

636501

REPORT NUMBER: 214-CAL-03-03

**SAFETY COMPLIANCE TESTING FOR FMVSS 214
SIDE IMPACT PROTECTION**

**DR. ING. H.C. F. PORSCHE AG.
2003 PORSCHE BOXSTER
2-DOOR COUPE**

NHTSA NUMBER: C30515

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



March 19, 2003

FINAL REPORT

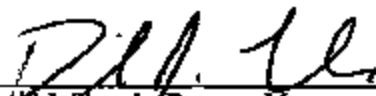
**U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Assurance
Office of Vehicle Safety Compliance
400 Seventh Street, SW
Room 6111 (NVS-220)
Washington, DC 20590**

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-02-D-01114. This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufactures' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By:


Lawrence Q. Valvo, Project Engineer

Approved By:


David J. Travale, Program Manager
Transportation Sciences Center

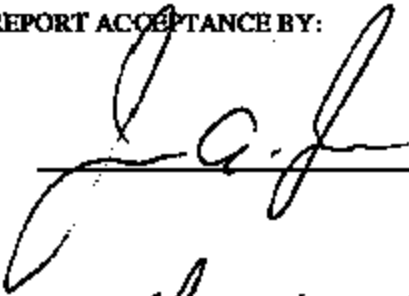
Approval Date:

April 23, 2003

FINAL REPORT ACCEPTANCE BY:

Accepted By:

Acceptance Date:


May 1, 2003

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 214-CAL-03-03	2. Government Accession No.	3. Recipient's Catalog No.																									
4. Title and Subtitle Final Report of FMVSS 214 Compliance Side Impact Testing of a 2003 Porsche Boxster 2-Door Coupe NHTSA No.: C30515		5. Report Date March 19, 2003	6. Performing Organization Code CAL																								
7. Author(s) Lawrence Q. Valvo, Project Engineer David J. Travale, Program Manager		8. Performing Organization Report No.																									
9. Performing Organization Name and Address Veridian Engineering Transportation Sciences Center P.O. Box 400 Buffalo, New York 14225		10. Work Unit No.	11. Contract or Grant No. DTNH22-02-D-01114																								
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance 400 Seventh Street, SW, Room 6111 Washington, D.C. 20590		13. Type of Report and Period Covered Final Report, March 2003 - April 2003																									
15. Supplementary Notes		14. Sponsoring Agency Code NVS-220																									
16. Abstract A 48/24 kph 90° Impact Moving Deformable Barrier Side Impact Test was conducted on the subject 2003 Porsche Boxster 2-Door Coupe in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-06 (July 26, 2001) to determine FMVSS 214 Side Impact Protection compliance. This test was conducted at the Veridian Engineering Crash Test Facility in Buffalo, New York, on March 19, 2003. The impact velocity of the Moving Deformable Barrier (MDB) was 52.63 kph, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.1°C. The target vehicle post-test maximum crush was 154 mm at level 2. The test vehicle's performance follows: <table border="0" style="margin-left: 40px;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>Front SID</u></th> <th></th> <th style="text-align: center;"><u>Rear SID</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration (LUR):</td> <td style="text-align: center;">61.5</td> <td>g's</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Left Lower Rib Acceleration (LLR):</td> <td style="text-align: center;">43.4</td> <td>g's</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Lower Spine Acceleration (T₁₂):</td> <td style="text-align: center;">44.2</td> <td>g's</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Thoracic Trauma Index (TIT):</td> <td style="text-align: center;">53</td> <td>g's</td> <td style="text-align: center;">-</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td style="text-align: center;">36</td> <td>g's</td> <td style="text-align: center;">-</td> </tr> </tbody> </table> The door on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite door did not open during the side impact event.					<u>Front SID</u>		<u>Rear SID</u>	Left Upper Rib Acceleration (LUR):	61.5	g's	-	Left Lower Rib Acceleration (LLR):	43.4	g's	-	Lower Spine Acceleration (T ₁₂):	44.2	g's	-	Thoracic Trauma Index (TIT):	53	g's	-	Pelvis Acceleration (PEV):	36	g's	-
	<u>Front SID</u>		<u>Rear SID</u>																								
Left Upper Rib Acceleration (LUR):	61.5	g's	-																								
Left Lower Rib Acceleration (LLR):	43.4	g's	-																								
Lower Spine Acceleration (T ₁₂):	44.2	g's	-																								
Thoracic Trauma Index (TIT):	53	g's	-																								
Pelvis Acceleration (PEV):	36	g's	-																								
17. Key Words Compliance Testing Side Impact Protection FMVSS 214 Side Impact Dummy (SID)		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Reference Division (TIS) Room 5108 (NPO-230) 400 Seventh St., S.W. Washington, D.C. 20590 Telephone No. (202) 366-4946																									
19. Security Classification of Report UNCLASSIFIED	20. Security Classification of Page UNCLASSIFIED	21. No. of Pages 205	22. Price																								

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	PURPOSE AND TEST PROCEDURE	1-1
2	SUMMARY OF SIDE IMPACT TEST	2-1
3	VEHICLE TEST DATA	3-1
	Data Sheet 1 - General Vehicle Test Parameter Data	3-2
	Data Sheet 2 - Test Vehicle Summary of Results	3-5
	Data Sheet 3 - Moving Deformable Barrier (MDB) Summary	3-6
	Data Sheet 4 - Post Test Observations	3-7
4	OCCUPANT AND VEHICLE INFORMATION	4-1
	Data Sheet 5 - SID Instrumentation Data	4-2
	Data Sheet 6 - Vehicle Pre- And Post Test Measurements	4-3
	Data Sheet 7 - SID Longitudinal Clearance Dimensions	4-4
	Data Sheet 8 - SID Lateral Clearance Dimensions	4-5
	Data Sheet 9 - Vehicle Side Measurements	4-6
	Data Sheet 10 - Vehicle Exterior Crush Profiles - All Levels	4-7
	Data Sheet 11 - Vehicle Damage Profile Distances	4-8
	Data Sheet 12 - Exterior Static Crush For Impactor Face	4-9
	Data Sheet 13 - Test Vehicle Accelerometer Locations And Data Summary	4-10
	Data Sheet 14 - MDB Accelerometer Locations and Data Summary	4-13
	Data Sheet 15 - High Speed Camera Locations and Data	4-14
5	VEHICLE FUEL SYSTEM INTEGRITY	5-1
	Data Sheet 16 - FMVSS 301 Fuel System Integrity Data	5-2
	Data Sheet 17 - FMVSS 301 Rollover Data	5-3
APPENDIX A	PHOTOGRAPHS	A-1
APPENDIX B	VEHICLE, MDB AND SID RESPONSE DATA	B-1
APPENDIX C	SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA	C-1
APPENDIX D	TEST EQUIPMENT LIST AND CALIBRATION INFORMATION	D-1

SECTION 1

PURPOSE AND TEST PROCEDURE

This side impact test is part of the FMVSS 214 Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-02-D-01114. The purpose of this test was to evaluate side impact protection in a 2003 Porsche Boxster 2-Door Coupe. The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-06, dated July 26, 2001).

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A 2003 Porsche Boxster 2-Door Coupe was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 52.63 kph (32.7 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Veridian Engineering Transportation Sciences Center in Buffalo, New York on March 19, 2003. Pre- and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummy (SID) are included in Appendix A.

One restrained Side Impact Dummy (SID) was placed in the driver (Pos. #1) designated seating positions according to the instructions specified in the OVSC Side Impact Laboratory Test Procedure (TP-214D-06, dated July 26, 2001). The SID was certified prior to this test. The side impact test was documented by one real-time camera and 9 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SID was instrumented with the following accelerometers:

1. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial and redundant accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)
5. Head triaxial accelerometers (X-, Y- and Z-direction)

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 36 channels of data were recorded. Appendix B contains the vehicle, MDB and dummy response data traces.

The following table summarizes the results of the test.

Injury Criteria	Front SID	Rear SID
TTI (g)	53	-
PEV (g)	36	-

FMVSS 214D requires that the TTI not exceed 85 g's for 4 door vehicles and not exceed 90 g's for 2 door vehicles. Peak lateral pelvis acceleration shall not exceed 130 g's.

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET 1

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2003 Porsche Boxster 2-Door Coupe

Vehicle Body Color: Black VIN: WPOCA29823U621767

Vehicle NHTSA No.: C30515 Month & Year of Manufacture: 10/02

Engine Data: 6 Cylinders; - CID; 2.7 Liters; - cc

Engine Placement: X Longitudinal; or - Lateral

Transmission: X Speed; X Manual; - Automatic; - Overdrive

Final Drive: X Rear Wheel Drive; - Front Wheel Drive; - Four Wheel Drive

Odometer Reading 31 km

Options: X A/C; X Power Steering; X Power Brakes; X Power Windows

DATA FROM TIRE PLACARD

Tire Pressure* (at capacity): 200 kPa FRONT
248 kPa REAR
 Front: 205/55ZR16 or 205/50ZR17 or 225/40ZR18
 Rear: 225/50ZR16 or 225/40ZR17 or 265/35ZR18

Recommended Tire Size: Front: 205/50ZR17; Rear: 225/40ZR17 ; Manufacturer: Michelin

Tires on Test Vehicle: Front: 205/50ZR17; Rear: 225/40ZR17 ; Manufacturer: Michelin

Vehicle Capacity Data:

Number of Occupants: 2 Front; - Rear; - 3rd Seat; 2 Total

Type of Front Seat: X Bucket; - Bench; - Split Bench

Type of Rear Seat: - Bucket; - Bench; - Contoured

Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob

Type of Rear Seat Back: - Fixed; - Adjustable with - Lever or - Knob

Vehicle Max Capacity Loading = 230 kg (A)

No. of Occupants x 68.04 kg. = 136.1 kg (B)

Vehicle Cargo Capacity = 93.9 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front =	<u>312.5</u> kg	Left Rear =	<u>372.5</u> kg
Right Front =	<u>314.5</u> kg	Right Rear =	<u>358.5</u> kg
TOTAL FRONT =	<u>627.0</u> kg	TOTAL REAR =	<u>731.0</u> kg
% of Total Weight =	<u>46.2</u> %	% of Total Weight =	<u>53.8</u> %
TOTAL WEIGHT =	<u>1358.0</u> kg		

* Tire pressure used in test.

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Max. Fluids	=	<u>1358.0</u>	kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle	=	<u>93.9</u>	kg (B)
Weight of Instrumented Side Impact Dummies (1 X 81.2 kg)	=	<u>81.2</u>	kg (C)
TEST VEHICLE TARGET WEIGHT:	=	<u>1533.1</u>	kg (A+B+C)

FULLY LOADED TEST VEHICLE (JDVW + 1 or 2 SID(s) + CARGO):

Left Front	=	<u>367.5</u>	kg	Left Rear	=	<u>426.0</u>	kg
Right Front	=	<u>350.5</u>	kg	Right Rear	=	<u>393.0</u>	kg
TOTAL FRONT	=	<u>718.0</u>	kg	TOTAL REAR	=	<u>819.0</u>	kg
% of Total Weight	=	<u>46.7%</u>	%	% of Total Weight	=	<u>53.3%</u>	%
TOTAL TEST WEIGHT =		<u>1537.0</u>	kg				

AS TESTED WEIGHT OF TEST VEHICLE (1 OR 2 SID(s) + CARGO + EQUIPMENT & INSTRUMENTATION):

Left Front	=	<u>357.5</u>	kg	Left Rear	=	<u>437.0</u>	kg
Right Front	=	<u>336.5</u>	kg	Right Rear	=	<u>395.0</u>	kg
TOTAL FRONT	=	<u>694.0</u>	kg	TOTAL REAR	=	<u>832.0</u>	kg
% of Total Weight	=	<u>45.5%</u>	%	% of Total Weight	=	<u>54.5%</u>	%
TOTAL TEST WEIGHT =		<u>1526</u>	kg				

TEST VEHICLE ATTITUDE (all dimensions in millimeters):

AS DELIVERED:

Left Front	<u>681</u>	Right Front	<u>682</u>	Left Rear	<u>685</u>	Right Rear	<u>686</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

FULLY LOADED:

Left Front	<u>664</u>	Right Front	<u>670</u>	Left Rear	<u>667</u>	Right Rear	<u>673</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

READY FOR TEST:

Left Front	<u>667</u>	Right Front	<u>672</u>	Left Rear	<u>667</u>	Right Rear	<u>673</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

Test Vehicle Wheelbase: 2421 millimeters

C.G. = 1319.97 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side =	<u>4150</u>	millimeters
Left Side =	<u>4143</u>	millimeters
Centerline =	<u>4326</u>	millimeters

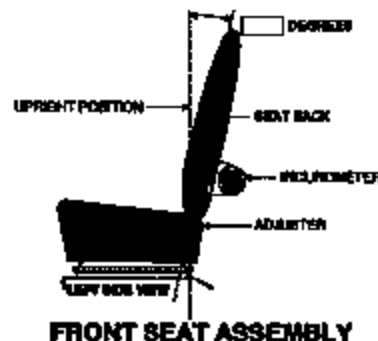
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515

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



FRONT SEAT CUSHION PLACEMENT:

Placed in its mid-fore/aft and lowest position

Total Length of Adjustment Travel: 219 millimeters

Total Number of Adjustment Positions or Detents: -

FRONT SEAT BACK ADJUSTMENT POSITION:

Positioned so that the 3-dimensional H-point machine back pan angle read 25 degrees

Seat Back Torso Angle: 25 degrees

SECOND POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: - millimeters

Seat Back Adjustment Position: -

ADJUSTABLE STEERING COLUMN POSITION:

Placed in mid fore/aft position, column does not tilt

WINDOW POSITIONS:

Left Front: Closed

Left Rear: -

Right Front: Open

Right Rear: -

Note: Windows will be in closed position on struck side of test vehicle and in open position on opposite side.

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

64 liters (Fuel Tank Usable Capacity)

59.1 liters used for test (92%-94% of Fuel Tank Usable Capacity)

LOCATION OF IMPACT POINT ON TEST VEHICLE SIDE TO BE IMPACTED:

Wheelbase = 2421 millimeters

Impact Point is 270.5 millimeters rearward of front axle centerline

(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 274.5 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 2003 Porsche Boxster

Body Style: 2-Door Coupe

VIN: WFOCA29823U621767

NHTSA No.: C30515

Test Date: March 19, 2003

Overall Length = 4326 millimeters; Overall Width = 1731 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 357.5 kg Left Rear = 437.0 kg

Right Front = 336.5 kg Right Rear = 395.0 kg

TOTAL FRONT = 694.0 kg TOTAL REAR = 832.0 kg

TOTAL VEHICLE WEIGHT 1526.0 kg

Wheelbase = 2421 millimeters

Longitudinal C.G. from Center of Front Axle = 1319.97 millimeters

Impact Angle with Respect to Impactor = 90 degrees

ACTUAL IMPACT POINT

Actual Impact Point is 4 mm rearward of nominal impact ref. line (Lateral)

Actual Impact Point is 2 mm below nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (205 mm above ground) = 50 millimeters

2. LEVEL 2 (353 mm above ground) = 154 millimeters

3. LEVEL 3 (550 mm above ground) = 128 millimeters

4. LEVEL 4 (775 mm above ground) = 100 millimeters

5. LEVEL 5 (1162 mm above ground) = 36 millimeters

Maximum Post-Test Intrusion = 154 millimeters

OCCUPANTS:

Front Passenger:

Rear Passenger:

Dummy Identification 268 -

Restraints Used 3-point seat belt and side head/thorax combination airbag -

INSTRUMENTATION:

Number of Vehicle Data Channels: = 20

Number of Cameras: Onboard = 2

Offboard = 7

TOTAL = 9

DATA SHEET 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore: 036B1202-4; 005C1002

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to left

MDB DETAILS:

Overall Width of Framework Carriage	=	<u>1250</u>	millimeters
Overall Length of MDB (incl. honeycomb impact face)	=	<u>4120</u>	millimeters
Wheelbase of Framework Carriage	=	<u>2590</u>	millimeters
Tread of Framework Carriage (Front & Rear)	=	<u>1875</u>	millimeters
C.G. Location Rearward of Front Axle	=	<u>1104</u>	millimeters

MDB WEIGHT:

Left Front	=	<u>409.5</u>	kg	Left Rear	=	<u>281.5</u>	kg
Right Front	=	<u>372.5</u>	kg	Right Rear	=	<u>299.0</u>	kg
TOTAL FRONT =		<u>782.0</u>	kg	TOTAL REAR =		<u>580.5</u>	kg
TOTAL MDB WEIGHT =		<u>1362.5</u>	kg				
Impact Angle (MDB C/L to Target Vehicle C/L)	=	<u>90</u>	degrees				
Impact Speed	=	<u>52.63</u>	kph				

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level	=	<u>182</u>	millimeters
2. Row B at Top of Bumper Level	=	<u>138</u>	millimeters
3. Row C at Mid Level	=	<u>105</u>	millimeters
4. Row D at Top of Stack Level	=	<u>105</u>	millimeters

INSTRUMENTATION:

Number of MDB Data Channels	=	<u>5</u>
-----------------------------	---	----------

DATA SHEET 4**POST-TEST OBSERVATIONS**Vehicle: 2003 Porsche Boxster 2-Door CoupeNHTSA No. C30515**VISIBLE DUMMY CONTACT POINTS:****LEFT FRONT SID****LEFT REAR SID**Head: Top of head to side header; Side of head to upper half of head/thorax combination side airbag

-

Upper Torso: Left arm and torso to lower half of head/thorax combination side airbag

-

Lower Torso: Pelvis to rear section of door trim below armrest

-

Left Knee: Left knee to door trim rear of speaker cover

-

Right Knee: Right knee to left knee

-

DOOR OPENING:**LEFT DOOR****RIGHT DOOR**Front: Closed / Latched / InoperableClosed / Latched / OperableRear: -

-

MIDB DISTANCE FROM TARGET IMPACT POINT:Vertical: 2 mm below targetHorizontal: 4 mm rearward of target**ARM REST LOCATIONS:**Front: 275 mm below bottom of side window openingRear: -**SEAT MOVEMENT:**Front: NoneRear: -**GLAZING DAMAGE:**Windshield: Windshield cracked at the left lower cornerWindow: Left side window shattered at impact**PILLAR PERFORMANCE:**No visible tears or separations**SILL SEPARATION:**None**AIR BAG DEPLOYMENT STATUS:**

	DRIVER	FRONT PASSENGER	REAR PASSENGER
FRONT	No	No	-
SIDE	Yes	No	-

OTHER NOTABLE IMPACT EFFECTS:None

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5
SID INSTRUMENTATION DATA

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515

	Front Dummy ID# 268				Rear Dummy ID# -			
	Pos. Direction		Neg. Direction		Pos. Direction		Neg. Direction	
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
HEAD ACCELERATIONS:								
Longitudinal X	5.1	74.9	-19.8	18.3	-	-	-	-
Lateral Y	61.2	41.2	-25.6	15.4	-	-	-	-
Vertical Z	28.1	39.6	-22.7	56.1	-	-	-	-
Resultant R	63.3	45.7	-	-	-	-	-	-
HIC	149.5							
RIB ACCELERATIONS:								
Upper Rib Lateral Y	61.5	15.6	-36.8	20.7	-	-	-	-
Upper Rib Lateral Y(R)	60.8	15.6	-36.9	20.7	-	-	-	-
Lower Rib Lateral Y	43.4	14.4	-30.2	20.6	-	-	-	-
Lower Rib Lateral Y(R)	37.2	45.0	-29.9	20.6	-	-	-	-
SPINE ACCELERATIONS:								
Lower Lateral Y	44.2	46.2	-5.7	185.6	-	-	-	-
Lower Lateral Y(R)	43.4	46.2	-5.5	185.6	-	-	-	-
PELVIC ACCELERATIONS:								
Lateral Y	36.0	42.5	-5.5	173.1	-	-	-	-
Lateral Y(R)	35.9	42.5	-5.5	173.7	-	-	-	-

REFERENCE: Positive Direction -
 Longitudinal (X) = forward
 Lateral (Y) = to right
 Vertical (Z) = down

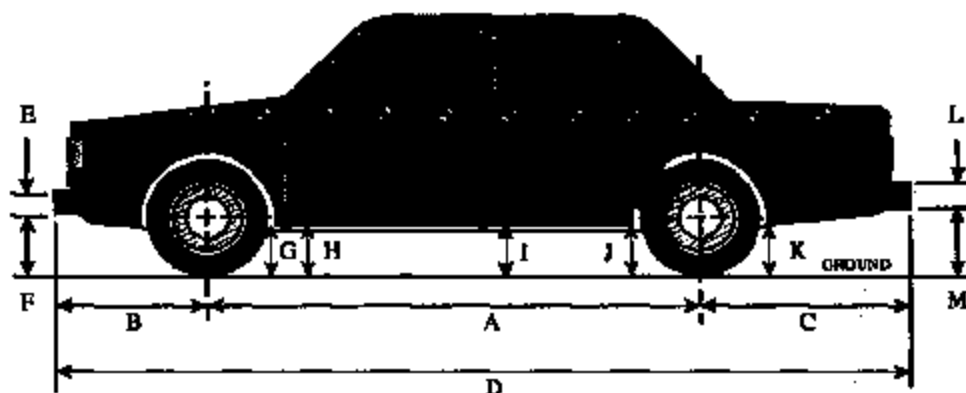
Note: Above data has been FIR filtered, Y(R) denotes redundant Y direction accelerometer.
 Head Accelerations are filtered at SAE Class 1000.

