femur Fz

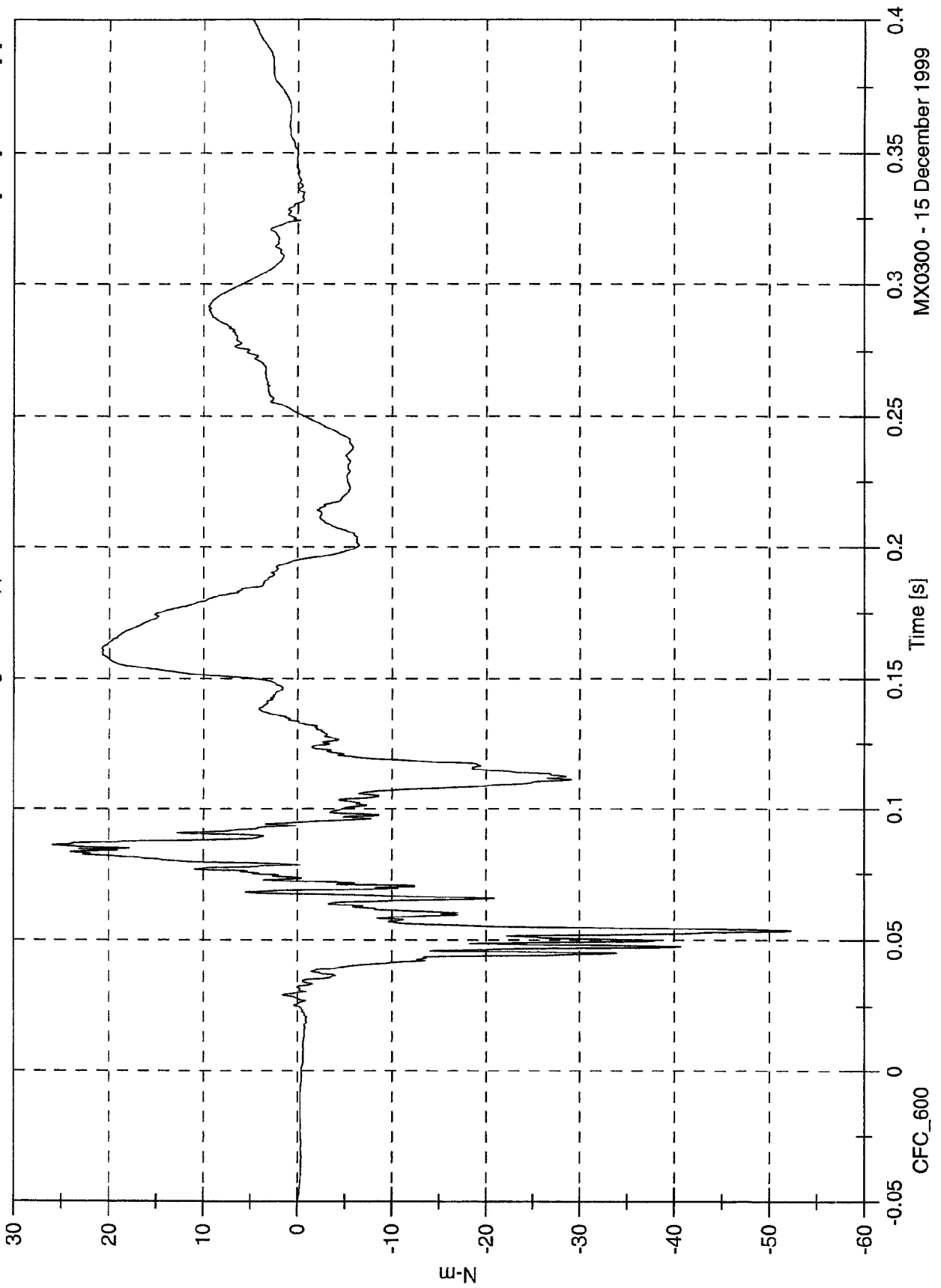


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Passenger Left Upper Tibia Mx

Max: 25.9 [N-m] at 0.086 [s]
Min: -52.3 [N-m] at 0.053 [s]

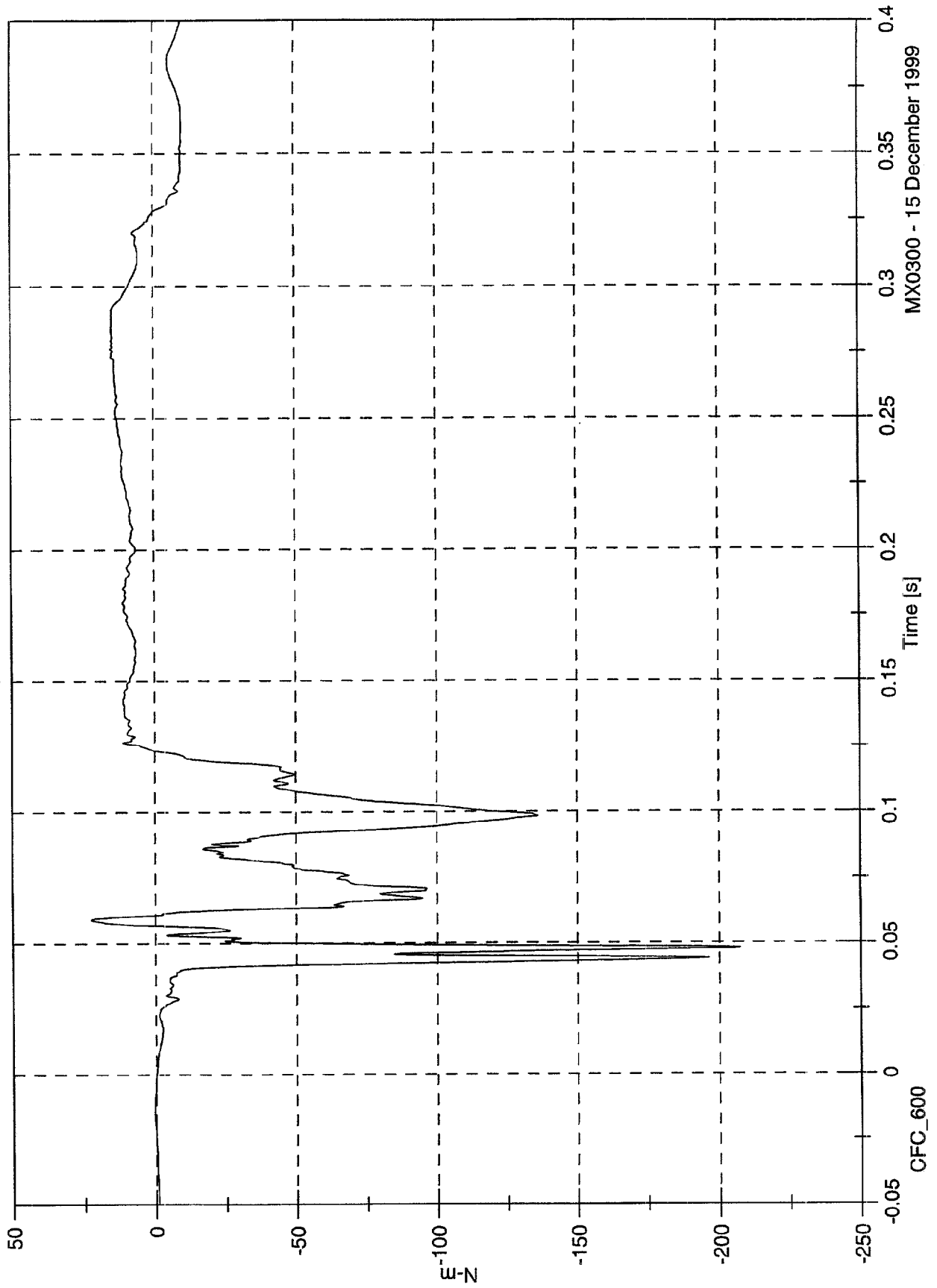


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 22.7 [N-m] at 0.059 [s]
 Min: -207.2 [N-m] at 0.048 [s]

Passenger Left Upper Tibia My

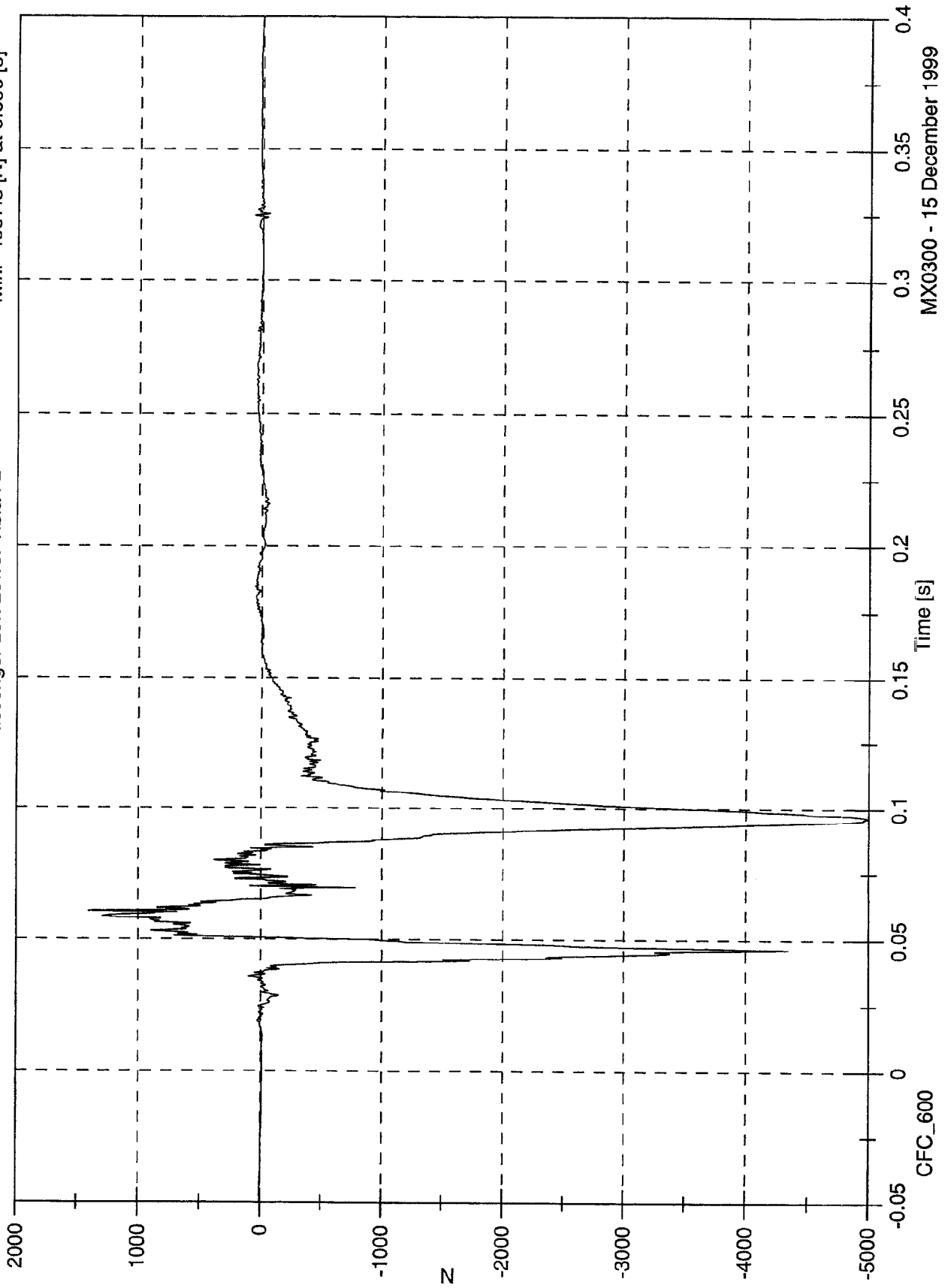


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 1407.5 [N] at 0.061 [s]
Min: -4997.5 [N] at 0.096 [s]

Passenger Left Lower Tibia Fz

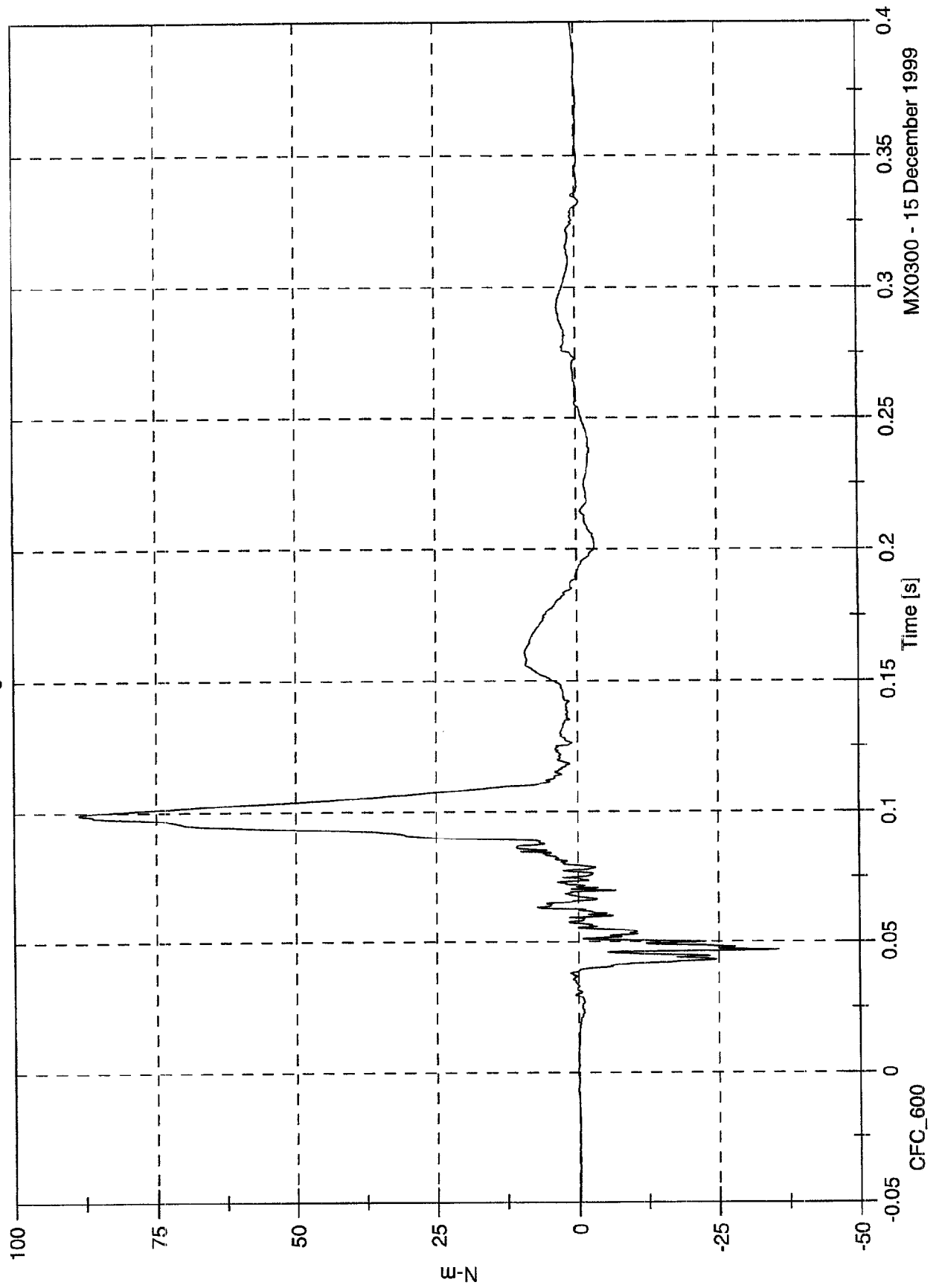


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 88.5 [N-m] at 0.099 [s]
 Min: -35.6 [N-m] at 0.047 [s]

Passenger Left Lower Tibia Mx

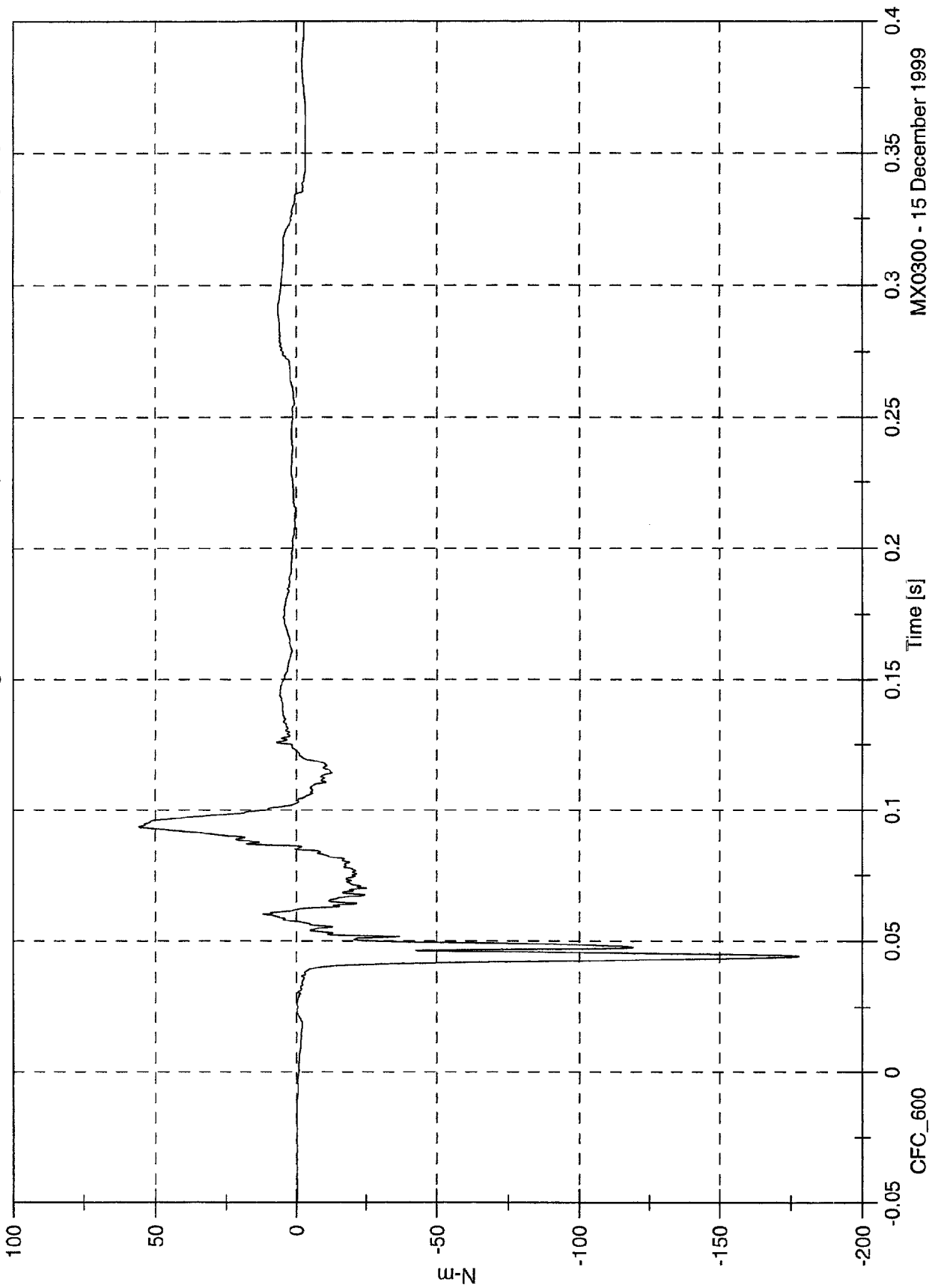


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Passenger Left Lower Tibia My

Max: 55.9 [N-m] at 0.093 [s]
Min: -177.8 [N-m] at 0.044 [s]

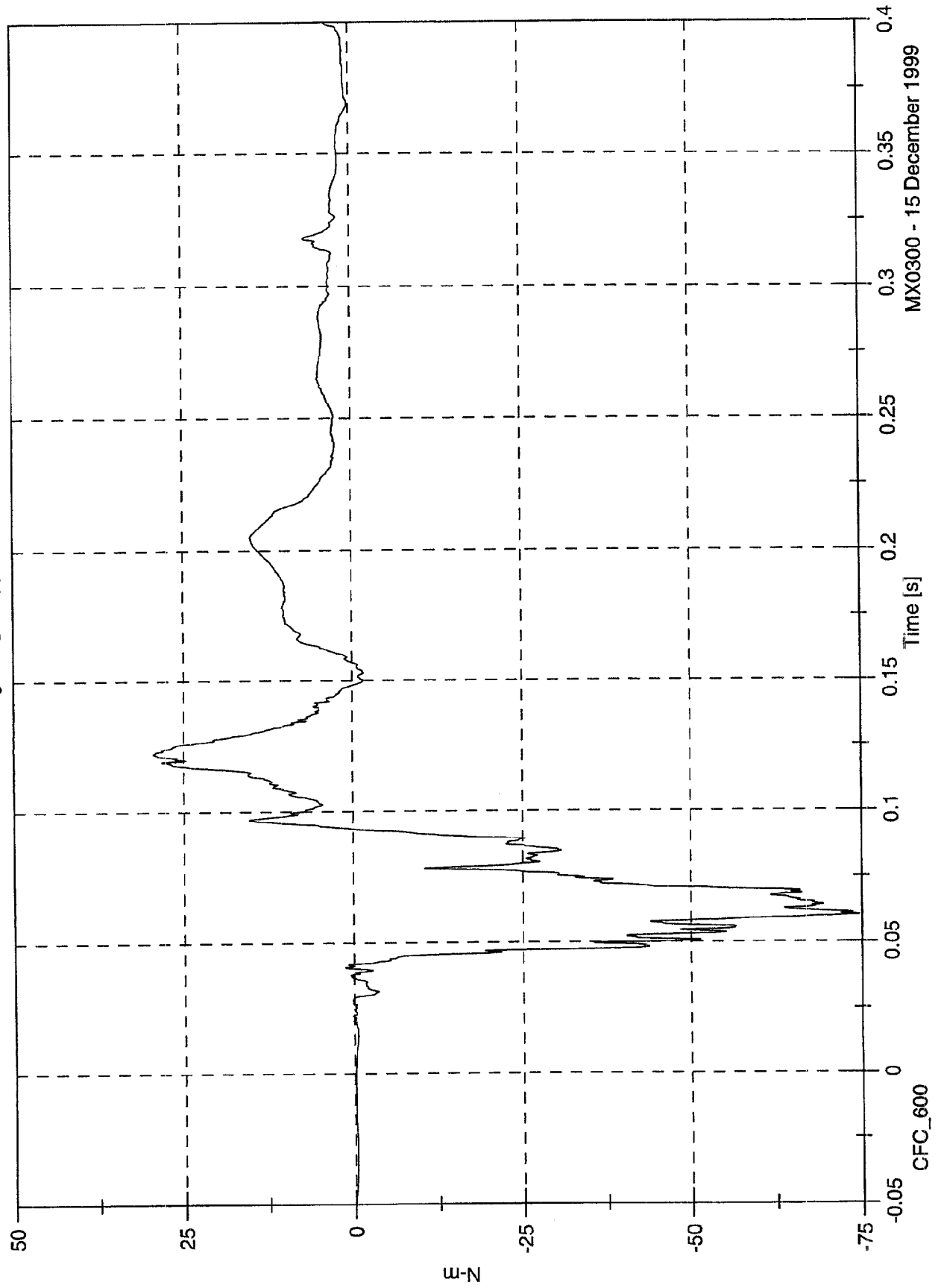


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 29.5 [N-m] at 0.122 [s]
 Min: -74.6 [N-m] at 0.060 [s]

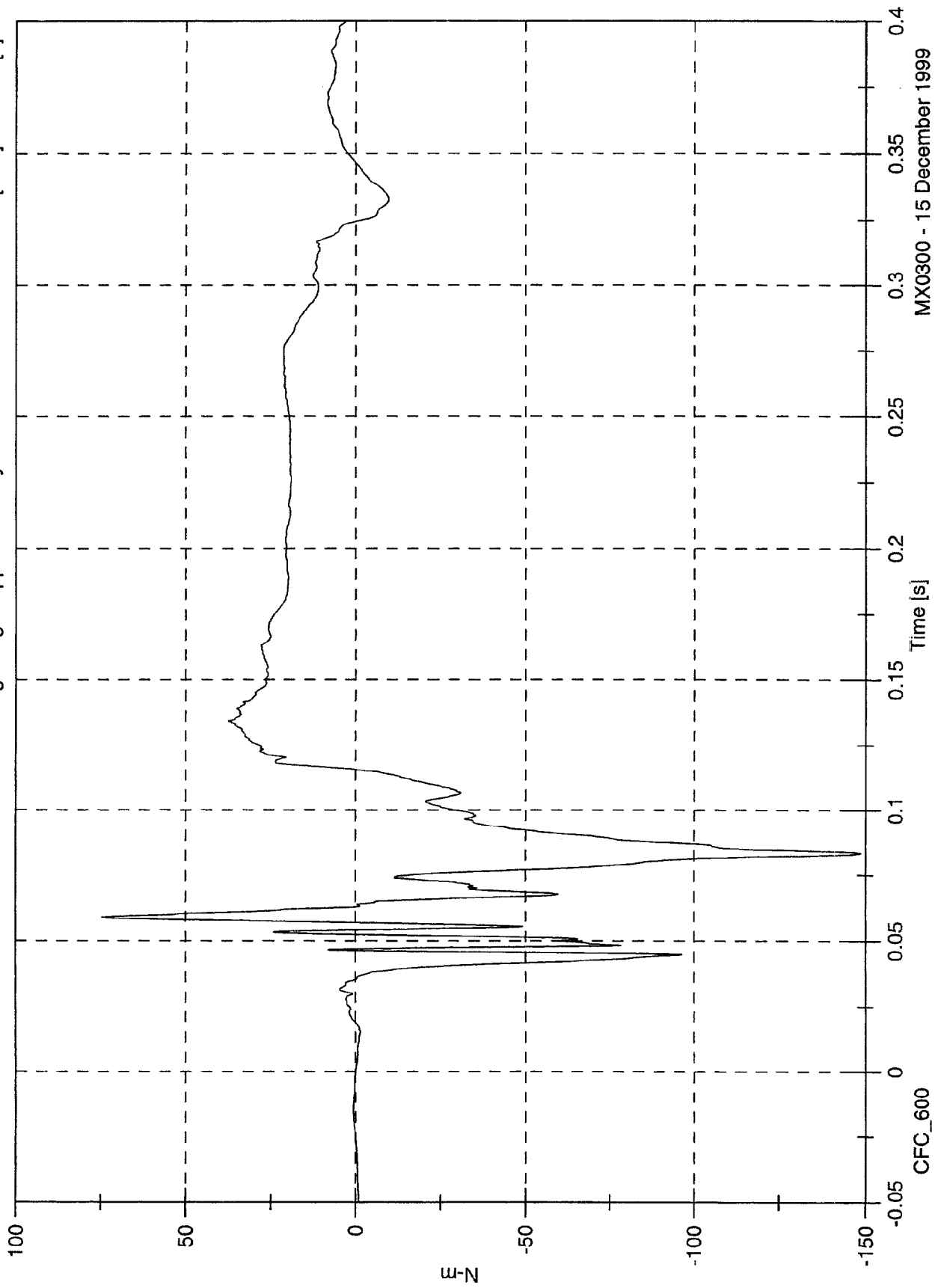
Passenger Right Upper Tibia Mx



NCAP TEST #2 - 1999 Dodge Durango

Max: 74.7 [N-m] at 0.059 [s]
Min: -148.6 [N-m] at 0.083 [s]

Passenger Right Upper Tibia My

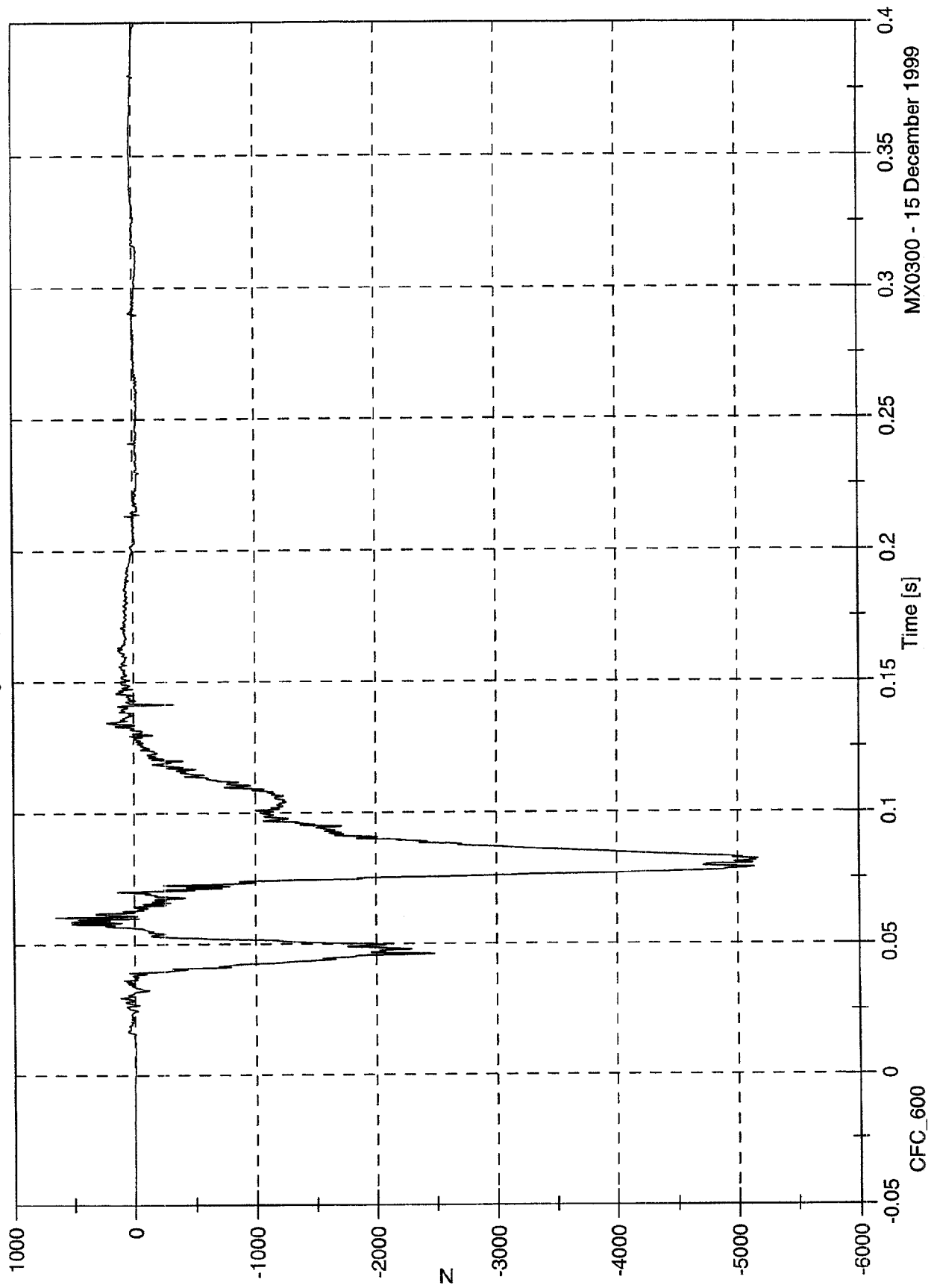


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 651.9 [N] at 0.061 [s]
Min: -5167.5 [N] at 0.082 [s]

Passenger Right Lower Tibia Fz



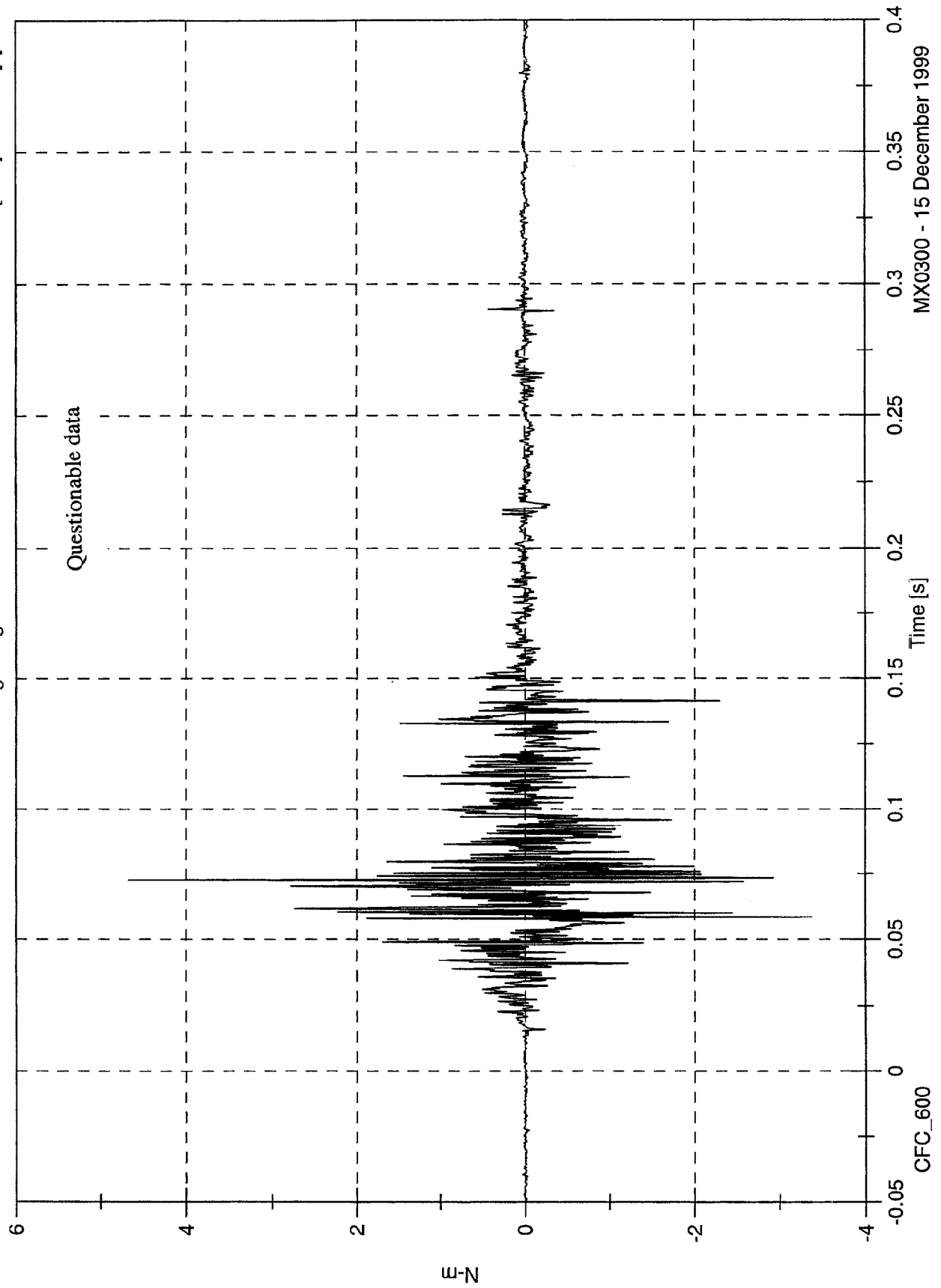
MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Passenger Right Lower Tibia Mx

Max: 4.7 [N-m] at 0.073 [s]

Min: -3.4 [N-m] at 0.058 [s]

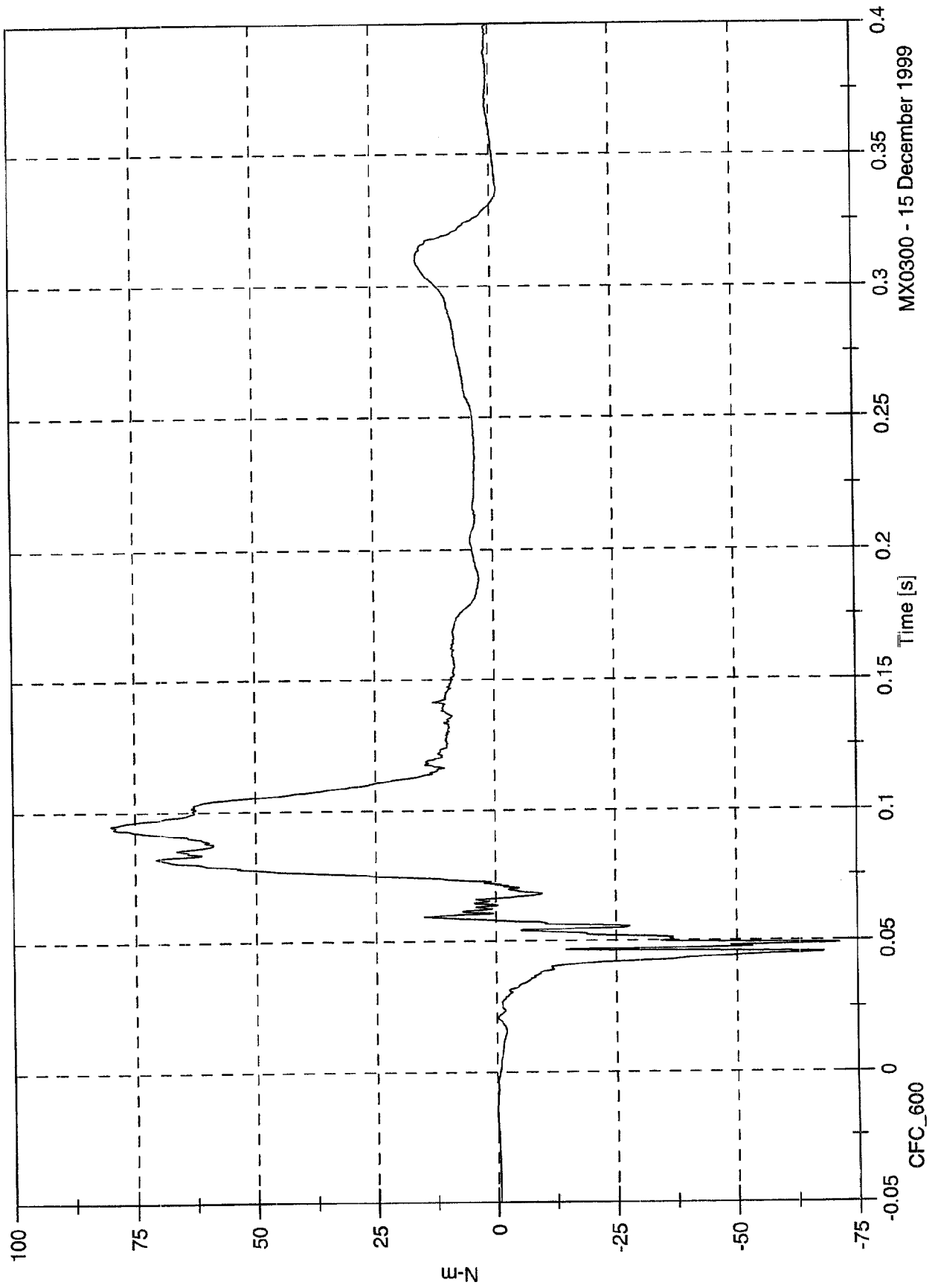


NCAP TEST #2 - 1999 Dodge Durango

Max: 79.9 [N-m] at 0.095 [s]

Min: -71.2 [N-m] at 0.049 [s]

Passenger Right Lower Tibia My

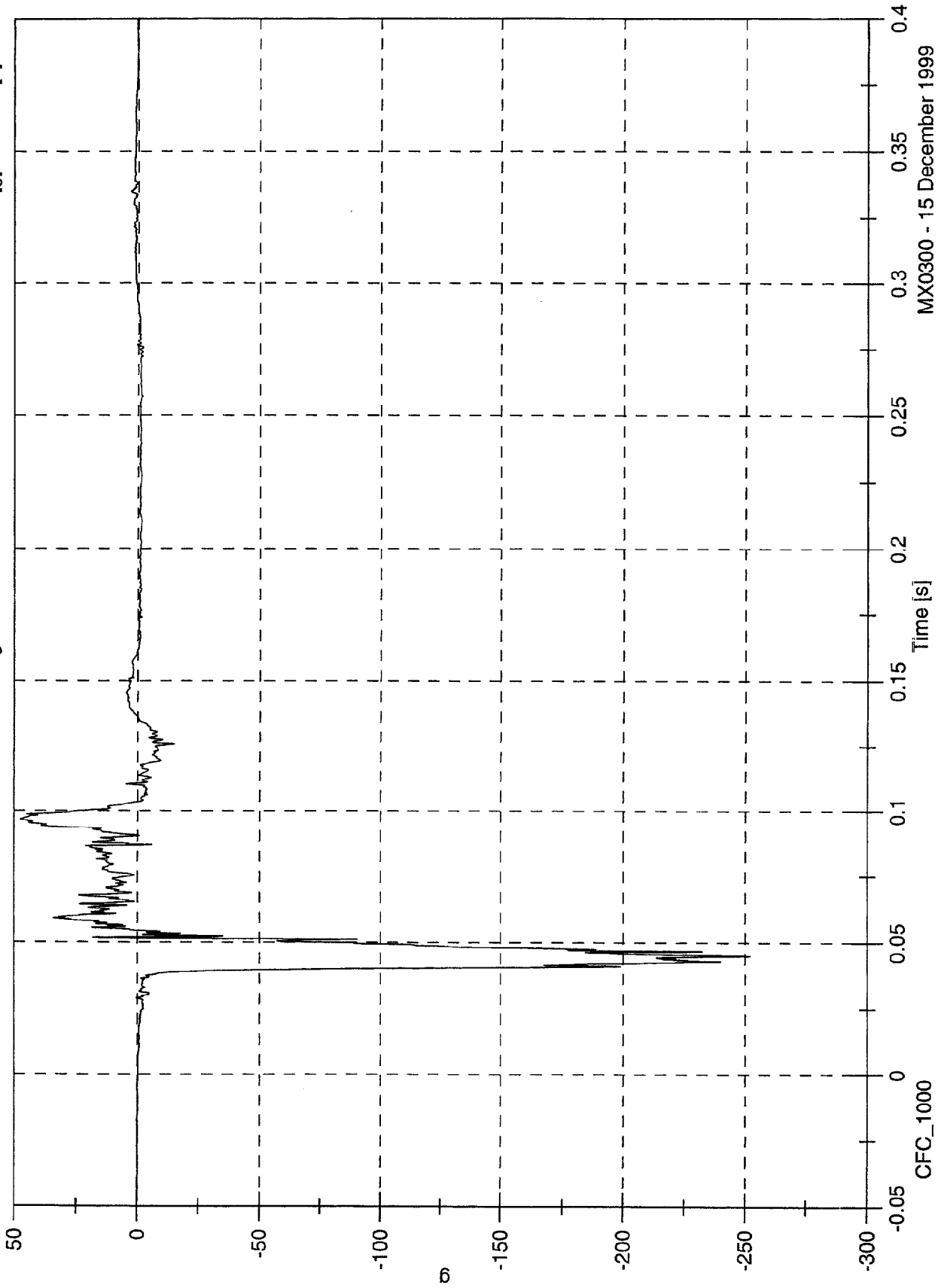


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 47.5 [g] at 0.096 [s]
Min: -252.0 [g] at 0.045 [s]

