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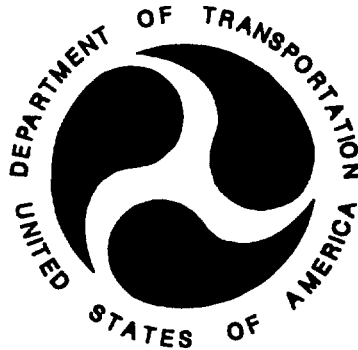
**NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
FRONTAL BARRIER 40% OFFSET IMPACT TEST**

**NISSAN MOTOR CORPORATION
2000 NISSAN ALTIMA
4-DOOR SEDAN**

NHTSA NUMBER RY5210

VERIDIAN TEST NUMBER: 8413-61

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



May 15, 2001

FINAL REPORT

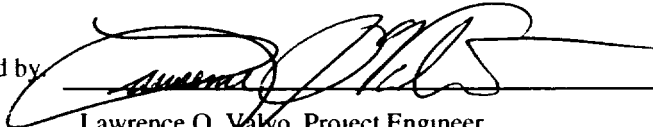
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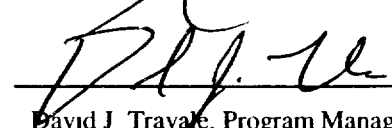


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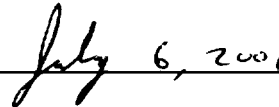
Prepared by


Lawrence Q. Valvo, Project Engineer

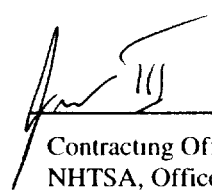
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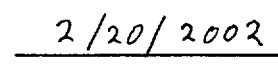

David J. Travale, Program Manager
Transportation Science Center

Approval Date

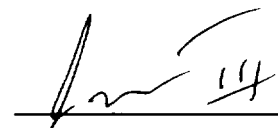

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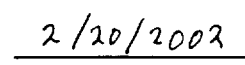
FINAL REPORT ACCEPTANCE BY OCS

 for Brian Park
Contracting Officer's Technical Representative (COTR),
NHTSA, Office of Crashworthiness Standards


2/20/2002

Date of Report Acceptance


Project Engineer
NHTSA, Research and Development


2/20/2002

Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1 <i>Report No</i> CAL-01-2-5		2 <i>Government Accession No</i>		3 <i>Recipient's Catalog No</i>	
4 <i>Title and Subtitle</i> Final Report of Frontal Barrier 40% Offset Testing of a 2000 Nissan Altima 4-Door Sedan NHTSA No RY5210				5 <i>Report Date</i> May 15, 2001	
				6 <i>Performing Organization Code</i> CAL	
7 <i>Author(s)</i> David J Travale, Program Manager Lawrence Q Valvo, Project Engineer				8 <i>Performing Organization Report No</i> 8413-61	
9 <i>Performing Organization Name and Address</i> Veridian Engineering 4455 Genesee Street Buffalo, New York 14225				10 <i>Work Unit No</i>	
				11 <i>Contract or Grant No</i>	
12 <i>Sponsoring Agency Name and Address</i> U S DEPARTMENT OF TRANSPORTATION National Highway Traffic Safety Administration Research and Development Crashworthiness Research Division Mail Code NRD-11 400 Seventh Street, SW, Room No 6226 Washington, DC 20590				13 <i>Type of Report and Period Covered</i> Final Report May-June 2001	
				14 <i>Sponsoring Agency Code</i> NRD-11	
15 <i>Supplementary Notes</i>					
16 <i>Abstract</i> This test is to evaluate the use of the Thor Advanced Lower Extremity (Thor-FLx and Thor-Lx) in the frontal 40% offset deformable barrier test. A frontal 40% offset barrier impact test of a 2000 Nissan Altima 4-Door Sedan was performed at Veridian Engineering crash test facility in Buffalo, New York, on May 15, 2001. The impact velocity was 60.03 kph and the temperature at the barrier face was 22.2°C. The maximum post-test vehicle crush was 655 mm. The test vehicle was equipped with 3-point pretensioning restraint systems, knee bolsters, and airbags at both the driver and right outboard passenger seating positions. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appeared to comply with head, chest, and femur requirements.					
ATD Position	HIC	Clip (g's)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)
Driver (288)	158.8	33.5	22.6	4582.9	2498.0
Passenger (202)	141.5	23.1	28.5	2706.4	46.4
17 <i>Key Words</i> Frontal 40% Offset Barrier Impact test Thor-FLx/HIIIr Thor-Lx/HIIIr				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 RY5210

PURPOSE

This 60 03 kph frontal 40% offset barrier impact test is part of the Test Procedure Development Program sponsored by the National Highway Traffic Safety Administration (NHTSA). The purpose of this test was to evaluate the performance of Thor-FLx Hybrid III retrofit (Thor-FLx/HIIIr) and Thor-Lx Hybrid III retrofit (Thor-Lx/HIIIr) lower legs and obtain vehicle crashworthiness and occupant and restraint system performance data.

The frontal 40% offset barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

SUMMARY

A deformable honeycomb barrier was impacted by a 2000 Nissan Altima 4-Door Sedan at 40% overlap and a velocity of 60 03 kph. The test was performed at Veridian Engineering on May 15, 2001. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

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

One Part 5720 5th percentile female anthropomorphic test device (ATD) was placed in the driver position and one Part 572E 50th percentile male ATD was placed in the right-front passenger position according to dummy placement instructions specified in the Laboratory Indicant Test Procedure. During placement, it was discovered that if the Driver ATD's left leg was positioned at the same lateral distance from the ATD's midsagittal plane as the right leg, the left foot would rest partially on the elevated foot rest. Based on this observation, the COTR decided to relocate the left foot to the center of the elevated foot rest. This position did not raise the heel relative to the floorpan.

Both ATDs were fully instrumented with head, chest, and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, knee sliders, and Thor-FLx/HIIIr or Thor-Lx/HIIIr lower leg instrumentation. Seat belt load cells were also installed on the driver's and passenger's lap belts to measure pelvic section loading. The driver (position 1) ATD (Serial No. 288) and the right-front passenger (position 2) ATD (Serial No. 202) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 157 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle and dummy response data traces.

The driver's HIC was 158.8. The maximum chest deceleration over 3 milliseconds was 33.5 g's and maximum chest deflection was 22.6 mm. Compressive femur loads were 4582.9 Newtons on the left and 2498.0 Newtons on the right.

The right front passenger's HIC was 141.5. Maximum chest deceleration over 3 milliseconds was 23.1 g's and maximum chest deflection was 28.5 mm. Compressive femur loads were 2706.4 Newtons on the left and 46.4 Newtons on the right.

SECTION 2

GENERAL TEST AND VEHICLE PARAMETER DATA

DATA SHEET NO 1 CRASH TEST SUMMARY

Vehicle NHTSA No	RY5210	Test Mode	60 0 kph Offset Frontal Barrier	
Test Date	May 15, 2001	Time	15 00	Temperature
			21 1	°C
Vehicle Make/Model/Body Style	2000 Nissan Altima 4-Door Sedan			
Vehicle Test Weight	1546 5	kg		
Vehicle/Barrier Impact Angle	0	°		
Impact Velocity	60 03	kph		
Maximum Static Crush	655	mm		
Actual Vehicle Offset	0	%		

<u>DUMMIES</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Type	572E	572E
Restraint System	Seatbelt with Pretensioner, Airbag, Knee Bolster	Seatbelt with Pretensioner, Airbag, Knee Bolster
Lower Leg	Thor-FLx	Thor-Lx
Number of Data Channels	157	
Number of Cameras	1	Real Time
	16	High Speed

<u>DOOR OPENING DATA</u>	Closed / Operable	- Left Front
	Closed / Operable	- Right Front

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

<u>VISIBLE DUMMY CONTACT POINTS</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Head	Face to upper center of airbag	Face to center of airbag
Abdomen	None	None
Chest	Airbag	Airbag
Knees	Knee Bolster	Left knee to left edge right knee to center of glove compartment door Right knee contact was minimal

DATA SHEET NO 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION

Year/Make/Model/Body Style 2000 Nissan Altima 4-Door Sedan

NHTSA No RY5210, VIN 1N4DL01D5YC103456, Color White

Engine Data 4 cylinders, - CID, 2.4 Liters, - cc

Placement - Longitudinal or In-Line, X Transverse or Lateral

Transmission Data 4 speeds, - Manual, X Automatic, X Overdrive

Final Drive - Rear Wheel Drive, X Front Wheel Drive, - Four Wheel Drive

Major Options X A/C, X Pwr Strg, X Pwr Brakes

X Pwr Windows, X Pwr Door Locks, X Tilt Wheel

Date Received 9/28/00, Odometer Reading 42451 km

Selling Dealer -

& Address -

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL

Vehicle Manufactured by Nissan Motor Corporation

Date of Manufacture 8/99

GVWR 1810 kg, GAWR 976 kg FRONT, 875 kg REAR

DATA FROM TIRE PLACARD

Tire Pressure with Maximum Capacity Vehicle Load 300 kpa FRONT

300 kpa REAR

Recommended Tire Size P205/60R15

* Recommended Cold Tire Pressure 200 kpa FRONT, 200 kpa REAR

Size of Tires on Test Vehicle P205/60R15, Manufacturer General

Vehicle Capacity Data

Type of Front Seats - Bench, X Bucket, - Split Bench

Number of Occupants 2 Front, 3 Rear, 5 Total

Vehicle Capacity Weight (VCW) = 390.0 kg

No. of Occupants x 68 kg = 340.2 kg

Rated Cargo/Luggage Weight (RCLW) = 49.8 kg

*Tire pressure used for test

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

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

Right Front	=	<u>425 5</u>	kg	Right Rear	=	<u>257 0</u>	kg
Left Front	=	<u>430 0</u>	kg	Left Rear	=	<u>259 5</u>	kg
TOTAL FRONT	=	<u>855 5</u>	kg	TOTAL REAR	=	<u>516 5</u>	kg
TOTAL DELIVERED WEIGHT = <u>1372 0</u> kg							
% of Total Front of Vehicle Weight = <u>62 4</u>				% of Total Rear Weight = <u>37 6</u> %			

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT

Total Delivered Weight (UDW)	=	<u>1372 0</u>	kg
Rated Cargo/Luggage Weight (RCLW)	=	<u>49 8</u>	kg
ATDs p 572O (49 0 kg) and p 572E (77 6 kg)	=	<u>126 6</u>	kg
TARGET TEST WEIGHT	=	<u>1548 4</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 48 KG OF CARGO WEIGHT

Right Front	=	<u>442 0</u>	kg	Right Rear	=	<u>330 5</u>	kg
Left Front	=	<u>465 5</u>	kg	Left Rear	=	<u>308 5</u>	kg
TOTAL FRONT	=	<u>907 5</u>	kg	TOTAL REAR	=	<u>639 0</u>	kg
TOTAL TEST WEIGHT = <u>1546 5</u> kg							
% of Total Front Weight = <u>58 7</u> %				% of Total Rear Weight = <u>41 3</u> %			
Weight of Ballast Secured in Vehicle Trunk Area = <u>0</u> kg							
Vehicle Components Removed for Weight Reduction				<u>Muffler, side mirrors, and rear door trim</u>			

VEHICLE ATTITUDE (all dimension in millimeters)

AS DELIVERED	RF	<u>670</u>	LF	<u>666</u>	RR	<u>688</u>	LR	<u>681</u>
FULLY LOADED	RF	<u>659</u>	LF	<u>655</u>	RR	<u>660</u>	LR	<u>652</u>
AS TESTED	RF	<u>678</u>	LF	<u>677</u>	RR	<u>656</u>	LR	<u>652</u>
Vehicle's Wheel Base		<u>2620</u> mm						
Location of Vehicle's C G		<u>1083</u> mm rearward of front wheel center						

FUEL SYSTEM DATA

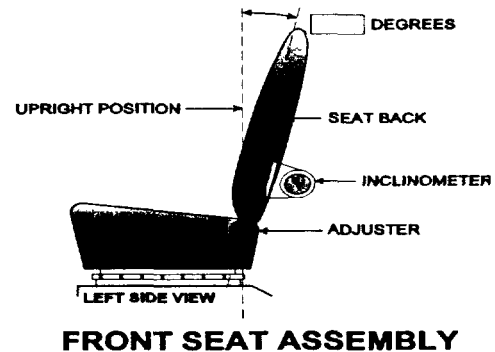
Fuel System Capacity From Owner's Manual	=	<u>59 8</u>	liters
Usable Capacity Figure Furnished by COTR	=	<u>59 8</u>	liters
Test Volume Range (92 to 94% of Usable Capacity)	=	<u>55 0</u>	to <u>56 2</u> liters
ACTUAL TEST VOLUME	=	<u>55 0</u>	liters (with entire fuel system filled)
Test Fluid Type	<u>Stoddard 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>Tank - centered ahead of the rear axle, Lines - inside the left body stiffener, Filler - left side behind the rear axle</u>			

DATA SHEET NO 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION

Model Year 2000 Vehicle Model Nissan Altima Body Style 4-Door Sedan

- 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 5°

Measurement instructions Seat back positioned according to the Hybrid III 5th percentile female ATD

Laboratory Indicant Test Procedure

Seat back angle for passenger's seat 15°

Measurement instructions Adjust seat to detent 7, where the full up position is defined as detent 0

- 2 Seat Fore and Aft Positioning

Positioning of the driver's seat 21 total detents Seat was positioned in the forward most position

Positioning of the passenger's seat 21 total detents Seat was positioned in detent 10, where the forward most is defined as detent 0

- 3 Fuel Tank Capacity Data

3 1 A "Usable Capacity" of the standard equipment fuel tank is 59.8 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 = 59.8 liters

3 2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 55.0 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

Pump operates for 5 seconds after the ignition is switched on, while the engine is running, and for 1.5 seconds after the engine stops running

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 placed in the mid-position

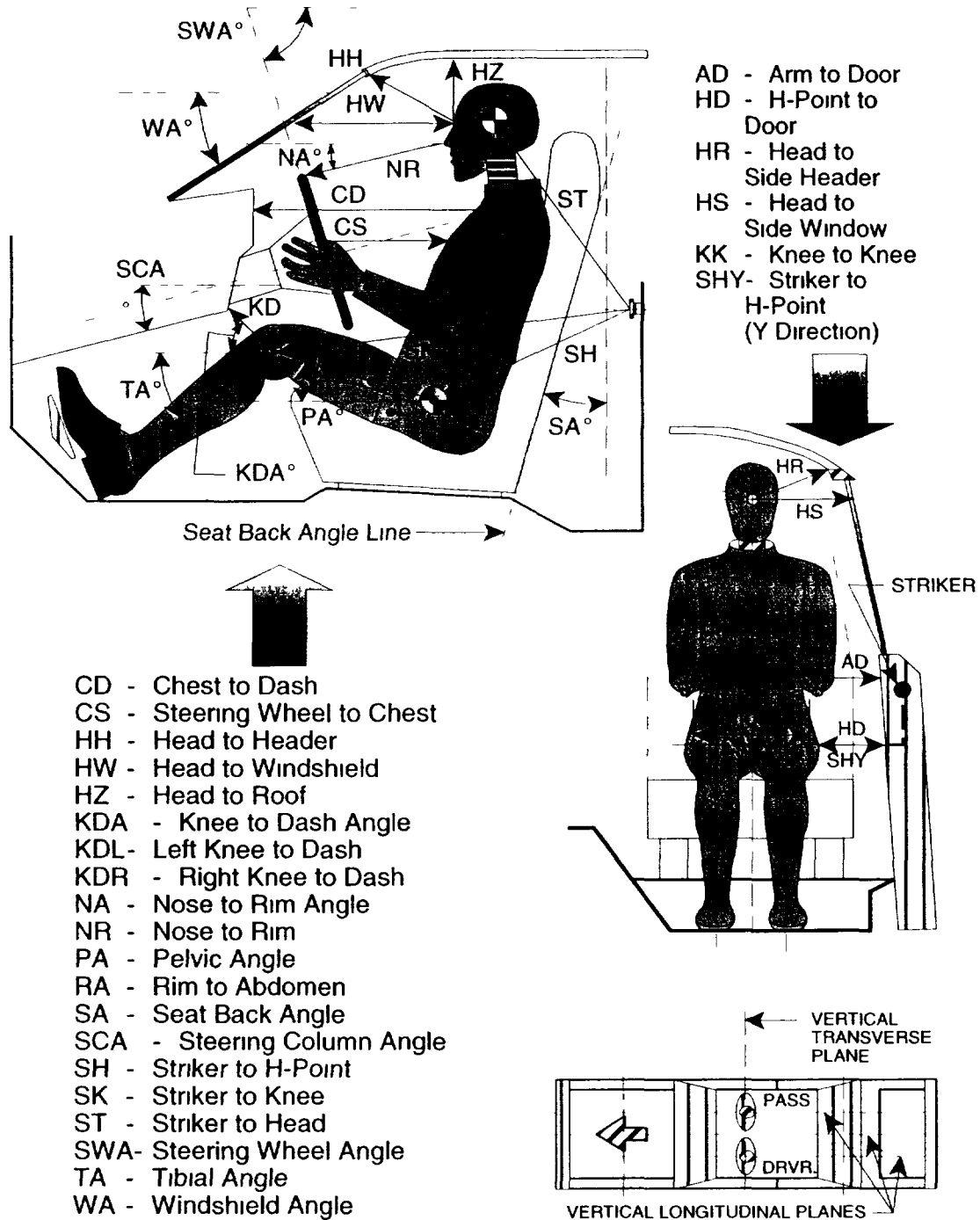
5 SEAT BELT UPPER ANCHORAGE

Nominal design riding position

4 total detents. The driver anchorage was placed in the lowest position

The passenger anchorage was placed in detent 1, where the lowest detent is defined as 0

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



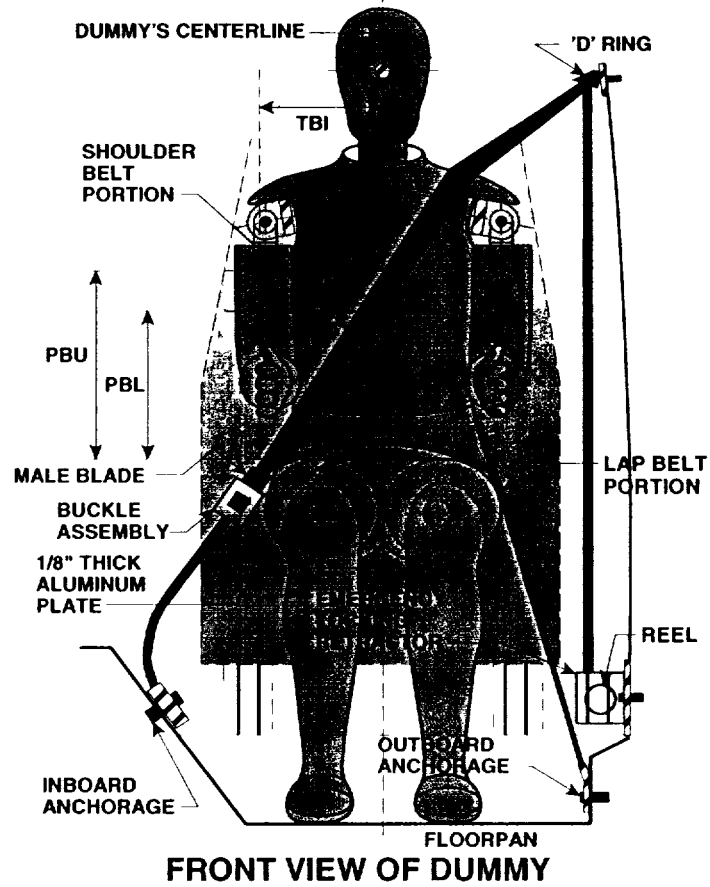
DATA SHEET NO 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #288)			PASS (Serial # 202)		
WA ^o	28 deg			N/A		
SWA ^o	67 deg			N/A		
SCA ^o	23 deg			N/A		
SA ^o	14 deg (5 deg at headrest post)			28 deg (15 deg at headrest post)		
HZ	190			158		
HH	253			300		
HW	541			573		
HR	254			212		
NR	252	Angle	5 deg	N/A		
CD	415			562		
CS	198			N/A		
RA	94			N/A		
KDL	124	Angle (KDA)	43 deg	164		
KDR	110			158	Angle (KDA)	26 deg
PA ^o	26.4 deg			24.5 deg		
TA ^o	46.8 deg			39.1 deg		
KK	290			315		
ST	458	Angle	28 deg	480	Angle	10 deg
SK	658	Angle	96 deg	591	Angle	93 deg
SH	358	Angle	112 deg	257	Angle	122 deg
SHY	281			235		
HS	386			356		
HD	232			135		
AD	166			114		
AA	354			280		

Dimensions in millimeters

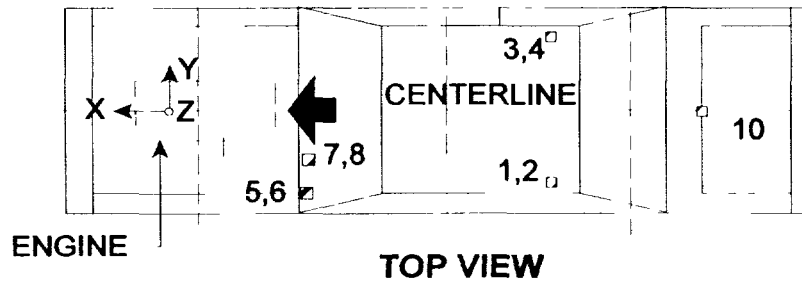
DATA SHEET NO 6 SEAT BELT POSITIONING DATA

SEAT BELT POSITIONING DATA

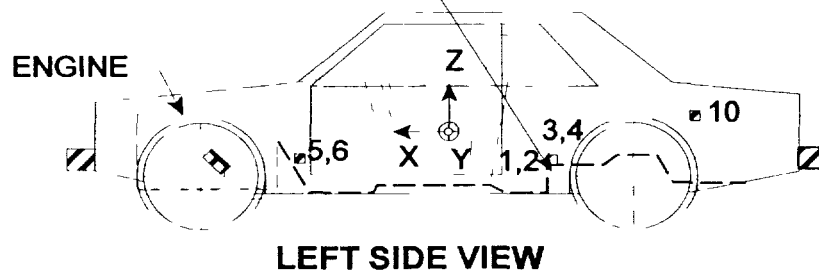


	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum plate to upper edge	298	332
PBL-- Top surface of alum plate to belt lower edge	220	250
<u>LAP BELT TENSION</u>	10 N	10 N
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

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 (cont.)

Accelerometer	X-Direction (mm)	Y-Direction (mm)	Z-Direction (mm)
Left Rear Seat Crossmember	1809	-625	-330
Right Rear Seat Crossmember	1802	624	-327
Driver Left Side Toe Pan	3417	-441	-357
Driver Right Side Toe Pan	3399	-246	-347
Trunk	1034	11	-472

X-Direction is referenced from vehicle rear bumper (positive forward)

Y-Direction is referenced from vehicle centerline (positive to right)

Z-Direction is referenced from ground plane (positive down)

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos	msec	Neg	msec
1	Rear Seat X-Member @ Left Side X	2 4	182 3	-31 7	93 0
2	Rear Seat X-Member @ Left Side Y	8 3	78 6	-2 2	123 7
3	Rear Seat X-Member @ Right Side X	1 0	167 4	-21 8	83 0
4	Rear Seat X-Member @ Right Side Y	10 5	70 5	-2 6	122 8
5	Driver Toe Pan @ Left Side X	28 8	54 9	-73 2	50 0
6	Driver Toe Pan @ Left Side Z	29 2	54 9	-37 8	49 8
7	Driver Toe Pan @ Right Side X	20 0	73 4	-65 8	50 2
8	Driver Toe Pan @ Right Side Z	23 3	54 8	-29 0	50 4
9	Trunk Z	9 1	189 1	-9 4	67 9

DATA SHEET NO 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style

2000 Nissan Altima 4-Door Sedan

NHTSA Test No

RY5210

Test Date

May 15, 2001

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head 9 Array X Arm Y	g	8 2	192 6	-13 0	35 2	-	-	-	-
Head 9 Array X Arm Z	g	16 1	33 6	-23 7	131 5	-	-	-	-
Head 9 Array Y Arm X	g	6 1	146 8	-42 3	59 9	-	-	-	-
Head 9 Array Y Arm Z	g	8 8	236 7	-18 4	133 9	-	-	-	-
Head 9 Array Z Arm X	g	9 0	152 1	-54 0	56 8	-	-	-	-
Head 9 Array Z Arm Y	g	14 9	192 6	6 0	124 1	-	-	-	-
Head CG X	g	8 6	146 8	-39 8	59 8	6 7	346 2	-21 0	109 2
Head CG Y	g	7 5	187 6	-5 6	35 2	12 2	129 7	-1 7	499 7
Head CG Z	g	10 6	33 9	-21 0	133 7	††		††	-
Head CG Resultant	g	39 9	59 8	-	-	††	-	-	-
Redundant Head CG X	g	9 3	146 8	-40 0	59 8	6 8	346 9	-21 2	109 2
Redundant Head CG Y	g	8 0	187 2	-5 8	35 2	11 7	132 8	-1 8	499 7
Redundant Head CG Z	g	10 5	33 9	-20 4	133 7	20 8	118 8	-0 8	24 7
Redundant Head CG Res.	g	40 2	59 8	-	-	30 0	116 5	-	-
Upper Neck Fx	N	196 6	146 8	-1290 3	64 4	82 0	292 8	-355 4	81 8
Upper Neck Fy	N	215 3	188 1	-75 4	425 8	214 1	147 0	-66 8	499 7
Upper Neck Fz	N	1629 8	56 2	-349 7	146 8	835 7	115 8	-127 6	362 6
Upper Neck F Resultant	N	1990 3	64 1	-	-	850 0	115 8	-	-
Upper Neck Mx	N-m	20 1†	193 9	-6 8†	271 0	10 1	161 9	-7 2	128 4
Upper Neck My	N-m	11 0†	219 9	-85 9†	68 3	231 9	175 4	-129 3	367 2
Upper Neck Mz	N-m	††	-	††	-	54 7	195 3	-140 6	112 9
Upper Neck M Resultant	N-m	††	-	-	-	233 0	175 4	-	-
Chest X	g	7 6	145 2	-44 1	96 9	2 8	350 0	22 1	102 2
Chest Y	g	8 3	138 9	-5 0	51 9	††	-	††	-
Chest Z	g	4 8	95 7	-15 6	144 4	7 6	121 8	-5 3	95 6
Chest Resultant	g	44 5	96 9	-	-	††	-	-	-
Redundant Chest X	g	7 4	145 2	-44 5	96 9	2 8	349 7	-22 2	102 2
Redundant Chest Y	g	8 3	139 0	-5 3	51 9	11 0	101 1	-1 2	172 4
Redundant Chest Z	g	4 4	100 0	-15 8	144 2	7 5	121 4	-5 3	95 6
Redundant Chest Resultant	g	44 7	96 9	-	-	24 7	102 1	-	-
Chest Displacement	mm	0 0	-81 2	-22 6	71 3	0 1	23 7	-28 5	123 0

† Data channel contained noise

†† Transducer failed

DATA SHEET NO 8 DUMMY INJURY CRITERIA VALUES (cont)

Vehicle Year/Make/Model/Body Style 2000 Nissan Altima 4-Door Sedan
 NHTSA Test No RY5210 Test Date May 15, 2001

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Pelvic X	g	4 8	166 5	-39 9	89 7	1 8	151 7	-31 6	95 7
Pelvic Y	g	9 4	87 8	-6 3	30 4	9 4	84 1	-7 5	137 1
Pelvic Z	g	3 2	254 6	-16 9	126 9	50 6	183 1	-13 2	388 7
Pelvic Resultant	g	42 7	89 8	-	-	50 6	183 1	-	-
Left Femur Fx	N	394 9	107 1	-156 0	151 9	2005 9	32 4	-3189 5	153 1
Left Femur Fy	N	324 4	114 1	-92 9	74 9	190 9	121 6	-200 0	78 3
Left Femur Fz	N	329 0	62 9	-4582 9	93 3	667 7	82 5	-2706 4	110 5
Left Femur Force Resultant	N	4584 0	93 3	-	-	3193 4	153 1	-	-
Left Femur Mx	N-m	18 0	129 7	-42 8	92 2	22 6	134 6	-54 3	89 0
Left Femur My	N-m	114 9	93 3	-21 8	74 7	112 6	110 6	-38 0	89 3
Left Femur Mz	N-m	41 7	80 0	-20 5	136 5	14 1	178 6	-57 7	88 4
Left Femur Moment Res.	N-m	122 9	93 3	-	-	113 4	110 6	-	-
Right Femur Fx	N	486 5	87 1	-48 3	153 4	320 8	119 3	-158 7	38 1
Right Femur Fy	N	478 5	113 6	-85 8	65 6	60 7	155 5	-168 7	88 5
Right Femur Fz	N	301 6	50 6	-2498 0	91 9	1090 3	102 2	-46 4	160 8
Right Femur Force Resultant	N	2534 6	91 9	-	-	1099 7	102 2	-	-
Right Femur Mx	N-m	2 7	254 2	-56 7	86 7	7 5	238 0	-28 3	126 3
Right Femur My	N-m	32 5	116 2	-41 8	78 5	64 0	123 6	-10 6	38 4
Right Femur Mz	N-m	24 3	78 6	-22 7	138 1	22 4	159 3	-44 4	126 9
Right Femur Moment Res.	N-m	59 7	89 8	-	-	81 4	124 1	-	-
Left Knee Shear Dx	mm	0 3	76 5	-2 0	117 1	0 6	133 8	-1 7	205 8
Right Knee Shear Dx	mm	0 3	64 8	-3 8	101 8	6 8	102 8	-2 6	199 2

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

Vehicle Year/Make/Model/Body Style 2000 Nissan Altima 4-Door Sedan
 NHTSA Test No RY5210 Test Date May 15, 2001

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Left Upper Tibia Fx	N	100 7	23 9	-337 0	118 1	256 2	69 6	-185 1	113 9
Left Upper Tibia Fz	N	8 3	9 0	-940 0	77 5	49 9	186 4	-817 5	70 4
Left Upper Tibia Mx	N-m	21 6	77 4	-21 1	93 5	16 0	175 9	-71 8	78 8
Left Upper Tibia My	N-m	24 5	117 4	-27 6	75 1	18 9	116 4	-47 9	70 8
Left Lower Tibia Fx	N	6 4	19 5	-720 2	93 6	111 3	115 4	-395 2	70 3
Left Lower Tibia Fy	N	25 3	286 3	-206 6	81 4	330 9	79 3	-47 7	176 2
Left Lower Tibia Fz	N	4 3	9 3	-2470 4	93 5	56 6	335 5	-1236 3	69 8
Left Lower Tibia FR	N	2573 2	93 5	-	-	1330 3	70 3	-	-
Left Lower Tibia Mx	N-m	4 1	47 8	-41 0	87 5	23 9	113 1	-40 3	69 2
Left Lower Tibia My	N-m	18 8	117 9	-27 8	75 7	15 1	116 5	-43 9	69 9
Right Upper Tibia Fx	N	183 8	67 4	-353 8	90 2	190 4	102 1	-30 8	122 0
Right Upper Tibia Fz	N	21 3	226 7	-2930 0	87 3	71 6	38 8	-971 0	122 0
Right Upper Tibia Mx	N-m	16 4	210 7	-69 6	86 2	19 9	155 9	-39 3	123 9
Right Upper Tibia My	N-m	20 6	90 6	-33 9	67 1	13 5	124 6	-41 2	102 1
Right Lower Tibia Fx	N	6 7	28 1	-716 3	86 9	13 4	162 4	-298 6	102 5
Right Lower Tibia Fy	N	149 7	67 2	-133 4	76 6	133 2	118 1	-65 5	155 3
Right Lower Tibia Fz	N	77 4	28 7	-5519 3	87 4	32 6	354 6	-1411 0	121 5
Right Lower Tibia FR	N	5564 1	87 4	-	-	1416 7	121 5	-	-
Right Lower Tibia Mx	N-m	5 6	219 9	-134 1	85 7	4 8	155 9	-23 8	84 2
Right Lower Tibia My	N-m	2 4	147 5	-32 1	67 5	5 4	123 7	-27 7	90 3

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

Vehicle Year/Make/Model/Body Style 2000 Nissan Altima 4-Door Sedan
 NHTSA Test No RY5210 Test Date May 15, 2001

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Left Tibia Ax	g	8 5	117 6	-47 2	75 5	2 9	154 6	-38 0	86 4
Left Tibia Ay	g	27 2	87 7	-12 7	125 1	20 0	77 7	-10 1	115 4
Right Tibia Ax	g	10 9	91 0	-53 3	67 6	1 4	167 2	-22 2	100 3
Right Tibia Ay	g	57 1	85 4	-13 1	111 5	8 5	82 9	-7 5	130 1
Left Ankle Rotation X	Deg	2 8	38 4	-27 9	100 4	24 1	126 3	-6 5	69 4
Left Ankle Rotation Y	Deg	41 7	131 9	-3 6	19 3	0 5	118 3	-30 8	55 4
Left Ankle Rotation Z	Deg	3 4	14 8	-4 4	466 7	4 9	93 9	-3 6	6 3
Right Ankle Rotation X	Deg	4 0	42 4	-37 1	86 7	8 4	131 8	-16 0	91 1
Right Ankle Rotation Y	Deg	35 8	94 5	-3 1	38 2	-4 8	129 3	-24 1	55 7
Right Ankle Rotation Z	Deg	7 2	84 8	-0 6	231 6	5 0	143 3	-2 5	24 2
Left Foot Ax	g	15 7	119 4	-47 7	78 3	2 6	121 3	-47 7	74 7
Left Foot Ay	g	39 7	85 6	-13 0	116 0	37 5	66 3	-18 8	105 2
Left Foot Az	g	9 1	34 3	-37 3	82 2	18 9	74 6	-27 7	85 2
Left Foot A Resultant	g	53 9	78 3	-	-	56 9	66 5	-	-
Right Foot Ax	g	43 8	88 3	-41 8	69 8	0 9	35 2	-27 4	63 3
Right Foot Ay	g	69 4	84 1	-28 7	87 8	16 8	81 1	-13 5	128 4
Right Foot Az	g	36 2	78 0	-51 0	67 3	2 5	24 9	-16 9	105 8
Right Foot A Resultant	g	74 8	84 2	-	-	30 4	70 8	-	-
Lap Belt Force	N	1474 9	67 6	-3 6	-73 7	4399 4	99 5	-5 5	436 7
Torso Belt Force	N	-	-	-	-	-	-	-	-

DATA SHEET NO 8 DUMMY INJURY CRITERIA VALUES (cont)

Vehicle Year/Make/Model/Body Style 2000 Nissan Altima 4-Door Sedan
 NHTSA Test No RY5210 Test Date May 15, 2001

HEAD INJURY CRITERIA (HIC)				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	158.8	47.2	77.5	30.8
Position #2 - Passenger	141.5†	100.2	136.1	27.4

** 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	33.5	95.1	98.1	231.5
Position #2 - Passenger	23.1	100.7	103.7	171.3

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

† The primary P2 Head Az transducer failed during the test, the redundant accelerometer was used in the HIC calculation.

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

Vehicle Year/Make/Model/Body Style 2000 Nissan Altima 4-Door Sedan
 NHTSA Test No RY5210 Test Date May 15, 2001

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	153.7	47.1	77.2	30.7
Position #2 - Passenger	142.6	100.2	136.2	27.5

** 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	33.7	95.1	98.1	238.2
Position #2 - Passenger	23.8	100.6	103.6	151.9

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

DATA SHEET NO 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA

	<u>Driver</u>	<u>Passenger</u>
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems	<u>1899</u>	<u>1818</u>
Shoulder belt length as measured on Part 572 Dummy	<u>914</u>	<u>868</u>
Lap belt length as measured on Part 572 Dummy	<u>860</u>	<u>825</u>

SHOULDER BELT SPOOL-OFF DATA

As determined by film analysis	<u>-</u>	<u>-</u>
As determined mechanically	<u>0 mm†</u>	<u>50 mm†</u>
As determined electronically	<u>-</u>	<u>-</u>

BELT STRETCH DATA

Measured electronically between shoulder belt load cell and the "D" ring	<u>-</u>	<u>-</u>
Measured mechanically	<u>0mm/M</u>	<u>4 mm/M</u>

_____ Dimensions in millimeters

† This vehicle was equipped with pretensioning seat belts

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 19 mm molding

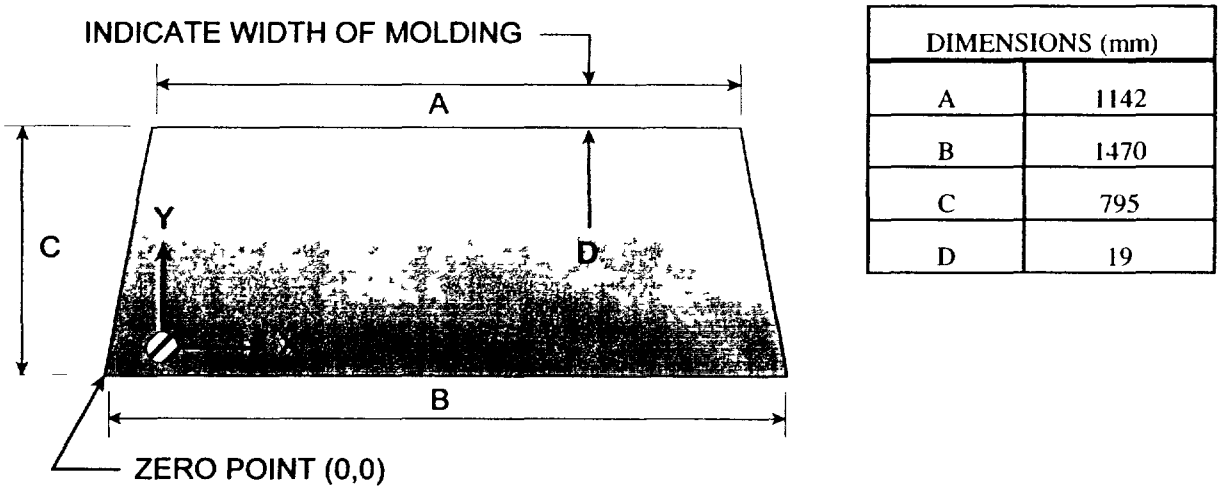
FMVSS 212 REQUIREMENTS

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

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST(mm)	
RIGHT SIDE	2101	2101	100
LEFT SIDE	2101	2101	100
TOTAL	4,202	4,202	100

AREA OF RETENTION FAILURE None



FRONT VIEW OF WINDSHIELD

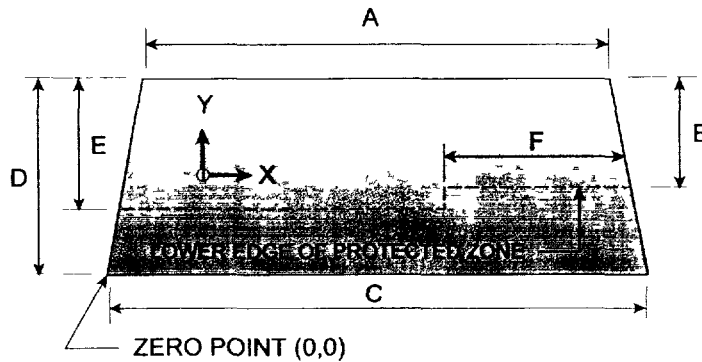
FAILURE DETAILS None

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	1142
B	465
C	1470
D	795
E	540
F	833

FRONT VIEW OF WINDSHIELD

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm

(Show location of penetration on the above sketch)

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

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

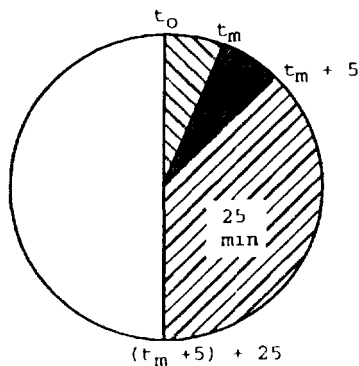
NHTSA TEST No RY5210 TEST DATE May 15, 2001
VEHICLE MAKE/MODEL 2000 Nissan Altima

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

=====

TEST VEHICLE IMPACT TYPE X Offset Frontal (60 kph)
 Oblique (48 kph) with _____ deg barrier face first contacting _____
- (driver/passenger) side
- Rear Moving Barrier (48 kph)
- Lateral Moving Barrier (32 kph)

FUEL SPILLAGE MEASUREMENT



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

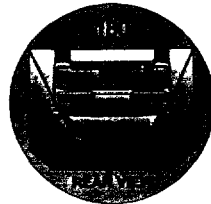
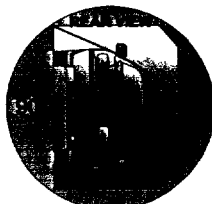
ACTUAL	MAX ALLOWED
0	28 g
0	141 g
0	28 g/min

SOLVENT SPILLAGE DETAILS None

DATA SHEET 13 ROLLOVER DATA

Vehicle 2000 Nissan Altima

NHTSA No RY5210



I DETERMINATION OF SOLVENT COLLECTION TIME PERIOD

Rollover Stage	Rotation Time (spec 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	5	seconds	5	minutes	6	minutes	5	seconds	7	minutes
90° - 180°	1	minutes	11	seconds	5	minutes	6	minutes	11	seconds	7	minutes
180° - 270°	1	minutes	15	seconds	5	minutes	6	minutes	15	seconds	7	minutes
270° - 360°	1	minutes	4	seconds	5	minutes	6	minutes	4	seconds	7	minutes

II FMVSS 301 REQUIREMENTS (Maximum allowable solvent spillage)

First 5 minutes from onset of rotation	6th min	7th min	8th min (if required)
142 g	28 g	28 g	28 g

III ACTUAL TEST VEHICLE SOLVENT SPILLAGE

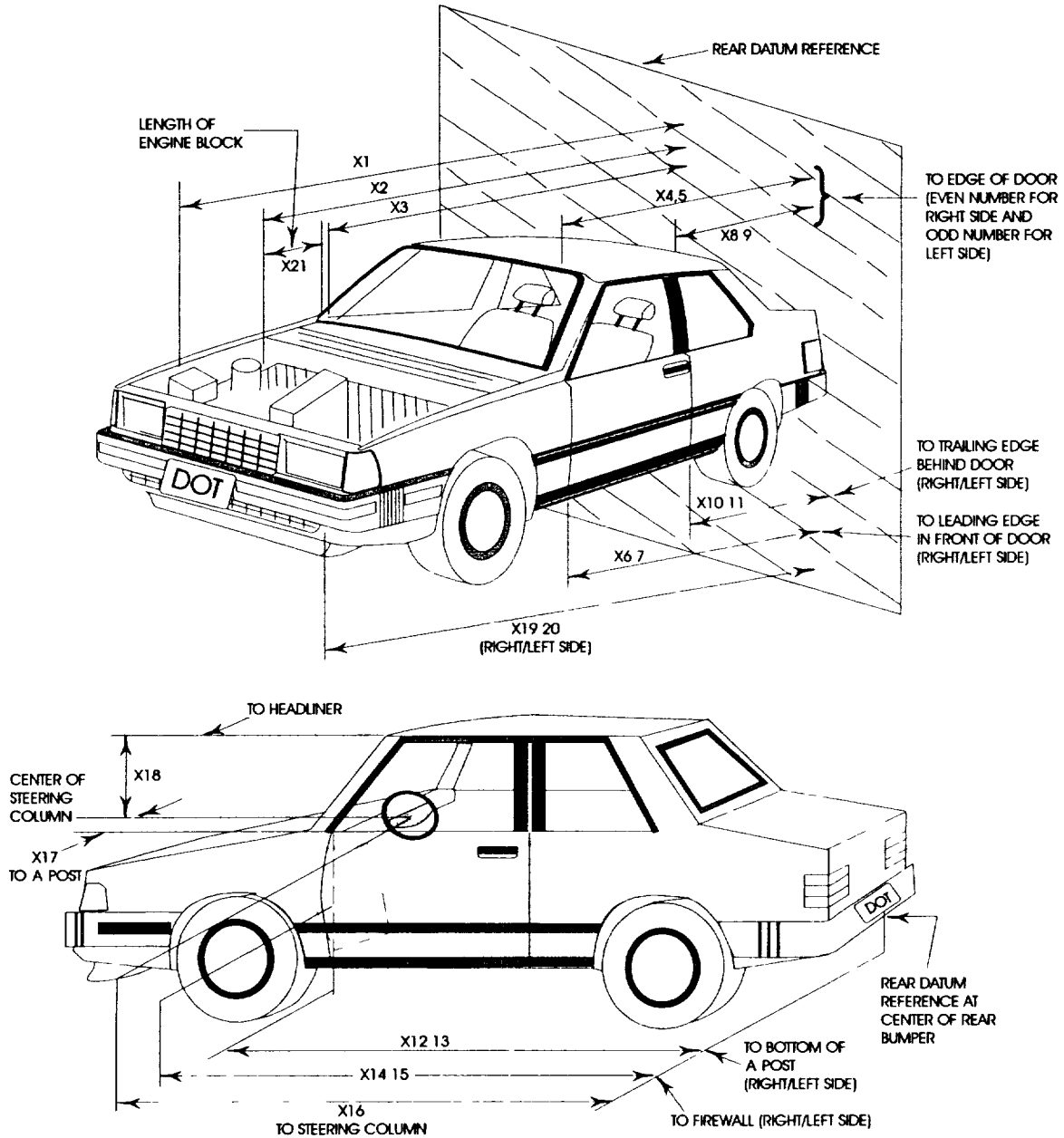
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min (g)	7th min (g)	8th min (if required) (g)
0° - 90°	0	0	0	N/A
90° - 180°	0	0	0	N/A
180° - 270°	0	0	0	N/A
270° - 360°	0	0	0	N/A

Note Record spillage for whole minute intervals only as determined above

IV SOLVENT SPILLAGE LOCATION(S)

Rollover Stage	Spillage Location
0° - 90°	-
90° - 180°	-
180° - 270°	-
270° - 360°	-

DATA SHEET NO 14 TEST VEHICLE MEASUREMENTS



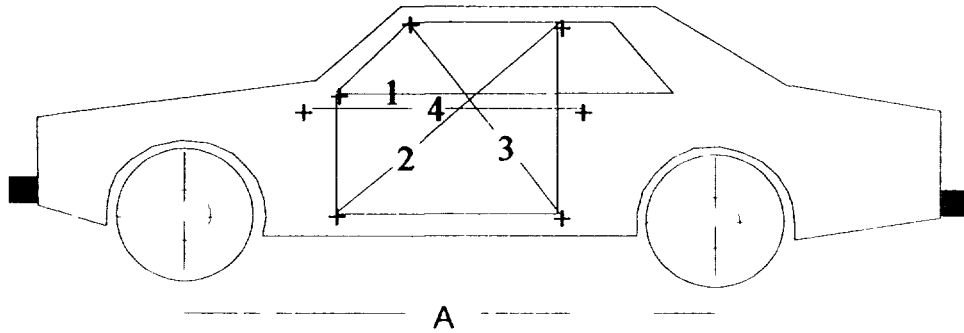
DATA SHEET NO 14 VEHICLE MEASUREMENTS (cont)

No		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4712	4275	437
X2	Rear Surface of Vehicle to Front of Engine	4156	4029	127
X3	Rear Surface of Vehicle to Firewall	3547	3465	82
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3202	3201	1
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3205	3156	49
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3200	3204	4
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3203	3161	42
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2158	2160	2
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2156	2089	67
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2153	2154	-1
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2160	2127	33
X12	Rear Surface of Vehicle to Bottom of A Post of Right Side	3346	3348	-2
X13	Rear Surface of Vehicle to Bottom of A Post of Left Side	3346	3216	130
X14	Rear Surface of Vehicle to Firewall Right Side	3545	3520	25
X15	Rear Surface of Vehicle to Firewall, Left Side	3488	3354	134
X16	Rear Surface of Vehicle to Steering Column	2761	2728	33
X17	Center of Steering Column to A Post	285	307	22
X18	Center of Steering Column to Headliner	438	426	12
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4633	4571	62
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4629	4053	576
X21	Length of Engine Block	495	495	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2953	2950	3
CD	Rear Surface of Vehicle to Center of Dash Panel	3012	2965	47
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2951	2867	84

All Dimensions in mm

All measurements taken forward from a lateral plane located at the rearmost point of the vehicle

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

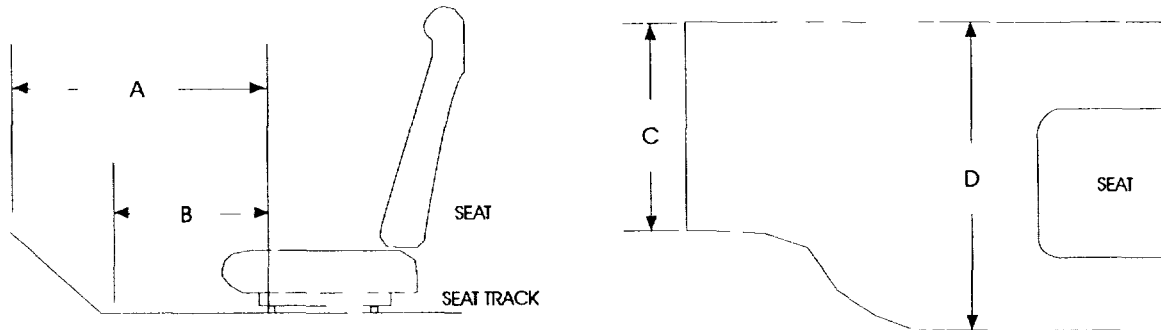


UNITS (mm)	LEFT				RIGHT		
MEASUREMENT	1	2	3	4*	1	2	3
BEFORE TEST	986	1439	937	1023	985	1441	940
AFTER TEST	903	1376	1034	957	984	1441	939
DIFFERENCE	83	63	-97	66	1	0	1

* Insurance Institute for Highway Safety (IIHS) measurement for driver's side only

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2625	2614
AFTER TEST	2374	2692
DIFFERENCE	251	-78

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



DRIVER

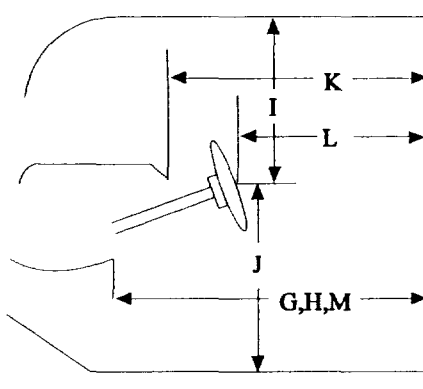
Measurement	Pre-Test	Post-Test	Difference
A	767	549	218
B	552	441	111
C	459	490	-31
D	522	508	14

PASSENGER

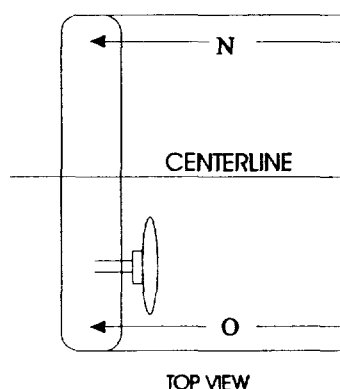
Measurement	Pre-Test	Post-Test	Difference
A	736	710	26
B	495	509	-14
C	463	449	14
D	480	482	-2

Units = mm

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

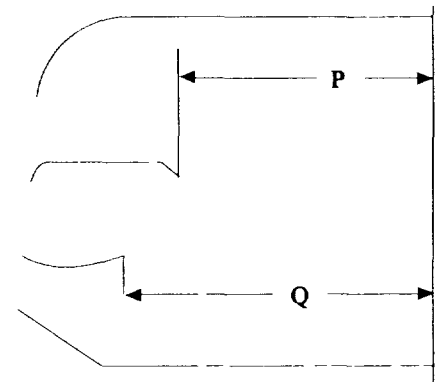
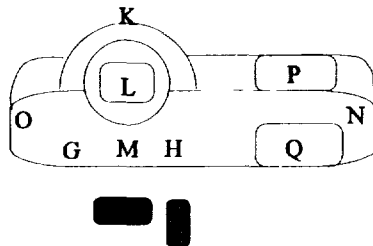


DRIVER'S SIDE



TOP VIEW

MEASUREMENTS
FROM C-PILLAR
BELT ANCHORAGE



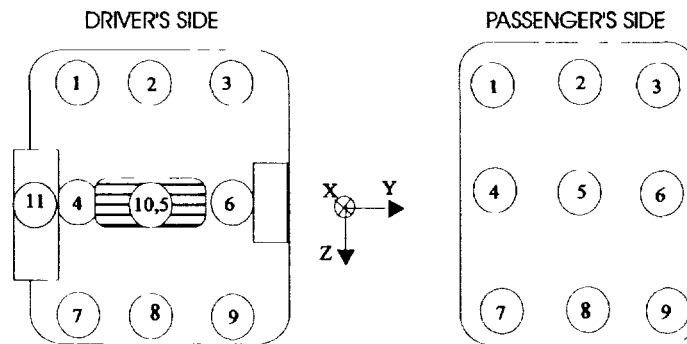
PASSENGER'S SIDE

Measurement	Pre-Test	Post-Test	Difference
G*	1877	1802	75
H*	1868	1809	59
I	438	426	12
J	613	697	-84
K	1829	1767	62
L	1640	1605	35
M	1848	1777	71
N	1835	1833	2
O	1829	1745	84
P = K (PASS)	1905	1891	14
Q = M (PASS)	1935	1917	18

* IHS measurement locations, 15 cm left and right of steering wheel center 45 cm from floor

Units = mm

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



Driver Side Toe-pan Measurements

Toe-pan Location	X Deformation (mm)			Y Deformation (mm)			Z Deformation (mm)		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
1	3449	3240	-209	-468	-442	26	-459	-511	-52
2	3465	3237	-228	-320	-312	8	-464	-473	-9
3	3433	3303	-130	-155	-182	-27	-455	-494	-39
4*	3386	3237	-149	-477	-451	26	-330	-360	-30
5*^	3380	3193	-187	-323	-302	21	-319	-370	-51
6*	3347	3224	-123	-162	-172	-10	-330	-376	-46
7	3259	3143	-116	-471	-456	15	-237	-241	-4
8	3250	3129	-121	-319	-314	5	-235	-239	-4
9	3248	3135	-113	-182	-173	9	-236	-233	3
10	3256	3140	-116	-324	-317	7	-417	-457	-40
11*	3311	3189	-122	-563	-553	10	-334	-348	-14

Passenger Side Toe-pan Measurements

Toe-pan Location	X Deformation (mm)			Y Deformation (mm)			Z Deformation (mm)		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
1	3444	3378	-66	222	209	-13	-397	-415	-18
2	3432	3412	-20	369	363	-6	-402	-411	-9
3	3377	3372	-5	539	529	-10	-418	-430	-12
4	3332	3300	-32	229	237	8	-289	-308	-19
5	3337	3330	-7	379	387	8	-293	-301	-8
6	3340	3350	10	538	534	-4	-294	-307	-13
7	3195	3209	14	234	243	9	-201	-205	-4
8	3192	3211	19	377	394	17	-207	-194	13
9	3206	3212	6	531	549	18	-205	-191	14

Reference (SAE) X = Rear Bumper (pos forward), Y = Vehicle Centerline (pos right), Z = Ground (pos down)

* IIHS measurement locations

*^ IIHS measurement located directly behind 10 (brake pedal center) on the vehicle floorpan in same vertical plane

DATA SHEET NO 14 VEHICLE MEASUREMENTS (cont.)
INSURANCE INSTITUTE MEASUREMENT LOCATION AND FLOOR PAN DEFORMATION DATA

IIHS Measurement Location Data

Meas Loc*	X Measurement (mm)			Y Measurement (mm)			Z Measurement (mm)		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
1	2761	2728	-33	-358	-335	23	-840	-913	-73
2	2999	2924	-75	-498	-486	12	-677	-690	-13
3	2990	2932	-58	-204	-196	8	-682	-692	-10
4	3256	3140	-116	-324	-317	7	-417	-457	-40
5	3386	3237	-149	-477	-451	26	-330	-360	-30
6	3380	3193	-187	-323	-302	21	-319	-370	-51
7	3347	3224	-123	-162	-172	-10	-330	-376	-46
8	3311	3189	-122	-563	-553	10	-334	-348	-14
17	3189	3109	-80	-752	-748	4	-899	-912	-13
18	2166	2152	-14	-761	-763	-2	-903	-890	13

Floor Pan Deformation Measurement Data

Meas Loc**	X Measurement (mm)			Y Measurement (mm)			Z Measurement (mm)		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
1	3170	3138	-32	-484	-493	-9	-198	-191	7
2	3170	3118	-52	-326	-353	-27	-204	-201	3
3	3168	3116	-52	-186	-172	14	-195	-192	3
4	3045	3030	-15	-474	-504	-30	-206	-156	50
5	3046	3022	-24	-334	-353	-19	-199	-185	14
6	3051	3040	-11	-187	-202	-15	-198	-219	-21
7	2919	2899	-20	-479	-507	-28	-203	-155	48
8	2921	2901	-20	-331	-358	-27	-203	-168	35
9	2922	2897	-25	-194	-215	-21	-225	-252	-27

Reference (SAE) X = Rear Bumper (pos forward), Y = Vehicle Centerline (pos right), Z = Ground (pos down)

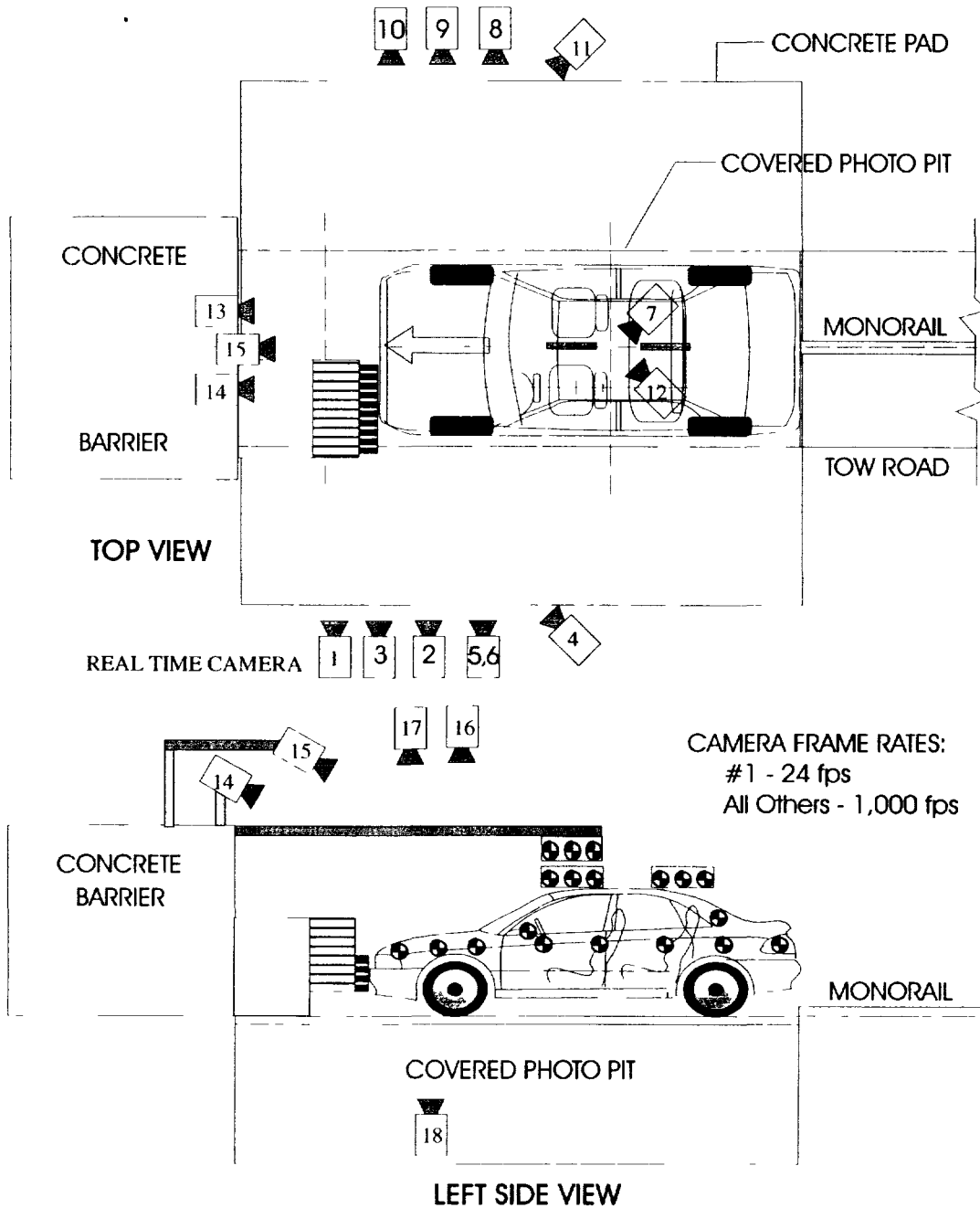
Measurement Location Descriptions*

- 1 Steering Column - Geometric center of the steering wheel on airbag door
- 2 Lower Instrument Panel Left - Taken 45 cm above floorpan and 15 cm to the left of the steering wheel center
- 3 Lower Instrument Panel Right - Taken 45 cm above floorpan and 15 cm to the right of the steering wheel center
- 4 Brake Pedal - Geometric center of the brake pedal
- 5 Toepan Left - Taken 15 cm to the left of the brake pedal center on the same vertical plane on the vehicle toepan
- 6 Toepan Center - Taken directly behind the brake pedal center on the same vertical plane on the vehicle toepan
- 7 Toepan Right - Taken 15 cm to the right of the brake pedal center on the same vertical plane on the vehicle toepan
- 8 Left Footrest - Taken 25 cm to the left of the brake pedal center on the same vertical plane on the vehicle toepan
- 17 A-pillar - Taken on the vehicle exterior at the same vertical coordinate as the base on the left front window
- 18 B-pillar - Taken on the vehicle exterior at the same vertical coordinate as the lower A-pillar mark

** There is an equal spaced 3 x 3 floor pan matrix. Position 1 is floor pan left side forwardmost position, Position 9 is located on the right side rearmost position of the 3 x 3 grid

DATA SHEET NO 15 HIGH-SPEED CAMERA LOCATIONS

NOTE Camera information shown in DATA SHEET NO 15



DATA SHEET NO 15 HIGH-SPEED CAMERA LOCATIONS (cont.)

NHTSA Test No RY5210 Vehicle 2000 Nissan Altima 4-Door Sedan

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	7155	1478	1075	-3	6707	13	1010
3	Left Side View	7550	868	1085	-2	7102	25	1005
4	Driver and Interior View	7482	2544	1955	-9		35	1050
5	Steering Column (Bottom)	7970	1702	1160	-4	7522	25	1010
6	Steering Column (Top)	7970	1702	1780	-9	7522	25	1005
7	Interior Driver View		-	-	-	-		-
8	Overall Right Side View	7820	1892	1042	2	6528	12.5	1005
9	Right Side View	9309	922	1096	3	8861	25	1000
10	Right Passenger View	9106	1308	1314	4	8658	35	1005
11	Passenger and Interior View	8185	2608	1965	8	-	35	975
12	Interior Passenger View	-	-	-				
13	Passenger Front View	590	1517	2040	-28	-	13	1000
14	Driver Front View	578	1517	2040	28		13	1000
15	Windshield View	0	2042	3374	44	-	13	1000
16	Overhead Overall View	0	445	4880	90		12.5	1000
17	Overhead Close Up View	0	200	4880	-90	-	25	1000
18	Pit View of Engine	0	0	-3048	90		13	1000

*X = film plane to monorail centerline

** = referenced to horizontal plane

Y = film plane to impact location

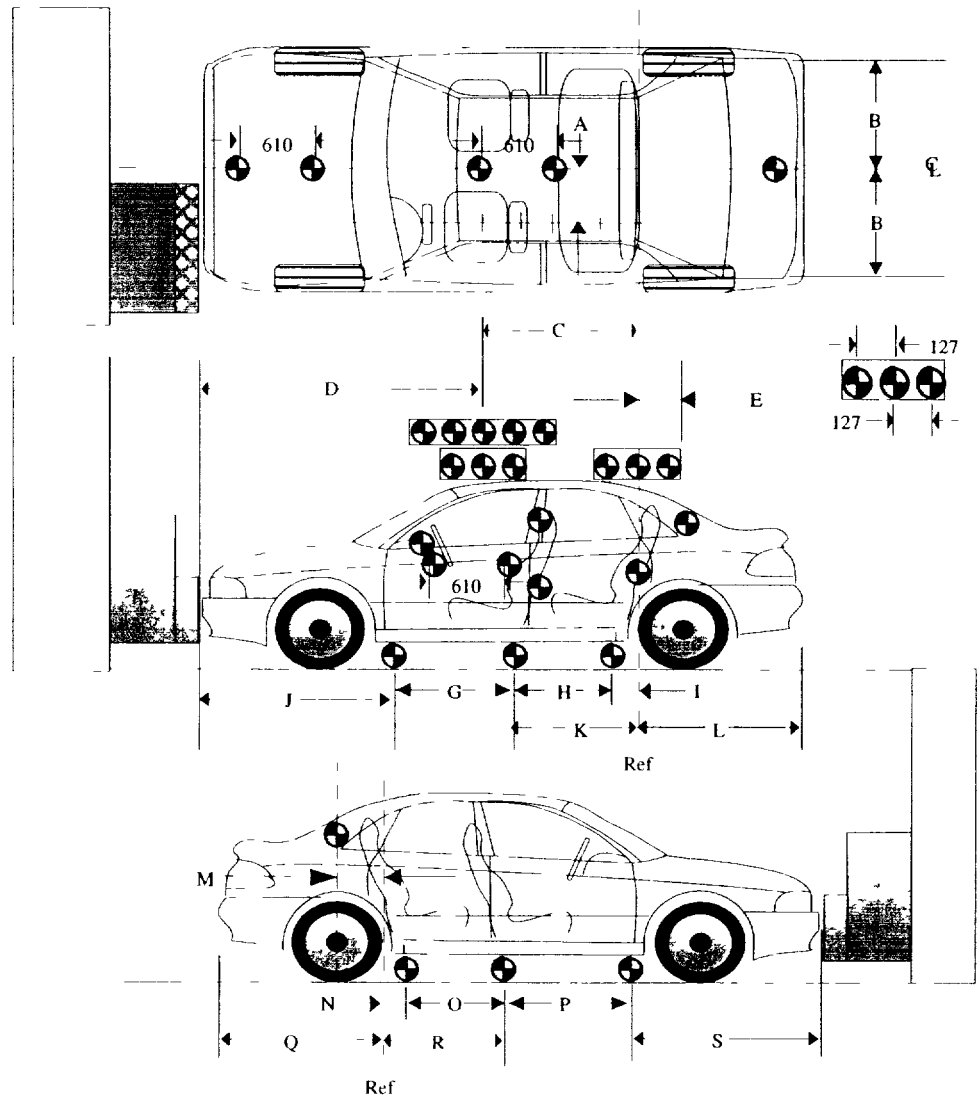
N T indicates No Timing

Z = film plane to ground

DATA SHEET NO 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

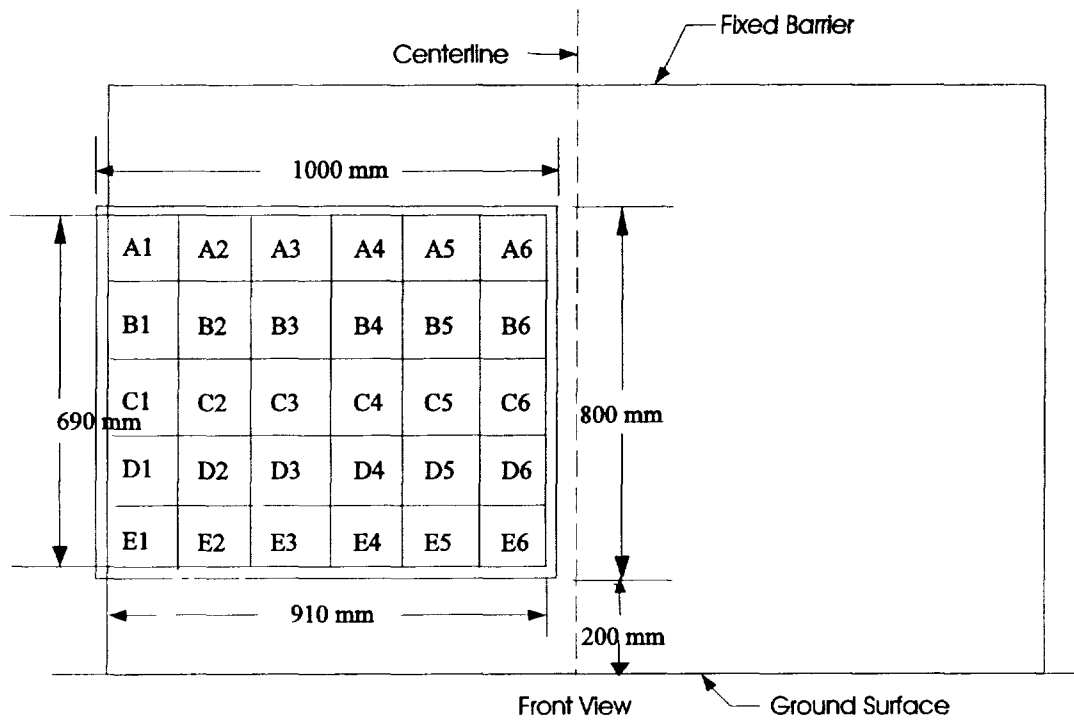
(Dimensions in millimeters)

A	372
B	656
C	1216
D	2046
E	331
F	1493
G	897
H	875
I	90
J	1416
K	965
L	1434
M	332
N	85
O	880
P	896
Q	1434
R	965
S	1401



**DATA SHEET NO 17 LOAD CELL LOCATIONS RELATIVE TO FIXED BARRIER AND
DEFORMABLE BARRIER FACE**

30 Load Cells
5 Rows
6 Columns



Load cell width	146 mm
Load cell height	133 mm
Vertical gap between load cells	6 mm
Horizontal gap between load cells	6 mm
Vertical filler block width	55 mm

The load cell barrier was not utilized for this test.

DATA SHEET NO 18 POST TEST AIR BAG DATA

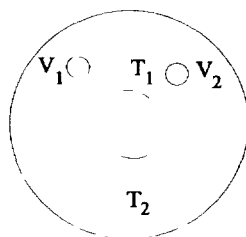
NHTSA No RY5210, Test Date May 15, 2001, Technician Lawrence Q Valvo

Vehicle Model Year/Make/Model 2000 Nissan Altima

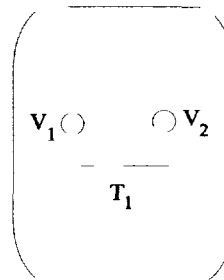
A	No. of vent holes	<u>2</u>	-Driver	<u>2</u>	-Passenger
B	Size of vent holes (mm ²)	<u>531</u>	-Driver	<u>707</u>	-Passenger
C	Total vent area (mm ²)	<u>1062</u>	-Driver	<u>1414</u>	Passenger
D	Deflated air bag length and width dimensions or if round diameter (mm)				
	Driver	<u>600</u>	-Length,	<u>600</u>	-Width, <u>300</u> -Depth
	Passenger	<u>600</u>	-Height,	<u>380</u>	-Width, <u>500</u> -Depth
E	Is the air bag tethered?				
	Driver	<u>X</u>	-Yes	<u>-</u>	-No If yes, record length of tether- <u>220</u>
	Passenger	<u>X</u>	-Yes,	<u>-</u>	-No If yes, record length of tether- <u>550</u>

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

Driver



Passenger



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

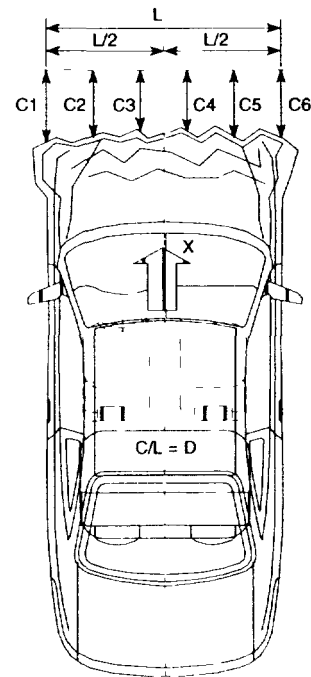
Driver	<u>Air bag Nissan ZQ 98570-89912-C1 0004758 13 07 99</u>
	<u>Generator G12 *KM9E0998052590*</u>
Passenger	<u>Air bag P5204970-00A TXM992070318</u>
	<u>Generator NFF K84 4P AIW NP800998040257</u>

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

Vehicle Make/Model/Body Style Nissan Altima 4-Door Sedan
 NHTSA Test No RY5210 VIN 1N4DL01D5YC103456
 Model Year 2000 Build Date 8/99 Test Date May 15, 2001
 Vehicle Size Category Compact Test Weight 1546.5 kg
 Vehicle Wheelbase 2620 mm, Front Overhang 974 mm, Overall Width 1750 mm
 Collision Deformation Classification (CDC) Code 12FDEW3

Crush Depth Dimensions,

	PRE	POST	DIFF	
C1 =	4499	3844	-655	mm
C2 =	4638	4067	-571	mm
C3 =	4706	4212	-494	mm
C4 =	4704	4378	-326	mm
C5 =	4641	4557	-84	mm
C6 =	4502	4647	145	mm



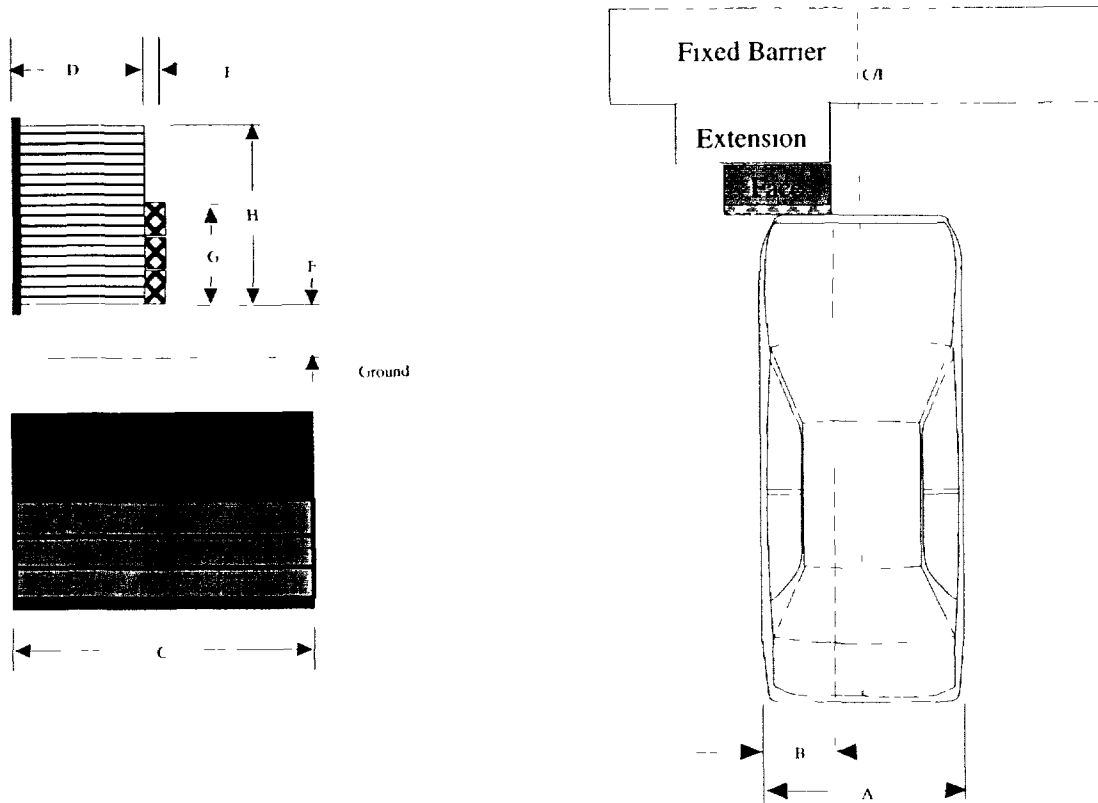
Midpoint of Damage $D = \frac{\text{Vehicle Centerline}}{(\text{Longitudinal})}$

Length of Damaged Region

L1= 1101 mm
 L2= 551 mm
 L3= 367 mm

DATA SHEET NO. 20 OFFSET BARRIER AND VEHICLE ORIENTATION

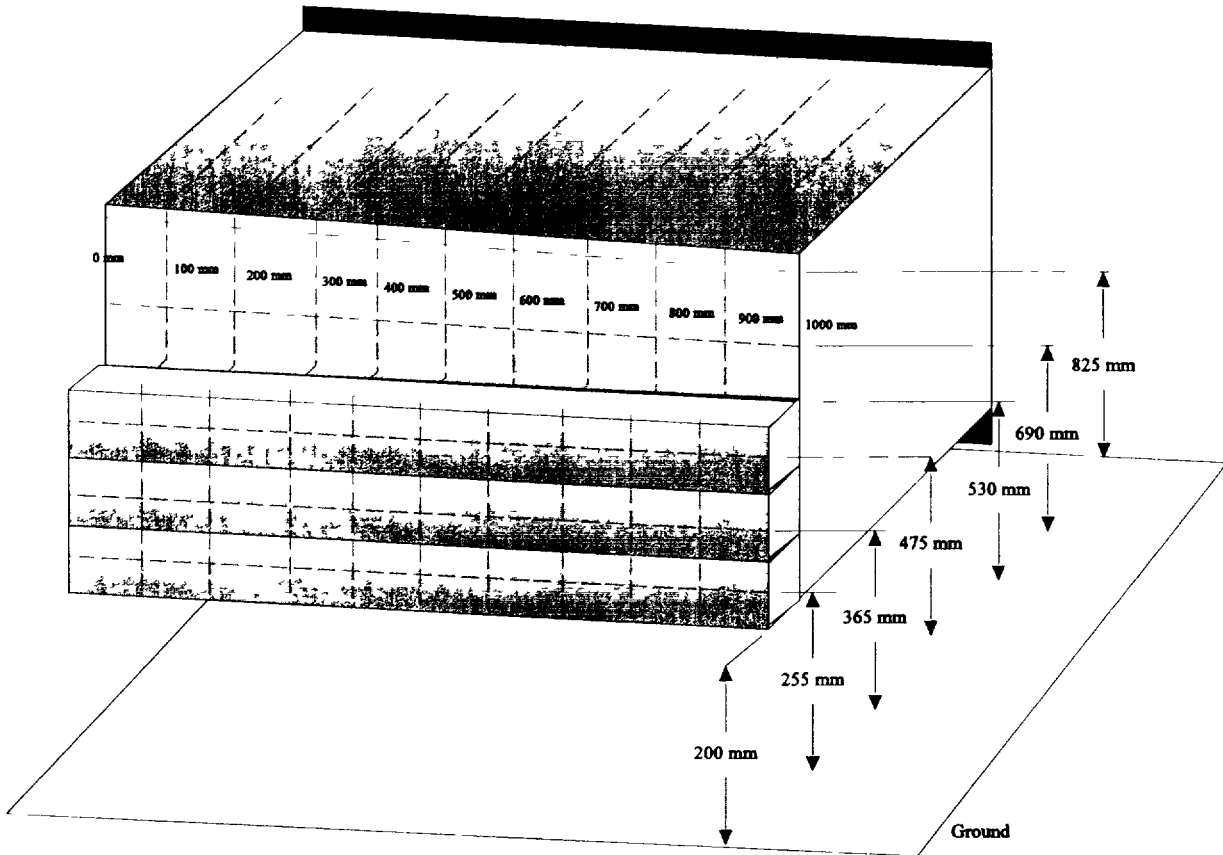
NHTSA Test No. RY5210 Vehicle 2000 Nissan Altima 4-Door Sedan
 Barrier Manufacturer and Serial Number Plascore 08B0600-1A, 199C0300



A	Total Vehicle Width	1750	mm
B	40% Overlap Distance	700	mm
C	Deformable Face Width	1000	mm
D	Single Stage Honeycomb Depth	450	mm
E	Bumper Element Depth	90	mm
F	Lower Edge Height From Ground	200	mm
G*	Bumper Element Height	330	mm
H	Deformable Barrier Honeycomb Height	650	mm

* The bumper element consists of three 110 mm height blocks of 1 723 MPa honeycomb

Offset Barrier Measurement Locations



DATA SHEET NO. 21 OFFSET BARRIER DEFORMATION (continued)

EXTERIOR STATIC CRUSH FOR BARRIER FACE
(Grid as looking at barrier from front)

Vehicle 2000 Nissan Altima

NHTSA No RY5210

NOTE All dimensions are in millimeters with a tolerance of ± 3 mm

LEVEL	HEIGHT AT CL (mm)*		DISTANCE RIGHT OF CENTER (mm)						DISTANCE LEFT OF CENTER (mm)				
			500	400	300	200	100		100	200	300	400	500
LEVEL 6 TOP STACK	825	PRE	546	546	546	546	546		546	546	546	546	546
		POST	533	543	570	597	578		657	664	696	748	811
		CRUSH	-13	3	24	51	32		111	118	150	202	265
LEVEL 5 MID STACK	687	PRE	546	546	546	546	546		546	546	546	546	546
		POST	538	533	557	566	613		684	734	783	823	876
		CRUSH	8	13	11	20	67		138	188	237	277	330
LEVEL 4 TOP BUMPER	530	PRE	546	546	546	546	546		546	546	546	546	546
		POST	561	535	578	620	670		799	851	899	919	932
		CRUSH	15	11	32	74	124		253	305	353	373	386
LEVEL 3 BUMPER TOP	475	PRE	456	456	456	456	456		456	456	456	456	456
		POST	351	433	497	564	628		769	833	885	920	957
		CRUSH	105	23	41	108	172		313	377	429	464	501
LEVEL 2 BUMPER MID	365	PRE	456	456	456	456	456		456	456	456	456	456
		POST	429	475	551	615	665		778	840	890	937	978
		CRUSH	27	19	95	159	209		322	384	434	481	522
LEVEL 1 BUMPER LOW	255	PRE	456	456	456	456	456		456	456	456	456	456
		POST	429	481	537	590	648		767	820	850	884	932
		CRUSH	27	25	81	134	192		311	364	394	428	476

*Heights measured above ground level

APPENDIX A
PHOTOGRAPHS

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Figure A-1: PRE-TEST FRONT VIEW



Figure A-2: POST-TEST FRONT VIEW

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Figure A-3: PRE-TEST LEFT SIDE VIEW

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Figure A-4: POST-TEST LEFT SIDE VIEW

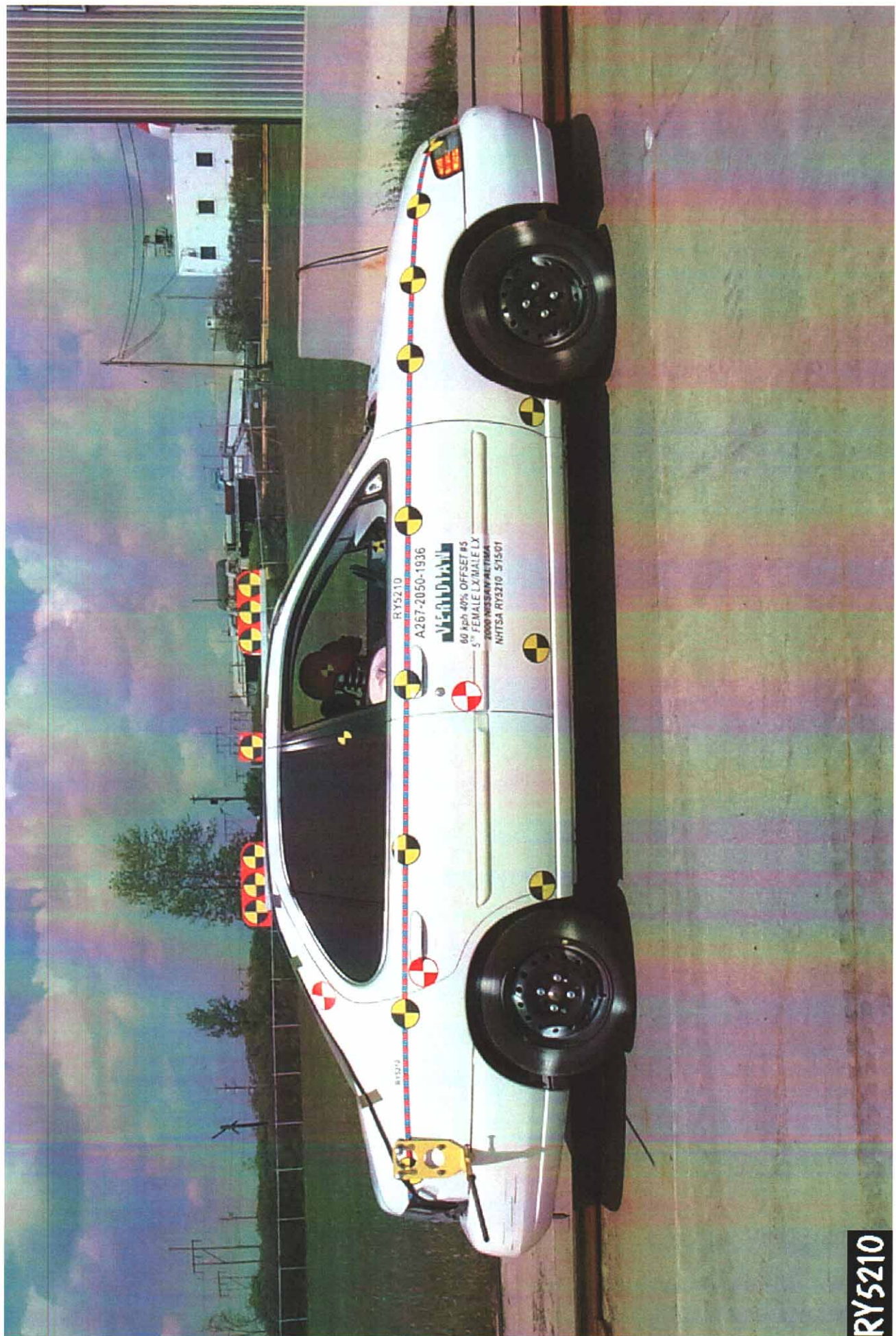
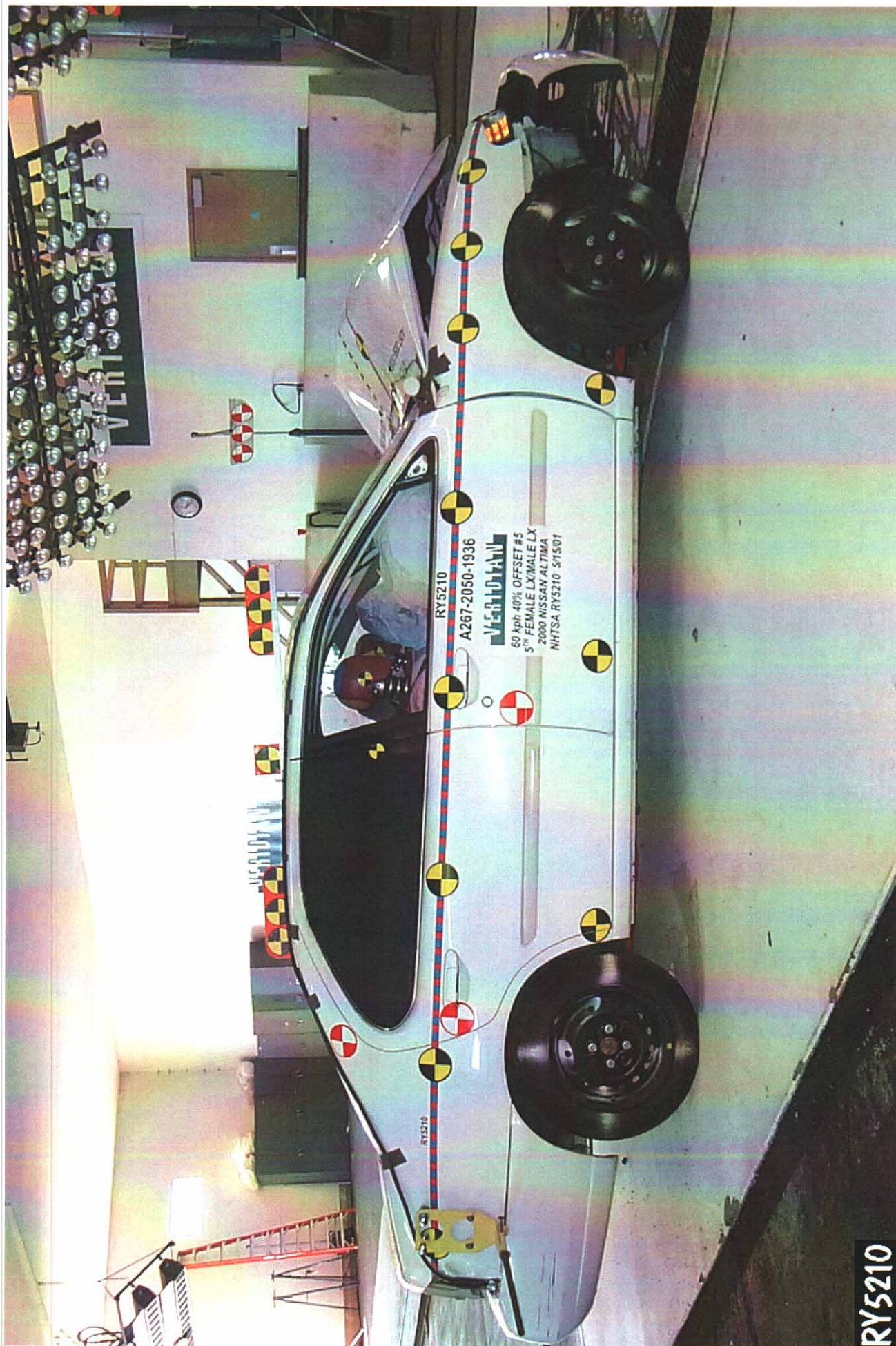


Figure A-5: PRE-TEST RIGHT SIDE VIEW



RY5210

Figure A-6: POST-TEST RIGHT SIDE VIEW

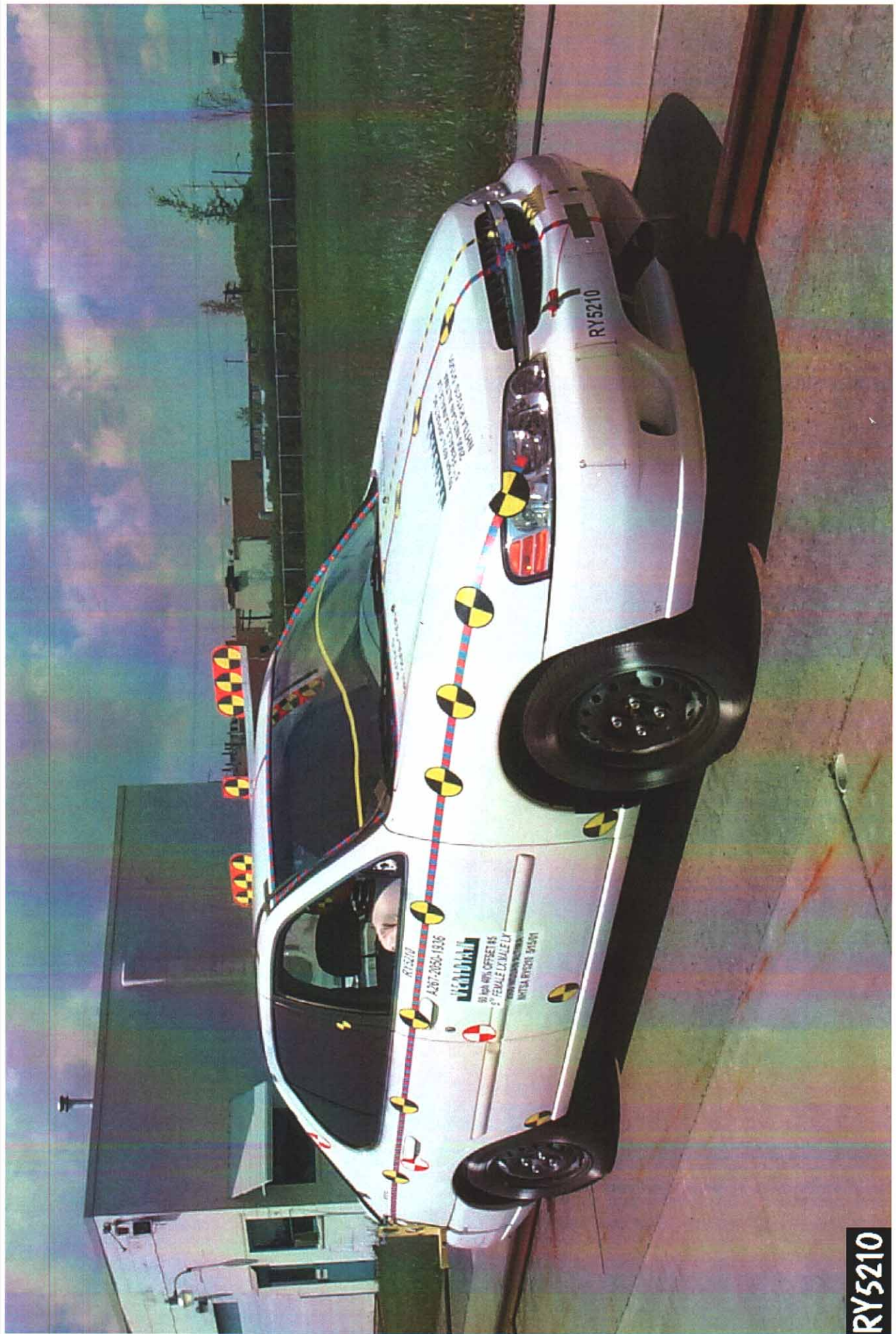


Figure A-7: PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

RY5210

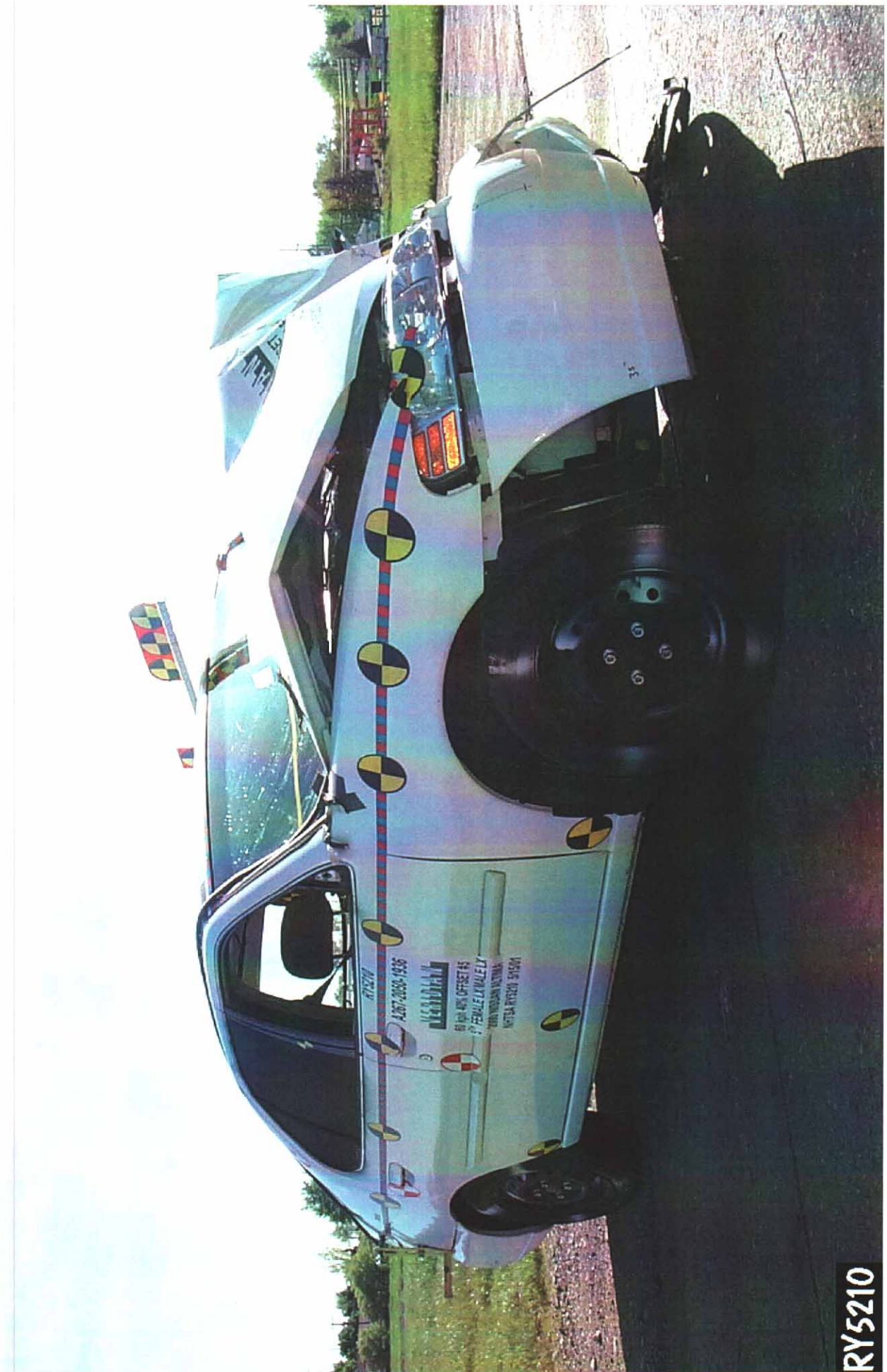


Figure A-8: POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-9: PRE-TEST LEFT REAR THREE-QUARTER VIEW