DATA SHEET 6

VEHICLE SIDE MEASUREMENTS

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515



LEFT SIDE VIEW

NOTE: all dimensions are in millimeters with tolerance of ± 3 mm

	PRE-TEST (as delivered)	PRE-TEST (as tested)	POST-TEST (as tested)	Δ CHANGE
A	2418	2421	2415	-6
B	1022	1022	1024	2
C	886	883	883	0
D	4326	4326	4322	-4
E	420	-	421	1
F	185	168	186	18
G	168	151	181	30
H	168	152	179	27
I	173	156	166	10
J1	153	138	143	5
J2	166	149	164	15
K	198	178	160	-18
L	359	-	353	-6
M	333	325	335	10
N	584	-	532	-52
O	603	-	594	-9
P	623	-	616	-7
Q	339	-	327	-12
R	4150	-	4154	4
S	4143	-	4141	-2
T	1731	-	1670	-61

D = Length at Centerline

E&L = Bumper Thickness

R = Right Side Length

S = Left Side Length

T = Width at B-Pillar

J1 = To Pinch Weld

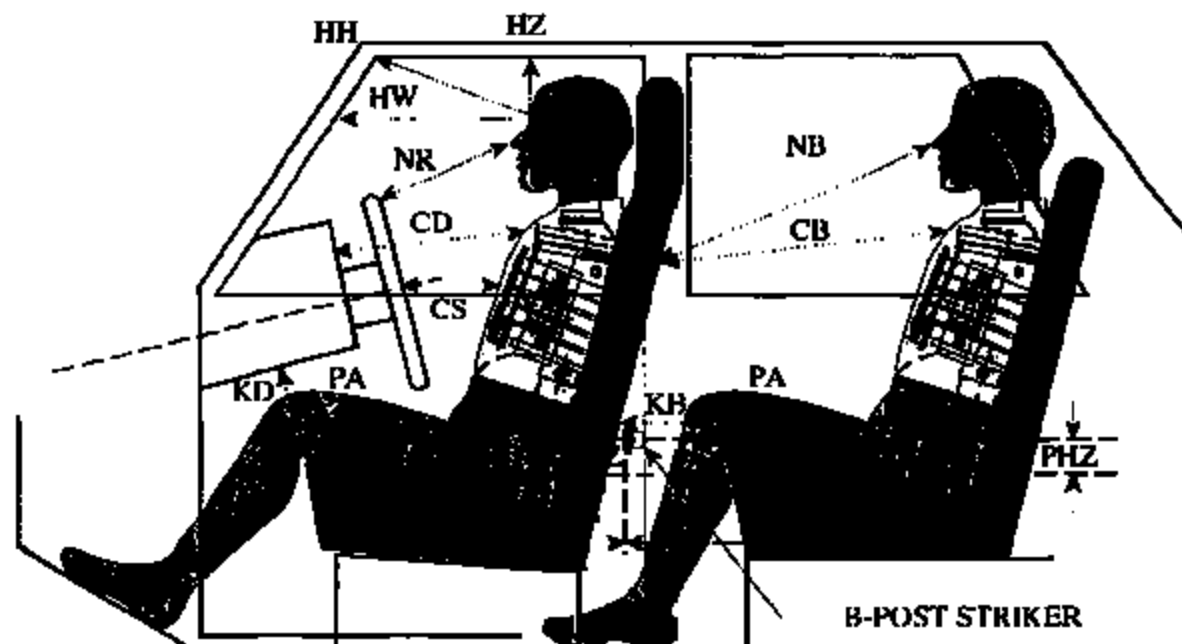
J2 = To Sill

DATA SHEET 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

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

	DRIVER ID# 268	LEFT REAR PASS. ID# -
HH	515	N/A
HW	722	N/A
HZ	164	-
NR/NB	490	-
CD/CB	542	-
CS	323	N/A
KDL(KDA°)/KBL(KDA°)	166 / (42 °)	- / (- °)
KDR(KBA°)/KBR(KBA°)	166 / (42 °)	- / (- °)
PA°	24 °	- °
PHX	388	-
PHZ	225	-

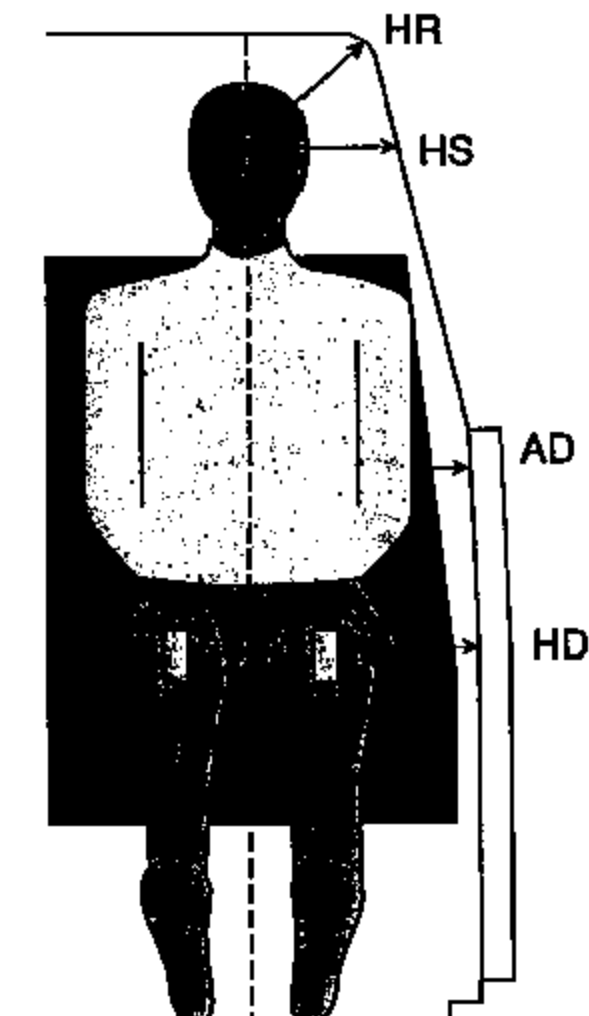
Note: 2-door vehicle shown. Rear dummy PHX & PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

DATA SHEET 8

SID LATERAL CLEARANCE DIMENSIONS

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515



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

	DRIVER ID # 268	LEFT REAR PASS. ID # -
HR	208	-
HS	291	-
AD*	LOWER: 72 UPPER: 85	LOWER: - UPPER: -
HD	150	-

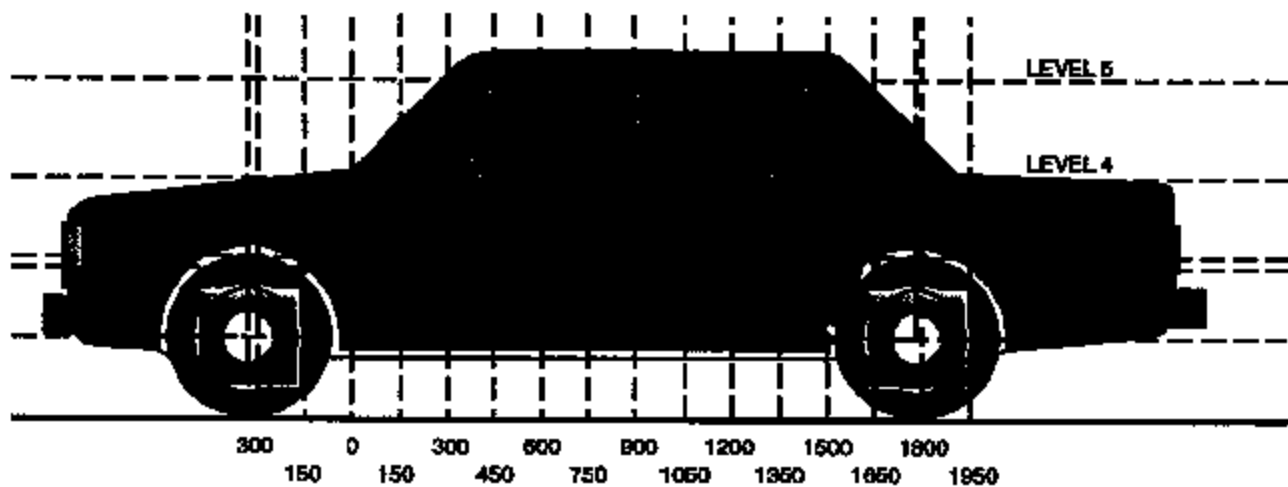
* Lower measurement is taken laterally at the center of the lower rib accelerometer height from the SID arm to the closest part of the vehicle side. Upper measurement is taken laterally at the center of the upper rib accelerometer height from the SID arm to the closest part of the vehicle side.

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515



LEFT SIDE VIEW

NOTE: All measurements are in millimeters (mm)

- LEVEL 5 - WINDOW TOP
- LEVEL 4 - WINDOW SILL
- LEVEL 3 - MID-DOOR
- LEVEL 2 - OCCUPANT H-POINT
- LEVEL 1 - SILL TOP HEIGHT

MEASUREMENTS ARE TAKEN WHEN THE VEHICLE IS IN THE "AS TESTED" CONFIGURATION.

Measurements Along the Vertical 750 mm Line Shown Above:

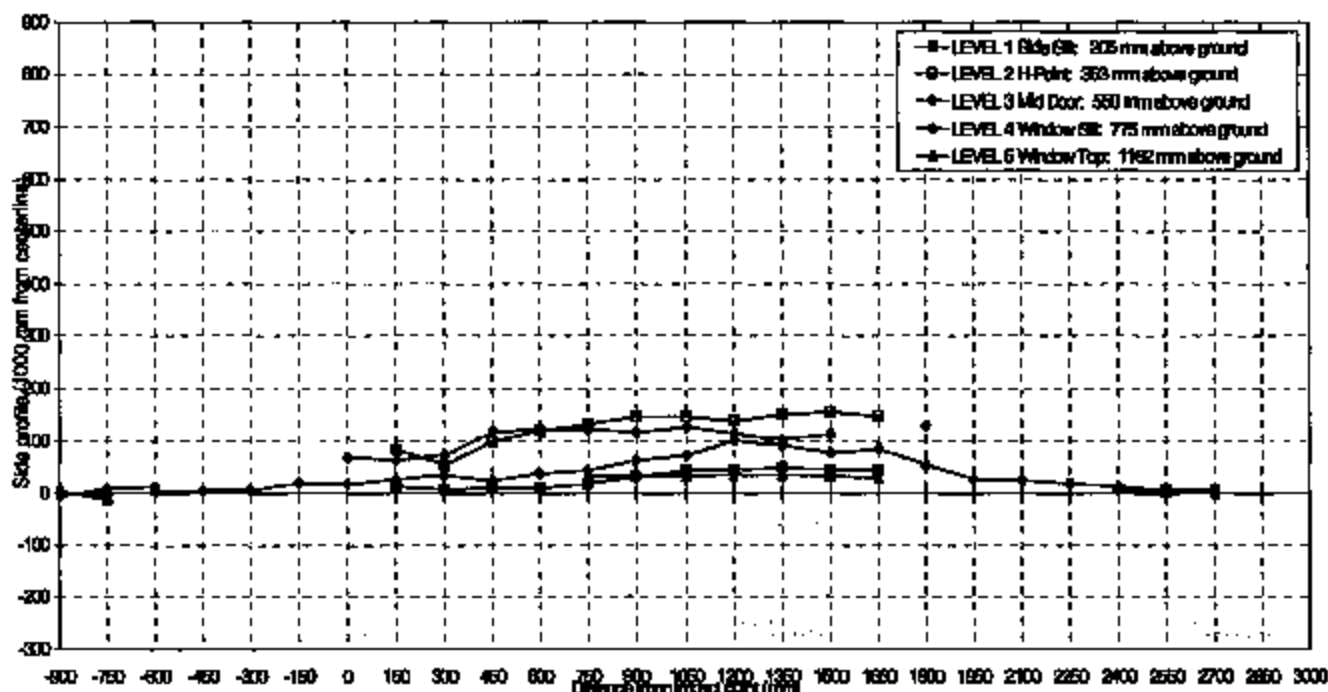
Level 5 @ Window Top	=	<u>1162</u>	millimeters
Level 4 @ Window Sill	=	<u>775</u>	millimeters
Level 3 @ Mid Door	=	<u>550</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>353</u>	millimeters
Level 1 @ Sill Top Height	=	<u>205</u>	millimeters

DATA SHEET 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515



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

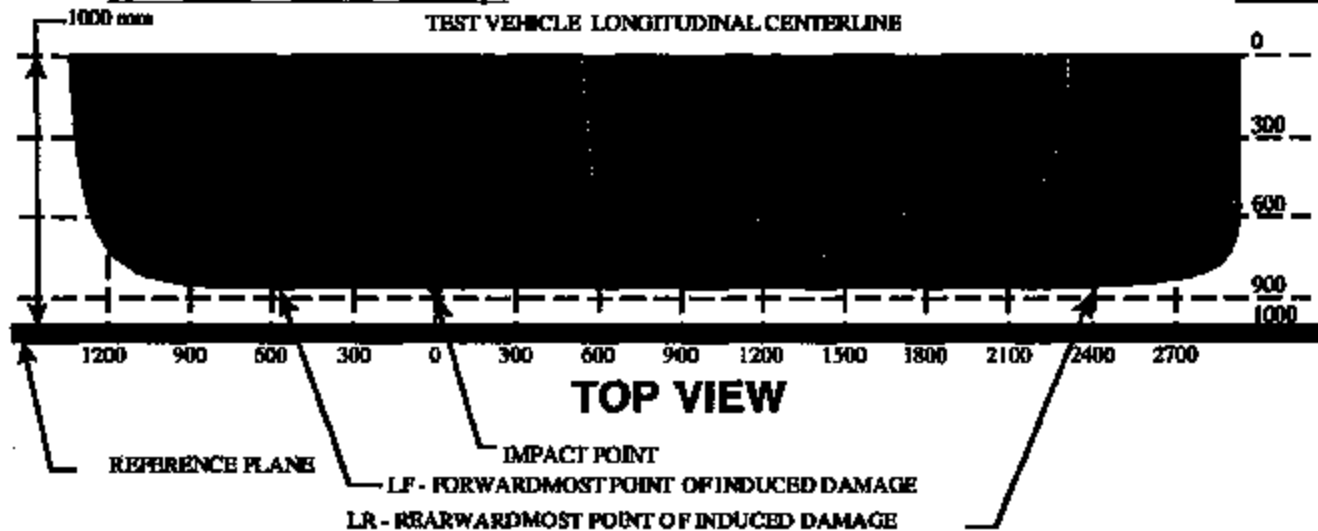
		DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT																													
LEVEL	HEIGHT (mm)		-900	-750	-600	-450	-300	-150	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850	3000			
LEVEL 1 SIDE SILL	205	PRE	235	302	--	--	--	--	189	169	173	174	171	173	175	173	165	161	149	--	--	--	--	--	220	307	--	--			
		POST	239	190	--	--	--	--	181	178	184	184	180	205	218	218	215	208	183	--	--	--	--	--	224	315	--	--			
		CRUSH	4	-12	N/A	N/A	N/A	N/A	13	7	11	10	19	32	43	45	50	45	45	N/A	N/A	N/A	N/A	N/A	4	8	N/A	N/A			
LEVEL 2 H POINT	353	PRE	241	199	--	--	--	--	149	162	185	180	182	158	159	165	147	143	139	--	--	--	--	--	181	230	--	--			
		POST	239	199	--	--	--	--	232	207	255	279	292	309	304	283	297	287	298	--	--	--	--	--	188	231	--	--			
		CRUSH	-2	-2	N/A	N/A	N/A	N/A	83	55	99	119	130	145	145	137	150	154	147	N/A	N/A	N/A	N/A	N/A	8	1	N/A	N/A			
LEVEL 3 MID DOOR	550	PRE	280	207	157	--	--	--	127	136	138	140	140	141	138	136	138	129	--	108	--	--	--	131	188	219	--	--			
		POST	280	216	169	--	--	--	191	209	253	280	281	287	282	280	240	240	--	237	--	--	--	138	174	222	--	--			
		CRUSH	-6	9	12	N/A	N/A	N/A	64	73	117	120	121	136	126	113	102	112	N/A	128	N/A	N/A	N/A	7	6	3	N/A	N/A			
LEVEL 4 WINDOW SILL	775	PRE	--	--	281	292	251	218	208	199	208	201	201	198	198	191	182	187	181	180	169	168	180	205	282	384	--	--			
		POST	--	--	365	287	267	236	230	234	238	238	245	261	260	261	284	265	258	224	197	180	200	216	288	383	--	--			
		CRUSH	N/A	N/A	4	5	6	20	22	35	25	38	44	63	73	300	92	78	85	55	28	25	20	13	6	-1	N/A	N/A			
LEVEL 5 WINDOW TOP	1162	PRE	--	--	--	--	--	--	--	--	--	--	--	502	426	424	444	481	648	751	--	--	--	--	--	--	--	--			
		POST	--	--	--	--	--	--	--	--	--	--	--	594	460	468	478	517	680	781	--	--	--	--	--	--	--	--			
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	32	34	34	35	35	34	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515



MEASUREMENT CONVENTIONS:

Forward of the impact point (towards front of vehicle) is considered negative (—).
Rearward of the impact point (toward rear of vehicle) is considered positive (+).

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

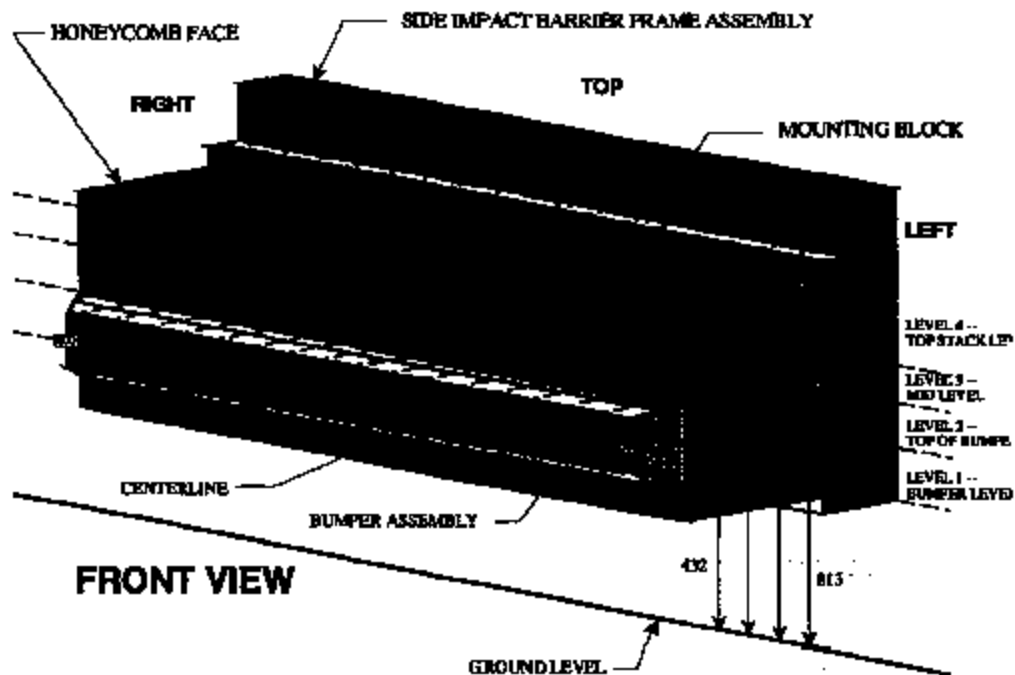
DPD MEASUREMENTS		POST TEST (mm)	PRETEST (mm)	STATIC CRUSH (mm)
1	(LR = 2700 mm)	315	307	8
2	1980	196	169	27
3	1260	295	152	143
4	540	257	138	119
5	-180	242	225	17
6	(LF = -900 mm)	239	235	4

DATA SHEET 12

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515



NOTE: Dimensions are shown in millimeters, mm

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

LEVEL	HEIGHT AT CL (mm)*		DISTANCE RIGHT OF CENTER (mm)								DISTANCE LEFT OF CENTER (mm)							
			800	700	600	500	400	300	200	100	100	200	300	400	500	600	700	800
LEVEL 4 TOP STACK	813	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619
		POST	706	671	639	642	614	616	620	624	639	647	638	672	689	703	714	724
		CRUSH	87	52	40	23	-5	-3	1	5	20	28	39	53	70	84	95	105
LEVEL 3 MID LEVEL	686	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619
		POST	700	691	705	687	654	632	631	635	644	653	674	691	704	723	724	719
		CRUSH	81	72	86	68	35	13	12	16	25	36	55	72	85	104	105	100
LEVEL 2 TOP BUMPER	533	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619
		POST	735	731	729	725	718	706	698	697	704	708	714	722	735	752	757	754
		CRUSH	116	112	110	106	99	87	79	78	85	89	95	103	116	133	138	135
LEVEL 1 MID BUMPER	432	PRE	535	519	518	518	518	518	518	518	518	518	518	518	518	518	519	535
		POST	677	663	657	652	648	636	628	624	626	631	639	650	669	700	687	689
		CRUSH	142	144	139	134	130	118	110	106	106	113	121	132	151	182	168	154

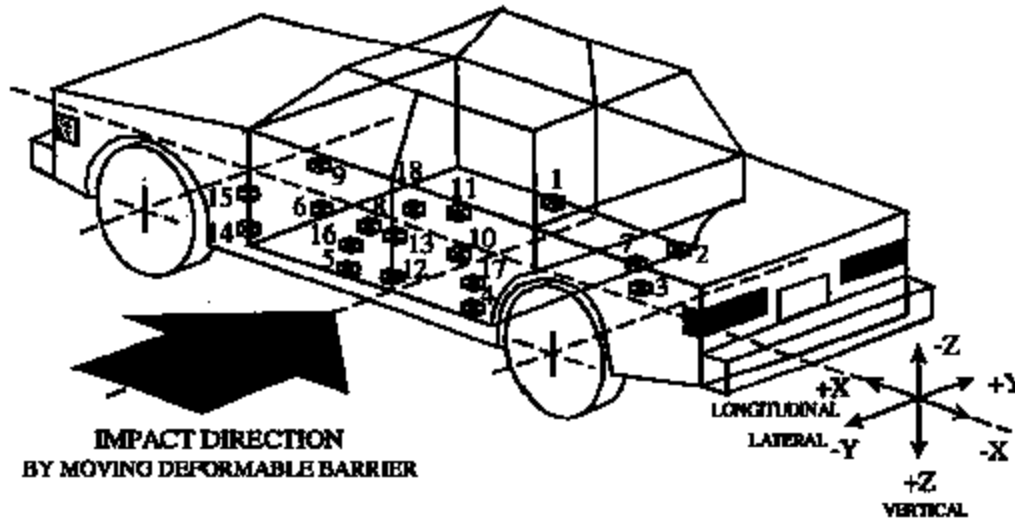
*Heights measured above ground level.

DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515



- 1-Right Side Sill @ Front Seat
- 2-Right Side Sill @ Rear Seat
- 3-Rear Floorpan Above Axle
- 4-Left Side Sill @ Rear Seat
- 5-Left Side Sill @ Front Seat
- 6-Left Front Door on Centerline
- 7-Right Rear Occupant Compartment
- 8-Midrear of Left Front Door
- 9-Left Front Door Upper Centerline

- 10-Midrear of Left Rear Door
- 11-Left Rear Door Upper Centerline
- 12-Left Lower B-Pillar
- 13-Left Middle B-Pillar
- 14-Left Lower A-Pillar
- 15-Left Middle A-Pillar
- 16-Front Seat Track
- 17-Rear Seat Track
- 18-Vehicle CG

DATA SHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515

Accel. No.	Location	Coordinates (mm)±3			Long. (x)		Lat. (y)		Vert. (z)		Resultant	
		X*	Y*	Z*	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
1	Right Side Sill at Front Seat	2531	648	-223	pos. 1.2	109.7	18.5	31.6	6.8	26.3	19.4	8.2
					neg. -4.4	33.1	-3.0	65.1	-8.1	8.1	-	-
2†	Right Side Sill at Rear Seat	1898	647	-224	pos. 3.0	65.7	24.5	31.0	7.2	37.5	24.7	31.0
					neg. -1.5	46.5	-2.8	68.0	-4.8	16.8	-	-
3	Rear Floorpan Above Axle	883	-12	-718	pos. 6.4	34.3	24.2	24.0	6.1	18.7	26.1	23.8
					neg. -10.1	47.2	-5.3	75.2	-9.1	24.1	-	-
4†	Left Side Sill at Rear Seat	1771	-615	-194	pos. -	-	24.2	5.0	-	-	-	-
					neg. -	-	-1.3	78.9	-	-	-	-
5	Left Side Sill at Front Seat	2626	-648	-285	pos. -	-	50.2	4.4	-	-	-	-
					neg. -	-	-3.2	47.7	-	-	-	-
6**	Left Front Door on Centerline	-	-	-	pos. -	-	-	-	-	-	-	-
					neg. -	-	-	-	-	-	-	-
7	Right Rear Occupant Compartment	1861	524	-150	pos. -	-	20.0	29.7	-	-	-	-
					neg. -	-	-2.3	68.7	-	-	-	-
8**	Midrear of Left Front Door	-	-	-	pos. -	-	-	-	-	-	-	-
					neg. -	-	-	-	-	-	-	-
9**	Left Front Door Upper Centerline	-	-	-	pos. -	-	-	-	-	-	-	-
					neg. -	-	-	-	-	-	-	-
10**	Midrear of Left Rear Door	-	-	-	pos. -	-	-	-	-	-	-	-
					neg. -	-	-	-	-	-	-	-
11**	Left Rear Door Upper Centerline	-	-	-	pos. -	-	-	-	-	-	-	-
					neg. -	-	-	-	-	-	-	-

*Reference: X - Rear Bumper (+ Forward) Y - Vehicle Centerline (+ To Right) Z - Ground Level (+ Down)

**Accelerometer was not requested by COTR.

† Vehicle did not have rear occupant seating positions, sensor was placed at the rear-most possible location on the side sills.

