

V.3457

REPORT NUMBER: CAL-00-2-1

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

**FUJI HEAVY INDUSTRIES  
2000 SUBARU LEGACY  
4-DOOR SEDAN**

NHTSA NUMBER: RY5502

VERIDIAN TEST NUMBER: 8413-57

VERIDIAN ENGINEERING  
TRANSPORTATION SCIENCES CENTER  
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BUFFALO, NEW YORK 14225



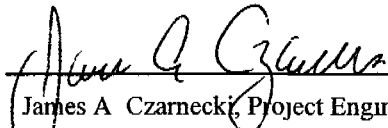
October 17, 2000


FINAL REPORT

PREPARED FOR

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  
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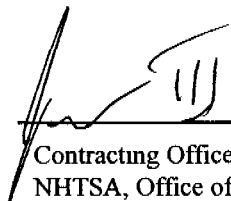
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Prepared by   
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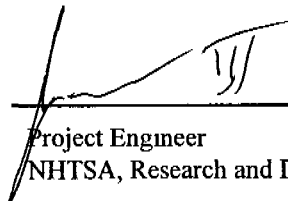
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Approval Date. December 4, 2000

FINAL REPORT ACCEPTANCE BY OCS

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

2/25/02  
Date of Report Acceptance

  
Project Engineer  
NHTSA, Research and Development

2/25/02  
Date of Report Acceptance

**TECHNICAL REPORT STANDARD TITLE PAGE**

1 <i>Report No</i> CAL-00-2-1		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 Subaru Legacy 4-door Sedan NHTSA No RY5502		5 <i>Report Date</i> October 17,2000		6 <i>Performing Organization Code</i> CAL	
		7 <i>Author(s)</i> James A Czajnecki, Project Engineer David J Travalca, Program Manager		8 <i>Performing Organization Report No</i> 8413-57	
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> DTNH22-96-D-02010	
		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 Oct 2000 - Jan 2001	
				14 <i>Sponsoring Agency Code</i> NRD-11	
15 <i>Supplementary Notes</i>					
16 <i>Abstract</i> <p>This test is to evaluate the use of the Thor Advanced Lower Extremity (Thor-Lx) in the frontal 40% offset deformable barrier test. A frontal 40% offset barrier impact test of a 2000 Subaru Legacy 4-door Sedan was performed at Veridian Engineering crash test facility in Buffalo, New York, on October 17,2000.</p> <p>The impact velocity was 64.47 kph and the temperature at the barrier face was 20°C. The maximum post-test vehicle crush was 742 mm. The test vehicle was equipped with 3-point restraint systems, knee bolsters, and airbags at both the driver and right outboard passenger seating positions.</p> <p>With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appeared to comply with head, chest, and femur requirements.</p>					
<b>ATD Position</b>	<b>HIC</b>	<b>Clip (g's)</b>	<b>Chest Disp (mm)</b>	<b>Left Femur (N)</b>	<b>Right Femur (N)</b>
<b>Driver (202)</b>	-	45.8	26.7	3264.2	3111.7
<b>Passenger (288)</b>	338.5	45.7	29.3	2196.1	1448.0
17 <i>Key Words</i> Frontal 40% Offset Barrier Impact Test 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		
19 <i>Security Classif (of this report)</i> UNCLASSIFIED		20 <i>Security Classif (of this page)</i> UNCLASSIFIED		21. <i>No of Pages</i> 357	22 <i>Price</i>

Form DOT F1700.7 (8-69)

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## SECTION 1

### PURPOSE AND SUMMARY OF TEST RY5502

#### PURPOSE

This 64.47 kph frontal 40% offset barrier impact test is part of the Test Procedure Development Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-96-D-02010. The purpose of this test was to evaluate the performance of the Thor-Lx Hybrid III retrofit (Thor-Lx/HIIIr) 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 mounted to a load cell barrier consisting of 30 load cells was impacted by a 2000 Subaru Legacy 4-door Sedan at 40% overlap at a velocity of 64.47 kph. The test was performed at Veridian Engineering on October 17, 2000. 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 572E, 50th percentile male anthropomorphic test device (ATD) and One Part 572E, 5th percentile female anthropomorphic test device (ATD), were placed in the driver and right-front passenger seating positions according to dummy placement instructions specified in the Laboratory Indicant Test Procedure.

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

The 188 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces

The driver's Head X acceleration data contained a spike at 96 milliseconds therefore the HIC could not be calculated with confidence. The maximum chest deceleration over 3 milliseconds was 45.8 g's and maximum chest deflection was 26.7 mm. Compressive femur loads were 3264.2 Newtons on the left and 3111.7 Newtons on the right.

The right front passenger's HIC was 338.5. Maximum chest deceleration over 3 milliseconds was 45.7 g's and maximum chest deflection was 29.3 mm. Compressive femur loads were 2196.1 Newtons on the left and 1448.0 Newtons on the right.

**SECTION 2**

**GENERAL TEST AND VEHICLE PARAMETER DATA**

**DATA SHEET NO. 1 CRASH TEST SUMMARY**

Vehicle NHTSA No : RY5502 Test Mode : 64.0 kph Offset Frontal Barrier  
 Test Date : October 17,2000 Time 14 22 Temperature : 51 °C  
 Vehicle Make/Model/Body Style : 2000 Subaru Legacy 4-door Sedan  
 Vehicle Test Weight : 1663 kg  
 Vehicle/Barrier Impact Angle 0 °  
 Impact Velocity : 64.47 kph  
 Maximum Static Crush 742 mm  
 Actual Vehicle Offset : 41.17 %

<u>DUMMIES</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Type	<u>572E</u>	<u>572E</u>
Restraint System	<u>Airbag with 3 point belt system</u>	<u>Airbag with 3-point belt system</u>
Lower Leg .	<u>Thor-Lx</u>	<u>Denton</u>
Number of Data Channels	<u>188</u>	
Number of Cameras	<u>1</u> Real Time	
	<u>16</u> High Speed	

DOOR OPENING DATA : Closed/Operable - Left Front  
Closed/Operable - Right Front

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

<u>VISIBLE DUMMY CONTACT POINTS</u>	<u>DRIVER</u>	<u>PASSENGER</u>
Head	<u>Airbag</u>	<u>Airbag</u>
Abdomen :	<u>-</u>	<u>-</u>
Chest	<u>Airbag</u>	<u>Airbag</u>
Knees	<u>Knee Bolster</u>	<u>Knee Bolster</u>

DATA SHEET NO 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION

Year/Make/Model/Body Style : 2000 Subaru Legacy 4-door Sedan  
NHTSA No RY5502 , VIN 4S3BE6353Y7215332 , Color White  
Engine Data 4 cylinders, - CID, 2.5 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, - Front Wheel Drive, x Four Wheel Drive  
Major Options x A/C, x Pwr Strg , x Pwr Brakes  
x Pwr Windows, x Pwr Door Locks, x Tilt Wheel  
Date Received 8/31/2000 , Odometer Reading 353 km  
Selling Dealer Goldstem Motors Inc  
& Address 1754 Central Ave Albany , N Y 12212

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL

Vehicle Manufactured by Fuji Heavy Industries  
Date of Manufacture 2/00  
GVWR 1996 kg, GAWR 1007 kg FRONT, 989 kg REAR

DATA FROM TIRE PLACARD

Tire Pressure with Maximum Capacity Vehicle Load 220 kpa FRONT  
200 kpa REAR  
Recommended Tire Size P205/60R15  
\* Recommended Cold Tire Pressure 220 kpa FRONT, 200 kpa REAR  
Size of Tires on Test Vehicle P205/60R15 , Manufacturer Bridgestone  
Vehicle Capacity Data  
Type of Front Seats - Bench, x Bucket; - Split Bcnch  
Number of Occupants. 2 Front, 3 Rear; 5 Total  
Vehicle Capacity Weight (VCW) = 3860 kg  
No of Occupants x 68 kg = 340 kg  
Rated Cargo/Luggage Weight (RCLW) = 46 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>415.5</u>	kg	Right Rear	=	<u>326</u>	kg
Left Front	=	<u>433.5</u>	kg	Left Rear	=	<u>433.5</u>	kg
TOTAL FRONT	=	<u>849.0</u>	kg	TOTAL REAR	=	<u>759.5</u>	kg
TOTAL DELIVERED WEIGHT	=	<u>1608.5</u>	kg				
% of Total Front of Vehicle Weight	=	<u>52.8</u>	%	% of Total Rear Weight	=	<u>47.2</u>	%

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT

Total Delivered Weight (UDW)	=	<u>1608.5</u>	kg
Rated Cargo/Luggage Weight (RCLW)	=	<u>45.8</u>	kg
Weight of 2 p 572 Dummies @ 76 each	=	<u>152.0</u>	kg
TARGET TEST WEIGHT	=	<u>1806.3</u>	kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 0 KG OF CARGO WEIGHT

Right Front	=	<u>0470.5</u>	kg	Right Rear	=	<u>430.5</u>	kg
Left Front	=	<u>379.5</u>	kg	Left Rear	=	<u>383.0</u>	kg
TOTAL FRONT	=	<u>850.0</u>	kg	TOTAL REAR	=	<u>813.5</u>	kg
TOTAL TEST WEIGHT	=	<u>1663.5</u>	kg	Test weight approved by COTR			
% of Total Front Weight	=	<u>51.1</u>	%	% of Total Rear Weight	=	<u>48.9</u>	%
Weight of Ballast Secured in Vehicle Trunk Area	=	<u>0</u>	kg				
Vehicle Components Removed for Weight Reduction				<u>muffler, rear door skins, rear seating cushions</u>			

VEHICLE ATTITUDE (all dimension in millimeters)

AS DELIVERED .	RF	<u>689</u>	LF	<u>690</u>	RR	<u>696</u>	LR	<u>688</u>
FULLY LOADED :	RF	<u>674</u>	LF	<u>675</u>	RR	<u>672</u>	LR	<u>665</u>
AS TESTED :	RF	<u>685</u>	LF	<u>685</u>	RR	<u>676</u>	LR	<u>669</u>
Vehicle's Wheel Base		<u>2653</u>	mm					
Location of Vehicle's C G :		<u>1297.4</u>	mm rearward of front wheel center					

FUEL SYSTEM DATA

Fuel System Capacity From Owner's Manual	=	<u>64</u>	liters
Usable Capacity Figure Furnished by COTR	=	<u>64</u>	liters
Test Volume Range (92 to 94% of Usable Capacity)	=	<u>58.9</u>	to <u>60.2</u> liters
ACTUAL TEST VOLUME	=	<u>58.9</u>	liters (with entire fuel system filled)
Test Fluid Type	<u>Stoddard Solution</u> ,	Spec Grav =	<u>0.764</u>
	Kinematic Viscosity =	<u>0.96</u>	centistokes, Color = <u>Orange</u>
Type of Fuel Pump	Electric- <u>x</u> ,	Mechanical-	<u>-</u>
Does Electric Pump operate with ignition switch "ON" & engine "OFF"		Yes- <u>x</u>	No- <u>-</u>
Details of Fuel System	<u>Fuel filler on passenger side, fuel lines run along right frame rail and fuel tank is centered fore of rear axle</u>		

DATA SHEET NO 3 POST IMPACT DATA

TYPE OF TEST.

Type of Test Frontal Barrier Impact Angle : 0°  
Test Date : October 17,2000 Time: 14 22 Temperature. 51 °C  
Vehicle NHTSA No : RY5502  
Required Impact Velocity Range . 63 57 to 65 18 kph

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

Trap No 1 = 64 47 kph; Trap No 2 = 64 47 kph  
Distance from vehicle to barrier (1) entering trap = 813 mm  
(2) exiting trap = 305 mm

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

Vehicle Length

Pre-Test Right = 4629 , C/L = 4667 , Left = 4625  
Post-Test Right = 4434 , C/L = 4123 , Left = 3883  
Crush Right = 195 0 , C/L = 544 0 , Left = 742 0  
AVERAGE = 493 7 mm

VEHICLE OFFSET DATA (mm)

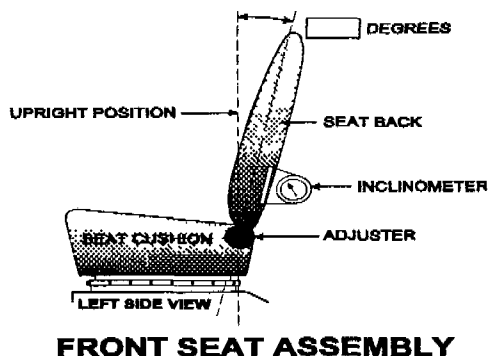
Vehicle Width = 1710 mm  
Desired Vehicle Offset = 684 0 mm  
Actual Vehicle Offset = 704 mm (from film analysts)  
Offset Difference = 20 0 mm  
Actual Percent Offset = 41 17 %

DATA SHEET NO 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION

Model Year 2000 Vehicle Model Subaru Legacy 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. 75

Measurement instructions. Reclined seat back rearward to 4<sup>th</sup> locking position

Seat back angle for passenger's seat -

Measurement instructions Seat back was set following the hybrid III female 5<sup>th</sup> percentile seating procedure female 5<sup>th</sup> ATD head is level

- 2 Seat Fore and Aft Positioning

Positioning of the driver's seat 18 notches were located and the seat was placed in the 10<sup>th</sup>

Positioning of the passenger's seat Seat was set following the hybrid III female 5<sup>th</sup> percentile seating procedure (full forward seat track position)

- 3 Fuel Tank Capacity Data

3 1 A "Usable Capacity" of the standard equipment fuel tank is 64 liters

B "Usable Capacity" of the optional equipment fuel tank is 64 liters

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

3 2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 58.9 liters

3 3 Is vehicle equipped with electric fuel pump? Yes- x, No- -

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

With vehicle ignition turned on

DATA SHEET NO 4 TEST VEHICLE INFORMATION (cont)

4 STEERING COLUMN ADJUSTMENTS :

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

Operational Instructions: Set column adjustment to middle of tilt adjustment range

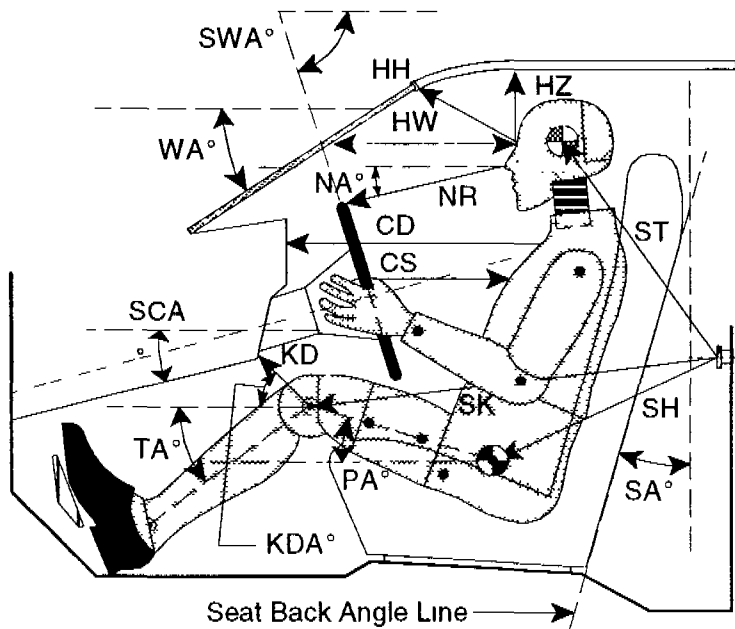
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5 SEAT BELT UPPER ANCHORAGE

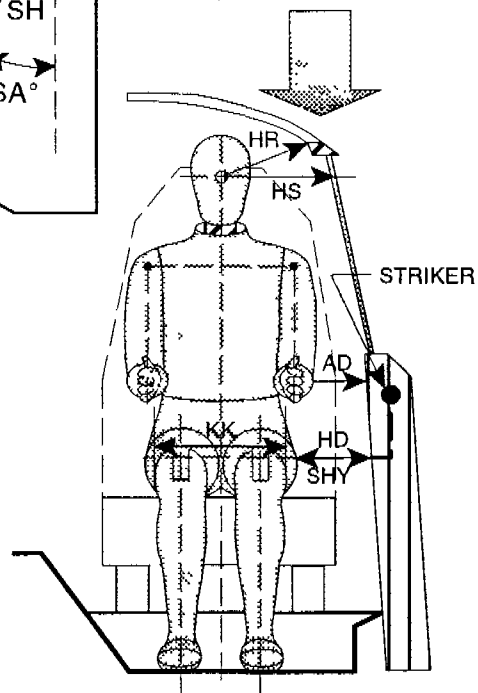
Nominal design riding position Set to 2<sup>nd</sup> of 5 positions from top for driver and placed to lowest position for female 5<sup>th</sup> ATD

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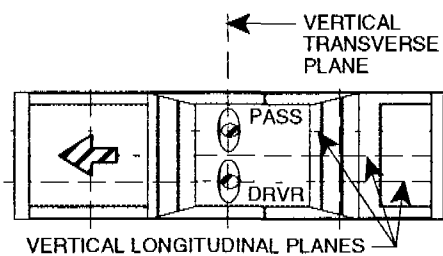
### DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS



- AD - Arm to Door
- HD - H-Point to Door
- HR - Head to Side Header
- HS - Head to Side Window
- KK - Knee to Knee
- SHY- Striker to H-Point (Y Direction)



- CD - Chest to Dash
- CS - Steering Wheel to Chest
- HH - Head to Header
- HW - Head to Windshield
- HZ - Head to Roof
- KDA - Knee to Dash Angle
- KDL- Left Knee to Dash
- KDR - Right Knee to Dash
- NA - Nose to Rim Angle
- NR - Nose to Rim
- PA - Pelvic Angle
- RA - Rim to Abdomen
- SA - Seat Back Angle
- SCA - Steering Column Angle
- SH - Striker to H-Point
- SK - Striker to Knee
- ST - Striker to Head
- SWA- Steering Wheel Angle
- TA - Tibial Angle
- WA - Windshield Angle



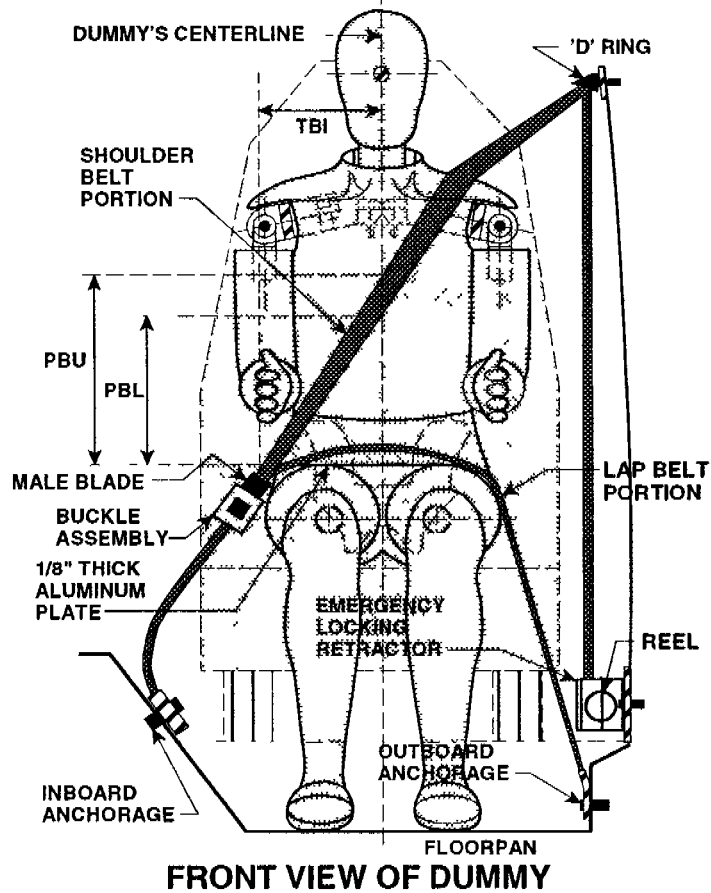
DATA SHEET NO 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #202)			PASS (Serial # 288)		
WA°	29 deg			N/A		
SWA°	67 deg			N/A		
SCA°	23 deg.			N/A		
SA°	7 5 deg			7 5 deg		
HZ	171			214		
HH	311			242		
HW	527			552		
HR	249			263		
NR	408	Angle	11 deg	N/A		
CD	520			383		
CS	292 (horizontal measurement)			N/A		
RA	194			N/A		
KDL	164	Angle (KDA)	28 deg	81		
KDR	167			82	Angle (KDA)	38 deg
PA°	23 1 deg			22 2 deg		
TA°	42 deg			50 7 deg		
KK	272			170		
ST	569	Angle	3 deg	508	Angle	20 deg.
SK	556	Angle	88 5 deg	682	Angle	90 deg
SH	235	Angle	125 deg	370	Angle	103 deg
SHY	232			280		
HS	243			255		
HD	129			220		
AD	99			165		

Dimensions in millimeters

DATA SHEET NO 6 SEAT BELT POSITIONING DATA

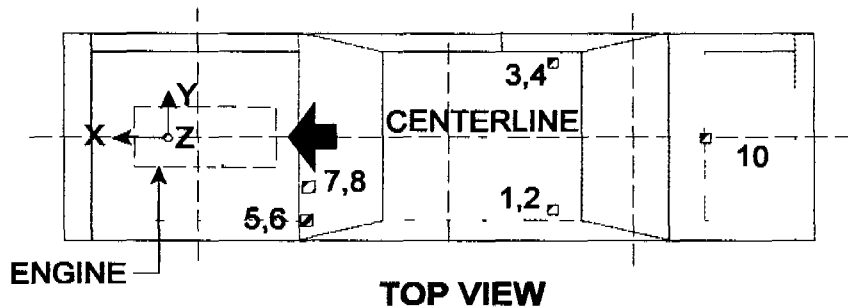
SEAT BELT POSITIONING DATA



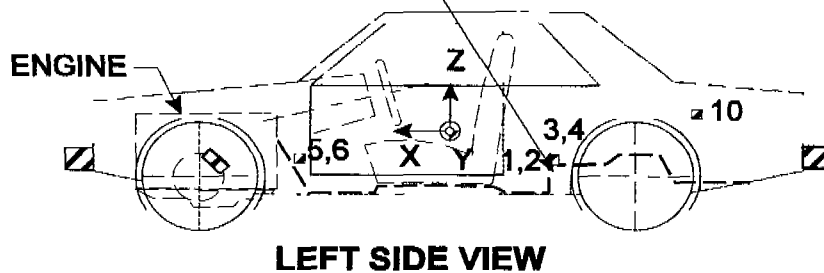
FRONT VIEW OF DUMMY

	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum plate to upper edge	329	275
PBL-- Top surface of alum plate to belt lower edge	256	195
LAP BELT TENSION	10 N	10 N
SHOULDER BELT TENSION	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	X	1892	532	388
	Y	1892	381	431
Right Rear Seat Crossmember	X	1892	532	388
	Y	1892	381	431
Driver Left Side Toe Pan		3307	489	378
Driver Right Side Toe Pan		3307	307	366
Trunk		1102	0	443

X-Direction is referenced from vehicle rear bumper

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

Z-Direction is referenced from ground plane

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos	msec	Neg	msec
1	Rear Seat X-Member @ Left Side X	4.5	167.3	-38.6	83.4
2	Rear Seat X-Member @ Left Side Y	11.2	78.7	-9.6	138.8
3	Rear Seat X-Member @ Right Side X	3.1	142.6	-34.7	84.6
4	Rear Seat X-Member @ Right Side Y	11.2	80.5	-9.5	138.6
5	Driver Toe Pan @ Left Side X	4.6	213.2	-53.6	72.3
6	Driver Toe Pan @ Left Side Y	16.4	54.4	*	*
7	Driver Toe Pan @ Right Side X	5.8	170.5	-49.9	71.9
8	Driver Toe Pan @ Right Side Y	25.2	71.9	-18.3	86.9
9	Trunk Z	38.2	114.3	-13.5	92.3

\* Accelerometer wire cut during event

DATA SHEET NO 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style

2000 Subaru Legacy 4-door Sedan

NHTSA Test No

RY5502

Test Date

October 17,2000

DESCRIPTION	Unit	MAXIMUM VALUE							
		Driver				Passenger			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head X	g	*	*	*	*	11.6	255.8	-37.4	79.1
Head Y	g	8.5	130.6	-10.1	99.8	27.5	98.3	-6.2	48.5
Head Z	g	35.6	109.5	-6.5	144.5	21.7	95.3	-10.4	136.1
Head Resultant	g	375.3	95.9	-	-	42.9	86.7	-	-
Redundant Head X	g	10.0	266.5	-34.6	117.0	‡	‡	‡	‡
Redundant Head Y	g	8.1	131.1	-12.1	100.9	‡	‡	‡	‡
Redundant Head Z	g	14.8	60.8	**	**	‡	‡	‡	‡
Redundant Head Resultant	g	113.5	145.7	-	-	‡	‡	-	-
Upper Neck Fx	N	*	*	*	*	215.7	80.9	-67.8	470.9
Upper Neck Fy	N	*	*	*	*	177.9	174.6	-85.7	85.4
Upper Neck Fz	N	1956.9	108.2	-574.5	149.0	1014.3	95.8	-274.3	145.9
Upper Neck F Resultant	N	1993.7	110.0	-	-	1017.5	95.8	-	-
Upper Neck Mx	N-m	54.5	269.0	-28.4	217.0	11.0	179.0	-15.1	99.6
Upper Neck My	N-m	13.2	76.4	-23.6	117.6	15.2	57.8	-9.5	280.4
Upper Neck Mz	N-m	19.5	116.2	-5.5	149.1	6.6	200.8	-16.8	112.3
Upper Neck M Resultant	N-m	55.3	269.0	-	-	22.7	101.0	-	-
Chest X	g	2.9	308.1	-40.2	104.8	2.2	287.3	-42.5	92.3
Chest Y	g	20.7	104.8	-1.9	161.5	17.3	99.1	-1.9	167.0
Chest Z	g	12.6	109.0	-8.2	144.1	13.0	91.9	-12.1	140.9
Chest Resultant	g	46.3	105.0	-	-	46.1	92.0	-	-
Redundant Chest X	g	2.9	308.1	-40.0	105.0	‡	‡	‡	‡
Redundant Chest Y	g	21.0	104.9	-1.8	161.5	‡	‡	‡	‡
Redundant Chest Z	g	12.1	108.3	-8.4	143.3	‡	‡	‡	‡
Redundant Chest Resultant	g	46.2	105.1	-	-	‡	‡	-	-
Chest Displacement	mm	0.0	4.9	-26.7	108.6	0.1	28.8	-29.3	96.8

‡ Instrumentation not placed in dummy .

\* Questionable data spike at 96 msec.

\*\* Data questionable after 63 msec

DATA SHEET NO 8 DUMMY INJURY CRITERIA VALUES (cont)

Vehicle Year/Make/Model/Body Style 2000 Subaru Legacy 4-door Sedan  
 NHTSA Test No RY5502 Test Date October 17, 2000

DESCRIPTION	Unit	MAXIMUM VALUE							
		Driver				Passenger			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Pelvic X	g	1 8	181 6	-41 6	89 5	5 3	158 3	-46 5	91 2
Pelvic Y	g	20 2	105 5	-6 6	157 5	18 0	93 0	-6 5	147 5
Pelvic Z	g	2 2	318 3	-21 1	91 1	3 7	235 1	-13 5	126 2
Pelvic Resultant	g	48 9	95 4	-	-	49 1	91 2	-	-
Left Femur Fx	N	923 9	104 2	-56 1	181 4	357 8	76 7	-67 2	149 4
Left Femur Fy	N	590 5	96 0	-129.1	158 4	244 5	94 1	-41 9	147 8
Left Femur Fz	N	693 9	72 2	-3264 2	107 2	71 6	244 3	-2196 1	92 7
Left Femur Force Resultant	N	3413 7	107 2	-	-	2223 0	92 7	-	-
Left Femur Mx	N-m	21 3	138 1	-68 9	97 6	31 2	113 9	-41 8	81 2
Left Femur My	N-m	113 0	115 4	-44 6	86 0	82 3	99 7	-6 2	144 1
Left Femur Mz	N-m	6 9	108 4	-34 1	81 5	16 7	109 4	-21 9	127 3
Left Femur Moment Res.	N-m	113 0	115 4	-	-	87 2	97 8	-	-
Right Femur Fx	N	a	a	a	a	311 6	69 3	-132 4	150 1
Right Femur Fy	N	663 8	97 3	-163 9	128 8	231 4	154 6	-42 3	39 0
Right Femur Fz	N	212 5	45 7	-3111 7	100 2	278 6	149 7	-1448.0	54 6
Right Femur Force Resultant	N	a	a	-	-	1451 7	54.6	-	-
Right Femur Mx	N-m	43 1	108 1	-57 7	78 9	7 0	113 7	-41.3	82 7
Right Femur My	N-m	93 2	115 5	-7 8	79 6	53 6	100 7	-10.2	143.8
Right Femur Mz	N-m	48 4	78 8	-23 3	186 9	20 8	106 3	-27 4	131 9
Right Femur Moment Res.	N-m	96 0	115 6	-	-	61 3	97 6	-	-
Left Knee Shear Dx	mm	0 4	76 0	-4 9	97 9	0 6	100 7	0 0	329 6
Right Knee Shear Dx	mm	0 1	48 8	-10 6	100 9	0 8	101 8	0 0	-55 7

a - Cable cut at 59 msec

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

Vehicle Year/Make/Model/Body Style

2000 Subaru Legacy 4-door Sedan

NHTSA Test No

RY5502

Test Date

October 17, 2000

DESCRIPTION	Unit	MAXIMUM VALUE							
		Driver				Passenger			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Left Upper Tibia Fx	N	1108.4	77 7	-380 0	117 6	41 6	81 7	-123 8	120 9
Left Upper Tibia Fy	N	‡	‡	‡	‡	‡	‡	‡	‡
Left Upper Tibia Fz	N	51 2	188 1	-1650 5	82 9	59 6	157 9	-1255 6	77 0
Left Upper Tibia FR	N	‡	‡	‡	‡	‡	‡	‡	‡
Left Upper Tibia Mx	N-m	22 1	100 9	-17 8	86 3	30 2	112 7	-30 3	86 7
Left Upper Tibia My	N-m	55.9	83 7	-34 4	74 7	4 0	238 7	-57 4	81.0
Left Lower Tibia Fx	N	b	b	b	b	45 1	262 4	-469 0	81 1
Left Lower Tibia Fy	N	316 6	83 8	-2 1	-29.5	‡	‡	‡	‡
Left Lower Tibia Fz	N	6 4	-40 5	-2852 3	116 3	494 5	147 6	-1262 1	77 0
Left Lower Tibia FR	N	2861 8	116 3	0 7	4 3	‡	‡	‡	‡
Left Lower Tibia Mx	N-m	51 5	117 2	-6 3	24 6	33.7	116 0	-17 6	84 0
Left Lower Tibia My	N-m	58 1	112 2	-58 5	77 5	10 8	120 9	-22 3	81 1
Right Upper Tibia Fx	N	459 2	75 9	-346 7	106 6	77 8	87 5	-85 7	121 4
Right Upper Tibia Fy	N	‡	‡	‡	‡	‡	‡	‡	‡
Right Upper Tibia Fz	N	8 0	5 8	-2268 9	85 6	168 3	150 6	-894 1	89 3
Right Upper Tibia FR	N	‡	‡	‡	‡	‡	‡	‡	‡
Right Upper Tibia Mx	N-m	18 2	46 3	-44 9	94 3	14 7	111 3	-17 7	129 3
Right Upper Tibia My	N-m	86 7	110 3	-47 8	66 7	4 0	171 6	-66 3	88 1
Right Lower Tibia Fx	N	61 8	209 1	-573 4	75 5	28 2	159 1	-497 0	87 8
Right Lower Tibia Fy	N	56 5	188 7	-175 8	110 8	‡	‡	‡	‡
Right Lower Tibia Fz	N	429 3	188 7	-2942 8	84.6	93 7	150 0	-993 8	89.1
Right Lower Tibia FR	N	2957 0	84 6	-	-	‡	‡	‡	‡
Right Lower Tibia Mx	N-m	11 4	41 4	-114 1	84.7	4 8	112 5	-13 3	87 5
Right Lower Tibia My	N-m	c	c	c	c	4 4	104 0	-31 2	87 8

‡ Instrumentation not placed in dummy

b - Channel failed

c - Data questionable after 120 ms

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

Vehicle Year/Make/Model/Body Style. 2000 Subaru Legacy 4-door Sedan  
 NHTSA Test No. RY5211 Test Date. October 17, 2000

DESCRIPTION	Unit	MAXIMUM VALUE							
		Driver				Passenger			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Left Tibia Ax	g	6.9	82.0	-93.3	77.3	‡	‡	‡	‡
Left Tibia Ay	g	26.9	77.3	-8.1	91.2	‡	‡	‡	‡
Right Tibia Ax	g	4.7	121.9	-61.5	75.5	‡	‡	‡	‡
Right Tibia Ay	g	24.0	84.5	-20.3	116.3	‡	‡	‡	‡
Left Ankle Rotation X	Deg	36.5	101.6	0.3	-100.0	‡	‡	‡	‡
Left Ankle Rotation Y	Deg	29.2	127.7	-13.0	-98.6	‡	‡	‡	‡
Left Ankle Rotation Z	Deg	12.8	270.1	-4.1	136.2	‡	‡	‡	‡
Right Ankle Rotation X	Deg	0.0	499.9	-36.7	135.1	‡	‡	‡	‡
Right Ankle Rotation Y	Deg	28.2	124.6	-14.8	39.6	‡	‡	‡	‡
Right Ankle Rotation Z	Deg	2.2	498.5	-2.1	175.1	‡	‡	‡	‡
Left Foot Ax	g	24.8	113.4	-62.3	82.6	5.8	137.1	-43.4	77.0
Left Foot Ay	g	20.8	97.7	-9.0	80.4	‡	‡	‡	‡
Left Foot Az	g	17.3	90.2	-70.4	79.2	3.7	356.4	-25.8	81.7
Left Foot A Resultant	g	84.8	79.1	-	-	‡	‡	‡	‡
Left Toe Az	g	‡	‡	‡	‡	9.0	86.0	-44.8	80.4
Right Foot Ax	g	19.7	117.3	-57.0	77.8	6.1	127.3	-51.4	87.2
Right Foot Ay	g	13.5	38.0	-48.2	73.2	‡	‡	‡	‡
Right Foot Az	g	25.8	89.4	-39.8	38.3	2.3	52.3	-22.6	86.4
Right Foot A Resultant	g	70.1	76.4	-	-	‡	‡	‡	‡
Right Toe Az	g	‡	‡	‡	‡	7.7	52.9	-35.1	85.2
Lap Belt Force	N	4396.0	100.0	-10.4	483.0	2581.9	93.3	-29.7	139.9

‡ Instrumentation not placed in dummy.

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

Vehicle Year/Make/Model/Body Style. 2000 Subaru Legacy 4-door Sedan

NHTSA Test No. RY5502 Test Date. October 17,2000

HEAD INJURY CRITERIA (HIC)				
	HIC**	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	Average Acceleration t <sub>1</sub> to t <sub>2</sub>
Position #1 - Driver	†	87.9	123.9	43.1
Position #2 - Passenger	338.5	68.8	104.8	38.8

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

† The driver's Head X acceleration data contained a spike at 96 milliseconds, therefore the HIC could not be calculated with confidence.

CLIP SUMMARY*				
	CLIP (g's)	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	CSI
Position #1 - Driver	45.8	104.3	107.3	395.0
Position #2 - Passenger	45.7	91.2	94.2	361.2

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

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

Vehicle Year/Make/Model/Body Style. 2000 Subaru Legacy 4-door Sedan

NHTSA Test No RY5502 Test Date October 17,2000

HEAD INJURY CRITERIA (HIC) REDUNDANT				
	HIC**	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	Average Acceleration t <sub>1</sub> to t <sub>2</sub>
Position #1 - Driver	‡ ‡	‡ ‡	‡ ‡	‡ ‡
Position #2 - Passenger	‡	‡	‡	‡

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

‡ Instrumentation not placed in dummy .

‡ ‡ P1 Head Redundant Z channel failed

CLIP SUMMARY* REDUNDANT				
	CLIP (g's)	t <sub>1</sub> (msec)	t <sub>2</sub> (msec)	CSI
Position #1 - Driver	45.6	104.2	107.2	391.5
Position #2 - Passenger	‡	‡	‡	‡

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

‡ Instrumentation not placed in dummy .

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>1957</u>	<u>1950</u>
Shoulder belt length as measured on Part 572 Dummy	<u>871</u>	<u>895</u>
Lap belt length as measured on Part 572 Dummy	<u>930</u>	<u>930</u>

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.	<u>††</u>	<u>††</u>
As determined mechanically	<u>†</u>	<u>†</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>1 mm</u>	<u>1 mm</u>

† Vehicle equipped with seat belts crash tensioners, instrumentation used to measure belt activities not used

†† On-board cameras were not required for this vehicle impact

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

DATA SHEET NO 10 SUMMARY OF FMVSS 212 DATA

FMVSS NO 212 - "WINDSHIELD MOUNTING" DATA

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

Windshield is bonded in place and covered with a 19 mm molding

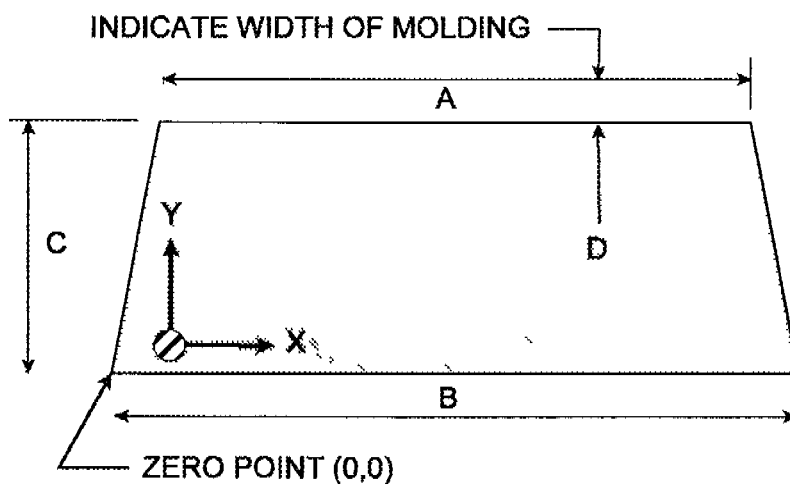
FMVSS 212 REQUIREMENTS:

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		
	PRE-TEST (mm)	POST-TEST(mm)	% OF RETENTION
RIGHT SIDE	2018 5	2018 5	100
LEFT SIDE	2018 5	2018 5	100
TOTAL	4,037	4,037	100

AREA OF RETENTION FAILURE



DIMENSIONS (mm)	
A	1161
B	1484
C	696
D	19

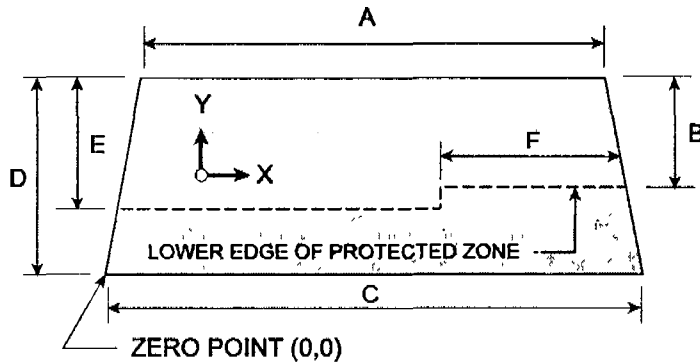
**FRONT VIEW OF WINDSHIELD**

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.



FRONT VIEW OF WINDSHIELD

FMVSS 219 TEST DATA:

DIMENSIONS (mm)	
A	1161
B	431
C	1484
D	696
E	450
F	783

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm. None

(Show location of penetration on the above sketch)

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

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

NHTSA TEST No: RY5502 TEST DATE: October 17,2000

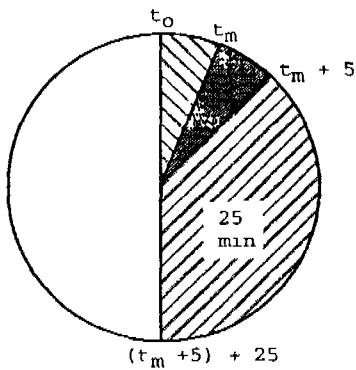
VEHICLE MAKE/MODEL: 2000 Subaru Legacy

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 (64 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

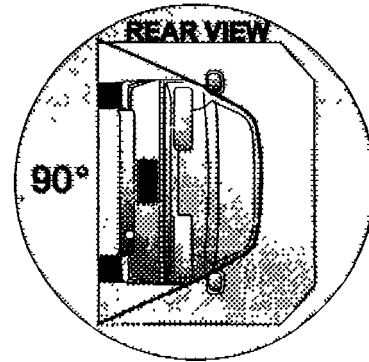
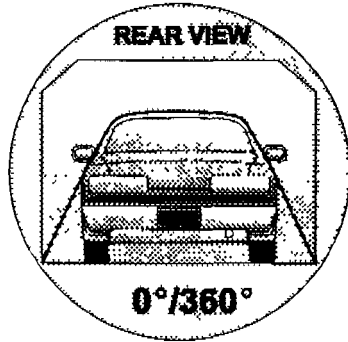
DATA SHEET 13

FMVSS NO 301 STATIC ROLLOVER DATA SHEET

Vehicle: 2000 Subaru Legacy

NHTSA No RY5502

0 - 90 Degrees



I DETERMINATION OF SOLVENT COLLECTION TIME PERIOD

Rollover Fixture 90° Rotation Time	<u>1</u>	minutes	<u>13</u>	seconds
(Spec Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>0</u>	seconds
TOTAL	<u>6</u>	minutes	<u>13</u>	seconds
Next whole minute interval	<u>7</u>	minutes		

II. FMVSS 301 REQUIREMENTS

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III ACTUAL TEST VEHICLE SOLVENT SPILLAGE

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

Note Record spillage for whole minute intervals only as determined above

IV SOLVENT SPILLAGE LOCATION(S)

None

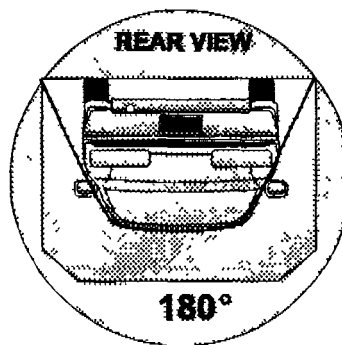
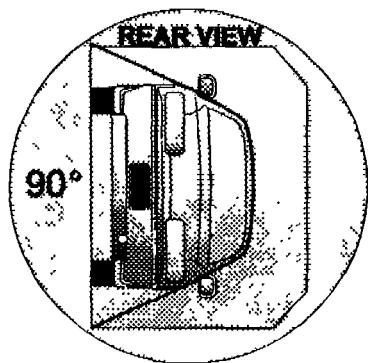
DATA SHEET 13

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle. 2000 Subaru Legacy

NHTSA No RY5502

90 - 180 Degrees



I DETERMINATION OF SOLVENT COLLECTION TIME PERIOD

Rollover Fixture 90° Rotation Time (Spec Range = 1 to 3 minutes)	<u>1</u> minutes	<u>17</u> seconds
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>0</u> seconds
TOTAL	<u>6</u> minutes	<u>17</u> seconds
Next whole minute interval	<u>7</u> minutes	

II FMVSS 301 REQUIREMENTS

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III ACTUAL TEST VEHICLE SOLVENT SPILLAGE

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

Note Record spillage for whole minute intervals only as determined above

IV SOLVENT SPILLAGE LOCATION(S)

None

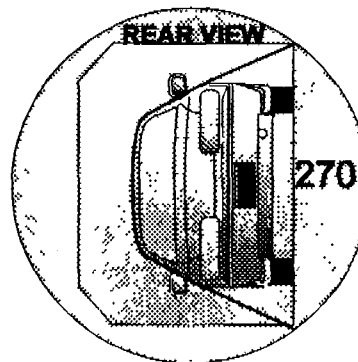
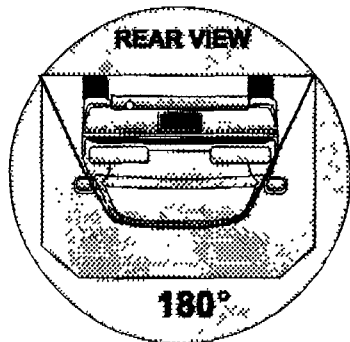
DATA SHEET 13

FMVSS NO 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2000 Subaru Legacy

NHTSA No. RY5502

180 - 270 Degrees



I DETERMINATION OF SOLVENT COLLECTION TIME PERIOD

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

II FMVSS 301 REQUIREMENTS

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III ACTUAL TEST VEHICLE SOLVENT SPILLAGE

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

Note Record spillage for whole minute intervals only as determined above

IV SOLVENT SPILLAGE LOCATION(S)

None

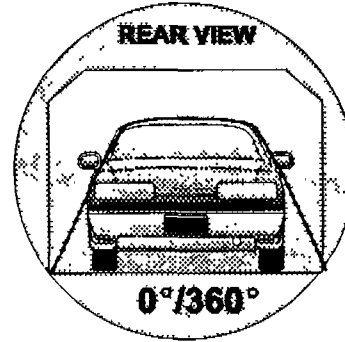
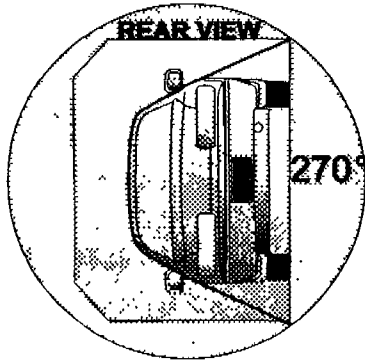
DATA SHEET 13

FMVSS NO 301 STATIC ROLLOVER DATA SHEET (CONTINUED)

Vehicle: 2000 Subaru Legacy

NHTSA No RY5502

270 - 360 Degrees



I DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time (Spec Range = 1 to 3 minutes)	<u>1</u> minutes	<u>21</u> seconds
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>0</u> seconds
TOTAL	<u>6</u> minutes	<u>21</u> seconds
Next whole minute interval	<u>7</u> minutes	

II FMVSS 301 REQUIREMENTS

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III ACTUAL TEST VEHICLE SOLVENT SPILLAGE

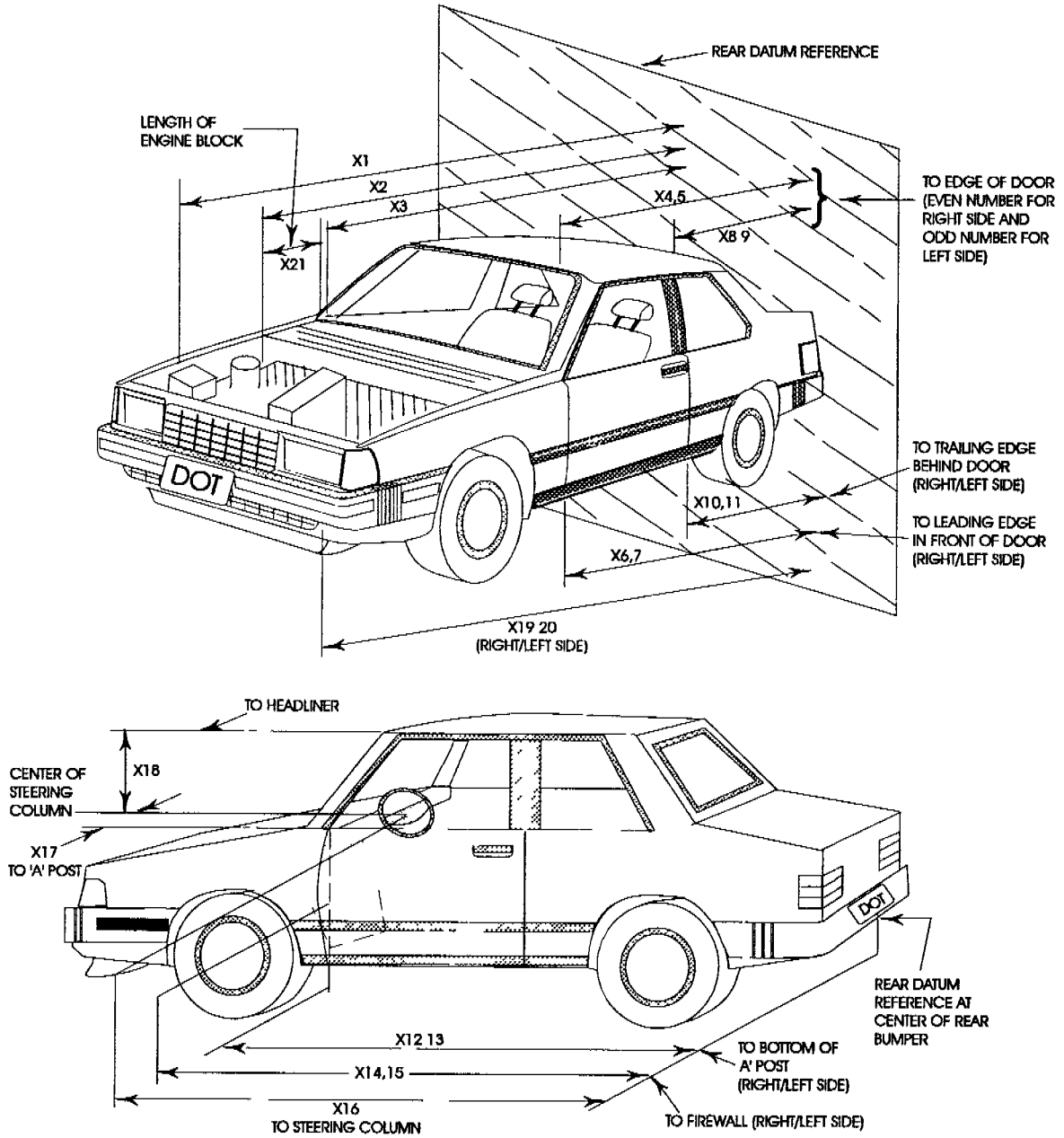
0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note Record spillage for whole minute intervals only as determined above

IV SOLVENT SPILLAGE LOCATION(S)

None

DATA SHEET NO 14 TEST VEHICLE MEASUREMENTS



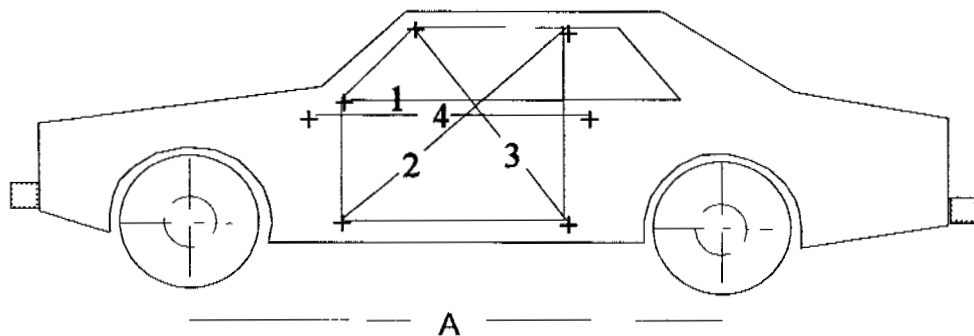
DATA SHEET NO 14      VEHICLE MEASUREMENTS (cont.)

No		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4667	4123	544
X2	Rear Surface of Vehicle to Front of Engine	4191	3965	226
X3	Rear Surface of Vehicle to Firewall	3506	3419	87
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3180	3182	-2
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3178	3167	11
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3184	3185	-1
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3196	3184	12
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2161	2162	-1
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2162	2147	15
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2163	2163	0
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2171	2163	8
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3222	3223	-1
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3231	3210	21
X14	Rear Surface of Vehicle to Firewall, Right Side	3540	3484	56
X15	Rear Surface of Vehicle to Firewall, Left Side	3542	3372	170
X16	Rear Surface of Vehicle to Steering Column	2744	2737	7
X17	Center of Steering Column to "A" Post	389	371	18
X18	Center of Steering Column to Headliner	438	437	1
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4629	4434	195
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4625	3883	742
X21	Length of Engine Block	649	509	140
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2974	2965	9
CD	Rear Surface of Vehicle to Center of Dash Panel	2992	2960	32
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2975	2920	55

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

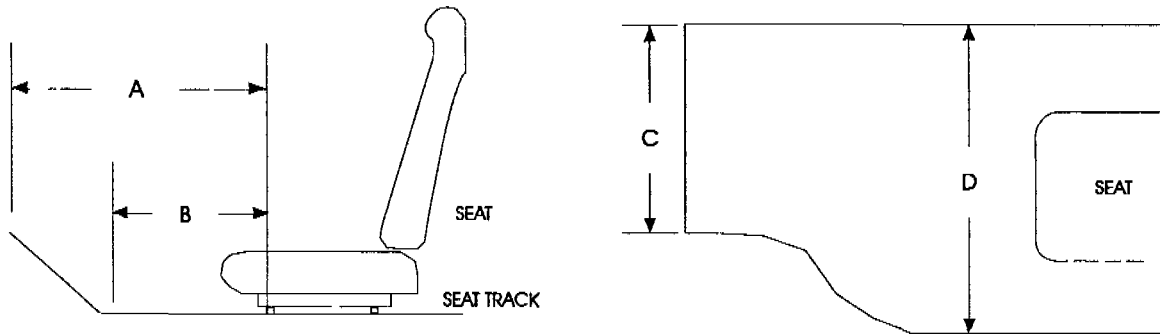


UNITS (mm)	LEFT				RIGHT		
MEASUREMENT	1	2	3	4*	1	2	3
BEFORE TEST	960	1444	923	1039	967	1447	937
AFTER TEST	944	1429	955	1024	963	1432	944
DIFFERENCE	16	15	-32	15	4	15	-7

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

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2653	2653
AFTER TEST	2439	2708
DIFFERENCE	214	-55

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



DRIVER

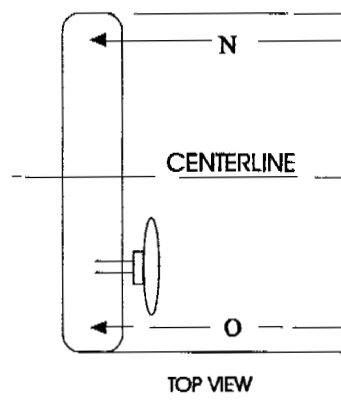
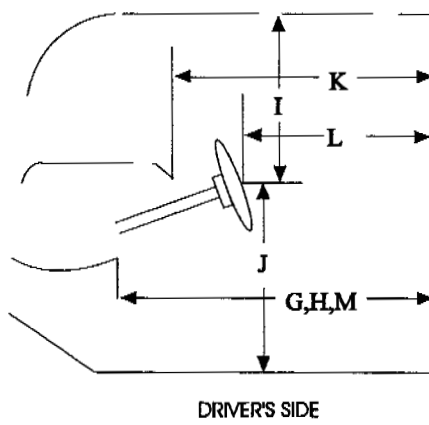
Measurement	Pre-Test	Post-Test	Difference
A	659	582	77
B	534	522	12
C	387	409	-22
D	412	397	15

PASSENGER

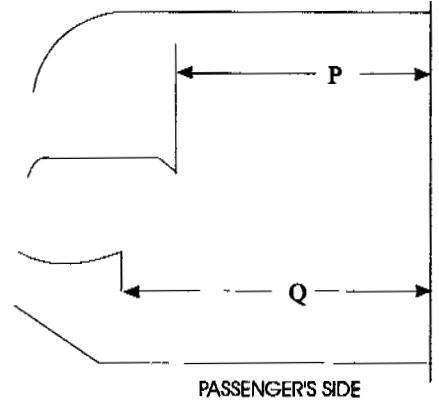
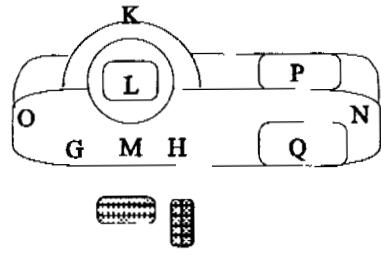
Measurement	Pre-Test	Post-Test	Difference
A	631	601	30
B	531	510	21
C	391	391	0
D	386	368	18

Units = mm

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



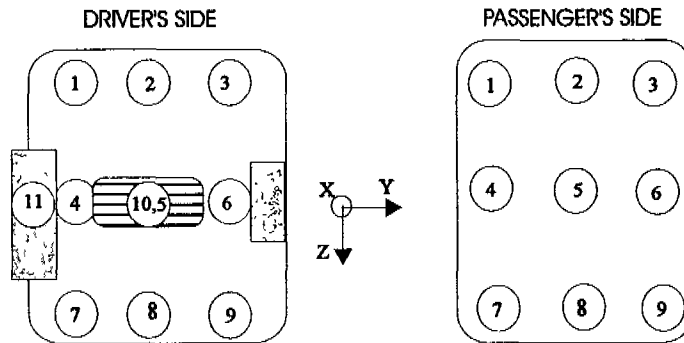
MEASUREMENTS  
FROM C-PILLAR  
BELT ANCHORAGE



Measurement	Pre-Test	Post-Test	Difference
G*	1602	1595	7
H*	1612	1600	12
I	438	437	1
J	585	622	-37
K	1561	1512	49
L	1373	1372	1
M	1650	1636	14
N	1603	1610	-7
O	134	117	17
P = K (PASS)	1664	1654	10
Q = M (PASS)	1592	1591	1

\* 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**

Floorpan Location	X Deformation (mm)			Y Deformation (mm)			Z Deformation (mm)		
	Pre	Post	$\Delta$	Pre	Post	$\Delta$	Pre	Post	$\Delta$
1	3368	3265	-103	-527	-466	61	-381	-441	-60
2	3376	3282	-94	-387	-367	20	-369	-401	-32
3	3380	3275	-105	-294	-255	39	-366	-414	-48
4*	3326	3256	-70	-517	-489	28	-329	-362	-33
5* <sup>A</sup>	3310	3236	-74	-390	-359	31	-317	-349	-32
6*	3305	3272	-33	-260	-242	18	-299	-322	-23
7	3262	3225	-37	-489	-463	26	-292	-289	3
8	3251	3222	-29	-405	-365	40	-286	-277	9
9	3264	3247	-17	-318	-290	28	-277	-275	2
10	3294	3135	-159	-377	-344	33	-466	-545	-79
11	3321	3231	-90	-615	-595	20	-441	-425	16

**Passenger Side Toe-pan Measurements**

Floorpan Location	X Deformation (mm)			Y Deformation (mm)			Z Deformation (mm)		
	Pre	Post	$\Delta$	Pre	Post	$\Delta$	Pre	Post	$\Delta$
1	3331	3280	-51	280	266	-14	-411	-381	30
2	3325	3299	-26	388	355	-33	-413	-389	24
3	3345	3330	-15	499	484	-15	-421	-406	15
4	3286	3241	-45	284	253	-31	-355	-340	15
5	3289	3262	-27	379	370	-9	-371	-338	33
6	3295	3269	-26	514	494	-20	-369	-343	26
7	3224	3203	-21	293	279	-14	-300	-268	32
8	3226	3208	-18	397	370	-27	-302	-278	24
9	3228	3221	-7	520	494	-26	-280	-274	6

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

\* IHS measurement locations

\*<sup>A</sup> IHS 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	$\Delta$	Pre	Post	$\Delta$	Pre	Post	$\Delta$
1	2744	2737	-7	-351	-384	-33	-862	-878	-16
2	2973	2960	-13	-462	-466	-4	-720	-713	7
3	2982	2965	-17	-183	-180	3	-720	-700	20
4	3294	3135	-159	-377	-344	33	-466	-545	-79
5	3326	3256	-70	-517	-489	28	-329	-362	-33
6	3310	3236	-74	-390	-359	31	-317	-349	-32
7	3305	3272	-33	-260	-242	18	-299	-322	-23
8	3321	3231	-90	-615	-595	20	-441	-425	16
17	3188	3173	-15	-781	-783	-2	-899	-892	7
18	2150	2150	0	-827	-825	2	-892	-885	7

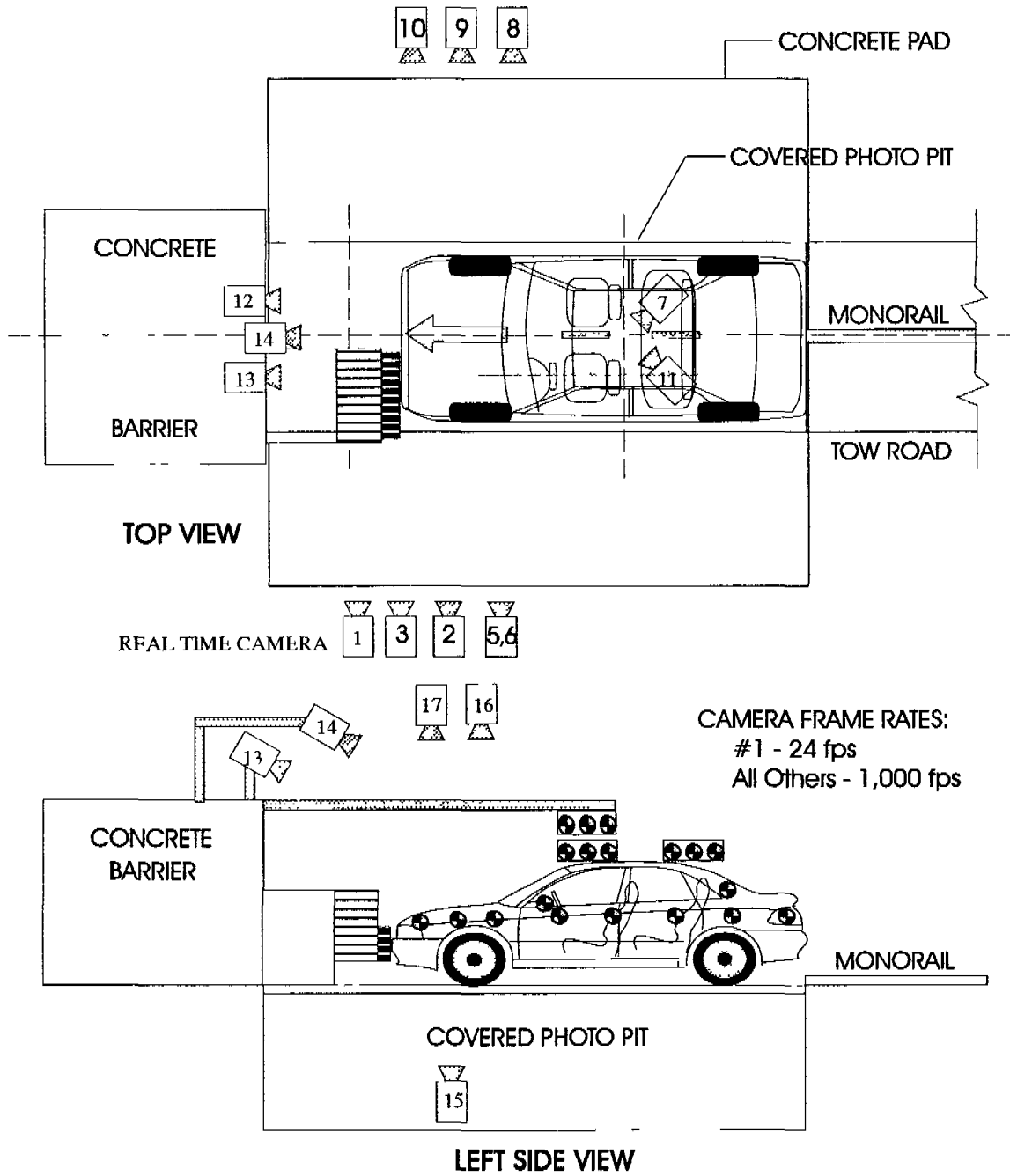
Reference (SAE) X = Rear Bumper (pos forward); Y = Vehicle Centerline (pos right), Z = Ground (pos. down)

\* 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.

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. RY5502 Vehicle: 2000 Subaru Legacy 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	6952	1358	1071	4	6538	13	1000
3	Left Side View	9279	410	1101	-3	8865	25	1000
4	Driver and Interior View	7066	2640	1938	-10	-	35	1000
5	Steering Column (Bottom)	8319	1719	1163	-3	7905	25	1000
6	Steering Column (Top)	8319	1719	1772	-7	7905	25	1000
7	Interior Driver View	-	-	-	-	-	-	-
8	Right Side View	9686	475	1117	-2	9272	25	1000
9	Right Passenger View	9461	1491	1371	-3	9047	35	1000
10	Passenger and Interior View	8593	2717	1968	-11	-	35	1000
11	Interior Passenger View	-	-	-	-	-	-	-
12	Passenger Front View	450	1687	1091	27	-	13	1000
13	Driver Front View	450	1687	1093	27	-	13	1000
14	Windshield View	0	0	3374	51	-	13	1000
15	Pit View of Engine	0	2855	-3048	90	-	13	1010
16	Overhead Overall View	0	156	4880	90	-	12.5	1000
17	Overhead Close-Up View	0	323	4880	90	-	25	1000

\*X = film plane to monorail centerline

\*\* = referenced to horizontal plane

Y = film plane to impact location

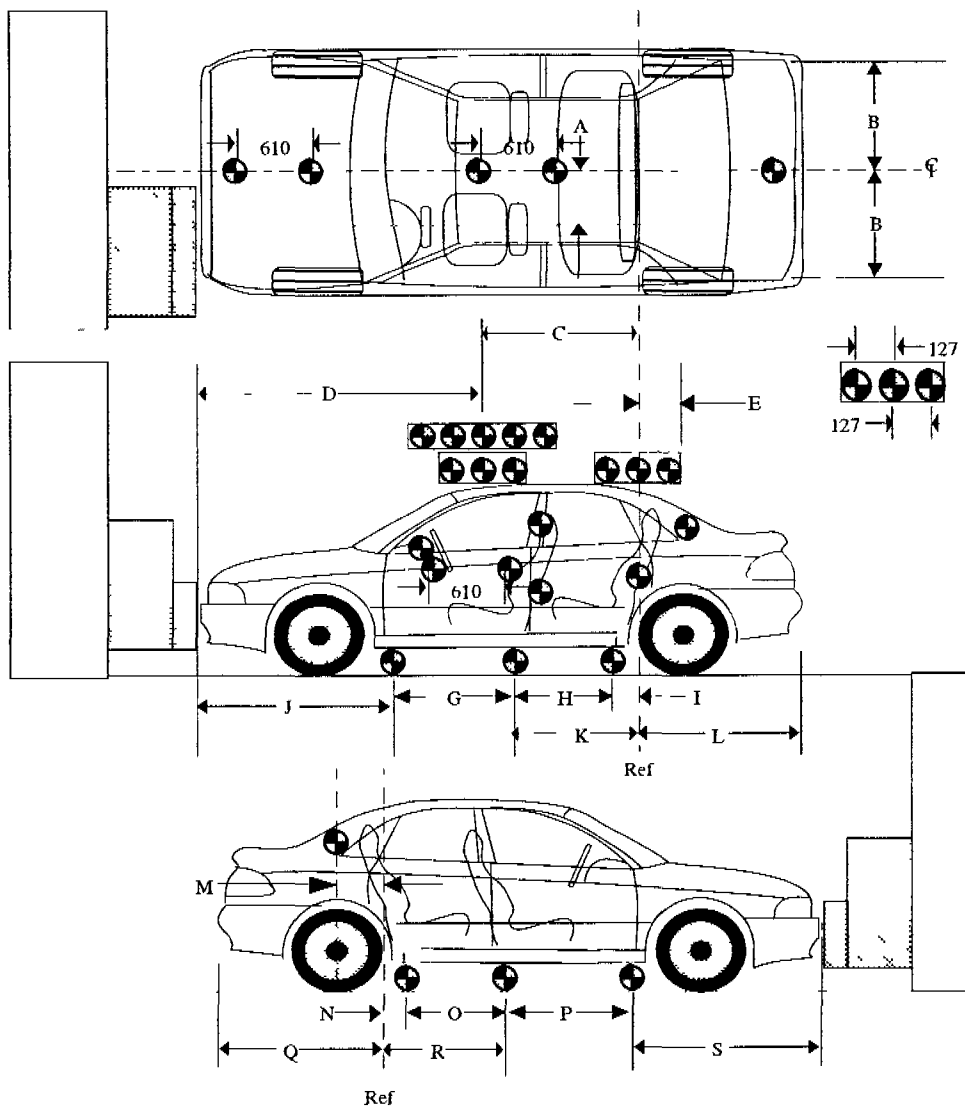
N T indicates No Timing

Z = film plane to ground

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

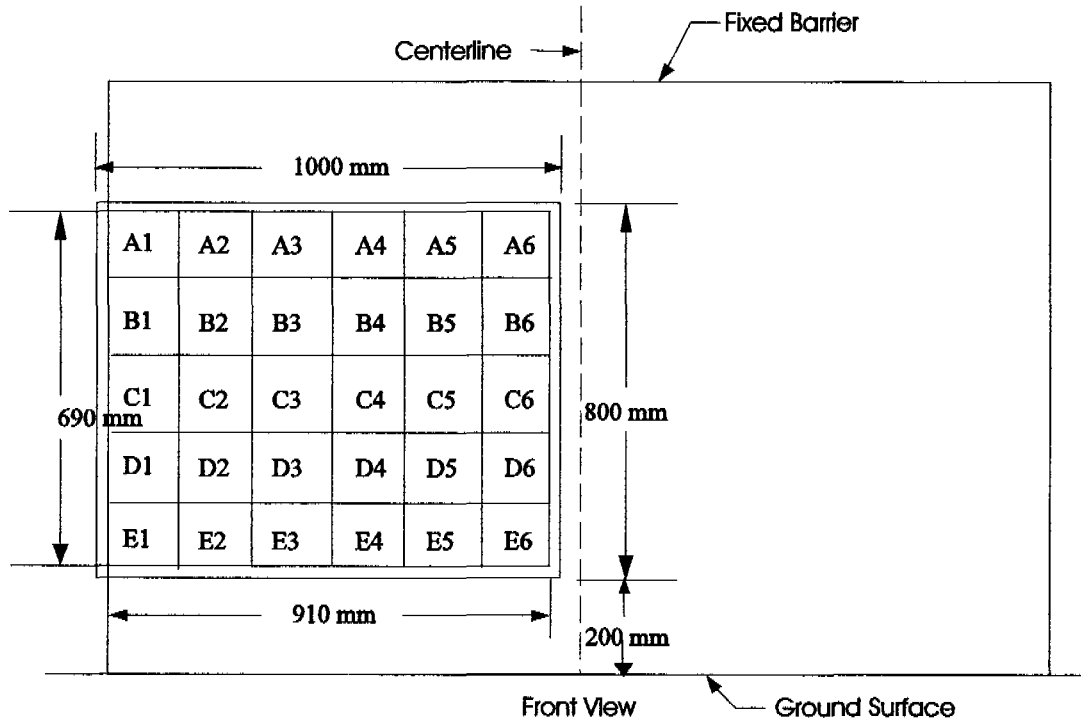
(Dimensions in millimeters)

A	338
B	607
C	249
D	2282
E	1080
F	769
G	858
H	858
I	107
J	1472
K	965
L	1371
M	1080
N	116
O	861
P	858
Q	1362
R	977
S	1470



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 following data is presented in Appendix B.

- (1)X Direction Data from load cells A1 through A6
- (2)X and Y Direction Data from load cells B1 through E6

DATA SHEET NO. 18 POST TEST AIR BAG DATA

NHTSA No. RY5502; Test Date: October 17,2000, Technician: James A. Czarnecki

Vehicle Model Year/Make/Model: 2000 Subaru Legacy

A No of vent holes 2 -Driver 2 -Passenger

B. Size of vent holes: (mm<sup>2</sup>) 25 -Driver 50 -Passenger

C Total vent area (mm<sup>2</sup>) 50 -Driver 100 -Passenger

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

Driver - -Length, - -Width, 650 -Diameter

Passenger 750 -Height, 750 -Width, 400 -Depth

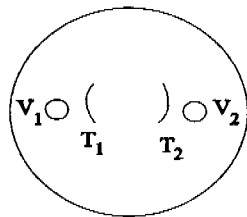
E Is the air bag tethered?

Driver x -Yes; - -No, If yes, record length of tether- 250

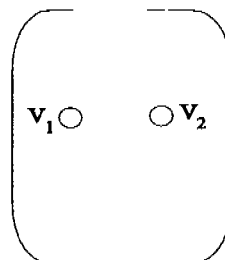
Passenger - -Yes, x -No, If yes, record length of tether- -

Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel  
(Note Not to scale, V<sub>n</sub> = Vent hole<sub>n</sub>, T<sub>n</sub> = Tether<sub>n</sub>)

**Driver**



**Passenger**



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

Driver Air bag 65420-33150 ILU09

Generator UBKKZPICFWF

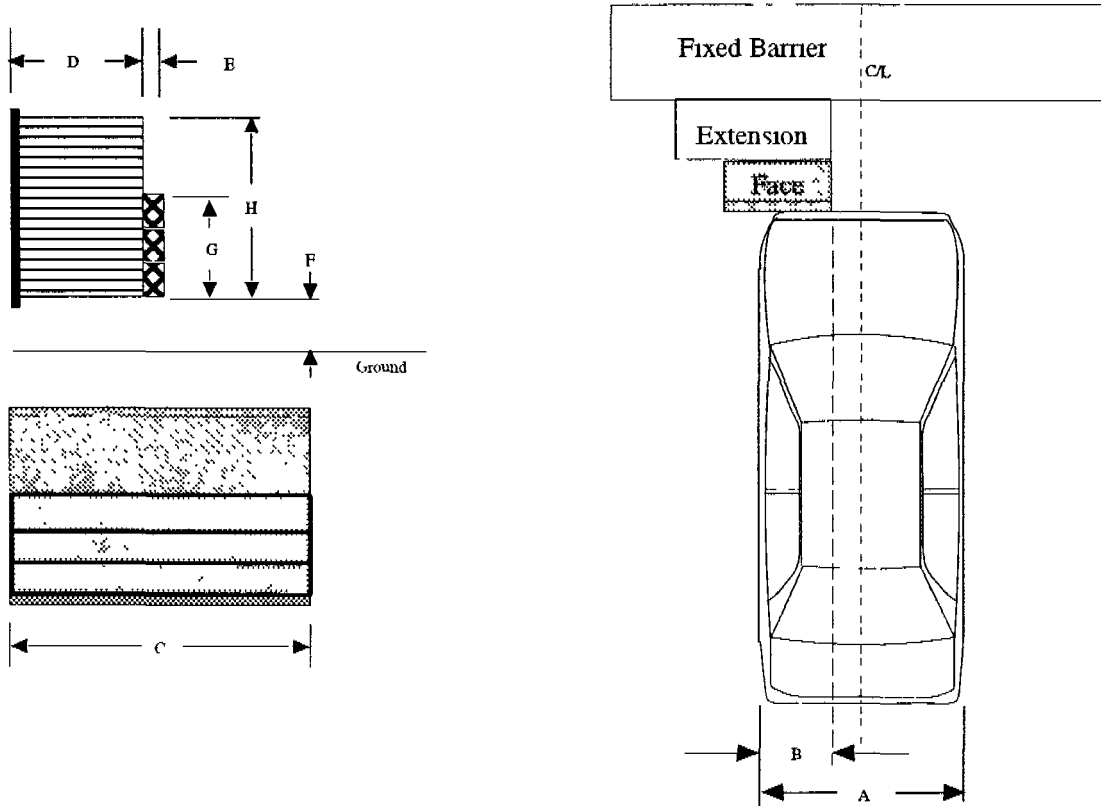
Passenger Air bag: -

Generator 7LU00070653



DATA SHEET NO 20 OFFSET BARRIER AND VEHICLE ORIENTATION

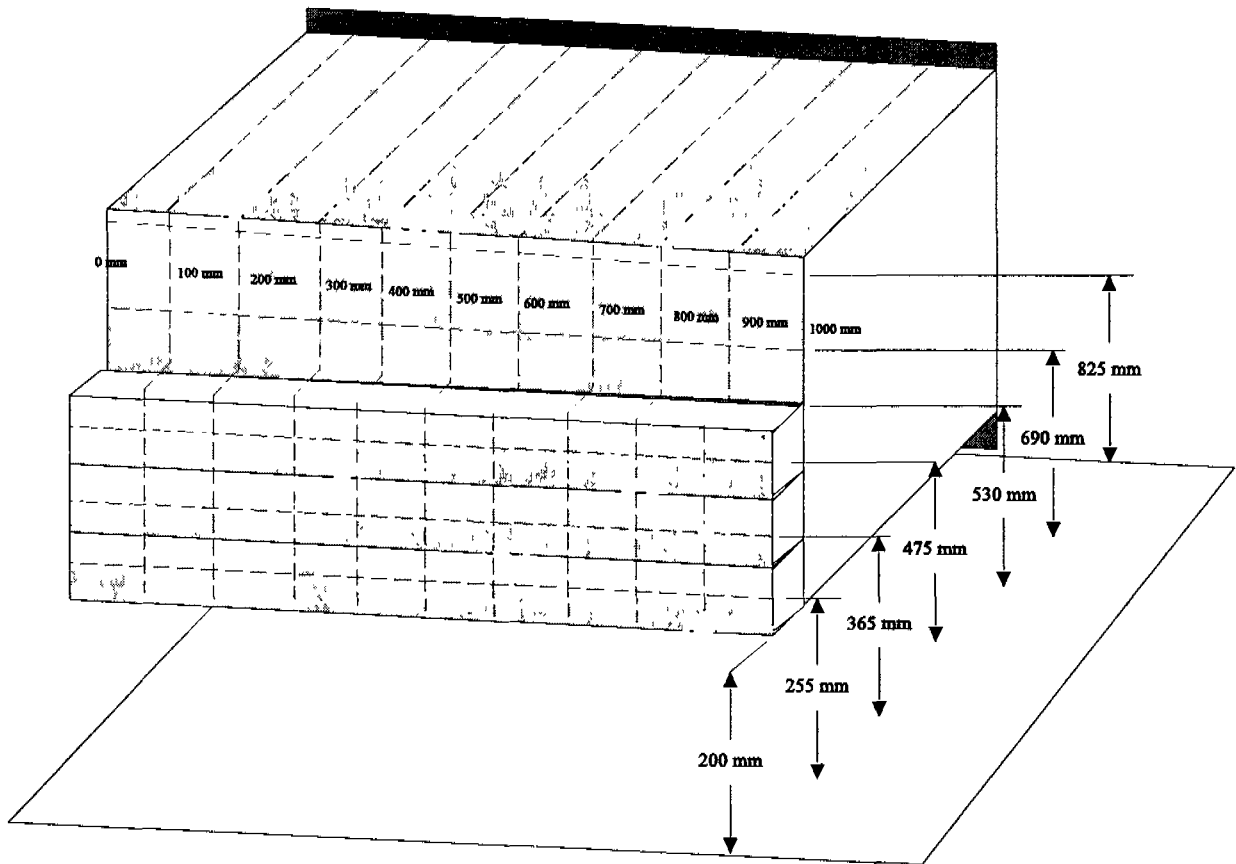
NHTSA Test No : RY5502 Vehicle. 2000 Subaru Legacy 4-door Sedan



A	Total Vehicle Width	<u>1710</u>	mm
B	40% Overlap Distance	<u>684 0</u>	mm
C	Deformable Face Width	<u>1000</u>	mm
D	Single Stage Honeycomb Depth	<u>450</u>	mm
E	Bumper Element Depth	<u>90</u>	mm
F	Lower Edge Height From Ground	<u>200</u>	mm
G*	Bumper Element Height	<u>330</u>	mm
H	Deformable Barrier Honeycomb Height	<u>650</u>	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 Subaru Legacy

NHTSA No RY5502

NOTE All dimensions are in millimeters with a tolerance of  $\pm 3$  mm

LEVEL	HEIGHT AT CL (mm)*		DISTANCE RIGHT OF CENTER (mm)					0	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	546	546
		POST	505	539	571	639	722	791	841	872	902	922	946	
		CRUSH	-41	7	25	93	176	245	295	326	356	376	400	
LEVEL 5 MID STACK	687	PRE	546	546	546	546	546	546	546	546	546	546	546	546
		POST	483	533	598	674	761	827	873	919	961	974	987	
		CRUSH	-63	-13	52	128	215	281	327	373	415	428	441	
LEVEL 4 TOP BUMPER	530	PRE	546	546	546	546	546	546	546	546	546	546	546	546
		POST	505	577	650	723	806	854	896	929	937	951	986	
		CRUSH	-41	31	104	177	260	308	350	383	391	405	440	
LEVEL 3 BUMPER TOP	475	PRE	456	456	456	456	456	456	456	456	456	456	456	456
		POST	445	522	598	669	728	791	859	926	943	954	984	
		CRUSH	-11	66	142	213	272	335	403	470	487	498	528	
LEVEL 2 BUMPER MID	365	PRE	456	456	456	456	456	456	456	456	456	456	456	456
		POST	448	527	608	669	715	772	817	848	875	907	951	
		CRUSH	-8	71	152	213	259	316	361	392	419	451	495	
LEVEL 1 BUMPER LOW	255	PRE	456	456	456	456	456	456	456	456	456	456	456	456
		POST	425	505	582	655	705	747	768	792	807	825	863	
		CRUSH	-31	49	126	199	249	291	312	336	351	369	407	

\*Heights measured above ground level

2-41

8413-57

APPENDIX A  
PHOTOGRAPHS

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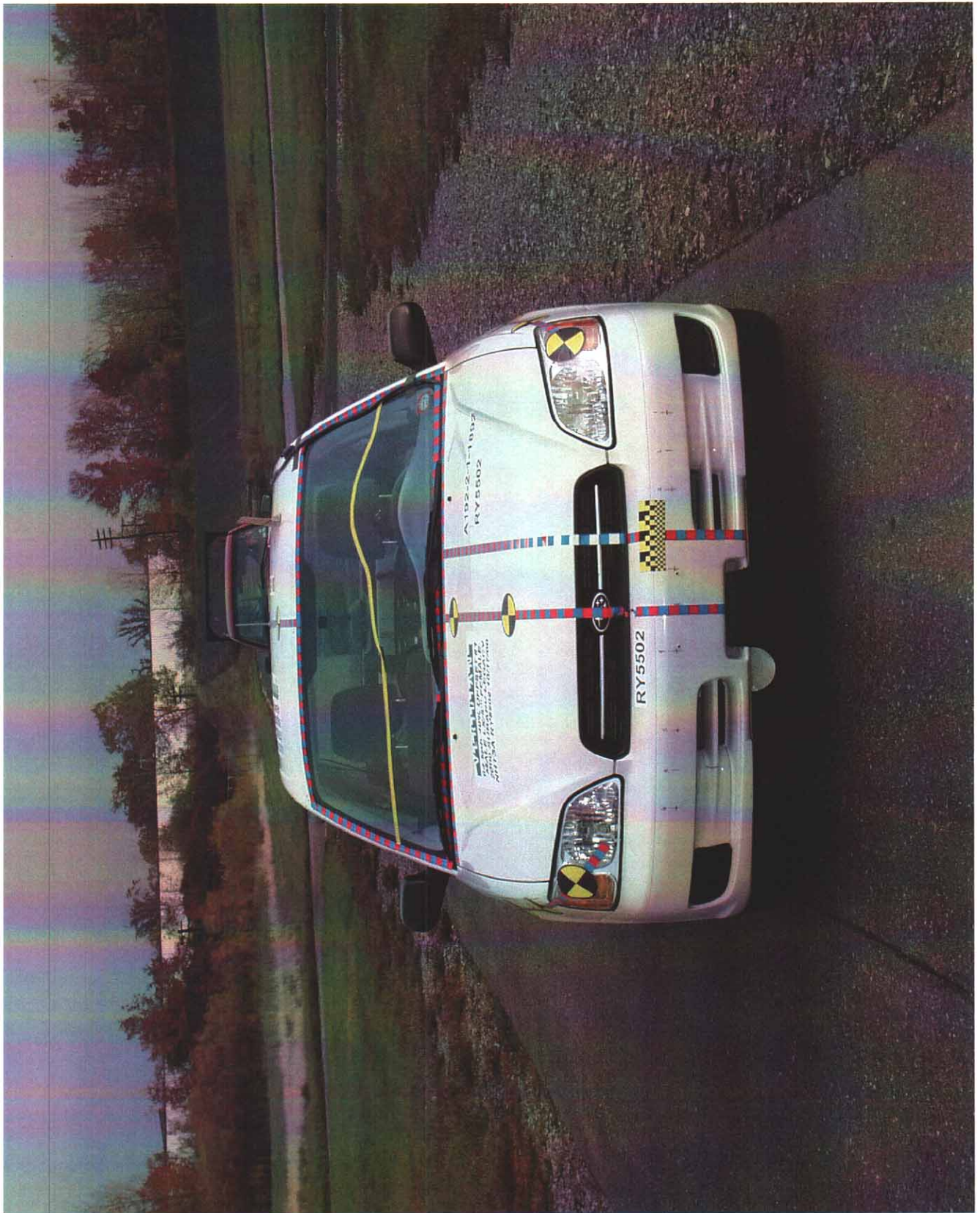