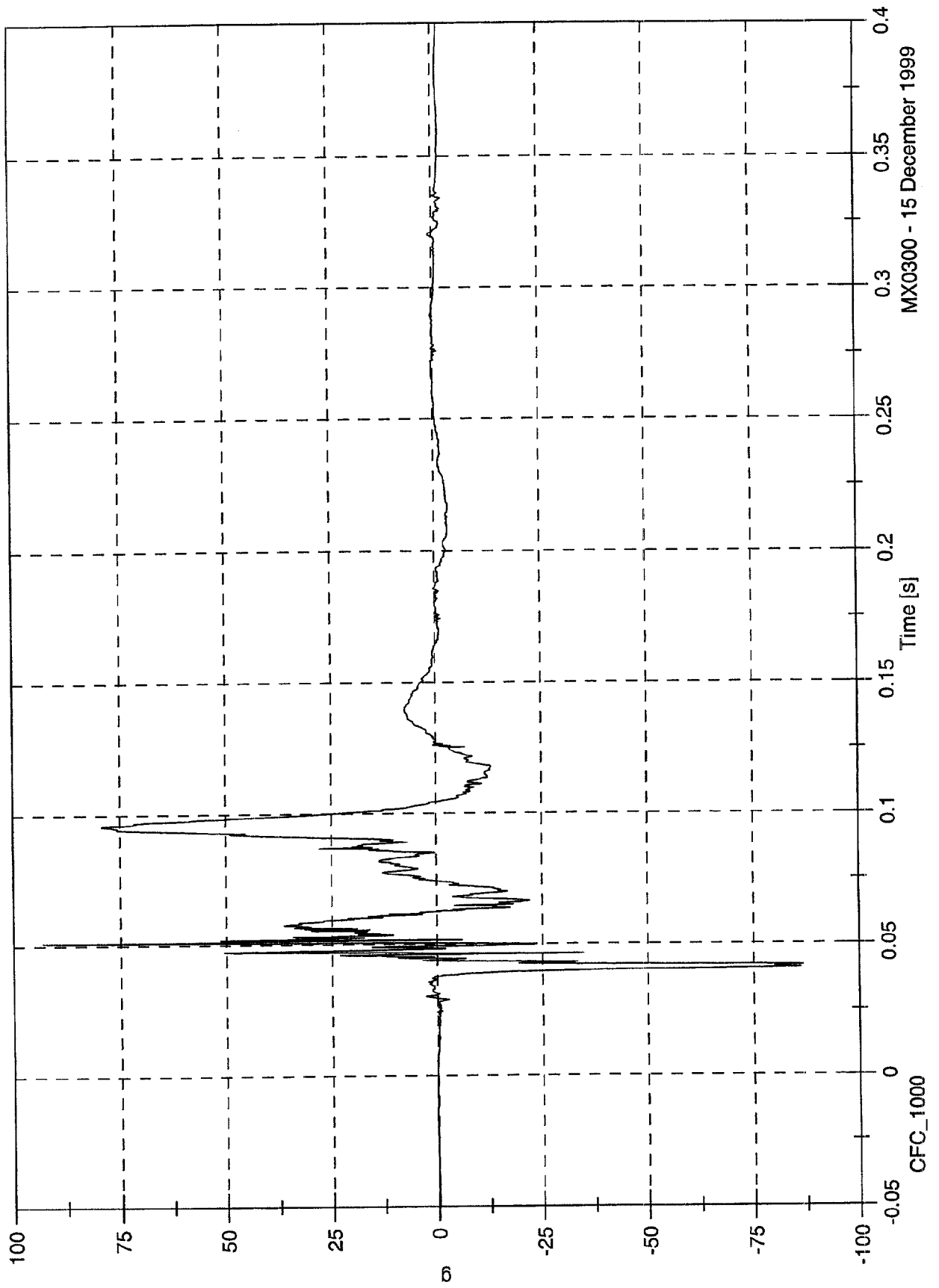
Passenger Left Ankle Ax



NCAP TEST #2 - 1999 Dodge Durango

Max: 93.1 [g] at 0.051 [s]
Min: -86.8 [g] at 0.042 [s]

Passenger Left Ankle Az



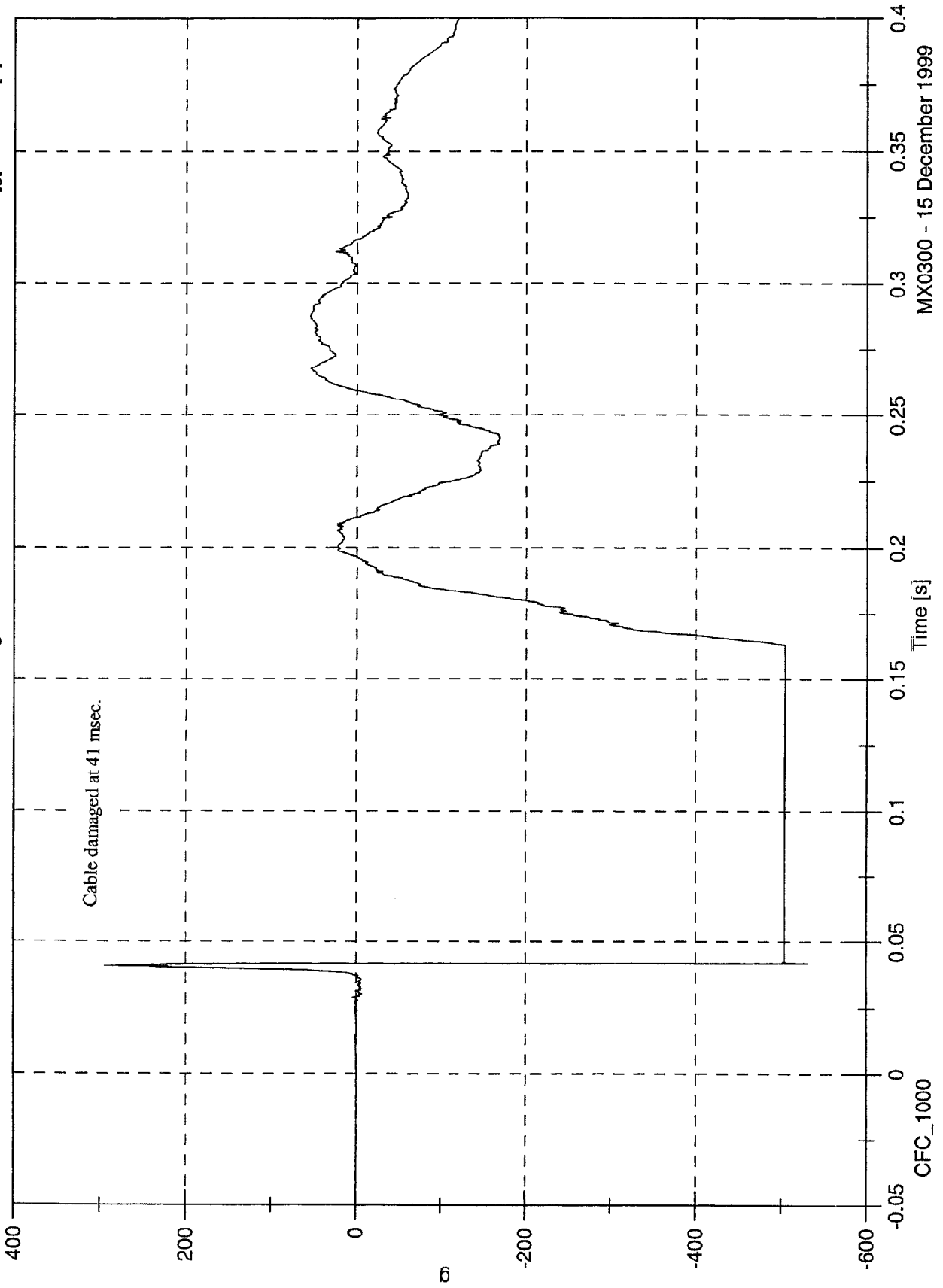
MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Passenger Left Toe Az

Max: 294.4 [g] at 0.041 [s]

Min: -531.5 [g] at 0.042 [s]

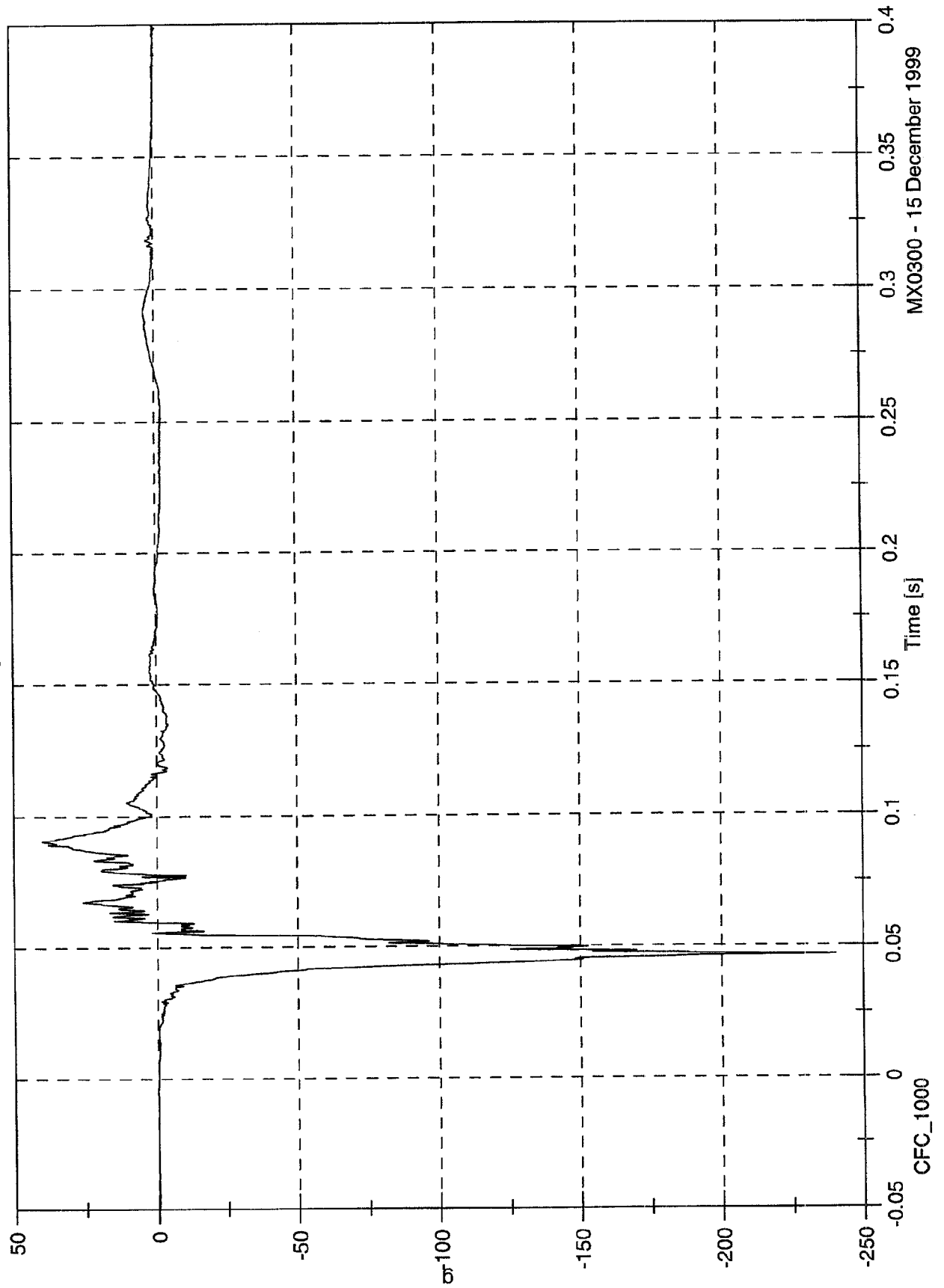


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 39.9 [g] at 0.090 [s]
Min: -240.1 [g] at 0.047 [s]

Passenger Right Ankle Ax

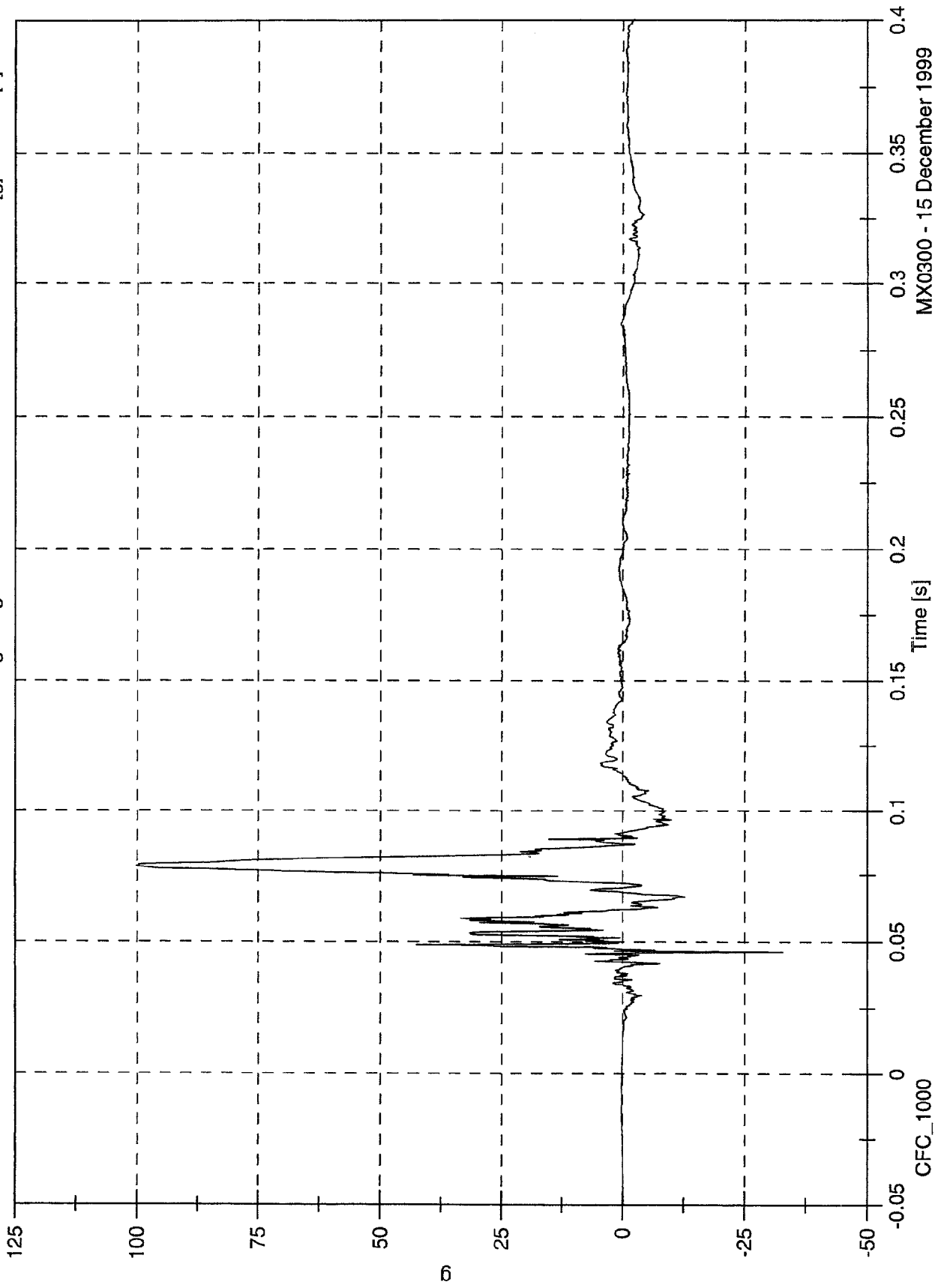


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 100.2 [g] at 0.078 [s]
Min: -32.8 [g] at 0.046 [s]

Passenger Right Ankle Az

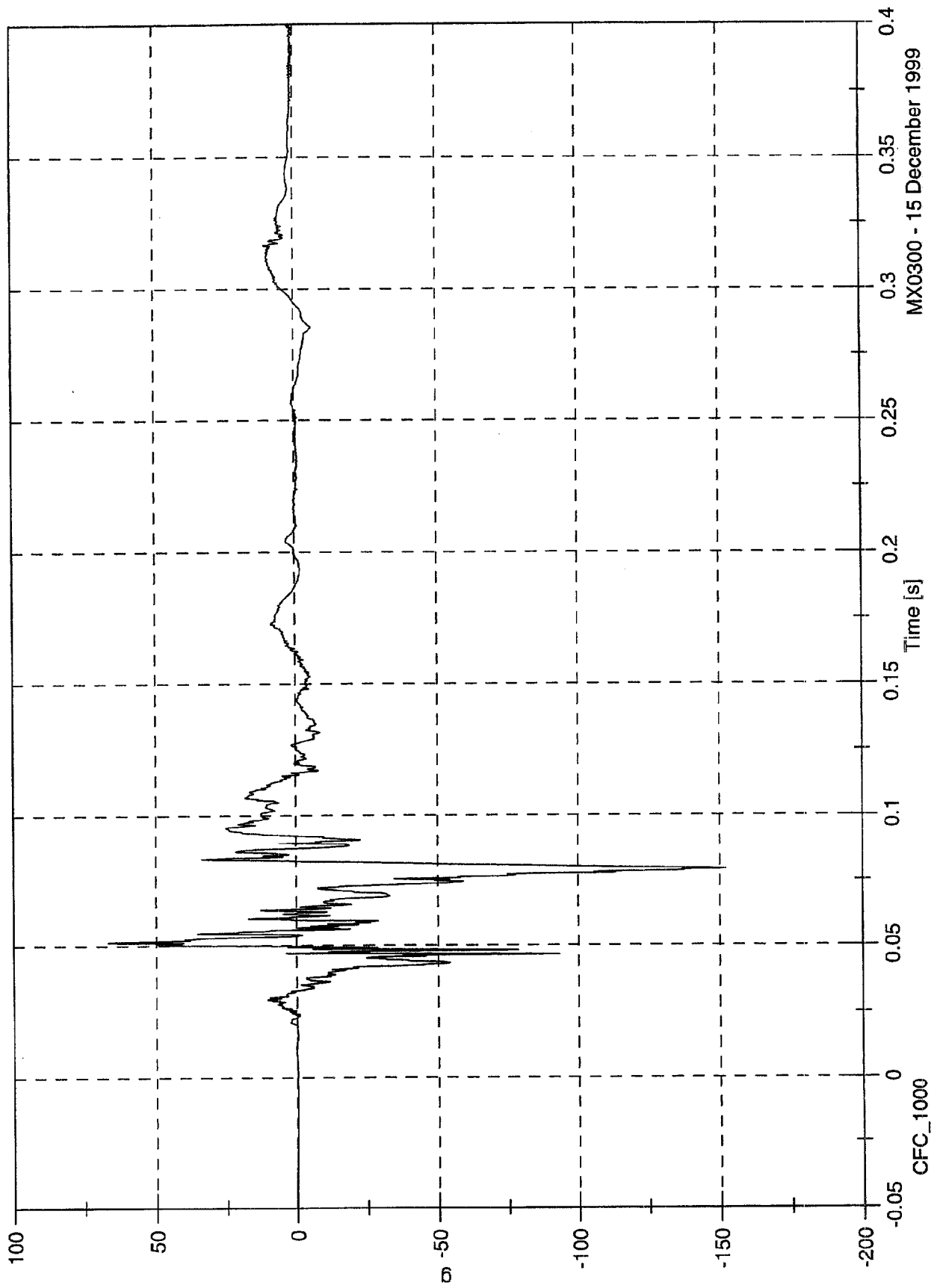


MX0300 - 15 December 1999

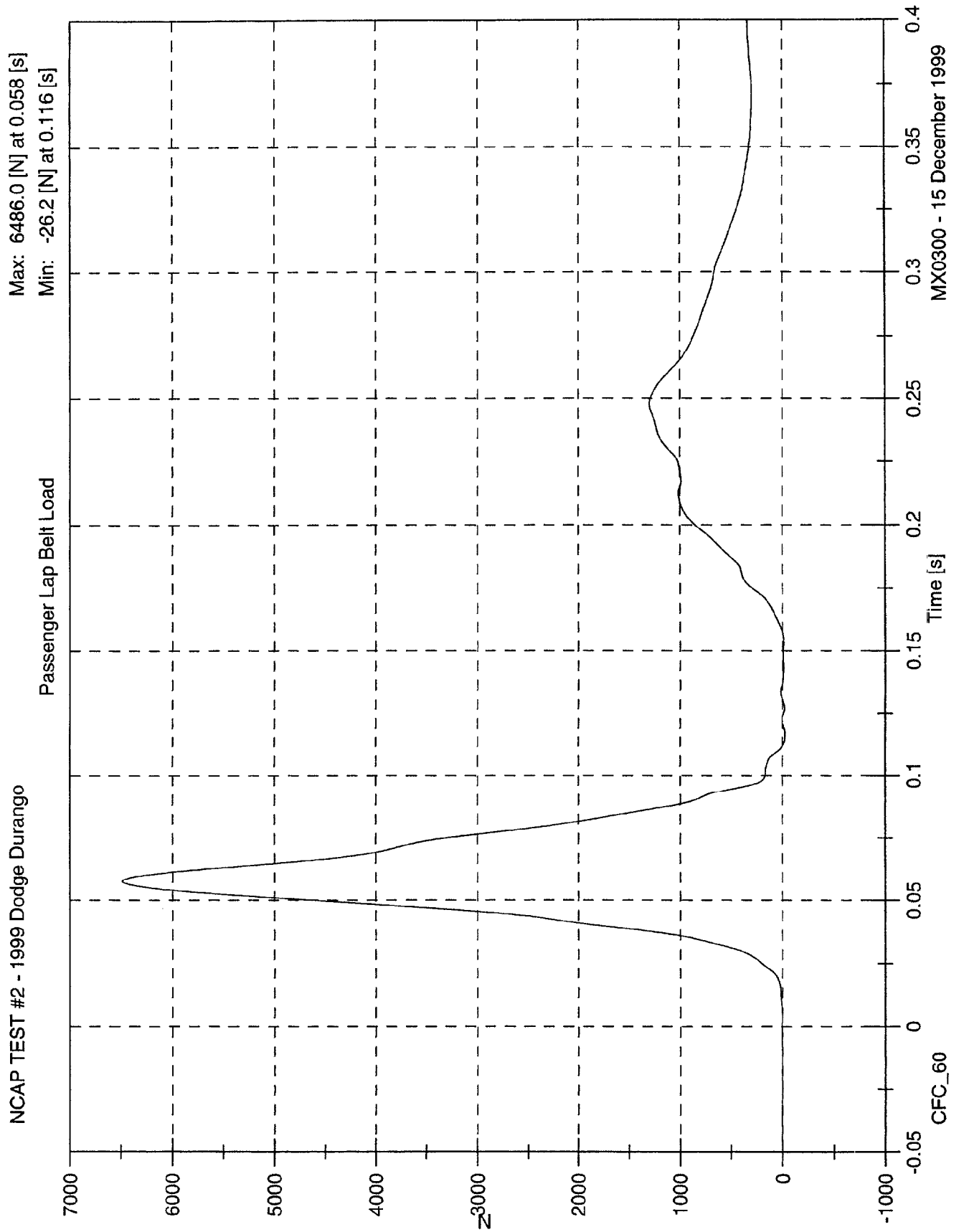
NCAP TEST #2 - 1999 Dodge Durango

Max: 66.7 [g] at 0.051 [s]
Min: -152.0 [g] at 0.079 [s]

Passenger Right Toe Az



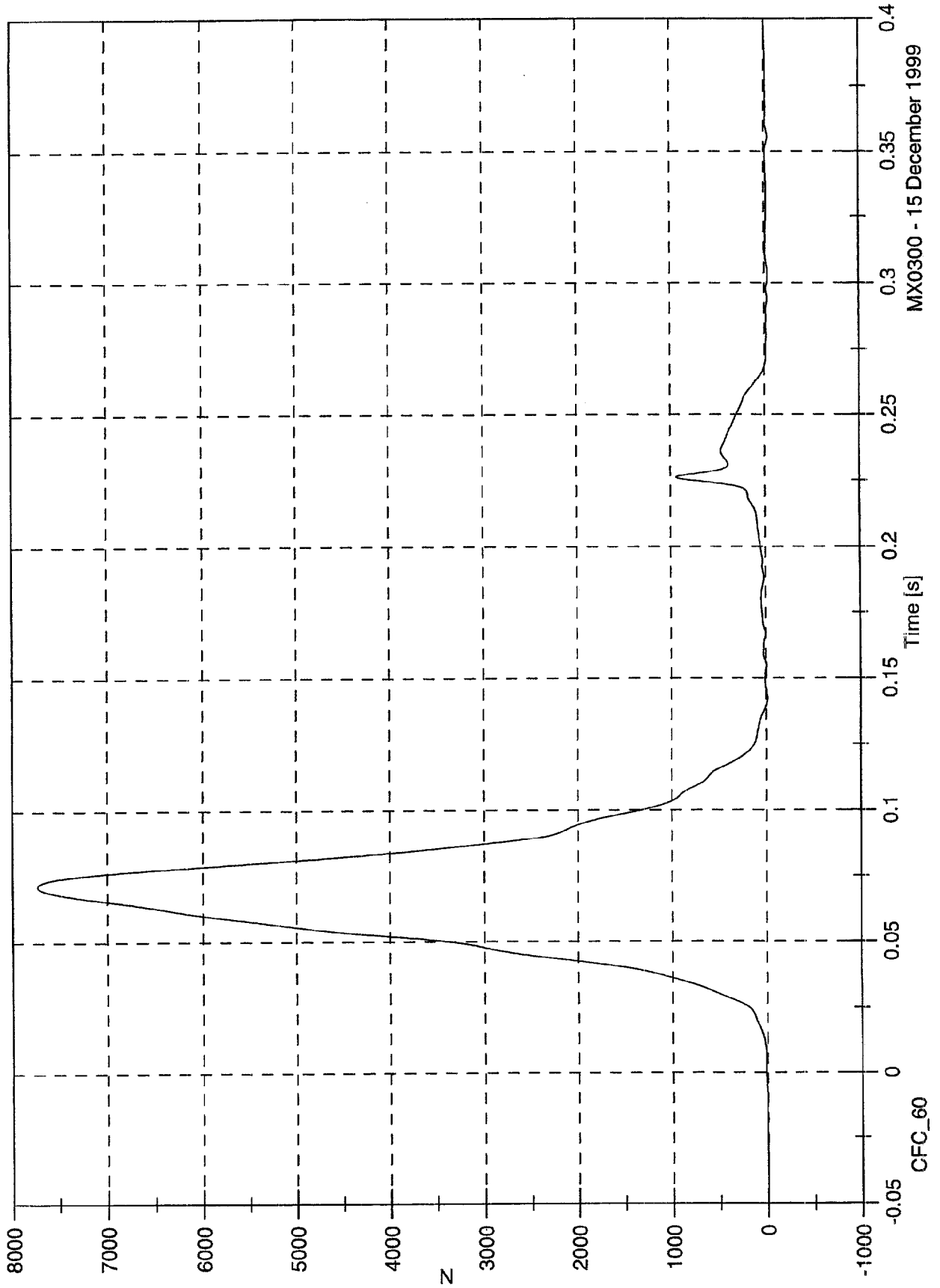
MX0300 - 15 December 1999



NCAP TEST #2 - 1999 Dodge Durango

Max: 7733.8 [N] at 0.072 [s]
Min: -36.9 [N] at 0.303 [s]

Passenger Torso Belt Load

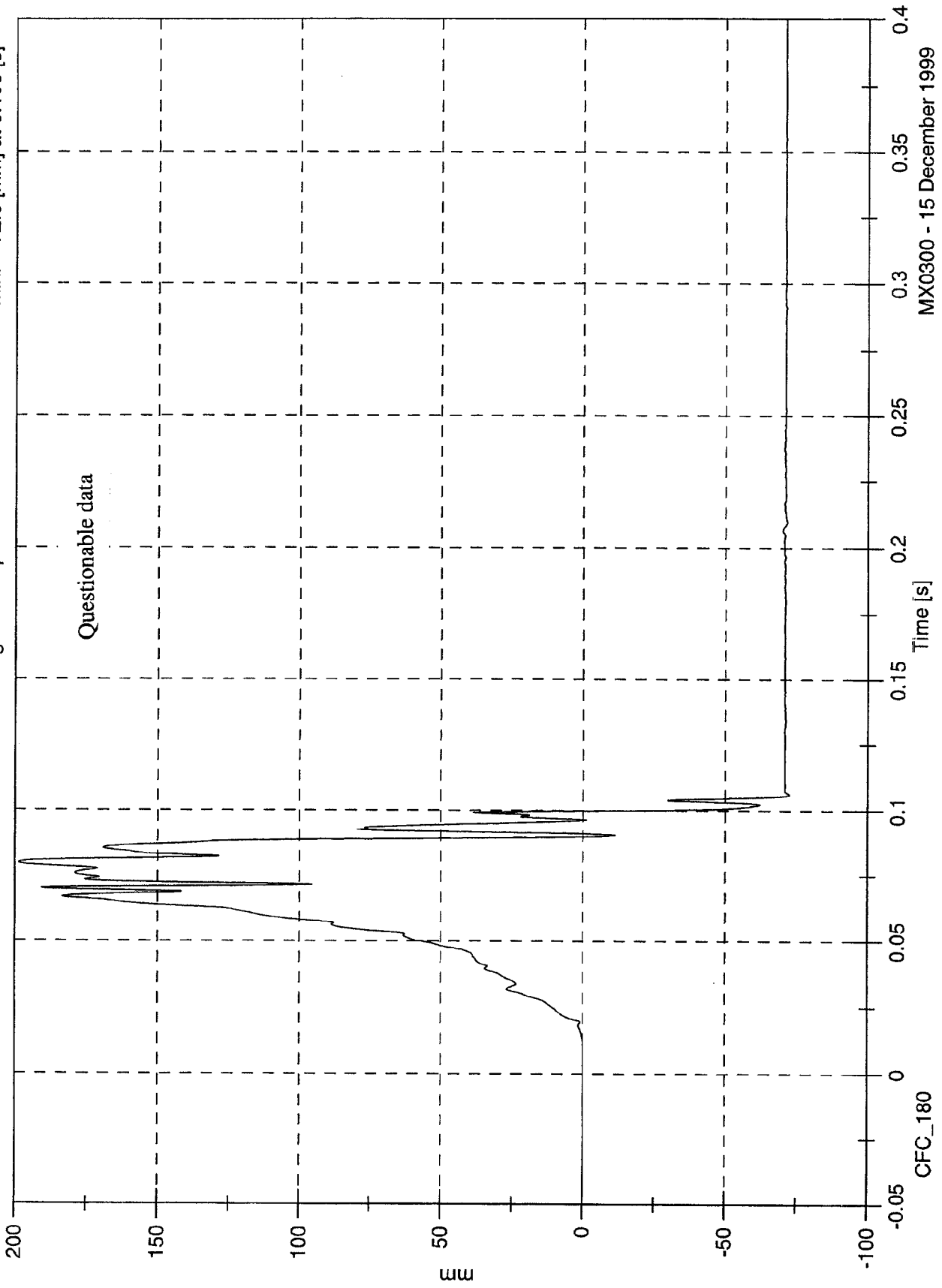


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 198.7 [mm] at 0.080 [s]
Min: -72.6 [mm] at 0.106 [s]

Passenger Belt Spoolout

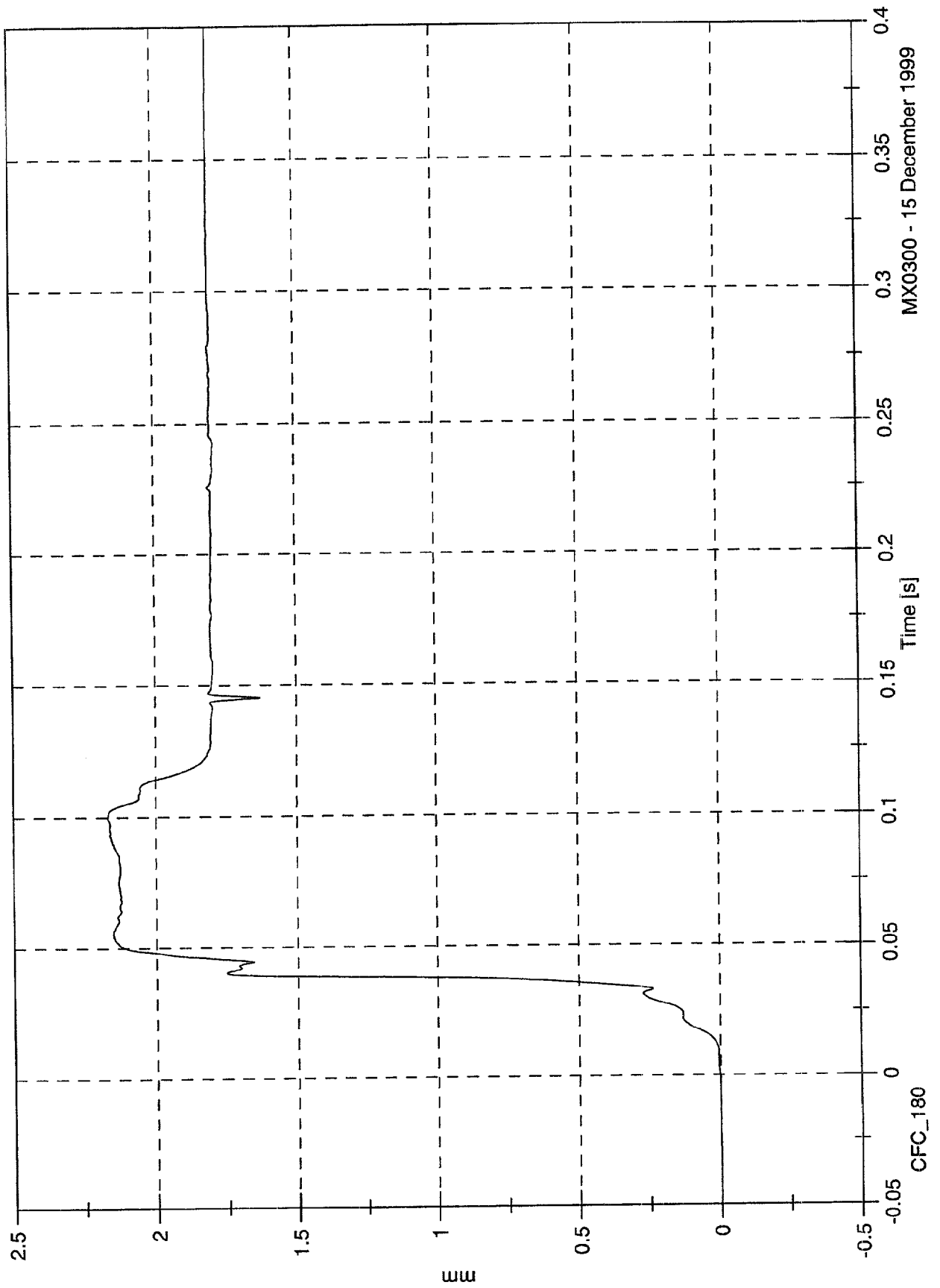


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 2.2 [mm] at 0.100 [s]
 Min: -0.0 [mm] at -0.051 [s]

Passenger Belt Elongation



MX0300 - 15 December 1999

NHTSA TEST NO. MX0300

VEHICLE DATA

FILTER CHANNEL CLASS

Acceleration

60

Velocity

180

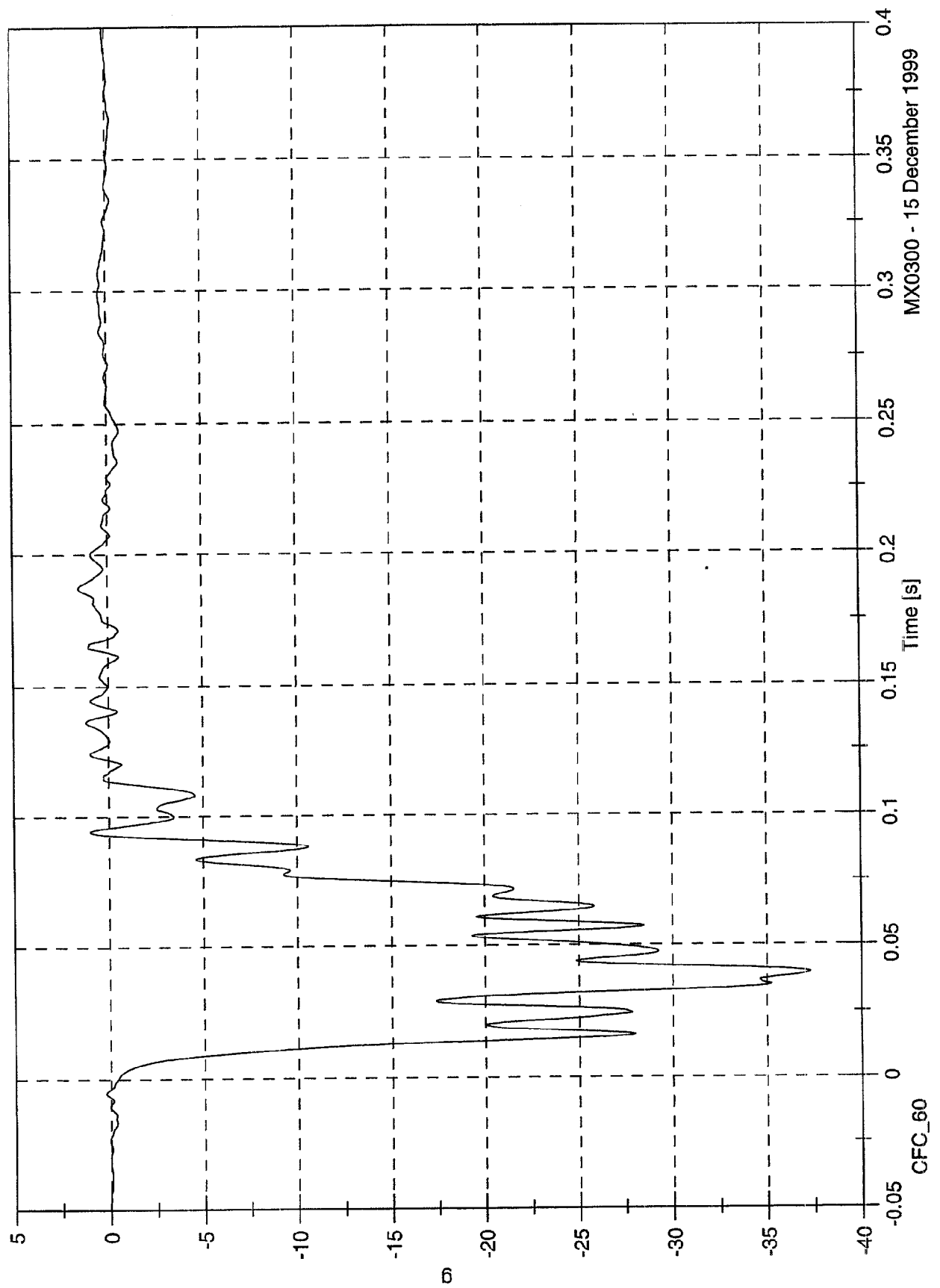
Displacement

180

NCAP TEST #2 - 1999 Dodge Durango

Max: 1.6 [g] at 0.187 [s]
Min: -37.3 [g] at 0.039 [s]

Acc 1 L Rear Crossmember X



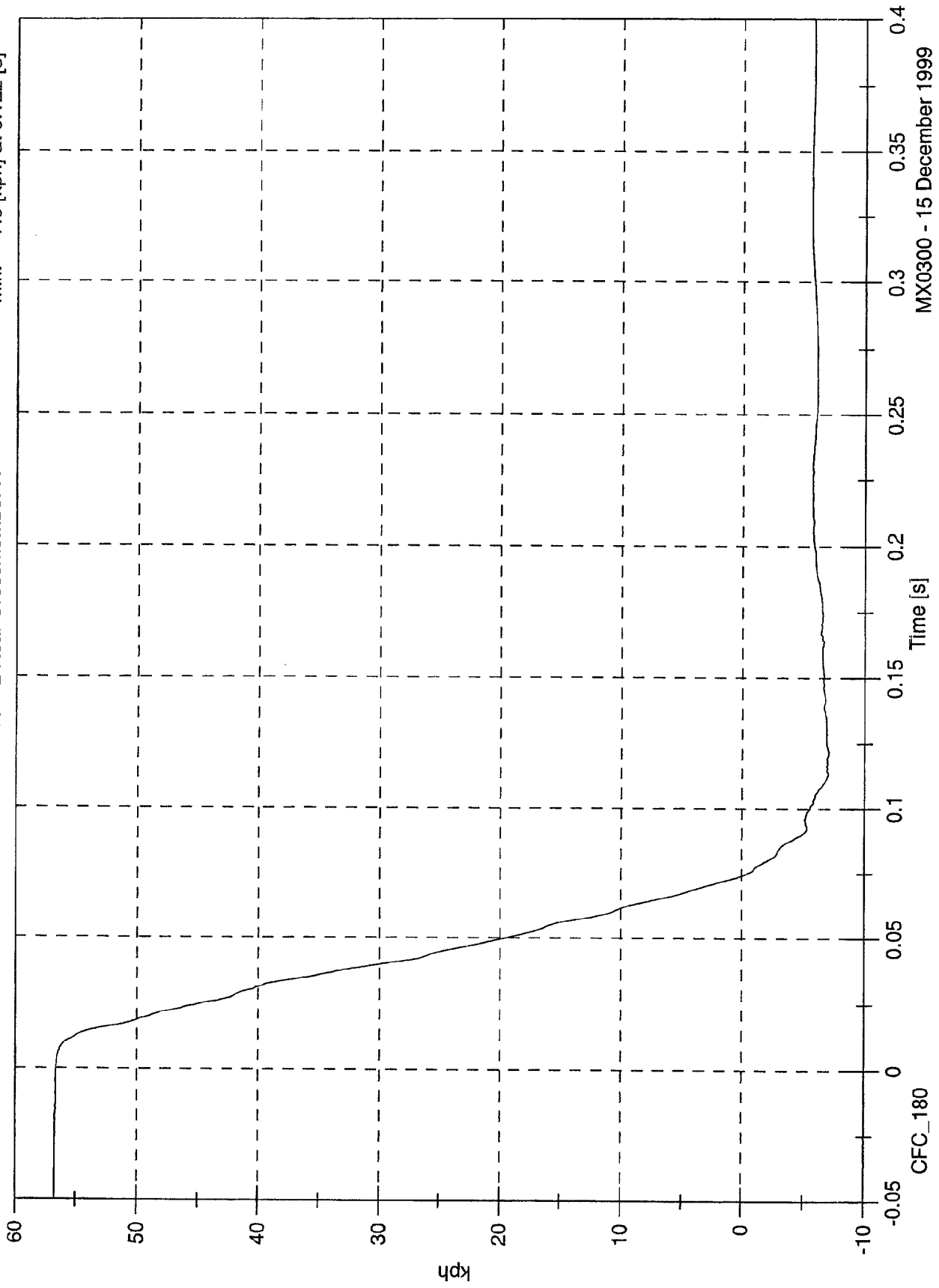
MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 56.8 [kph] at -0.047 [s]

Min: -7.0 [kph] at 0.122 [s]

Acc 1 L Rear Crossmember X

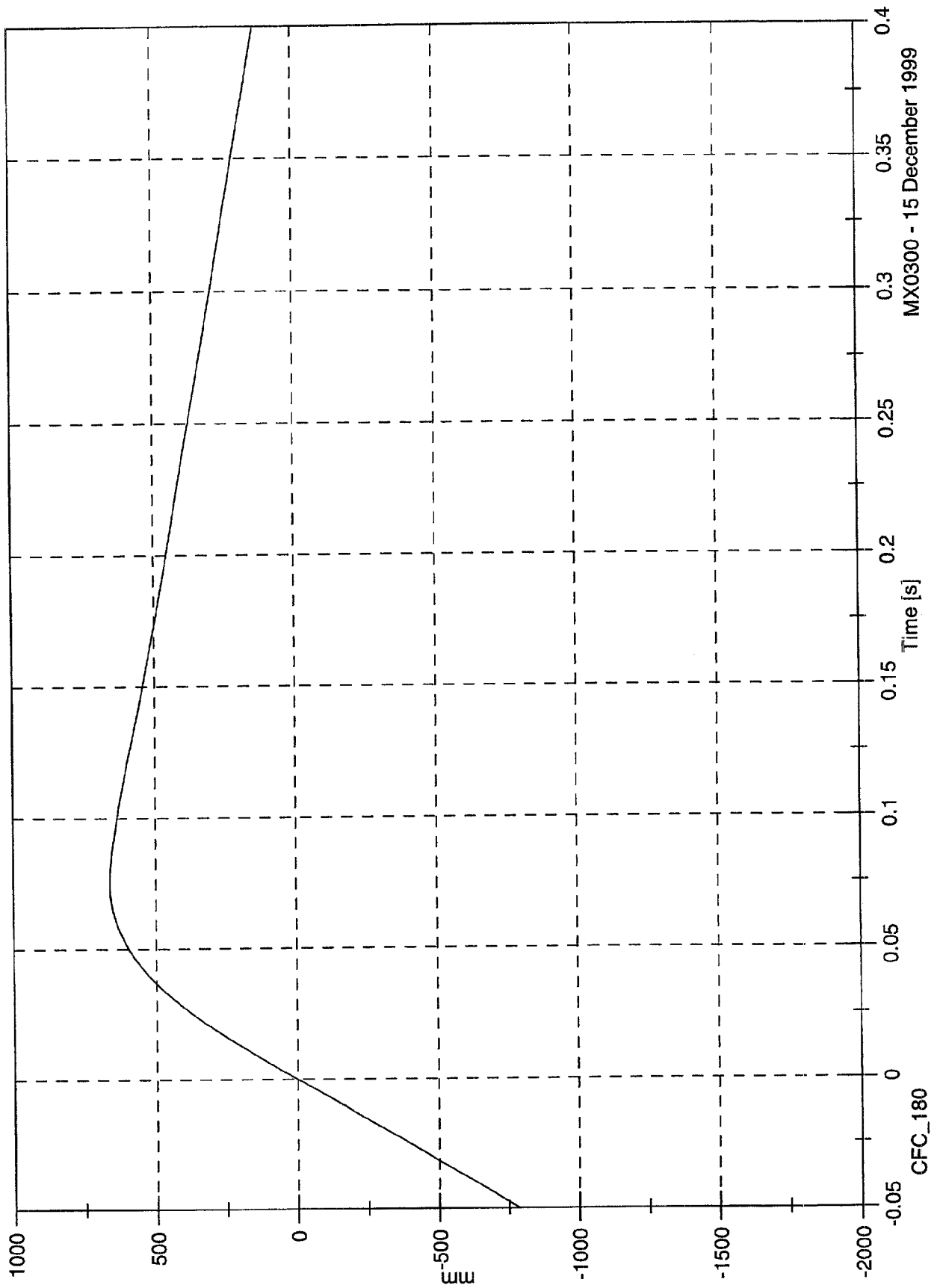


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 659.9 [mm] at 0.074 [s]
 Min: -1575.2 [mm] at -0.100 [s]