DATA SHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30313

Accel. No.	Location	Coordinates (mm) ±3 mm			Long. (x)		Lat. (y)		Vert. (z)		Resultant	
		X*	Y*	Z*	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
12	Left Lower B-Pillar	1626	-519	-457	-	-	66.2	10.3	-	-	-	-
					-	-	-32.7	13.4	-	-	-	-
13	Left Middle B-Pillar	1528	-521	-762	-	-	51.5	10.4	-	-	-	-
					-	-	-10.4	18.7	-	-	-	-
14	Left Lower A-Pillar	2839	-545	-455	-	-	43.3	6.1	-	-	-	-
					-	-	-4.3	68.5	-	-	-	-
15	Left Middle A-Pillar	2551	-620	-886	-	-	26.3	17.4	-	-	-	-
					-	-	-3.0	110.3	-	-	-	-
16	Front Seat Track	1861	-532	-155	-	-	21.4	27.0	-	-	-	-
					-	-	-1.7	89.9	-	-	-	-
17**	Rear Seat Track	-	-	-	-	-	-	-	-	-	-	-
18	Vehicle CG	1854	53	-393	3.2	26.5	20.0	7.7	8.5	21.6	20.8	7.7
					-8.8	16.6	-2.3	87.0	-10.4	13.1	-	-

*Reference: X - Rear Bumper (+ Forward) Y - Vehicle Centerline (+ To Right) Z - Ground Level (+ Down)

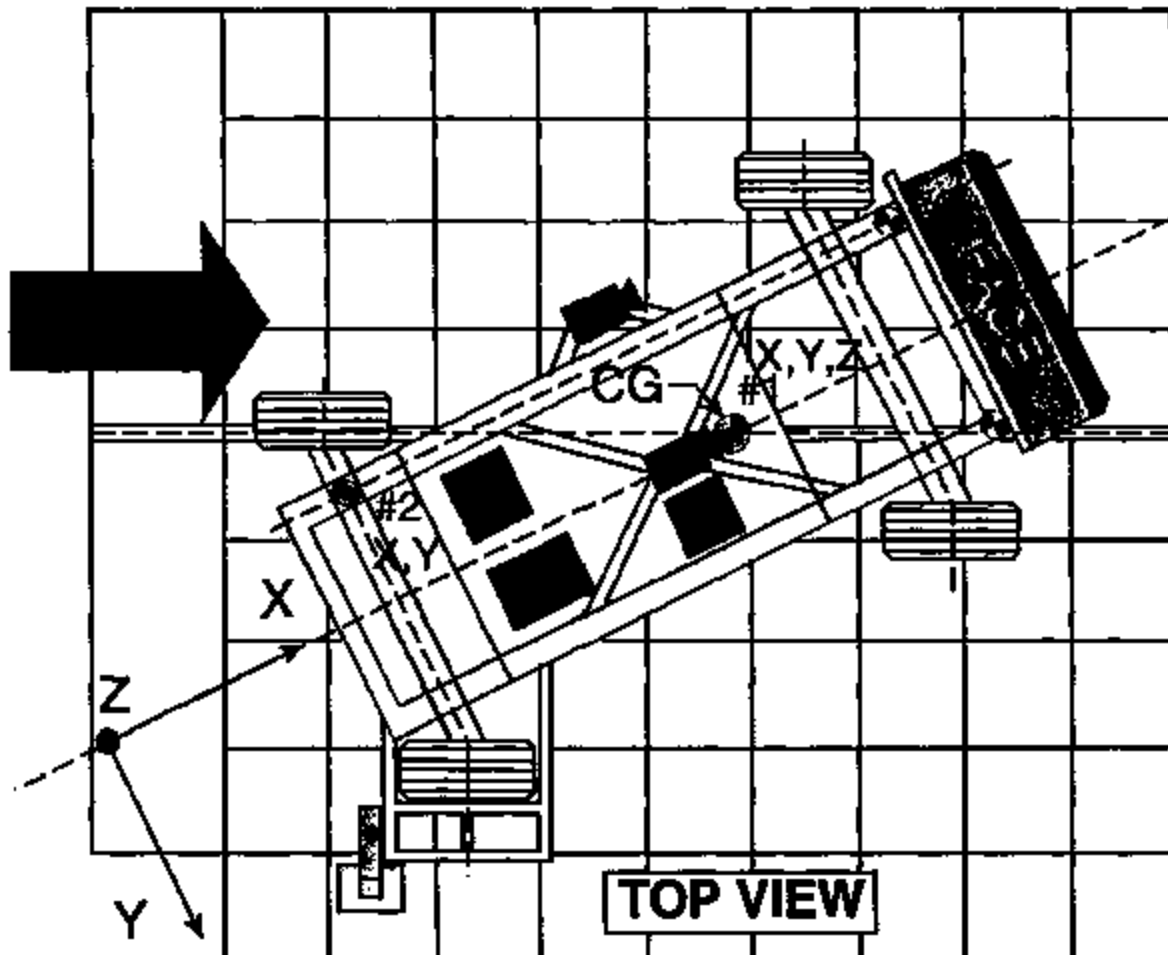
** Vehicle did not have rear occupant seating positions.

DATA SHEET 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515



Accel. No.	Location	Coordinates (millimeters)			Pos. Direct.		Neg. Direct.	
		X*	Y*	Z*	Max (g)	Time (msec)	Max (g)	Time (msec)
1	MDB Center of Gravity							
	Longitudinal... X	1859	0	-330	0.8	93.4	-19.3	35.0
	Lateral..... Y				2.7	59.9	-8.4	15.3
	Vertical..... Z				20.0	56.5	-21.7	50.7
	Resultant..... R				25.5	50.5	-	-
2	Rear Frame Member							
	Longitudinal... X	386	-660	-660	1.3	101.3	-23.4	36.1
	Lateral..... Y				3.6	12.5	-1.8	59.6

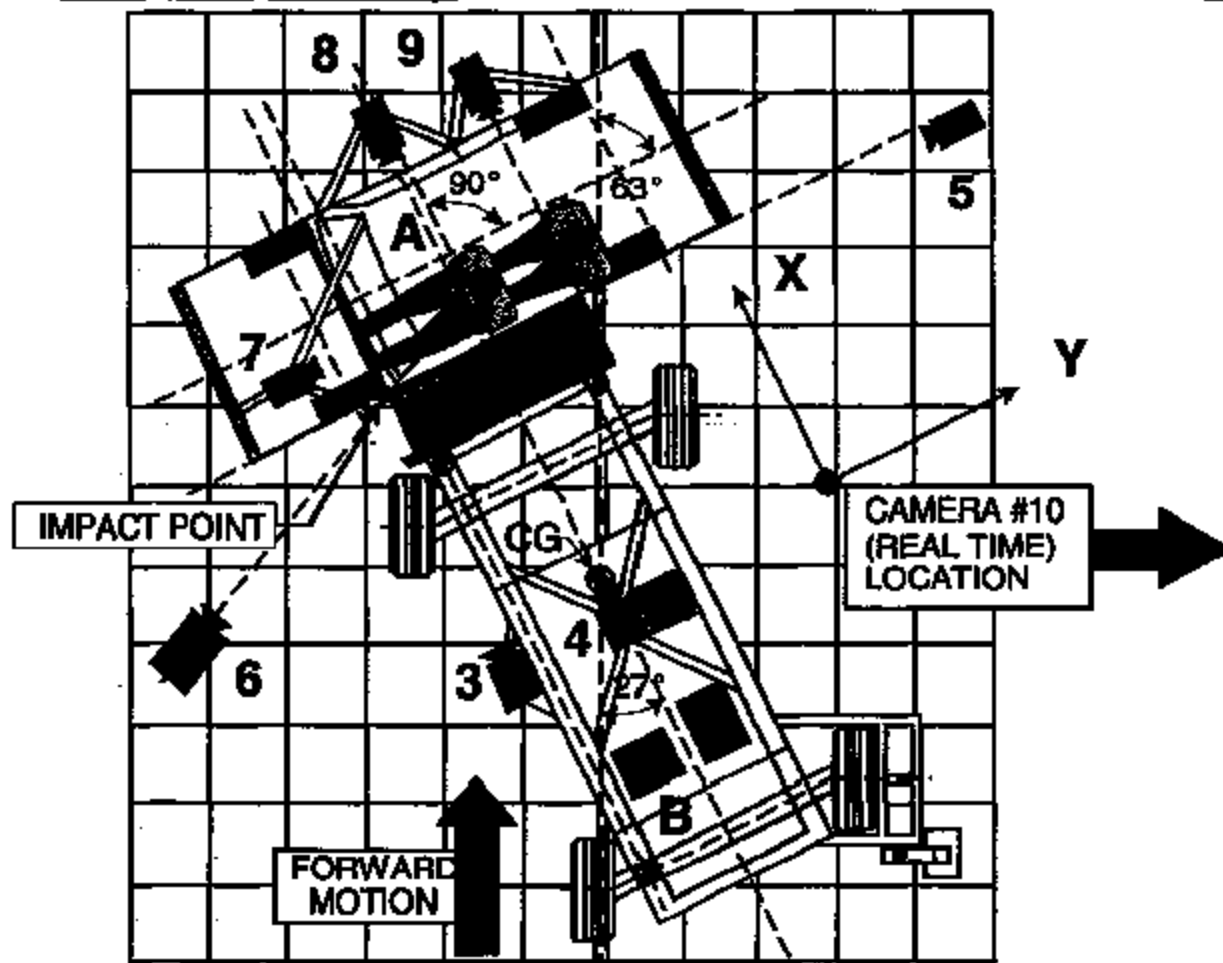
*Reference: X = Rear Bumper (+ Forward)
Y = Vehicle Centerline (+ To Right)
Z = Ground Level (+ Down)
All measurements accurate to within ± 3 mm.

DATA SHEET 15

HIGH SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No. C30515



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Overhead view of test vehicle	99	820	-4880	-90	8	1015
2	Overhead closeup view of impact plane	228	878	-4880	-90	12.5	1020
3	MDB onboard closeup view of impact point	-1470	0	-847	0	13	1030
4	MDB onboard view of driver dummy	-1140	838	-1586	-17	7.5	1035
5	Right side ground level overall view	80	9150	-1065	-3	25	1005
6	Left side ground level overall view	-1512	-1655	-1074	-7	13	1020
7	Test vehicle onboard driver front view	540	-362	-1134	-11	13	1015
8	Test vehicle onboard driver side view	1705	-1018	-945	-13	8	1020
9**	Test vehicle onboard passenger side view	-	-	-	-	8	-
10	Real time film coverage of test	-	-	-	-	-	24

* Reference (from point of impact); all measurements accurate to within ± 6 mm.

X = (Impact Point) + Forward

Y = (Impact Point) + To Right

Z = (Ground Level) + Down

** Vehicle did not have rear occupant seating positions, camera not installed.

SECTION 5

FUEL SYSTEM INTEGRITY

DATA SHEET 16

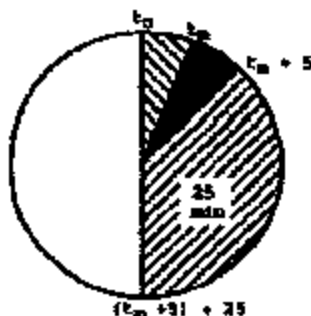
FMVSS 301 FUEL SYSTEM INTEGRITY DATA

NHTSA No.: C30515 TEST DATE: March 19, 2003
 Vehicle Mfr./Make/Model: DR. ING. H.C. F. Porsche AG, 2003 Porsche Boxster 2-Door Coupe

TEST VEHICLE IMPACT TYPE:

- Frontal (48.28 kph)
- Oblique (48.28 kph) with 0° barrier face first
 contacting the side
 (driver/passenger)
- Rear Moving Barrier (48.28 kph)
- Lateral Moving Barrier (32.19 kph)
- X Side Impact Moving Deformable Barrier (52.63 kph)
 contacting the driver side side
 (driver/passenger)

FUEL SPILLAGE MEASUREMENT:



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

ACTUAL	MAX ALLOWED
0 g	28 g
0 g	142 g
0 g	28 g/1 min.

SOLVENT SPILLAGE DETAILS:

None

DATA SHEET 17

ROLLOVER DATA

Vehicle: 2003 Porsche Boxster 2-Door Coupe

NHTSA No.: C30515



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Stage	Rotation Time (spec. 1-3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	5	seconds	5	minutes	6	minutes	5	seconds	7	minutes
90° - 180°	1	minutes	2	seconds	5	minutes	6	minutes	2	seconds	7	minutes
180° - 270°	1	minutes	7	seconds	5	minutes	6	minutes	7	seconds	7	minutes
270° - 360°	1	minutes	10	seconds	5	minutes	6	minutes	10	seconds	7	minutes

II. FMVSS 301 REQUIREMENTS: (Maximum allowable solvent spillage):

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S):

Rollover Stage	Spillage Location
0° - 90°	None
90° - 180°	None
180° - 270°	None
270° - 360°	None

APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Figure	Photograph Title	Page
Figure A- 1	PRE-TEST FRONTAL VIEW OF TEST VEHICLE	A- 3
Figure A- 2	POST-TEST FRONTAL VIEW OF TEST VEHICLE	A- 4
Figure A- 3	PRE-TEST REAR VIEW OF TEST VEHICLE	A- 5
Figure A- 4	POST-TEST REAR VIEW OF TEST VEHICLE	A- 6
Figure A- 5	PRE-TEST IMPACTED SIDE VIEW OF TEST VEHICLE	A- 7
Figure A- 6	POST-TEST IMPACTED SIDE VIEW OF TEST VEHICLE	A- 8
Figure A- 7	PRE-TEST FRONTAL VIEW OF IMPACTOR FACE	A- 9
Figure A- 8	POST-TEST FRONTAL VIEW OF IMPACTOR FACE	A- 10
Figure A- 9	PRE-TEST LEFT SIDE VIEW OF IMPACTOR FACE	A- 11
Figure A- 10	POST-TEST LEFT SIDE VIEW OF IMPACTOR FACE	A- 12
Figure A- 11	PRE-TEST RIGHT SIDE VIEW OF IMPACTOR FACE	A- 13
Figure A- 12	POST-TEST RIGHT SIDE VIEW OF IMPACTOR FACE	A- 14
Figure A- 13	PRE-TEST TOP VIEW OF IMPACTOR FACE	A- 15
Figure A- 14	POST-TEST TOP VIEW OF IMPACTOR FACE	A- 16
Figure A- 15	PRE-TEST OVERHEAD VIEW OF ALIGNED MDB AND VEHICLE	A- 17
Figure A- 16	POST-TEST OVERHEAD VIEW OF MDB AND VEHICLE	A- 18
Figure A- 17	PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID	A- 19
Figure A- 18	POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID	A- 20
Figure A- 19	PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID	A- 21
Figure A- 20	POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID	A- 22
Figure A- 21	PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID	A- 23
Figure A- 22	POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID	A- 24
Figure A- 23	PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID	A- 25
Figure A- 24	POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID	A- 26
Figure A- 25	PRE-TEST INTERIOR OF FRONT DOOR	A- 27
Figure A- 26	POST-TEST INTERIOR OF FRONT DOOR SHOWING SID IMPACT LOCATIONS	A- 28
Figure A- 27	PRE-TEST INTERIOR OF REAR DOOR	A- 29
Figure A- 28	POST-TEST INTERIOR OF REAR DOOR SHOWING SID IMPACT LOCATIONS	A- 30
Figure A- 29	PRE-TEST LEFT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION	A- 31
Figure A- 30	PRE-TEST RIGHT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION	A- 32
Figure A- 31	POST-TEST CLOSE-UP VIEW OF IMPACT POINT TARGET	A- 33
Figure A- 32	CLOSE-UP VIEW OF VEHICLE'S CERTIFICATION LABEL	A- 34
Figure A- 33	CLOSE-UP VIEW OF VEHICLE'S TIRE PLACARD LABEL	A- 35
Figure A- 34	IMPACT PHOTO	A- 36
Figure A- 35	ROLLOVER 90 DEGREES	A- 37
Figure A- 36	ROLLOVER 180 DEGREES	A- 38
Figure A- 37	ROLLOVER 270 DEGREES	A- 39
Figure A- 38	ROLLOVER 360 DEGREES	A- 40

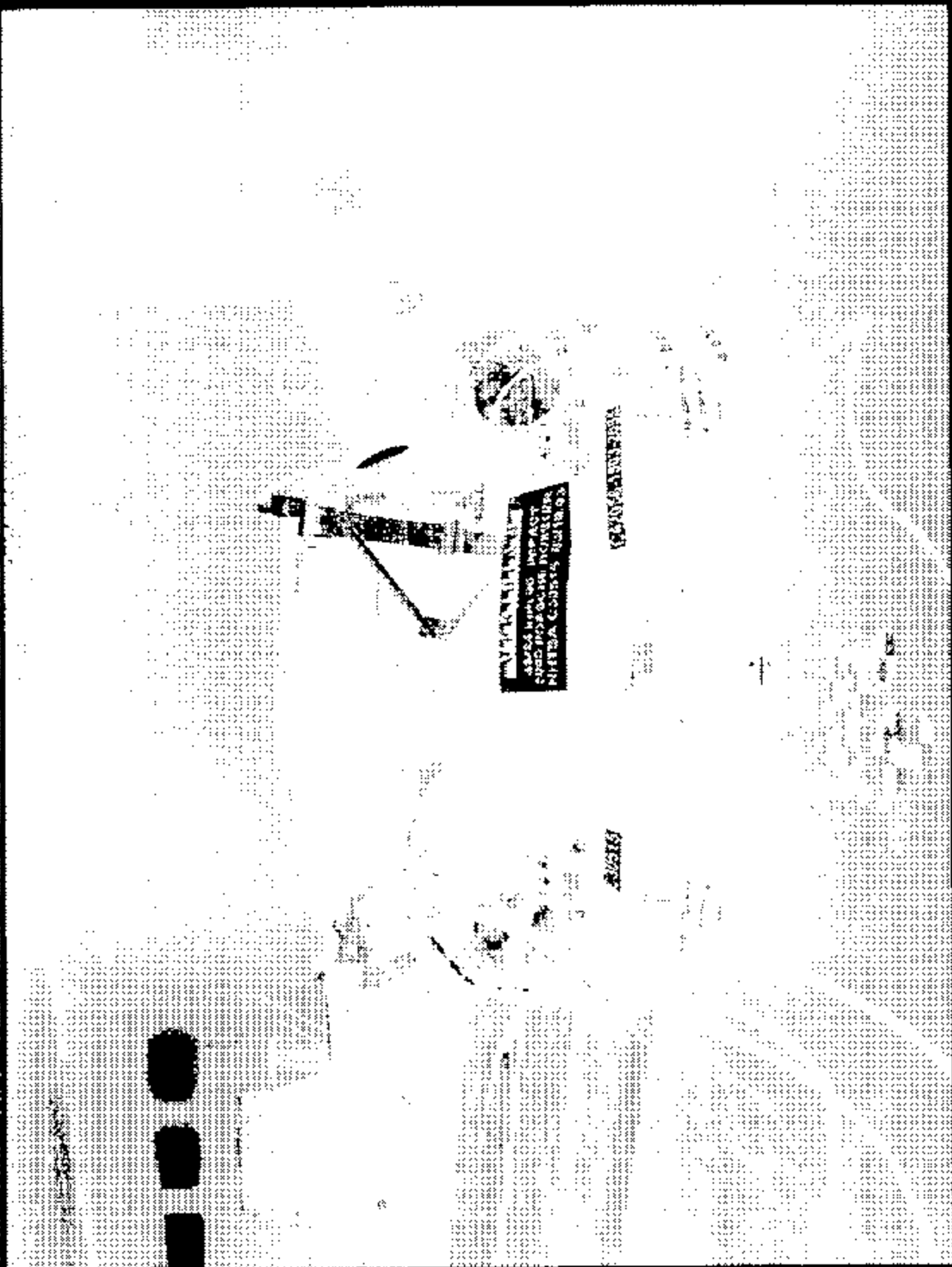
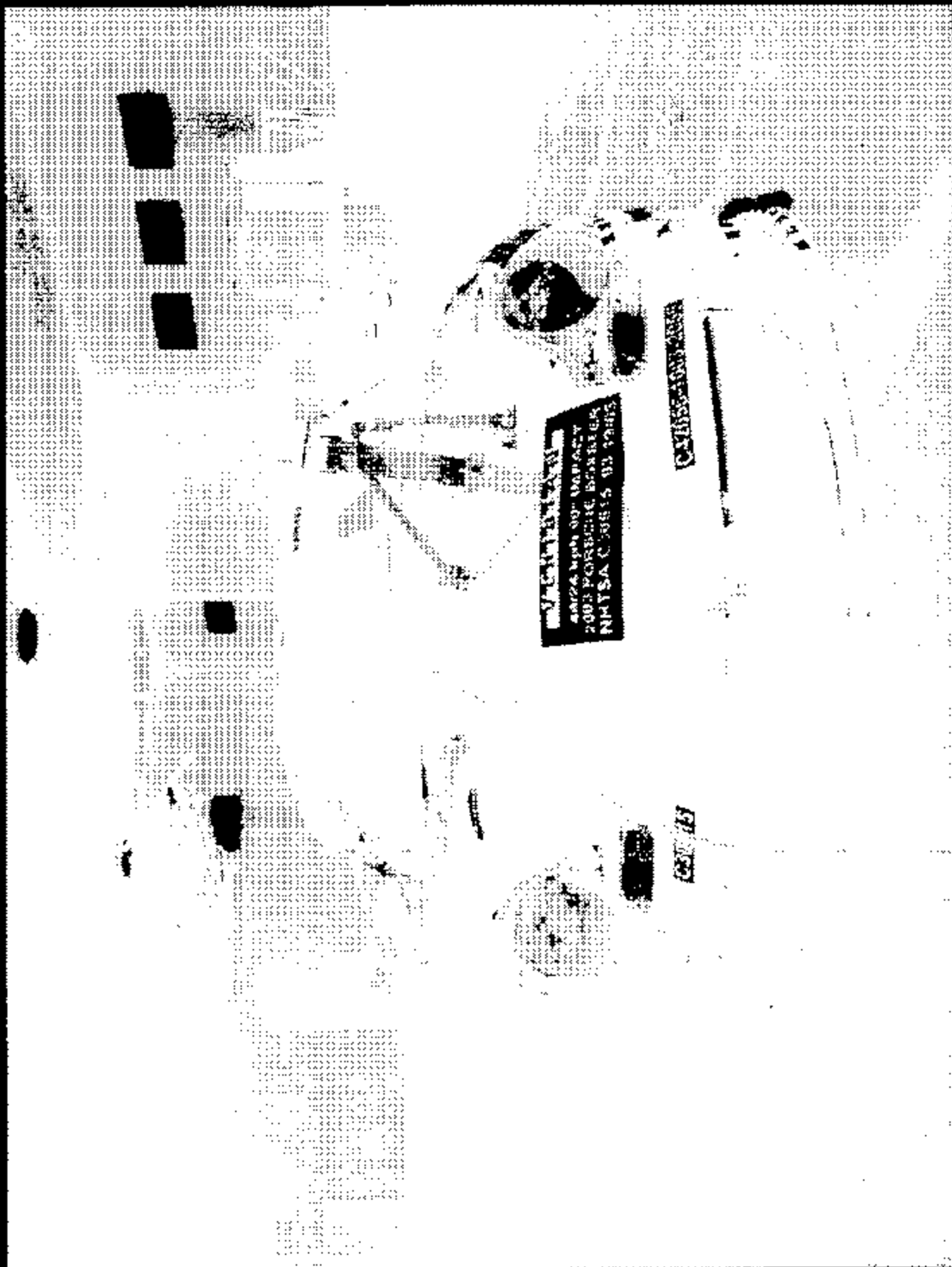