Figure A-1: PRE-TEST FRONT VIEW



Figure A-2: POST-TEST FRONT VIEW



Figure A-3: PRE-TEST LEFT SIDE VIEW

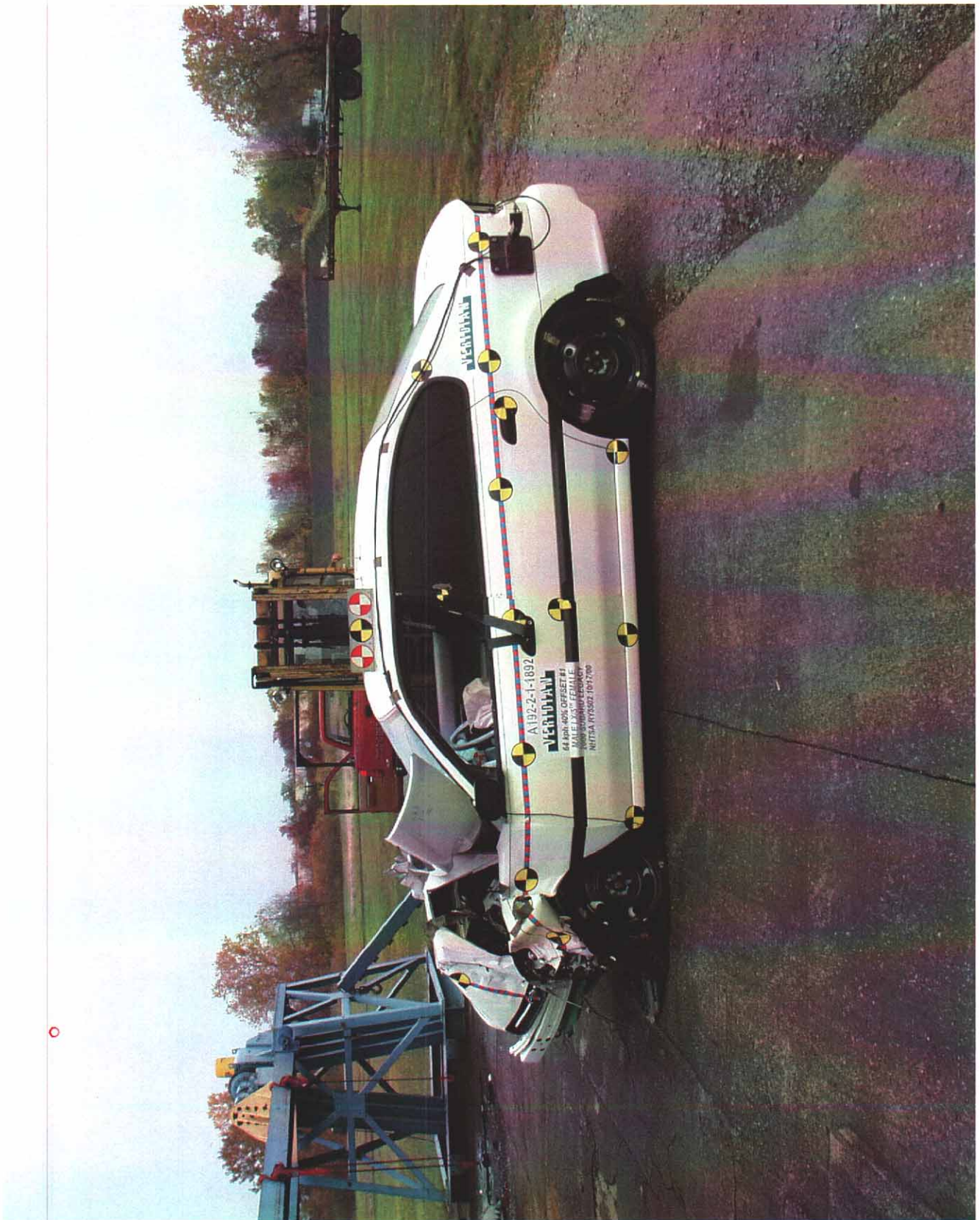


Figure A-4: POST-TEST LEFT SIDE VIEW

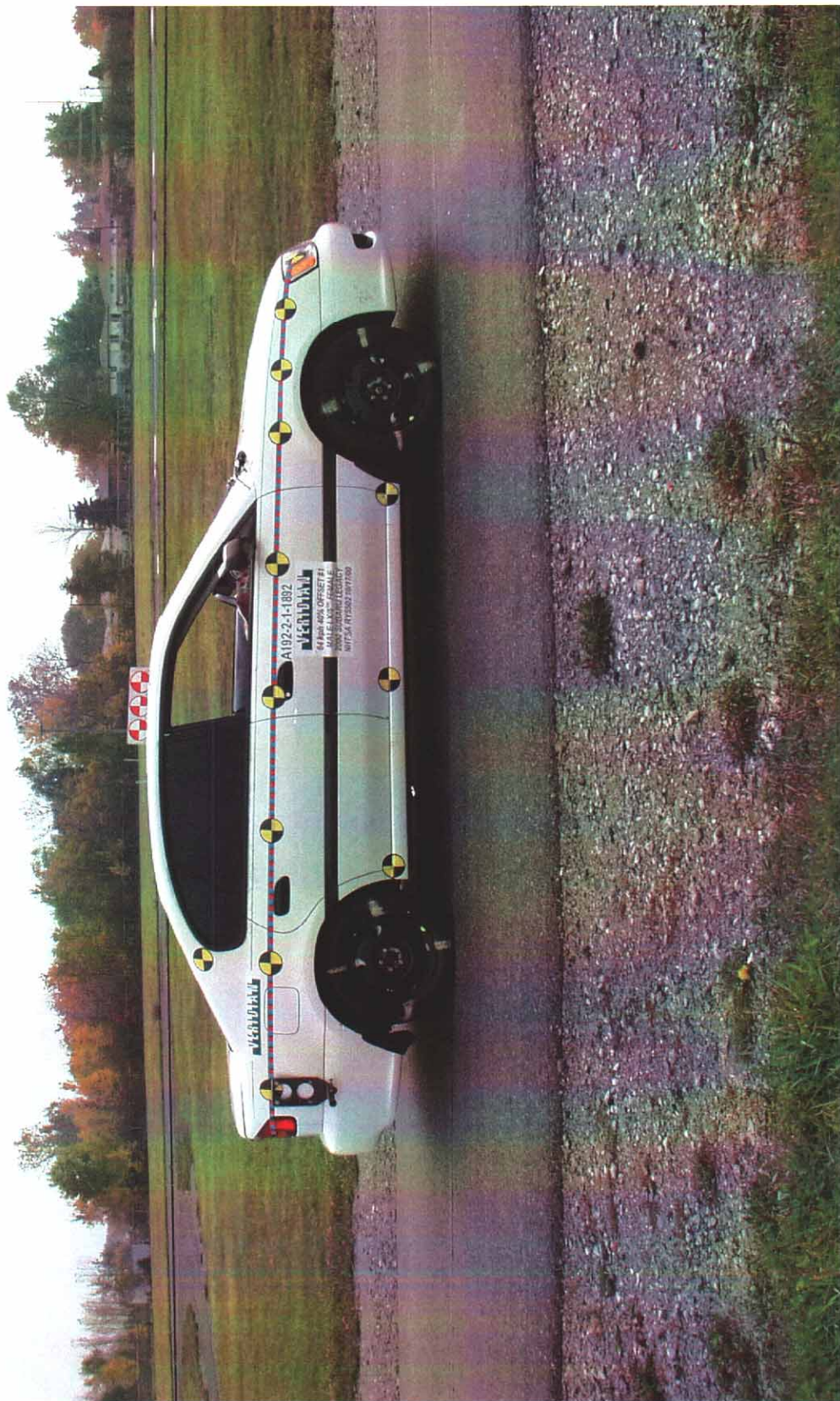


Figure A-5: PRE-TEST RIGHT SIDE VIEW



Figure A-6: POST-TEST RIGHT SIDE VIEW

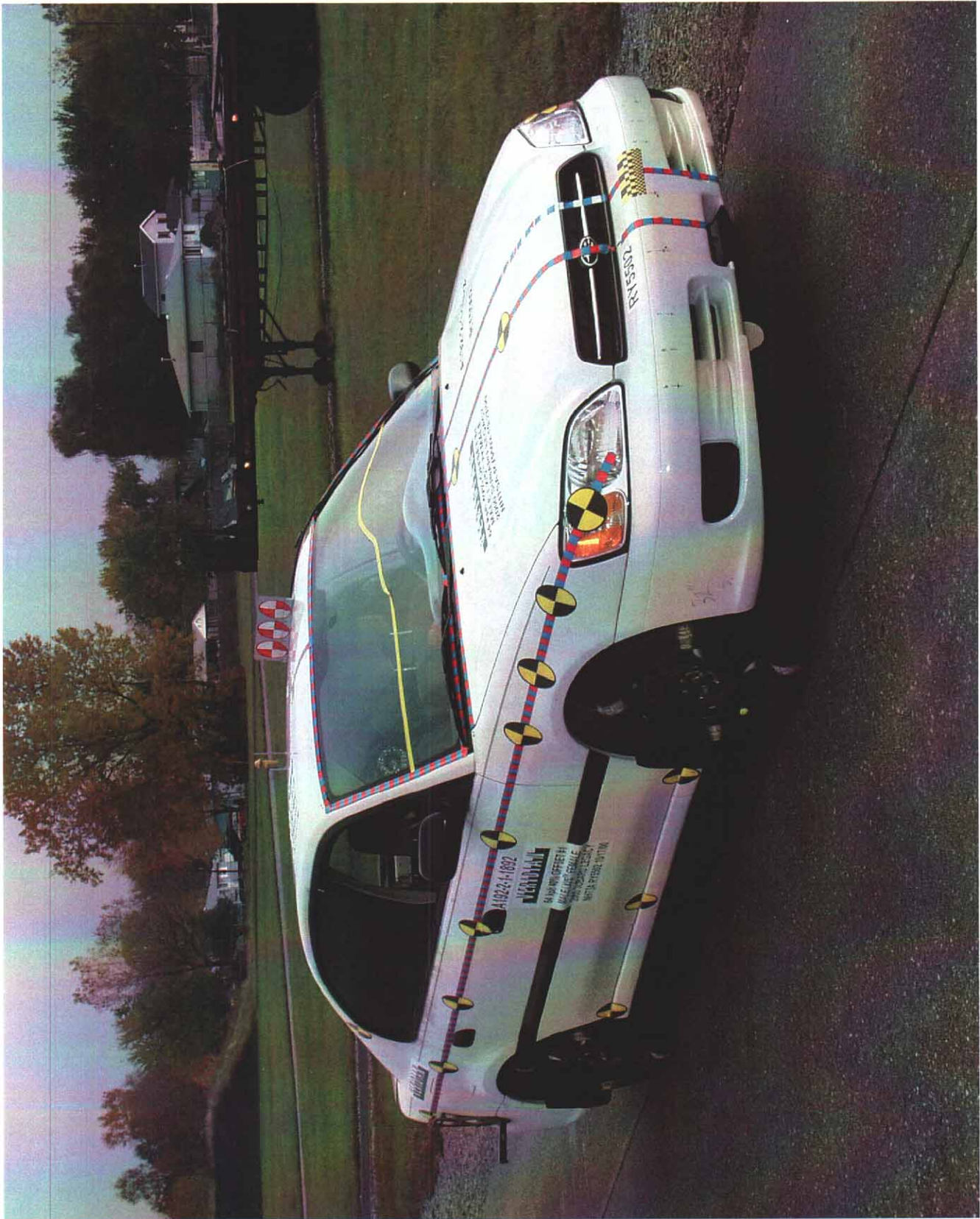


Figure A-7: PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



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



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



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

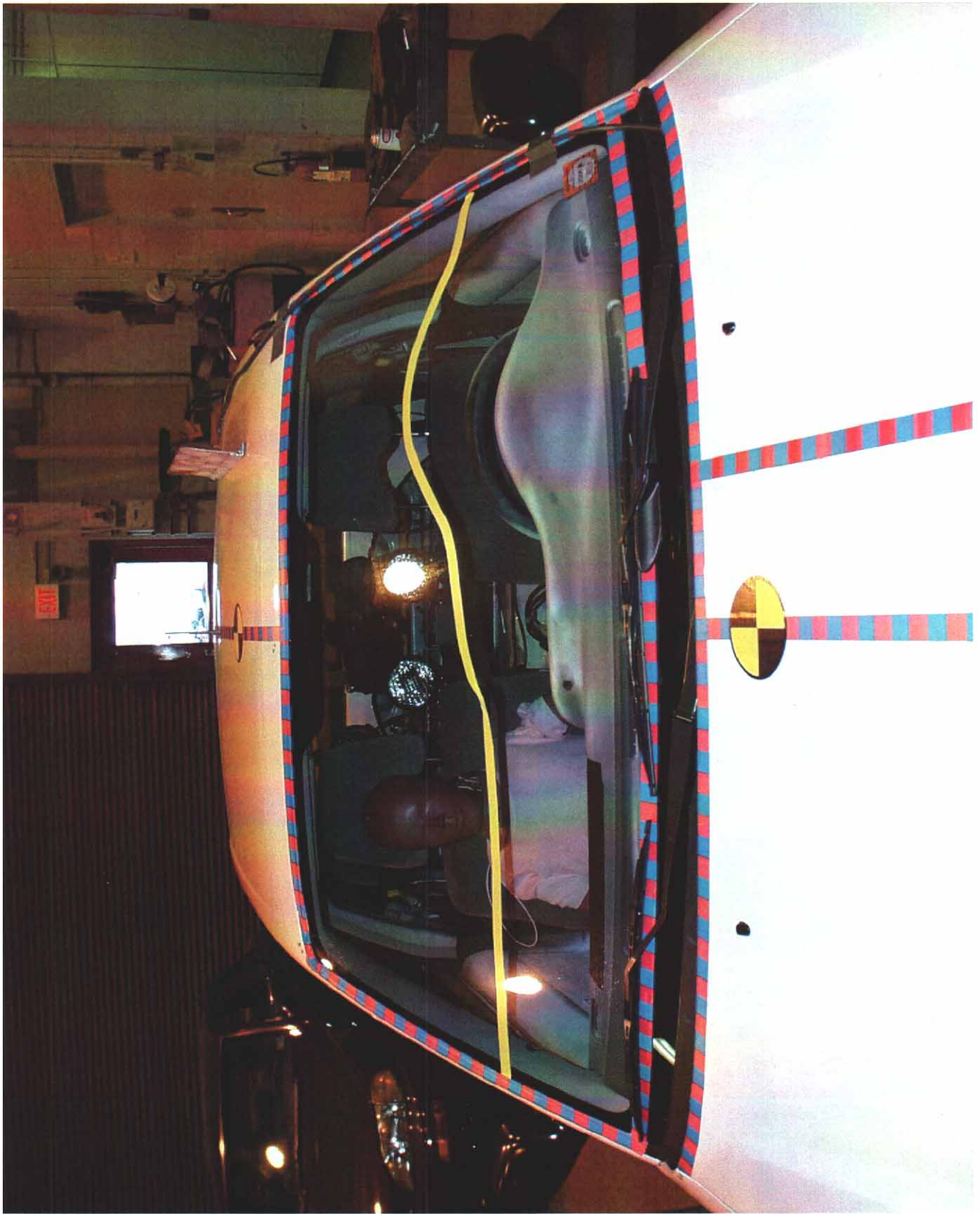


Figure A-11: PRE-TEST WINDSHIELD VIEW



Figure A-12: POST-TEST WINDSHIELD VIEW

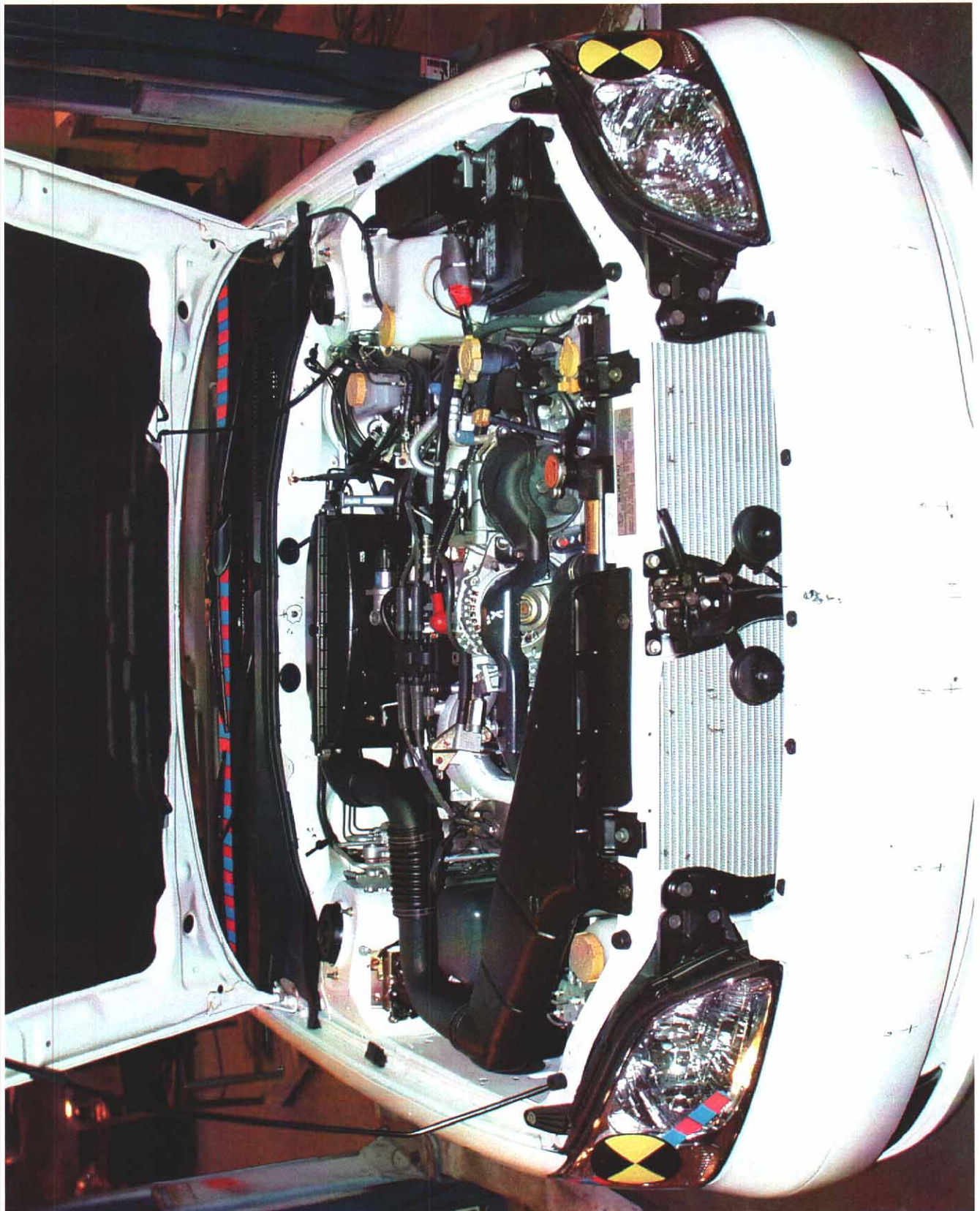


Figure A-13: PRE-TEST ENGINE COMPARTMENT VIEW

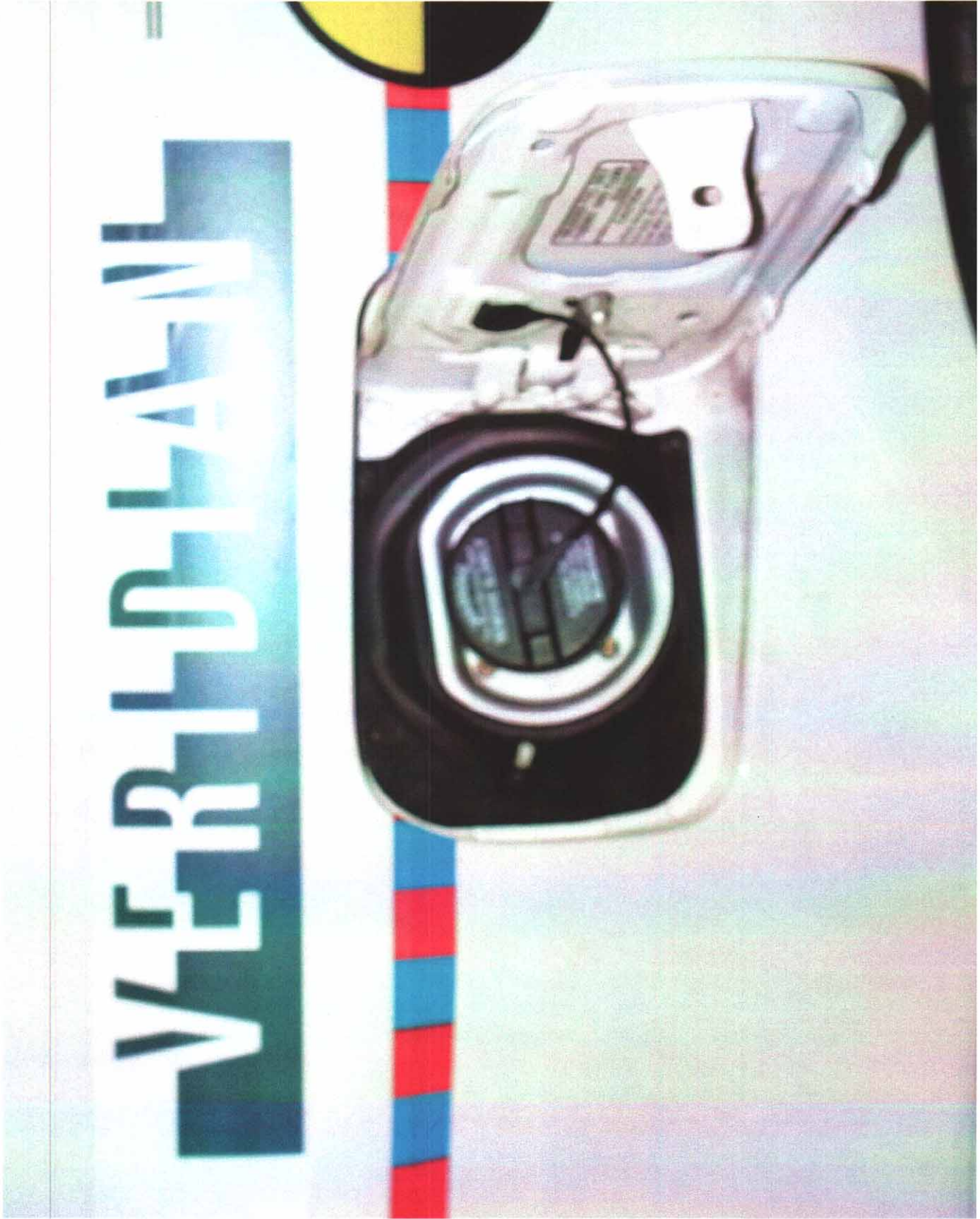


Figure A-14: FUEL CAP VIEW

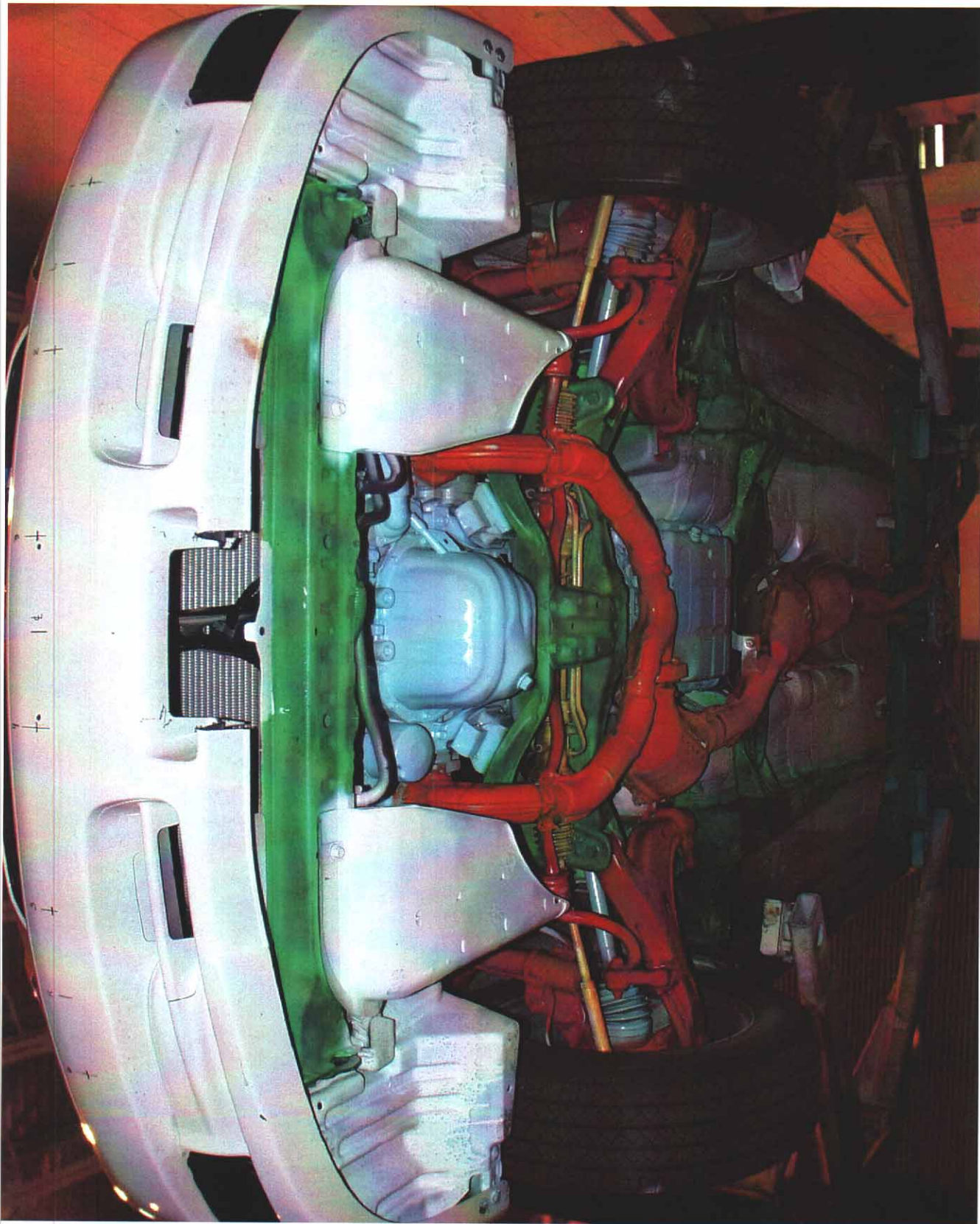


Figure A-15: PRE-TEST FRONT UNDERBODY VIEW



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

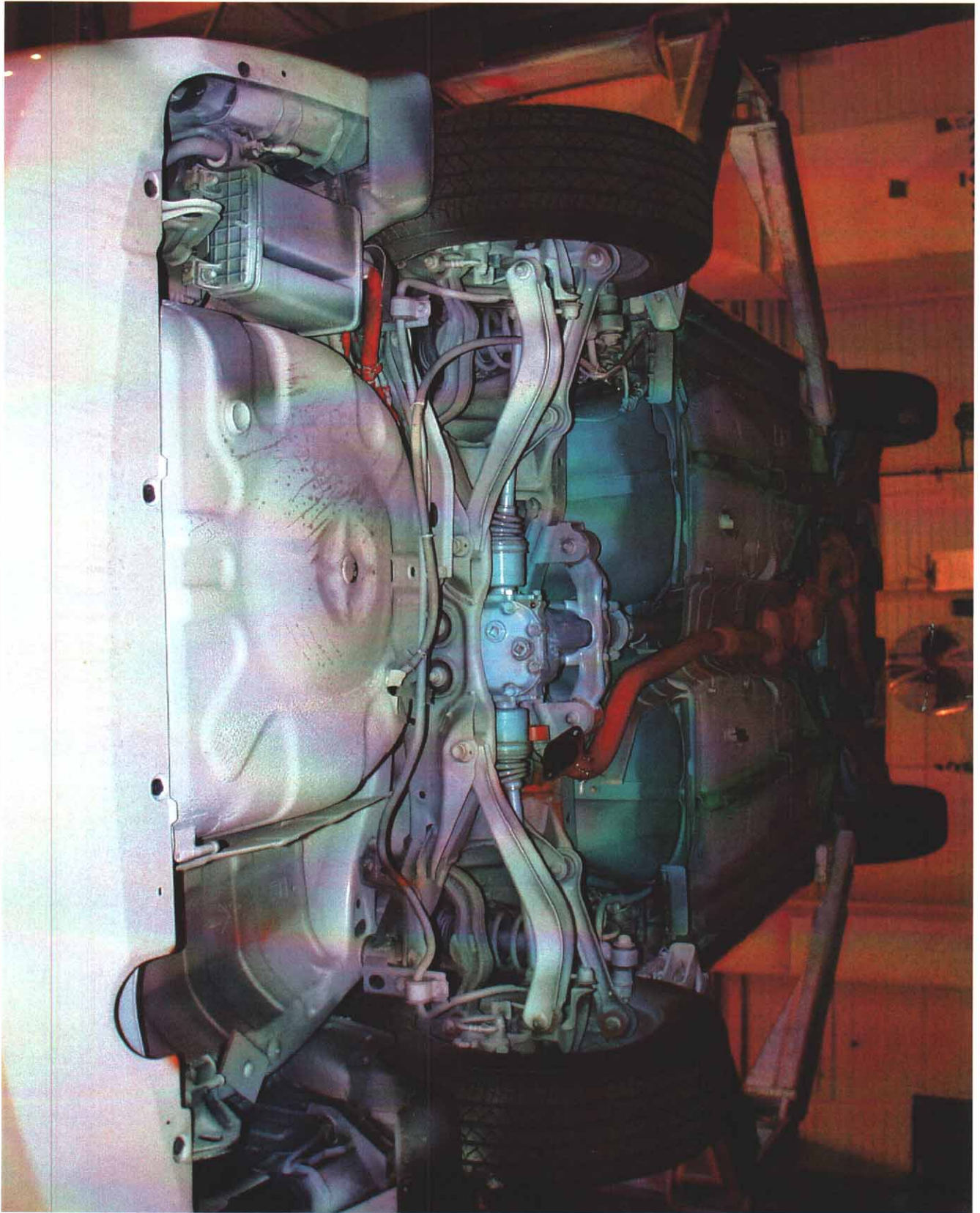


Figure A-19: PRE-TEST REAR UNDERBODY VIEW

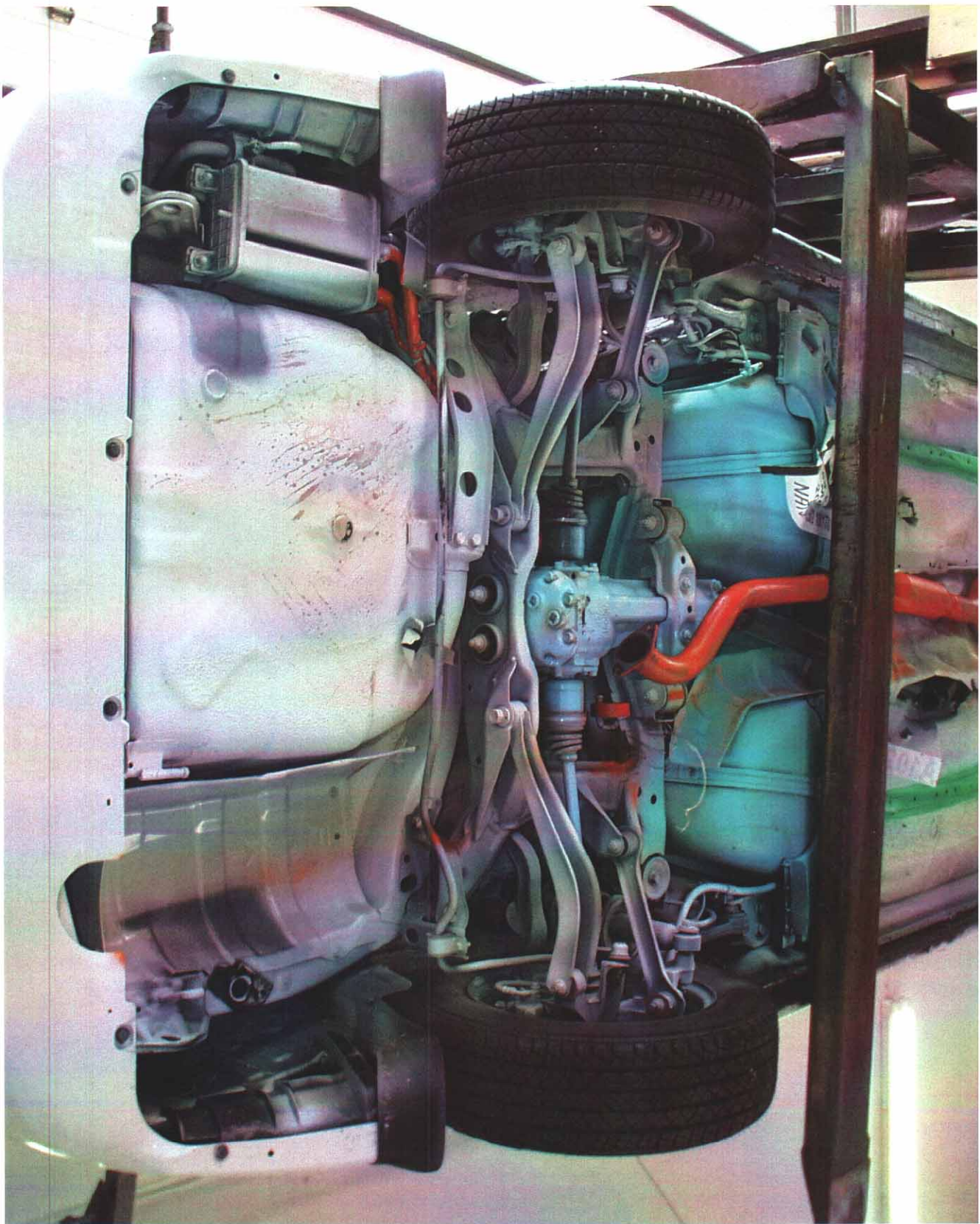


Figure A-20: POST-TEST REAR UNDERBODY VIEW

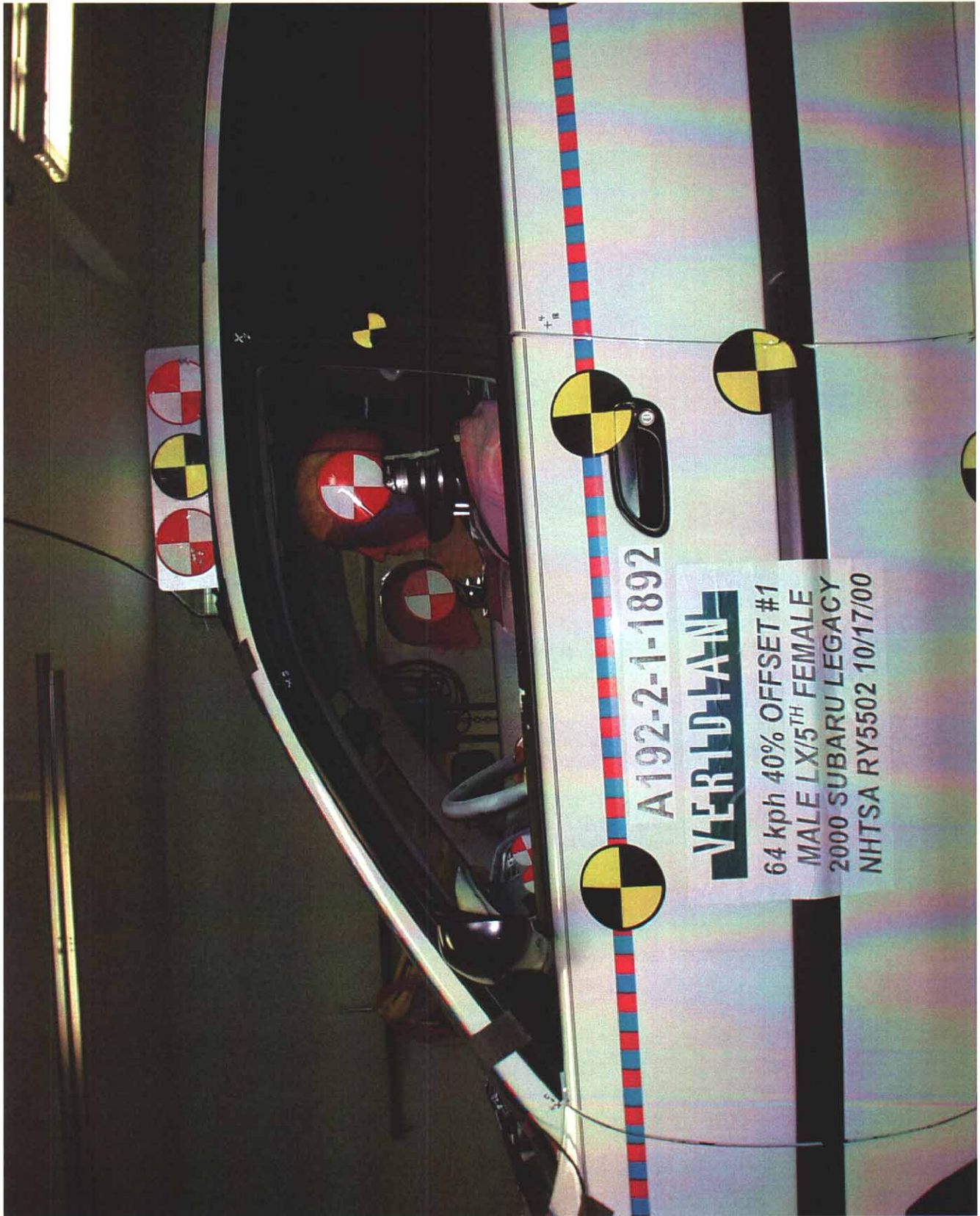


Figure A-21: PRE-TEST DRIVER POSITION VIEW

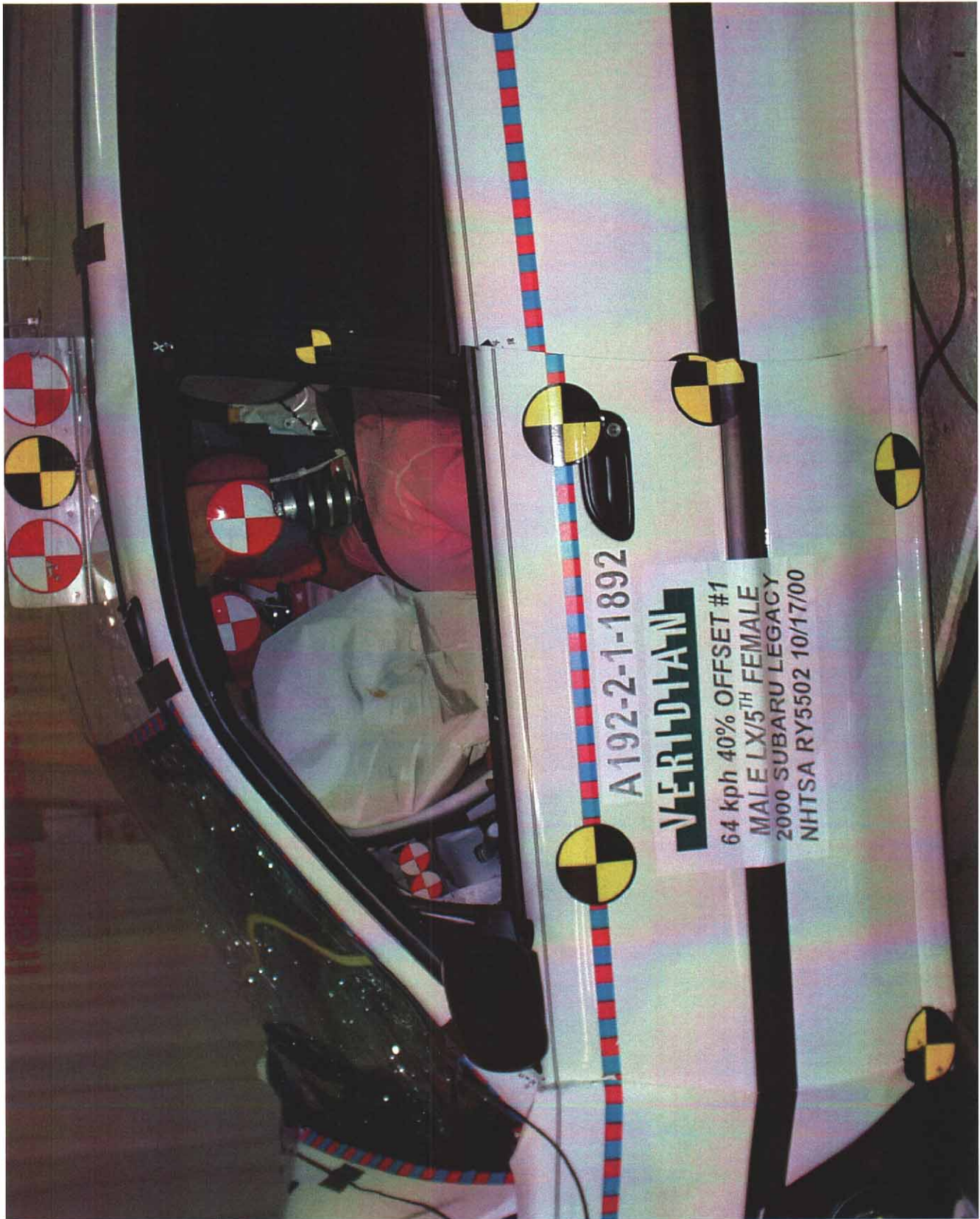


Figure A-22: POST-TEST DRIVER POSITION VIEW

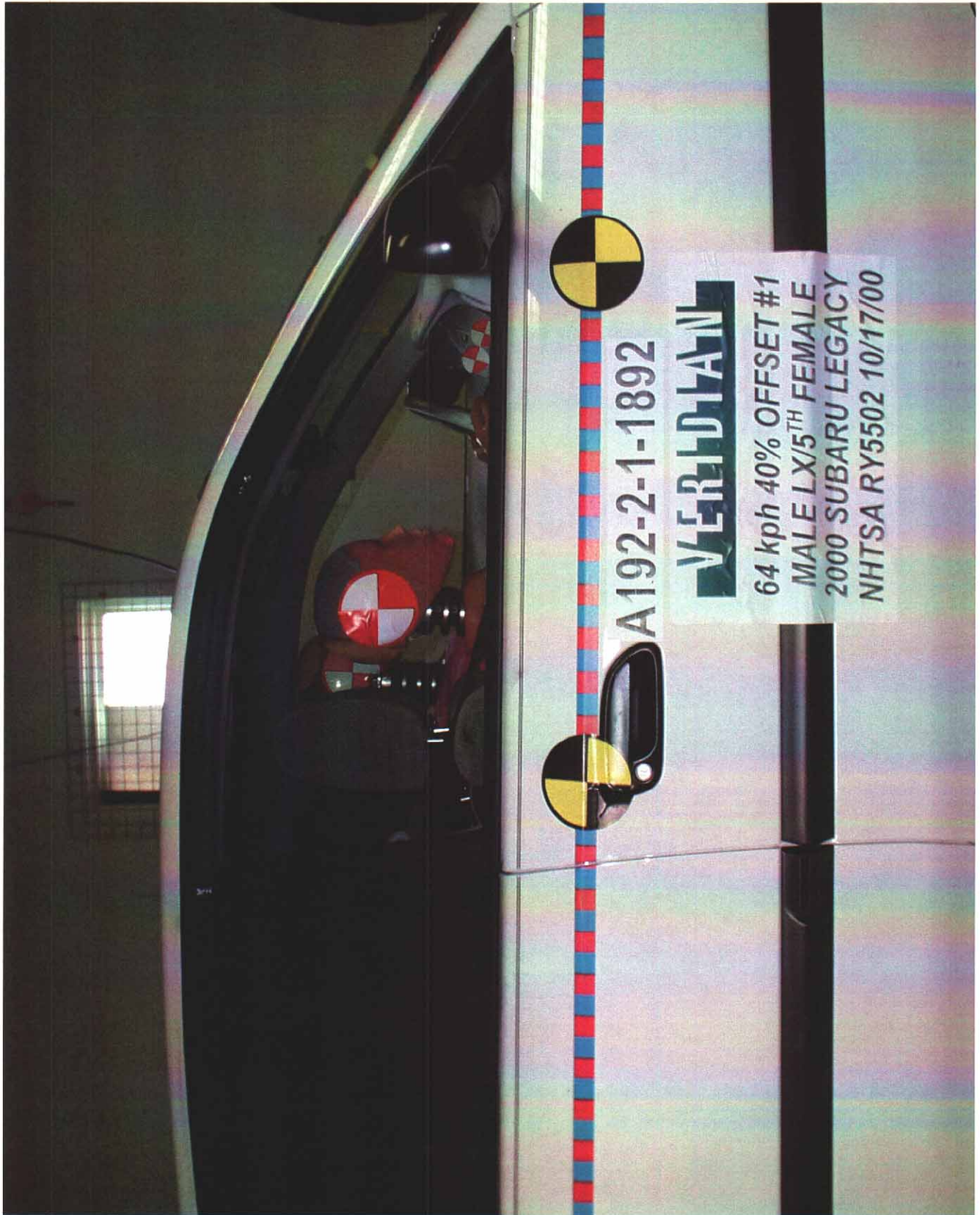


Figure A-23: PRE-TEST PASSENGER POSITION VIEW

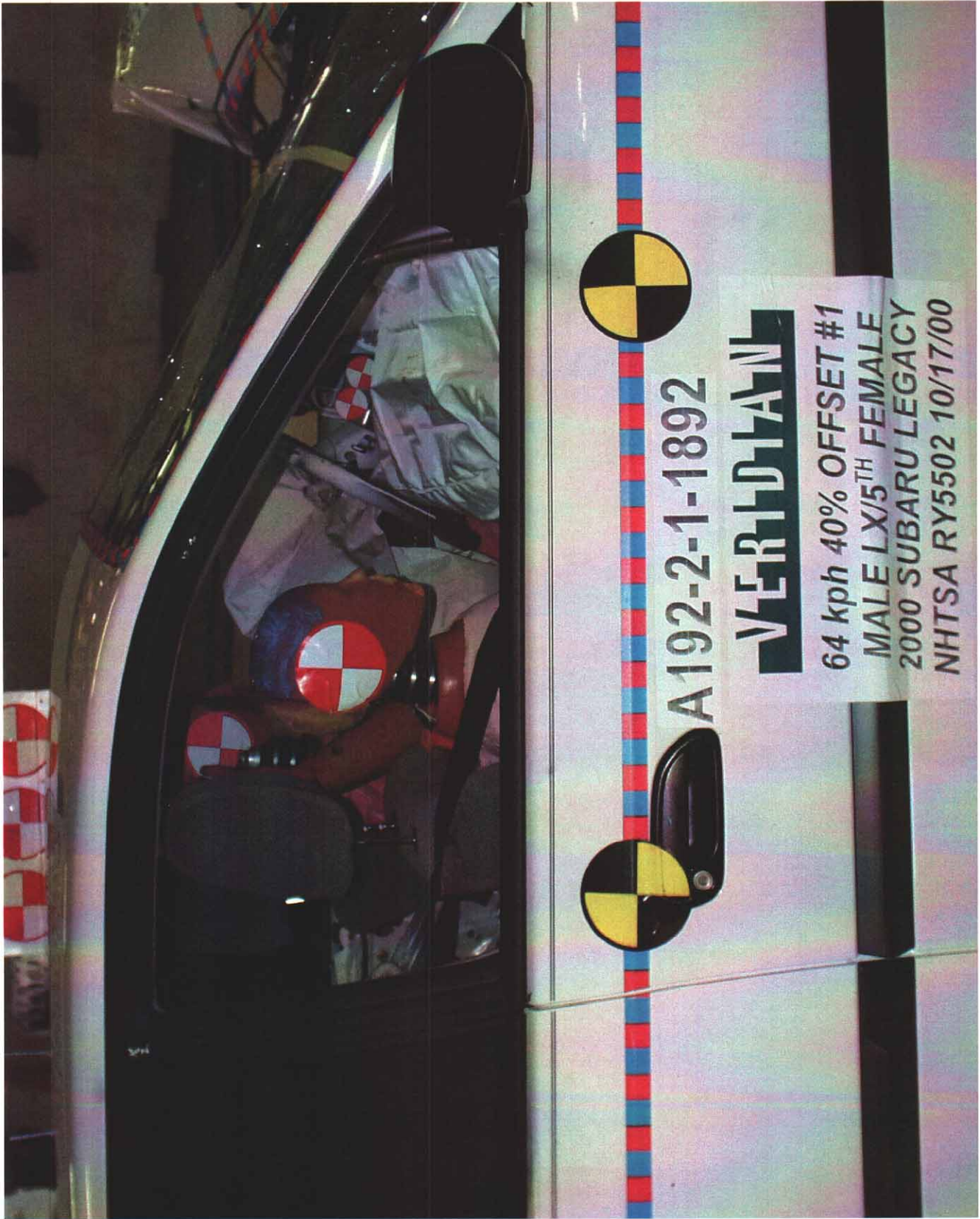


Figure A-24: POST-TEST PASSENGER POSITION VIEW

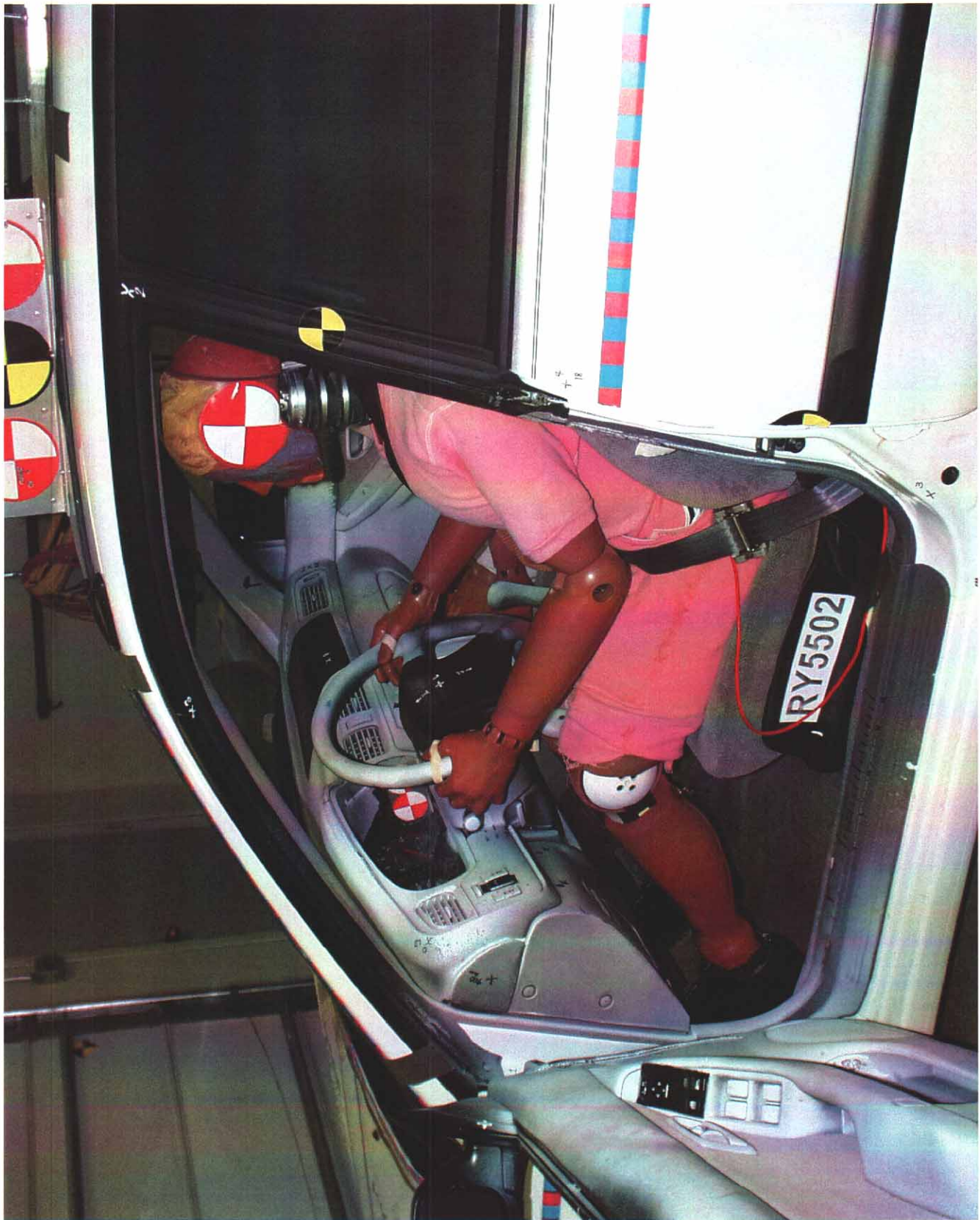


Figure A-25: PRE-TEST DRIVER AND INTERIOR VIEW

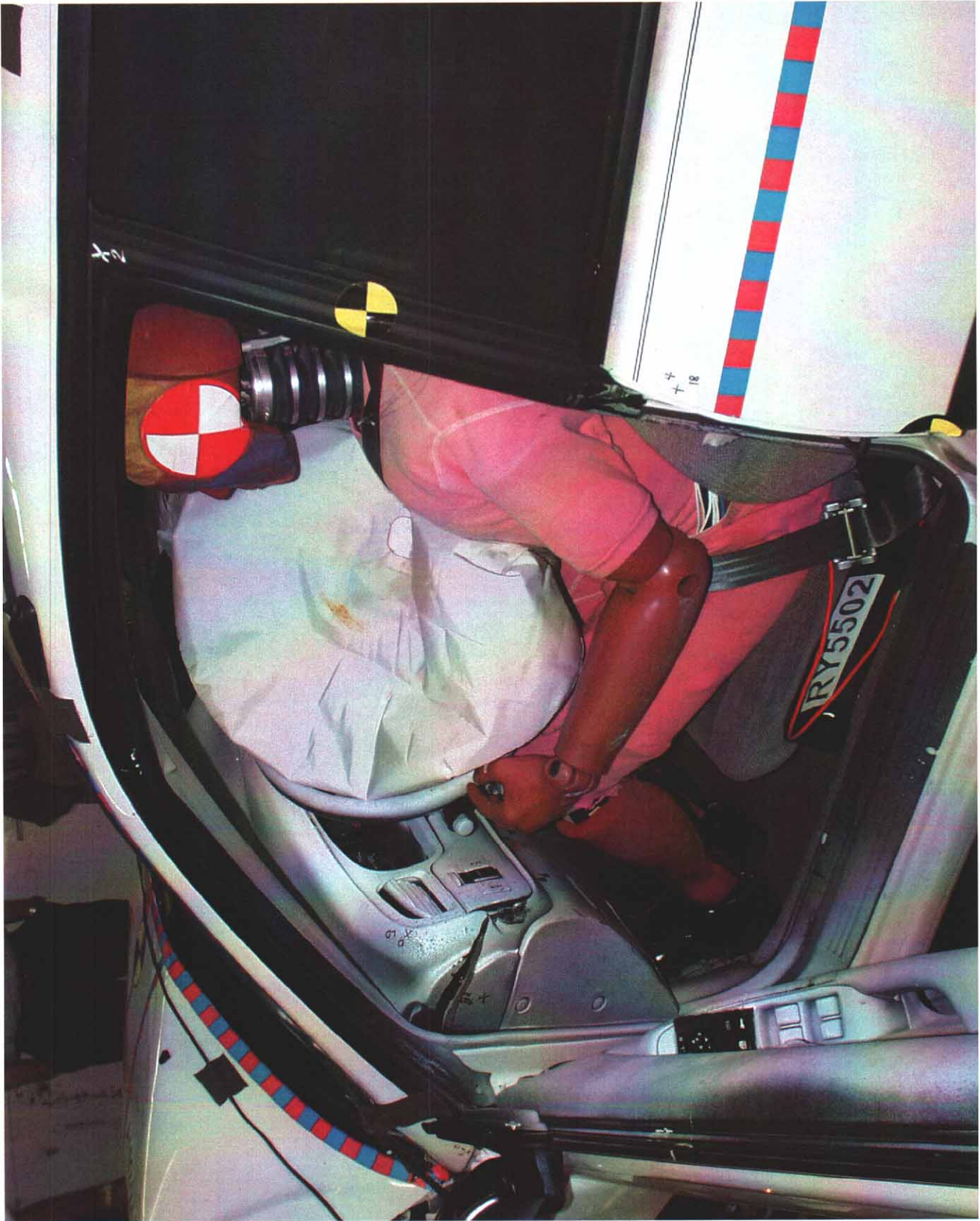


Figure A-26: POST-TEST DRIVER AND INTERIOR VIEW



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



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

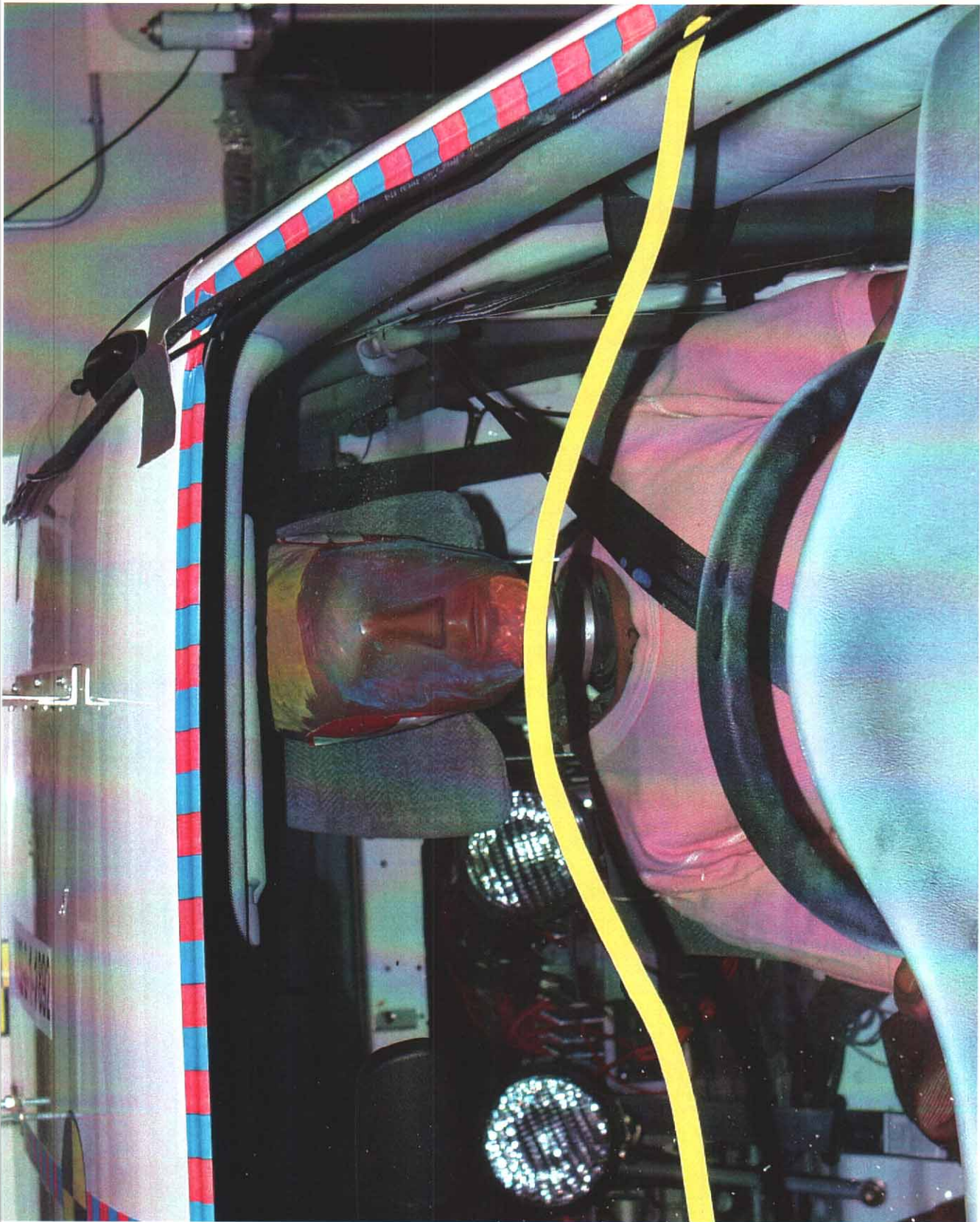


Figure A-29: PRE-TEST DRIVER HEAD LOCATION



Figure A-30: POST-TEST DRIVER HEAD LOCATION

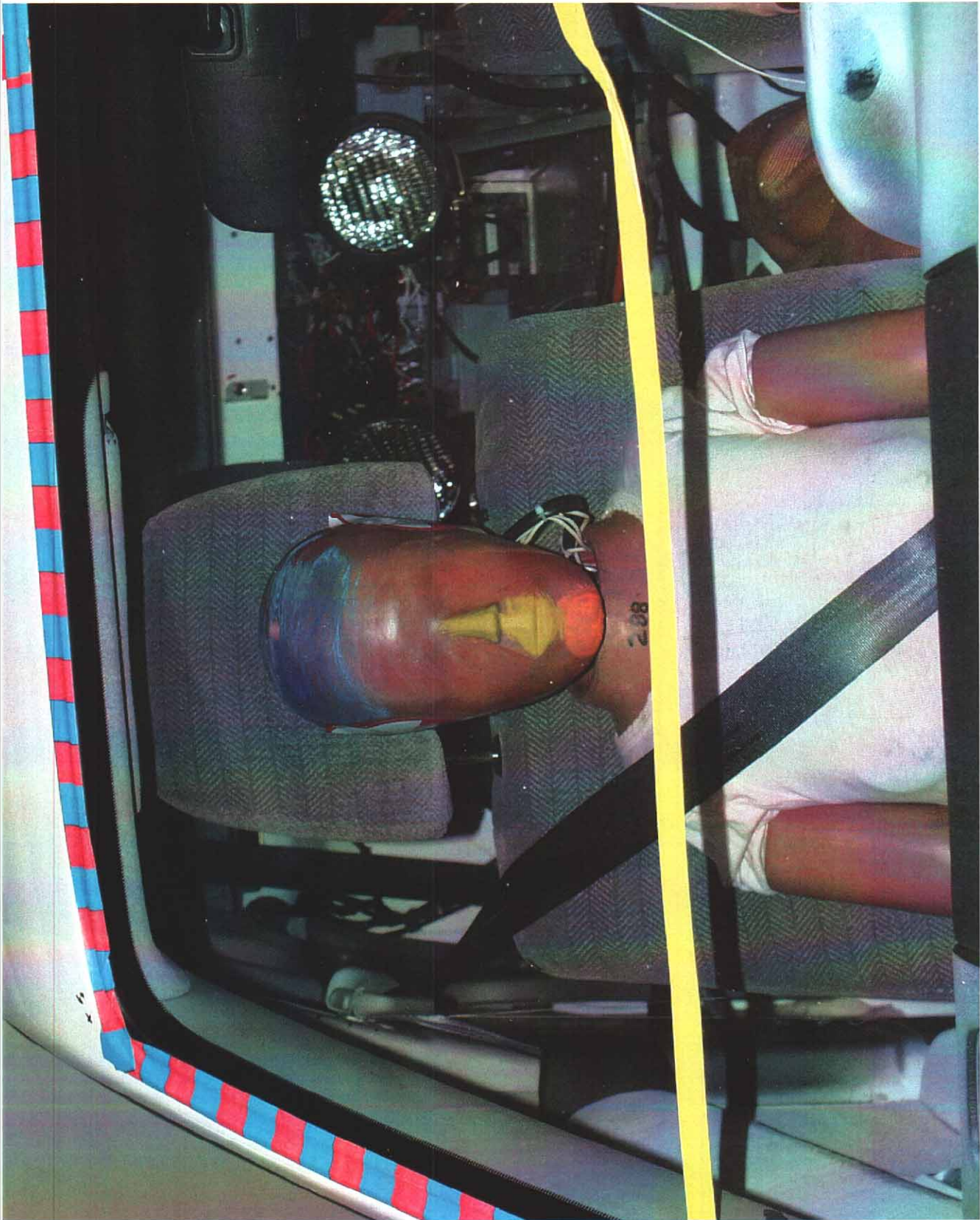


Figure A-31: PRE-TEST PASSENGER HEAD LOCATION



Figure A-32: POST-TEST PASSENGER HEAD LOCATION



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



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

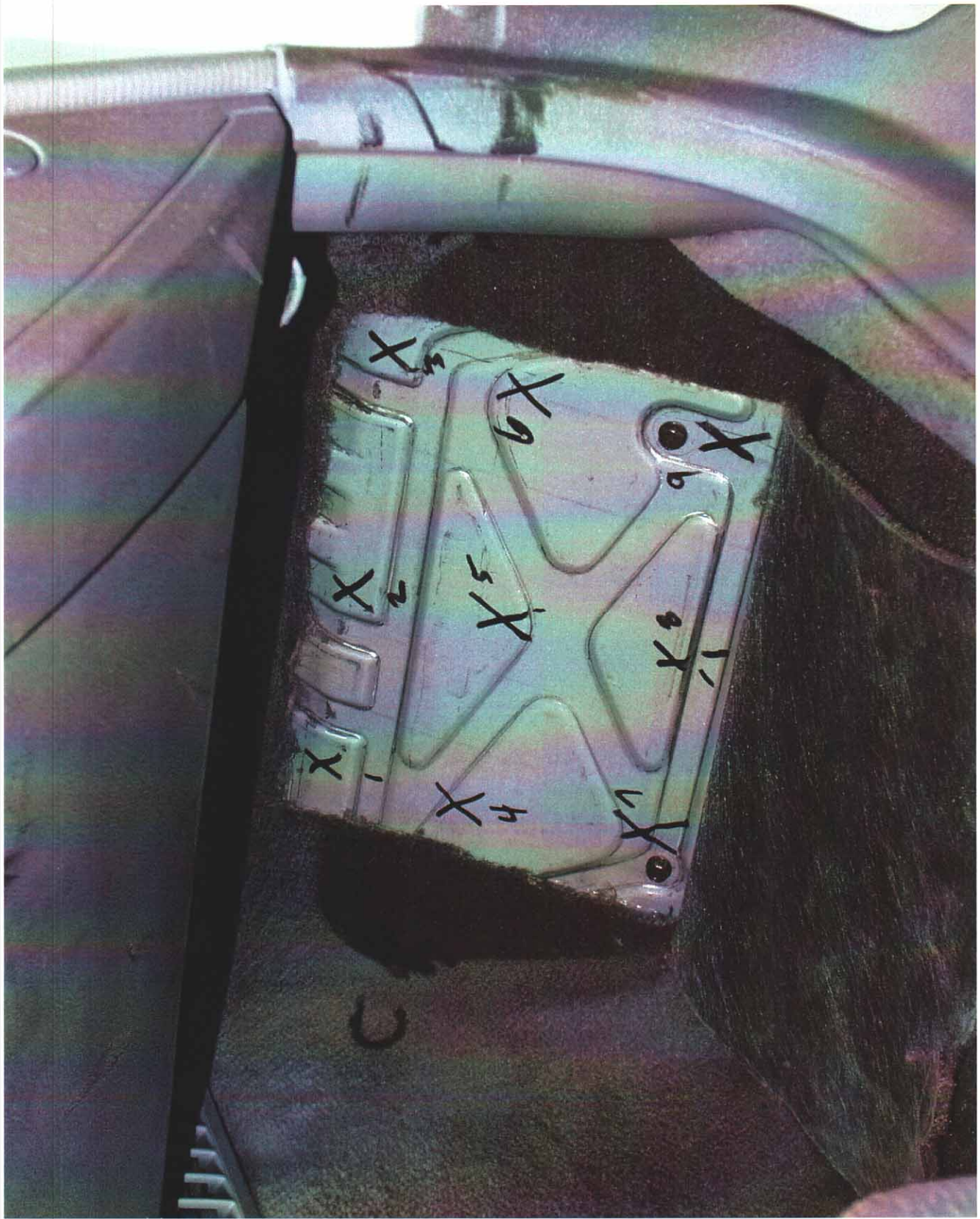


Figure A-35: PRE-TEST PASSENGER FLOOR PAN VIEW

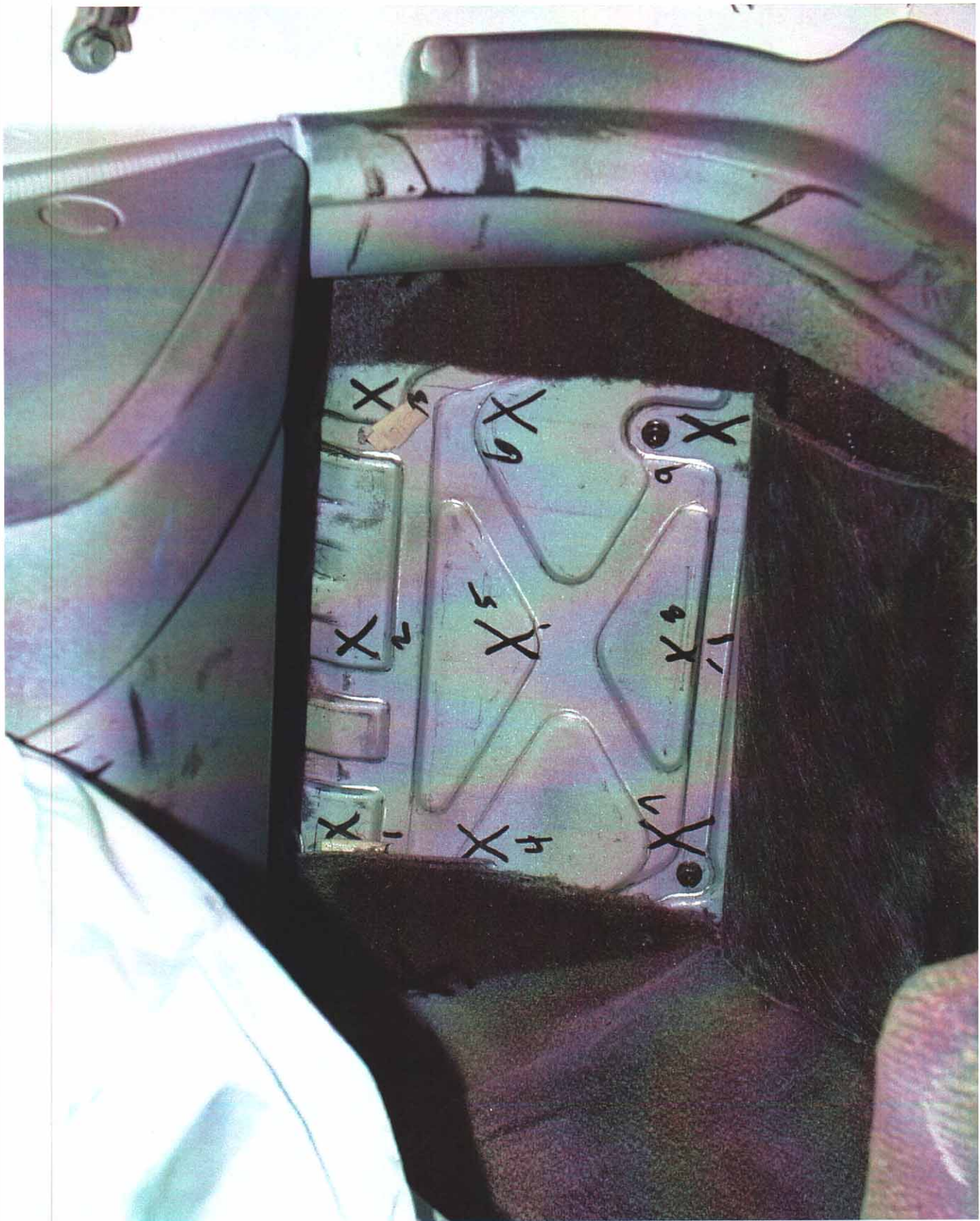


Figure A-36: POST-TEST PASSENGER FLOOR PAN VIEW

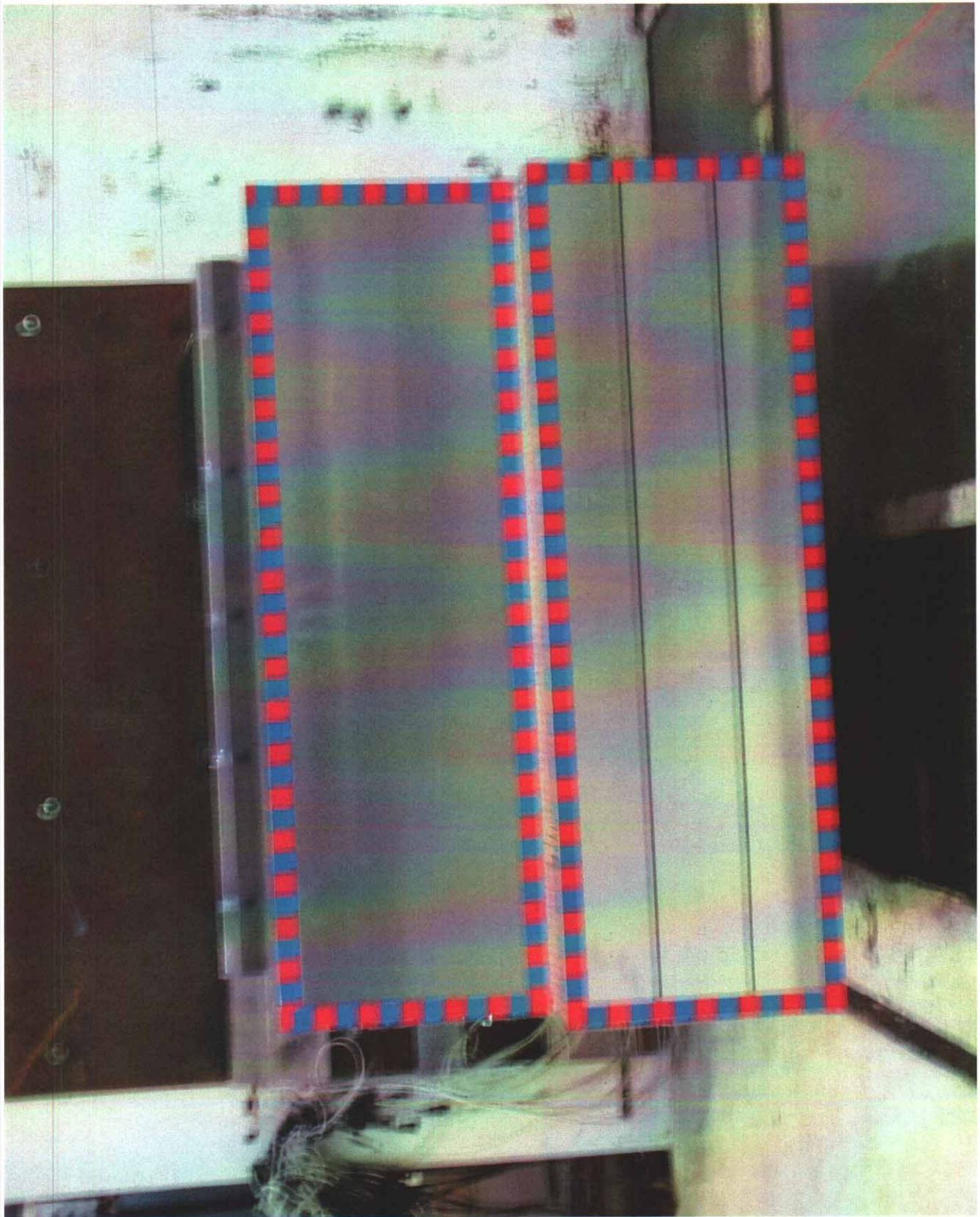


Figure A-37: PRE-TEST BARRIER FRONT VIEW



Figure A-38: POST-TEST BARRIER FRONT VIEW

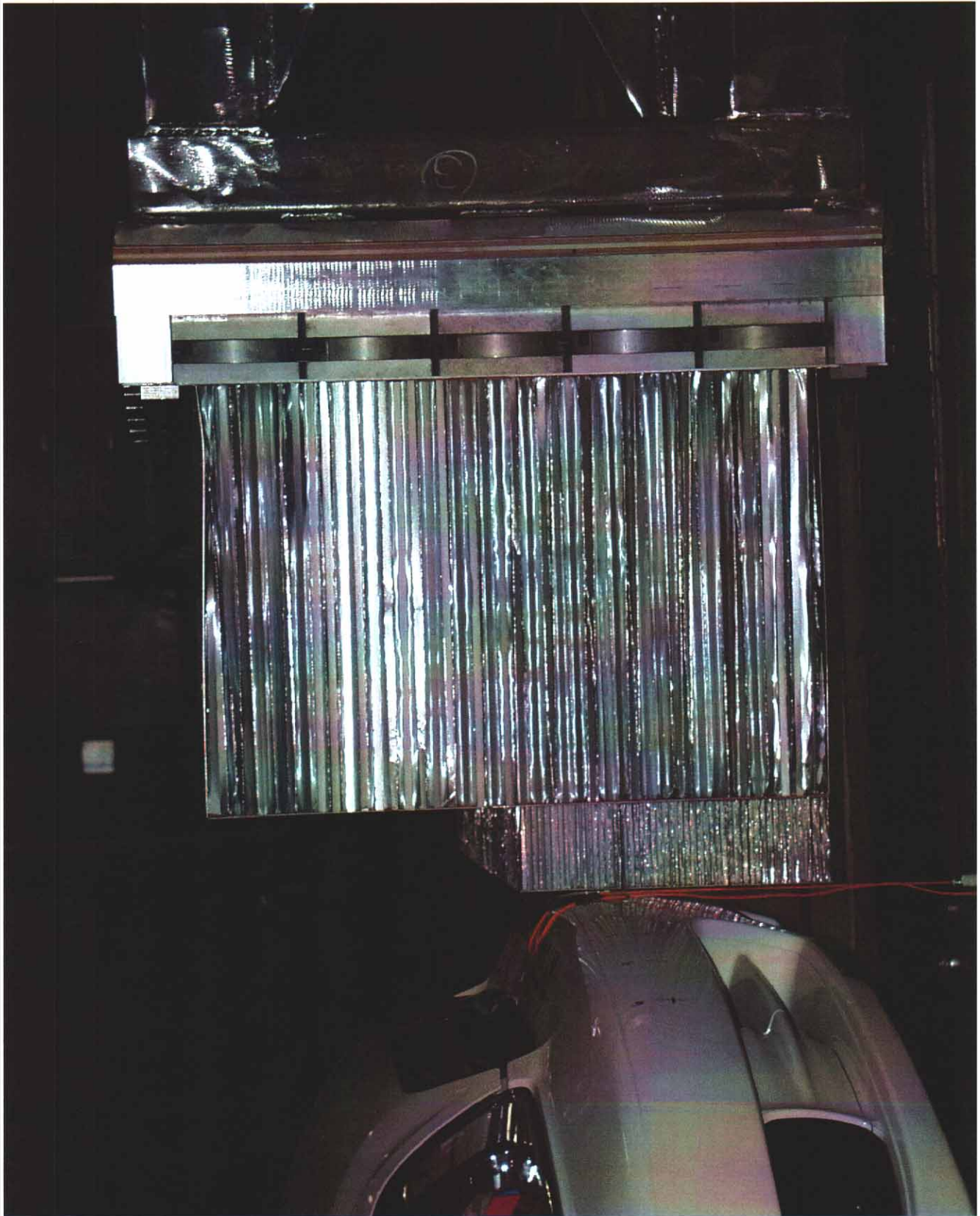


Figure A-39: PRE-TEST BARRIER LEFT SIDE VIEW



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

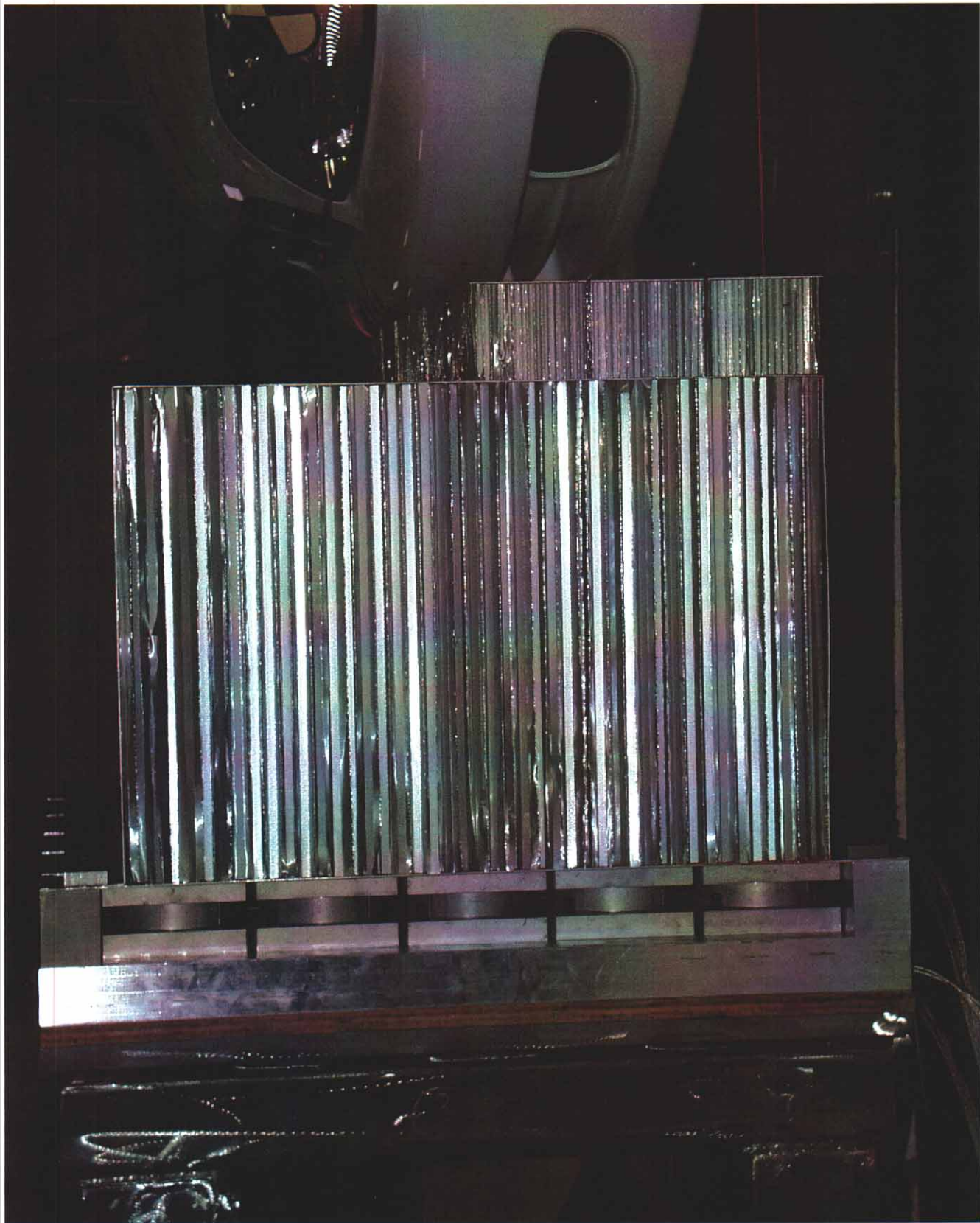


Figure A-41: PRE-TEST BARRIER RIGHT SIDE VIEW

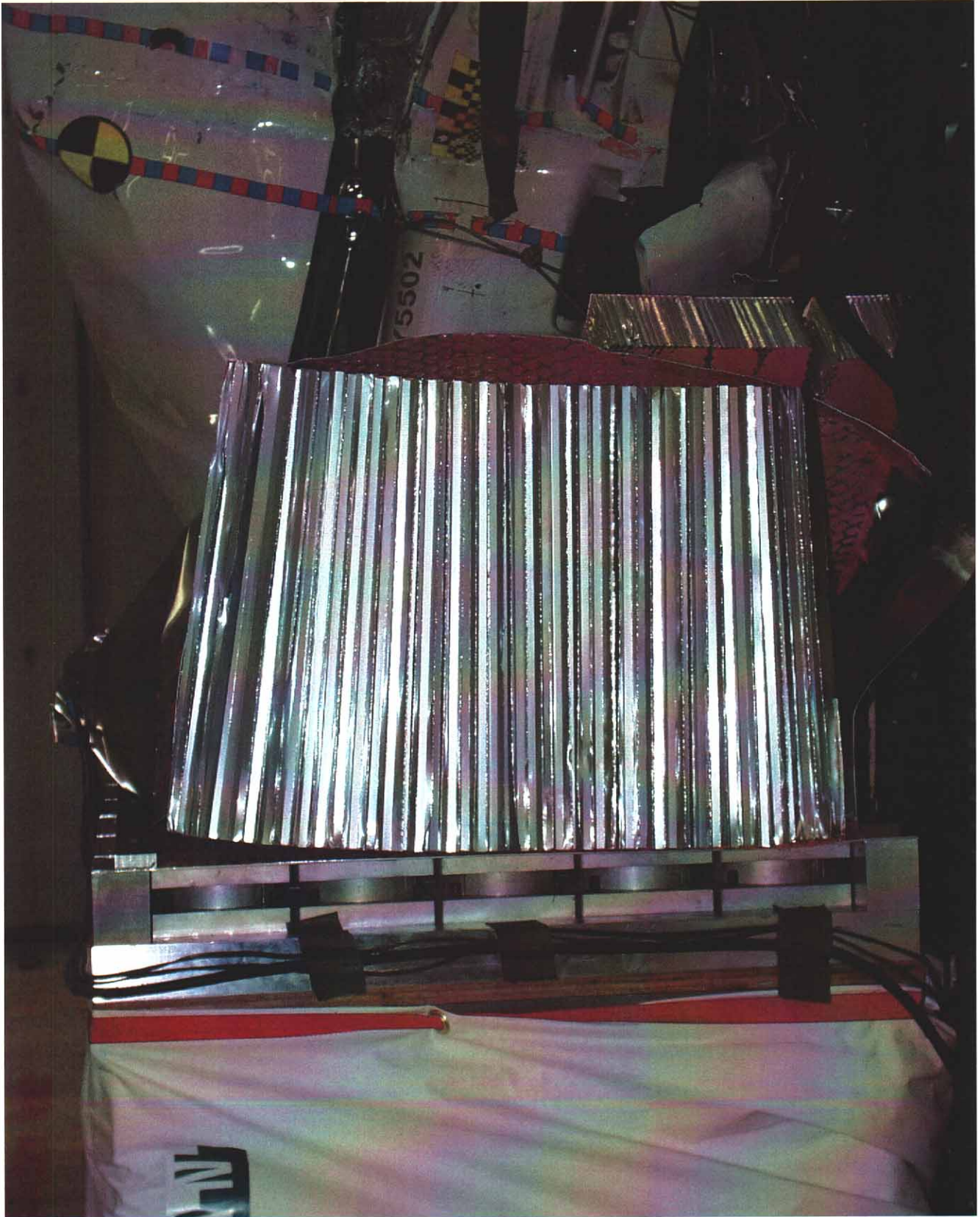


Figure A-42: POST-TEST BARRIER RIGHT SIDE VIEW

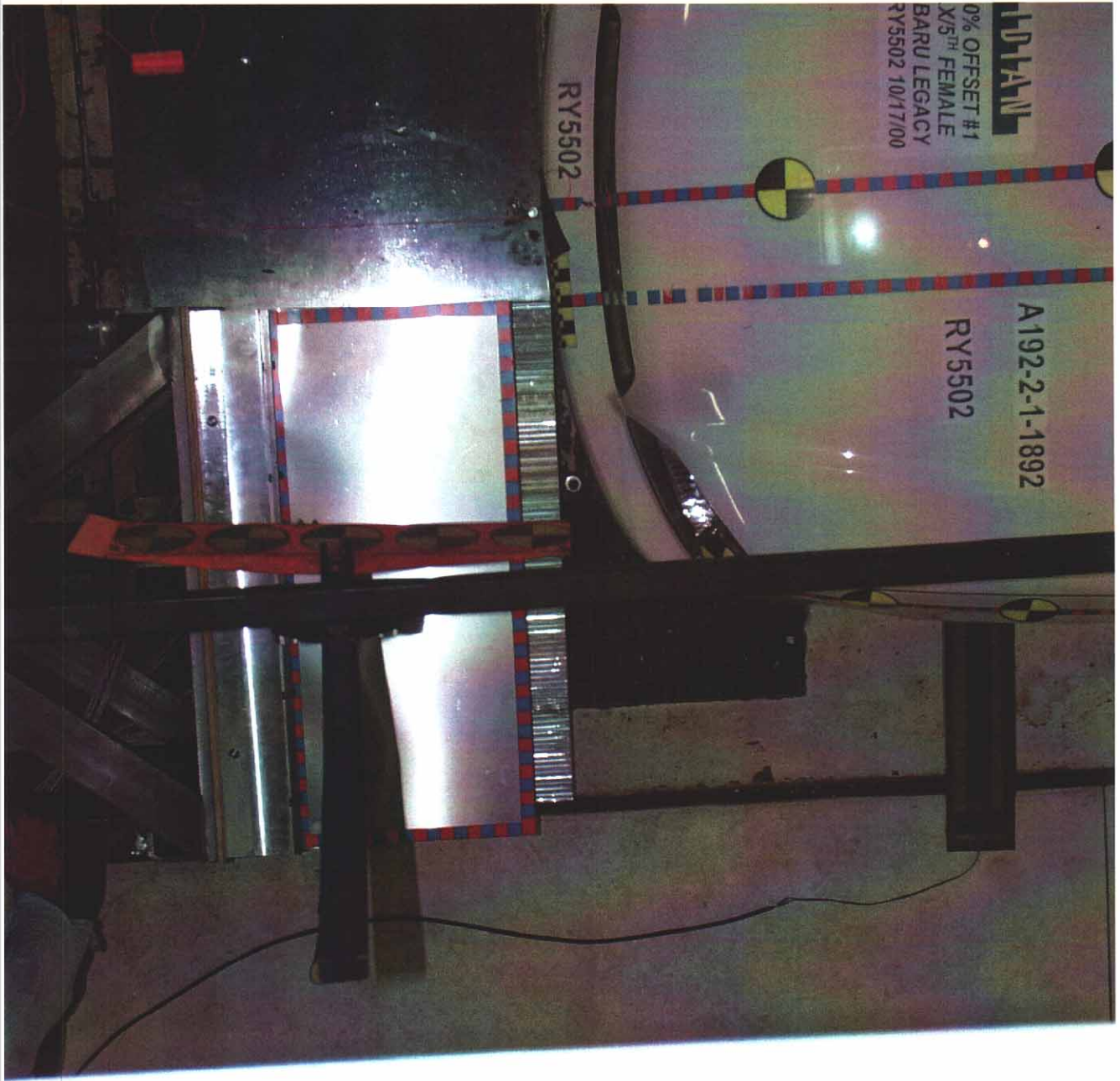


Figure A-43: PRE-TEST BARRIER TOP VIEW

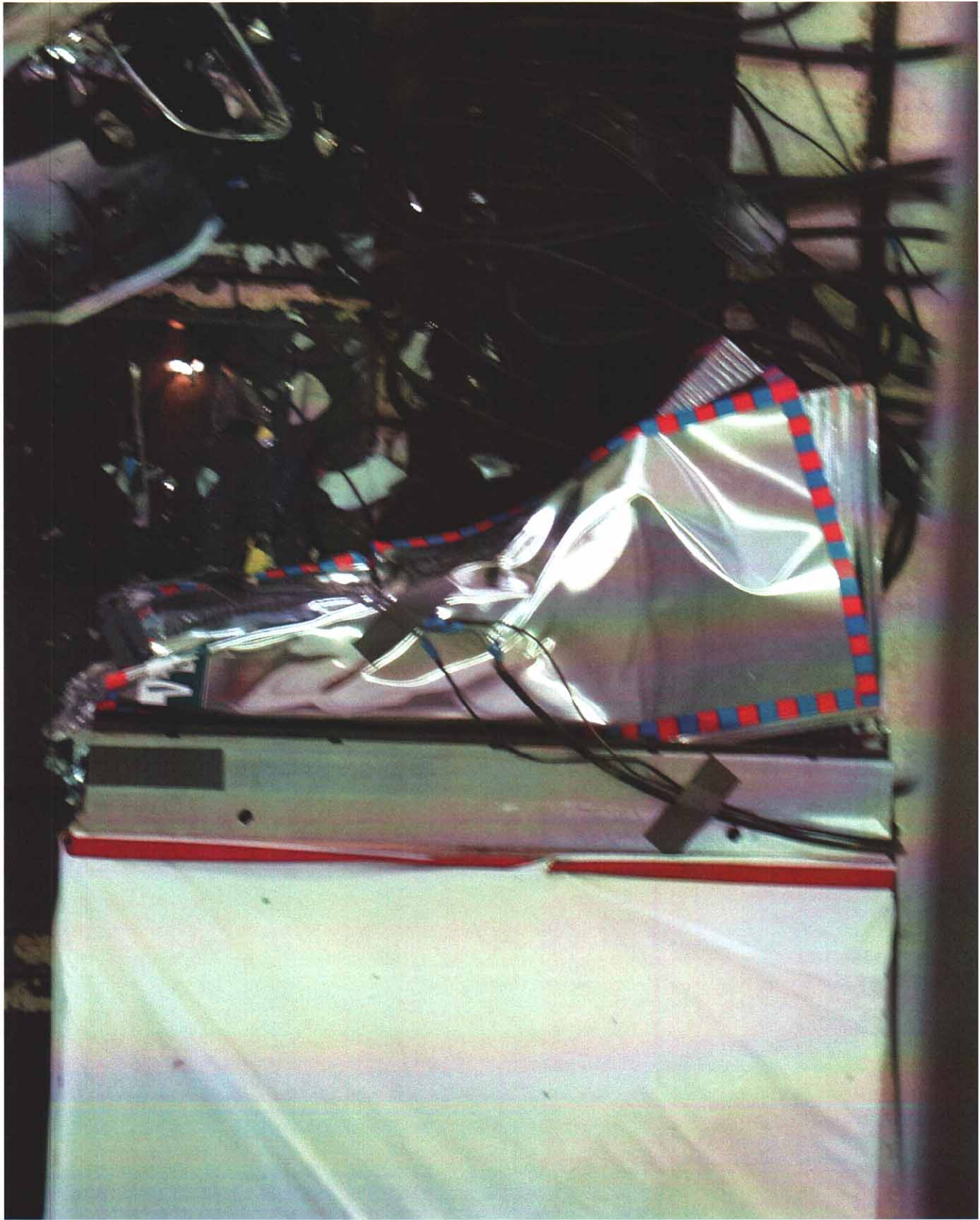


Figure A-44: POST-TEST BARRIER TOP VIEW

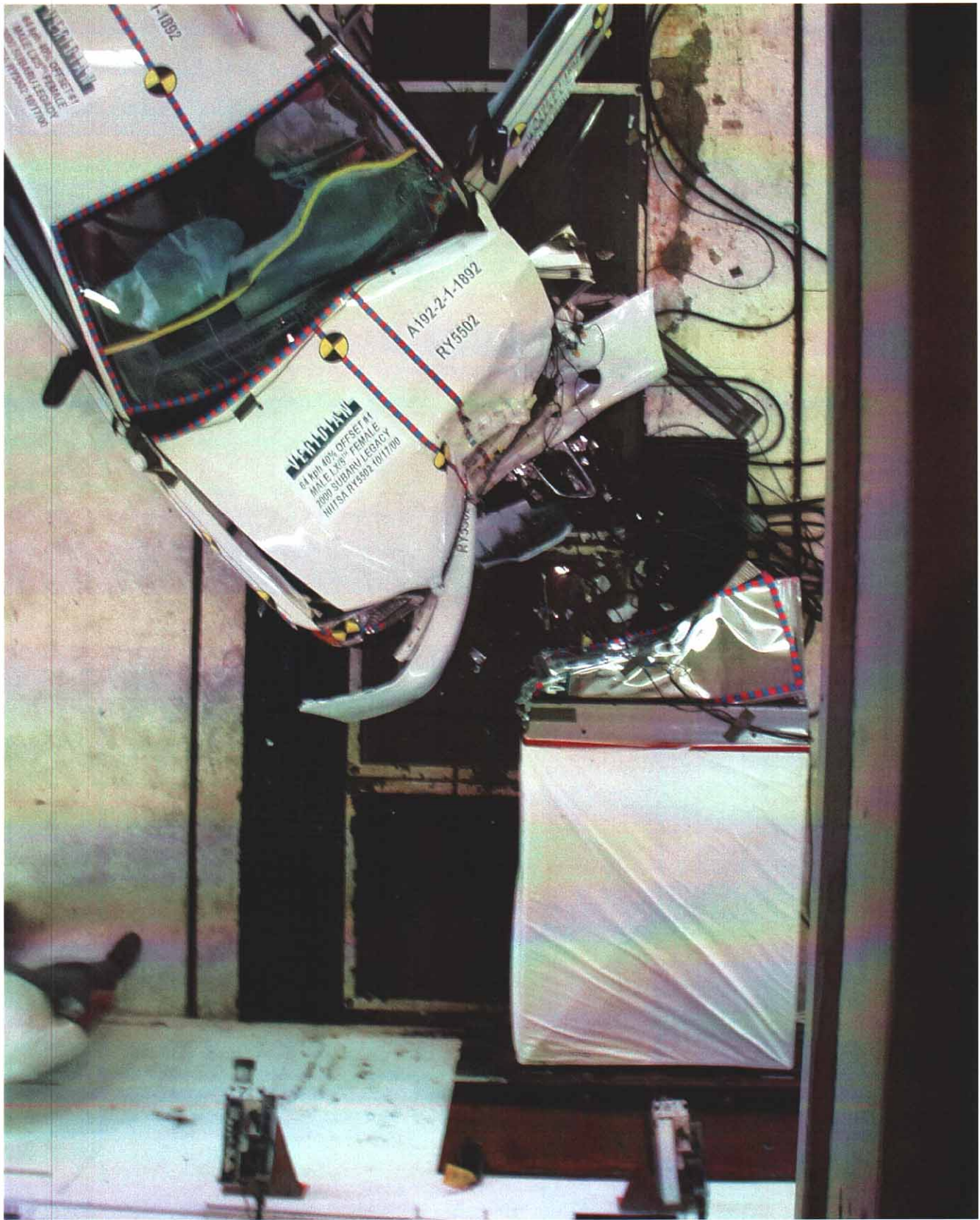


Figure A-45: POST-TEST OVERHEAD VIEW



Figure A-46: ROLLOVER VIEW

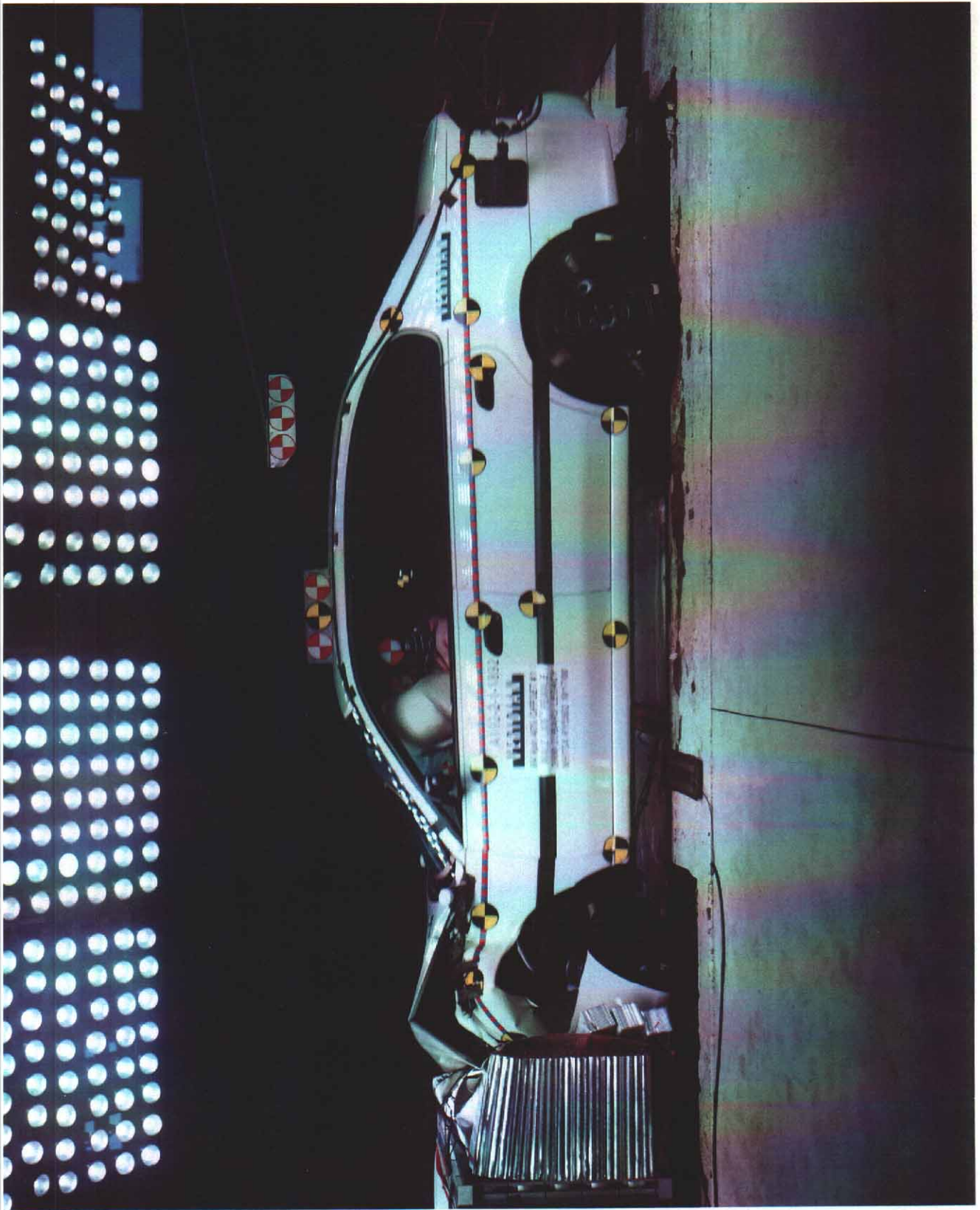


Figure A-47: IMPACT VIEW

**APPENDIX B**

**DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA**

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

Transducer	SAE Sign Convention (positive unless noted)
Upper Neck Load Cell	Fx Head rearward, 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 RY5502

<b>DATA TYPE</b>	<b>SAE FILTER CLASS (Hz)</b>
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 x [g, CFC_1000]	B-9
2	P1 Head y [g, CFC_1000]	B-10
3	P1 Head z [g, CFC_1000]	B-11
4	P1 Head Resultant [g, CFC_1000]	B-12
5	P1 Head Red x [g, CFC_1000]	B-13
6	P1 Head Red y [g, CFC_1000]	B-14
7	P1 Head Redz [g, CFC_1000]	B-15
8	P1 Head Red Resultant [g, CFC_1000]	B-16
9	P1 Upper Neck Fx [N, CFC_1000]	B-17
10	P1 Upper Neck Fy [N, CFC_1000]	B-18
11	P1 Upper Neck Fz [N, CFC_1000]	B-19
12	P1 Upper Neck F Resultant [N, CFC_1000]	B-20
13	P1 Upper Neck Mx [Nm, CFC_600]	B-21
14	P1 Upper Neck My [Nm, CFC_600]	B-22
15	P1 Upper Neck Mz [Nm, CFC_600]	B-23
16	P1 Upper Neck M Resultant [Nm, CFC_600]	B-24
17	P1 Chest x [g, CFC_180]	B-25
18	P1 Chest y [g, CFC_180]	B-26
19	P1 Chest z [g, CFC_180]	B-27
20	P1 Chest Resultant [g, CFC_180]	B-28
21	P1 Chest Red x [g, CFC_180]	B-29
22	P1 Chest Red y [g, CFC_180]	B-30
23	P1 Chest Red z [g, CFC_180]	B-31
24	P1 Chest Red Resultant [g, CFC_180]	B-32
25	P1 Chest Compression [mm, CFC_600]	B-33
26	P1 Pelvic x [g, CFC_1000]	B-34
27	P1 Pelvic y [g, CFC_1000]	B-35
28	P1 Pelvic z [g, CFC_1000]	B-36
29	P1 Pelvic Resultant [g, CFC_1000]	B-37
30	P1 Left Femur Fx [N, CFC_600]	B-38
31	P1 Left Femur Fy [N, CFC_600]	B-39
32	P1 Left Femur Fz [N, CFC_600]	B-40
33	P1 Left Femur F Resultant [N, CFC_600]	B-41
34	P1 Left Femur Mx [Nm, CFC_600]	B-42
35	P1 Left Femur My [Nm, CFC_600]	B-43
36	P1 Left Femur Mz [Nm, CFC_600]	B-44
37	P1 Left Femur M Resultant [Nm, CFC_600]	B-45
38	P1 Right Femur Fx [N, CFC_600]	B-46
39	P1 Right Femur Fy [N, CFC_600]	B-47
40	P1 Right Femur Fz [N, CFC_600]	B-48
41	P1 Right Femur F Resultant [N, CFC_600]	B-49
42	P1 Right Femur Mx [Nm, CFC_600]	B-50
43	P1 Right Femur My [Nm, CFC_600]	B-51
44	P1 Right Femur Mz [Nm, CFC_600]	B-52
45	P1 Right Femur M Resultant [Nm, CFC_600]	B-53
46	P1 Left Knee Shear Dx [mm, CFC_180]	B-54
47	P1 Right Knee Shear Dx [mm, CFC_180]	B-55
48	P1 Left Upper Tibia Fx [N, CFC_600]	B-56
49	P1 Left Upper Tibia Fz [N, CFC_600]	B-57
50	P1 Left Upper Tibia Mx [Nm, CFC_600]	B-58
51	P1 Left Upper Tibia My [Nm, CFC_600]	B-59

52	P1 Left Lower Tibia Fx [N, CFC_600]	B-60
53	P1 Left Lower Tibia Fy [N, CFC_600]	B-61
54	P1 Left Lower Tibia Fz [N, CFC_600]	B-62
55	P1 Left Lower Tibia F Resultant [N, CFC_600]	B-63
56	P1 Left Lower Tibia Mx [Nm, CFC_600]	B-64
57	P1 Left Lower Tibia My [Nm, CFC_600]	B-65
58	P1 Right Upper Tibia Fx [N, CFC_600]	B-66
59	P1 Right Upper Tibia Fz [N, CFC_600]	B-67
60	P1 Right Upper Tibia Mx [Nm, CFC_600]	B-68
61	P1 Right Upper Tibia My [Nm, CFC_600]	B-69
62	P1 Right Lower Tibia Fx [N, CFC_600]	B-70
63	P1 Right Lower Tibia Fy [N, CFC_600]	B-71
64	P1 Right Lower Tibia Fz [N, CFC_600]	B-72
65	P1 Right Lower Tibia F Resultant [N, CFC_600]	B-73
66	P1 Right Lower Tibia Mx [N, CFC_600]	B-74
67	P1 Right Lower Tibia My [N, CFC_600]	B-75
68	P1 Left Tibia Ax [g, CFC_600]	B-76
69	P1 Left Tibia Ay [g, CFC_600]	B-77
70	P1 Right Tibia Ax [g, CFC_600]	B-78
71	P1 Right Tibia Ay [g, CFC_600]	B-79
72	P1 Left Ankle Rotation x [Deg, CFC_180]	B-80
73	P1 Left Ankle Rotation y [Deg, CFC_180]	B-81
74	P1 Left Ankle Rotation z [Deg, CFC_180]	B-82
75	P1 Right Ankle Rotation x [Deg, CFC_180]	B-83
76	P1 Right Ankle Rotation y [Deg, CFC_180]	B-84
77	P1 Right Ankle Rotation z [Deg, CFC_180]	B-85
78	P1 Left Foot Ax [g, CFC_600]	B-86
79	P1 Left Foot Ay [g, CFC_600]	B-87
80	P1 Left Foot Az [g, CFC_600]	B-88
81	P1 Left Foot A Resultant [g, CFC_600]	B-89
82	P1 Right Foot Ax [g, CFC_600]	B-90
83	P1 Right Foot Ay [g, CFC_600]	B-91
84	P1 Right Foot Az [g, CFC_600]	B-92
85	P1 Right Foot A Resultant [g, CFC_600]	B-93
86	P1 Lap Belt Force [N, CFC_60]	B-94
87	P1 Torso Belt Spoolout [mm, CFC_180]	B-95
88	P2 Head x [g, CFC_1000]	B-96
89	P2 Head y [g, CFC_1000]	B-97
90	P2 Head z [g, CFC_1000]	B-98
91	P2 Head Resultant [g, CFC_1000]	B-99
92	P2 Upper Neck Fx [N, CFC_1000]	B-100
93	P2 Upper Neck Fy [N, CFC_1000]	B-101
94	P2 Upper Neck Fz [N, CFC_1000]	B-102
95	P2 Upper Neck F Resultant [N, CFC_1000]	B-103
96	P2 Upper Neck Mx [Nm, CFC_600]	B-104
97	P2 Upper Neck My [Nm, CFC_600]	B-105
98	P2 Upper Neck Mz [Nm, CFC_600]	B-106
99	P2 Upper Neck M Resultant [Nm, CFC_600]	B-107
100	P2 Chest x [g, CFC_180]	B-108
101	P2 Chest y [g, CFC_180]	B-109
102	P2 Chest z [g, CFC_180]	B-110
103	P2 Chest Resultant [g, CFC_180]	B-111
104	P2 Chest Displacement [mm, CFC_600]	B-112

105	P2 Pelvic x [g, CFC_1000]	B-113
106	P2 Pelvic y [g, CFC_1000]	B-114
107	P2 Pelvic z [g, CFC_1000]	B-115
108	P2 Pelvic Resultant [g, CFC_1000]	B-116
109	P2 Left Femur Fx [N, CFC_600]	B-117
110	P2 Left Femur Fy [N, CFC_600]	B-118
111	P2 Left Femur Fz [N, CFC_600]	B-119
112	P2 Left Femur F Resultant [N, CFC_600]	B-120
113	P2 Left Femur Mx [Nm, CFC_600]	B-121
114	P2 Left Femur My [Nm, CFC_600]	B-122
115	P2 Left Femur Mz [Nm, CFC_600]	B-123
116	P2 Left Femur M Resultant [Nm, CFC_600]	B-124
117	P2 Right Femur Fx [N, CFC_600]	B-125
118	P2 Right Femur Fy [N, CFC_600]	B-126
119	P2 Right Femur Fz [N, CFC_600]	B-127
120	P2 Right Femur F Resultant [N, CFC_600]	B-128
121	P2 Right Femur Mx [Nm, CFC_600]	B-129
122	P2 Right Femur My [Nm, CFC_600]	B-130
123	P2 Right Femur Mz [Nm, CFC_600]	B-131
124	P2 Right Femur M Resultant [Nm, CFC_600]	B-132
125	P2 Left Knee Shear Dx [mm, CFC_180]	B-133
126	P2 Right Knee Shear Dx [mm, CFC_180]	B-134
127	P2 Left Upper Tibia Fx [N, CFC_600]	B-135
128	P2 Left Upper Tibia Fz [N, CFC_600]	B-136
129	P2 Left Upper Tibia Mx [Nm, CFC_600]	B-137
130	P2 Left Upper Tibia My [Nm, CFC_600]	B-138
131	P2 Left Lower Tibia Fx [N, CFC_600]	B-139
132	P2 Left Lower Tibia Fz [N, CFC_600]	B-140
133	P2 Left Lower Tibia Mx [Nm, CFC_600]	B-141
134	P2 Left Lower Tibia My [Nm, CFC_600]	B-142
135	P2 Right Upper Tibia Fx [N, CFC_600]	B-143
136	P2 Right Upper Tibia Fz [N, CFC_600]	B-144
137	P2 Right Upper Tibia Mx [Nm, CFC_600]	B-145
138	P2 Right Upper Tibia My [Nm, CFC_600]	B-146
139	P2 Right Lower Tibia Fx [N, CFC_600]	B-147
140	P2 Right Lower Tibia Fz [N, CFC_600]	B-148
141	P2 Right Lower Tibia Mx [Nm, CFC_600]	B-149
142	P2 Right Lower Tibia My [Nm, CFC_600]	B-150
143	P2 Left Ankle Ax [g, CFC_600]	B-151
144	P2 Left Ankle Az [g, CFC_600]	B-152
145	P2 Right Ankle Ax [g, CFC_600]	B-153
146	P2 Right Ankle Az [g, CFC_600]	B-154
147	P2 Left Toe Az [g, CFC_600]	B-155
148	P2 Right Toe Az [g, CFC_600]	B-156
149	P2 Lap Belt Force [N, CFC_60]	B-157
150	Acc 1 Rear XMBR Left X [g, CFC_60]	B-158
151	Acc 1 Rear XMBR Left X Velocity [kph, CFC_180]	B-159
152	Acc 1 Rear XMBR Left X Displacement [mm, CFC_180]	B-160
153	Acc 2 Rear XMBR Left Y [g, CFC_60]	B-161
154	Acc 2 Rear XMBR Left Y Velocity [kph, CFC_180]	B-162
155	Acc 2 Rear XMBR Left Y Displacement [mm, CFC_180]	B-163
156	Acc 3 Rear XMBR Right X [g, CFC_60]	B-164
157	Acc 3 Rear XMBR Right X Velocity [kph, CFC_180]	B-165

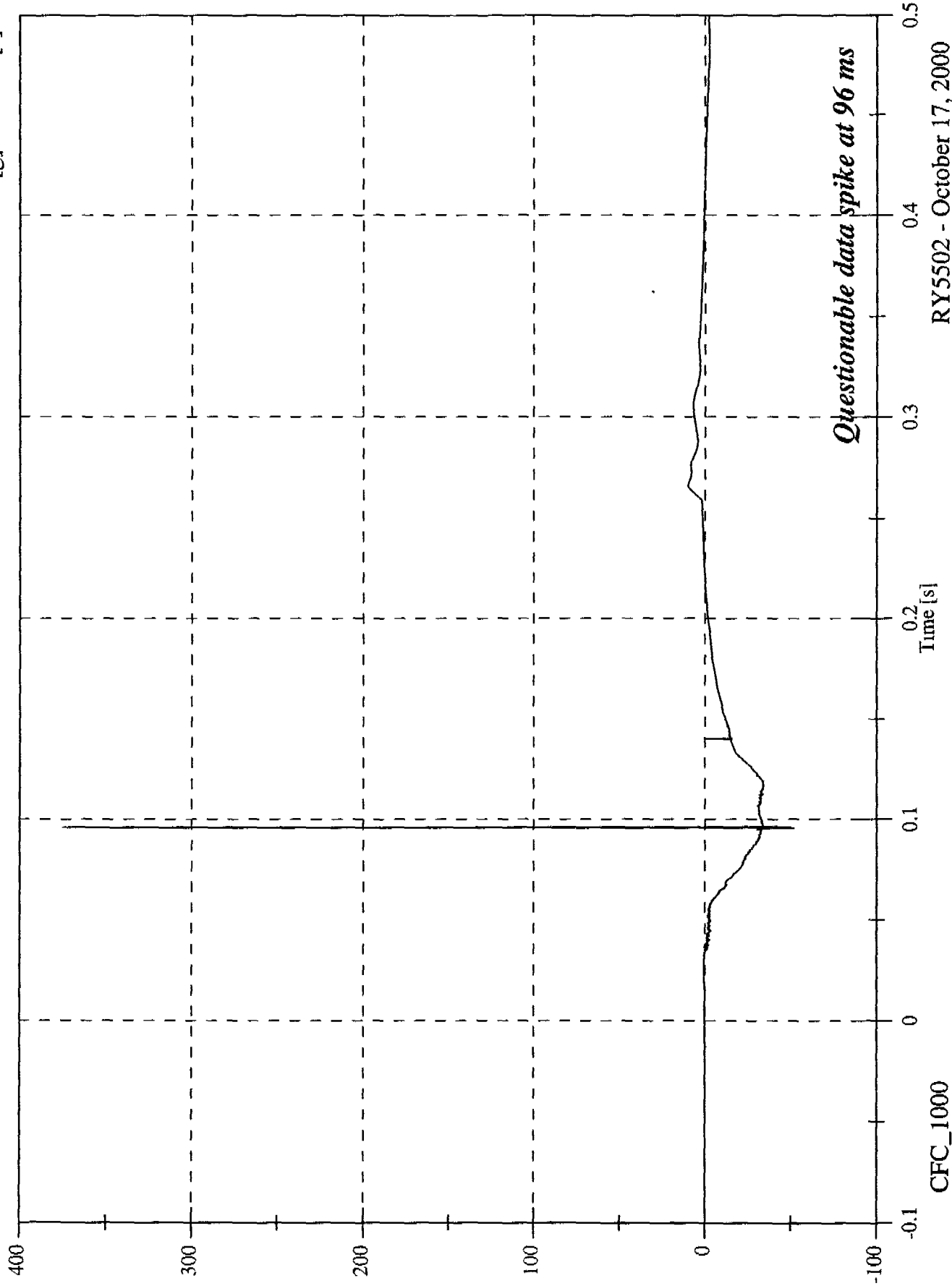
158	Acc 3 Rear XMBR Right X Displacement [mm, CFC_180]	B-166
159	Acc 4 Rear XMBR Right Y [g, CFC_60]	B-167
160	Acc 4 Rear XMBR Right Y Velocity [kph, CFC_180]	B-168
161	Acc 4 Rear XMBR Right Y Displacement [mm, CFC_180]	B-169
162	Acc 5 P1 Toepan Left X [g, CFC_60]	B-170
163	Acc 5 P1 Toepan Left X Velocity [kph, CFC_180]	B-171
164	Acc 5 P1 Toepan Left X Displacement [mm, CFC_180]	B-172
165	Acc 6 P1 Toepan Left Y [g, CFC_60]	B-173
166	Acc 6 P1 Toepan Left Y Velocity [kph, CFC_180]	B-174
167	Acc 6 P1 Toepan Left Y Displacement [mm, CFC_180]	B-175
168	Acc 7 P1 Toepan Right X [g, CFC_60]	B-176
169	Acc 7 P1 Toepan Right X Velocity [kph, CFC_180]	B-177
170	Acc 7 P1 Toepan Right X Displacement [mm, CFC_180]	B-178
171	Acc 8 P1 Toepan Right Y [g, CFC_60]	B-179
172	Acc 8 P1 Toepan Right Y Velocity [kph, CFC_180]	B-180
173	Acc 8 P1 Toepan Right Y Displacement [mm, CFC_180]	B-181
174	Acc 9 Trunk Z [g, CFC_60]	B-182
175	Acc 9 Trunk Z Velocity [kph, CFC_180]	B-183
176	Acc 9 Trunk Z Displacement [mm, CFC_180]	B-184
177	Barrier Load Cell E1 FY	B-185
178	Barrier Load Cell E2 FY	B-186
179	Barrier Load Cell E3 FY	B-187
180	Barrier Load Cell E4 FY	B-188
181	Barrier Load Cell E5 FY	B-189
182	Barrier Load Cell E6 FY	B-190
183	Barrier Load Cell E1 FX	B-191
184	Barrier Load Cell E2 FX	B-192
185	Barrier Load Cell E3 FX	B-193
186	Barrier Load Cell E4 FX	B-194
187	Barrier Load Cell E5 FX	B-195
188	Barrier Load Cell E6 FX	B-196
189	Barrier Load Cell D1 FY	B-197
190	Barrier Load Cell D2 FY	B-198
191	Barrier Load Cell D3 FY	B-199
192	Barrier Load Cell D4 FY	B-200
193	Barrier Load Cell D5 FY	B-201
194	Barrier Load Cell D6 FY	B-202
195	Barrier Load Cell D1 FX	B-203
196	Barrier Load Cell D2 FX	B-204
197	Barrier Load Cell D3 FX	B-205
198	Barrier Load Cell D4 FX	B-206
199	Barrier Load Cell D5 FX	B-207
200	Barrier Load Cell D6 FX	B-208
201	Barrier Load Cell C1 FY	B-209
202	Barrier Load Cell C2 FY	B-210
203	Barrier Load Cell C3 FY	B-211
204	Barrier Load Cell C4 FY	B-212
205	Barrier Load Cell C5 FY	B-213
206	Barrier Load Cell C6 FY	B-214
207	Barrier Load Cell C1 FX	B-215
208	Barrier Load Cell C2 FX	B-216
209	Barrier Load Cell C3 FX	B-217
210	Barrier Load Cell C4 FX	B-218

211	Barrier Load Cell C5 FX	B-219
212	Barrier Load Cell C6 FX	B-220
213	Barrier Load Cell B1 FY	B-221
214	Barrier Load Cell B2 FY	B-222
215	Barrier Load Cell B3 FY	B-223
216	Barrier Load Cell B4 FY	B-224
217	Barrier Load Cell B5 FY	B-225
218	Barrier Load Cell B6 FY	B-226
219	Barrier Load Cell B1 FX	B-227
220	Barrier Load Cell B2 FX	B-228
221	Barrier Load Cell B3 FX	B-229
222	Barrier Load Cell B4 FX	B-230
223	Barrier Load Cell B5 FX	B-231
224	Barrier Load Cell B6 FX	B-232
225	Barrier Load Cell A1 FX	B-233
226	Barrier Load Cell A2 FX	B-234
227	Barrier Load Cell A3 FX	B-235
228	Barrier Load Cell A4 FX	B-236
229	Barrier Load Cell A5 FX	B-237
230	Barrier Load Cell A6 FX	B-238

2000 Subaru Legacy 40% Offset Impact

Max: 374.8 [g] at 0.096 [s]  
Min: -51.6 [g] at 0.095 [s]

PI Head x

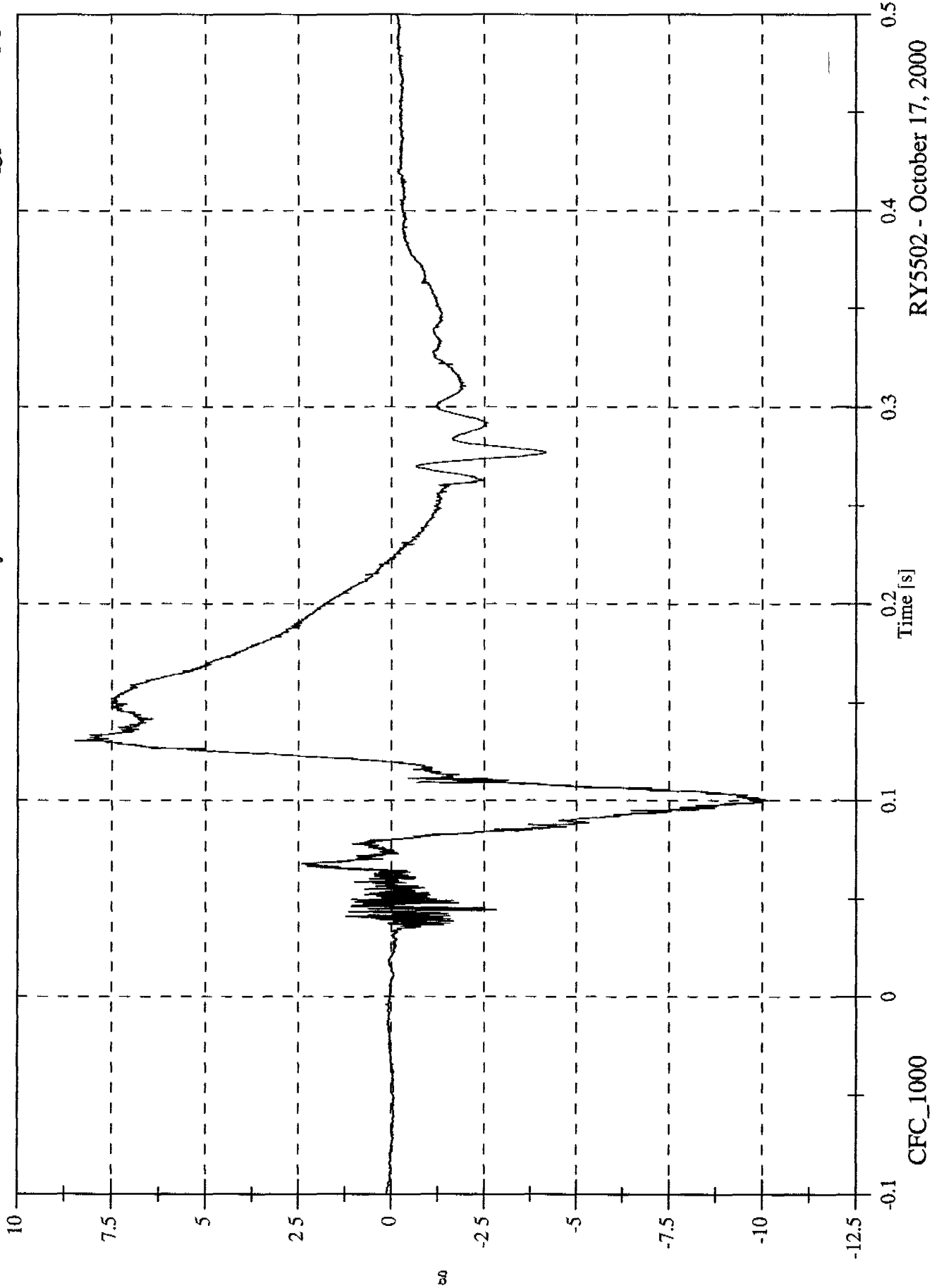


R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 8.5 [g] at 0.131 [s]  
Min: -10.1 [g] at 0.100 [s]

P1 Head y

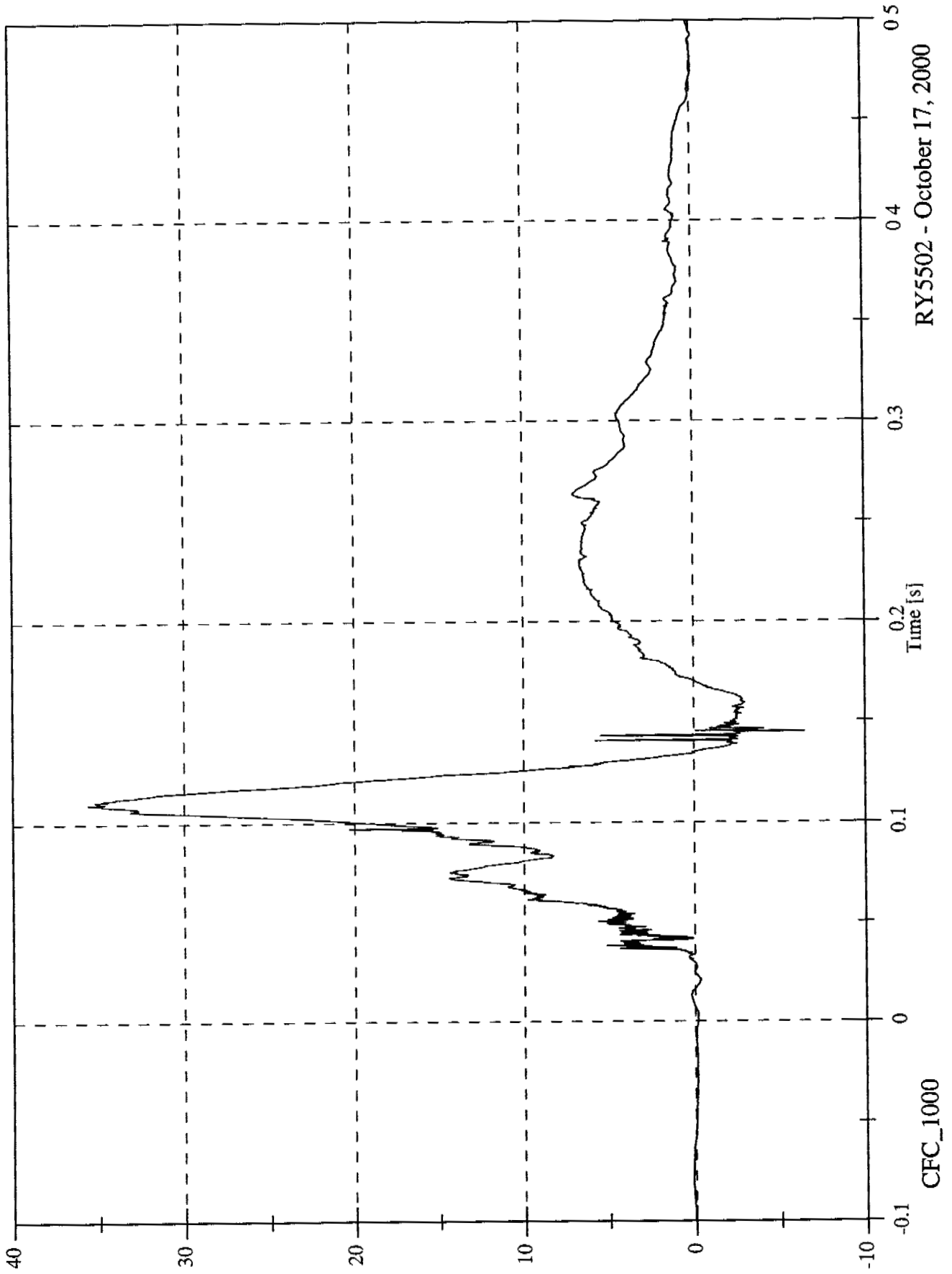


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 35.6 [g] at 0.110 [s]  
Min: -6.5 [g] at 0.145 [s]

P1 Head z

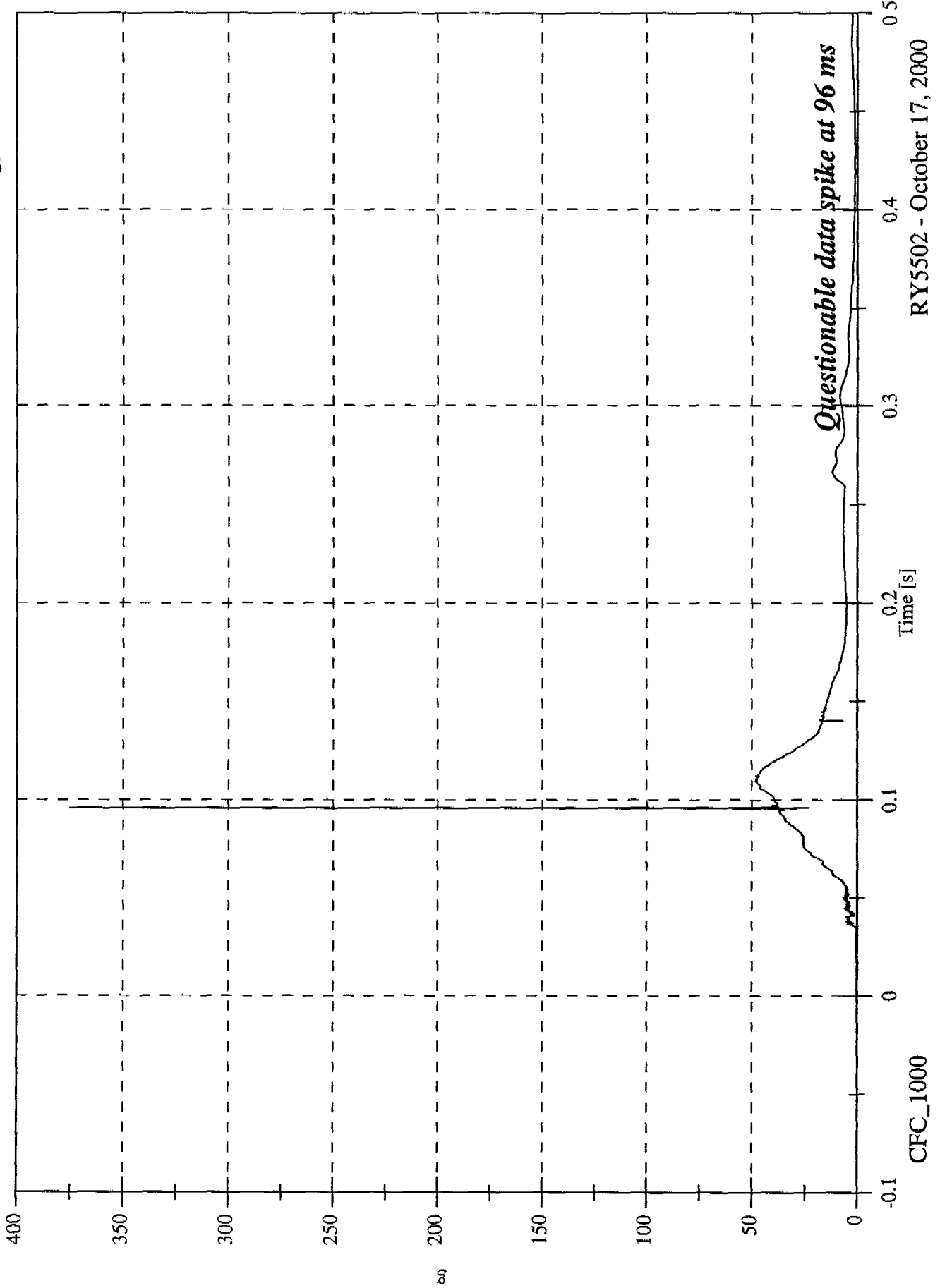


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 375.3 [g] at 0.096 [s]  
Min: 0.0 [g] at -0.100 [s]

P1 Head Resultant



CFC\_1000

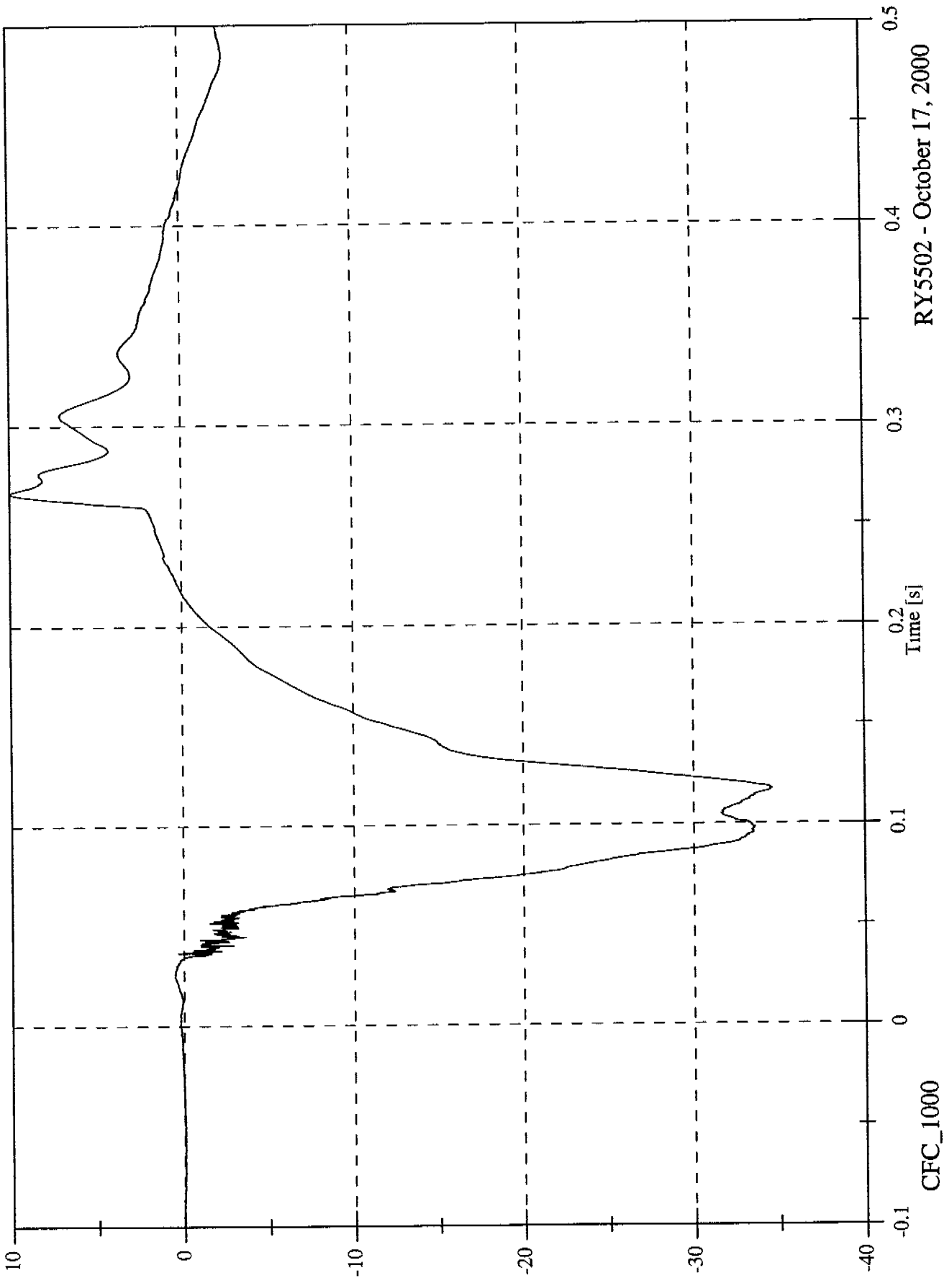
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 10.0 [g] at 0.266 [s]

Min: -34.6 [g] at 0.117 [s]

P1 Head Red x

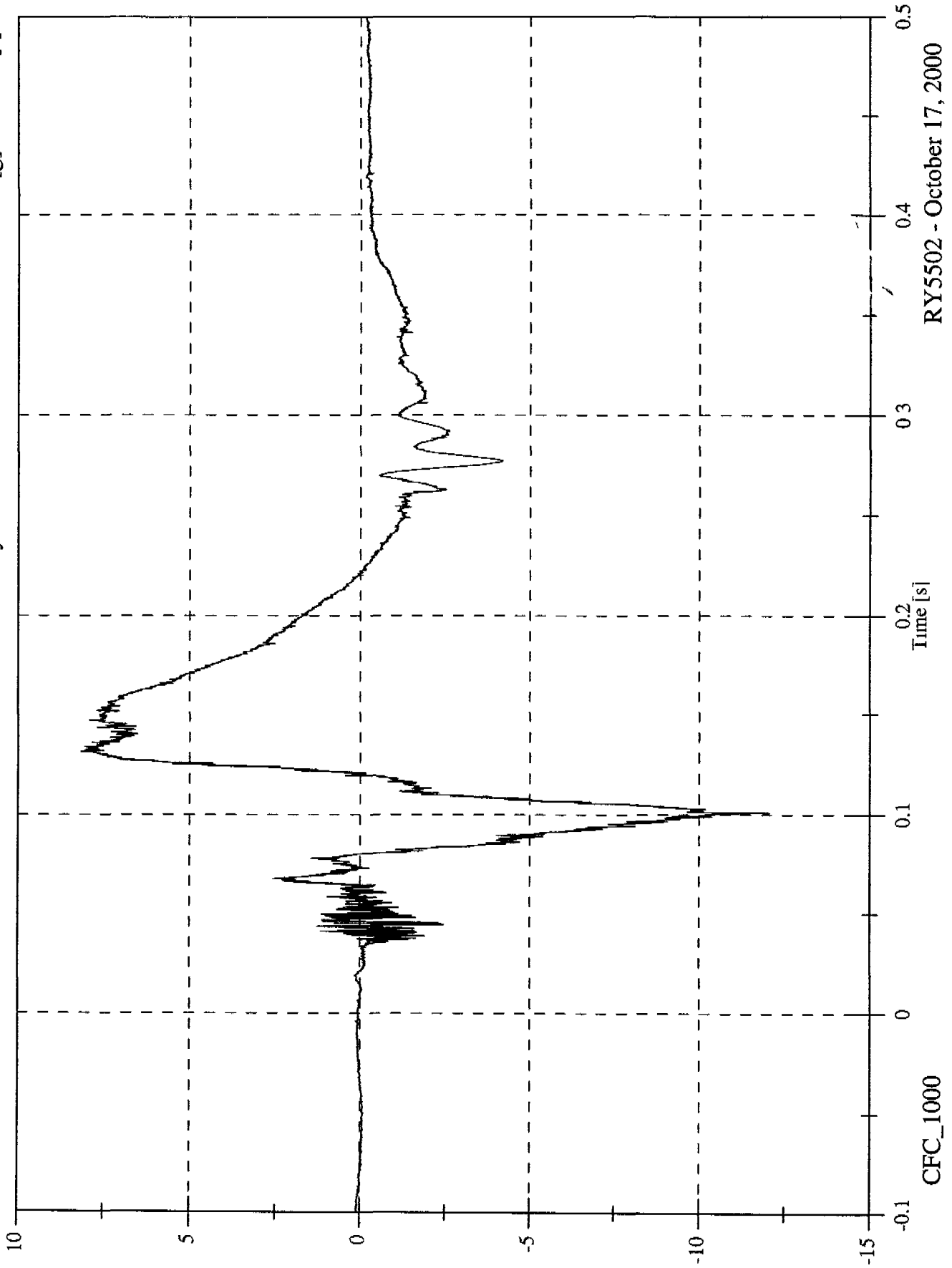


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 8.1 [g] at 0.131 [s]  
Min: -12.1 [g] at 0.101 [s]

P1 Head Red y

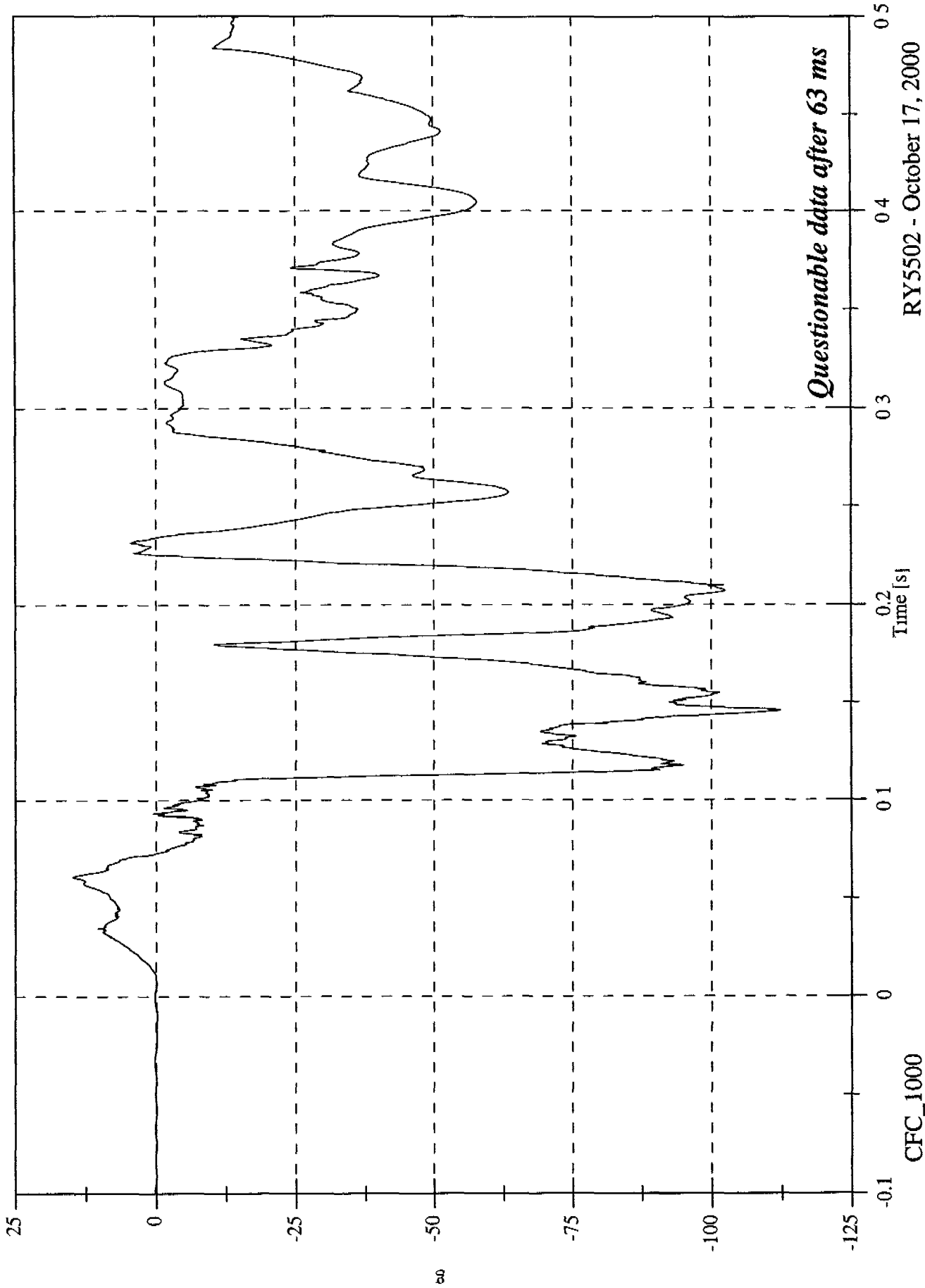


2000 Subaru Legacy 40% Offset Impact

Max: 14.8 [g] at 0.061 [s]

Min: -112.4 [g] at 0.146 [s]

P1 Head Redz

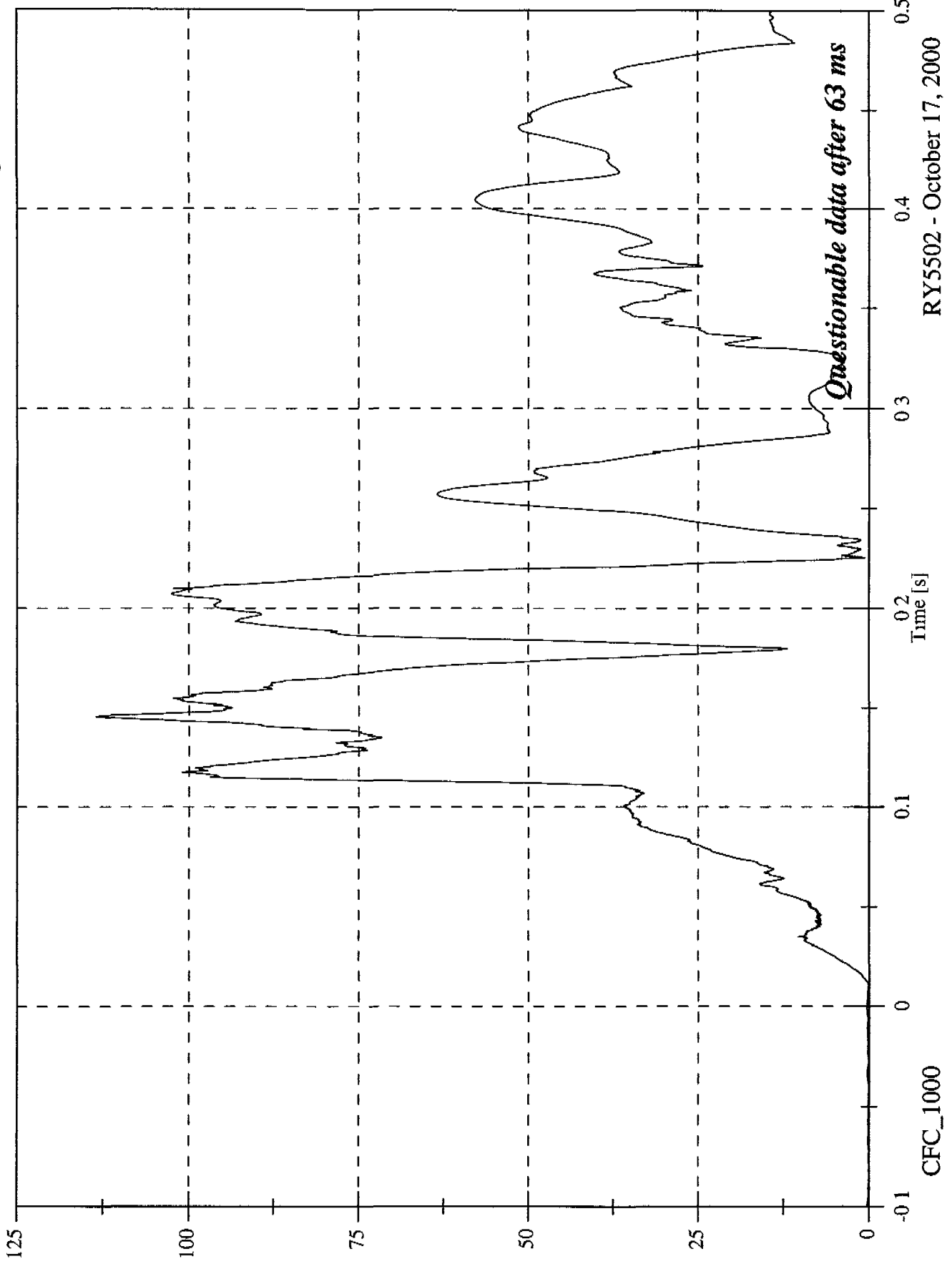


R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 113.5 [g] at 0.146 [s]  
Min: 0.0 [g] at -0.086 [s]

P1 Head Red Resultant

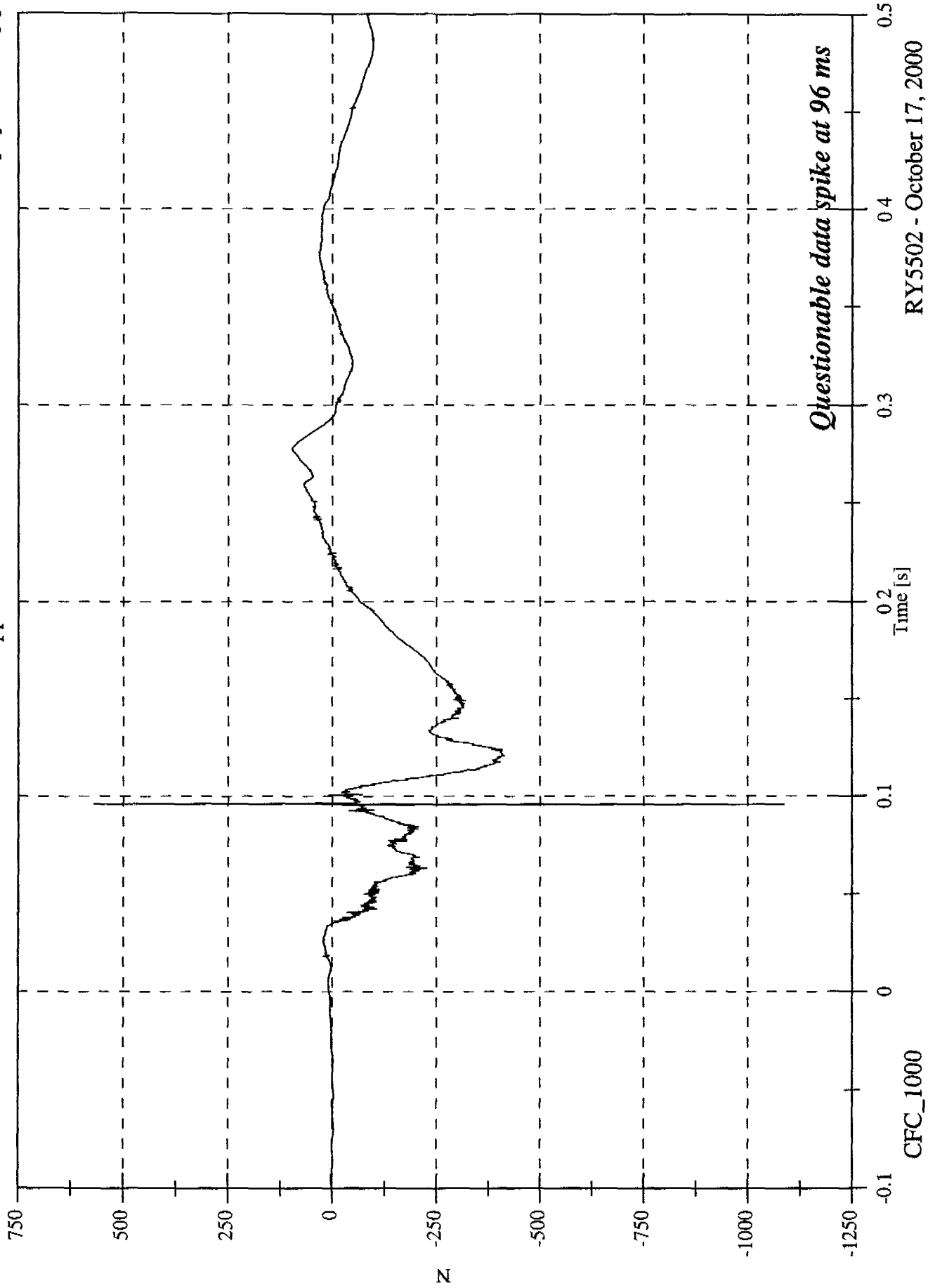


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 568.9 [N] at 0.096 [s]  
Min: -1086.7 [N] at 0.096 [s]

P1 Upper Neck Fx

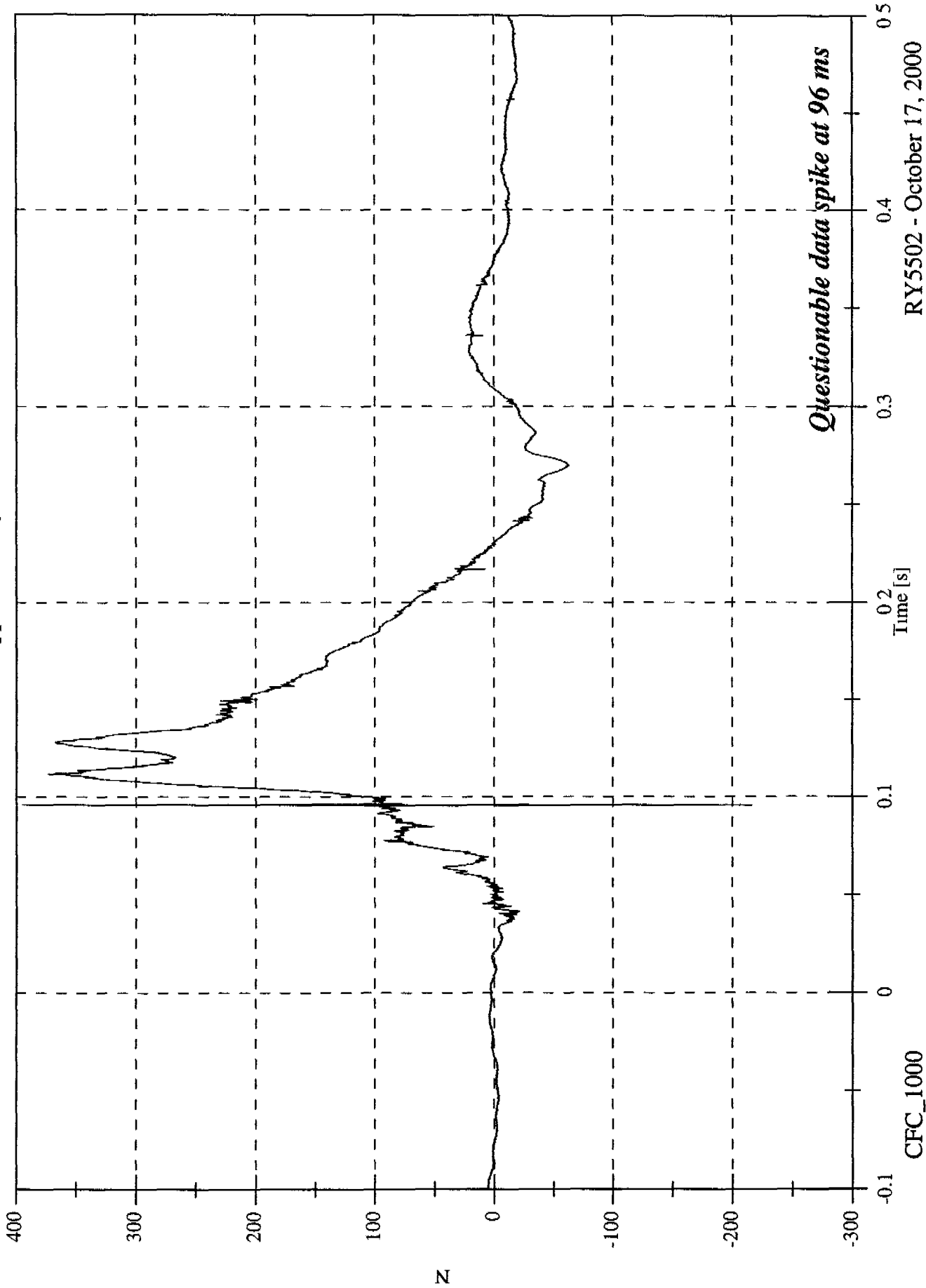


R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 394.7 [N] at 0.096 [s]  
Min: -215.6 [N] at 0.096 [s]

P1 Upper Neck Fy



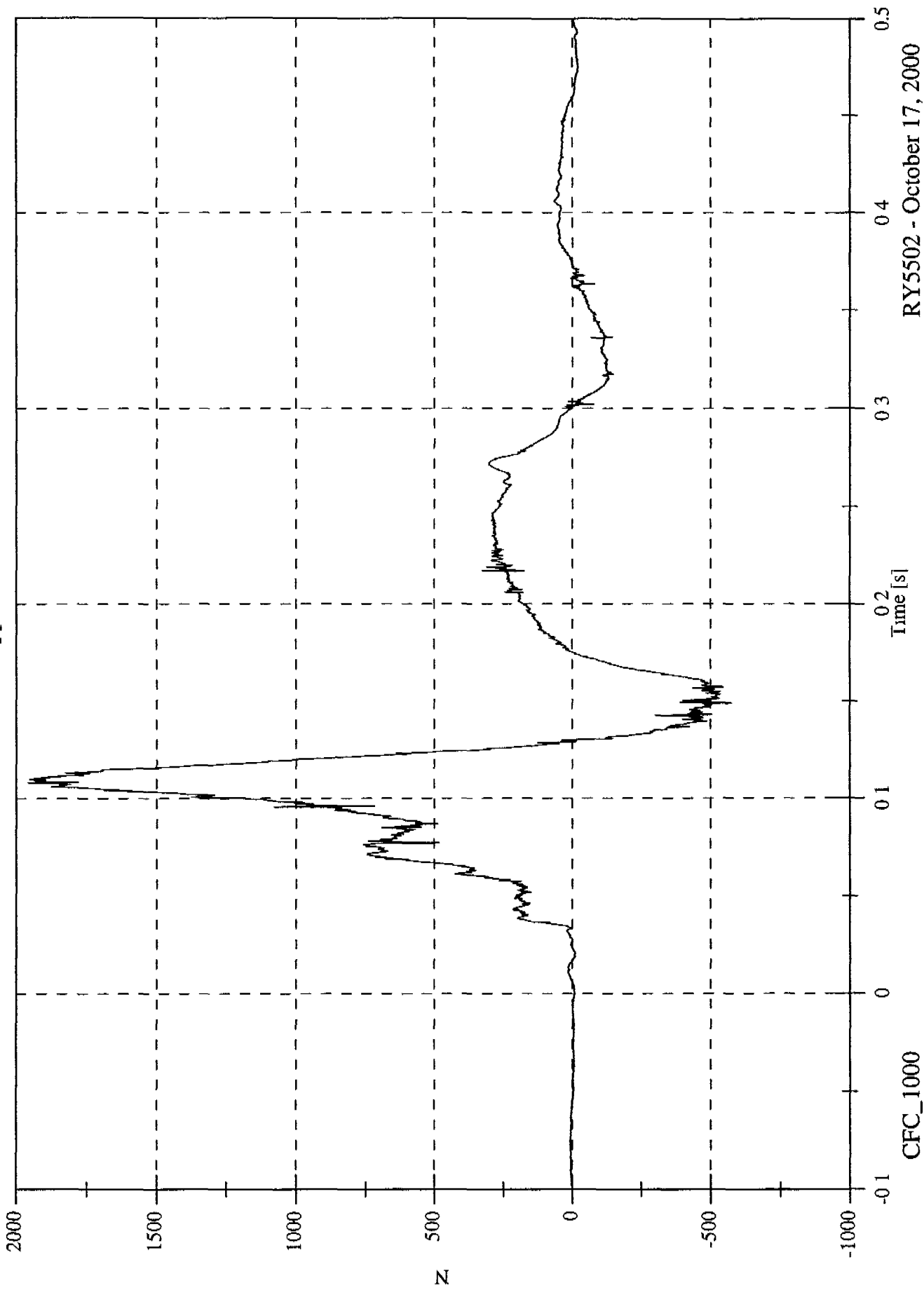
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1956.9 [N] at 0.108 [s]

Min: -574.5 [N] at 0.149 [s]

P1 Upper Neck Fz



CFC\_1000

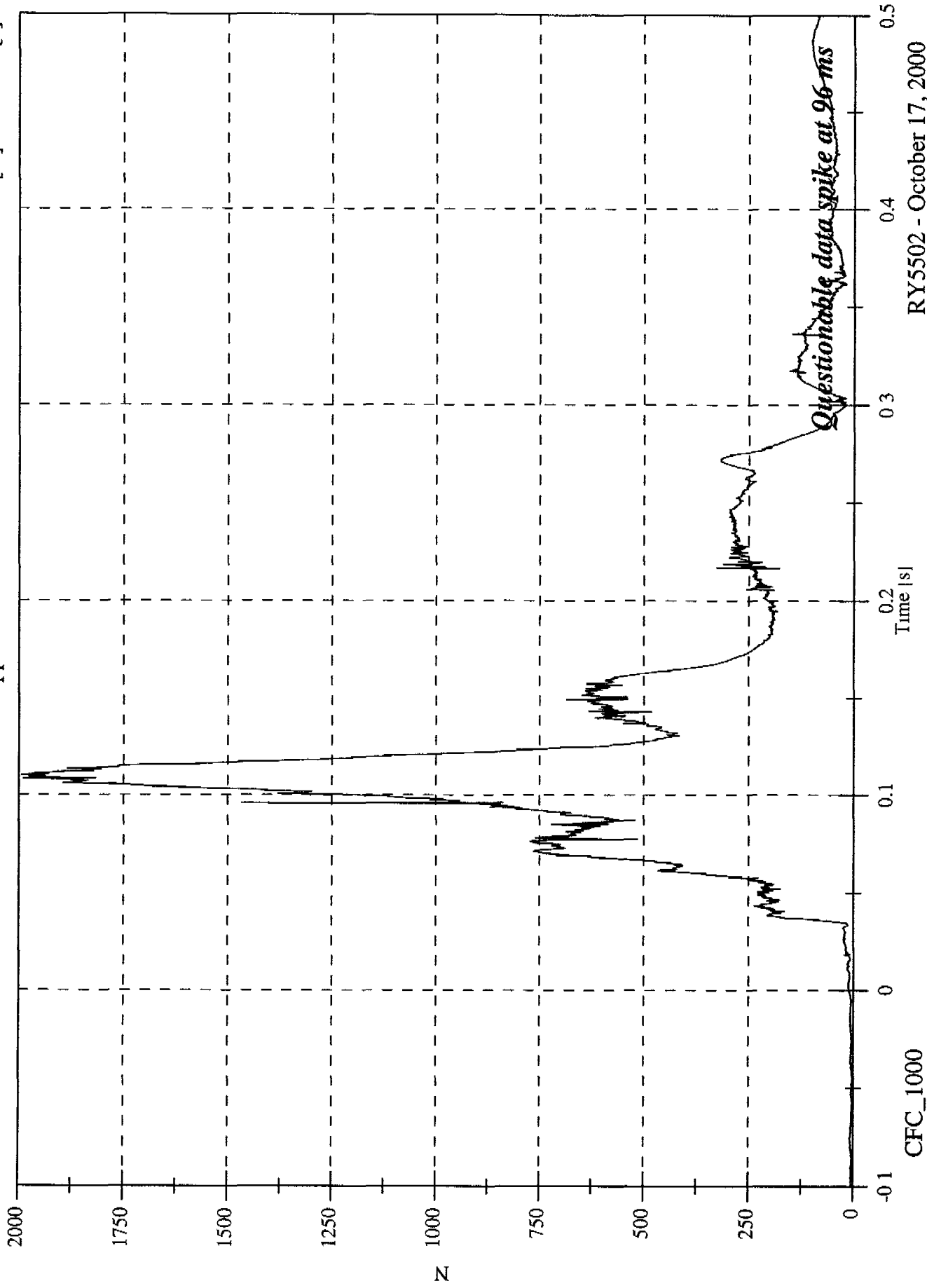
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1993.7 [N] at 0.110 [s]  
Min: 1.1 [N] at -0.100 [s]

P1 Upper Neck F Resultant

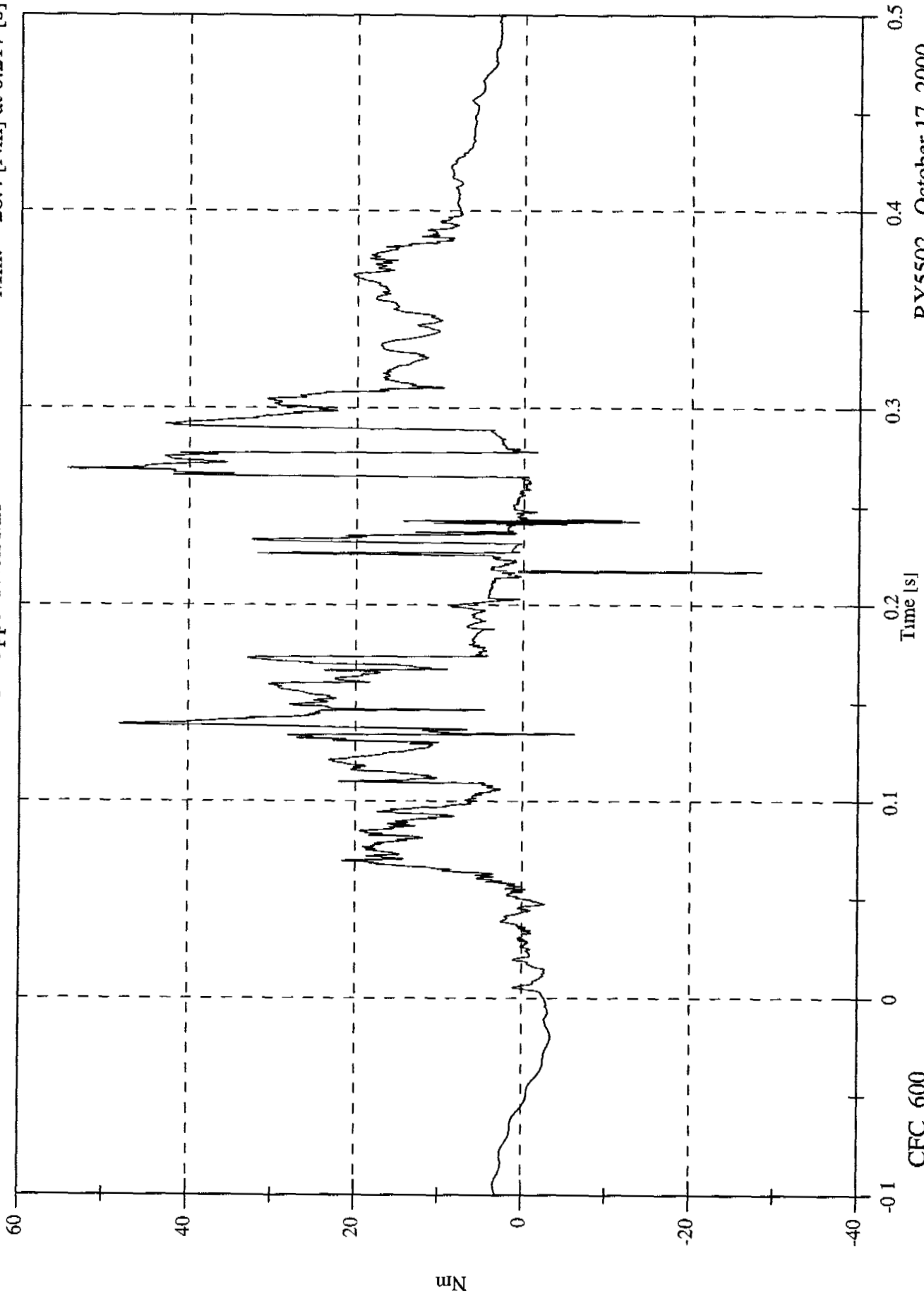


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 54.5 [Nm] at 0.269 [s]  
Min: -28.4 [Nm] at 0.217 [s]

P1 Upper Neck Mx

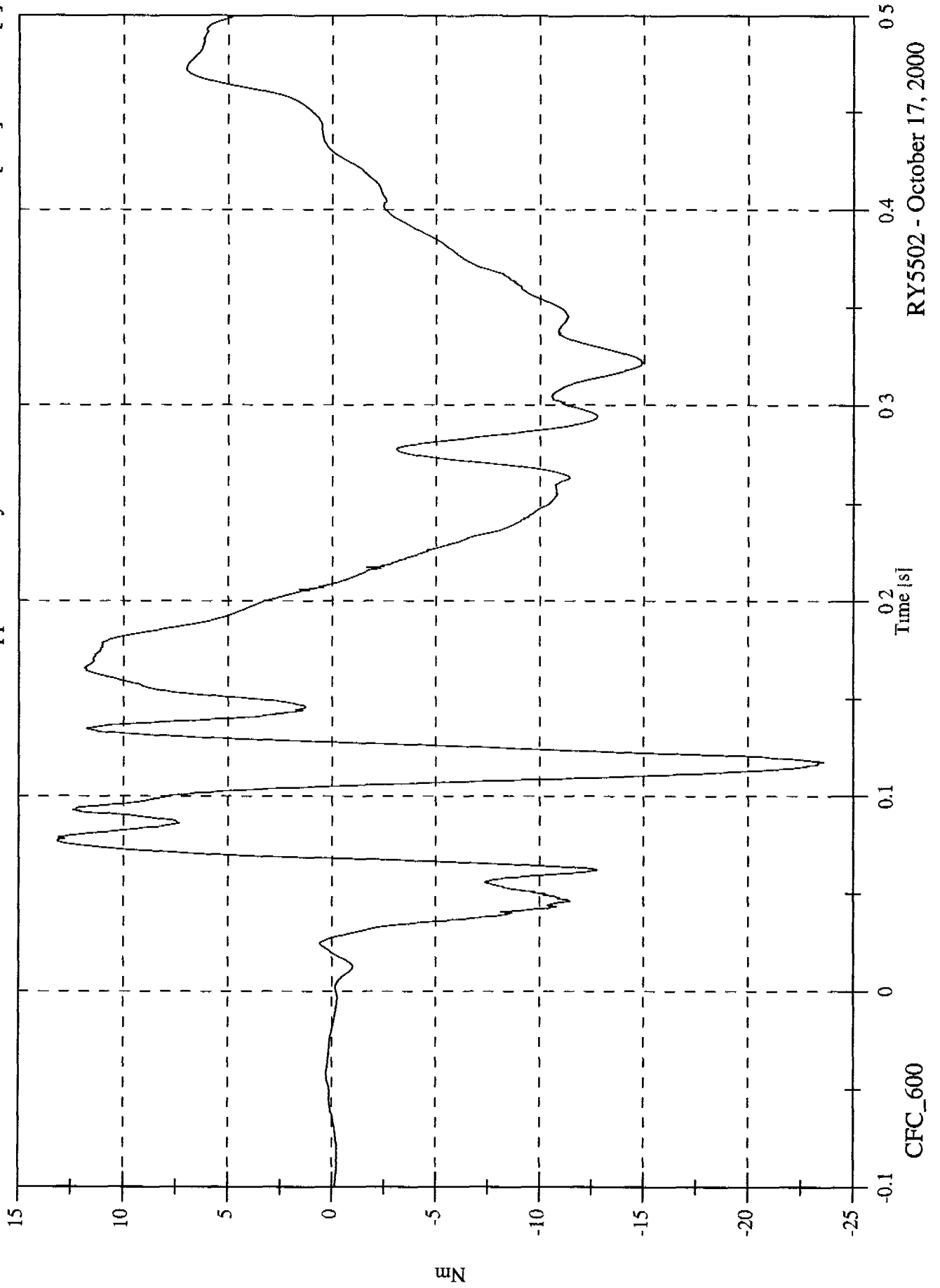


R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 13.2 [Nm] at 0.076 [s]  
Min: -23.6 [Nm] at 0.118 [s]

P1 Upper Neck My

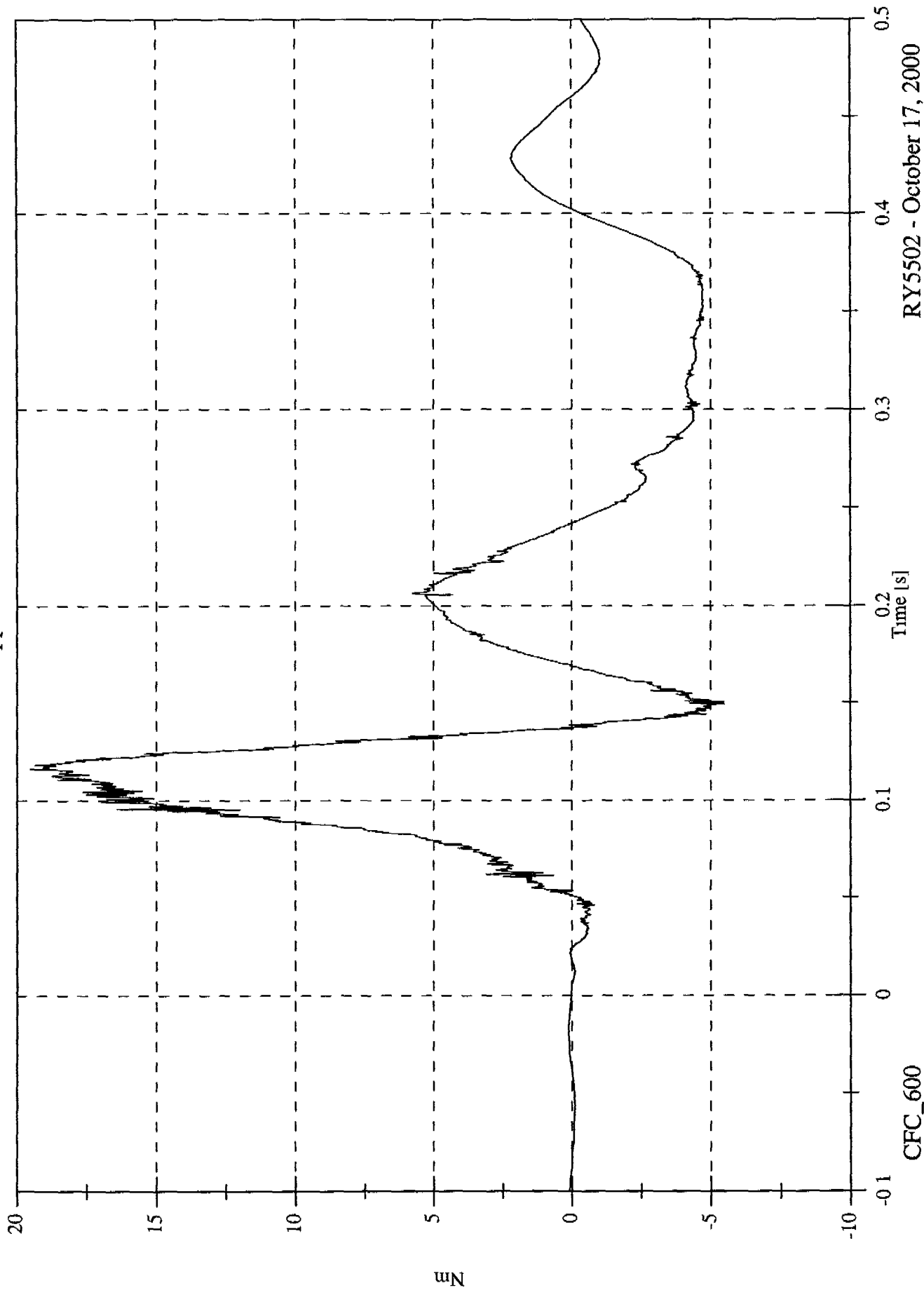


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 19.5 [Nm] at 0.116 [s]  
Min: -5.5 [Nm] at 0.149 [s]

P1 Upper Neck Mz



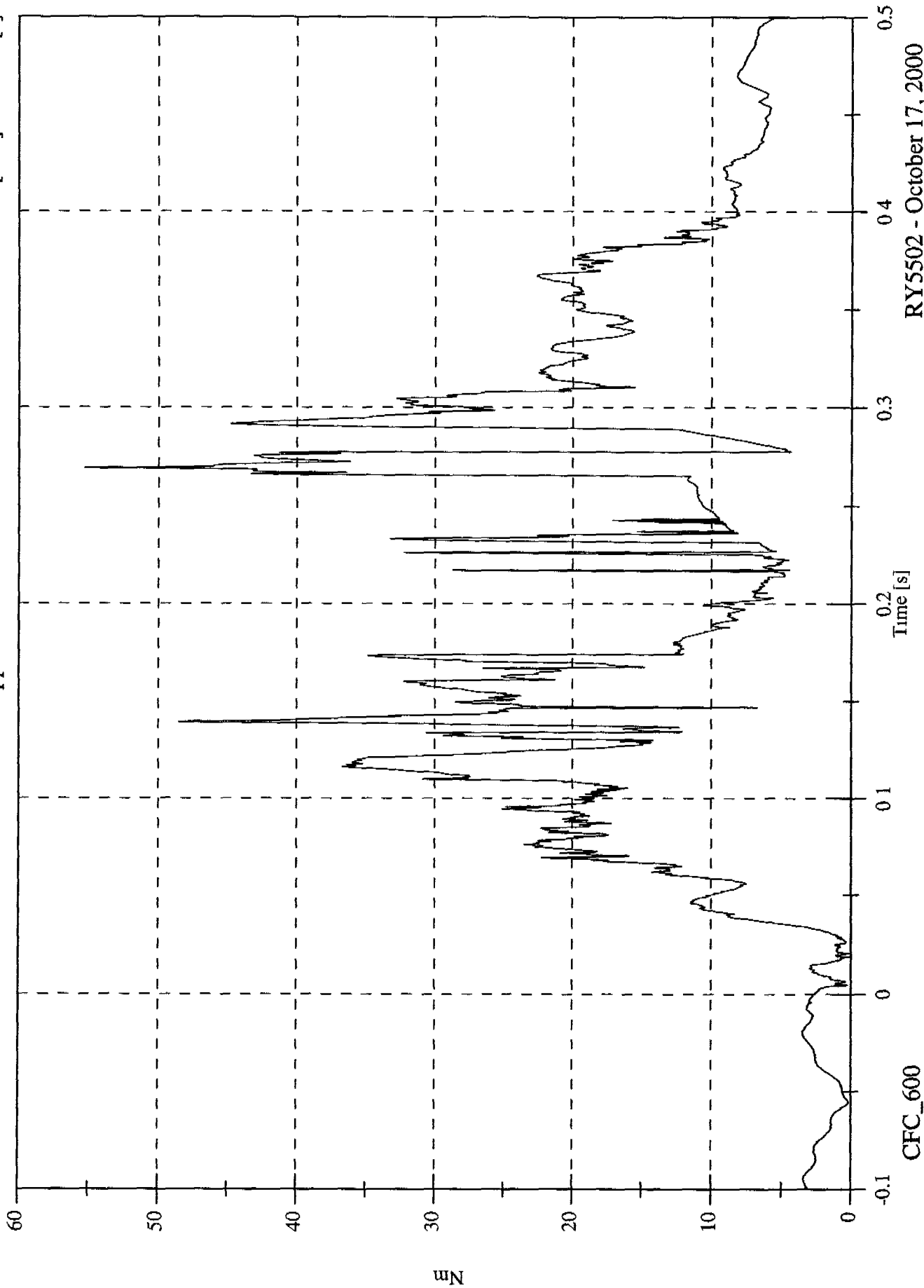
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 55.3 [Nm] at 0.269 [s]  
Min: 0.1 [Nm] at 0.021 [s]

P1 Upper Neck M Resultant

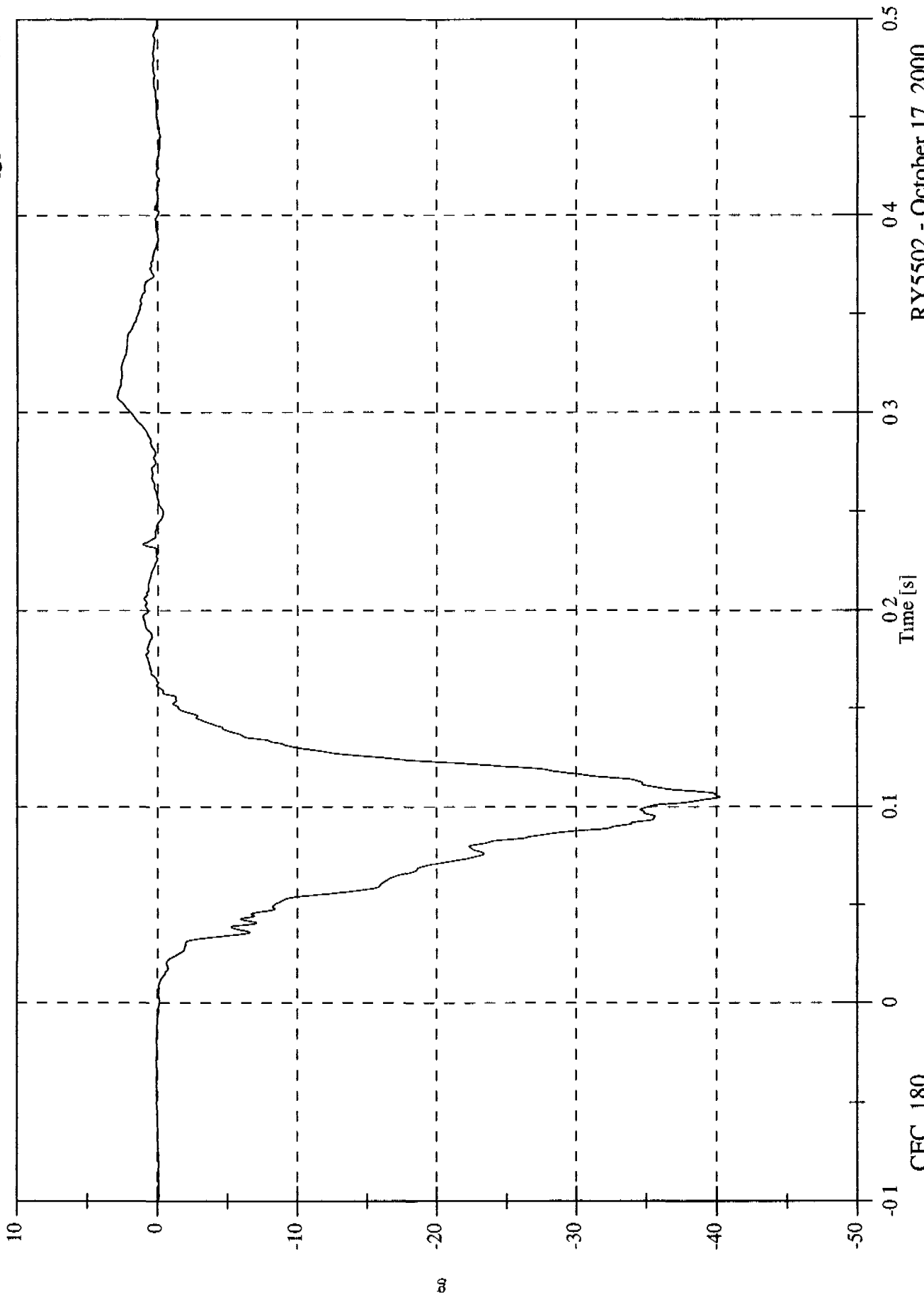


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2.9 [g] at 0.308 [s]  
Min: -40.2 [g] at 0.105 [s]

P1 Chest x



CFC\_180

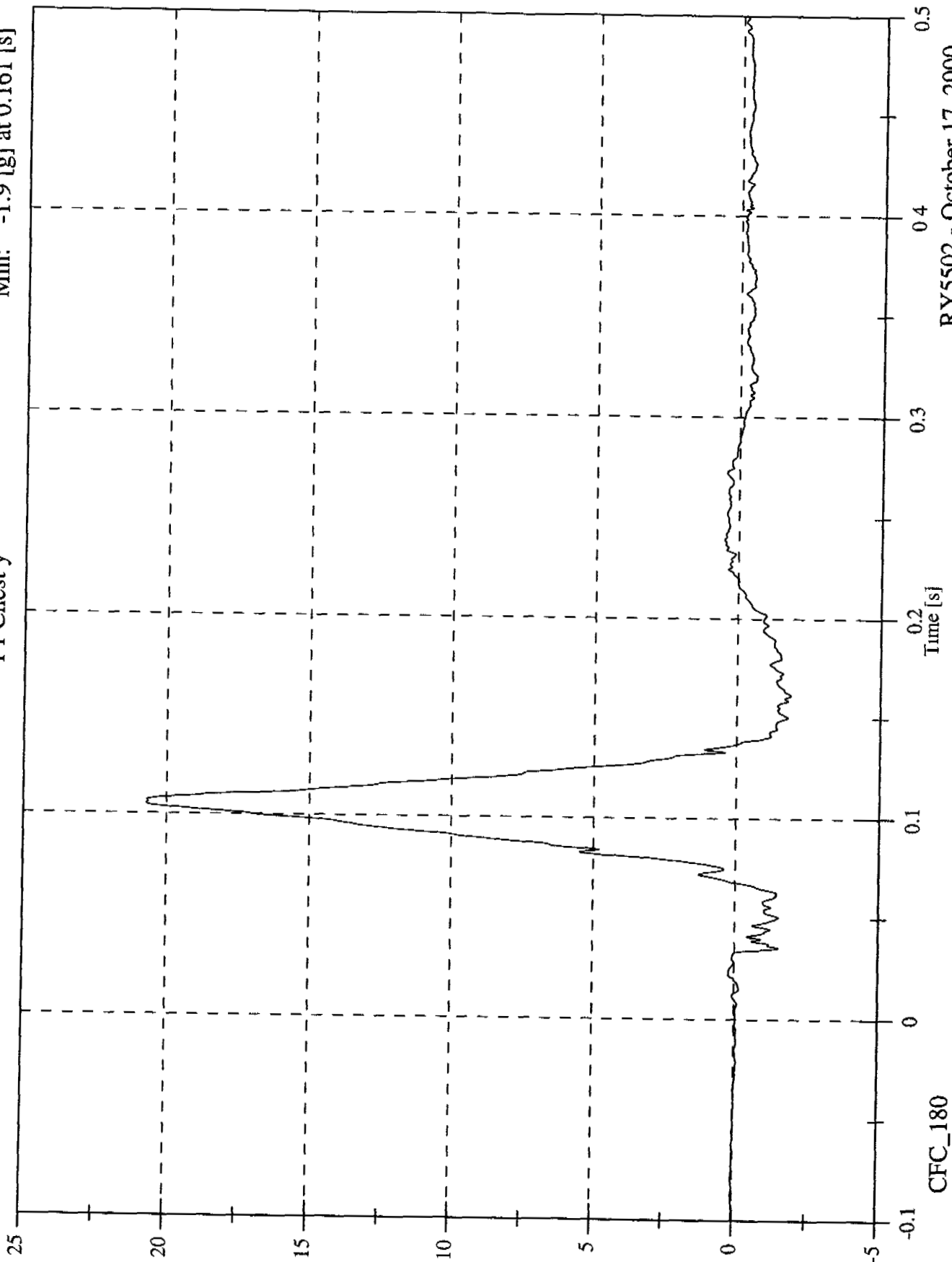
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P1 Chest y

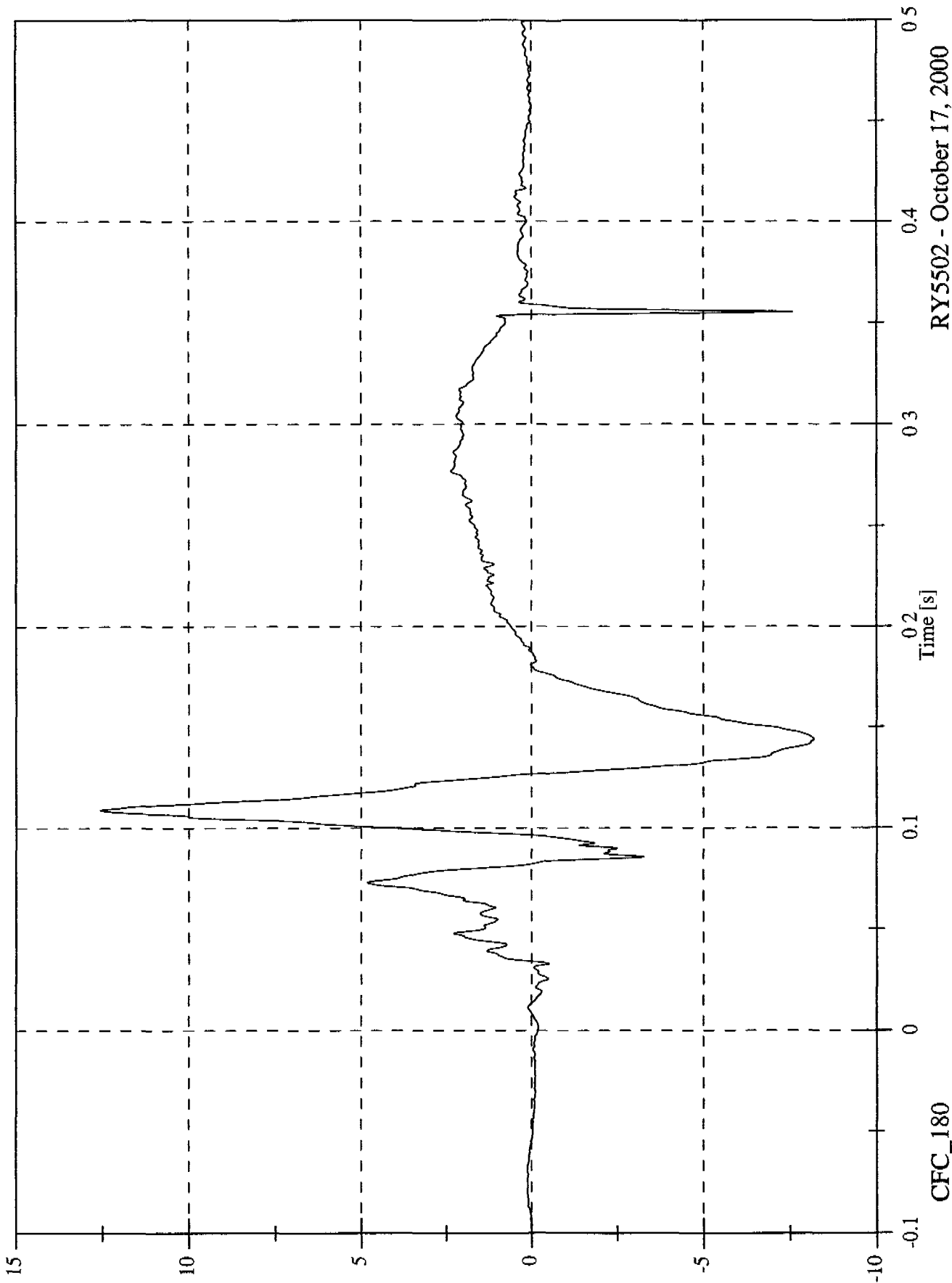
Max: 20.7 [g] at 0.105 [s]  
Min: -1.9 [g] at 0.161 [s]



2000 Subaru Legacy 40% Offset Impact

Max: 12.6 [g] at 0.109 [s]  
Min: -8.2 [g] at 0.144 [s]