Acc 1 L Rear Crossmember X

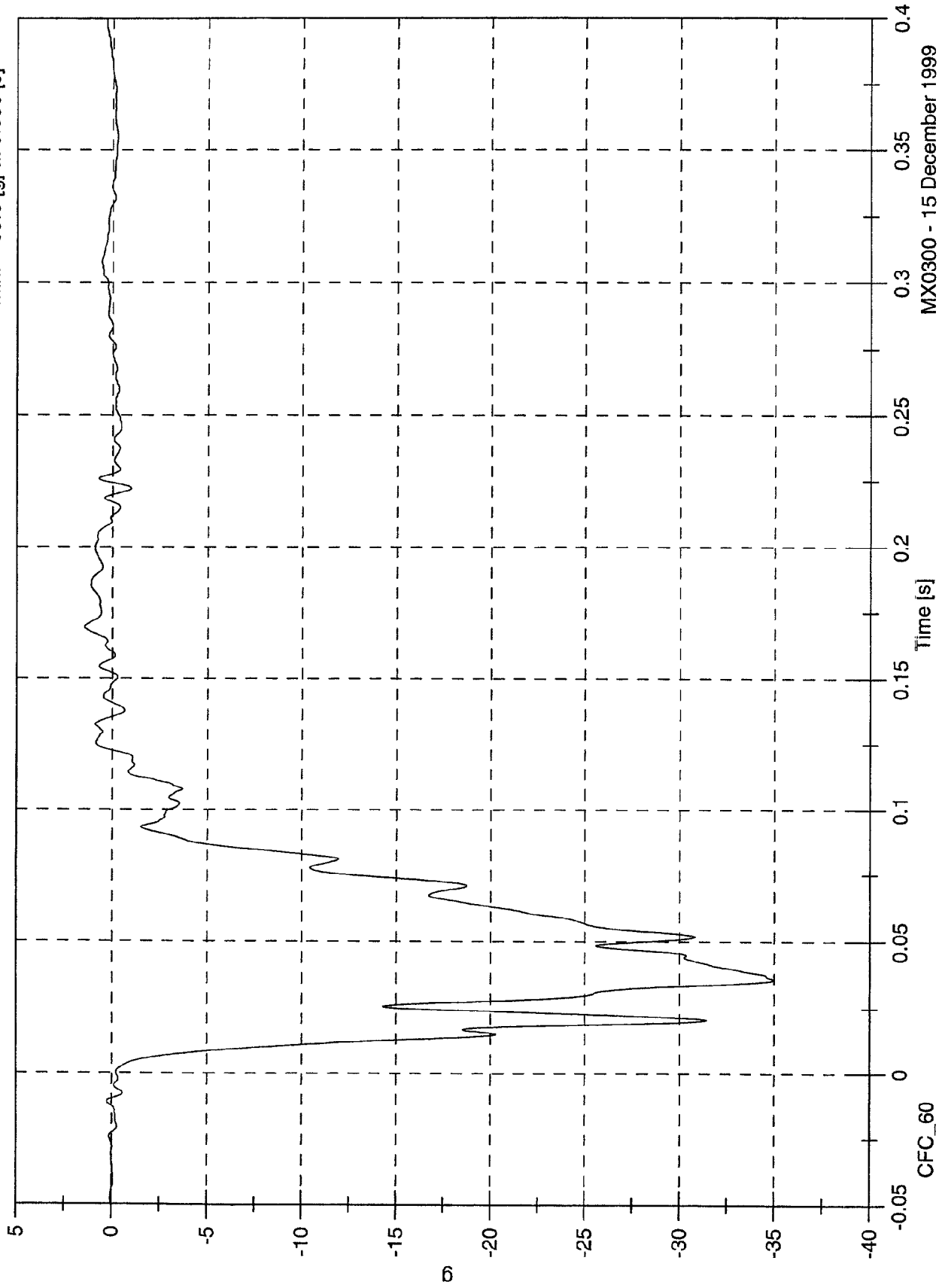


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 1.5 [g] at 0.169 [s]
Min: -35.0 [g] at 0.036 [s]

Acc 2 R Rear Crossmember X

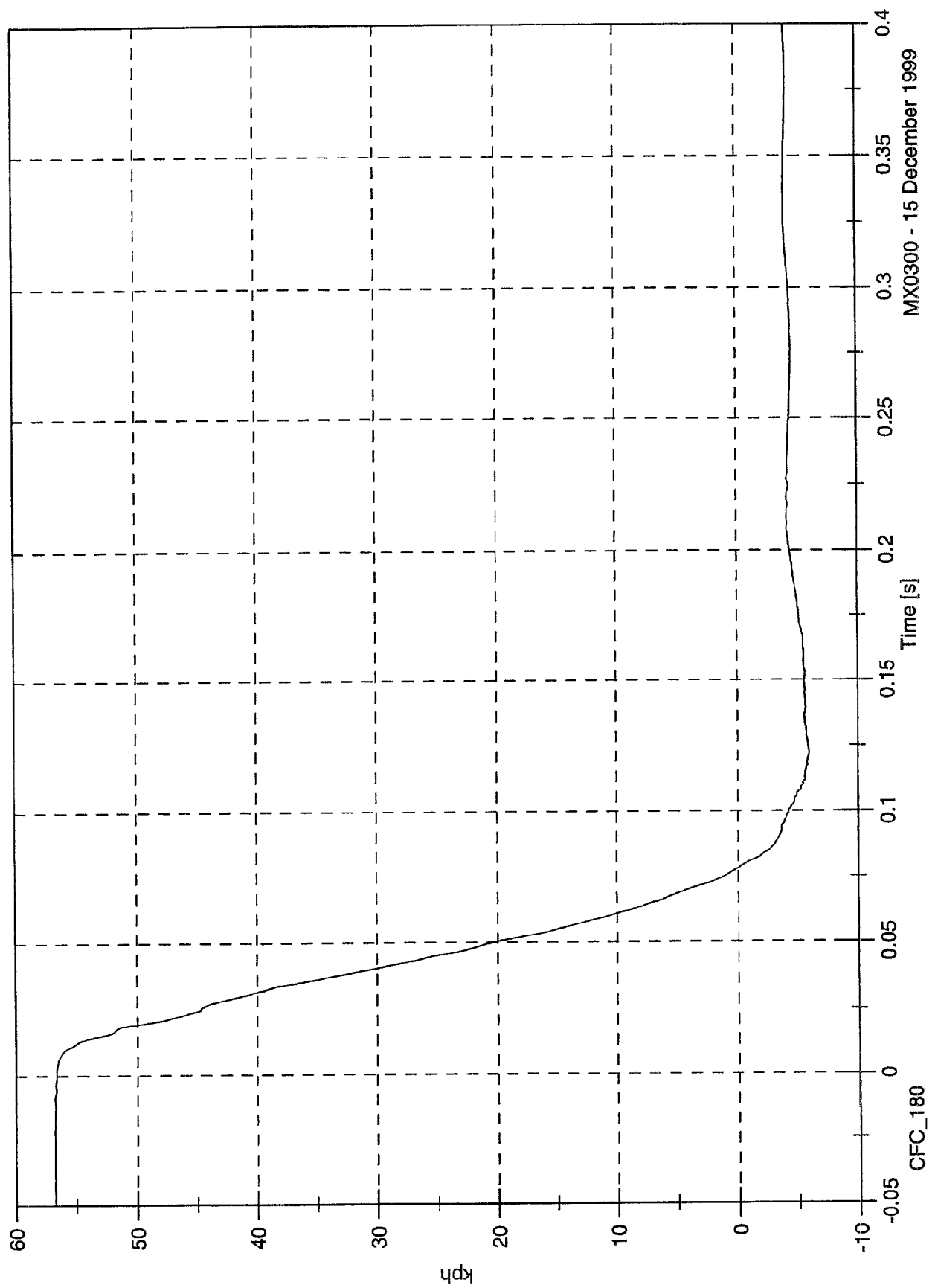


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 2 R Rear Crossmember X

Max: 56.8 [kph] at -0.023 [s]
Min: -5.9 [kph] at 0.122 [s]



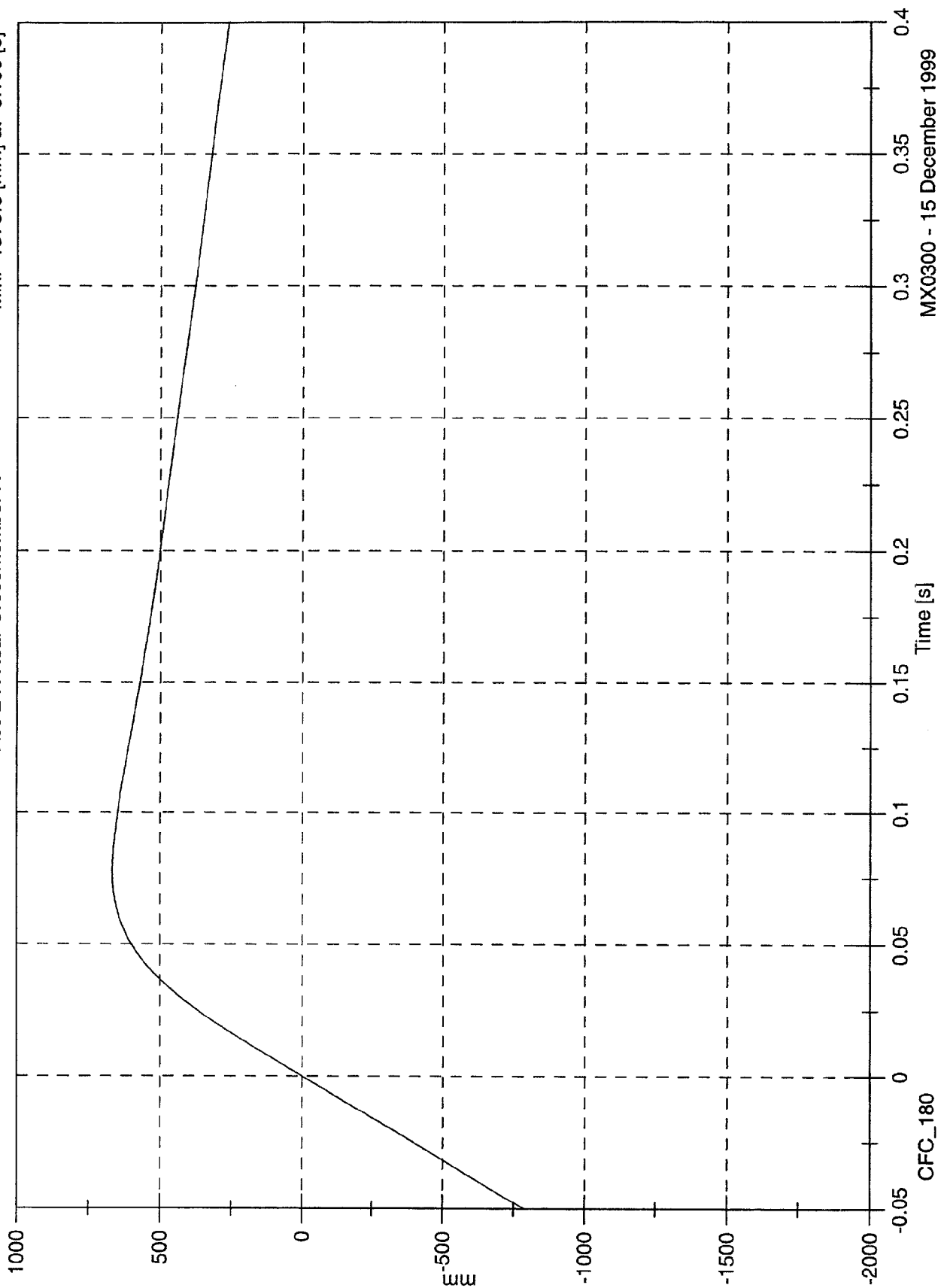
MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 2 R Rear Crossmember X

Max: 666.8 [mm] at 0.078 [s]

Min: -1575.6 [mm] at -0.100 [s]

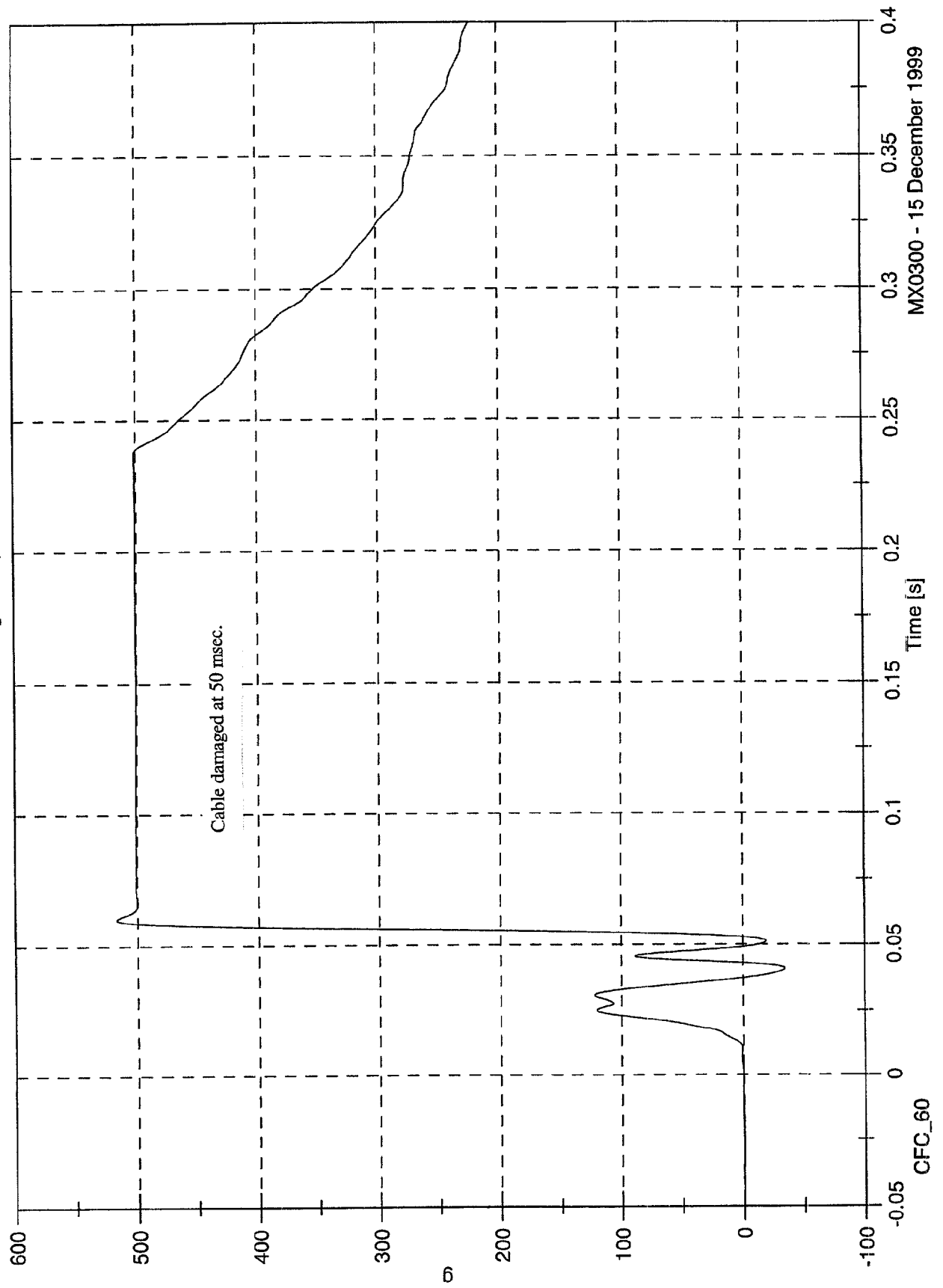


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 3 Engine Top X

Max: 517.0 [g] at 0.060 [s]
Min: -34.2 [g] at 0.041 [s]

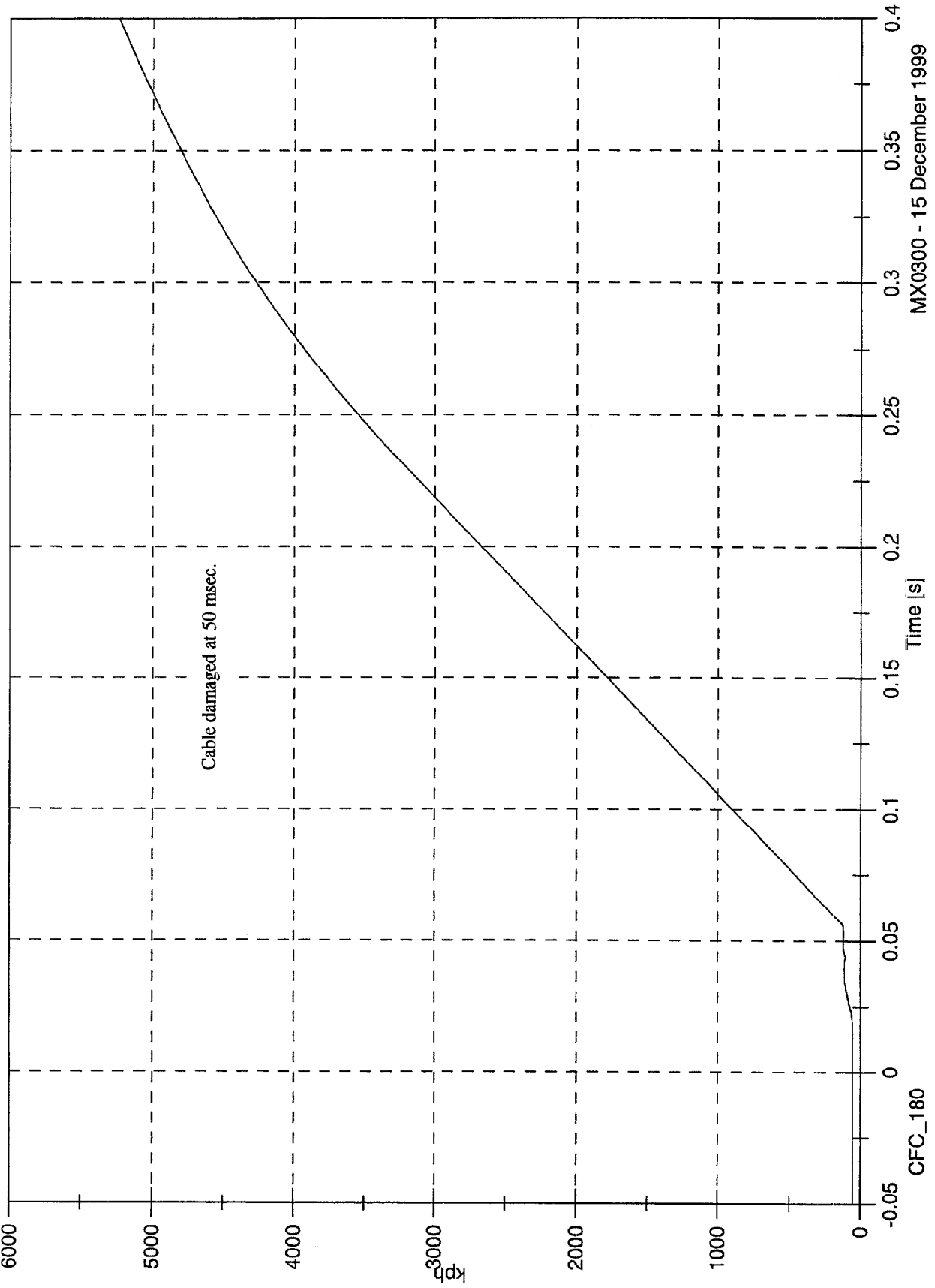


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 3 Engine Top X

Max: 5880.4 [kph] at 0.600 [s]
Min: 56.6 [kph] at -0.019 [s]

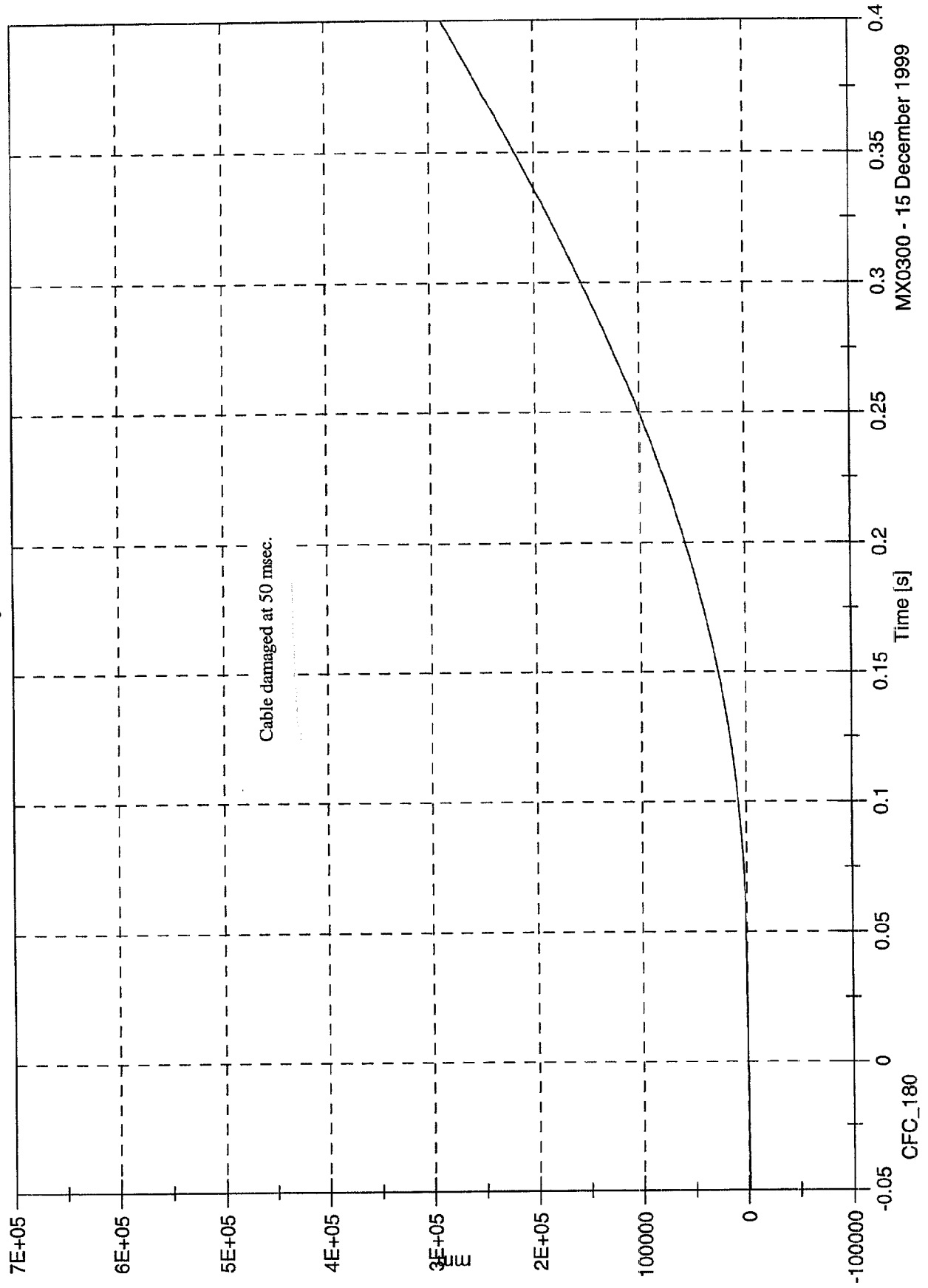


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 604071.7 [mm] at 0.600 [s]
Min: -1572.5 [mm] at -0.100 [s]

Acc 3 Engine Top X

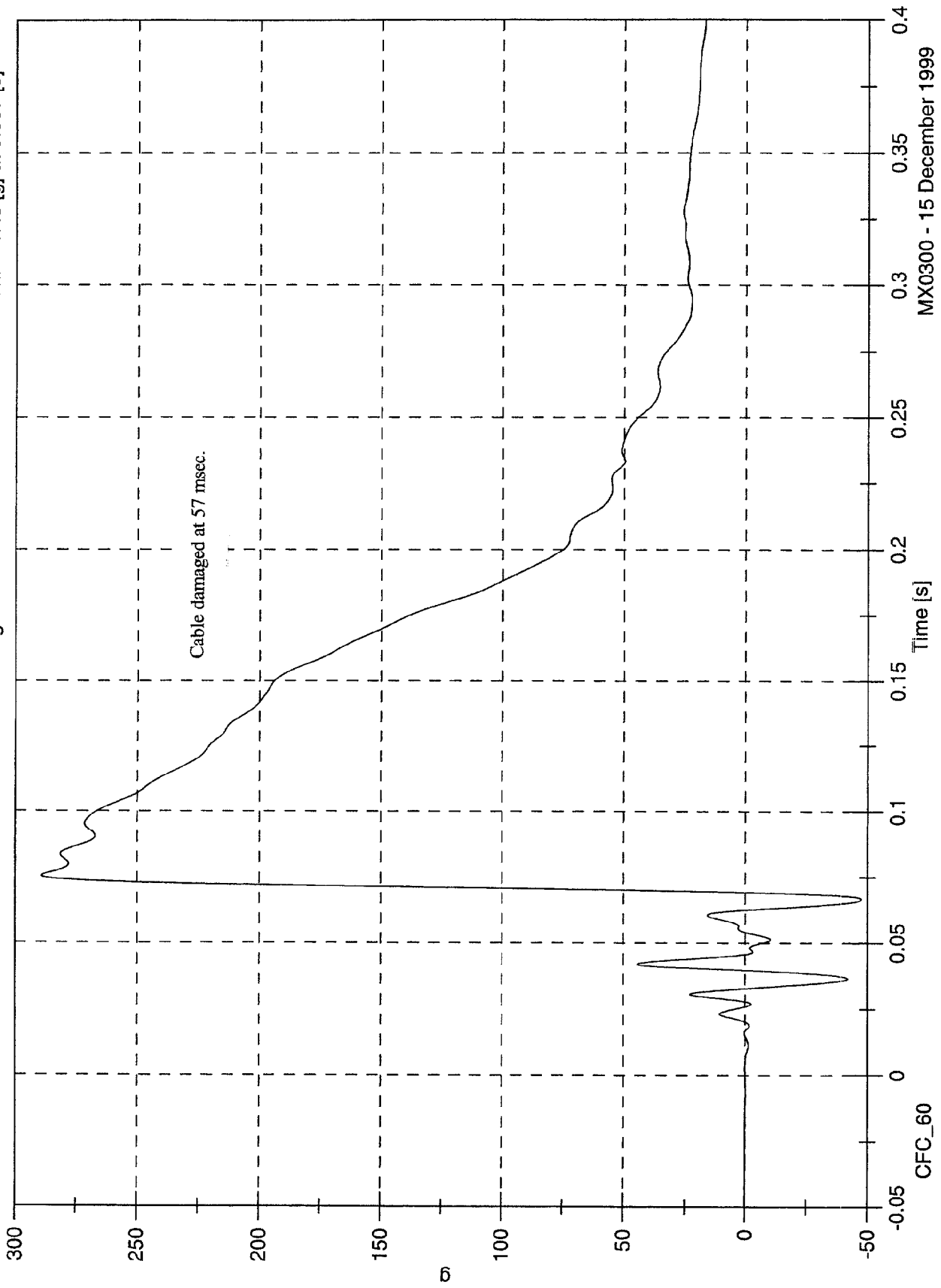


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 4 Engine Bottom X

Max: 289.2 [g] at 0.075 [s]
Min: -47.5 [g] at 0.067 [s]

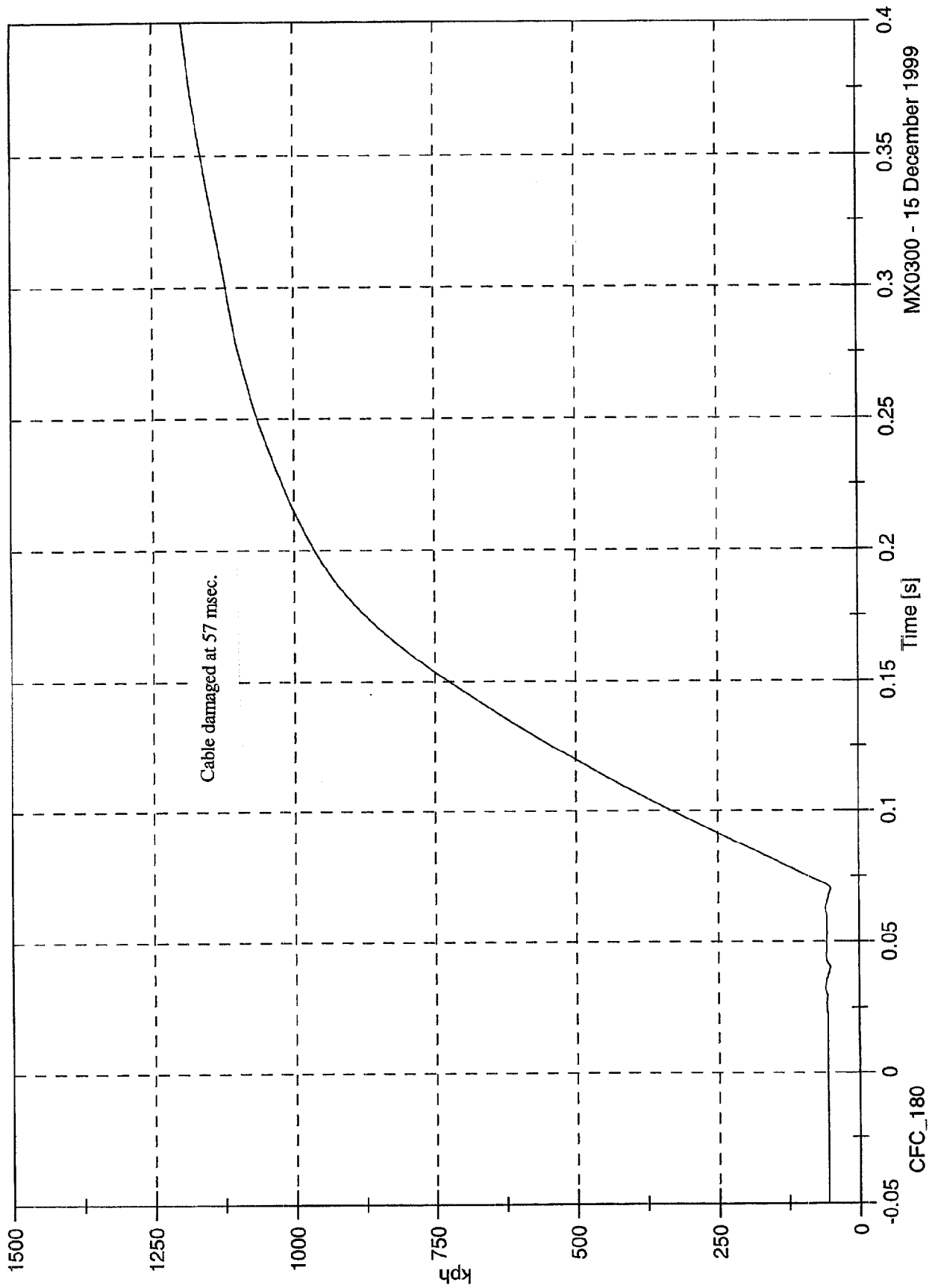


NCAP TEST #2 - 1999 Dodge Durango

Acc 4 Engine Bottom X

Max: 1255.7 [kph] at 0.542 [s]

Min: 50.4 [kph] at 0.070 [s]

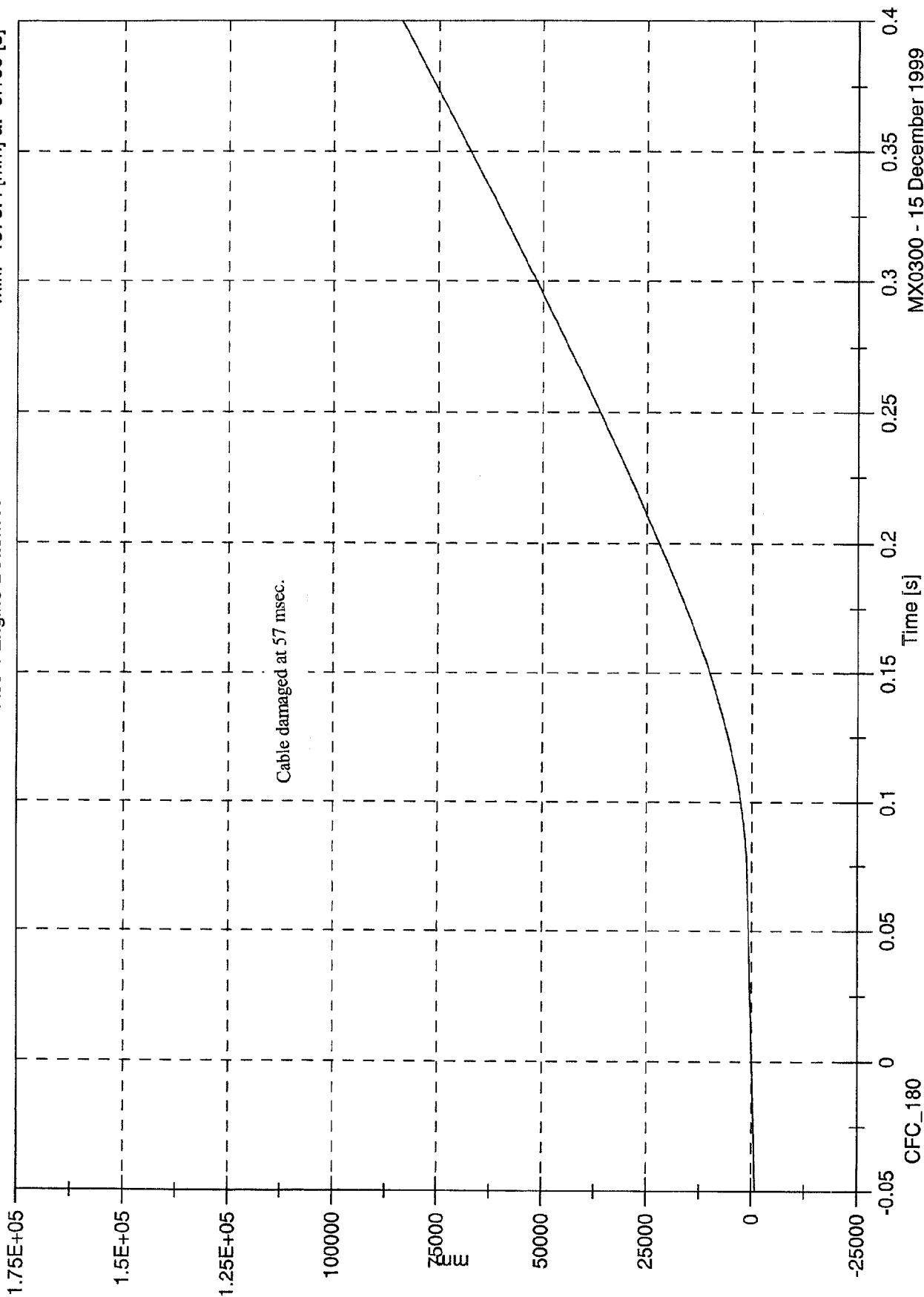


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 4 Engine Bottom X

Max: 152430.3 [mm] at 0.600 [s]
Min: -1573.4 [mm] at -0.100 [s]

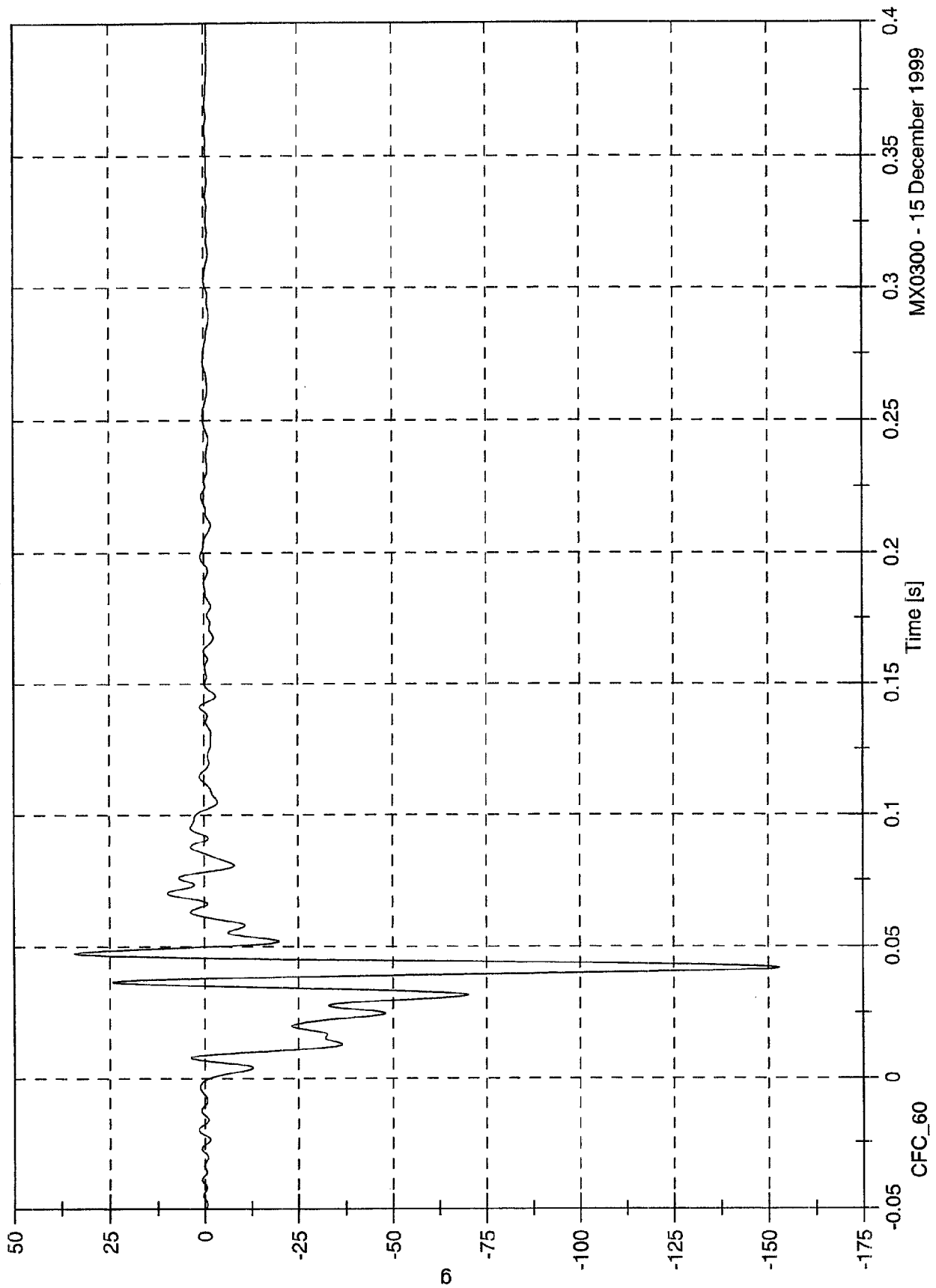


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 34.1 [g] at 0.048 [s]
Min: -153.0 [g] at 0.042 [s]

Acc 5 R Caliper X



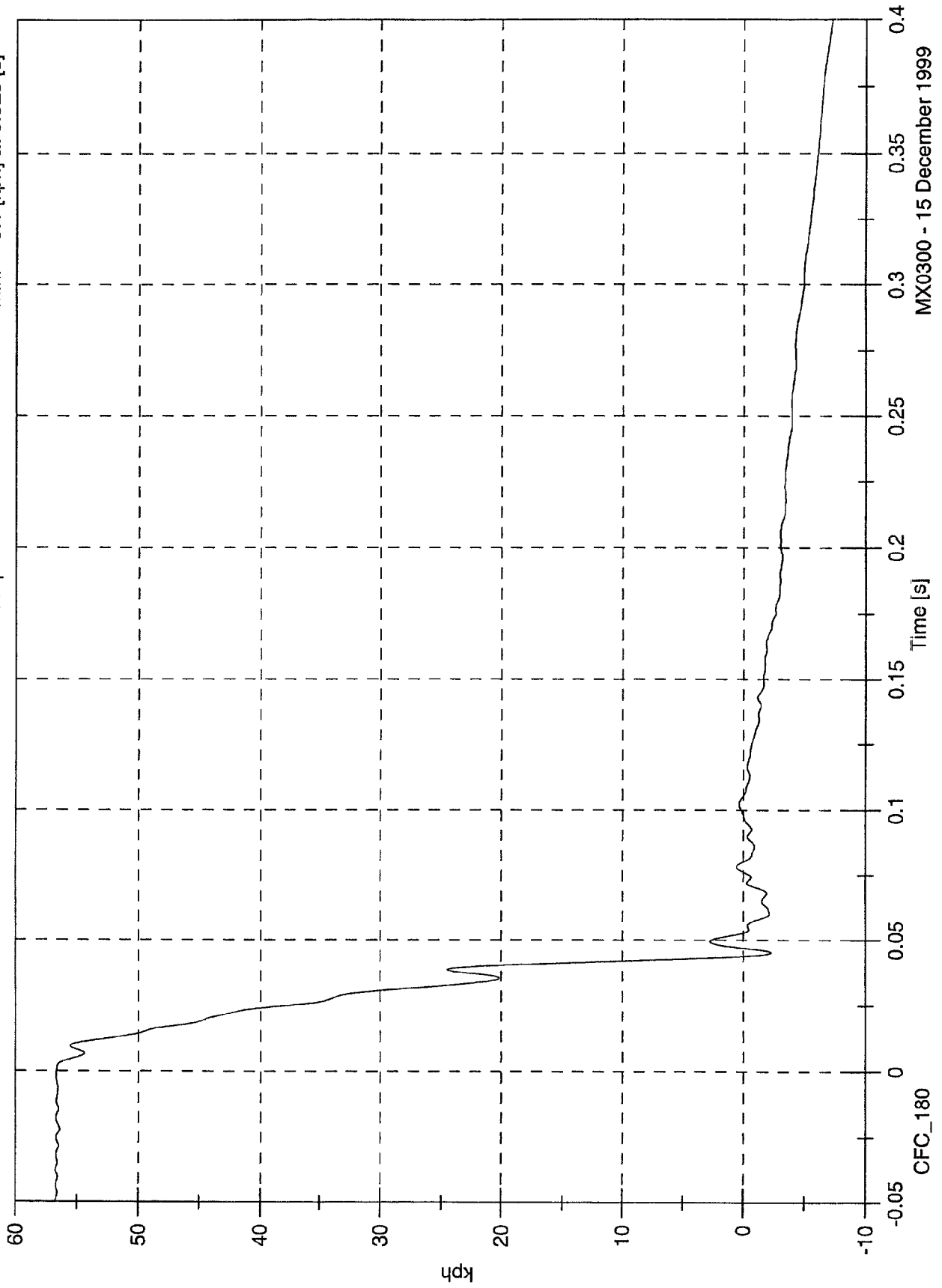
MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 5 R Caliper X

Max: 56.8 [kph] at -0.050 [s]

Min: -9.1 [kph] at 0.528 [s]