RY5210



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



Figure A-11: PRE-TEST WINDSHIELD VIEW



Figure A-12: POST-TEST WINDSHIELD VIEW

RY5210

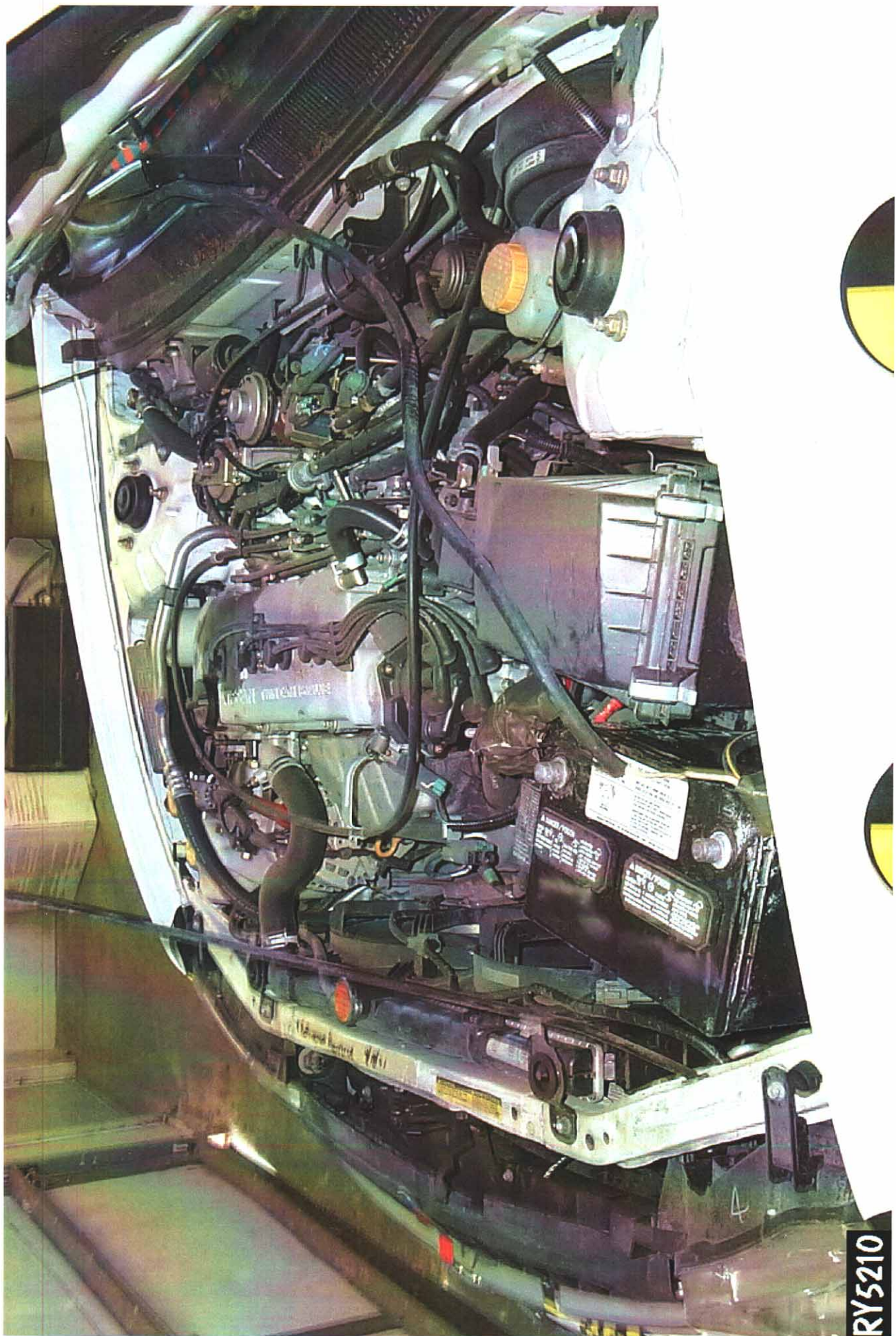


Figure A-13: PRE-TEST ENGINE COMPARTMENT VIEW

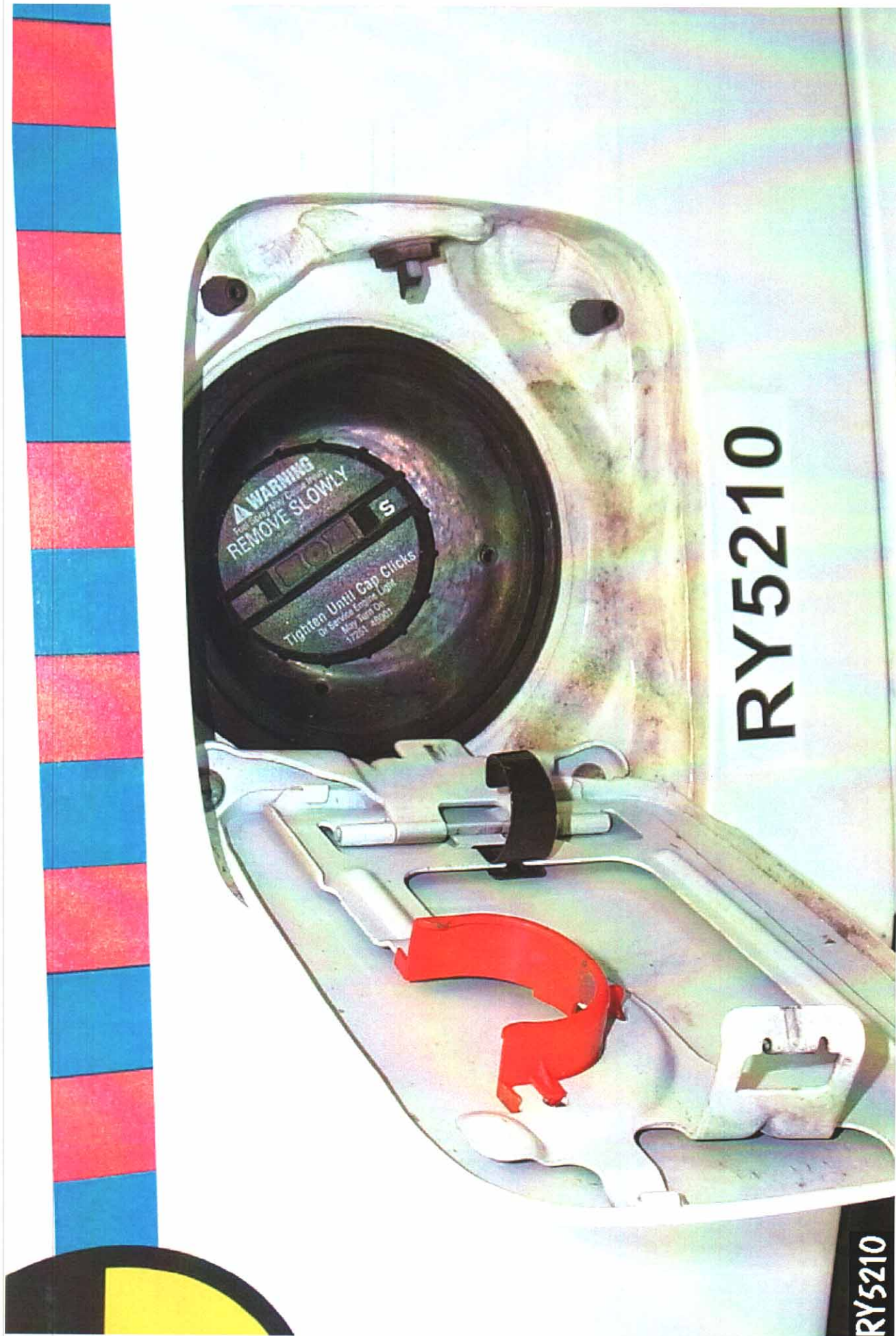


Figure A-14: FUEL CAP VIEW



Figure A-15: PRE-TEST FRONT UNDERBODY VIEW



Figure A-16: POST-TEST FRONT UNDERBODY VIEW

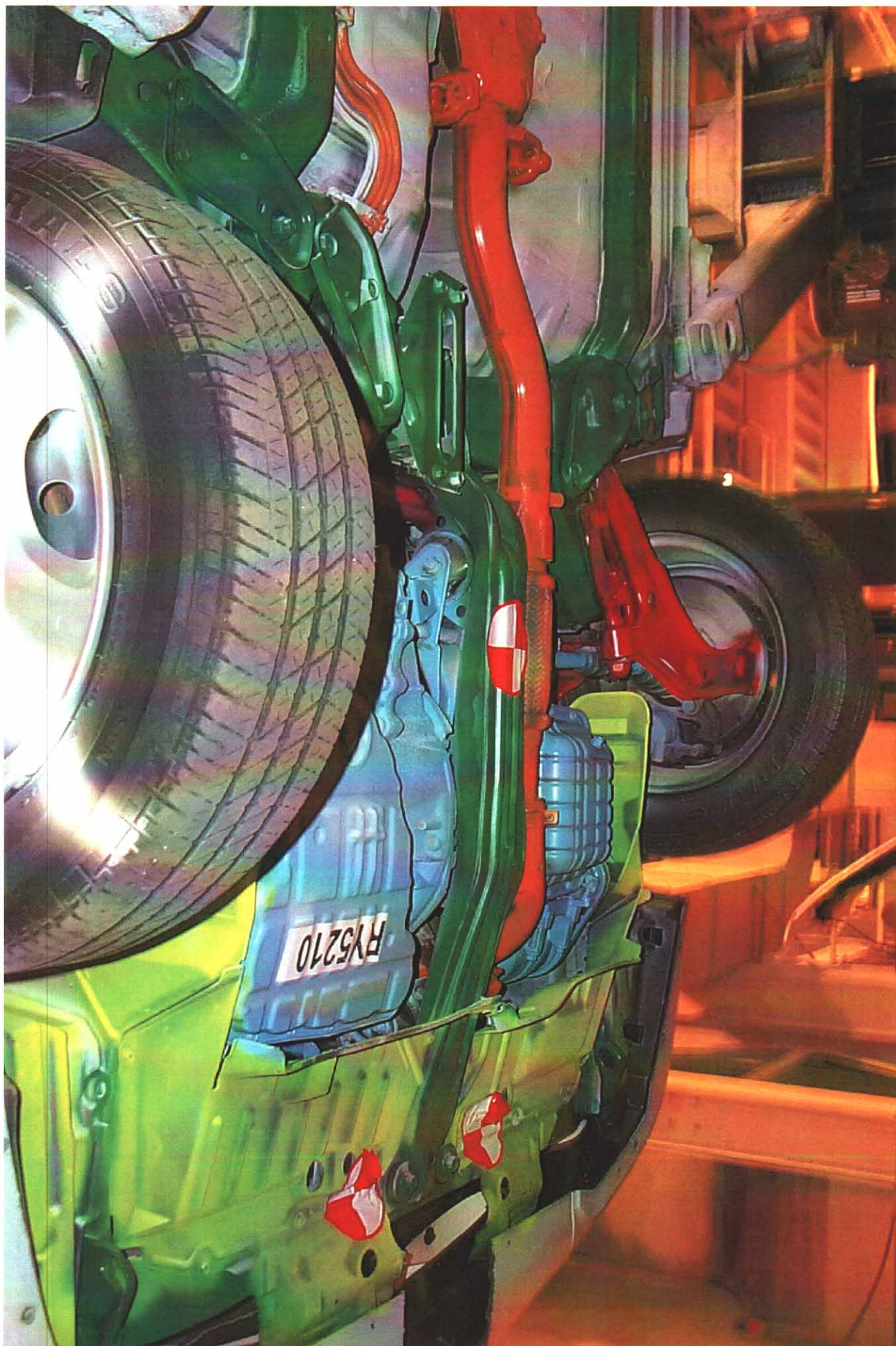


Figure A-17: PRE-TEST FRONT SIDE UNDERBODY VIEW



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

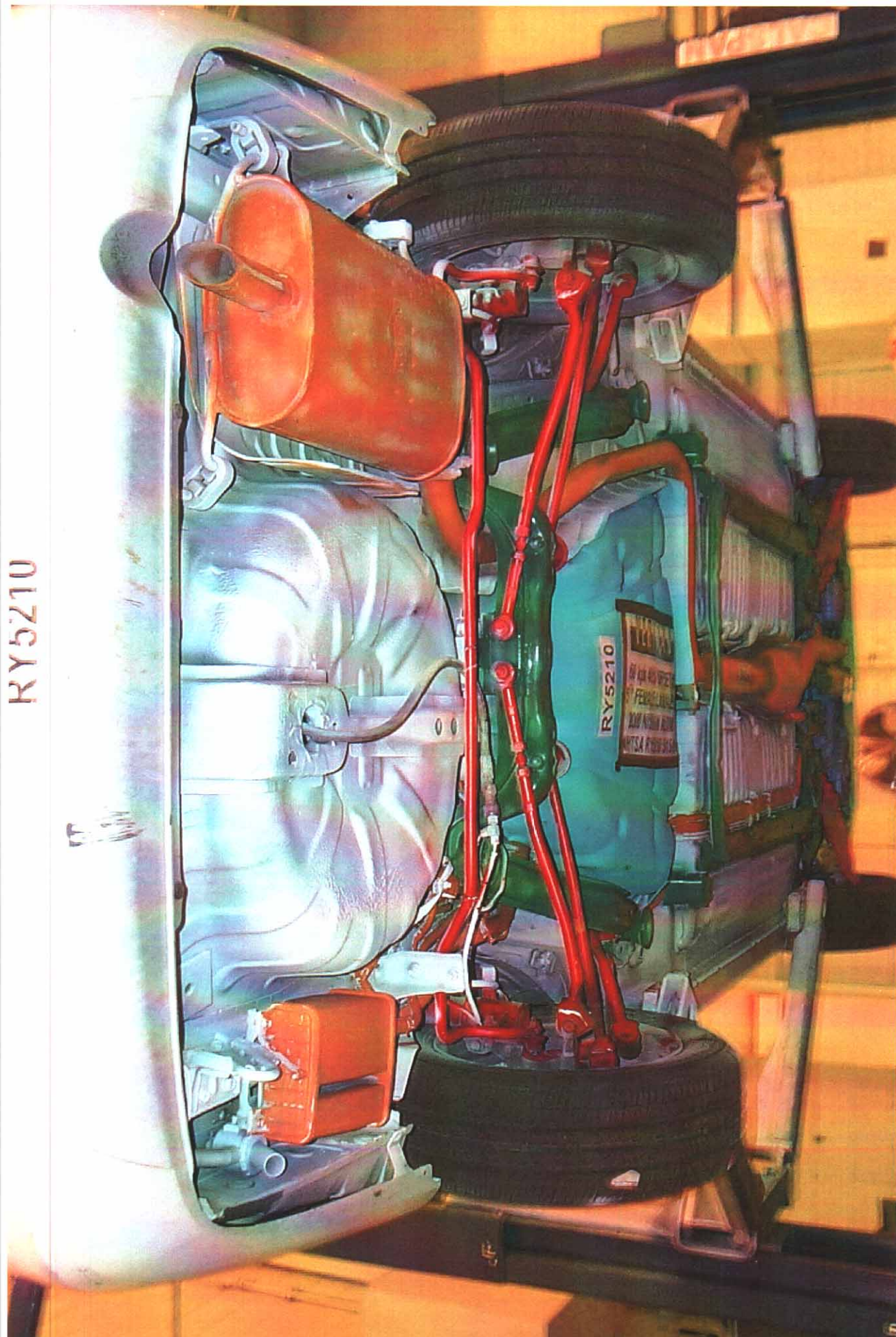


Figure A-19: PRE-TEST REAR UNDERBODY VIEW



Figure A-20: POST-TEST REAR UNDERBODY VIEW



Figure A-21: PRE-TEST DRIVER POSITION VIEW



Figure A-22: POST-TEST DRIVER POSITION VIEW

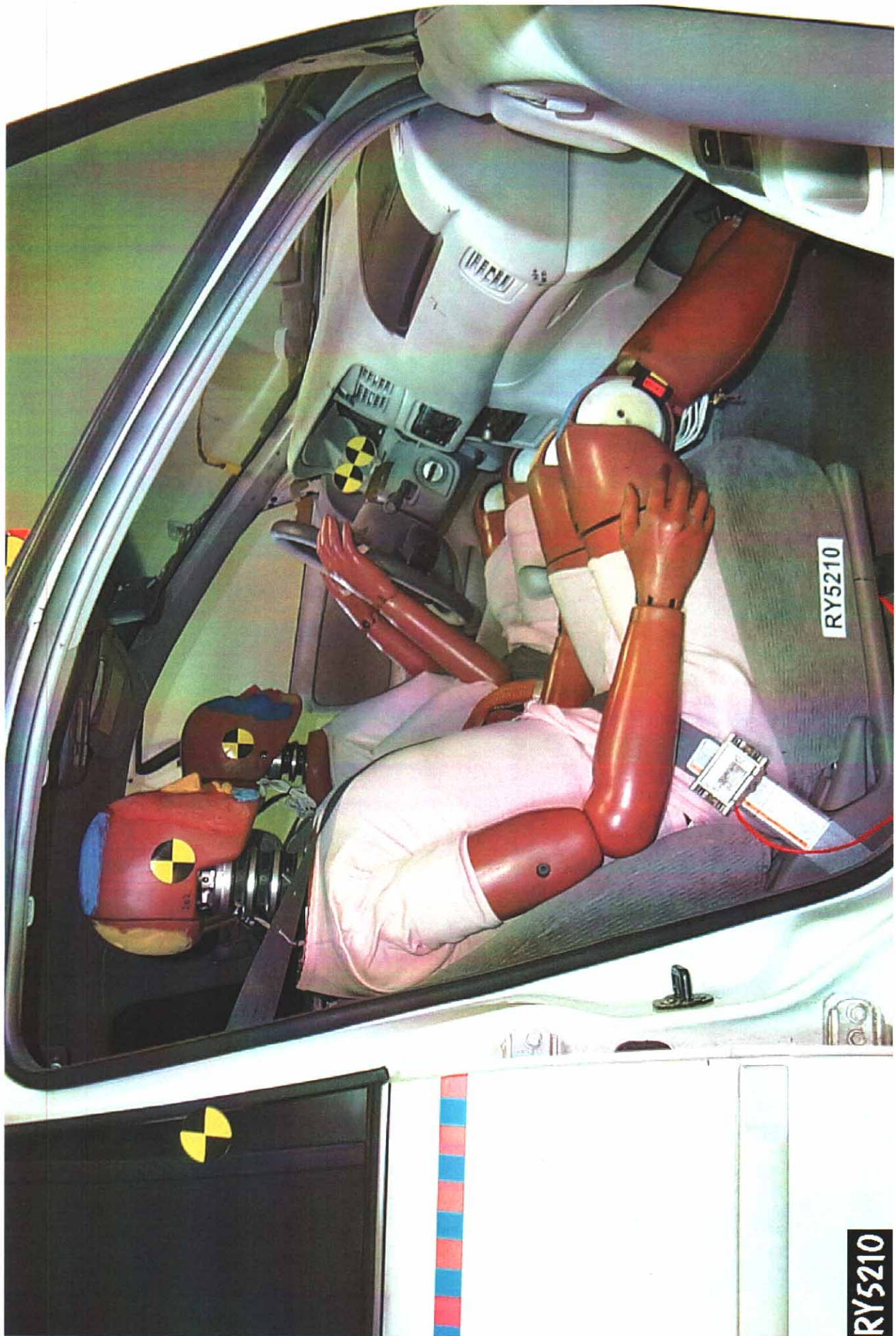


Figure A-23: PRE-TEST PASSENGER POSITION VIEW

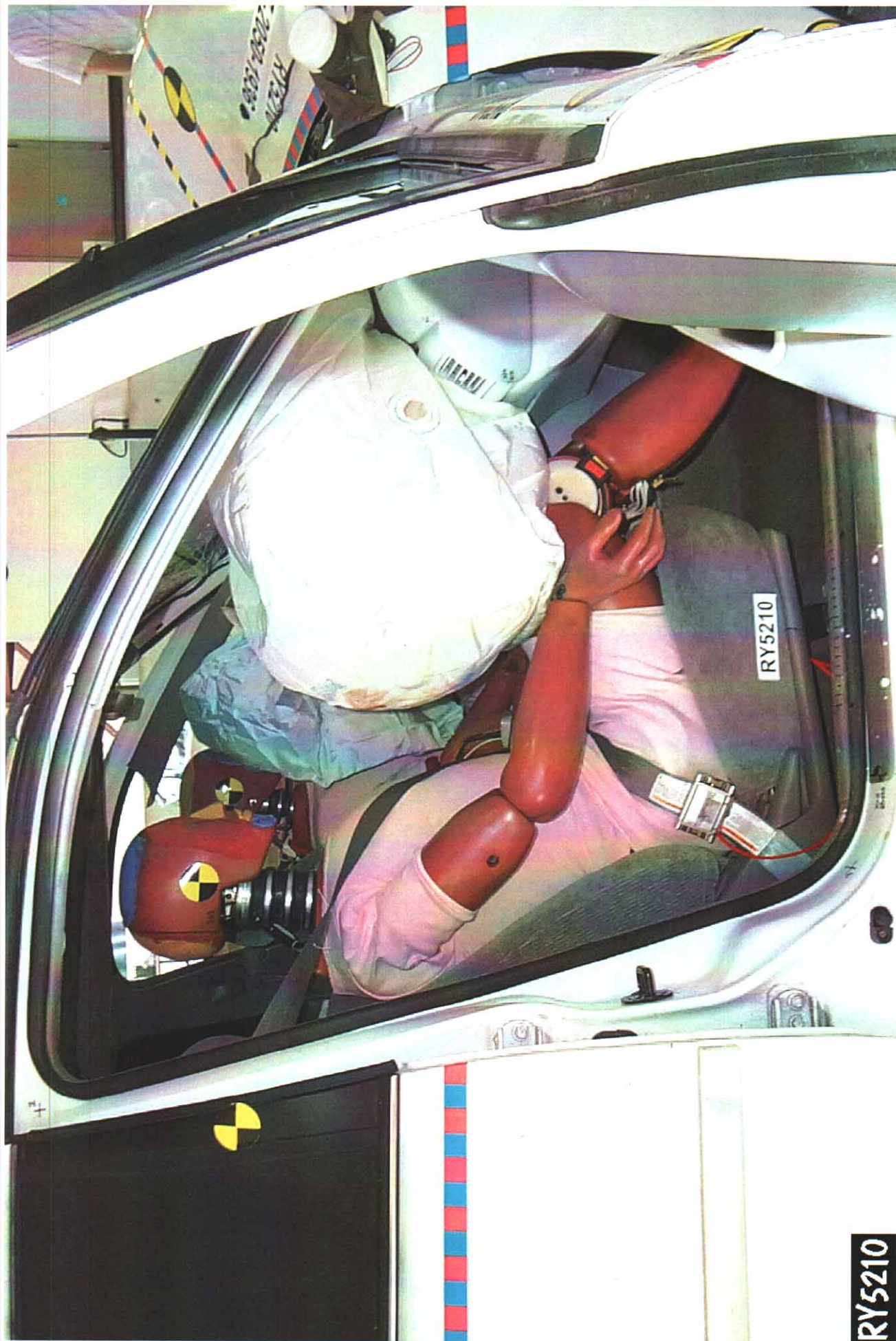


Figure A-24: POST-TEST PASSENGER POSITION VIEW

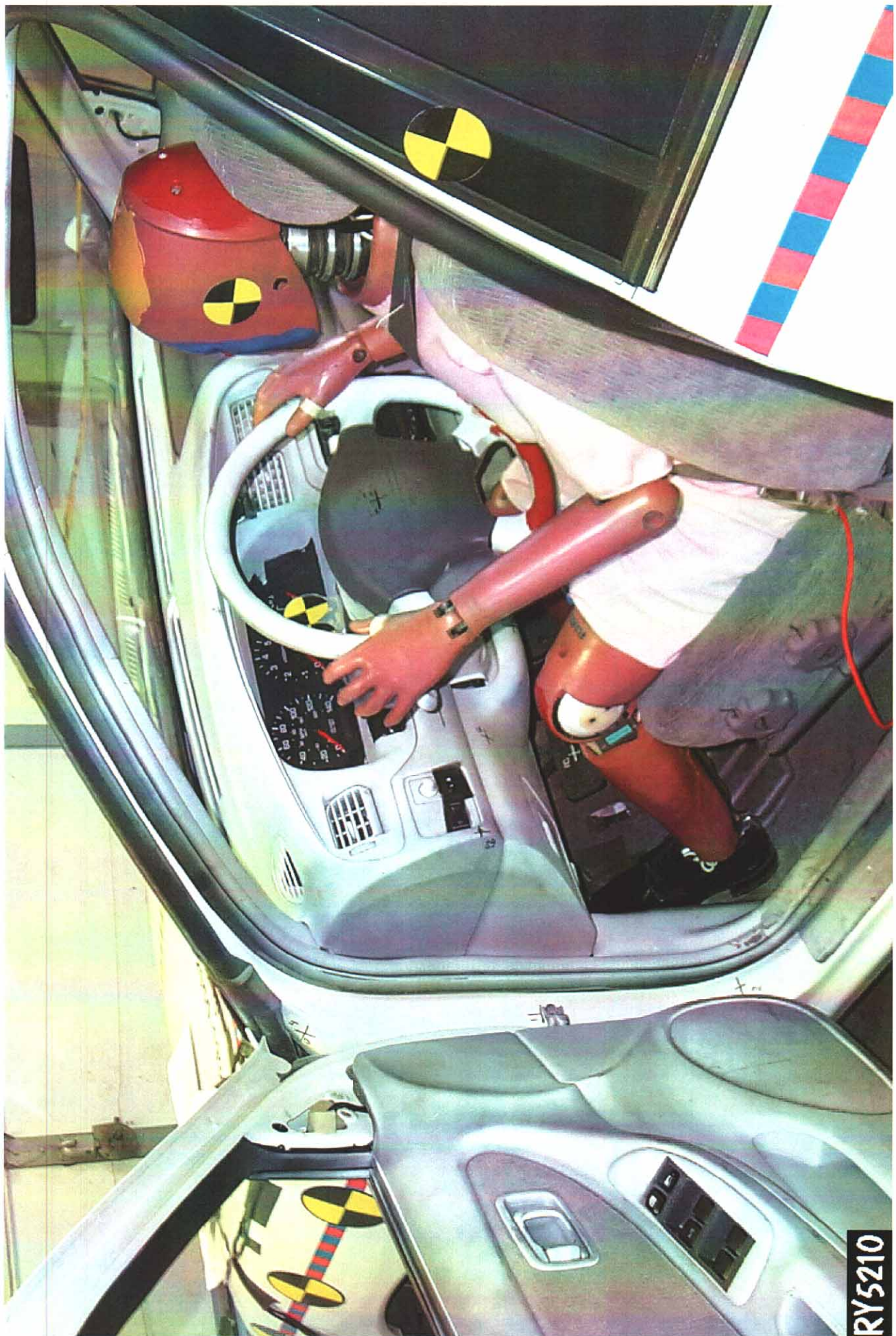


Figure A-25: PRE-TEST DRIVER AND INTERIOR VIEW

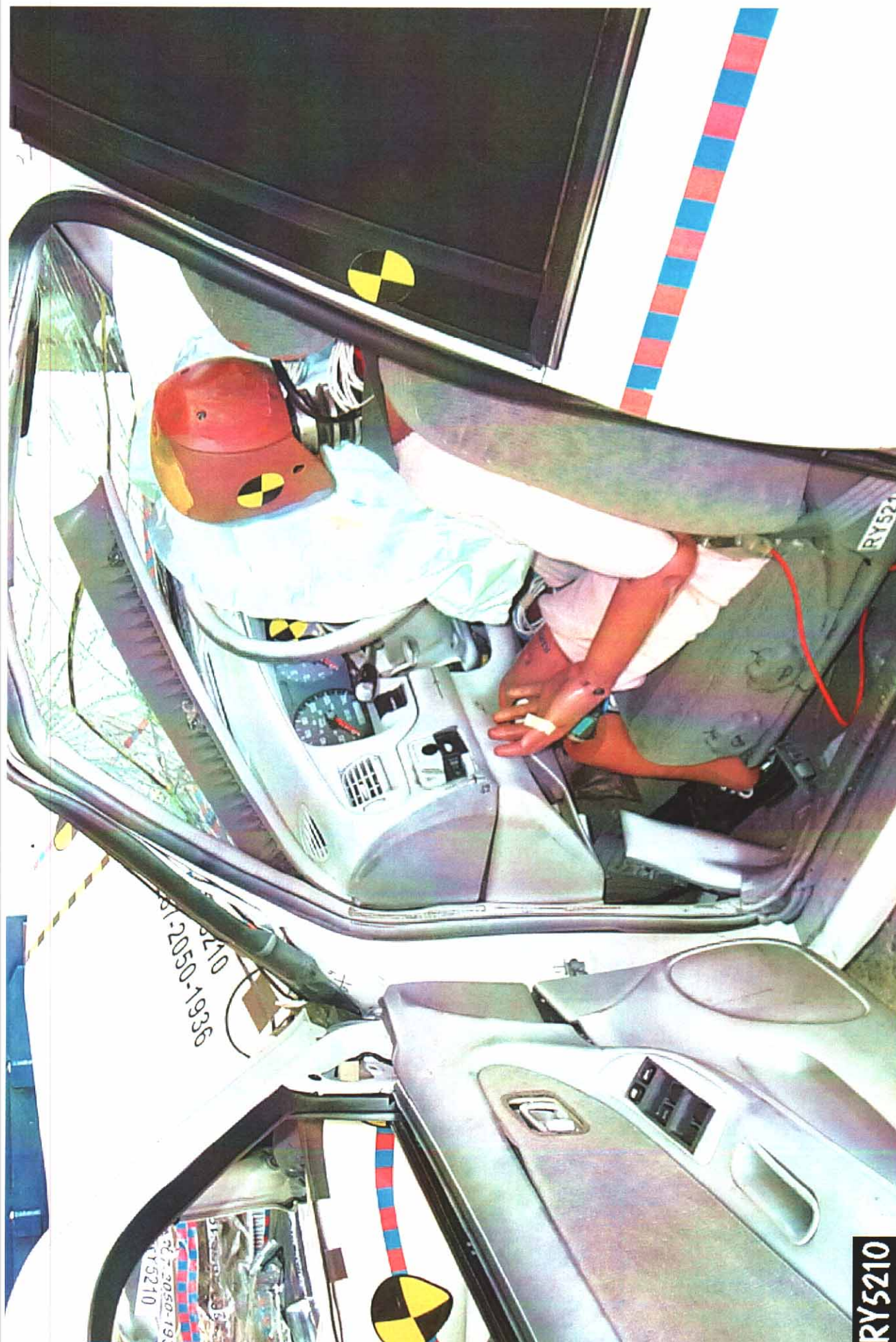


Figure A-26: POST-TEST DRIVER AND INTERIOR VIEW

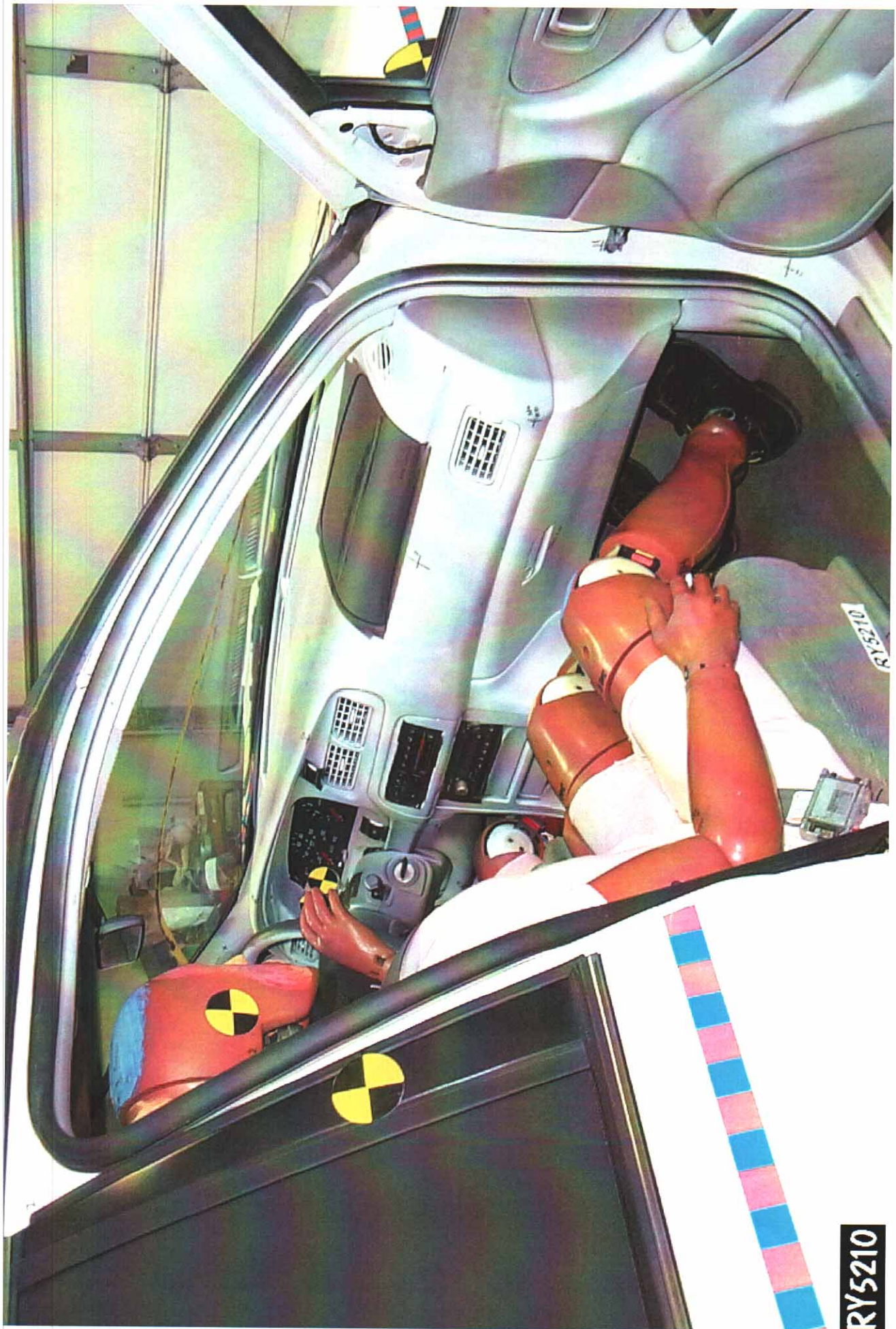


Figure A-27: PRE-TEST PASSENGER AND INTERIOR VIEW



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

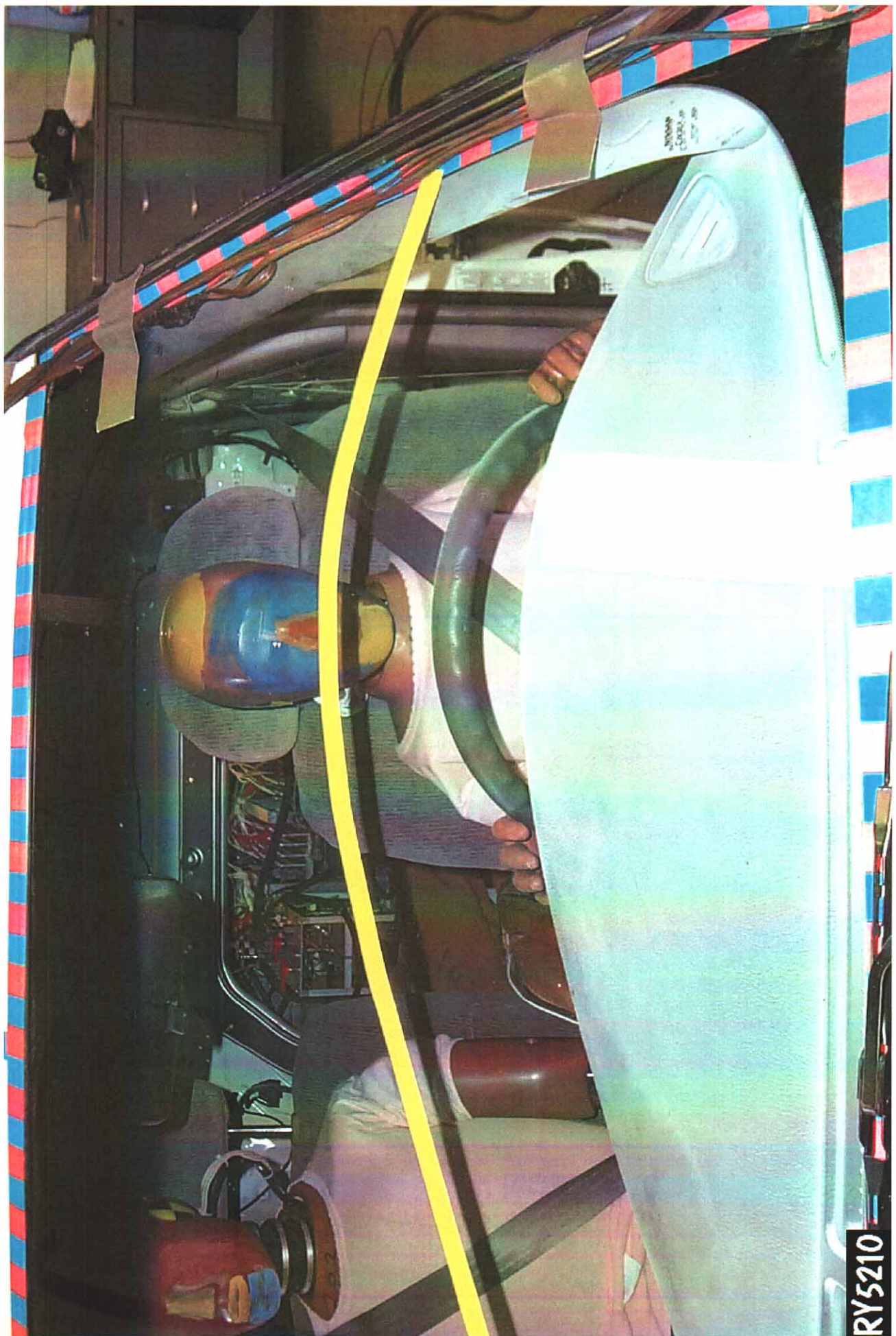


Figure A-29: PRE-TEST DRIVER HEAD LOCATION



Figure A-30: POST-TEST DRIVER HEAD LOCATION

RY5210



Figure A-31: PRE-TEST PASSENGER HEAD LOCATION



Figure A-32: POST-TEST PASSENGER HEAD LOCATION

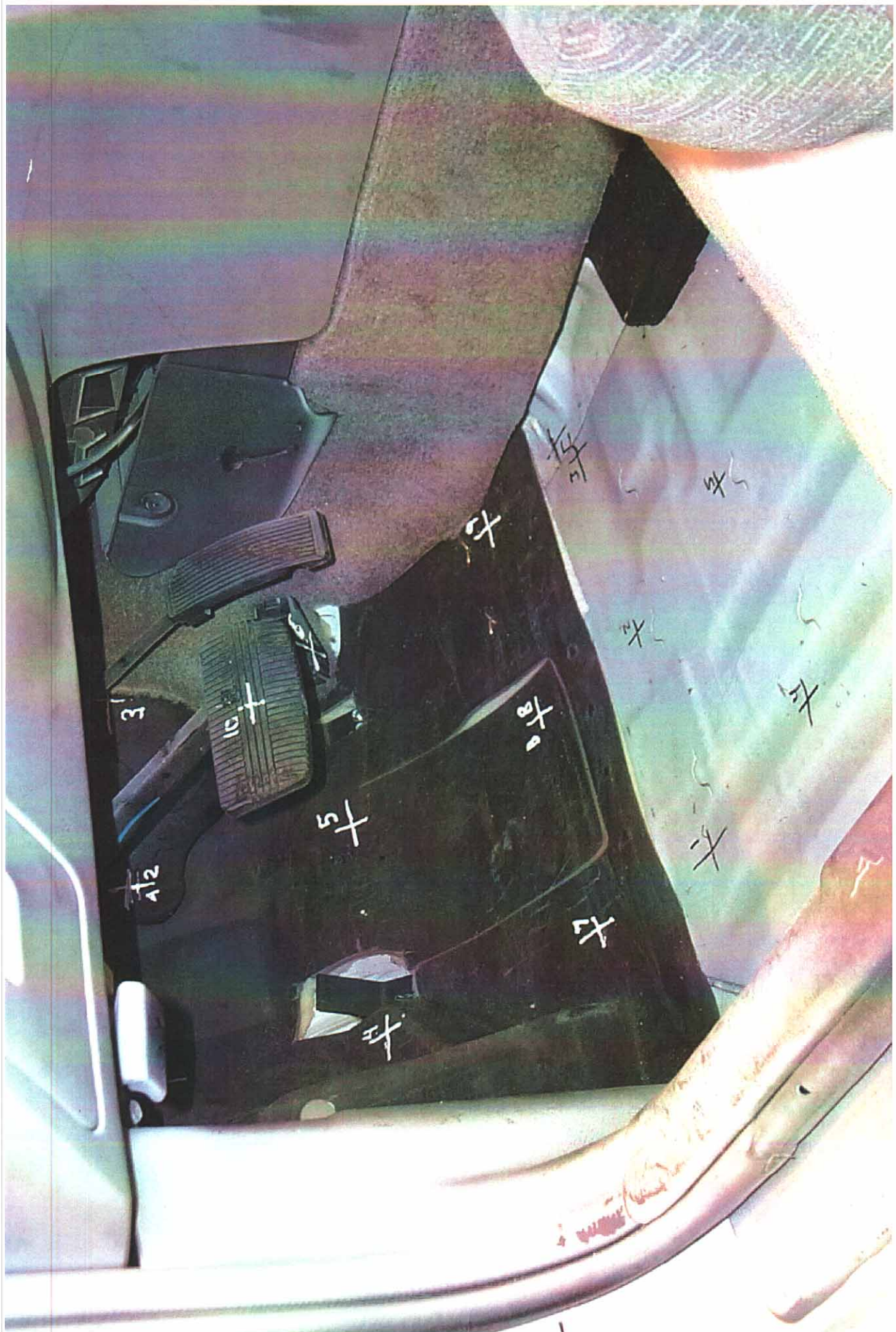


Figure A-33: PRE-TEST DRIVER FLOOR PAN VIEW



RY5210

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

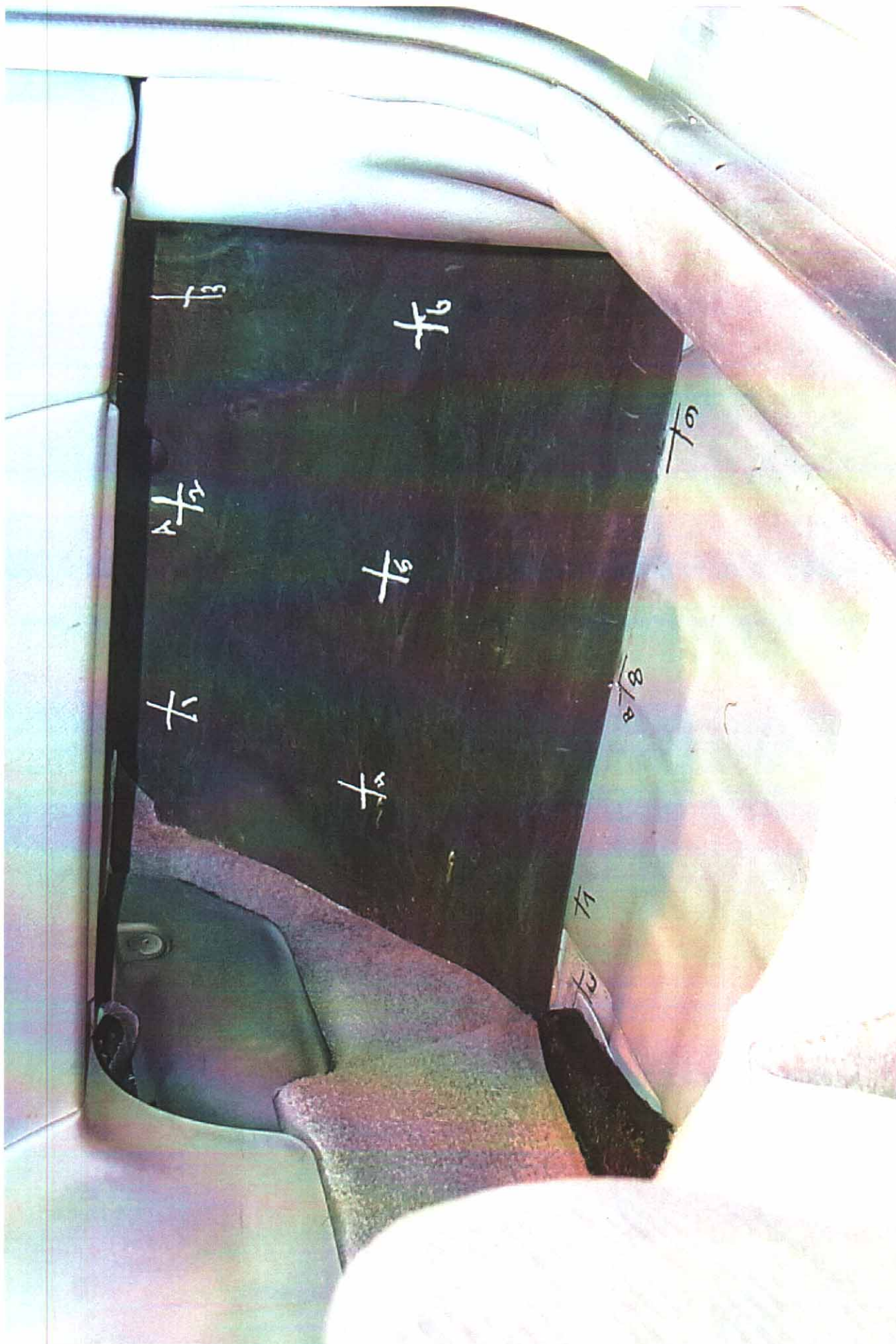


Figure A-35: PRE-TEST PASSENGER FLOOR PAN VIEW



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

RY5210

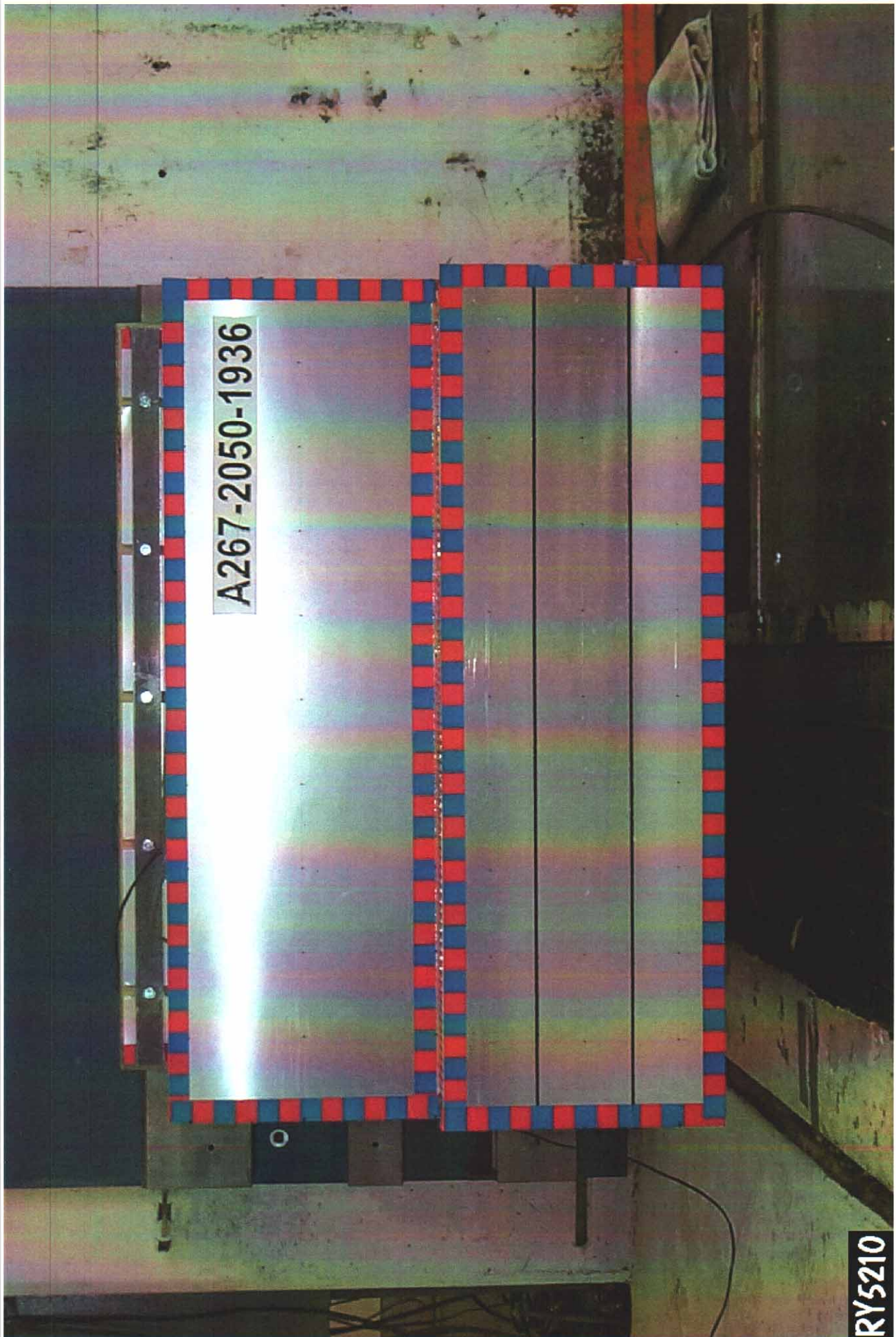


Figure A-37: PRE-TEST BARRIER FRONT VIEW



Figure A-38: POST-TEST BARRIER FRONT VIEW

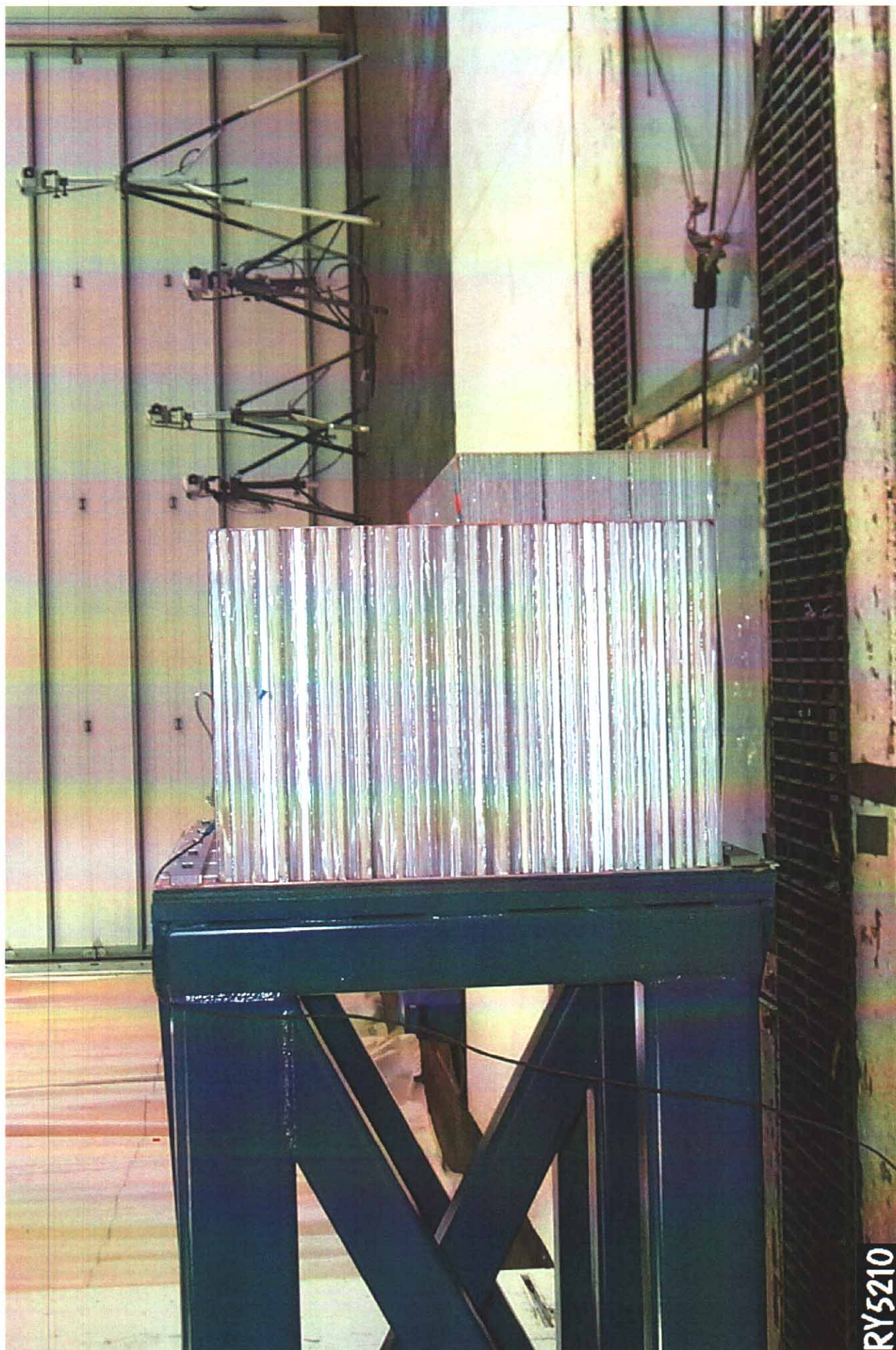


Figure A-39: PRE-TEST BARRIER LEFT SIDE VIEW

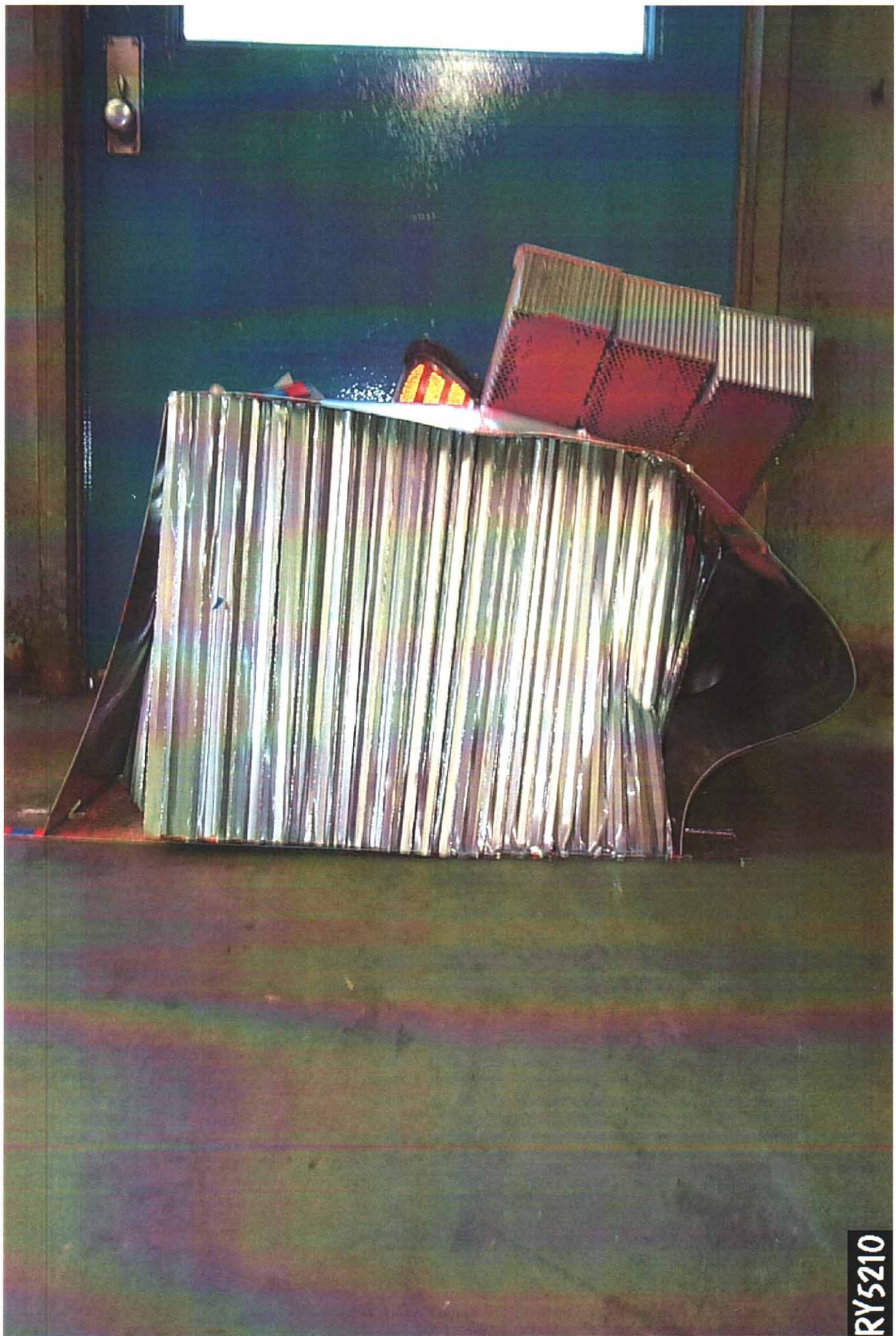


Figure A-40: POST-TEST BARRIER LEFT SIDE VIEW

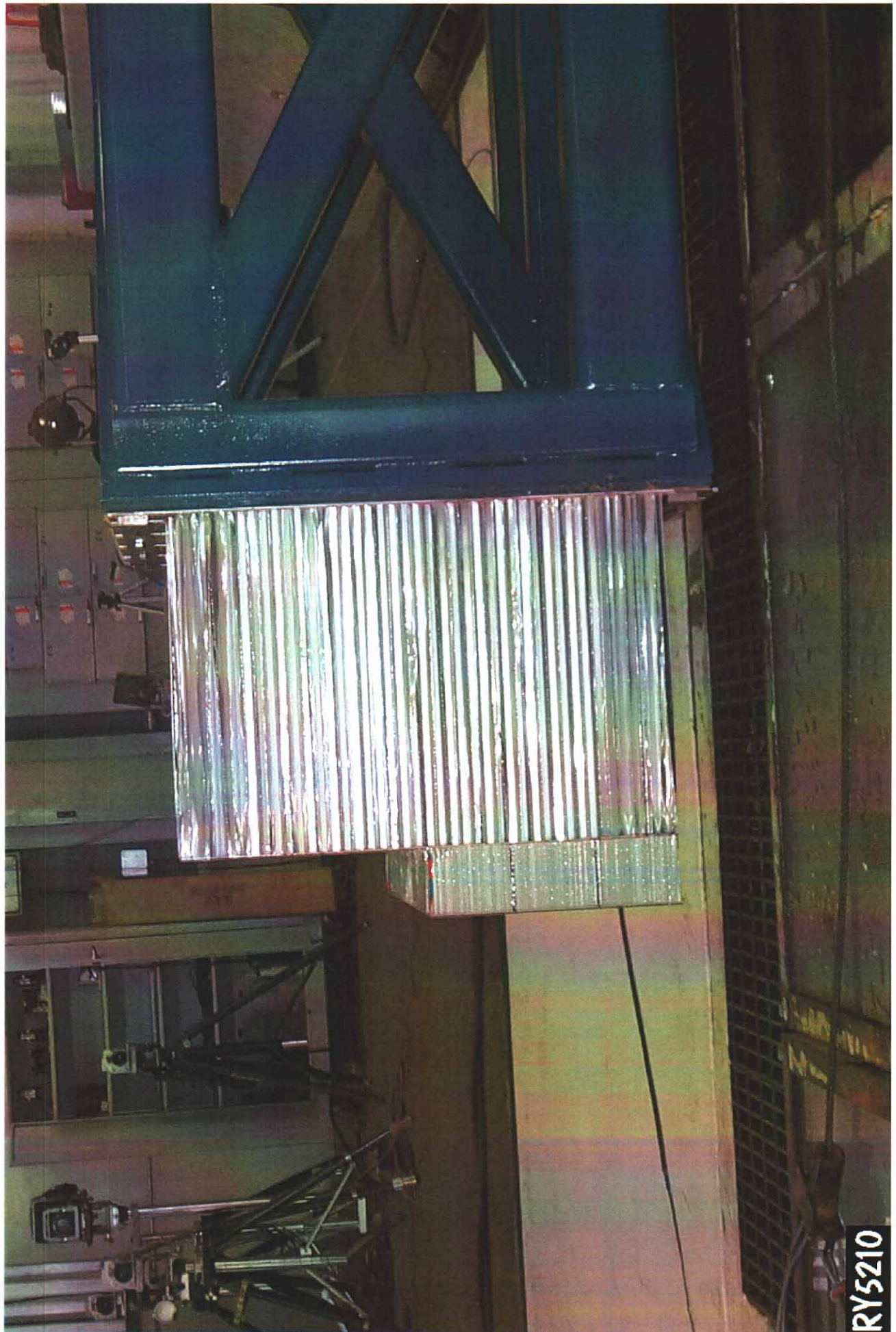


Figure A-41: PRE-TEST BARRIER RIGHT SIDE VIEW



Figure A-42: POST-TEST BARRIER RIGHT SIDE VIEW



Figure A-43: PRE-TEST BARRIER TOP VIEW



Figure A-44: POST-TEST BARRIER TOP VIEW



Figure A-45: POST-TEST OVERHEAD VIEW

RY5210



Figure A-46: ROLLOVER VIEW



RY5210

Figure A-47: IMPACT VIEW

APPENDIX B
DUMMY AND VEHICLE 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, Chest Forward Fy Head leftward, Chest rightward Fz Head Upward, Chest Downward Mx Left ear toward left shoulder My Chin toward sternum (flexion) Mz Chin toward 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 (right and left leg)	Fx Knee Upward, Upper Femur Downward Fy Knee Rightward, Upper Femur Leftward Fz Knee Forward, Pelvis Rearward Mx Knee Leftward, Hold Upper Femur in Place My Knee Upward, Hold Upper Femur in Place Mz Tibia Leftward, Hold Pelvis in Place
Upper Tibia Load Cell (right and left leg)	Fx Ankle Forward, Knee Rearward Fy Ankle Rightward, Knee Leftward Fz Tibia Downward, Femur Upward Mx Ankle Leftward, Hold Knee in Place My Ankle Forward, Bottom of Knee Clevis Rearward
Lower Tibia Load Cell (right and left leg)	Fx Ankle Forward, Knee Rearward Fy Ankle Rightward, Knee Leftward Fz Tibia Downward, Femur Upward Mx Ankle Leftward, Hold Knee in Place My Ankle Forward, Bottom of Knee Clevis Rearward
Knee Shear Displacement	X Hold Femur Move Tibia Forward
Tibia Mid-Shaft Accelerometer	X Forward Y To the Right
Foot Rotations (left foot)	X Eversion Y Dorsi Flexion Z Internal Rotation
Foot Rotations (right foot)	X Inversion Y Dorsi Flexion Z External Rotation
Foot Accelerometer (right and left foot)	X Forward Y To the Right Z Down

DATA CHANNEL FILTER CLASS SUMMARY

NHTSA TEST NO RY5210

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

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
1	P1 Head 9 Array X Arm Ay [g, CFC_1000]	B-8
2	P1 Head 9 Array X Arm Az [g, CFC_1000]	B-9
3	P1 Head 9 Array Y Arm Ax [g, CFC_1000]	B-10
4	P1 Head 9 Array Y Arm Az [g, CFC_1000]	B-11
5	P1 Head 9 Array Z Arm Ax [g, CFC_1000]	B-12
6	P1 Head 9 Array Z Arm Ay [g, CFC_1000]	B-13
7	P1 Head CG Ax [g, CFC_1000]	B-14
8	P1 Head CG Ay [g, CFC_1000]	B-15
9	P1 Head CG Az [g, CFC_1000]	B-16
10	P1 Head CG A Resultant [g, CFC_1000]	B-17
11	P1 Head CG Red Ax [g, CFC_1000]	B-18
12	P1 Head CG Red Ay [g, CFC_1000]	B-19
13	P1 Head CG Red Az [g, CFC_1000]	B-20
14	P1 Head CG Red A Resultant [g, CFC_1000]	B-21
15	P1 Upper Neck Fx [N, CFC_1000]	B-22
16	P1 Upper Neck Fy [N, CFC_1000]	B-23
17	P1 Upper Neck Fz [N, CFC_1000]	B-24
18	P1 Upper Neck F Resultant [N, CFC_1000]	B-25
19	P1 Upper Neck Mx [N-m, CFC_600]	B-26
20	P1 Upper Neck My [N-m, CFC_600]	B-27
21	P1 Upper Neck Mz [N-m, CFC_600]	B-28
22	P1 Upper Neck M Resultant [N-m, CFC_600]	B-29
23	P1 Chest Ax [g, CFC_180]	B-30
24	P1 Chest Ay [g, CFC_180]	B-31
25	P1 Chest Az [g, CFC_180]	B-32
26	P1 Chest A Resultant [g, CFC_180]	B-33
27	P1 Chest Red Ax [g, CFC_180]	B-34
28	P1 Chest Red Ay [g, CFC_180]	B-35
29	P1 Chest Red Az [g, CFC_180]	B-36
30	P1 Chest Red A Resultant [g, CFC_180]	B-37
31	P1 Chest Displacement [mm, CFC_600]	B-38
32	P1 Pelvic Ax [g, CFC_1000]	B-39
33	P1 Pelvic Ay [g, CFC_1000]	B-40
34	P1 Pelvic Az [g, CFC_1000]	B-41
35	P1 Pelvic A Resultant [g, CFC_1000]	B-42
36	P1 Left Femur Fx [N, CFC_600]	B-43
37	P1 Left Femur Fy [N, CFC_600]	B-44
38	P1 Left Femur Fz [N, CFC_600]	B-45
39	P1 Left Femur F Resultant [N, CFC_600]	B-46
40	P1 Left Femur Mx [N-m, CFC_600]	B-47
41	P1 Left Femur My [N-m, CFC_600]	B-48
42	P1 Left Femur Mz [N-m, CFC_600]	B-49
43	P1 Left Femur M Resultant [N-m, CFC_600]	B-50
44	P1 Right Femur Fx [N, CFC_600]	B-51
45	P1 Right Femur Fy [N, CFC_600]	B-52
46	P1 Right Femur Fz [N, CFC_600]	B-53
47	P1 Right Femur F Resultant [N, CFC_600]	B-54
48	P1 Right Femur Mx [N-m, CFC_600]	B-55
49	P1 Right Femur My [N-m, CFC_600]	B-56
50	P1 Right Femur Mz [N-m, CFC_600]	B-57
51	P1 Right Femur M Resultant [N-m, CFC_600]	B-58

52	P1 Left Knee Shear Dx [mm, CFC_180]	B-59
53	P1 Right Knee Shear Dx [mm, CFC_180]	B-60
54	P1 Left Upper Tibia Fx [N, CFC_600]	B-61
55	P1 Left Upper Tibia Fz [N, CFC_600]	B-62
56	P1 Left Upper Tibia Mx [N-m, CFC_600]	B-63
57	P1 Left Upper Tibia My [N-m, CFC_600]	B-64
58	P1 Left Lower Tibia Fx [N, CFC_600]	B-65
59	P1 Left Lower Tibia Fy [N, CFC_600]	B-66
60	P1 Left Lower Tibia Fz [N, CFC_600]	B-67
61	P1 Left Lower Tibia F Resultant [N, CFC_600]	B-68
62	P1 Left Lower Tibia Mx [N-m, CFC_600]	B-69
63	P1 Left Lower Tibia My [N-m, CFC_600]	B-70
64	P1 Right Upper Tibia Fx [N, CFC_600]	B-71
65	P1 Right Upper Tibia Fz [N, CFC_600]	B-72
66	P1 Right Upper Tibia Mx [N-m, CFC_600]	B-73
67	P1 Right Upper Tibia My [N-m, CFC_600]	B-74
68	P1 Right Lower Tibia Fx [N, CFC_600]	B-75
69	P1 Right Lower Tibia Fy [N, CFC_600]	B-76
70	P1 Right Lower Tibia Fz [N, CFC_600]	B-77
71	P1 Right Lower Tibia F Resultant [N, CFC_600]	B-78
72	P1 Right Lower Tibia Mx [N, CFC_600]	B-79
73	P1 Right Lower Tibia My [N, CFC_600]	B-80
74	P1 Left Tibia Ax [g, CFC_600]	B-81
75	P1 Left Tibia Ay [g, CFC_600]	B-82
76	P1 Right Tibia Ax [g, CFC_600]	B-83
77	P1 Right Tibia Ay [g, CFC_600]	B-84
78	P1 Left Ankle Rotation x [Deg, CFC_180]	B-85
79	P1 Left Ankle Rotation y [Deg, CFC_180]	B-86
80	P1 Left Ankle Rotation z [Deg, CFC_180]	B-87
81	P1 Right Ankle Rotation x [Deg, CFC_180]	B-88
82	P1 Right Ankle Rotation y [Deg, CFC_180]	B-89
83	P1 Right Ankle Rotation z [Deg, CFC_180]	B-90
84	P1 Left Foot Ax [g, CFC_600]	B-91
85	P1 Left Foot Ay [g, CFC_600]	B-92
86	P1 Left Foot Az [g, CFC_600]	B-93
87	P1 Left Foot A Resultant [g, CFC_600]	B-94
88	P1 Right Foot Ax [g, CFC_600]	B-95
89	P1 Right Foot Ay [g, CFC_600]	B-96
90	P1 Right Foot Az [g, CFC_600]	B-97
91	P1 Right Foot A Resultant [g, CFC_600]	B-98
92	P1 Lap Belt Force [N, CFC_60]	B-99
93	P2 Head CG Ax [g, CFC_1000]	B-100
94	P2 Head CG Ay [g, CFC_1000]	B-101
95	P2 Head CG Az [g, CFC_1000]	B-102
96	P2 Head CG A Resultant [g, CFC_1000]	B-103
97	P2 Head CG Red Ax [g, CFC_1000]	B-104
98	P2 Head CG Red Ay [g, CFC_1000]	B-105
99	P2 Head CG Red Az [g, CFC_1000]	B-106
100	P2 Head CG Red A Resultant [g, CFC_1000]	B-107
101	P2 Upper Neck Fx [N, CFC_1000]	B-108
102	P2 Upper Neck Fy [N, CFC_1000]	B-109
103	P2 Upper Neck Fz [N, CFC_1000]	B-110
104	P2 Upper Neck F Resultant [N, CFC_1000]	B-111

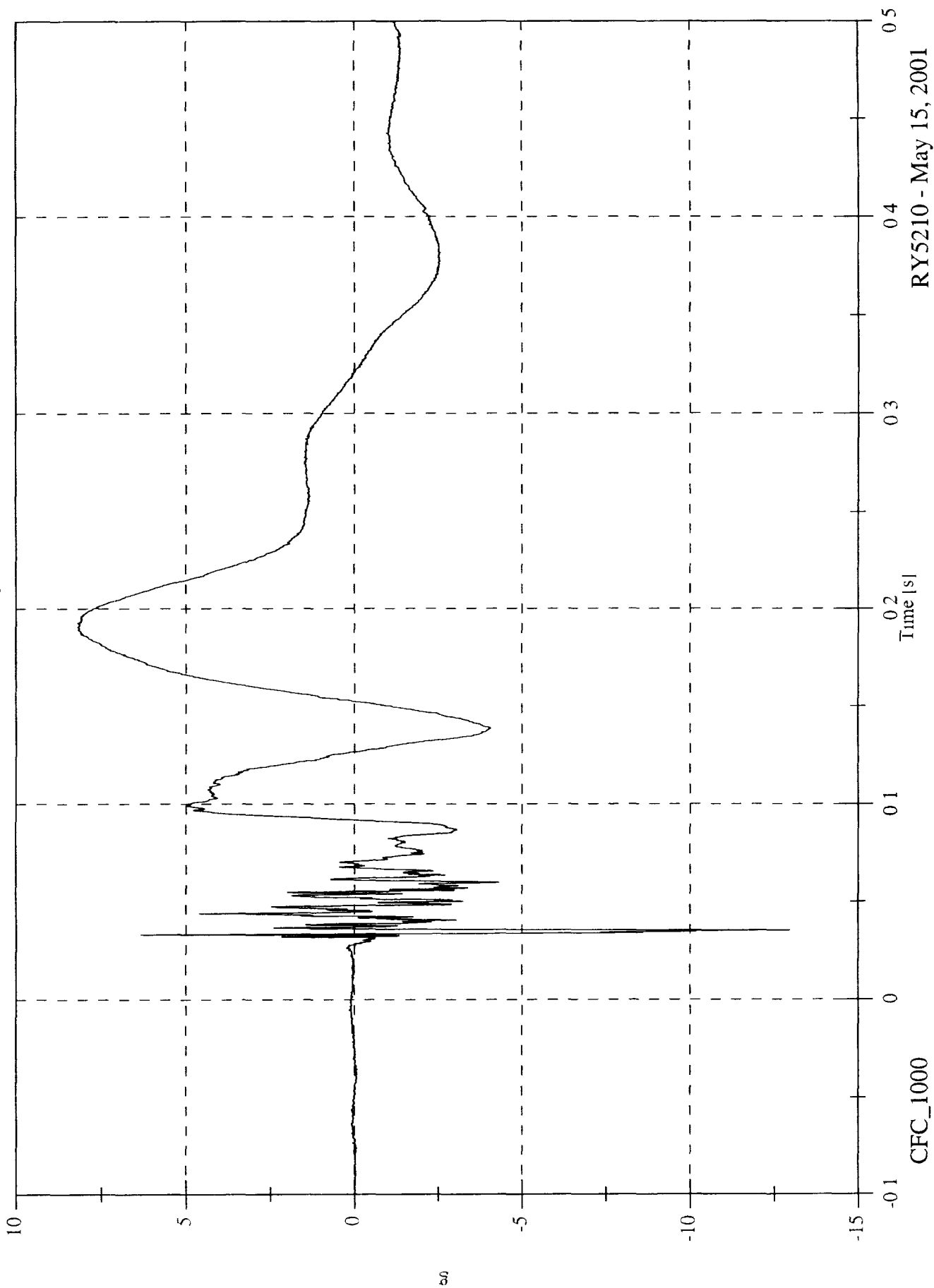
105	P2 Upper Neck Mx [N-m, CFC_600]	B-112
106	P2 Upper Neck My [N-m, CFC_600]	B-113
107	P2 Upper Neck Mz [N-m, CFC_600]	B-114
108	P2 Upper Neck M Resultant [N-m, CFC_600]	B-115
109	P2 Chest Ax [g, CFC_180]	B-116
110	P2 Chest Ay [g, CFC_180]	B-117
111	P2 Chest Az [g, CFC_180]	B-118
112	P2 Chest A Resultant [g, CFC_180]	B-119
113	P2 Chest Red Ax [g, CFC_180]	B-120
114	P2 Chest Red Ay [g, CFC_180]	B-121
115	P2 Chest Red Az [g, CFC_180]	B-122
116	P2 Chest Red A Resultant [g, CFC_180]	B-123
117	P2 Chest Displacement [mm, CFC_600]	B-124
118	P2 Pelvic Ax [g, CFC_1000]	B-125
119	P2 Pelvic Ay [g, CFC_1000]	B-126
120	P2 Pelvic Az [g, CFC_1000]	B-127
121	P2 Pelvic A Resultant [g, CFC_1000]	B-128
122	P2 Left Femur Fx [N, CFC_600]	B-129
123	P2 Left Femur Fy [N, CFC_600]	B-130
124	P2 Left Femur Fz [N, CFC_600]	B-131
125	P2 Left Femur F Resultant [N, CFC_600]	B-132
126	P2 Left Femur Mx [N-m, CFC_600]	B-133
127	P2 Left Femur My [N-m, CFC_600]	B-134
128	P2 Left Femur Mz [N-m, CFC_600]	B-135
129	P2 Left Femur M Resultant [N-m, CFC_600]	B-136
130	P2 Right Femur Fx [N, CFC_600]	B-137
131	P2 Right Femur Fy [N, CFC_600]	B-138
132	P2 Right Femur Fz [N, CFC_600]	B-139
133	P2 Right Femur F Resultant [N, CFC_600]	B-140
134	P2 Right Femur Mx [N-m, CFC_600]	B-141
135	P2 Right Femur My [N-m, CFC_600]	B-142
136	P2 Right Femur Mz [N-m, CFC_600]	B-143
137	P2 Right Femur M Resultant [N-m, CFC_600]	B-144
138	P2 Left Knee Shear Dx [mm, CFC_180]	B-145
139	P2 Right Knee Shear Dx [mm, CFC_180]	B-146
140	P2 Left Upper Tibia Fx [N, CFC_600]	B-147
141	P2 Left Upper Tibia Fz [N, CFC_600]	B-148
142	P2 Left Upper Tibia Mx [N-m, CFC_600]	B-149
143	P2 Left Upper Tibia My [N-m, CFC_600]	B-150
144	P2 Left Lower Tibia Fx [N, CFC_600]	B-151
145	P2 Left Lower Tibia Fy [N, CFC_600]	B-152
146	P2 Left Lower Tibia Fz [N, CFC_600]	B-153
147	P2 Left Lower Tibia F Resultant [N, CFC_600]	B-154
148	P2 Left Lower Tibia Mx [N m, CFC_600]	B 155
149	P2 Left Lower Tibia My [N-m, CFC_600]	B-156
150	P2 Right Upper Tibia Fx [N, CFC_600]	B-157
151	P2 Right Upper Tibia Fz [N, CFC_600]	B-158
152	P2 Right Upper Tibia Mx [N-m, CFC_600]	B-159
153	P2 Right Upper Tibia My [N-m, CFC_600]	B-160
154	P2 Right Lower Tibia Fx [N, CFC_600]	B-161
155	P2 Right Lower Tibia Fy [N, CFC_600]	B-162
156	P2 Right Lower Tibia Fz [N, CFC_600]	B-163
157	P2 Right Lower Tibia F Resultant [N, CFC_600]	B-164

158	P2 Right Lower Tibia Mx [N-m, CFC_600]	B-165
159	P2 Right Lower Tibia My [N-m, CFC_600]	B-166
160	P2 Left Tibia Ax [g, CFC_600]	B-167
161	P2 Left Tibia Ay [g, CFC_600]	B-168
162	P2 Right Tibia Ax [g, CFC_600]	B-169
163	P2 Right Tibia Ay [g, CFC_600]	B-170
164	P2 Left Ankle Rotation x [Deg, CFC_180]	B-171
165	P2 Left Ankle Rotation y [Deg, CFC_180]	B-172
166	P2 Left Ankle Rotation z [Deg, CFC_180]	B-173
167	P2 Right Ankle Rotation x [Deg, CFC_180]	B-174
168	P2 Right Ankle Rotation y [Deg, CFC_180]	B-175
169	P2 Right Ankle Rotation z [Deg, CFC_180]	B-176
170	P2 Left Foot Ax [g, CFC_600]	B-177
171	P2 Left Foot Ay [g, CFC_600]	B-178
172	P2 Left Foot Az [g, CFC_600]	B-179
173	P2 Left Foot A Resultant [g, CFC_600]	B-180
174	P2 Right Foot Ax [g, CFC_600]	B-181
175	P2 Right Foot Ay [g, CFC_600]	B-182
176	P2 Right Foot Az [g, CFC_600]	B-183
177	P2 Right Foot A Resultant [g, CFC_600]	B-184
178	P2 Lap Belt Force [N, CFC_60]	B-185
179	Acc 1 Rear XMBR Left X [g, CFC_60]	B-186
180	Acc 1 Rear XMBR Left X Velocity [kph, CFC_180]	B-187
181	Acc 1 Rear XMBR Left X Displacement [mm, CFC_180]	B-188
182	Acc 2 Rear XMBR Left Y [g, CFC_60]	B-189
183	Acc 2 Rear XMBR Left Y Velocity [kph, CFC_180]	B-190
184	Acc 2 Rear XMBR Left Y Displacement [mm, CFC_180]	B-191
185	Acc 3 Rear XMBR Right X [g, CFC_60]	B-192
186	Acc 3 Rear XMBR Right X Velocity [kph, CFC_180]	B-193
187	Acc 3 Rear XMBR Right X Displacement [mm, CFC_180]	B-194
188	Acc 4 Rear XMBR Right Y [g, CFC_60]	B-195
189	Acc 4 Rear XMBR Right Y Velocity [kph, CFC_180]	B-196
190	Acc 4 Rear XMBR Right Y Displacement [mm, CFC_180]	B-197
191	Acc 5 P1 ToePan Left X [g, CFC_60]	B-198
192	Acc 5 P1 ToePan Left X Velocity [kph, CFC_180]	B-199
193	Acc 5 P1 ToePan Left X Displacement [mm, CFC_180]	B-200
194	Acc 6 P1 ToePan Left Z [g, CFC_60]	B-201
195	Acc 6 P1 ToePan Left Z Velocity [kph, CFC_180]	B-202
196	Acc 6 P1 ToePan Left Z Displacement [mm, CFC_180]	B-203
197	Acc 7 P1 ToePan Right X [g, CFC_60]	B-204
198	Acc 7 P1 ToePan Right X Velocity [kph, CFC_180]	B-205
199	Acc 7 P1 ToePan Right X Displacement [mm, CFC_180]	B-206
200	Acc 8 P1 ToePan Right Z [g, CFC_60]	B-207
201	Acc 8 P1 ToePan Right Z Velocity [kph, CFC_180]	B-208
202	Acc 8 P1 ToePan Right Z Displacement [mm, CFC_180]	B-209
203	Acc 9 Trunk Z [g, CFC_60]	B-210
204	Acc 9 Trunk Z Velocity [kph, CFC_180]	B-211
205	Acc 9 Trunk Z Displacement [mm, CFC_180]	B-212

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 8.2 [g] at 0.193 [s]
 Min: -13.0 [g] at 0.035 [s]

P1 Head 9 Array X Arm Ay



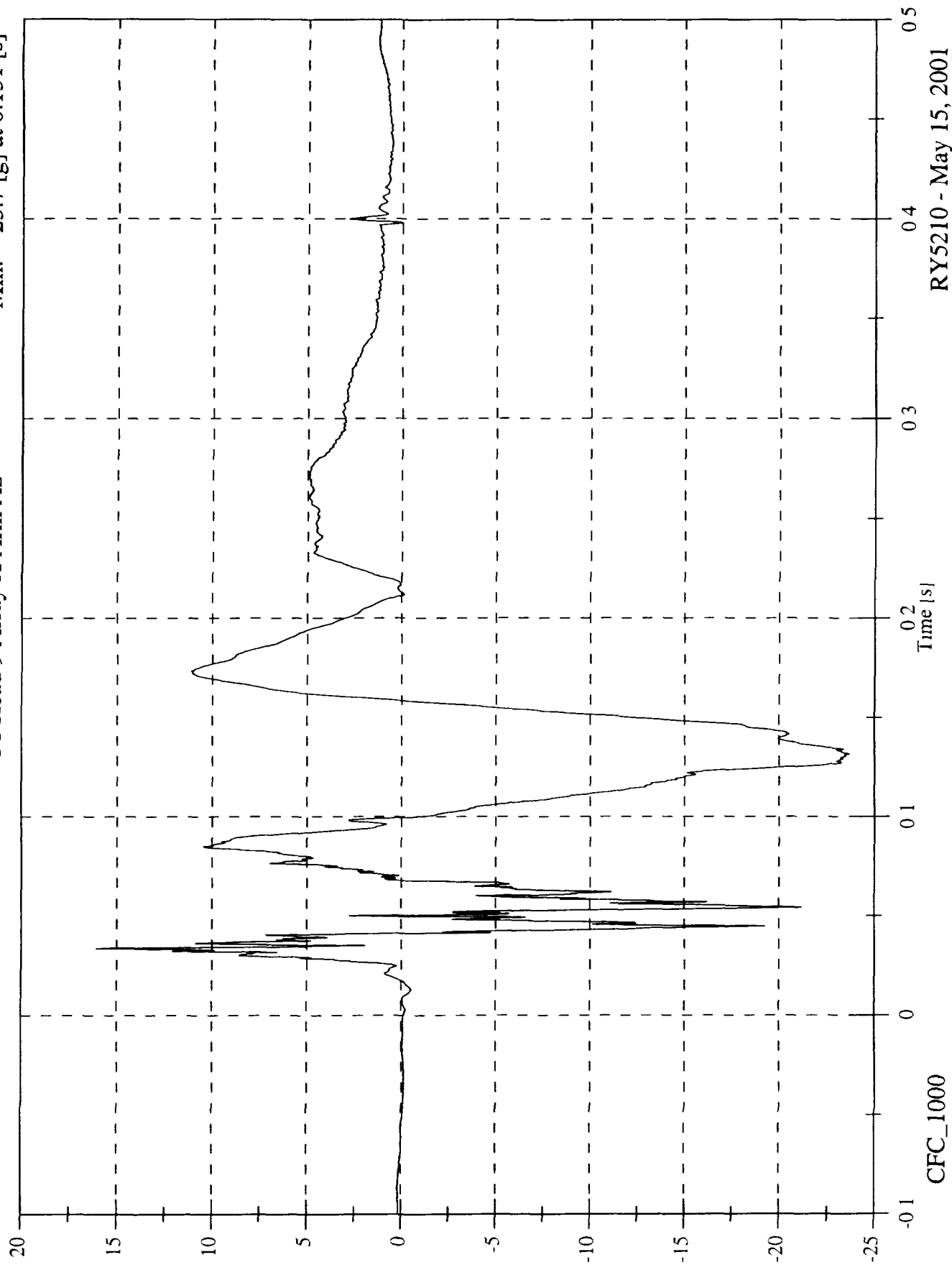
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Head 9 Array X Arm Az

Max: 16.1 [g] at 0.034 [s]

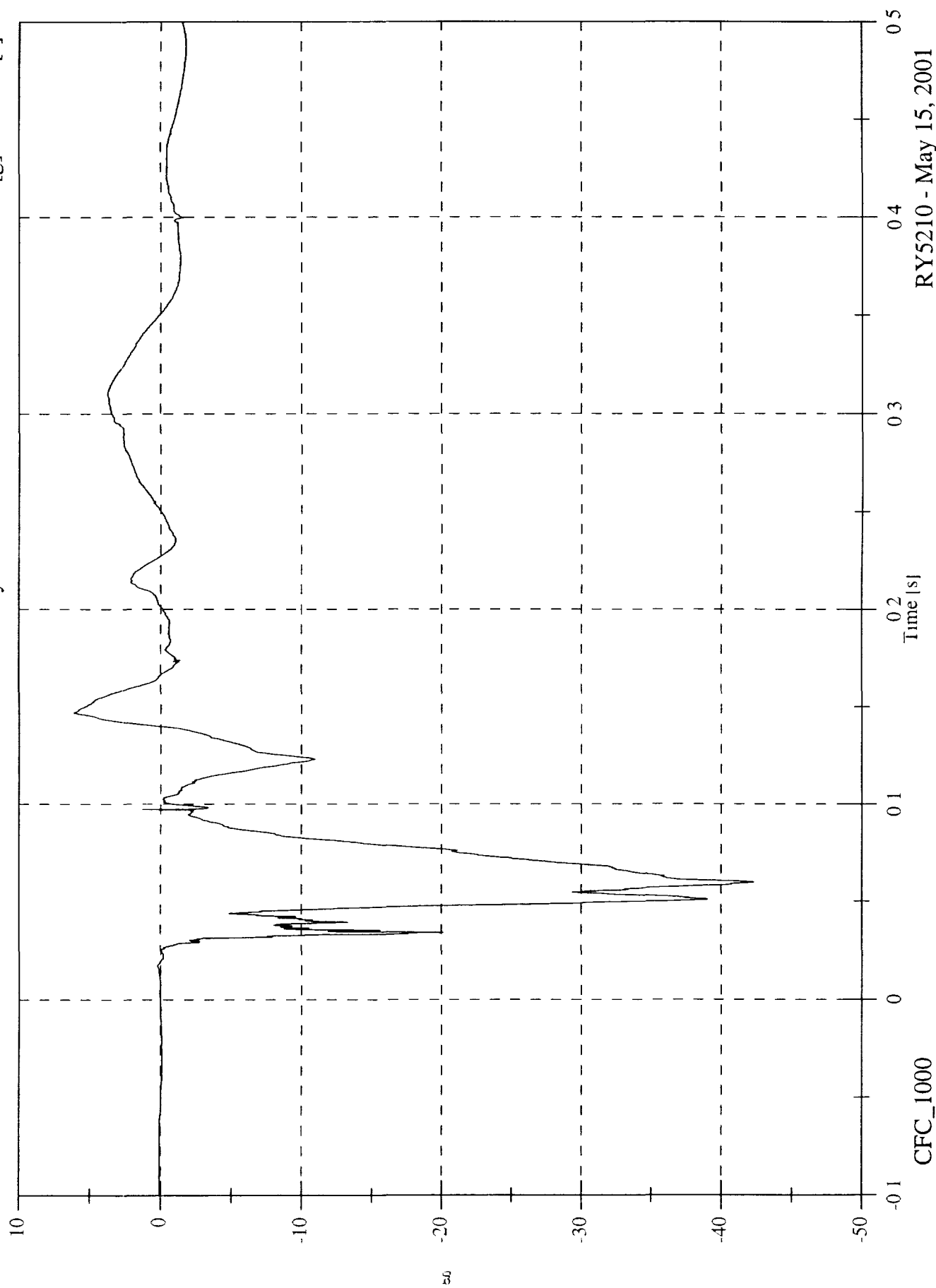
Min: -23.7 [g] at 0.131 [s]



40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Head 9 Array Y Arm Ax

Max: 6.1 [g] at 0.147 [s]
Min: -42.3 [g] at 0.060 [s]

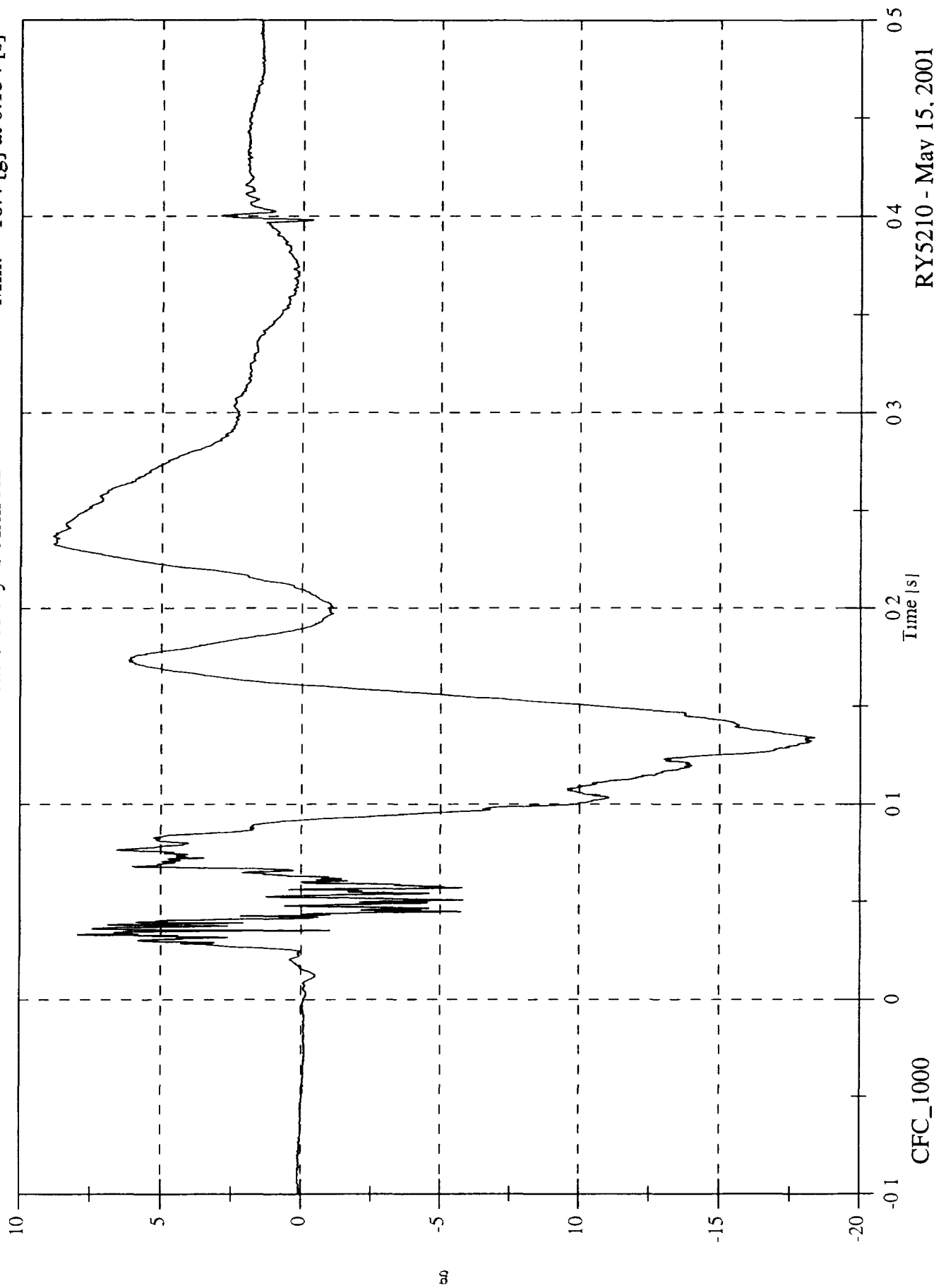


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Head 9 Array Y Arm Az

Max: 8.8 [g] at 0.237 [s]
Min: -18.4 [g] at 0.134 [s]

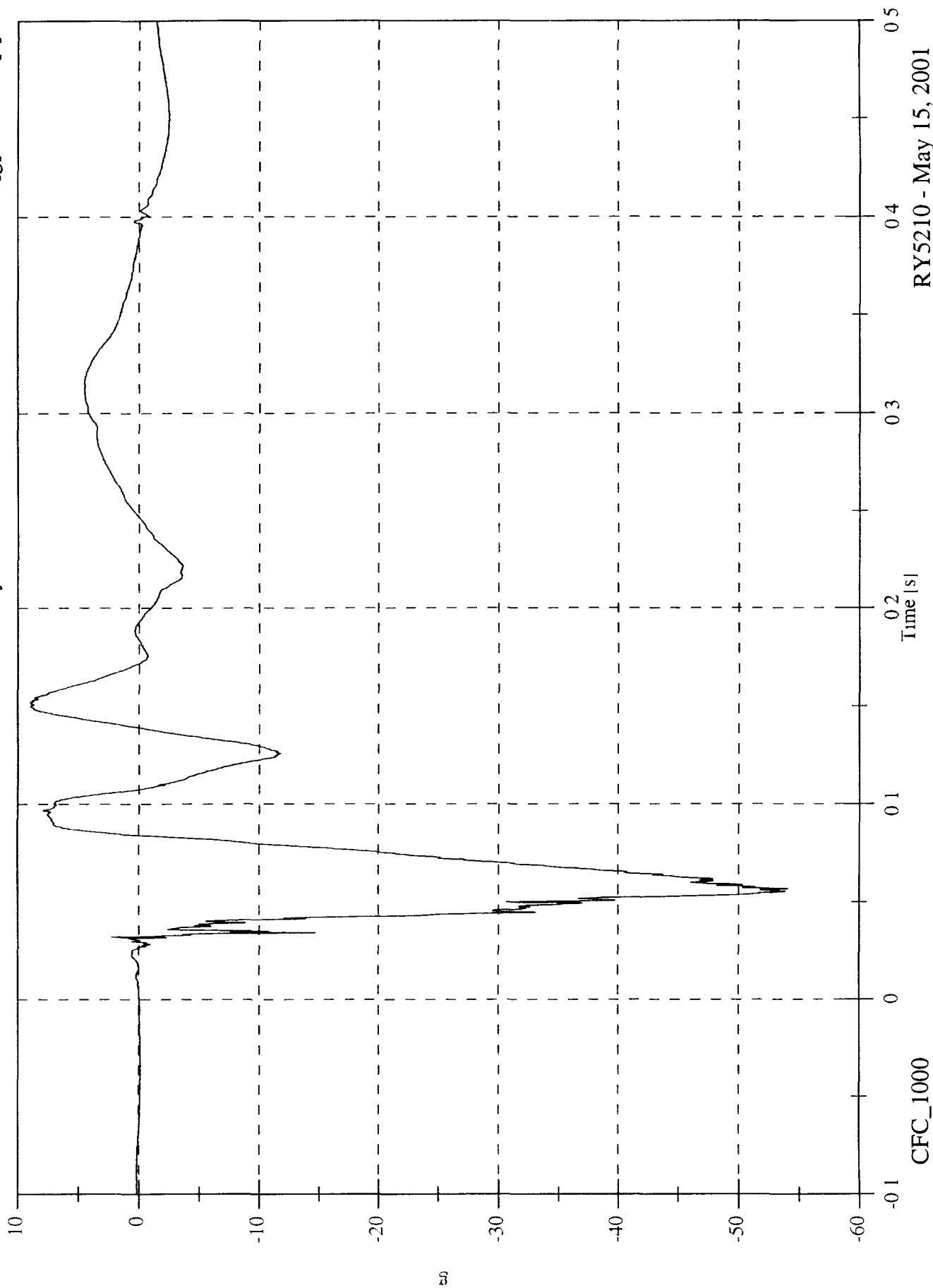


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 9.0 [g] at 0.152 [s]
 Min: -54.0 [g] at 0.057 [s]

P1 Head 9 Array Z Arm Ax



CFC_1000

Time [s]

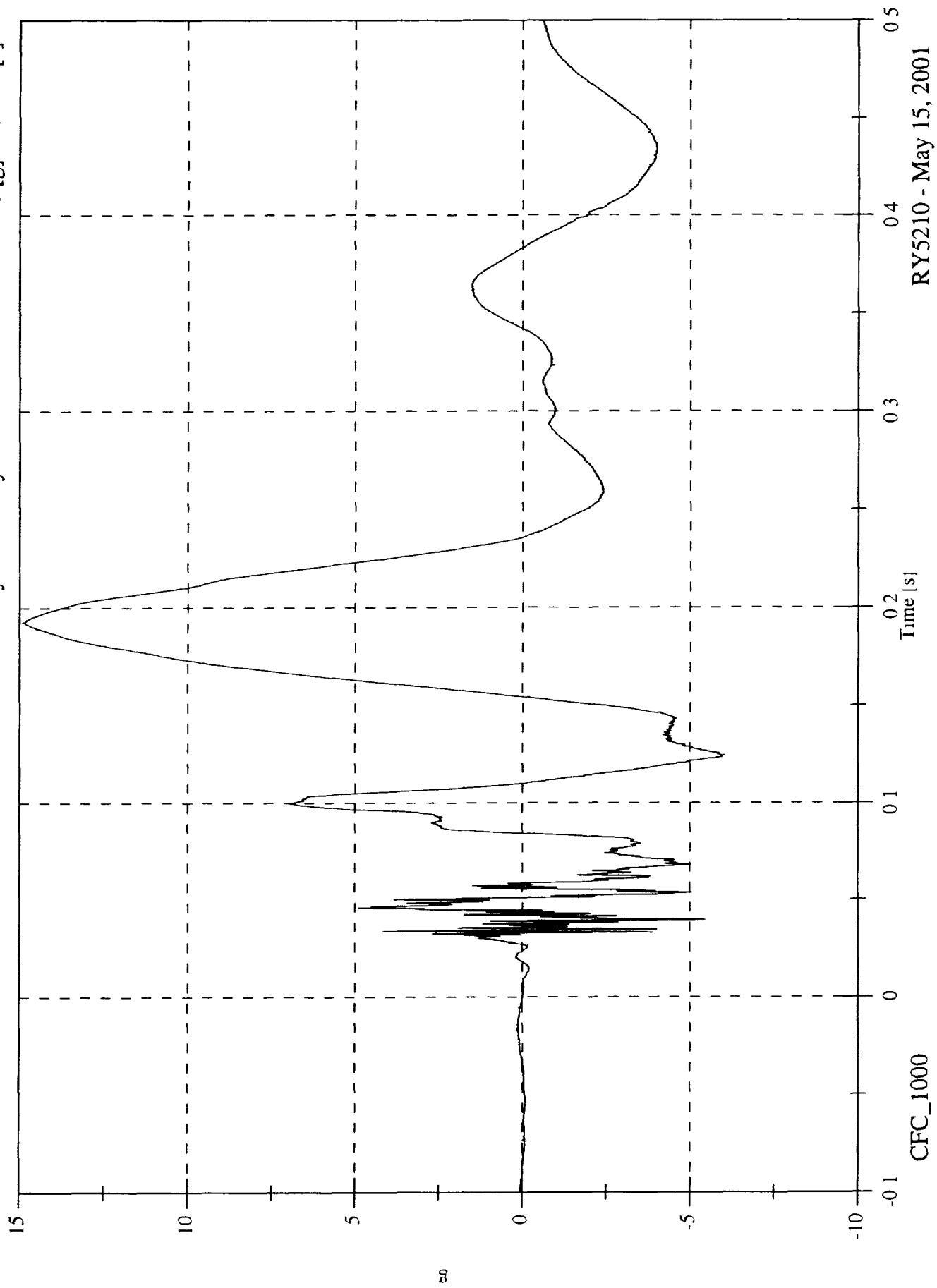
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Head 9 Array Z Arm Ay

Max: 14.9 [g] at 0.193 [s]

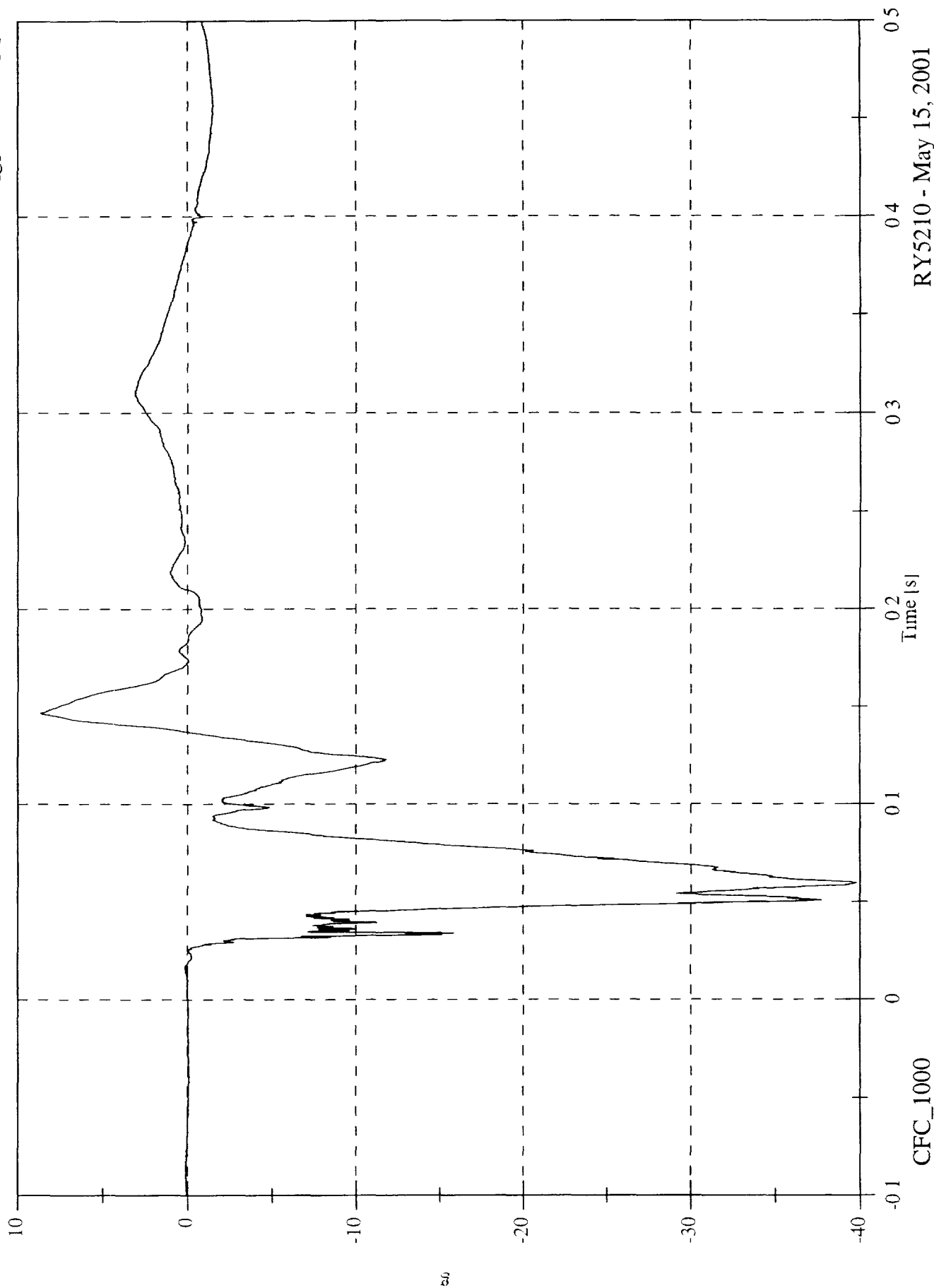
Min: -6.0 [g] at 0.124 [s]



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 8.6 [g] at 0.147 [s]
Min. -39.8 [g] at 0.060 [s]

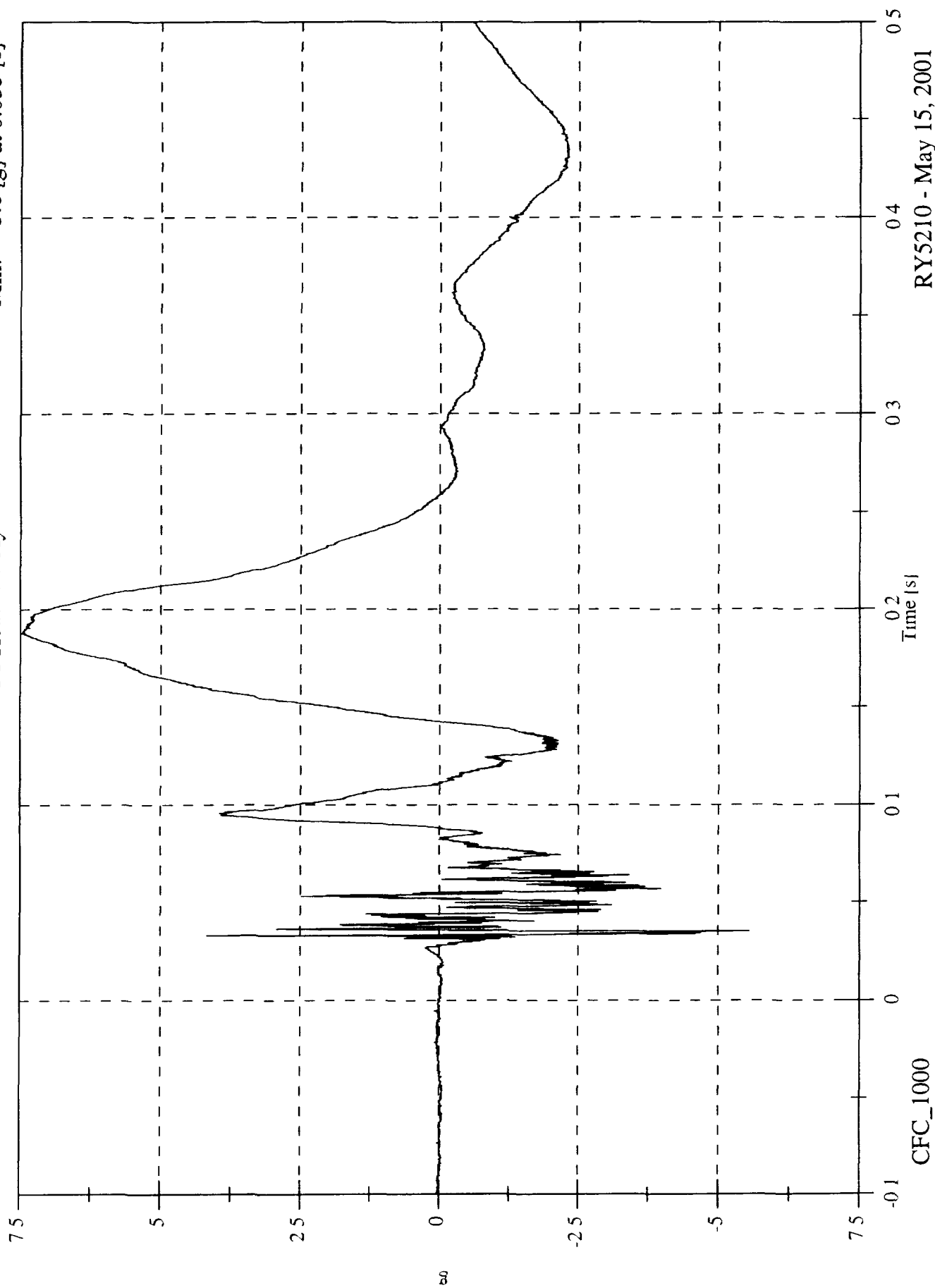
P1 Head CG Ax



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 7.5 [g] at 0.188 [s]
Min: -5.6 [g] at 0.035 [s]

P1 Head CG Ay

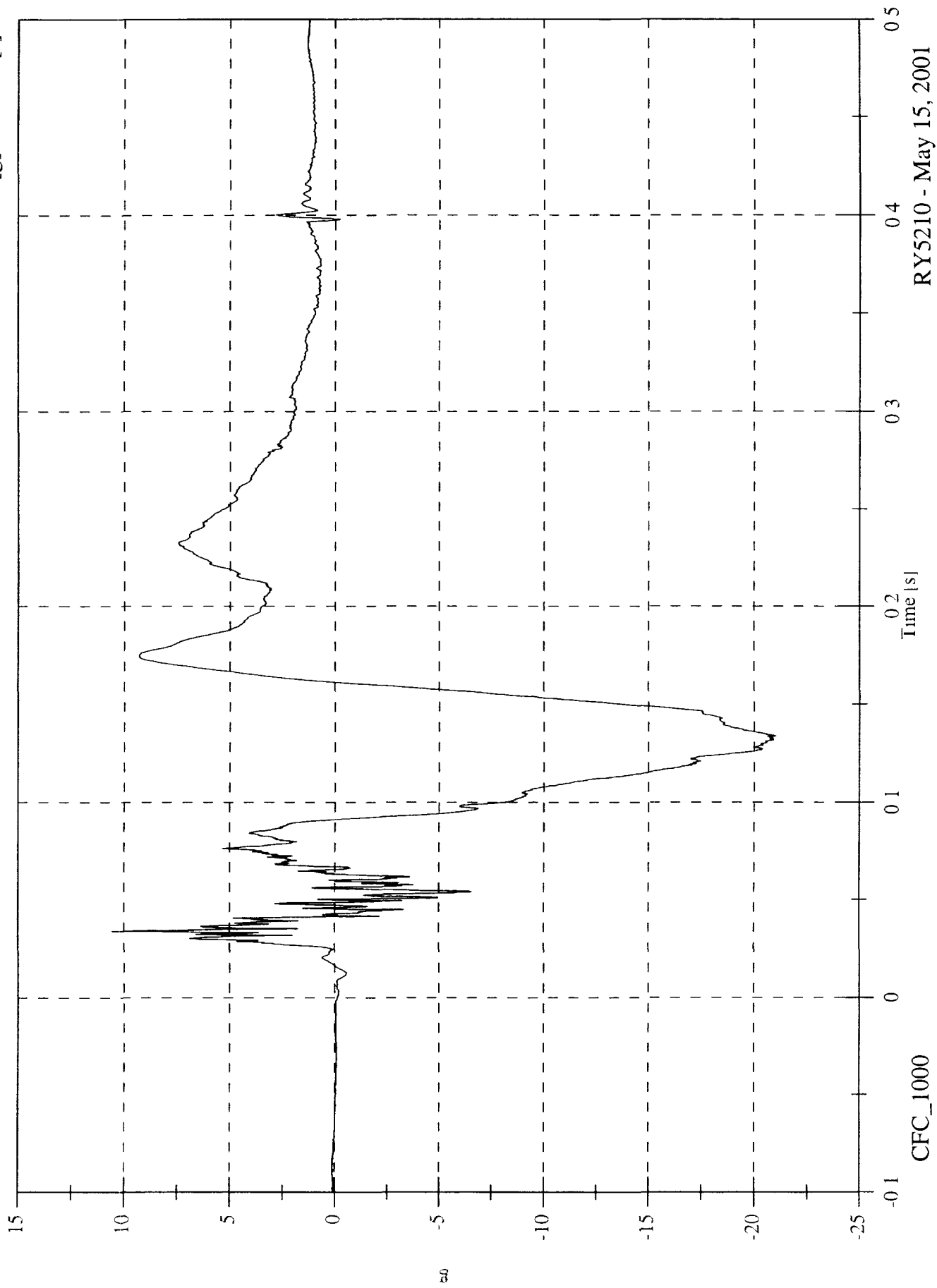


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 10.6 [g] at 0.034 [s]
Min: -21.0 [g] at 0.134 [s]

P1 Head CG Az

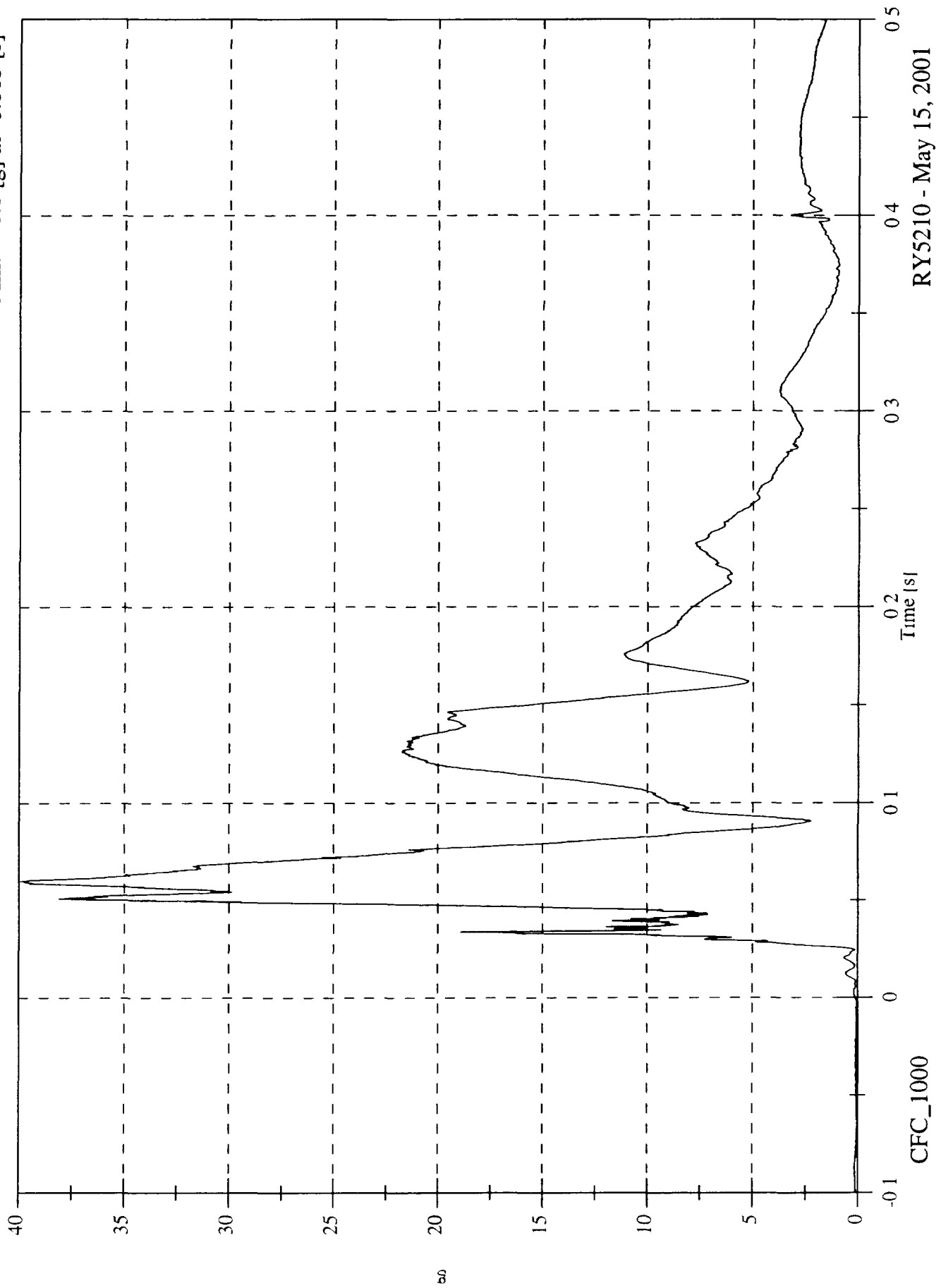


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Head CG A Resultant

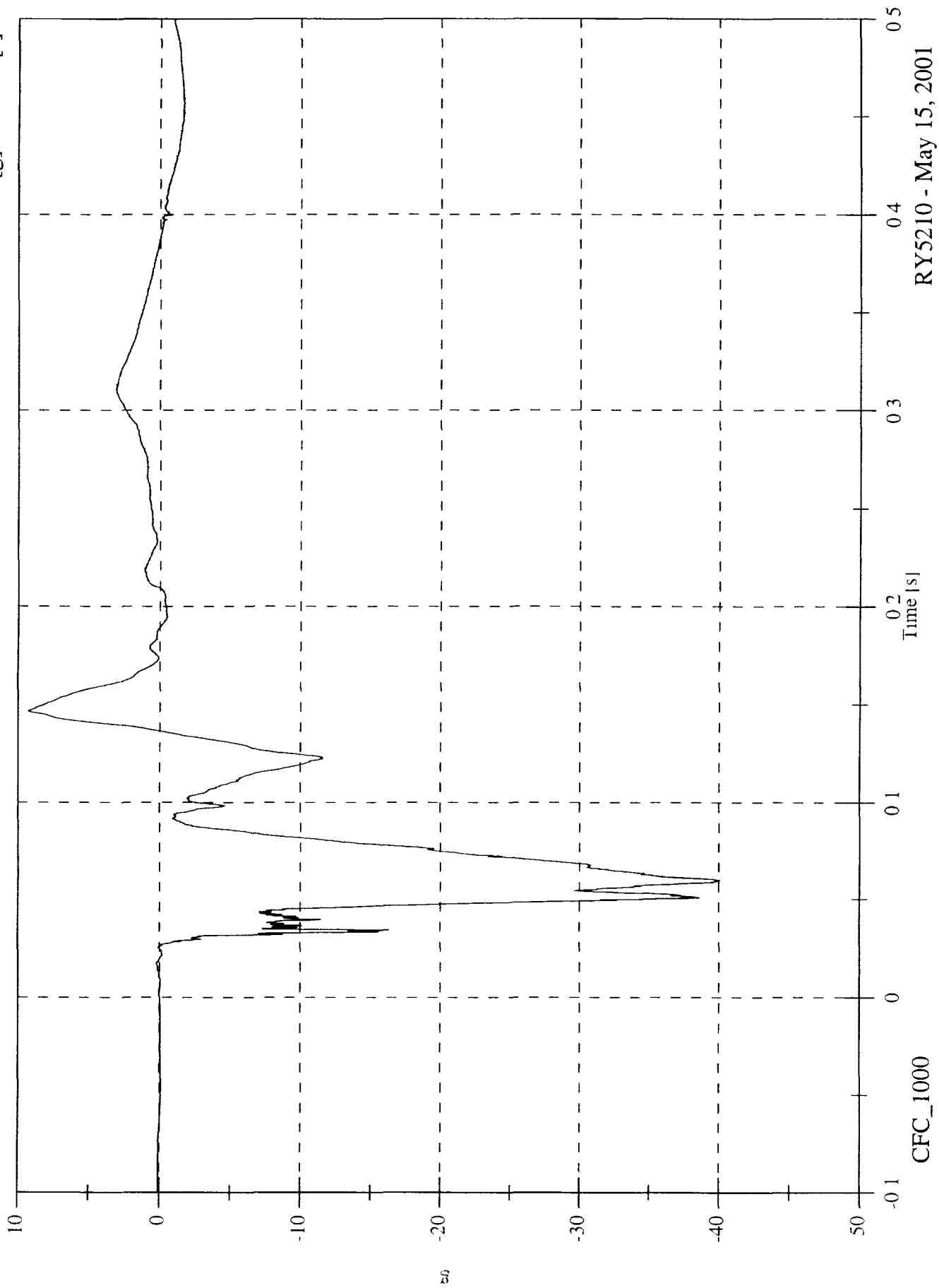
Max: 39.9 [g] at 0.060 [s]
Min: 0.0 [g] at -0.063 [s]



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 9.3 [g] at 0.147 [s]
Min: -40.0 [g] at 0.060 [s]

P1 Head CG Red Ax

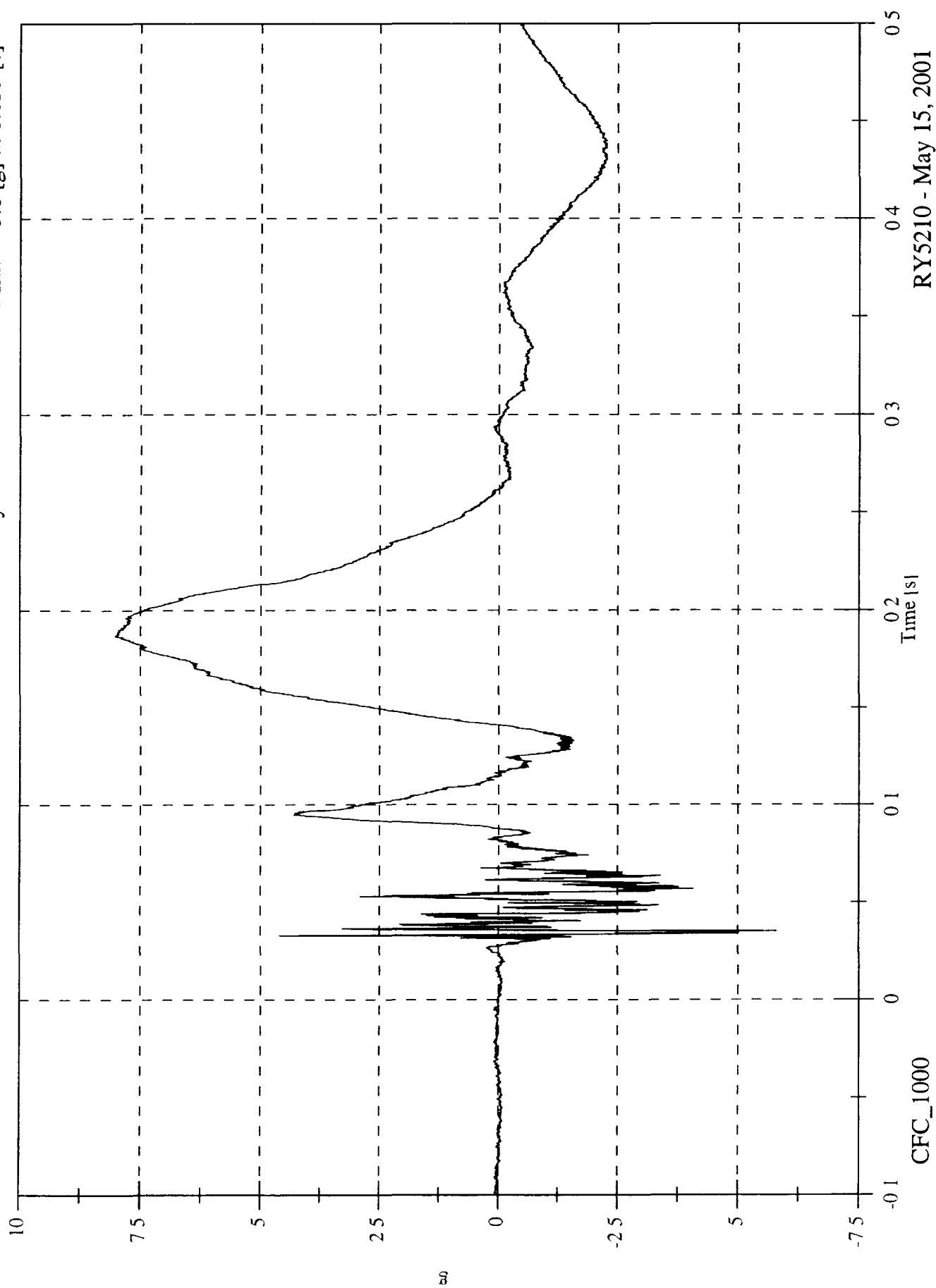


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Head CG Red Ay

Max: 8.0 [g] at 0.187 [s]
Min: -5.8 [g] at 0.035 [s]

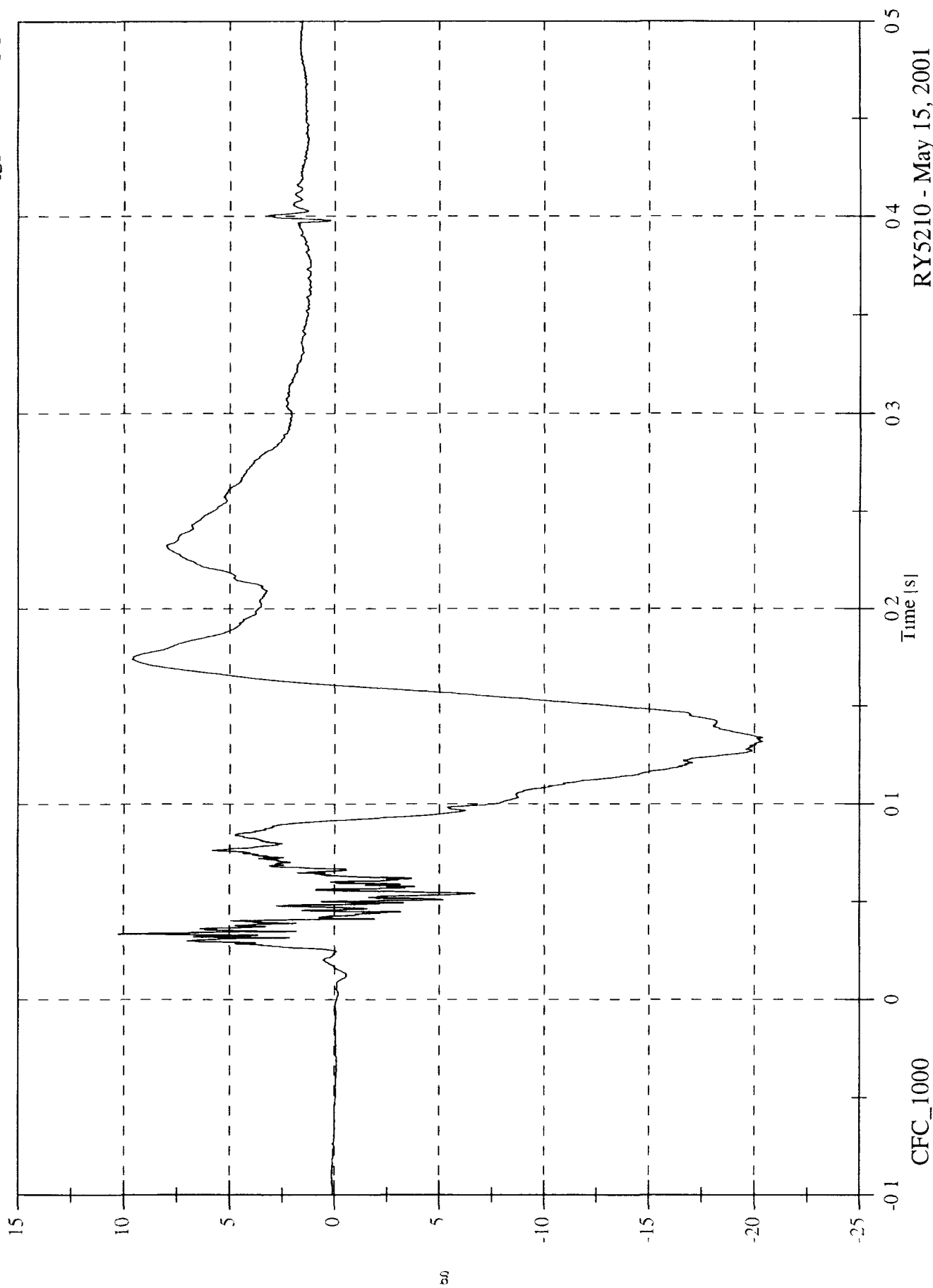


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 10.5 [g] at 0.034 [s]
 Min: -20.4 [g] at 0.134 [s]

P1 Head CG Red Az

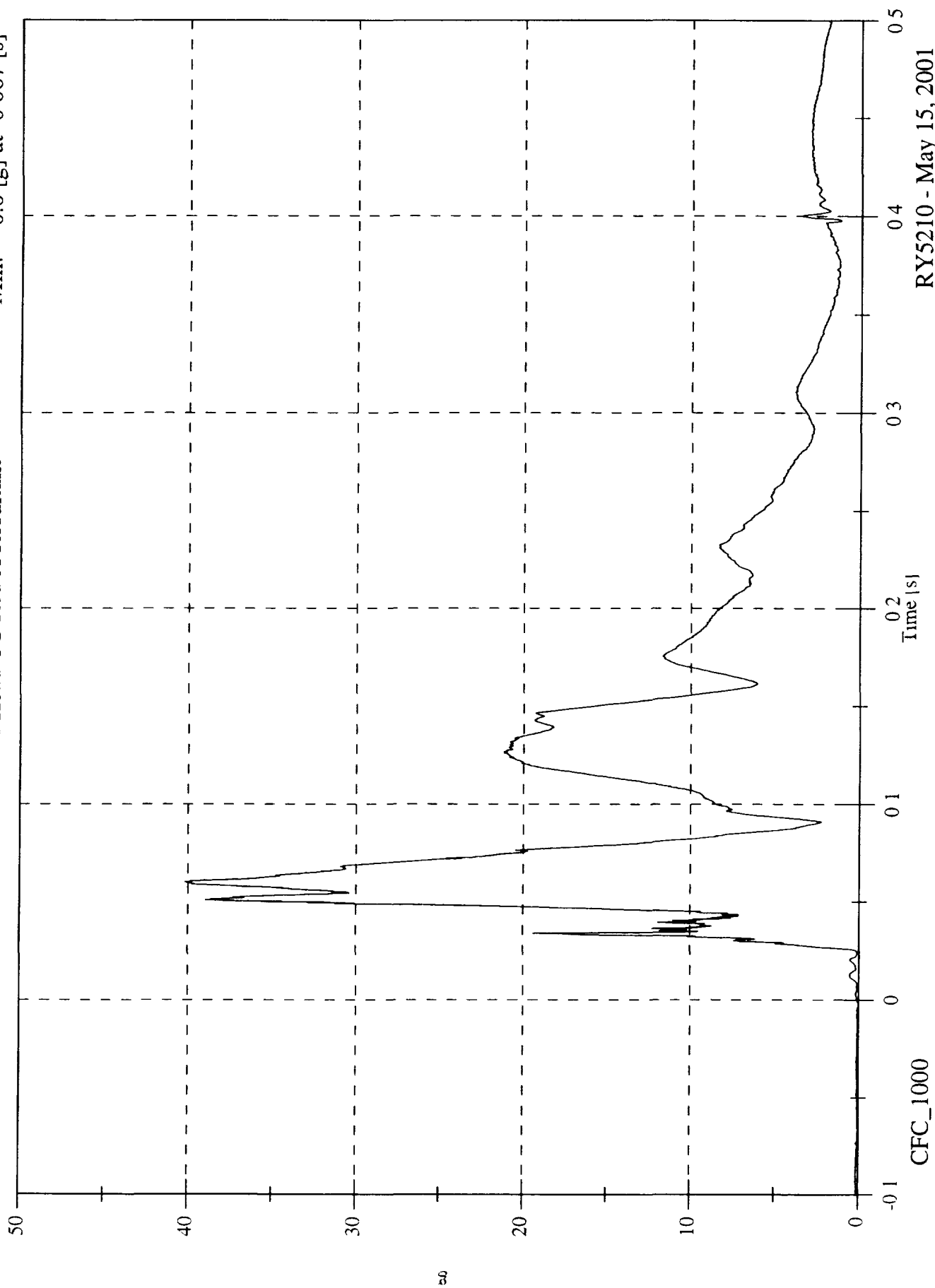


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Head CG Red A Resultant

Max: 40.2 [g] at 0.060 [s]
Min: 0.0 [g] at -0.067 [s]

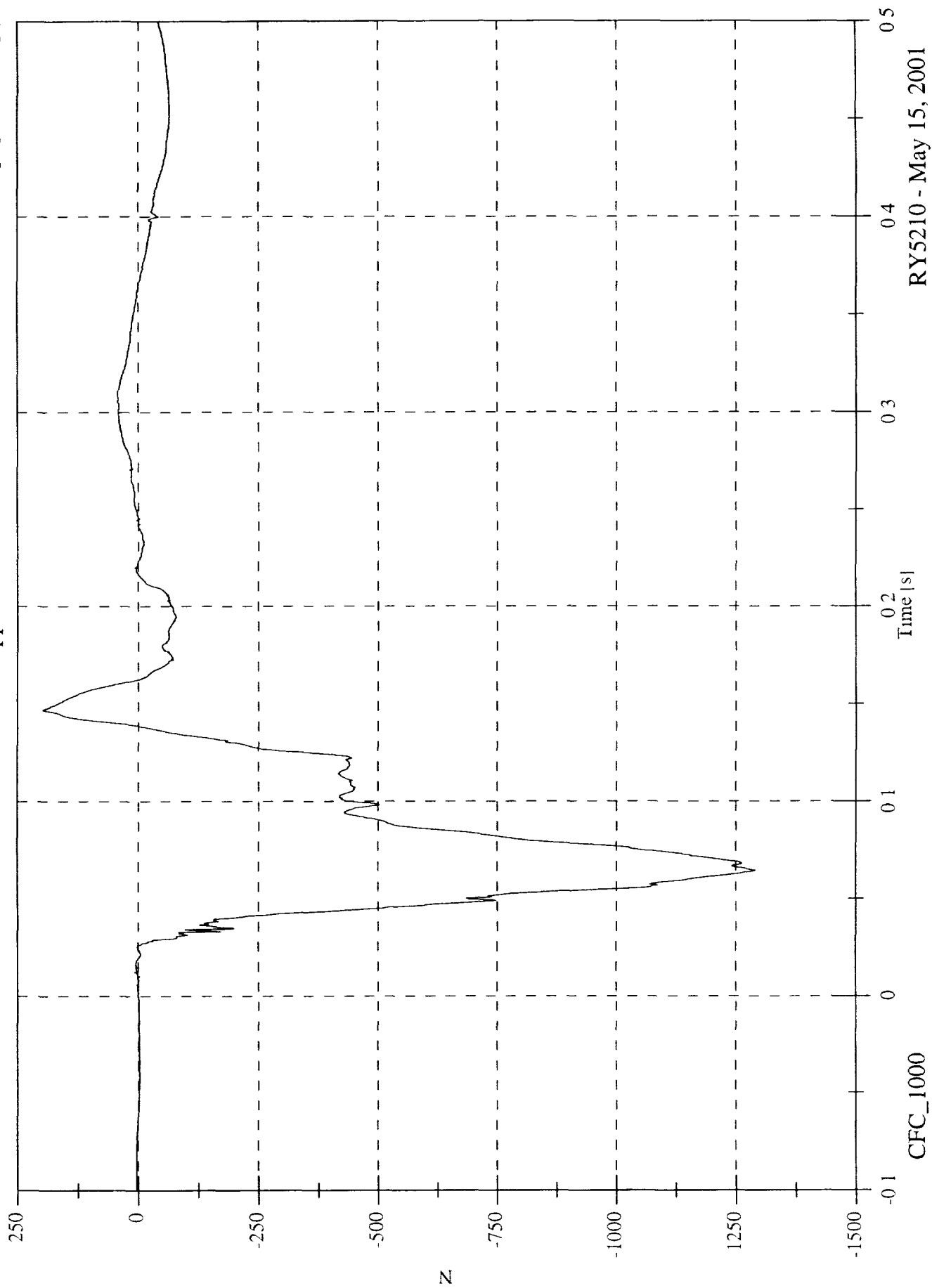


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 196.6 [N] at 0.147 [s]
Min: -1290.3 [N] at 0.064 [s]

P1 Upper Neck Fx



CFC_1000

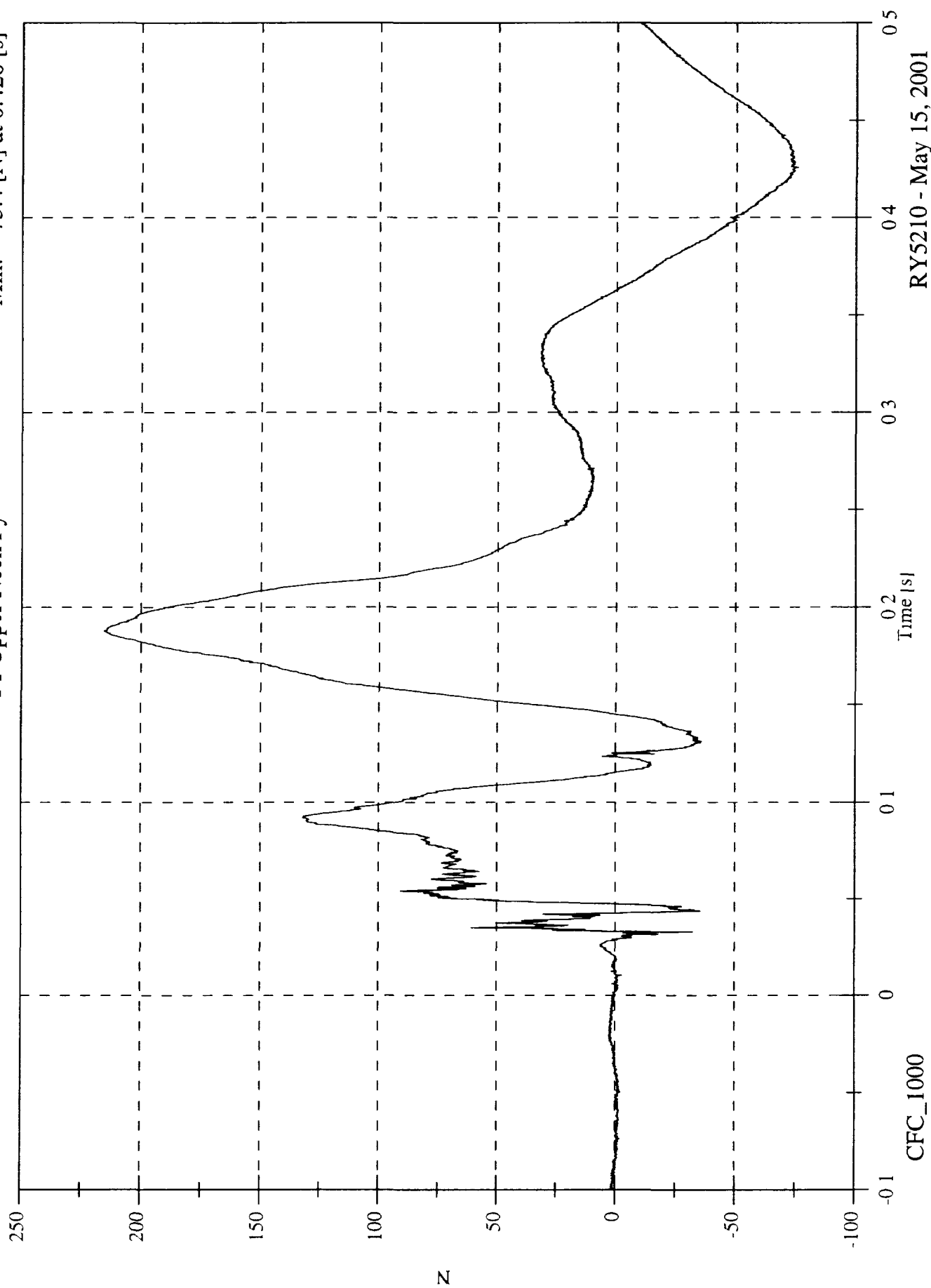
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 215.3 [N] at 0.188 [s]
Min: -75.4 [N] at 0.426 [s]

P1 Upper Neck Fy

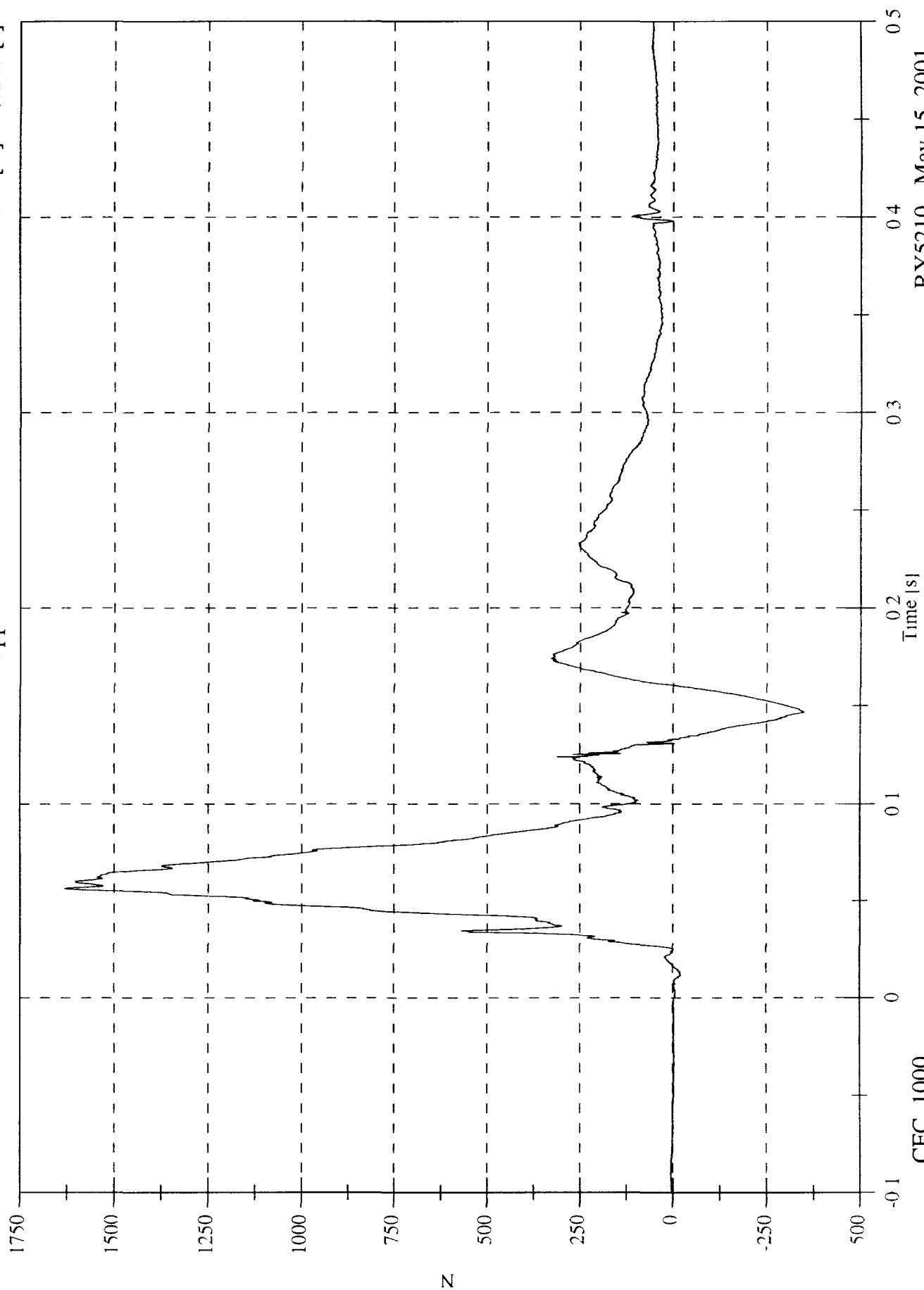


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1629.8 [N] at 0.056 [s]
 Min: -349.7 [N] at 0.147 [s]

P1 Upper Neck Fz



CFC_1000

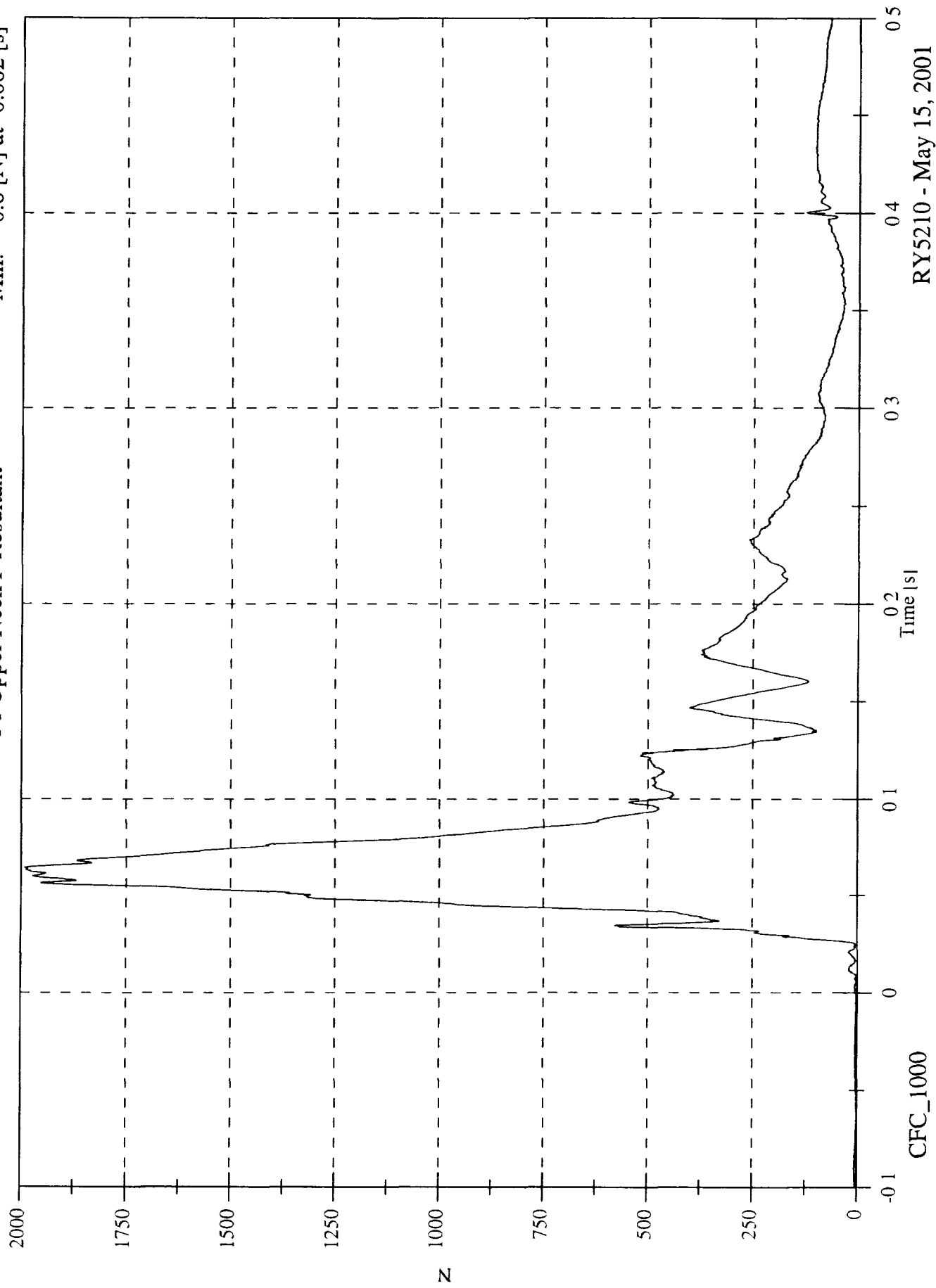
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1990.3 [N] at 0.064 [s]
Min: 0.6 [N] at -0.062 [s]

P1 Upper Neck F Resultant

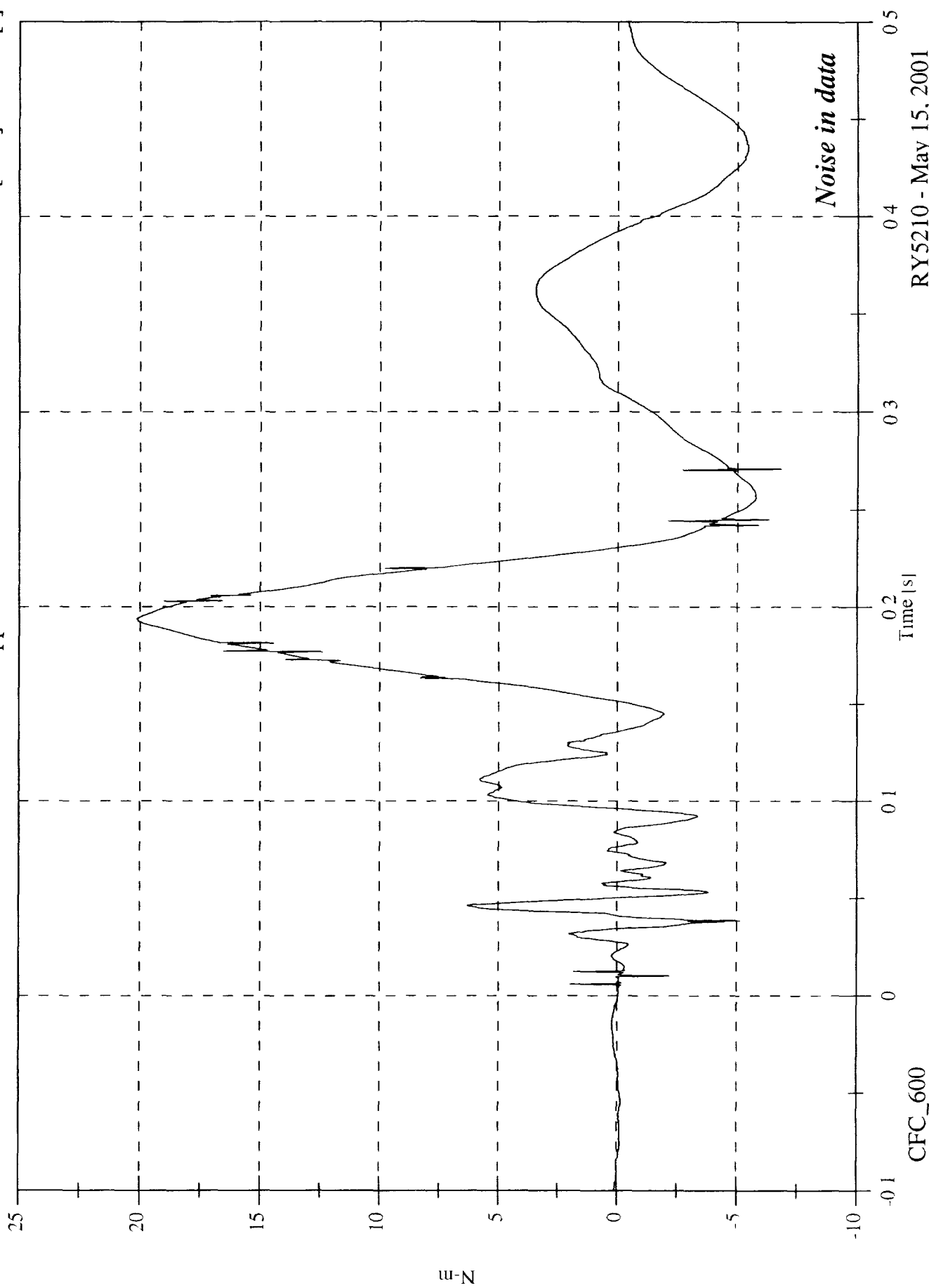


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 20.1 [N-m] at 0.194 [s]
 Min: -6.8 [N-m] at 0.271 [s]