P1 Chest z



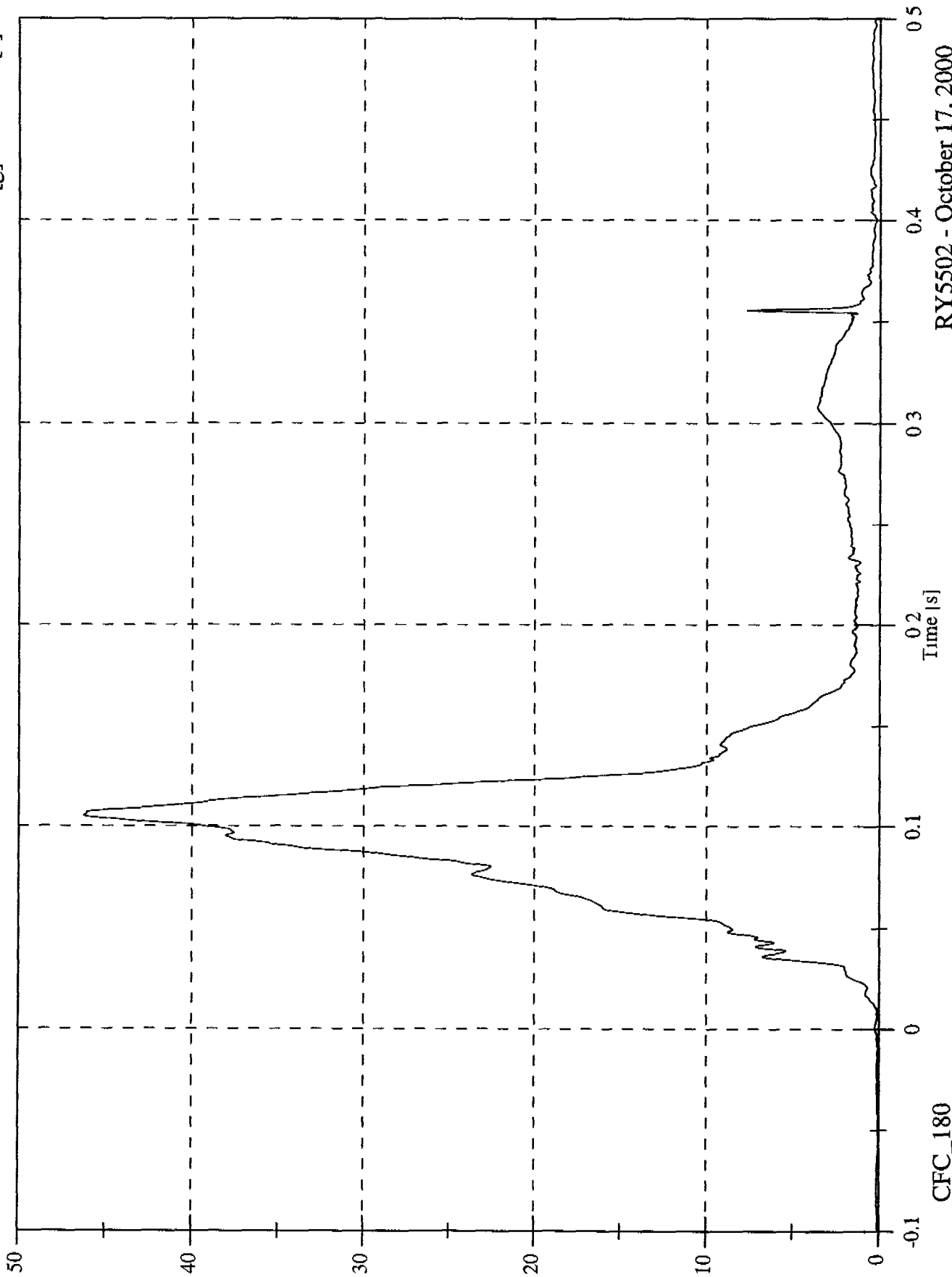
CFC\_180

RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P1 Chest Resultant

Max: 46.3 [g] at 0.105 [s]  
Min: 0.0 [g] at -0.100 [s]



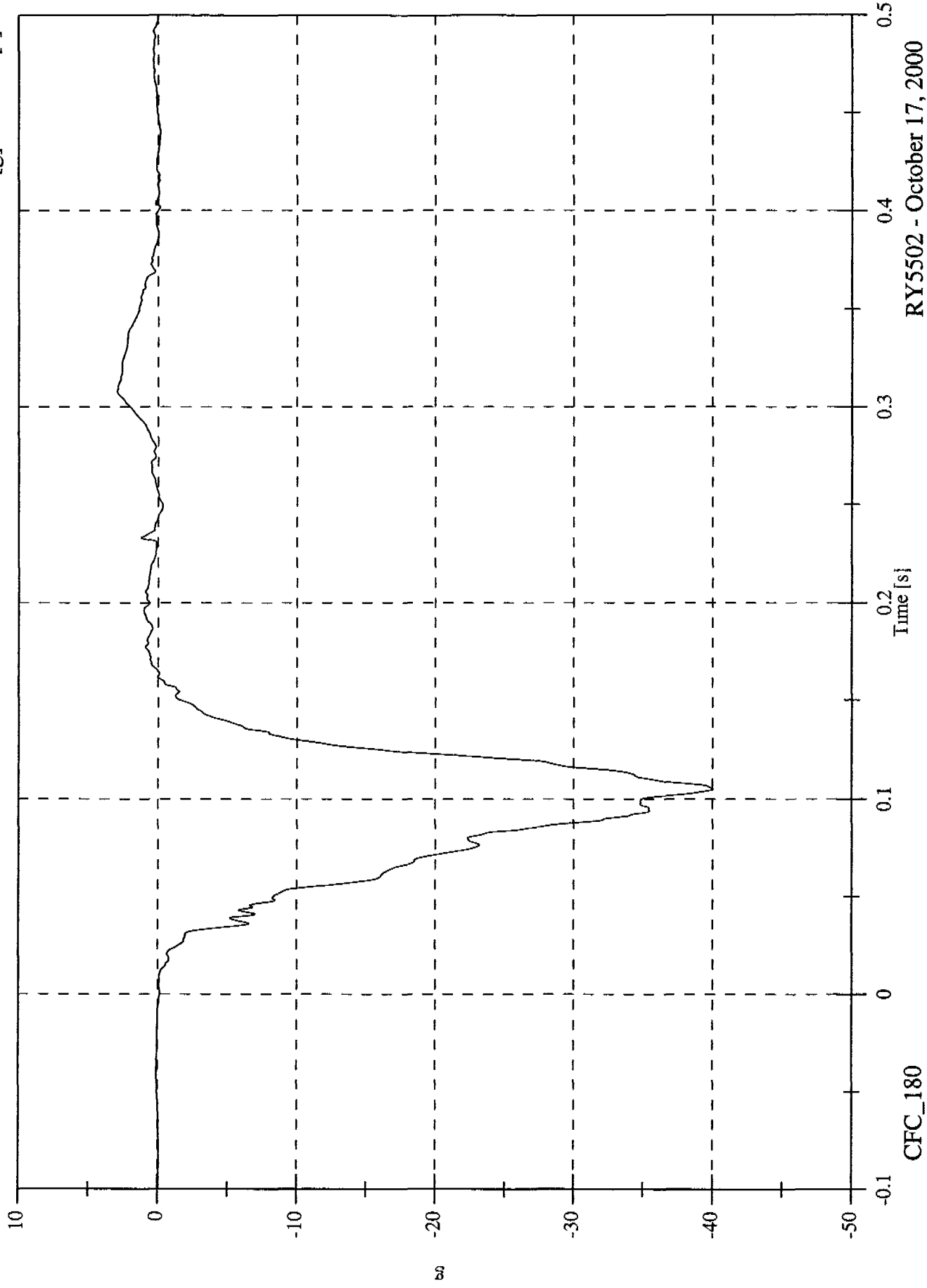
RYS502 - October 17, 2000

CFC\_180

2000 Subaru Legacy 40% Offset Impact

Max: 2.9 [g] at 0.308 [s]  
Min: -40.0 [g] at 0.105 [s]

P1 Chest Red x



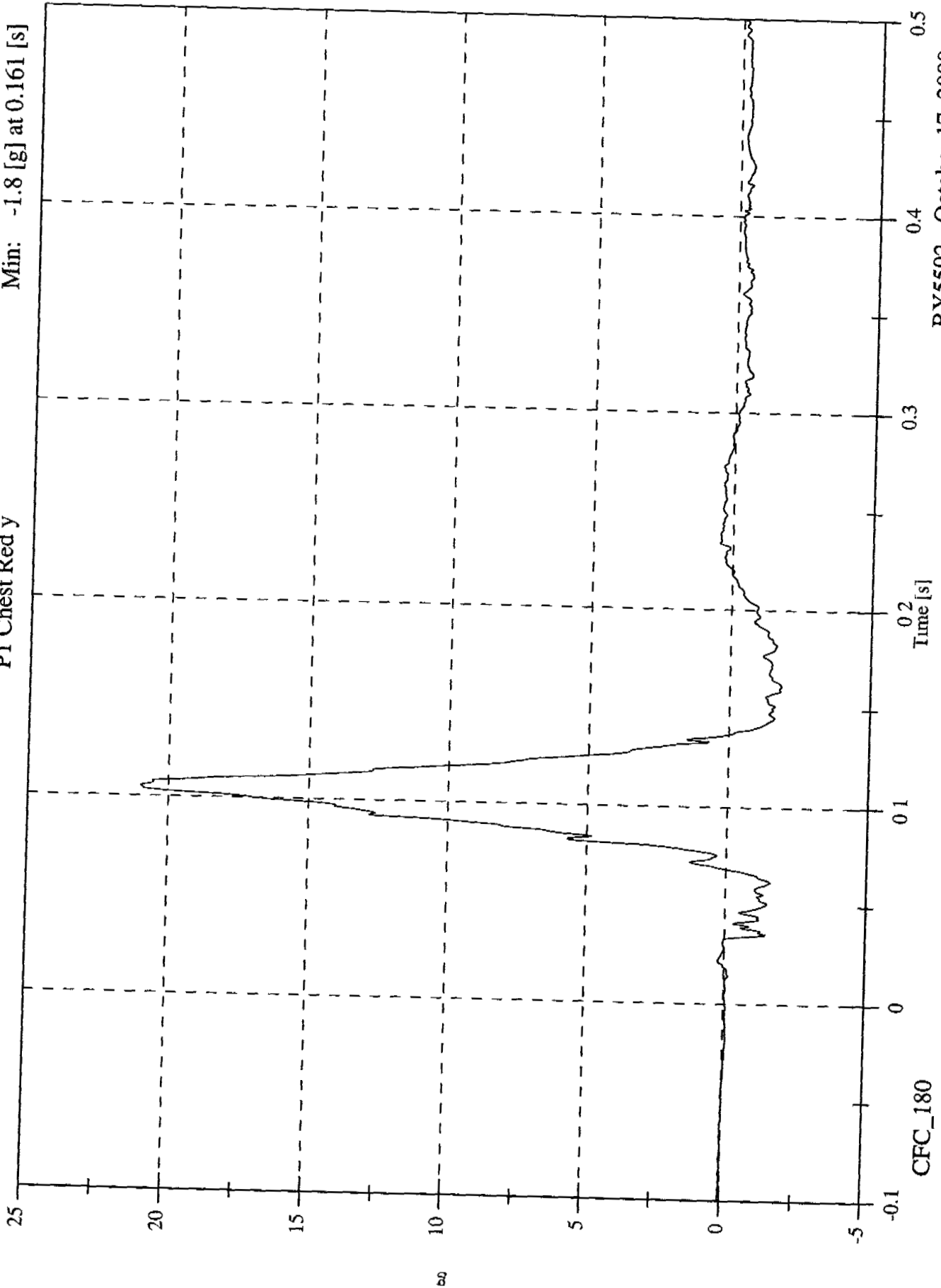
CFC\_180

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P1 Chest Red y

Max: 21.0 [g] at 0.105 [s]  
Min: -1.8 [g] at 0.161 [s]

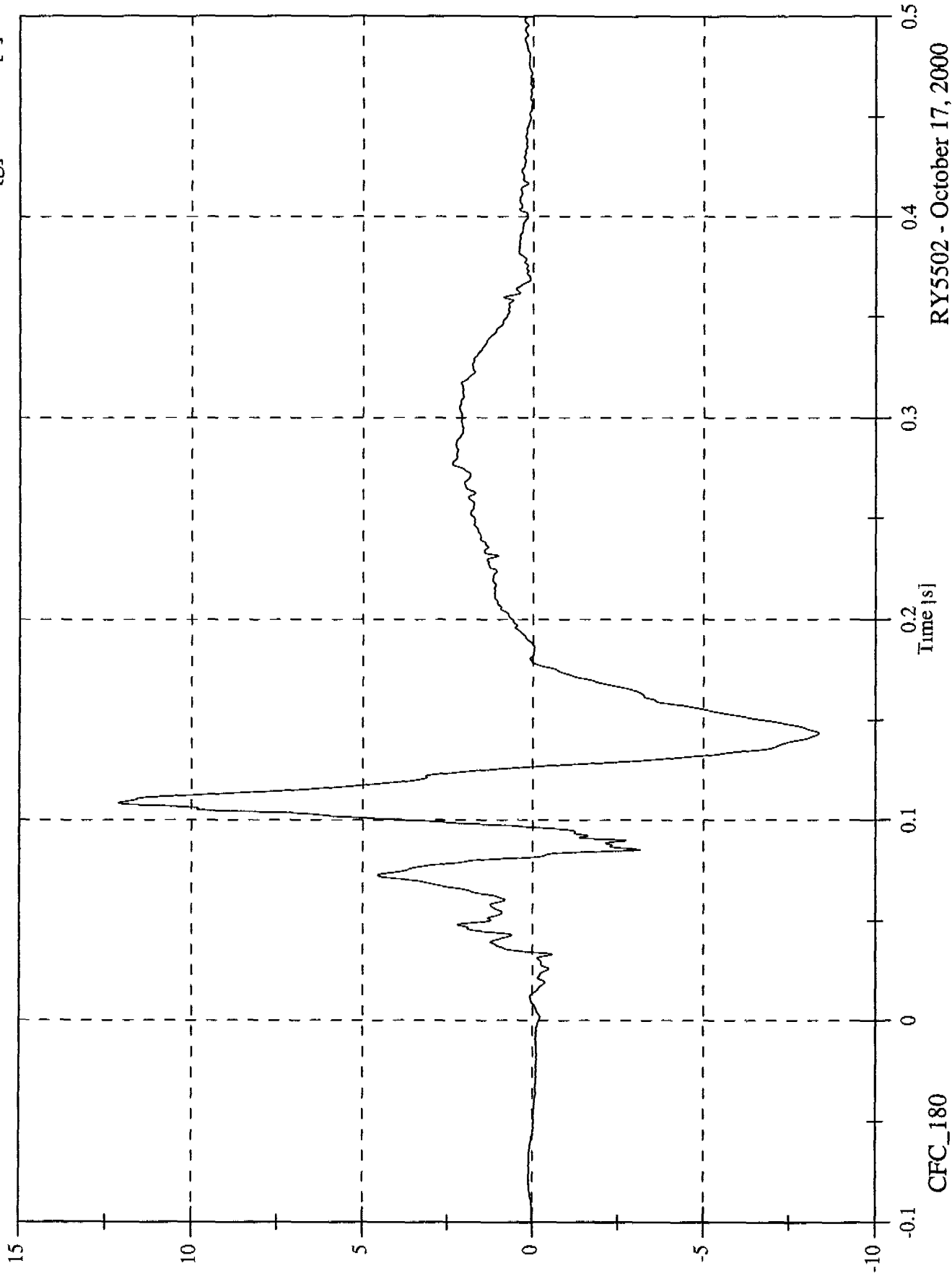


R Y 5 5 0 2 - O c t o b e r 1 7 , 2 0 0 0

2000 Subaru Legacy 40% Offset Impact

Max: 12.1 [g] at 0.108 [s]  
Min: -8.4 [g] at 0.143 [s]

P1 Chest Red z



CFC\_180

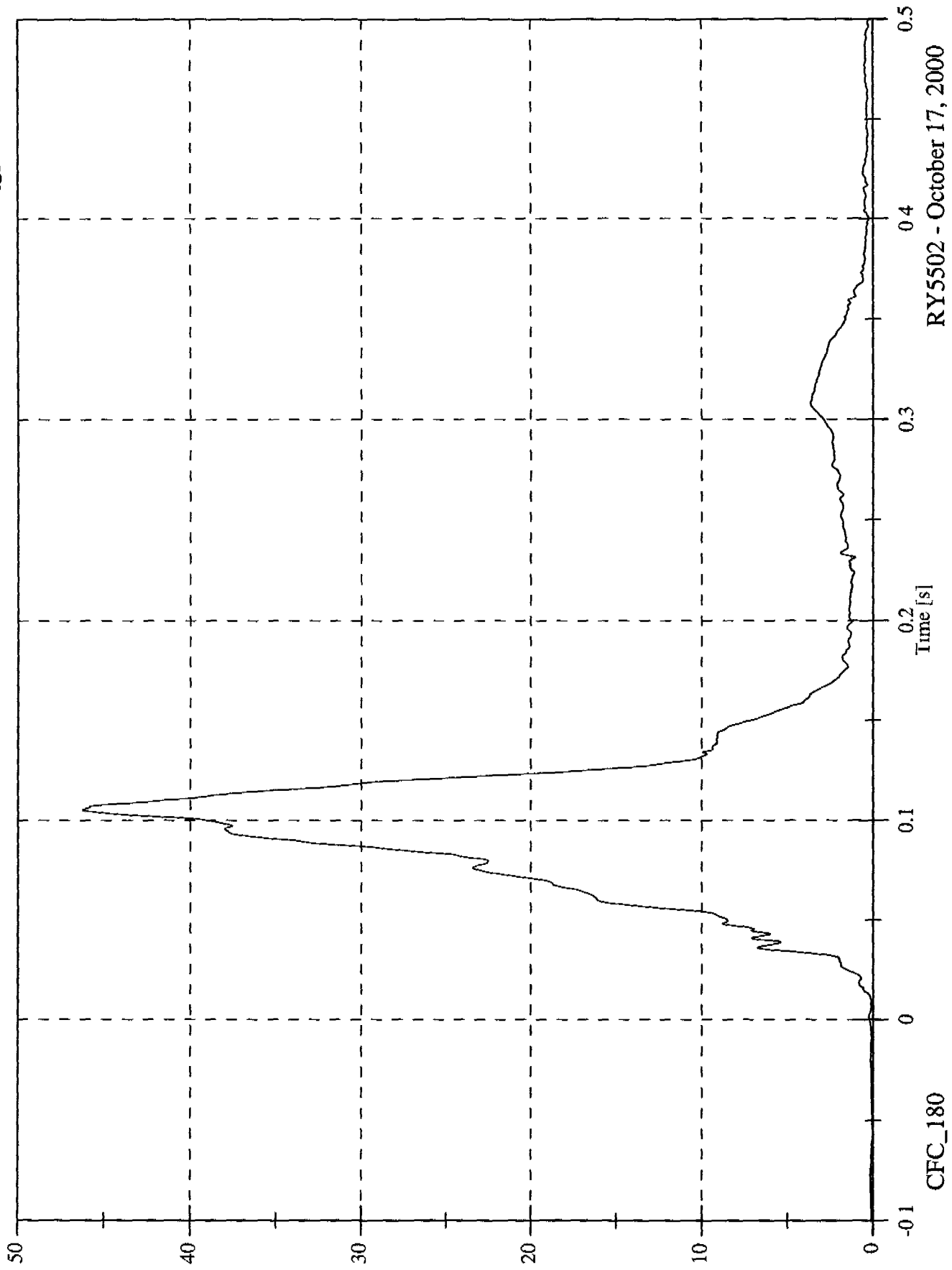
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 46.2 [g] at 0.105 [s]

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

P1 Chest Red Resultant

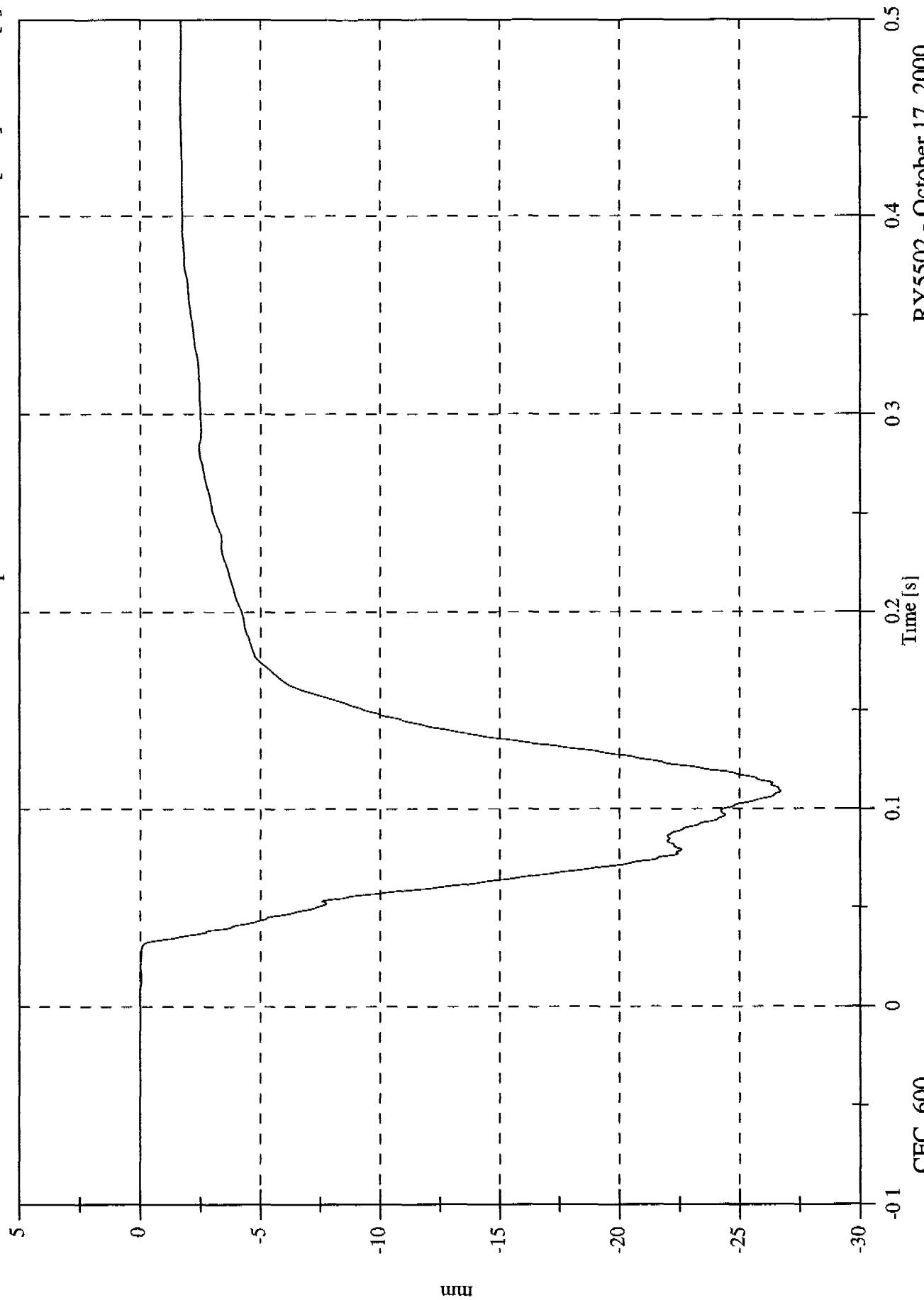


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 0.0 [mm] at 0.005 [s]  
Min: -26.7 [mm] at 0.109 [s]

P1 Chest Compression

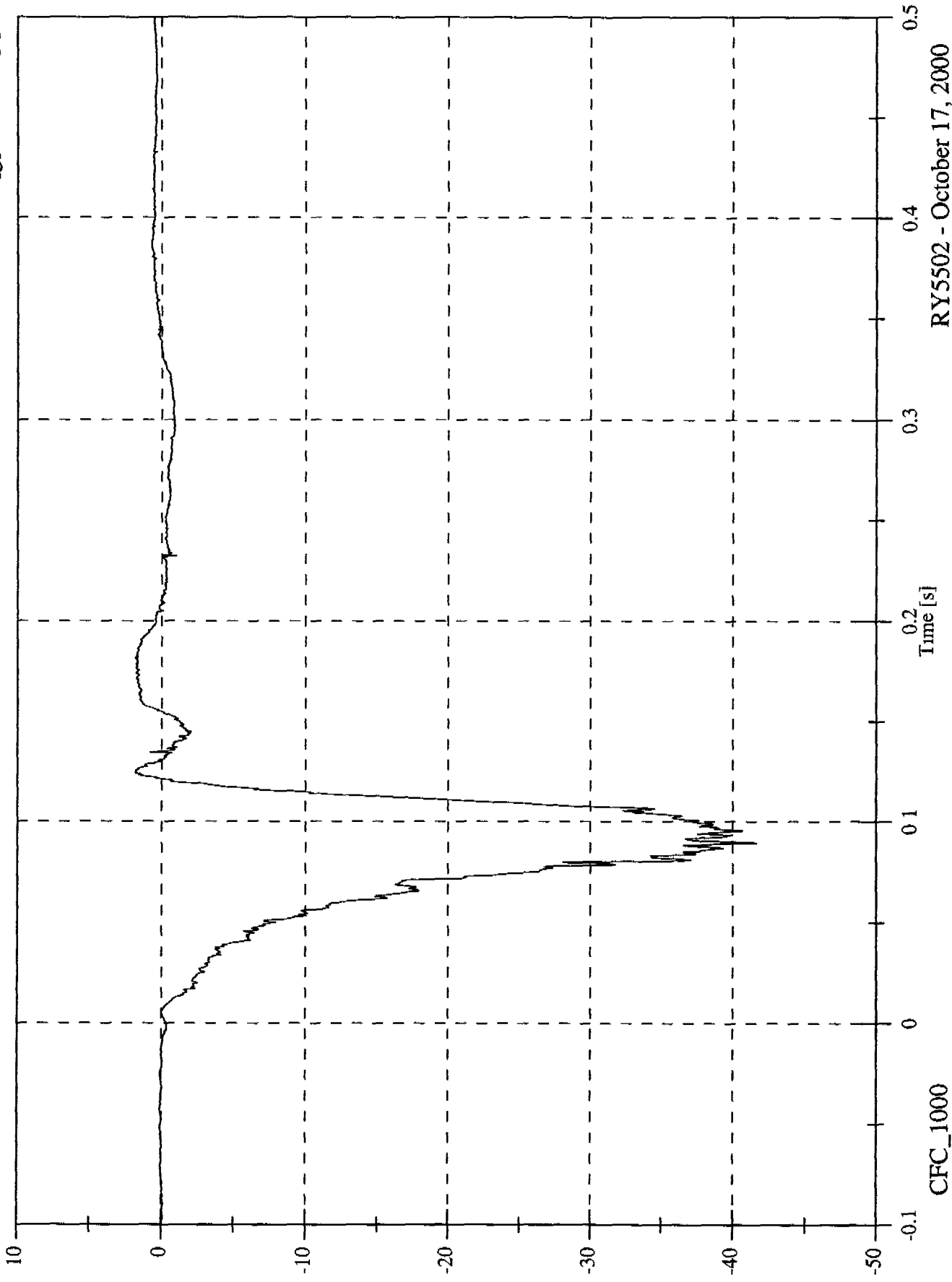


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1.8 [g] at 0.182 [s]  
Min: -41.6 [g] at 0.089 [s]

P1 Pelvic x

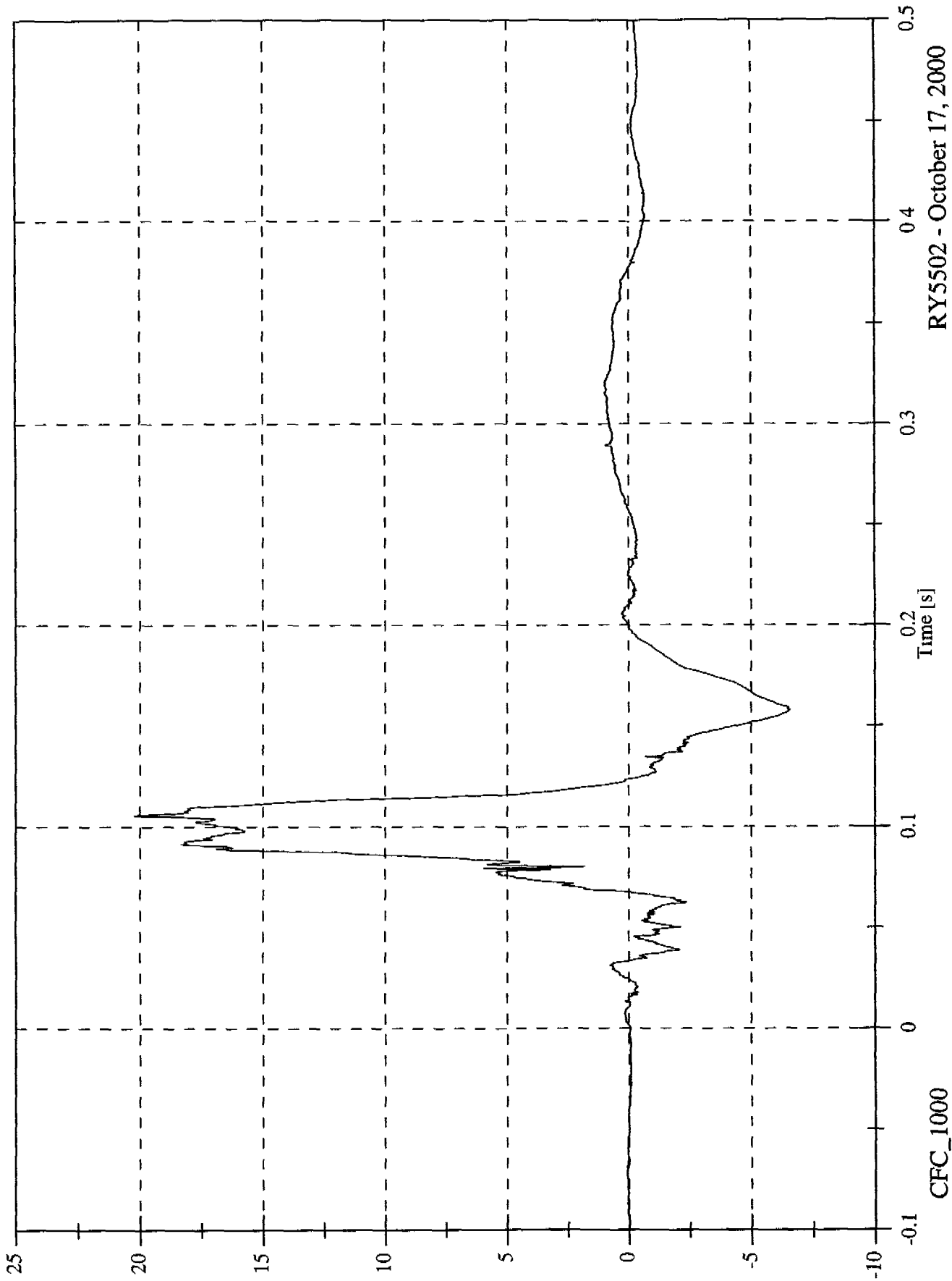


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 20.2 [g] at 0.106 [s]  
Min: -6.6 [g] at 0.158 [s]

P1 Pelvic y

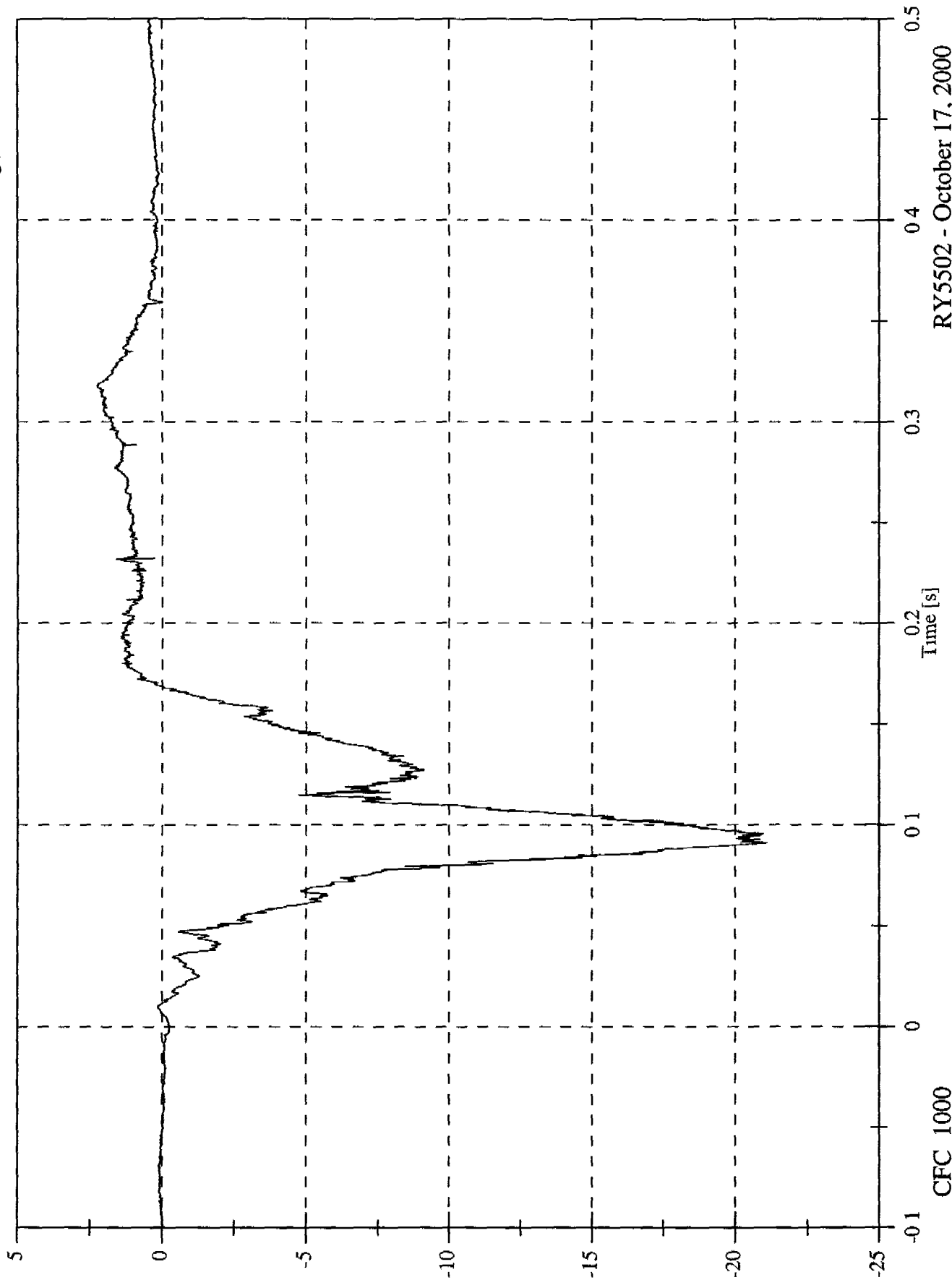


R Y 5 5 0 2 - O c t o b e r 1 7 , 2 0 0 0

2000 Subaru Legacy 40% Offset Impact

Max: 2.2 [g] at 0.318 [s]  
Min: -21.1 [g] at 0.091 [s]

P1 Pelvic z



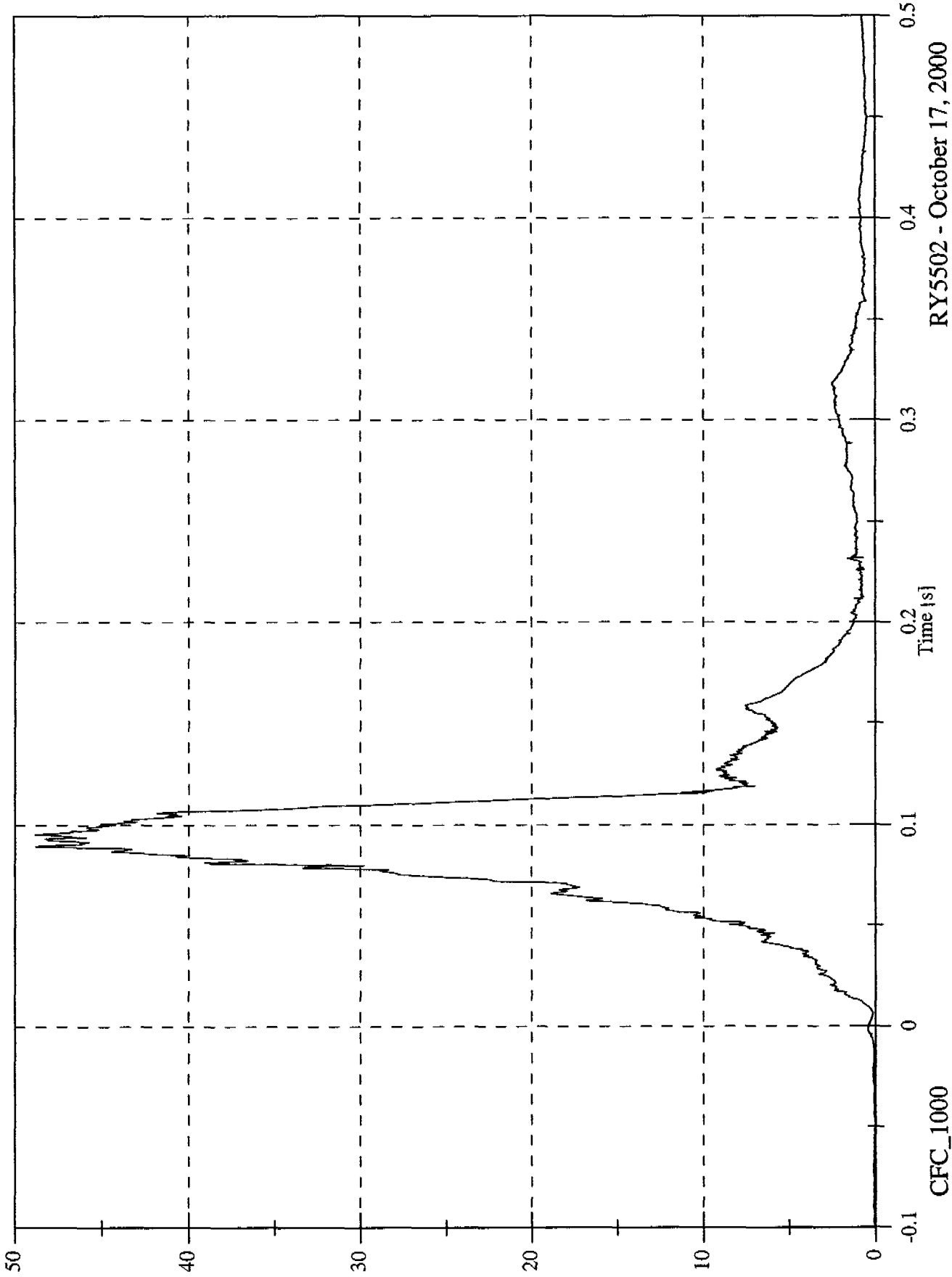
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 48.9 [g] at 0.095 [s]

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

P1 Pelvic Resultant

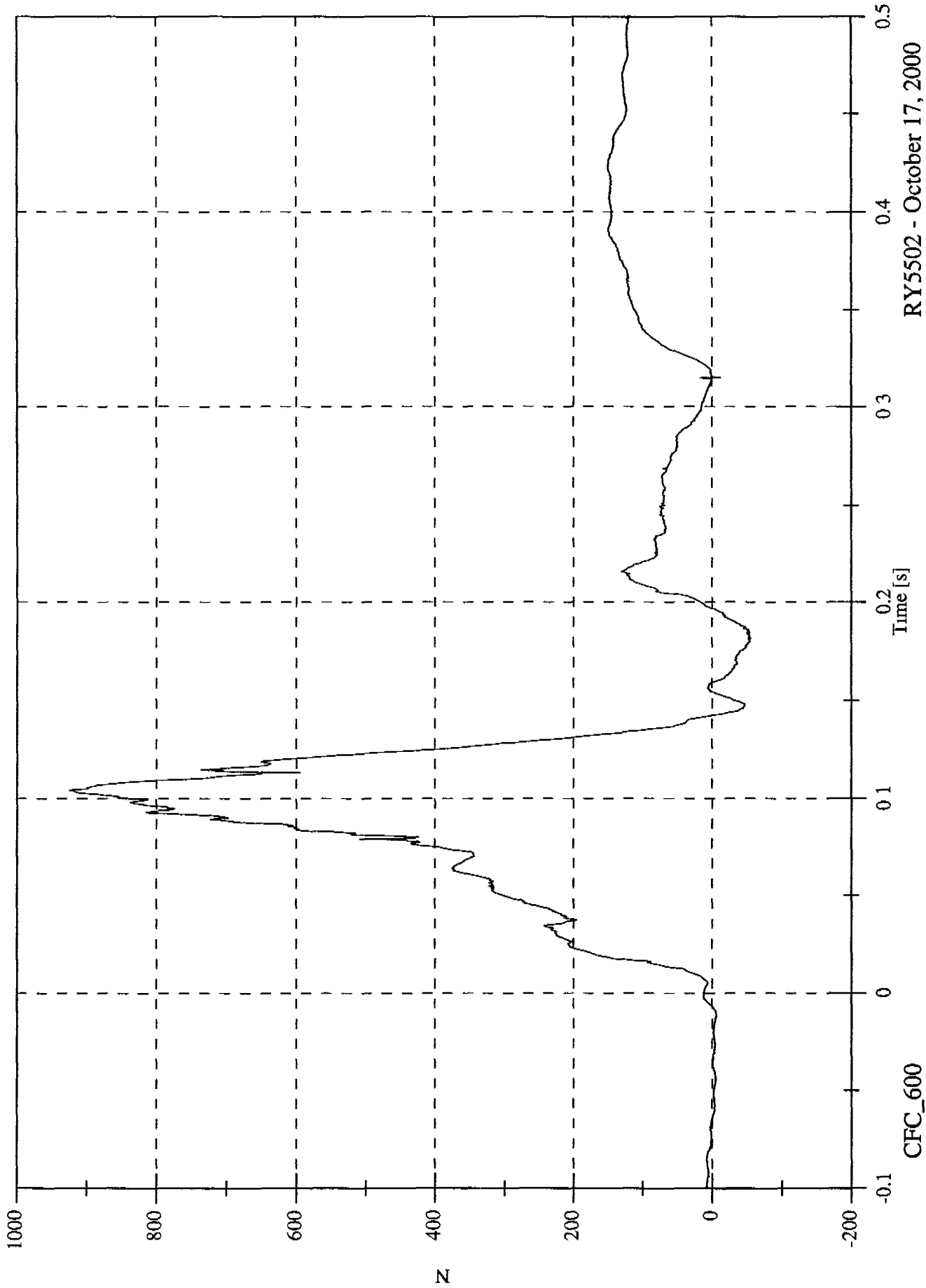


R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 923.9 [N] at 0.104 [s]  
Min: -56.1 [N] at 0.181 [s]

P1 Left Femur Fx

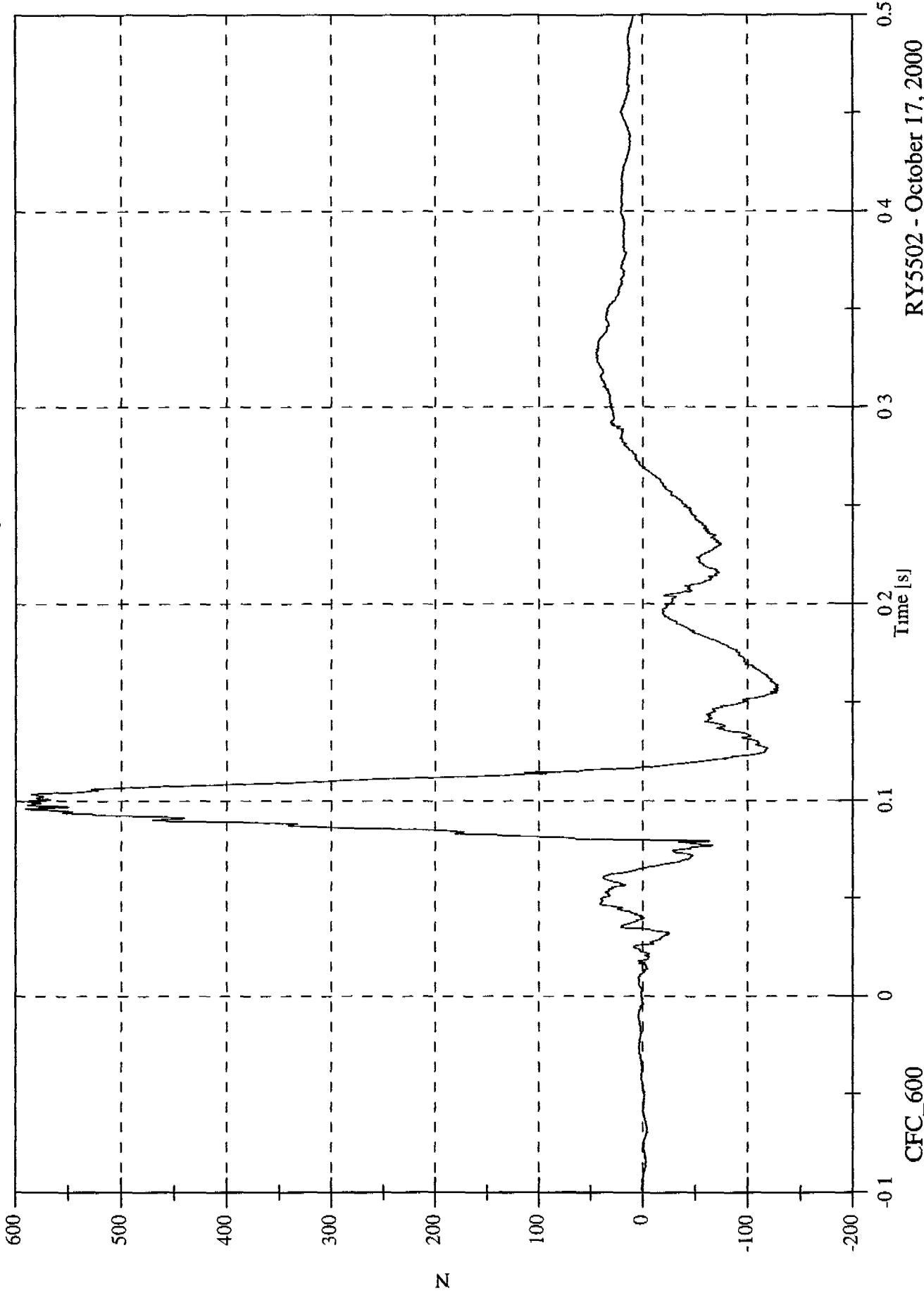


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 590.5 [N] at 0.096 [s]  
Min: -129.1 [N] at 0.158 [s]

P1 Left Femur Fy



CFC\_600

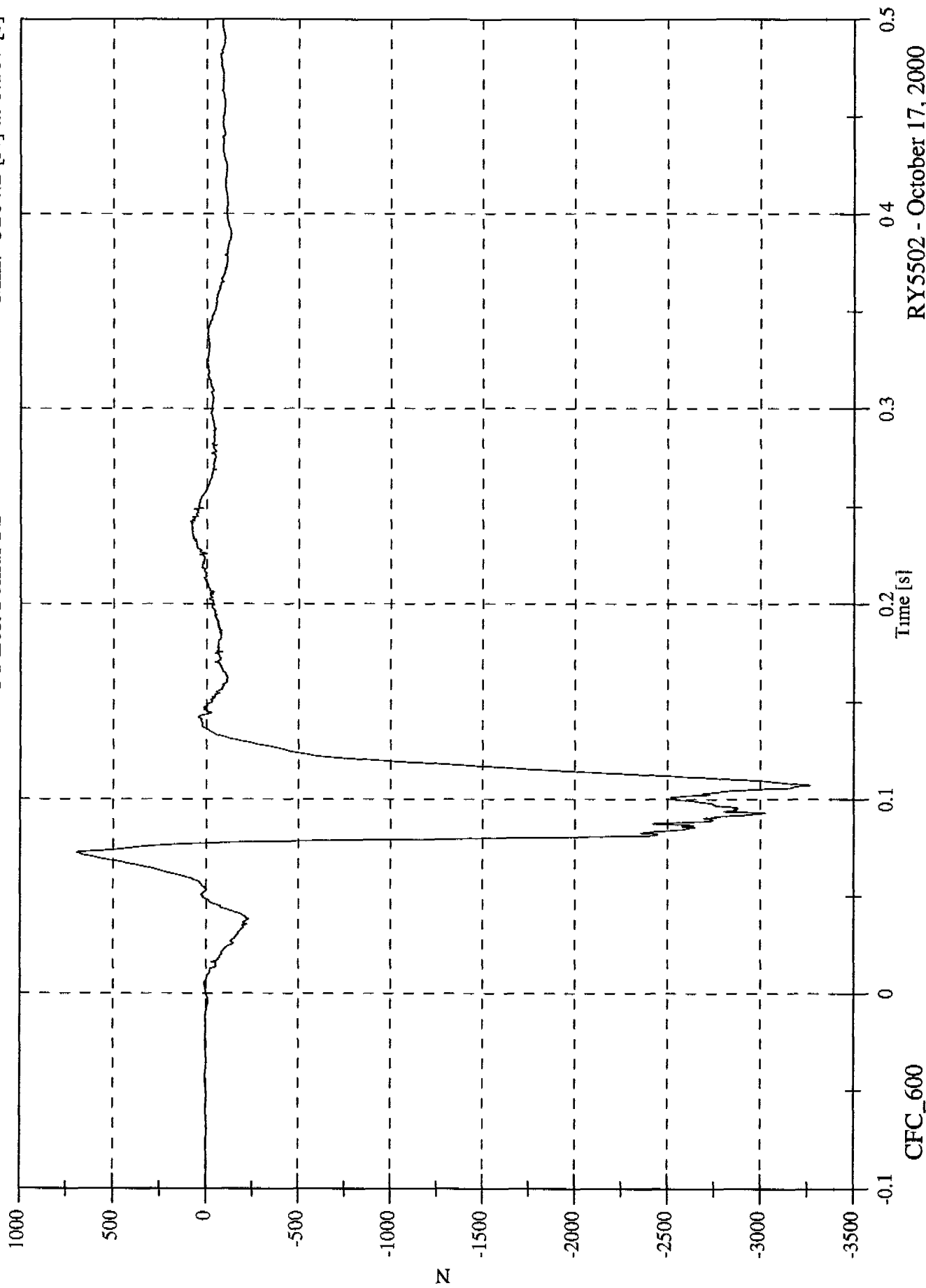
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 693.9 [N] at 0.072 [s]  
Min: -3264.2 [N] at 0.107 [s]

P1 Left Femur Fz



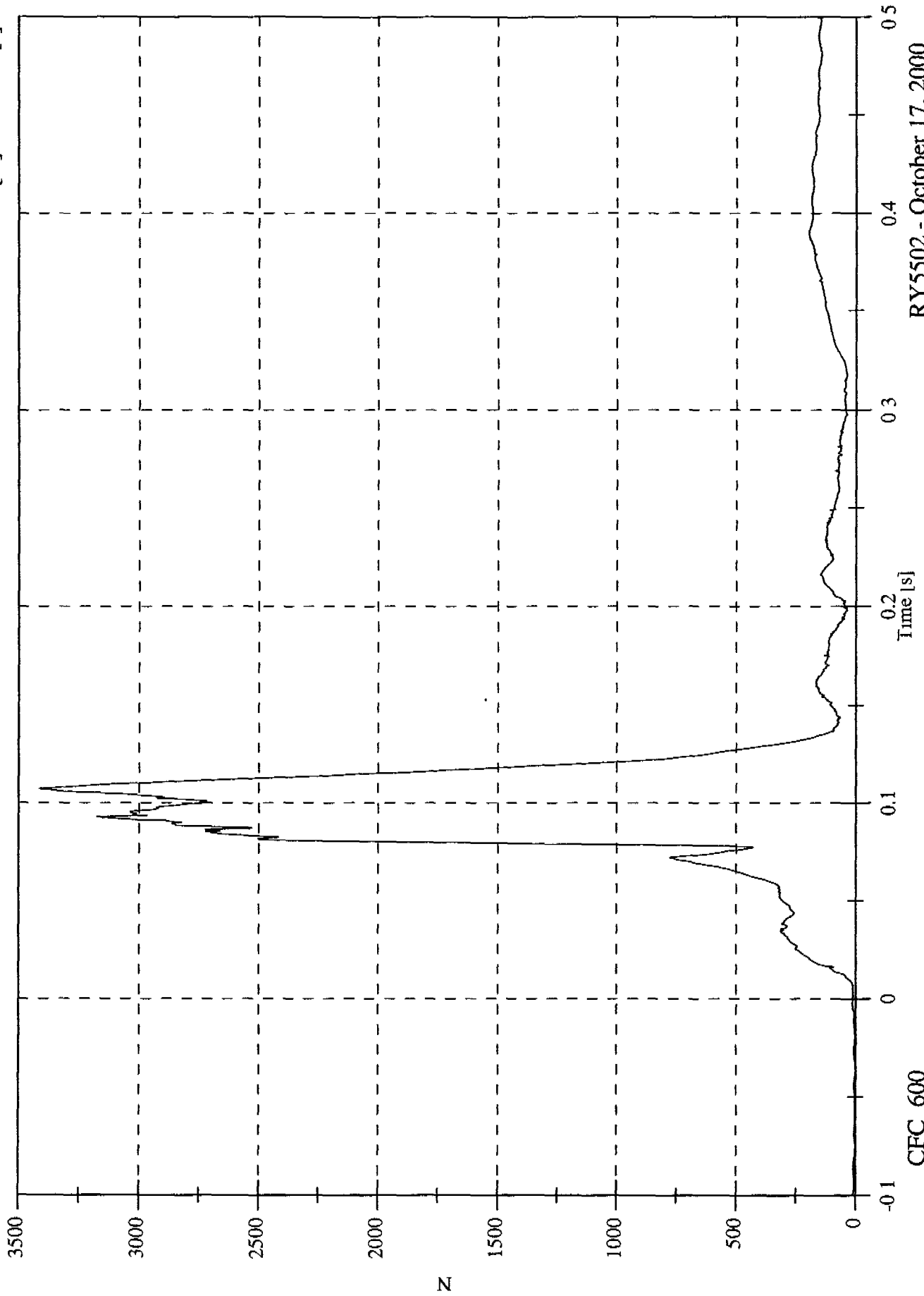
RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 3413.7 [N] at 0.107 [s]

Min: 0.8 [N] at -0.037 [s]

P1 Left Femur F Resultant

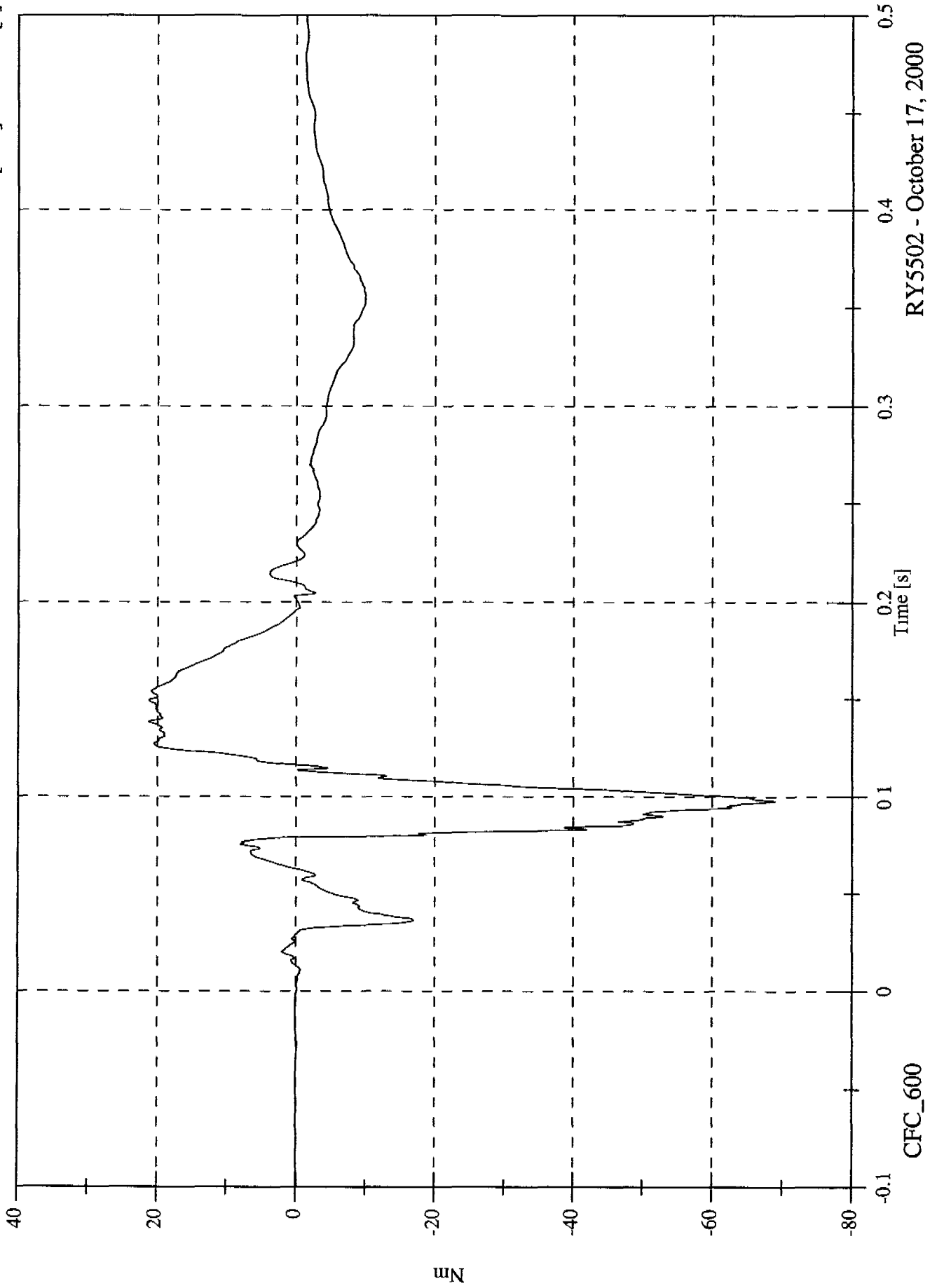


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 21.3 [Nm] at 0.138 [s]  
Min: -68.9 [Nm] at 0.098 [s]

P1 Left Femur Mx

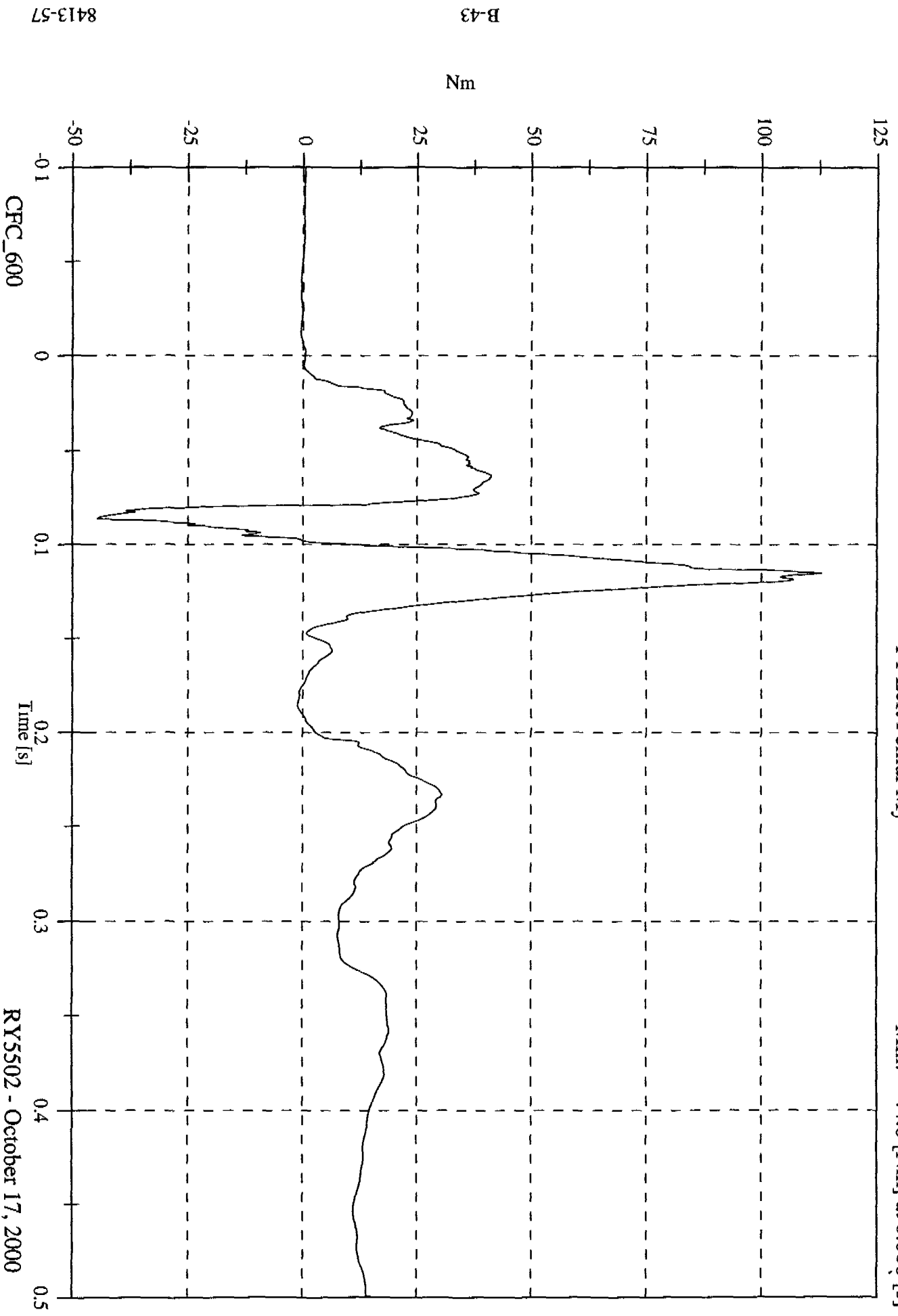


R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P1 Left Femur My

Max: 113.0 [Nm] at 0.115 [s]  
Min: -44.6 [Nm] at 0.086 [s]



B-43

8413-57

CFC\_600

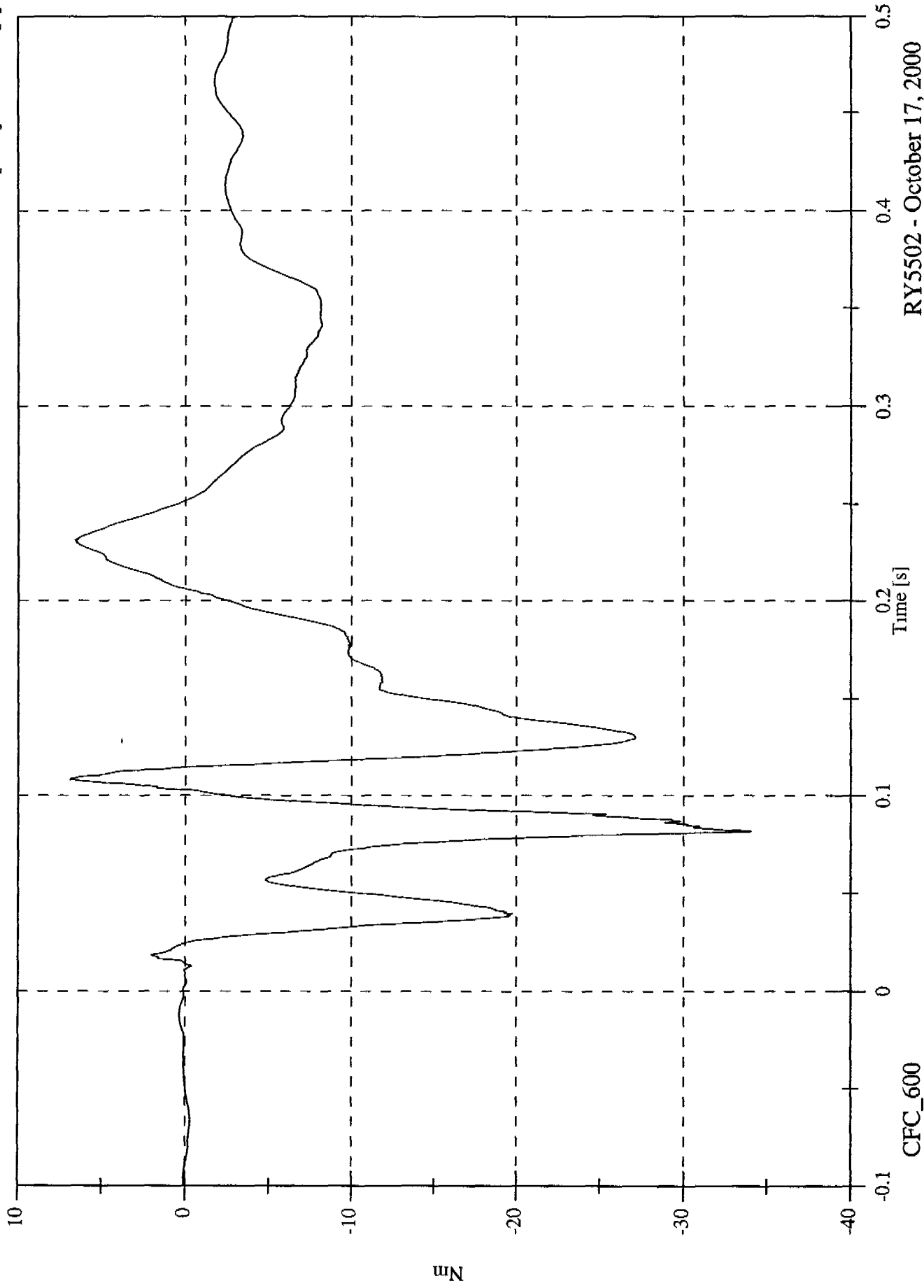
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 6.9 [Nm] at 0.108 [s]  
Min: -34.1 [Nm] at 0.082 [s]

P1 Left Femur Mz

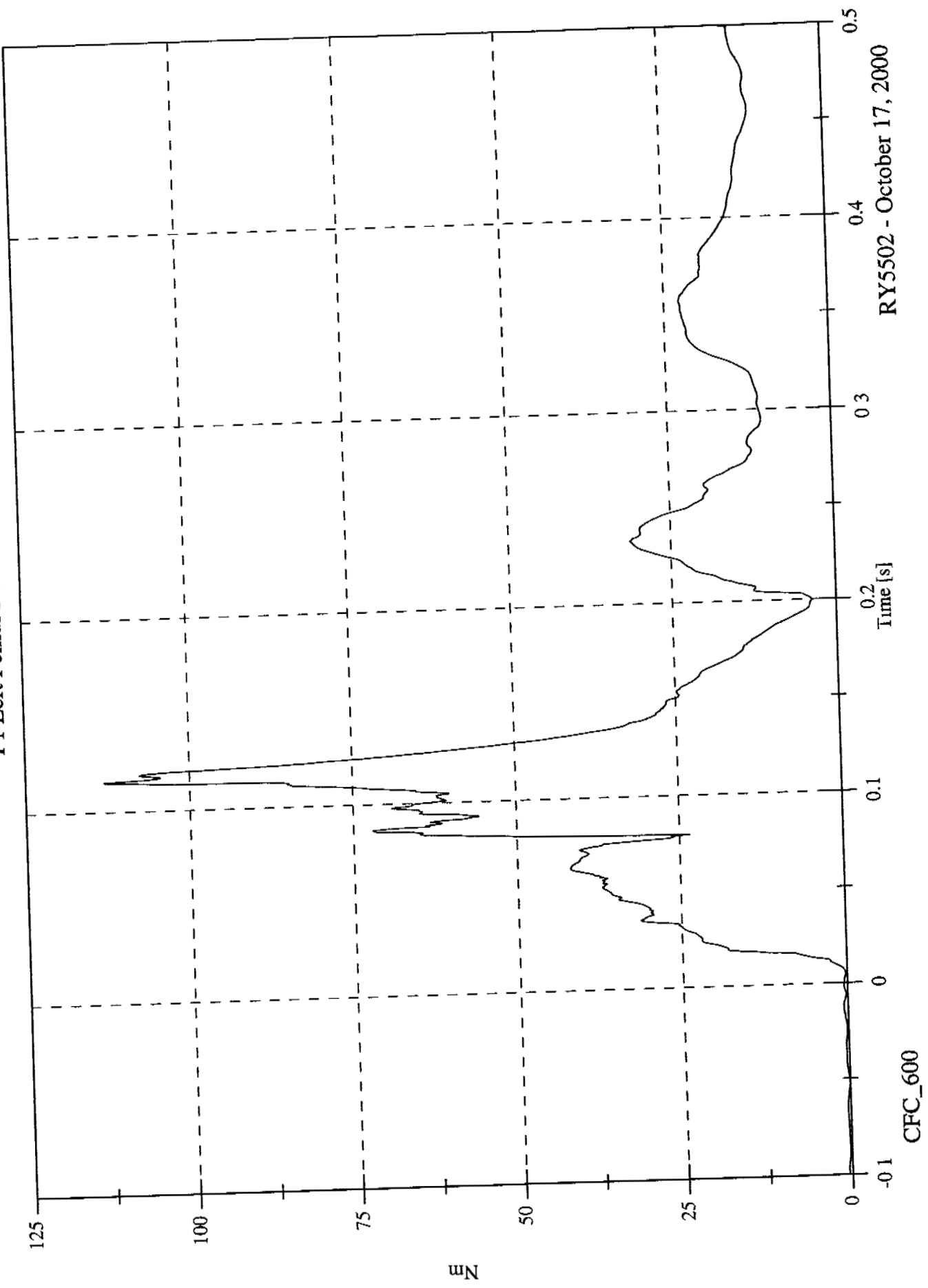


R Y 5 5 0 2 - O c t o b e r 1 7 , 2 0 0 0

Max: 113.0 [Nm] at 0.115 [s]  
Min: 0.0 [Nm] at -0.052 [s]

2000 Subaru Legacy 40% Offset Impact

P1 Left Femur M Resultant

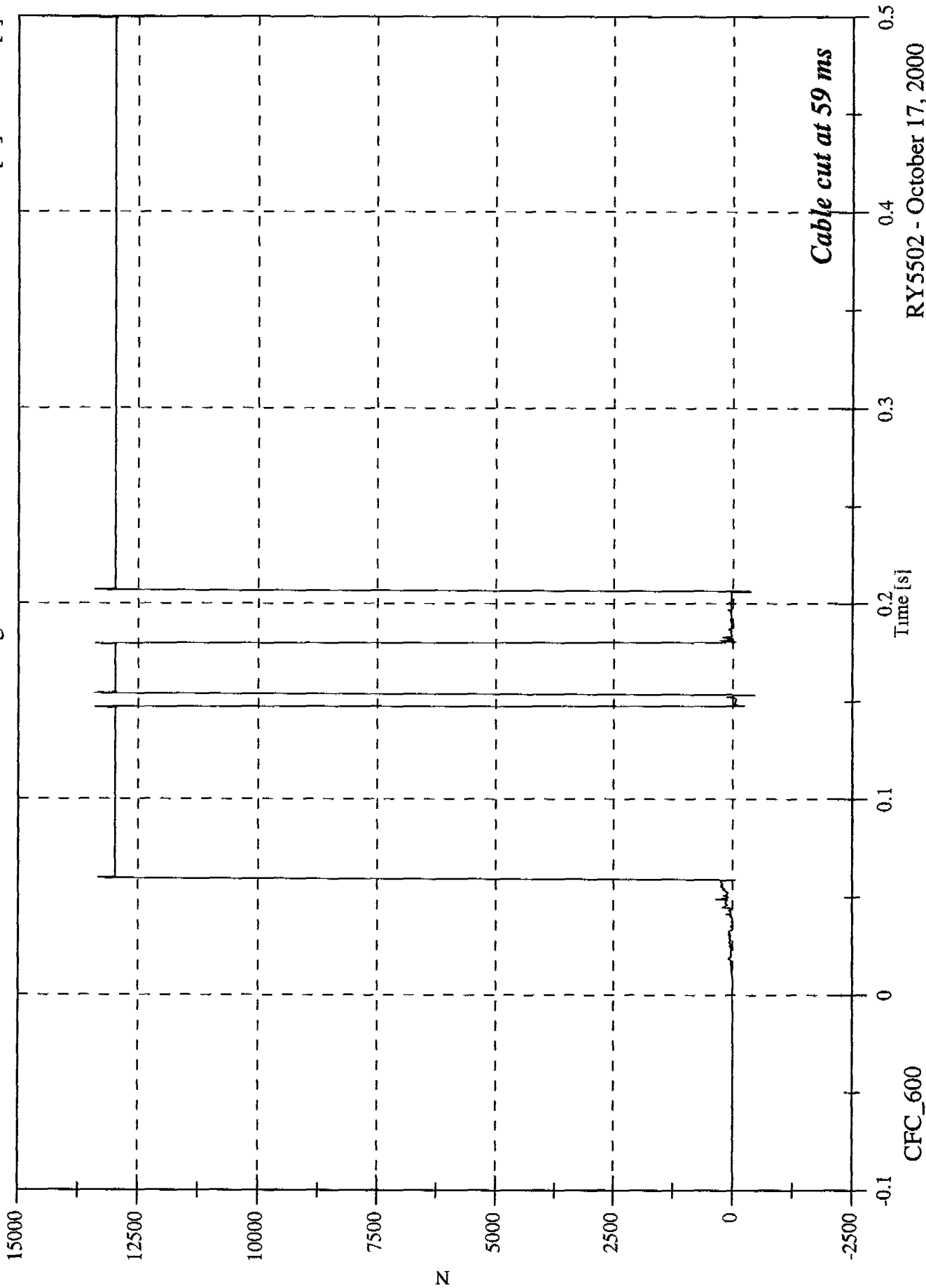


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 13884.6 [N] at 0.500 [s]  
Min: -452.2 [N] at 0.153 [s]

P1 Right Femur Fx



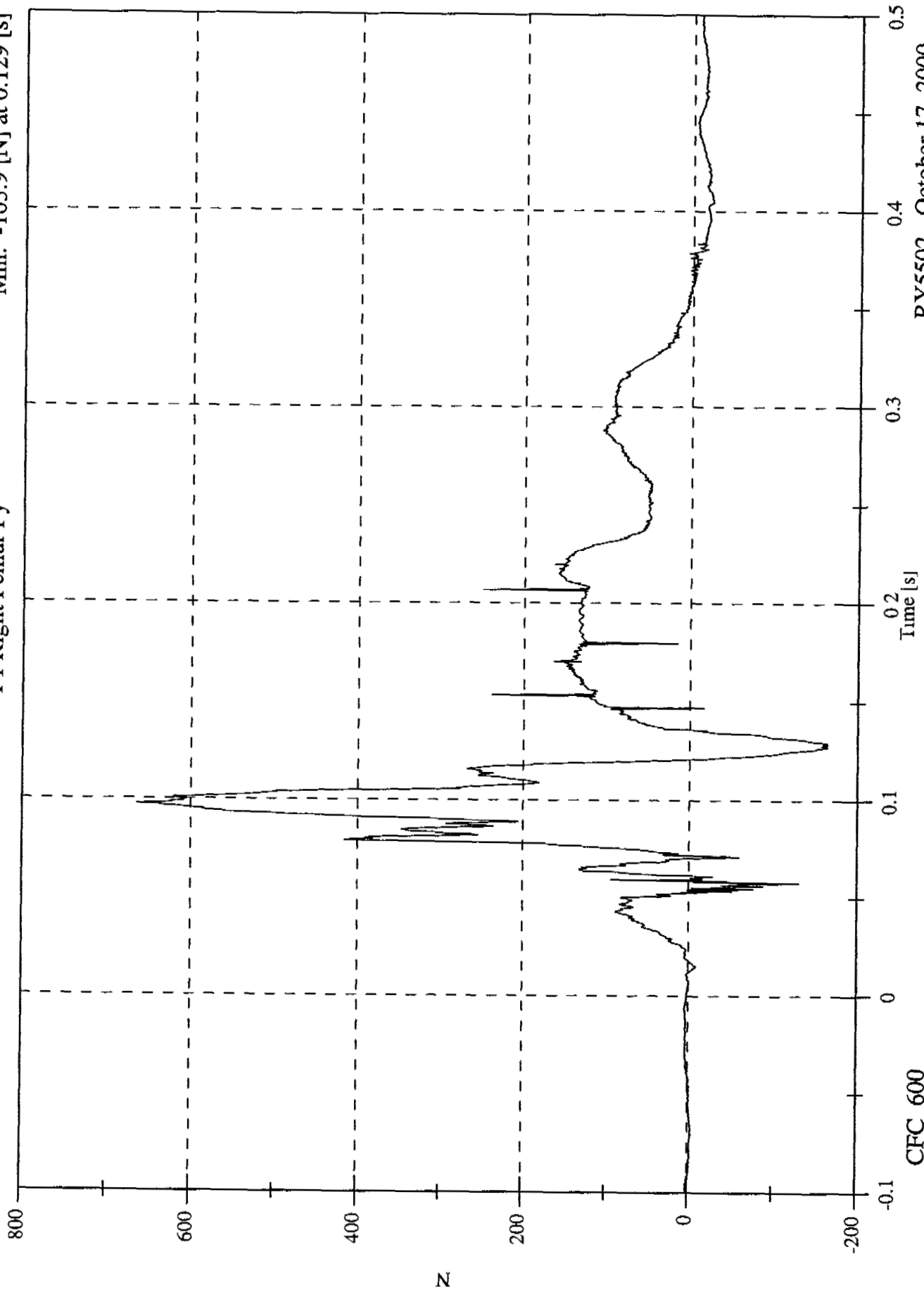
R Y 5502 - October 17, 2000

Cable cut at 59 ms

2000 Subaru Legacy 40% Offset Impact

Max: 663.8 [N] at 0.097 [s]  
Min: -163.9 [N] at 0.129 [s]

P1 Right Femur Fy

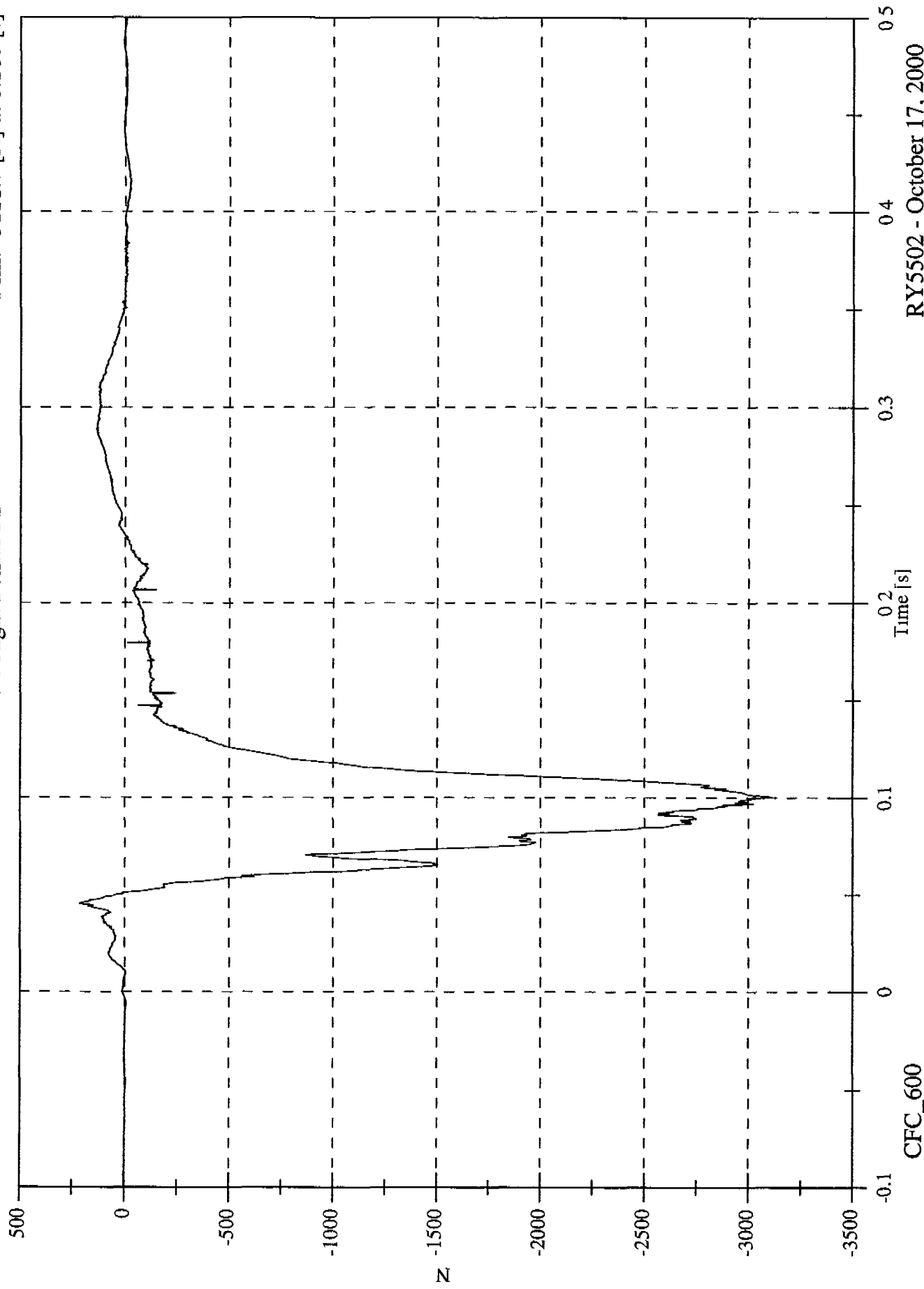


RYS5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 212.5 [N] at 0.046 [s]  
Min: -3111.7 [N] at 0.100 [s]

P1 Right Femur Fz



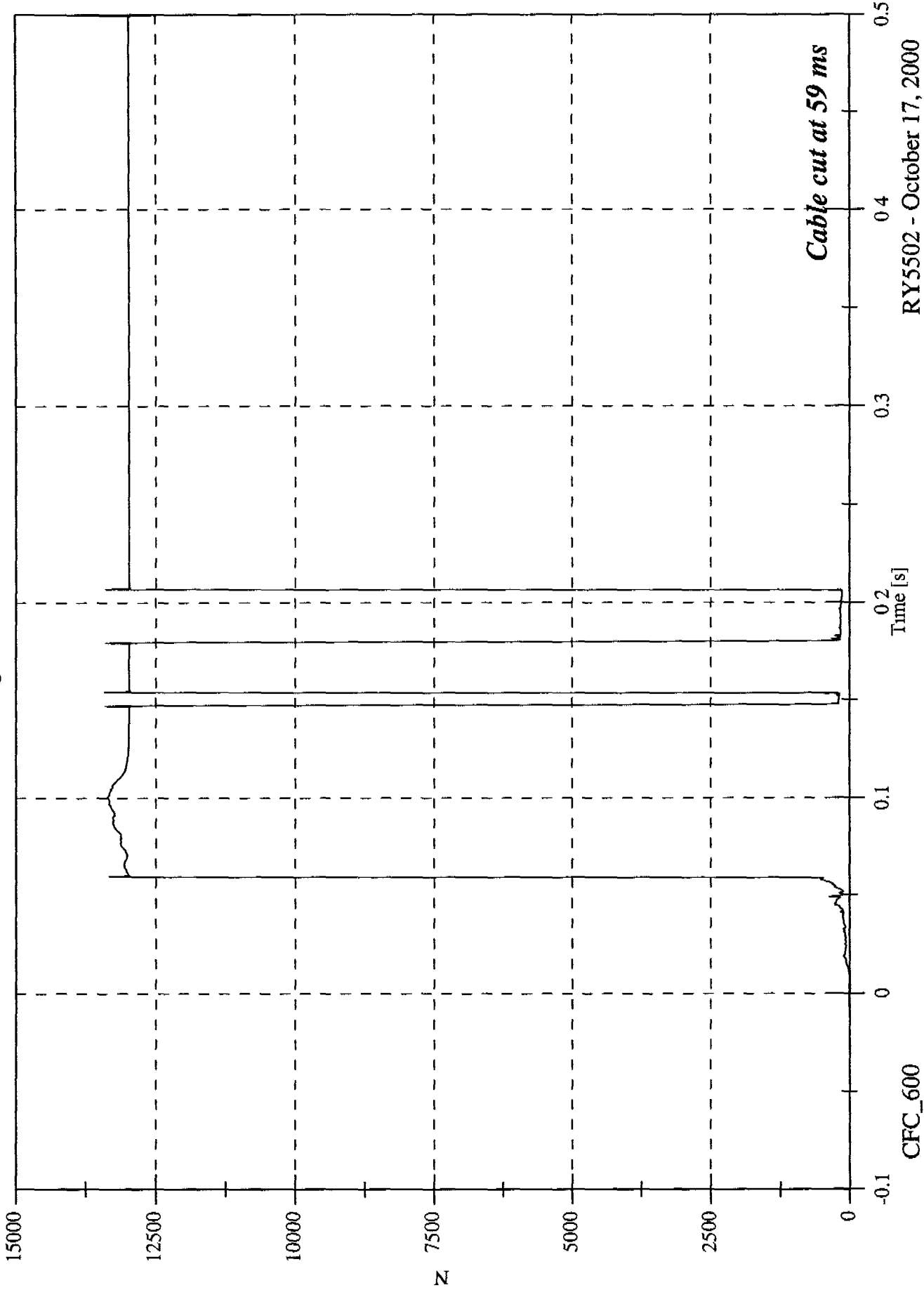
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 13884.6 [N] at 0.500 [s]  
Min: 0.4 [N] at -0.100 [s]

P1 Right Femur F Resultant

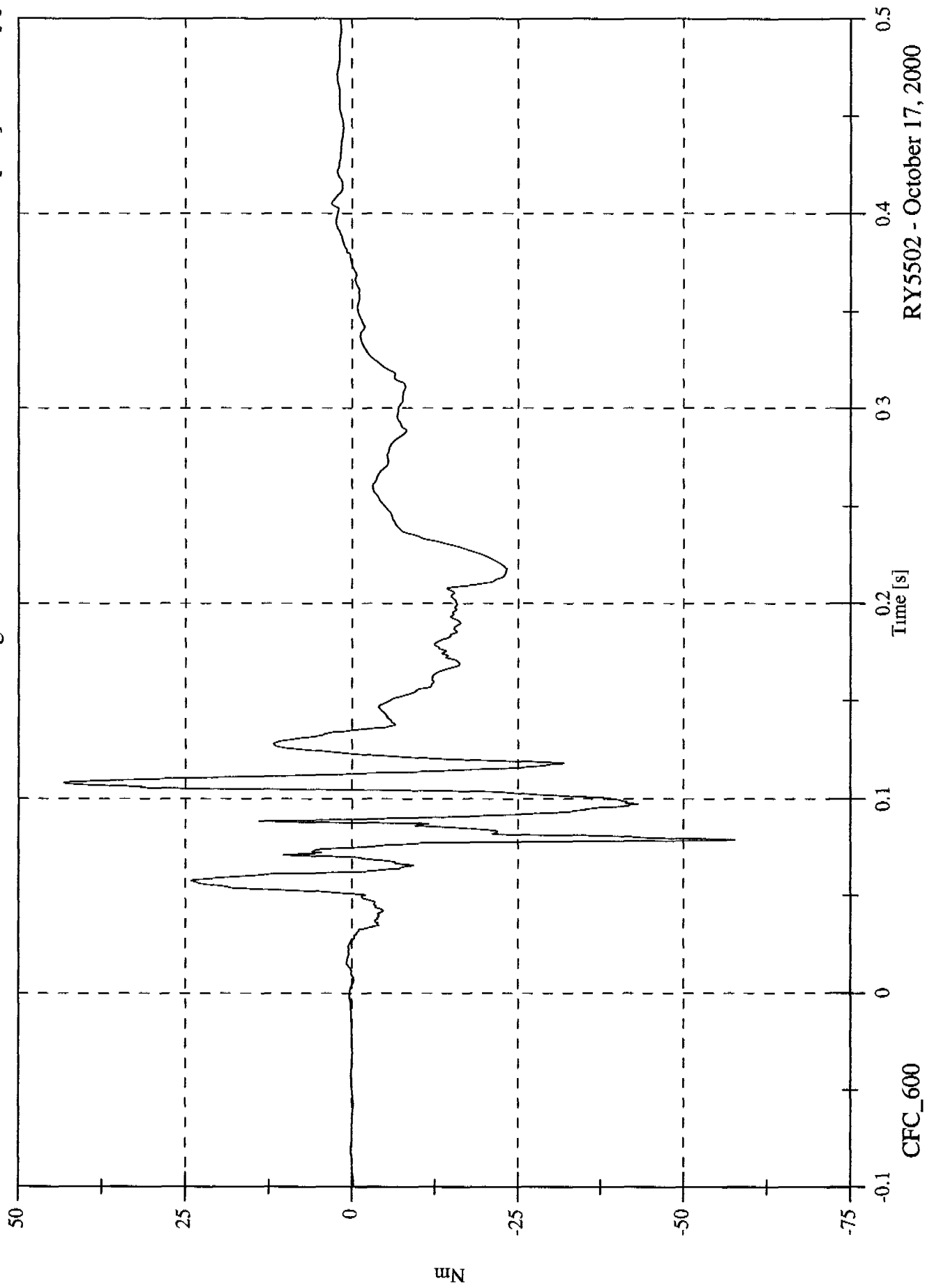


R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 43.1 [Nm] at 0.108 [s]  
Min: -57.7 [Nm] at 0.079 [s]

P1 Right Femur Mx



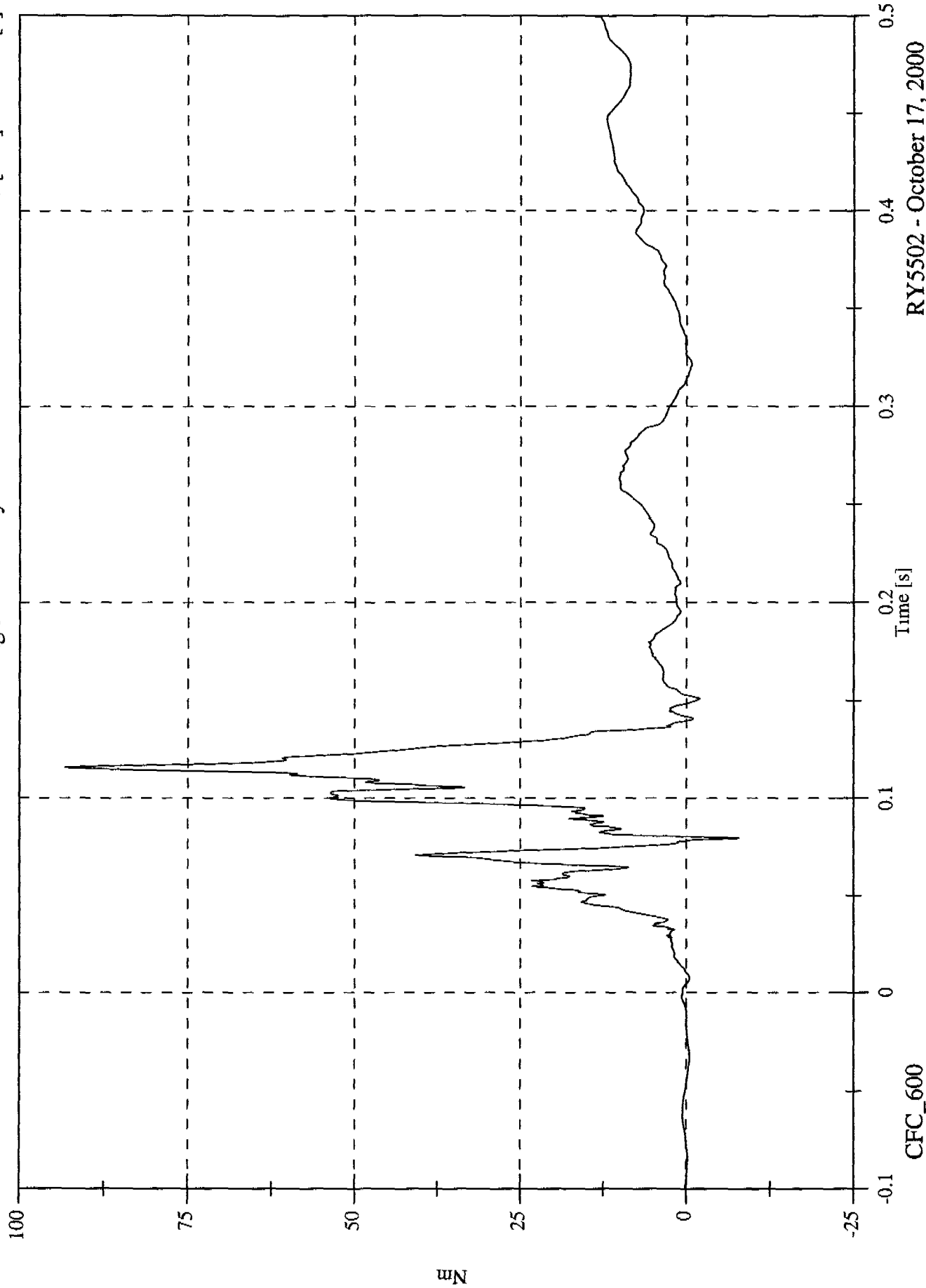
R5502 - October 17, 2000

CFC\_600

2000 Subaru Legacy 40% Offset Impact

Max: 93.2 [Nm] at 0.115 [s]  
Min: -7.8 [Nm] at 0.080 [s]

P1 Right Femur My

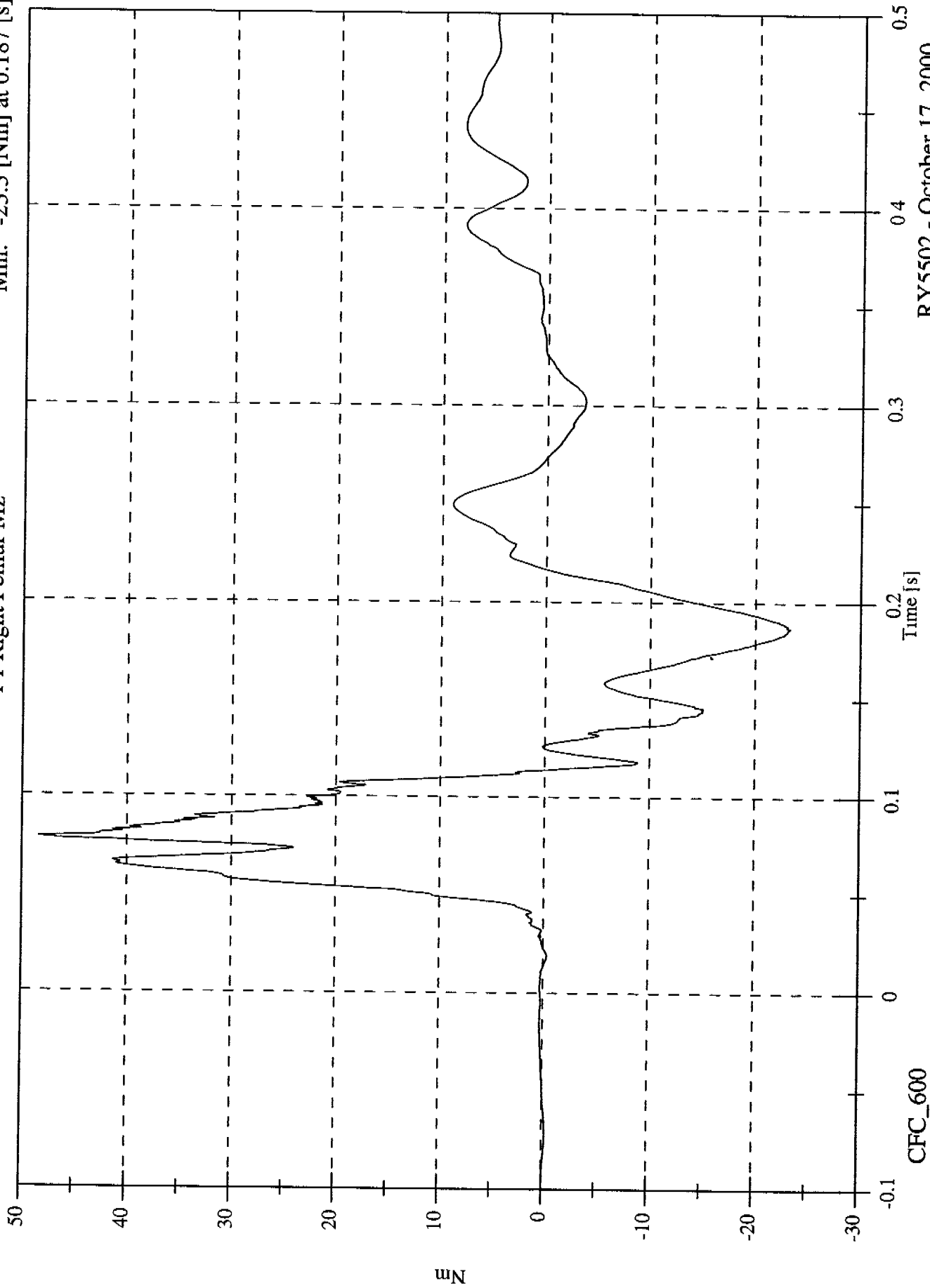


RYY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 48.4 [Nm] at 0.079 [s]  
Min: -23.3 [Nm] at 0.187 [s]

P1 Right Femur Mz

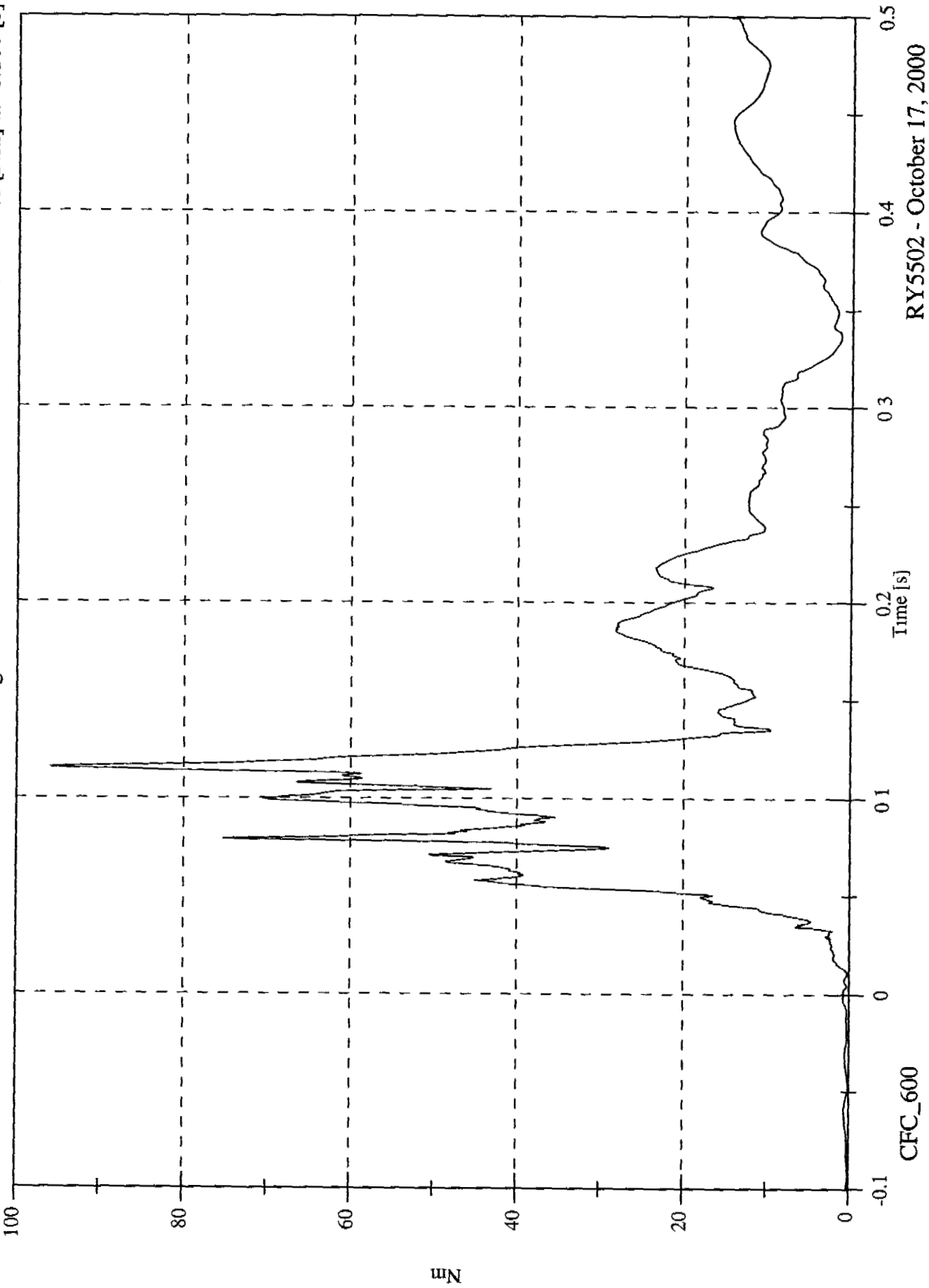


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 96.0 [Nm] at 0.116 [s]  
Min: 0.0 [Nm] at -0.100 [s]

P1 Right Femur M Resultant

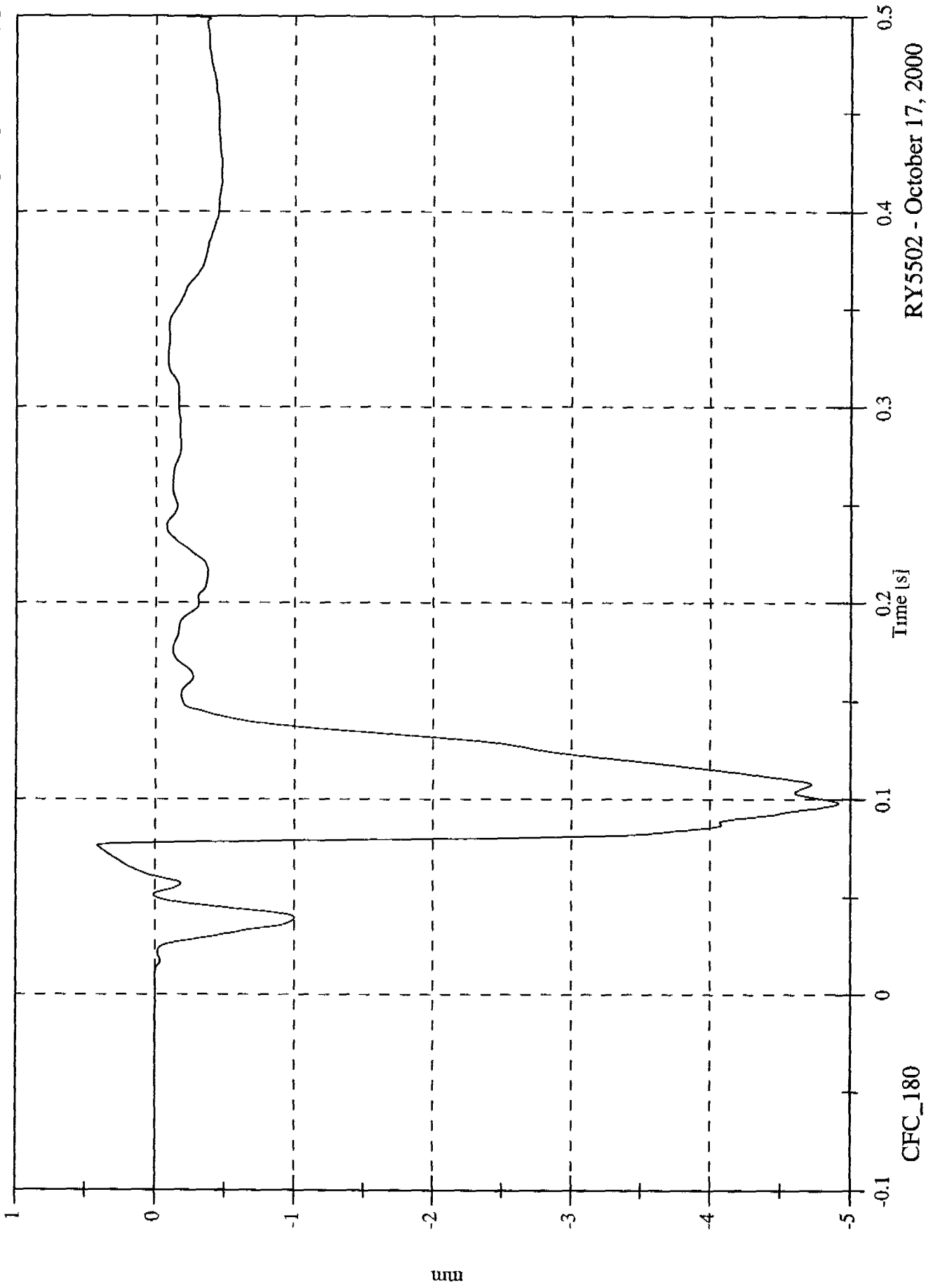


R Y 5 5 0 2 - O c t o b e r 1 7 , 2 0 0 0

2000 Subaru Legacy 40% Offset Impact

Max: 0.4 [mm] at 0.076 [s]  
Mfn: -4.9 [mm] at 0.098 [s]

P1 Left Knee Shear Dx

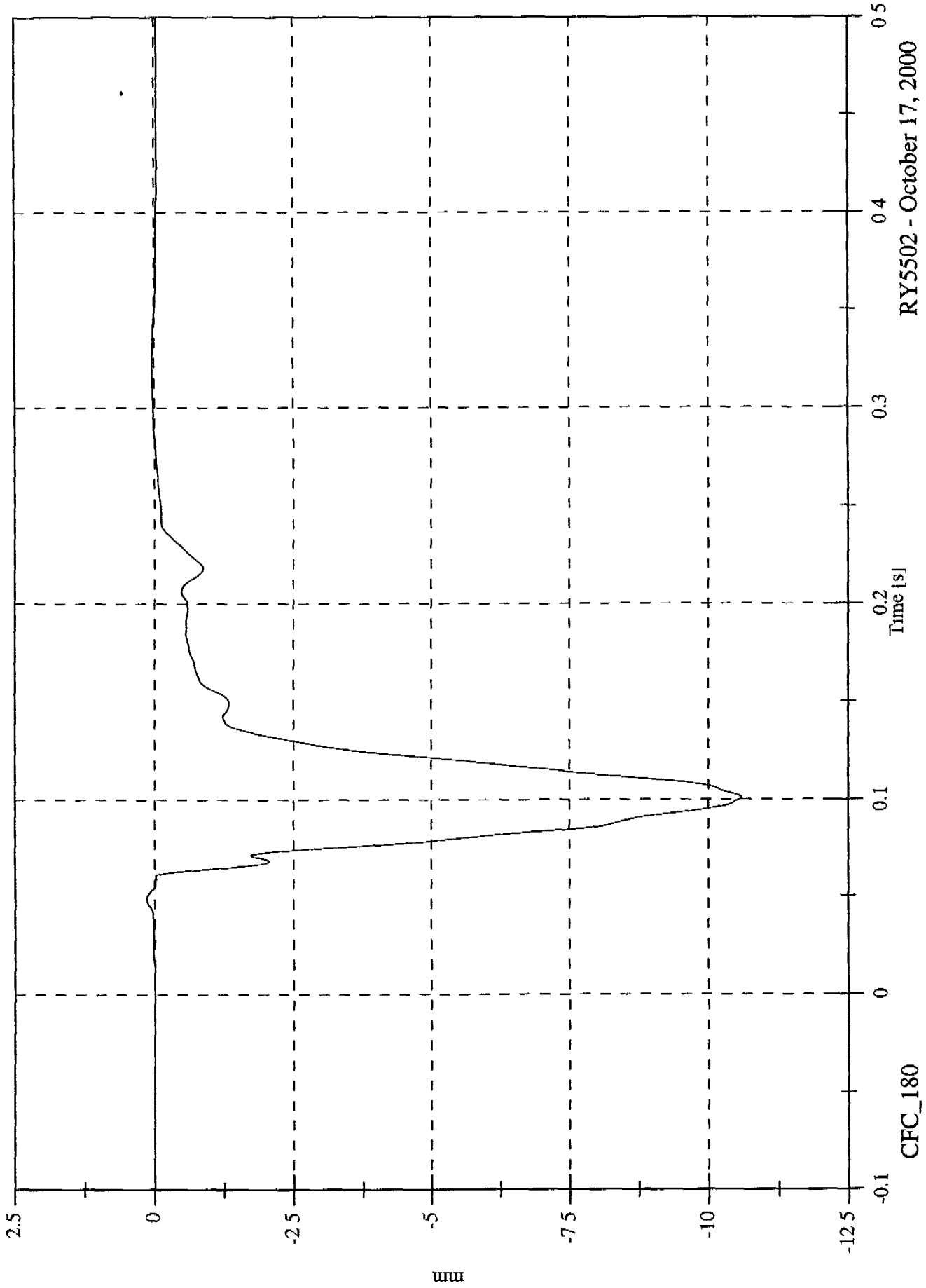


RX5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 0.1 [mm] at 0.049 [s]  
Min: -10.6 [mm] at 0.101 [s]

P1 Right Knee Shear Dx



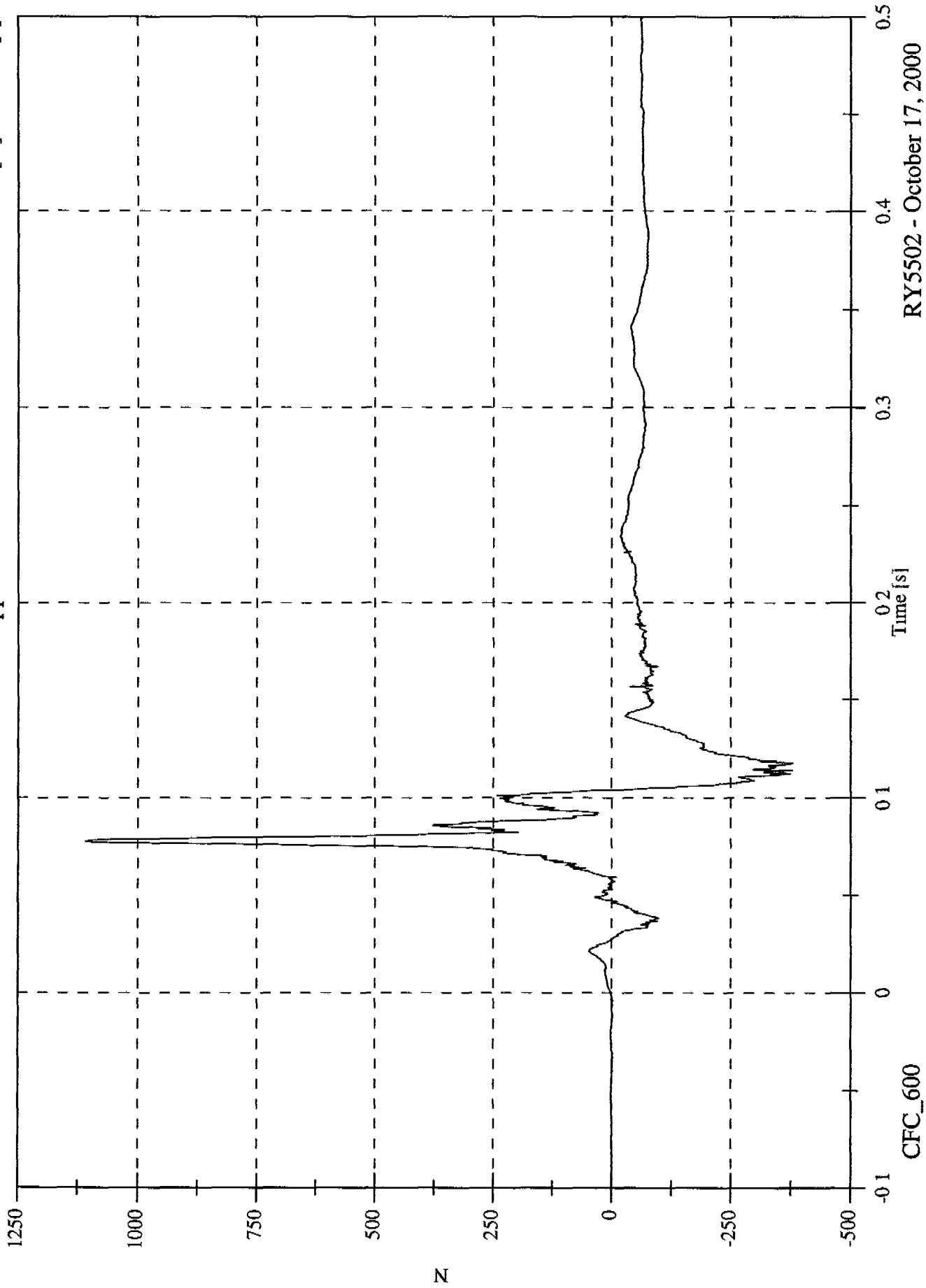
CFC\_180

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1108.4 [N] at 0.078 [s]  
Min: -380.0 [N] at 0.118 [s]

P1 Left Upper Tibia Fx

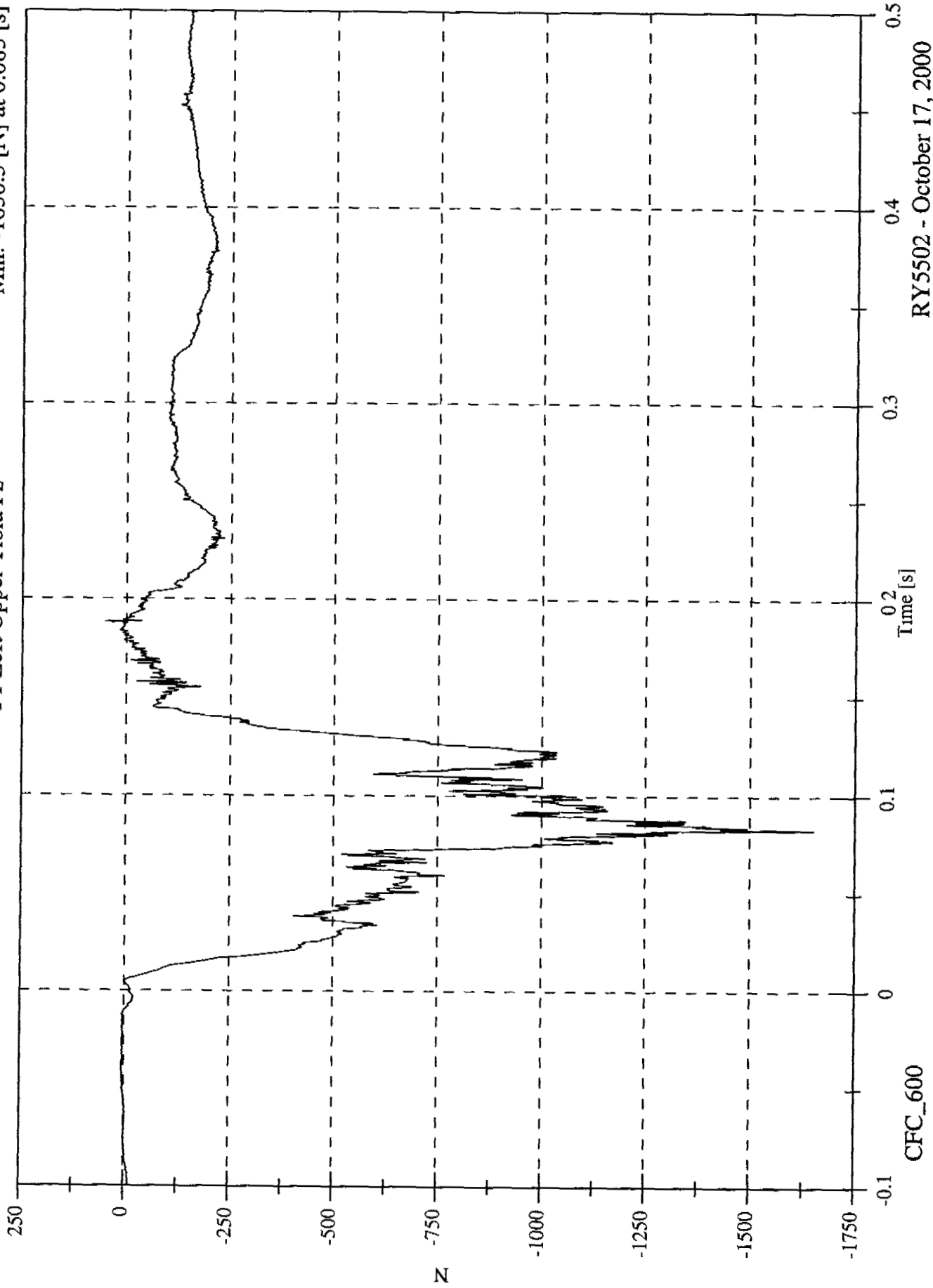


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 51.2 [N] at 0.188 [s]  
Min: -1650.5 [N] at 0.083 [s]

P1 Left Upper Tibia Fz

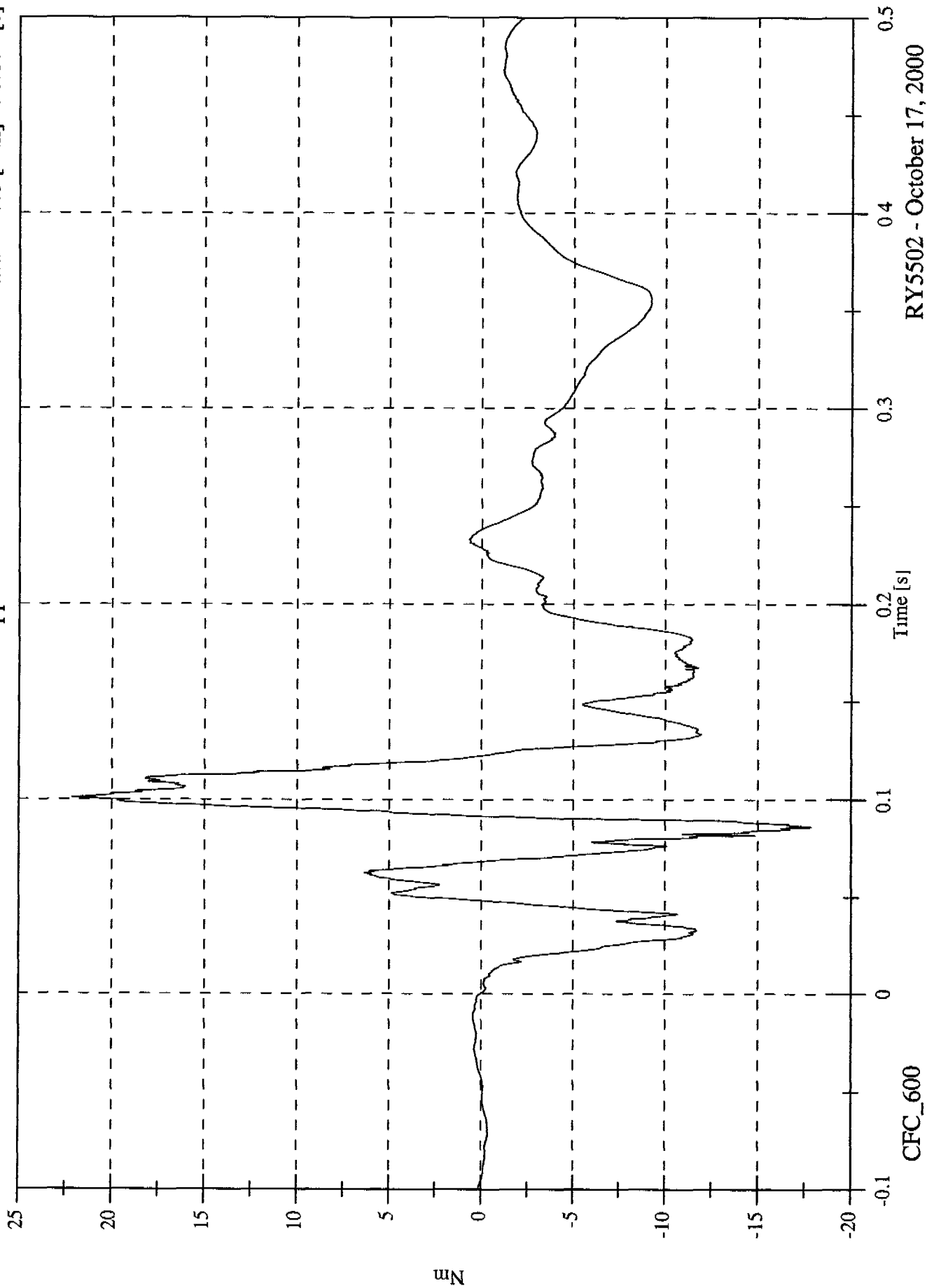


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P1 Left Upper Tibia Mx

Max: 22.1 [Nm] at 0.101 [s]  
Min: -17.8 [Nm] at 0.086 [s]



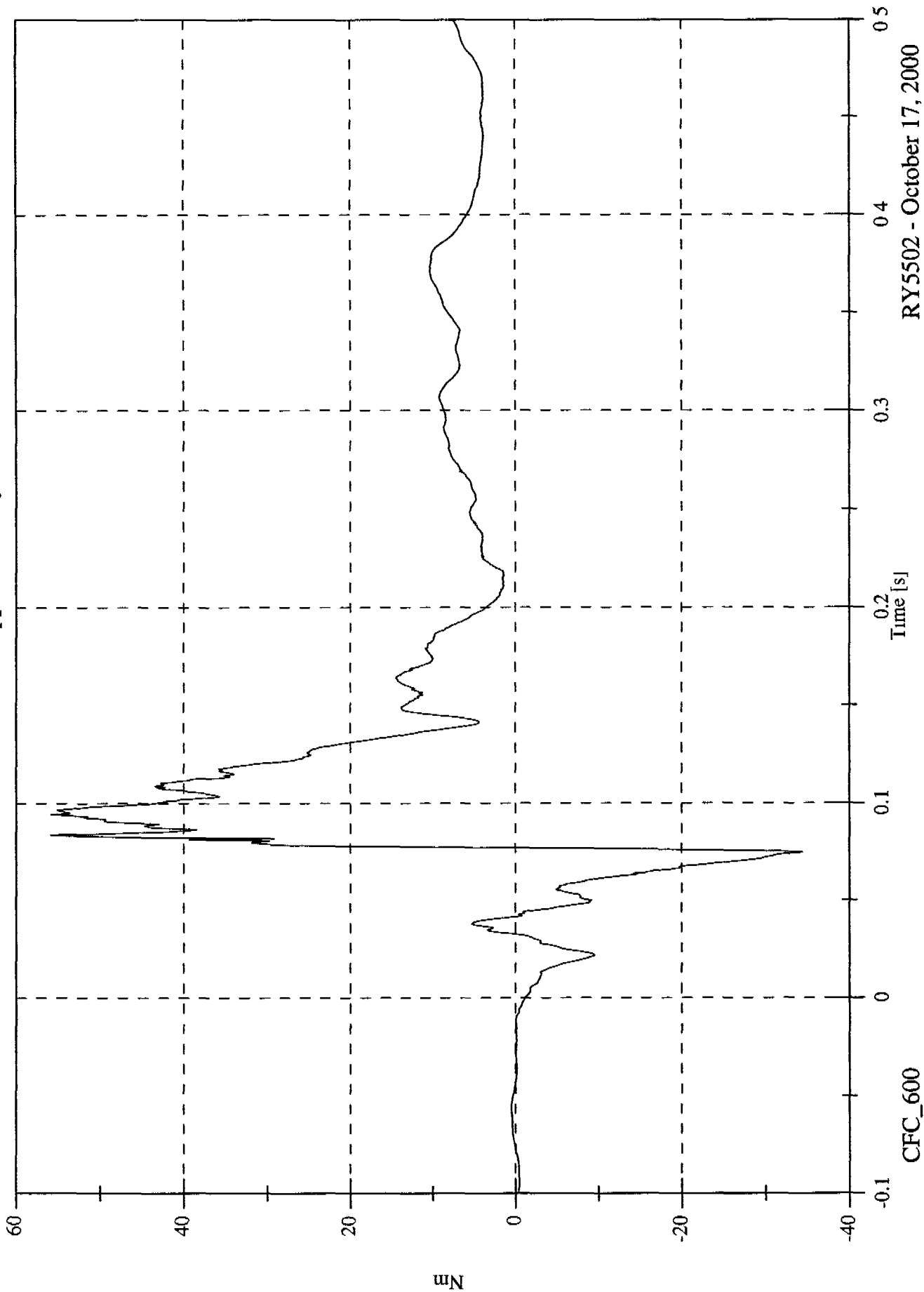
RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 55.9 [Nm] at 0.084 [s]

Min: -34.4 [Nm] at 0.075 [s]

P1 Left Upper Tibia My

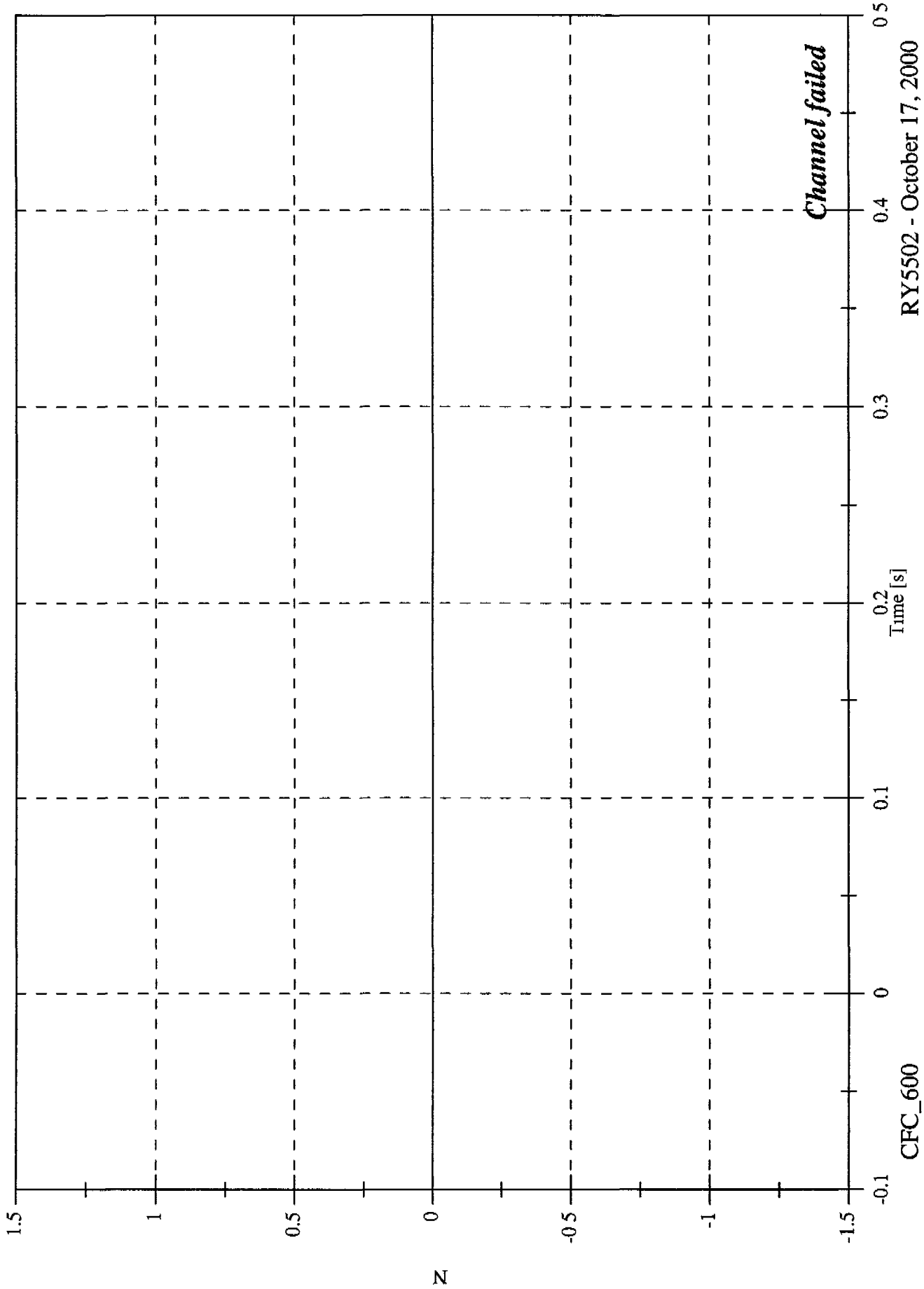


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P1 Left Lower Tibia Fx

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



CFC\_600

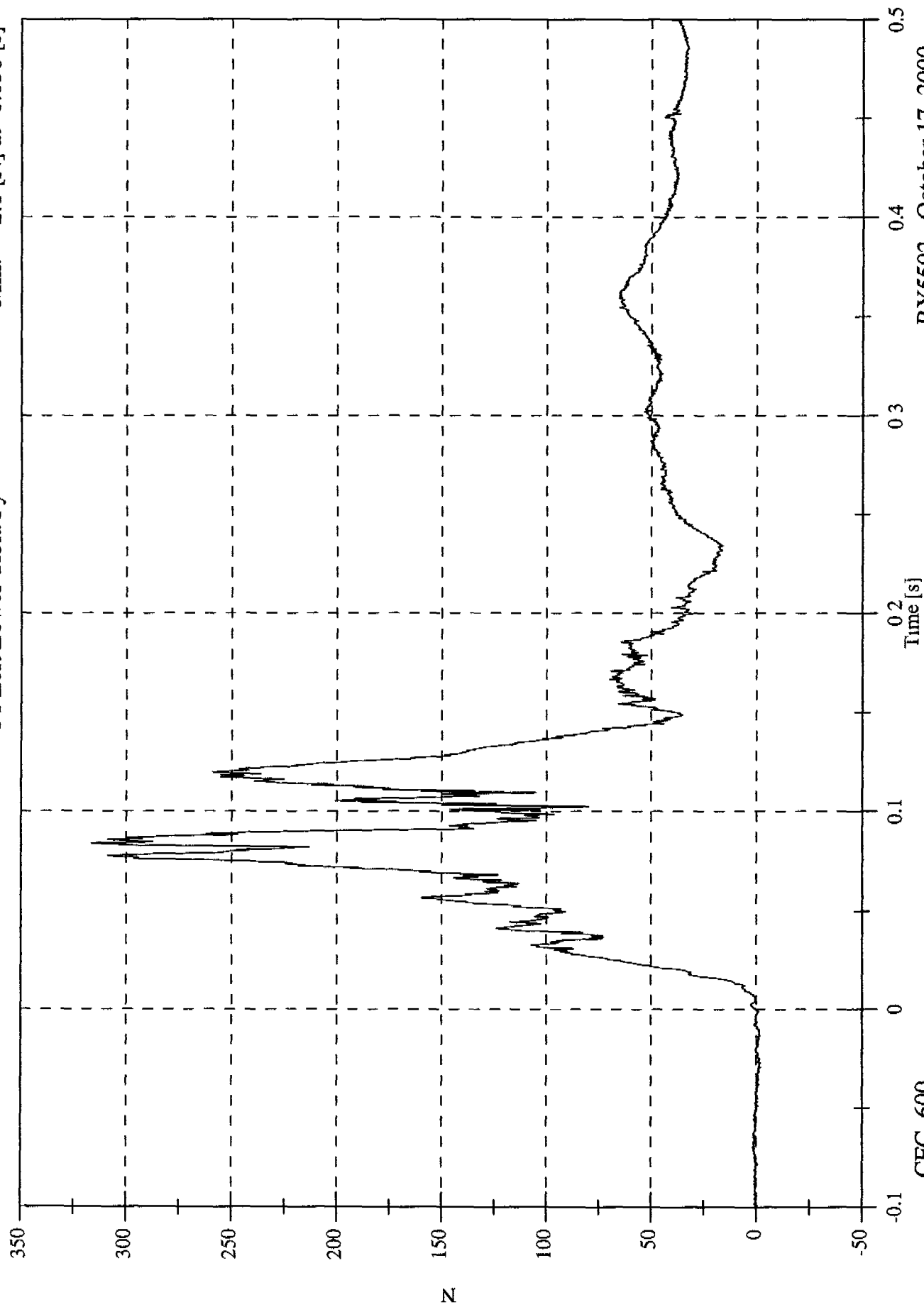
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 316.6 [N] at 0.084 [s]

Min: -2.1 [N] at -0.030 [s]

P1 Left Lower Tibia Fy



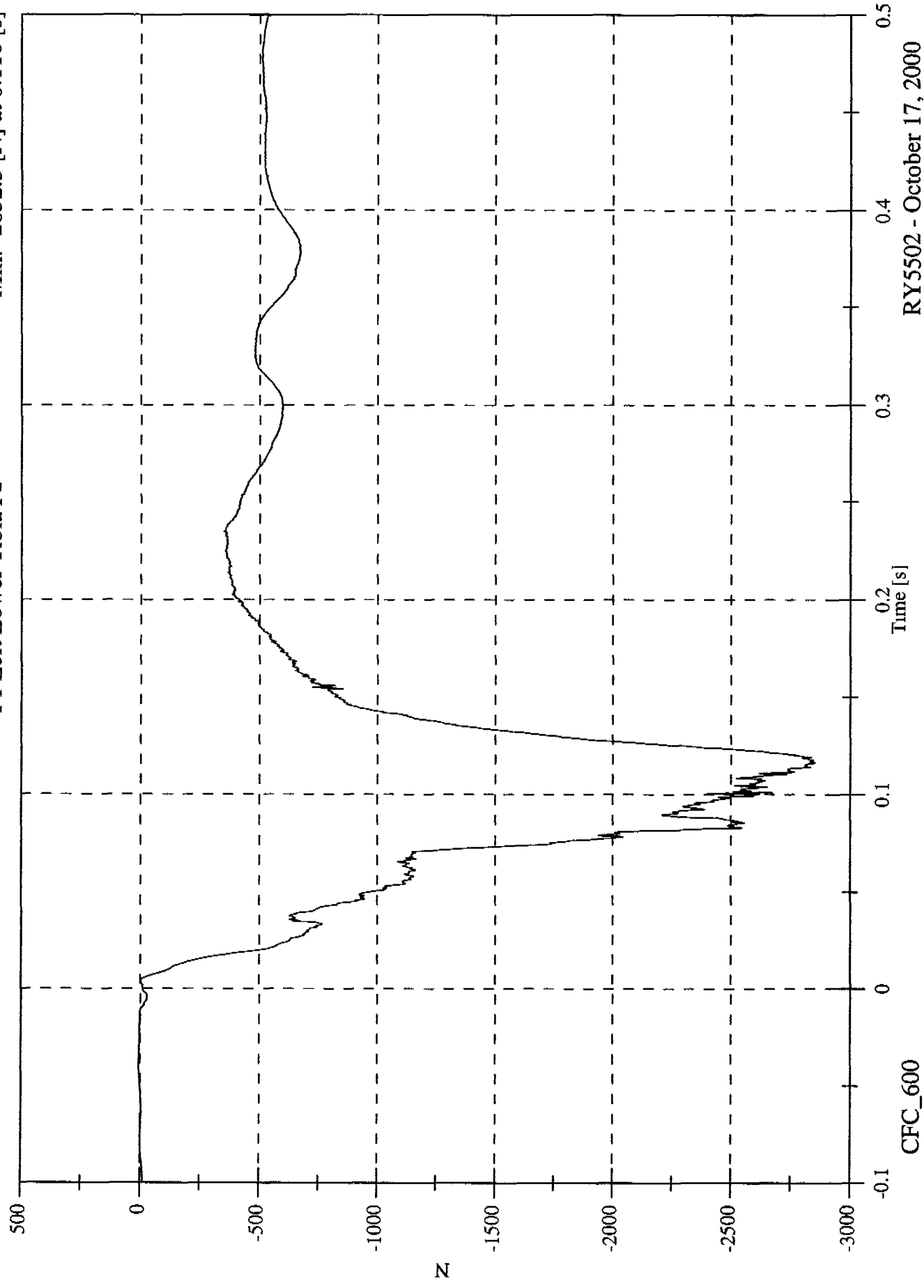
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 6.4 [N] at -0.040 [s]  
Min: -2852.3 [N] at 0.116 [s]

P1 Left Lower Tibia Fz



CFC\_600

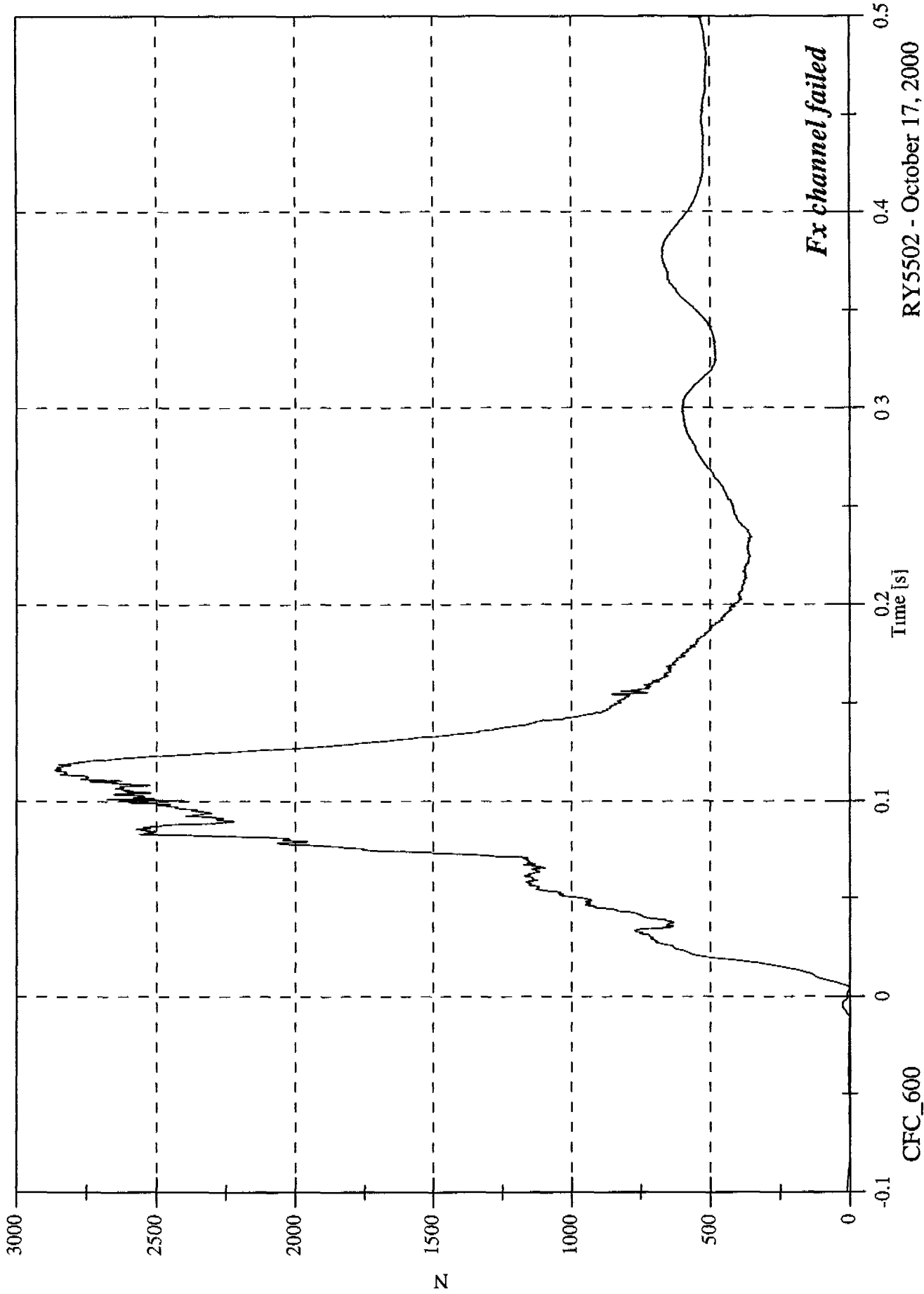
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2861.8 [N] at 0.116 [s]