Figure A-1 PRE-TEST FRONTAL VIEW OF TEST VEHICLE



40024 High Speed Capacity
2003 PORSCHE BOXSTER
NHTSA C-30815 03 1905

CY155-1001-0001

001 15

Figure A-2 POST-TEST FRONTAL VIEW OF TEST VEHICLE

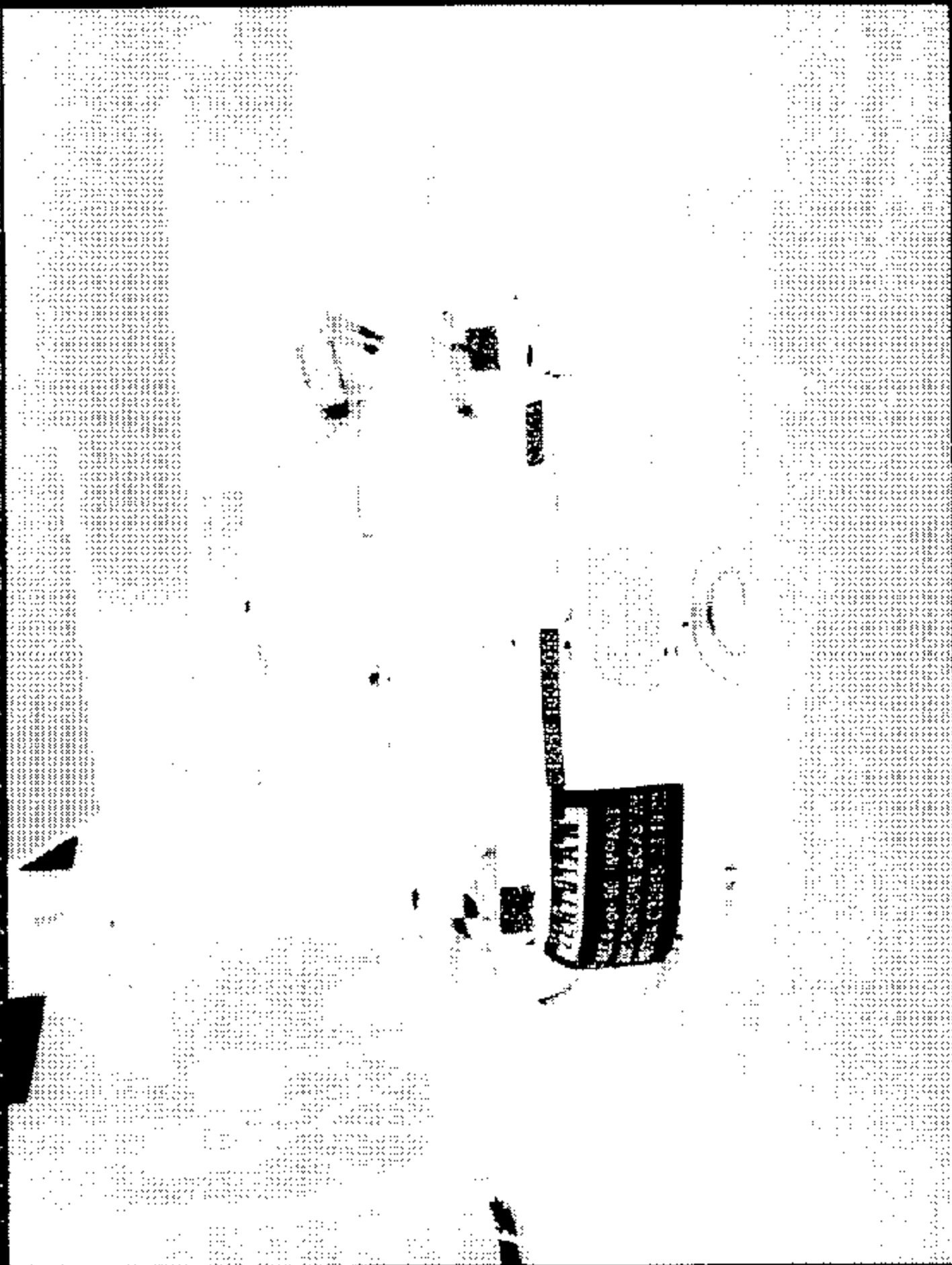


Figure A-3 PRE-TEST REAR VIEW OF TEST VEHICLE



Figure A-4 POST-TEST REAR VIEW OF TEST VEHICLE

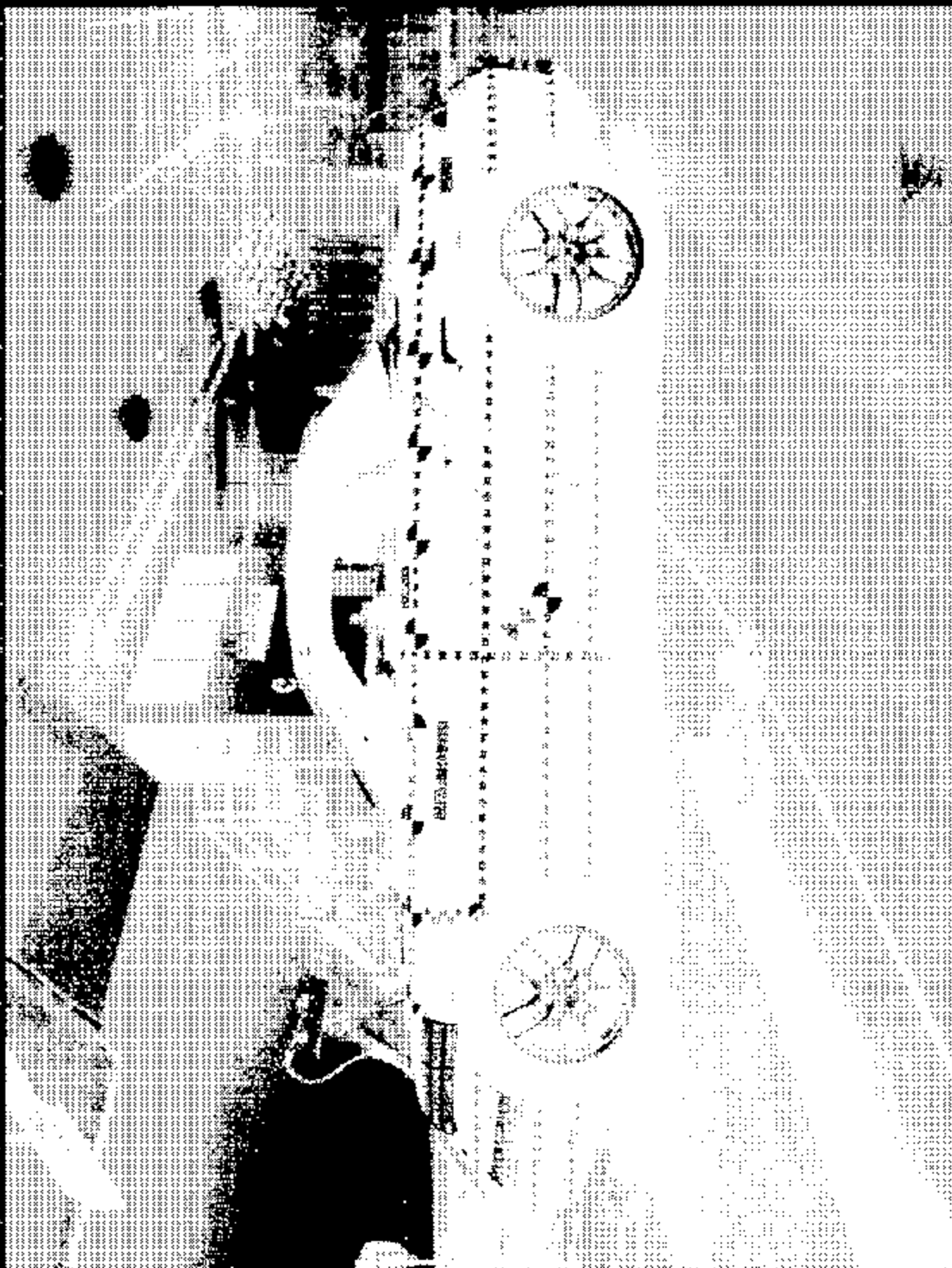


Figure A-5 PRE-TEST IMPACTED SIDE VIEW OF TEST VEHICLE

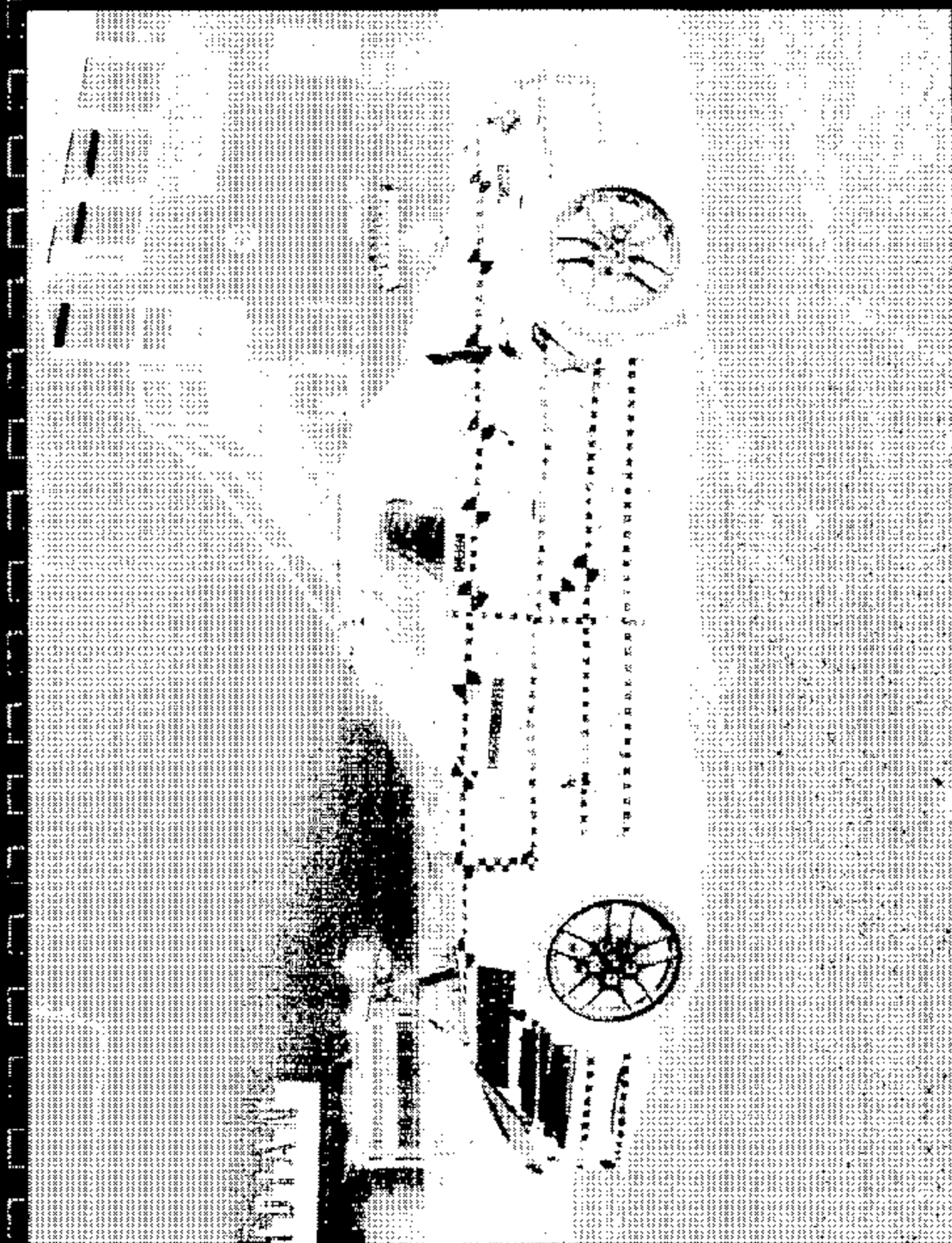


Figure A-6 POST-TEST IMPACTED SIDE VIEW OF TEST VEHICLE

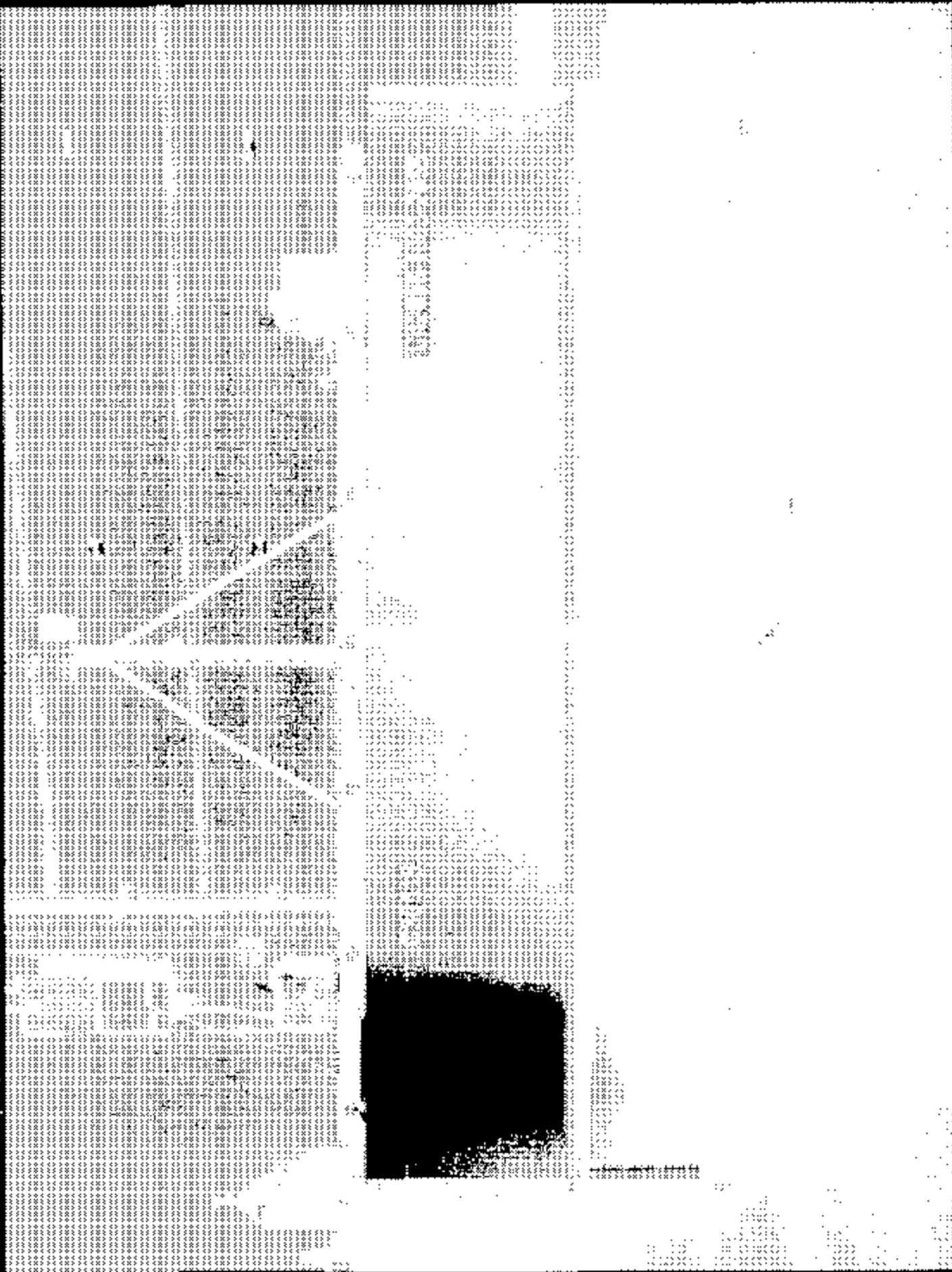


Figure A-7 PRE-TEST FRONTAL VIEW OF IMEACTOR FACE



Figure A-8 POST-TEST FRONTAL VIEW OF IMPACTOR FACE

Figure A-9 MPF-TEST LEFT SIDE VIEW OF IMPACTOR FACE

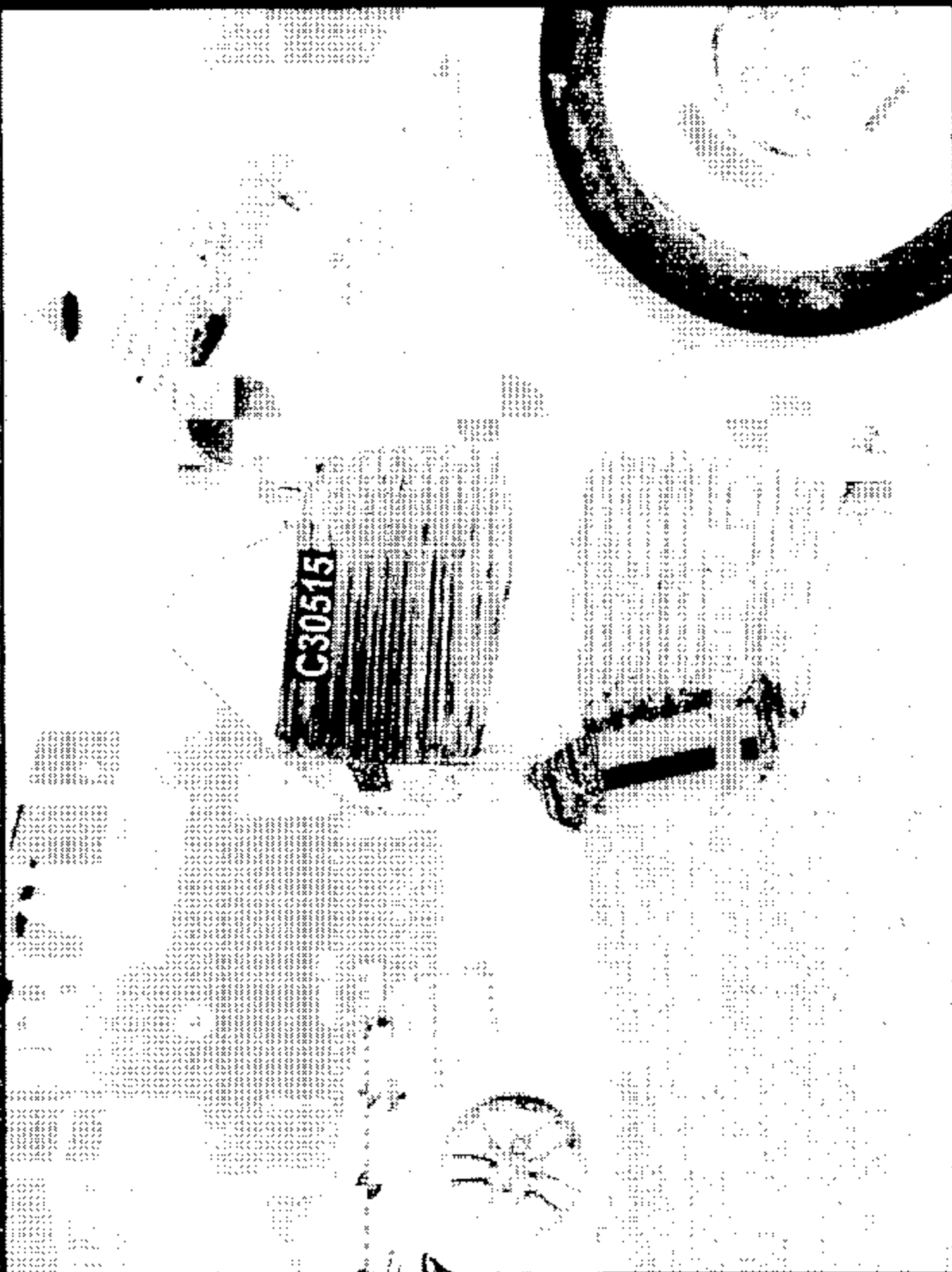


Figure A-10 POST-TEST LEFT SIDE VIEW OF IMPACTOR FACE

Figure A-11 PRE-TEST RIGHT SIDE VIEW OF IMPACTOR FACE



Figure A-12 POST-TEST RIGHT SIDE VIEW OF IMPACTOR FACE

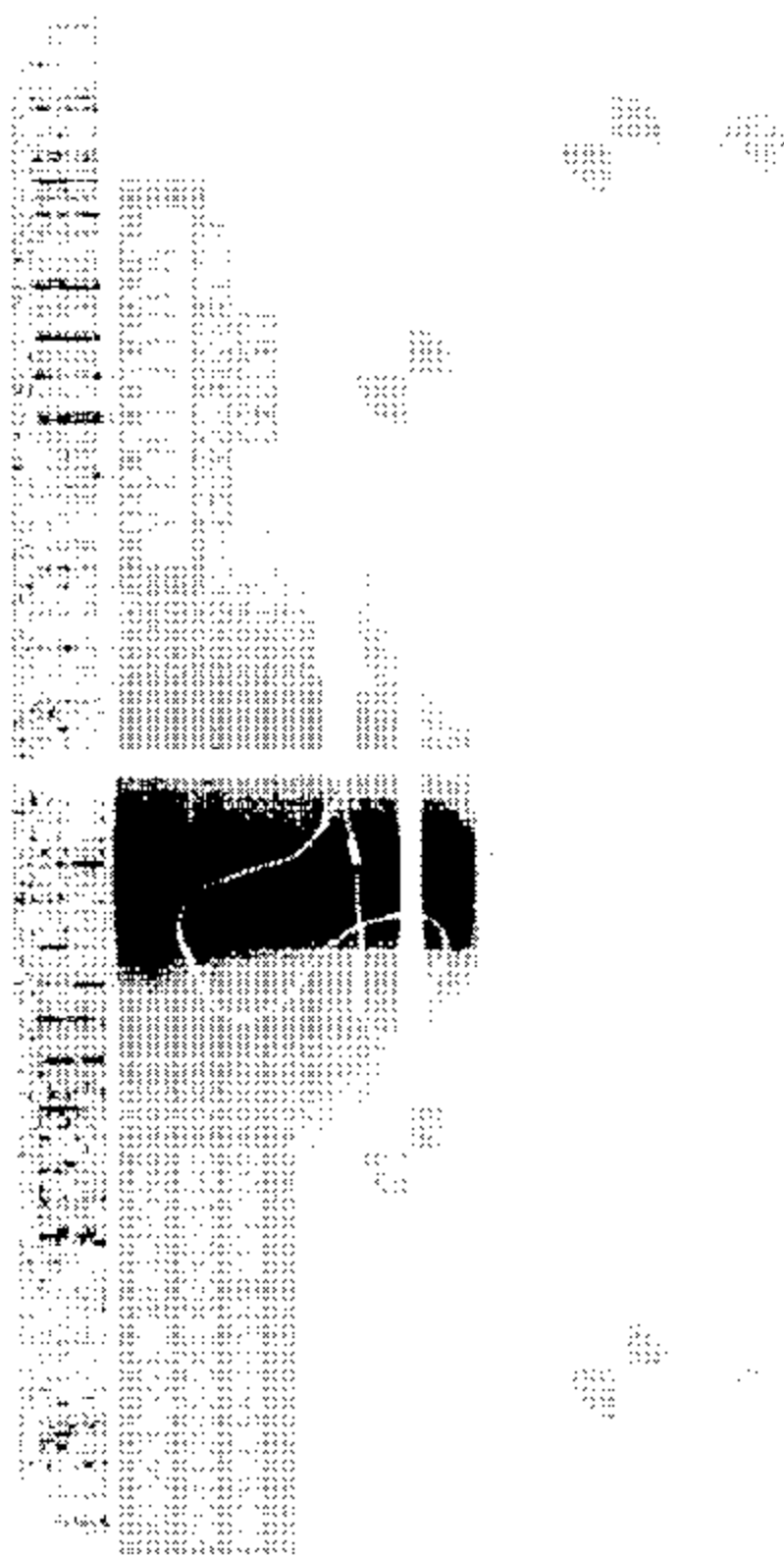


Figure A-13 PRE-TEST TOP VIEW OF IMPACTOR FACE

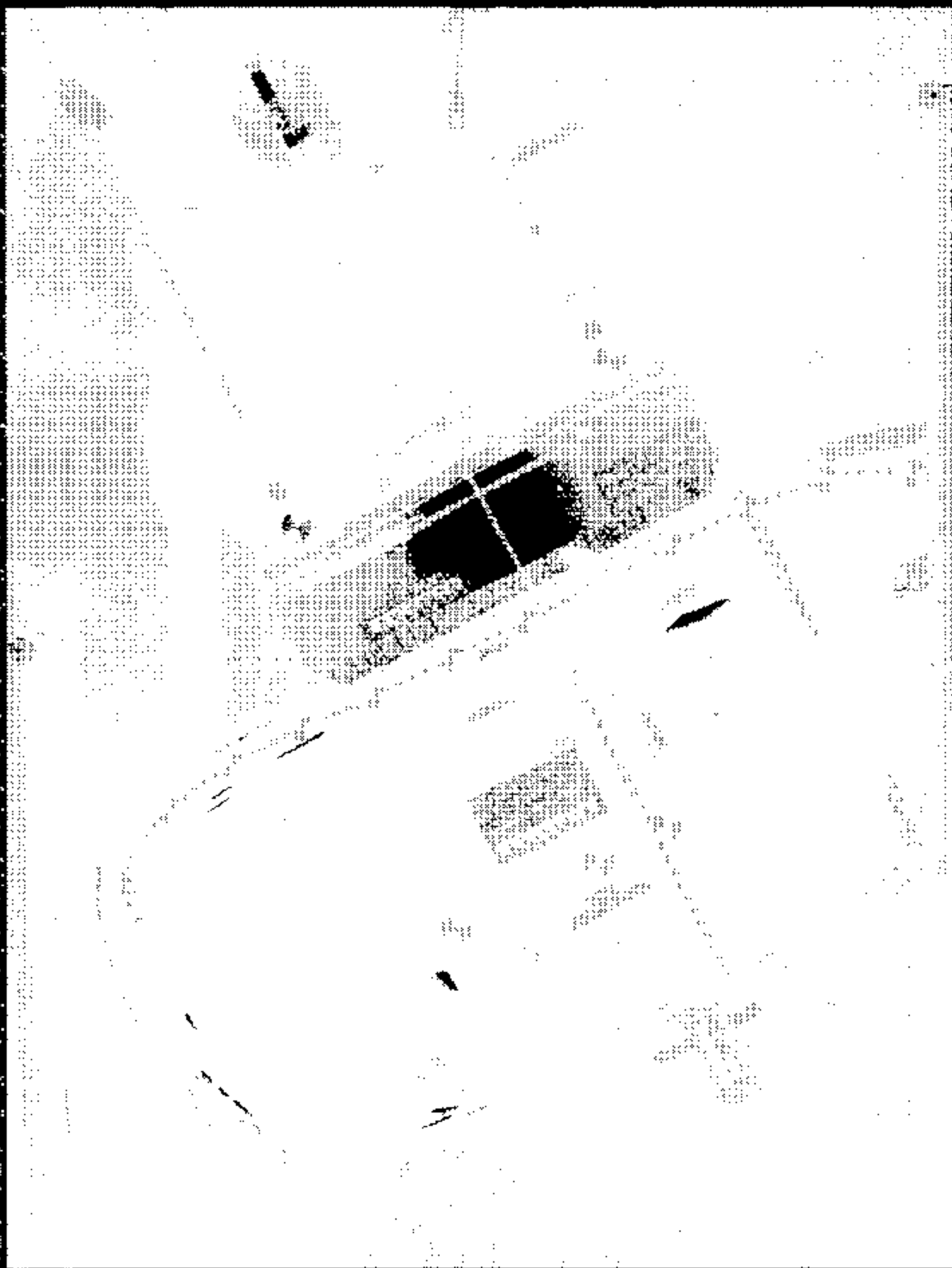


Figure A-15 PRE-TEST OVERHEAD VIEW OF ALIGNED MDB AND VEHICLE



Figure A-16 POST-TEST OVERHEAD VIEW OF MDR AND VEHICLE



Figure A-17 PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID



Figure A-18 POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID

Not Applicable

Figure A-19 PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID

Not Applicable

Figure A-20 POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID



Figure A-21 PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID



Figure A-22 POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID

Not Applicable

Figure A-23 PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID

Not Applicable

Figure A-24 POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID



Figure A-25. PRE-TEST INTERIOR OF TWENTY FOUR

C305151

Figure A-26 POST-TEST INTERIOR OF FRONT DOOR SHOWING SID IMPACT LOCATIONS

Not Applicable

Figure A-27 PRE-TEST INTERIOR OF REAR DOOR

Not Applicable

Figure A-28 POST-TEST INTERIOR OF REAR DOOR SHOWING SID IMPACT LOCATIONS

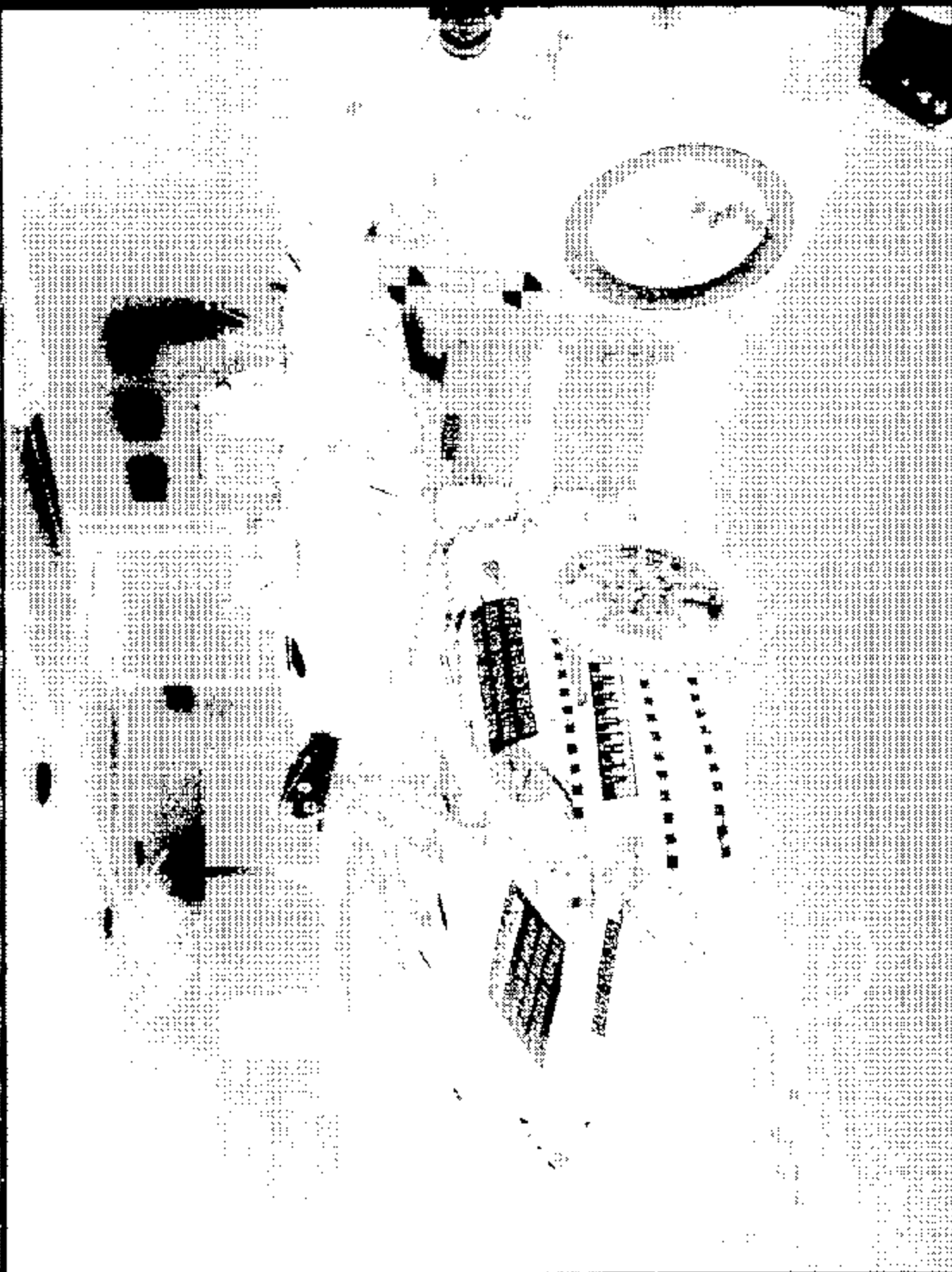


Figure A-29 PRE-TEST LEFT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION



Figure A-30 PRE-TEST RIGHT SIDE VIEW OF MDR WITH IMPACTOR FACE IN POSITION

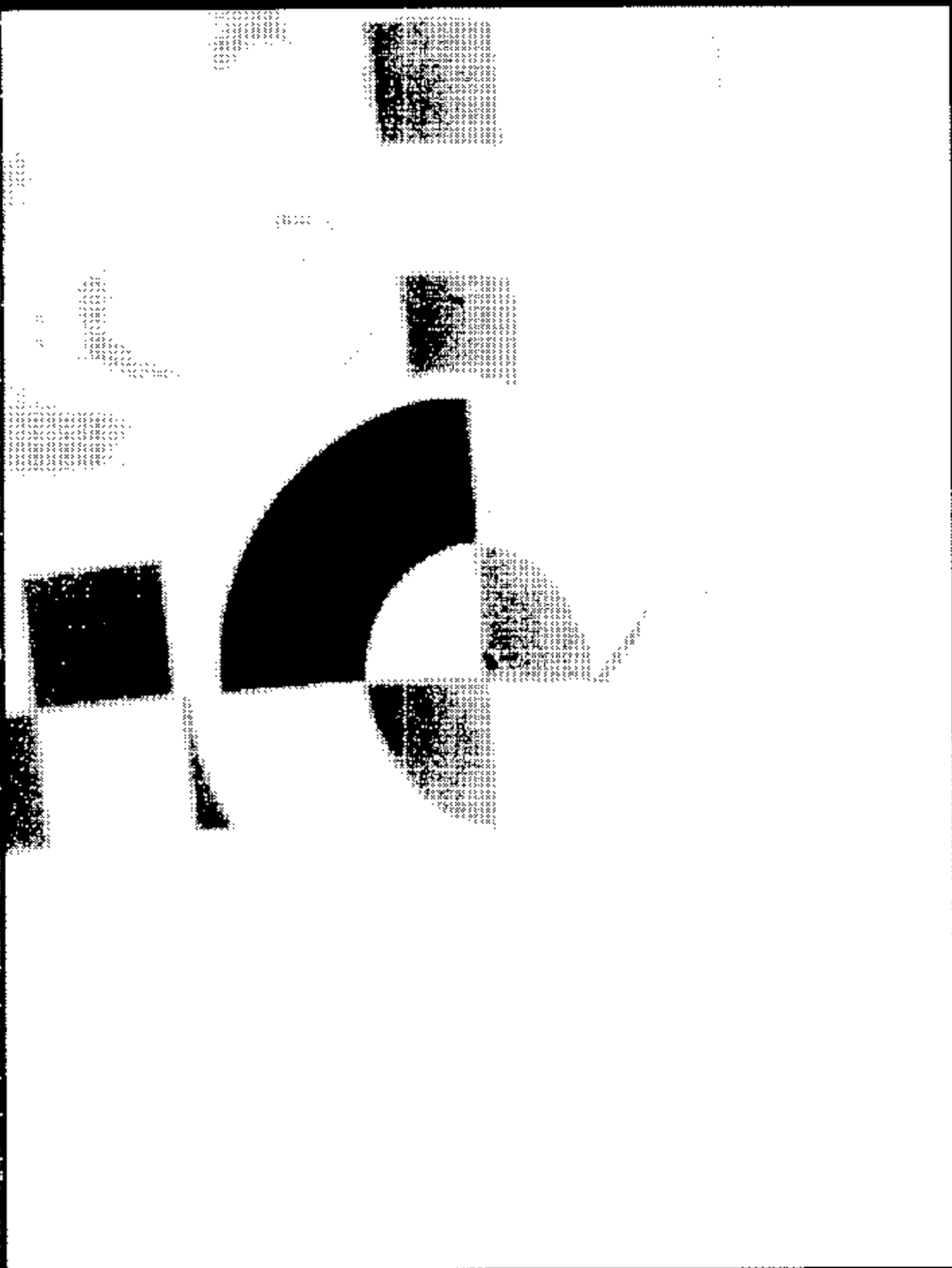


Figure A-31 POST-TEST CLOSE-UP VIEW OF IMPACT POINT TARGET

MADE BY DR. ING. H.C. F. PORSCHE AG 10/02
GVWR 3327 GVWR FRONT/REAR 1709/2017 LBS
THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR
VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION STANDARDS
IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE
WP0CA29823U621767 PASSENGER CAR



986.701 117 40

Figure A-32 CLOSE-UP VIEW OF VEHICLE'S CERTIFICATION LABEL

PORSCHE



Vehicle capacity weight USA/Canada

230 kg/ 507 lbs

seat pos. 2 2 front -- rear

Please check 4.2 bar
emergency tire
pressure regularly!
Vérifier régulièrement
la pression de 4.2 bar
du pneu d'urgence!

105/95 R17 4.2

	bar	psi	bar	psi	
205/55 ZR16					225/50 ZR16
205/55R16 M+S					225/50R16 M+S
205/50 ZR17					255/40 ZR17
205/50R17 M+S	2.0	29	2.5	36	225/45R17 M+S
205/50R17 M+S					255/40R17 M+S
225/40 ZR18					265/35 ZR18
225/40R18 M+S					265/35R18 M+S

986.701.287.21

1. STOP ENGINE BEFORE REFUELING
2. TO AVOID FUEL SPILLAGE DO NOT TOP OFF
3. FUEL SPRAY MAY CAUSE INJURY

Figure A-33 CLOSE-UP VIEW OF VEHICLE'S TIRE PLACARD LABEL

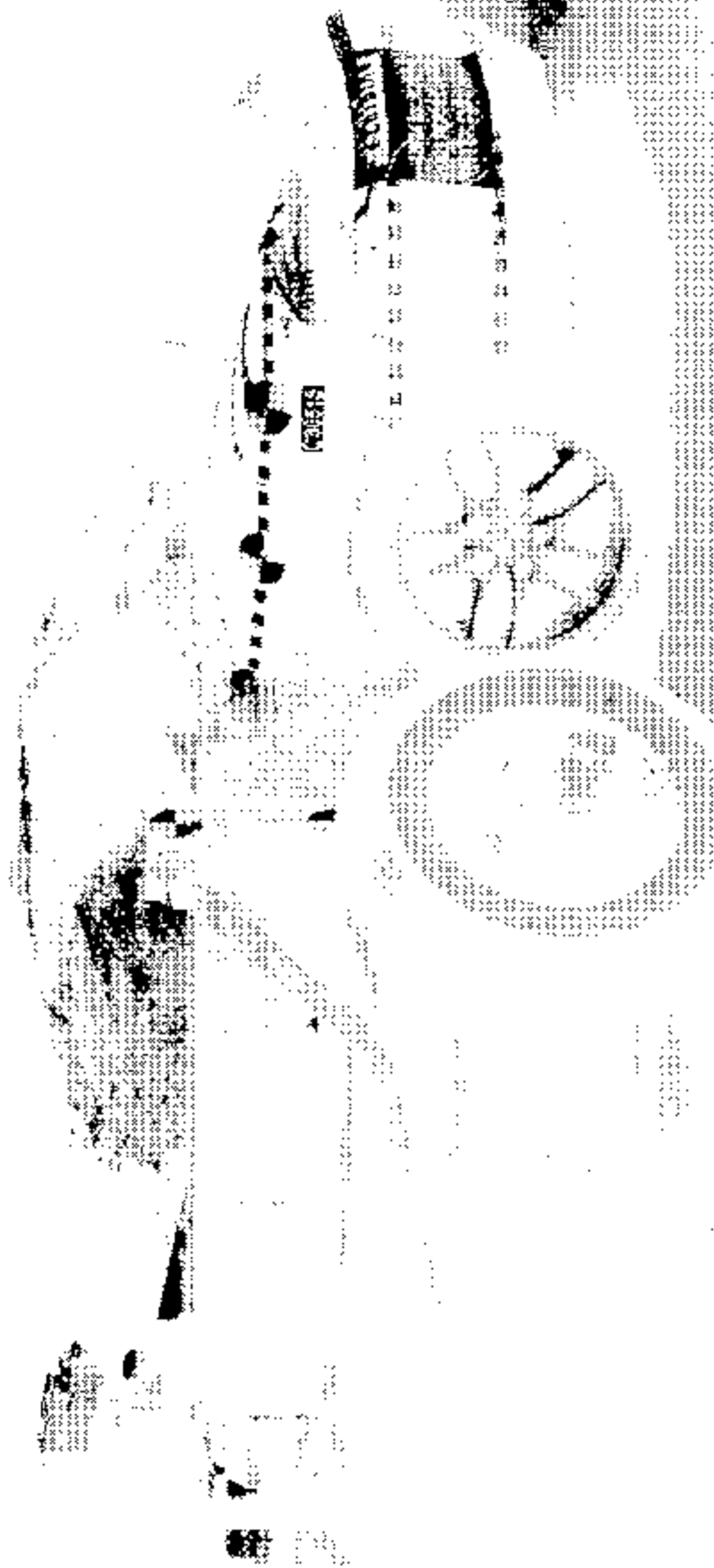


Figure A-34 IMPACT PHOTO



Figure A-15 ROLLOVER 90 DEGREES



Figure A-36 ROLLOVER 180 DEGREES

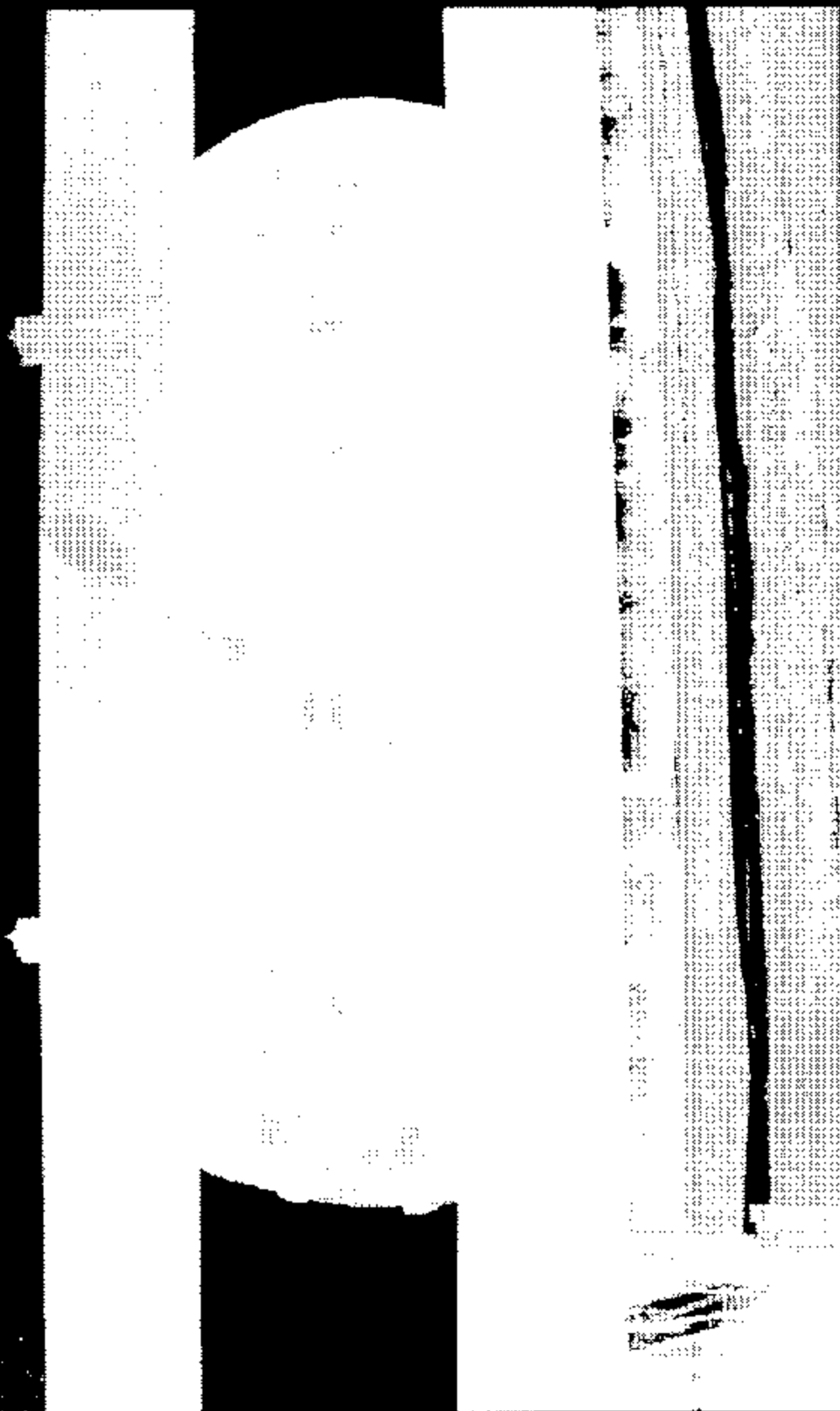


Figure A-17 ROLLER 270 DEGREES

Figure A-18 ROLLOVER 160 DEGREES



APPENDIX B

VEHICLE, MDB AND SID RESPONSE DATA

TABLE OF DATA PLOTS

DRIVER AND PASSENGER DUMMY INSTRUMENTATION PLOTS ACCELERATION DATA - FILTER CLASS 1000, LOWER SPINE - FILTER CLASS 180 INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
1	DRIVER HEAD (X) ACCELERATION VS TIME	B- 6
2	DRIVER HEAD (X) VELOCITY VS TIME	B- 7
3	DRIVER HEAD (Y) ACCELERATION VS TIME	B- 8
4	DRIVER HEAD (Y) VELOCITY VS TIME	B- 9
5	DRIVER HEAD (Z) ACCELERATION VS TIME	B- 10
6	DRIVER HEAD (Z) VELOCITY VS TIME	B- 11
7	DRIVER HEAD RESULTANT ACCELERATION VS TIME	B- 12
8	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 13
9	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 14
10	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 15
11	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 16
12	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 17
13	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 18
14	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 19
15	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 20

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS ACCELERATION DATA - FIR FILTERED

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
16	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 21
17	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 22
18	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 23
19	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 24