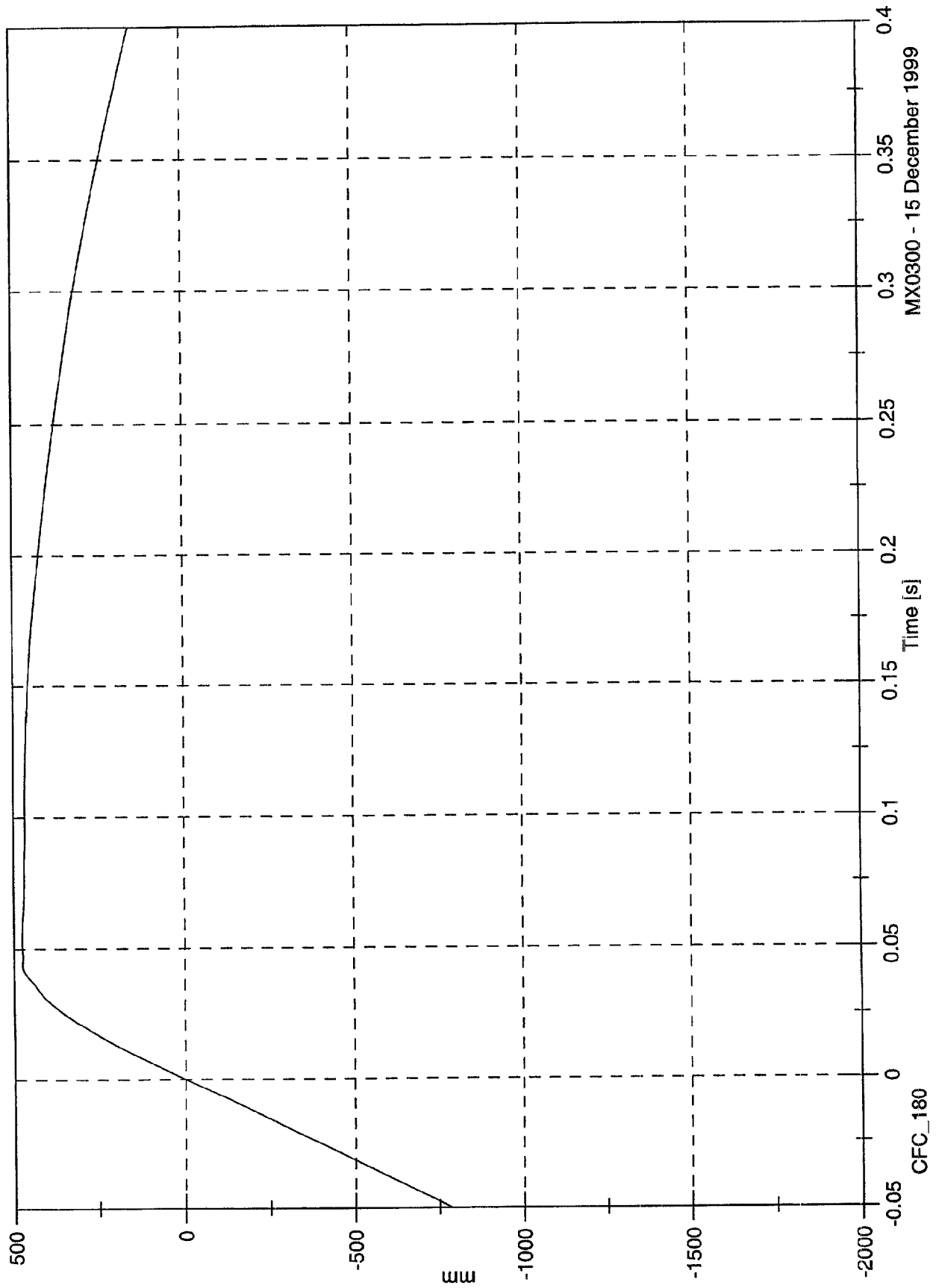


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 5 R Caliper X

Max: 476.4 [mm] at 0.053 [s]
Min: -1572.9 [mm] at -0.100 [s]

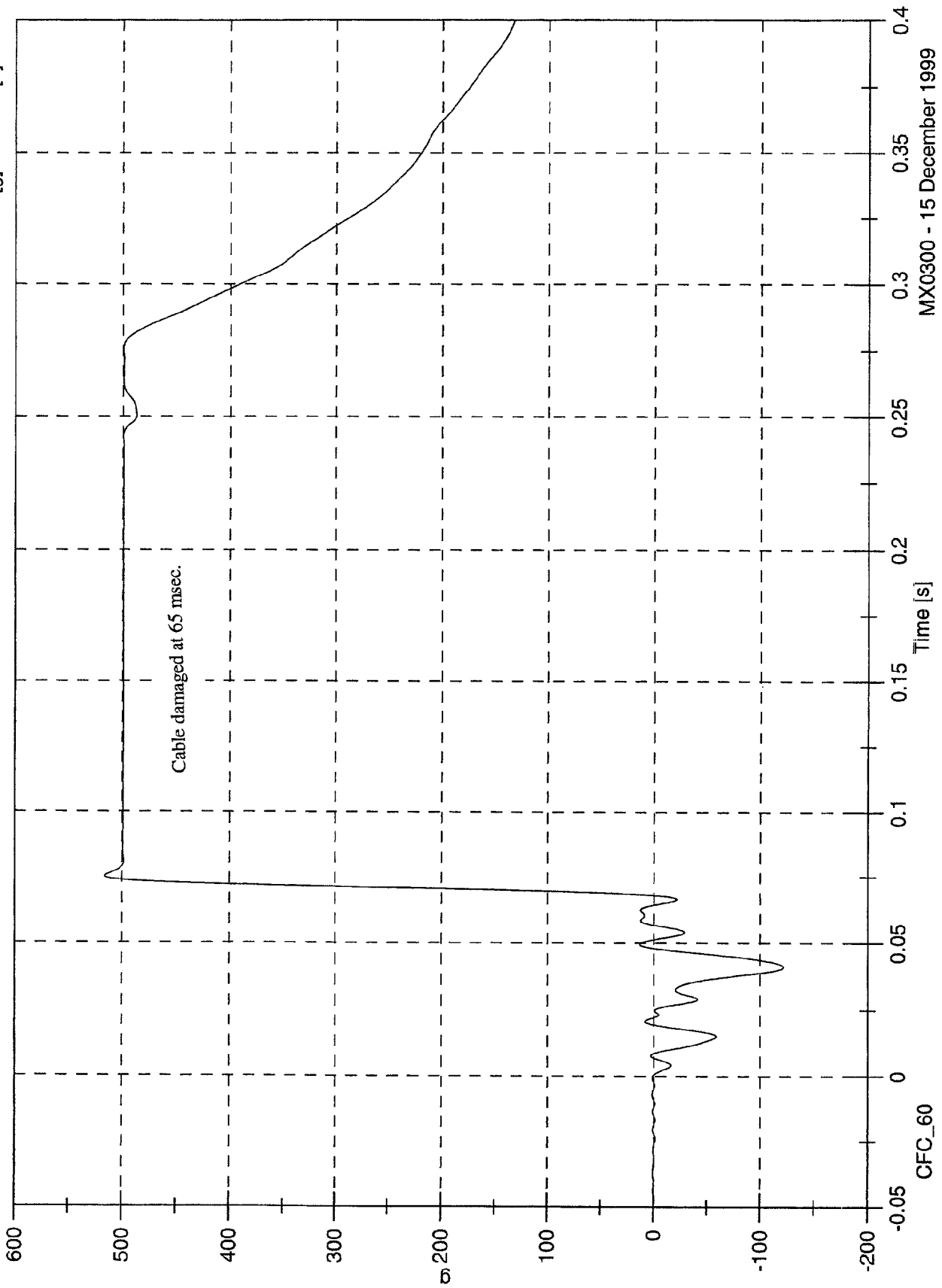


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 6 Instrument Panel X

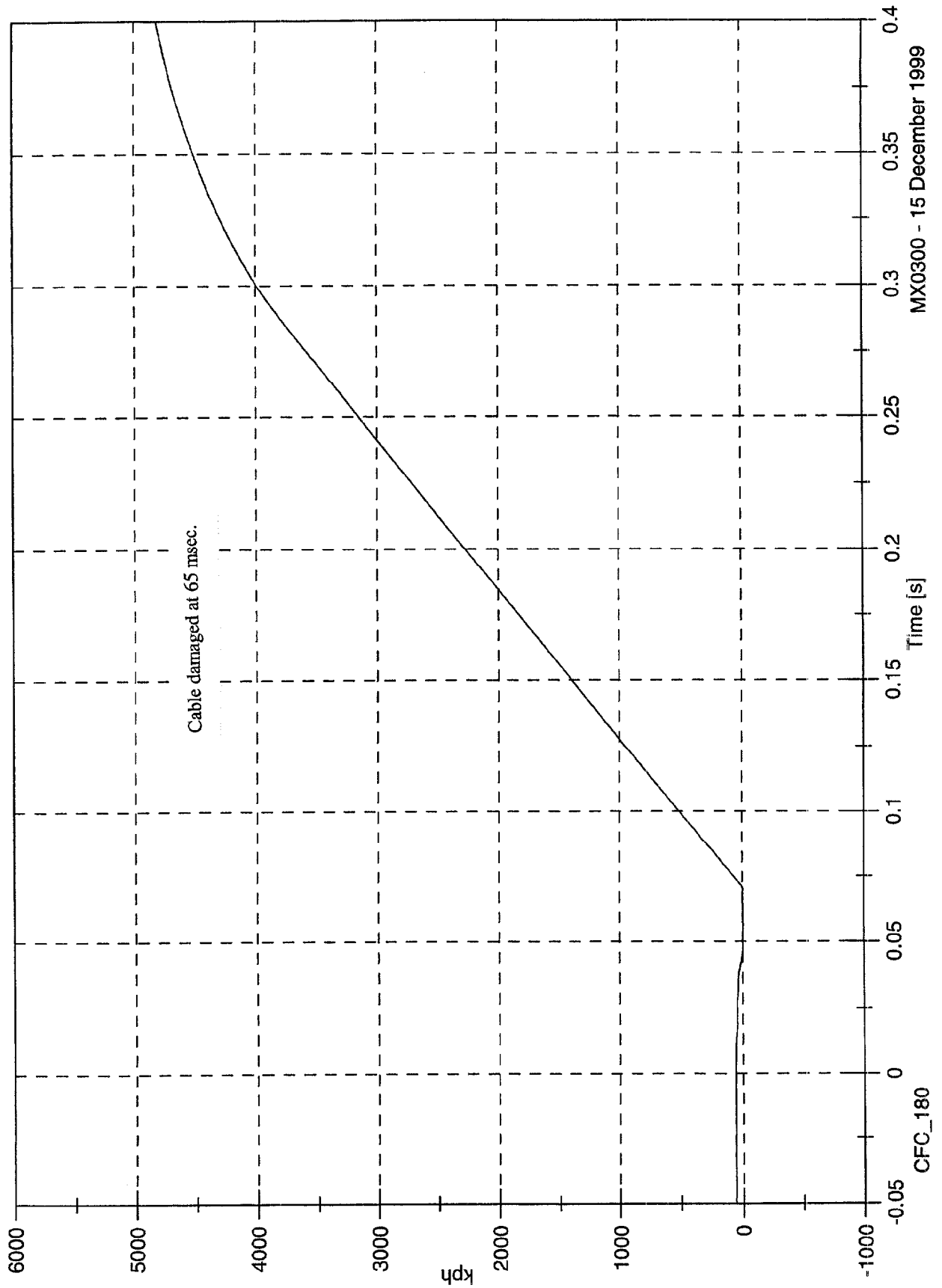
Max: 516.0 [g] at 0.075 [s]
Min: -121.8 [g] at 0.041 [s]



NCAP TEST #2 - 1999 Dodge Durango

Acc 6 Instrument Panel X

Max: 5224.5 [kph] at 0.600 [s]
Min: -5.9 [kph] at 0.056 [s]

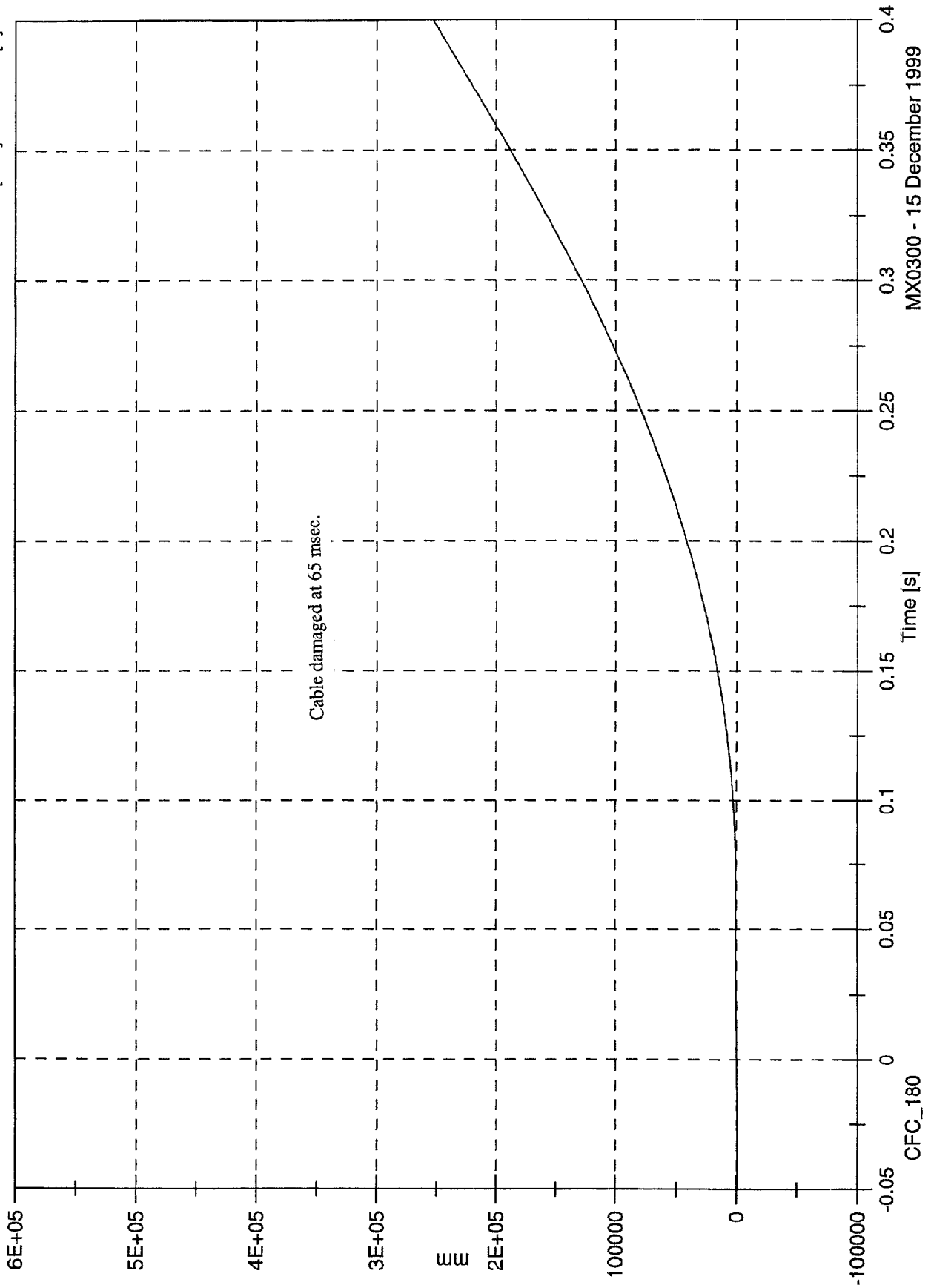


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 6 Instrument Panel X

Max: 534482.1 [mm] at 0.600 [s]
Min: -1573.9 [mm] at -0.100 [s]

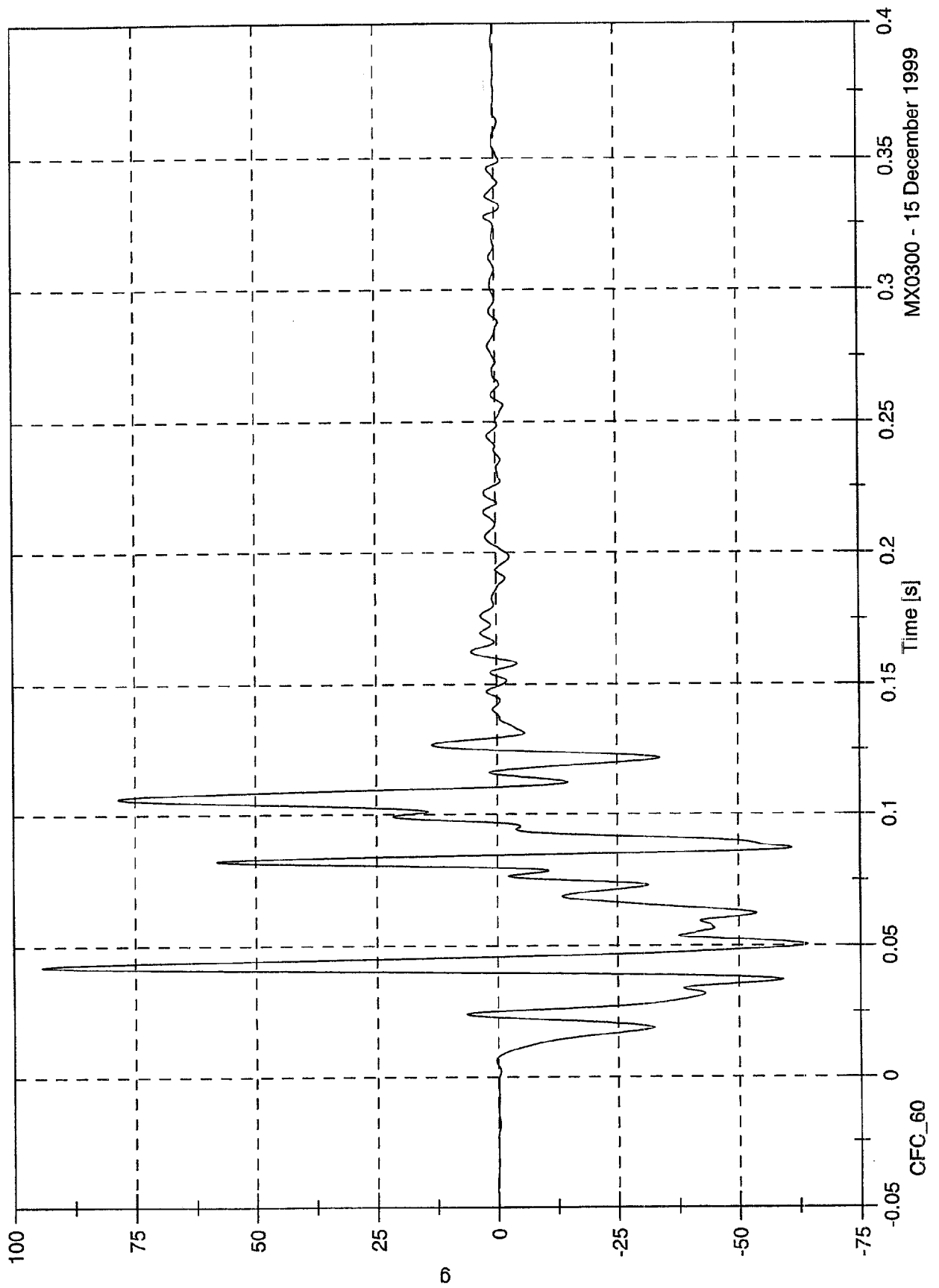


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 94.2 [g] at 0.042 [s]
Min: -64.1 [g] at 0.050 [s]

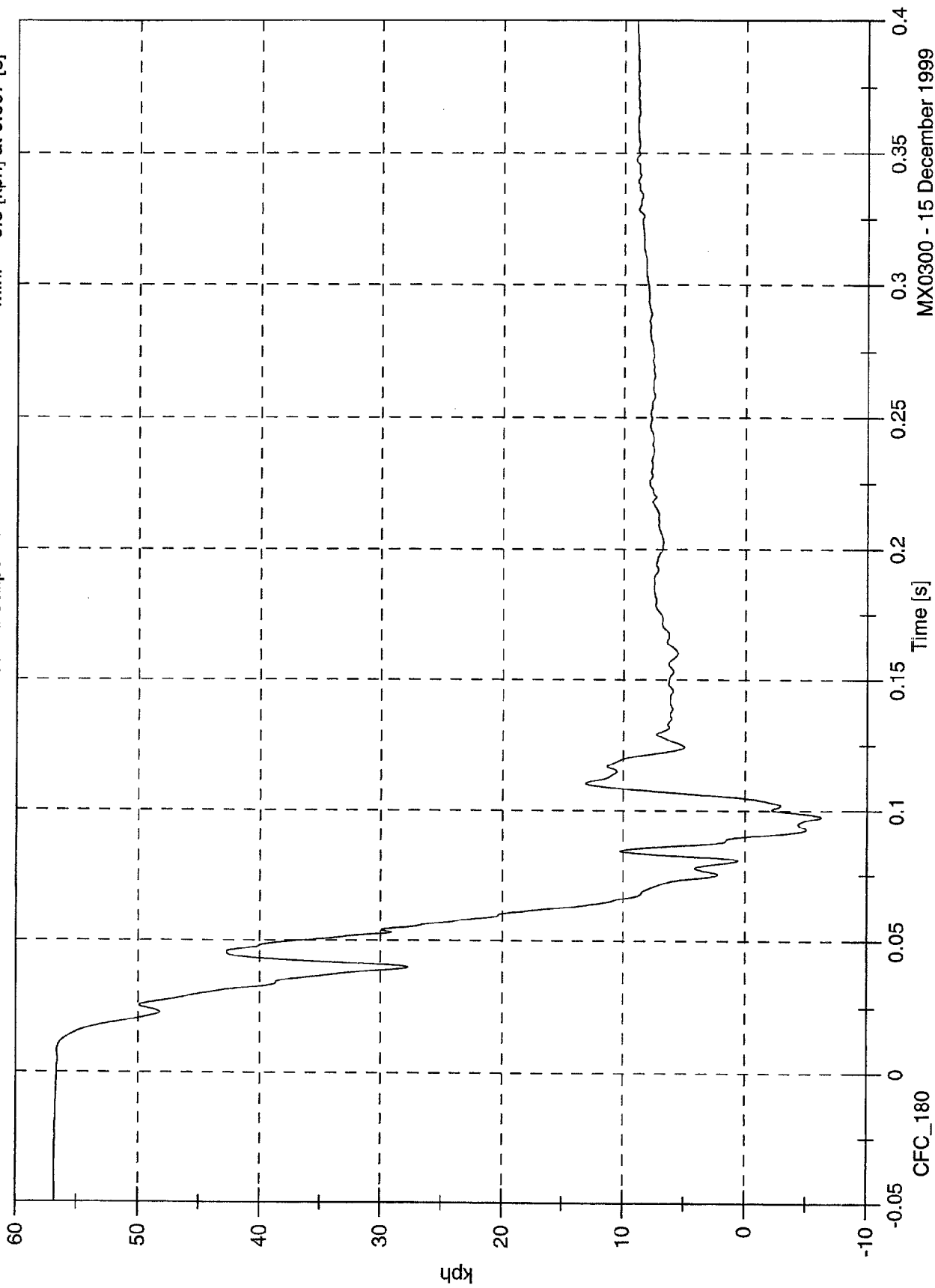
Acc 7 L Caliper X



NCAP TEST #2 - 1999 Dodge Durango

Acc 7 L Caliper X

Max: 56.8 [kph] at -0.037 [s]
Min: -6.3 [kph] at 0.097 [s]

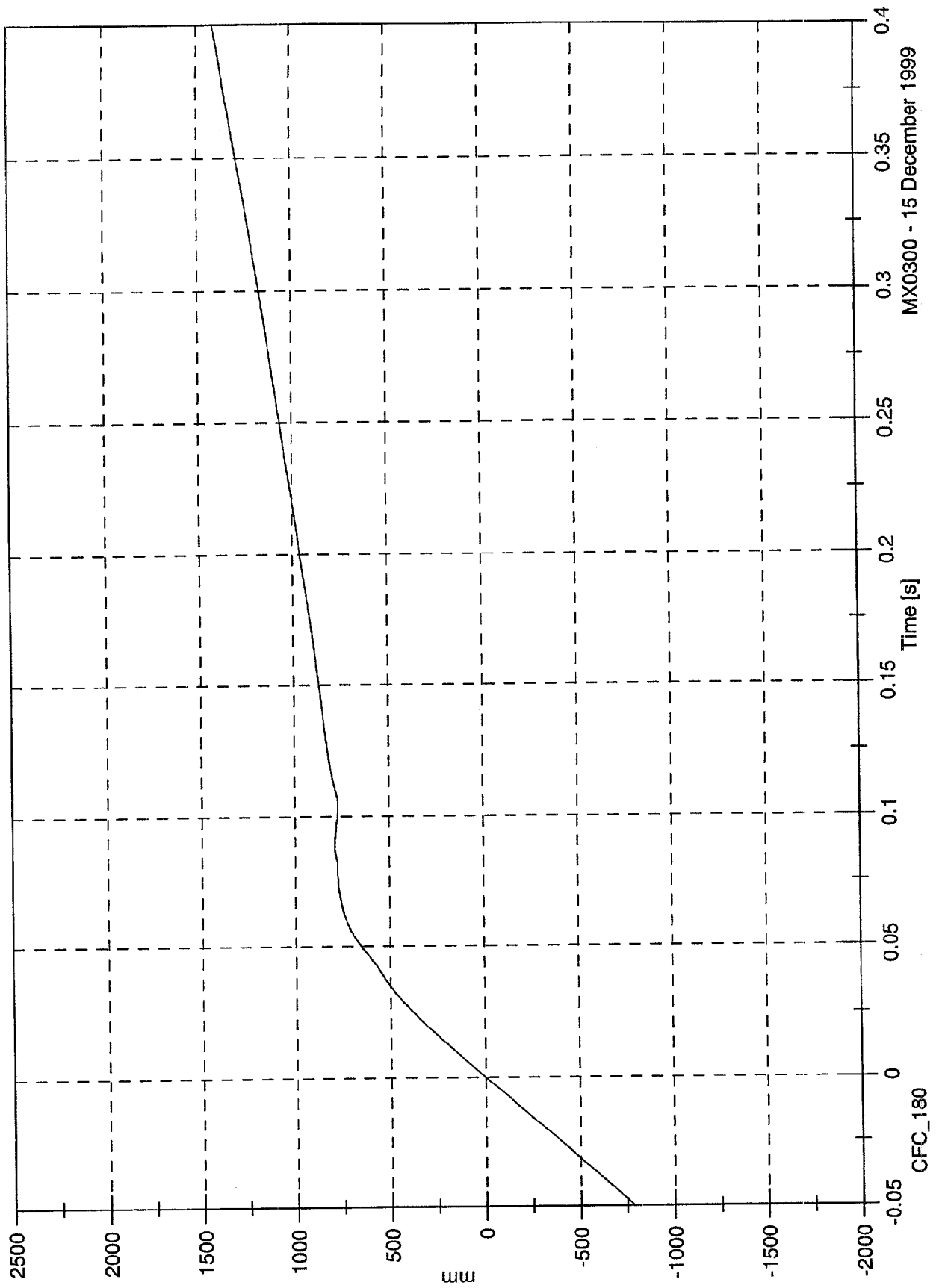


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 2010.2 [mm] at 0.600 [s]
Min: -1576.3 [mm] at -0.100 [s]

Acc 7 L Caliper X

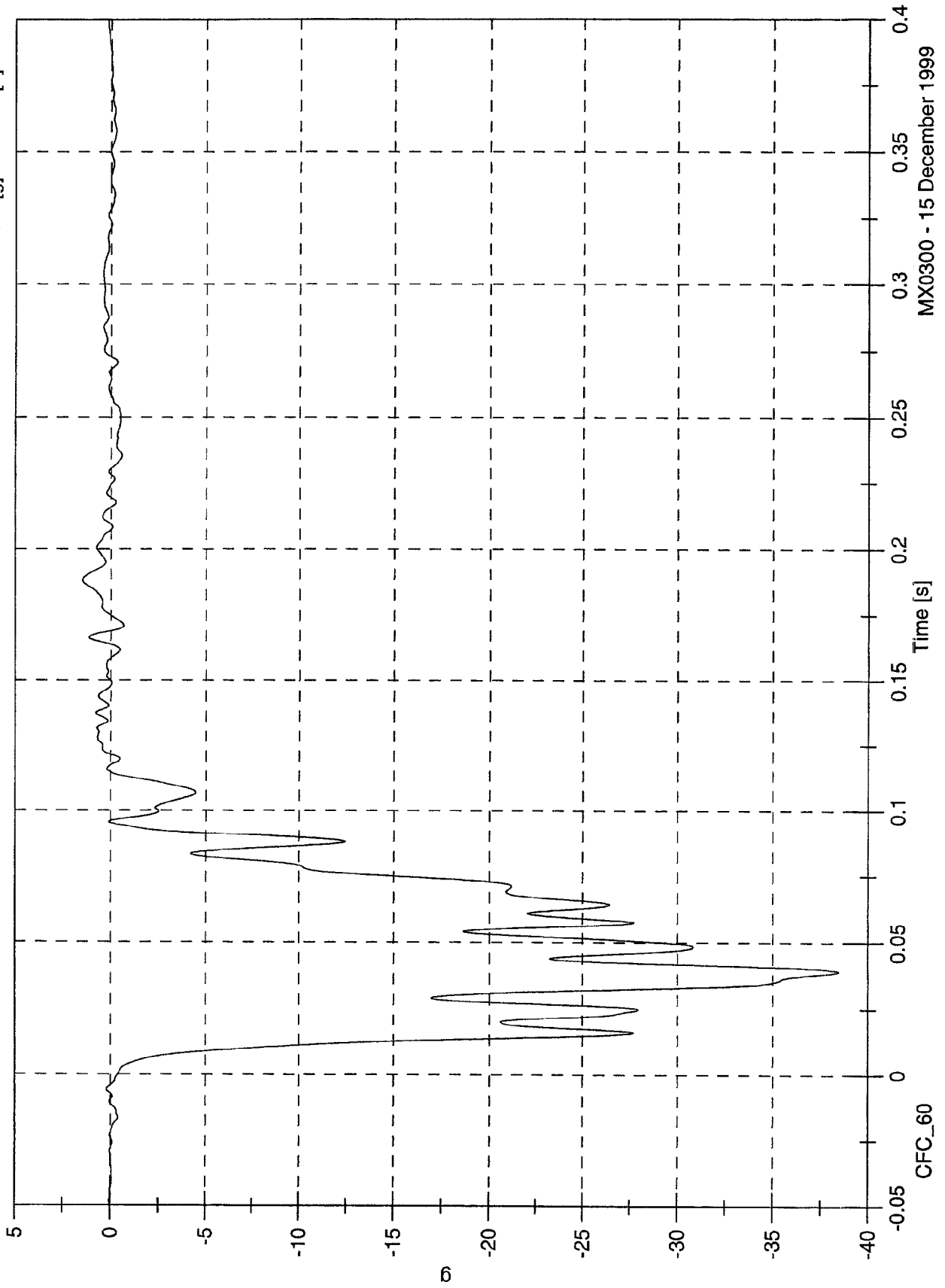


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Max: 1.5 [g] at 0.188 [s]
Min: -38.5 [g] at 0.039 [s]

Acc 8 Redundant LR Xmember X



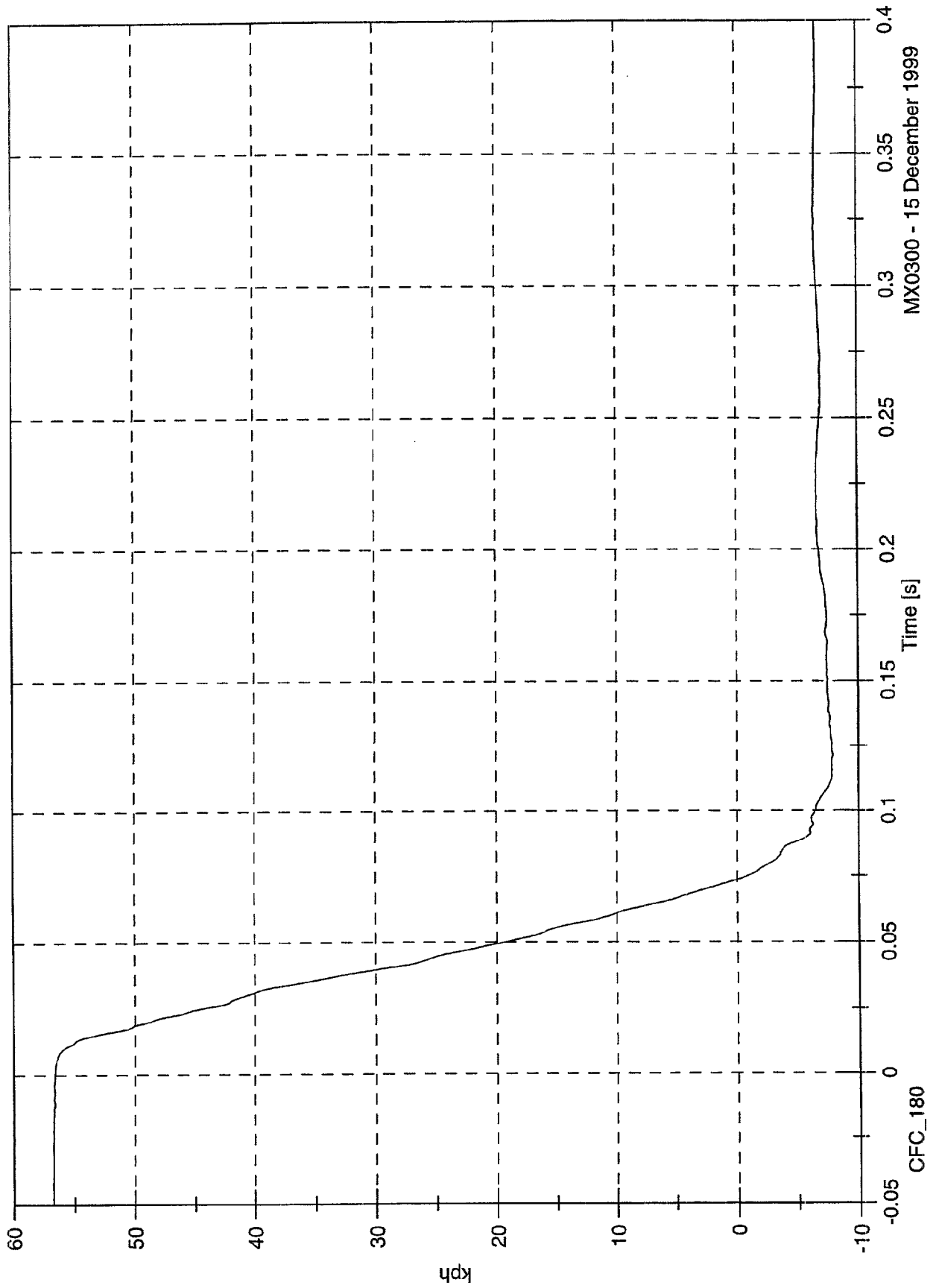
MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 8 Redundant LR Xmember X

Max: 56.8 [kph] at -0.043 [s]

Min: -7.9 [kph] at 0.121 [s]



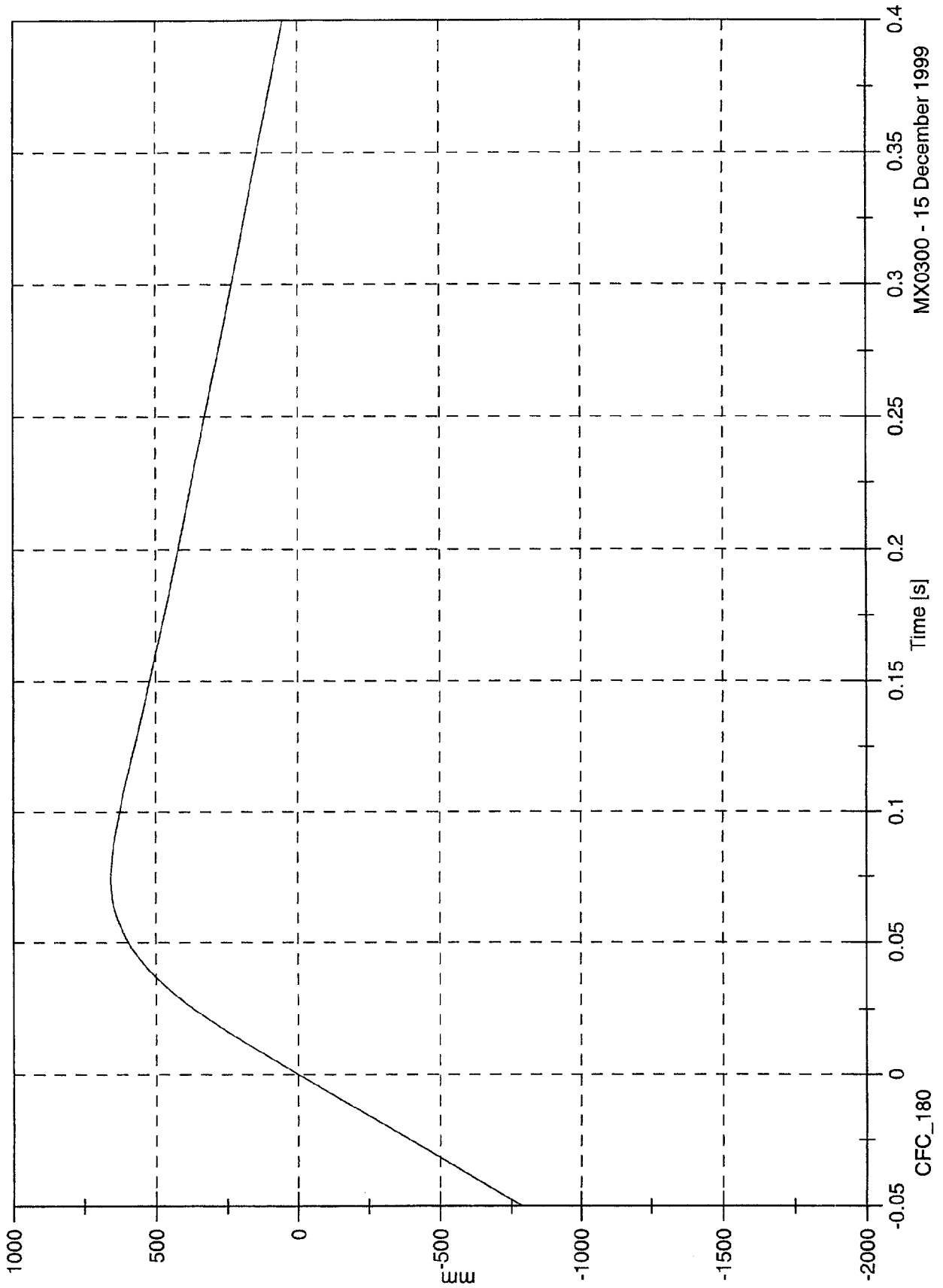
MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 8 Redundant LR Xmember X

Max: 656.9 [mm] at 0.073 [s]

Min: -1575.3 [mm] at -0.100 [s]

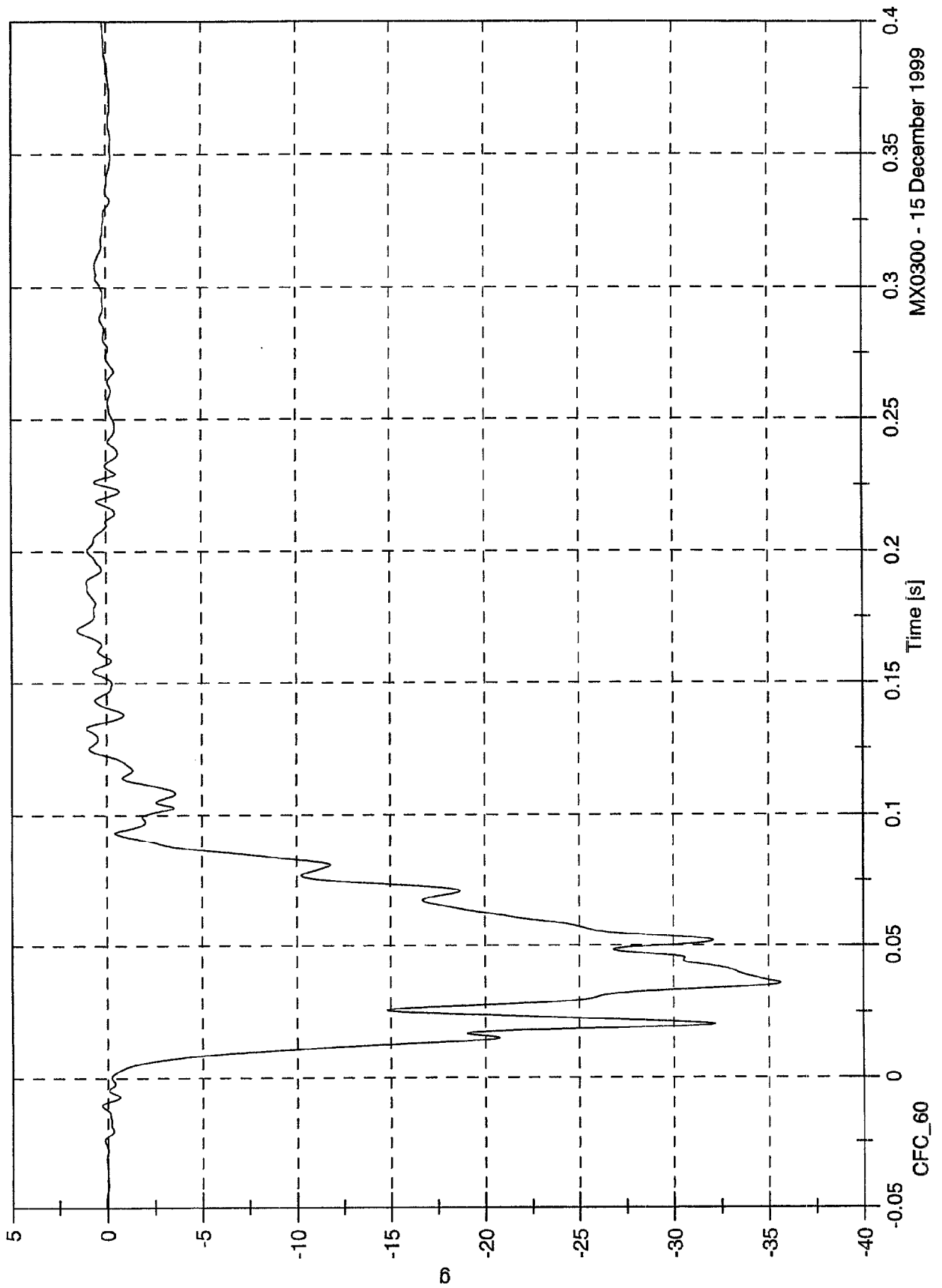


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 9 Redundant RR Xmember X

Max: 1.5 [g] at 0.170 [s]
Min: -35.6 [g] at 0.036 [s]

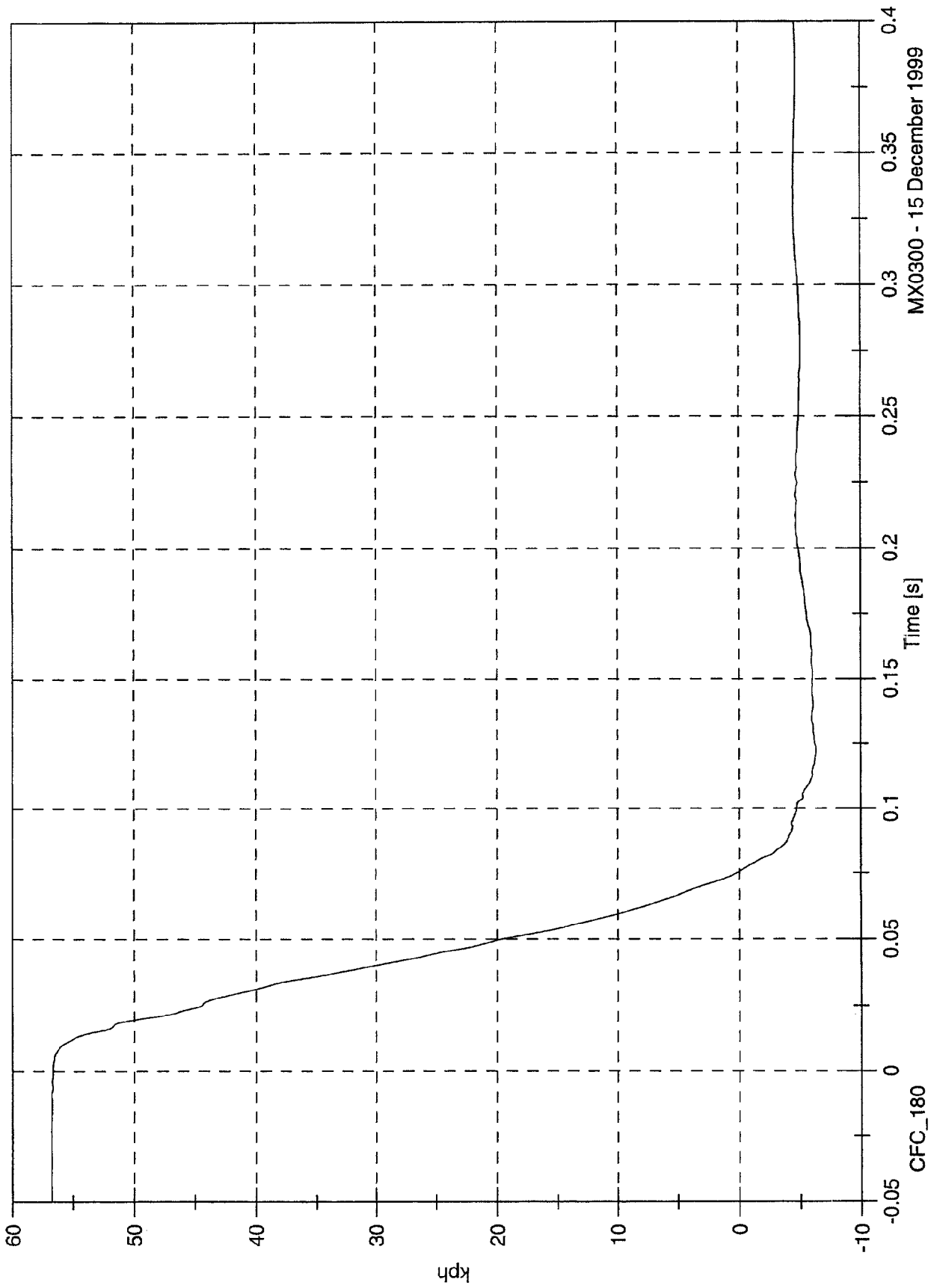


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 9 Redundant RR Xmember X

Max: 56.8 [kph] at -0.022 [s]
Min: -6.3 [kph] at 0.123 [s]