Min: 0.1 [N] at -0.081 [s]

P1 Left Lower Tibia F Resultant

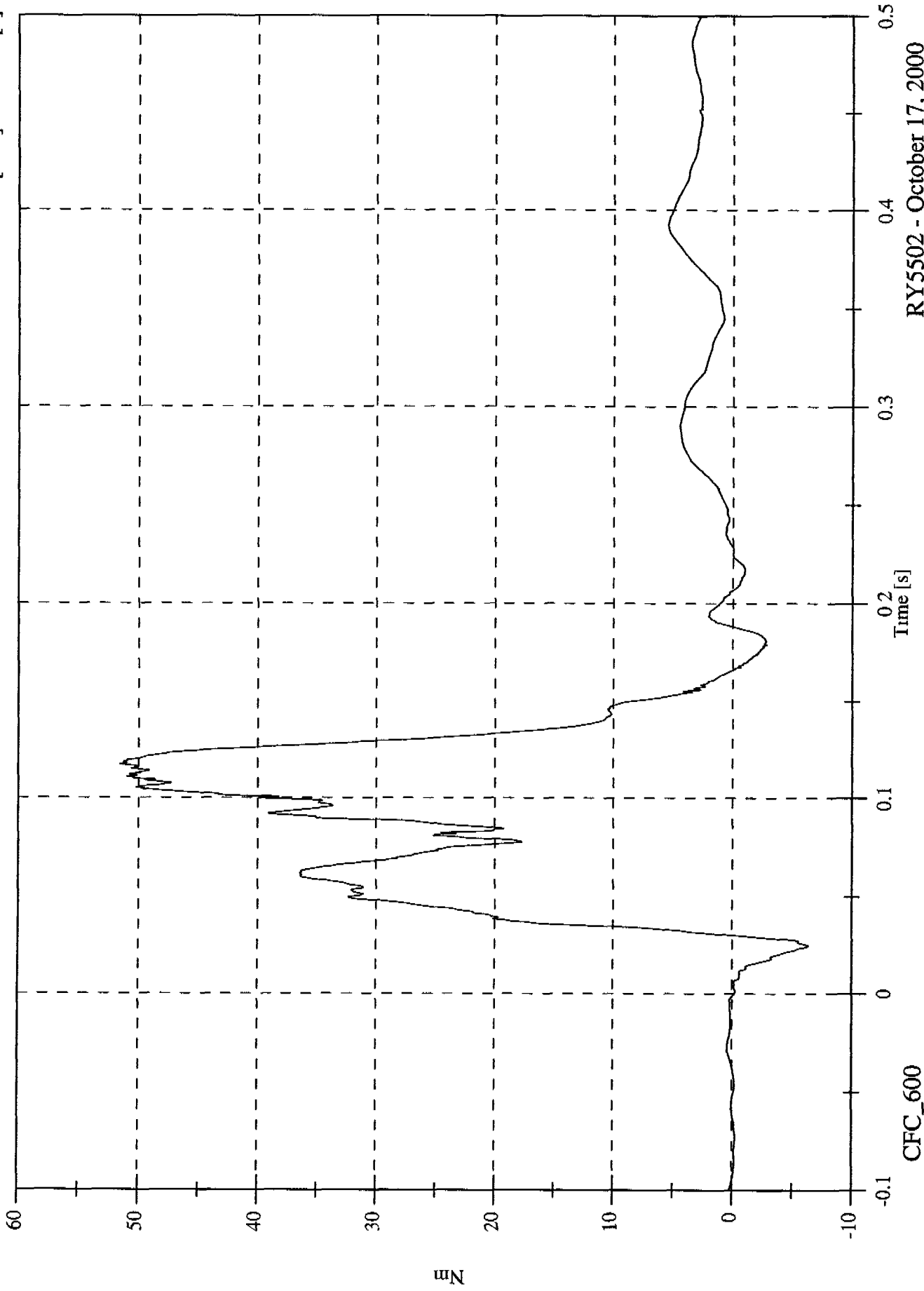


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 51.5 [Nm] at 0.117 [s]  
Min: -6.3 [Nm] at 0.025 [s]

P1 Left Lower Tibia Mx



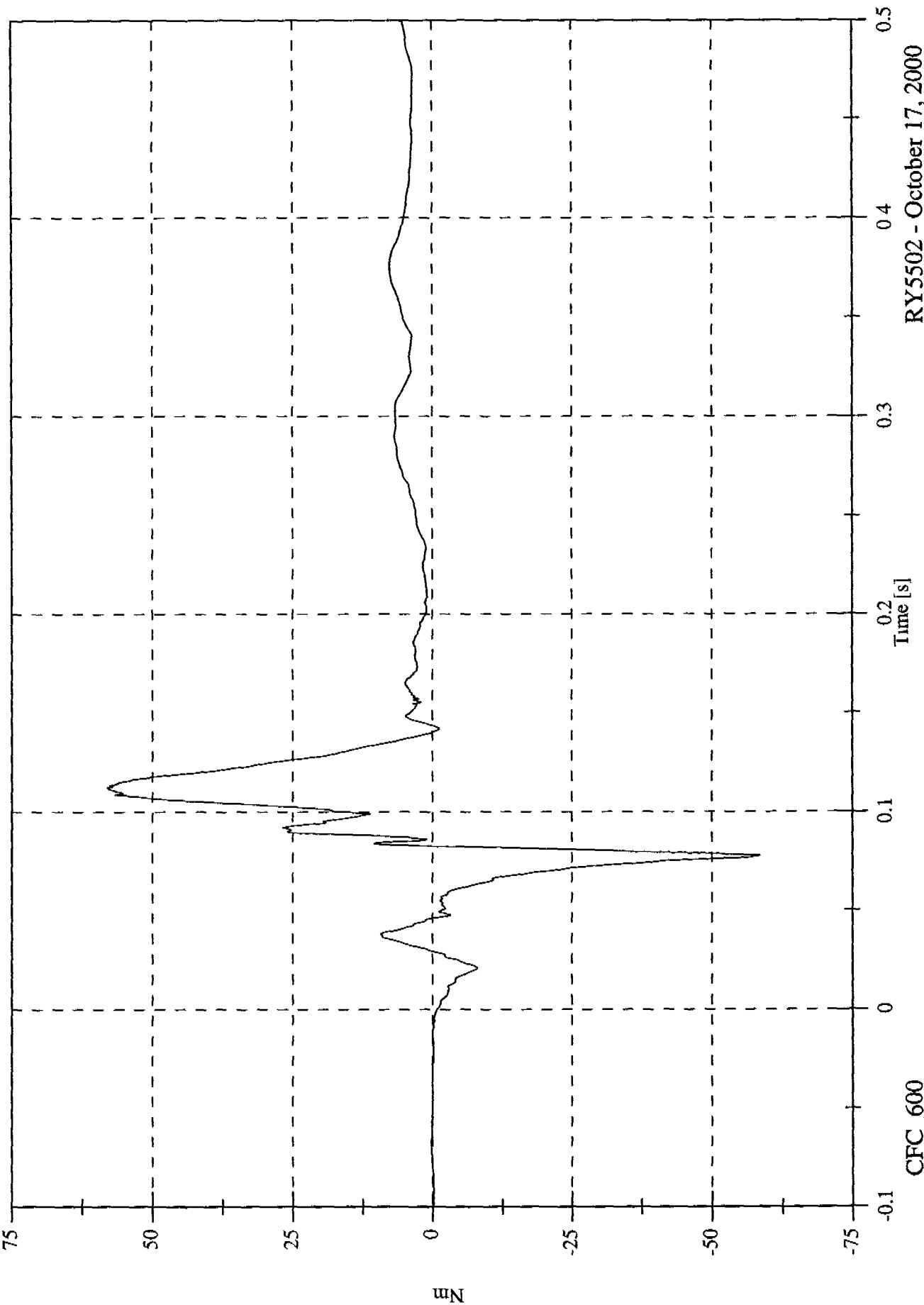
RYY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 58.1 [Nm] at 0.112 [s]

Min: -58.5 [Nm] at 0.078 [s]

P1 Left Lower Tibia My



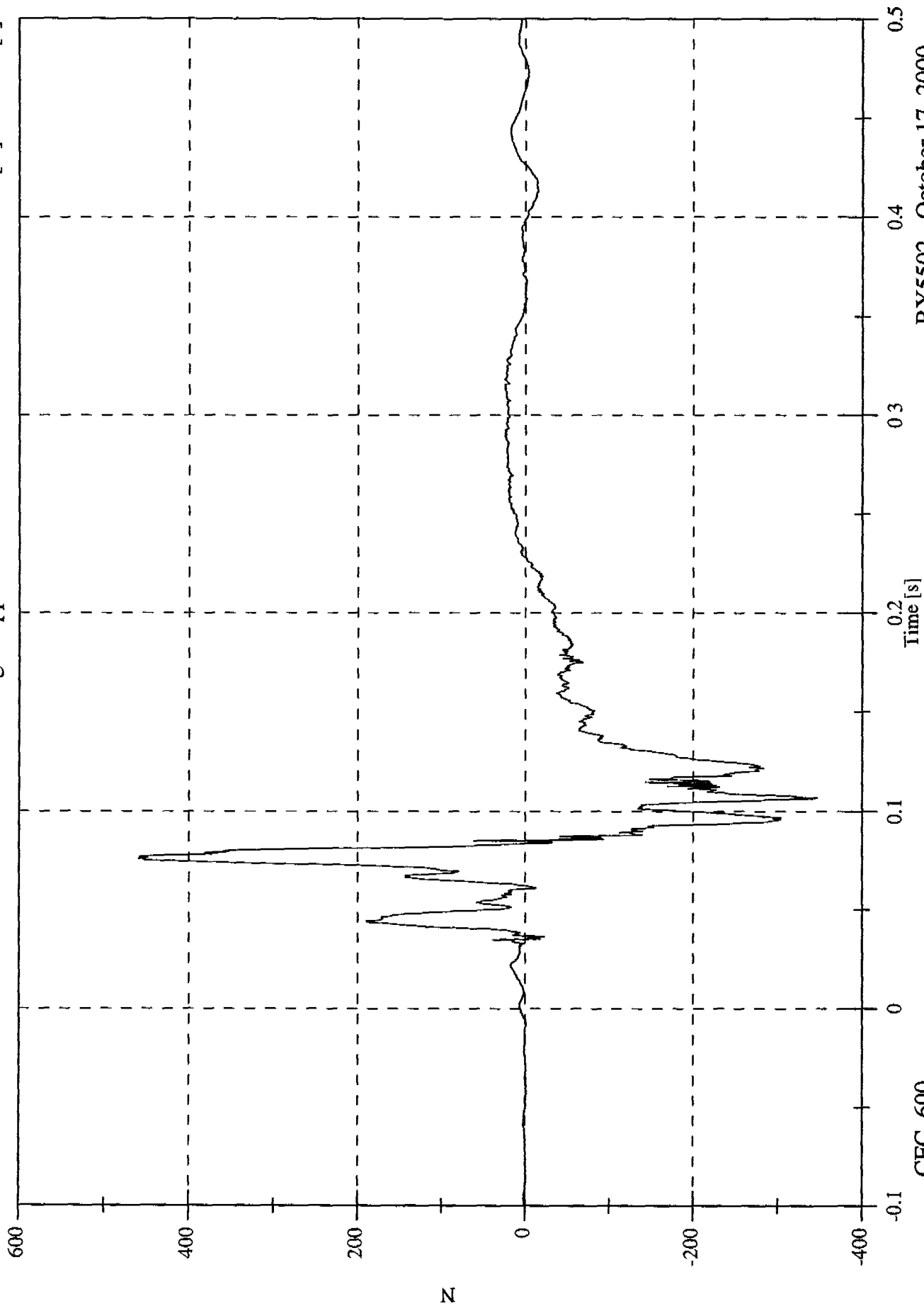
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 459.2 [N] at 0.076 [s]  
Min: -346.7 [N] at 0.107 [s]

P1 Right Upper Tibia Fx



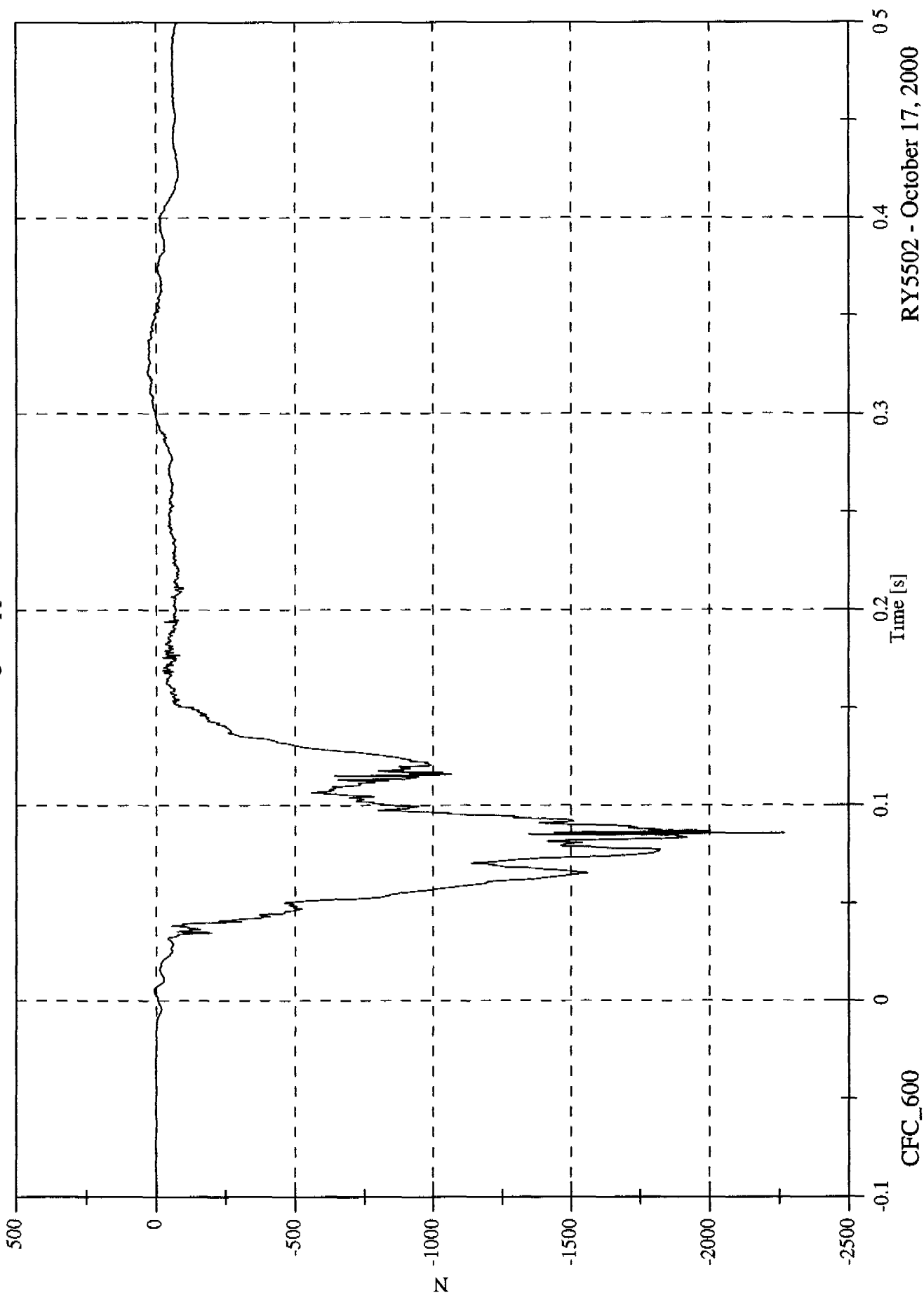
RYY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 32.5 [N] at 0.321 [s]

Min: -2268.9 [N] at 0.086 [s]

P1 Right Upper Tibia Fz



CFC\_600

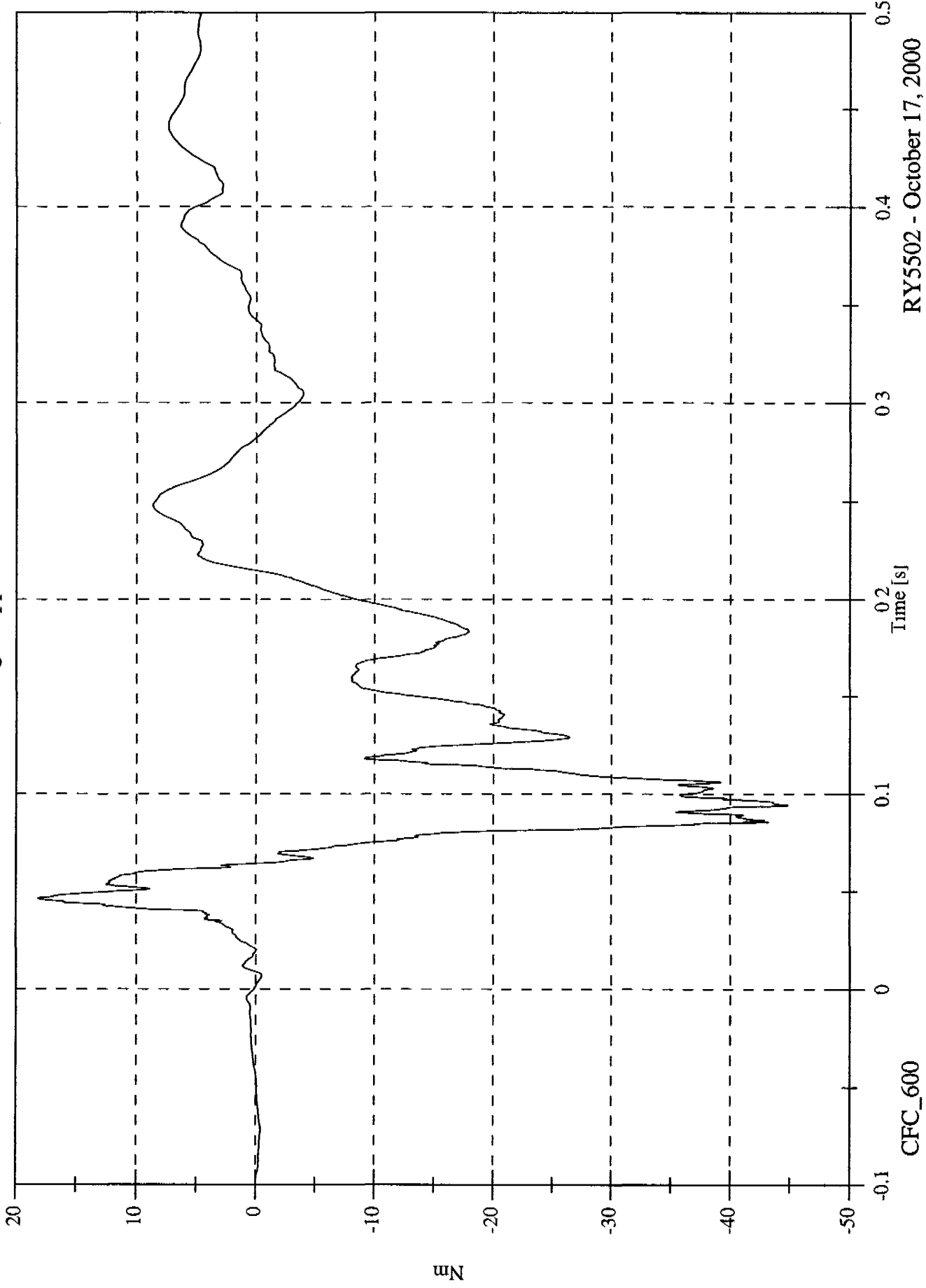
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P1 Right Upper Tibia Mx

Max: 18.2 [Nm] at 0.046 [s]  
Min: -44.9 [Nm] at 0.094 [s]

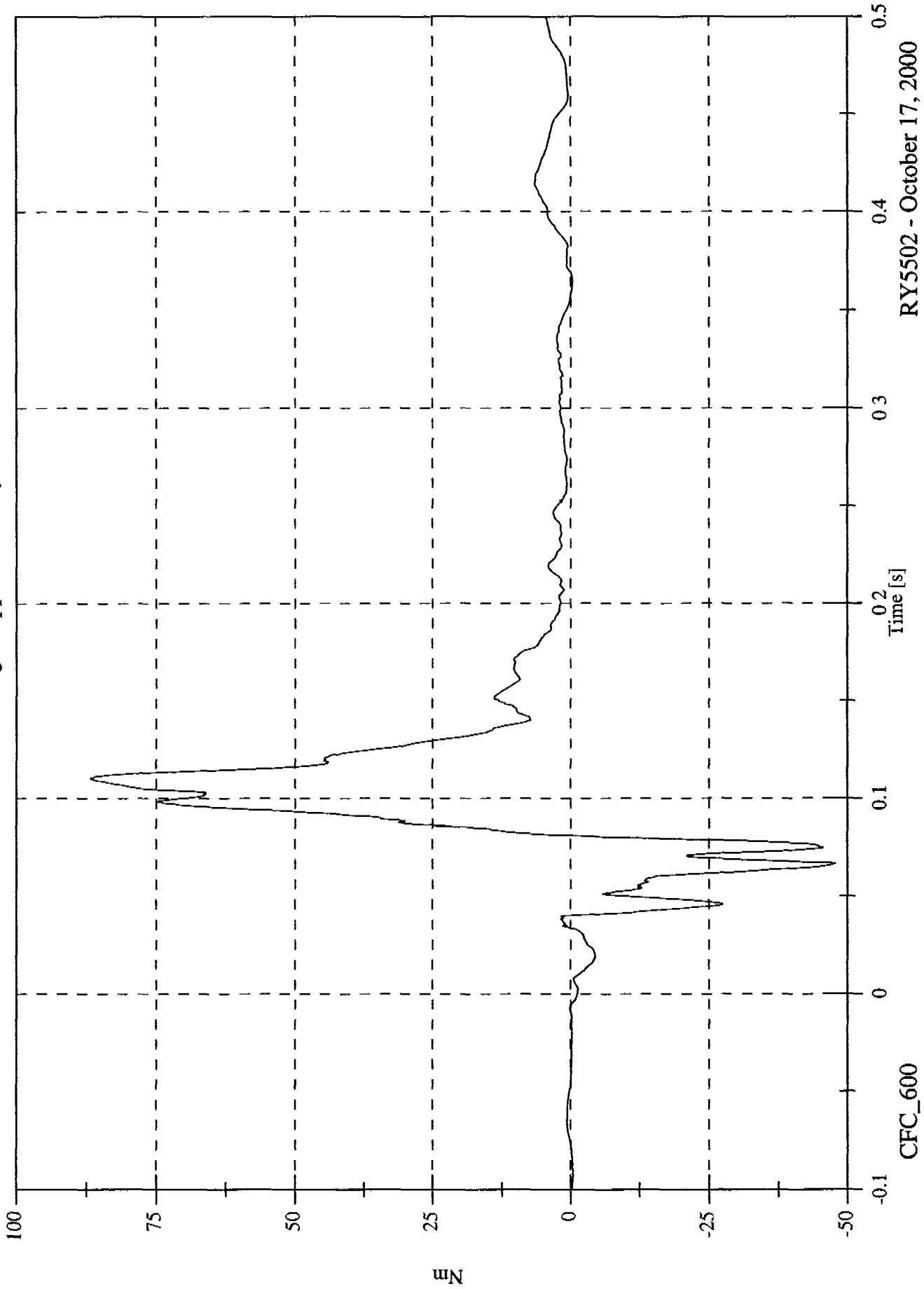


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 86.7 [Nm] at 0.110 [s]  
Min: -47.8 [Nm] at 0.067 [s]

P1 Right Upper Tibia My



CFC\_600

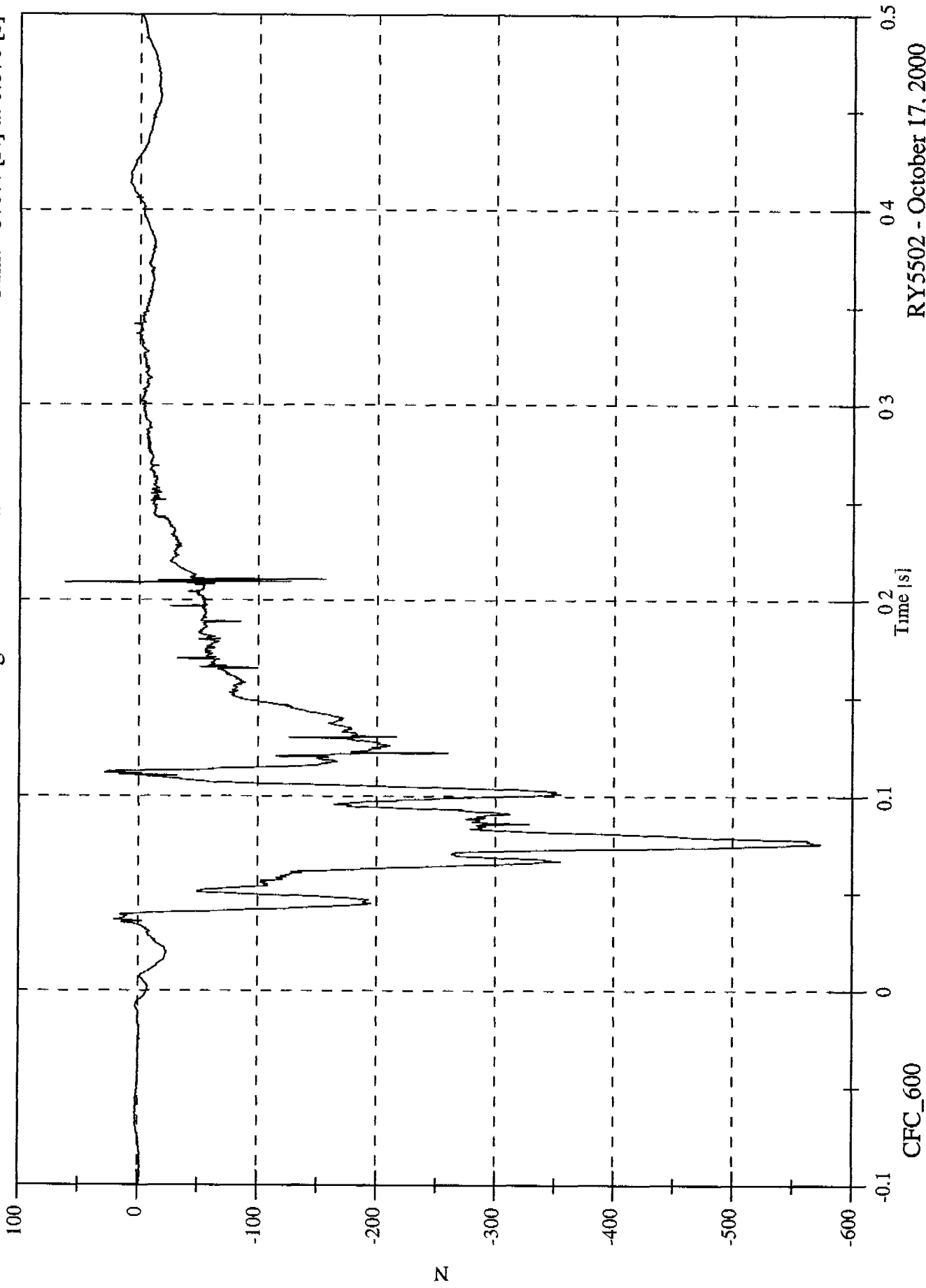
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 61.8 [N] at 0.209 [s]  
Min: -573.4 [N] at 0.076 [s]

P1 Right Lower Tibia Fx



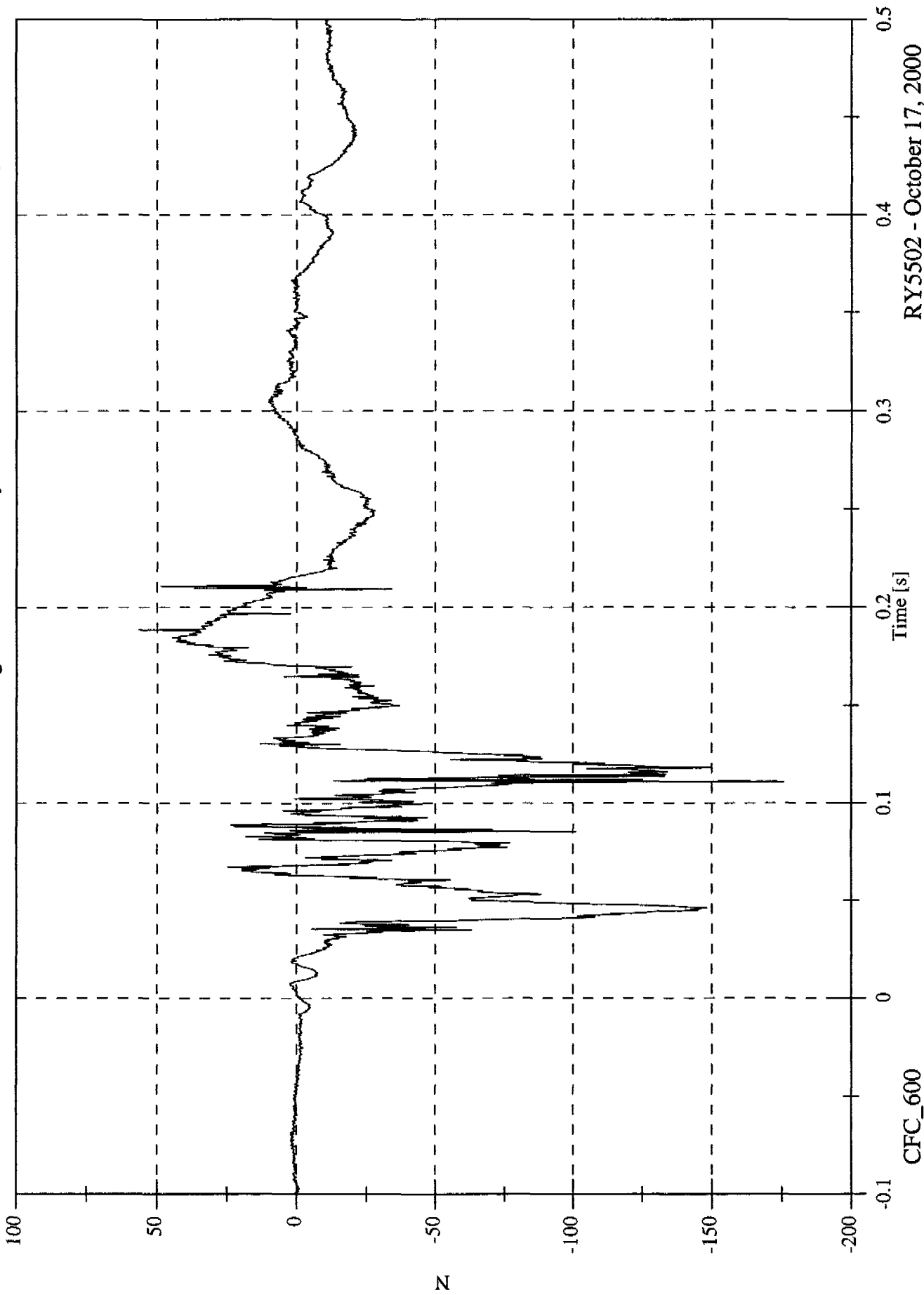
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 56.5 [N] at 0.189 [s]

Min: -175.8 [N] at 0.111 [s]

P1 Right Lower Tibia Fy



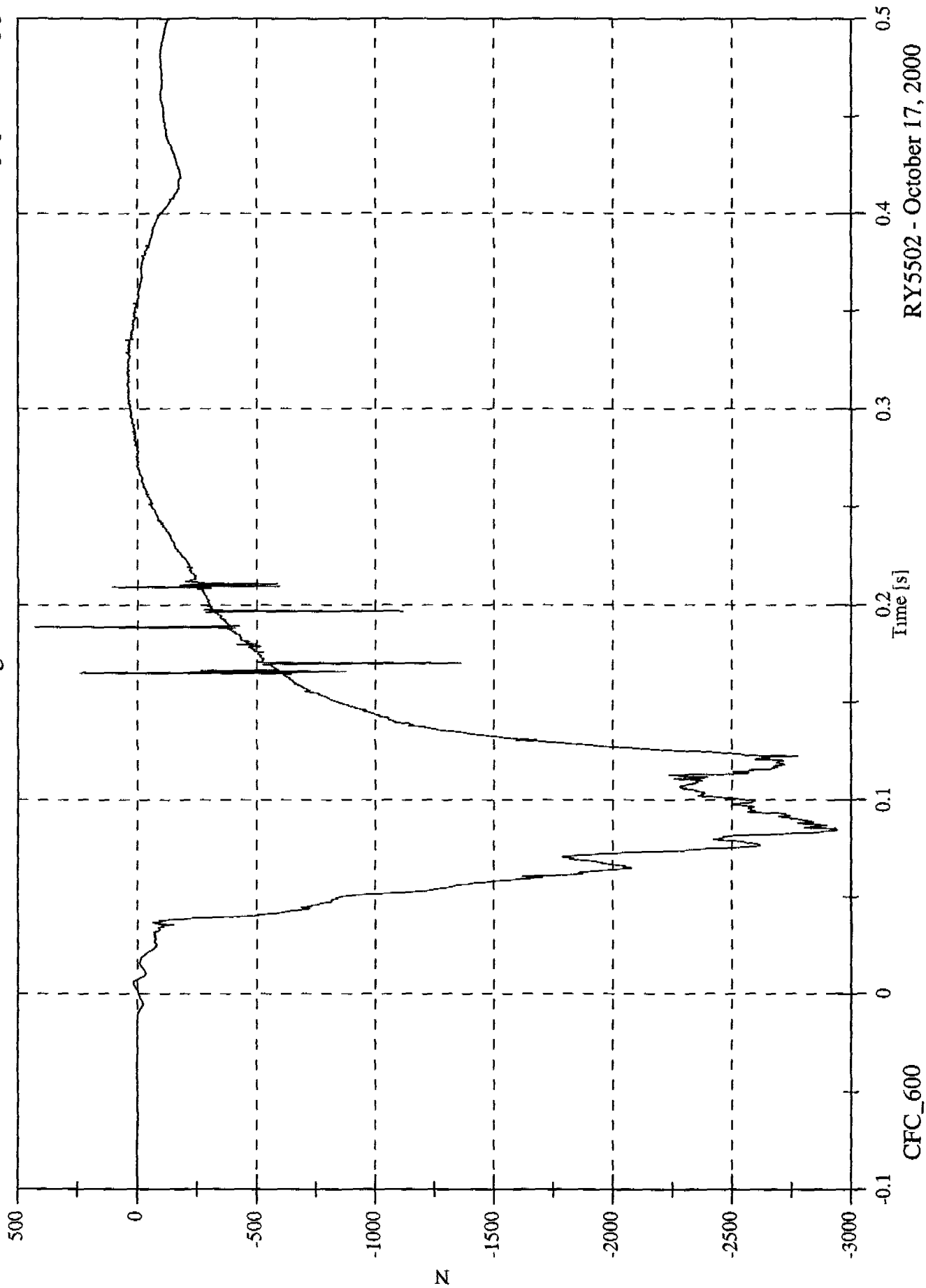
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 429.3 [N] at 0.189 [s]  
Min: -2942.8 [N] at 0.085 [s]

P1 Right Lower Tibia Fz



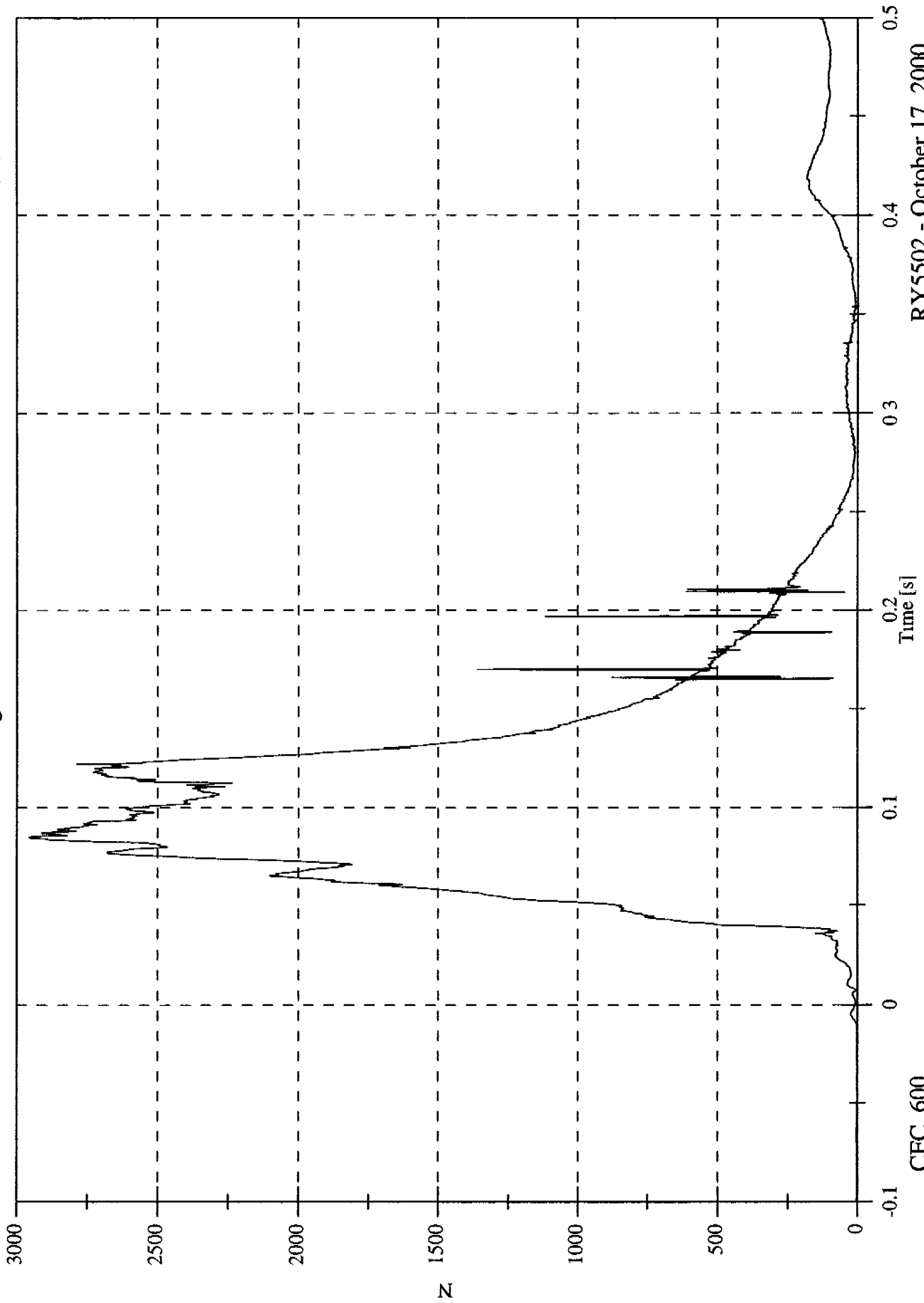
R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2957.0 [N] at 0.085 [s]

Min: 0.3 [N] at -0.047 [s]

P1 Right Lower Tibia F Resultant



CFC\_600

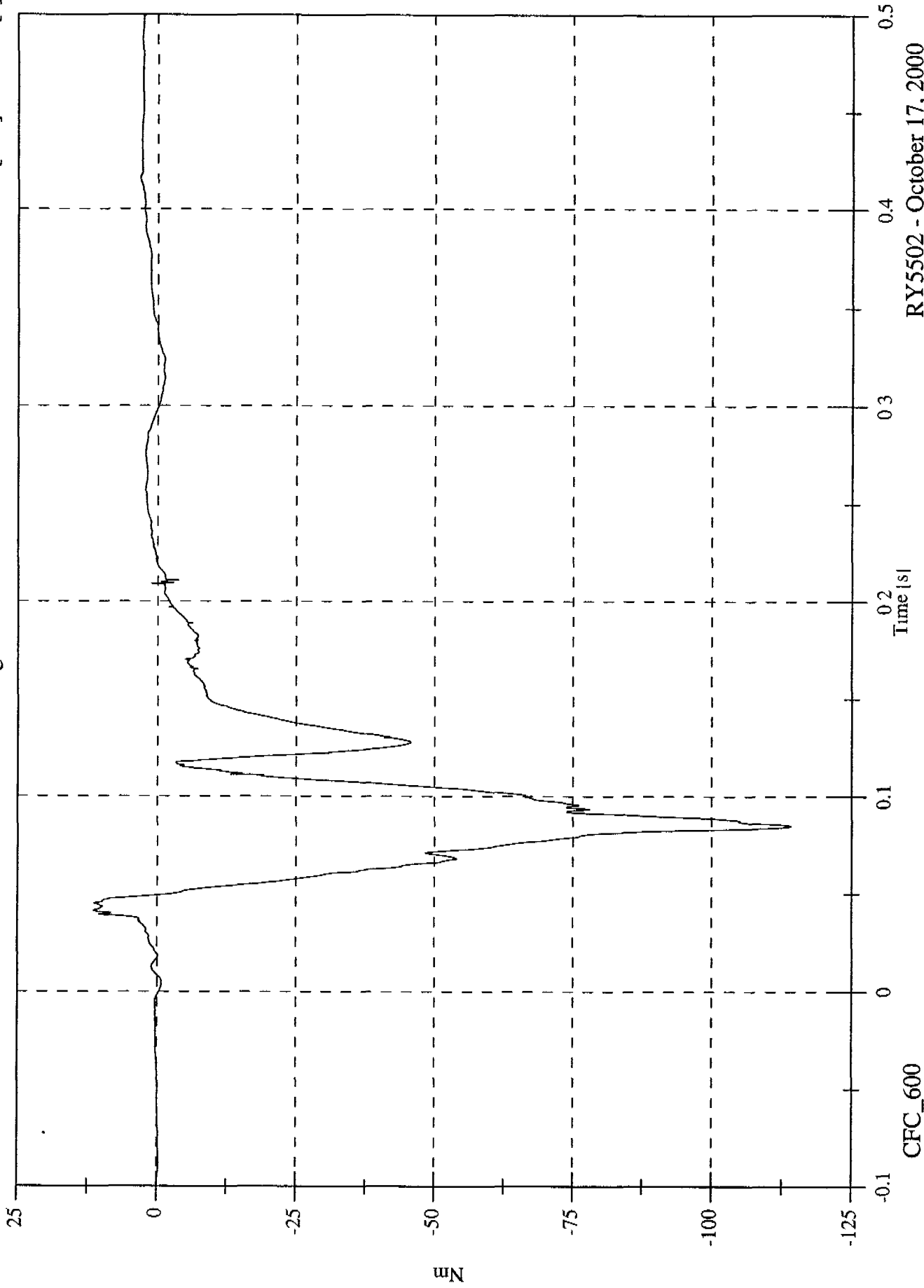
Time [s]

RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 11.4 [Nm] at 0.041 [s]  
Min: -114.1 [Nm] at 0.085 [s]

P1 Right Lower Tibia Mx

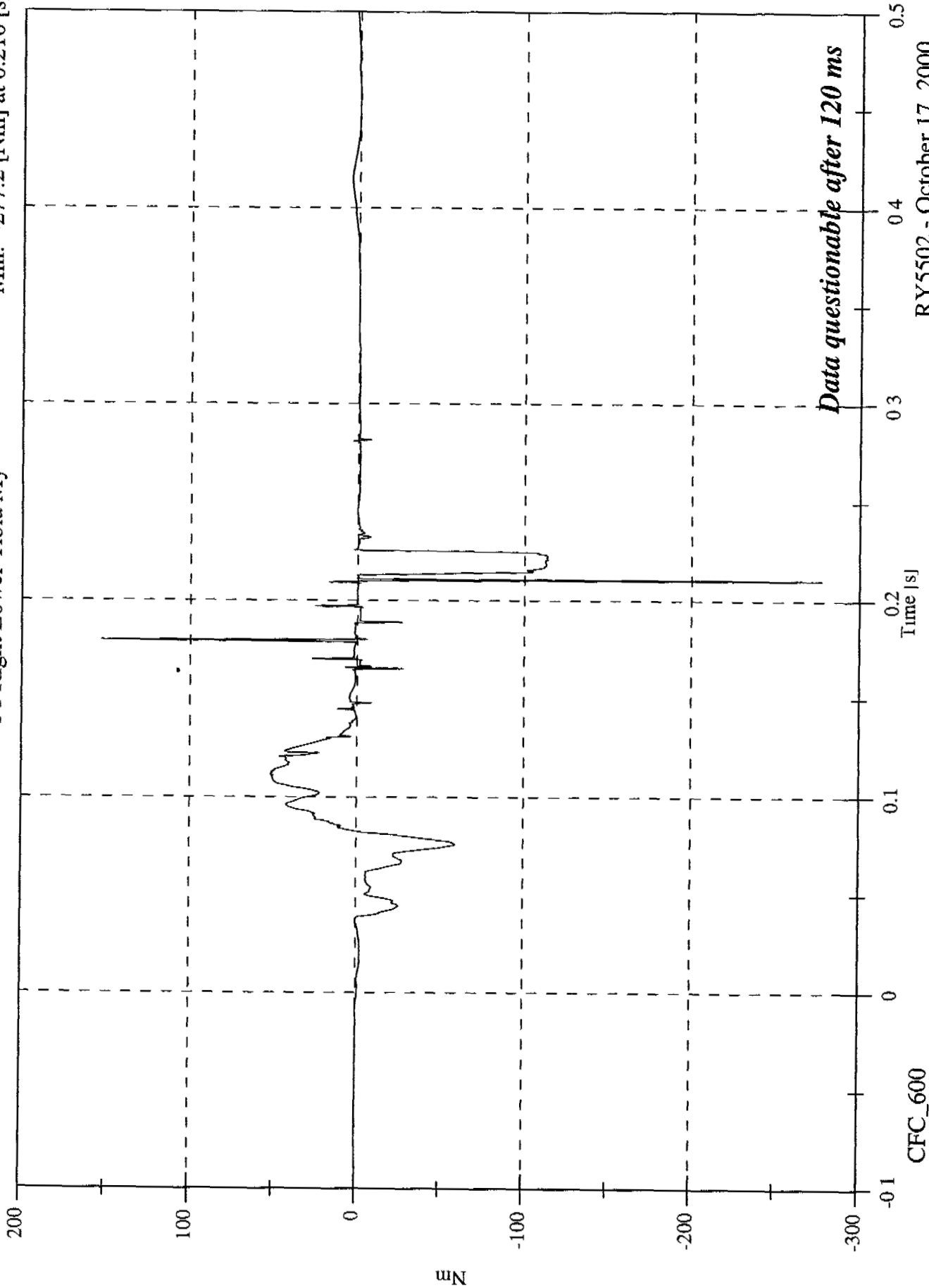


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 152.5 [Nm] at 0.179 [s]  
Min: -277.2 [Nm] at 0.210 [s]

P1 Right Lower Tibia My

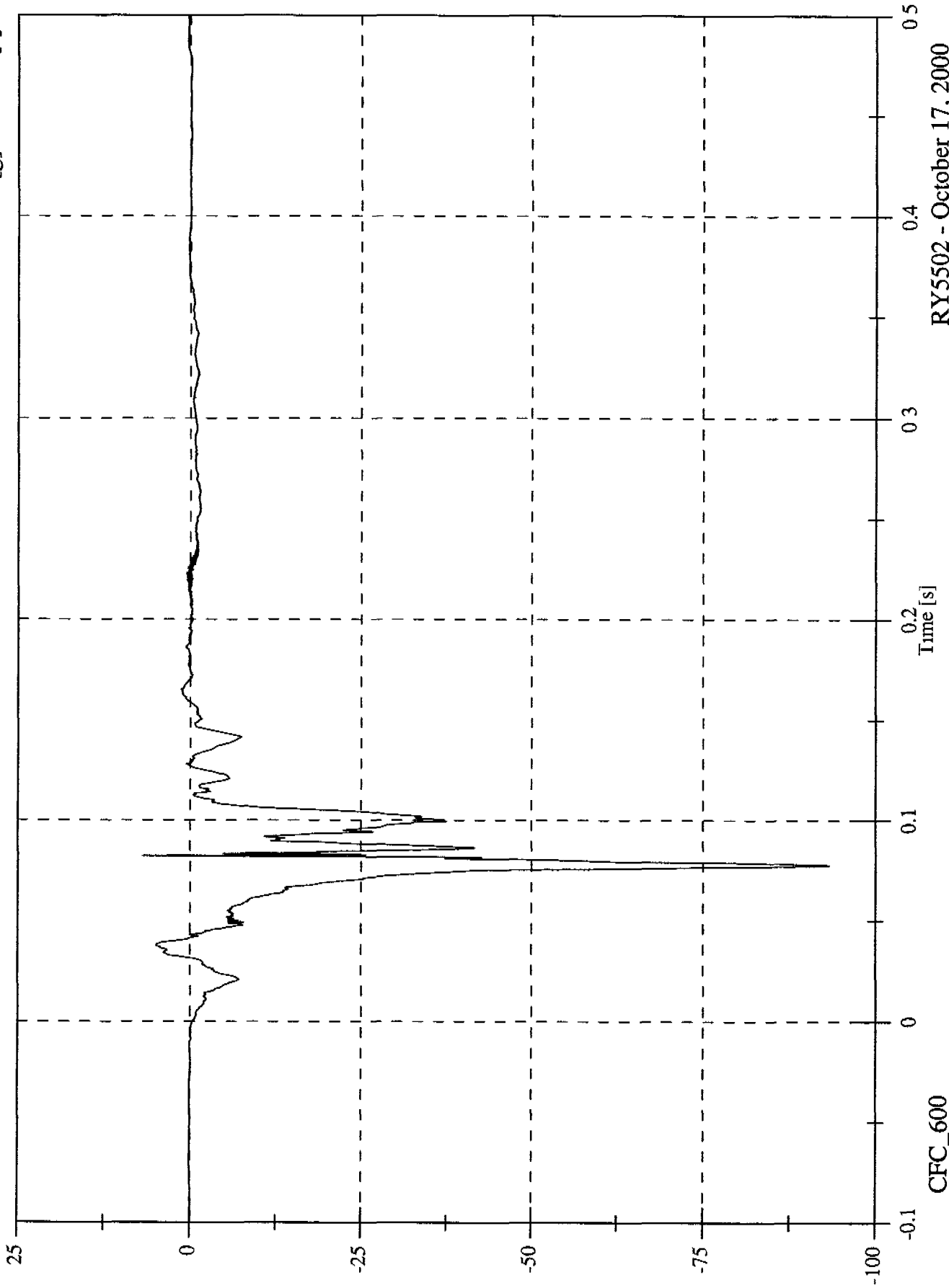


R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 6.9 [g] at 0.082 [s]  
Min: -93.3 [g] at 0.077 [s]

P1 Left Tibia Ax

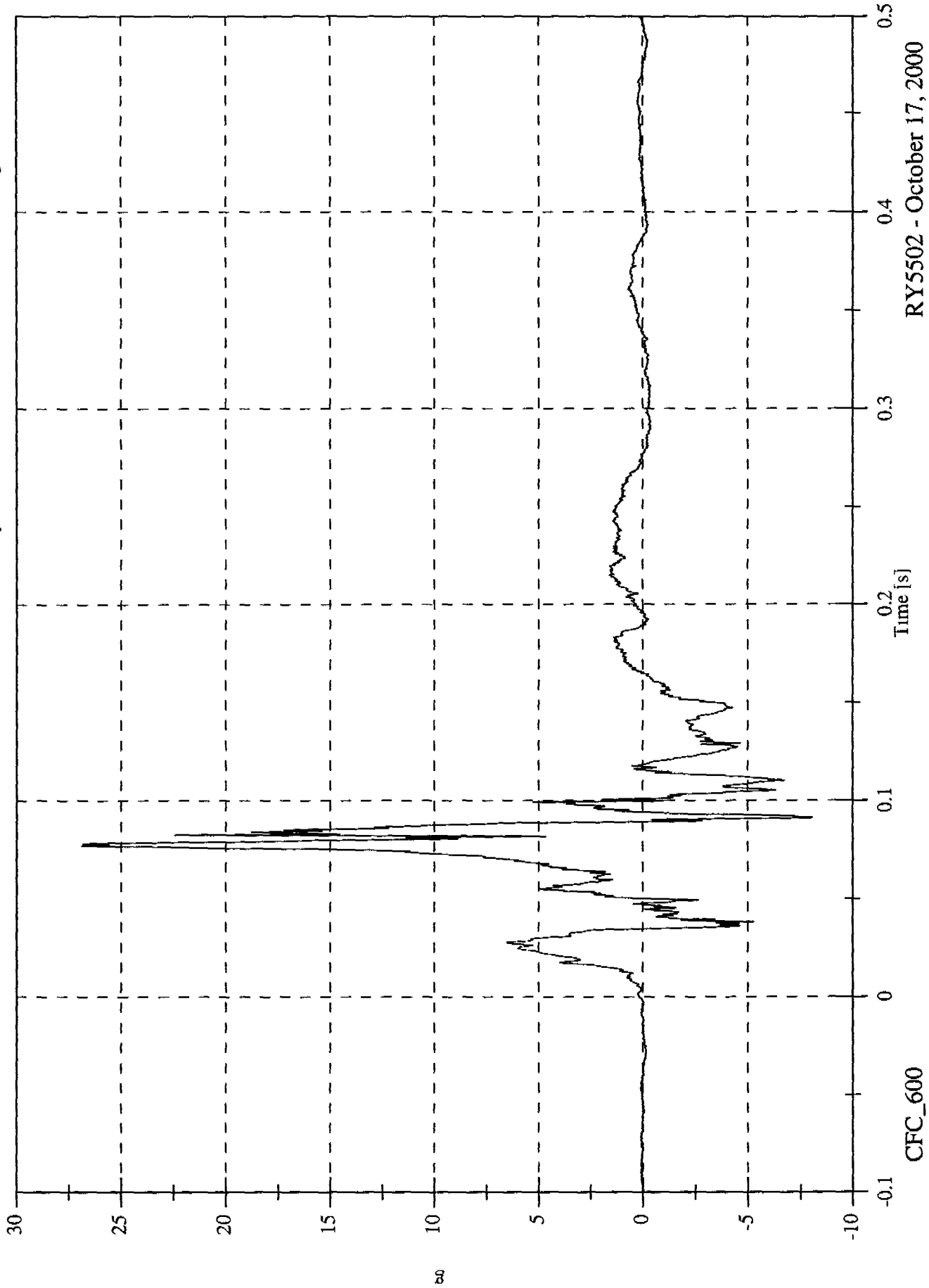


R Y 5 5 0 2 - O c t o b e r 1 7 , 2 0 0 0

2000 Subaru Legacy 40% Offset Impact

Max: 26.9 [g] at 0.077 [s]  
Min: -8.1 [g] at 0.091 [s]

P1 Left Tibia Ay

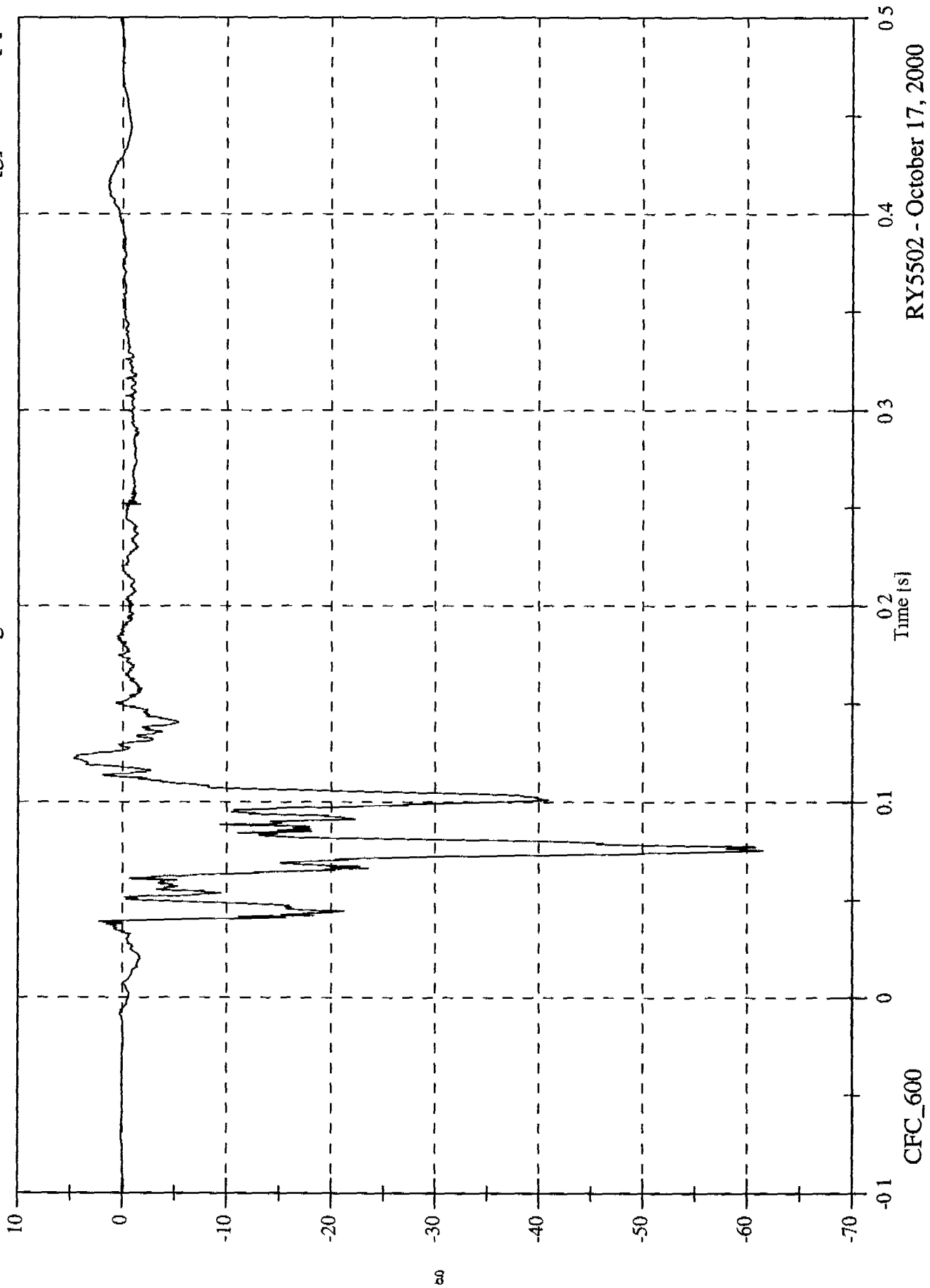


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 4.7 [g] at 0.122 [s]  
Min: -61.5 [g] at 0.075 [s]

P1 Right Tibia Ax



RY5502 - October 17, 2000

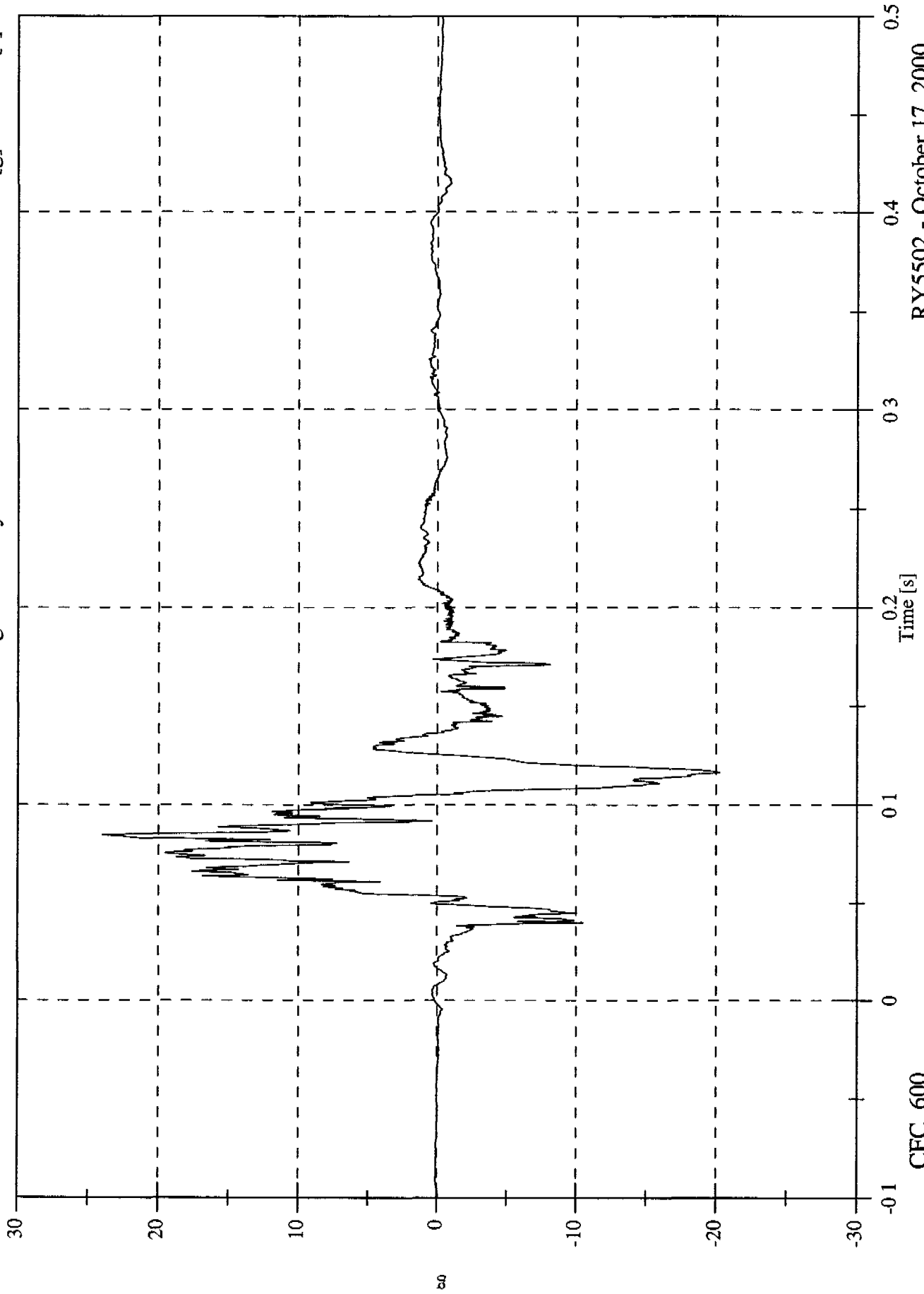
CFC\_600

2000 Subaru Legacy 40% Offset Impact

Max: 24.0 [g] at 0.084 [s]

Min: -20.3 [g] at 0.116 [s]

P1 Right Tibia Ay



CFC\_600

Time [s]

0.3

0.4

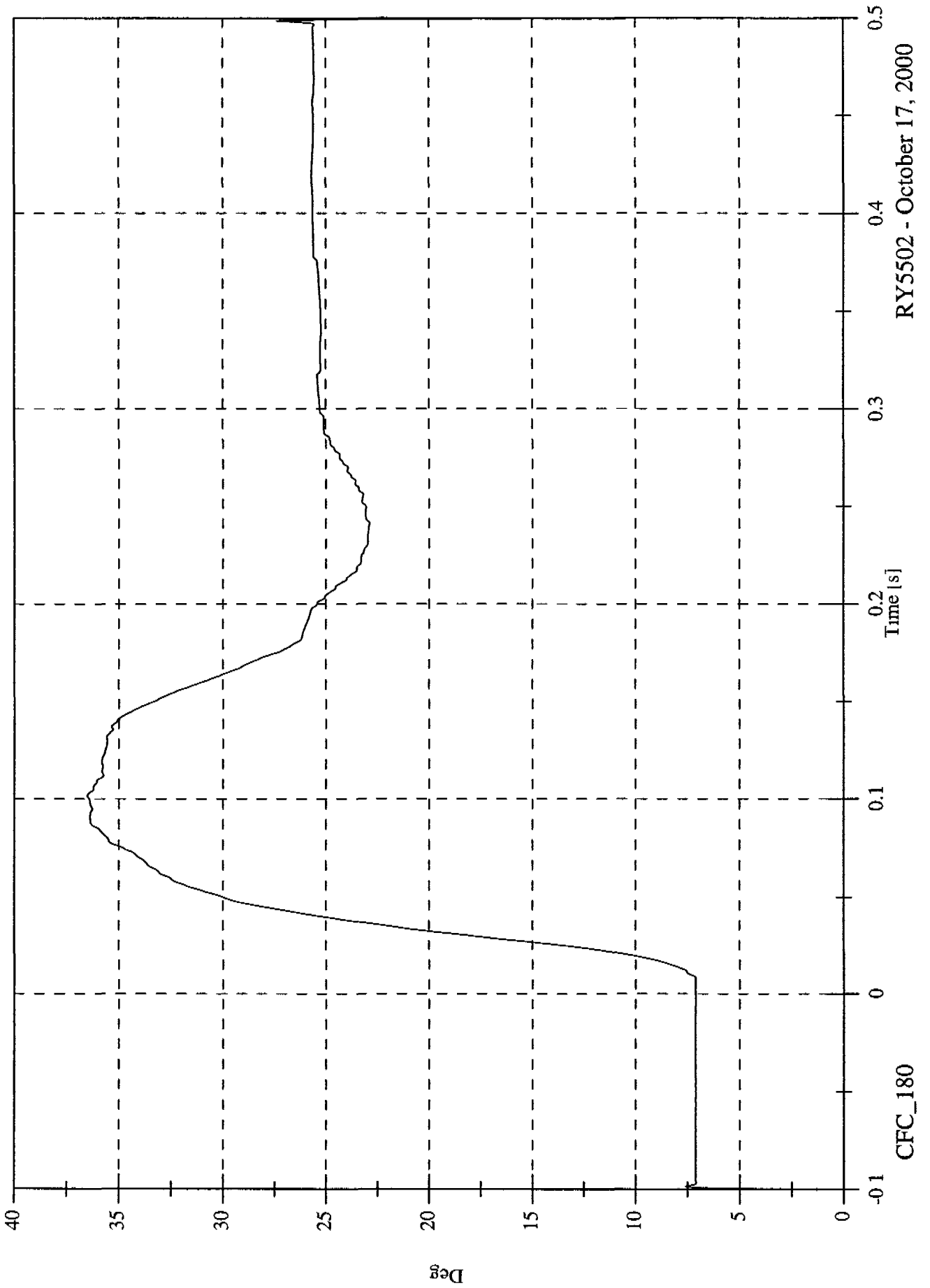
0.5

R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 36.5 [Deg] at 0.102 [s]  
Min: 0.3 [Deg] at -0.100 [s]

P1 Left Ankle Rotation x

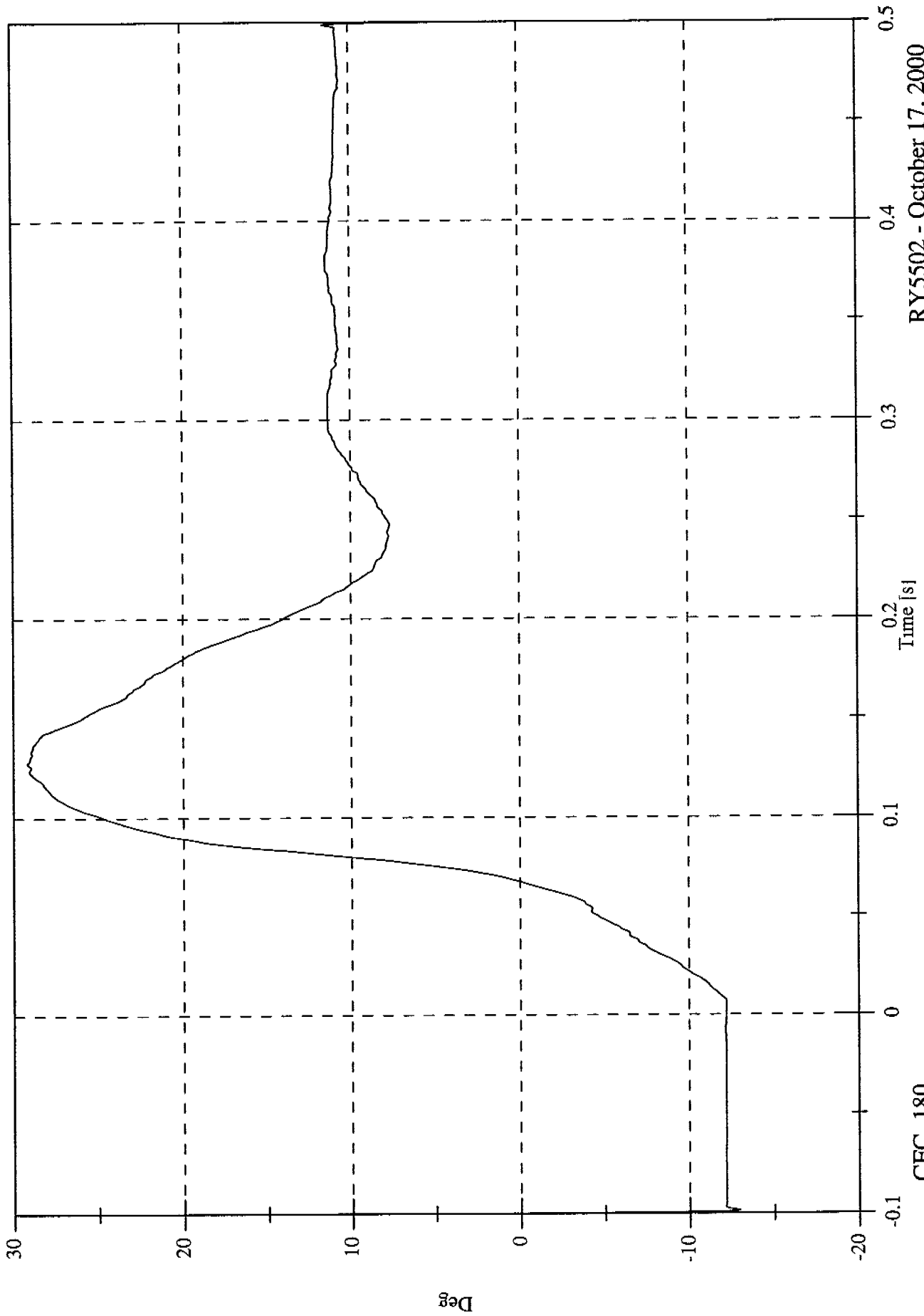


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 29.2 [Deg] at 0.128 [s]  
Min: -13.0 [Deg] at -0.099 [s]

P1 Left Ankle Rotation y



CFC\_180

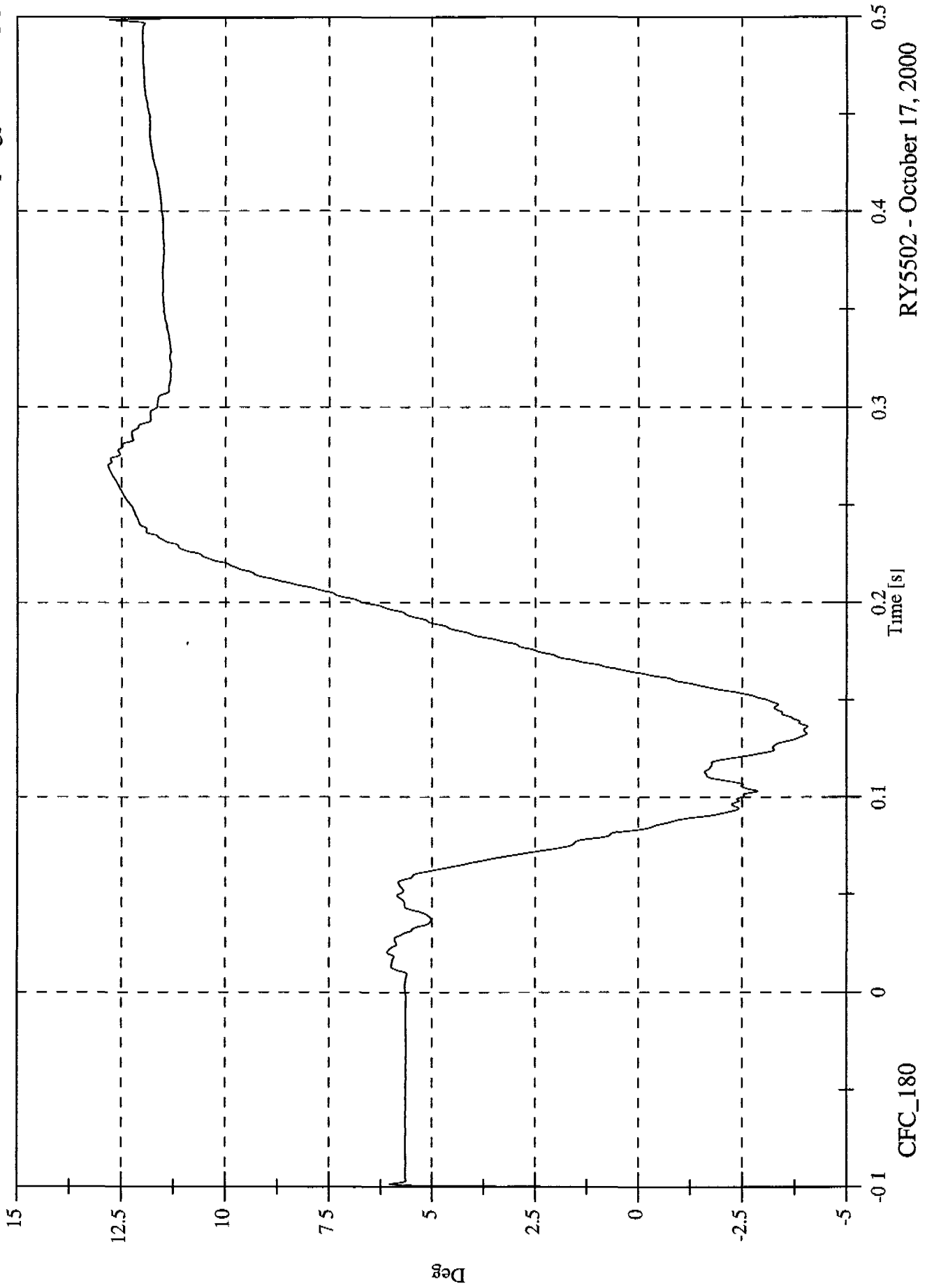
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 12.8 [Deg] at 0.270 [s]  
Min: -4.1 [Deg] at 0.136 [s]

P1 Left Ankle Rotation z

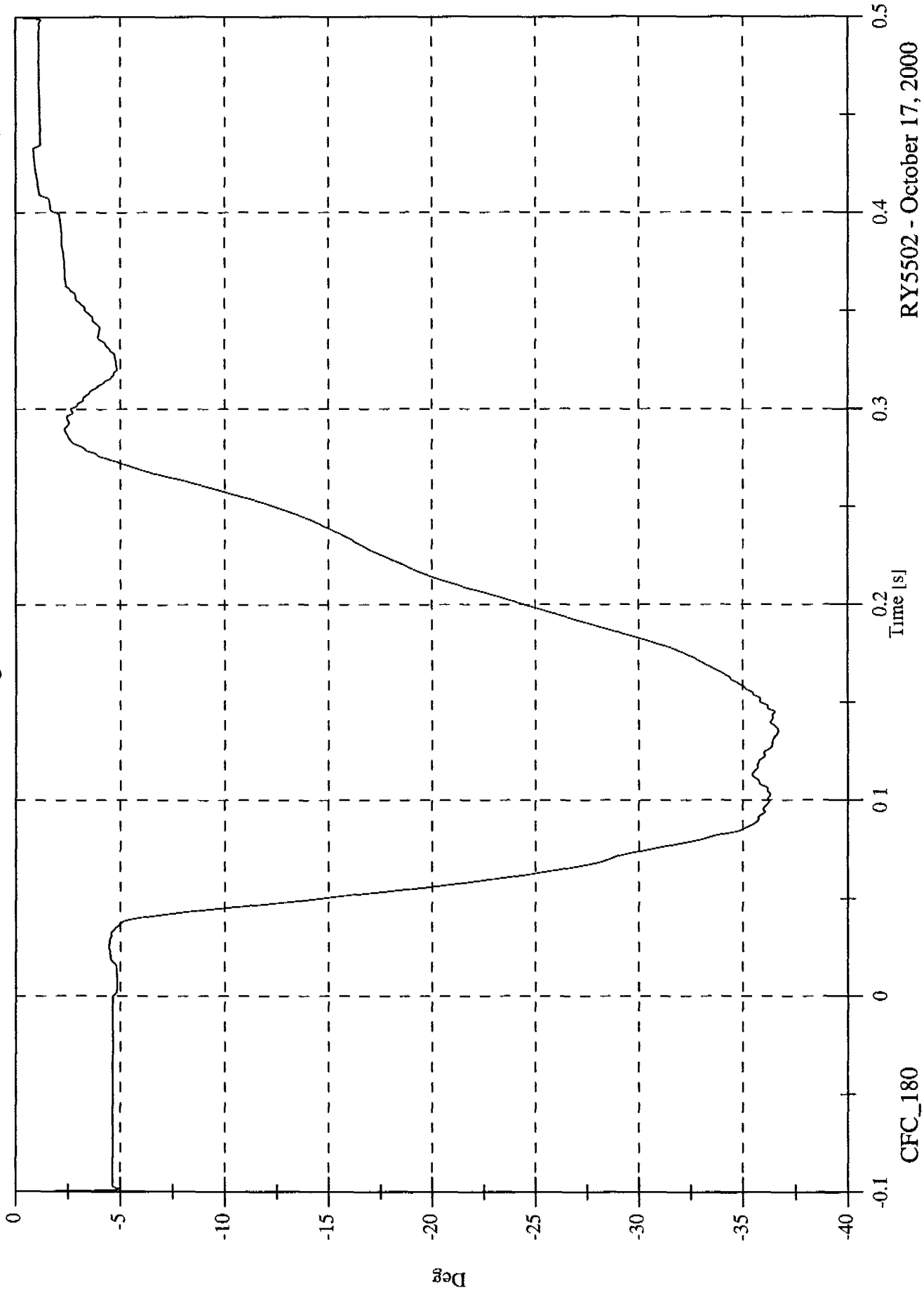


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: -0.0 [Deg] at 0.500 [s]  
Min: -36.7 [Deg] at 0.135 [s]

P1 Right Ankle Rotation x



CFC\_180

Time [s]

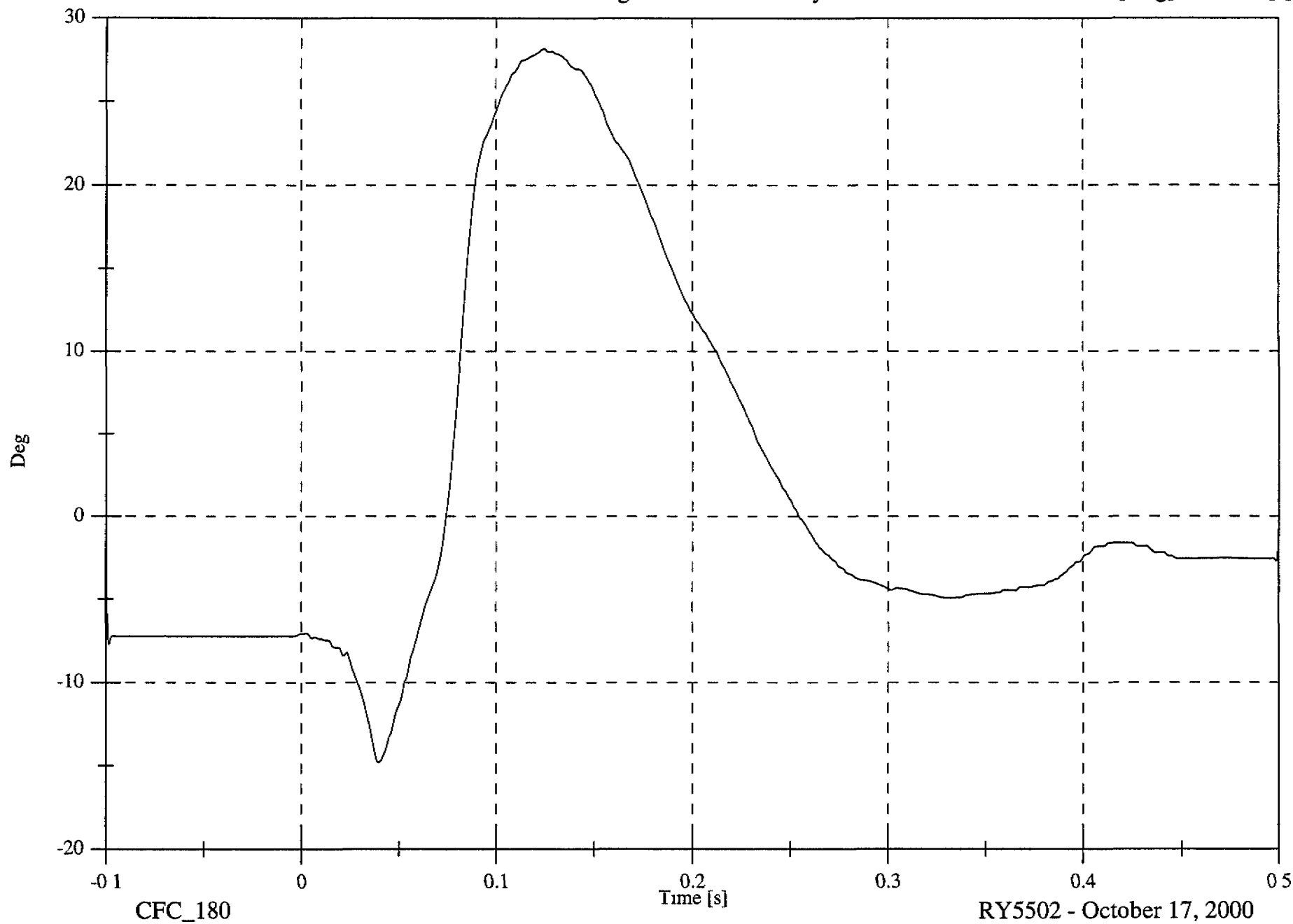
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P1 Right Ankle Rotation y

Max: 28.2 [Deg] at 0.125 [s]

Min: -14.8 [Deg] at 0.040 [s]



B-84

8413-57

CFC\_180

Time [s]

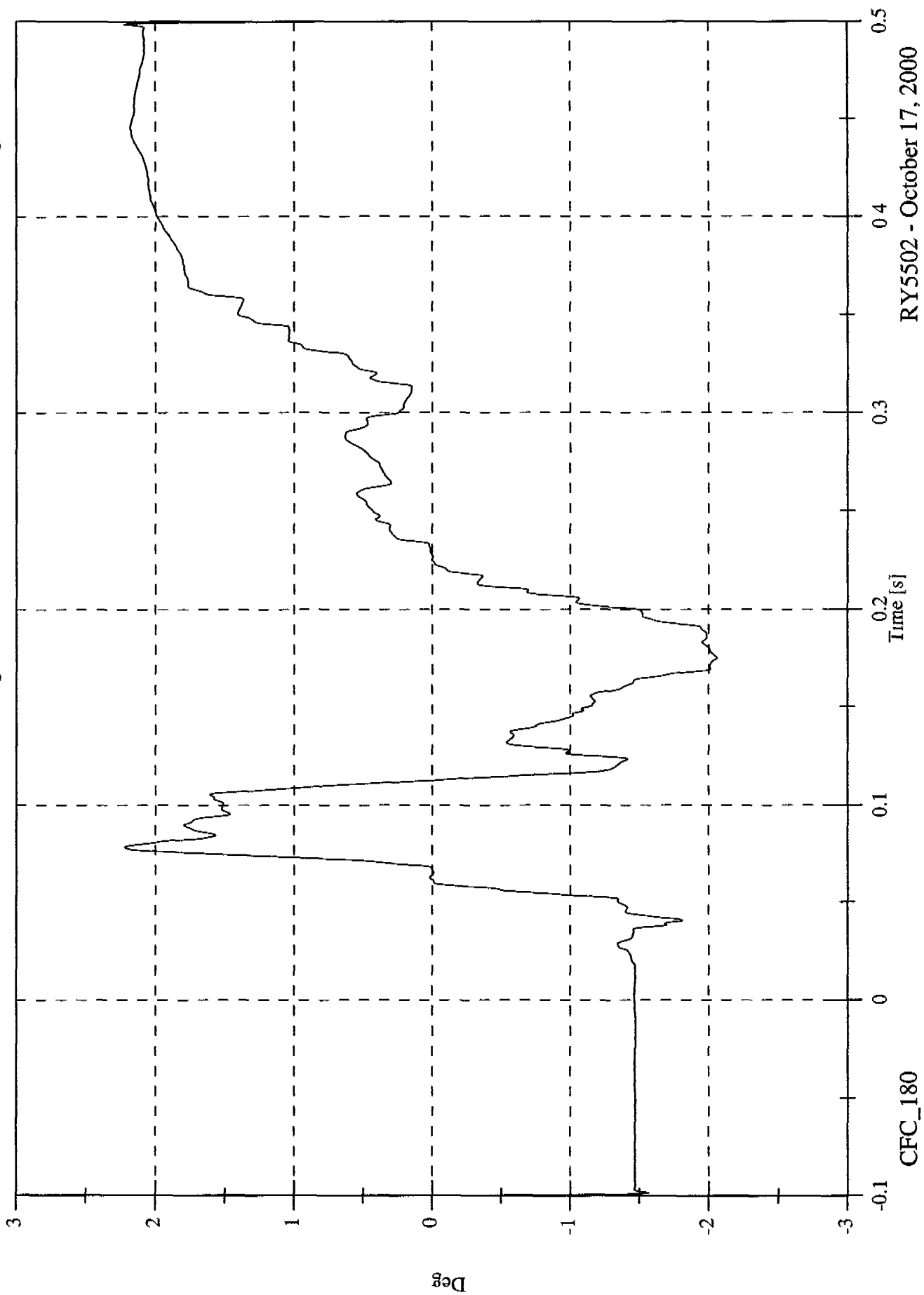
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2.2 [Deg] at 0.499 [s]

Min: -2.1 [Deg] at 0.175 [s]

P1 Right Ankle Rotation z

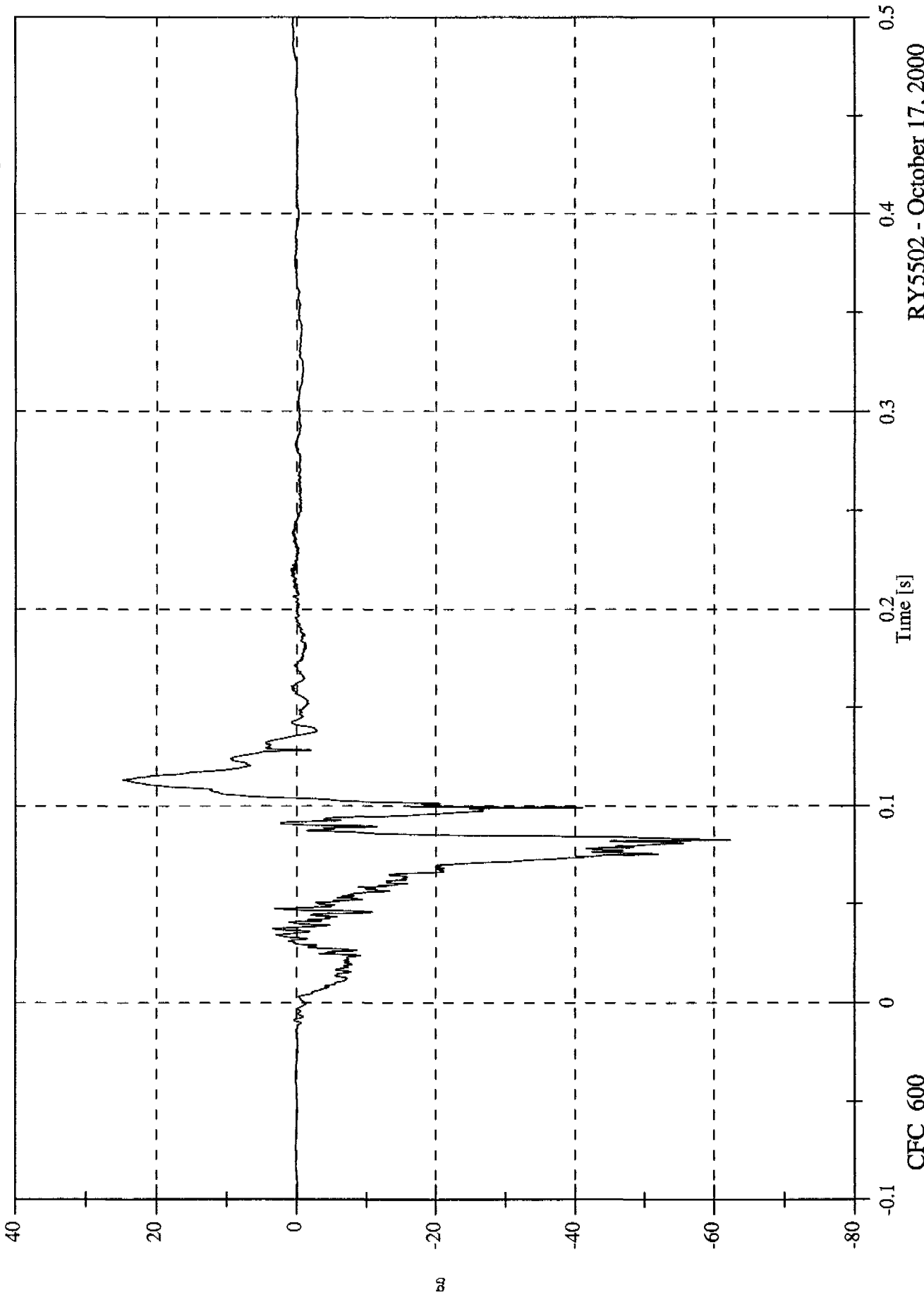


RX5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P1 Left Foot Ax

Max: 24.8 [g] at 0.113 [s]  
Min: -62.3 [g] at 0.083 [s]



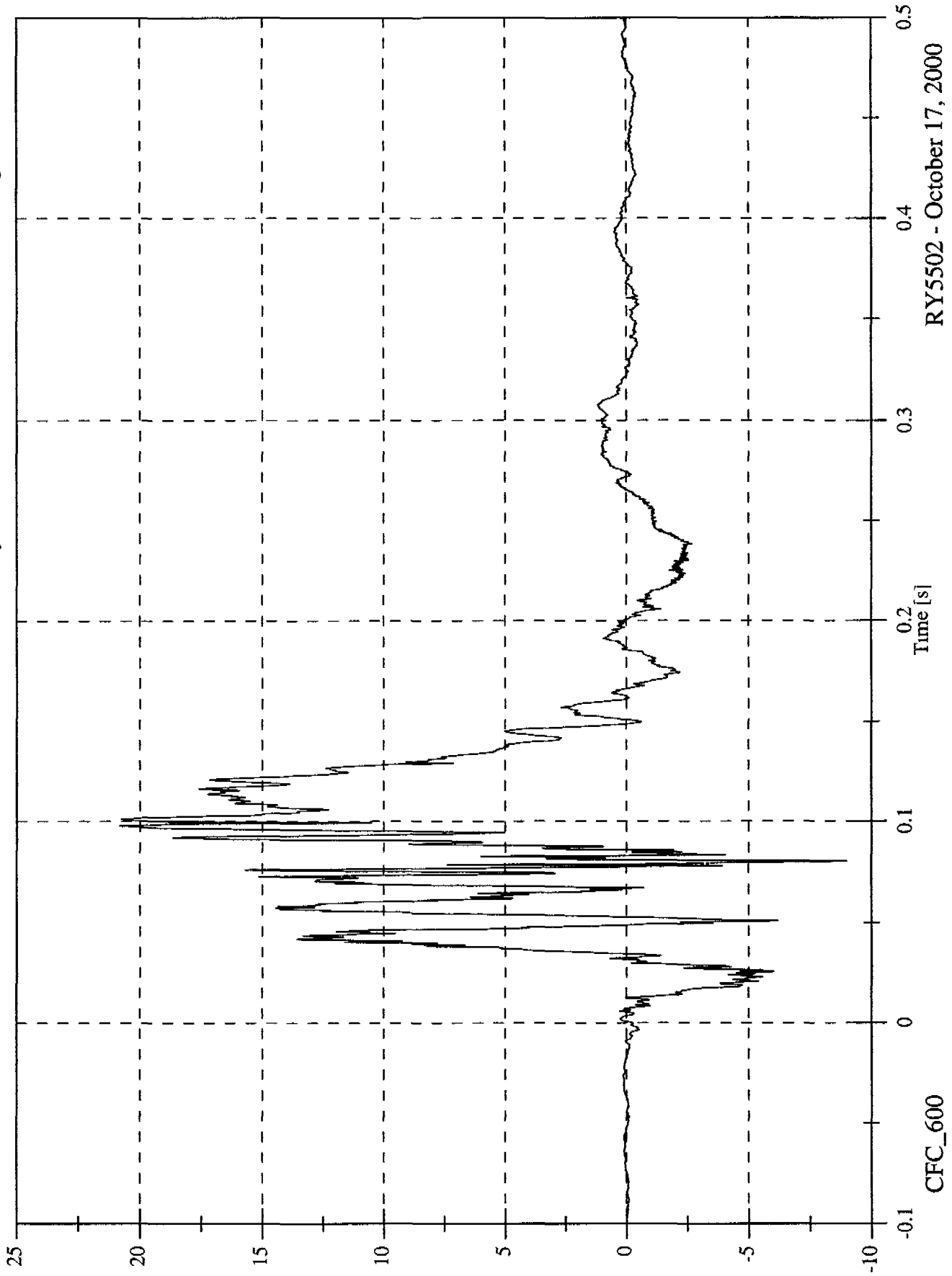
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 20.8 [g] at 0.098 [s]

Min: -9.0 [g] at 0.080 [s]

P1 Left Foot Ay

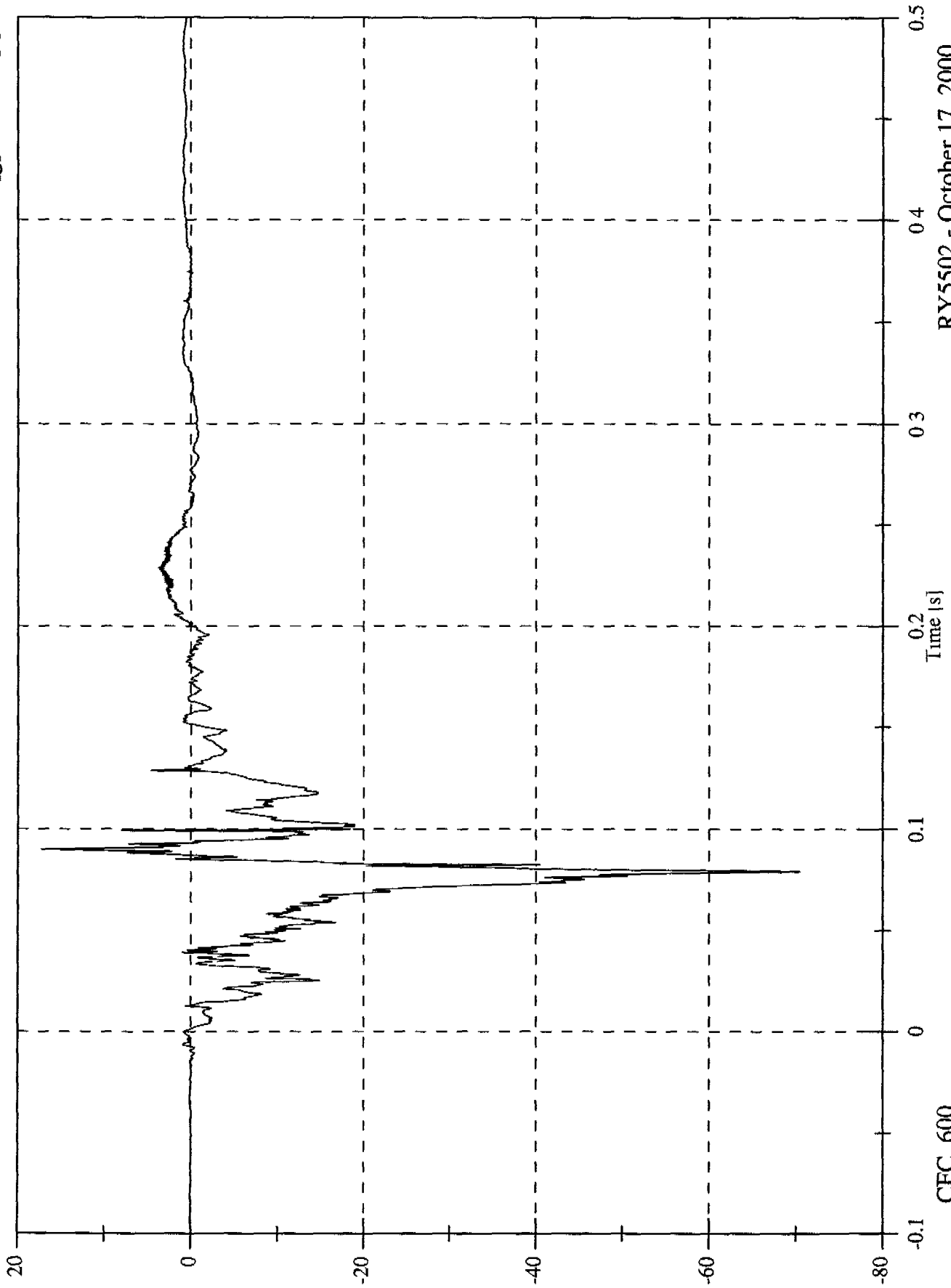


R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 17.3 [g] at 0.090 [s]  
Min: -70.4 [g] at 0.079 [s]

P1 Left Foot Az



CFC\_600

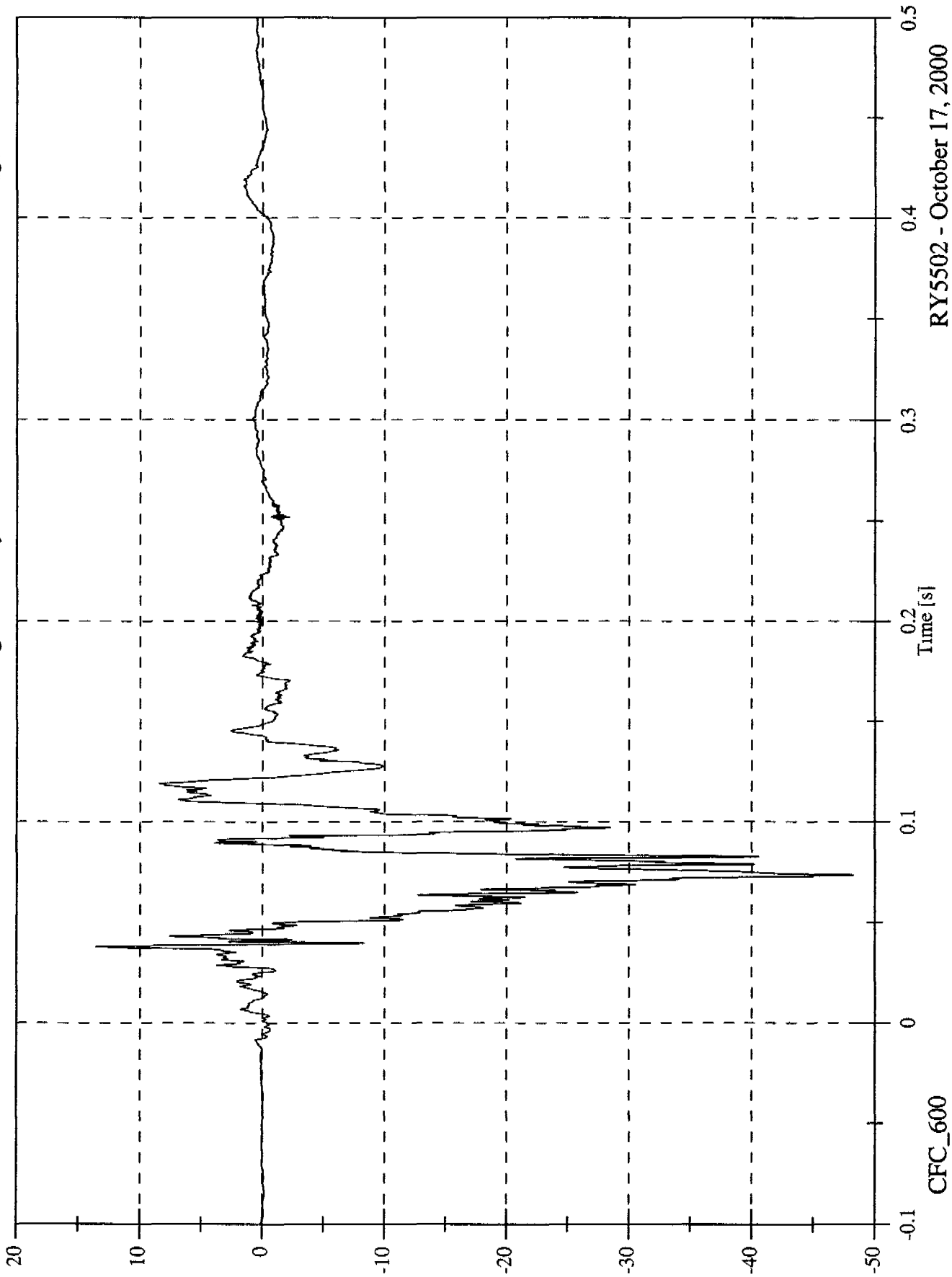
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 13.5 [g] at 0.038 [s]

Min: -48.2 [g] at 0.073 [s]

P1 Right Foot Ay



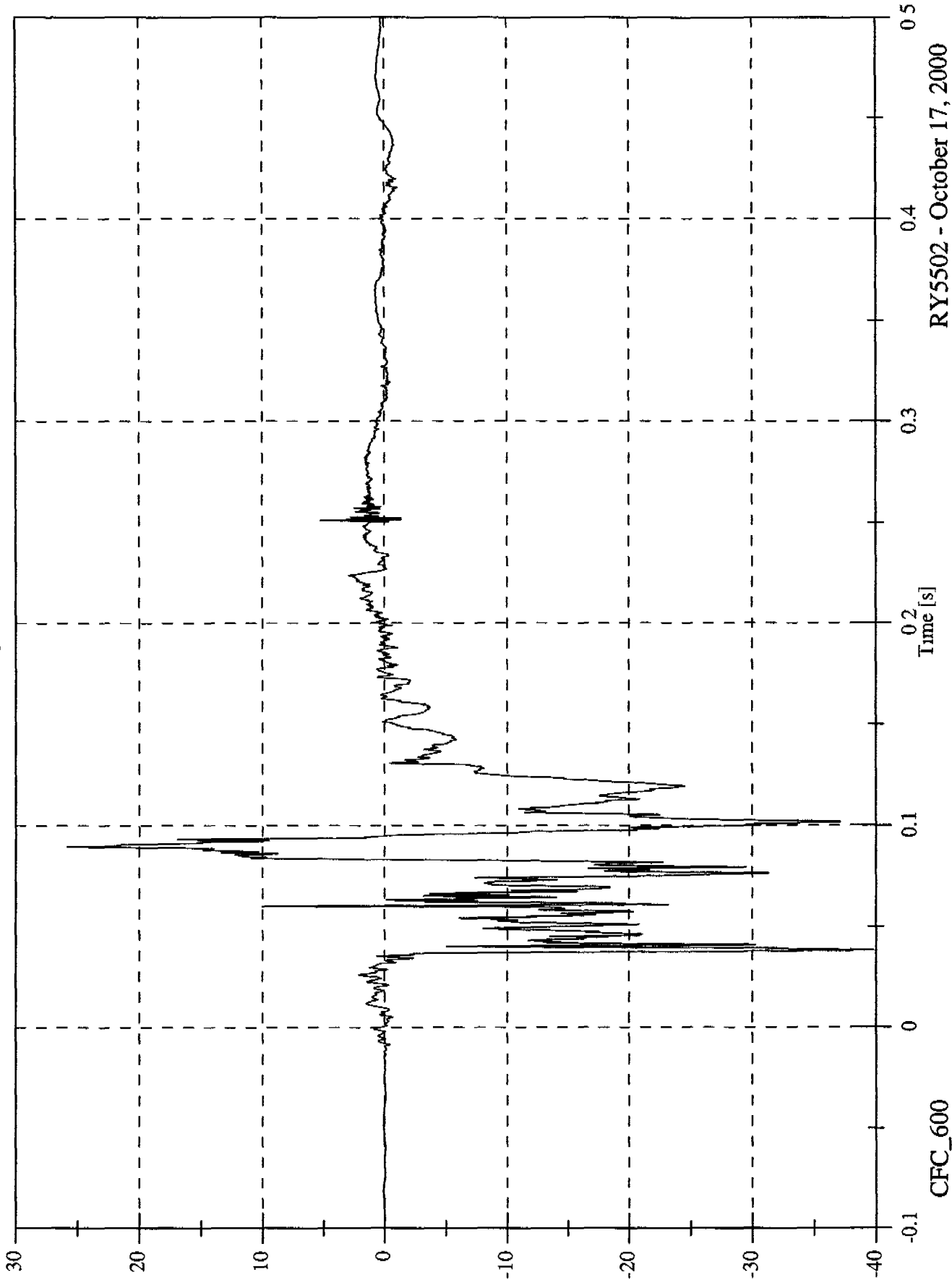
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 25.8 [g] at 0.089 [s]  
Min: -39.8 [g] at 0.038 [s]

P1 Right Foot Az



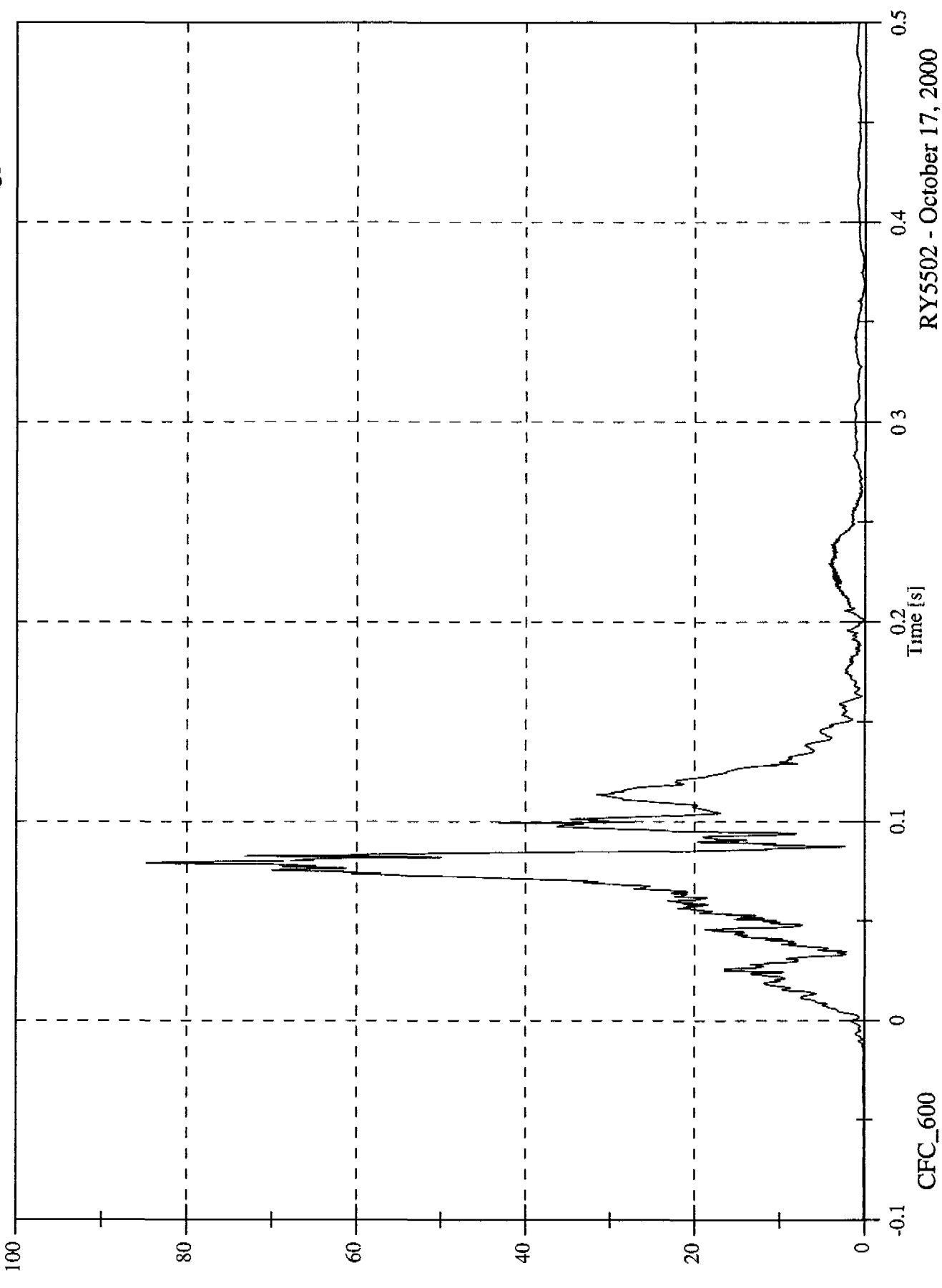
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 84.8 [g] at 0.079 [s]

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

P1 Left Foot A Resultant

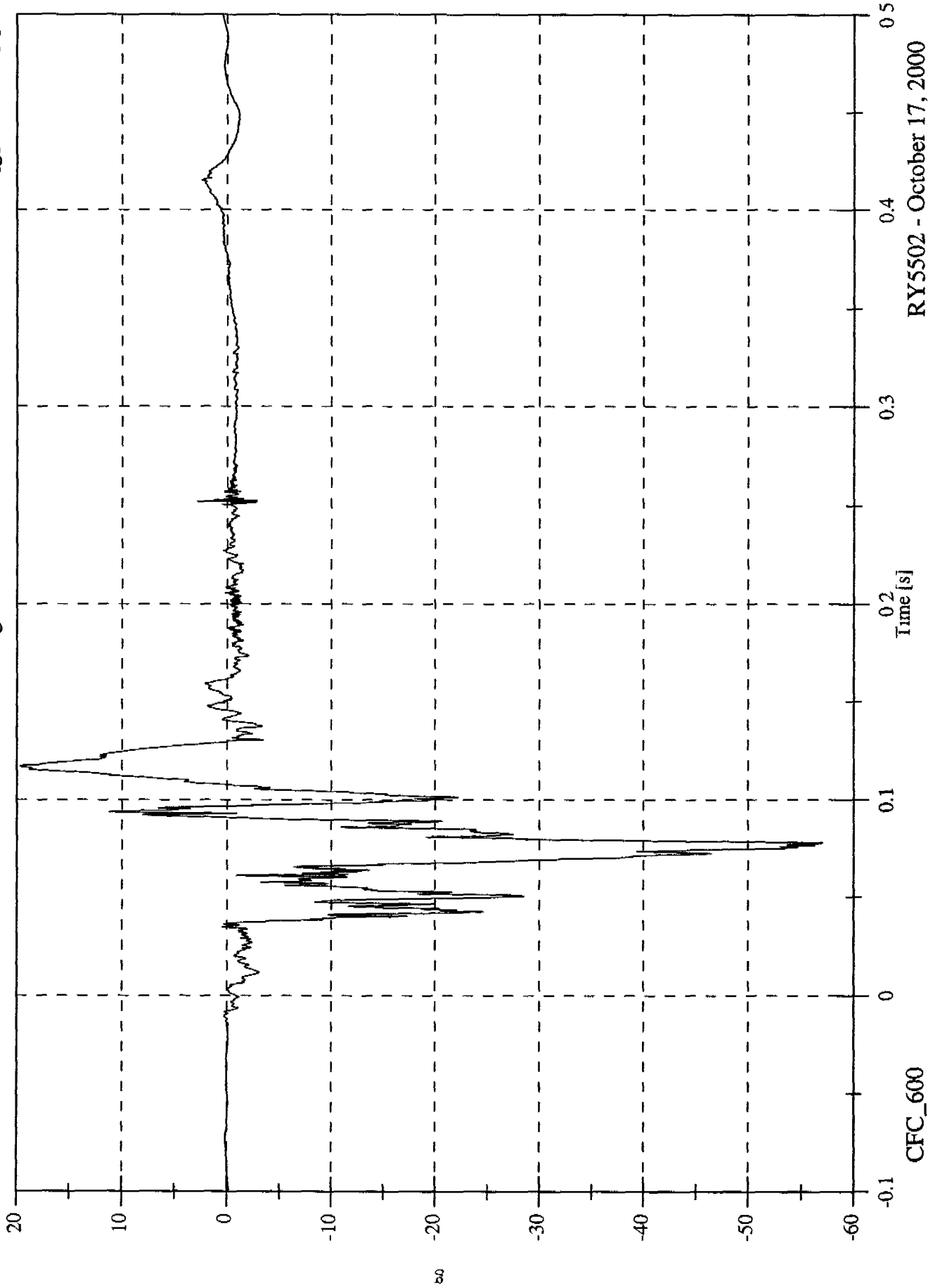


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 19.7 [g] at 0.117 [s]  
Min: -57.0 [g] at 0.078 [s]

P1 Right Foot Ax



CFC\_600

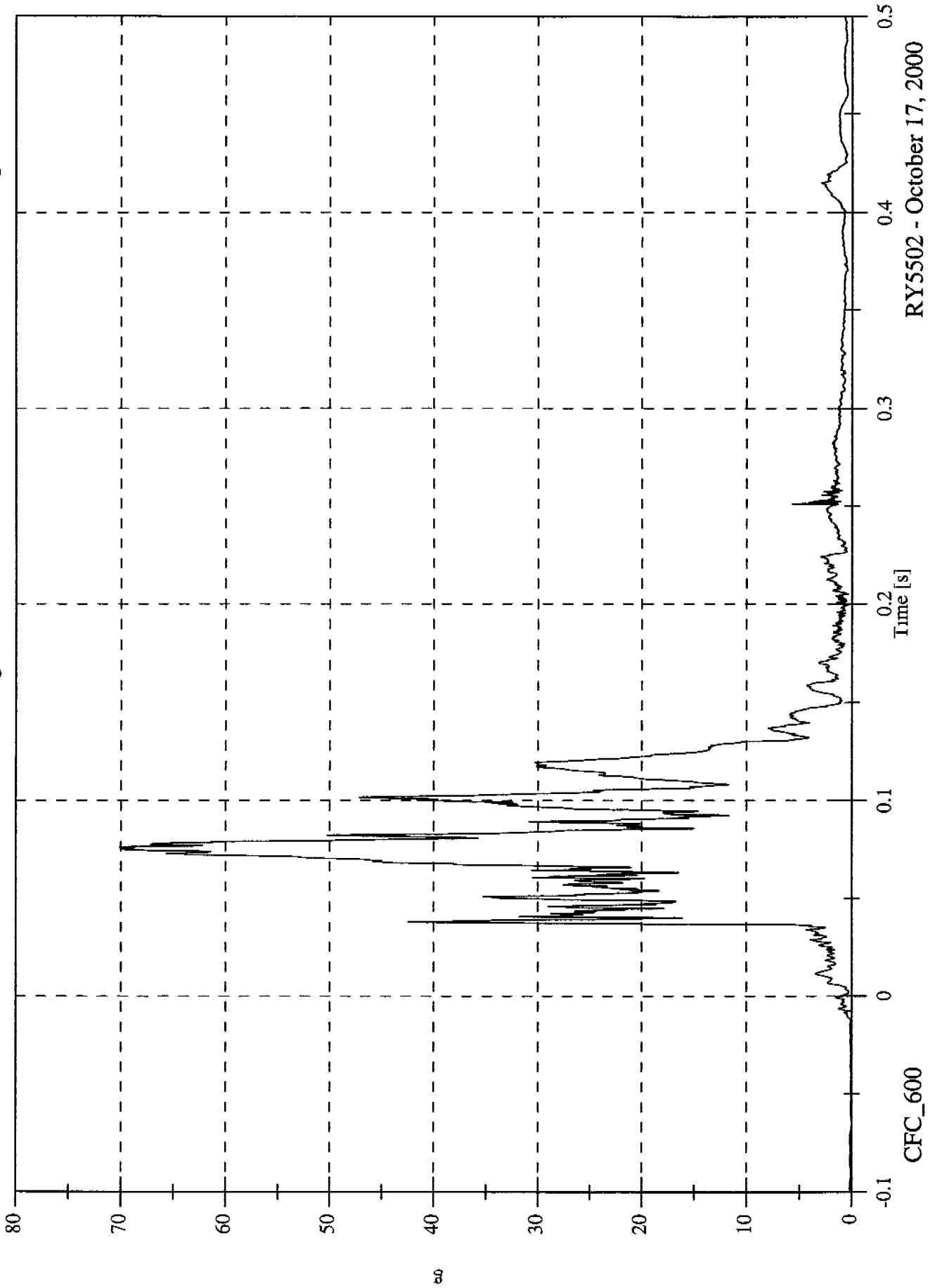
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 70.1 [g] at 0.076 [s]

Min: 0.0 [g] at -0.066 [s]

P1 Right Foot A Resultant

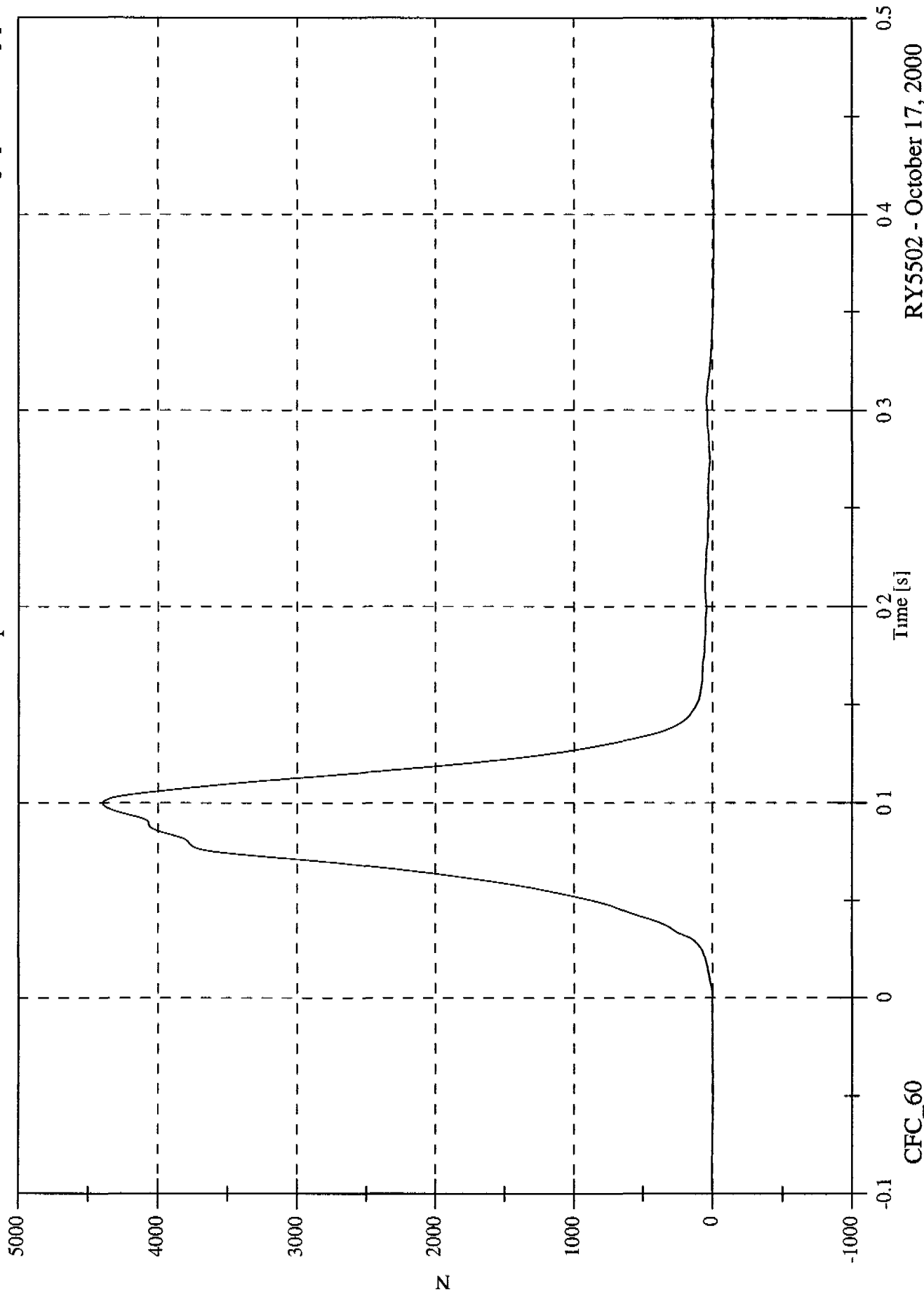


R Y5502 - October 17, 2000

Max: 4396.0 [N] at 0.100 [s]  
Min: -10.4 [N] at 0.483 [s]

P1 Lap Belt Force

2000 Subaru Legacy 40% Offset Impact



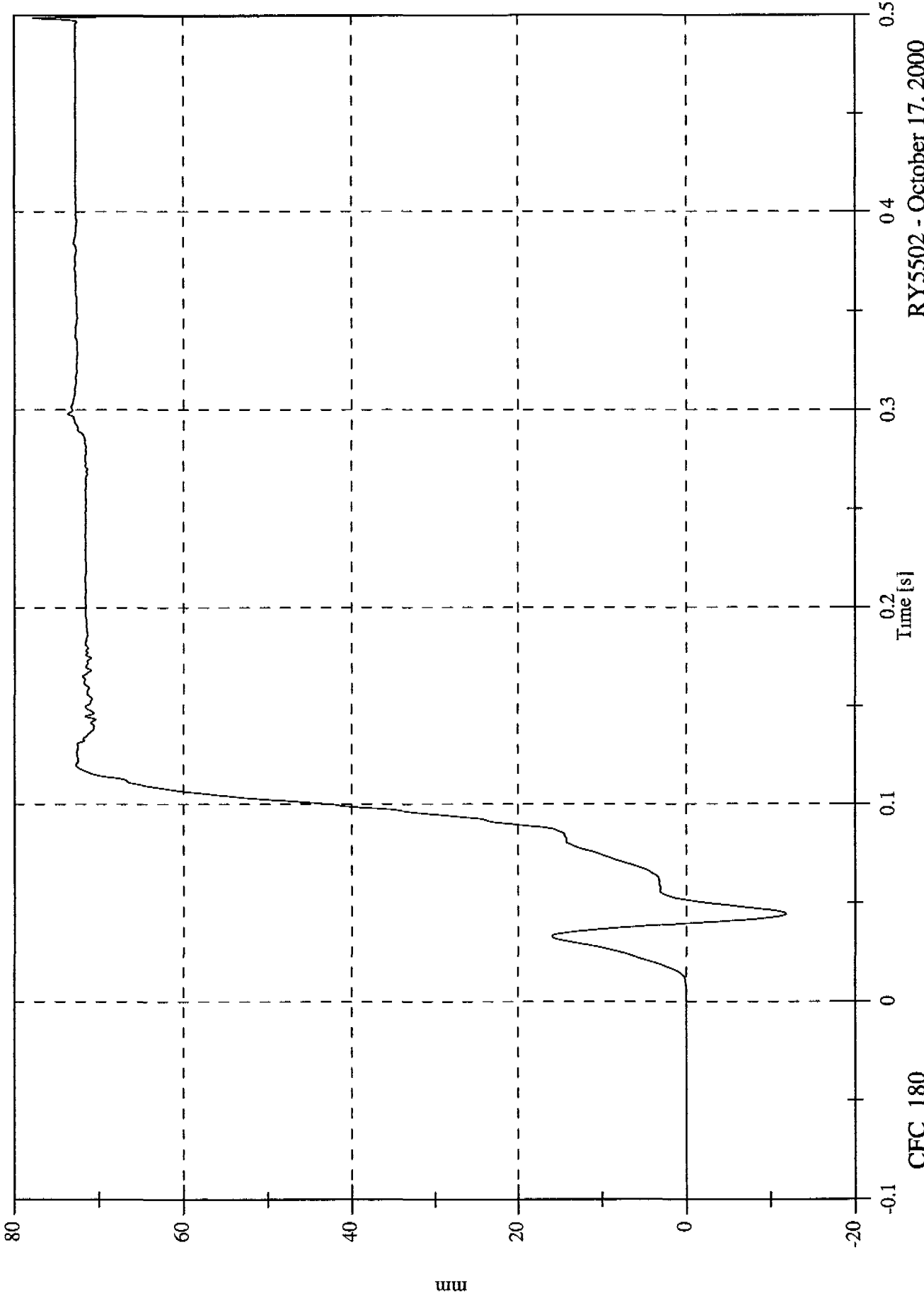
R Y 5 5 0 2 - O c t o b e r 1 7 , 2 0 0 0

2000 Subaru Legacy 40% Offset Impact

Max: 77.7 [mm] at 0.499 [s]

Min: -11.8 [mm] at 0.044 [s]

P1 Torso Belt Spoolout



CFC\_180

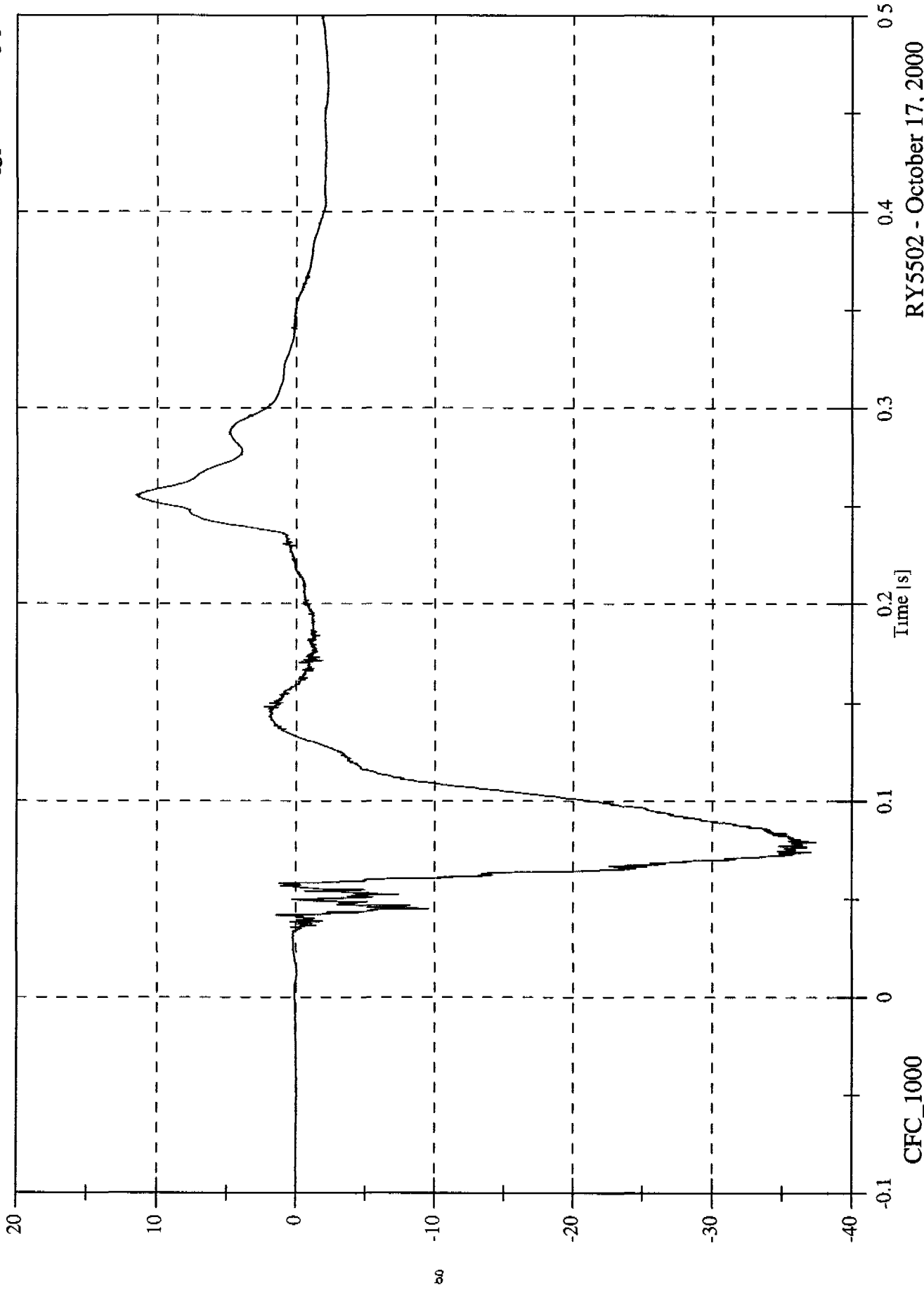
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P2 Head x

Max: 11.6 [g] at 0.256 [s]  
Min: -37.4 [g] at 0.079 [s]



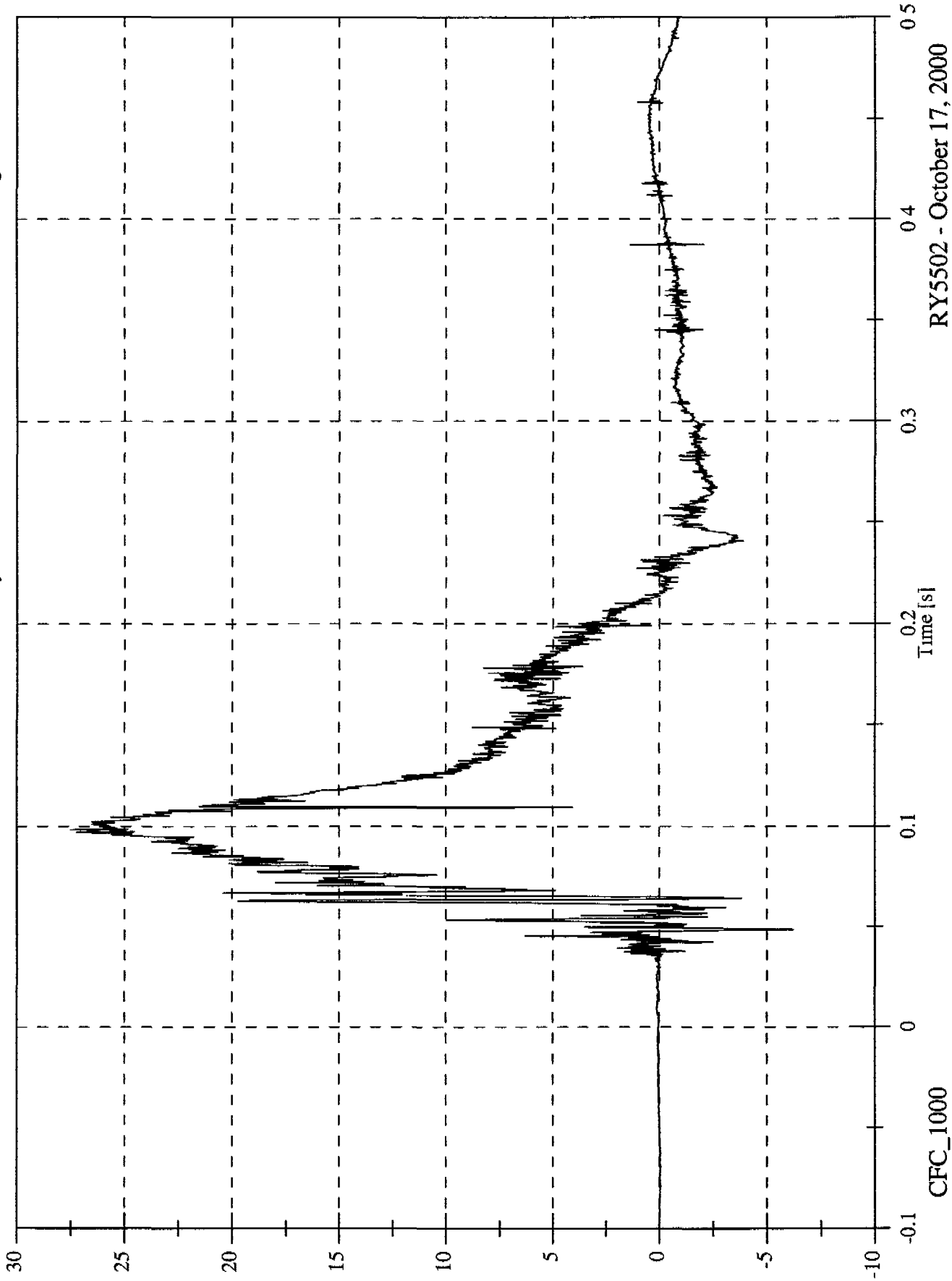
RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 27.5 [g] at 0.098 [s]

Min: -6.2 [g] at 0.048 [s]

P2 Head y

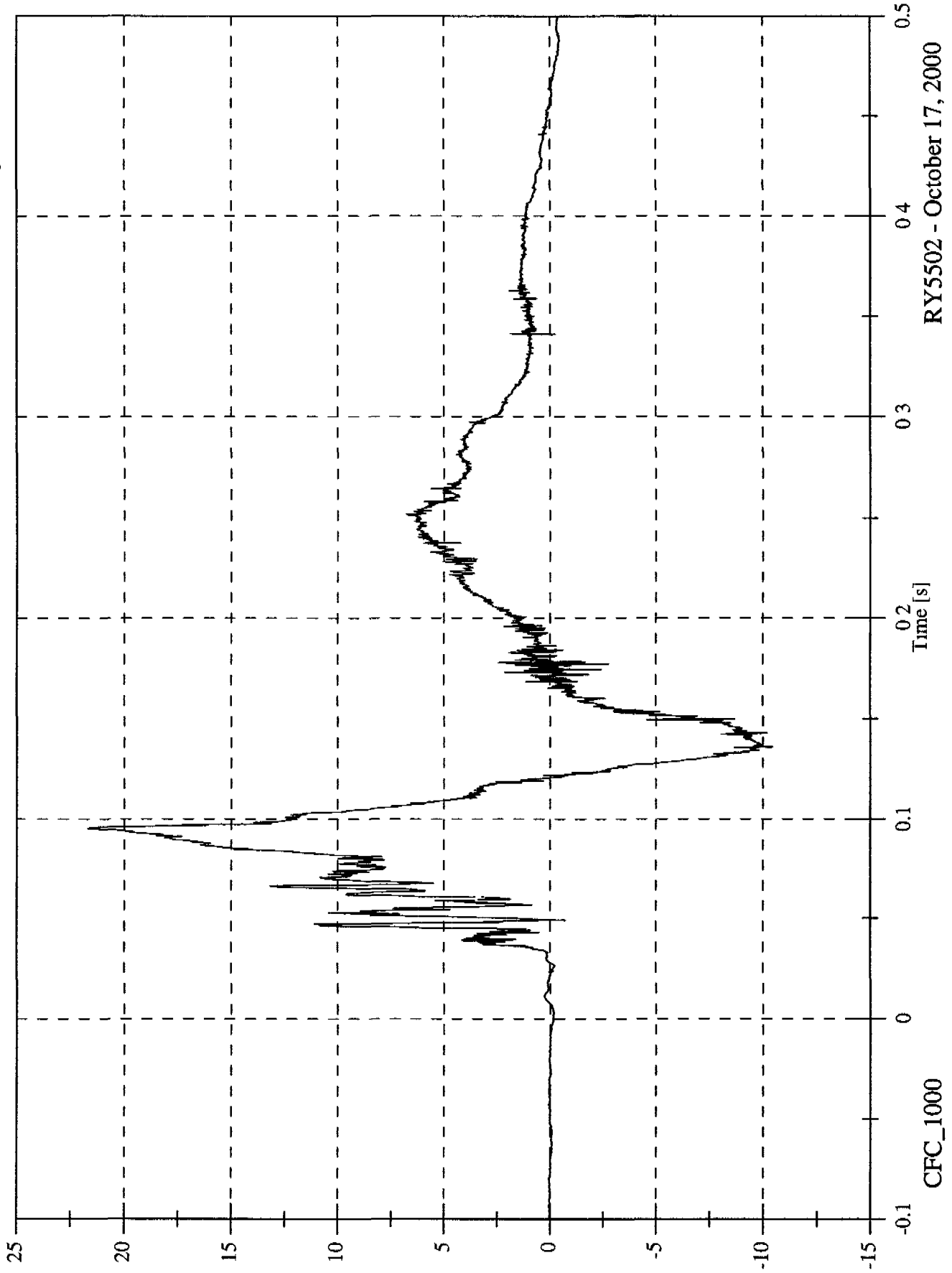


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 21.7 [g] at 0.095 [s]  
Min: -10.4 [g] at 0.136 [s]

P2 Head z

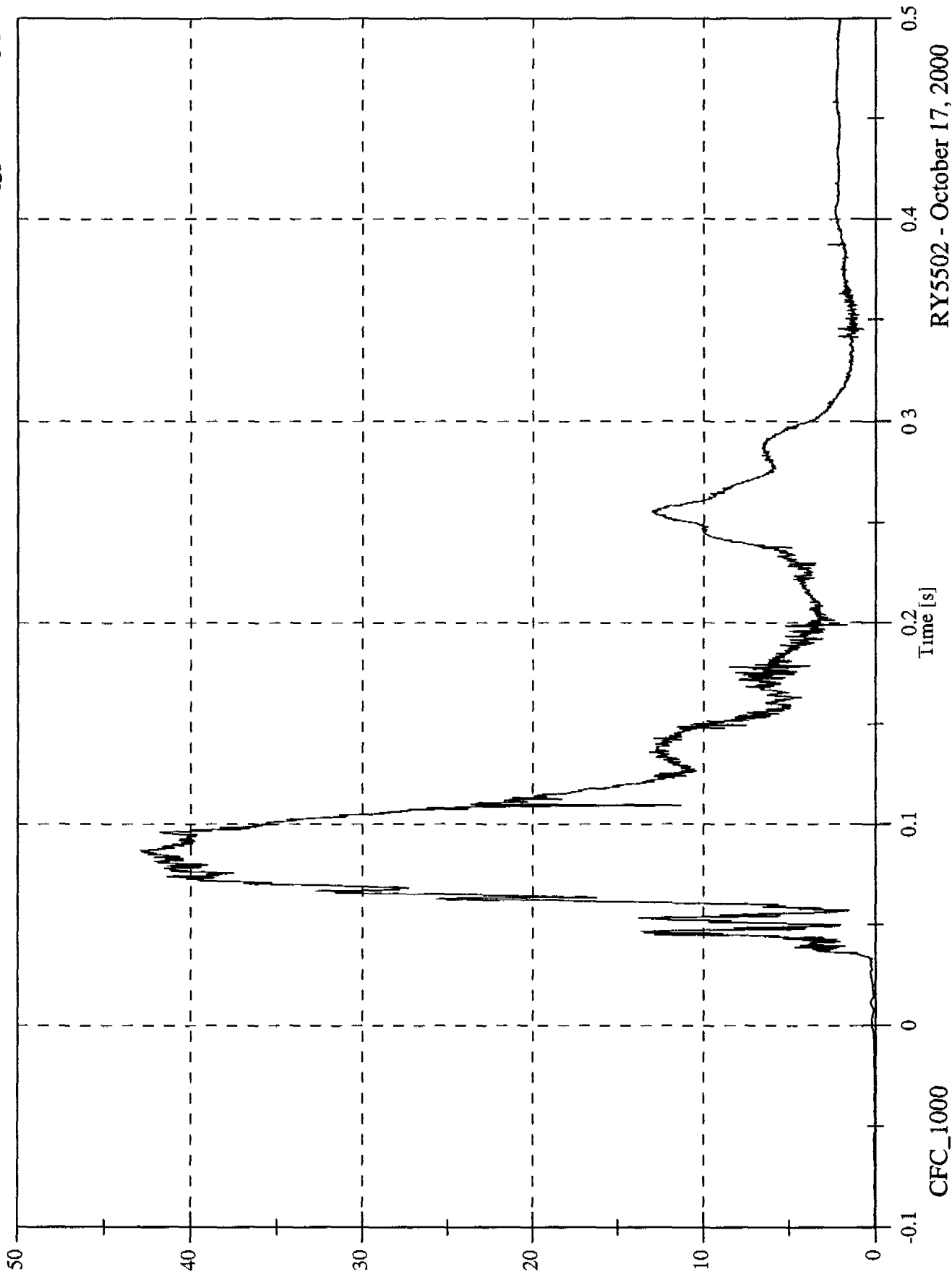


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 42.9 [g] at 0.087 [s]  
Min: 0.0 [g] at -0.097 [s]

