

REPORT NUMBER: CAL-00-03

3216

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

**DAIMLERCHRYSLER CORPORATION
2000 DODGE CARAVAN
MPV**

NHTSA NUMBER: MY0302

VERIDIAN TEST NUMBER: 8413-41

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



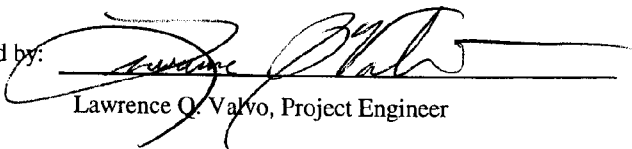
November 24, 1999


FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Performance Standards
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 2000 Dodge Caravan MPV was performed at Veridian Engineering crash test facility in Buffalo, New York, on November 24, 1999. The impact velocity was 56.3 kph and the temperature at the barrier face was 21.1°C. The maximum post-test vehicle crush was 594 mm. The test vehicle was equipped with driver and passenger 3-point active safety belts and Next Generation reduced force frontal air bags. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and right front passenger appear to comply with the head, chest, and femur requirements.					
ATD Position	HIC	Clip (g's)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)
Driver (061)	771.9	48.8	43.8	4131.8	3752.1
Passenger (064)	792.6	48.8	27.6	3999.7	3415.9
17. <i>Key Words</i> 56 kph Frontal Barrier Impact test New Car Assessment Program (NCAP)			18. <i>Distribution Statement</i> <u>Copies of this report are available from:</u> NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, DC 20590		
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SECTION 1

PURPOSE AND SUMMARY OF TEST MY0302

PURPOSE

This 56.3 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 56.3 kph frontal barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

SUMMARY

A load cell barrier consisting of 36 load cells was impacted by a 2000 Dodge Caravan MPV at a velocity of 56.3 kph. The test was performed at Veridian Engineering on November 24, 1999. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A. The NHTSA number displayed on the vehicle at the time of the test (MY0100) was incorrect and should have read MY0302. Where possible, the NHTSA number has been blocked out or corrected in this report.

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 belt and shoulder belt (between the retractor and the D-ring) to measure dummy torso and pelvic section loading. The driver (position 1) ATD (Serial No. 061) and the right-front passenger (position 2) ATD (Serial No. 064) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 134 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces.

The driver's HIC was 771.9. The maximum chest deceleration over 3 milliseconds was 48.8 g's and maximum chest deflection was 43.8 mm. Compressive femur loads were 4131.8 Newtons on the left and 3752.1 Newtons on the right.

The right front passenger's HIC was 792.6. Maximum chest deceleration over 3 milliseconds was 48.8 g's and maximum chest deflection was 27.6 mm. Compressive femur loads were 3999.7 Newtons on the left and 3415.9 Newtons on the right.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO. 1 CRASH TEST SUMMARY

Vehicle NHTSA No. : MY0302 Test Mode : 56.3 kph Frontal Barrier

Test Date : November 24, 1999 Time: 14:15 Temperature : 21.1 °C

Vehicle Make/Model/Body Style : 2000 Dodge Caravan MPV

Vehicle Test Weight : 1852.5 kg

Vehicle/Barrier Impact Angle : 0 °

Impact Velocity : 56.3 kph

Maximum Static Crush : 506 mm

Vehicle Rebound : 557 mm

DUMMIES:

DRIVER

PASSENGER

Type : 572E 572E

Restraint System : Next Generation Airbag / 3-Point Safety Belt System Next Generation Airbag / 3-Point Safety Belt System

Number of Data Channels : 133

Number of Cameras : 1 Real Time

16 High Speed

DOOR OPENING DATA : Closed / Operable - Left Front

Closed / Operable - Right Front

Front Seat(s) Data :

DRIVER

PASSENGER

Seat Track Failure :(mm of shift) None None

Seat Back Failure : None None

VISIBLE DUMMY CONTACT POINTS :

DRIVER

PASSENGER

Head : Face to center of airbag, back of head to head restraint Face to center of airbag, back of head to head restraint

Abdomen : None None

Chest Airbag Airbag

Knees Left knee to left half of knee bolster; Right knee to right half of knee bolster Left knee to left quarter of glove compartment door; Right knee to right third of glove compartment door

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 2000 Dodge Caravan MPV
NHTSA No. : MY0302 ; VIN: 2B4FP25B2YR520999 ; Color : Green
Engine Data: 4 cylinders; - CID; 2.4 Liters; - cc
Placement : - Longitudinal or In-Line; X Transverse or Lateral
Transmission Data : 3 speeds; - Manual; X Automatic; - Overdrive
Final Drive : - Rear Wheel Drive; X Front Wheel Drive; - Four Wheel Drive
Major Options : X A/C; X Pwr.Strg.; X Pwr. Brakes
- Pwr. Windows; - Pwr. Door Locks; - Tilt Wheel
Date Received : 11/9/99 ; Odometer Reading 34 km
Selling Dealer : West-Herr Dodge LLC
& Address: 3551 Southwestern Blvd. Orchard Park, NY 14127

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : DaimlerChrysler Corporation
Date of Manufacture 8-99
GVWR : 2268 kg; GAWR: 1203 kg FRONT; 1180 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 300 kpa FRONT
241 kpa REAR
Recommended Tire Size : P205/75R14
* Recommended Cold Tire Pressure : 241 kpa FRONT; 241 kpa REAR
Size of Tires on Test Vehicle: P205/75R14 ; 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) = 522.0 kg **
No. of Occupants x 68 kg = 476.3 kg
Rated Cargo/Luggage Weight (RCLW) = 45.7 kg

*Tire pressure used for test

** Vehicle capacity weight as indicated on the tire placard.

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

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

Right Front	=	<u>476.0</u>	kg	Right Rear	=	<u>342.0</u>	kg
Left Front	=	<u>496.0</u>	kg	Left Rear	=	<u>347.0</u>	kg
TOTAL FRONT	=	<u>972.0</u>	kg	TOTAL REAR	=	<u>689.0</u>	kg
TOTAL DELIVERED WEIGHT	=	<u>1661.0</u>	kg				
% of Total Front of Vehicle Weight	=	<u>58.5</u>	%	% of Total Rear Weight	=	<u>41.5</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW)	=	<u>1661.0</u>	kg
Rated Cargo/Luggage Weight (RCLW)	=	<u>45.7</u>	kg
Weight of 2 p.572 Dummies @ 76 each	=	<u>152.0</u>	kg
TARGET TEST WEIGHT	=	<u>1858.7</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 40 KG OF CARGO WEIGHT:

Right Front	=	<u>507.5</u>	kg	Right Rear	=	<u>402.5</u>	kg
Left Front	=	<u>536.5</u>	kg	Left Rear	=	<u>406.0</u>	kg
TOTAL FRONT	=	<u>1044.0</u>	kg	TOTAL REAR	=	<u>808.5</u>	kg
TOTAL TEST WEIGHT	=	<u>1852.5</u>	kg				
% of Total Front Weight	=	<u>56.4</u>	%	% of Total Rear Weight	=	<u>43.6</u>	%
Weight of Ballast Secured in Vehicle Trunk Area	=	<u>0</u>	kg				
Vehicle Components Removed for Weight Reduction:		<u>None</u>					

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	<u>770</u>	LF	<u>766</u>	RR	<u>782</u>	LR	<u>771</u>
FULLY LOADED :	RF	<u>753</u>	LF	<u>747</u>	RR	<u>743</u>	LR	<u>733</u>
AS TESTED :	RF	<u>756</u>	LF	<u>750</u>	RR	<u>749</u>	LR	<u>743</u>
Vehicle's Wheel Base :		<u>2895</u>	mm					
Location of Vehicle's C.G. :		<u>1263</u>	mm rearward of front wheel center.					

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual	=	<u>75.7</u>	liters
Usable Capacity Figure Furnished by COTR	=	<u>75.7</u>	liters
Test Volume Range (92 to 94% of Usable Capacity)	=	<u>69.7</u>	to <u>71.2</u> liters
ACTUAL TEST VOLUME	=	<u>70.0</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 is located on the left side of the vehicle forward of the rear axle; Fuel tank is located on the vehicle underbody inboard of the left frame rail and forward of the rear axle; Fuel lines are routed along the inboard side of the right frame rail.</u>			

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°
Test Date : November 24, 1999 Time: 14:15 Temperature: 21.1 °C
Vehicle NHTSA No. : MY0302
Required Impact Velocity Range : 55.5 to 57.1 kph

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

Trap No. 1 = 56.3 kph; Trap No. 2 = 56.3 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 = 4629 ; C/L = 4727 ; Left = 4627
Post-Test Right = 4123 ; C/L = 4234 ; Left = 4184
Crush Right = 506 ; C/L = 493 ; Left = 443
AVERAGE = 481 mm

VEHICLE REBOUND: (From rigid barrier only.)

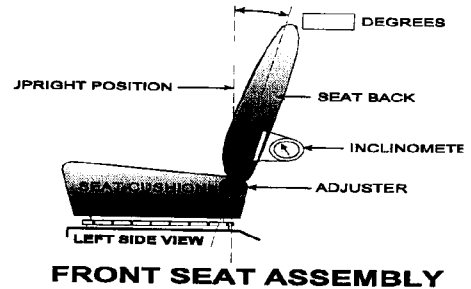
Distance from front of test vehicle to impact point :
Right = 594 ; C/L = 532 ; Left = 545
AVERAGE = 557 mm

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 2000 Vehicle Model: Dodge Caravan Body Style : MPV

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



Seat back angle for driver's seat: 22 deg.

Measurement instructions: Place seat back in fully inclined position, hold inclinometer approximately 55 mm above seat back pivot point and recline seat 4 degrees.

Seat back angle for passenger's seat: 22 deg.

Measurement instructions: Place seat back in fully inclined position, hold inclinometer approximately 55 mm above seat back pivot point and recline seat 4 degrees.

2. Seat Fore and Aft Positioning

Positioning of the driver's seat: Place seat in mid-position detent.

Positioning of the passenger's seat: Place seat in mid-position detent.

3. Fuel Tank Capacity Data

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 75.7 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 = 75.7 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 70.0 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 ignition is turned to the run position without the engine running, the fuel pump operates momentarily to pressurize the fuel lines then shuts off.

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

4. STEERING COLUMN ADJUSTMENTS :

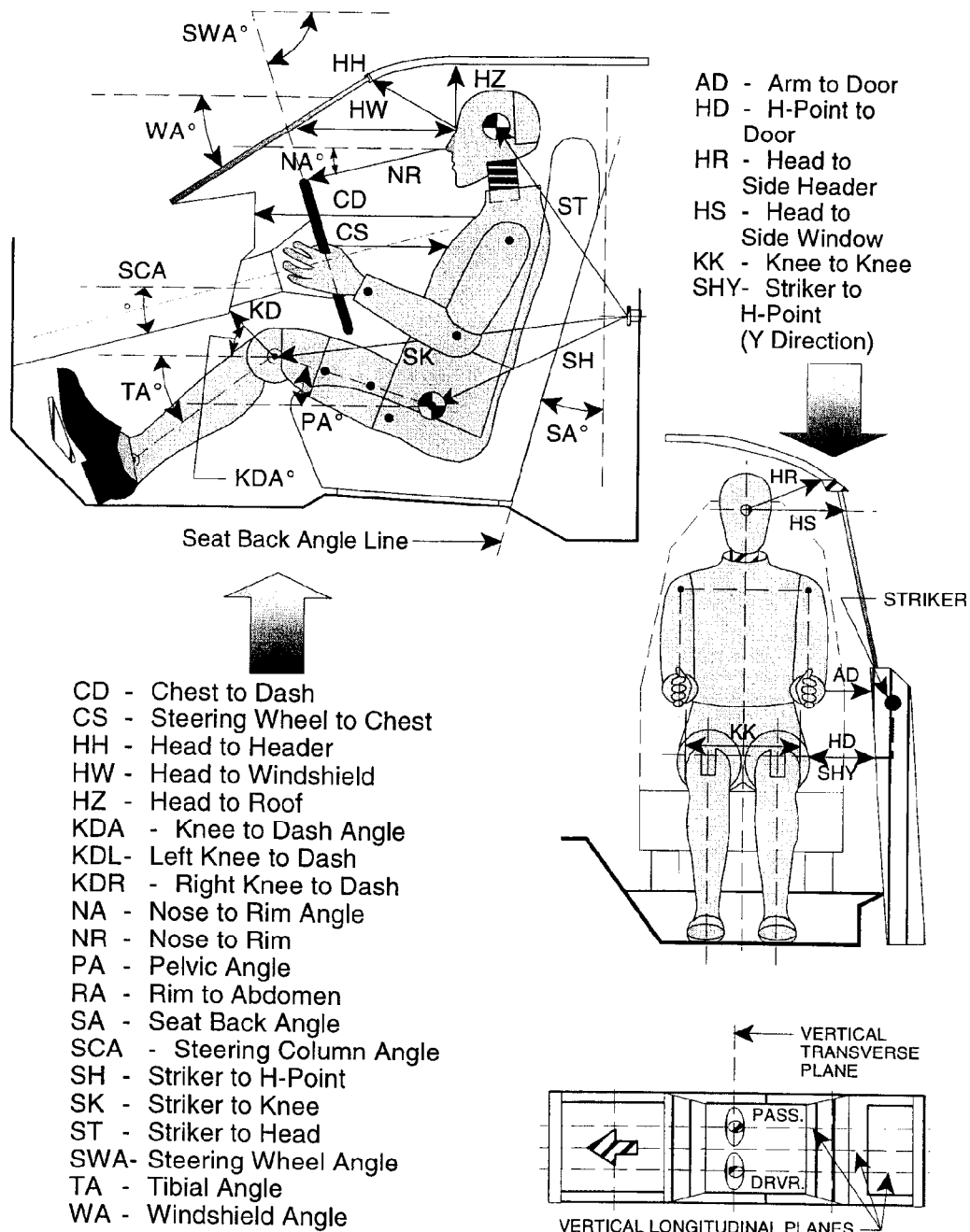
Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine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

Operational Instructions: Steering column was not adjustable.

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: With the top position designated as detent 0, the anchorage is positioned in detent 2.

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



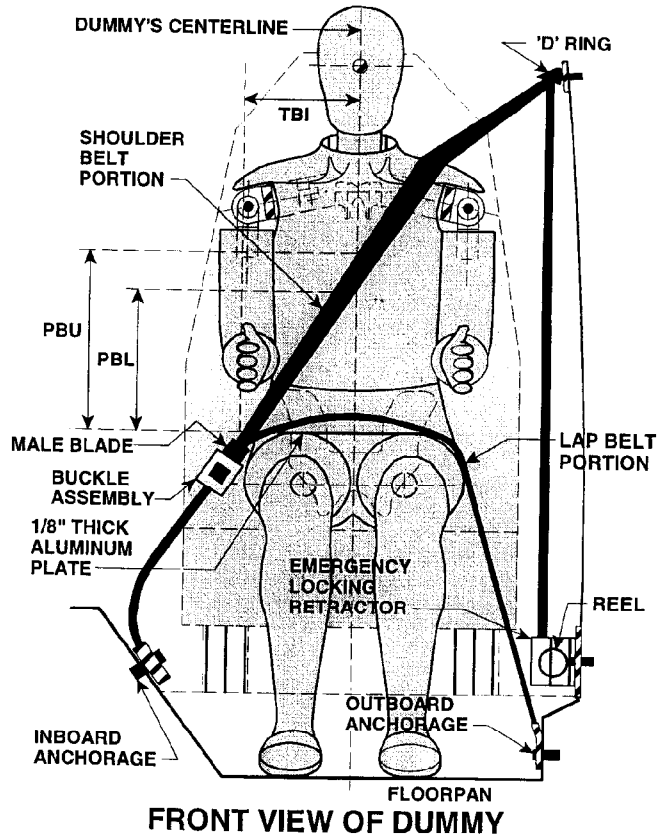
DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE

	DRIVER (Serial #061)			PASS. (Serial # 064)		
WA ^o	28 deg.			N/A		
SWA ^o	61 deg.			N/A		
SCA ^o	29 deg.			N/A		
SA ^o	22 deg.			22 deg.		
HZ	201			200		
HH	342			332		
HW	612			580		
HR	220			230		
NR	384	Angle	-14 deg.	N/A		
CD	549			539		
CS	262			N/A		
RA	155			N/A		
KDL	195	Angle (KDA)	25 deg.	163		
KDR	198			176	Angle (KDA)	20 deg.
PA ^o	23.0 deg.			23.0 deg.		
TA ^o	49.0 deg.			49.0 deg.		
KK	305			271		
ST	663	Angle	11 deg.	667	Angle	9 deg.
SK	639	Angle	83 deg.	651	Angle	83 deg.
SH	226	Angle	89 deg.	244	Angle	89 deg.
SHY	245			235		
HS	275			279		
HD	146			136		
AD	125			137		

Dimensions in millimeters

DATA SHEET NO. 6 SEAT BELT POSITIONING DATA

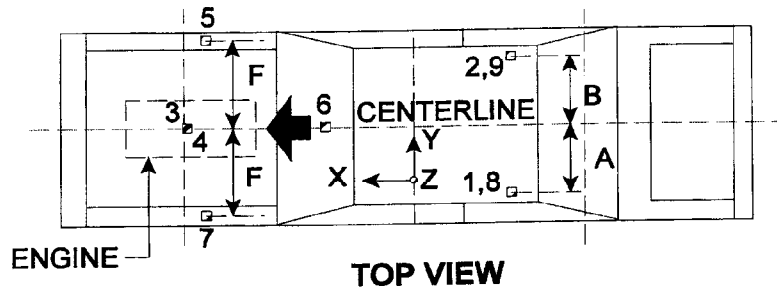
SEAT BELT POSITIONING DATA



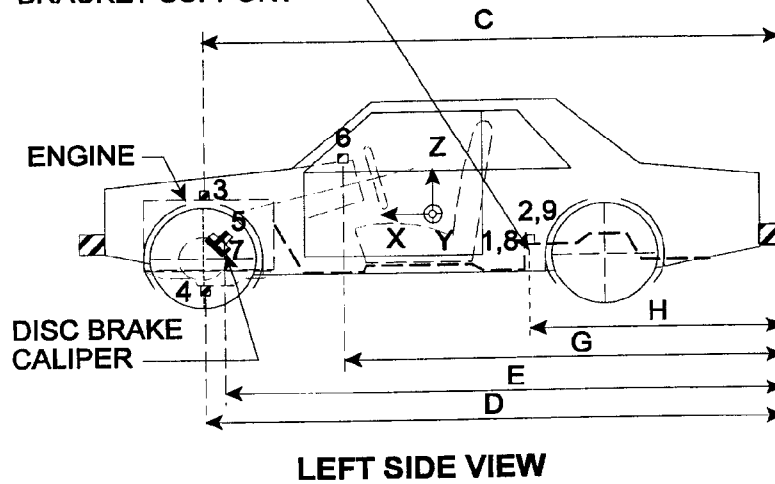
FRONT VIEW OF DUMMY

	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	337	330
PBL-- Top surface of alum. plate to belt lower edge	263	250
<u>LAP BELT TENSION</u>	10 N	10 N
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT



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

DATA SHEET NO. 7 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

DIMENSION	LENGTH (mm)
	PRE-TEST VALUES
A Left Rear Seat Crossmember Y	-645
B Right Rear Seat Crossmember Y	646
C Top of Engine X	3947
D Bottom of Engine X	3911
E Disc Brake Calipers X	3732
F Disc Brake Calipers Y	±720
G Instrument Panel X	3101
H Rear Seat Crossmembers X	2124

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	1.8	124.4	-35.6	34.2
2	Rear Seat X-Member @ Right Side	2.8	126.0	-39.1	34.4
3	Top of Engine Block	†	†	-146.2	25.0
4	Bottom of Engine	12.8	66.2	-103.5	24.8
5	Disc Brake Caliper @ Right Side	††	††	††	††
6	Instrument Panel	24.9	59.6	-62.9	47.9
7	Disc Brake Caliper @Left Side	‡	‡	‡	‡
8	Rear Seat X-Member @ Left-Redundant	2.2	124.3	-43.9	34.2
9	Rear Seat X-Member @ Right-Redundant	2.7	126.0	-38.6	34.4

† Transducer wire cut at 41 ms

†† Transducer wire cut at 32 ms

‡ Transducer wire cut at 43 ms

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2000 Dodge Caravan MPV
 NHTSA Test No.: MY0302 Test Date: November 24, 1999

DESCRIPTION	Unit	MAXIMUM VALE							
		Driver				Passenger			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head X	g	9.0	187.7	-74.3	77.0	34.9	194.7	-71.0	85.4
Head Y	g	1.7	112.9	-8.3	81.4	2.0	57.2	-20.1	92.0
Head Z	g	9.7	49.1	-8.3	89.6	18.7	89.3	-1.8	35.5
Head Resultant	g	74.7	76.9	0.0	22.6	74.9	85.4	0.1	26.6
Redundant Head X	g	8.9	186.6	-74.8	76.5	33.6	194.7	-71.9	82.7
Redundant Head Y	g	3.8	105.1	-12.7	74.7	5.3	57.3	-21.5	92.1
Redundant Head Z	g	16.5	53.7	-7.8	61.2	16.5	64.2	-1.7	487.7
Redundant Head Resultant	g	75.7	76.4	0.0	-51.9	74.6	86.1	0.1	-68.1
Upper Neck Fx	N	215.6	86.7	-213.7	52.6	953.1	92.4	-165.8	194.7
Upper Neck Fy	N	344.8	85.4	-72.6	60.5	148.4	69.4	-135.9	58.9
Upper Neck Fz	N	2264.0	74.3	-140.2	189.4	1014.5	70.6	-81.6	35.3
Upper Neck F Resultant	N	2273.1	74.3	2.3	-57.2	1326.9	90.0	2.0	-41.4
Upper Neck Mx	N-m	5.8	142.2	-40.0	85.1	10.7	88.9	-18.0	68.6
Upper Neck My	N-m	27.4	63.8	-24.3	94.5	58.3	91.1	-13.7	264.0
Upper Neck Mz	N-m	13.1	99.8	-7.1	158.3	23.0	91.5	-9.1	181.9
Upper Neck M Resultant	N-m	41.5	85.1	0.0	-51.1	63.1	91.3	0.0	-90.1
Chest X	g	9.4	188.4	-49.3	84.8	9.9	197.4	-49.6	81.8
Chest Y	g	2.4	57.5	-2.8	70.5	9.9	84.9	-4.2	66.1
Chest Z	g	5.2	89.8	-4.7	61.0	15.6	89.2	-2.6	37.5
Chest Resultant	g	49.4	84.9	0.1	-64.0	49.9	81.9	0.0	-67.7
Redundant Chest X	g	9.5	188.4	-49.2	84.8	9.4	197.5	-46.8	81.9
Redundant Chest Y	g	1.4	57.4	-2.0	70.5	11.5	84.9	-3.5	65.9
Redundant Chest Z	g	7.1	89.5	-5.1	60.9	15.8	89.3	-2.5	34.1
Redundant Chest Resultant	g	49.5	84.9	0.1	-64.1	47.3	82.0	0.0	-70.8
Chest Displacement	mm	0.0	5.4	-43.8	76.5	0.0	2.2	-27.6	91.4

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

Vehicle Year/Make/Model/Body Style: 2000 Dodge Caravan MPV
 NHTSA Test No.: MY0302 Test Date: November 24, 1999

DESCRIPTION	Unit	MAXIMUM VALE							
		Driver				Passenger			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Pelvic X	g	3.1	243.3	-54.9	65.0	2.6	269.4	-46.8	58.3
Pelvic Y	g	2.3	55.7	-5.5	62.9	9.6	46.4	-6.1	58.5
Pelvic Z	g	3.3	115.2	-22.9	76.2	10.4	46.5	-22.0	75.8
Pelvic Resultant	g	58.3	65.0	0.0	-67.3	48.5	58.3	0.0	-75.0
Left Femur	N	947.4	42.6	-4131.8	63.2	442.6	48.0	-3999.7	56.2
Right Femur	N	483.7	43.1	-3752.1	65.5	328.6	51.0	-3415.9	61.4
Left Upper Tibia Mx	N-m	38.1	56.2	-51.6	45.6	78.6	50.9	-23.9	100.3
Left Upper Tibia My	N-m	11.9	211.8	-118.1	43.1	39.2	55.7	-241.8	45.2
Left Lower Tibia Fz	N	148.1	204.4	-2540.4	46.7	128.7	202.9	-9507.0	45.6
Left Lower Tibia Mx	N-m	86.6	52.2	-23.8	44.8	54.6	46.9	-87.0	55.9
Left Lower Tibia My	N-m	320.4	59.6	-72.8	42.6	86.5	73.5	-71.2	43.6
Right Upper Tibia Mx	N-m	37.5	87.5	-22.0	53.5	35.1	82.2	-39.2	56.5
Right Upper Tibia My	N-m	60.2	58.9	-171.2	46.6	21.3	94.5	-56.0	54.0
Right Lower Tibia Fz	N	143.4	198.4	-3901.7	48.7	138.5	131.3	-3095.4	61.6
Right Lower Tibia Mx	N-m	59.3	49.3	-24.4	60.4	9.8	460.6	-108.3	54.5
Right Lower Tibia My	N-m	†	†	-106.3	42.2	353.0	61.2	-21.3	38.6
Left Foot Aft Ax	g	††	††	††	††	14.5	65.2	-153.1	45.3
Left Foot Aft Az	g	9.4	62.4	-97.8	42.4	25.7	71.9	-169.7	45.8
Left Foot Fore Az	g	50.8	74.2	-190.7	40.6	66.6	58.7	-208.3	42.8
Right Foot Aft Ax	g	40.2	54.7	-134.2	43.8	25.7	60.4	-35.5	47.0
Right Foot Aft Az	g	101.8	43.3	-39.1	57.2	7.8	76.8	-70.2	52.3
Right Foot Fore Az	g	‡	‡	‡	‡	35.0	51.1	-61.1	37.4
Lap Belt Load	N	3988.9	67.3	-27.5	226.3	4195.8	65.9	-37.2	431.0
Torso Belt	N	2242.9	75.2	-31.8	256.6	2183.6	82.3	-12.1	299.5

† Data clipped from 50 to 61 ms
 †† Transducer wire cut at 18 ms
 ‡ Data questionable

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

Vehicle Year/Make/Model/Body Style: 2000 Dodge Caravan MPV

NHTSA Test No.: MY0302 Test Date: November 24, 1999

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	771.9	63.6	92.3	59.1
Position #2 - Passenger	792.6	71.7	100.3	59.8

** 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	48.8	83.6	86.6	497.3
Position #2 - Passenger	48.8	79.3	82.7	423.5

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

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

Vehicle Year/Make/Model/Body Style: 2000 Dodge Caravan MPV
 NHTSA Test No.: MY0302 Test Date: November 24, 1999

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	807.2	63.6	92.5	60.0
Position #2 - Passenger	792.3	71.5	100.7	59.3

** 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	48.9	83.3	86.3	510.2
Position #2 - Passenger	46.4	79.5	82.8	387.7

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

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

	<u>Driver</u>	<u>Passenger</u>
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	<u>2560</u>	<u>2564</u>
Shoulder belt length as measured on Part 572 Dummy.	<u>870</u>	<u>875</u>
Lap belt length as measured on Part 572 Dummy.	<u>955</u>	<u>954</u>

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.	<u>165</u>	<u>238</u>
As determined mechanically.	<u>161</u>	<u>232</u>
As determined electronically.	<u>164</u>	<u>238</u>

BELT STRETCH DATA:

Measured electronically between shoulder belt load cell and the "D" ring.	<u>11 mm/M</u>	<u>†</u>
Measured mechanically.	<u>8 mm/M</u>	<u>8 mm/M</u>

_____ Dimensions in millimeters

† Data not available.

DATA SHEET NO.10 SUMMARY OF FMVSS 212 DATA

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

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

Windshield is bonded in place and covered with a 5 mm molding.

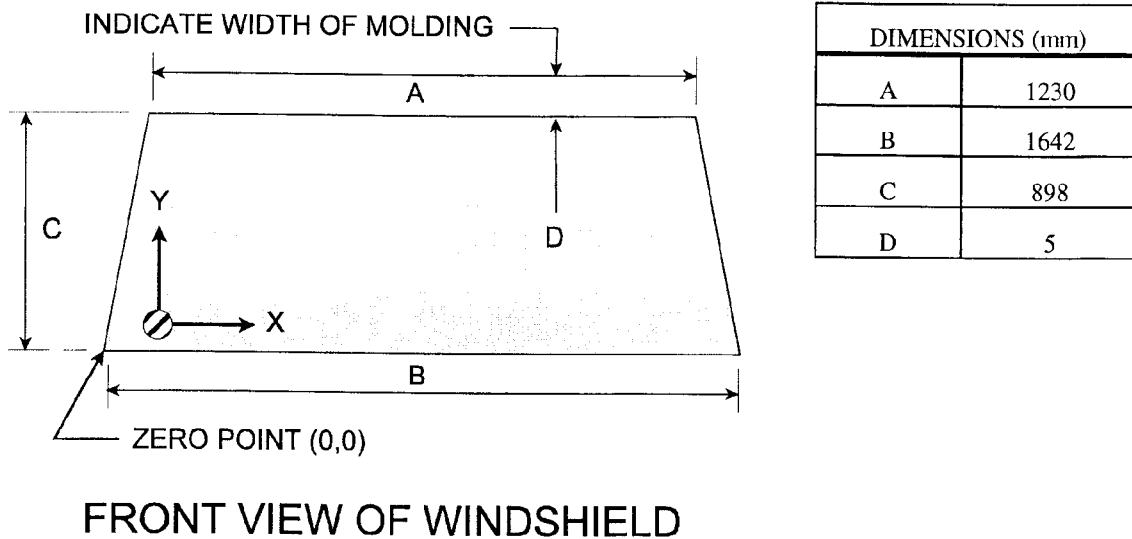
FMVSS 212 REQUIREMENTS:

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		
	PRE-TEST (mm)	POST-TEST(mm)	% OF RETENTION
RIGHT SIDE	2334	2334	100
LEFT SIDE	2334	2334	100
TOTAL	4,668	4,668	100

AREA OF RETENTION FAILURE:



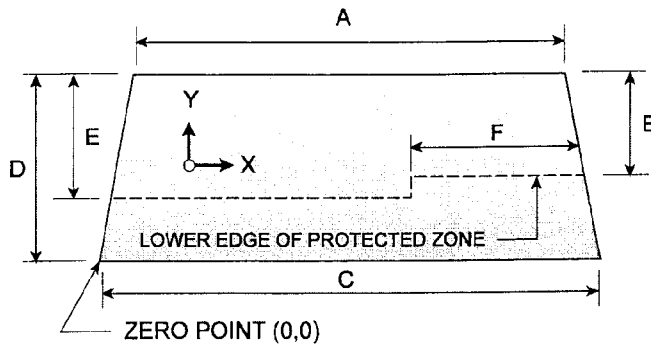
FRONT VIEW OF WINDSHIELD

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 (mm)	
A	1230
B	545
C	1642
D	898
E	611
F	755

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.	-	-

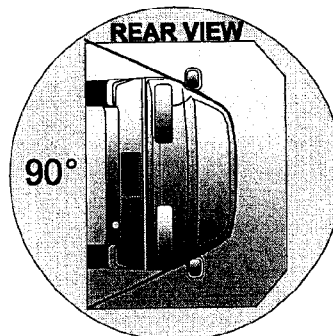
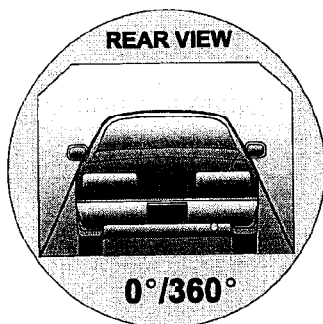
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

Vehicle: 2000 Dodge Caravan

NHTSA No. MY0302

0 - 90 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

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

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

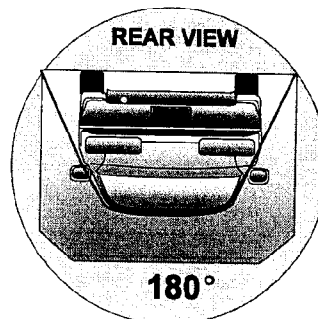
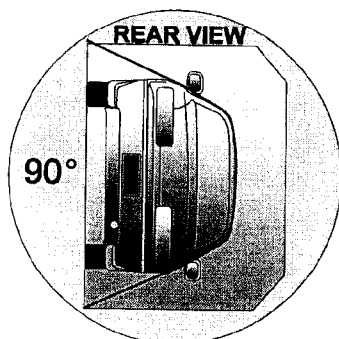
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2000 Dodge Caravan

NHTSA No. MY0302

90 - 180 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

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

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

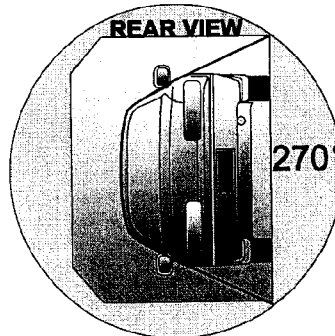
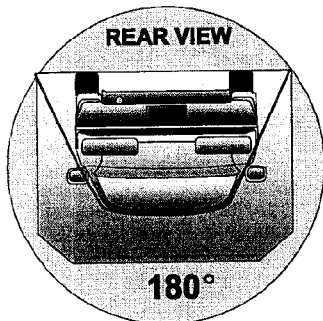
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2000 Dodge Caravan

NHTSA No. MY0302

180 - 270 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time	<u>1</u> minutes	<u>4</u> seconds
(Spec. Range = 1 to 3 minutes)		
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>0</u> seconds
TOTAL	<u>6</u> minutes	<u>4</u> seconds
Next whole minute interval	<u>7</u> minutes	

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

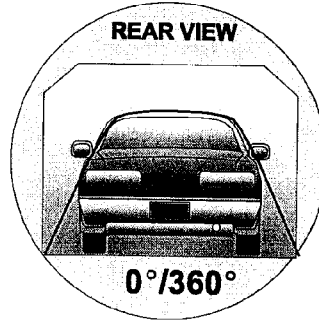
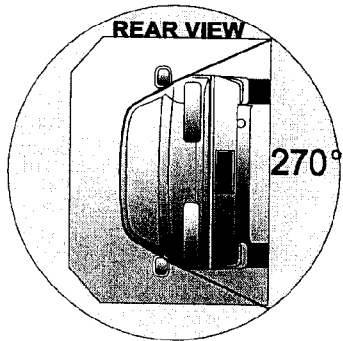
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2000 Dodge Caravan

NHTSA No. MY0302

270 - 360 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

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

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

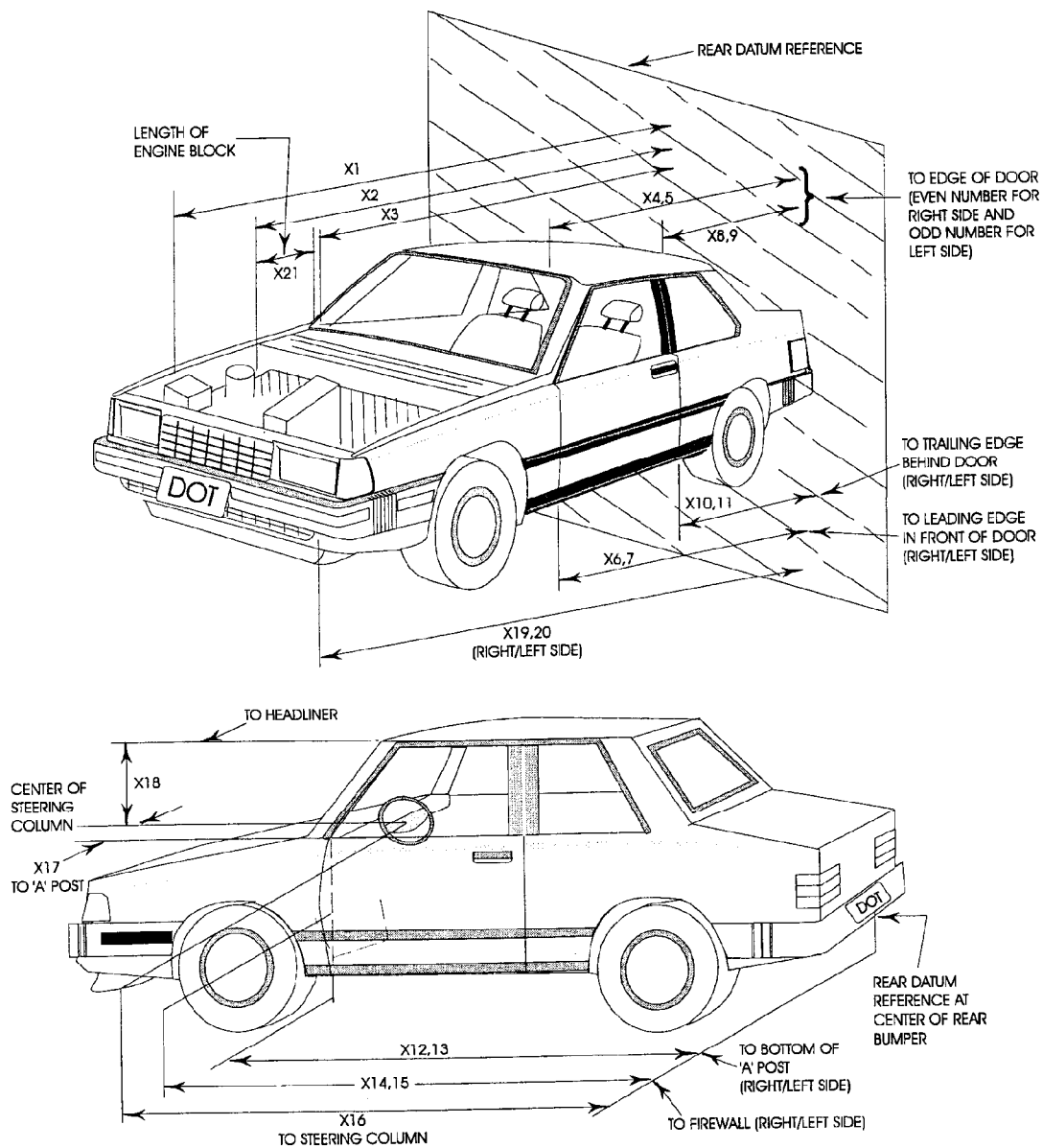
0 g	0 g	0 g	N/A
-----	-----	-----	-----

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

TEST VEHICLE MEASUREMENTS

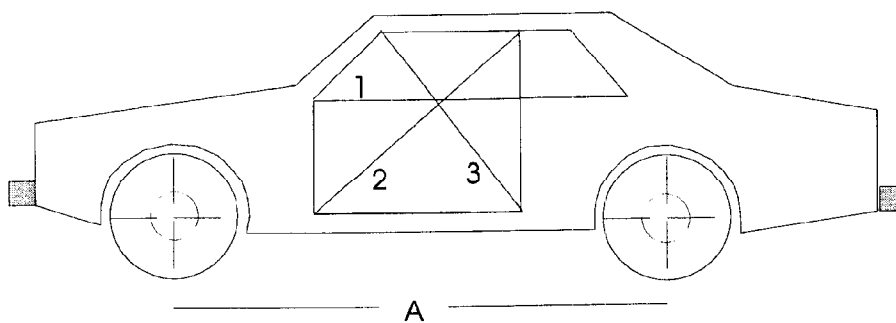


DATA SHEET NO.14 VEHICLE MEASUREMENTS

No.		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4727	4234	493
X2	Rear Surface of Vehicle to Front of Engine	4270	3985	285
X3	Rear Surface of Vehicle to Firewall	3660	3578	82
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3347	3370	-23
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3347	3363	-16
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3327	3342	-15
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3327	3342	-15
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2324	2340	-16
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2326	2338	-12
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2327	2342	-15
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2330	2343	-13
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3384	3397	-13
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3379	3380	-1
X14	Rear Surface of Vehicle to Firewall, Right Side	3652	3703	-51
X15	Rear Surface of Vehicle to Firewall, Left Side	3720	3575	145
X16	Rear Surface of Vehicle to Steering Column	2901	2916	-15
X17	Center of Steering Column to "A" Post	327	323	4
X18	Center of Steering Column to Headliner	468	395	73
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4629	4123	506
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4627	4184	443
X21	Length of Engine Block	436	436	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3129	3158	-29
CD	Rear Surface of Vehicle to Center of Dash Panel	3175	3188	-13
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3140	3137	3

All Dimensions in mm

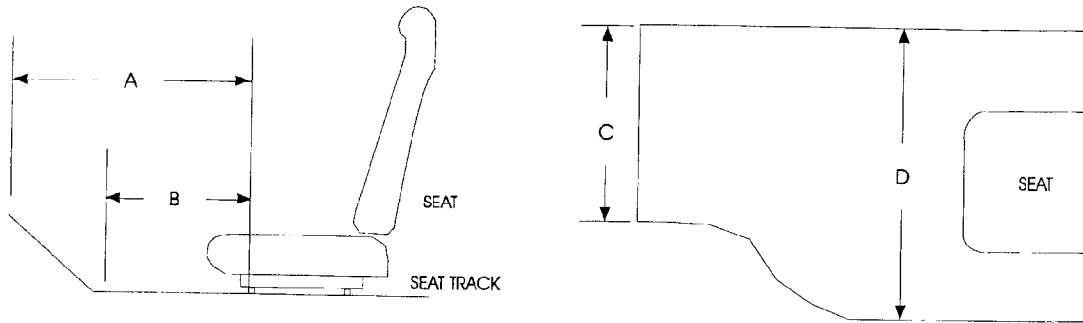
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 DOOR OPENING WIDTH



UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	937	1535	1166	937	1536	1170
AFTER TEST	934	1546	1168	936	1546	1171
DIFFERENCE	3	-11	-2	1	-10	-1

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2884	2884
AFTER TEST	2672	2647
DIFFERENCE	212	237

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



DRIVER

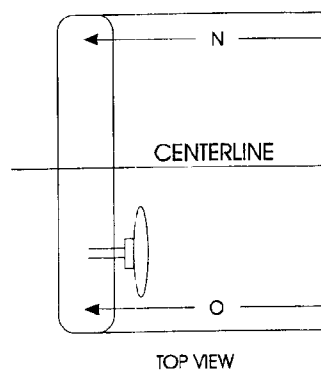
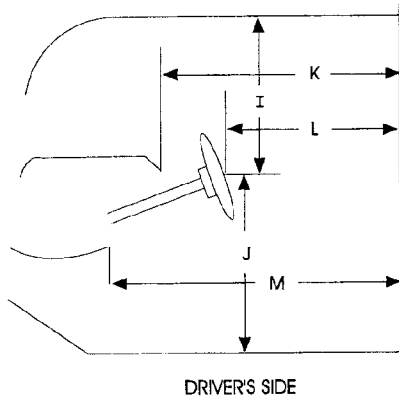
Measurement	Pre-Test	Post-Test	Difference
A	726	572	154
B	578	423	155
C	599	593	6
D	551	563	-12

PASSENGER

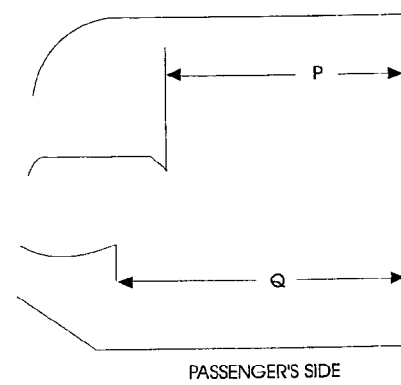
Measurement	Pre-Test	Post-Test	Difference
A	692	507	185
B	552	413	139
C	546	525	21
D	549	559	-10

Units = mm

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



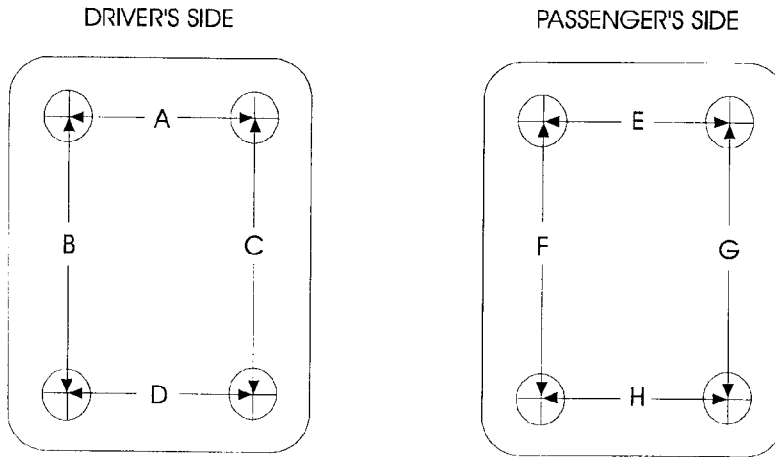
MEASUREMENTS
 FROM C-PILLAR
 BELT ANCHORAGE



Measurement	Pre-Test	Post-Test	Difference
I	468	395	73
J	674	769	-95
K	2215	3146	-931
L	1954	2886	-932
M	2137	3053	-916
N	2187	2198	-11
O	2193	3108	-915
P = K (PASS.)	2212	2253	-41
Q = M (PASS.)	2317	2282	35

Units = mm

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

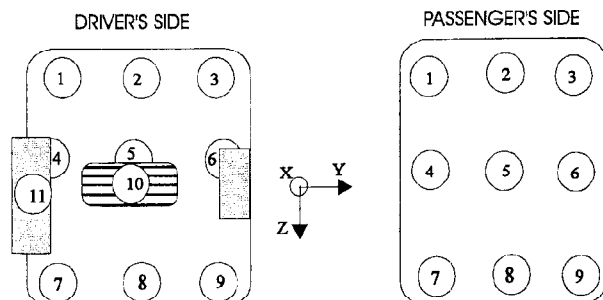


TOP VIEW THROUGH FLOOR PAN

Measurement	Pre-Test	Post-Test	Difference
A	300	300	0
B	550	542	8
C	550	532	18
D	300	300	0
E	300	300	0
F	550	540	10
G	550	540	10
H	300	295	5

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
TOE-PAN INTRUSION



Driver Side Floorpan Measurements

Reference: X = Rear Bumper; Z = Ground

Floorpan Location	X Deformation			Z Deformation		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3547	3427	120	-641	-662	21
2	3576	3422	154	-597	-658	61
3	3623	3432	191	-598	-663	65
4	3467	3354	113	-553	-570	17
5	3491	3324	167	-493	-587	94
6	3513	3305	208	-455	-590	135
7	3386	3308	78	-394	-420	26
8	3428	3272	156	-403	-472	69
9	3425	3252	173	-400	-483	83
10	3346	3246	100	-575	-646	71
11	3422	3357	65	-555	-560	5

Passenger Side Floorpan Measurements

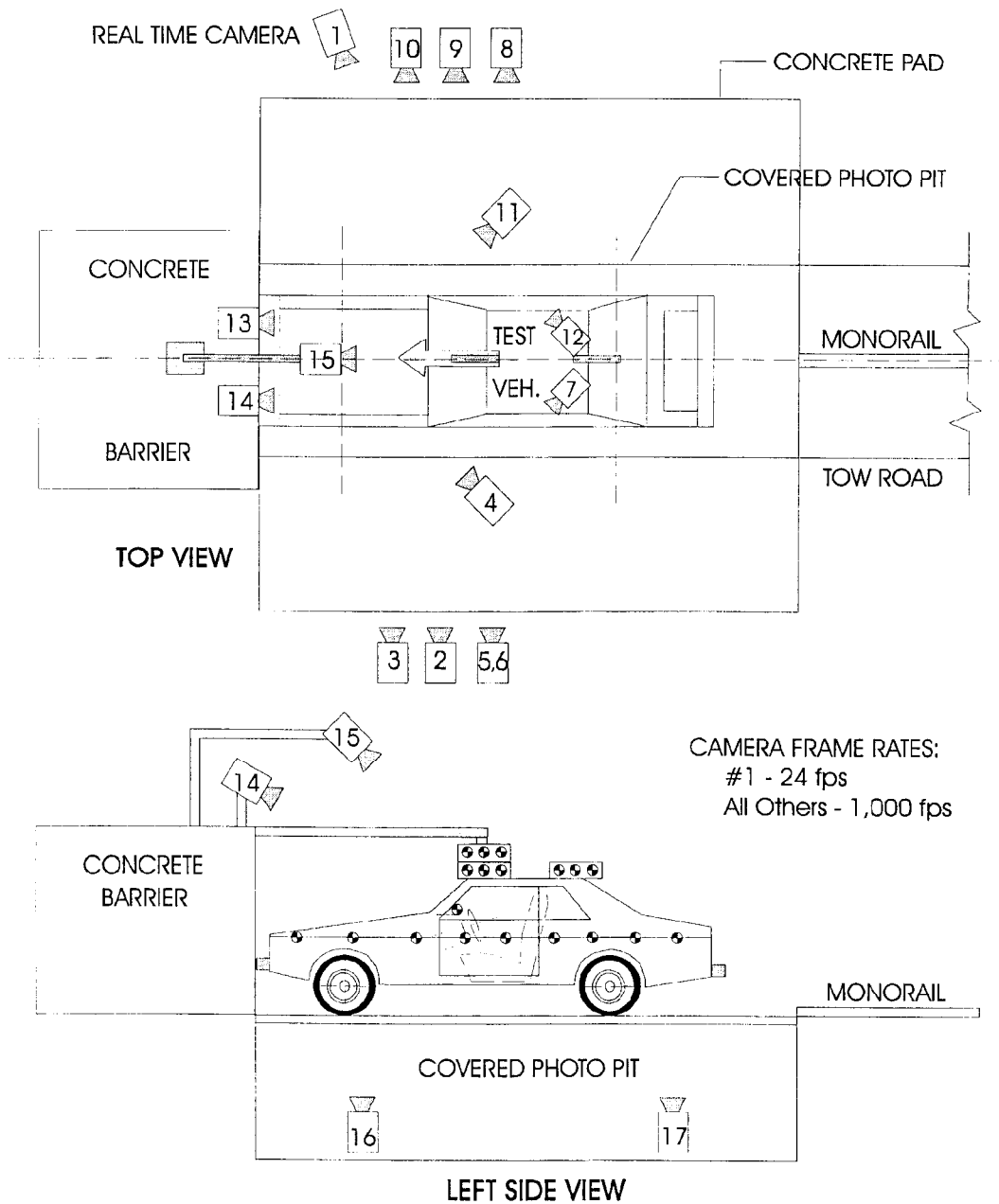
Reference: X = Rear Bumper; Z = Ground

Floorpan Location	X Deformation			Z Deformation		
	Pre-Test	Post-Test	Difference	Pre-Test	Post-Test	Difference
1	3529	3397	132	-584	-608	24
2	3542	3366	176	-565	-641	76
3	3463	3356	107	-610	-619	9
4	3453	3334	119	-531	-523	-8
5	3504	3306	198	-484	-561	77
6	3402	3318	84	-516	-521	5
7	3348	3243	105	-458	-441	-17
8	3402	3272	130	-393	-437	44
9	3372	3331	41	-373	-379	6

Units in mm

CAMERA POSITIONS FOR FRONTAL IMPACTS

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



DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

NHTSA Test No.: MY0302 Vehicle: 2000 Dodge Caravan MPV

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	6931	1472	1035	-3.5	6600	12.5	1010
3	Left Side View	7991	1122	1137	-2.0	7660	25	1010
4	Driver and Interior View	4736	2913	1948	-11.5	-	25	1055
5	Steering Column (Bottom)	7991	1850	1165	-1.5	7660	25	1010
6	Steering Column (Top)	7991	1850	1780	-7.0	7660	25	1005
7	Left Belt	-	-	-	-	-	13	1010
8	Overall Right Side	6946	2068	1030	-3.0	6615	12.5	1010
9	Right Side View	8363	1527	1064	-1.5	8032	25	1000
10	Right Passenger View	8670	1818	1274	-1.0	8339	35	1010
11	Passenger and Interior View	4694	3142	1948	-11.0	-	25	1020
12	Right Belt	-	-	-	-	-	13	1025
13	Passenger Front View	579	-25	1975	-41.5	-	8	1010
14	Driver Front View	579	-25	1975	-42.0	-	8	1005
15	Windshield View	0	-92	3588	-53.0	-	13	1000
16	Pit View of Engine	0	895	-3048	90.0	-	13	1050
17	Pit View of Fuel Tank	0	2330	-3048	90.0	-	13	1010

*X = film plane to monorail centerline

Y = film plane to impact location

Z = film plane to ground

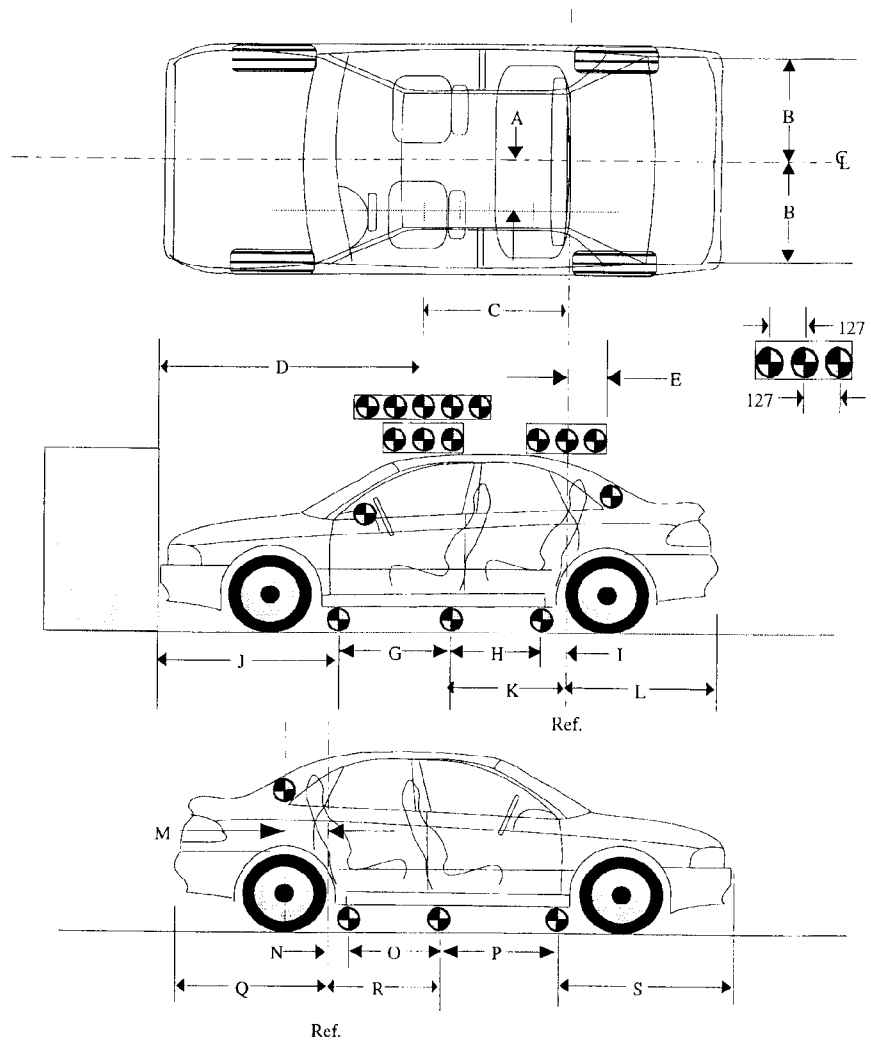
** = referenced to horizontal plane

N.T. indicates No Timing

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

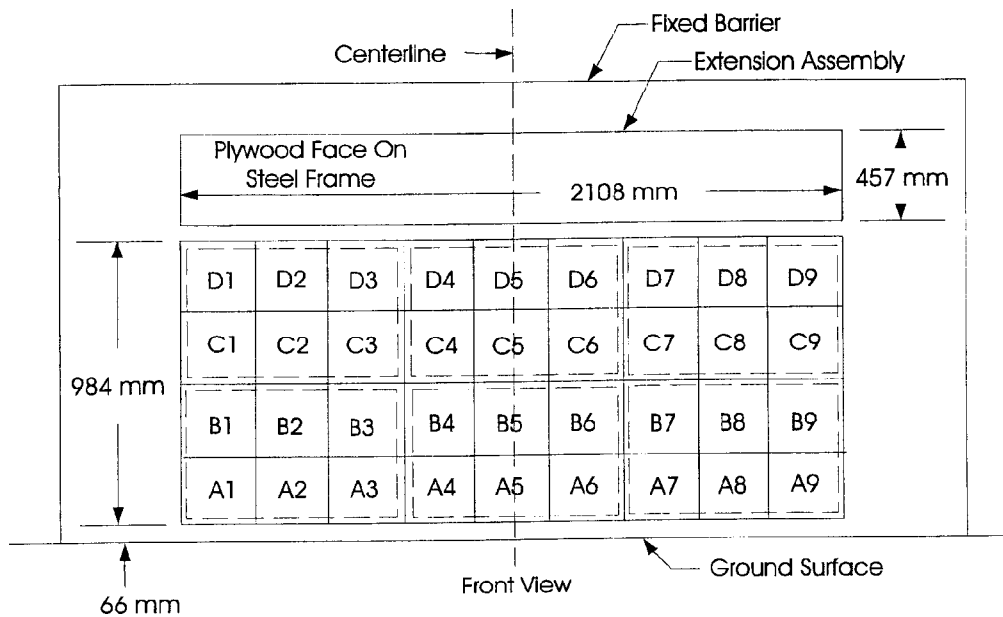
(Dimensions in millimeters)

A	407
B	602
C	1217
D	2225
E	336
F	1826
G	947
H	951
I	197
J	1357
K	1148
L	1275
M	341
N	200
O	947
P	947
Q	1269
R	1146
S	1364



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

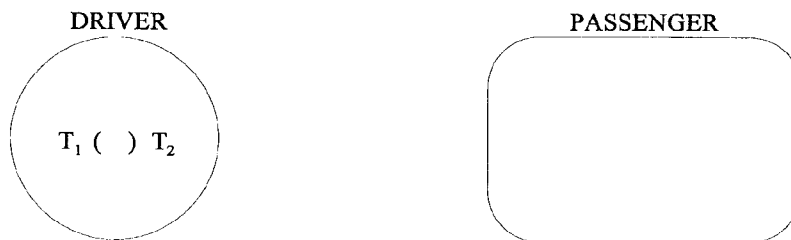
NHTSA No. : MY0302; Test Date: November 24, 1999; Technician: LQV

Vehicle Model Year/Make/Model: 2000 Dodge Caravan

- 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; 675 -Diameter
- Passenger: 650 -Height; 465 -Width; 470 -Depth
- E. Is the air bag tethered?
- Driver: X -Yes; - -No; If yes, record length of tether- 205
- Passenger: - -Yes; X -No; If yes, record length of tether- -

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

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



- F. Record part numbers and manufacturer name of the air bag and gas generator.
- Driver: Air bag: P120235-04E; TMK2018G0648
- Generator: TEJDM2029M1087; PO5L26RC3AA; CEJ K7M 5M BSP; CDK K7K 1Q ATV
- Passenger: Air bag: Breed Technologies: TB4091820915
- Generator: 04680490AD; 73427C; C/L.A; TCJPB197921776

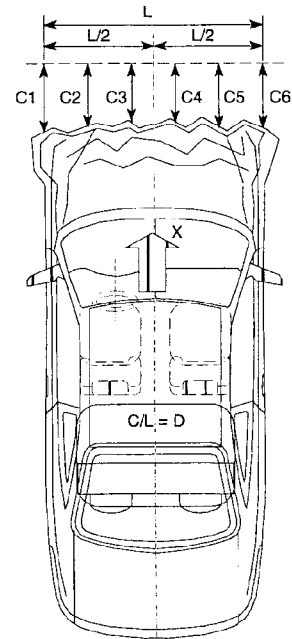
DATA SHEET NO. 19 ACCIDENT INVESTIGATION DIVISION DATA

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Dodge Caravan MPV
 NHTSA Test No.: MY0302 VIN: 2B4FP25B2YR520999
 Model Year: 2000 Build Date: 8-99 Test Date: November 24, 1999
 Vehicle Size Category: Minivan Test Weight: 1852.5 kg
 Vehicle Wheelbase: 2884 mm; Front Overhang: 3382 mm; Overall Width: 1916 mm
 Collision Deformation Classification (CDC) Code: 12FDEW2

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	4468	4150	-318	mm
C2 =	4660	4143	-517	mm
C3 =	4713	4203	-510	mm
C4 =	4713	4191	-522	mm
C5 =	4660	4094	-566	mm
C6 =	4467	4072	-395	mm



Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region:

L1= 1916 mm
 L2= 958 mm
 L3= 639 mm

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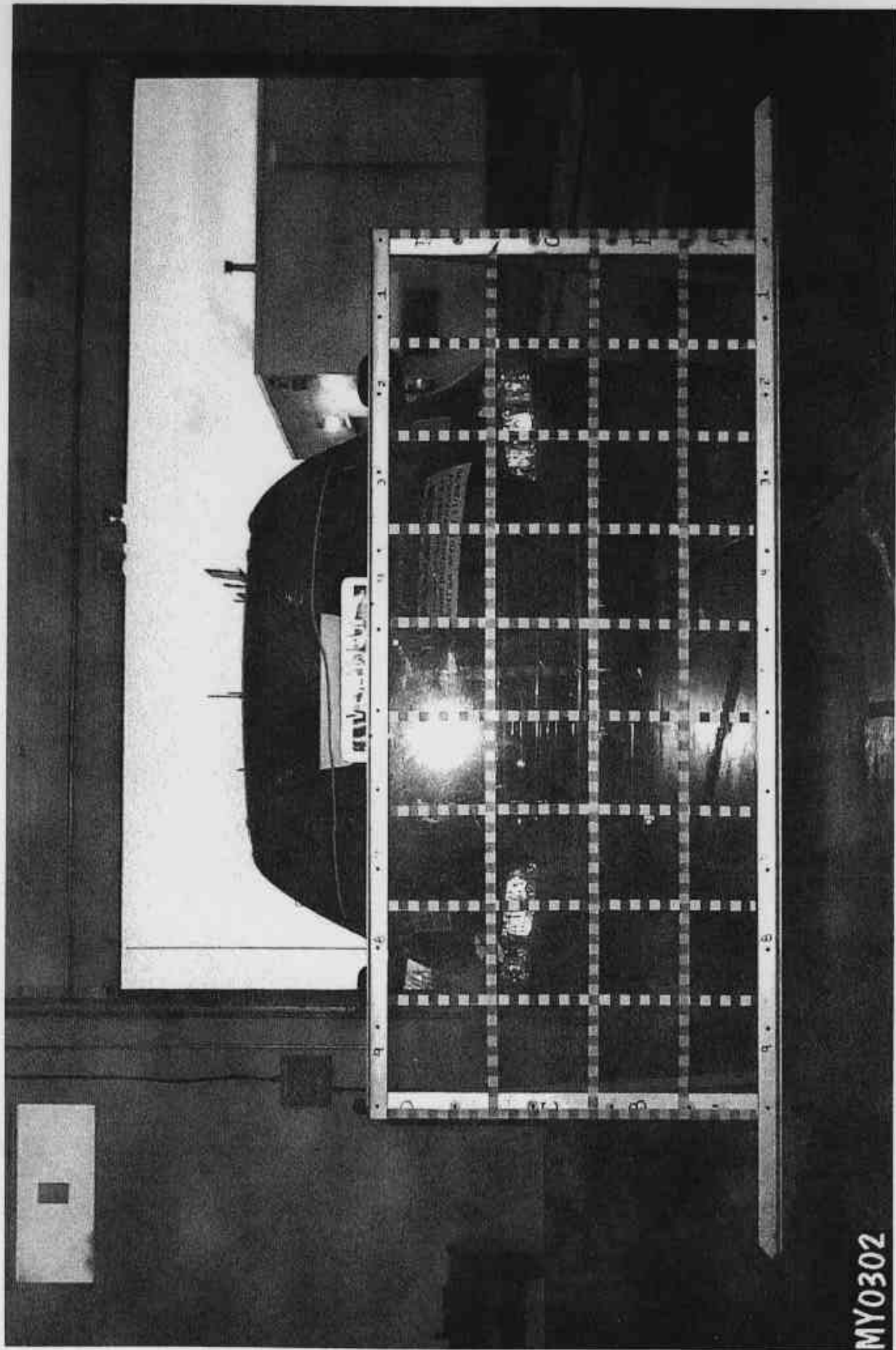


Figure A-1: LOAD CELL LOCATIONS.



Figure A-2: PRE-TEST FRONT VIEW

MY0302



VeriData
NHTSA 25 IMPACT TEST #11
200V DODGE CARAVAN
NHTSA 117455

A192

3-1B42

MY0302

Figure A-3: POST-TEST FRONT VIEW.

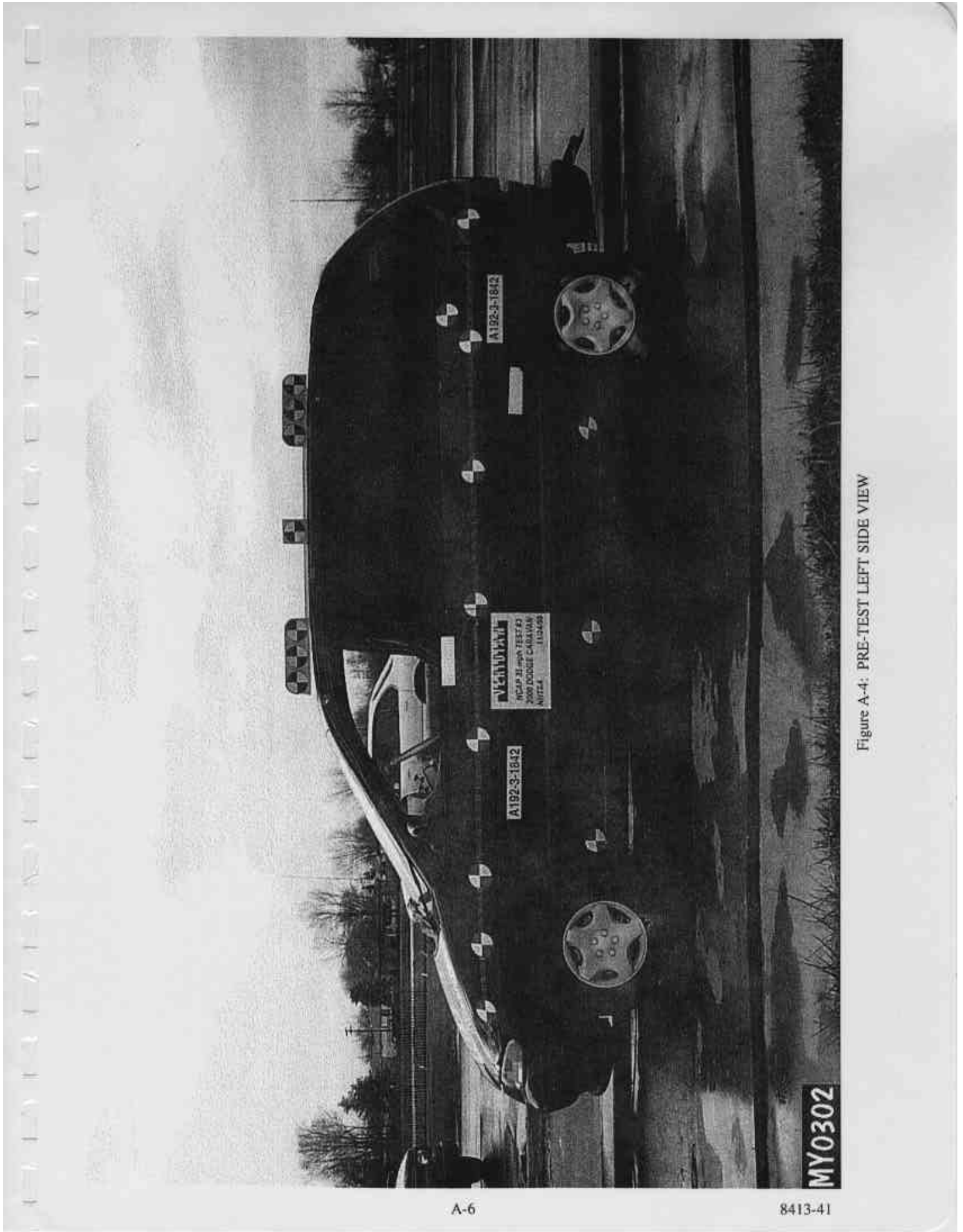


Figure A-4: PRE-TEST LEFT SIDE VIEW

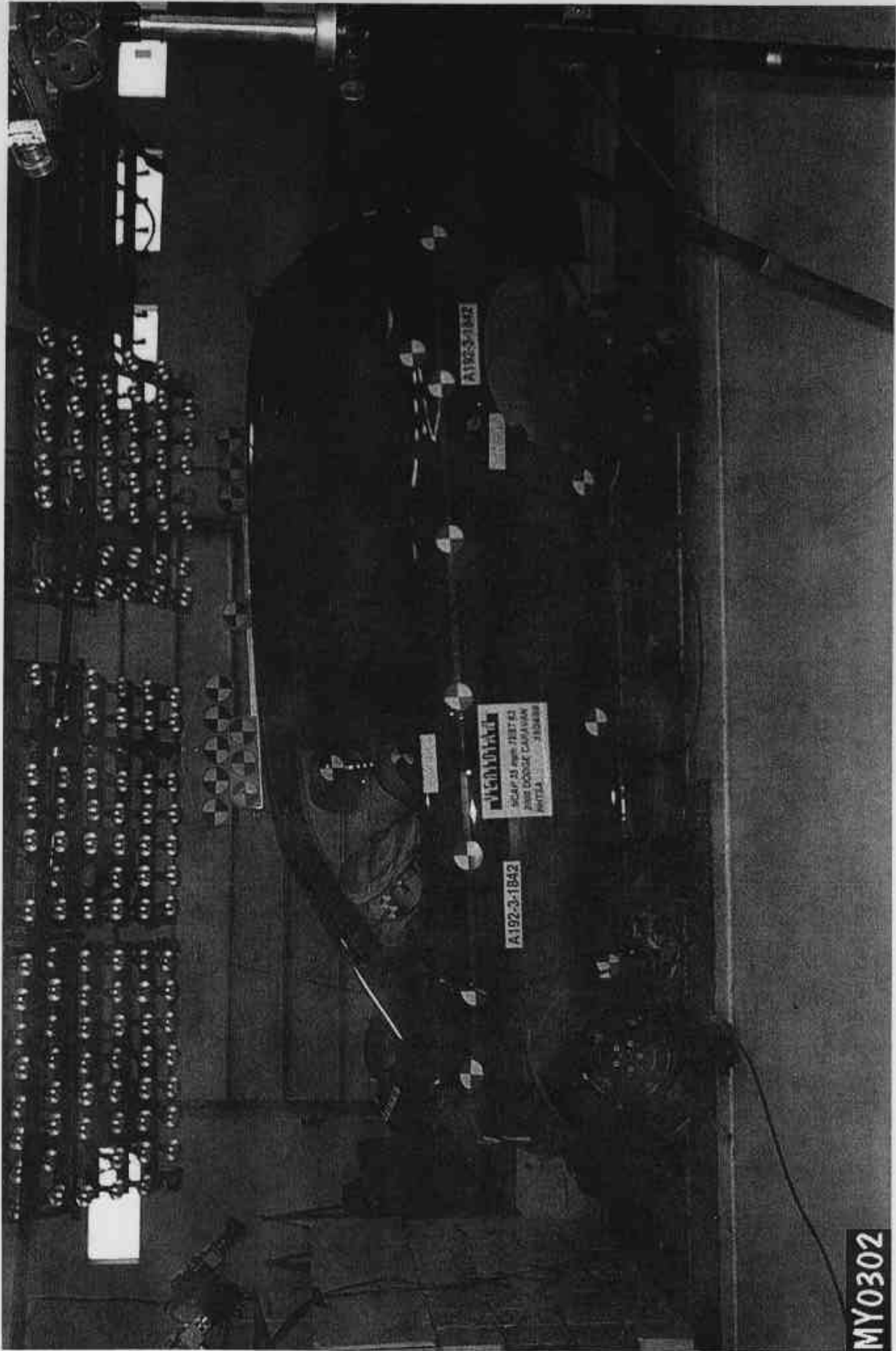


Figure A-5: POST-TEST LEFT SIDE VIEW

MY0302

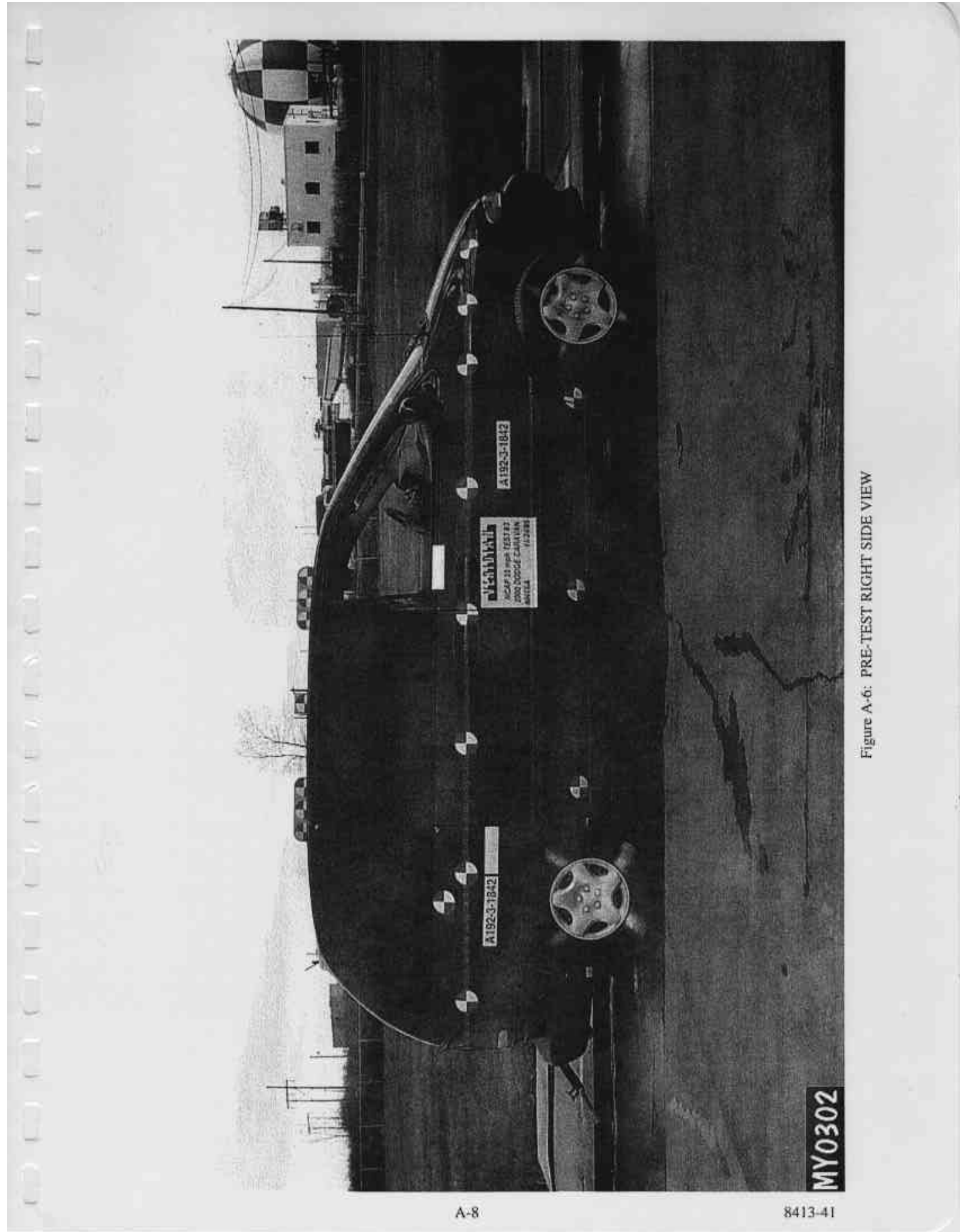


Figure A-6: PRE-TEST RIGHT SIDE VIEW

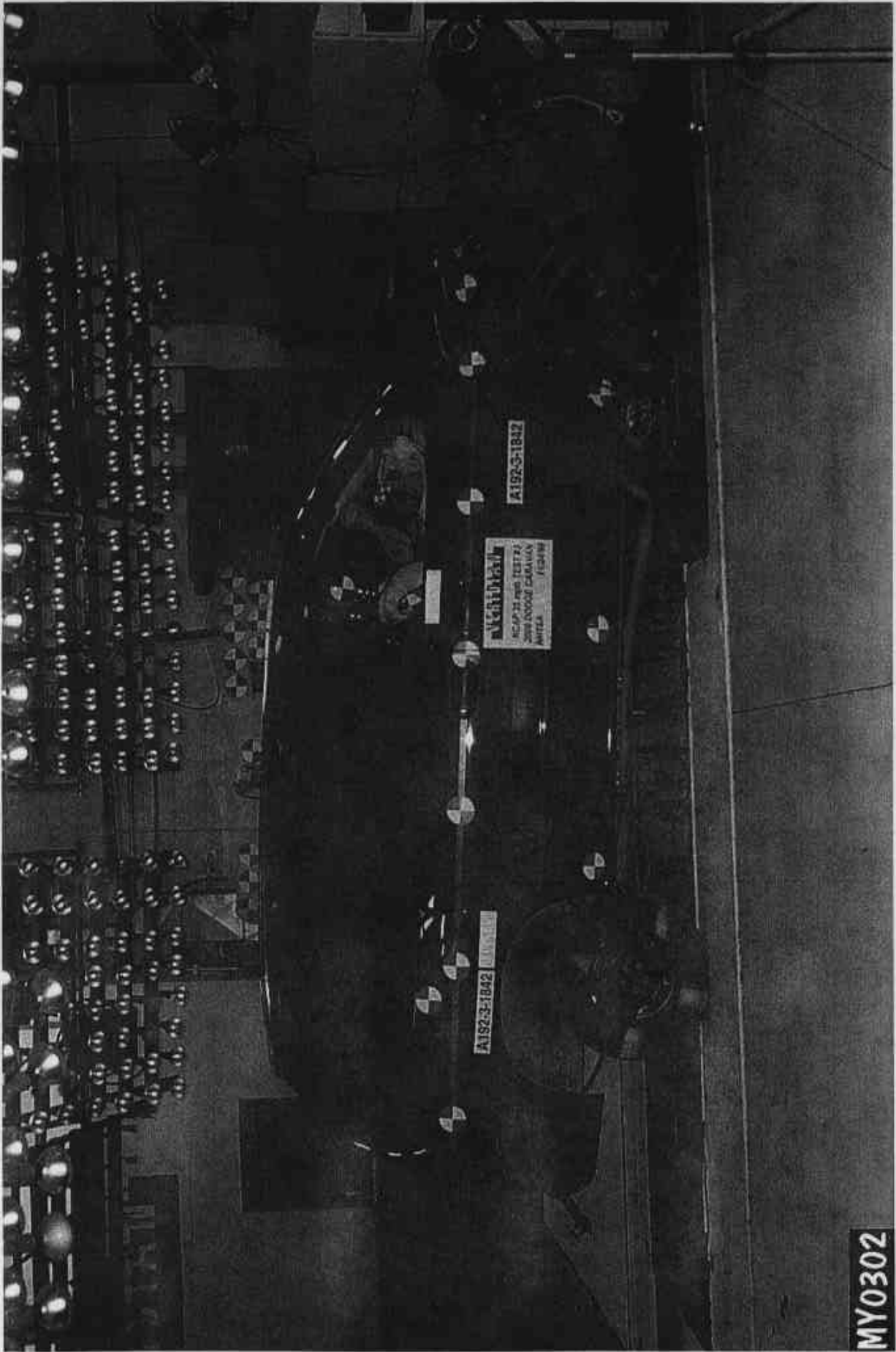


Figure A-7: POST-TEST RIGHT SIDE VIEW



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

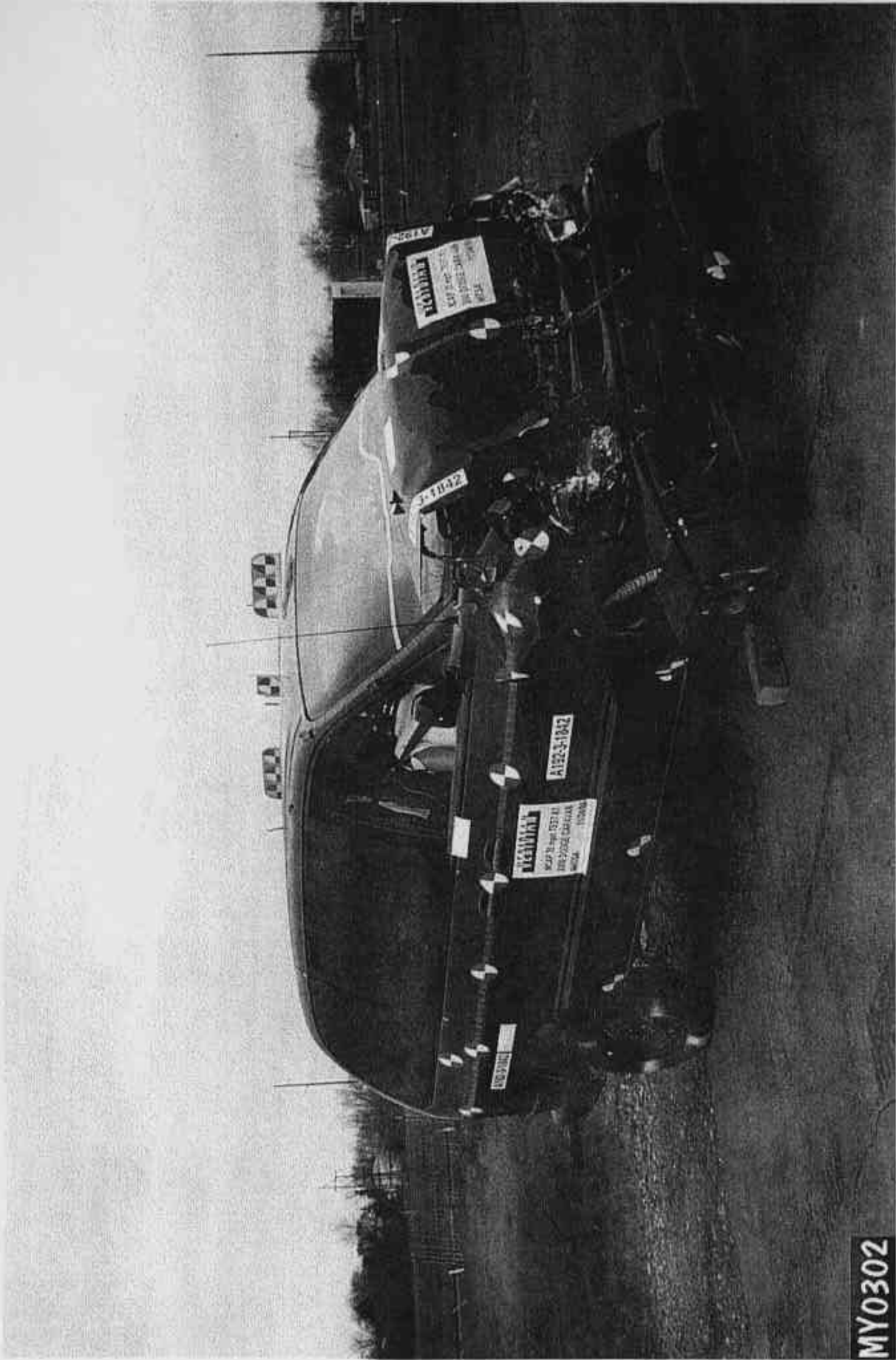


Figure A-9: POST-TEST RIGHT FRONT THREE-QUARTER VIEW

MY0302

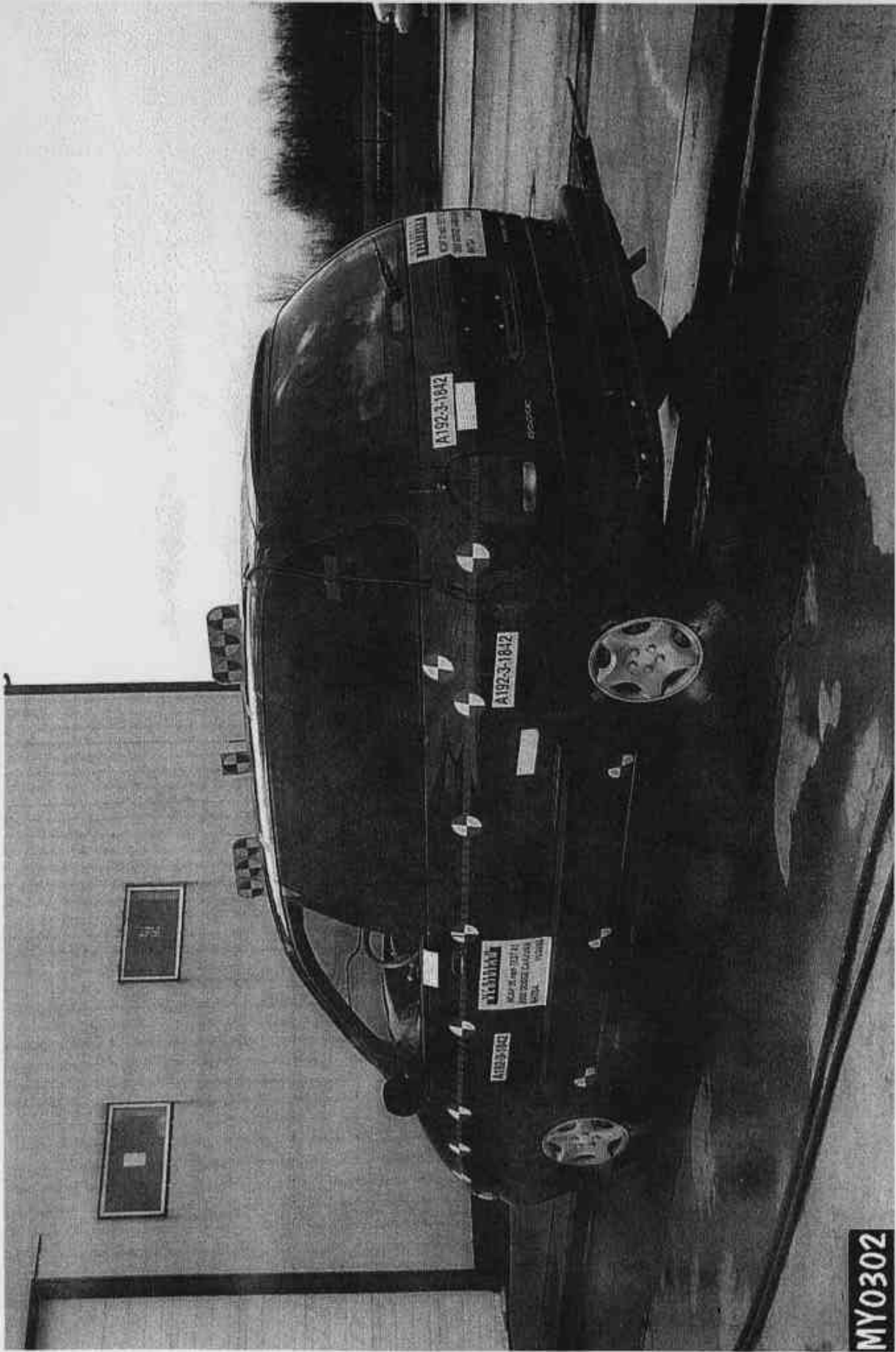


Figure A-10: PRE-TEST LEFT REAR THREE-QUARTER VIEW

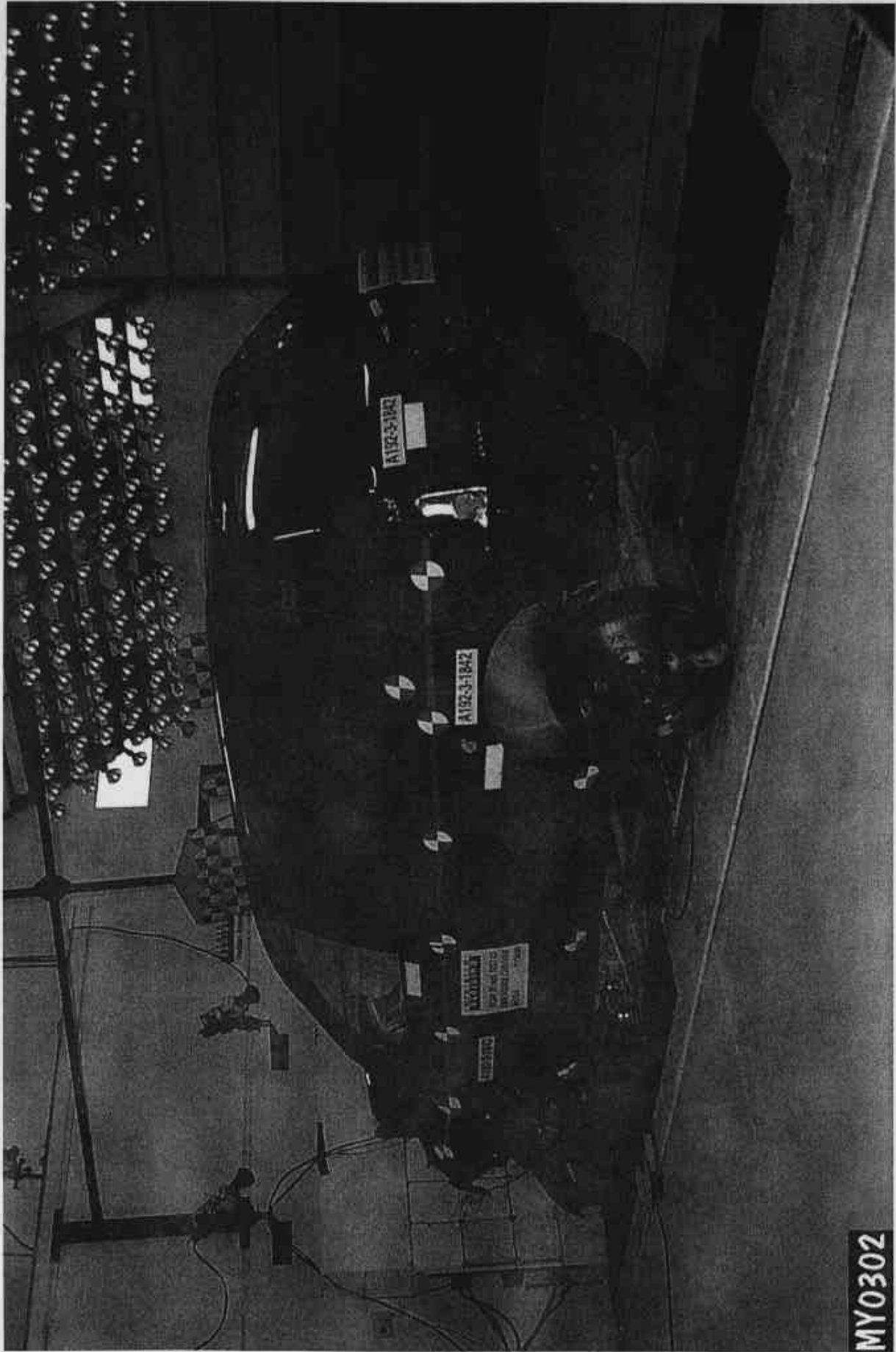


Figure A-11: POST-TEST LEFT REAR THREE-QUARTER VIEW

MY0302

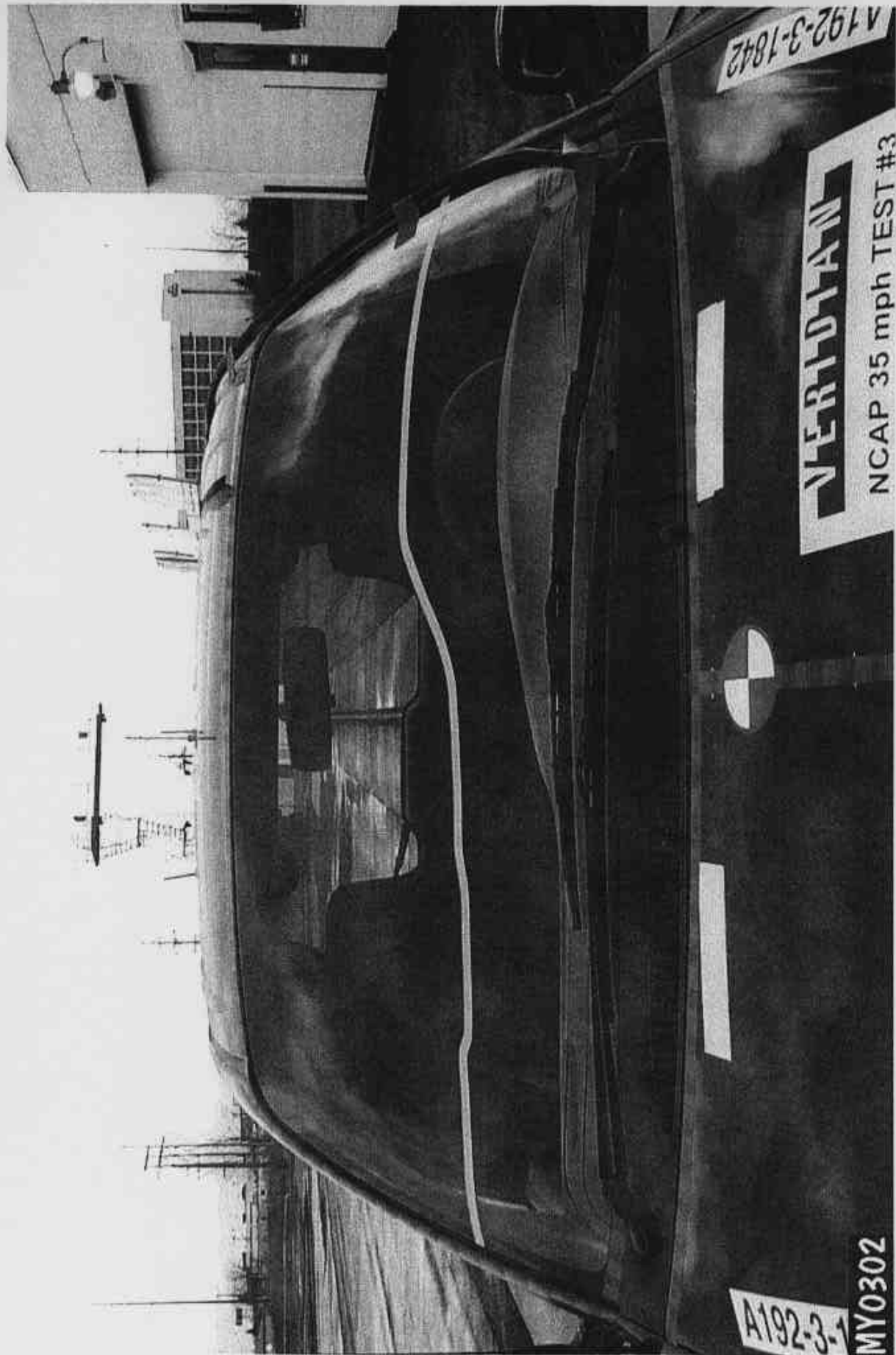


Figure A-12: PRE-TEST WINDSHIELD VIEW

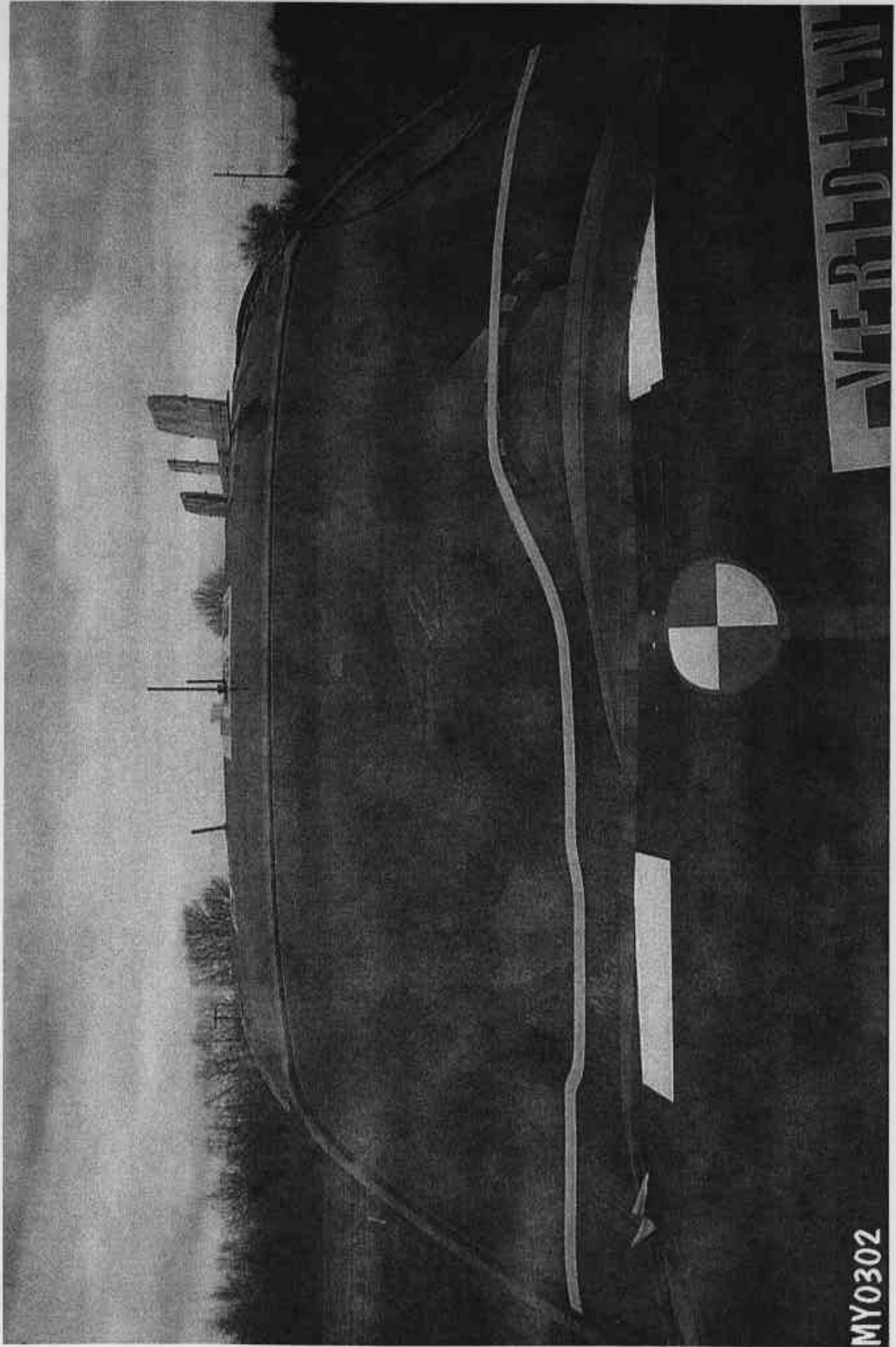


Figure A-13: POST-TEST WINDSHIELD VIEW

MY0302

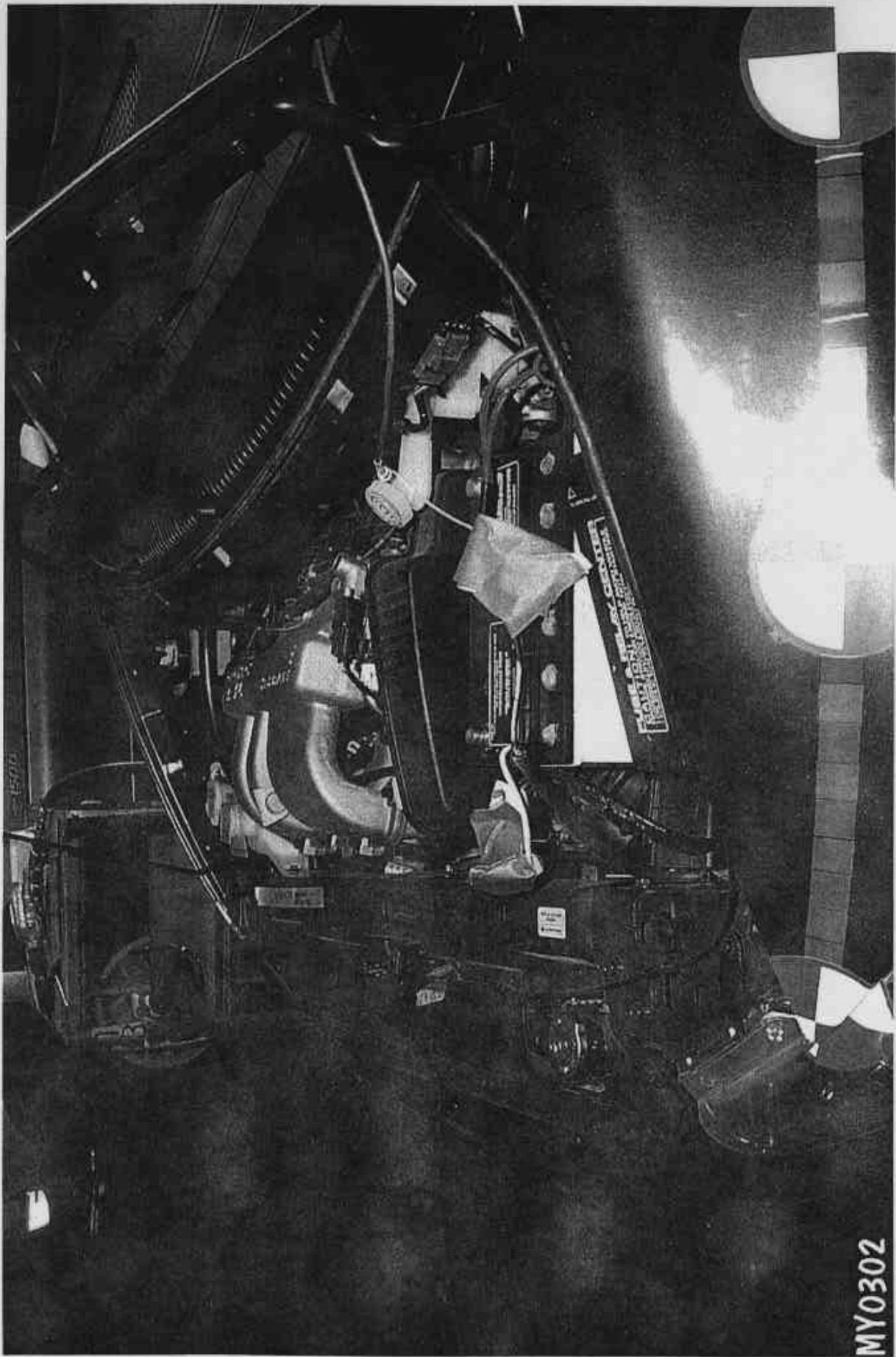
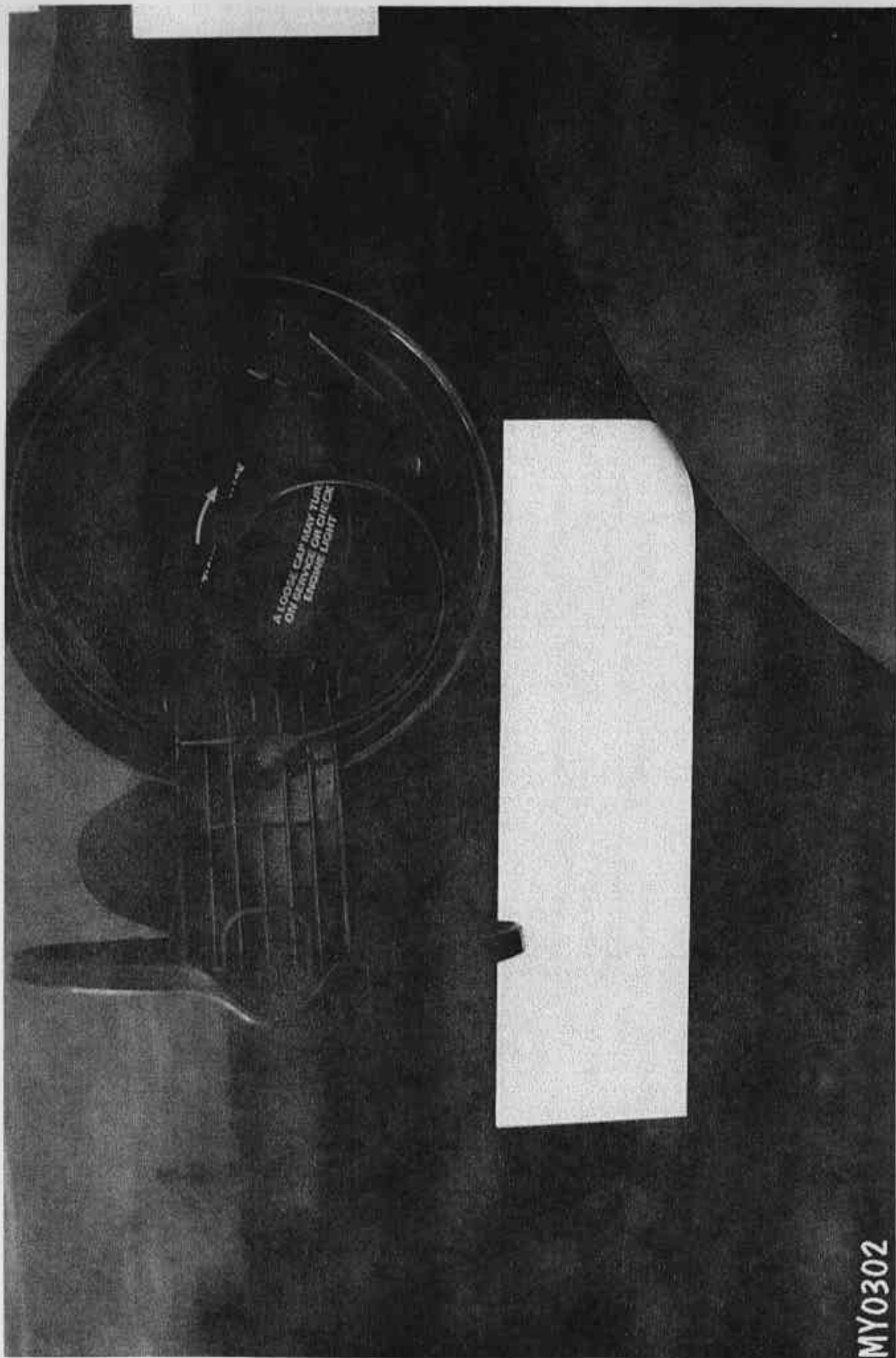