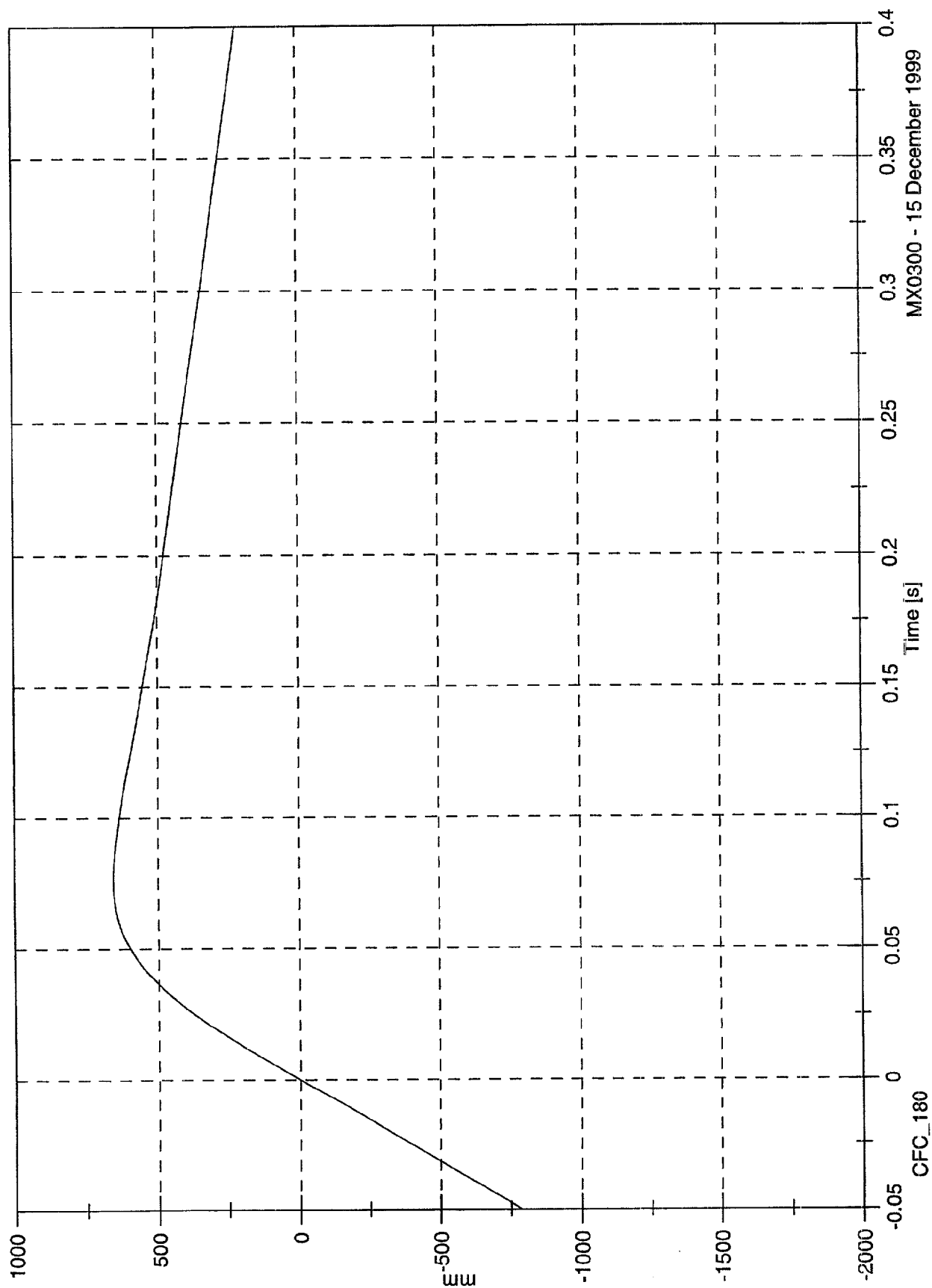


MX0300 - 15 December 1999

NCAP TEST #2 - 1999 Dodge Durango

Acc 9 Redundant RR Xmember X

Max: 656.1 [mm] at 0.076 [s]
Min: -1575.7 [mm] at -0.100 [s]



MX0300 - 15 December 1999

NHTSA TEST NO. MX0300

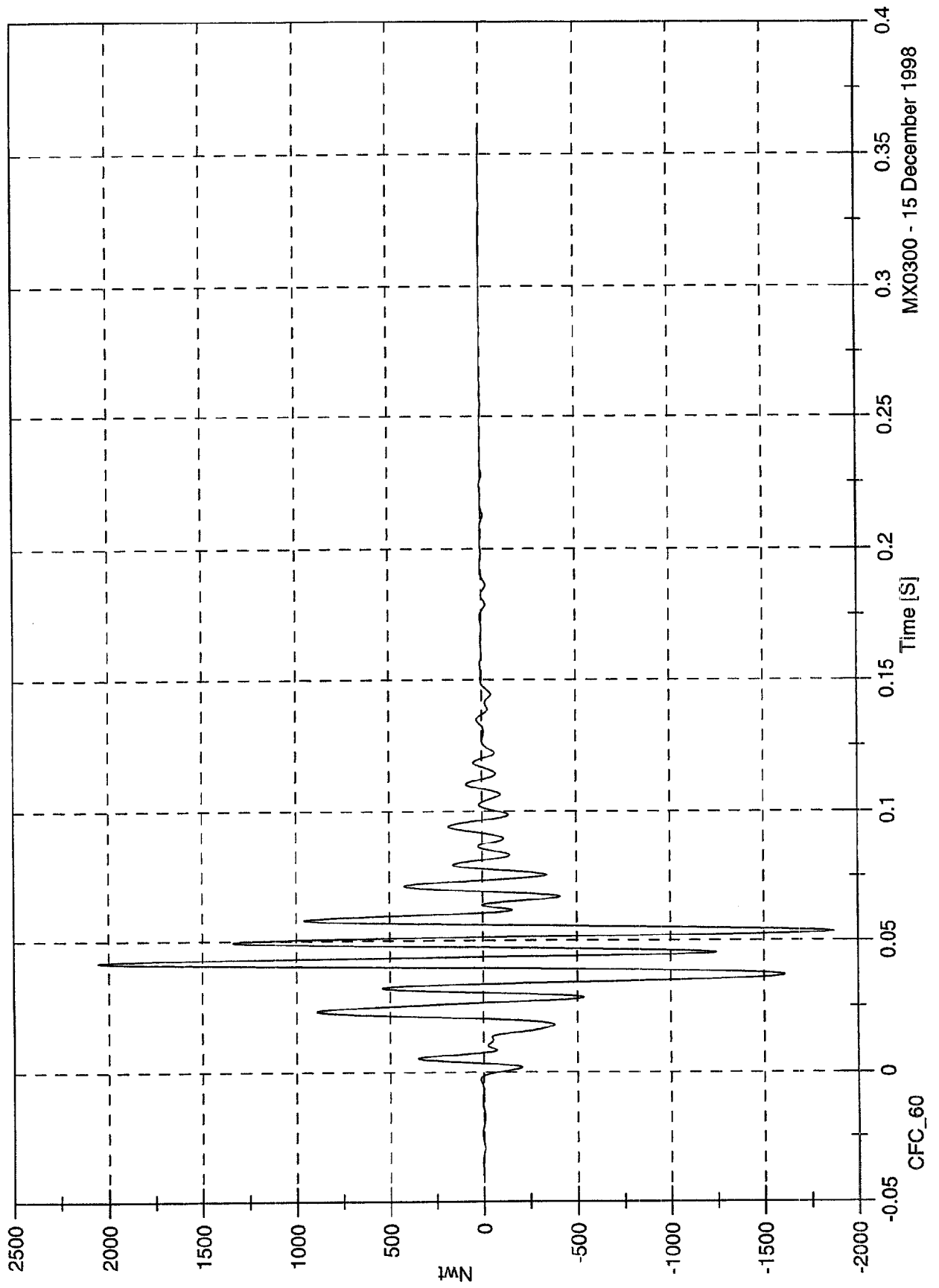
LOAD CELL BARRIER DATA

FILTER CHANNEL CLASS

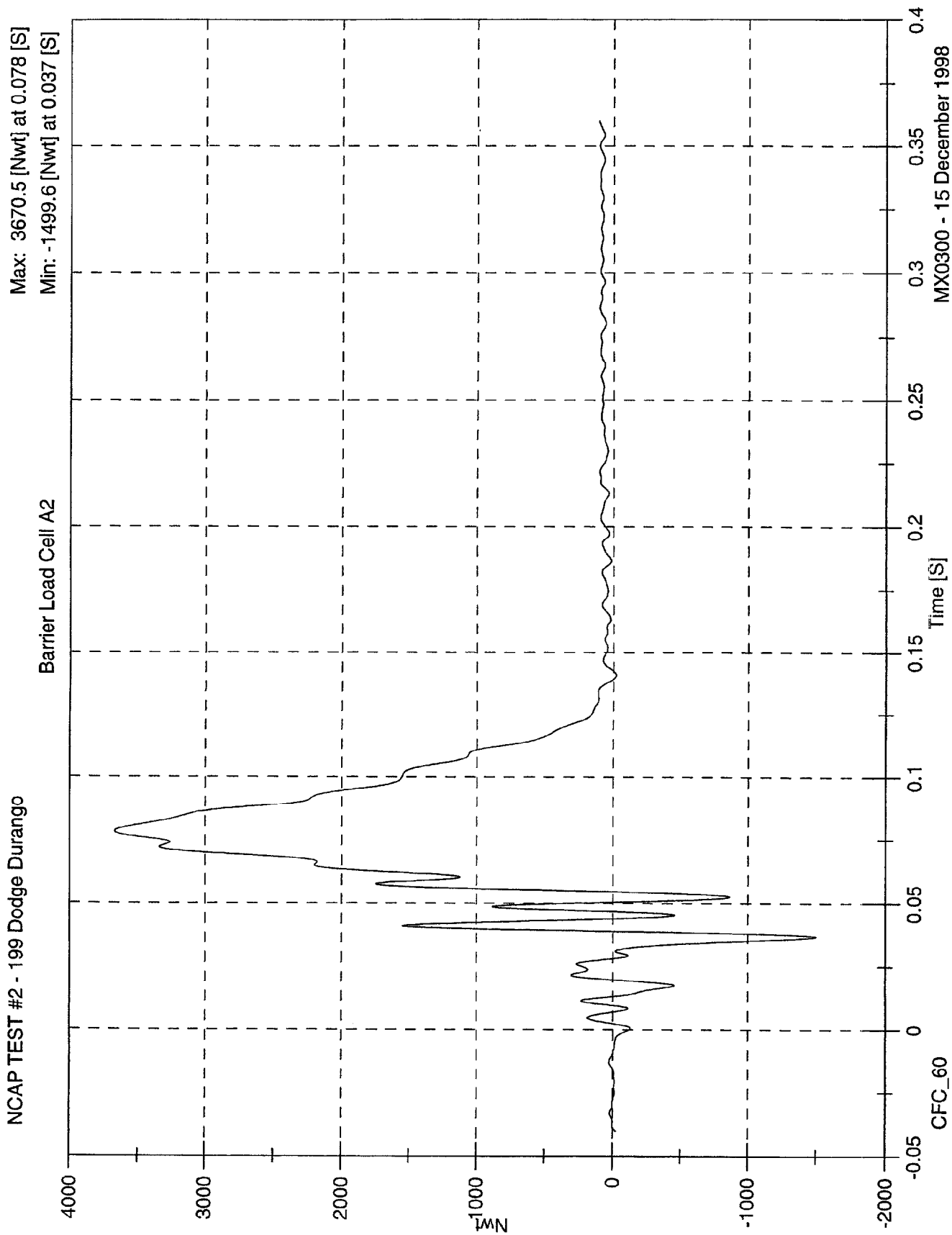
NCAP TEST #2 - 199 Dodge Durango

Barrier Load Cell A1

Max: 2056.2 [Nwt] at 0.042 [S]
Min: -1871.7 [Nwt] at 0.054 [S]



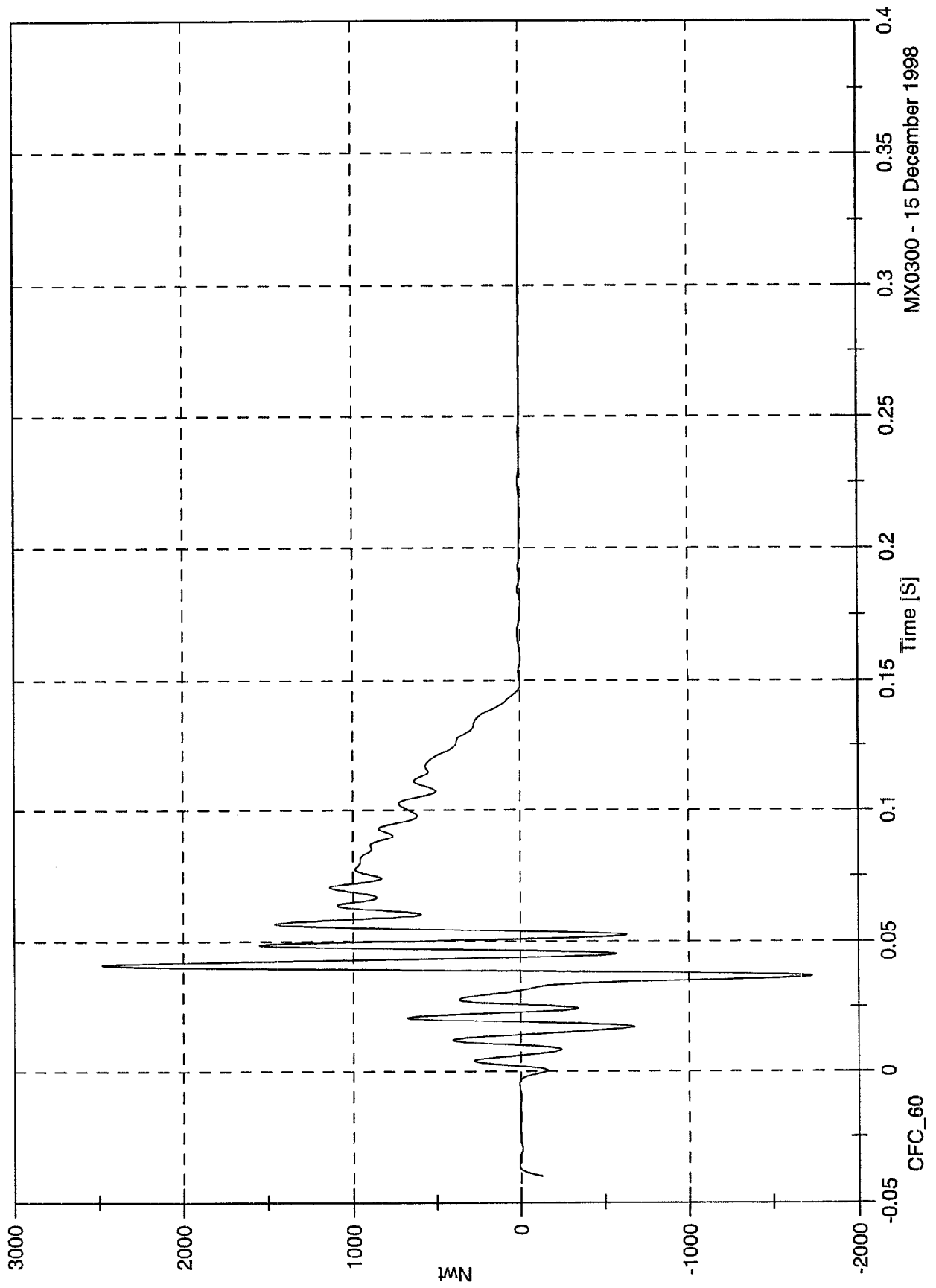
MX0300 - 15 December 1998



NCAP TEST #2 - 199 Dodge Durango

Barrier Load Cell A3

Max: 2480.2 [Nwt] at 0.041 [S]
Min: -1727.2 [Nwt] at 0.037 [S]

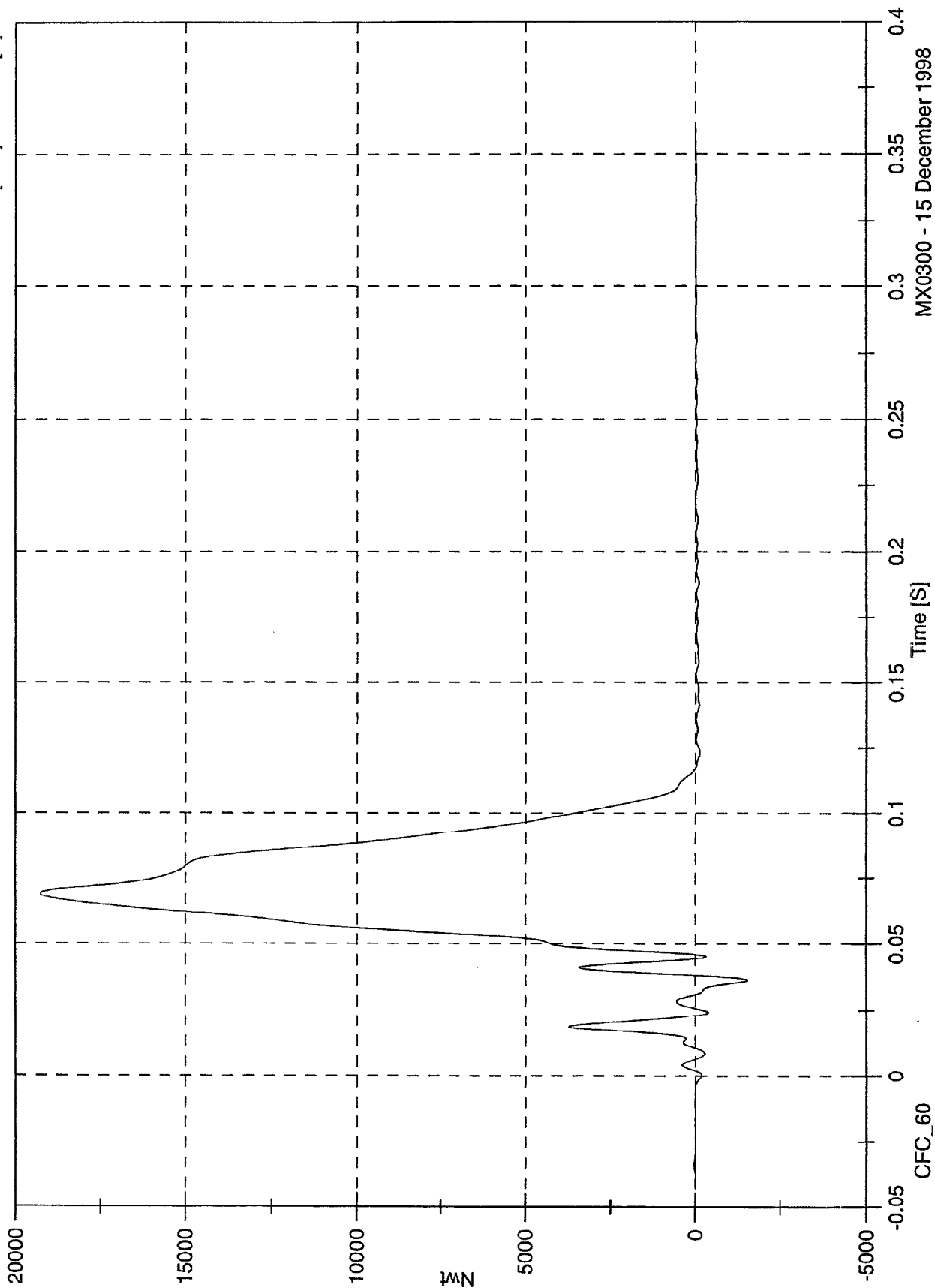


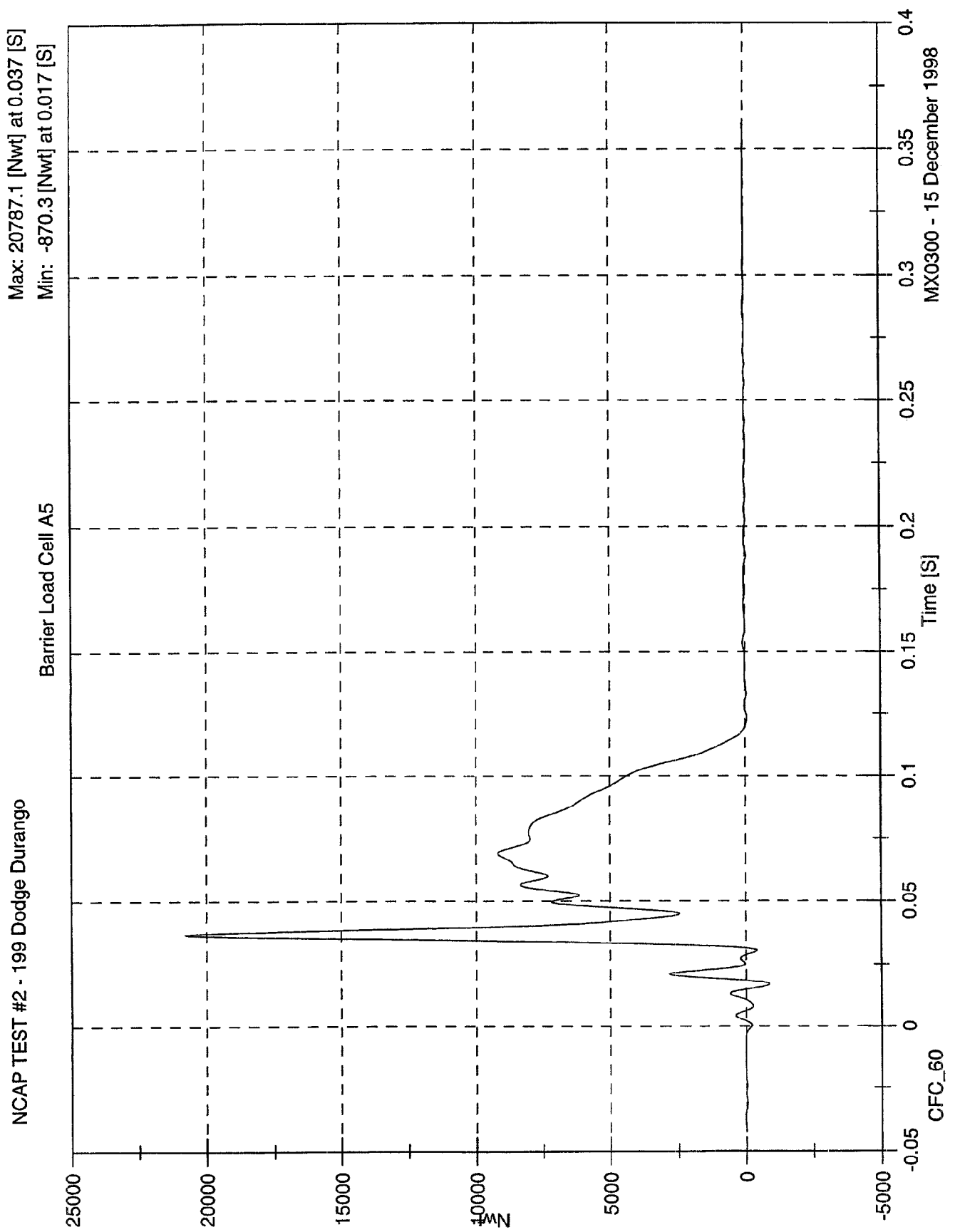
NCAP TEST #2 - 199 Dodge Durango

Barrier Load Cell A4

Max: 19266.2 [Nwt] at 0.069 [S]

Min: -1540.0 [Nwt] at 0.036 [S]

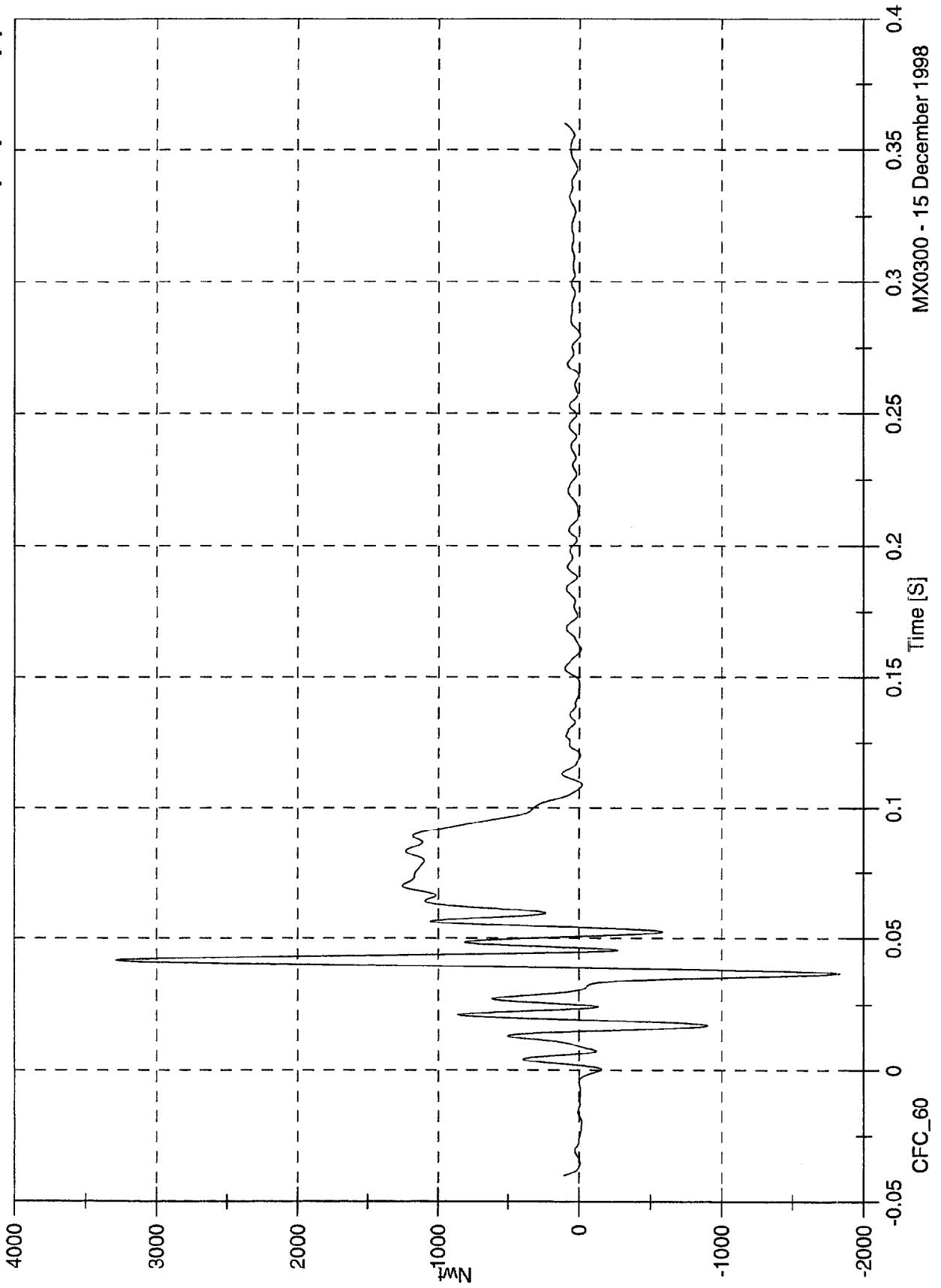




NCAP TEST #2 - 199 Dodge Durango

Barrier Load Cell A6

Max: 3287.0 [Nwt] at 0.041 [S]
Min: -1831.8 [Nwt] at 0.036 [S]

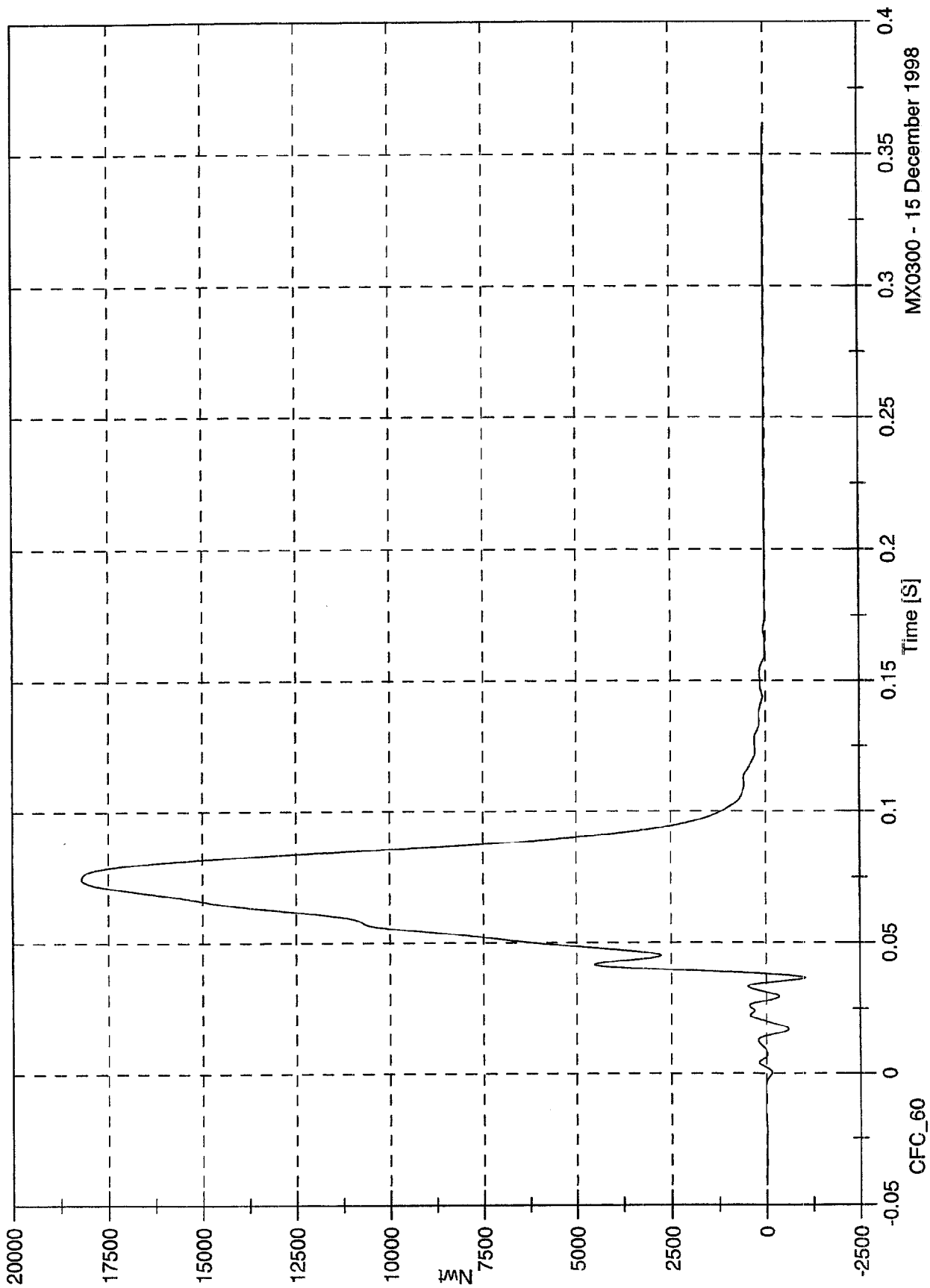


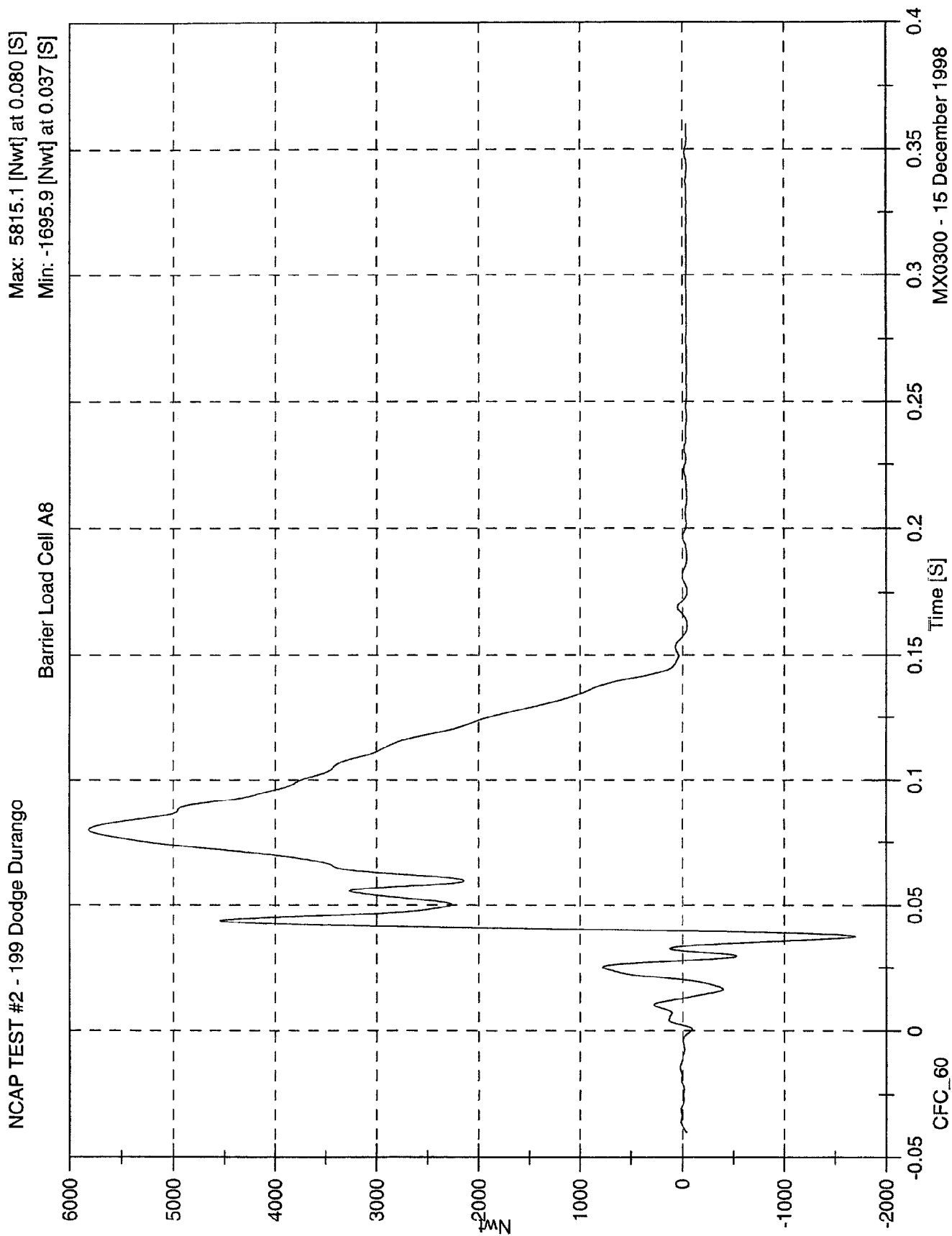
MX0300 - 15 December 1998

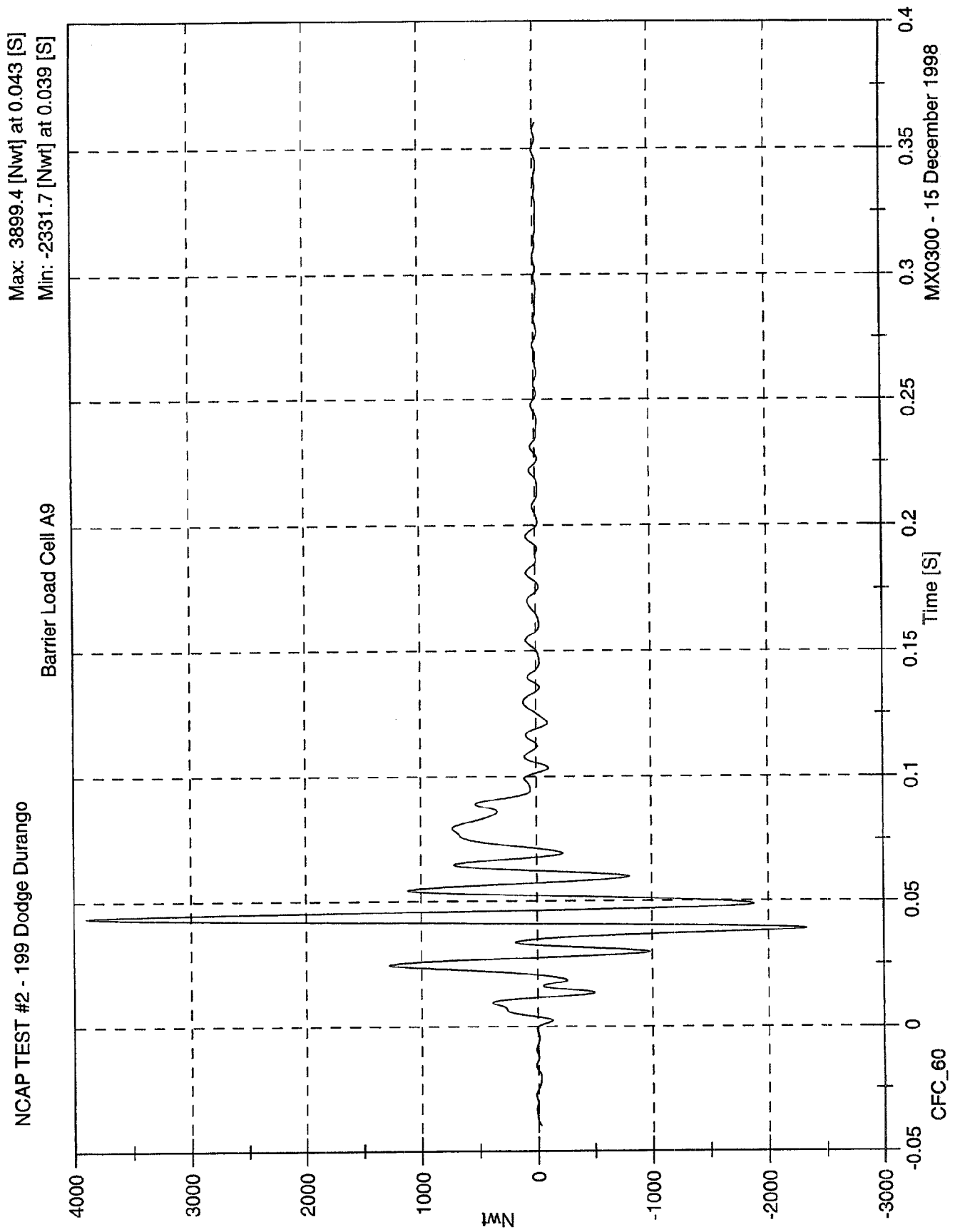
NCAP TEST #2 - 199 Dodge Durango

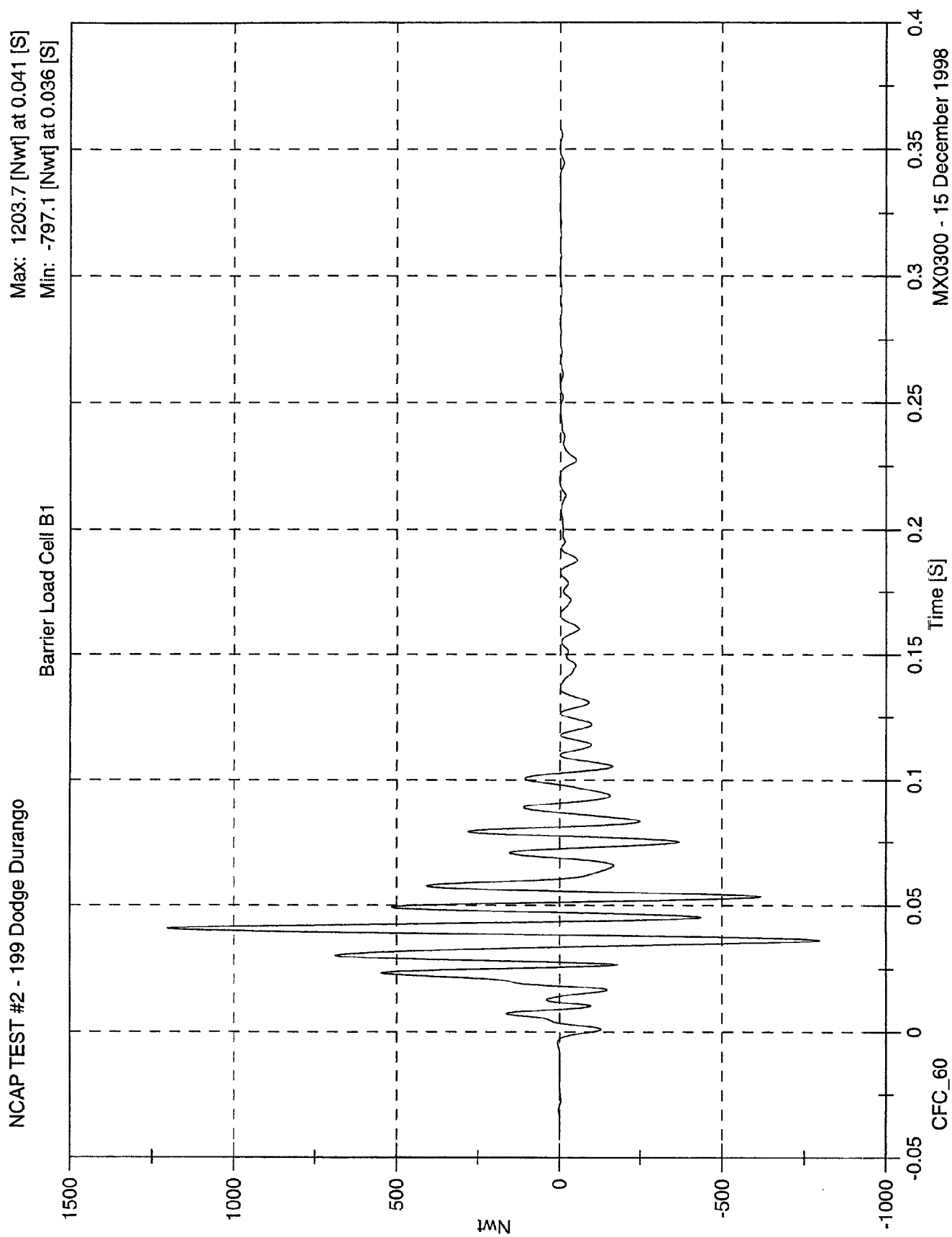
Barrier Load Cell A7

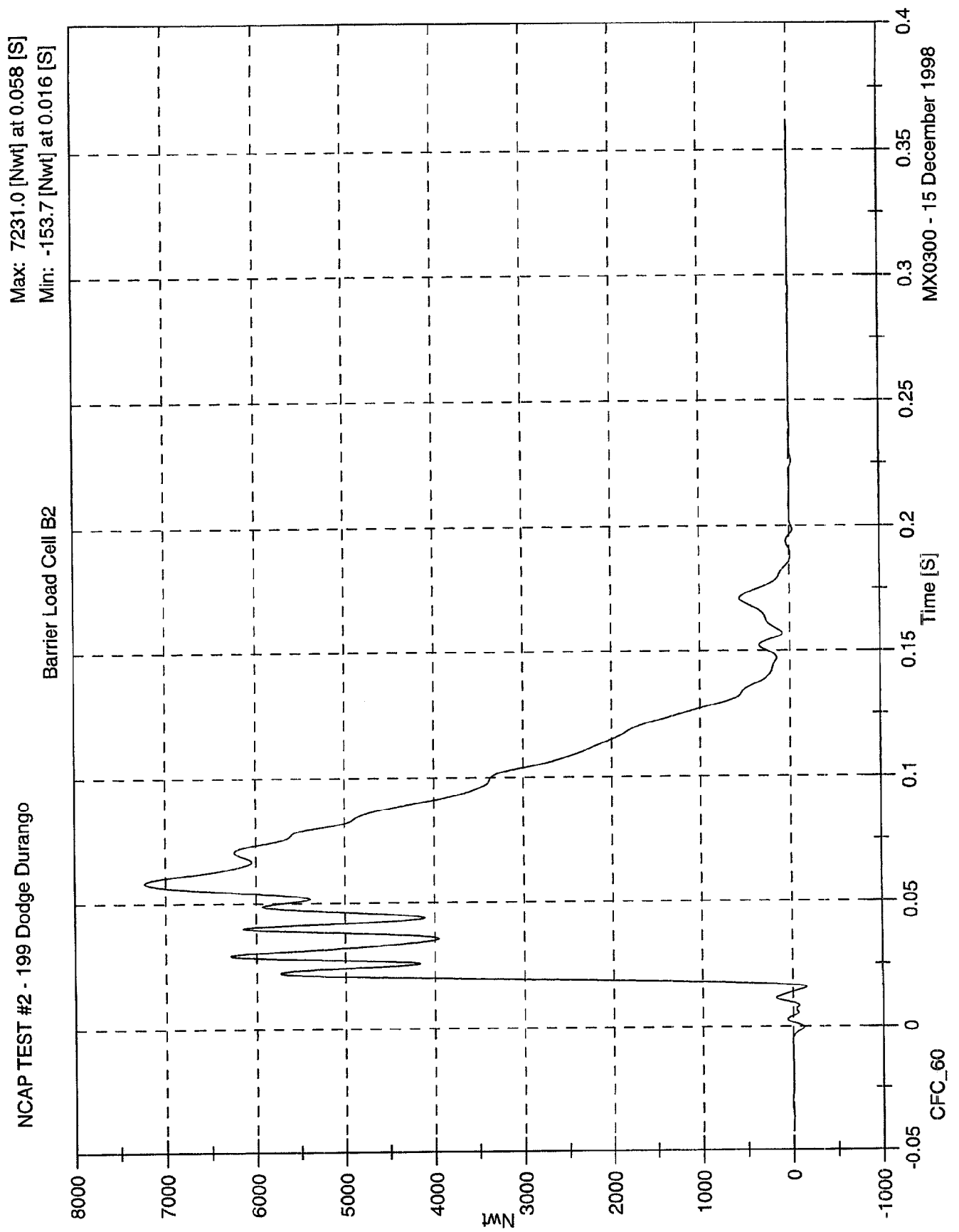
Max: 18199.9 [Nwt] at 0.075 [S]
Min: -1053.4 [Nwt] at 0.037 [S]