P2 Head Resultant



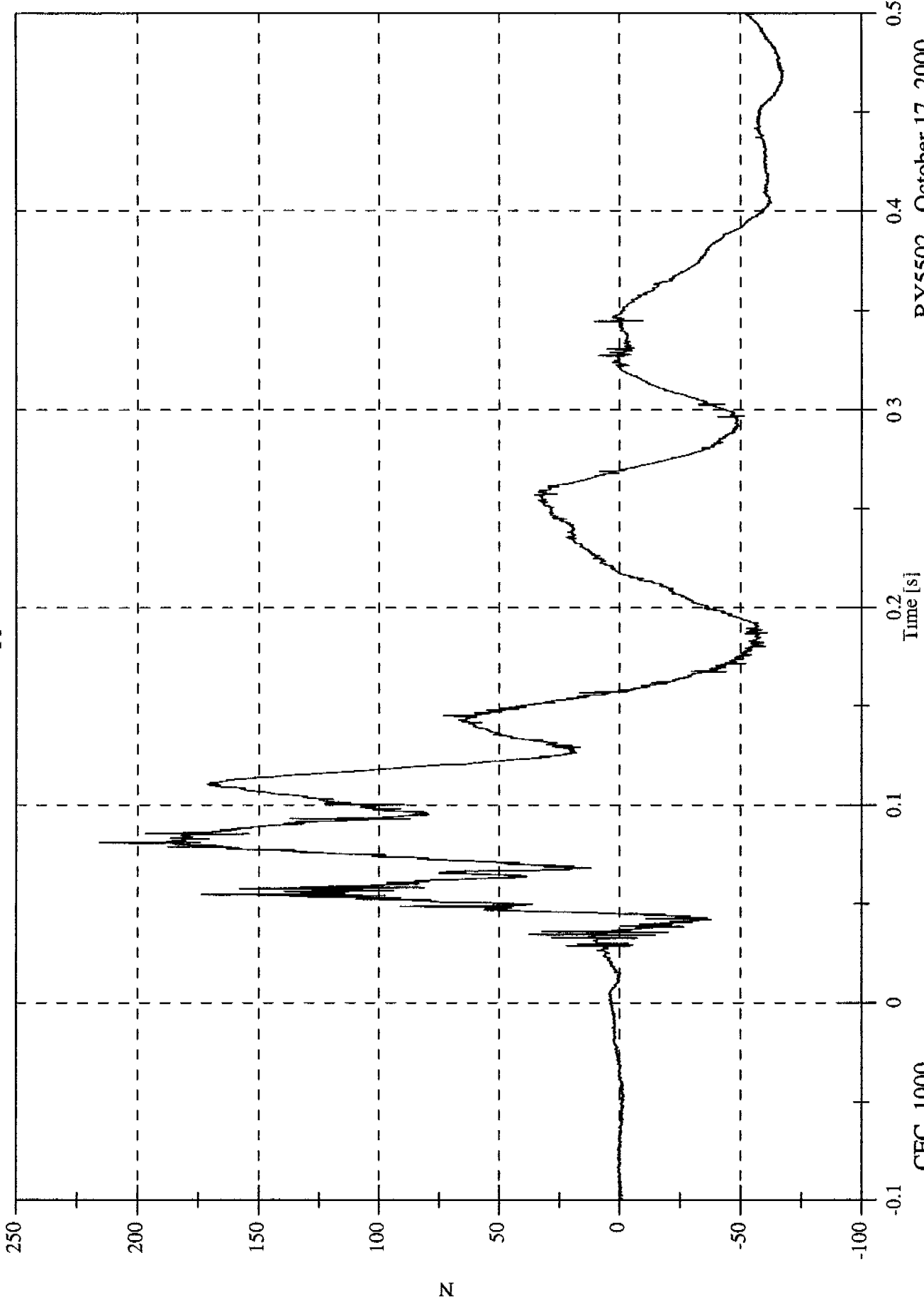
R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 215.7 [N] at 0.081 [s]

Min: -67.8 [N] at 0.471 [s]

P2 Upper Neck Fx



CFC\_1000

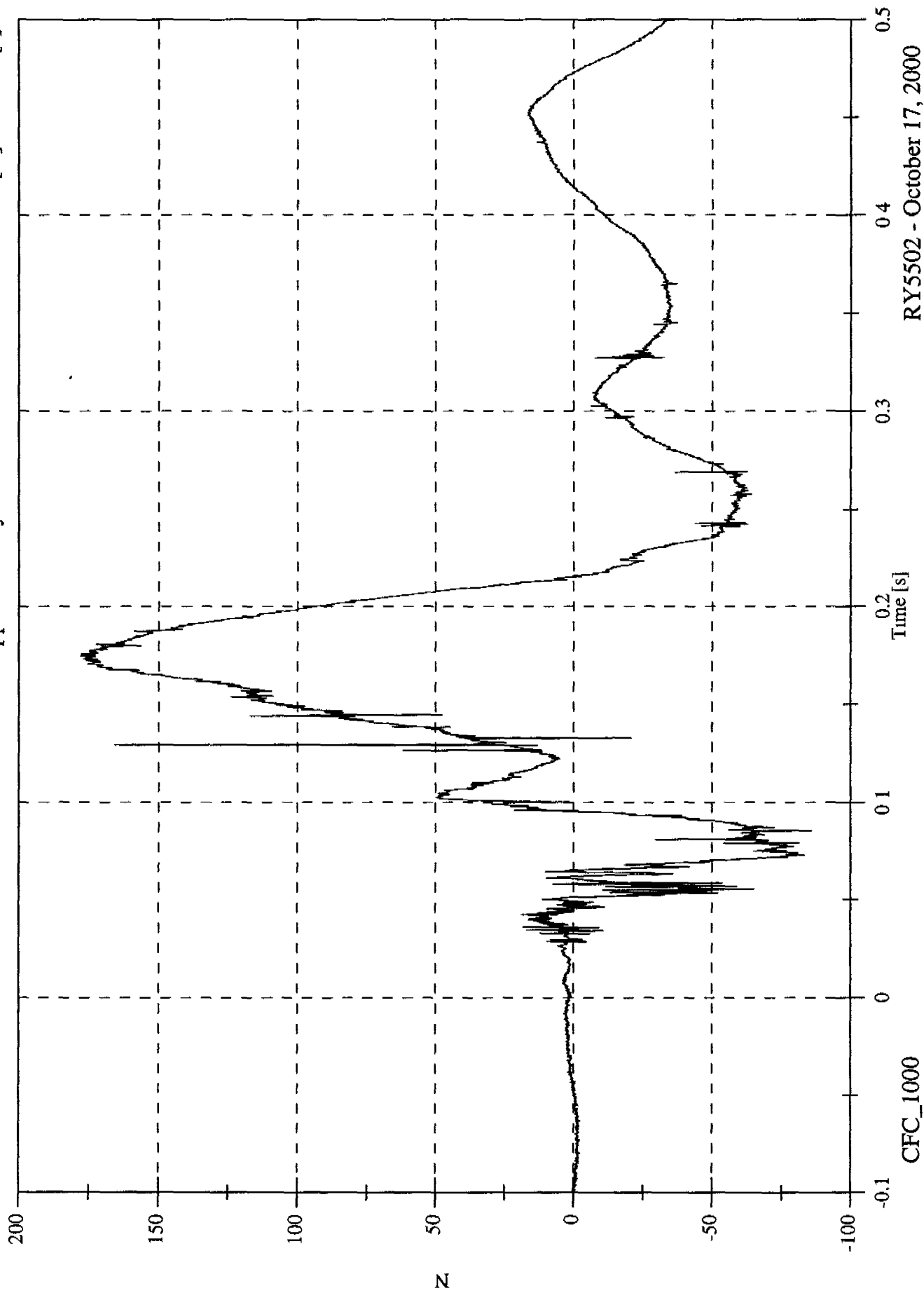
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 177.9 [N] at 0.175 [s]

Min: -85.7 [N] at 0.085 [s]

P2 Upper Neck Fy



CFC\_1000

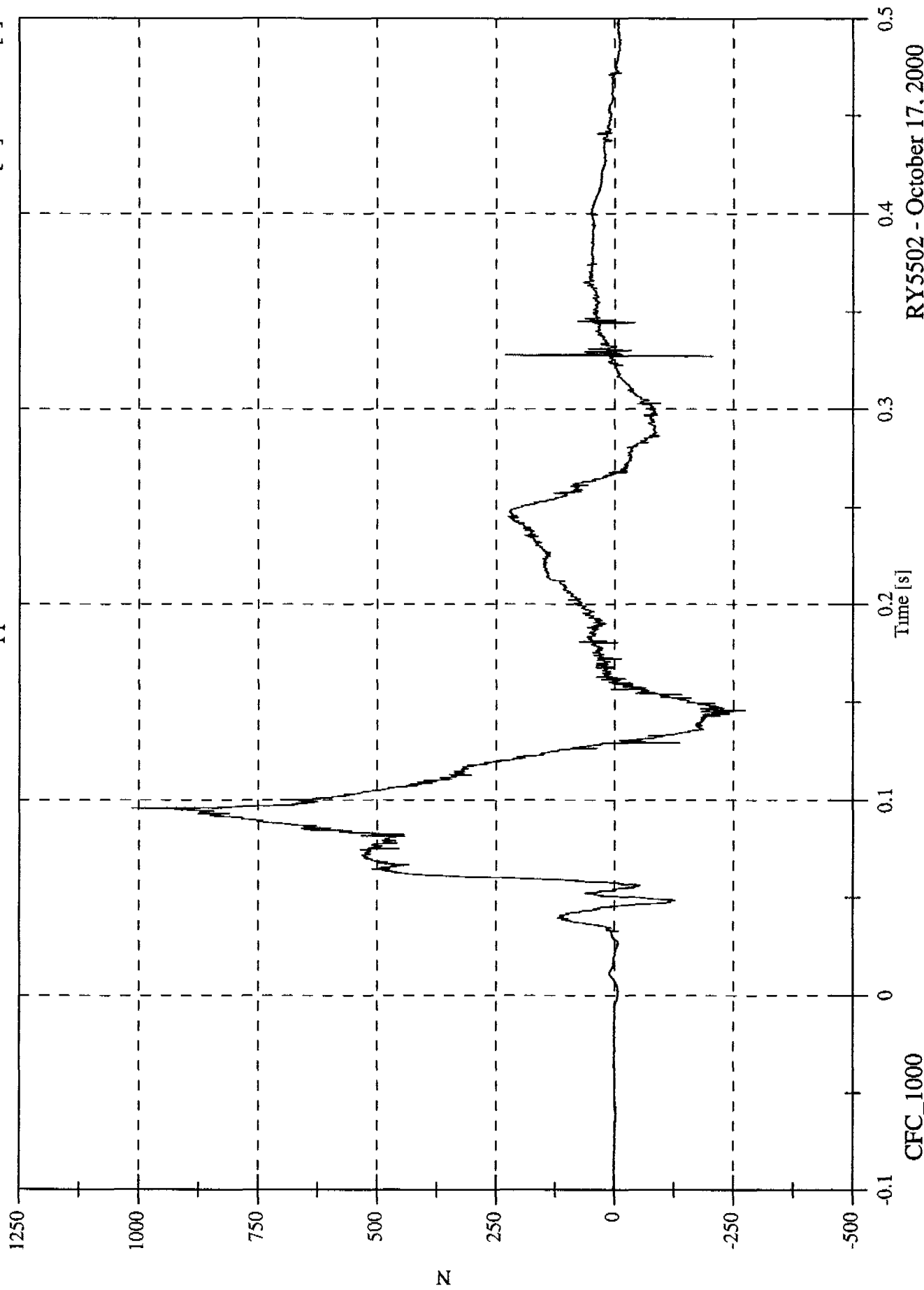
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1014.3 [N] at 0.096 [s]  
Min: -274.3 [N] at 0.146 [s]

P2 Upper Neck Fz



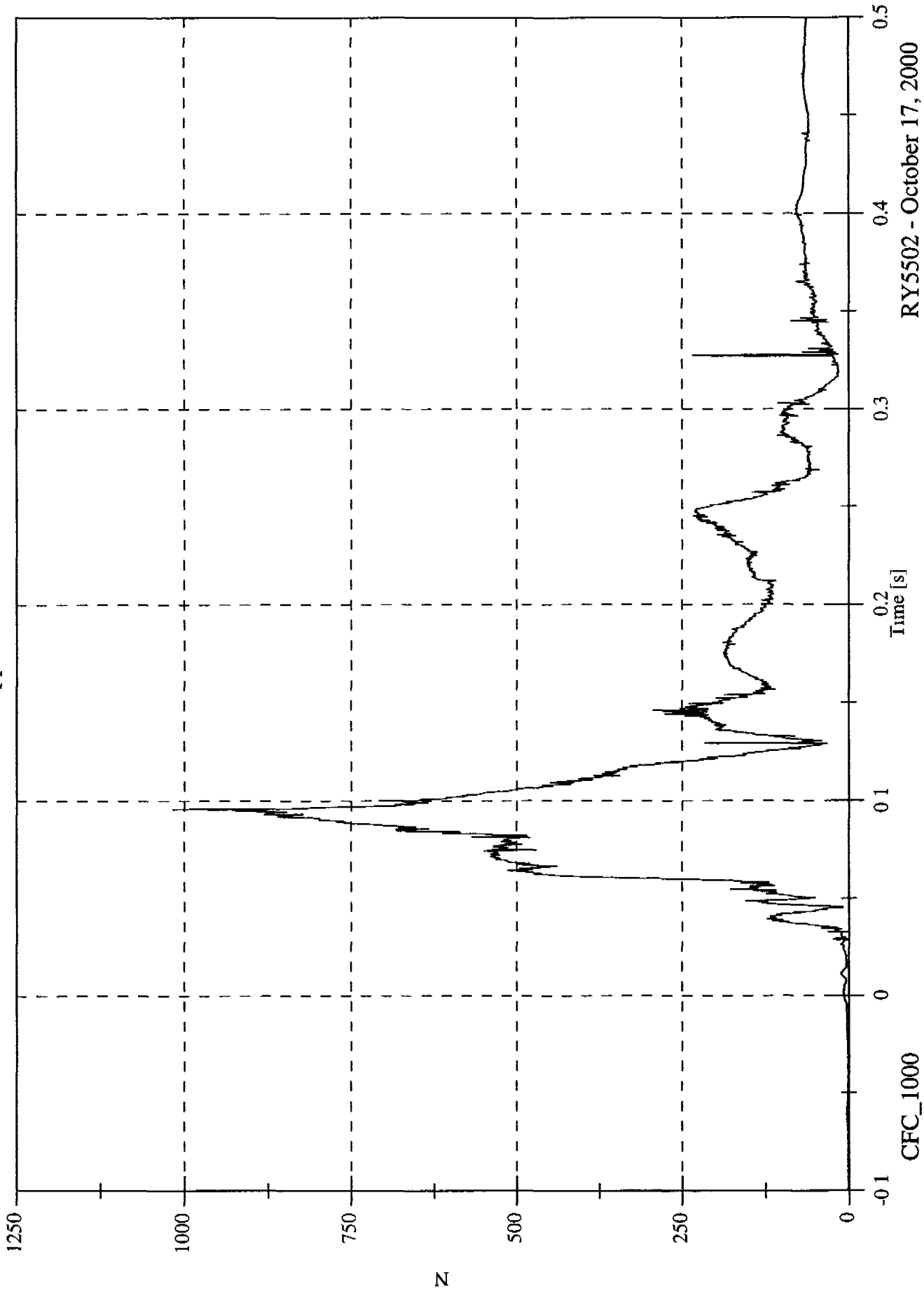
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1017.5 [N] at 0.096 [s]

Min: 0.1 [N] at -0.089 [s]

P2 Upper Neck F Resultant

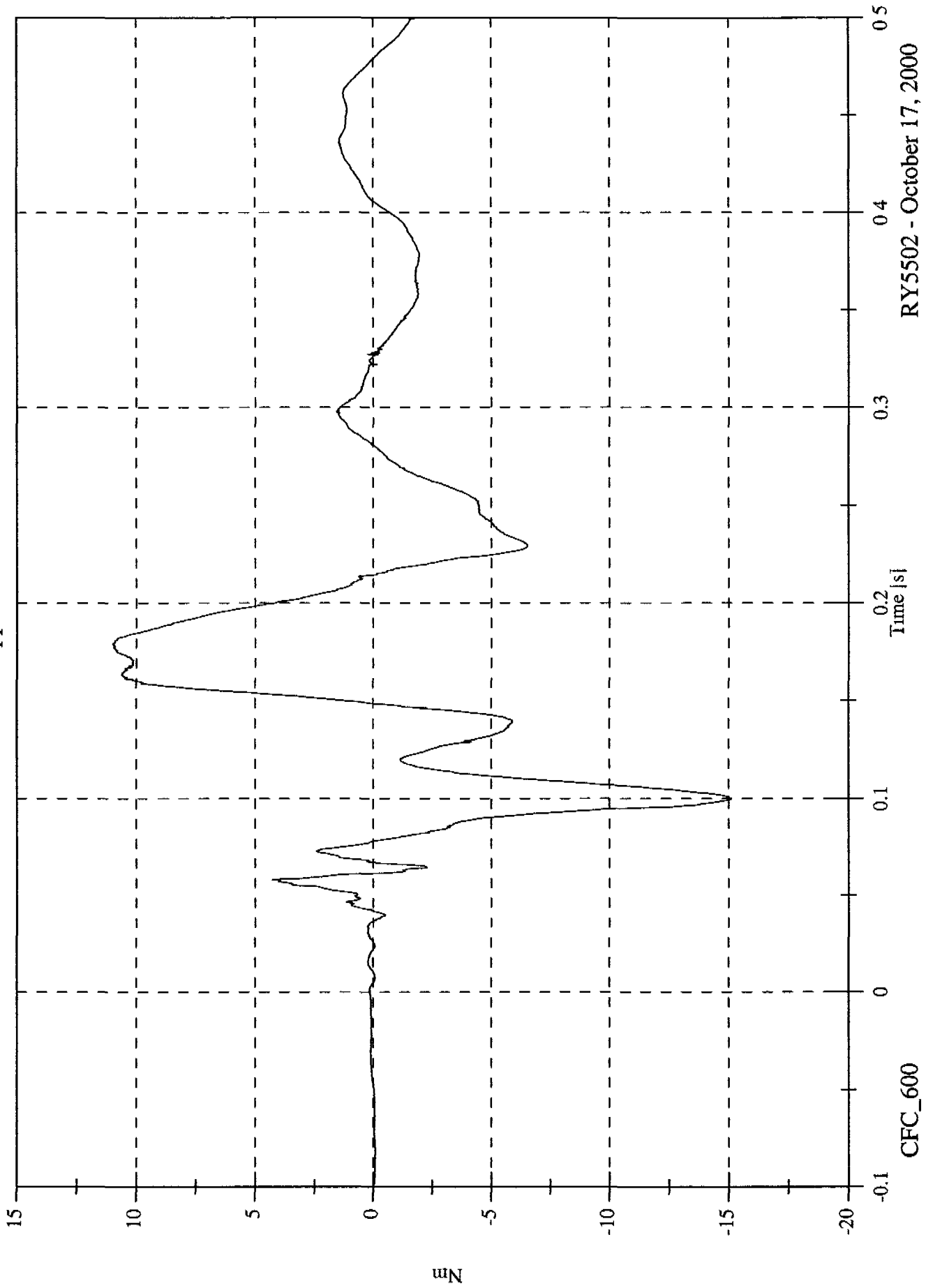


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 11.0 [Nm] at 0.179 [s]  
Min: -15.1 [Nm] at 0.100 [s]

P2 Upper Neck Mx

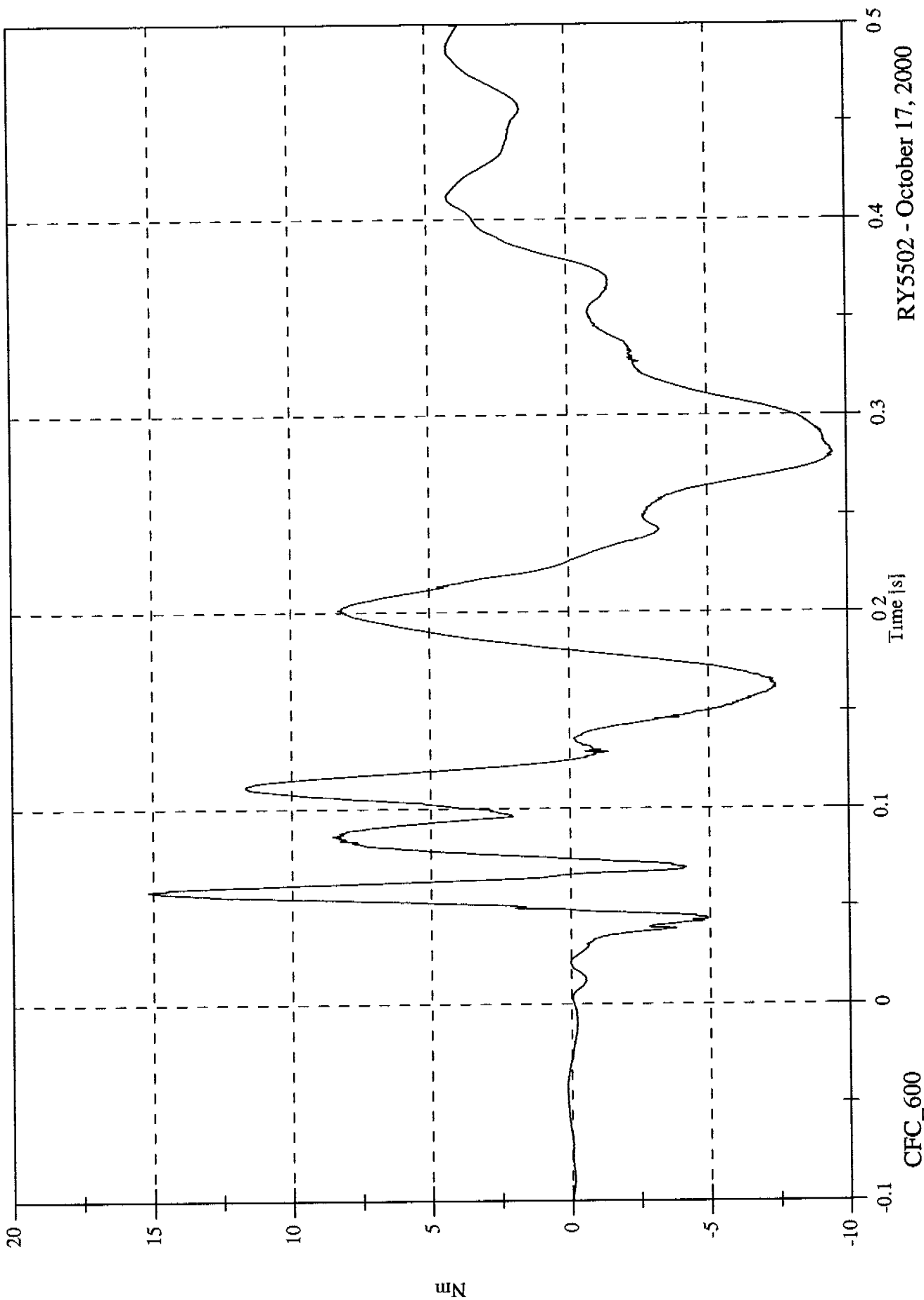


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 15.2 [Nm] at 0.058 [s]  
Min: -9.5 [Nm] at 0.280 [s]

P2 Upper Neck My



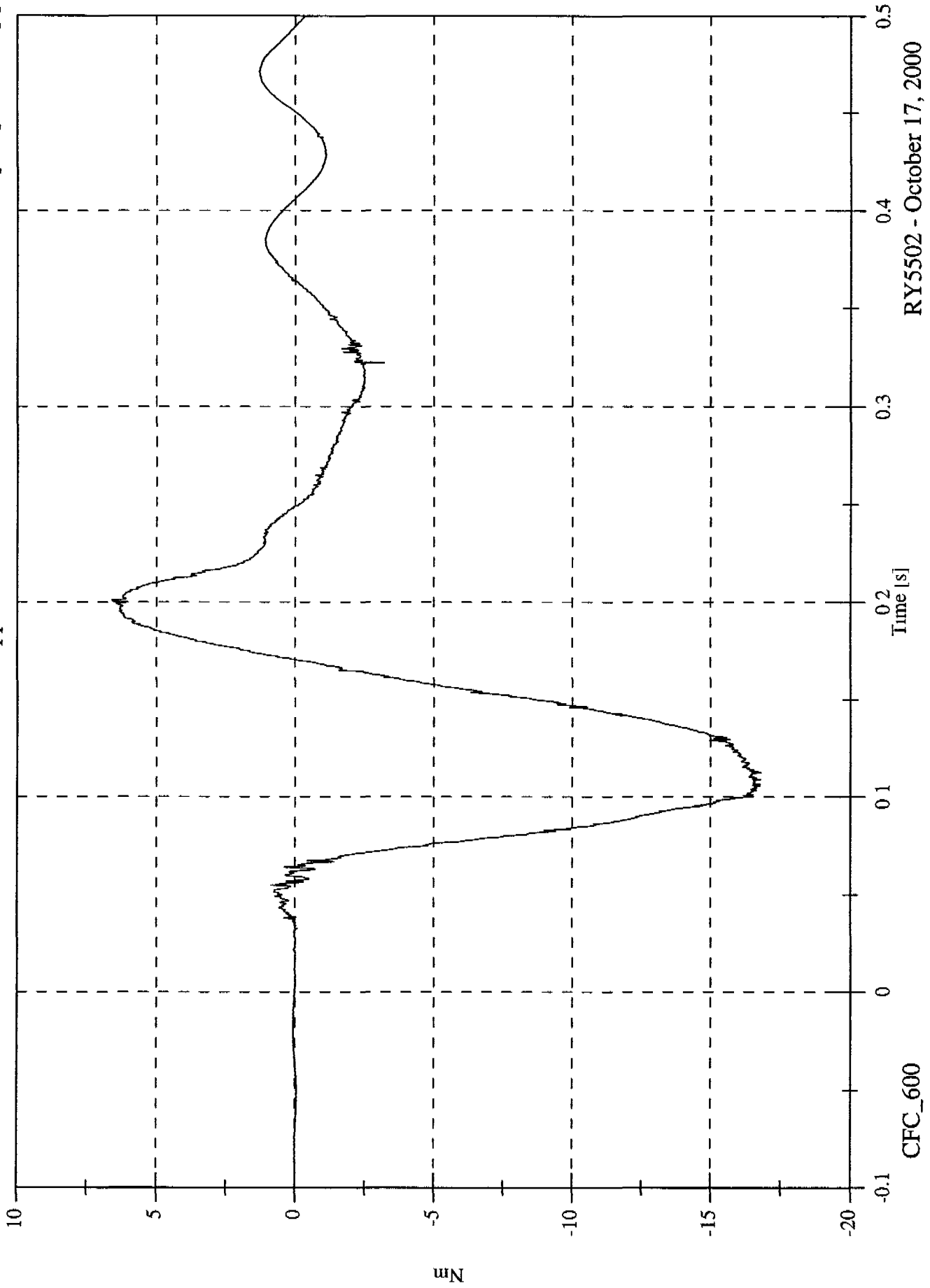
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P2 Upper Neck Mz

Max: 6.6 [Nm] at 0.201 [s]  
Min: -16.8 [Nm] at 0.112 [s]



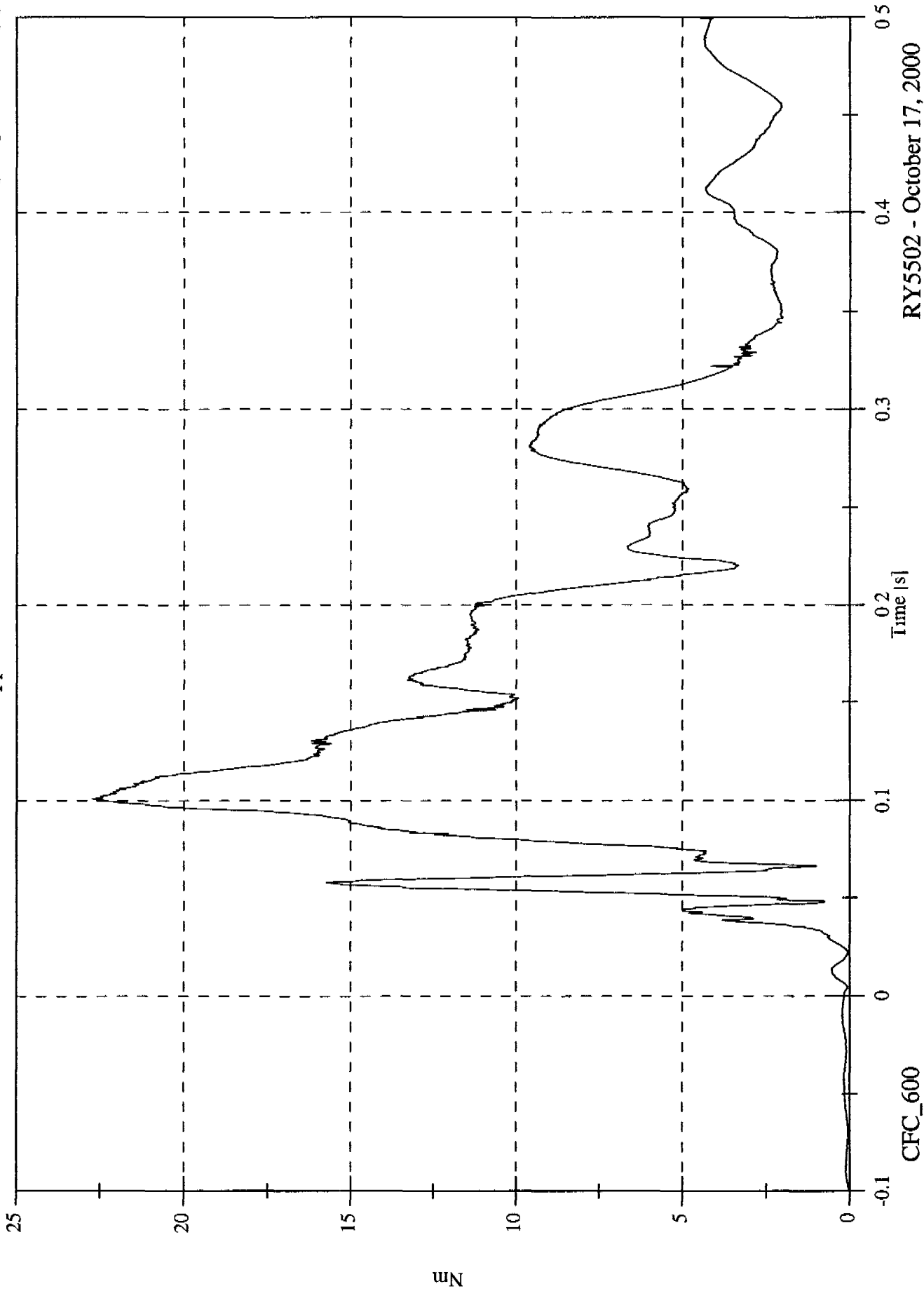
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 22.7 [Nm] at 0.101 [s]

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

P2 Upper Neck M Resultant

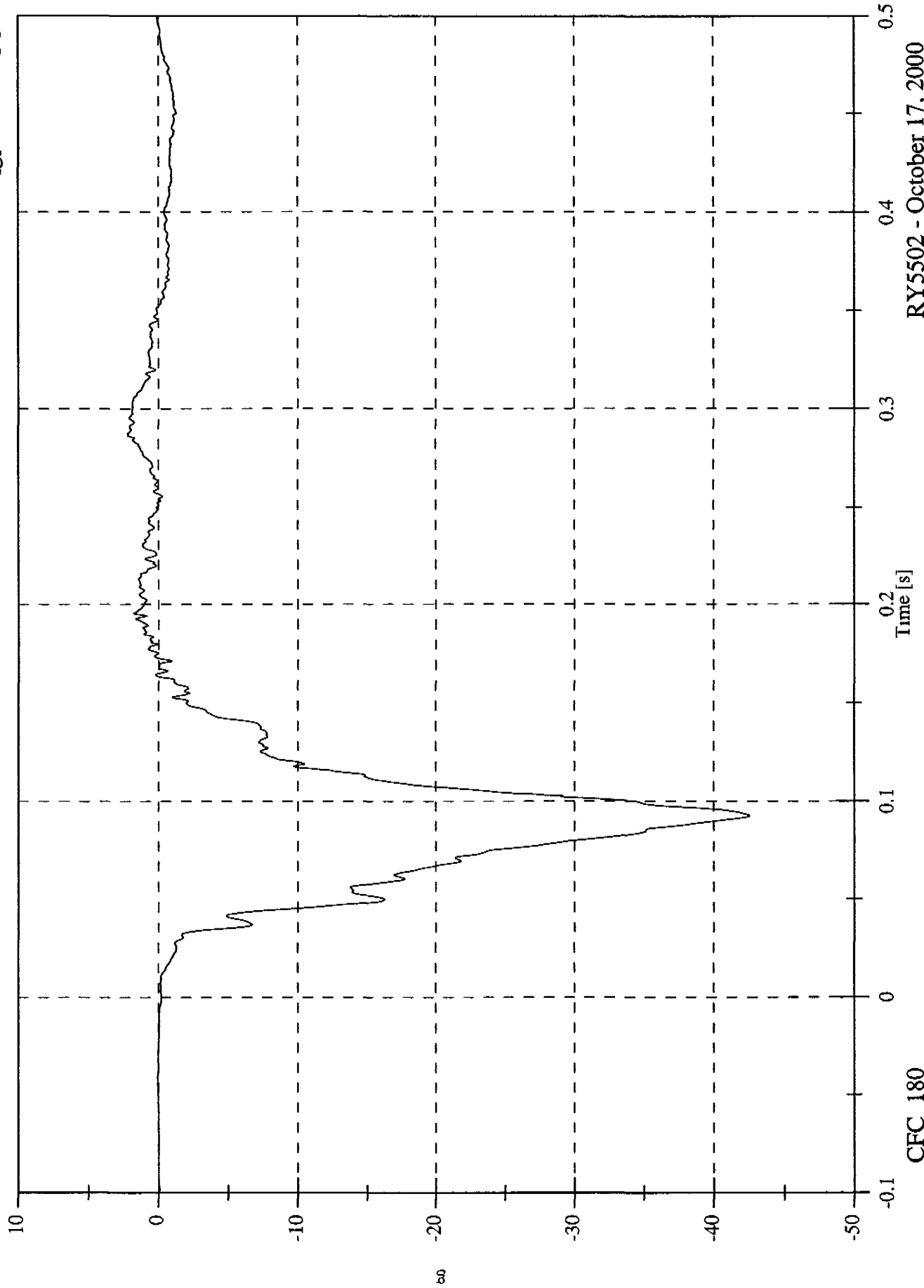


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2.2 [g] at 0.287 [s]  
Min: -42.5 [g] at 0.092 [s]

P2 Chest x



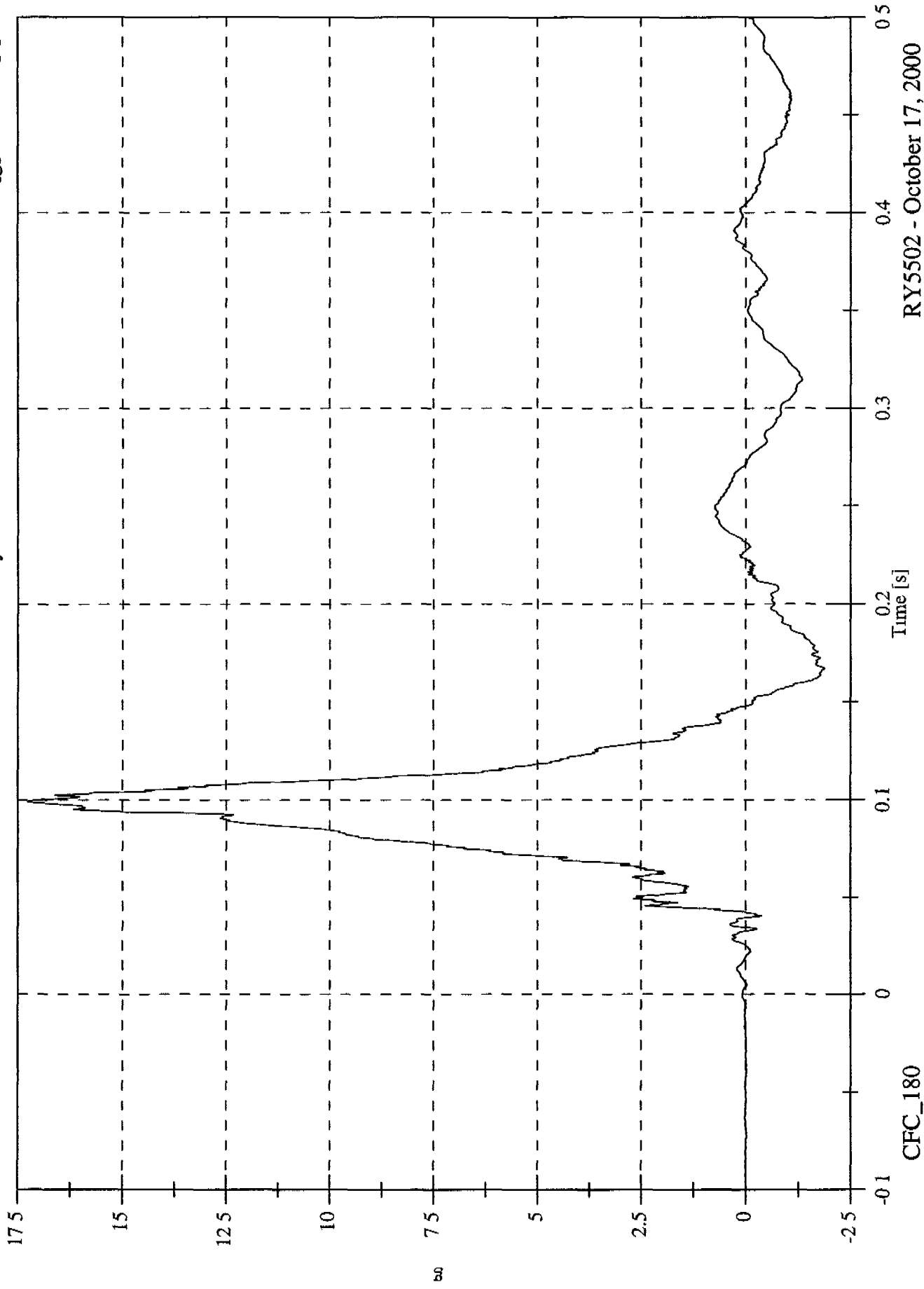
RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P2 Chest y

Max: 17.3 [g] at 0.099 [s]

Min: -1.9 [g] at 0.167 [s]

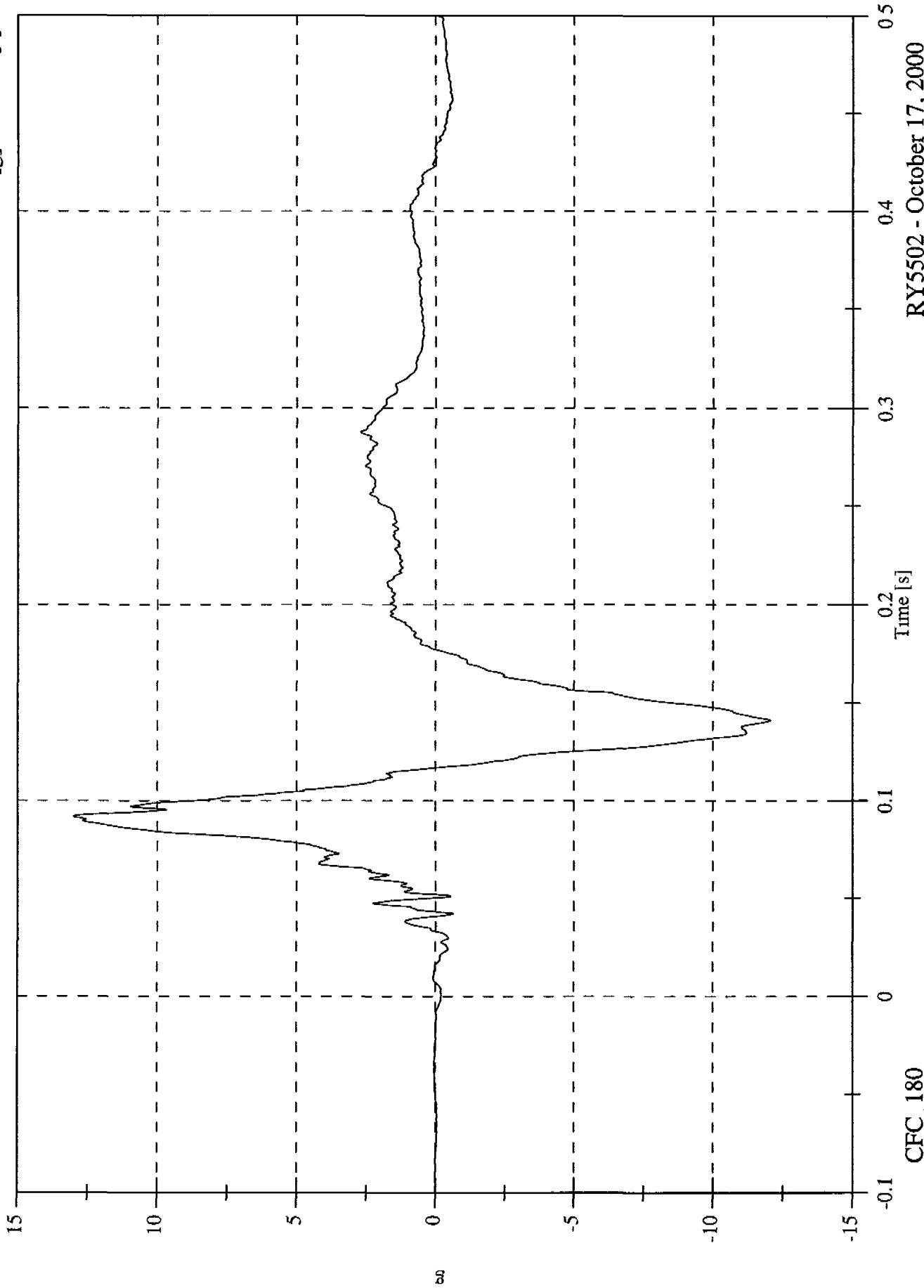


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 13.0 [g] at 0.092 [s]  
Min: -12.1 [g] at 0.141 [s]

P2 Chest z



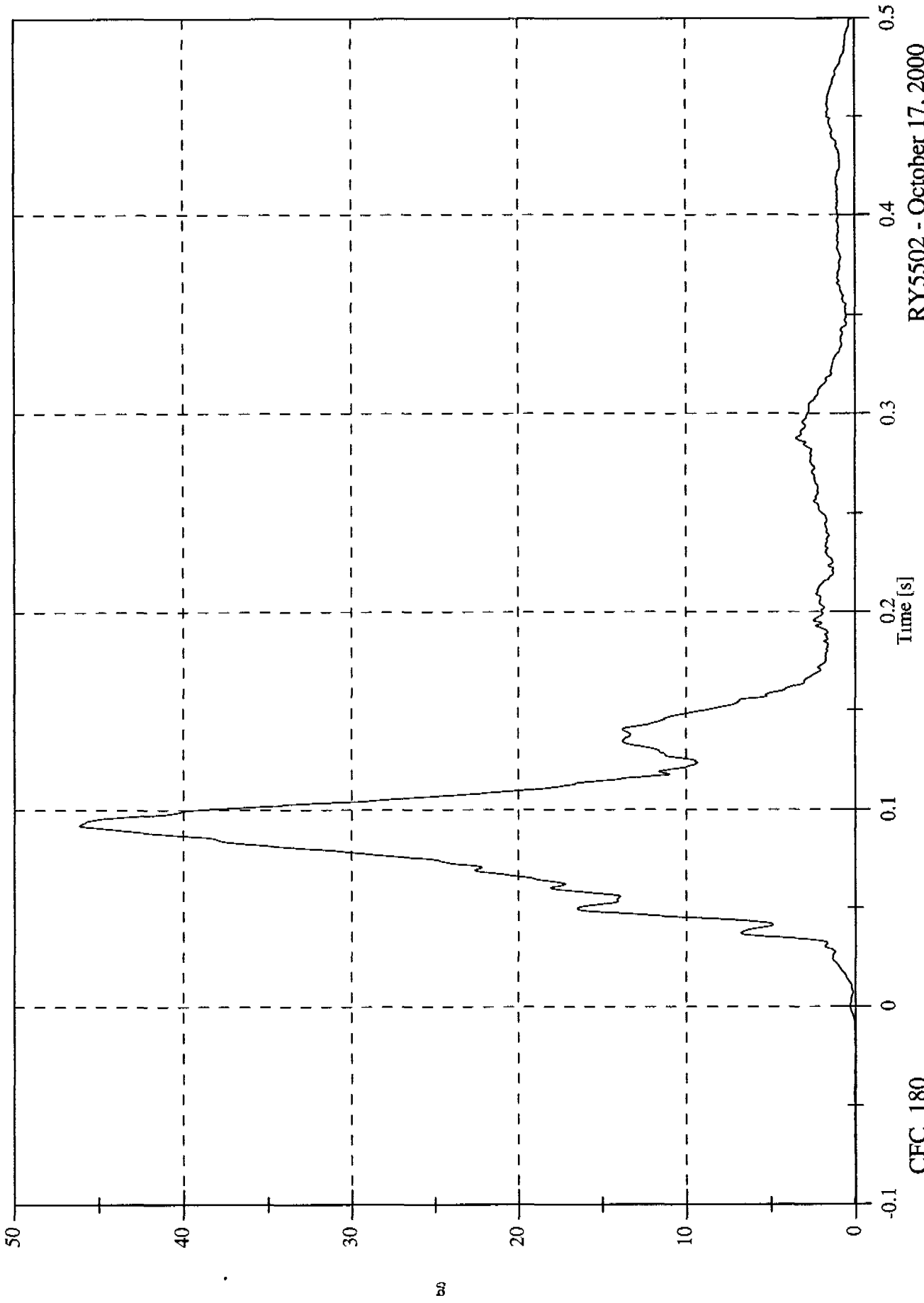
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 46.1 [g] at 0.092 [s]

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

P2 Chest Resultant



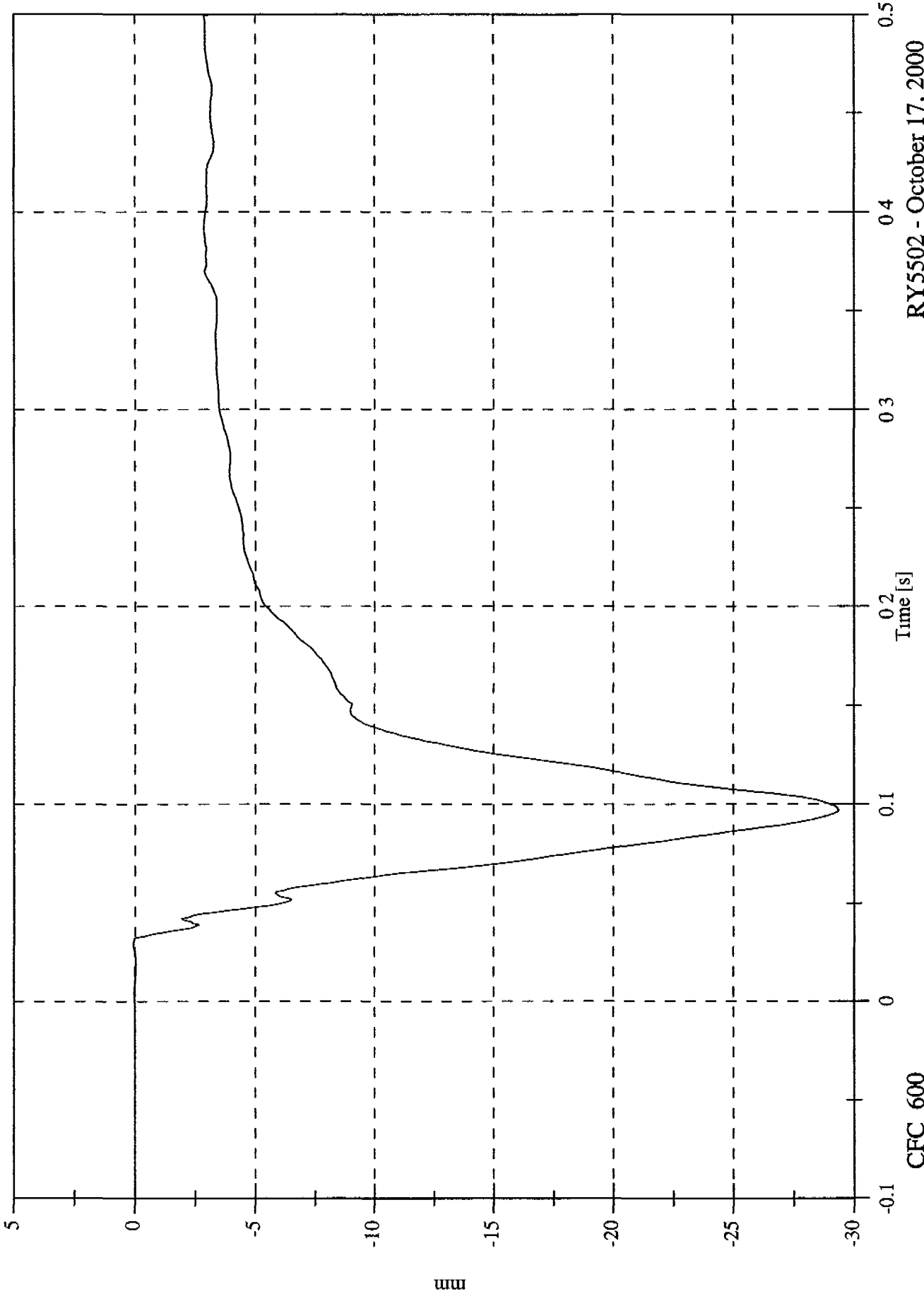
CFC\_180

R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 0.1 [mm] at 0.029 [s]  
Min: -29.3 [mm] at 0.097 [s]

P2 Chest Displacement

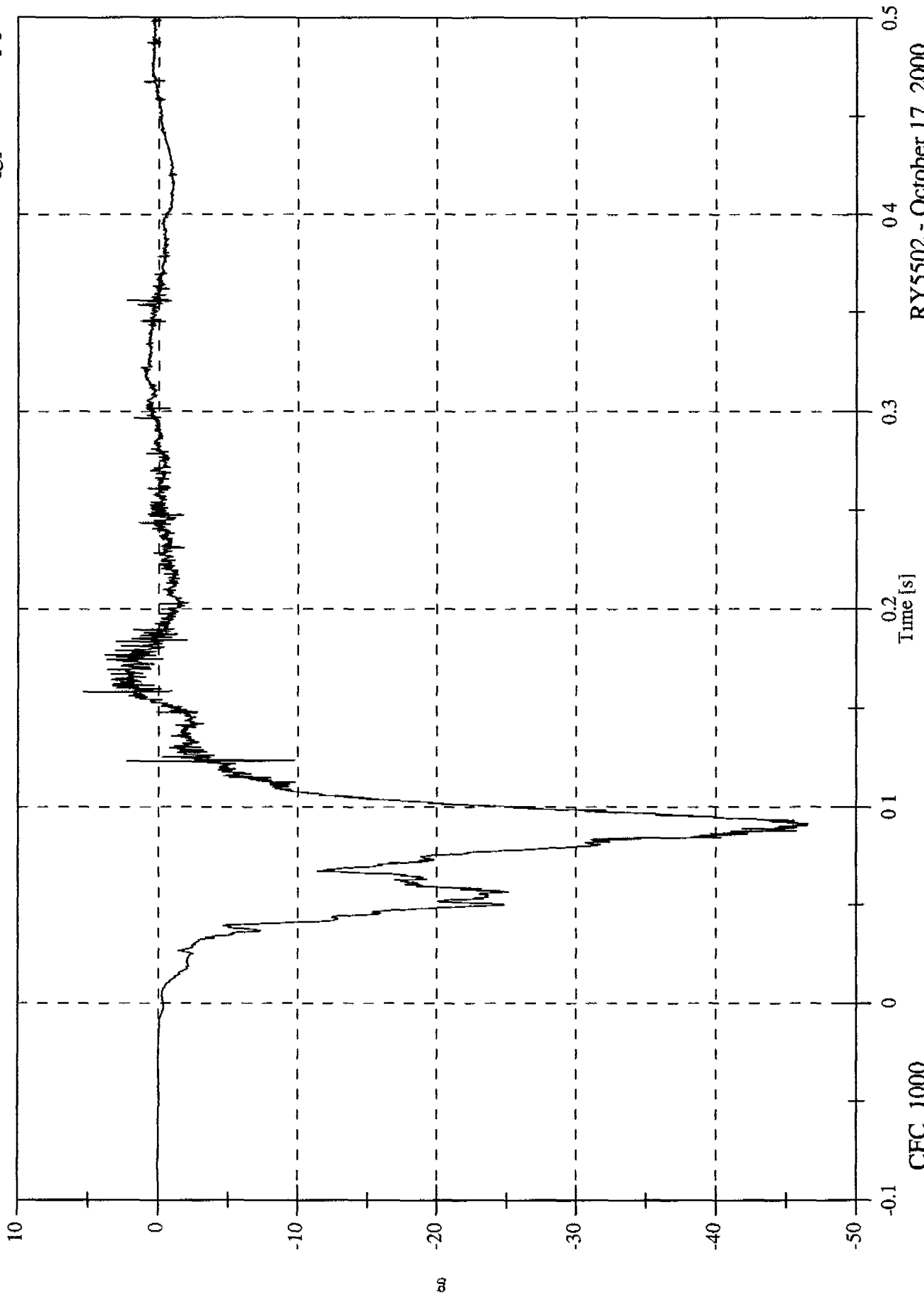


RYY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 5.3 [g] at 0.158 [s]  
Min: -46.5 [g] at 0.091 [s]

P2 Pelvic x

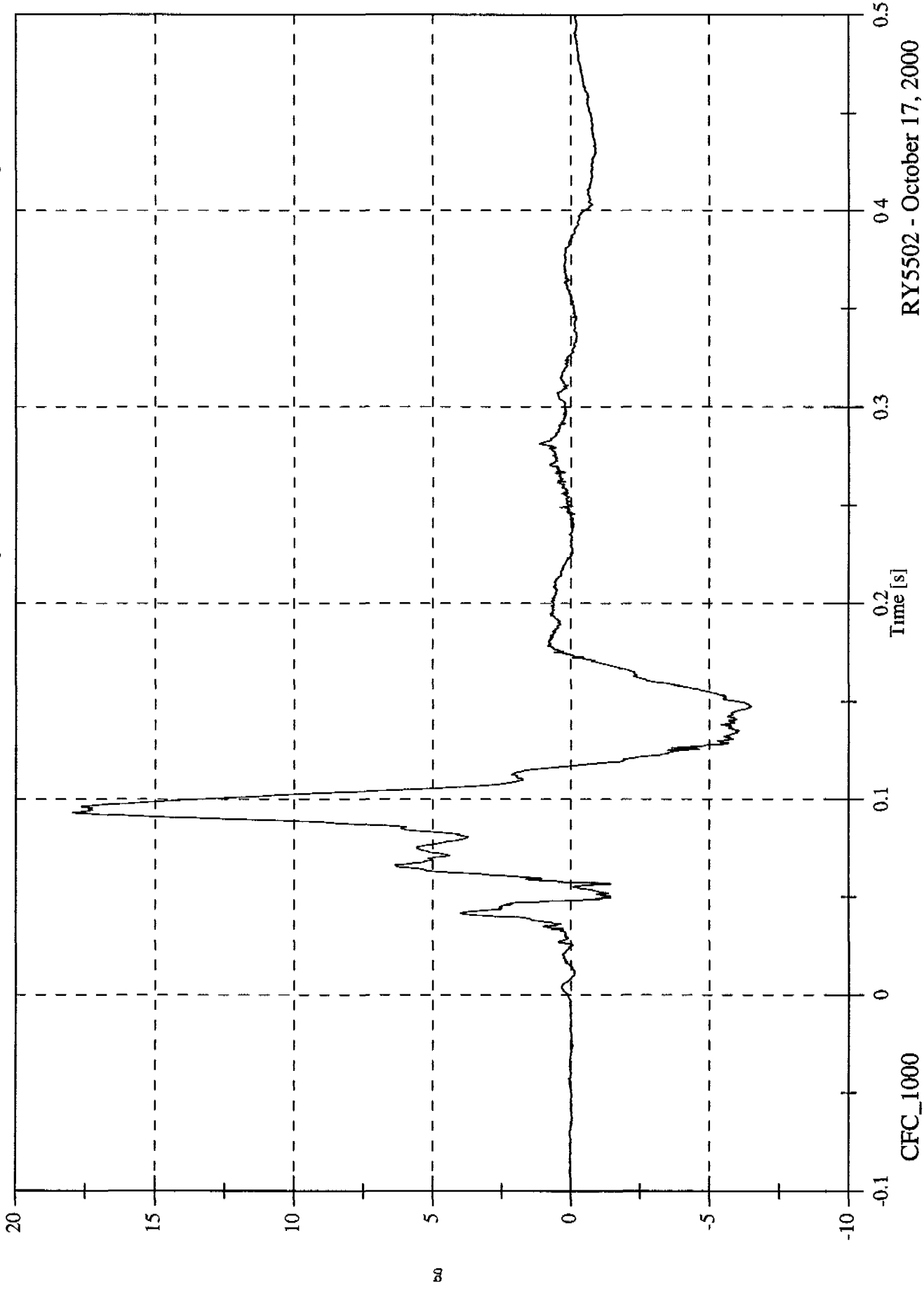


RYY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P2 Pelvic y

Max: 18.0 [g] at 0.093 [s]  
Min: -6.5 [g] at 0.147 [s]



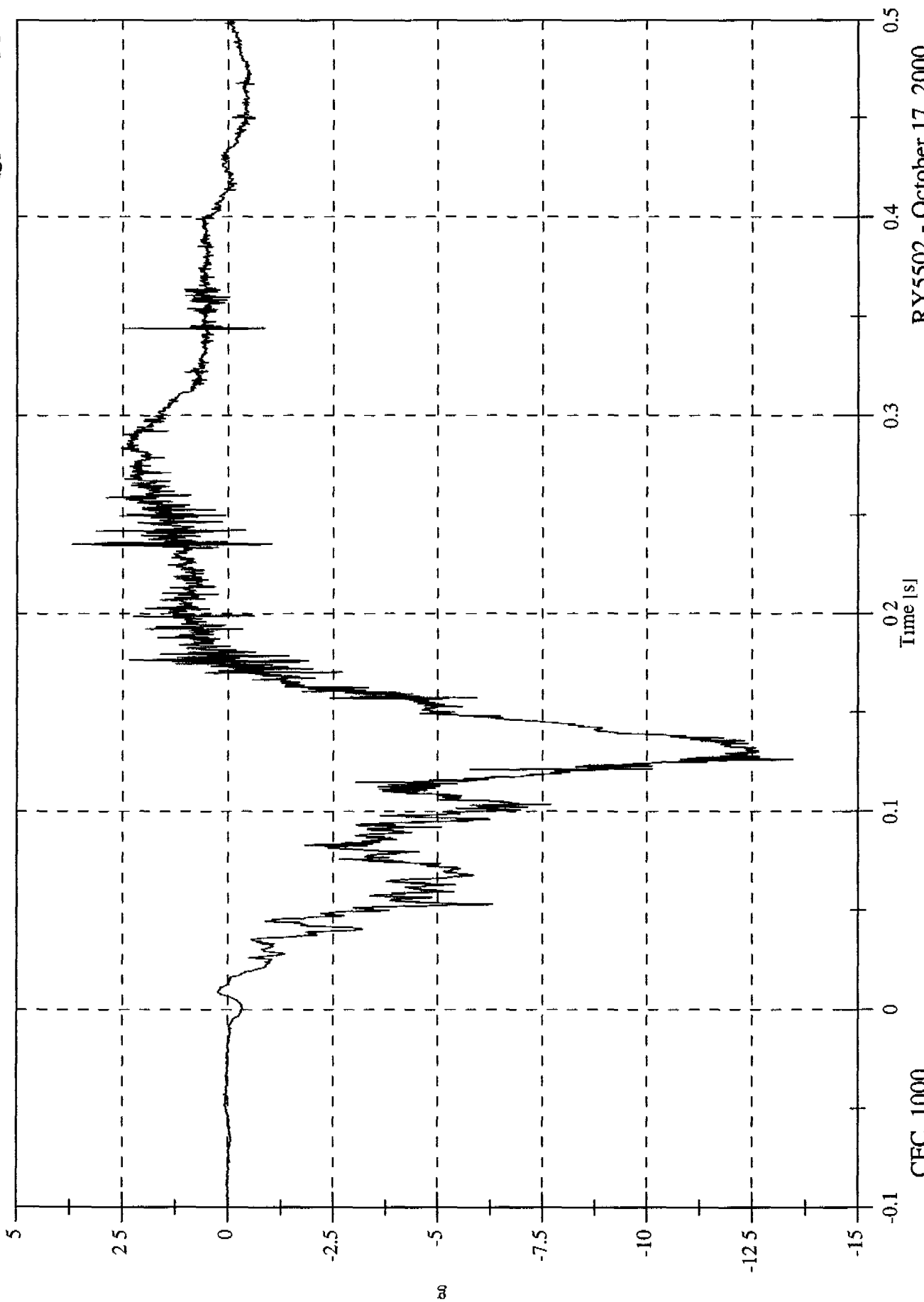
R Y 5 5 0 2 - O c t o b e r 1 7 , 2 0 0 0

2000 Subaru Legacy 40% Offset Impact

Max: 3.7 [g] at 0.235 [s]

Min: -13.5 [g] at 0.126 [s]

P2 Pelvic z

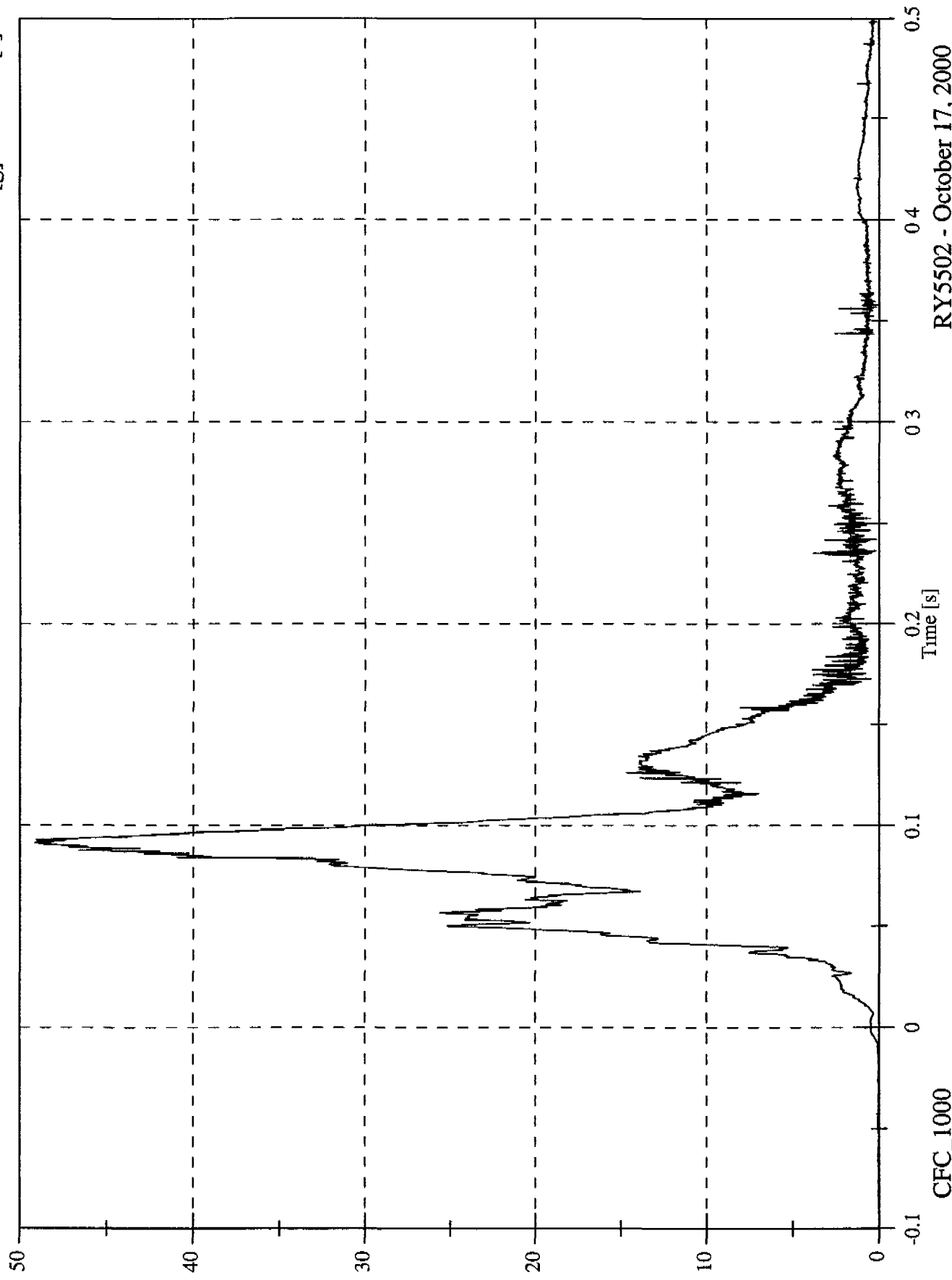


R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 49.1 [g] at 0.091 [s]  
Min: 0.0 [g] at -0.019 [s]

P2 Pelvic Resultant

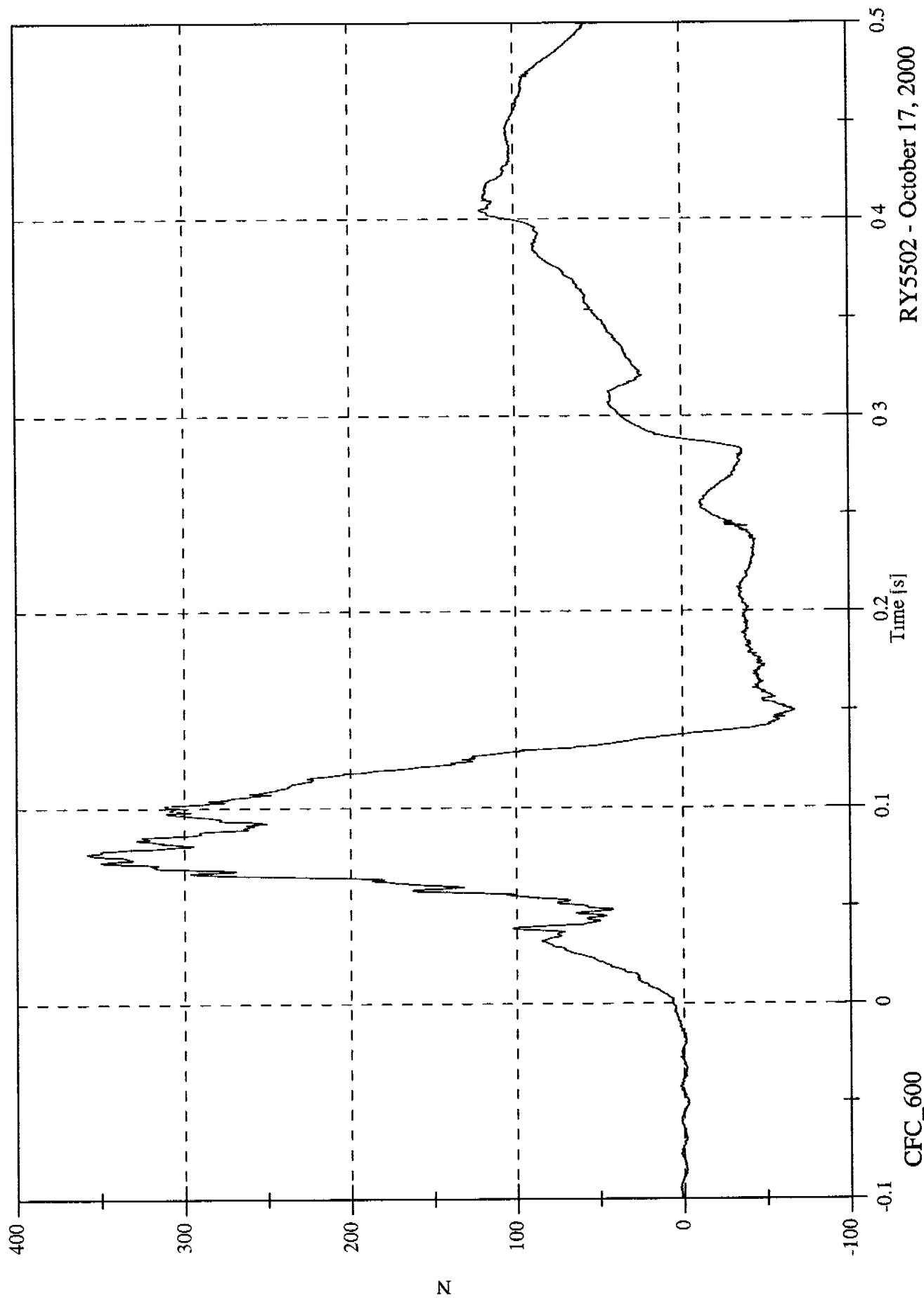


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 357.8 [N] at 0.077 [s]  
Min: -67.2 [N] at 0.149 [s]

P2 Left Femur Fx



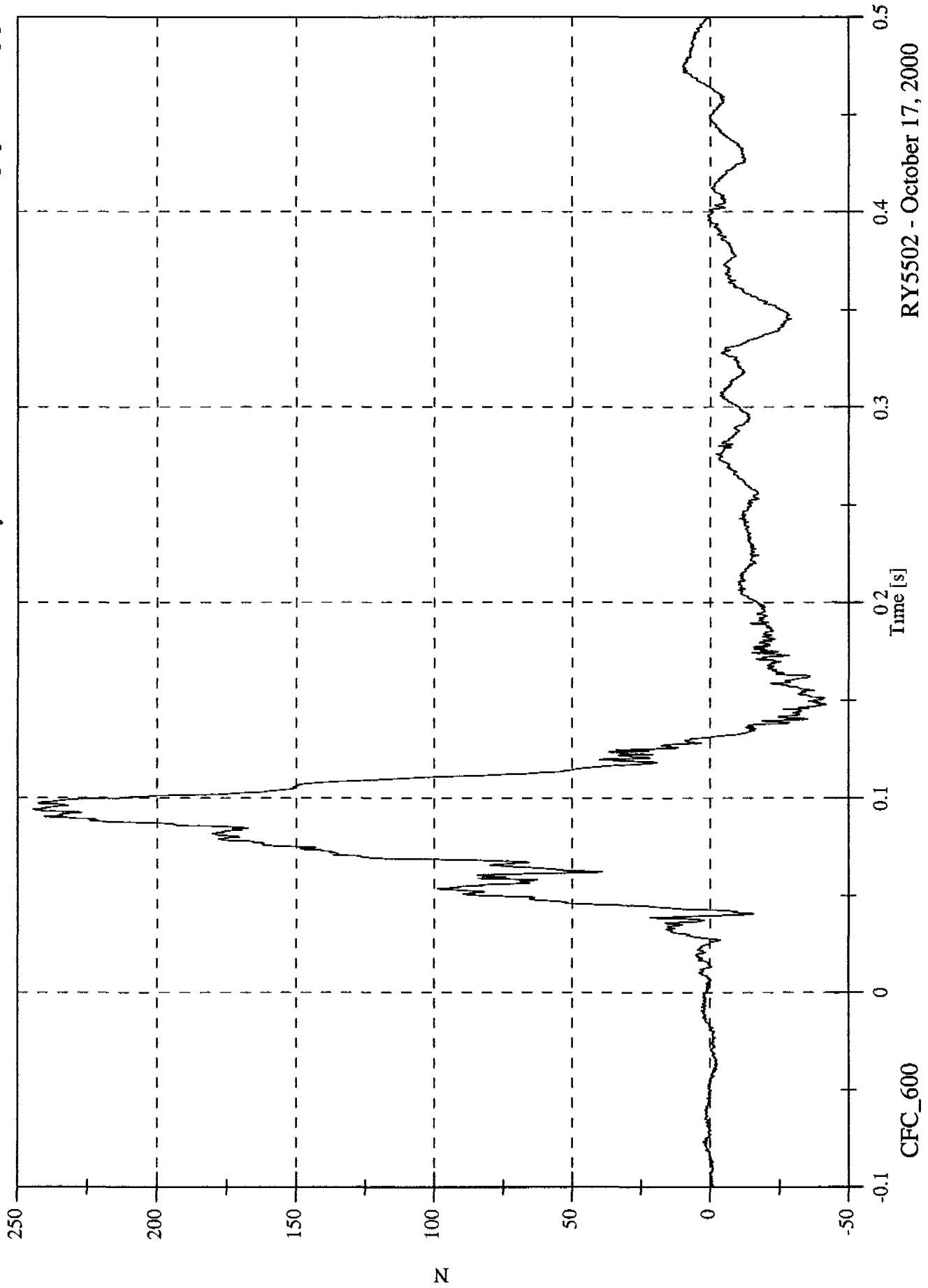
R Y5502 - October 17, 2000

CFC\_600

2000 Subaru Legacy 40% Offset Impact

Max: 244.5 [N] at 0.094 [s]  
Min: -41.9 [N] at 0.148 [s]

P2 Left Femur Fy



RYS502 - October 17, 2000

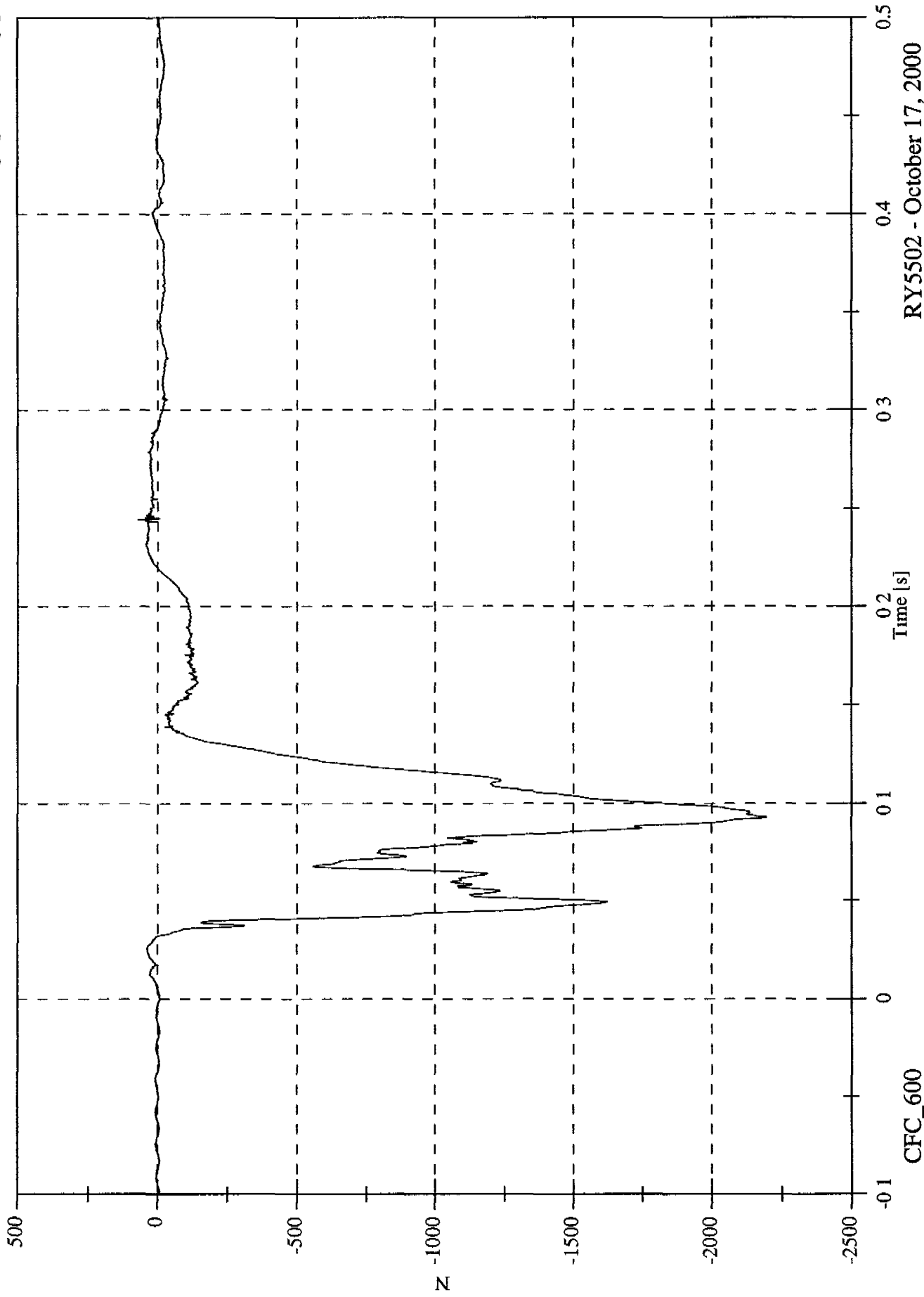
CFC\_600

2000 Subaru Legacy 40% Offset Impact

Max: 71.6 [N] at 0.244 [s]

Min: -2196.1 [N] at 0.093 [s]

P2 Left Femur Fz



CFC\_600

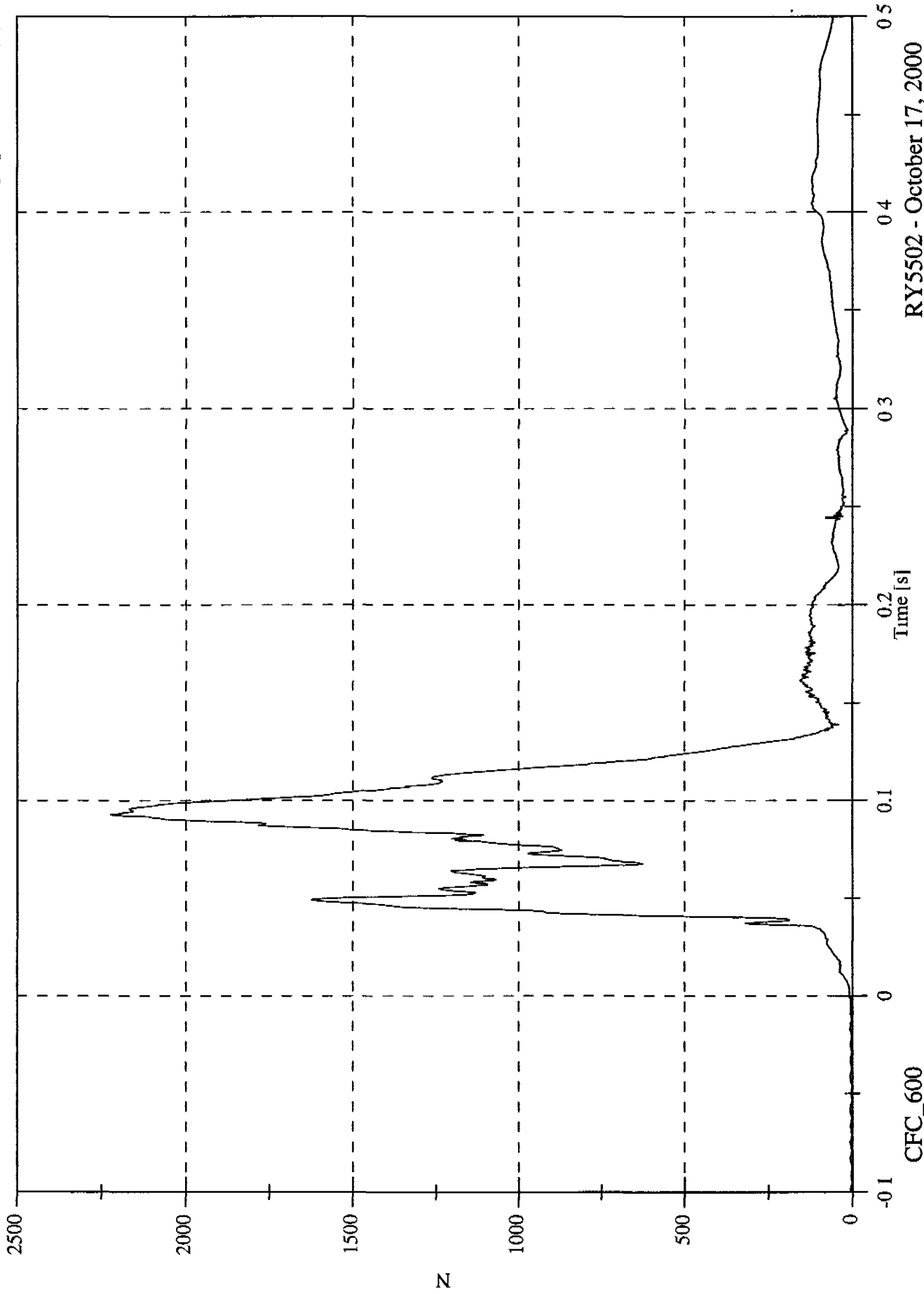
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2223.0 [N] at 0.093 [s]  
Min: 0.5 [N] at -0.046 [s]

P2 Left Femur F Resultant



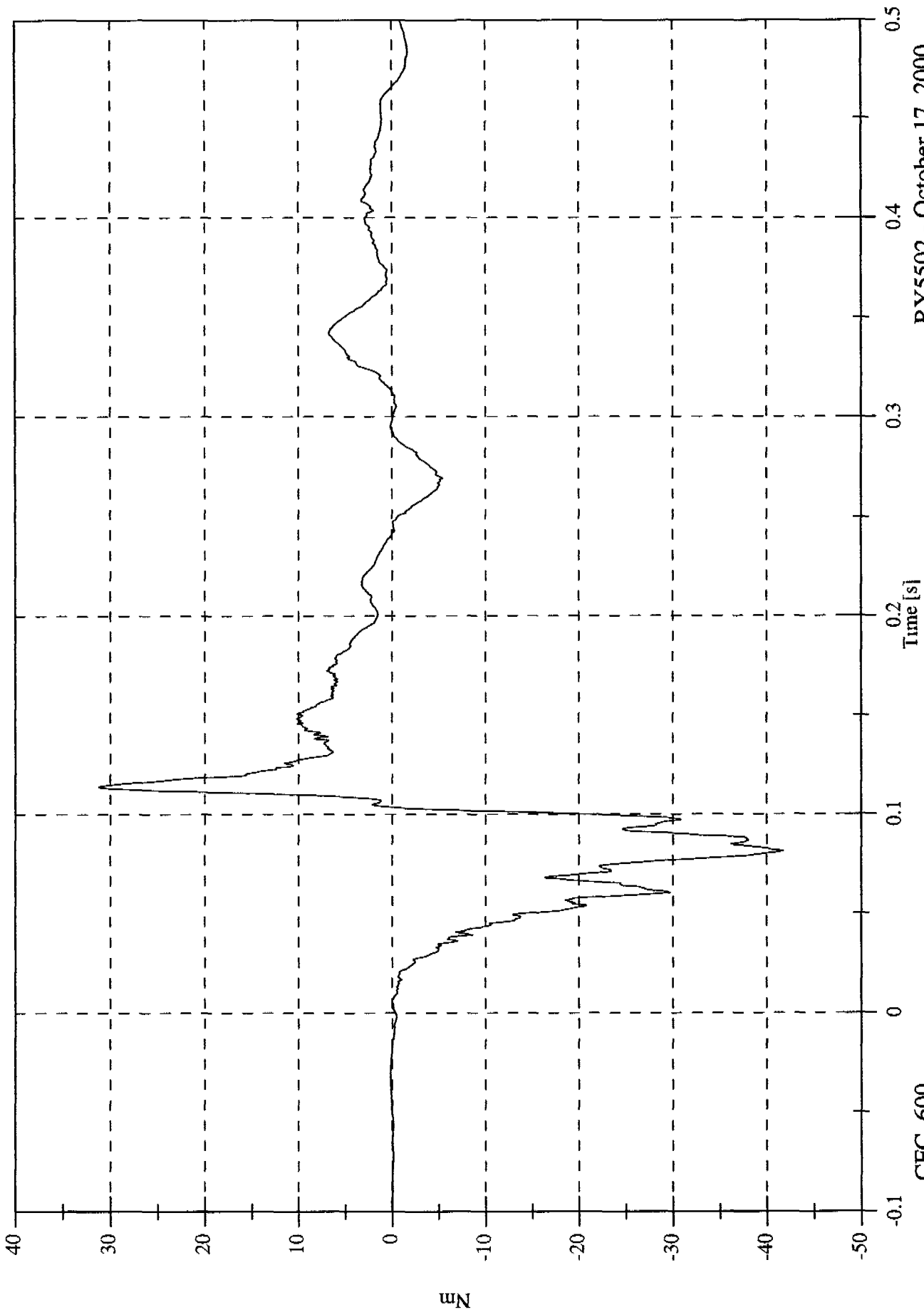
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 31.2 [Nm] at 0.114 [s]

Min: -41.8 [Nm] at 0.081 [s]

P2 Left Femur Mx



CFC\_600

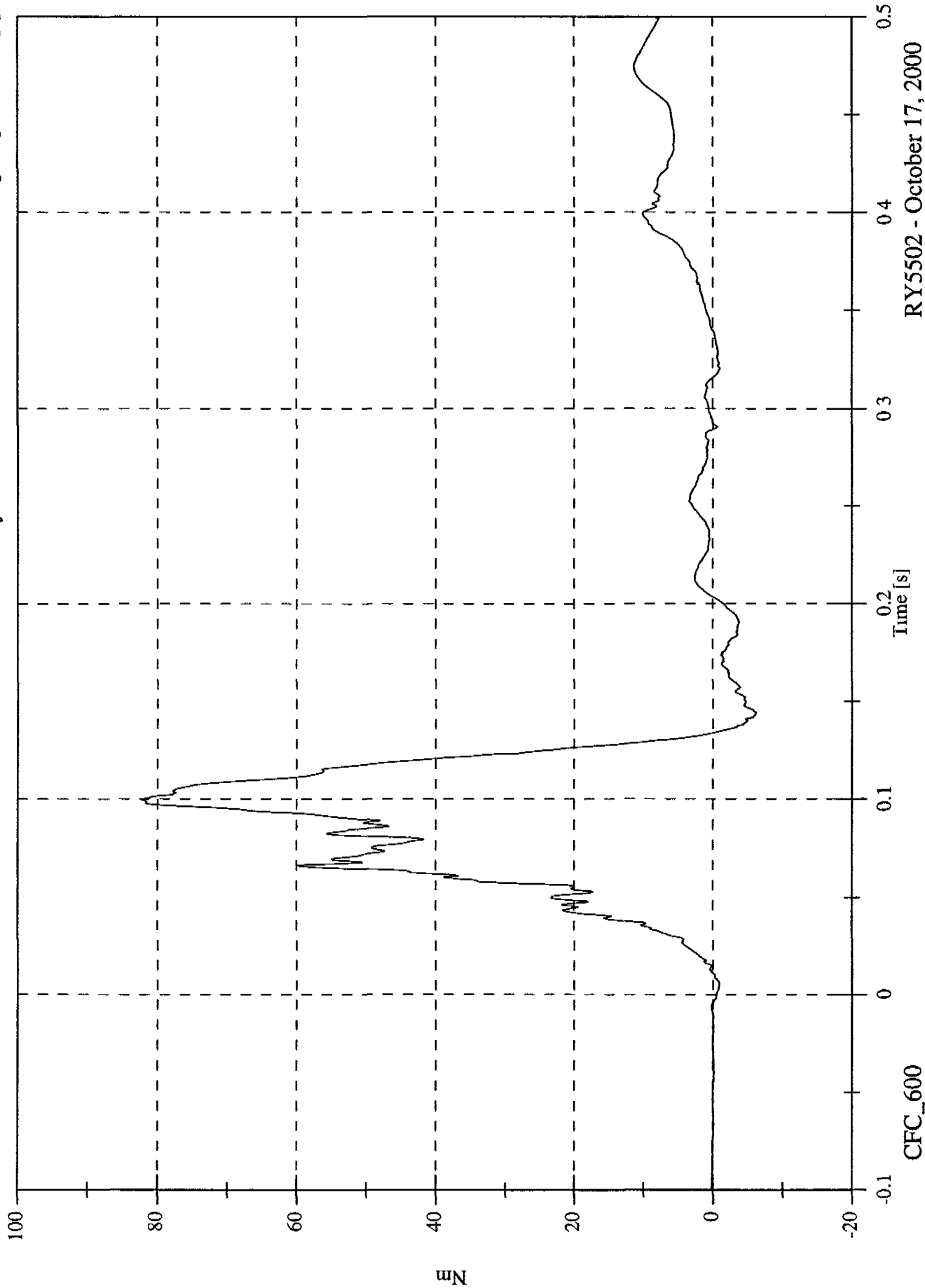
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 82.3 [Nm] at 0.100 [s]

Min: -6.2 [Nm] at 0.144 [s]

P2 Left Femur My

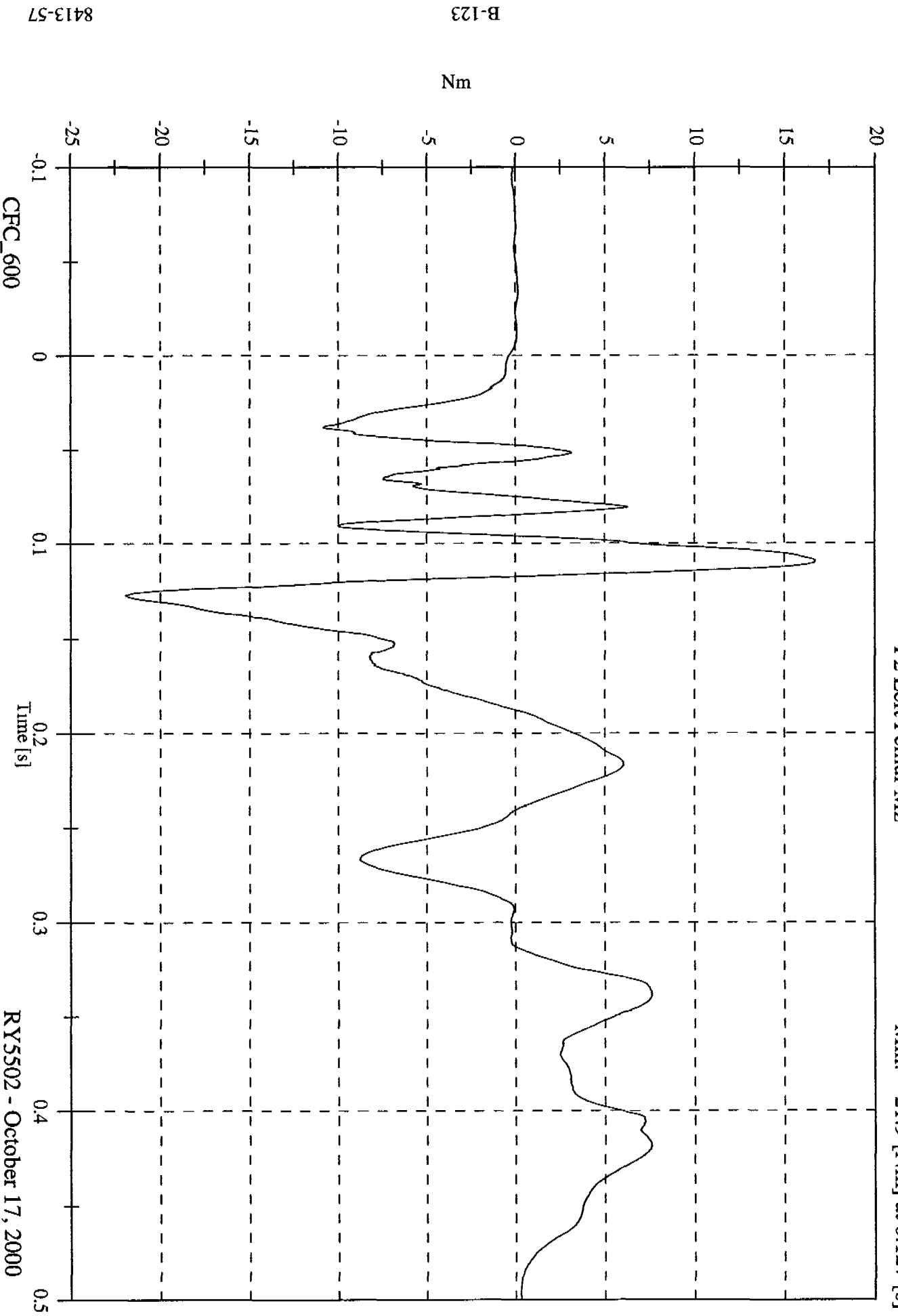


R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P2 Left Femur Mz

Max: 16.7 [Nm] at 0.109 [s]  
Min: -21.9 [Nm] at 0.127 [s]



B-123

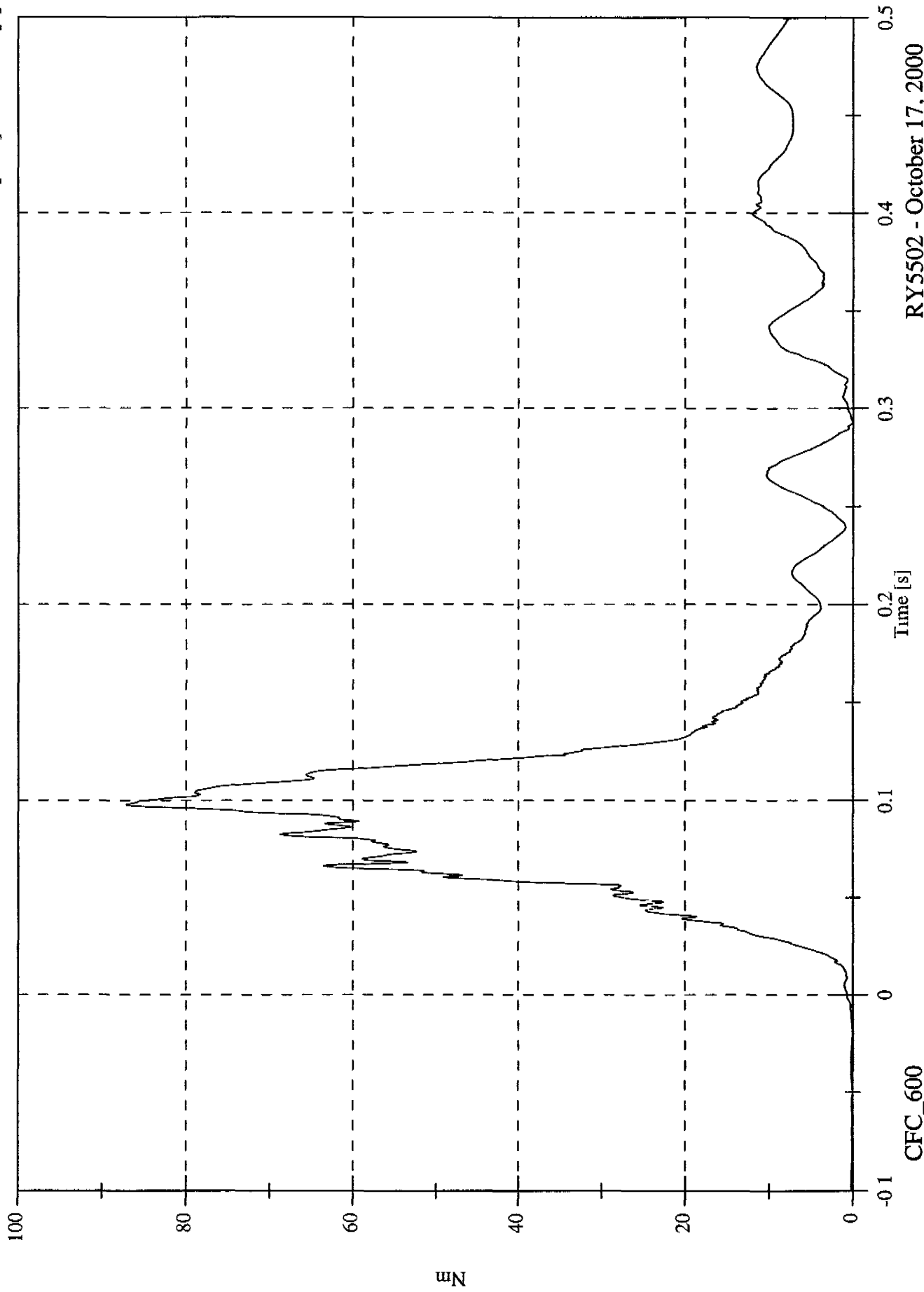
8413-57

RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 87.2 [Nm] at 0.098 [s]  
Min: 0.0 [Nm] at -0.051 [s]

P2 Left Femur M Resultant



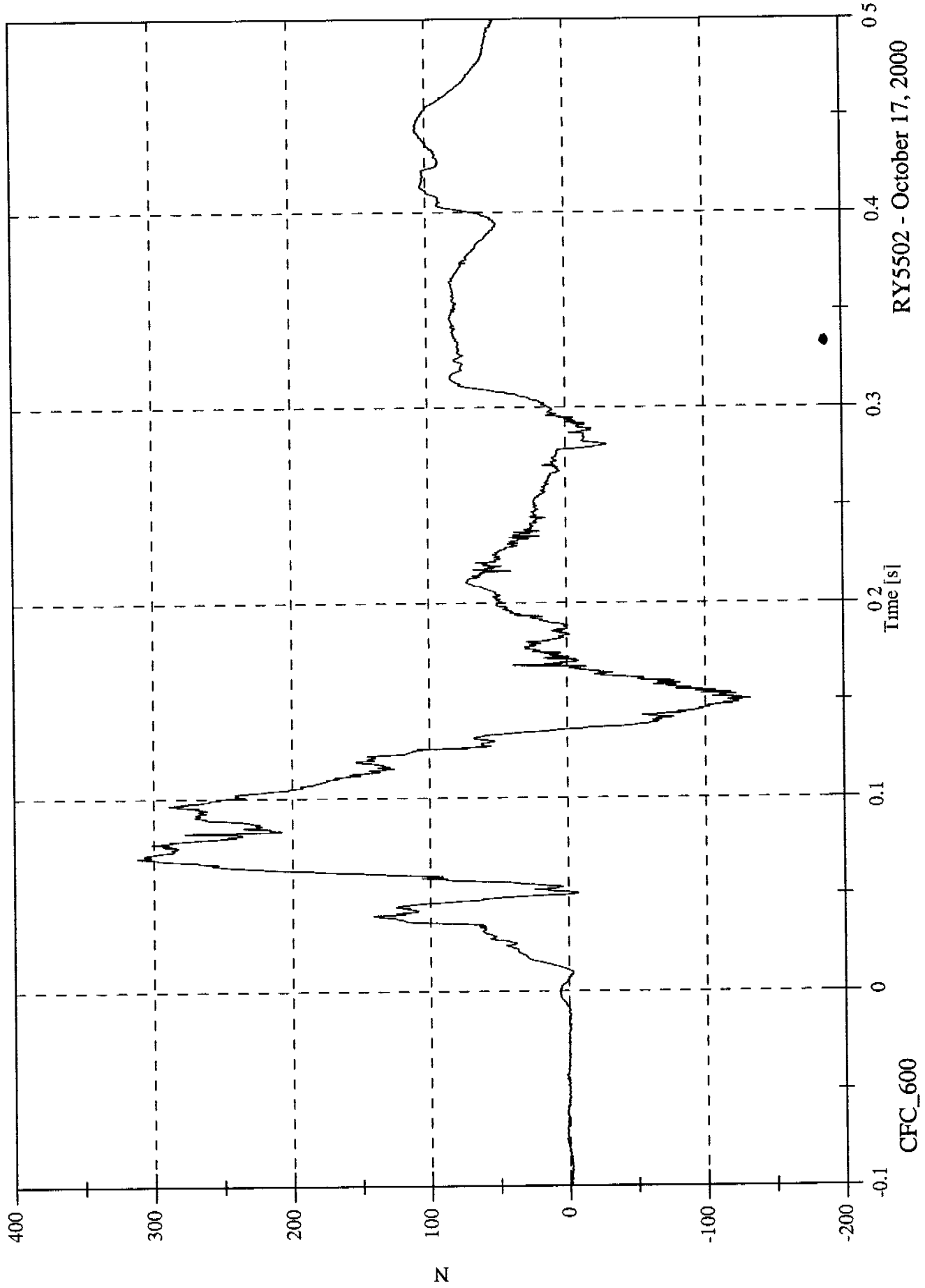
RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 311.6 [N] at 0.069 [s]

Min: -132.4 [N] at 0.150 [s]

P2 Right Femur Fx



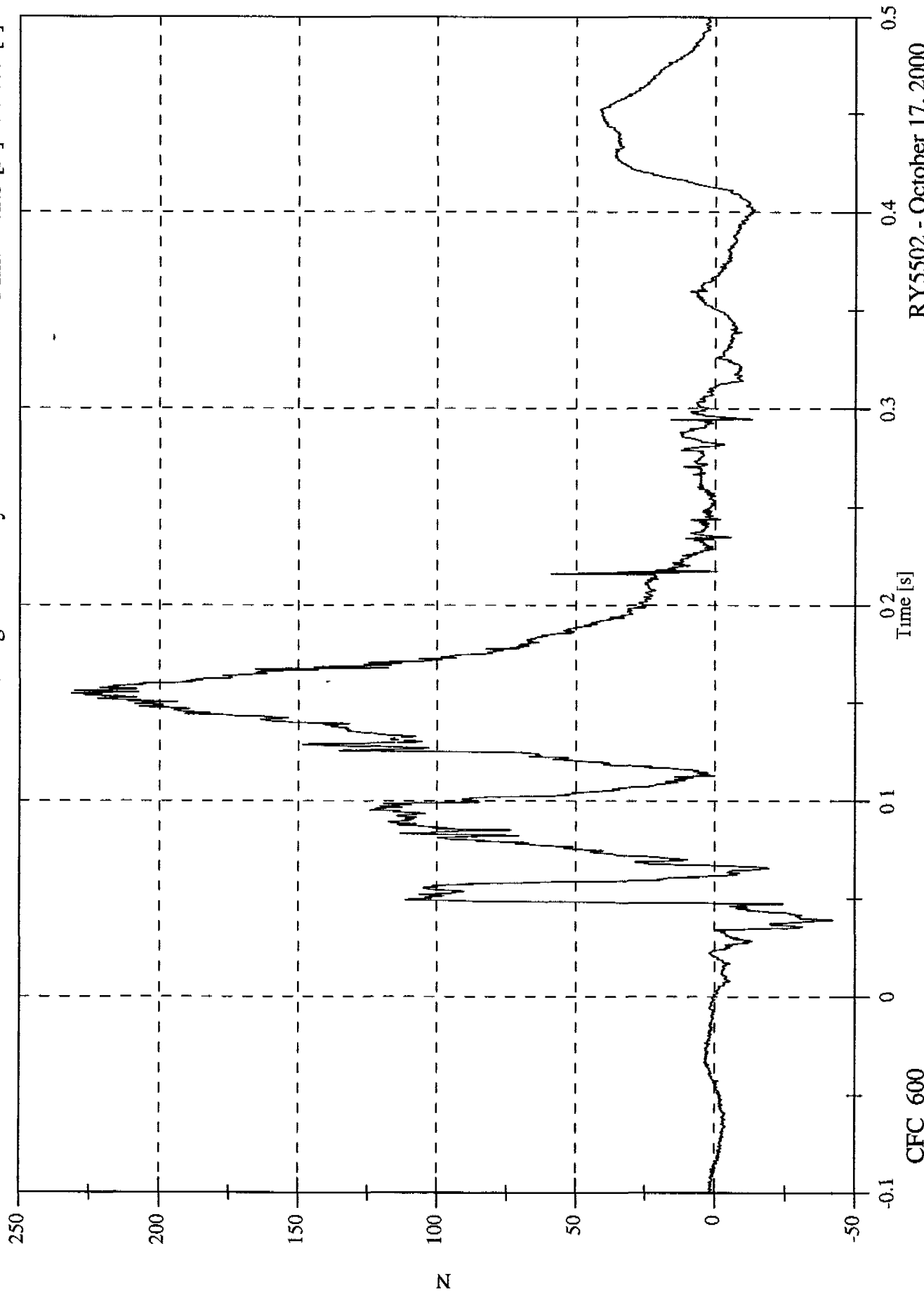
RYS502 - October 17, 2000

CFC\_600

2000 Subaru Legacy 40% Offset Impact

Max: 231.4 [N] at 0.155 [s]  
Min: -42.3 [N] at 0.039 [s]

P2 Right Femur Fy



RY5502 - October 17, 2000

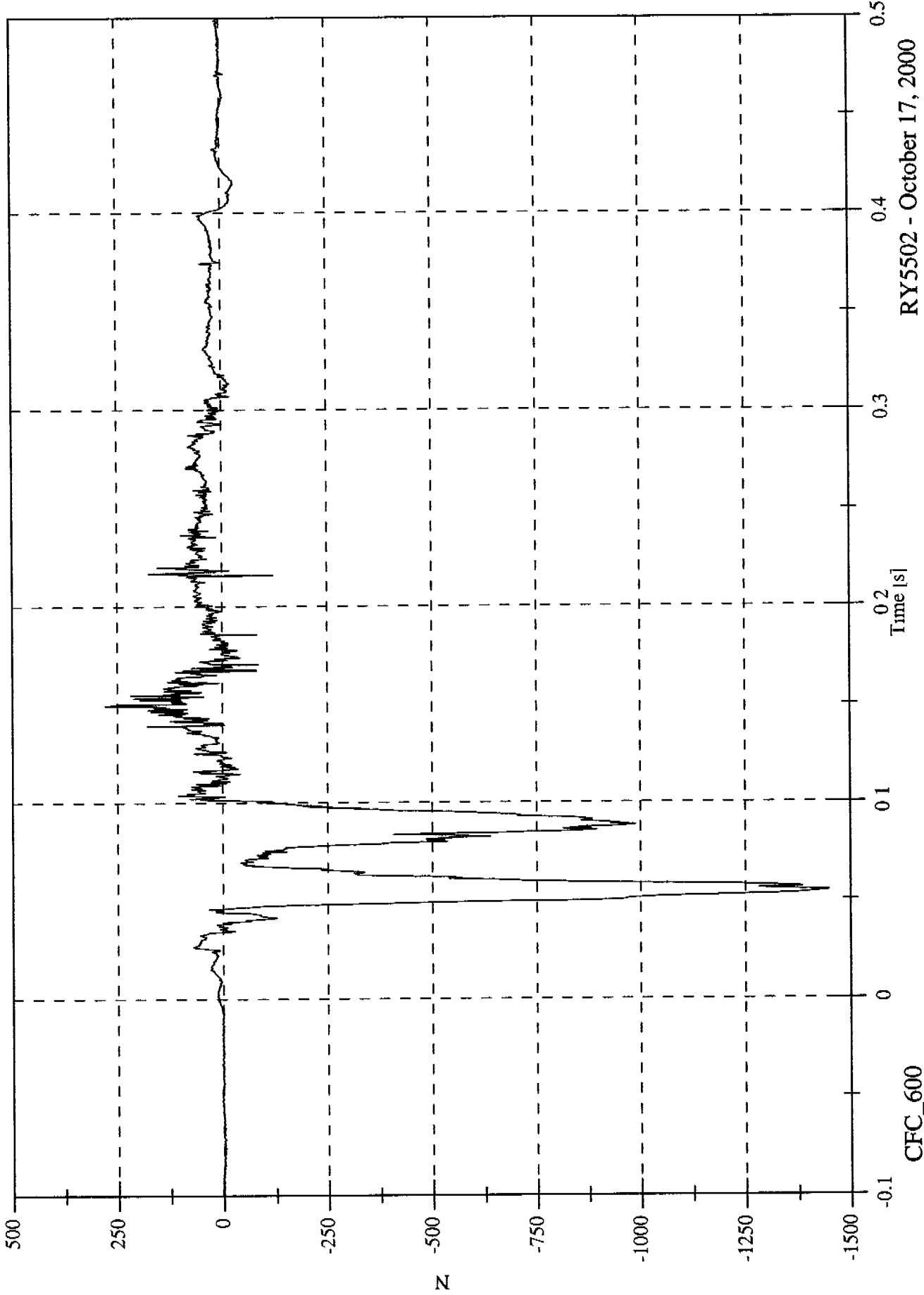
CFC\_600

2000 Subaru Legacy 40% Offset Impact

Max: 278.6 [N] at 0.150 [s]

Min: -1448.0 [N] at 0.055 [s]

P2 Right Femur Fz



R Y5502 - October 17, 2000

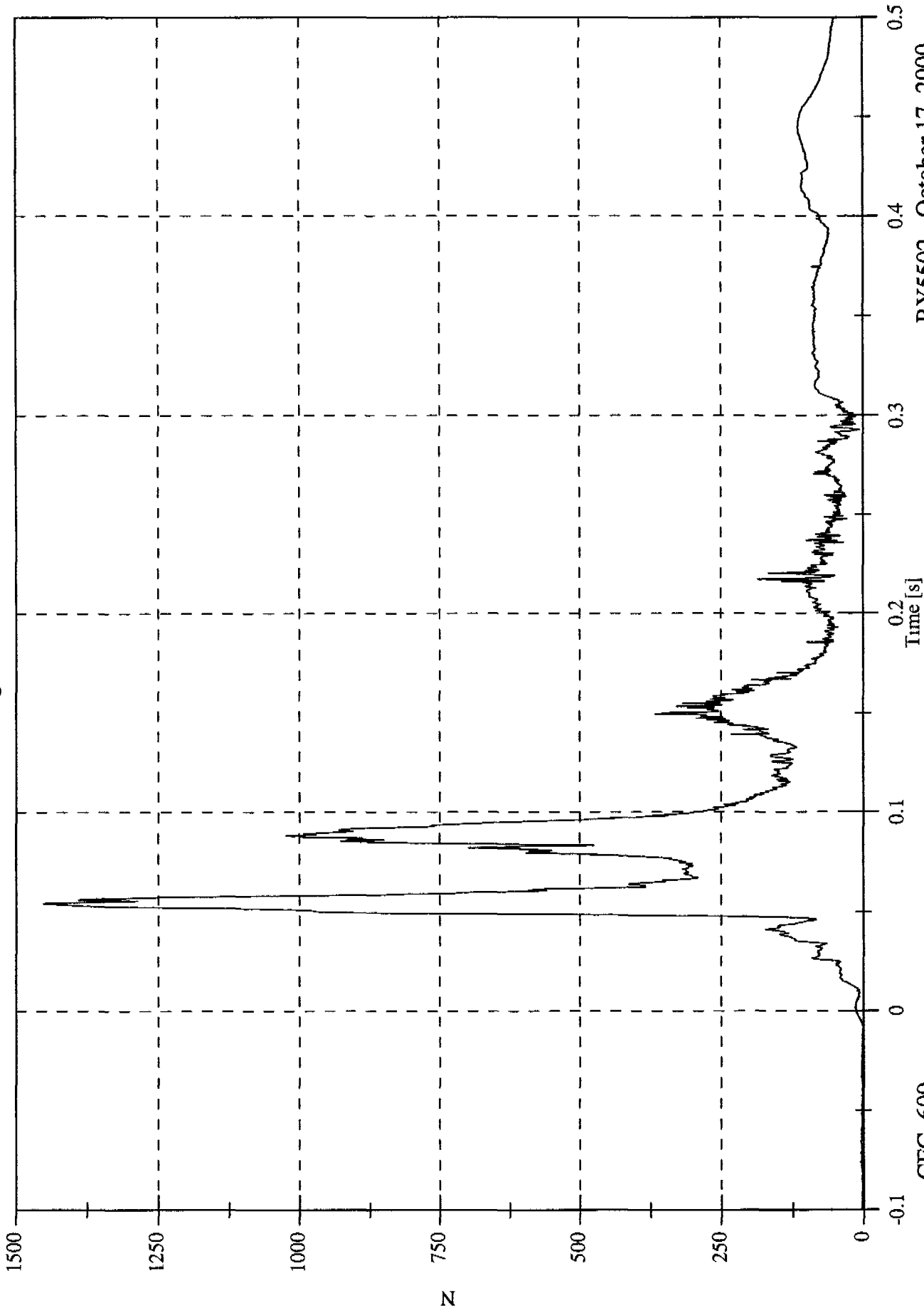
CFC\_600

2000 Subaru Legacy 40% Offset Impact

P2 Right Femur F Resultant

Max: 1451.7 [N] at 0.055 [s]

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



CFC\_600

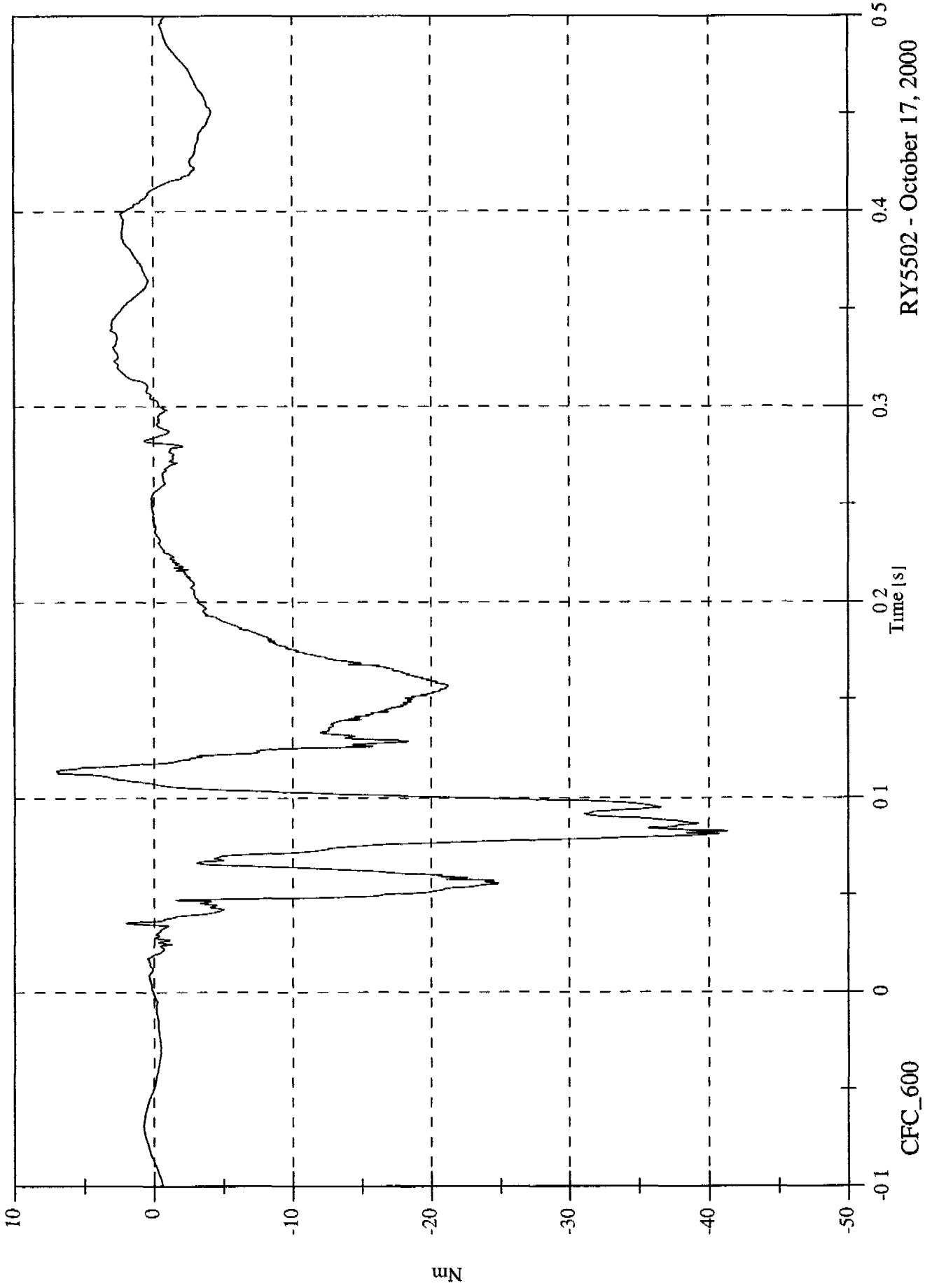
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 7.0 [Nm] at 0.114 [s]

Min: -41.3 [Nm] at 0.083 [s]

P2 Right Femur Mx



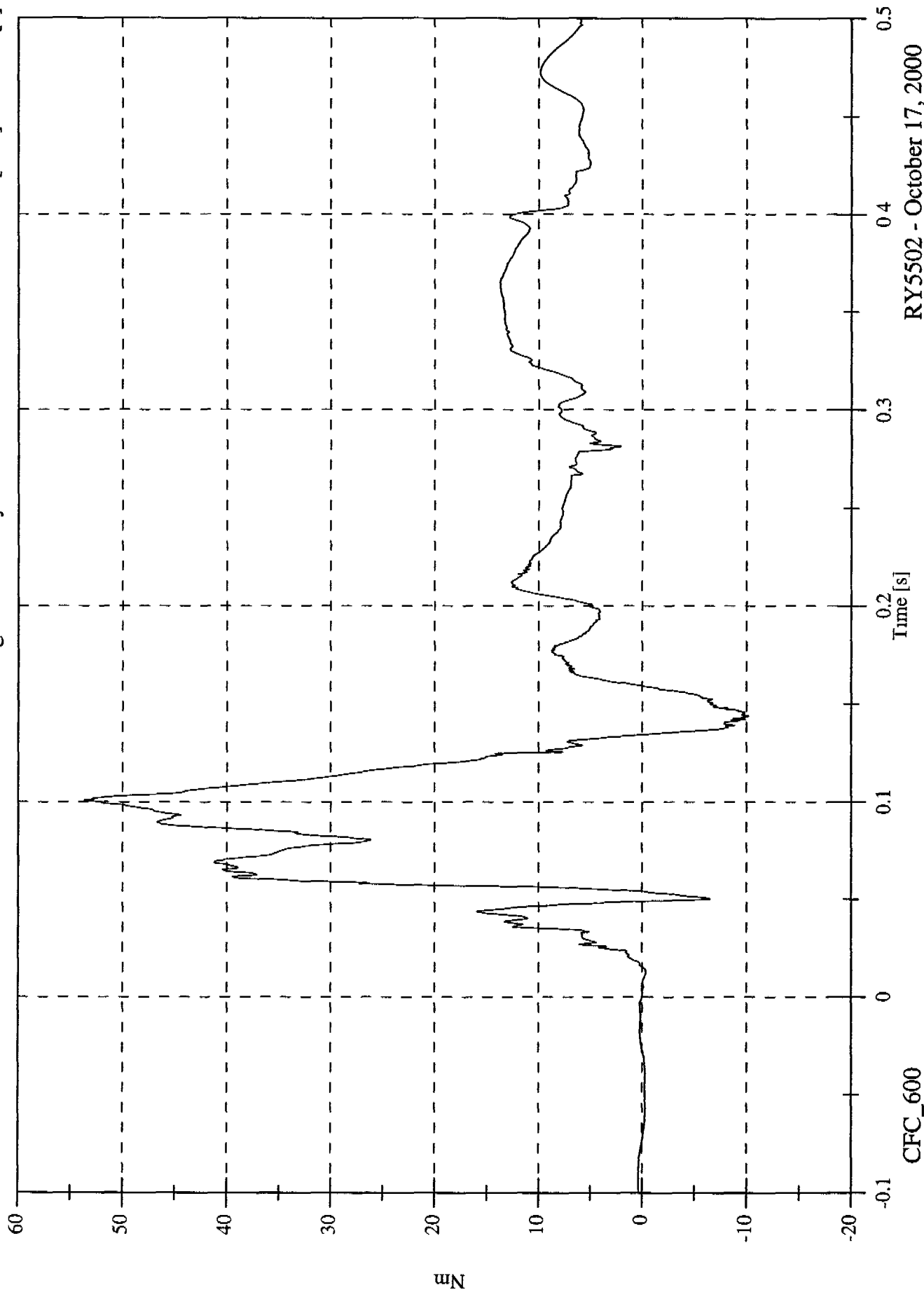
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

P2 Right Femur My

Max: 53.6 [Nm] at 0.101 [s]  
Min: -10.2 [Nm] at 0.144 [s]



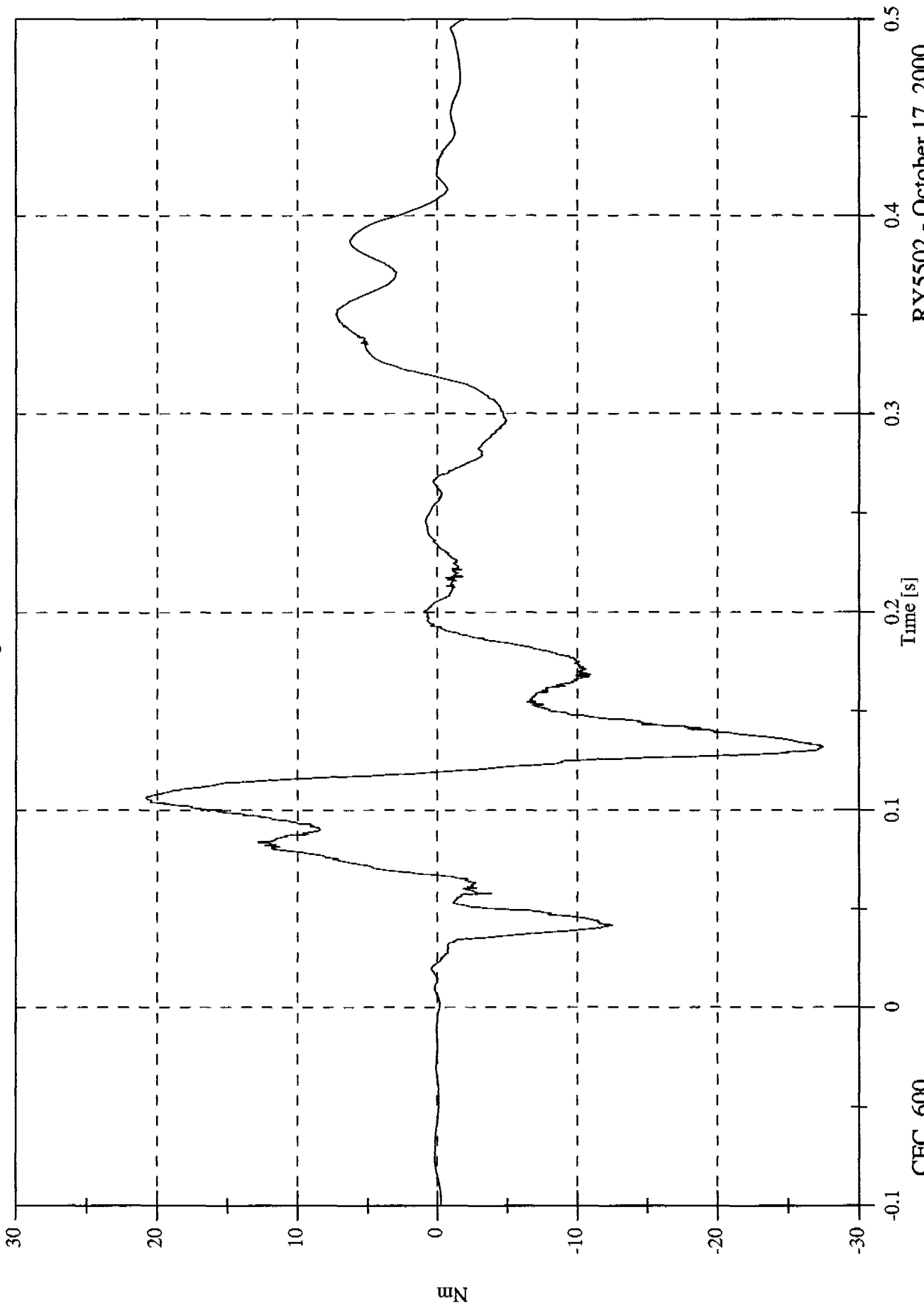
RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 20.8 [Nm] at 0.106 [s]

Min: -27.4 [Nm] at 0.132 [s]

P2 Right Femur Mz



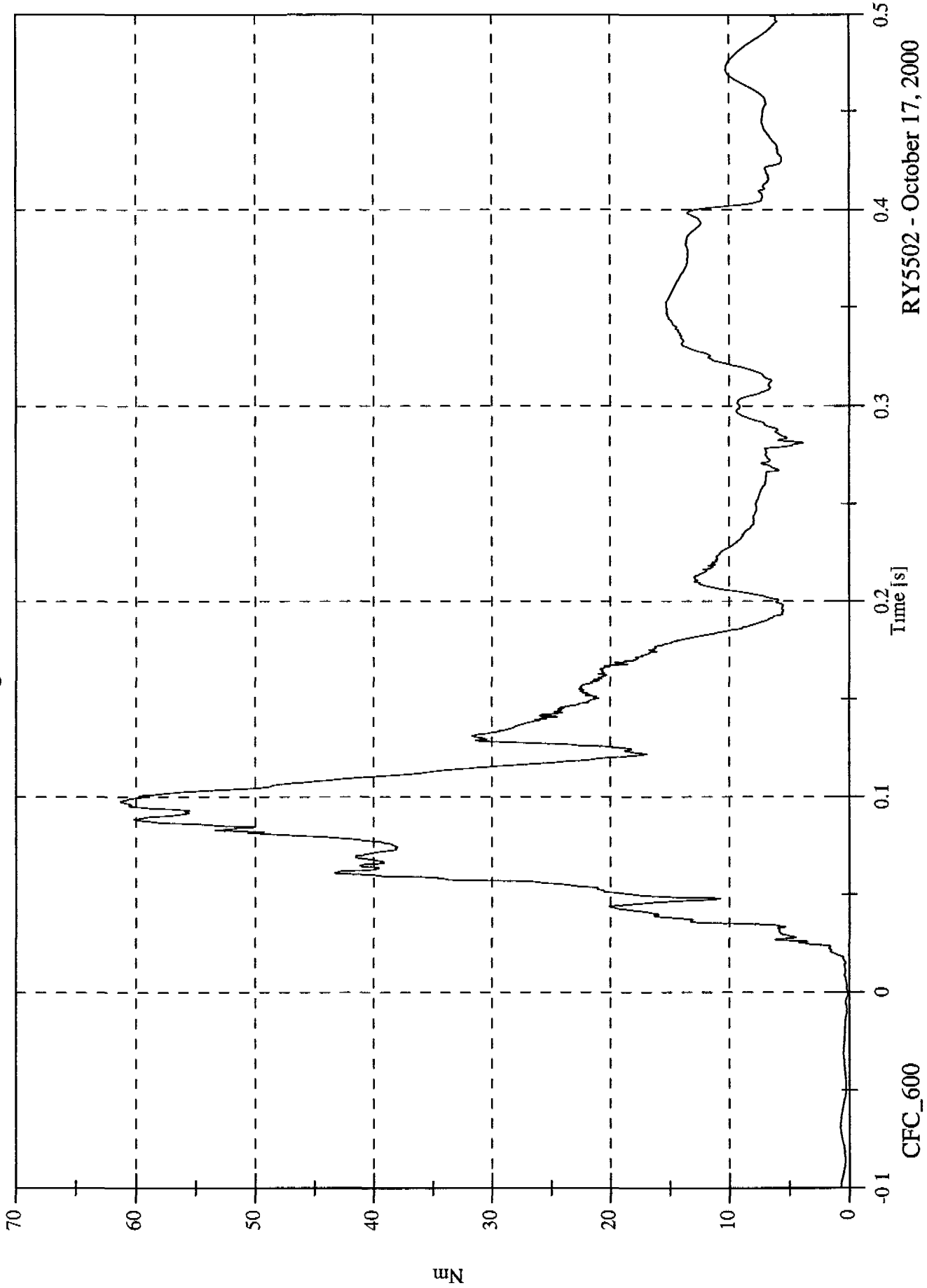
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 61.3 [Nm] at 0.098 [s]  
Min: 0.1 [Nm] at -0.100 [s]

P2 Right Femur M Resultant



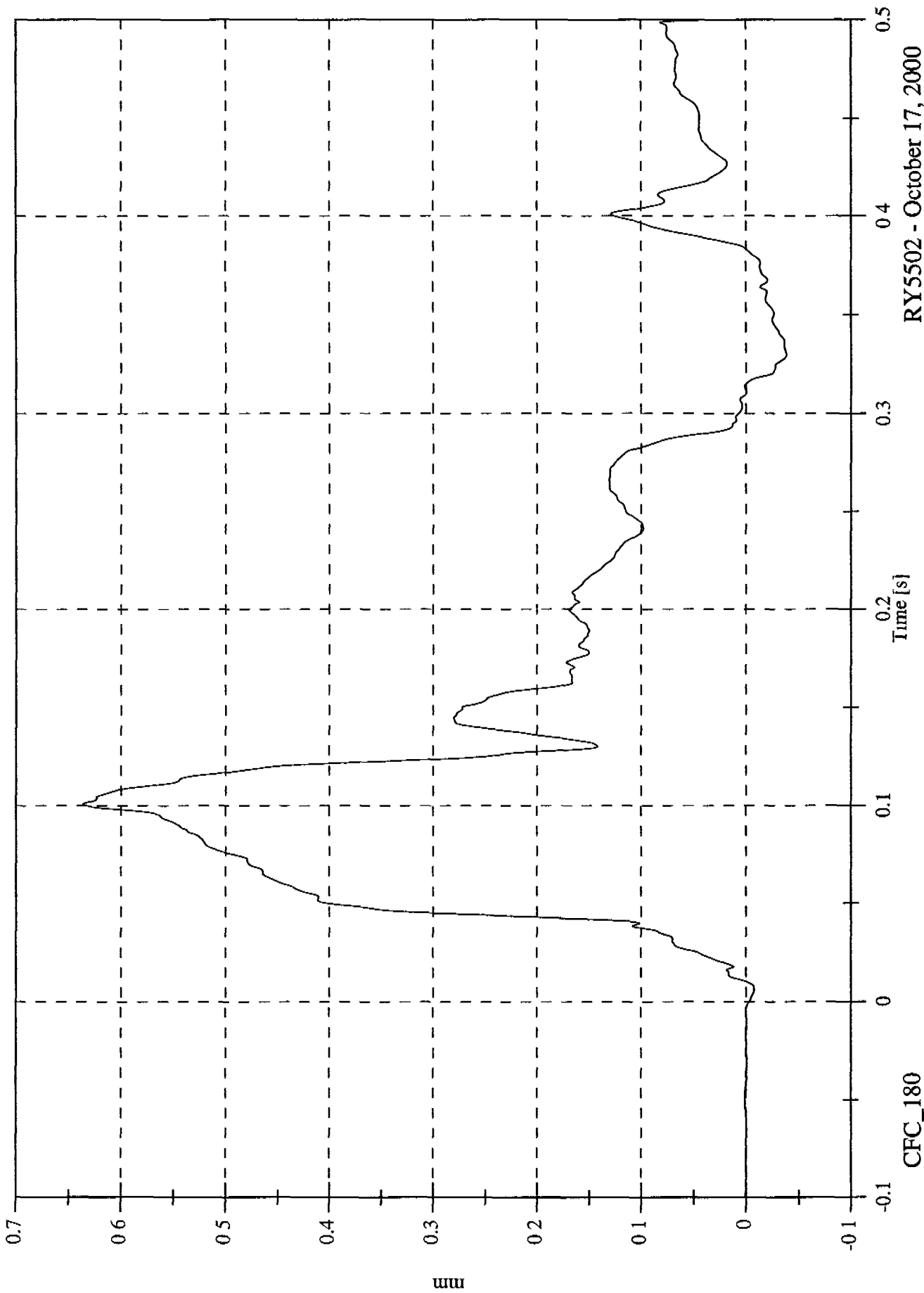
RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 0.6 [mm] at 0.101 [s]

Min: -0.0 [mm] at 0.330 [s]

P2 Left Knee Shear Dx



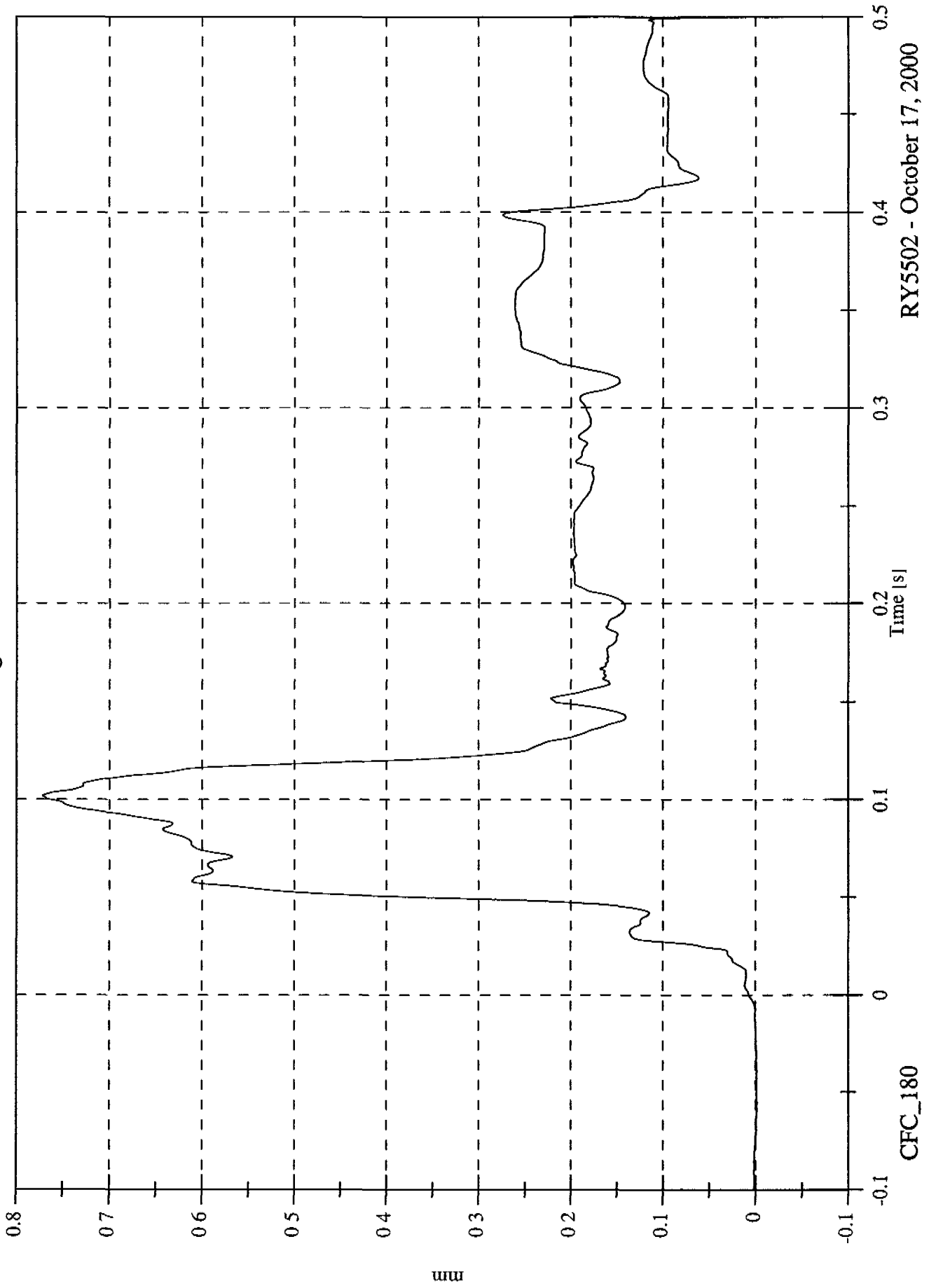
CFC\_180

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 0.8 [mm] at 0.102 [s]  
Min: -0.0 [mm] at -0.056 [s]