TEST VEHICLE INSTRUMENTATION PLOTS
ACCELERATION DATA - FILTER CLASS 60
INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
20	RIGHT SIDE SILL AT FRONT SEAT (X) ACCELERATION VS TIME	B- 25
21	RIGHT SIDE SILL AT FRONT SEAT (X) VELOCITY VS TIME	B- 26
22	RIGHT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 27
23	RIGHT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 28
24	RIGHT SIDE SILL AT FRONT SEAT (Z) ACCELERATION VS TIME	B- 29
25	RIGHT SIDE SILL AT FRONT SEAT (Z) VELOCITY VS TIME	B- 30
26	RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION VS TIME	B- 31
27	RIGHT SIDE SILL AT REAR SEAT (X) ACCELERATION VS TIME	B- 32
28	RIGHT SIDE SILL AT REAR SEAT (X) VELOCITY VS TIME	B- 33
29	RIGHT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 34
30	RIGHT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 35
31	RIGHT SIDE SILL AT REAR SEAT (Z) ACCELERATION VS TIME	B- 36
32	RIGHT SIDE SILL AT REAR SEAT (Z) VELOCITY VS TIME	B- 37
33	RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION VS TIME	B- 38
34	REAR FLOORPAN ABOVE AXLE (X) ACCELERATION VS TIME	B- 39
35	REAR FLOORPAN ABOVE AXLE (X) VELOCITY VS TIME	B- 40
36	REAR FLOORPAN ABOVE AXLE (Y) ACCELERATION VS TIME	B- 41
37	REAR FLOORPAN ABOVE AXLE (Y) VELOCITY VS TIME	B- 42
38	REAR FLOORPAN ABOVE AXLE (Z) ACCELERATION VS TIME	B- 43
39	REAR FLOORPAN ABOVE AXLE (Z) VELOCITY VS TIME	B- 44
40	REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION VS TIME	B- 45
41	LEFT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 46
42	LEFT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 47
43	LEFT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 48
44	LEFT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 49
45	RIGHT REAR OCCUPANT COMPARTMENT (Y) ACCELERATION VS TIME	B- 50
46	RIGHT REAR OCCUPANT COMPARTMENT (Y) VELOCITY VS TIME	B- 51
47	LOWER B-POST (Y) ACCELERATION VS TIME	B- 52
48	LOWER B-POST (Y) VELOCITY VS TIME	B- 53
49	UPPER B-POST (Y) ACCELERATION VS TIME	B- 54
50	UPPER B-POST (Y) VELOCITY VS TIME	B- 55
51	LOWER A-POST (Y) ACCELERATION VS TIME	B- 56
52	LOWER A-POST (Y) VELOCITY VS TIME	B- 57
53	UPPER A-POST (Y) ACCELERATION VS TIME	B- 58
54	UPPER A-POST (Y) VELOCITY VS TIME	B- 59
55	FRONT SEAT TRACK (Y) ACCELERATION VS TIME	B- 60
56	FRONT SEAT TRACK (Y) VELOCITY VS TIME	B- 61

**TEST VEHICLE INSTRUMENTATION PLOTS
ACCELERATION DATA - FILTER CLASS 60
INTEGRATION DATA - FILTER CLASS 180**

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
57	VEHICLE CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 62
58	VEHICLE CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 63
59	VEHICLE CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 64
60	VEHICLE CENTER OF GRAVITY (Y) VELOCITY VS TIME	B- 65
61	VEHICLE CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 66
62	VEHICLE CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 67
63	VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 68

**MDB INSTRUMENTATION PLOTS
ACCELERATION DATA - FILTER CLASS 60
INTEGRATION DATA - FILTER CLASS 180**

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
64	MDB CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 69
65	MDB CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 70
66	MDB CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 71
67	MDB CENTER OF GRAVITY (Y) VELOCITY VS TIME	B- 72
68	MDB CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 73
69	MDB CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 74
70	MDB CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 75
71	MDB REAR (X) ACCELERATION VS TIME	B- 76
72	MDB REAR (X) VELOCITY VS TIME	B- 77
73	MDB REAR (Y) ACCELERATION VS TIME	B- 78
74	MDB REAR (Y) VELOCITY VS TIME	B- 79

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS (REDUNDANT)
ACCELERATION DATA - FILTER CLASS 1000, LOWER SPINE - FILTER CLASS 180
INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
75	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 80
76	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 81
77	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 82
78	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 83
79	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 84
80	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 85
81	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 86
82	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 87

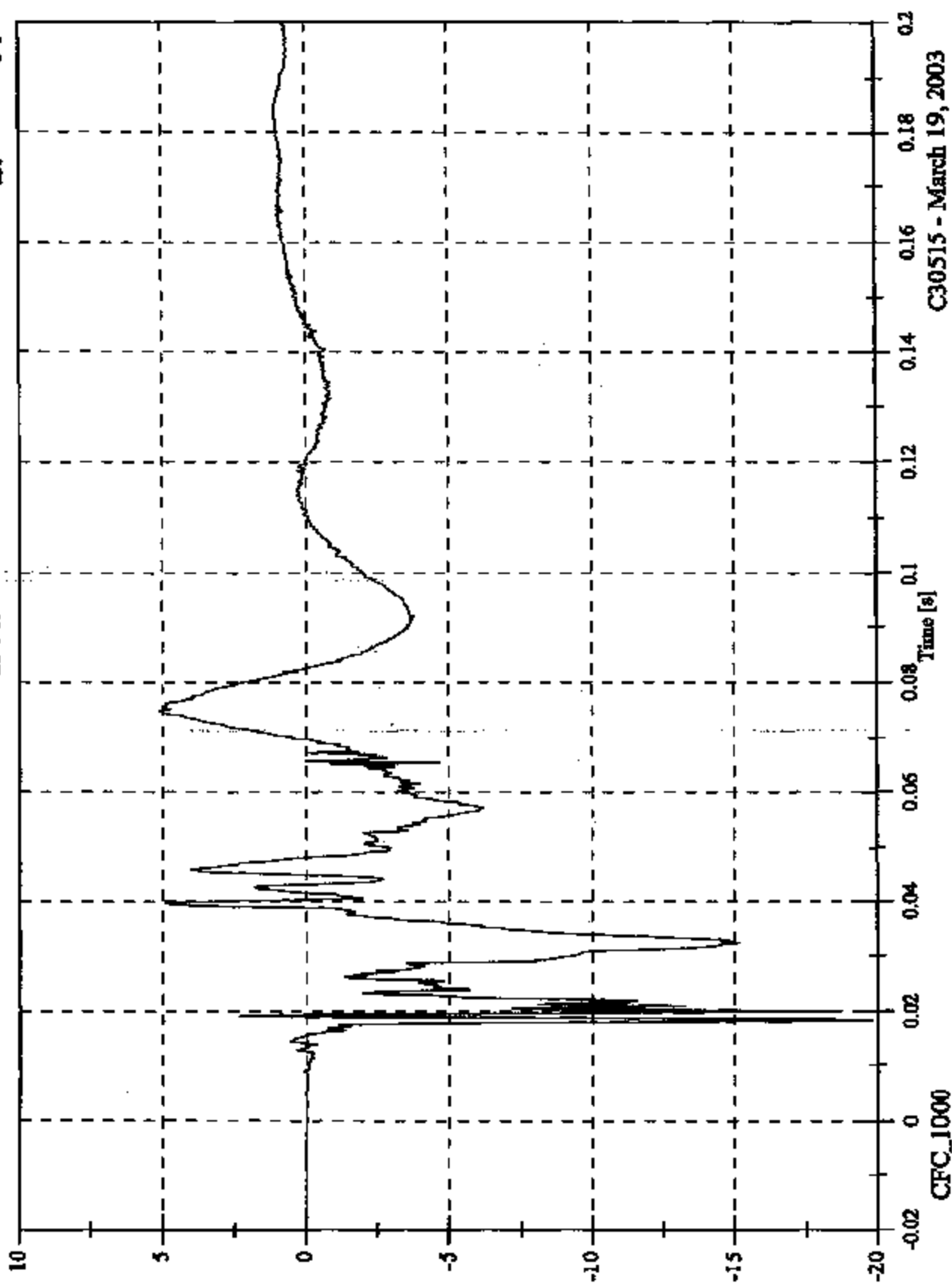
DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS (REDUNDANT)
ACCELERATION DATA - FIR FILTERED

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
83	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 88
84	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 89
85	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 90
86	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 91

FMVSS 214D - 2003 Porsche Boxster

Max: 5.1 [g] at 0.075 [s]
Min: -19.8 [g] at 0.018 [s]

V2P1 Head x

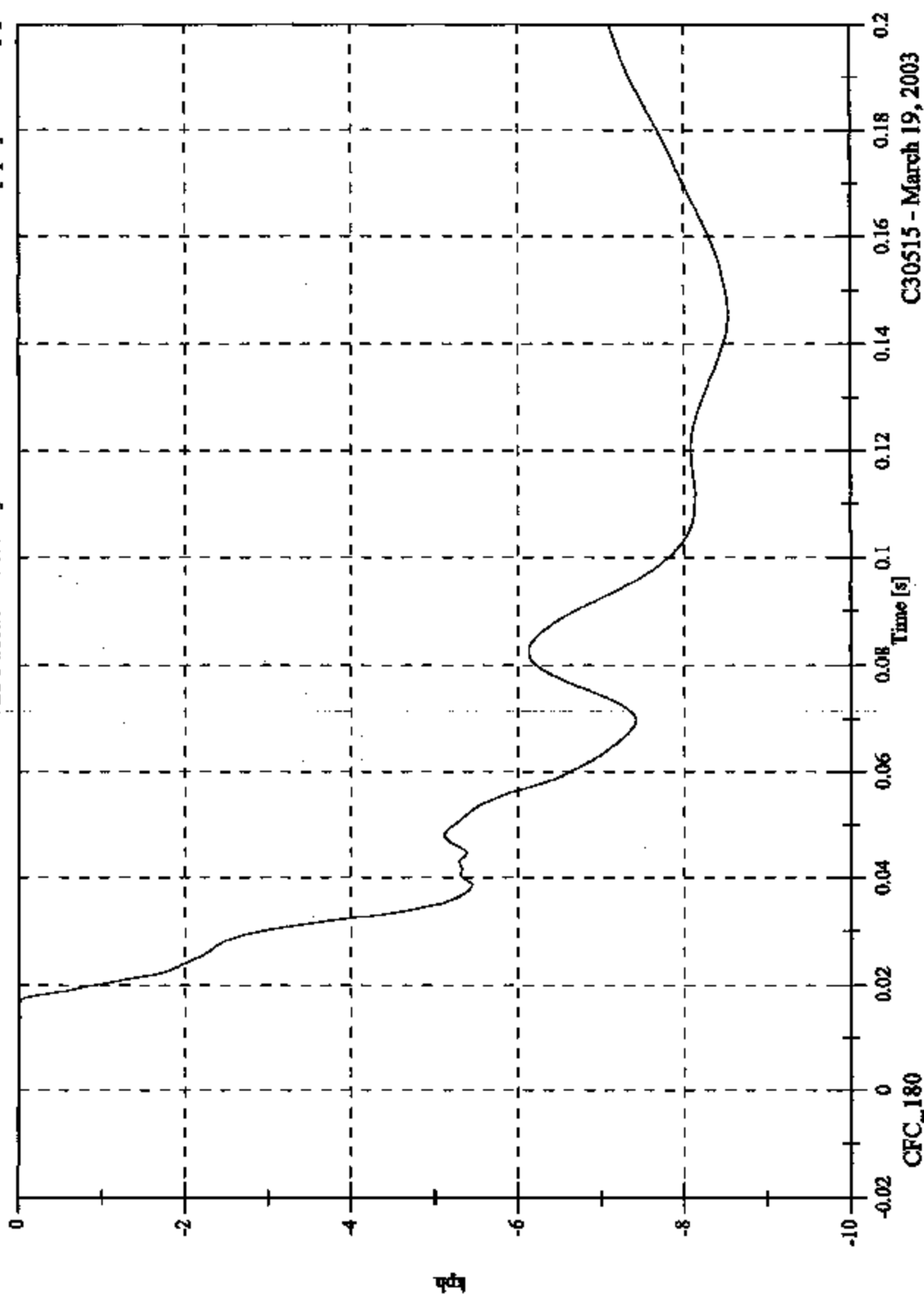


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 0.0 [kph] at -0.004 [s]
Min: -8.5 [kph] at 0.145 [s]

V2P1 Head x Velocity

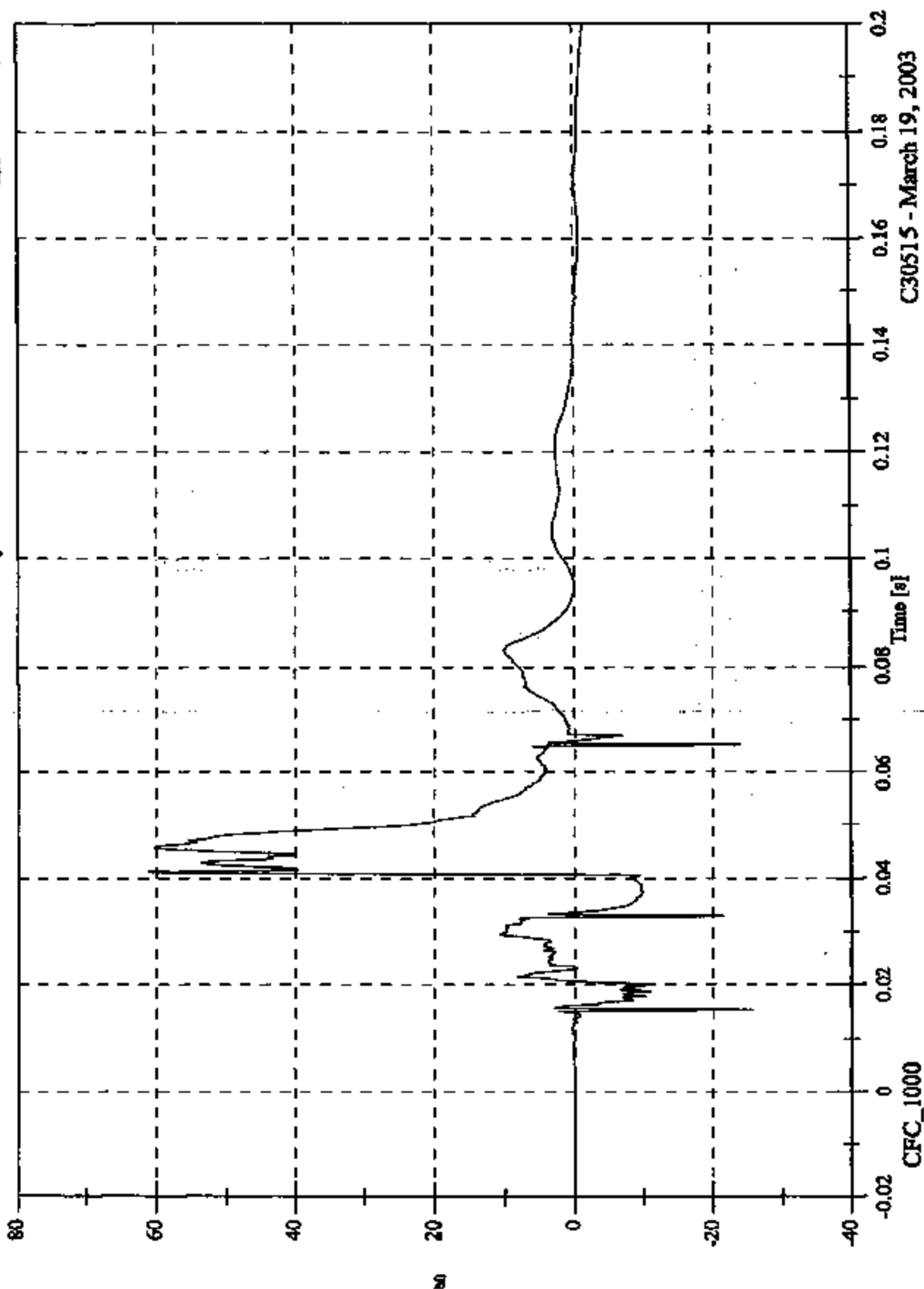


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2PI Head y

Max: 61.2 [g] at 0.041 [s]
Min: -25.6 [g] at 0.015 [s]

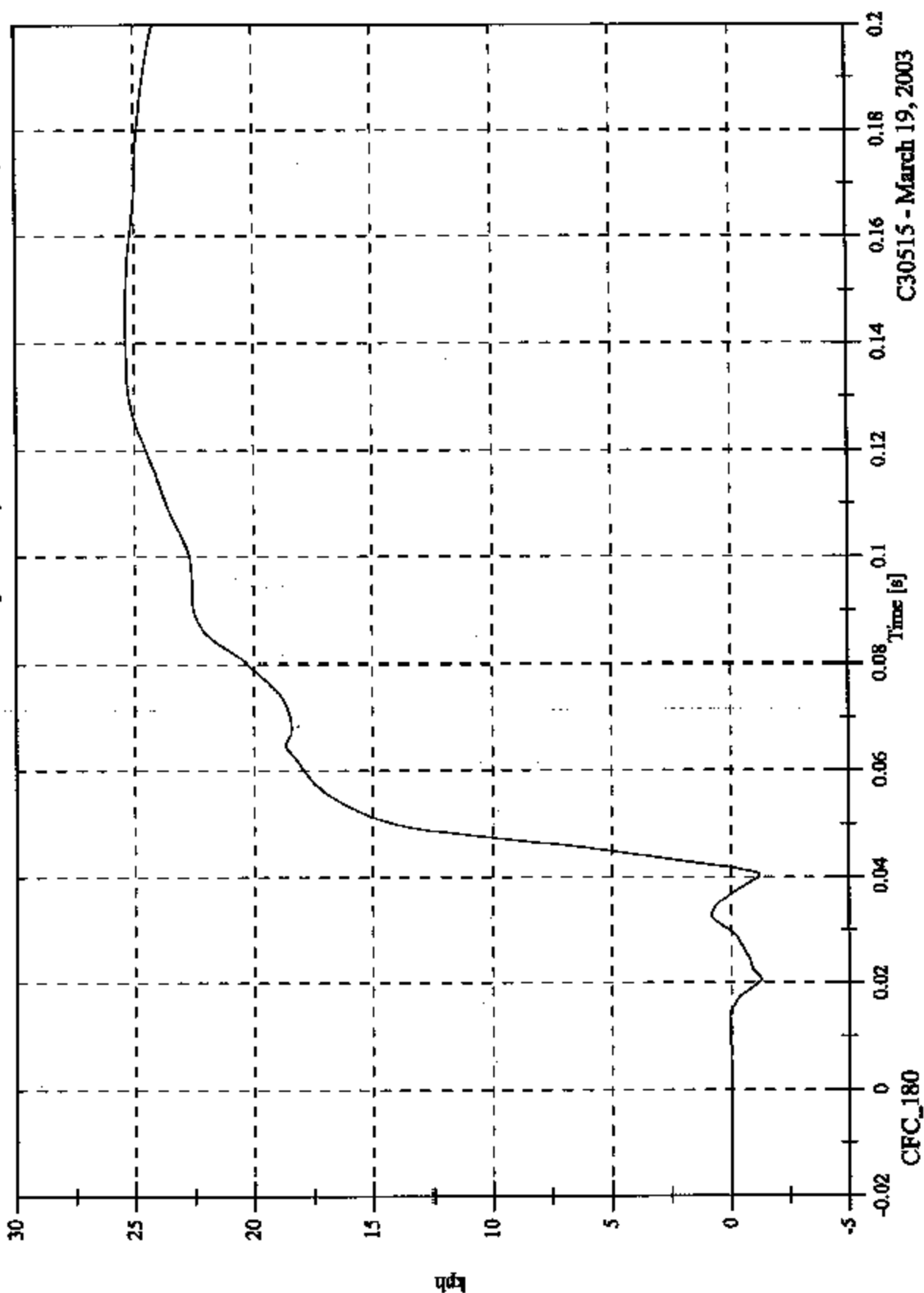


FMVSS 214D - 2003 Porsche Boxster

Max: 25.4 [kph] at 0.145 [s]

Min: -1.3 [kph] at 0.021 [s]

V2P1 Head y Velocity

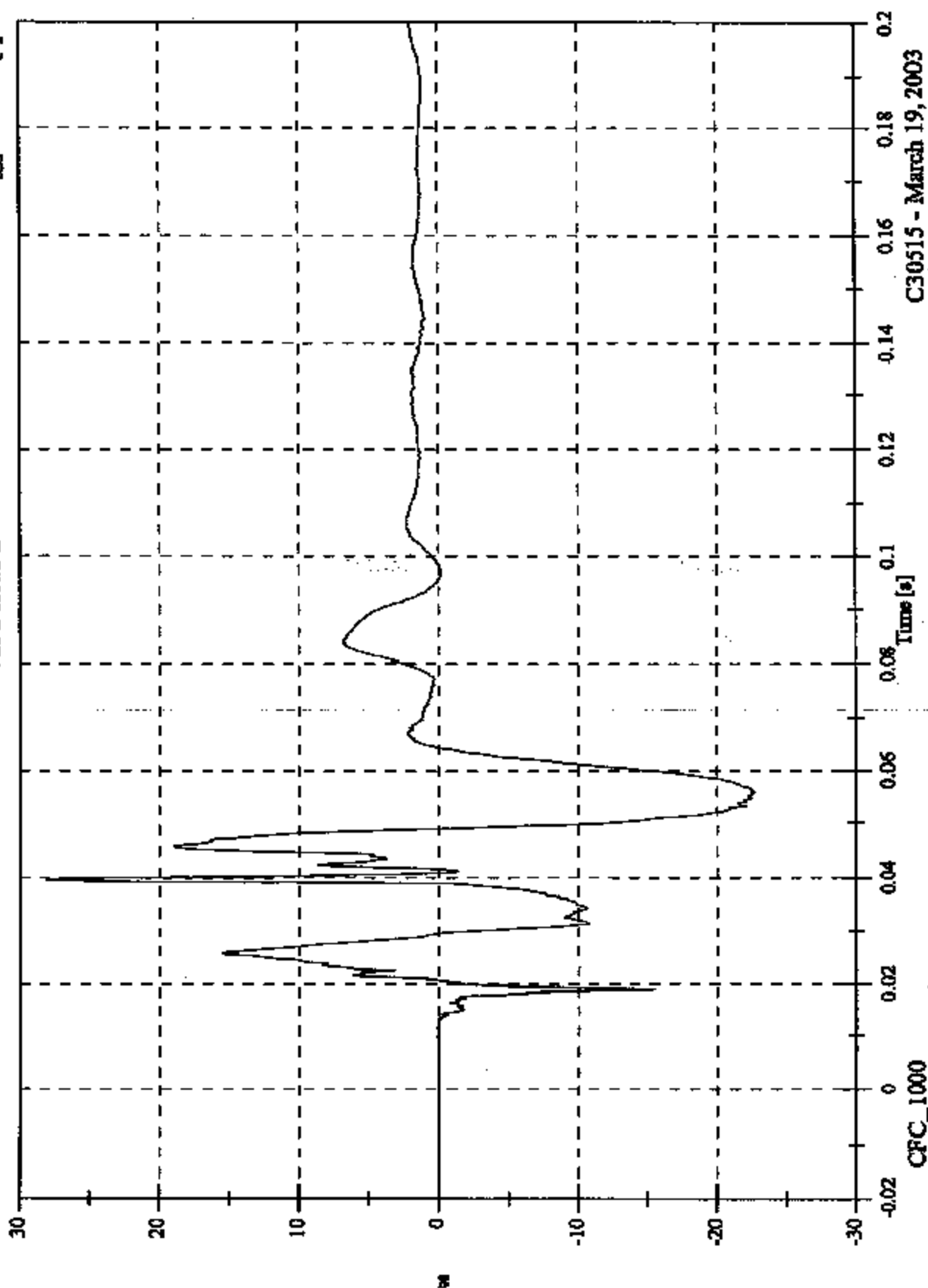


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 28.1 [g] at 0.040 [s]
Min: -22.7 [g] at 0.056 [s]