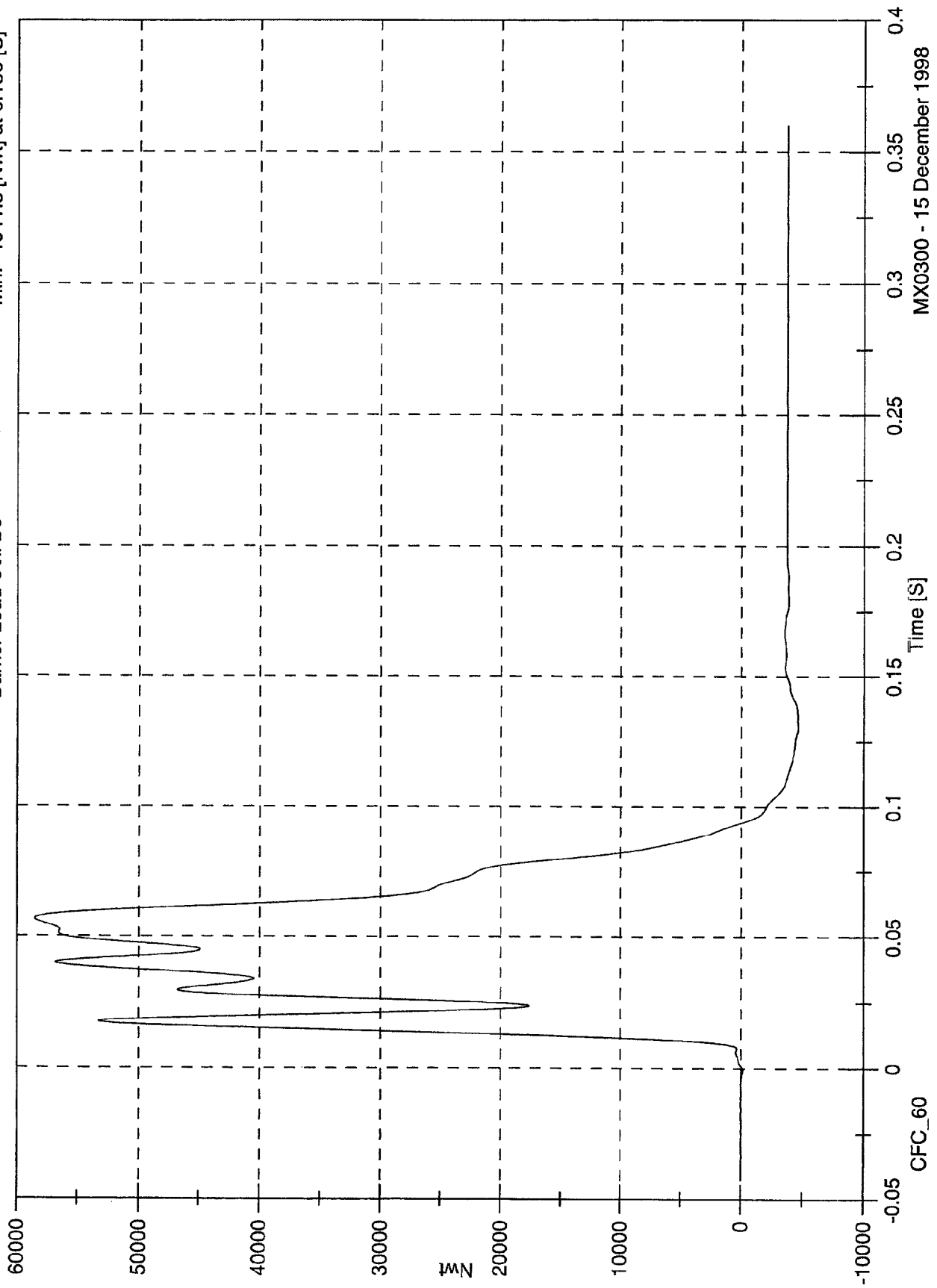




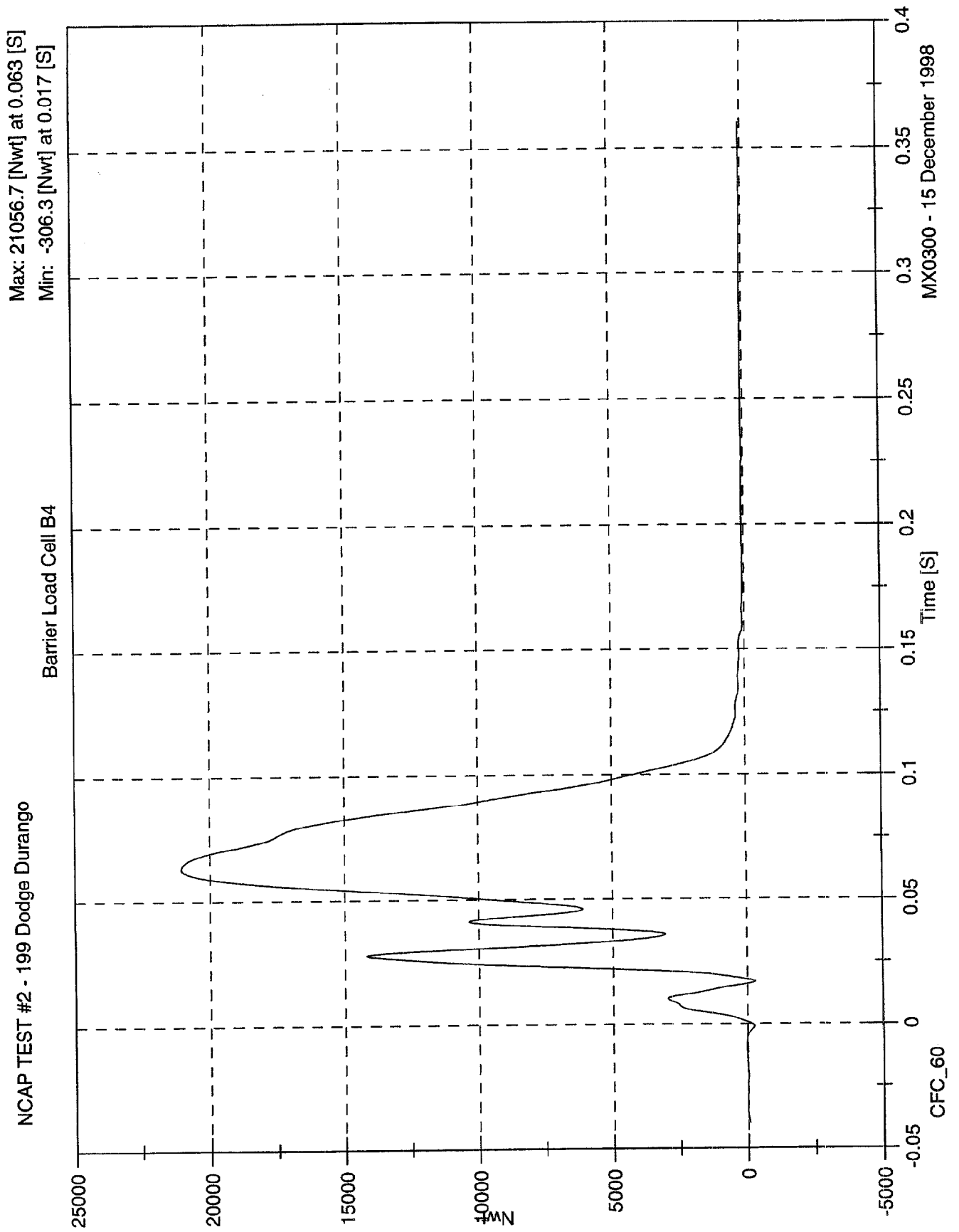
NCAP TEST #2 - 199 Dodge Durango

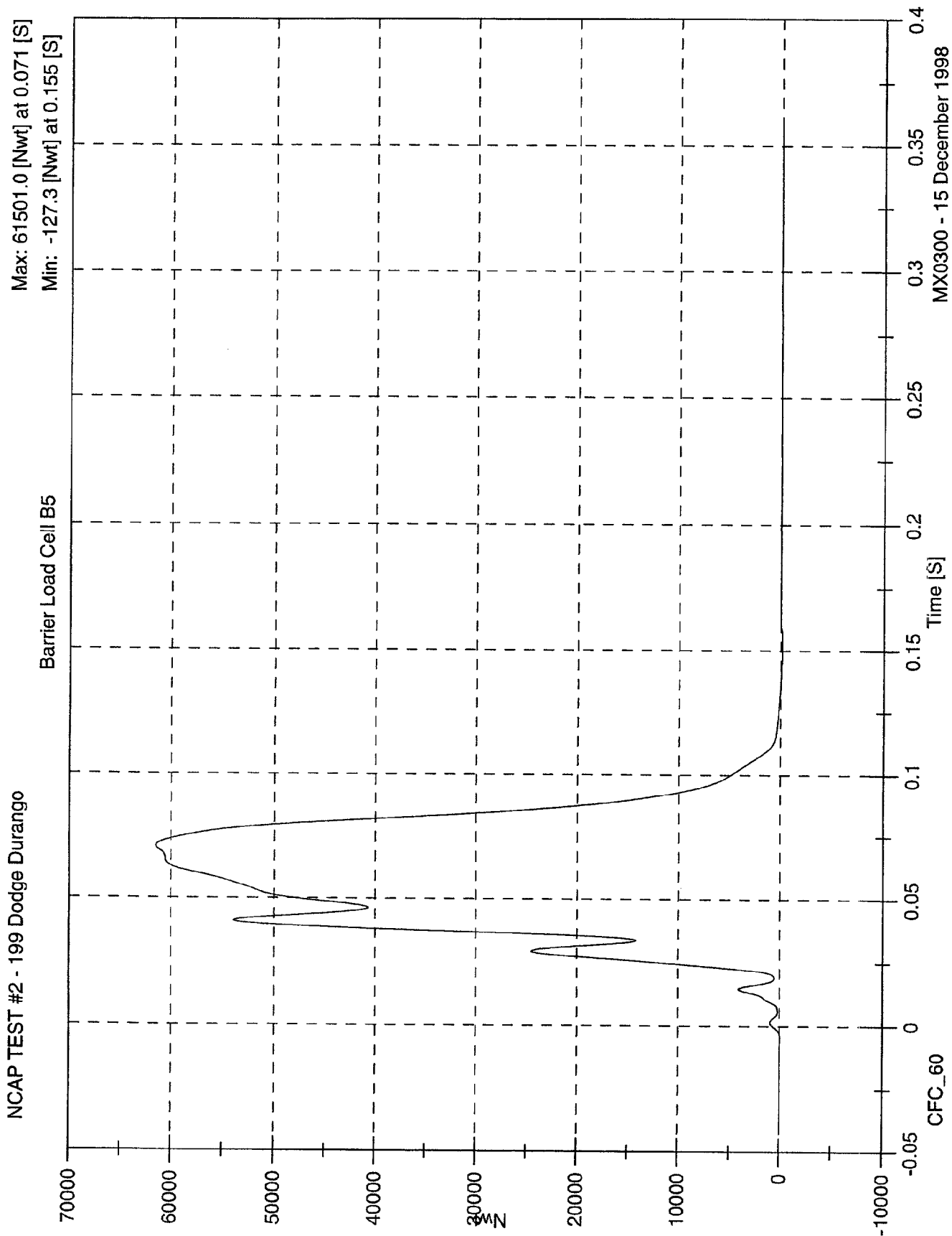
Barrier Load Cell B3

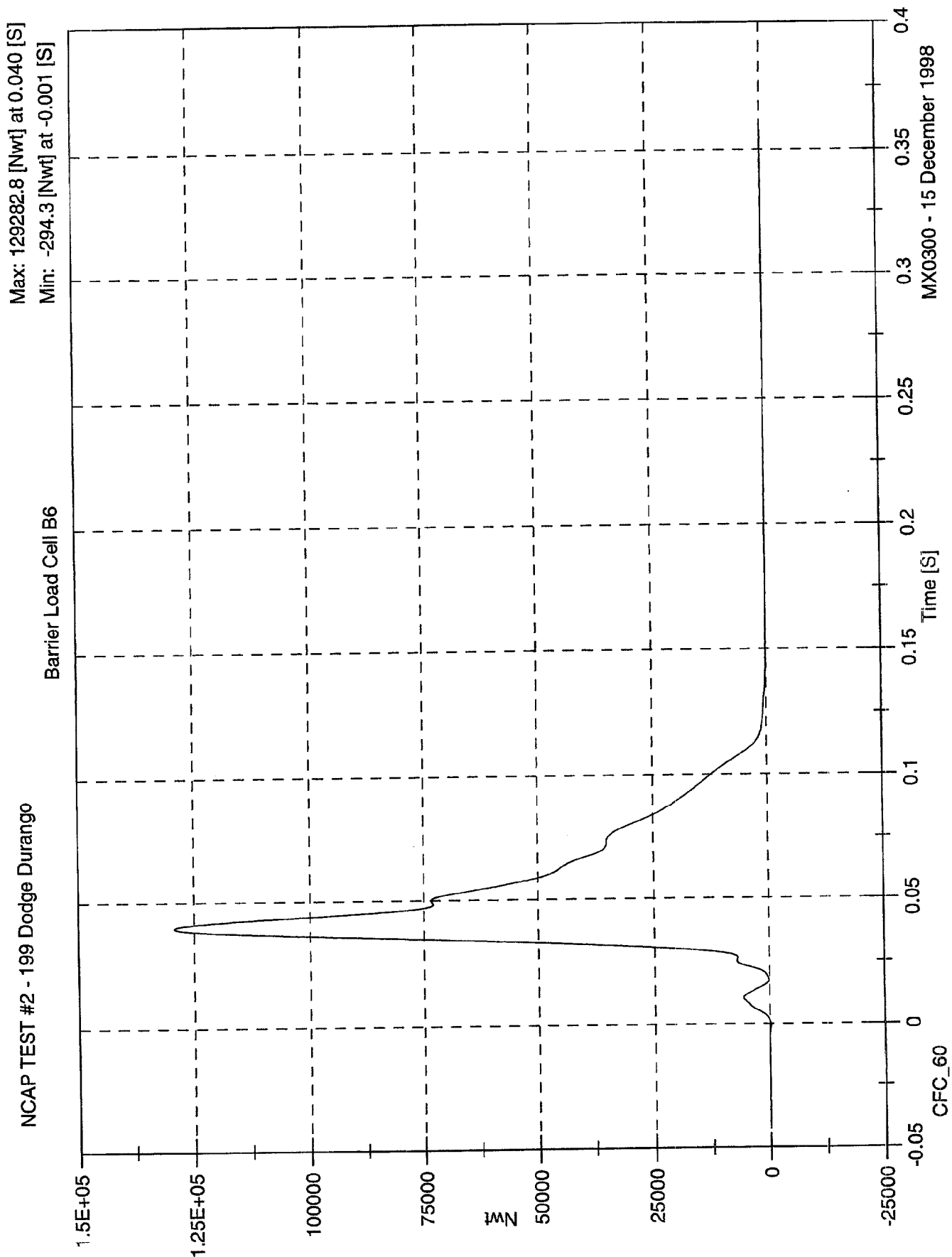
Max: 58525.3 [Nwt] at 0.057 [S]
Min: -4641.5 [Nwt] at 0.130 [S]

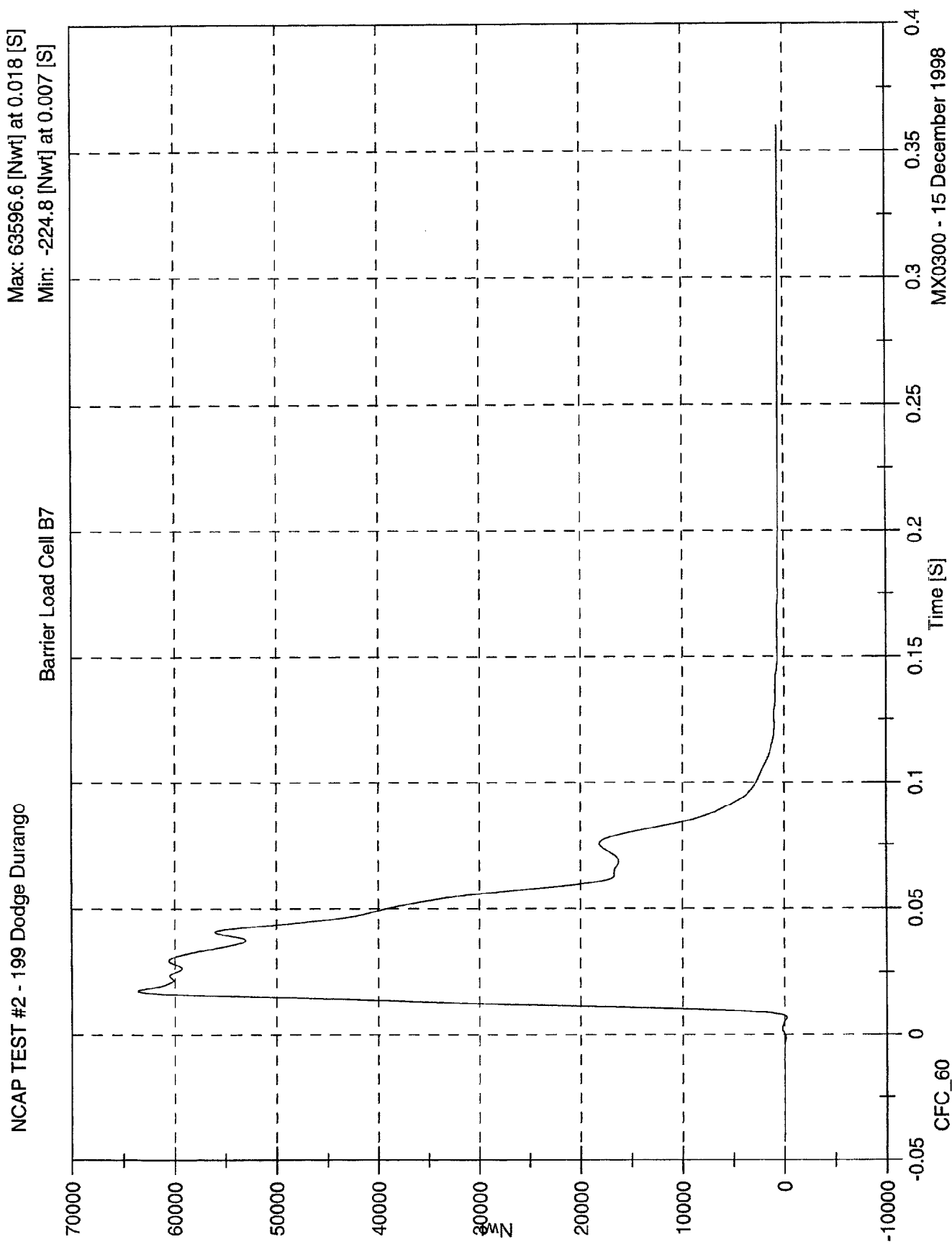


MX0300 - 15 December 1998





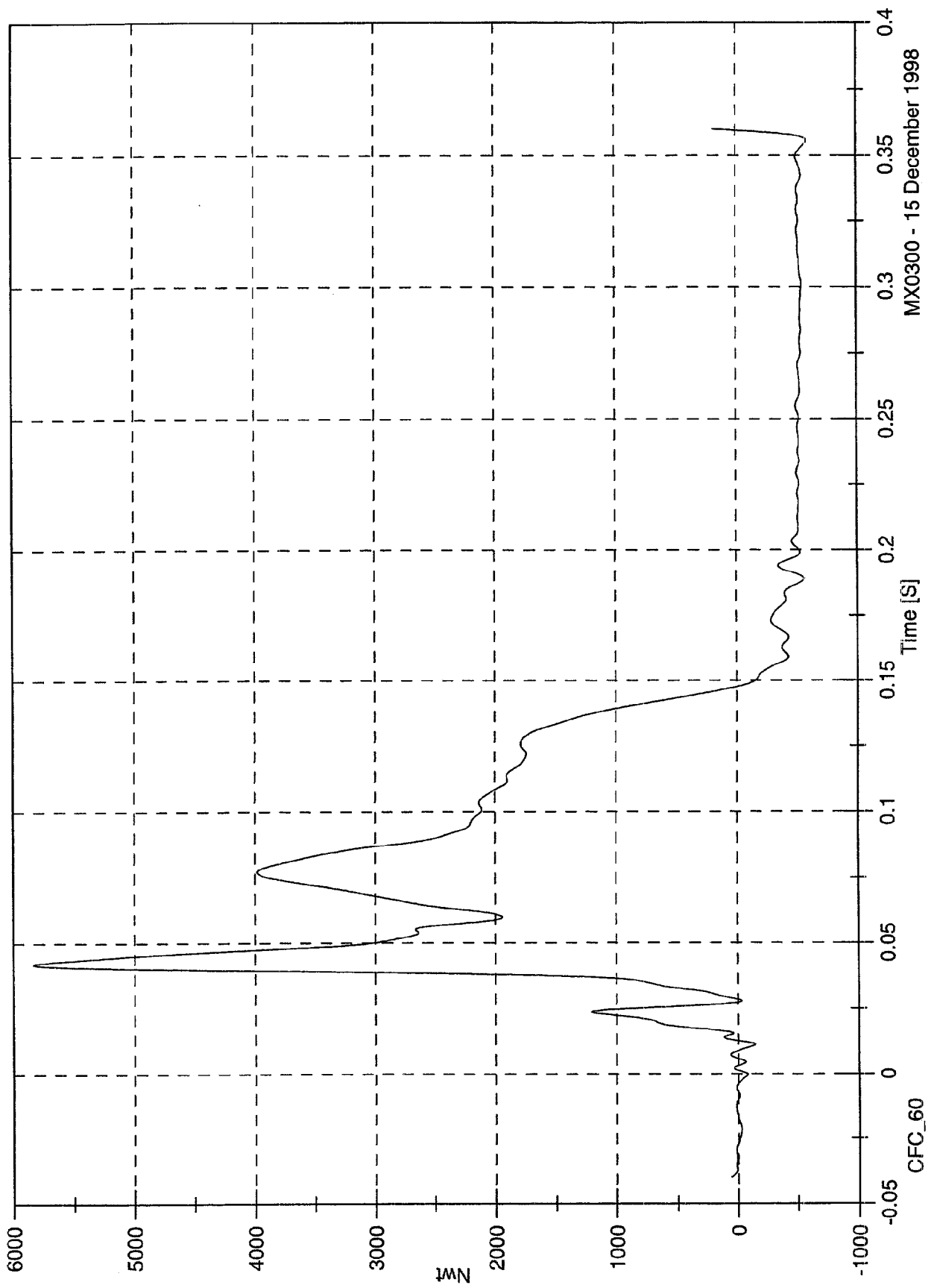




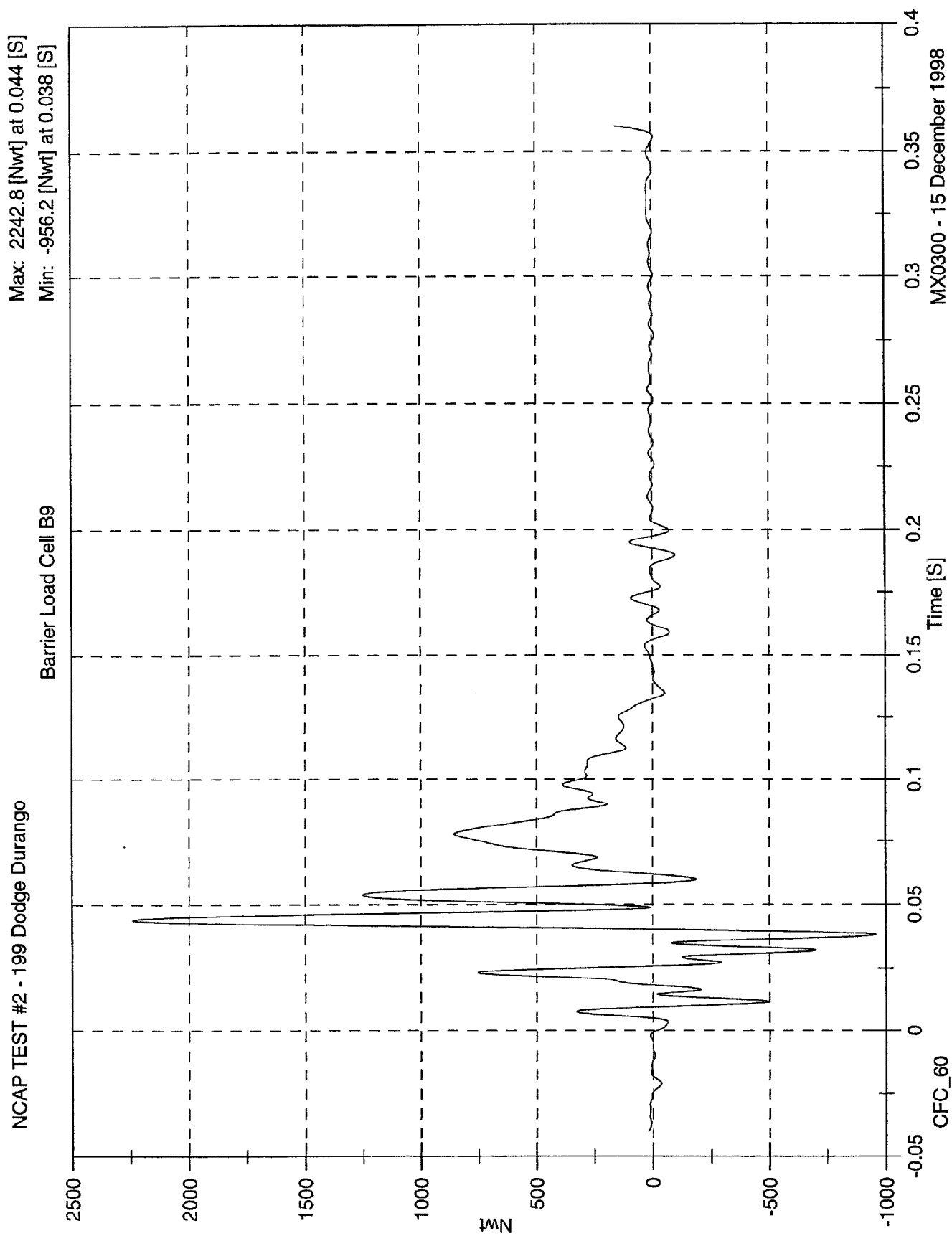
NCAP TEST #2 - 199 Dodge Durango

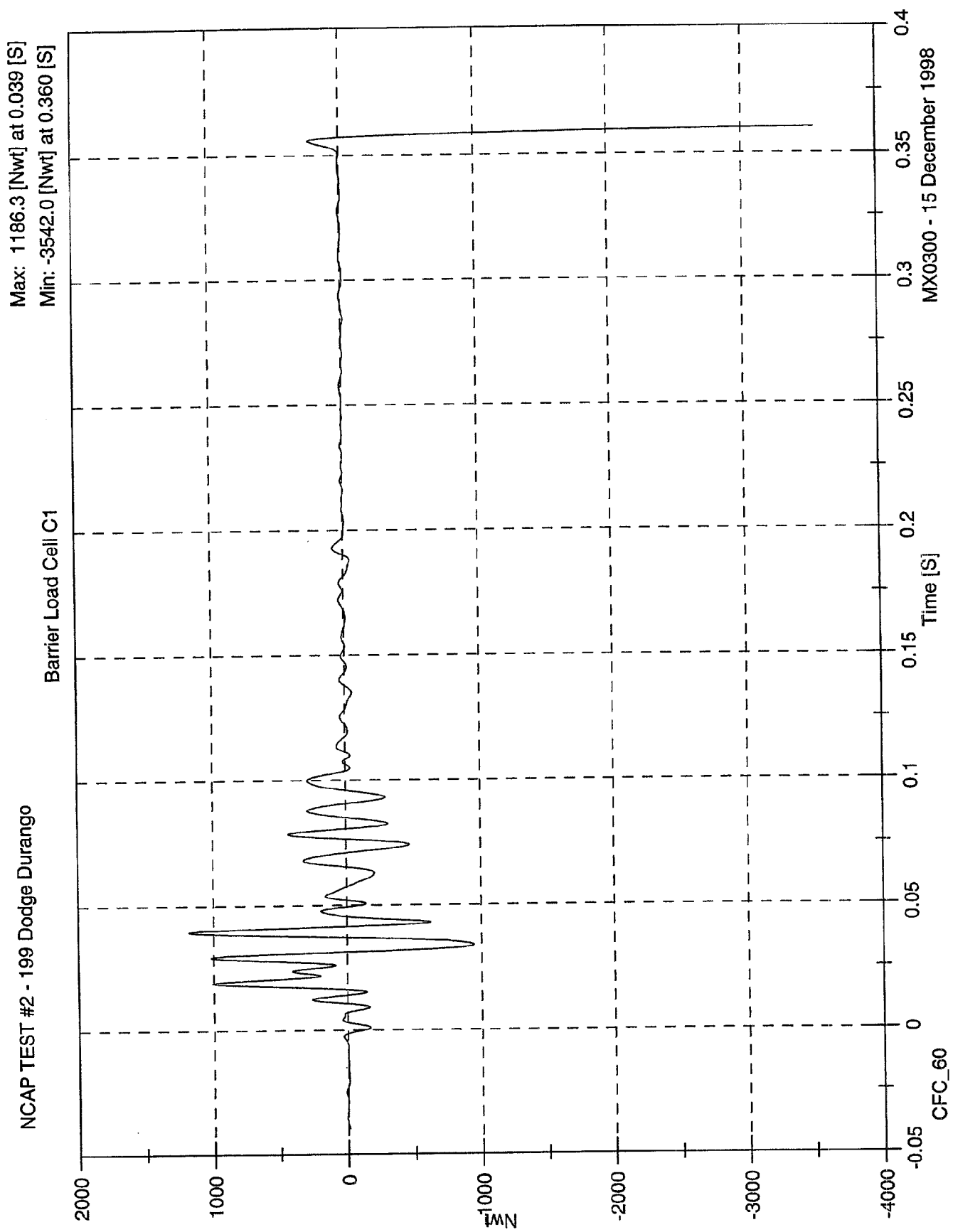
Barrier Load Cell B8

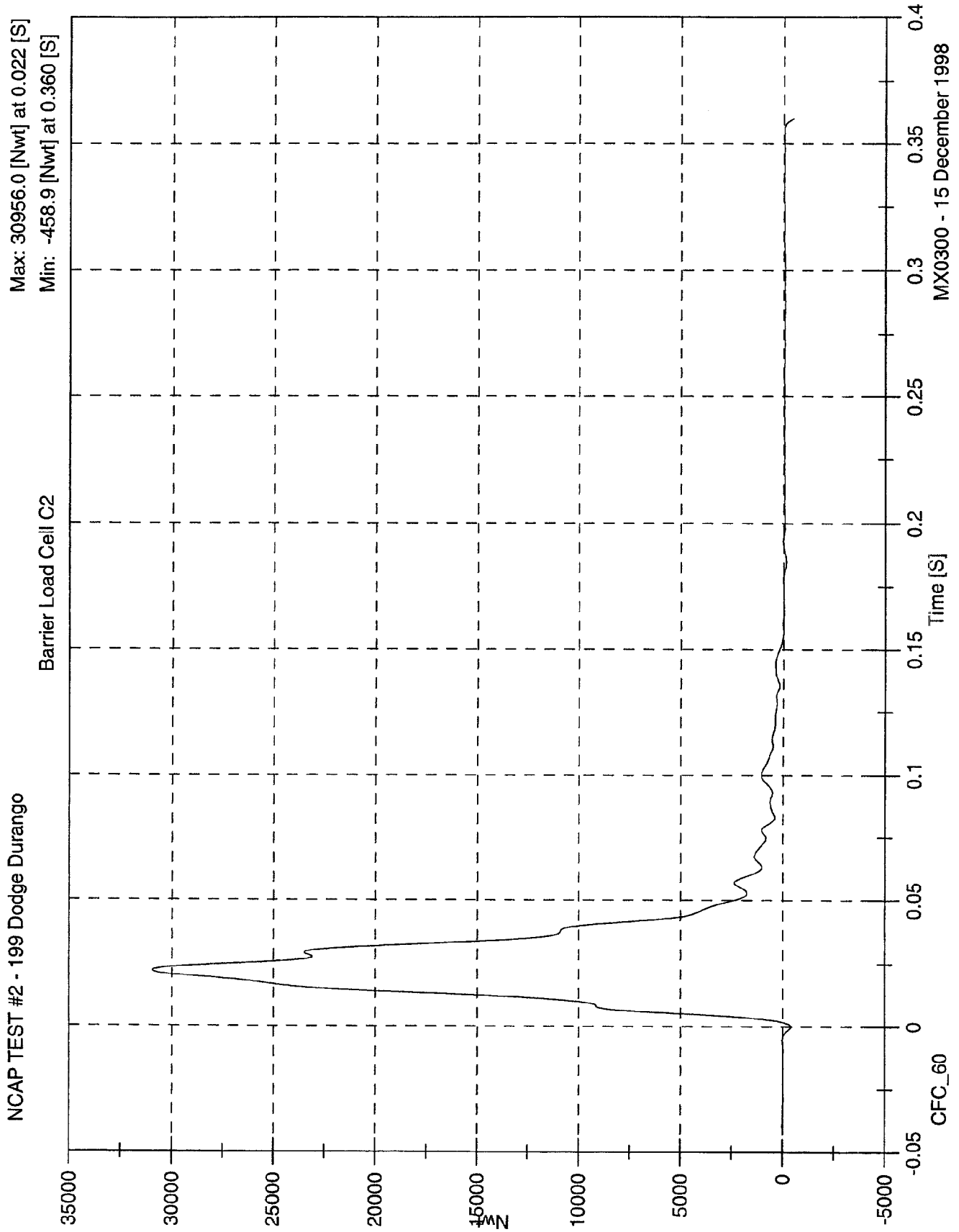
Max: 5834.6 [Nwt] at 0.042 [S]
Min: -589.4 [Nwt] at 0.356 [S]

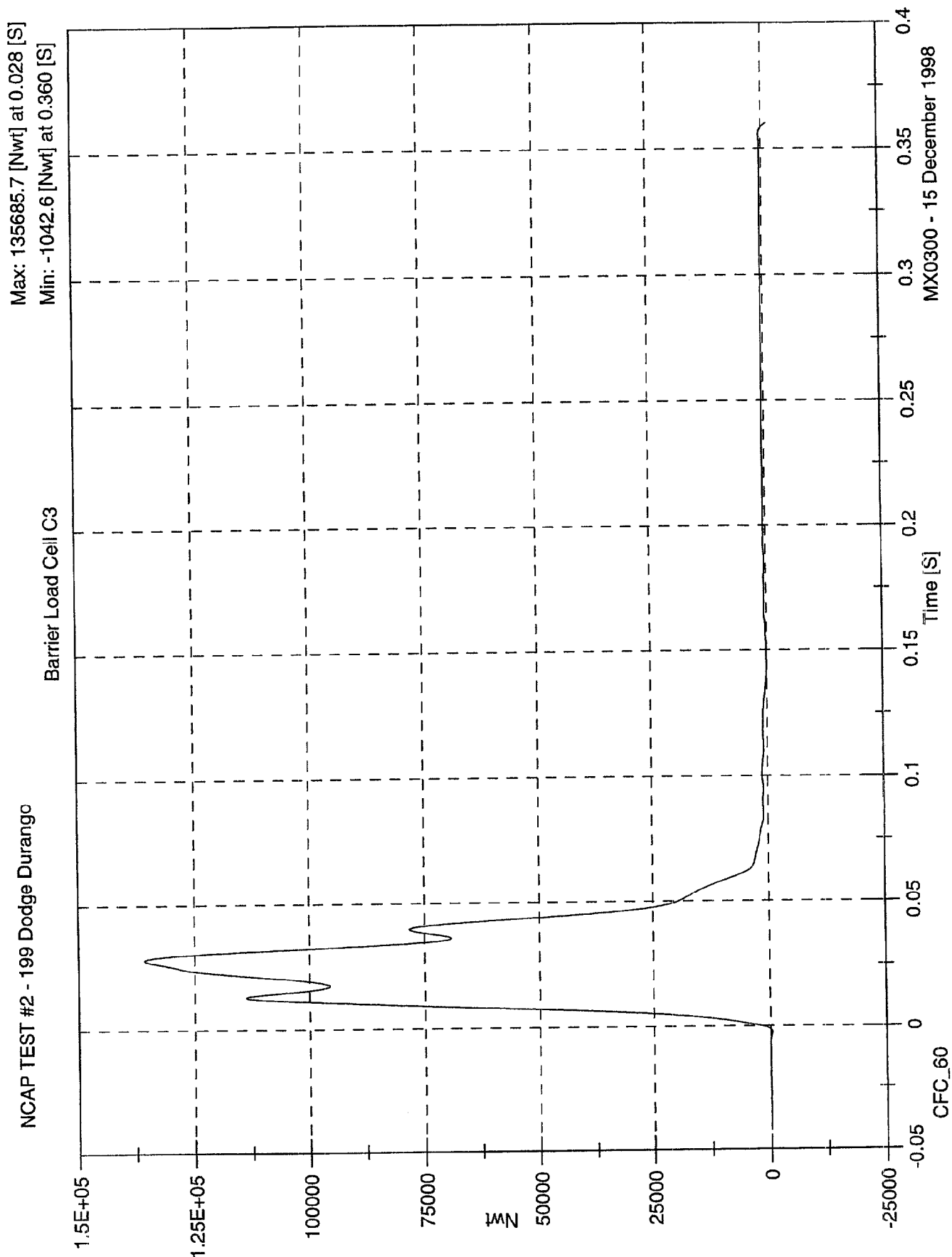


MX0300 - 15 December 1998







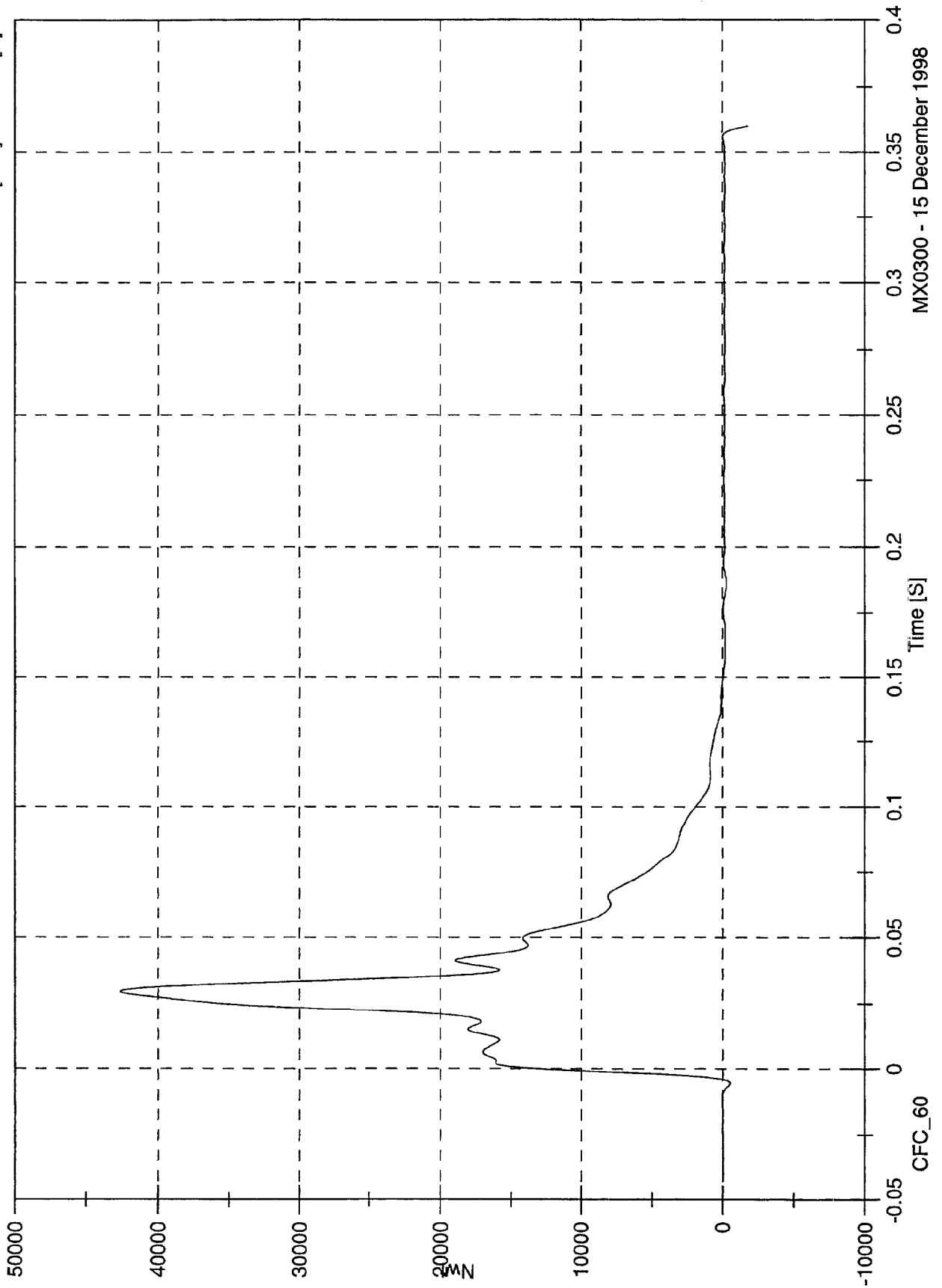


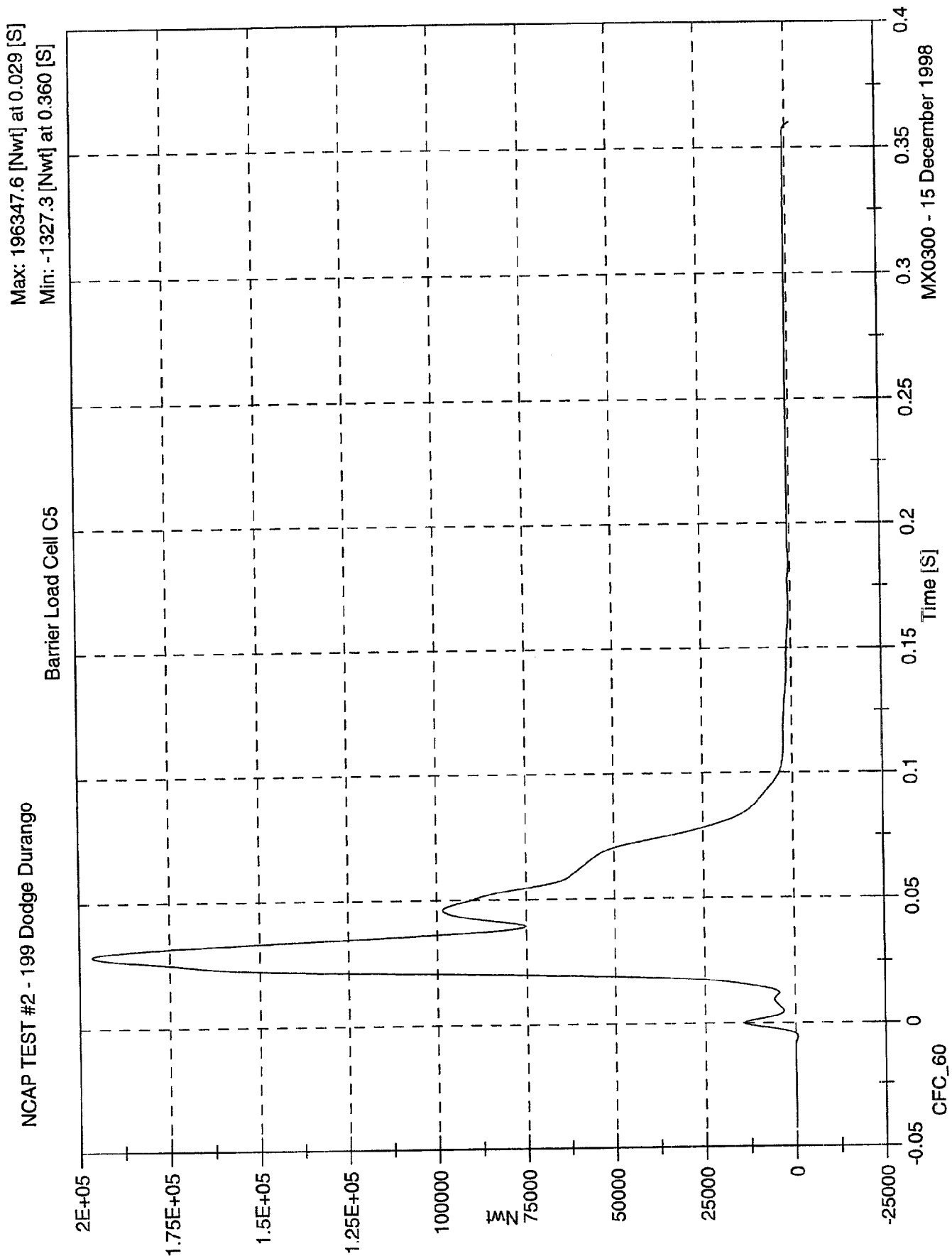
NCAP TEST #2 - 199 Dodge Durango

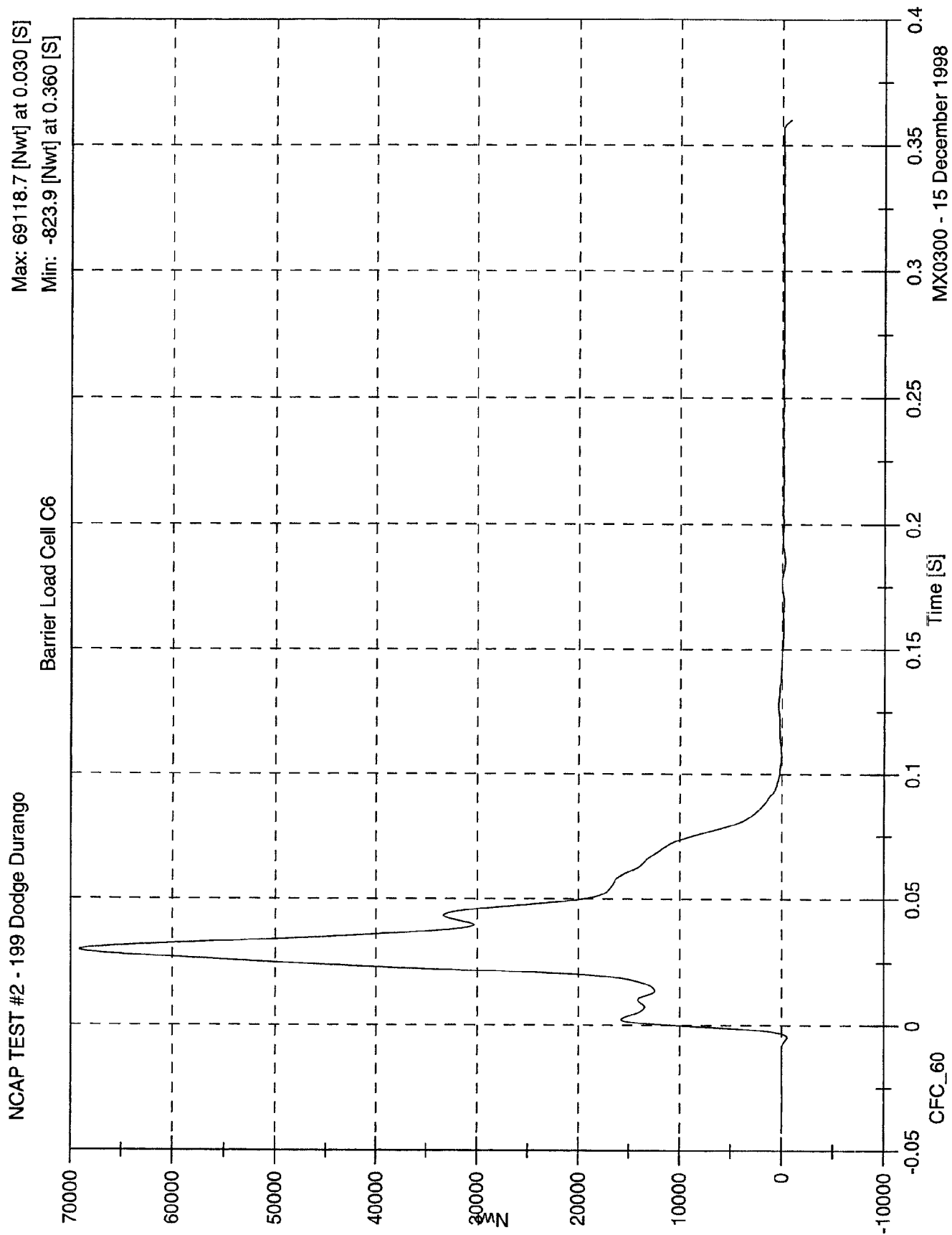
Barrier Load Cell C4

Max: 42618.8 [Nwt] at 0.030 [S]