Figure A-14: PRE-TEST ENGINE COMPARTMENT VIEW

MY0302



A LOOSE CAP MAY TRIP
OFF ENGINE FIRE OR CRACK
ENGINE LIGHT

MY0302

Figure A-15: FUEL CAP VIEW

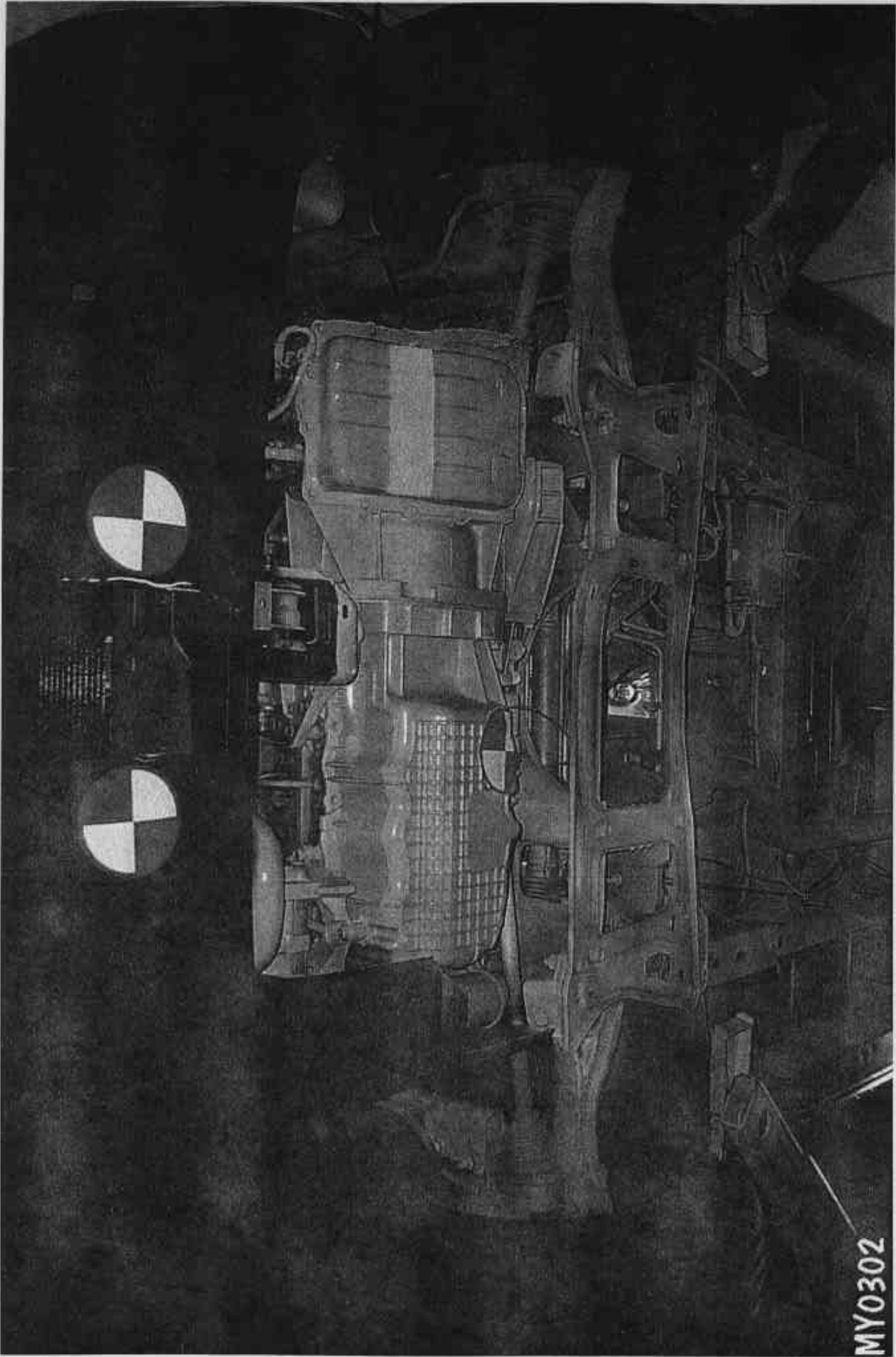


Figure A-16: PRE-TEST FRONT UNDERBODY VIEW



Figure A-17: POST-TEST FRONT UNDERBODY VIEW

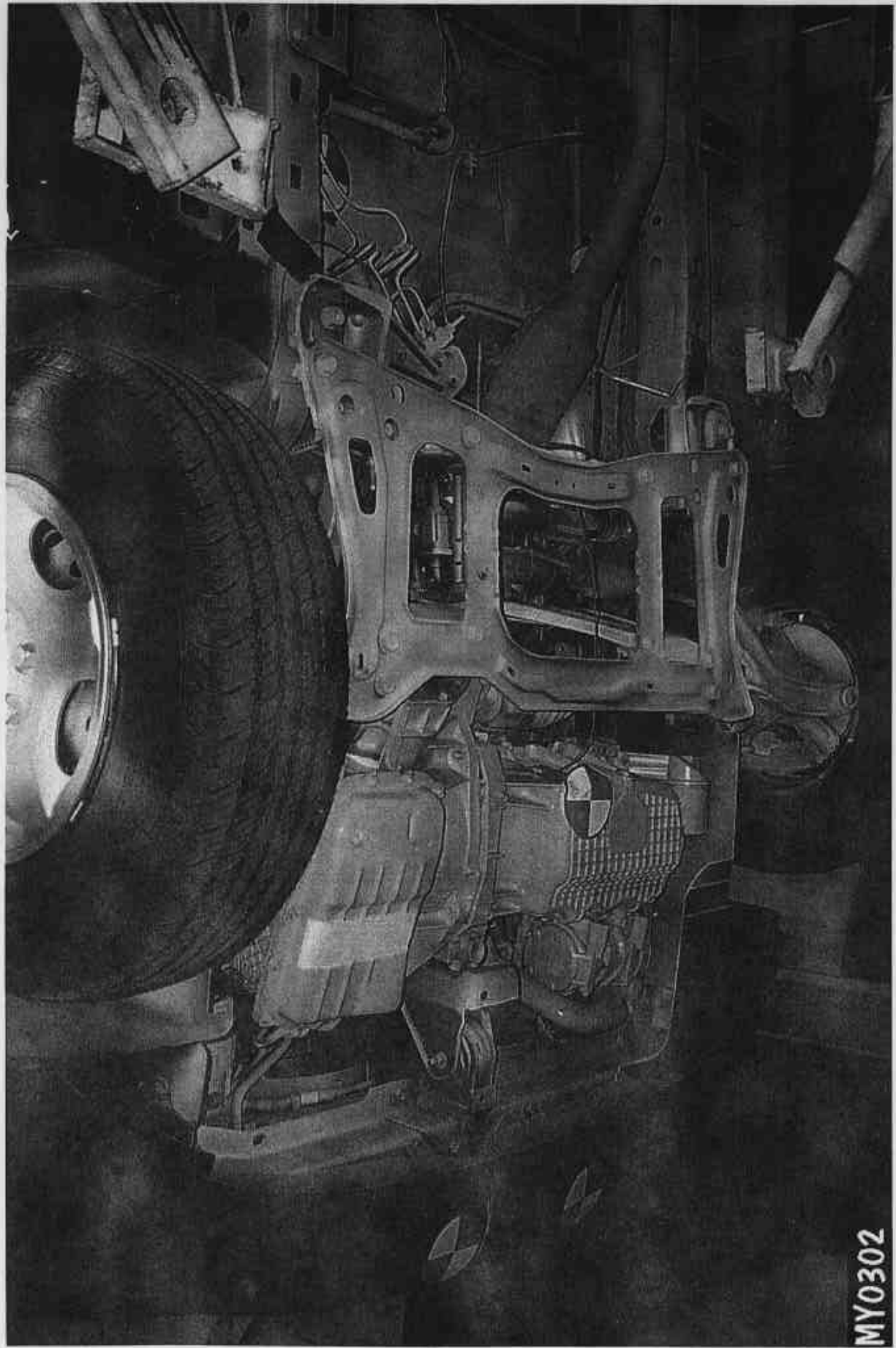


Figure A-18: PRE-TEST FRONT SIDE UNDERBODY VIEW

MY0302

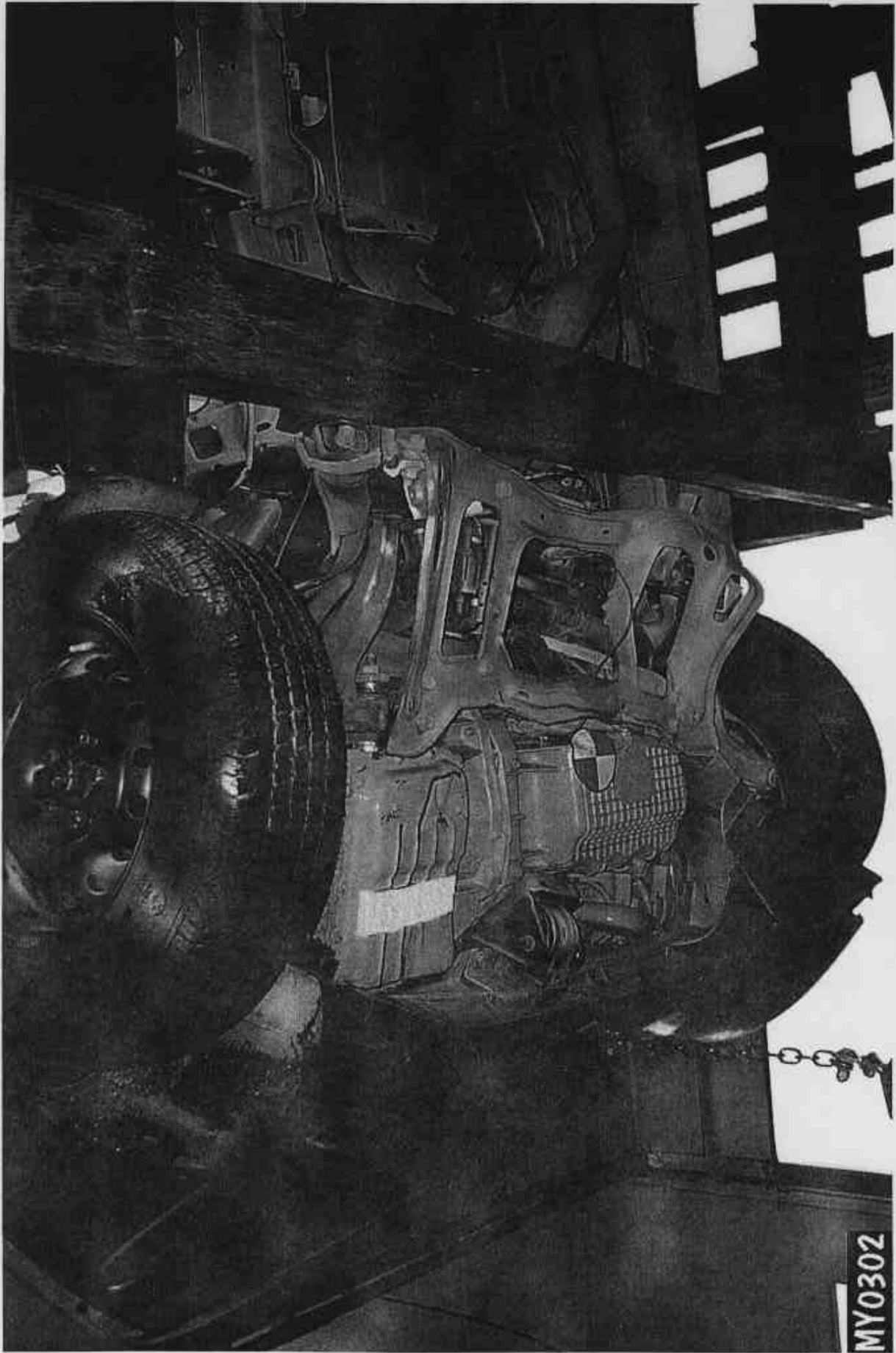


Figure A-19; POST-TEST FRONT SIDE UNDERBODY VIEW

MY0302

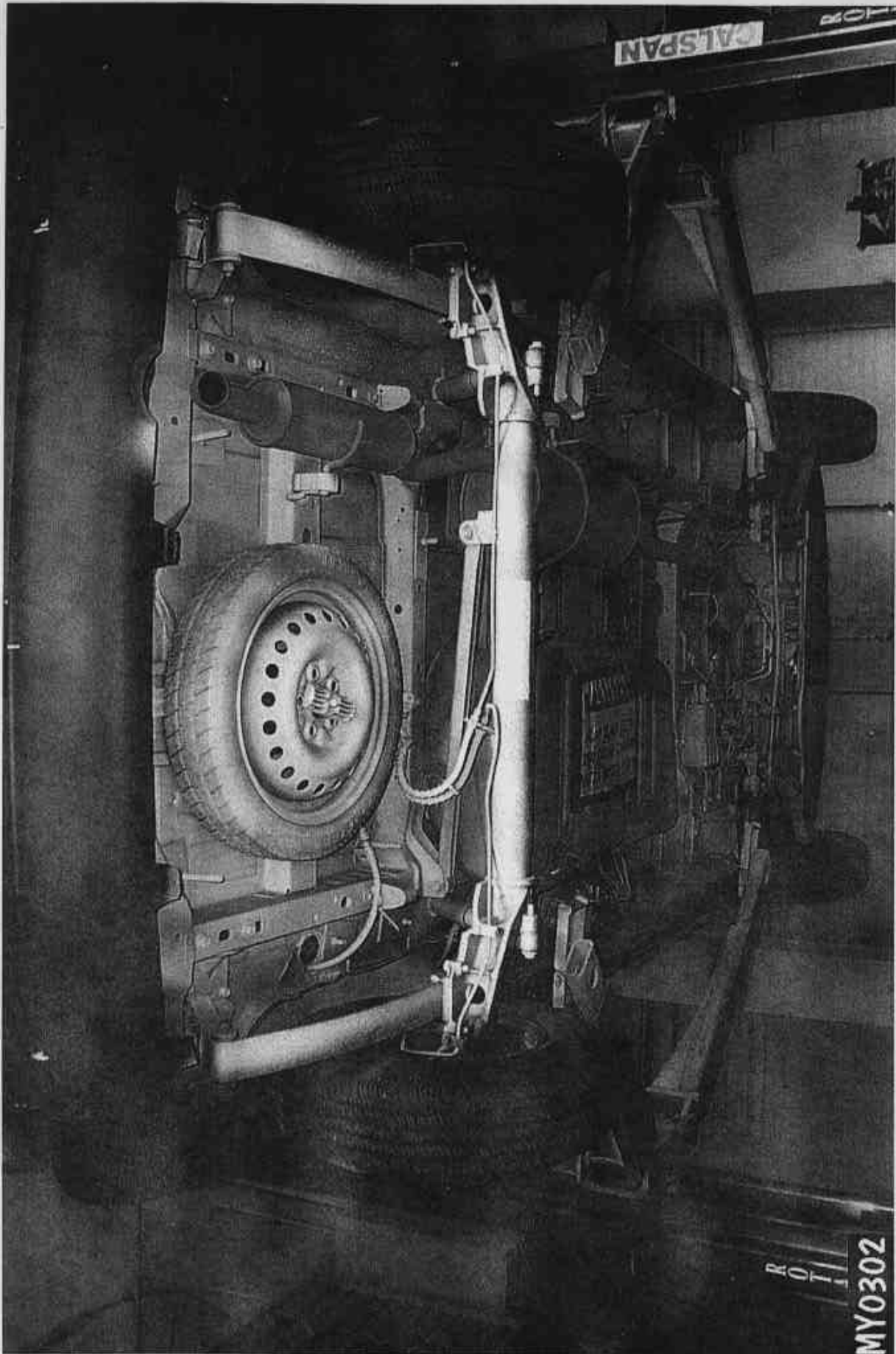


Figure A-20: PRE-TEST REAR UNDERBODY VIEW

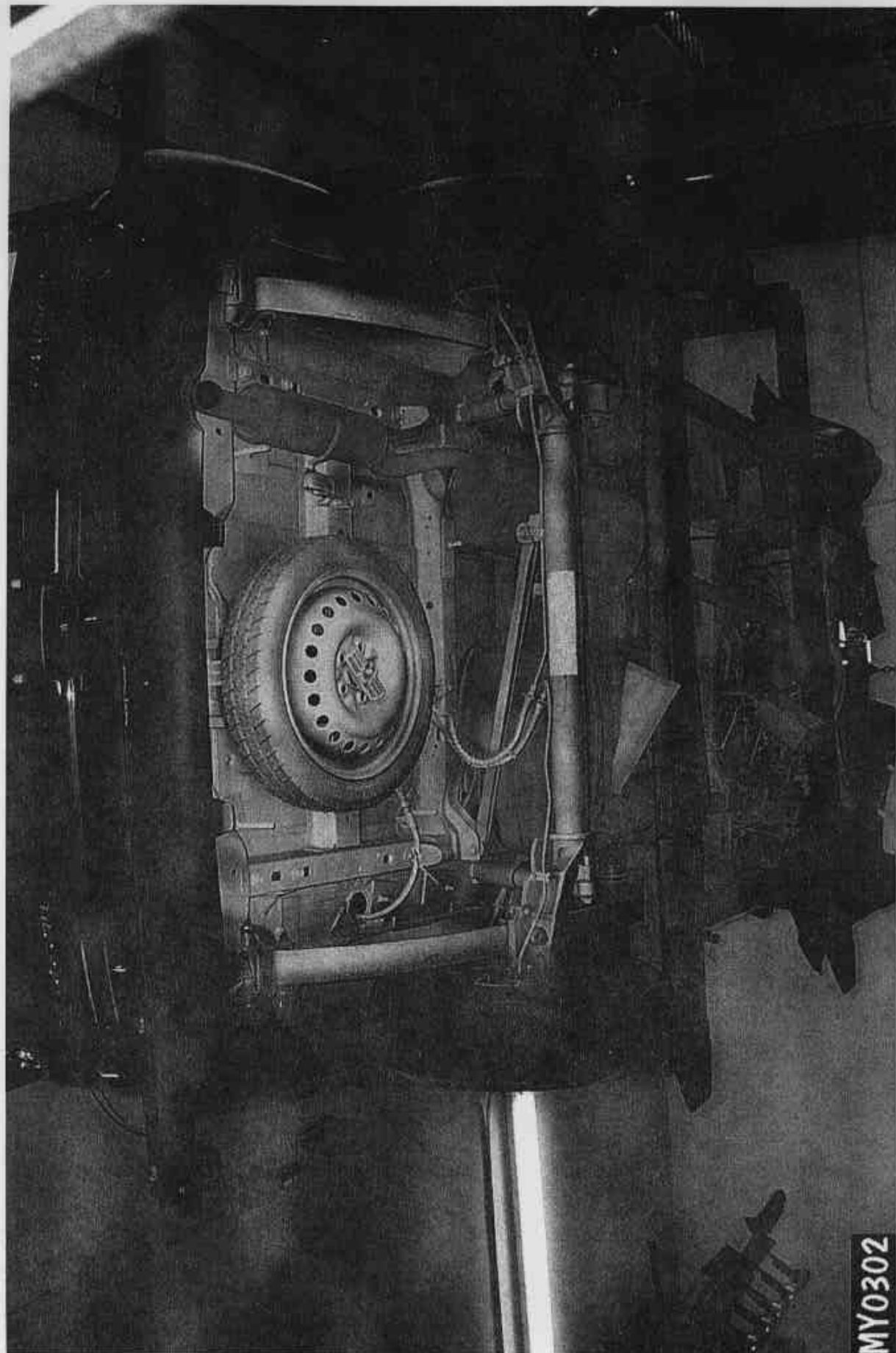


Figure A-21: POST-TEST REAR UNDERBODY VIEW

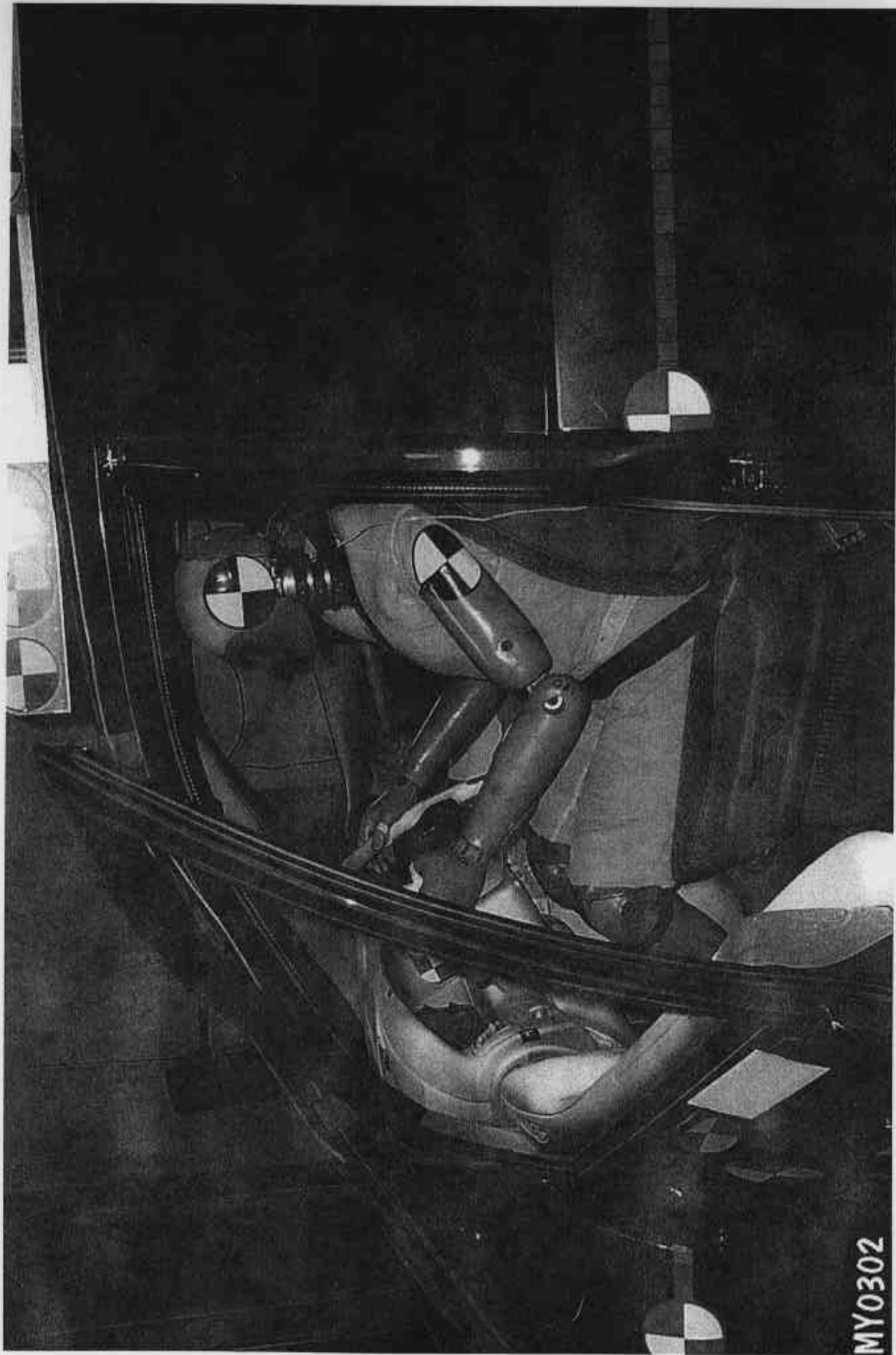


Figure A-22: PRE-TEST DRIVER POSITION VIEW

MY0302

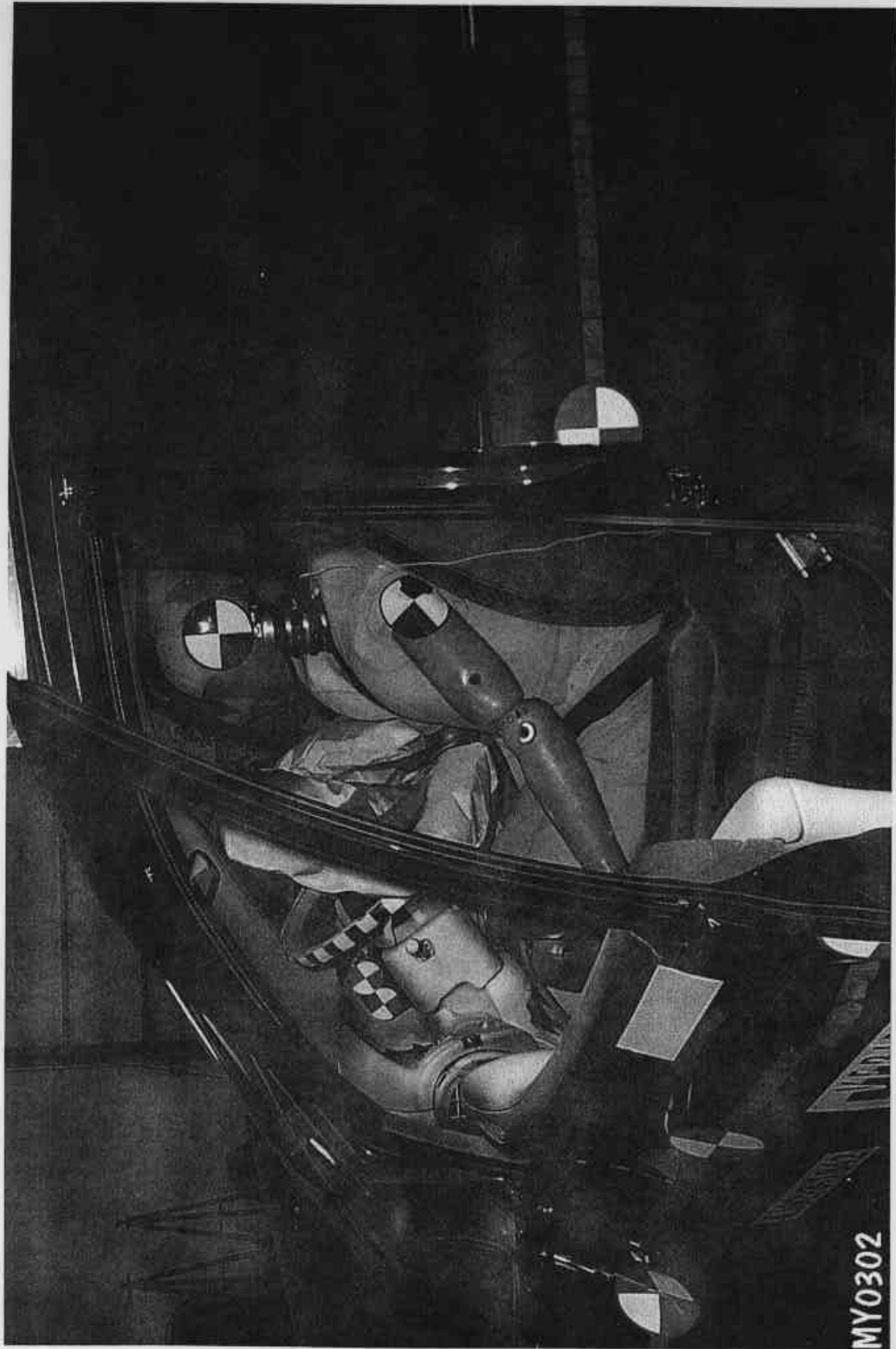


Figure A-23: POST-TEST DRIVER POSITION VIEW

MY0302

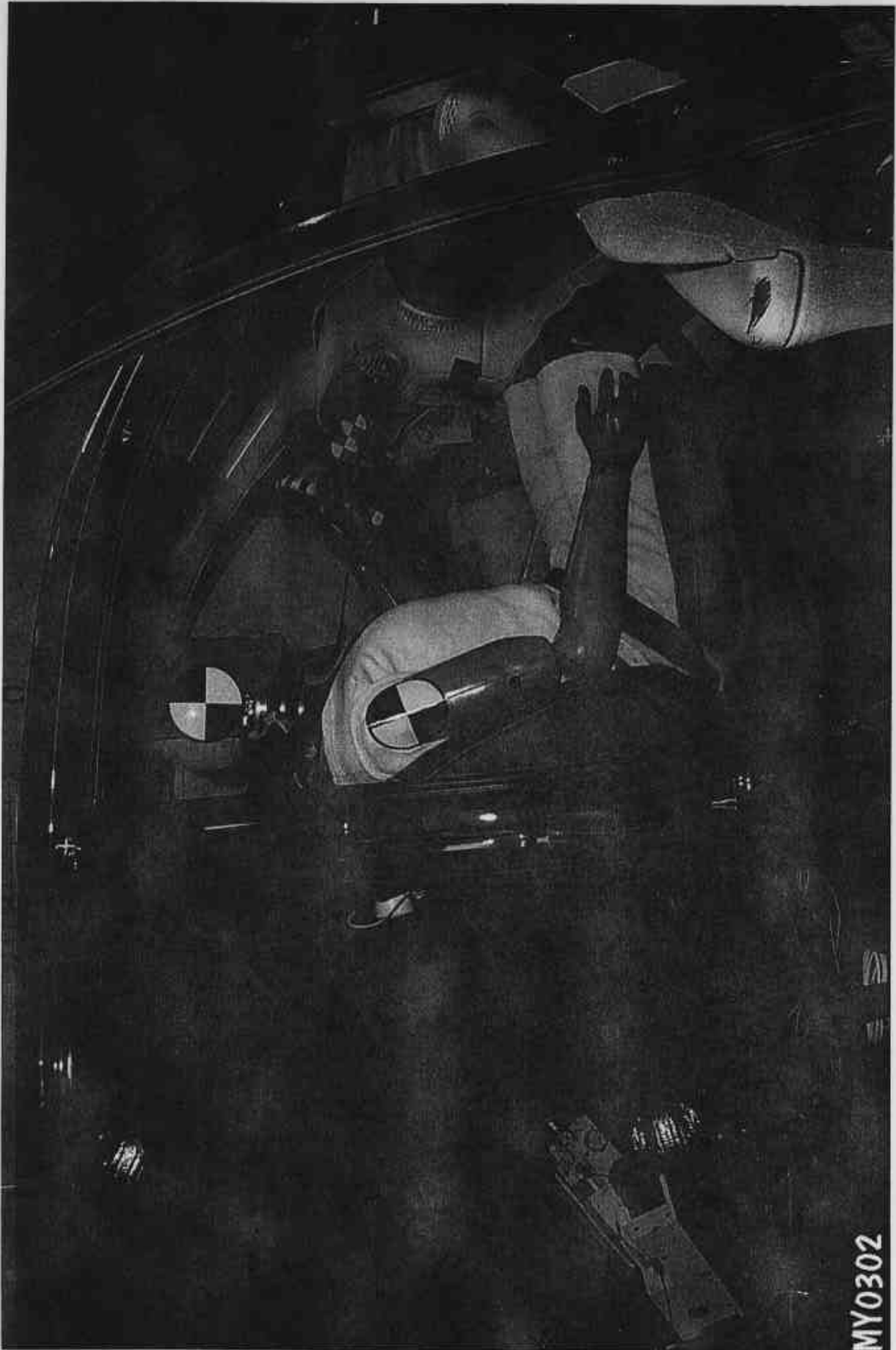


Figure A-24: PRE-TEST PASSENGER POSITION VIEW



Figure A-25: POST-TEST PASSENGER POSITION VIEW

MY0302



Figure A-26: PRE-TEST DRIVER AND INTERIOR VIEW

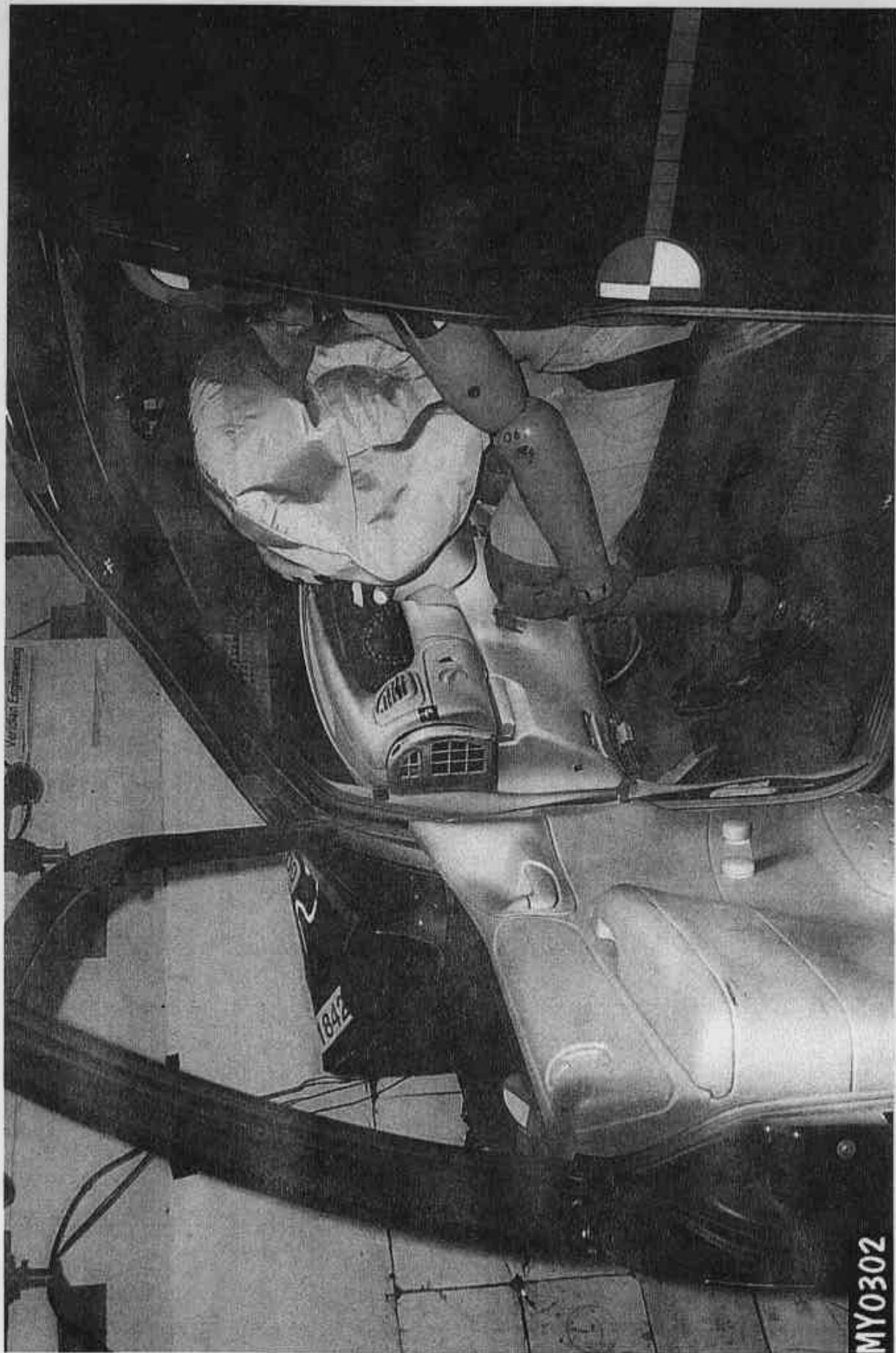


Figure A-27: POST-TEST DRIVER AND INTERIOR VIEW



Figure A-28: PRE-TEST PASSENGER AND INTERIOR VIEW

MY0302

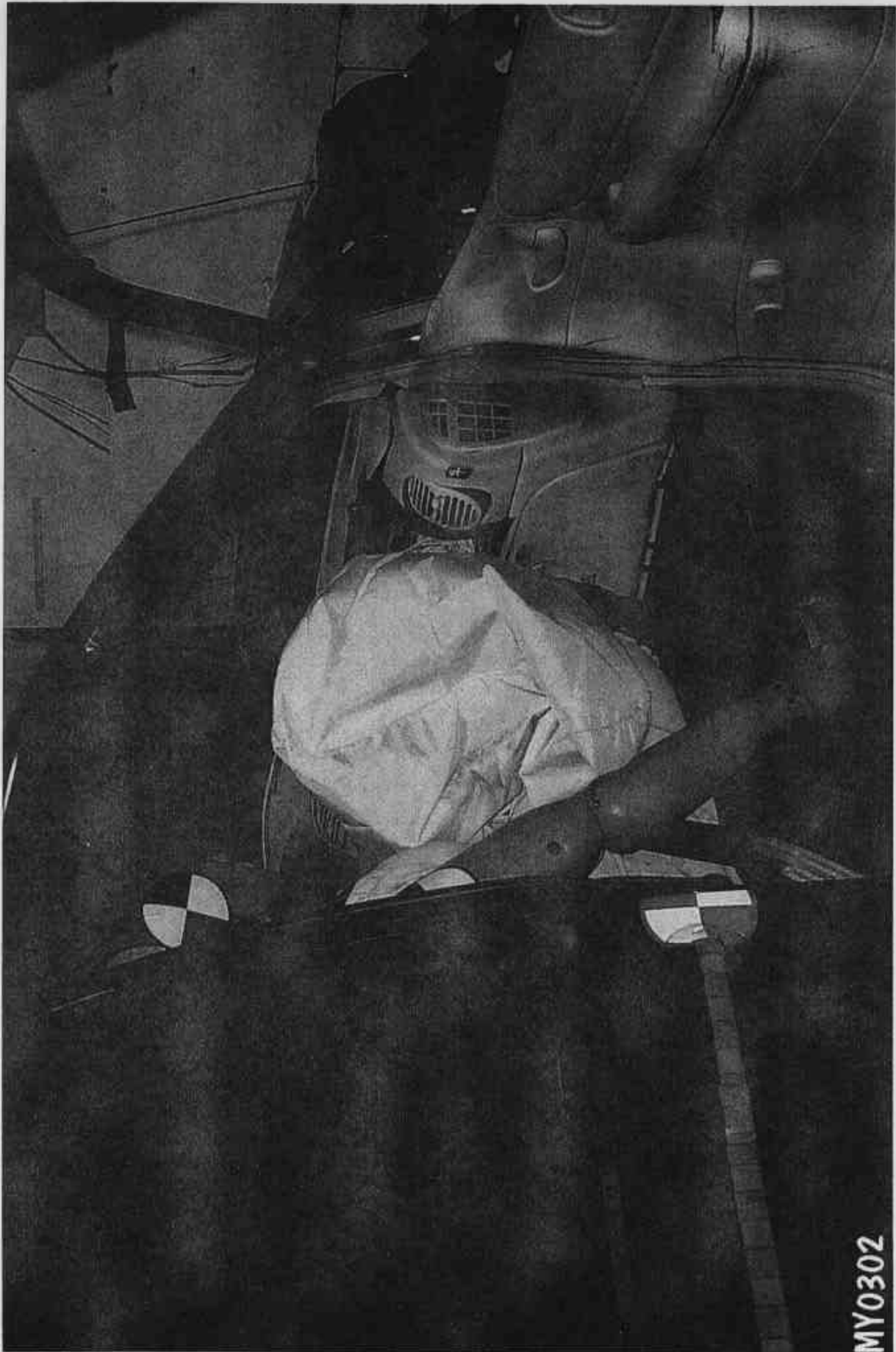


Figure A-29: POST-TEST PASSENGER AND INTERIOR VIEW

MY0302

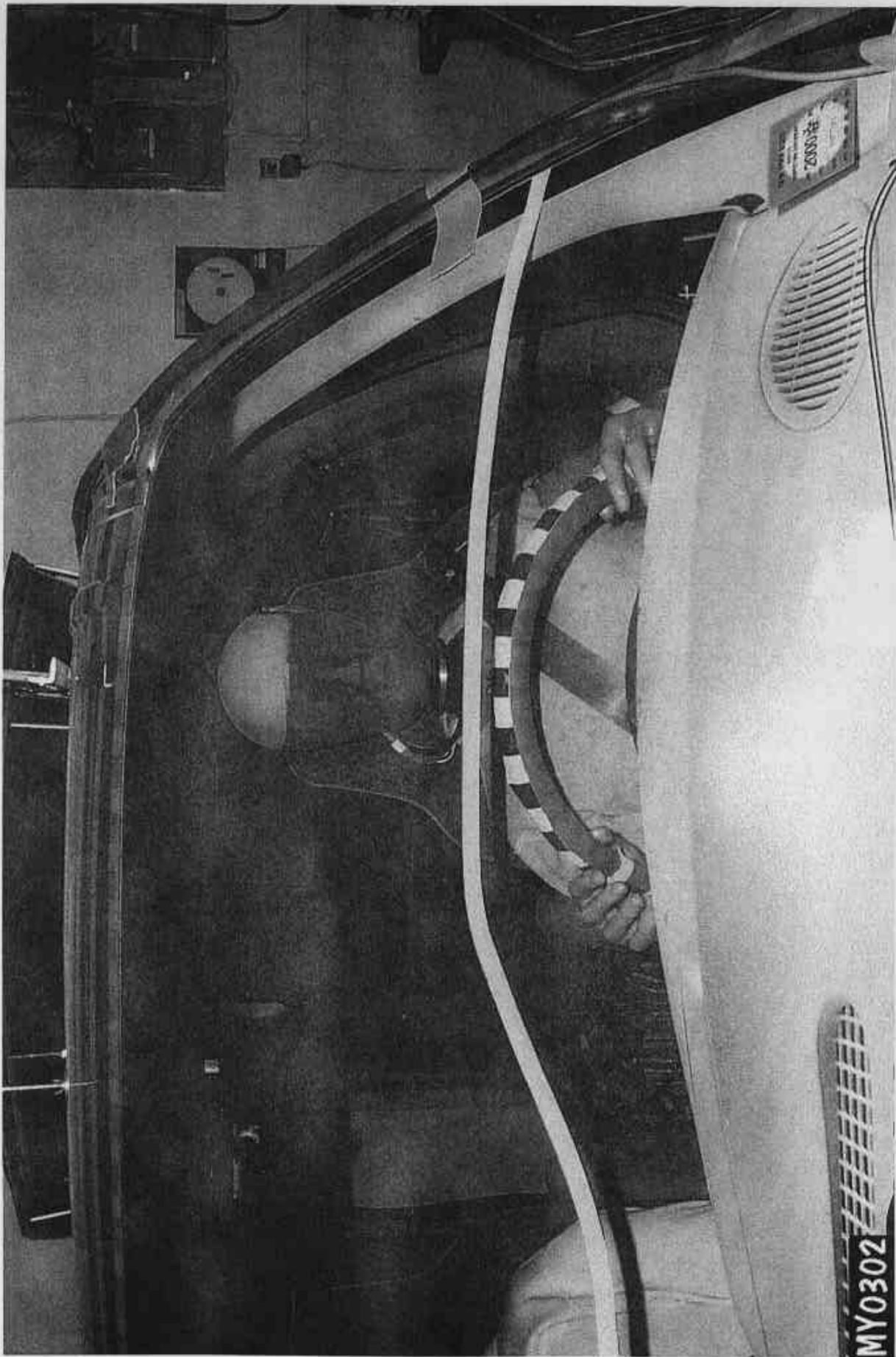


Figure A-30: PRE-TEST DRIVER HEAD LOCATION

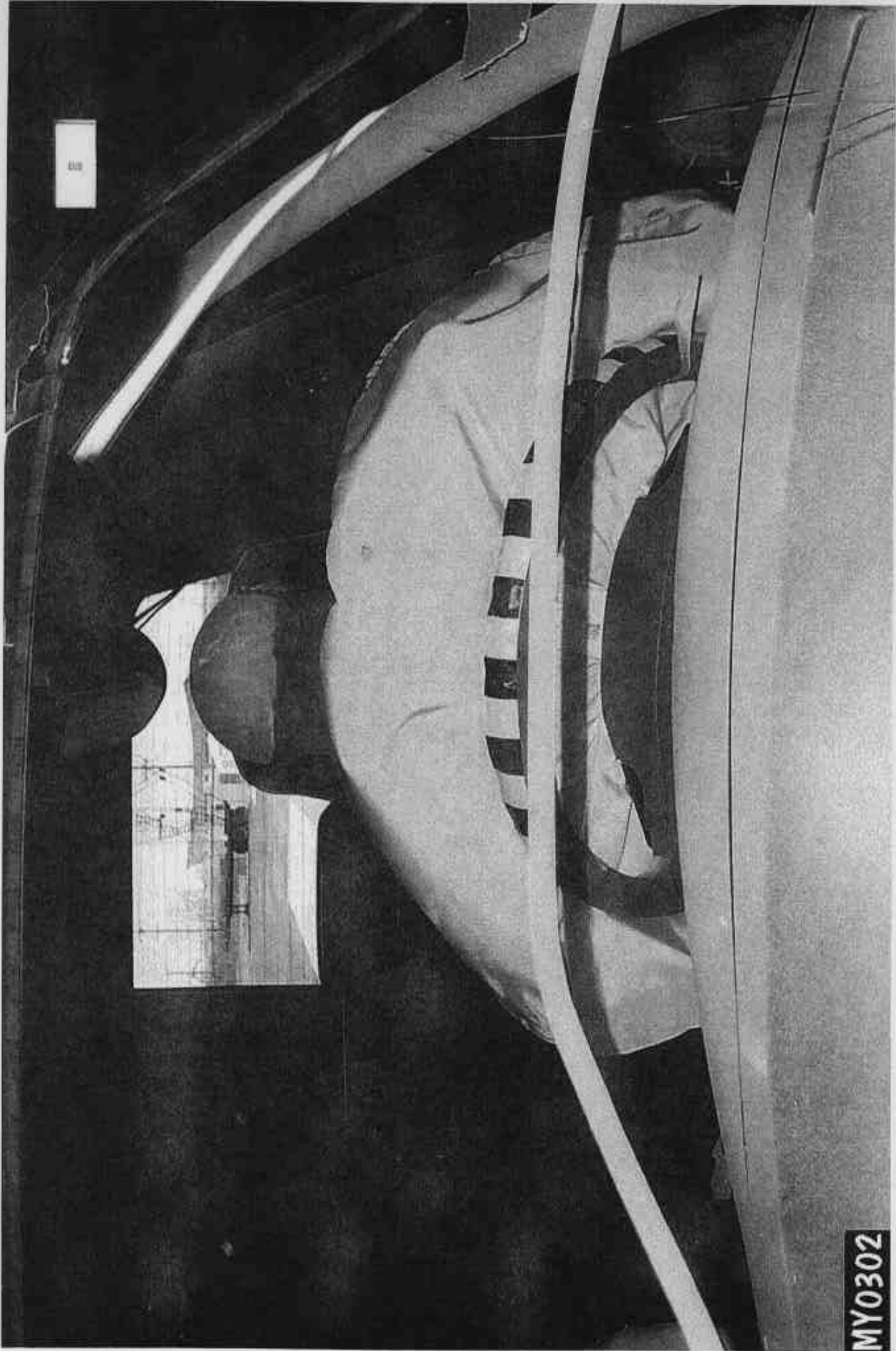


Figure A-31: POST-TEST DRIVER HEAD LOCATION

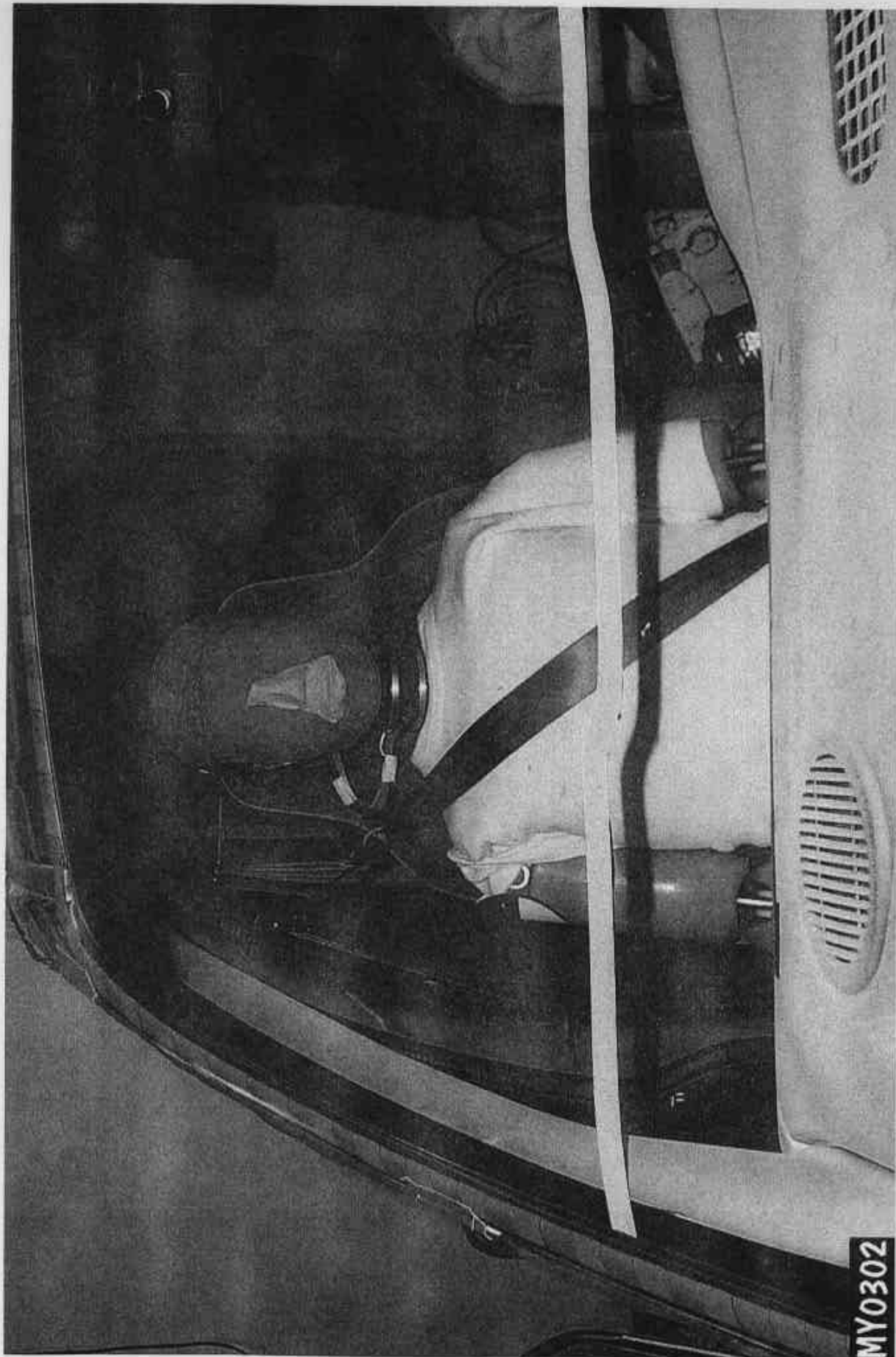


Figure A-32: PRE-TEST PASSENGER HEAD LOCATION

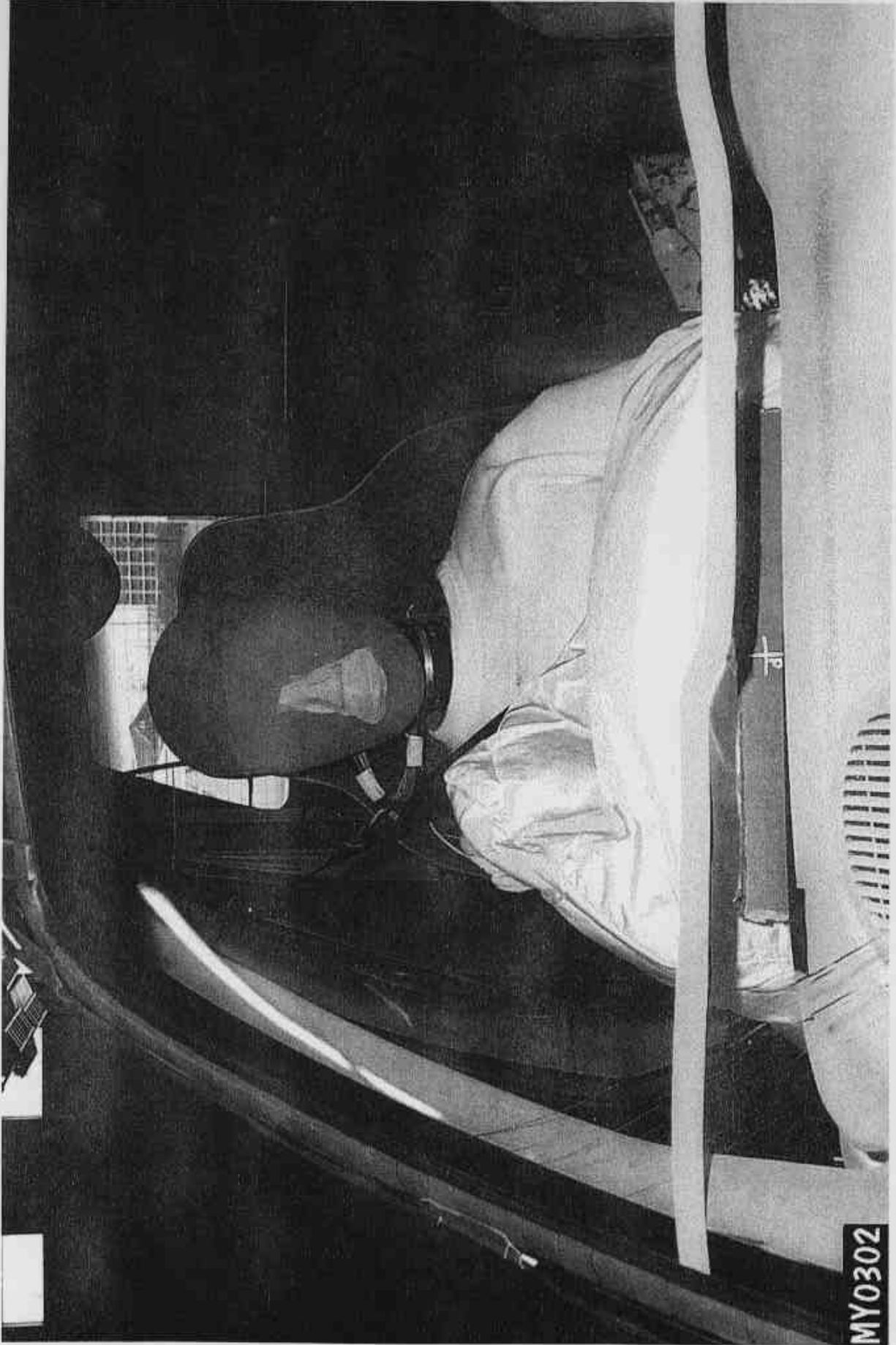


Figure A-33: POST-TEST PASSENGER HEAD LOCATION

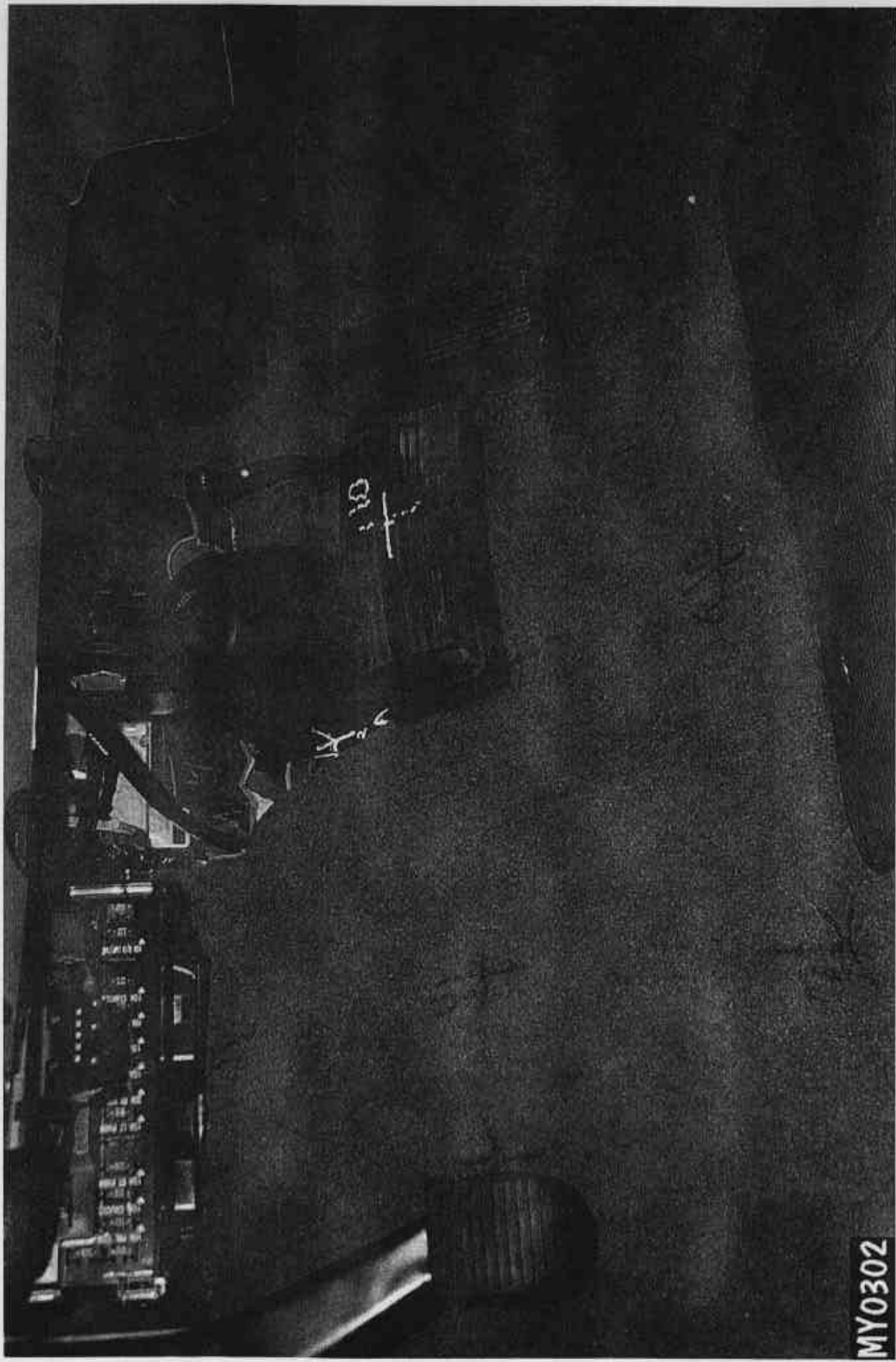


Figure A-34: PRE-TEST DRIVER FLOOR PAN VIEW

MY0302

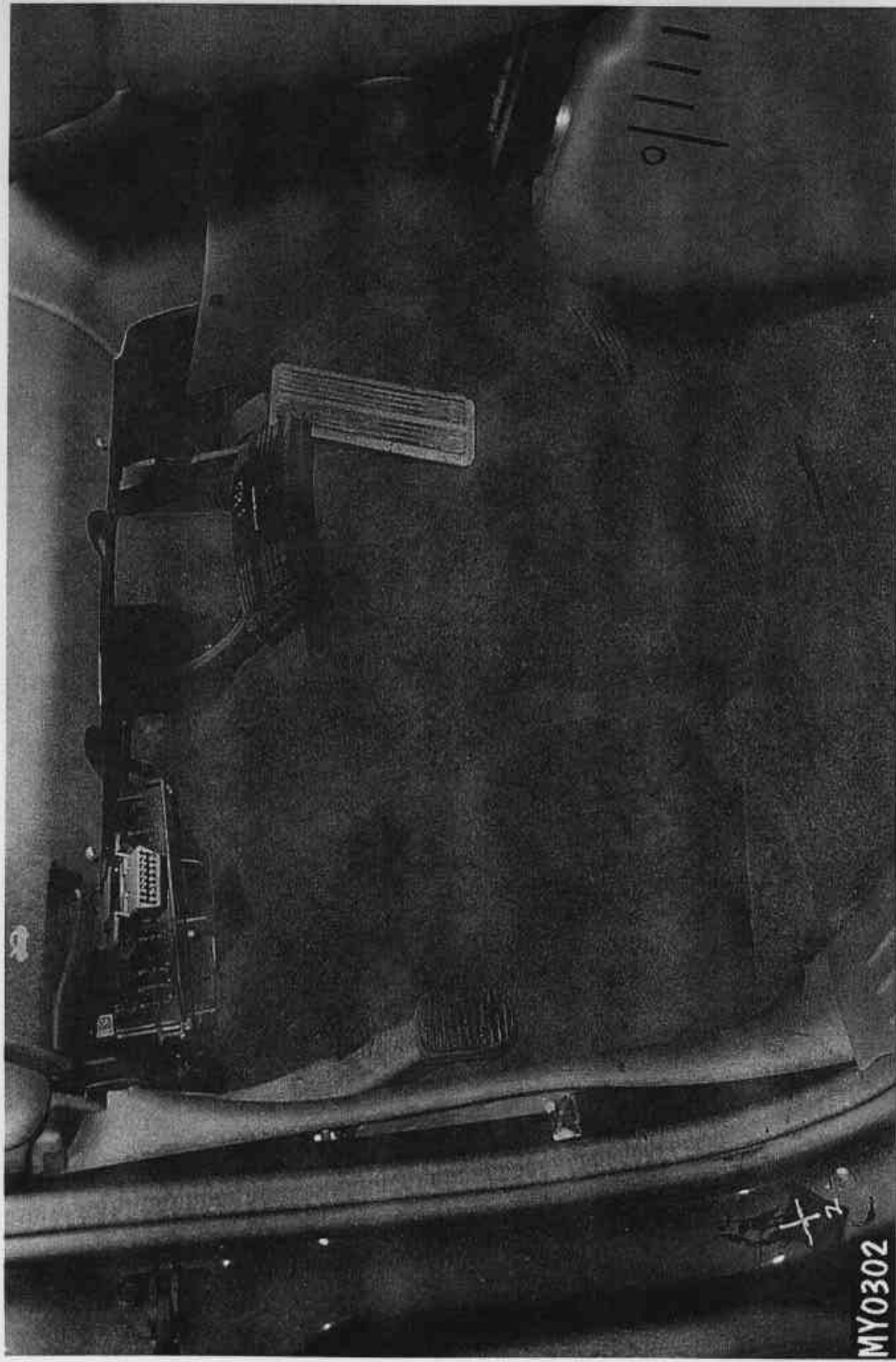


Figure A-35: POST-TEST DRIVER FLOOR PAN VIEW

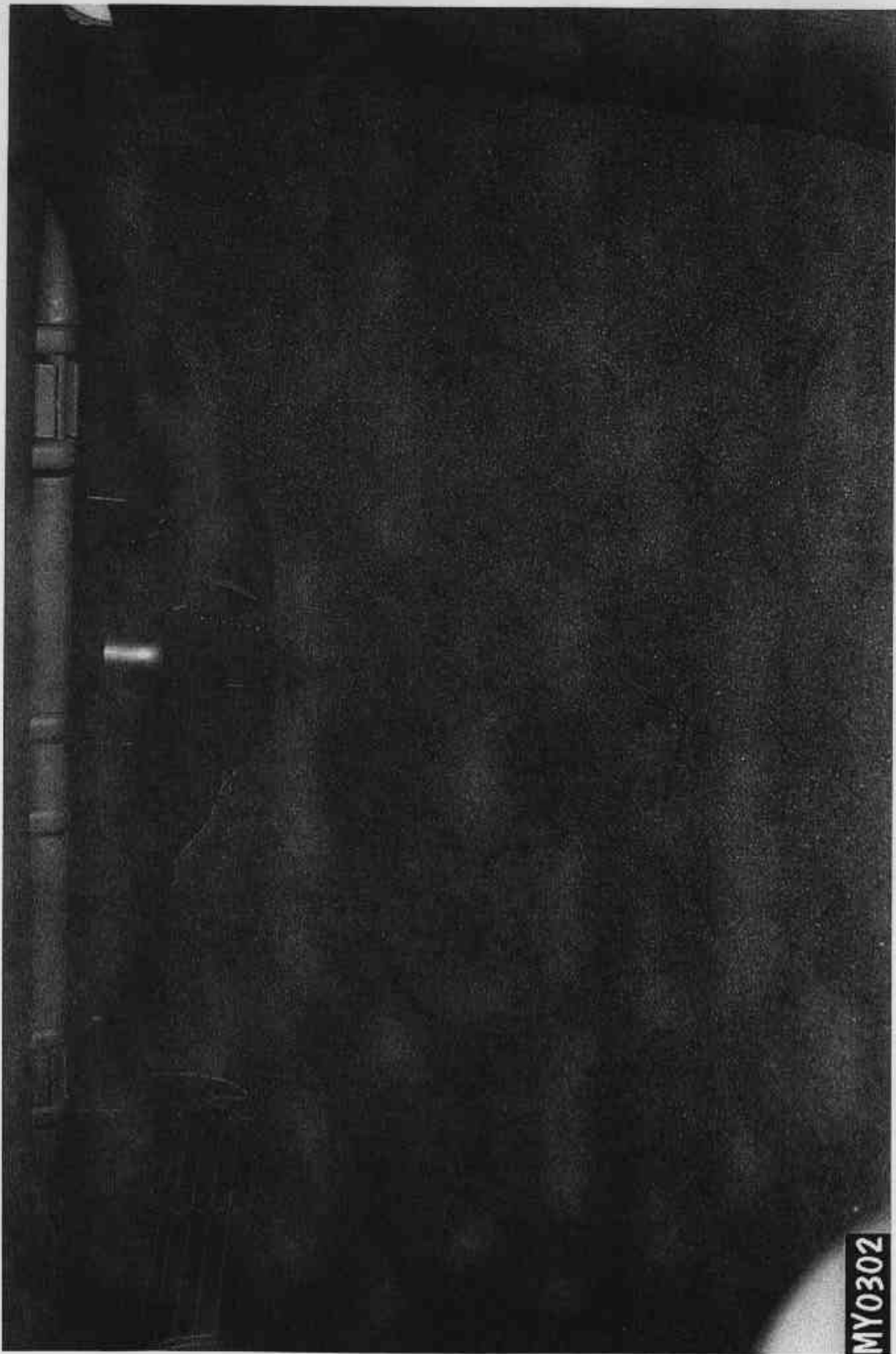


Figure A-36: PRE-TEST PASSENGER FLOOR PAN VIEW

MY0302



Figure A-37: POST-TEST PASSENGER FLOOR PAN VIEW

MY0302

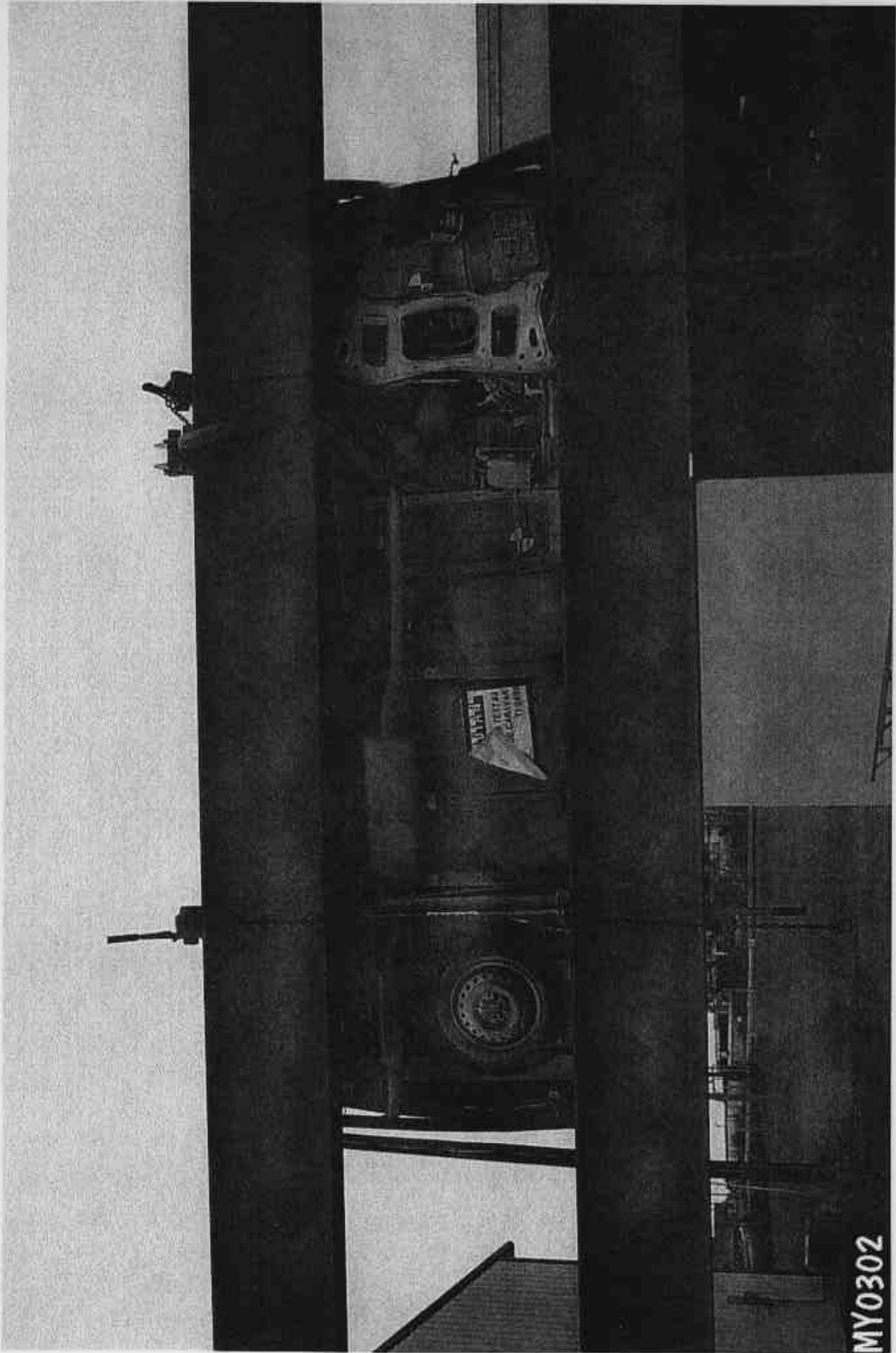


Figure A-38: ROLLOVER VIEW

MY0302

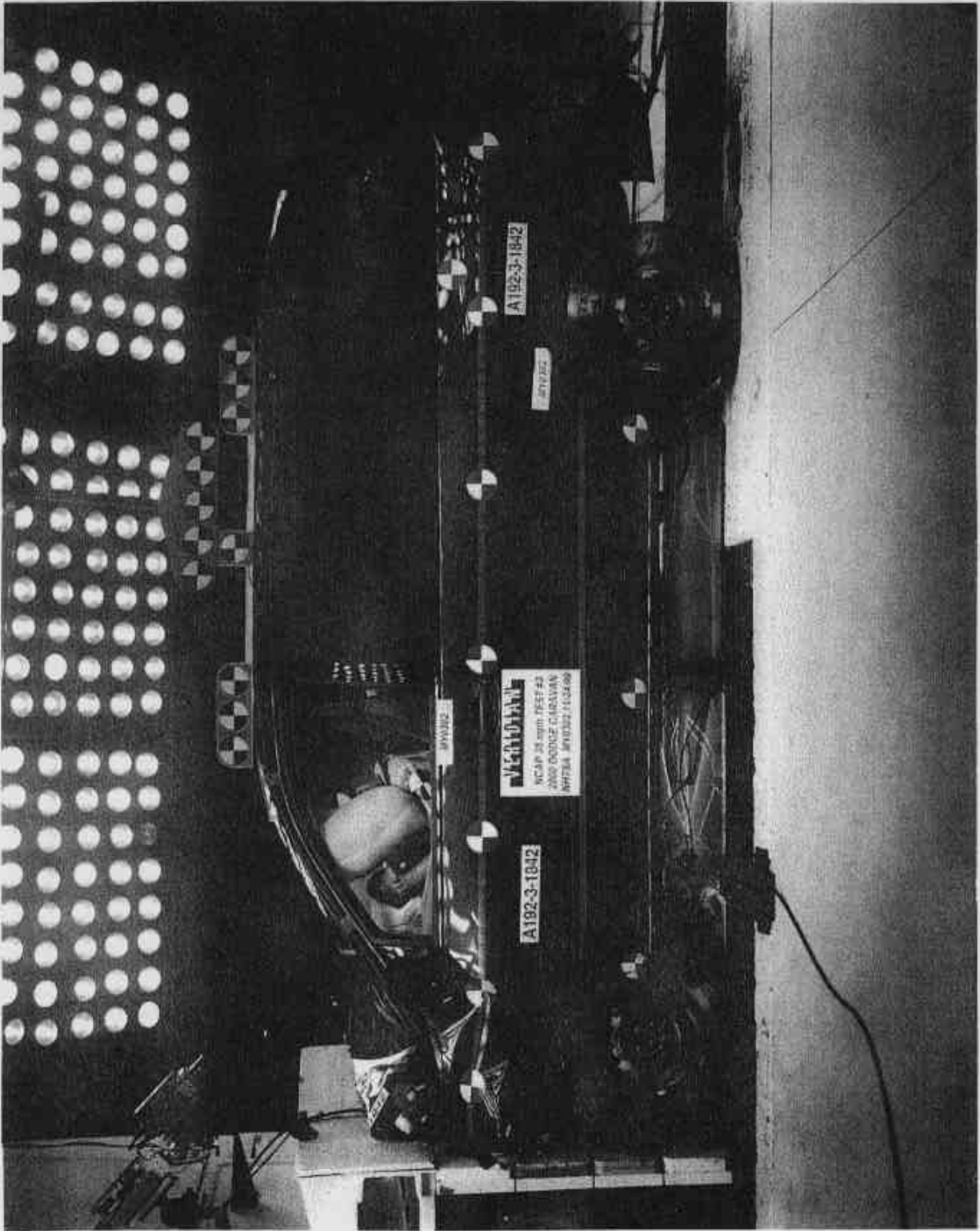


Figure A-39: IMPACT VIEW

APPENDIX B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

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

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

DATA CHANNEL FILTER CLASS SUMMARY

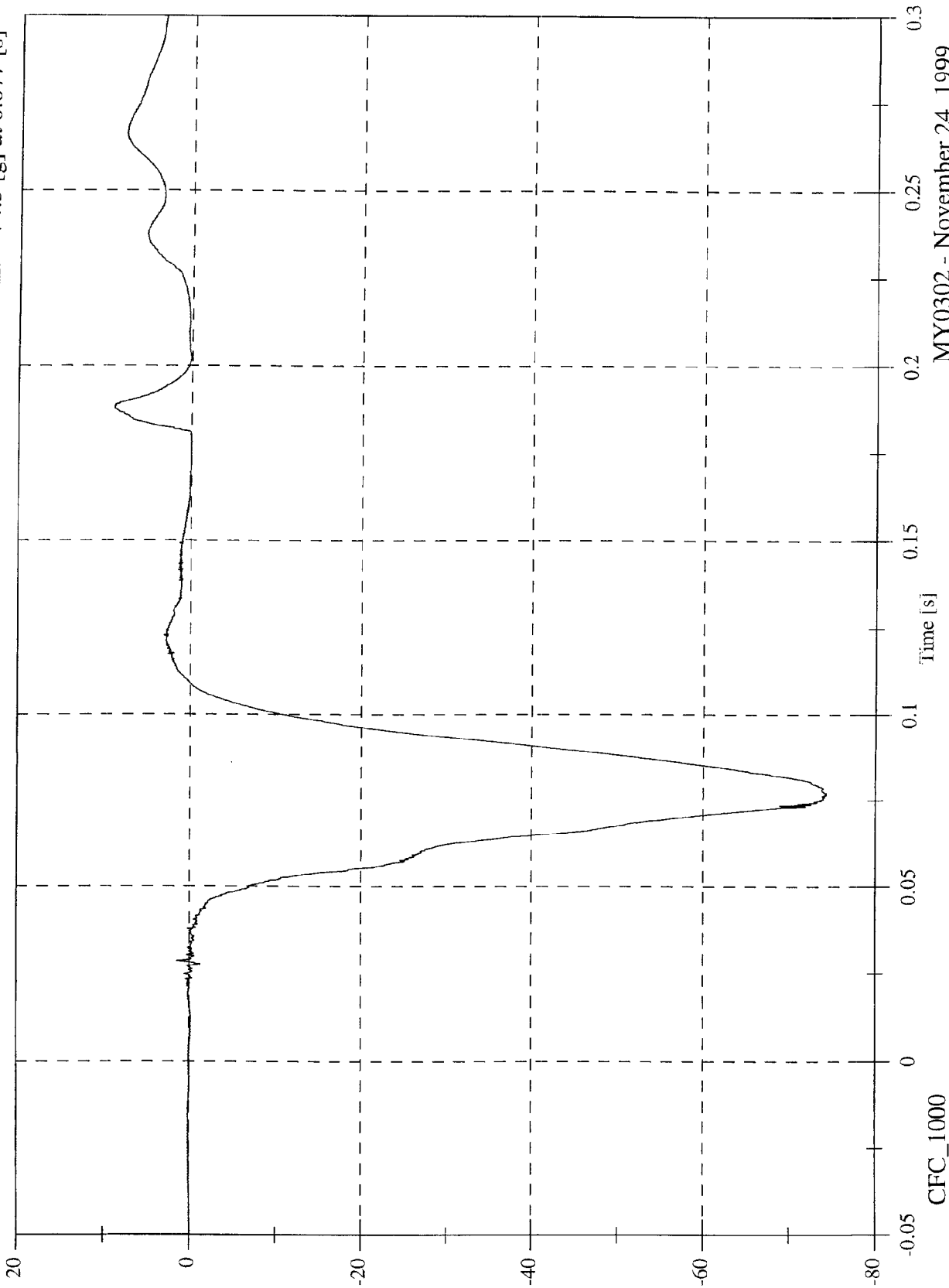
NHTSA TEST NO. MY0302

DATA TYPE	SAE FILTER CLASS (Hz)
Dummy Head Accelerations	1000
Dummy Chest Accelerations	180
Dummy Chest Displacements	60
Dummy Femur Forces	600
Dummy Belt Loads	60
Dummy Belt Displacements	180
Dummy Neck Forces	1000
Dummy Neck Moments	600
Vehicle Accelerations	60
Vehicle Velocity Integrations	180
Vehicle Displacement Integrations	180
Load Cell Barrier Forces	60

NCAP Test 3 - 2000 Dodge Caravan

Max: 9.0 [g] at 0.188 [s]
Min: -74.3 [g] at 0.077 [s]

P1 Head x



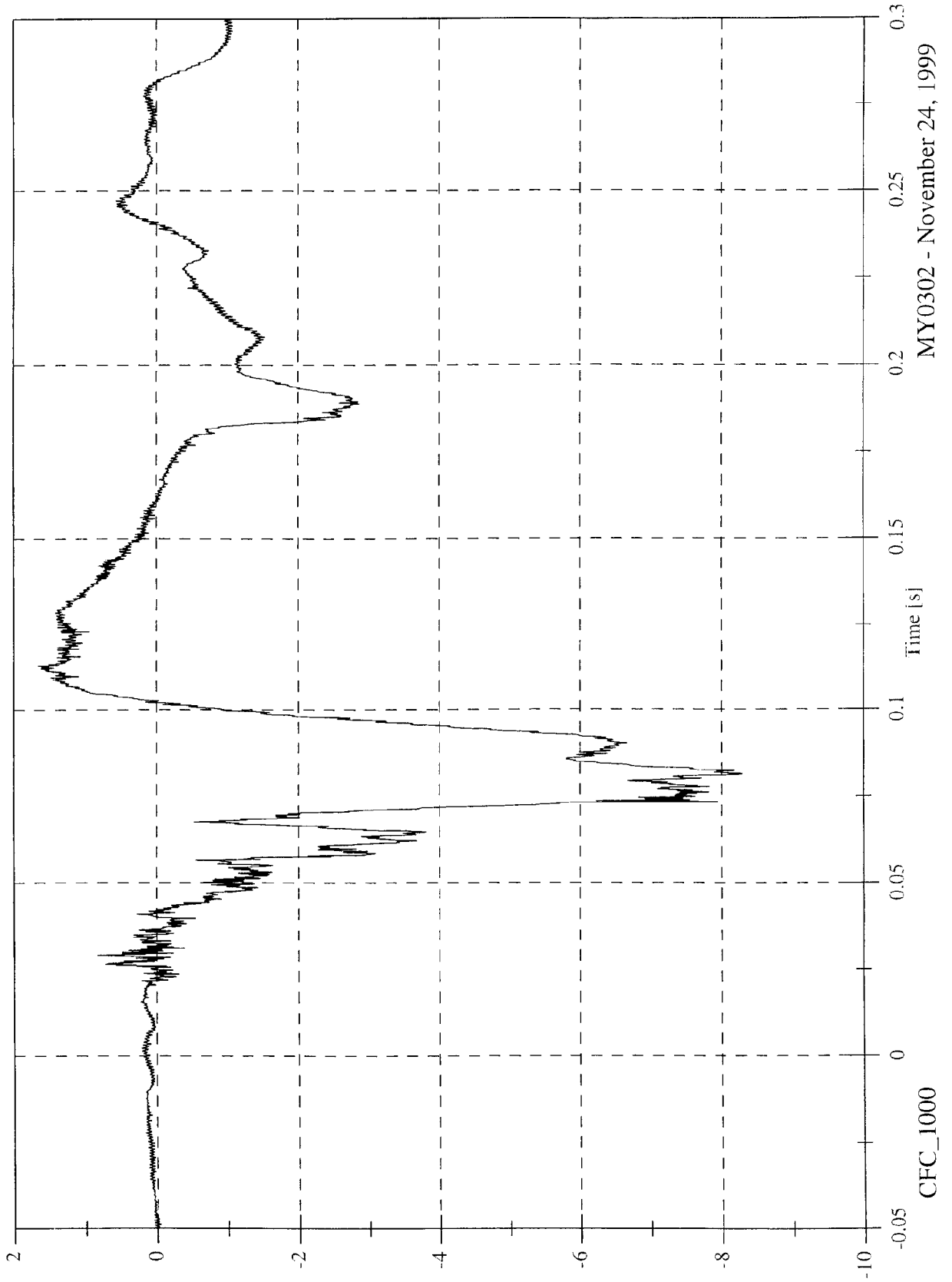
CFC_1000

MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 1.7 [g] at 0.113 [s]
Min: -8.3 [g] at 0.081 [s]

P1 Head y



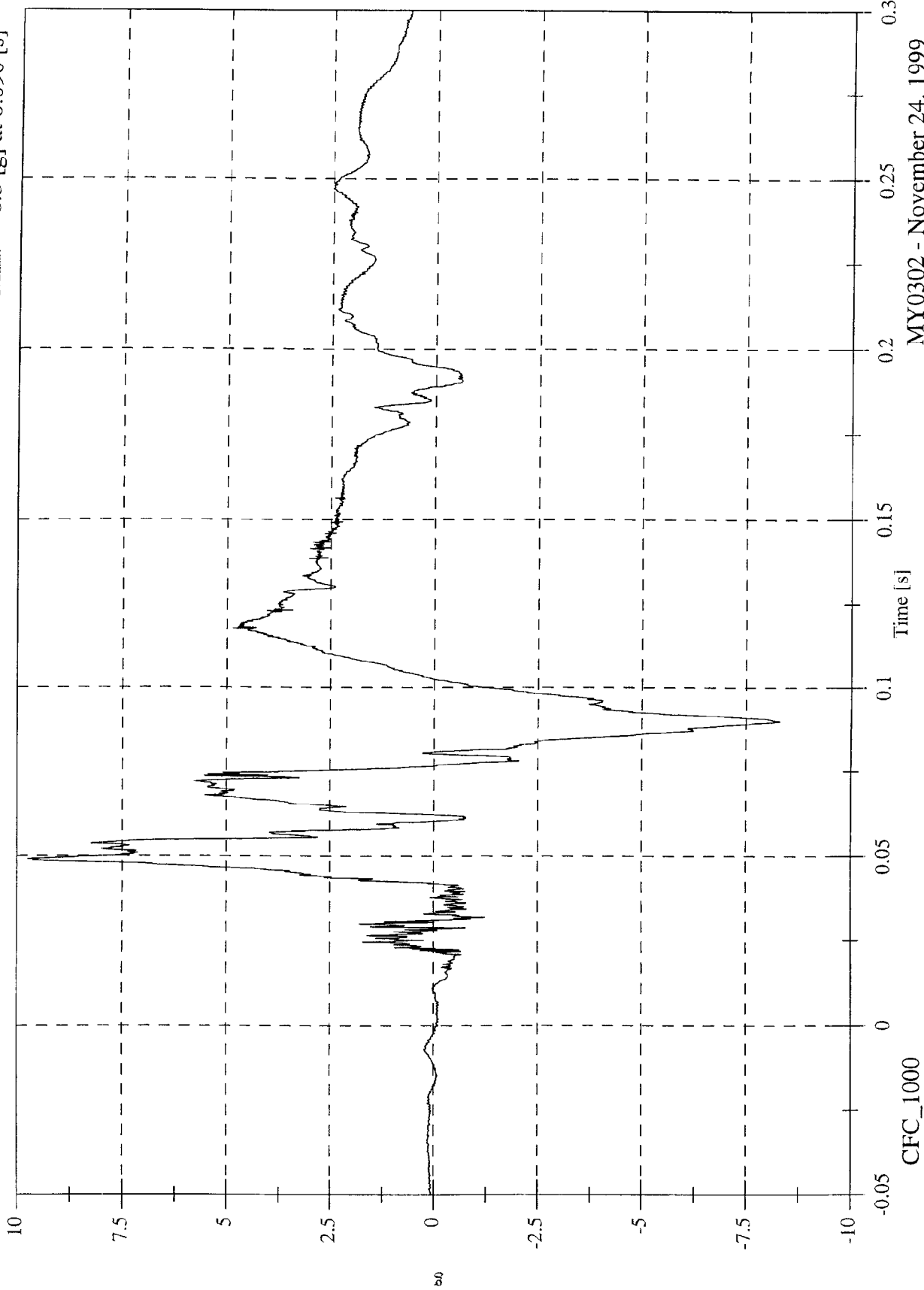
MY0302 - November 24, 1999

CFC_1000

NCAP Test 3 - 2000 Dodge Caravan

Max: 9.7 [g] at 0.049 [s]
Min: -8.3 [g] at 0.090 [s]

P1 Head z

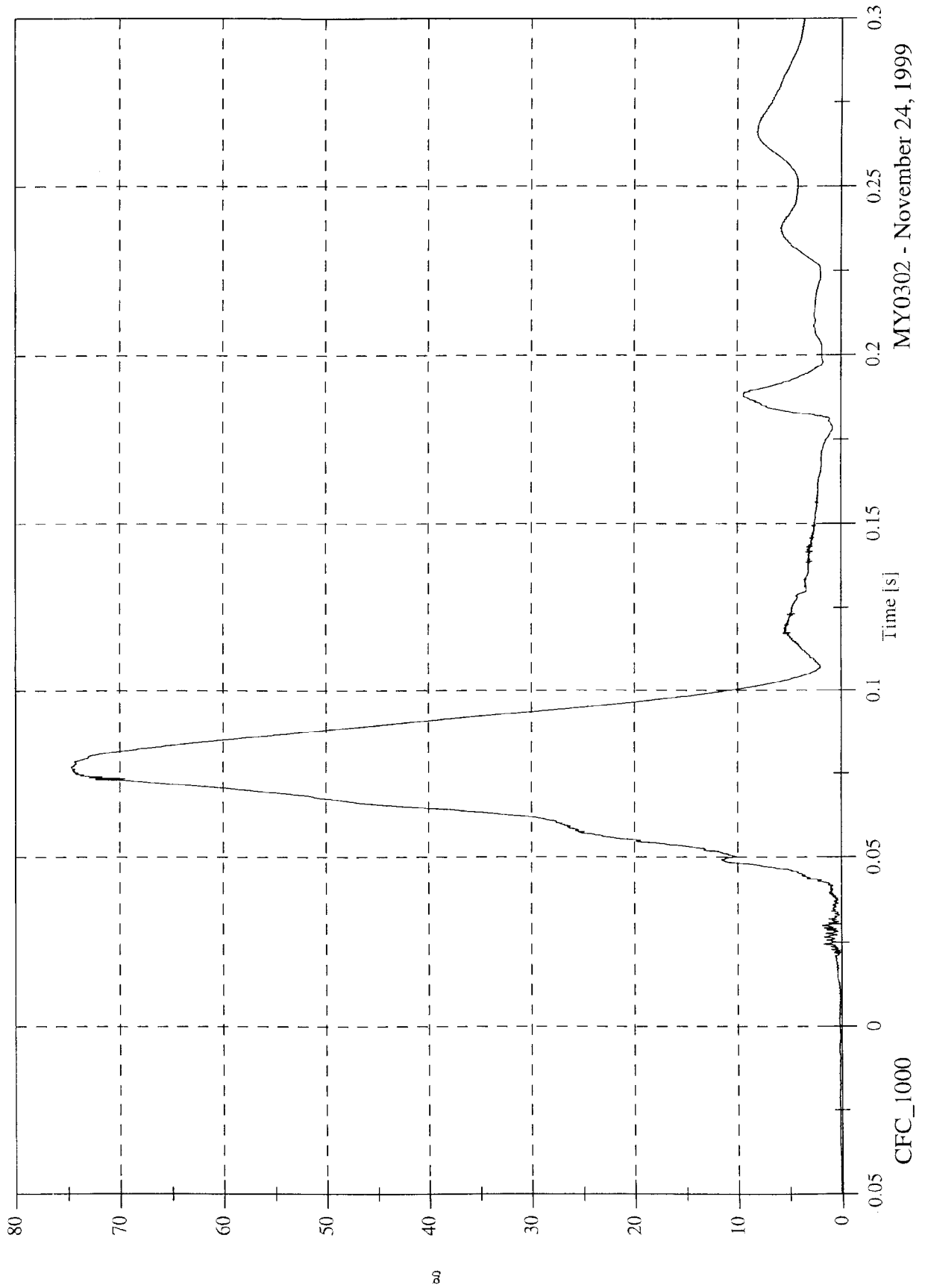


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 74.7 [g] at 0.077 [s]
Min: 0.0 [g] at 0.023 [s]

P1 Head Resultant



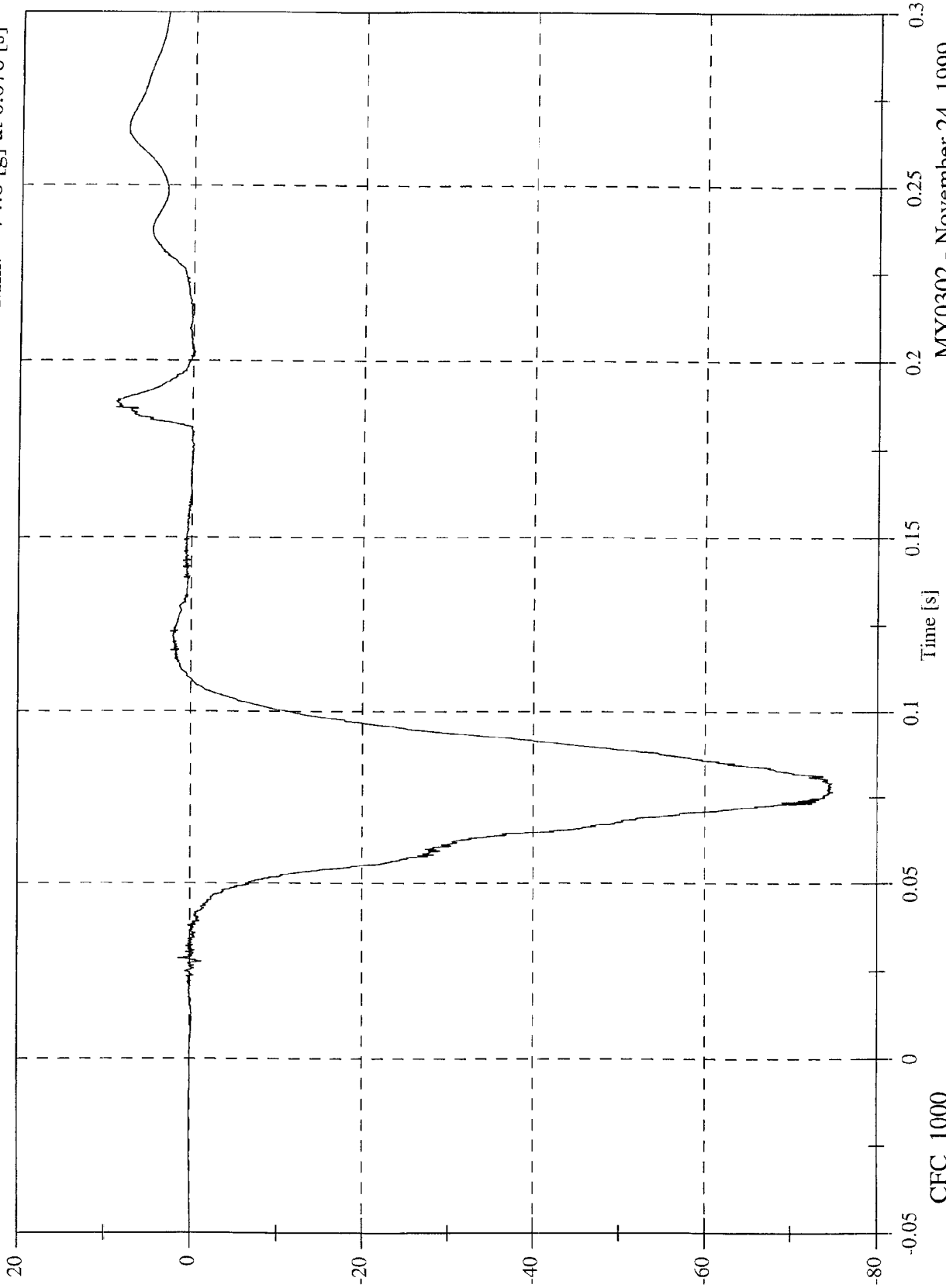
MY0302 - November 24, 1999

CFC_1000

NCAP Test 3 - 2000 Dodge Caravan

Max: 8.9 [g] at 0.187 [s]
Min: -74.8 [g] at 0.076 [s]

P1 Head Red x

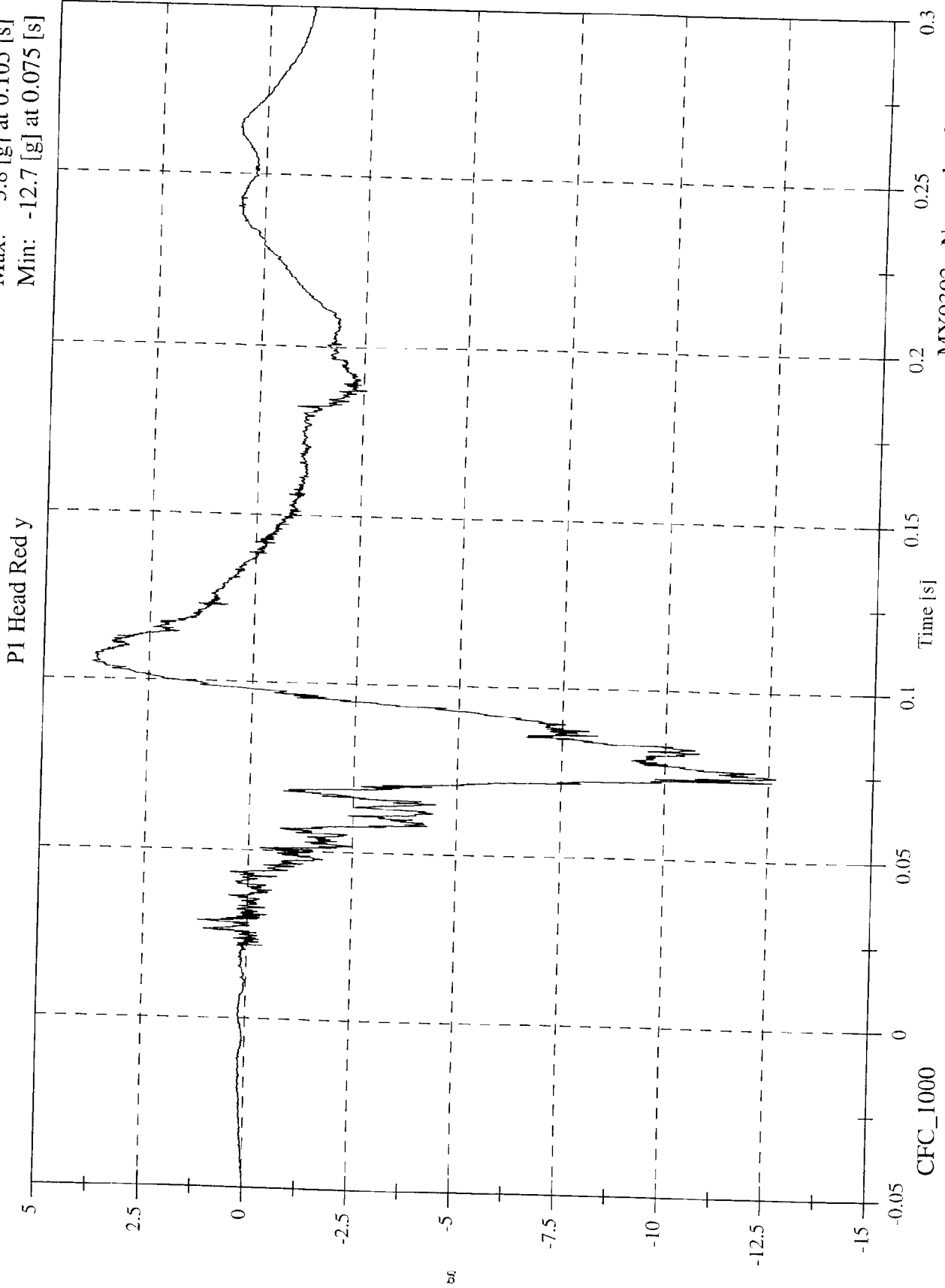


MY0302 - November 24, 1999

CFC_1000

NCAP Test 3 - 2000 Dodge Caravan

Max: 3.8 [g] at 0.105 [s]
Min: -12.7 [g] at 0.075 [s]

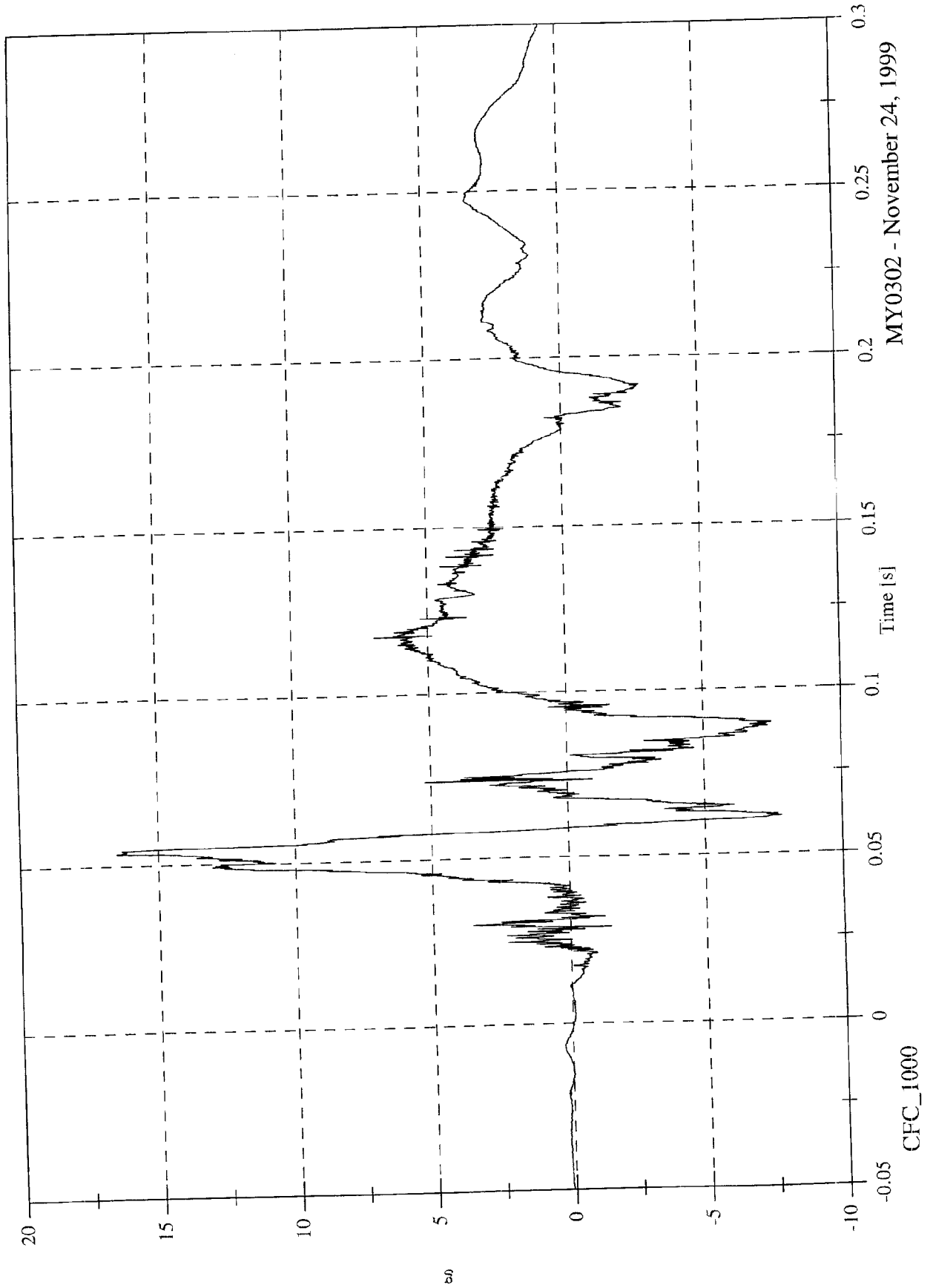


MY0302 - November 24, 1999

Max: 16.5 [g] at 0.054 [s]
Min: -7.8 [g] at 0.061 [s]

NCAP Test 3 - 2000 Dodge Caravan

P1 Head Red z



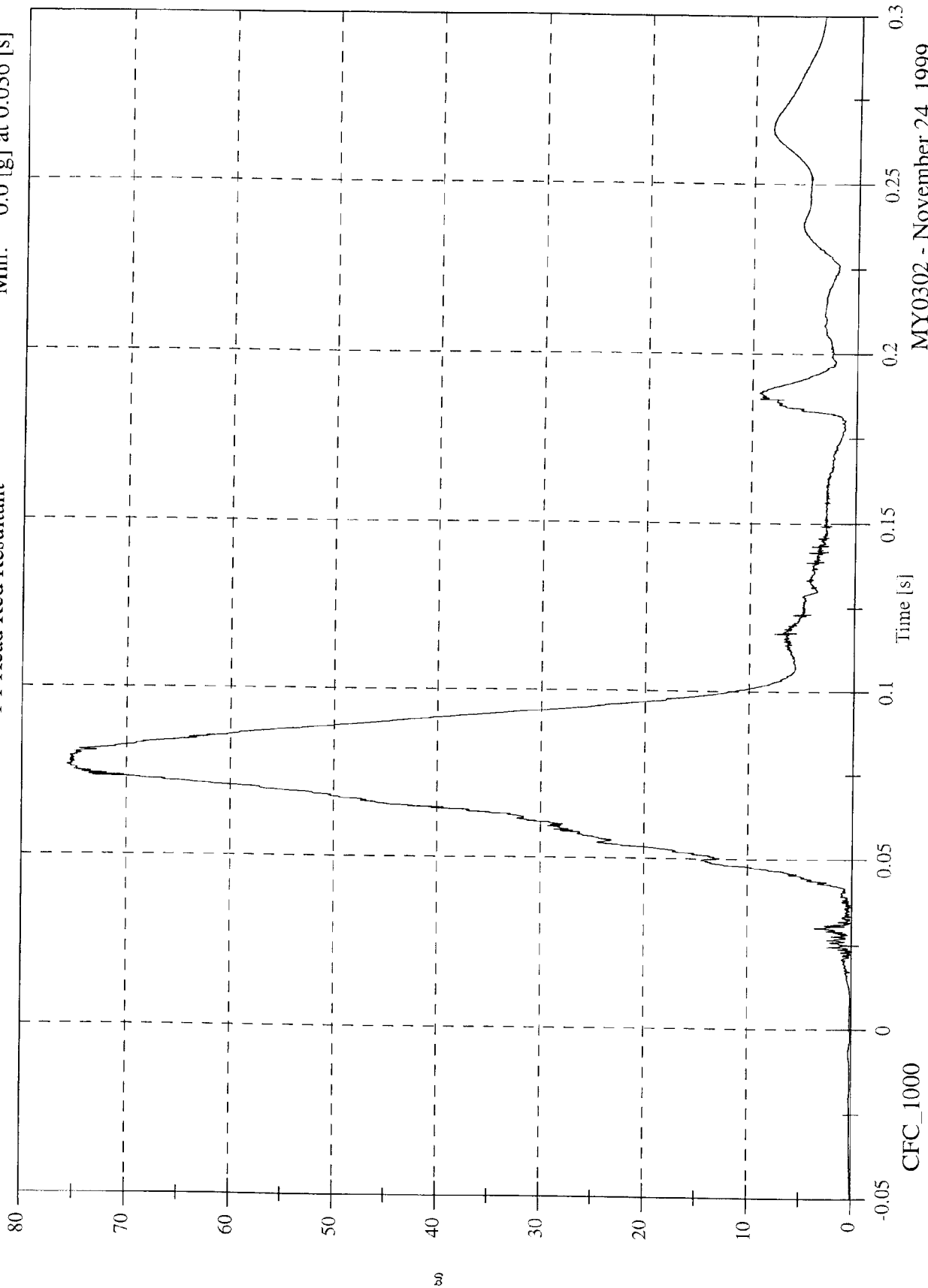
MY0302 - November 24, 1999

CFC_1000

NCAP Test 3 - 2000 Dodge Caravan

P1 Head Red Resultant

Max: 75.7 [g] at 0.076 [s]
Min: 0.0 [g] at 0.036 [s]

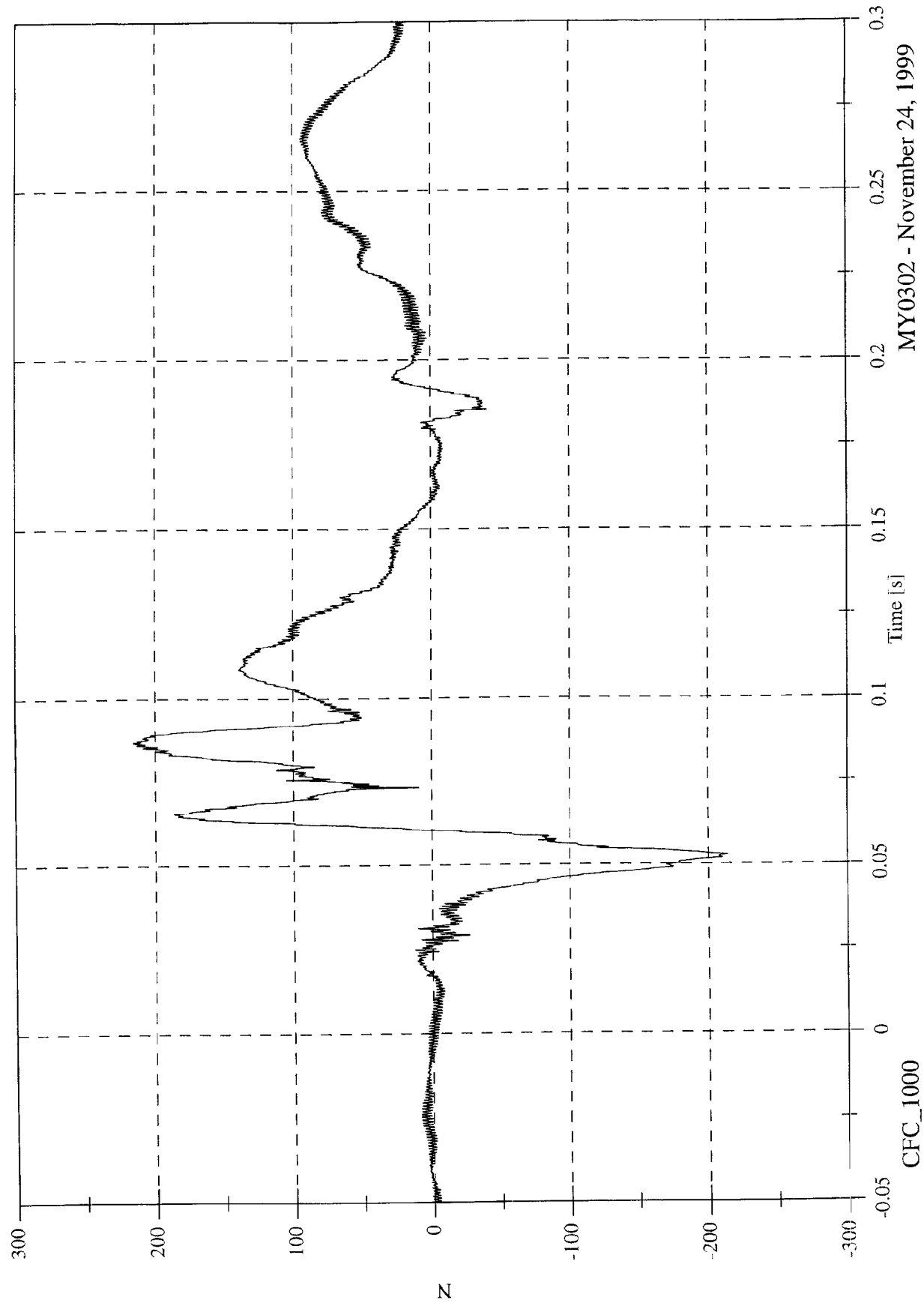


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 215.6 [N] at 0.087 [s]
Min: -213.7 [N] at 0.053 [s]

P1 Upper Neck Fx



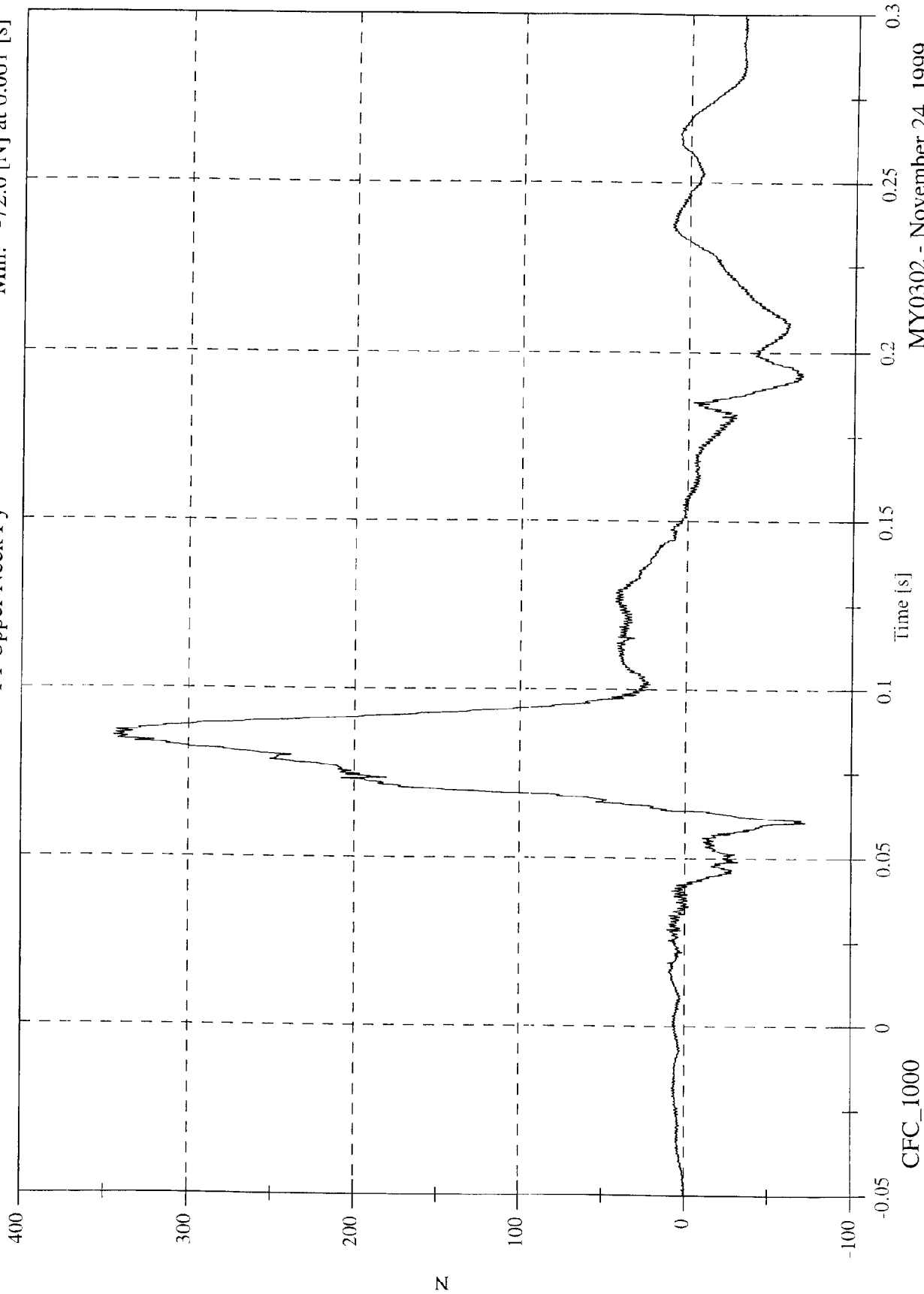
MY0302 - November 24, 1999

CFC_1000

NCAP Test 3 - 2000 Dodge Caravan

Max: 344.8 [N] at 0.085 [s]
Min: -72.6 [N] at 0.061 [s]