P1 Upper Neck Mx

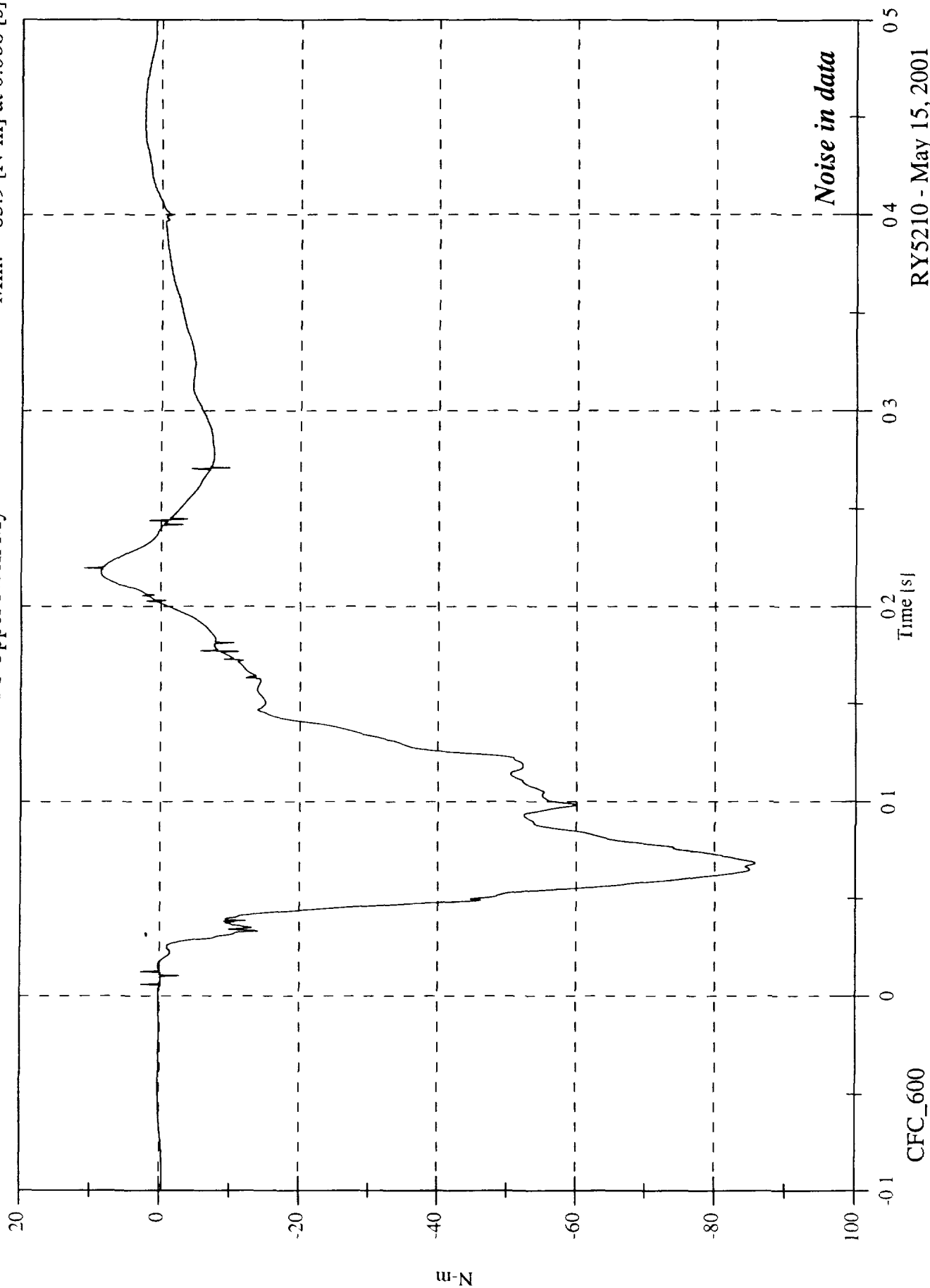


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Upper Neck My

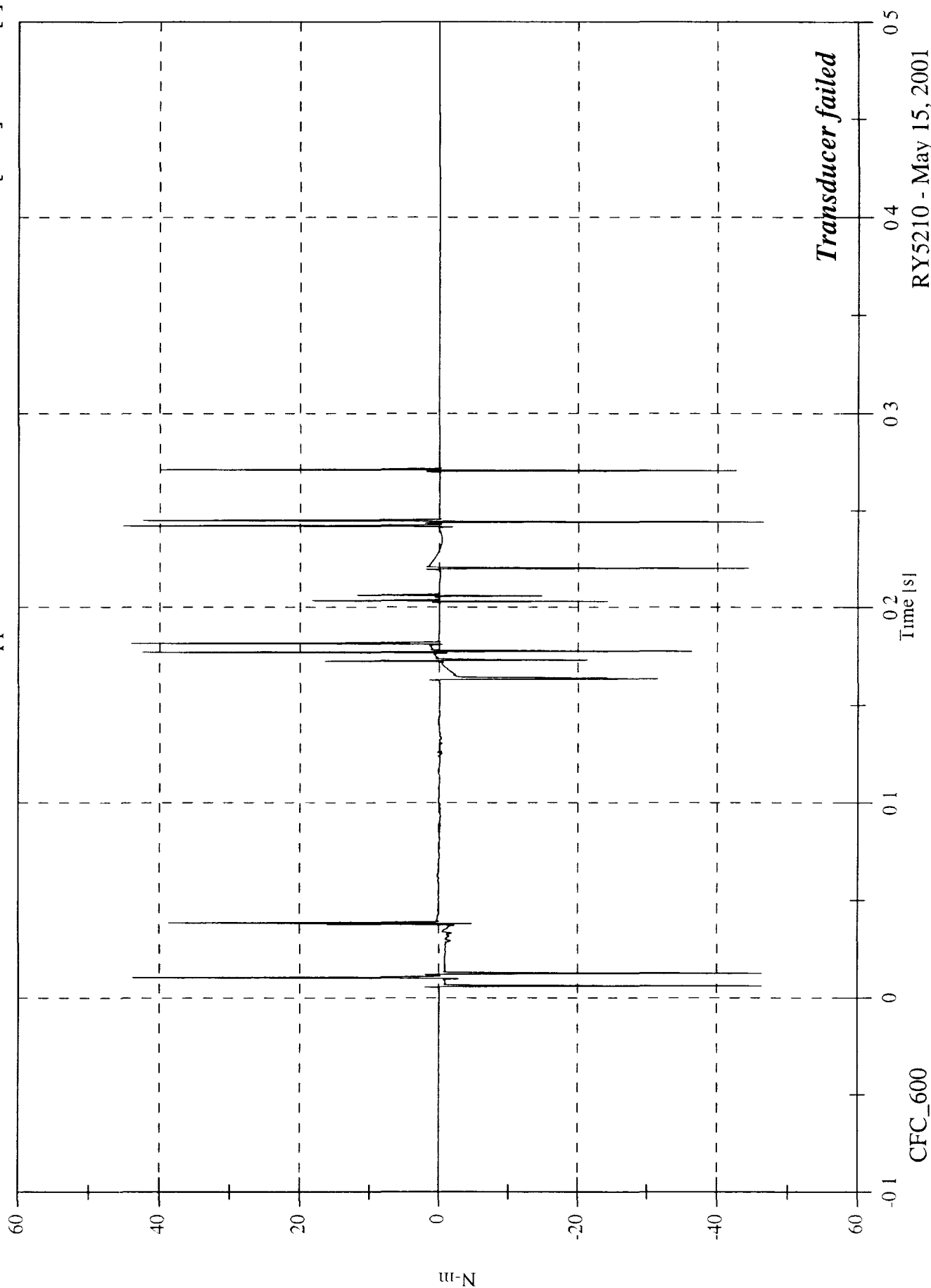
Max: 11.0 [N-m] at 0.220 [s]
Min: -85.9 [N-m] at 0.068 [s]



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 45.2 [N-m] at 0.242 [s]
 Min -46.5 [N-m] at 0.244 [s]

P1 Upper Neck Mz

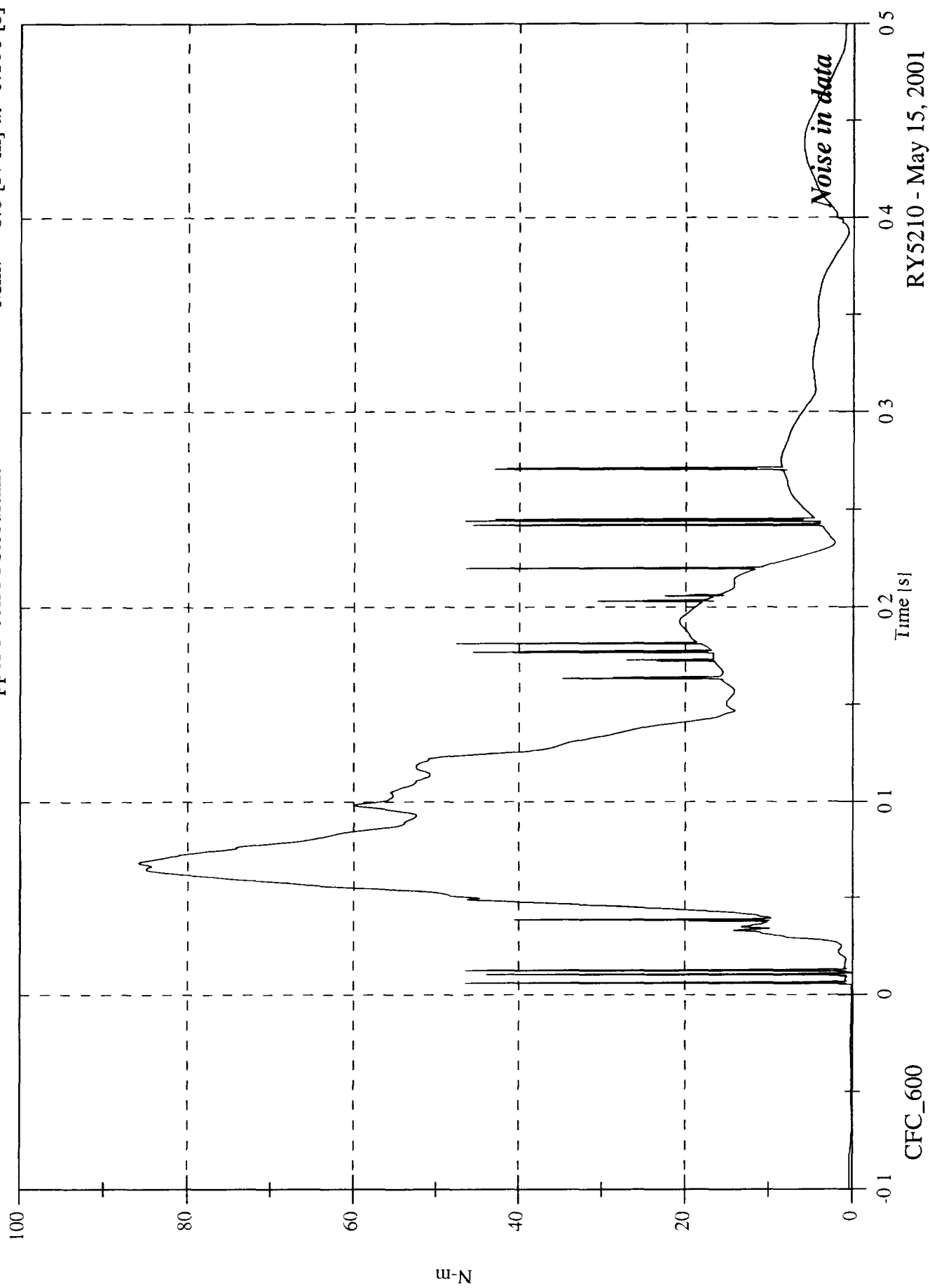


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 85.9 [N-m] at 0.068 [s]
Min: 0.0 [N-m] at -0.100 [s]

P1 Upper Neck M Resultant

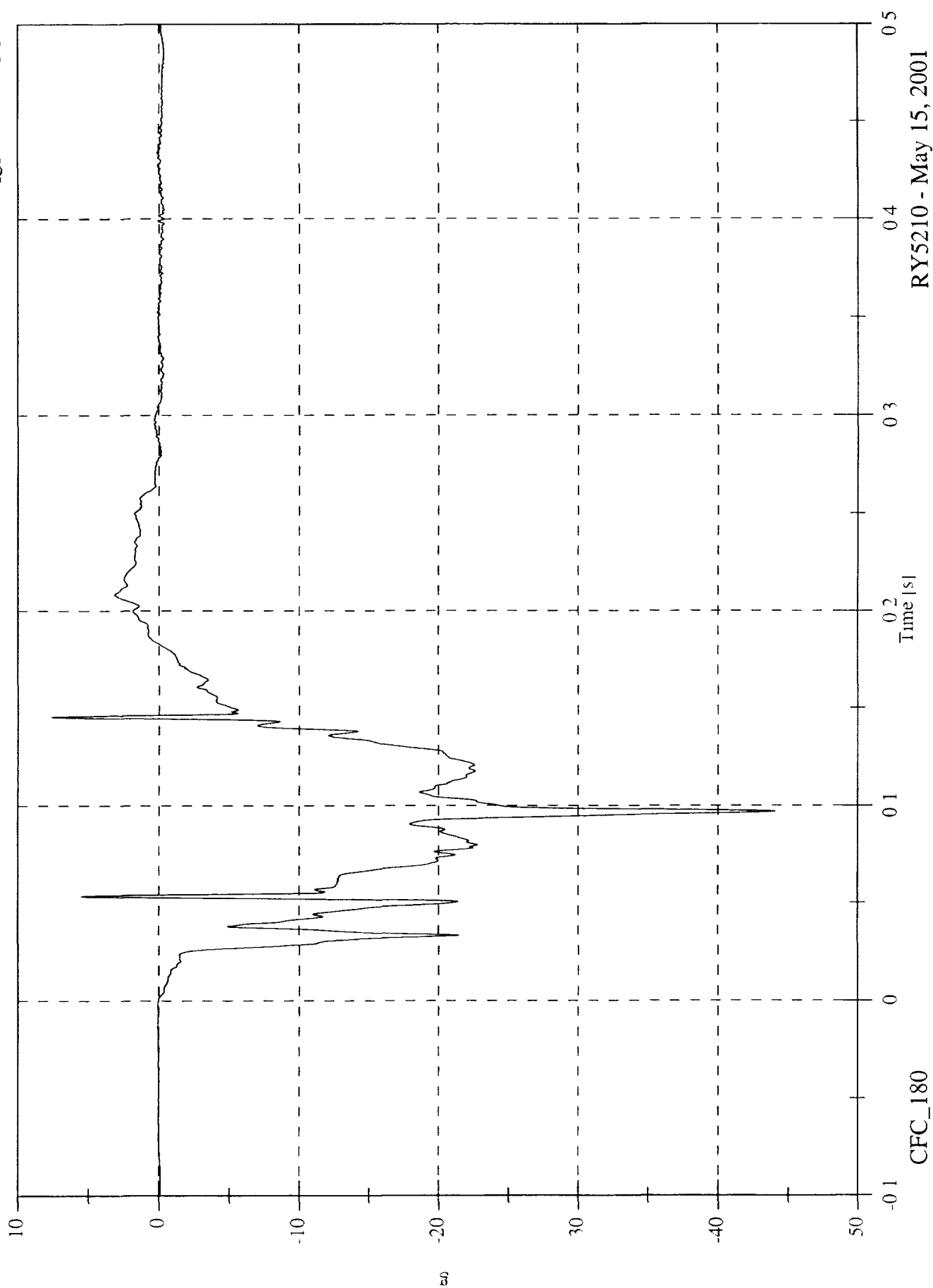


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 7.6 [g] at 0.145 [s]
 Min: -44.1 [g] at 0.097 [s]

P1 Chest Ax

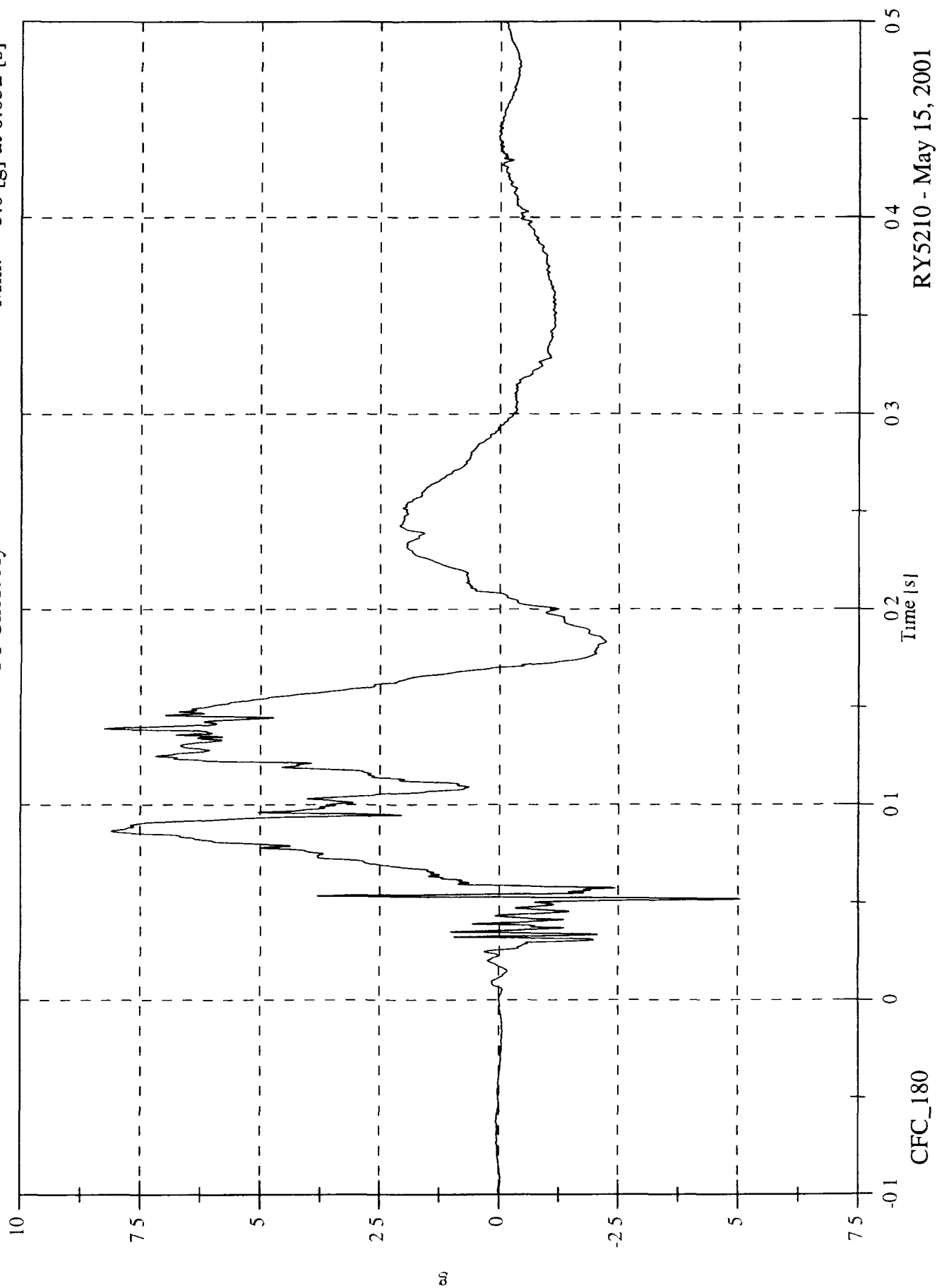


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 8.3 [g] at 0.139 [s]
Min: -5.0 [g] at 0.052 [s]

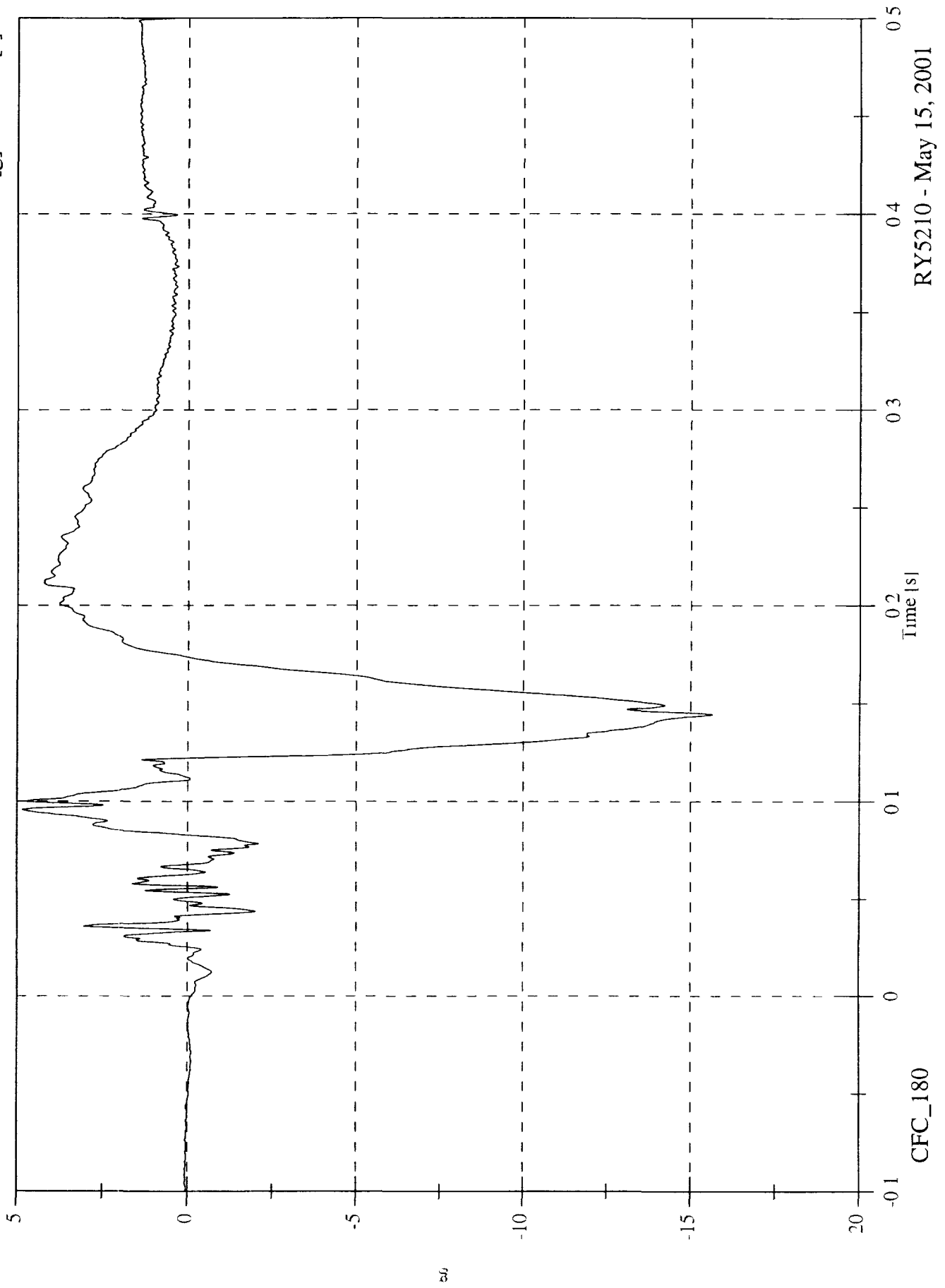
P1 Chest Ay



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 4.8 [g] at 0.096 [s]
Min: -15.6 [g] at 0.144 [s]

P1 Chest Az

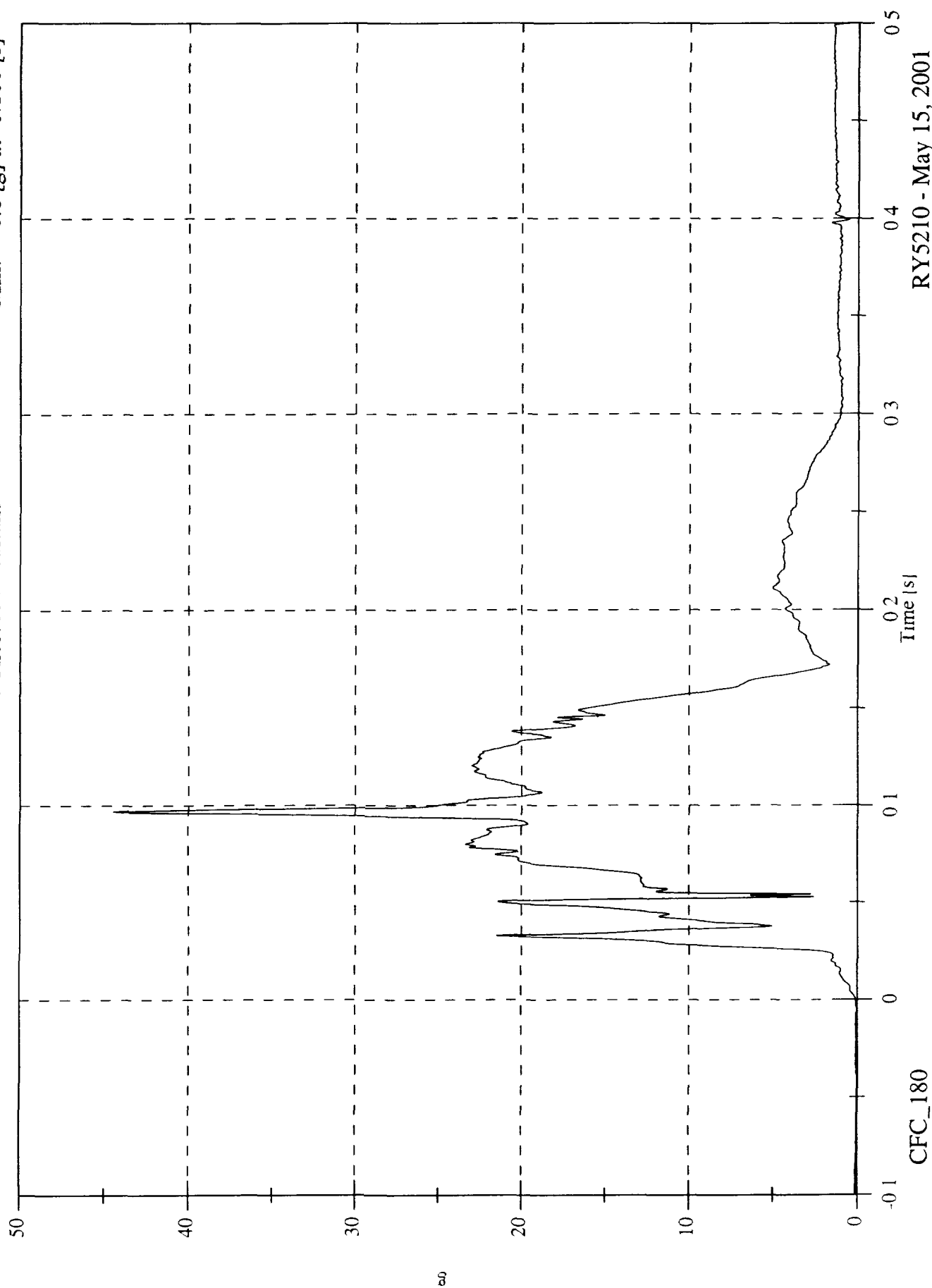


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Chest A Resultant

Max: 44.5 [g] at 0.097 [s]
Min: 0.0 [g] at -0.100 [s]

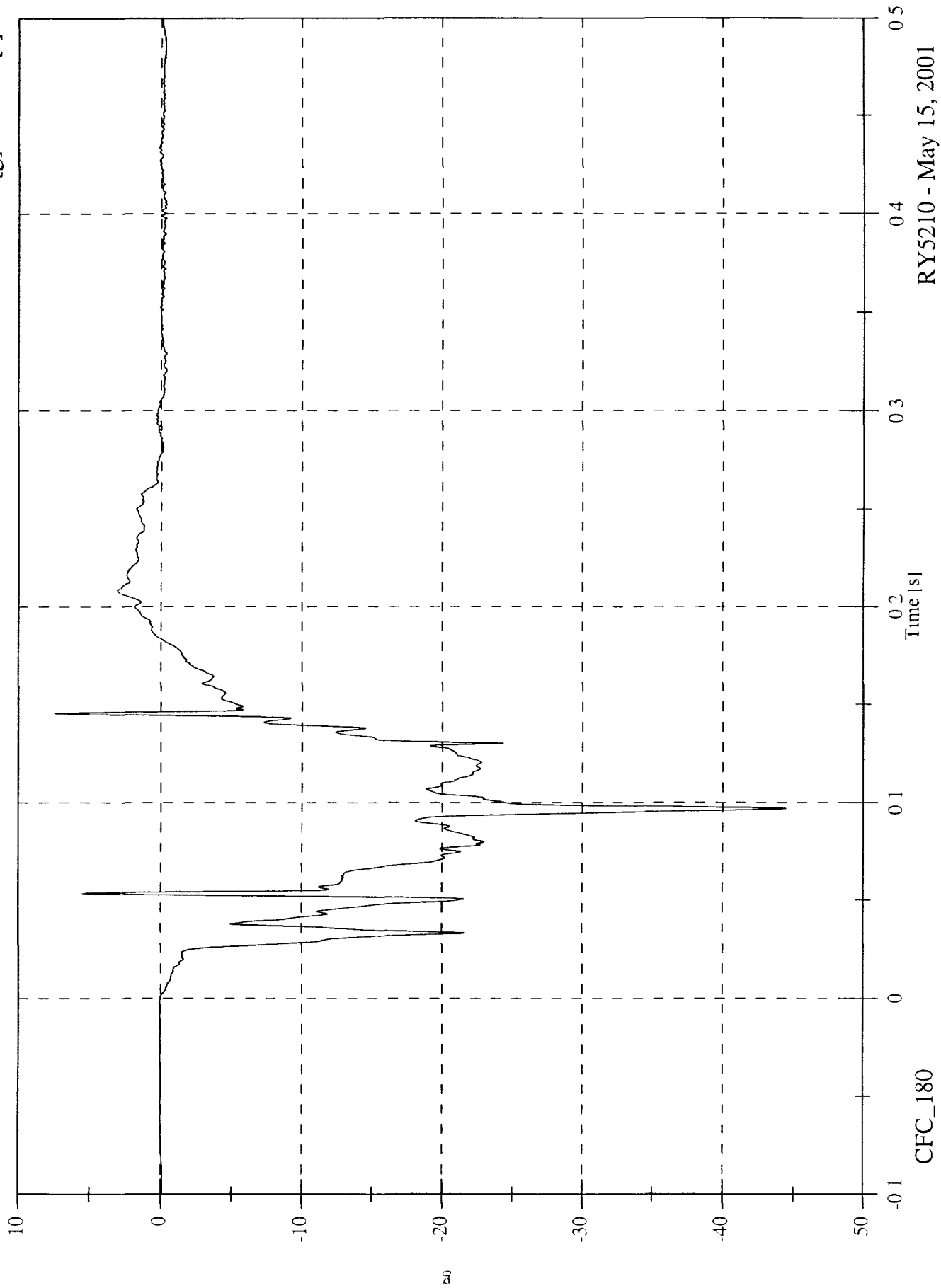


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 7.4 [g] at 0.145 [s]
 Min: -44.5 [g] at 0.097 [s]

P1 Chest Red Ax

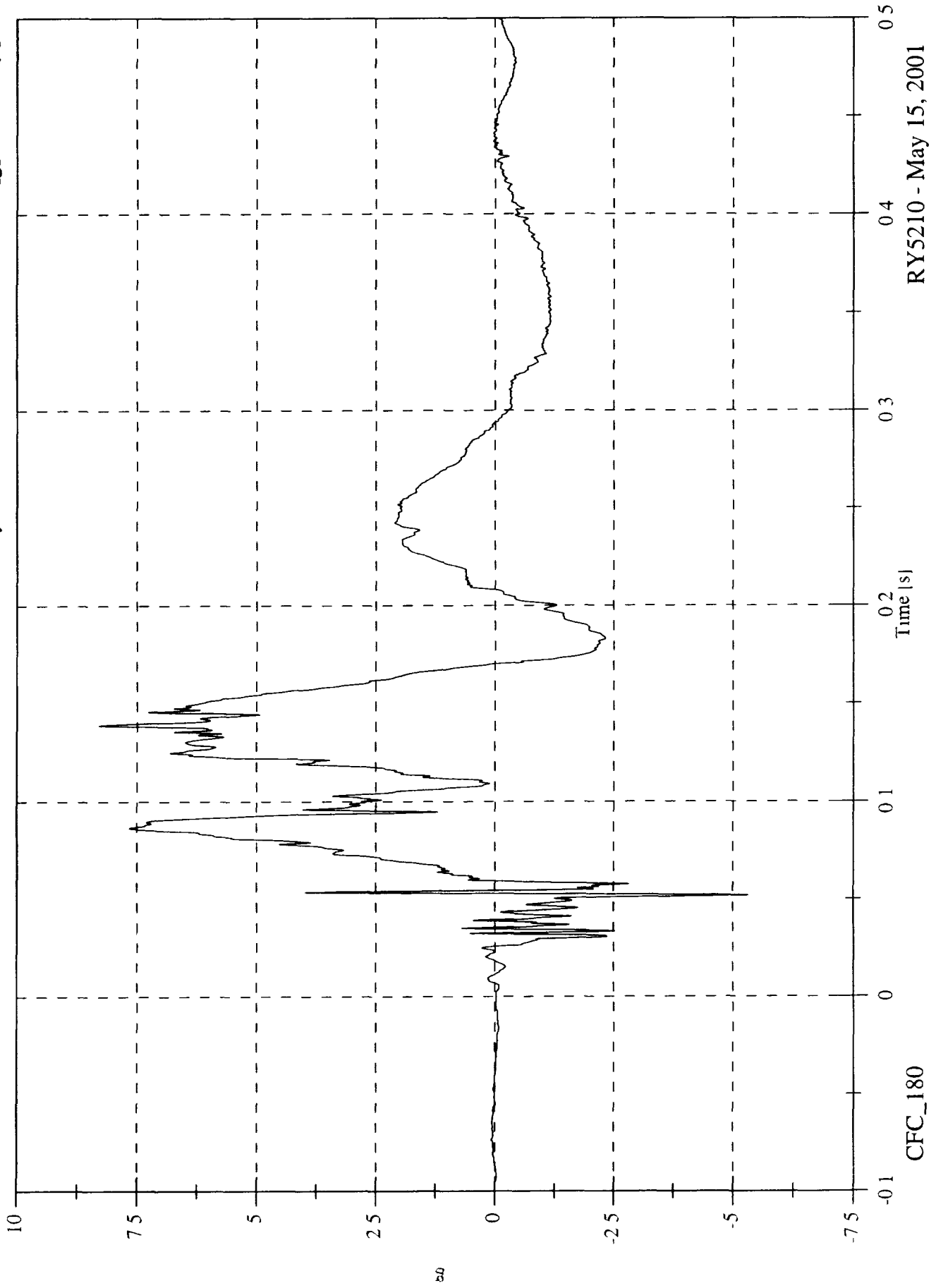


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 8.3 [g] at 0.139 [s]
Min: -5.3 [g] at 0.052 [s]

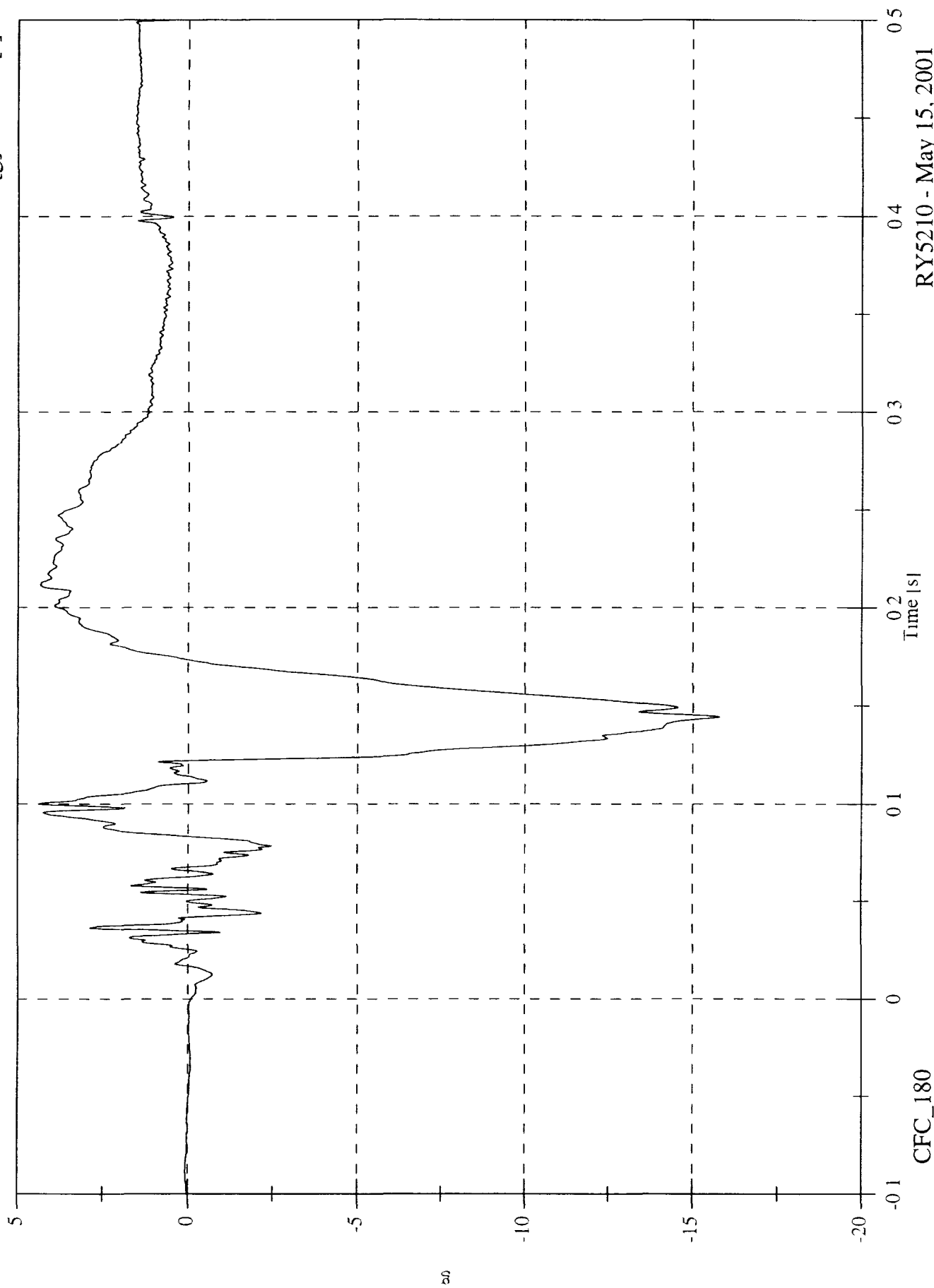
P1 Chest Red Ay



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 4.4 [g] at 0.100 [s]
Min. -15.8 [g] at 0.144 [s]

P1 Chest Red Az

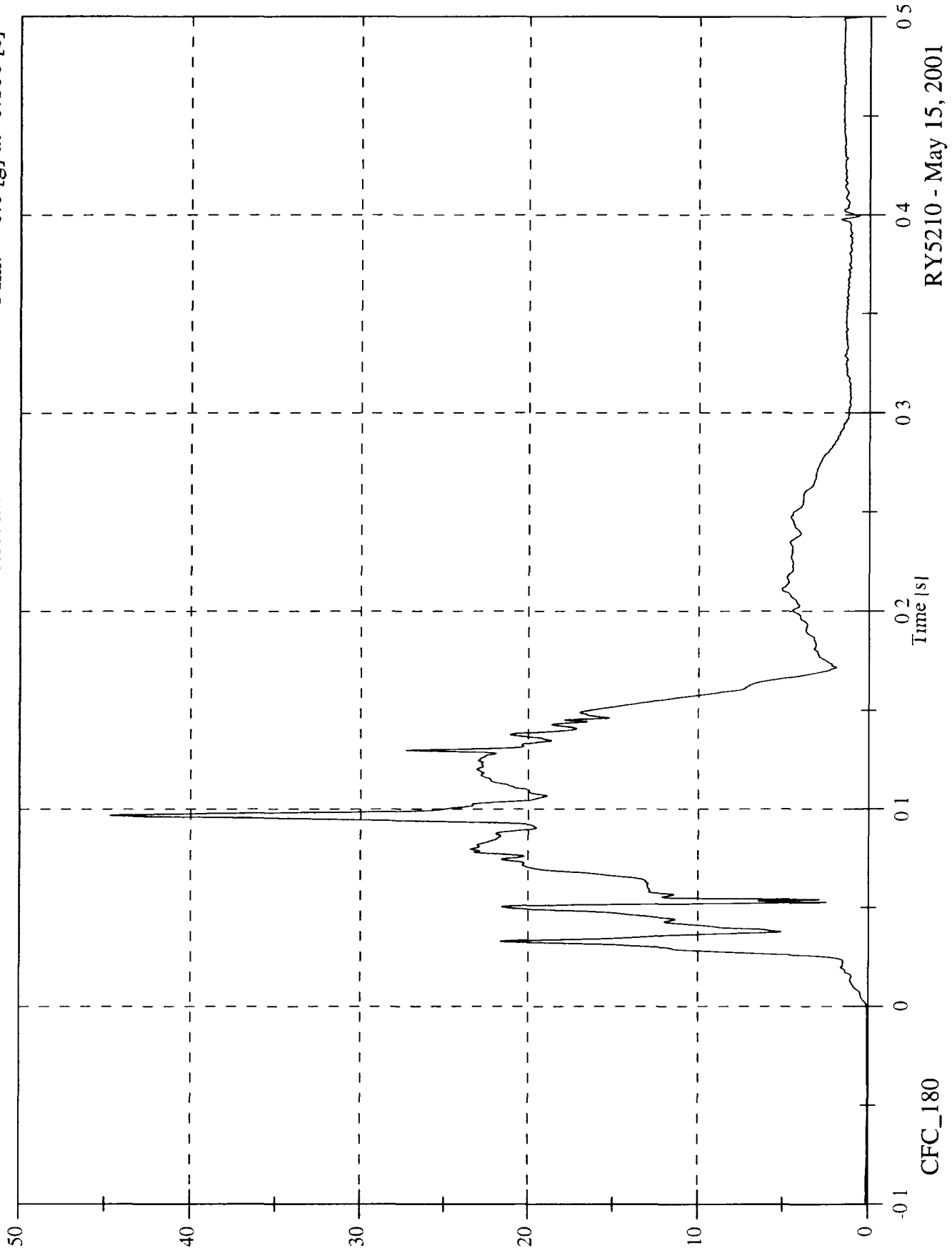


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Chest Red A Resultant

Max: 44.7 [g] at 0.097 [s]
Min: 0.0 [g] at -0.100 [s]

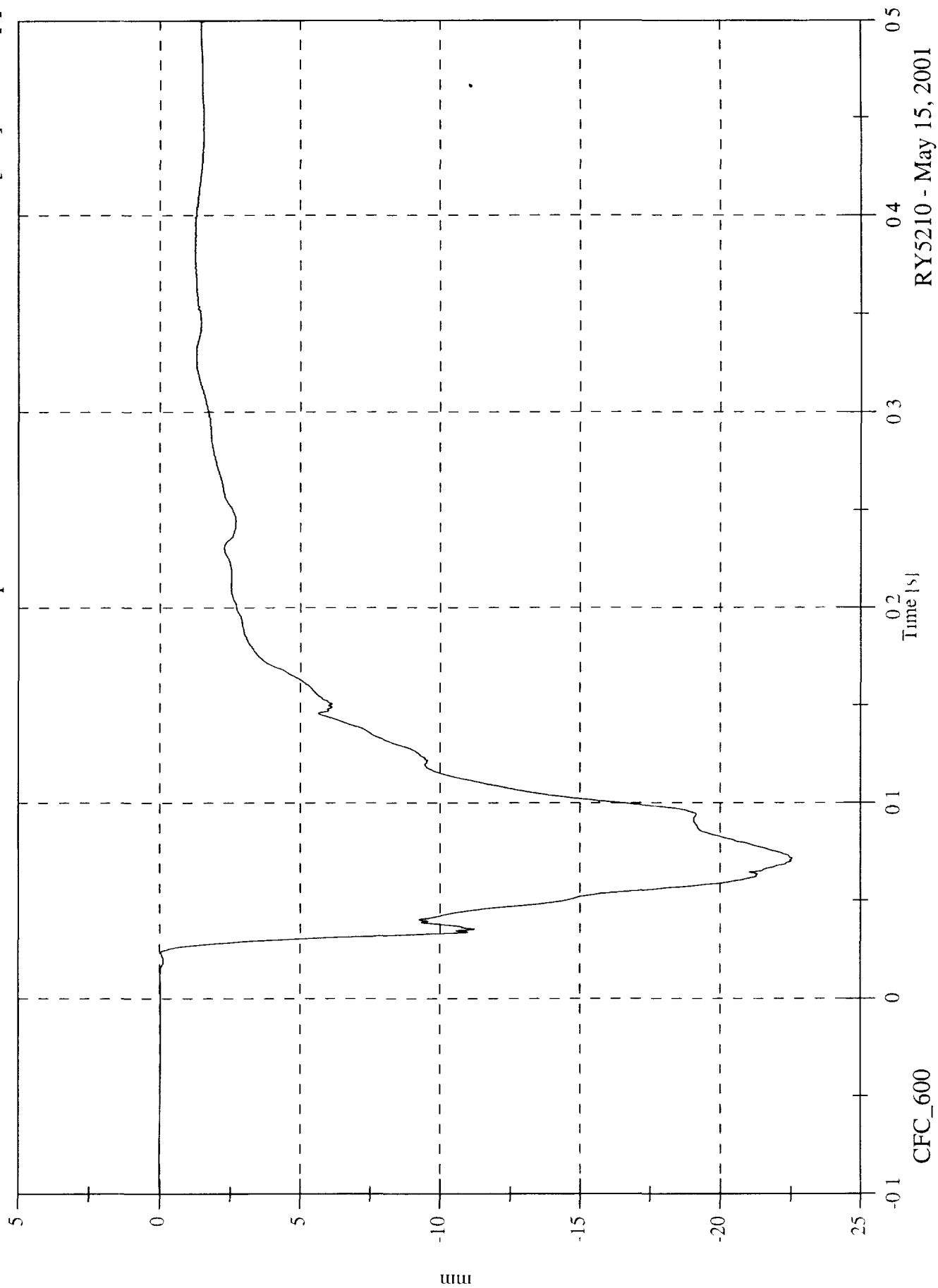


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 0.0 [mm] at -0.081 [s]
Min. -22.6 [mm] at 0.071 [s]

P1 Chest Displacement

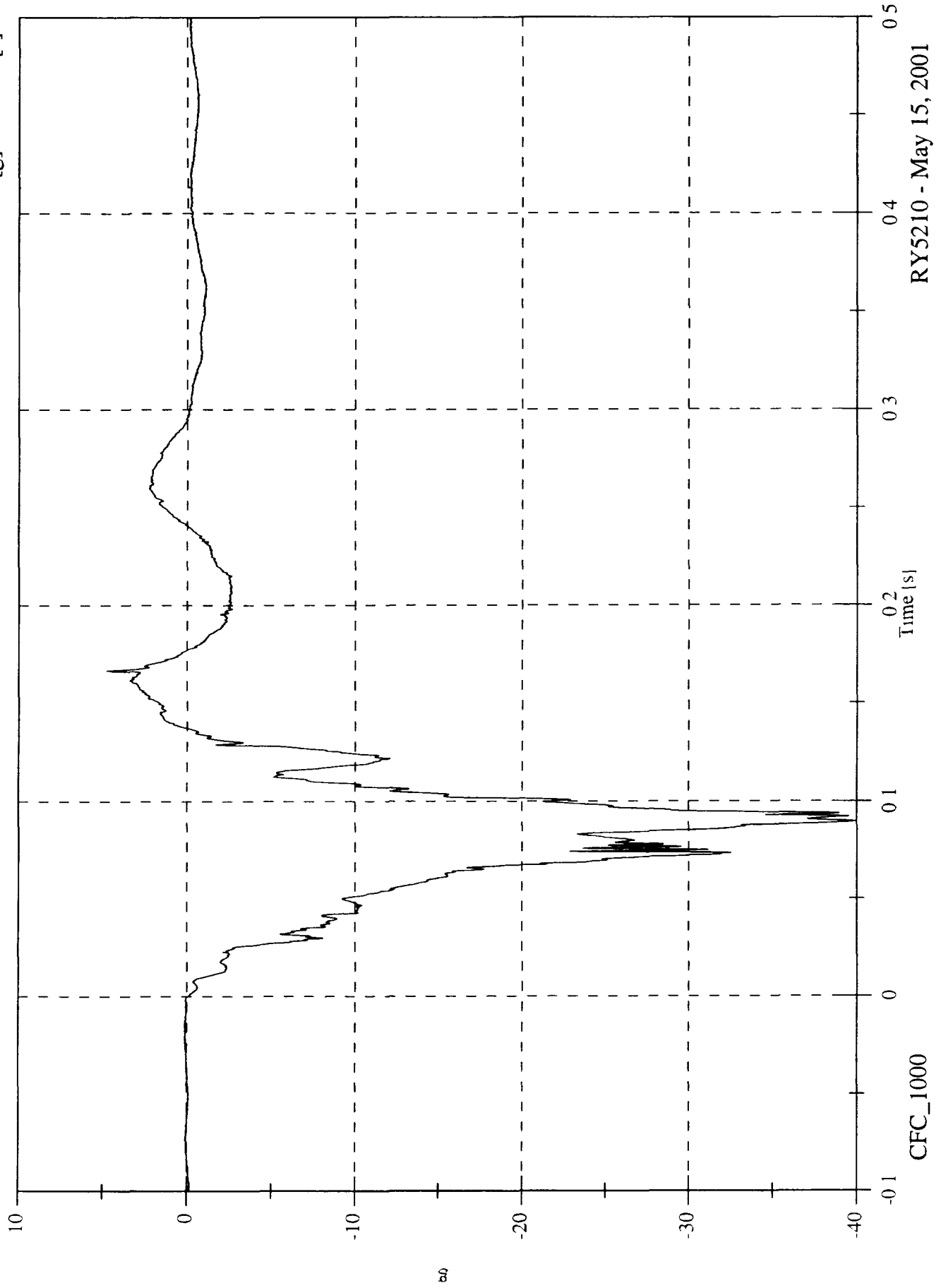


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 4.8 [g] at 0.167 [s]
Min: -39.9 [g] at 0.090 [s]

P1 Pelvic Ax

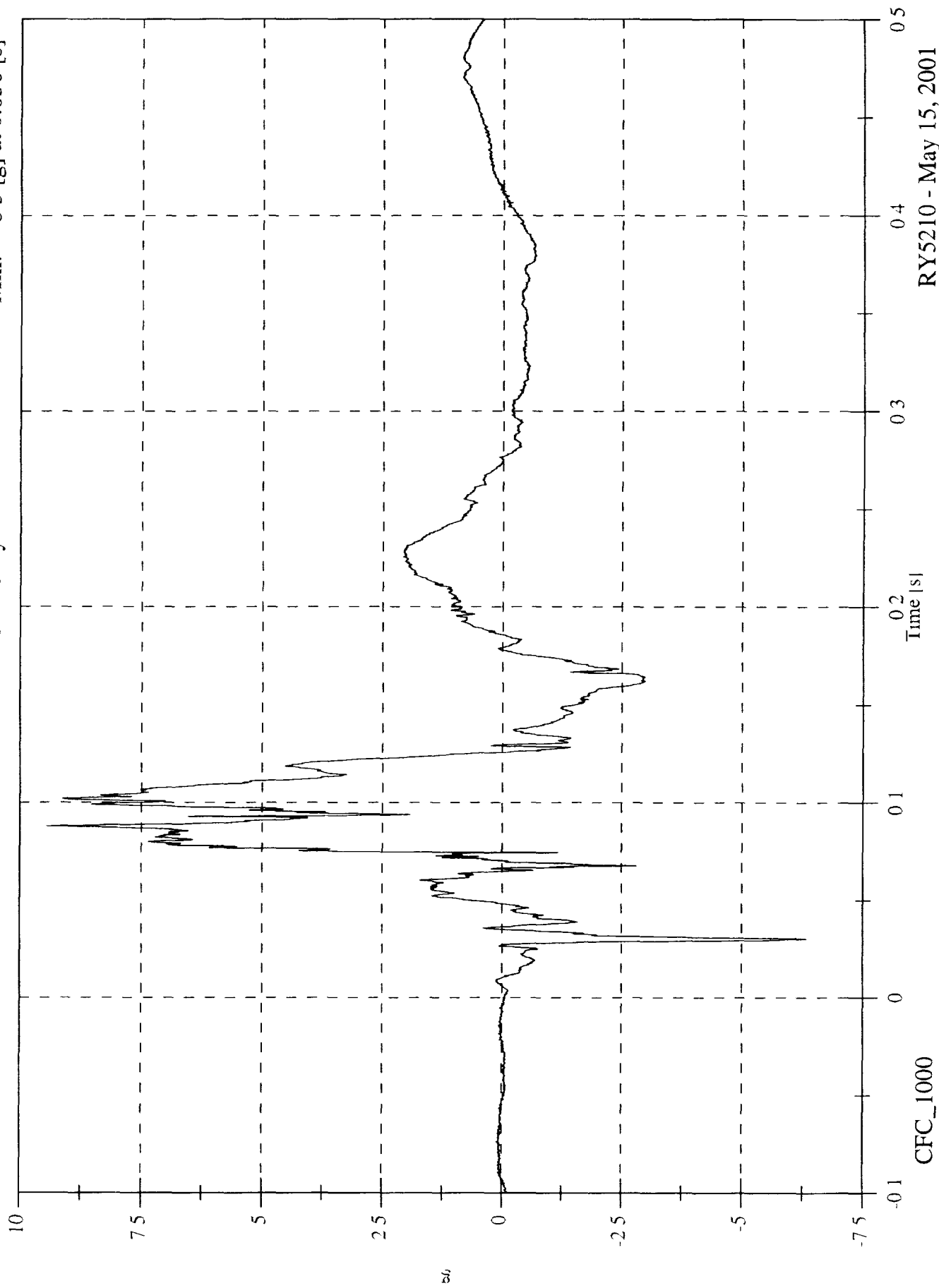


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 9.4 [g] at 0.088 [s]
 Min: -6.3 [g] at 0.030 [s]

P1 Pelvic Ay

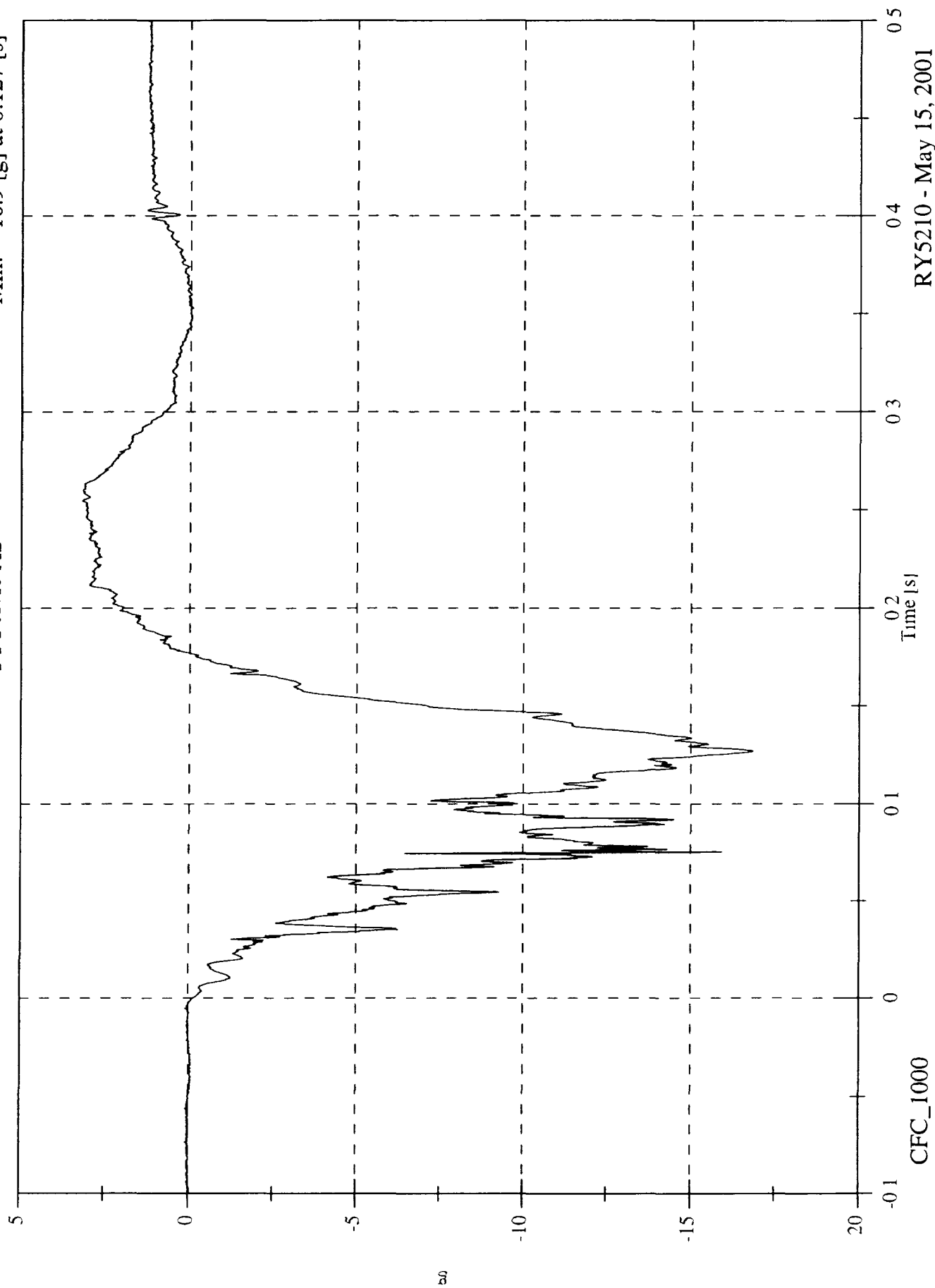


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Pelvic Az

Max: 3.2 [g] at 0.255 [s]
Min: -16.9 [g] at 0.127 [s]

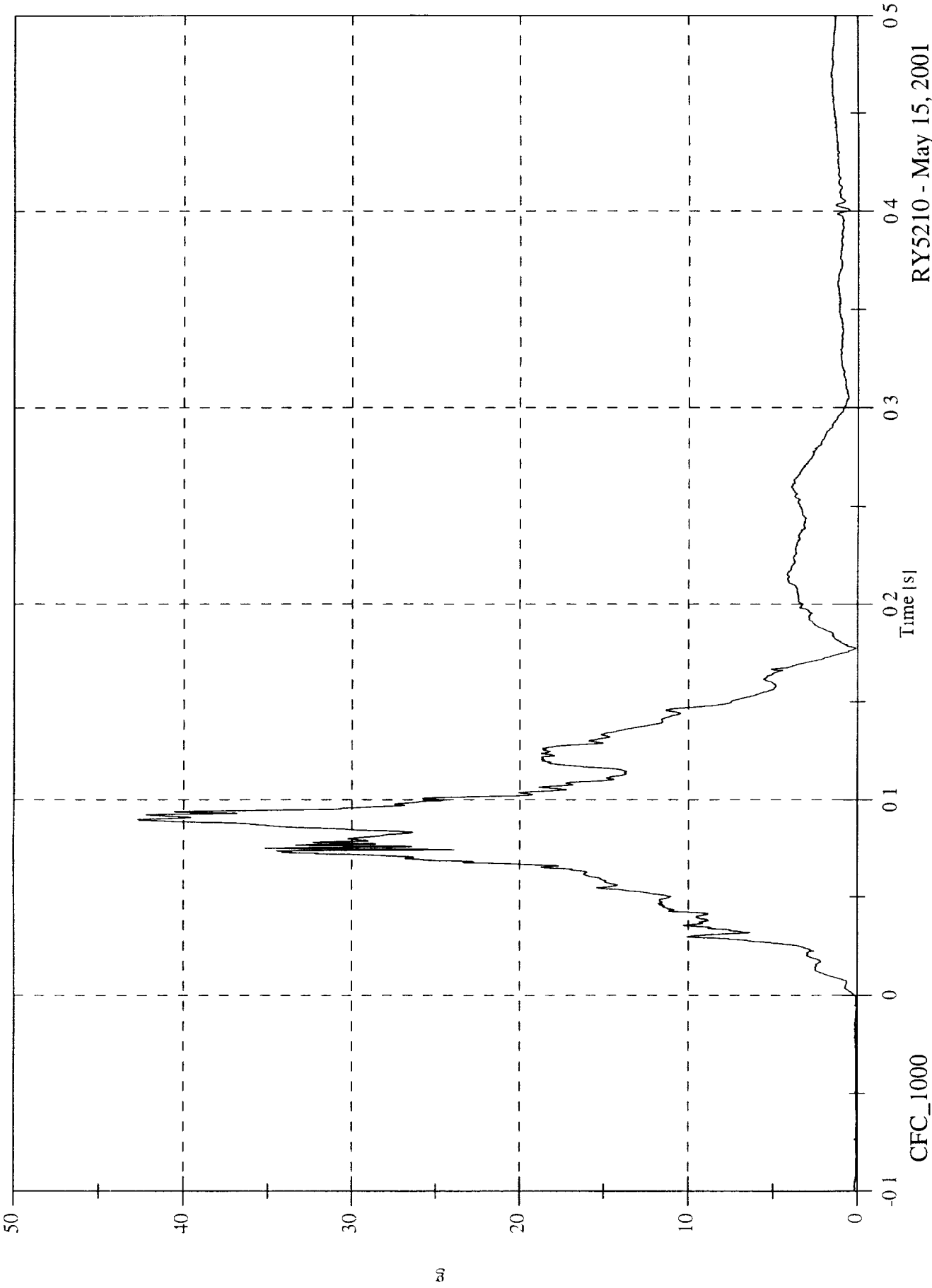


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 42.7 [g] at 0.090 [s]
Min: 0.0 [g] at -0.064 [s]

P1 Pelvic A Resultant

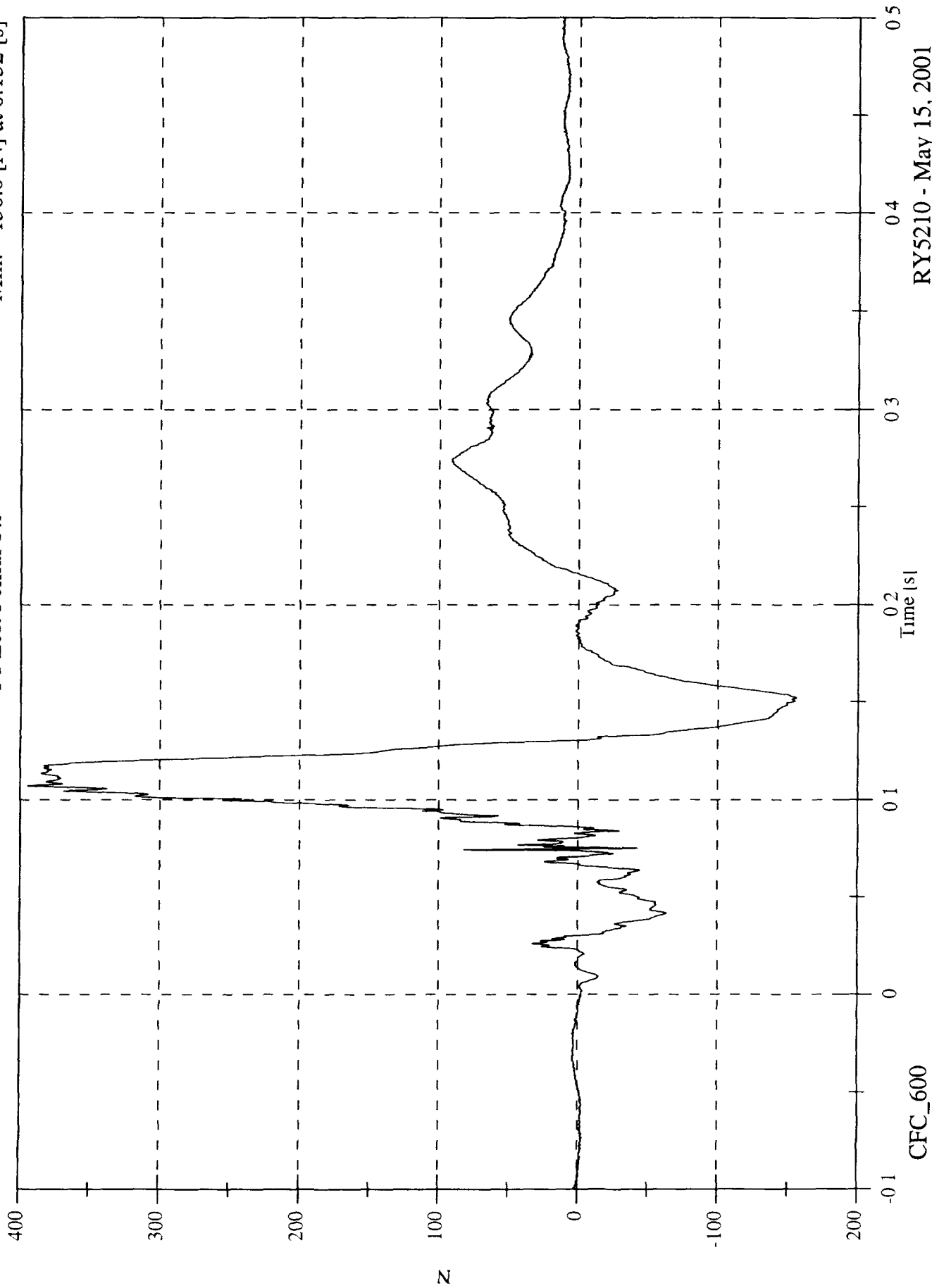


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 394.9 [N] at 0.107 [s]
Min: -156.0 [N] at 0.152 [s]

P1 Left Femur Fx



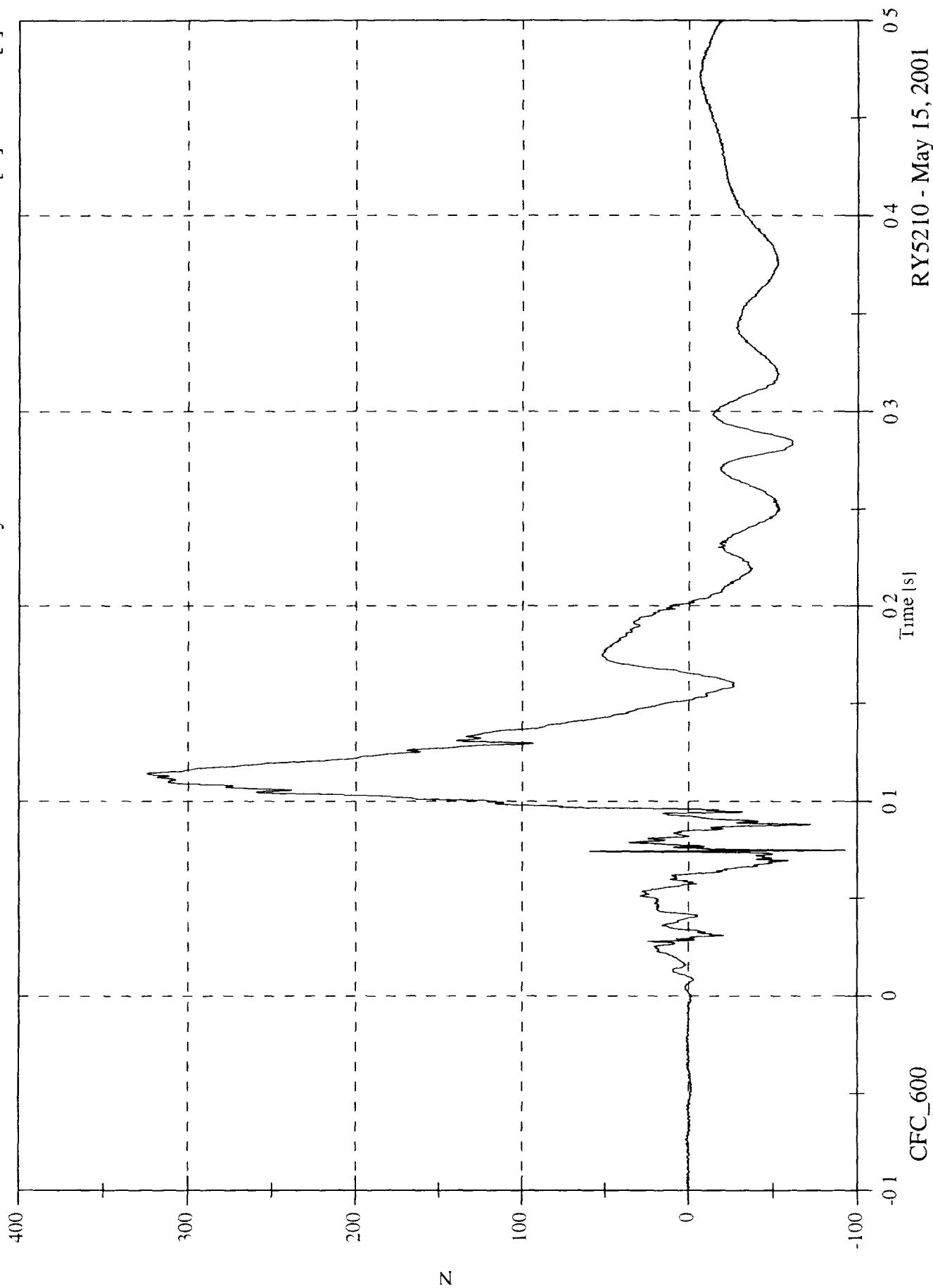
CFC_600

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 324.4 [N] at 0.114 [s]
Min: -92.9 [N] at 0.075 [s]

P1 Left Femur Fy

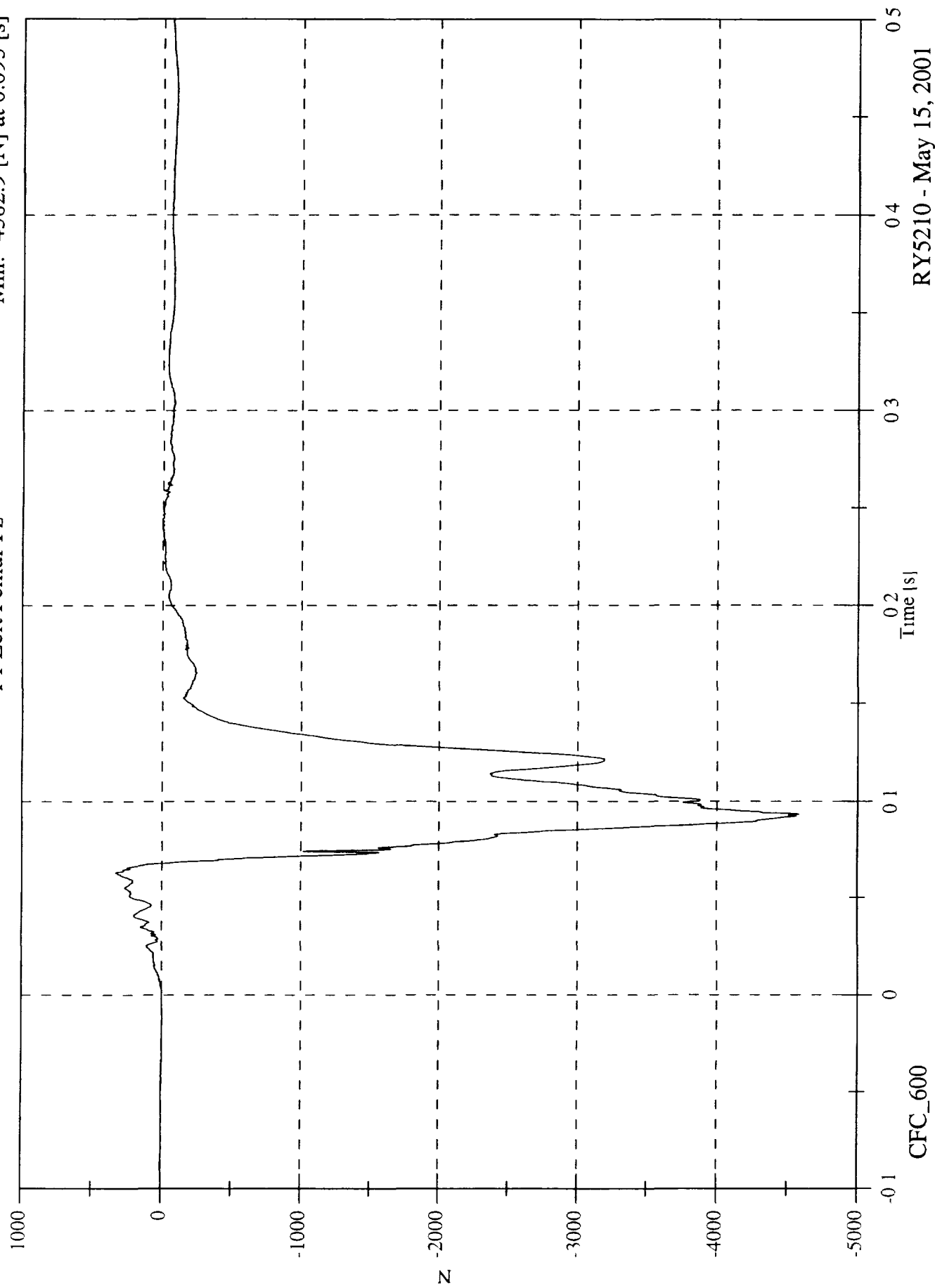


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Left Femur Fz

Max: 329.0 [N] at 0.063 [s]
Min: -4582.9 [N] at 0.093 [s]



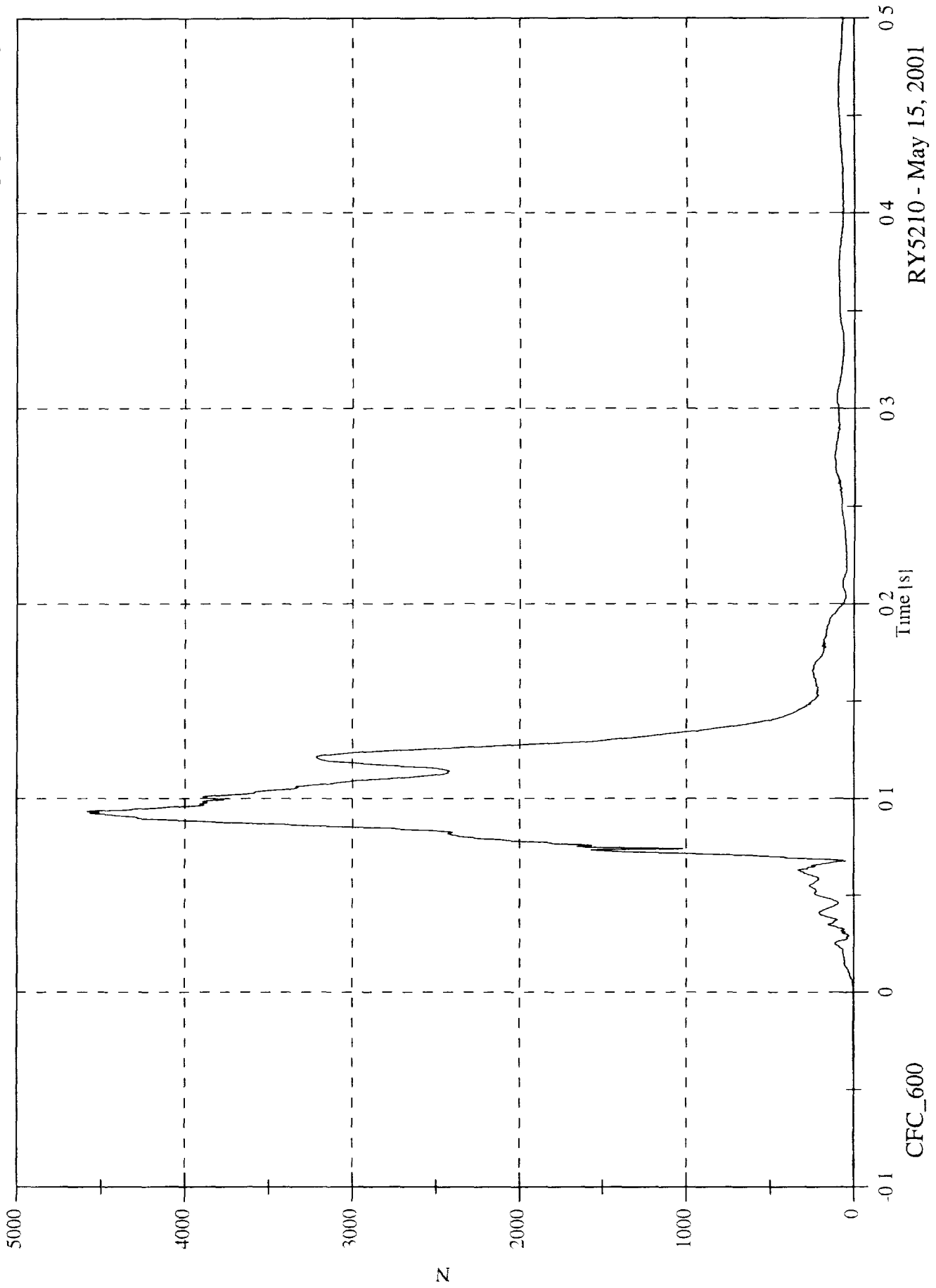
CFC_600

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 4584.0 [N] at 0.093 [s]
Min: 0.1 [N] at -0.004 [s]

P1 Left Femur F Resultant

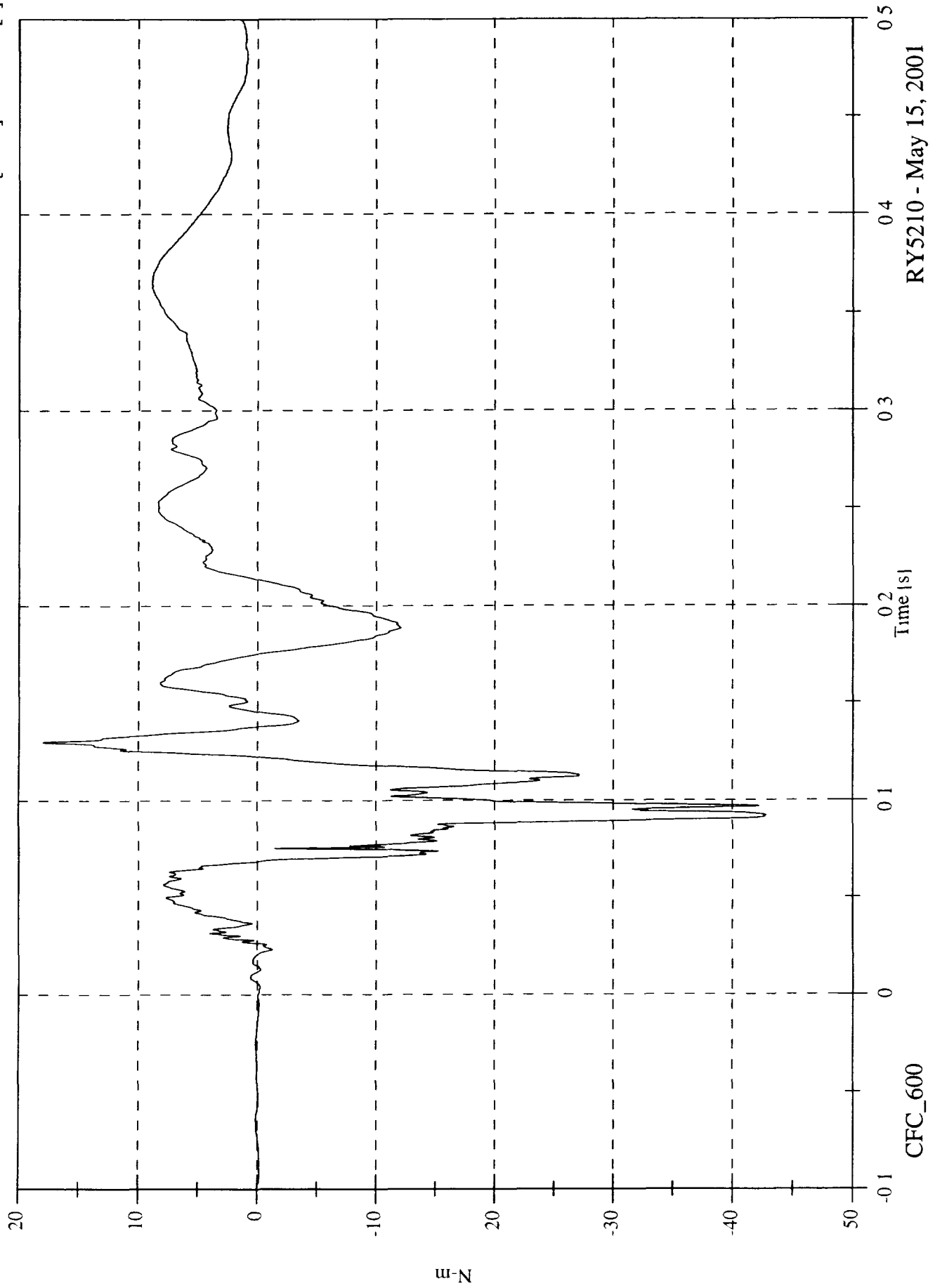


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 18.0 [N-m] at 0.130 [s]
Min: -42.8 [N-m] at 0.092 [s]

P1 Left Femur Mx

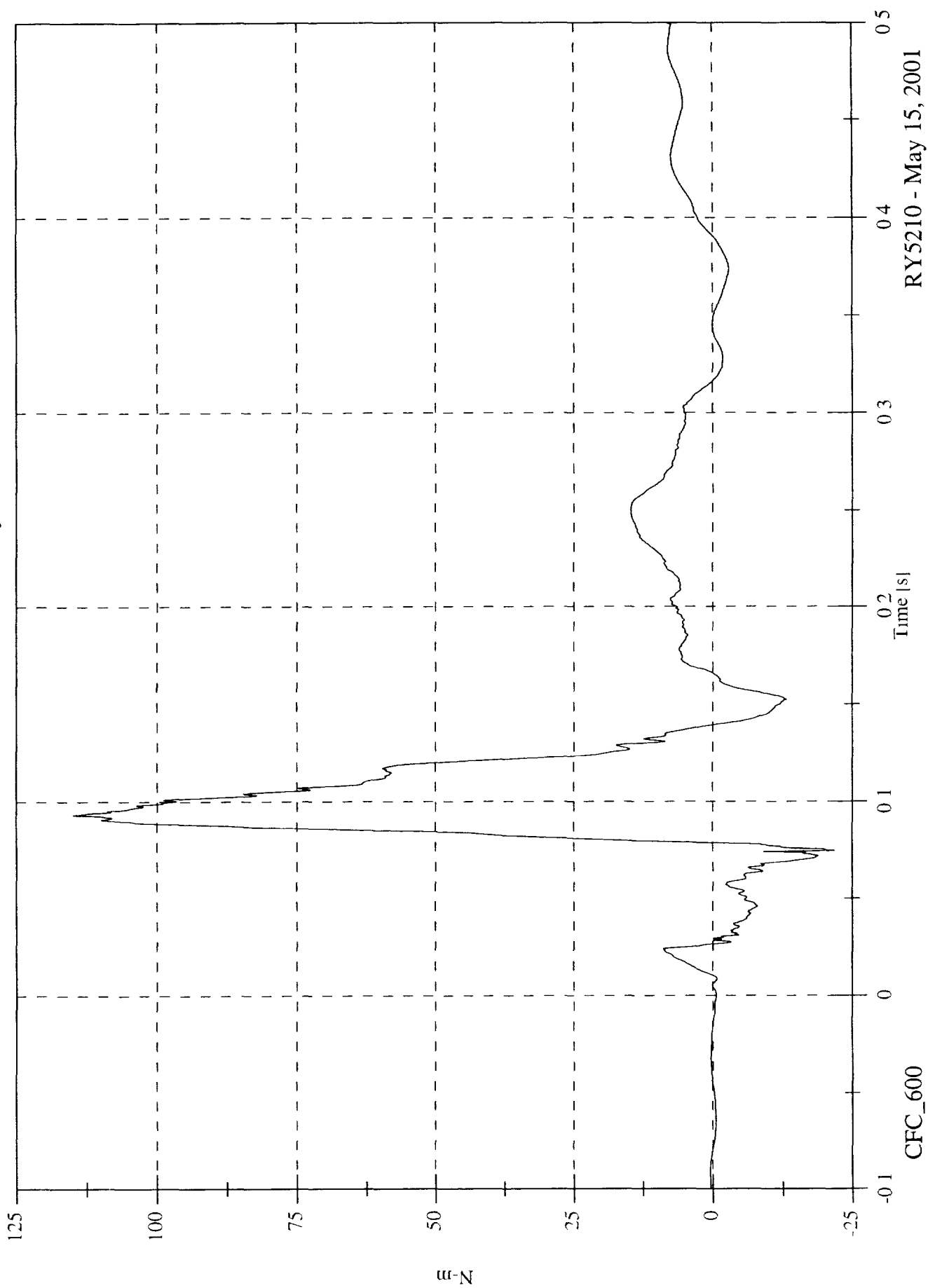


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max 114.9 [N-m] at 0.093 [s]
 Min: -21.8 [N-m] at 0.075 [s]

P1 Left Femur My

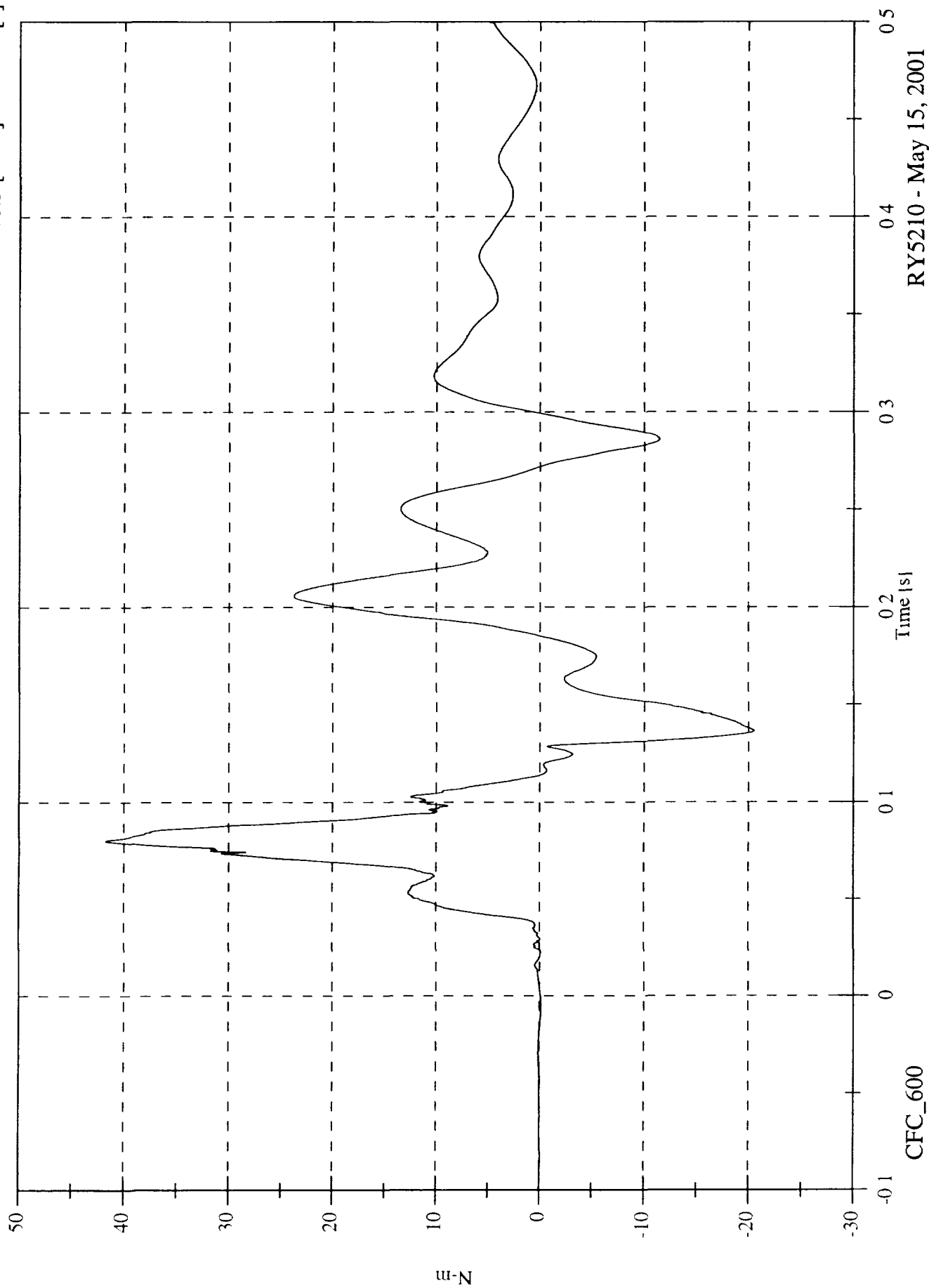


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Left Femur Mz

Max: 41.7 [N-m] at 0.080 [s]
Min: -20.5 [N-m] at 0.137 [s]

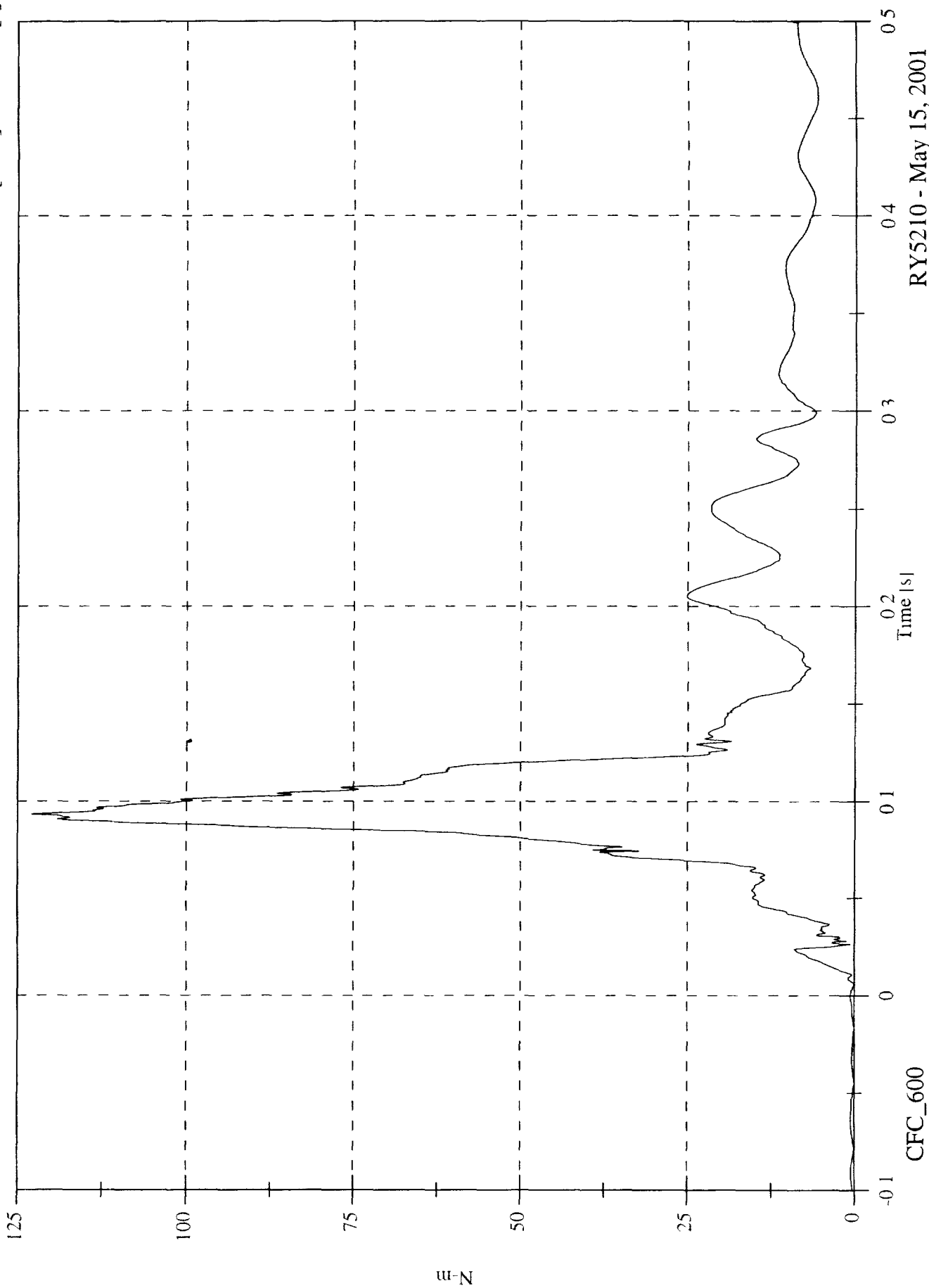


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Left Femur M Resultant

Max: 122.9 [N-m] at 0.093 [s]
Min: 0.0 [N-m] at -0.017 [s]

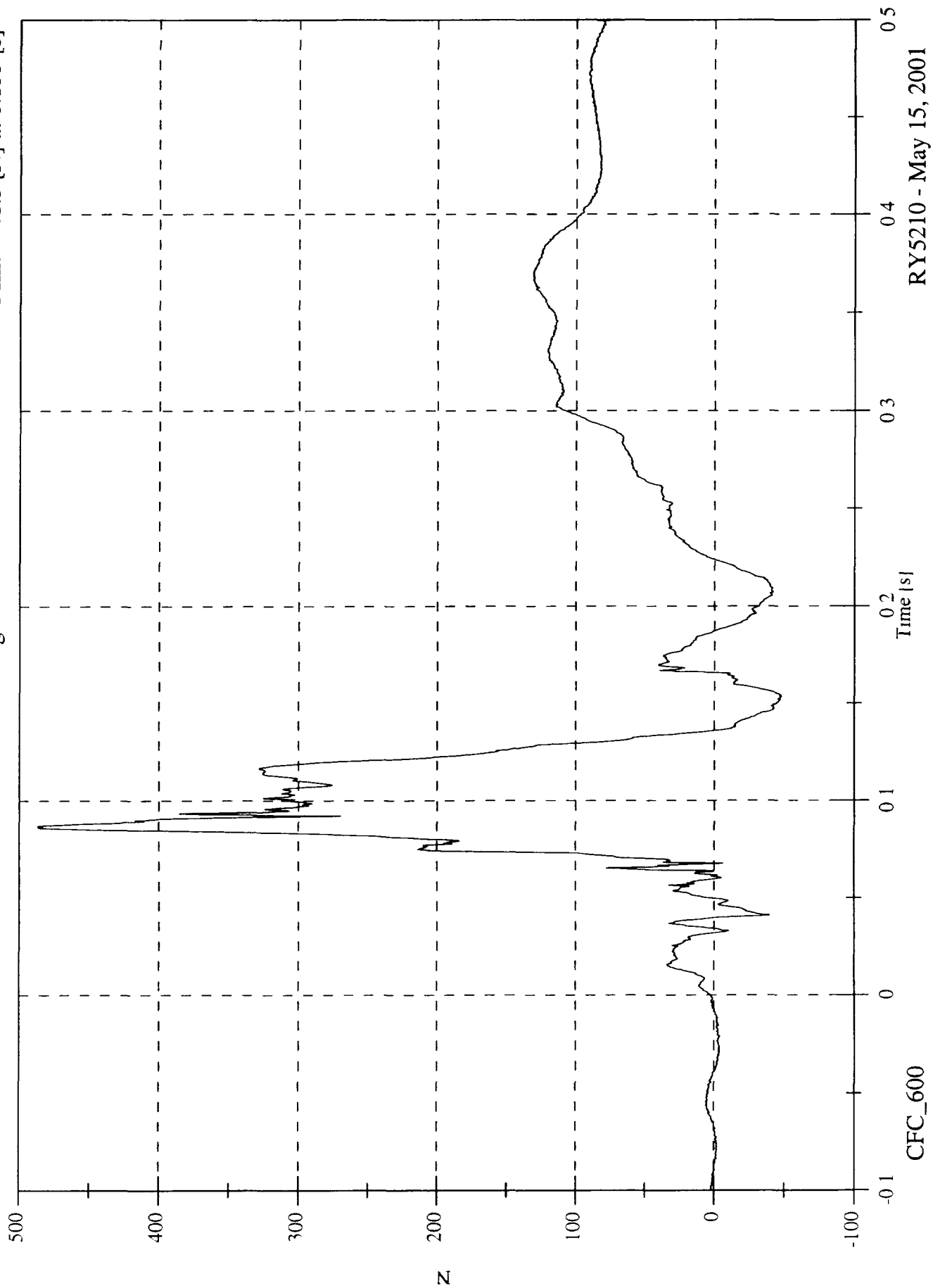


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 486.5 [N] at 0.087 [s]
Min: -48.3 [N] at 0.153 [s]

P1 Right Femur Fx



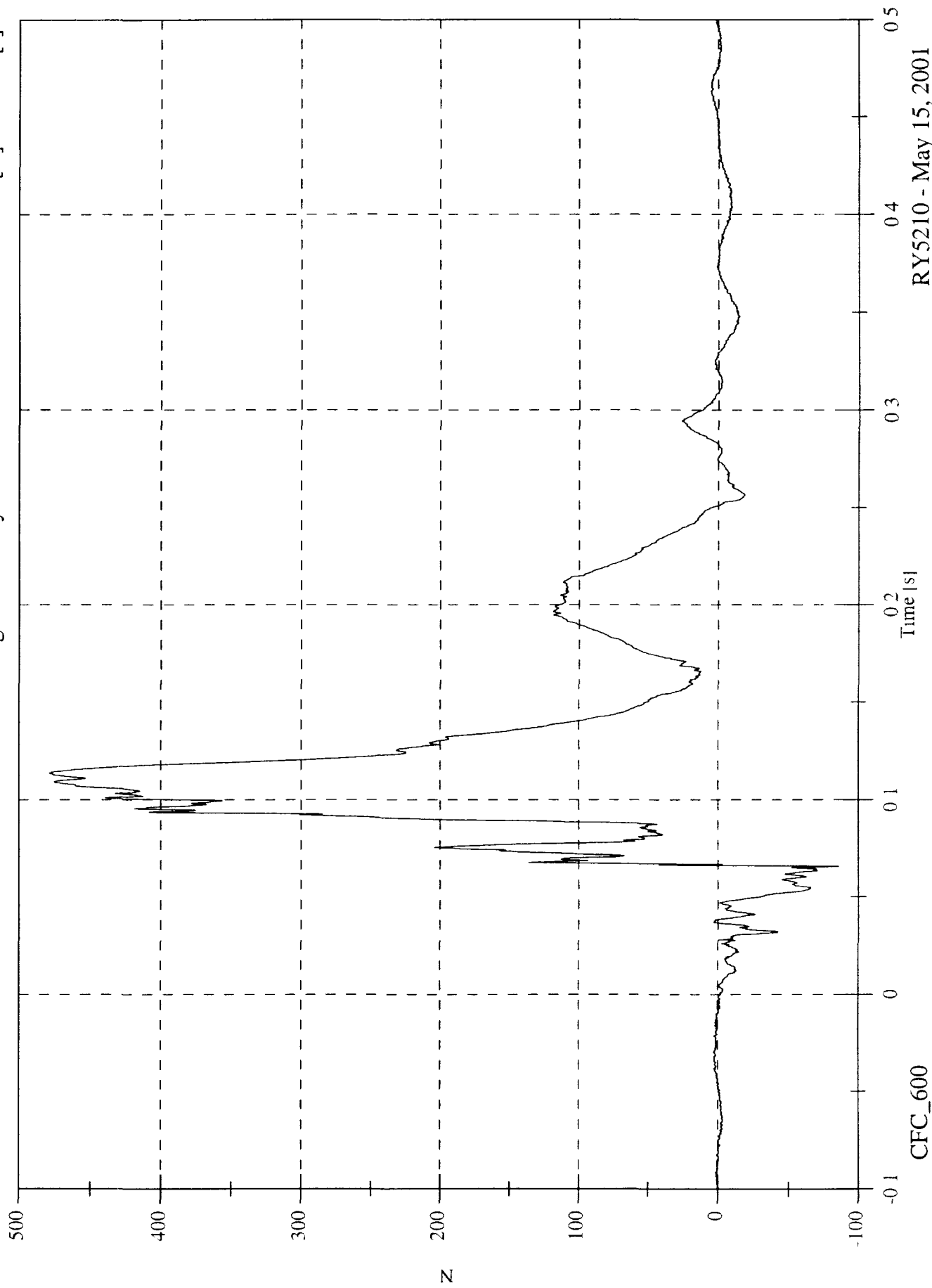
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 478.5 [N] at 0.114 [s]

Min: -85.8 [N] at 0.066 [s]

P1 Right Femur Fy

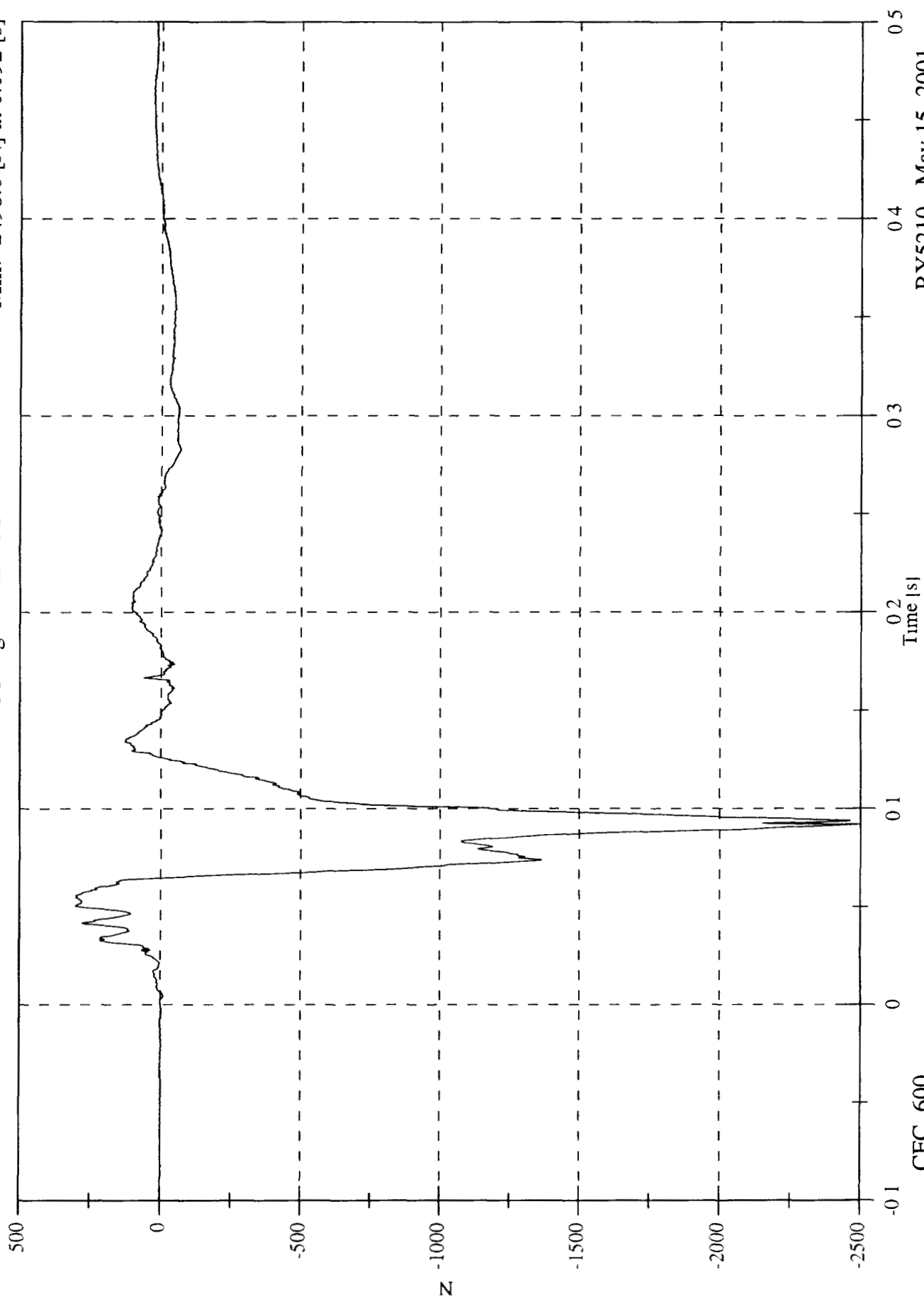


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 301.6 [N] at 0.051 [s]
Min: -2498.0 [N] at 0.092 [s]

P1 Right Femur Fz

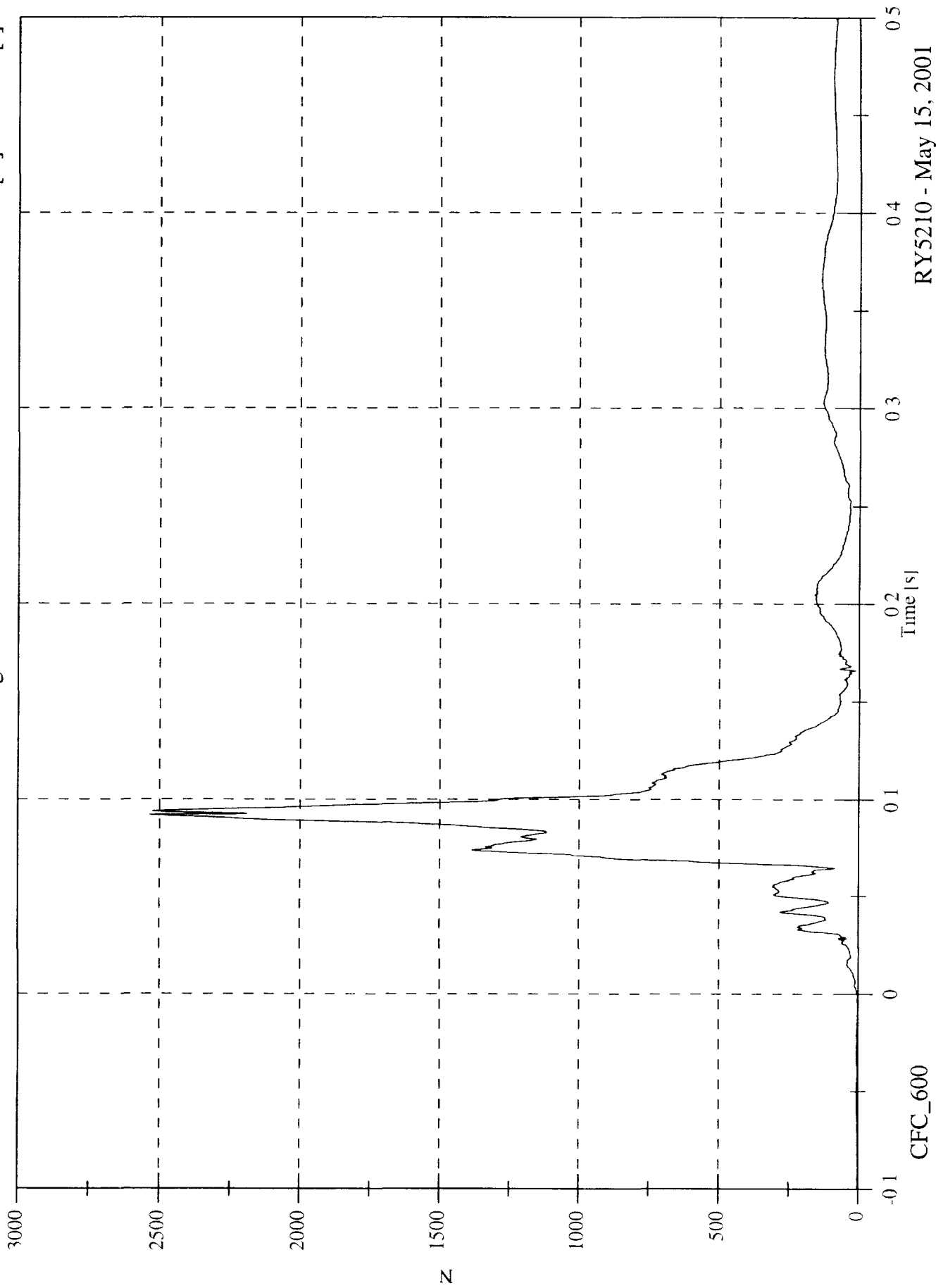


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Right Femur F Resultant

Max: 2534.6 [N] at 0.092 [s]
Min: 0.4 [N] at -0.100 [s]

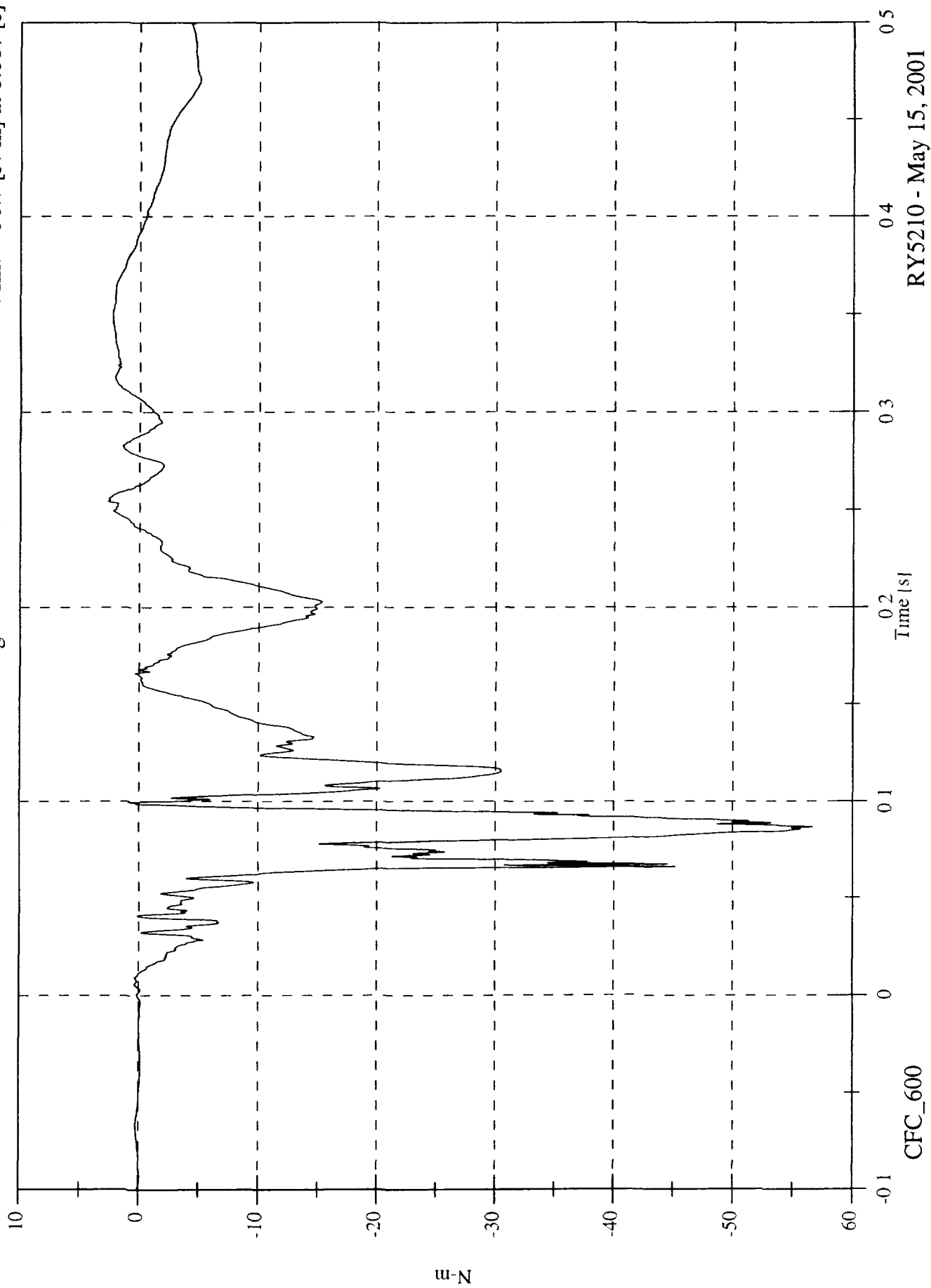


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 2.7 [N-m] at 0.254 [s]
Min: -56.7 [N-m] at 0.087 [s]

P1 Right Femur Mx



CFC_600

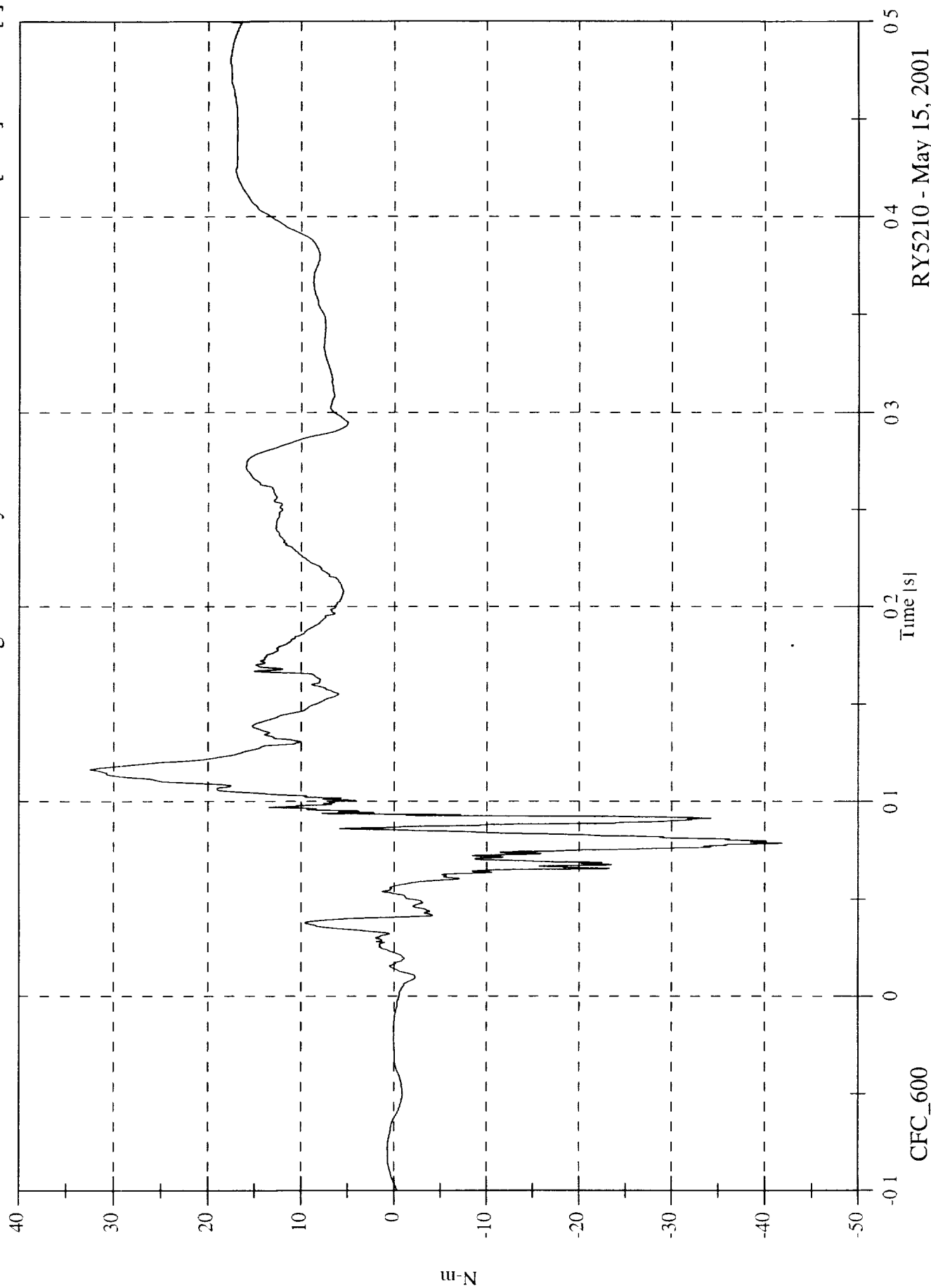
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 32.5 [N-m] at 0.116 [s]
 Min: -41.8 [N-m] at 0.079 [s]

P1 Right Femur My

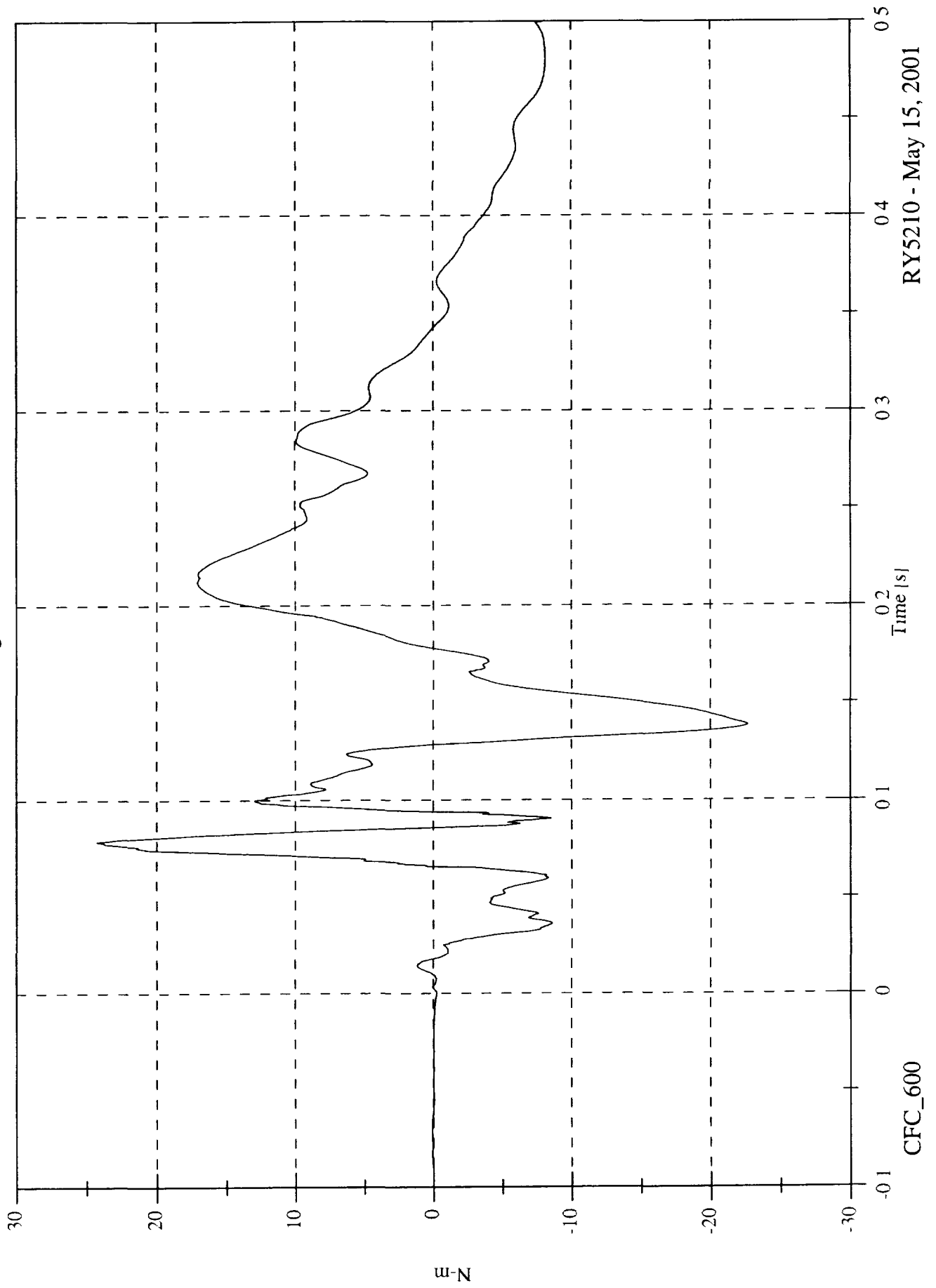


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 24.3 [N-m] at 0.079 [s]
Min: -22.7 [N-m] at 0.138 [s]

P1 Right Femur Mz

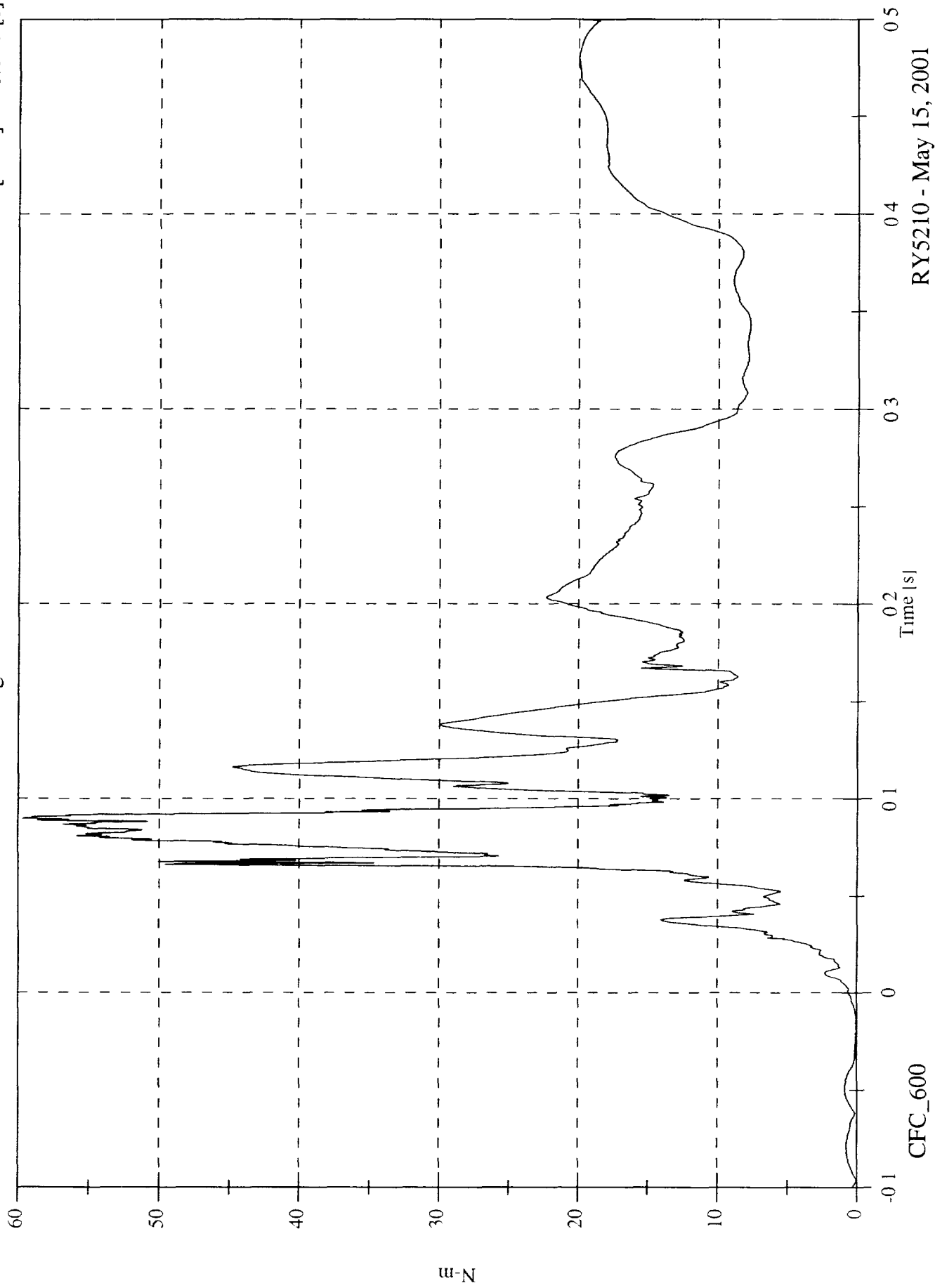


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 59.7 [N-m] at 0.090 [s]
 Min: 0.0 [N-m] at -0.020 [s]

P1 Right Femur M Resultant



CFC_600

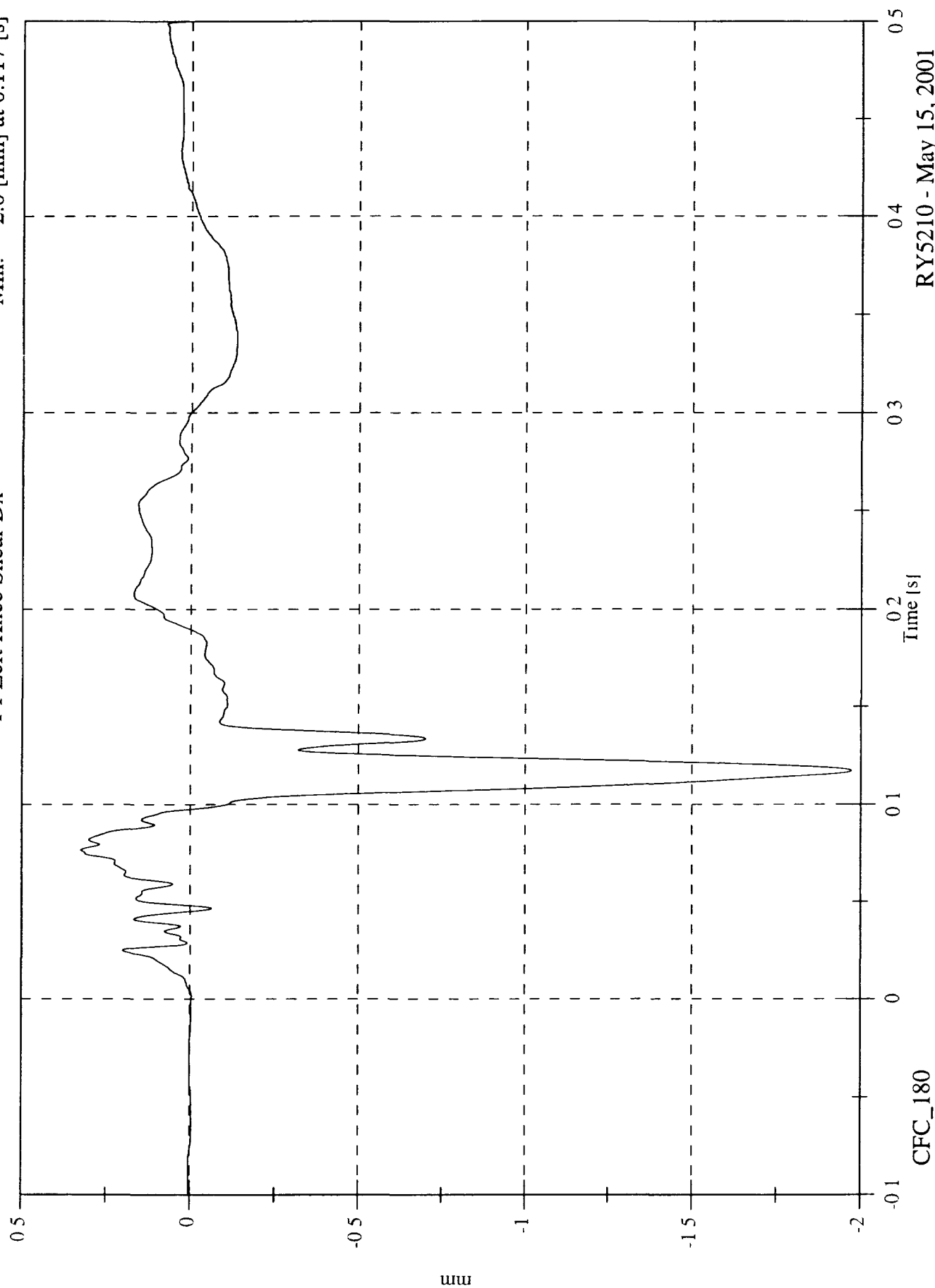
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 0.3 [mm] at 0.077 [s]

Min: -2.0 [mm] at 0.117 [s]