Min: -1775.9 [Nwt] at 0.360 [S]



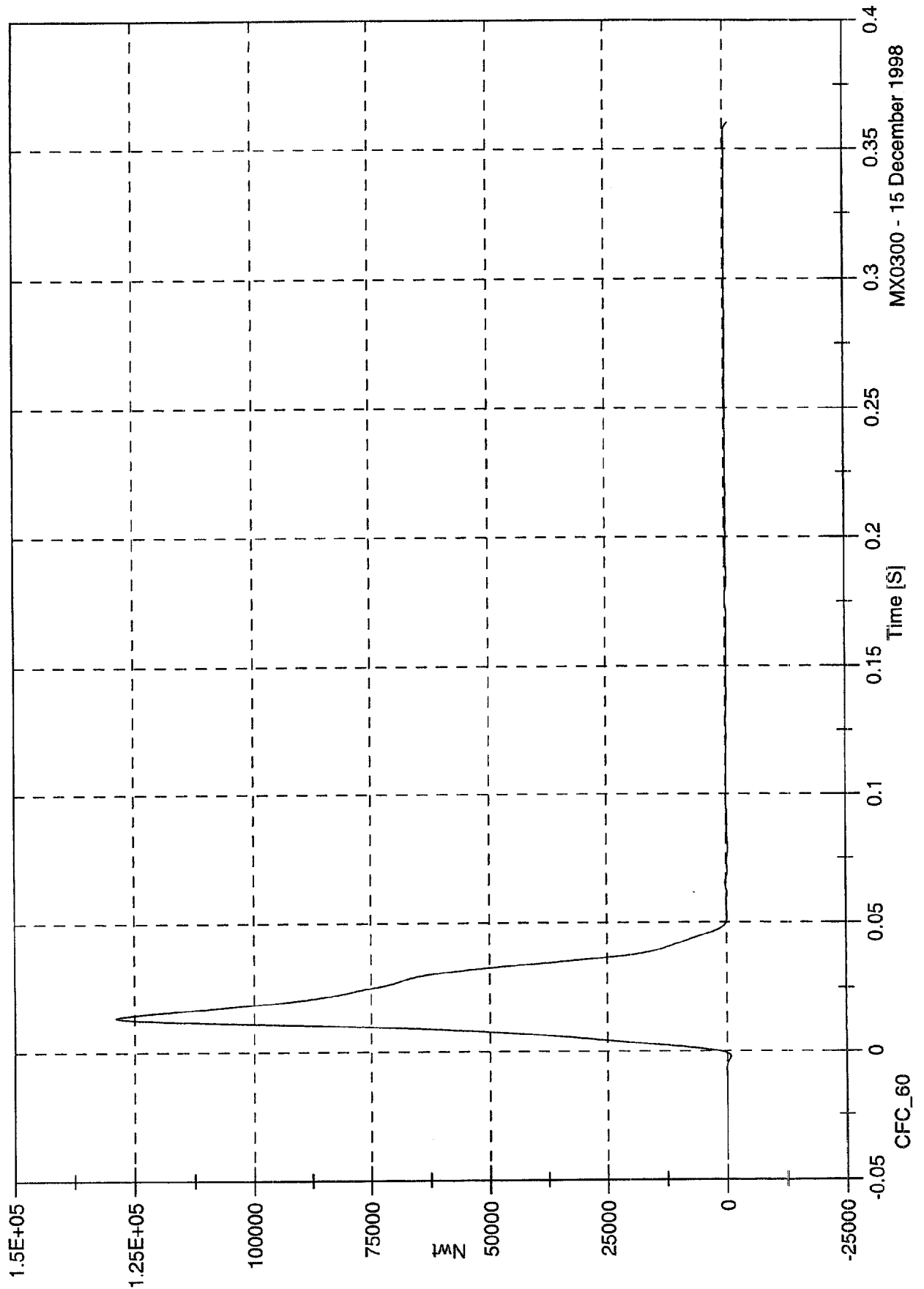




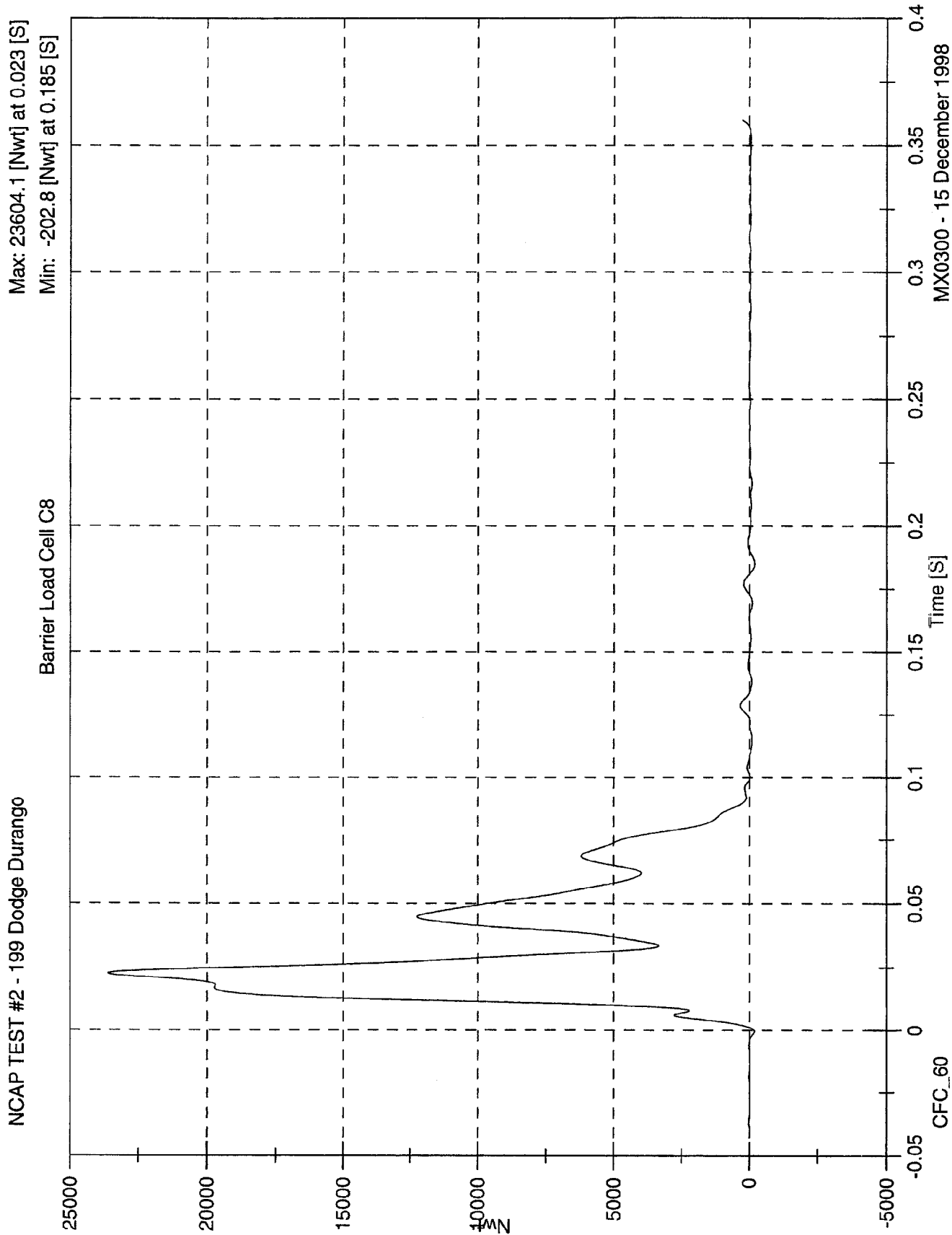
NCAP TEST #2 - 199 Dodge Durango

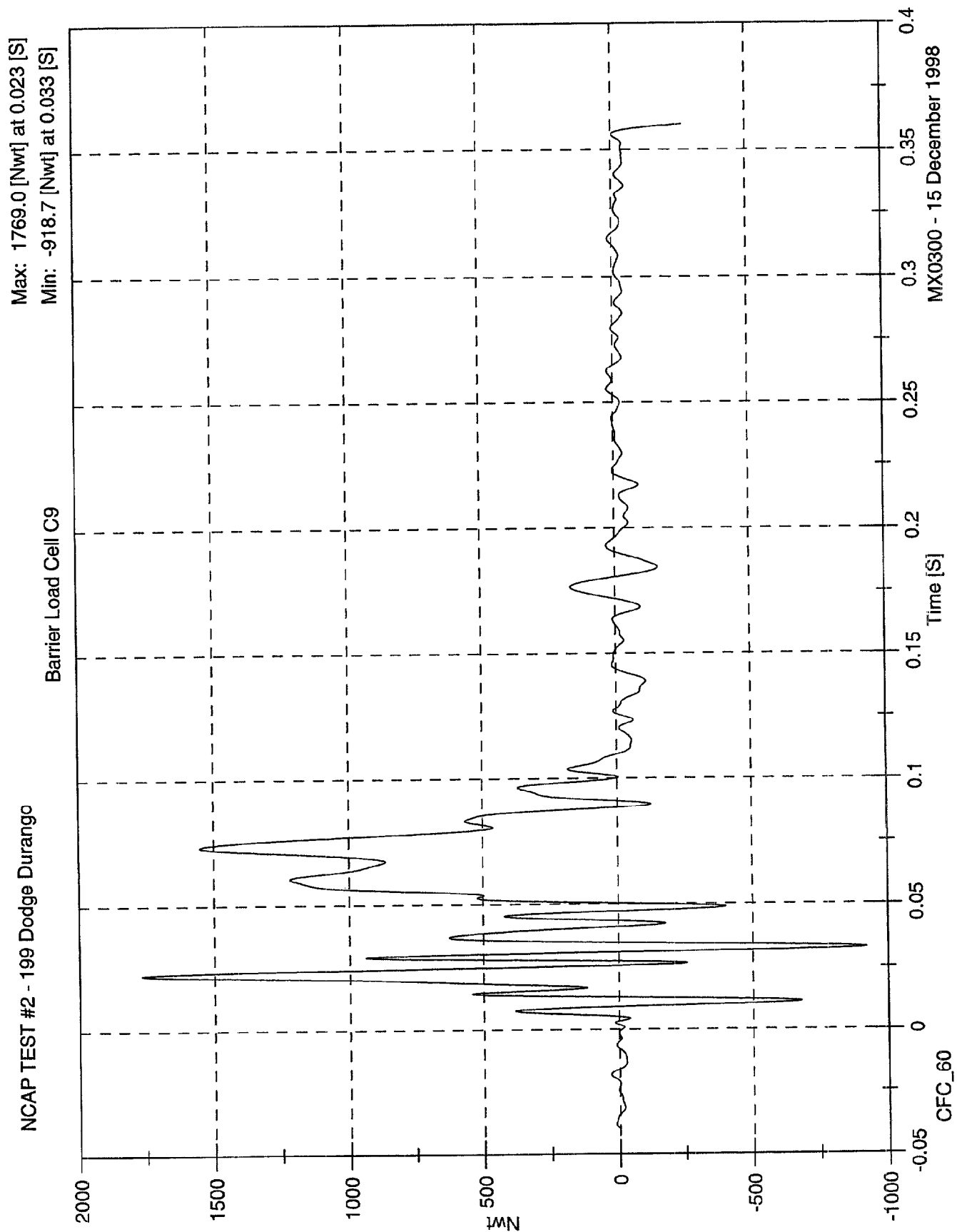
Barrier Load Cell C7

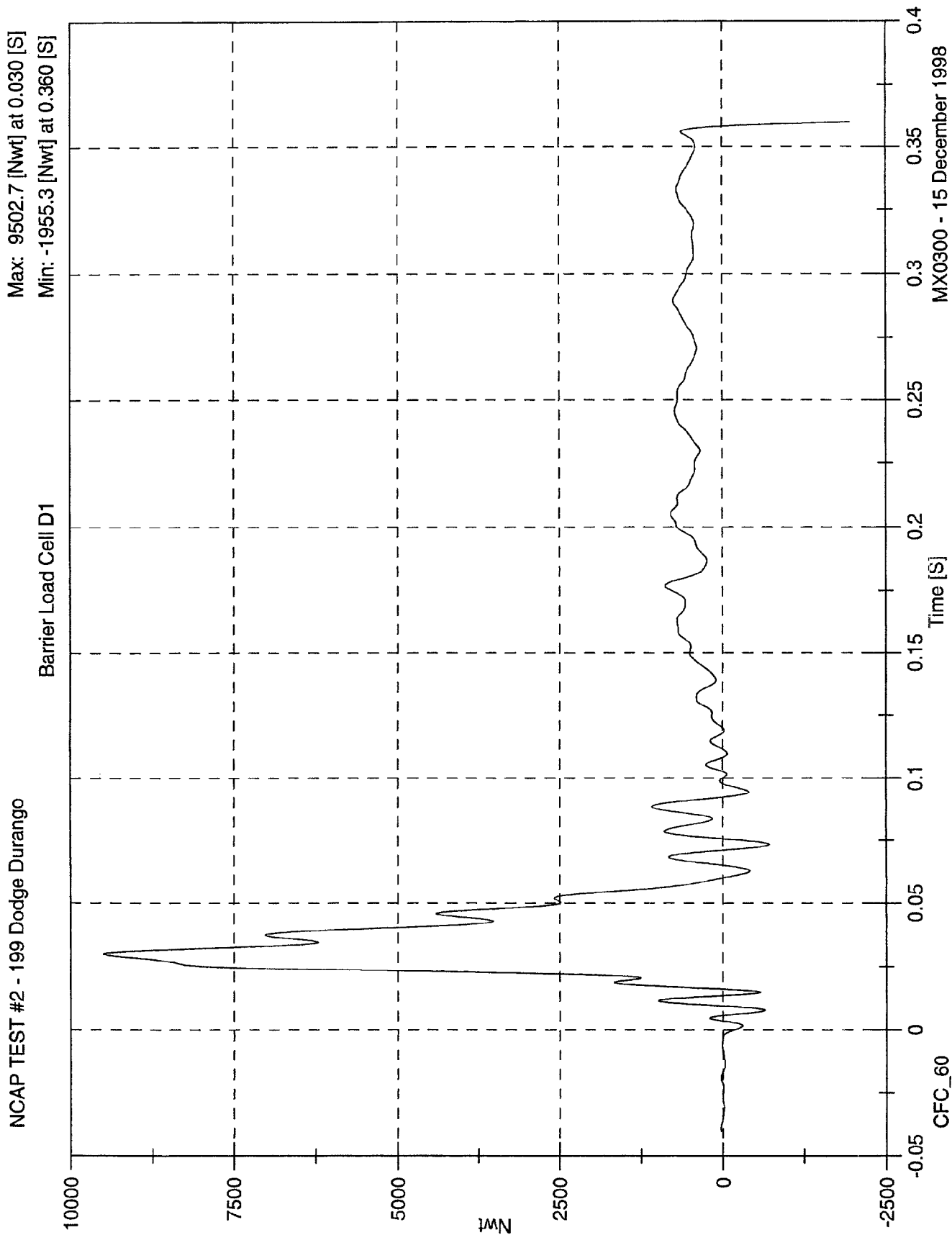
Max: 128839.9 [Nwt] at 0.013 [S]
Min: -1049.6 [Nwt] at 0.360 [S]

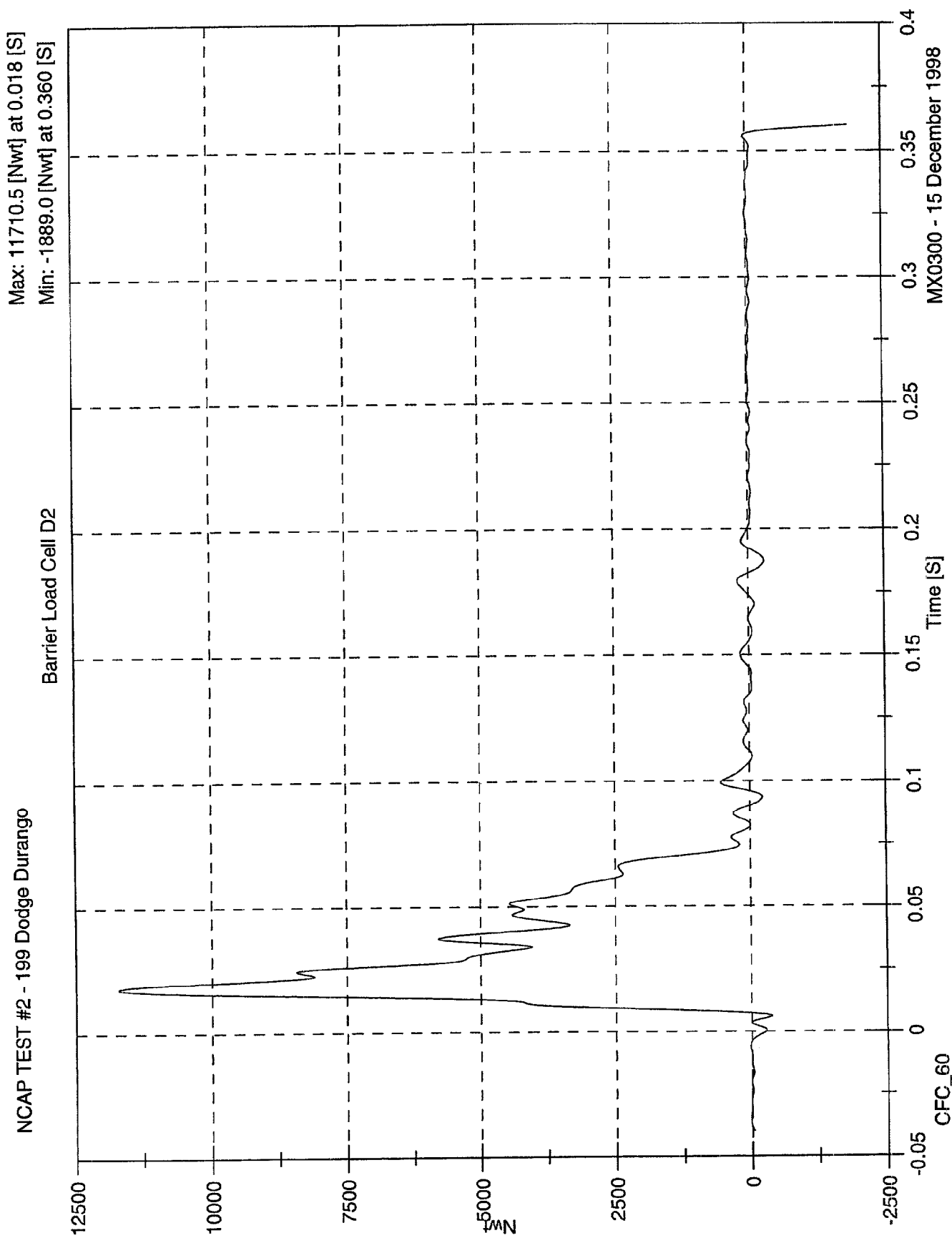


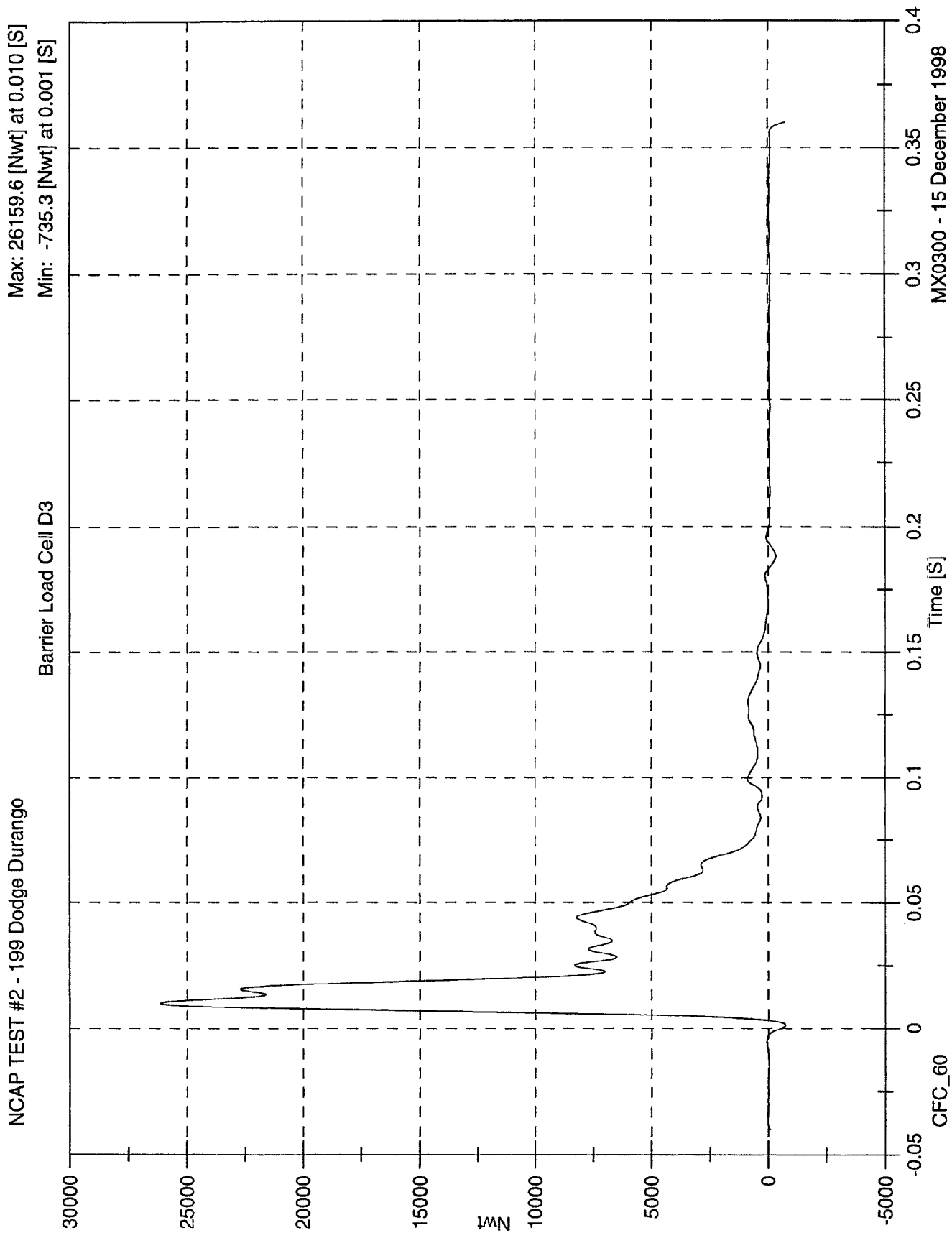
MX0300 - 15 December 1998

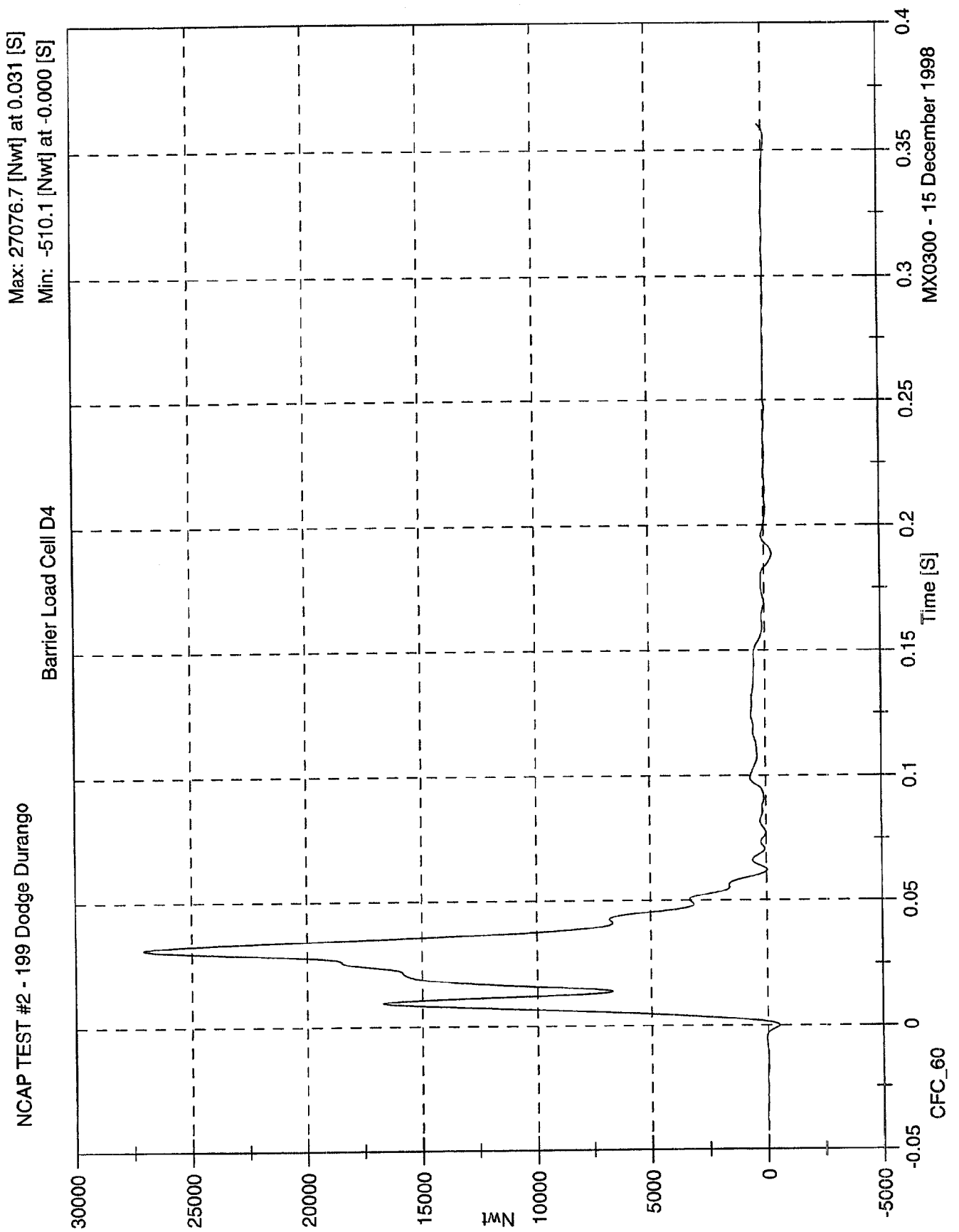










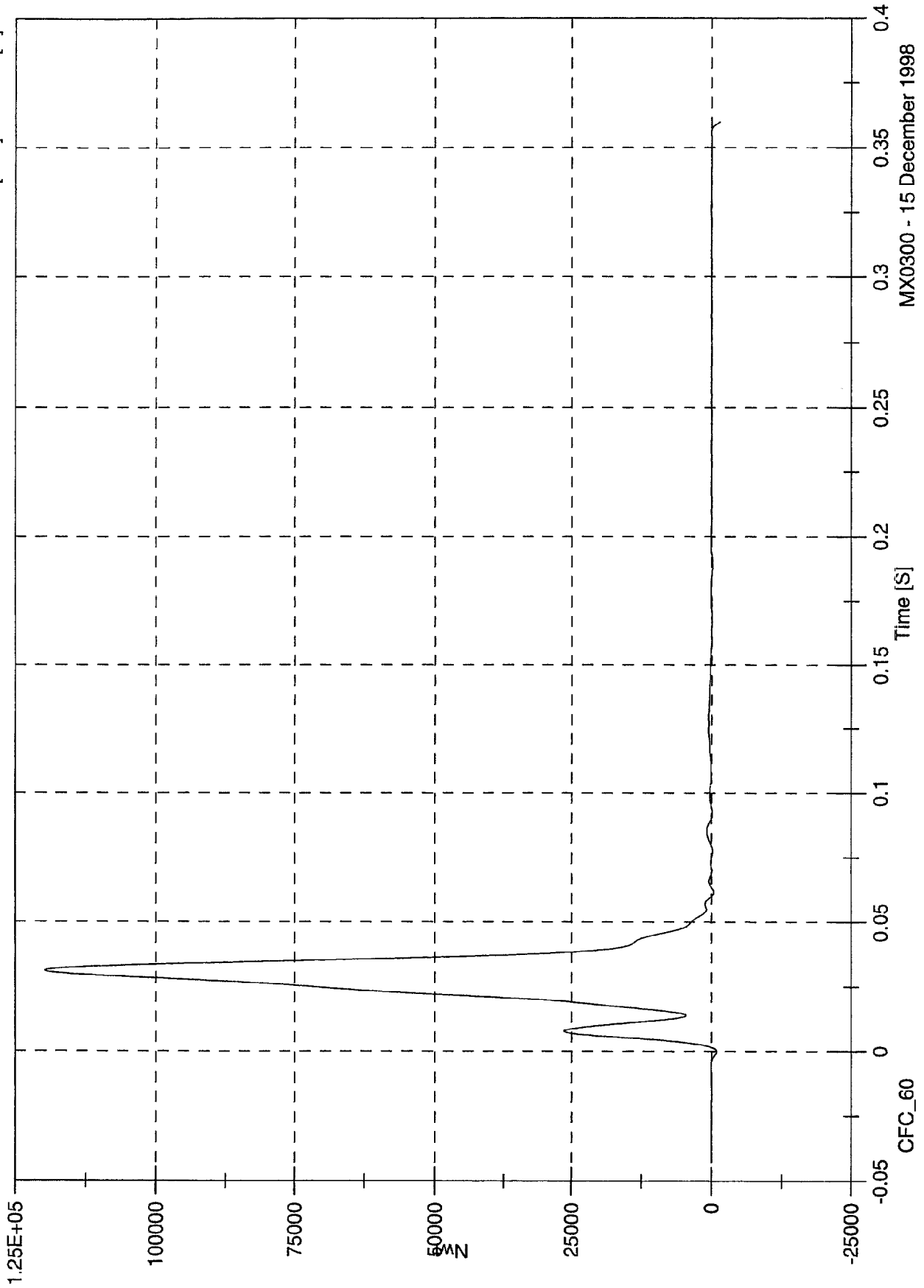


Max: 119711.2 [Nwt] at 0.031 [S]

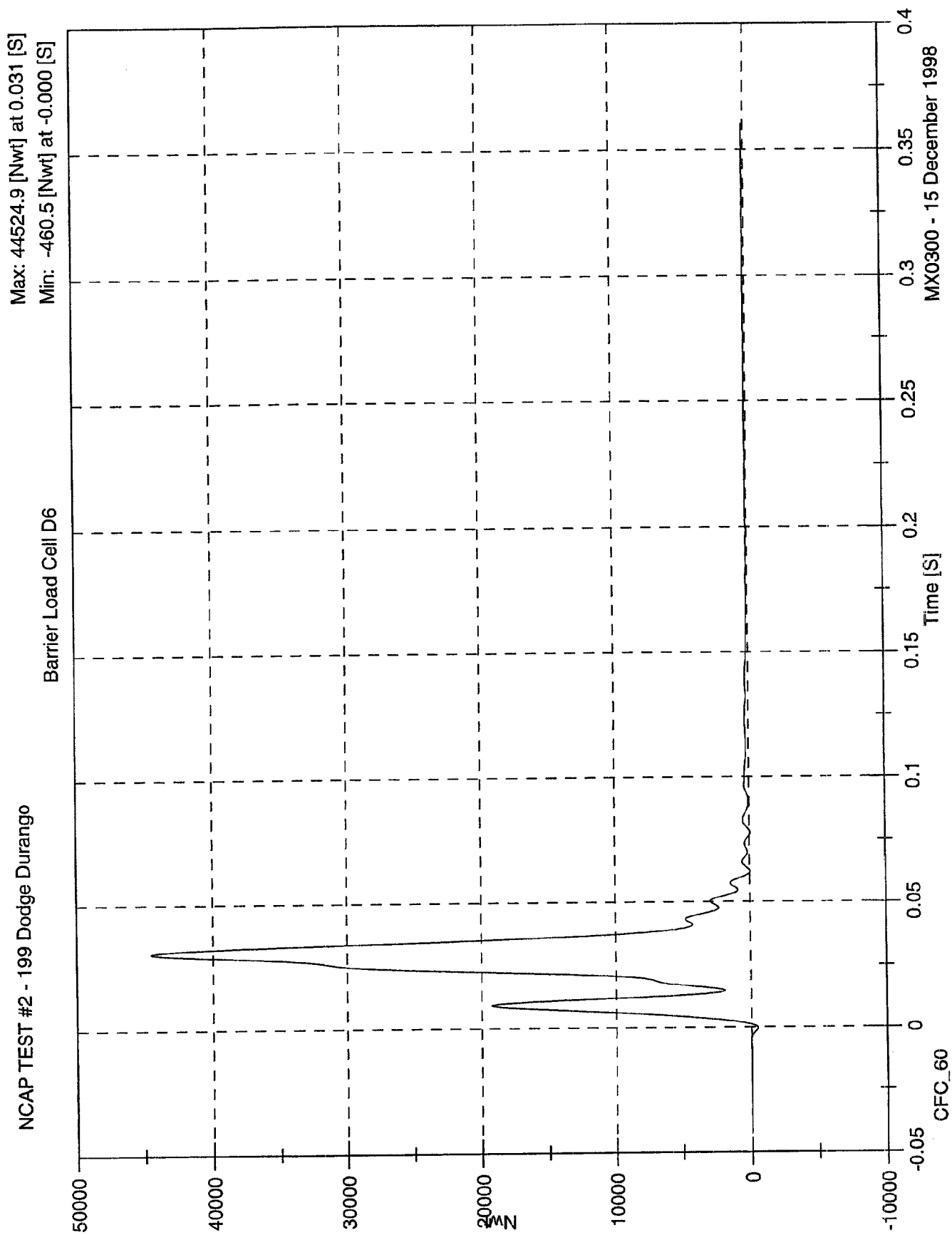
Min: -1533.5 [Nwt] at 0.360 [S]