P2 Right Knee Shear Dx

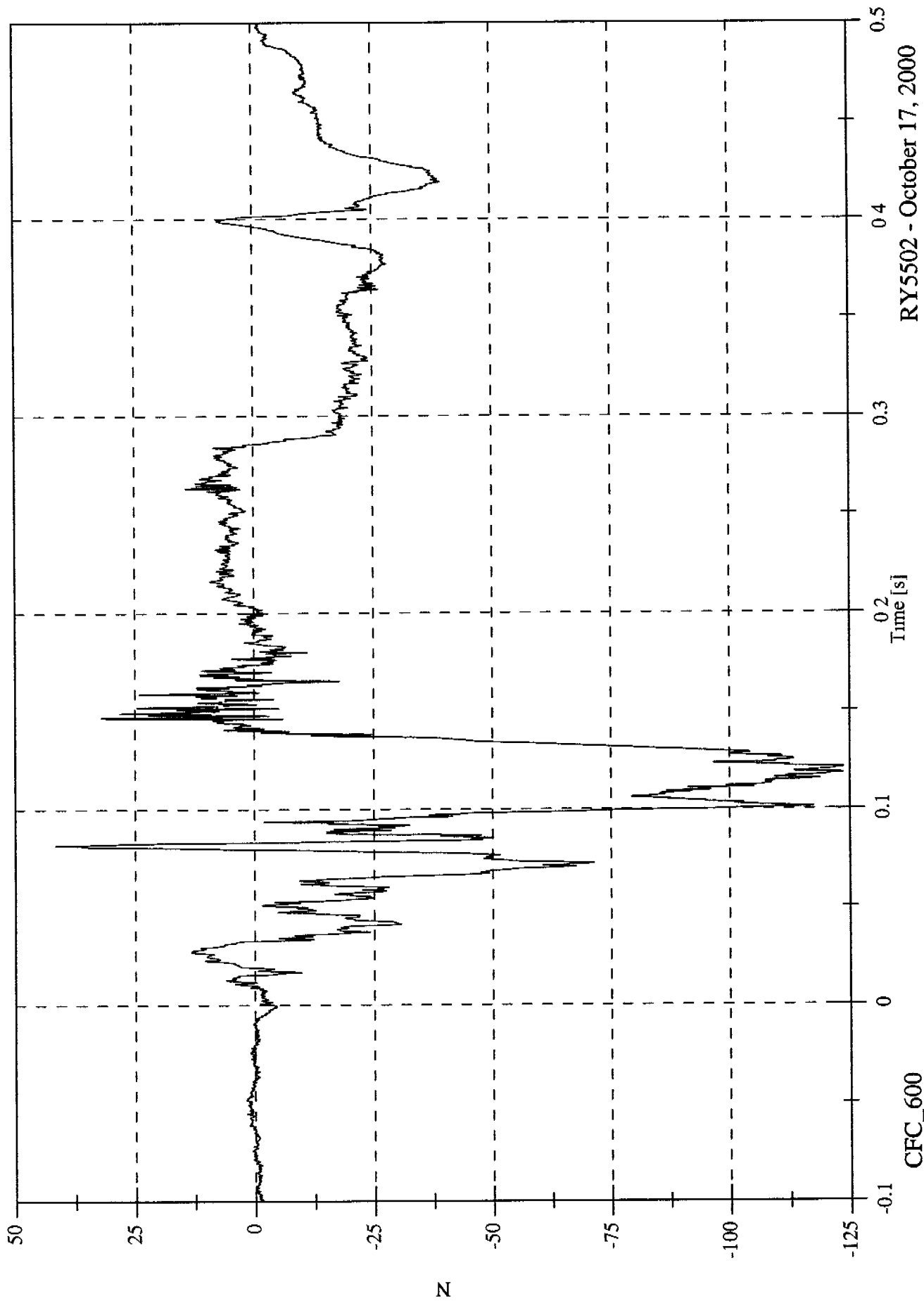


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 41.6 [N] at 0.082 [s]  
Min: -123.8 [N] at 0.121 [s]

P2 Left Upper Tibia Fx



CFC\_600

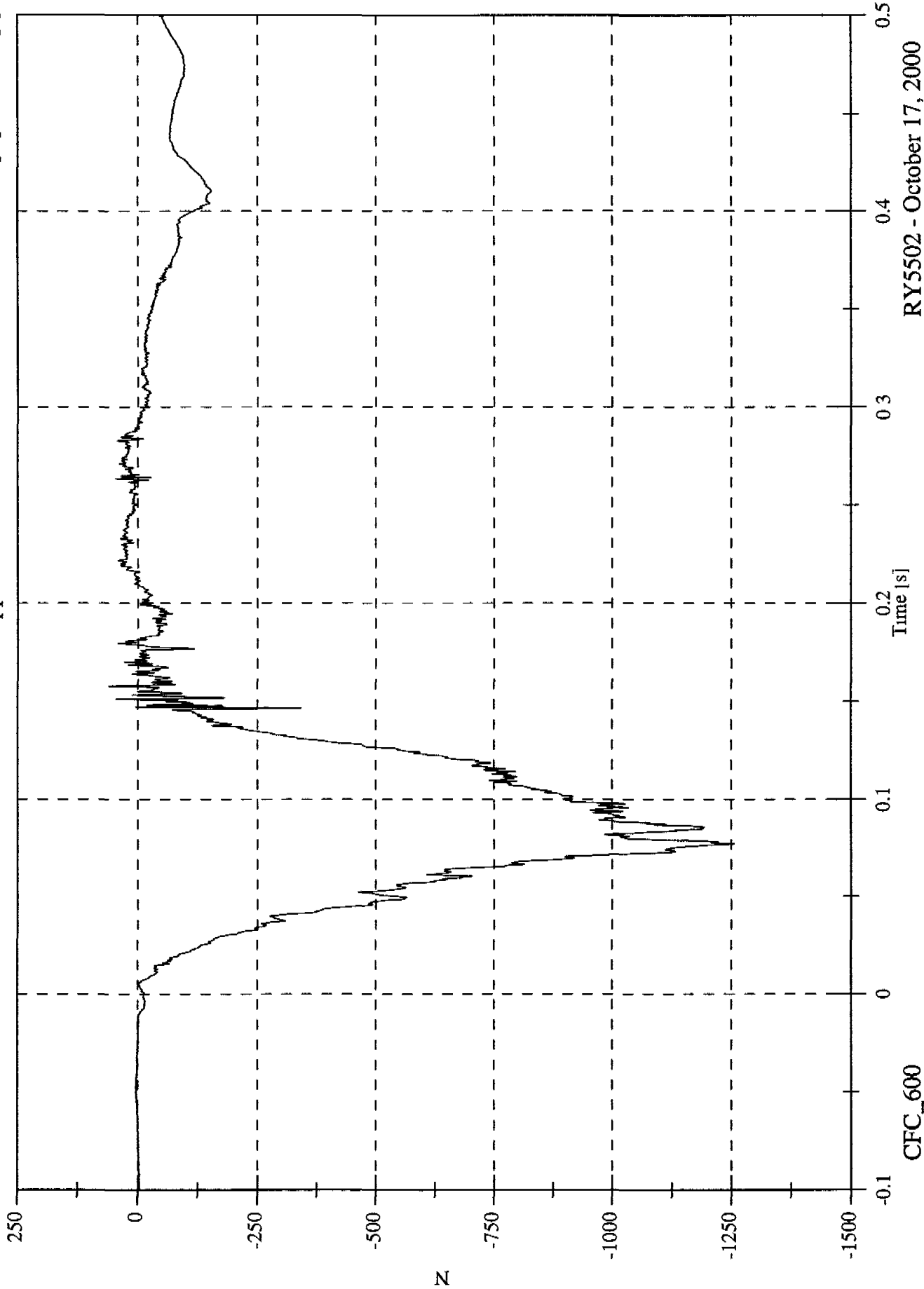
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 59.6 [N] at 0.158 [s]  
Min: -1255.6 [N] at 0.077 [s]

P2 Left Upper Tibia Fz

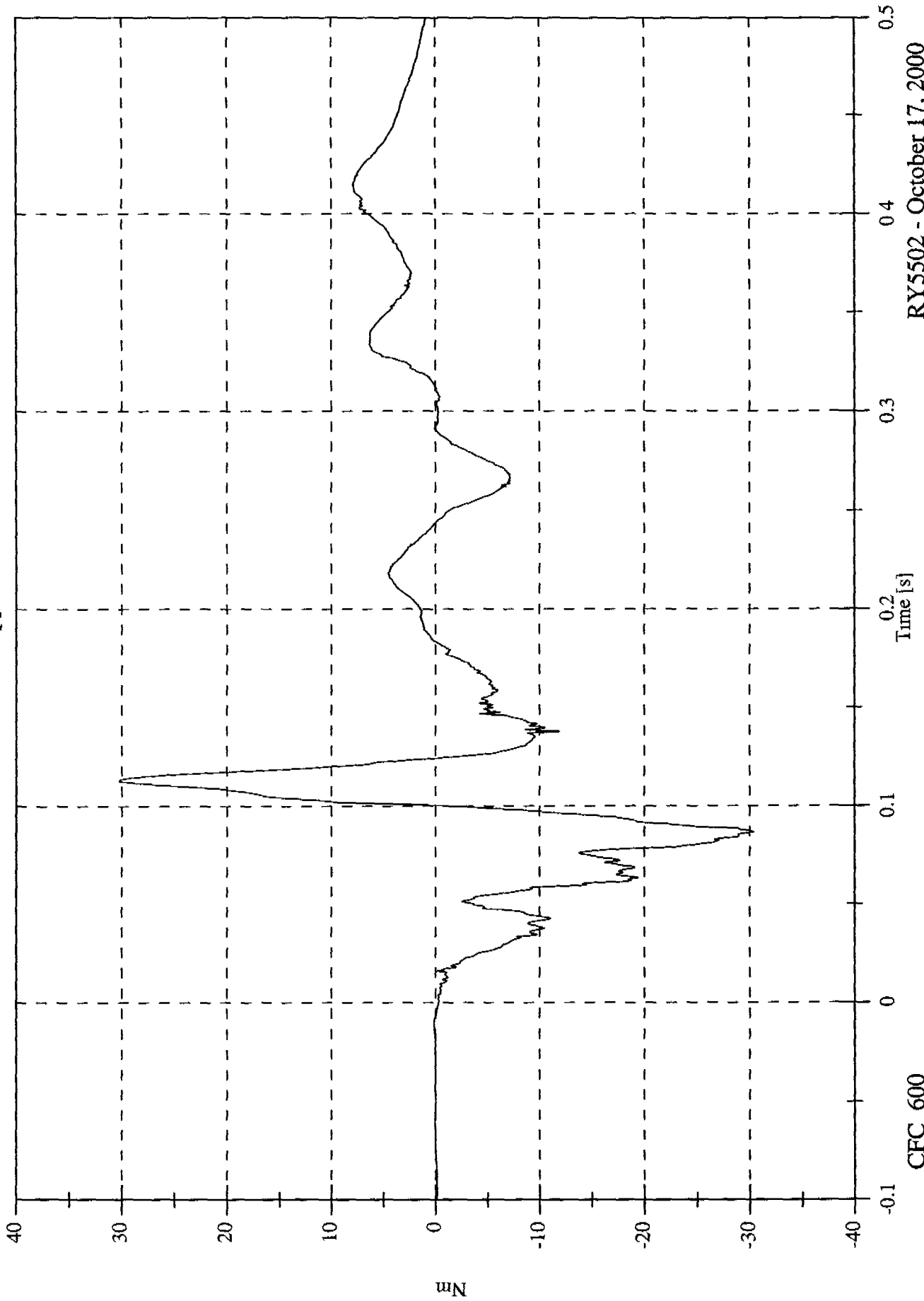


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 30.2 [Nm] at 0.113 [s]  
Min: -30.3 [Nm] at 0.087 [s]

P2 Left Upper Tibia Mx

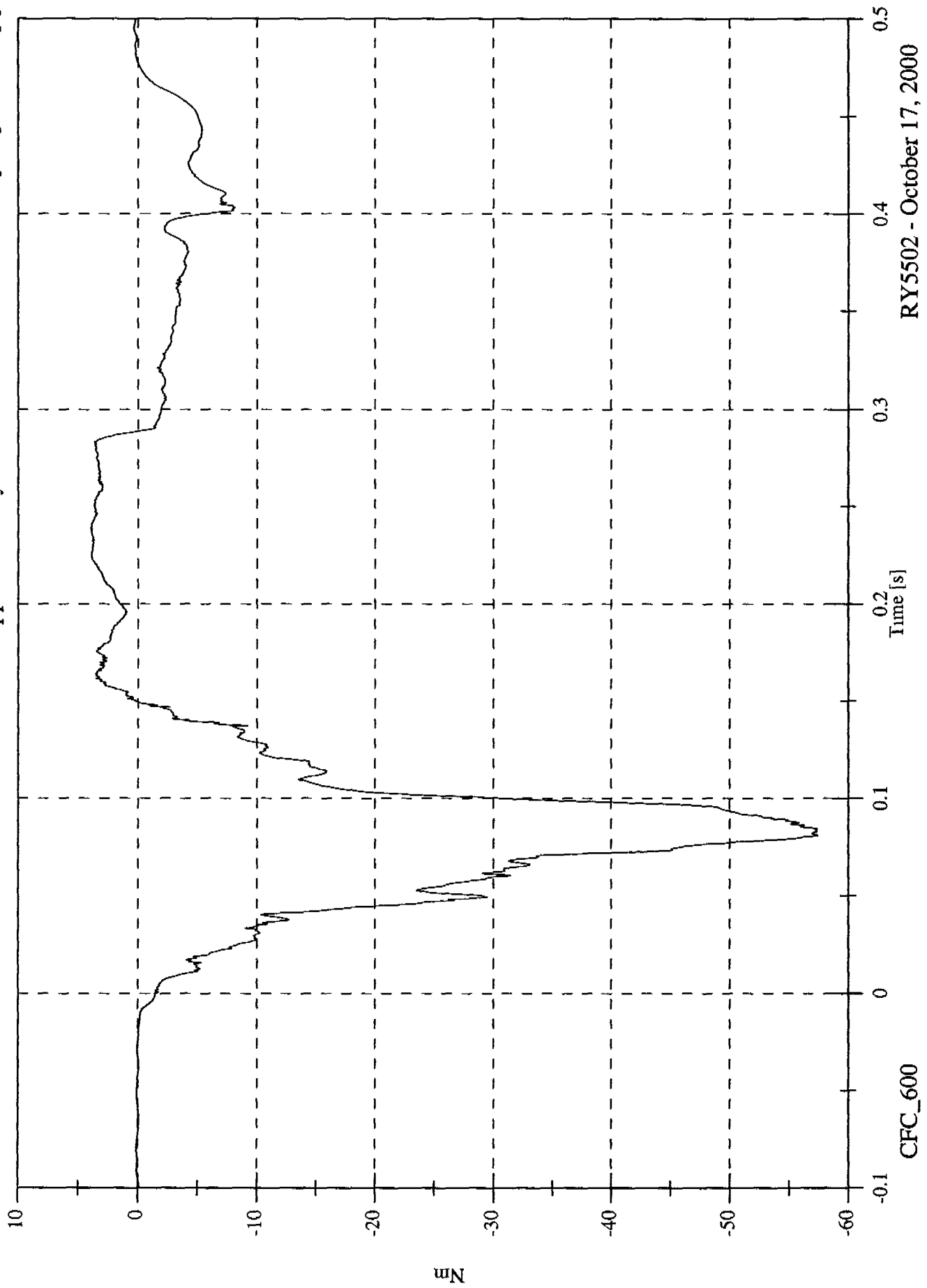


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 4.0 [Nm] at 0.239 [s]  
Min: -57.4 [Nm] at 0.081 [s]

P2 Left Upper Tibia My

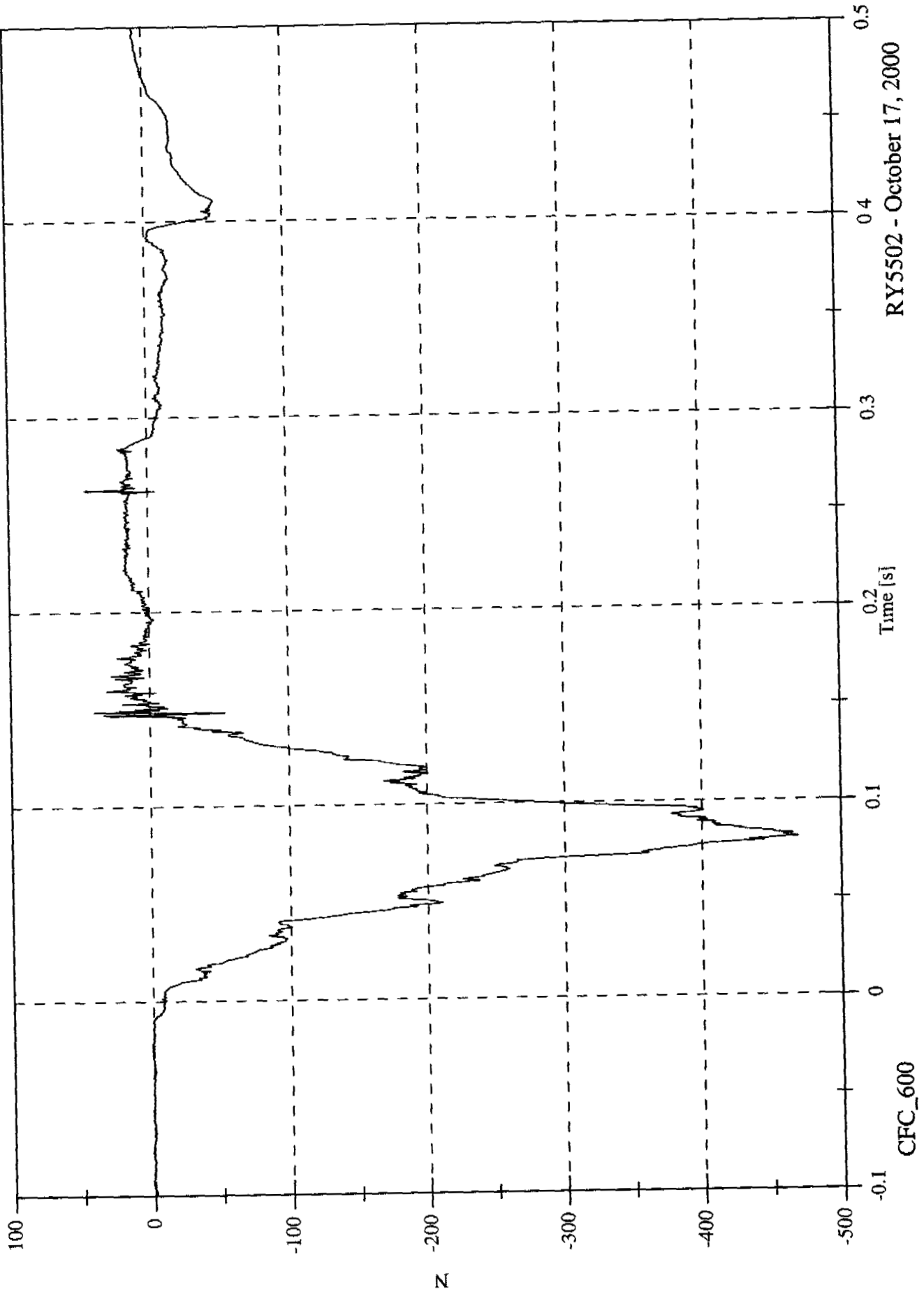


RX5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 45.1 [N] at 0.262 [s]  
Min: -469.0 [N] at 0.081 [s]

P2 Left Lower Tibia Fx



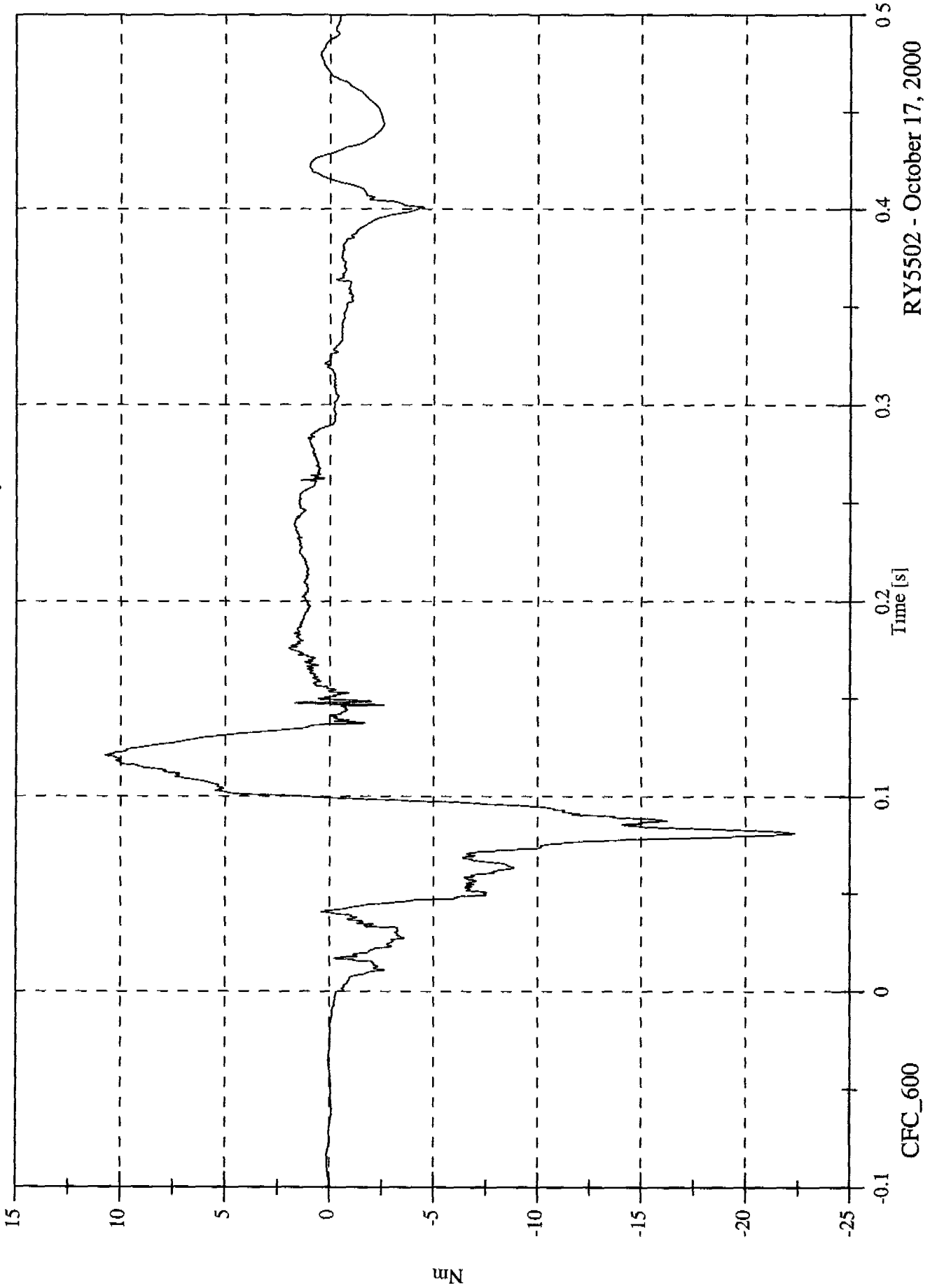
RY5502 - October 17, 2000

CFC\_600

2000 Subaru Legacy 40% Offset Impact

P2 Left Lower Tibia My

Max: 10.8 [Nm] at 0.121 [s]  
Min: -22.3 [Nm] at 0.081 [s]



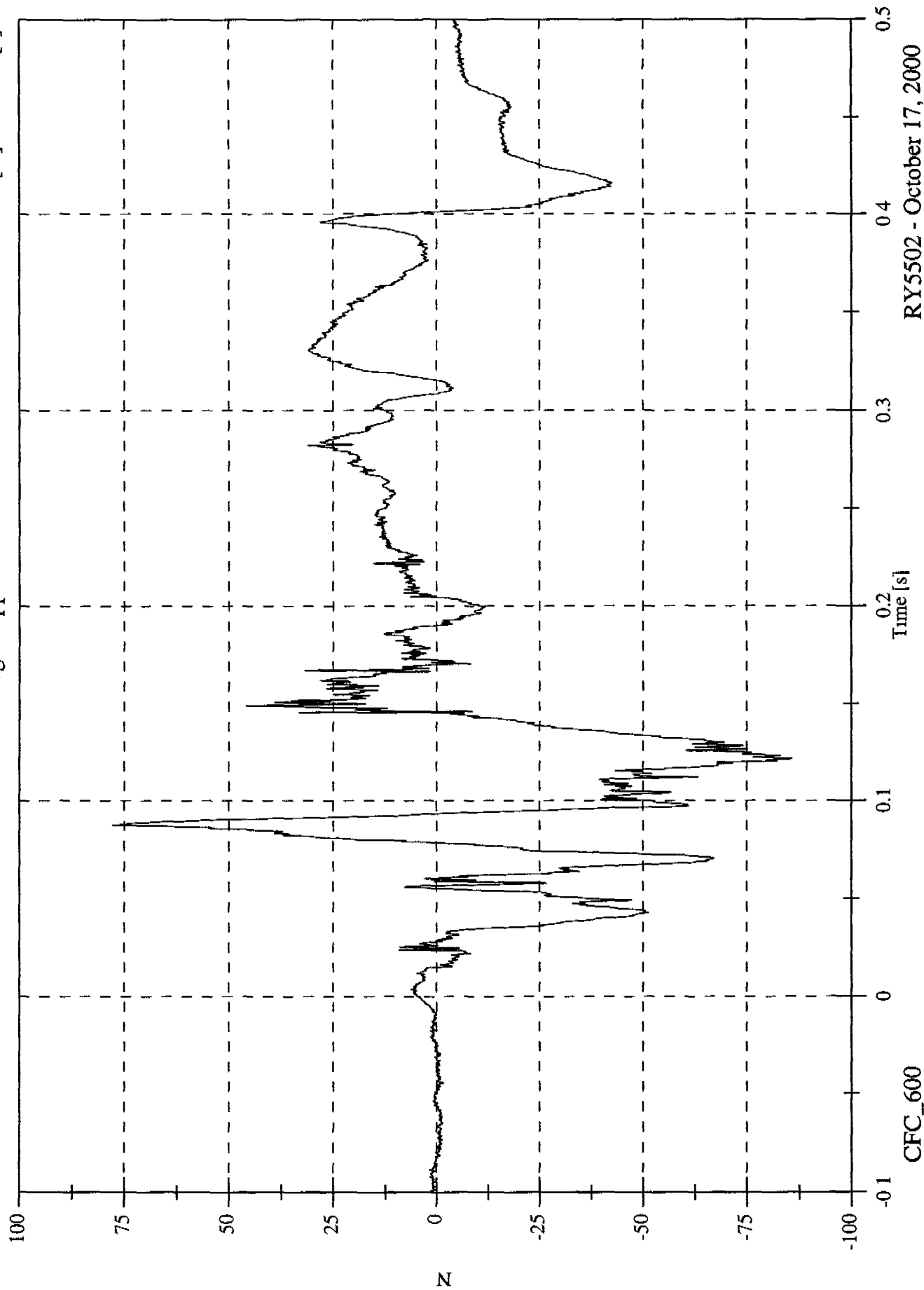
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 77.8 [N] at 0.088 [s]

Min: -85.7 [N] at 0.121 [s]

P2 Right Upper Tibia Fx



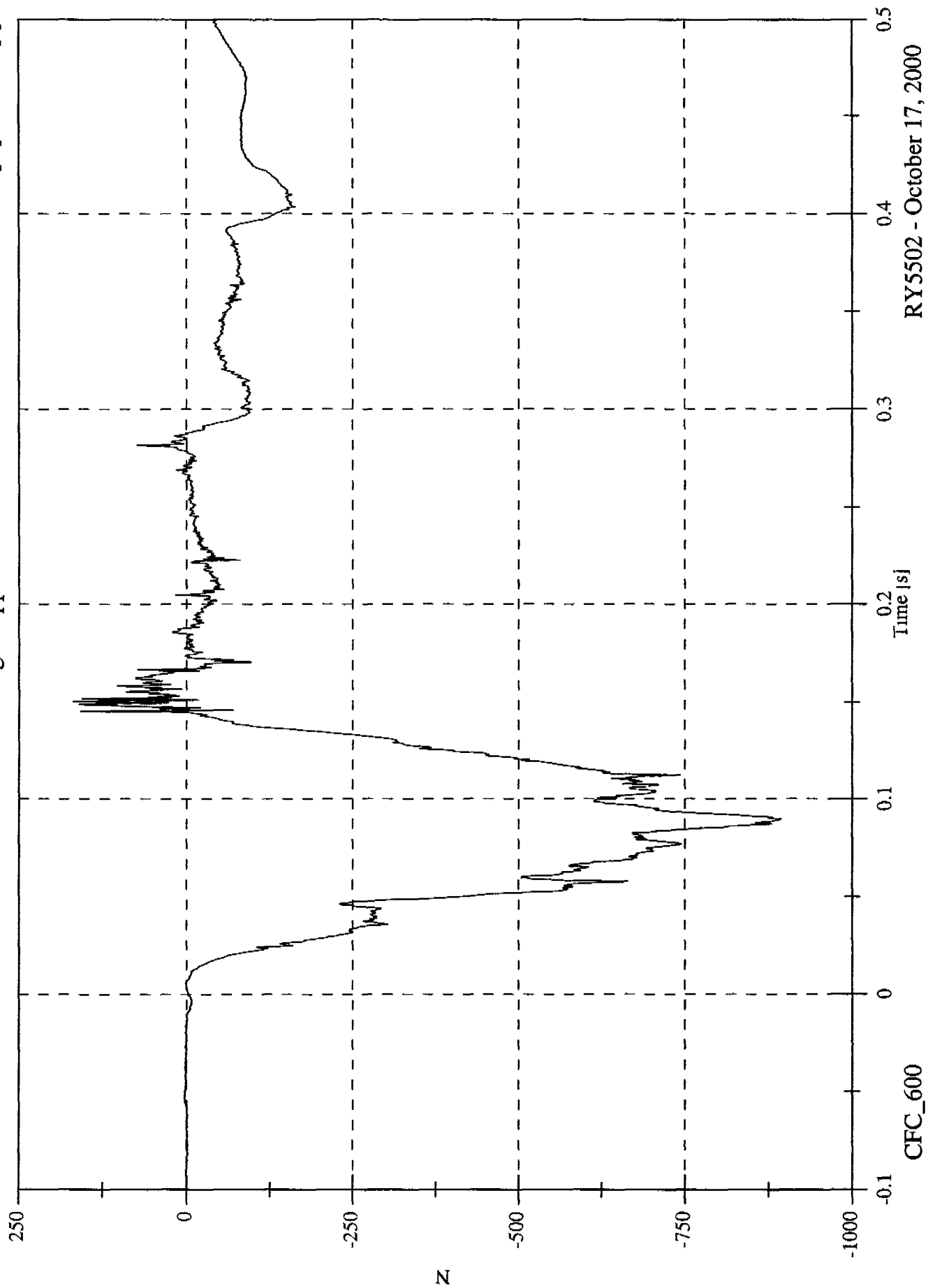
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 168.3 [N] at 0.151 [s]  
Min: -894.1 [N] at 0.089 [s]

P2 Right Upper Tibia Fz



RY5502 - October 17, 2000

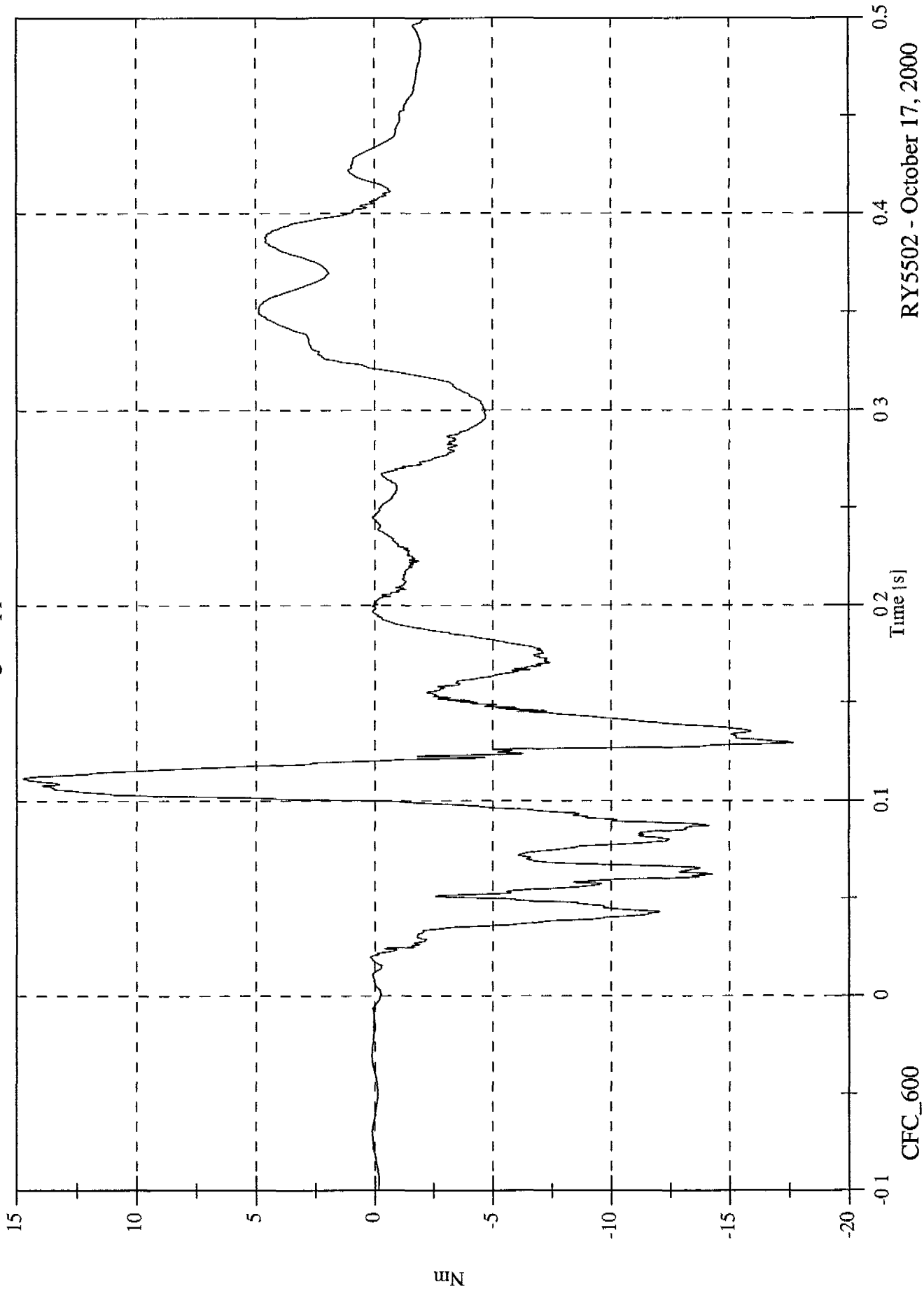
CFC\_600

2000 Subaru Legacy 40% Offset Impact

Max: 14.7 [Nm] at 0.111 [s]

Min: -17.7 [Nm] at 0.129 [s]

P2 Right Upper Tibia Mx

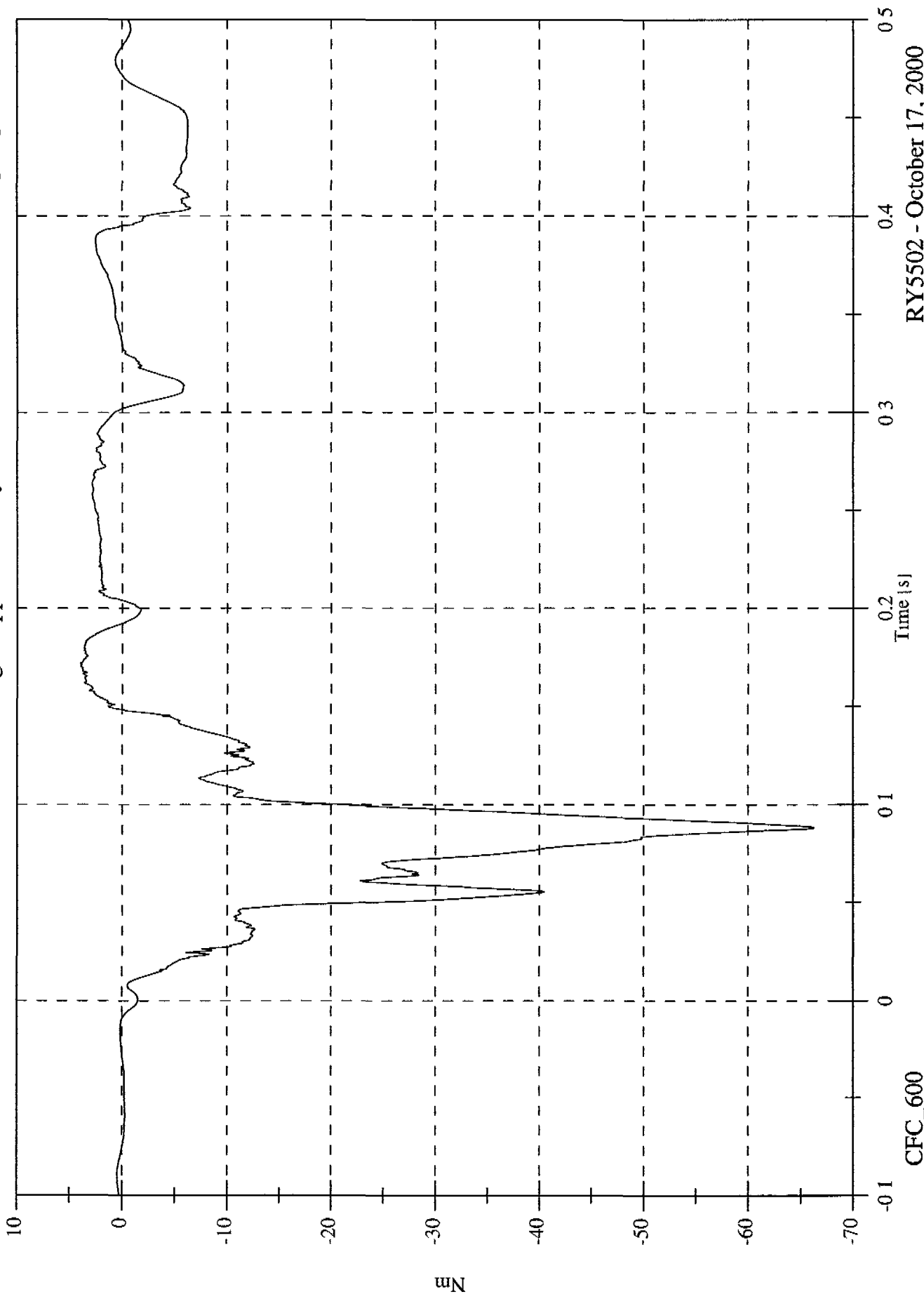


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 4.0 [Nm] at 0.172 [s]  
Min: -66.3 [Nm] at 0.088 [s]

P2 Right Upper Tibia My

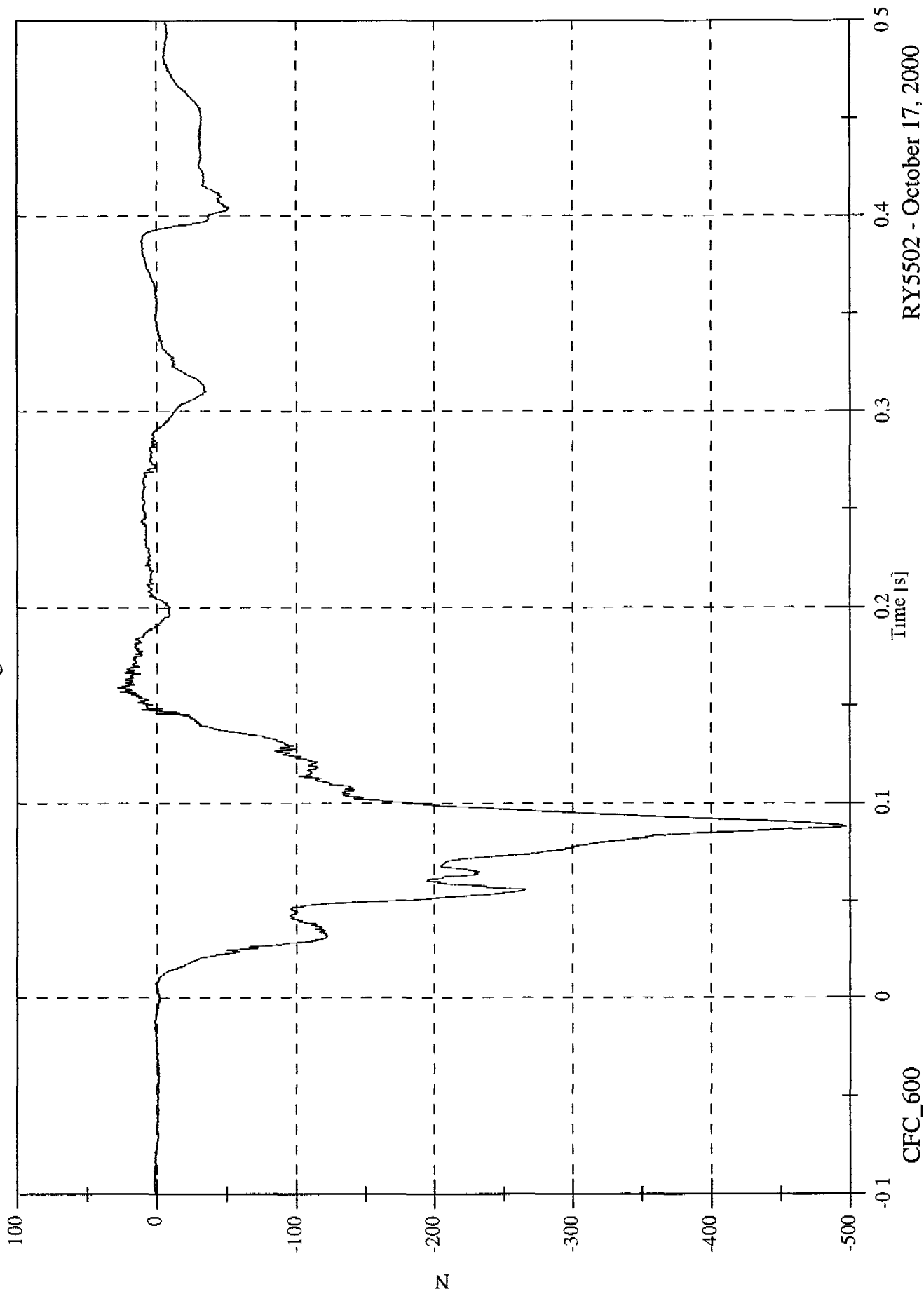


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 28.2 [N] at 0.159 [s]  
Min: -497.0 [N] at 0.088 [s]

P2 Right Lower Tibia Fx



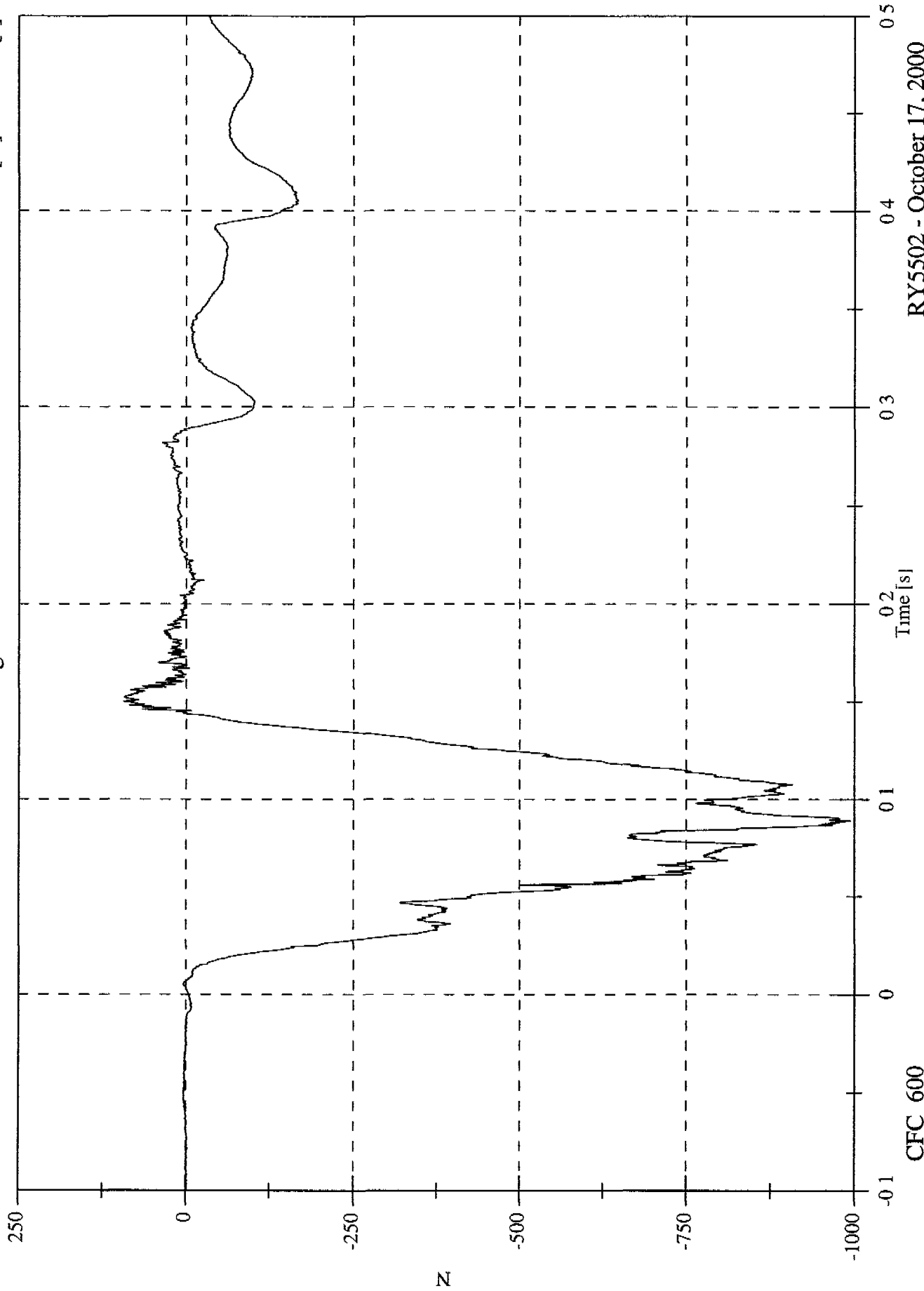
R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 93.7 [N] at 0.150 [s]

Min: -993.8 [N] at 0.089 [s]

P2 Right Lower Tibia Fz



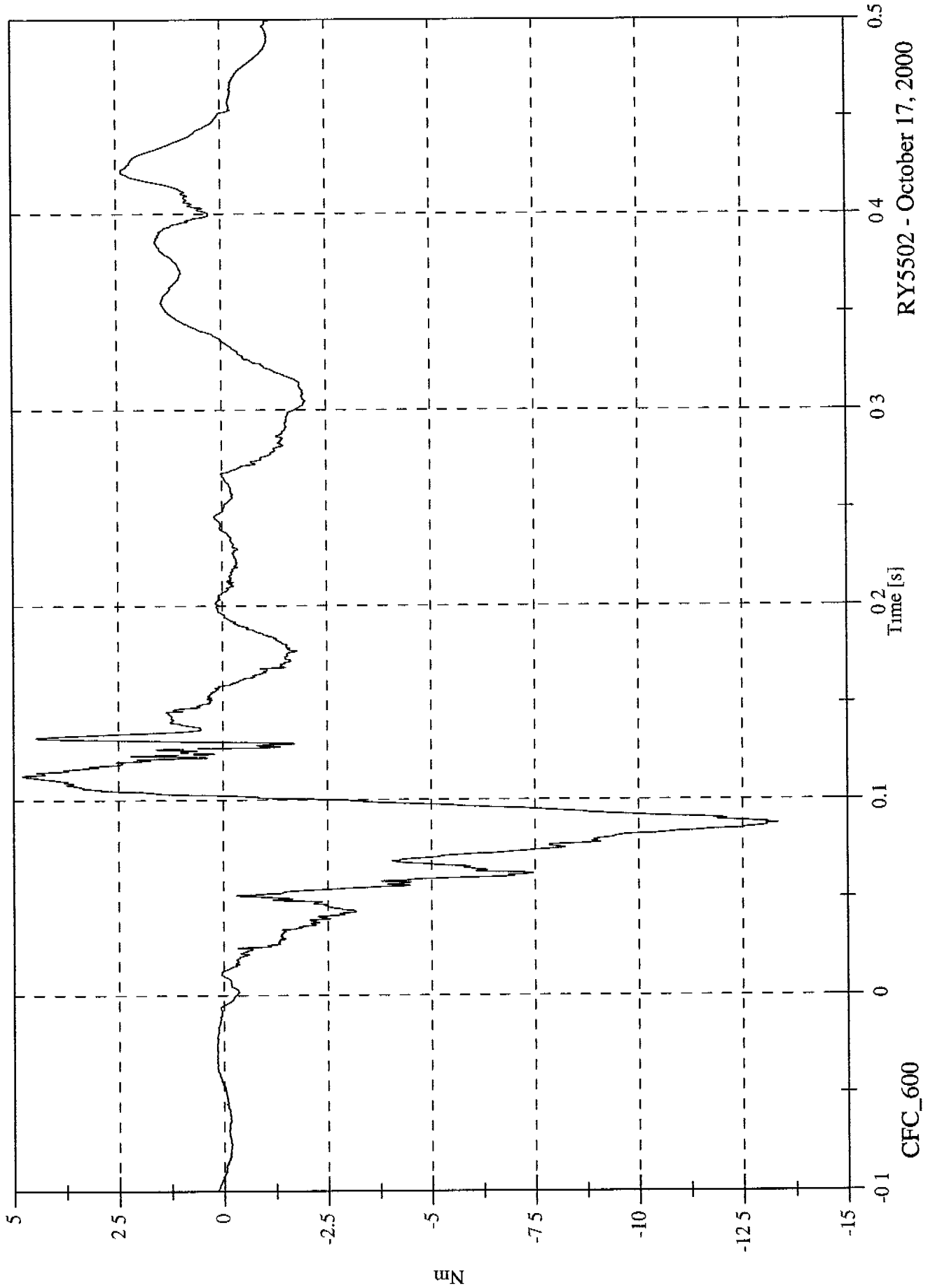
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 4.8 [Nm] at 0.112 [s]  
Min: -13.3 [Nm] at 0.088 [s]

P2 Right Lower Tibia Mx



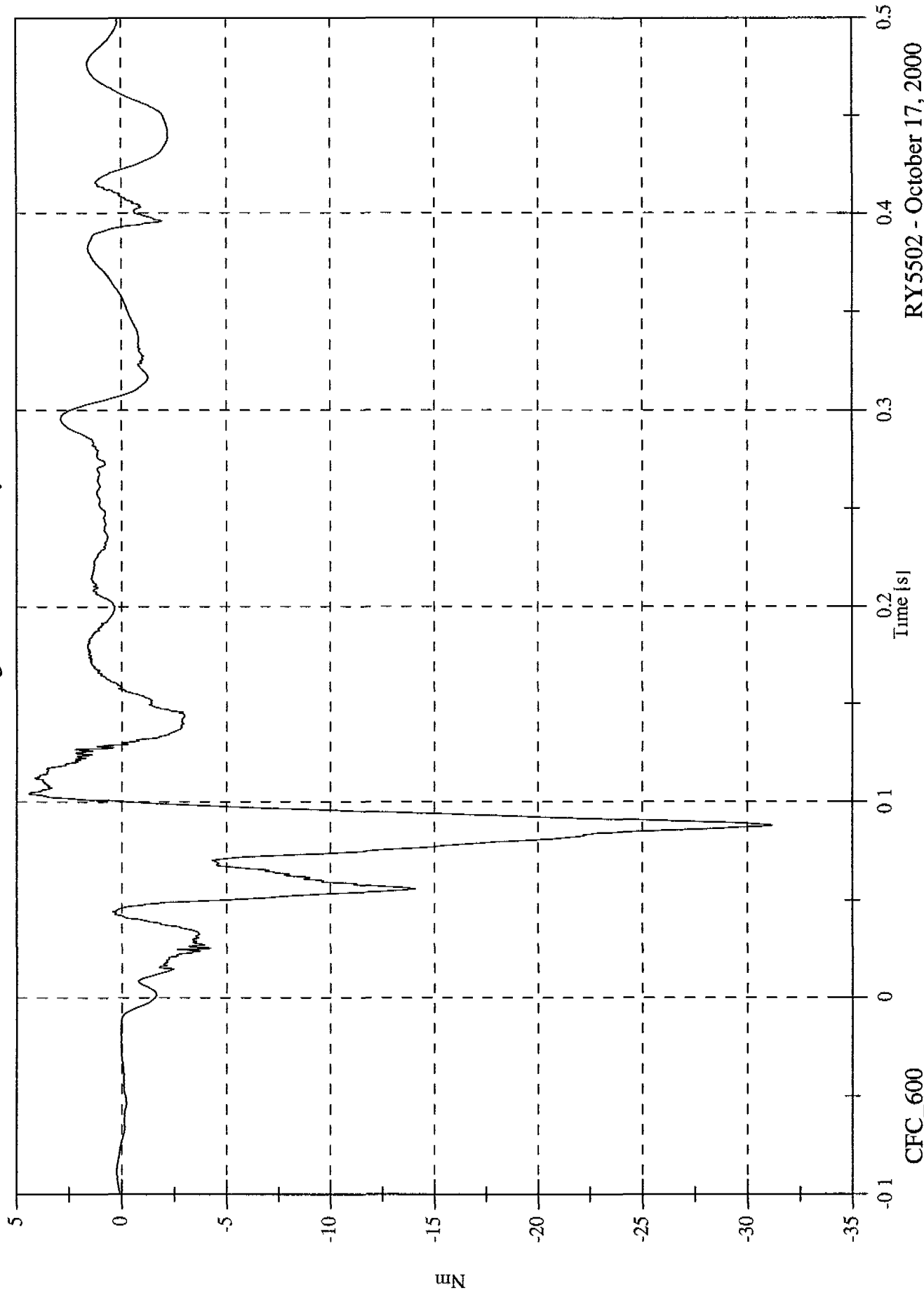
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 4.4 [Nm] at 0.104 [s]  
Min: -31.2 [Nm] at 0.088 [s]

P2 Right Lower Tibia My



CFC\_600

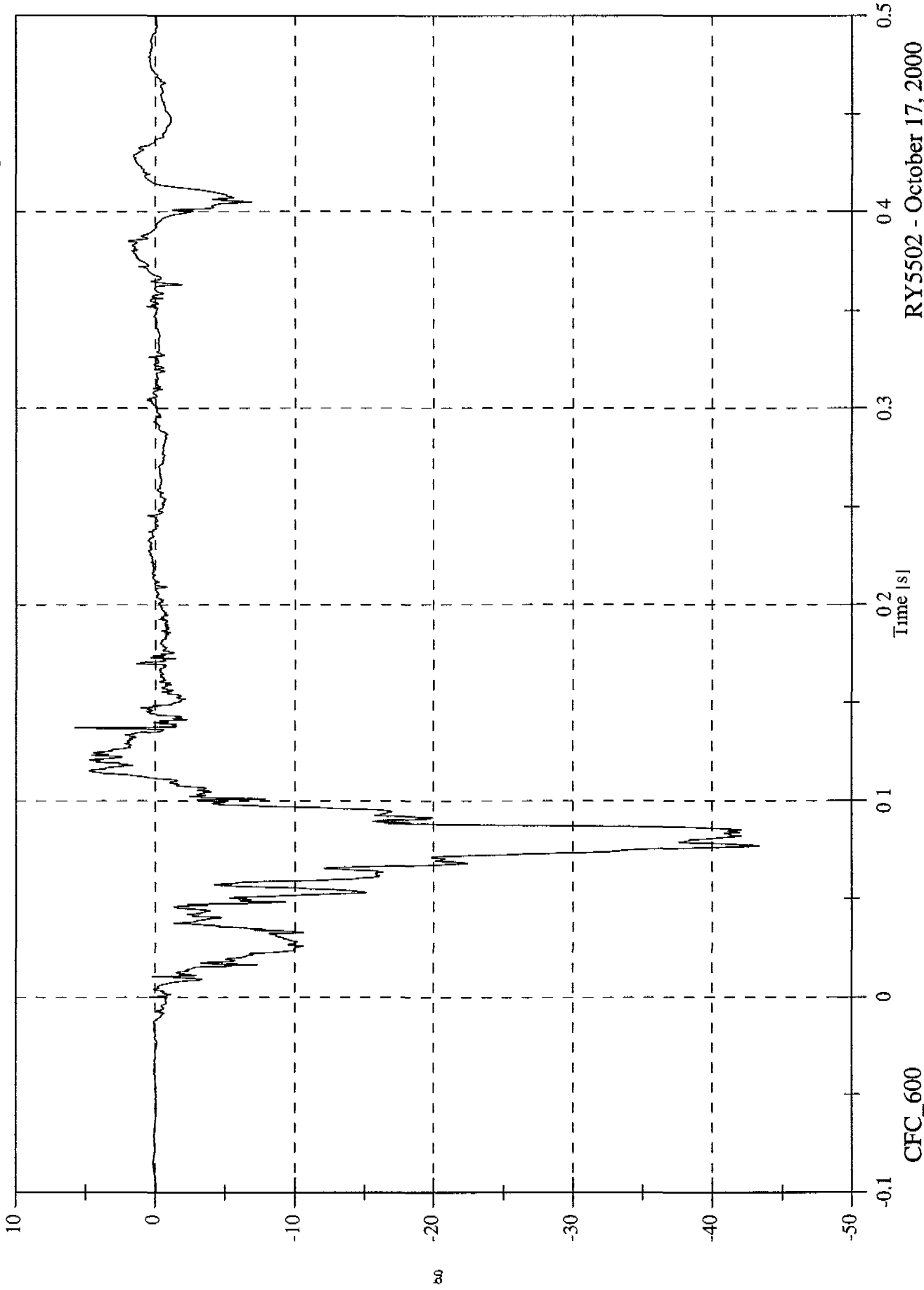
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 5.8 [g] at 0.137 [s]

Min: -43.4 [g] at 0.077 [s]

P2 Left Ankle Ax

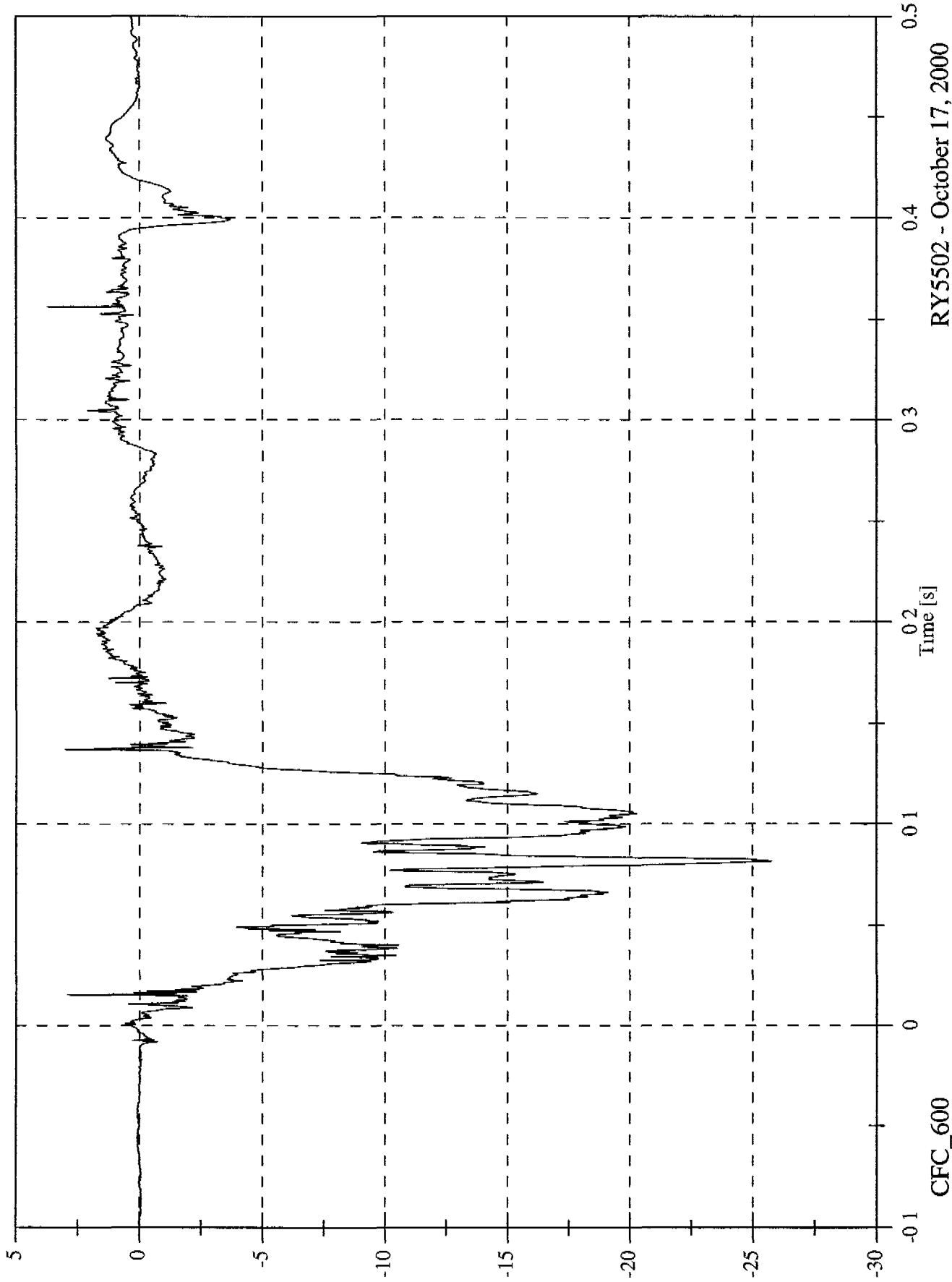


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 3.7 [g] at 0.356 [s]  
Min: -25.8 [g] at 0.082 [s]

P2 Left Ankle Az



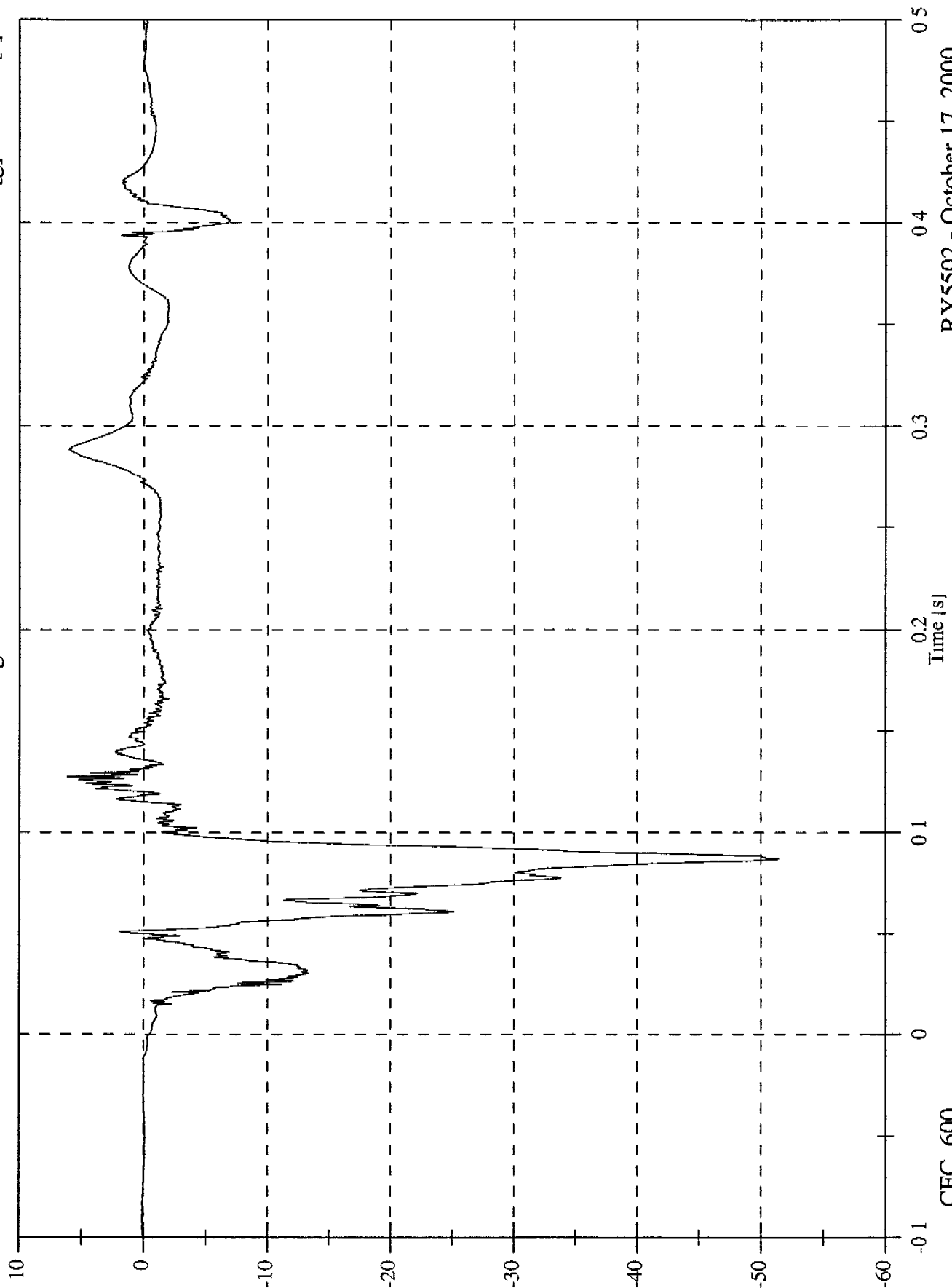
CFC\_600

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 6.1 [g] at 0.127 [s]  
Min: -51.4 [g] at 0.087 [s]

P2 Right Ankle Ax



CFC\_600

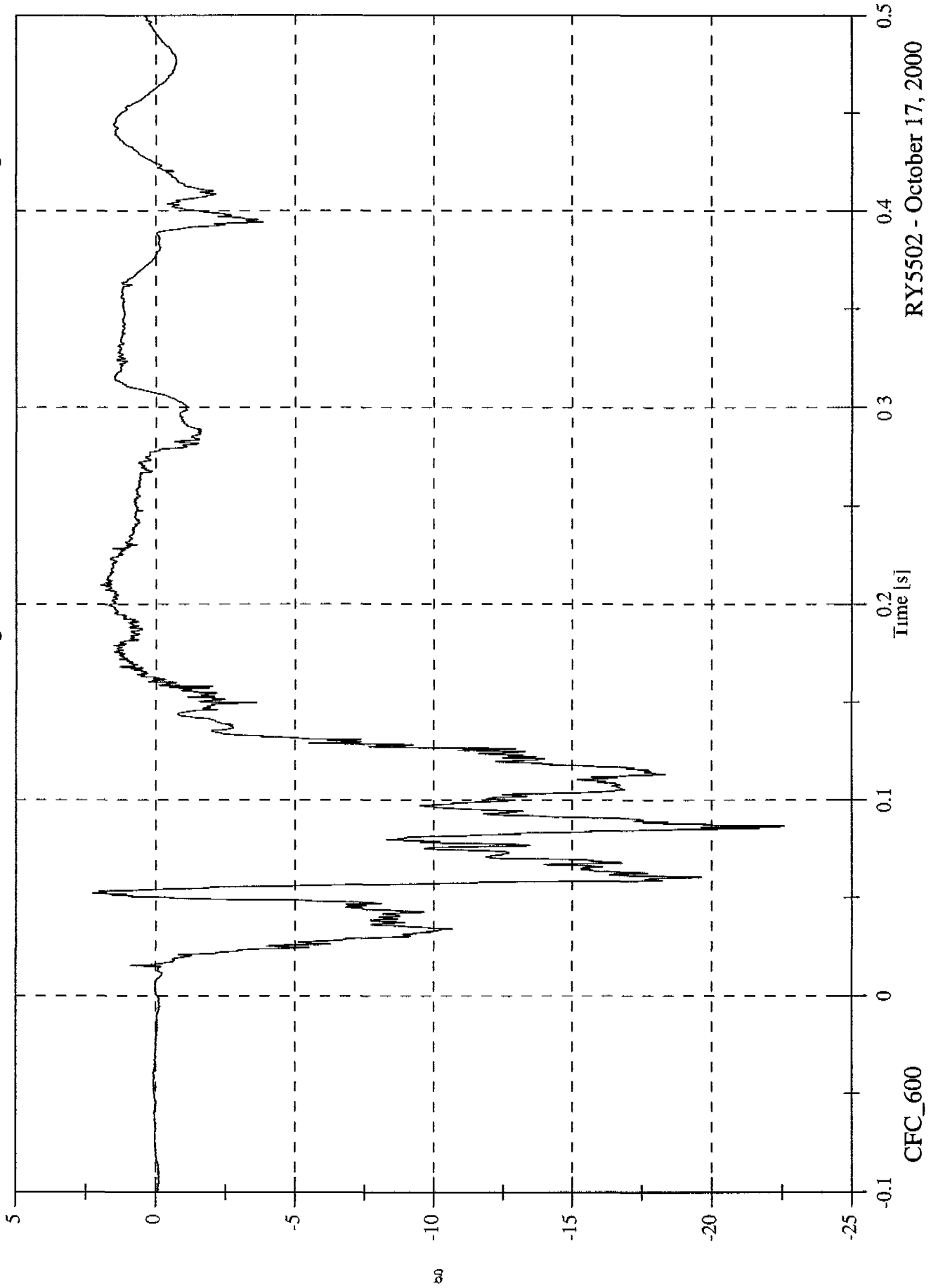
Time (s)

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2.3 [g] at 0.052 [s]  
Min: -22.6 [g] at 0.086 [s]

P2 Right Ankle Az



CFC\_600

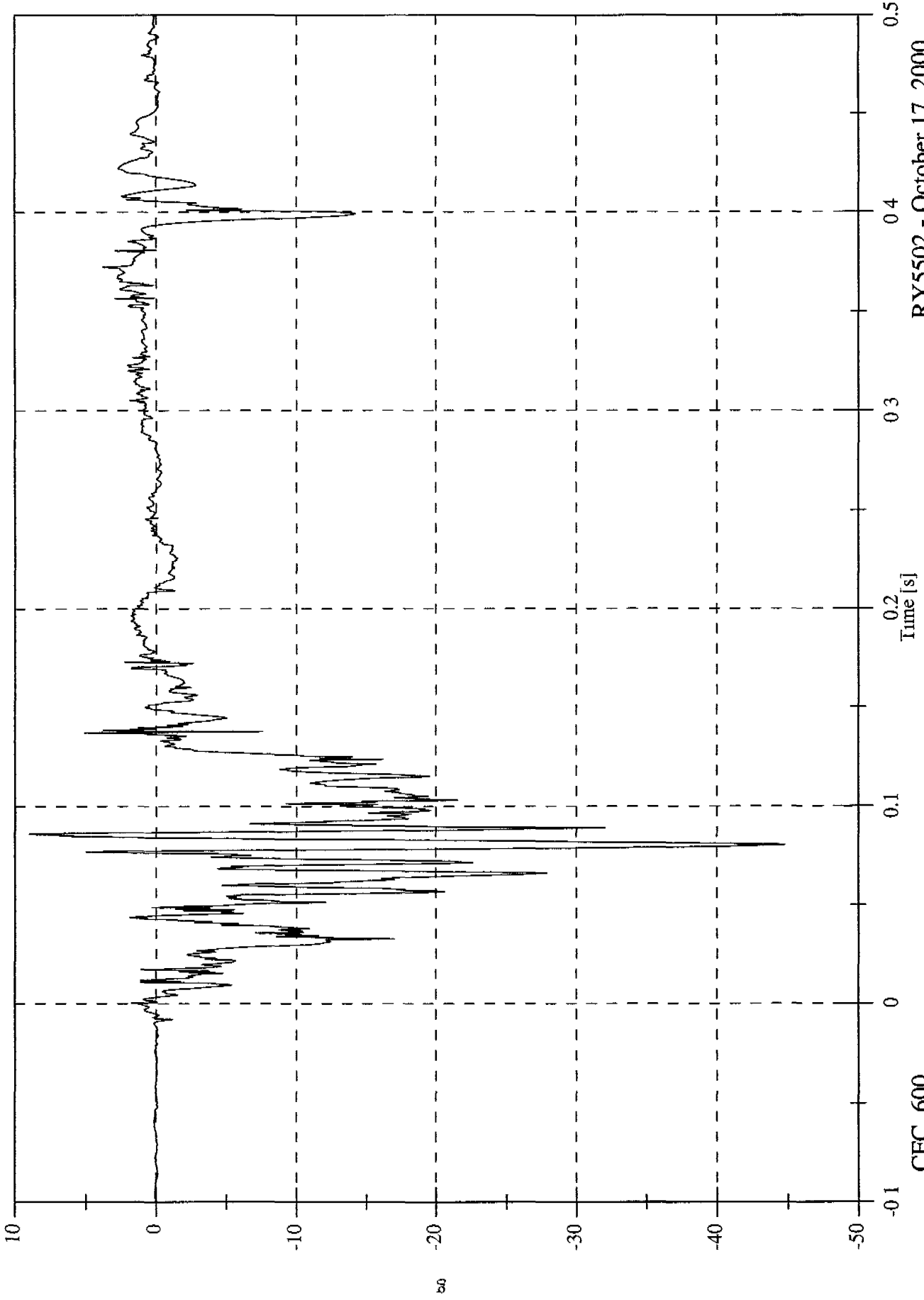
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 9.0 [g] at 0.086 [s]

Min: -44.8 [g] at 0.080 [s]

P2 Left Toe Az

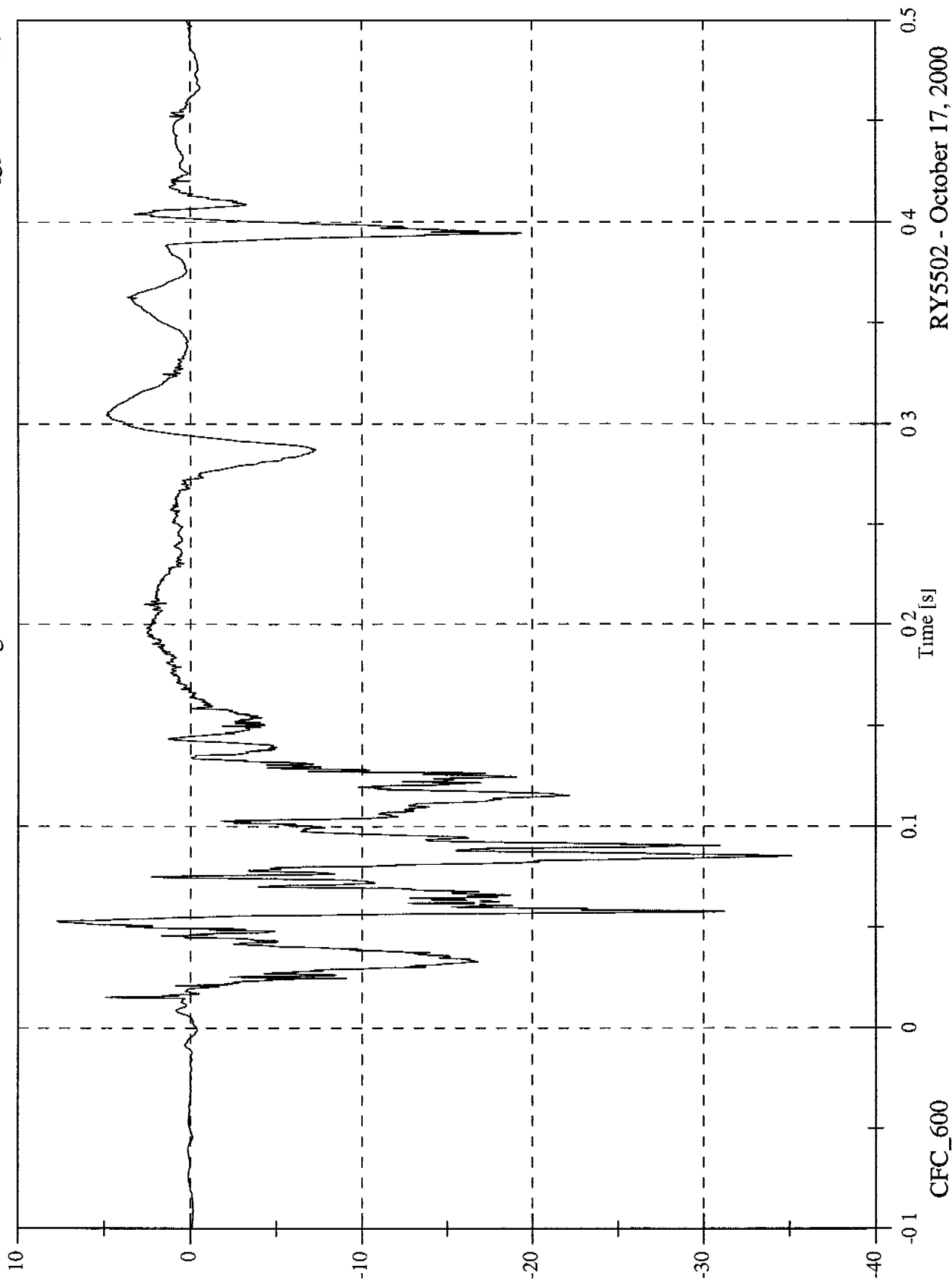


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 7.7 [g] at 0.053 [s]  
Min: -35.1 [g] at 0.085 [s]

P2 Right Toe Az



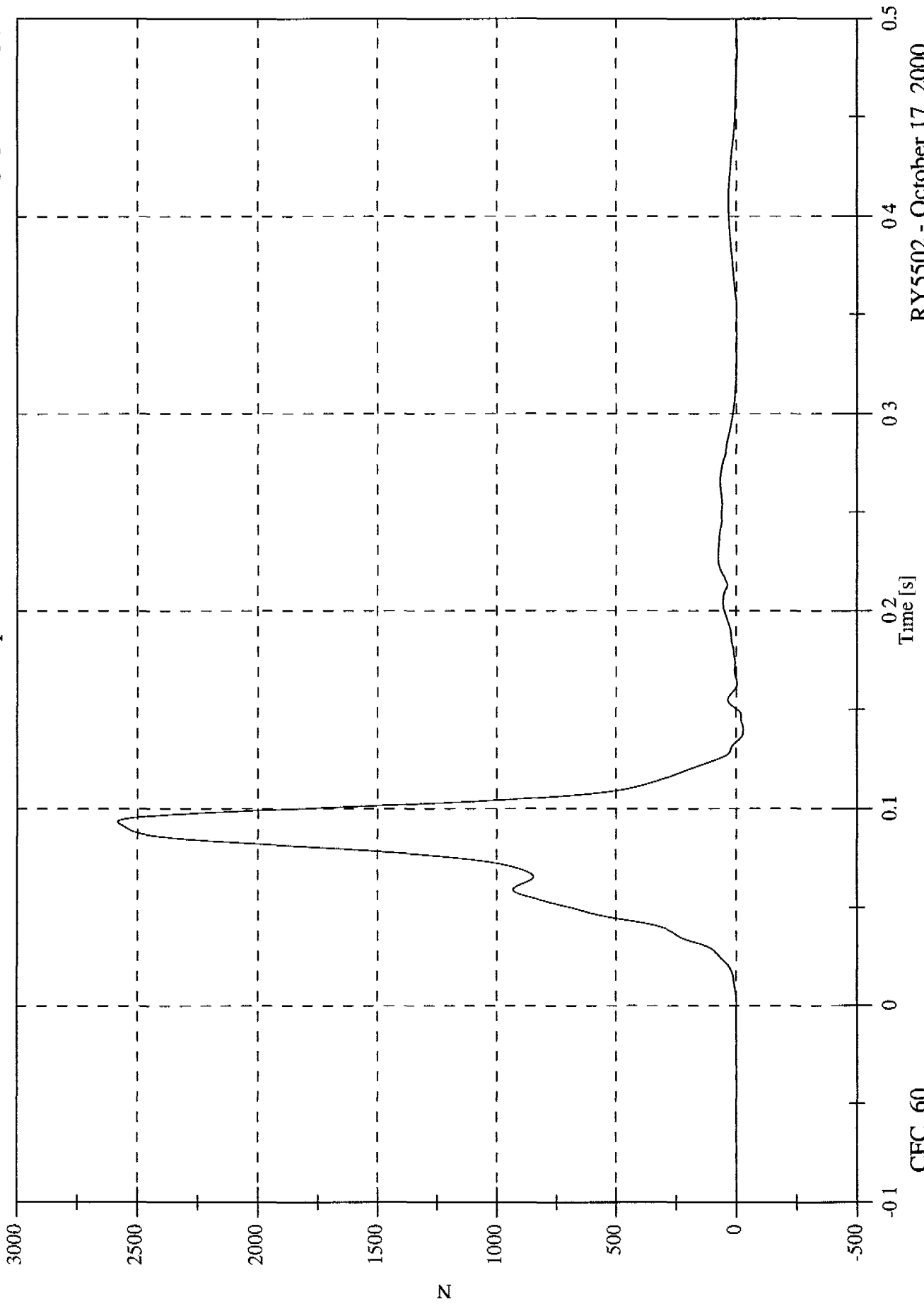
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2581.9 [N] at 0.093 [s]

Min: -29.7 [N] at 0.140 [s]

P2 Lap Belt Force



CFC\_60

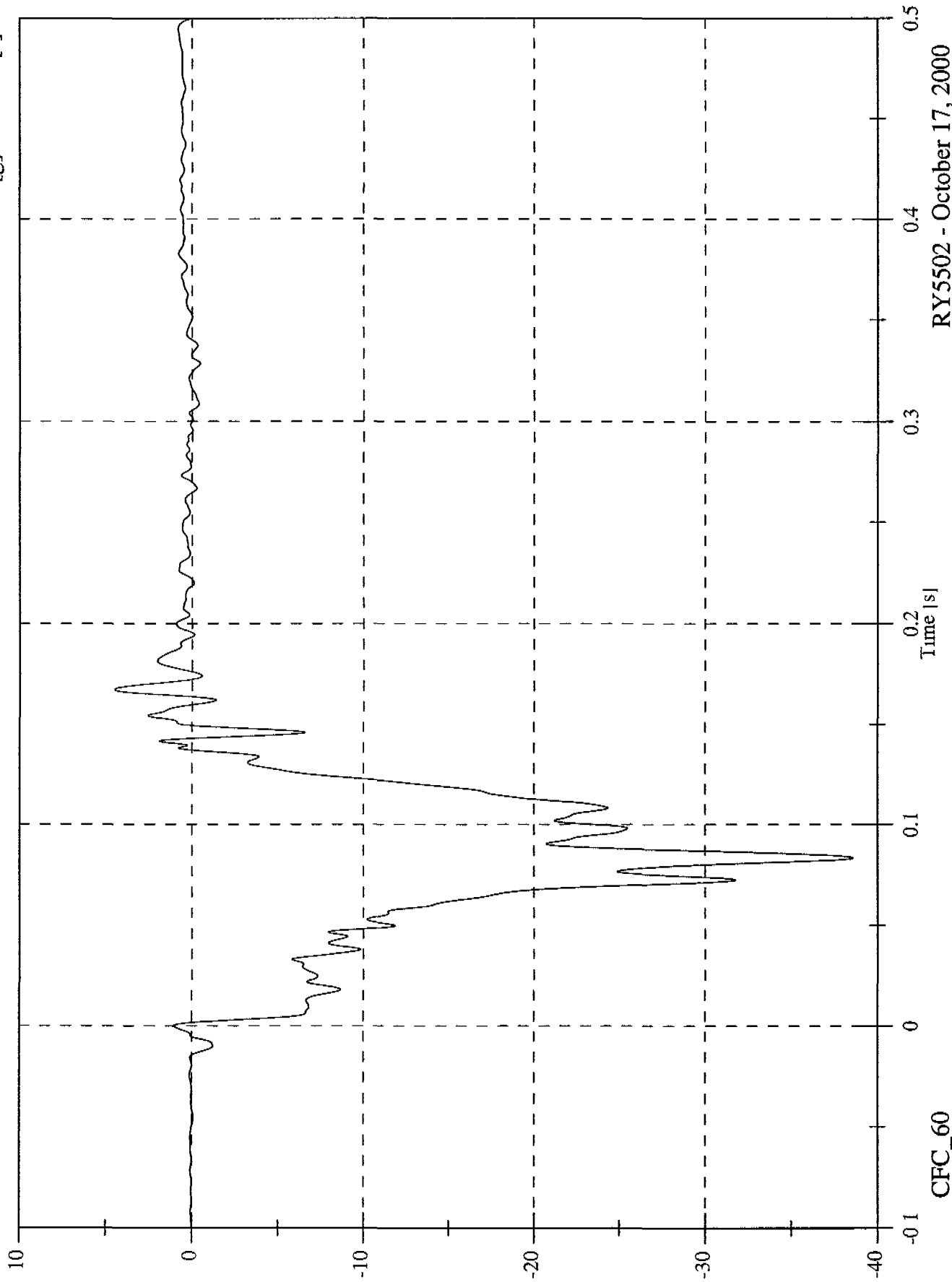
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 4.5 [g] at 0.167 [s]  
Min: -38.6 [g] at 0.083 [s]

Acc 1 Rear XMBR Left X



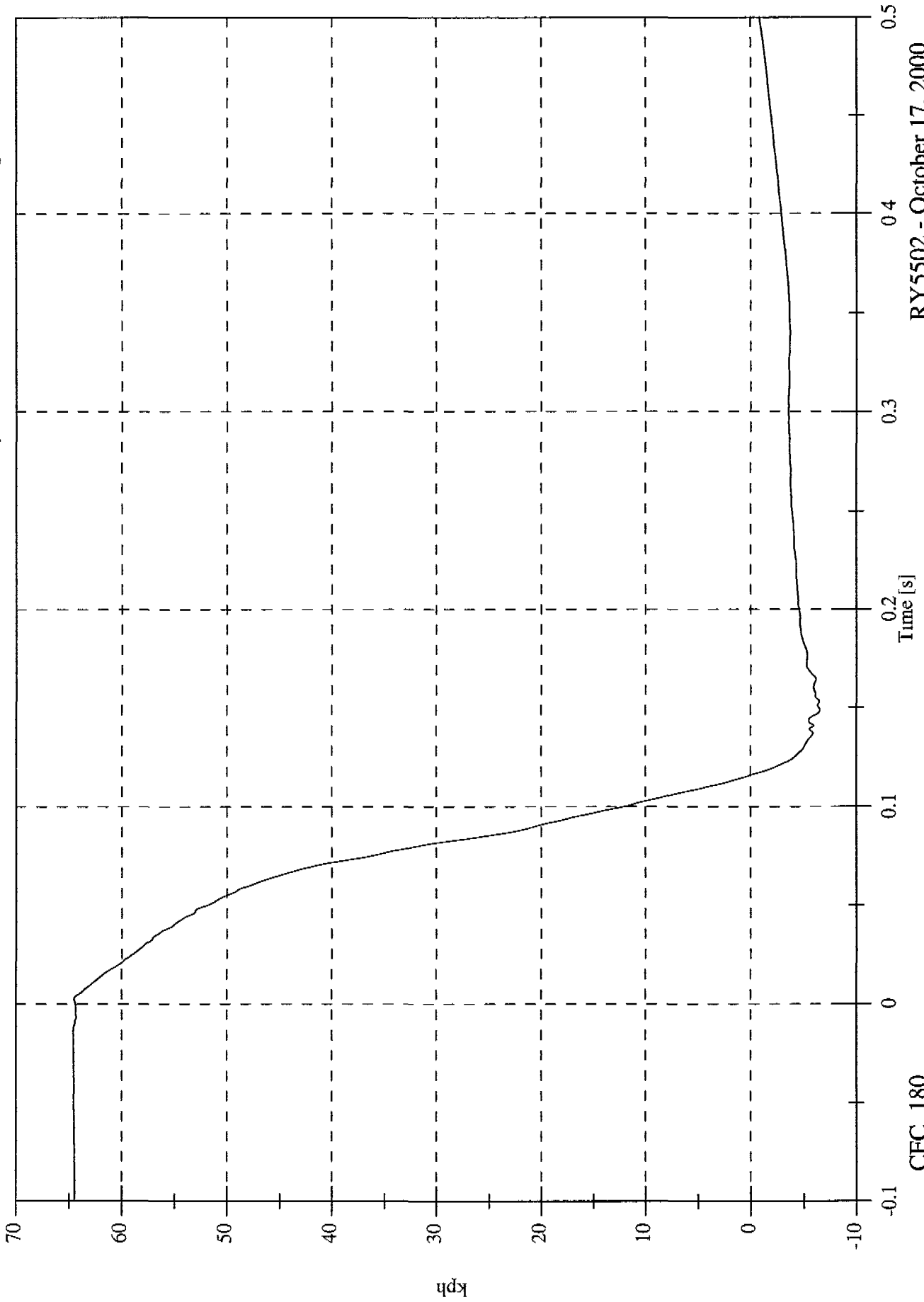
R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 64.6 [kph] at -0.014 [s]

Min: -6.6 [kph] at 0.148 [s]

Acc 1 Rear XMBR Left X Velocity



CFC\_180

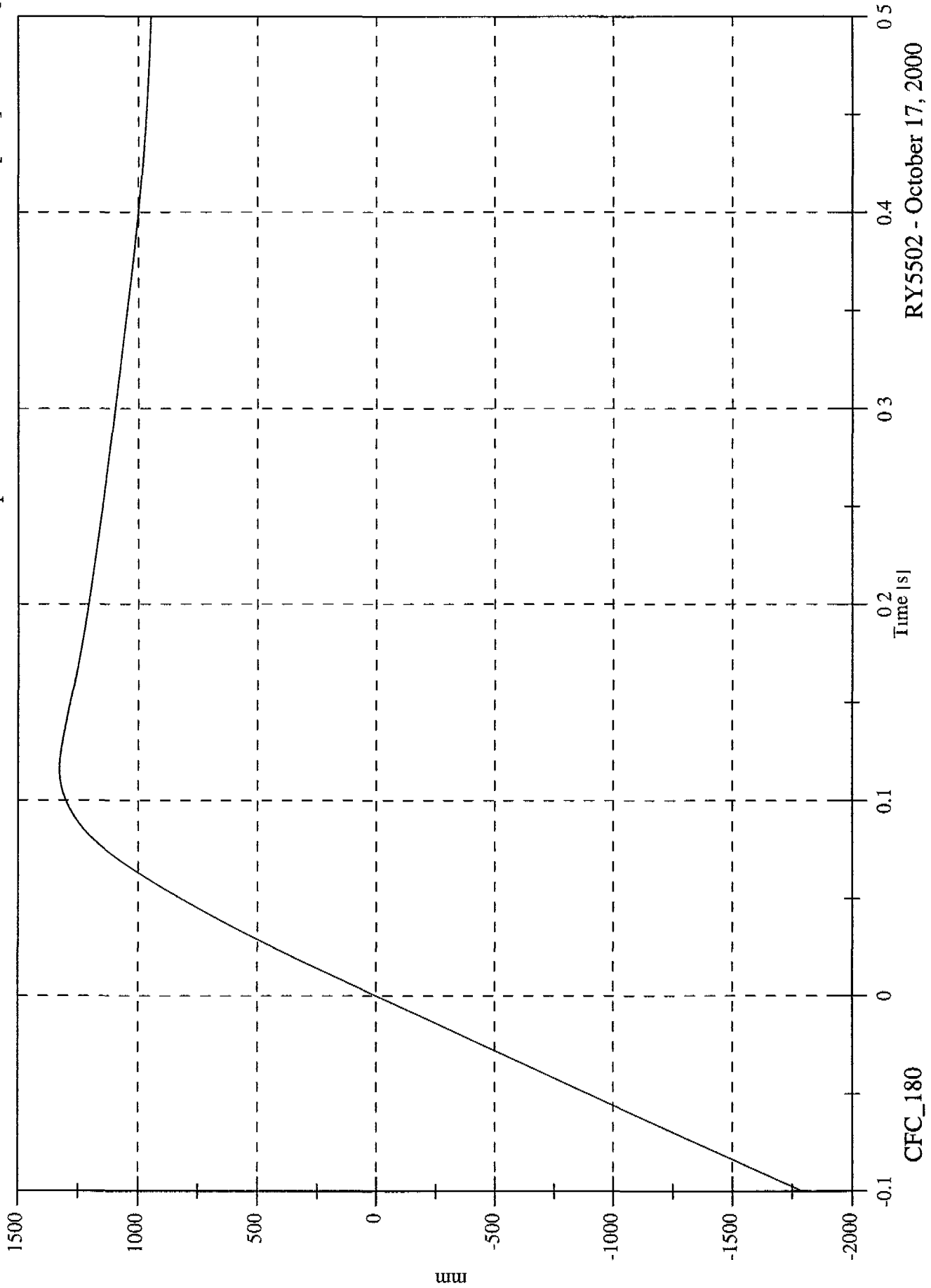
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1326.6 [mm] at 0.116 [s]  
Min: -1792.1 [mm] at -0.100 [s]

Acc 1 Rear XMBR Left X Displacement



R Y5502 - October 17, 2000

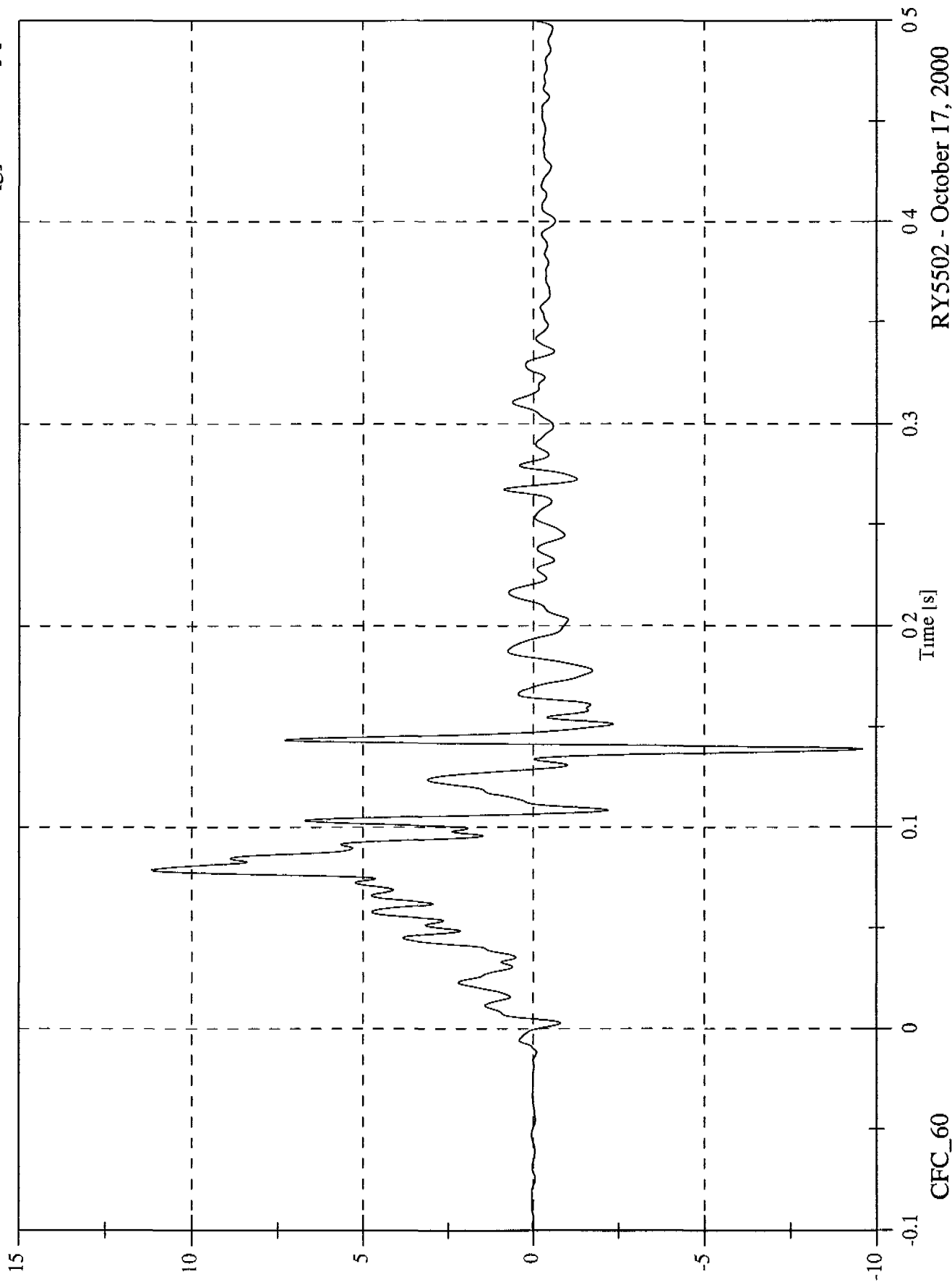
CFC\_180

2000 Subaru Legacy 40% Offset Impact

Max: 11.2 [g] at 0.079 [s]

Min: -9.6 [g] at 0.139 [s]

Acc 2 Rear XMBR Left Y



CFC\_60

Time [s]

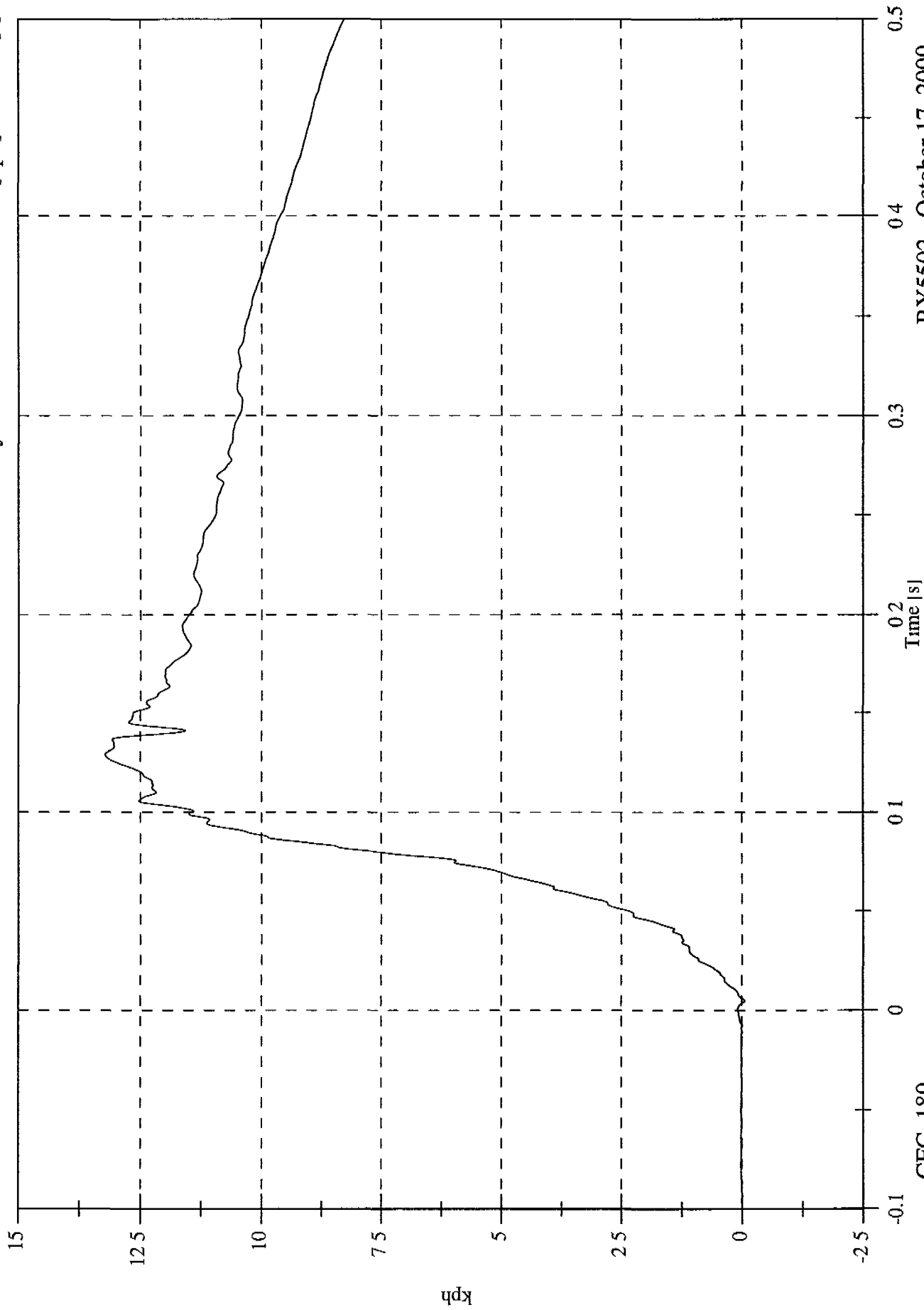
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 13.2 [kph] at 0.129 [s]

Min: -0.1 [kph] at 0.005 [s]

Acc 2 Rear XMBR Left Y Velocity



CFC\_180

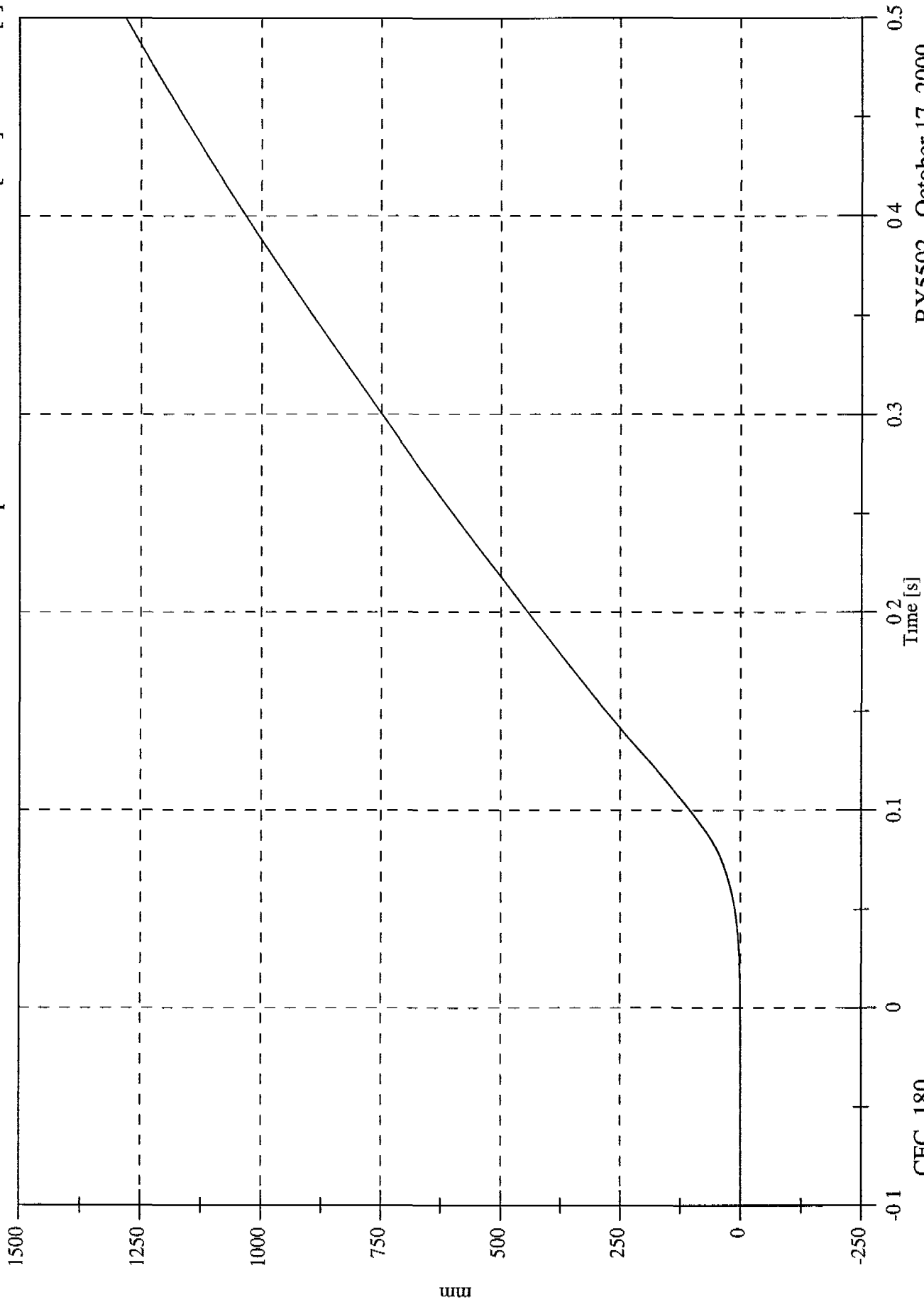
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1281.7 [mm] at 0.500 [s]

Acc 2 Rear XMBR Left Y Displacement

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



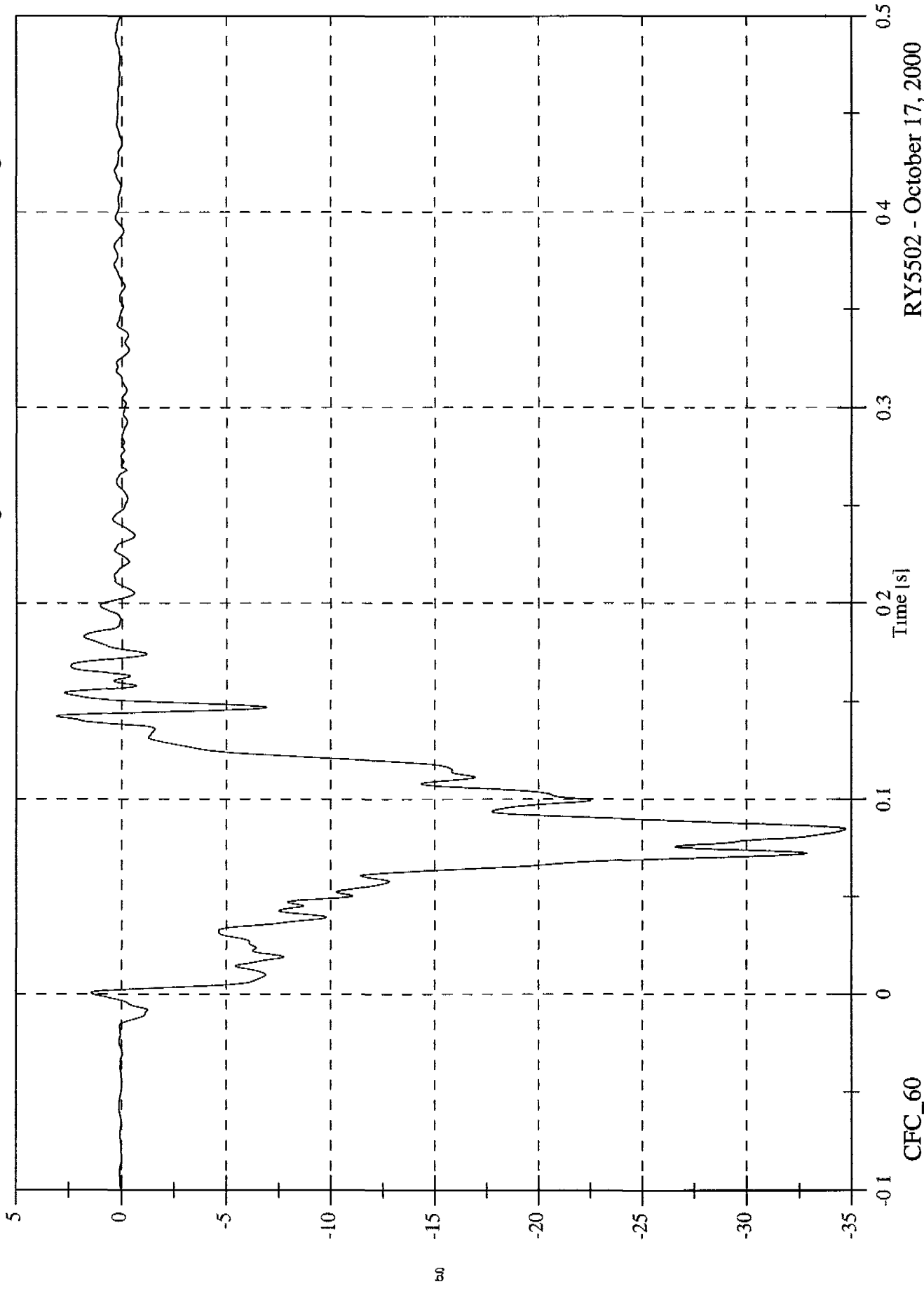
CFC\_180

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 3.1 [g] at 0.143 [s]  
Min: -34.7 [g] at 0.085 [s]

Acc 3 Rear XMBR Right X



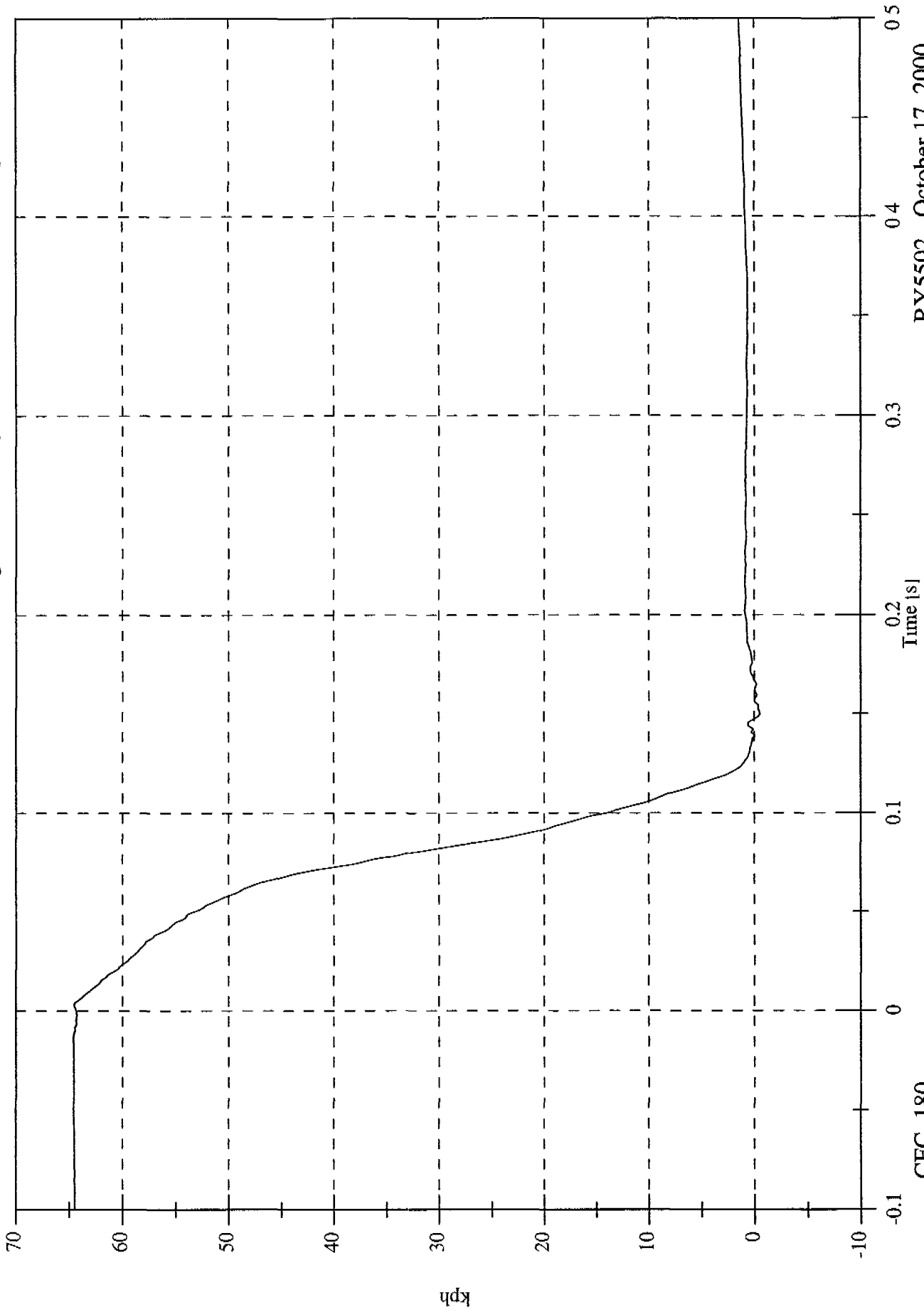
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 64.6 [kph] at -0.014 [s]

Acc 3 Rear XMBR Right X Velocity

Min: -0.5 [kph] at 0.150 [s]



CFC\_180

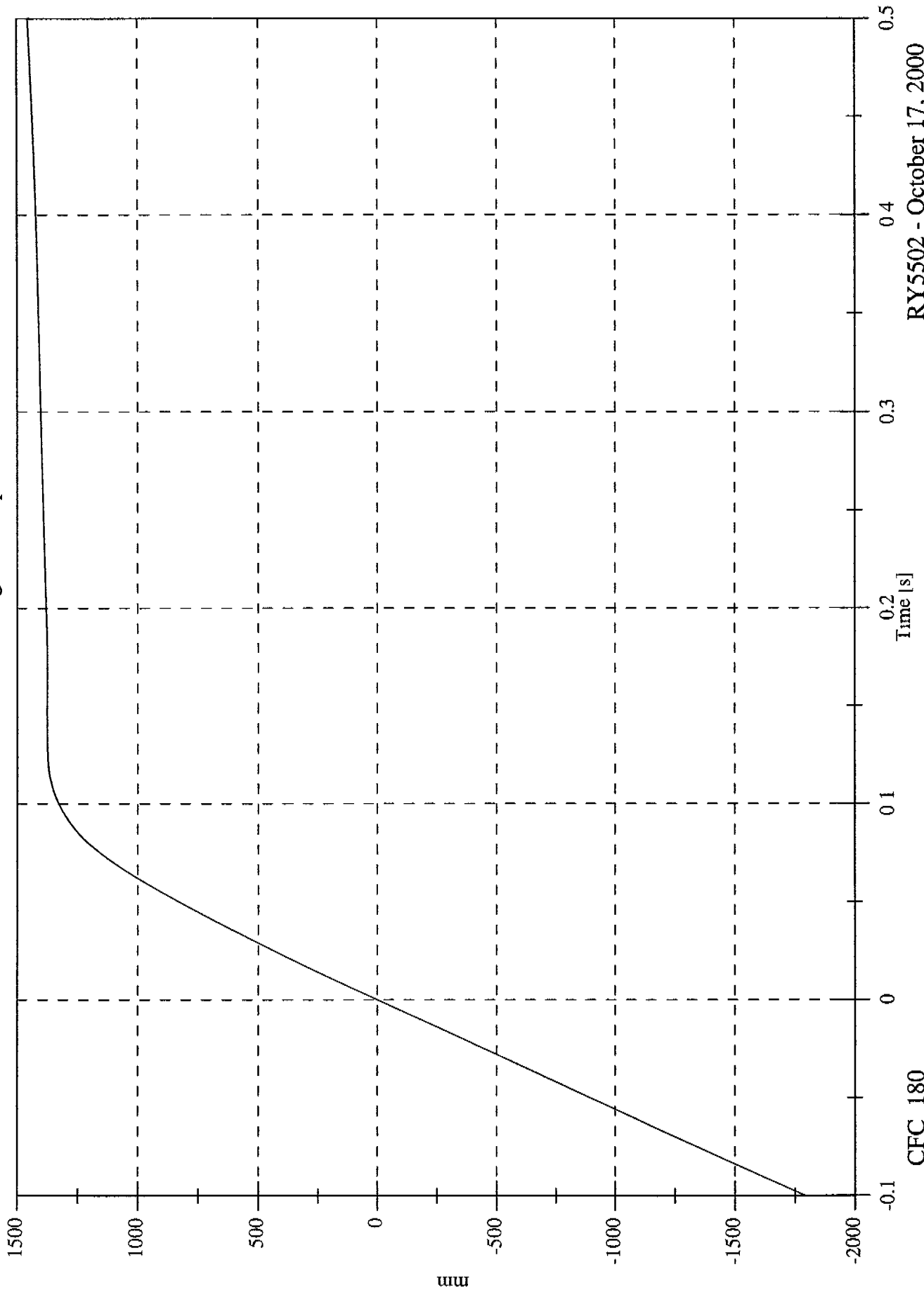
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1454.6 [mm] at 0.500 [s]  
Min: -1792.1 [mm] at -0.100 [s]

Acc 3 Rear XMBR Right X Displacement



CFC\_180

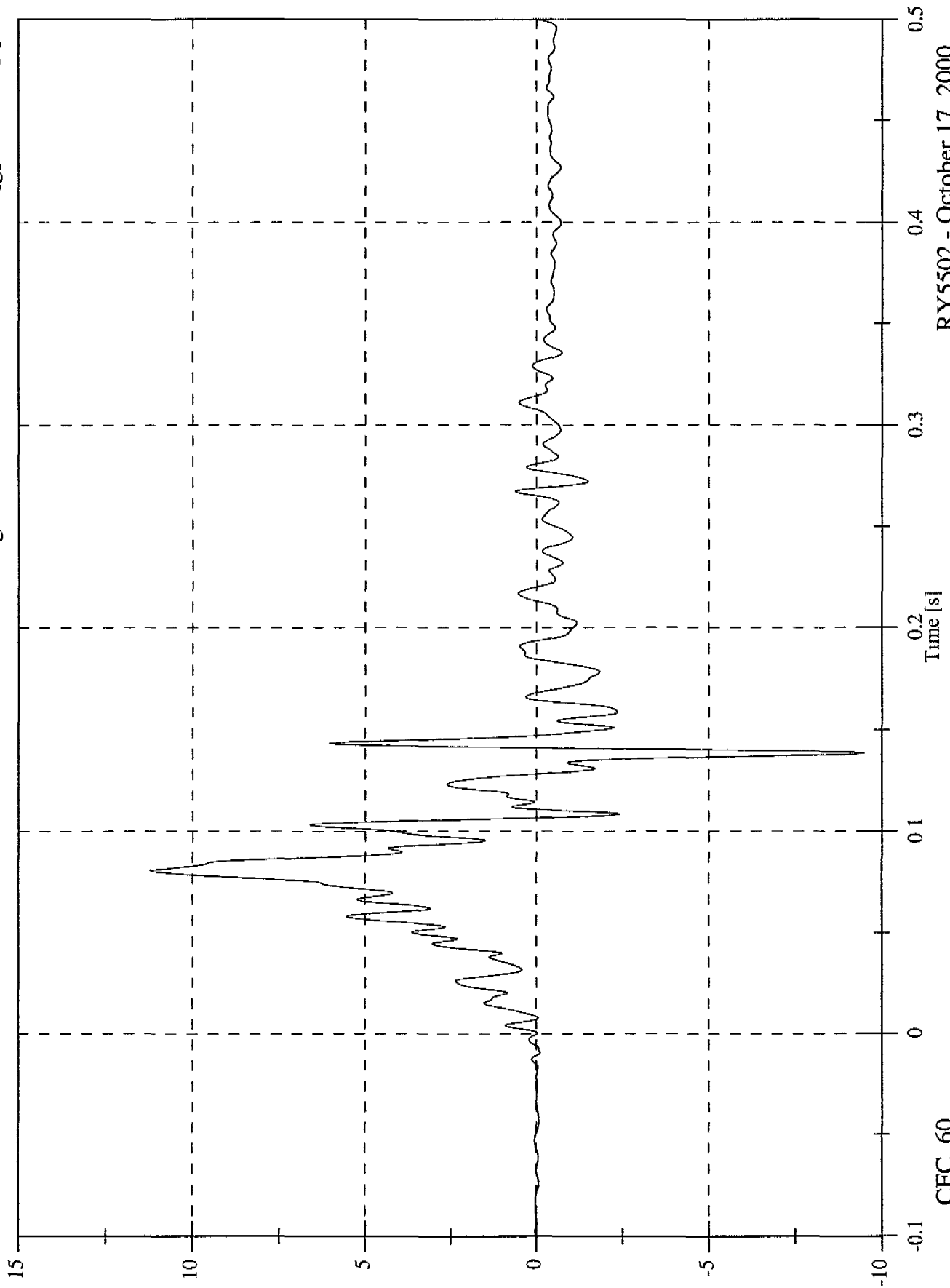
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 11.2 [g] at 0.081 [s]

Min: -9.5 [g] at 0.139 [s]

Acc 4 Rear XMBR Right Y

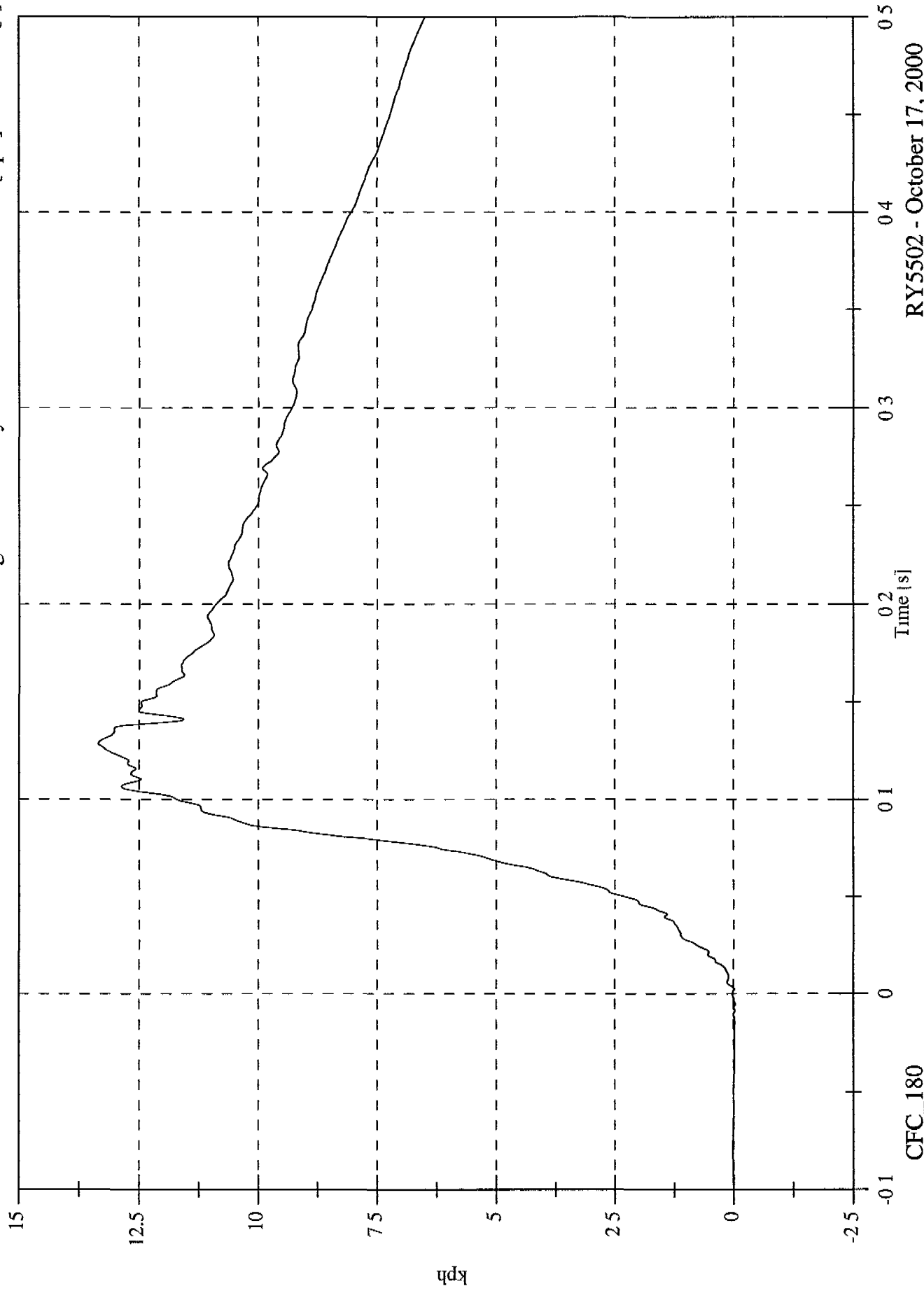


2000 Subaru Legacy 40% Offset Impact

Max: 13.3 [kph] at 0.128 [s]

Min: -0.0 [kph] at -0.005 [s]

Acc 4 Rear XMBR Right Y Velocity



CFC\_180

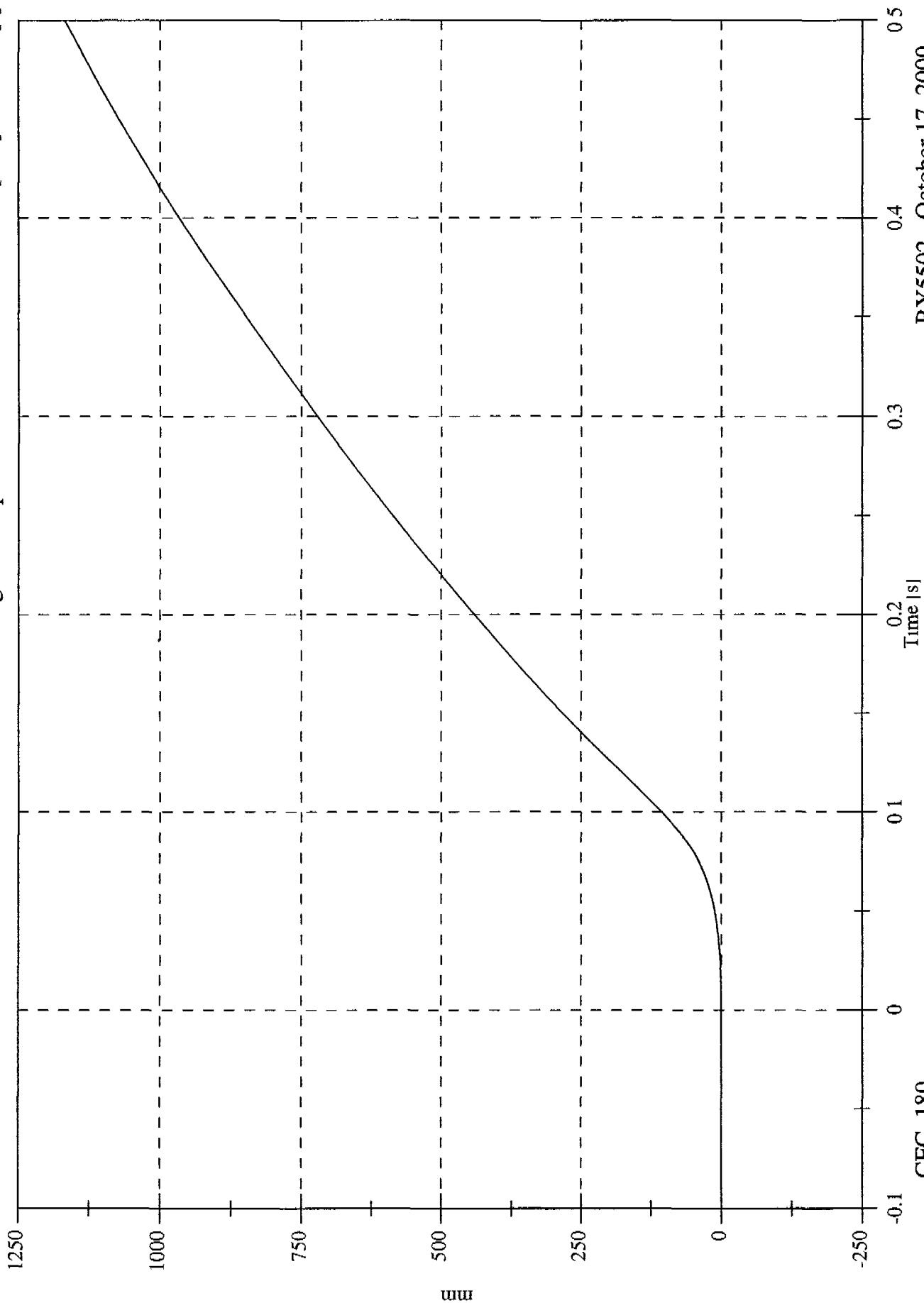
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1167.7 [mm] at 0.500 [s]

Min: -0.0 [mm] at -0.002 [s]

Acc 4 Rear XMBR Right Y Displacement



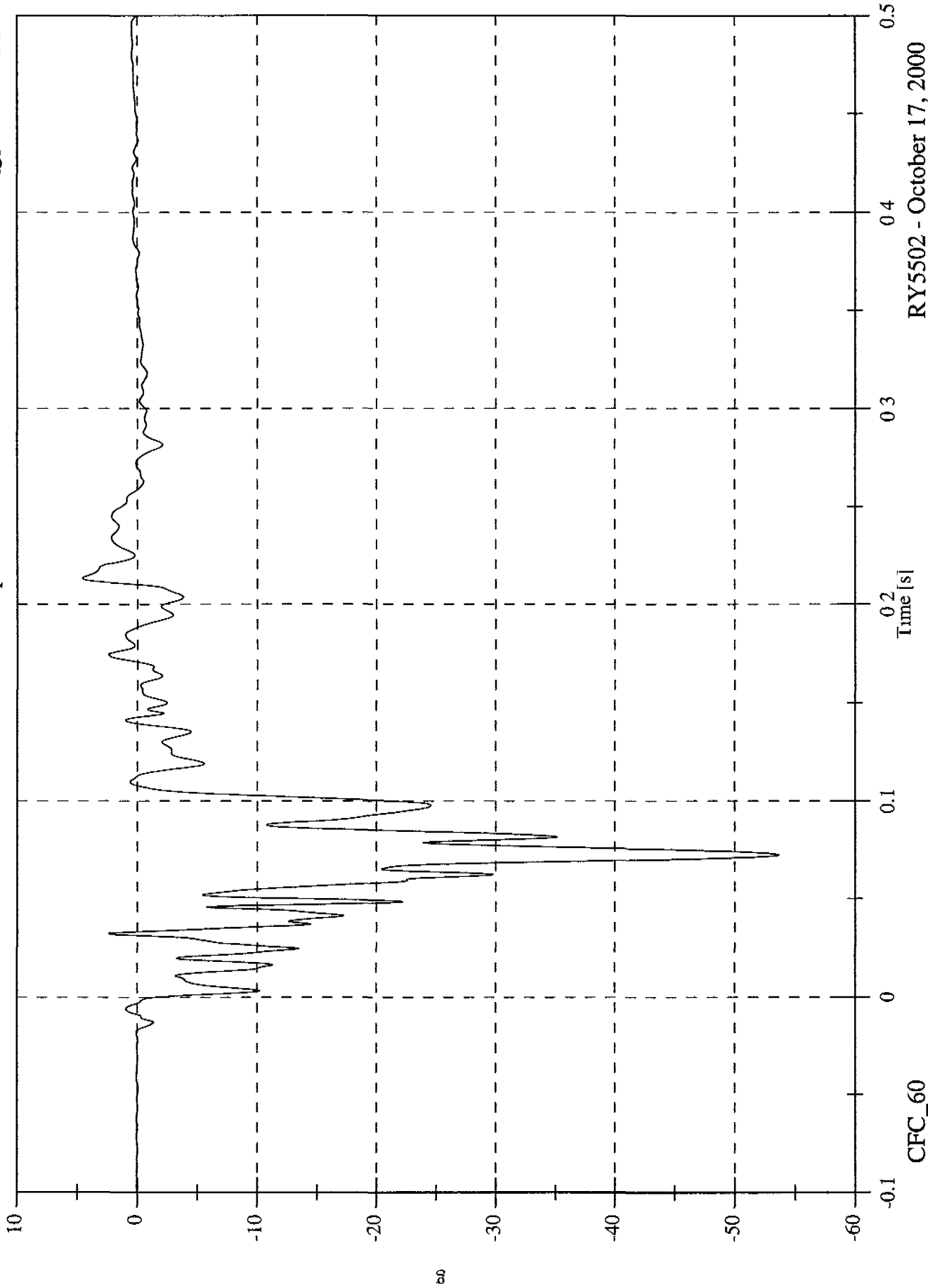
CFC\_180

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Acc 5 P1 Toepan Left X

Max: 4.6 [g] at 0.213 [s]  
Min: -53.6 [g] at 0.072 [s]



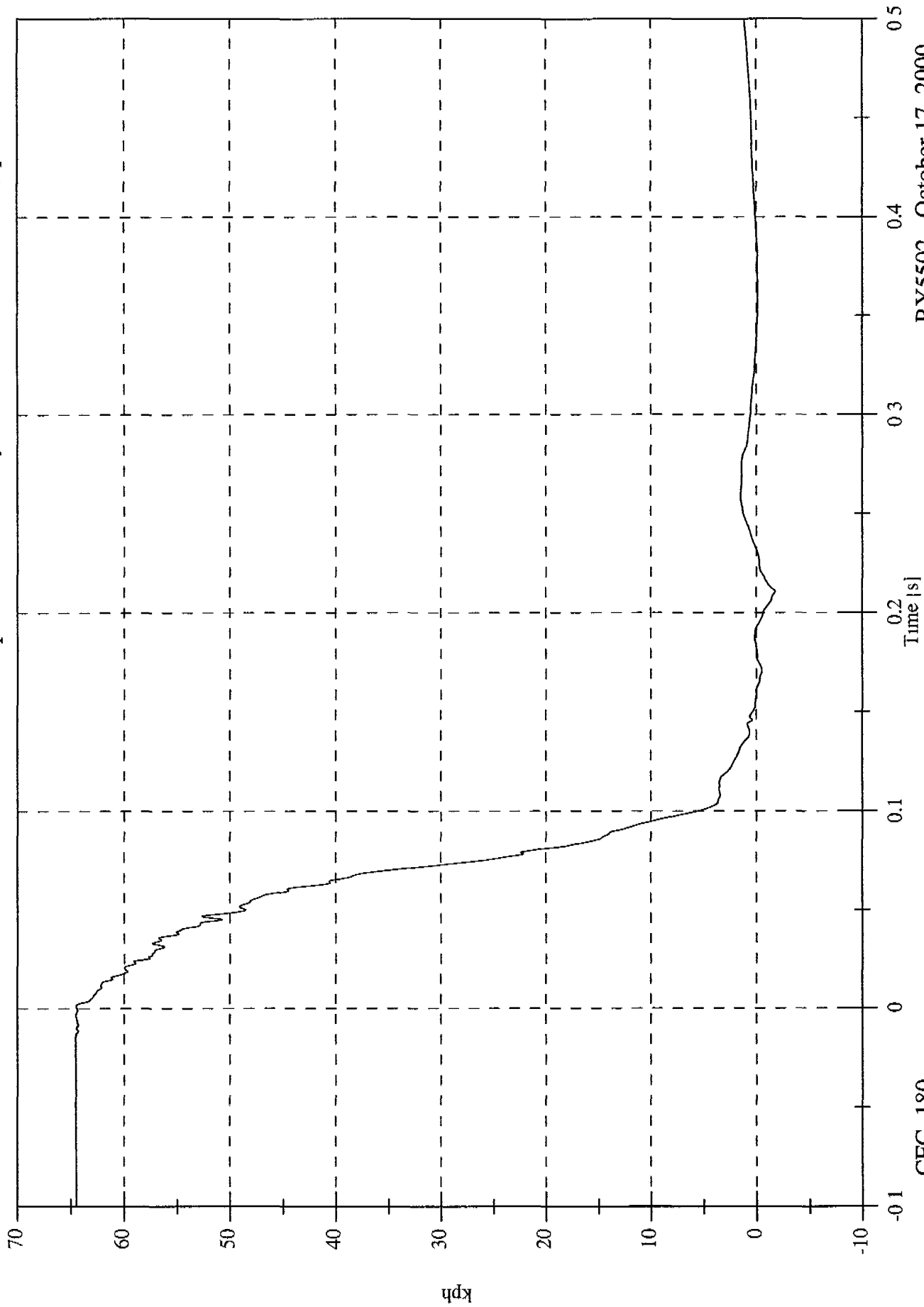
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 64.6 [kph] at -0.015 [s]

Min: -1.8 [kph] at 0.210 [s]

Acc 5 P1 Toe Pan Left X Velocity



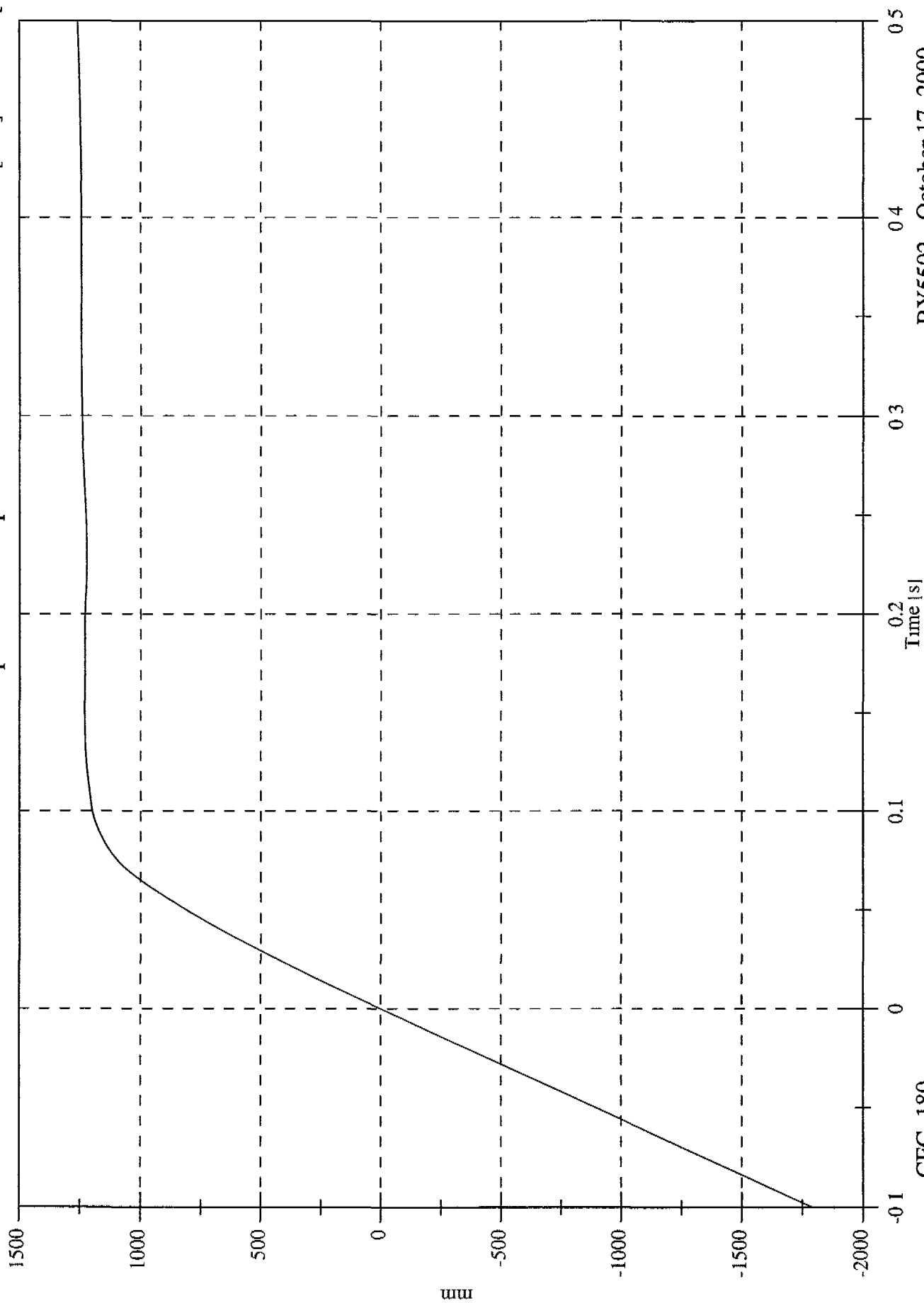
RY5502 - October 17, 2000

CFC\_180

2000 Subaru Legacy 40% Offset Impact

Max: 1258.9 [mm] at 0.500 [s]  
Min: -1791.9 [mm] at -0.100 [s]