P1 Upper Neck Fy

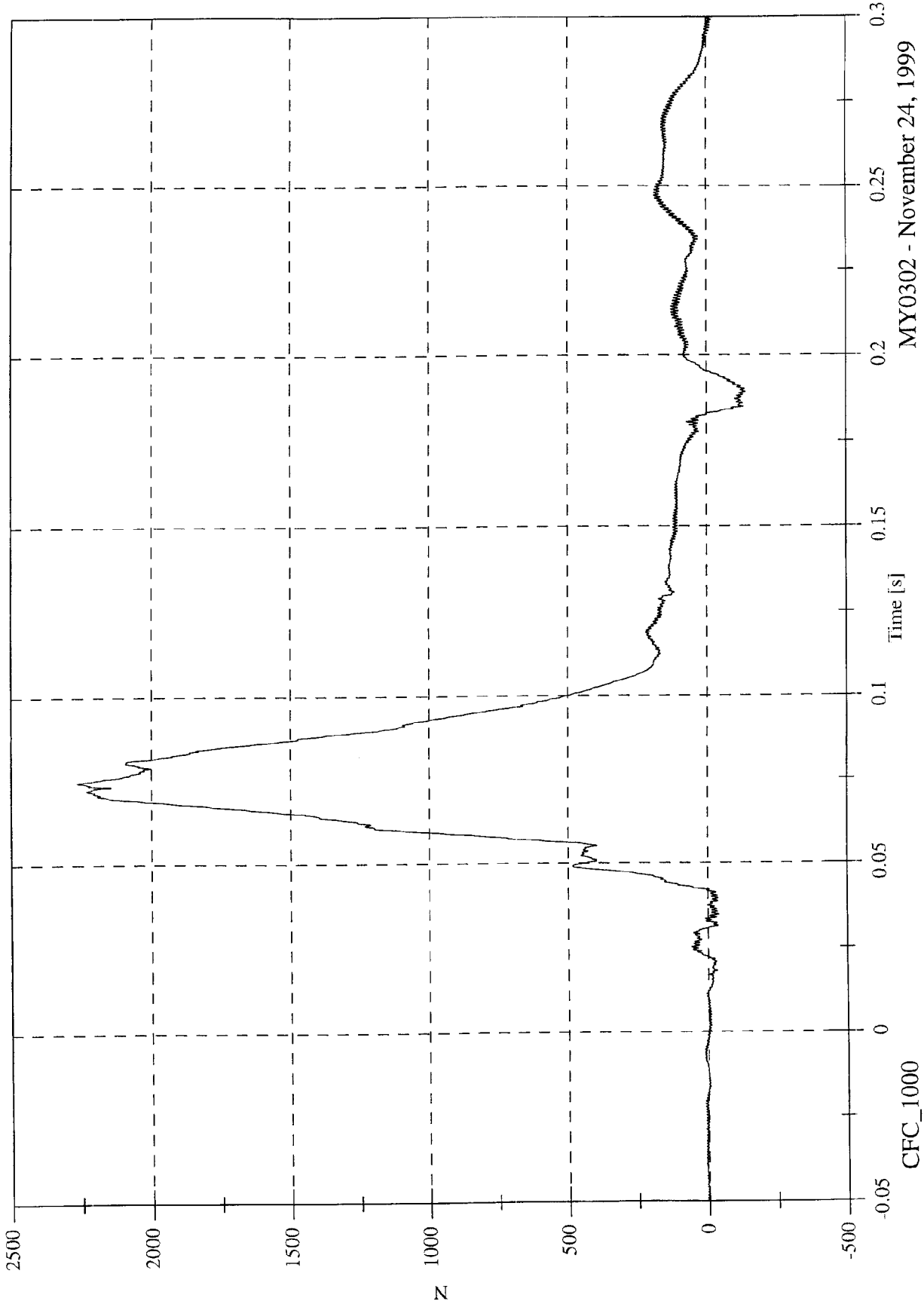


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 2264.0 [N] at 0.074 [s]
Min: -140.2 [N] at 0.189 [s]

P1 Upper Neck Fz



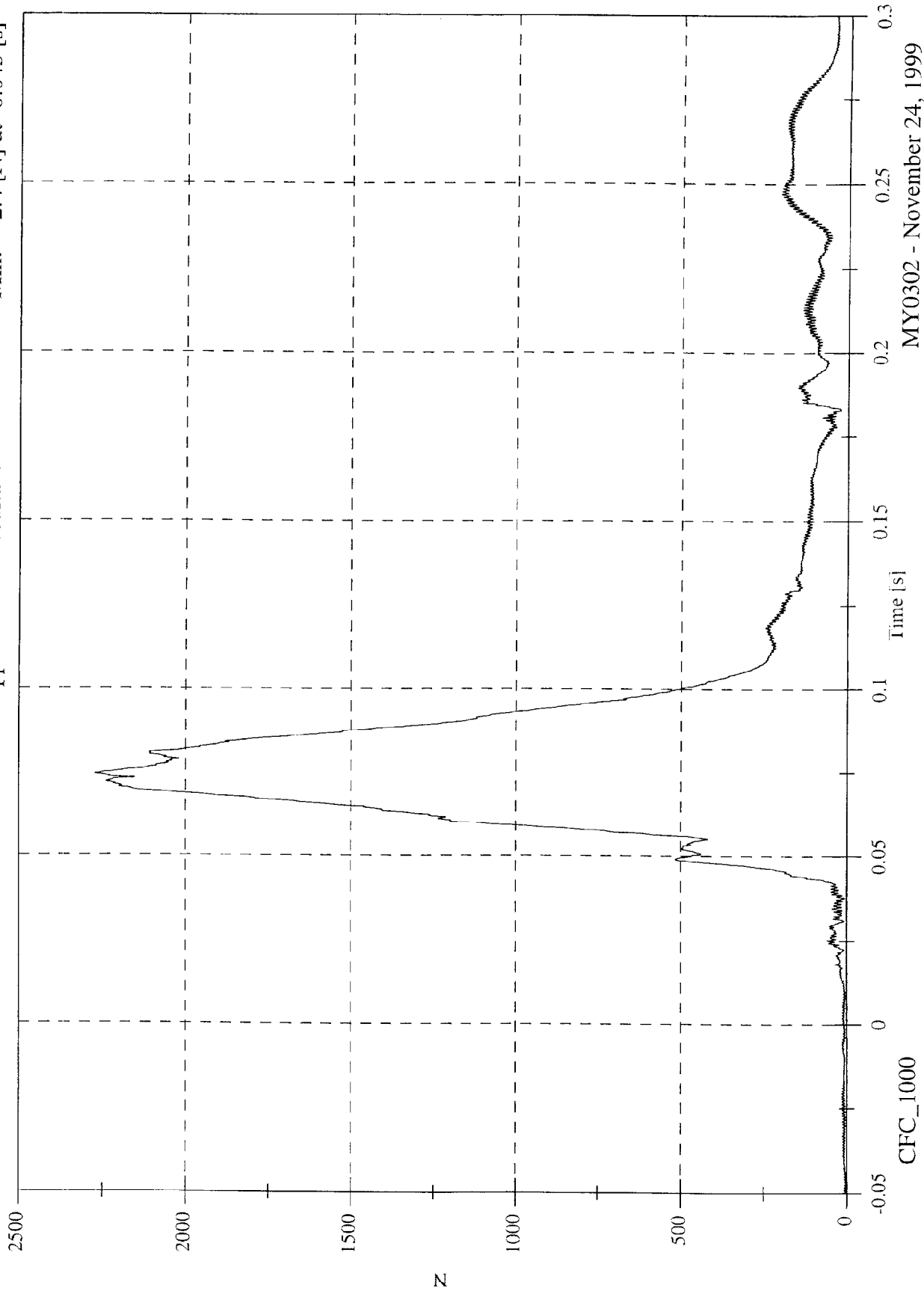
MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 2273.1 [N] at 0.074 [s]

Min: 2.4 [N] at -0.045 [s]

P1 Upper Neck F Resultant

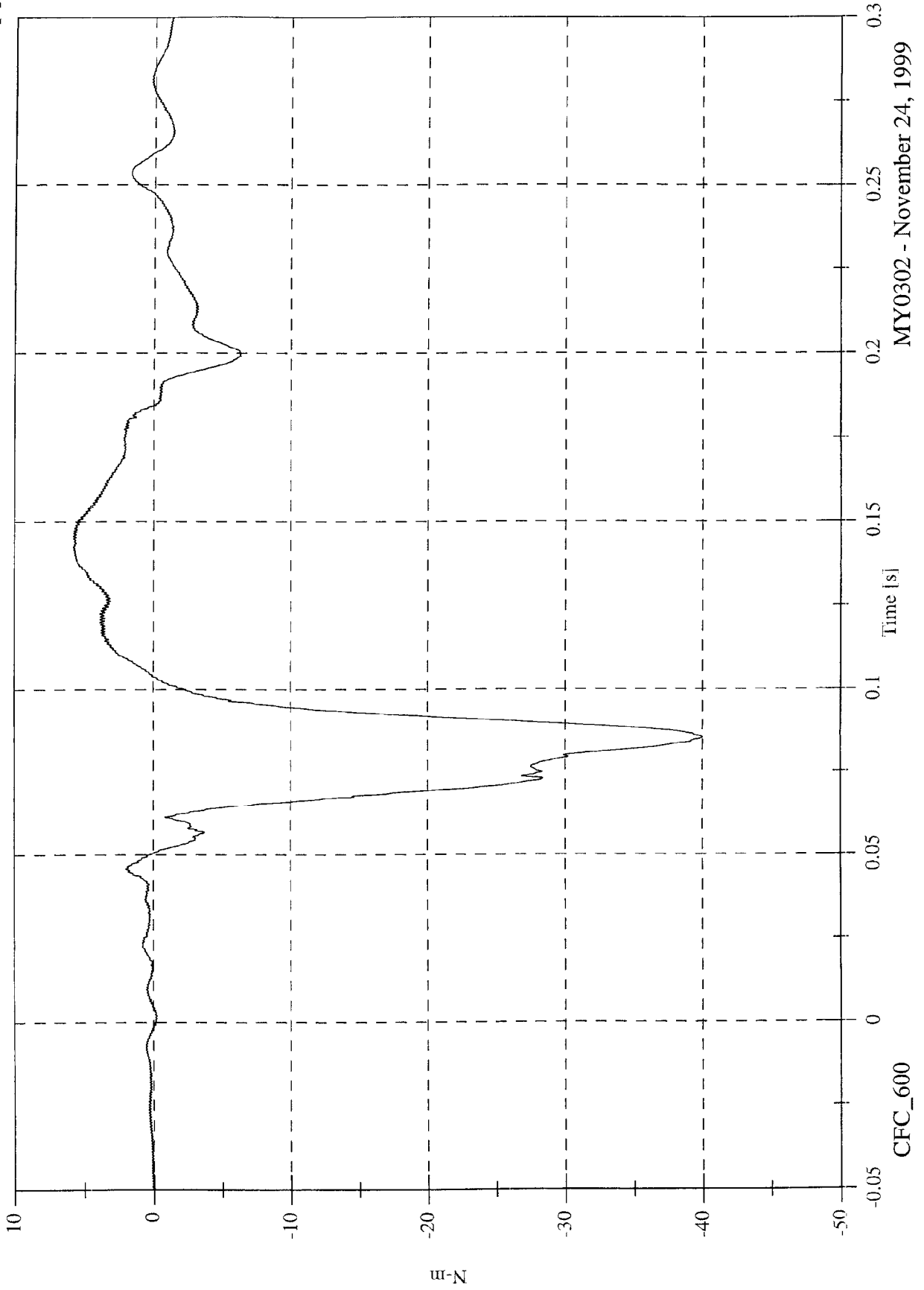


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 5.8 [N-m] at 0.142 [s]
Min: -40.0 [N-m] at 0.085 [s]

P1 Upper Neck Mx

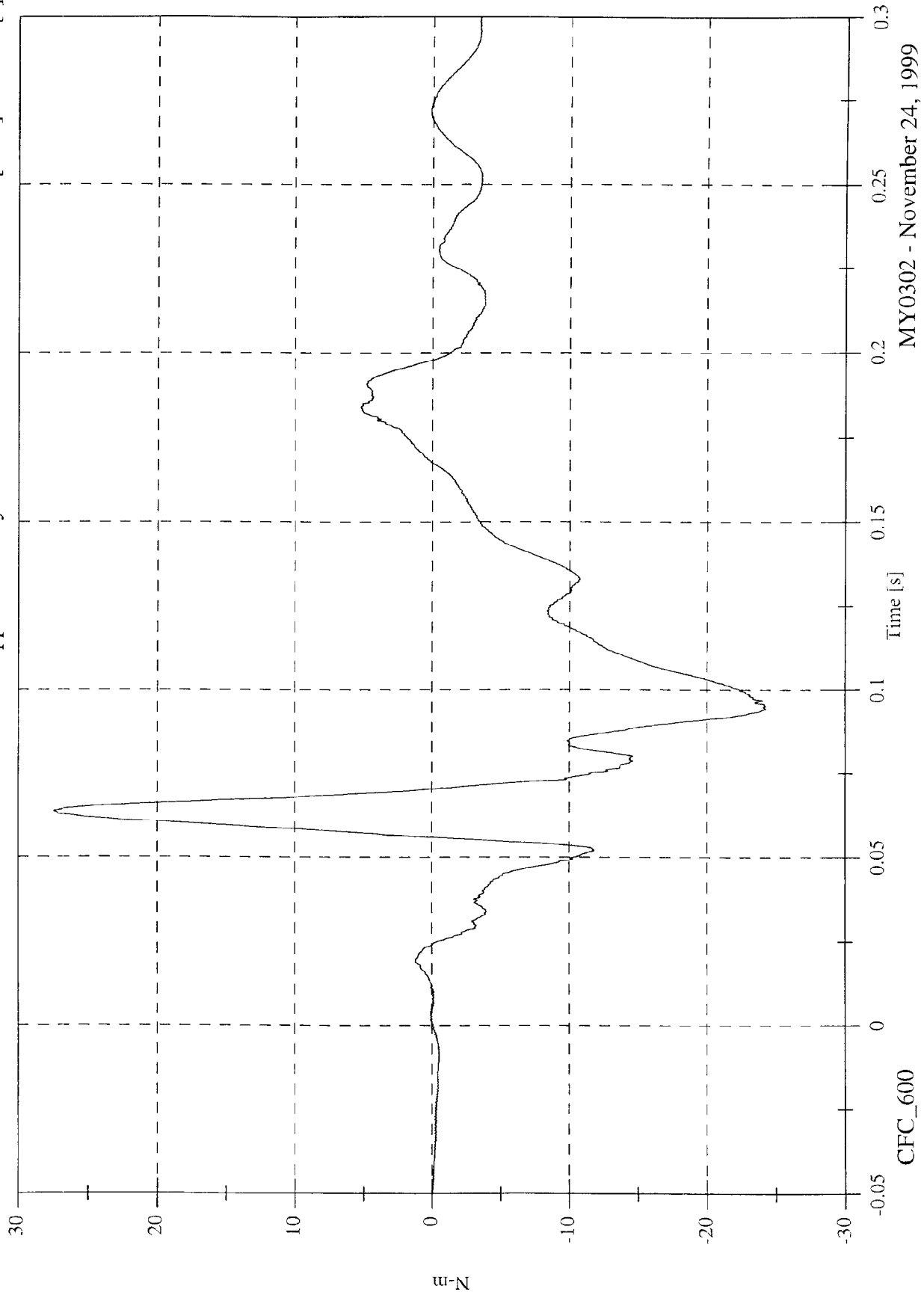


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 27.4 [N-m] at 0.064 [s]
Min: -24.3 [N-m] at 0.094 [s]

P1 Upper Neck My

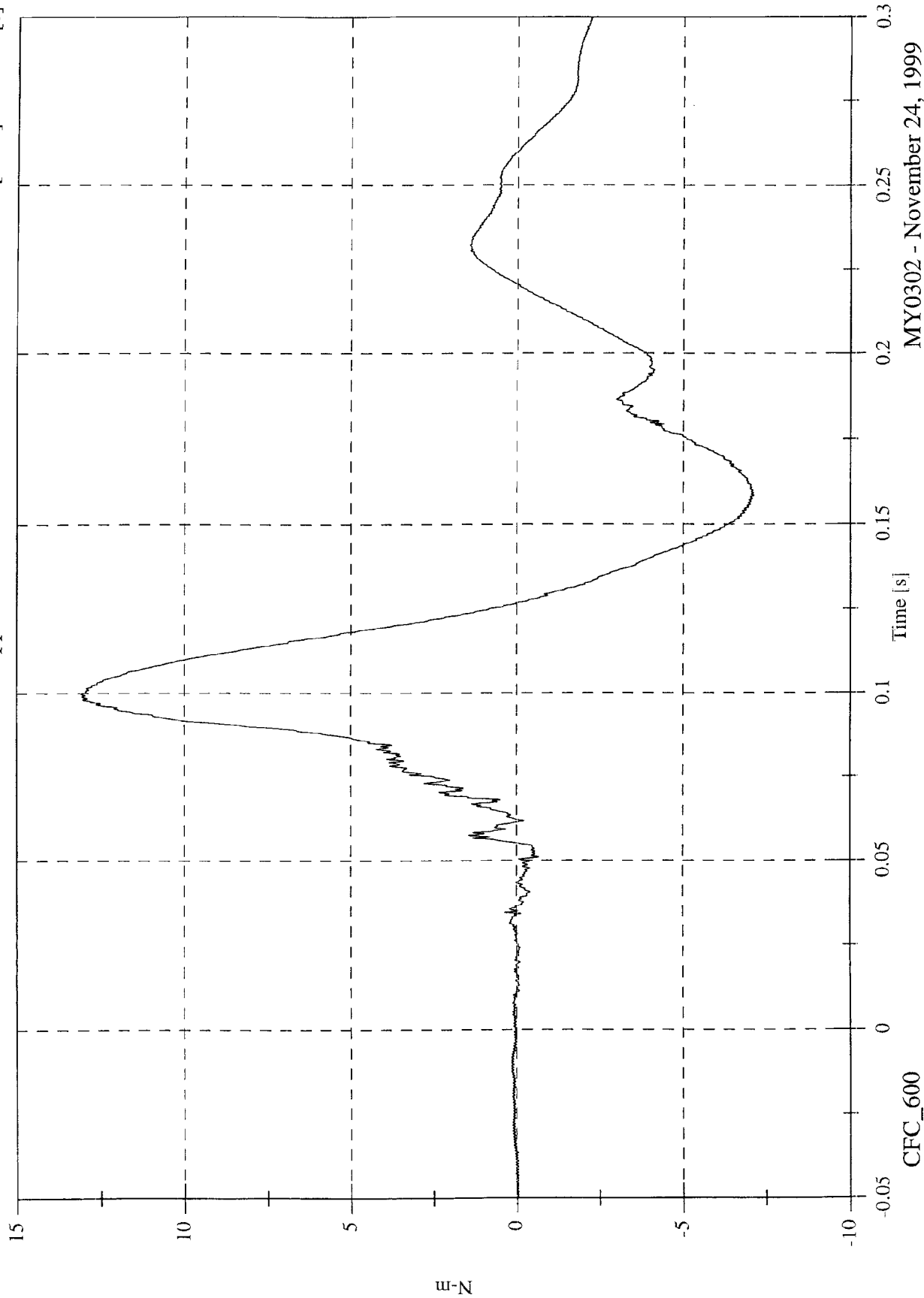


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 13.1 [N-m] at 0.100 [s]
Min: -7.1 [N-m] at 0.158 [s]

P1 Upper Neck Mz



MY0302 - November 24, 1999

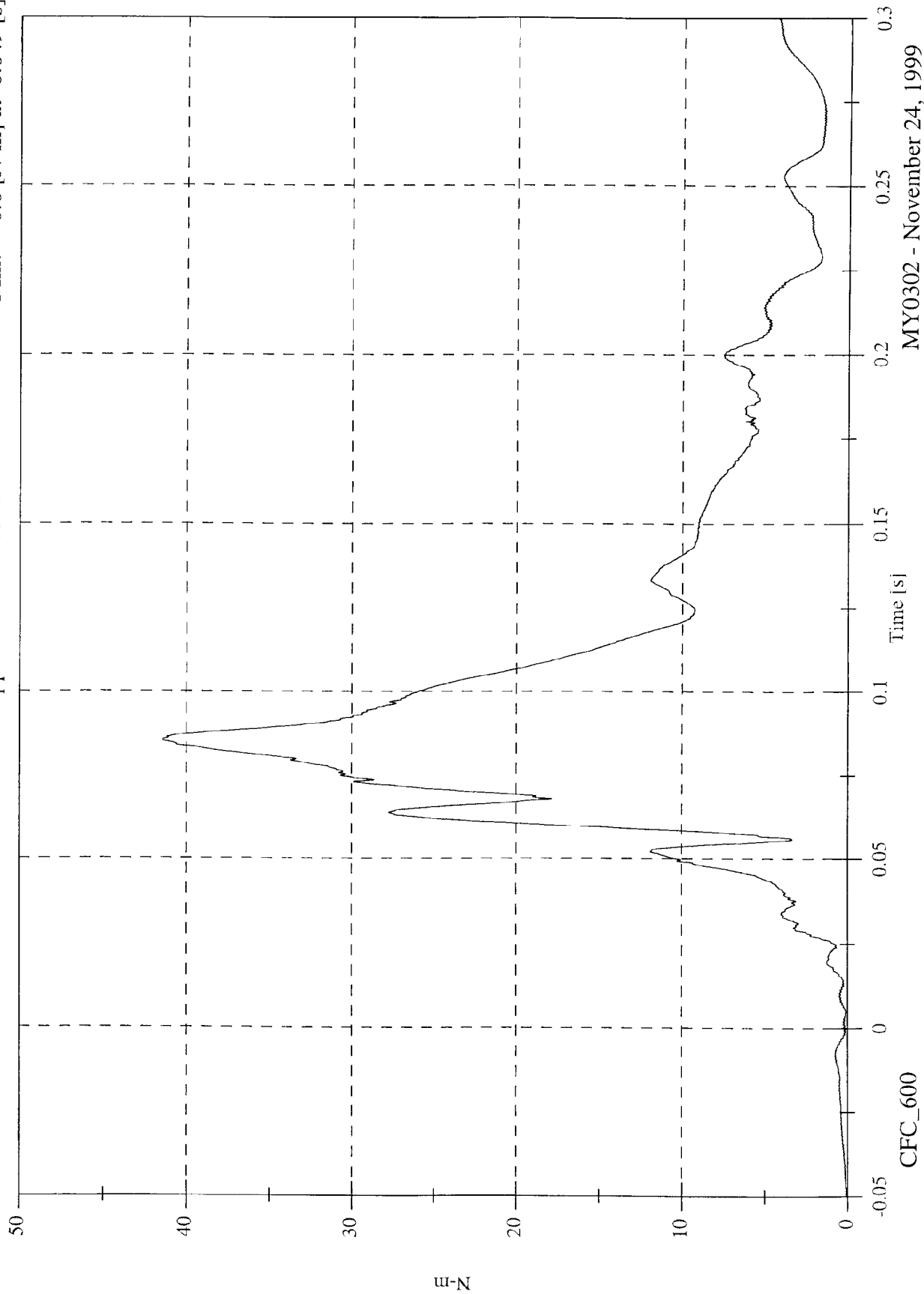
CFC_600

NCAP Test 3 - 2000 Dodge Caravan

Max: 41.5 [N-m] at 0.085 [s]

Min: 0.0 [N-m] at -0.049 [s]

P1 Upper Neck M Resultant



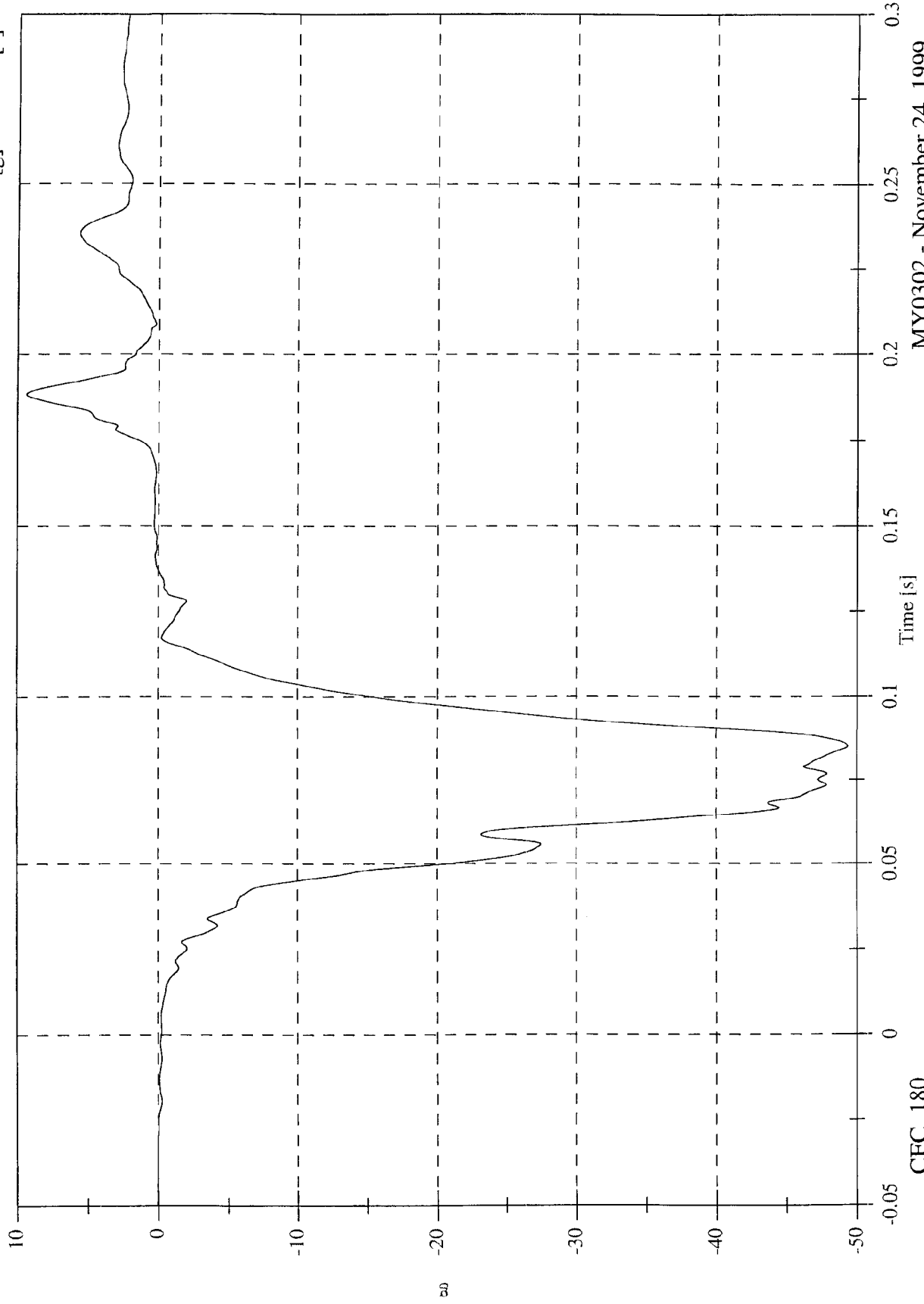
MY0302 - November 24, 1999

CFC_600

NCAP Test 3 - 2000 Dodge Caravan

Max: 9.4 [g] at 0.188 [s]
Min: -49.3 [g] at 0.085 [s]

P1 Chest x



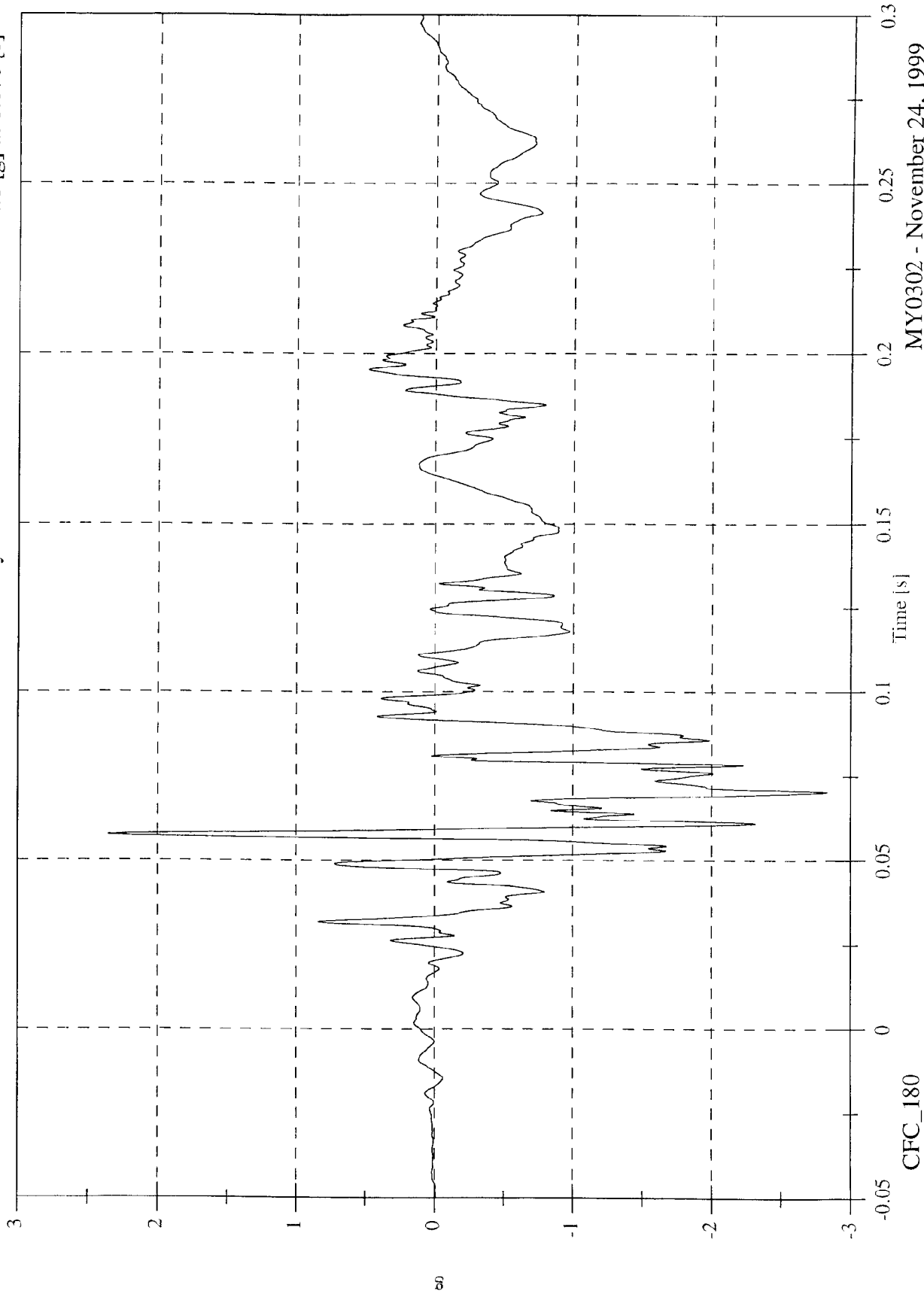
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 2.4 [g] at 0.058 [s]
Min: -2.8 [g] at 0.070 [s]

P1 Chest y



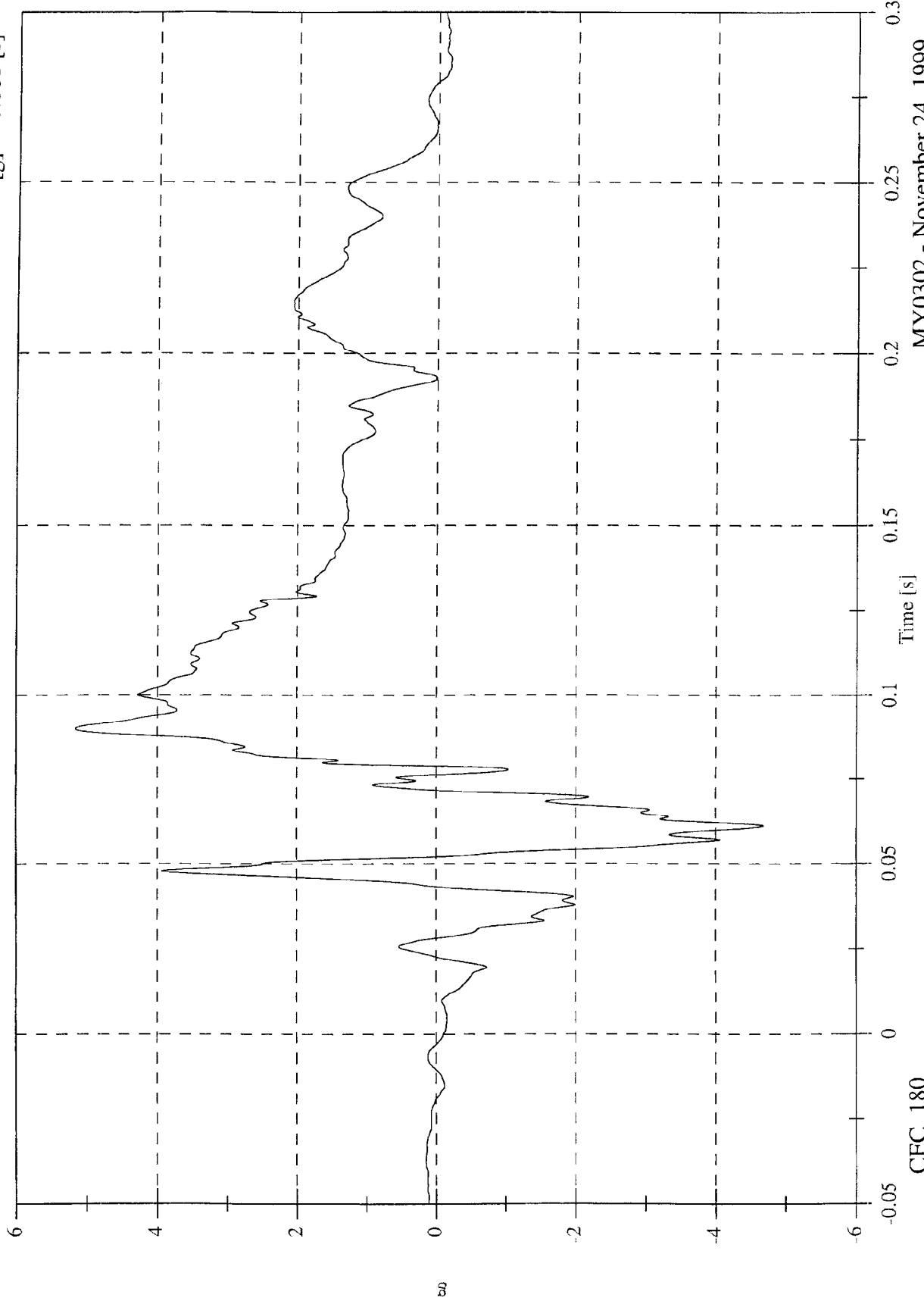
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 5.2 [g] at 0.090 [s]
Min: -4.7 [g] at 0.061 [s]

P1 Chest z



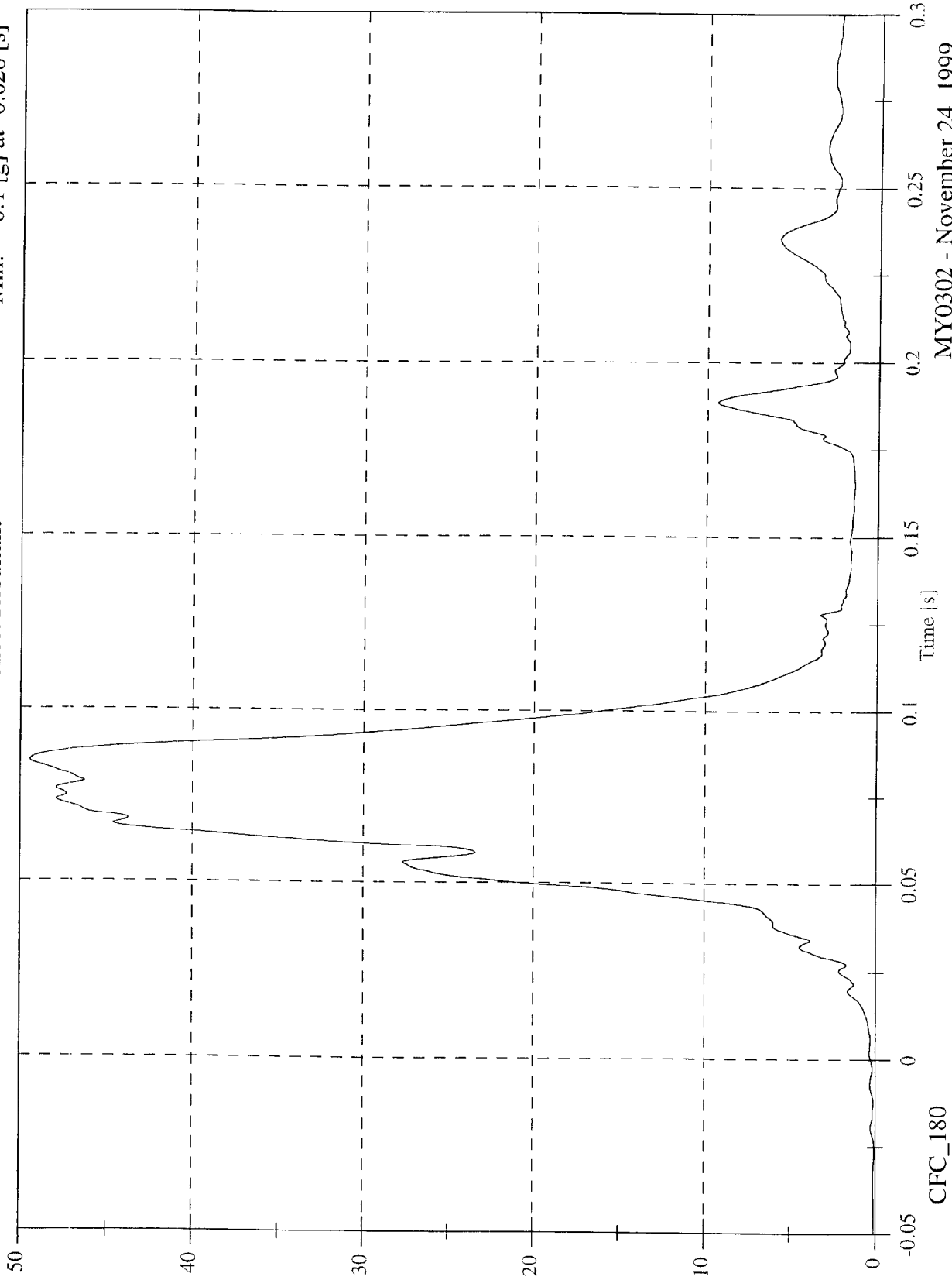
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 49.4 [g] at 0.085 [s]
Min: 0.1 [g] at -0.028 [s]

P1 Chest Resultant

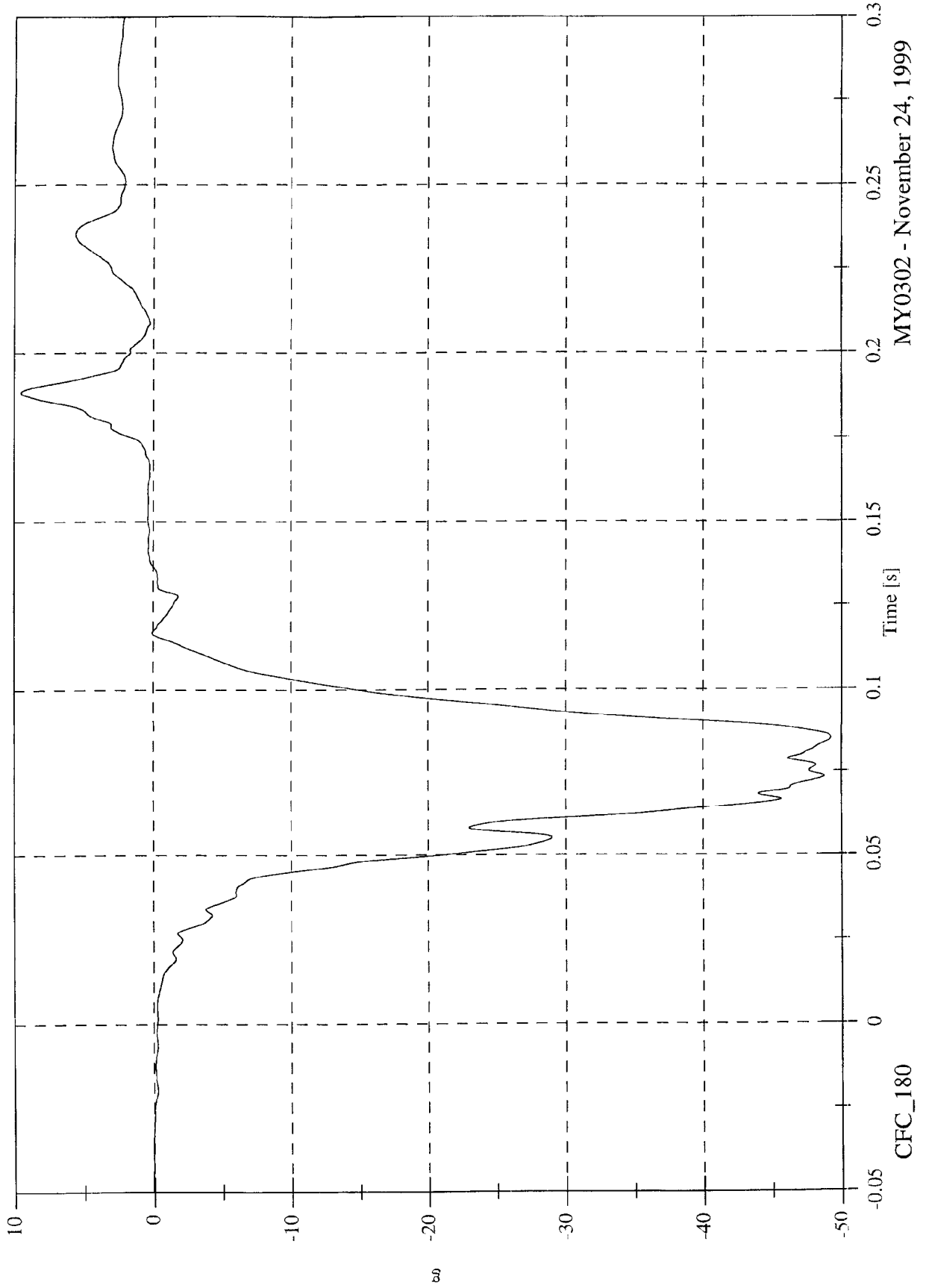


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 9.5 [g] at 0.188 [s]
Min: -49.2 [g] at 0.085 [s]

P1 Chest Red x



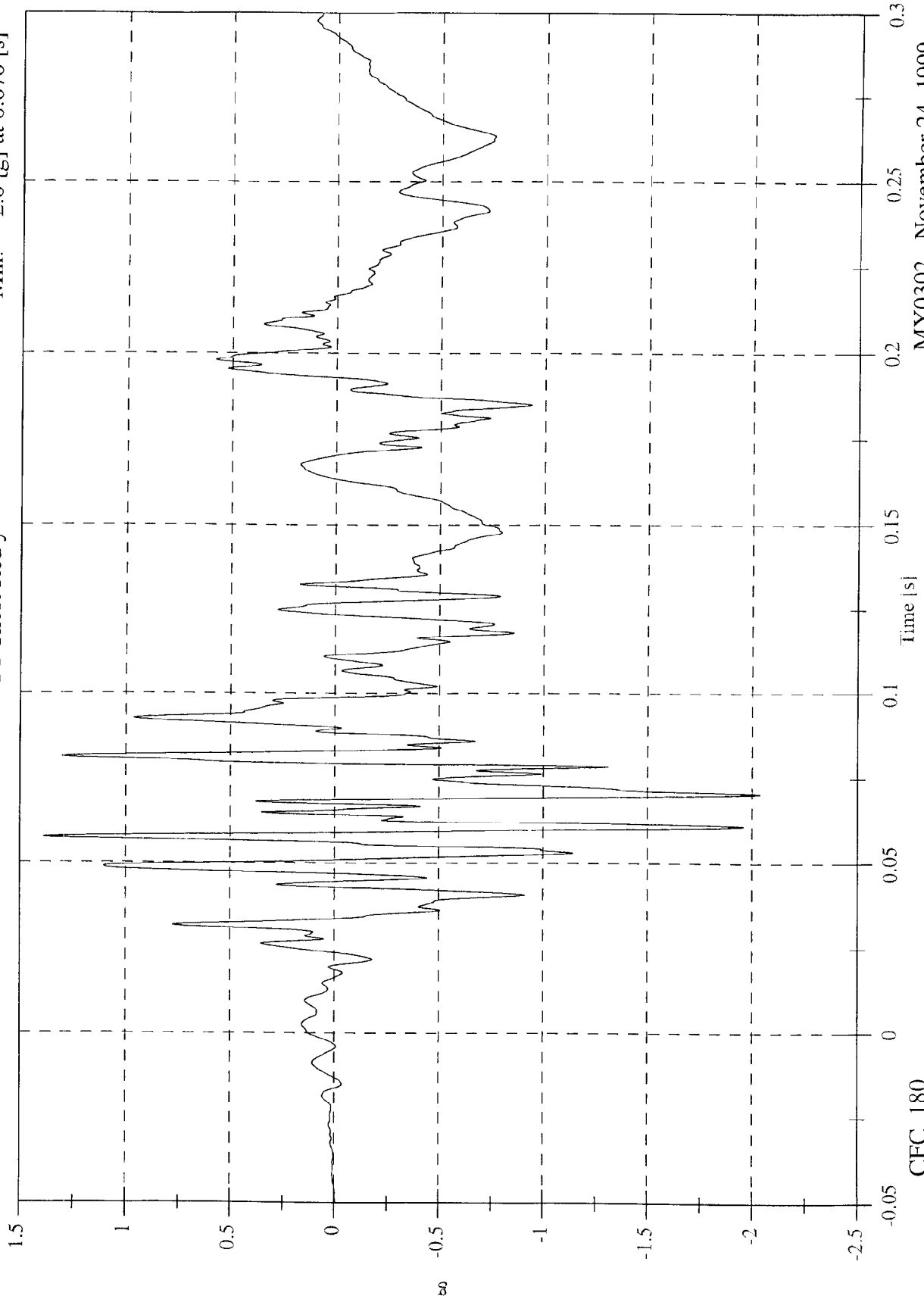
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 1.4 [g] at 0.057 [s]
Min: -2.0 [g] at 0.070 [s]

P1 Chest Red y

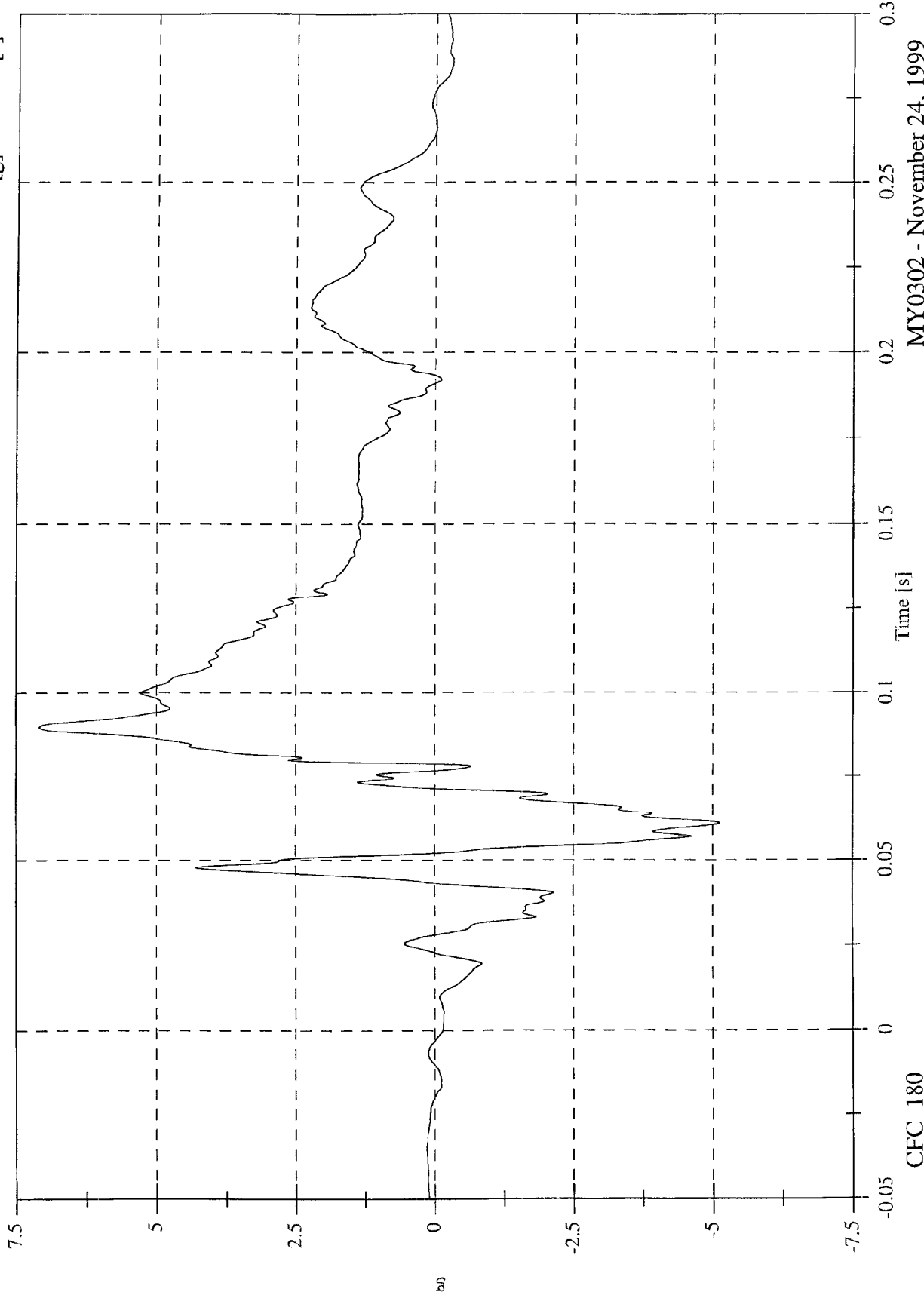


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 7.1 [g] at 0.090 [s]
Min: -5.1 [g] at 0.061 [s]

P1 Chest Red z



MY0302 - November 24, 1999

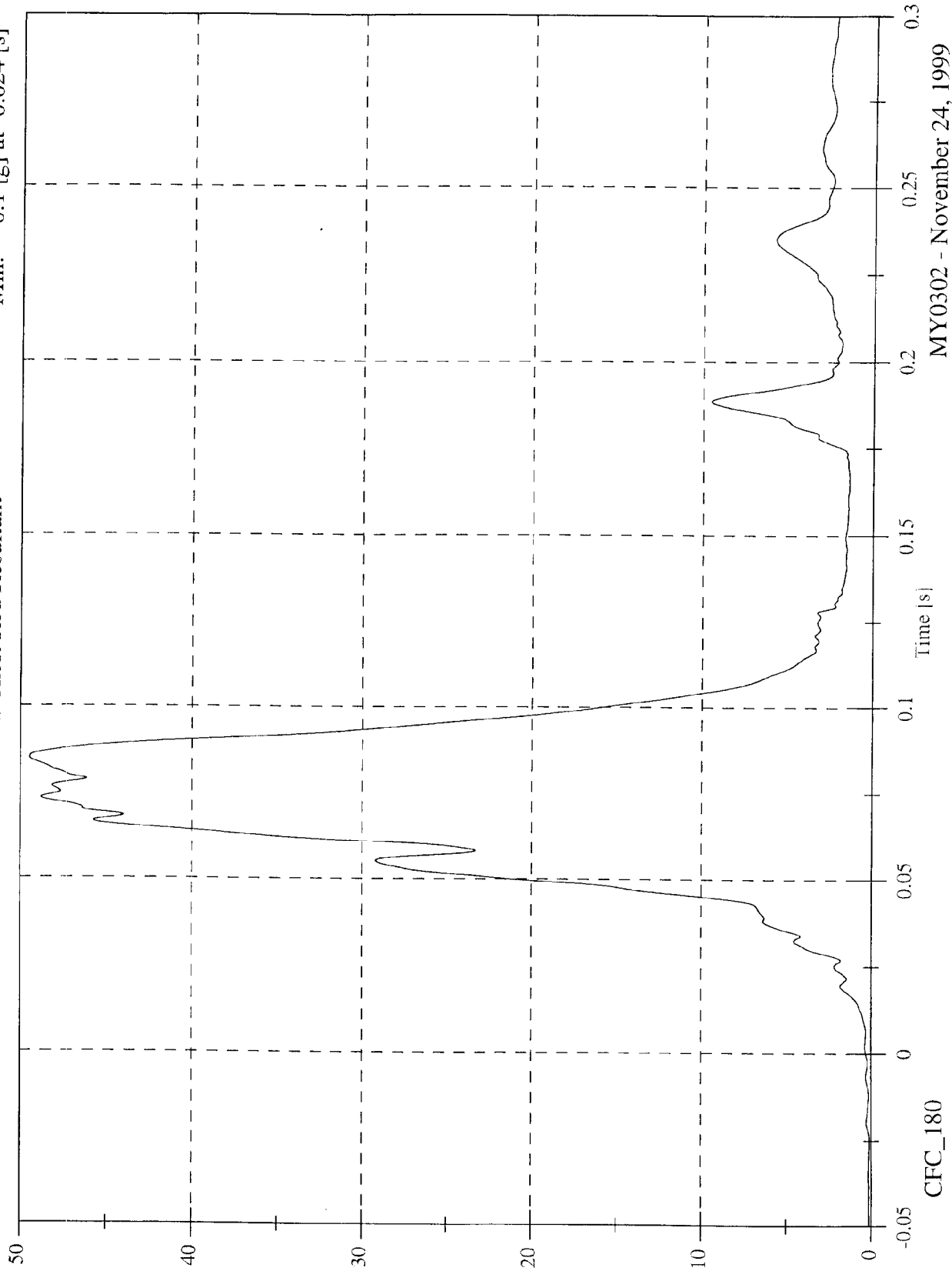
CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 49.5 [g] at 0.085 [s]

Min: 0.1 [g] at -0.024 [s]

P1 Chest Red Resultant

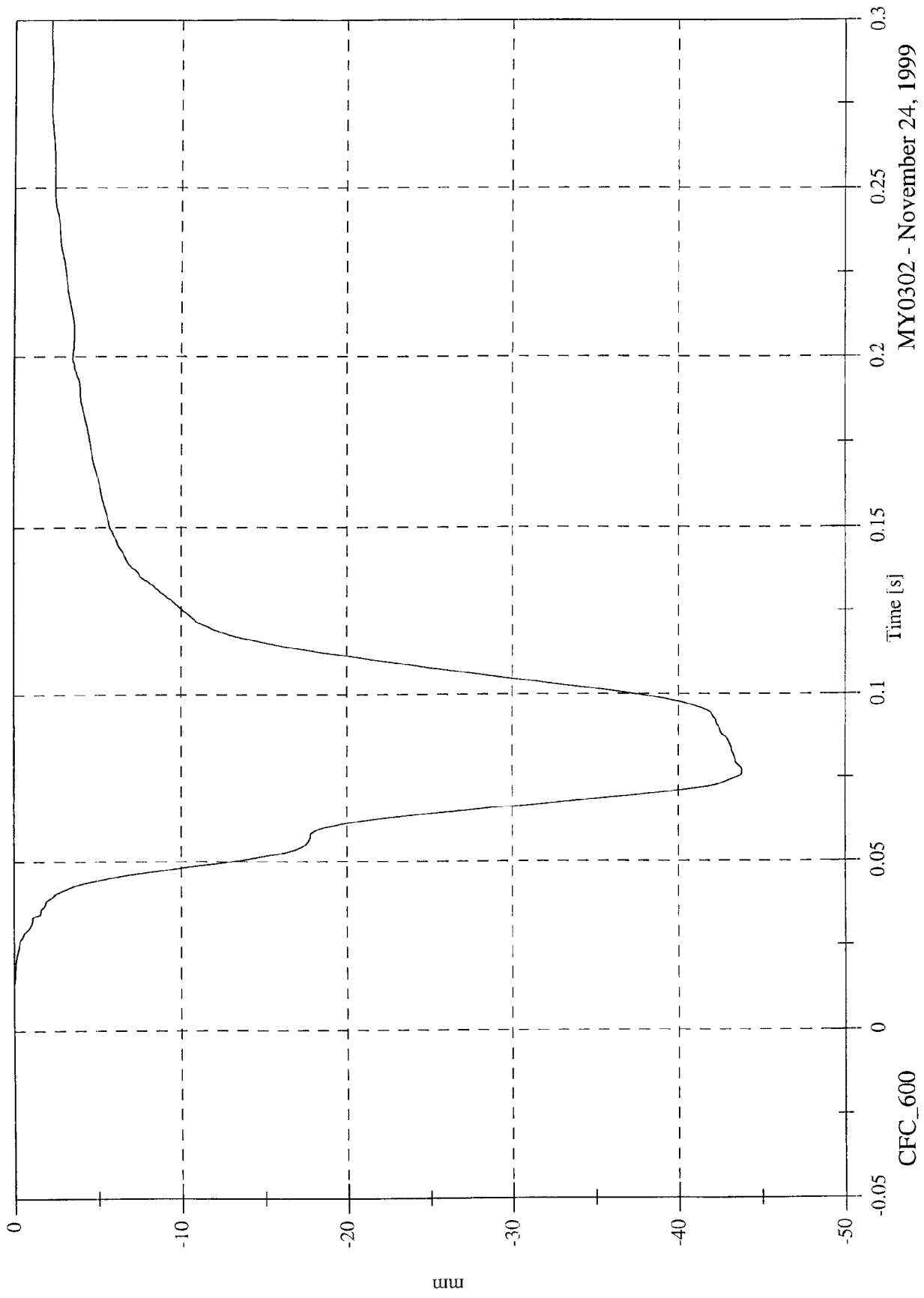


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 0.0 [mm] at 0.005 [s]
Min: -43.8 [mm] at 0.076 [s]

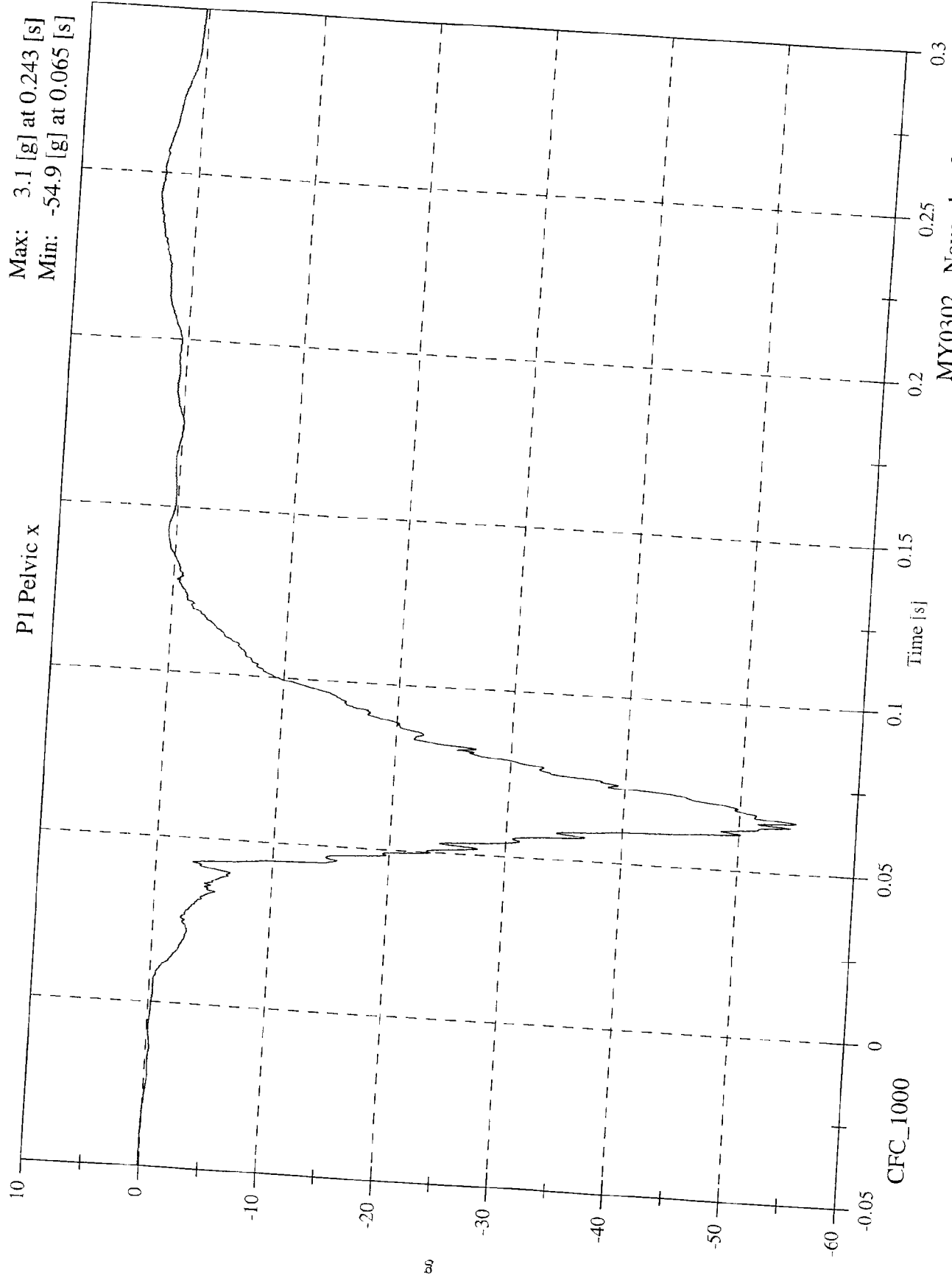
P1 Chest Compression x



MY0302 - November 24, 1999

CFC_600

NCAP Test 3 - 2000 Dodge Caravan

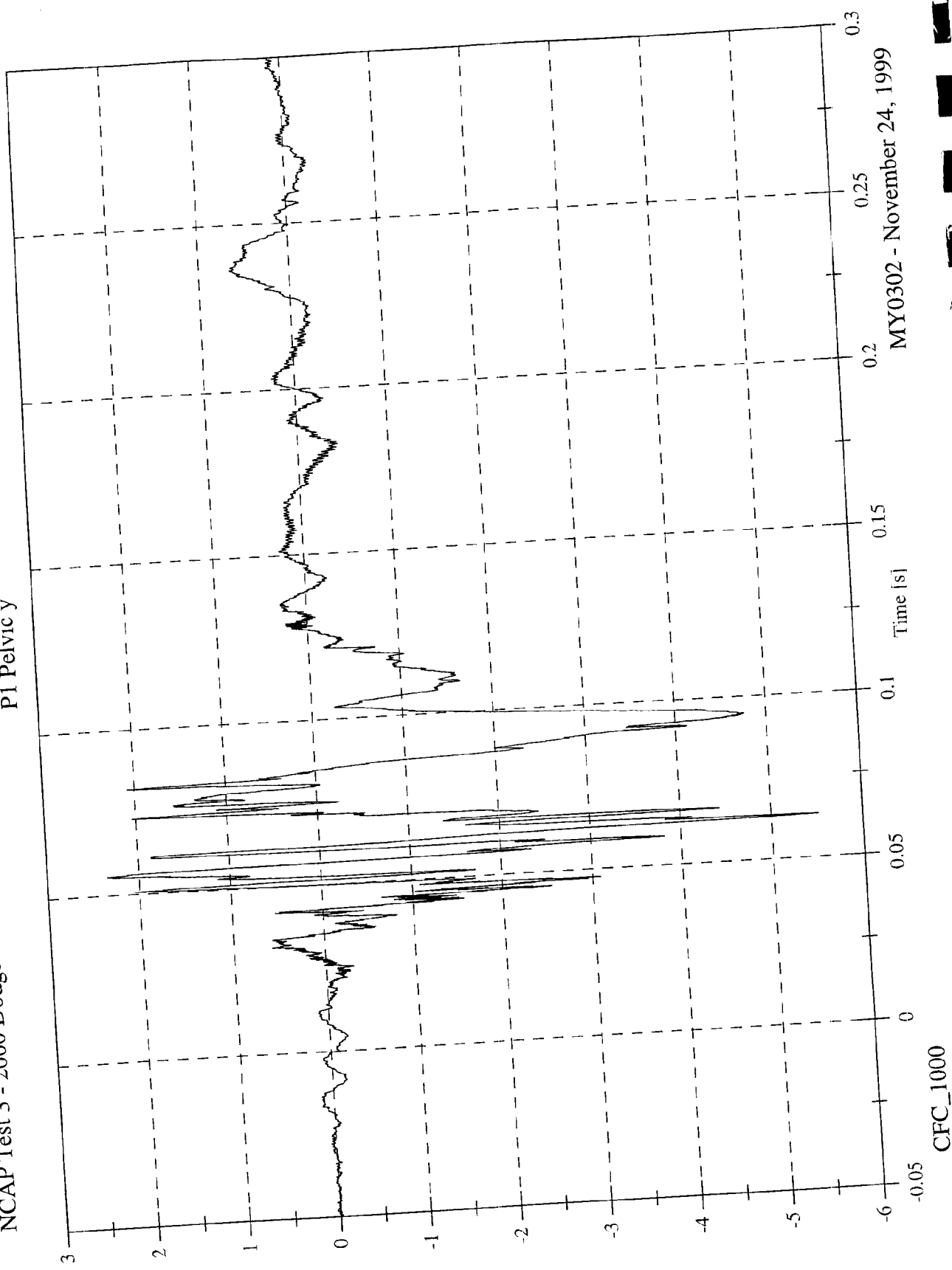


MY0302 - November 24, 1999

Max: 2.3 [g] at 0.056 [s]
Min: -5.5 [g] at 0.063 [s]

NCAP Test 3 - 2000 Dodge Caravan

P1 Pelvic y



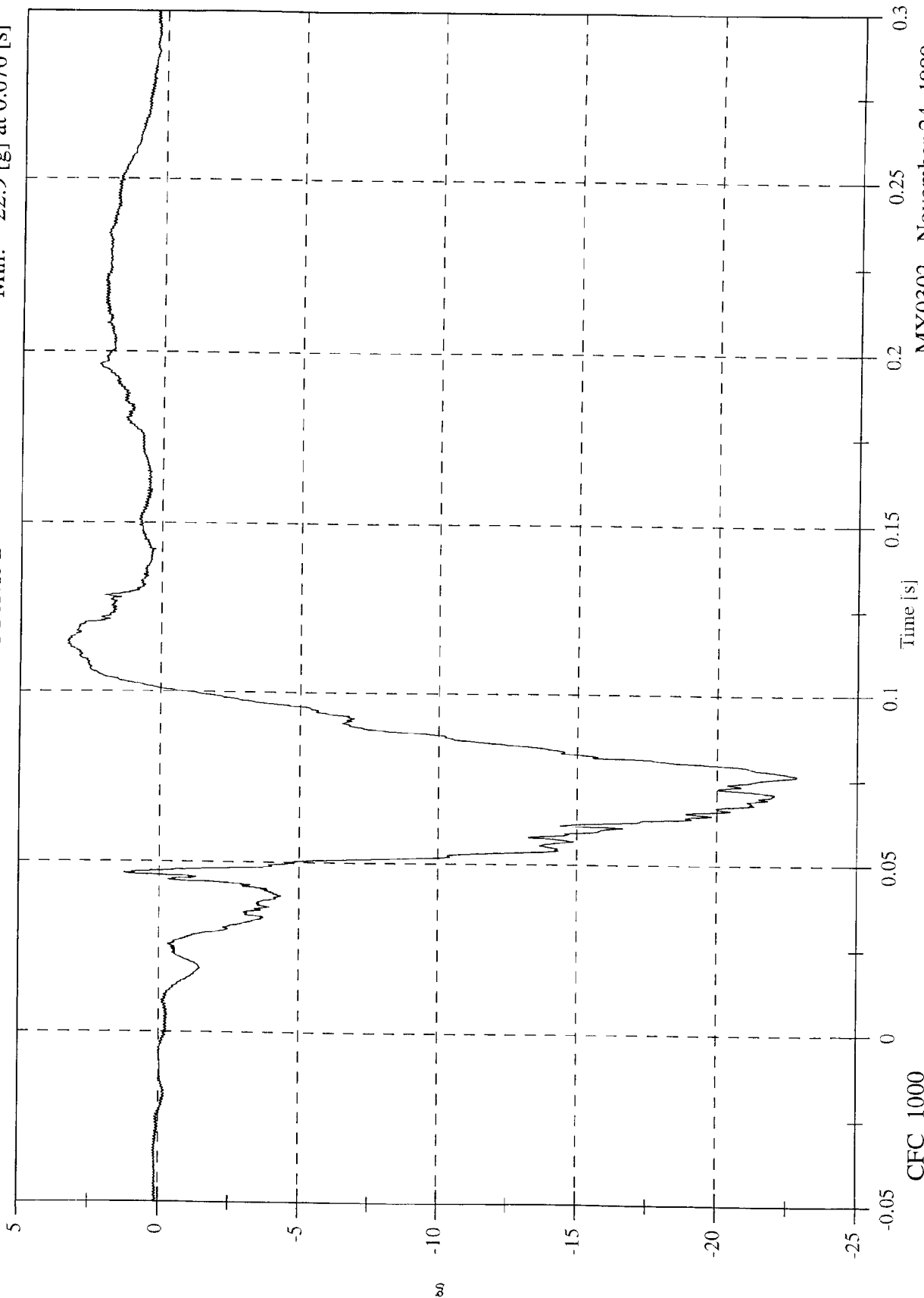
MY0302 - November 24, 1999

CFC_1000

NCAP Test 3 - 2000 Dodge Caravan

Max: 3.3 [g] at 0.115 [s]
Min: -22.9 [g] at 0.076 [s]

P1 Pelvic z

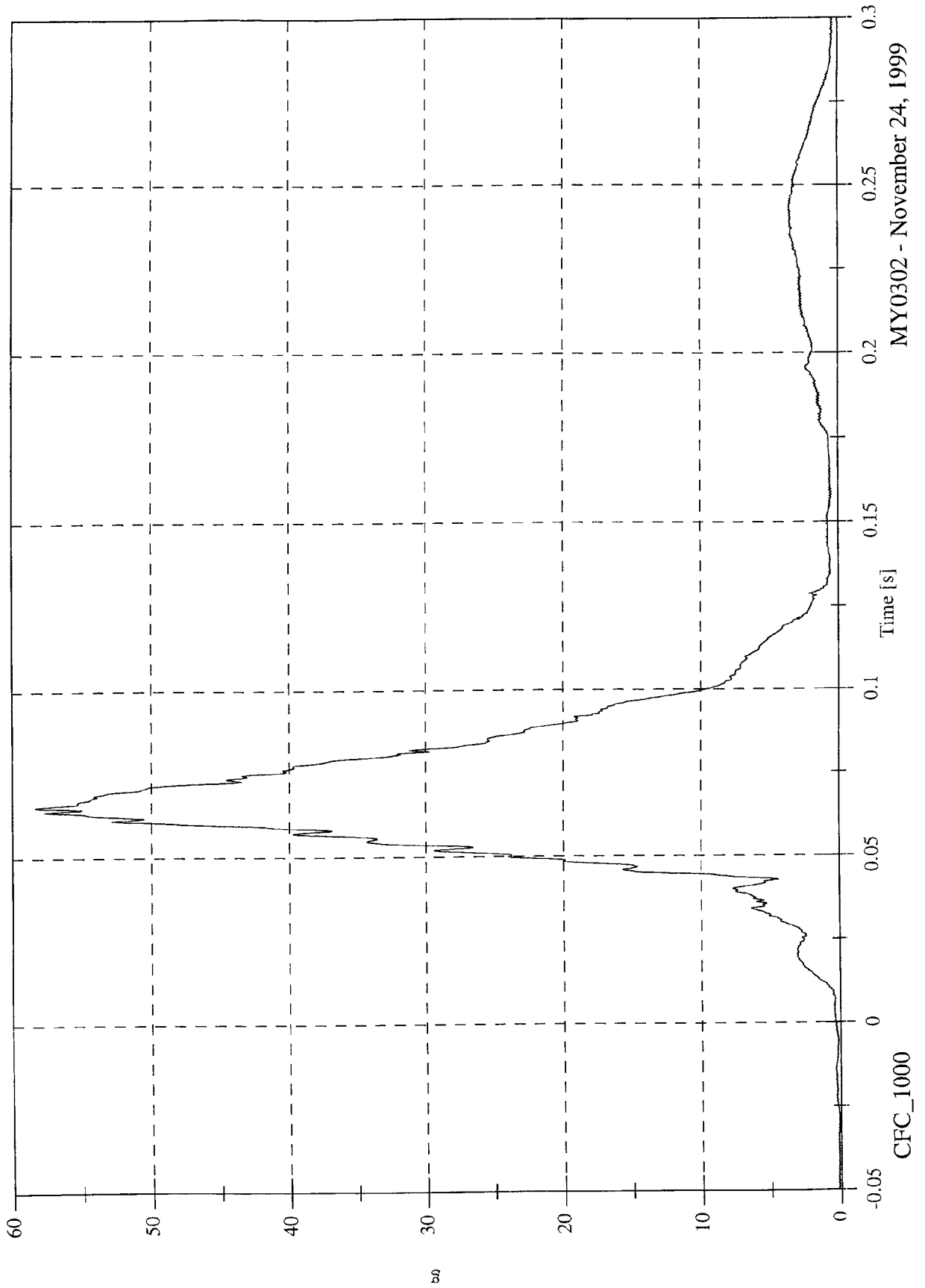


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 58.3 [g] at 0.065 [s]
Min: 0.1 [g] at -0.031 [s]

P1 Pelvic Resultant



MY0302 - November 24, 1999

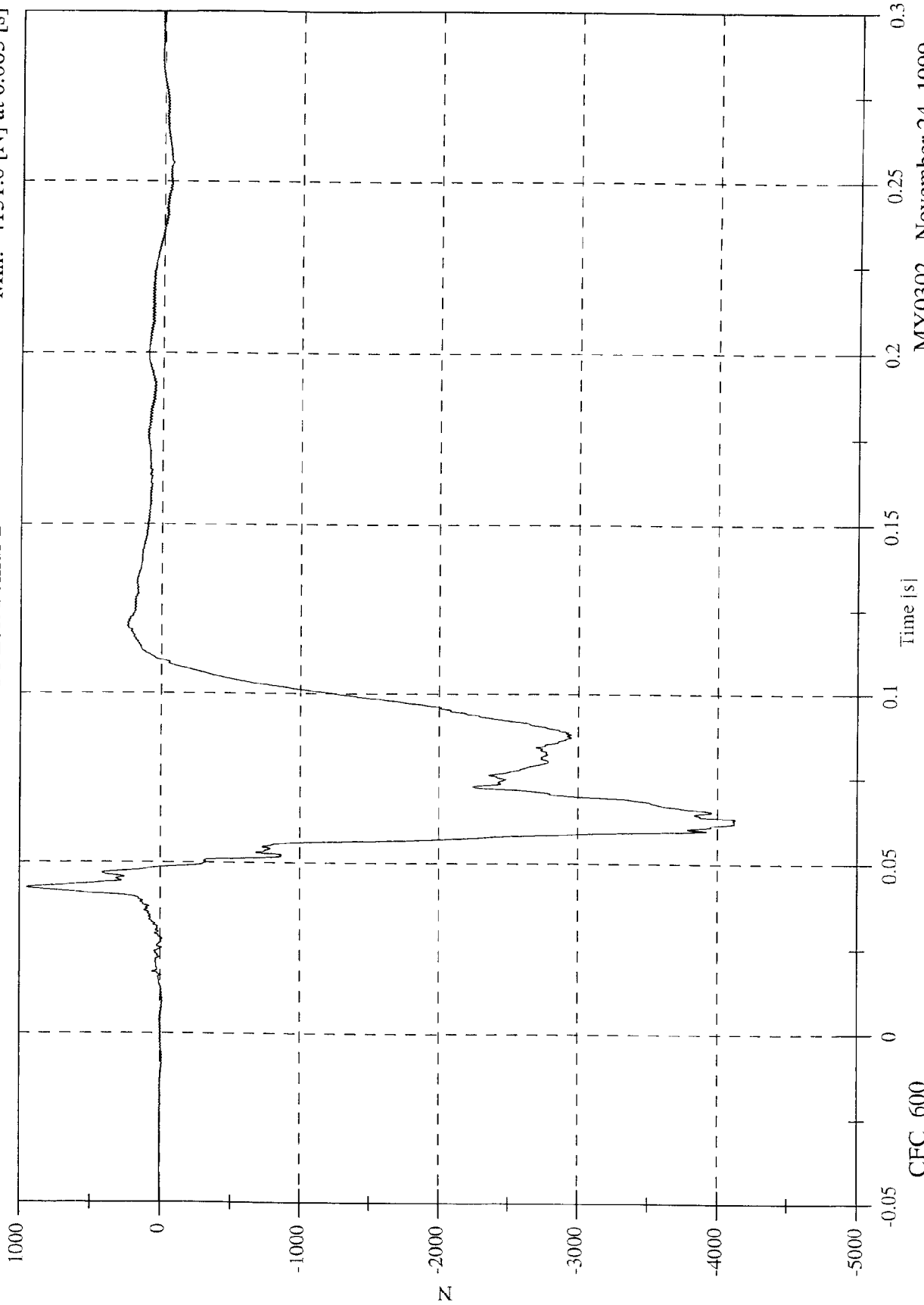
CFC_1000

NCAP Test 3 - 2000 Dodge Caravan

Max: 947.4 [N] at 0.043 [s]

Min: -4131.8 [N] at 0.063 [s]

P1 Left Femur z



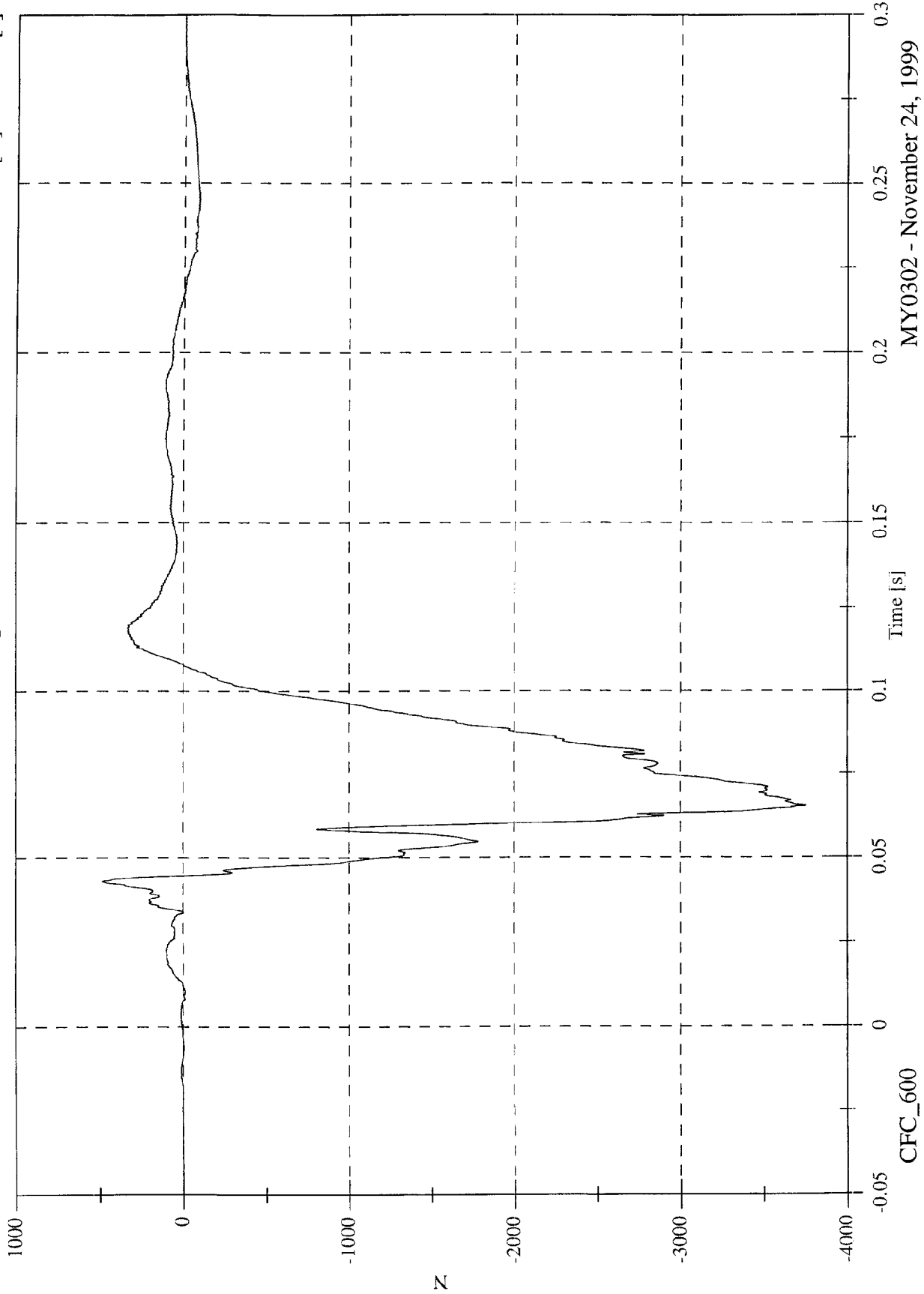
MY0302 - November 24, 1999

CFC_600

NCAP Test 3 - 2000 Dodge Caravan

Max: 483.7 [N] at 0.043 [s]
Min: -3752.1 [N] at 0.065 [s]

P1 Right Femur z



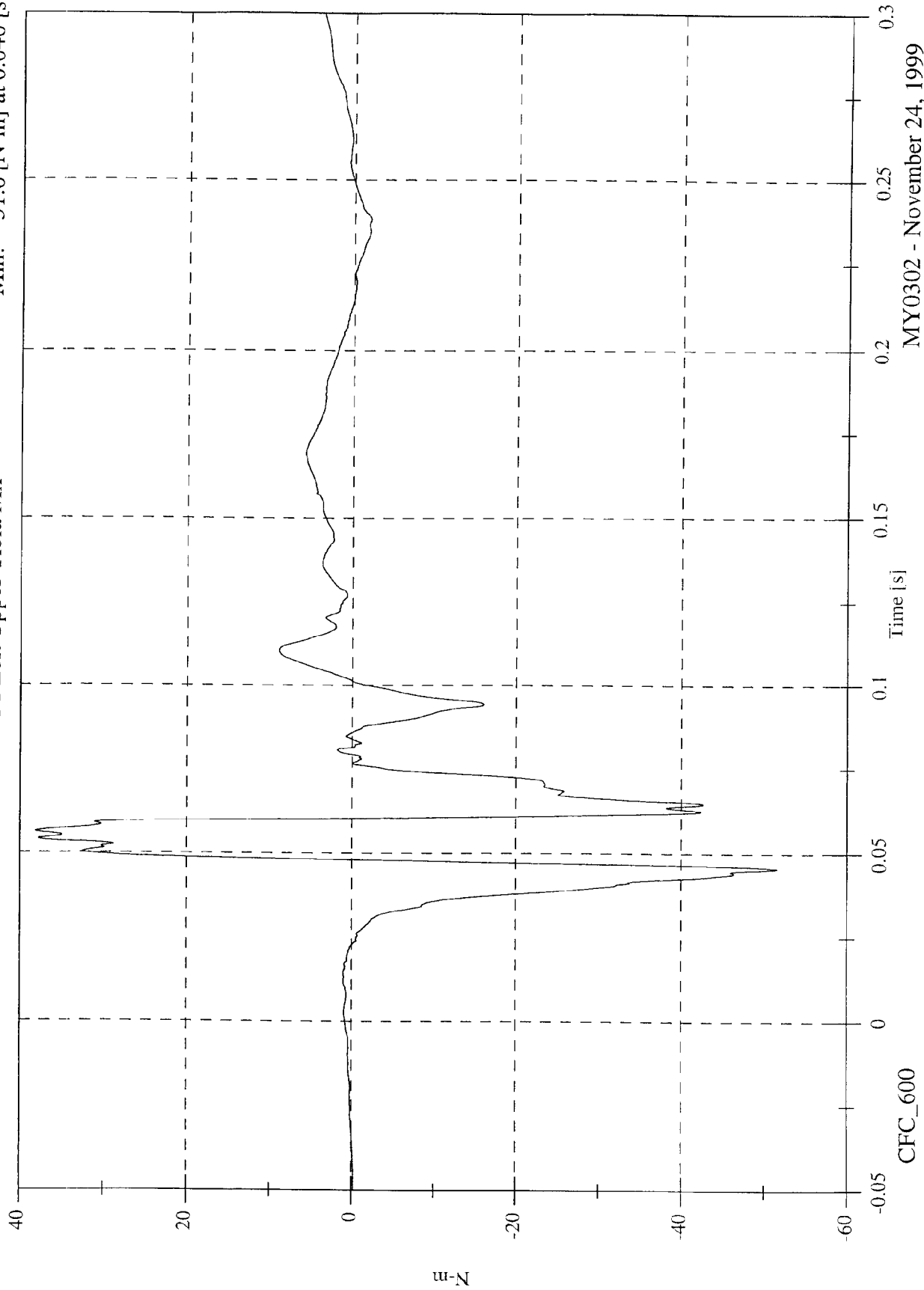
MY0302 - November 24, 1999

CFC_600

NCAP Test 3 - 2000 Dodge Caravan

P1 Left Upper Tibia Mx

Max: 38.1 [N-m] at 0.056 [s]
Min: -51.6 [N-m] at 0.046 [s]

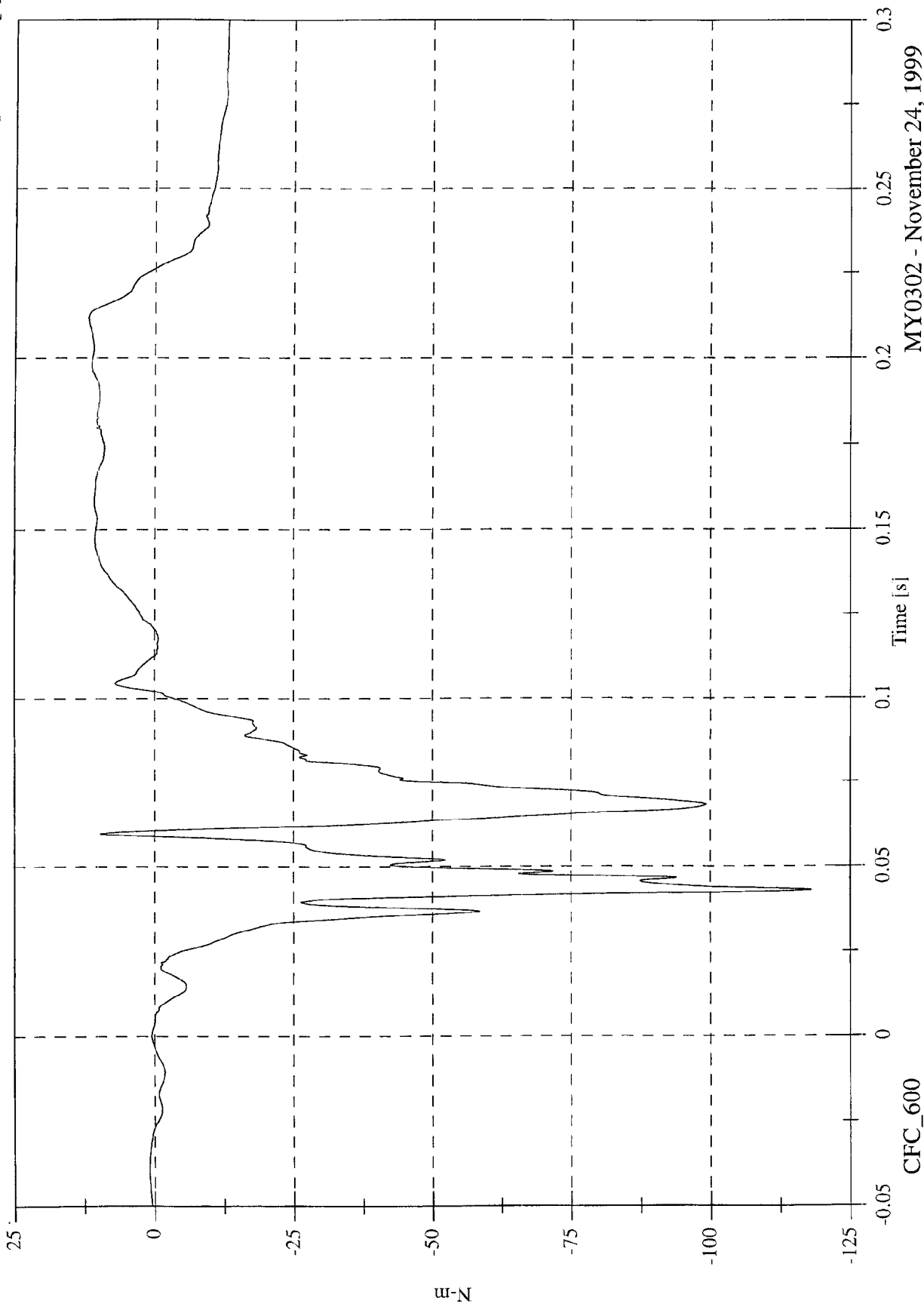


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 11.9 [N-m] at 0.212 [s]
Min: -118.1 [N-m] at 0.043 [s]

P1 Left Upper Tibia My



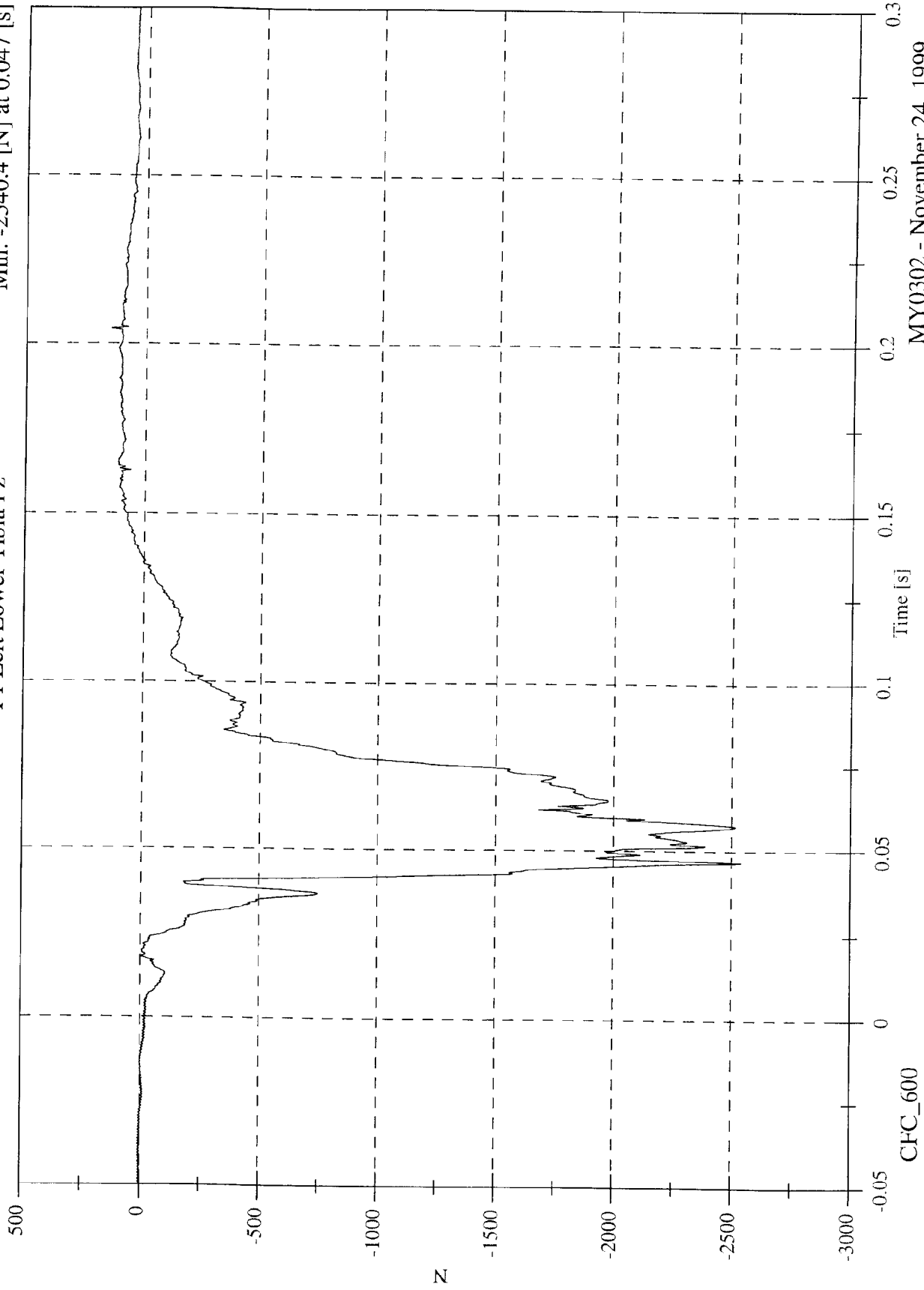
MY0302 - November 24, 1999

CFC_600

NCAP Test 3 - 2000 Dodge Caravan

Max: 148.1 [N] at 0.204 [s]
Min: -2540.4 [N] at 0.047 [s]

P1 Left Lower Tibia Fz

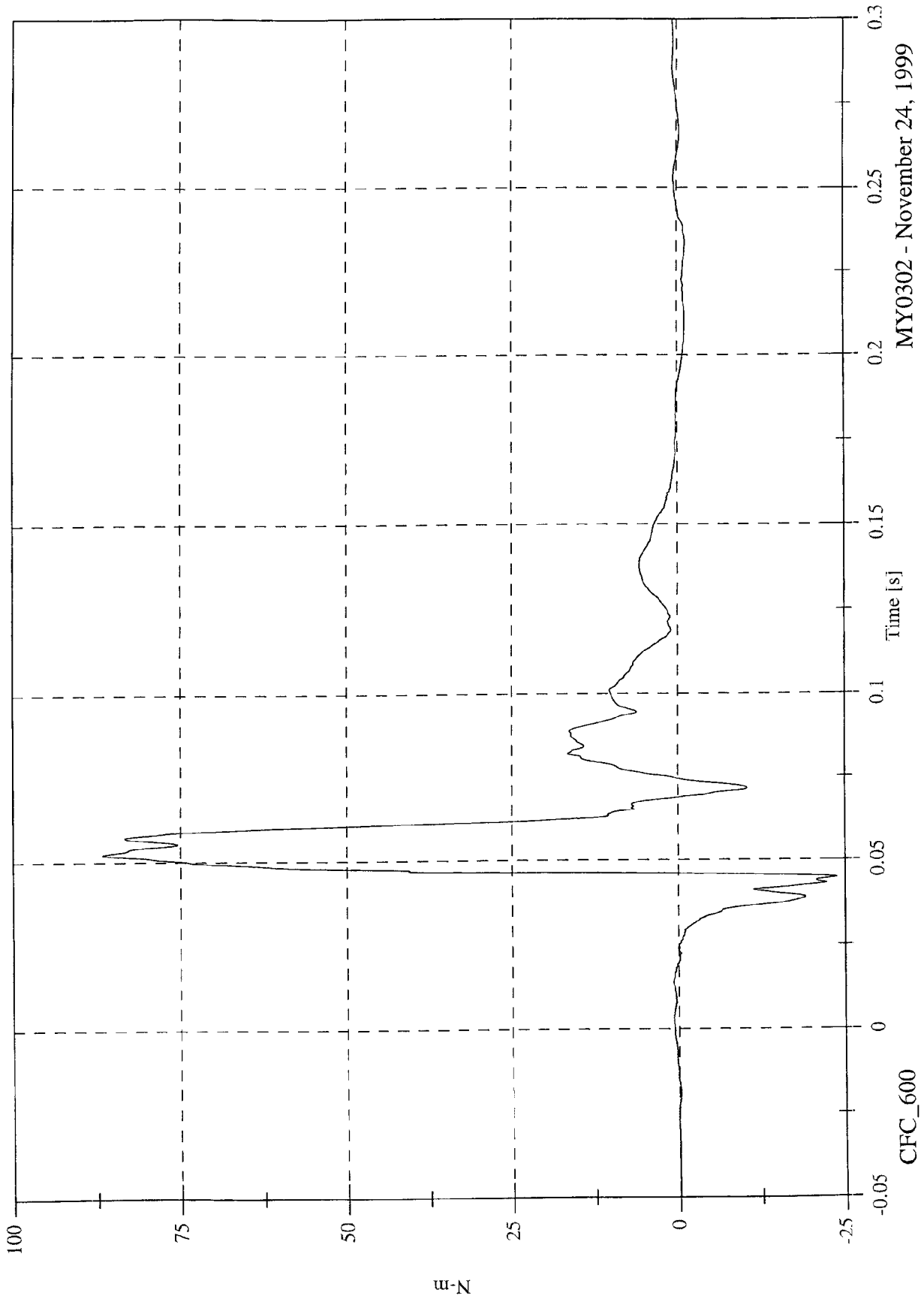


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 86.6 [N-m] at 0.052 [s]
Min: -23.8 [N-m] at 0.045 [s]

P1 Left Lower Tibia Mx

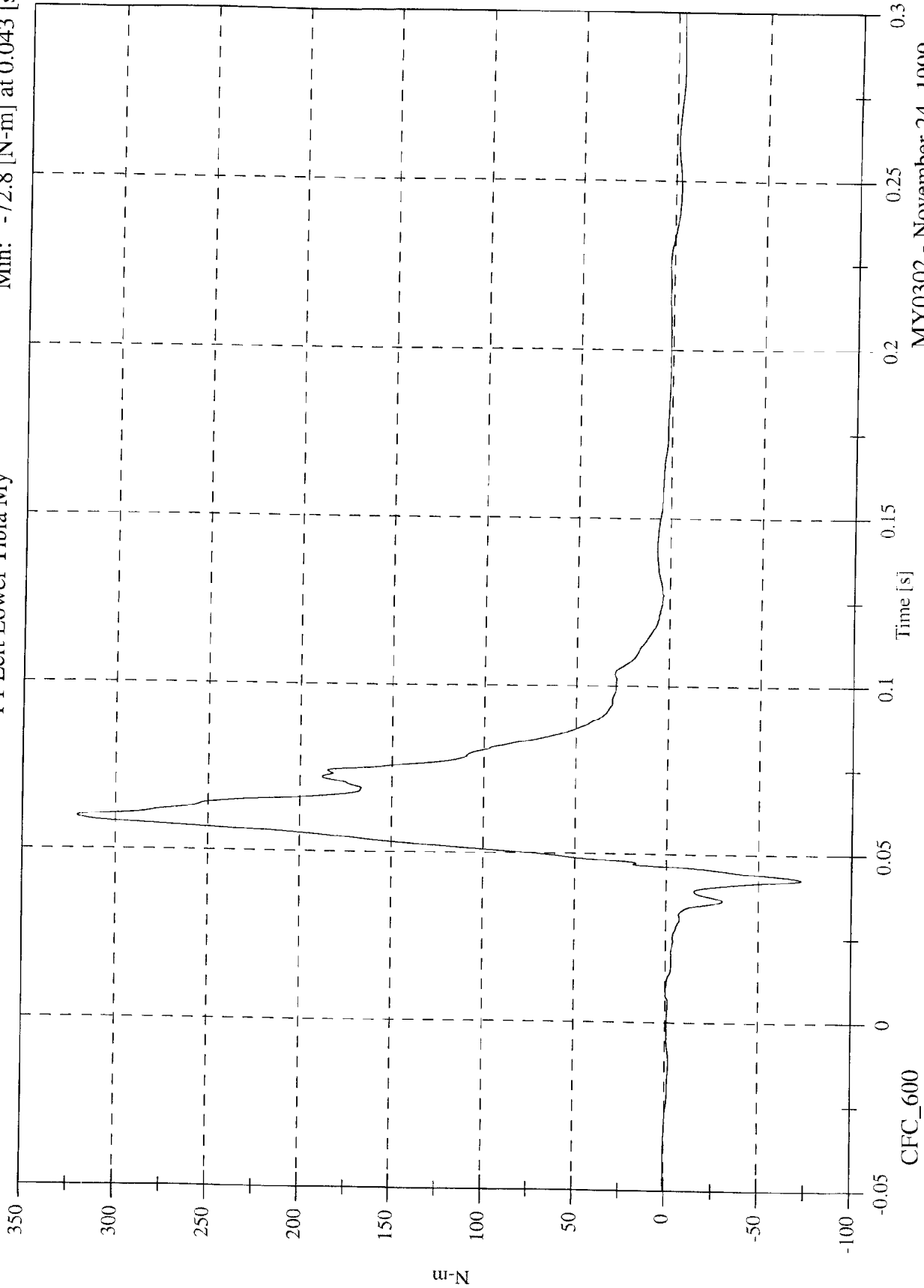


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

P1 Left Lower Tibia My

Max: 320.4 [N-m] at 0.060 [s]
Min: -72.8 [N-m] at 0.043 [s]

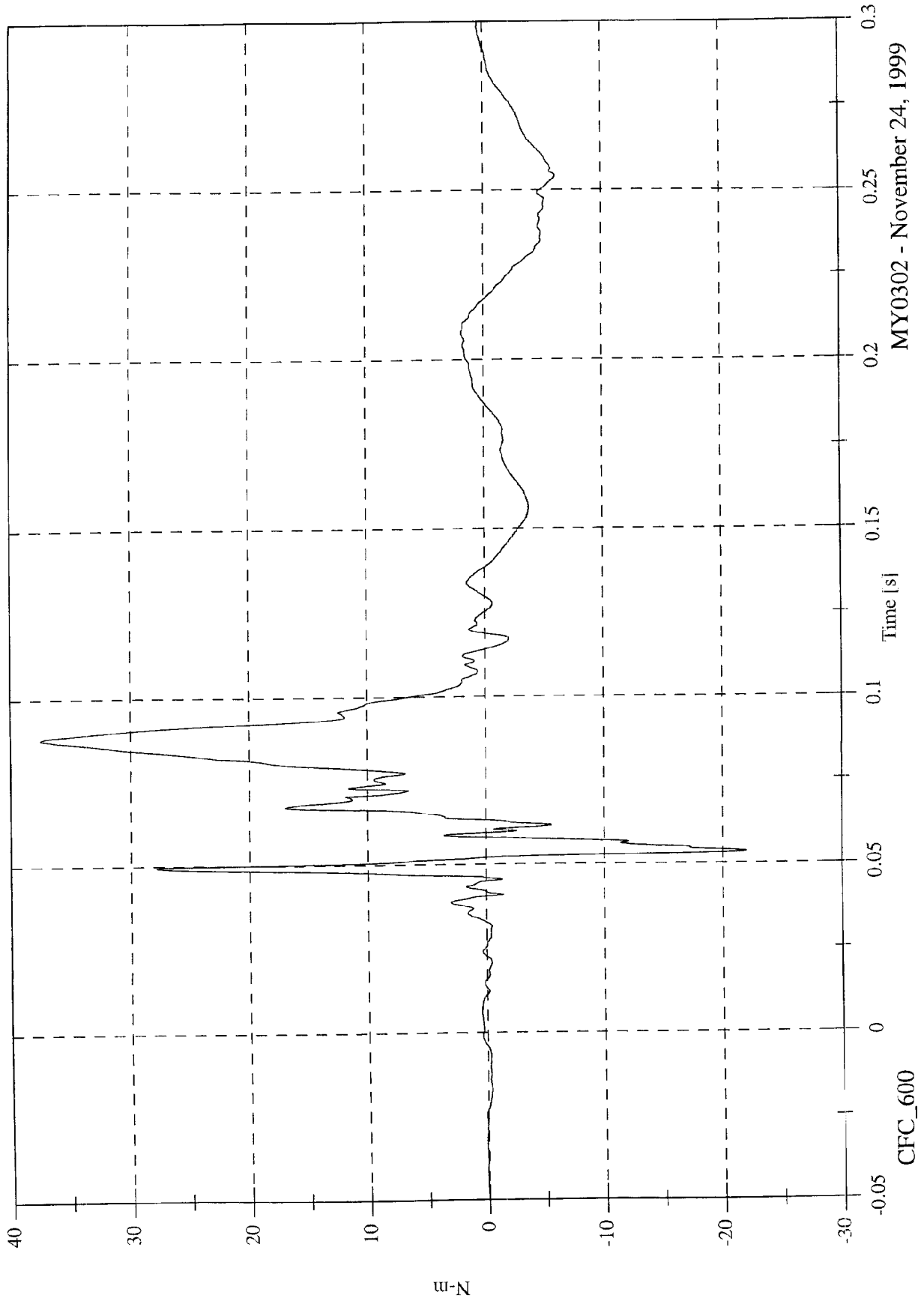


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 37.5 [N-m] at 0.087 [s]
Min: -22.0 [N-m] at 0.053 [s]