V2P1 Head z

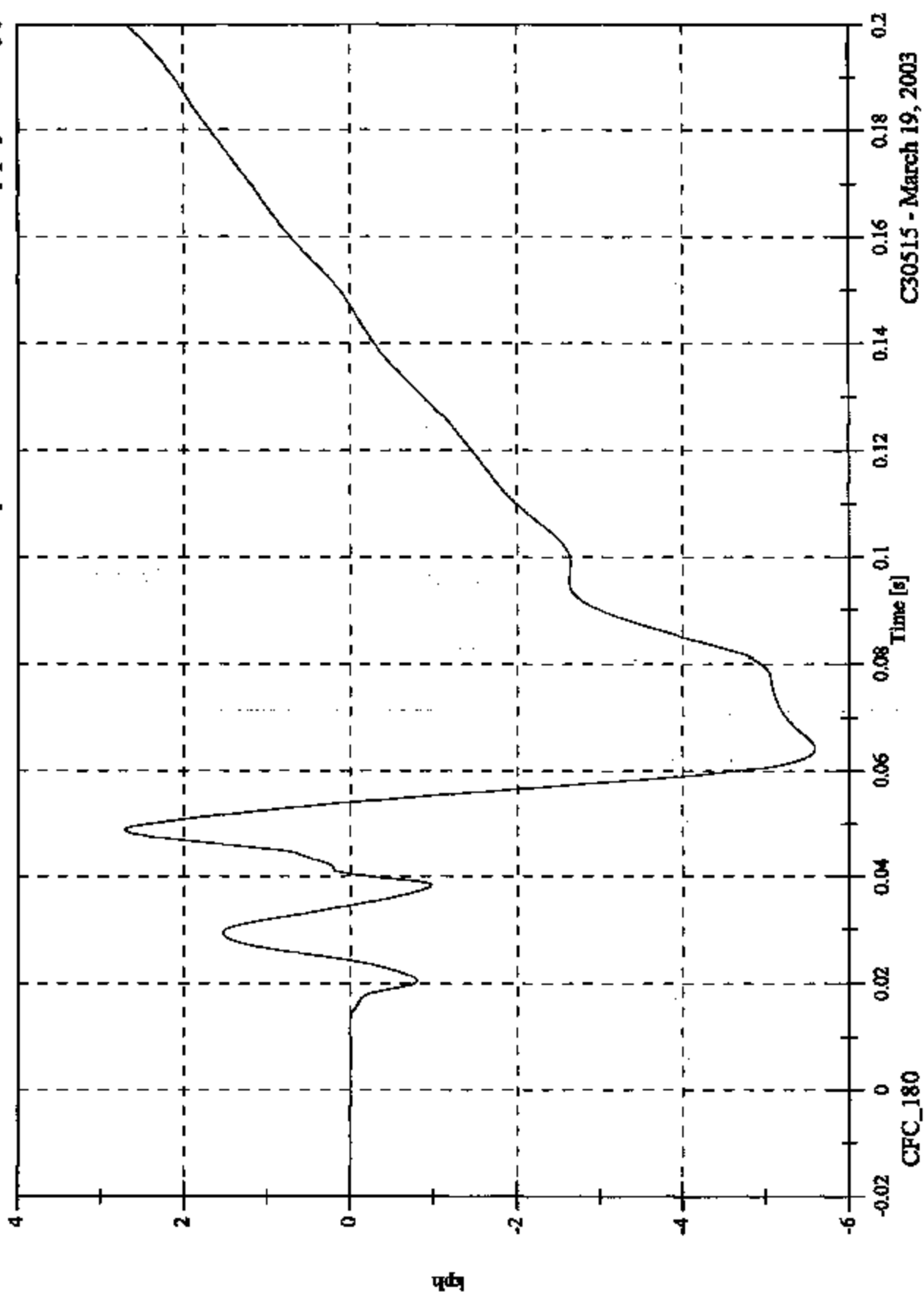


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2P1 Head z Velocity

Max: 2.7 [kph] at 0.049 [s]
Min: -5.6 [kph] at 0.064 [s]

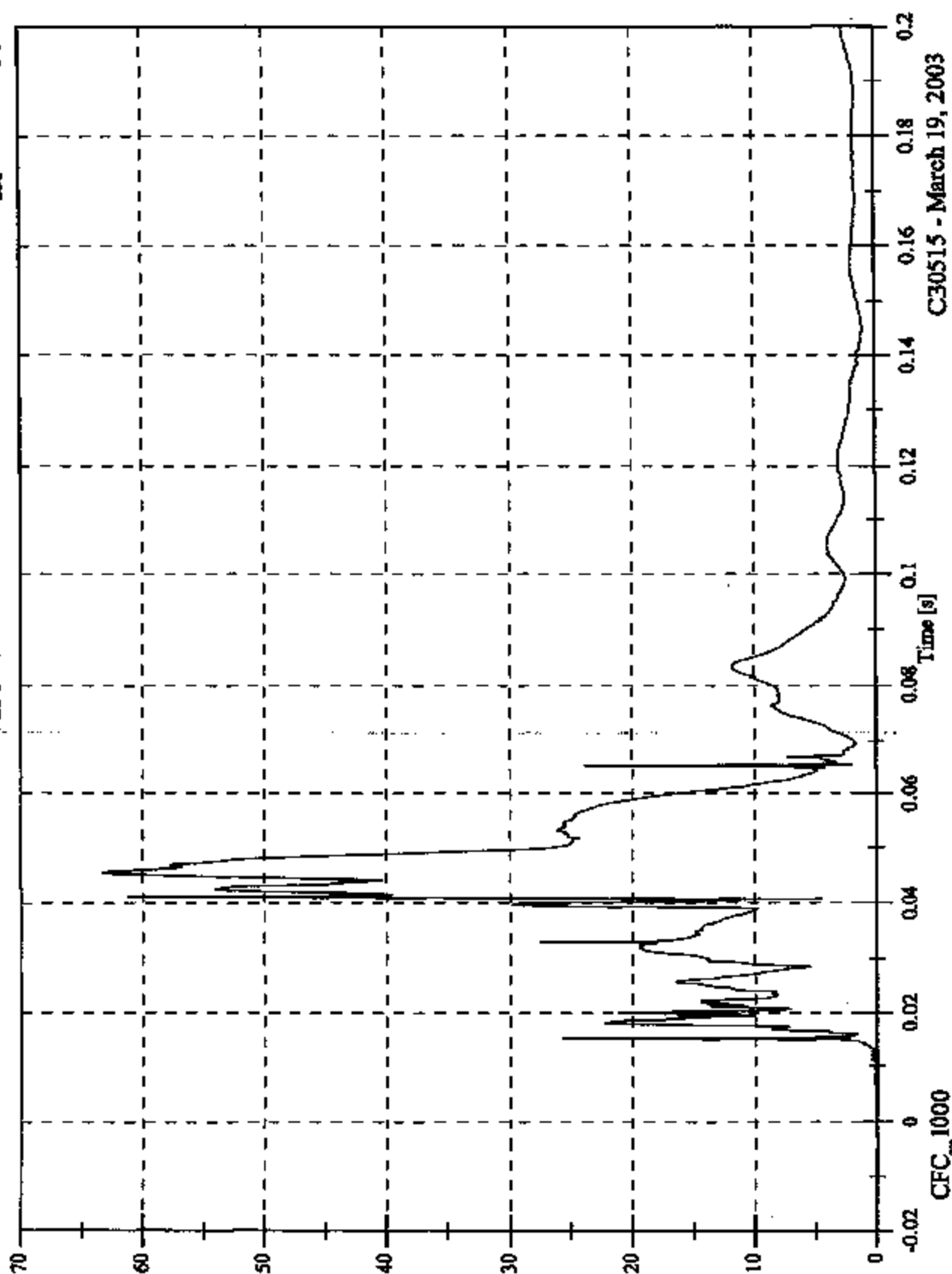


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2P1 Head Resultant

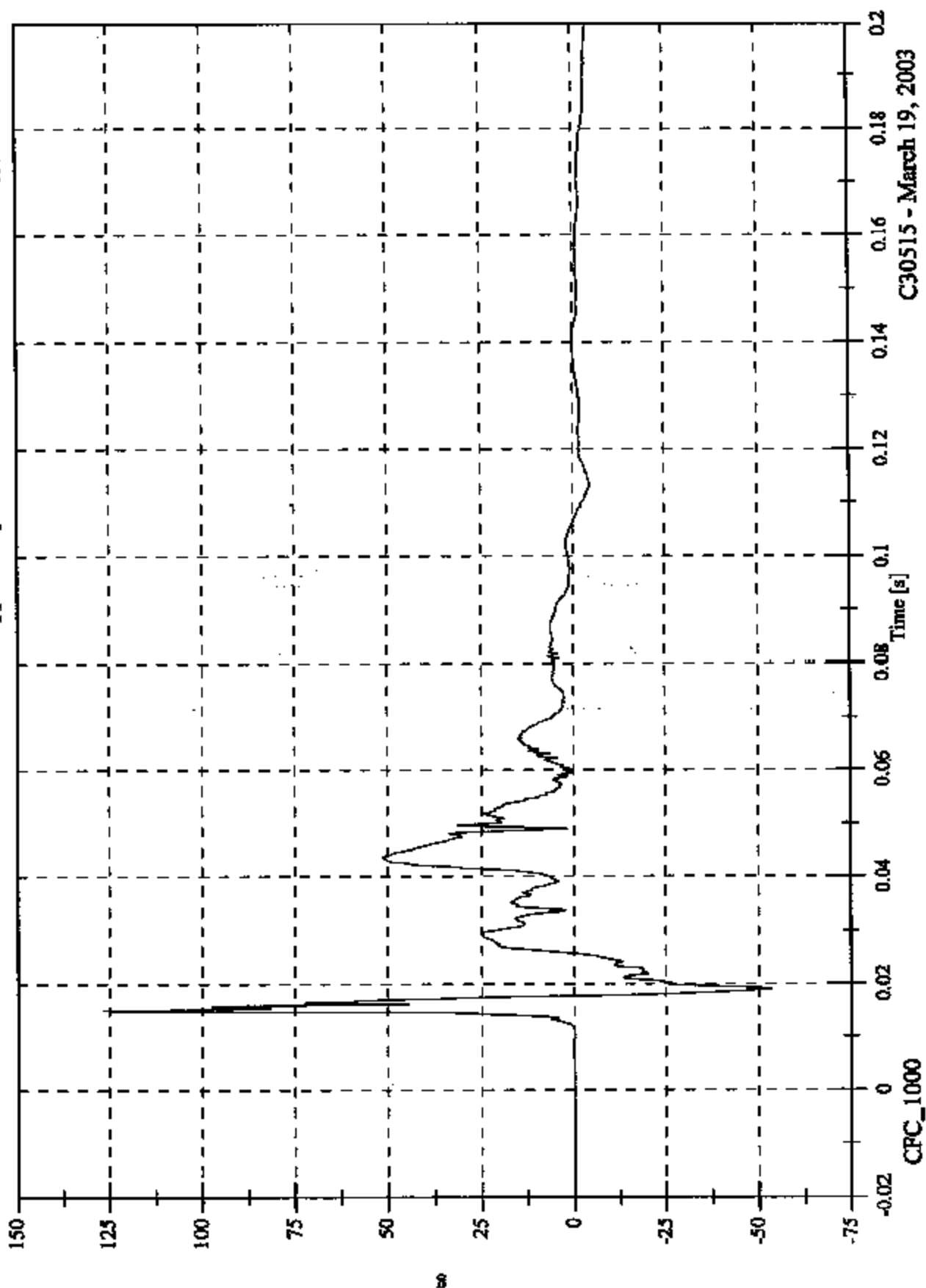
Max: 63.3 [g] at 0.046 [s]
Min: 0.0 [g] at -0.014 [s]



FMVSS 214D - 2003 Porsche Boxster

V2P1 Upper Rib y

Max: 126.5 [g] at 0.015 [s]
Min: -53.2 [g] at 0.019 [s]

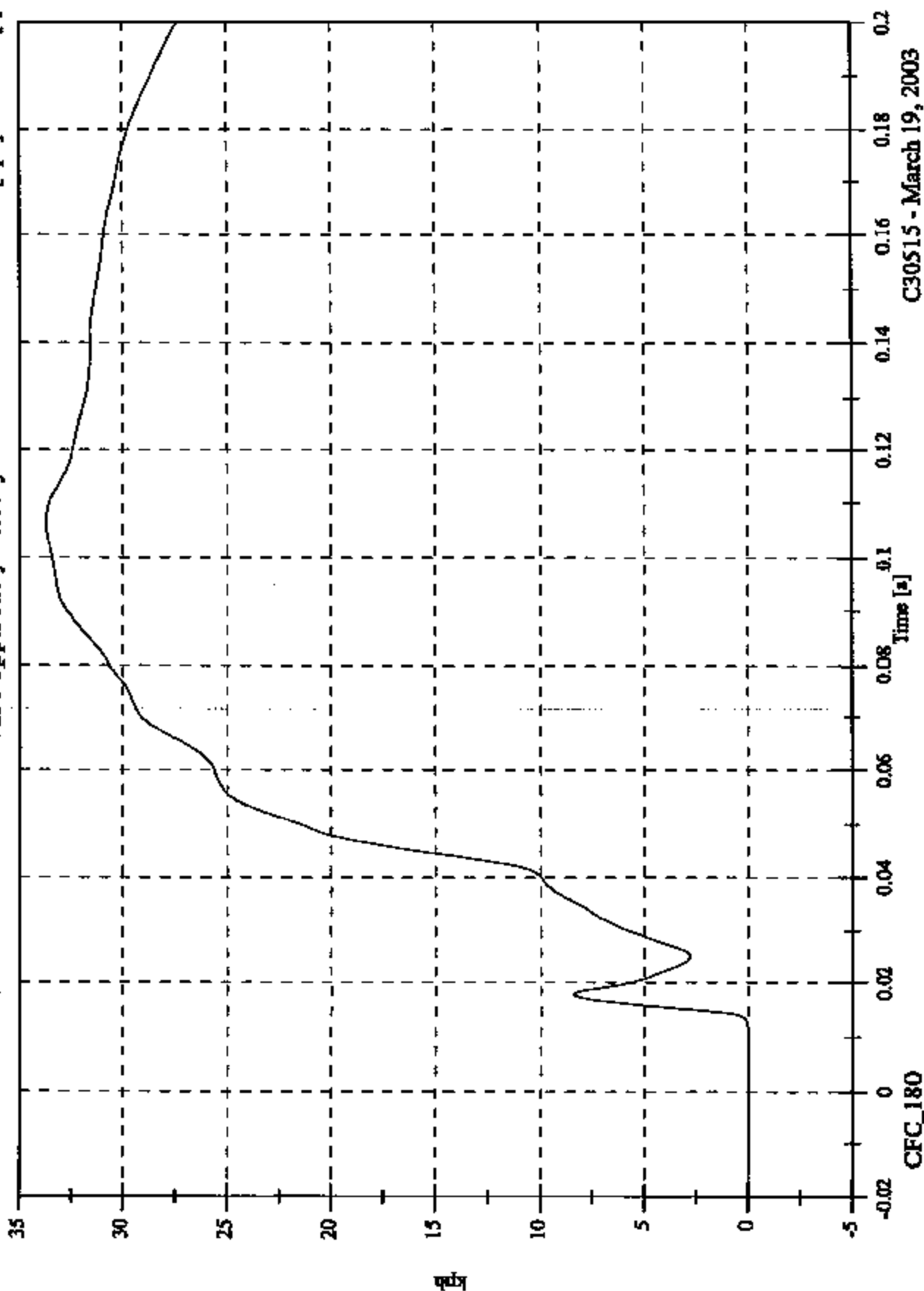


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 33.7 [kph] at 0.106 [s]
Min: -0.0 [kph] at -0.005 [s]

V2P1 Upper Rib y Velocity



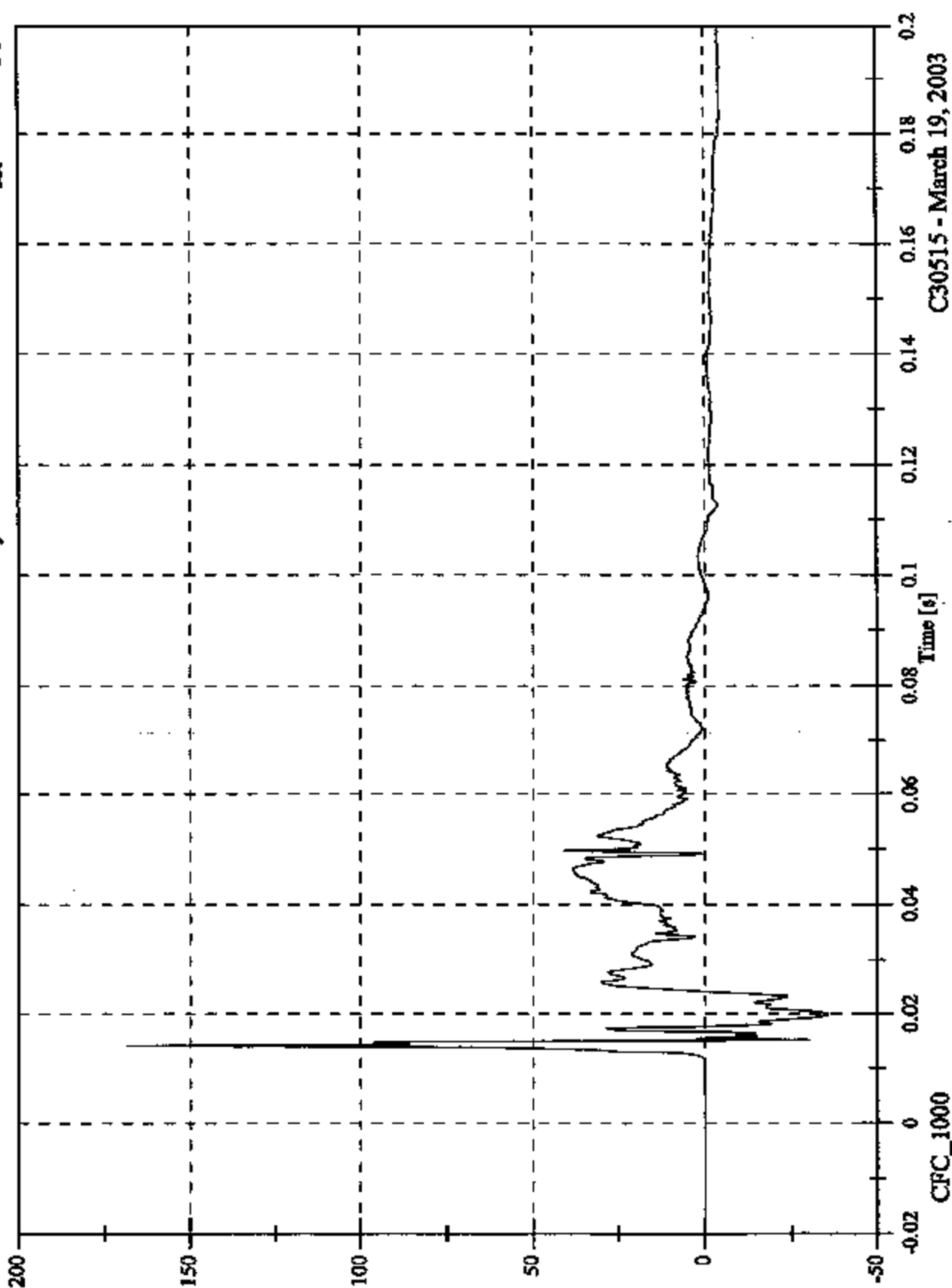
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2P1 Lower Rib y

Max: 168.6 [g] at 0.014 [s]

Min: -35.6 [g] at 0.020 [s]

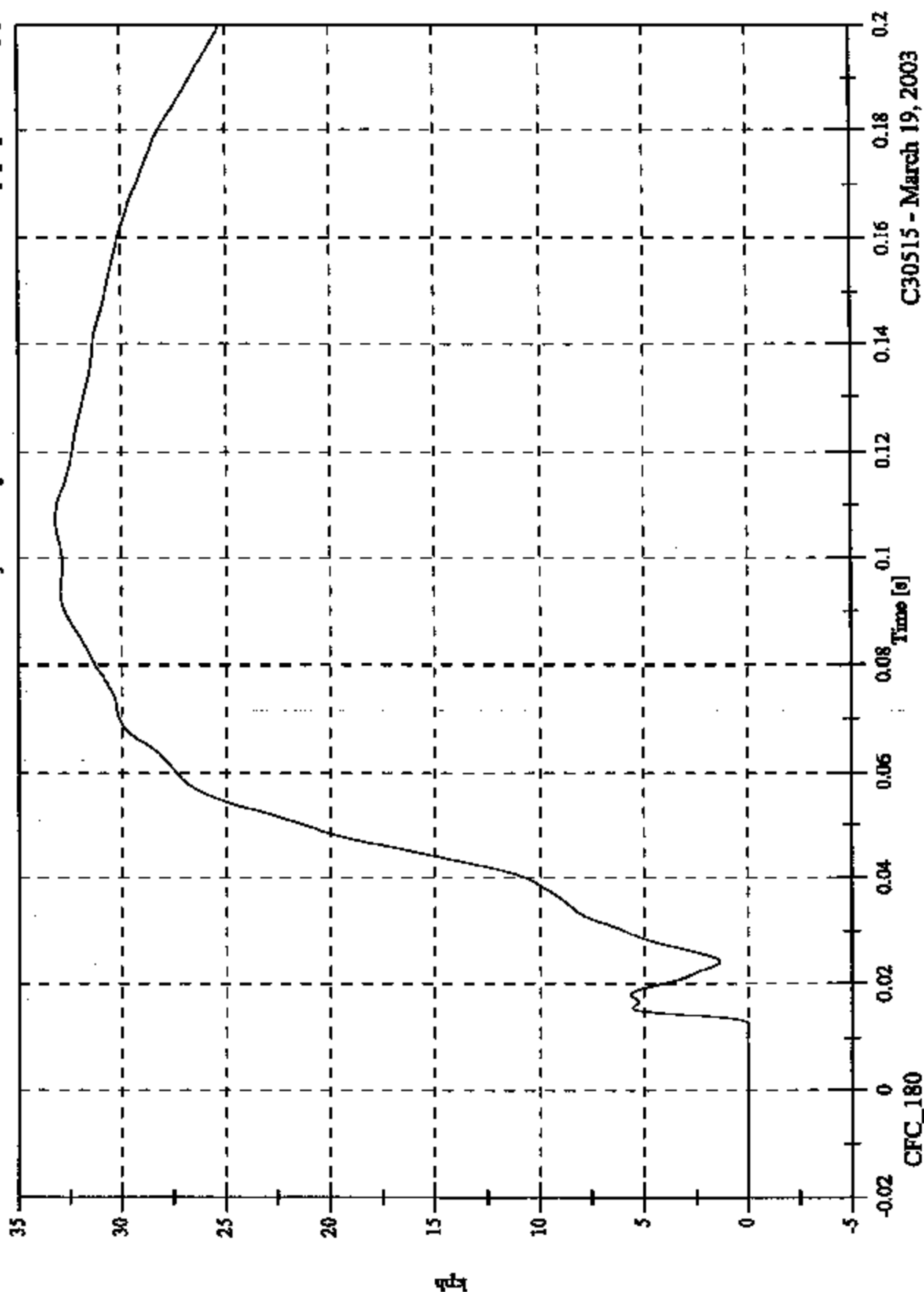


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 33.2 [kph] at 0.107 [s]
Min: -0.0 [kph] at 0.012 [s]