P1 Left Knee Shear Dx



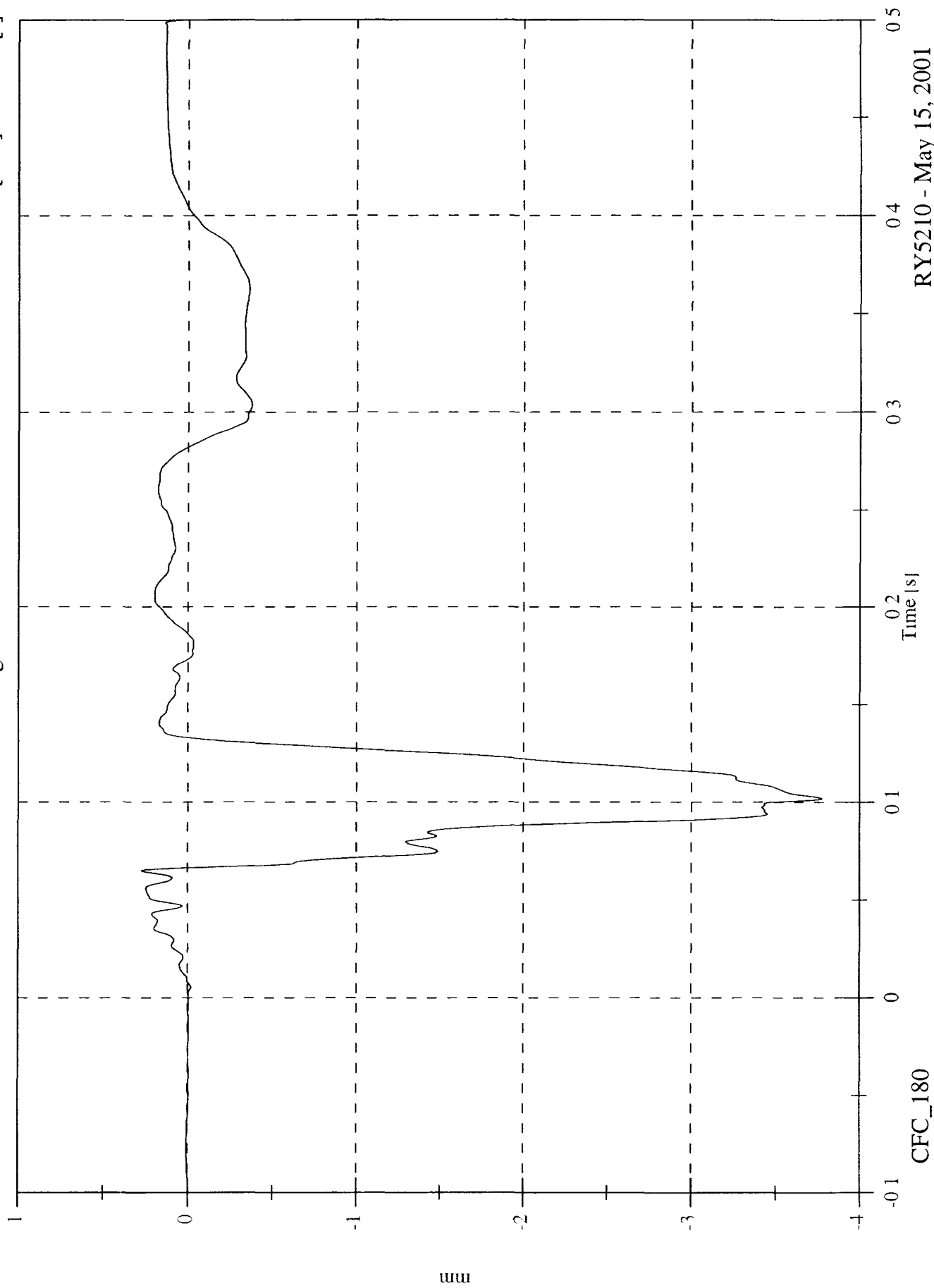
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 0.3 [mm] at 0.065 [s]
Min: -3.8 [mm] at 0.102 [s]

P1 Right Knee Shear Dx

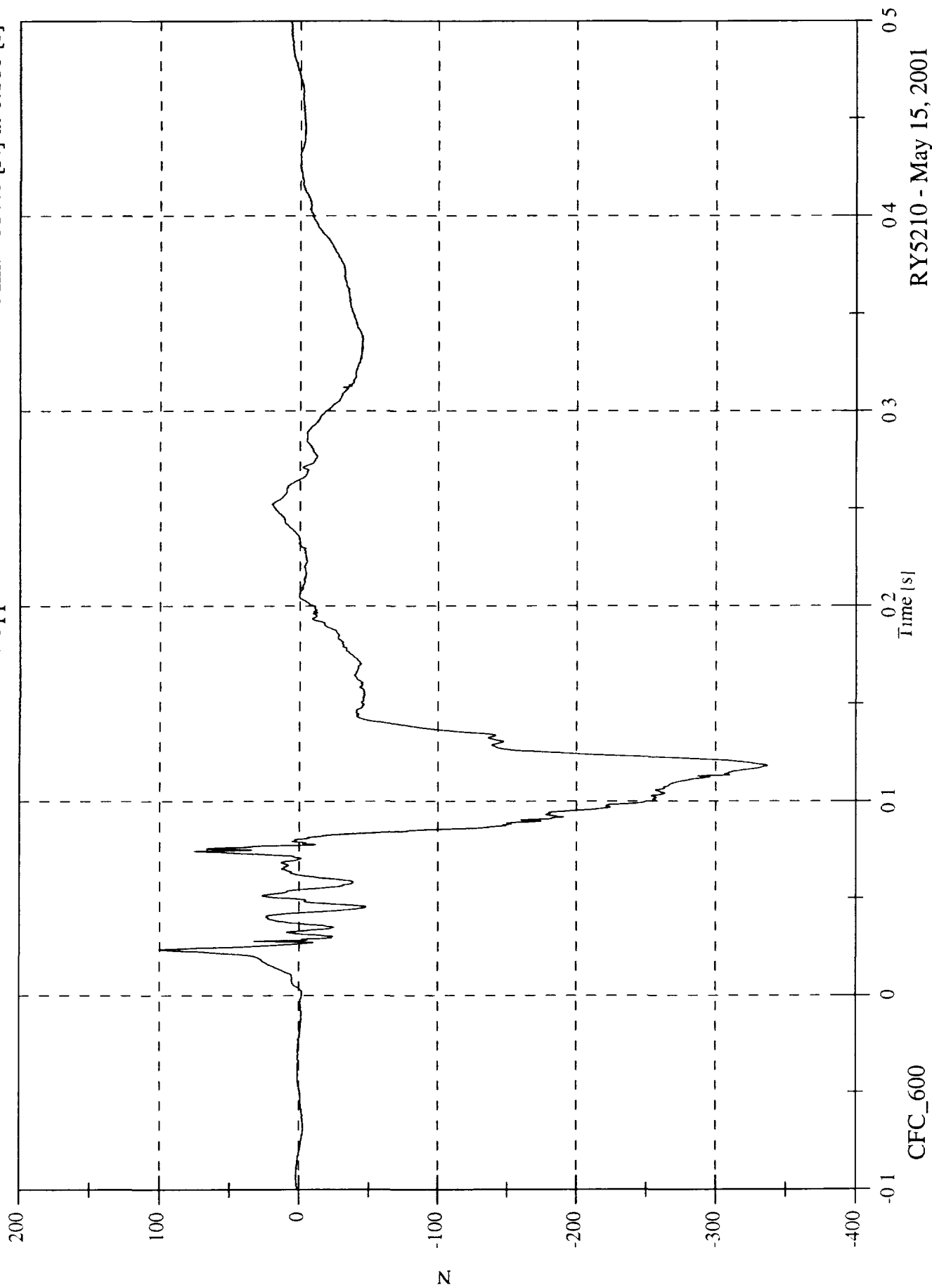


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 100.7 [N] at 0.024 [s]
Min: -337.0 [N] at 0.118 [s]

P1 Left Upper Tibia Fx



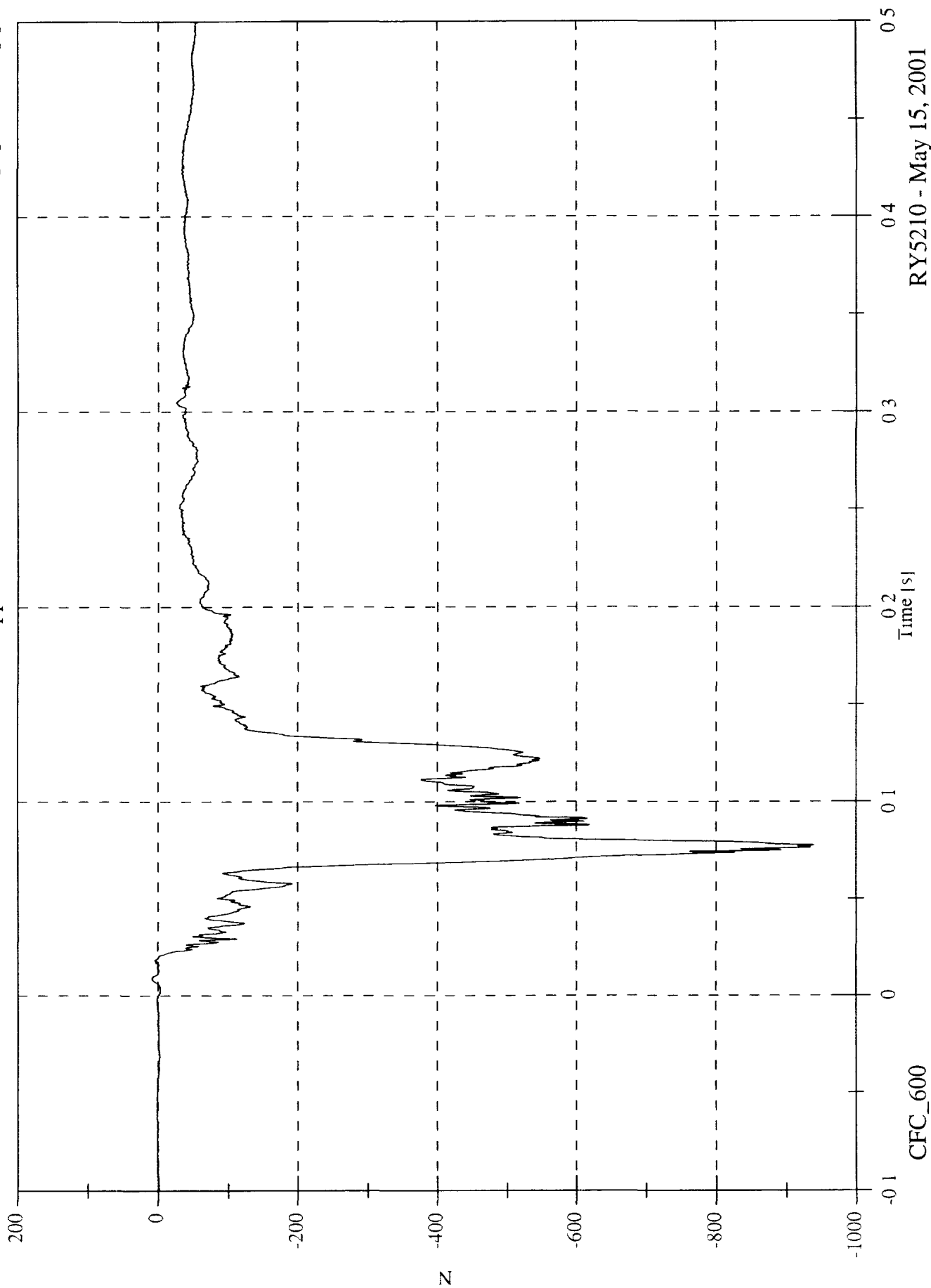
CFC_600

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 8.3 [N] at 0.009 [s]
Min: -940.0 [N] at 0.077 [s]

P1 Left Upper Tibia Fz

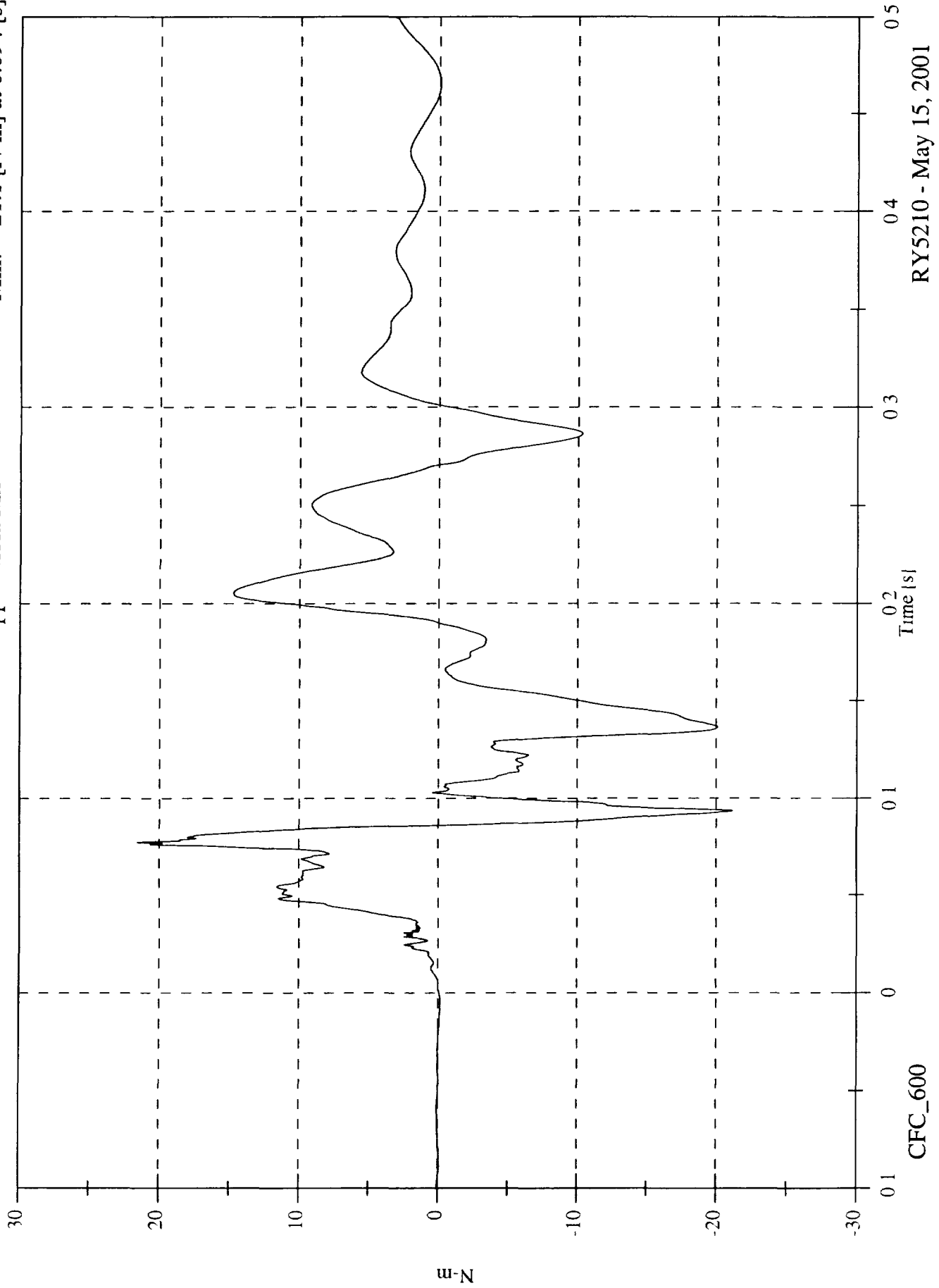


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Left Upper Tibia Mx

Max: 21.6 [N-m] at 0.077 [s]
Min: -21.1 [N-m] at 0.094 [s]

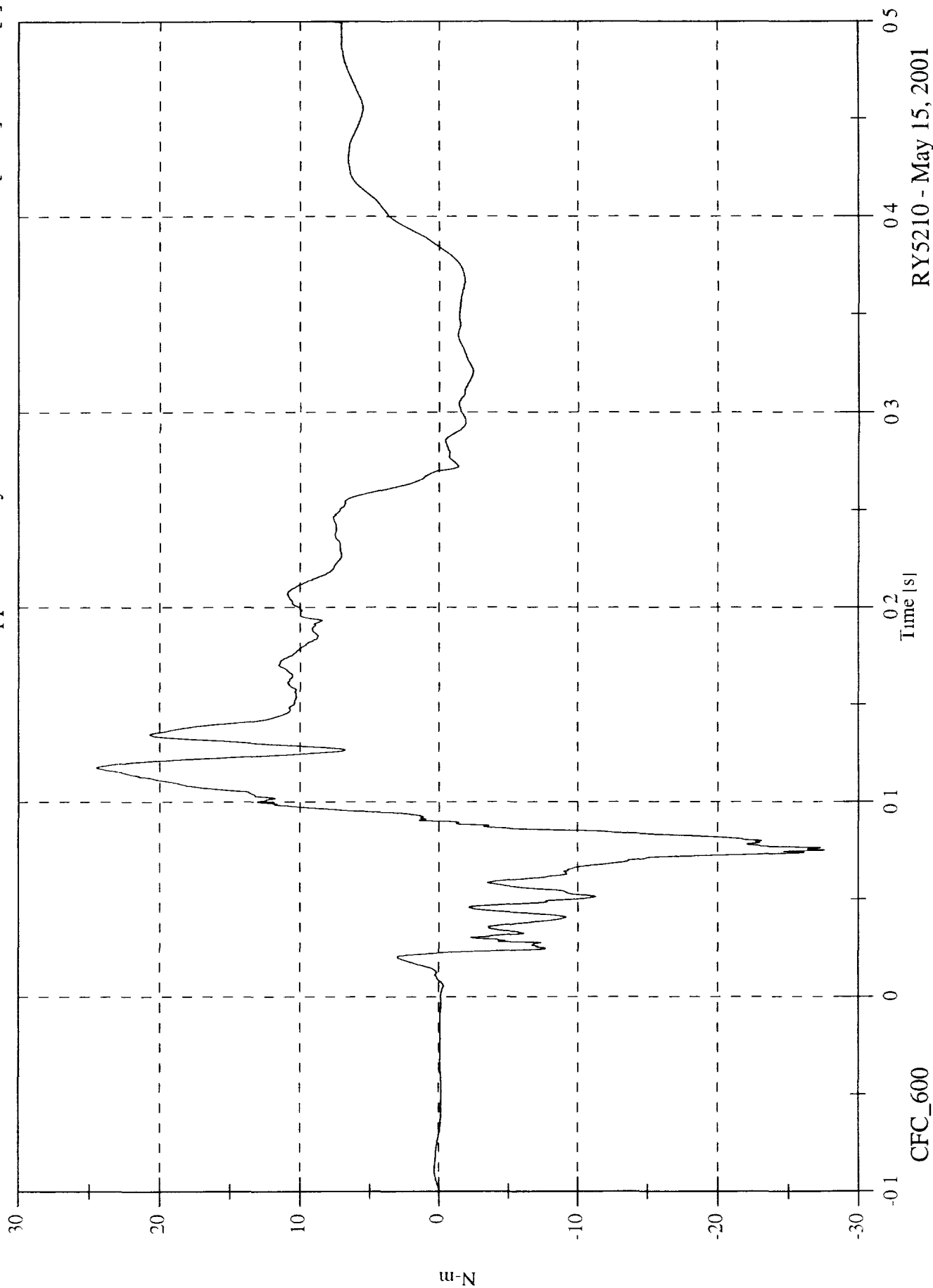


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 24.5 [N-m] at 0.117 [s]
 Min: -27.6 [N-m] at 0.075 [s]

P1 Left Upper Tibia My



CFC_600

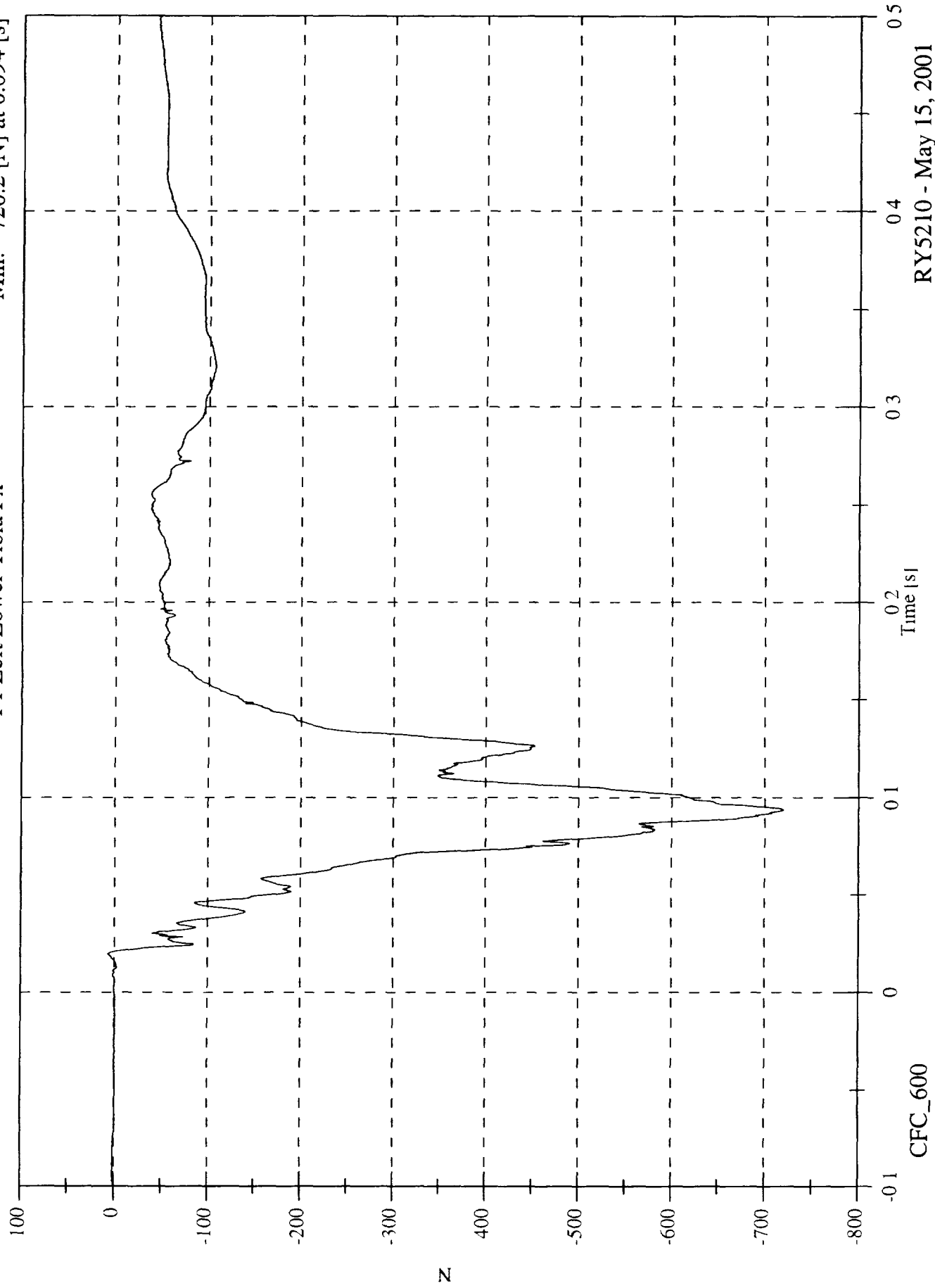
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 6.4 [N] at 0.020 [s]

Min: -720.2 [N] at 0.094 [s]

P1 Left Lower Tibia Fx

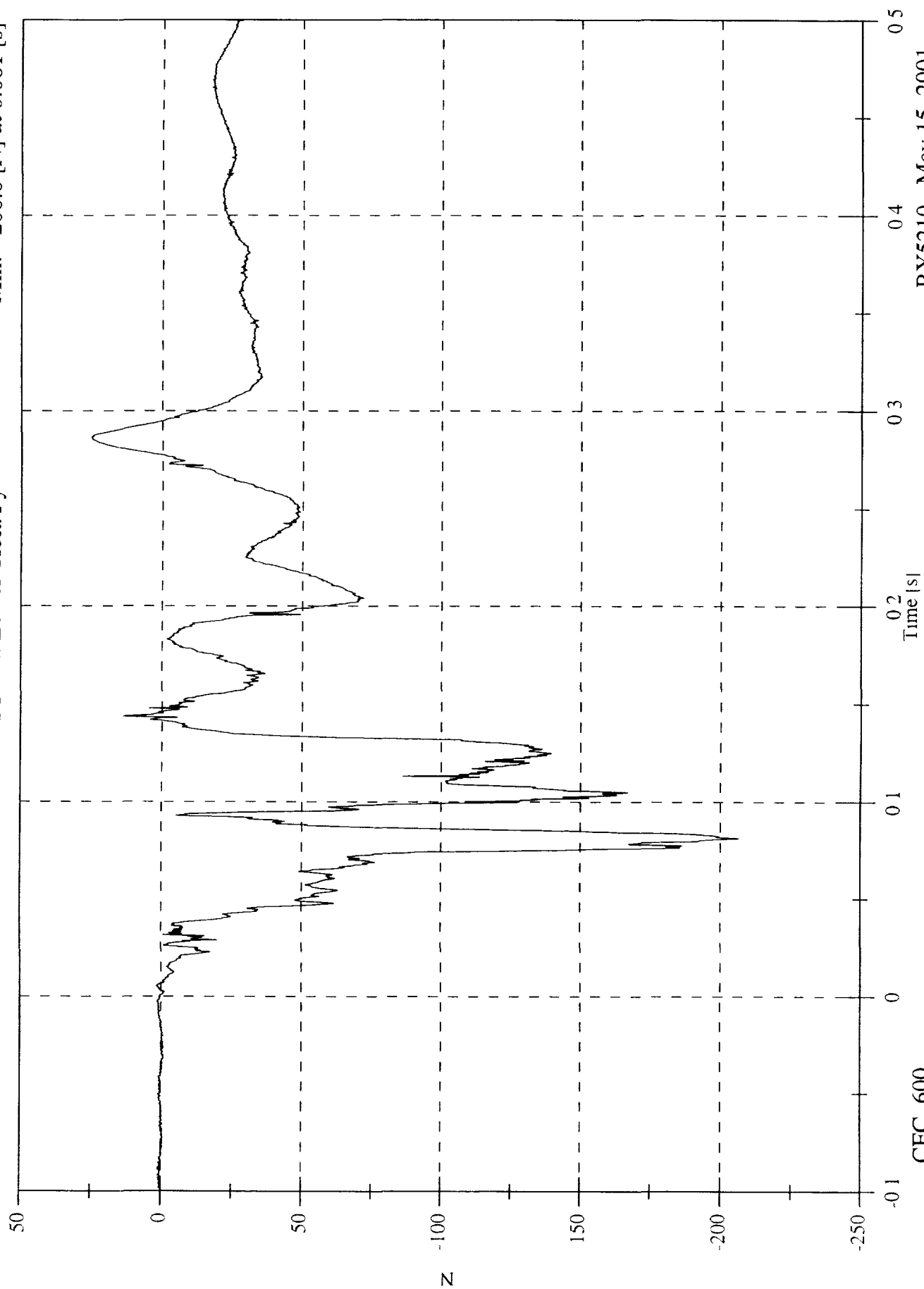


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 25.3 [N] at 0.286 [s]
Min: -206.6 [N] at 0.081 [s]

P1 Left Lower Tibia Fy



CFC_600

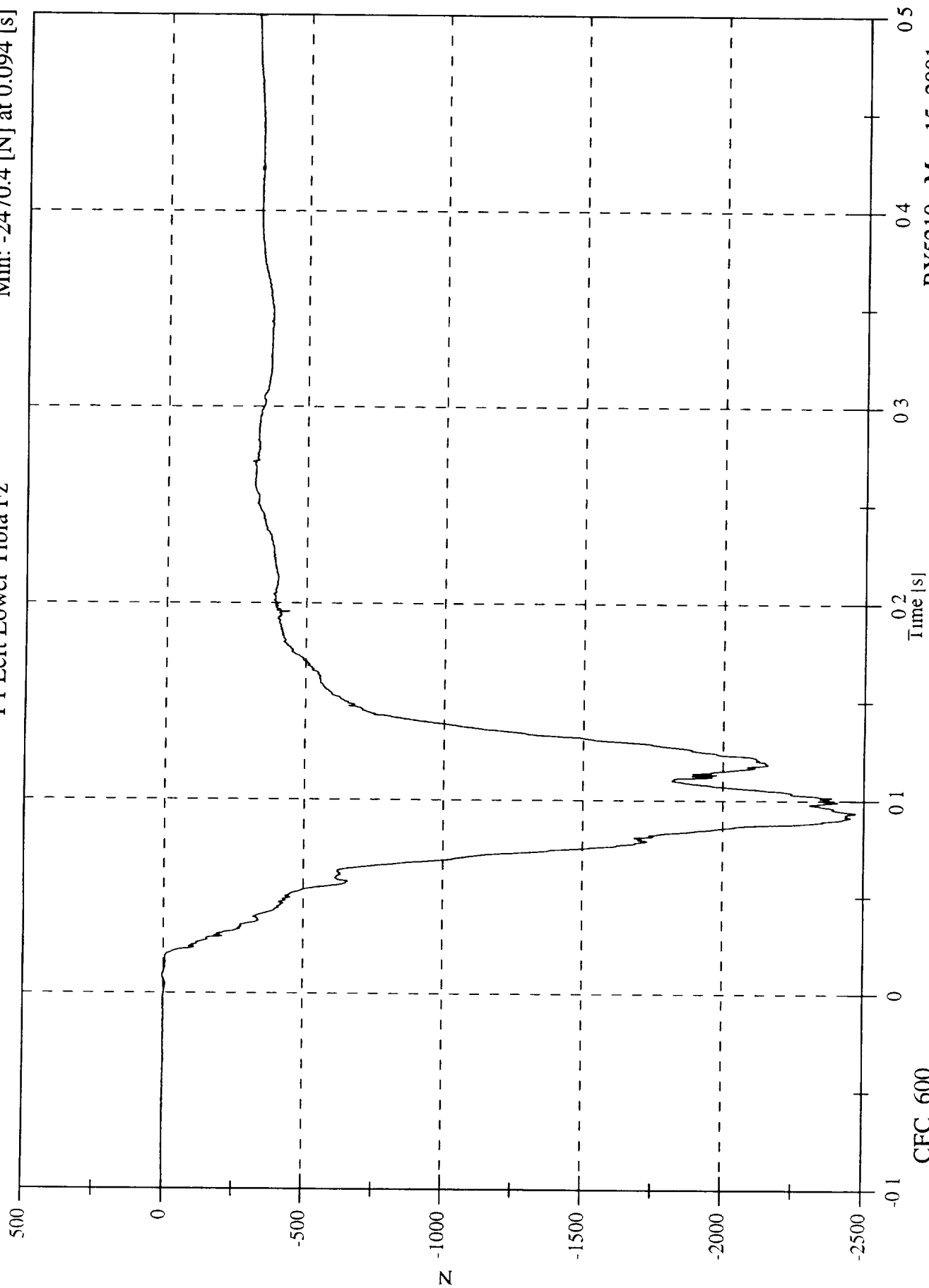
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Left Lower Tibia Fz

Max: 4.3 [N] at 0.009 [s]
Min: -2470.4 [N] at 0.094 [s]

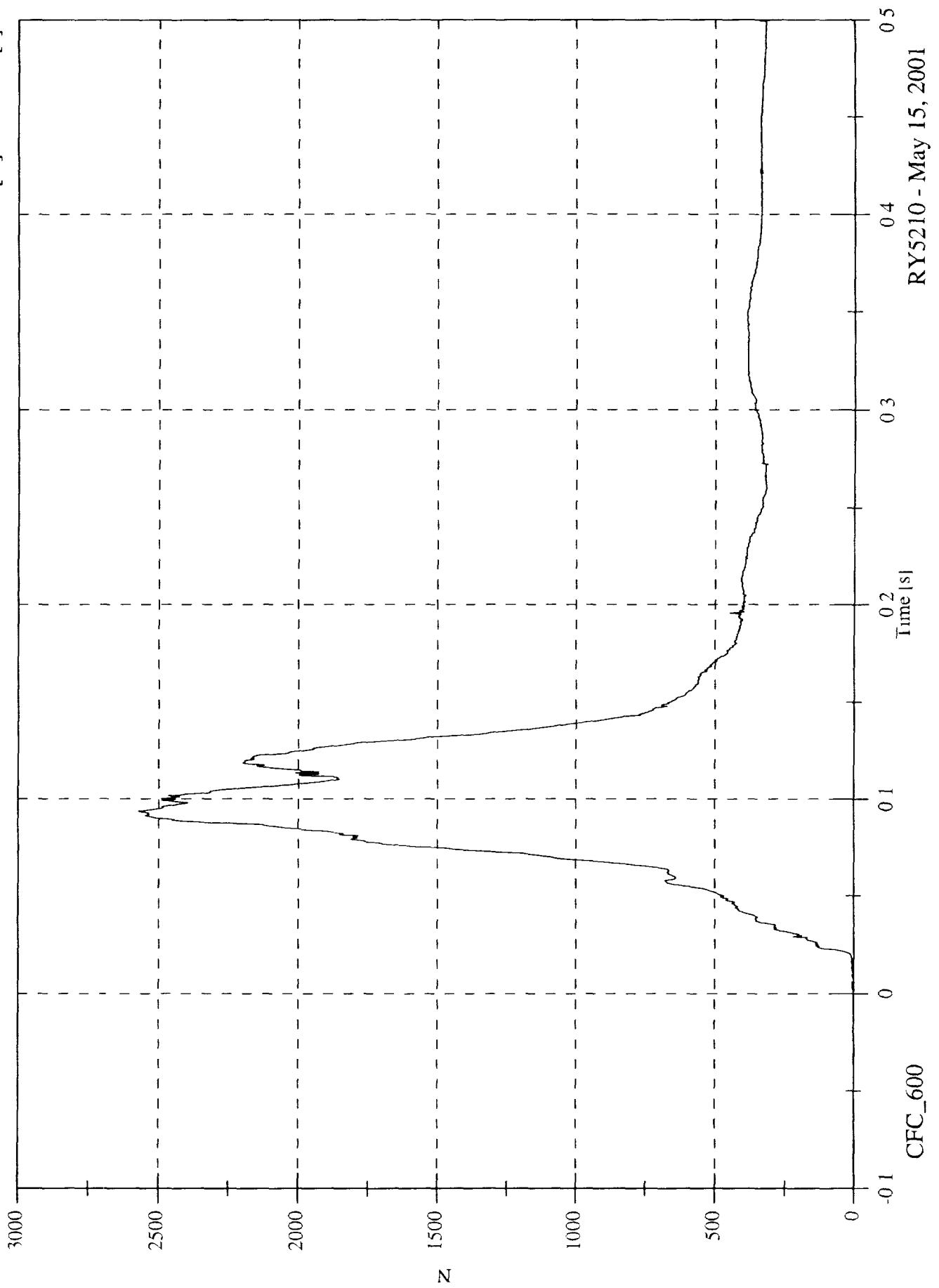


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 2573.2 [N] at 0.094 [s]
Min: 0 [N] at -0.041 [s]

P1 Left Lower Tibia F Resultant

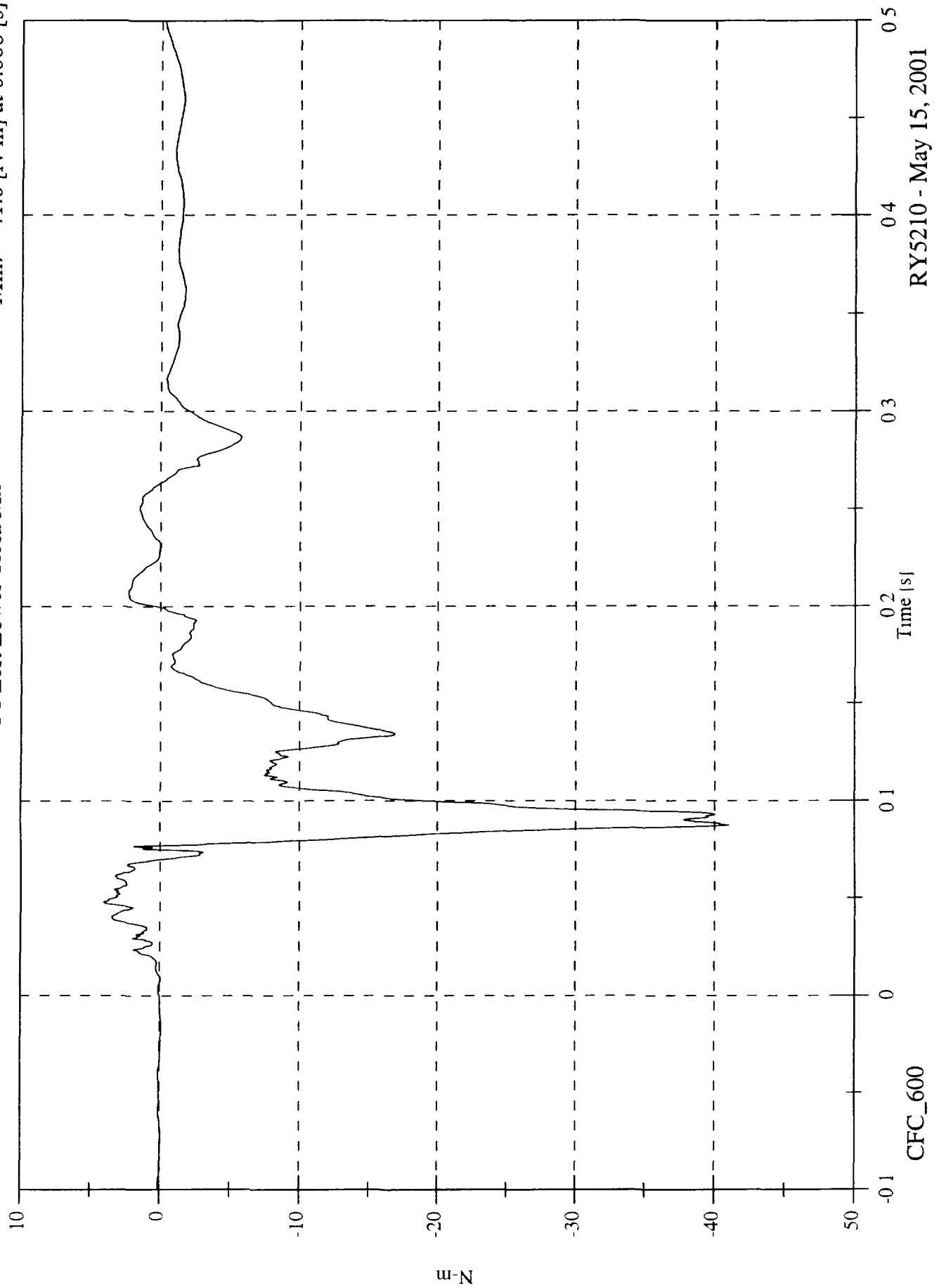


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Left Lower Tibia Mx

Max: 4.1 [N-m] at 0.048 [s]
Min: -41.0 [N-m] at 0.088 [s]

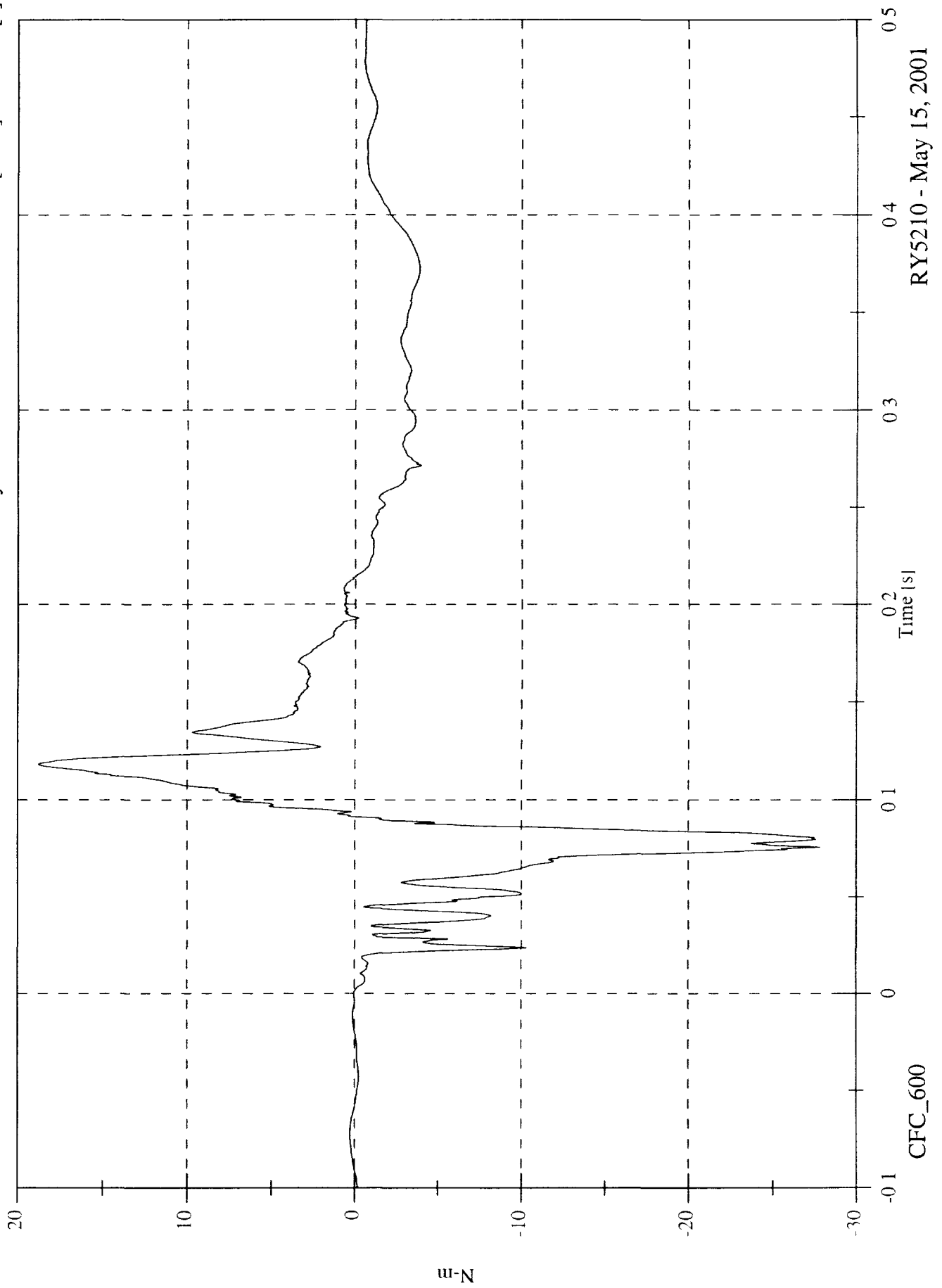


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Left Lower Tibia My

Max: 18.8 [N-m] at 0.118 [s]
Min: -27.8 [N-m] at 0.076 [s]



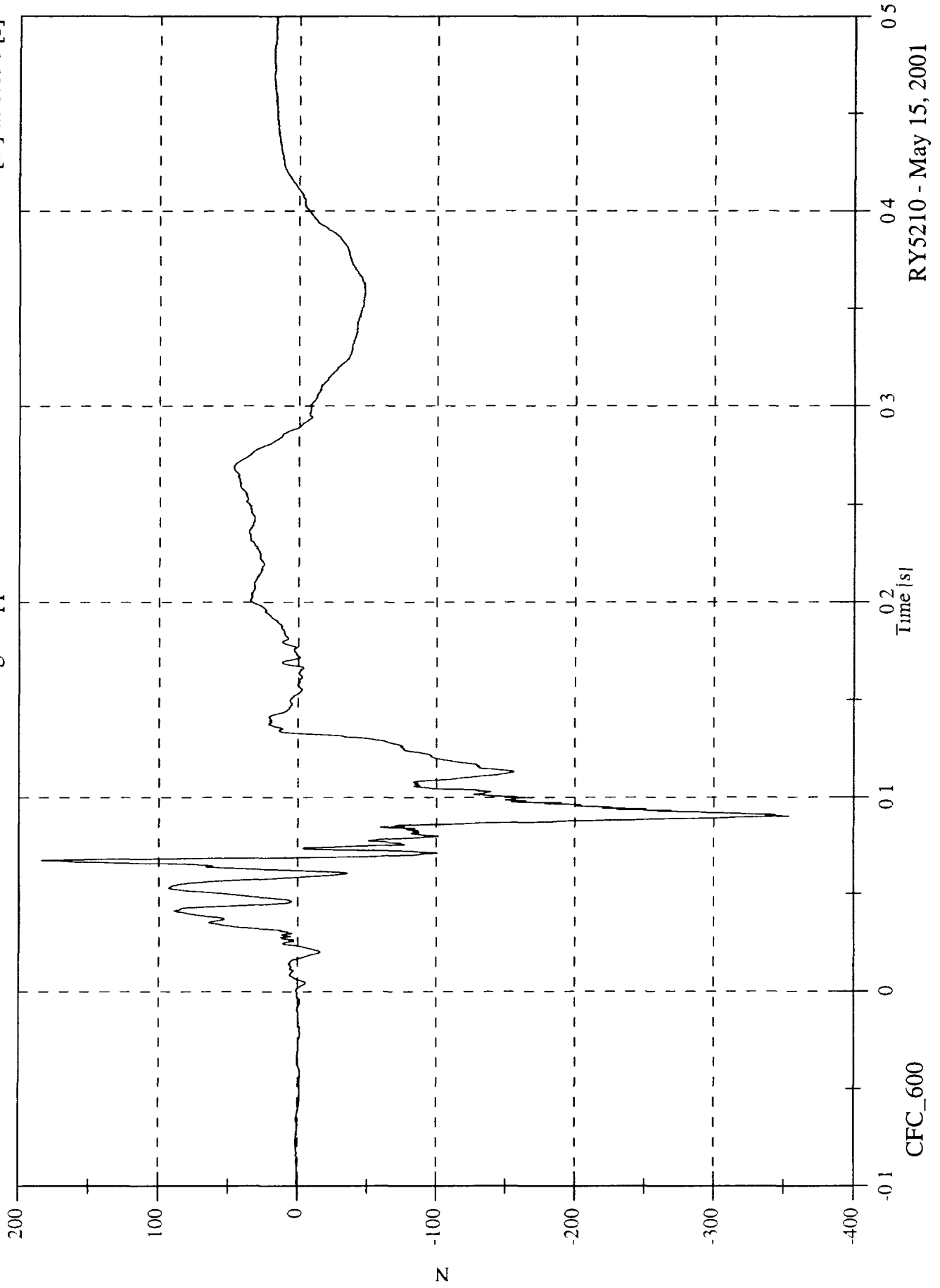
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 183.8 [N] at 0.067 [s]

Min: -353.8 [N] at 0.090 [s]

P1 Right Upper Tibia Fx

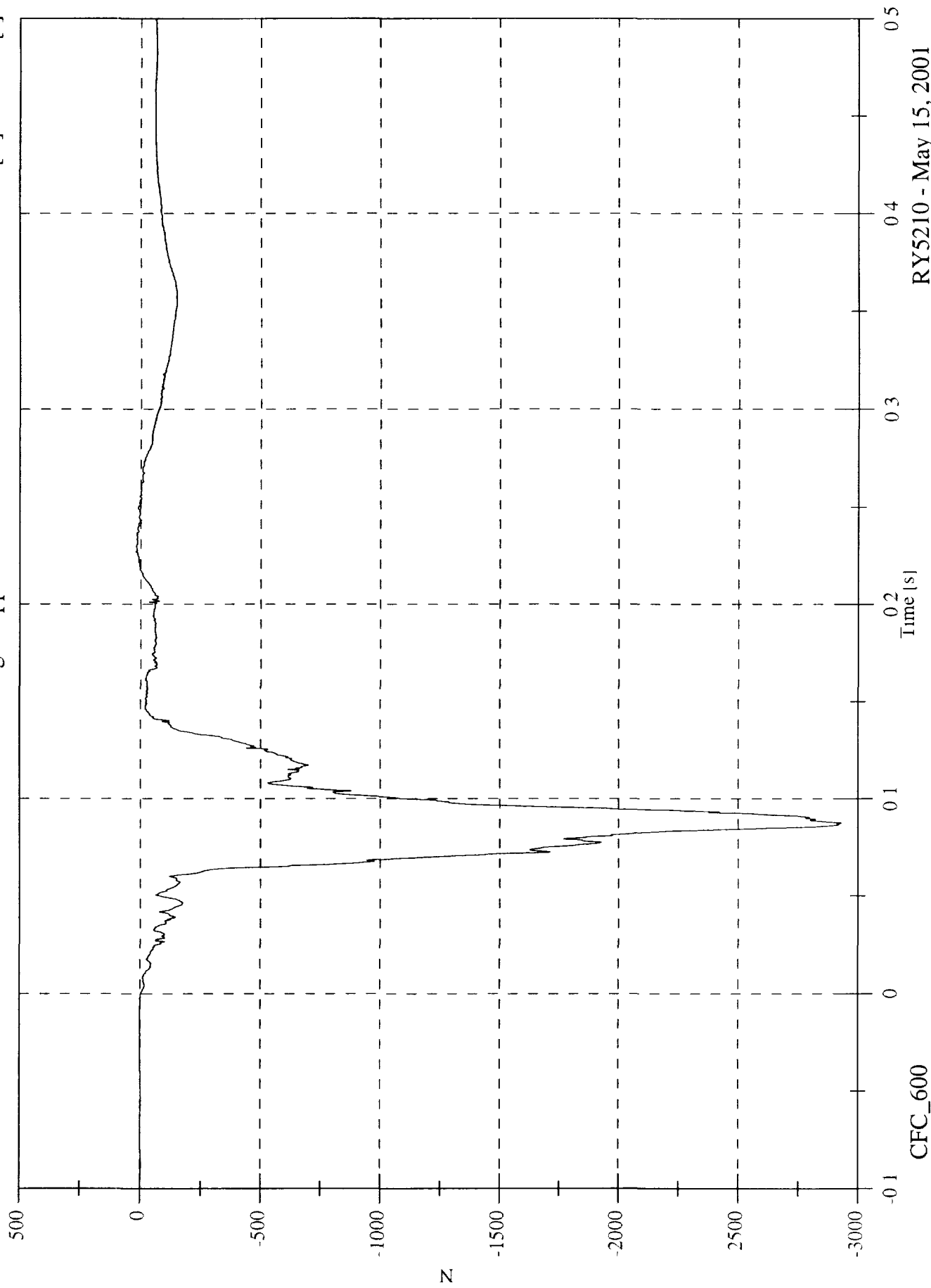


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 21.3 [N] at 0.227 [s]
Min: -2930.0 [N] at 0.087 [s]

P1 Right Upper Tibia Fz

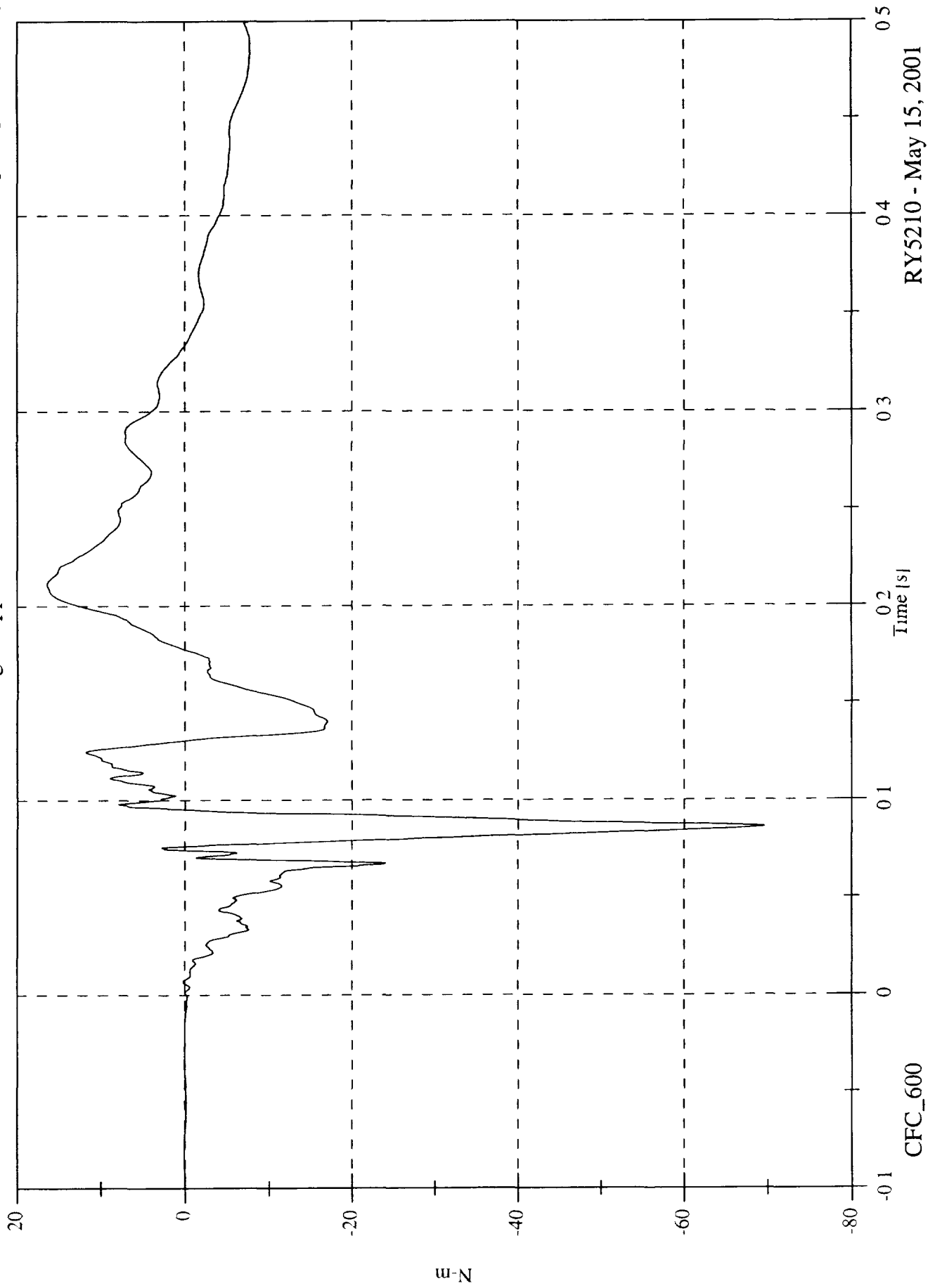


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 16.4 [N-m] at 0.211 [s]
Min: -69.6 [N-m] at 0.086 [s]

P1 Right Upper Tibia Mx

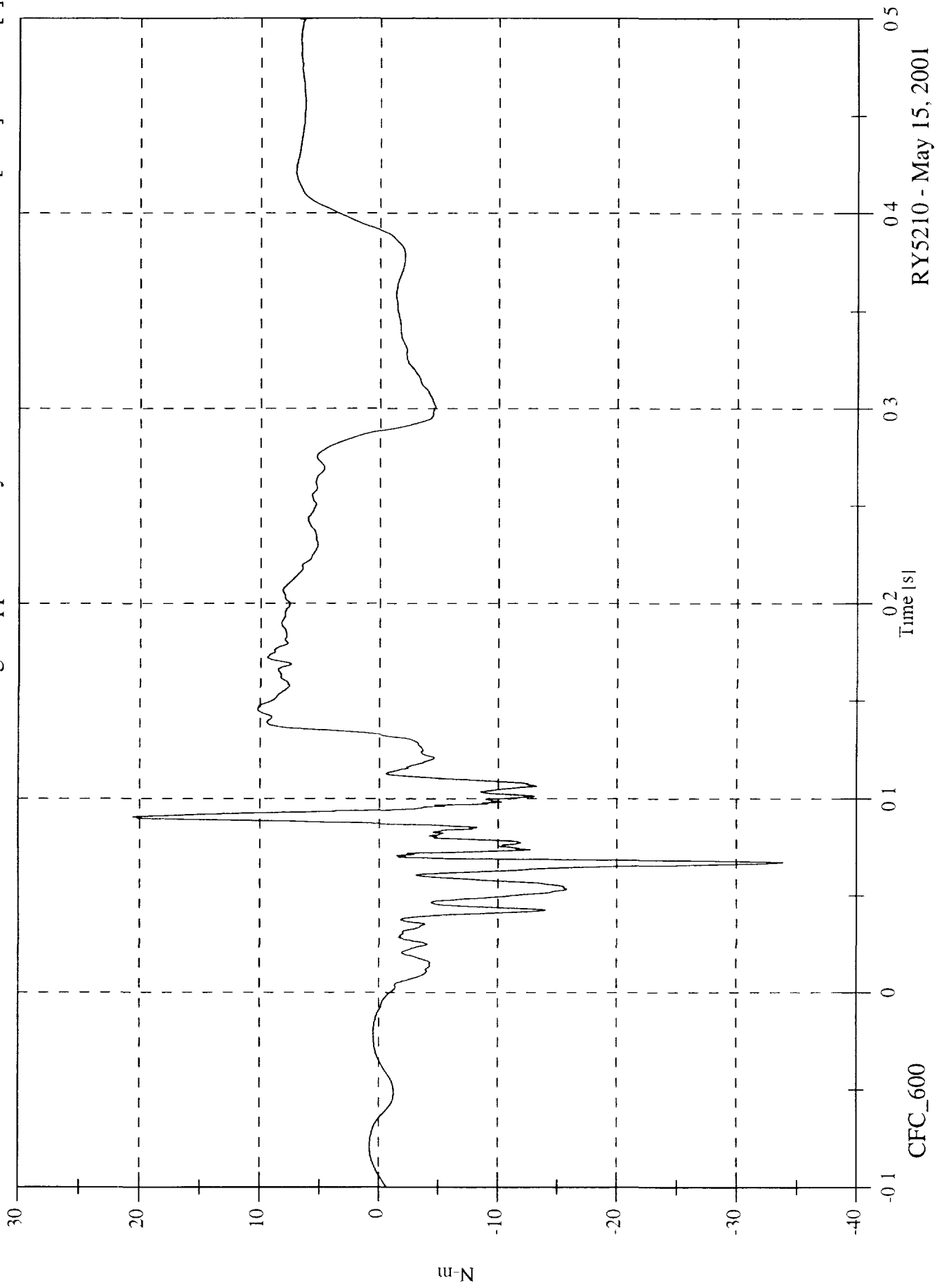


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 20.6 [N-m] at 0.091 [s]
 Min: -33.9 [N-m] at 0.067 [s]

P1 Right Upper Tibia My



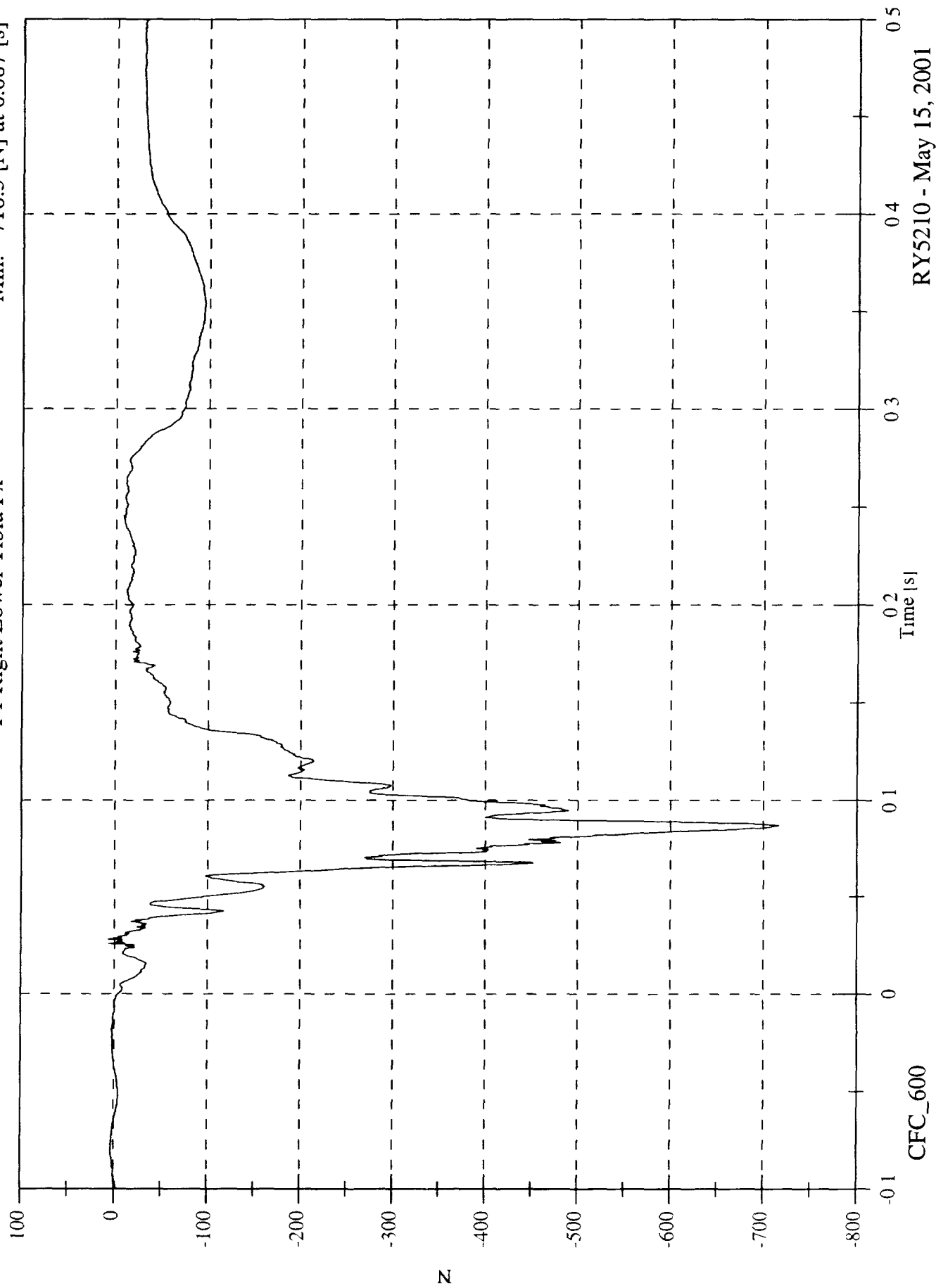
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Right Lower Tibia Fx

Max: 6.7 [N] at 0.028 [s]

Min: -716.3 [N] at 0.087 [s]



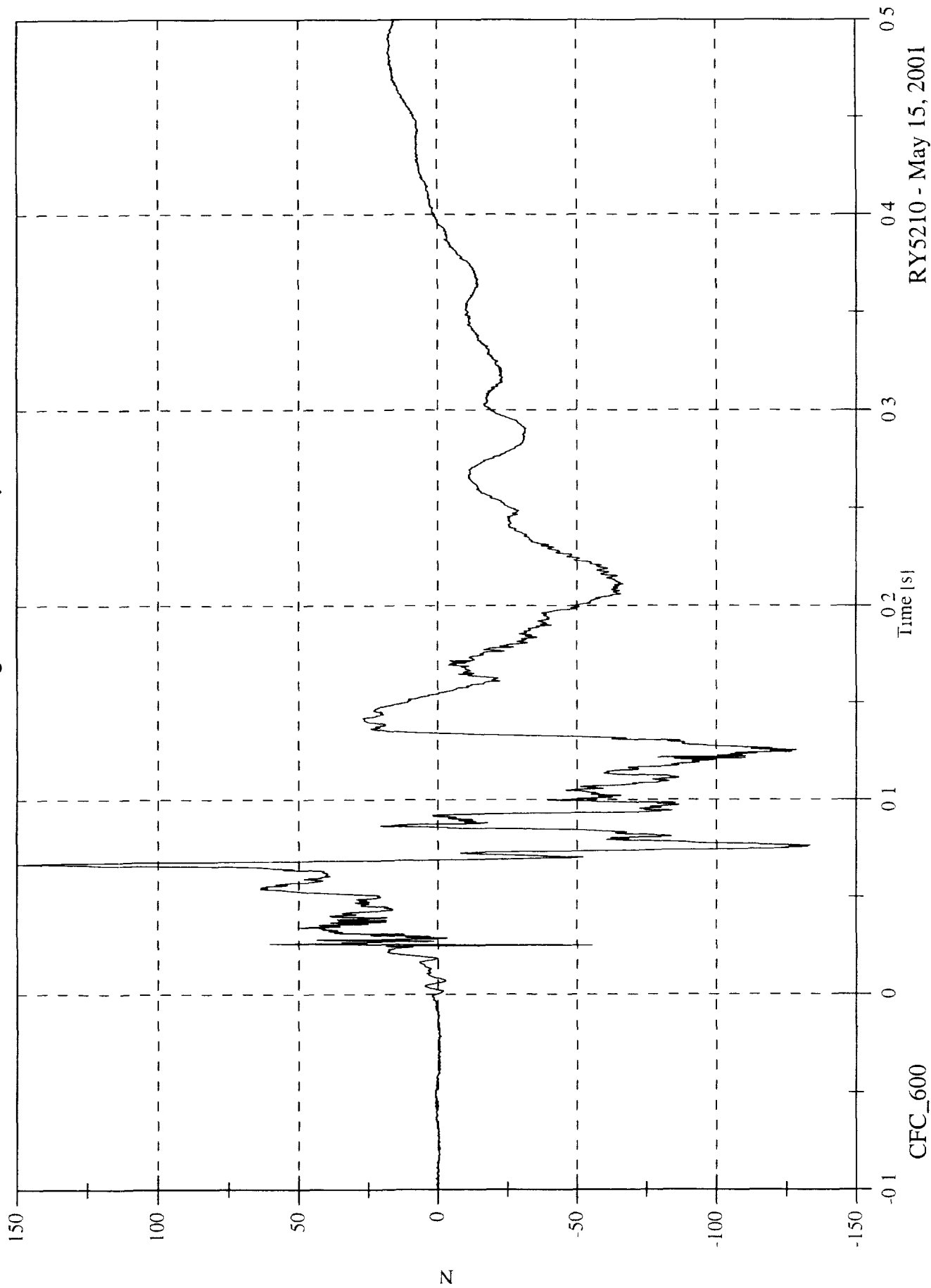
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 149.7 [N] at 0.067 [s]

P1 Right Lower Tibia Fy

Min: -133.4 [N] at 0.077 [s]



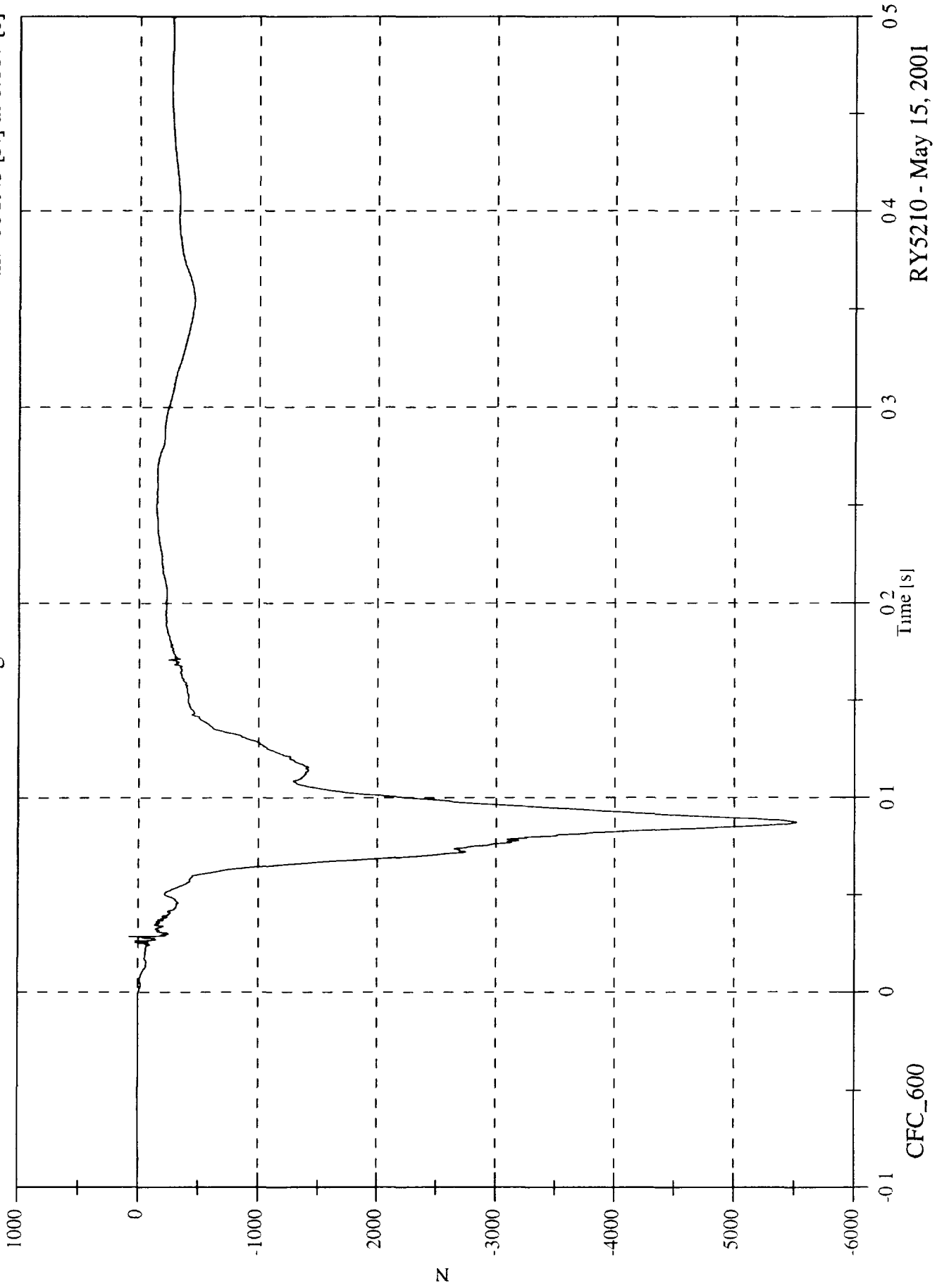
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 77.4 [N] at 0.029 [s]

Min: -5519.3 [N] at 0.087 [s]

P1 Right Lower Tibia Fz



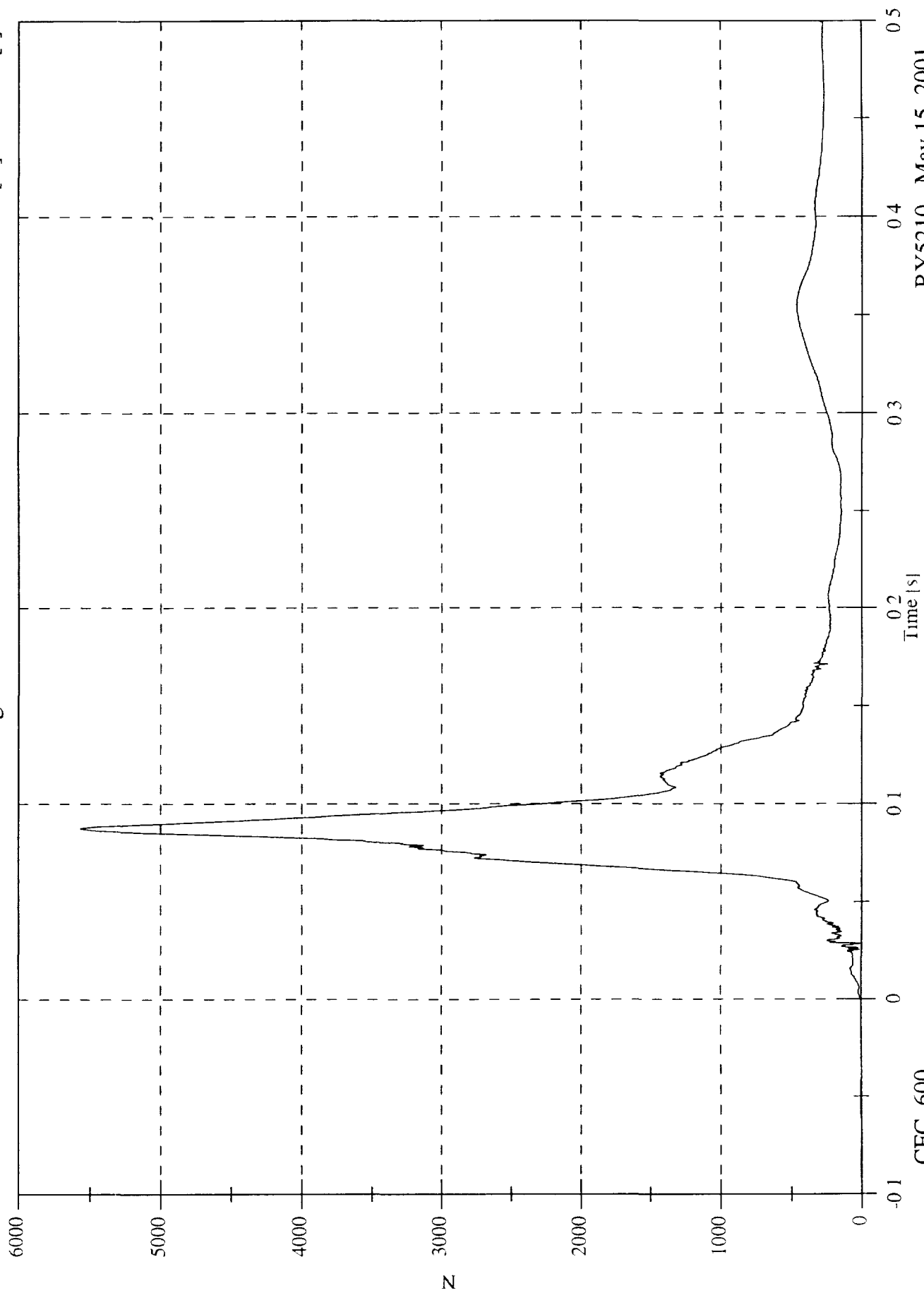
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 5564.1 [N] at 0.087 [s]

Min: 0.4 [N] at -0.100 [s]

P1 Right Lower Tibia F Resultant



CFC_600

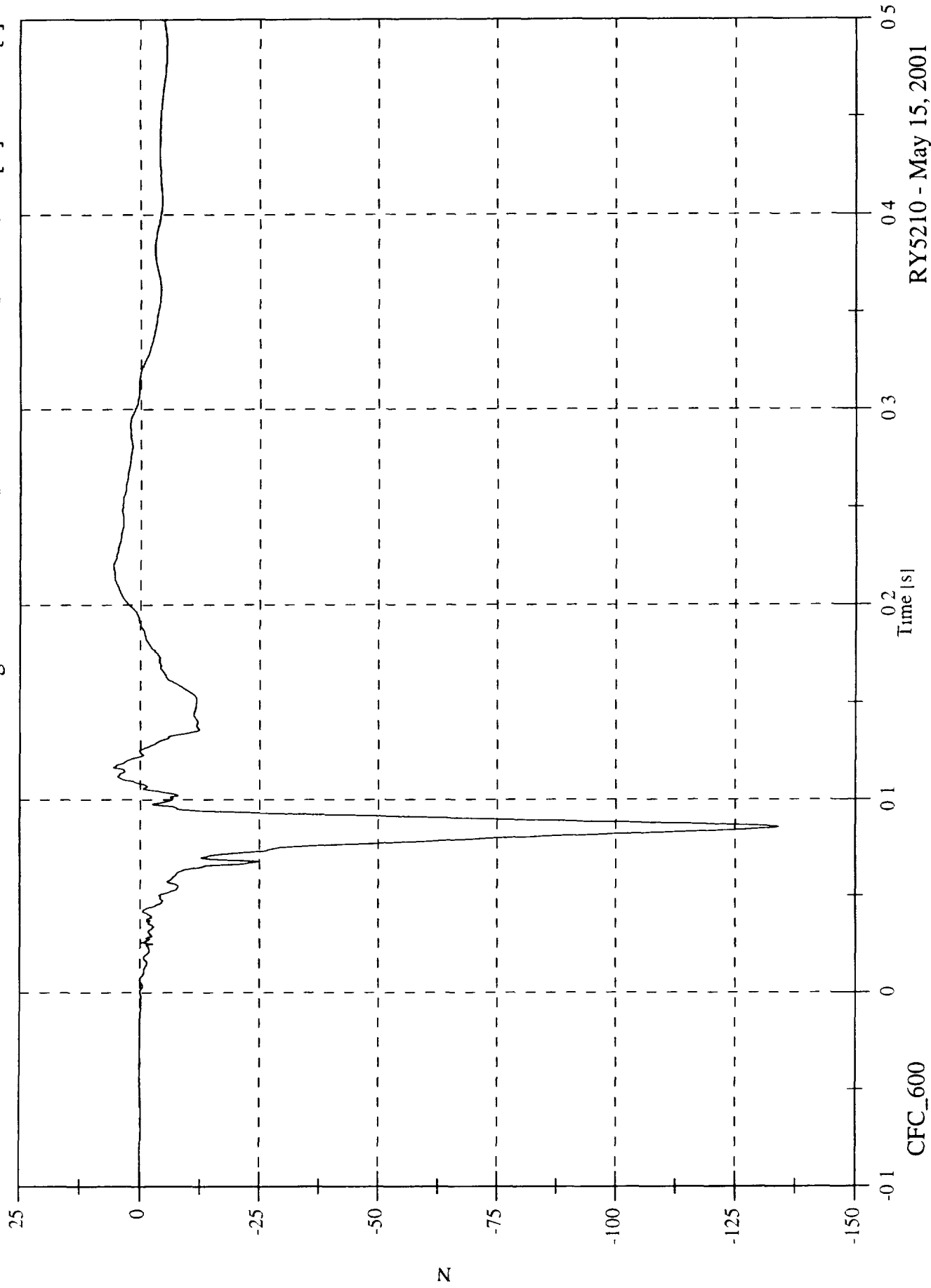
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 5.6 [N] at 0.220 [s]

Min: -134.1 [N] at 0.086 [s]

P1 Right Lower Tibia Mx

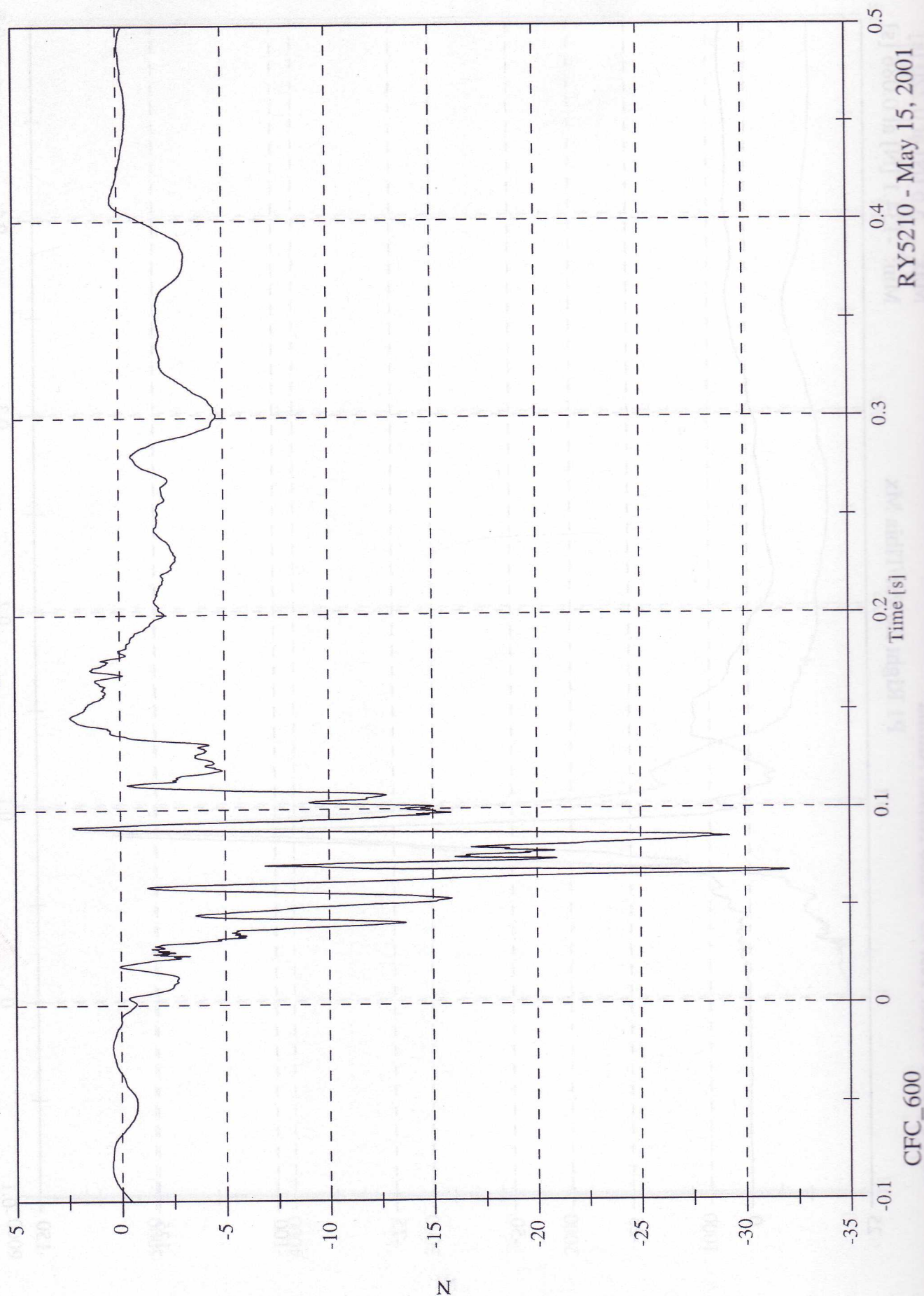


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Right Lower Tibia My

Max: 2.4 [N] at 0.147 [s]
Min: -32.1 [N] at 0.068 [s]

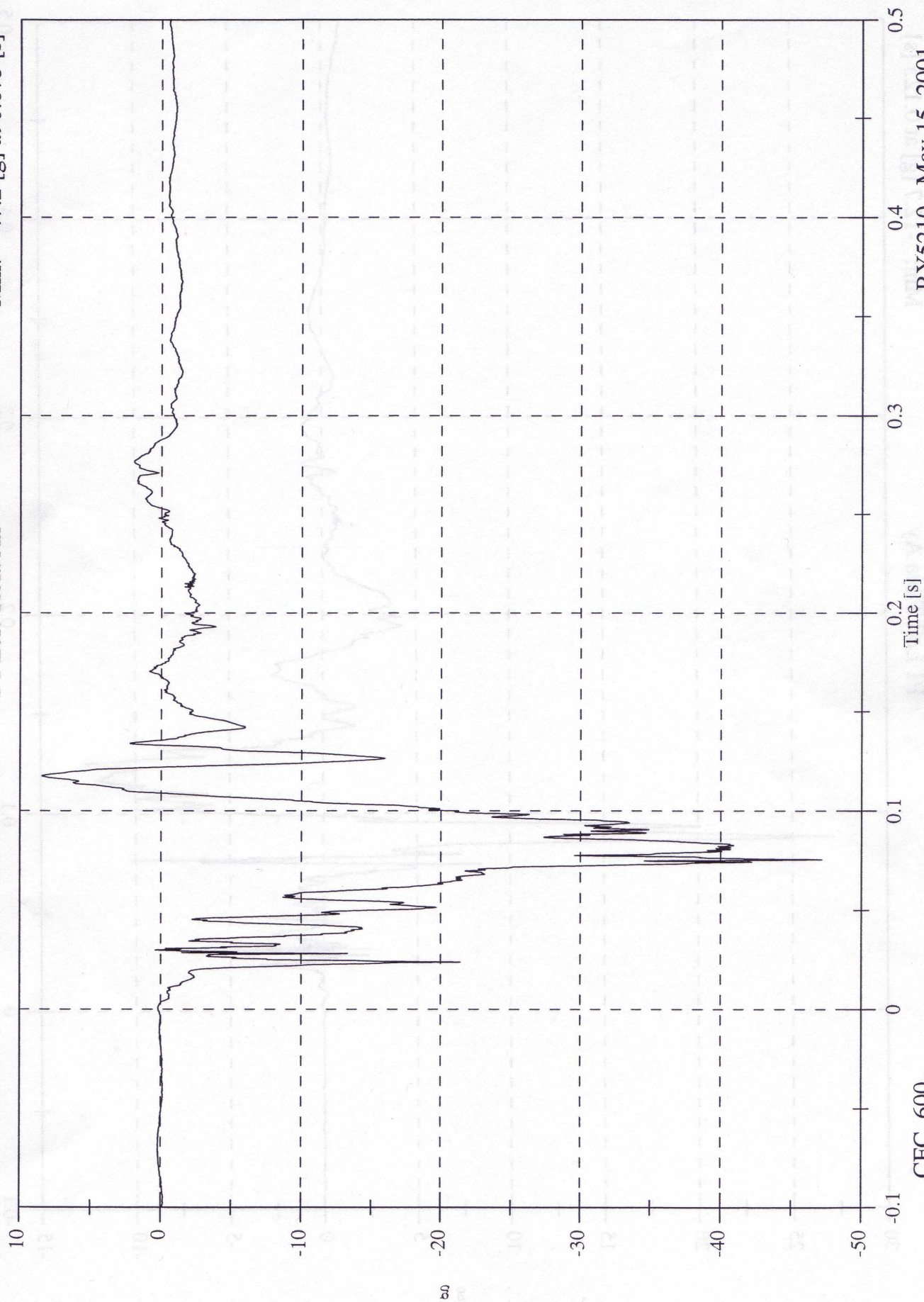


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Left Tibia Ax

Max: 8.5 [g] at 0.118 [s]
Min: -47.2 [g] at 0.075 [s]

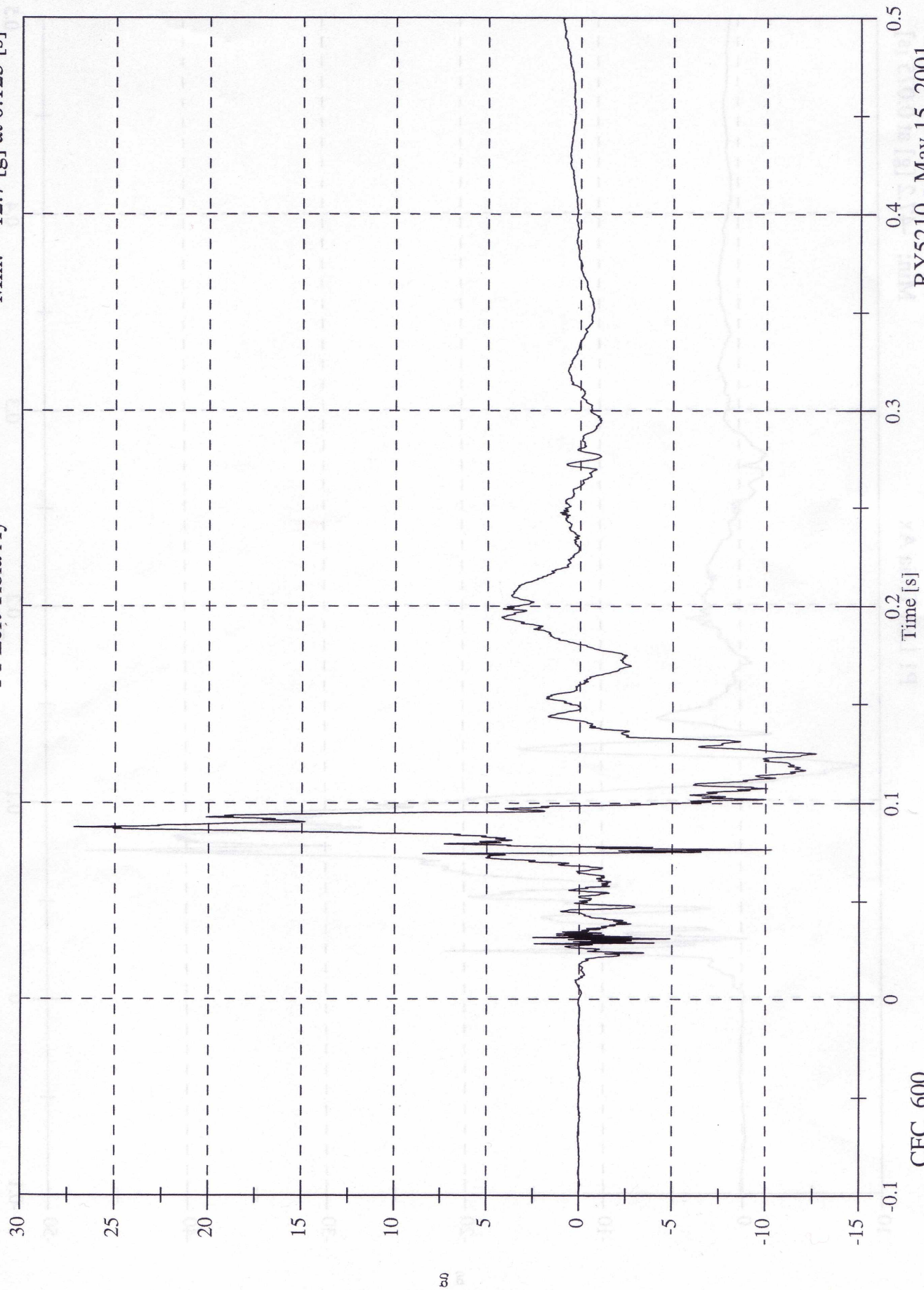


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 27.2 [g] at 0.088 [s]
 Min: -12.7 [g] at 0.125 [s]

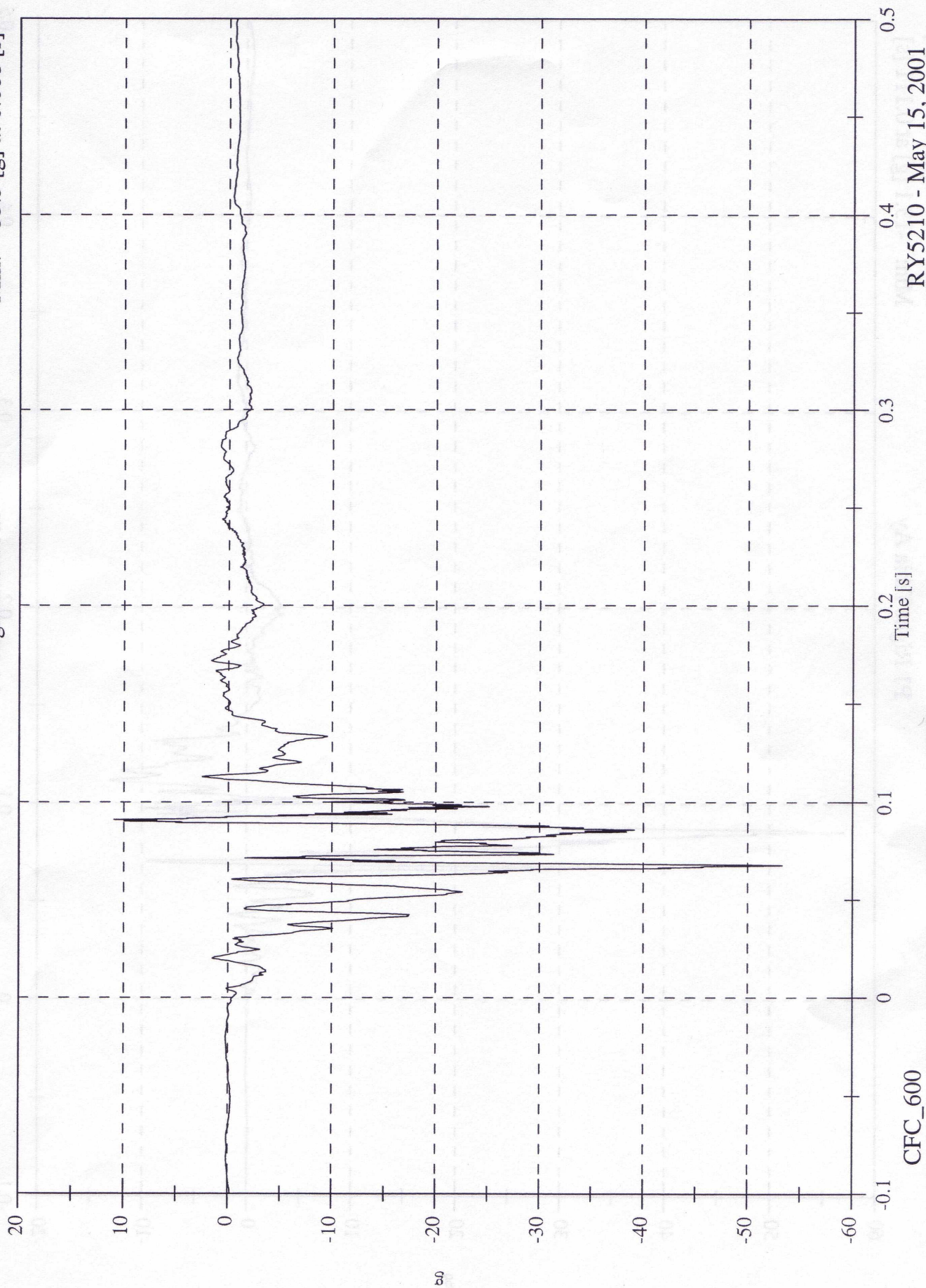
P1 Left Tibia Ay



40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Right Tibia Ax

Max: 10.9 [g] at 0.091 [s]
Min: -53.3 [g] at 0.068 [s]

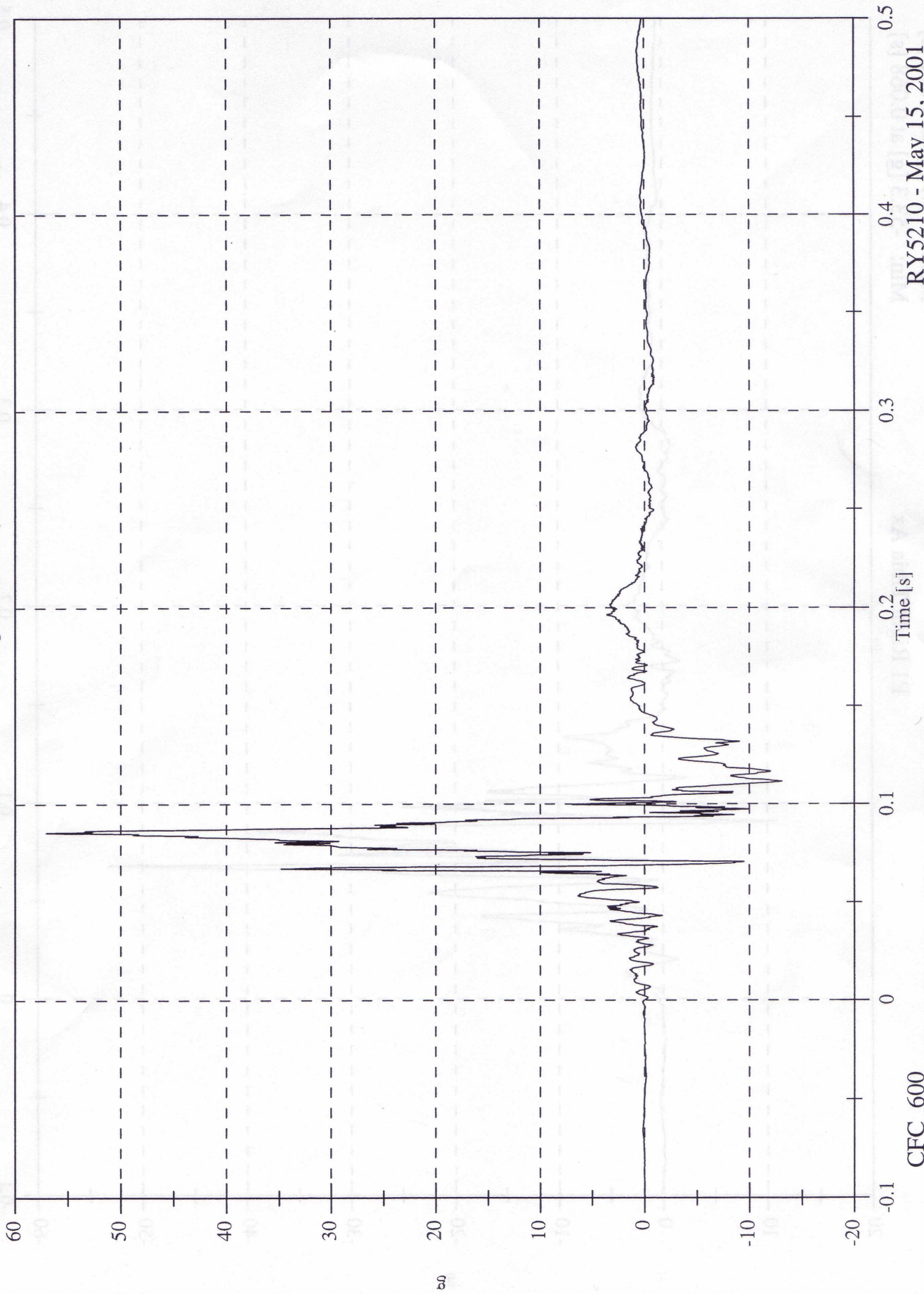


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 57.1 [g] at 0.085 [s]
Min: -13.1 [g] at 0.111 [s]

P1 Right Tibia Ay

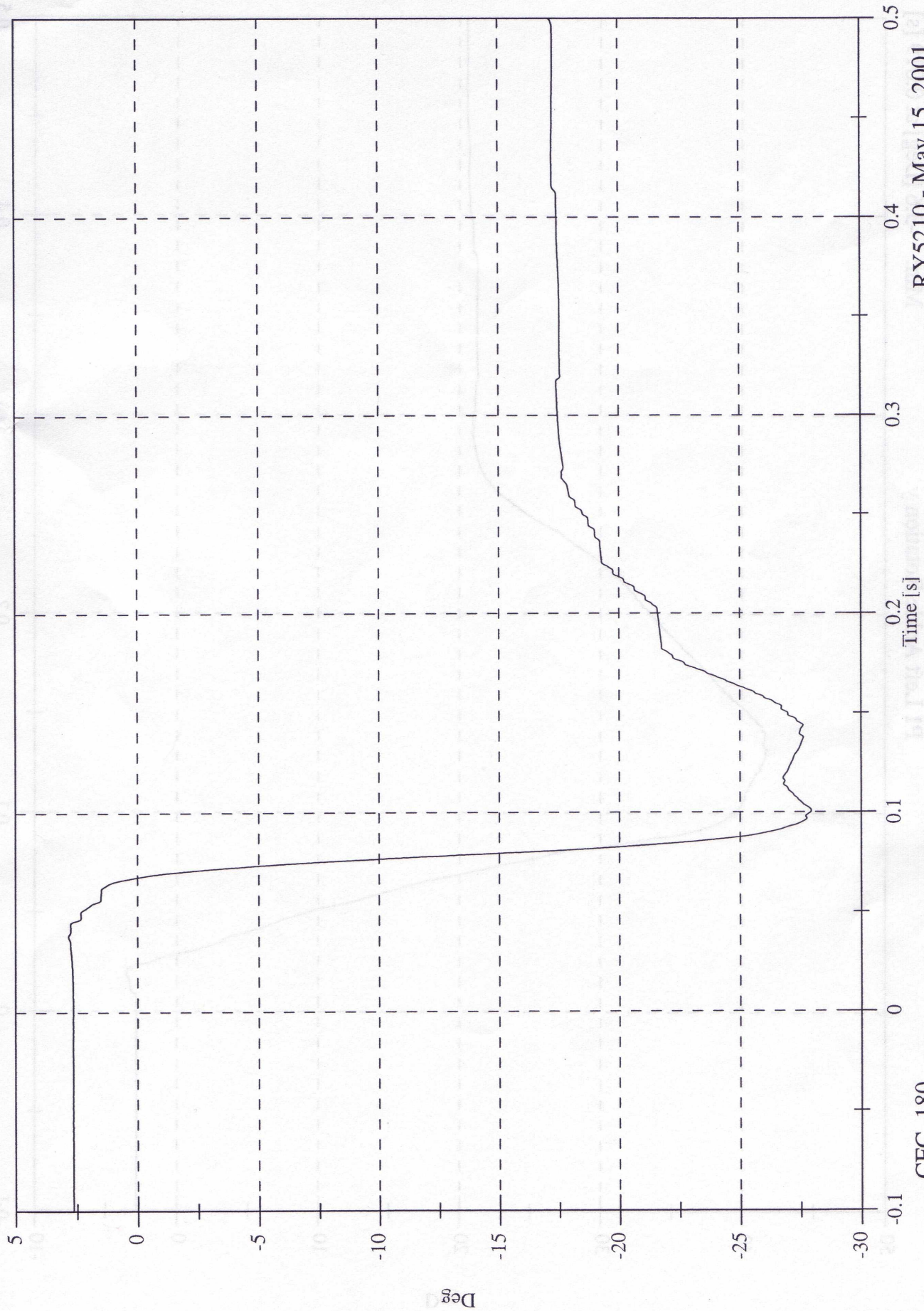


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 2.8 [Deg] at 0.038 [s]
Min: -27.9 [Deg] at 0.100 [s]

P1 Left Ankle Rotation x



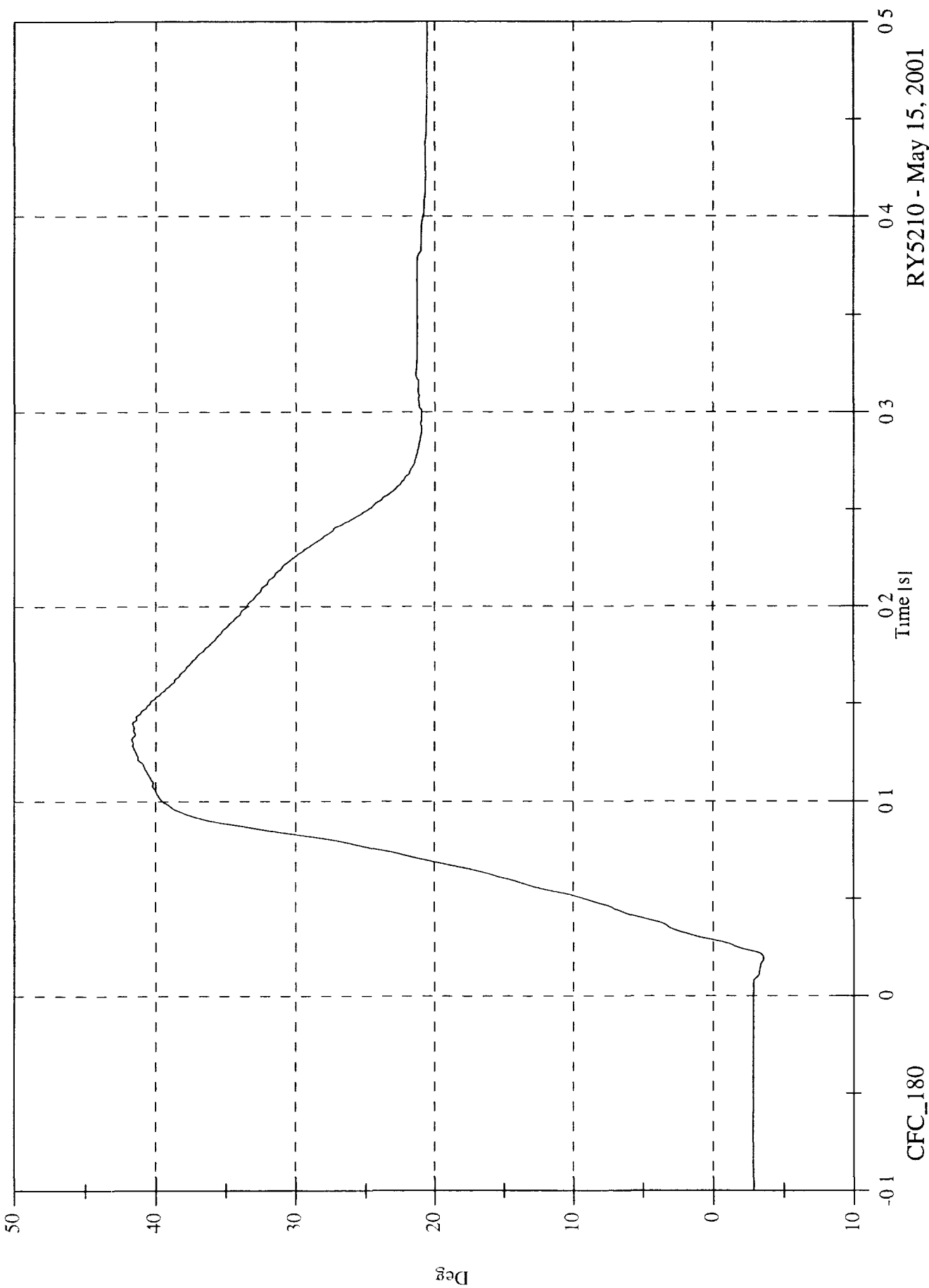
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 41.7 [Deg] at 0.132 [s]
Min: -3.6 [Deg] at 0.019 [s]

P1 Left Ankle Rotation y



CFC_180

Time [s]

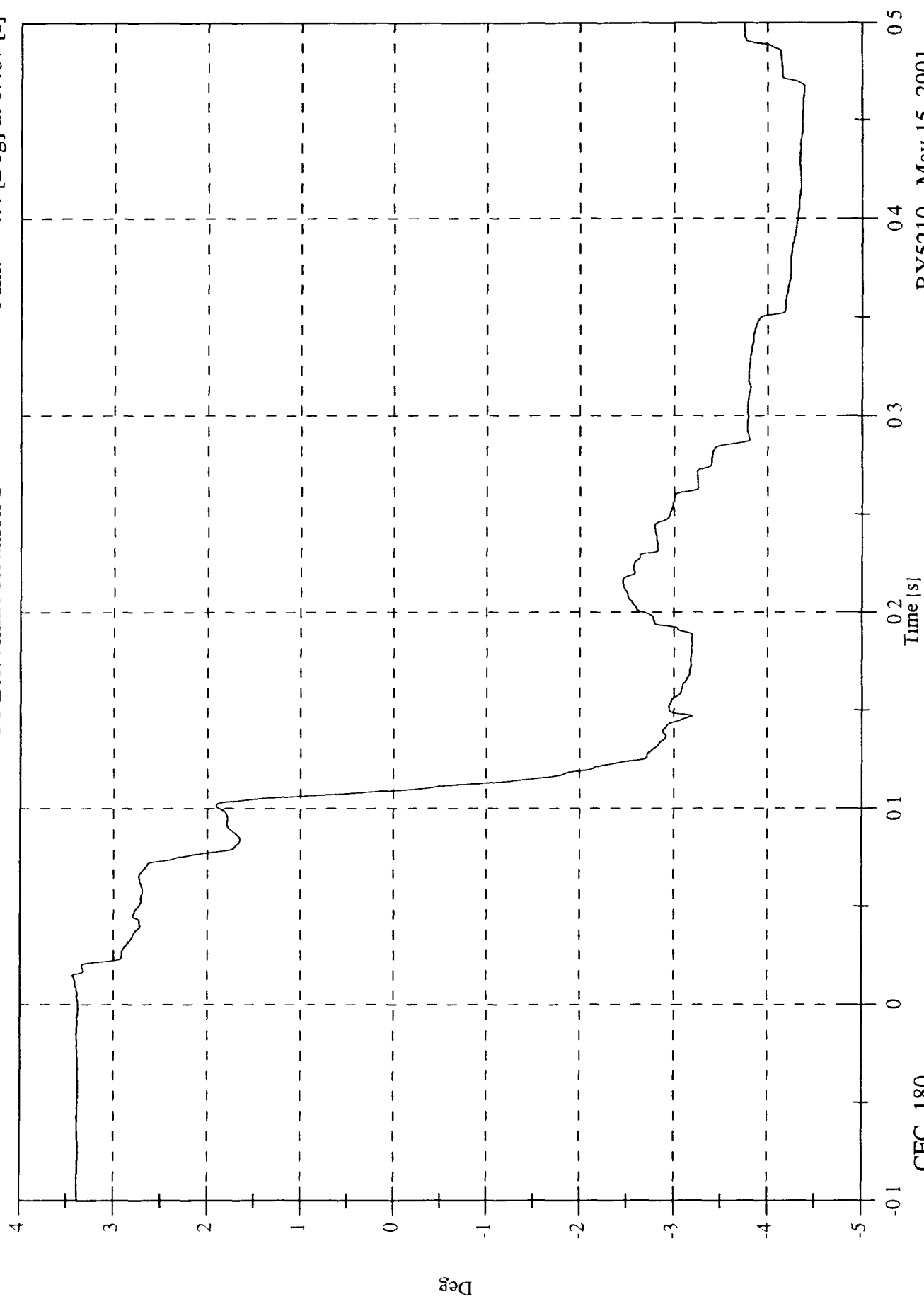
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 3.4 [Deg] at 0.015 [s]

Min: -4.4 [Deg] at 0.467 [s]

P1 Left Ankle Rotation z

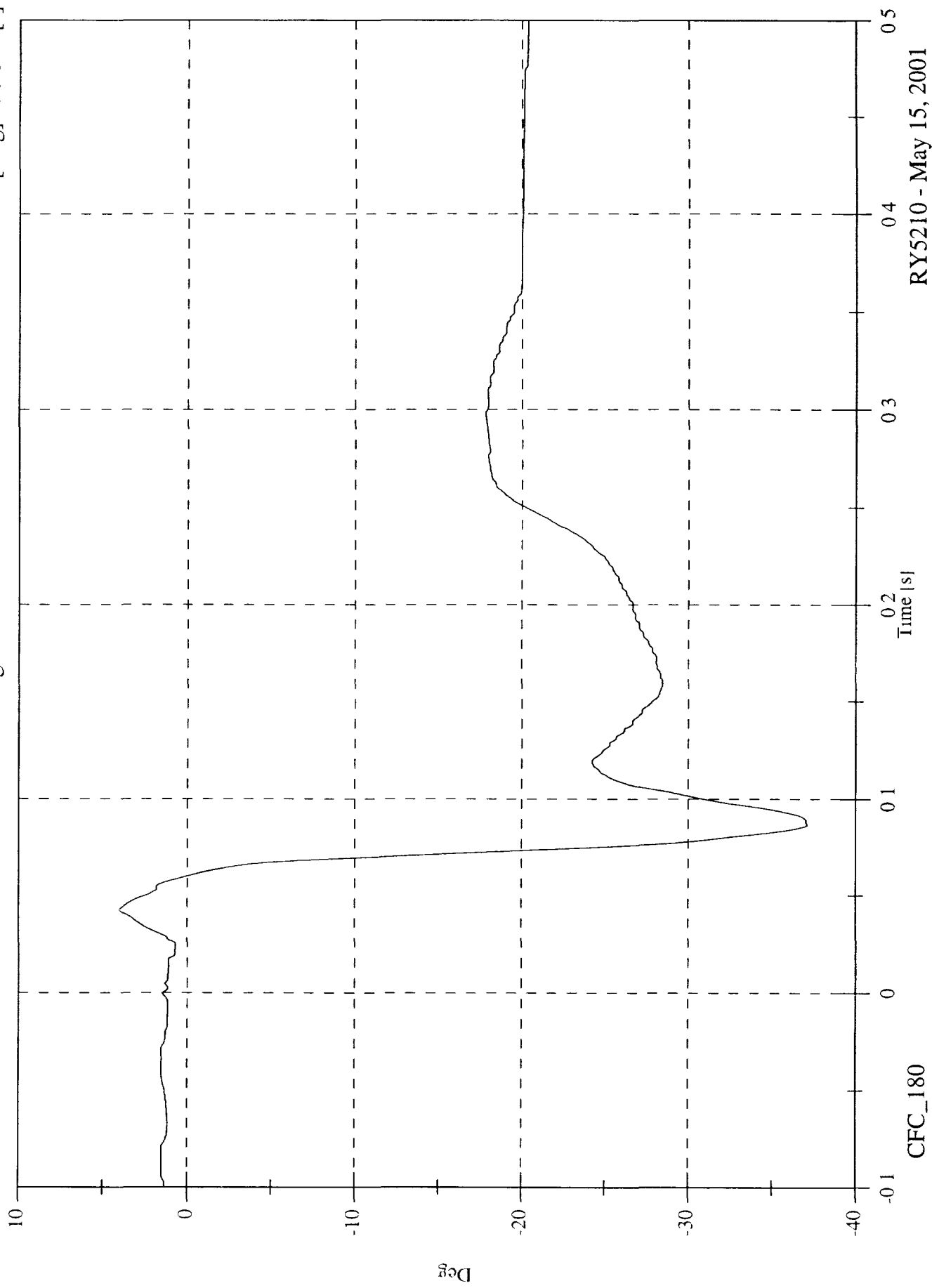


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 4 0 [Deg] at 0.042 [s]
Min: -37.1 [Deg] at 0.087 [s]

P1 Right Ankle Rotation x



CFC_180

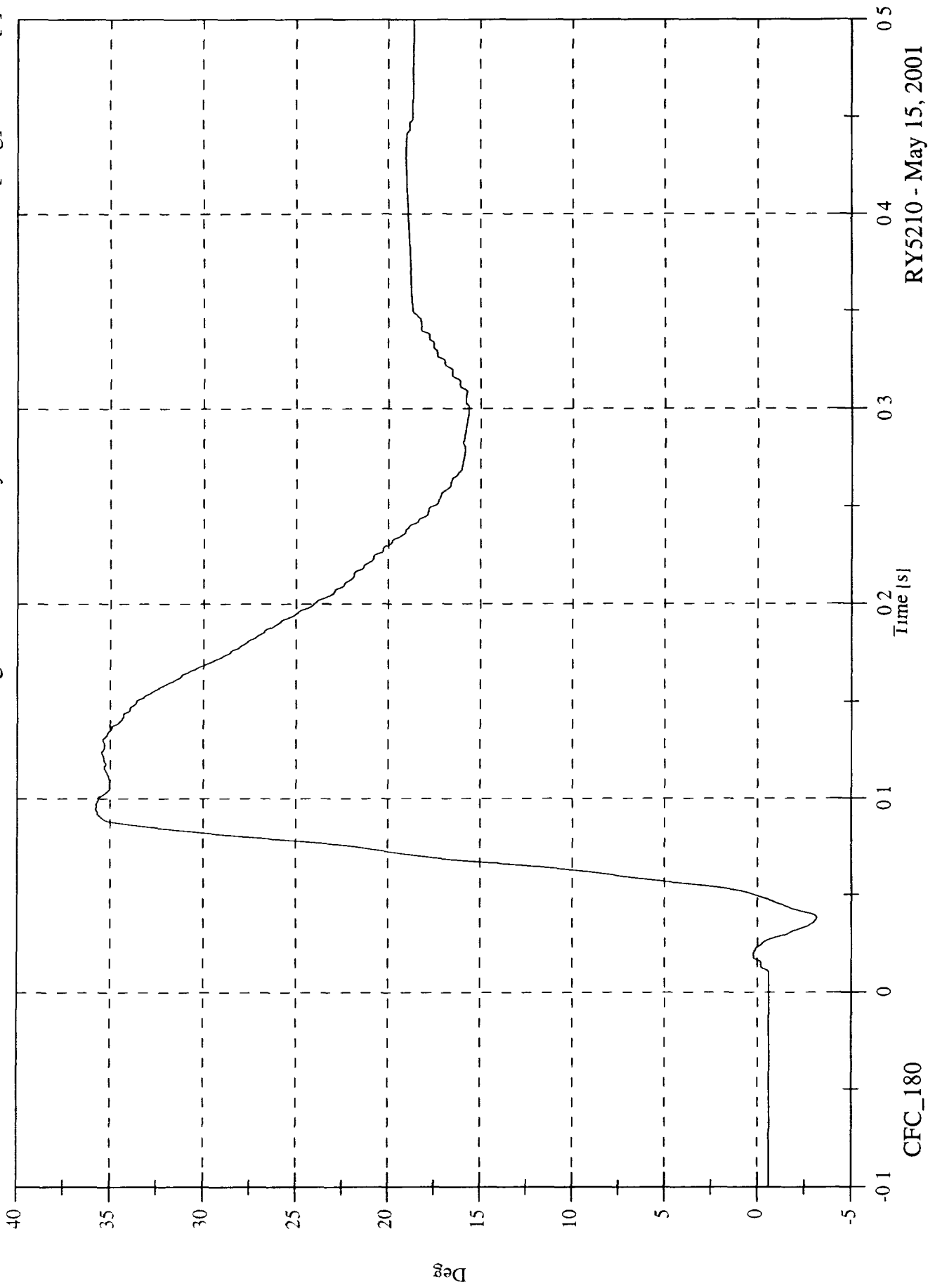
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Right Ankle Rotation y

Max: 35.8 [Deg] at 0.095 [s]

Min: -3.1 [Deg] at 0.038 [s]

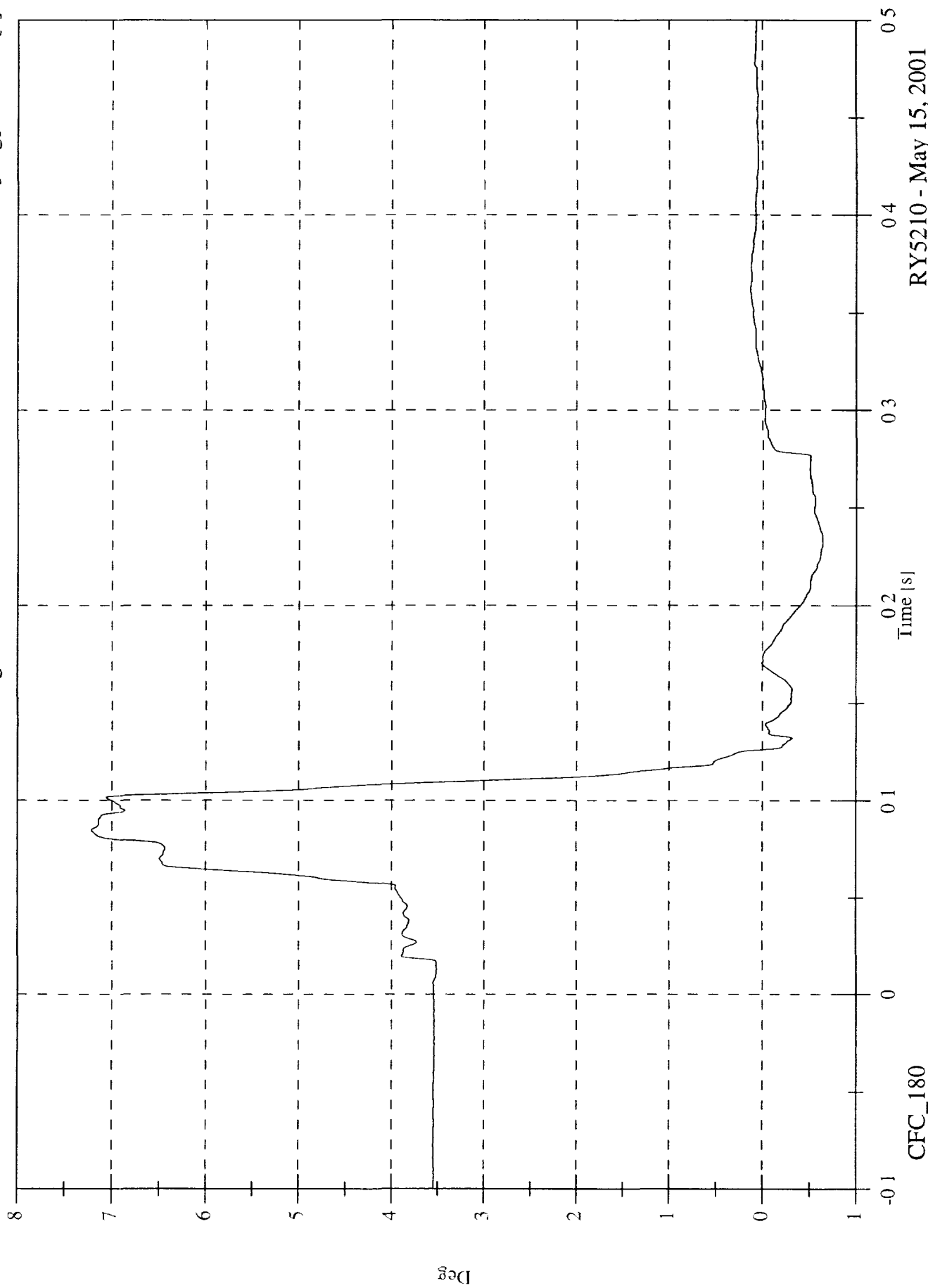


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 7.2 [Deg] at 0.085 [s]
Min. -0.6 [Deg] at 0.232 [s]

P1 Right Ankle Rotation z



CFC_180

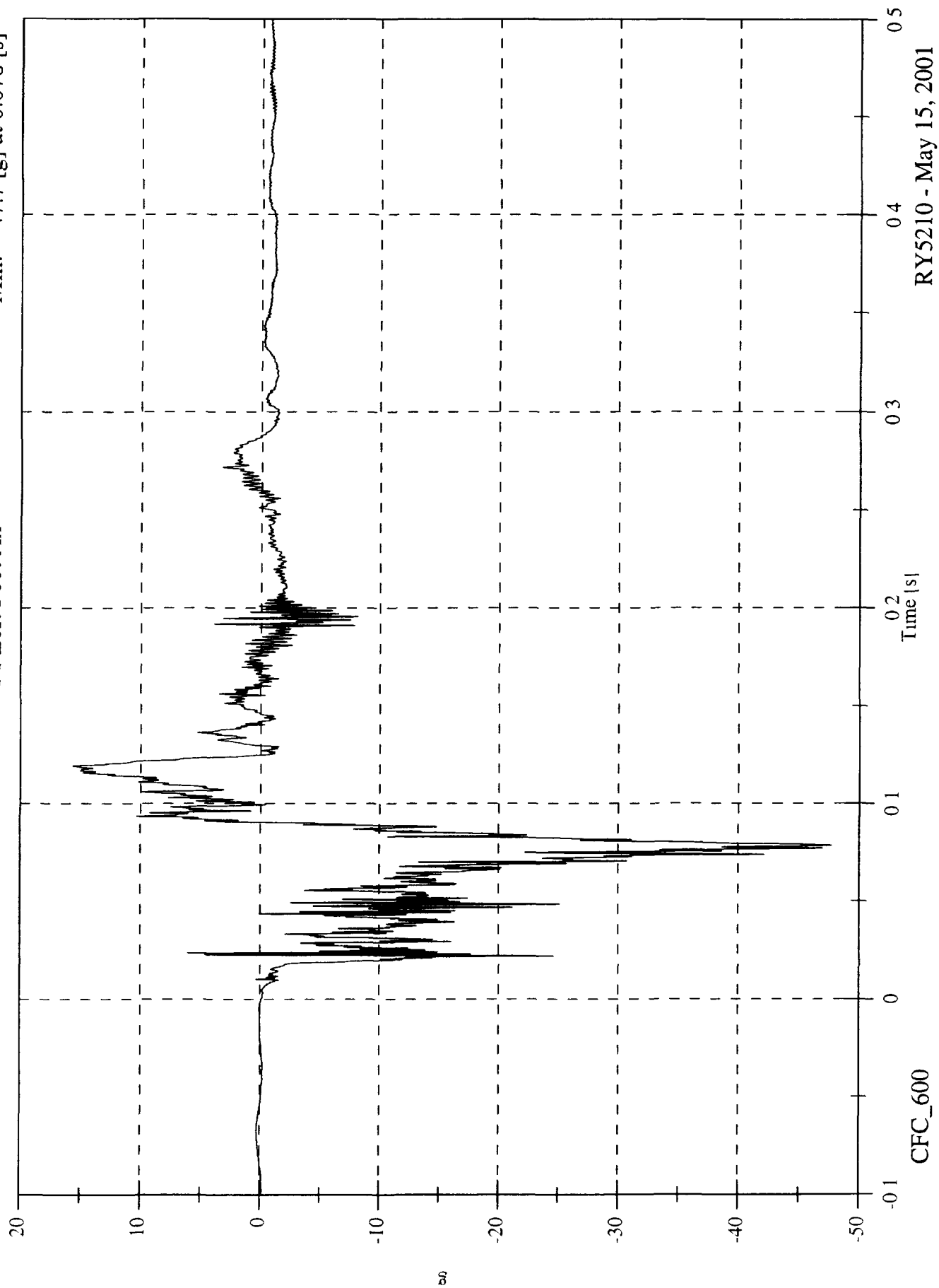
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 15.7 [g] at 0.119 [s]
Min: -47.7 [g] at 0.078 [s]

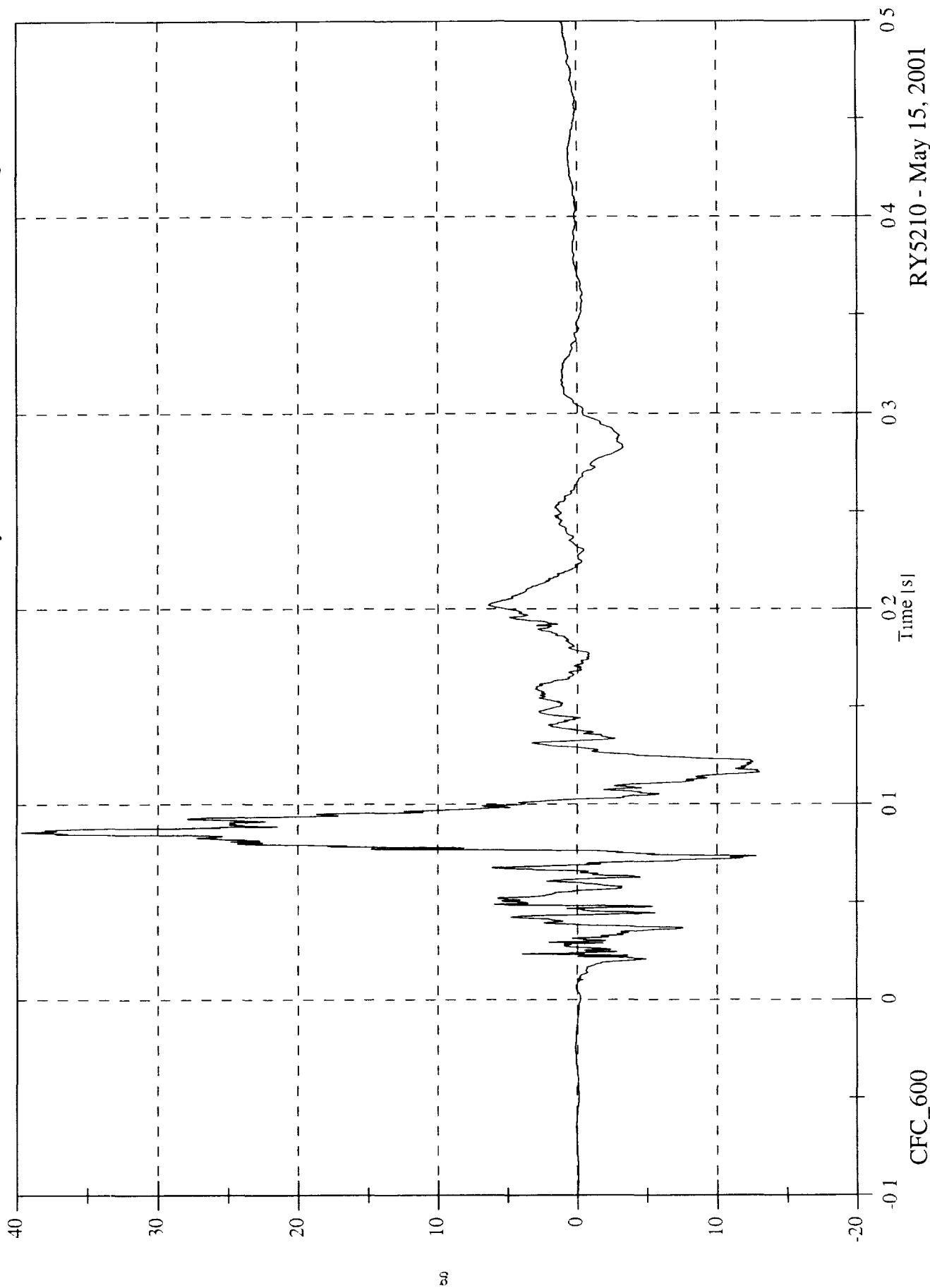
P1 Left Foot Ax



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 39.7 [g] at 0.086 [s]
Min: -13.0 [g] at 0.116 [s]