P1 Right Upper Tibia Mx



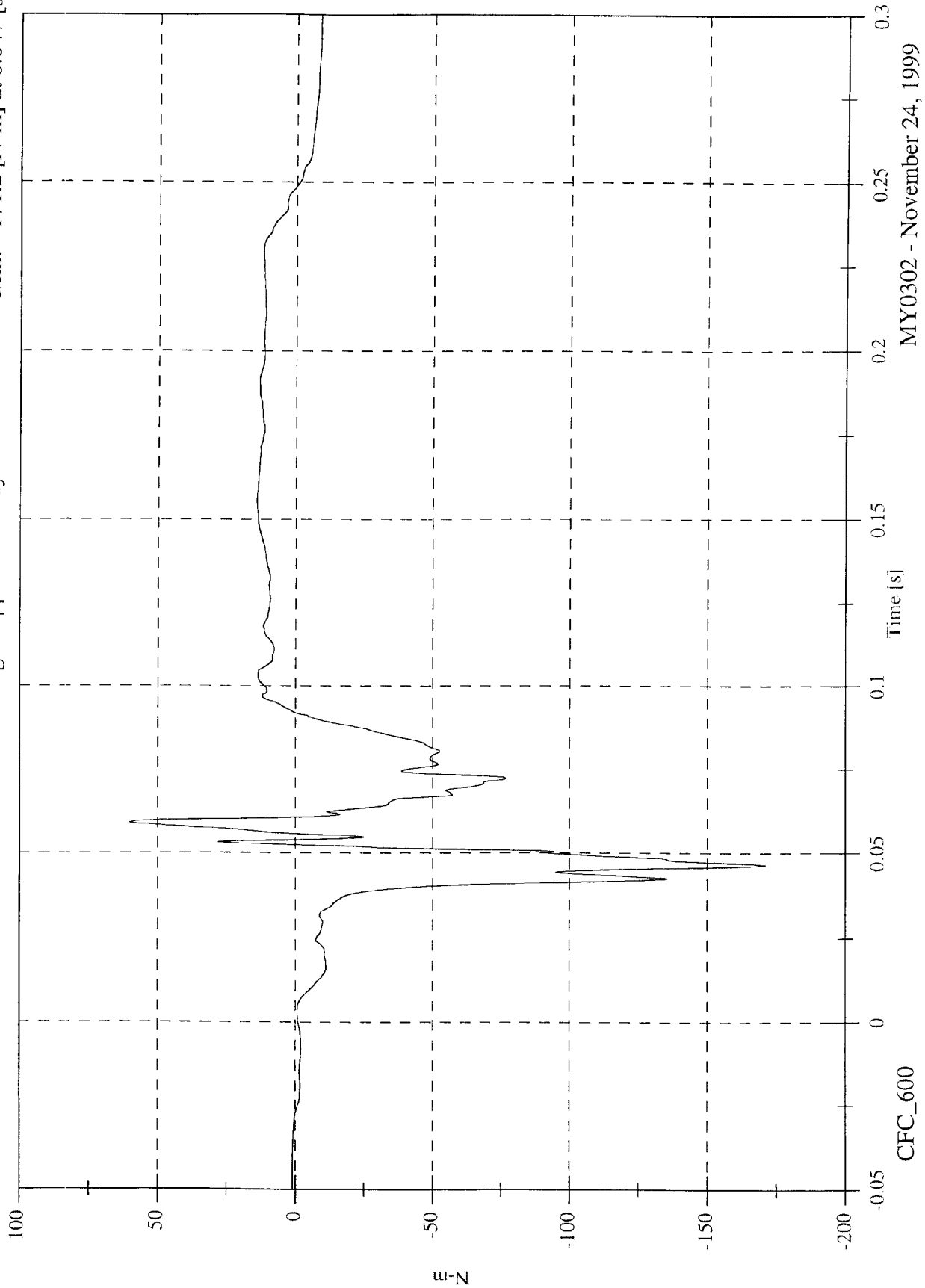
MY0302 - November 24, 1999

CFC_600

NCAP Test 3 - 2000 Dodge Caravan

P1 Right Upper Tibia My

Max: 60.2 [N-m] at 0.059 [s]
Min: -171.2 [N-m] at 0.047 [s]



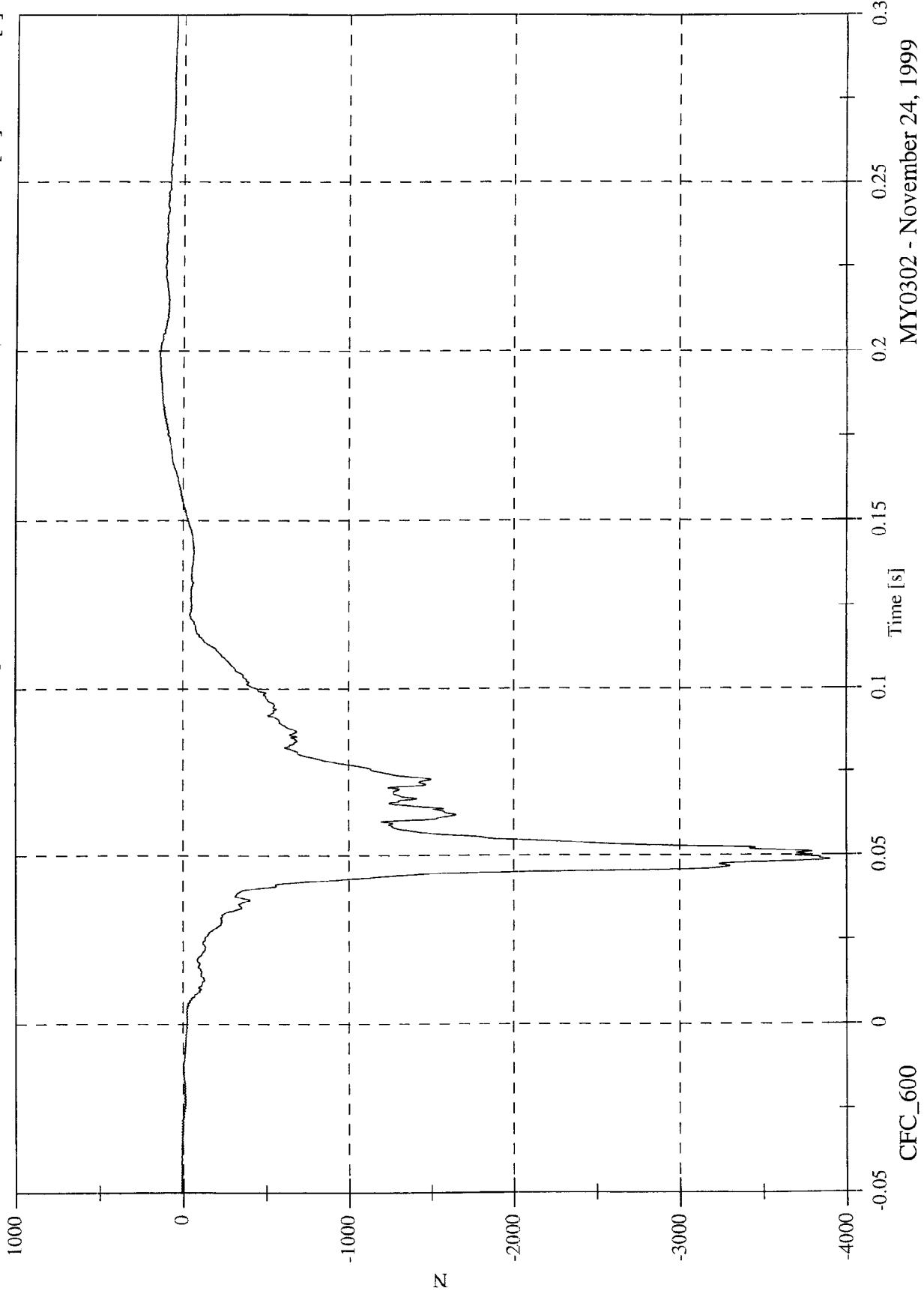
MY0302 - November 24, 1999

CFC_600

NCAP Test 3 - 2000 Dodge Caravan

Max: 143.4 [N] at 0.198 [s]
Min: -3901.7 [N] at 0.049 [s]

P1 Right Lower Tibia Fz



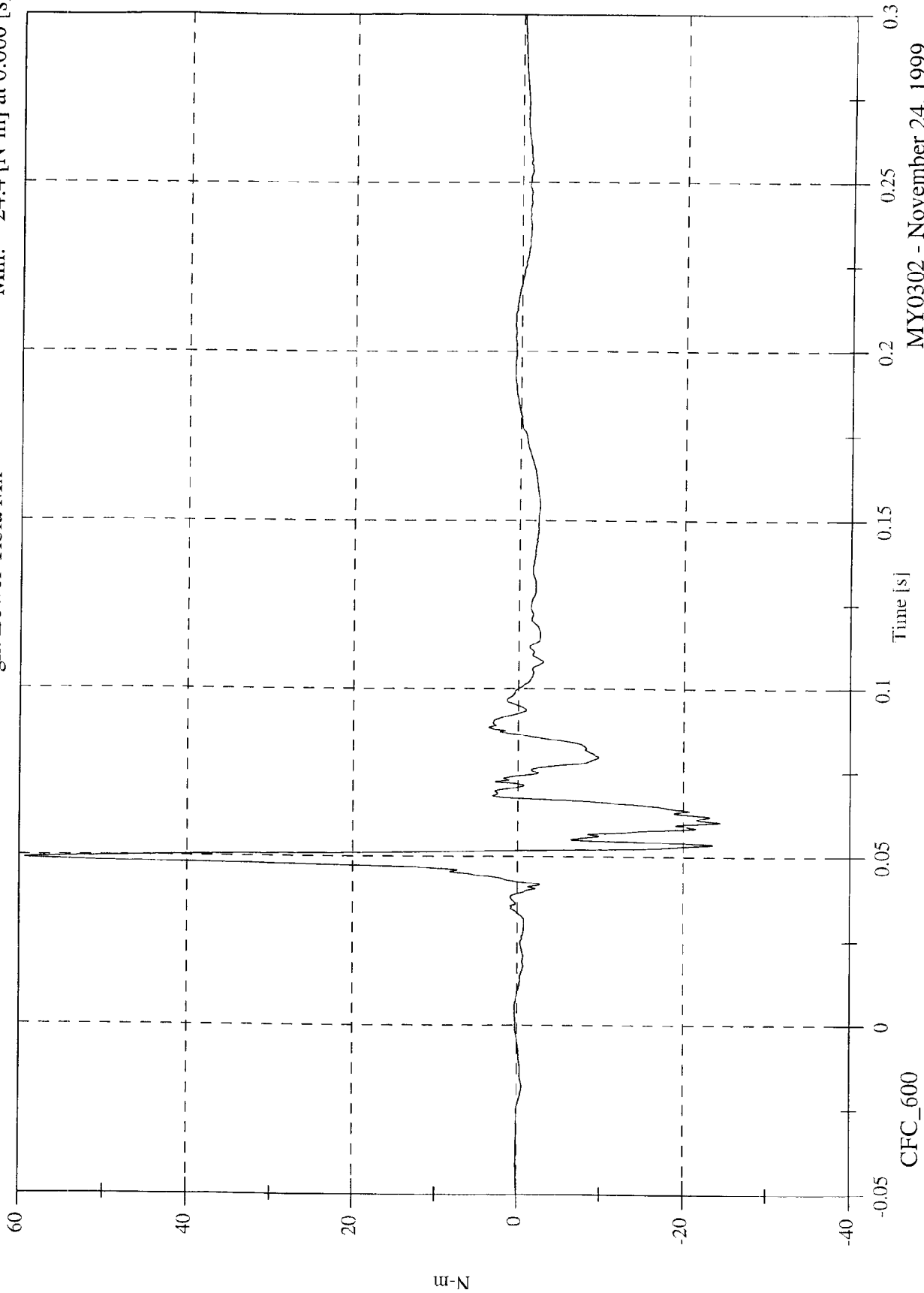
MY0302 - November 24, 1999

CFC_600

NCAP Test 3 - 2000 Dodge Caravan

P1 Right Lower Tibia Mx

Max: 59.3 [N-m] at 0.049 [s]
Min: -24.4 [N-m] at 0.060 [s]



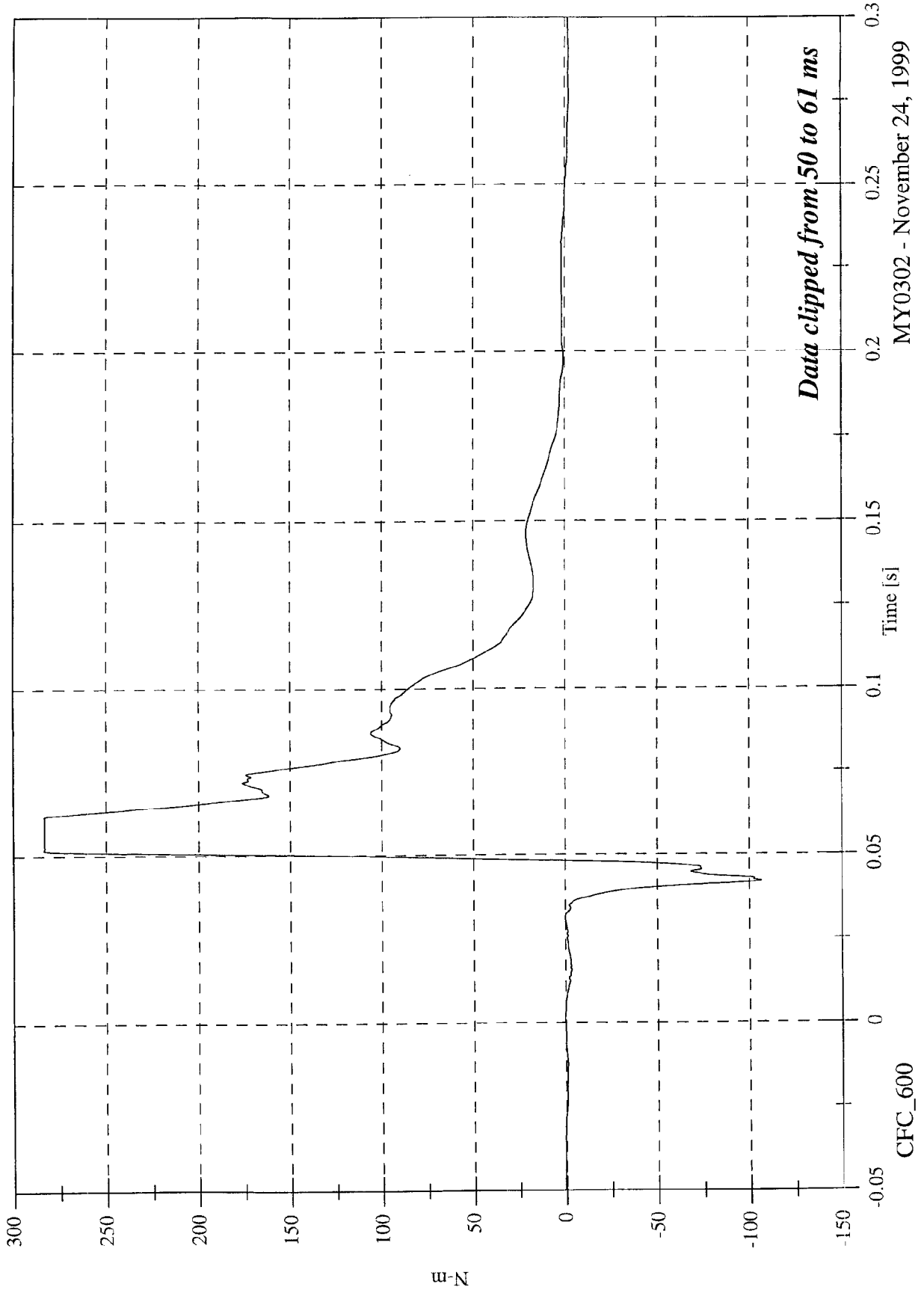
MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

P1 Right Lower Tibia My

Max: 283.5 [N-m] at 0.052 [s]

Min: -106.3 [N-m] at 0.042 [s]

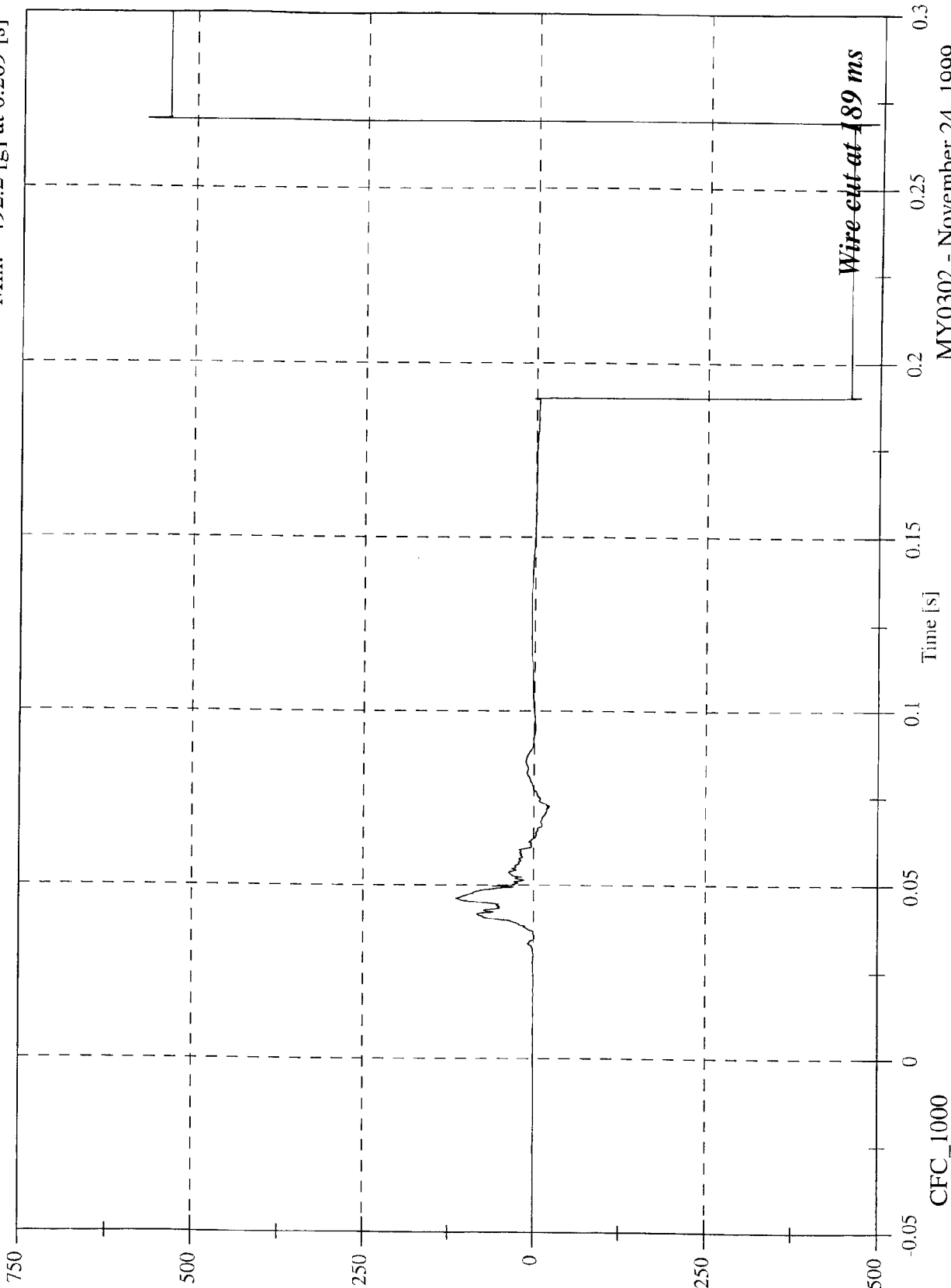


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

P1 Left Foot Aft x

Max: 571.7 [g] at 0.269 [s]
Min: -492.2 [g] at 0.269 [s]

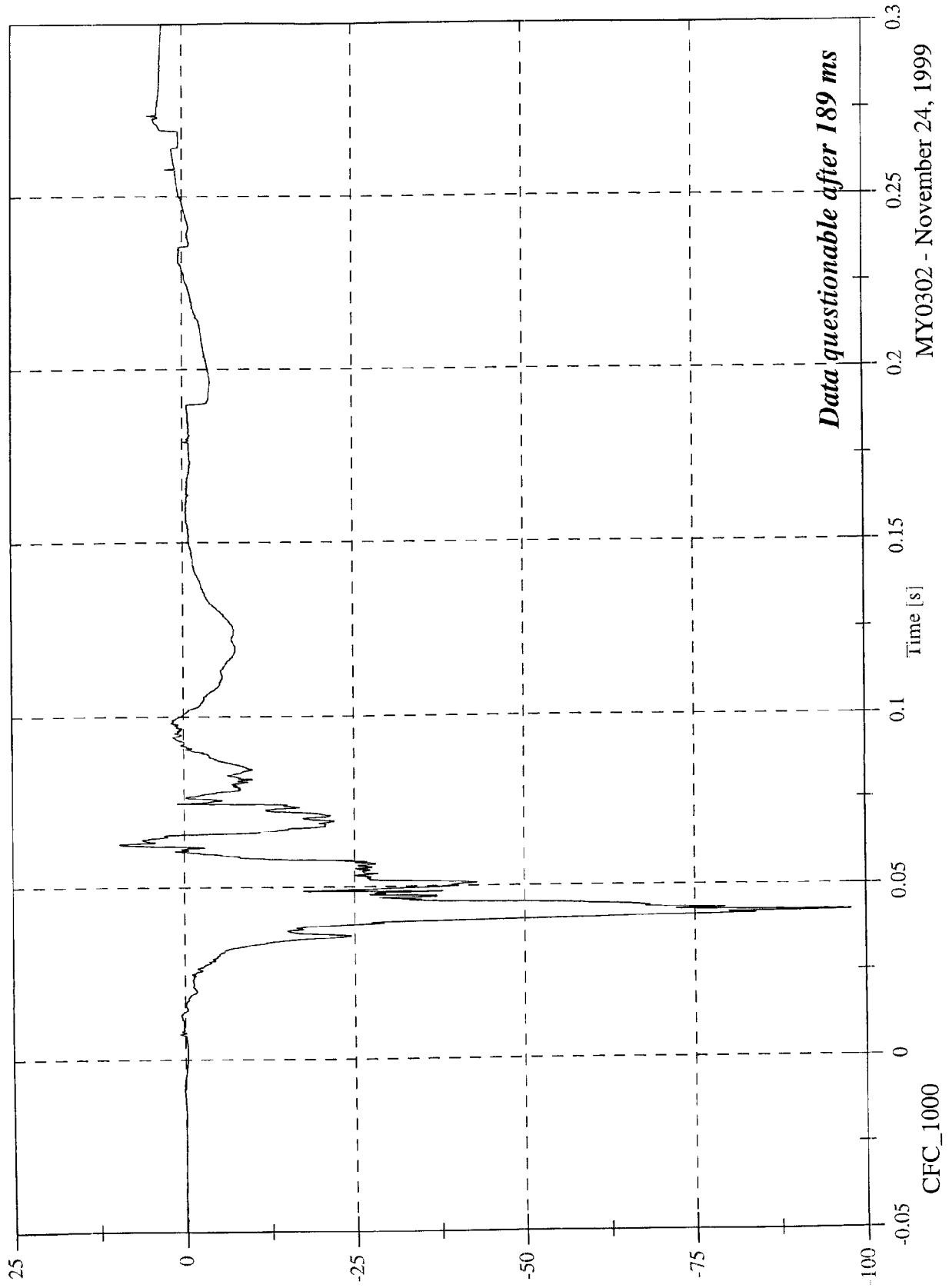


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 9.4 [g] at 0.062 [s]
Min: -97.8 [g] at 0.042 [s]

P1 Left Foot Aft z



Data questionable after 189 ms

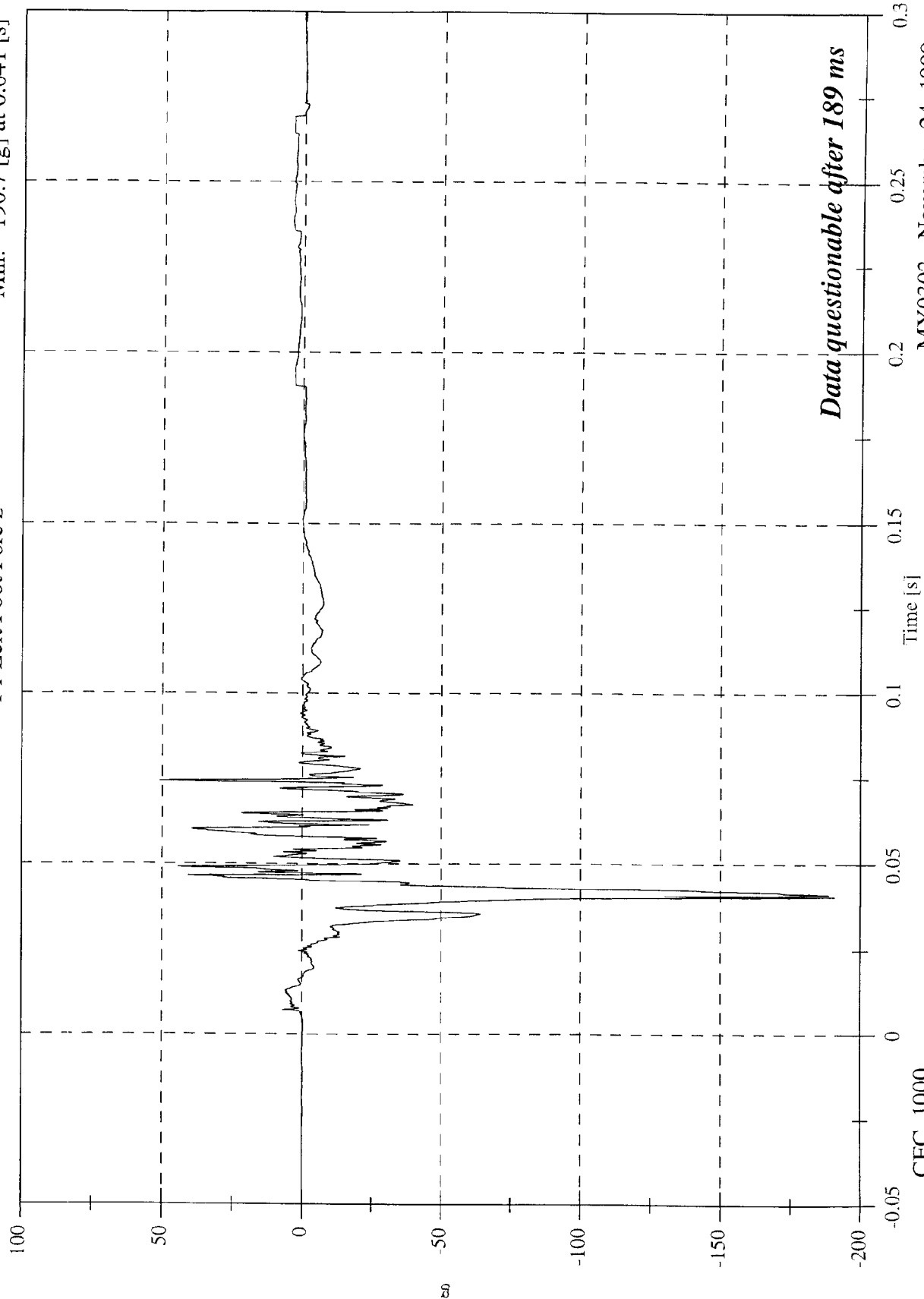
MY0302 - November 24, 1999

CFC_1000

NCAP Test 3 - 2000 Dodge Caravan

Max: 50.8 [g] at 0.074 [s]
Min: -190.7 [g] at 0.041 [s]

P1 Left Foot Fore z



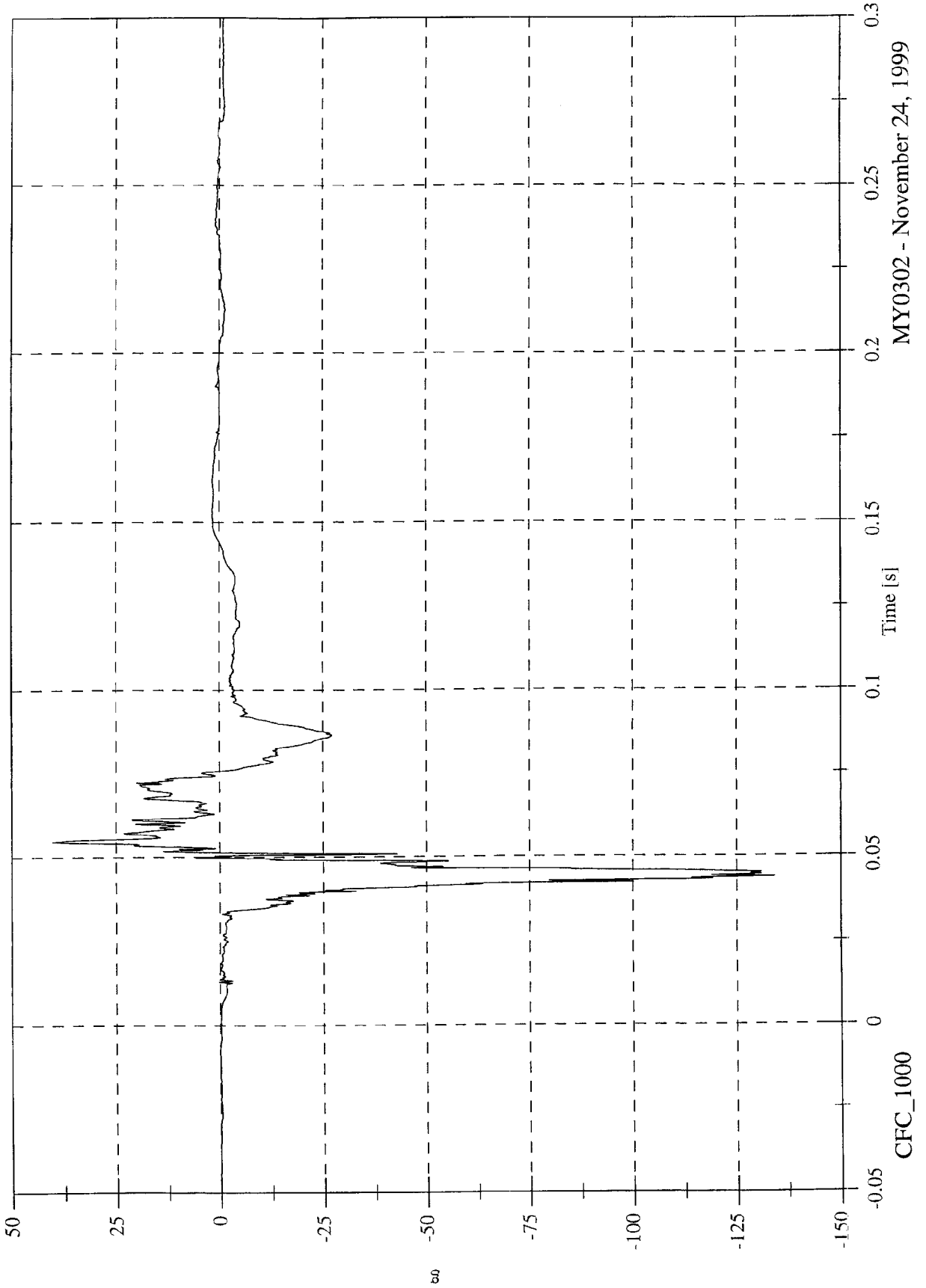
Data questionable after 189 ms

MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 40.2 [g] at 0.055 [s]
Min: -134.2 [g] at 0.044 [s]

P1 Right Foot Aft x

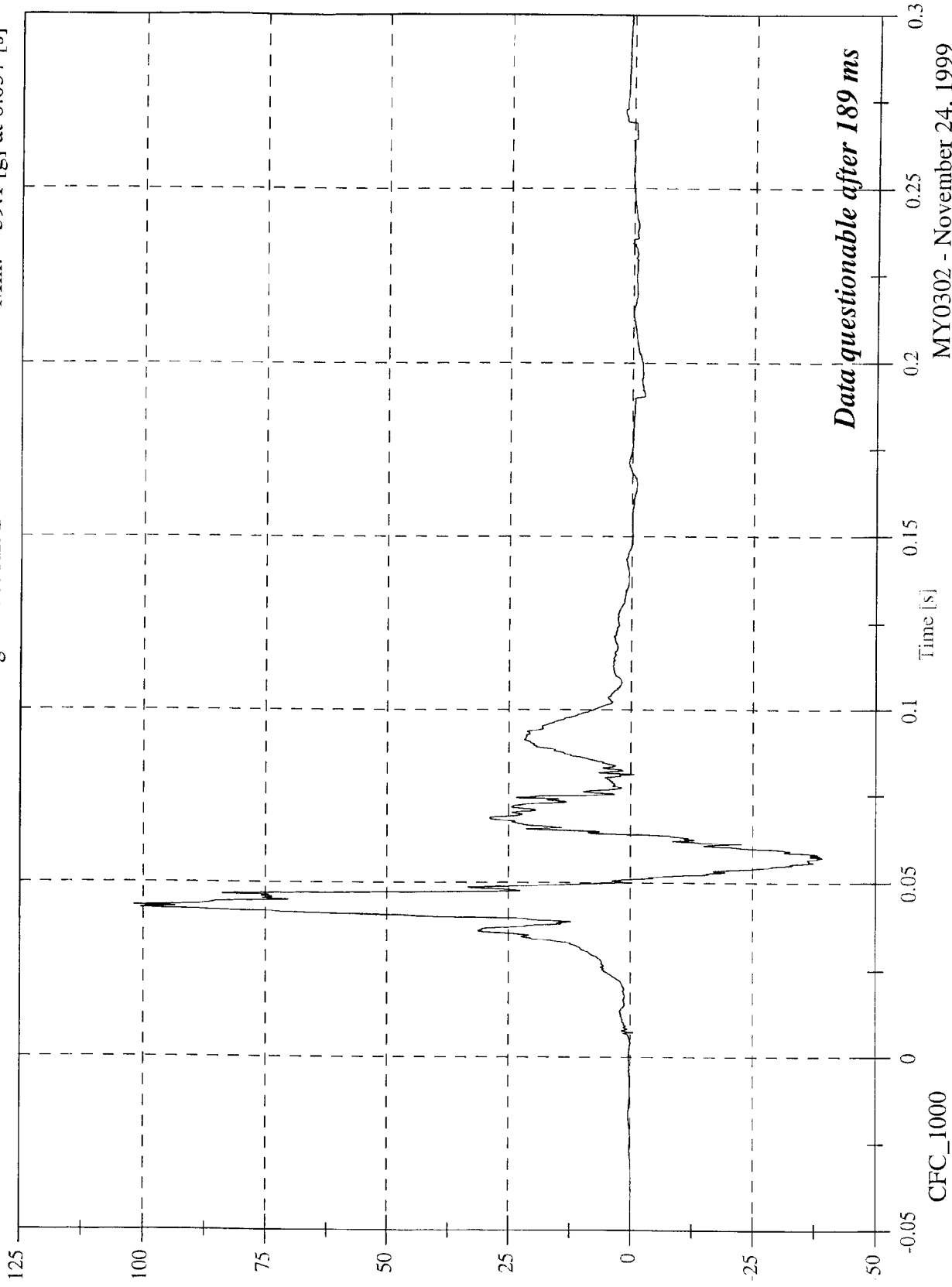


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 101.8 [g] at 0.043 [s]
Min: -39.1 [g] at 0.057 [s]

P1 Right Foot Aft z



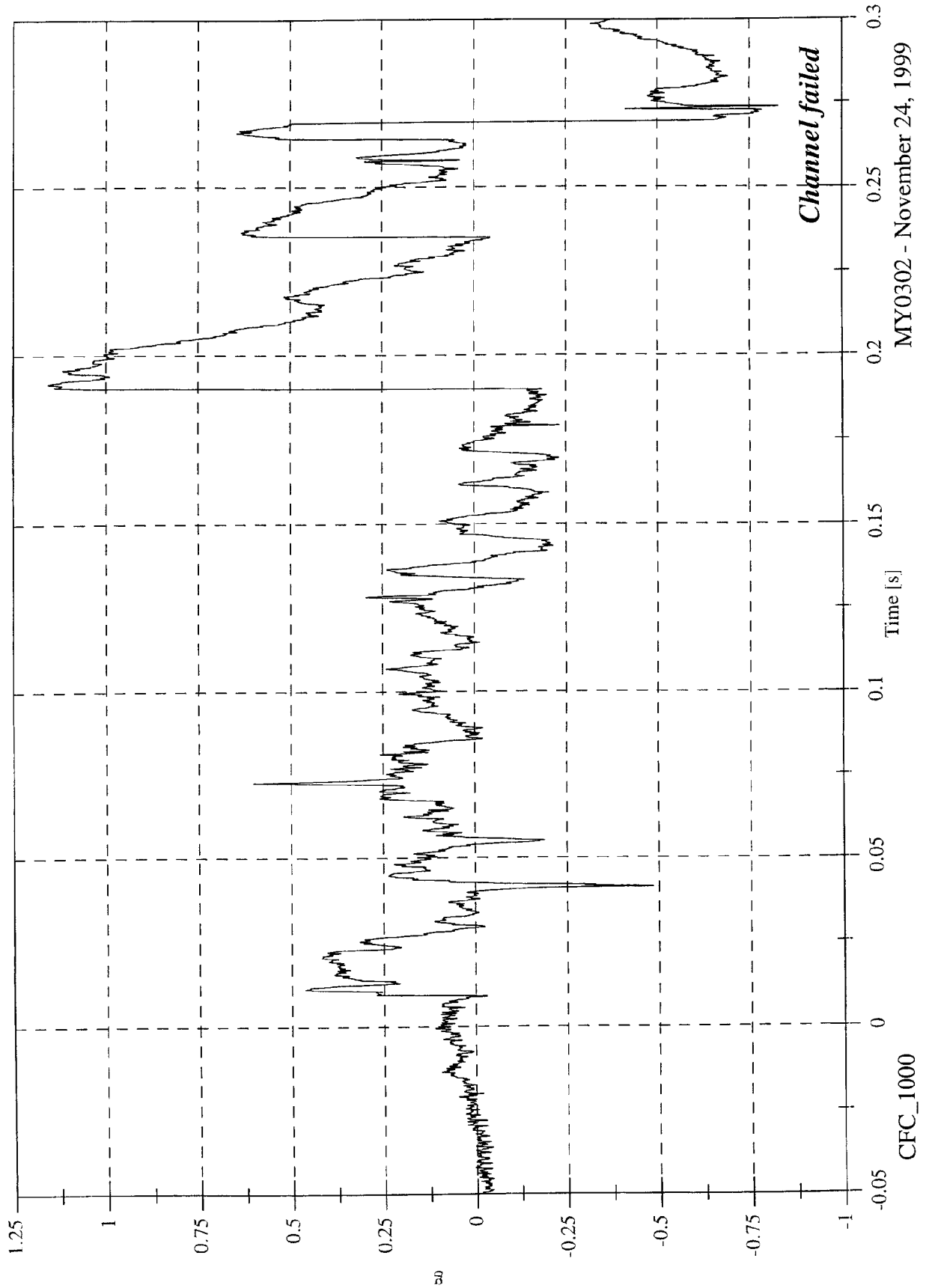
Data questionable after 189 ms

MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 1.2 [g] at 0.192 [s]
Min: -0.8 [g] at 0.274 [s]

P1 Right Foot Fore z

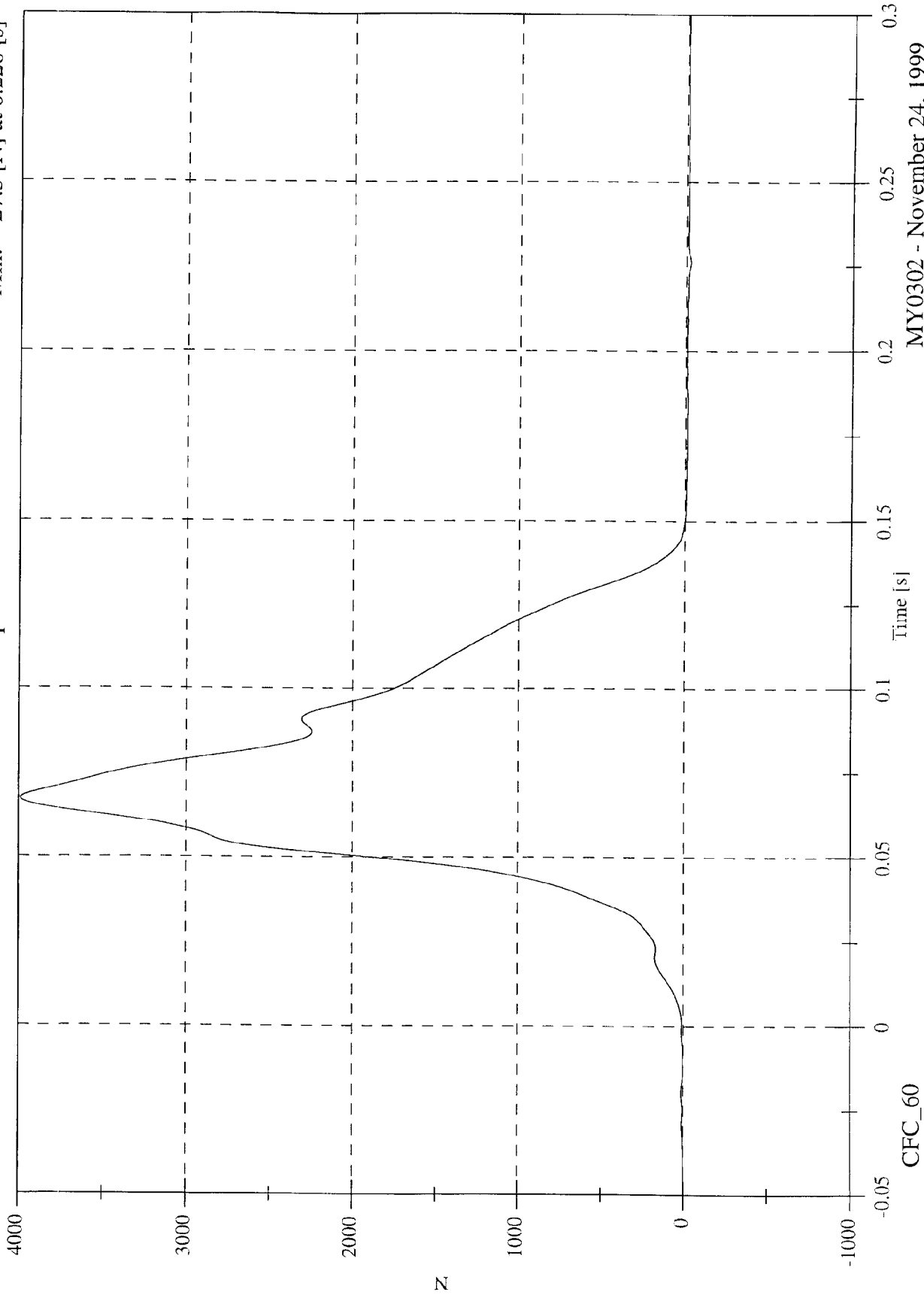


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

P1 Lap Belt Force

Max: 3988.9 [N] at 0.067 [s]
Min: -27.5 [N] at 0.226 [s]



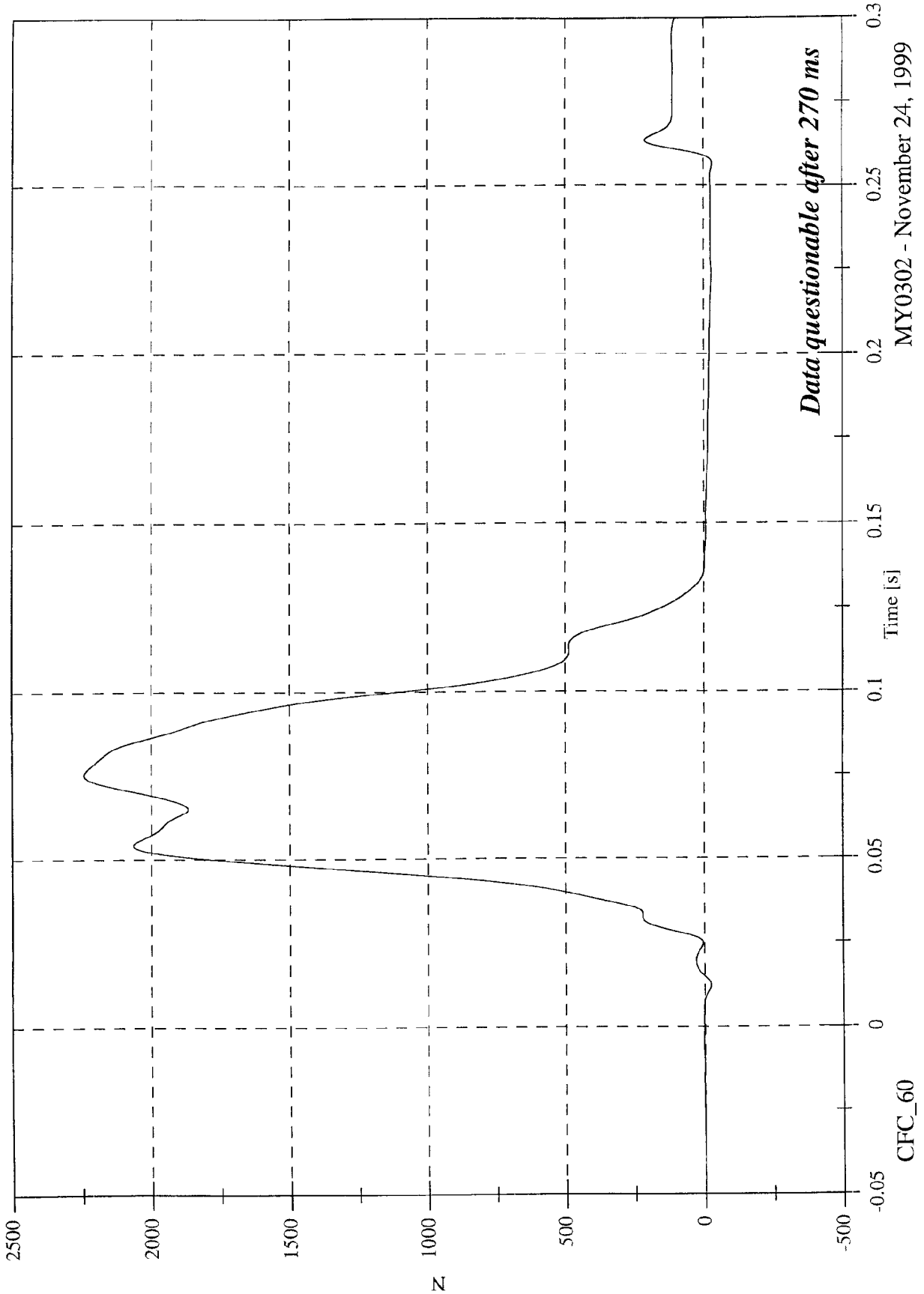
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Max: 2242.9 [N] at 0.075 [s]
Min: -31.8 [N] at 0.257 [s]

P1 Retractor Belt Force



MY0302 - November 24, 1999

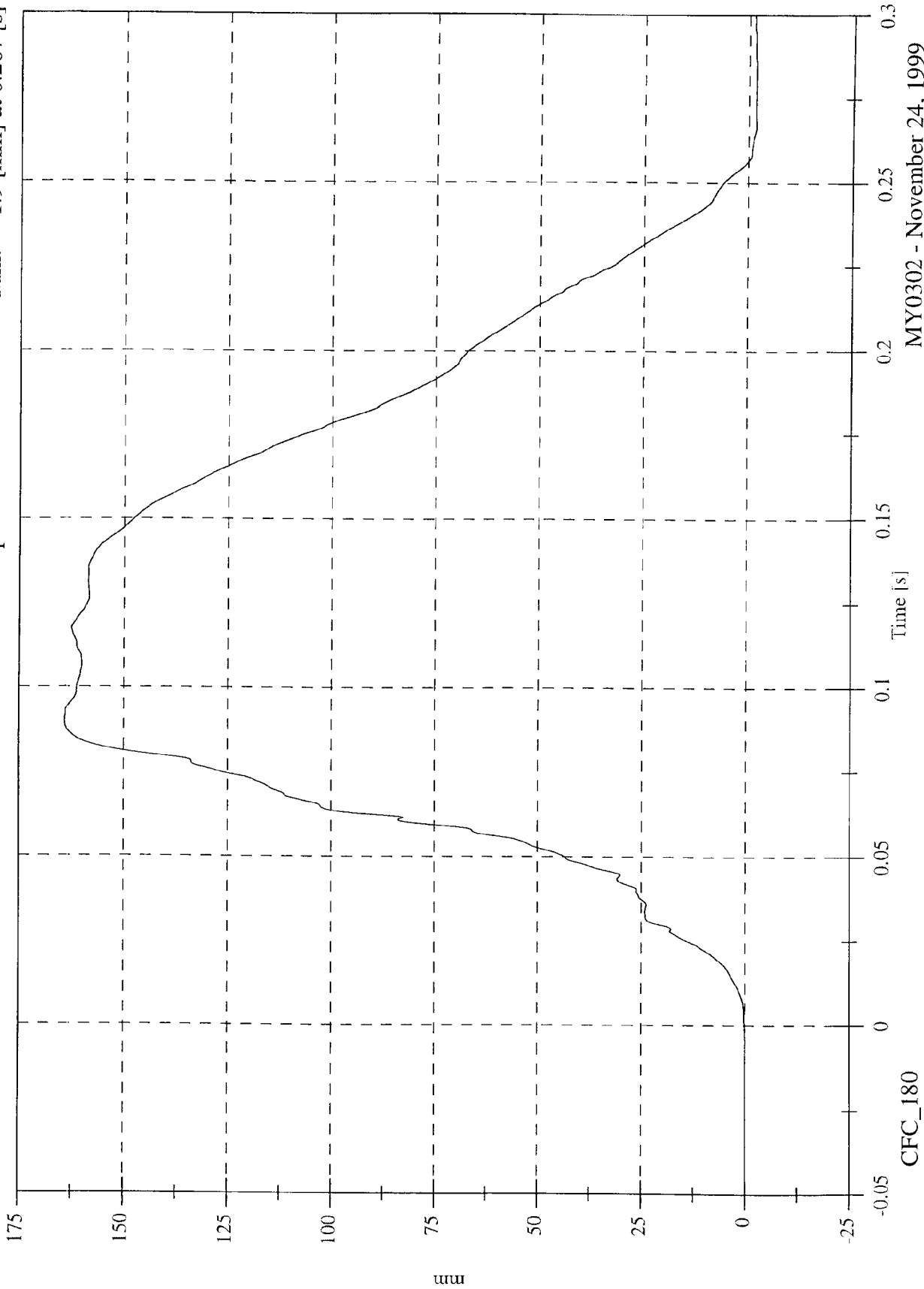
CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Max: 164.1 [mm] at 0.091 [s]

Min: -1.9 [mm] at 0.267 [s]

P1 Shoulder Belt Spool-Off

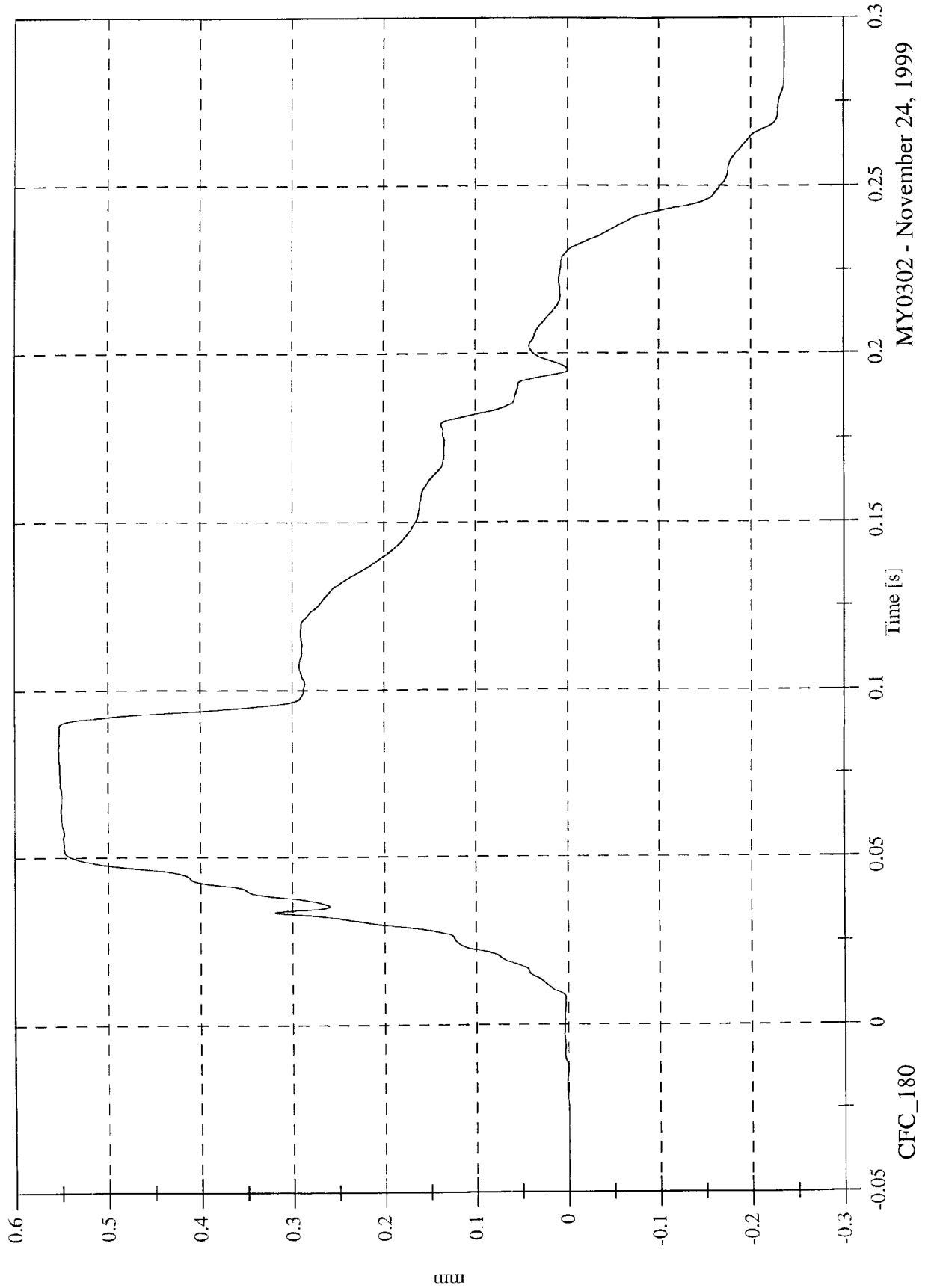


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 0.6 [mm] at 0.083 [s]
Min: -0.2 [mm] at 0.296 [s]

P1 Shoulder Belt Elongation



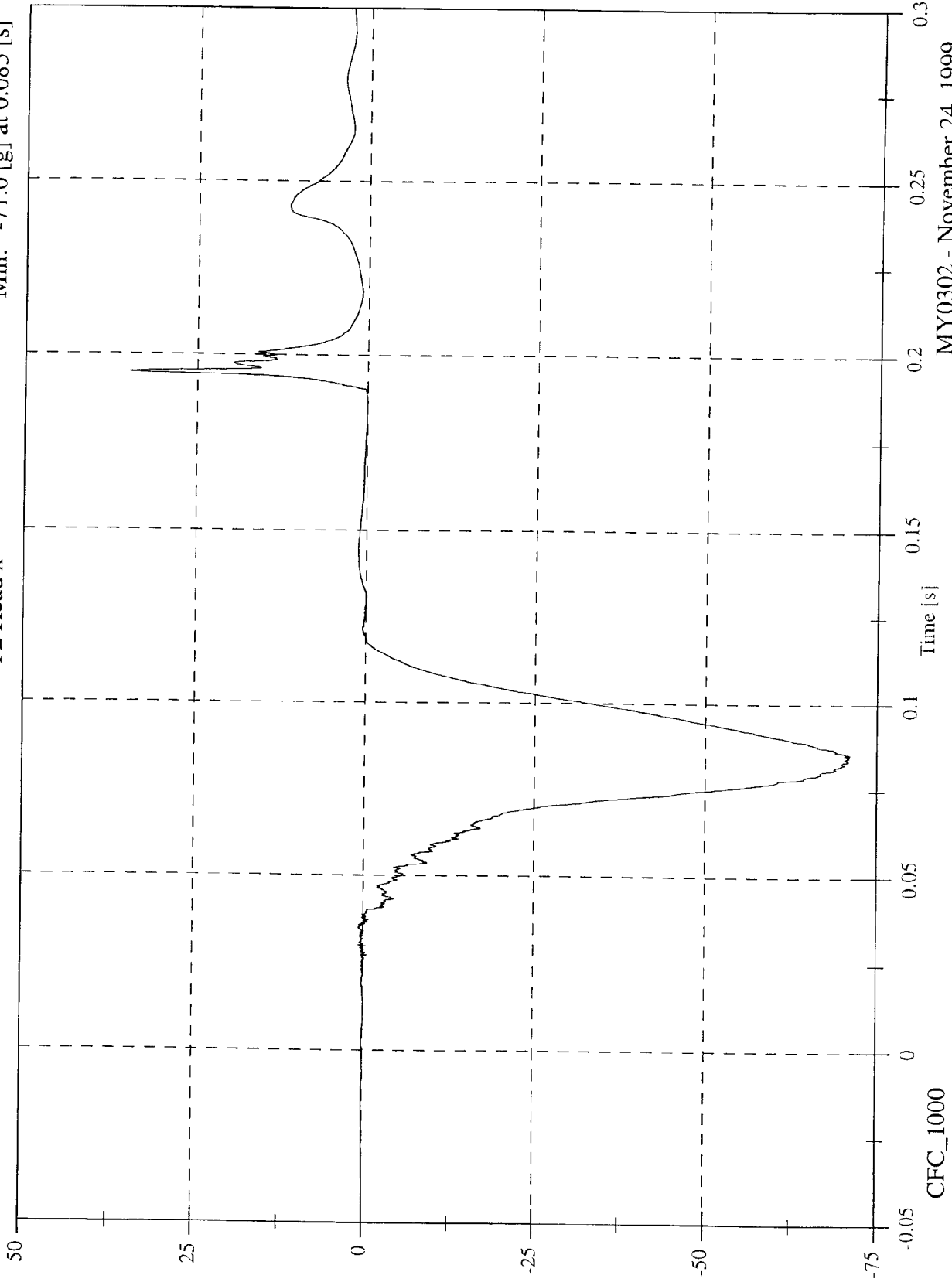
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 34.9 [g] at 0.195 [s]
Min: -71.0 [g] at 0.085 [s]

P2 Head x

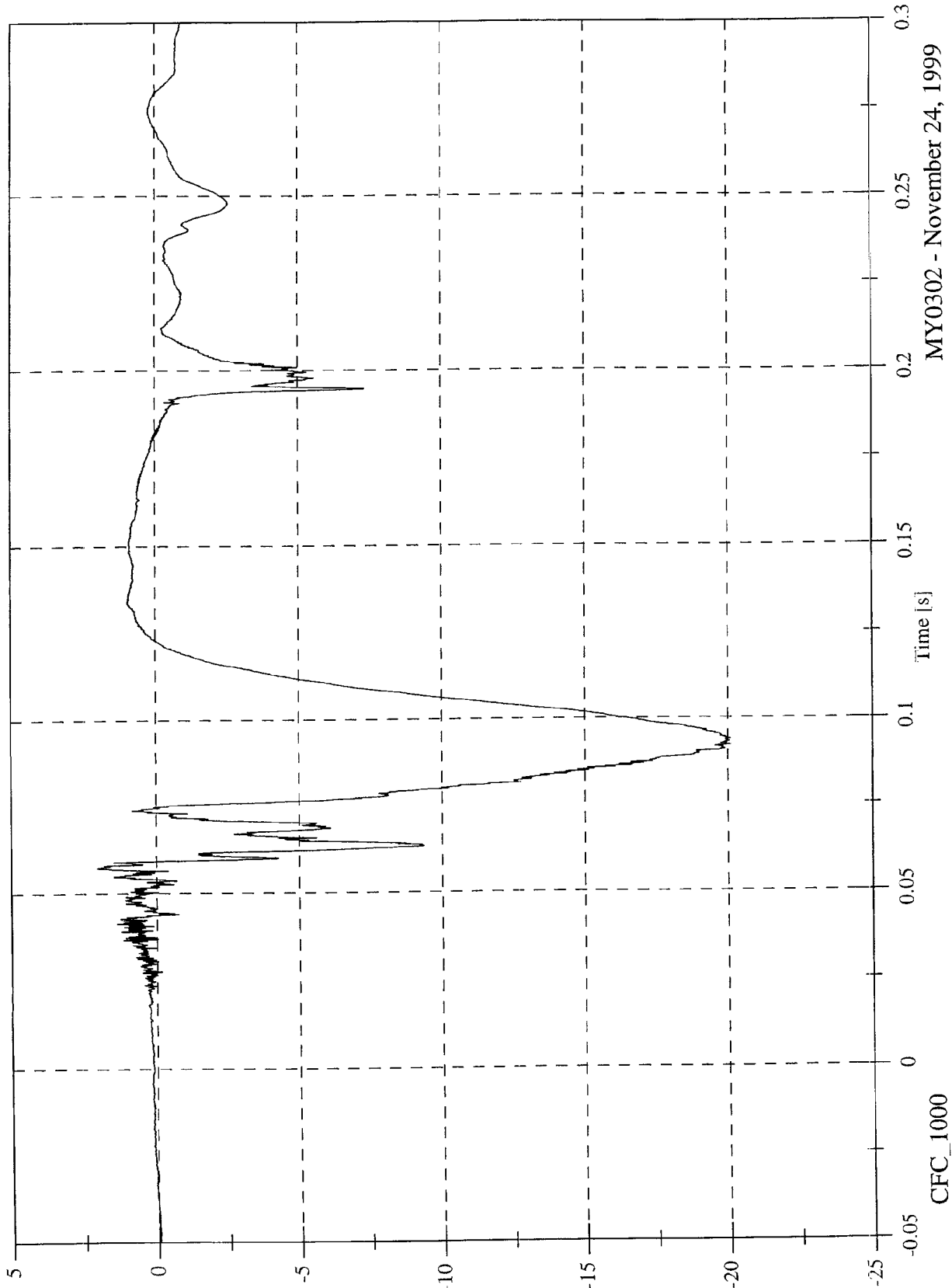


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

P2 Head y

Max: 2.0 [g] at 0.057 [s]
Min: -20.1 [g] at 0.092 [s]

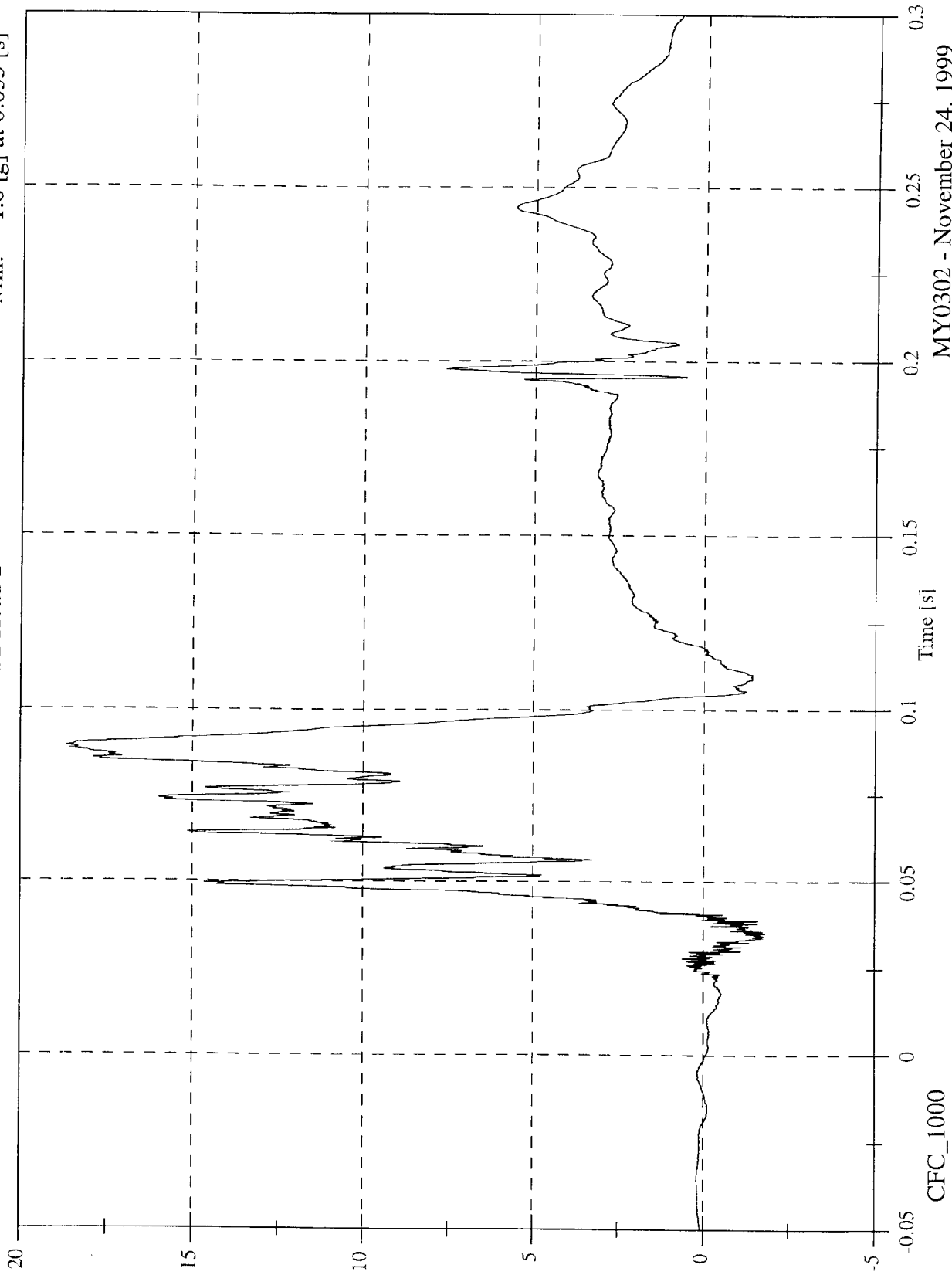


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 18.7 [g] at 0.089 [s]
Min: -1.8 [g] at 0.035 [s]

P2 Head z

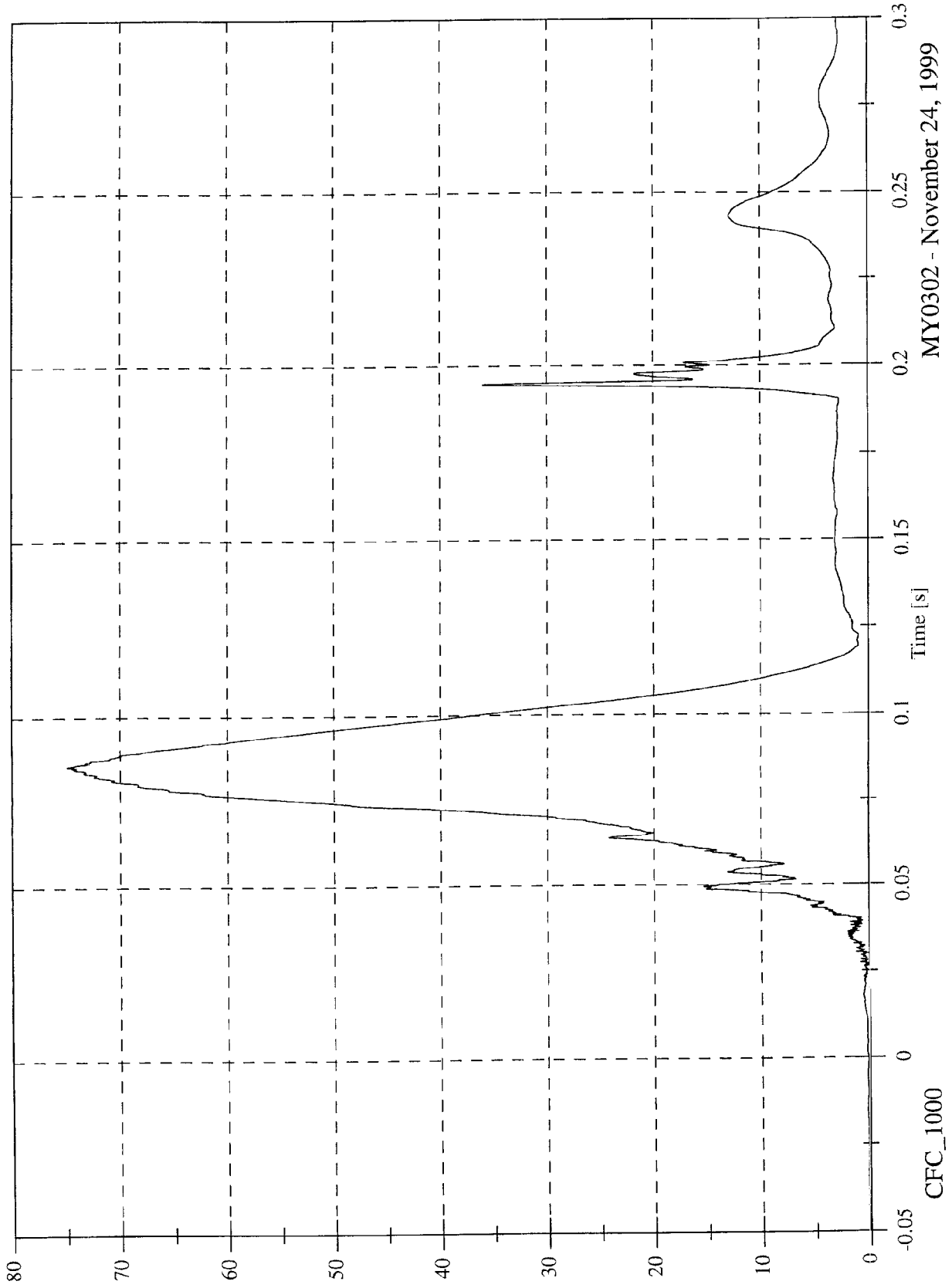


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 74.9 [g] at 0.085 [s]
Min: 0.1 [g] at 0.027 [s]

P2 Head Resultant



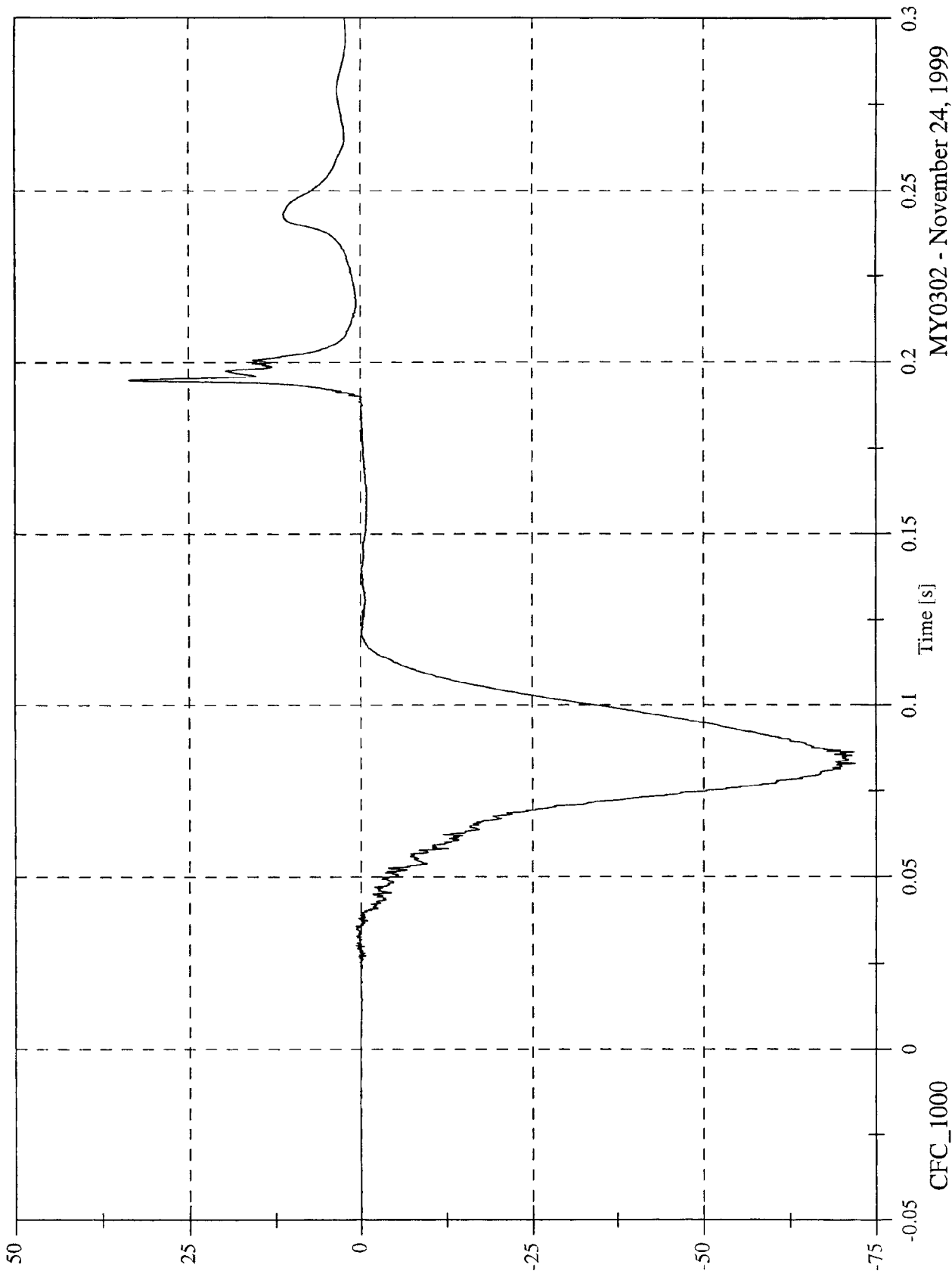
CFC_1000

MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 33.6 [g] at 0.195 [s]
Min: -71.9 [g] at 0.083 [s]

P2 Head Red x

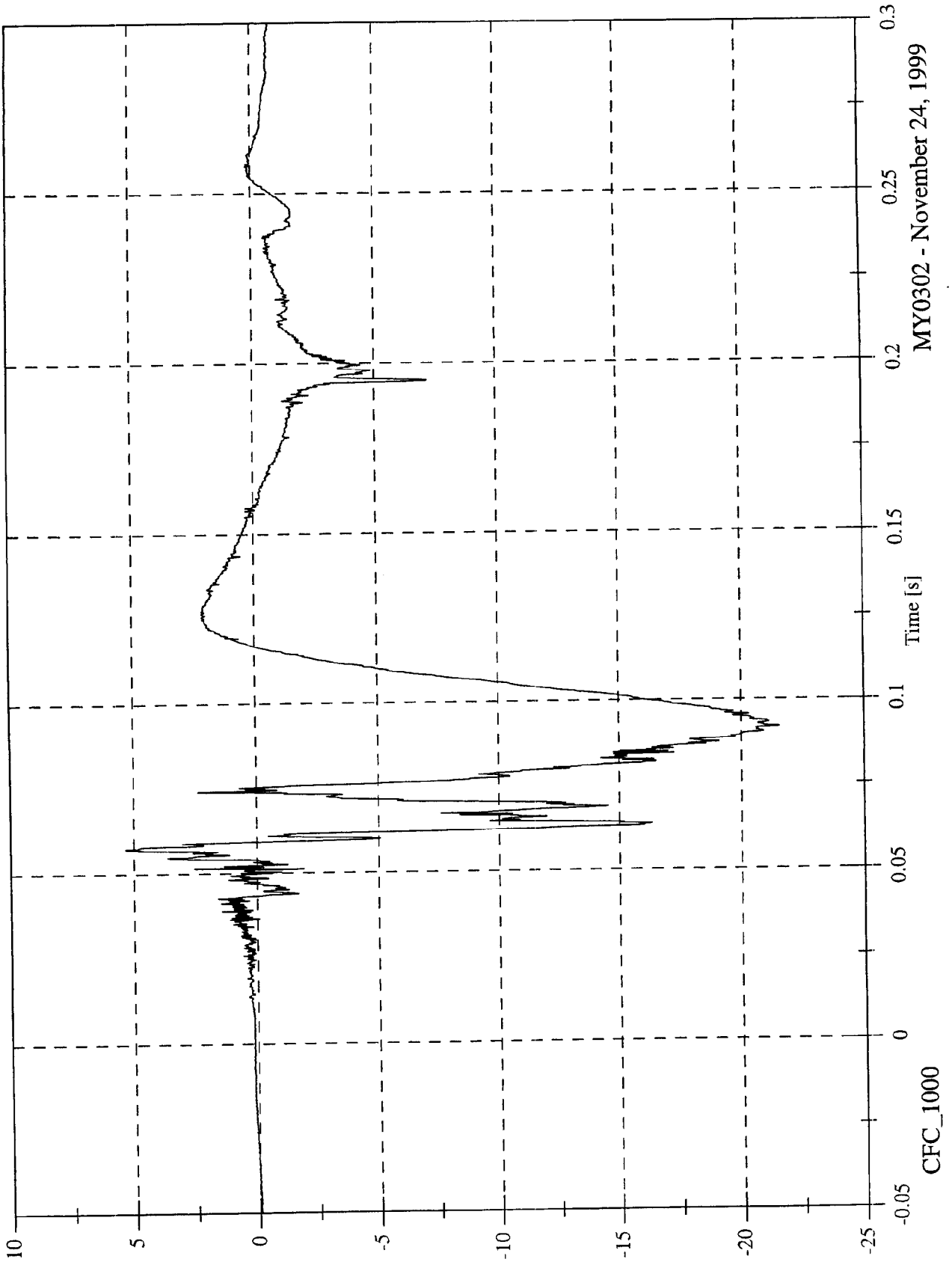


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

P2 Head Red y

Max: 5.3 [g] at 0.057 [s]
Min: -21.5 [g] at 0.092 [s]



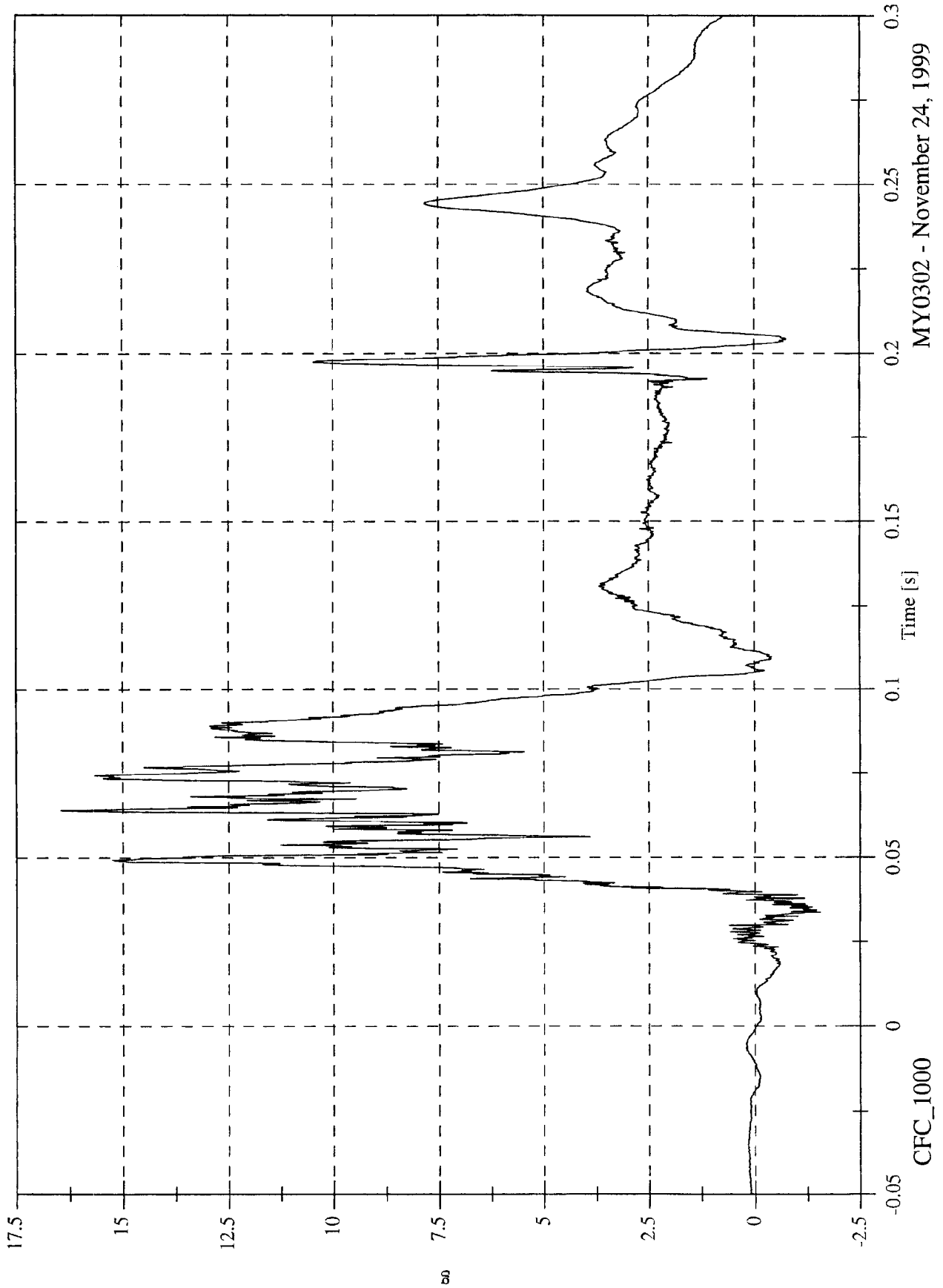
MY0302 - November 24, 1999

CFC_1000

NCAP Test 3 - 2000 Dodge Caravan

Max: 16.5 [g] at 0.064 [s]
Min: -1.6 [g] at 0.034 [s]

P2 Head Red z

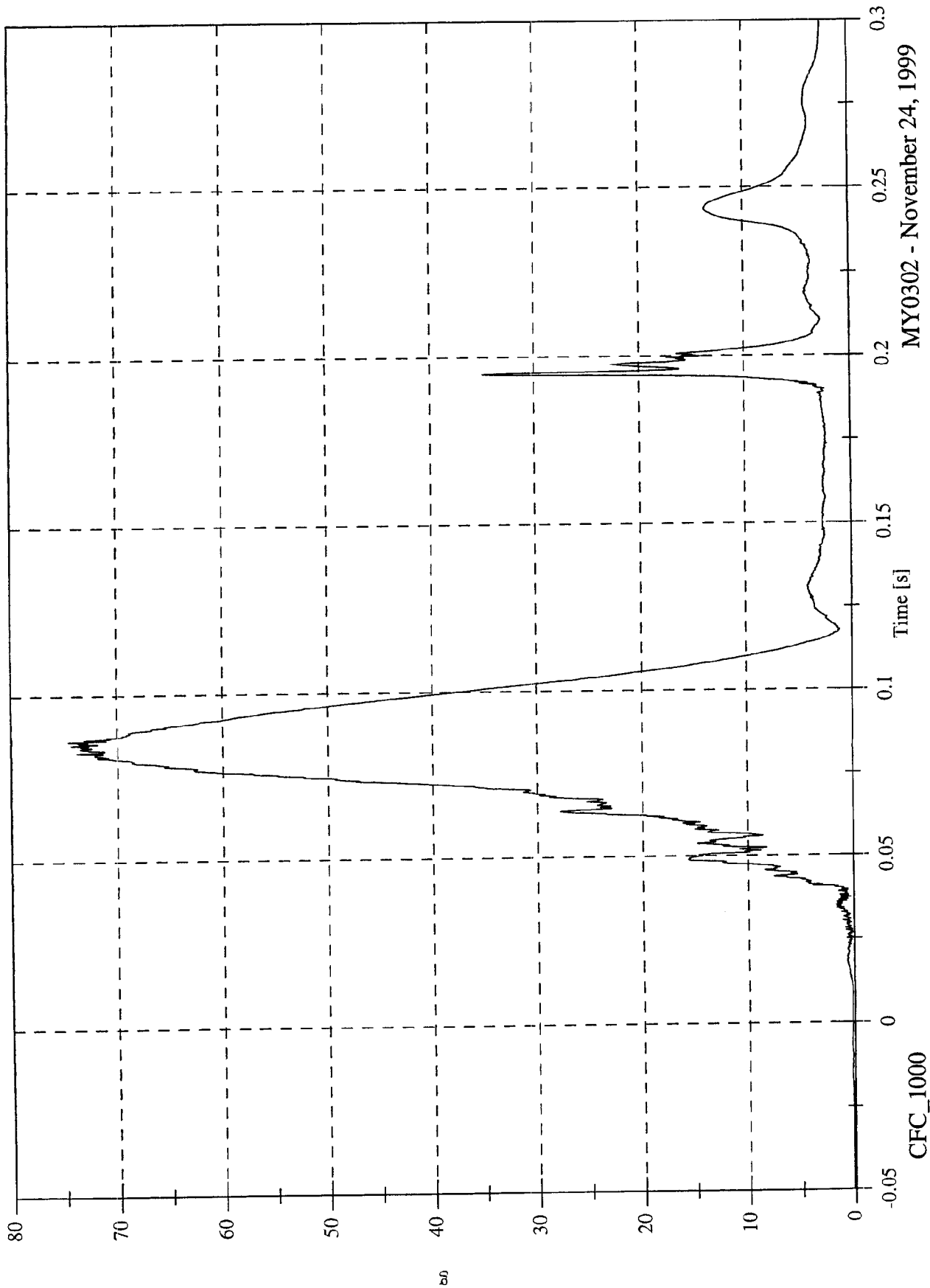


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 74.6 [g] at 0.086 [s]
Min: 0.1 [g] at -0.048 [s]

P2 Head Red Resultant

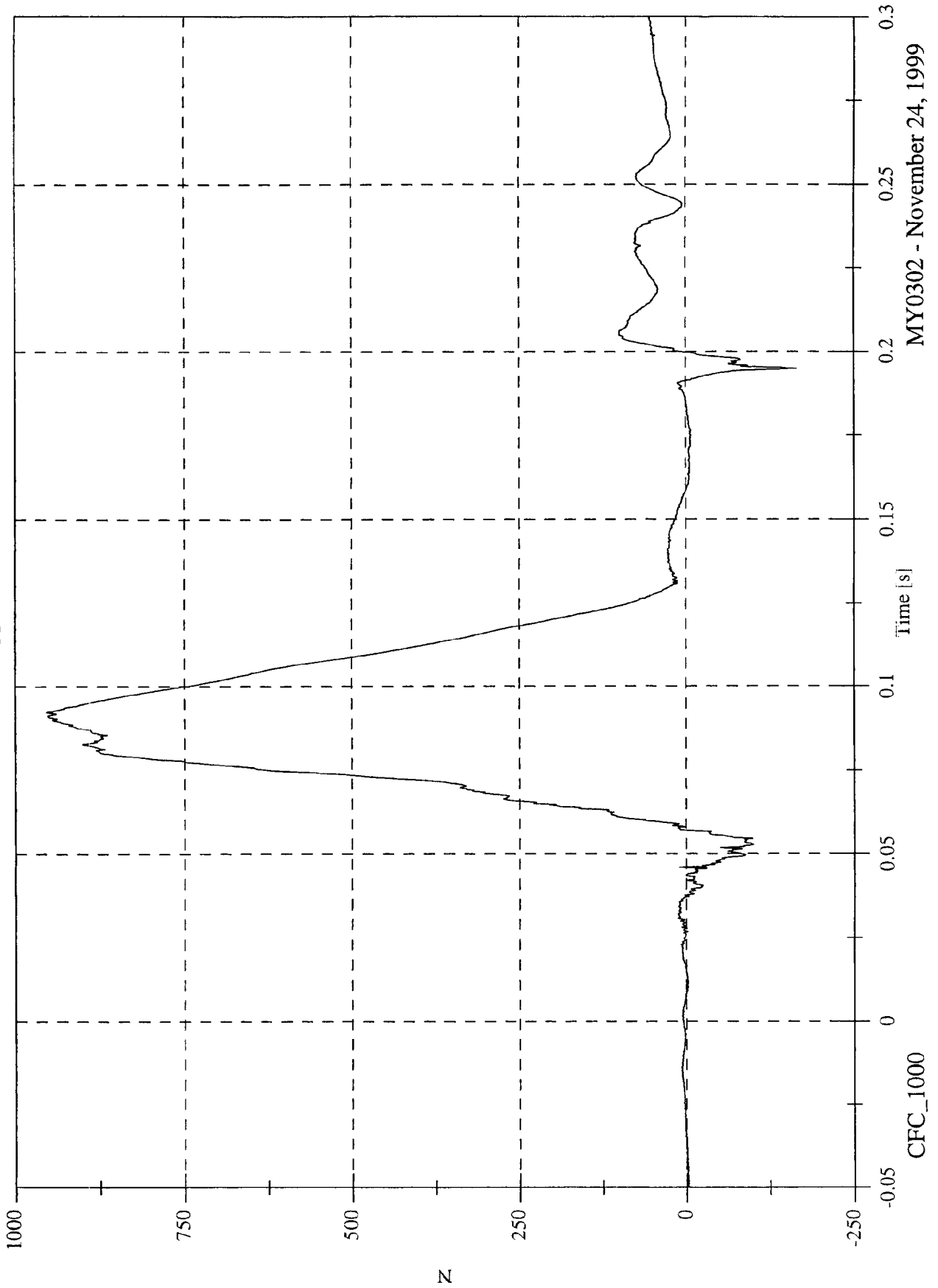


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 953.1 [N] at 0.092 [s]
Min: -165.8 [N] at 0.195 [s]

P2 Upper Neck Fx

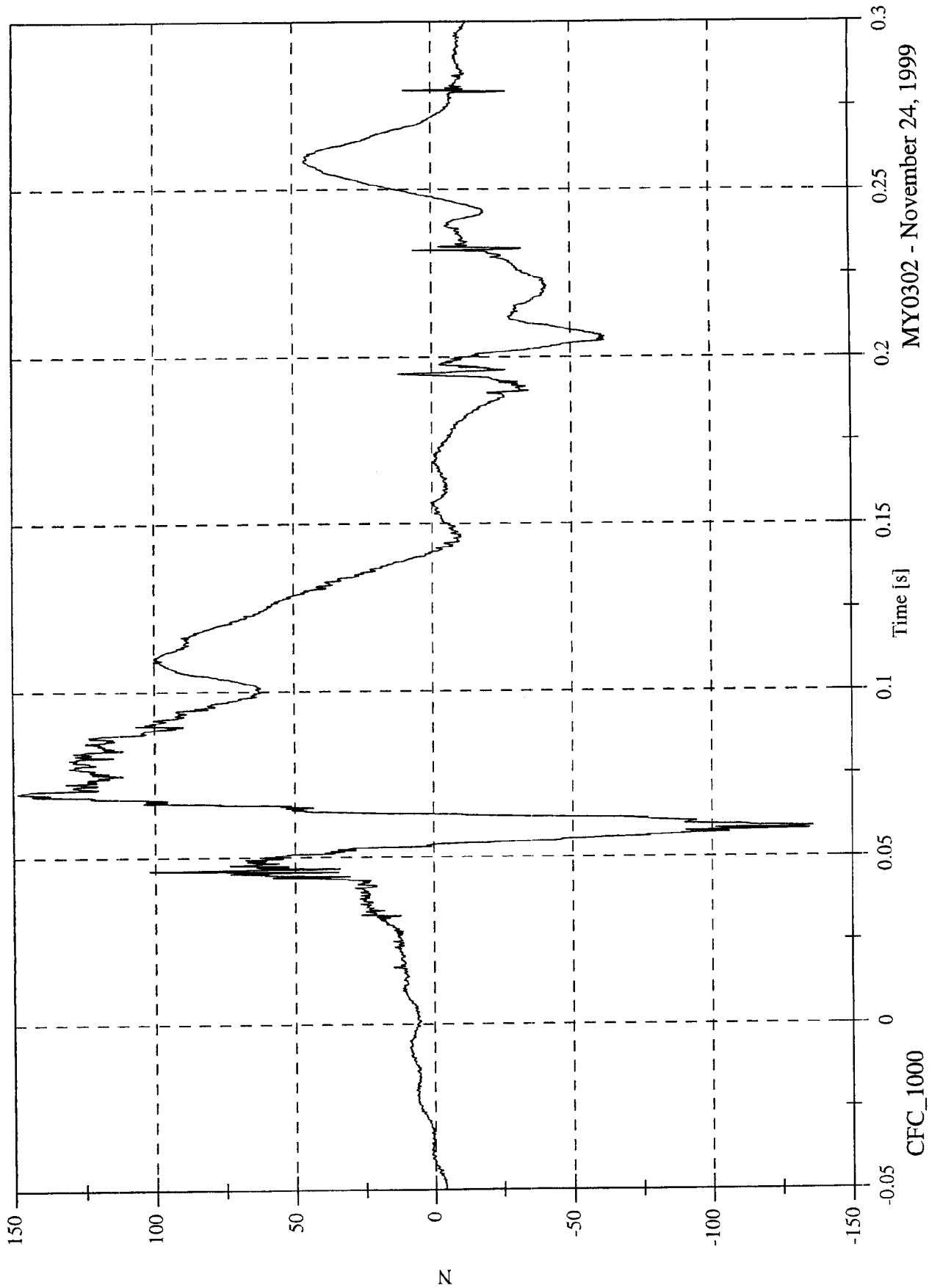


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 148.4 [N] at 0.069 [s]
Min: -135.9 [N] at 0.059 [s]

P2 Upper Neck Fy

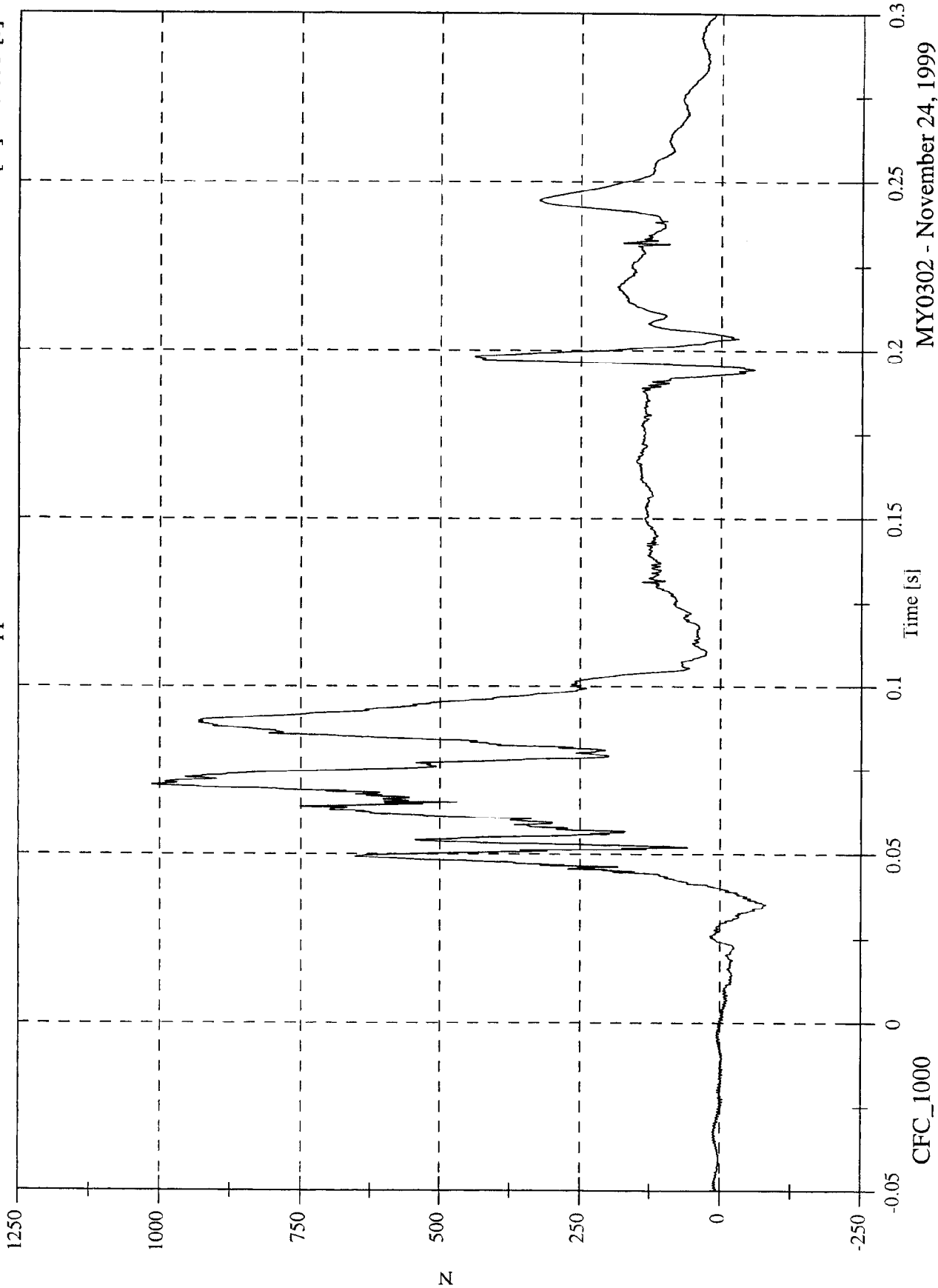


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 1014.5 [N] at 0.071 [s]
Min: -81.6 [N] at 0.035 [s]

P2 Upper Neck Fz

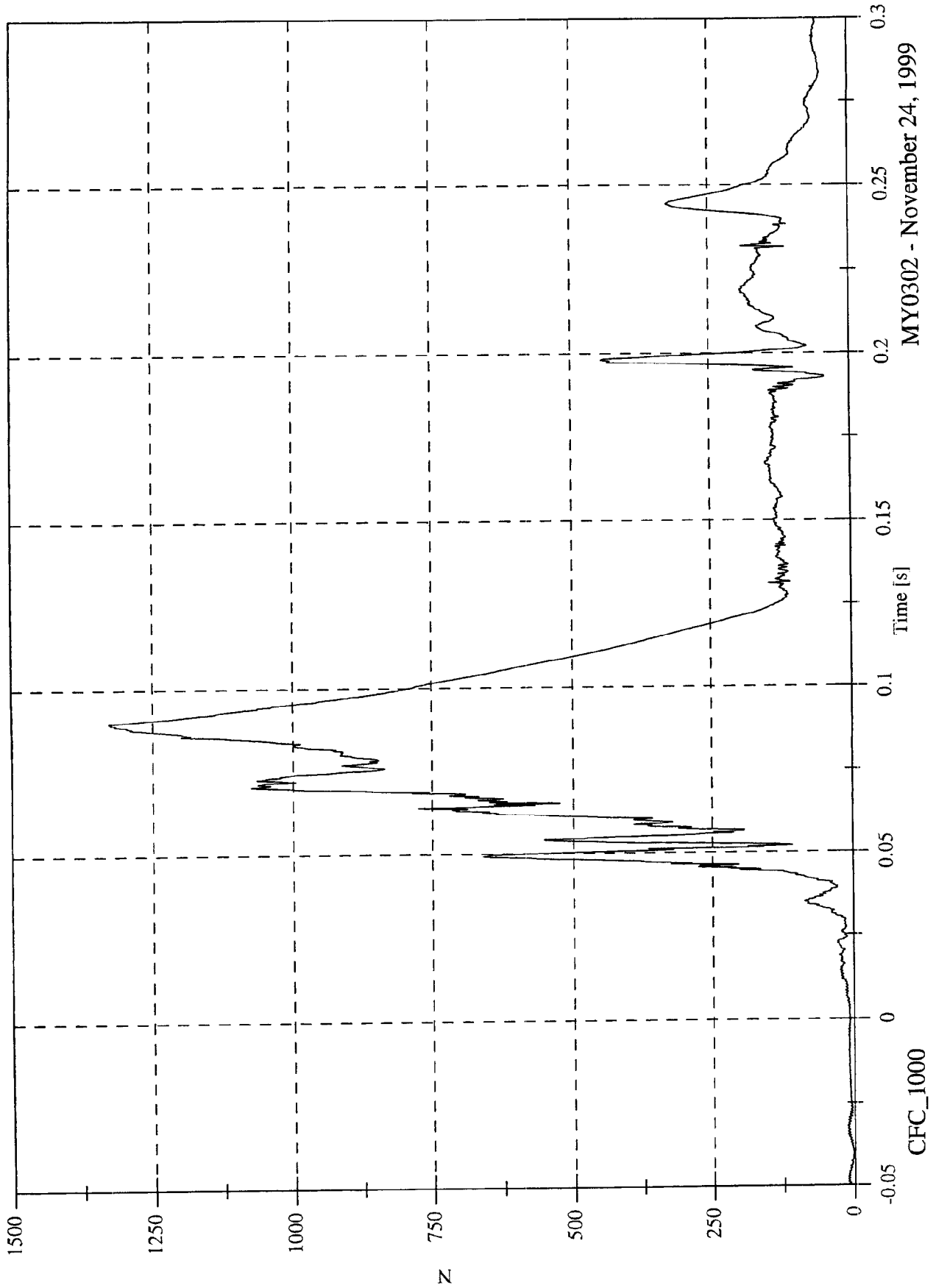


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

P2 Upper Neck F Resultant

Max: 1326.9 [N] at 0.090 [s]
Min: 2.0 [N] at -0.041 [s]

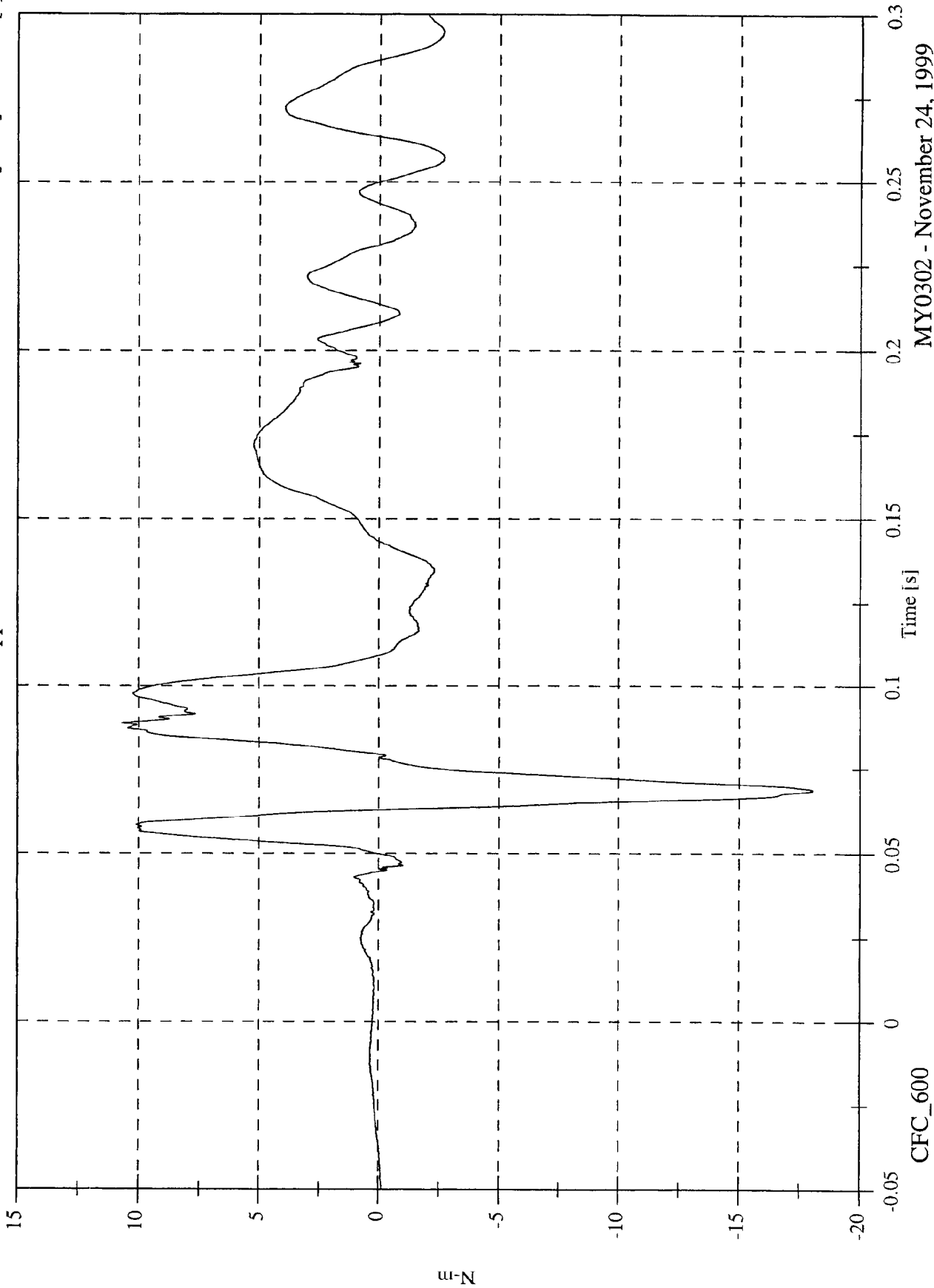


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 10.7 [N-m] at 0.089 [s]
Min: -18.0 [N-m] at 0.069 [s]

P2 Upper Neck Mx

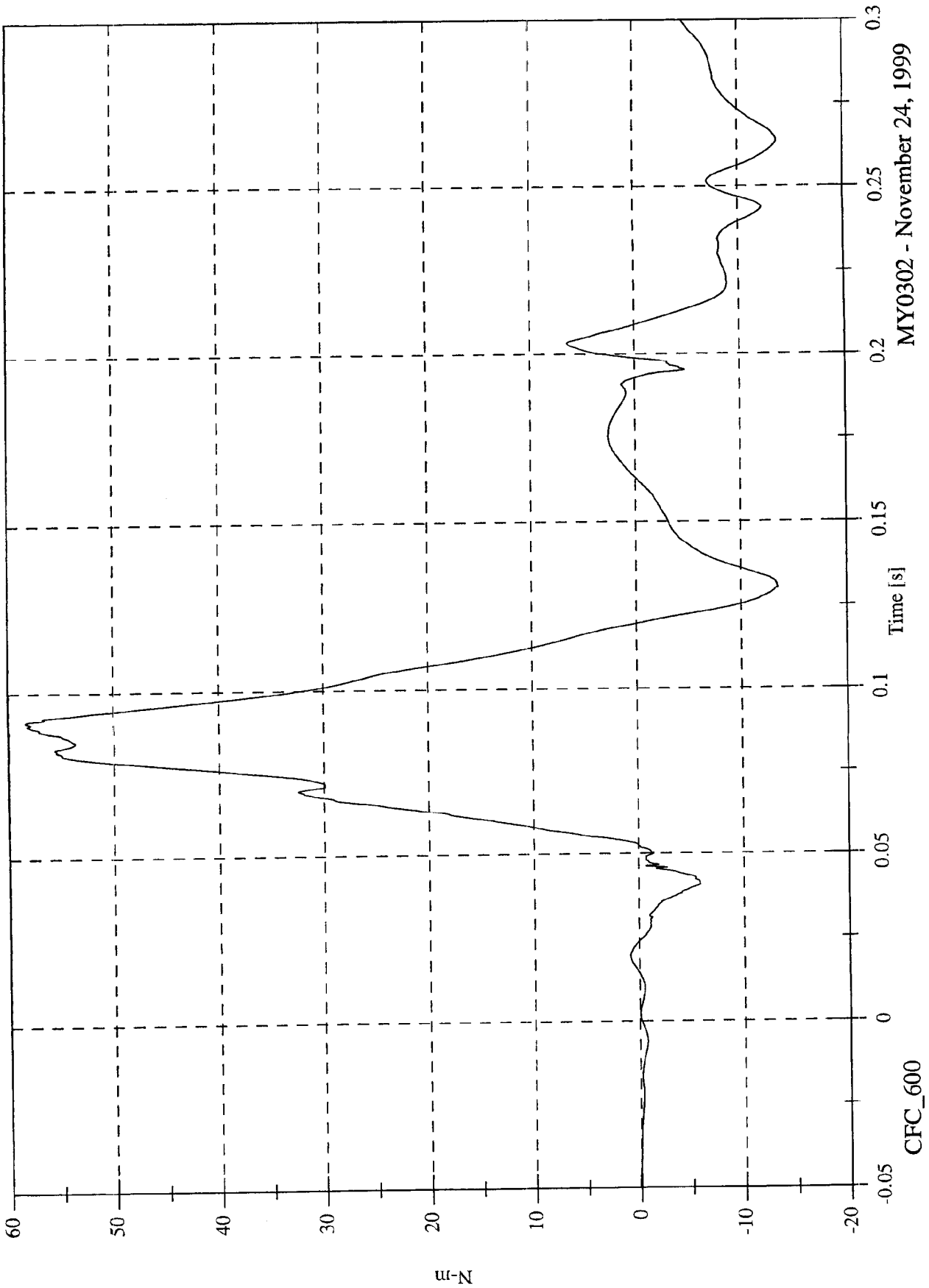


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 58.3 [N-m] at 0.091 [s]
Min: -13.7 [N-m] at 0.264 [s]