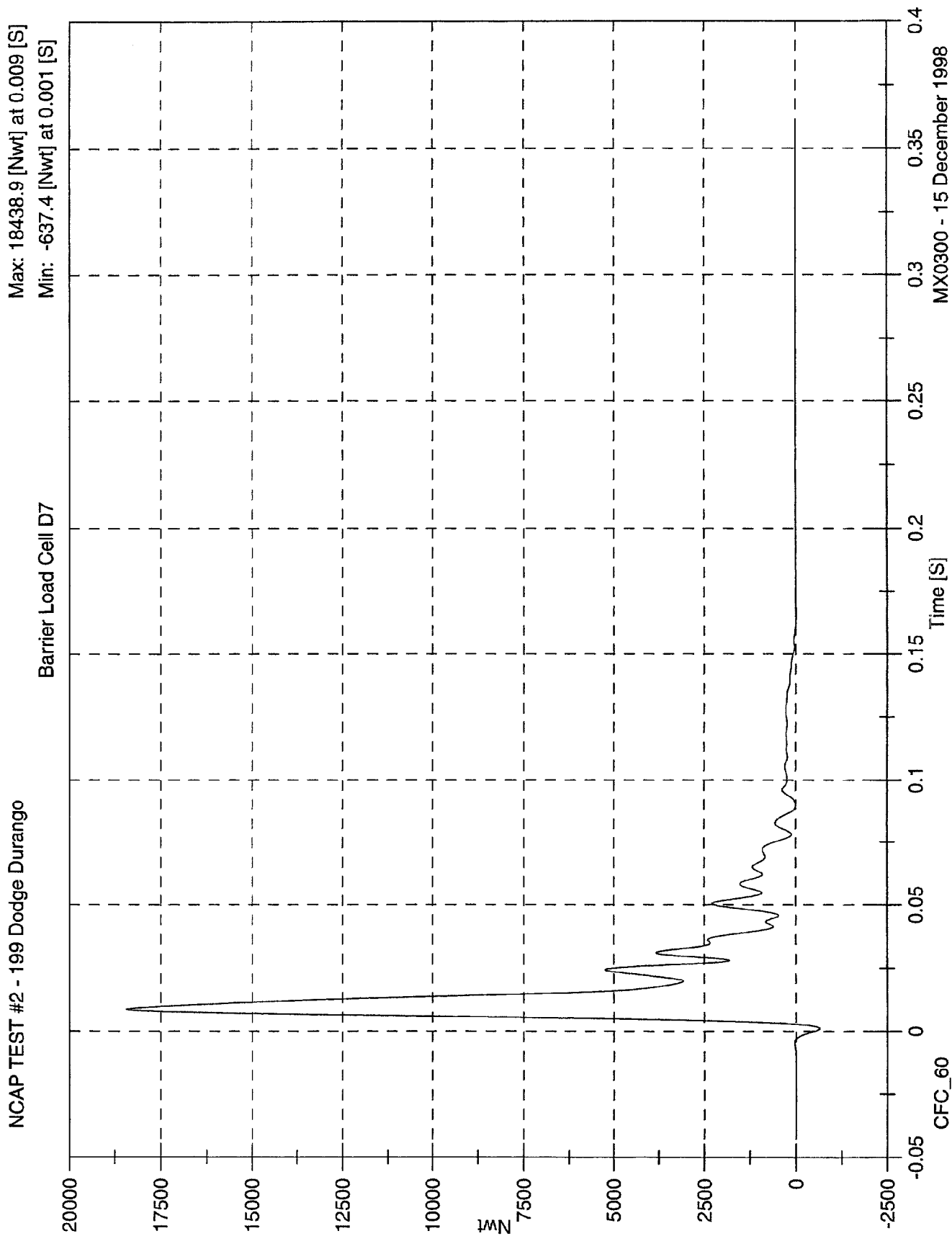
Barrier Load Cell D5

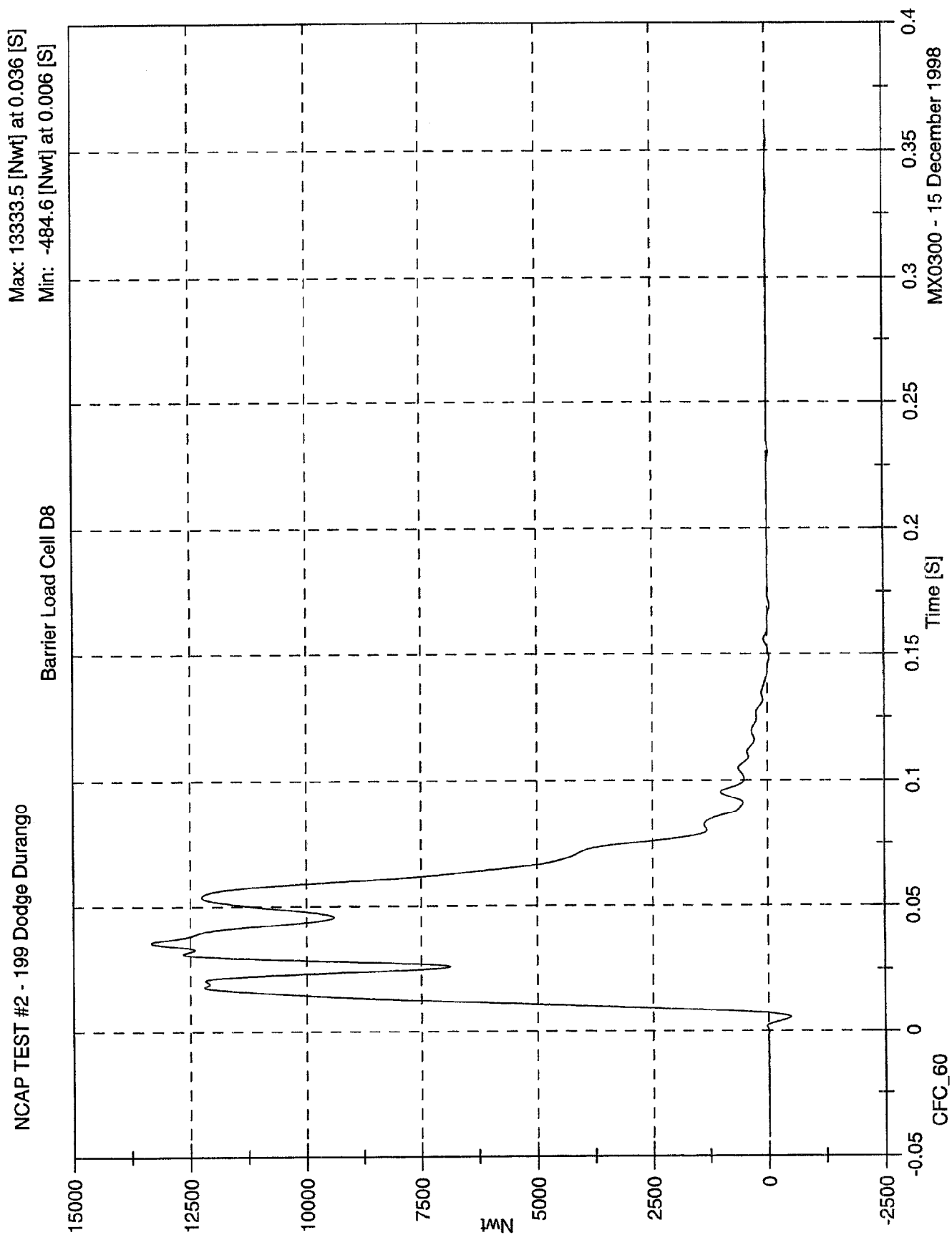
NCAP TEST #2 - 199 Dodge Durango

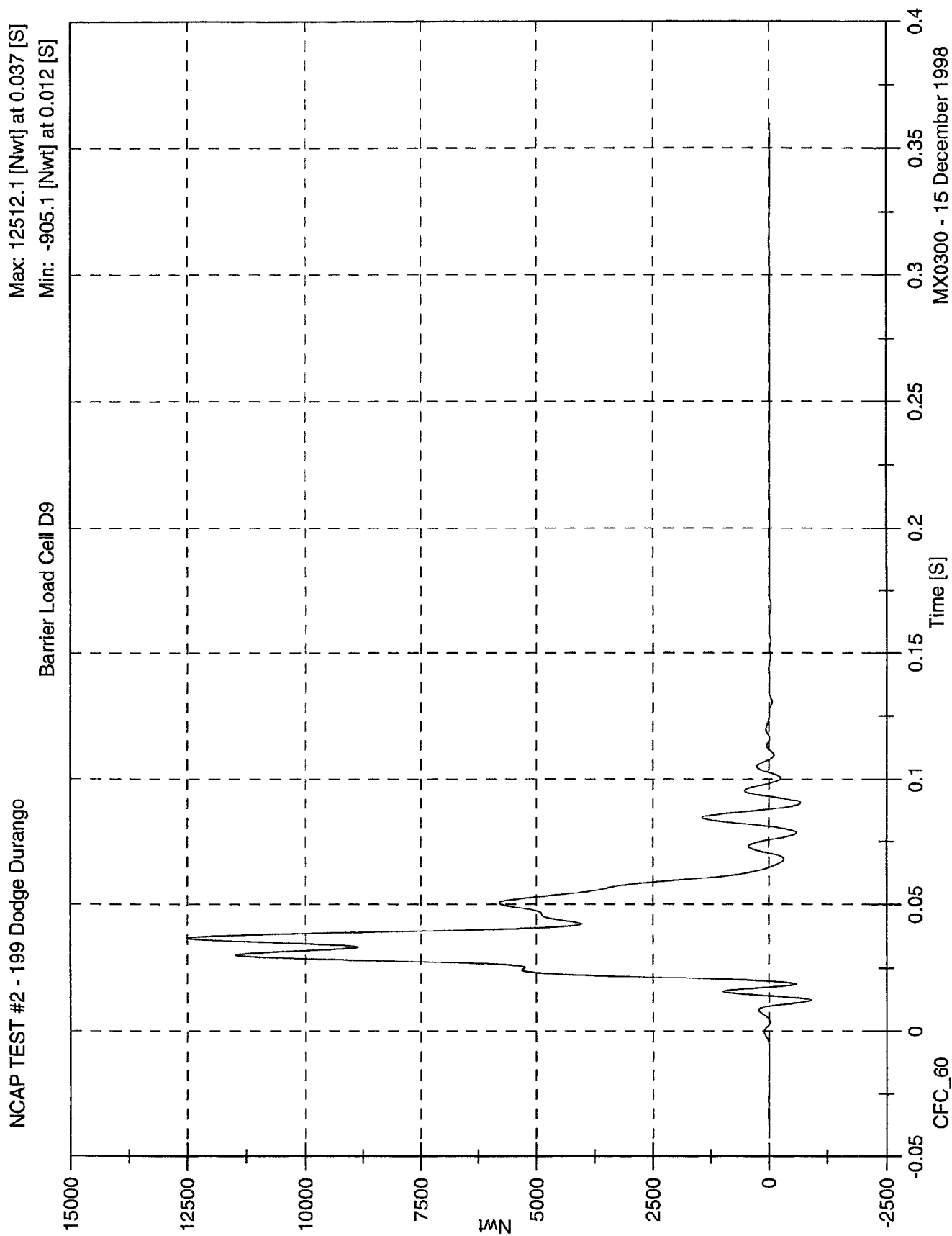


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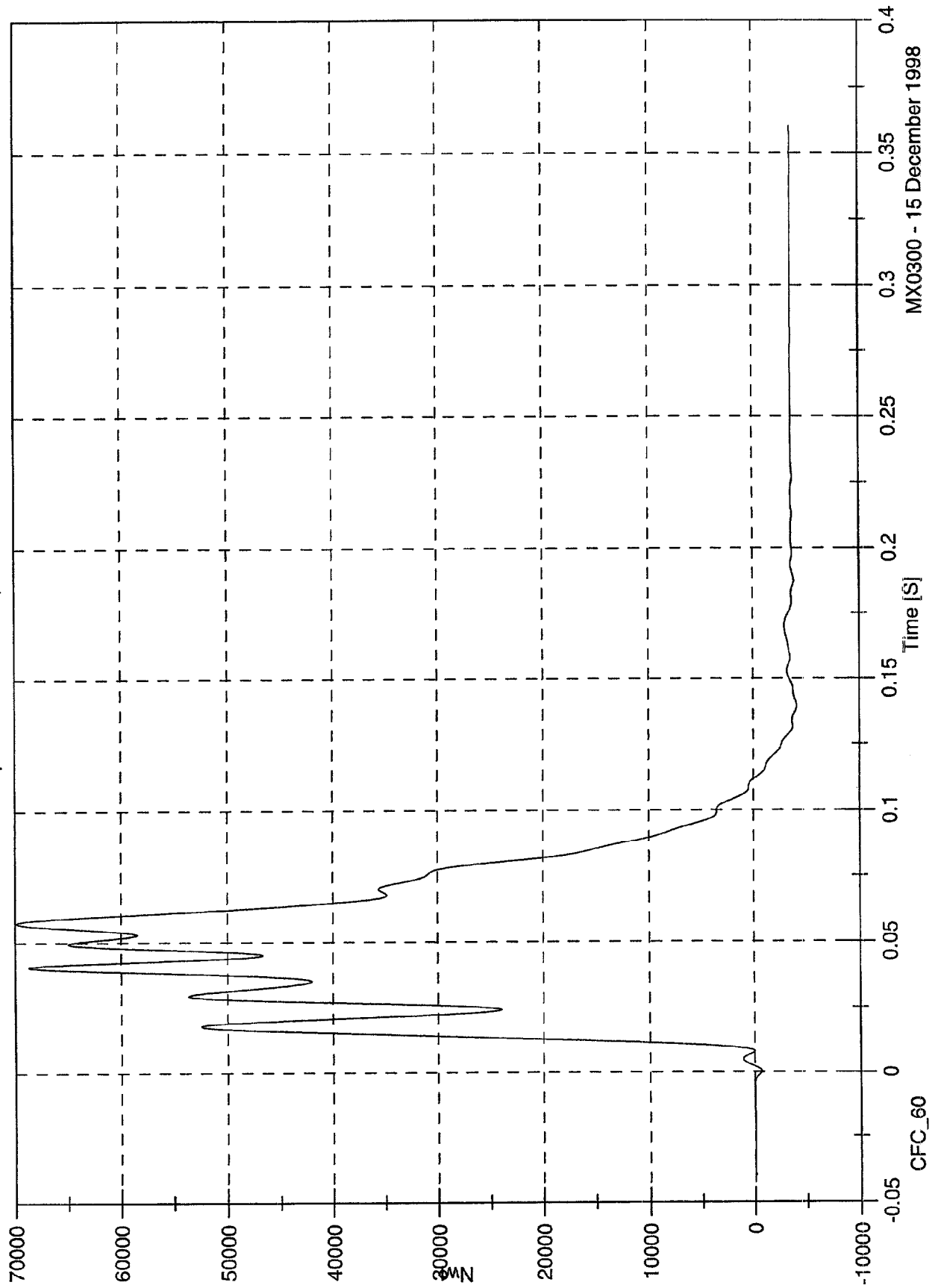


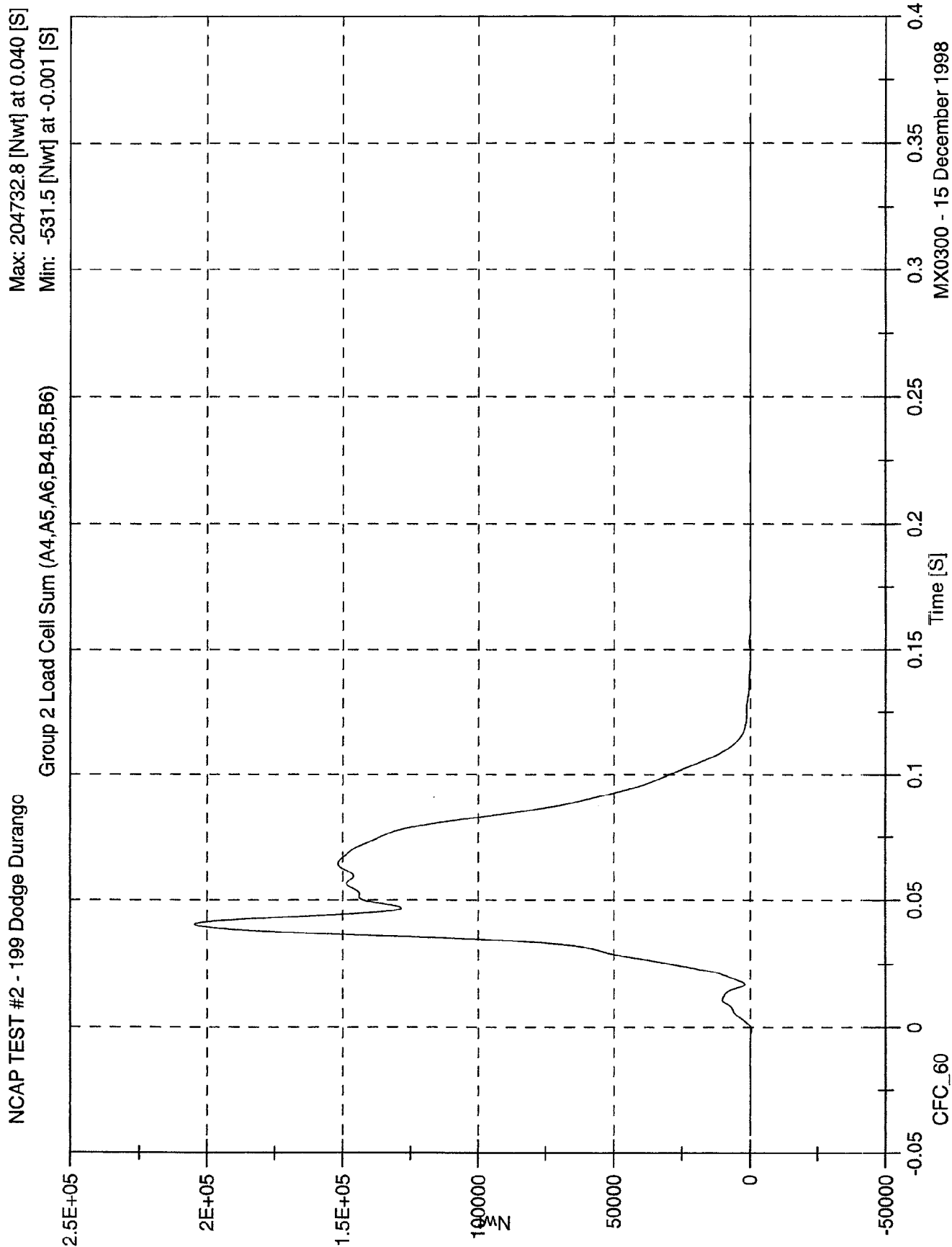


NCAP TEST #2 - 199 Dodge Durango

Max: 69872.1 [Nwt] at 0.058 [S]
 Min: -4130.5 [Nwt] at 0.139 [S]

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

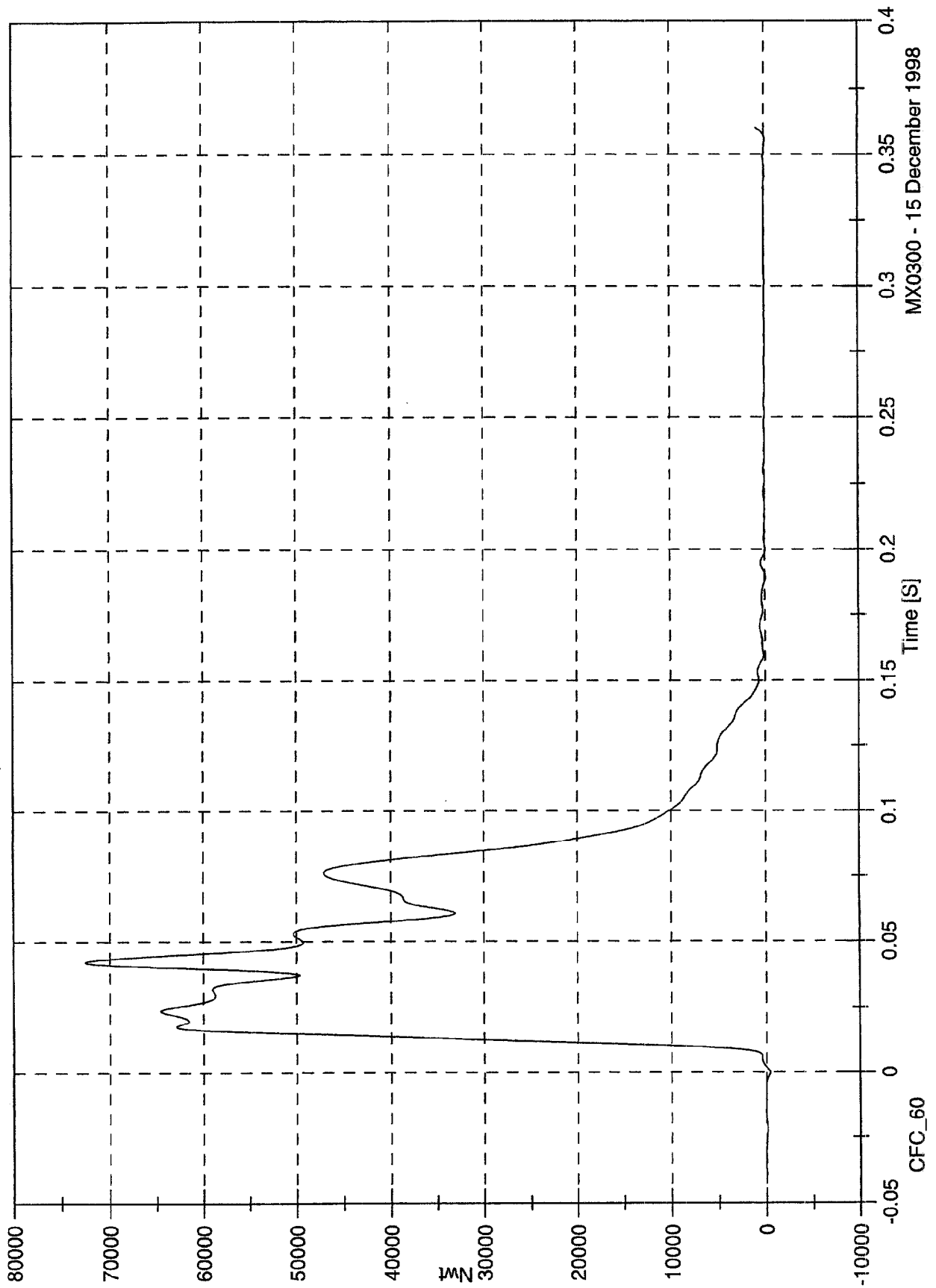




NCAP TEST #2 - 199 Dodge Durango

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

Max: 72580.0 [Nwt] at 0.042 [S]
Min: -395.2 [Nwt] at -0.000 [S]



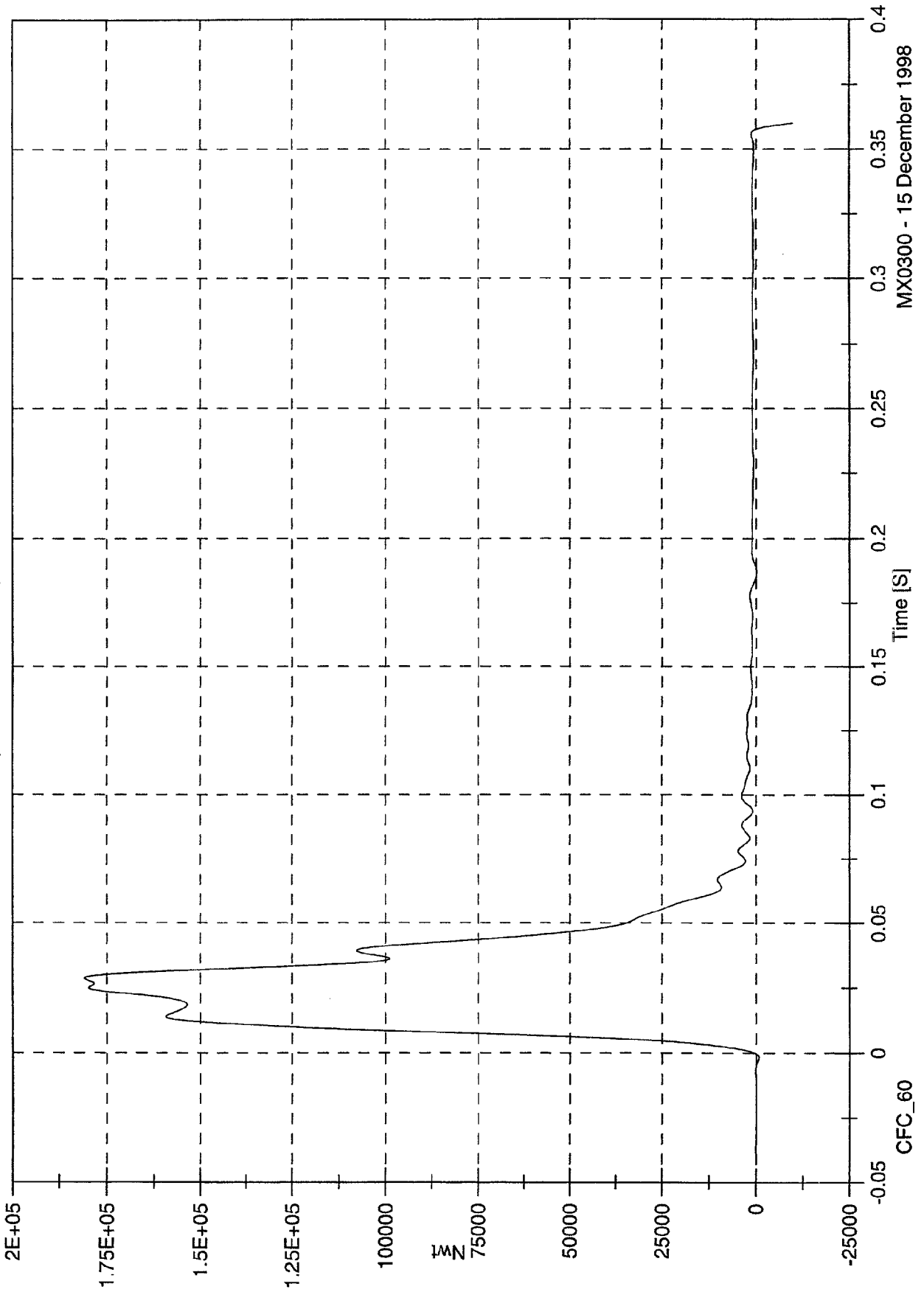
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NCAP TEST #2 - 199 Dodge Durango

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

Max: 180893.4 [Nwt] at 0.029 [S]

Min: -9617.3 [Nwt] at 0.360 [S]

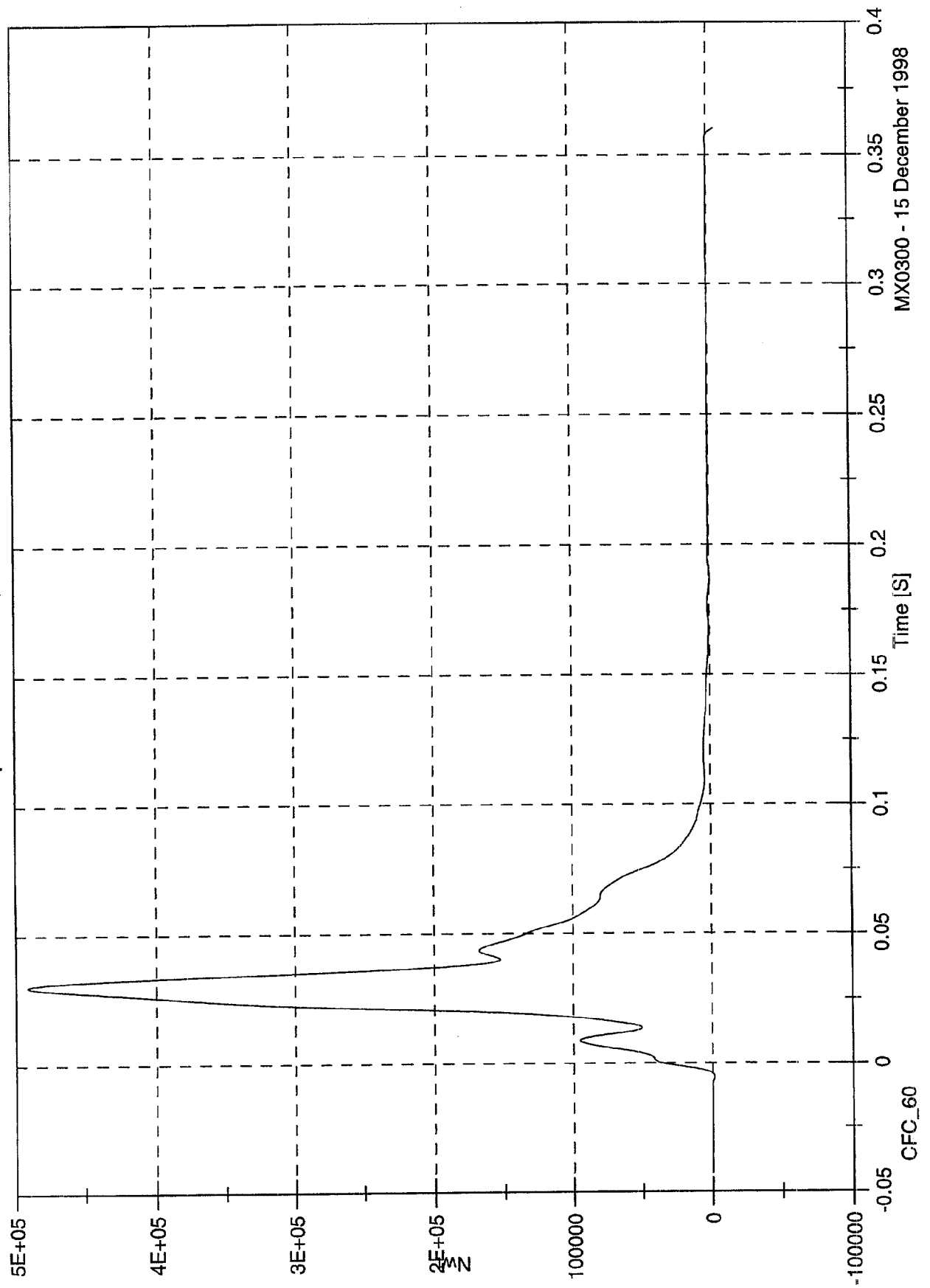


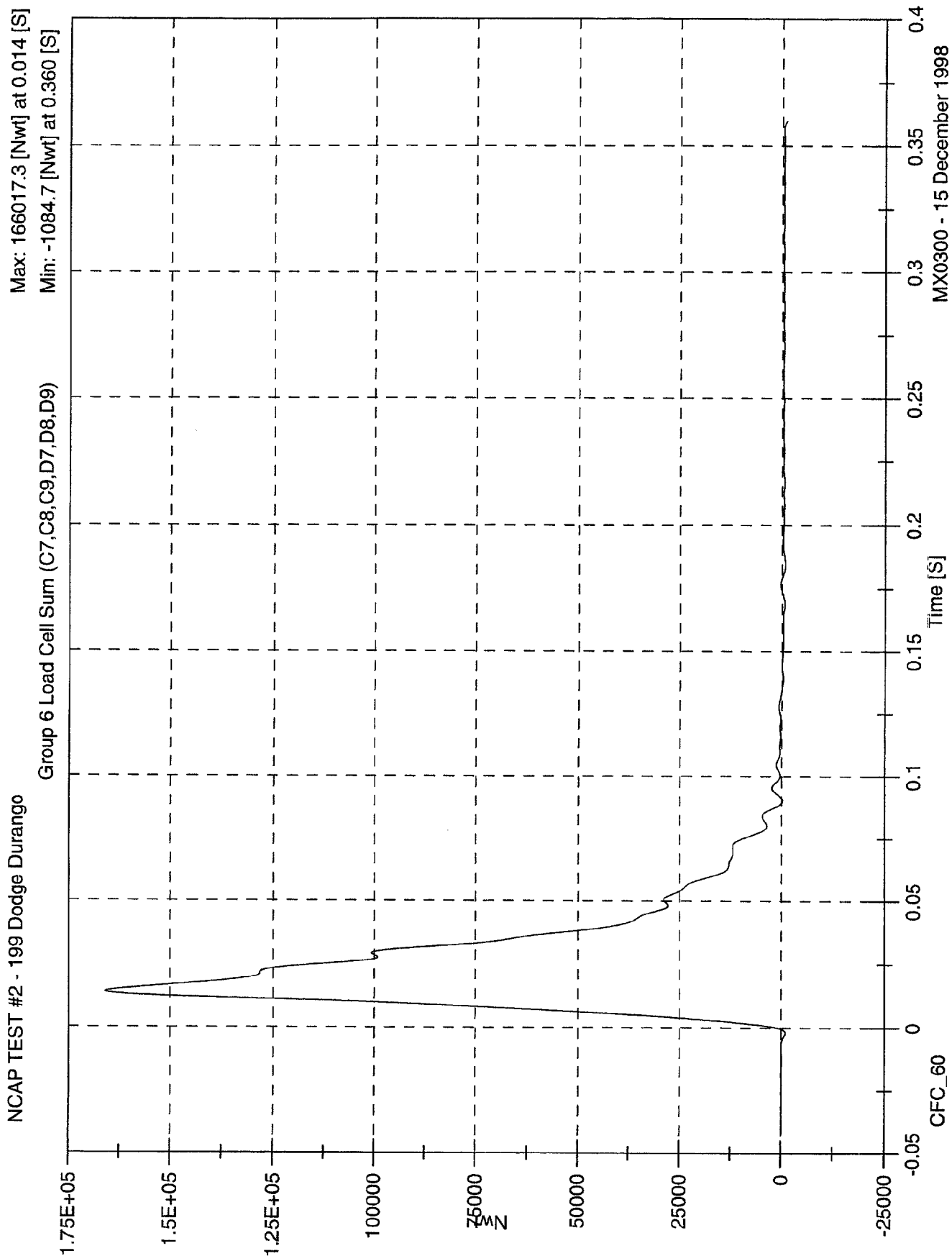
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NCAP TEST #2 - 199 Dodge Durango

Max: 491068.0 [Nwt] at 0.030 [S]
 Min: -5200.1 [Nwt] at 0.360 [S]

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

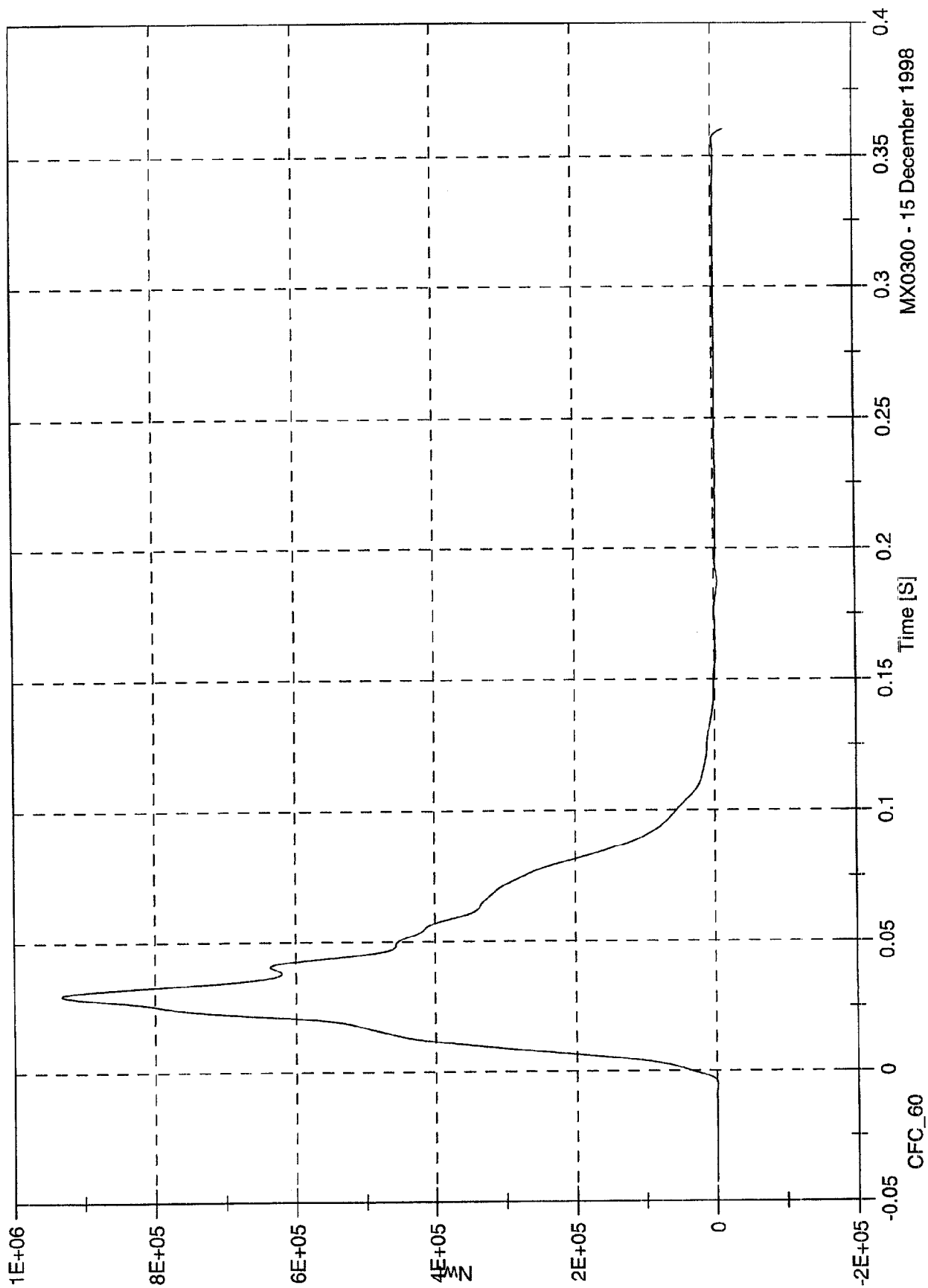




NCAP TEST #2 - 199 Dodge Durango

Max: 932494.6 [Nwt] at 0.030 [S]
 Min: -18462.7 [Nwt] at 0.360 [S]

Total Load Cell Sum (All 6 Groups)



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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:

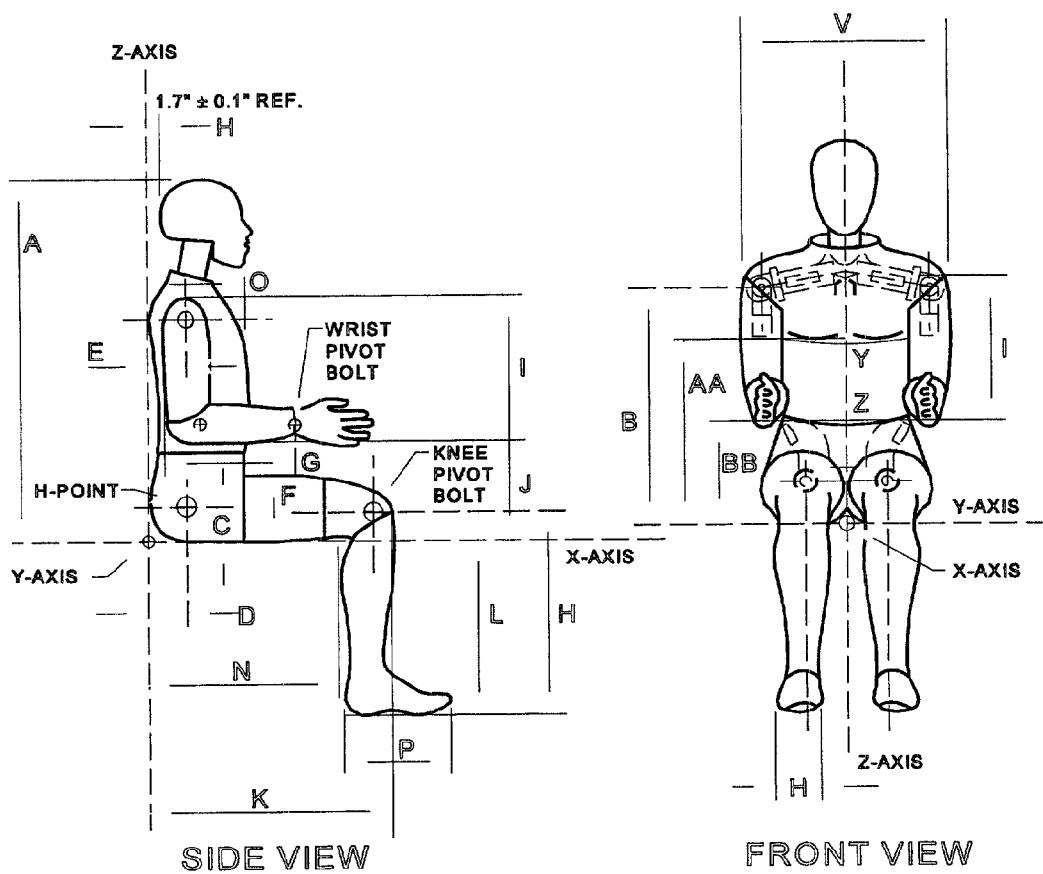
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	245	11/21/98
#2/Right Front Passenger	150	11/21/98

Electronic Test Equipment

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

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS SPECIFICATIONS



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

PART 572E
HEAD DROP TEST

Dummy Serial Number 245
Calspan Sequential Test Number 3
Date 11/20/98
Workfile 245398.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	35
Peak Resultant Acceleration	225-275 G's	237.3
Peak Lateral Acceleration	15 G's Max	3.3
Is Acceleration Curve Unimodal?	YES	Yes

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number 245
 Calspan Sequential Test Number 3
 Date 11/20/98
 Workfile 245398.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	35
Impact Velocity		22.60 - 23.40 Ft/s	23.20
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.17
	20 ms	17.60 - 22.60 G's	19.74
	30 ms	12.50 - 18.50 G's	14.85
Max Pendulum G's Above 30 ms		29 G's Max	14.85
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.25
D Plane Rotation	Max	64 - 78 Deg	75.60
	Time	57 - 64 ms	62.88
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	66.54
	Time	47 - 58 ms	54.38
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	120.25
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	104.50

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number 245
Calspan Sequential Test Number 3
Date 11/20/98
Workfile 245498.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	35
Impact Velocity		19.50 - 20.30 Ft/s	19.70
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.66
	20 ms	14.00 - 19.00 G's	16.65
	30 ms	11.00 - 16.00 G's	13.51
Max Pendulum G's Above 30 ms		22 G's Max	13.51
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	41.63
D Plane Rotation	Max	81 - 106 Deg	99.81
	Time	72 - 82 ms	75.13
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-54.24
	Time	65 - 79 ms	71.0
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	148.63
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	135.75

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 245
Calspan Sequential Test Number 3
Date 11/21/98
Workfile 245498.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	32
Pendulum Velocity	21.6 - 22.4 Ft/s	21.70
Maximum Deflection	2.50 - 2.86 in	2.52
Maximum Resistive Force	1160 - 1325 Lbs	1277.75
Internal Hysteresis	69 - 85 %	73.42

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 245
Calspan Sequential Test Number 3
Date 11/21/98
Workfile 245398

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	32
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1195
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	32
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1192

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 245
Calspan Sequential Test Number 3
Date 11/21/98

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			31
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.0
Waist Circumference	Z	32.9 - 34.1 in	33.7
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.9
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.3
Popliteal Height	L	16.9 - 17.9 in	17.5
Knee Pivot Height	M	19.1 - 19.7 in	19.2
Foot Length	P	9.9 - 10.5 in	110.2
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.2
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 150
Calspan Sequential Test Number 4
Date 11/20/98
Workfile 150498.hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	35
Peak Resultant Acceleration	225-275 G's	242.7
Peak Lateral Acceleration	15 G's Max	14.9
Is Acceleration Curve Unimodal?	YES	Yes

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number 150
Calspan Sequential Test Number 4
Date 11/20/98
Workfile 150498.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	35
Impact Velocity		22.60 - 23.40 Ft/s	23.10
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.64
	20 ms	17.60 - 22.60 G's	20.82
	30 ms	12.50 - 18.50 G's	15.27
Max Pendulum G's Above 30 ms		29 G's Max	15.27
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.75
D Plane Rotation	Max	64 - 78 Deg	74.72
	Time	57 - 64 ms	59.13
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	69.18
	Time	47 - 58 ms	53.75
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	122.88
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	102.62

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number 150
Calspan Sequential Test Number 4
Date 11/20/98
Workfile 150498.nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	35
Impact Velocity		19.50 - 20.30 Ft/s	19.90
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	18.37
	20 ms	14.00 - 19.00 G's	16.66
	30 ms	11.00 - 16.00 G's	13.22
Max Pendulum G's Above 30 ms		22 G's Max	13.22
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	43.38
D Plane Rotation	Max	81 - 106 Deg	99.78
	Time	72 - 82 ms	76.63
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-56.90
	Time	65 - 79 ms	71.25
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	257.75
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	146.00

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 150
Calspan Sequential Test Number 4
Date 11/21/98
Workfile 150498.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	32
Pendulum Velocity	21.6 - 22.4 Ft/s	22.29
Maximum Deflection	2.50 - 2.86 in	2.56
Maximum Resistive Force	1160 - 1325 Lbs	1174.71
Internal Hysteresis	69 - 85 %	71.58

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 150
Calspan Sequential Test Number 4
Date 11/21/98
Workfile 150498

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	32
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1265
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	32
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1278

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 150
Calspan Sequential Test Number 4
Date 11/21/98

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

Remarks:

Laboratory Technician: B. Swiecicki

Appendix D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 245)	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X	C15021	ENDEVCO	9/98	3/99
Y	AL511	ENDEVCO	10/98	4/99
Z	AH5N0	ENDEVCO	10/98	4/99
Chest				
X	AE8K1	ENDEVCO	10/98	4/99
Y	AH5M8	ENDEVCO	10/98	4/99
Z	AF5C4	ENDEVCO	10/98	4/99
Right Femur Load Cell	723	GSE	9/98	3/99
Left Femur Load Cell	420	GSE	9/98	3/99
Neck Load Cell	269	DENTON	10/98	4/99
Y	269	DENTON	10/98	4/99
Z	269	DENTON	10/98	4/99
Neck Moment	269	DENTON	10/98	4/99
Y	269	DENTON	10/98	4/99
Z	269	DENTON	10/98	4/99
Chest Deflection Gauge	245	HUMANOID	10/98	4/99
Hybrid III Use Only				
Lap Belt Load Cells	706	LEBOW	9/98	3/99
Shoulder Belt Load Cells	707	LEBOW	9/98	3/99
Spool-Out Potentiometer	M7	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)	A14367	ENDEVCO	11/98	5/99
Y (R)	A14501	ENDEVCO	11/98	5/99
Z (R)	A14570	ENDEVCO	11/98	5/99
Chest				
X (R)	A13506	ENDEVCO	10/98	4/99
Y (R)	A14058	ENDEVCO	10/98	4/99
Z (R)	B10481	ENDEVCO	10/98	4/99
Pelvic				
X	AF5B3	ENDEVCO	9/98	3/99
Y	AF5F7	ENDEVCO	9/98	3/99
Z	AC2R5	ENDEVCO	9/98	3/99
Left Upper Tibia				
Mx	045	DENTON	9/98	3/99
Left Upper Tibia				
My	045	DENTON	9/98	3/99
Left Lower Tibia				
Fy	125	DENTON	8/98	2/99
Left Lower Tibia				
Fz	125	DENTON	8/98	2/99
Left Lower Tibia				
Mx	125	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				
Fy	124	DENTON	8/98	2/99
Right Lower Tibia				
Fz	124	DENTON	8/98	2/99
Right Lower Tibia				
Mx	124	DENTON	8/98	2/99

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacture	Calibration	
			Last	Next
Left Foot Front Z	A14239	ENDEVCO	12/98	6/99
Left Foot Rear X	A14488	ENDEVCO	12/98	6/99
Left Foot Rear Z	A14306	ENDEVCO	12/98	6/99
Right Foot Front Z	A14257	ENDEVCO	12/98	6/99
Right Foot Rear X	A14256	ENDEVCO	12/98	6/99
Right Foot Rear Z	A14307	ENDEVCO	12/98	6/99

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 150)	Serial #	Manufacturer	Calibration	
			Last	Next
Head	X	ENDEVCO	10/98	4/99
	Y	ENDEVCO	10/98	4/99
	Z	ENDEVCO	12/98	6/99
Chest	X	ENDEVCO	12/98	6/99
	Y	ENDEVCO	12/98	6/99
	Z	ENDEVCO	12/98	6/99
Right Femur Load Cell	548	GSE	9/98	3/99
	551	GSE	9/98	3/99
Left Femur Load Cell	076	DENTON	8/98	2/99
	076	DENTON	8/98	2/99
	076	DENTON	8/98	2/99
Neck Moment	X	DENTON	8/98	2/99
	Y	DENTON	8/98	2/99
	Z	DENTON	8/98	2/99
Chest Deflection Gauge	CP150	HUMANOID	9/98	3/99
Lap Belt Load Cells	711	LEBOW	9/98	3/99
	712	LEBOW	9/98	3/99
Shoulder Belt Load Cells	M8	MAGNETEK	10/98	4/99
Spool-Out Potentiometer	E6	CALSPAN	10/98	4/99
Belt Stretch Transducer				

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X (R)	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	12/98	6/99
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
Left Upper Tibia				
My	016	DENTON	9/98	3/99
Left Lower Tibia				
Fy	123	DENTON	8/98	2/99
Left Lower Tibia				
Fz	123	DENTON	8/98	2/99
Left Lower Tibia				
Mx	123	DENTON	8/98	2/99
Right Upper Tibia				
Mx	015	DENTON	9/98	3/99
Right Upper Tibia				
My	015	DENTON	9/98	3/99
Right Lower Tibia				
Fy	122	DENTON	8/98	2/99
Right Lower Tibia				
Fz	122	DENTON	8/98	2/99
Right Lower Tibia				
Mx	122	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			
Left Foot Front	A14434	ENDEVCO	12/98	6/99
Left Foot Rear	X			
Left Foot Rear	A14510	ENDEVCO	12/98	6/99
Left Foot Rear	Z			
Left Foot Rear	A14383	ENDEVCO	12/98	6/99
Right Foot Front	Z			
Right Foot Front	A14485	ENDEVCO	12/98	6/99
Right Foot Rear	X			
Right Foot Rear	A14321	ENDEVCO	12/98	6/99
Right Foot Rear	Z			
Right Foot Rear	A14381	ENDEVCO	12/98	6/99

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	D74	ICS	10/98	4/99
Right Rear Seat Crossmember	D61	ICS	8/98	2/99
Top of Engine	D75	ICS	11/98	5/99
Bottom of Engine	F53	ICS	10/98	4/99
Left Disc Brake Caliper	A175	CEC	11/98	5/99
Right Disc Brake Caliper	A156	CEC	11/98	5/99
Instrument Panel	D53	CEC	8/98	2/99
Left Seat Rear Crossmember (R)	D71	ICS	8/98	2/99
Right Seat Rear Crossmember (R)	D69	ICS	8/98	2/99