P1 Left Foot Ay

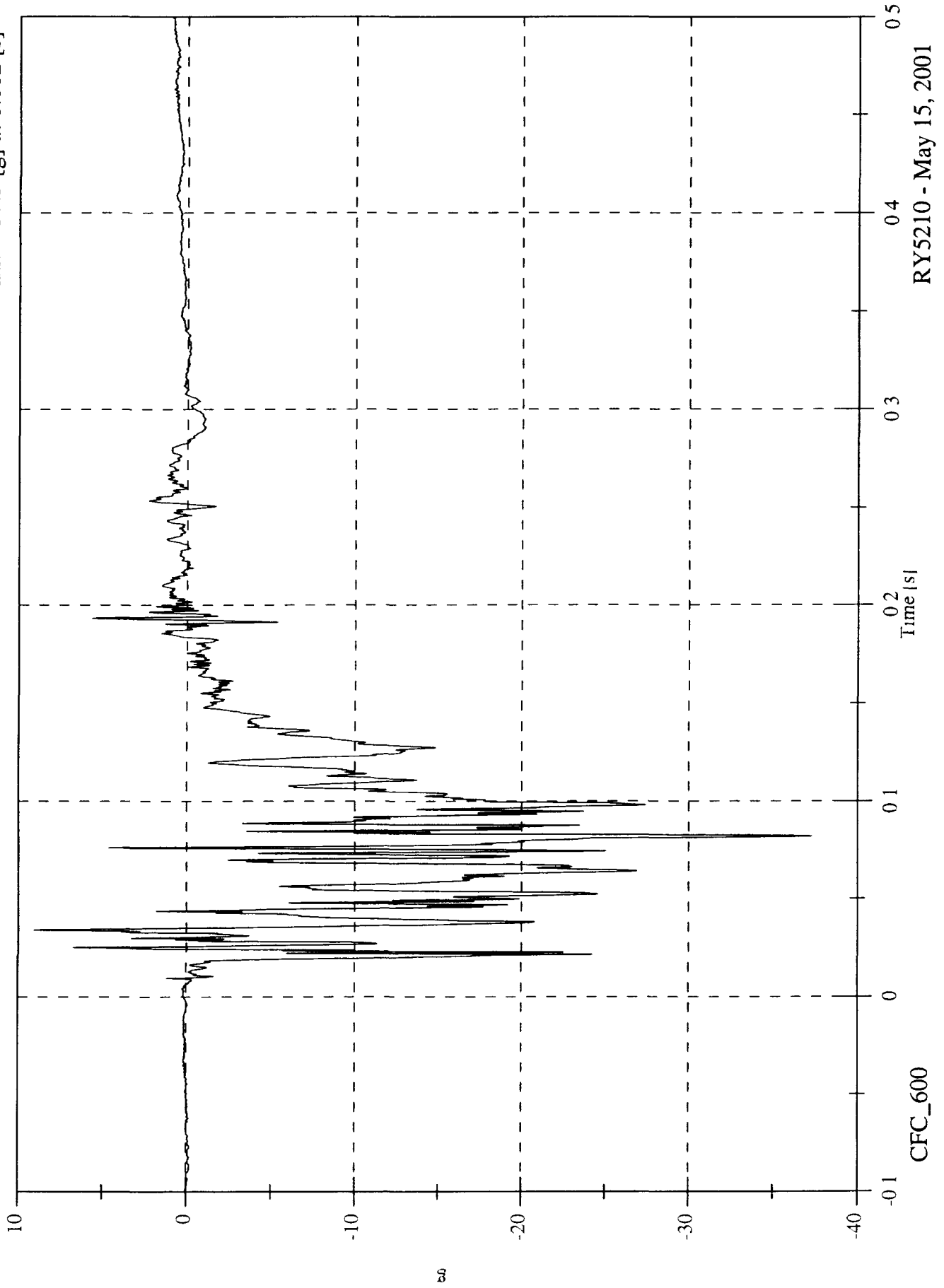


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 9.1 [g] at 0.034 [s]
Min: -37.3 [g] at 0.082 [s]

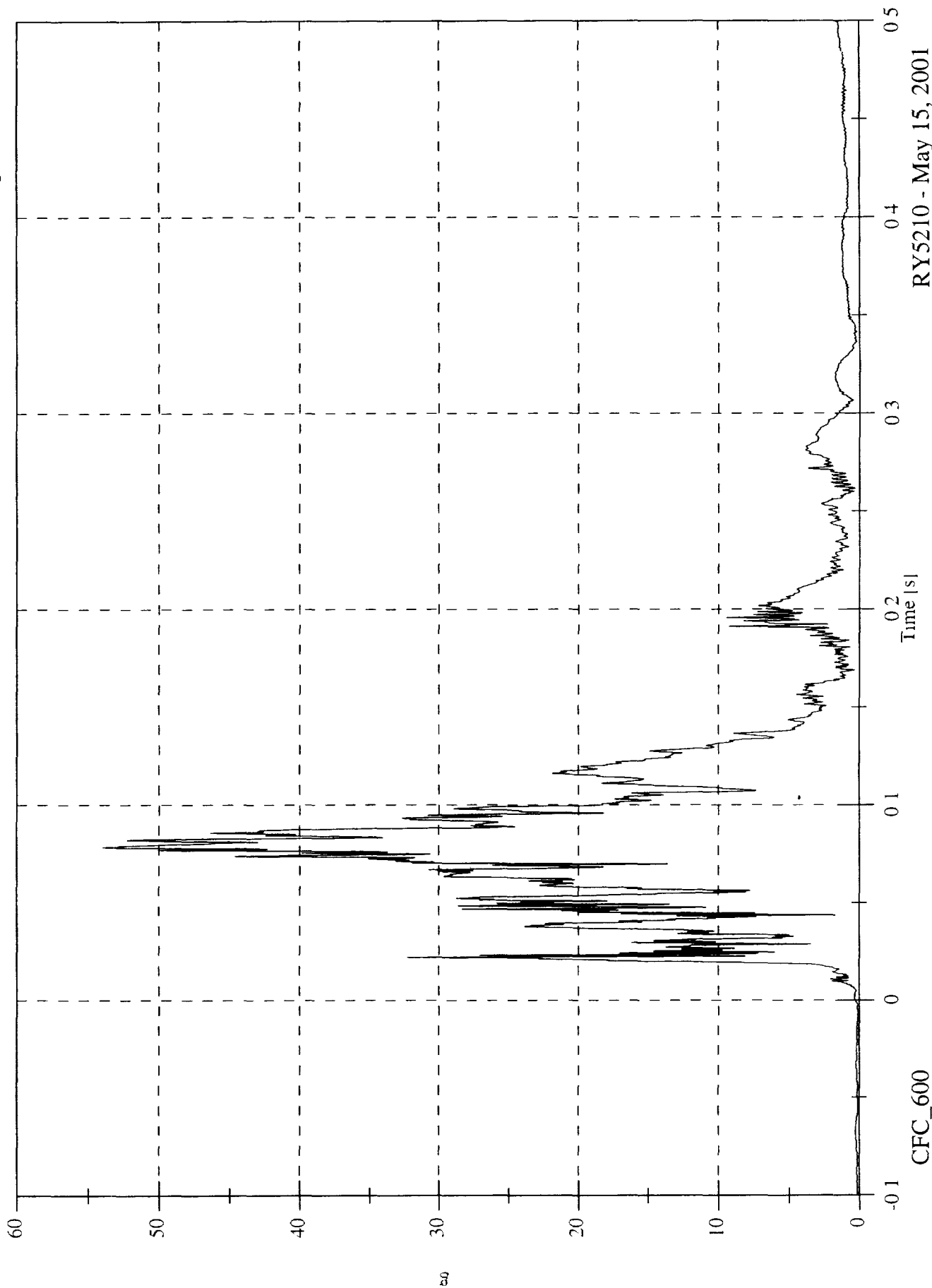
P1 Left Foot Az



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 53.9 [g] at 0.078 [s]
 Min: 0.0 [g] at -0.100 [s]

P1 Left Foot A Resultant

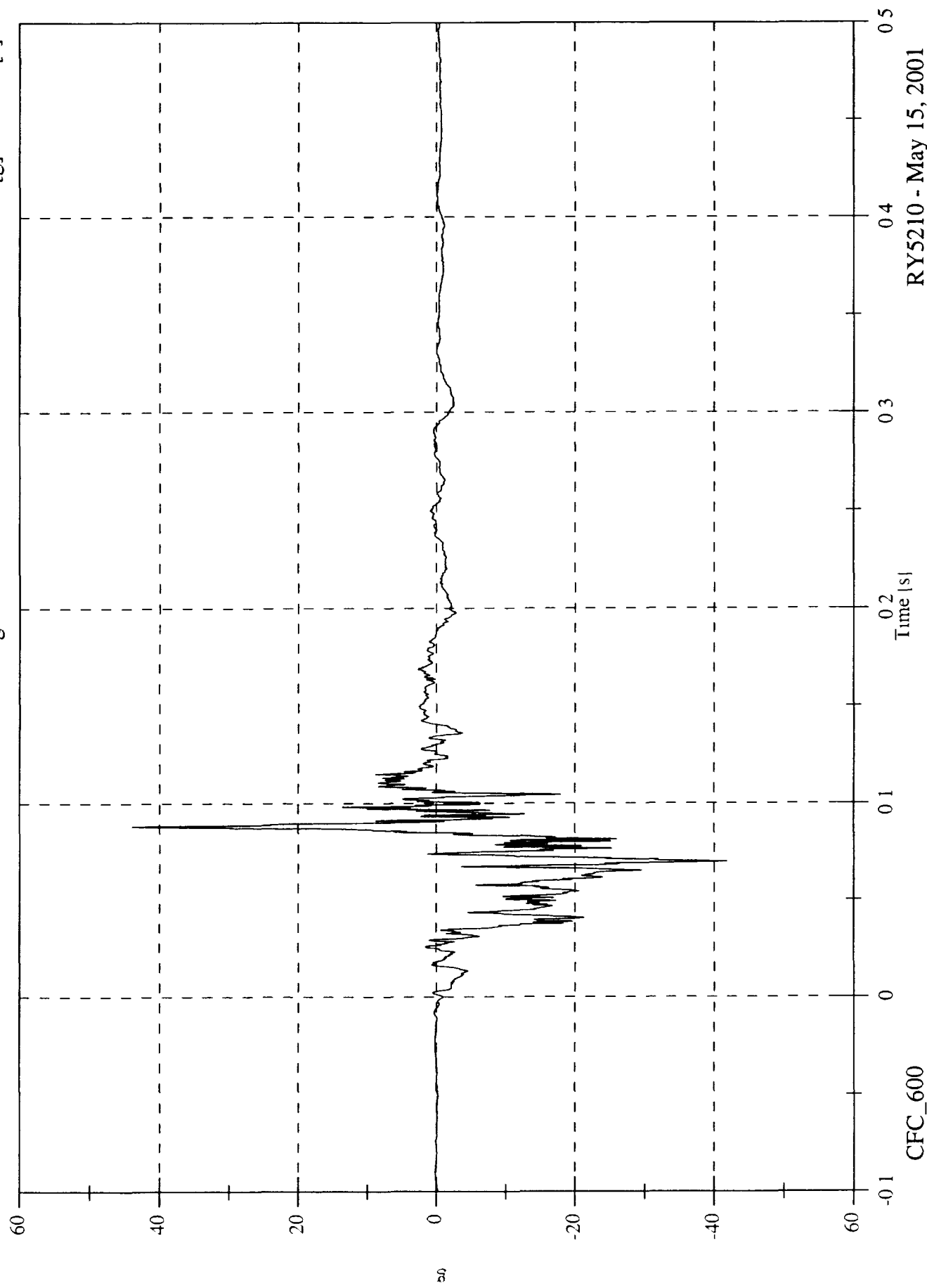


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 43.8 [g] at 0.088 [s]
Min: -41.8 [g] at 0.070 [s]

P1 Right Foot Ax



CFC_600

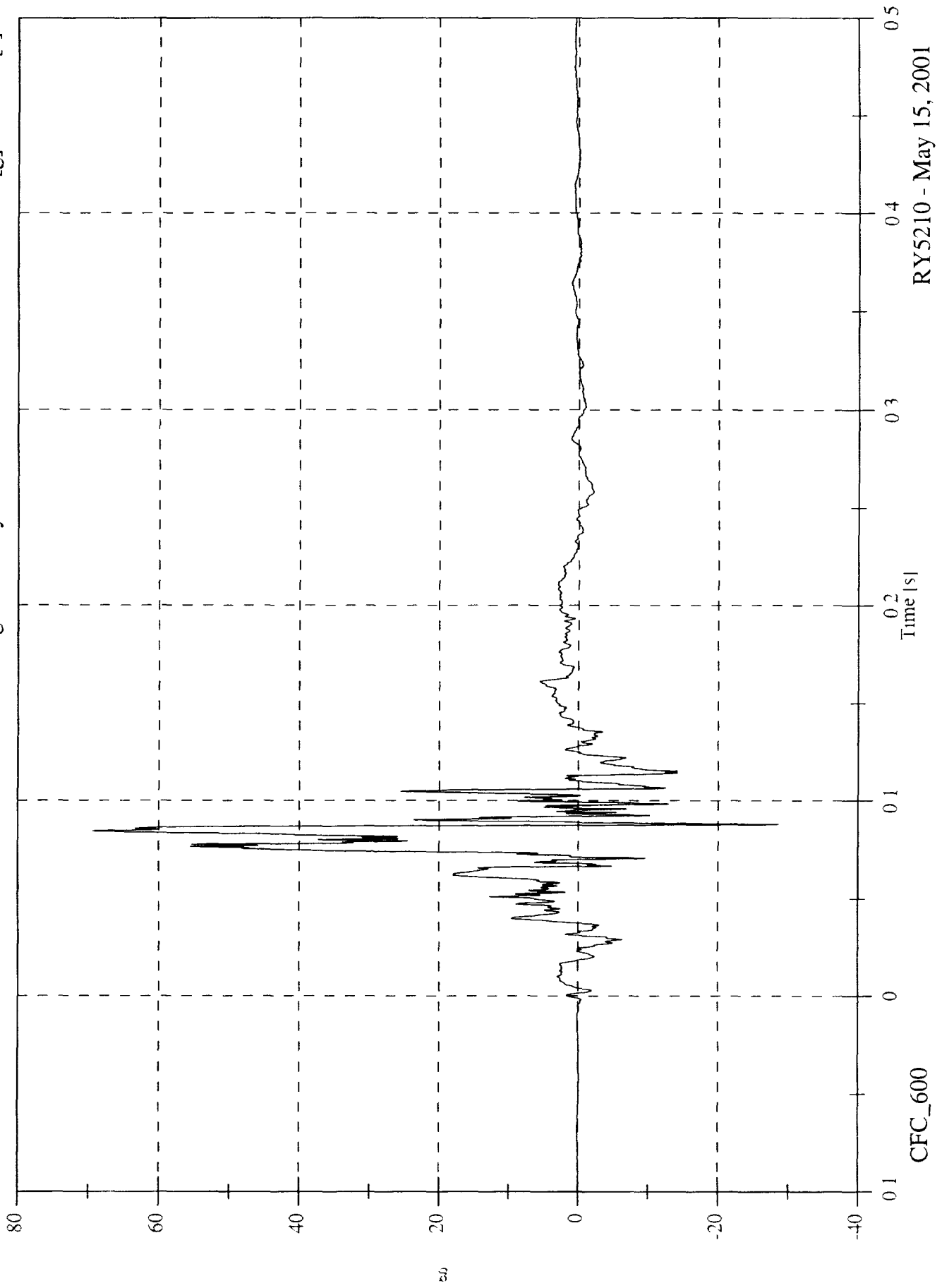
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 69.4 [g] at 0.084 [s]
Min: -28.7 [g] at 0.088 [s]

P1 Right Foot Ay

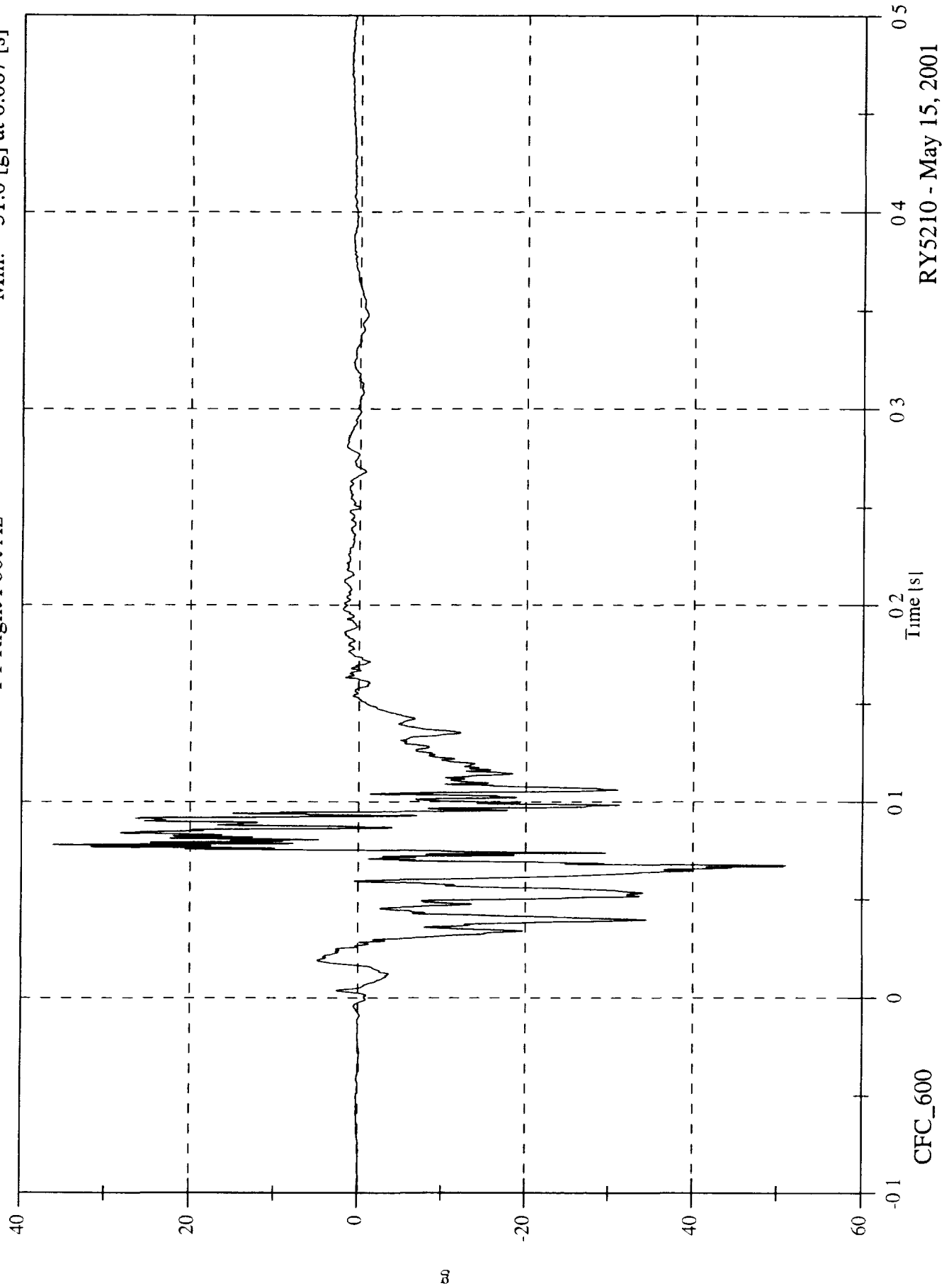


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P1 Right Foot Az

Max: 36.2 [g] at 0.078 [s]
Min: -51.0 [g] at 0.067 [s]

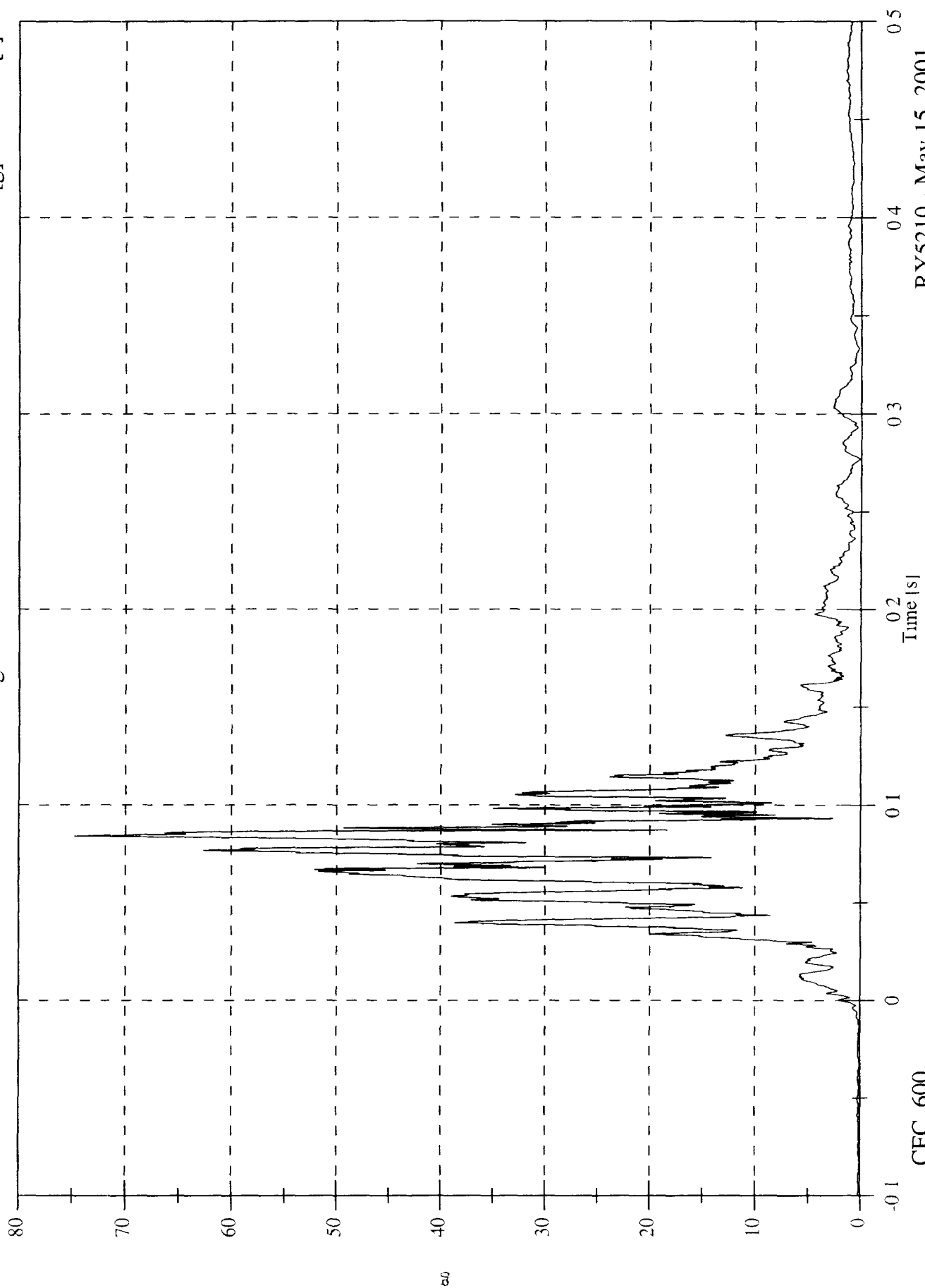


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 74.8 [g] at 0.084 [s]
Min: 0.0 [g] at -0.100 [s]

P1 Right Foot A Resultant

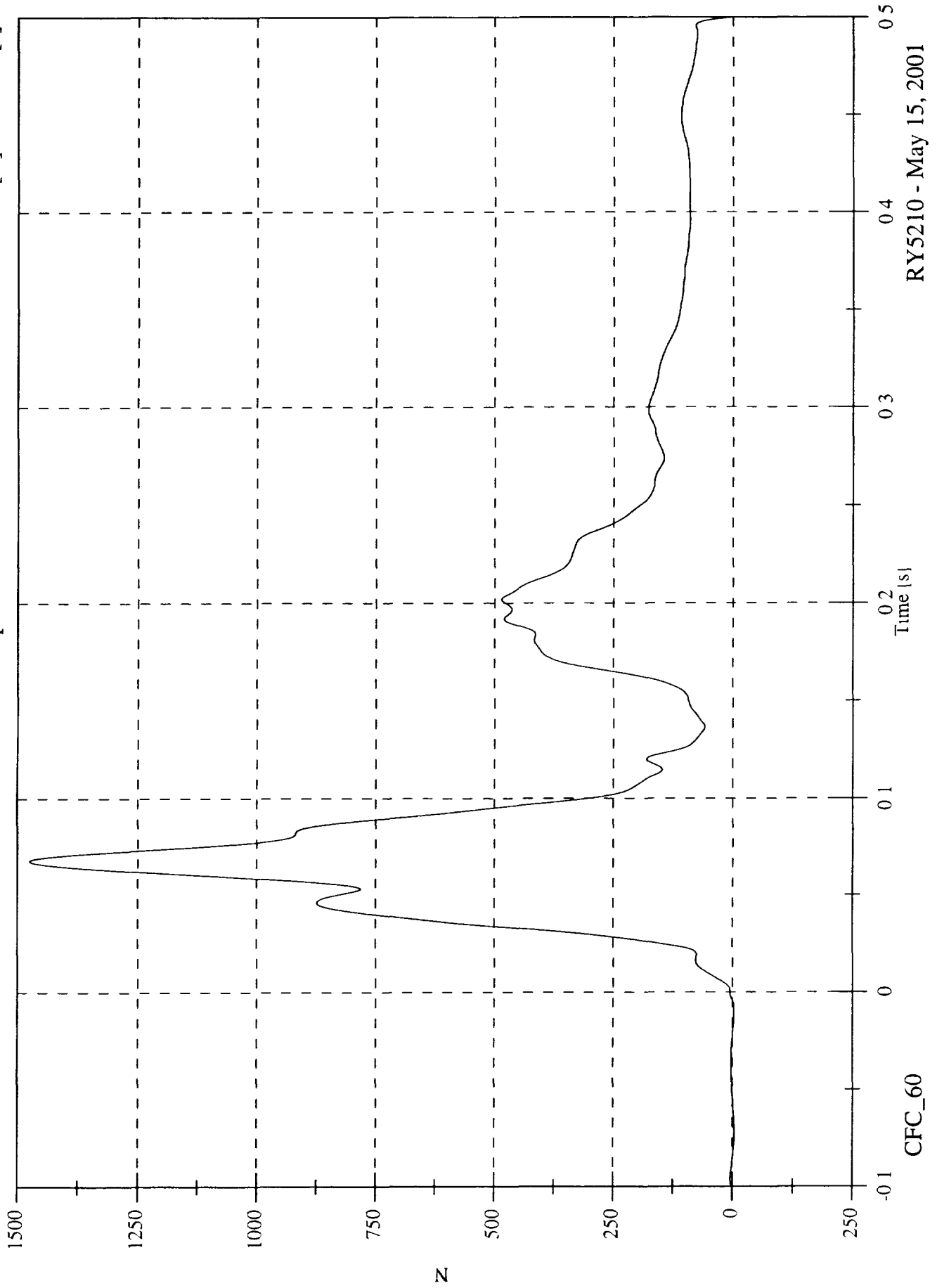


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1474.9 [N] at 0.068 [s]
Min: -3.6 [N] at -0.074 [s]

P1 Lap Belt Force

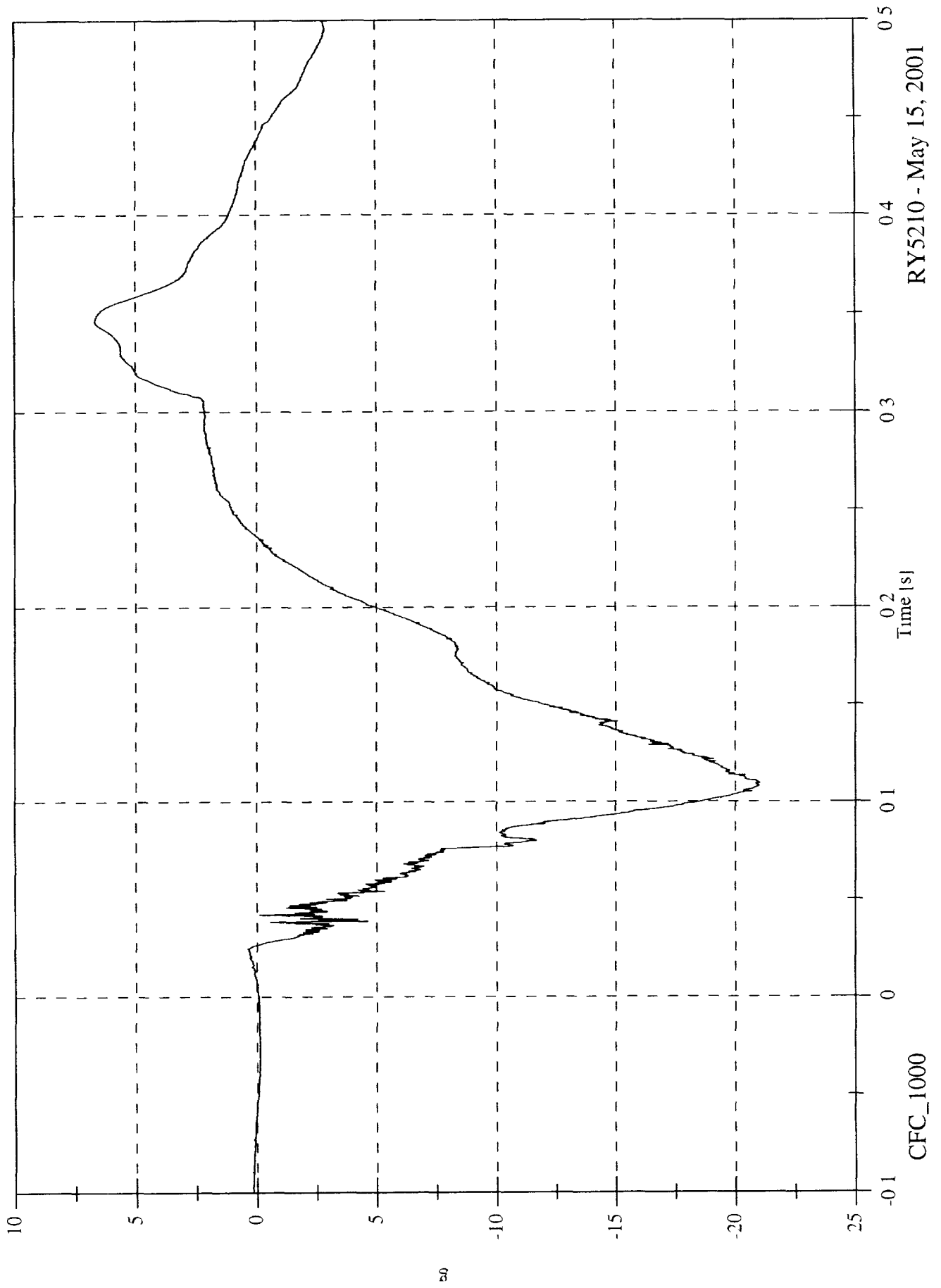


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 6.7 [g] at 0.346 [s]
Min: -21.0 [g] at 0.109 [s]

P2 Head CG Ax



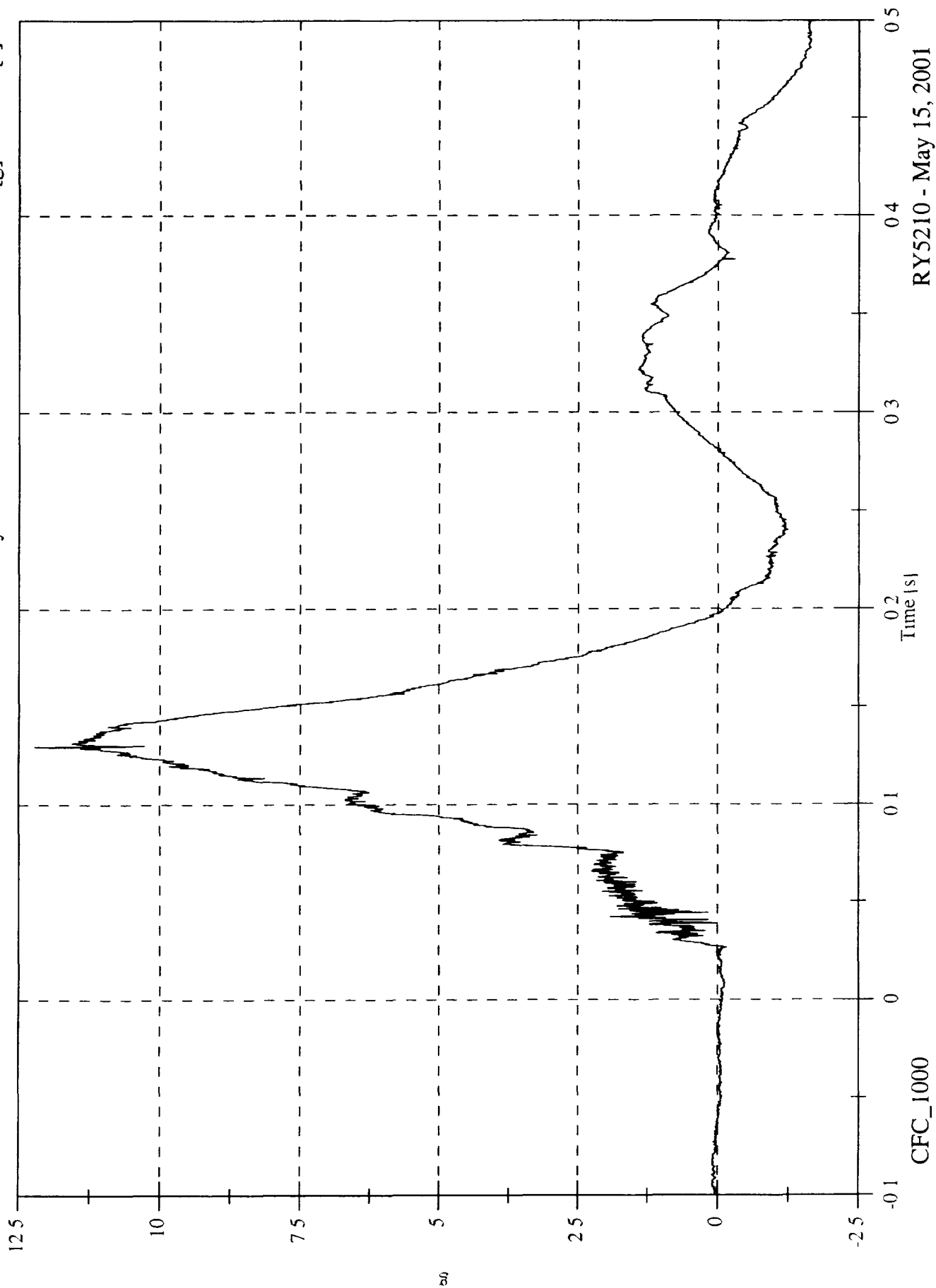
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Head CG Ay

Max: 12.2 [g] at 0.130 [s]

Min: -1.7 [g] at 0.500 [s]



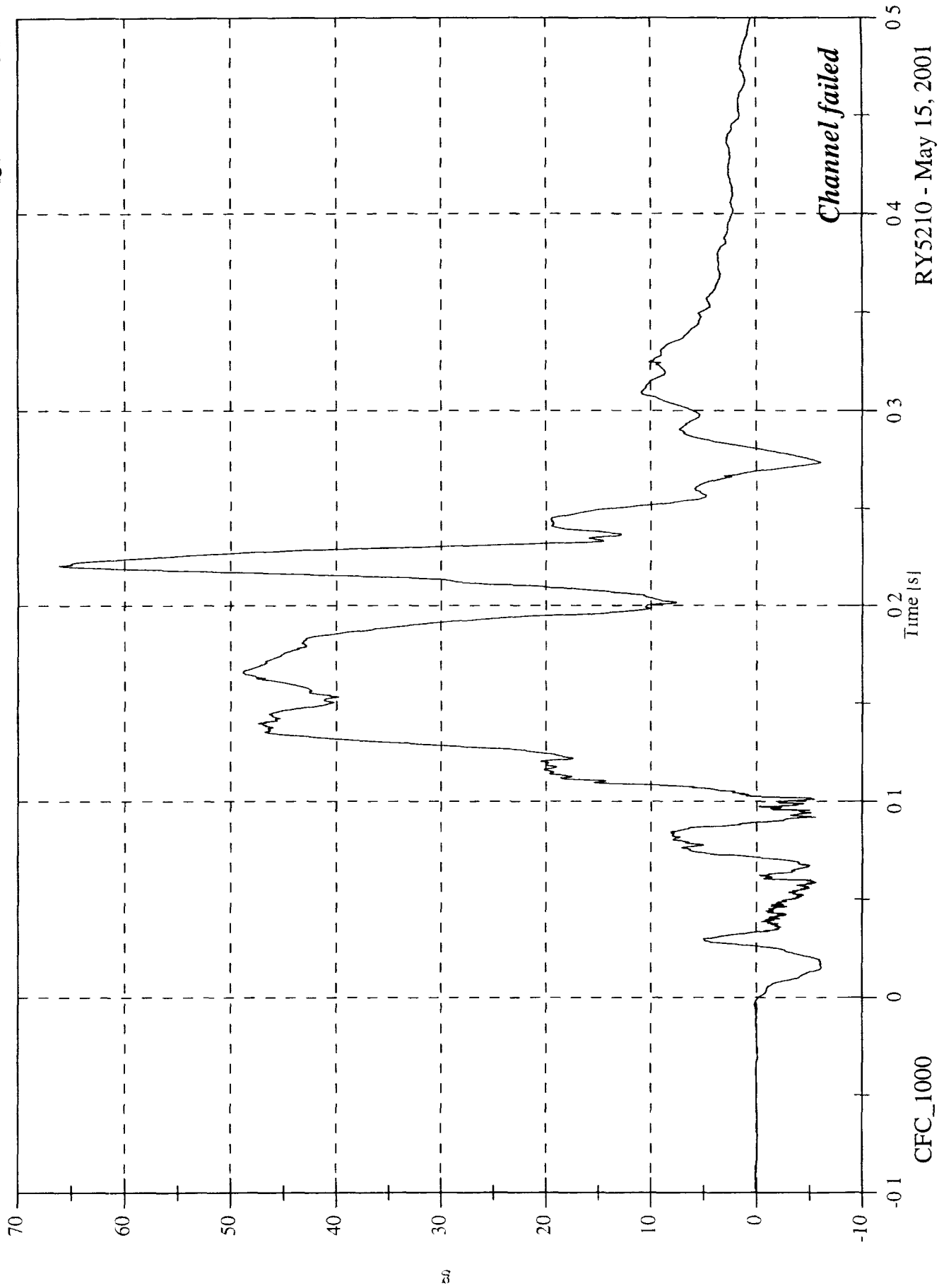
CFC_1000

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 66.1 [g] at 0.220 [s]
 Min: -6.1 [g] at 0.015 [s]

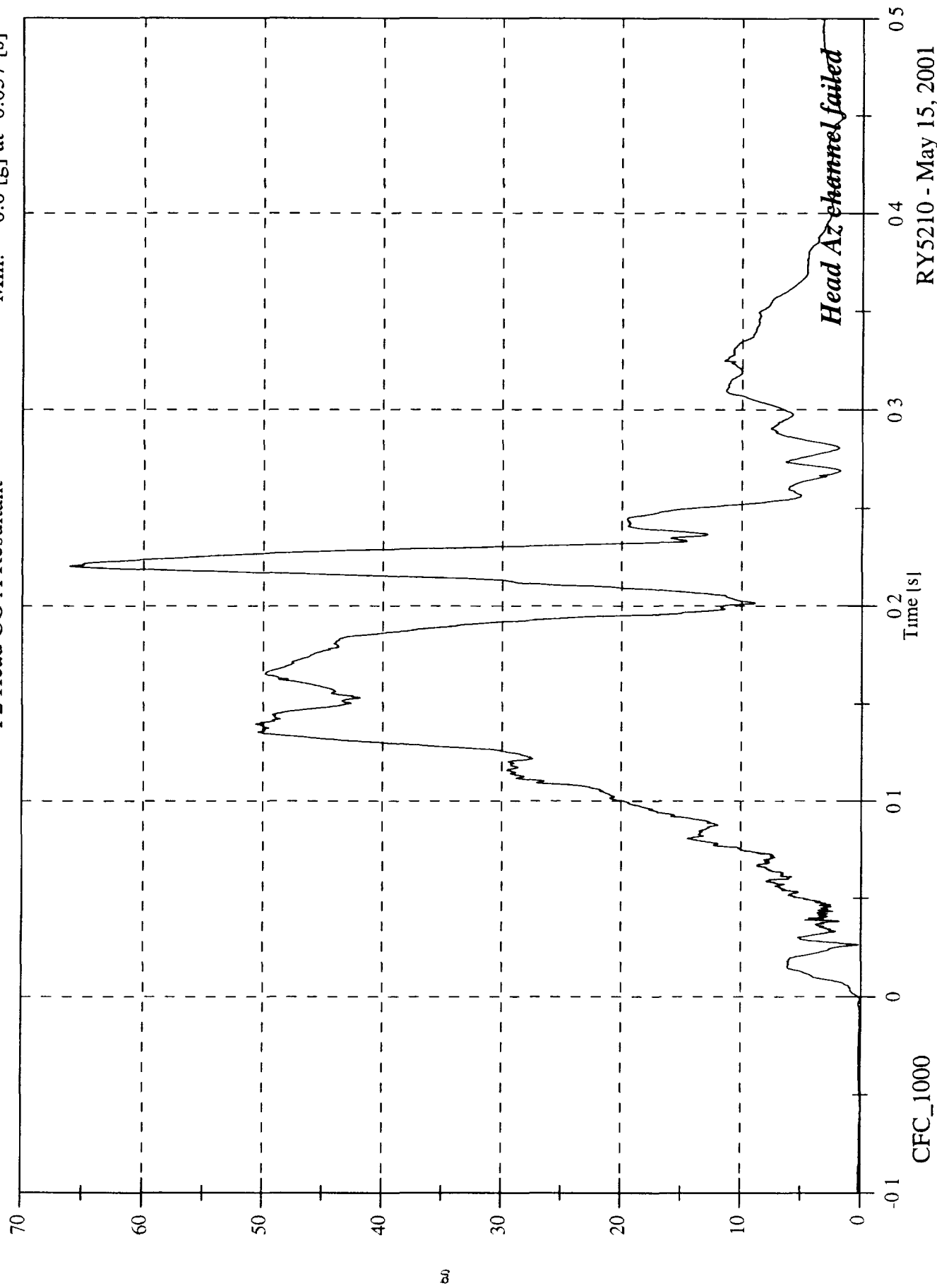
P2 Head CG Az



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 66.1 [g] at 0.220 [s]
Min: 0.0 [g] at -0.057 [s]

P2 Head CG A Resultant

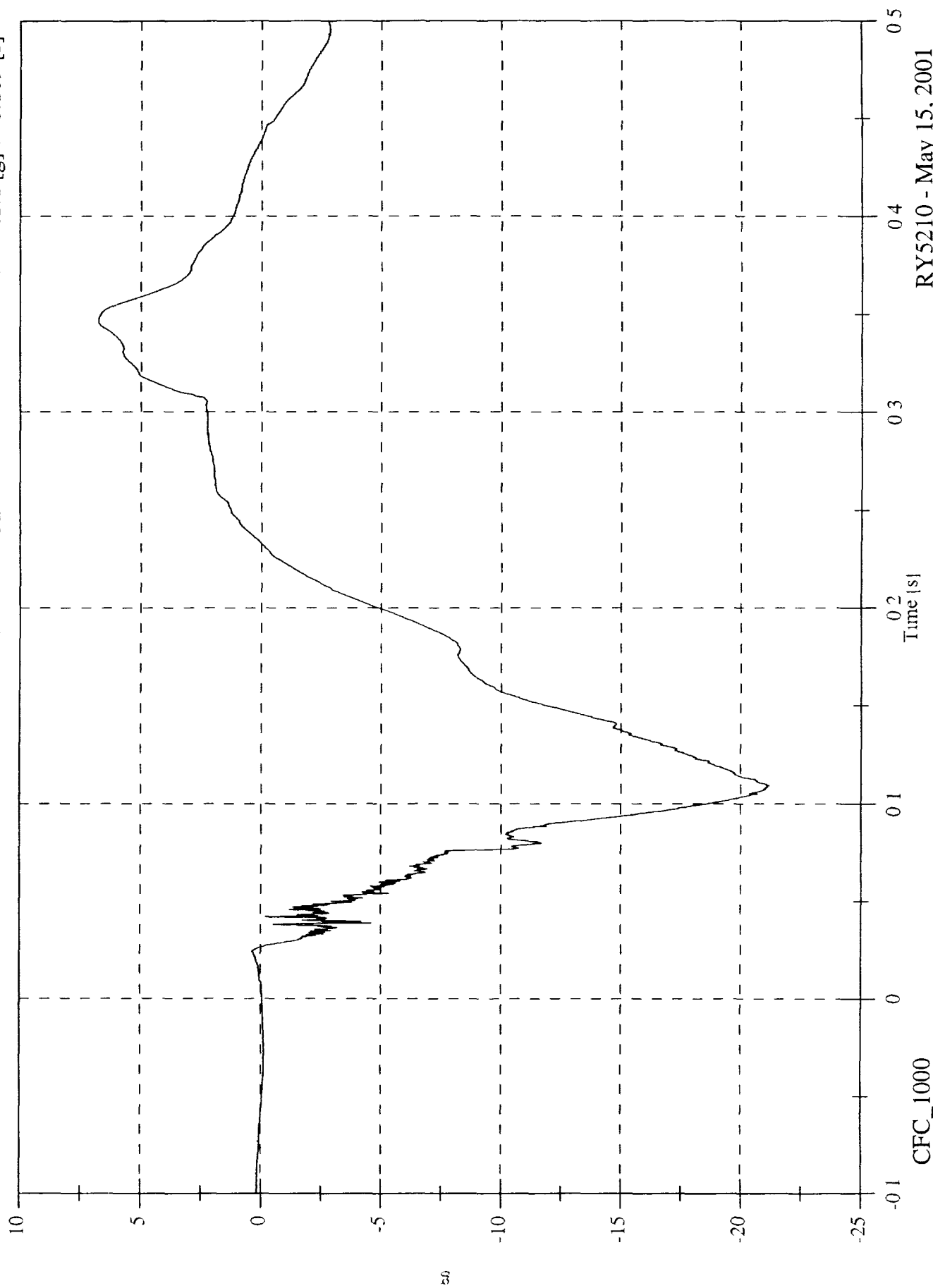


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 6.8 [g] at 0.347 [s]
Min: -21.2 [g] at 0.109 [s]

P2 Head CG Red Ax

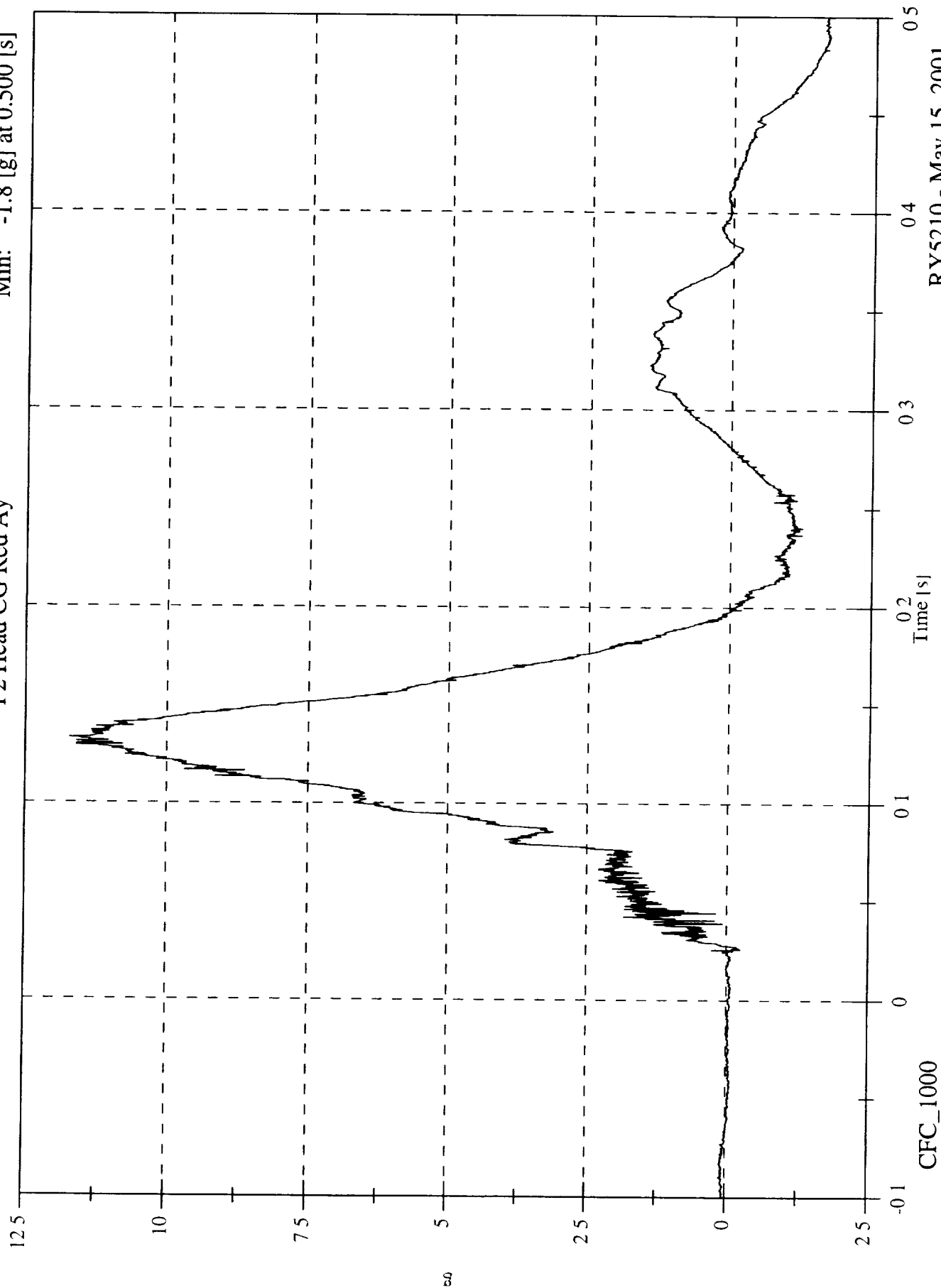


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Head CG Red Ay

Max: 11.7 [g] at 0.133 [s]
Min: -1.8 [g] at 0.500 [s]

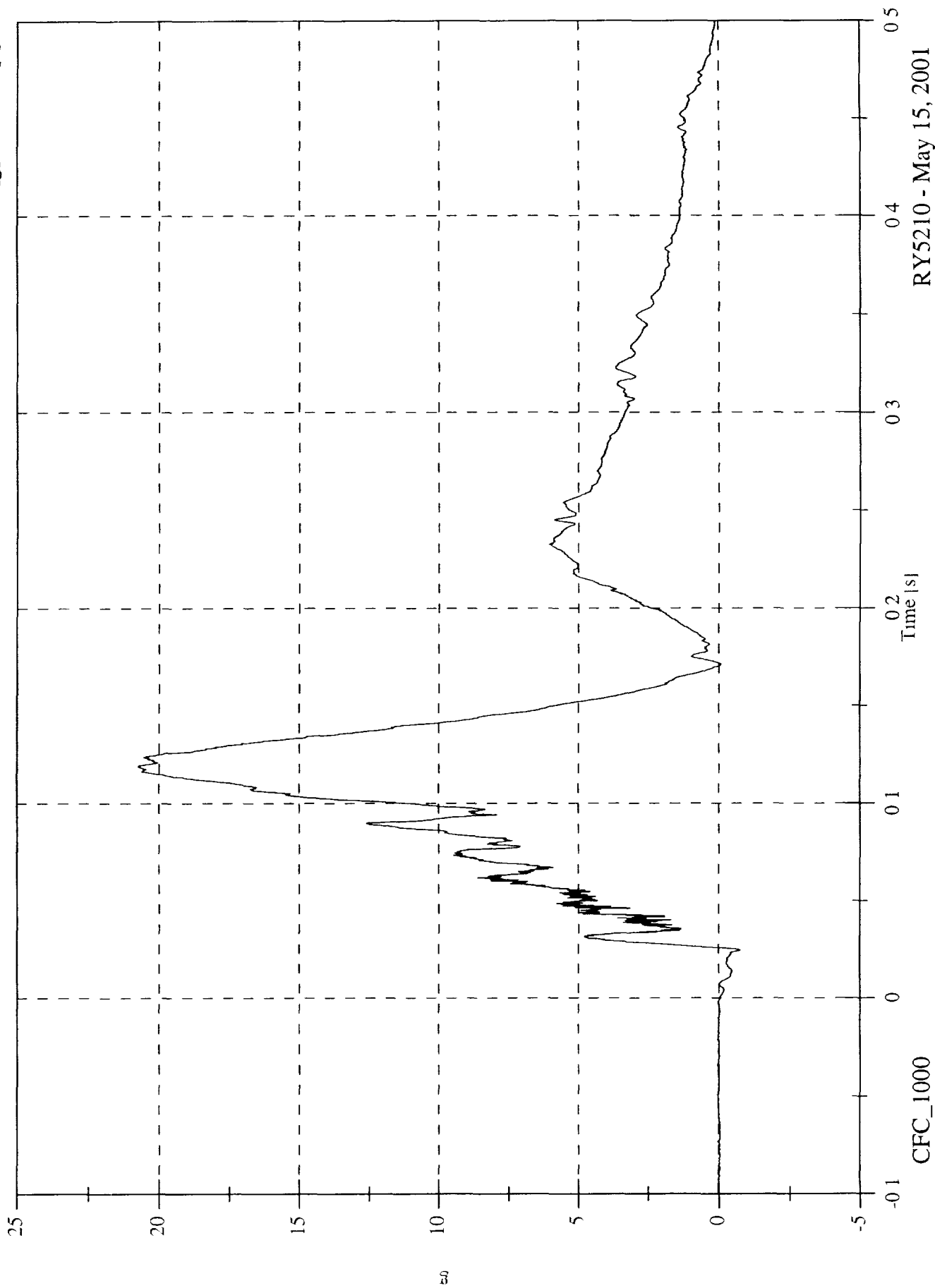


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max 20.8 [g] at 0.119 [s]
Min -0.8 [g] at 0.025 [s]

P2 Head CG Red Az

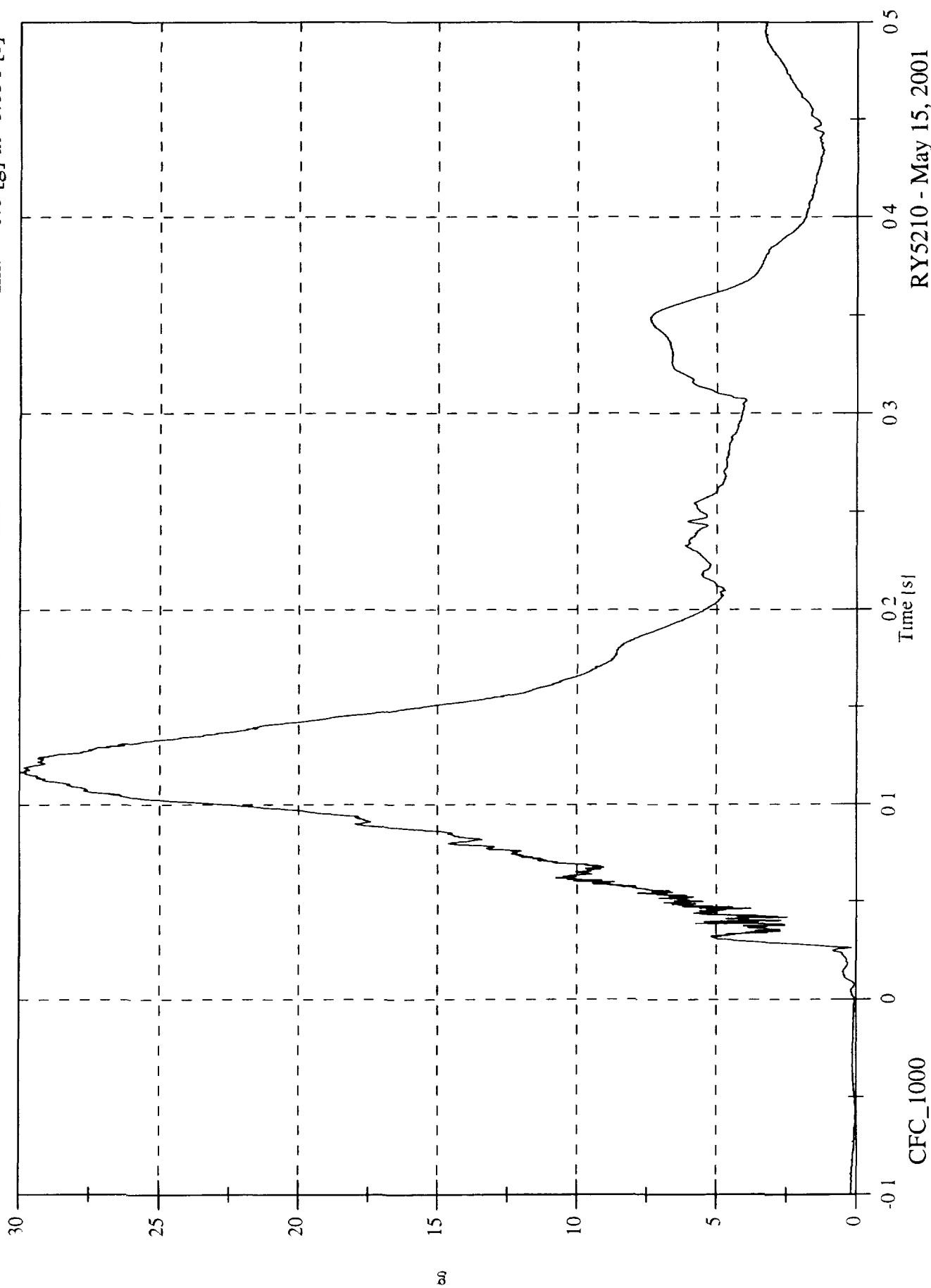


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 30.0 [g] at 0.117 [s]
Min: 0.0 [g] at -0.058 [s]

P2 Head CG Red A Resultant



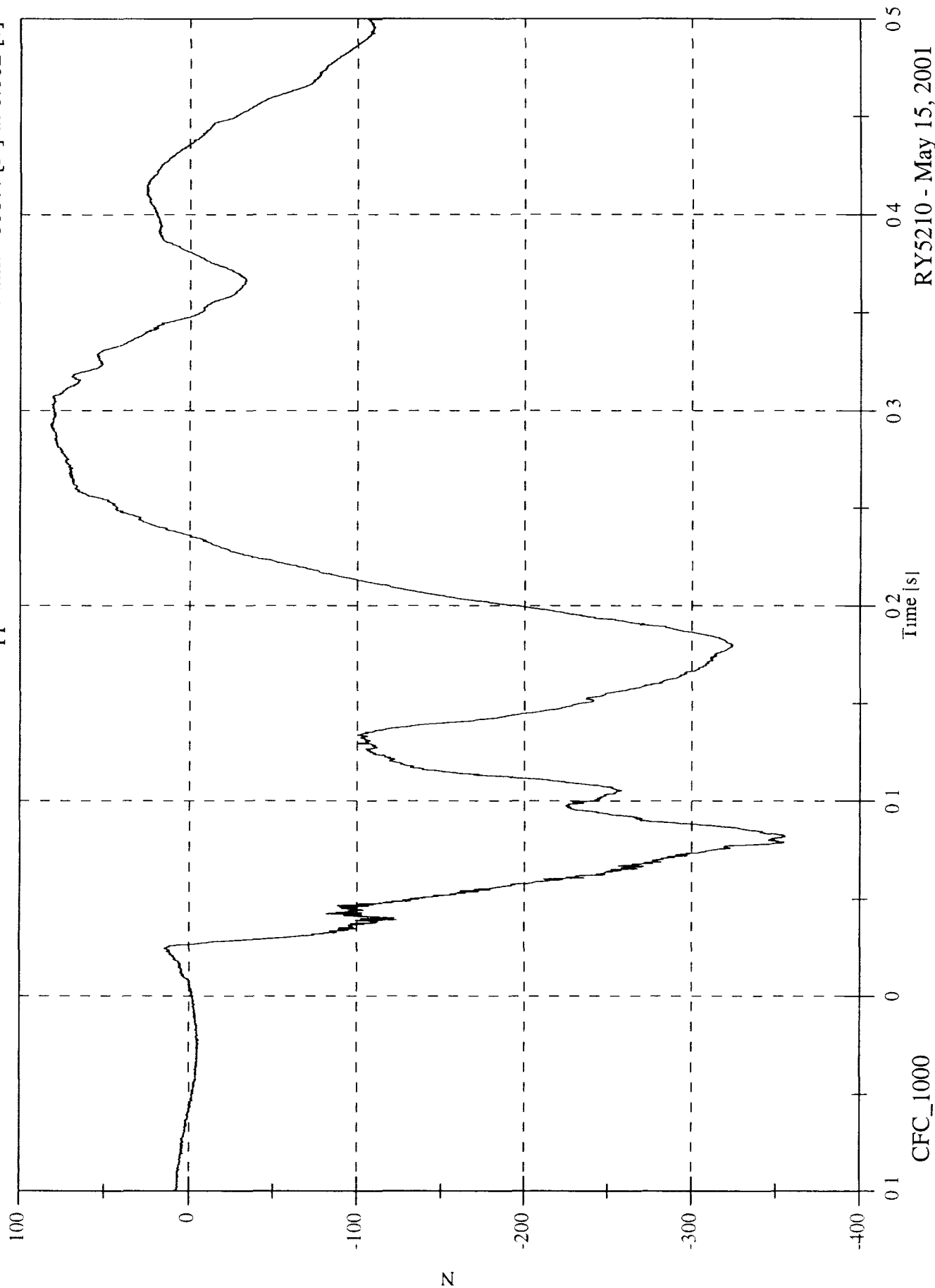
CFC_1000

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 82.0 [N] at 0.293 [s]
Min: -355.4 [N] at 0.082 [s]

P2 Upper Neck Fx

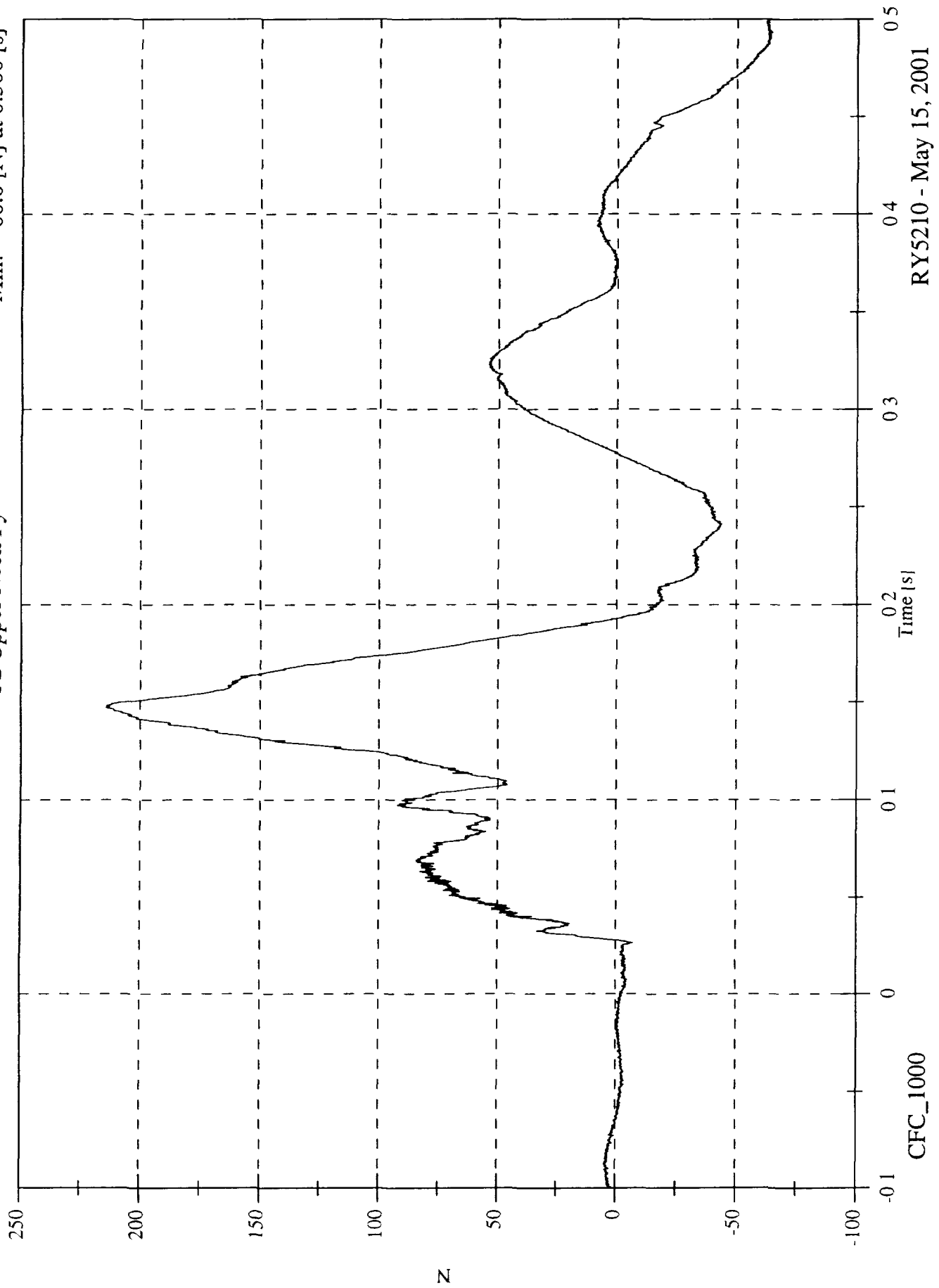


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 214.1 [N] at 0.147 [s]
Min: -66.8 [N] at 0.500 [s]

P2 Upper Neck Fy

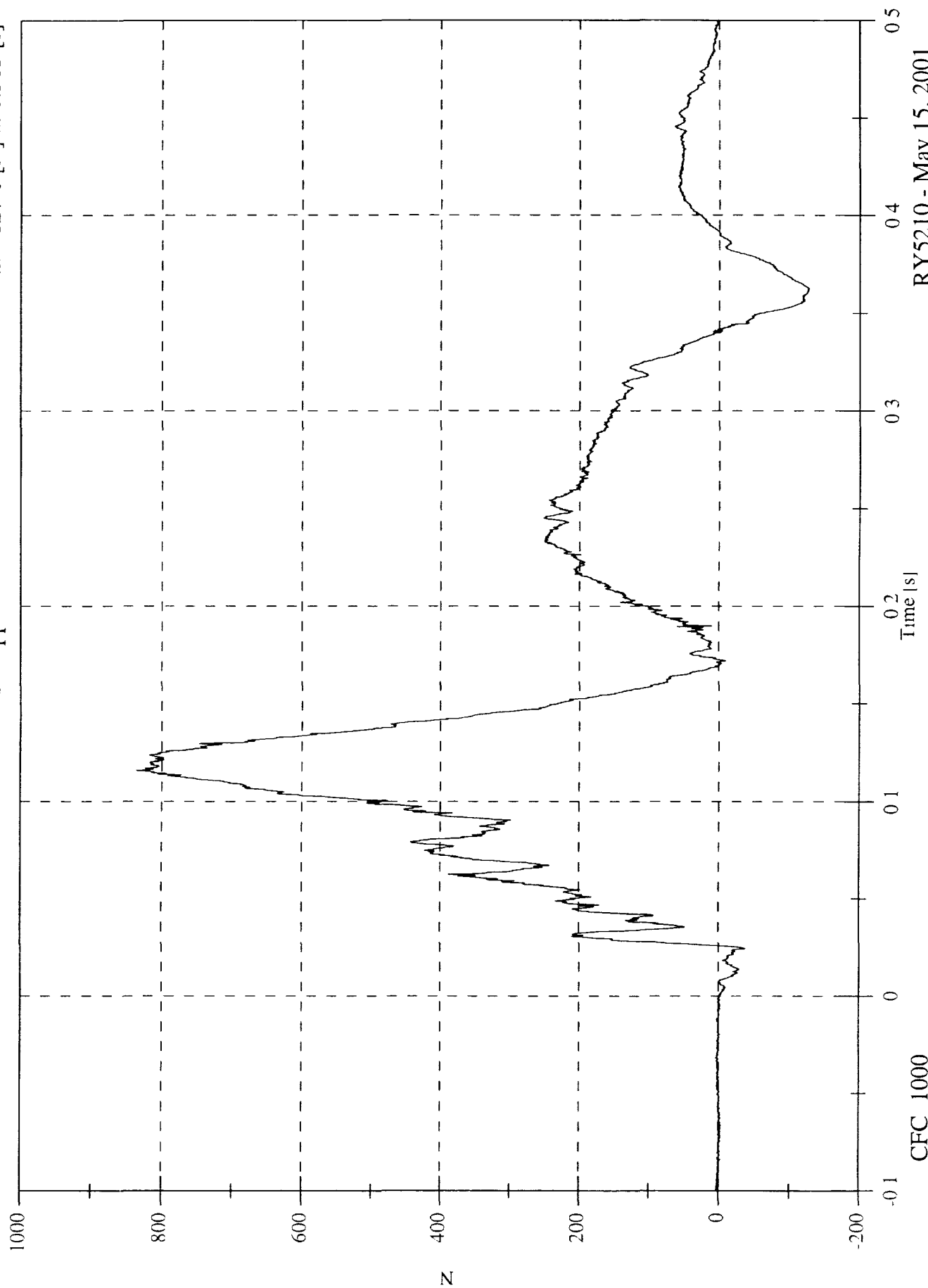


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 835.7 [N] at 0.116 [s]
 Min: -127.6 [N] at 0.363 [s]

P2 Upper Neck Fz



CFC_1000

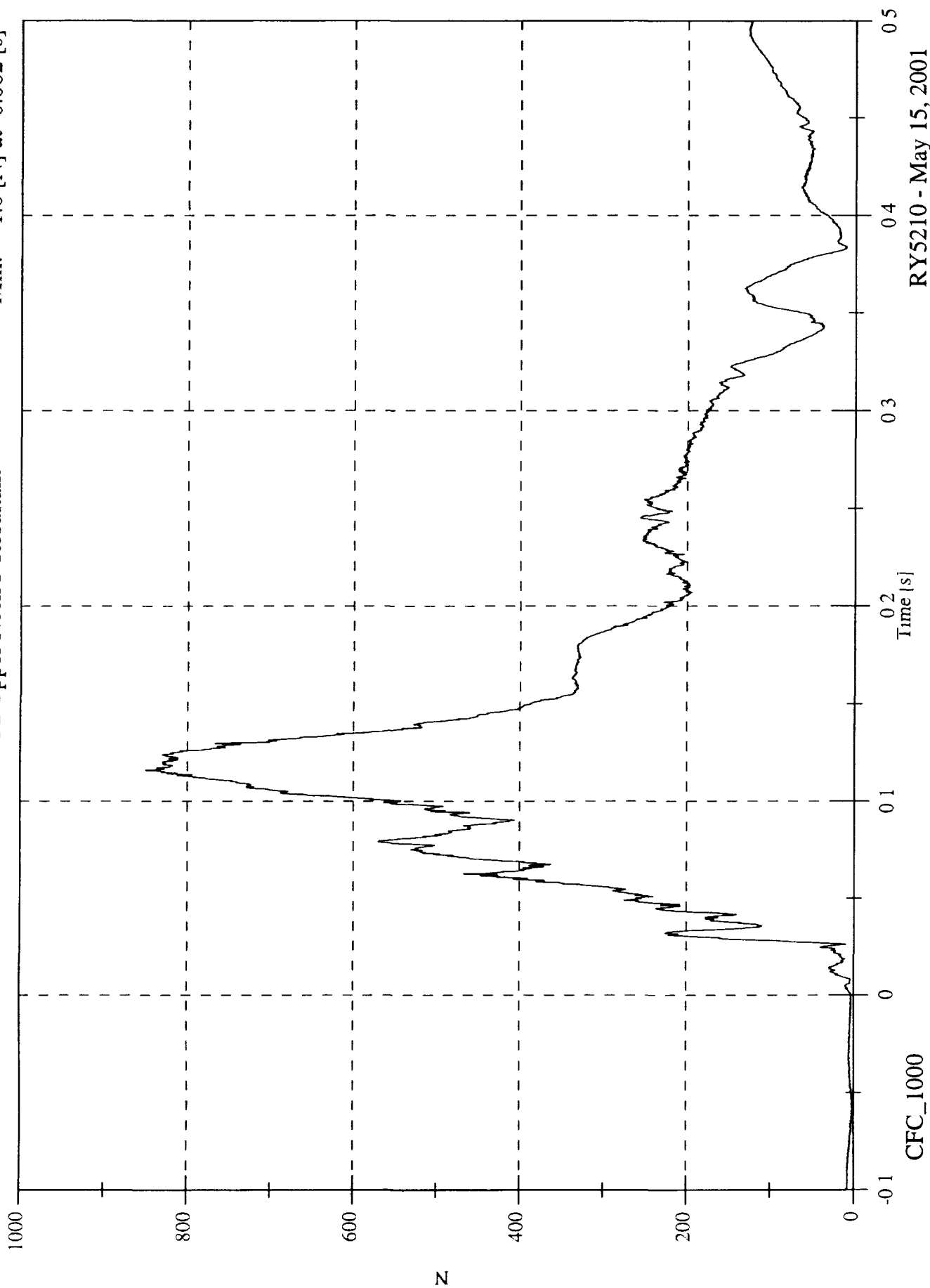
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 850.0 [N] at 0.116 [s]
Min: 1.0 [N] at -0.062 [s]

P2 Upper Neck F Resultant



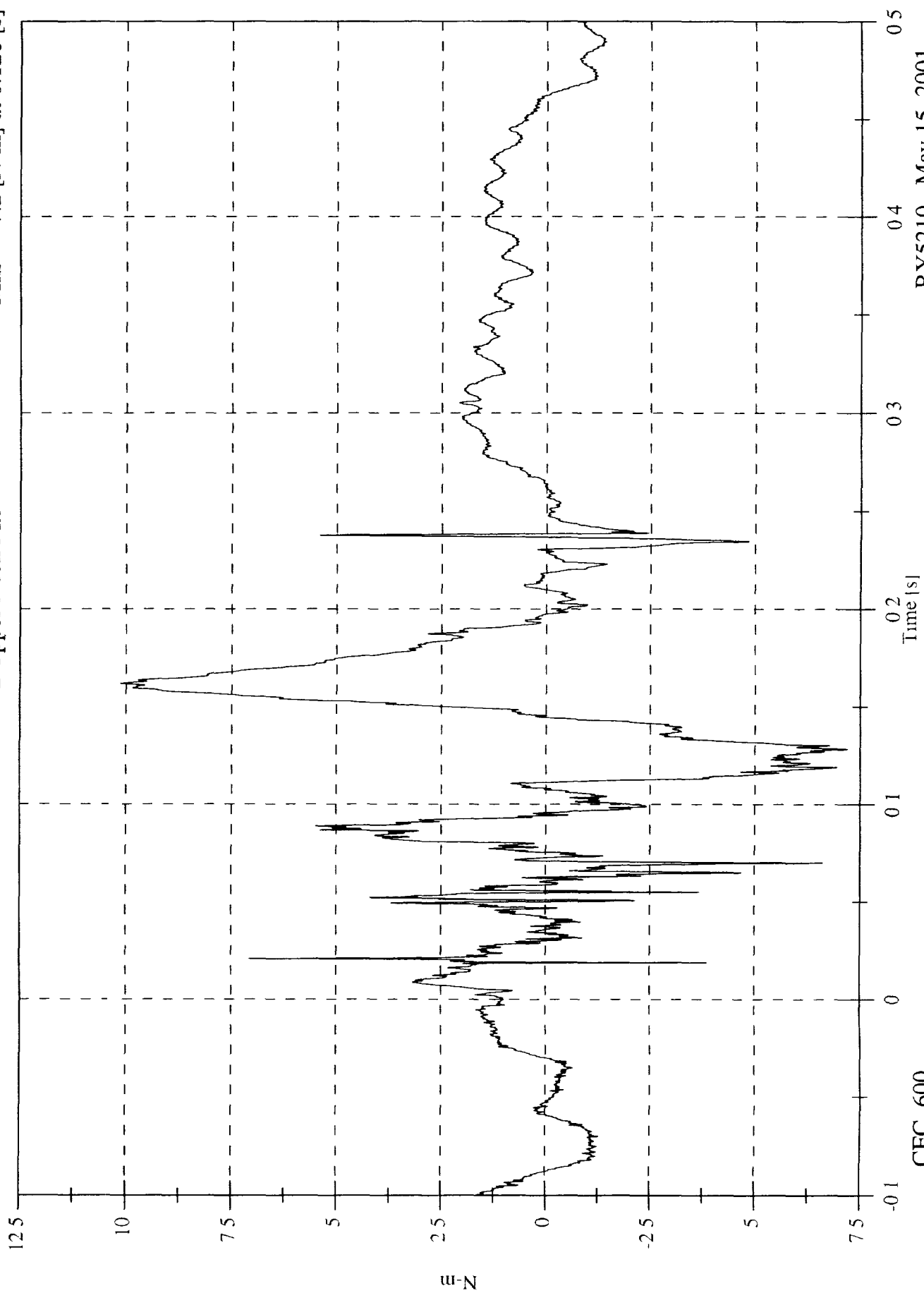
CFC_1000

RY5210 - May 15, 2001

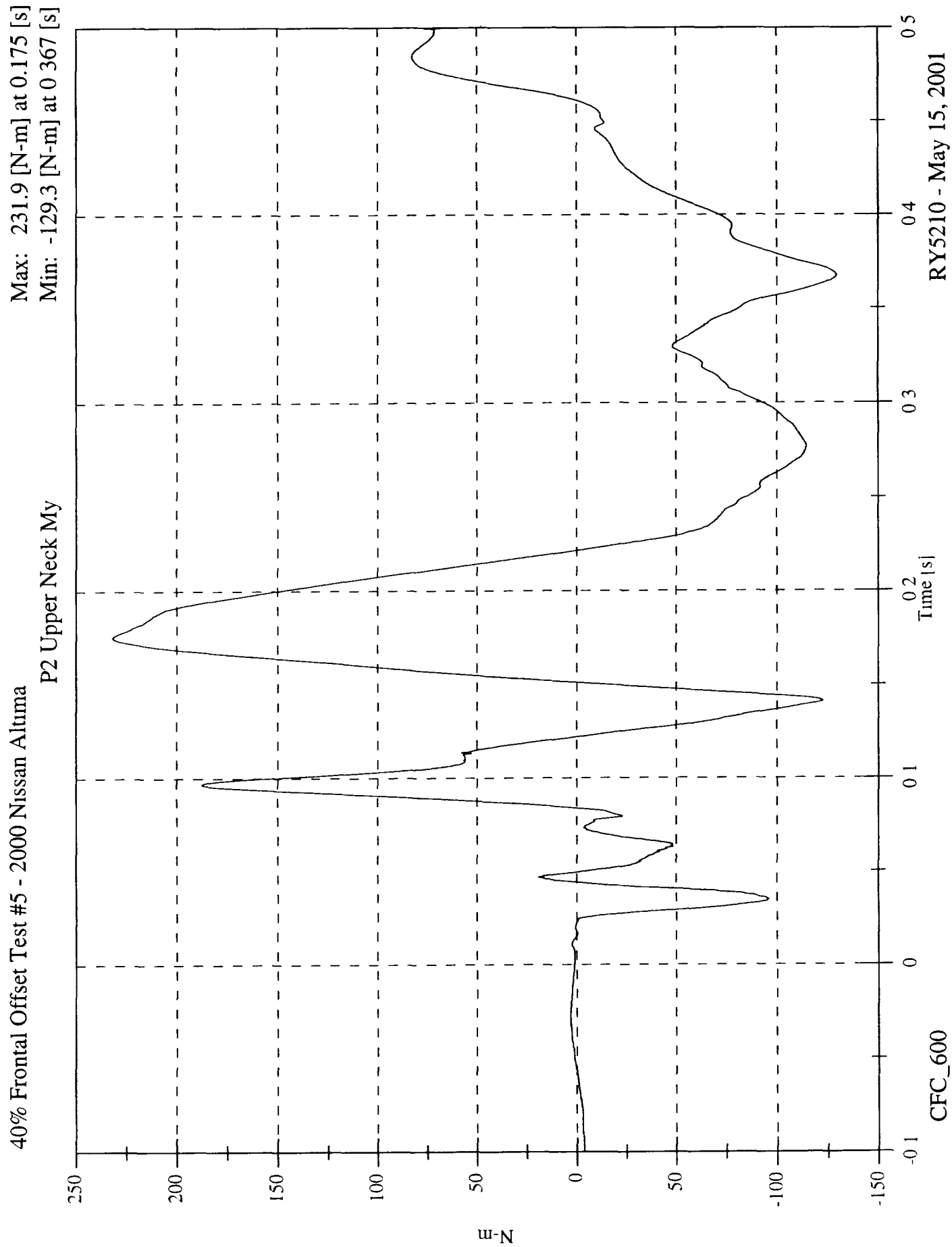
40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 10.1 [N-m] at 0.162 [s]
 Min: -7.2 [N-m] at 0.128 [s]

P2 Upper Neck Mx



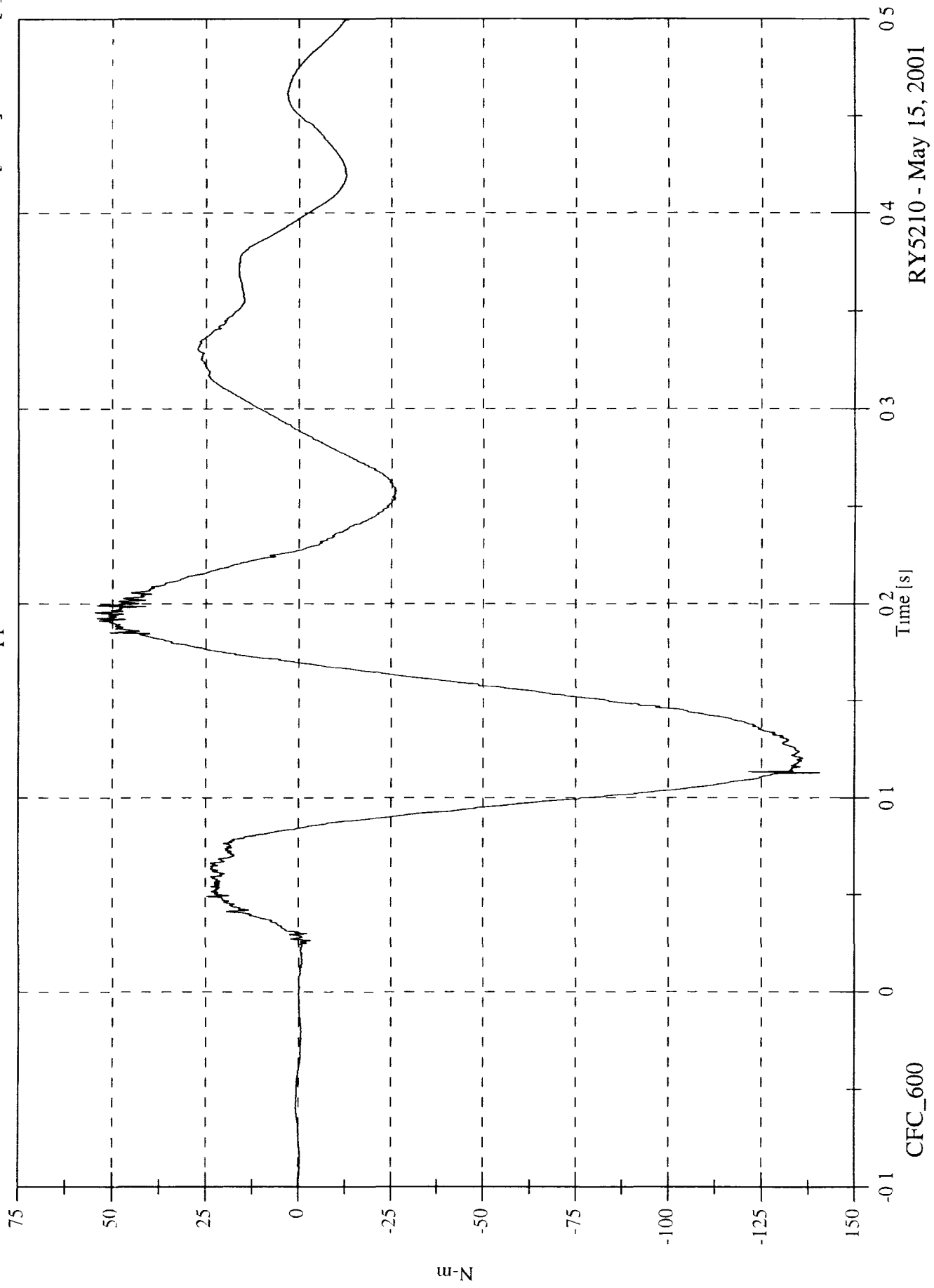
RY5210 - May 15, 2001



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 54.7 [N-m] at 0.195 [s]
Min: -140.6 [N-m] at 0.113 [s]

P2 Upper Neck Mz



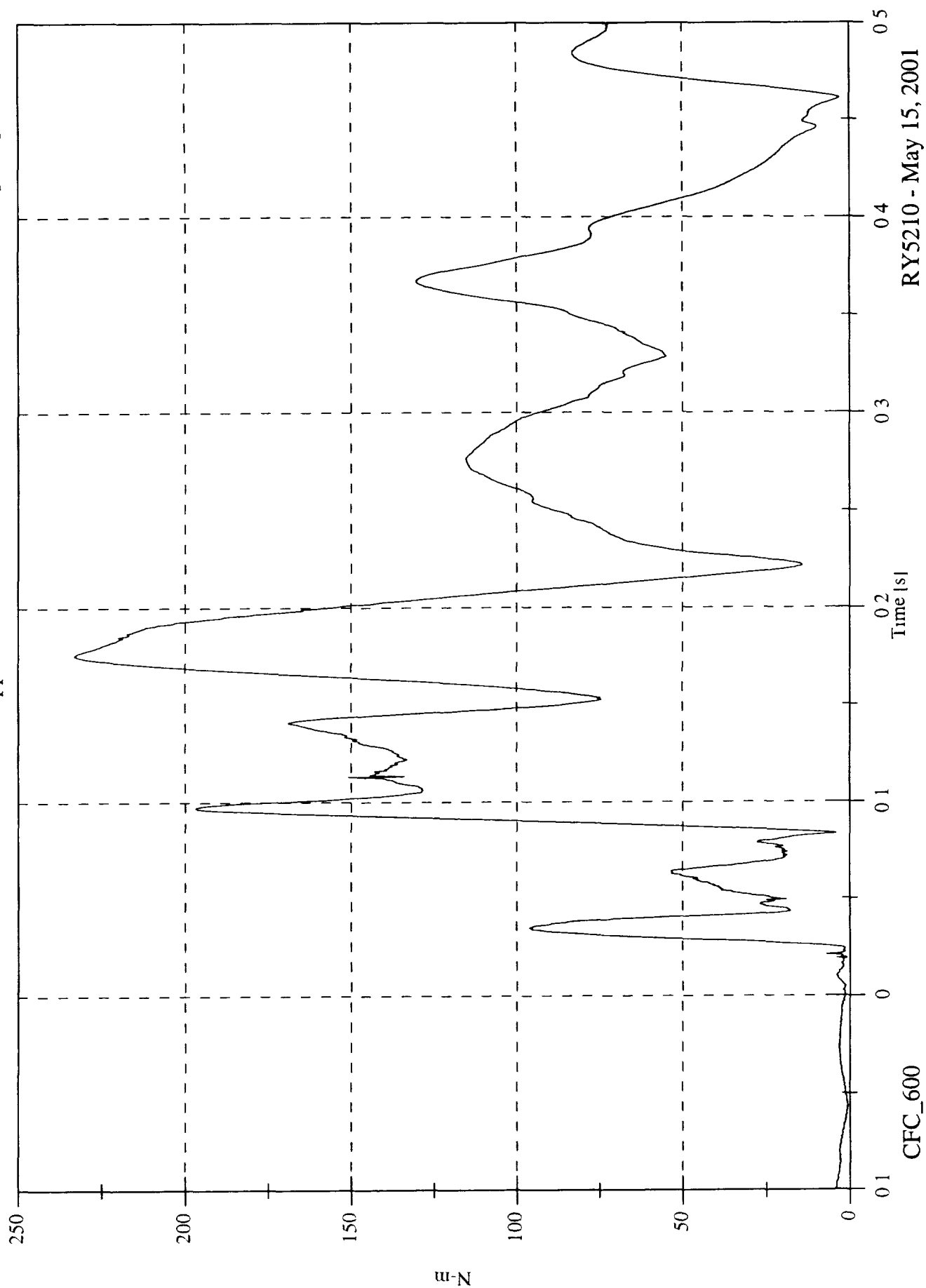
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 233.0 [N-m] at 0.175 [s]

Min: 0.5 [N-m] at -0.100 [s]

P2 Upper Neck M Resultant



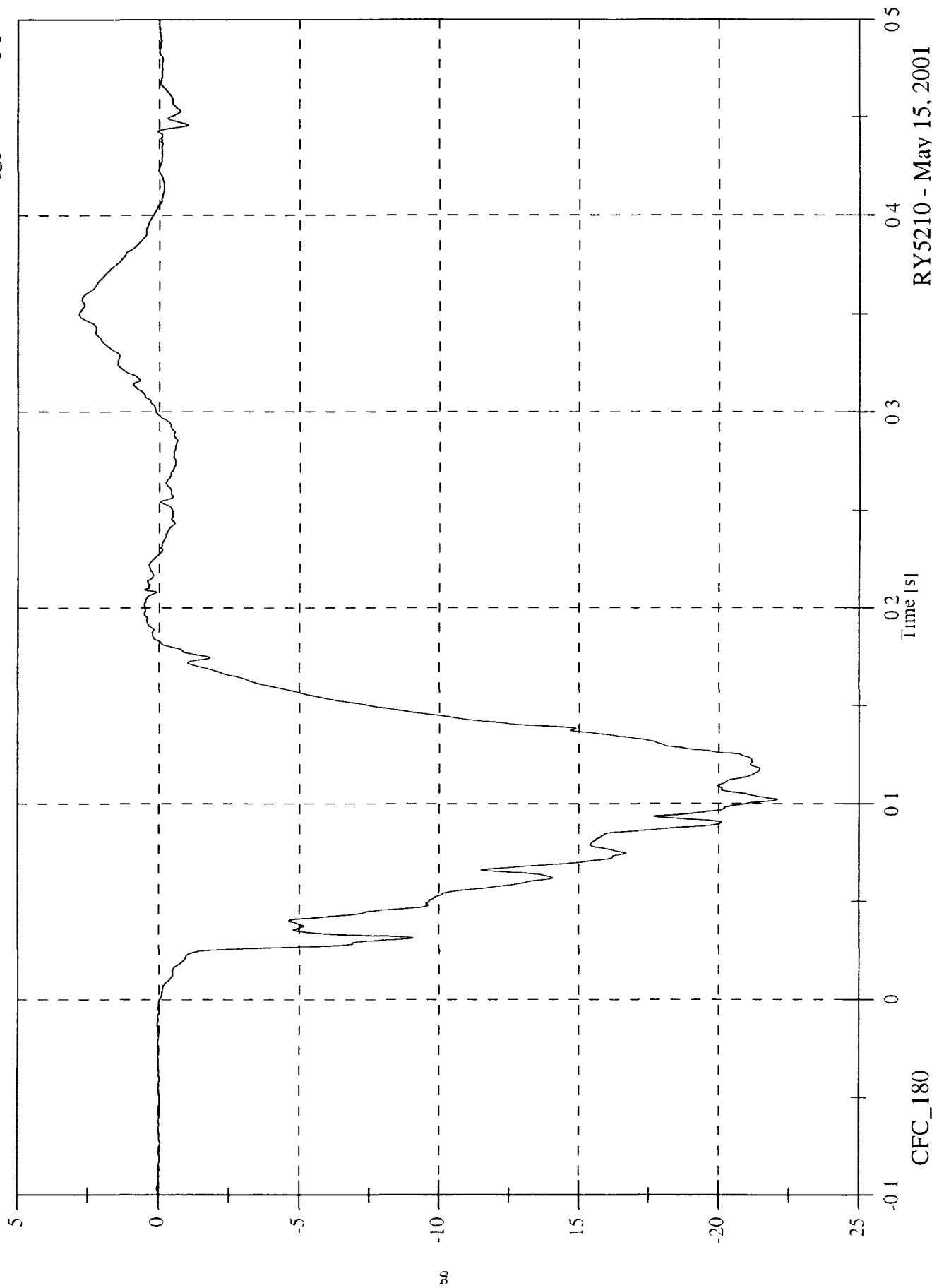
CFC_600

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Chest Ax

Max: 2.8 [g] at 0.350 [s]
Min: -22.1 [g] at 0.102 [s]

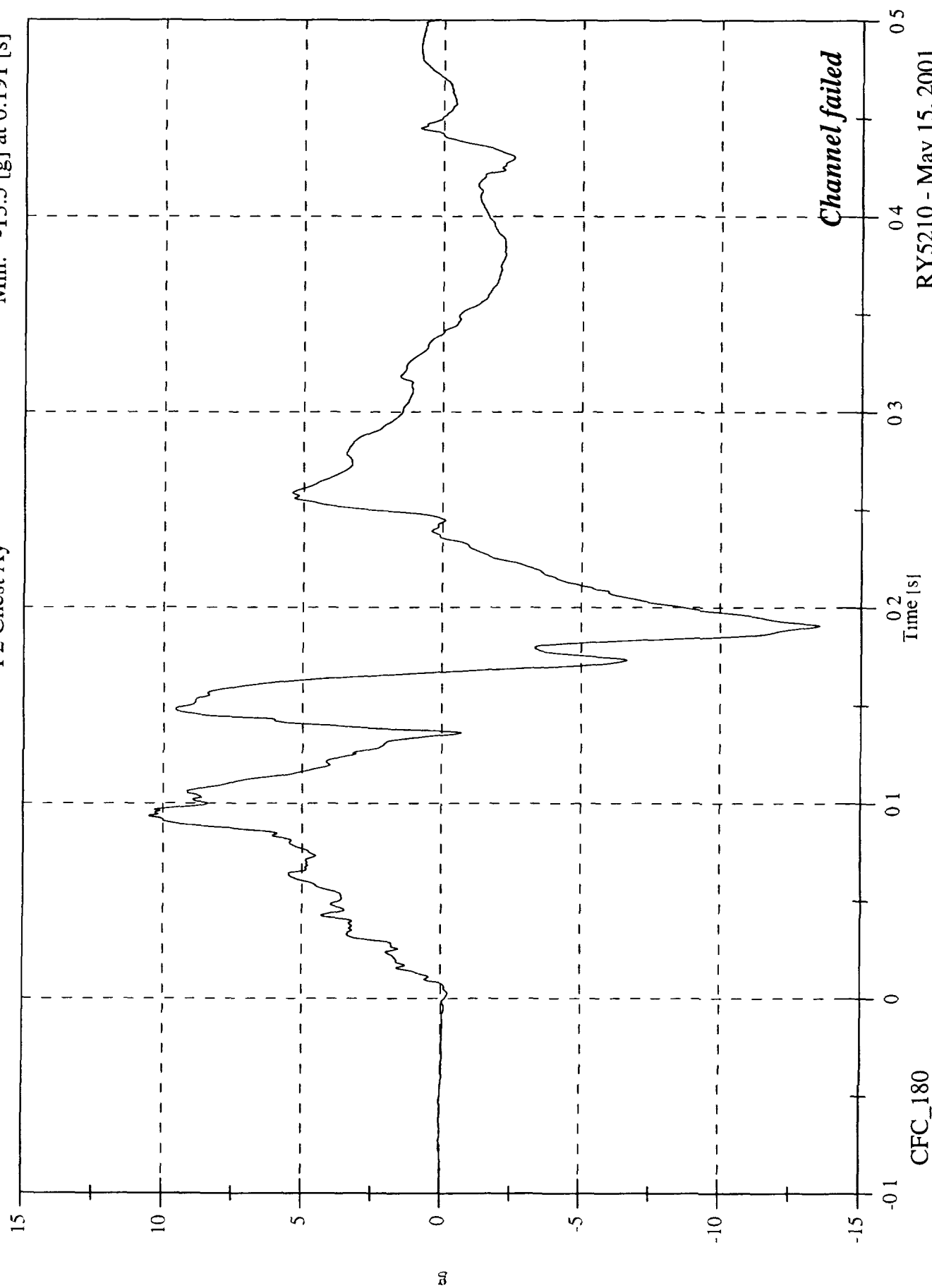


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Chest Ay

Max: 10.5 [g] at 0.094 [s]
Min: -13.5 [g] at 0.191 [s]

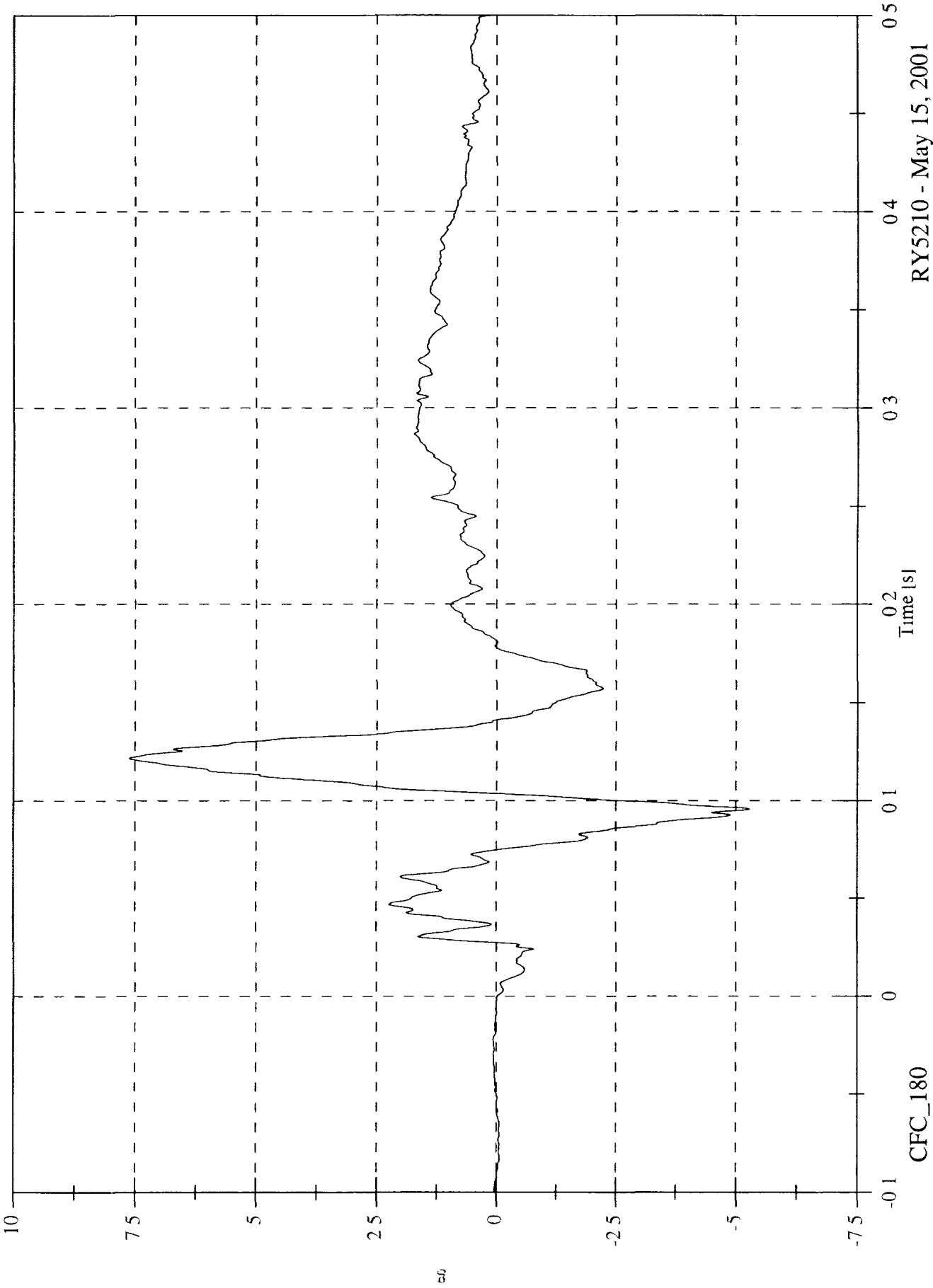


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 7.6 [g] at 0.122 [s]
 Min: -5.3 [g] at 0.096 [s]

P2 Chest Az

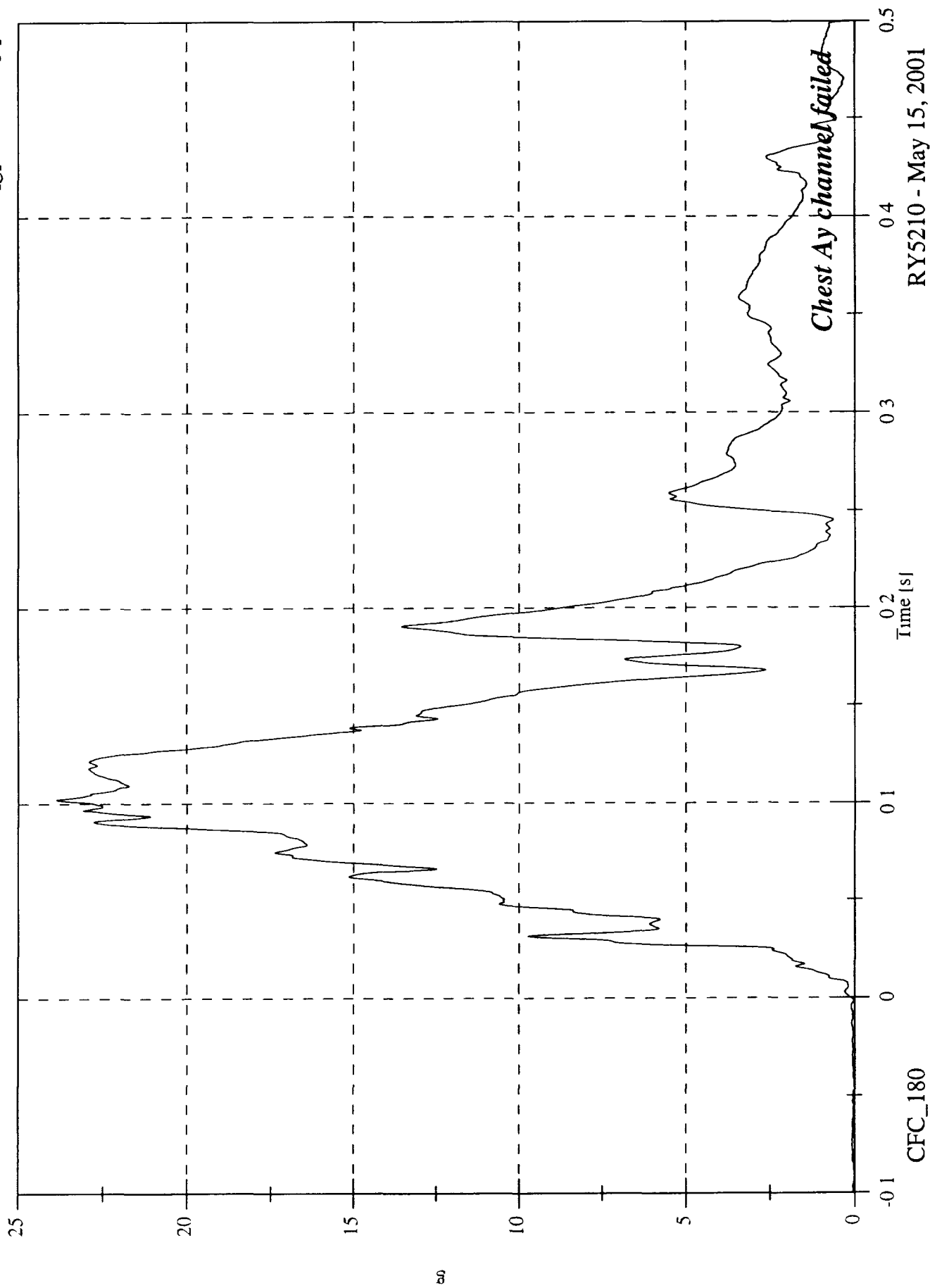


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 23.9 [g] at 0.102 [s]
Min: 0.0 [g] at -0.100 [s]

P2 Chest A Resultant



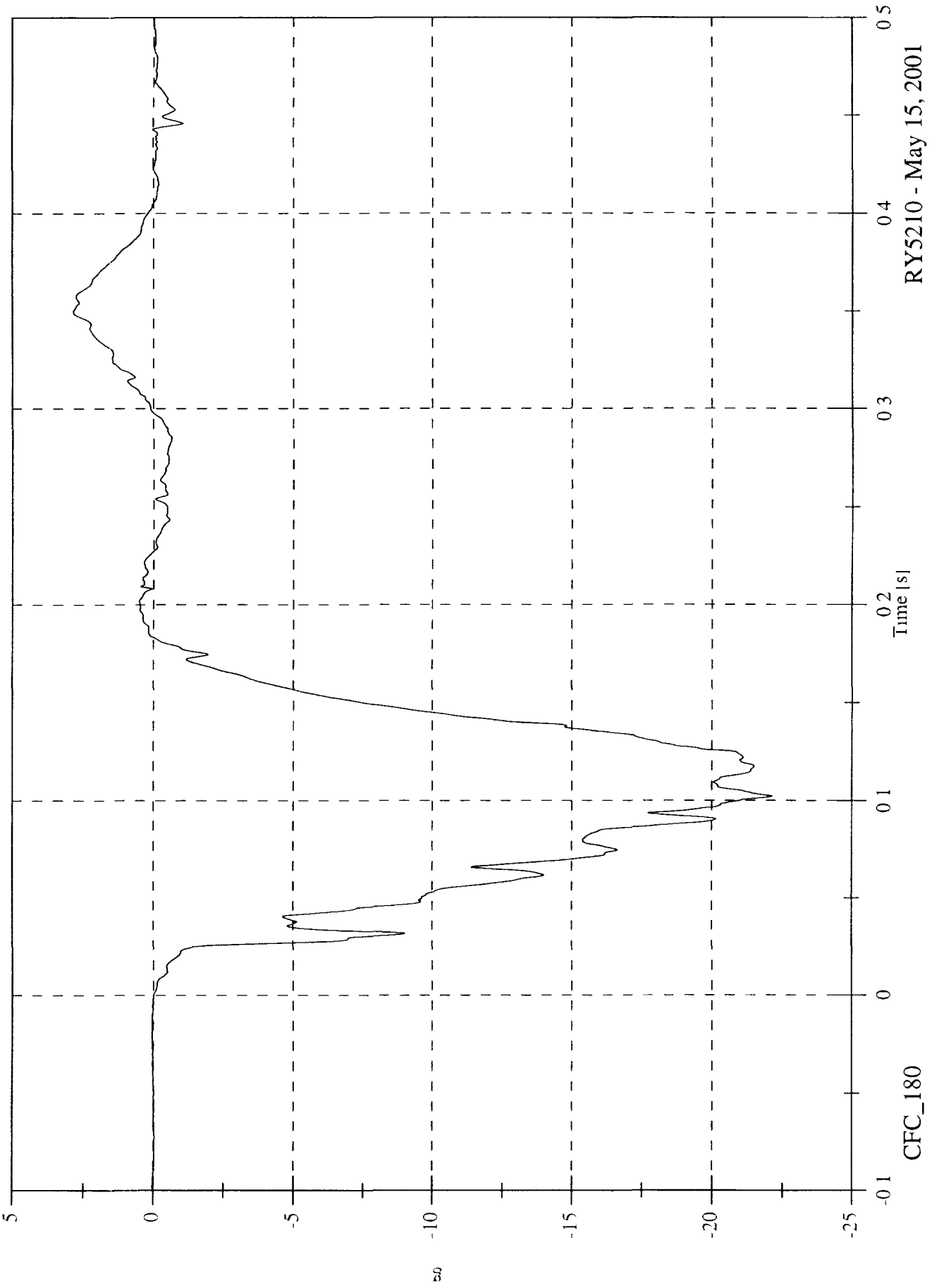
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 2.8 [g] at 0.350 [s]
Min: -22.2 [g] at 0.102 [s]

P2 Chest Red Ax

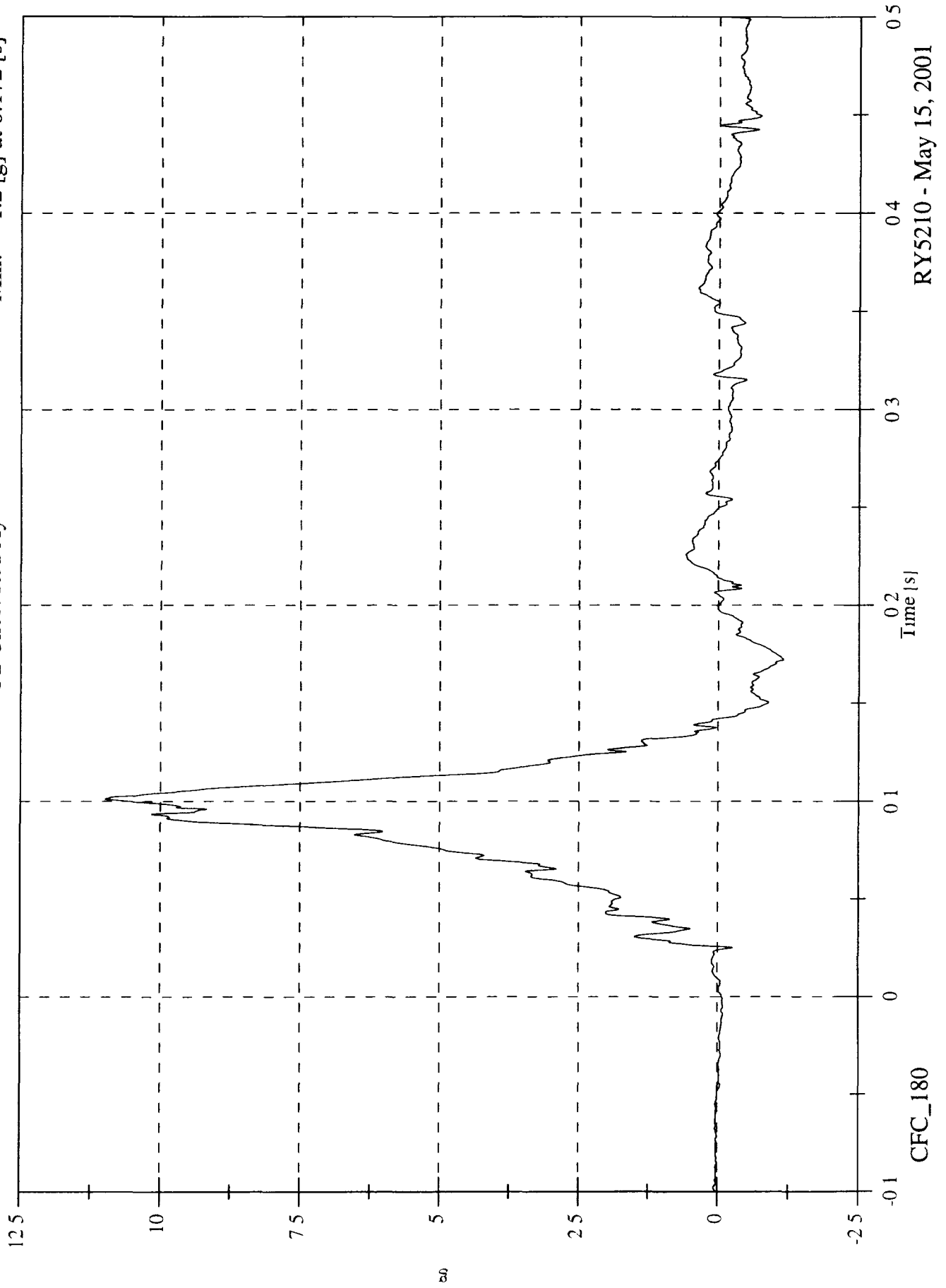


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 11.0 [g] at 0.101 [s]
Min: -1.2 [g] at 0.172 [s]

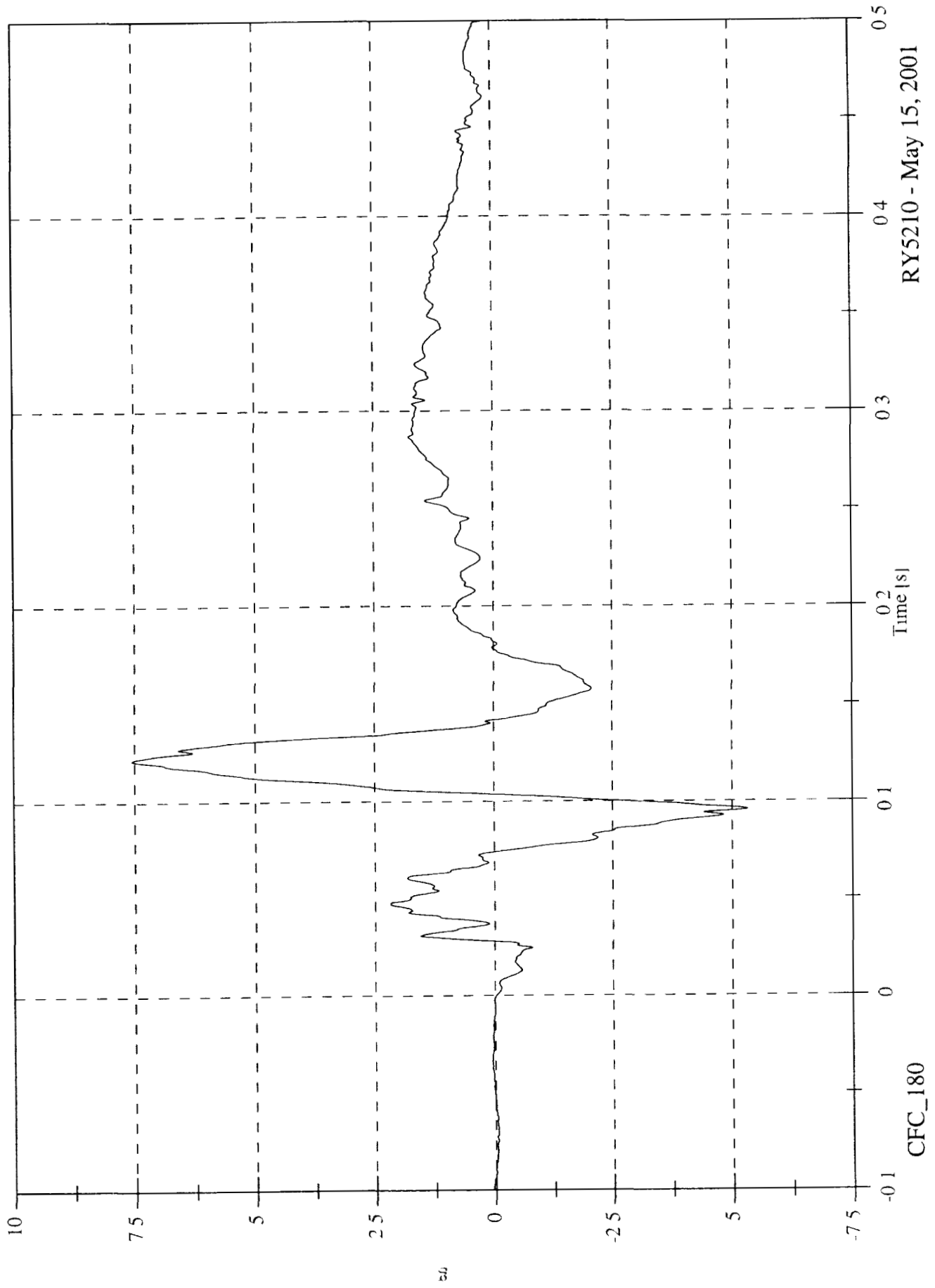
P2 Chest Red Ay



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 7.5 [g] at 0.121 [s]
Min: -5.3 [g] at 0.096 [s]

P2 Chest Red Az



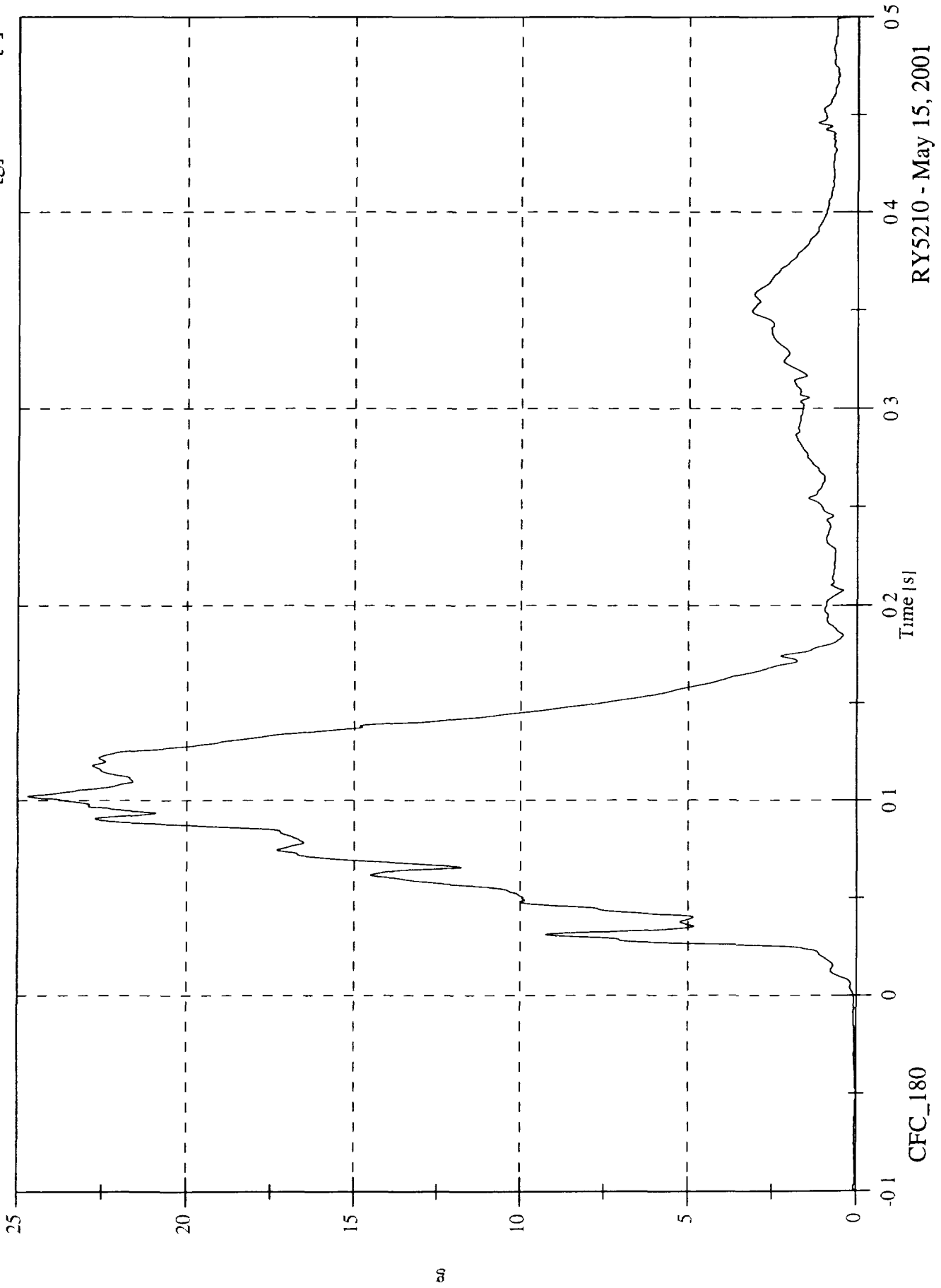
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Chest Red A Resultant

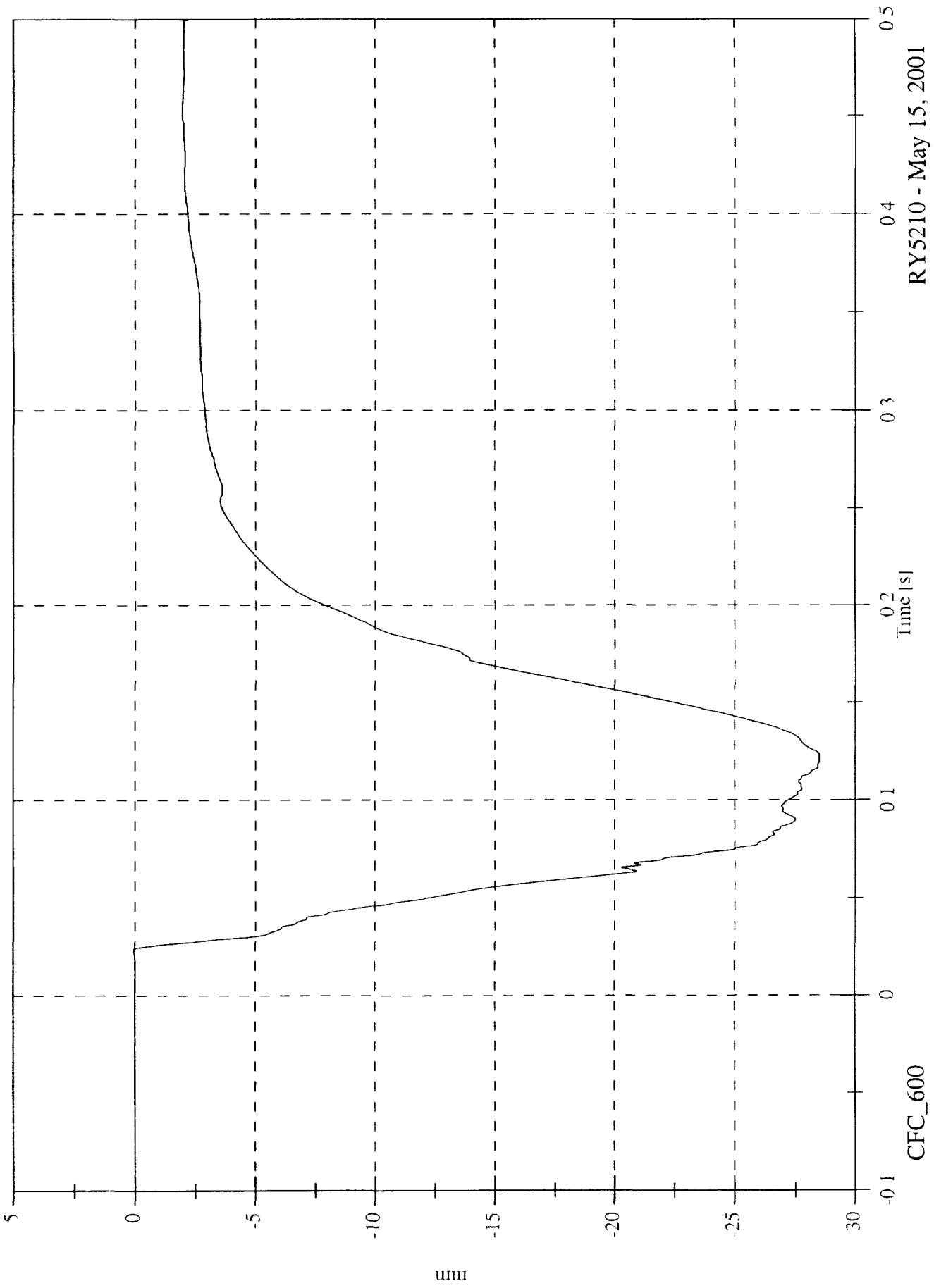
Max: 24.7 [g] at 0.102 [s]
Min: 0.0 [g] at -0.100 [s]



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 0.1 [mm] at 0.024 [s]
Min: -28.5 [mm] at 0.123 [s]