Acc 5 P1 Toe Pan Left X Displacement



CFC\_180

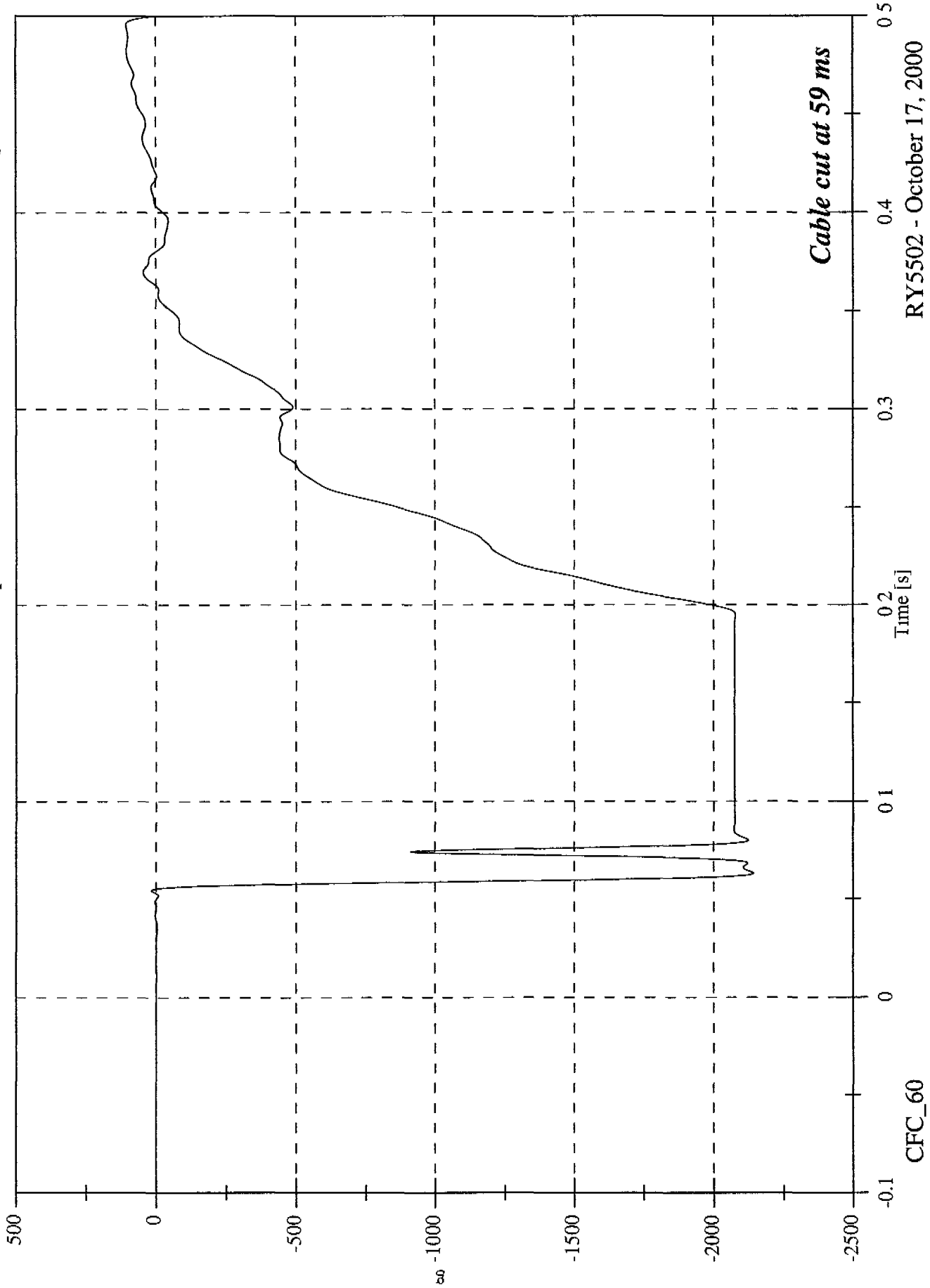
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 104.8 [g] at 0.495 [s]

Acc 6 P1 Toepan Left Y

Min: -2141.5 [g] at 0.063 [s]

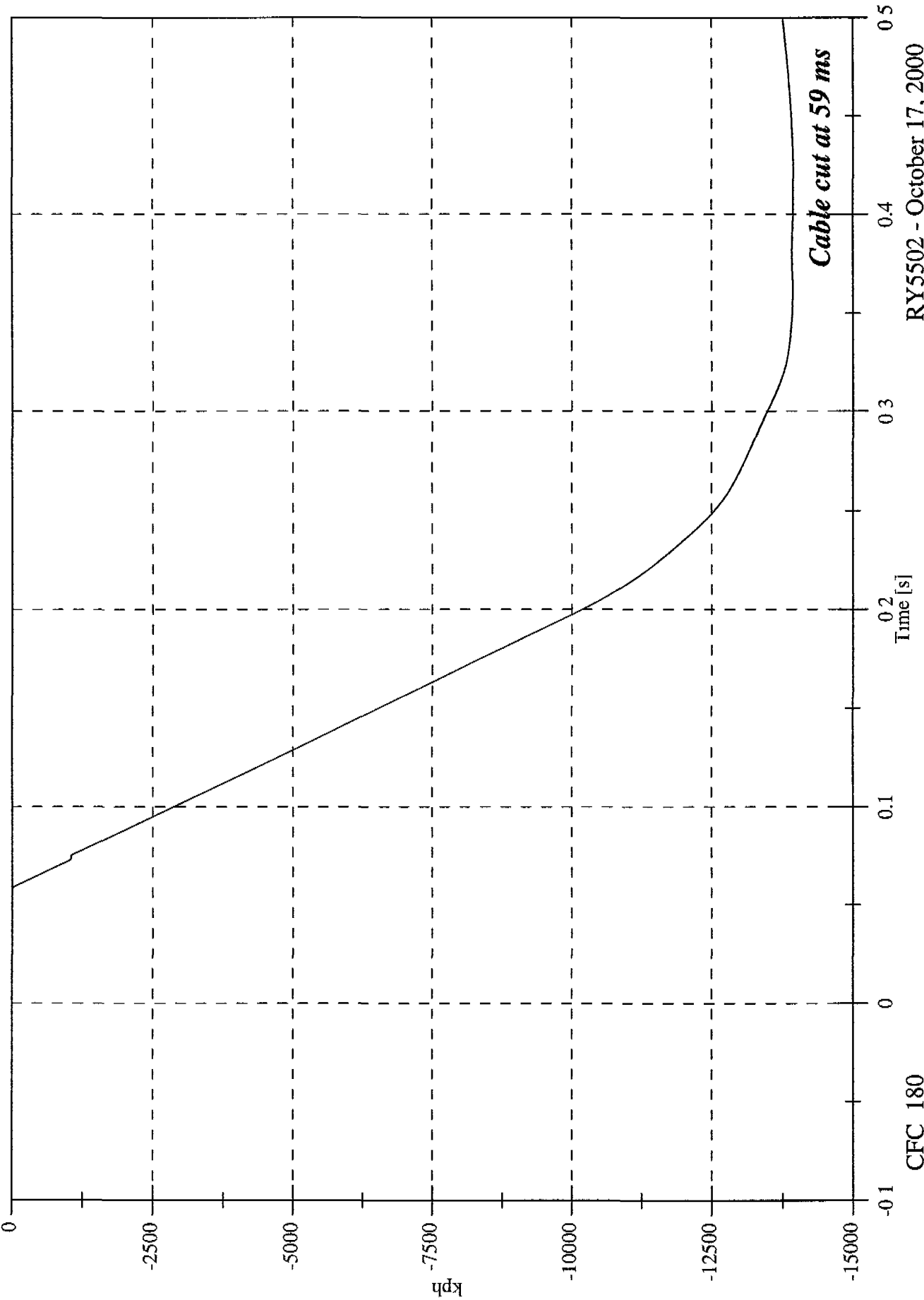


R Y 5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Acc 6 P1 Toepan Left Y Velocity

Max: 0.2 [kph] at 0.051 [s]  
Min: -13948.5 [kph] at 0.403 [s]



CFC\_180

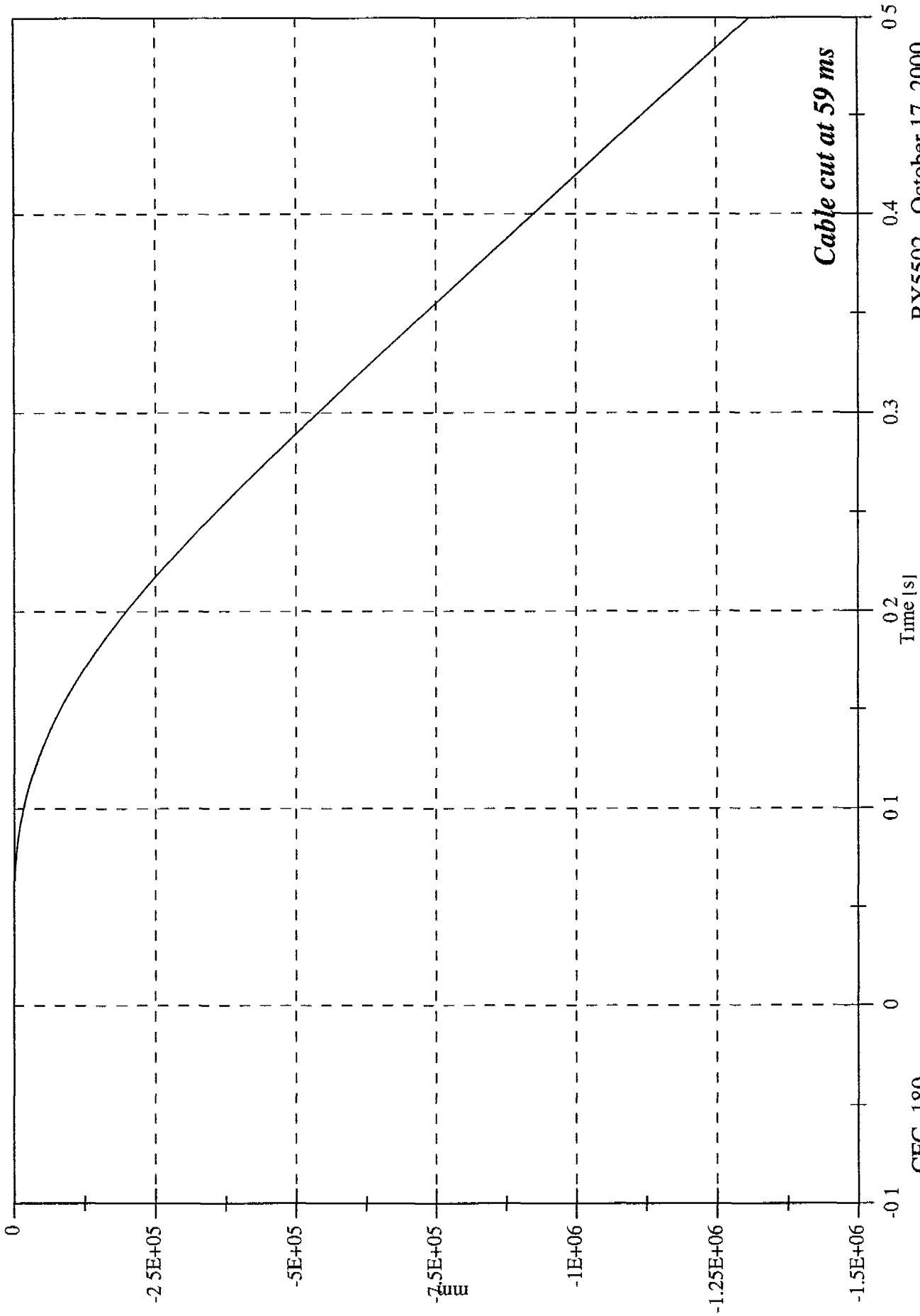
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Acc 6 P1 Toe Pan Left Y Displacement

Max: 0.0 [mm] at 0.002 [s]

Min: -1310032.8 [mm] at 0.500 [s]



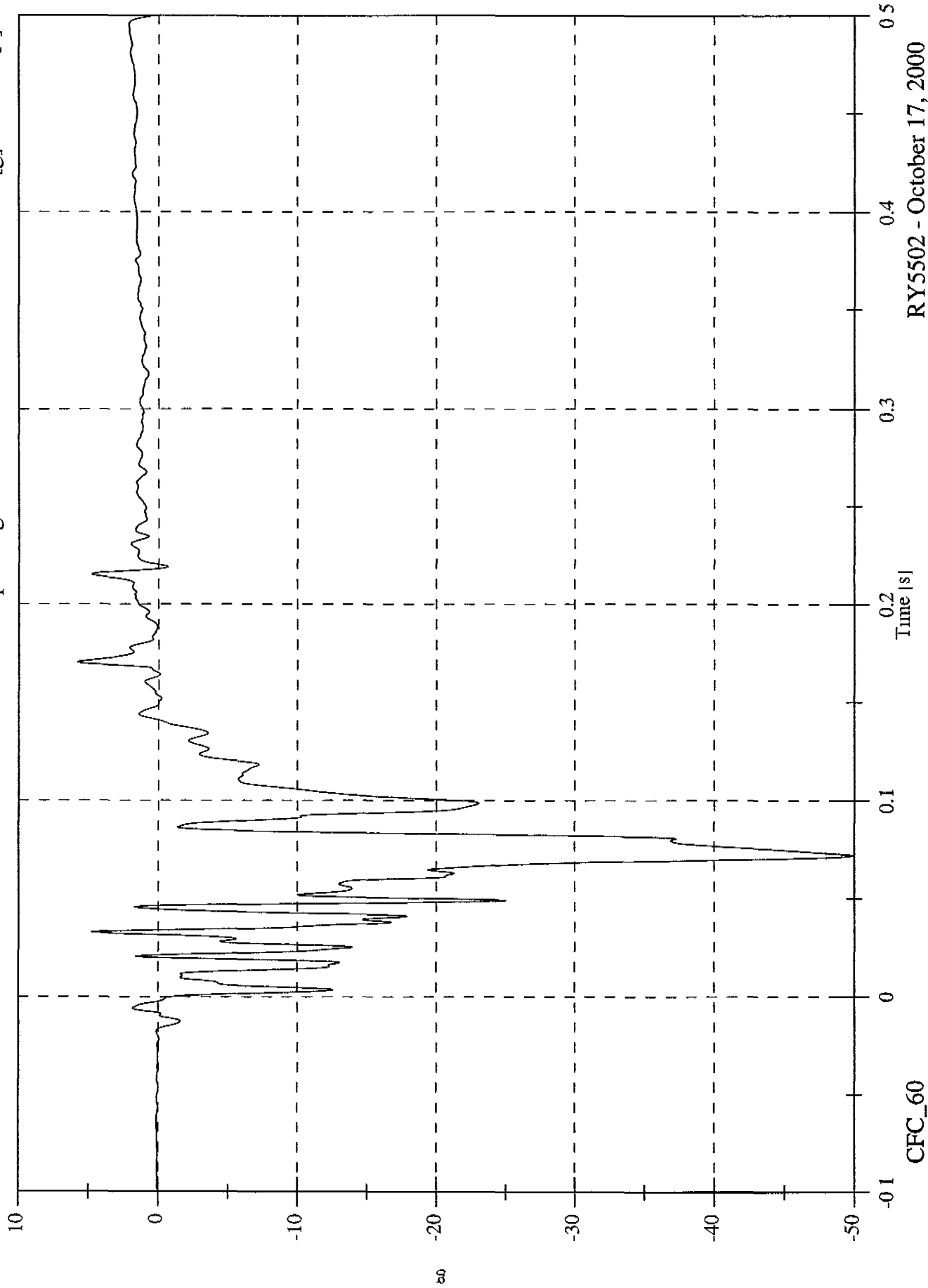
CFC\_180

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 5.8 [g] at 0.170 [s]  
Min: -49.9 [g] at 0.072 [s]

Acc 7 P1 Toepan Right X



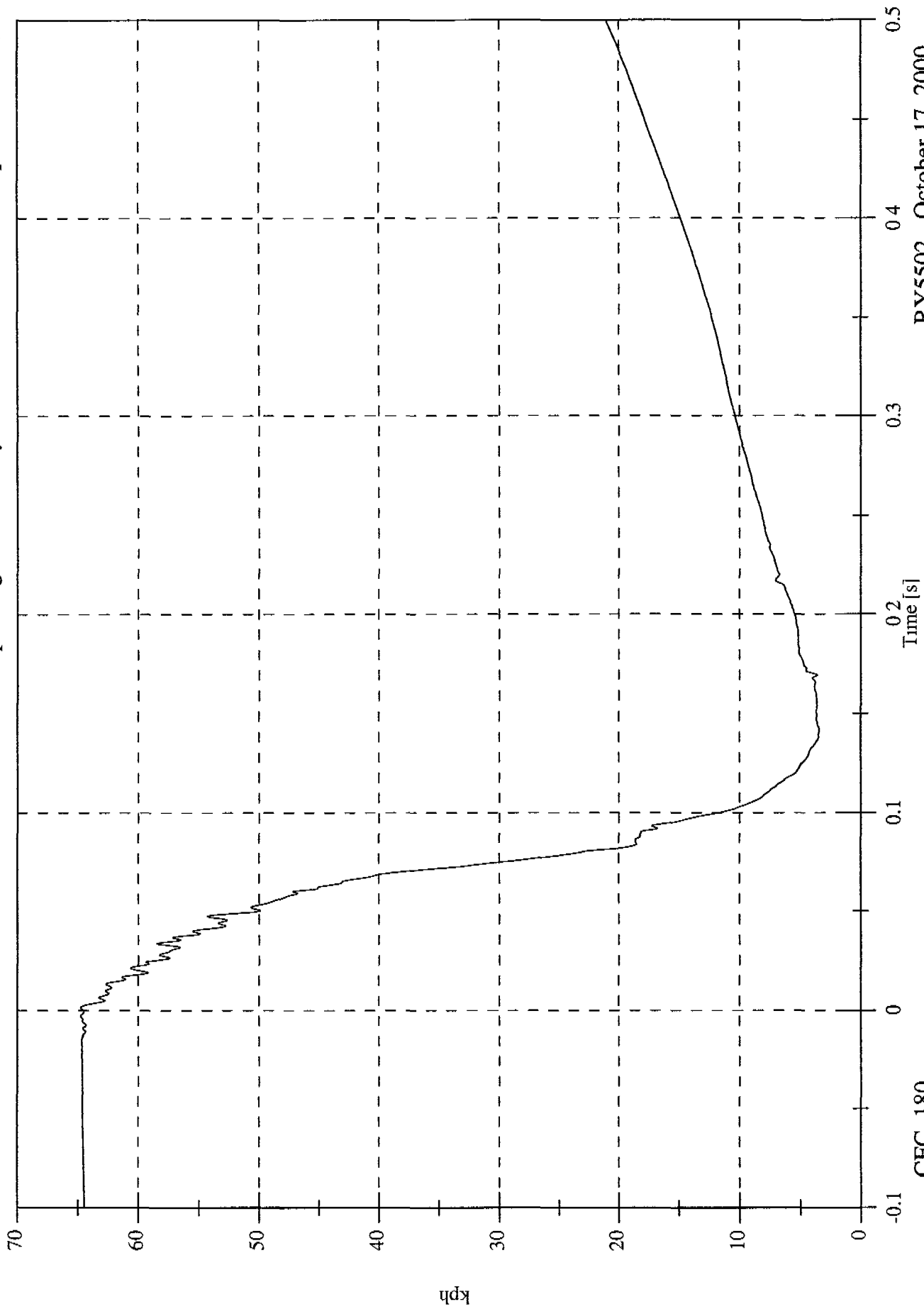
R Y 5 5 0 2 - O c t o b e r 1 7 , 2 0 0 0

2000 Subaru Legacy 40% Offset Impact

Max: 64.8 [kph] at -0.003 [s]

Min: 3.4 [kph] at 0.141 [s]

Acc 7 P1 Toepan Right X Velocity



CFC\_180

Time [s]

0.3

0.4

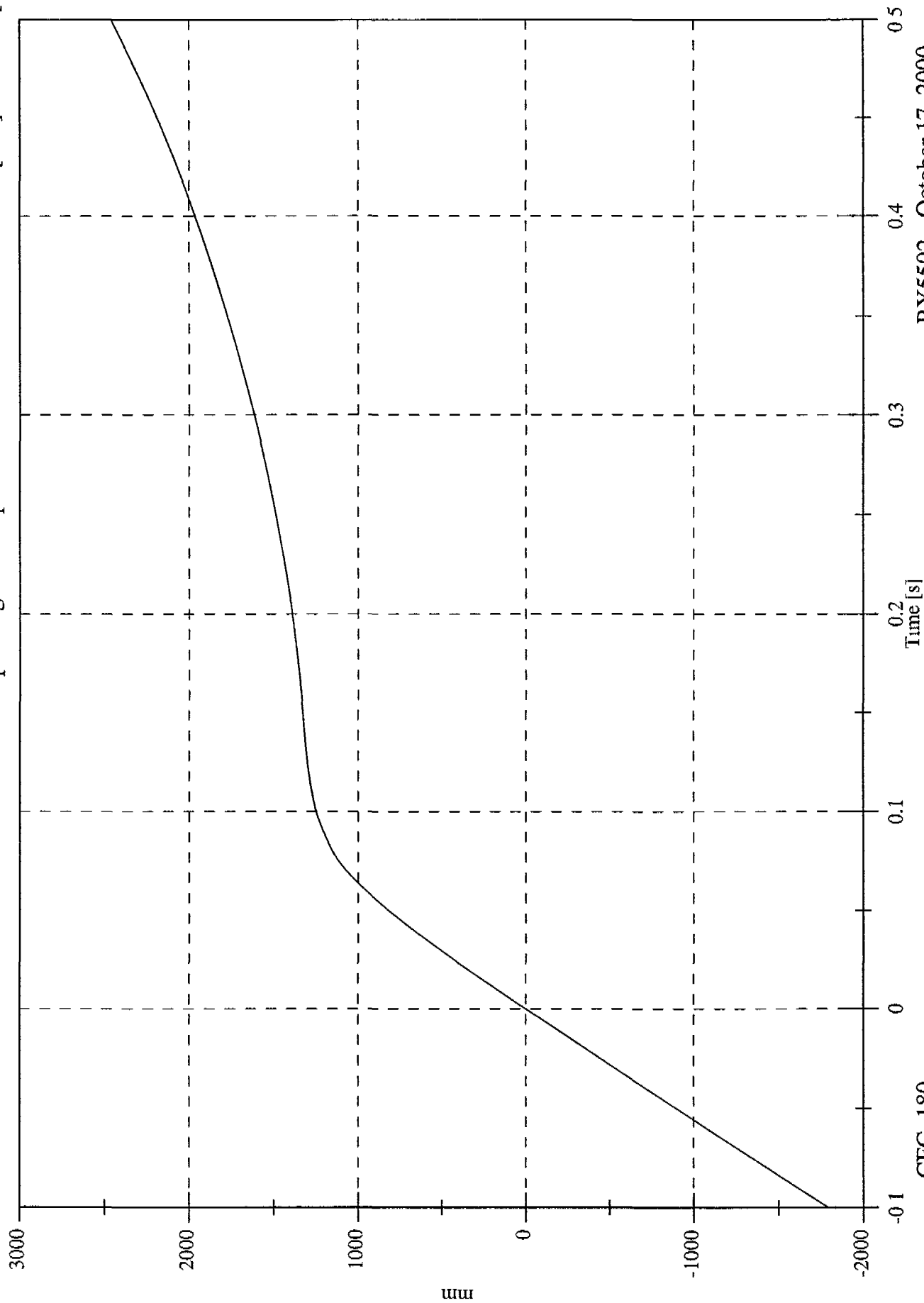
0.5

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2458.1 [mm] at 0.500 [s]  
Min: -1793.9 [mm] at -0.100 [s]

Acc 7 P1 Toe Pan Right X Displacement



CFC\_180

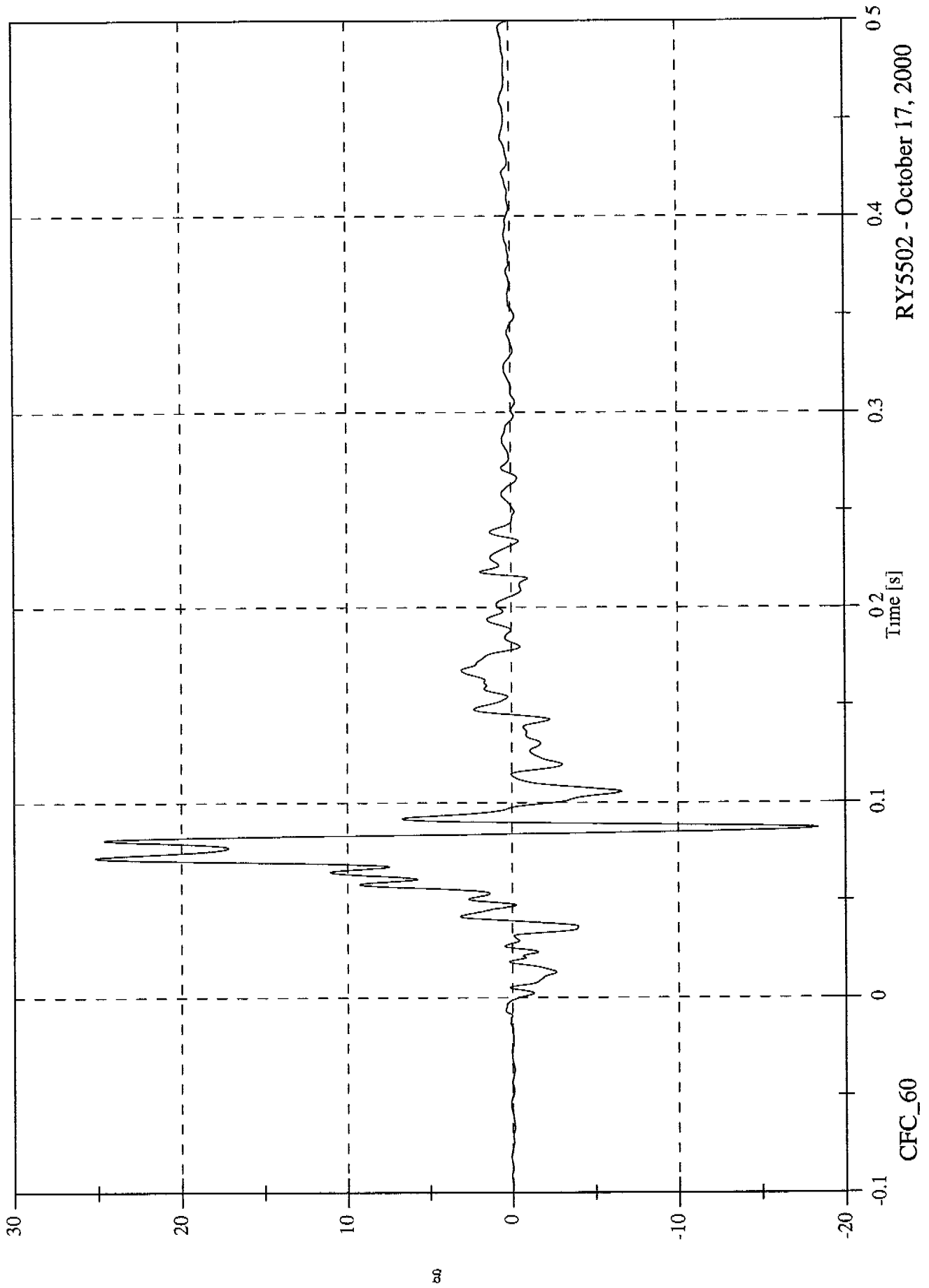
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 25.2 [g] at 0.072 [s]

Min: -18.3 [g] at 0.087 [s]

Acc 8 P1 Toepan Right Y

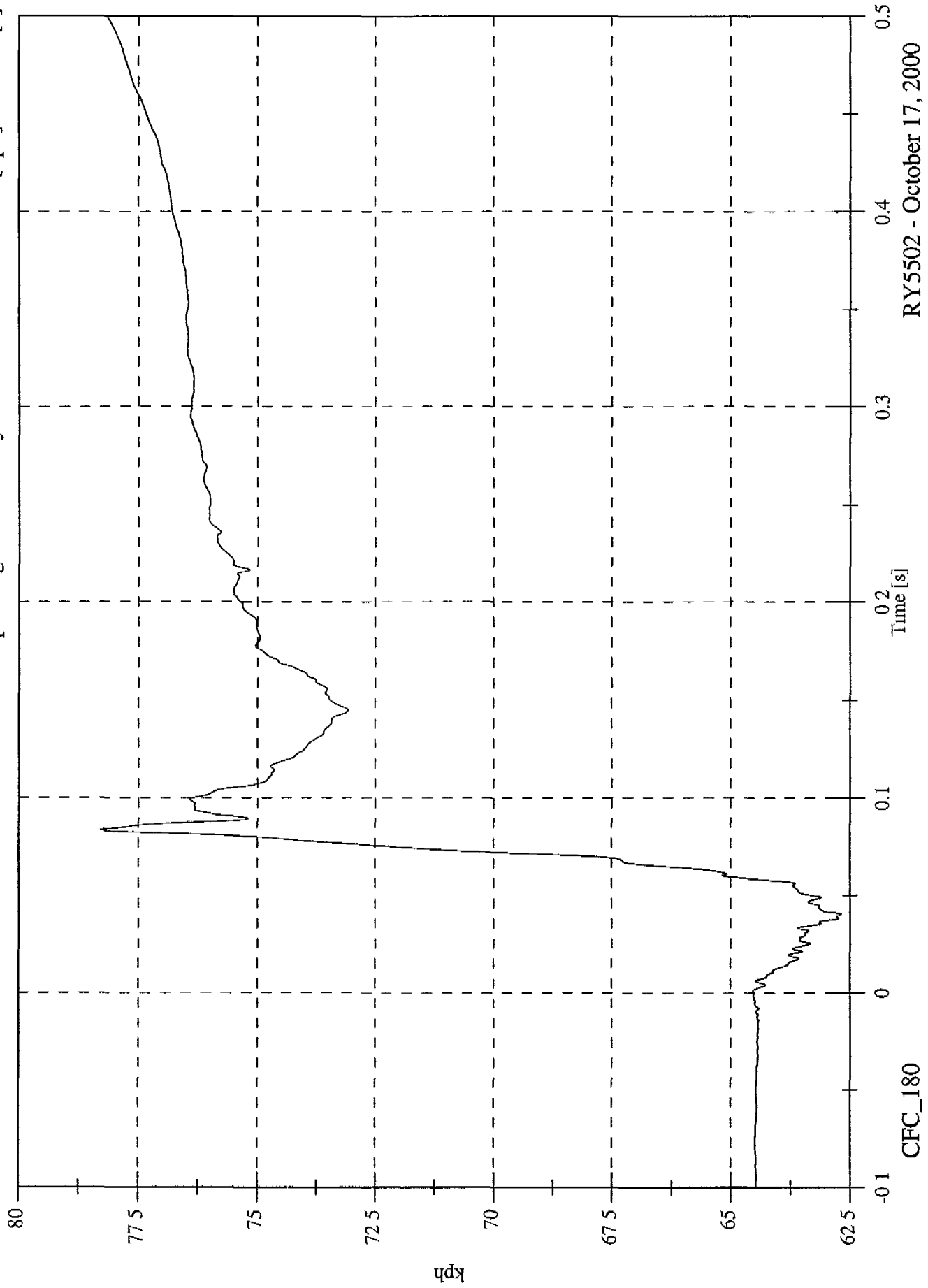


2000 Subaru Legacy 40% Offset Impact

Max: 78.3 [kph] at 0.083 [s]

Acc 8 P1 Toe Pan Right Y Velocity

Min: 62.7 [kph] at 0.040 [s]



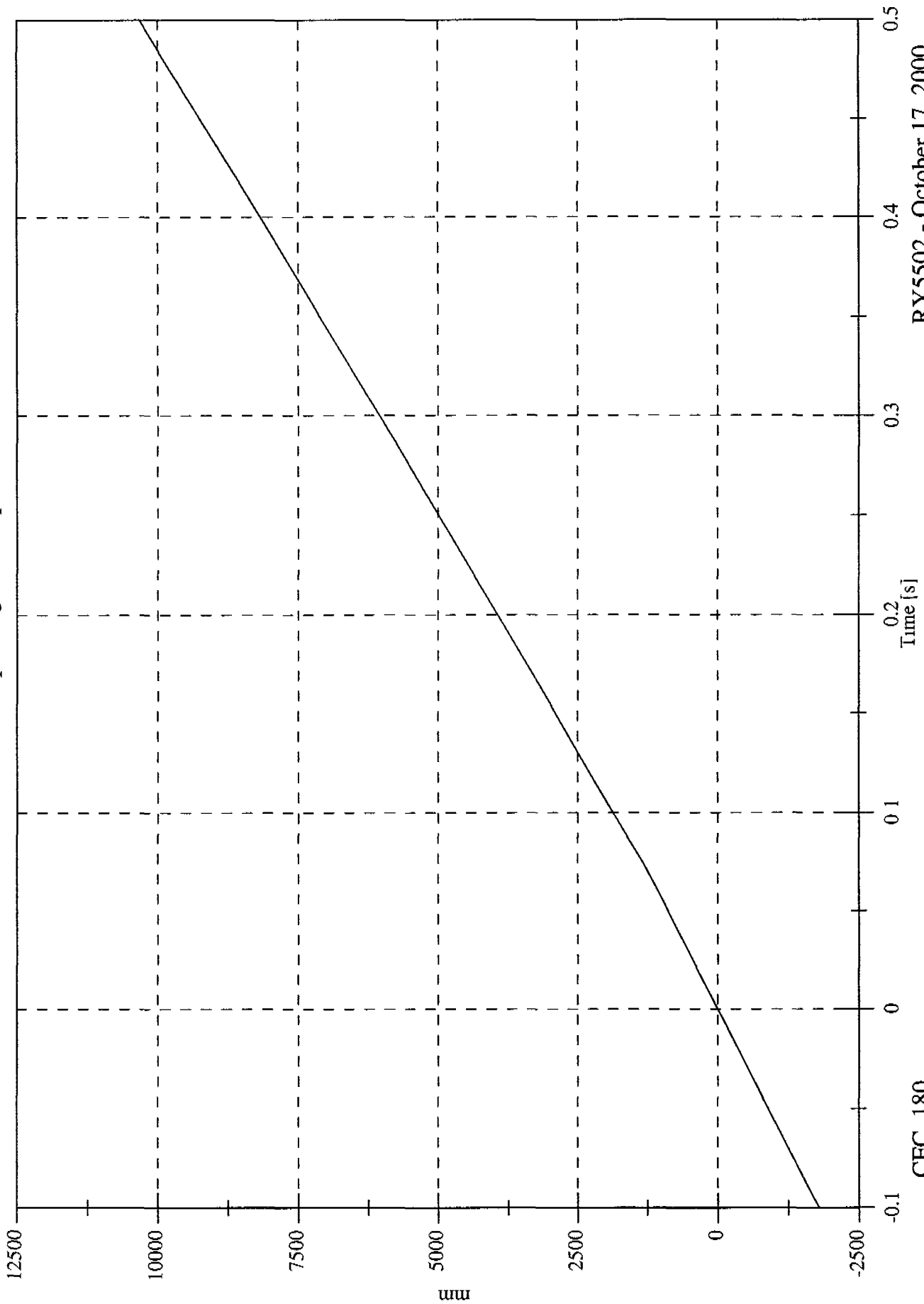
RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 10319.1 [mm] at 0.500 [s]

Min: -1790.6 [mm] at -0.100 [s]

Acc 8 P1 Toepan Right Y Displacement



CFC\_180

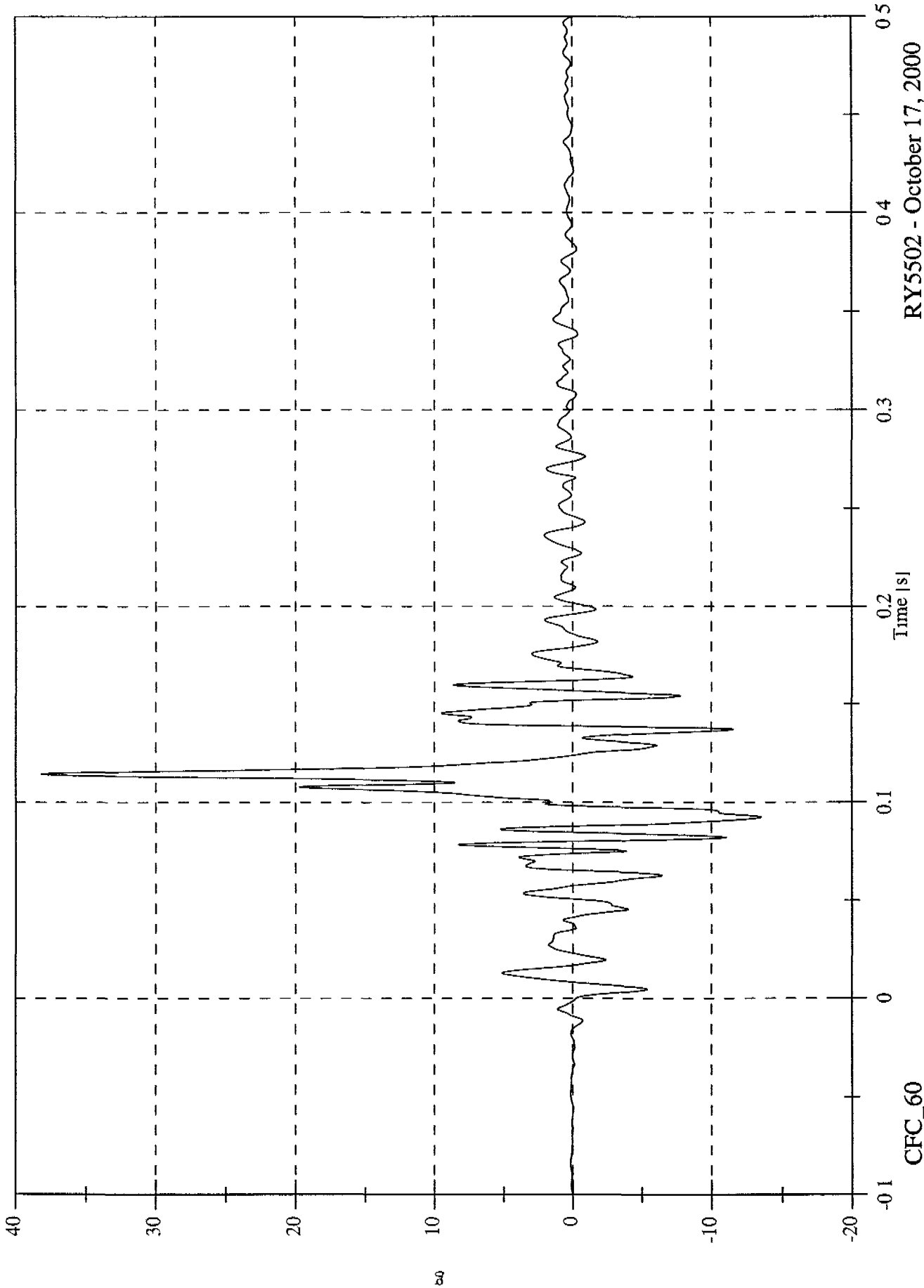
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 38.2 [g] at 0.114 [s]  
Min: -13.5 [g] at 0.092 [s]

Acc 9 Trunk Z



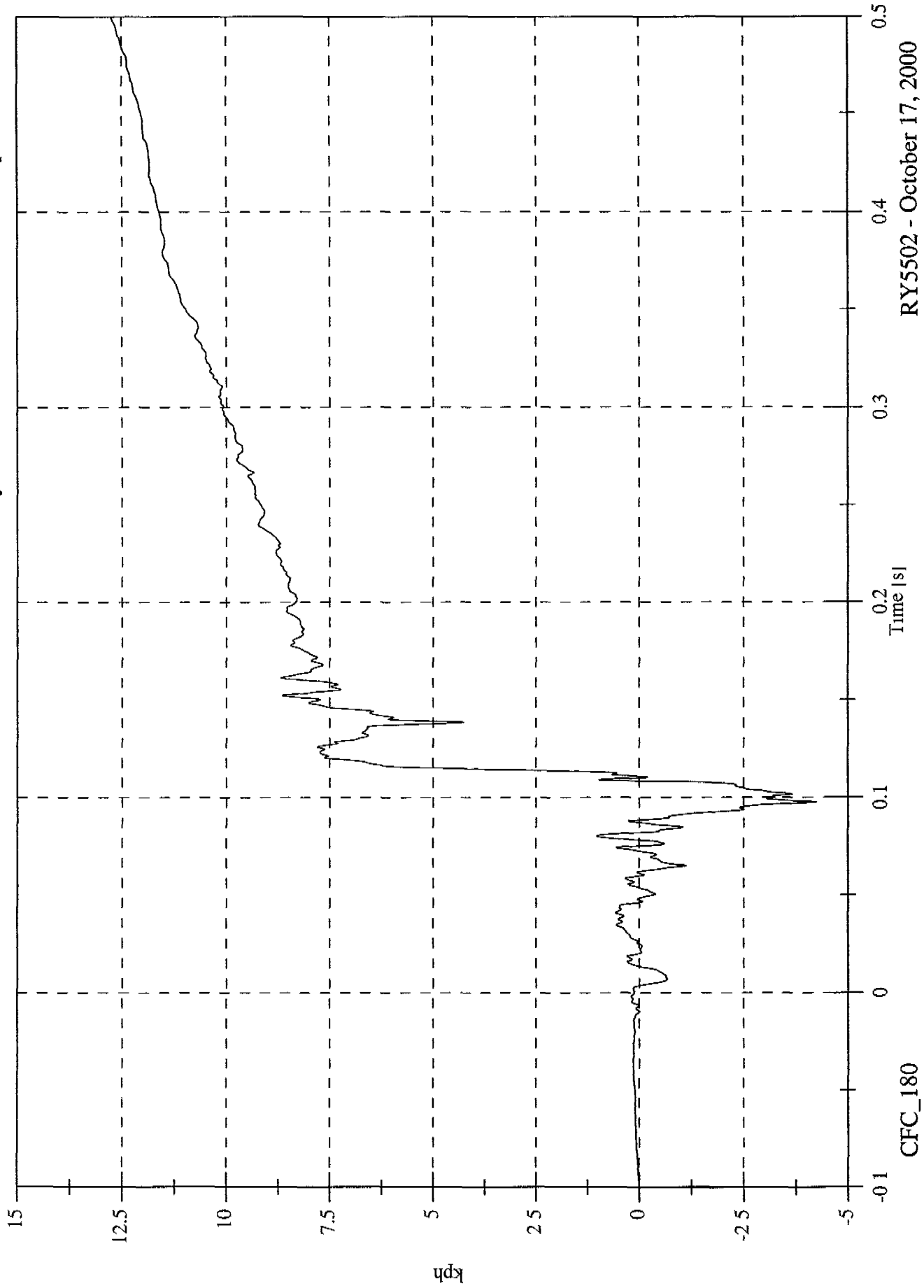
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 12.7 [kph] at 0.500 [s]

Min: -4.2 [kph] at 0.097 [s]

Acc 9 Trunk Z Velocity



CFC\_180

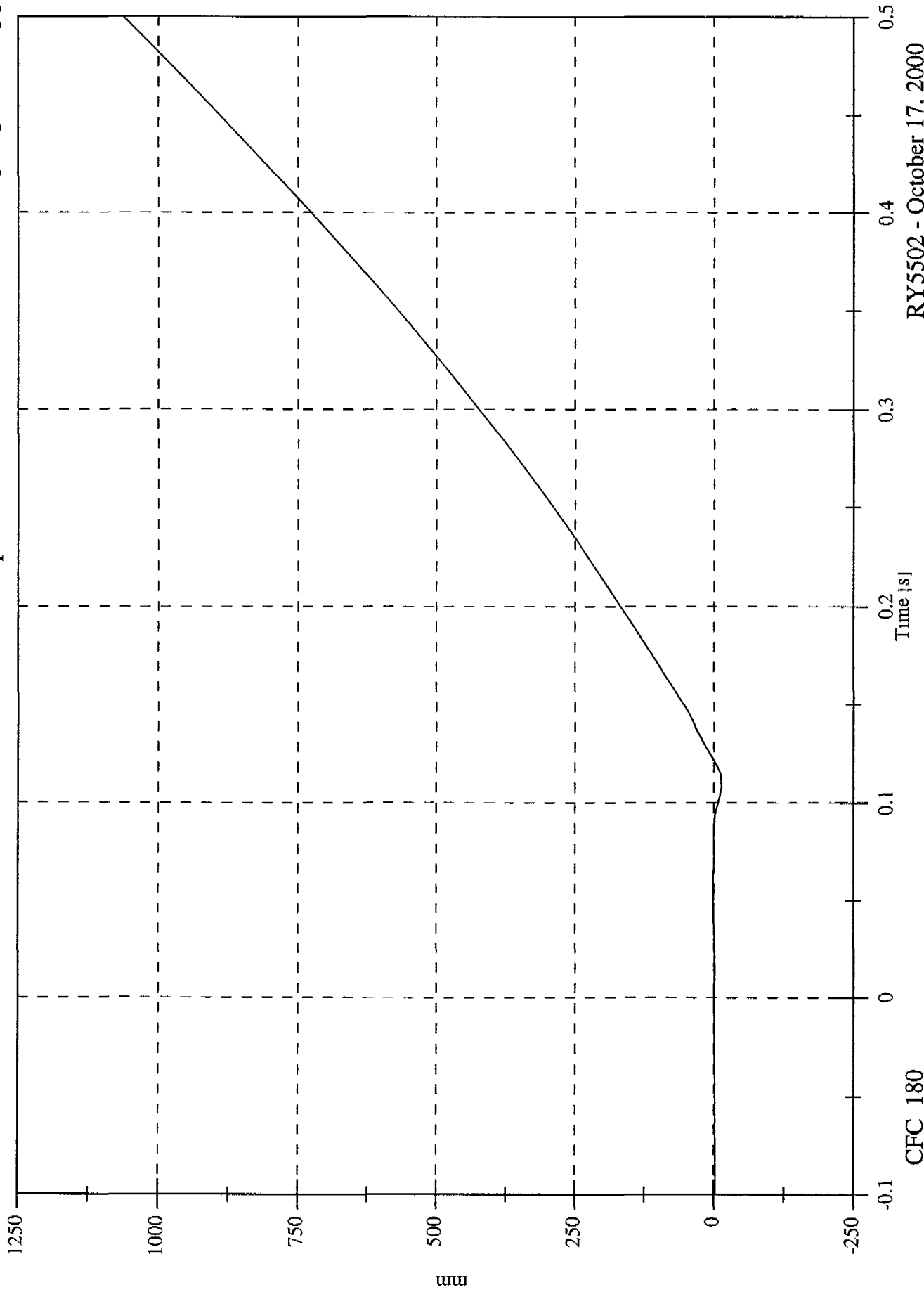
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Acc 9 Trunk Z Displacement

Max: 1063.1 [mm] at 0.500 [s]  
Min: -13.7 [mm] at 0.108 [s]



RY5502 - October 17, 2000

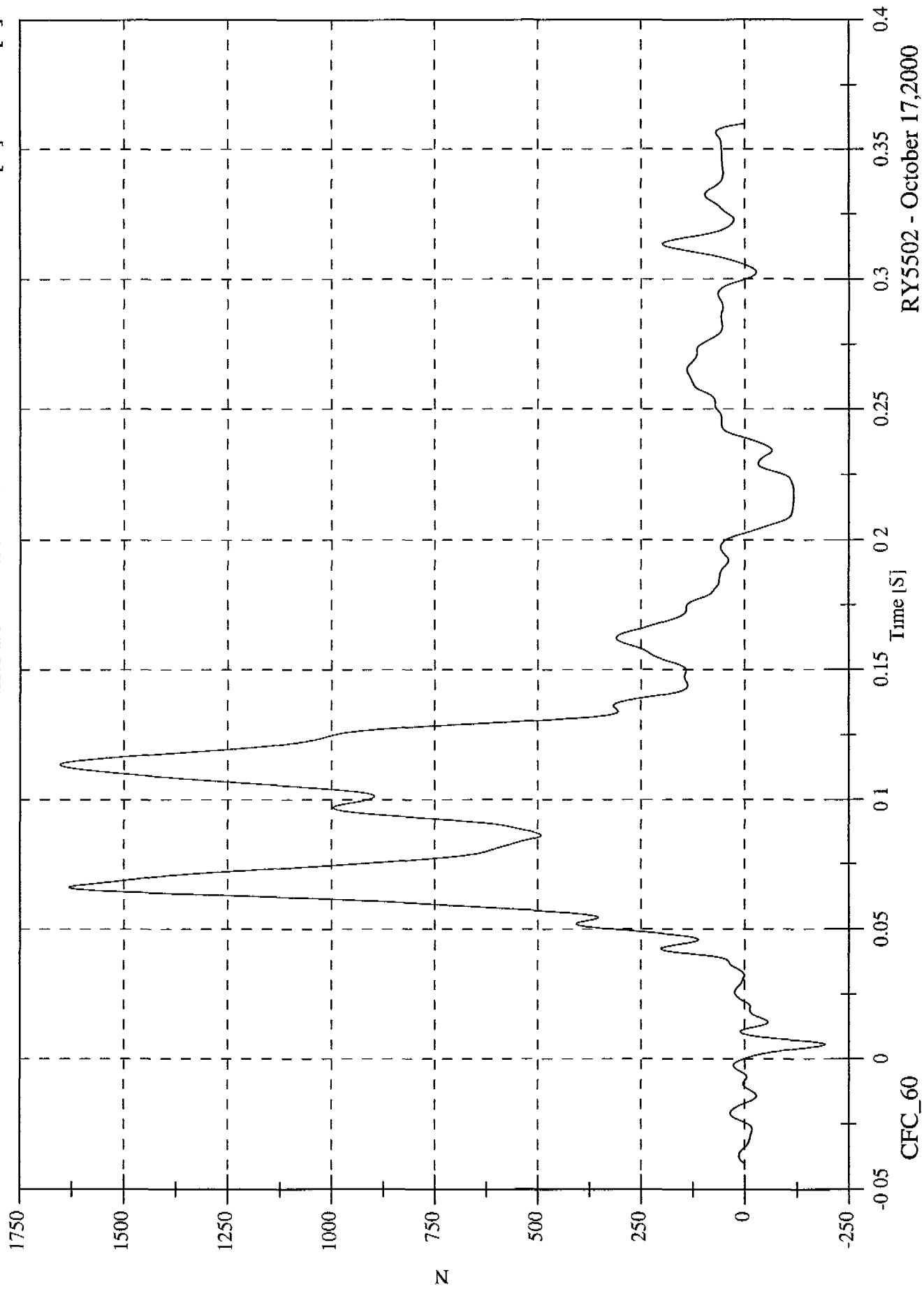
CFC\_180

2000 Subaru Legacy 40% Offset Impact

Max: 1653.6 [N] at 0.113 [S]

Min: -192.4 [N] at 0.006 [S]

Barrier Load Cell E1 FY



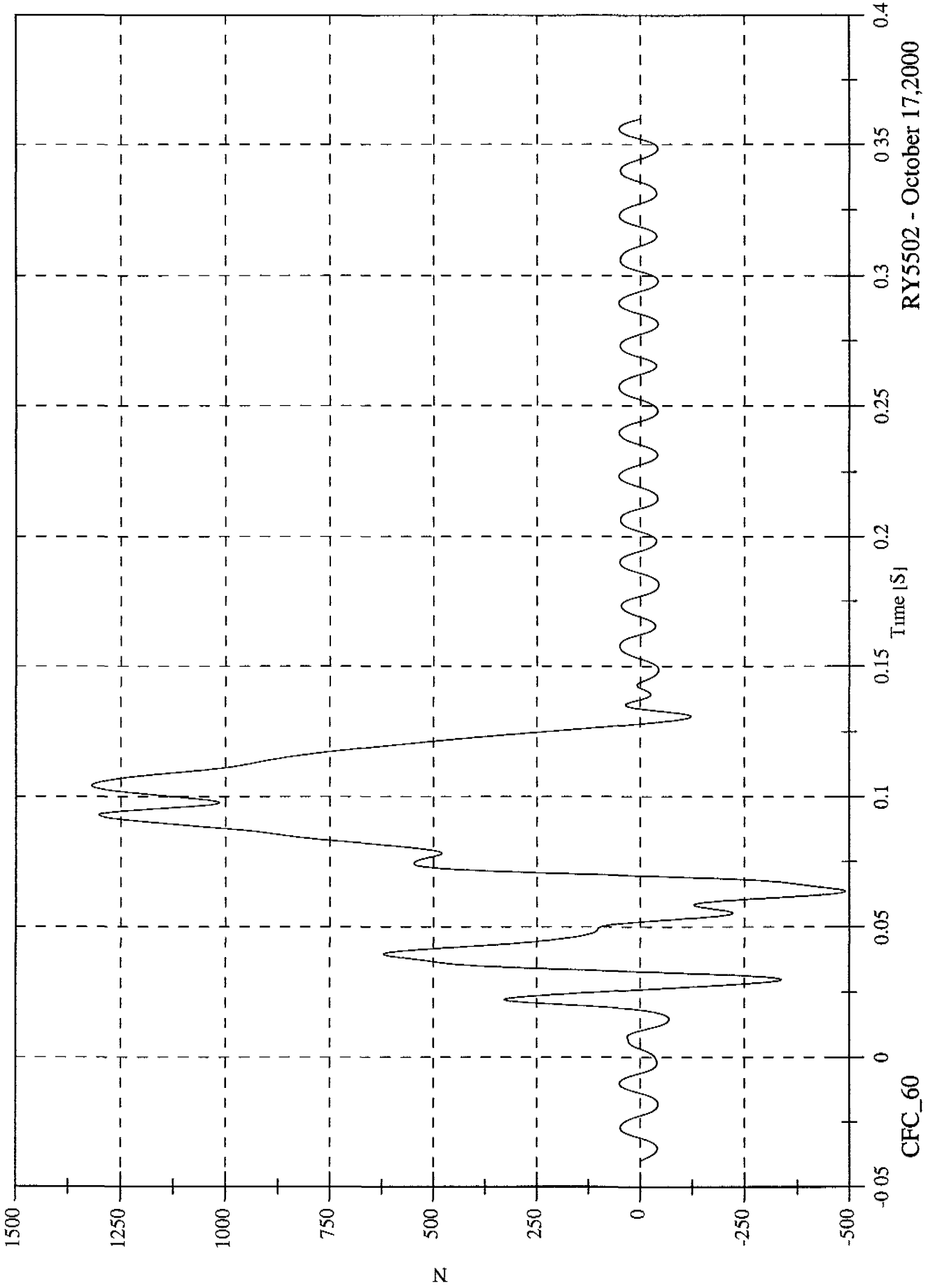
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell E2 FY

Max: 1319.6 [N] at 0.104 [S]  
Min: -490.1 [N] at 0.064 [S]



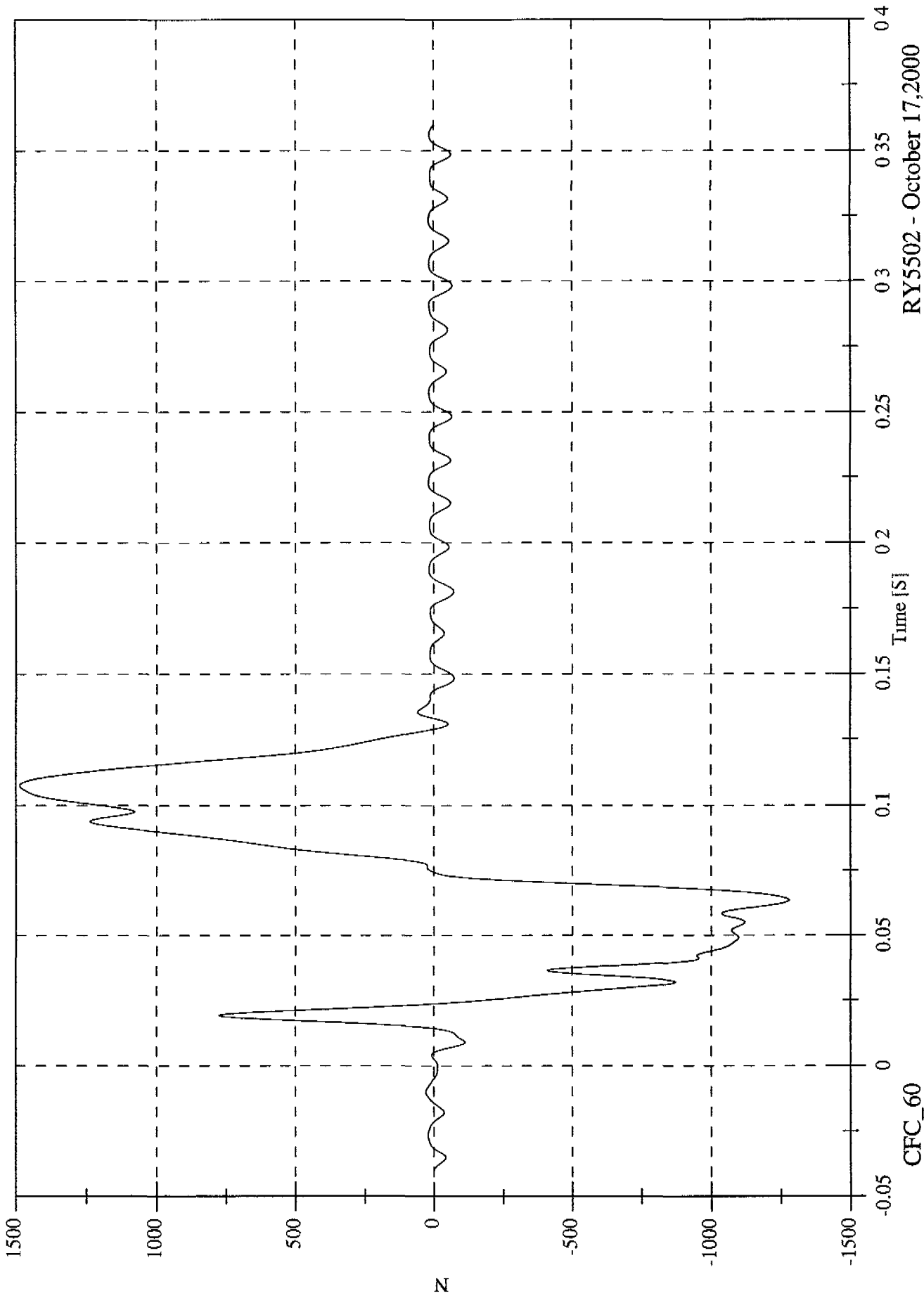
CFC\_60

2000 Subaru Legacy 40% Offset Impact

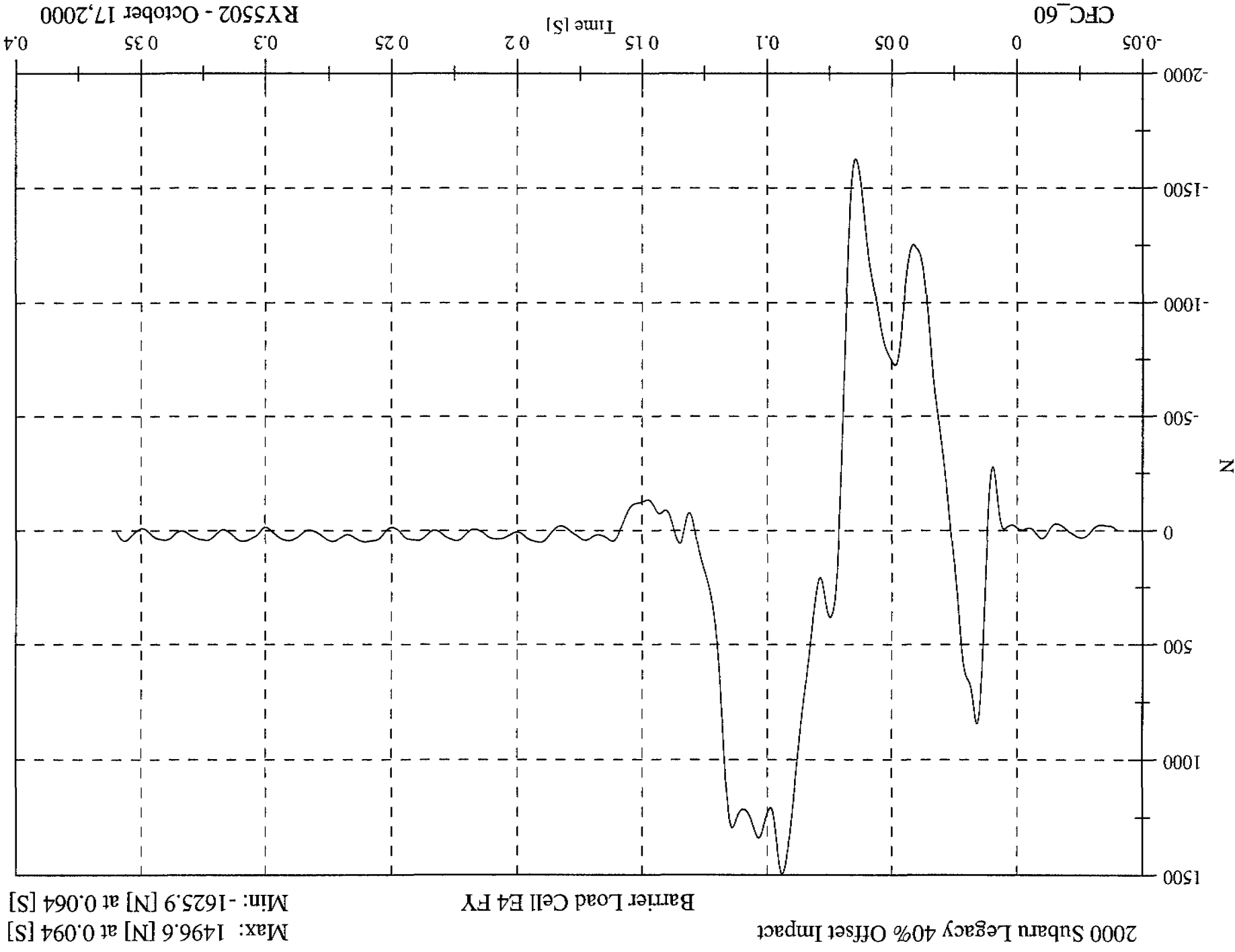
Max: 1486.9 [N] at 0.107 [S]

Min: -1280.3 [N] at 0.064 [S]

Barrier Load Cell E3 FY



RY5502 - October 17, 2000

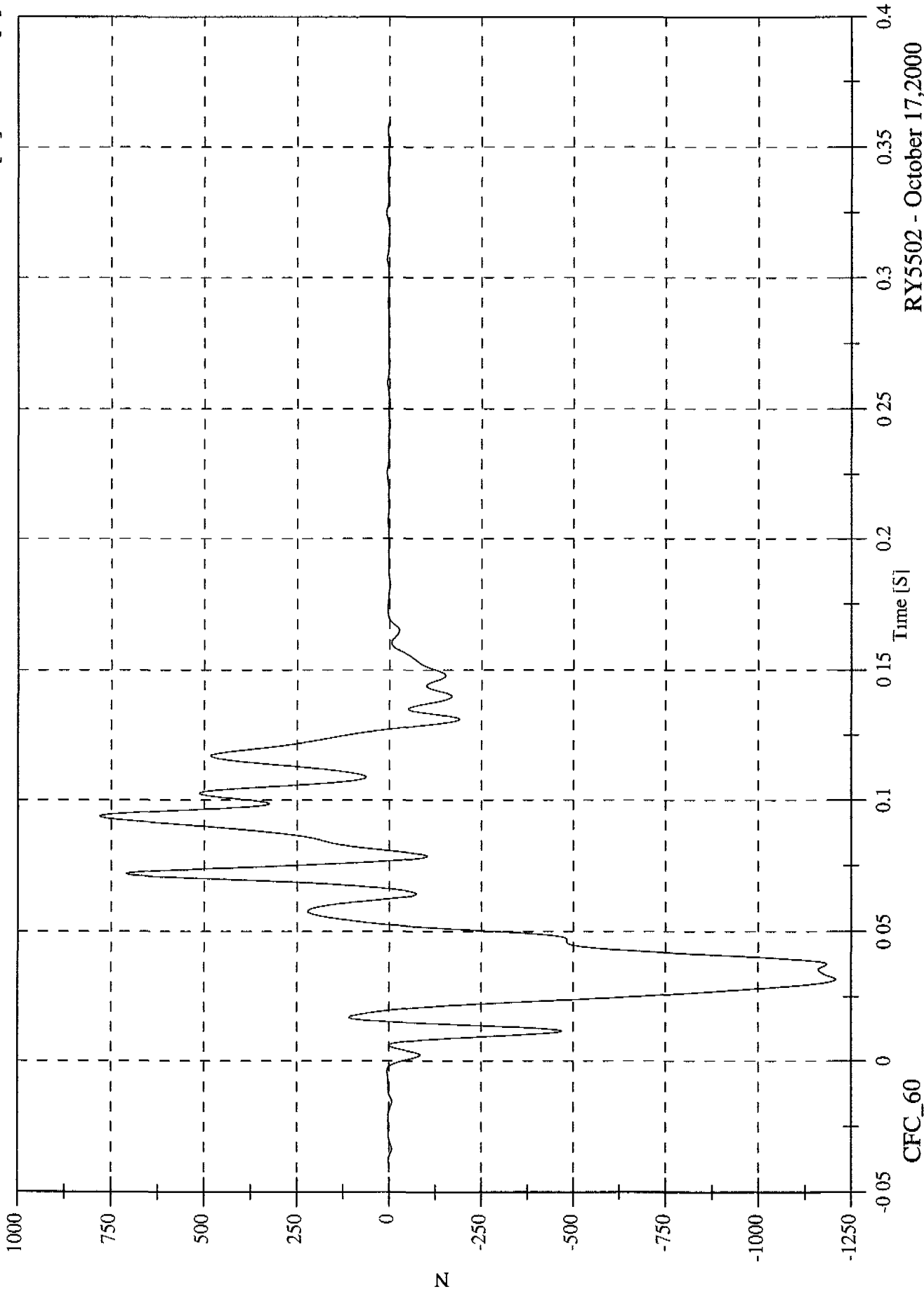


2000 Subaru Legacy 40% Offset Impact

Max: 780.5 [N] at 0.094 [S]

Min: -1208.4 [N] at 0.032 [S]

Barrier Load Cell E5 FY



CFC\_60

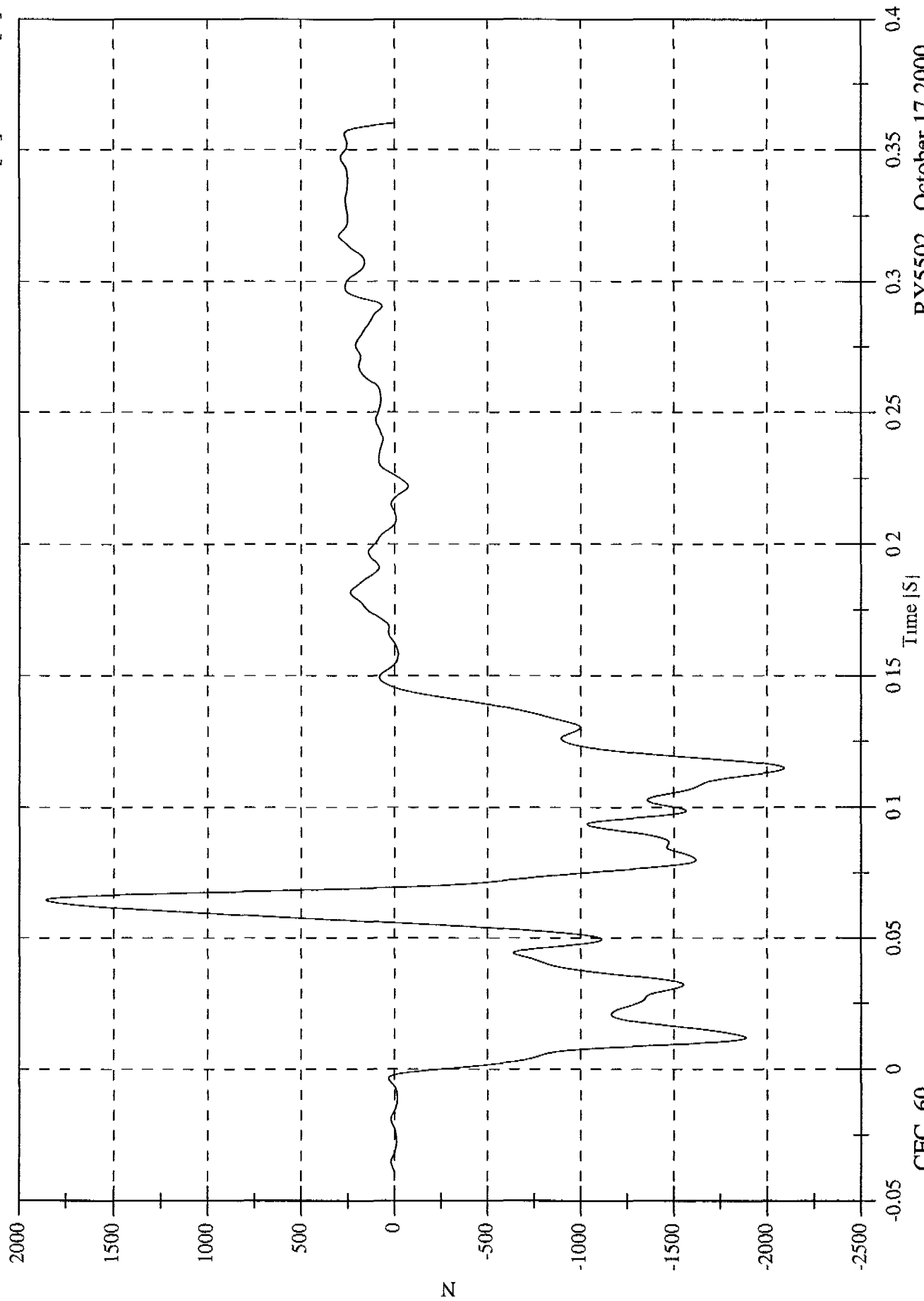
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell E6 FY

Max: 1857.5 [N] at 0.064 [S]

Min: -2089.6 [N] at 0.115 [S]

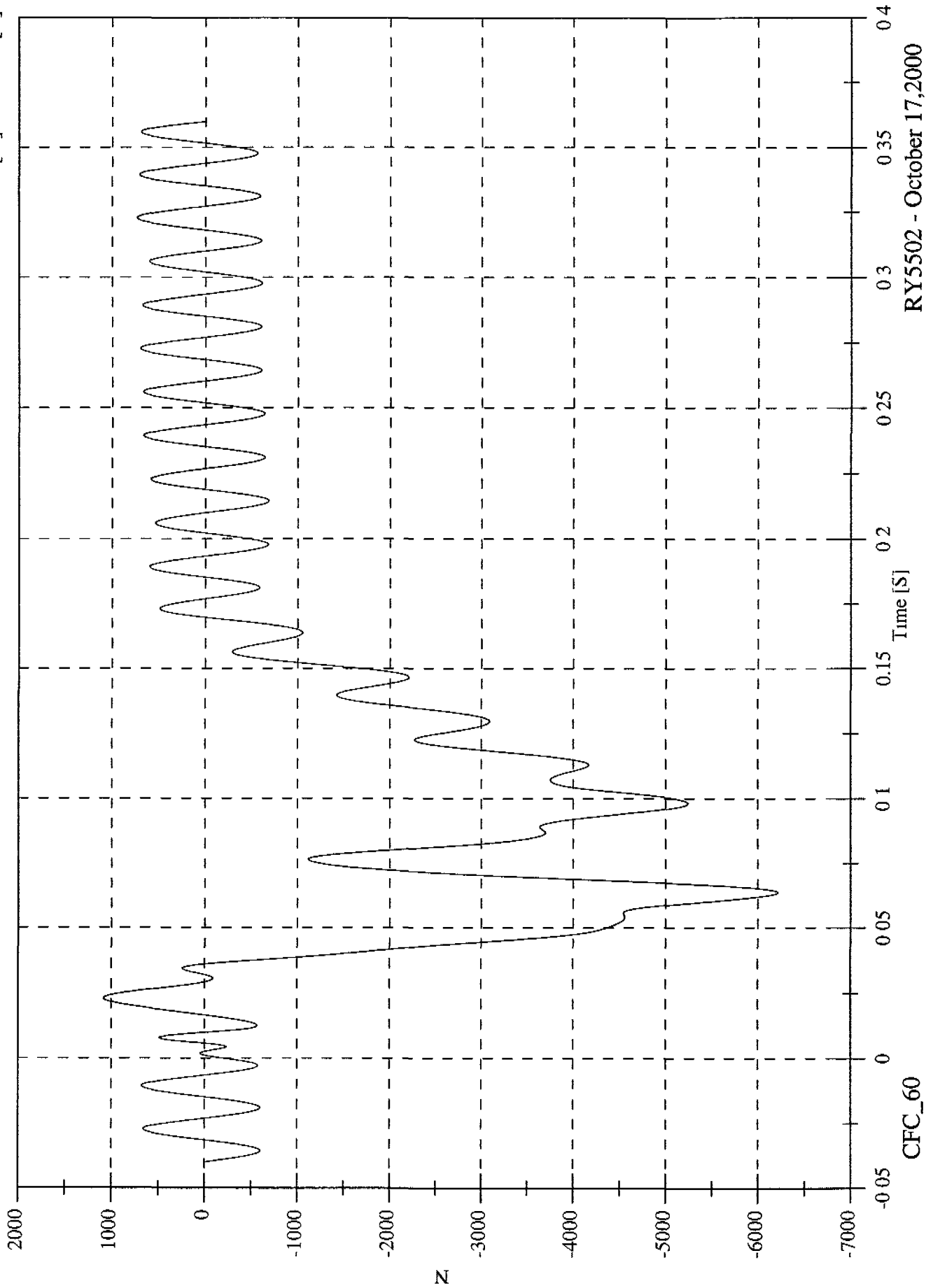


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1081.9 [N] at 0.023 [S]  
Min: -6215.0 [N] at 0.064 [S]

Barrier Load Cell E1 FX



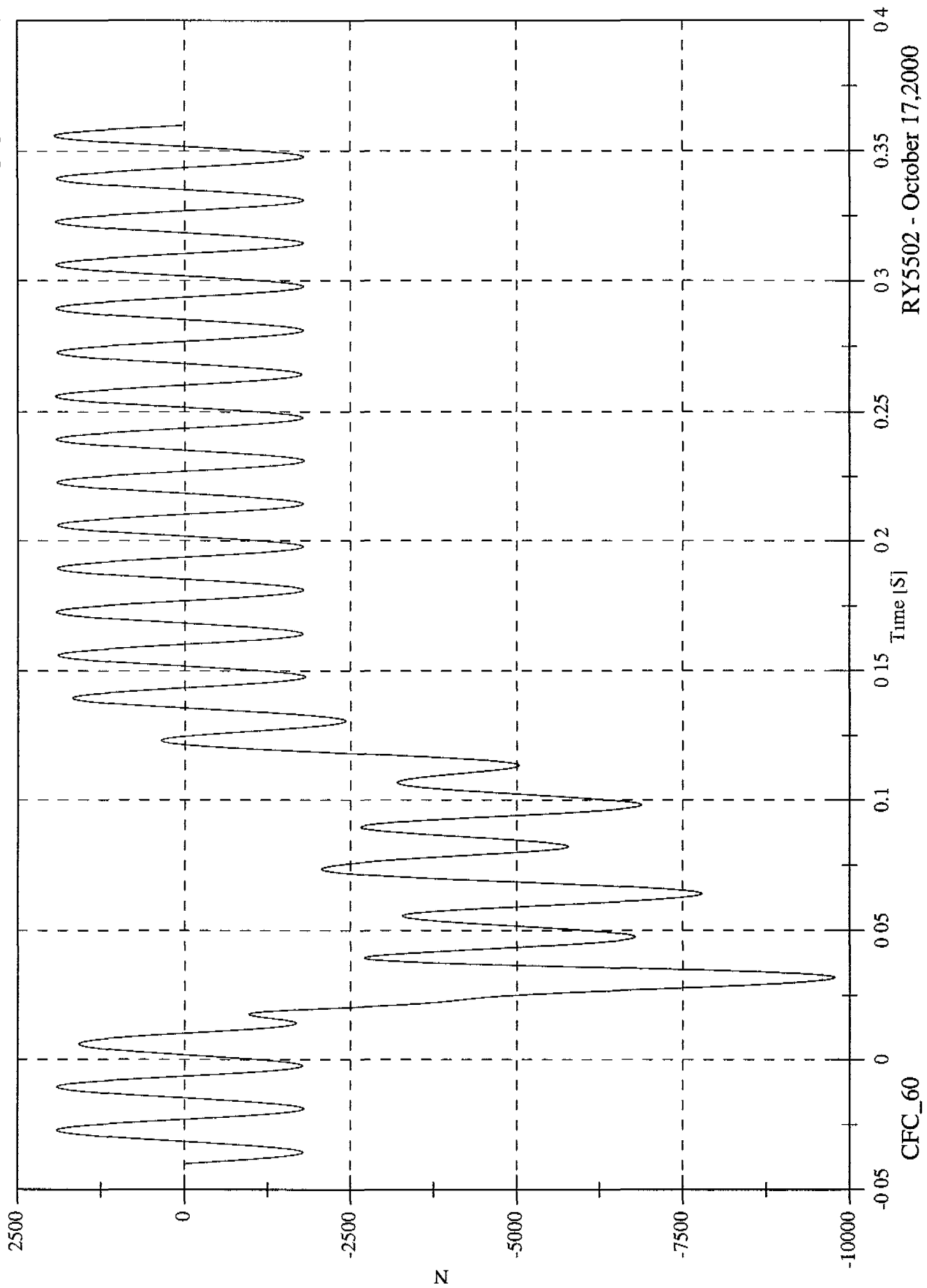
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1938.5 [N] at 0.356 [S]  
Min: -9769.4 [N] at 0.032 [S]

Barrier Load Cell E2 FX



RY5502 - October 17, 2000

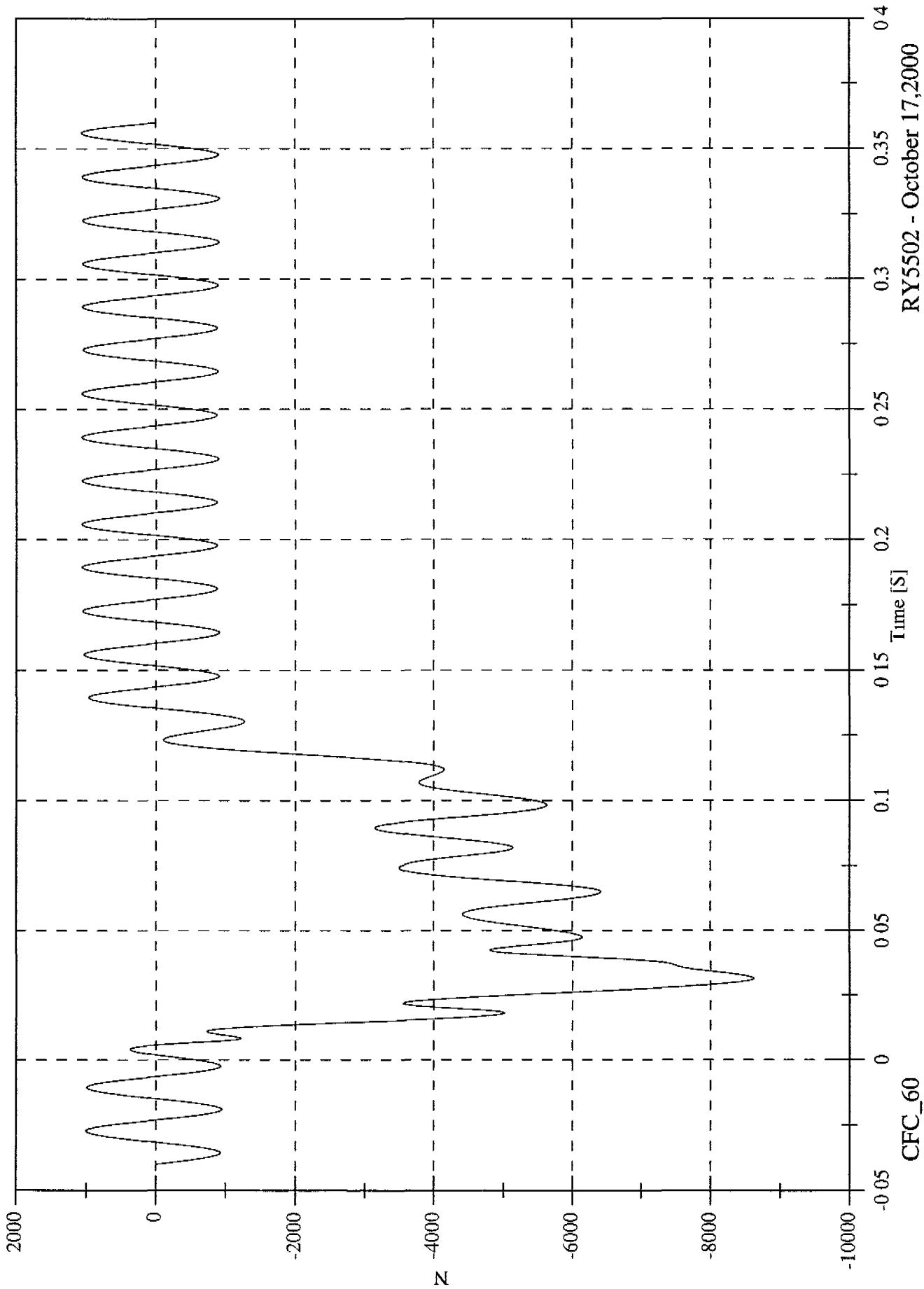
CFC\_60

2000 Subaru Legacy 40% Offset Impact

Max: 1067.4 [N] at 0.206 [S]

Min: -8621.8 [N] at 0.031 [S]

Barrier Load Cell E3 FX



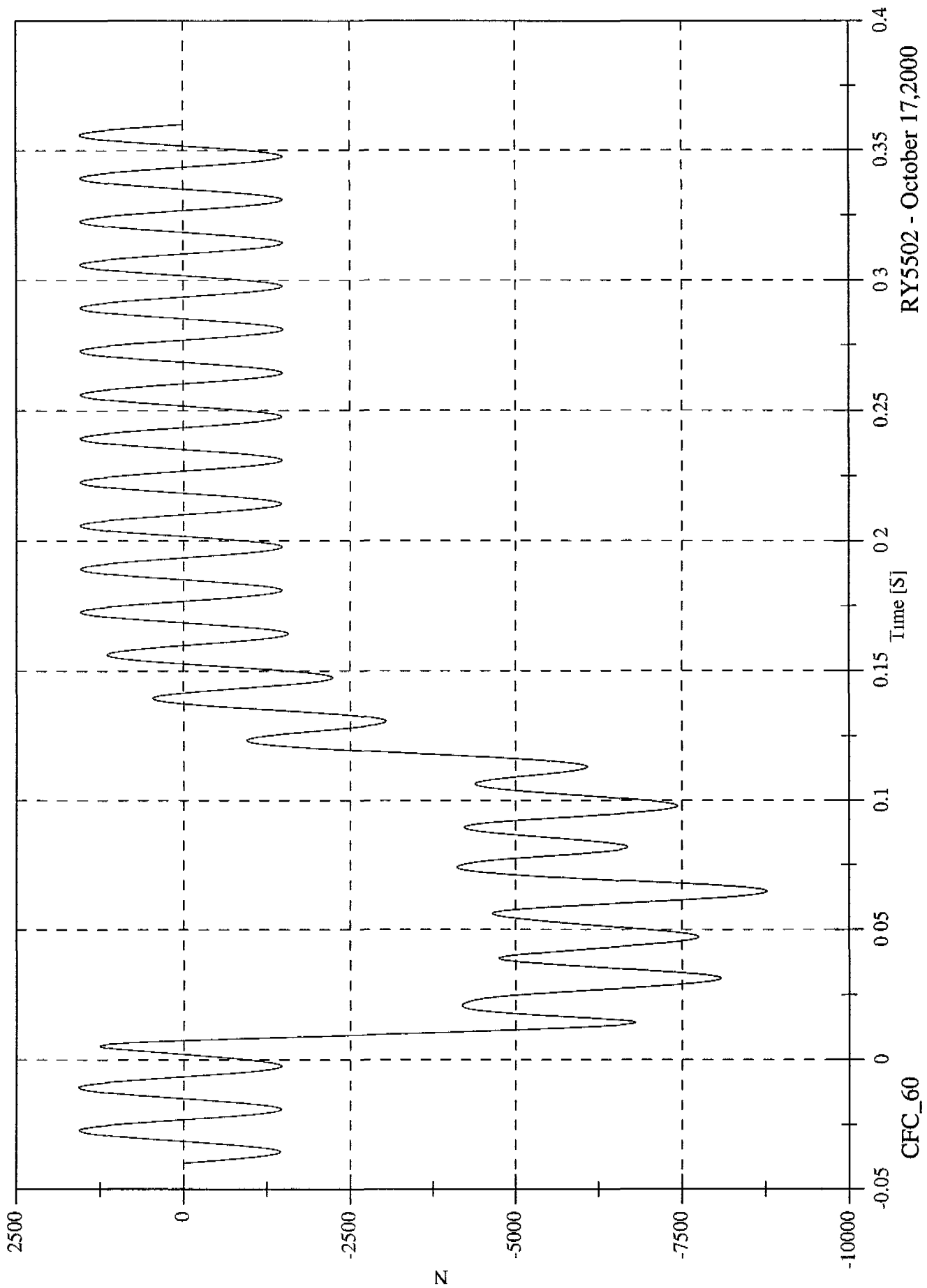
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1570.2 [N] at -0.011 [S]  
Min: -8770.7 [N] at 0.065 [S]

Barrier Load Cell E4 FX



RYS5502 - October 17, 2000

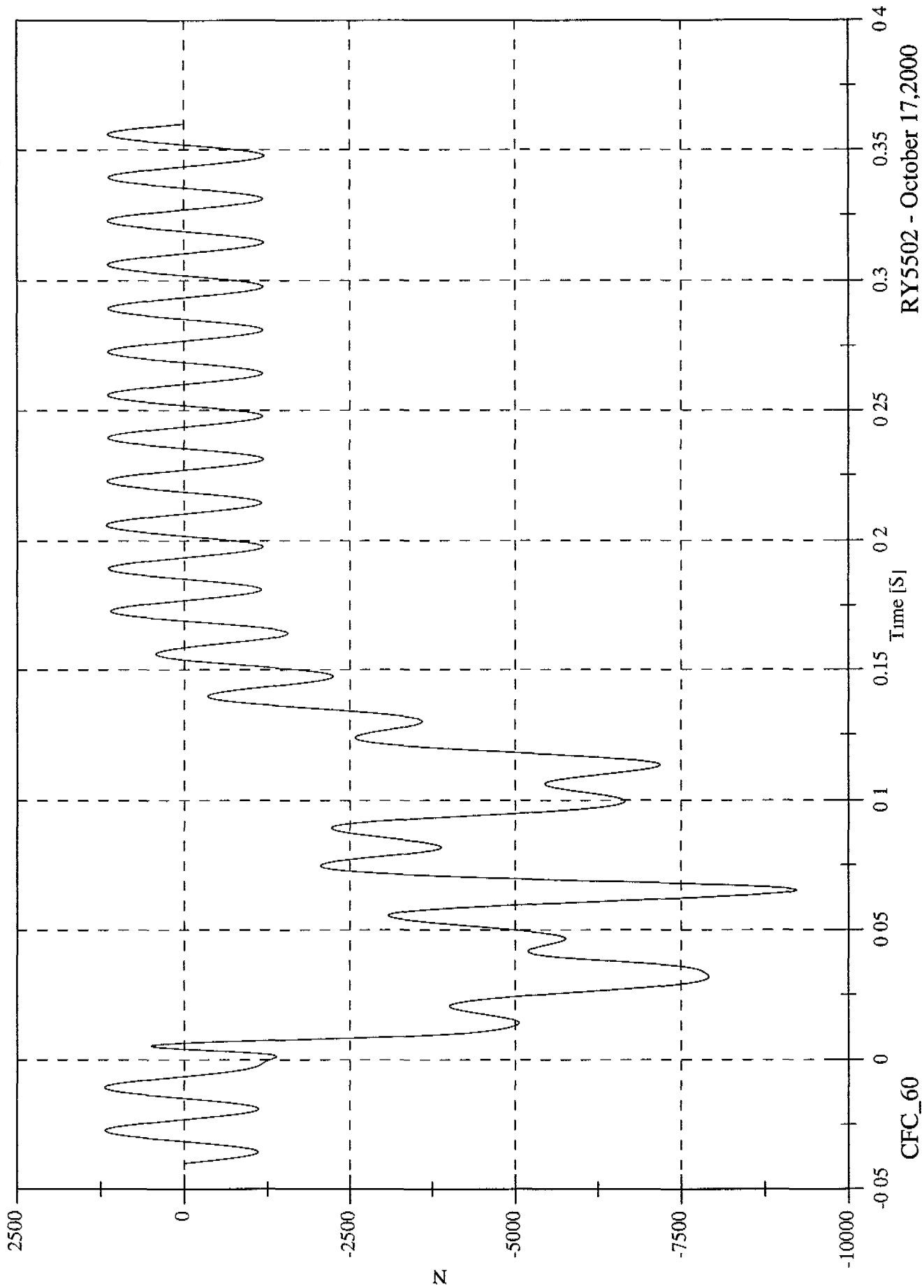
CFC\_60

2000 Subaru Legacy 40% Offset Impact

Max: 1188.5 [N] at -0.011 [S]

Min: -9220.3 [N] at 0.065 [S]

Barrier Load Cell E5 FX



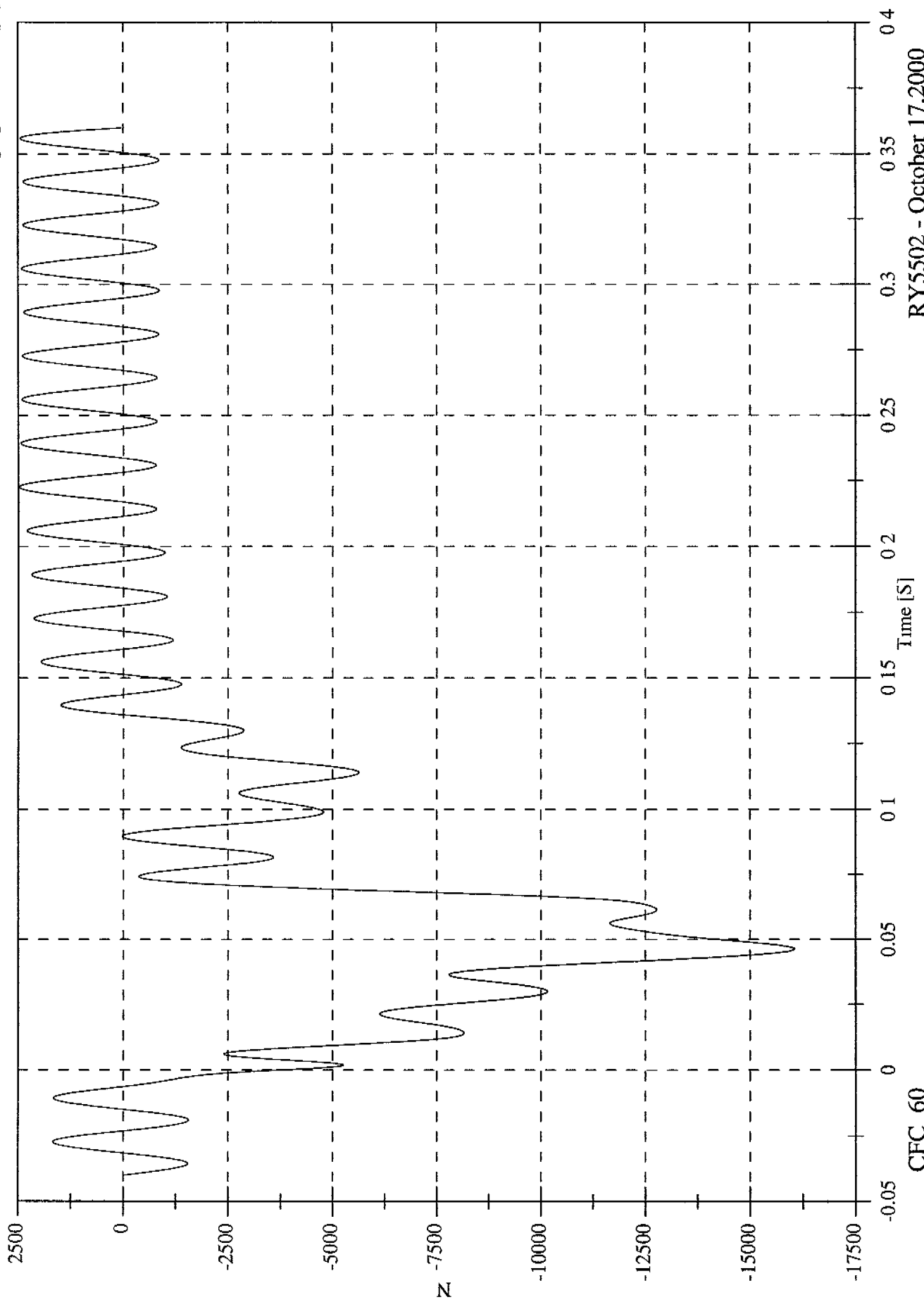
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2468.9 [N] at 0.223 [S]  
Min: -16050.3 [N] at 0.046 [S]

Barrier Load Cell E6 FX



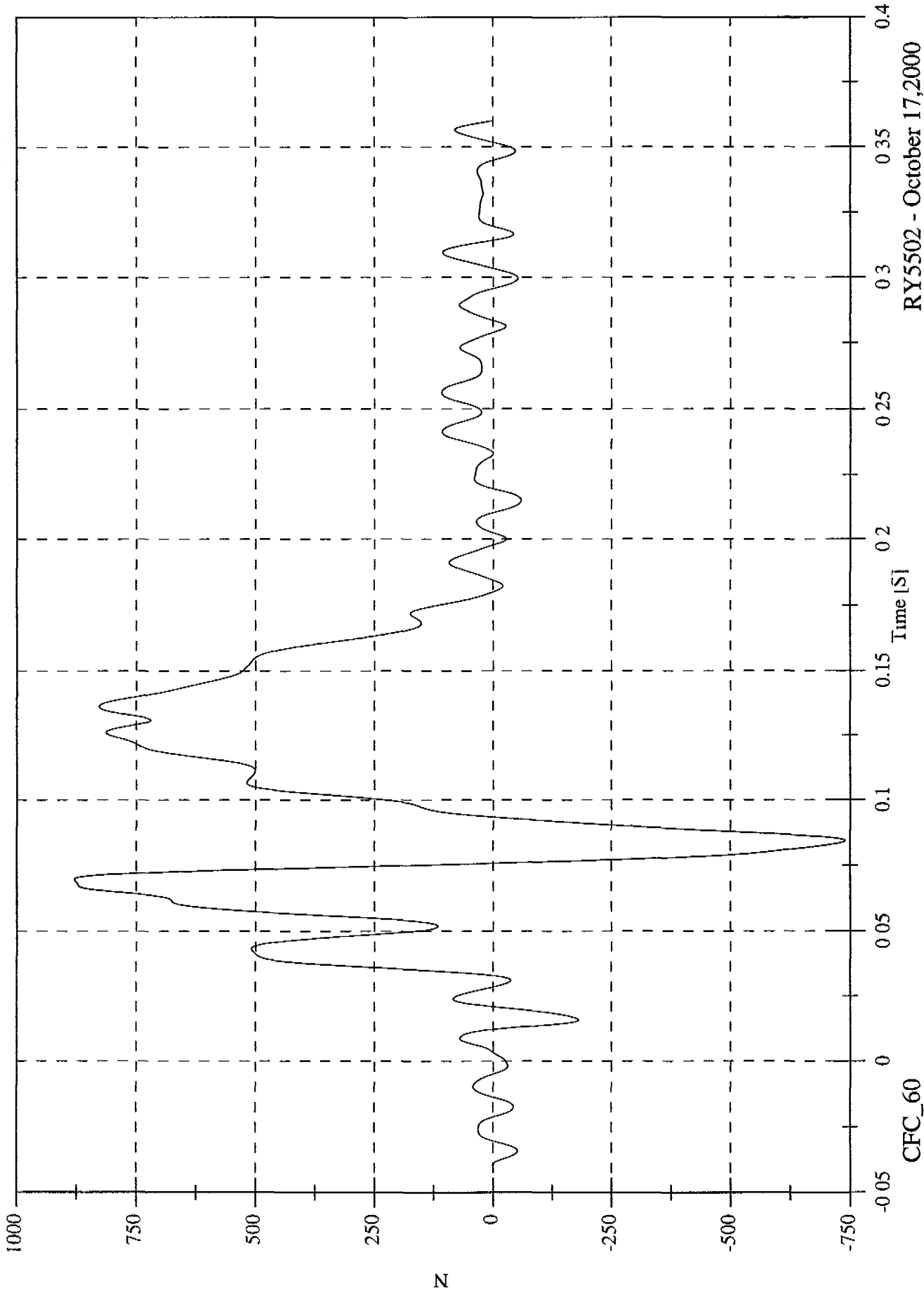
CFC\_60  
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 879.8 [N] at 0.070 [S]

Min: -740.3 [N] at 0.084 [S]

Barrier Load Cell D1 FY



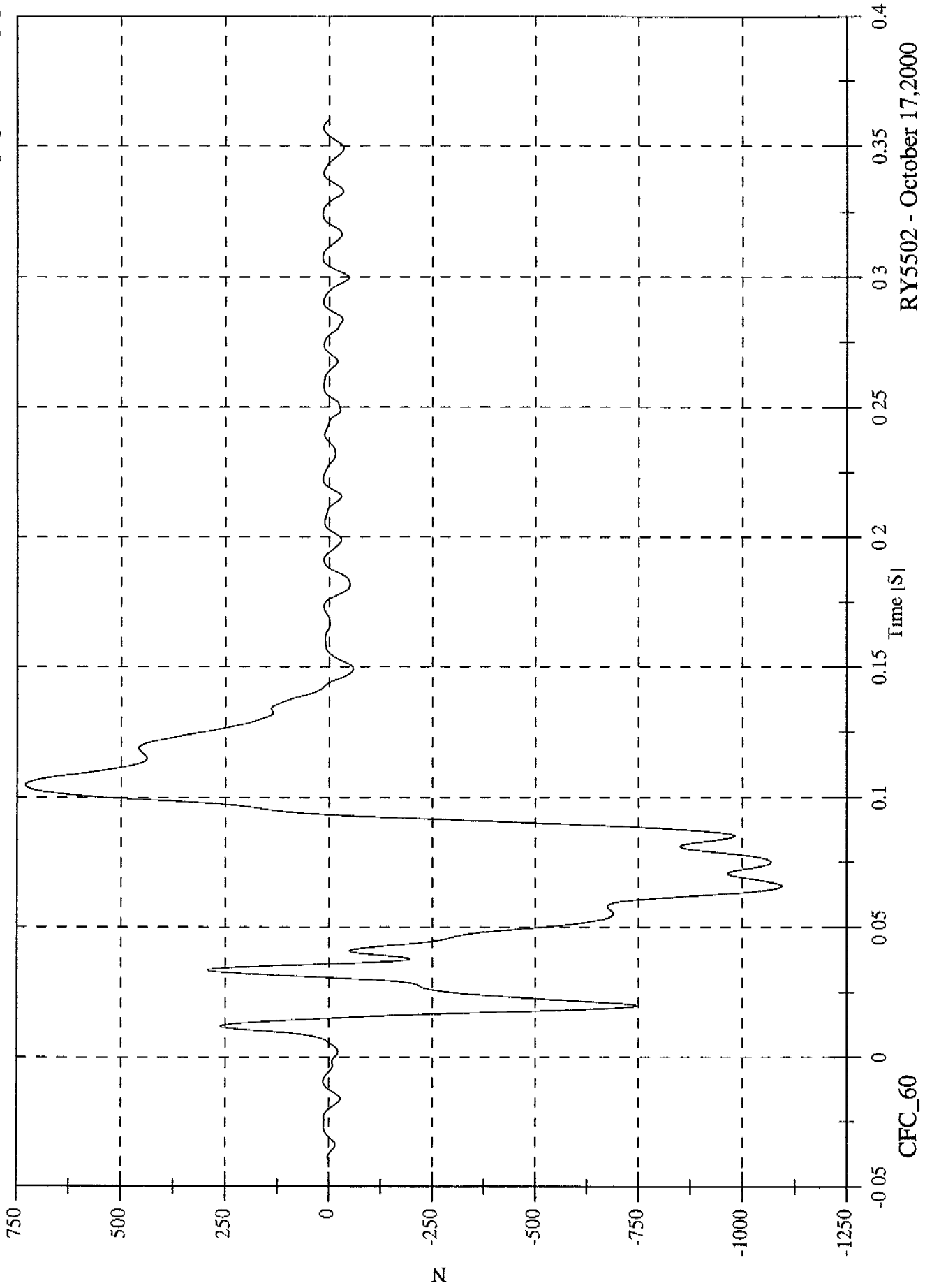
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 729.5 [N] at 0.105 [S]  
Min: -1094.1 [N] at 0.066 [S]

Barrier Load Cell D2 FY



RY5502 - October 17, 2000

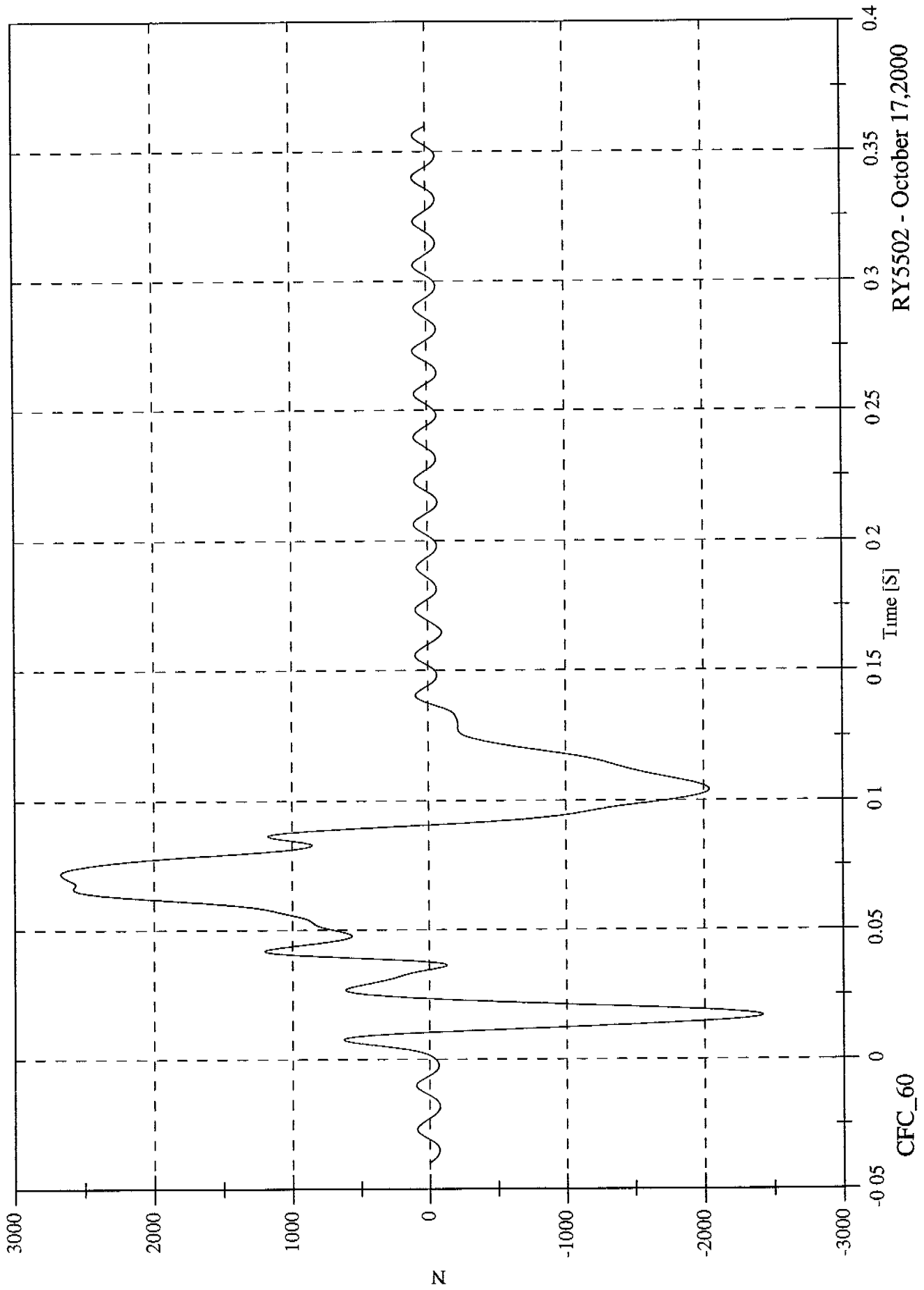
CFC\_60

2000 Subaru Legacy 40% Offset Impact

Max: 2669.8 [N] at 0.072 [S]

Min: -2418.4 [N] at 0.017 [S]

Barrier Load Cell D3 FY

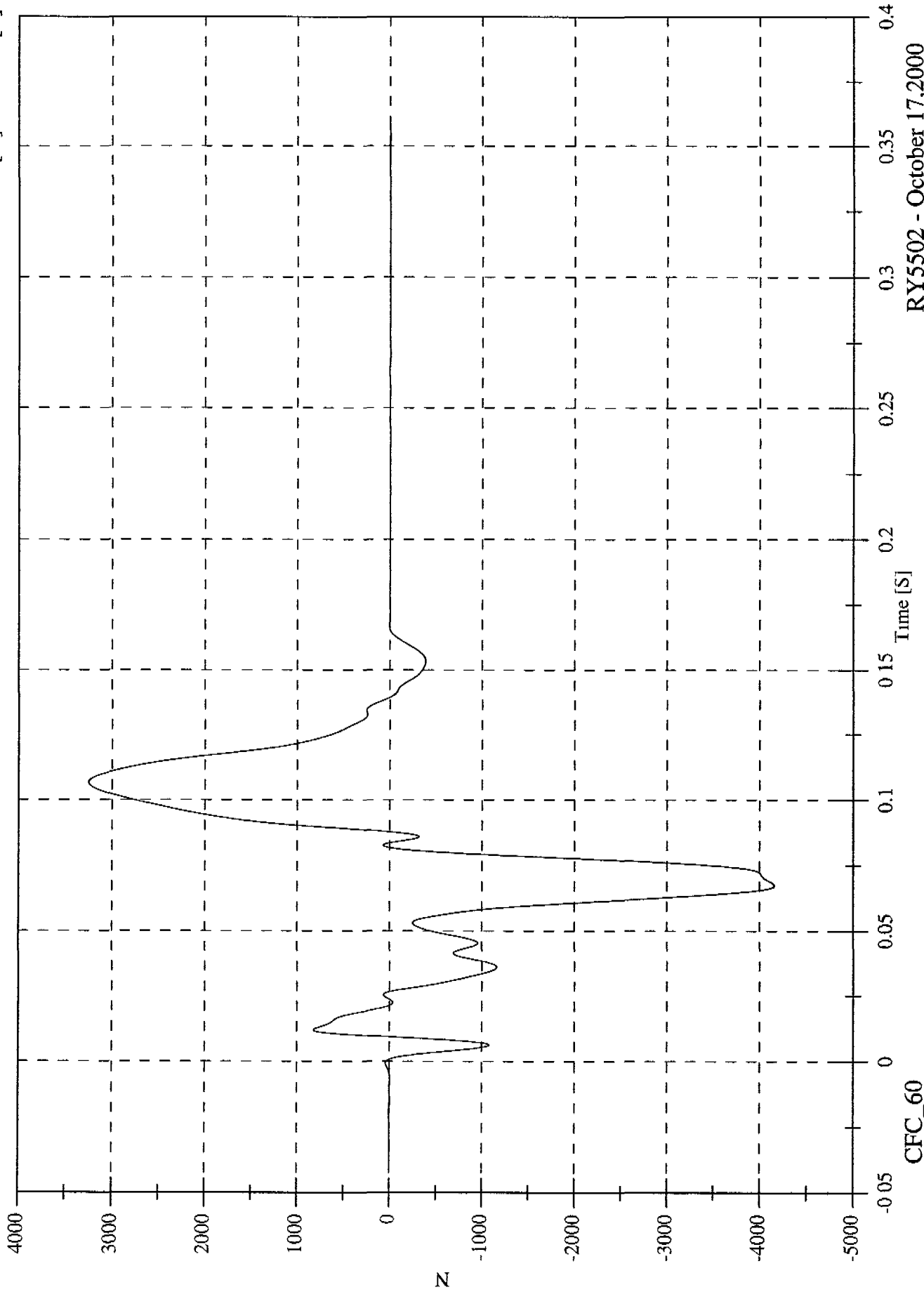


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell D4 FY

Max: 3250.0 [N] at 0.107 [S]  
Min: -4155.9 [N] at 0.067 [S]



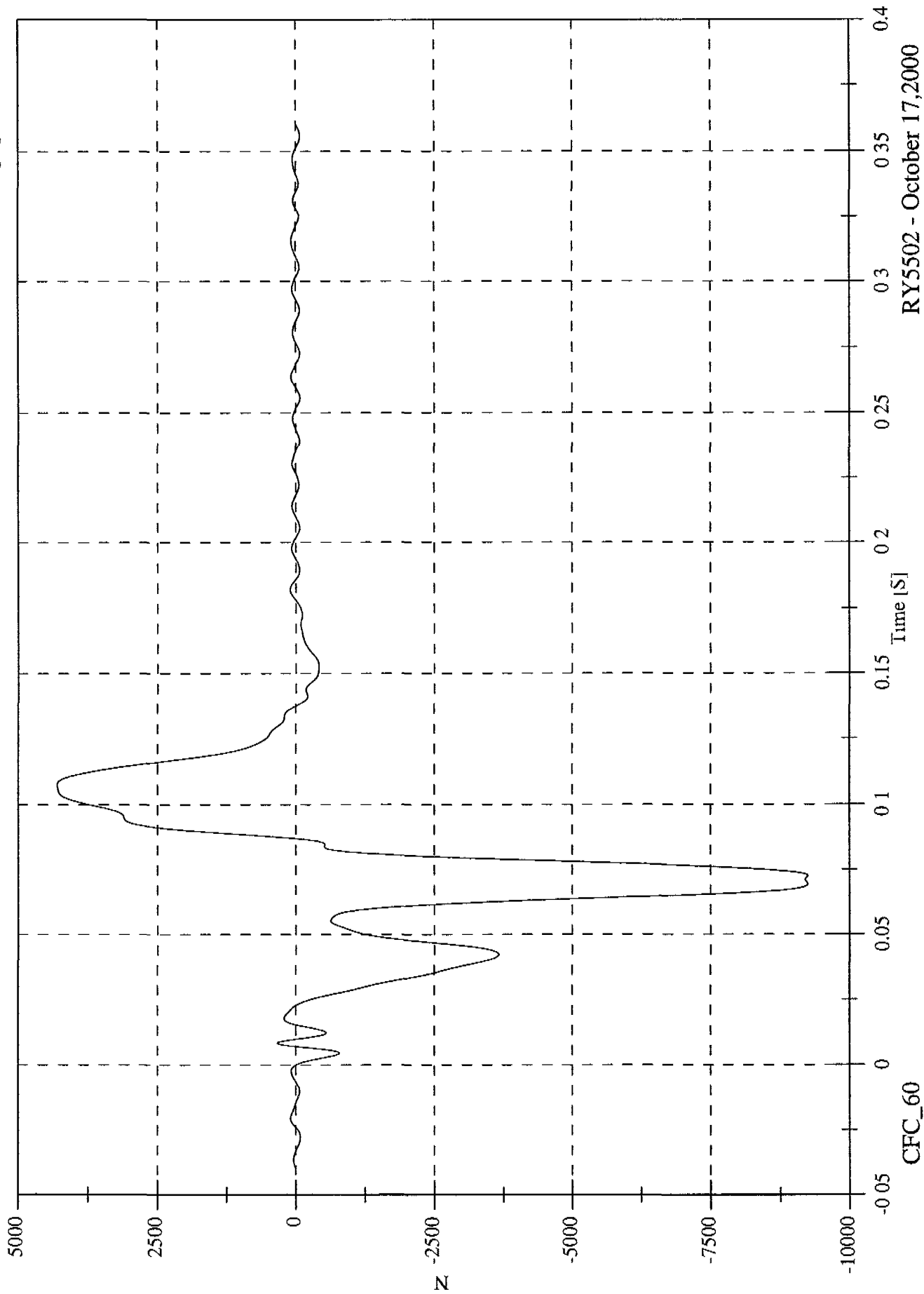
RY5502 - October 17,2000

2000 Subaru Legacy 40% Offset Impact

Max: 4296.0 [N] at 0.107 [S]

Min: -9248.6 [N] at 0.073 [S]

Barrier Load Cell D5 FY



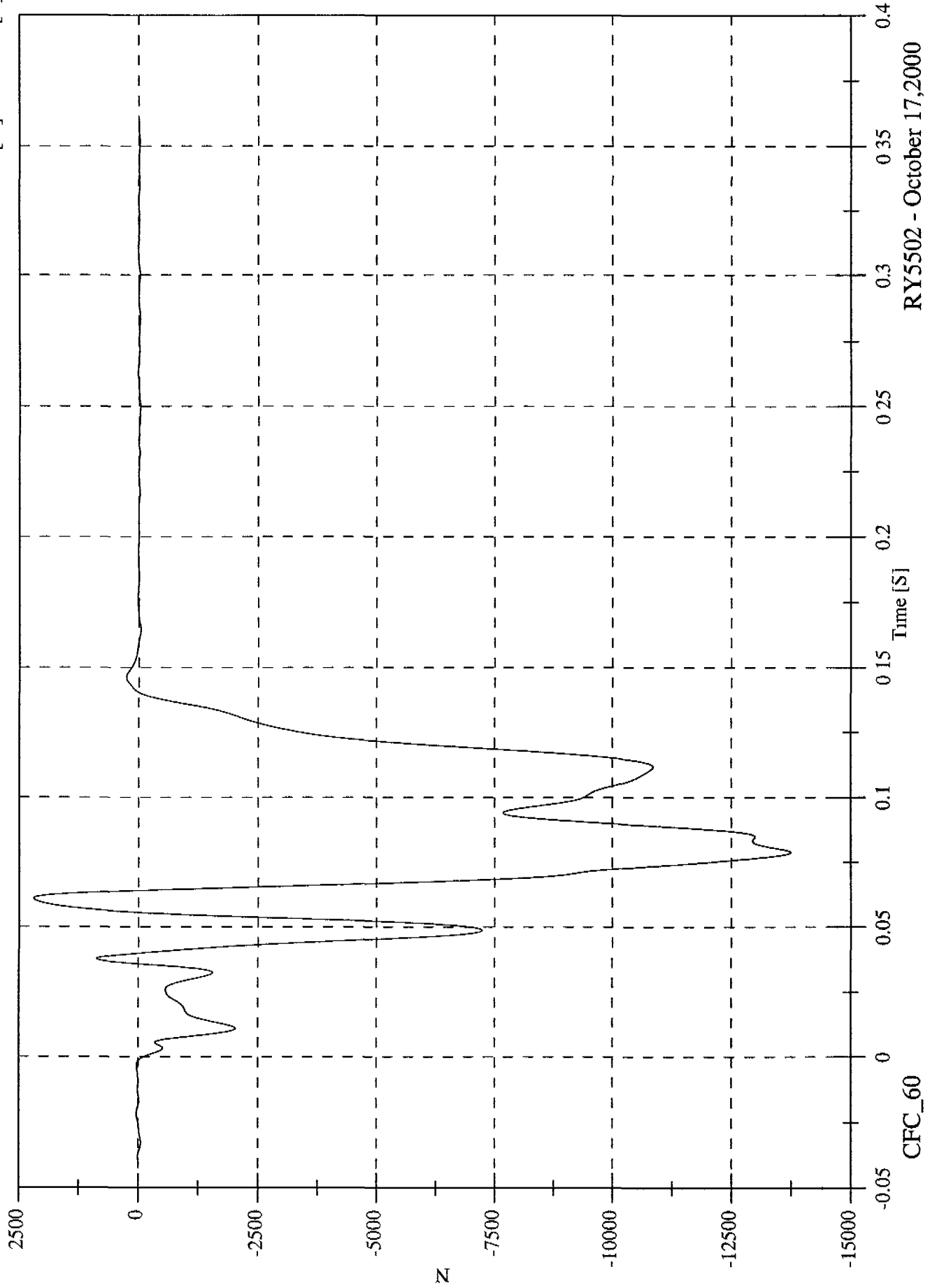
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell D6 FY

Max: 2198.7 [N] at 0.061 [S]  
Min: -13746.7 [N] at 0.079 [S]



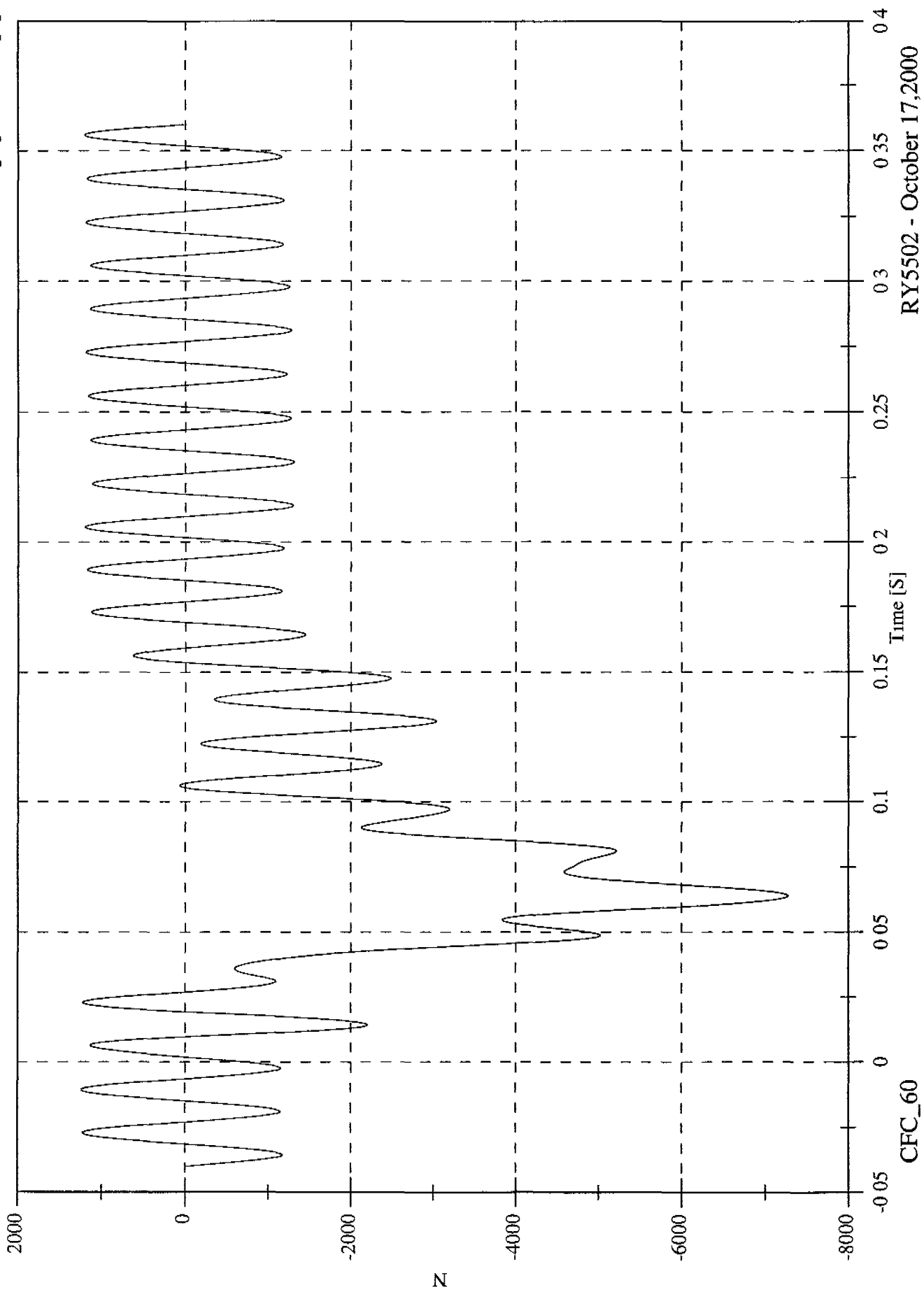
R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1240.4 [N] at -0.011 [S]

Min: -7273.9 [N] at 0.064 [S]

Barrier Load Cell D1 FX



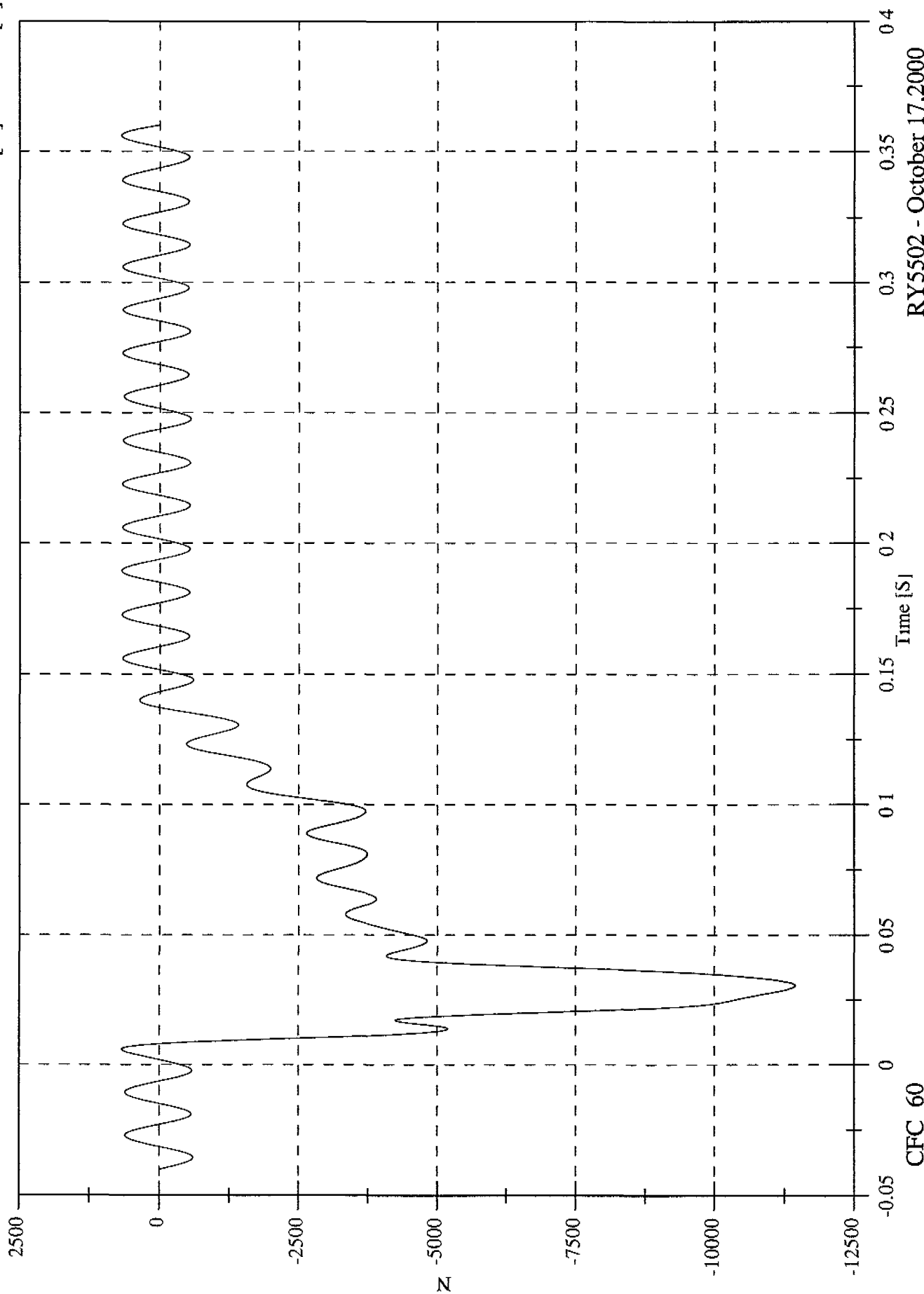
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell D2 FX

Max: 681.6 [N] at 0.189 [S]  
Min: -11449.8 [N] at 0.030 [S]



CFC\_60

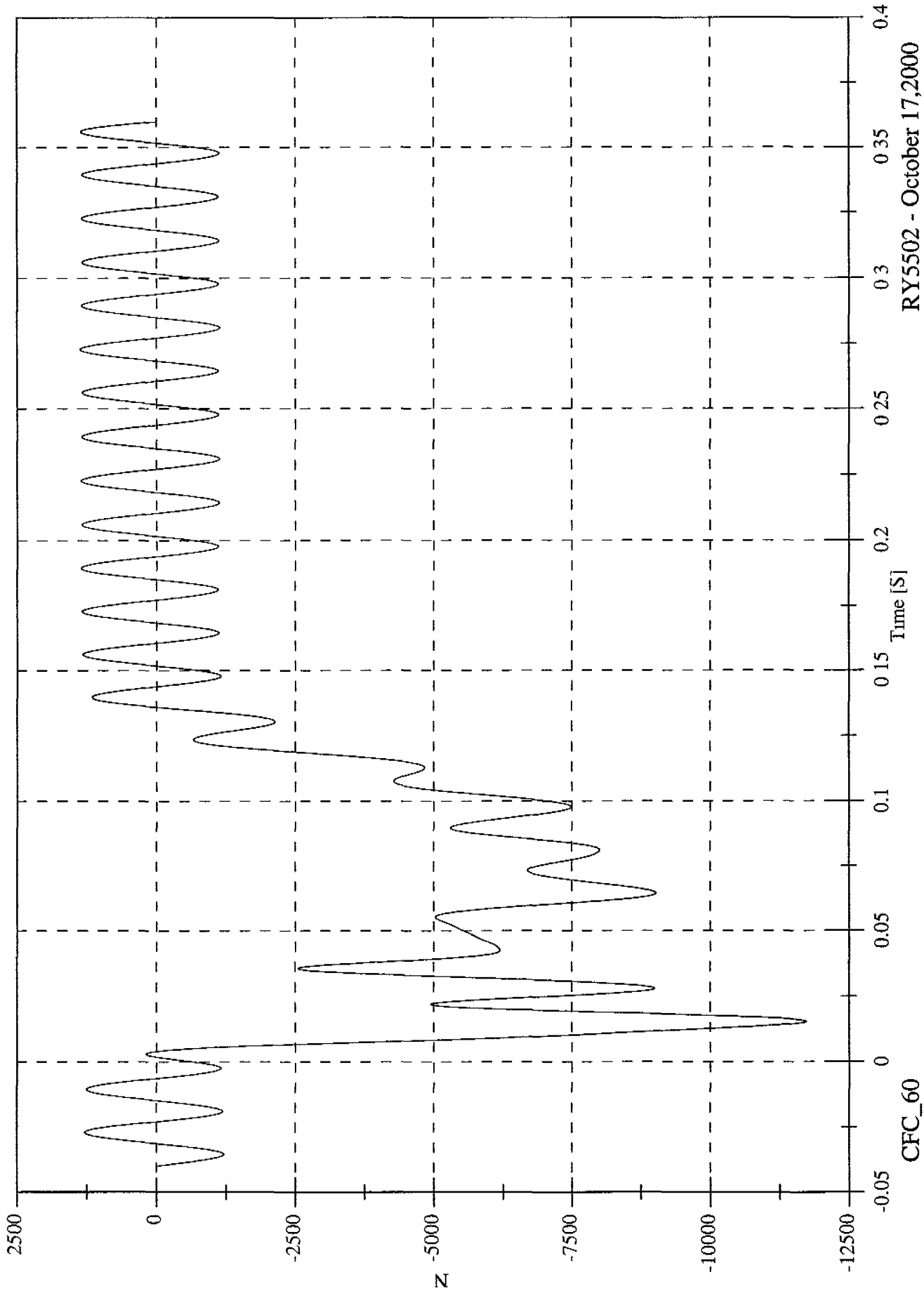
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1362.1 [N] at 0.273 [S]

Min: -11733.0 [N] at 0.015 [S]

Barrier Load Cell D3 FX



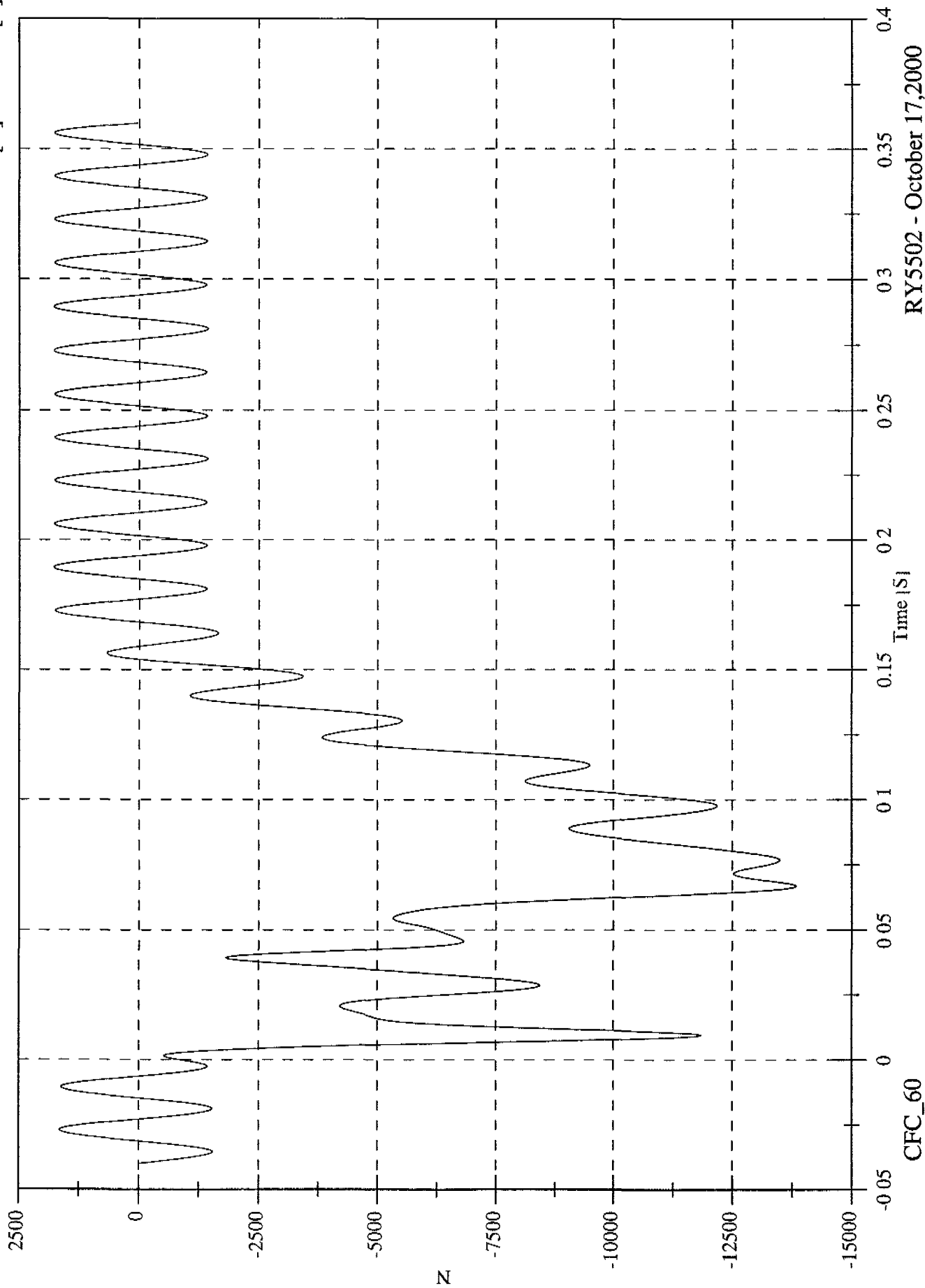
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell D4 FX

Max: 1776.8 [N] at 0.273 [S]  
Min: -13834.8 [N] at 0.067 [S]



CFC\_60

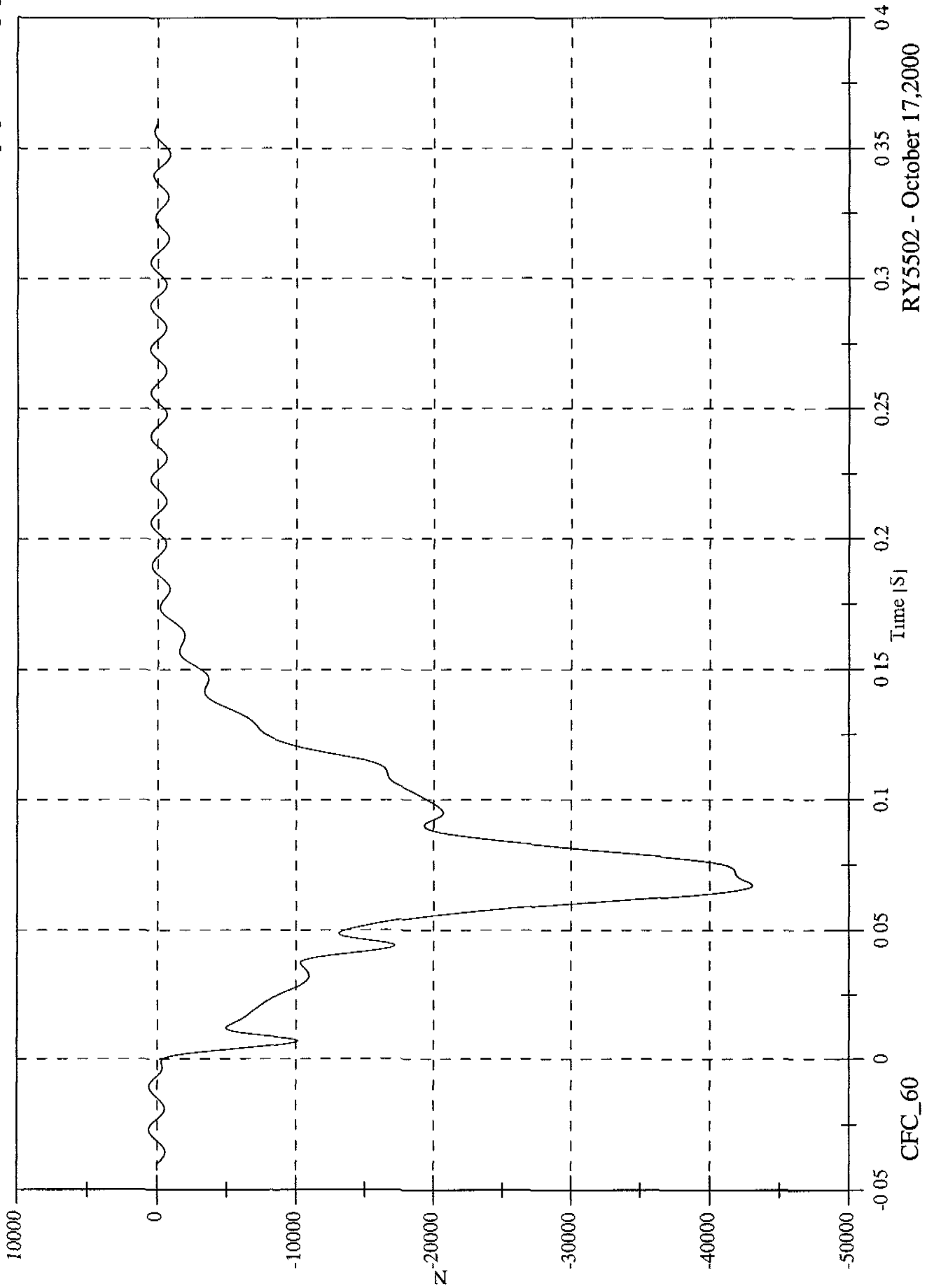
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 602.7 [N] at -0.027 [S]

Min: -43069.1 [N] at 0.067 [S]

Barrier Load Cell D5 FX



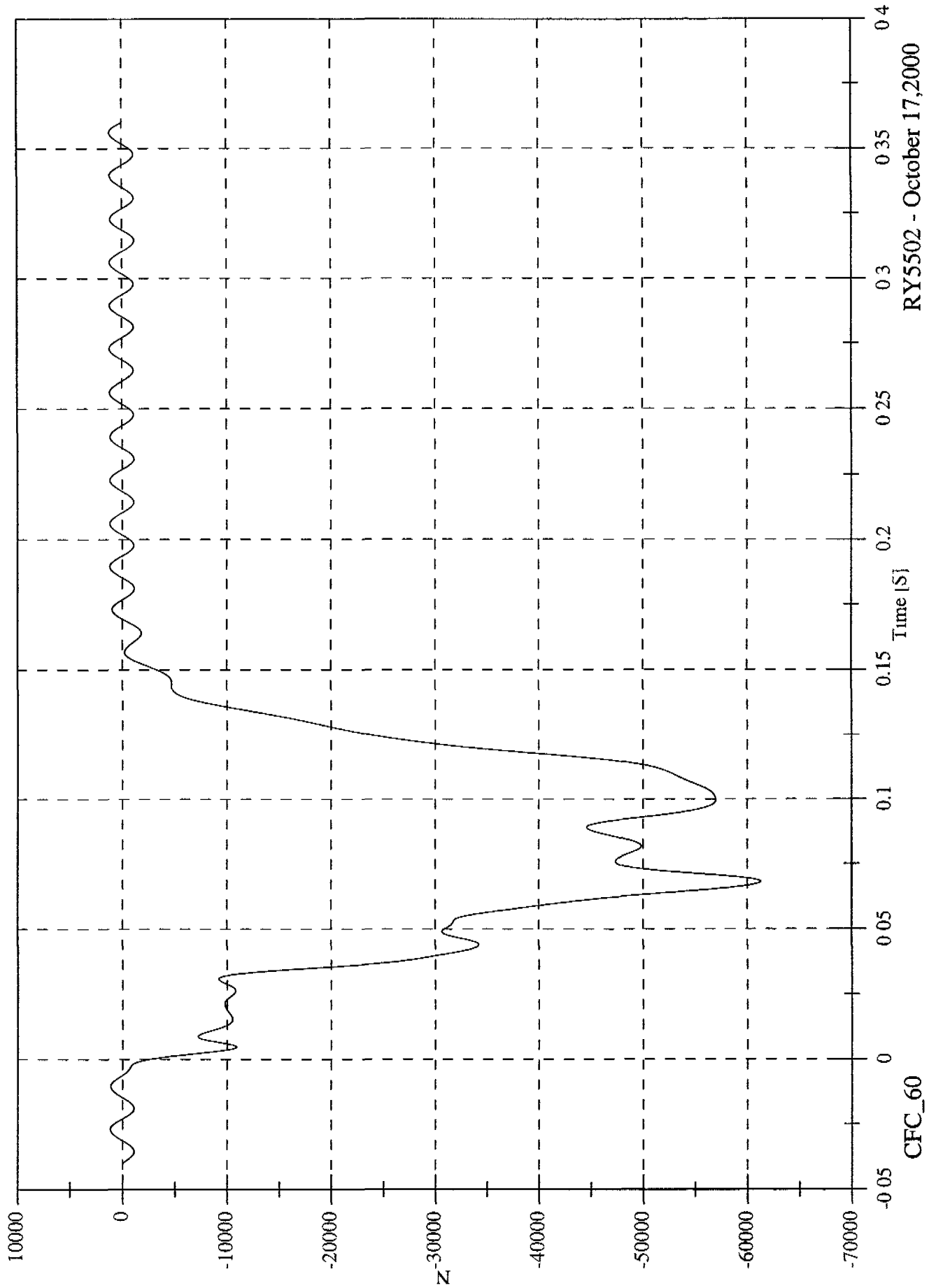
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1198.1 [N] at 0.273 [S]  
Min: -61283.9 [N] at 0.068 [S]