P2 Upper Neck My



MY0302 - November 24, 1999

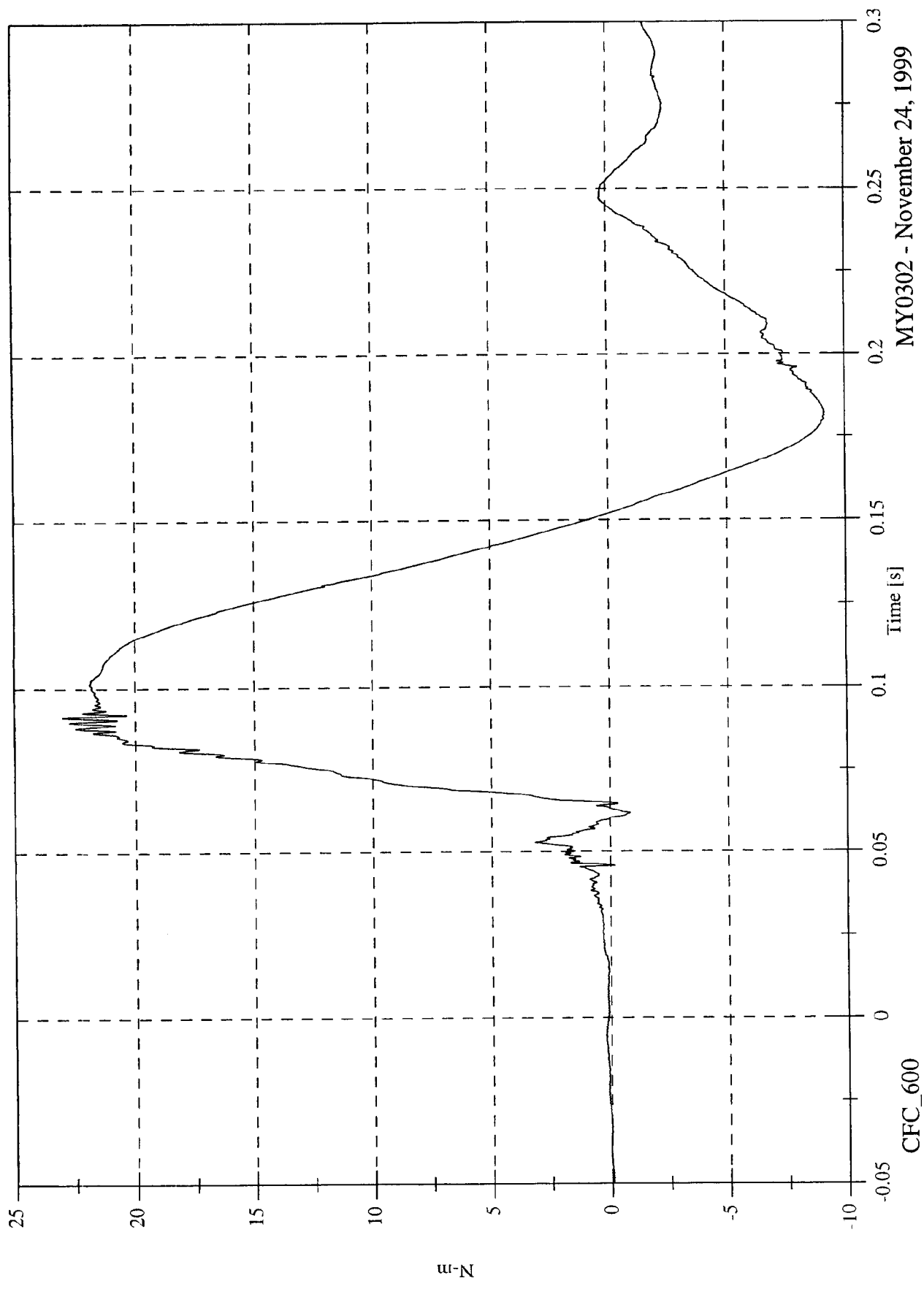
CFC_600



NCAP Test 3 - 2000 Dodge Caravan

Max: 23.0 [N-m] at 0.091 [s]
Min: -9.1 [N-m] at 0.182 [s]

P2 Upper Neck Mz



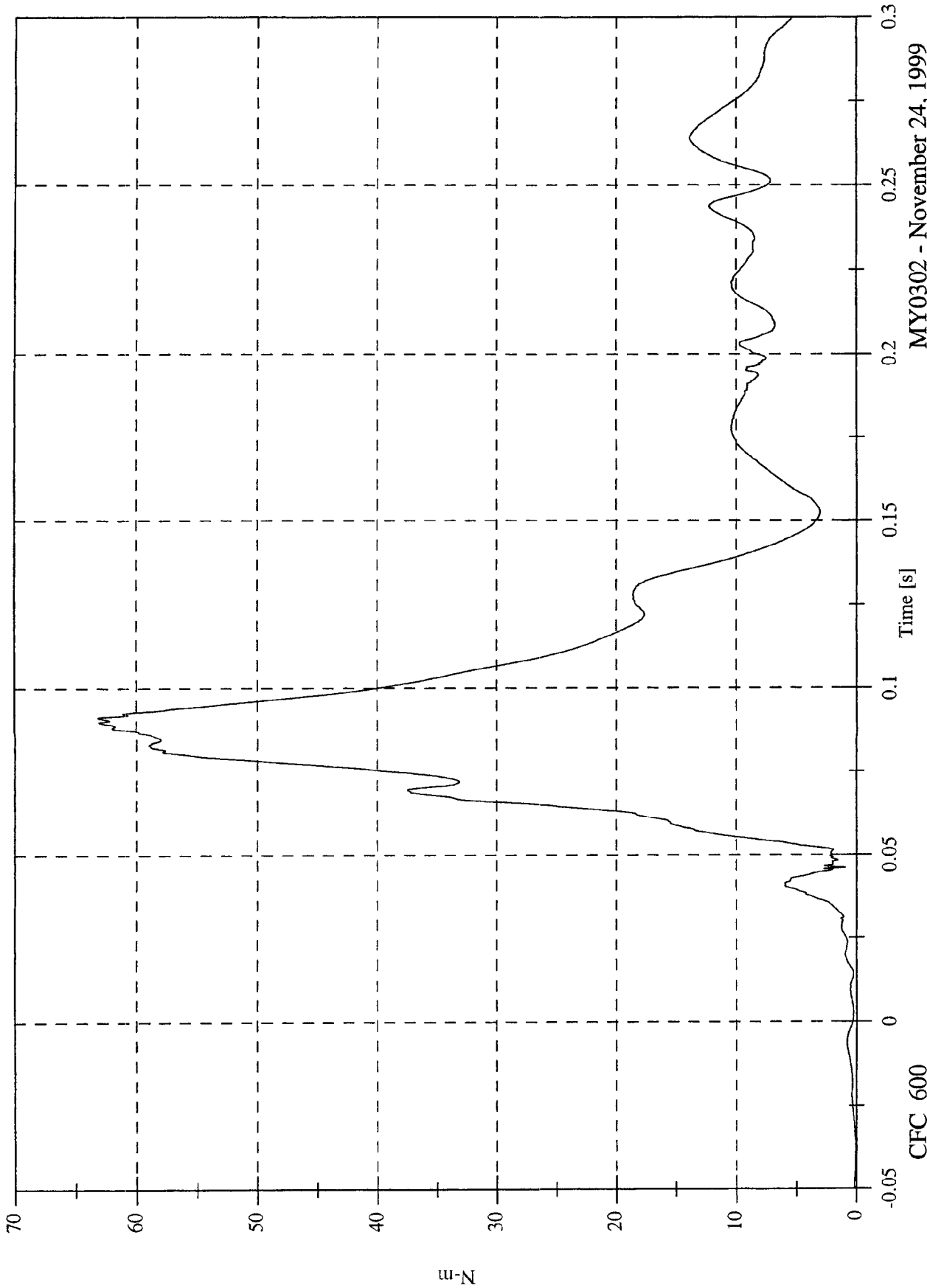
MY0302 - November 24, 1999

CFC_600

NCAP Test 3 - 2000 Dodge Caravan

Max: 63.1 [N-m] at 0.091 [s]
Min: 0.0 [N-m] at -0.038 [s]

P2 Upper Neck M Resultant



MY0302 - November 24, 1999

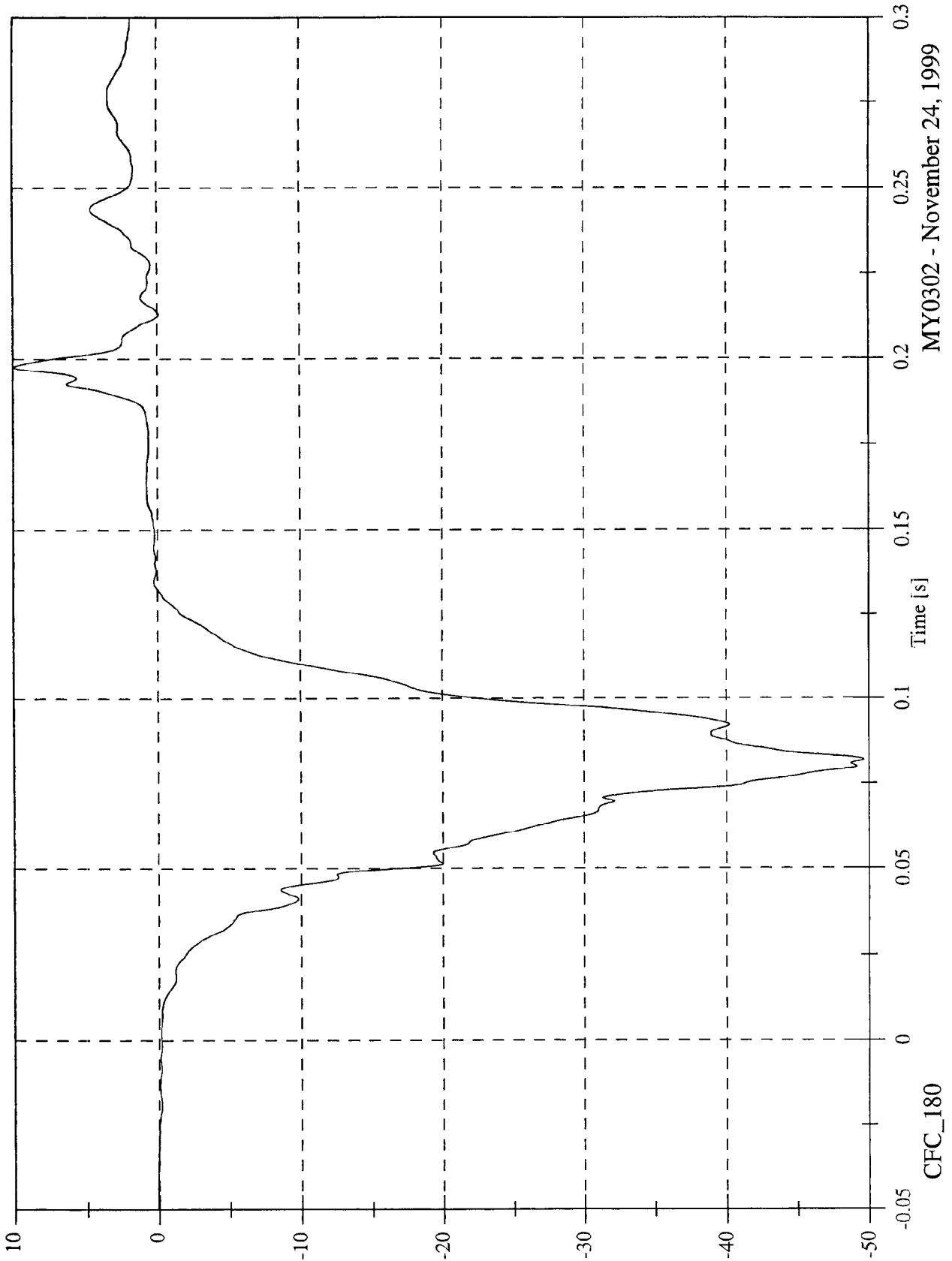
CFC_600

NCAP Test 3 - 2000 Dodge Caravan

Max: 9.9 [g] at 0.197 [s]

Min: -49.6 [g] at 0.082 [s]

P2 Chest x



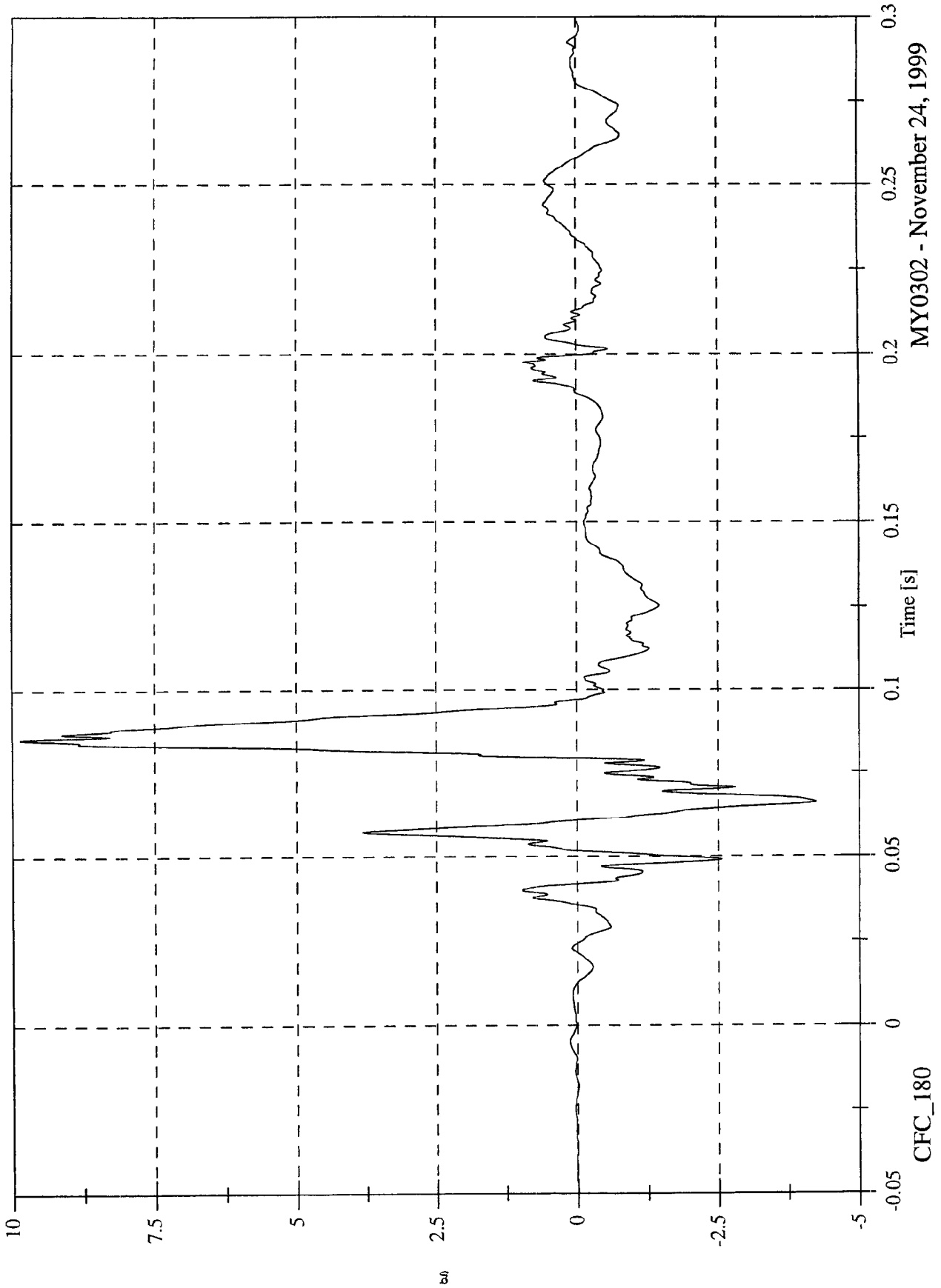
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 9.9 [g] at 0.085 [s]
Min: -4.2 [g] at 0.066 [s]

P2 Chest y



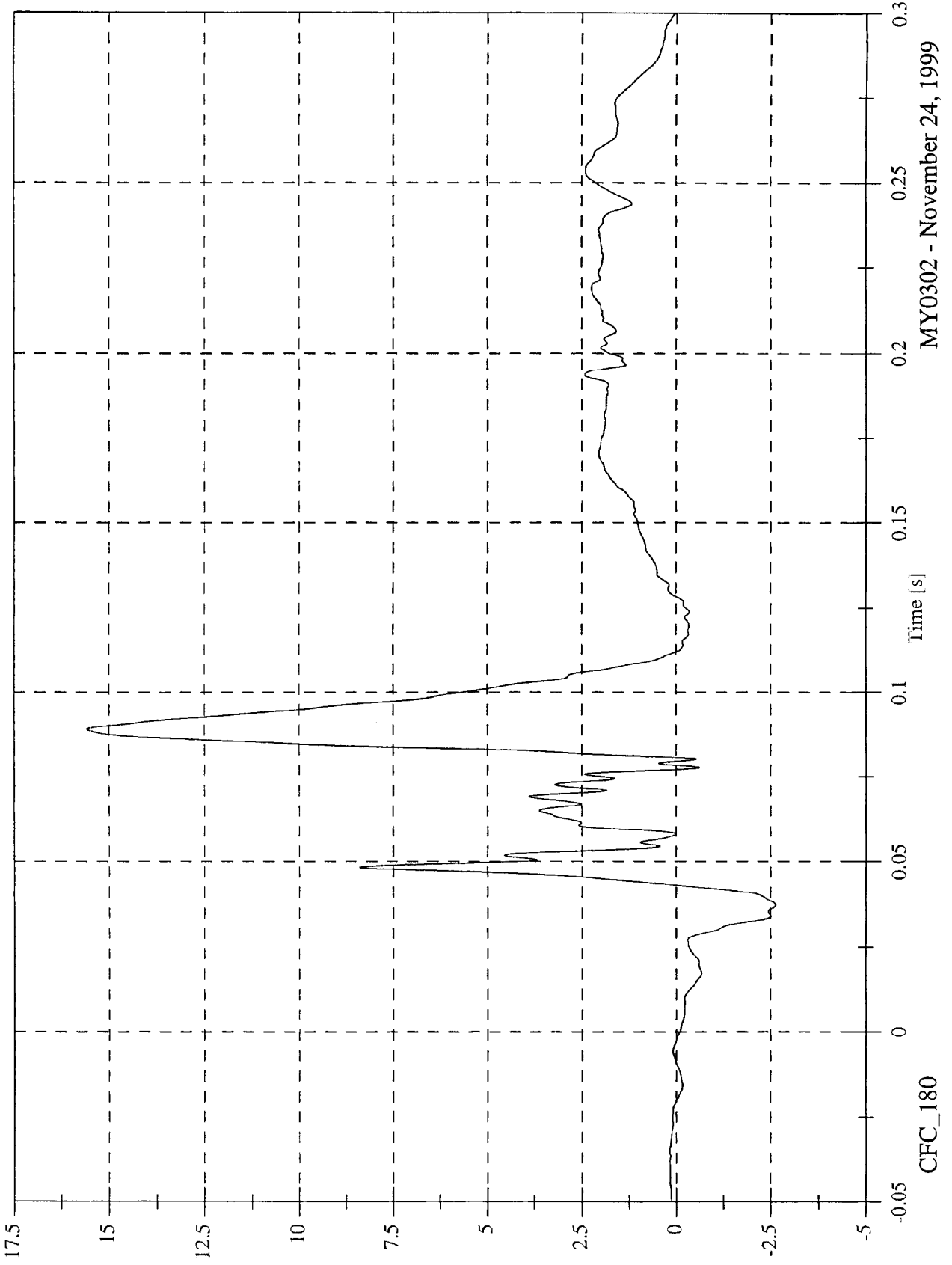
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 15.6 [g] at 0.089 [s]
Min: -2.6 [g] at 0.037 [s]

P2 Chest z



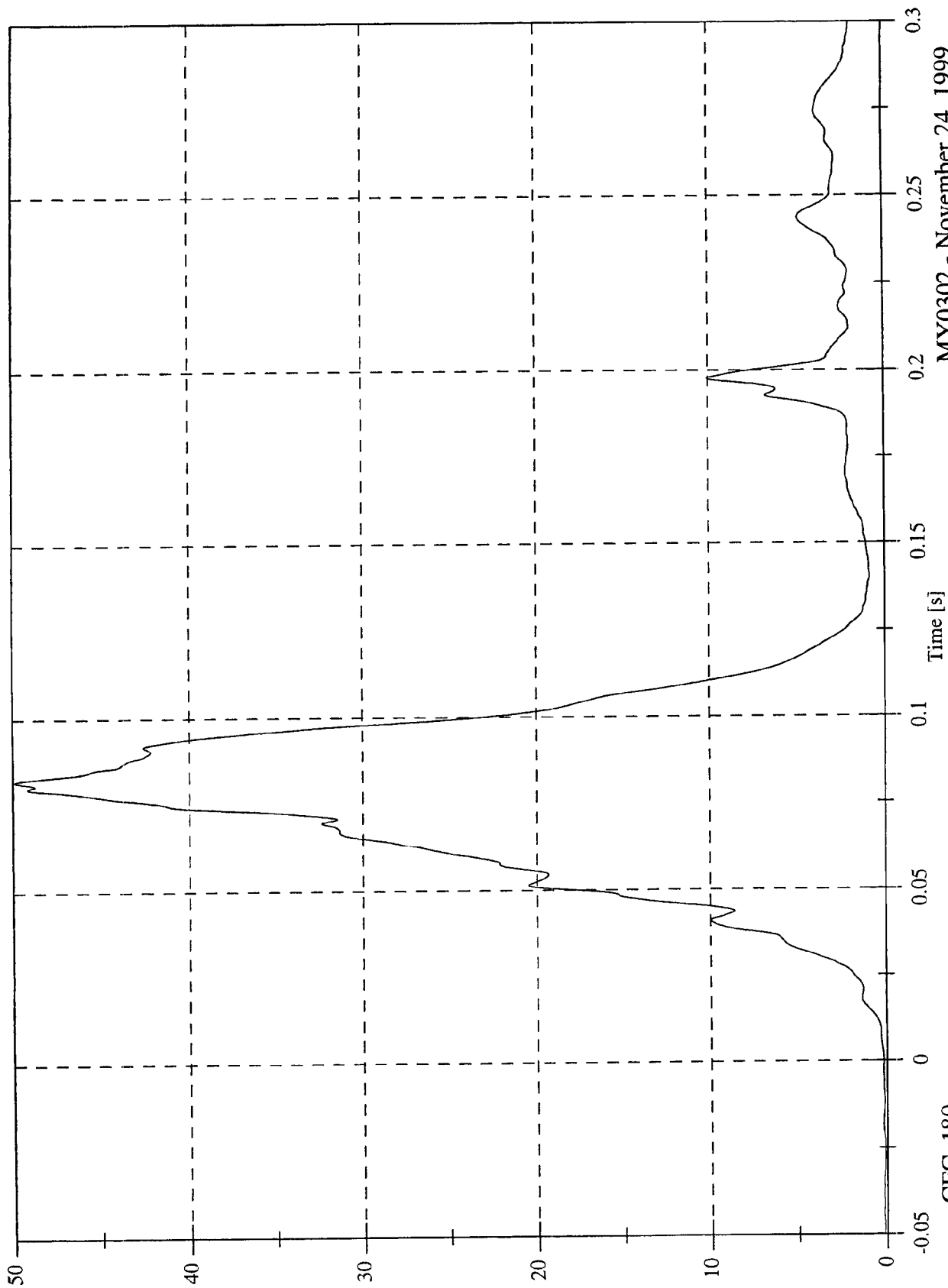
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 49.9 [g] at 0.082 [s]
Min: 0.1 [g] at -0.027 [s]

P2 Chest Resultant



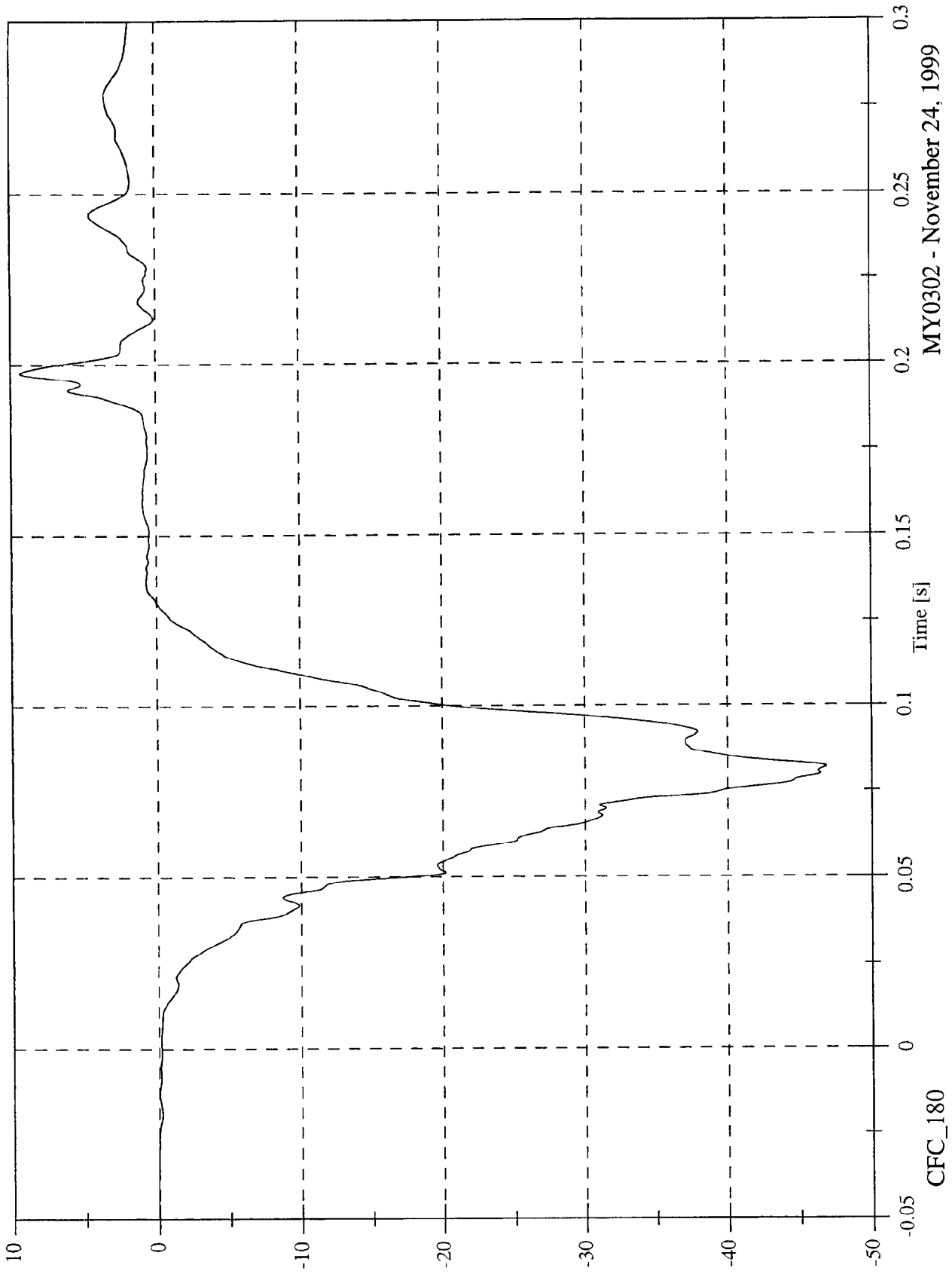
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 9.4 [g] at 0.197 [s]
Min: -46.8 [g] at 0.082 [s]

P2 Chest Red x



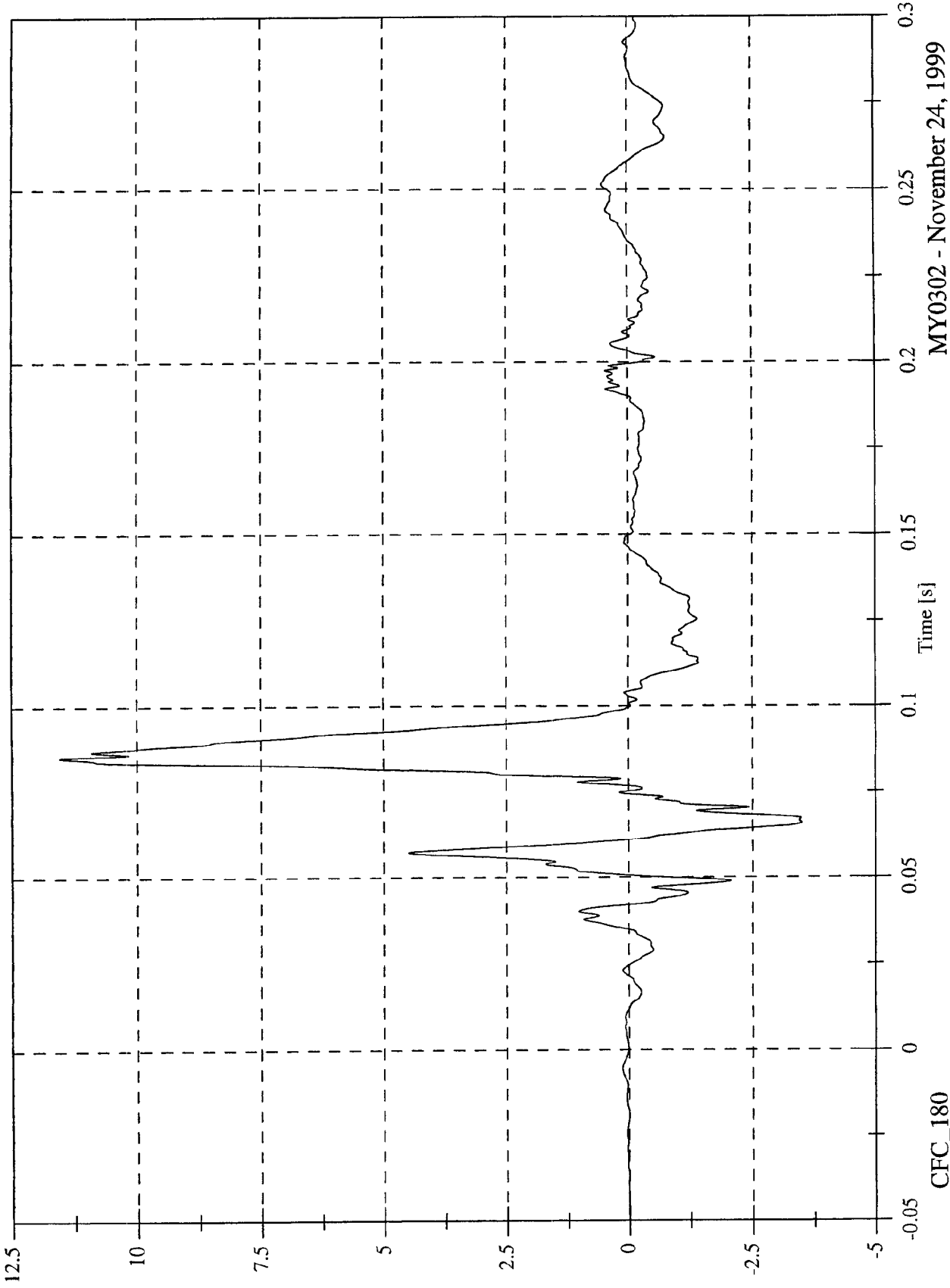
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 11.5 [g] at 0.085 [s]
Min: -3.5 [g] at 0.066 [s]

P2 Chest Red y



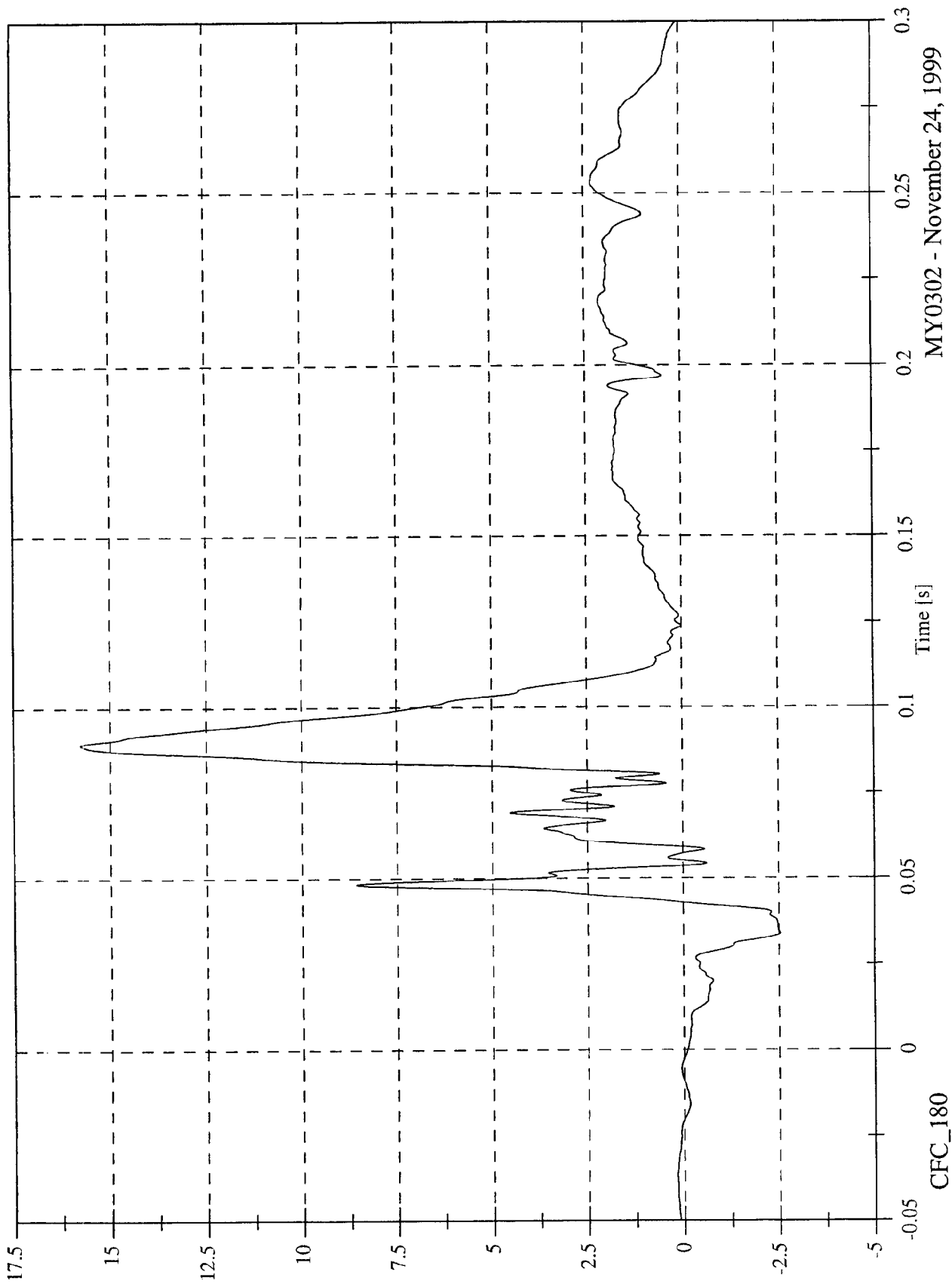
MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 15.8 [g] at 0.089 [s]

Min: -2.5 [g] at 0.034 [s]

P2 Chest Red z



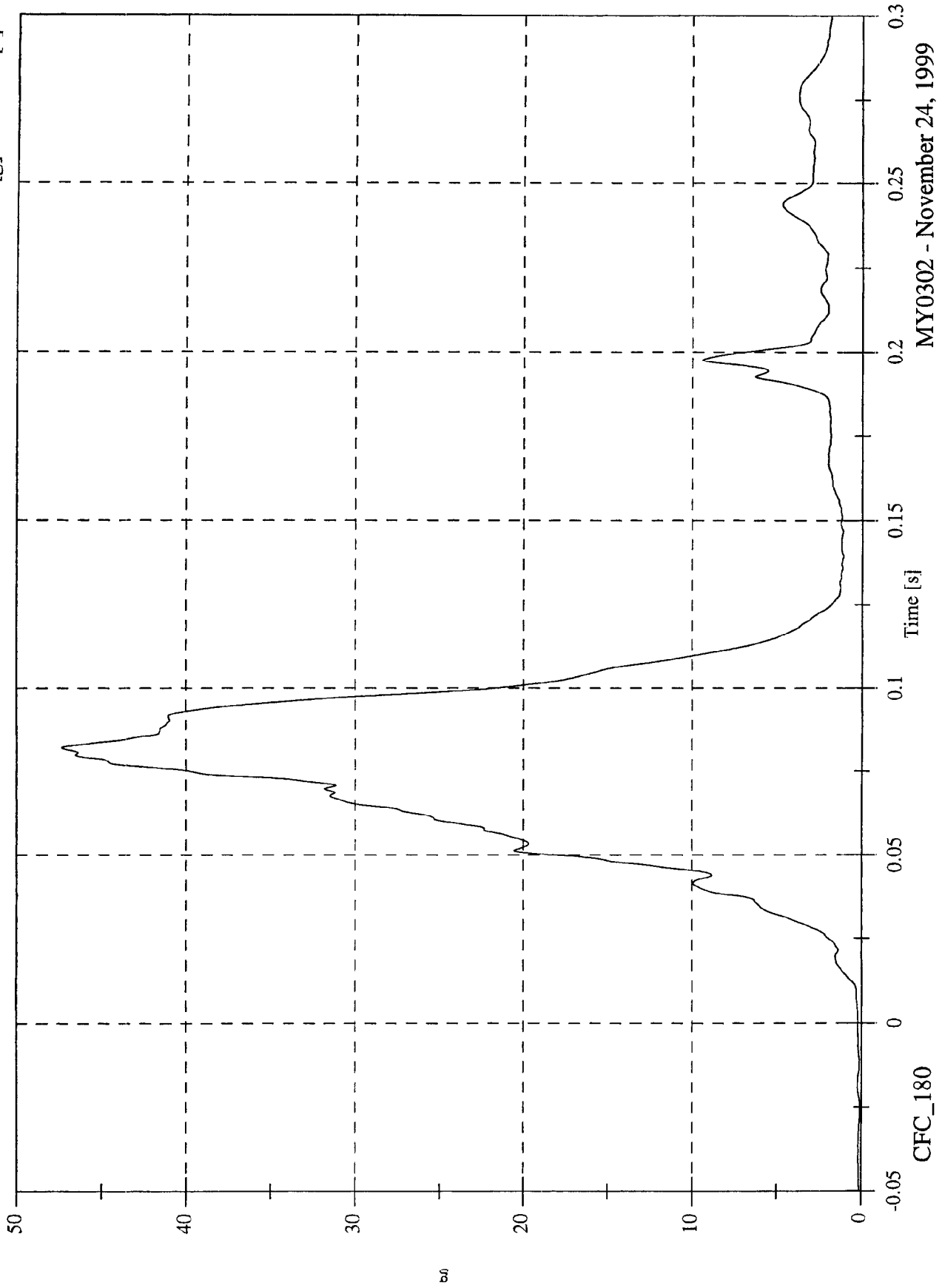
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

P2 Chest Red Resultant

Max: 47.3 [g] at 0.082 [s]
Min: 0.1 [g] at -0.026 [s]



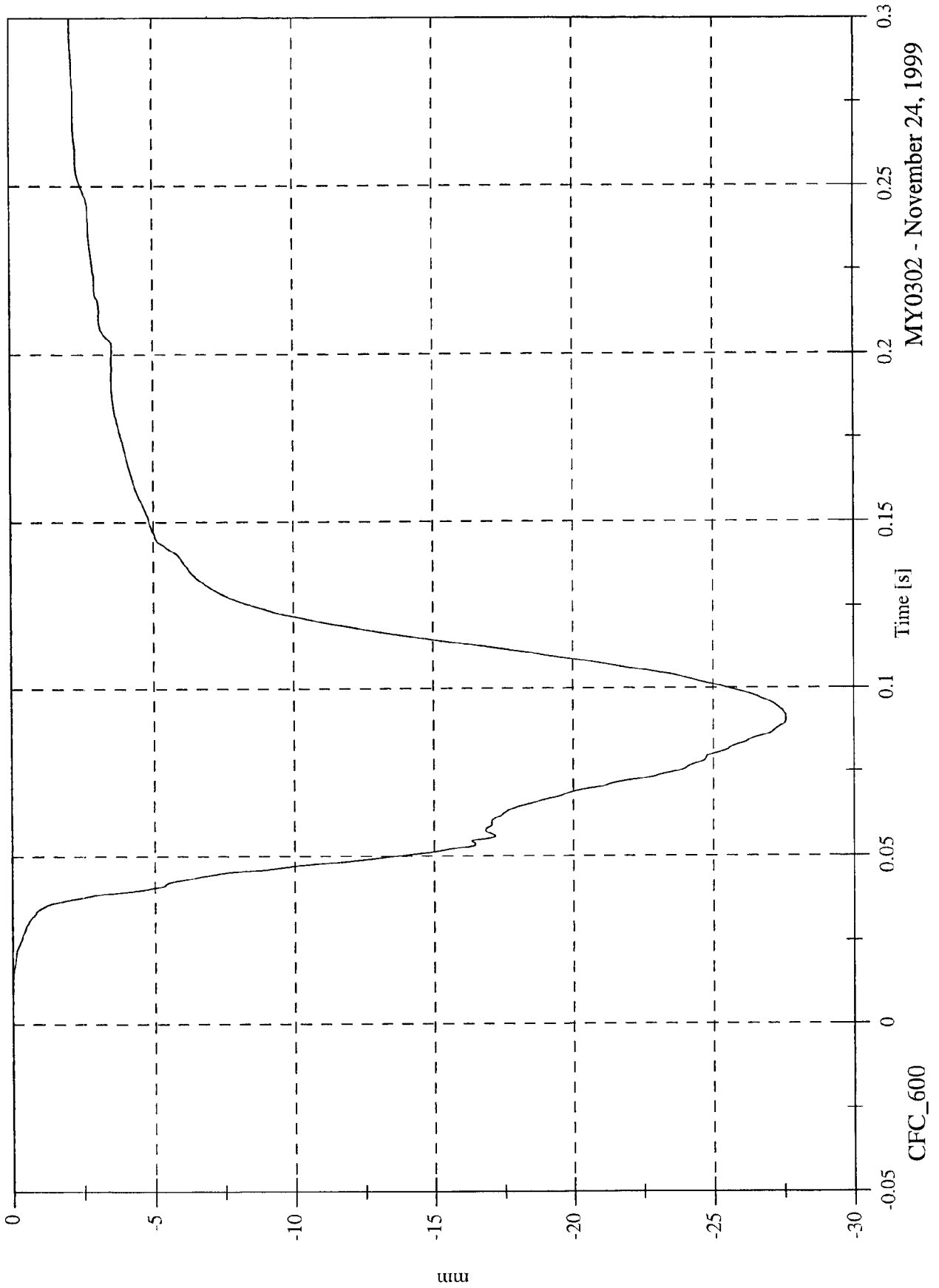
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 0.0 [mm] at 0.002 [s]
Min: -27.6 [mm] at 0.091 [s]

P2 Chest Compression x

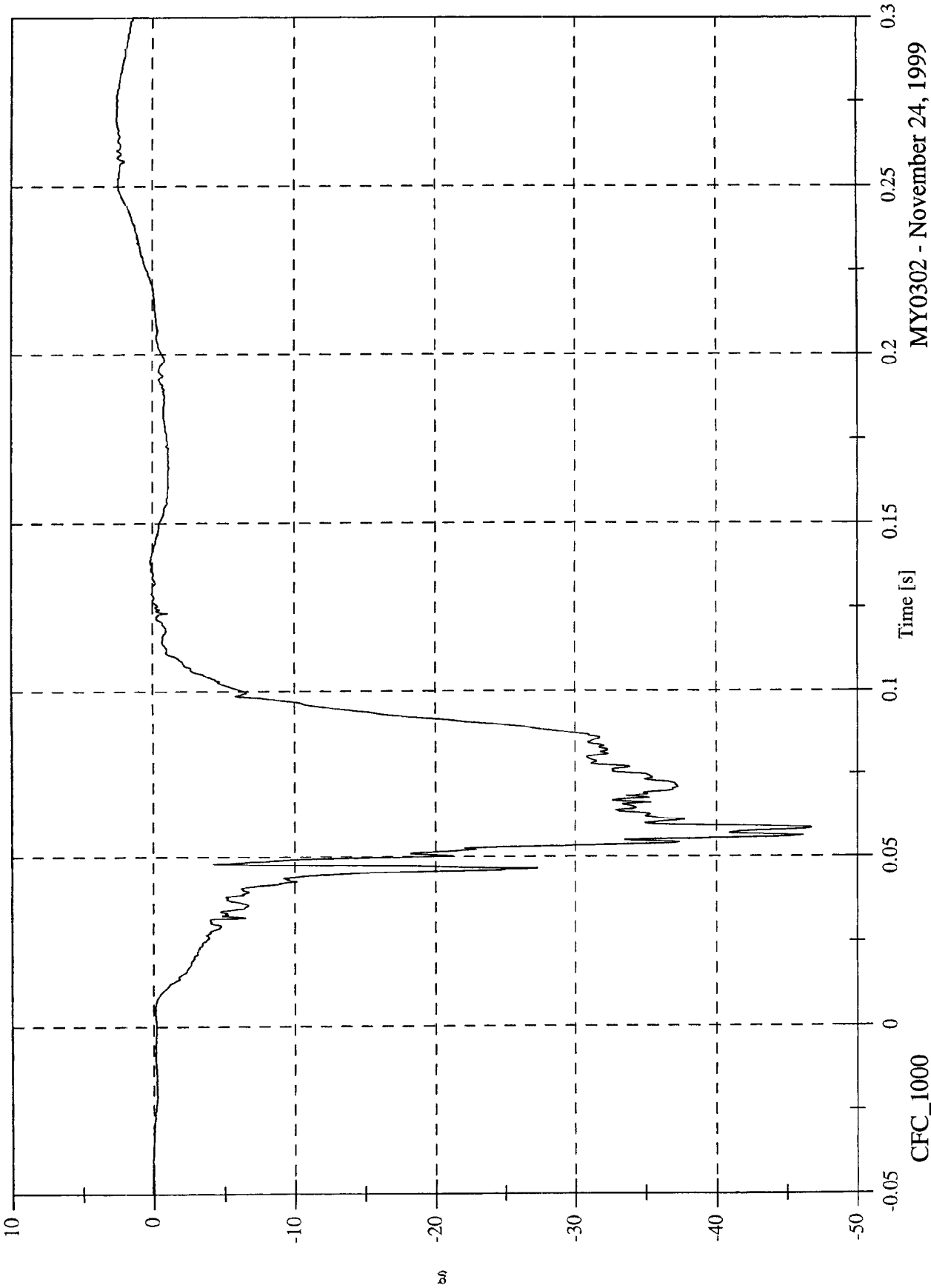


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 2.6 [g] at 0.269 [s]
Min: -46.8 [g] at 0.058 [s]

P2 Pelvic x



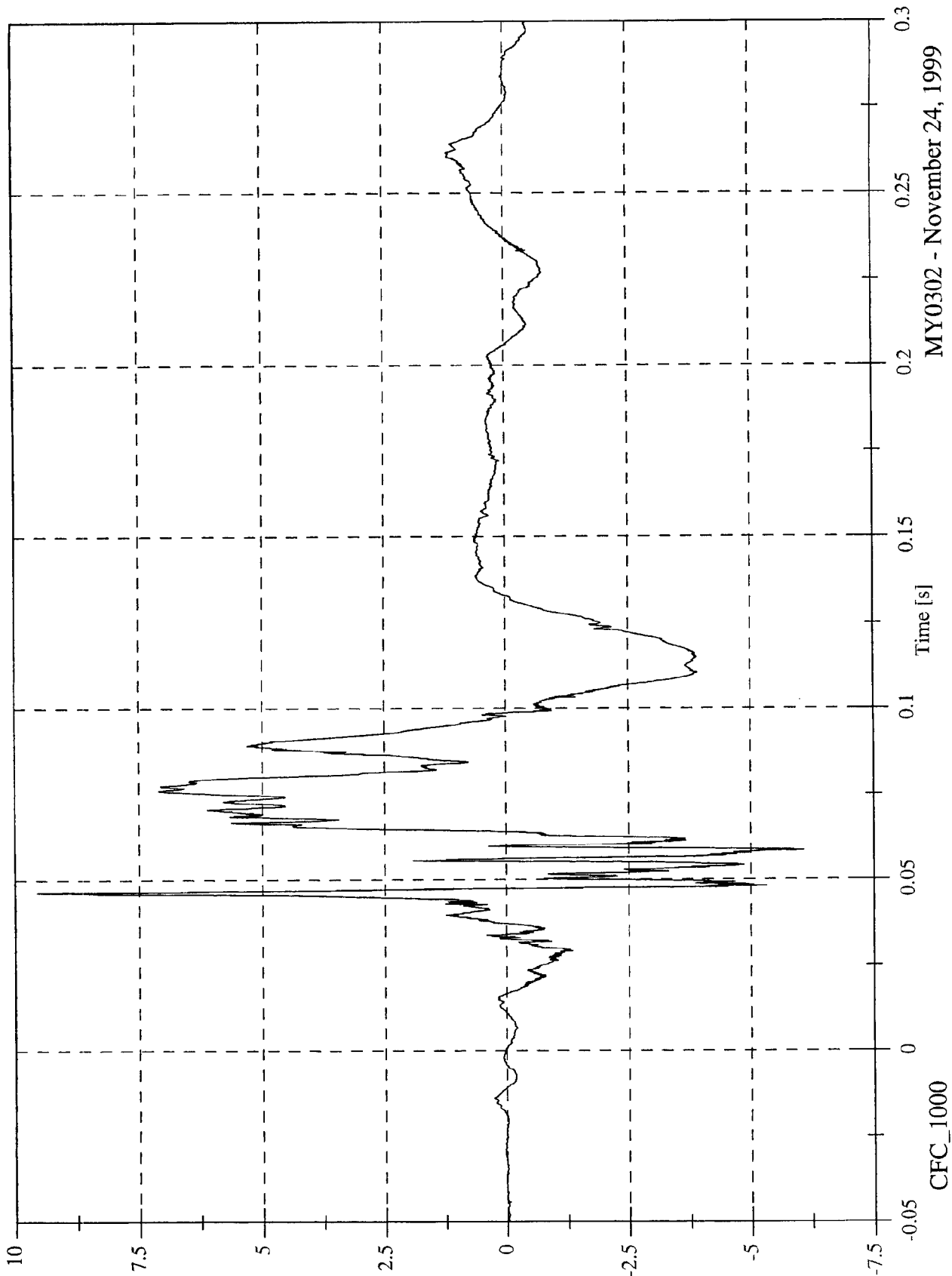
MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 9.6 [g] at 0.046 [s]

Min: -6.1 [g] at 0.059 [s]

P2 Pelvic y

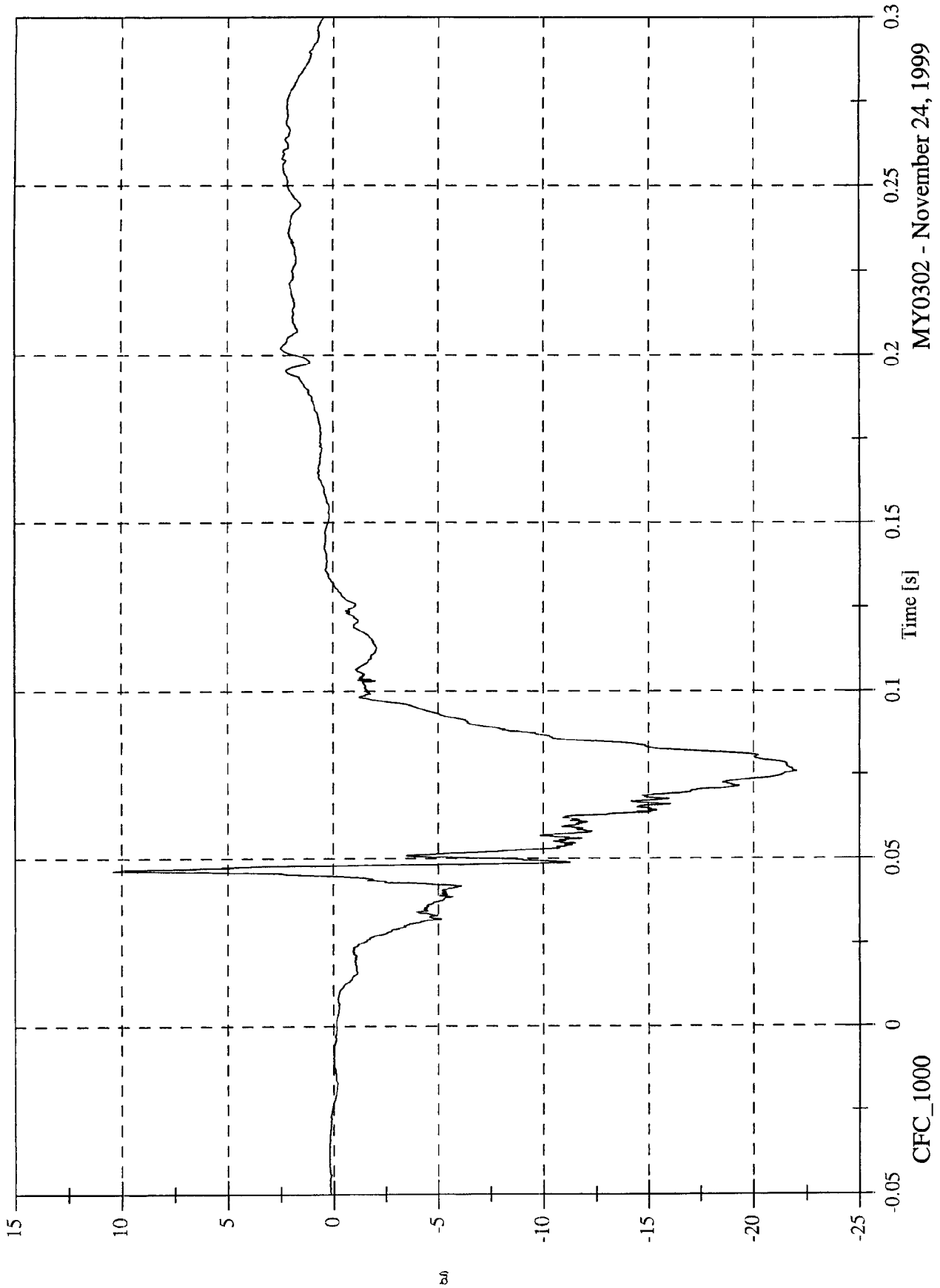


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 10.4 [g] at 0.047 [s]
Min: -22.0 [g] at 0.076 [s]

P2 Pelvic z



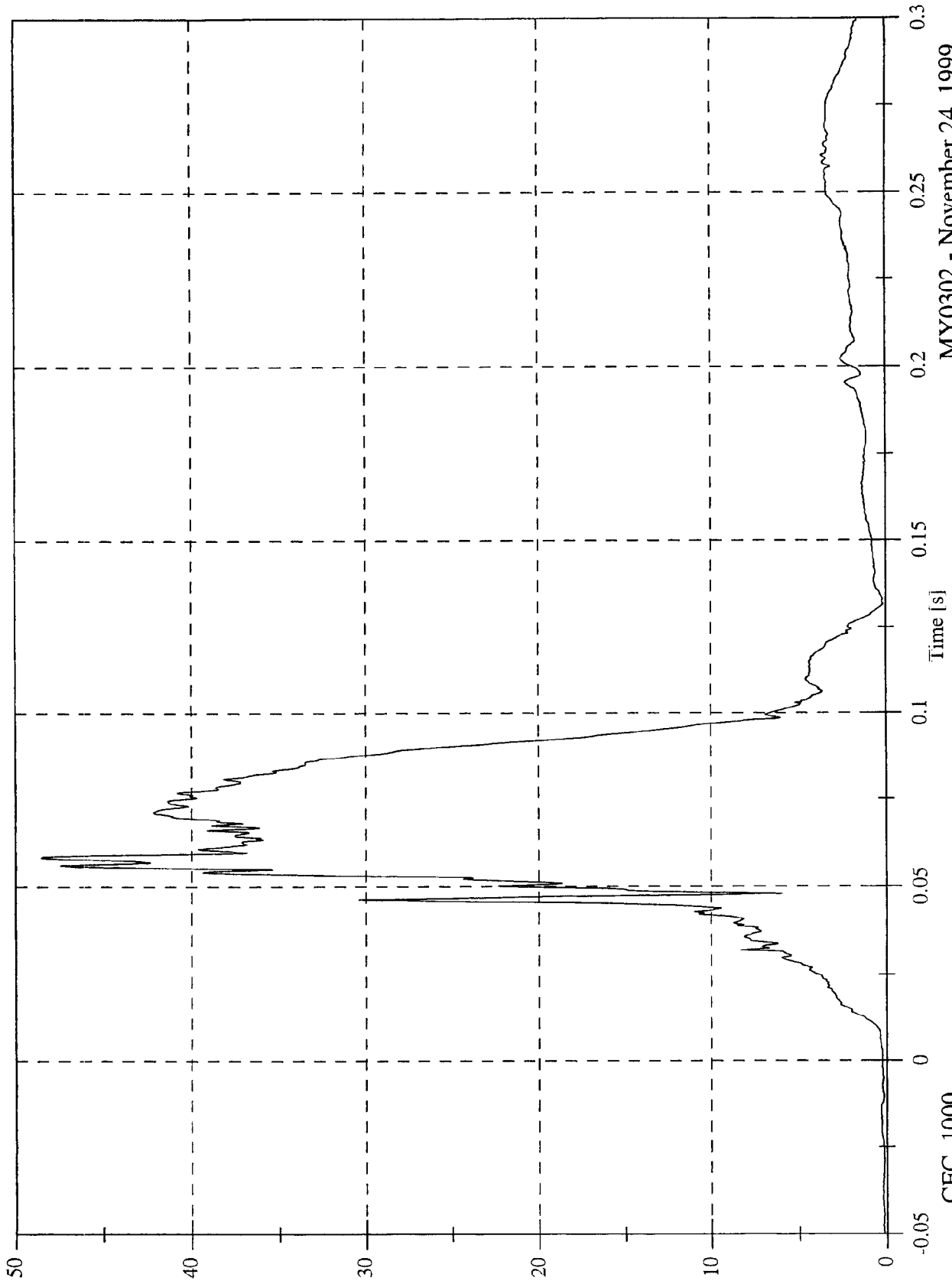
MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 48.5 [g] at 0.058 [s]

Min: 0.1 [g] at -0.029 [s]

P2 Pelvic Resultant

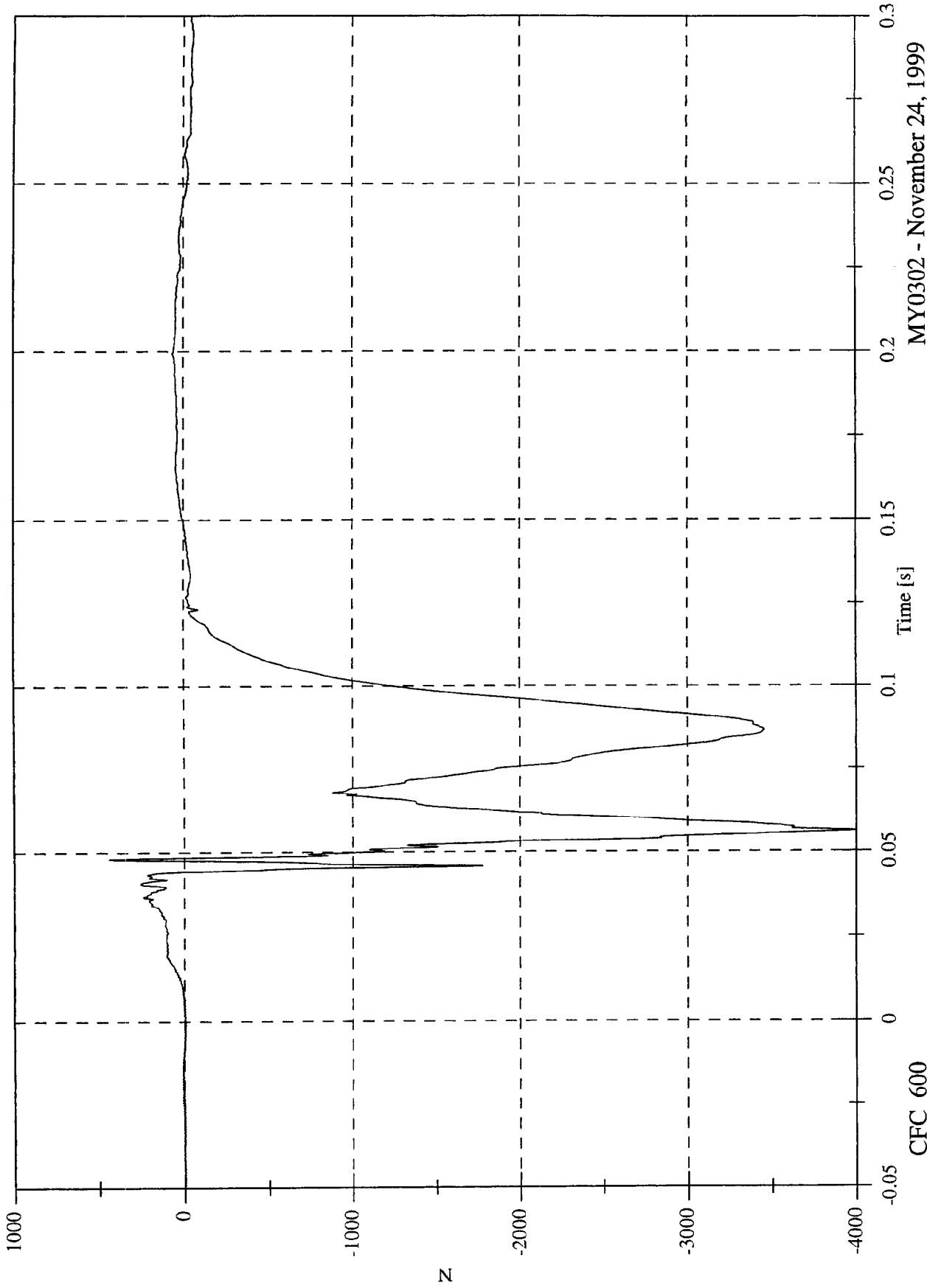


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 442.6 [N] at 0.048 [s]
Min: -3999.7 [N] at 0.056 [s]

P2 Left Femur z



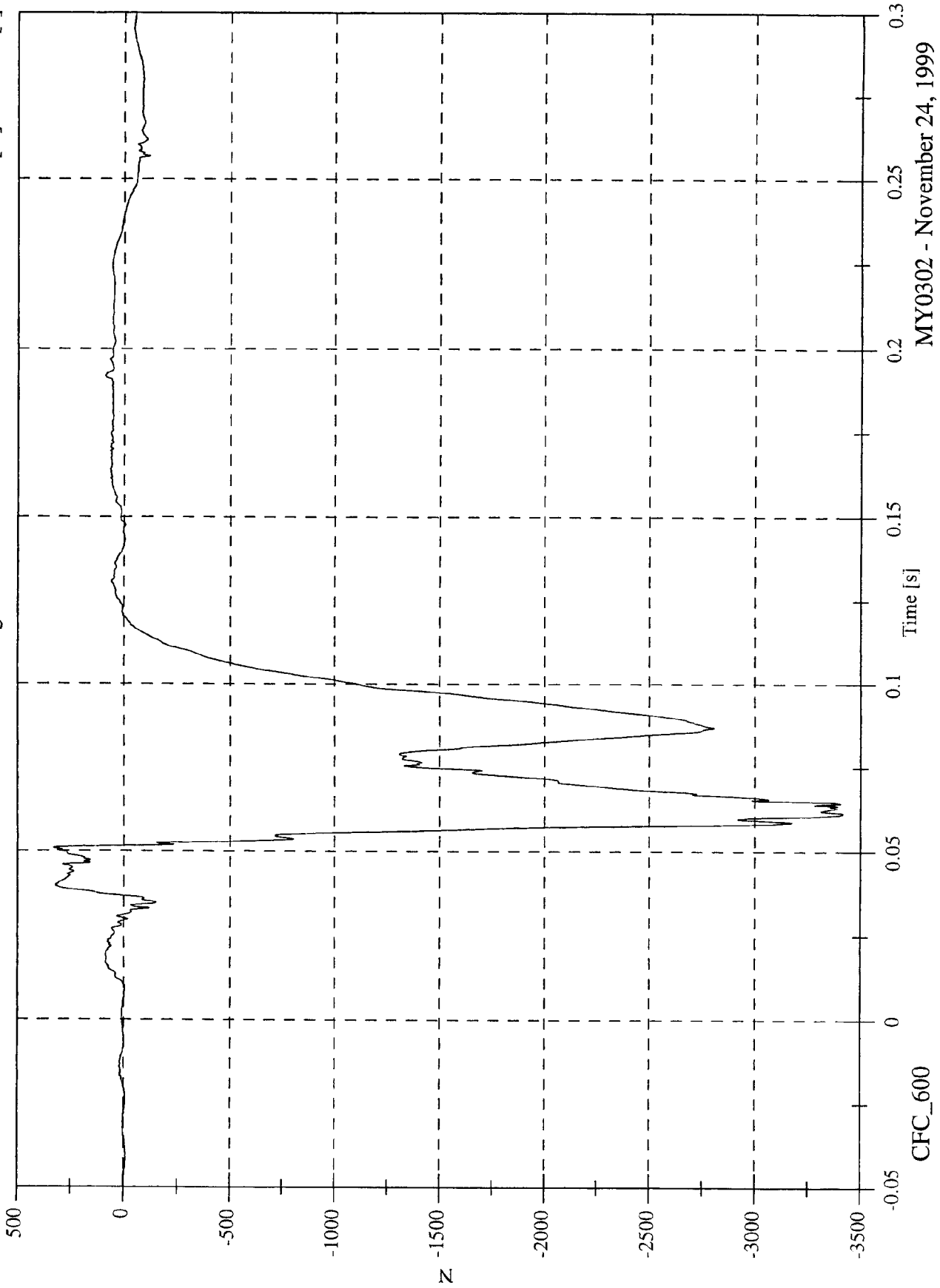
MY0302 - November 24, 1999

CFC_600

NCAP Test 3 - 2000 Dodge Caravan

Max: 328.6 [N] at 0.051 [s]
Min: -3415.9 [N] at 0.061 [s]

P2 Right Femur z

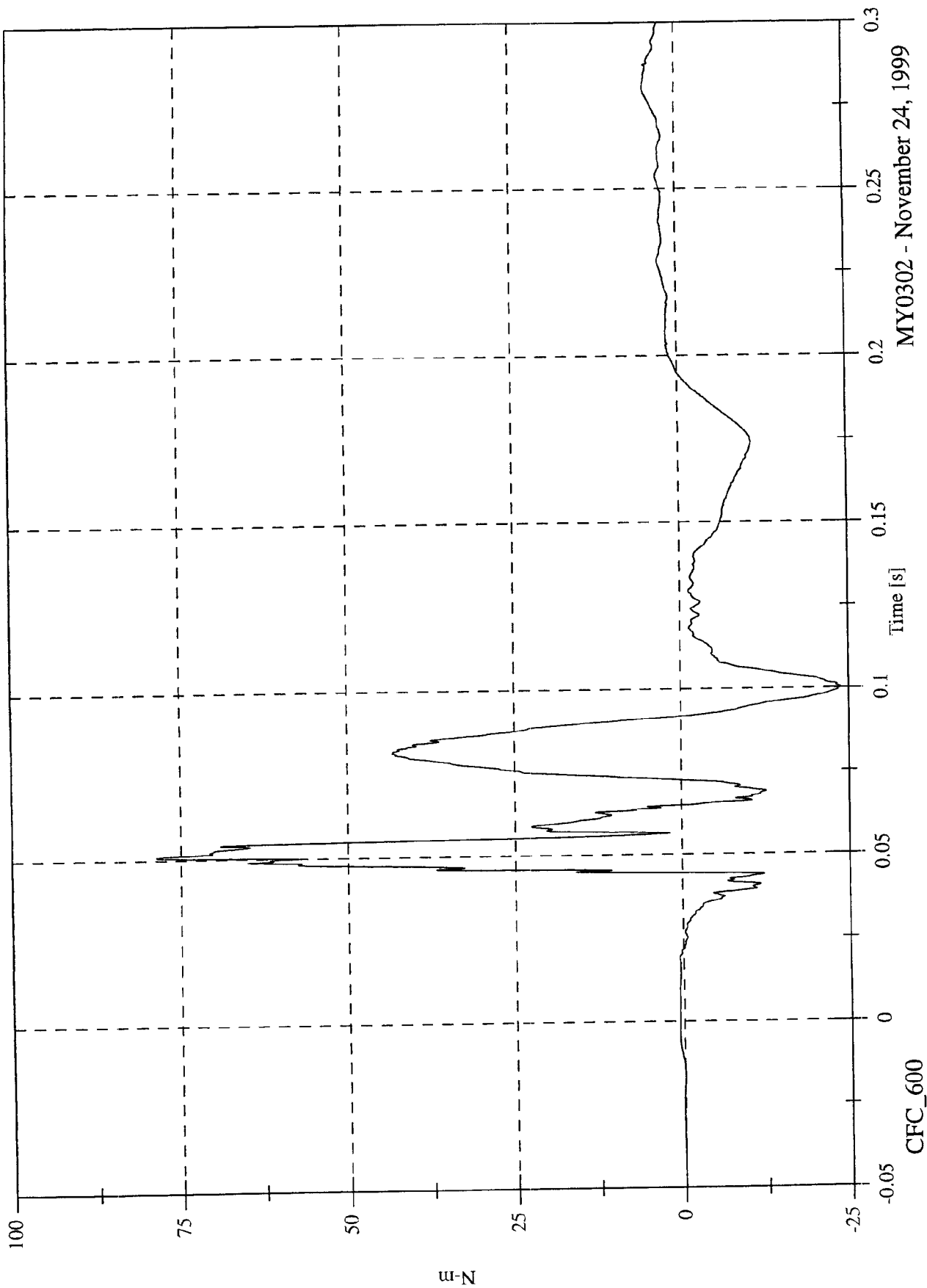


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 78.6 [N-m] at 0.051 [s]
Min: -23.9 [N-m] at 0.100 [s]

P2 Left Upper Tibia Mx



MY0302 - November 24, 1999

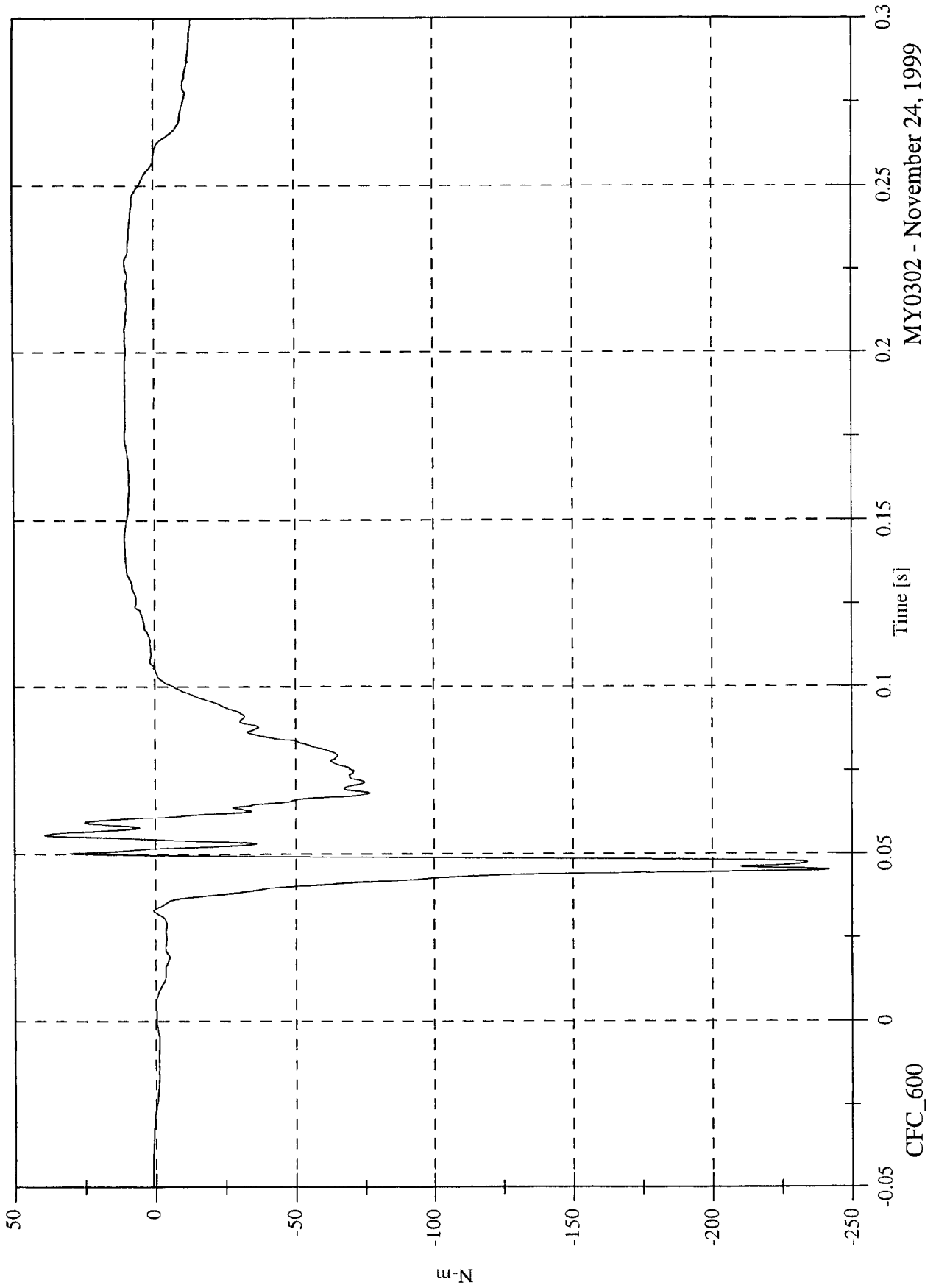
CFC_600

NCAP Test 3 - 2000 Dodge Caravan

P2 Left Upper Tibia My

Max: 39.2 [N-m] at 0.056 [s]

Min: -241.8 [N-m] at 0.045 [s]

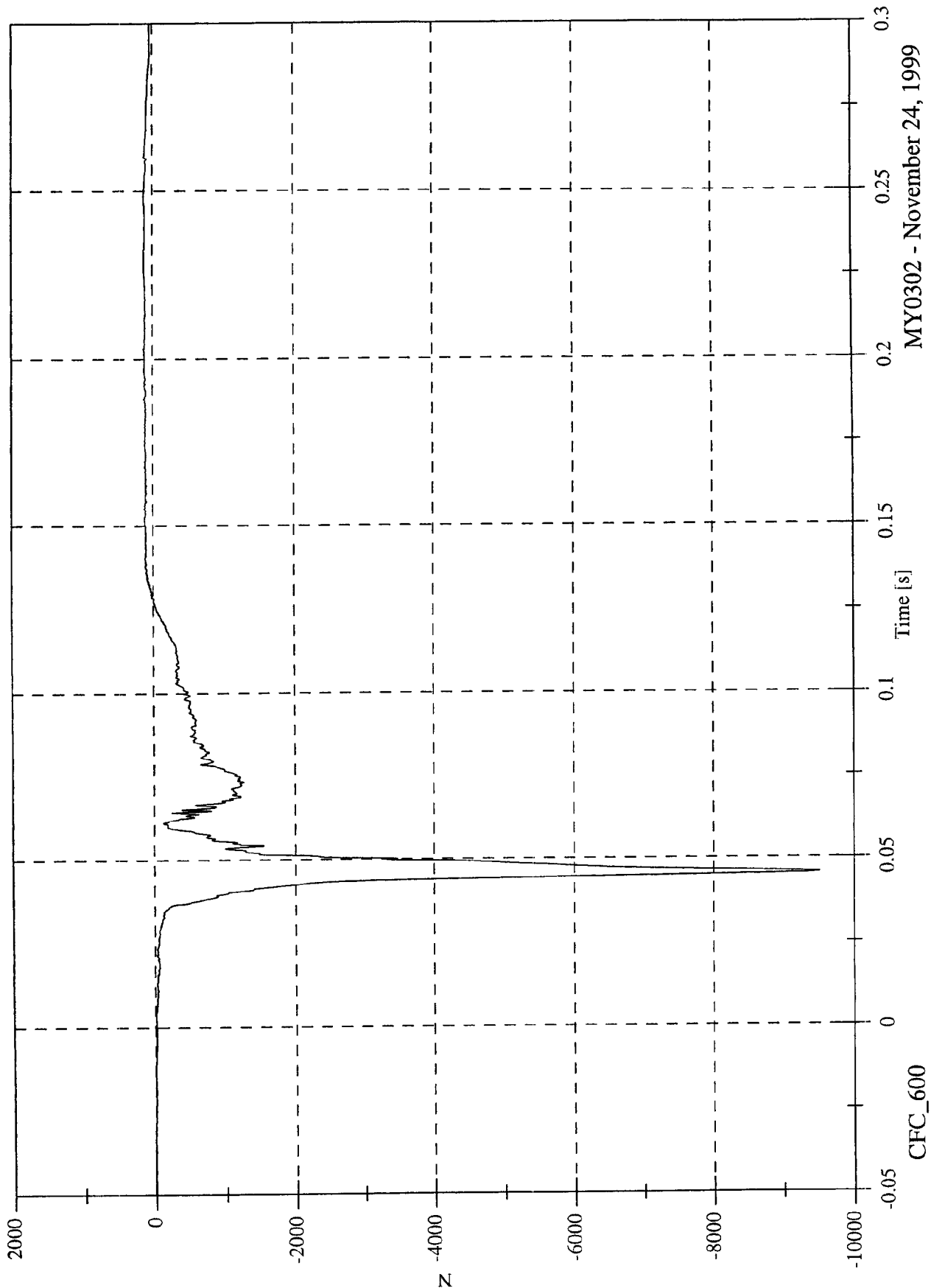


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 128.7 [N] at 0.203 [s]
Min: -9507.0 [N] at 0.046 [s]

P2 Left Lower Tibia Fz



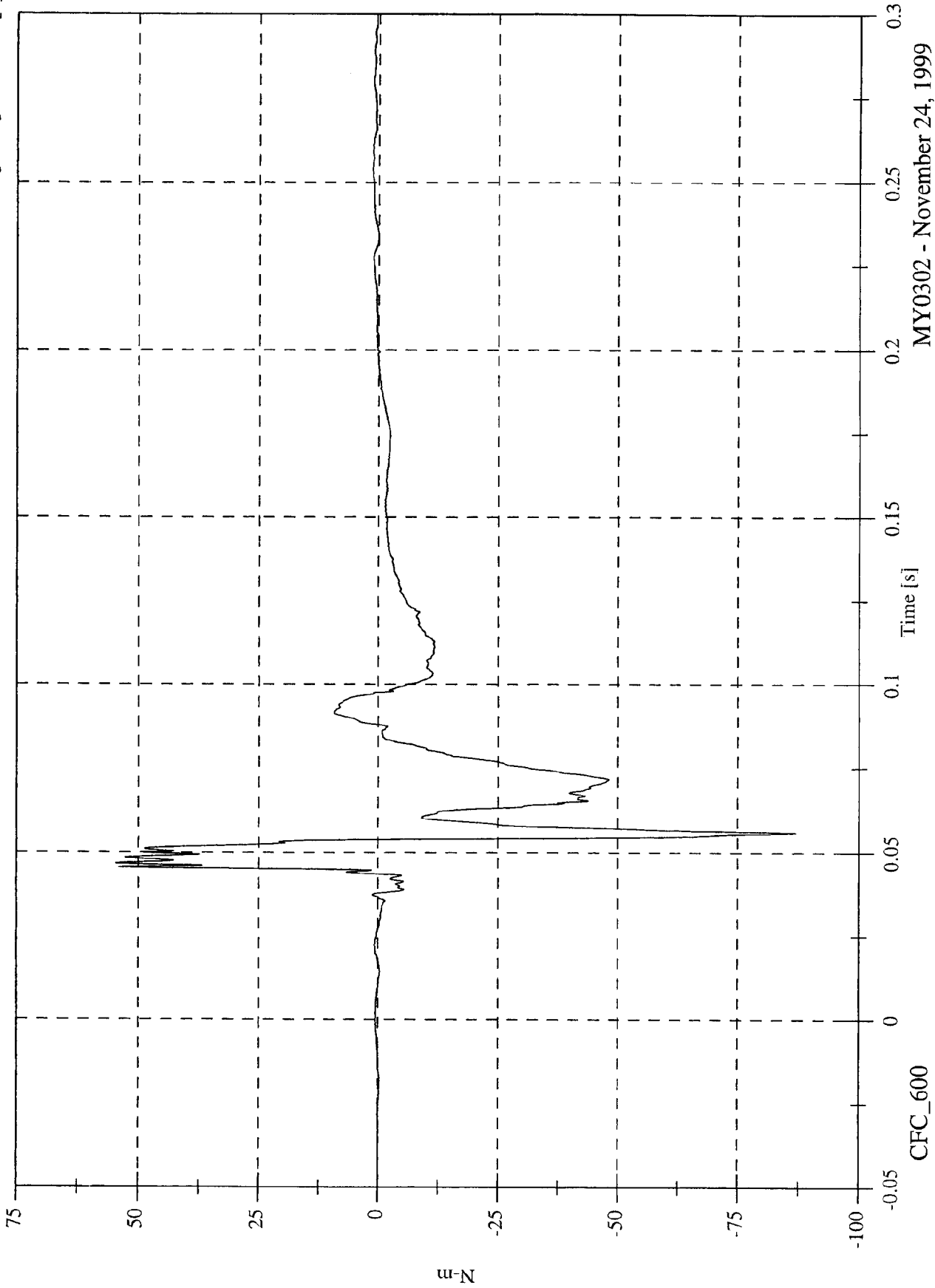
MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

P2 Left Lower Tibia Mx

Max: 54.6 [N-m] at 0.047 [s]

Min: -87.0 [N-m] at 0.056 [s]

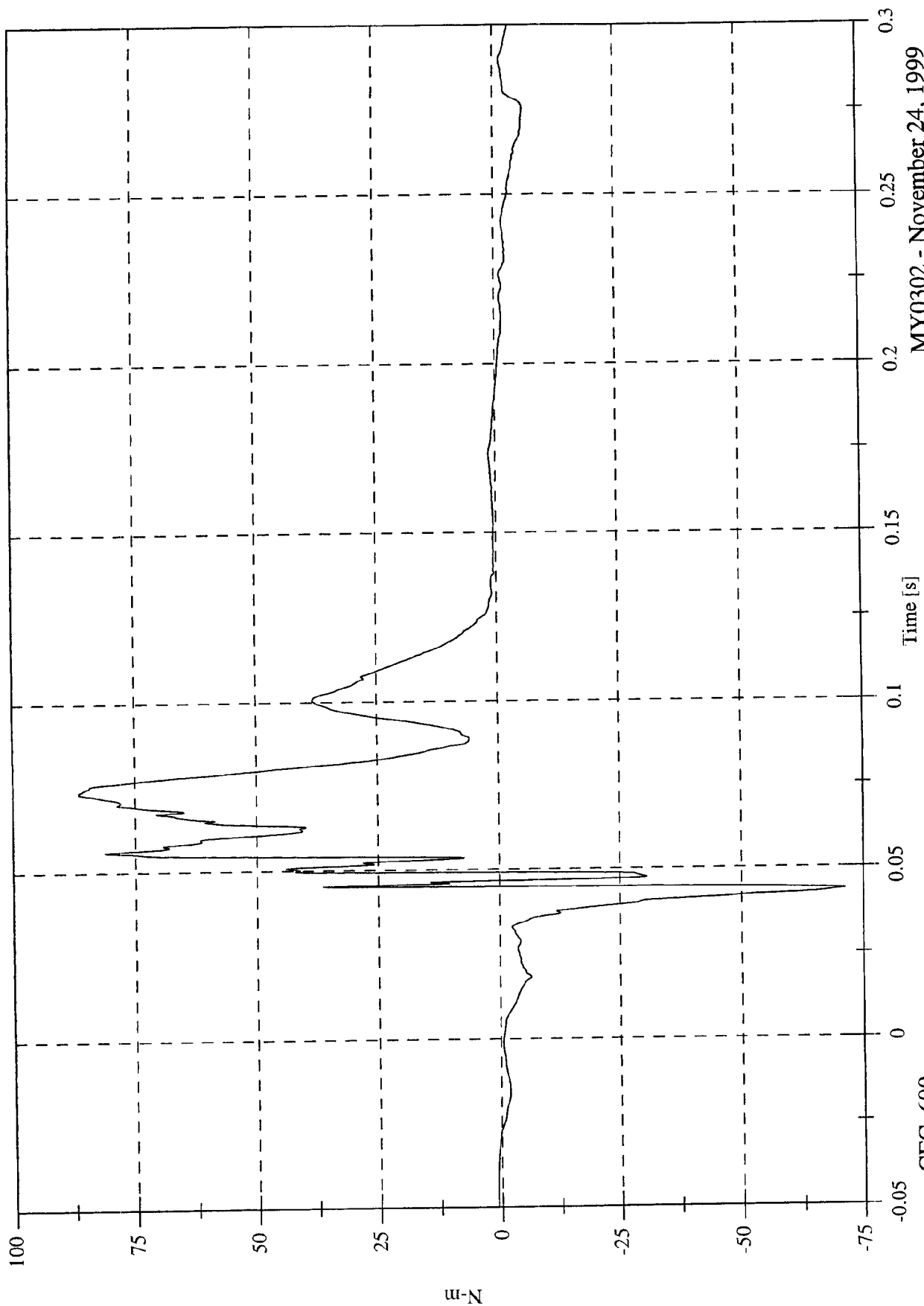


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 86.5 [N-m] at 0.073 [s]
Min: -71.2 [N-m] at 0.044 [s]

P2 Left Lower Tibia My



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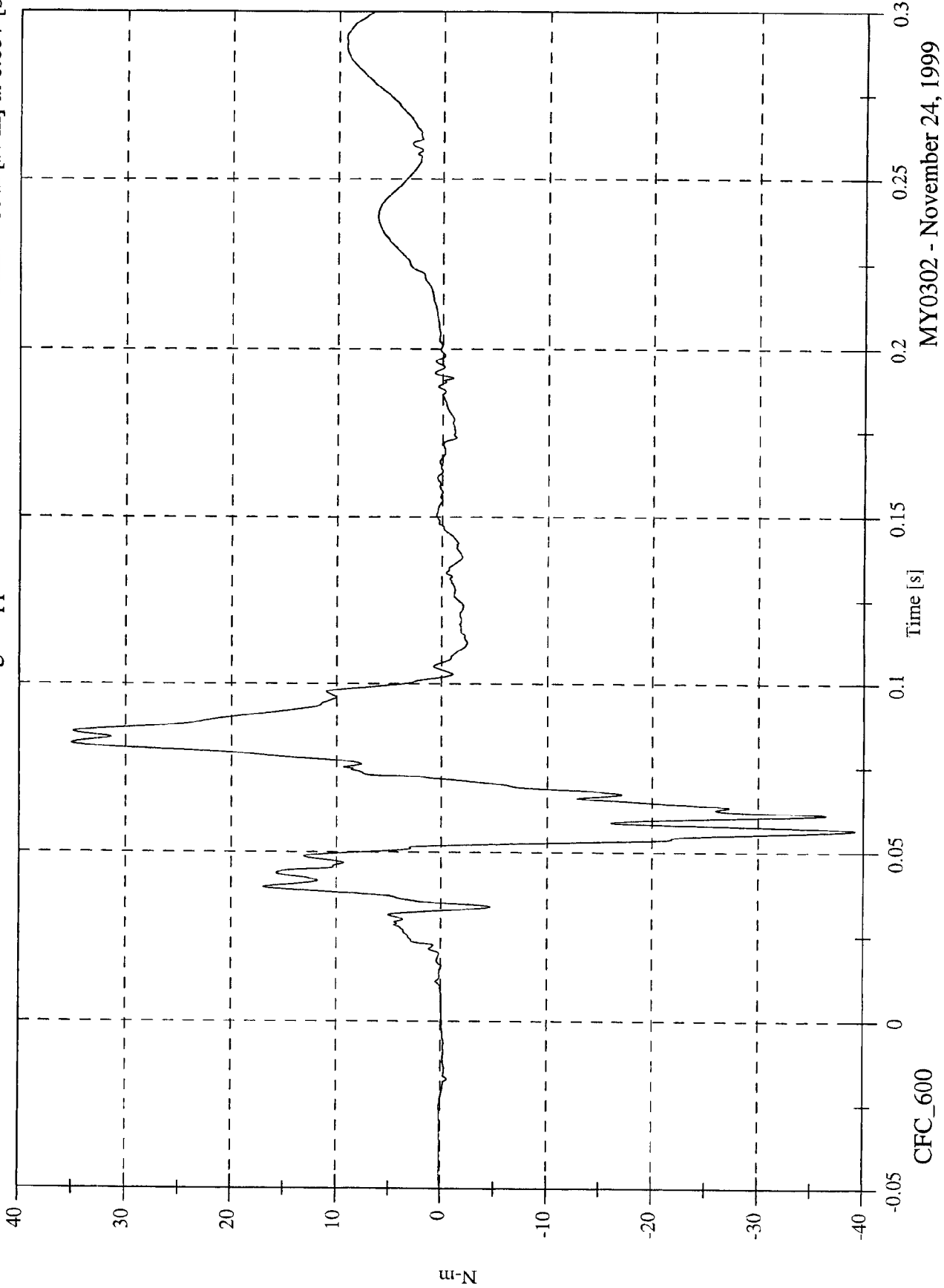
CFC_600

NCAP Test 3 - 2000 Dodge Caravan

Max: 35.1 [N-m] at 0.082 [s]

Min: -39.2 [N-m] at 0.057 [s]

P2 Right Upper Tibia Mx

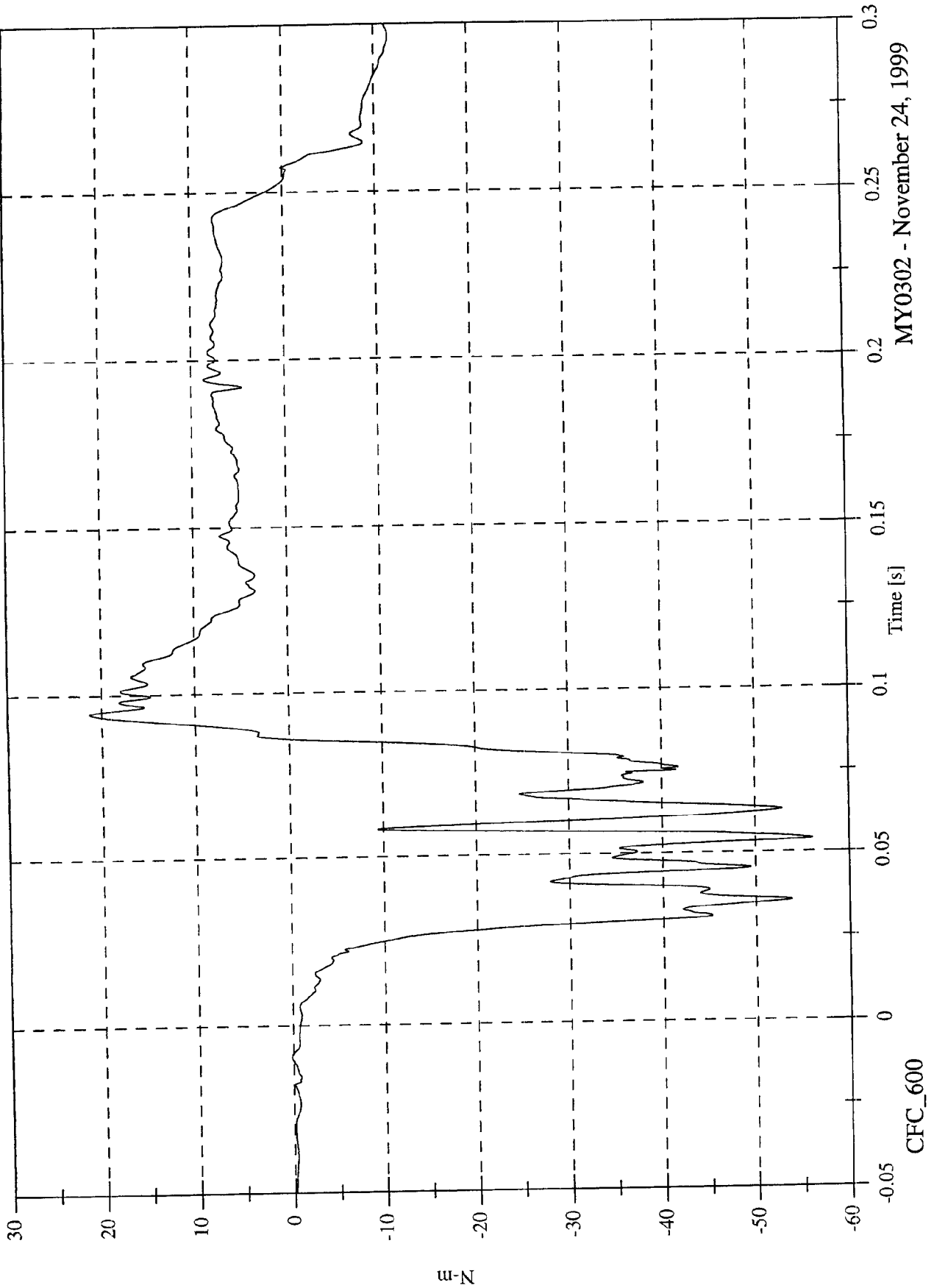


MY0302 - November 24, 1999

Max: 21.3 [N-m] at 0.094 [s]
Min: -56.0 [N-m] at 0.054 [s]

P2 Right Upper Tibia My

NCAP Test 3 - 2000 Dodge Caravan



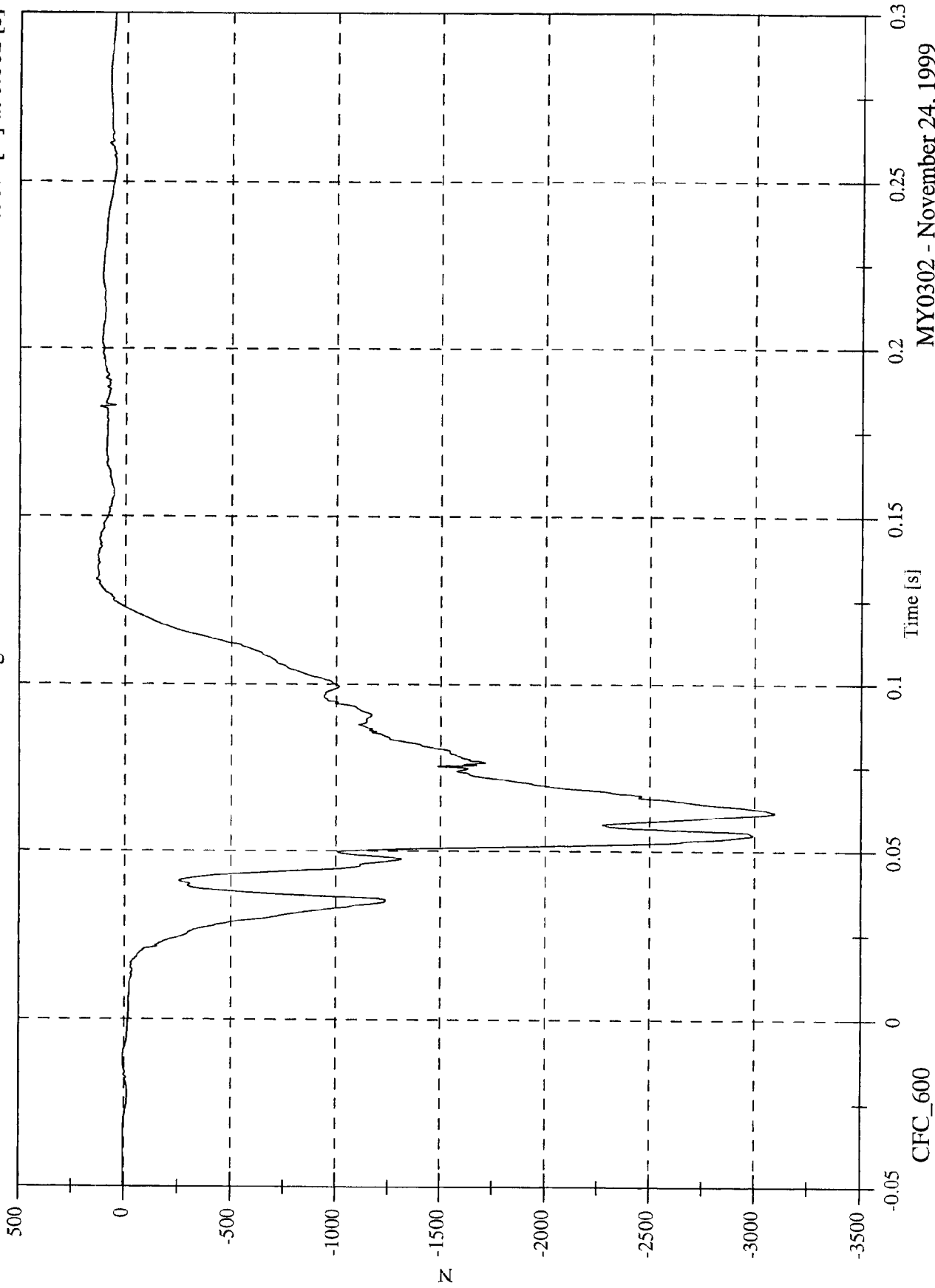
MY0302 - November 24, 1999

CFC_600

NCAP Test 3 - 2000 Dodge Caravan

Max: 138.5 [N] at 0.131 [s]
Min: -3095.4 [N] at 0.062 [s]

P2 Right Lower Tibia Fz

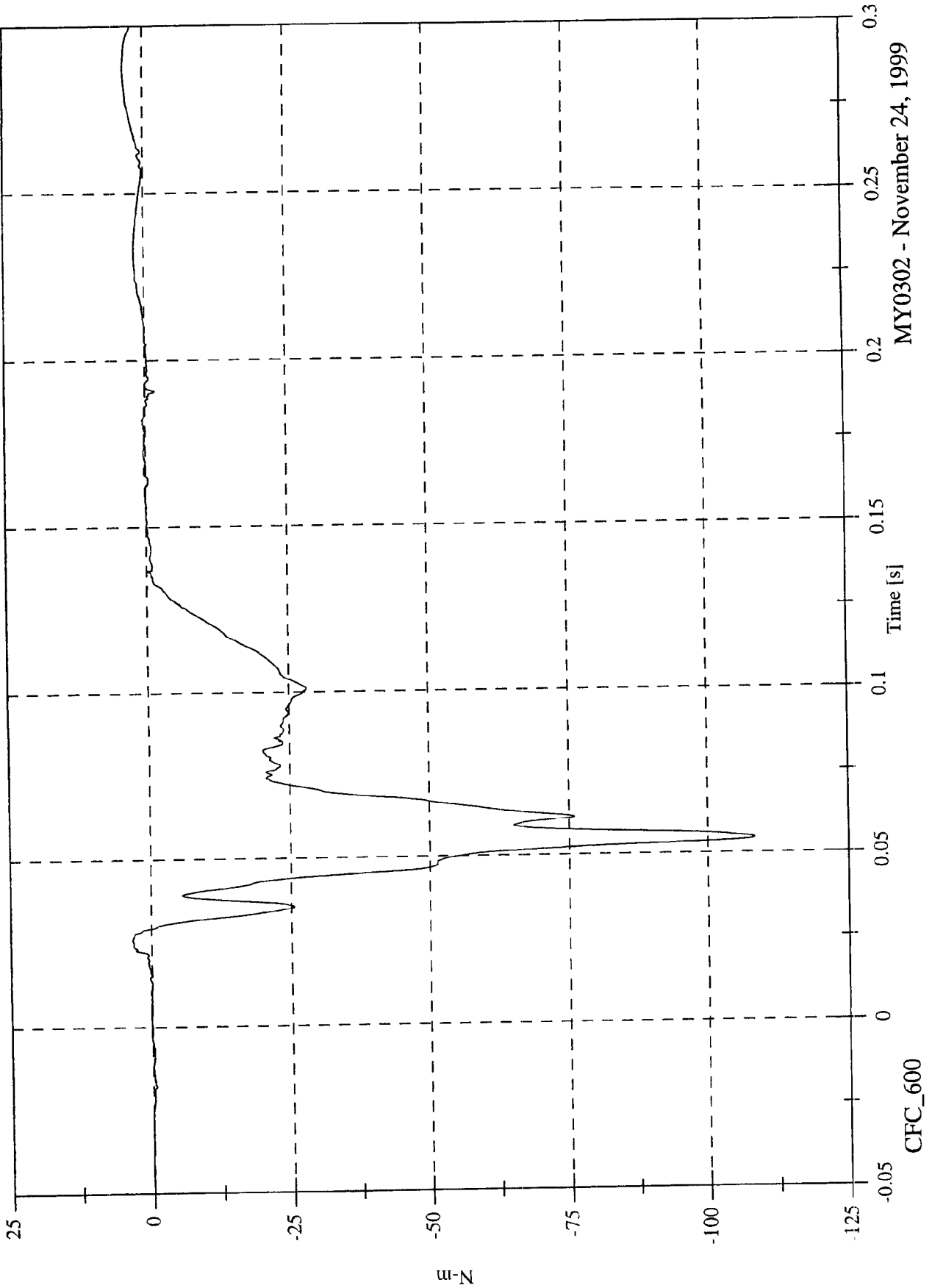


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

P2 Right Lower Tibia Mx

Max: 3.5 [N-m] at 0.287 [s]
Min: -108.3 [N-m] at 0.054 [s]



MY0302 - November 24, 1999

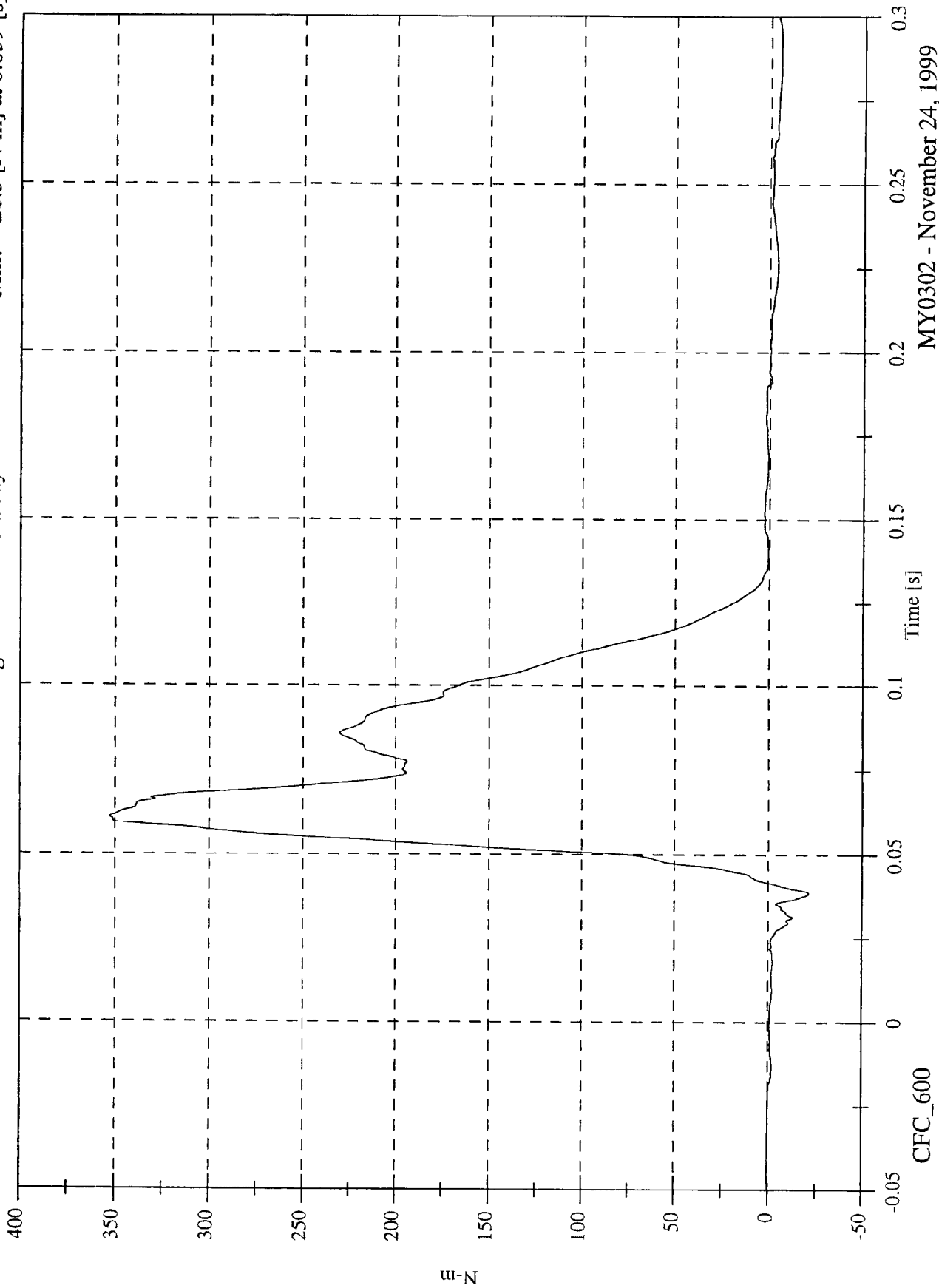
CFC_600

NCAP Test 3 - 2000 Dodge Caravan

P2 Right Lower Tibia My

Max: 353.0 [N-m] at 0.061 [s]

Min: -21.3 [N-m] at 0.039 [s]

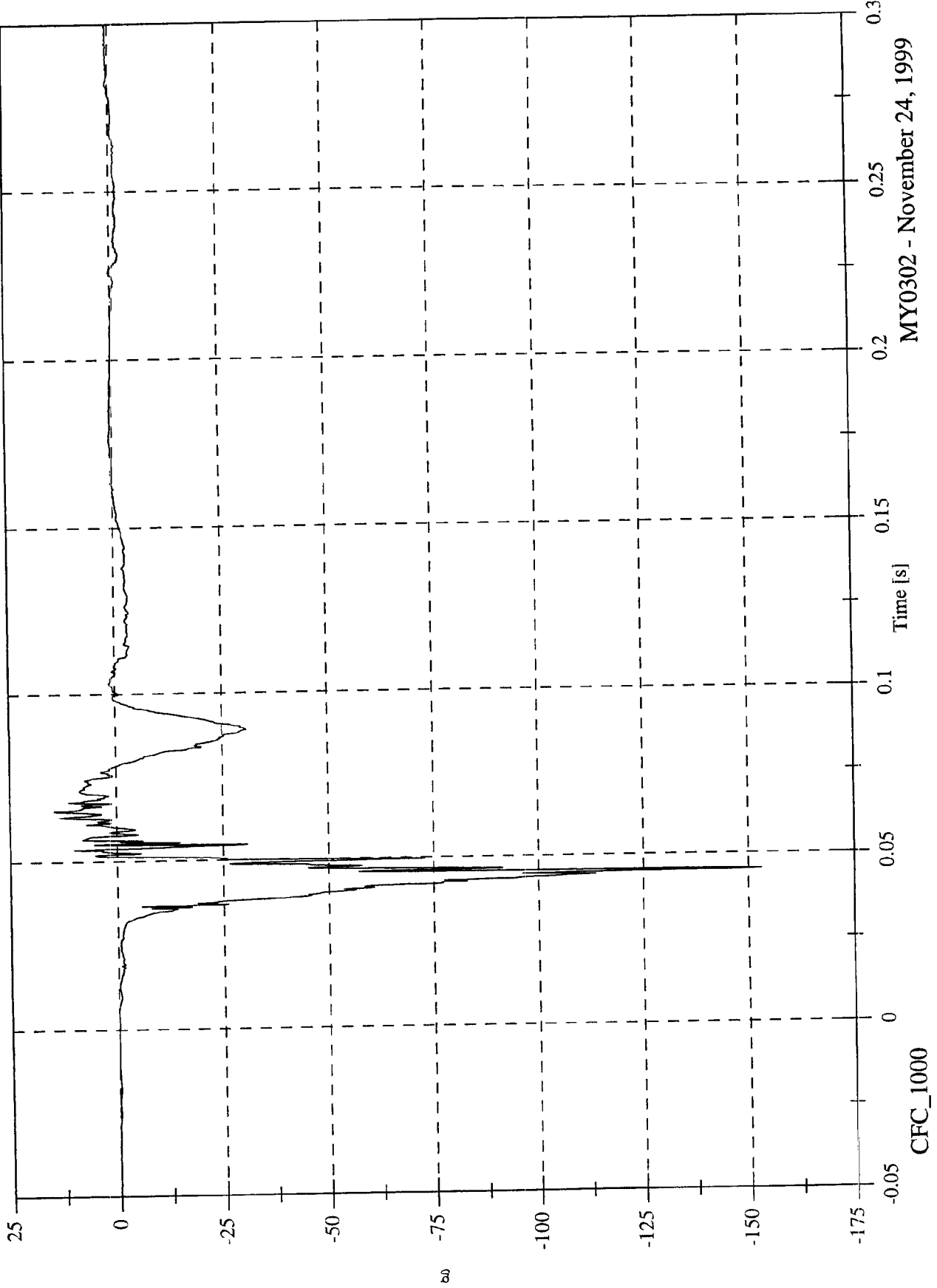


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 14.5 [g] at 0.065 [s]
Min: -153.1 [g] at 0.045 [s]