P2 Chest Displacement

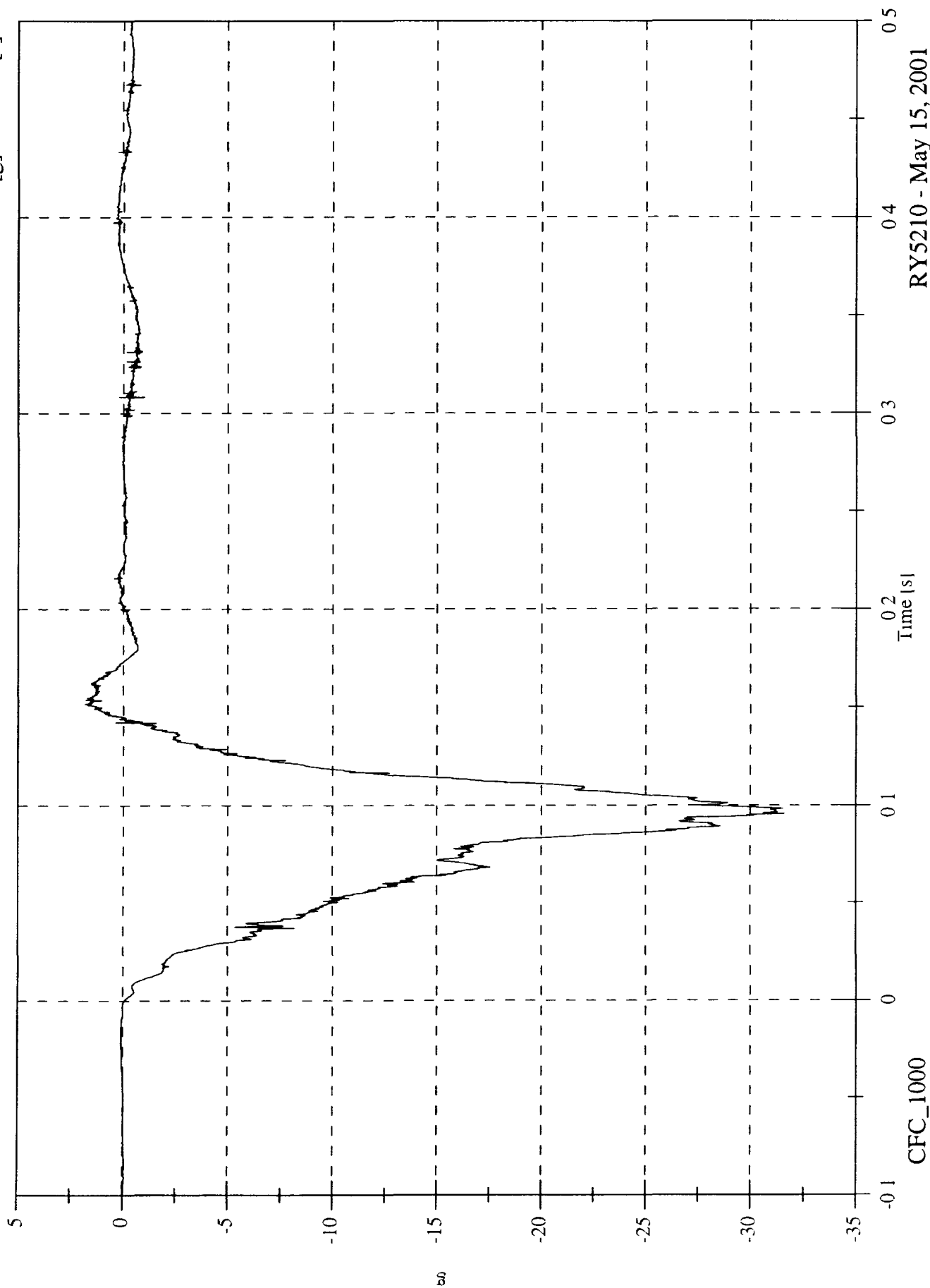


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 1.8 [g] at 0.152 [s]
Min. -31.6 [g] at 0.096 [s]

P2 Pelvic Ax

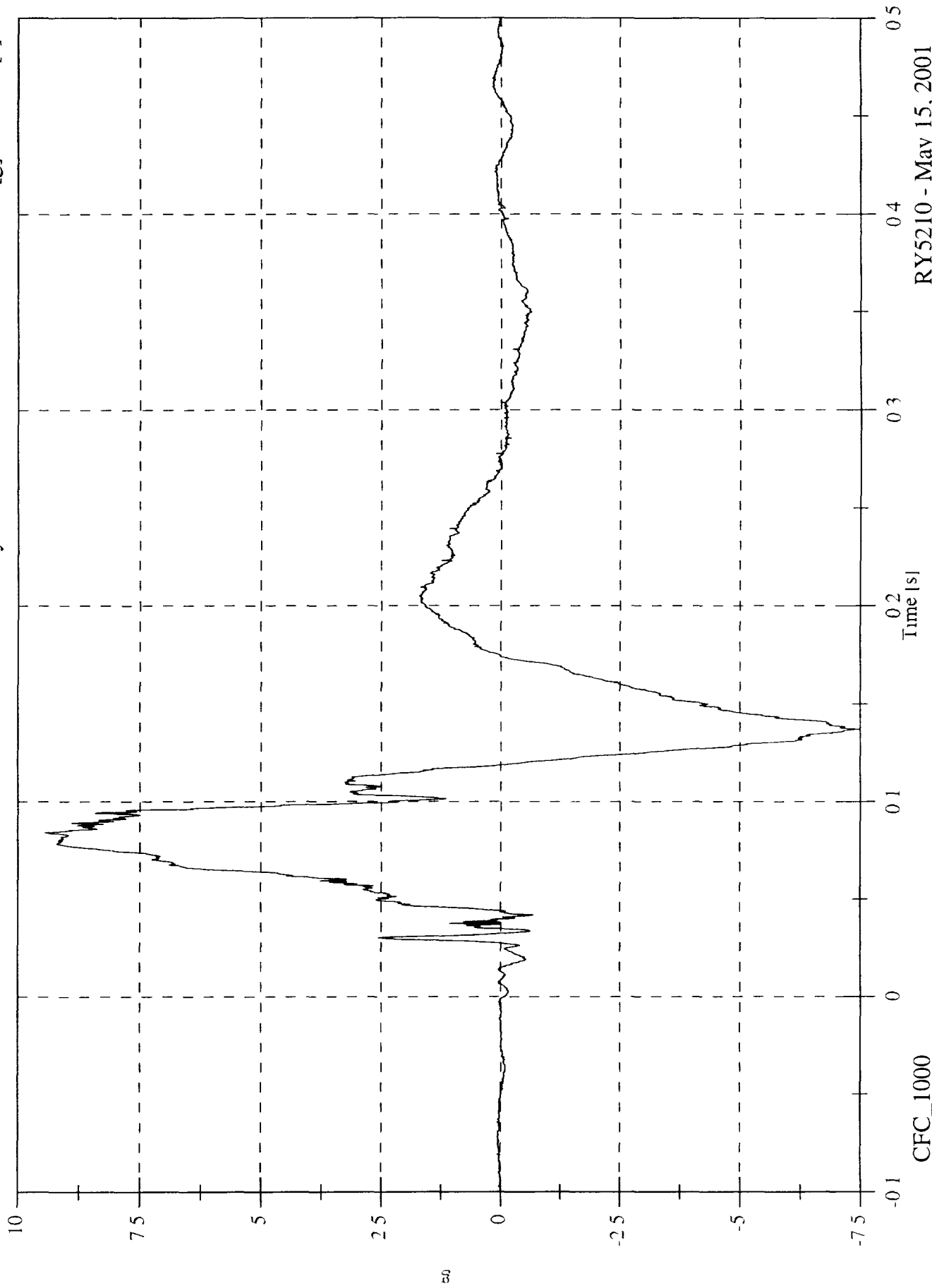


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 9.4 [g] at 0.084 [s]
Min: -7.5 [g] at 0.137 [s]

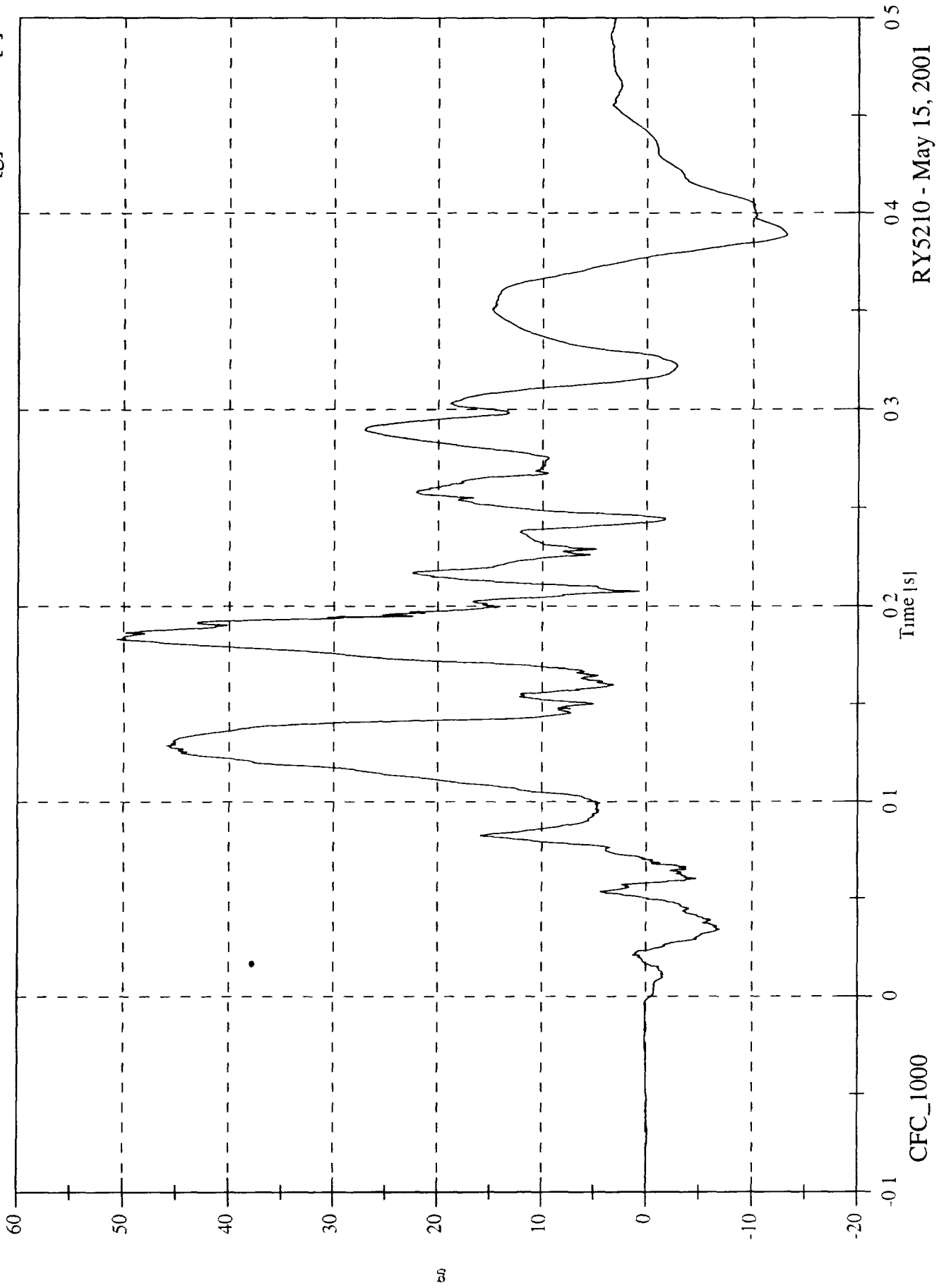
P2 Pelvic Ay



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 50.6 [g] at 0.183 [s]
Min: -13.2 [g] at 0.389 [s]

P2 Pelvic Az

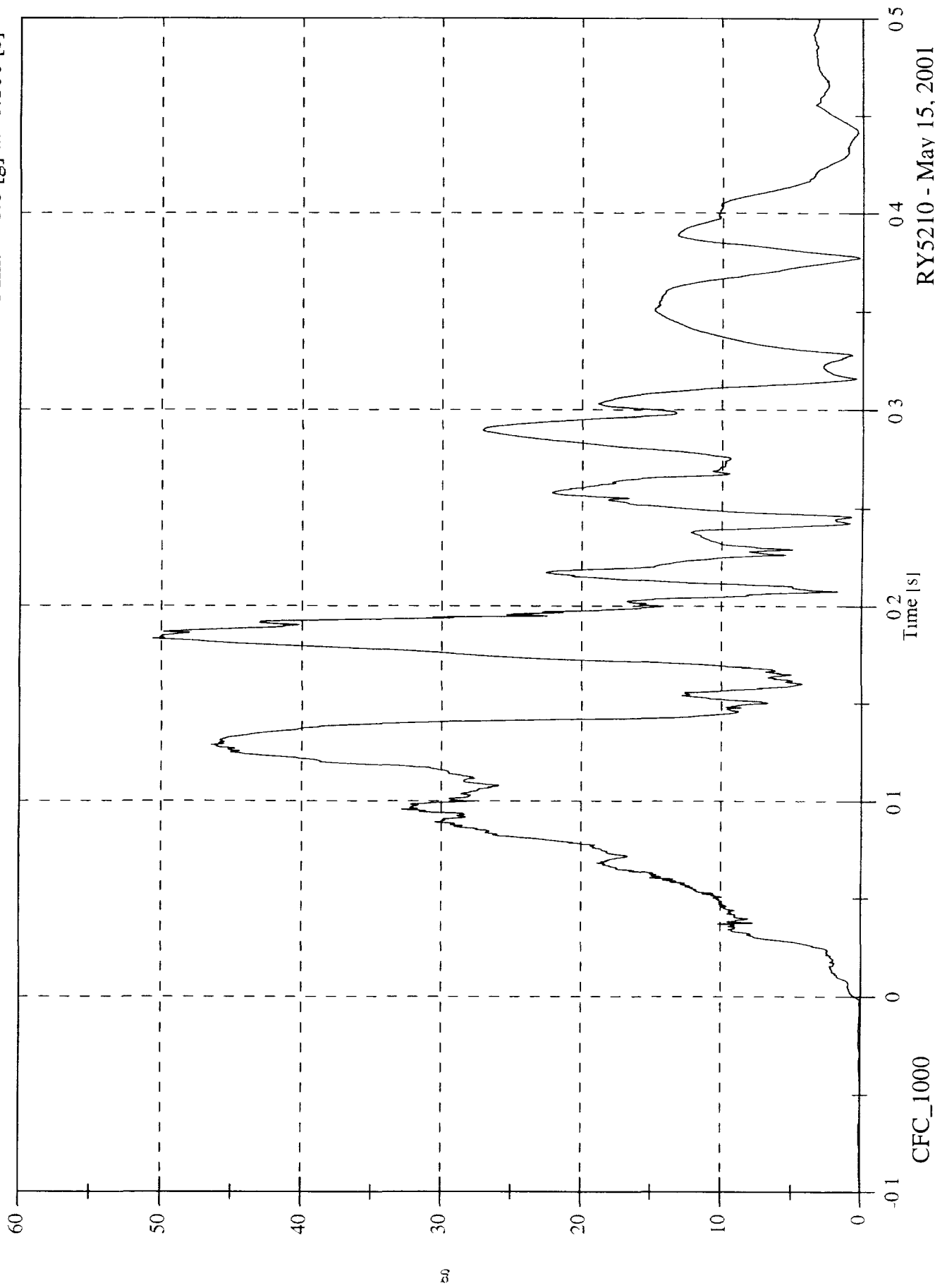


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Pelvic A Resultant

Max. 50.6 [g] at 0.183 [s]
Min: 0.0 [g] at -0.100 [s]

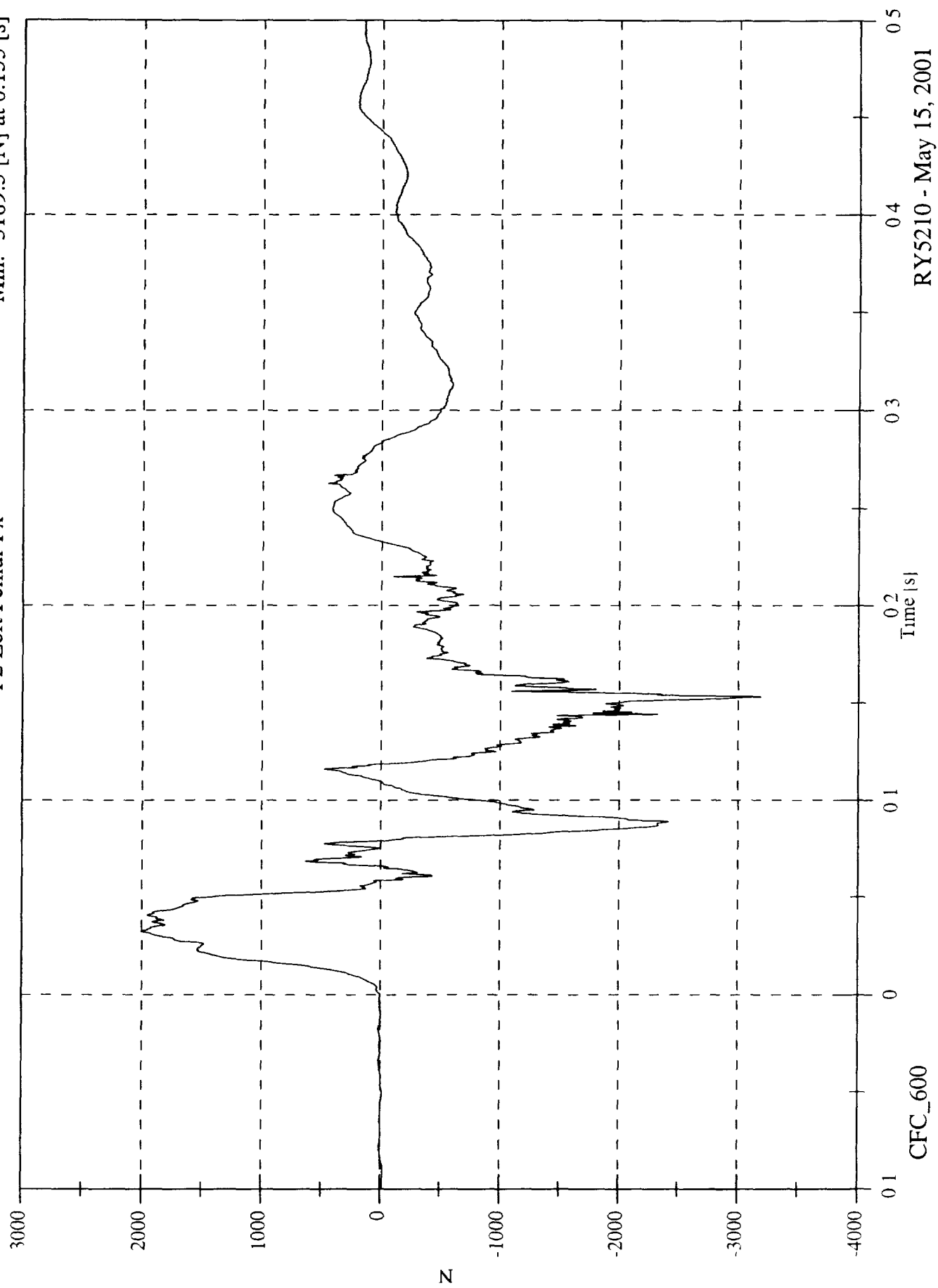


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 2005.9 [N] at 0.032 [s]
Min: -3189.5 [N] at 0.153 [s]

P2 Left Femur Fx



CFC_600

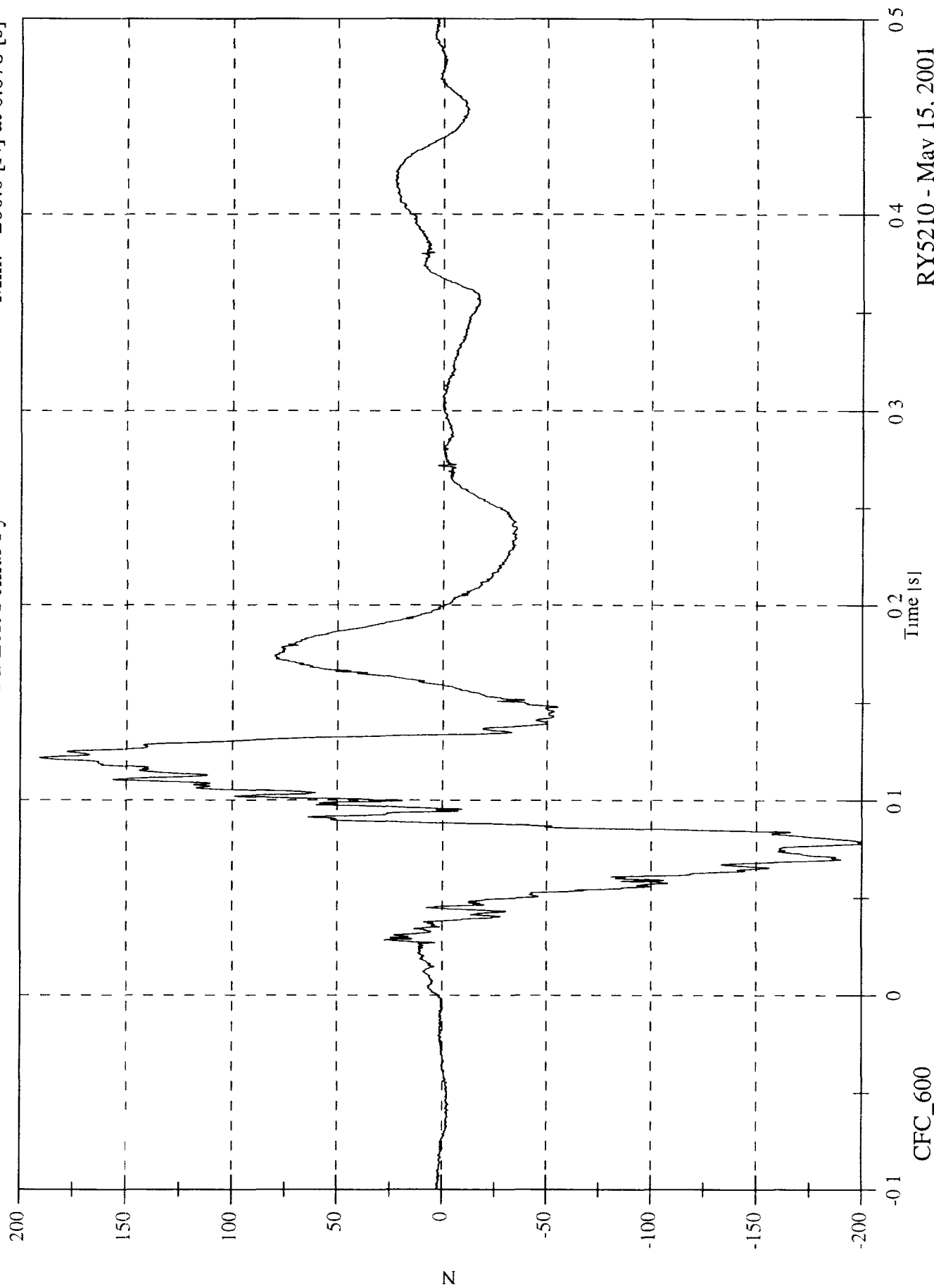
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 190.9 [N] at 0.122 [s]
Min. -200.0 [N] at 0.078 [s]

P2 Left Femur Fy

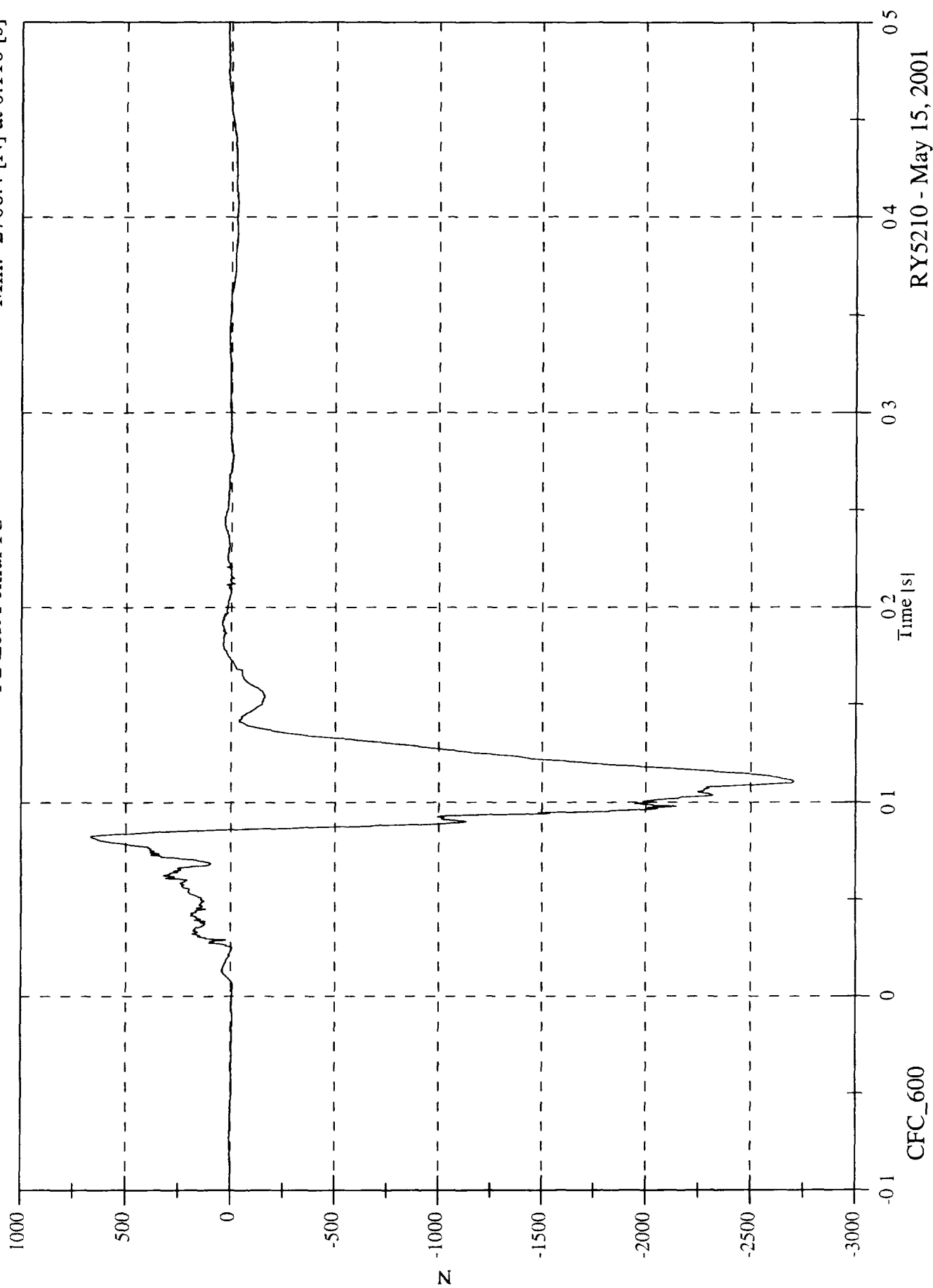


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Left Femur Fz

Max: 667.7 [N] at 0.082 [s]
Min: -2706.4 [N] at 0.110 [s]



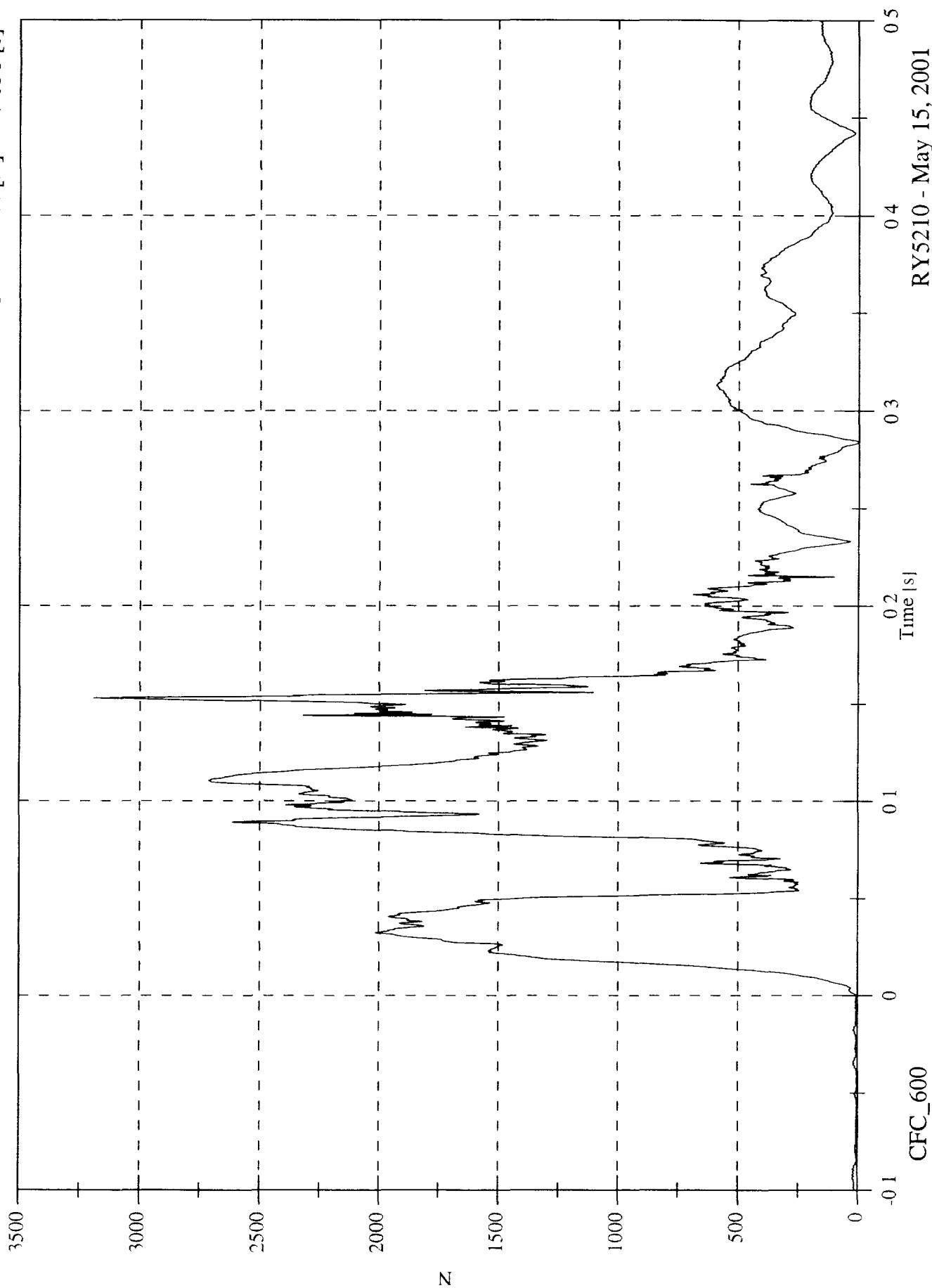
CFC_600

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 3193.4 [N] at 0.153 [s]
 Min 1.4 [N] at -0.058 [s]

P2 Left Femur F Resultant

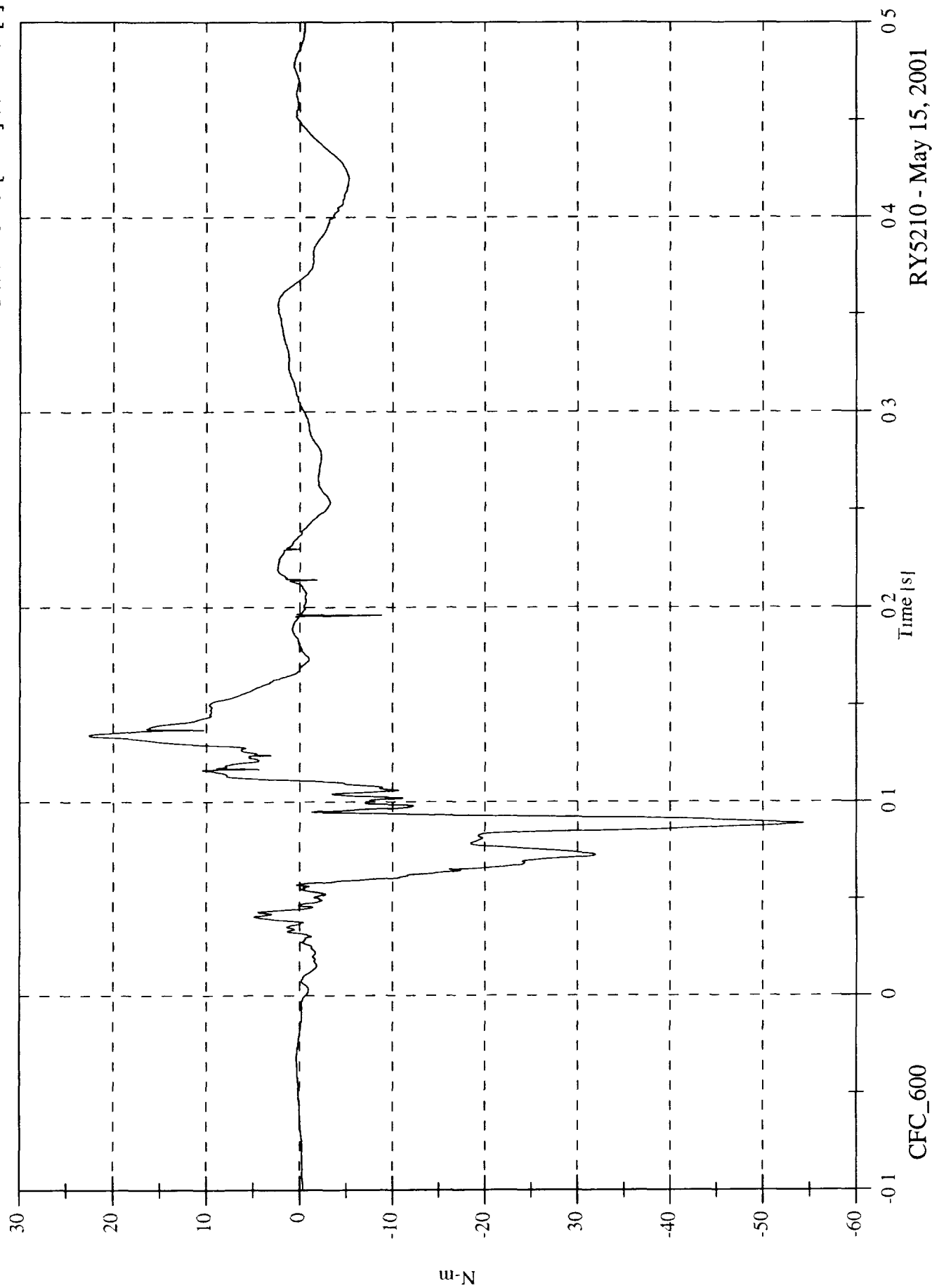


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 22.6 [N-m] at 0.135 [s]
Min: -54.3 [N-m] at 0.089 [s]

P2 Left Femur Mx

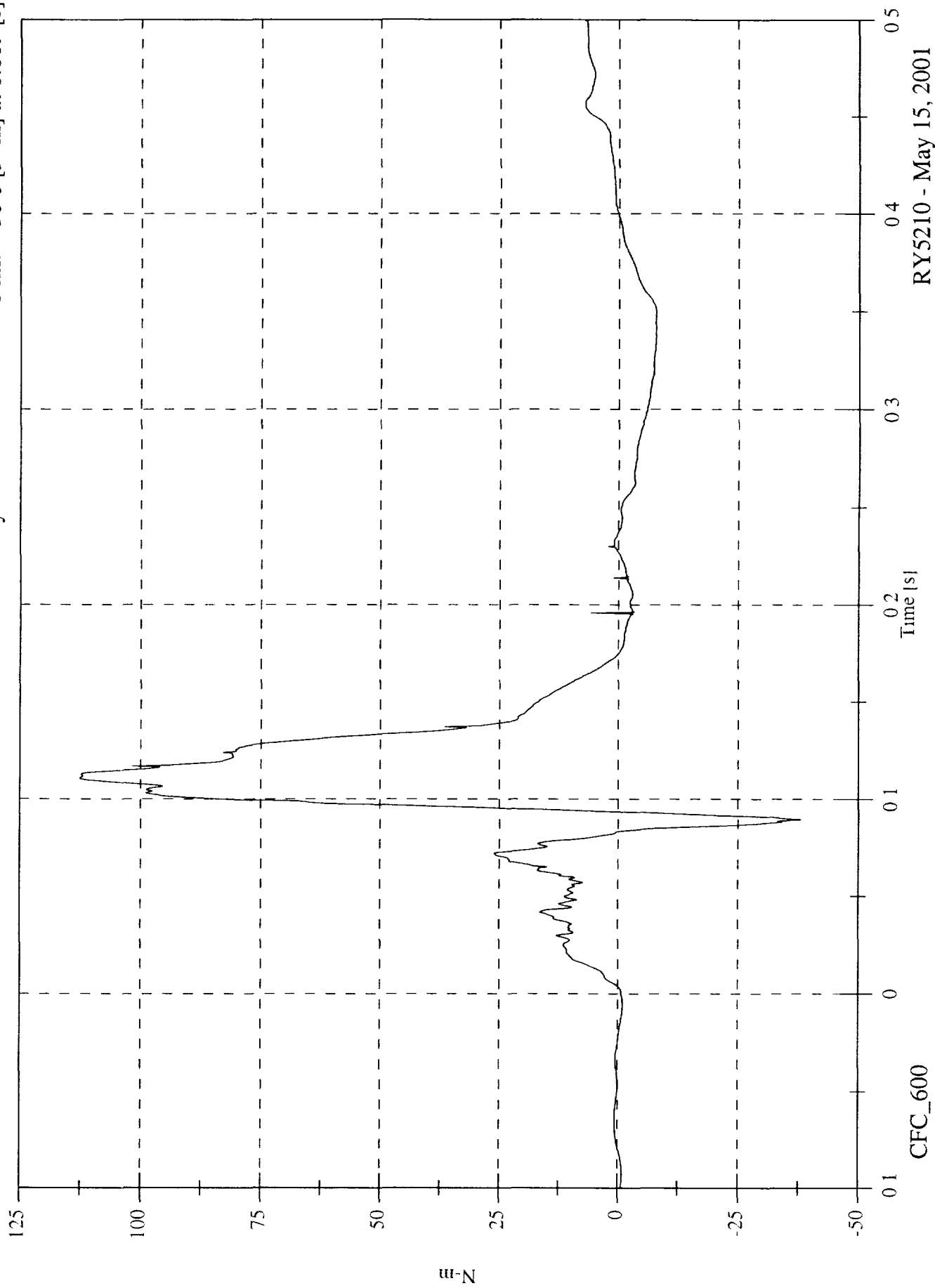


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 112.6 [N-m] at 0.111 [s]
Min. -38.0 [N-m] at 0.089 [s]

P2 Left Femur My

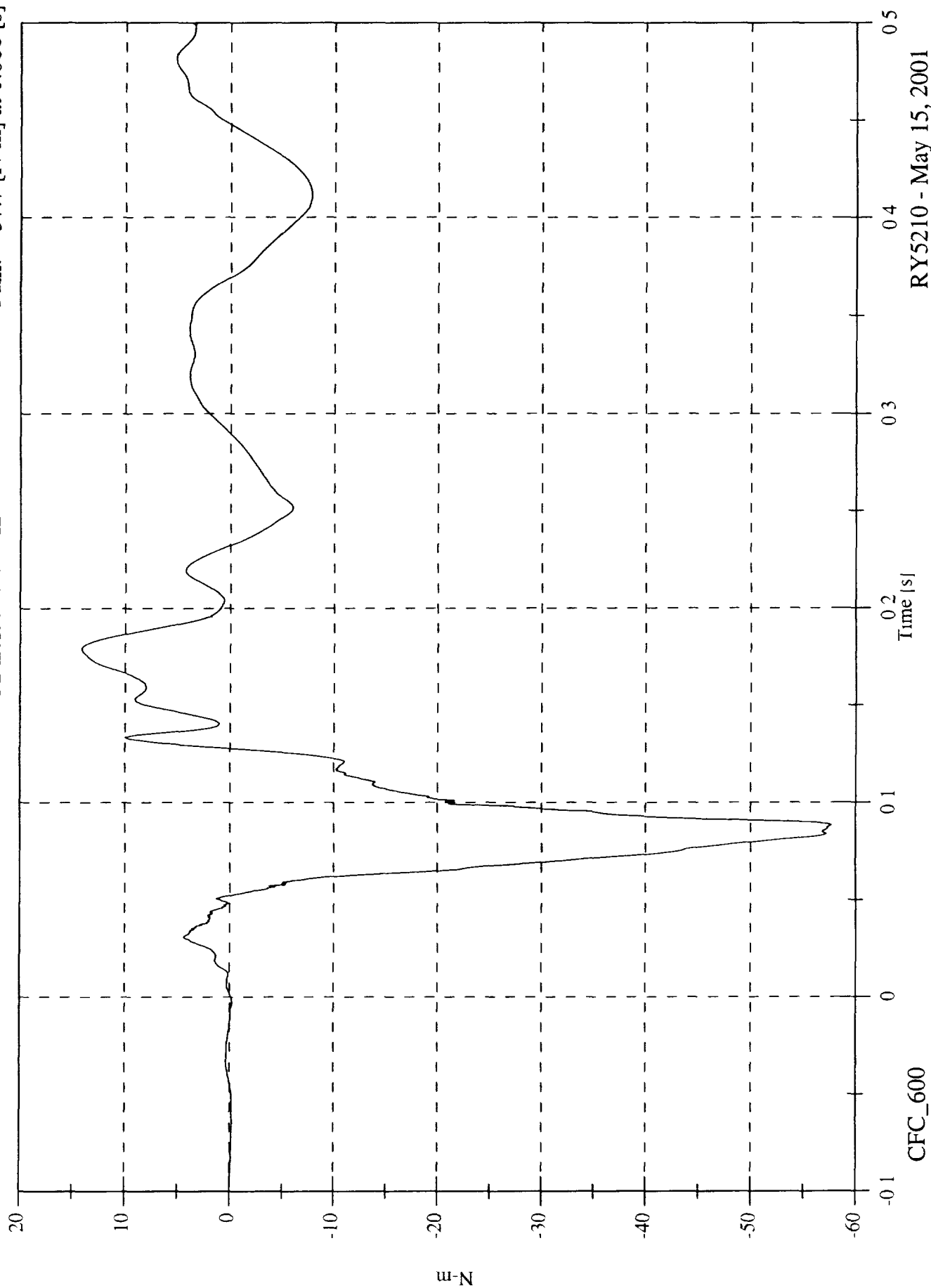


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 14.1 [N-m] at 0.179 [s]
Min: -57.7 [N-m] at 0.088 [s]

P2 Left Femur Mz

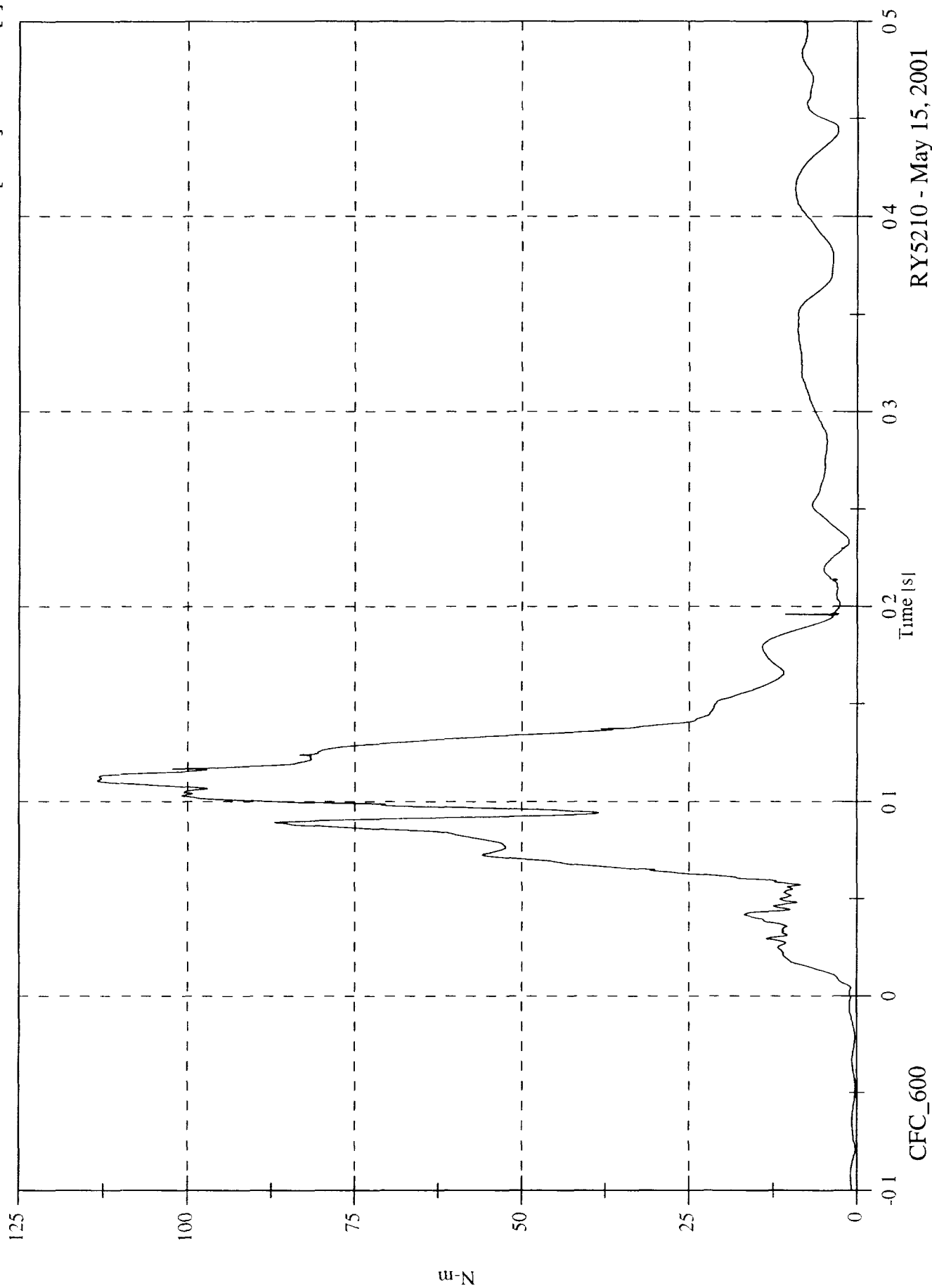


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Left Femur M Resultant

Max: 113.4 [N-m] at 0.111 [s]
Min: 0.1 [N-m] at -0.100 [s]

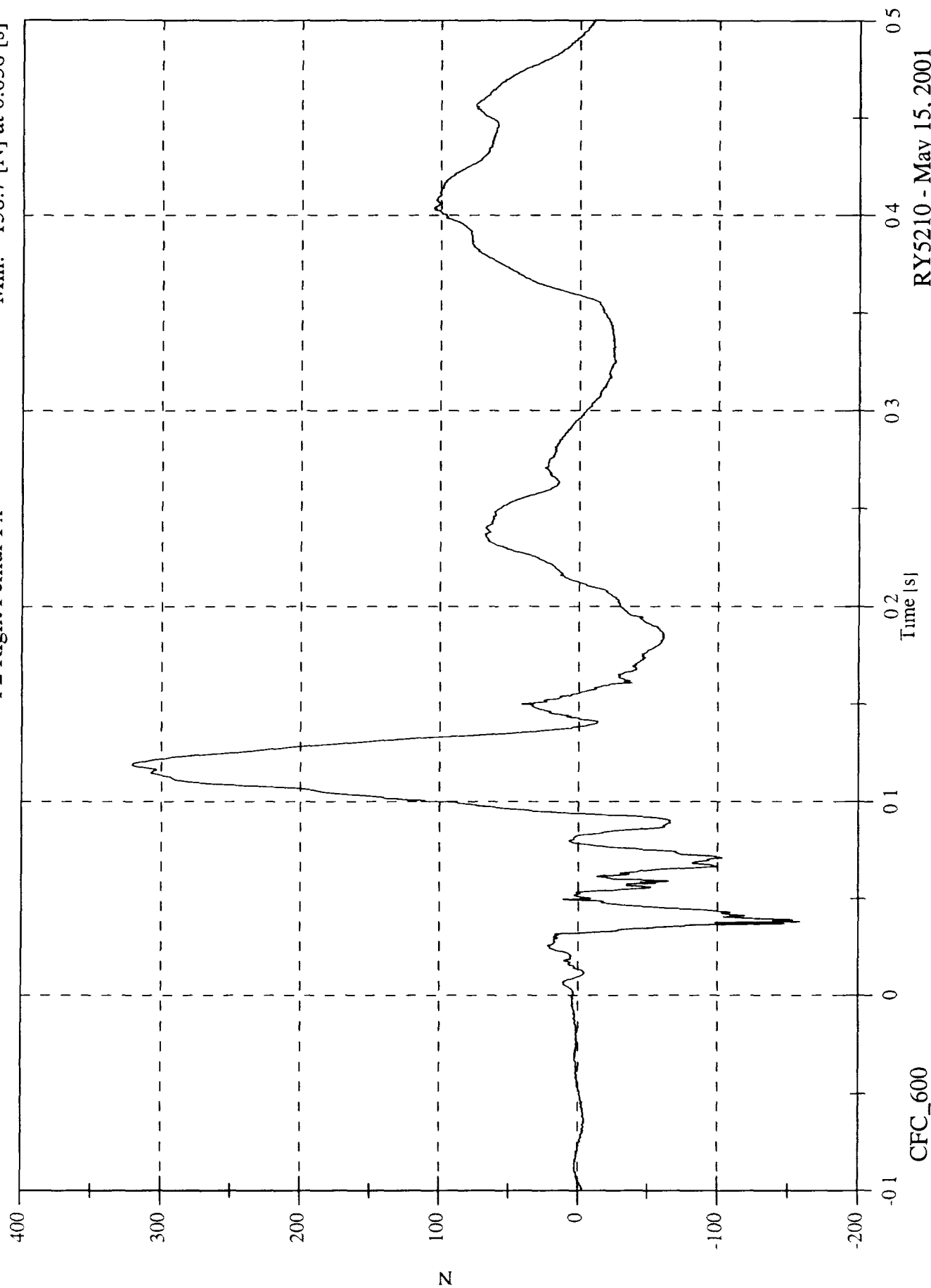


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 320.8 [N] at 0.119 [s]
Min: -158.7 [N] at 0.038 [s]

P2 Right Femur Fx

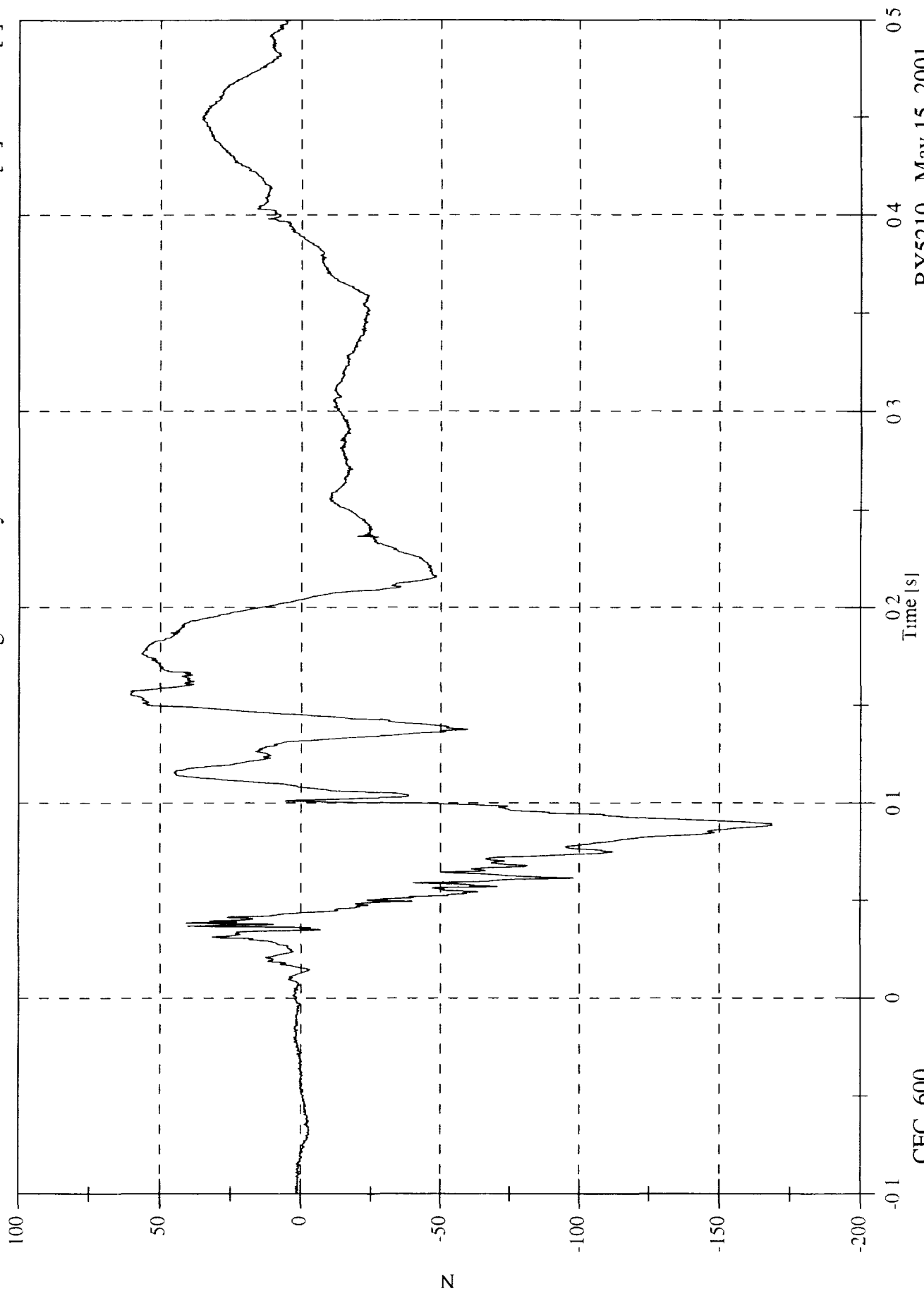


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 60.7 [N] at 0.155 [s]
 Min -168.7 [N] at 0.089 [s]

P2 Right Femur Fy



CFC_600

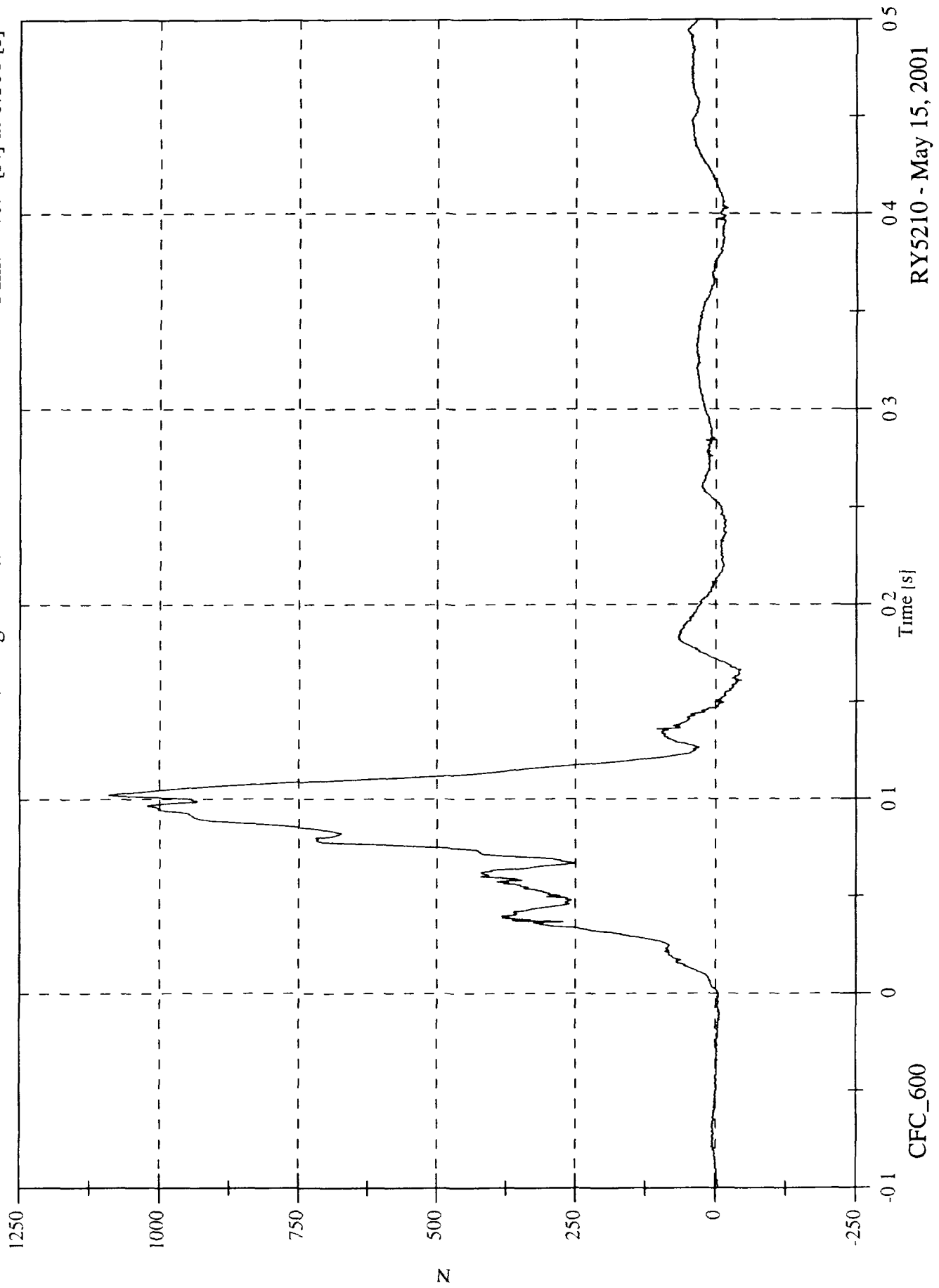
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1090.3 [N] at 0.102 [s]
Min: -46.4 [N] at 0.161 [s]

P2 Right Femur Fz



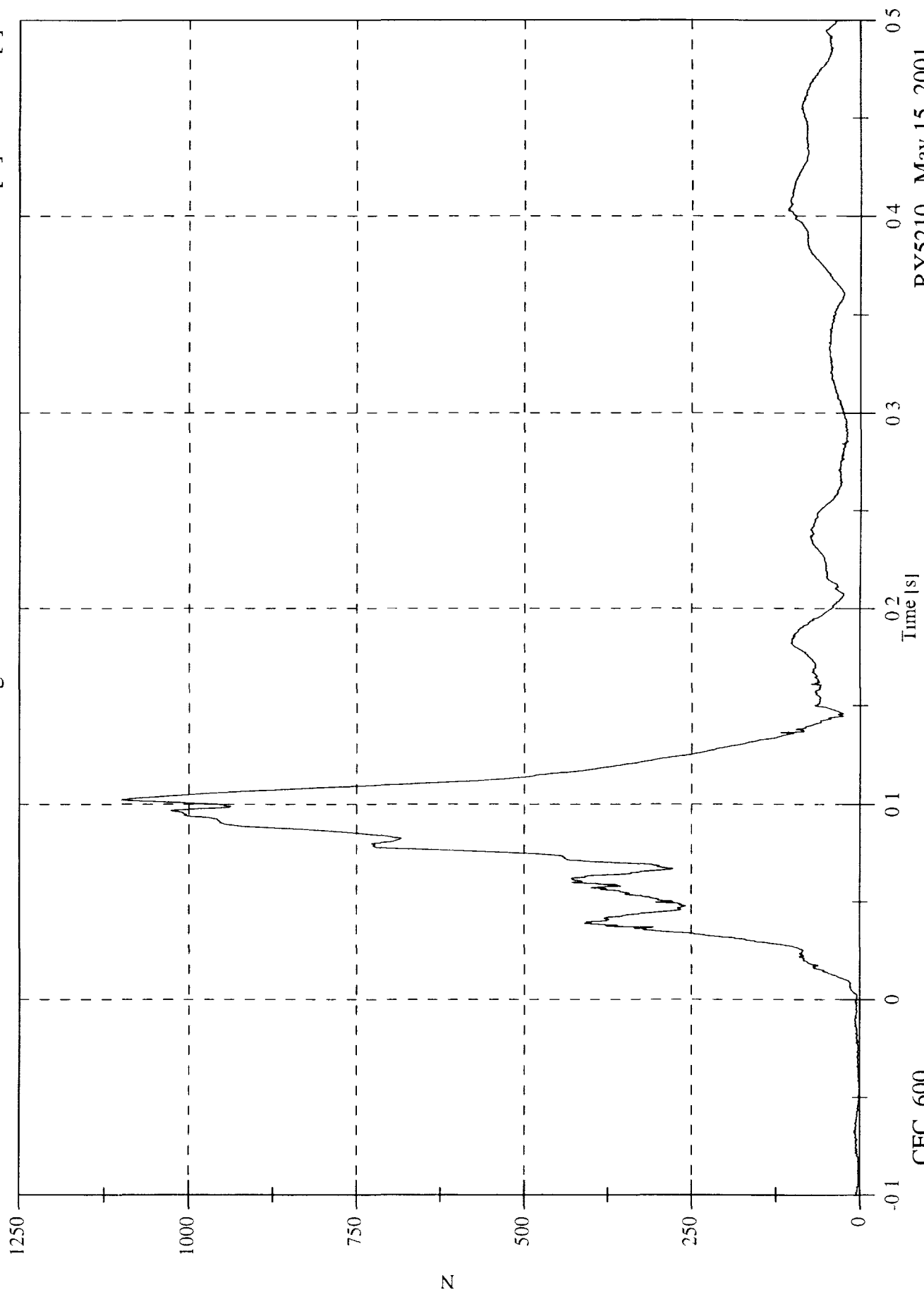
CFC_600

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Right Femur F Resultant

Max. 1099.7 [N] at 0.102 [s]
Min: 0.3 [N] at -0.048 [s]



CFC_600

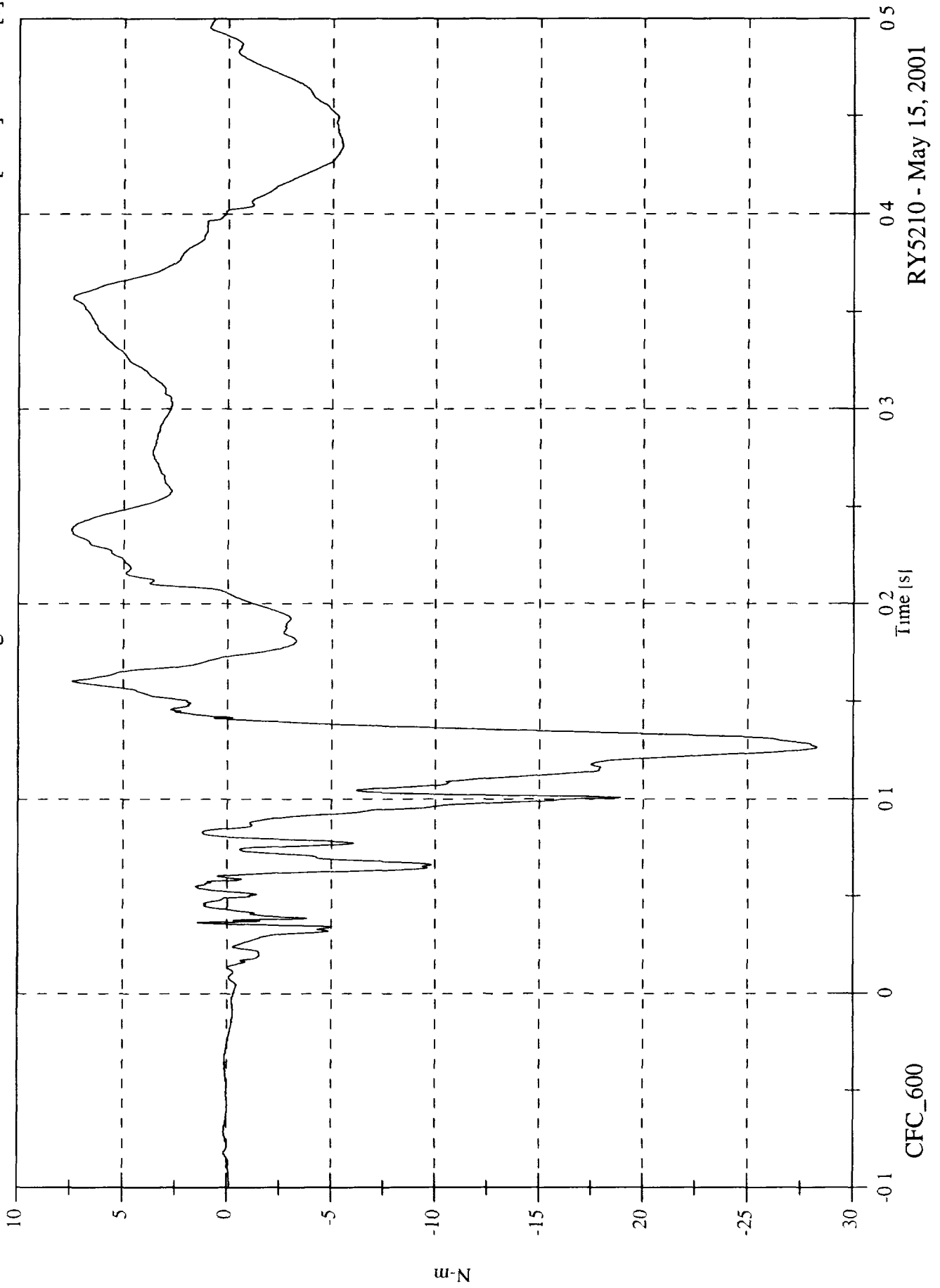
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 7.5 [N-m] at 0.238 [s]
Min: -28.3 [N-m] at 0.126 [s]

P2 Right Femur Mx

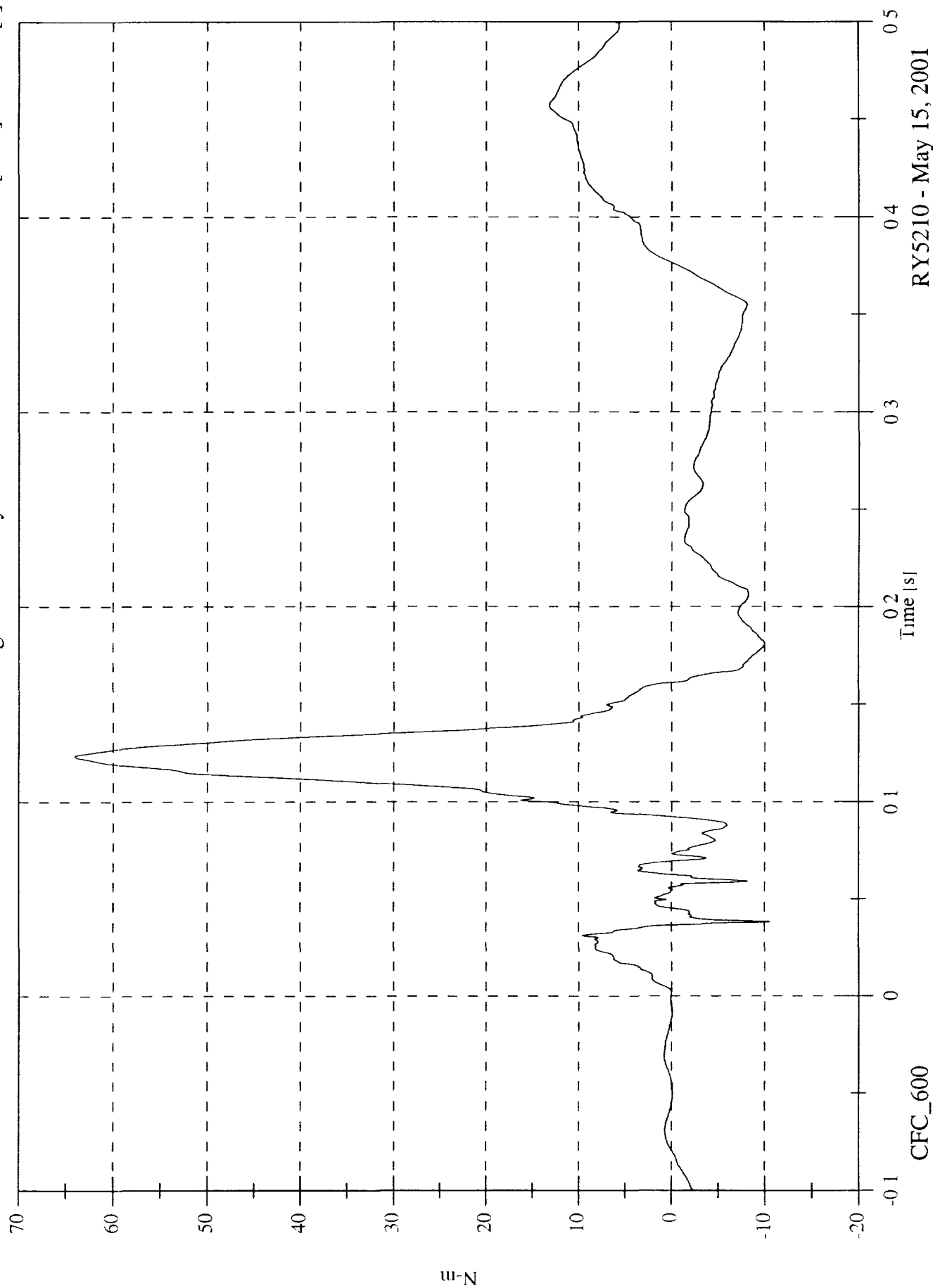


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 64.0 [N-m] at 0.124 [s]
Min -10.6 [N-m] at 0.038 [s]

P2 Right Femur My

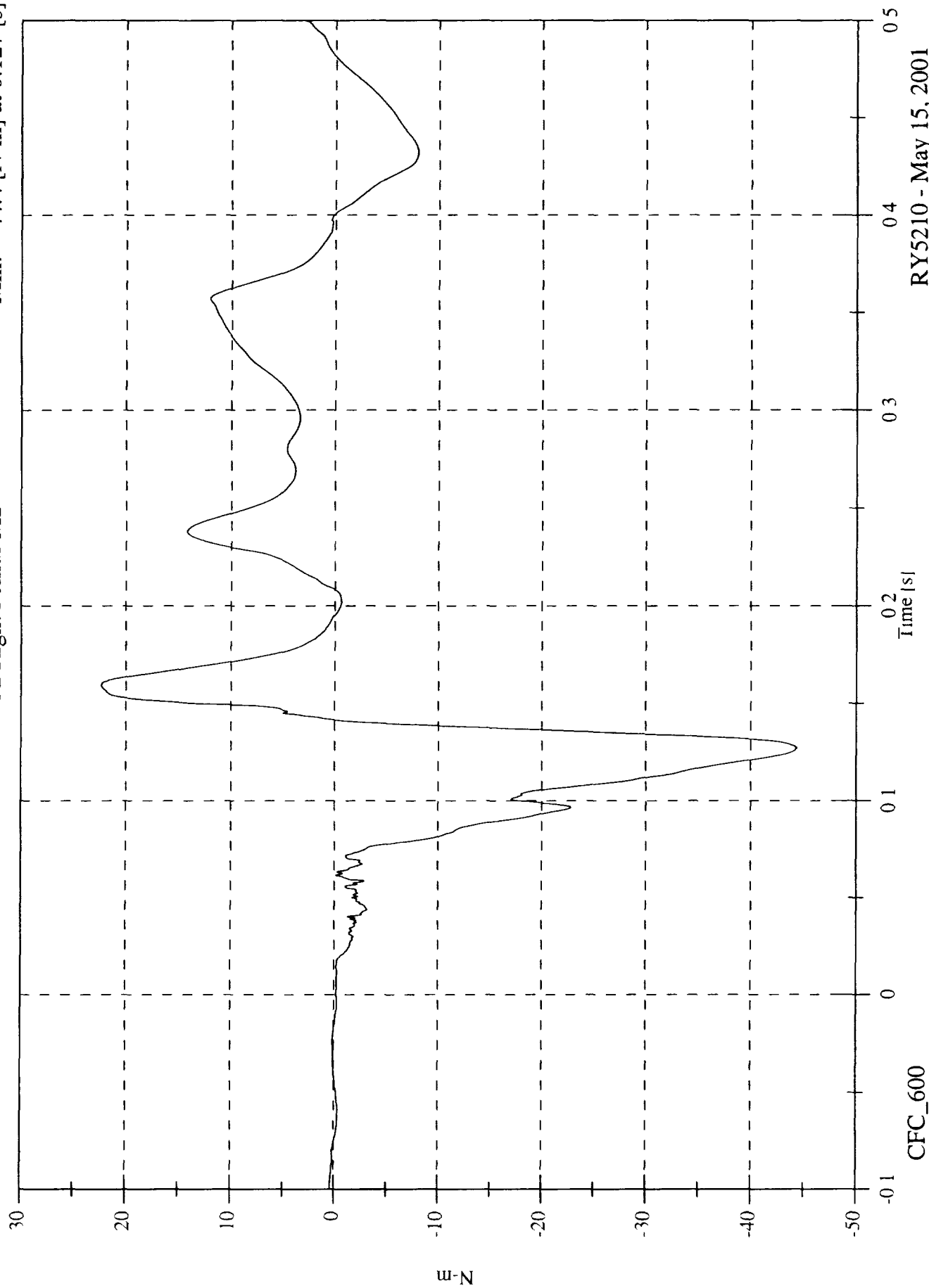


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 22.4 [N-m] at 0.159 [s]
Min: -44.4 [N-m] at 0.127 [s]

P2 Right Femur Mz

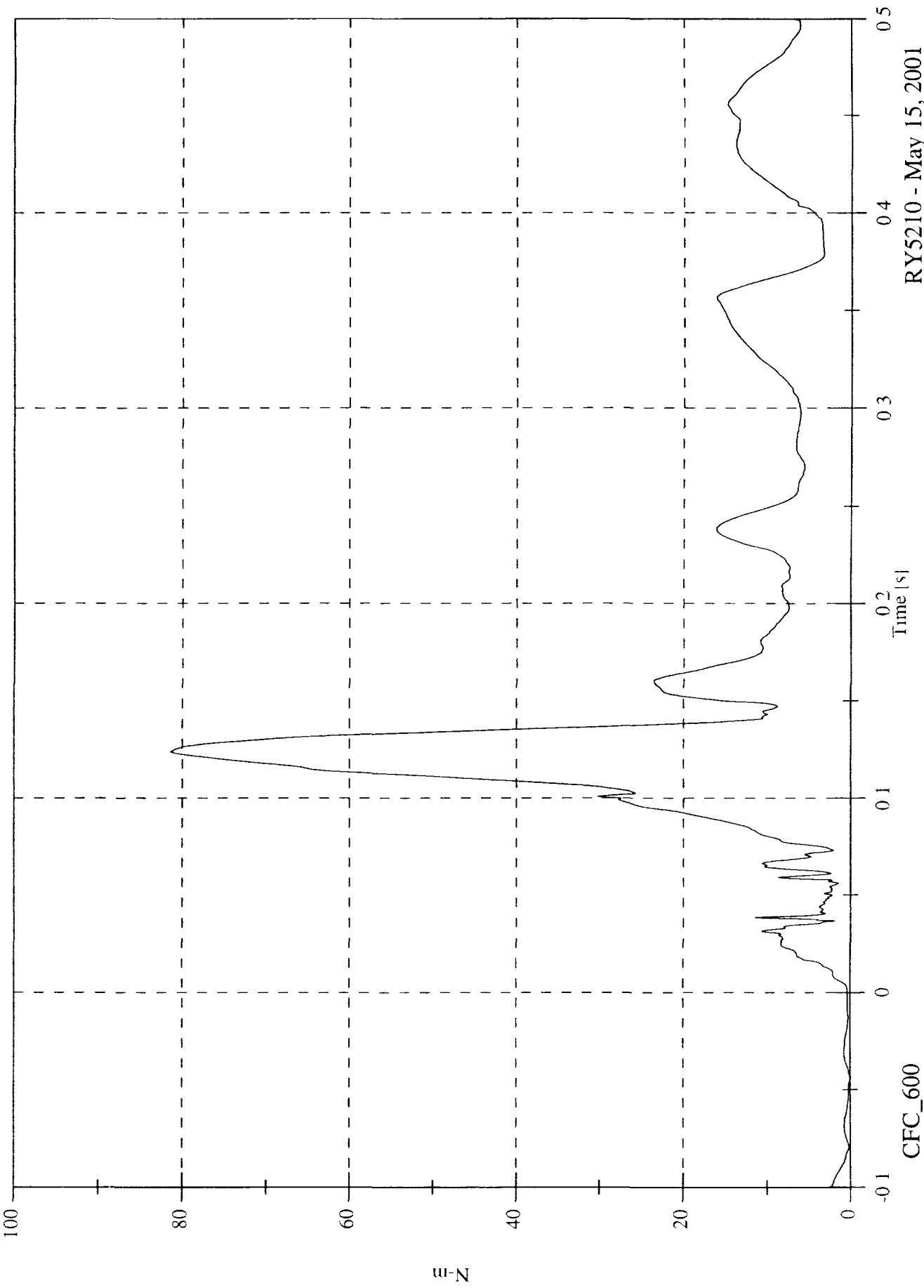


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 81.4 [N-m] at 0.124 [s]
Min: 0.1 [N-m] at -0.043 [s]

P2 Right Femur M Resultant

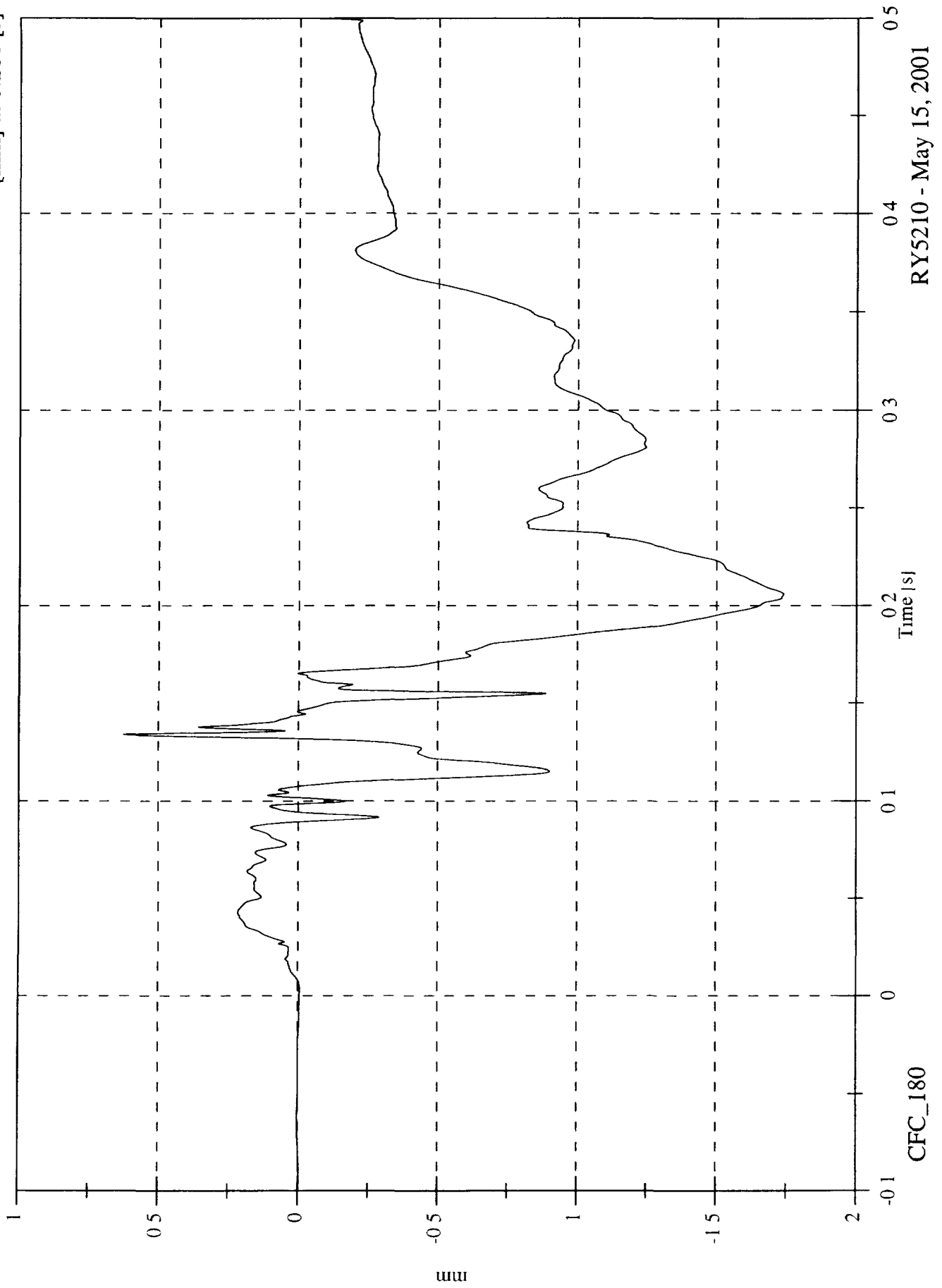


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Left Knee Shear Dx

Max: 0.6 [mm] at 0.134 [s]
Min: -1.7 [mm] at 0.206 [s]

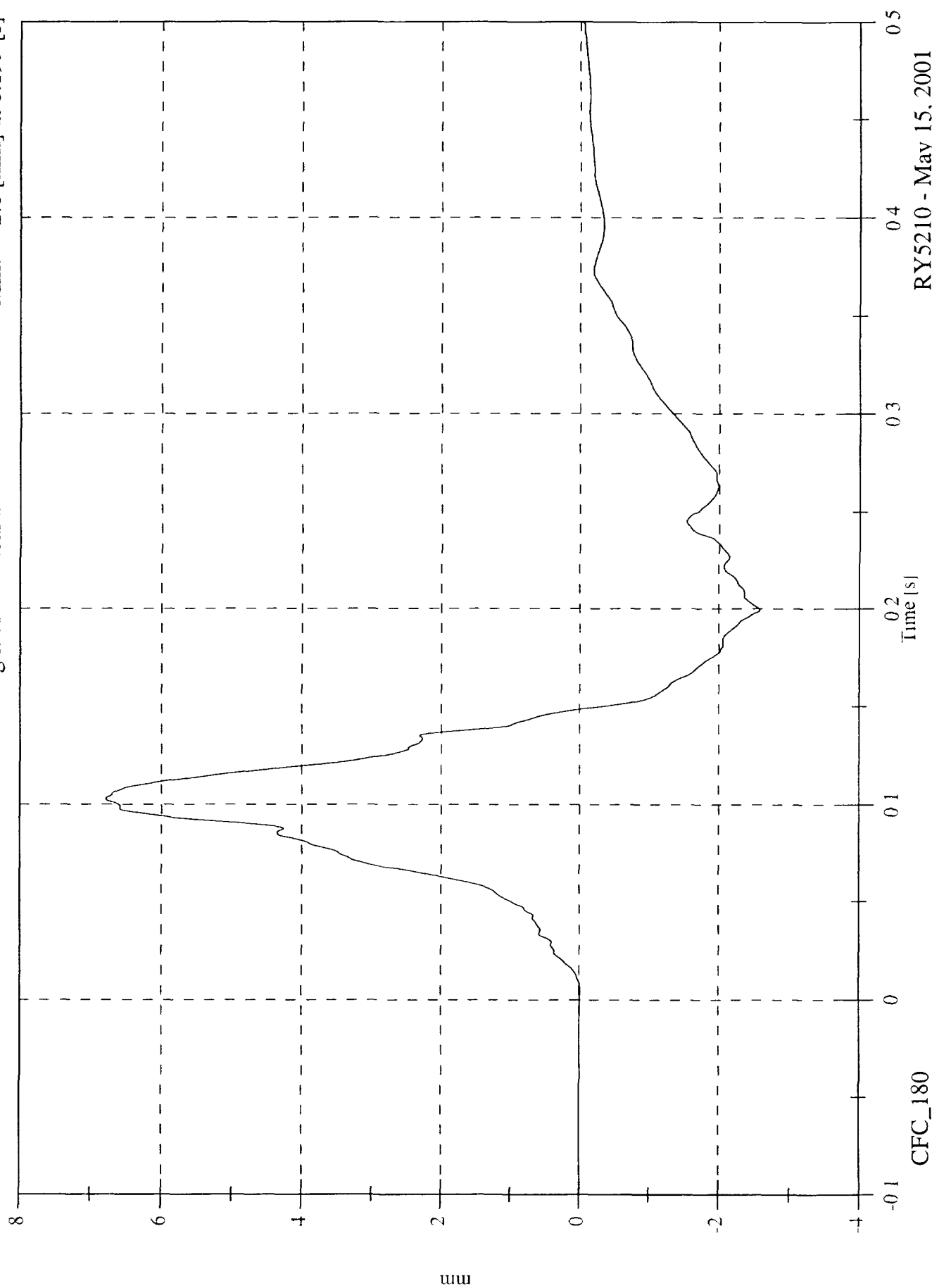


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 6.8 [mm] at 0.103 [s]
 Min: -2.6 [mm] at 0.199 [s]

P2 Right Knee Shear Dx



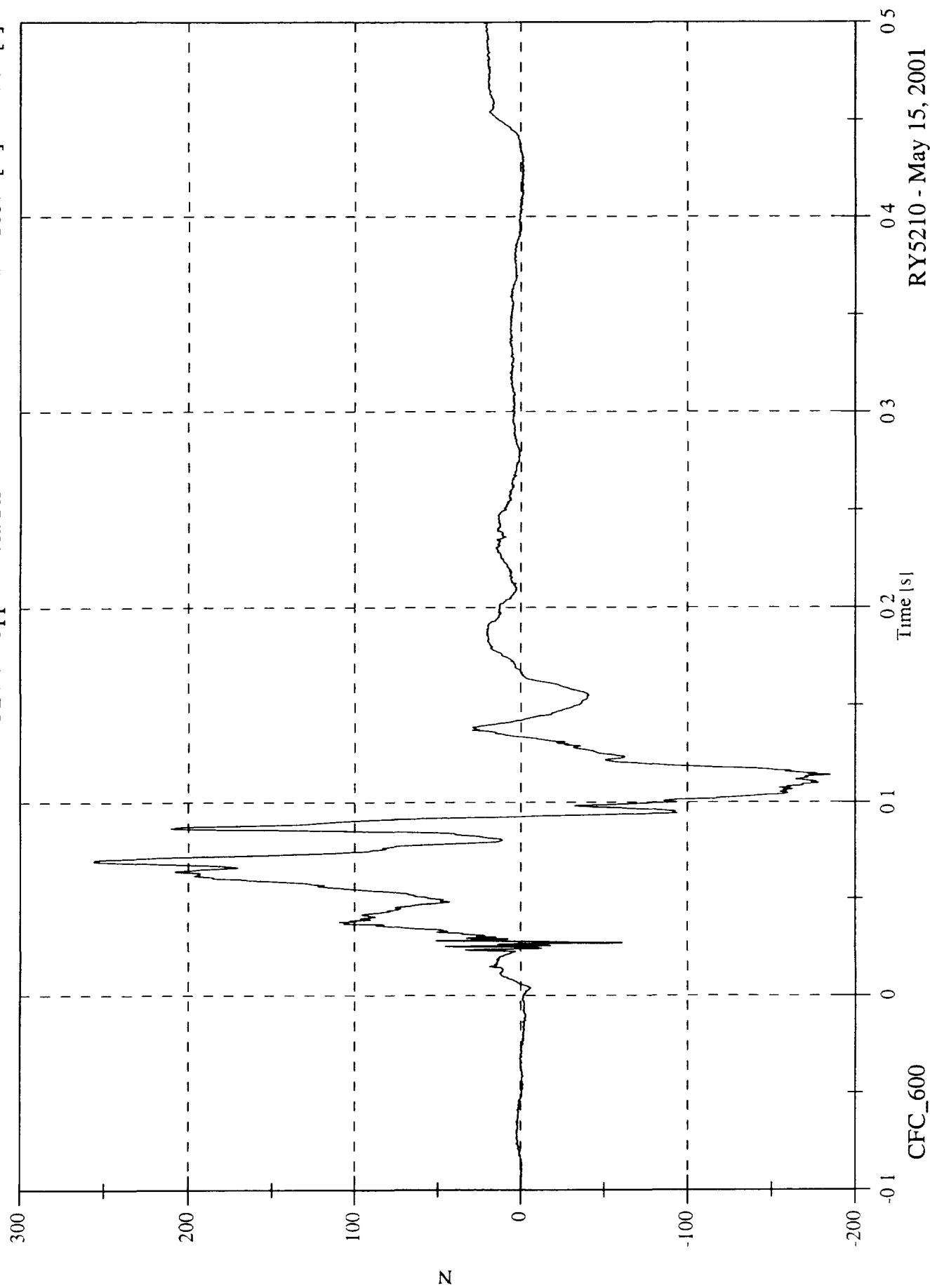
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 256.2 [N] at 0.070 [s]

Min: -185.1 [N] at 0.114 [s]

P2 Left Upper Tibia Fx

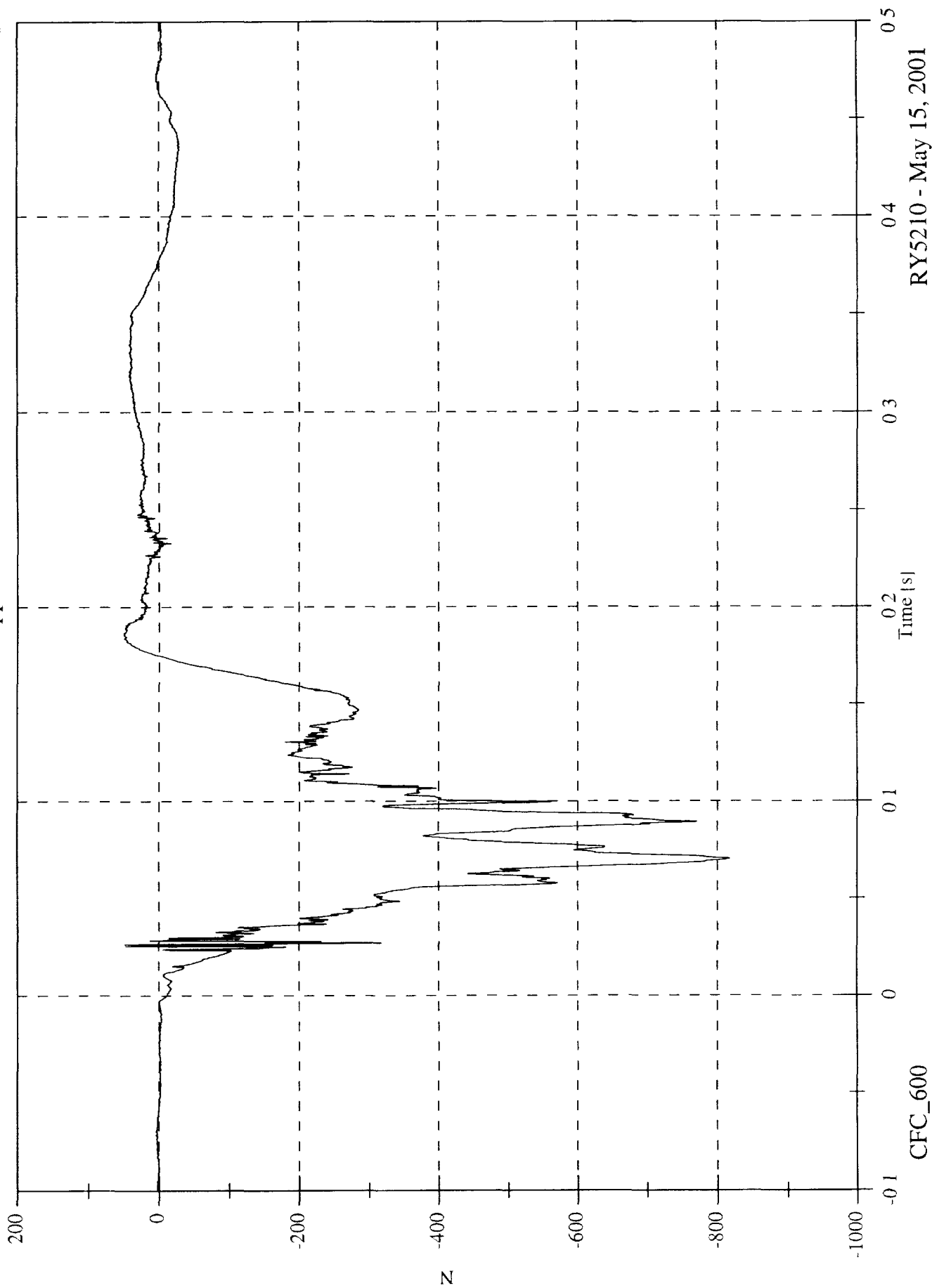


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 49.9 [N] at 0.186 [s]
 Min: -817.5 [N] at 0.070 [s]

P2 Left Upper Tibia Fz

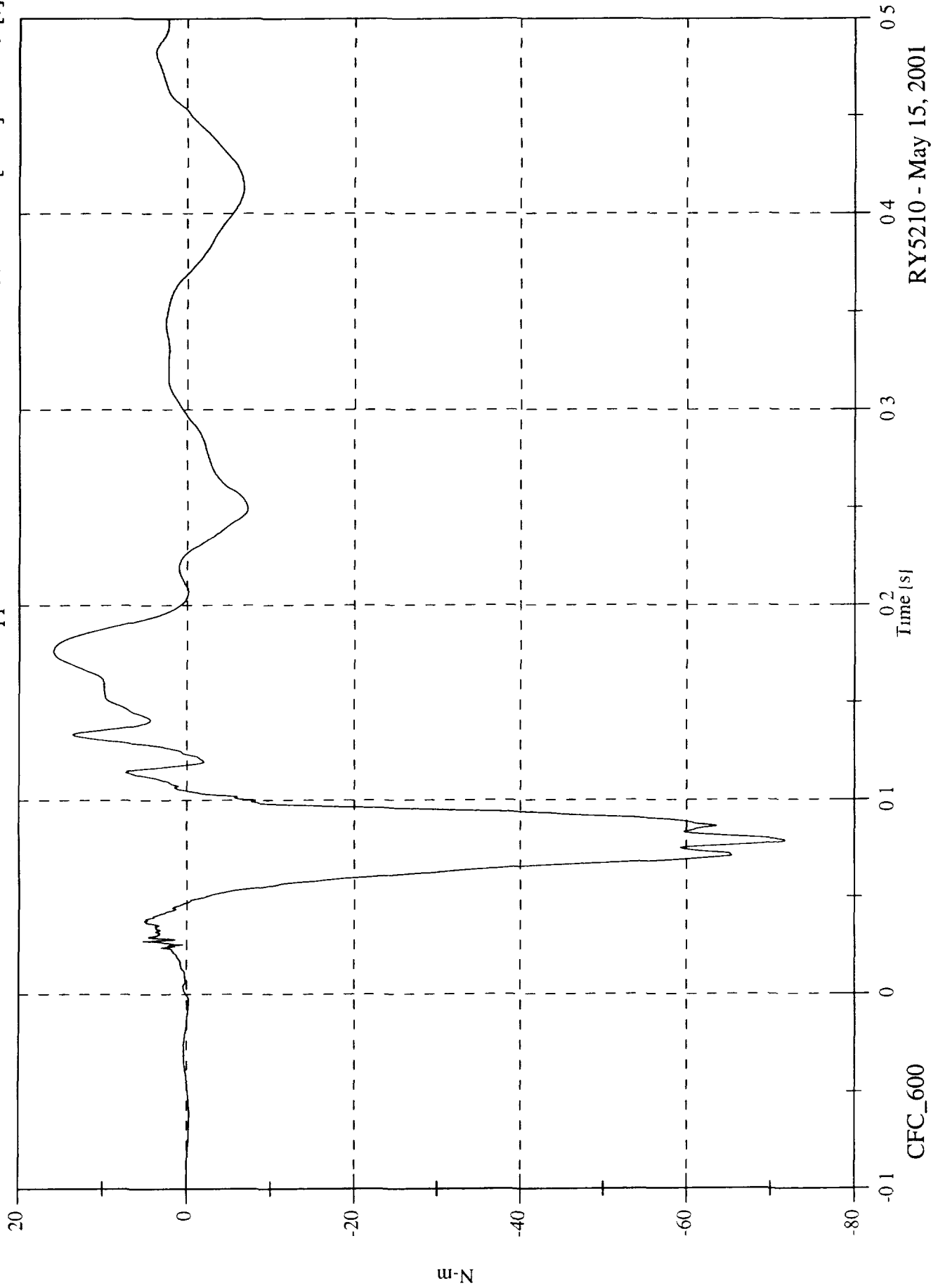


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 16.0 [N-m] at 0.176 [s]
Min: -71.8 [N-m] at 0.079 [s]

P2 Left Upper Tibia Mx

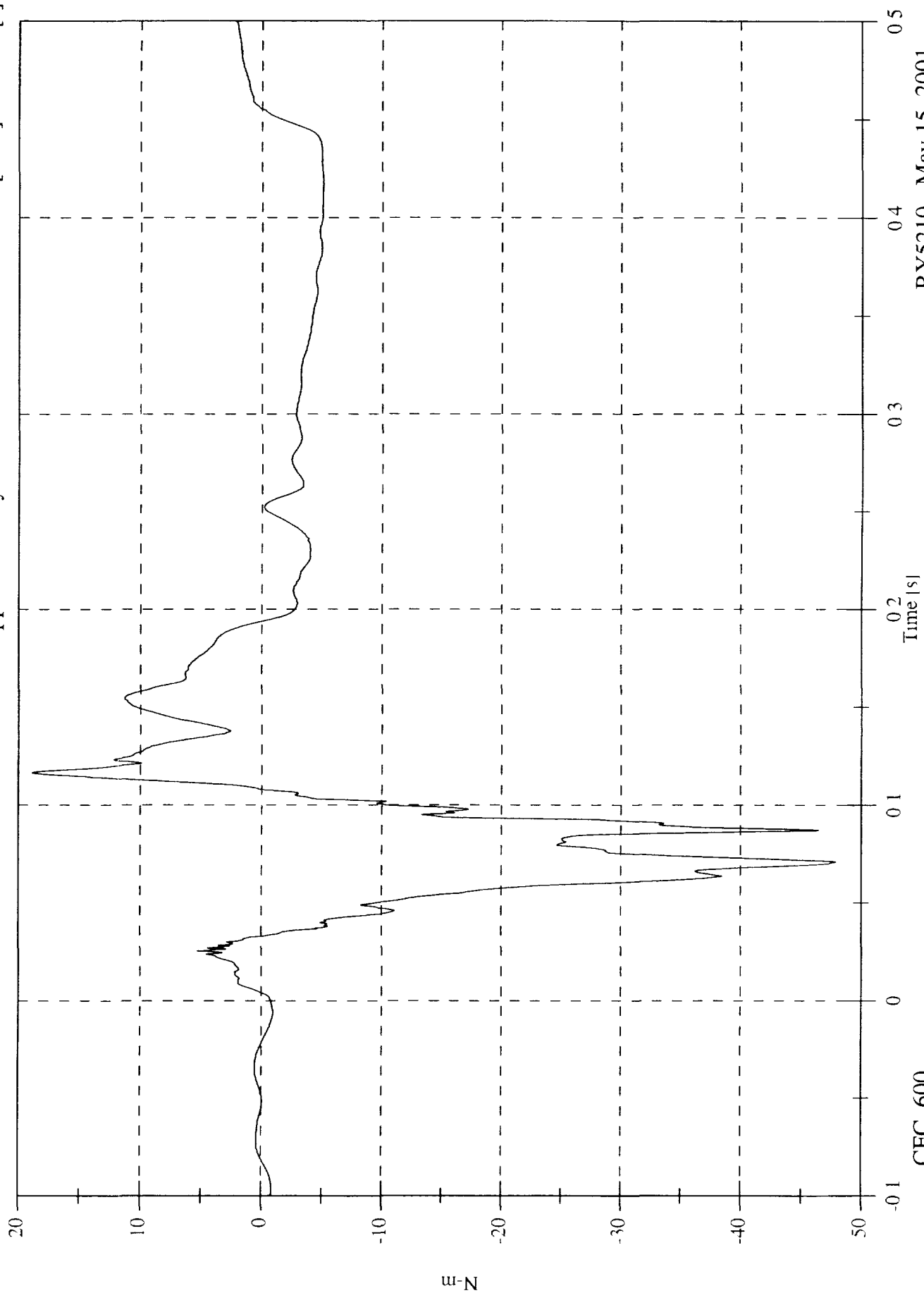


40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 18.9 [N-m] at 0.116 [s]

Min: -47.9 [N-m] at 0.071 [s]

P2 Left Upper Tibia My



CFC_600

Time [s]

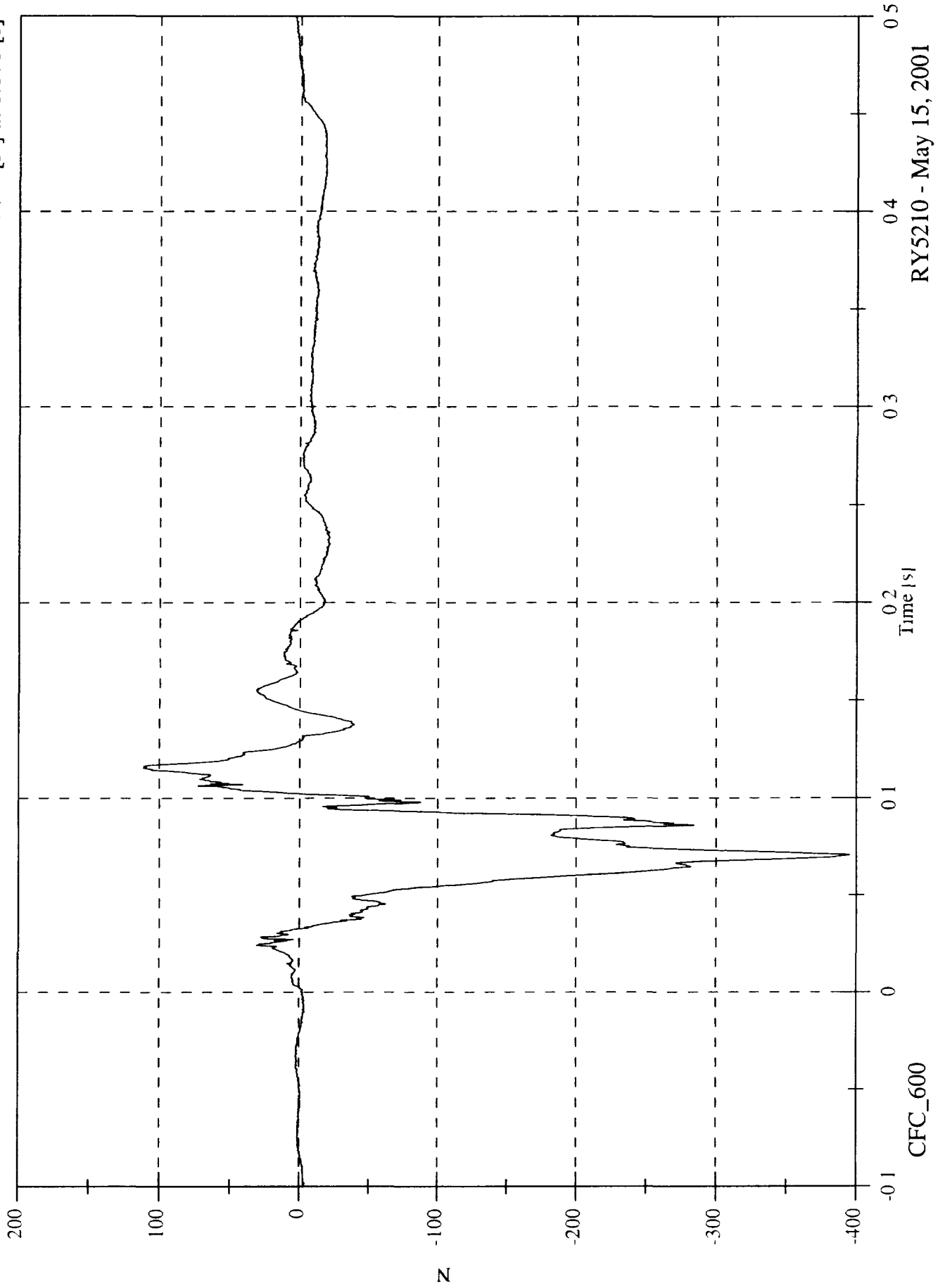
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Left Lower Tibia Fx

Max: 111.3 [N] at 0.115 [s]

Min: -395.2 [N] at 0.070 [s]

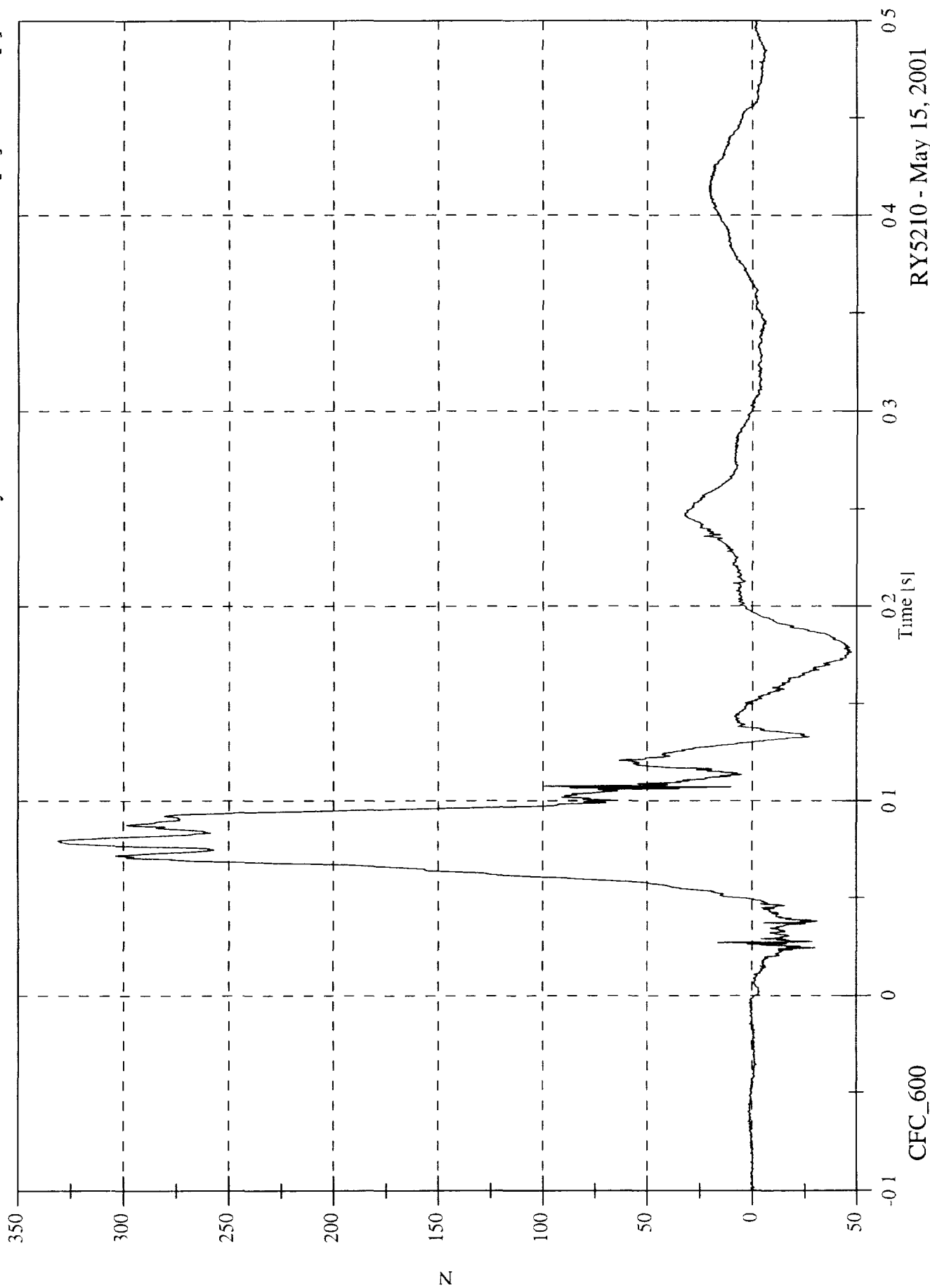


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 330.9 [N] at 0.079 [s]
Min: -47.7 [N] at 0.176 [s]

P2 Left Lower Tibia Fy



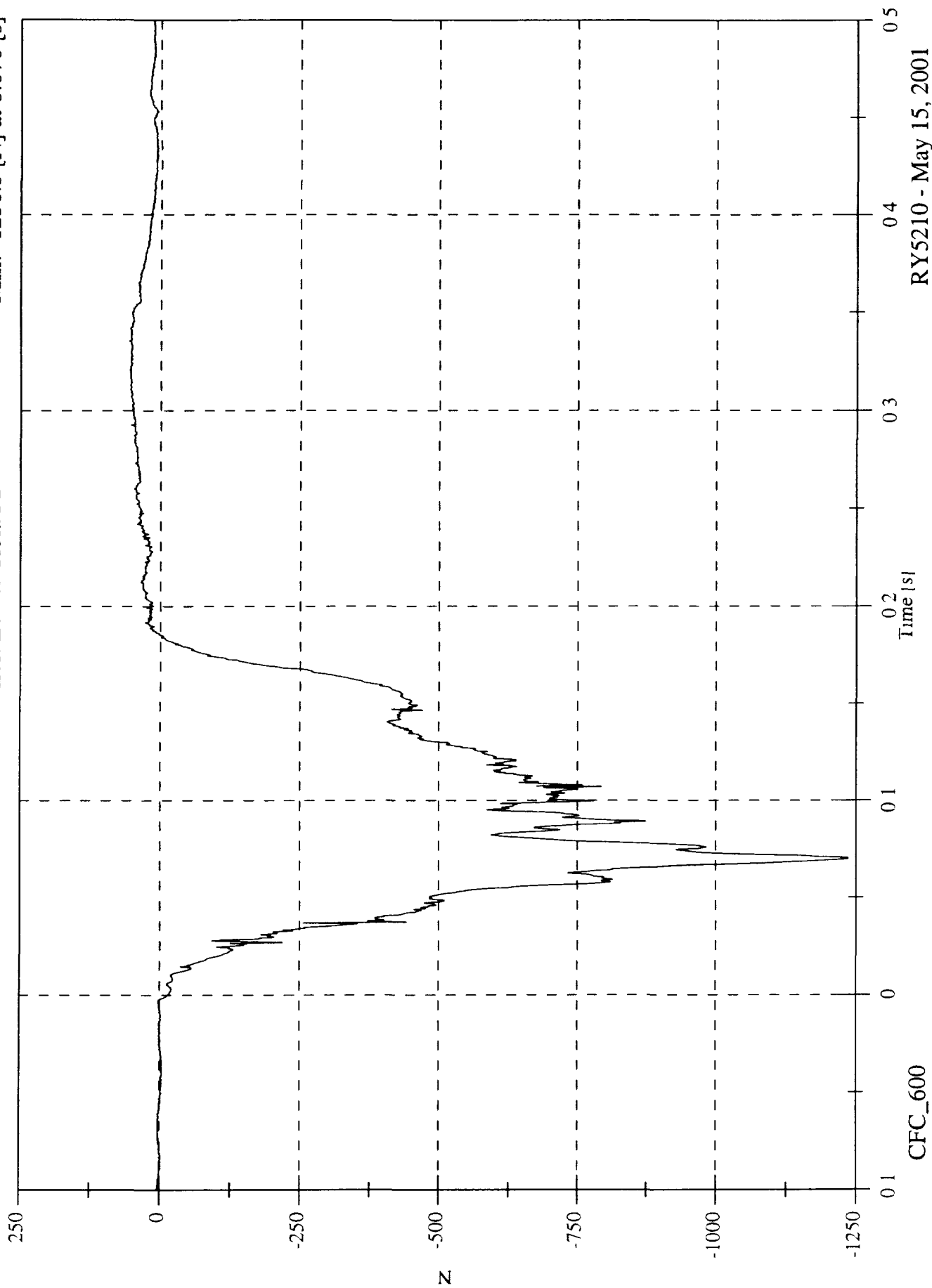
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Left Lower Tibia Fz

Max: 56.6 [N] at 0.335 [s]

Min: -1236.3 [N] at 0.070 [s]



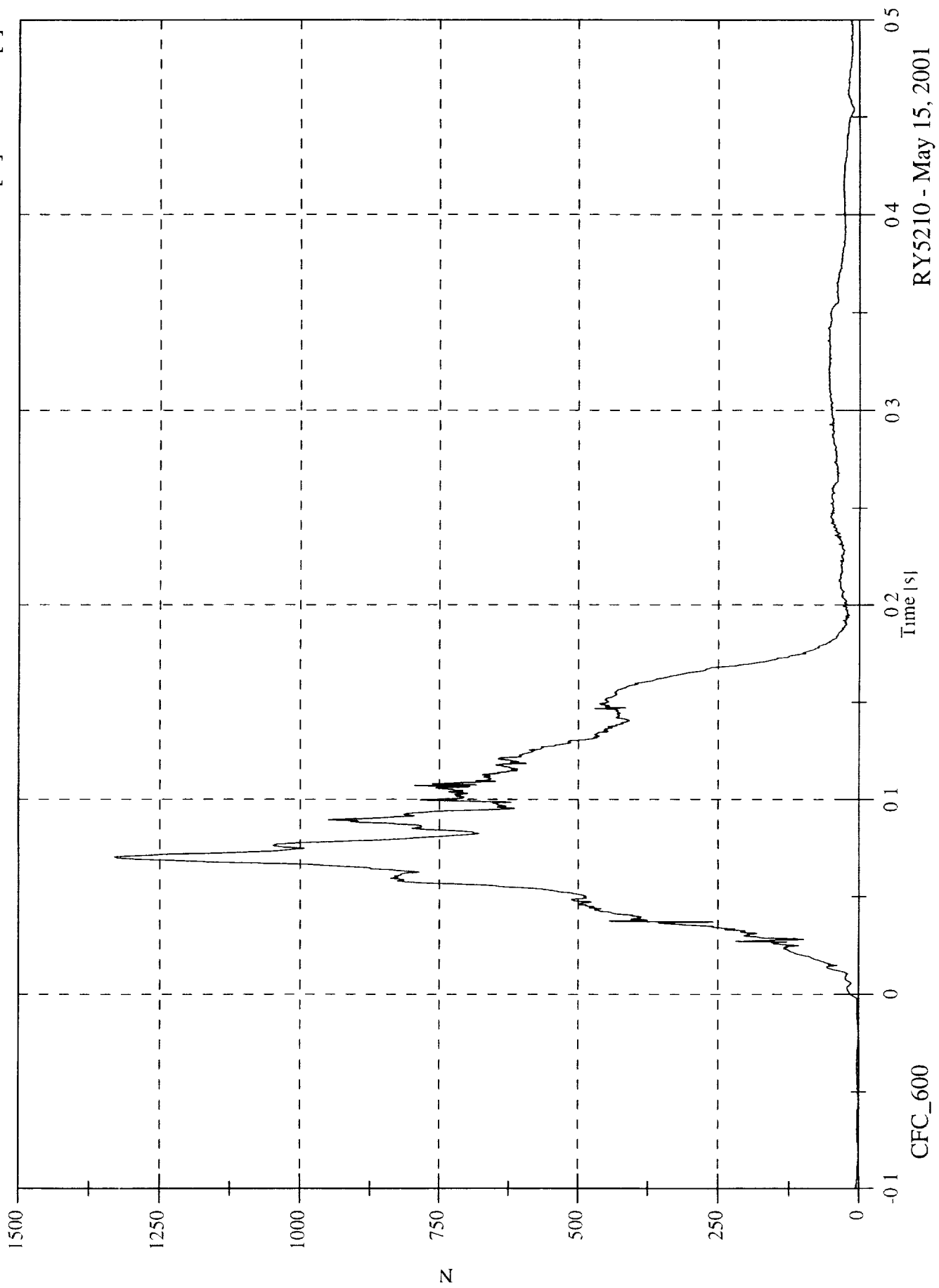
CFC_600

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1330.3 [N] at 0.070 [s]
Min: 0.2 [N] at -0.083 [s]

P2 Left Lower Tibia F Resultant

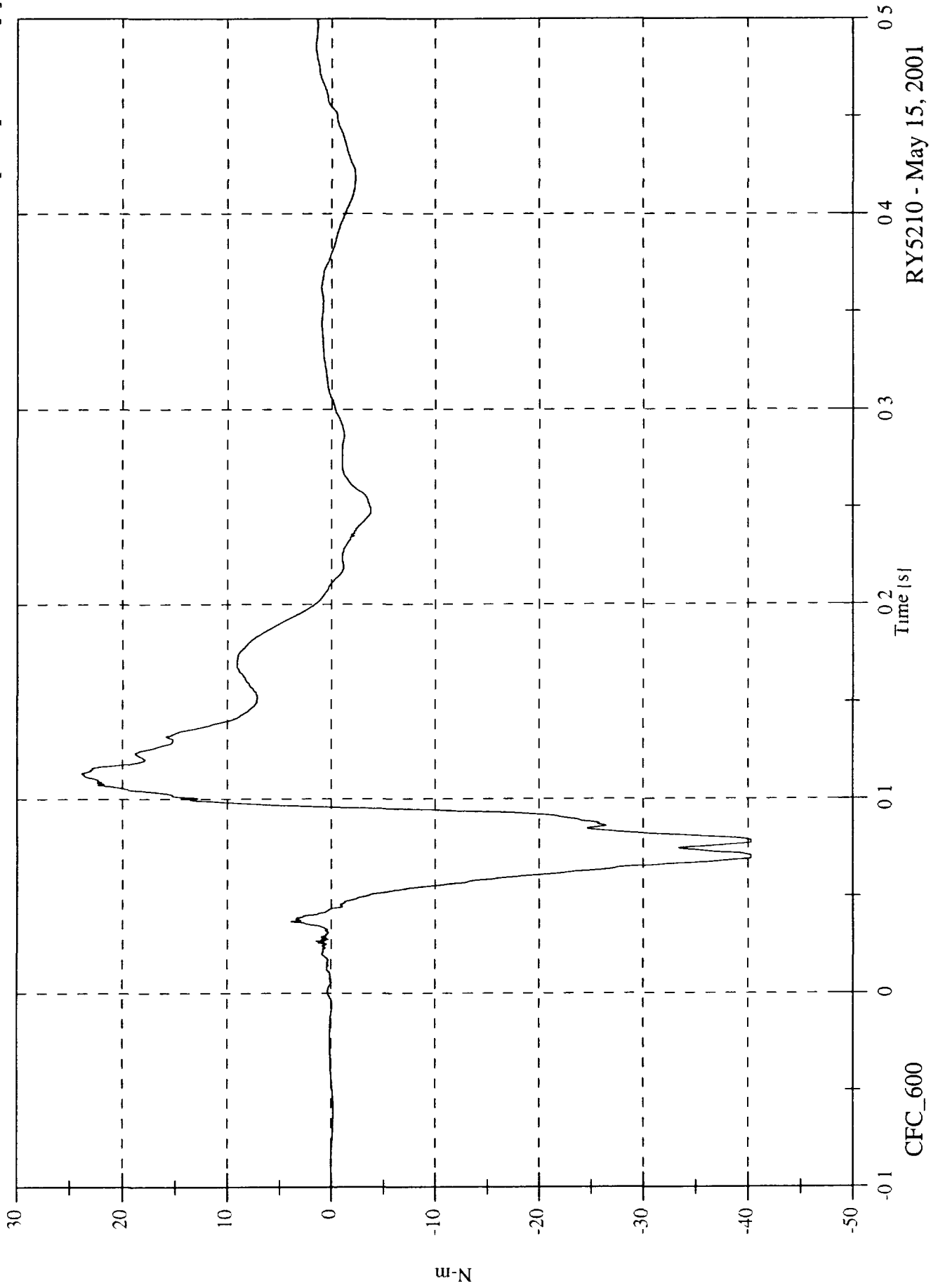


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 23.9 [N-m] at 0.113 [s]
Min: -40.3 [N-m] at 0.069 [s]

P2 Left Lower Tibia Mx

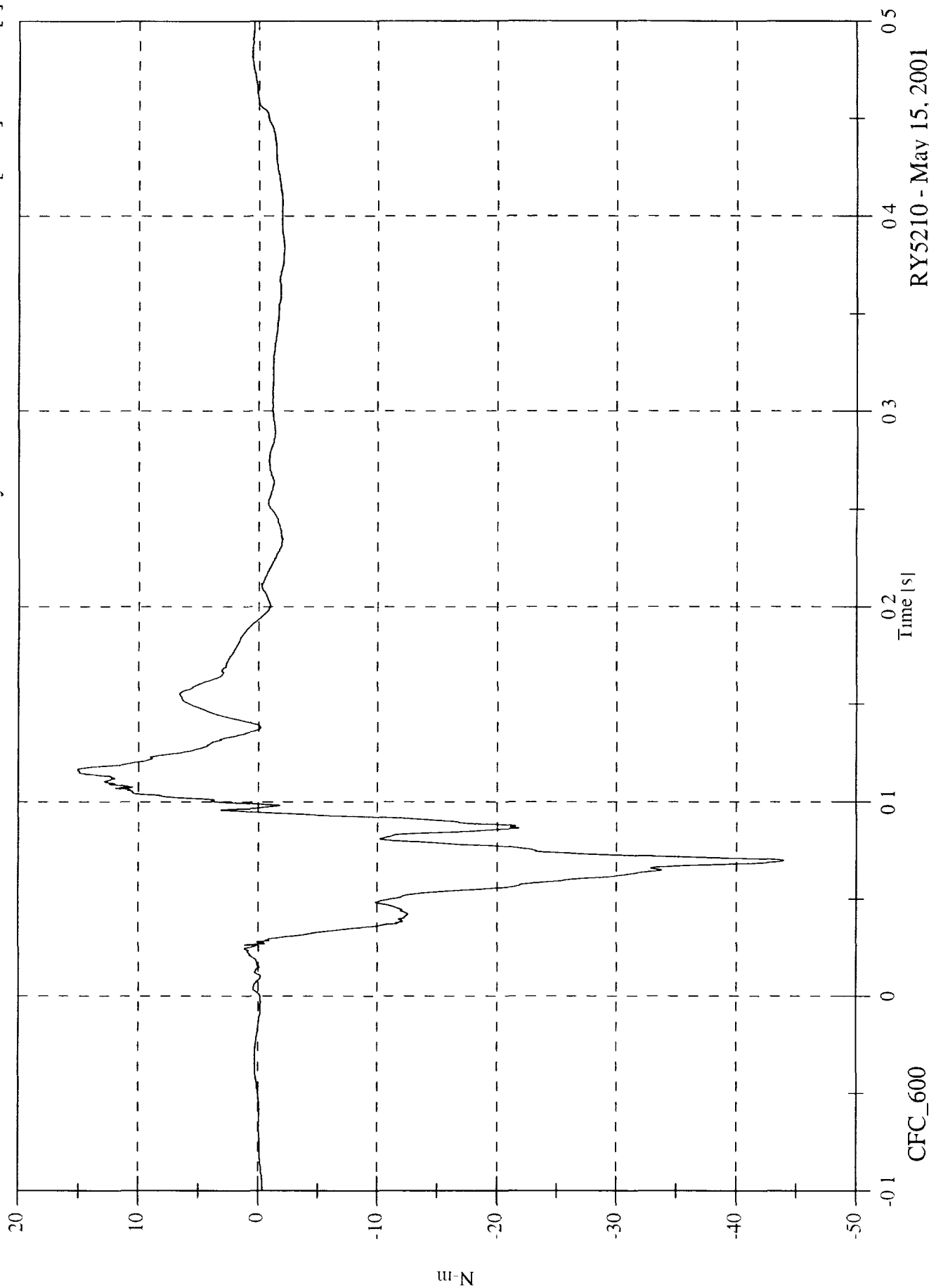


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Left Lower Tibia My

Max: 15.1 [N-m] at 0.117 [s]
Min: -43.9 [N-m] at 0.070 [s]

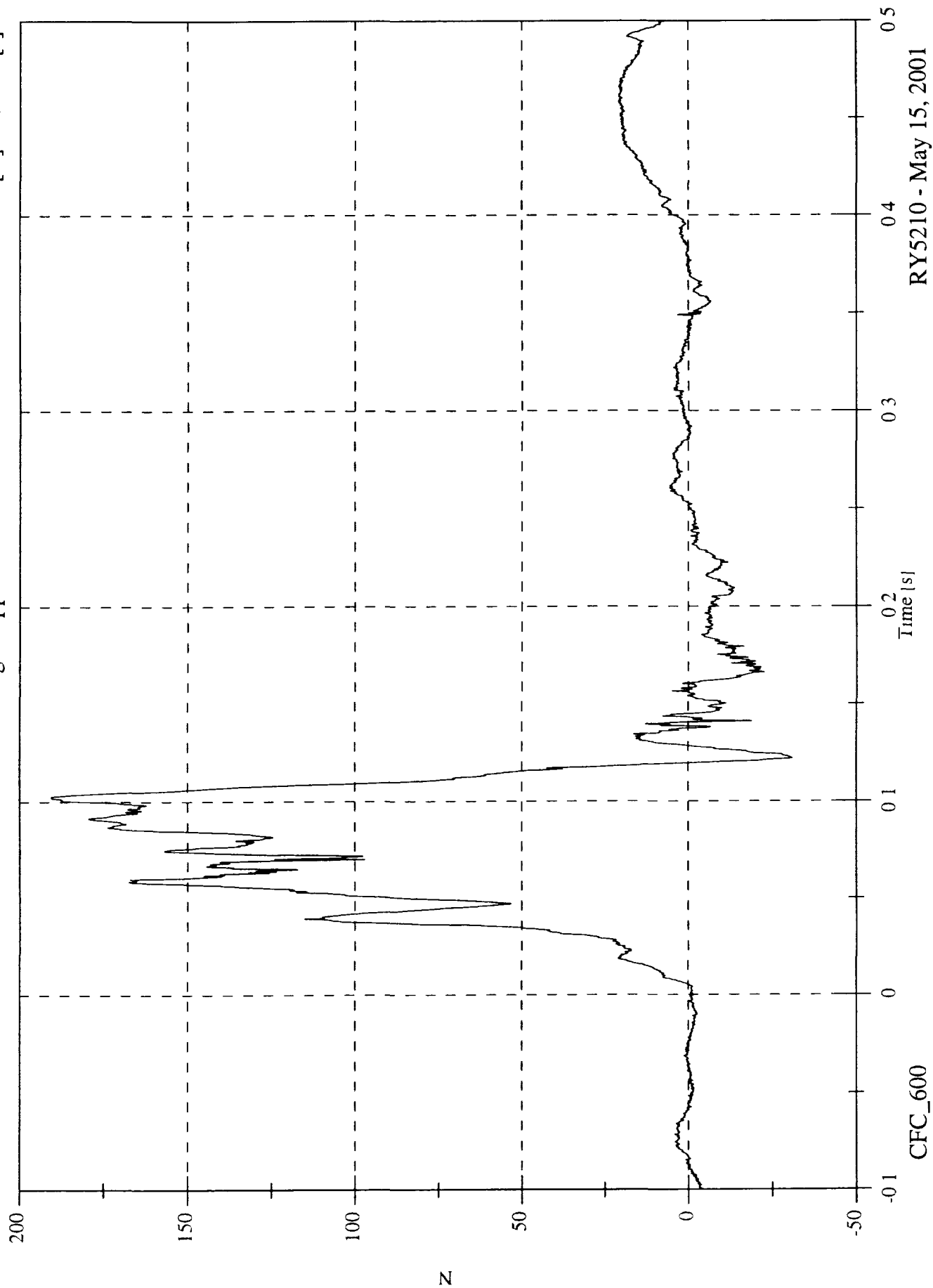


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 190.4 [N] at 0.102 [s]
Min: -30.8 [N] at 0.122 [s]