Barrier Load Cell D6 FX



RY5502 - October 17, 2000

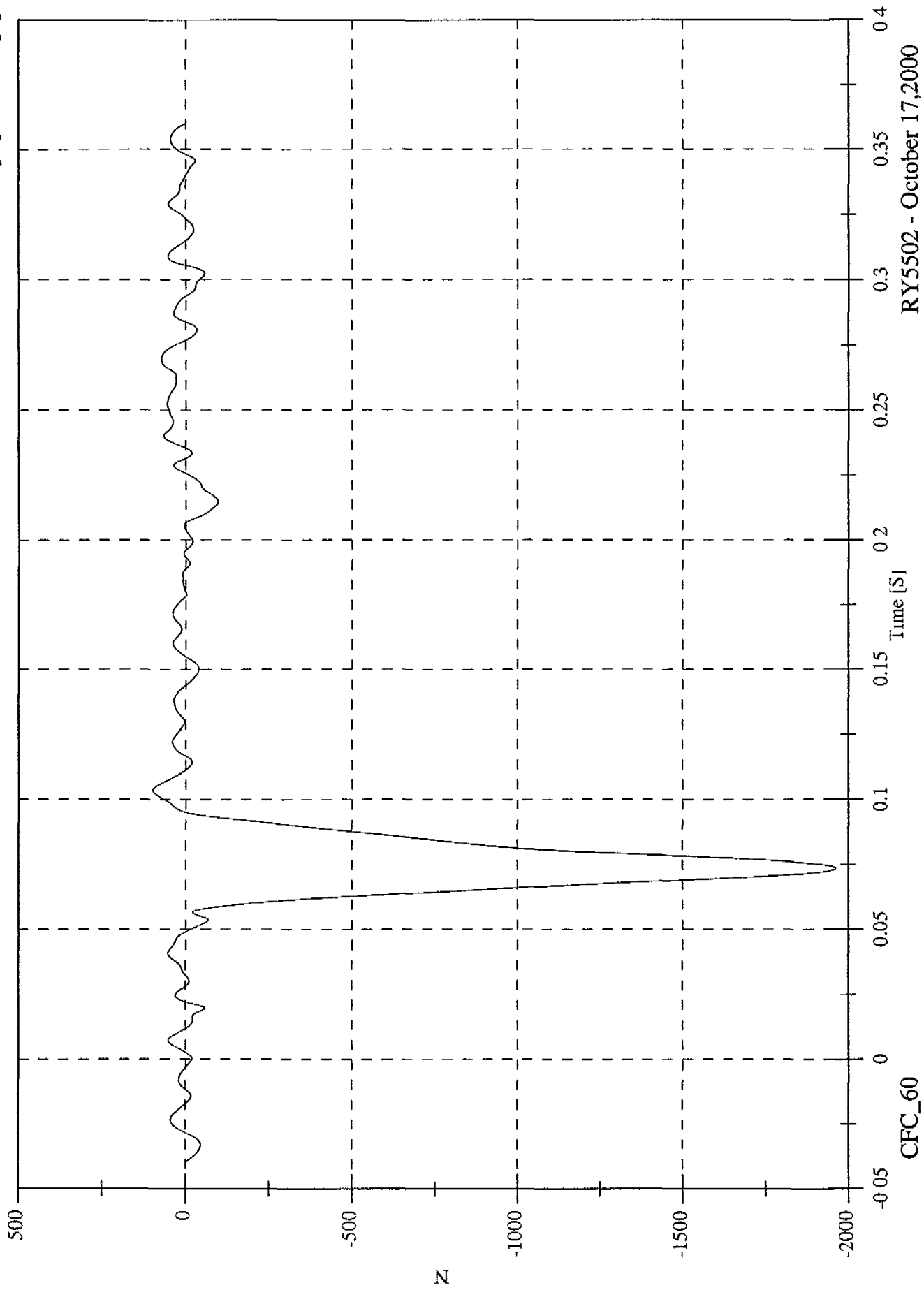
CFC\_60

2000 Subaru Legacy 40% Offset Impact

Max: 99.1 [N] at 0.103 [S]

Min: -1961.2 [N] at 0.073 [S]

Barrier Load Cell C1 FY

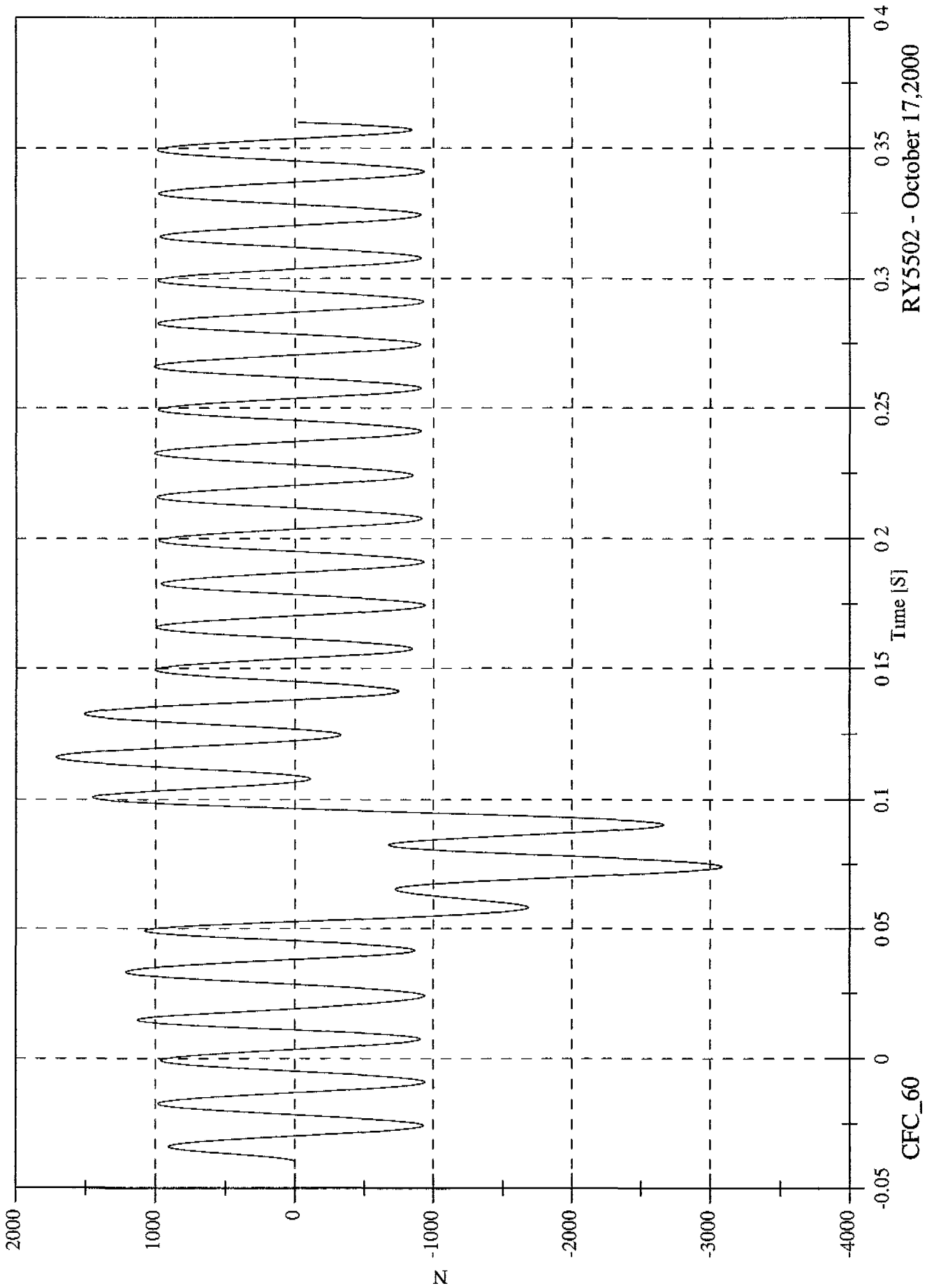


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell C2 FY

Max: 1710.3 [N] at 0.116 [S]  
Min: -3085.0 [N] at 0.074 [S]



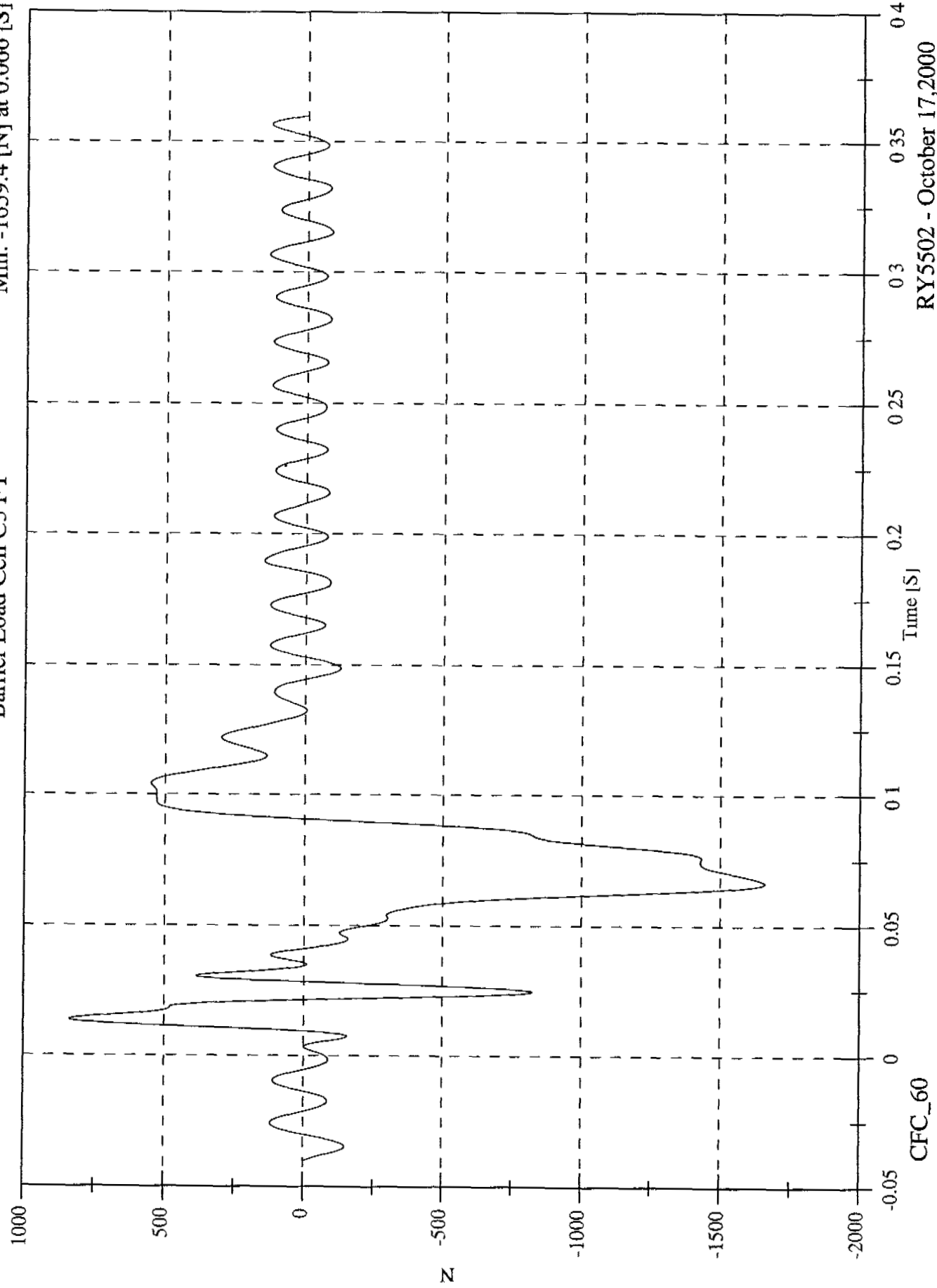
CFC\_60



2000 Subaru Legacy 40% Offset Impact

Max: 837.1 [N] at 0.014 [S]  
Min: -1659.4 [N] at 0.066 [S]

Barrier Load Cell C3 FY

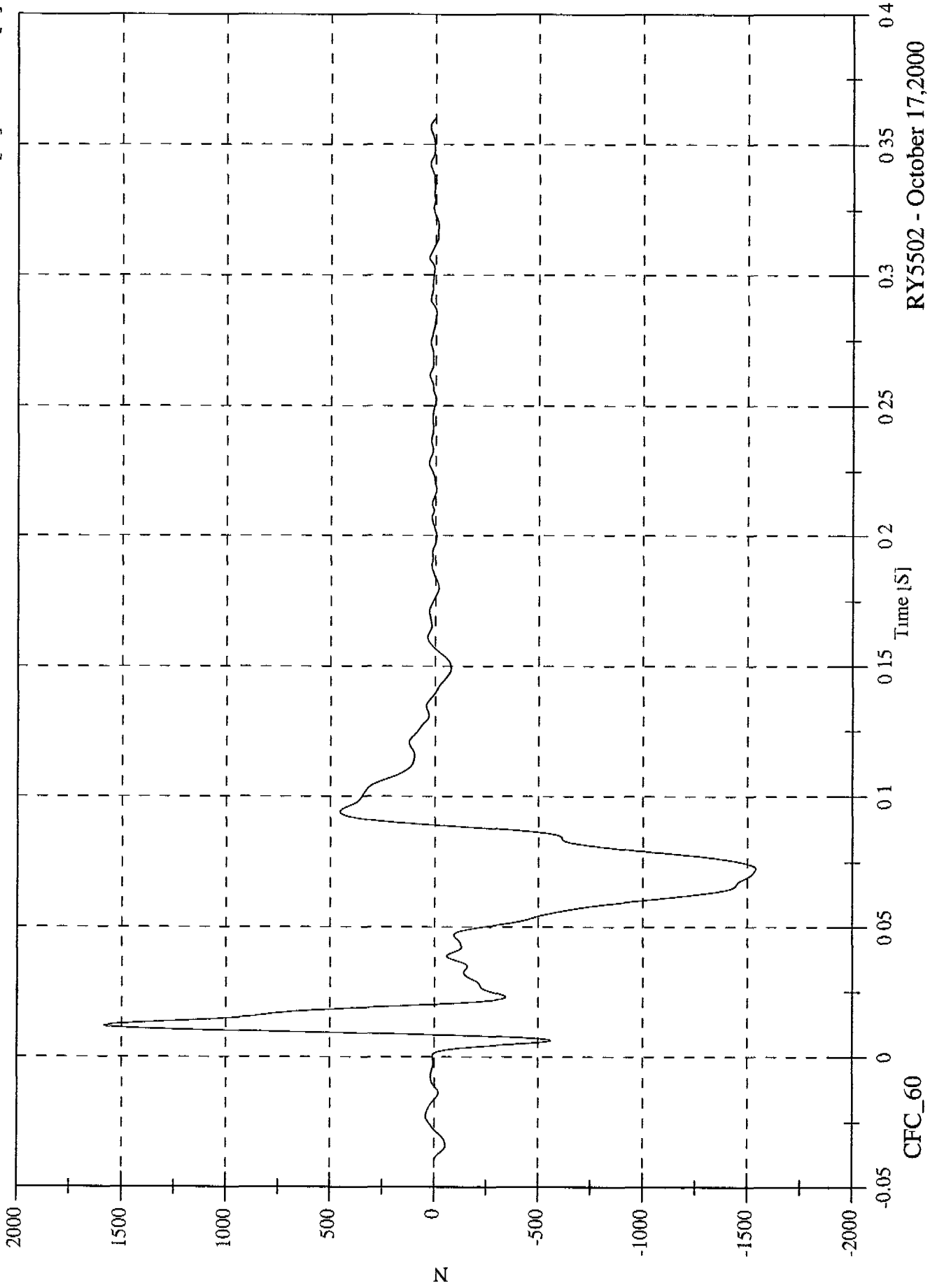


R Y5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell C4 FY

Max: 1583.5 [N] at 0.012 [S]  
Min: -1539.6 [N] at 0.072 [S]

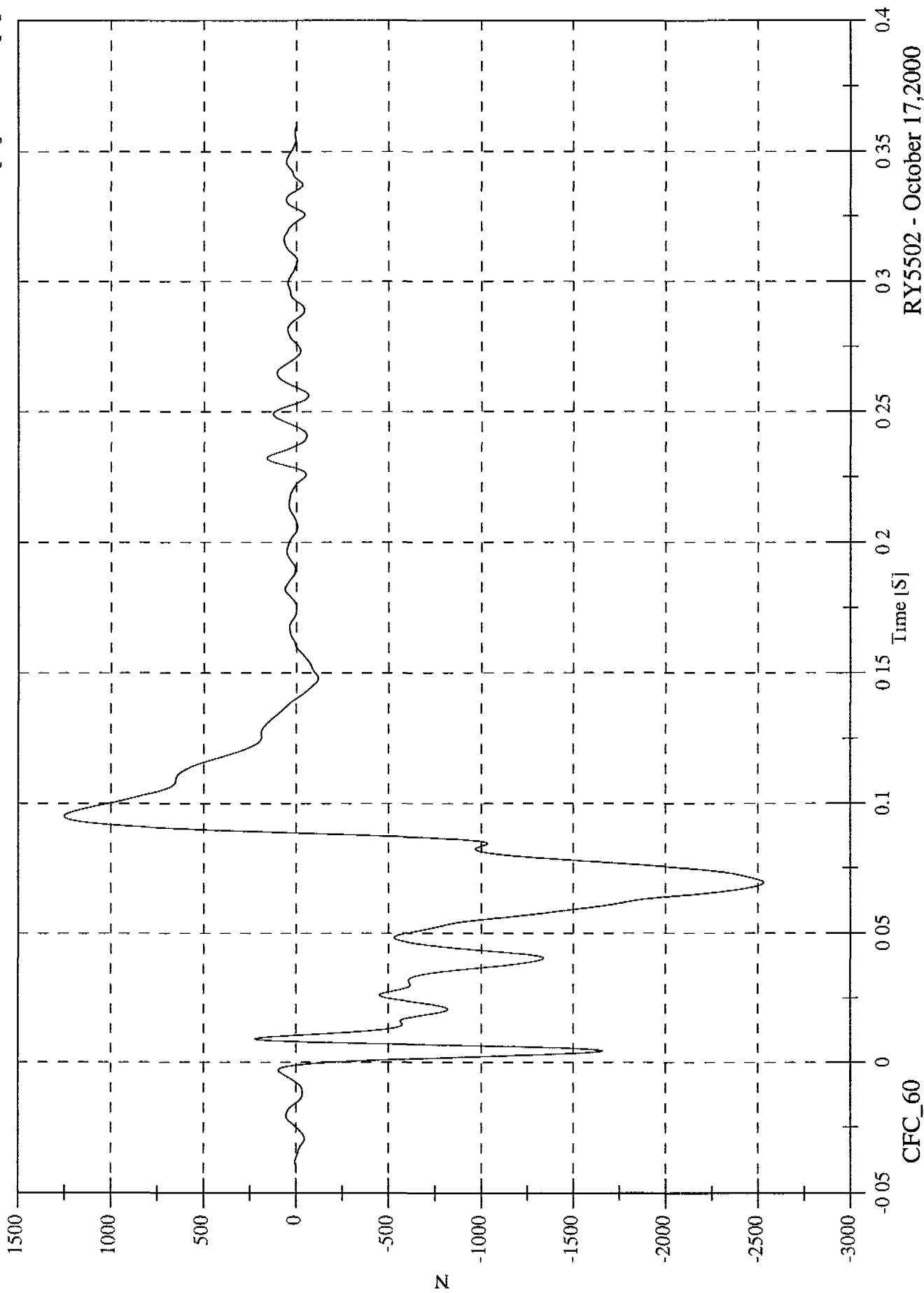


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1252.7 [N] at 0.095 [S]  
Min: -2530.8 [N] at 0.069 [S]

Barrier Load Cell C5 FY



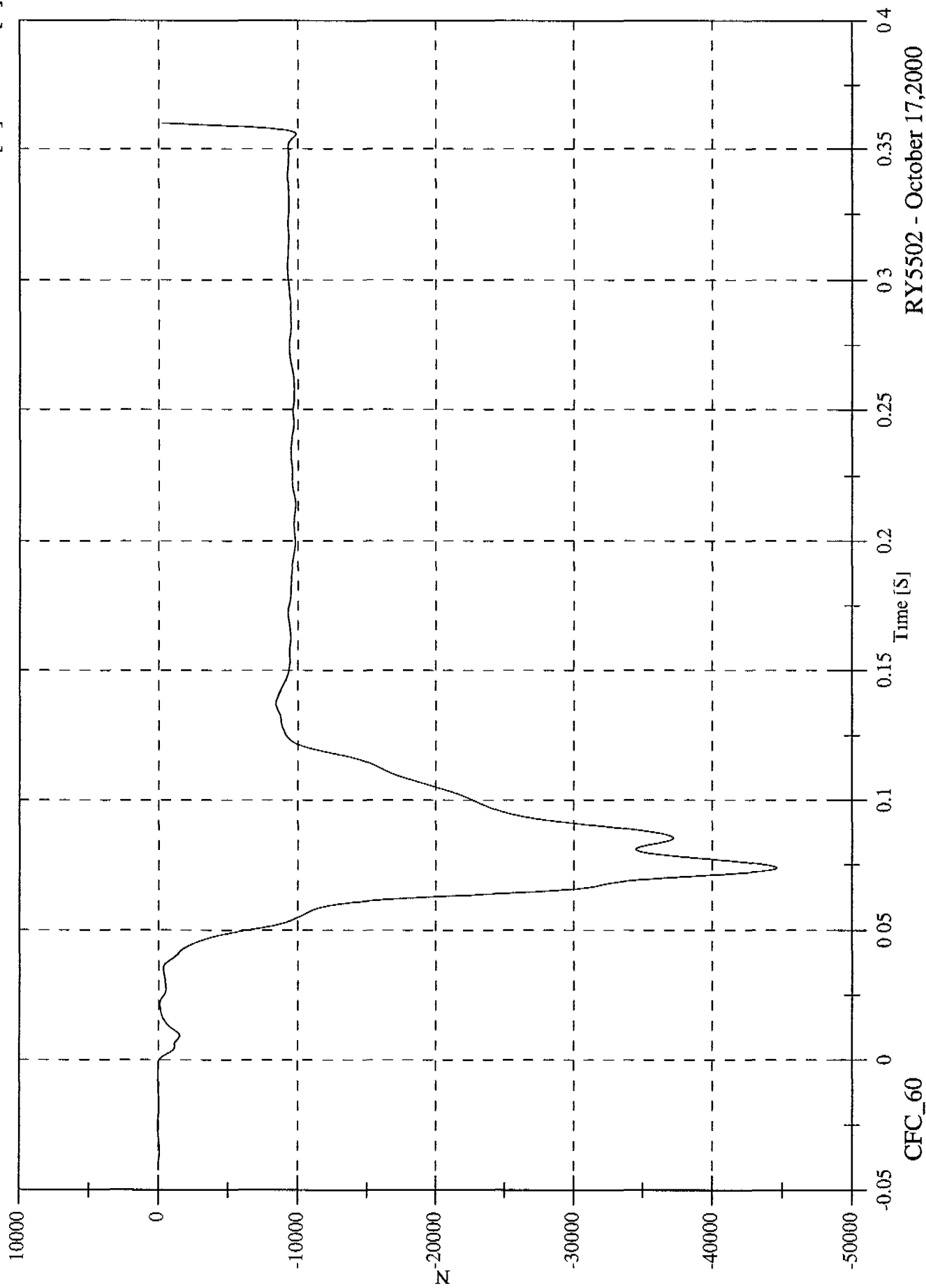
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell C6 FY

Max: 50.1 [N] at -0.025 [S]  
Min: -44602.9 [N] at 0.074 [S]



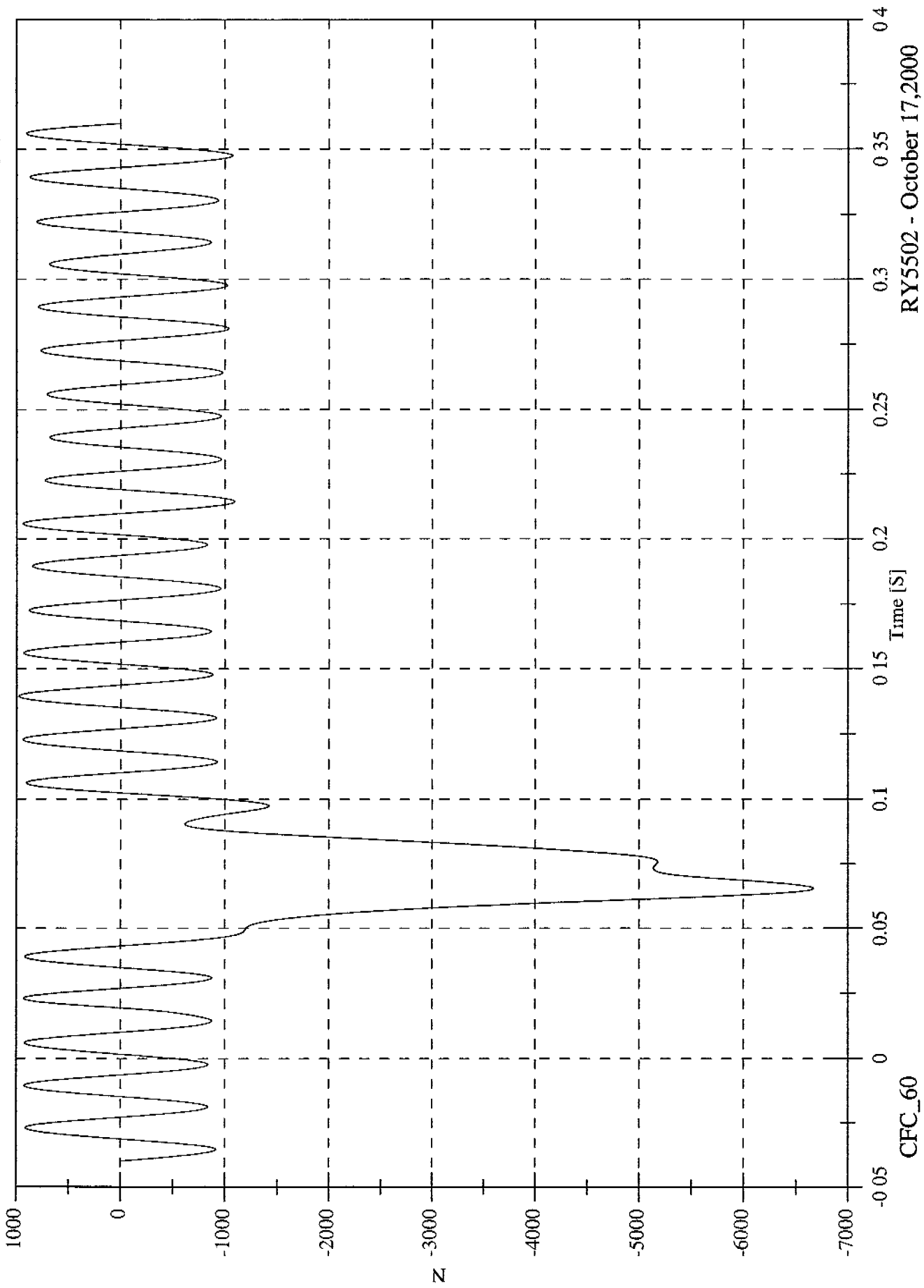
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 977.0 [N] at 0.139 [S]  
Min: -6670.3 [N] at 0.065 [S]

Barrier Load Cell C1 FX



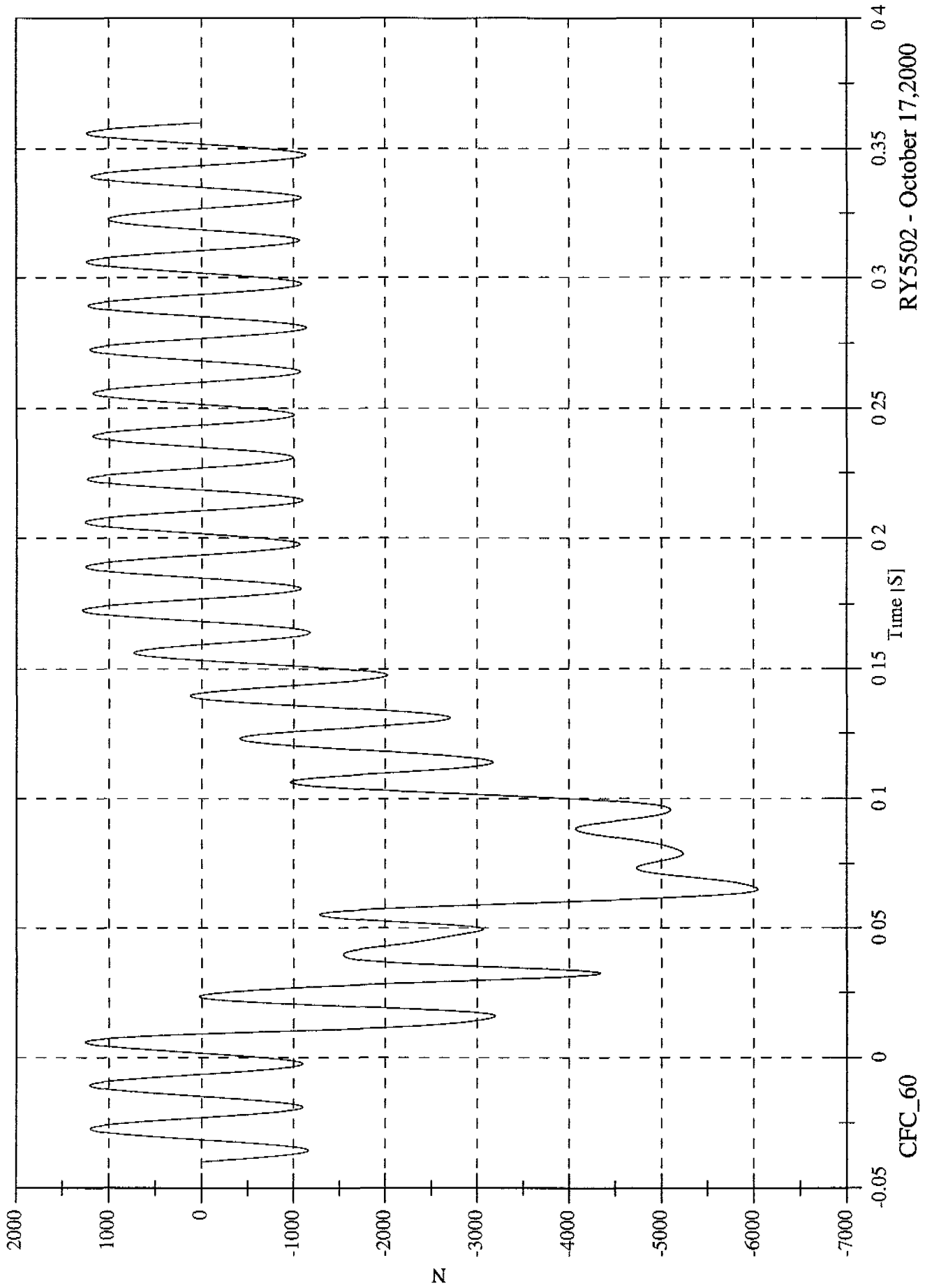
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1286.5 [N] at 0.173 [S]  
Min: -6046.4 [N] at 0.065 [S]

Barrier Load Cell C2 FX



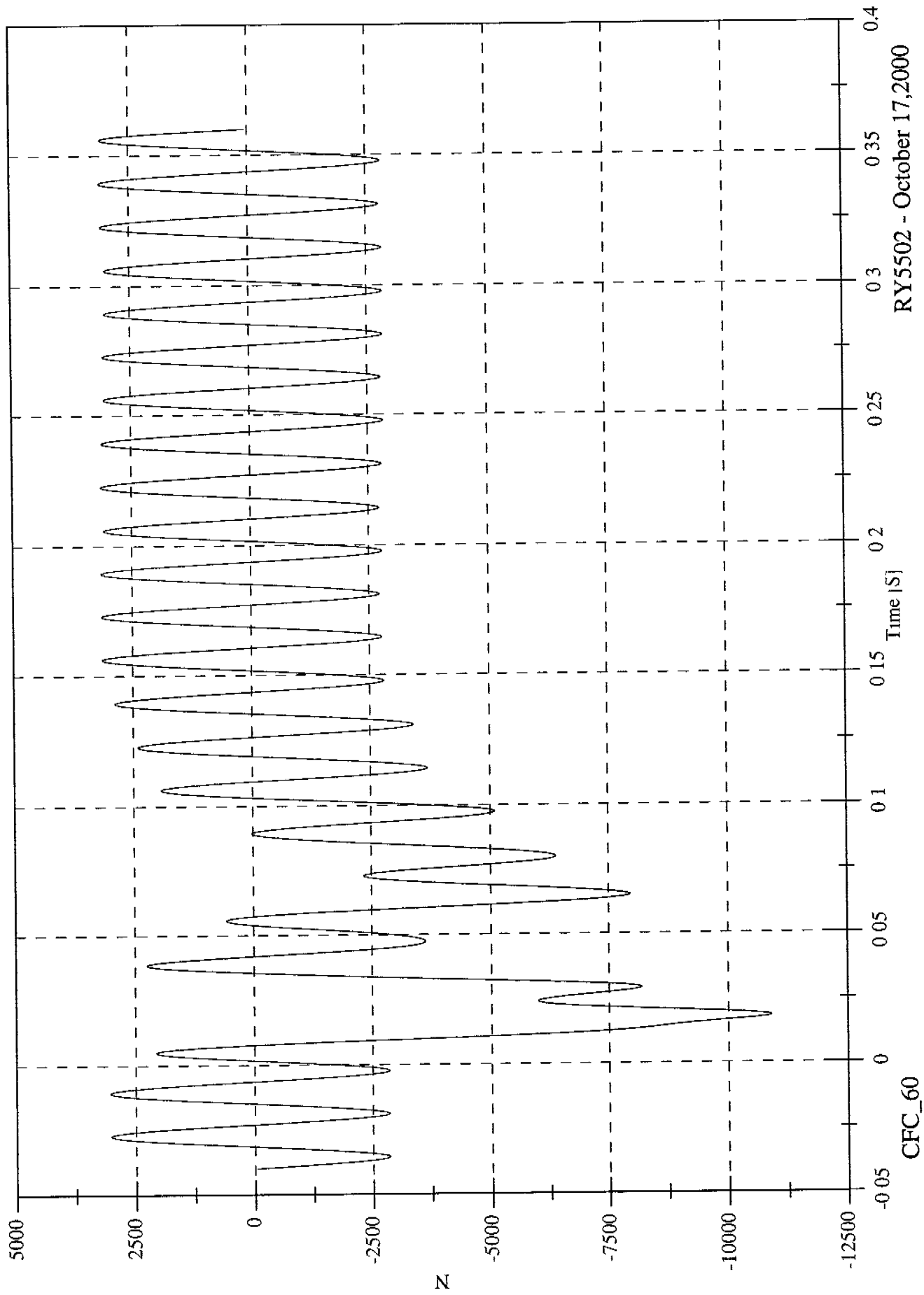
RY5502 - October 17, 2000

CFC\_60

2000 Subaru Legacy 40% Offset Impact

Max: 3145.8 [N] at 0.189 [S]  
Min: -10899.0 [N] at 0.018 [S]

Barrier Load Cell C3 FX

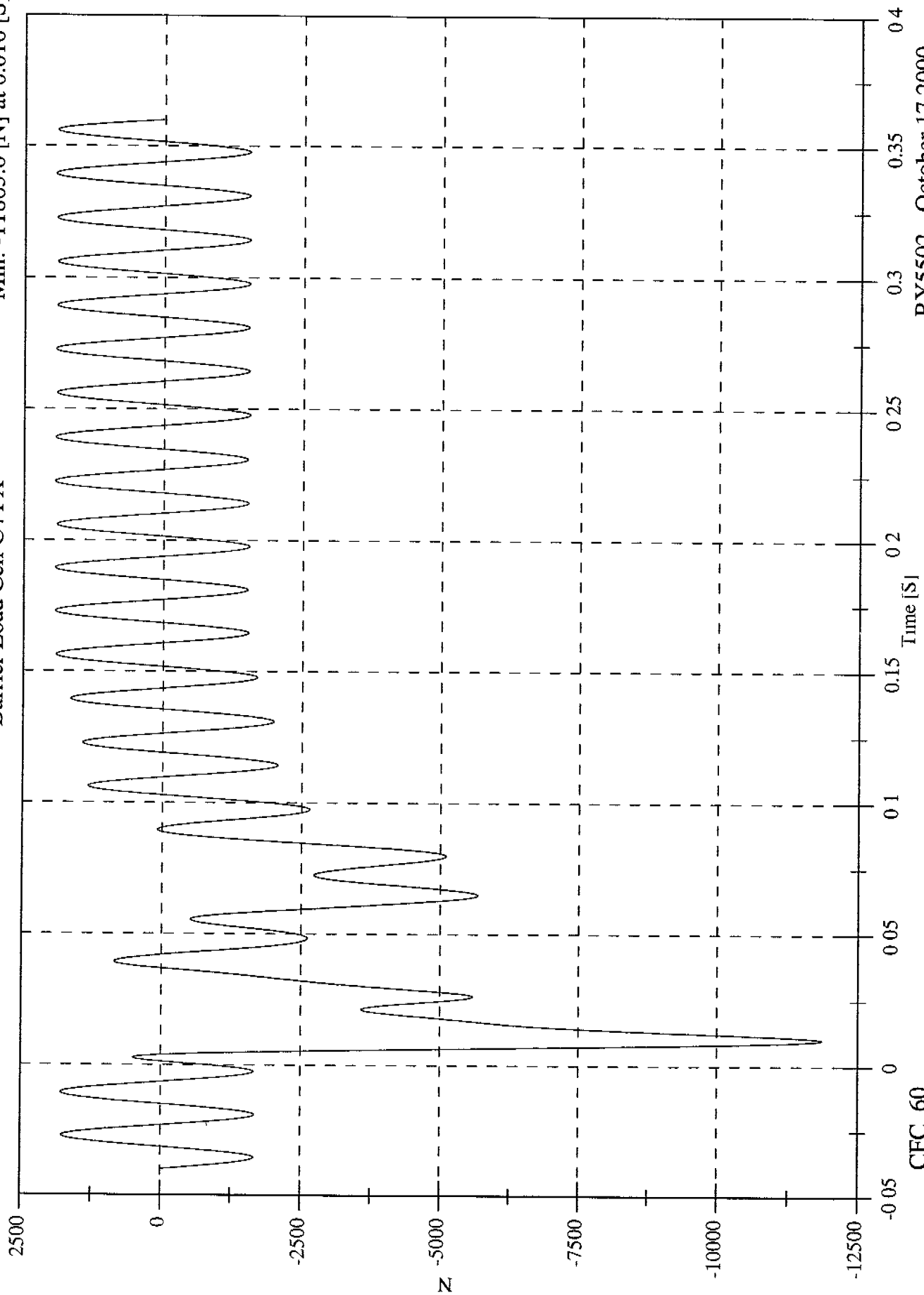


Ry5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1946.0 [N] at 0.223 [S]  
Min: -11865.6 [N] at 0.010 [S]

Barrier Load Cell C4 FX



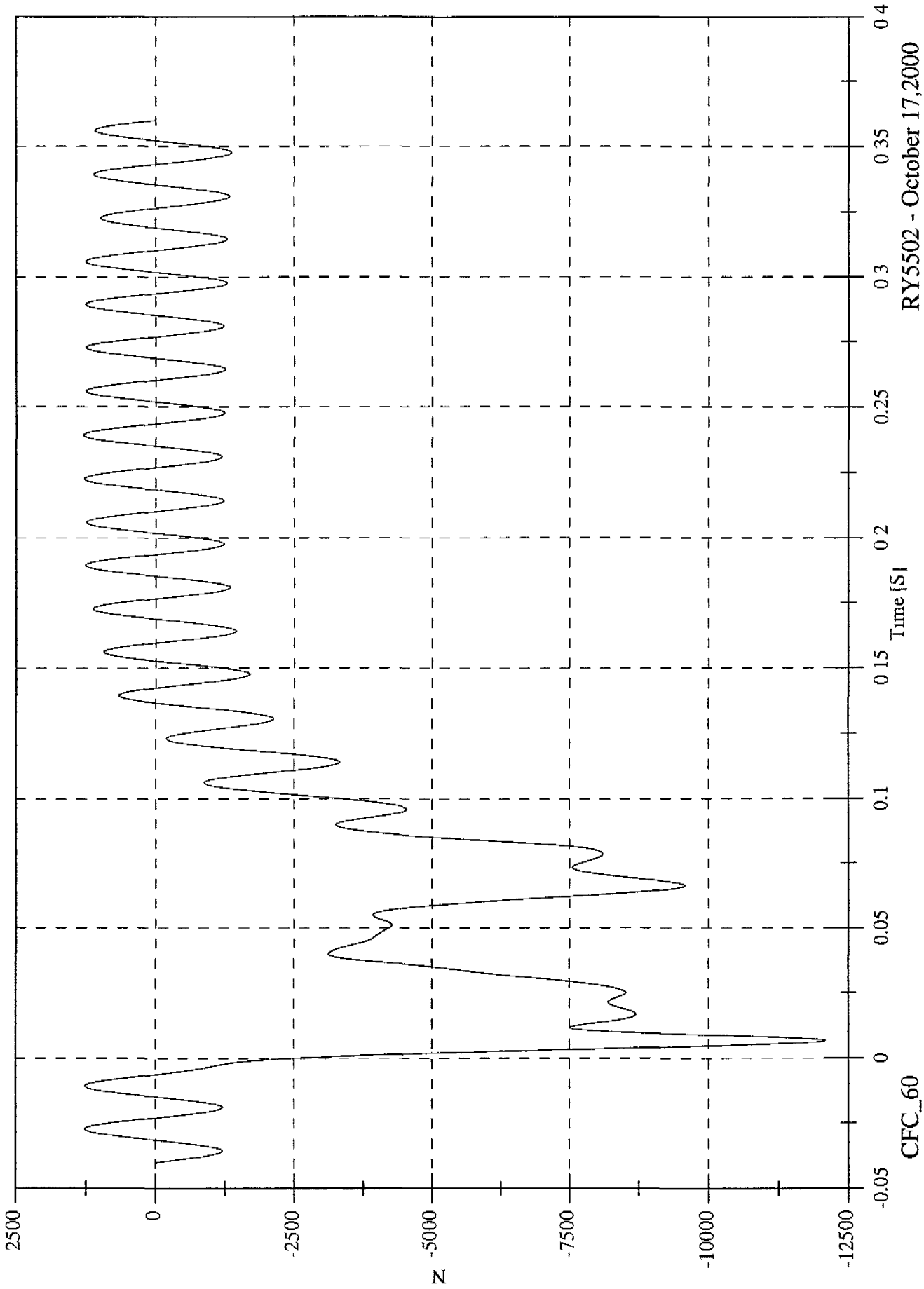
RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1300.8 [N] at 0.239 [S]

Min: -12088.1 [N] at 0.007 [S]

Barrier Load Cell C5 FX



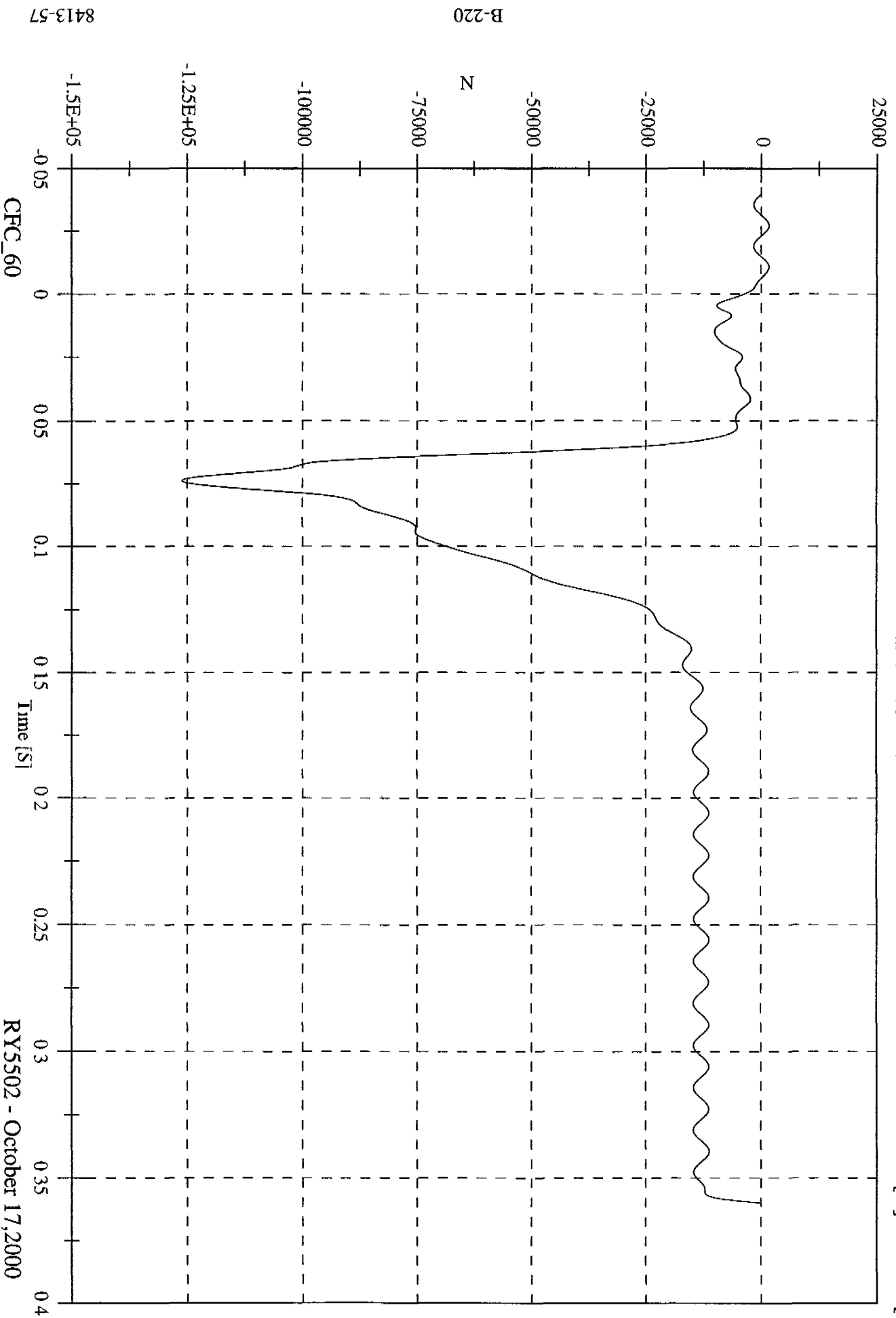
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell C6 FX

Max: 1704.5 [N] at -0.011 [S]  
Min: -126086.8 [N] at 0.074 [S]



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CFRC\_60

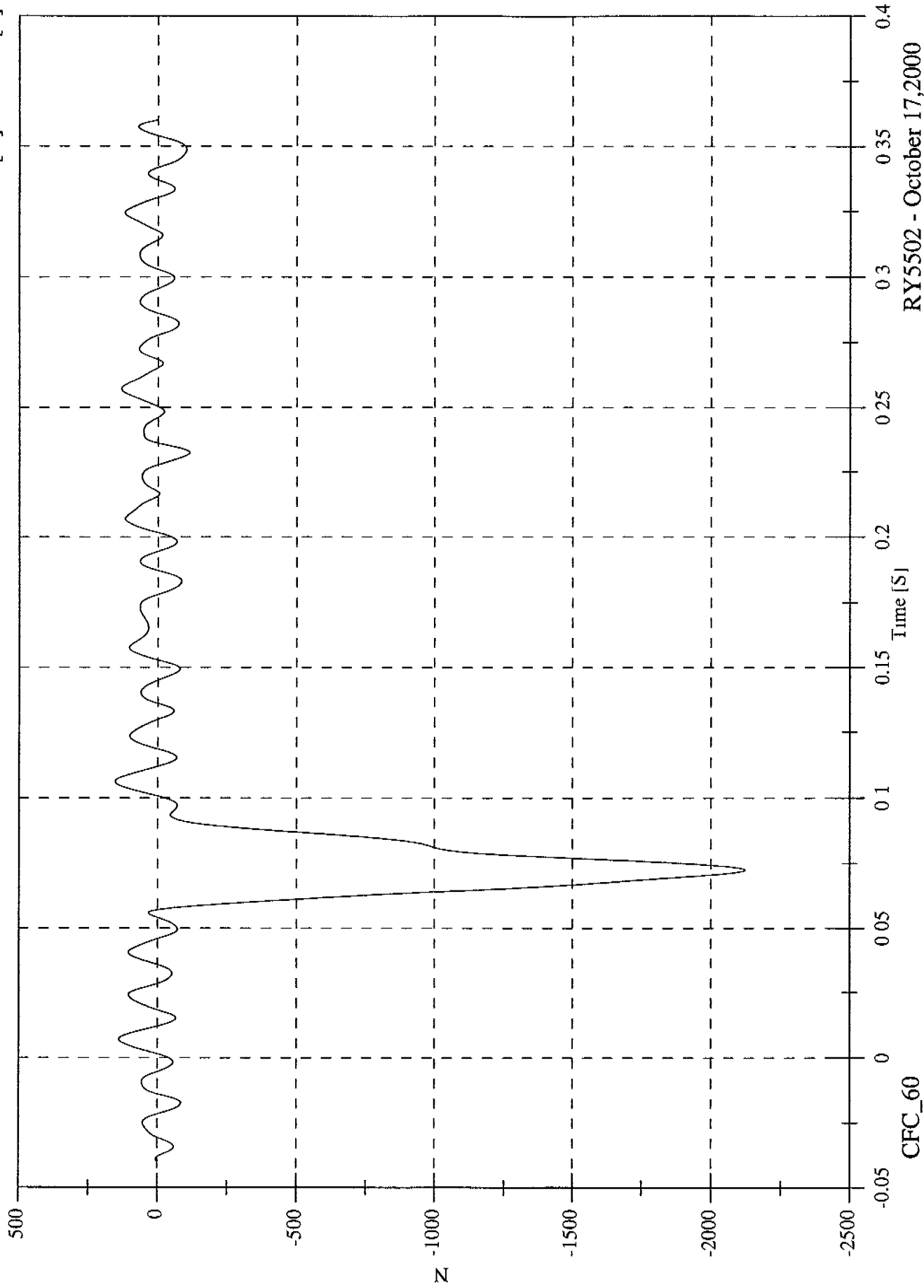
Time [s]

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 153.0 [N] at 0.106 [S]  
Min: -2124.0 [N] at 0.072 [S]

Barrier Load Cell B1 FY

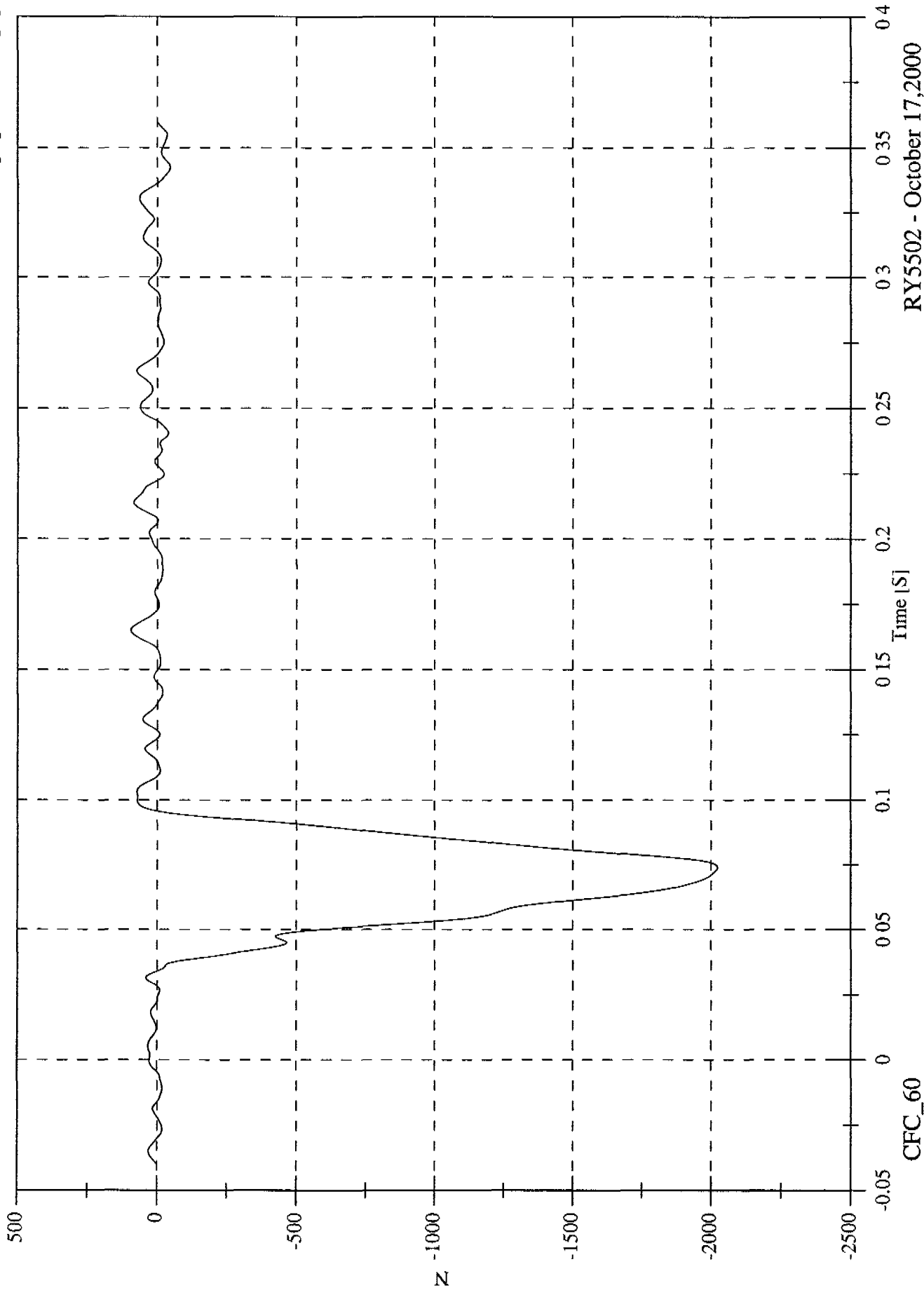


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell B2 FY

Max: 95.0 [N] at 0.165 [S]  
Min: -2023.3 [N] at 0.074 [S]



RY5502 - October 17, 2000

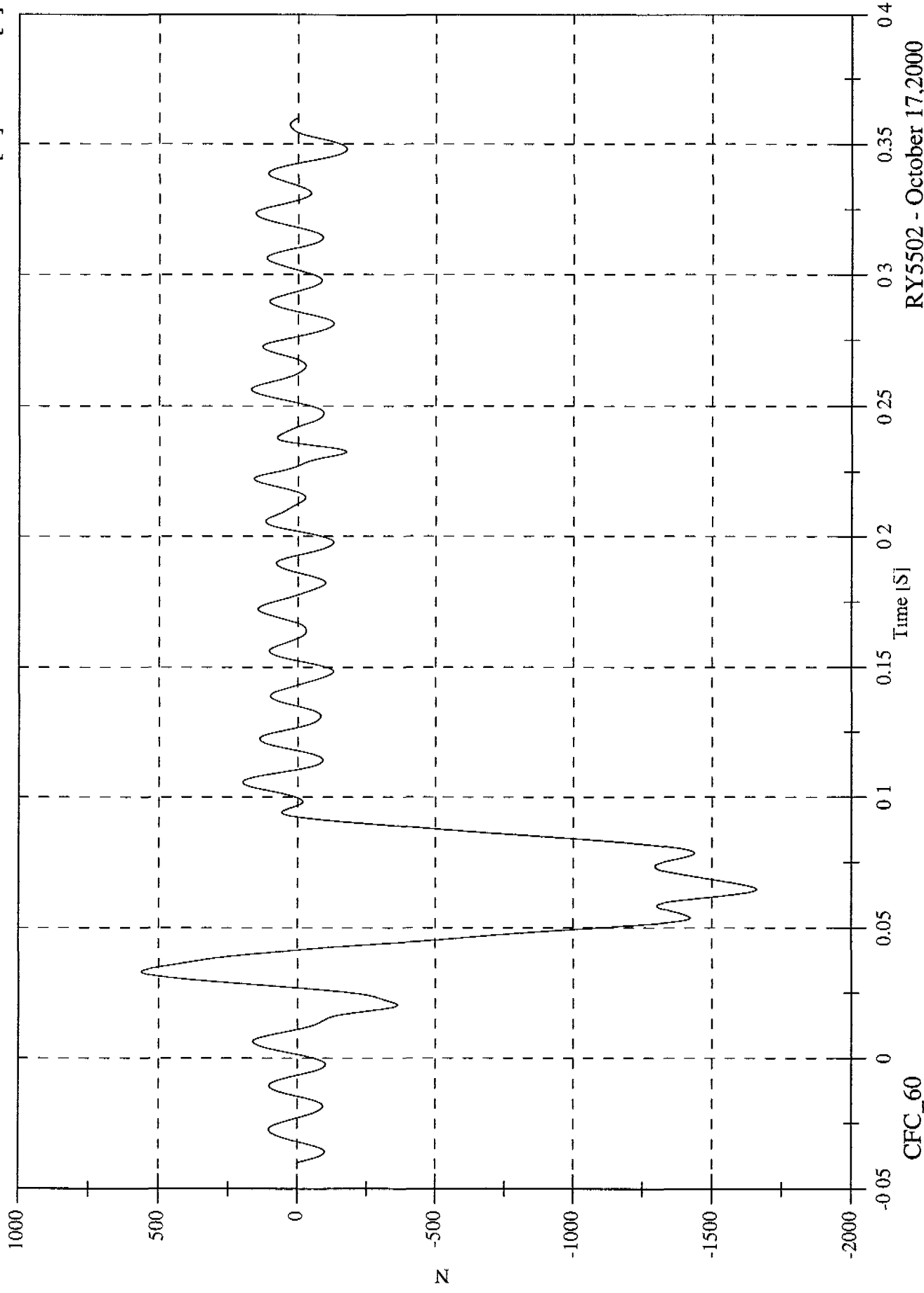
CFC\_60

2000 Subaru Legacy 40% Offset Impact

Max: 562.0 [N] at 0.033 [S]

Min: -1660.0 [N] at 0.065 [S]

Barrier Load Cell B3 FY

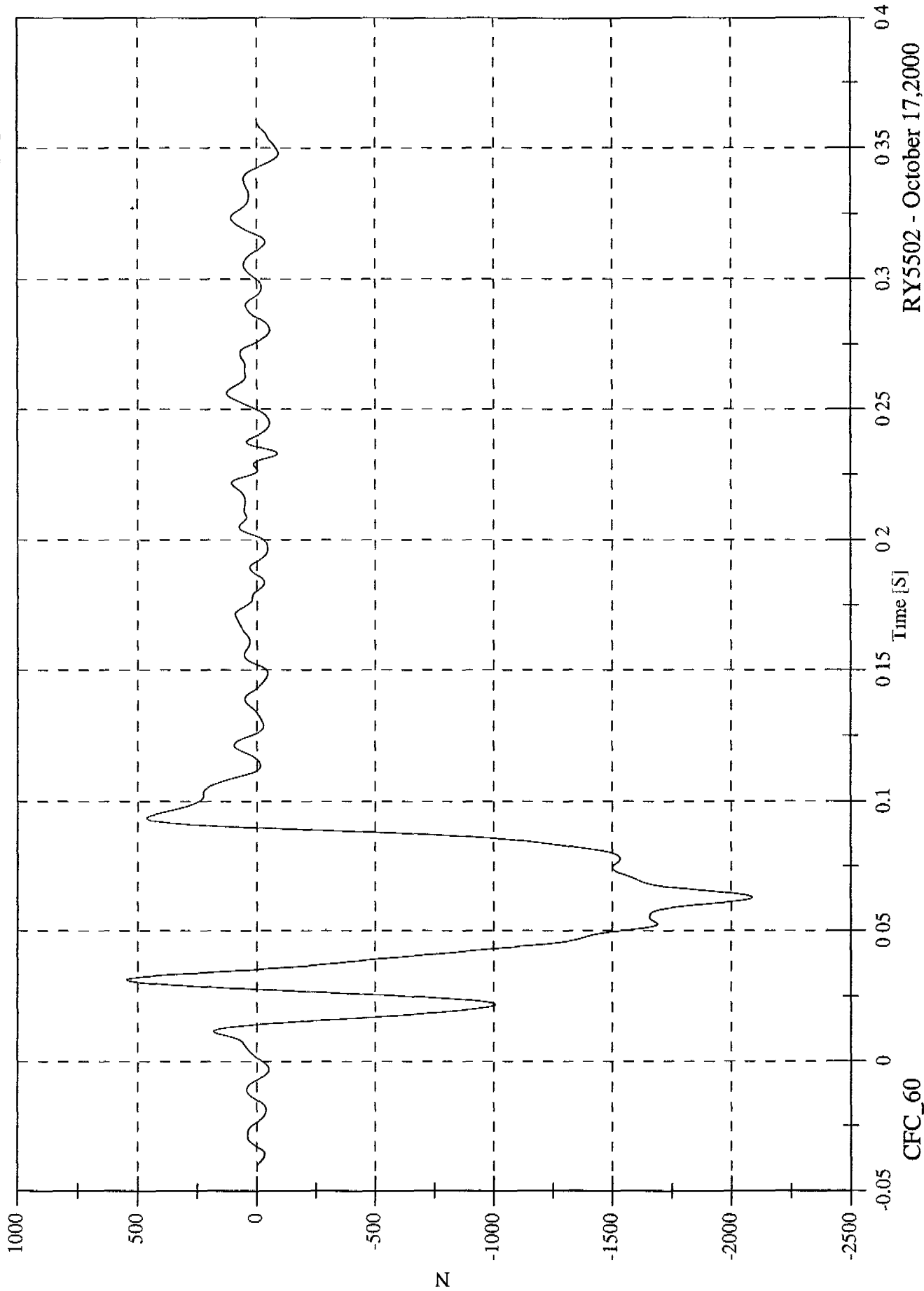


RYY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell B4 FY

Max: 545.3 [N] at 0.031 [S]  
Min: -2087.9 [N] at 0.063 [S]



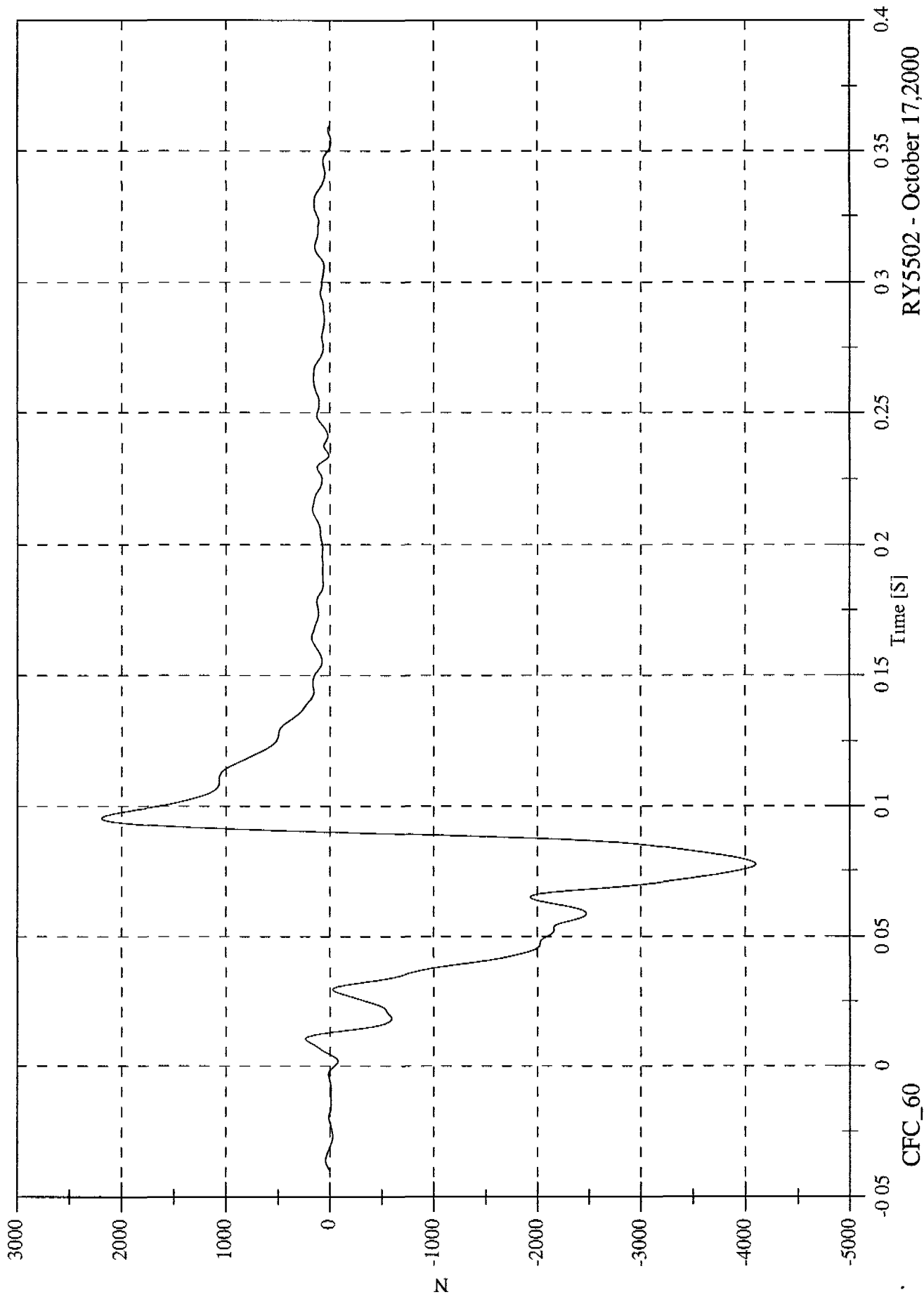
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2192.8 [N] at 0.095 [S]

Min: -4099.6 [N] at 0.077 [S]

Barrier Load Cell B5 FY



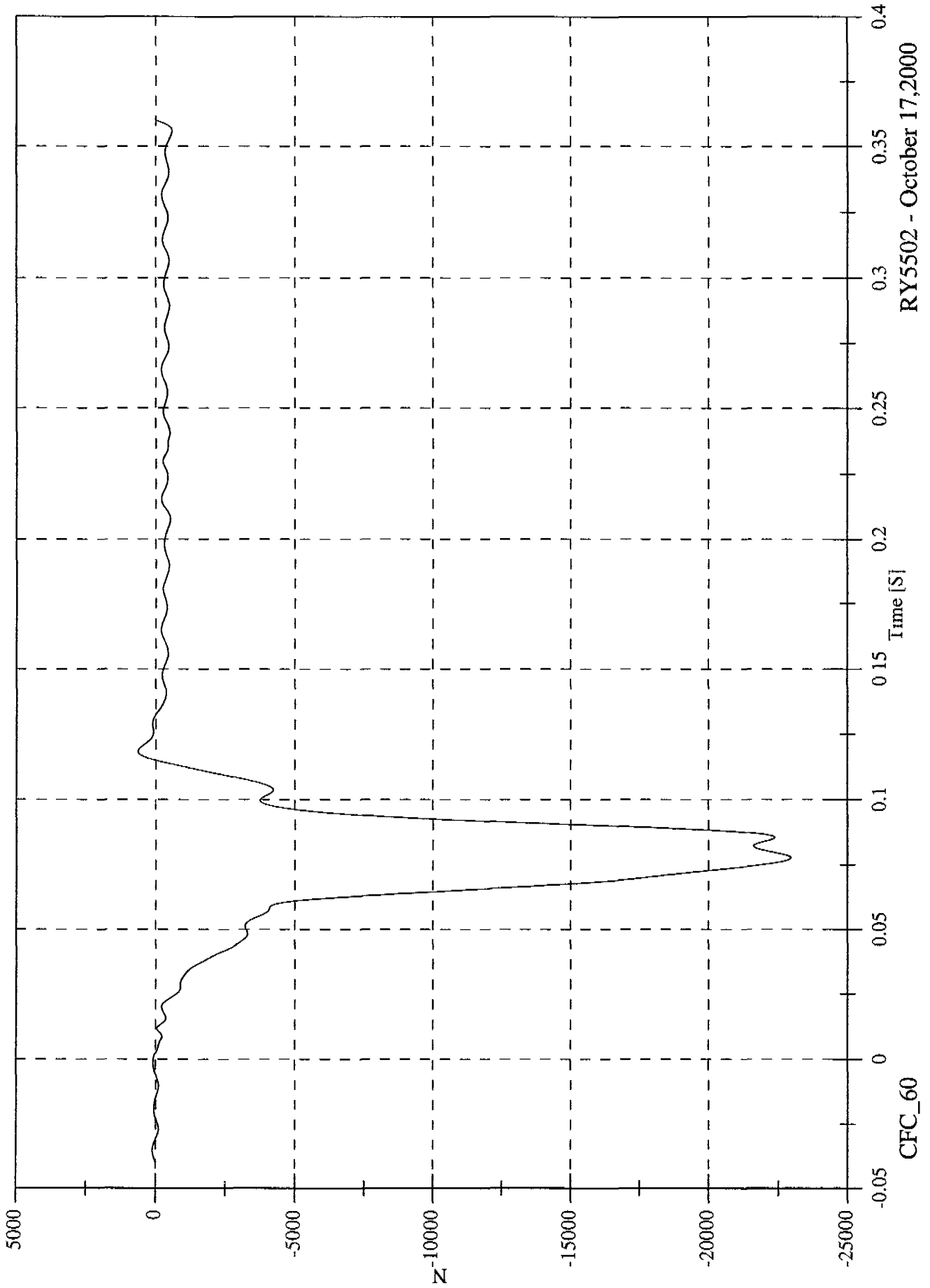
CFC\_60

RY5502 - October 17,2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell B6 FY

Max: 641.6 [N] at 0.118 [S]  
Min: -22959.0 [N] at 0.078 [S]



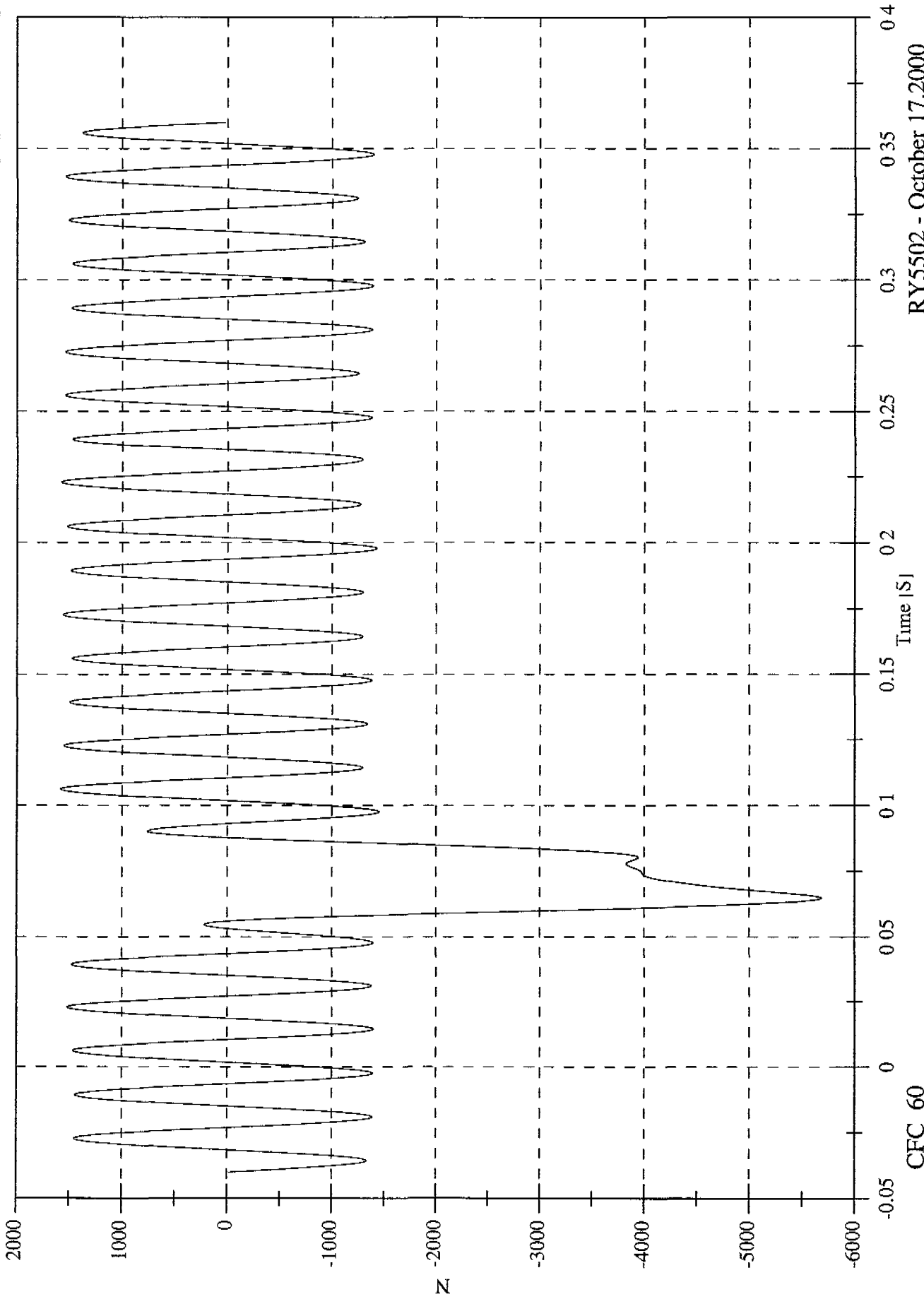
CFC\_60  
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1579.3 [N] at 0.106 [S]

Min: -5685.8 [N] at 0.065 [S]

Barrier Load Cell B1 FX



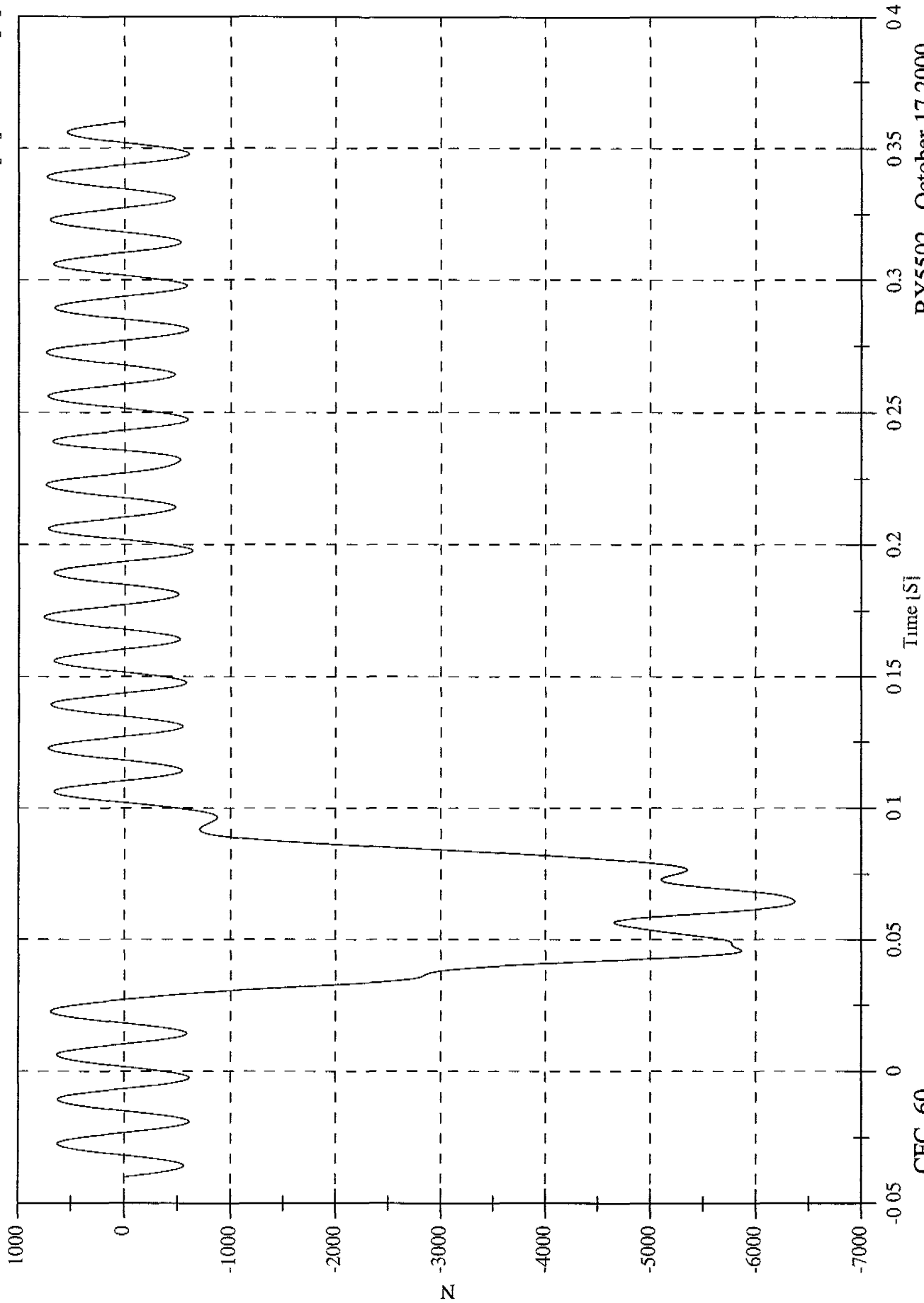
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 760.0 [N] at 0.173 [S]  
Min: -6369.6 [N] at 0.065 [S]

Barrier Load Cell B2 FX



CFC\_60

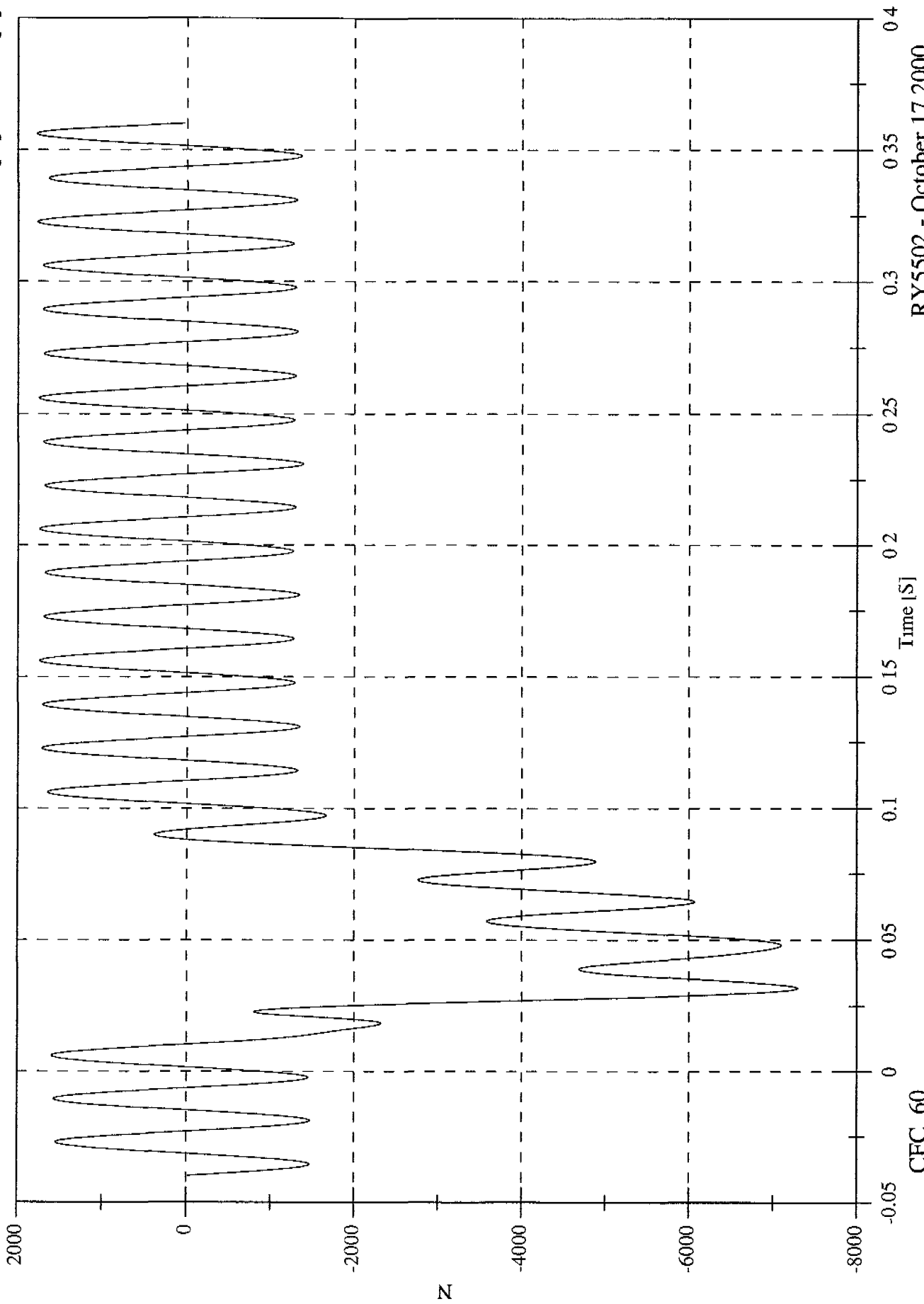
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1772.6 [N] at 0.356 [S]

Min: -7294.5 [N] at 0.032 [S]

Barrier Load Cell B3 FX

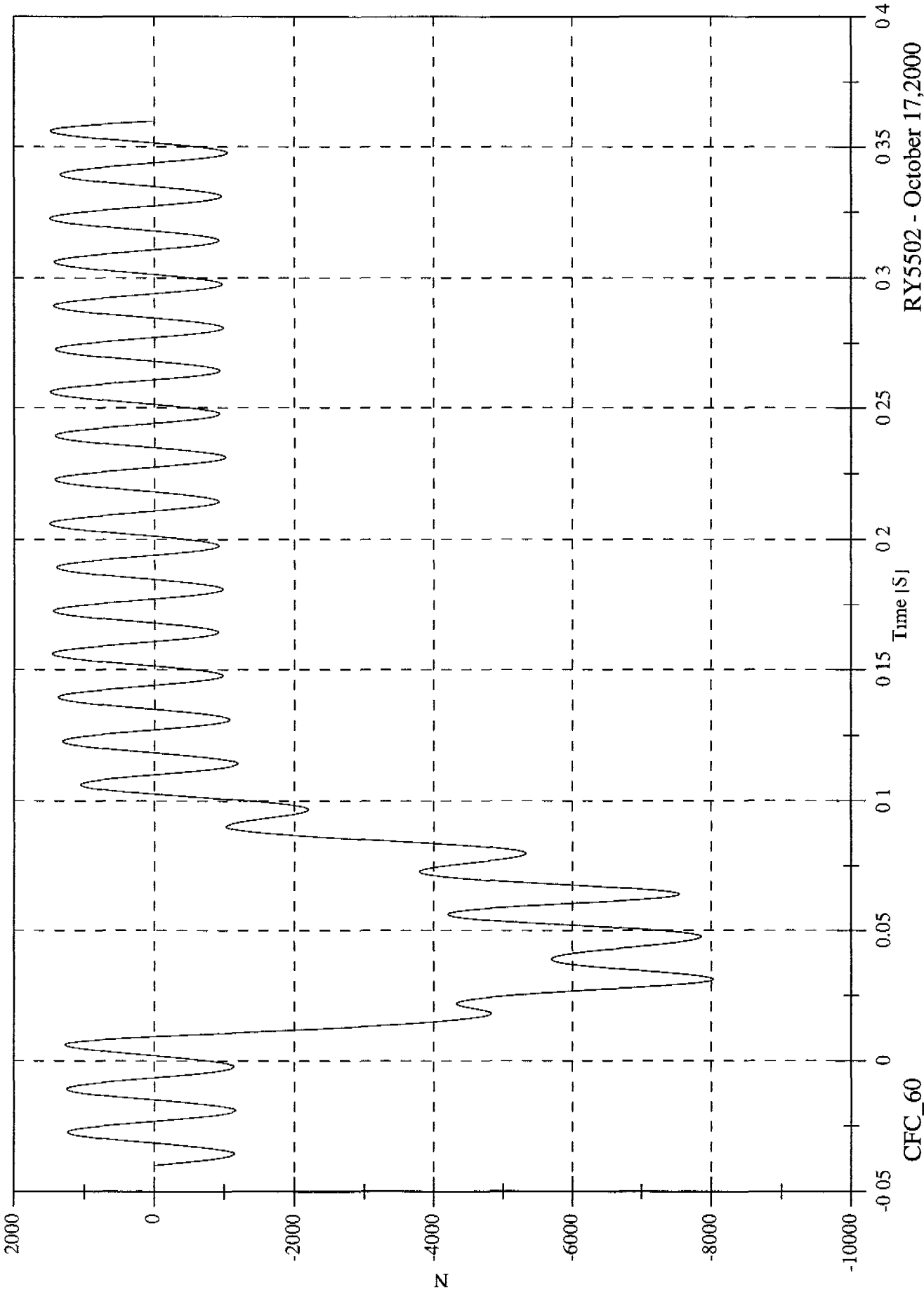


RYS502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1489.2 [N] at 0.206 [S]  
Min: -8029.3 [N] at 0.031 [S]

Barrier Load Cell B4 FX

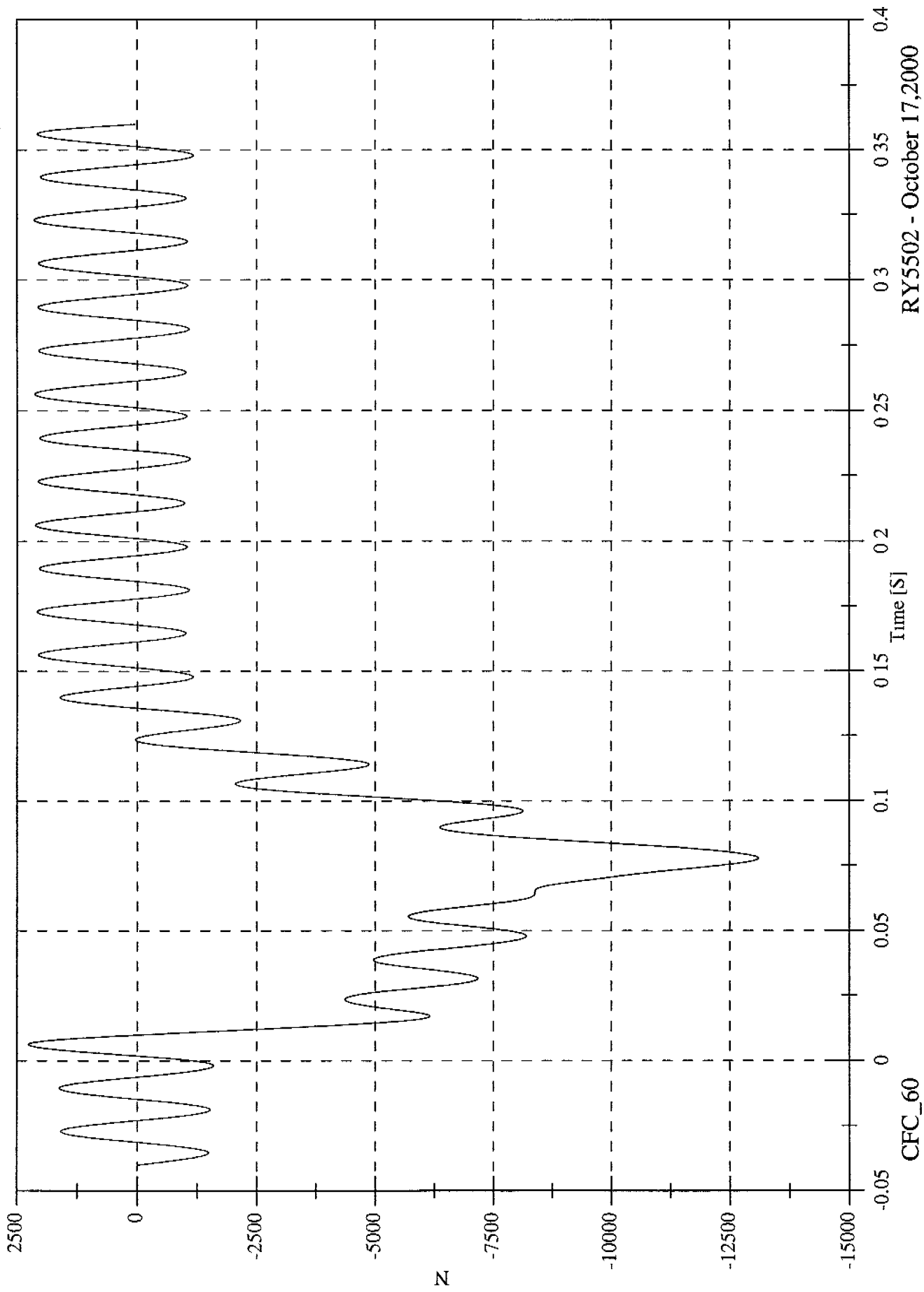


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2258.6 [N] at 0.006 [S]  
Min: -13104.1 [N] at 0.078 [S]

Barrier Load Cell B5 FX

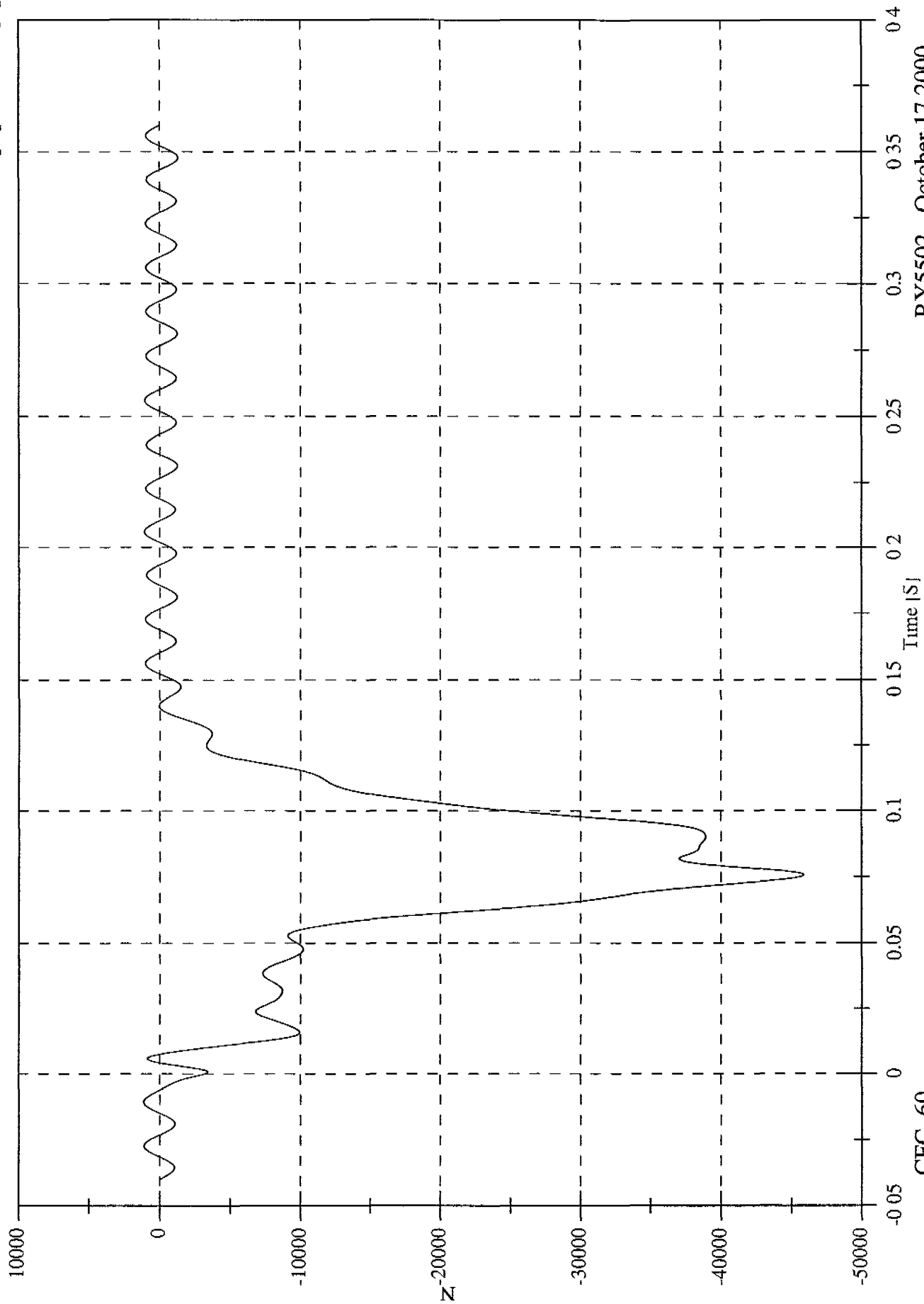


RYY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1148.3 [N] at -0.011 [S]  
Min: -45886.0 [N] at 0.076 [S]

Barrier Load Cell B6 FX



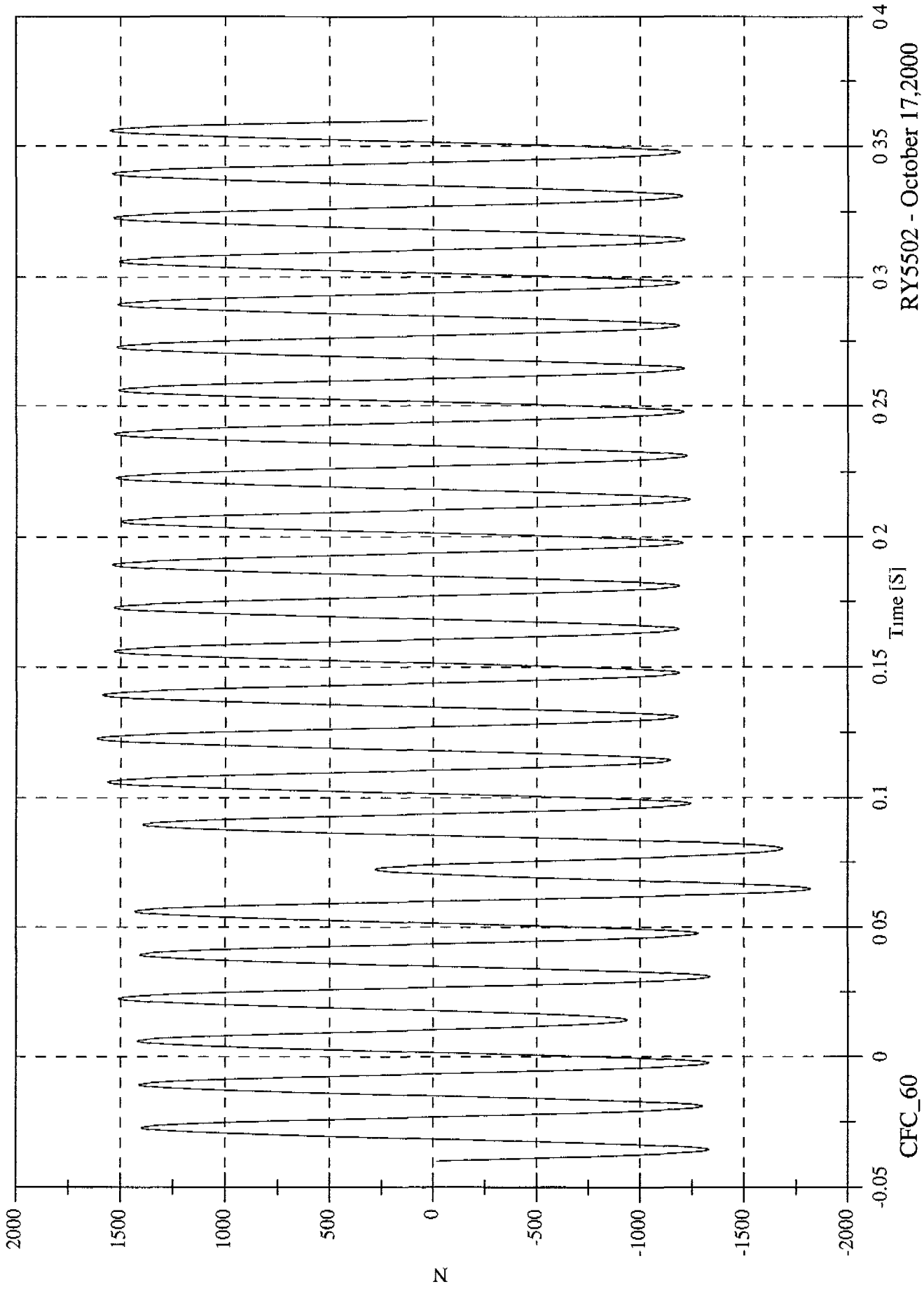
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1613.3 [N] at 0.123 [S]  
Min: -1817.6 [N] at 0.065 [S]

Barrier Load Cell A1 FX

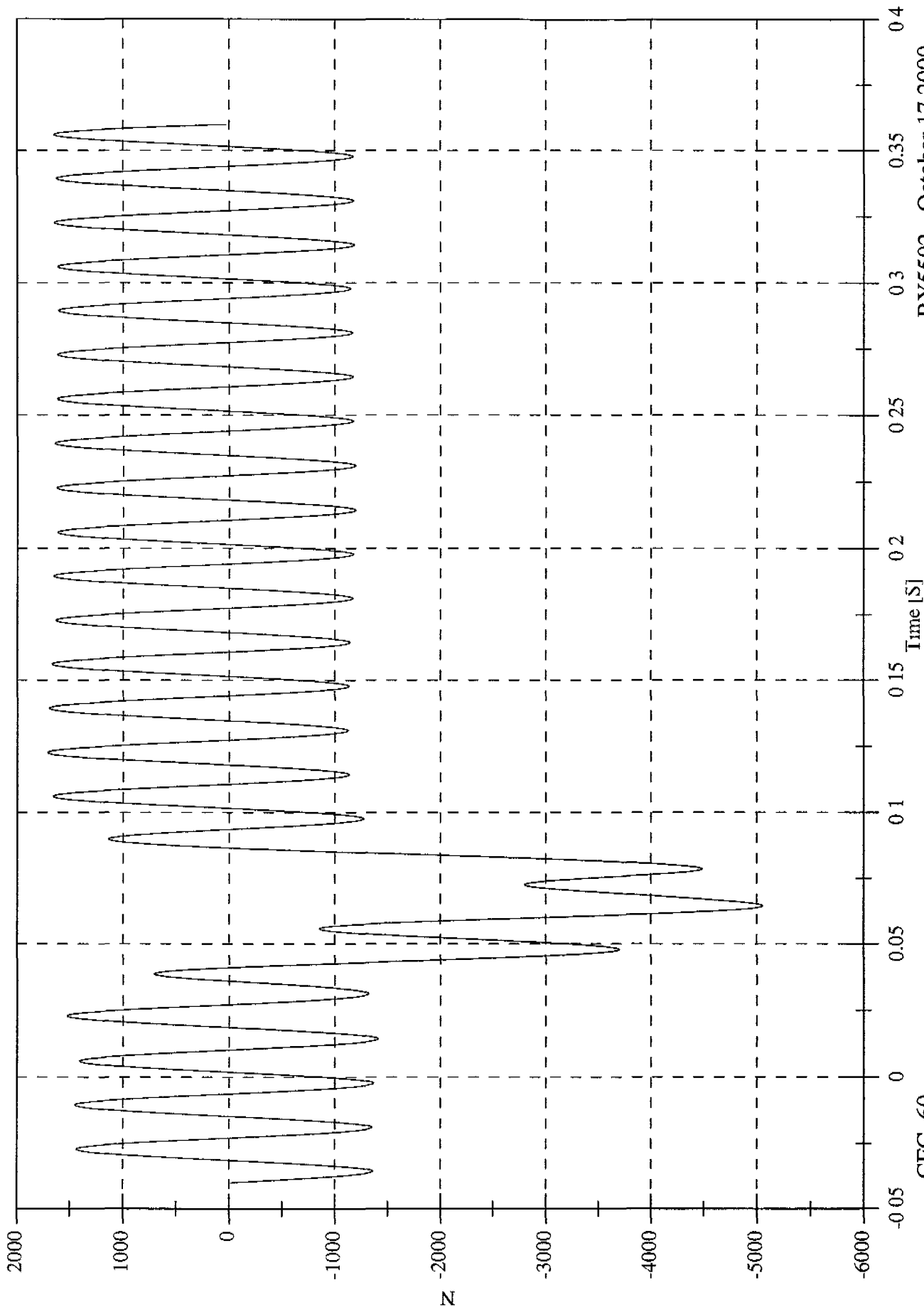


RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Barrier Load Cell A2 FX

Max: 1708.5 [N] at 0.123 [S]  
Min: -5055.6 [N] at 0.065 [S]



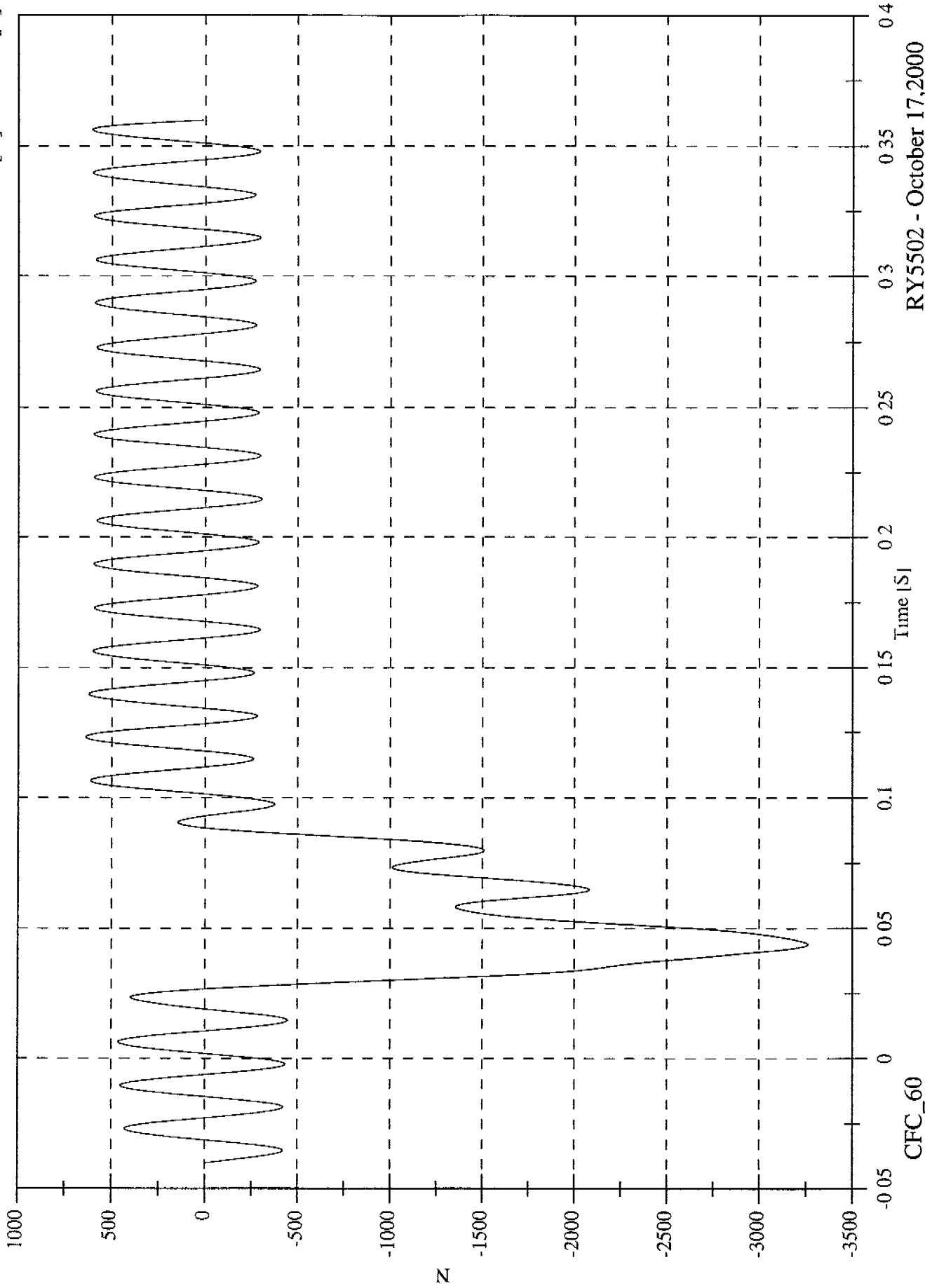
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 638.7 [N] at 0.123 [S]  
Min: -3261.4 [N] at 0.044 [S]

Barrier Load Cell A3 FX



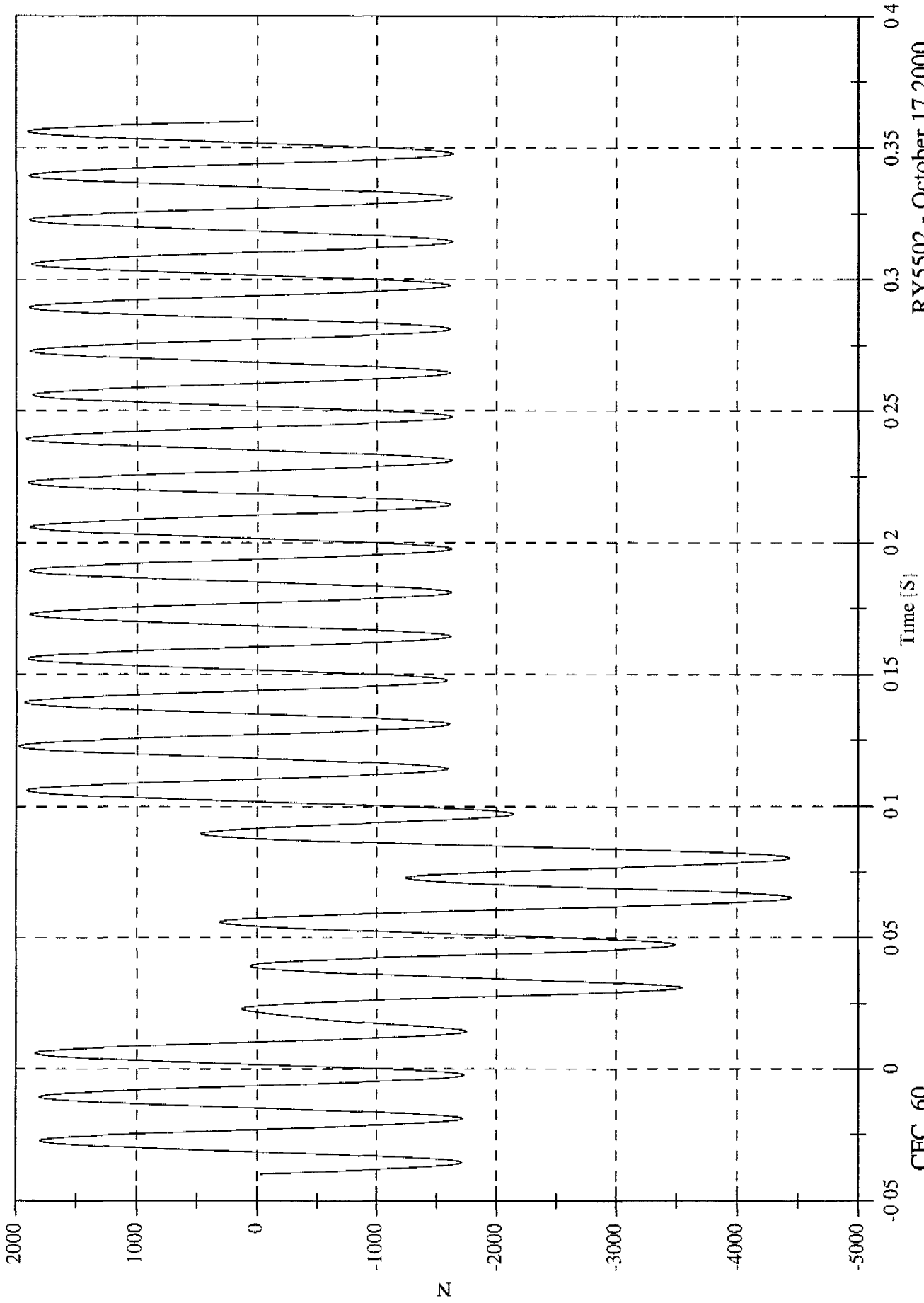
CFC\_60

RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1978.7 [N] at 0.123 [S]  
Min: -4449.9 [N] at 0.065 [S]

Barrier Load Cell A4 FX



CFC\_60

Time [S]

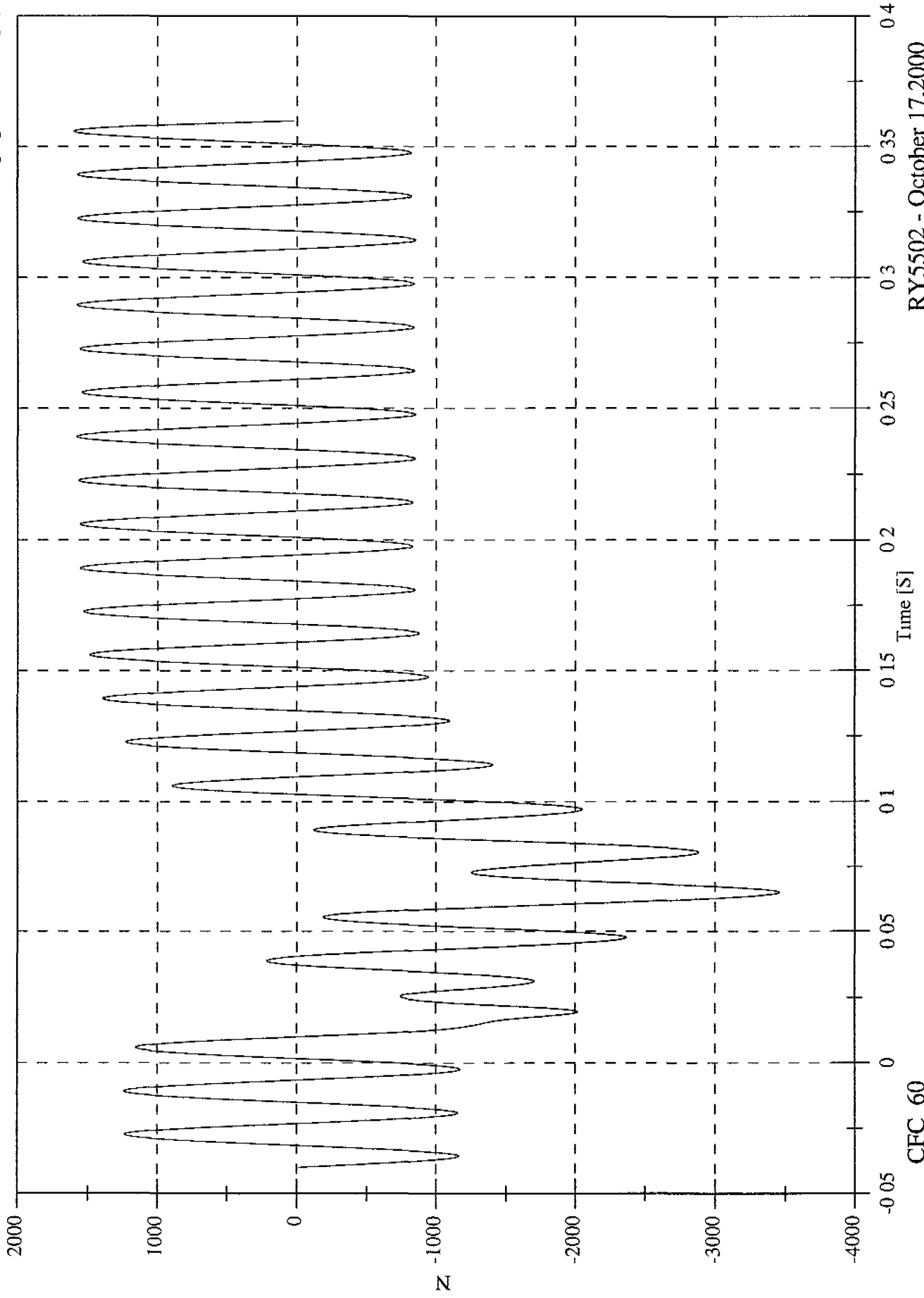
RY5502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 1596.8 [N] at 0.356 [S]

Min: -3459.1 [N] at 0.065 [S]

Barrier Load Cell A5 FX

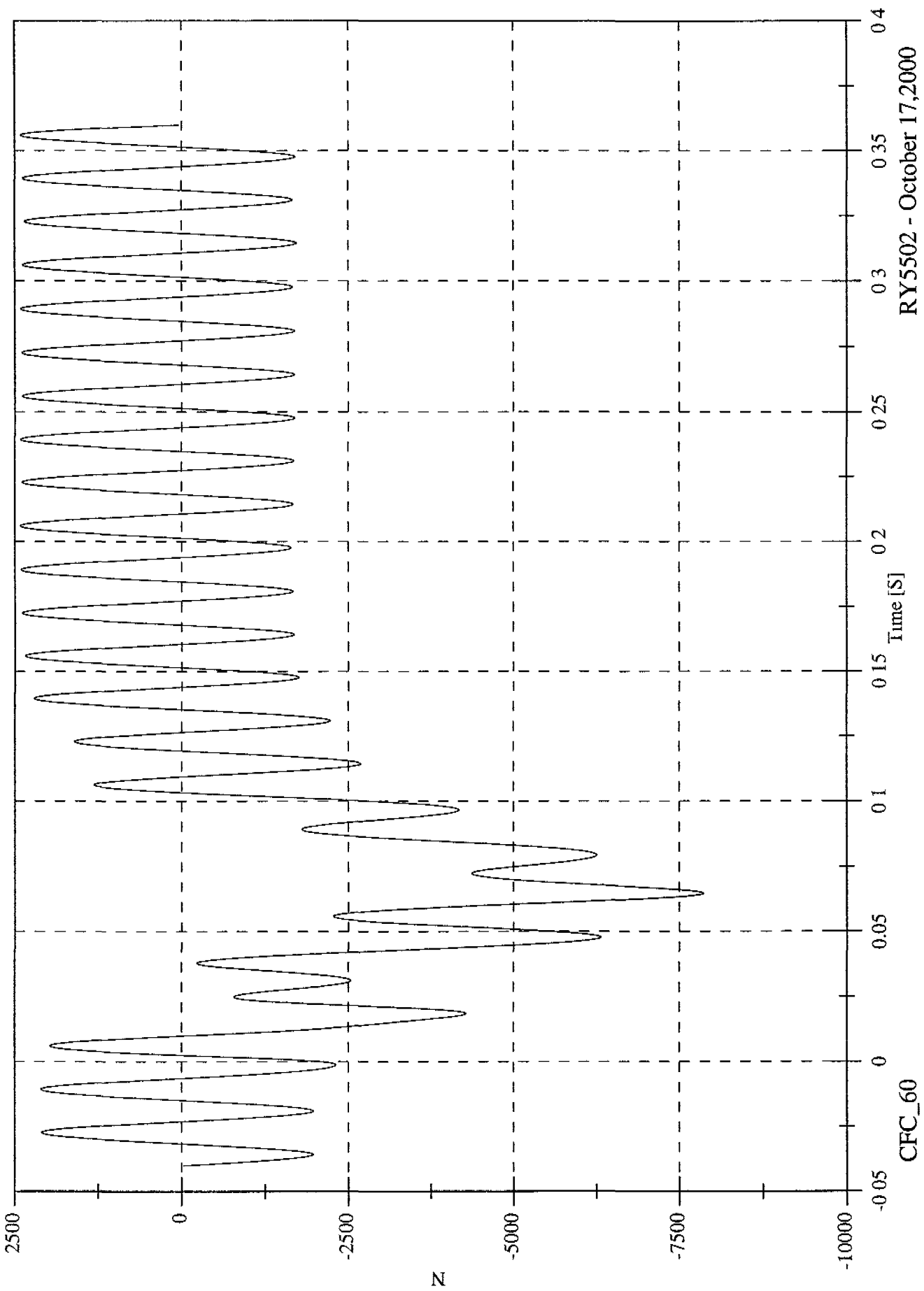


R55502 - October 17, 2000

2000 Subaru Legacy 40% Offset Impact

Max: 2418.1 [N] at 0.206 [S]  
Min: -7861.3 [N] at 0.065 [S]

Barrier Load Cell A6 FX



CFC\_60

**APPENDIX C**

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

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

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

Dummy serial numbers and certification dates are

<u>Position No /Location</u>	<u>Serial No</u>	<u>Completion Date</u>
#1/Driver	202	10-6-2000
#2/Right Front Passenger	288	8-14-2000

Electronic Test Equipment

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



PART 572E  
HEAD DROP TEST

Dummy Serial Number 202  
Sequential Test Number 1  
Date 10-4-2000  
Workfile 202100 hdp

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	71
Relative Humidity	10% - 70%	31
Peak Resultant Acceleration	225-275 G's	243.08
Peak Lateral Acceleration	15 G's Max	2.56
Is Acceleration Curve Unimodal?	YES	YES

Remarks

Laboratory Technician B Swięcicki

PART 572E  
NECK FLEXION TEST

Dummy Serial Number      202  
 Sequential Test Number    1  
 Date                            10-5-2000  
 Workfile                      202100 nfl

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	31
Impact Velocity		22 60 - 23 40 Ft/s	23 32
Pendulum Deceleration	10 ms	22.50 - 27 50 G's	25 33
	20 ms	17 60 - 22 60 G's	21 08
	30 ms	12 50 - 18 50 G's	12 66
Max Pendulum G's Above 30 ms		29 G's Max	12 66
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	41 12
D Plane Rotation	Max	64 - 78 Deg	75 60
	Time	57 - 64 ms	57 00
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	79 69
	Time	47 - 58 ms	55 00
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	126 25
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	98.75

Remarks.

Laboratory Technician    B Swiecicki

PART 572E  
NECK EXTENSION TEST

Dummy Serial Number 202  
 Sequential Test Number 1  
 Date 10-6-2000  
 Workfile 202100 nex

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	31
Impact Velocity		19 50 - 20 30 Ft/s	20 14
Pendulum Deceleration	10 ms	17 20 - 21 20 G's	18 40
	20 ms	14 00 - 19 00 G's	16 62
	30 ms	11 00 - 16 00 G's	13 64
Max Pendulum G's Above 30 ms		22 G's Max	13 64
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	44.75
D Plane Rotation	Max	81 - 106 Deg	97 44
	Time	72 - 82 ms	72 25
Moment About Occipital Condyle	Max	-59 0 - -39 0 Ft-Lbs	-58 35
	Time	65 - 79 ms	67 75
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	147 12
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	137 62

Remarks

Laboratory Technician B Swiecicki

PART 572E  
THORAX IMPACT TEST

Dummy Serial Number 202  
Sequential Test Number 1  
Date 10-6-2000  
Workfile 202100 th3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	31
Pendulum Velocity	21.6 - 22.4 Ft/s	21.6
Maximum Deflection	2.50 - 2.86 in	2.70
Maximum Resistive Force	1160 - 1325 Lbs	1185.46
Internal Hysteresis	69 - 85 %	75.60

Remarks

Laboratory Technician B Swiecicki

PART 572E  
KNEE IMPACT TEST

Dummy Serial Number 202  
Sequential Test Number 1  
Date 10-5-2000  
Workfile 202100.If/202100 rf

TEST PARAMETER	SPECIFICATION	TEST RESULTS
<b>LEFT KNEE</b>		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	31
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1241.41
<b>RIGHT KNEE</b>		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	31
Probe Velocity	6.8 - 7.0 Ft/s	7.0
Peak Knee Impact Force	1060 - 1300 Lbs	1258.87

Remarks

Laboratory Technician: B Swiecicki

PART 572E  
EXTERNAL DIMENSIONS

Dummy Serial Number      202  
 Sequential Test Number      1  
 Date                              10-6-2000

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			31
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.1
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

TRANSPORTATION RESEARCH CENTER INC.

HEAD DROP TEST

HYBRID III SMALL FEMALE

11-AUG-00

TRC INC.

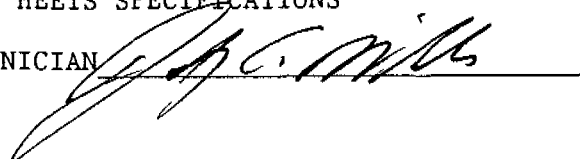
TEST NO: 288C1HD1

572 O SN288 HEAD DROP CAL 1

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
PEAK RESULTANT ACCELERATION	250 - 300 G	266.53 G
PEAK LATERAL ACCELERATION	15 G MAX	5.66 G
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 081100.0904;1

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III SMALL FEMALE

11-AUG-00

NECK FLEXION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 288C1NF5 572 0 SN288 NECK FLEX. CAL1

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
IMPACT VELOCITY	6.89 - 7.13 M/S	7.12 M/S
INTEGRATED PENDULUM VELOCITY	10 MS   2.1 - 2.5 M/S	2.26 M/S
	20 MS   4.0 - 5.0 M/S	4.56 M/S
	30 MS   5.8 - 7.0 M/S	6.68 M/S
PEAK D-PLANE ROTATION	77 - 91 DEG.	79.88 DEG.
PEAK MOMENT DURING ROTATION INTVERAL	69 - 83 NM	73.90 NM
POSITIVE MOMENT DECAY TIME TO 10 NM	80 - 100 MS	90.24 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Dustin Walker*

RUN NUMBER: 081100.1454;1

TRANSPORTATION RESEARCH CENTER INC.

HYBRID III SMALL FEMALE

11-AUG-00

NECK EXTENSION TEST - 6 CHANNEL TRANSDUCER

TRC INC. TEST NO: 288C1NE1 572 0 SN288 NECK EXT. CAL 1

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 - 22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
IMPACT VELOCITY	5.95 - 6.19 M/S	6.19 M/S
INTEGRATED PENDULUM VELOCITY	10 MS   1.5 - 1.9 M/S	1.80 M/S
	20 MS   3.1 - 3.9 M/S	3.73 M/S
	30 MS   4.6 - 5.6 M/S	5.59 M/S
PEAK D-PLANE ROTATION	99 - 114 DEG.	109.46 DEG.
PEAK MOMENT DURING ROTATION INTERVAL	-53/-65 NM	-61.51 NM
NEGATIVE MOMENT DECAY TIME TO -10 NM LEVEL	94 - 114 MS	105.84 MS

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Dustin Wallen*

RUN NUMBER: 081100.1530;2

TRANSPORTATION RESEARCH CENTER INC.

THORAX IMPACT TEST

HYBRID III SMALL FEMALE

14-AUG-00

TRC INC.

TEST NO: 288C1TH1

572 0 SN288 THORAX CAL1

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.6-22.2 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	63.0 %
PENDULUM VELOCITY	6.59 - 6.83 M/S	6.59 M/S
MAXIMUM DEFLECTION	50 - 58 MM	52.8 MM
MAXIMUM RESISTIVE FORCE	3900 - 4400 N	4208. N
PEAK FORCE DURING 18 MM TO 50 MM DEFLECTION	<= 105%	100.6%
INTERNAL HYSTERESIS	69% - 85%	74.9%

TEST MEETS SPECIFICATIONS

TECHNICIAN

*Dustin Walker*

RUN NUMBER: 081400.1135;1

TRANSPORTATION RESEARCH CENTER INC.

LEFT KNEE IMPACT TEST

HYBRID III SMALL FEMALE

11-AUG-00

TRC INC.

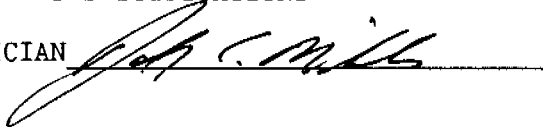
TEST NO: 288C1LK1

572 O SN288 LEFT KNEE CAL1

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.07 M/S
PEAK KNEE IMPACT FORCE 3.0 KG PENDULUM	3450 - 4060 N	3496.9 N

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 081100.0758;1

TRANSPORTATION RESEARCH CENTER INC.

RIGHT KNEE IMPACT TEST

HYBRID III SMALL FEMALE

11-AUG-00

TRC INC.

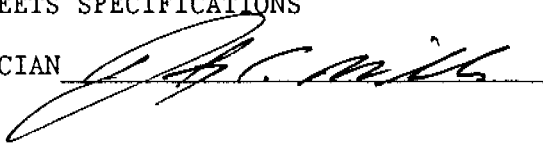
TEST NO: 288C1RK1

572 0 SN288 R.KNEE CAL1

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9-25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	58.0 %
PROBE VELOCITY	2.07 - 2.13 M/S	2.07 M/S
PEAK KNEE IMPACT FORCE 3.0 KG PENDULUM	3450 - 4060 N	3645.5 N

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 081100.0812;1

**APPENDIX D**

**DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION**

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

( 6 Month Calibration Minimum )

DRIVER DUMMY (S/N 202)	Manufacturer	Serial #	Calibration		
			Last	Next	
Head	X	ENDEVCO	AC-J28988	12-Sep-00	12-Mar-01
	Y	ENDEVCO	AC-J28686	12-Sep-00	12-Mar-01
	Z	ENDEVCO	AC-P16625	02-Oct-00	02-Apr-01
Head	X (R)	ENDEVCO	AC-J20556	12-Sep-00	12-Mar-01
	Y (R)	ENDEVCO	AC-J28727	12-Sep-00	12-Mar-01
	Z (R)	ENDEVCO	AC-J20382	12-Sep-00	12-Mar-01
Neck Load Cell	X	DENTON	LC-425Fx	15-Sep-00	15-Mar-01
	Y	DENTON	LC-425Fy	15-Sep-00	15-Mar-01
	Z	DENTON	LC-425Fz	15-Sep-00	15-Mar-01
Neck Moment	X	DENTON	LC-425Mx	15-Sep-00	15-Mar-01
	Y	DENTON	LC-425My	15-Sep-00	15-Mar-01
	Z	DENTON	LC-425Mz	15-Sep-00	15-Mar-01
Chest	X	ENDEVCO	AC-J27072	12-Sep-00	12-Mar-01
	Y	ENDEVCO	AC-J28340	04-Aug-00	04-Feb-01
	Z	ENDEVCO	AC-J23946	12-Sep-00	12-Mar-01
Chest	X (R)	ENDEVCO	AC-CY06H	12-Sep-00	12-Mar-01
	Y (R)	ENDEVCO	AC-J27079	12-Sep-00	12-Mar-01
	Z (R)	ENDEVCO	AC-J20570	12-Sep-00	12-Mar-01
Chest Deflection Gauge Hybrid III Use Only	SERVO	DS-202		18-Sep-00	18-Mar-01
Pelvic	X	ENDEVCO	AC-EH88J	12-Sep-00	12-Mar-01
	Y	ENDEVCO	AC-BE39J	12-Sep-00	12-Mar-01
	Z	ENDEVCO	AC-J30041	04-Aug-00	04-Feb-01

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

( 6 Month Calibration Minimum )

DRIVER DUMMY (S/N 202)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load	X	DENTON	LC-411FX	01-Sep-00	01-Mar-01
	Y	DENTON	LC-411FY	01-Sep-00	01-Mar-01
	Z	DENTON	LC-411FZ	01-Sep-00	01-Mar-01
L Femur Moment	X	DENTON	LC-411MX	01-Sep-00	01-Mar-01
	Y	DENTON	LC-411MY	01-Sep-00	01-Mar-01
	Z	DENTON	LC-411MZ	01-Sep-00	01-Mar-01
Right Femur Load	X	DENTON	LC-412FX	01-Sep-00	01-Mar-01
	Y	DENTON	LC-412FY	01-Sep-00	01-Mar-01
	Z	DENTON	LC-412FZ	01-Sep-00	01-Mar-01
R Femur Moment	X	DENTON	LC-412MX	01-Sep-00	01-Mar-01
	Y	DENTON	LC-412MY	01-Sep-00	01-Mar-01
	Z	DENTON	LC-412MZ	01-Sep-00	01-Mar-01
Left Knee Shear Dx		ASTC	LX-102-LTKN	26-Sep-00	26-Mar-01
Right Knee Shear Dx		ASTC	LX-101-RTKN	26-Sep-00	26-Mar-01
Left Upper Tibia	Fx	DENTON	LX-102-UTLFX	26-Sep-00	26-Mar-01
	Fz	DENTON	LX-102-UTLFZ	26-Sep-00	26-Mar-01
	Mx	DENTON	LX-102-UTLMX	26-Sep-00	26-Mar-01
	My	DENTON	LX-102-UTLMY	26-Sep-00	26-Mar-01
Left Lower Tibia	Fx	DENTON	LX-102-LTLFX	26-Sep-00	26-Mar-01
	Fy	DENTON	LX-102-LTLFY	26-Sep-00	26-Mar-01
	Fz	DENTON	LX-102-LTLFZ	26-Sep-00	26-Mar-01
	Mx	DENTON	LX-102-LTLMX	26-Sep-00	26-Mar-01
	My	DENTON	LX-102-LTLMY	26-Sep-00	26-Mar-01
Right Upper Tibia	Fx	DENTON	LX-101-UTRFX	26-Sep-00	26-Mar-01
	Fz	DENTON	LX-101-UTRFZ	26-Sep-00	26-Mar-01
	Mx	DENTON	LX-101-UTRMX	26-Sep-00	26-Mar-01
	My	DENTON	LX-101-UTRMY	26-Sep-00	26-Mar-01

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY  
( 6 Month Calibration Minimum )

DRIVER DUMMY (S/N 202)	Manufacturer	Serial #	Calibration		
			Last	Next	
Right Lower Tibia	Fx	DENTON	LX-101-LTRFX	26-Sep-00	26-Mar-01
	Fy	DENTON	LX-101-LTRFY	26-Sep-00	26-Mar-01
	Fz	DENTON	LX-101-LTRFZ	26-Sep-00	26-Mar-01
	Mx	DENTON	LX-101-LTRMX	26-Sep-00	26-Mar-01
	My	DENTON	LX-101-LTRMY	26-Sep-00	26-Mar-01
Left Tibia	X	ENDEVCO	AC-P15638	27-Sep-00	27-Mar-01
	Y	ENDEVCO	AC-P16361	27-Sep-00	27-Mar-01
Right Tibia	X	ENDEVCO	AC-P16899	27-Sep-00	27-Mar-01
	Y	ENDEVCO	AC-P17297	27-Sep-00	27-Mar-01
Left Ankle	Rx	Contelec	LX-102-AXLRP	26-Sep-00	26-Mar-01
	Ry	Contelec	LX-102-AYLRP	26-Sep-00	26-Mar-01
	Rz	Contelec	LX-102-AZLRP	26-Sep-00	26-Mar-01
Right Ankle	Rx	Contelec	LX-101-AXRRP	26-Sep-00	26-Mar-01
	Ry	Contelec	LX-101-AYRRP	26-Sep-00	26-Mar-01
	Rz	Contelec	LX-101-AZRRP	26-Sep-00	26-Mar-01
Left Foot	Ax	ENDEVCO	AC-P17196	27-Sep-00	27-Mar-01
	Ay	ENDEVCO	AC-P17743	27-Sep-00	27-Mar-01
	Az	ENDEVCO	AC-P16281	27-Sep-00	27-Mar-01
Right Foot	Ax	ENDEVCO	AC-P13574	27-Sep-00	27-Mar-01
	Ay	ENDEVCO	AC-P17836	27-Sep-00	27-Mar-01
	Az	ENDEVCO	AC-P15831	27-Sep-00	27-Mar-01
Lap Belt Load Cells	LEBOW	LC-706	01-Jun-00	01-Dec-00	
Shoulder Belt Load Cells					
Spool-Out Potentiometer					
Belt Stretch Transducer					

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

( 6 Month Calibration Minimum )

PASSENGER DUMMY (S/N 288)	Manufacturer	Serial #	Calibration		
			Last	Next	
Head	X	ENDEVCO	AC-BF65J	6/27/00	12/26/00
	Y	ENDEVCO	AC-AGAC4	6/27/00	12/26/00
	Z	ENDEVCO	AC-27553	6/27/00	12/26/00
Head	X (R)				
	Y (R)				
	Z (R)				
Neck Load Cell	X	DENTON	LC-851FX	6/28/00	12/27/00
	Y	DENTON	LC-851FY	6/28/00	12/27/00
	Z	DENTON	LC-851FZ	6/28/00	12/27/00
Neck Moment	X	DENTON	LC-851MX	8/28/00	2/26/01
	Y	DENTON	LC-851MY	8/28/00	2/26/01
	Z	DENTON	LC-851MZ	8/28/00	2/26/01
Chest	X	ENDEVCO	AC-J20064	6/28/00	12/27/00
	Y	ENDEVCO	AC-J20569	6/28/00	12/27/00
	Z	ENDEVCO	AC-J20599	6/28/00	12/27/00
Chest	X (R)				
	Y (R)				
	Z (R)				
Chest Deflection Gauge	SERVO	DS-288	6/30/00	12/29/00	
Hybrid III Use Only					
Pelvic	X	ENDEVCO	AC-J18059	6/27/00	12/26/00
	Y	ENDEVCO	AC-J20580	6/27/00	12/26/00
	Z	ENDEVCO	AC-28708	6/27/00	12/26/00

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

( 6 Month Calibration Minimum )

PASSENGER DUMMY (S/N 288)	Manufacturer	Serial #	Calibration		
			Last	Next	
Left Femur Load    X	DENTON	LC-257FX	6/28/00	12/27/00	
	DENTON	LC-257FY	6/28/00	12/27/00	
	DENTON	LC-257FZ	6/28/00	12/27/00	
L Femur Moment    X	DENTON	LC-257MX	6/28/00	12/27/00	
	DENTON	LC-257MY	6/28/00	12/27/00	
	DENTON	LC-257MZ	6/28/00	12/27/00	
Right Femur Load    X	DENTON	LC-261FX	6/28/00	12/27/00	
	DENTON	LC-261FY	6/28/00	12/27/00	
	DENTON	LC-261FZ	6/28/00	12/27/00	
R Femur Moment    X	DENTON	LC-261MX	6/28/00	12/27/00	
	DENTON	LC-261MY	6/28/00	12/27/00	
	DENTON	LC-261MZ	6/28/00	12/27/00	
Left Knee Shear Dx	DENTON	DS-13742	7-Sep-00	7-Mar-01	
Right Knee Shear Dx	DENTON	DS-13727	7-Sep-00	7-Mar-01	
Left Upper Tibia	Fx	UNK	LC-263FX-UP	6/29/00	12/28/00
	Fy				
	Fz	UNK	LC-263FZ-UP	6/29/00	12/28/00
	Mx	UNK	LC-263MX-UP	6/29/00	12/28/00
	My	UNK	LC-263MY-UP	6/29/00	12/28/00
Left Lower Tibia	Fx	UNK	LC-264FX-LO	6/29/00	12/28/00
	Fy				
	Fz	UNK	LC-264FZ-LO	6/29/00	12/28/00
	Mx	UNK	LC-264MX-LO	6/29/00	12/28/00
	My	UNK	LC-264MY-LO	6/29/00	12/28/00

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY  
( 6 Month Calibration Minimum )

PASSENGER DUMMY (S/N 288)		Manufacturer	Serial #	Calibration	
				Last	Next
Right Upper Tibia	Fx	UNK	LC-264FX-UP	6/29/00	12/29/00
	Fy				
	Fz	UNK	LC-264FZ-UP	6/29/00	12/29/00
	Mx	UNK	LC-264MX-UP	6/29/00	12/29/00
	My	UNK	LC-264MY-UP	6/29/00	12/29/00
Right Lower Tibia	Fx	UNK	LC-177FX-LO	6/29/00	12/29/00
	Fy				
	Fz	UNK	LC-177FZ-LO	6/29/00	12/29/00
	Mx	UNK	LC-177MX-LO	6/29/00	12/29/00
	My	UNK	LC-177MY-LO	6/29/00	12/29/00
Left Foot	Ax	ENDEVCO	AC-P15975	27-Sep-00	27-Mar-01
	Az	ENDEVCO	AC-P16171	27-Sep-00	27-Mar-01
Left Toe	Az	ENDEVCO	AC-P15319	27-Sep-00	27-Mar-01
Right Foot	Ax	ENDEVCO	AC-P16945	27-Sep-00	27-Mar-01
	Az	ENDEVCO	AC-P16225	27-Sep-00	27-Mar-01
Left Toe	Az	ENDEVCO	AC-P17365	27-Sep-00	27-Mar-01
Lap Belt Load Cells		LEBOW	LC-706	01-Jun-00	01-Dec-00
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-D77	14-Aug-00	13-Feb-01
Left Seat Rear Crossmember Y	ICS	AC-D86	11-Aug-00	10-Feb-01
Right Seat Rear Crossmember X	ICS	AC-X88	14-Aug-00	13-Feb-01
Right Rear Seat Crossmember Y	ICS	AC-D30	11-Aug-00	10-Feb-01
Driver Left Side Toepan X	ENDEVCO	AC-A13565	12-Jun-00	12-Dec-00
Driver Left Side Toepan Y	ENDEVCO	AC-A14358	12-Jun-00	12-Dec-00
Driver Right Side Toepan X	ENDEVCO	AC-A14342	12-Jun-00	12-Dec-00
Driver Right Side Toepan Y	ENDEVCO	AC-A14261	12-Jun-00	12-Dec-00
Trunk Z	ICS	AC-D75	31-Aug-00	28-Feb-01