P2 Left Foot Aft x



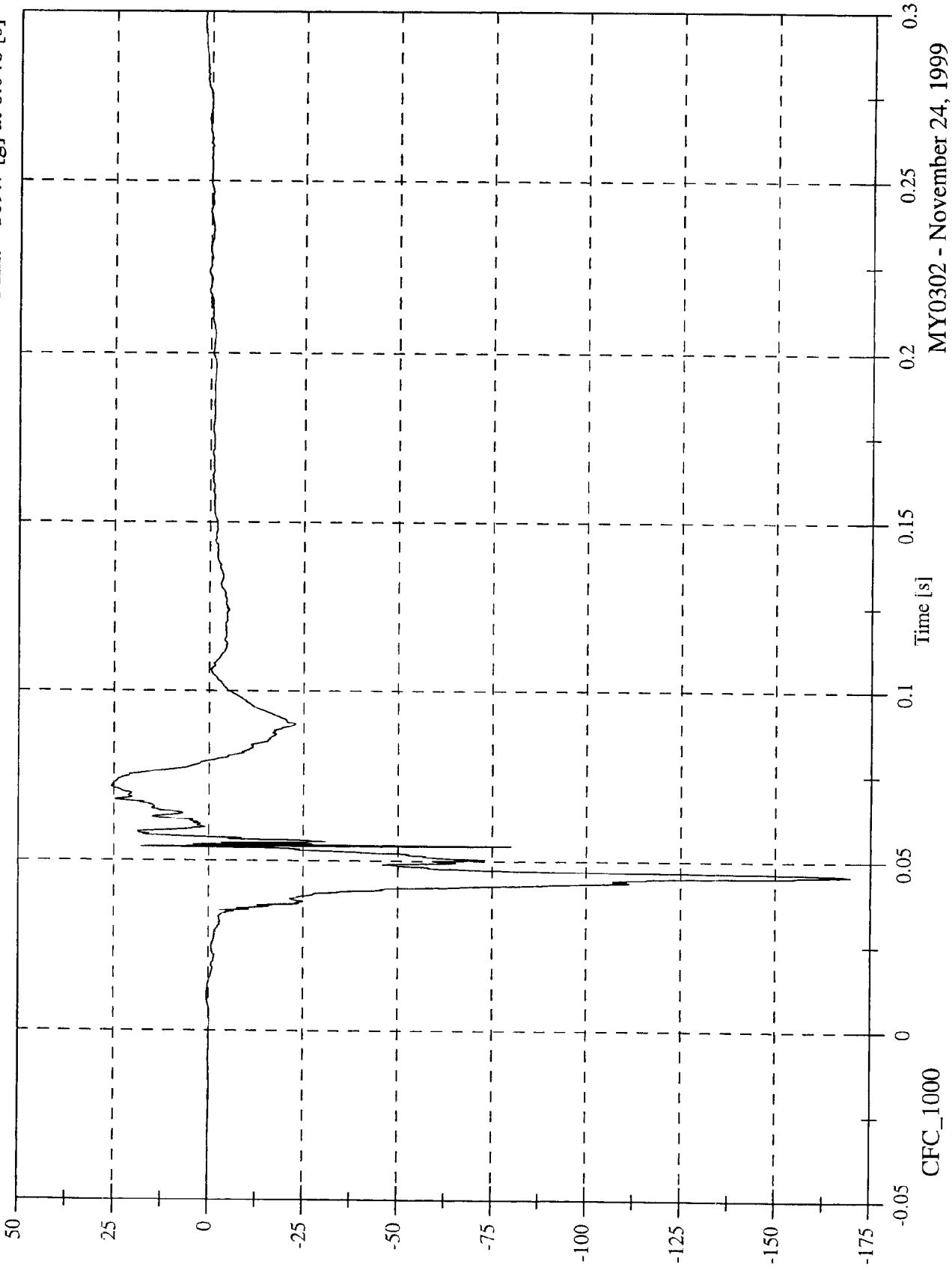
MY0302 - November 24, 1999

CFC_1000

NCAP Test 3 - 2000 Dodge Caravan

P2 Left Foot Aft z

Max: 25.7 [g] at 0.072 [s]
Min: -169.7 [g] at 0.046 [s]

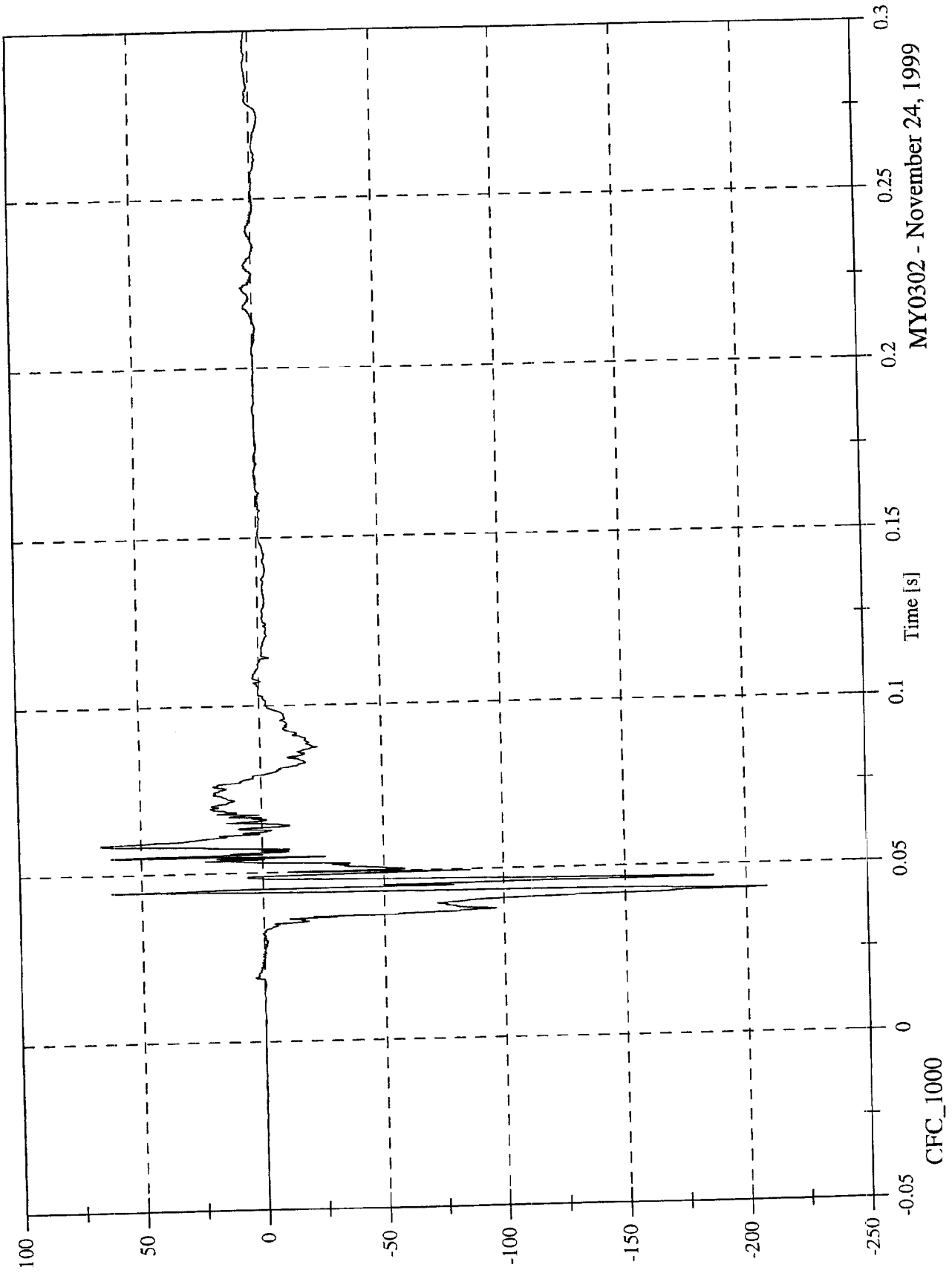


MY0302 - November 24, 1999

Max: 66.6 [g] at 0.059 [s]
Min: -208.3 [g] at 0.043 [s]

P2 Left Foot Fore z

NCAP Test 3 - 2000 Dodge Caravan



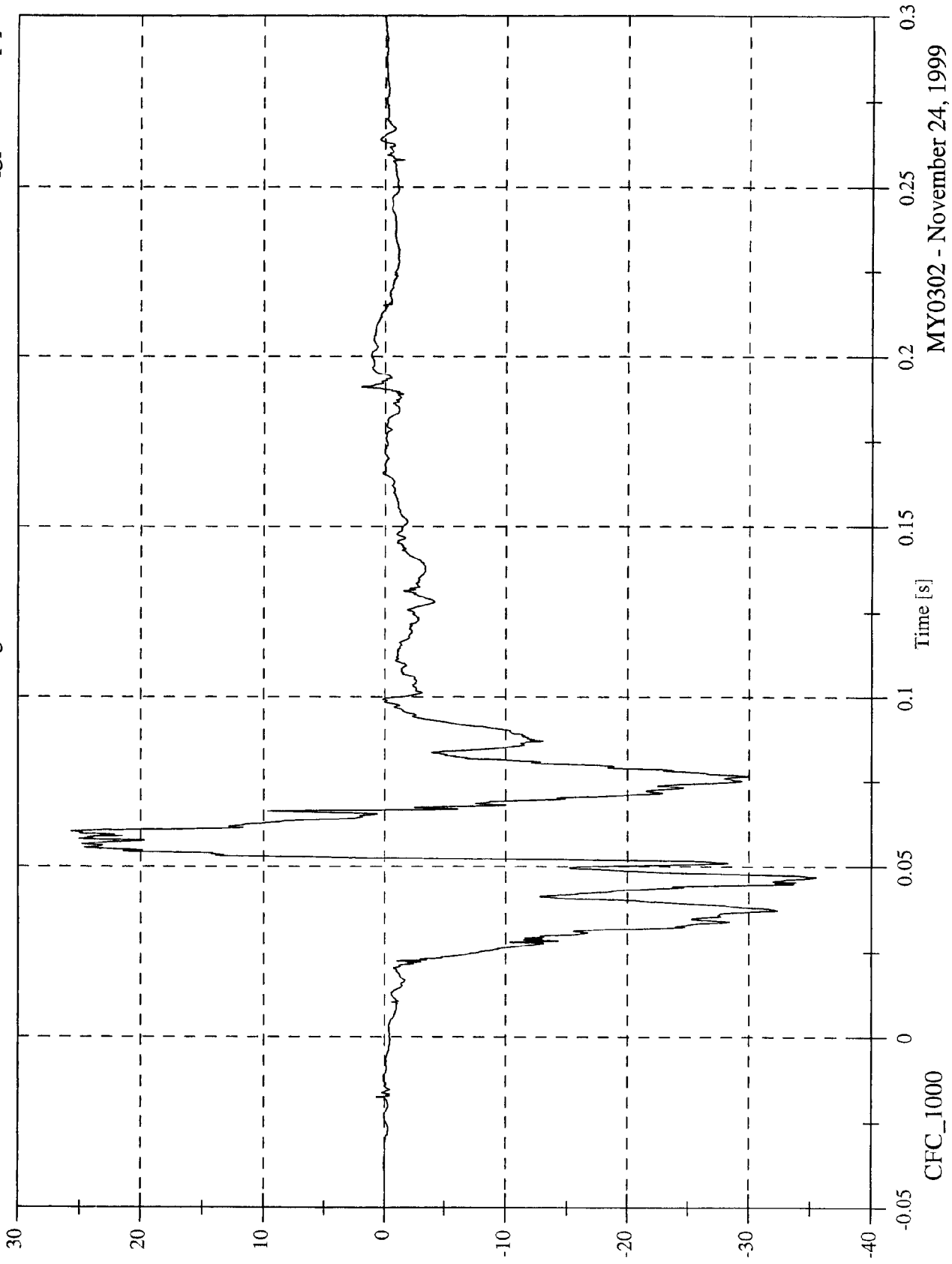
MY0302 - November 24, 1999

CFC_1000

NCAP Test 3 - 2000 Dodge Caravan

Max: 25.7 [g] at 0.060 [s]
Min: -35.5 [g] at 0.047 [s]

P2 Right Foot Aft x

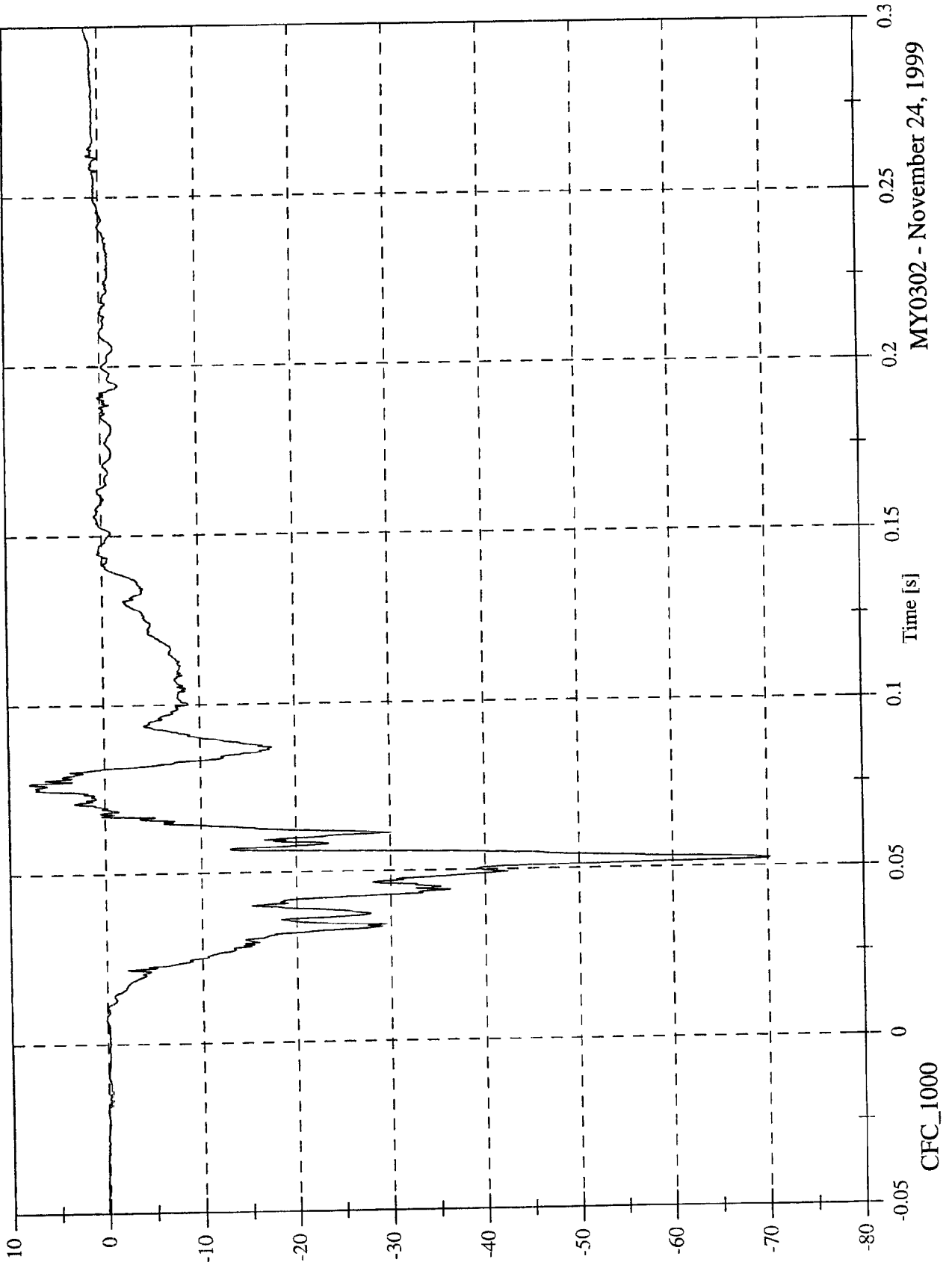


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 7.8 [g] at 0.077 [s]
Min: -70.2 [g] at 0.052 [s]

P2 Right Foot Aft z

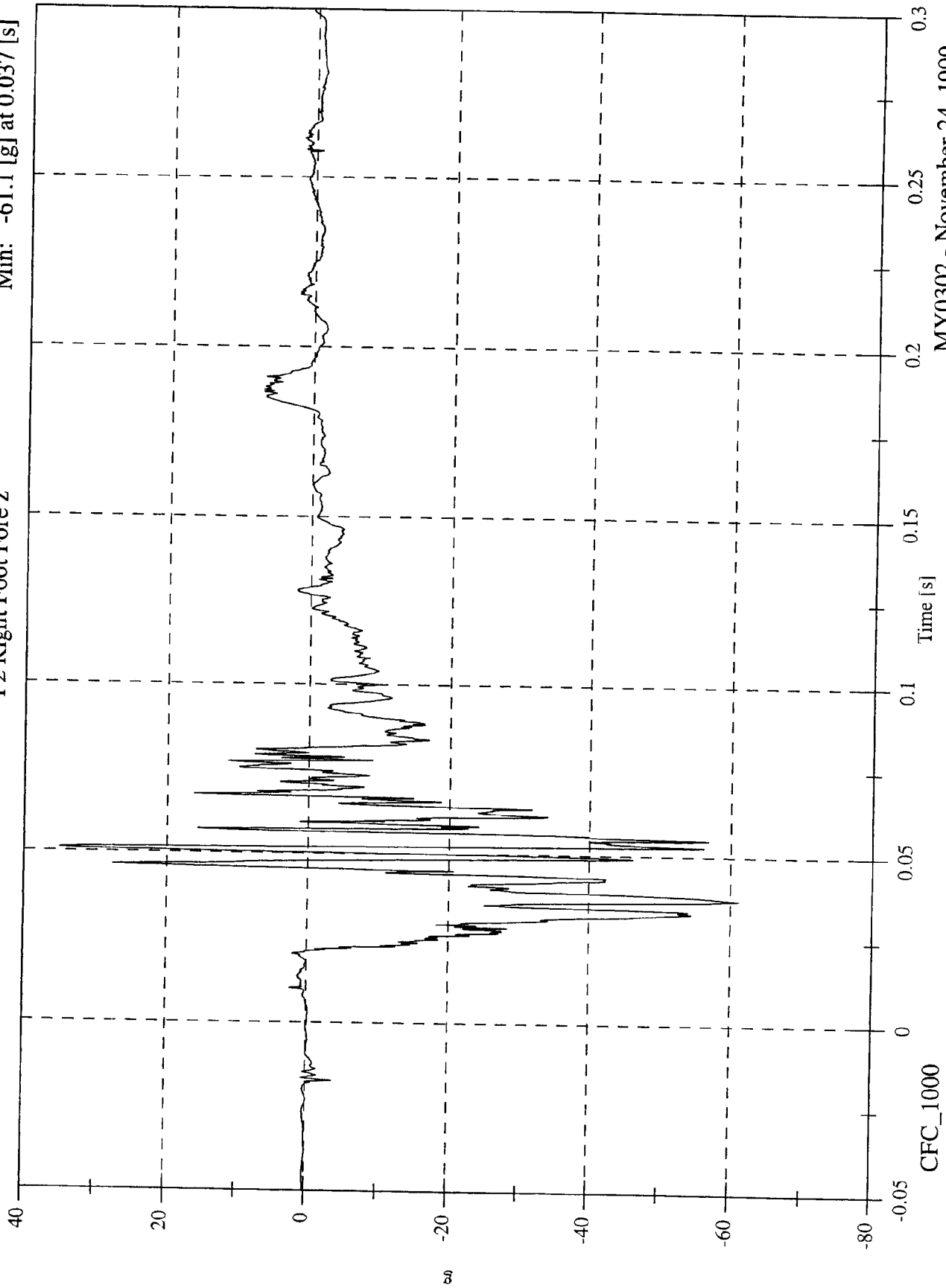


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 35.0 [g] at 0.051 [s]
Min: -61.1 [g] at 0.037 [s]

P2 Right Foot Fore z

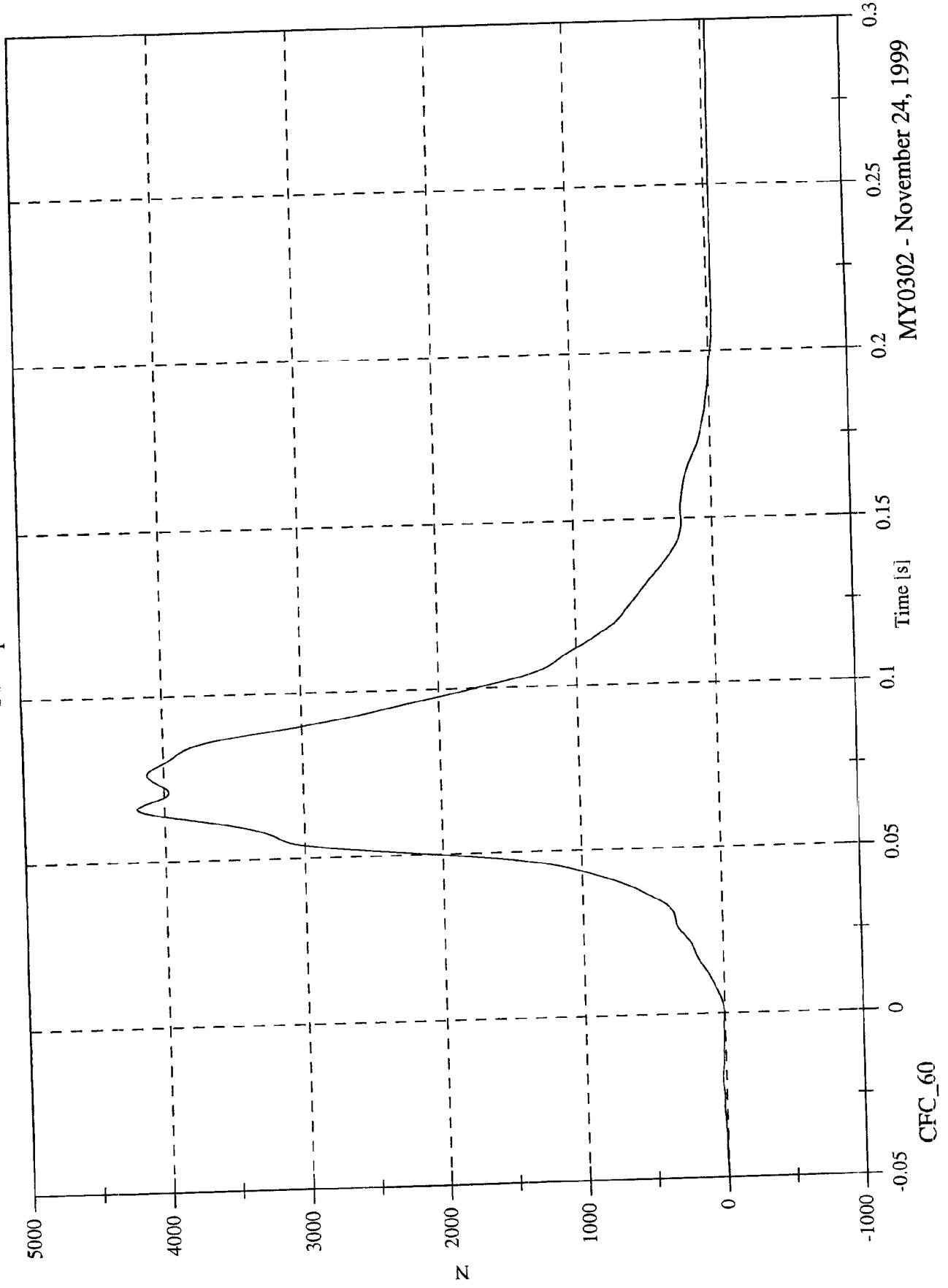


MY0302 - November 24, 1999

Max: 4195.8 [N] at 0.066 [s]
Min: -35.8 [N] at 0.285 [s]

NCAP Test 3 - 2000 Dodge Caravan

P2 Lap Belt Force



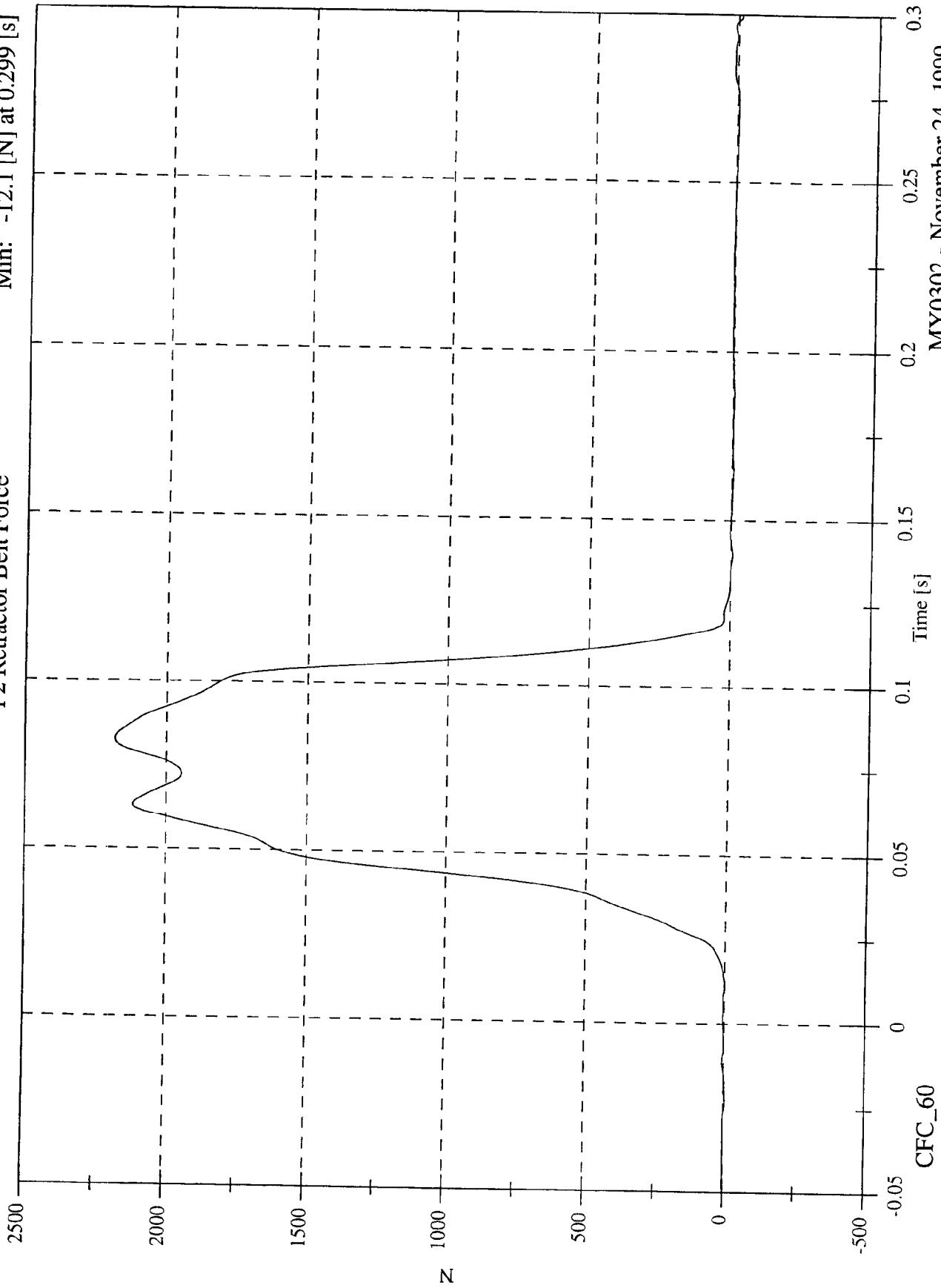
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Max: 2183.6 [N] at 0.082 [s]
Min: -12.1 [N] at 0.299 [s]

P2 Retractor Belt Force

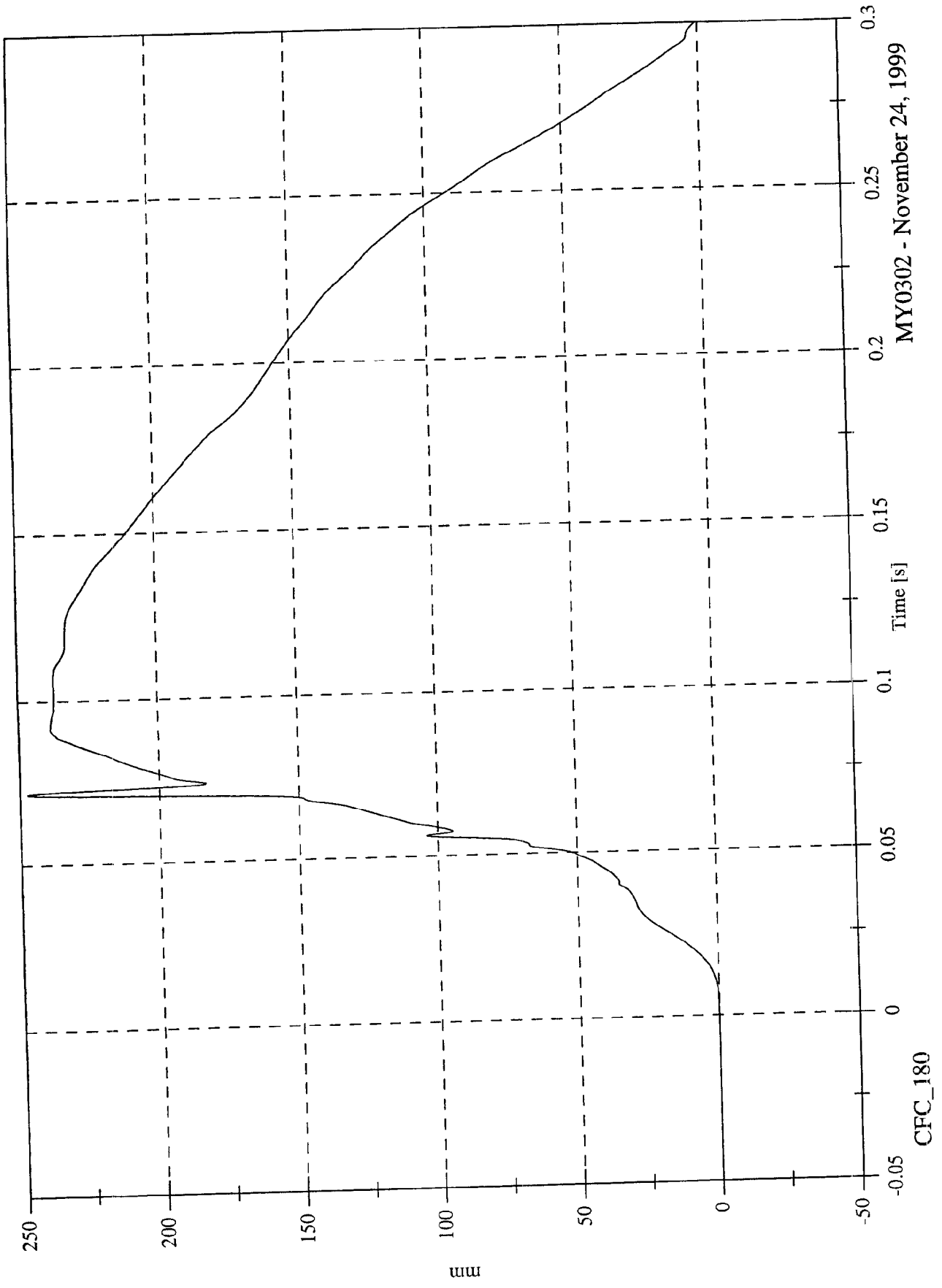


MY0302 - November 24, 1999

Max: 247.3 [mm] at 0.072 [s]
Min: -0.0 [mm] at -0.032 [s]

NCAP Test 3 - 2000 Dodge Caravan

P2 Shoulder Belt Spoolout



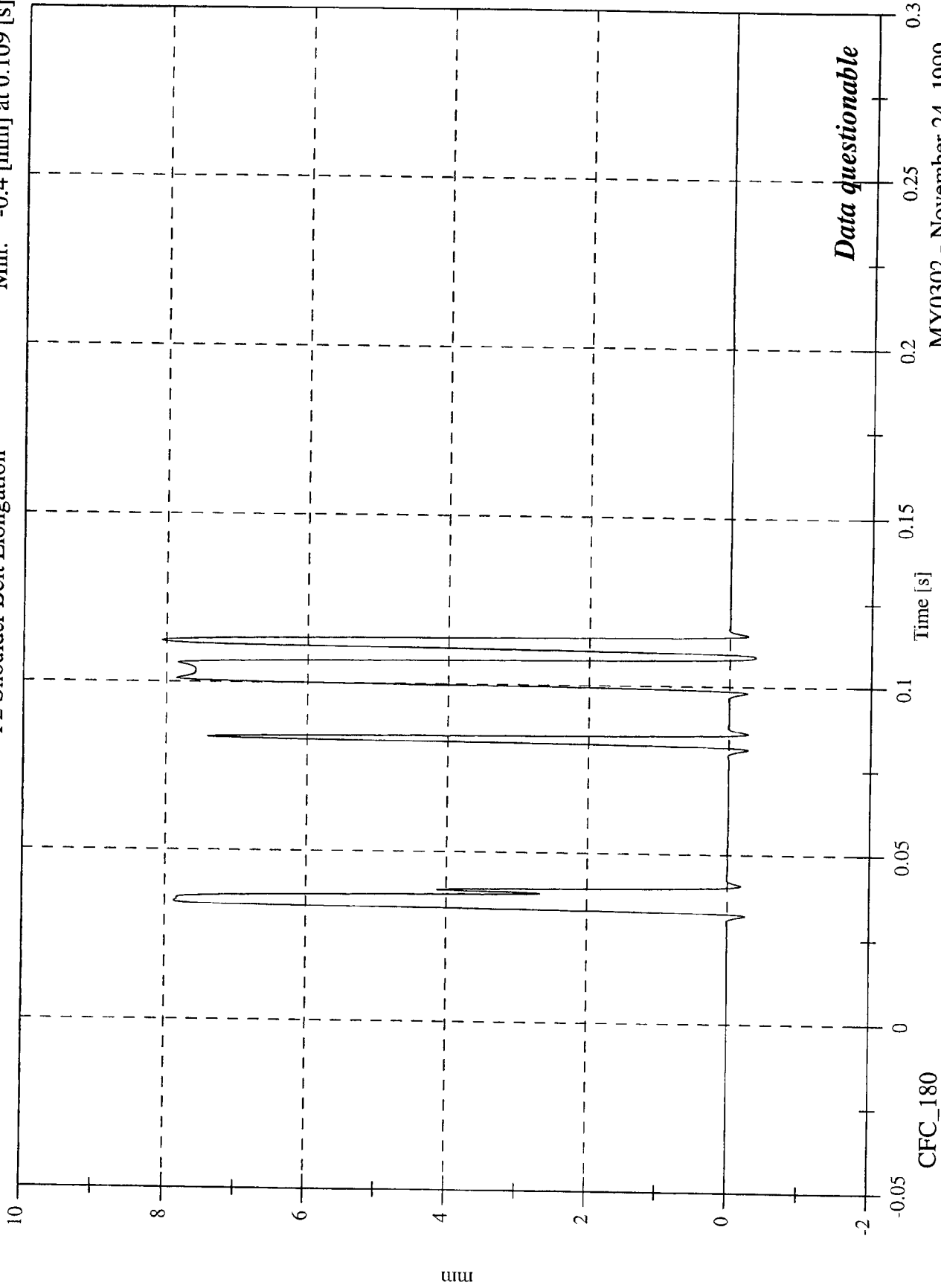
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 8.1 [mm] at 0.112 [s]
Min: -0.4 [mm] at 0.109 [s]

P2 Shoulder Belt Elongation



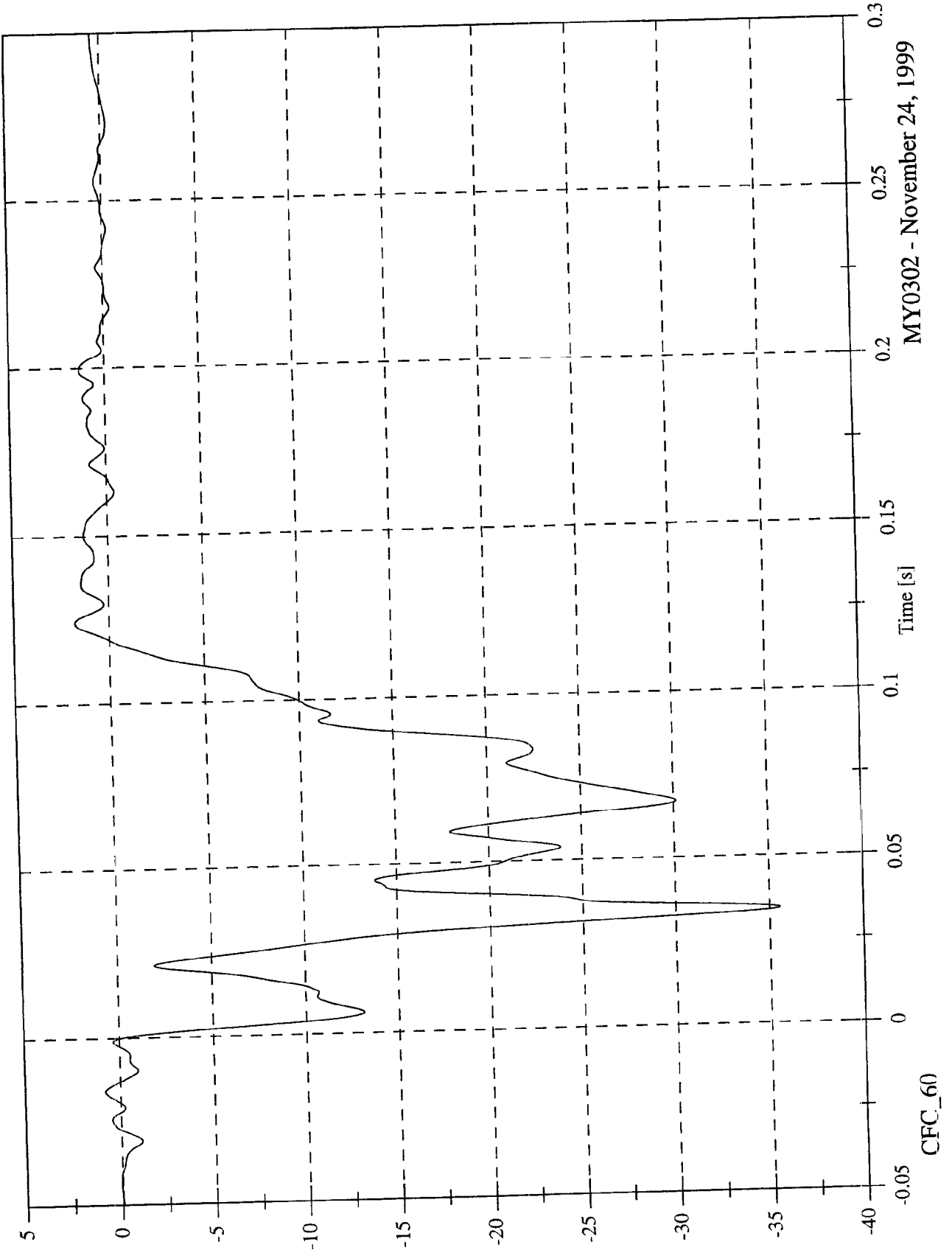
Data questionable

MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Left Rear #1x

Max: 1.8 [g] at 0.124 [s]
Min: -35.6 [g] at 0.034 [s]



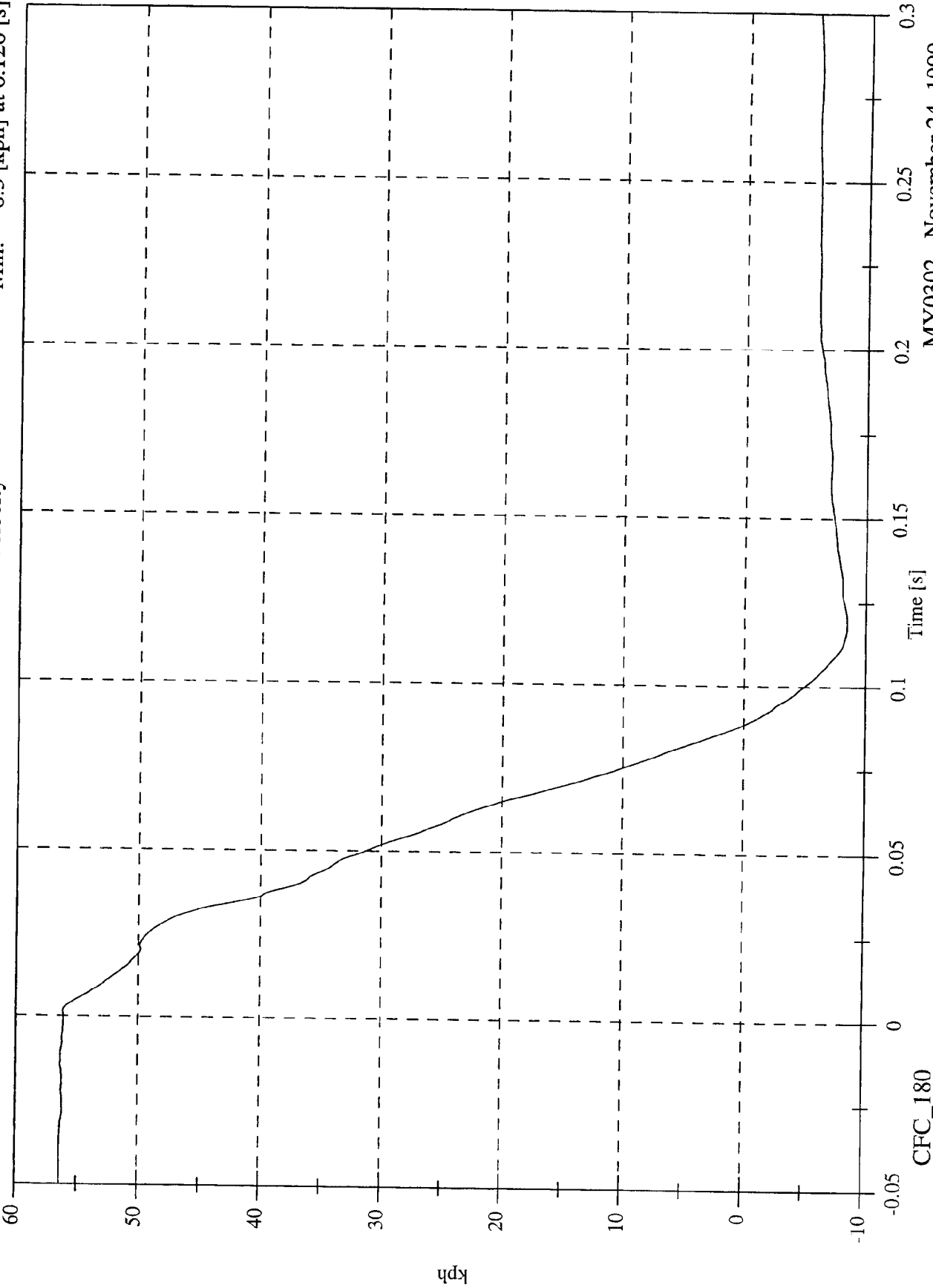
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Max: 56.4 [kph] at -0.039 [s]
Min: -8.5 [kph] at 0.120 [s]

Left Rear #1x Velocity

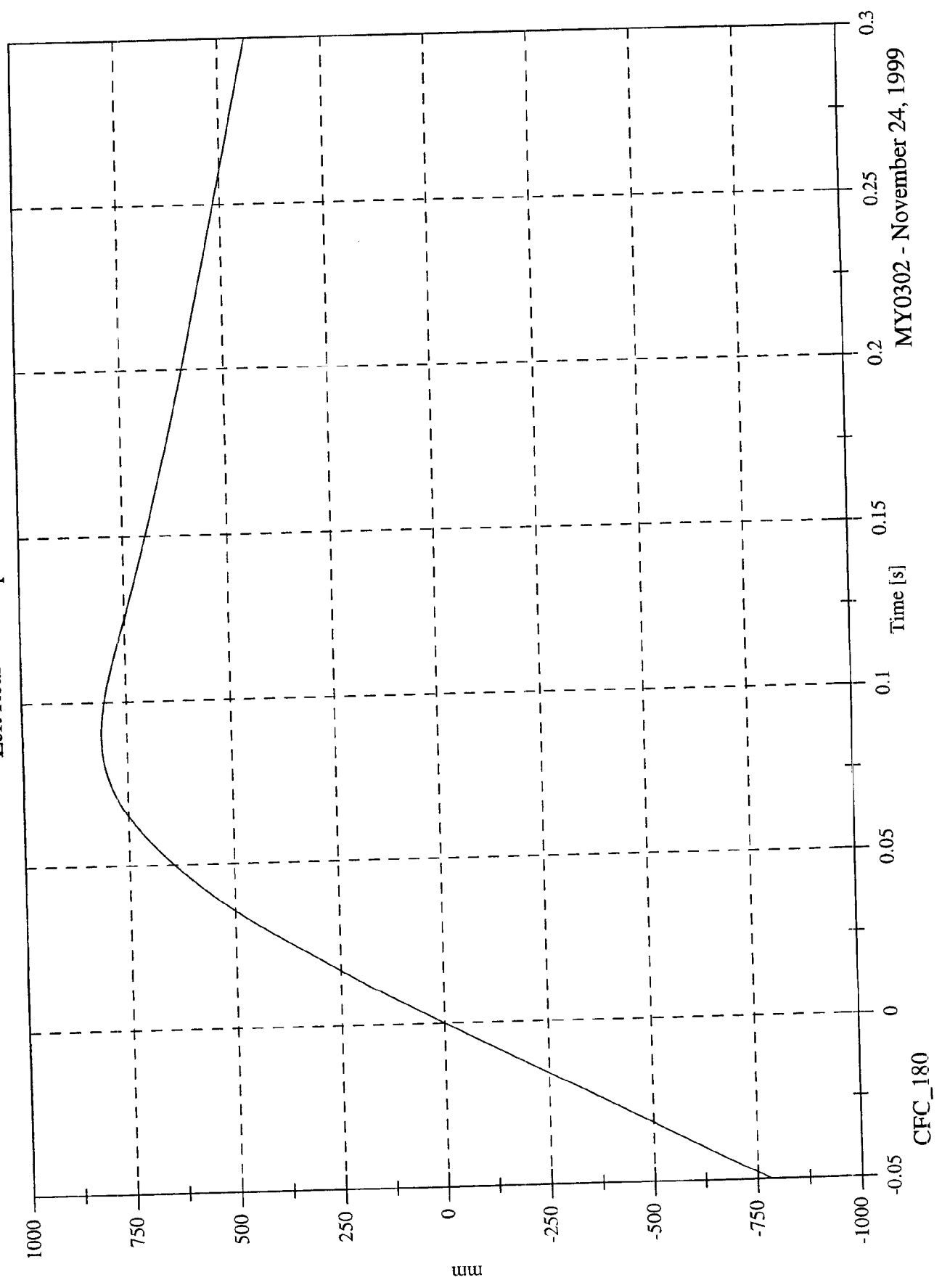


MY0302 - November 24, 1999

Max: 810.9 [mm] at 0.088 [s]
Min: -782.0 [mm] at -0.050 [s]

Left Rear #1x Displacement

NCAP Test 3 - 2000 Dodge Caravan



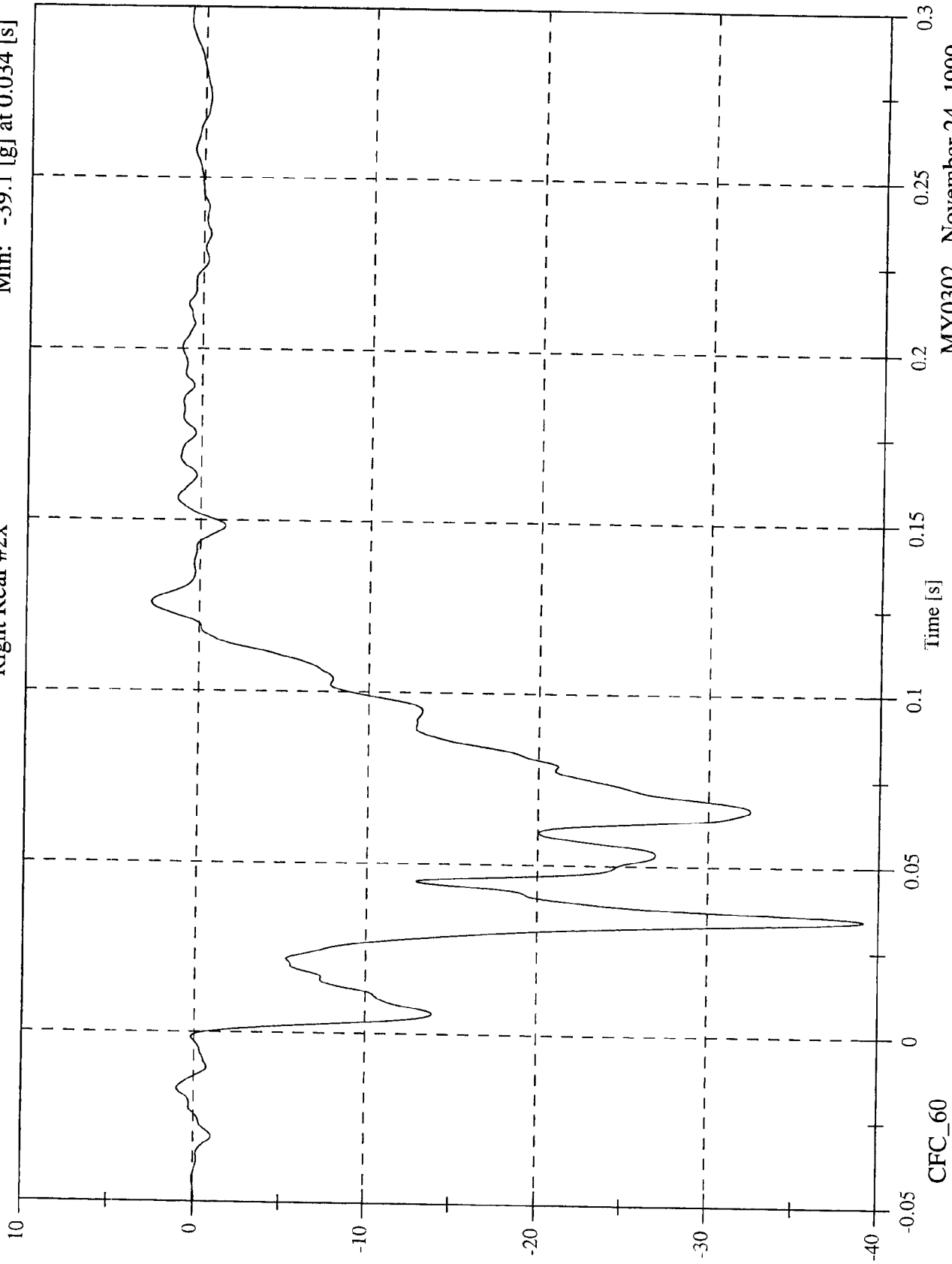
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 2.8 [g] at 0.126 [s]
Min: -39.1 [g] at 0.034 [s]

Right Rear #2x

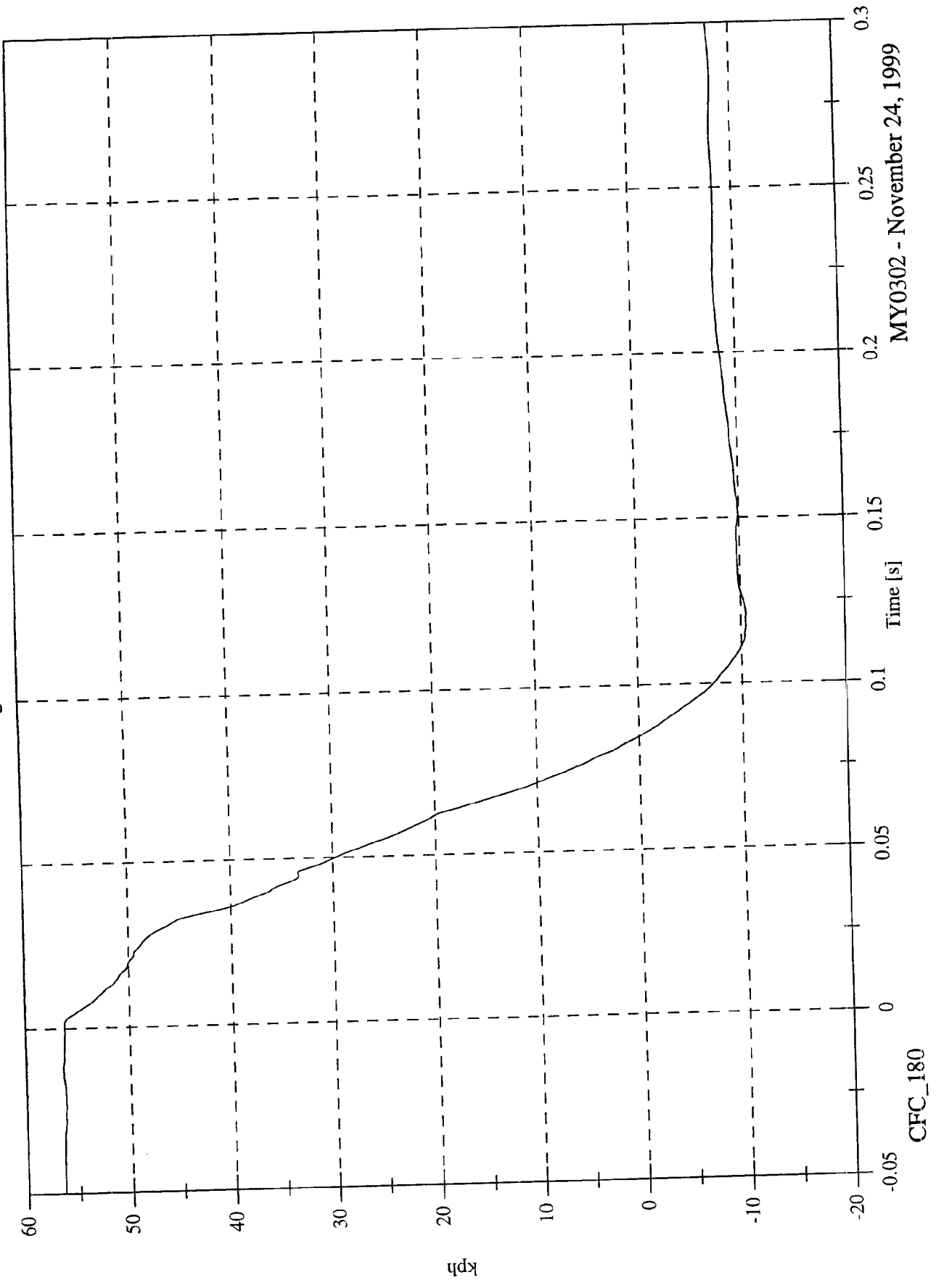


MY0302 - November 24, 1999

Max: 56.4 [kph] at -0.050 [s]
Min: -10.5 [kph] at 0.121 [s]

NCAP Test 3 - 2000 Dodge Caravan

Right Rear #2x Velocity



MY0302 - November 24, 1999

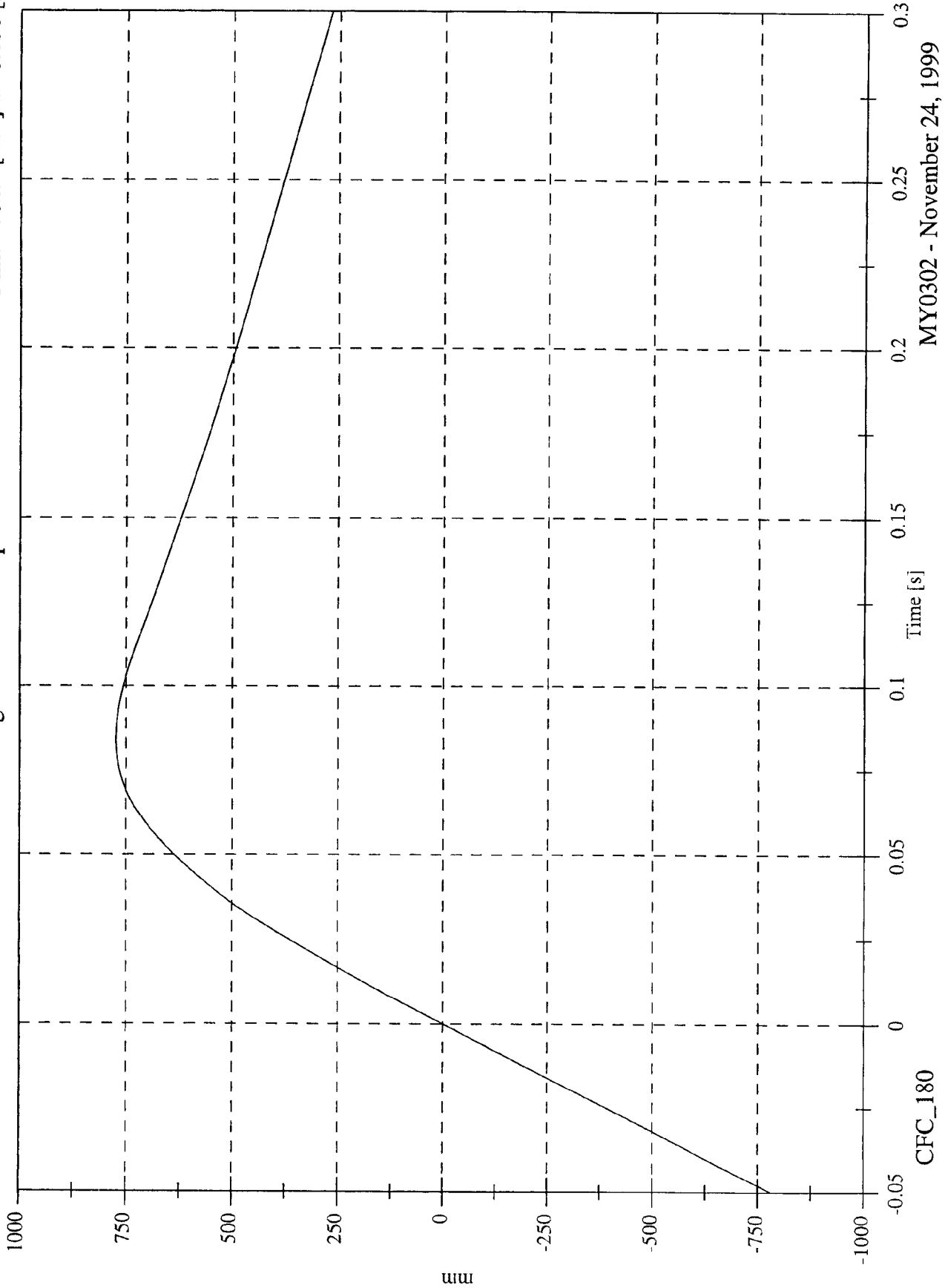
CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 773.6 [mm] at 0.084 [s]

Min: -782.4 [mm] at -0.050 [s]

Right Rear #2x Displacement



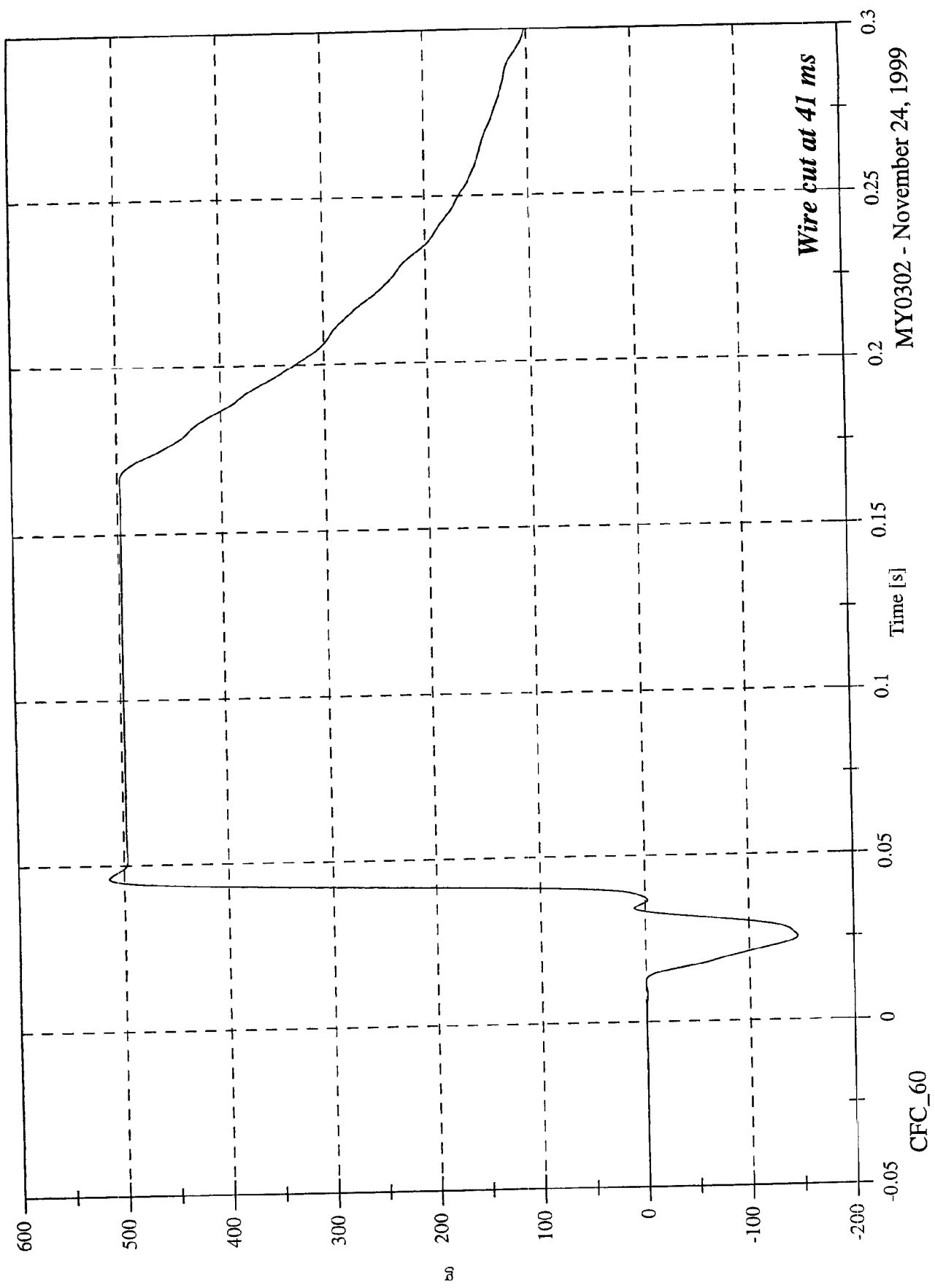
MY0302 - November 24, 1999

CFC_180

Max: 514.4 [g] at 0.046 [s]
Min: -146.2 [g] at 0.025 [s]

Engine Top #3x

NCAP Test 3 - 2000 Dodge Caravan



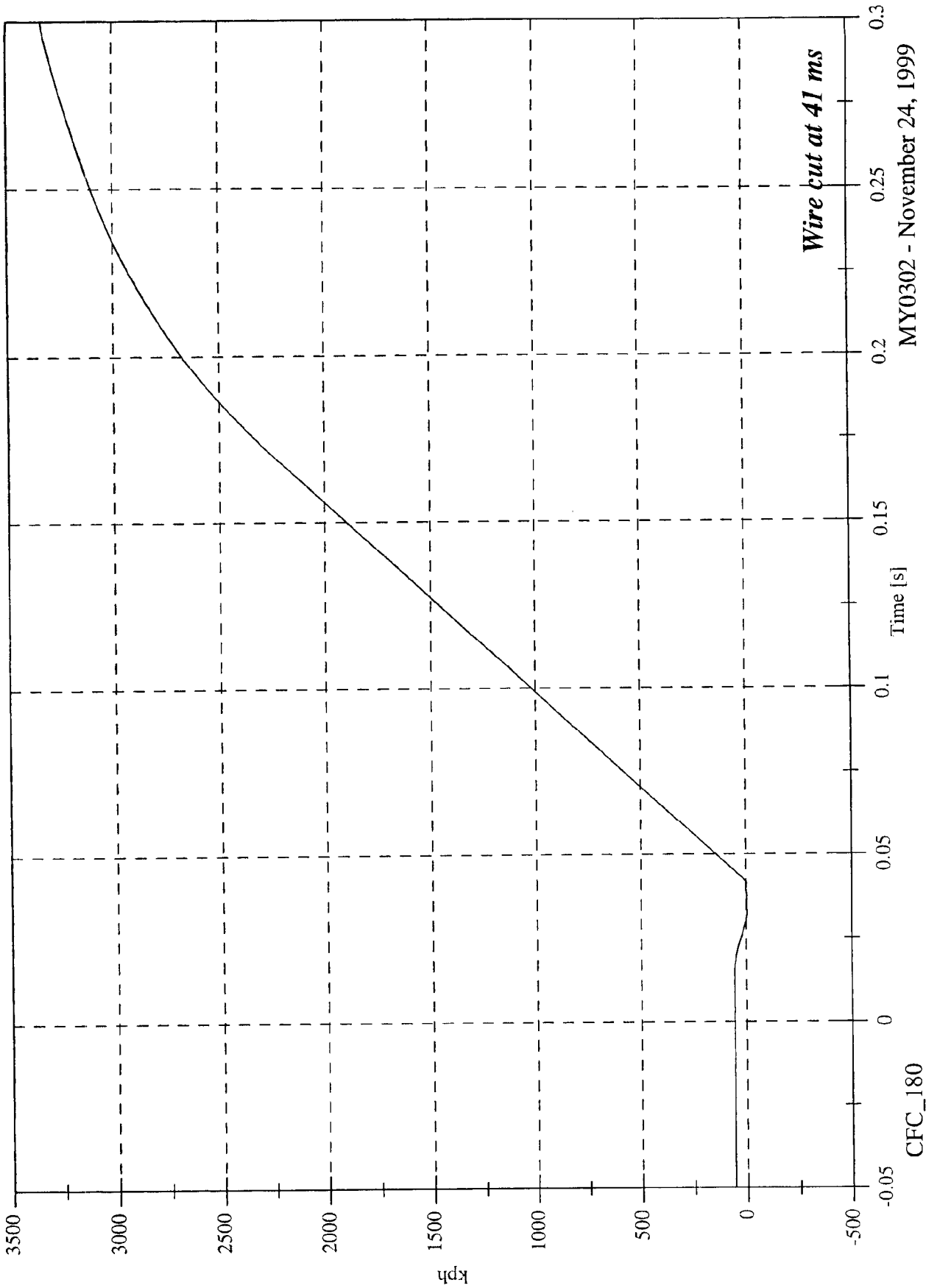
MY0302 - November 24, 1999

CFC_60

Max: 3336.7 [kph] at 0.300 [s]
Min: -4.7 [kph] at 0.033 [s]

Engine Top #3x Velocity

NCAP Test 3 - 2000 Dodge Caravan



Wire cut at 41 ms

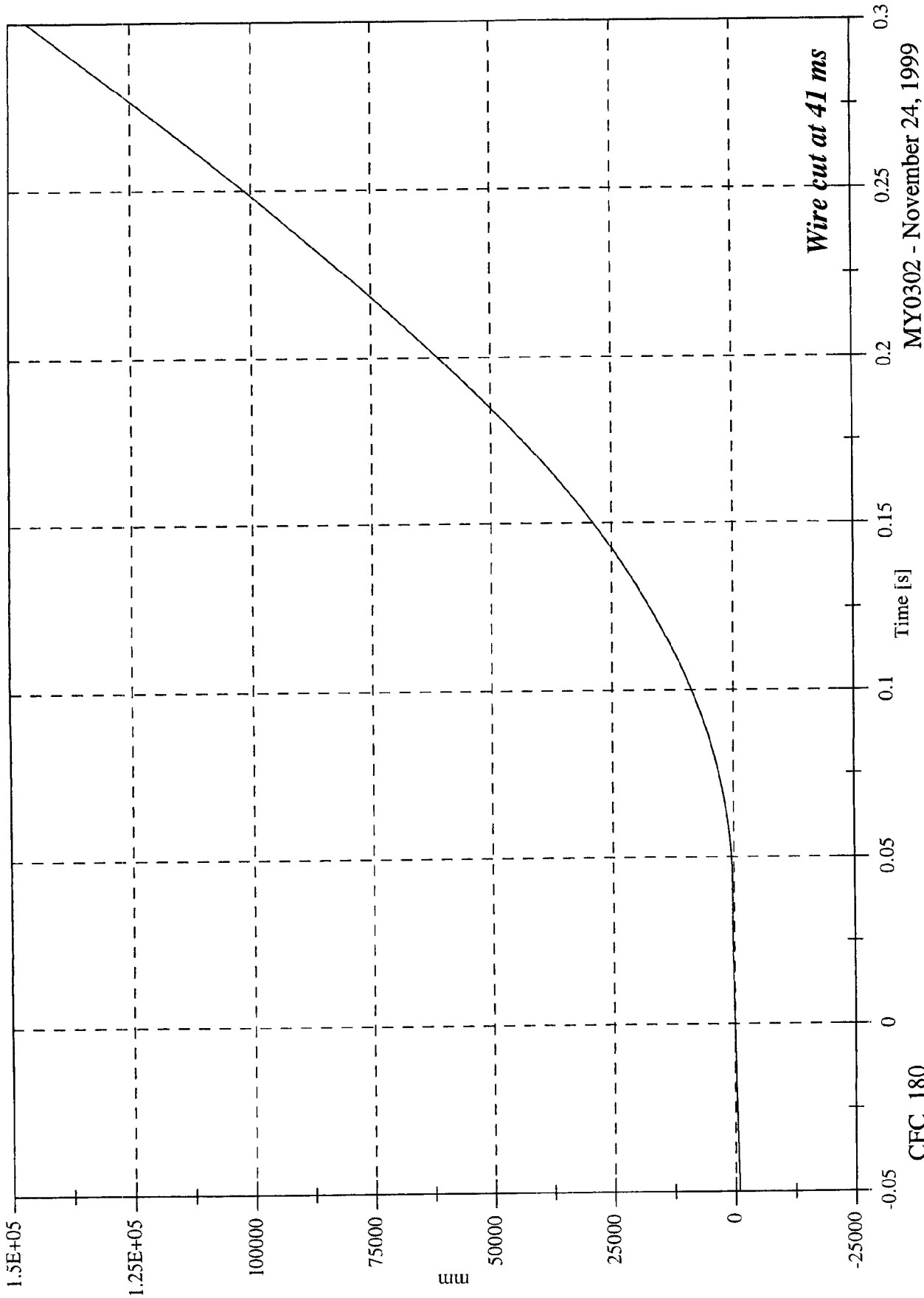
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 146231.5 [mm] at 0.300 [s]
Min: -784.1 [mm] at -0.050 [s]

Engine Top #3x Displacement



MY0302 - November 24, 1999

Wire cut at 41 ms

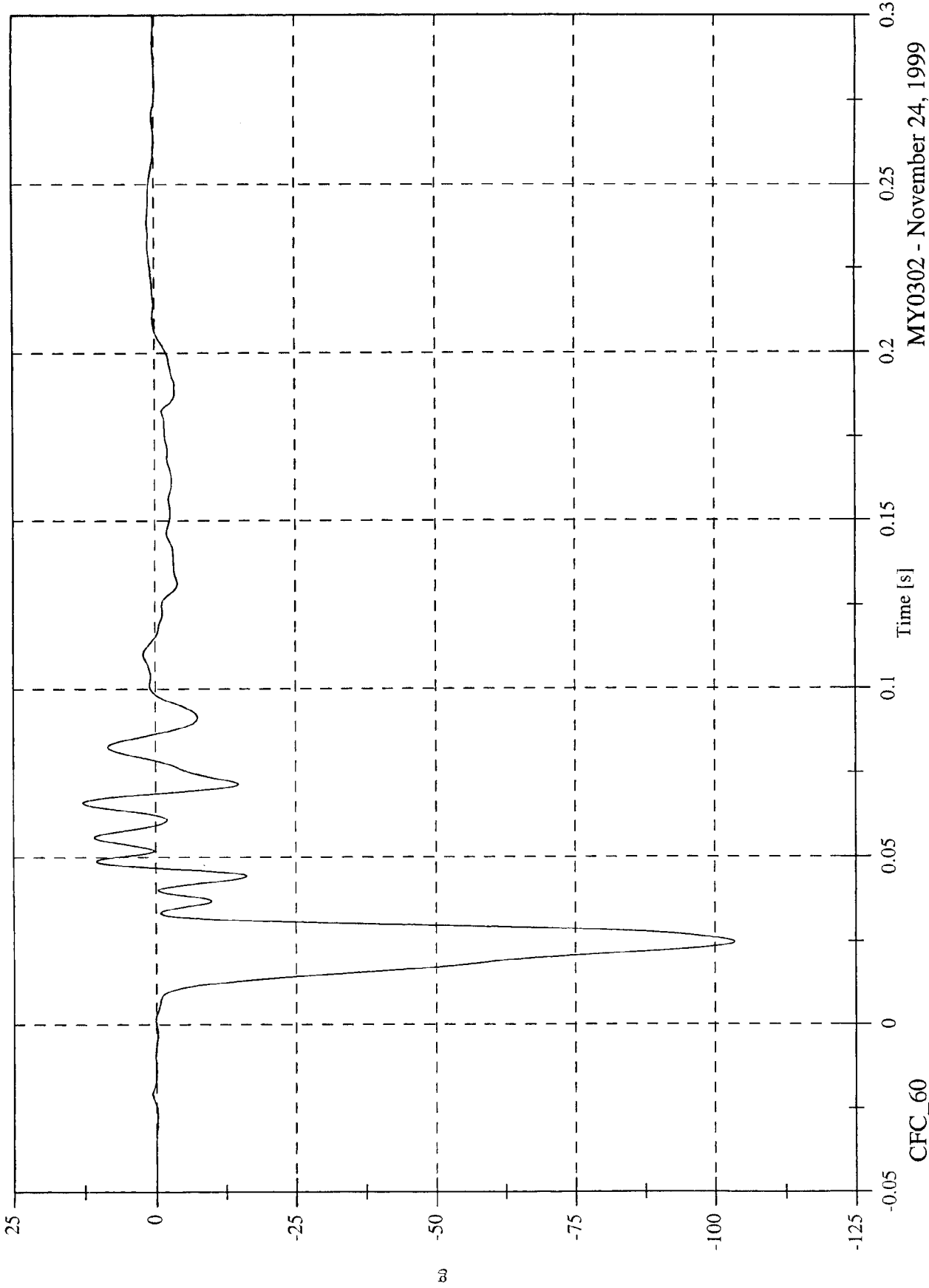
CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 12.8 [g] at 0.066 [s]

Min: -103.5 [g] at 0.025 [s]

Engine Bottom #4x

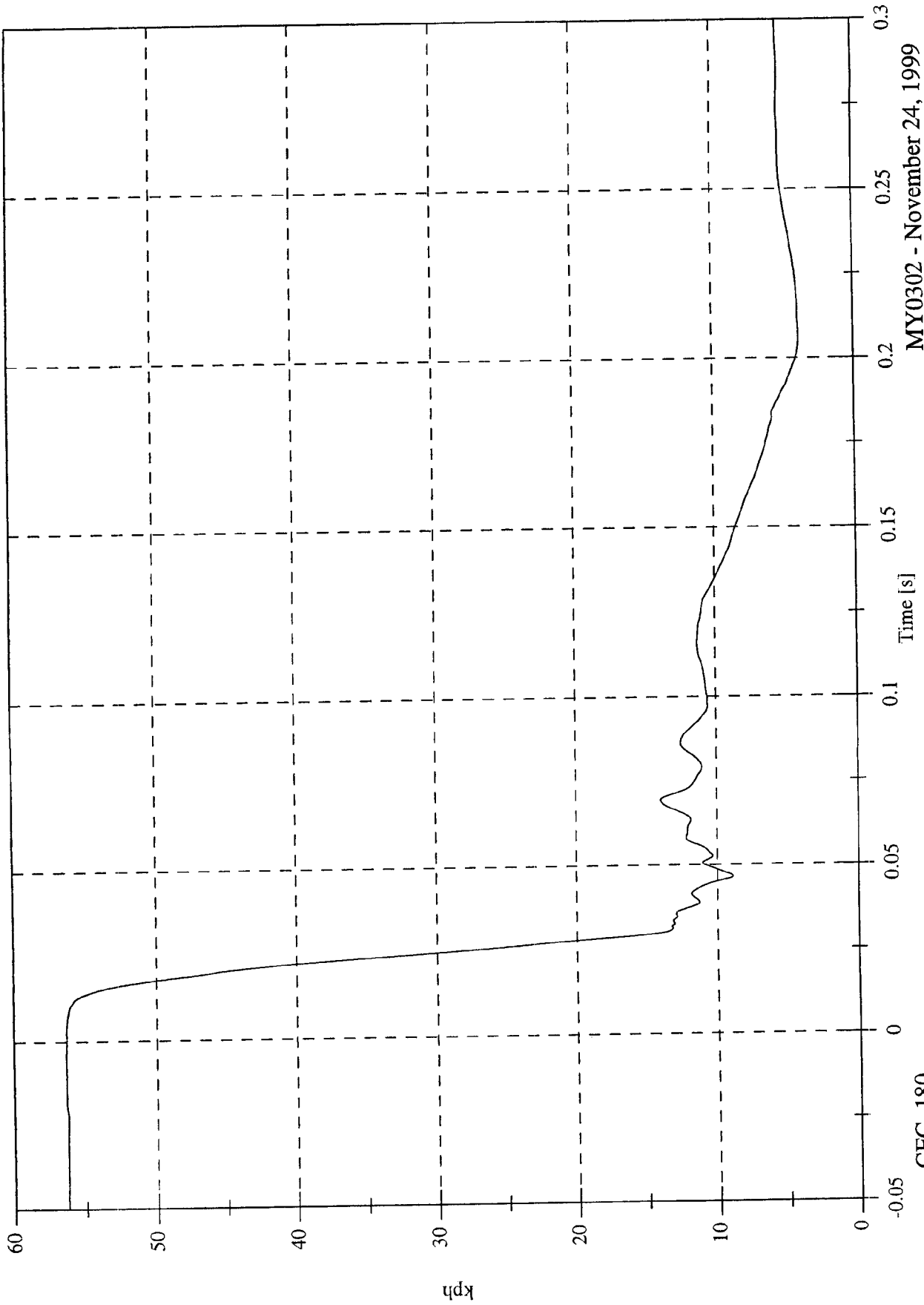


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 56.3 [kph] at -0.009 [s]
Min: 3.9 [kph] at 0.206 [s]

Engine Bottom #4x Velocity

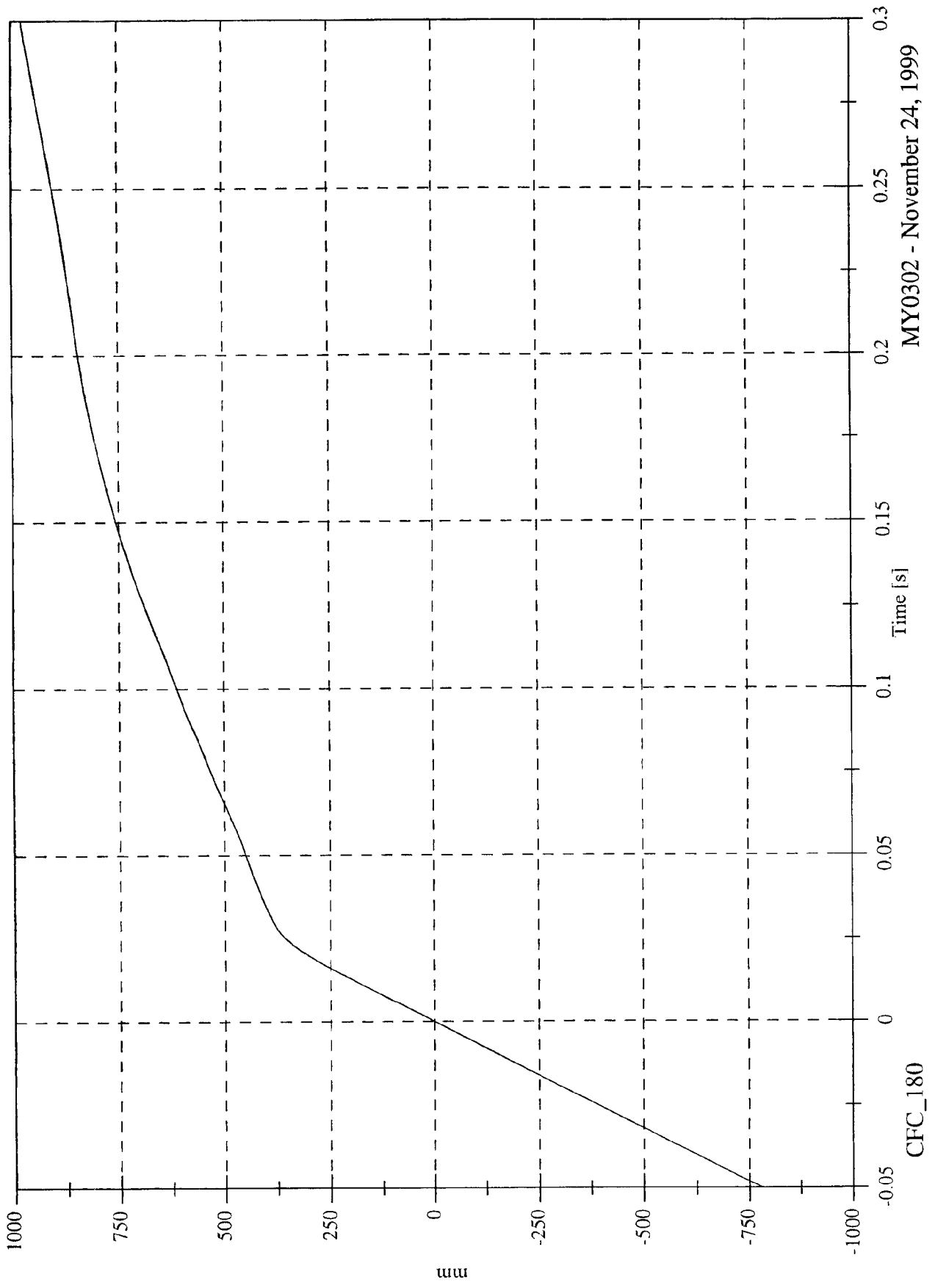


MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan
Engine Bottom #4x Displacement

Max: 976.4 [mm] at 0.300 [s]
Min: -781.7 [mm] at -0.050 [s]



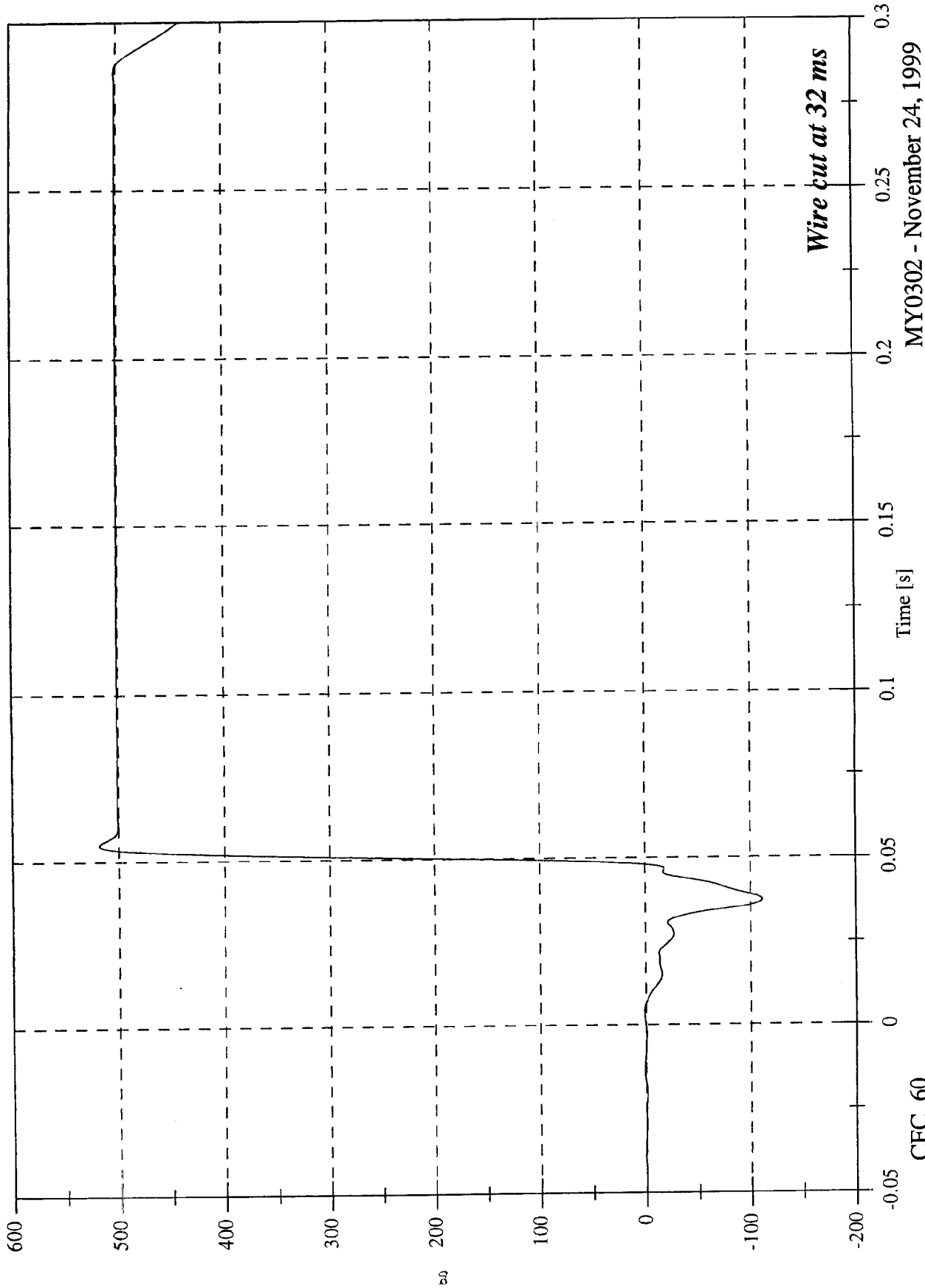
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 518.7 [g] at 0.055 [s]
Min: -111.0 [g] at 0.037 [s]

Right Caliper #5x



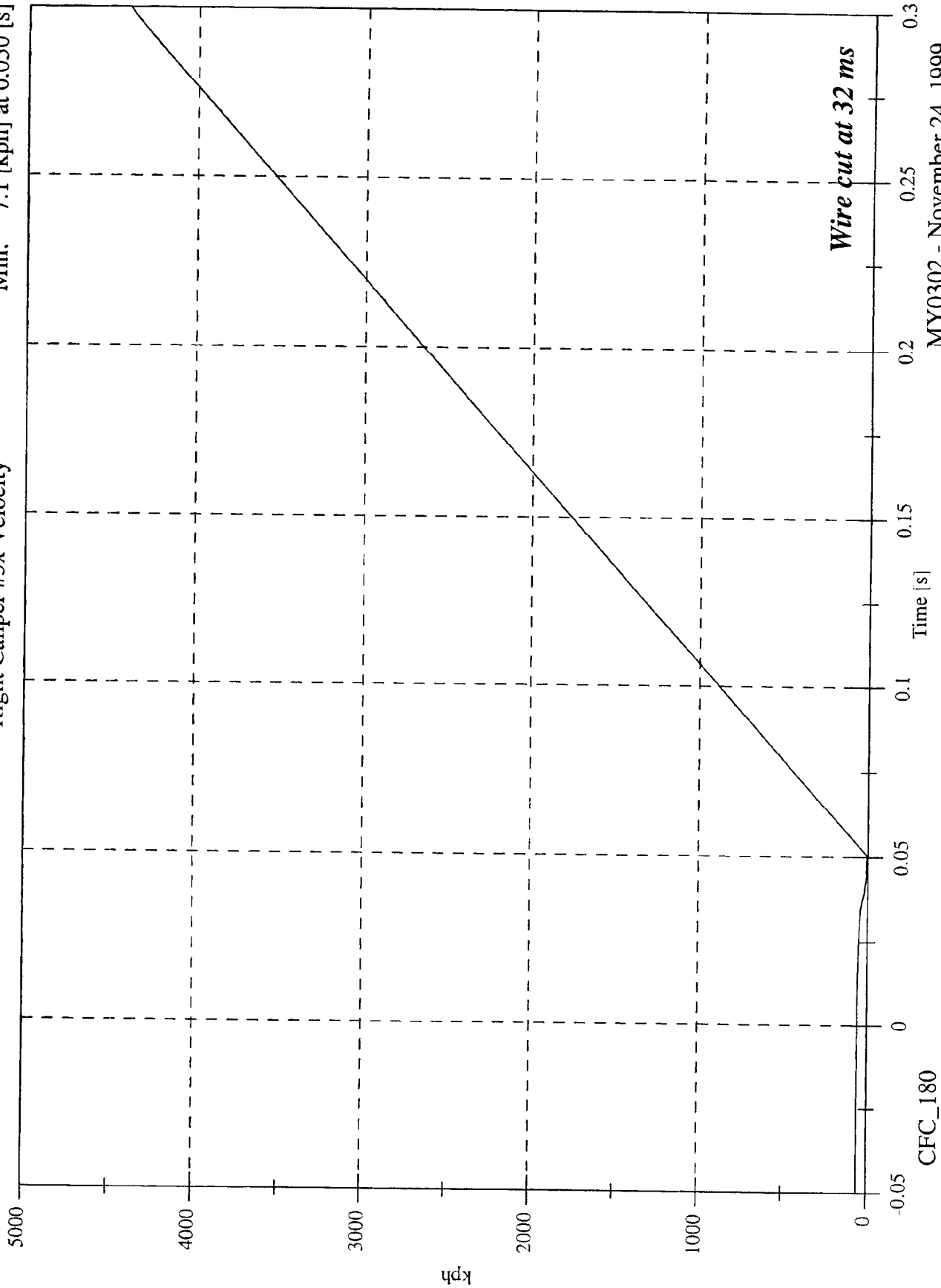
MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 4407.4 [kph] at 0.300 [s]

Min: 7.1 [kph] at 0.050 [s]

Right Caliper #5x Velocity

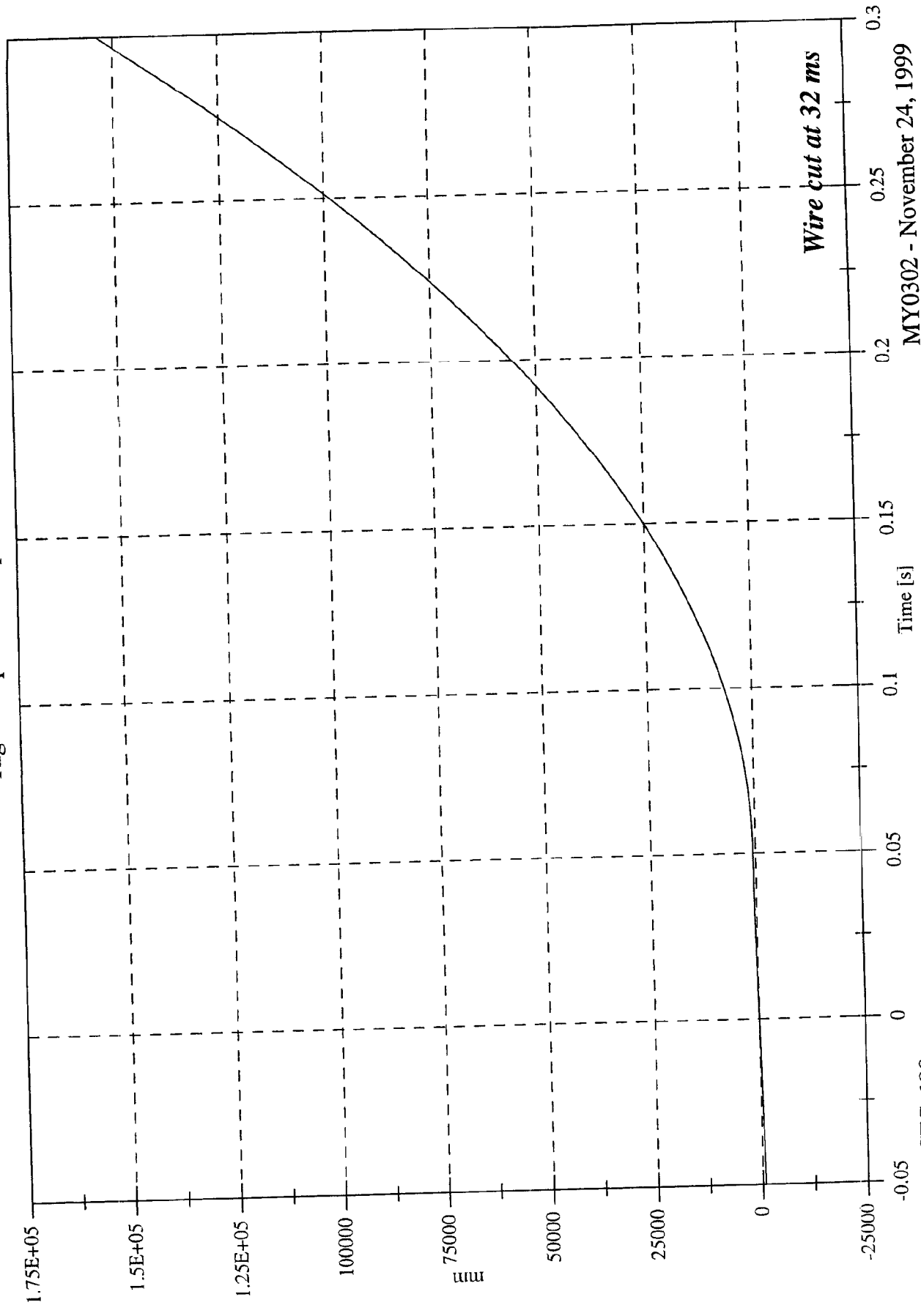


MY0302 - November 24, 1999

Max: 153945.9 [mm] at 0.300 [s]
Min: -782.7 [mm] at -0.050 [s]

Right Caliper #5x Displacement

NCAP Test 3 - 2000 Dodge Caravan



MY0302 - November 24, 1999

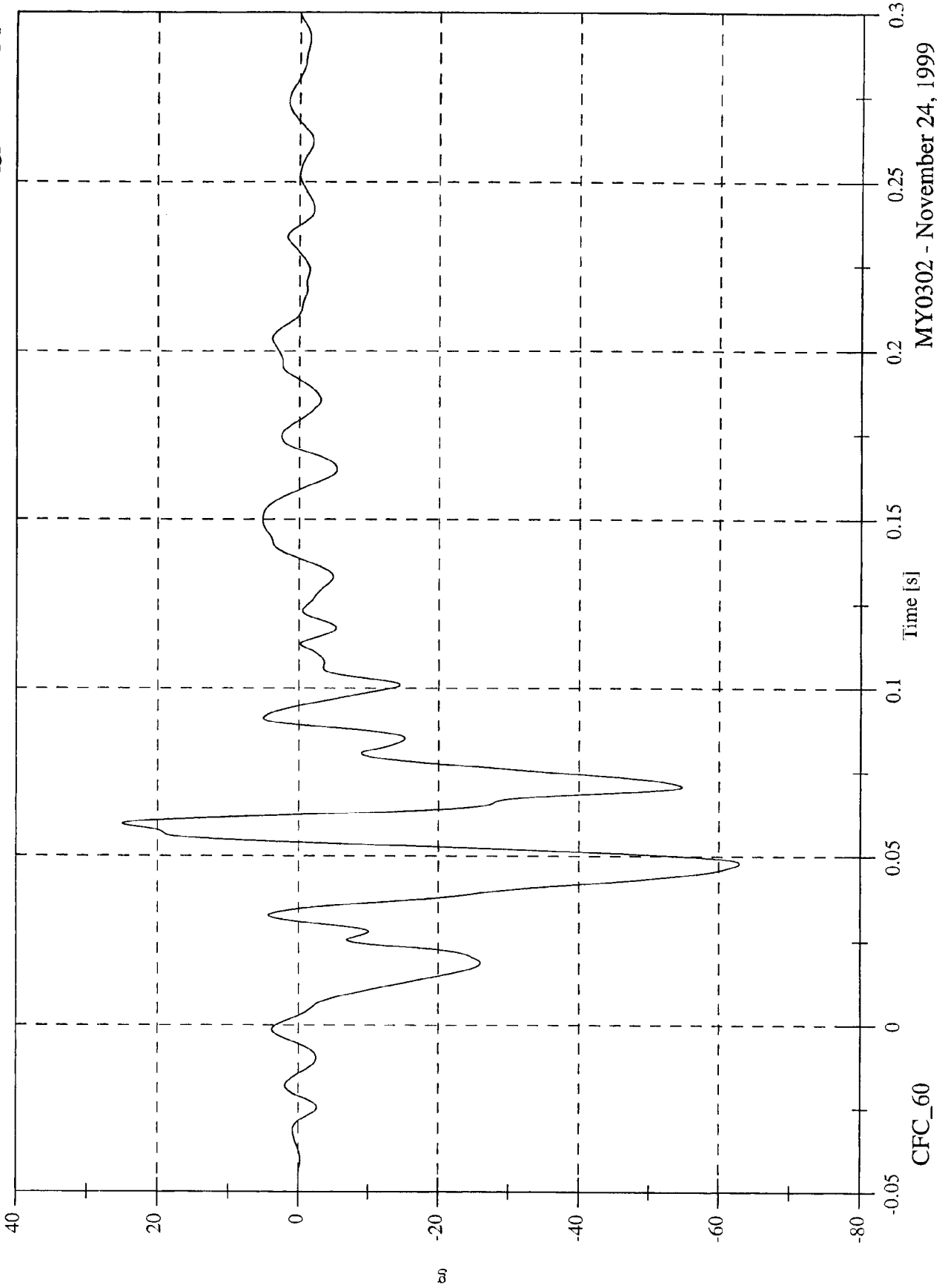
CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Instrument Panel #6x

Max: 24.9 [g] at 0.060 [s]

Min: -62.9 [g] at 0.048 [s]

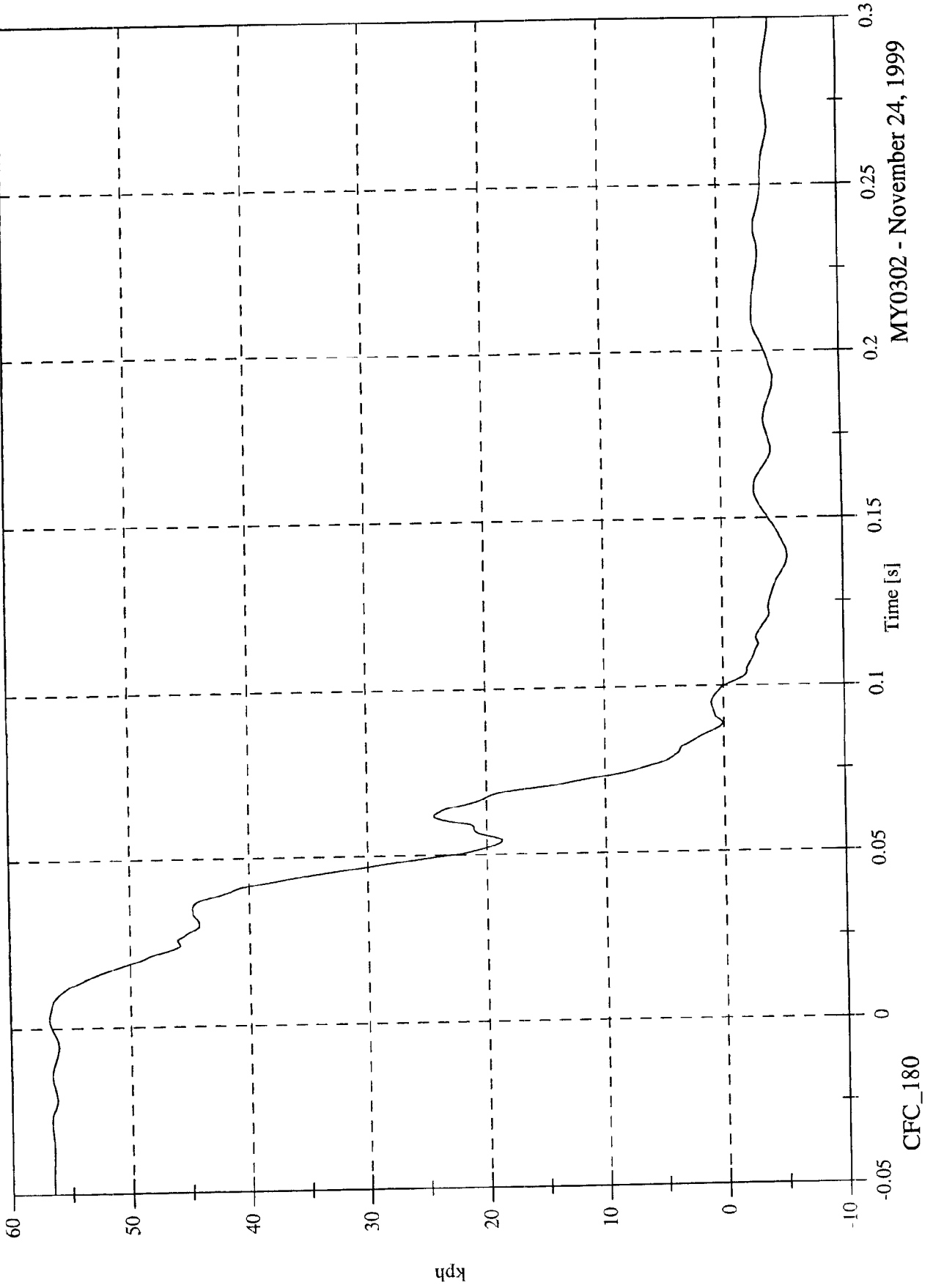


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 56.8 [kph] at 0.003 [s]
Min: -5.4 [kph] at 0.138 [s]

Instrument Panel #6x Velocity



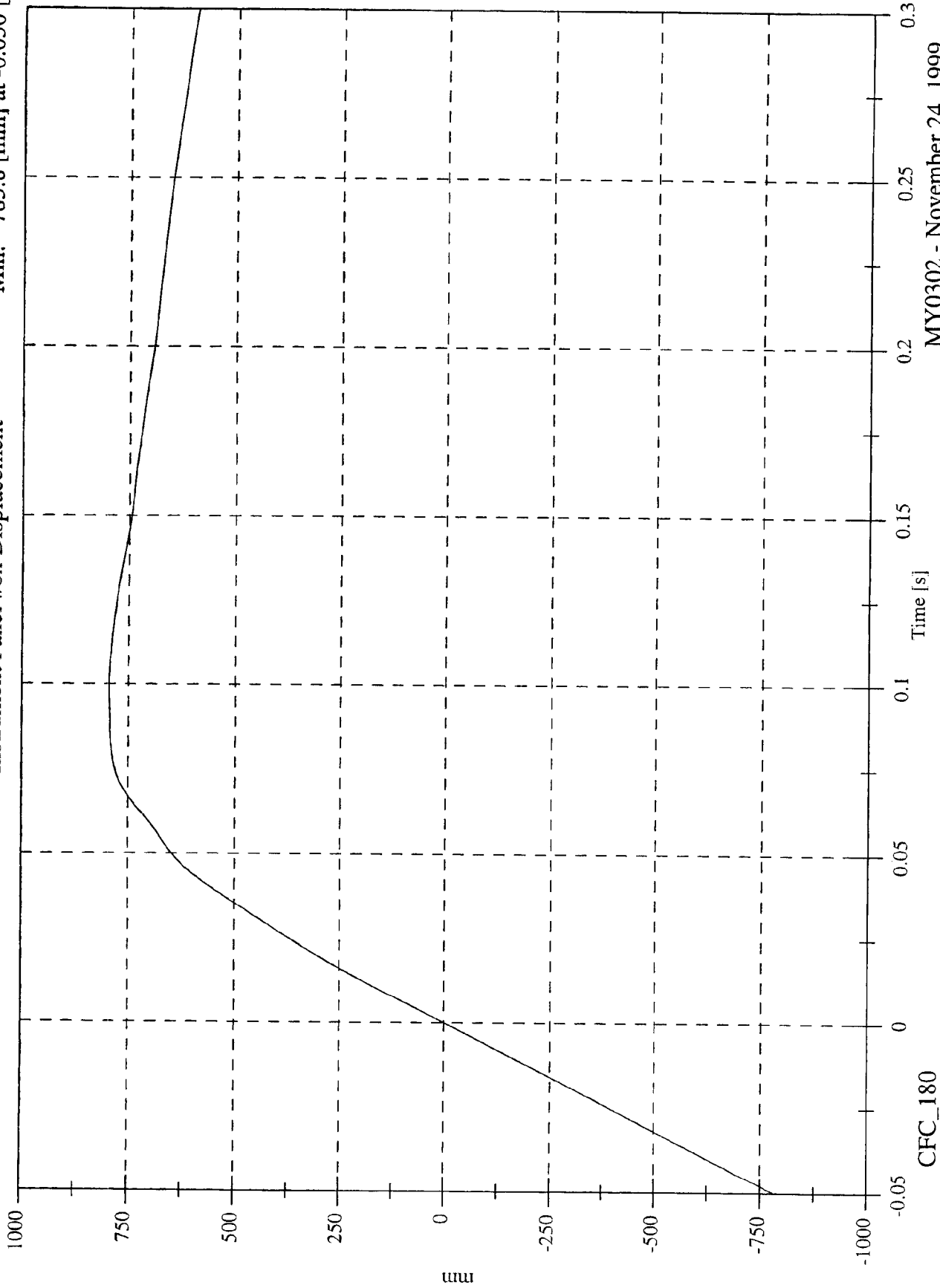
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 795.9 [mm] at 0.100 [s]
Min: -783.8 [mm] at -0.050 [s]

Instrument Panel #6x Displacement

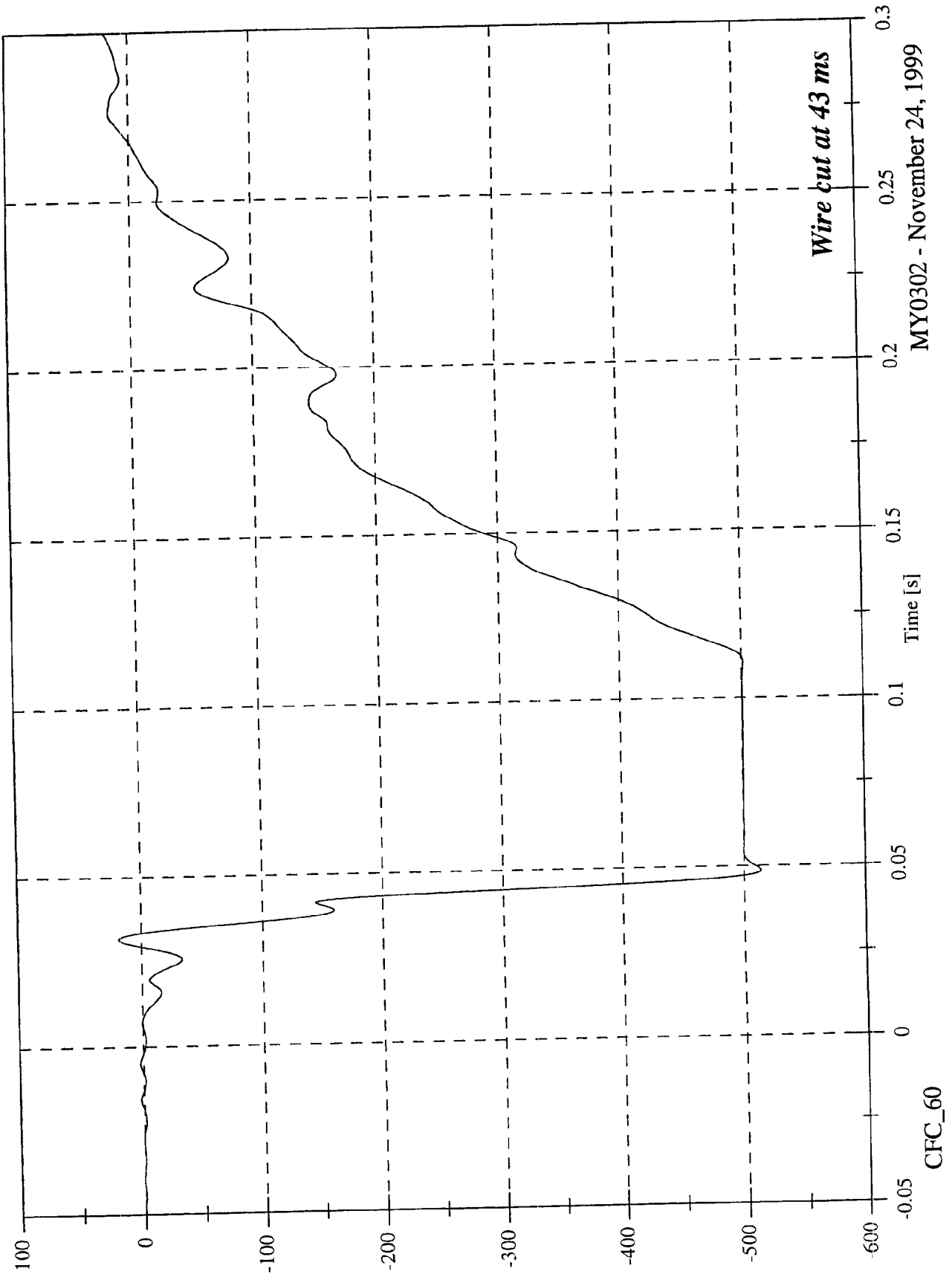


MY0302 - November 24, 1999

Max: 19.4 [g] at 0.300 [s]
Min: -513.8 [g] at 0.049 [s]