P2 Right Upper Tibia Fx



CFC_600

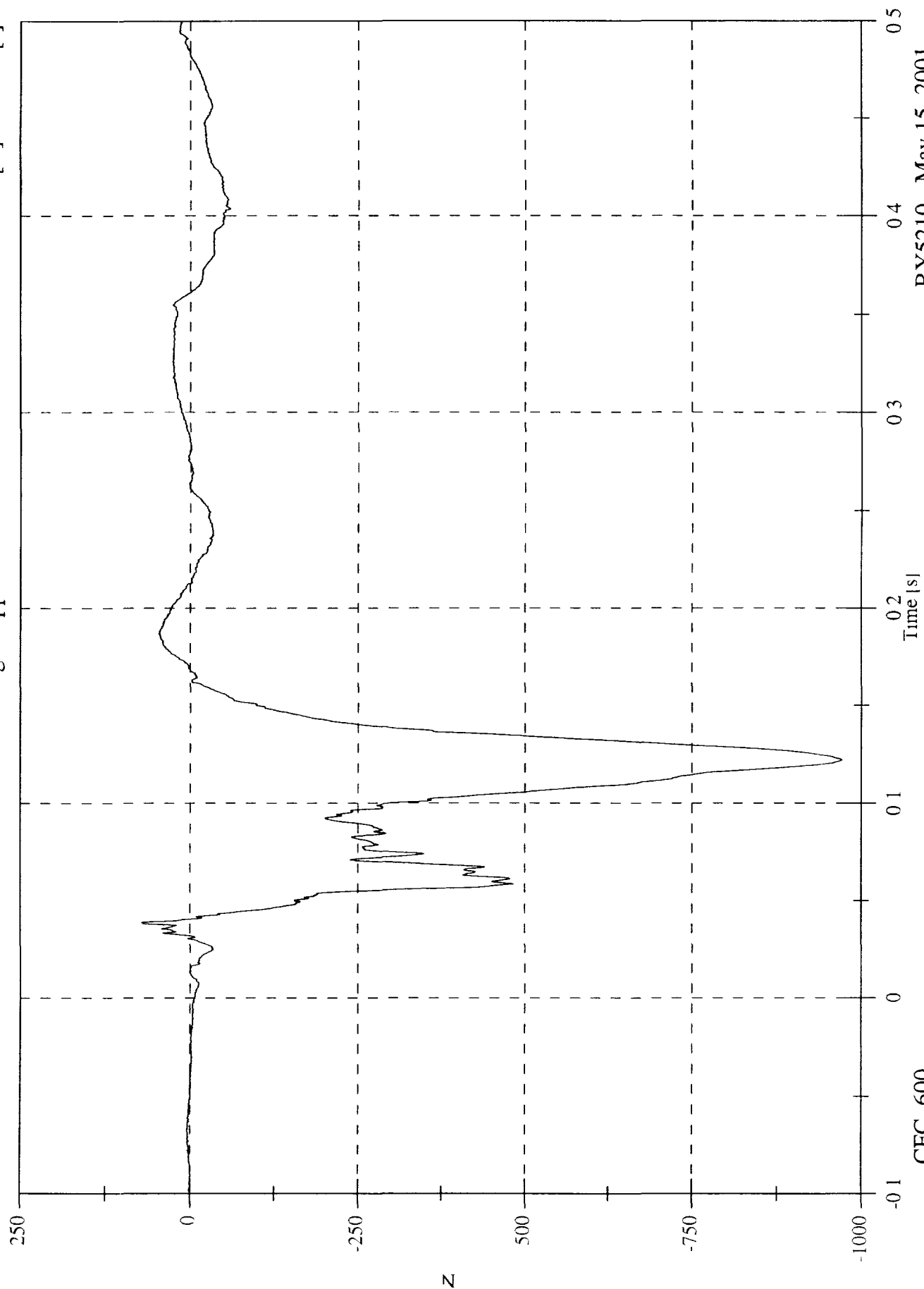
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 71.6 [N] at 0.039 [s]
Min. -971.0 [N] at 0.122 [s]

P2 Right Upper Tibia Fz



CFC_600

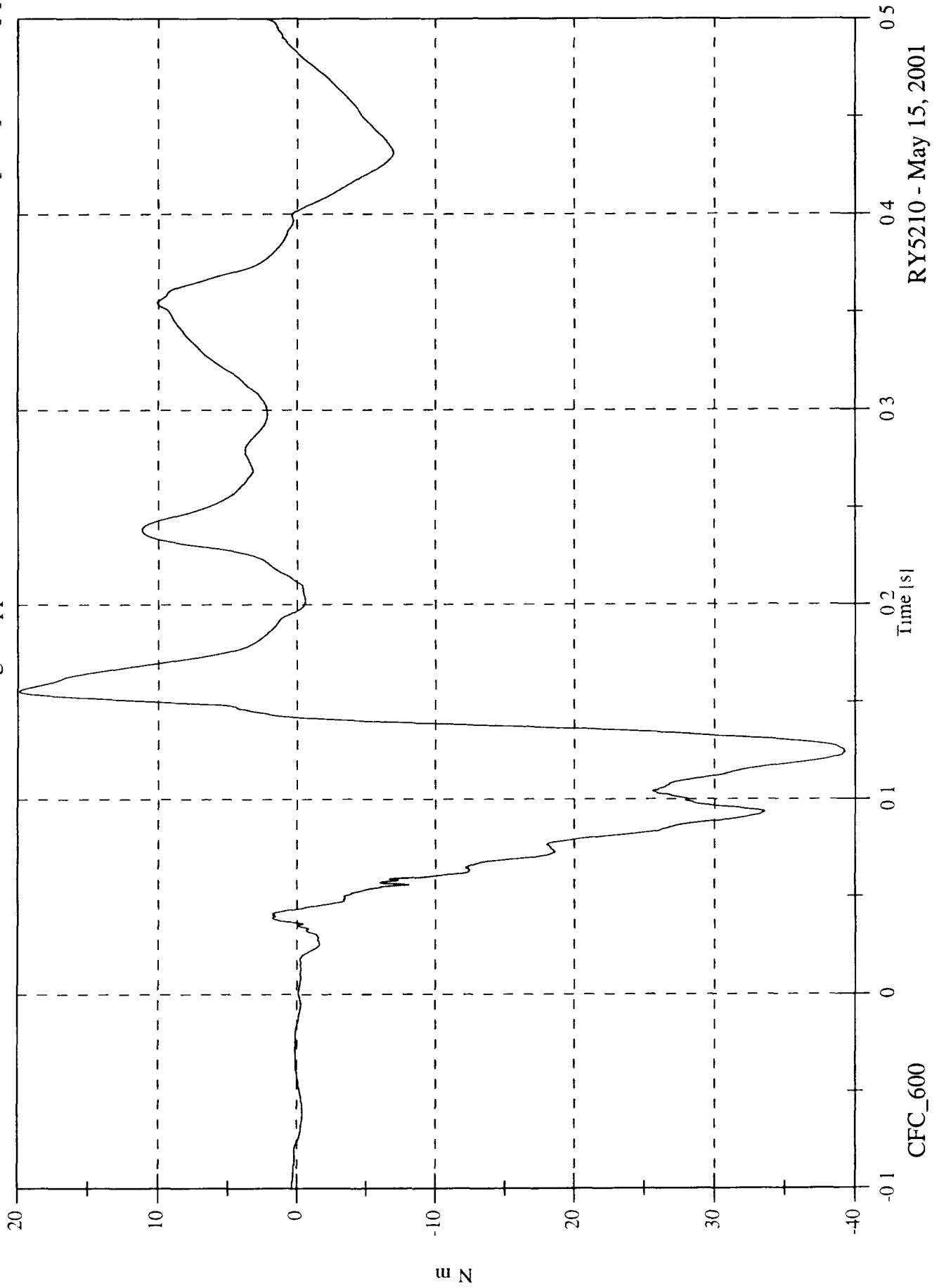
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Right Upper Tibia Mx

Max: 19.9 [N-m] at 0.156 [s]
Min: -39.3 [N-m] at 0.124 [s]

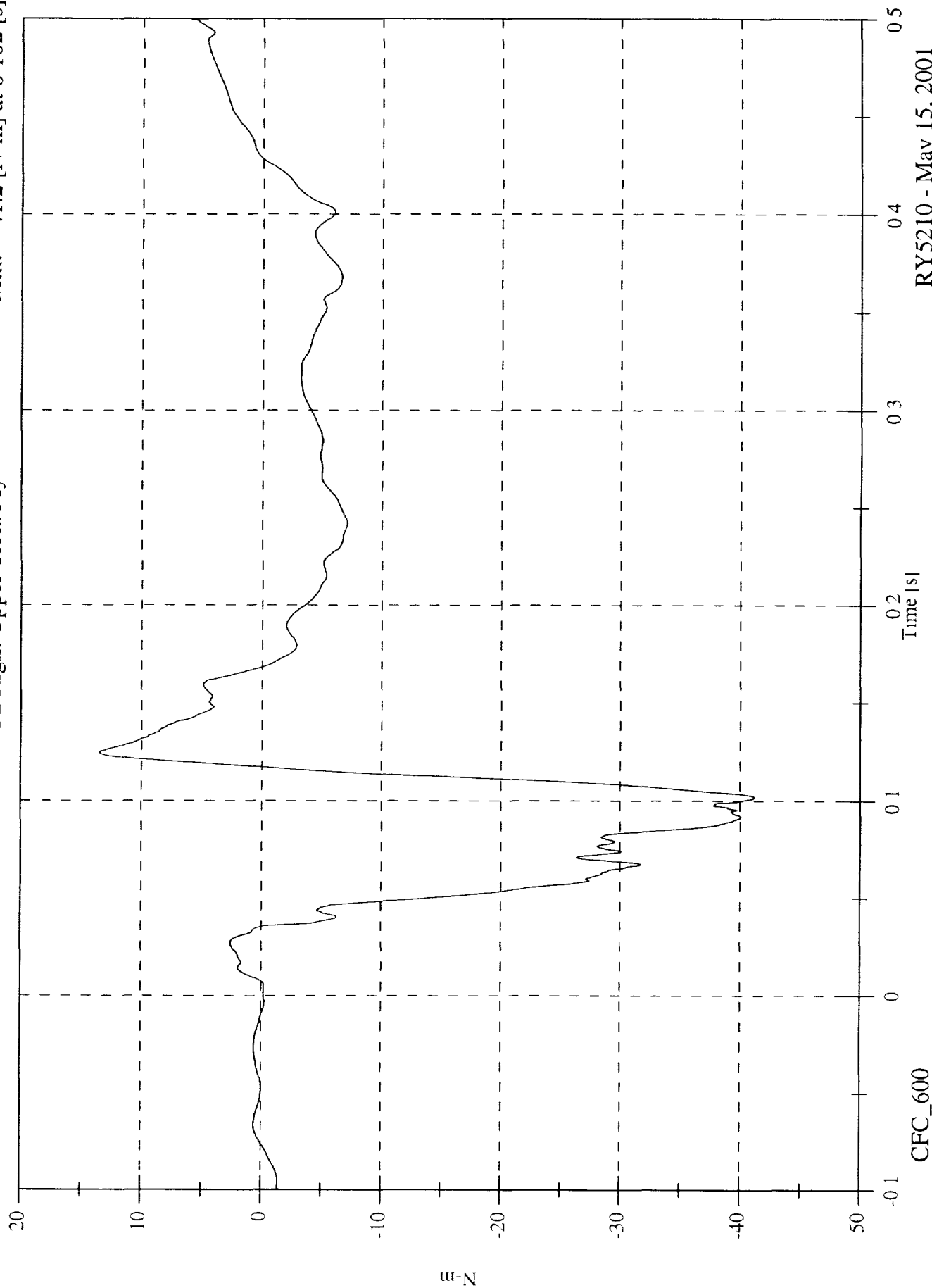


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Right Upper Tibia My

Max: 13.5 [N-m] at 0.125 [s]
Min: -41.2 [N-m] at 0.102 [s]

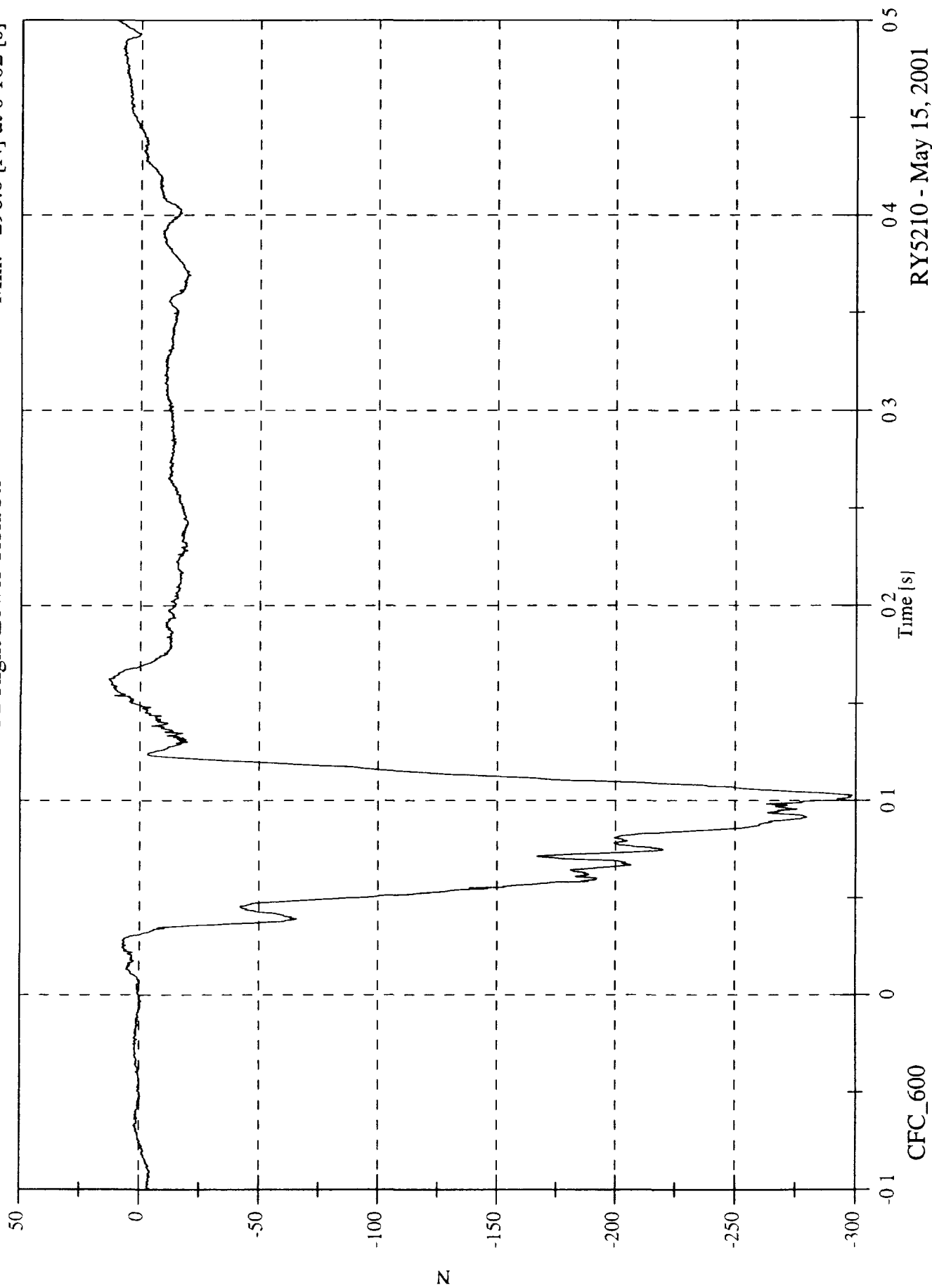


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Right Lower Tibia Fx

Max: 13.4 [N] at 0.162 [s]
Min: -298.6 [N] at 0.102 [s]



CFC_600

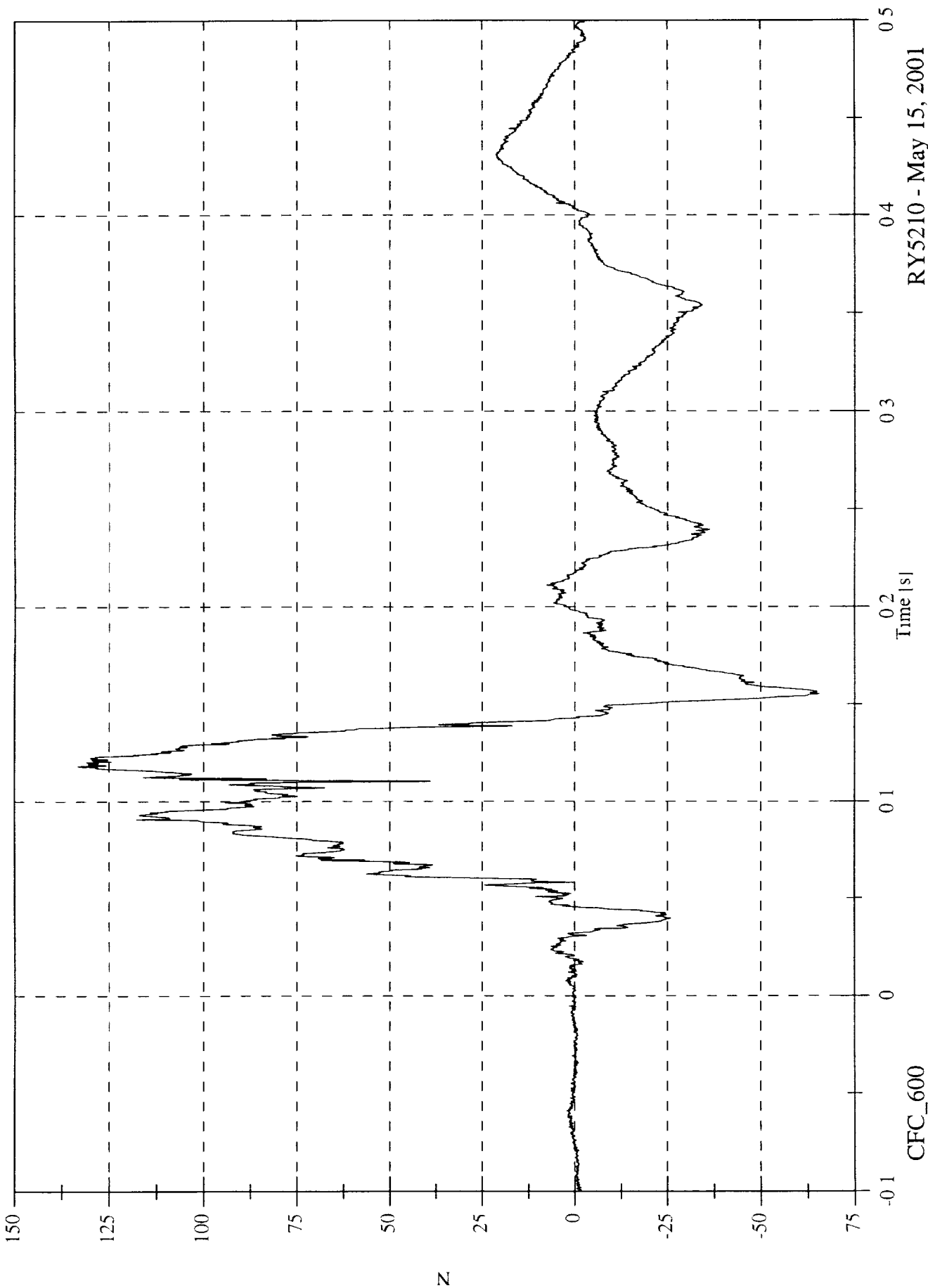
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 133.2 [N] at 0.118 [s]
Min: -65.5 [N] at 0.155 [s]

P2 Right Lower Tibia Fy



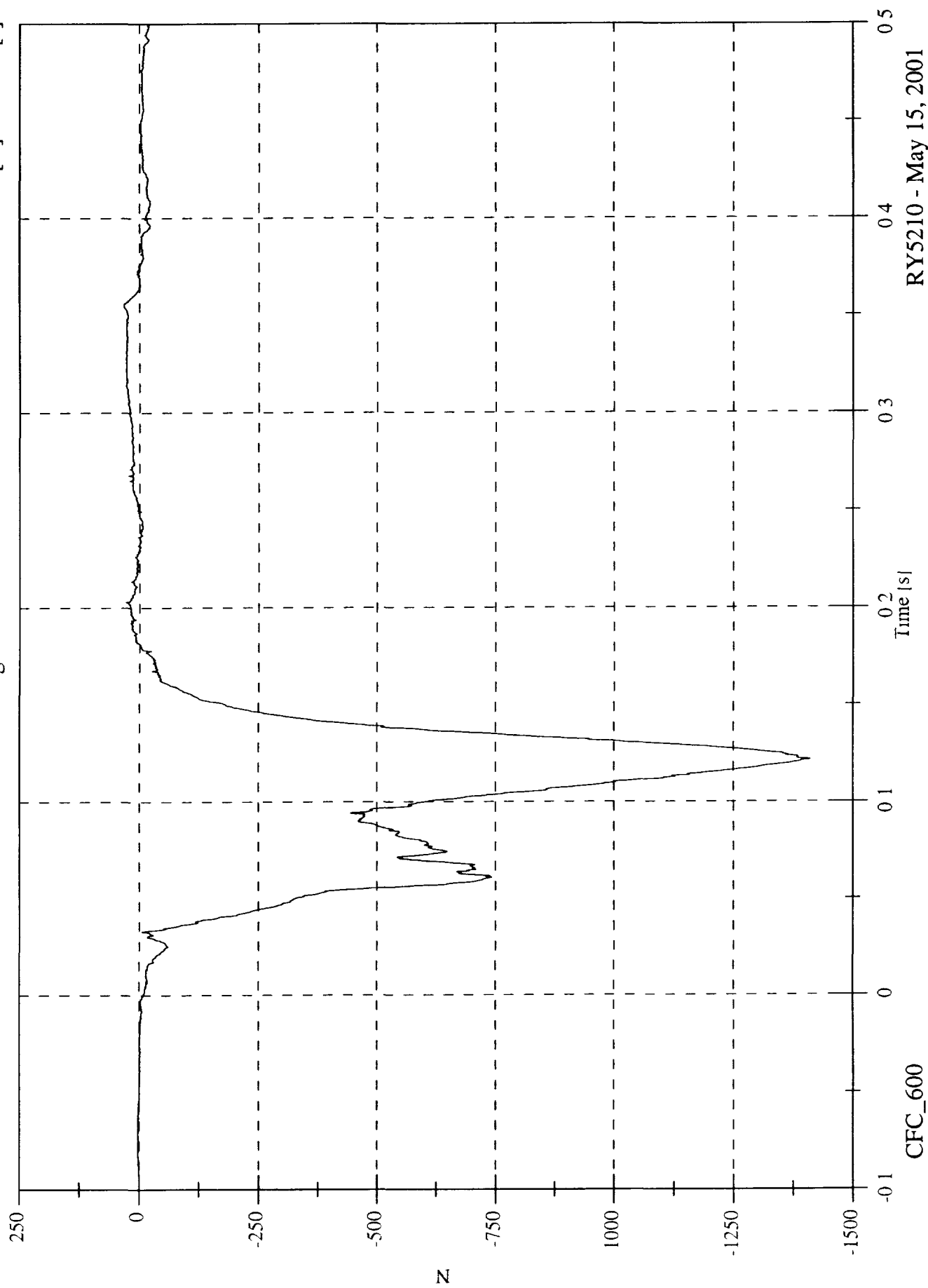
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 32.6 [N] at 0.355 [s]

Min: -1411.0 [N] at 0.121 [s]

P2 Right Lower Tibia Fz



CFC_600

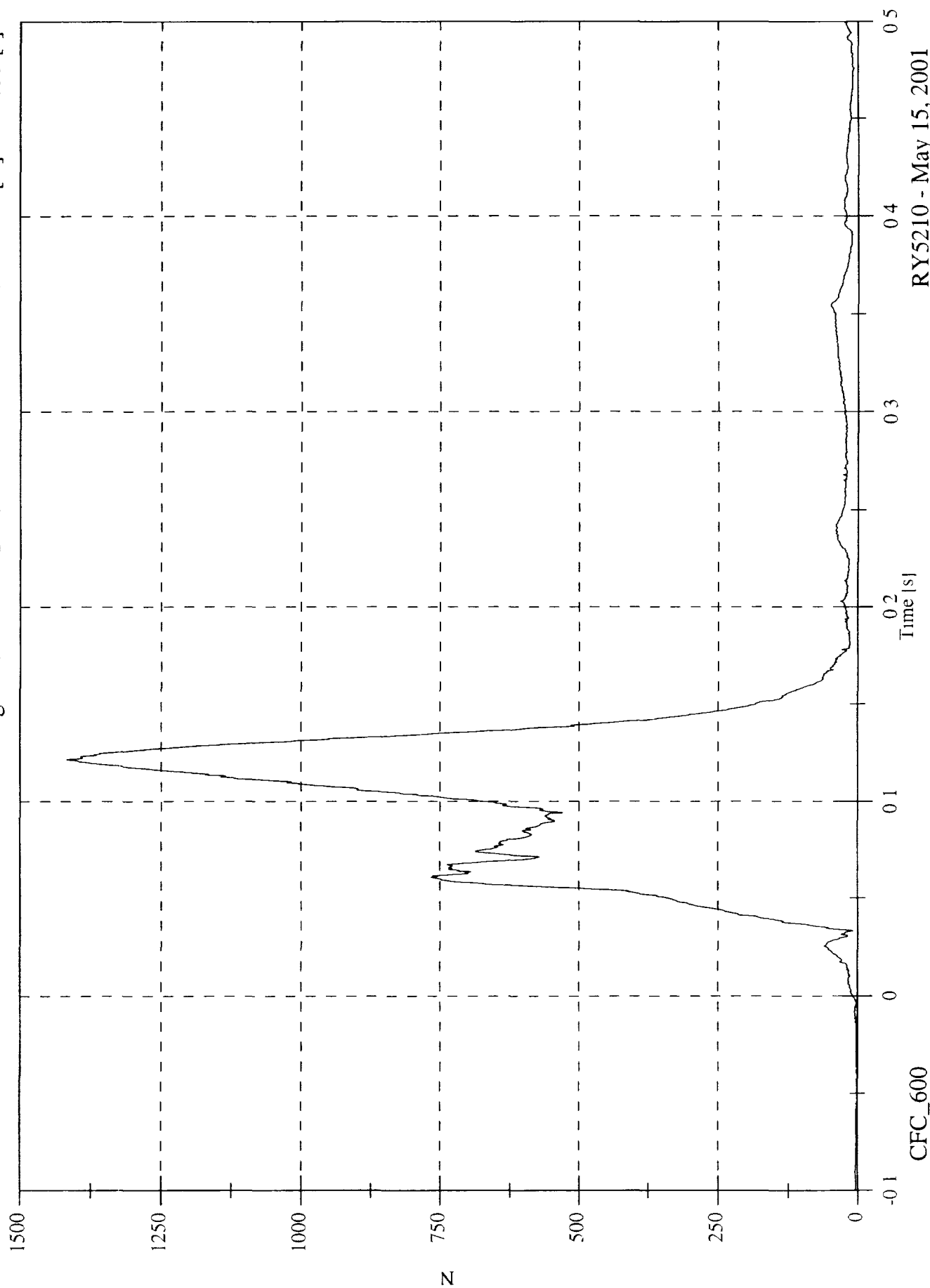
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1416.7 [N] at 0.121 [s]
 Min: 0.1 [N] at -0.053 [s]

P2 Right Lower Tibia F Resultant

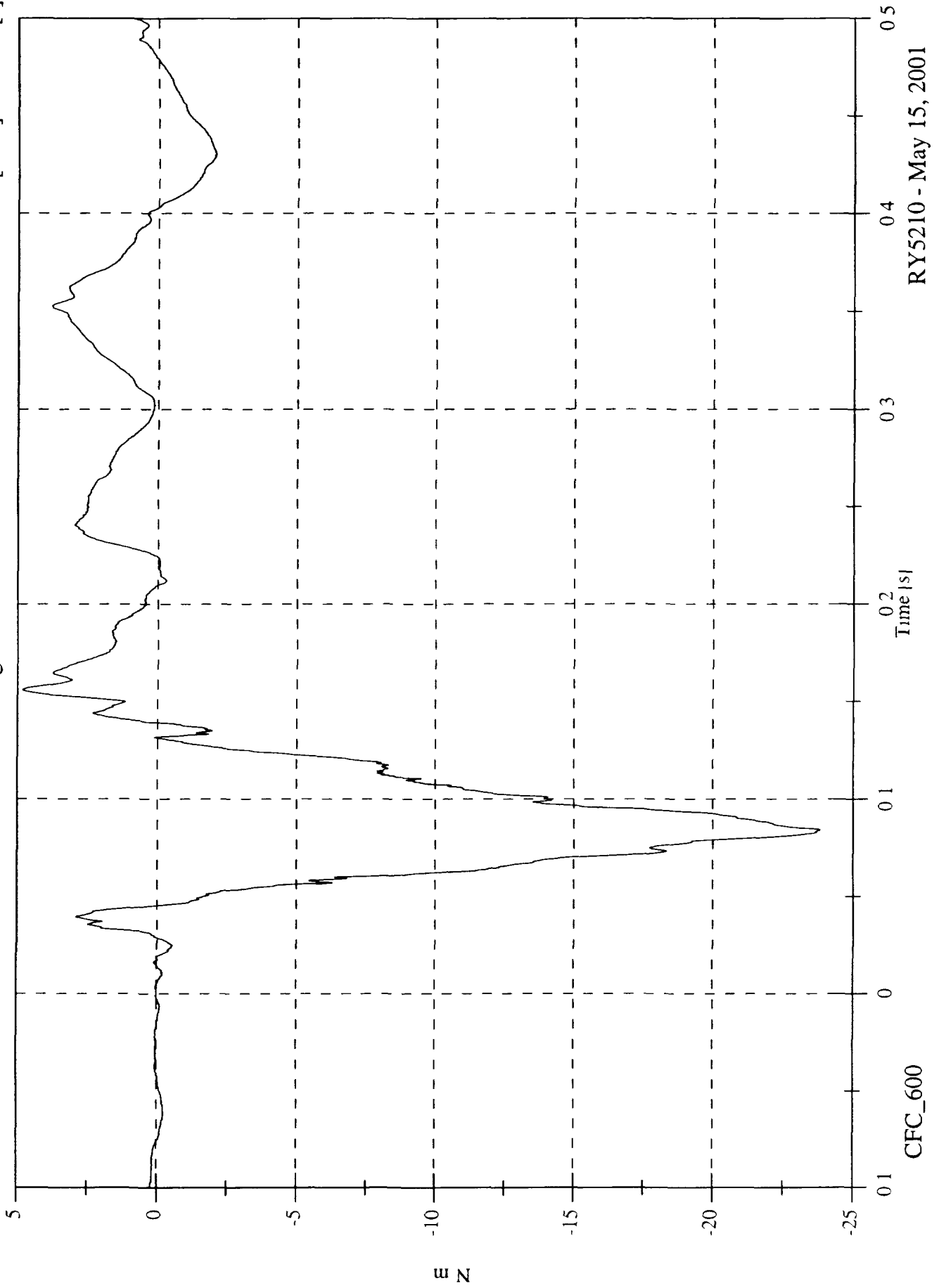


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 4.8 [N-m] at 0.156 [s]
Min: -23.8 [N-m] at 0.084 [s]

P2 Right Lower Tibia Mx

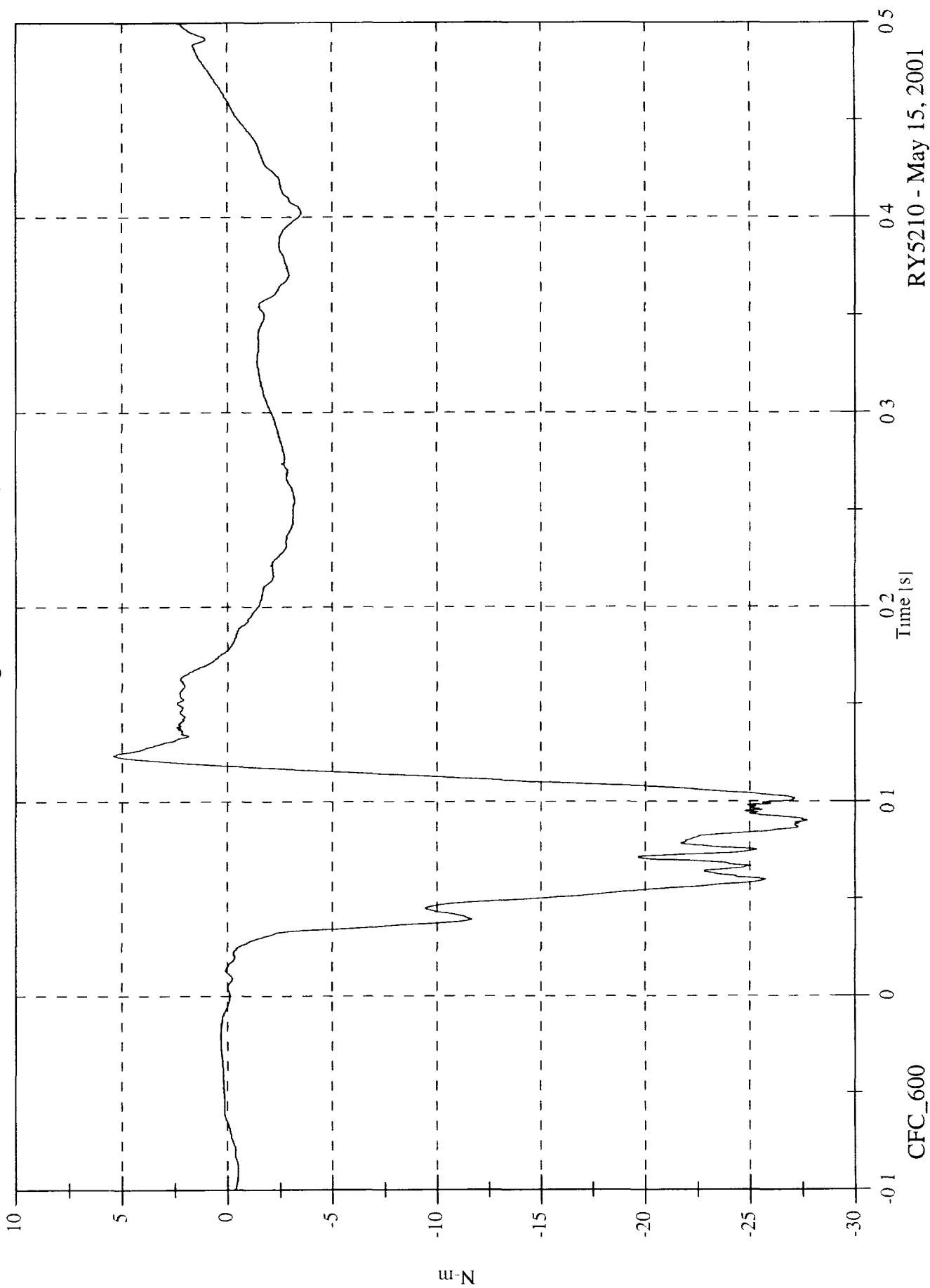


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Right Lower Tibia My

Max: 5.4 [N-m] at 0.124 [s]
Min: -27.7 [N-m] at 0.090 [s]

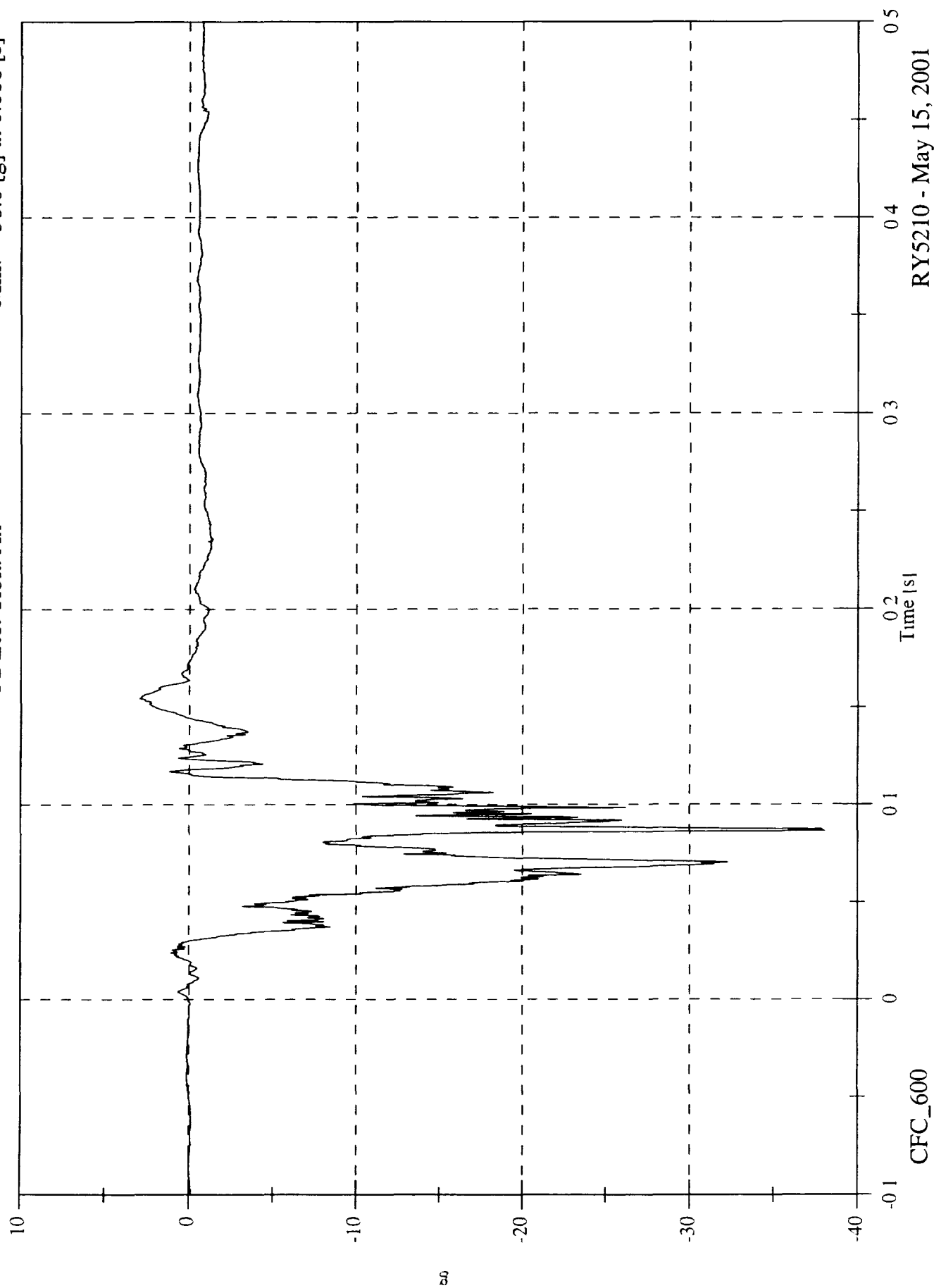


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 2.9 [g] at 0.155 [s]
Min: -38.0 [g] at 0.086 [s]

P2 Left Tibia Ax

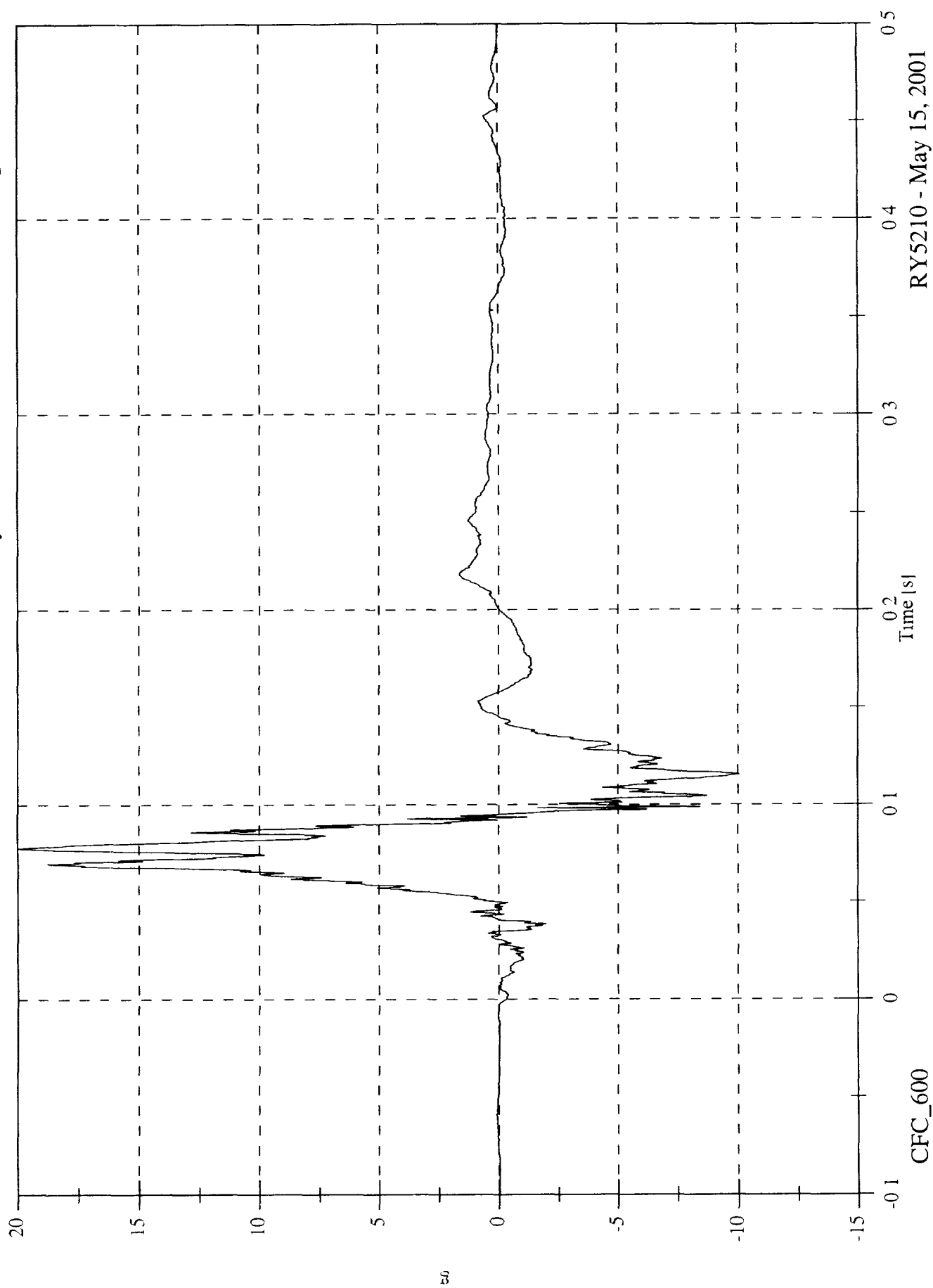


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 20.0 [g] at 0.078 [s]
 Min: -10.1 [g] at 0.115 [s]

P2 Left Tibia Ay

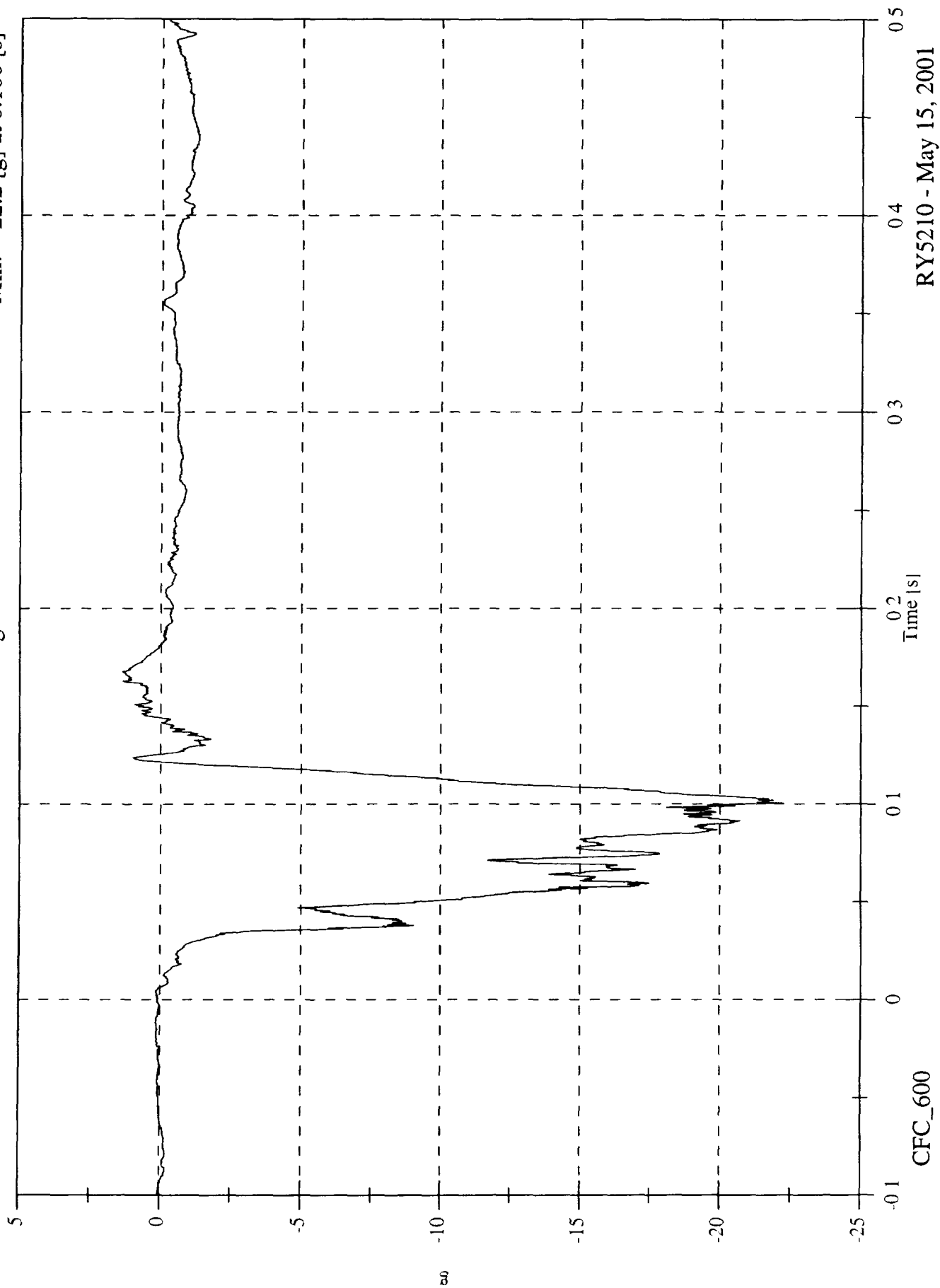


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1.4 [g] at 0.167 [s]
Min: -22.2 [g] at 0.100 [s]

P2 Right Tibia Ax

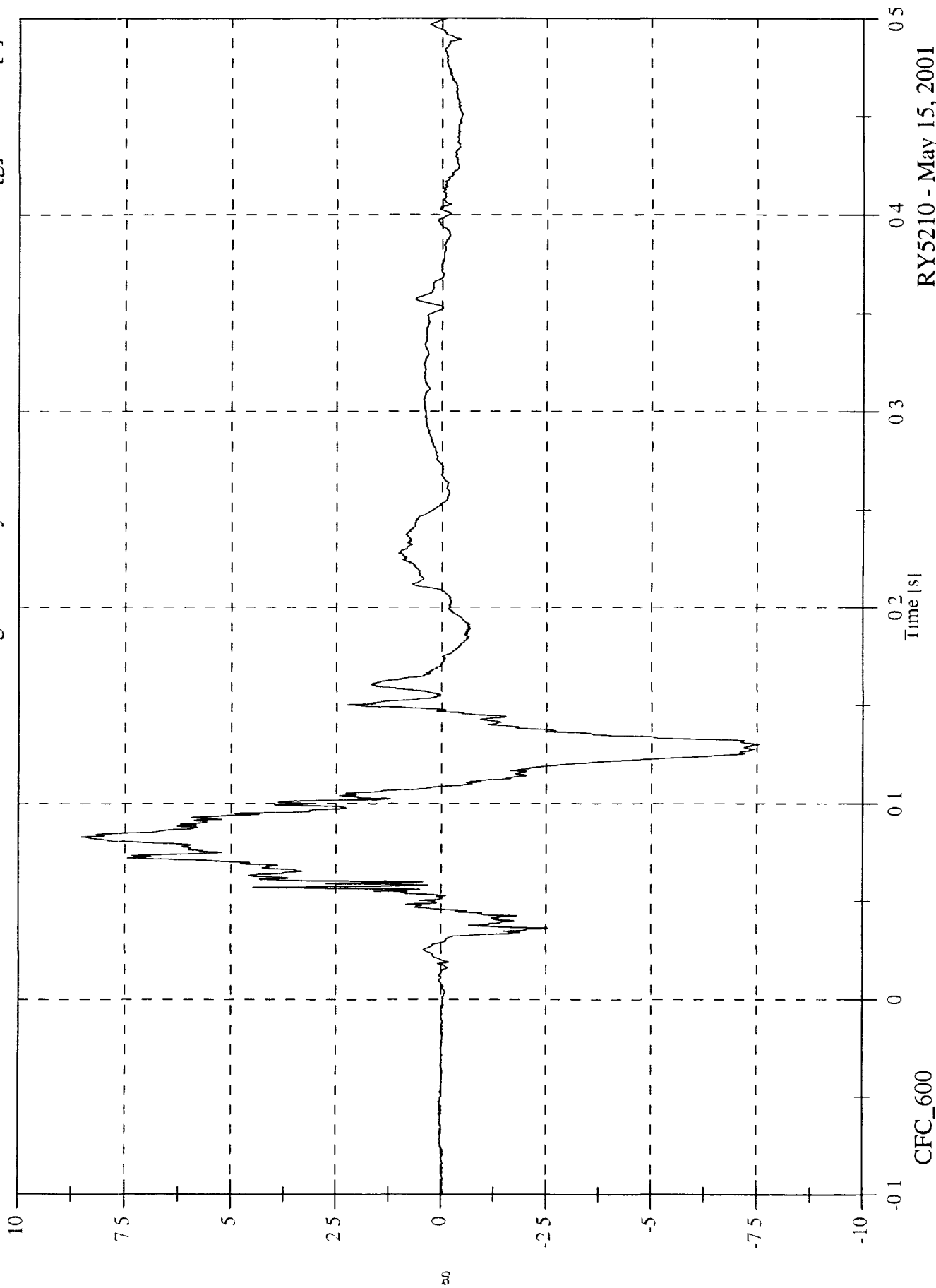


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 8.5 [g] at 0.083 [s]
 Min: -7.5 [g] at 0.130 [s]

P2 Right Tibia Ay



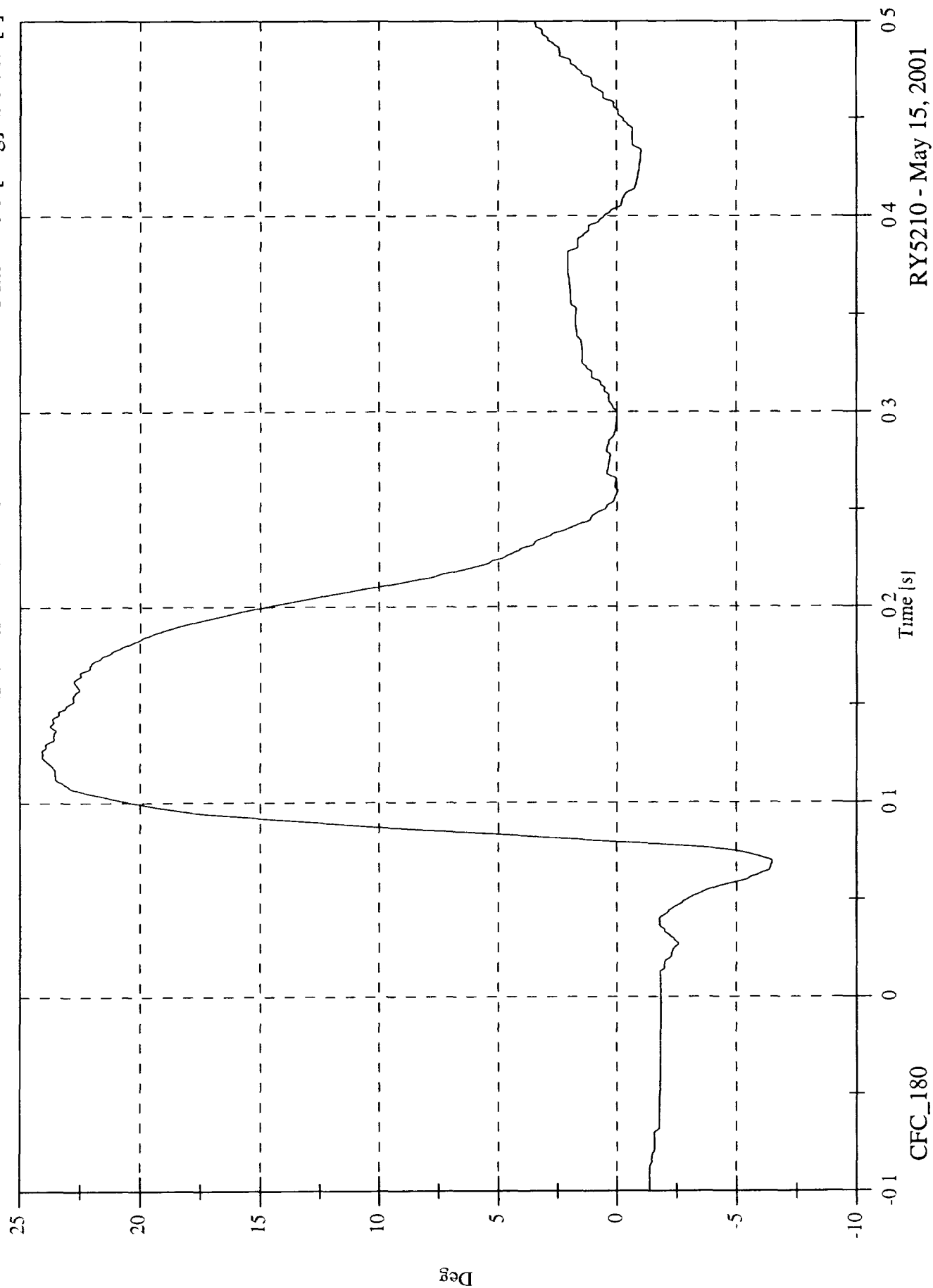
CFC_600

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 24.1 [Deg] at 0.126 [s]
Min: -6.5 [Deg] at 0.069 [s]

P2 Left Ankle Rotation x



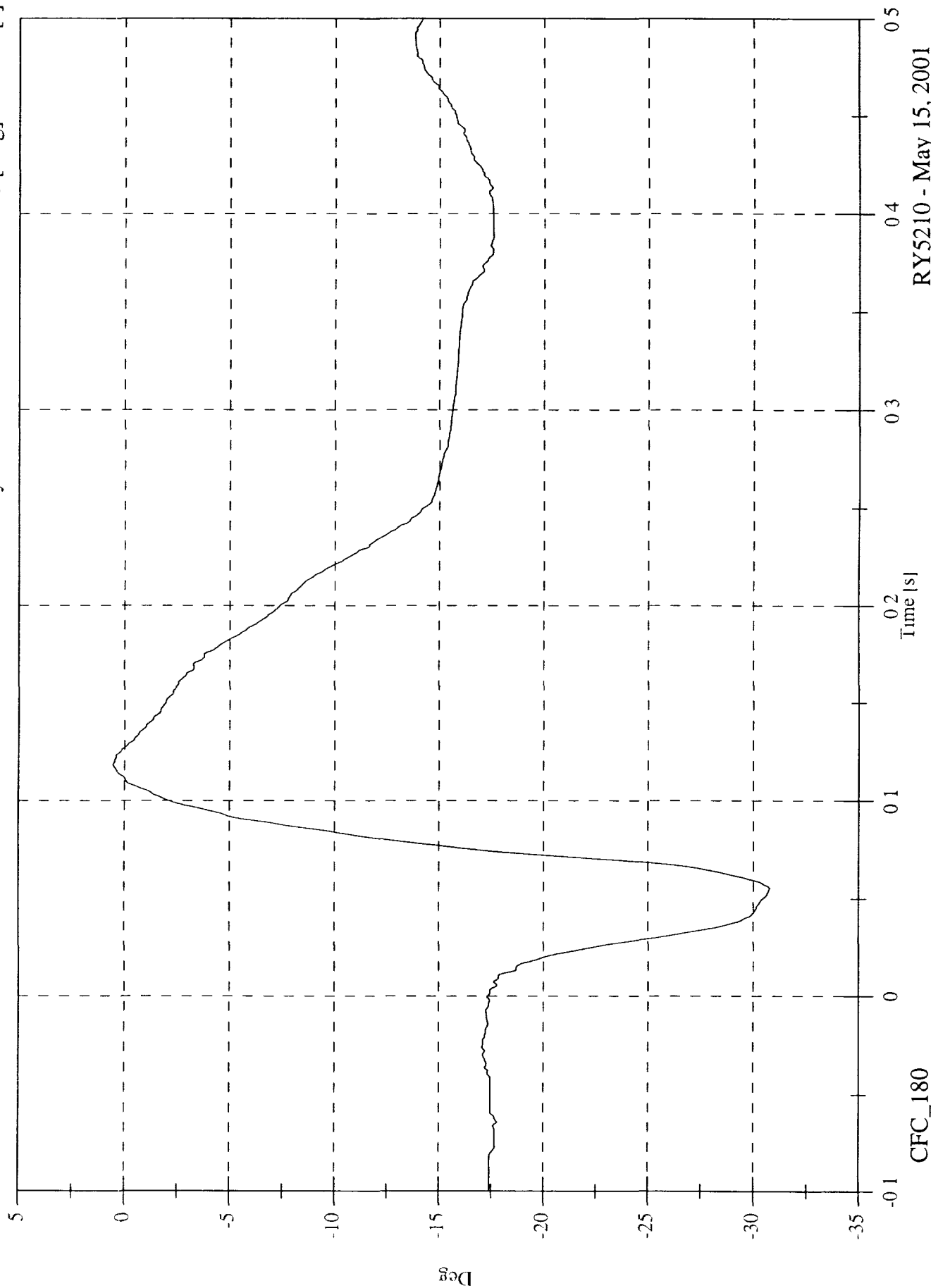
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 0.5 [Deg] at 0.118 [s]
Min: -30.8 [Deg] at 0.055 [s]

P2 Left Ankle Rotation y



CFC_180

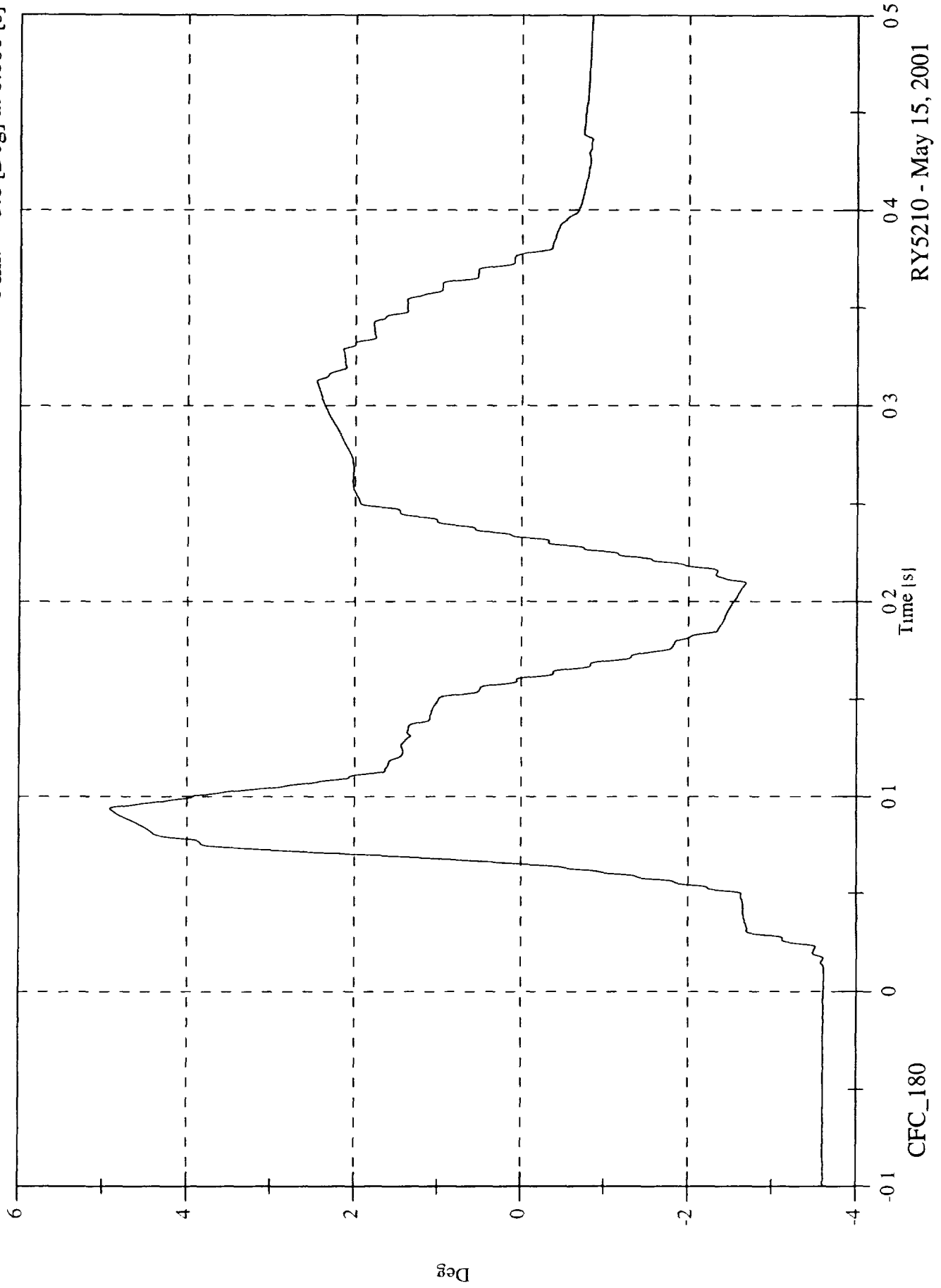
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 4.9 [Deg] at 0.094 [s]
Min: -3.6 [Deg] at 0.006 [s]

P2 Left Ankle Rotation z

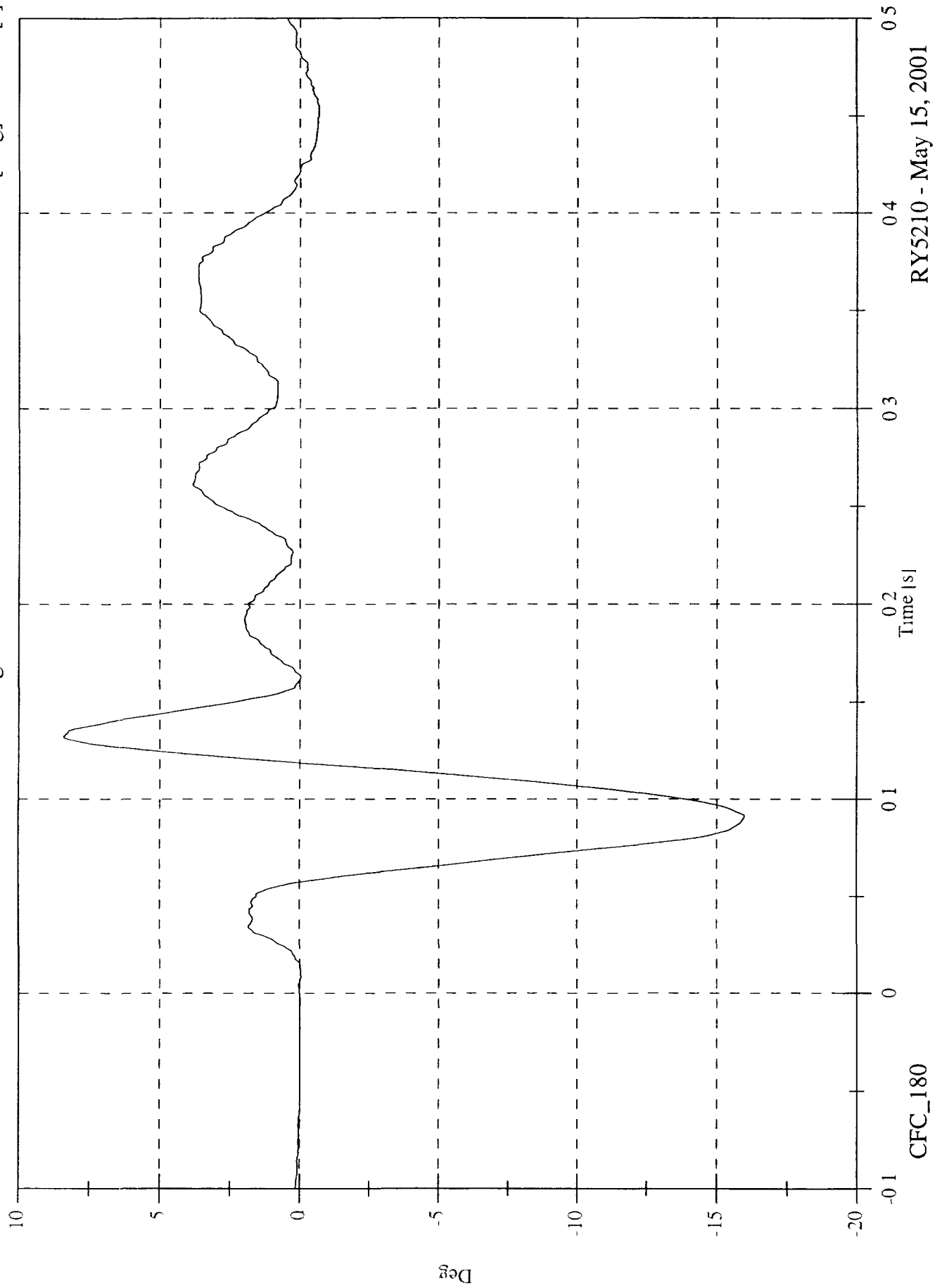


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 8.4 [Deg] at 0.132 [s]
Min -16.0 [Deg] at 0.091 [s]

P2 Right Ankle Rotation x



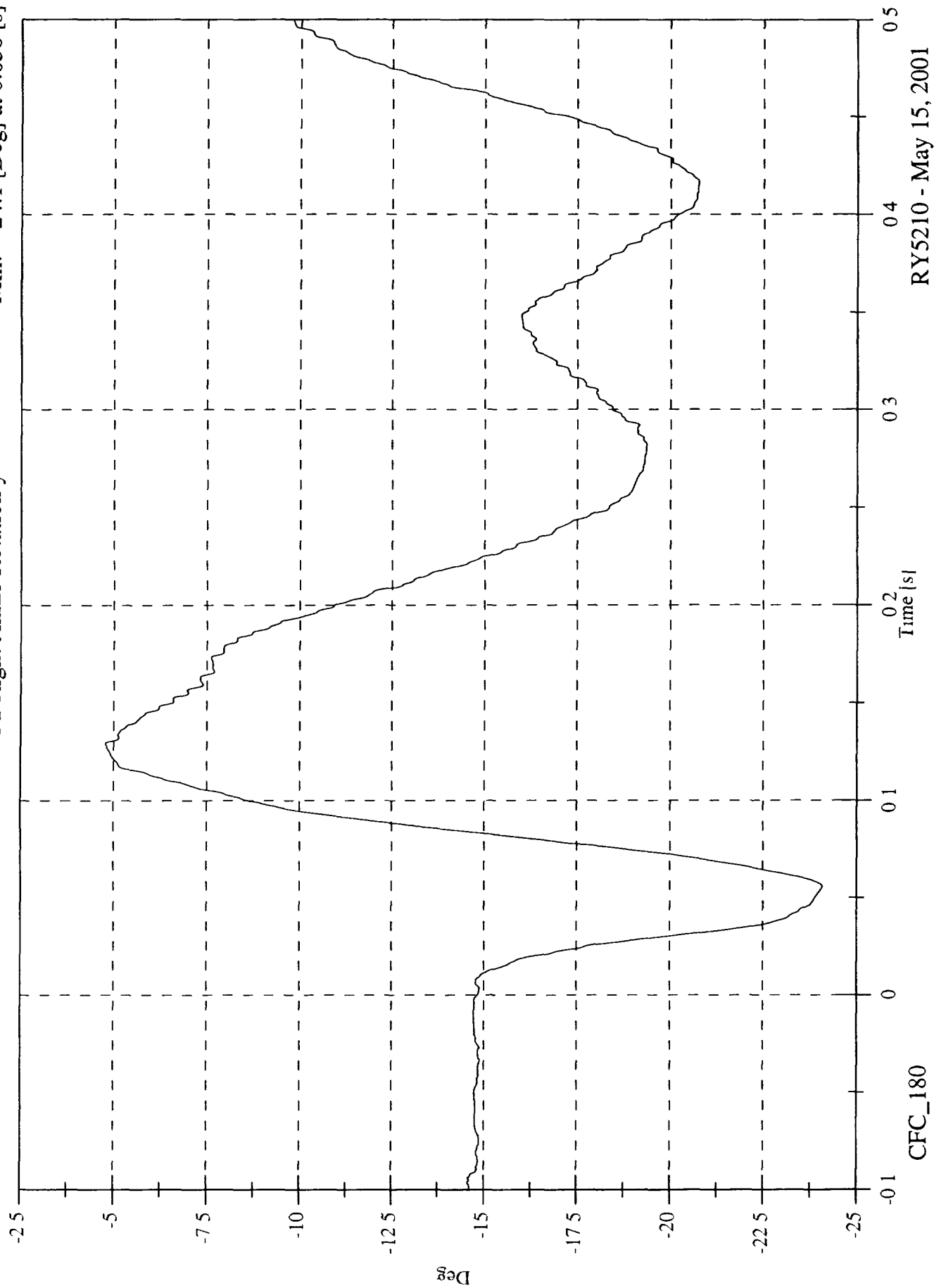
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: -4.8 [Deg] at 0.129 [s]
Min: -24.1 [Deg] at 0.056 [s]

P2 Right Ankle Rotation y

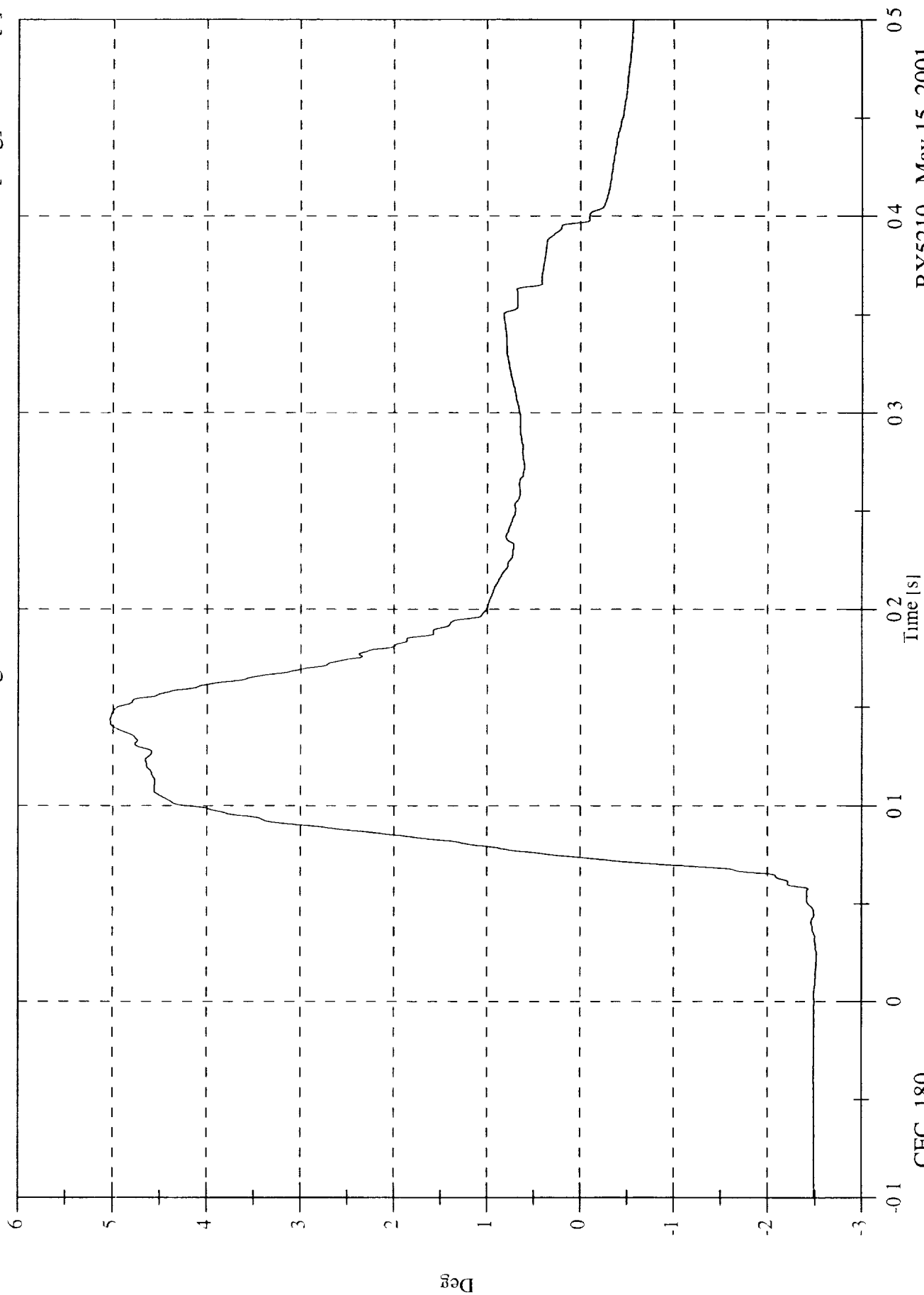


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 5.0 [Deg] at 0.143 [s]
Min: -2.5 [Deg] at 0.024 [s]

P2 Right Ankle Rotation z



CFC_180

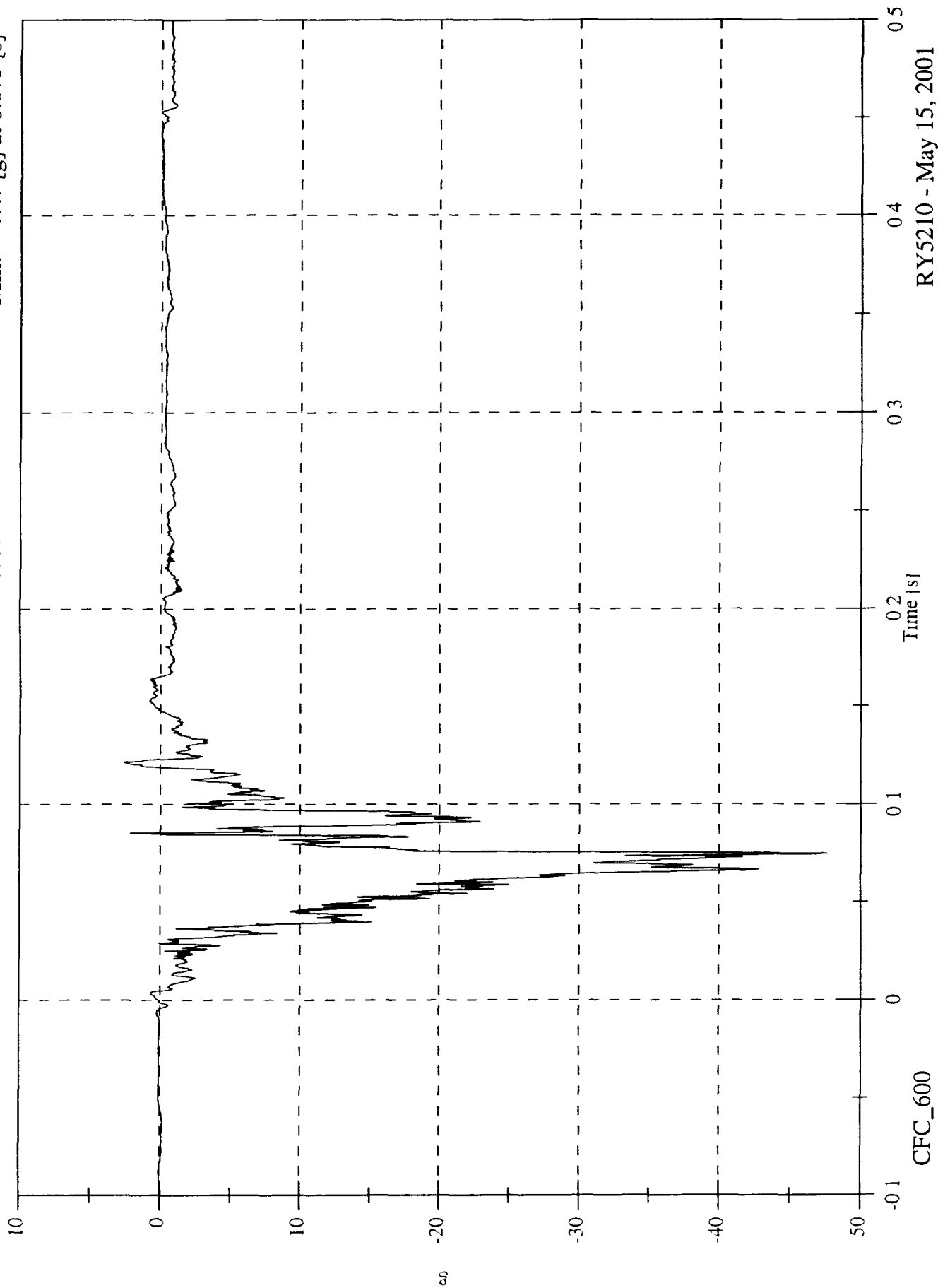
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 2.6 [g] at 0.121 [s]
Min. -47.7 [g] at 0.075 [s]

P2 Left Foot Ax

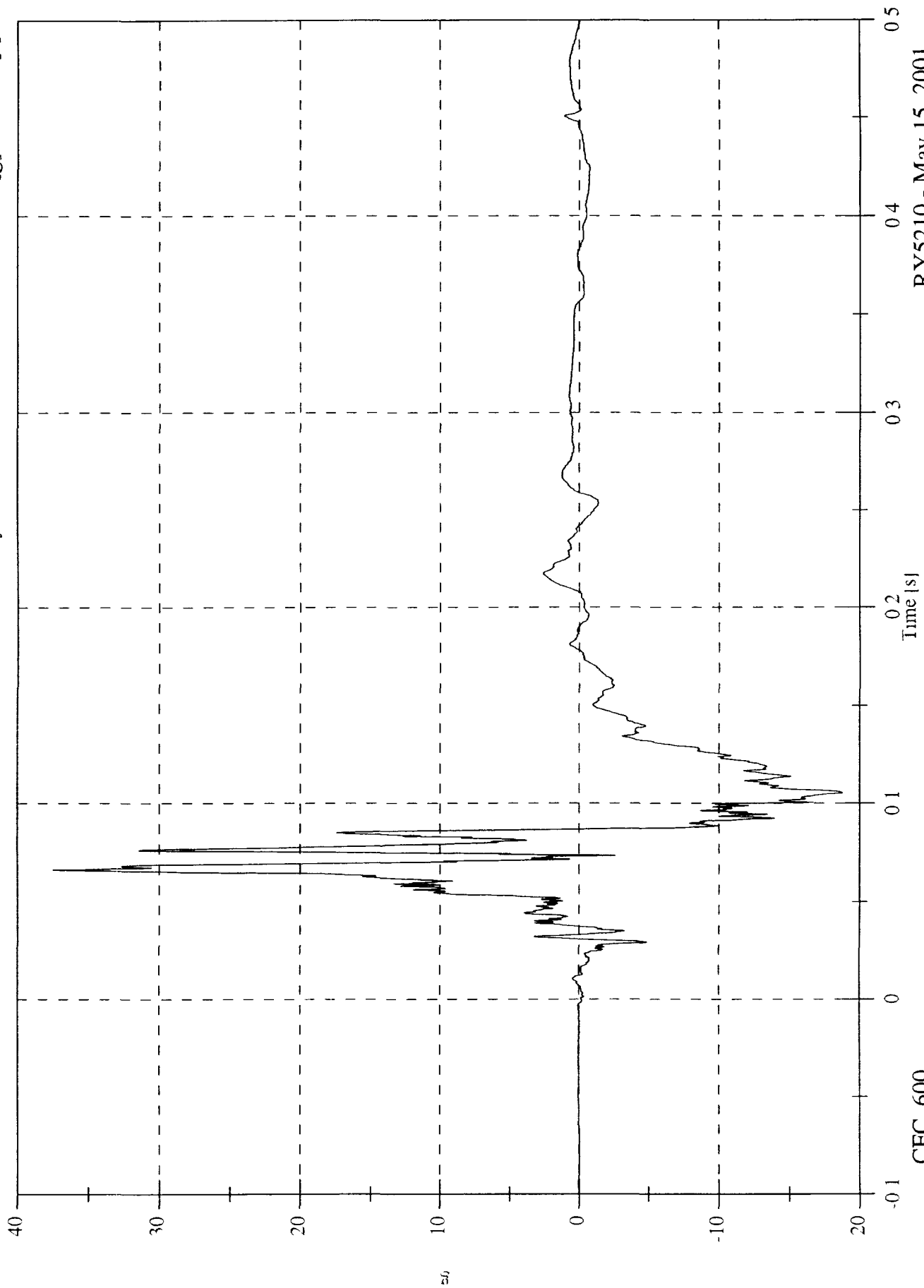


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 37.5 [g] at 0.066 [s]
 Min: -18.8 [g] at 0.105 [s]

P2 Left Foot Ay

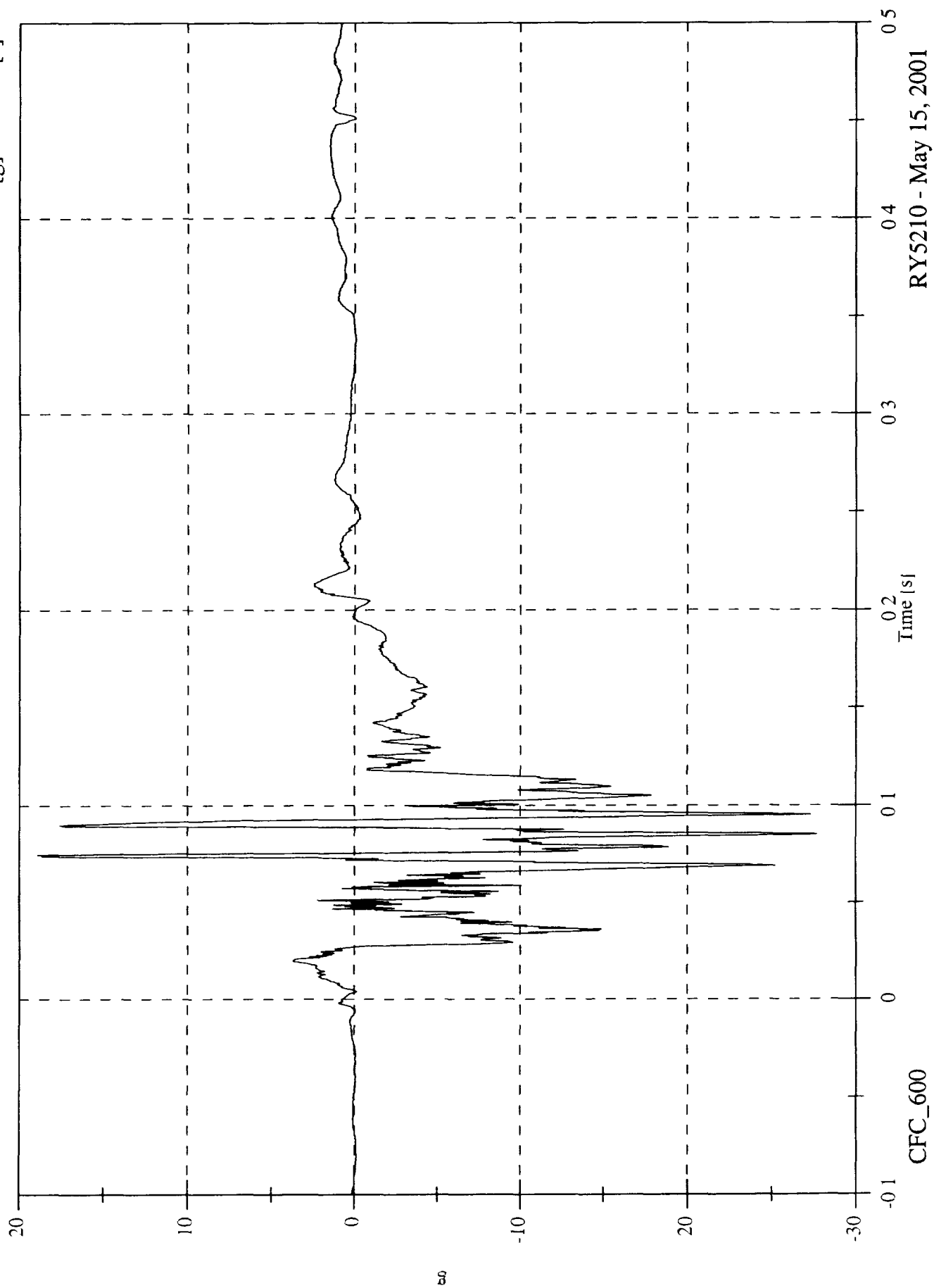


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 18.9 [g] at 0.075 [s]
Min: -27.7 [g] at 0.085 [s]

P2 Left Foot Az



CFC_600

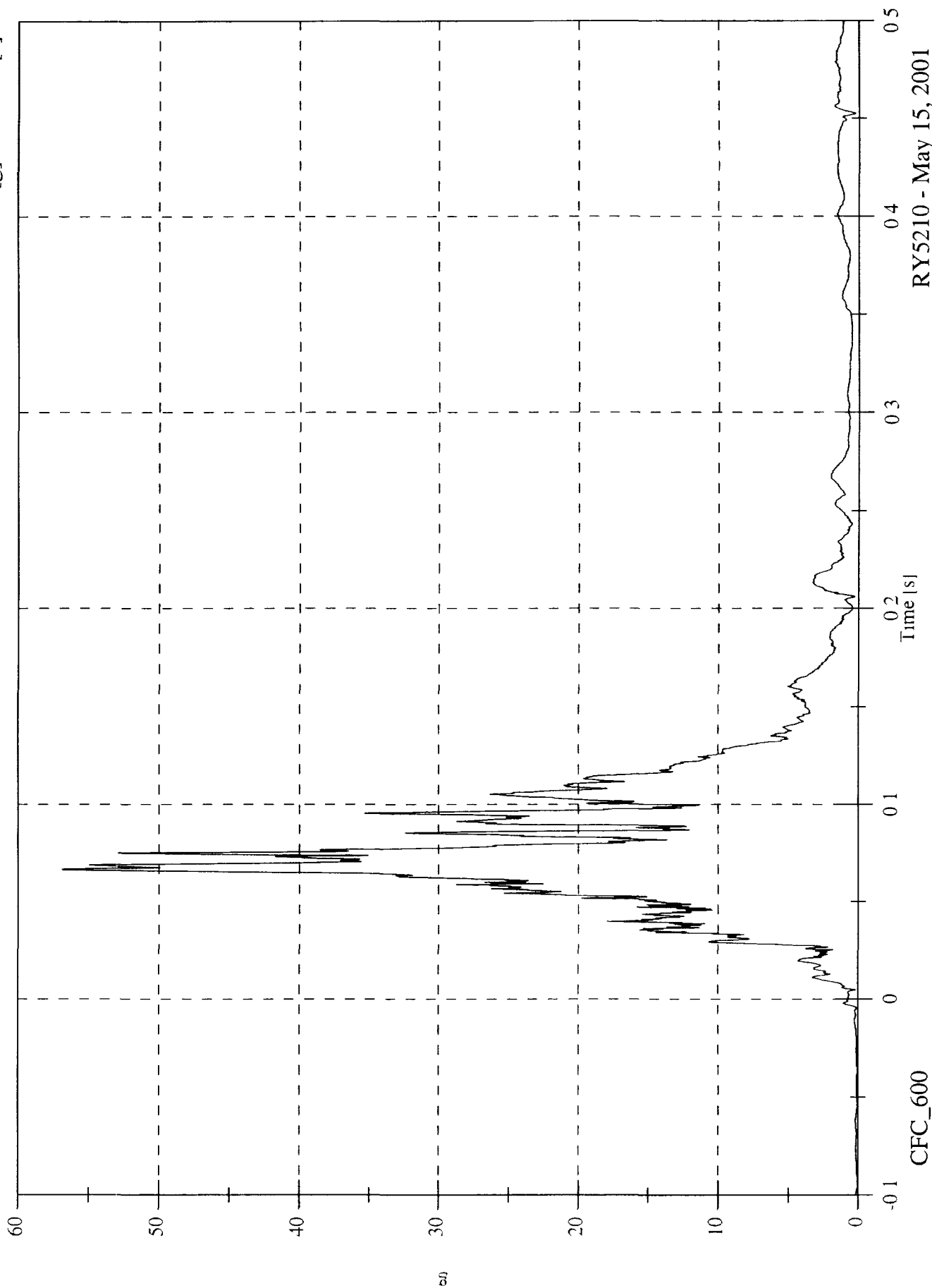
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 56.9 [g] at 0.067 [s]
 Min: 0.0 [g] at -0.100 [s]

P2 Left Foot A Resultant

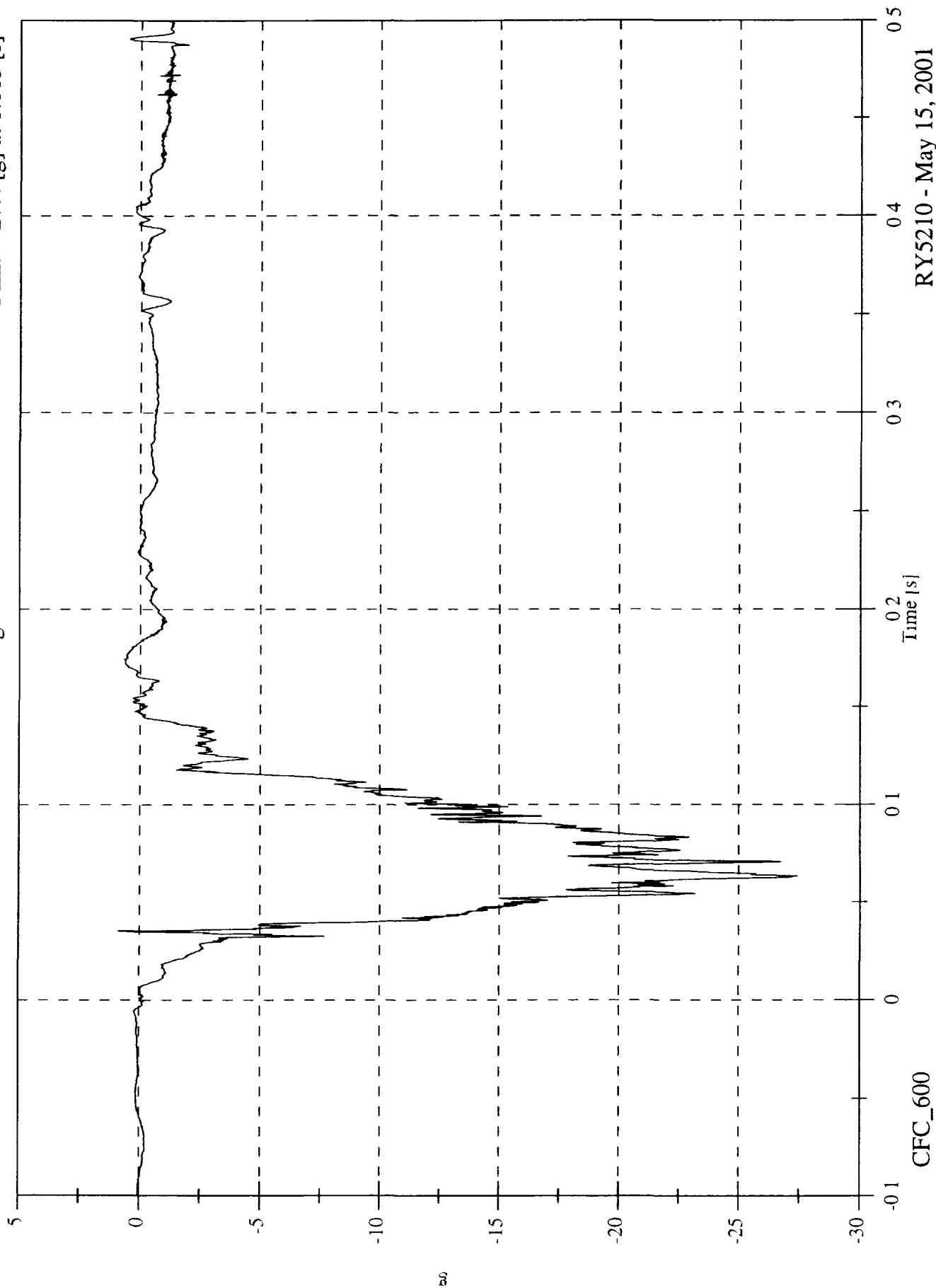


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 0.9 [g] at 0.035 [s]
Min: -27.4 [g] at 0.063 [s]

P2 Right Foot Ax

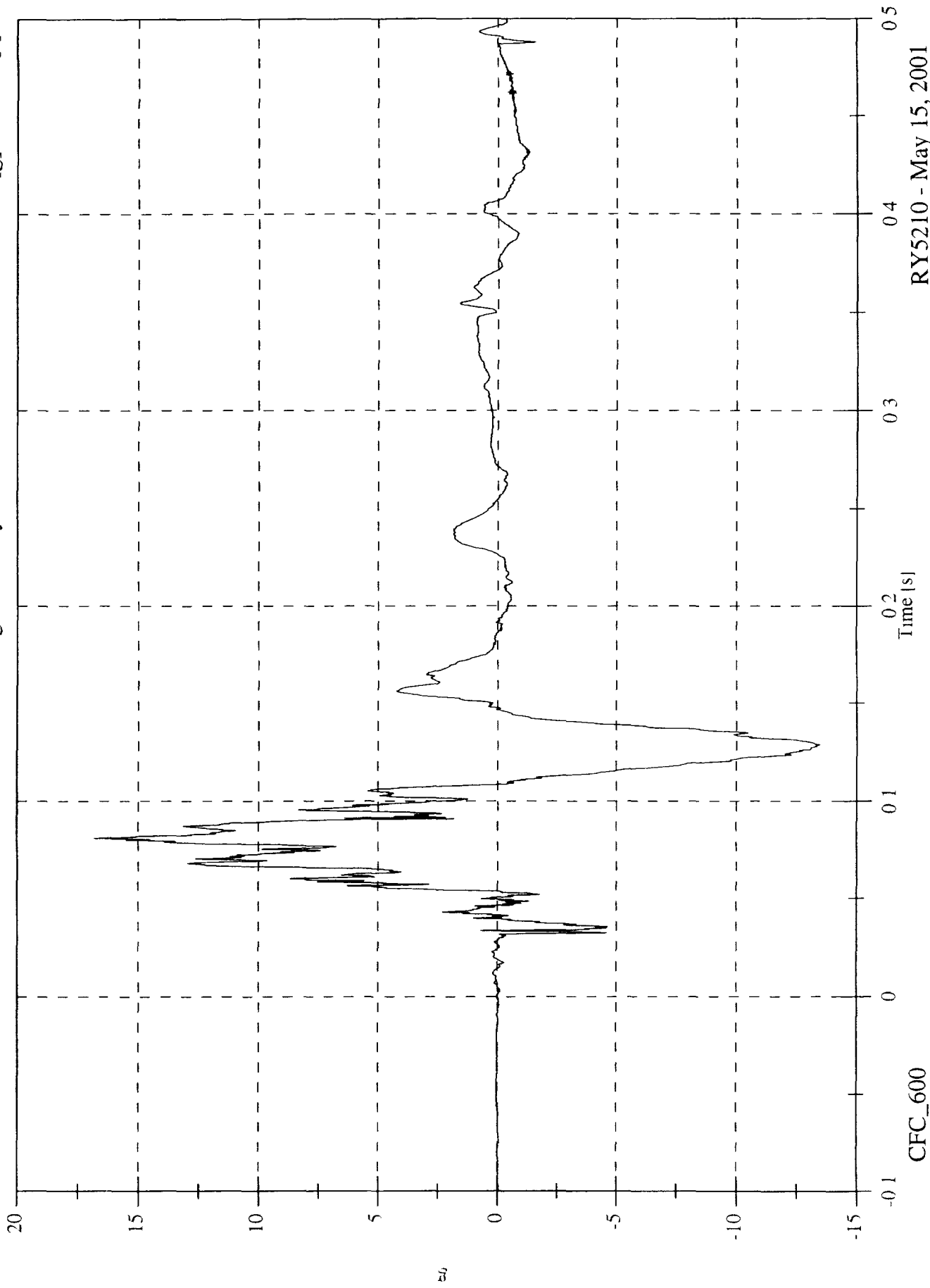


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 16.8 [g] at 0.081 [s]
 Min: -13.5 [g] at 0.128 [s]

P2 Right Foot Ay

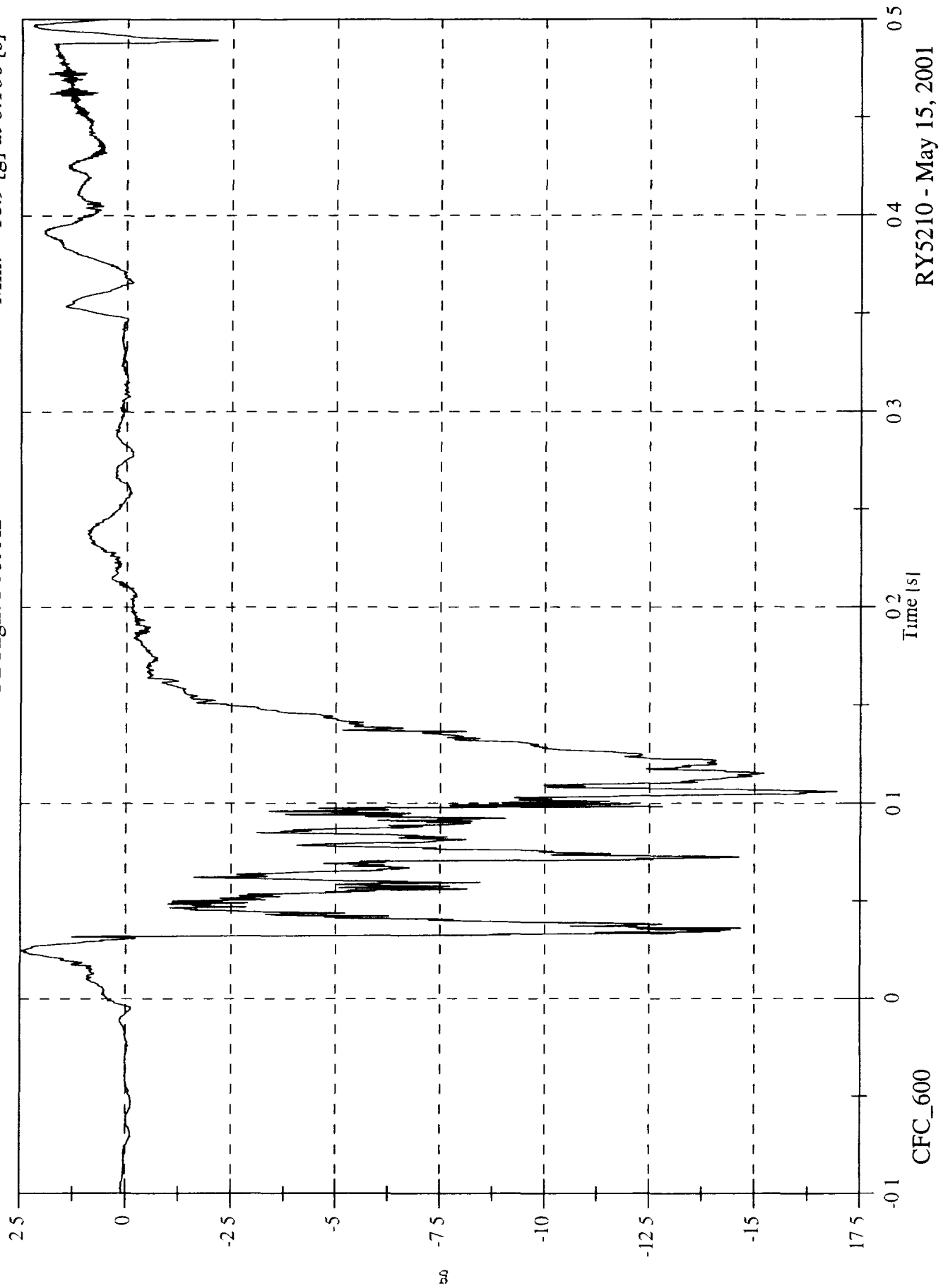


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 2.5 [g] at 0.025 [s]
Min: -16.9 [g] at 0.106 [s]

P2 Right Foot Az

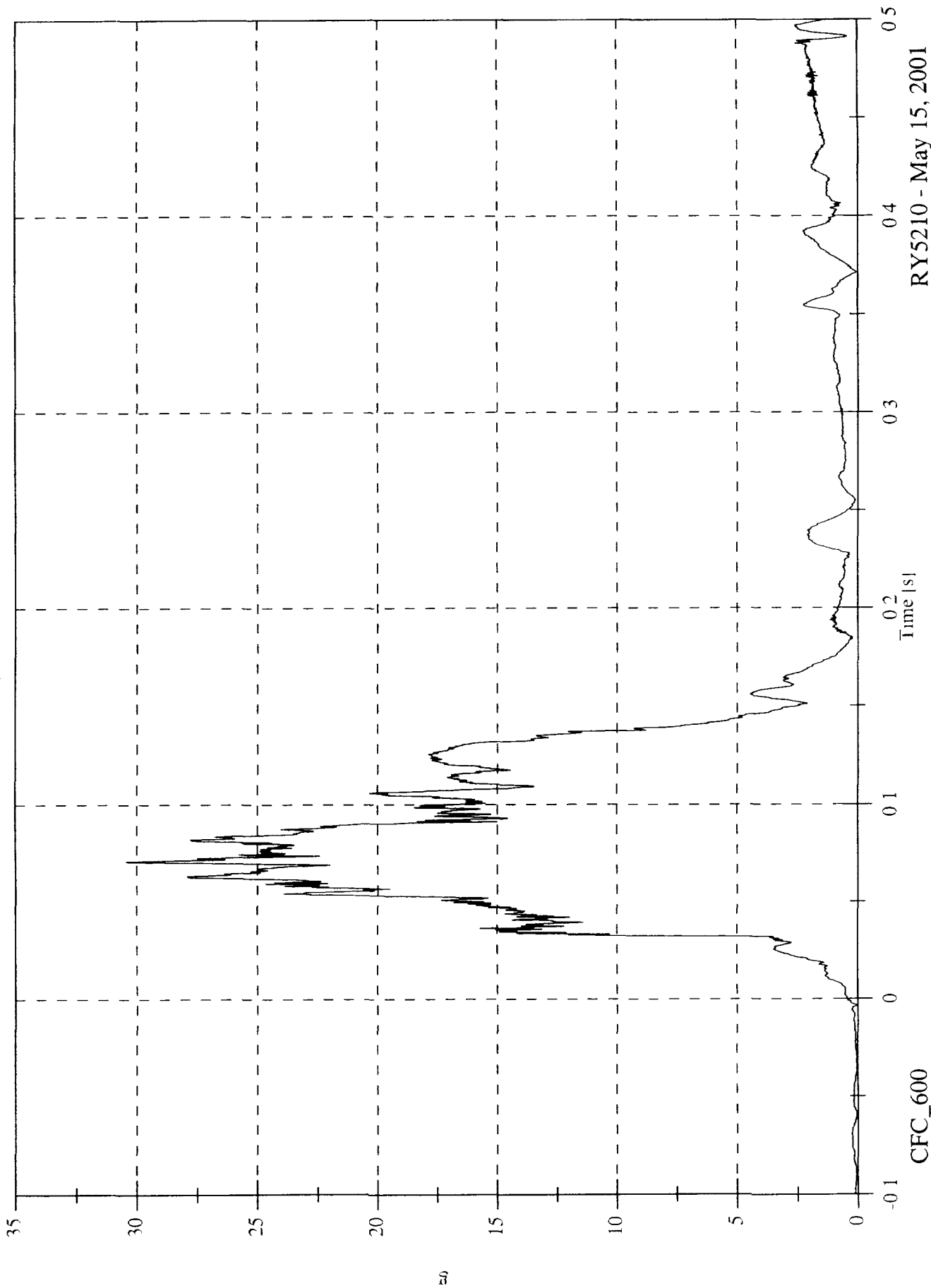


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

P2 Right Foot A Resultant

Max: 30.4 [g] at 0.071 [s]
Min: 0.0 [g] at -0.100 [s]

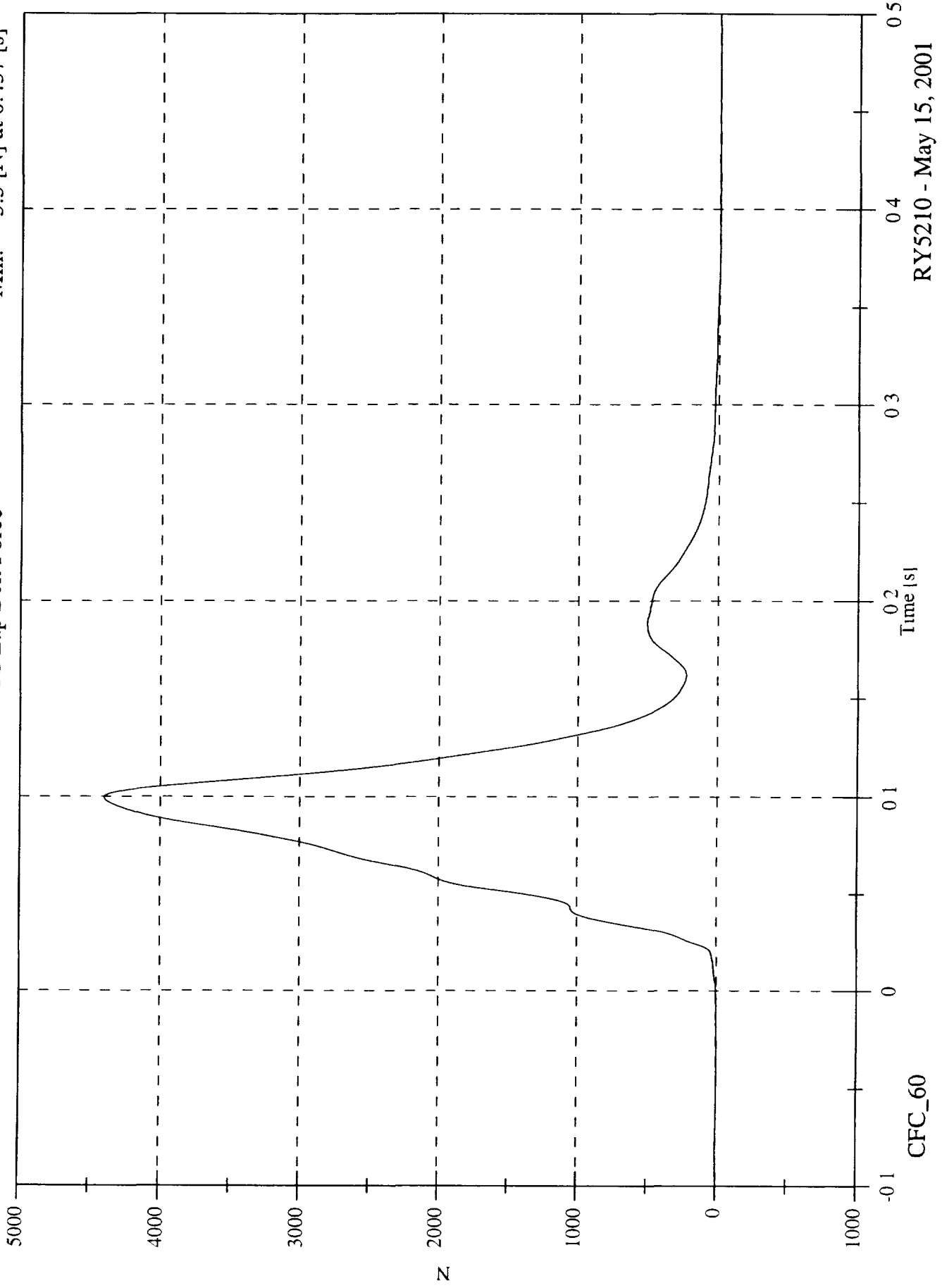


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 4399.4 [N] at 0.100 [s]
Min: -5.5 [N] at 0.437 [s]

P2 Lap Belt Force

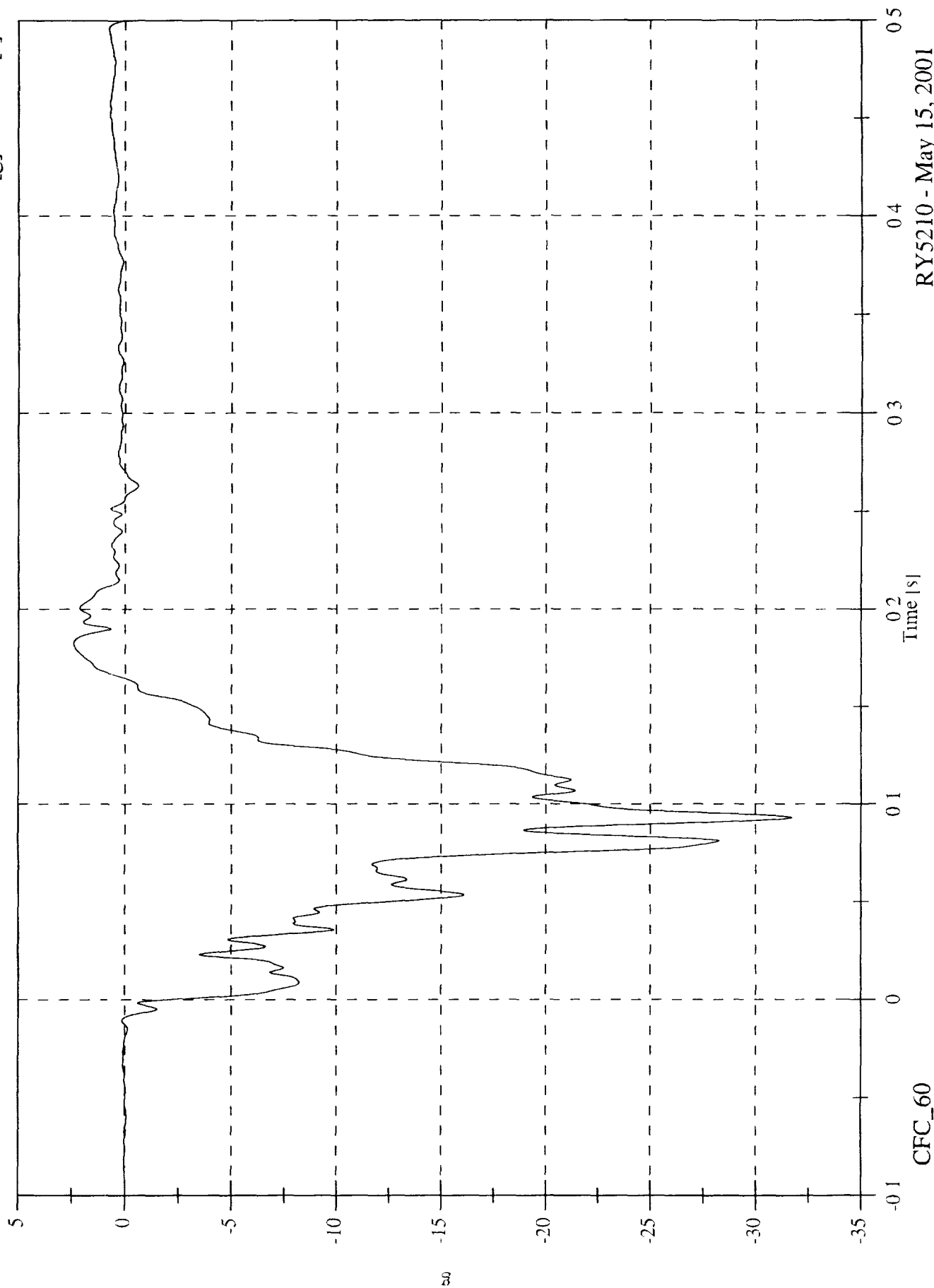


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Acc 1 Rear XMBR Left X

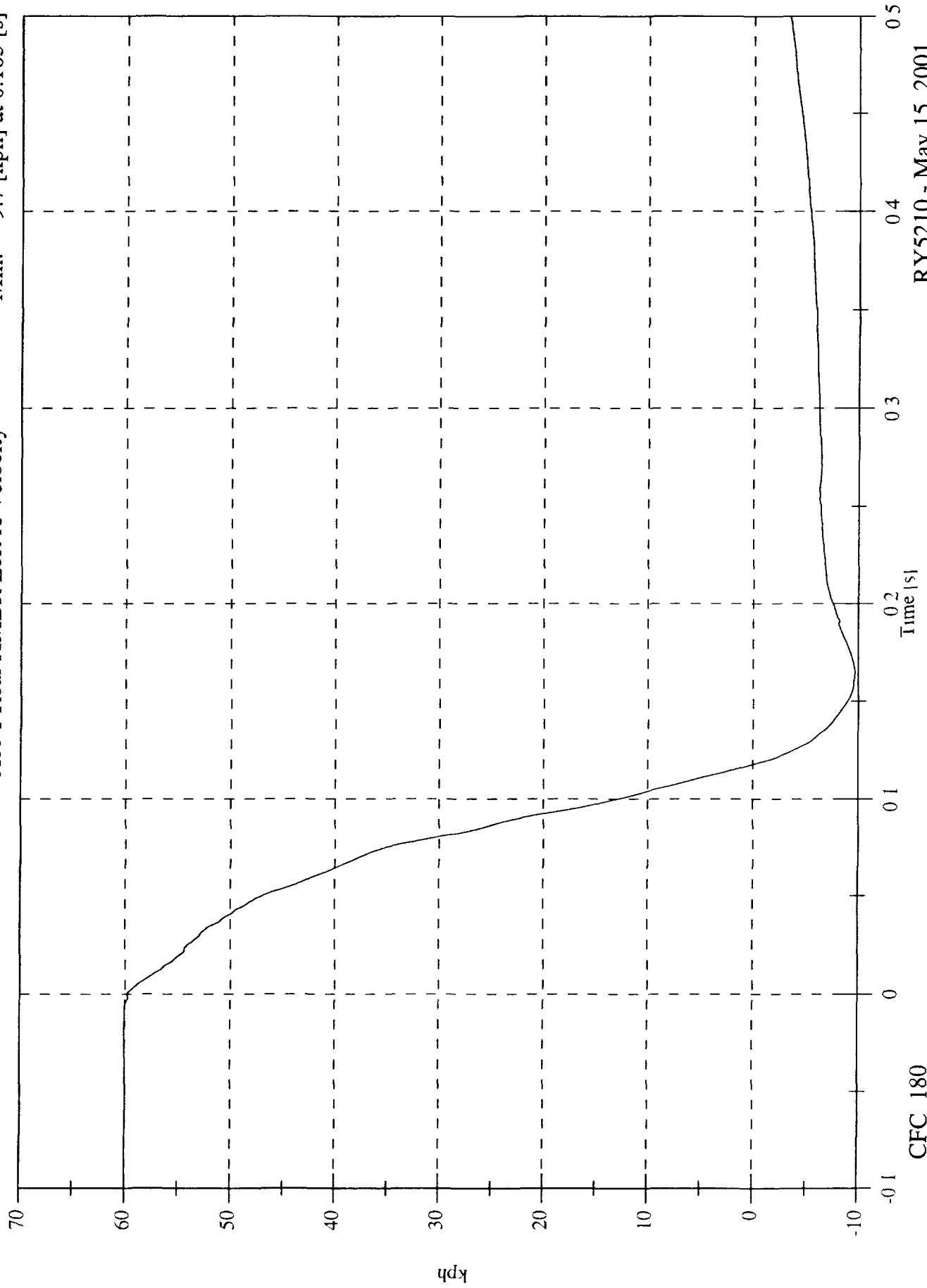
Max. 2.4 [g] at 0.182 [s]
Min: -31.7 [g] at 0.093 [s]



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 60.0 [kph] at -0.019 [s]
Min: -9.7 [kph] at 0.165 [s]

Acc 1 Rear XMBR Left X Velocity

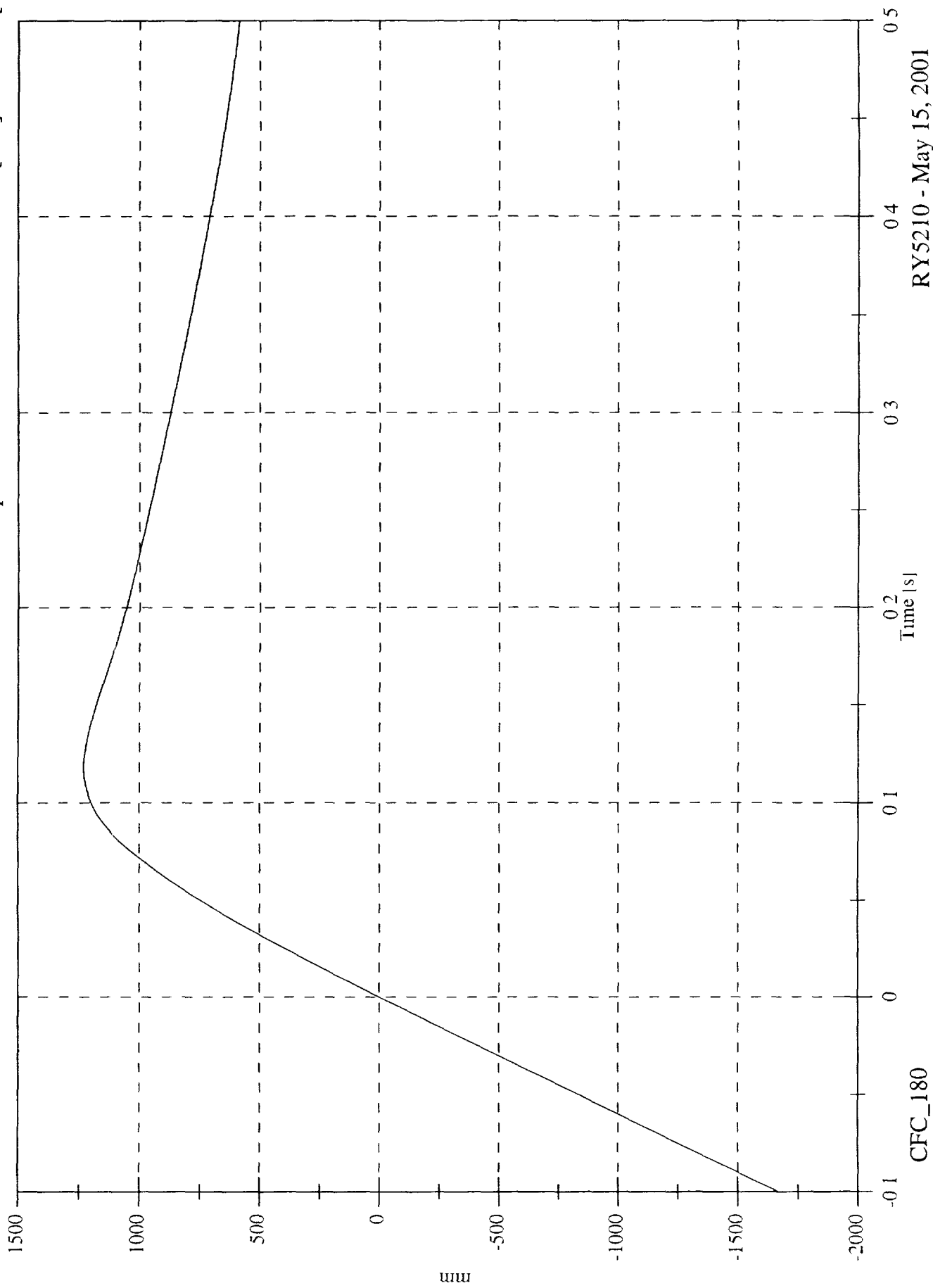


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1229.9 [mm] at 0.118 [s]
Min: -1667.0 [mm] at -0.100 [s]

Acc 1 Rear XMBR Left X Displacement



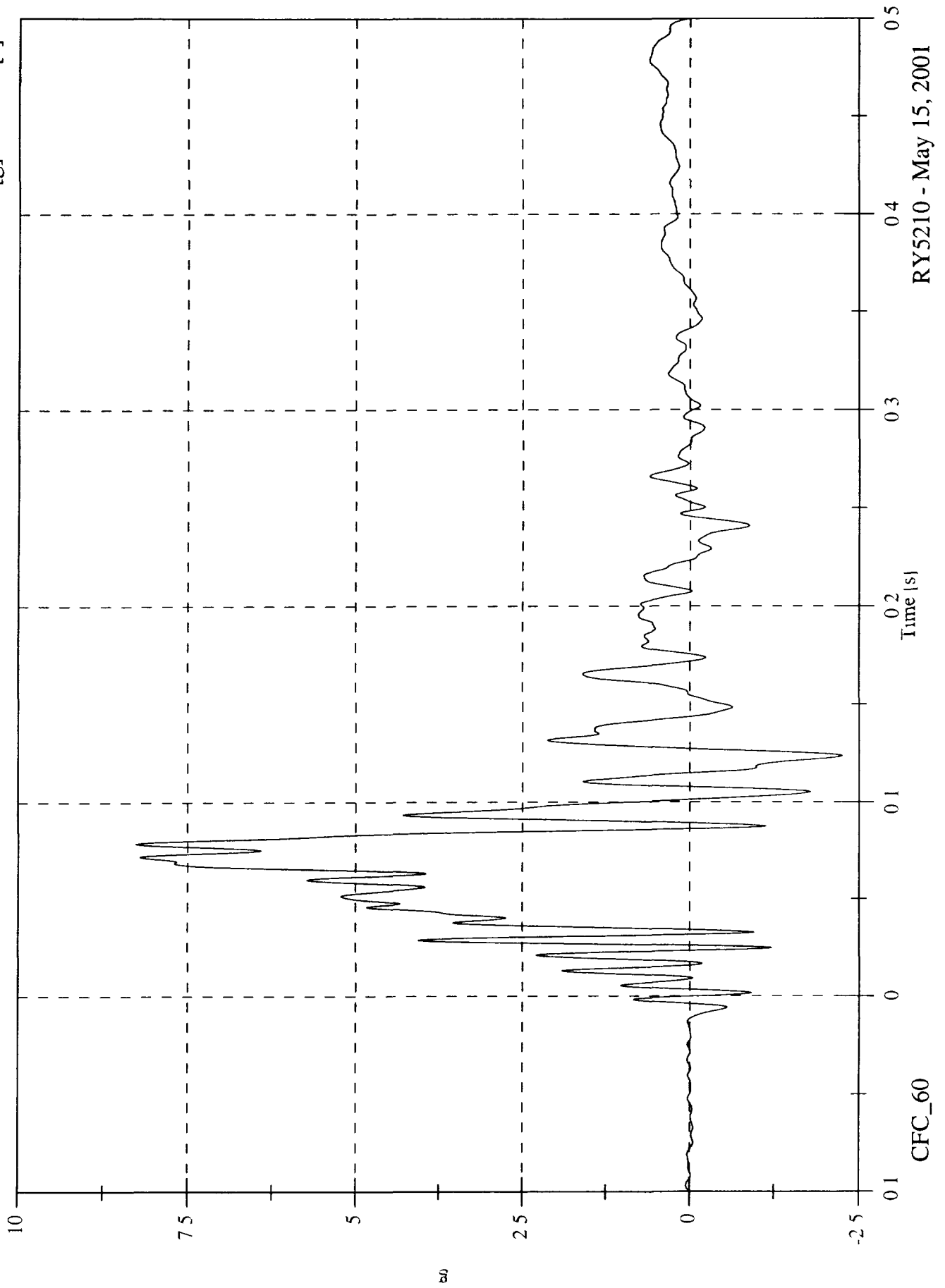
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Acc 2 Rear XMBR Left Y

Max: 8.3 [g] at 0.079 [s]
Min: -2.2 [g] at 0.124 [s]

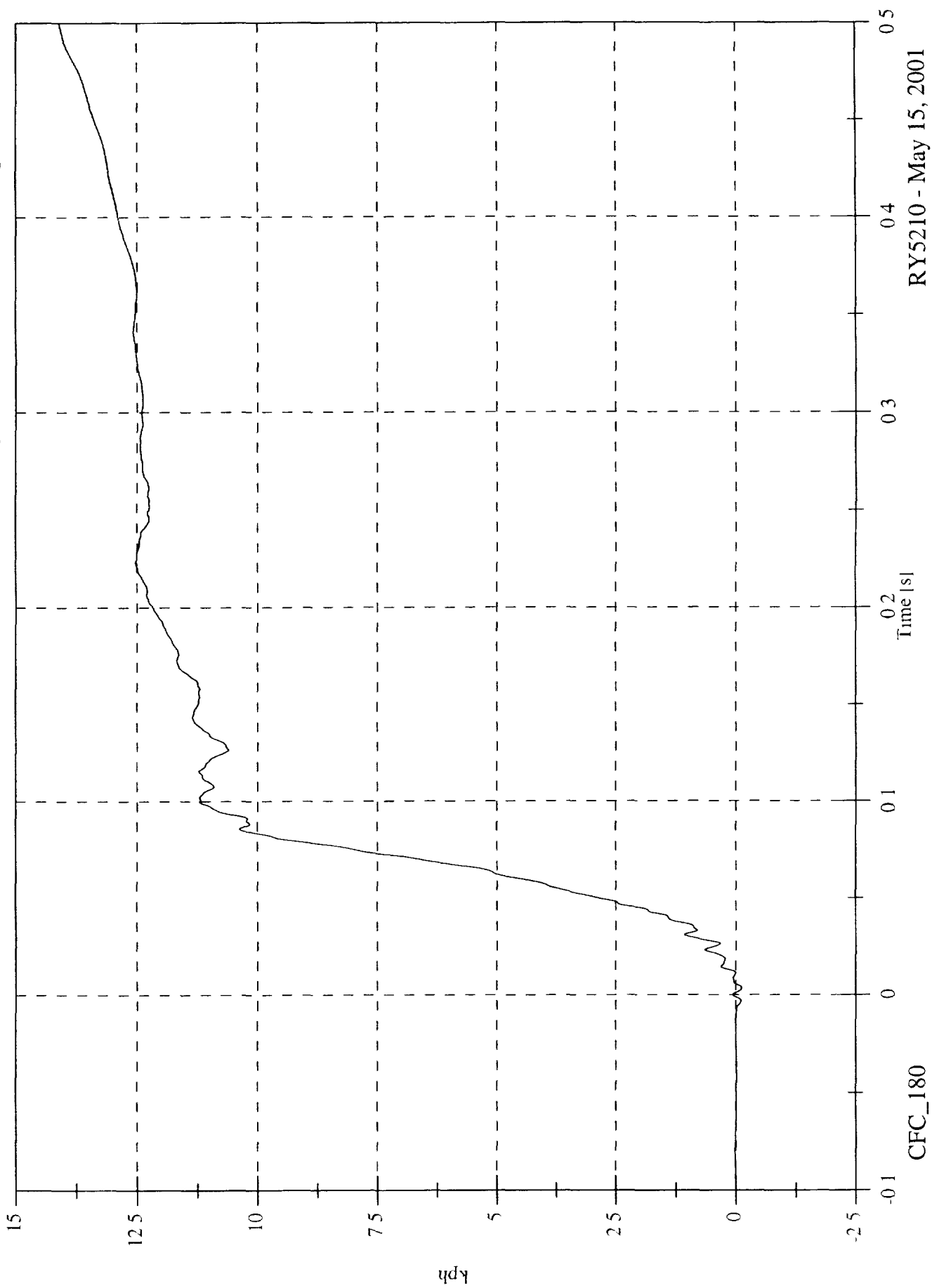


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

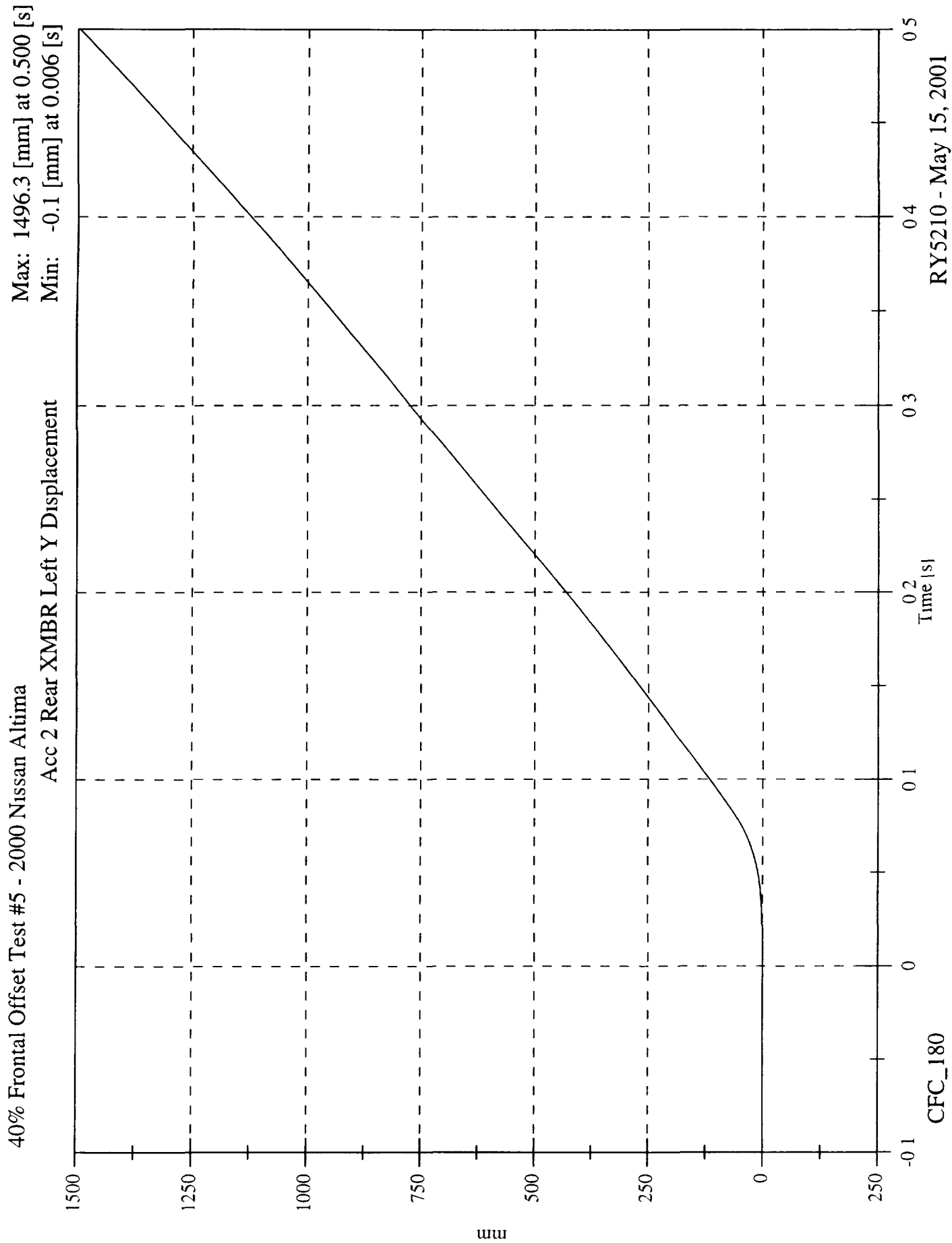
Max: 14.1 [kph] at 0.500 [s]
Min: -0.1 [kph] at 0.003 [s]

Acc 2 Rear XMBR Left Y Velocity



CFC_180

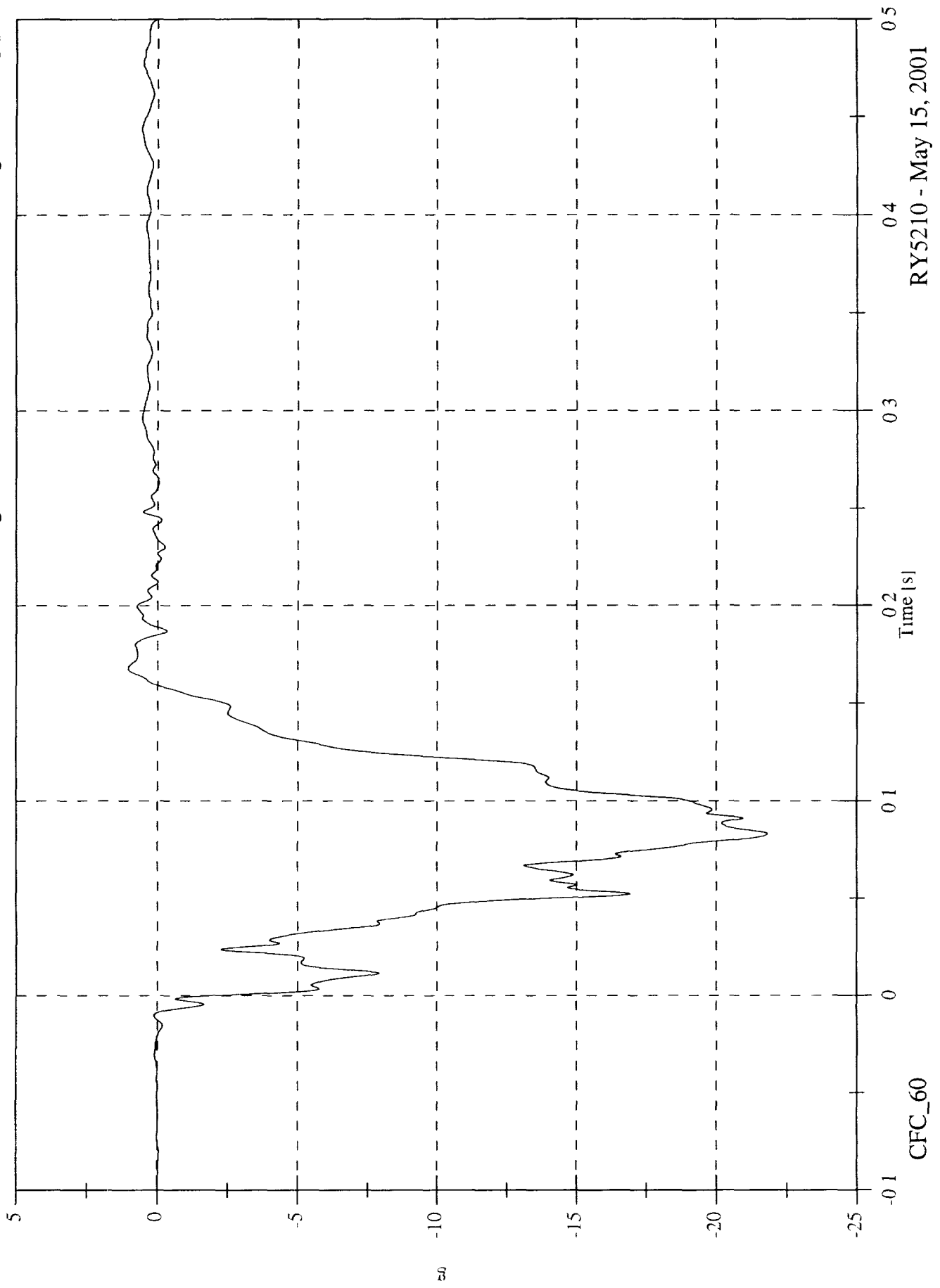
RY5210 - May 15, 2001



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1.0 [g] at 0.167 [s]
Min: -21.8 [g] at 0.083 [s]

Acc 3 Rear XMBR Right X

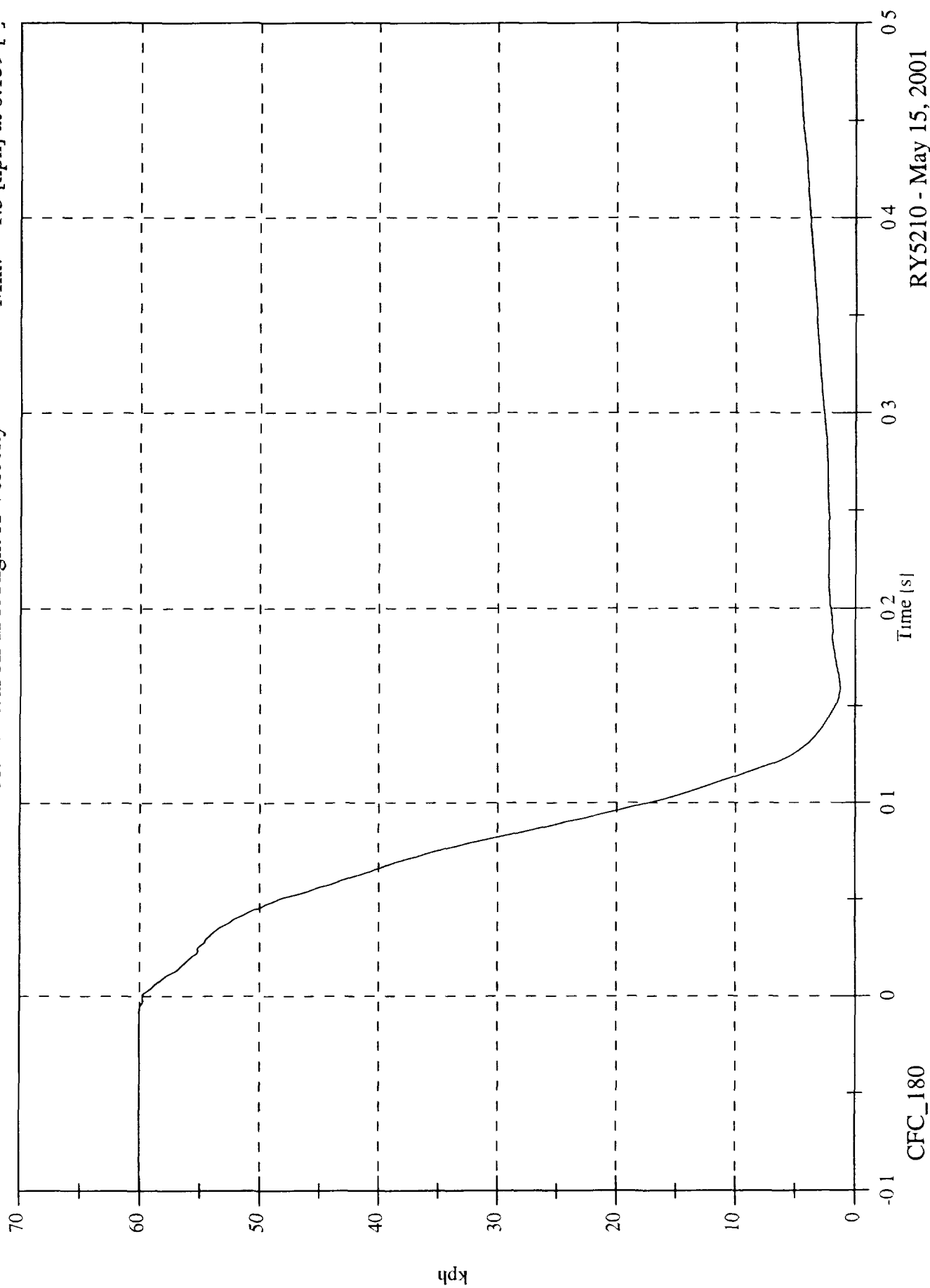


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 60.1 [kph] at -0.021 [s]
Min: 1.3 [kph] at 0.159 [s]

Acc 3 Rear XMBR Right X Velocity



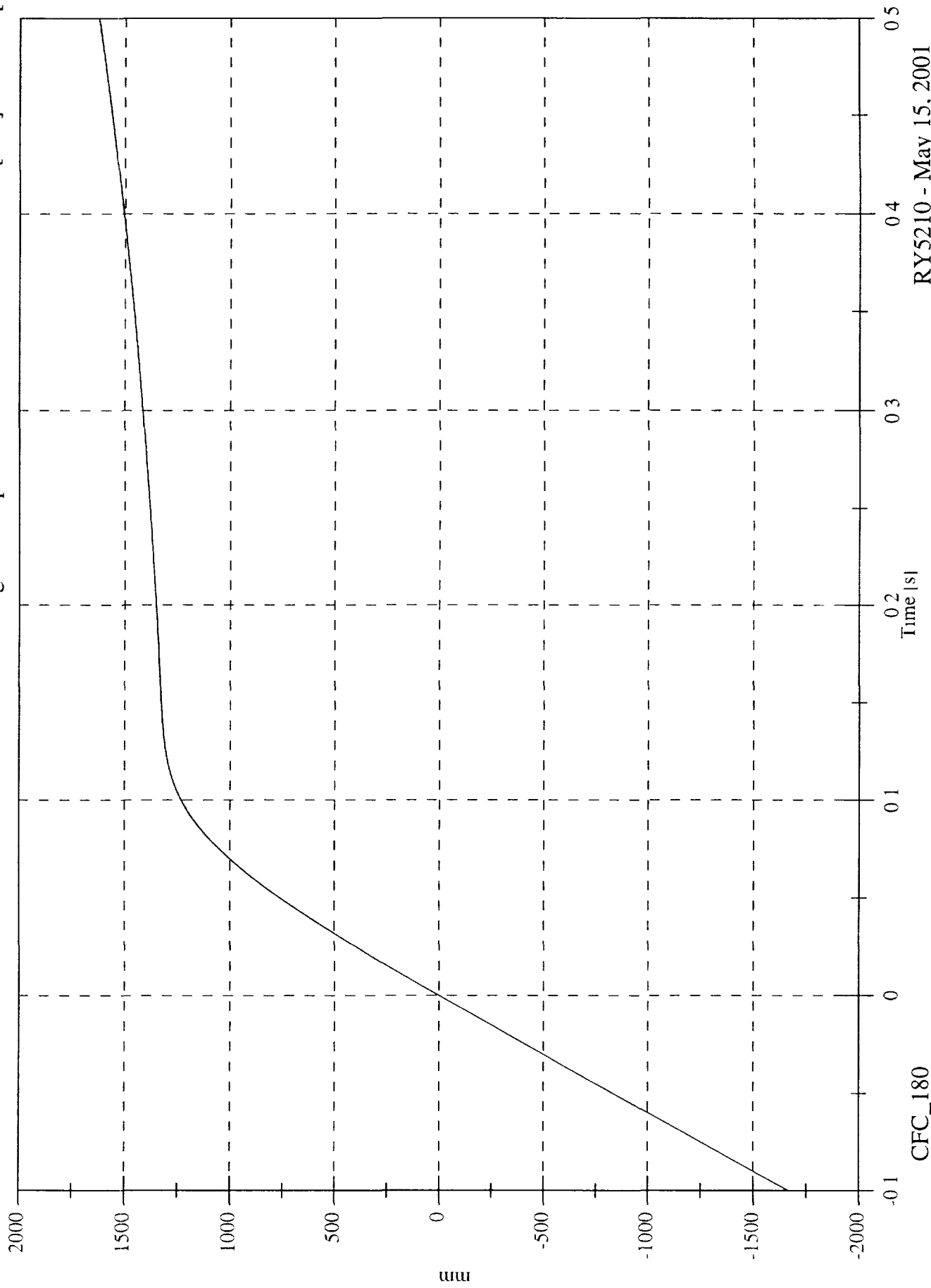
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1626.2 [mm] at 0.500 [s]
 Min: -1667.0 [mm] at -0.100 [s]

Acc 3 Rear XMBR Right X Displacement



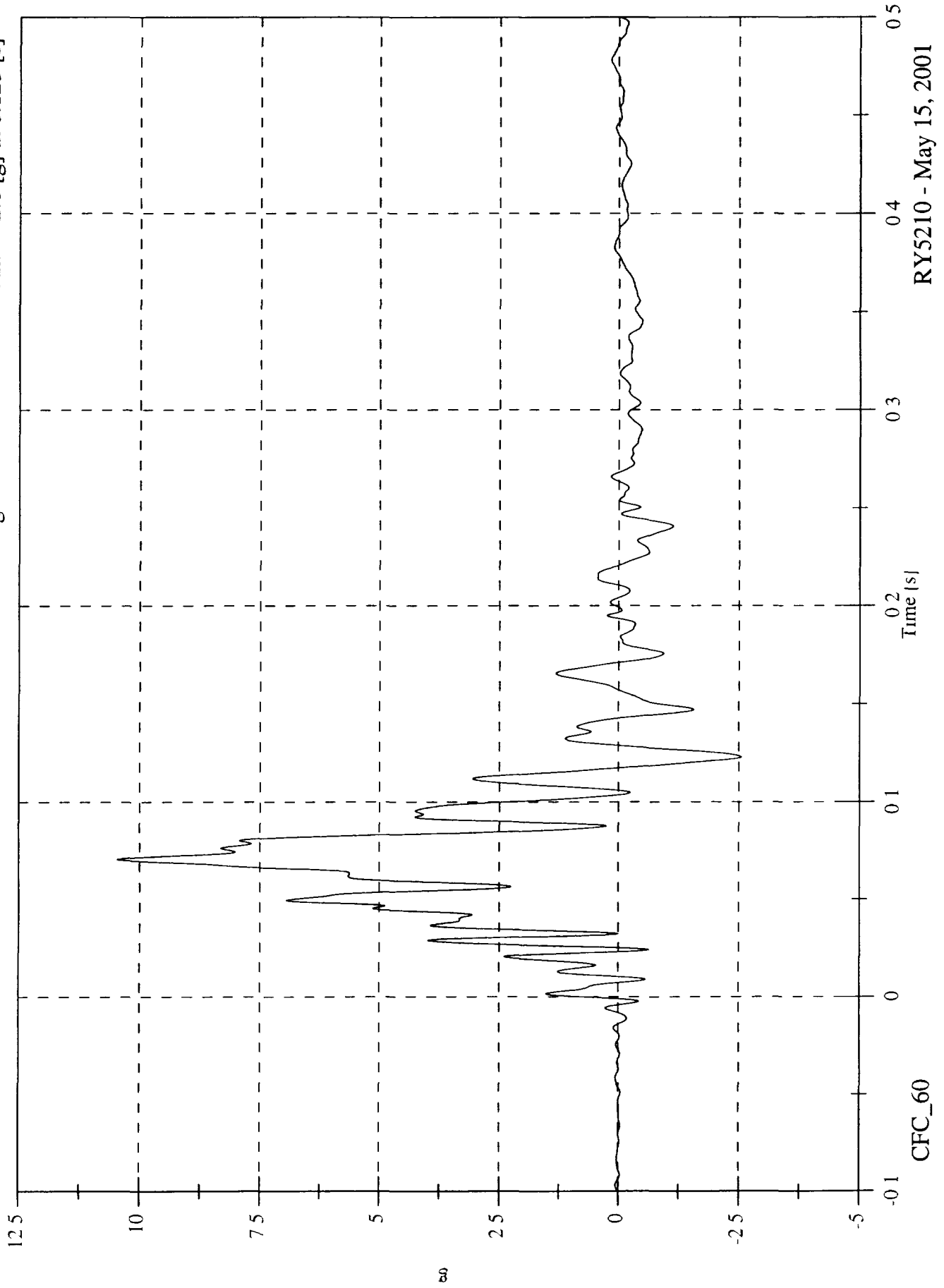
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Acc 4 Rear XMBR Right Y

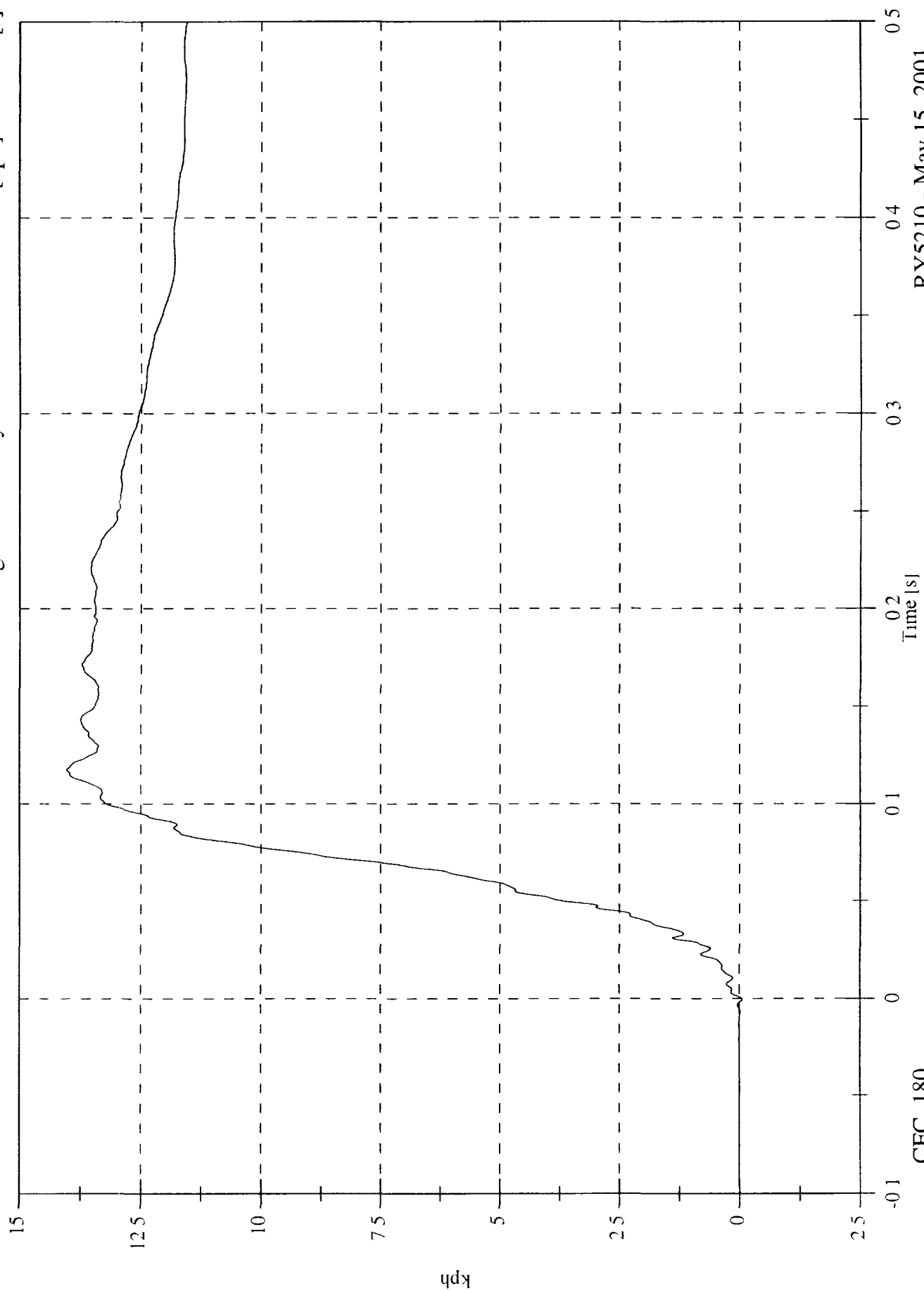
Max: 10.5 [g] at 0.070 [s]
Min: -2.6 [g] at 0.123 [s]



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 14.0 [kph] at 0.118 [s]
Min: -0.1 [kph] at -0.000 [s]

Acc 4 Rear XMBR Right Y Velocity



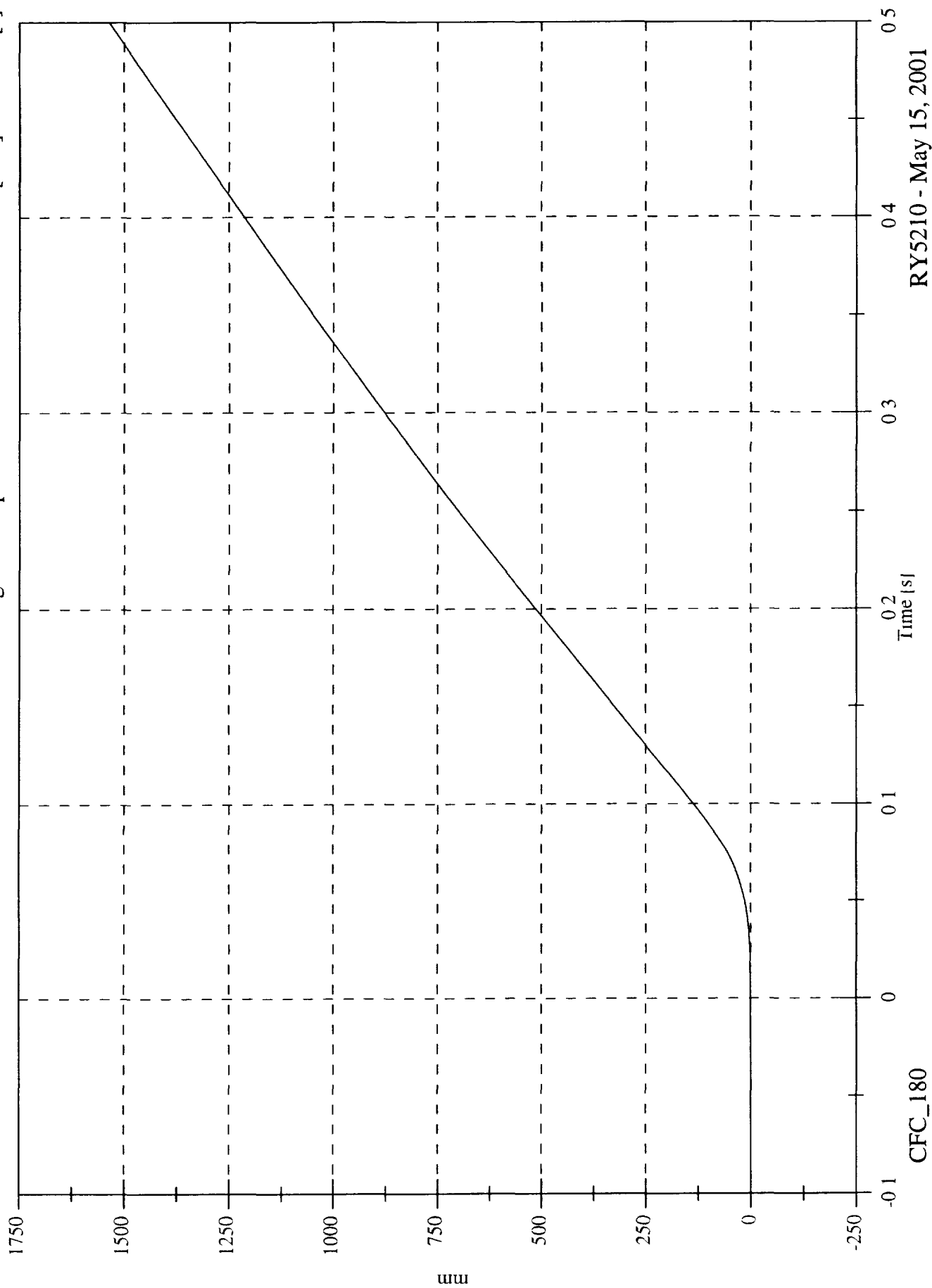
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Acc 4 Rear XMBR Right Y Displacement

Max: 1535.9 [mm] at 0.500 [s]
Min: -0.1 [mm] at -0.100 [s]



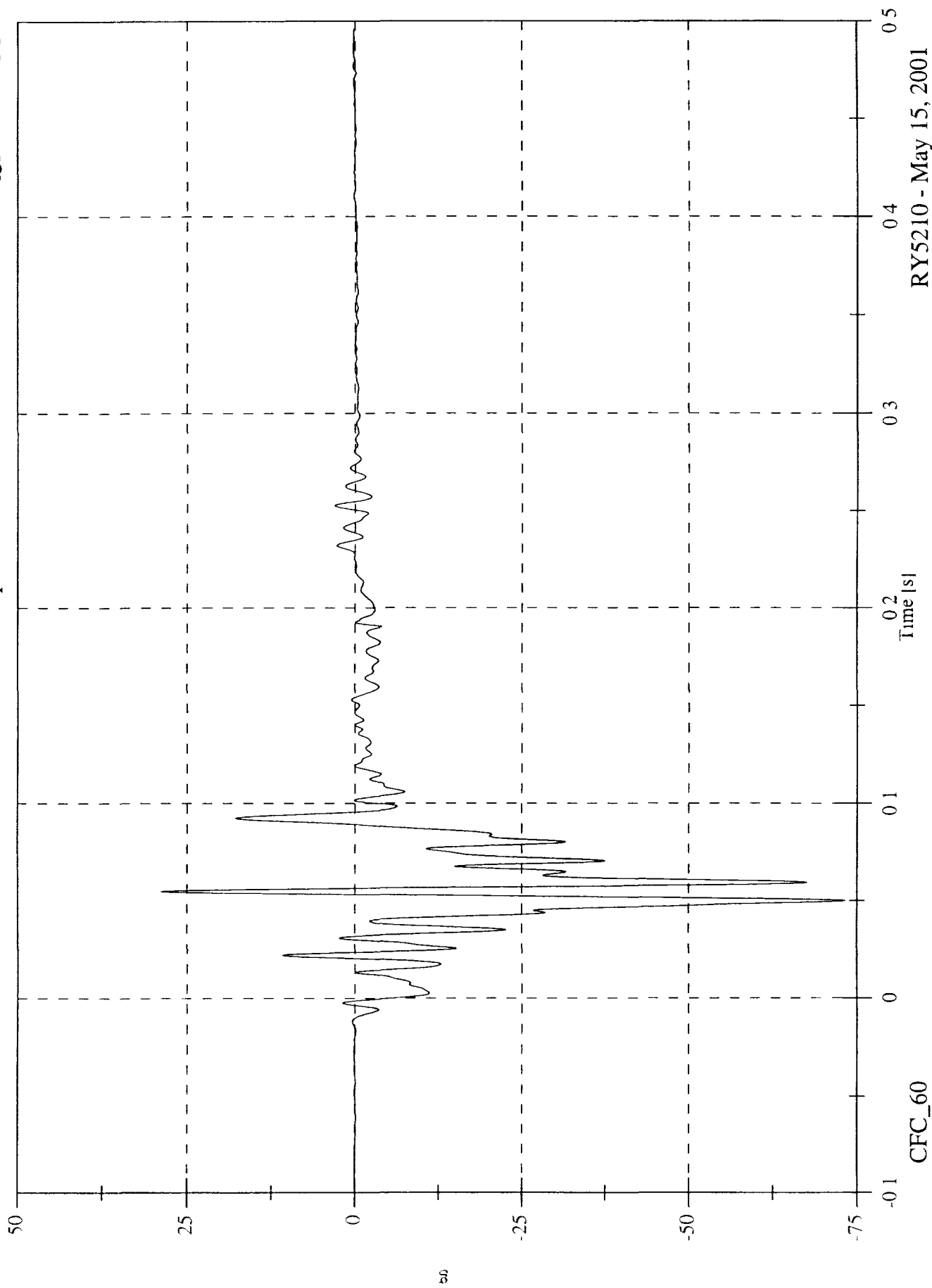
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 28.8 [g] at 0.055 [s]
 Min: -73.2 [g] at 0.050 [s]

Acc 5 P1 Toe pan Left X

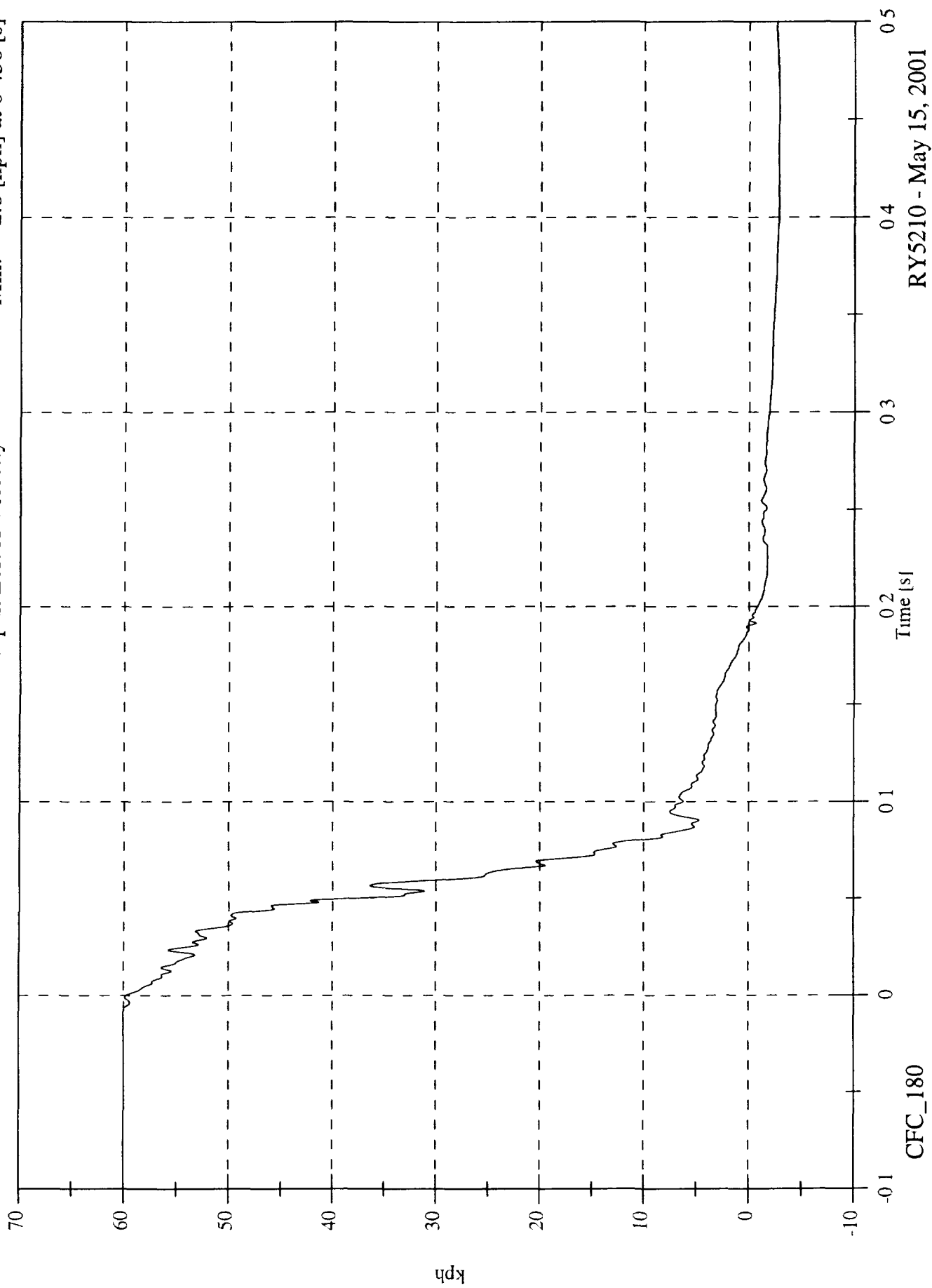


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 60.0 [kph] at -0.077 [s]
Min: -2.8 [kph] at 0.456 [s]

Acc 5 P1 Toe Pan Left X Velocity



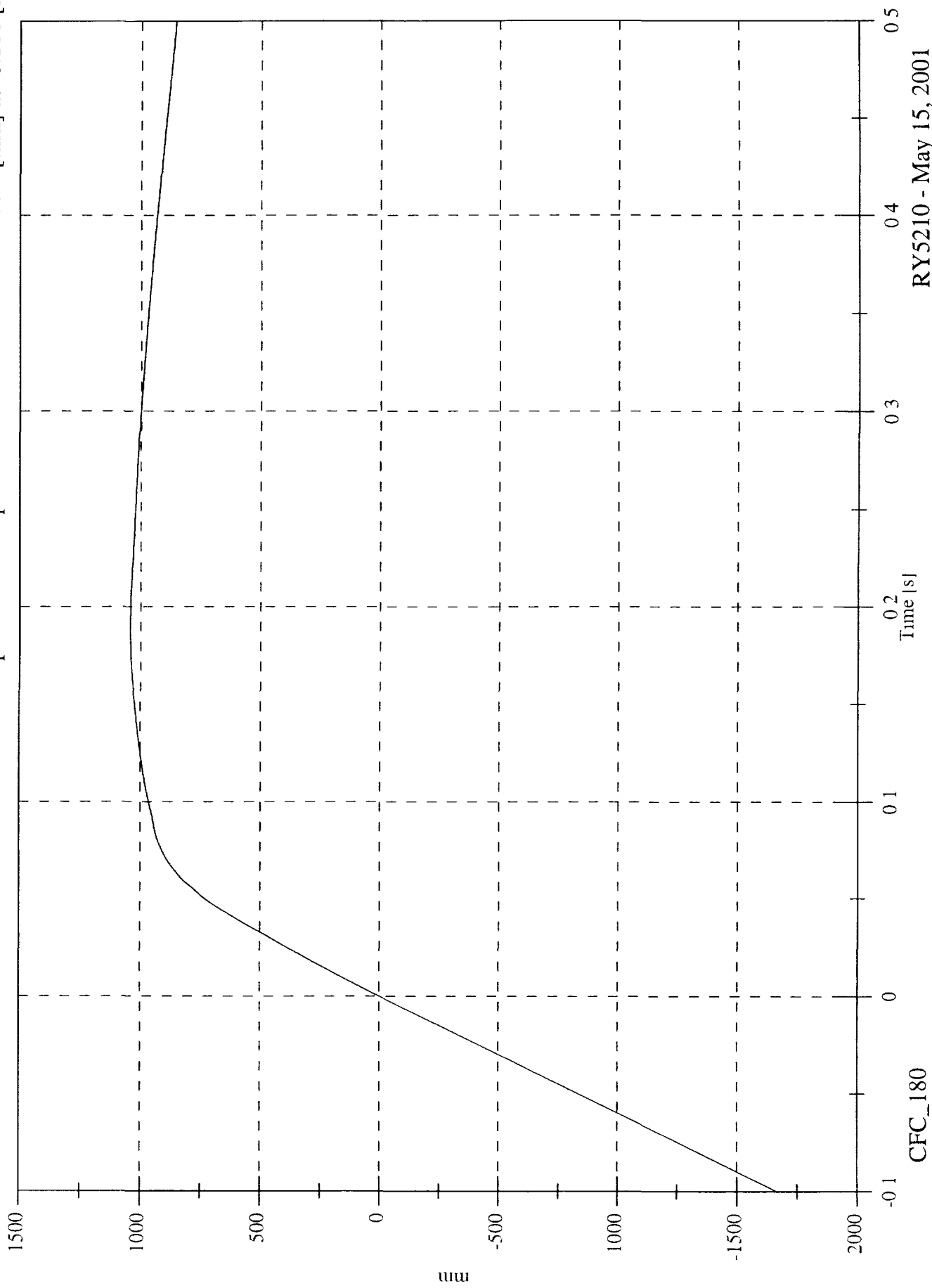
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1044.3 [mm] at 0.190 [s]
Min: -1666.2 [mm] at -0.100 [s]

Acc 5 P1 Toe pan Left X Displacement

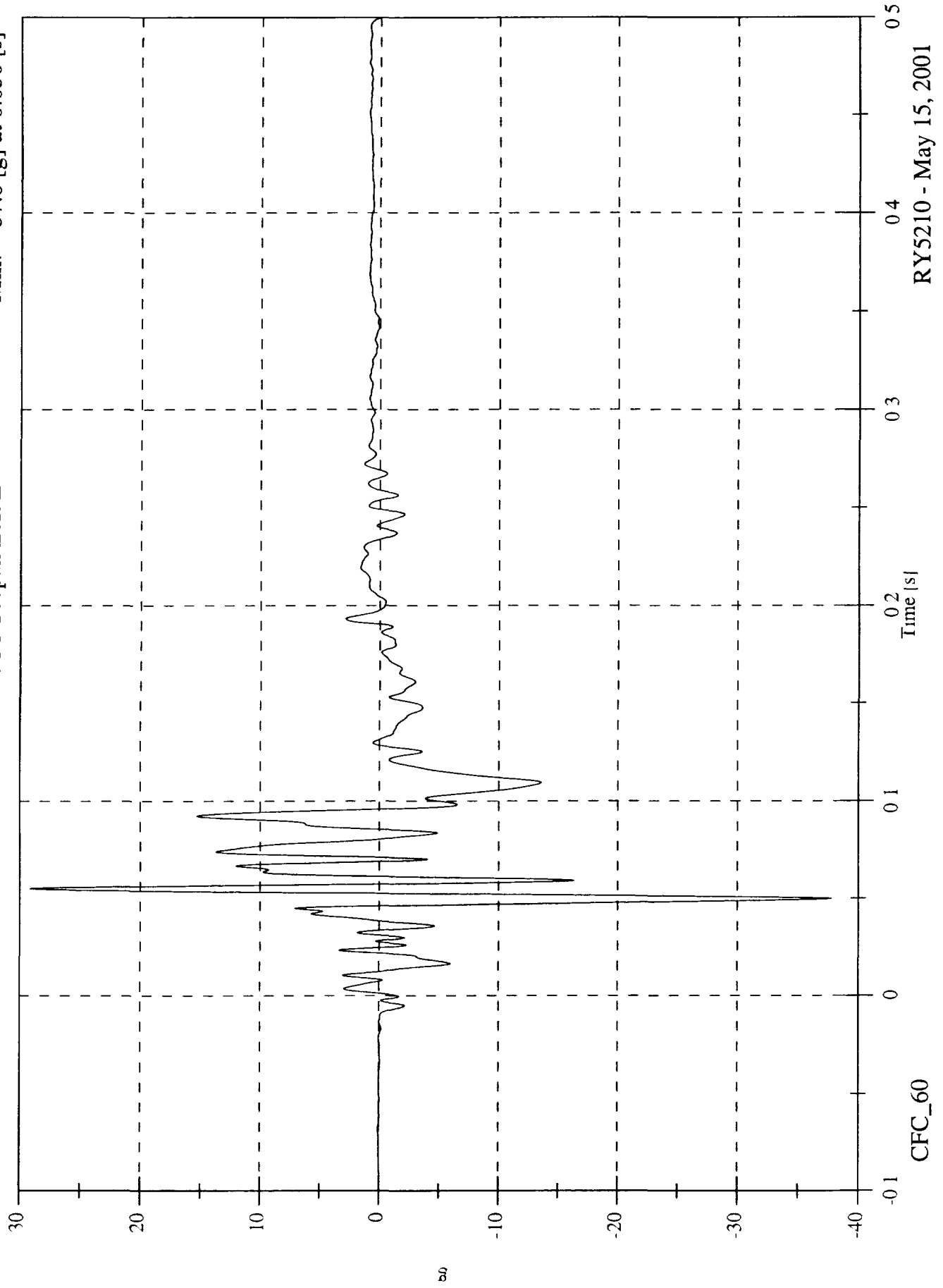


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Acc 6 P1 ToePan Left Z

Max: 29.2 [g] at 0.055 [s]
Min: -37.8 [g] at 0.050 [s]



CFC_60

Time [s]

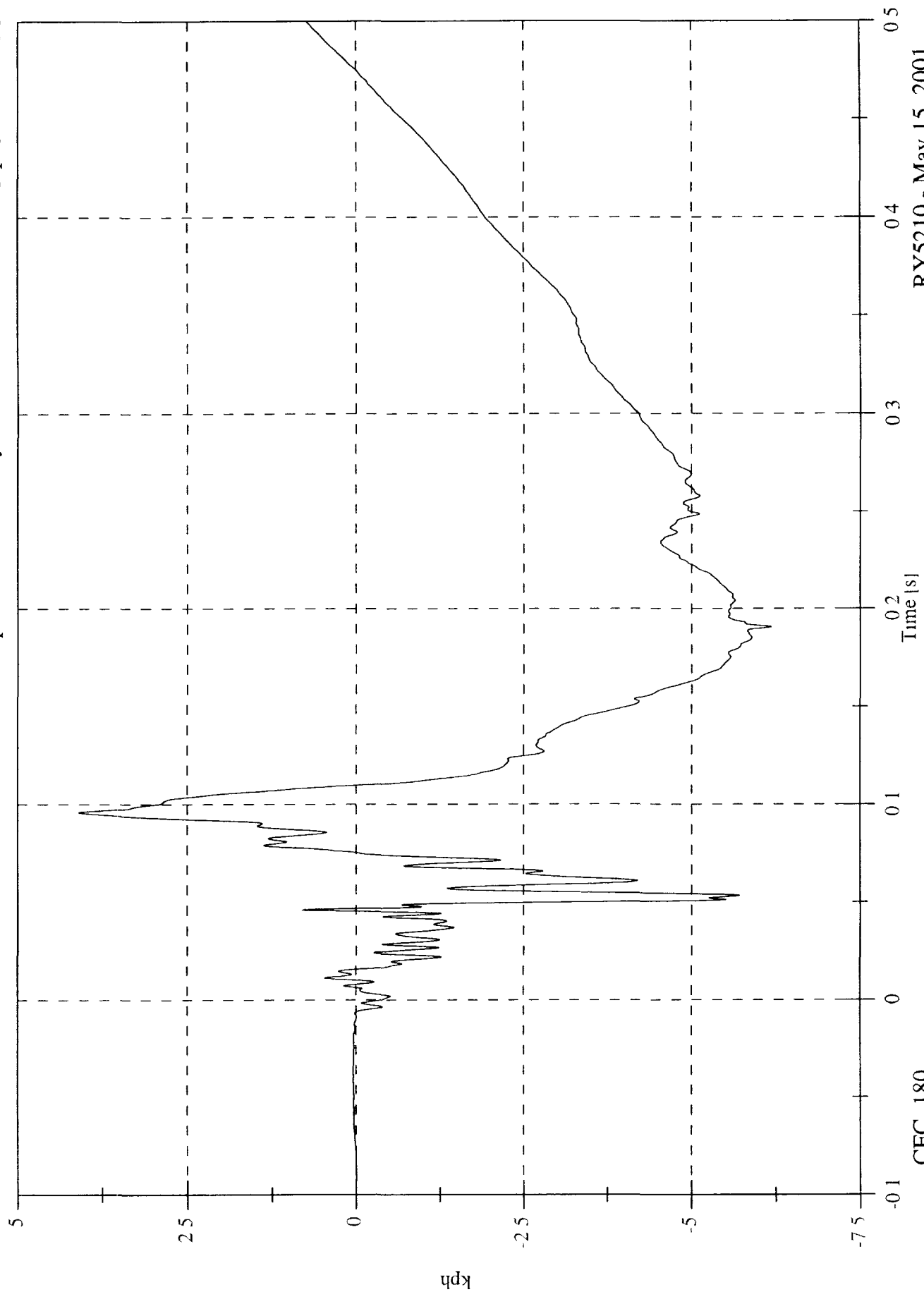
RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max. 4.1 [kph] at 0.096 [s]

Acc 6 P1 Toe Pan Left Z Velocity

Min. -6.2 [kph] at 0.191 [s]



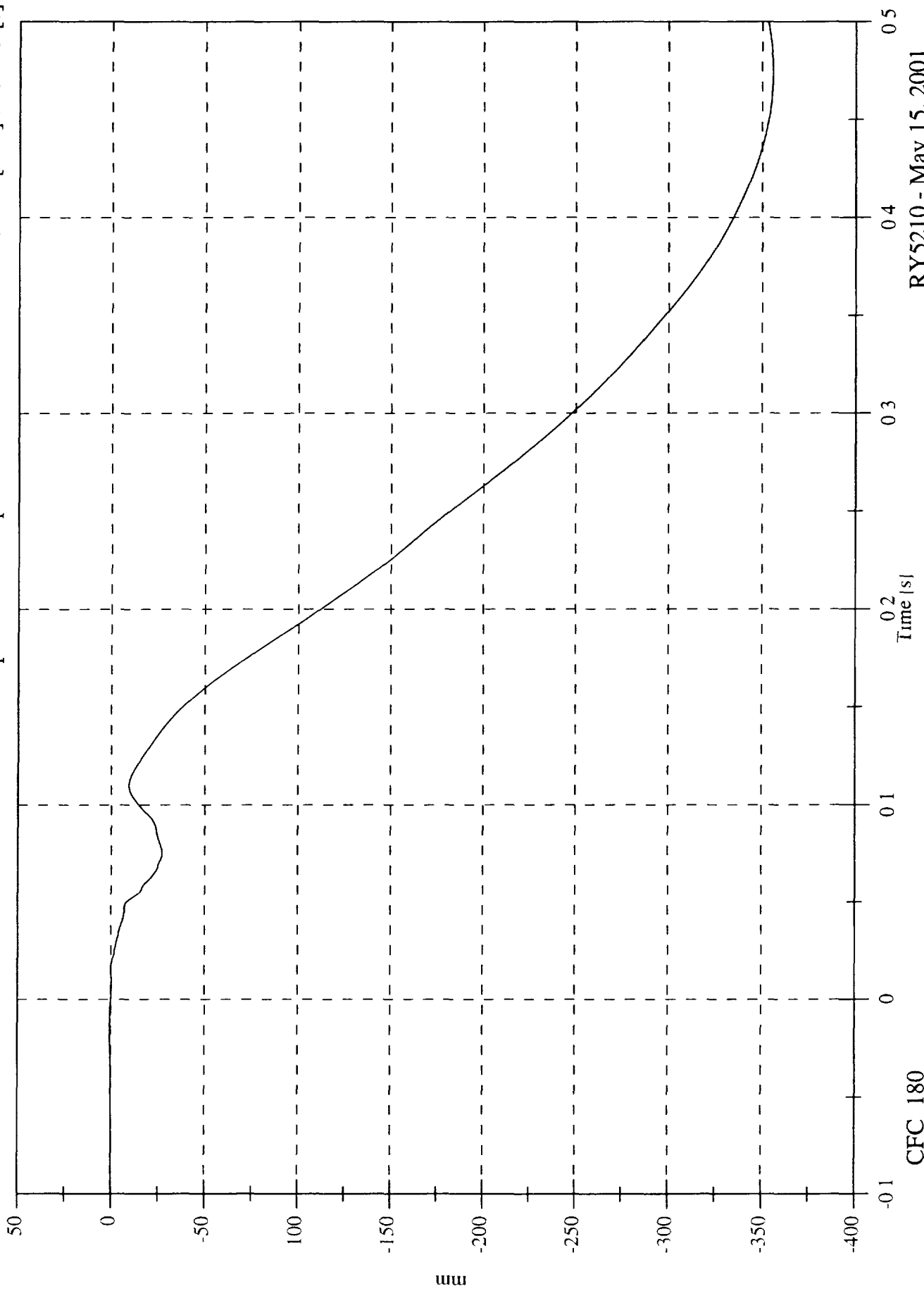
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 0.4 [mm] at -0.006 [s]
Min: -355.7 [mm] at 0.475 [s]

Acc 6 P1 Toe pan Left Z Displacement



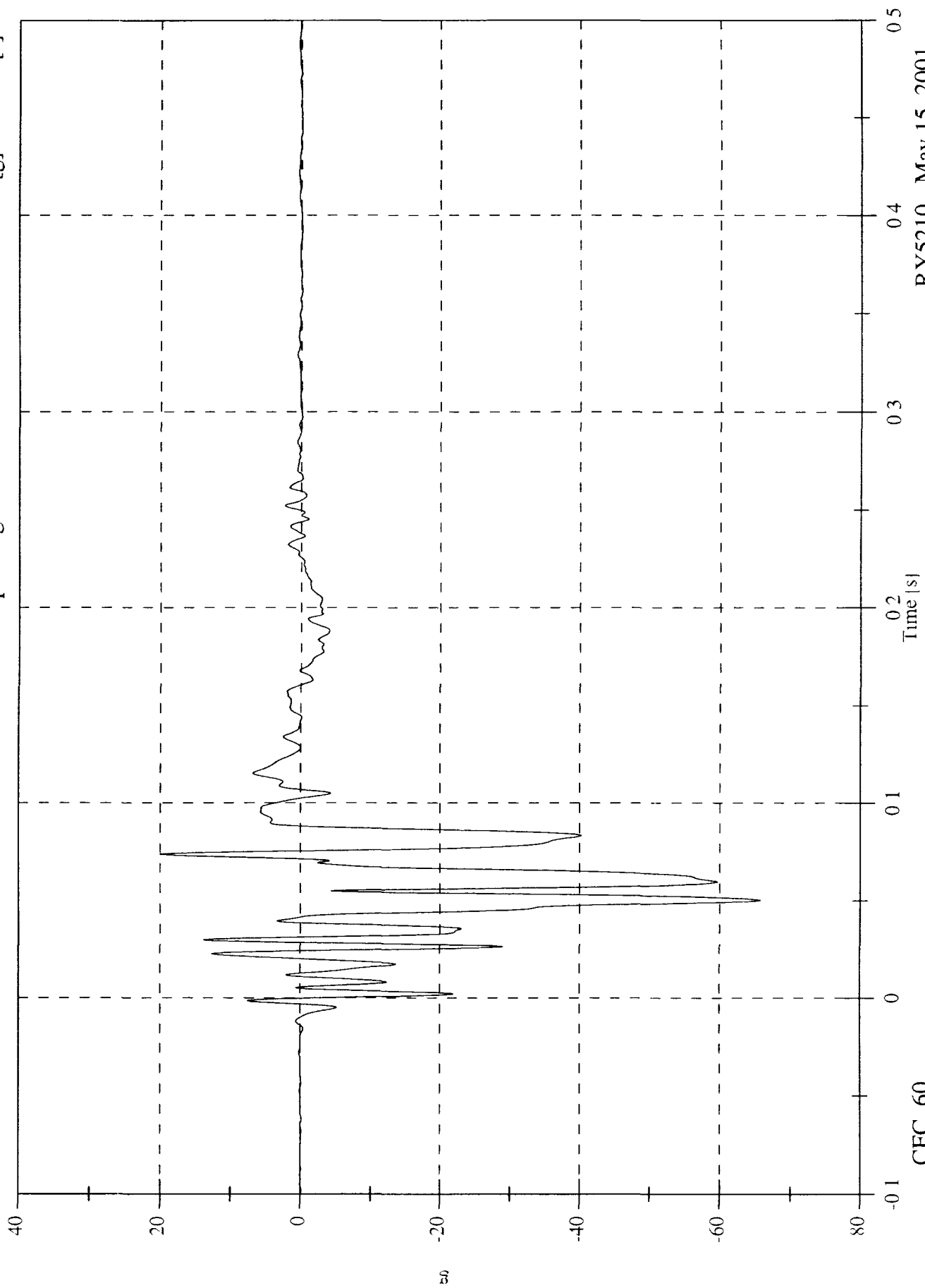
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 20.0 [g] at 0.073 [s]
Min: -65.8 [g] at 0.050 [s]

Acc 7 P1 Toe pan Right X

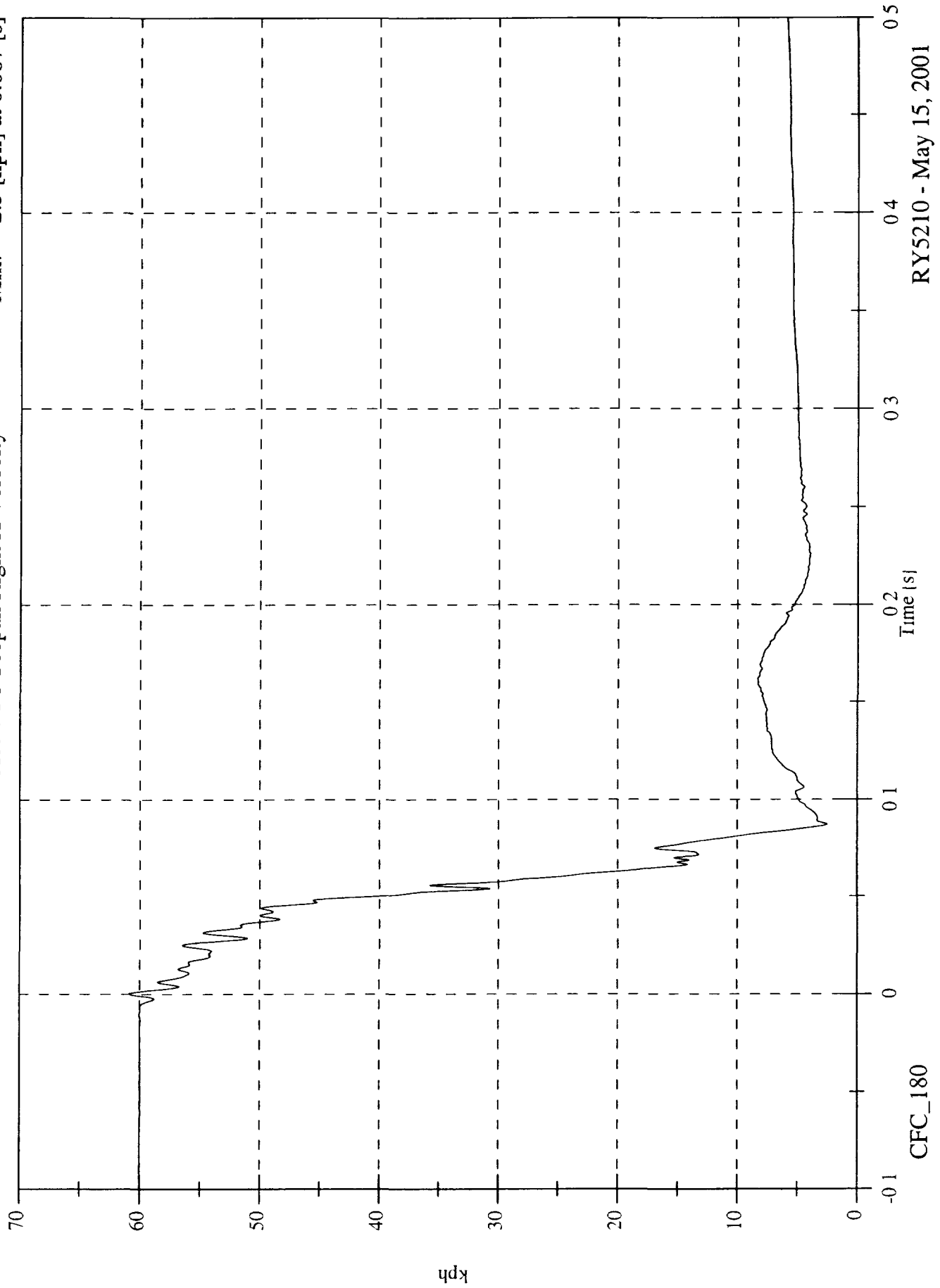


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 60.8 [kph] at 0.000 [s]
Min: 2.5 [kph] at 0.087 [s]

Acc 7 P1 Toe pan Right X Velocity

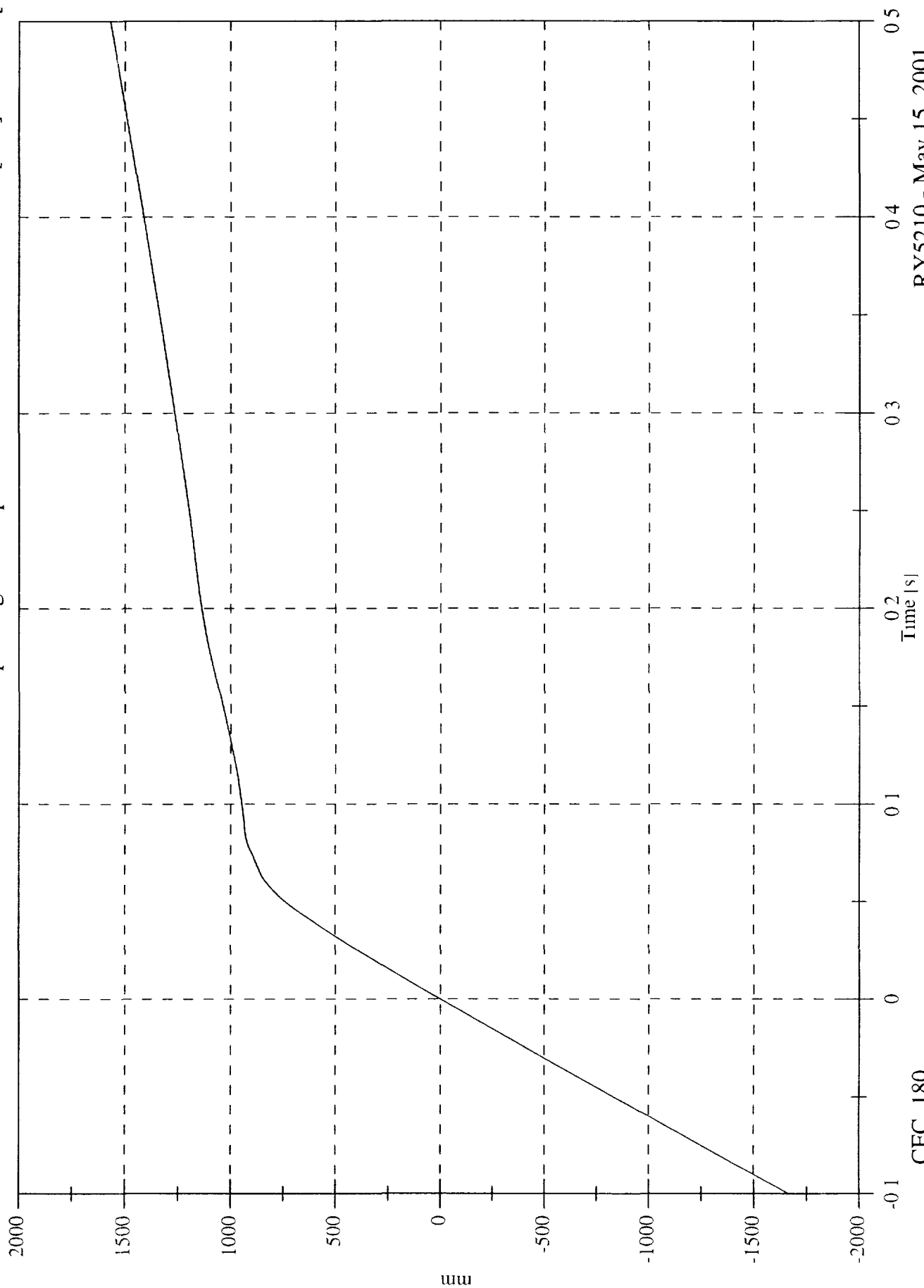


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1569.1 [mm] at 0.500 [s]
Min: -1665.5 [mm] at -0.100 [s]

Acc 7 P1 Toe pan Right X Displacement



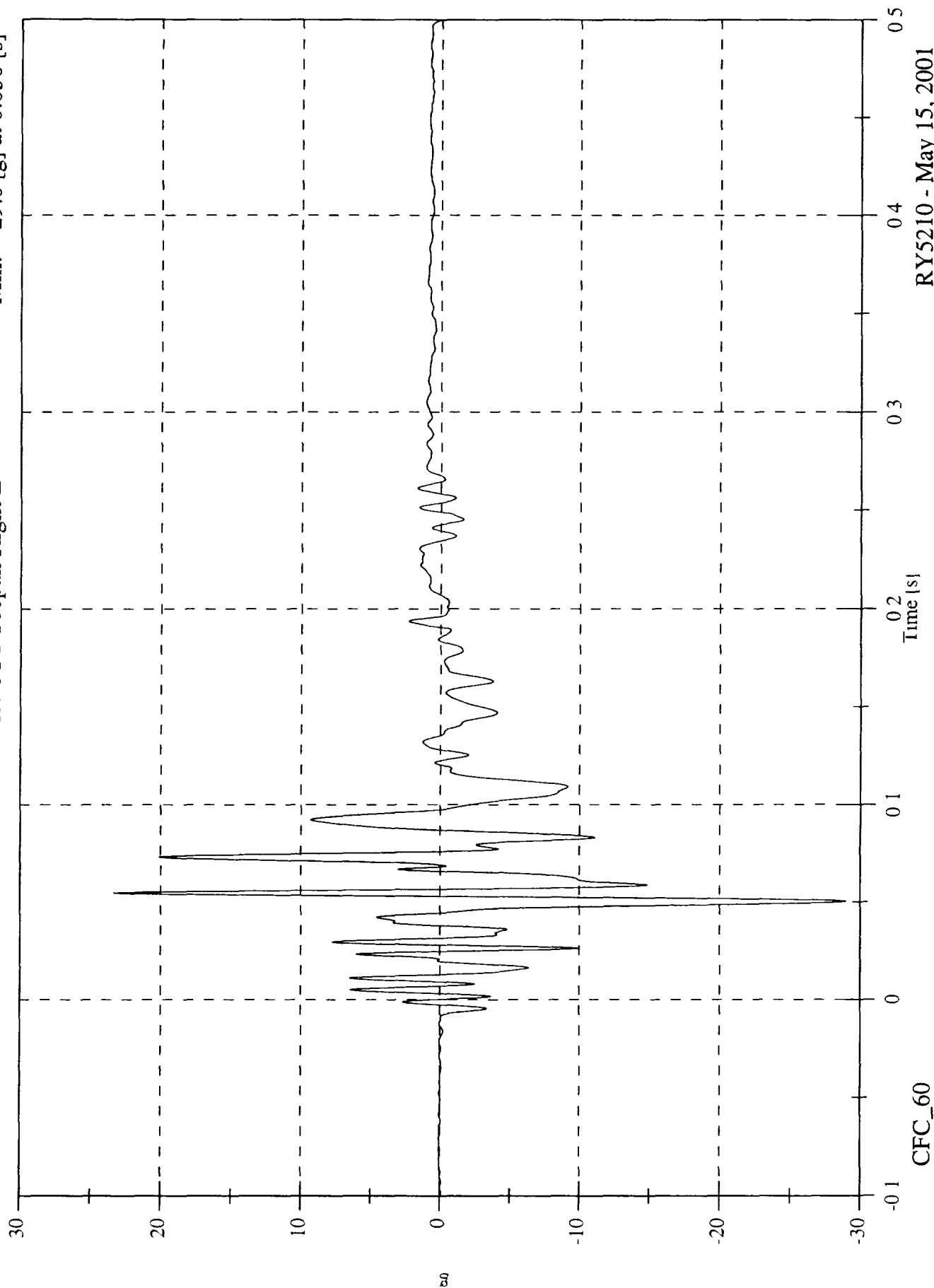
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Acc 8 P1 Toe pan Right Z

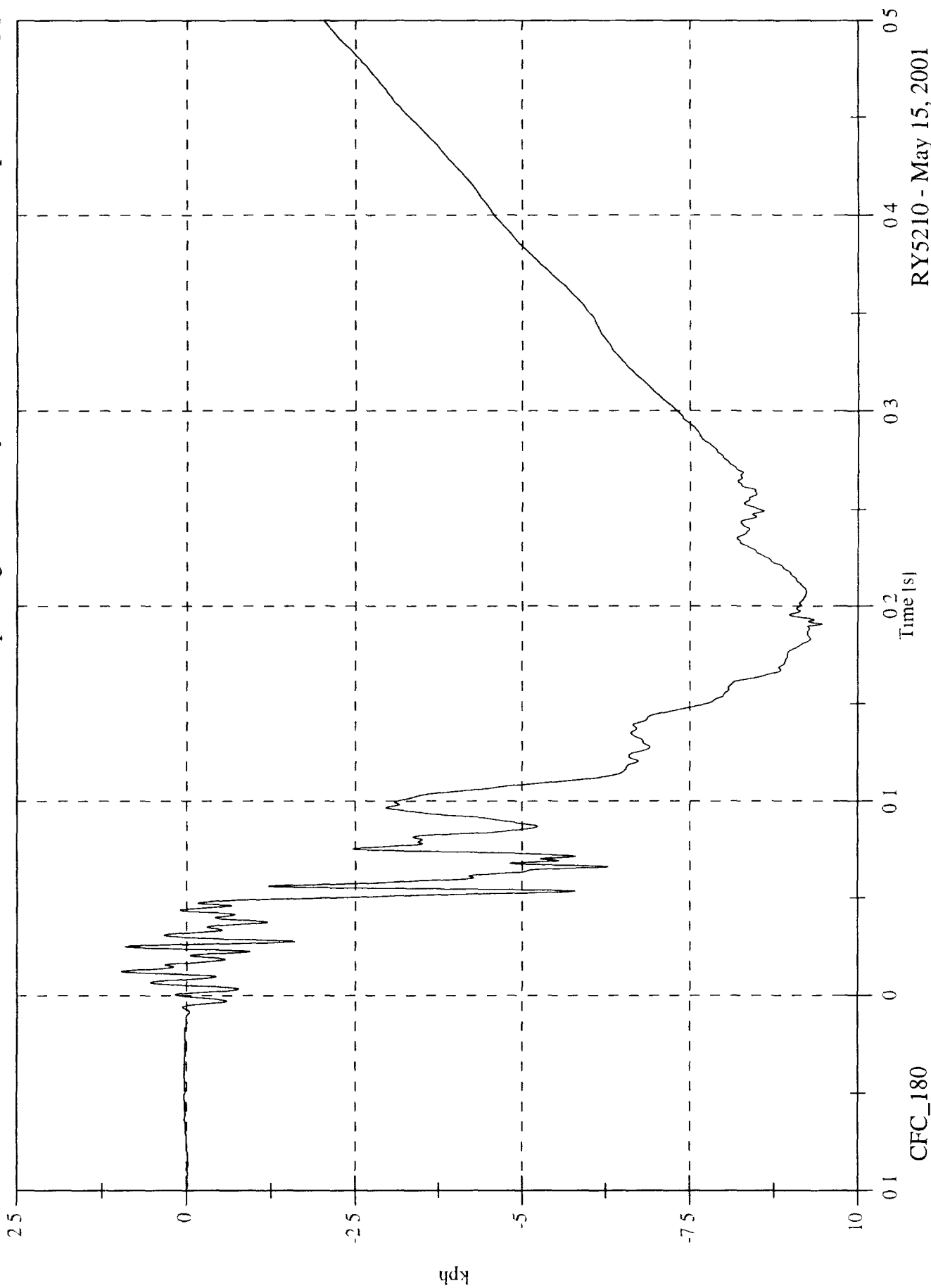
Max: 23.3 [g] at 0.055 [s]
Min: -29.0 [g] at 0.050 [s]



40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 1.0 [kph] at 0.012 [s]
Min: -9.5 [kph] at 0.191 [s]

Acc 8 P1 Toepan Right Z Velocity

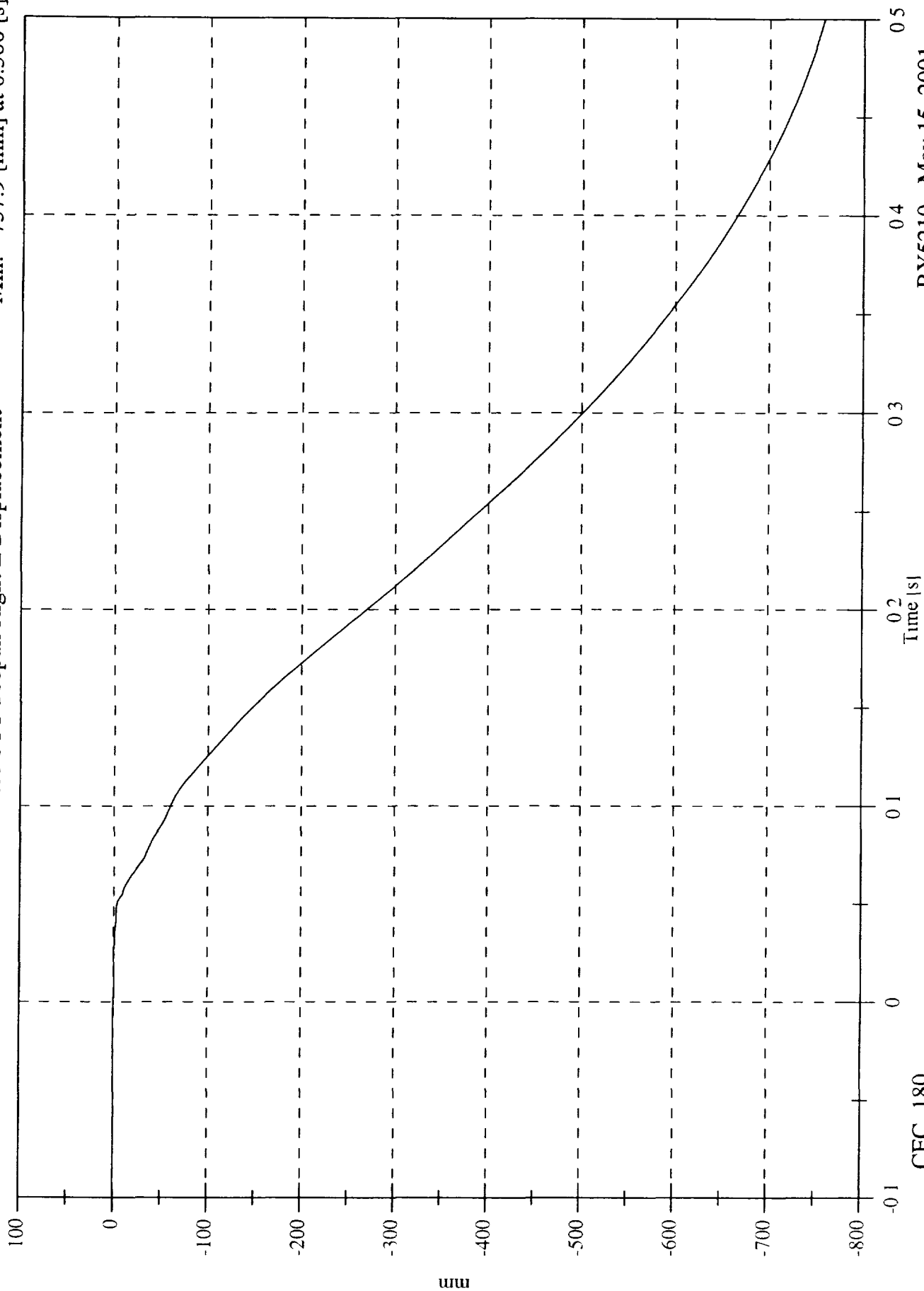


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Acc 8 P1 Toe pan Right Z Displacement

Max: 0.4 [mm] at -0.005 [s]
Min: -757.9 [mm] at 0.500 [s]



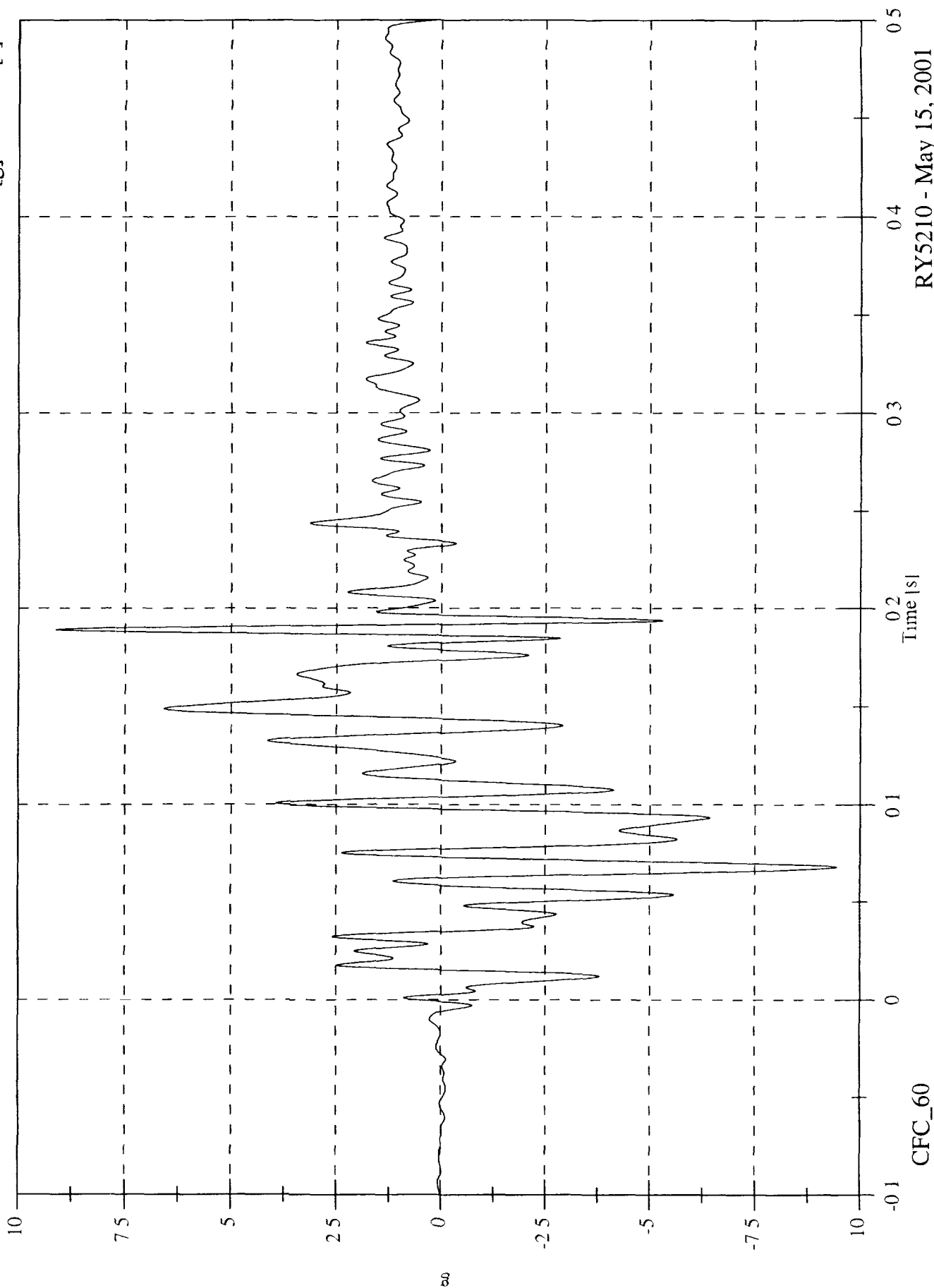
CFC_180

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 9.1 [g] at 0.189 [s]
 Min: -9.4 [g] at 0.068 [s]

Acc 9 Trunk Z

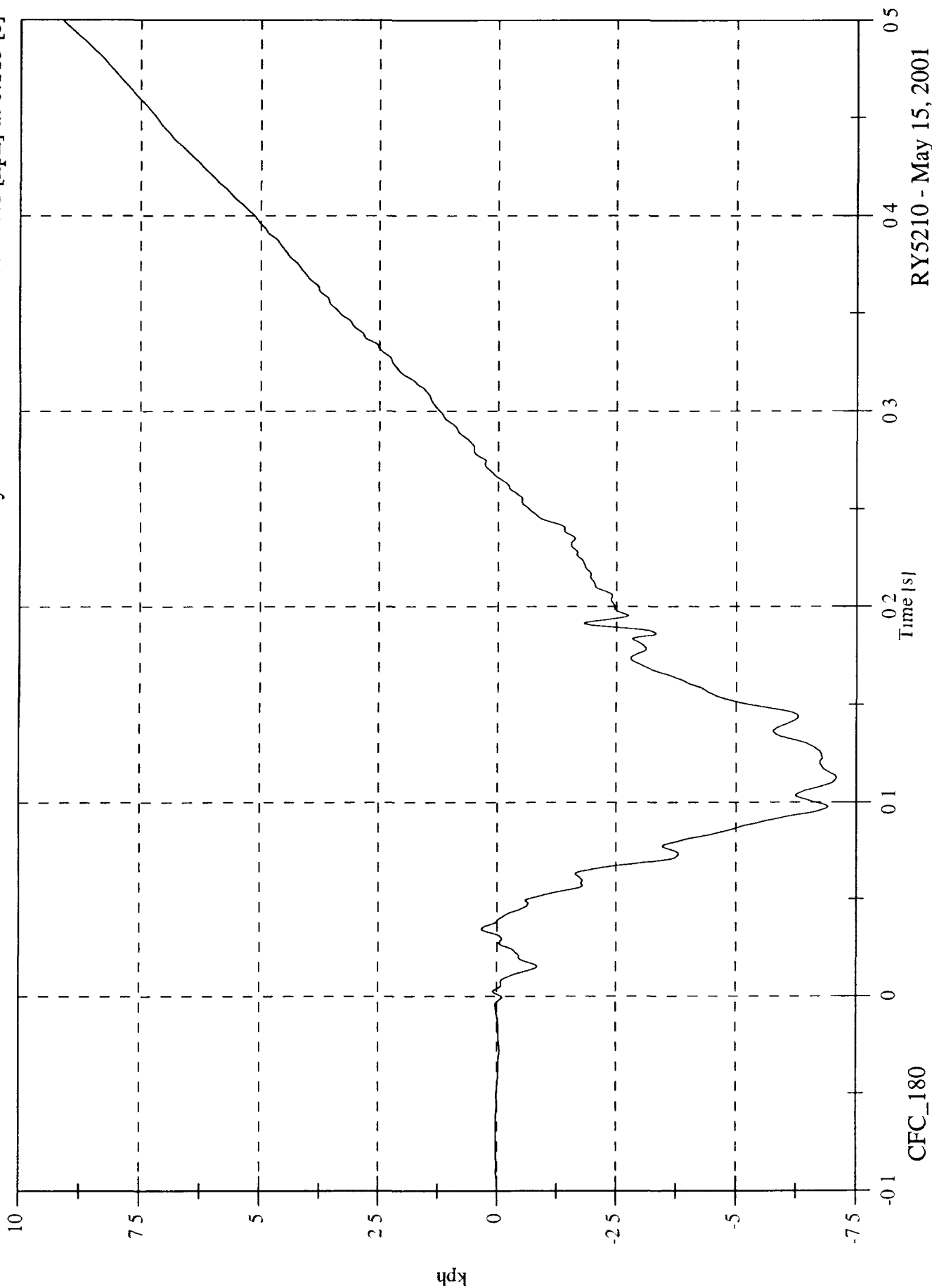


RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Acc 9 Trunk Z Velocity

Max: 9.1 [kph] at 0.500 [s]
 Min: -7.1 [kph] at 0.113 [s]



CFC_180

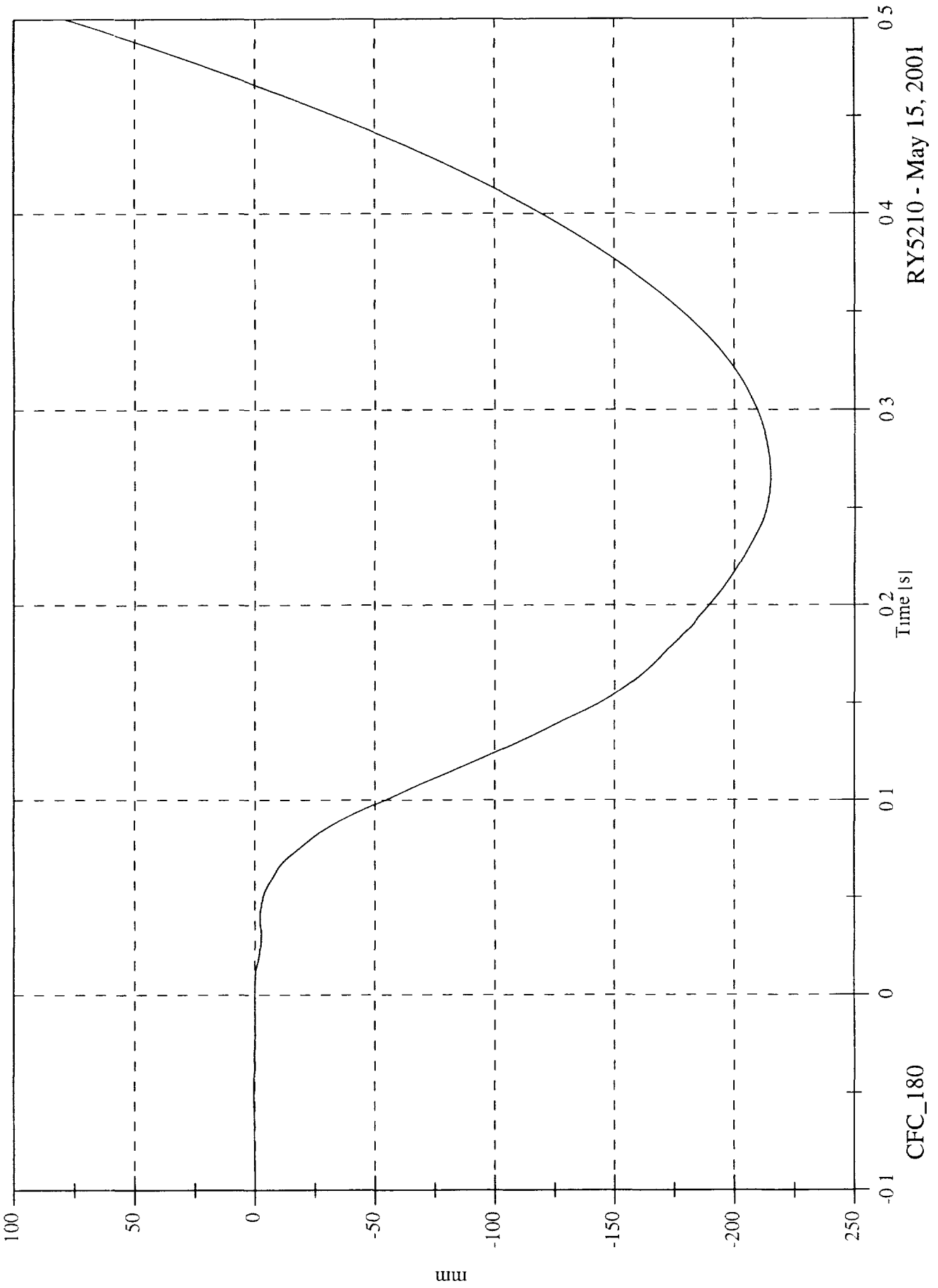
Time [s]

RY5210 - May 15, 2001

40% Frontal Offset Test #5 - 2000 Nissan Altima

Max: 79.0 [mm] at 0.500 [s]
Min: -215.1 [mm] at 0.266 [s]

Acc 9 Trunk Z Displacement



CFC_180

RY5210 - May 15, 2001

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

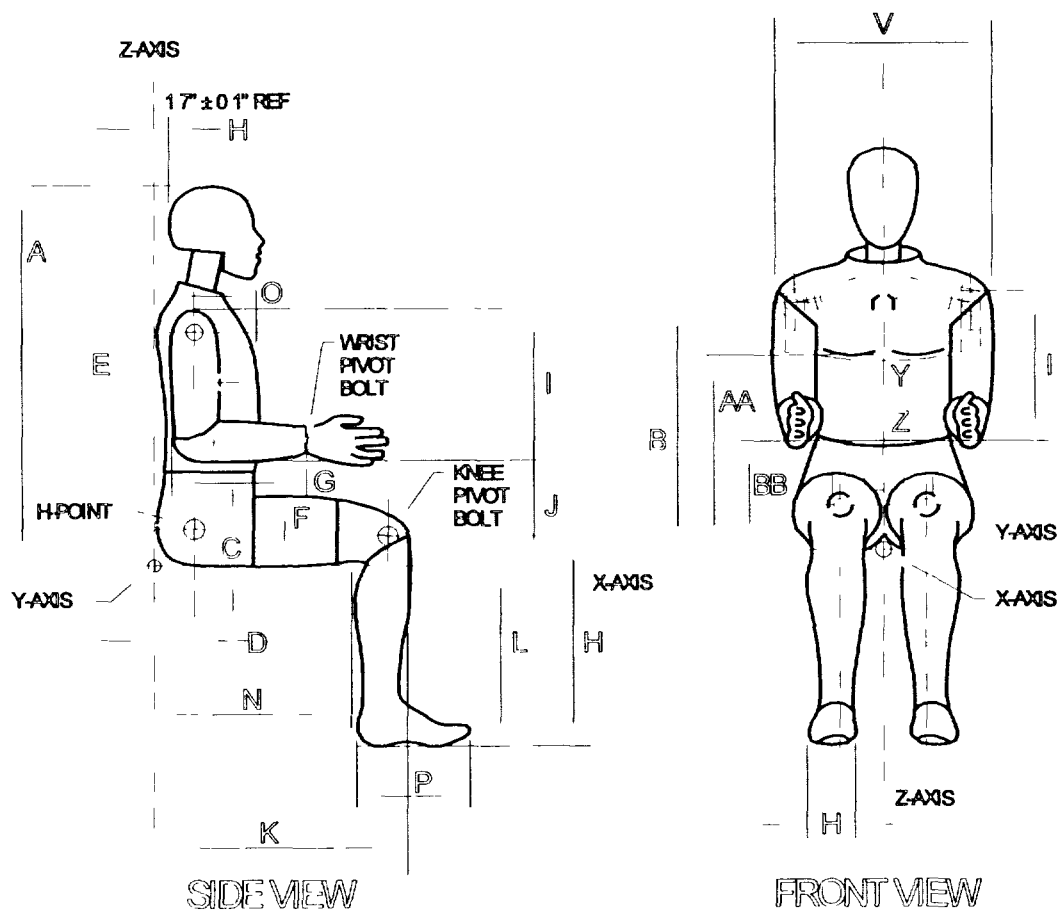
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	288	5/8/2001
#2/Right Front Passenger	202	4/24/2001

Electronic Test Equipment

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

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS SPECIFICATIONS



NOTE. Figure is referenced to the erect seated position. The curved lumbar does not allow the Hybrid III to be positioned in a perfect erect attitude.
(REF S672.31(A)(6))

PART 5720
HEAD DROP TEST

Dummy Serial Number 288
Sequential Test Number 1
Date May 2, 2001
Workfile 288101 hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	72
Relative Humidity	10% - 70%	32
Peak Resultant Acceleration	250-300 G's	257.57
Peak Lateral Acceleration	15 G's Max	2.75
Is Acceleration Curve Unimodal?	YES	YES

Remarks

Laboratory Technician B. Swiecicki

PART 572O
NECK FLEXION TEST

Dummy Serial Number	288	
Sequential Test Number	1	
Date	May 3, 2001	6 Axis Neck Transducer
Workfile	Ac0100a raw	

TEST PARAMETER		SPECIFICATION	TEST RESULT
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	32
Impact Velocity		22.6 - 23.4 Ft/s	23.00
Pendulum Deceleration	10 ms	6.9 - 8.2 ft/s	7.99
	20 ms	13.1 - 16.4 ft/s	13.94
	30 ms	19.0 - 23.0 ft/s	19.03
D Plane Rotation	Max	77 - 91 Deg	88.08
Moment About Occipital Condyle	Max	51.0 - 61.0 Ft-Lbs	57.88
Occipital Moment - Curve Decay Time to 7.38 ft-lbf		80 - 100 ms	87.04

Remarks

Laboratory Technician B. Swiecicki

PART 572O
NECK EXTENSION TEST

Dummy Serial Number	288	
Sequential Test Number	1	
Date	May 3, 2001	6 Axis Neck Transducer
Workfile	Ab0104a raw	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70.0
Relative Humidity		10% - 70%	32.0
Impact Velocity		19.50 - 20.30 Ft/s	19.58
Pendulum Deceleration	10 ms	4.9 - 6.2 ft/s	5.62
	20 ms	10.2 - 12.8 ft/s	11.39
	30 ms	15.1 - 18.4 ft/s	16.43
D Plane Rotation	Max	99 - 113 Deg	112.14
Moment About Occipital Condyle	Max	-50.2 - -38.4 Ft-Lbs	-41.19
Occipital Moment - Curve Decay Time to -7.38 ft-lbf		94 - 114 ms	104.52

Remarks

Laboratory Technician B. Swiecicki

PART 5720
THORAX IMPACT TEST

Dummy Serial Number 288
Sequential Test Number 1
Date May 8, 2001
Workfile D10002a raw

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70 0
Relative Humidity	10% - 70%	32 0
Pendulum Velocity	21 6 - 22 4 Ft/s	22 0
Maximum Deflection	1 90 - 2 20 in	2 12
Maximum Resistive Force	876 - 989 Lbs	924 20
Internal Hysteresis	69 - 85 %	75 57

Remarks

Laboratory Technician B Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 202
Sequential Test Number 1
Date April 20, 2001
Workfile 202101 hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	71 0
Relative Humidity	10% - 70%	31 0
Peak Resultant Acceleration	225-275 G's	235 91
Peak Lateral Acceleration	15 G's Max	13 46
Is Acceleration Curve Unimodal?	YES	Yes

Remarks

Laboratory Technician B Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	202	
Sequential Test Number	1	
Date	April 20, 2001	6 Axis Neck Transducer
Workfile	202101 nfl	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71 0
Relative Humidity		10% - 70%	31 0
Impact Velocity		22 60 - 23 40 Ft/s	22 82
Pendulum Deceleration	10 ms	22 50 - 27 50 G's	23 53
	20 ms	17 60 - 22 60 G's	19 64
	30 ms	12 50 - 18 50 G's	14 31
Max Pendulum G's Above 30 ms		29 G's Max	14 31
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39 12
D Plane Rotation	Max	64 - 78 Deg	77 83
	Time	57 - 64 ms	62 88
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	76 43
	Time	47 - 58 ms	52 88
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	116 50
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	98 12

Remarks

Laboratory Technician B Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	202	
Sequential Test Number	1	
Date	April 20, 2001	6 Axis Neck Transducer
Workfile	202101 nex	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	71 0
Relative Humidity		10% - 70%	30 0
Impact Velocity		19 50 - 20 30 Ft/s	19 81
Pendulum Deceleration	10 ms	17 20 - 21 20 G's	18 01
	20 ms	14 00 - 19 00 G's	16 64
	30 ms	11 00 - 16 00 G's	13 69
Max Pendulum G's Above 30 ms		22 G's Max	13 69
Deceleration Time Curve Decay Time to 5 G's		38 - 46 ms	42 38
D Plane Rotation	Max	81 - 106 Deg	101 06
	Time	72 - 82 ms	79 62
Moment About Occipital Condyle	Max	-59 0 - -39 0 Ft-Lbs	-48 44
	Time	65 - 79 ms	70 38
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	156 38
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	143 12

Remarks

Laboratory Technician B Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 202
Sequential Test Number 1
Date April 20, 2001
Workfile 202101 th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	71.1
Relative Humidity	10% - 70%	31.0
Pendulum Velocity	21.6 - 22.4 Ft/s	21.7
Maximum Deflection	2.50 - 2.86 in	2.52
Maximum Resistive Force	1160 - 1325 Lbs	1195.97
Internal Hysteresis	69 - 85 %	72.91

Remarks

Laboratory Technician B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 202
Sequential Test Number 1
Date April 24, 2001
Workfile 202101 lf / 202101 rf

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	71 0
Relative Humidity	10% - 70%	31 0
Probe Velocity	6 8 - 7 0 Ft/s	7 0
Peak Knee Impact Force	1060 - 1300 Lbs	1165 78
RIGHT KNEE		
Temperature	66 - 78 Deg F	71 0
Relative Humidity	10% - 70%	31 0
Probe Velocity	6 8 - 7 0 Ft/s	7 0
Peak Knee Impact Force	1060 - 1300 Lbs	1169 68

Remarks

Laboratory Technician B Swiecicki

CALSPAN

Hybrid III Hip Range of Motion

Serial Number: 202101

Date: 04/23/2001

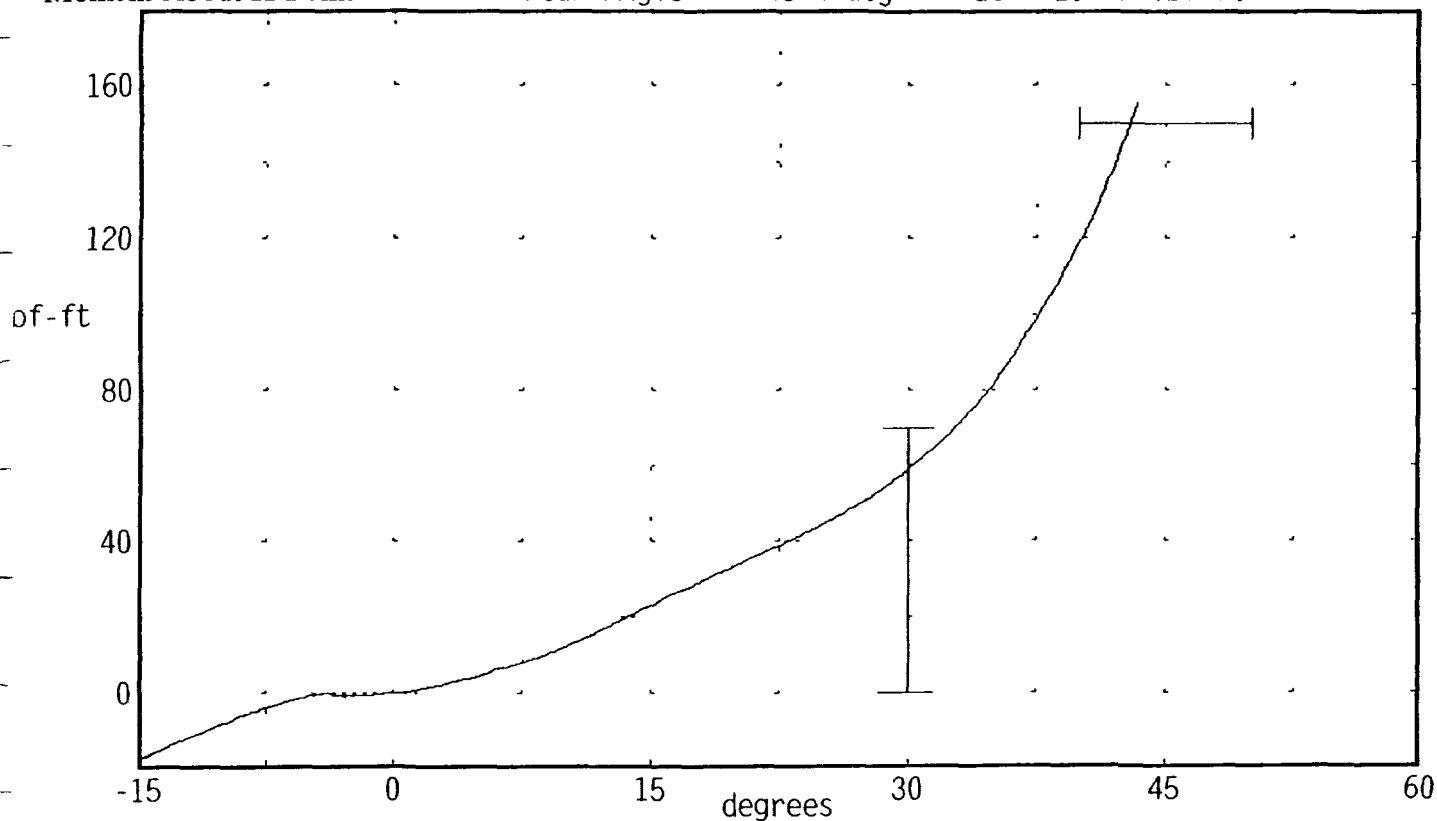
Test Number: 1

Time: 10:01

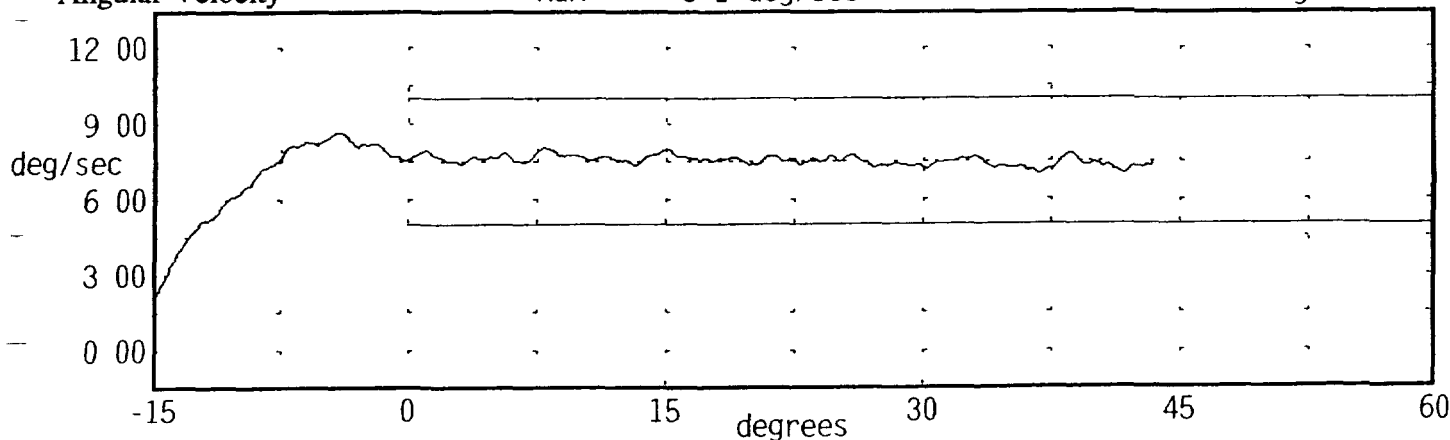
Comments: LEFT

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66 0 - 78 0	71 0 °F Pass
Humidity	10 - 70	31 % Pass
Moment at 30 deg	<= 70 0	58 9 lbf-ft Pass
Angle at 150 lbf-ft	40 0 - 50 0	43 0 deg Pass
Average Velocity	5 0 - 10 0	7 5 deg/sec Pass

Moment About H-Point
 Peak Moment 155 4 lbf-ft at 43 4 deg
 Peak Angle 43 4 deg at 154 7 lbf-ft



Angular Velocity Max 8 1 deg/sec Min 7 0 deg/sec



CALSPAN

Hybrid III Hip Range of Motion

Serial Number: 202101

Date: 04/23/2001

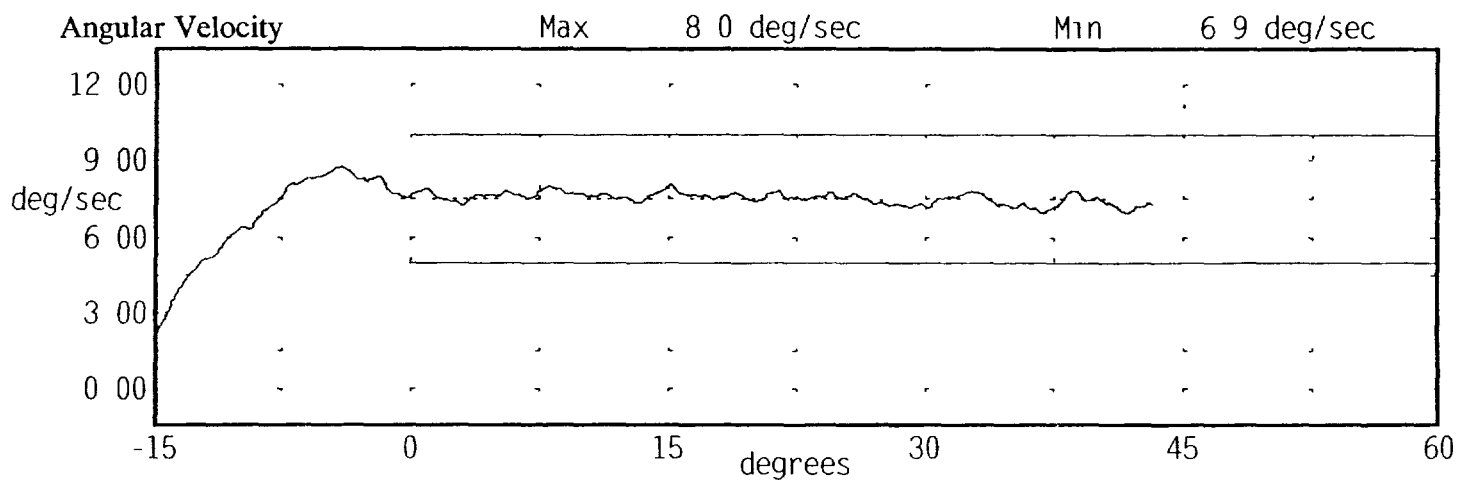
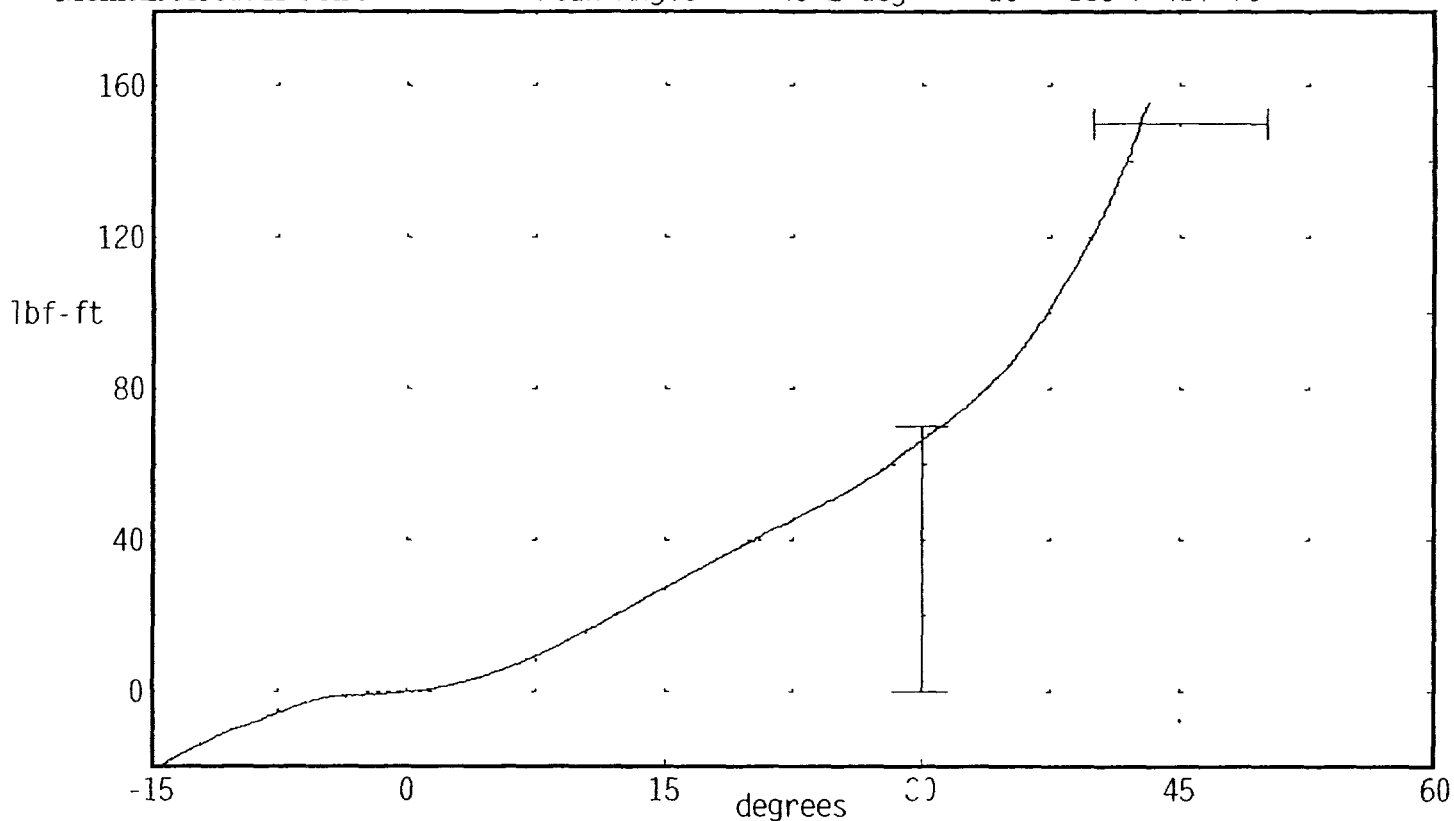
Test Number: 1

Time: 09:56

Comments: RIGHT

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66 0 - 78 0	71 0 °F Pass
Humidity	10 - 70	31 % Pass
Moment at 30 deg	<= 70 0	66 7 lbf-ft Pass
Angle at 150 lbf ft	40 0 - 50 0	42 7 deg Pass
Average Velocity	5 0 - 10 0	7 5 deg/sec Pass

Moment About H-Point Peak Moment 155 7 lbf-ft at 43 2 deg
Peak Angle 43 2 deg at 155 7 lbf-ft



PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 202
Sequential Test Number 1
Date April 24, 2001

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			71
Relative Humidity			31
Location for Chest Circumference	AA	16 9 - 17 1 in	17 0
Location for Waist Circumference	BB	8 9 - 9 1 in	9 0
Chest Circumference (With Jacket)	Y	38 2 - 39 4 in	39 0
Waist Circumference	Z	32 9 - 34 1 in	33 4
Chest Depth	O	8 4 - 9 0 in	8 5
H-Point Height	C	3 3 - 3 5 in	3 4
H-Point from Backline	D	5 3 - 5 5 in	5 4
Skull Cap to Backline	H	1 6 - 1 8 in	1 7
Total Sitting Height	A	34 6 - 35 0 in	34 8
Thigh Clearance	F	5 5 - 6 1 in	6 1
Buttock Knee Length	K	22 8 - 23 8 in	23 6
Buttock Popliteal Length	N	17 8 - 18 8 in	18 6
Popliteal Height	L	16 9 - 17 9 in	17 2
Knee Pivot Height	M	19 1 - 19 7 in	19 4
Foot Length	P	9 9 - 10 5 in	10 2
Foot Breadth	W	3 6 - 4 2 in	3 9
Shoulder Pivot from Backline	E	3 3 - 3 7 in	3 7
Shoulder Breadth	V	16 6 - 17 2 in	16 9
Shoulder Pivot Height	B	19 9 - 20 5 in	20 3
Elbow Rest Height	J	7 5 - 8 3 in	7 9
Shoulder - Elbow Length	I	13 0 - 13 6 in	13 2
Back of Elbow to Wrist Pivot	G	11 4 - 12 0 in	11 6

Remarks

Laboratory Technician B Swiecicki

APPENDIX D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 288)		Manufacturer	Serial #	Calibration	
				Last	Next
Head 9 Array X Arm	Y	ENTRAN	AC-98H10-F01	4/12/01	10/11/01
	Z	ENTRAN	AC-99102-F08	4/12/01	10/11/01
Head 9 Array Y Arm	X	ENTRAN	AC-99102-F10	4/11/01	10/10/01
	Z	ENDEVCO	AC-P15341	4/11/01	10/10/01
Head 9 Array Z Arm	X	ENTRAN	AC-99102-F13	4/12/01	10/11/01
	Y	ENTRAN	AC-99108-F27	4/11/01	10/10/01
Head CG	X	ENTRAN	AC-99102-F12	4/12/01	10/11/01
	Y	ENTRAN	AC 00L13-F13	1/18/01	7/19/01
	Z	FNTRAN	AC-99108-F25	4/12/01	10/11/01
Head CG	X (R)	ENTRAN	AC-99D15-N08	4/12/01	10/11/01
	Y (R)	ENTRAN	AC-00L20-A12	1/18/01	7/19/01
	Z (R)	ENTRAN	AC-00L13-F72	3/2/01	8/31/01
Neck Load Cell	X	DENTON	LC 851FX	12/28/00	6/28/01
	Y	DENTON	LC-851FY	12/28/00	6/28/01
	Z	DENTON	LC-851FZ	12/28/00	6/28/01
Neck Moment	X	DENTON	LC-851MX	12/28/00	6/28/01
	Y	DENTON	LC-851MY	12/28/00	6/28/01
	Z	DENTON	LC-851MZ	12/28/00	6/28/01
Chest	X	ENTRAN	AC-99H12-F18	4/17/01	10/16/01
	Y	ENTRAN	AC-99H12-F29	4/17/01	10/16/01
	Z	ENTRAN	AC-98H13-F15	4/17/01	10/16/01
Chest	X (R)	ENTRAN	AC-99H12 F14	4/17/01	10/16/01
	Y (R)	ENTRAN	AC-99H12-F23	4/17/01	10/16/01
	Z (R)	ENTRAN	AC-99H12 F11	4/17/01	10/16/01
Chest Deflection Gauge		SERVO	DS-288	5/4/01	11/2/01
Pelvic	X	ENDEVCO	AC-P16225	4/17/01	10/16/01
	Y	ENDEVCO	AC-P16171	4/17/01	10/16/01
	Z	ENDEVCO	AC-P16945	4/17/01	10/16/01

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 288)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load	X	DENTON	LC-257FX	12/28/00	6/28/01
	Y	DENTON	LC-257FY	12/28/00	6/28/01
	Z	DENTON	LC-257FZ	12/28/00	6/28/01
L Femur Moment	X	DENTON	LC-257MX	12/28/00	6/28/01
	Y	DENTON	LC-257MY	12/28/00	6/28/01
	Z	DENTON	LC-257MZ	12/28/00	6/28/01
Right Femur Load	X	DENTON	LC-259FX	12/29/00	6/29/01
	Y	DENTON	LC-259FY	12/29/00	6/29/01
	Z	DENTON	LC-259FZ	12/29/00	6/29/01
R Femur Moment	X	DENTON	LC-259MX	12/29/00	6/29/01
	Y	DENTON	LC-259MY	12/29/00	6/29/01
	Z	DENTON	LC-259MZ	12/29/00	6/29/01
Left Knee Shear Dx		ASTC	FLX-102-LTKN	9/26/00	3/27/01
Right Knee Shear Dx		ASTC	FLX-101-RTKN	9/26/00	3/27/01
Left Upper Tibia	Fx	DENTON	FLX-102-UTLFX	9/26/00	3/27/01
	Fz	DENTON	FLX-102-UTLFZ	9/26/00	3/27/01
	Mx	DENTON	FLX-102-UTLMX	9/26/00	3/27/01
	My	DENTON	FLX-102-UTLMY	9/26/00	3/27/01
Left Lower Tibia	Fx	DENTON	FLX-102-LTLFX	9/26/00	3/27/01
	Fy	DENTON	FLX-102-LTLFY	9/26/00	3/27/01
	Fz	DENTON	FLX-102-LTLFZ	9/26/00	3/27/01
	Mx	DENTON	FLX-102-LTLMX	9/26/00	3/27/01
	My	DENTON	FLX-102-LTLMY	9/26/00	3/27/01
Right Upper Tibia	Fx	DENTON	FLX-101-UTRFX	9/26/00	3/27/01
	Fz	DENTON	FLX-101-UTRFZ	9/26/00	3/27/01
	Mx	DENTON	FLX-101-UTRMX	9/26/00	3/27/01
	My	DENTON	FLX-101-UTRMY	9/26/00	3/27/01

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 288)		Manufacturer	Serial #	Calibration	
				Last	Next
Right Lower Tibia	Fx	DENTON	FLX-101-LTRFX	9/26/00	3/27/01
	Fy	DENTON	FLX-101-LTRFY	9/26/00	3/27/01
	Fz	DENTON	FLX-101 LTRFZ	9/26/00	3/27/01
	Mx	DENTON	FLX-101-LTRMX	9/26/00	3/27/01
	My	DENTON	FLX-101-LTRMY	9/26/00	3/27/01
Left Tibia	X	ENDEVCO	AC-P15638	9/27/00	3/28/01
	Y	ENDEVCO	AC-P16361	9/27/00	3/28/01
Right Tibia	X	ENDEVCO	AC-P16899	9/27/00	3/28/01
	Y	ENDEVCO	AC-P17297	9/27/00	3/28/01
Left Ankle	Rx	CONTELEC	LX-102-AXLRP	9/26/00	3/27/01
	Ry	CONTELEC	LX-102-AYLRP	9/26/00	3/27/01
	Rz	CONTELEC	LX-102-AZLRP	9/26/00	3/27/01
Right Ankle	Rx	CONTELEC	LX-101-AXRRP	9/26/00	3/27/01
	Ry	CONTELEC	LX-101-AYRRP	9/26/00	3/27/01
	Rz	CONTELEC	LX-101-AZRRP	9/26/00	3/27/01
Left Foot	Ax	ENDEVCO	AC-P17196	9/27/00	3/28/01
	Ay	ENDEVCO	AC-P16975	10/2/00	4/2/01
	Az	ENDEVCO	AC-P16281	9/27/00	3/28/01
Right Foot	Ax	ENDEVCO	AC-P13574	9/27/00	3/28/01
	Ay	ENDEVCO	AC-P17836	9/27/00	3/28/01
	Az	ENDEVCO	AC-P15831	9/27/00	3/28/01
Lap Belt Load Cells		LEBOW	LC-706	12/1/00	6/1/01
Shoulder Belt Load Cells		-	-	-	-
Spool-Out Potentiometer		-	-	-	-
Belt Stretch Transducer		-	-	-	-

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 202)		Manufacturer	Serial #	Calibration	
				Last	Next
Head CG	X	ENDEVCO	AC-J28988	9/12/00	3/13/01
	Y	ENDEVCO	AC-J28686	9/12/00	3/13/01
	Z	ENDEVCO	AC-J22039	9/12/00	3/13/01
Head CG	X (R)	ENDEVCO	AC-J20556	9/12/00	3/13/01
	Y (R)	ENDEVCO	AC-J28727	9/12/00	3/13/01
	Z (R)	ENDEVCO	AC-J20382	9/12/00	3/13/01
Neck Load Cell	X	DENTON	LC-425FX	9/15/00	3/16/01
	Y	DENTON	LC-425FY	9/15/00	3/16/01
	Z	DENTON	LC-425FZ	9/15/00	3/16/01
Neck Moment	X	DENTON	LC-425MX	9/15/00	3/16/01
	Y	DENTON	LC-425MY	9/15/00	3/16/01
	Z	DENTON	LC-425MZ	9/15/00	3/16/01
Chest	X	ENDEVCO	AC-J27072	9/12/00	3/13/01
	Y	ENDEVCO	AC-J35320	9/12/00	3/13/01
	Z	ENDEVCO	AC-J23946	9/12/00	3/13/01
Chest	X (R)	ENDEVCO	AC-CY06H	9/12/00	3/13/01
	Y (R)	ENDEVCO	AC-J27079	9/12/00	3/13/01
	Z (R)	ENDEVCO	AC-J20570	9/12/00	3/13/01
Chest Deflection Gauge		SERVO	DS-202	4/23/01	10/22/01
Pelvic	X	ENDEVCO	AC-P18628	3/26/01	9/24/01
	Y	ENDEVCO	AC-BE39J	9/12/00	3/13/01
	Z	ENDEVCO	AC-J35933	9/12/00	3/13/01

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 202)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load	X	DENTON	LC-411FX	9/1/00	3/2/01
	Y	DENTON	LC-411FY	9/1/00	3/2/01
	Z	DENTON	LC-411FZ	9/1/00	3/2/01
L Femur Moment	X	DENTON	LC-411MX	9/1/00	3/2/01
	Y	DENTON	LC-411MY	9/1/00	3/2/01
	Z	DENTON	LC-411MZ	9/1/00	3/2/01
Right Femur Load	X	DENTON	LC-412FX	9/1/00	3/2/01
	Y	DENTON	LC-412FY	9/1/00	3/2/01
	Z	DENTON	LC-412FZ	9/1/00	3/2/01
R Femur Moment	X	DENTON	LC-412MX	9/1/00	3/2/01
	Y	DENTON	LC-412MY	9/1/00	3/2/01
	Z	DENTON	LC-412MZ	9/1/00	3/2/01
Left Knee Shear Dx		DENTON	DS-13739	9/19/00	3/20/01
Right Knee Shear Dx		DENTON	DS-13723	9/19/00	3/20/01
Left Upper Tibia	Fx	DENTON	LX-104-UTLFX	9/26/00	3/27/01
	Fz	DENTON	LX-104-UTLFZ	9/26/00	3/27/01
	Mx	DENTON	LX-104-UTLMX	9/26/00	3/27/01
	My	DENTON	LX-104-UTIMY	9/26/00	3/27/01
Left Lower Tibia	Fx	DENTON	LX-104-LTLFX	9/26/00	3/27/01
	Fy	DENTON	LX-104-LTLFY	9/26/00	3/27/01
	Fz	DENTON	LX-104-LTLFZ	9/26/00	3/27/01
	Mx	DENTON	LX-104-LTLMX	9/26/00	3/27/01
	My	DENTON	LX-104-LTLMY	9/26/00	3/27/01
Right Upper Tibia	Fx	DENTON	LX-103-UTRFX	9/26/00	3/27/01
	Fz	DENTON	LX-103-UTRFZ	9/26/00	3/27/01
	Mx	DENTON	LX-103-UTRMX	9/26/00	3/27/01
	My	DENTON	LX-103-UTRMY	9/26/00	3/27/01

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 202)		Manufacturer	Serial #	Calibration	
				Last	Next
Right Lower Tibia	Fx	DENTON	LX-103-LTRFX	9/26/00	3/27/01
	Fy	DENTON	LX-103-LTRFY	9/26/00	3/27/01
	Fz	DENTON	LX-103-LTRFZ	9/26/00	3/27/01
	Mx	DENTON	LX-103-LTRMX	9/26/00	3/27/01
	My	DENTON	LX-103-LTRMY	9/26/00	3/27/01
Left Tibia	X	ENDEVCO	AC-P17858	10/11/00	4/11/01
	Y	ENDEVCO	AC-P16946	10/6/00	4/6/01
Right Tibia	X	ENDEVCO	AC-P12566	9/19/00	3/20/01
	Y	ENDEVCO	AC-P12482	9/19/00	3/20/01
Left Ankle	Rx	CONTELEC	LX-104-AXLRP	9/26/00	3/27/01
	Ry	CONTELEC	LX-104-AYLRP	9/26/00	3/27/01
	Rz	CONTELEC	LX-104-AZLRP	9/26/00	3/27/01
Right Ankle	Rx	CONTELEC	LX-103-AXRRP	9/26/00	3/27/01
	Ry	CONTELEC	LX-103-AYRRP	9/26/00	3/27/01
	Rz	CONTELEC	LX-103-AZRRP	9/26/00	3/27/01
Left Foot	Ax	ENDEVCO	AC-P18264	9/27/00	3/28/01
	Ay	ENDEVCO	AC-P17848	10/11/00	4/11/01
	Az	ENDEVCO	AC-P16328	9/27/00	3/28/01
Right Foot	Ax	ENDEVCO	AC-P17846	10/11/00	4/11/01
	Ay	ENDEVCO	AC-P15345	10/11/00	4/11/01
	Az	ENDEVCO	AC-P15951	10/11/00	4/11/01
Lap Belt Load Cells		LEBOW	LC-711	12/1/00	6/1/01
Shoulder Belt Load Cells		-	-	-	-
Spool-Out Potentiometer		-	-	-	-
Belt Stretch Transducer		-	-	-	-

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	ICS	AC-D40	4/18/01	10/17/01
Left Seat Rear Crossmember Y	ICS	AC-D41	4/18/01	10/17/01
Right Seat Rear Crossmember X	ICS	AC-X86	2/15/01	8/16/01
Right Rear Seat Crossmember Y	ICS	AC-H20	2/15/01	8/16/01
Driver Left Side Toe Pan X	ENDEVCO	AC-J24754	2/13/01	8/14/01
Driver Left Side Toe Pan Z	ENDEVCO	AC-ACC06	2/23/01	8/24/01
Driver Right Side Toe Pan X	ENDEVCO	AC-A14433	2/15/01	8/16/01
Driver Right Side Toe Pan Z	ENDEVCO	AC-A13513	1/12/01	7/13/01
Trunk Z	ENDEVCO	AC-P18728	2/21/01	8/22/01