Left Caliper #7x

NCAP Test 3 - 2000 Dodge Caravan



Wire cut at 43 ms

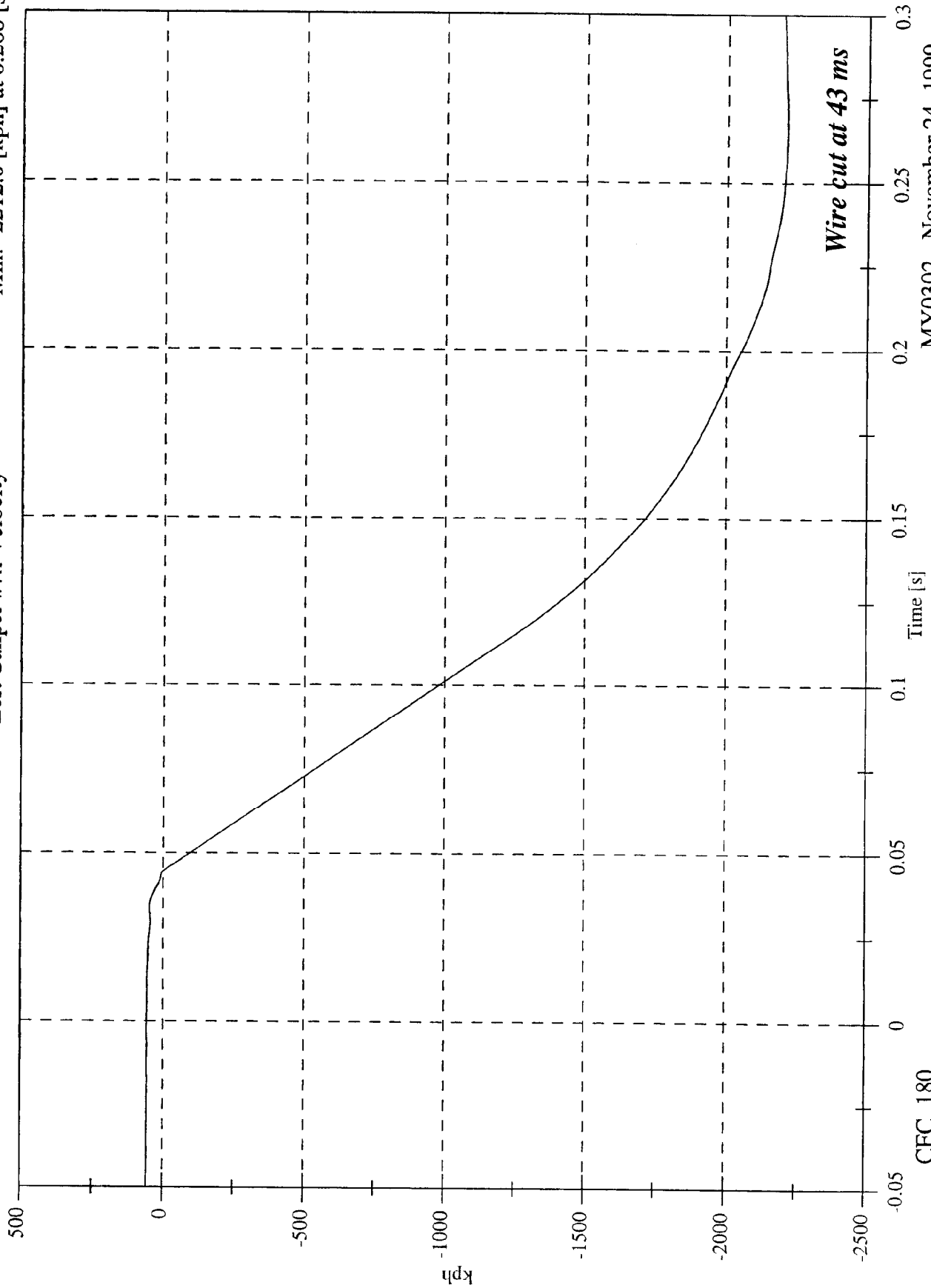
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Max: 56.6 [kph] at -0.049 [s]
Min: -2212.0 [kph] at 0.268 [s]

Left Caliper #7x Velocity



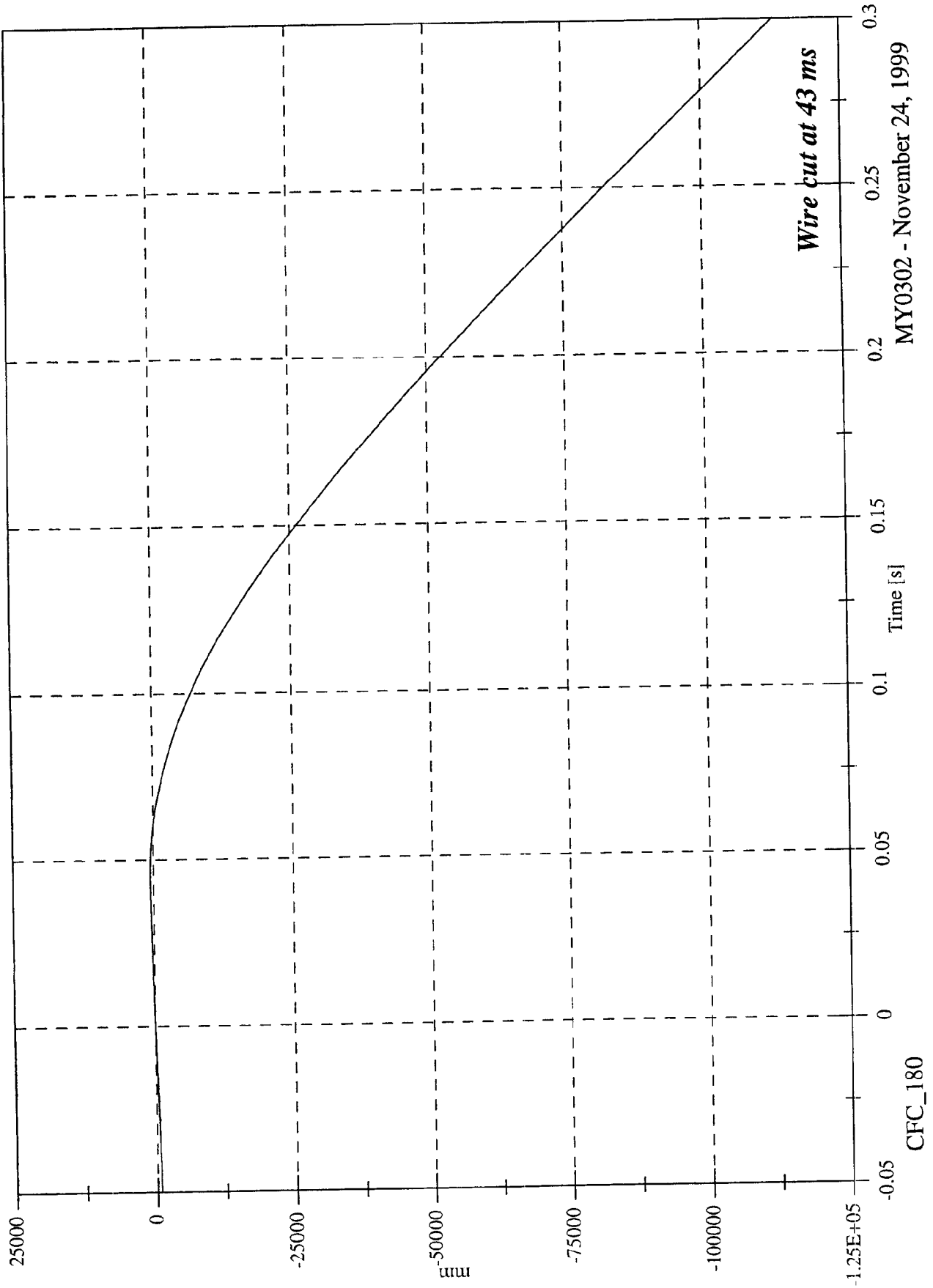
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Left Caliper #7x Displacement

Max: 575.0 [mm] at 0.045 [s]
Min: -113036.1 [mm] at 0.300 [s]



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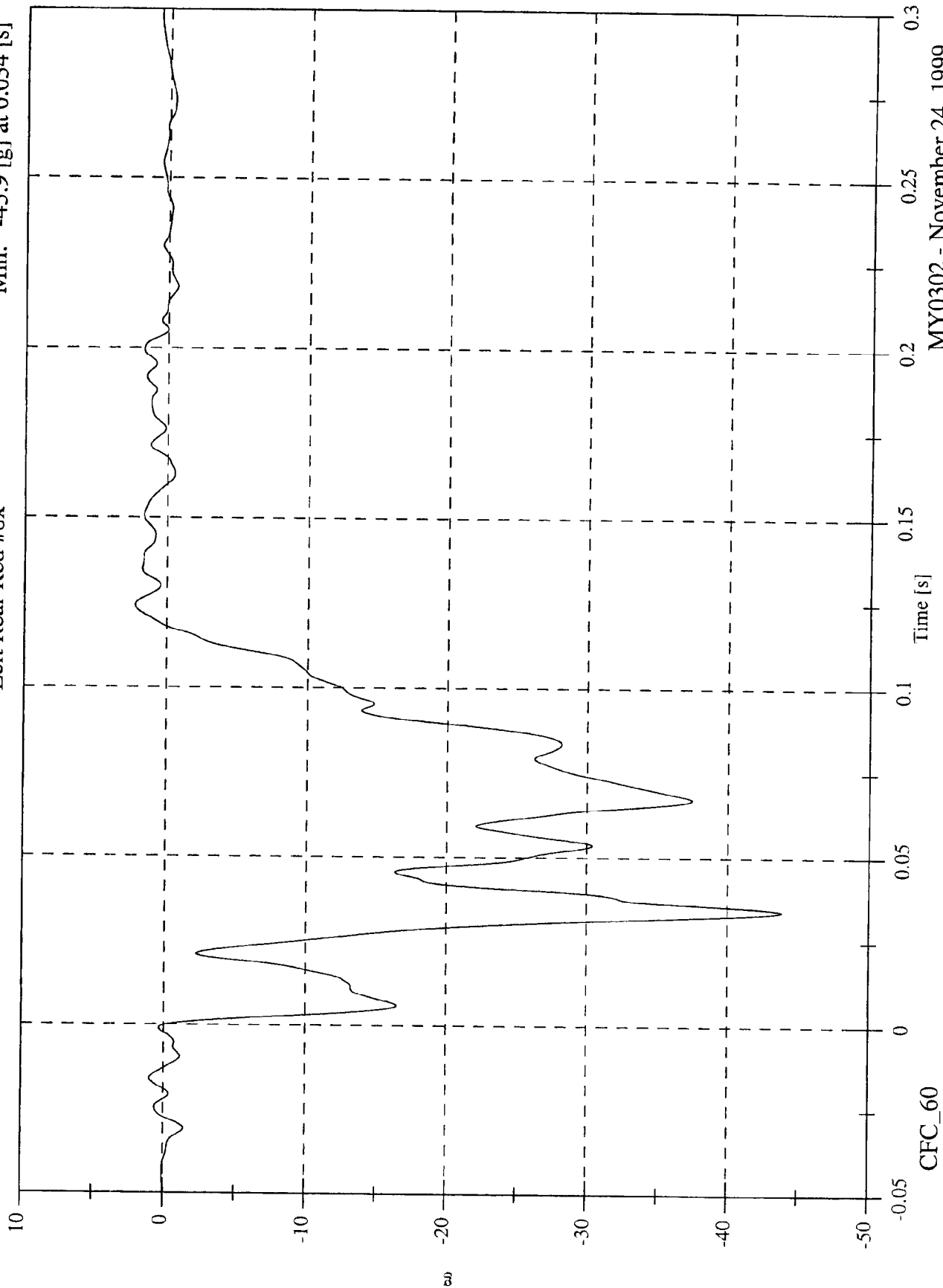
CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 2.2 [g] at 0.124 [s]

Min: -43.9 [g] at 0.034 [s]

Left Rear Red #8x

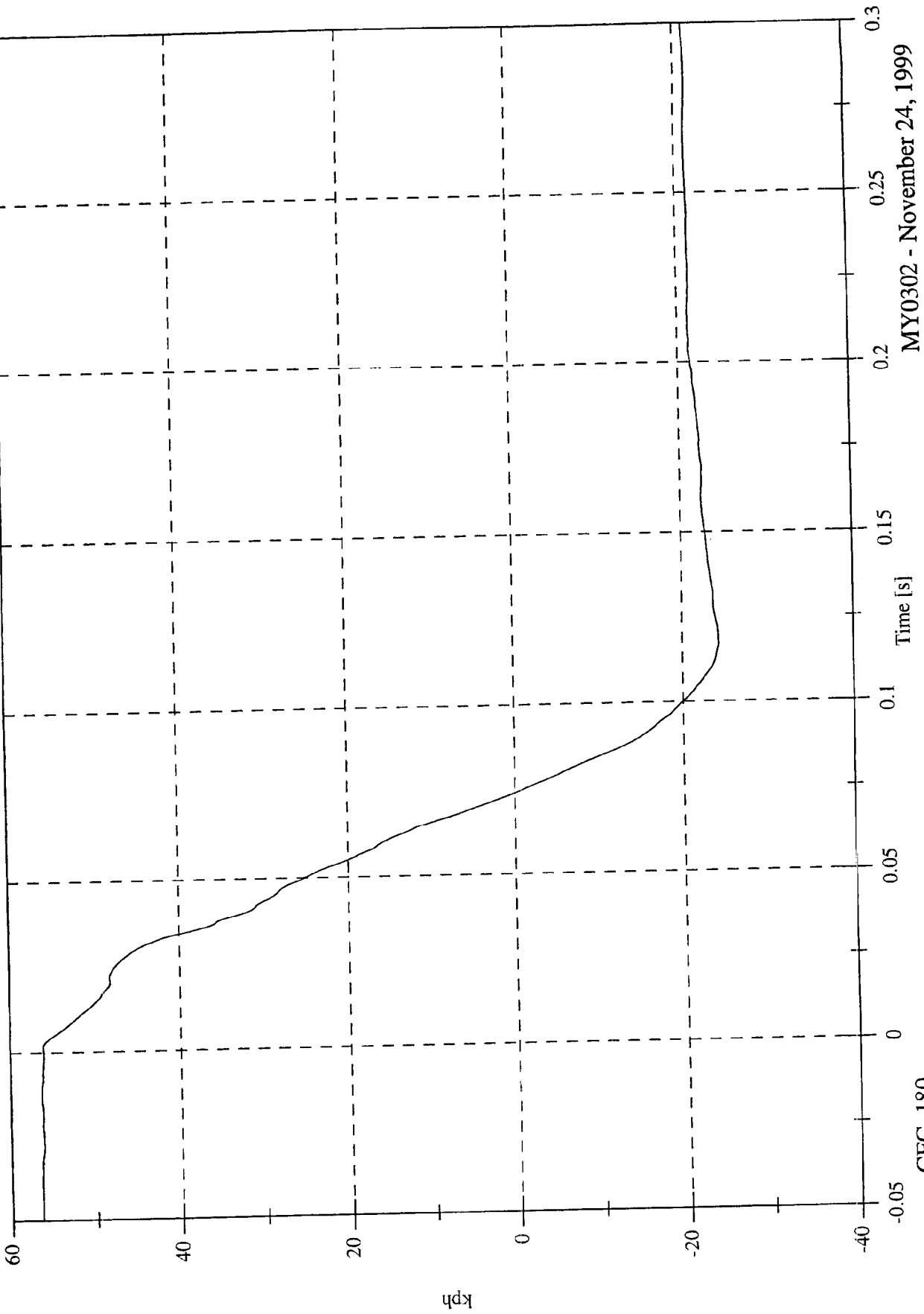


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Left Rear Red #8x Velocity

Max: 56.4 [kph] at -0.039 [s]
Min: -24.3 [kph] at 0.117 [s]



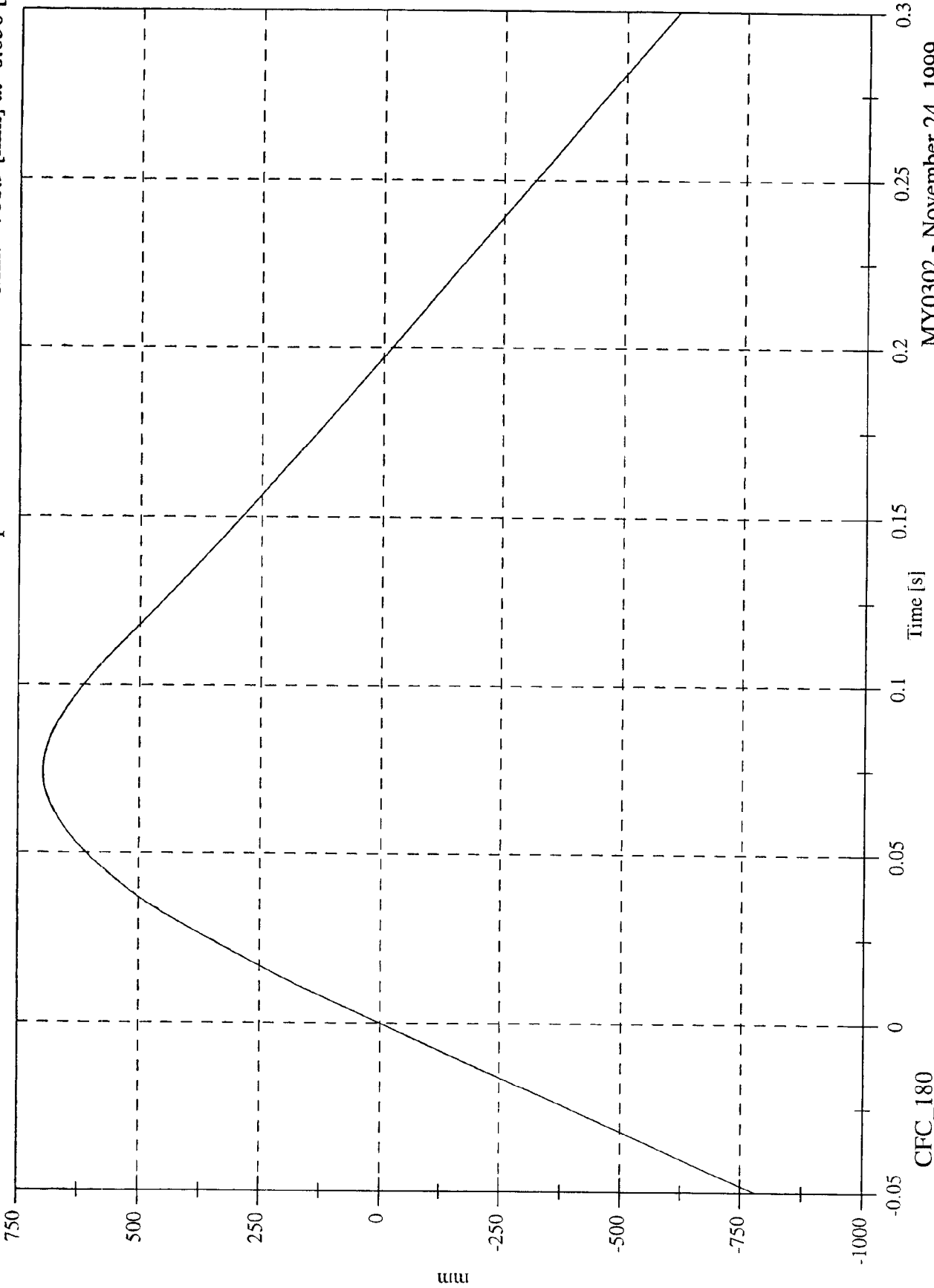
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

Max: 697.8 [mm] at 0.074 [s]
Min: -781.9 [mm] at -0.050 [s]

Left Rear Red #8x Displacement

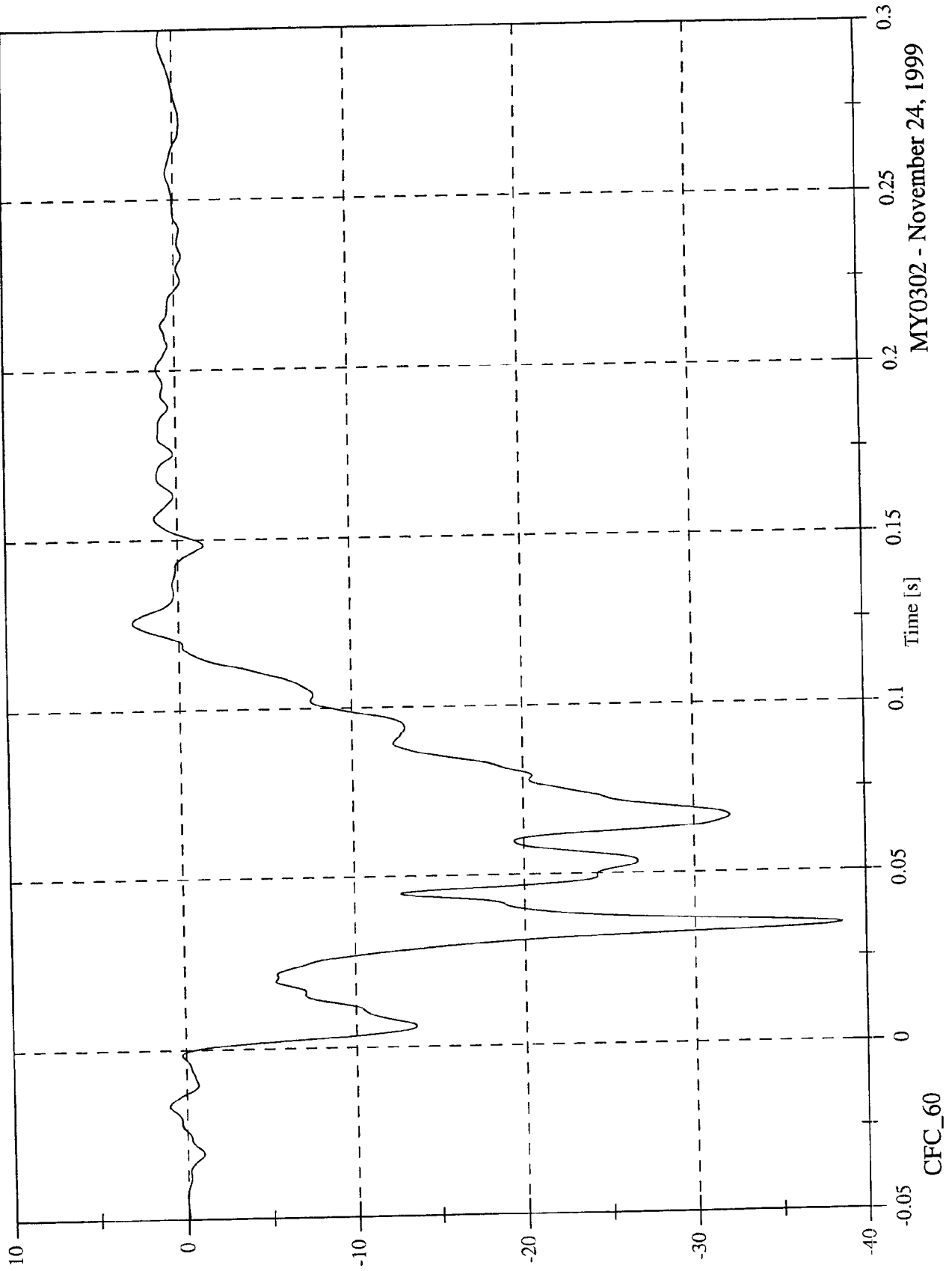


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 2.7 [g] at 0.126 [s]
Min: -38.6 [g] at 0.034 [s]

Right Rear Red #9x



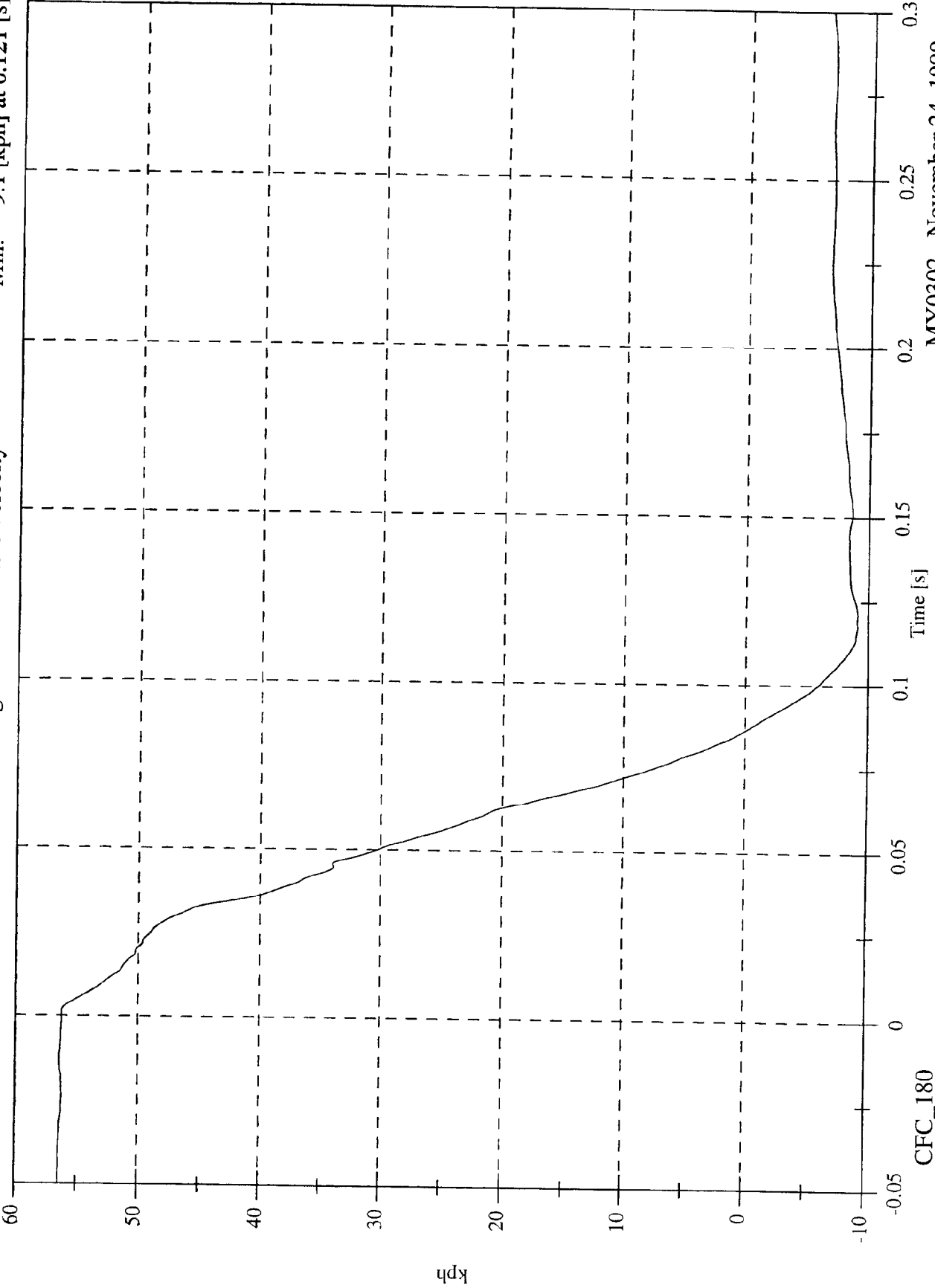
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Max: 56.4 [kph] at -0.042 [s]
Min: -9.1 [kph] at 0.121 [s]

Right Rear Red #9x Velocity

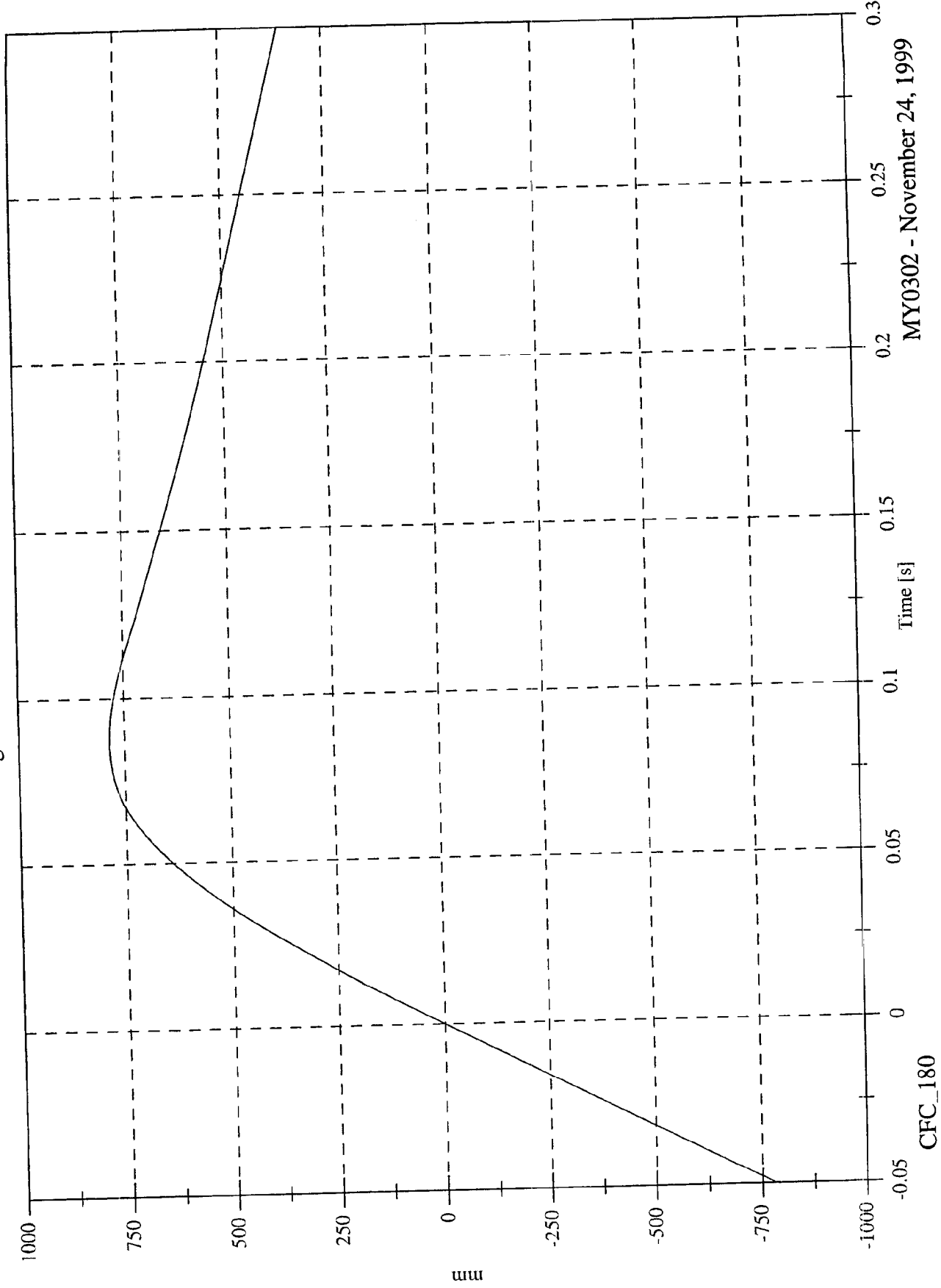


MY0302 - November 24, 1999

Max: 786.2 [mm] at 0.087 [s]
Min: -782.3 [mm] at -0.050 [s]

Right Rear Red #9x Displacement

NCAP Test 3 - 2000 Dodge Caravan



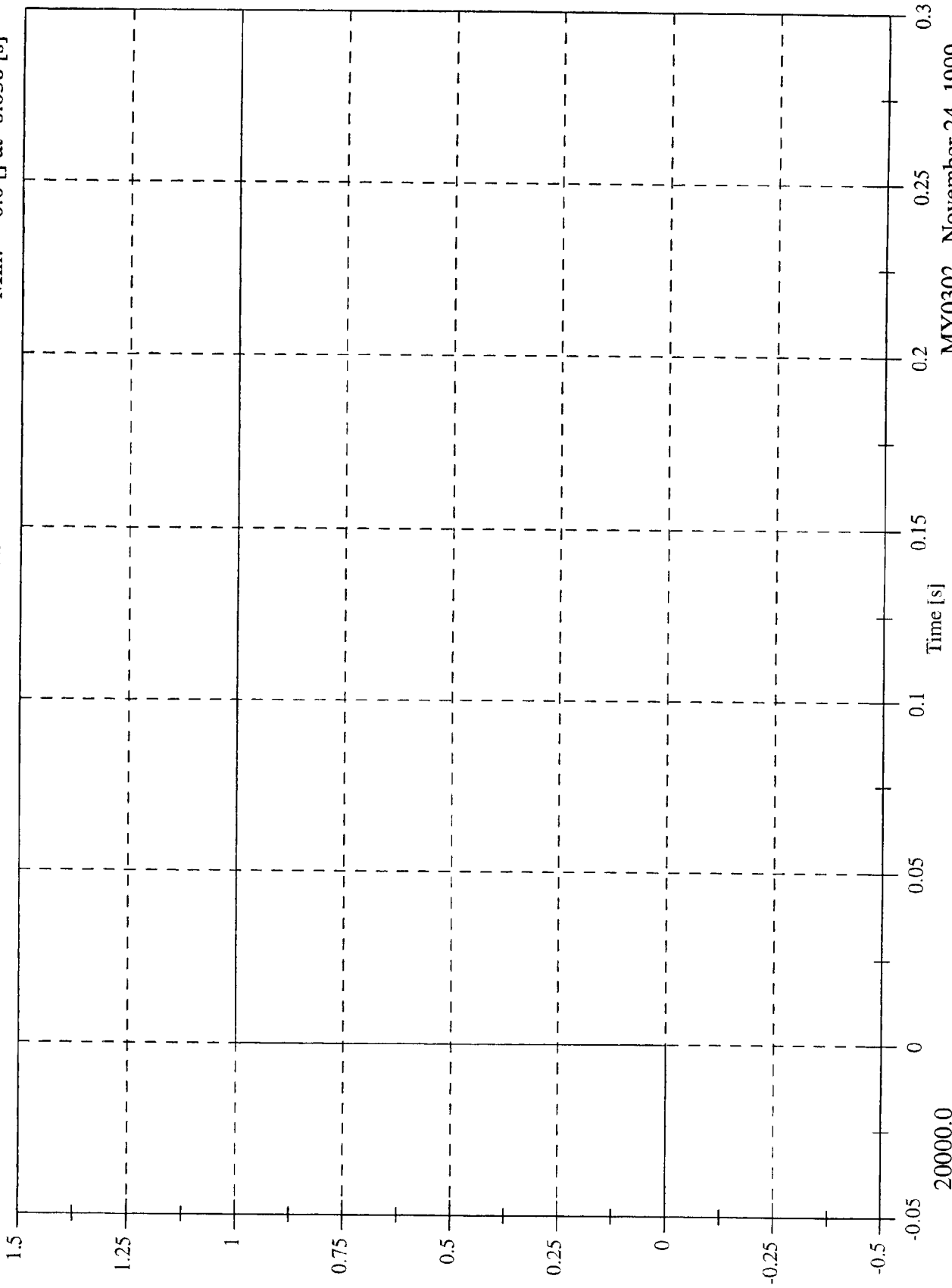
MY0302 - November 24, 1999

CFC_180

NCAP Test 3 - 2000 Dodge Caravan

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

Contact Time



20000.0

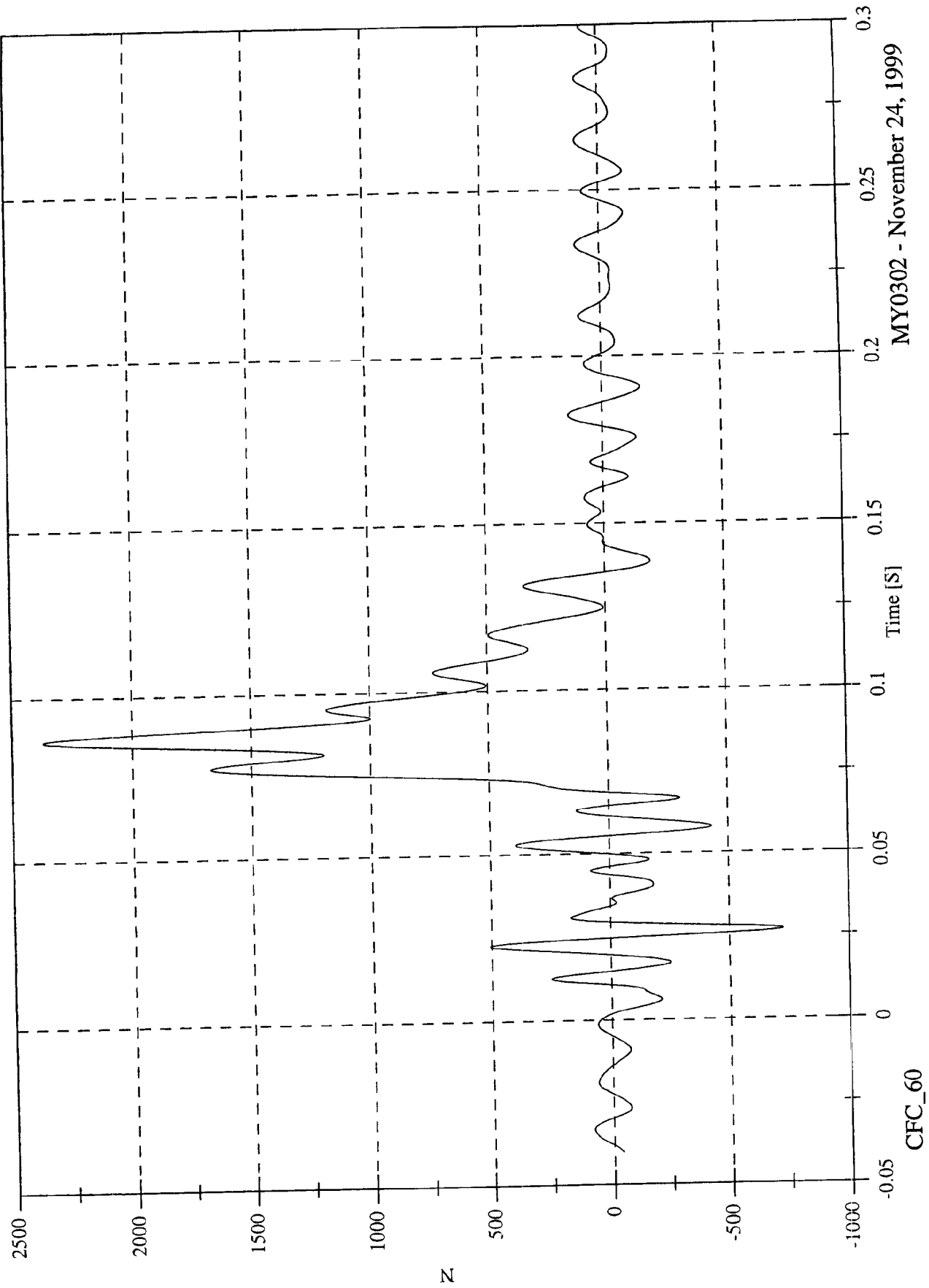
Time [s]



Max: 2369.5 [N] at 0.086 [S]
Min: -723.9 [N] at 0.027 [S]

Barrier Load Cell A1 Fx

NCAP Test 3 - 2000 Dodge Caravan



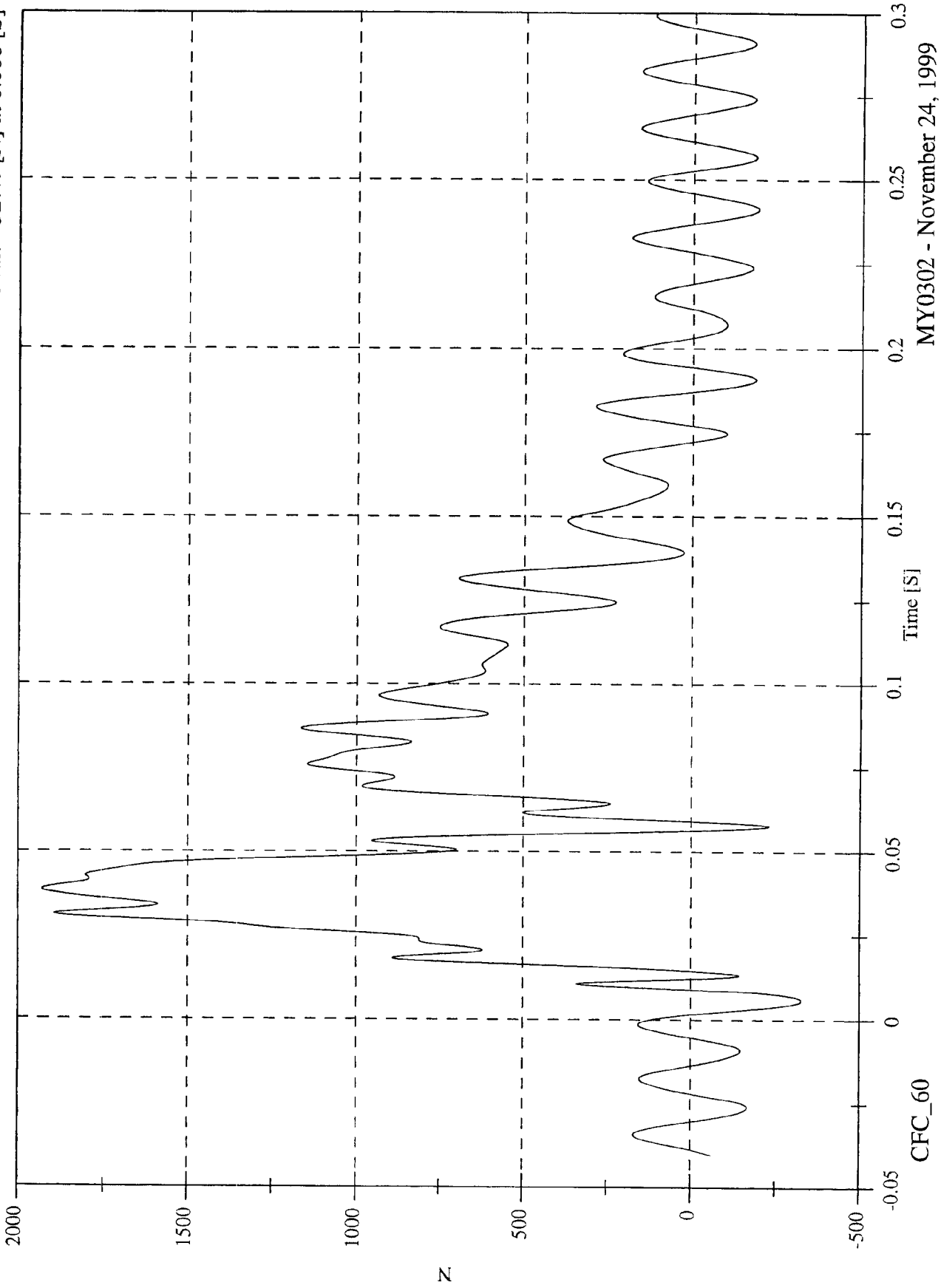
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell A2 Fx

Max: 1929.2 [N] at 0.038 [S]
Min: -327.0 [N] at 0.006 [S]

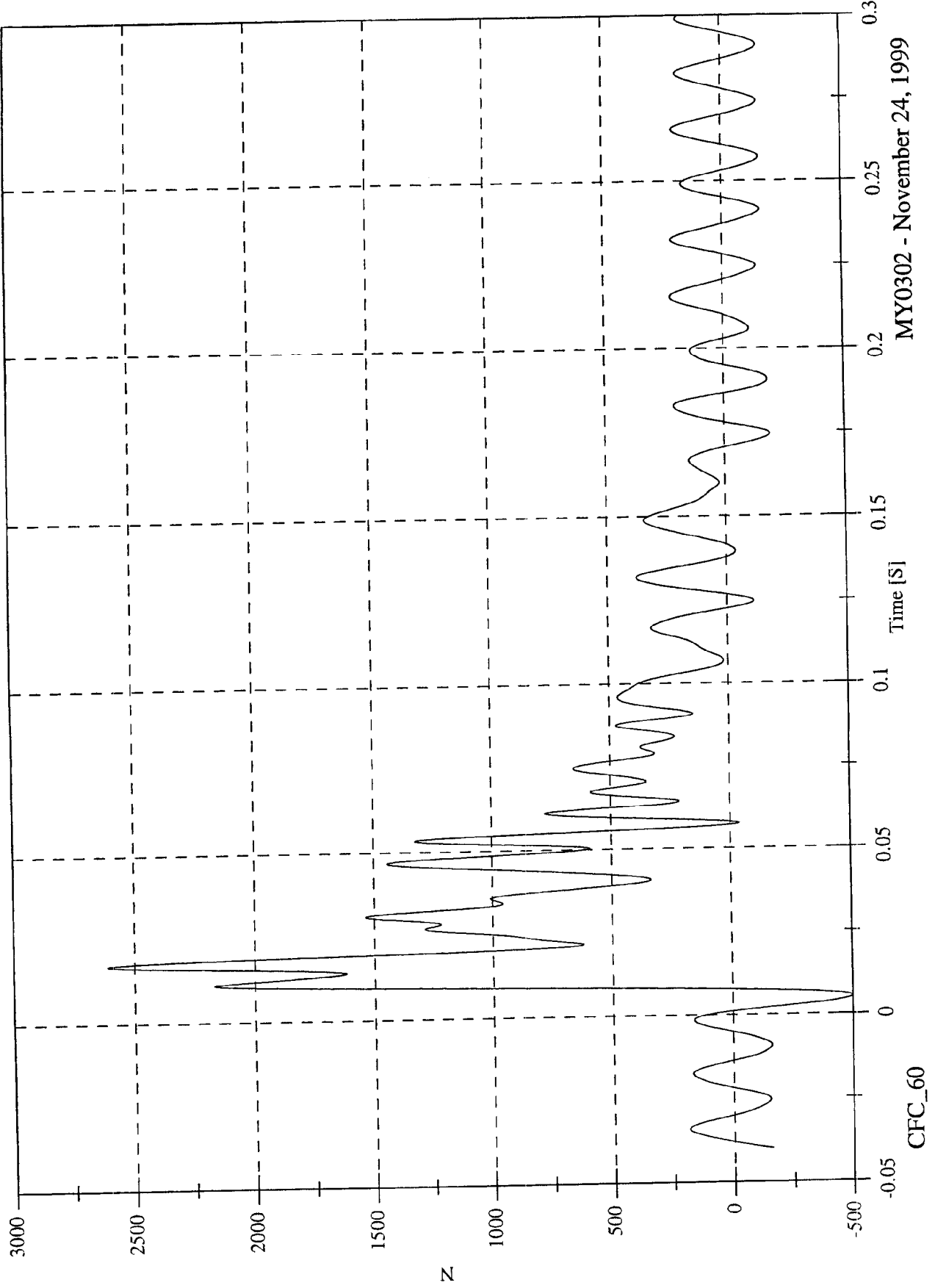


MY0302 - November 24, 1999

Max: 2609.6 [N] at 0.017 [S]
Min: -499.9 [N] at 0.005 [S]

Barrier Load Cell A3 Fx

NCAP Test 3 - 2000 Dodge Caravan



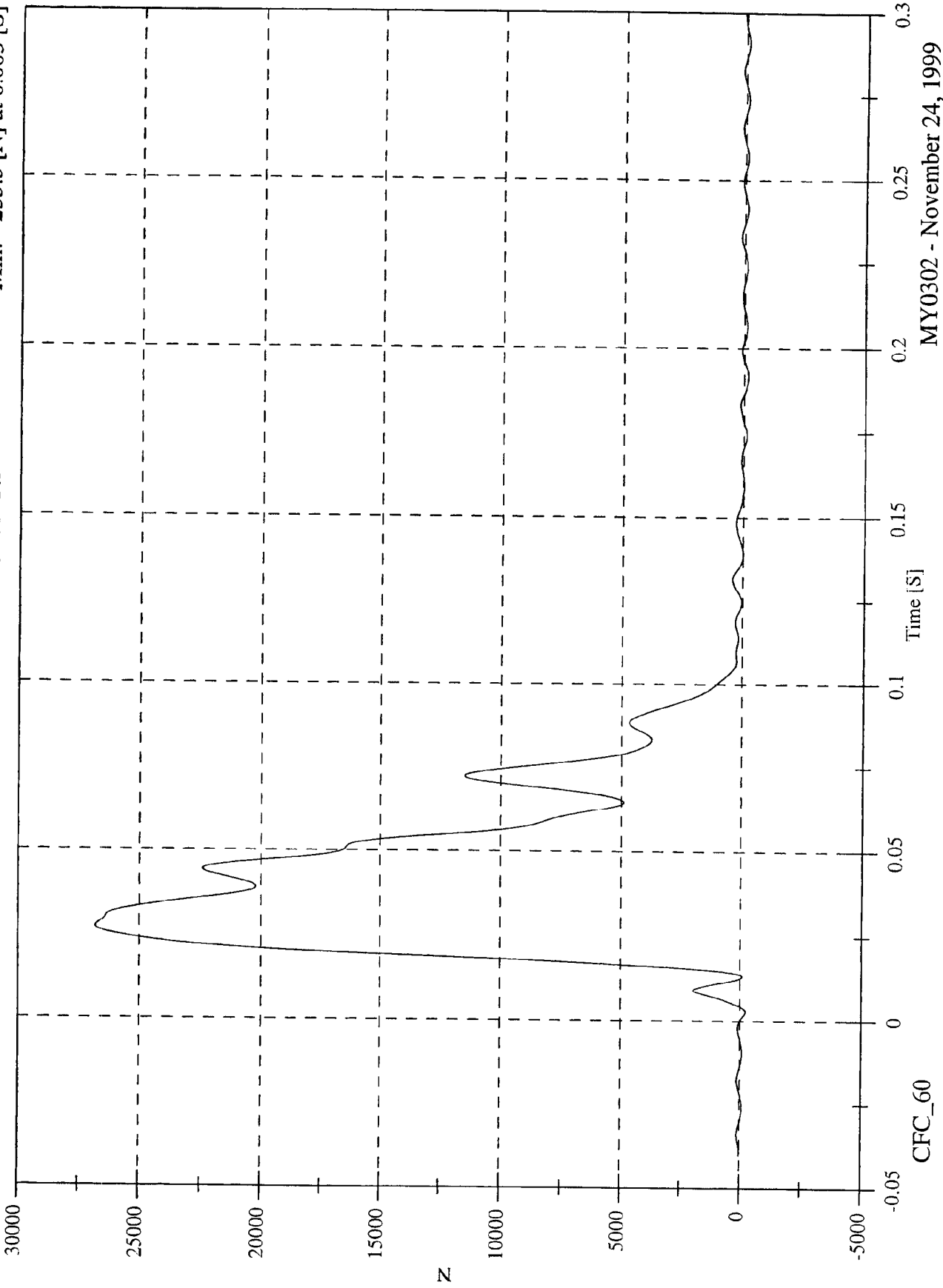
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell A4 Fx

Max: 26811.2 [N] at 0.027 [S]
Min: -235.3 [N] at 0.003 [S]

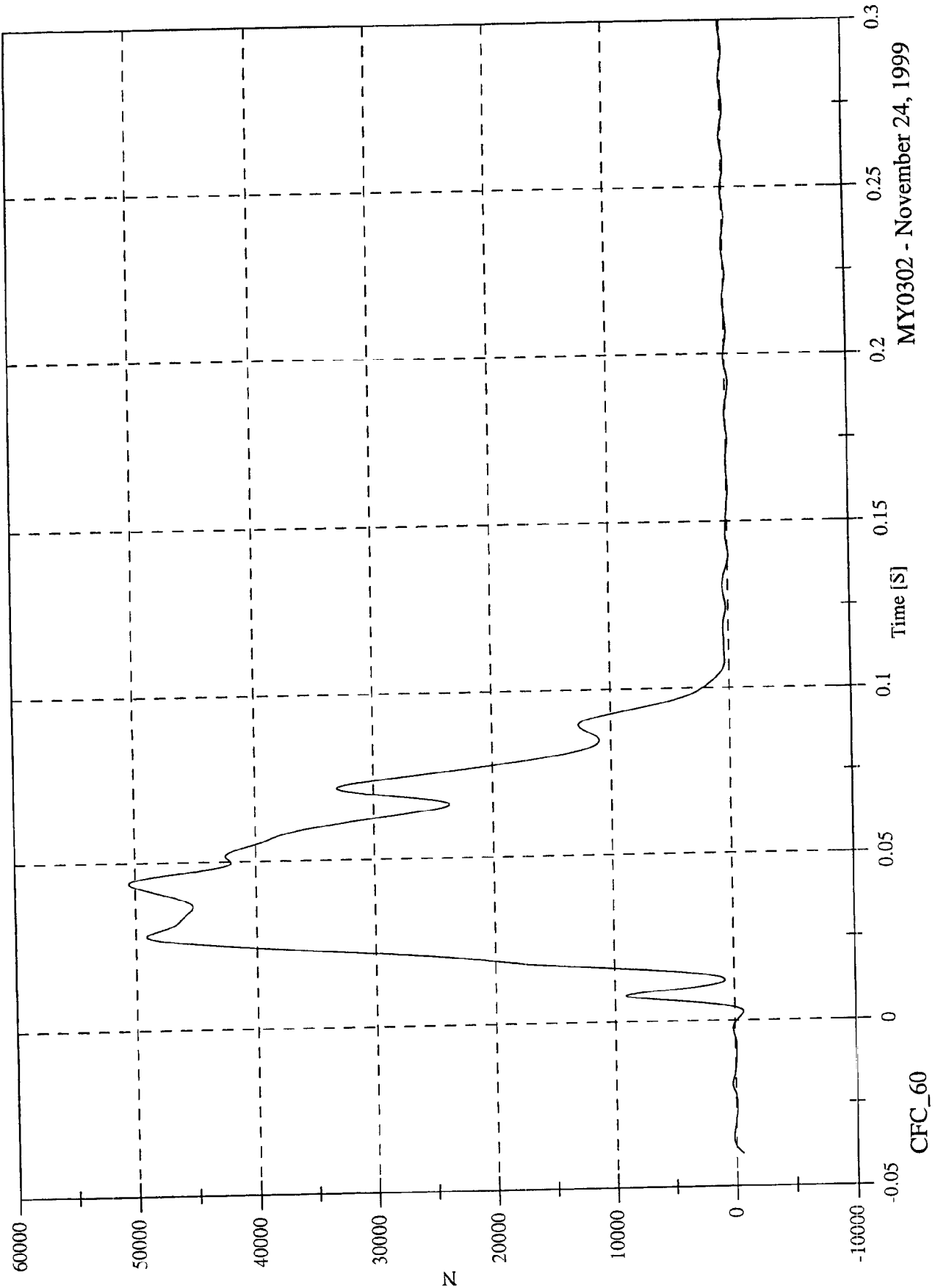


MY0302 - November 24, 1999

Max: 50544.4 [N] at 0.044 [S]
Min: -714.1 [N] at 0.002 [S]

Barrier Load Cell A5 Fx

NCAP Test 3 - 2000 Dodge Caravan



MY0302 - November 24, 1999

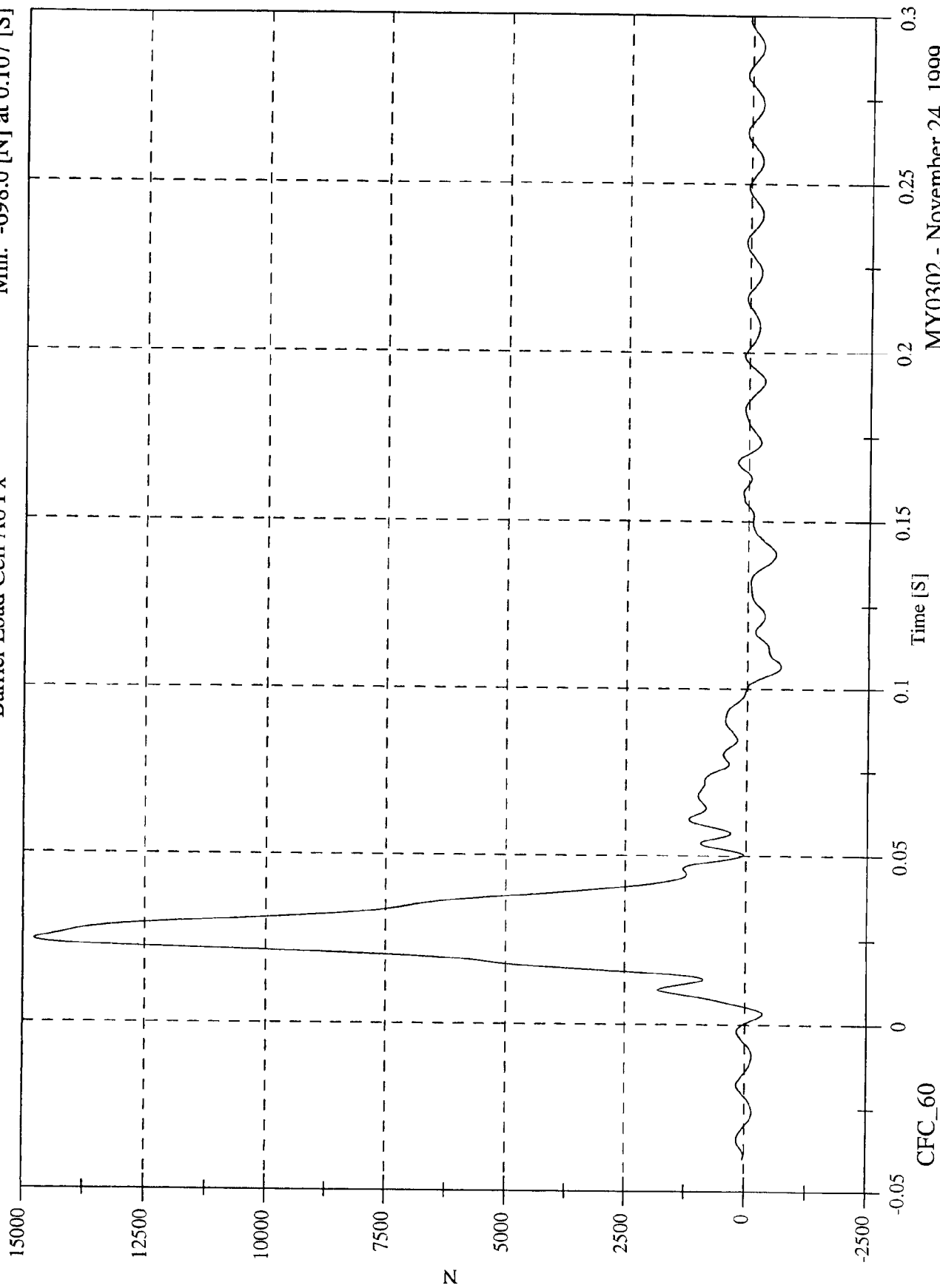
CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell A6 Fx

Max: 14765.2 [N] at 0.025 [S]

Min: -698.0 [N] at 0.107 [S]

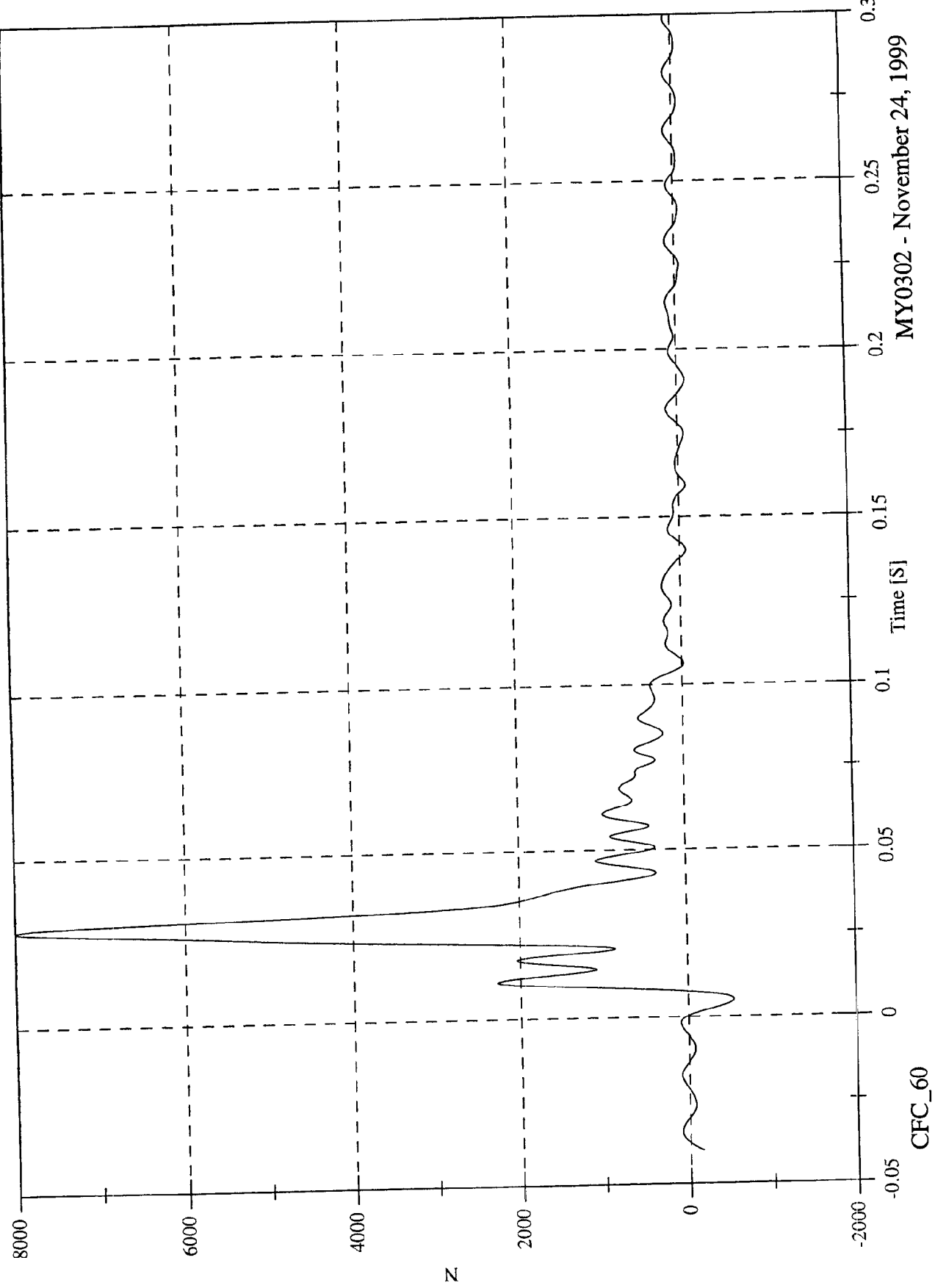


MY0302 - November 24, 1999

Max: 7998.4 [N] at 0.028 [S]
Min: -538.6 [N] at 0.005 [S]

Barrier Load Cell A7 Fx

NCAP Test 3 - 2000 Dodge Caravan



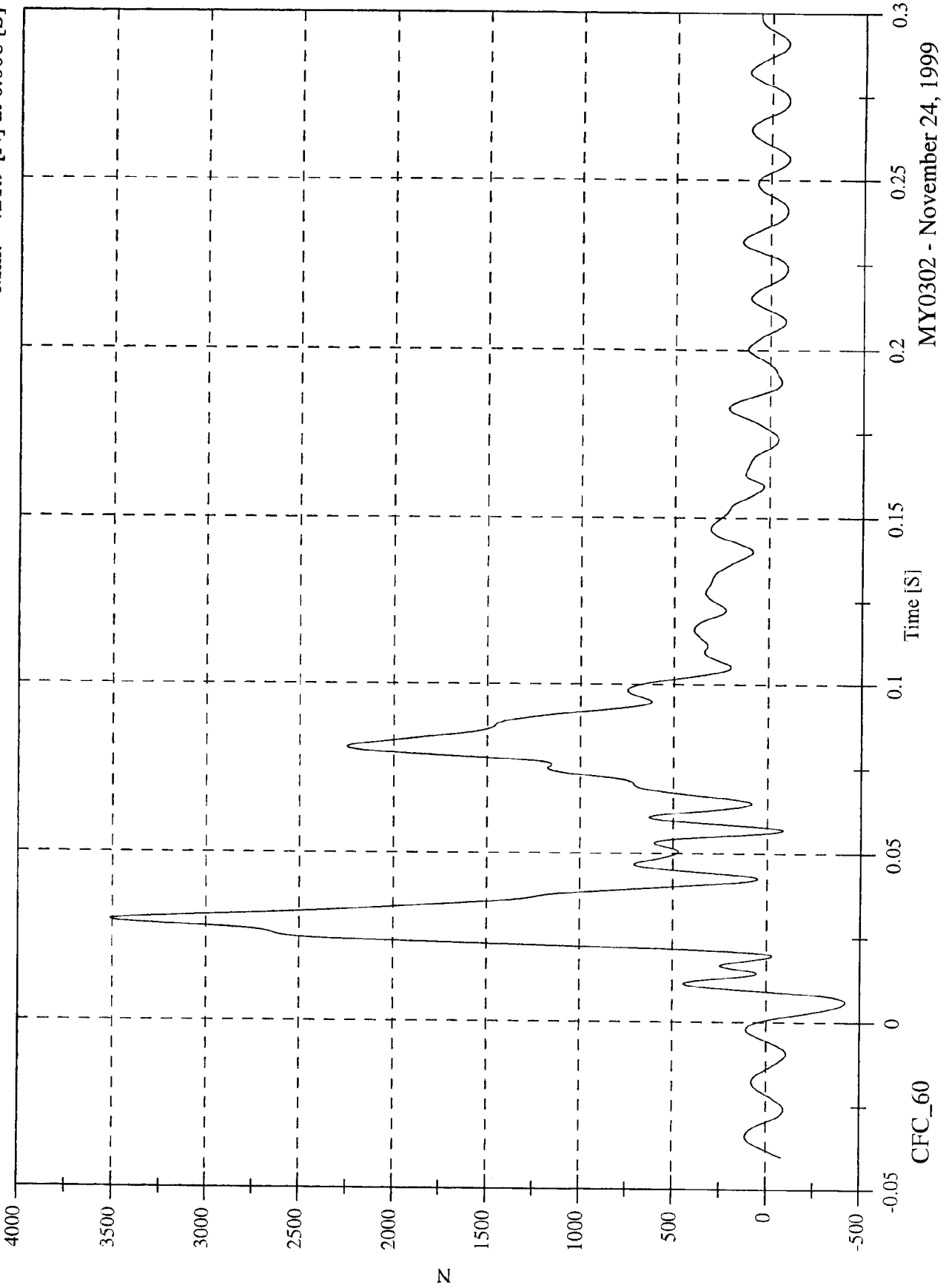
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell A8 Fx

Max: 3513.1 [N] at 0.030 [S]
Min: -421.9 [N] at 0.006 [S]

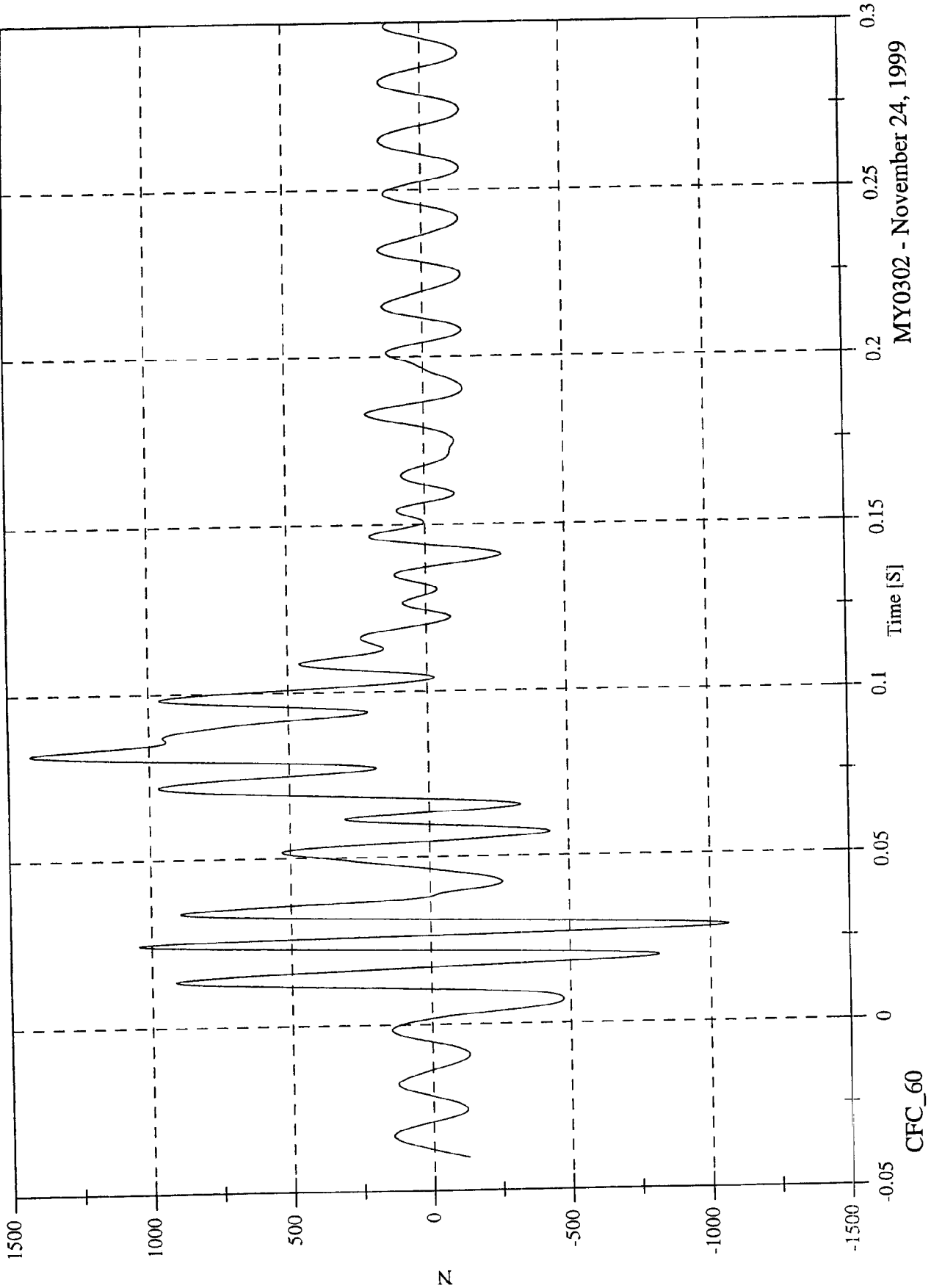


MY0302 - November 24, 1999

Max: 1422.9 [N] at 0.082 [S]
Min: -1065.5 [N] at 0.029 [S]

Barrier Load Cell A9 Fx

NCAP Test 3 - 2000 Dodge Caravan

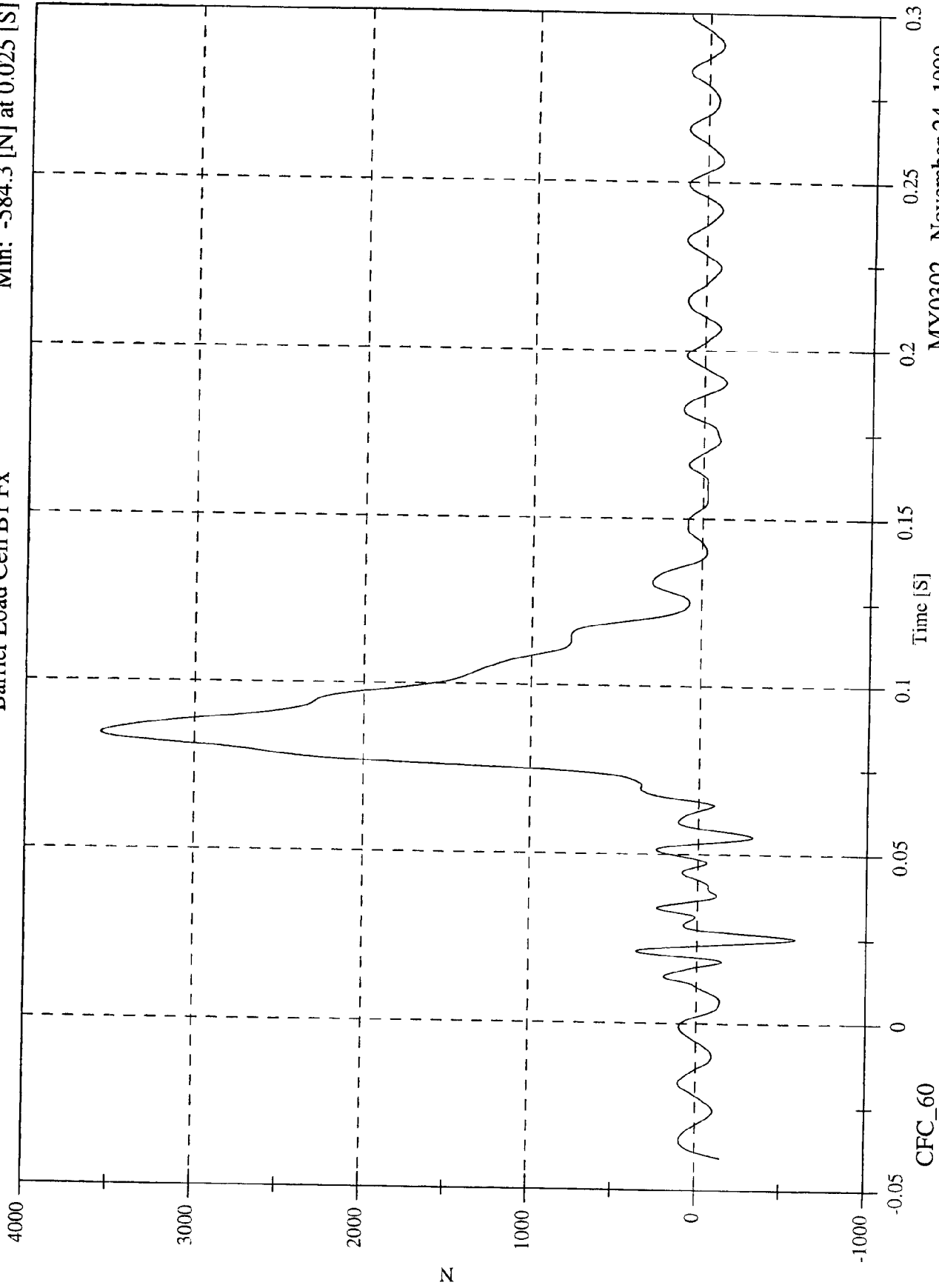


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell B1 Fx

Max: 3555.3 [N] at 0.084 [S]
Min: -584.3 [N] at 0.025 [S]

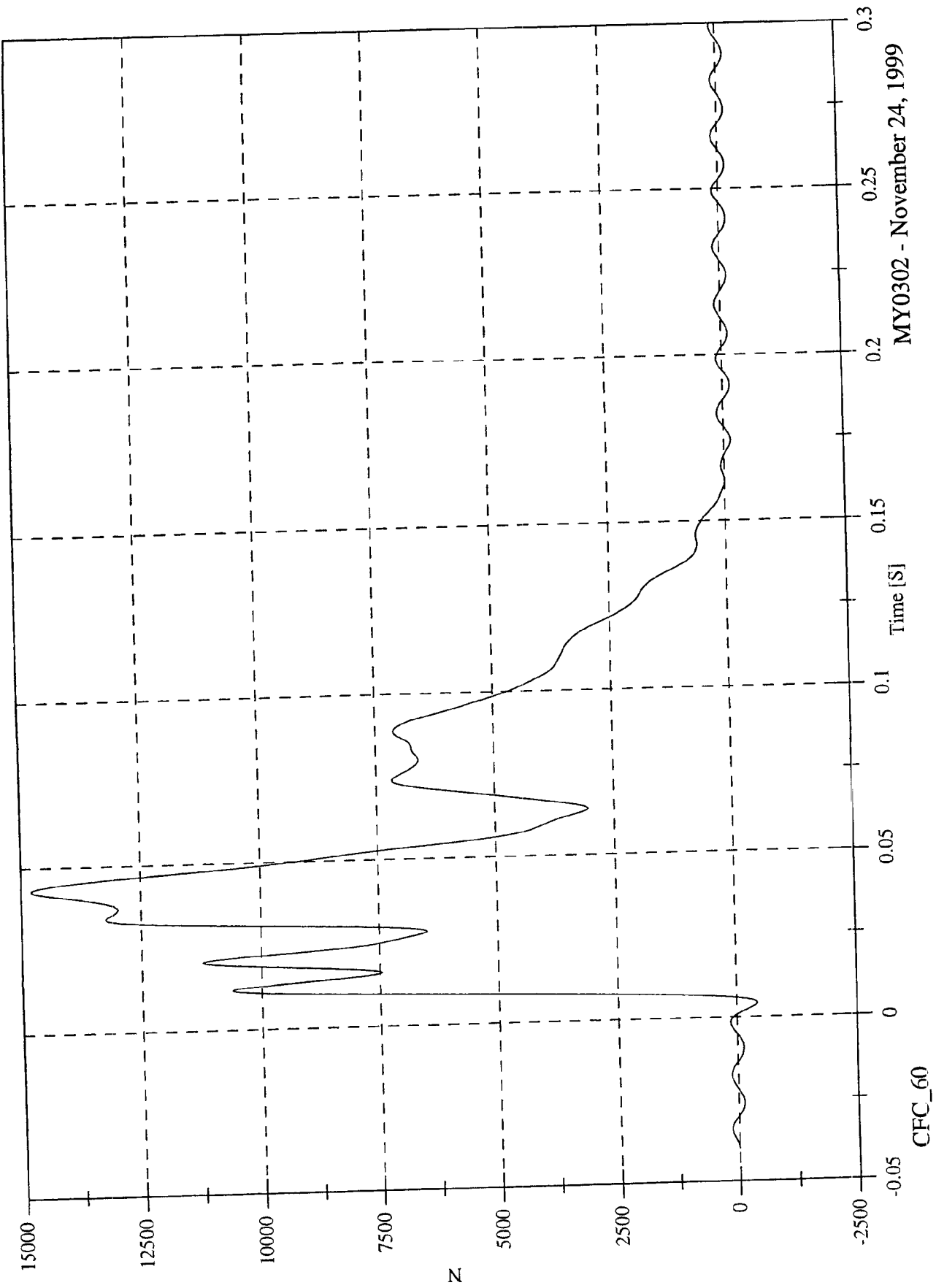


MY0302 - November 24, 1999

Max: 14782.5 [N] at 0.043 [S]
Min: -429.3 [N] at 0.004 [S]

Barrier Load Cell B2 Fx

NCAP Test 3 - 2000 Dodge Caravan



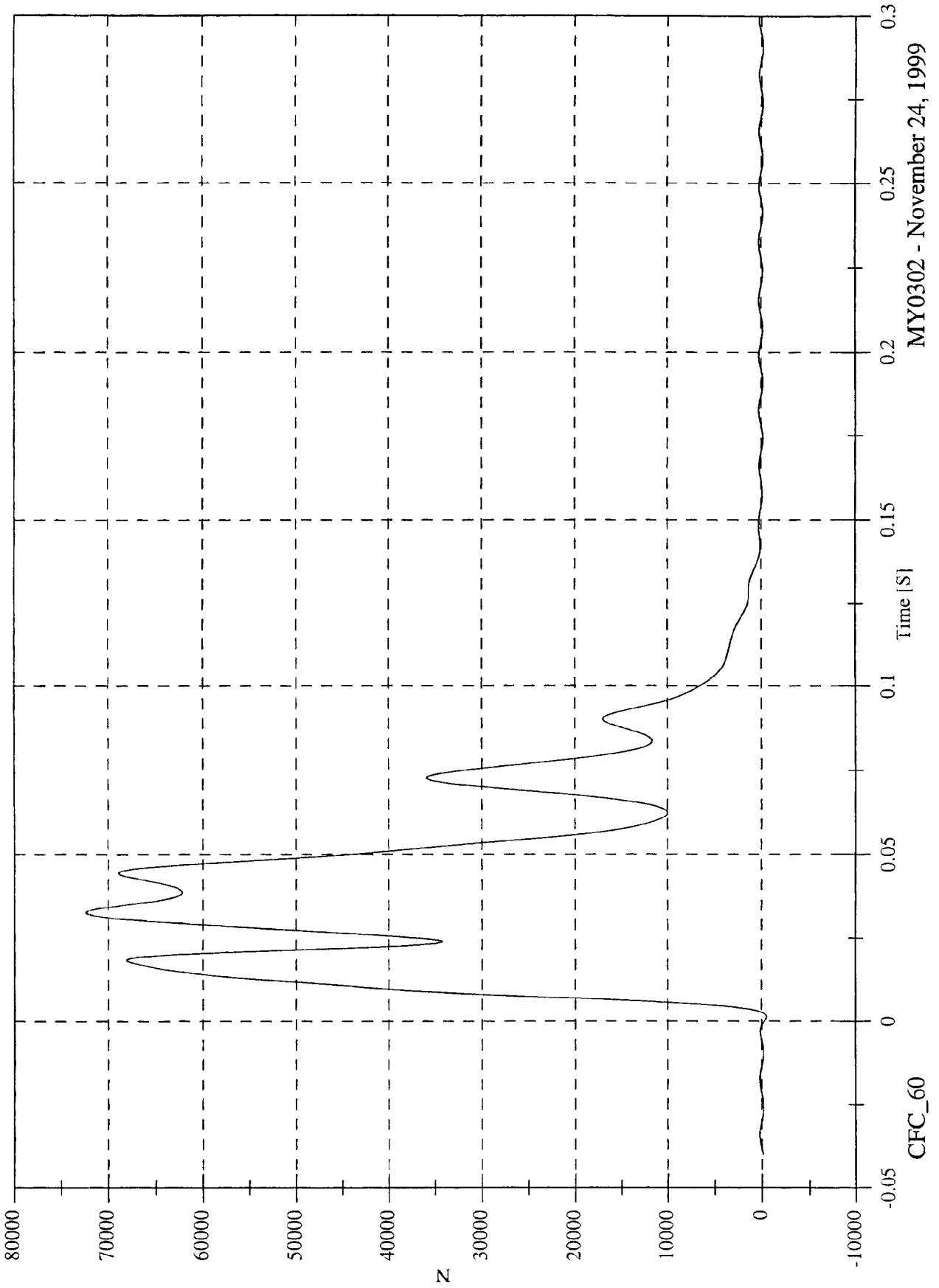
MY0302 - November 24, 1999

CFC_60

Max: 72365.3 [N] at 0.033 [S]
Min: -524.9 [N] at 0.001 [S]

Barrier Load Cell B3 Fx

NCAP Test 3 - 2000 Dodge Caravan

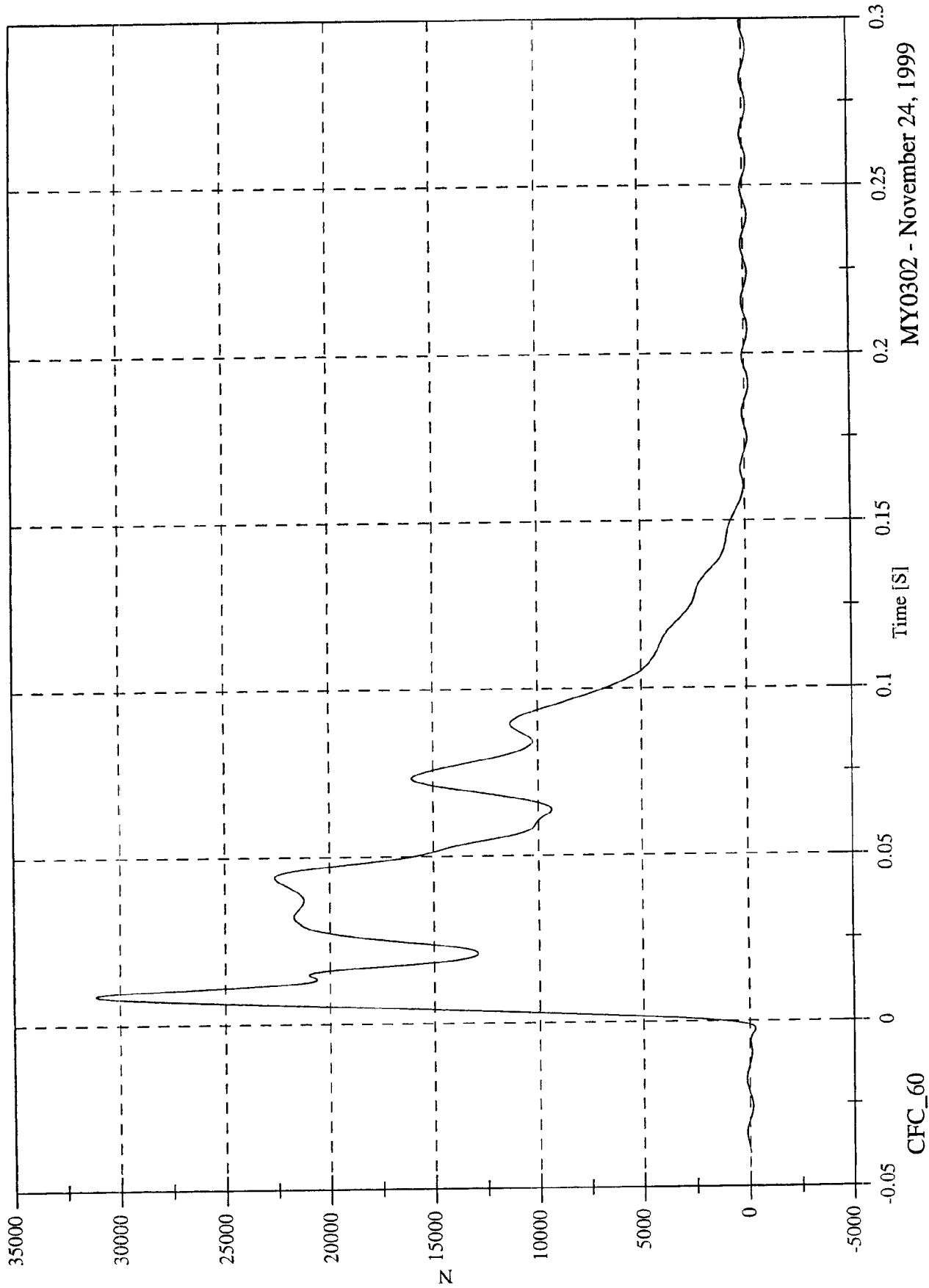


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 31150.2 [N] at 0.009 [S]
Min: -272.9 [N] at -0.003 [S]

Barrier Load Cell B4 Fx



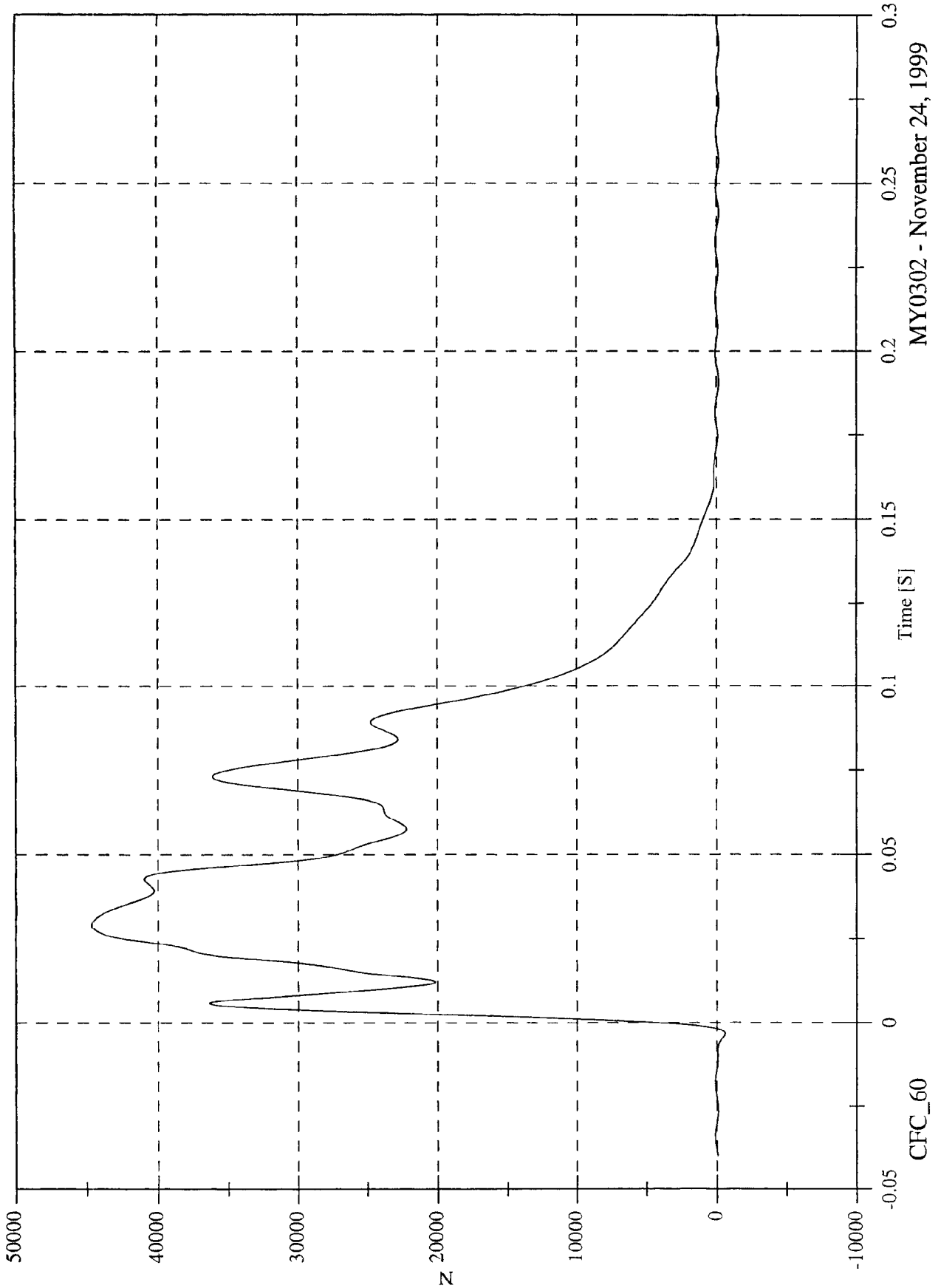
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Max: 44691.1 [N] at 0.029 [S]
Min: -588.7 [N] at -0.003 [S]

Barrier Load Cell B5 Fx

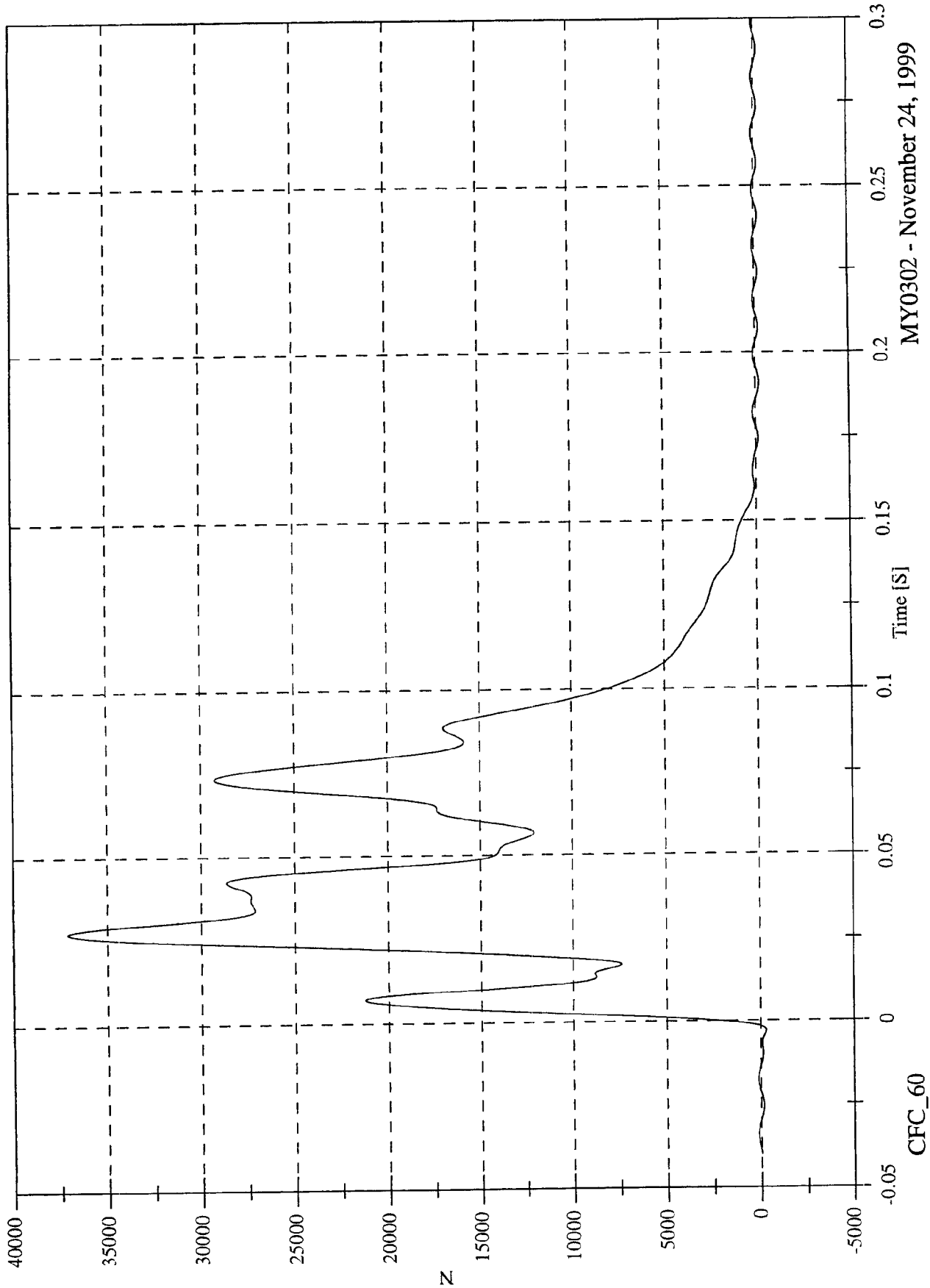


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 37111.6 [N] at 0.027 [S]
Min: -291.6 [N] at -0.003 [S]

Barrier Load Cell B6 Fx



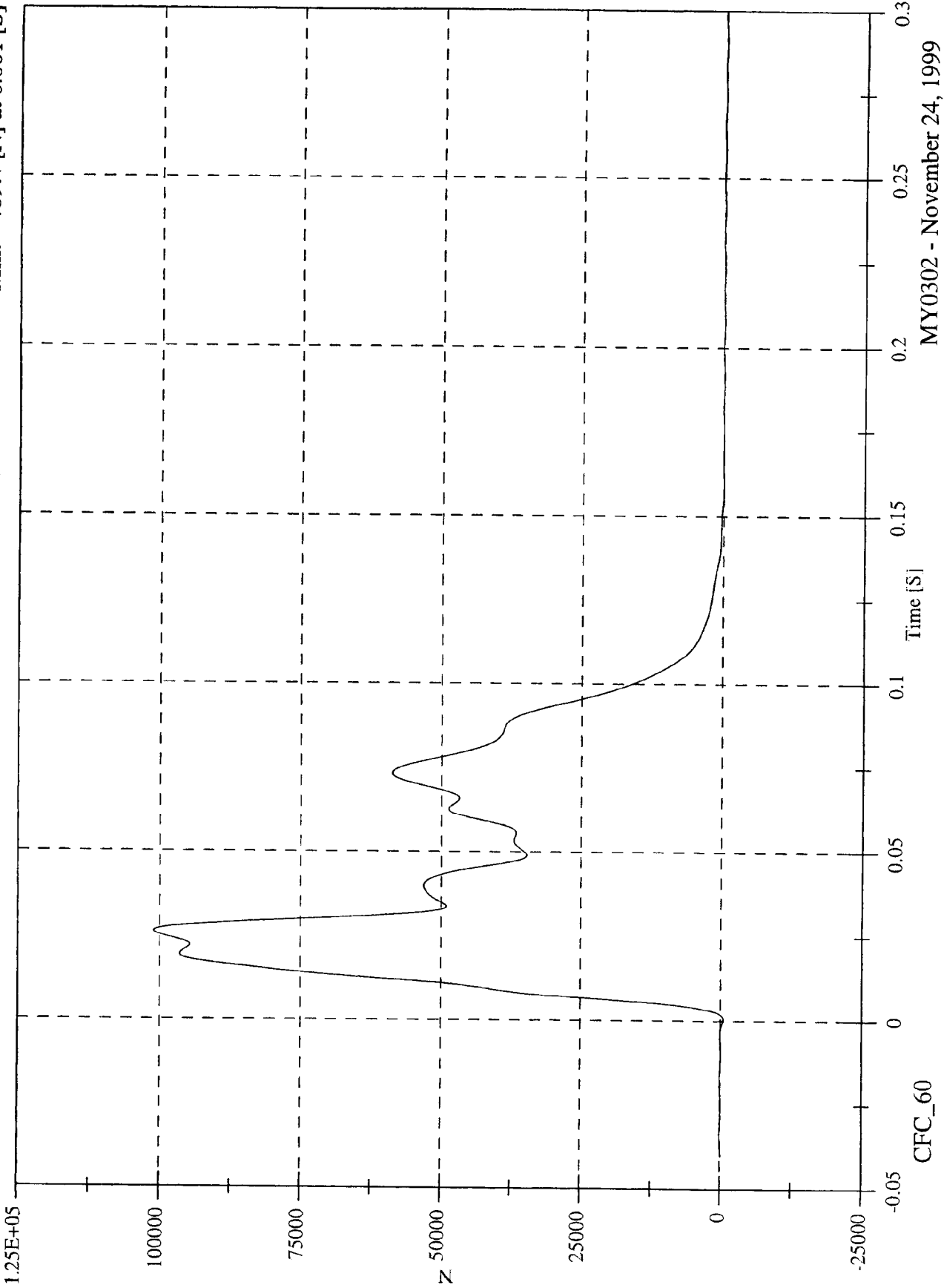
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell B7 Fx

Max: 101081.6 [N] at 0.026 [S]
Min: -489.4 [N] at 0.001 [S]

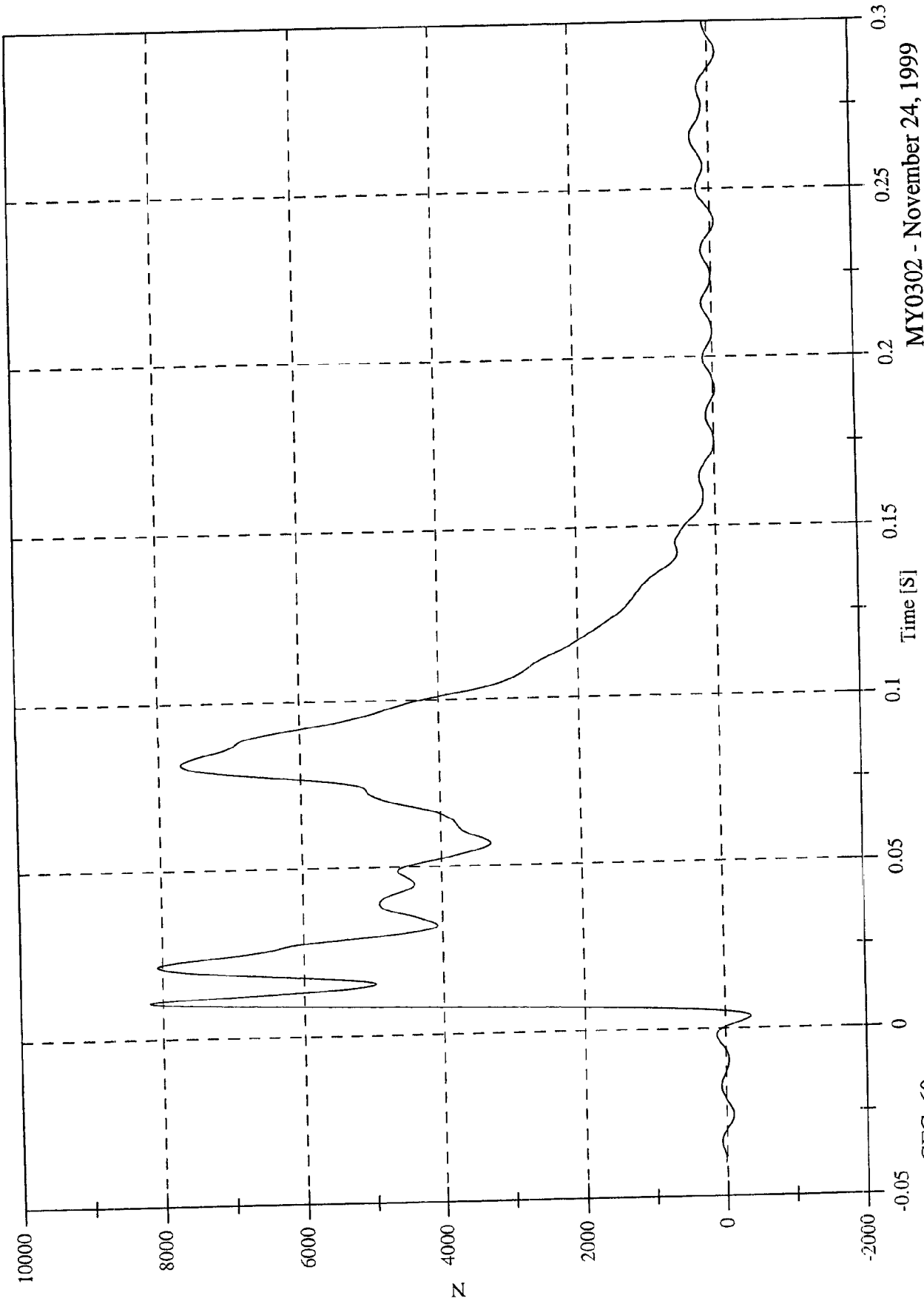


MY0302 - November 24, 1999

Max: 8176.9 [N] at 0.011 [S]
Min: -366.0 [N] at 0.004 [S]

Barrier Load Cell B8 Fx

NCAP Test 3 - 2000 Dodge Caravan



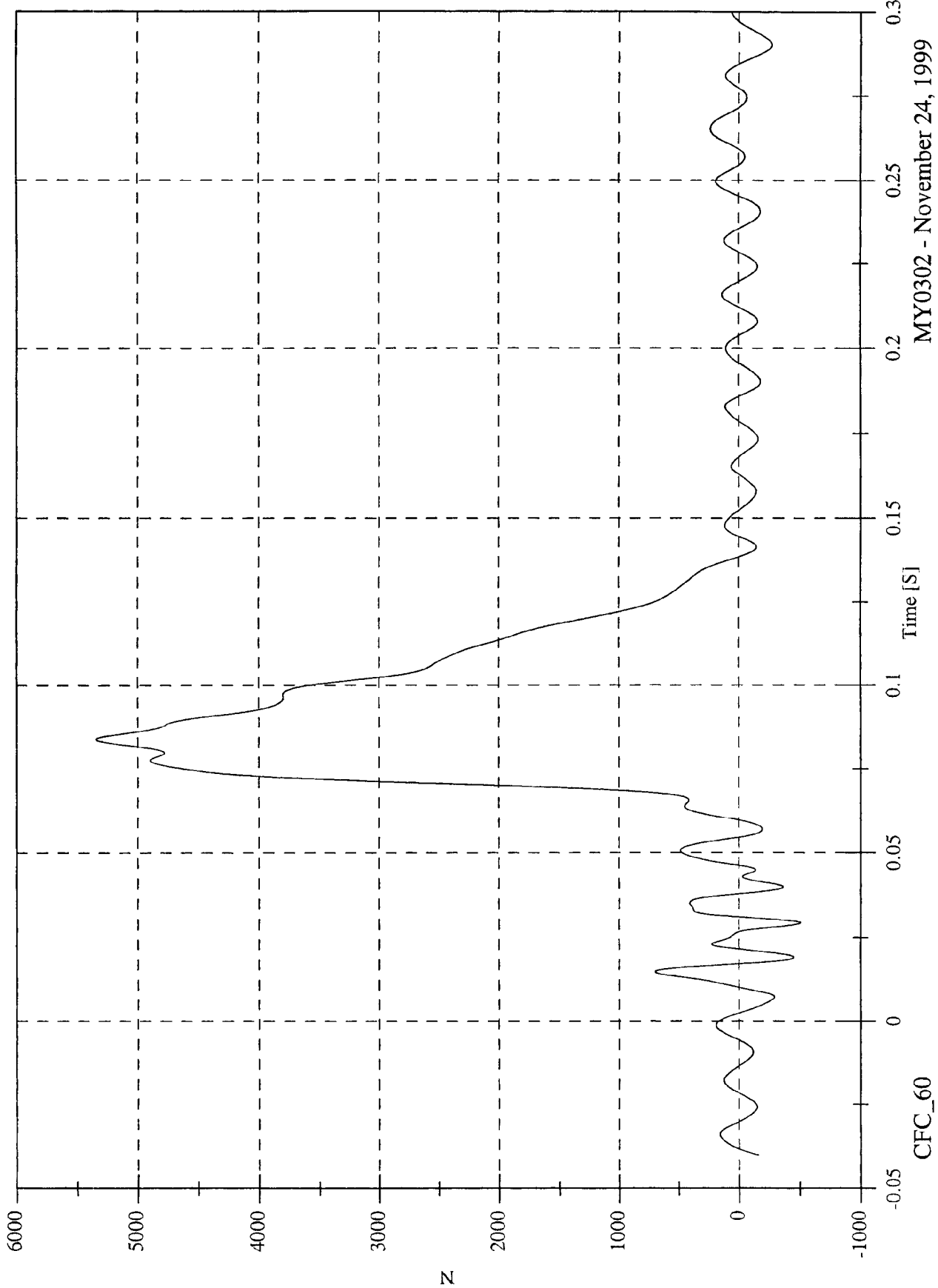
MY0302 - November 24, 1999

CFC_60

Max: 5345.8 [N] at 0.084 [S]
Min: -507.7 [N] at 0.029 [S]

Barrier Load Cell B9 Fx

NCAP Test 3 - 2000 Dodge Caravan

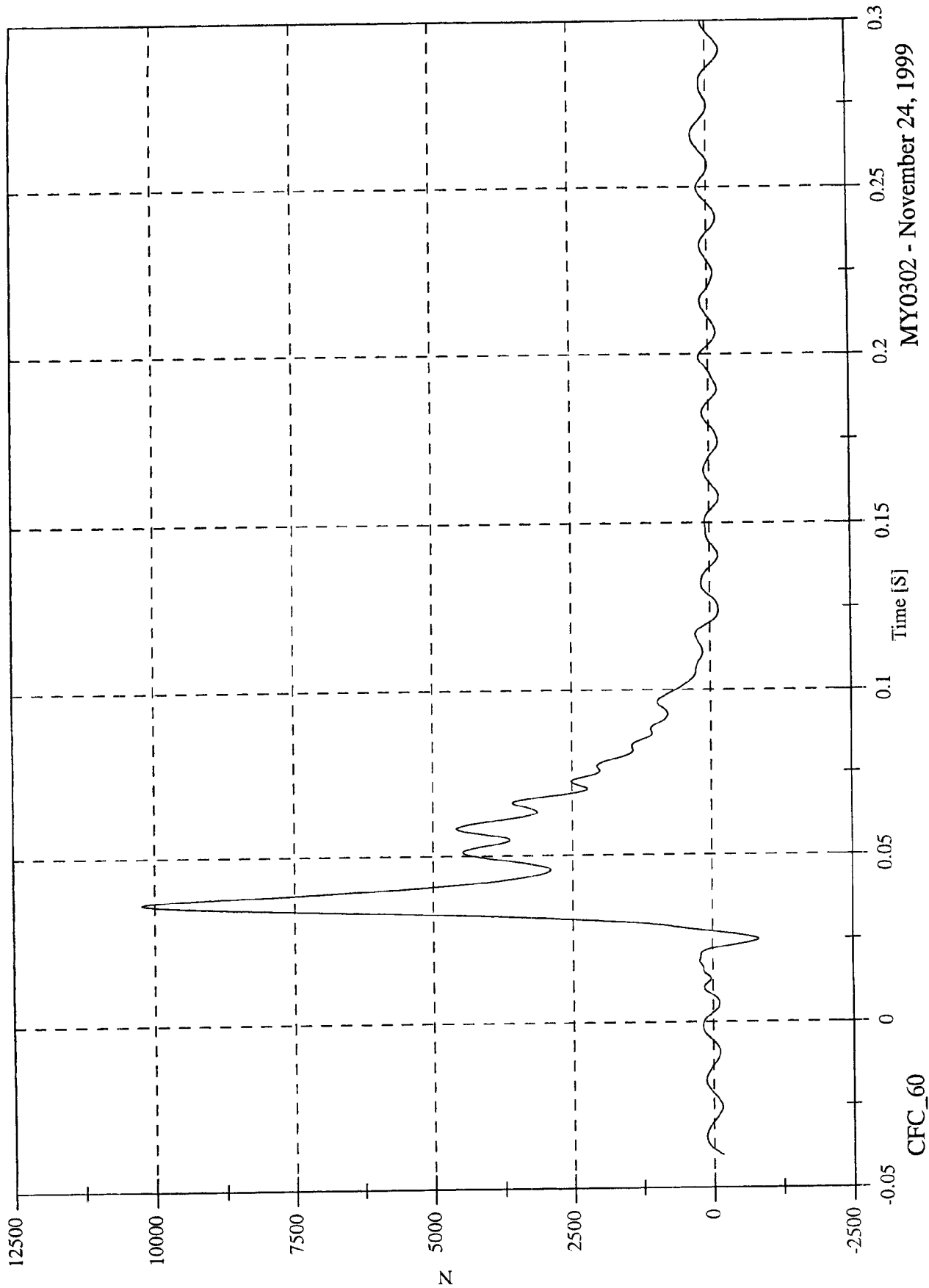


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 10233.0 [N] at 0.036 [S]
Min: -824.5 [N] at 0.025 [S]

Barrier Load Cell C1 Fx

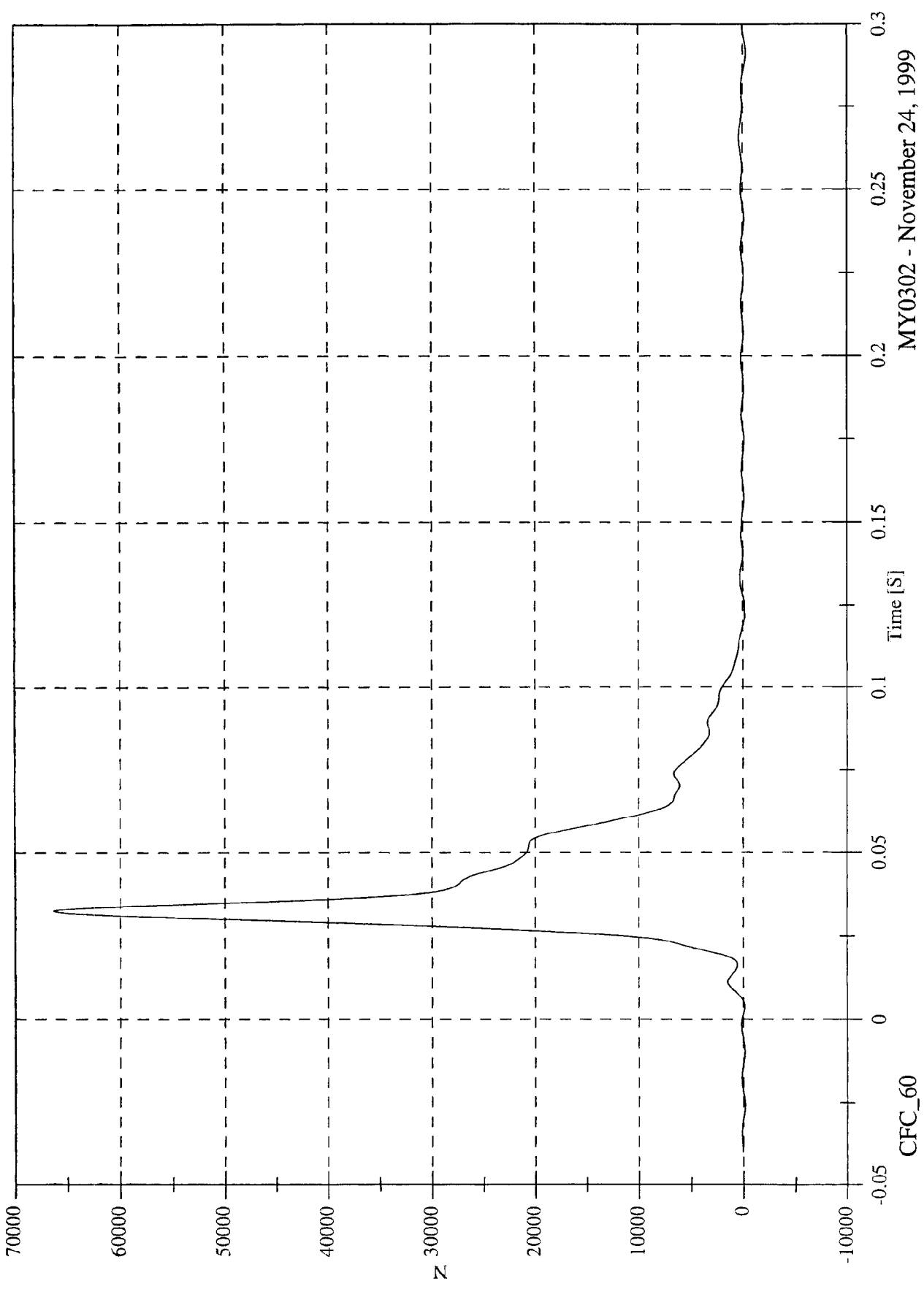


MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan
Barrier Load Cell C2 Fx

Max: 66309.7 [N] at 0.033 [S]
Min: -285.4 [N] at 0.291 [S]

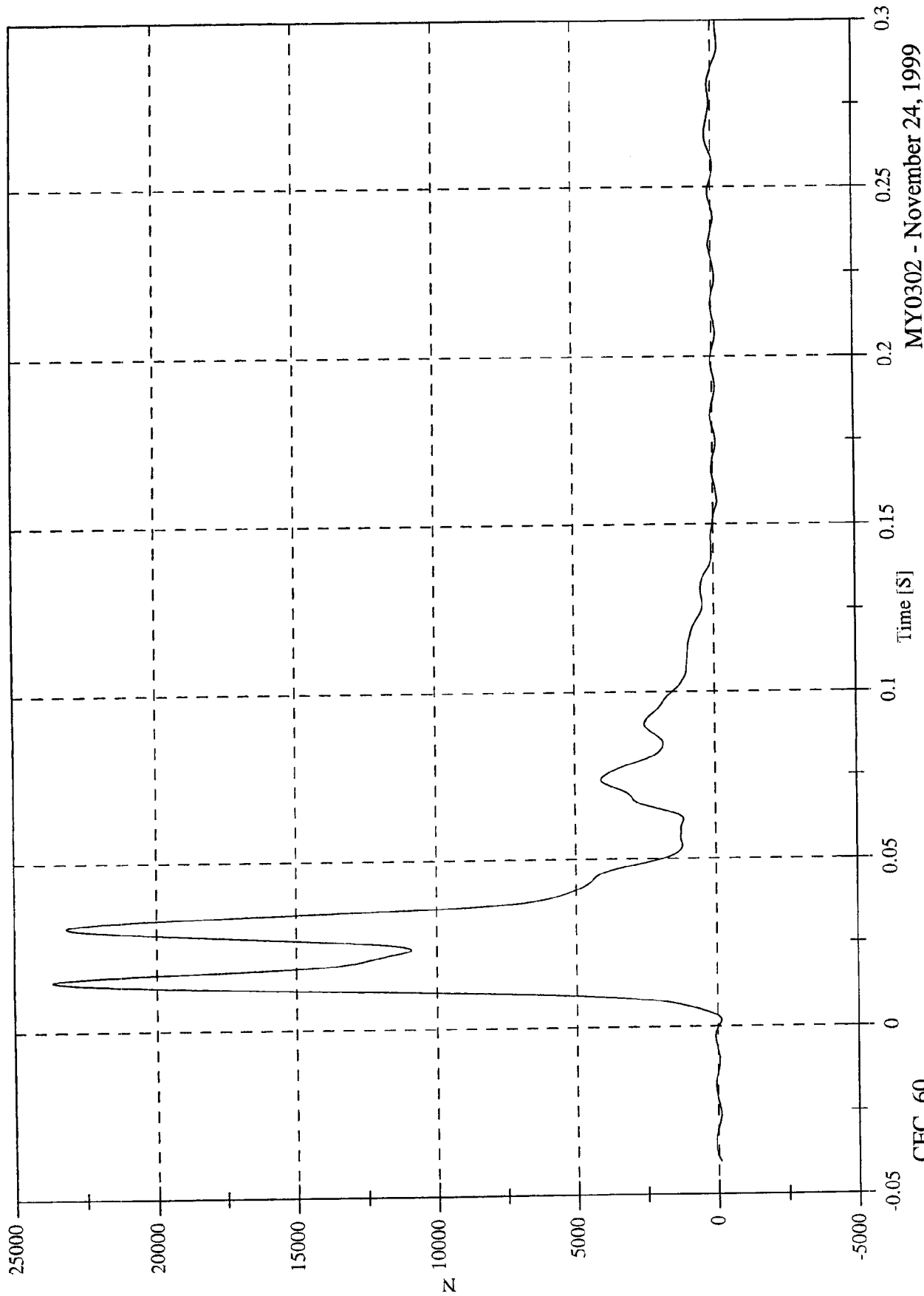


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Max: 23633.3 [N] at 0.015 [S]
Min: -237.4 [N] at 0.293 [S]

Barrier Load Cell C3 Fx



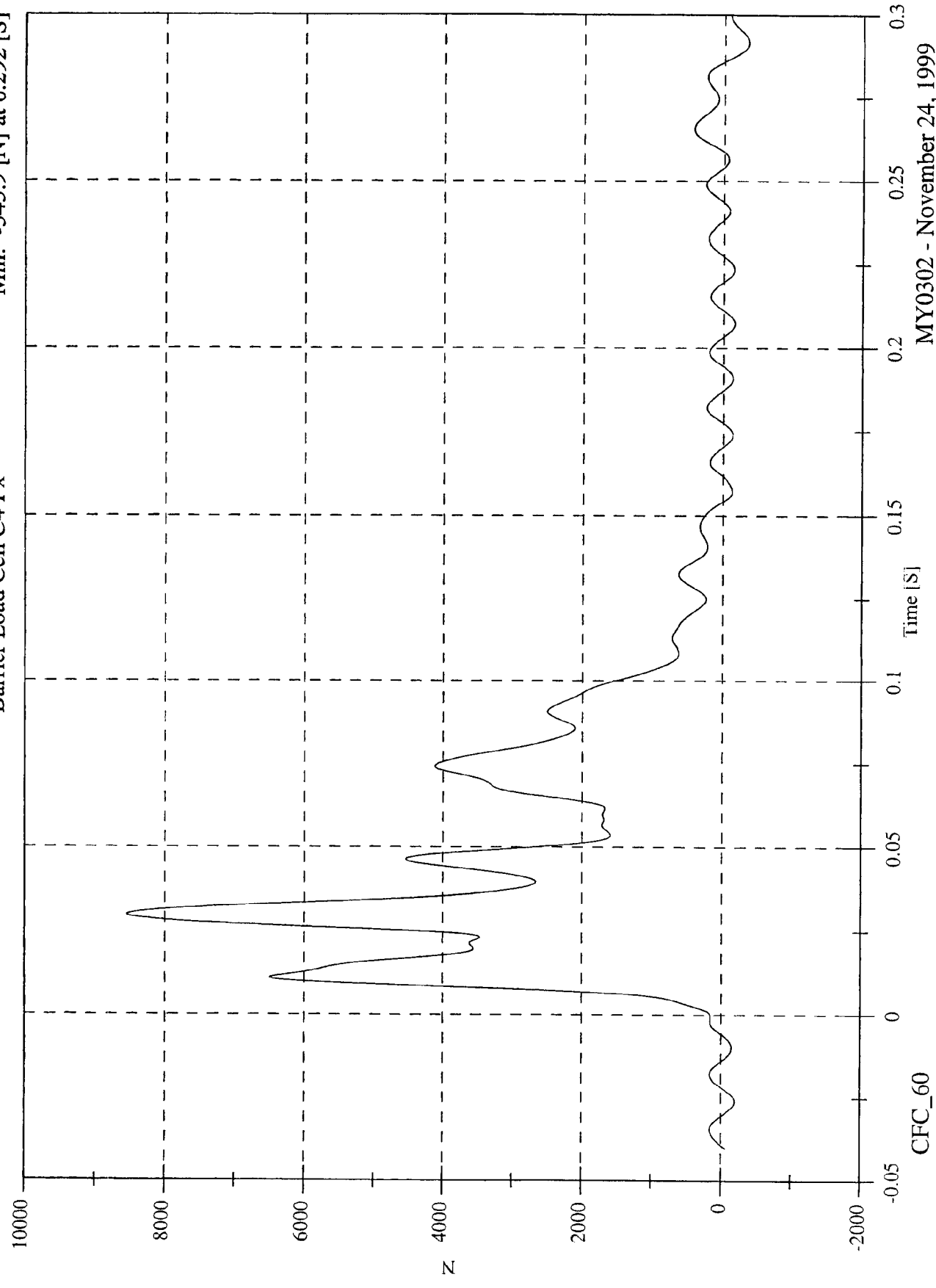
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Max: 8547.6 [N] at 0.030 [S]
Min: -345.9 [N] at 0.292 [S]

Barrier Load Cell C4 Fx

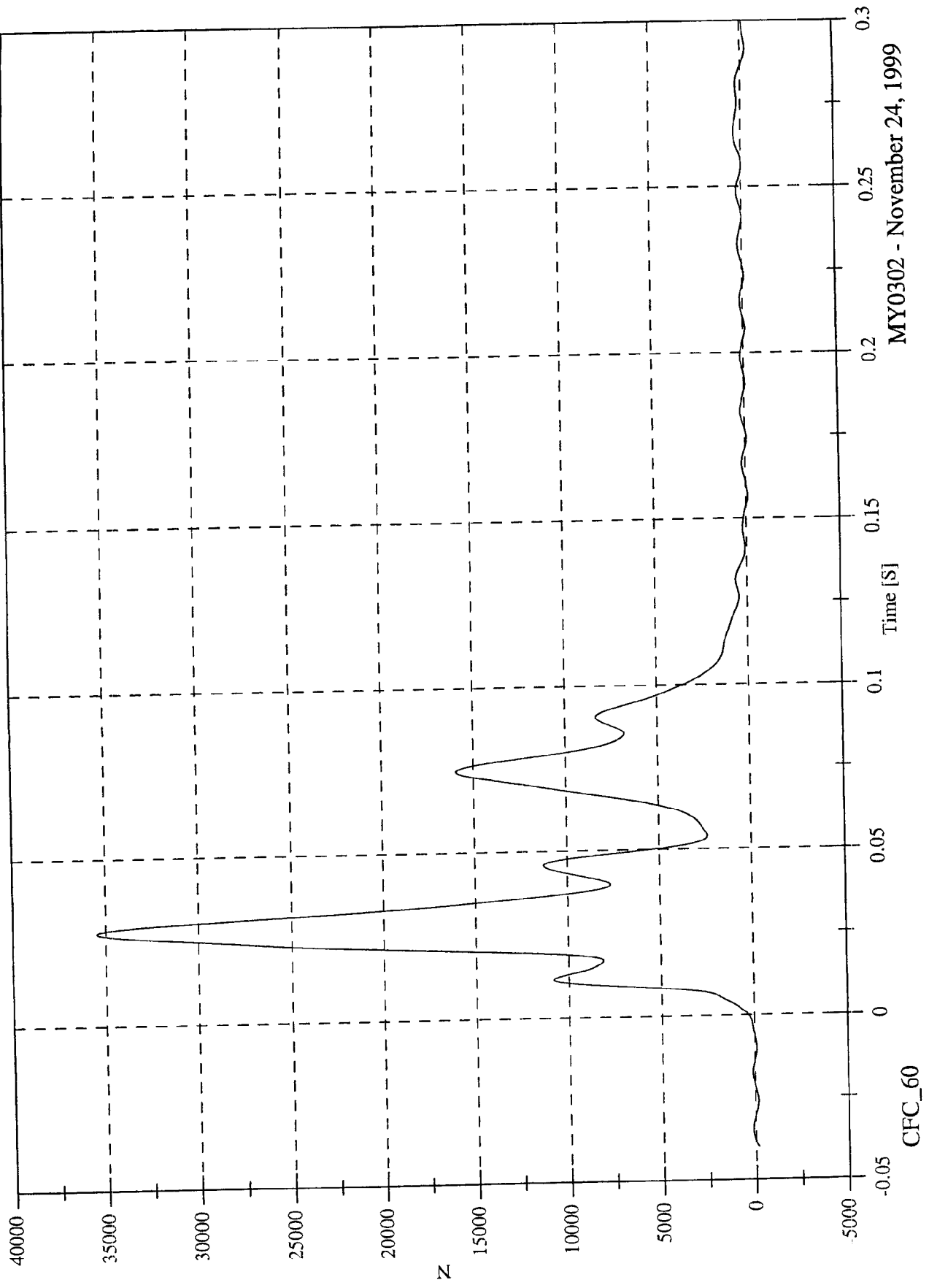


MY0302 - November 24, 1999

Max: 35496.0 [N] at 0.028 [S]
Min: -263.4 [N] at 0.292 [S]

Barrier Load Cell C5 Fx

NCAP Test 3 - 2000 Dodge Caravan



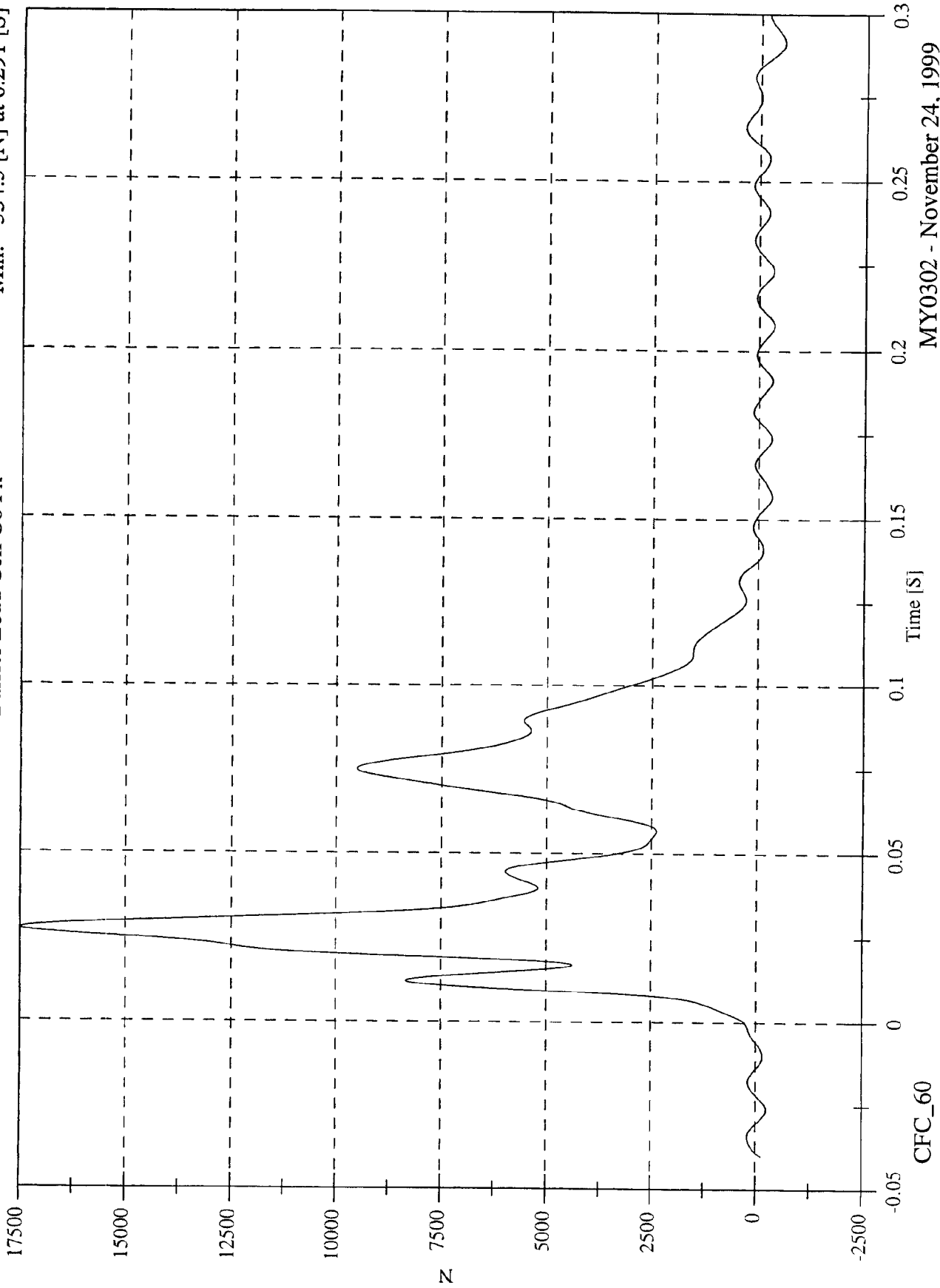
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell C6 Fx

Max: 17501.7 [N] at 0.028 [S]
Min: -554.3 [N] at 0.291 [S]

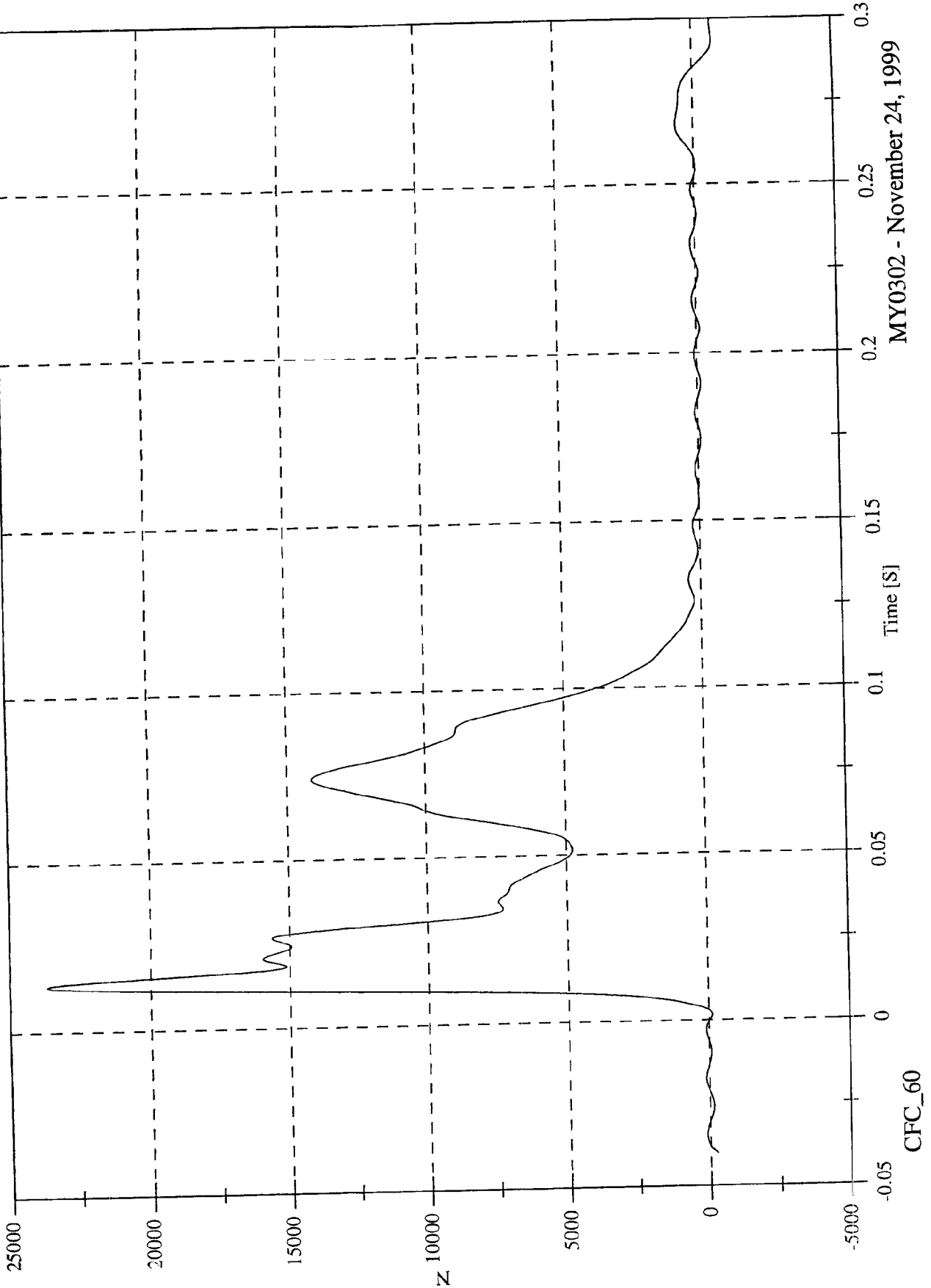


MY0302 - November 24, 1999

Max: 23658.1 [N] at 0.014 [S]
Min: -702.1 [N] at 0.294 [S]

Barrier Load Cell C7 Fx

NCAP Test 3 - 2000 Dodge Caravan



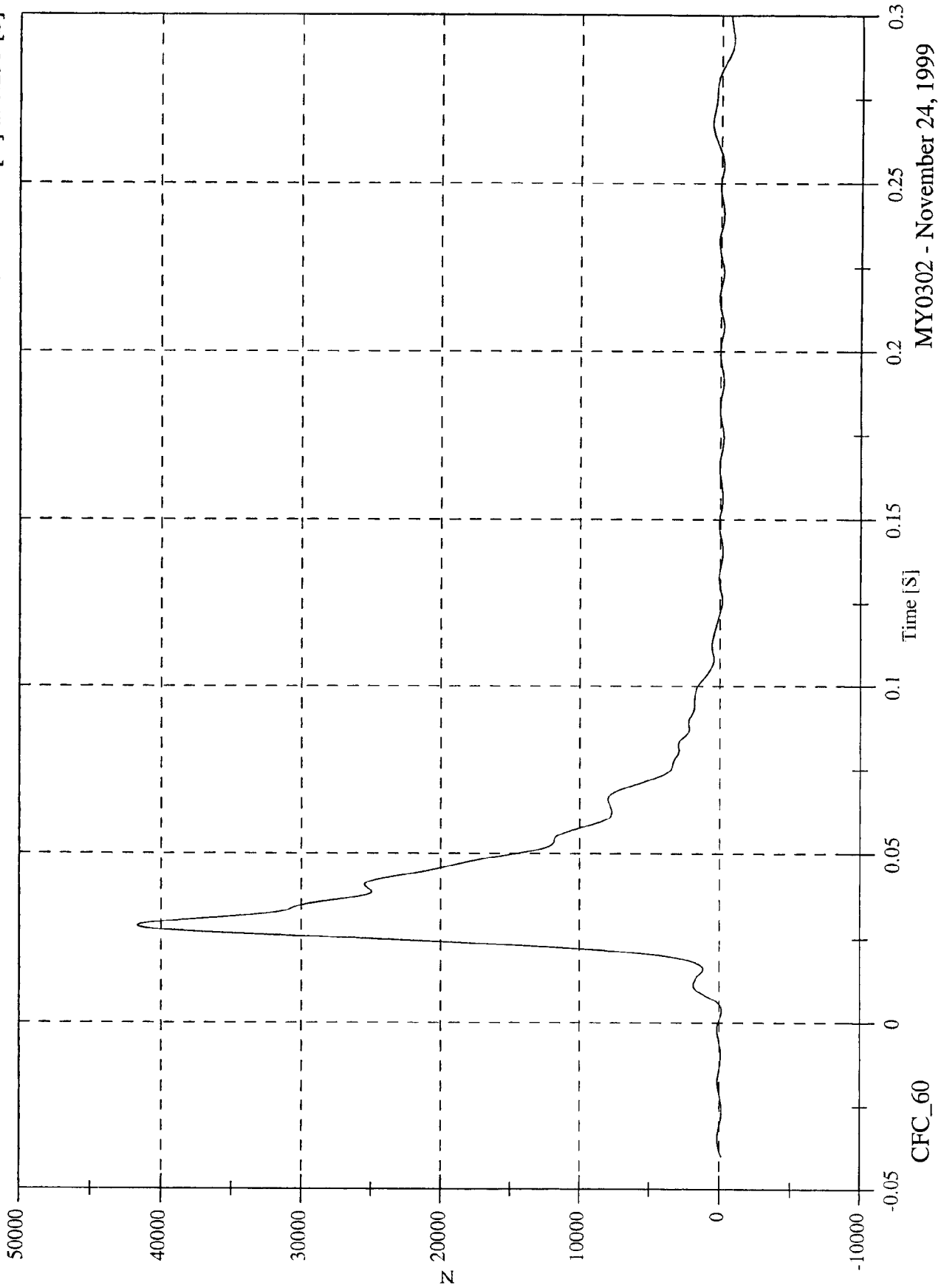
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Max: 41676.9 [N] at 0.029 [S]
Min: -866.4 [N] at 0.293 [S]

Barrier Load Cell C8 Fx



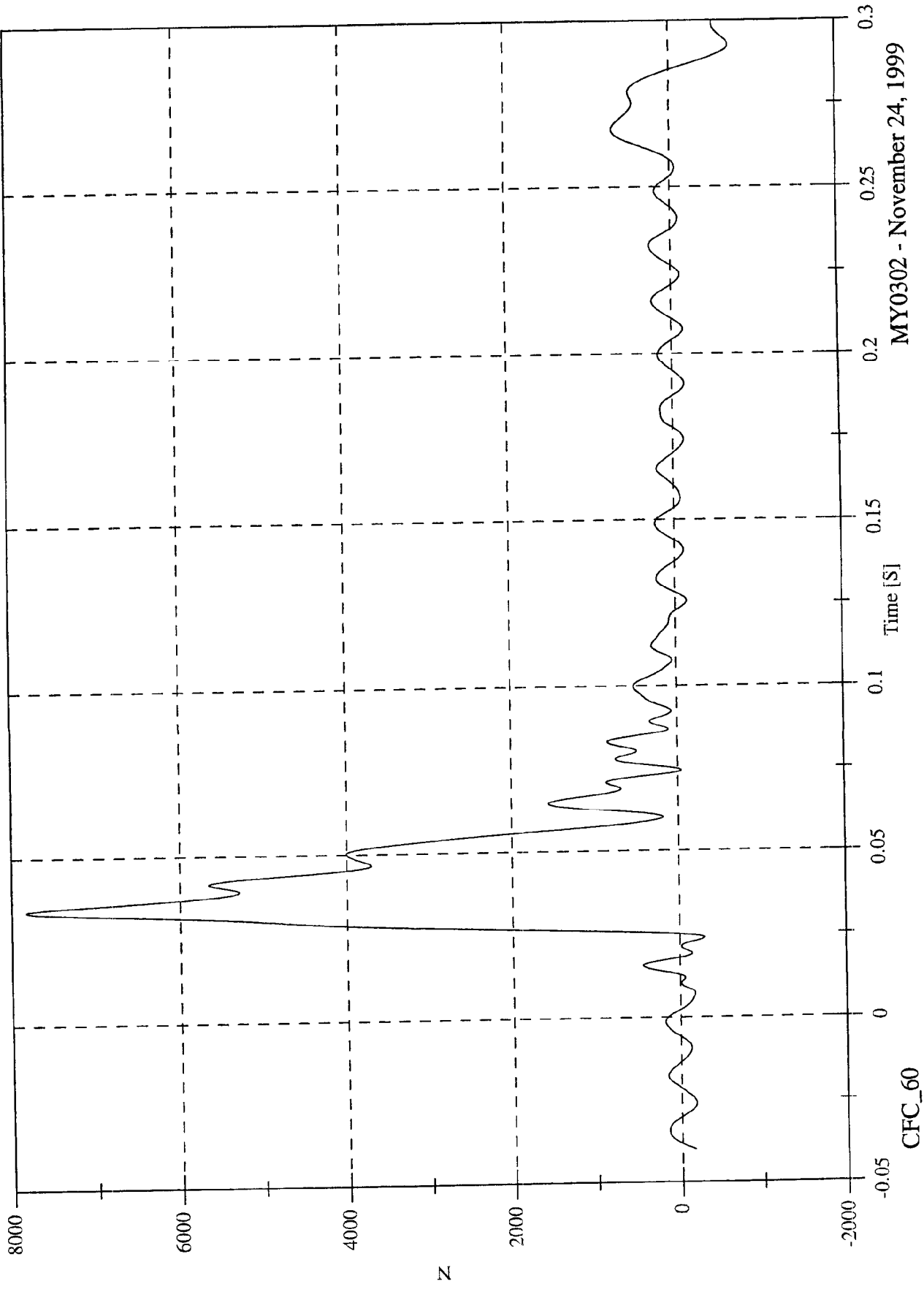
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell C9 Fx

Max: 7827.5 [N] at 0.034 [S]
Min: -712.9 [N] at 0.293 [S]

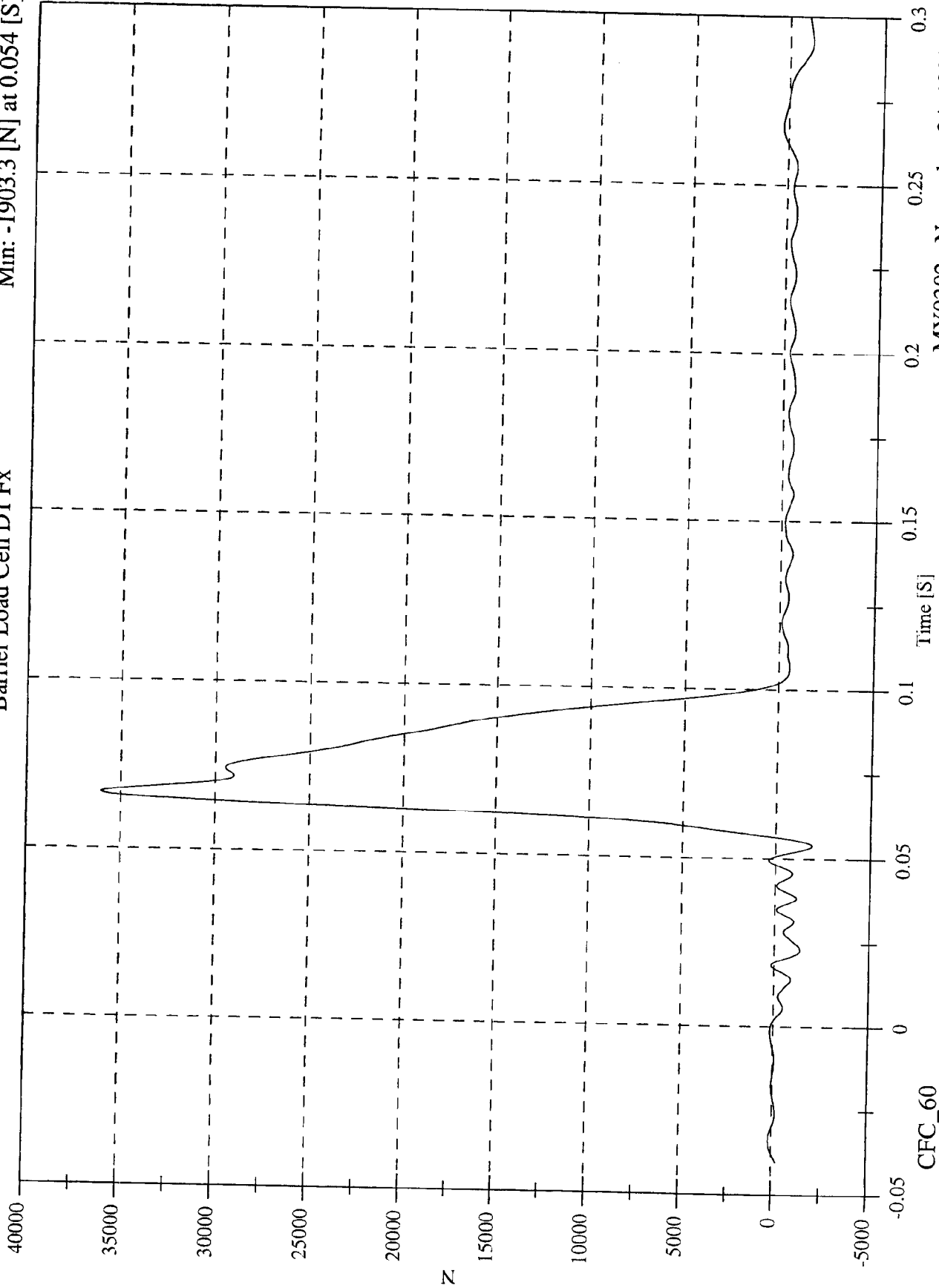


MY0302 - November 24, 1999

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell D1 Fx

Max: 36025.4 [N] at 0.067 [S]
Min: -1903.3 [N] at 0.054 [S]

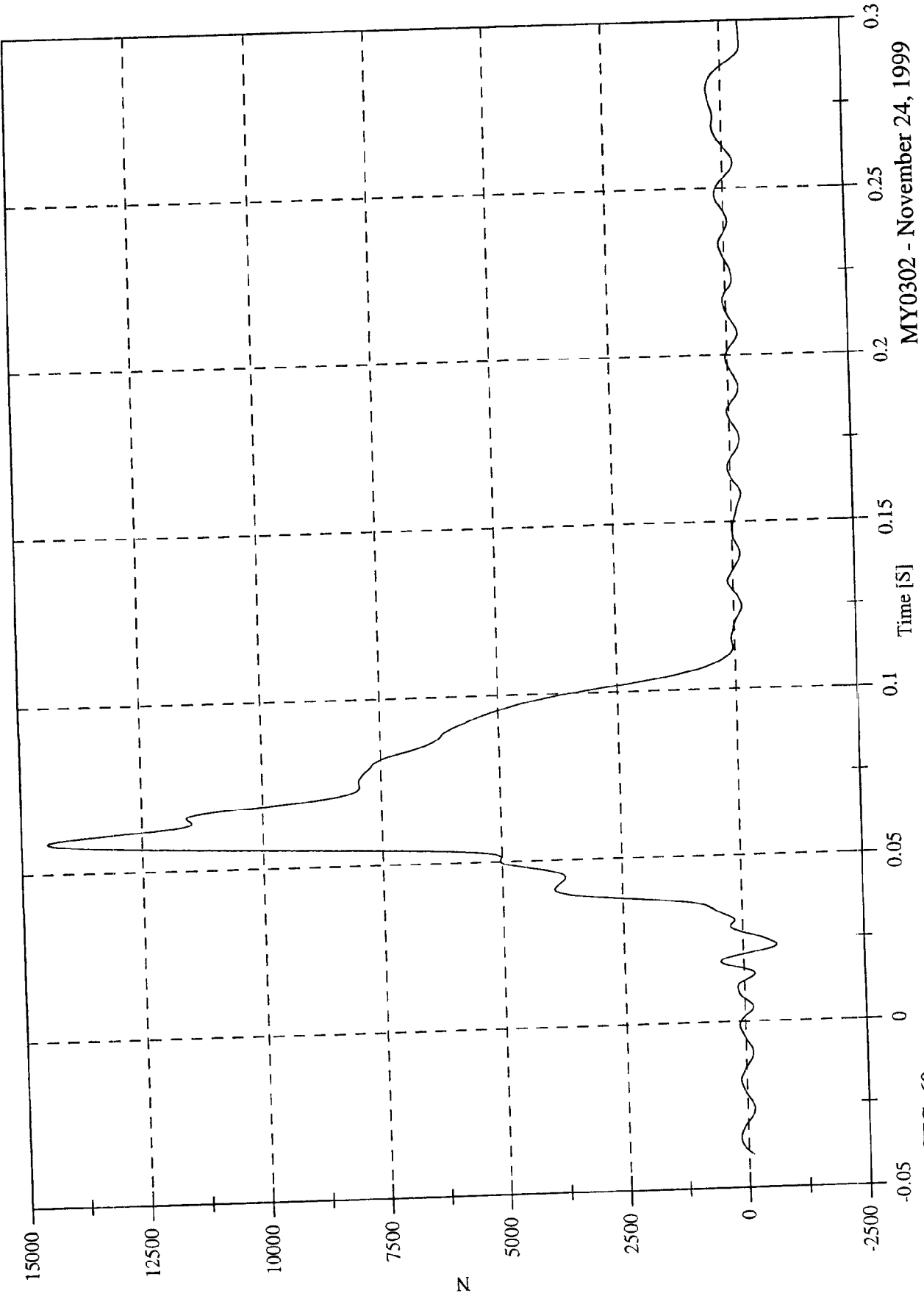


MY0302 - November 24, 1999

Max: 14465.0 [N] at 0.059 [S]
Min: -685.5 [N] at 0.023 [S]

Barrier Load Cell D2 Fx

NCAP Test 3 - 2000 Dodge Caravan



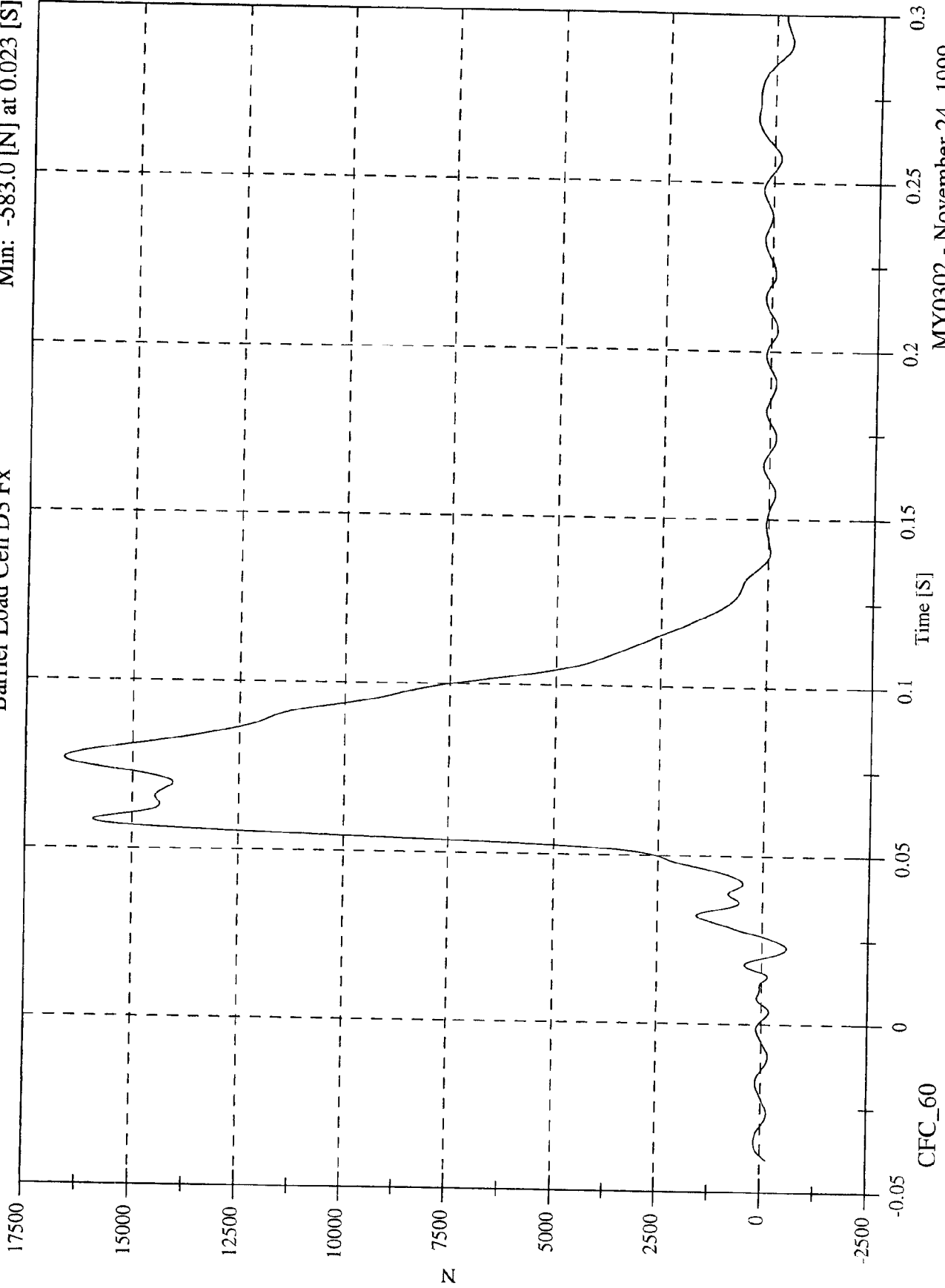
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell D3 Fx

Max: 16592.9 [N] at 0.077 [S]
Min: -583.0 [N] at 0.023 [S]

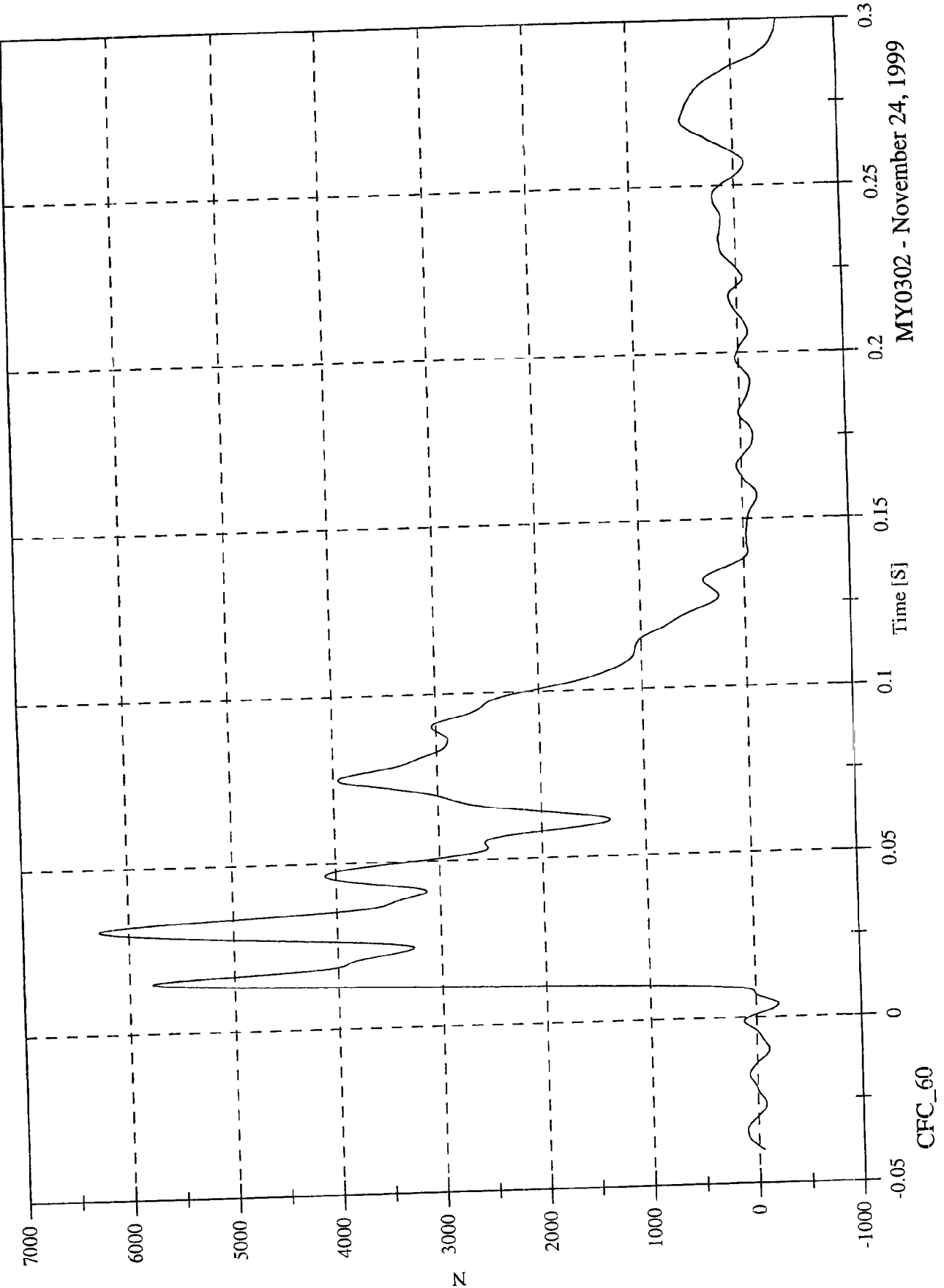


MY0302 - November 24, 1999

Max: 6276.8 [N] at 0.031 [S]
Min: -469.1 [N] at 0.304 [S]

Barrier Load Cell D4 Fx

NCAP Test 3 - 2000 Dodge Caravan



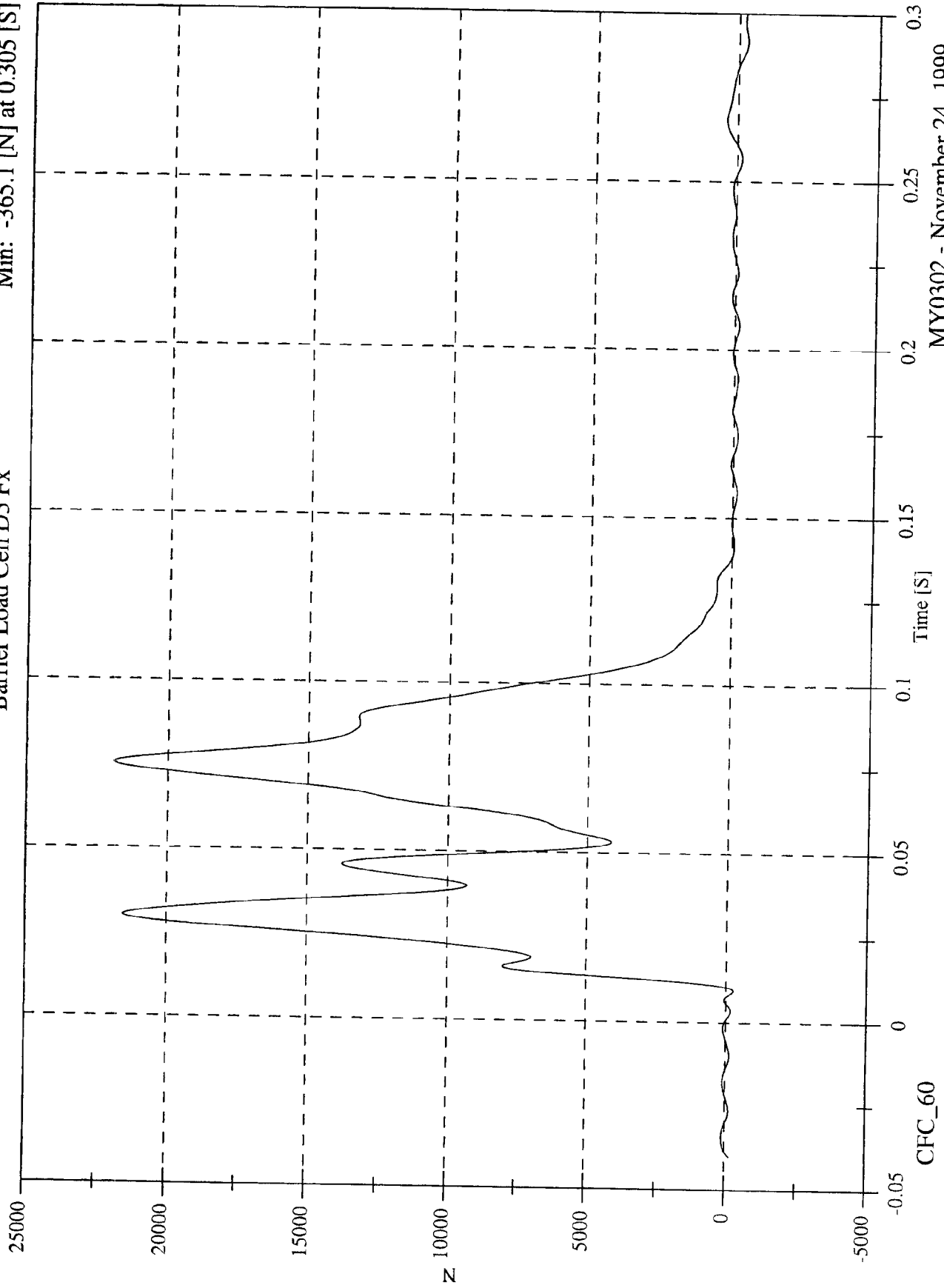
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell D5 Fx

Max: 21899.6 [N] at 0.075 [S]
Min: -365.1 [N] at 0.305 [S]

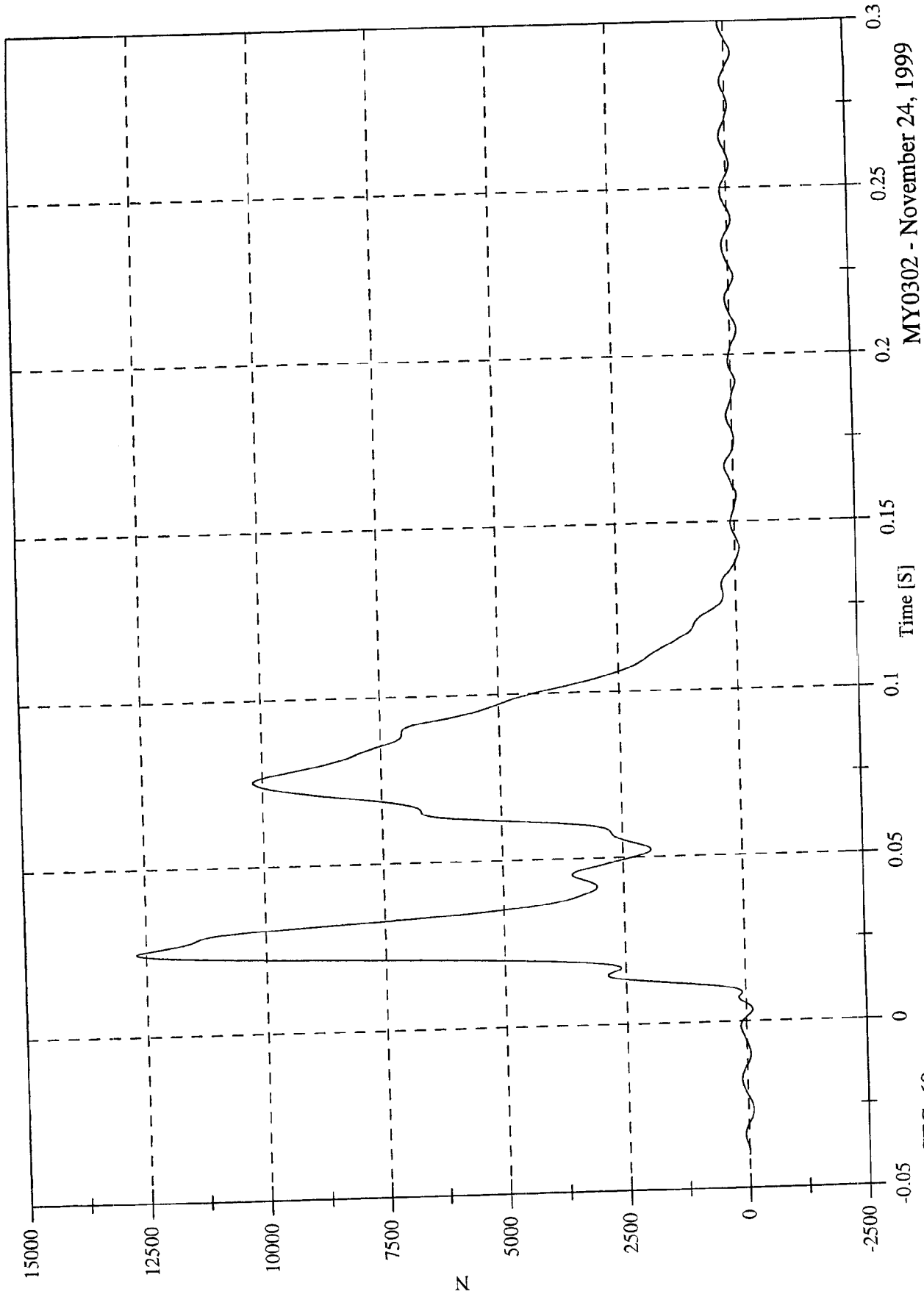


MY0302 - November 24, 1999

Max: 12704.2 [N] at 0.025 [S]
Min: -134.4 [N] at 0.207 [S]

Barrier Load Cell D6 Fx

NCAP Test 3 - 2000 Dodge Caravan



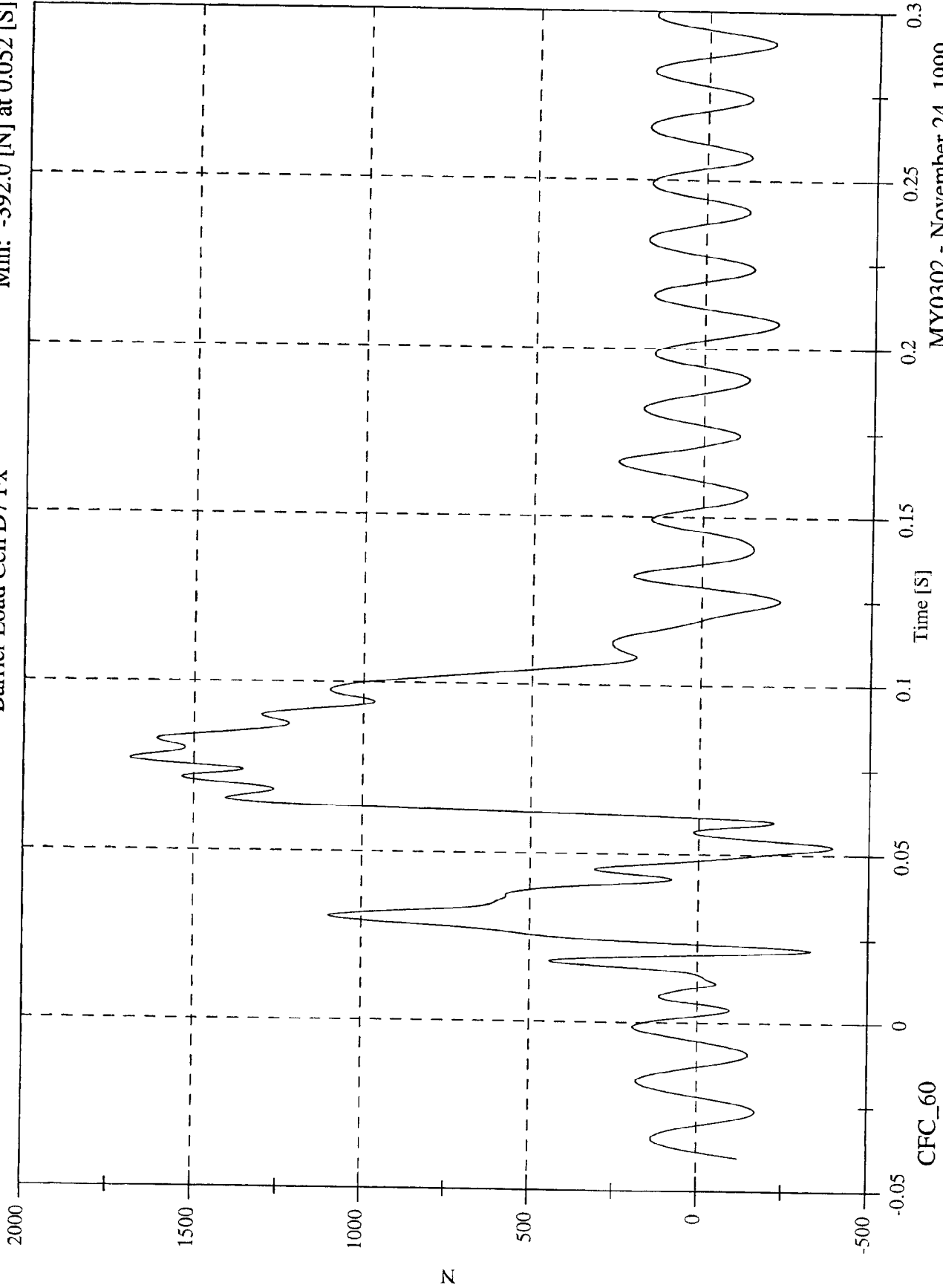
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell D7 Fx

Max: 1687.8 [N] at 0.077 [S]
Min: -392.0 [N] at 0.052 [S]

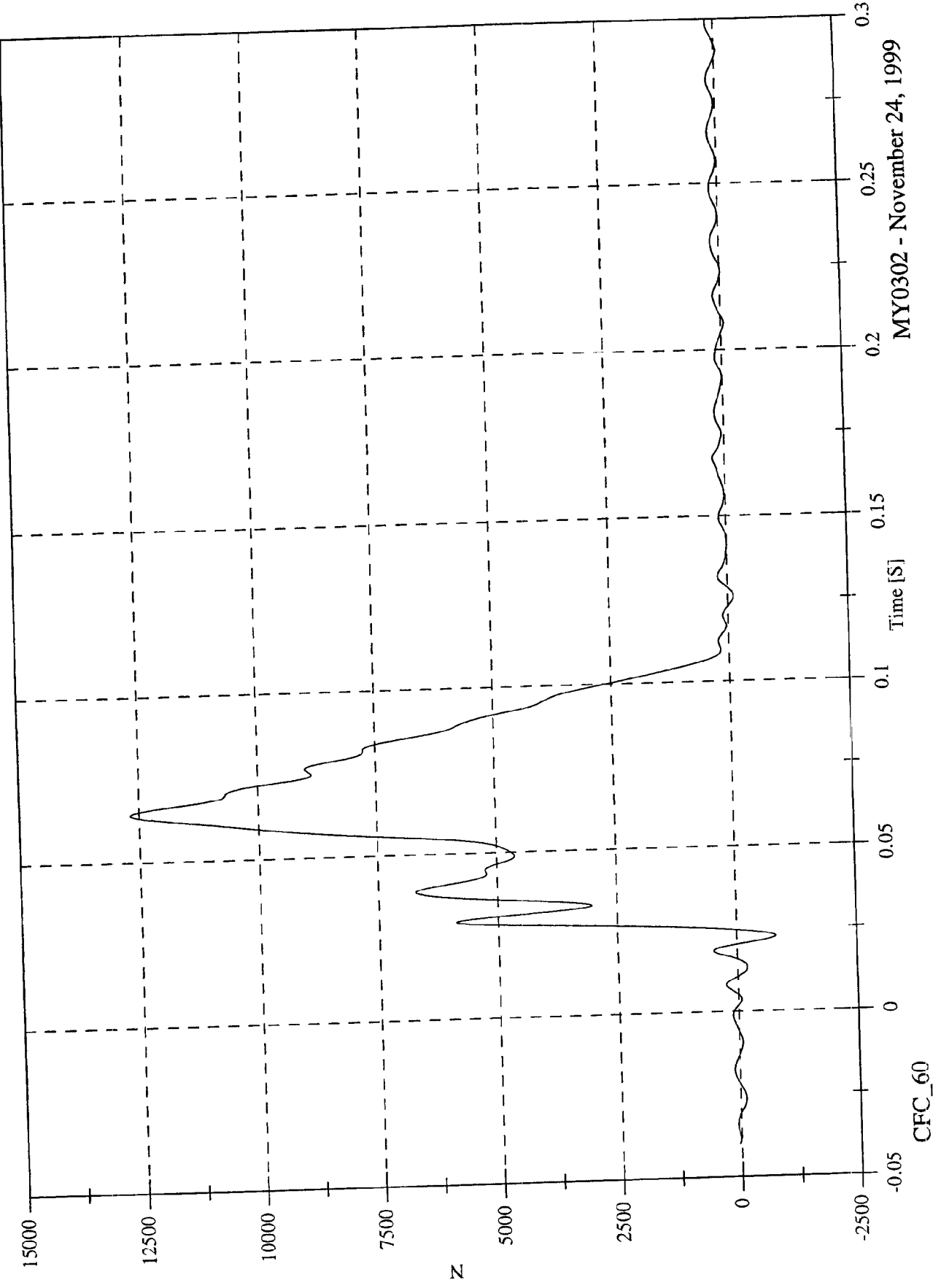


MY0302 - November 24, 1999

Max: 12684.4 [N] at 0.064 [S]
Min: -803.9 [N] at 0.022 [S]

Barrier Load Cell D8 Fx

NCAP Test 3 - 2000 Dodge Caravan



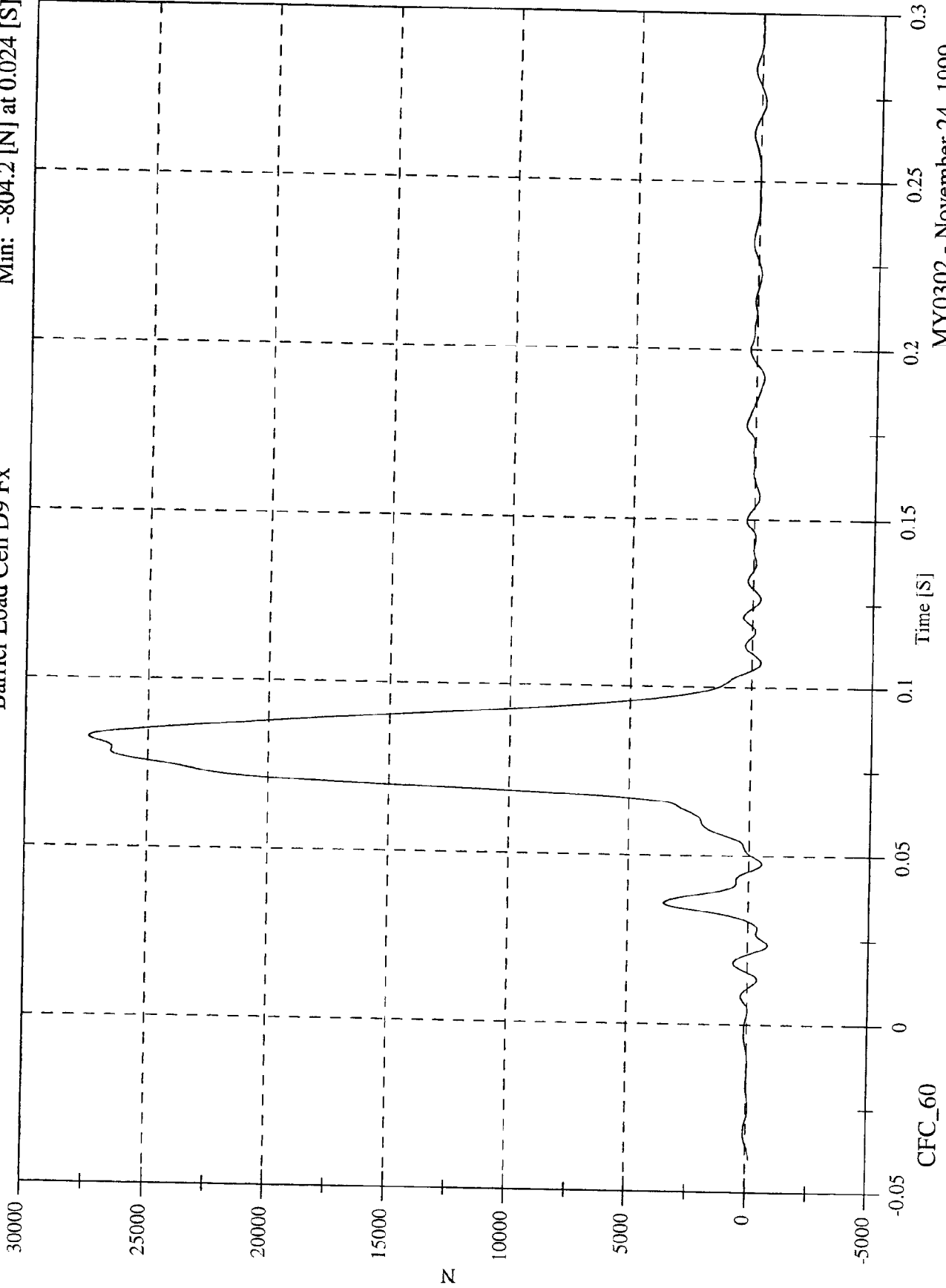
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Barrier Load Cell D9 Fx

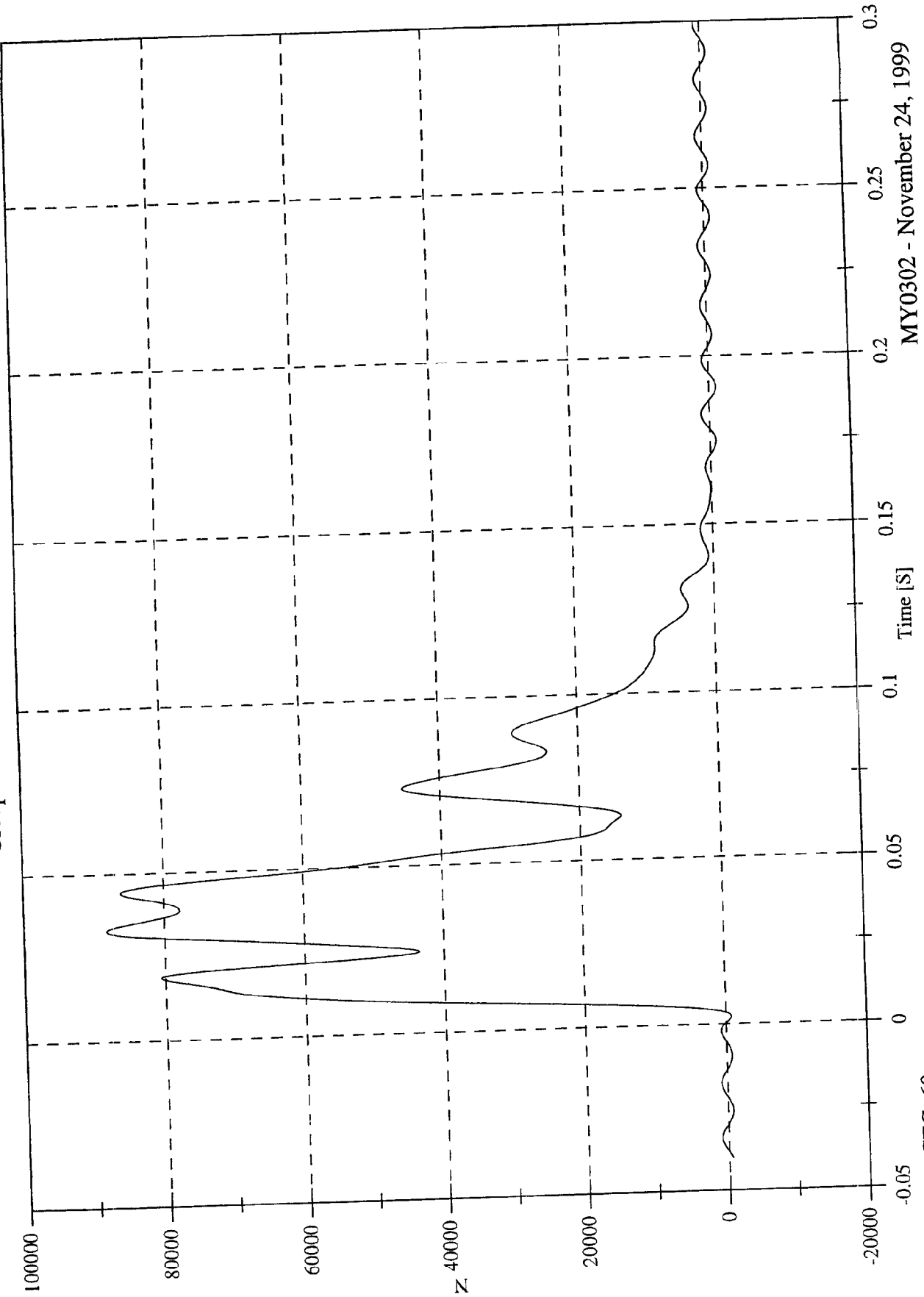
Max: 27410.2 [N] at 0.083 [S]
Min: -804.2 [N] at 0.024 [S]



MY0302 - November 24, 1999

Max: 88291.5 [N] at 0.033 [S]
Min: -968.9 [N] at 0.190 [S]

NCAP Test 3 - 2000 Dodge Caravan
Group 1 Load Cell Sum (A1,A2,A3,B1,B2,B3)



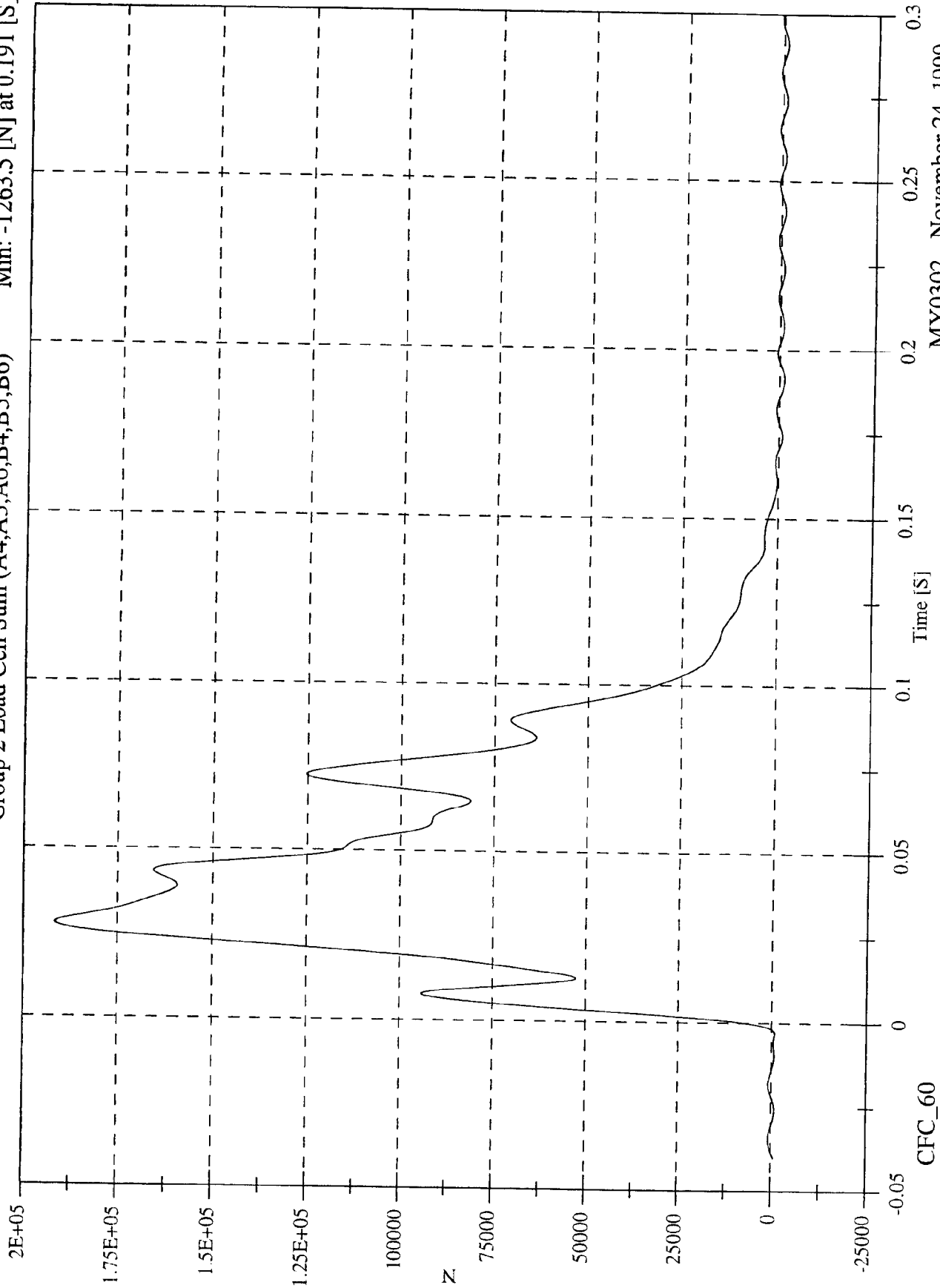
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Max: 191615.8 [N] at 0.028 [S]
Min: -1263.5 [N] at 0.191 [S]

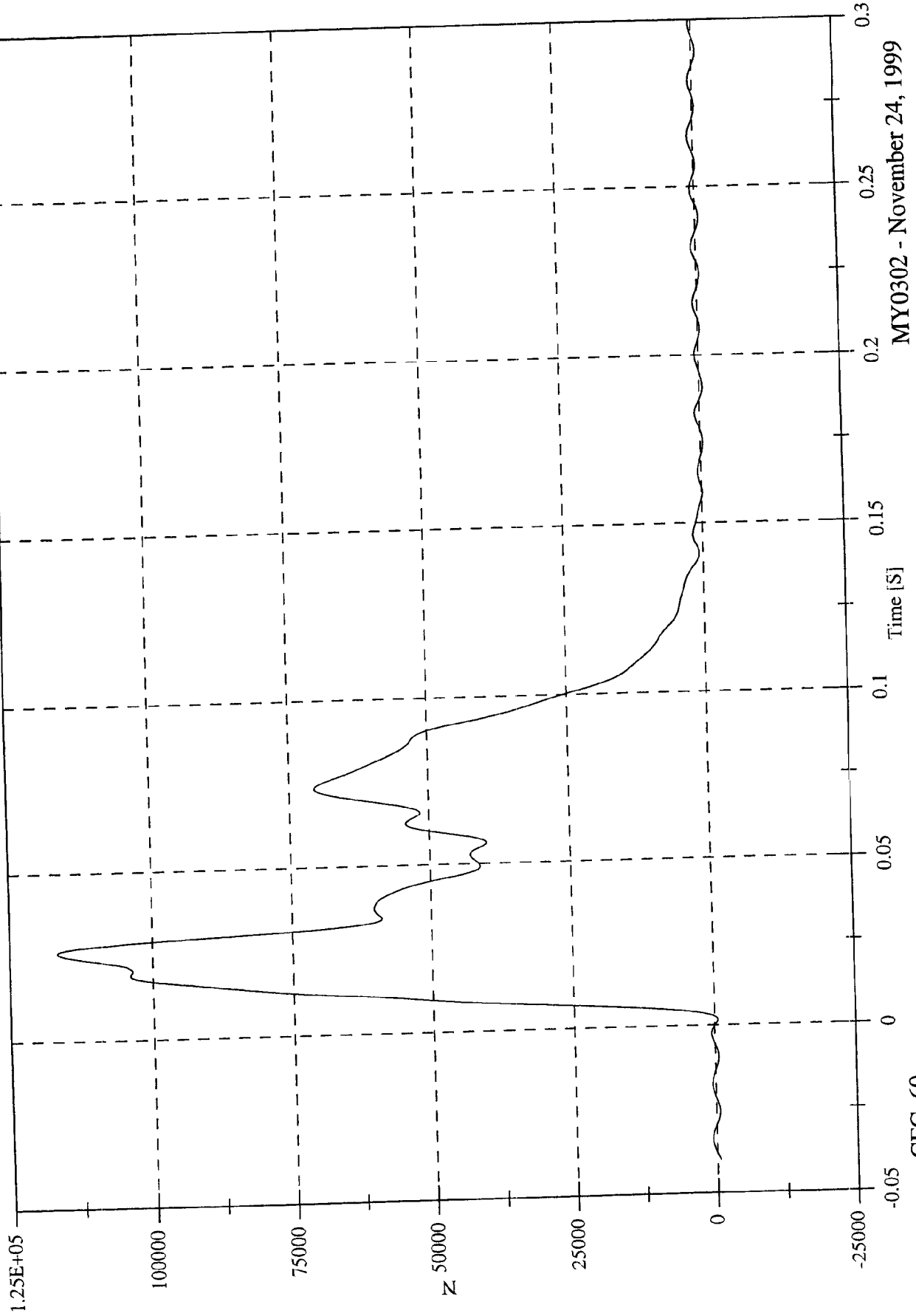
Group 2 Load Cell Sum (A4,A5,A6,B4,B5,B6)



MY0302 - November 24, 1999

Max: 116634.5 [N] at 0.026 [S]
Min: -705.8 [N] at 0.291 [S]

NCAP Test 3 - 2000 Dodge Caravan
Group 3 Load Cell Sum (A7,A8,A9,B7,B8,B9)



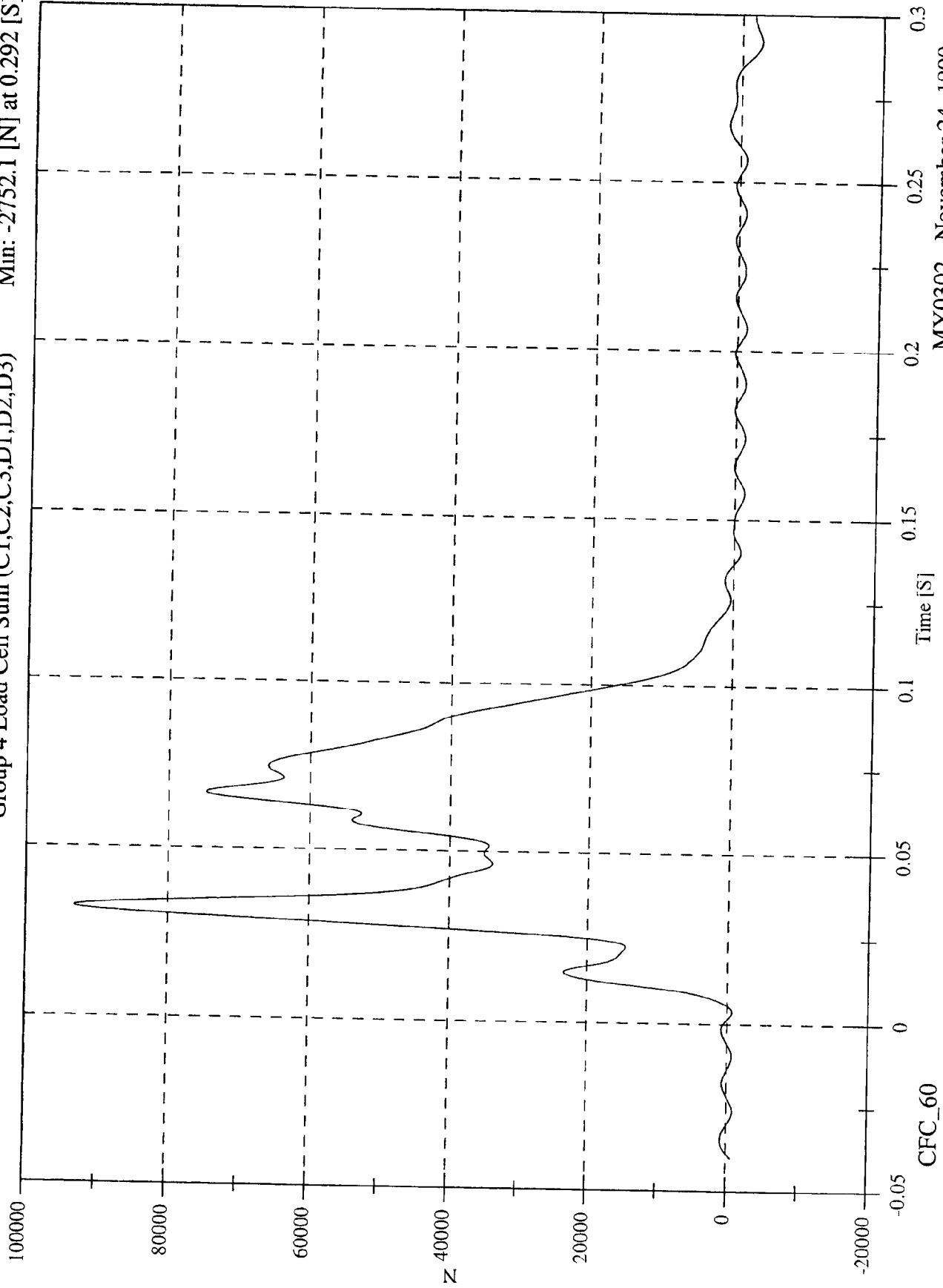
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Max: 93195.2 [N] at 0.032 [S]
Min: -2752.1 [N] at 0.292 [S]

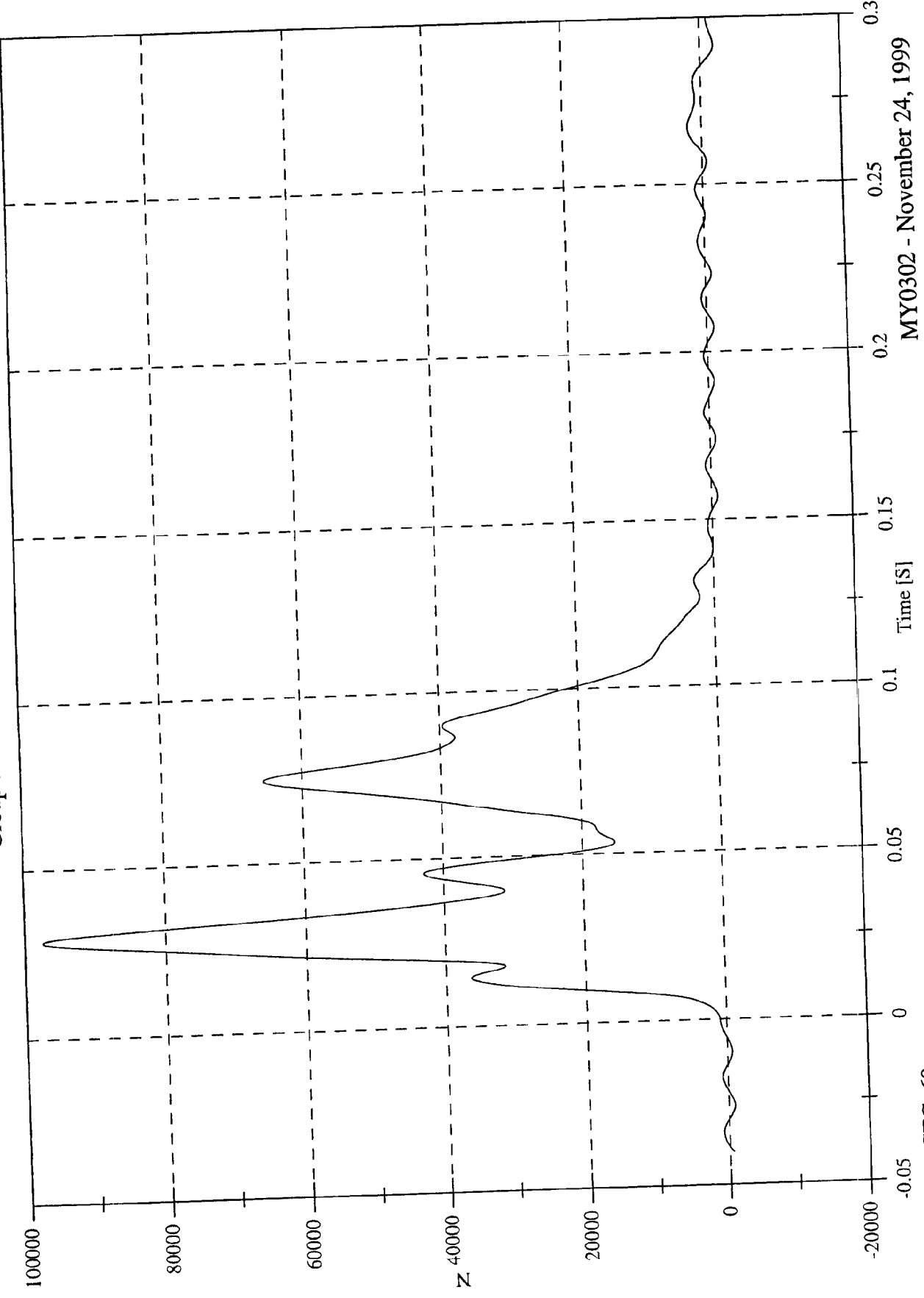
Group 4 Load Cell Sum (C1,C2,C3,D1,D2,D3)



MY0302 - November 24, 1999

Max: 97428.8 [N] at 0.028 [S]
Min: -1908.6 [N] at 0.292 [S]

NCAP Test 3 - 2000 Dodge Caravan
Group 5 Load Cell Sum (C4,C5,C6,D4,D5,D6)



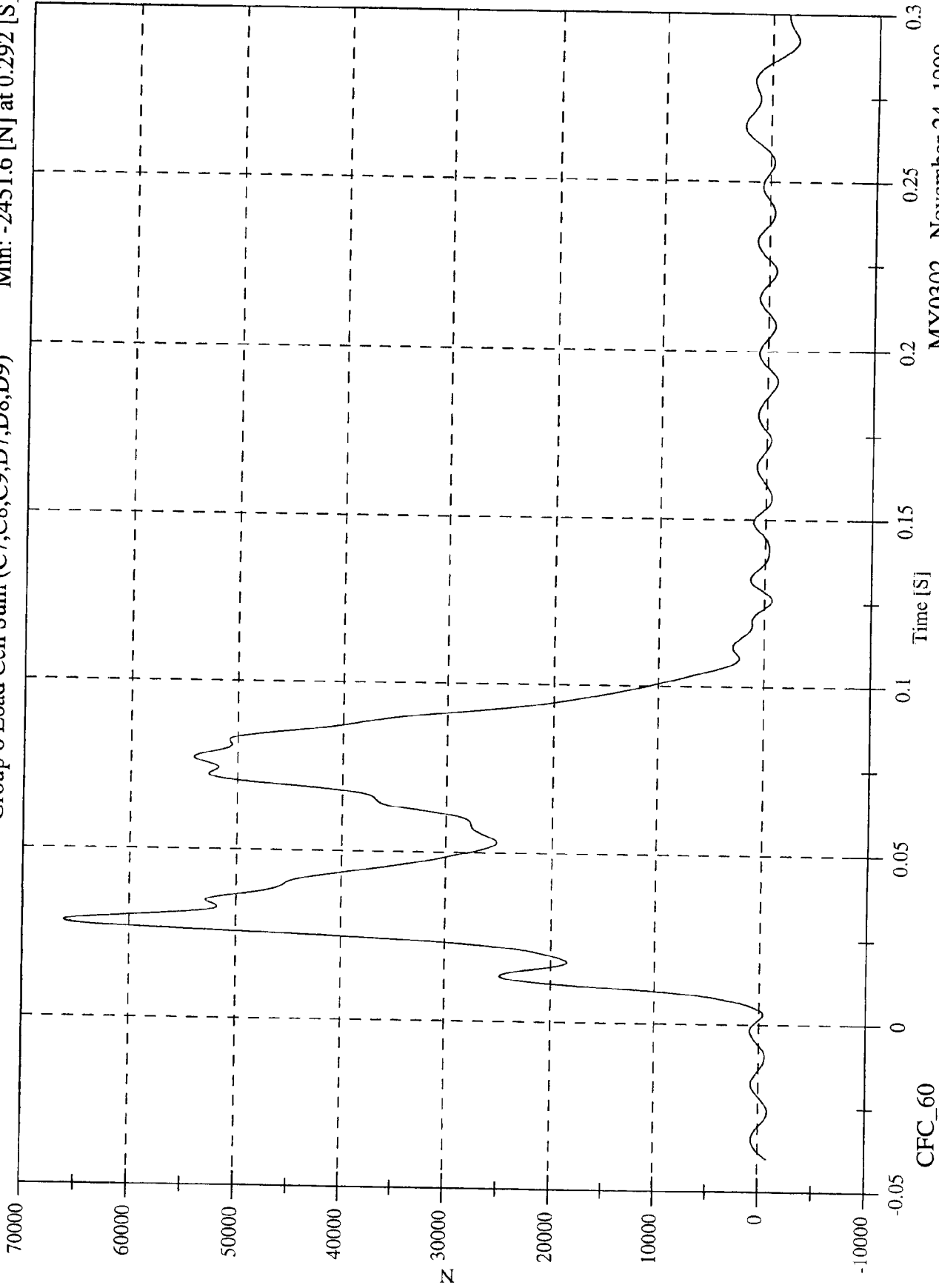
MY0302 - November 24, 1999

CFC_60

NCAP Test 3 - 2000 Dodge Caravan

Max: 66133.6 [N] at 0.029 [S]
Min: -2451.6 [N] at 0.292 [S]

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

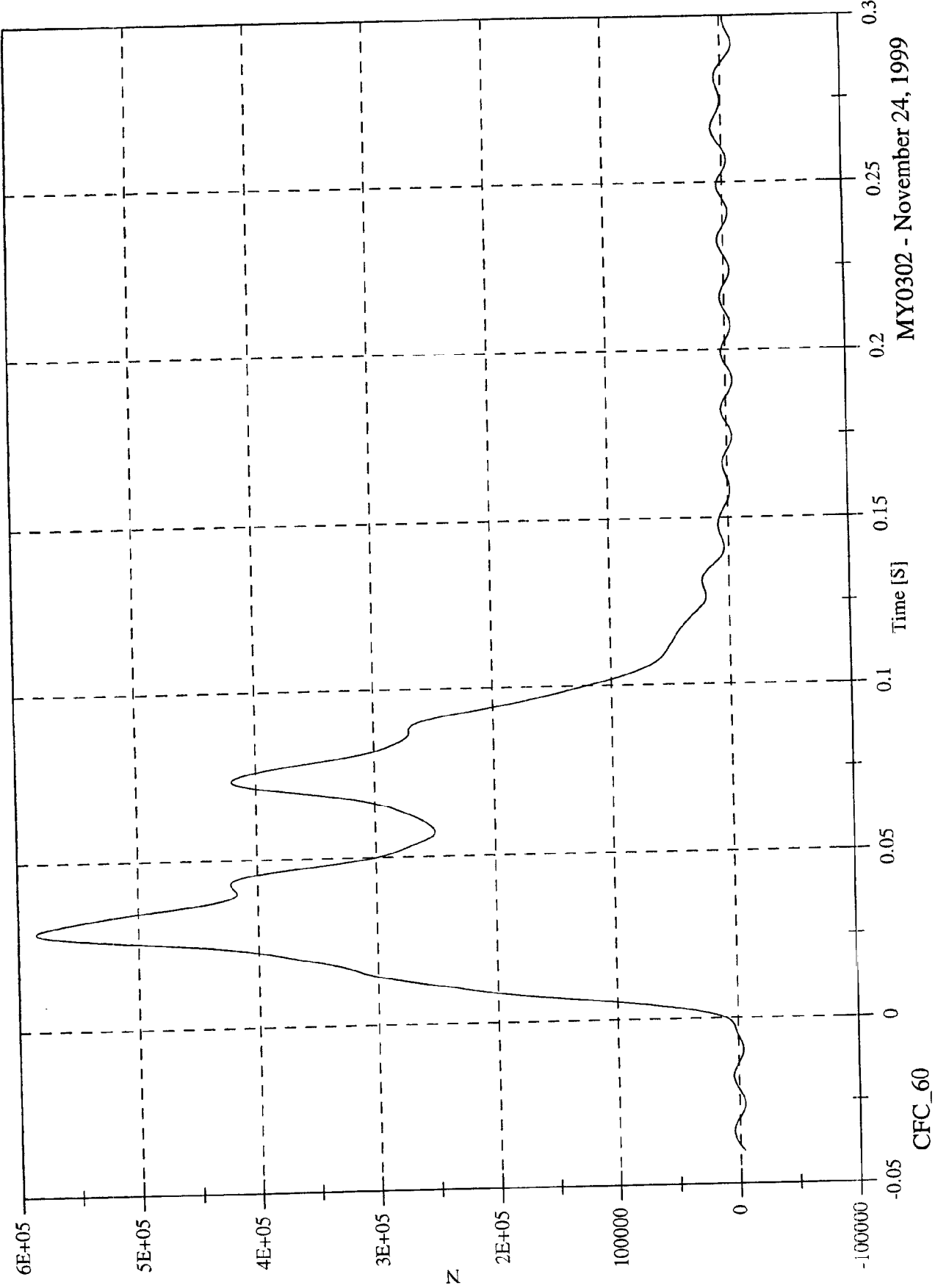


MY0302 - November 24, 1999

Max: 585051.8 [N] at 0.029 [S]
Min: -9407.9 [N] at 0.291 [S]

Total Load Cell Sum (All 6 Groups)

NCAP Test 3 - 2000 Dodge Caravan



MY0302 - November 24, 1999

CFC_60

APPENDIX C

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

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

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

Dummy serial numbers and certification dates are:

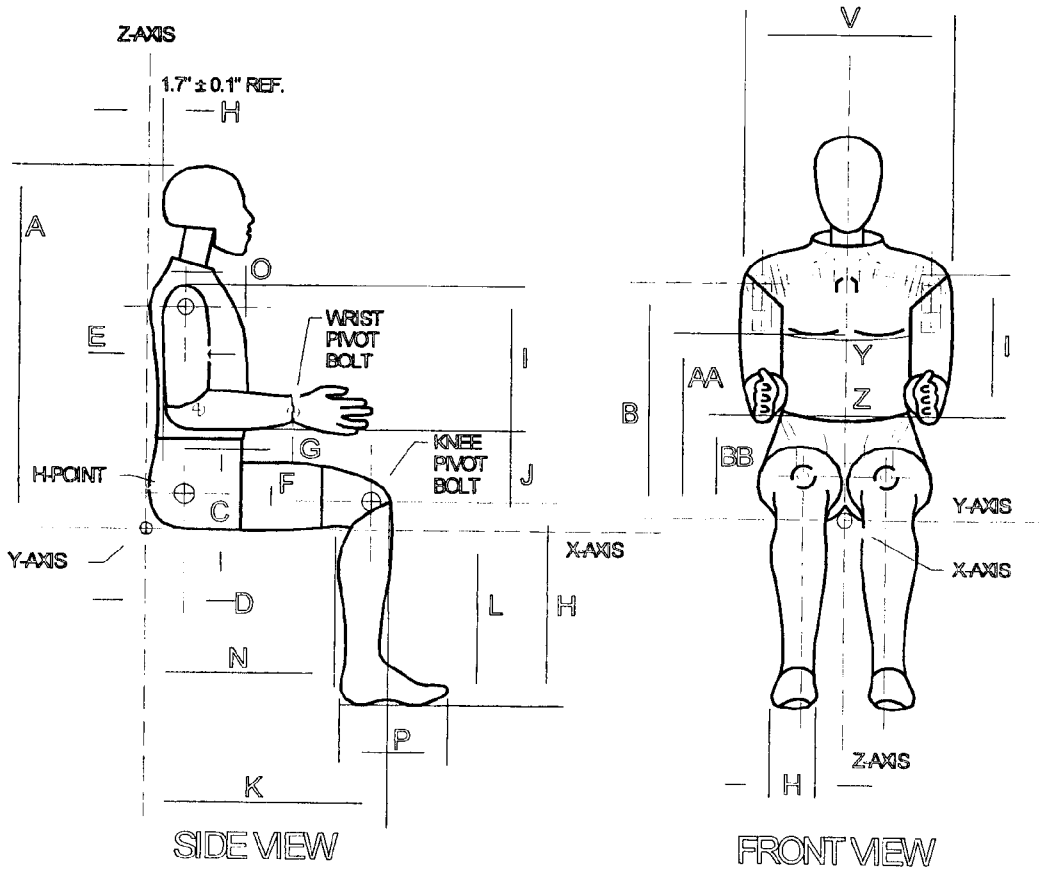
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	061	11/21/99
#2/Right Front Passenger	064	11/21/99

Electronic Test Equipment

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

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS
SPECIFICATIONS



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

PART 572E
HEAD DROP TEST

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

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

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number 061
 Sequential Test Number 5
 Date November 18, 1999
 Workfile 061599.nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	31
Impact Velocity		22.60 - 23.40 Ft/s	22.63
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.57
	20 ms	17.60 - 22.60 G's	19.46
	30 ms	12.50 - 18.50 G's	15.68
Max Pendulum G's Above 30 ms		29 G's Max	15.68
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.13
D Plane Rotation	Max	64 - 78 Deg	73.21
	Time	57 - 64 ms	63.25
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	73.22
	Time	47 - 58 ms	54.25
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	121.13
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	102.25

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number
Sequential Test Number
Date
Workfile

061
5
November 18, 1999
061599.nex

6 Axis Neck Transducer

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

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 061
Sequential Test Number 5
Date November 19, 1999
Workfile 061599.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	32
Pendulum Velocity	21.6 - 22.4 Ft/s	21.90
Maximum Deflection	2.50 - 2.86 in	2.57
Maximum Resistive Force	1160 - 1325 Lbs	1255.31
Internal Hysteresis	69 - 85 %	73.47

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 061
Sequential Test Number 5
Date November 21, 1999
Workfile 061599.lf/o61599.rf

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

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

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

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			32
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.2
Waist Circumference	Z	32.9 - 34.1 in	33.4
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.1
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.7
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.5
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.1
Elbow Rest Height	J	7.5 - 8.3 in	7.7
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.4
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swicicki

PART 572E
HEAD DROP TEST

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

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

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK FLEXION TEST

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

6 Axis Neck Transducer

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

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number
Sequential Test Number
Date
Workfile

064
5
November 14, 1999
064599.nex

6 Axis Neck Transducer

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

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 064
Sequential Test Number 5
Date November 19, 1999
Workfile 064599.th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	32
Pendulum Velocity	21.6 - 22.4 Ft/s	21.67
Maximum Deflection	2.50 - 2.86 in	2.58
Maximum Resistive Force	1160 - 1325 Lbs	1235.76
Internal Hysteresis	69 - 85 %	75.09

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
KNEE IMPACT TEST

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

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

Remarks:

Laboratory Technician: B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

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

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			31
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.8
Waist Circumference	Z	32.9 - 34.1 in	33.4
Chest Depth	O	8.4 - 9.0 in	8.6
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.3
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.3
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swiecicki

APPENDIX D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 061)	Manufacturer	Serial #	Calibration		
			Last	Next	
Head	X	ENDEVCO	AC-AL553	11/8/99	5/8/00
	Y	ENDEVCO	AC-A83G	11/8/99	5/8/00
	Z	ENDEVCO	AC-C14901	11/8/99	5/8/00
Head	X (R)	ENDEVCO	AC-A13939	11/8/99	5/8/00
	Y (R)	ENDEVCO	AC-A14181	11/8/99	5/8/00
	Z (R)	ENDEVCO	AC-A14124	11/8/99	5/8/00
Neck Load Cell	X	DENTON	LC-205Fx	8/6/99	2/6/00
	Y	DENTON	LC-205Fy	8/6/99	2/6/00
	Z	DENTON	LC-205Fz	8/6/99	2/6/00
Neck Moment	X	DENTON	LC-205Mx	8/6/99	2/6/00
	Y	DENTON	LC-205My	8/6/99	2/6/00
	Z	DENTON	LC-205Mz	8/6/99	2/6/00
Chest	X	ENDEVCO	AC-FP90	11/8/99	5/8/00
	Y	ENDEVCO	AC-A26A	11/8/99	5/8/00
	Z	ENDEVCO	AC-AL6H7	11/8/99	5/8/00
Chest	X (R)	ENDEVCO	AC-B11407	11/8/99	5/8/00
	Y (R)	ENDEVCO	AC-B11408	11/8/99	5/8/00
	Z (R)	ENDEVCO	AC-B10827	11/8/99	5/8/00
Chest Deflection Gauge	SERVO	DS-061	8/6/99	2/6/00	
Hybrid III Use Only					
Pelvic	X	ENDEVCO	AC-ADMB8	11/8/99	5/8/00
	Y	ENDEVCO	AC-ADL44	11/8/99	5/8/00
	Z	ENDEVCO	AC-ACT12	11/8/99	5/8/00

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 061)	Manufacturer	Serial #	Calibration		
			Last	Next	
Left Femur Load Cell	GSE	LC-418	10/20/99	4/20/00	
Right Femur Load Cell	GSE	LC-420	10/19/99	4/19/00	
Left Upper Tibia	Mx	DENTON	LC-045Mx	9/16/99	3/16/00
	My	DENTON	LC-045My	9/16/99	3/16/00
Left Lower Tibia	Fz	DENTON	LC-125Fz	9/16/99	3/16/00
	Mx	DENTON	LC-125Mx	9/16/99	3/16/00
	My	DENTON	LC-125My	9/16/99	3/16/00
Right Upper Tibia	Mx	DENTON	LC-038Mx	9/16/99	3/16/00
	My	DENTON	LC-038My	9/16/99	3/16/00
Right Lower Tibia	Fz	DENTON	LC-124Fz	9/16/99	3/16/00
	Mx	DENTON	LC-124Mx	9/16/99	3/16/00
	My	DENTON	LC-124My	9/16/99	3/16/00
Left Foot Rear	X	ENDEVCO	AC-J32176	10/11/99	4/11/00
	Z	ENDEVCO	AC-J31042	10/11/99	4/11/00
Left Foot Front	Z	ENDEVCO	AC-J31009	10/11/99	4/11/00
Right Foot Rear	X	ENDEVCO	AC-J31050	10/11/99	4/11/00
	Z	ENDEVCO	AC-J31060	10/11/99	4/11/00
Right Foot Front	Z	ENDEVCO	AC-J32143	10/11/99	4/11/00
Lap Belt Load Cells	LEBOW	LC-706	10/19/99	4/19/00	
Shoulder Belt Load Cells	LEBOW	LC-635	10/19/99	4/19/00	
Spool-Out Potentiometer	MAGNETEK	DS-M6	11/4/99	5/4/00	
Belt Stretch Transducer	CAL	DS-E5	8/24/99	2/24/00	

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)	Manufacturer	Serial #	Calibration		
			Last	Next	
Head	X	ENDEVCO	AC-AD4A9	7/1/99	1/1/00
	Y	ENDEVCO	AC-AE8T7	7/1/99	1/1/00
	Z	ENDEVCO	AC-AF5R1	7/1/99	1/1/00
Head	X (R)	ENDEVCO	AC-A13924	7/1/99	1/1/00
	Y (R)	ENDEVCO	AC-A13827	7/1/99	1/1/00
	Z (R)	ENDEVCO	AC-A13921	7/1/99	1/1/00
Neck Load Cell	X	DENTON	LC-440Fx	8/6/99	2/8/00
	Y	DENTON	LC-440Fy	8/6/99	2/8/00
	Z	DENTON	LC-440Fz	8/6/99	2/8/00
Neck Moment	X	DENTON	LC-440Mx	8/6/99	2/8/00
	Y	DENTON	LC-440My	8/6/99	2/8/00
	Z	DENTON	LC-440Mz	8/6/99	2/8/00
Chest	X	ENDEVCO	AC-A08A	7/1/99	1/1/00
	Y	ENDEVCO	AC-ADL42	7/1/99	1/1/00
	Z	ENDEVCO	AC-A28F	7/1/99	1/1/00
Chest	X (R)	ENDEVCO	AC-A14077	7/1/99	1/1/00
	Y (R)	ENDEVCO	AC-A13882	7/1/99	1/1/00
	Z (R)	ENDEVCO	AC-ACCW0	7/1/99	1/1/00
Chest Deflection Gauge Hybrid III Use Only		SERVO	DS-064	8/6/99	2/8/00
Pelvic	X	ENDEVCO	AC-AF480	7/1/99	1/1/00
	Y	ENDEVCO	AC-AC2M6	7/1/99	1/1/00
	Z	ENDEVCO	AC-AF5C1	7/1/99	1/1/00

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)	Manufacturer	Serial #	Calibration		
			Last	Next	
Left Femur Load Cell	GSE	LC-954	10/20/99	4/20/00	
Right Femur Load Cell	GSE	LC-955	10/19/99	4/19/00	
Left Upper Tibia	Mx	DENTON	LC-016Mx	9/16/99	3/16/00
	My	DENTON	LC-016My	9/16/99	3/16/00
Left Lower Tibia	Fz	DENTON	LC-123Fz	9/16/99	3/16/00
	Mx	DENTON	LC-123Mx	9/16/99	3/16/00
	My	DENTON	LC-123My	9/16/99	3/16/00
Right Upper Tibia	Mx	DENTON	LC-023Mx	10/12/99	4/12/00
	My	DENTON	LC-023My	10/12/99	4/12/00
Right Lower Tibia	Fz	DENTON	LC-111Fz	10/12/99	4/12/00
	Mx	DENTON	LC-111Mx	10/12/99	4/12/00
	My	DENTON	LC-111My	10/12/99	4/12/00
Left Foot Rear	X	ENDEVCO	AC-J32184	10/11/99	4/11/00
	Z	ENDEVCO	AC-J31011	10/11/99	4/11/00
Left Foot Front	Z	ENDEVCO	AC-J32185	10/11/99	4/11/00
Right Foot Rear	X	ENDEVCO	AC-J31101	10/11/99	4/11/00
	Z	ENDEVCO	AC-J31020	10/11/99	4/11/00
Right Foot Front	Z	ENDEVCO	AC-J31059	10/11/99	4/11/00
Lap Belt Load Cells	LEBOW	LC-711	10/19/99	4/19/00	
Shoulder Belt Load Cells	LEBOW	LC-775	10/19/99	4/19/00	
Spool-Out Potentiometer	MAGNETEK	DS-M5	11/4/99	5/4/00	
Belt Stretch Transducer	CAL	DS-E6	8/24/99	2/24/00	

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember	ICS	AC-X26	9/1/99	3/1/00
Right Rear Seat Crossmember	ICS	AC-D29	9/1/99	3/1/00
Top of Engine	ICS	AC-D75	9/14/99	3/14/00
Bottom of Engine	ICS	AC-D28	11/23/99	5/23/00
Right Disc Brake Caliper	ICS	AC-D78	11/23/99	5/23/00
Instrument Panel	ICS	AC-Y171	11/23/99	5/23/00
Left Disc Brake Caliper	ICS	AC-D55	11/23/99	5/23/00
Left Seat Rear Crossmember (R)	ICS	AC-D32	9/1/99	3/1/99
Right Seat Rear Crossmember (R)	ICS	AC-D85	7/12/99	1/12/99