V2P1 Lower Rib y Velocity



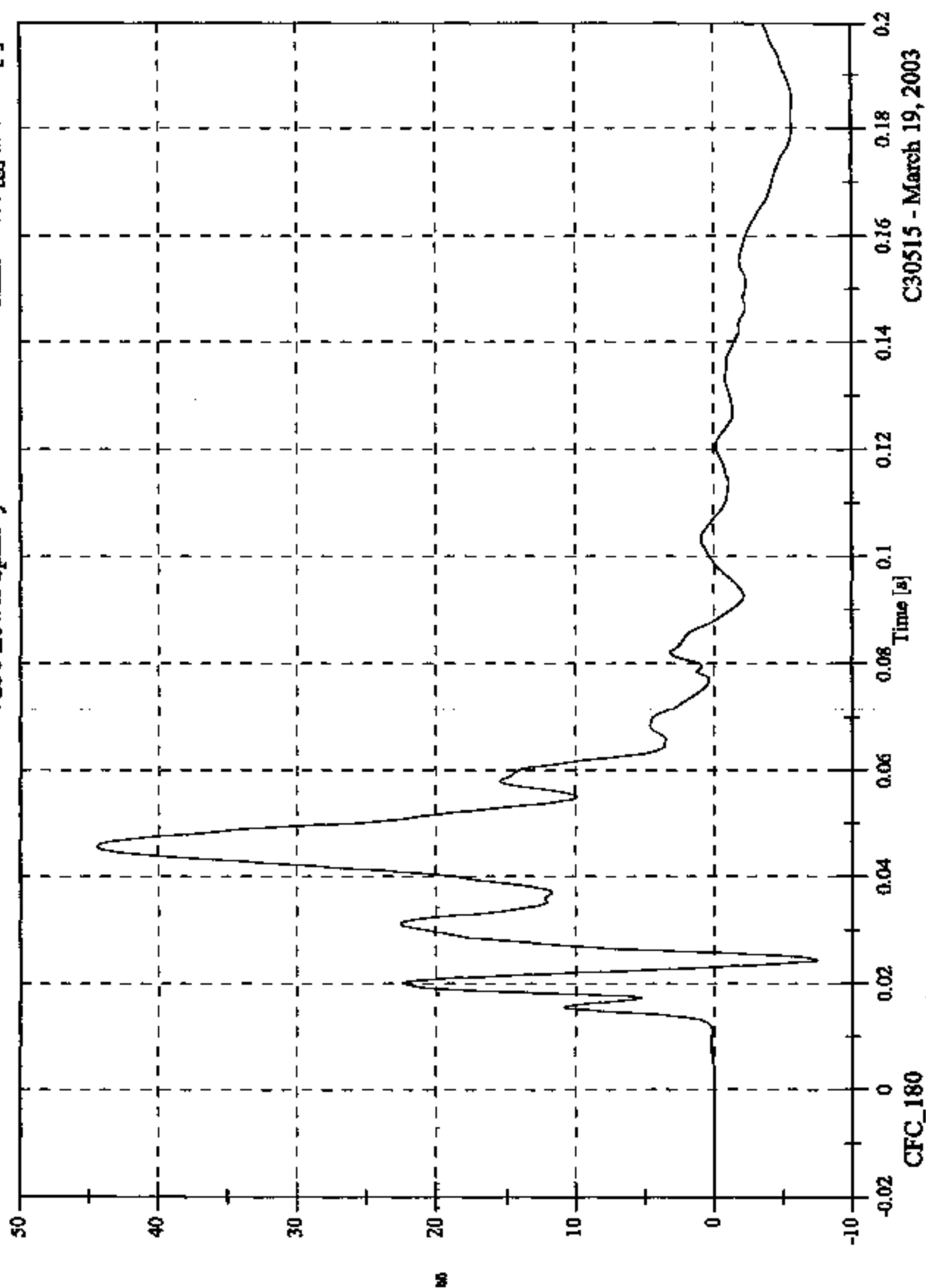
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 44.4 [g] at 0.046 [s]

Min: -7.4 [g] at 0.024 [s]

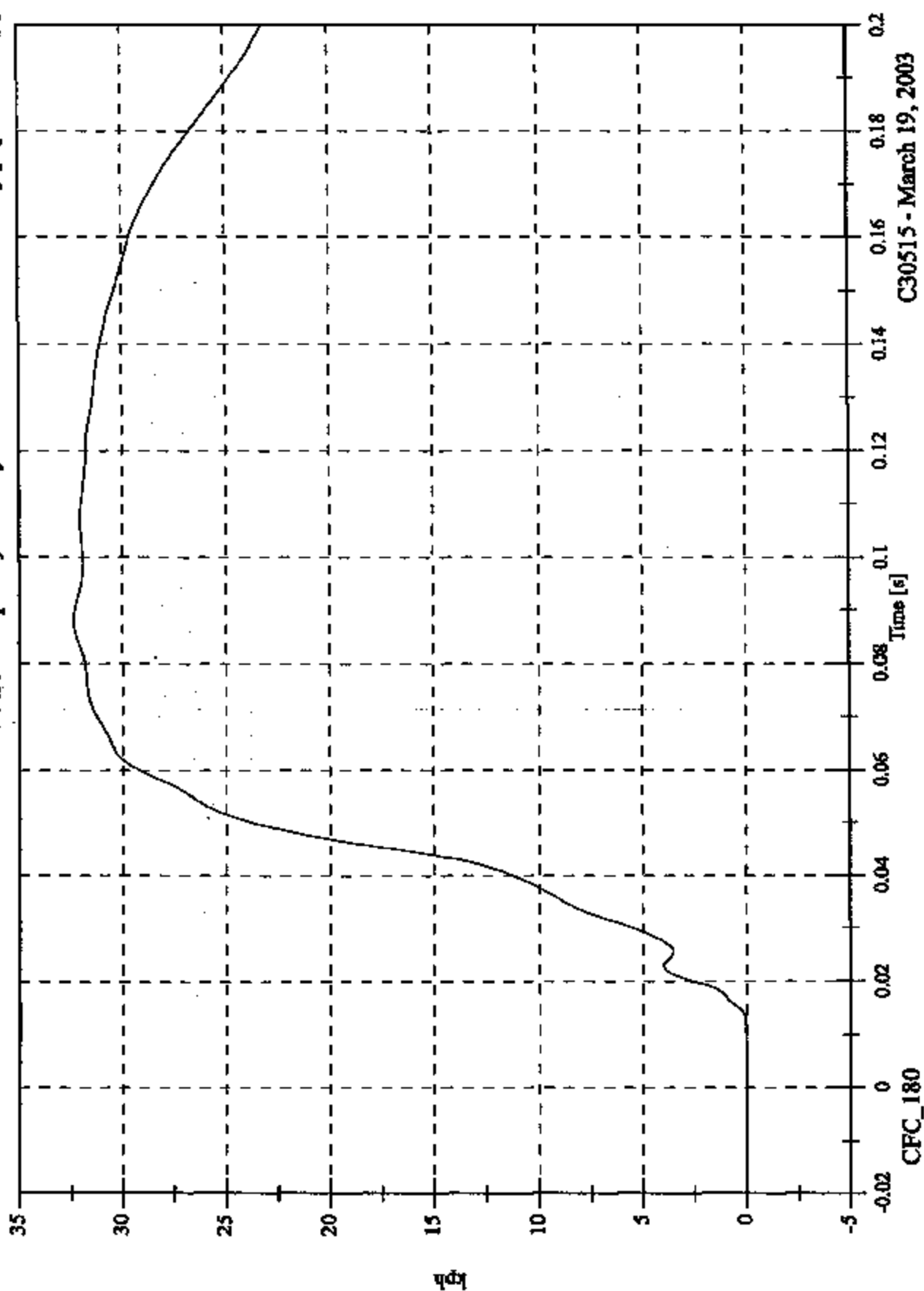
V2P1 Lower Spine y



FMVSS 214D - 2003 Porsche Boxster

Max: 32.4 [kph] at 0.088 [s]
Min: -0.0 [kph] at -0.020 [s]

V2P1 Lower Spine y Velocity

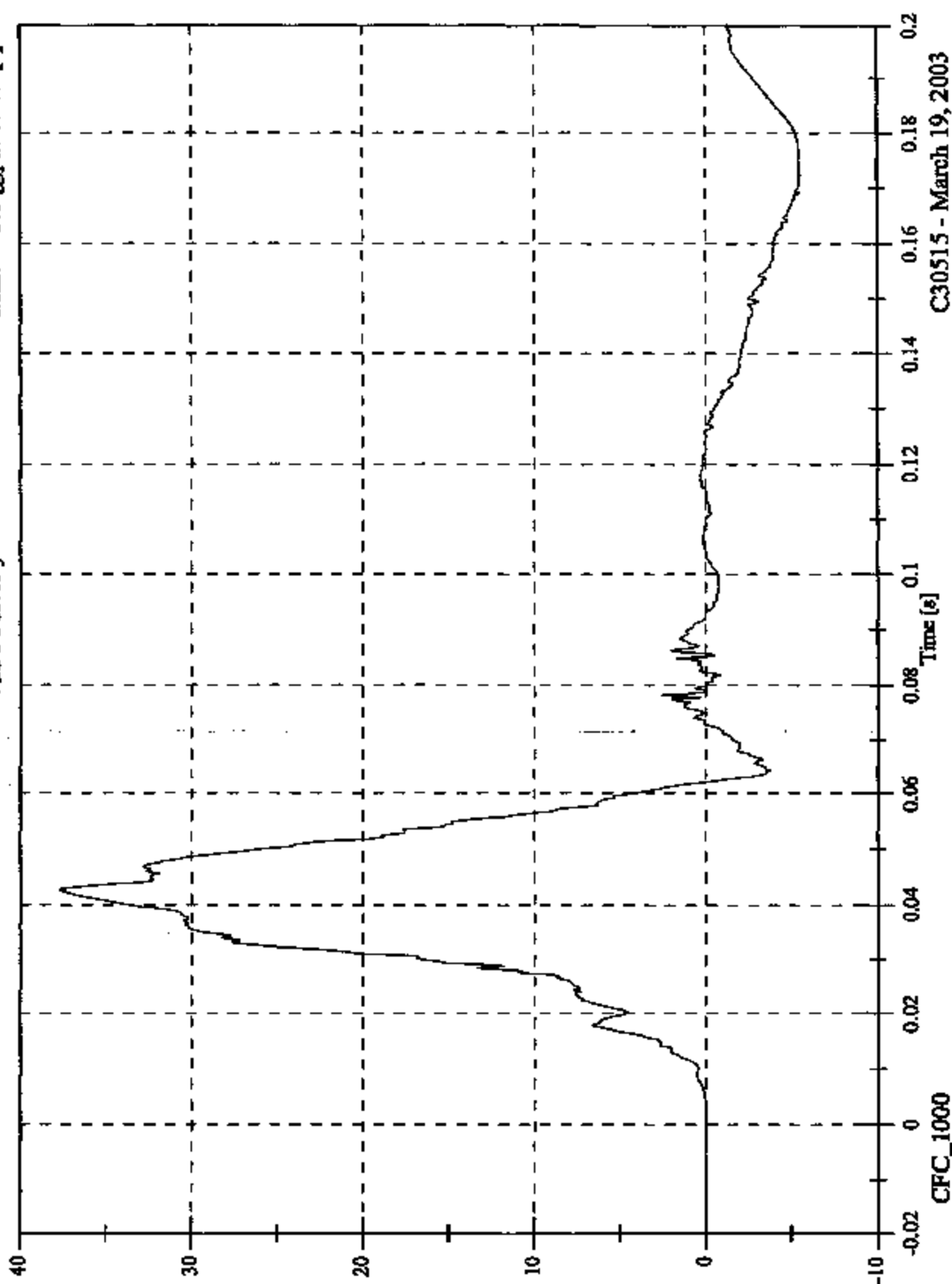


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2P1 Pelvic y

Max: 37.6 [g] at 0.043 [s]
Min: -5.6 [g] at 0.172 [s]

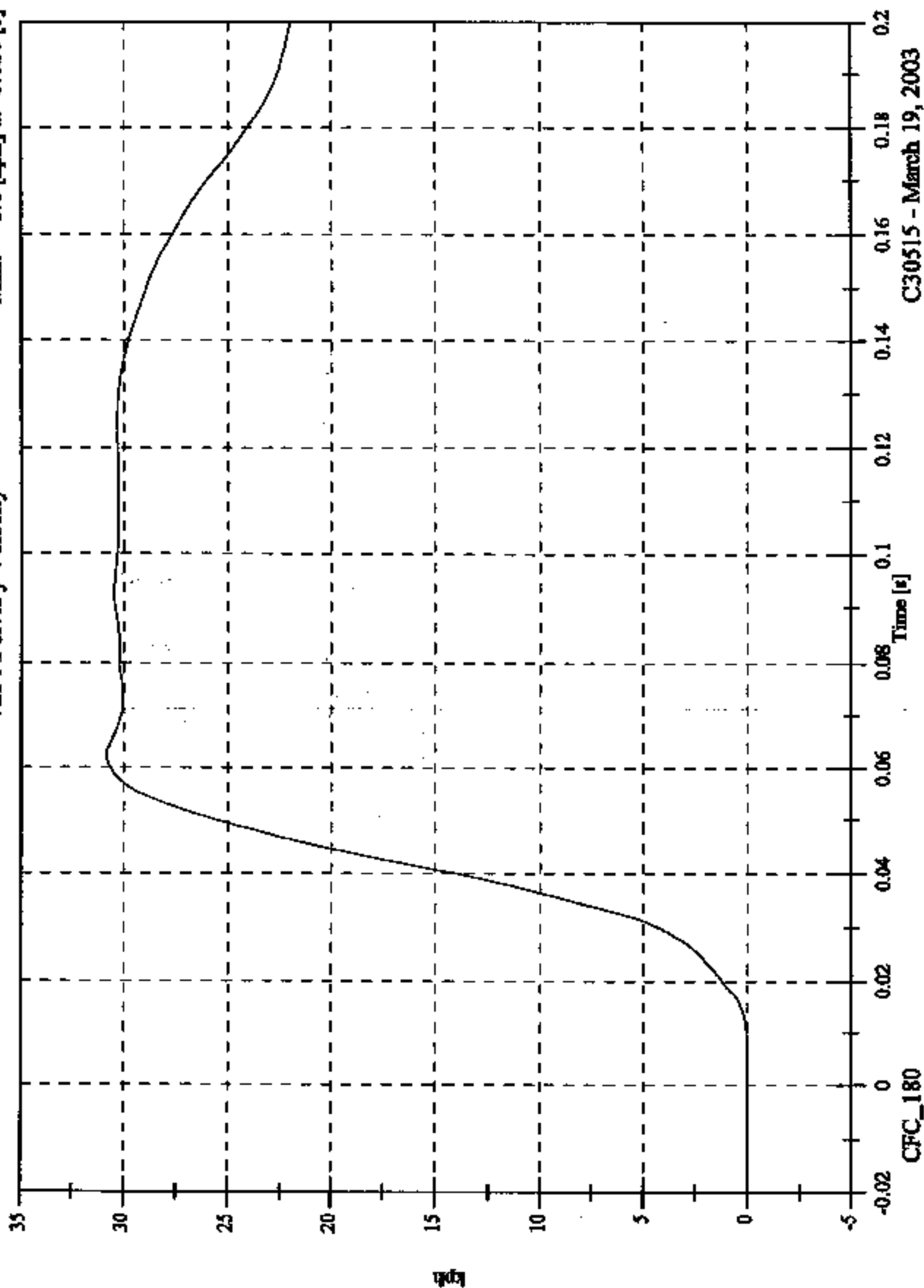


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 30.9 [kph] at 0.062 [s]
Min: -0.0 [kph] at -0.020 [s]

V2P1 Pelvic y Velocity



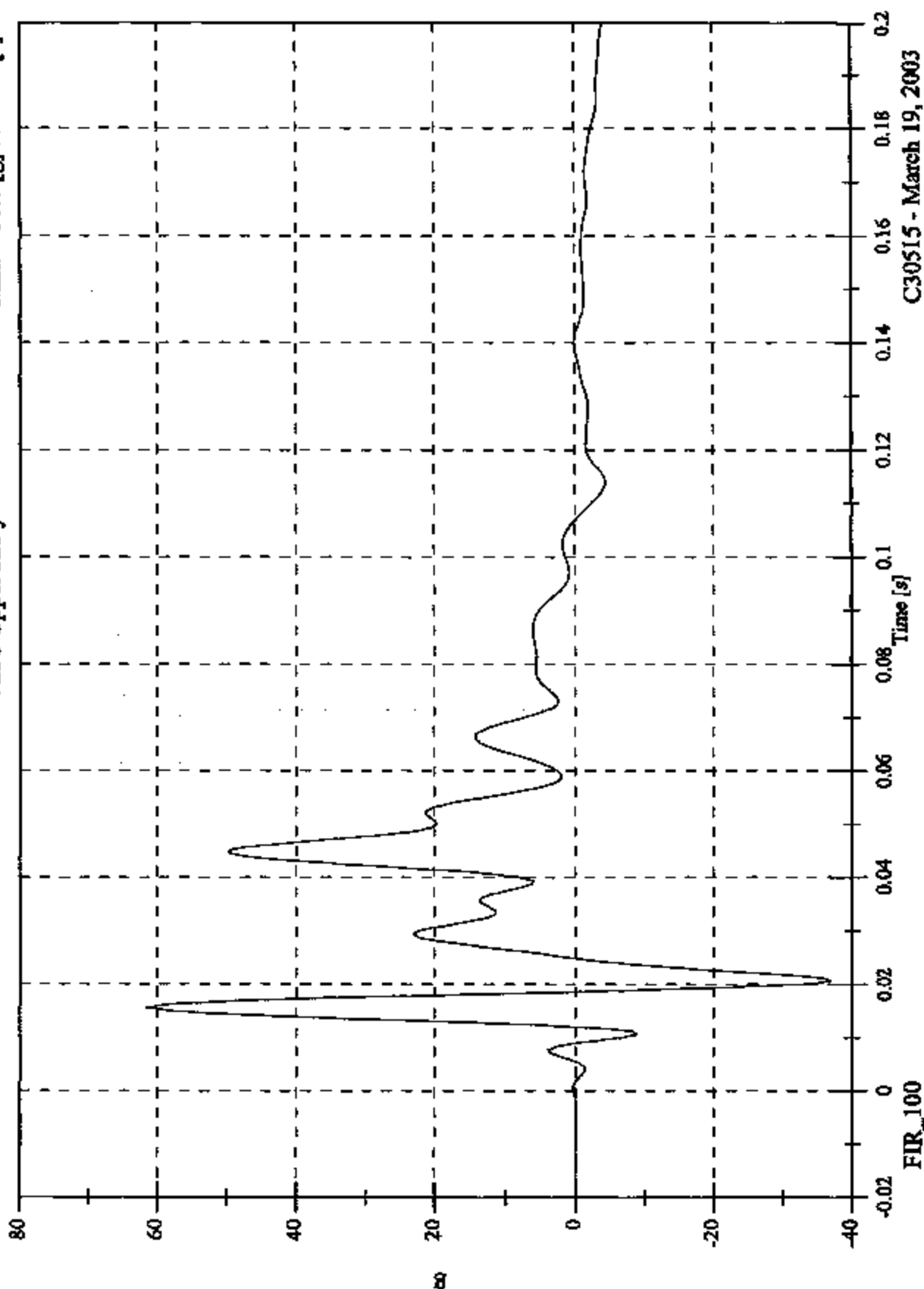
CFC_180

C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2P1 Upper Rib y

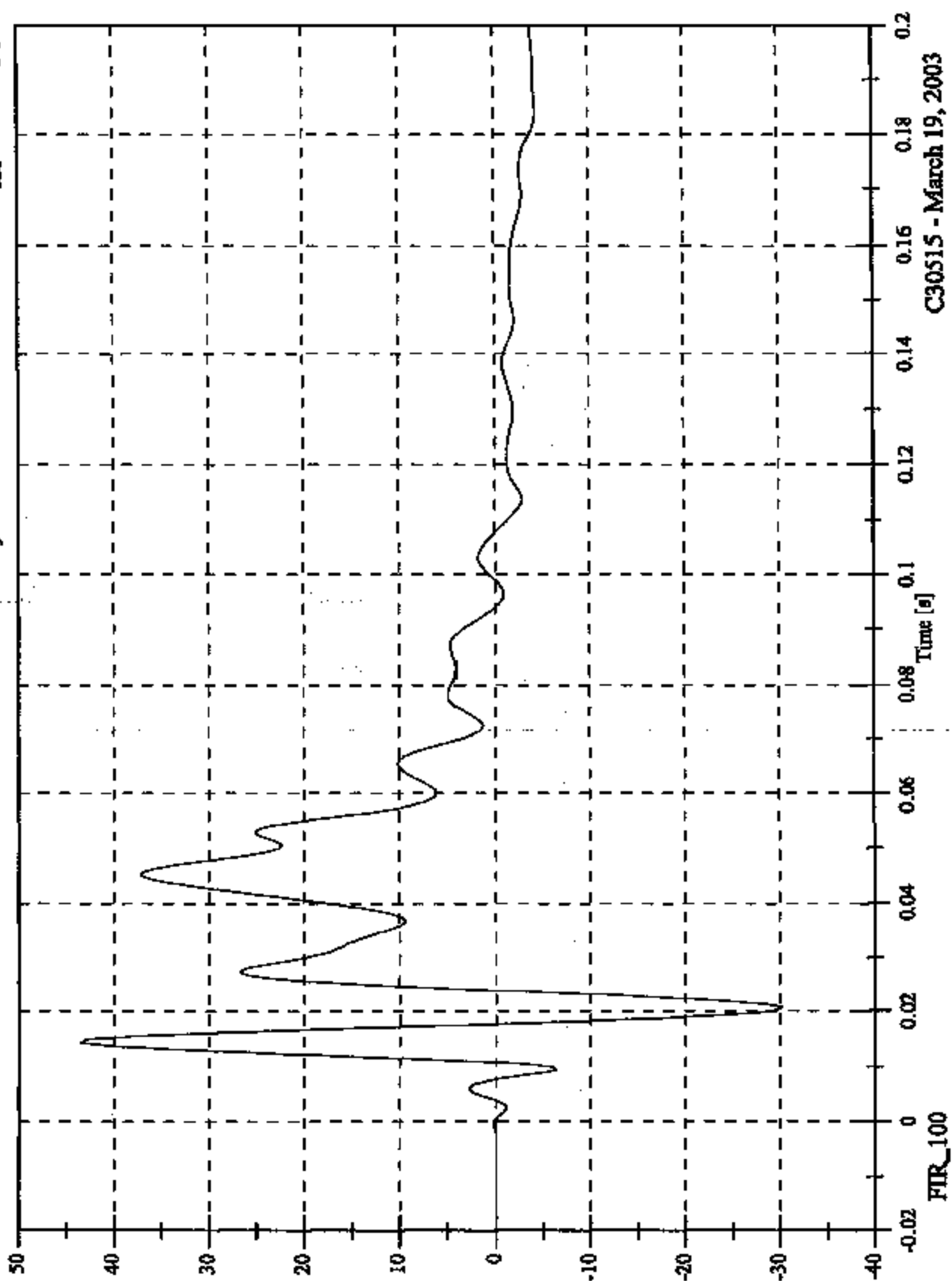
Max: 61.5 [g] at 0.016 [s]
Min: -36.8 [g] at 0.021 [s]



FMVSS 214D - 2003 Porsche Boxster

V2P1 Lower Rib y

Max: 43.4 [g] at 0.014 [s]
Min: -30.2 [g] at 0.021 [s]

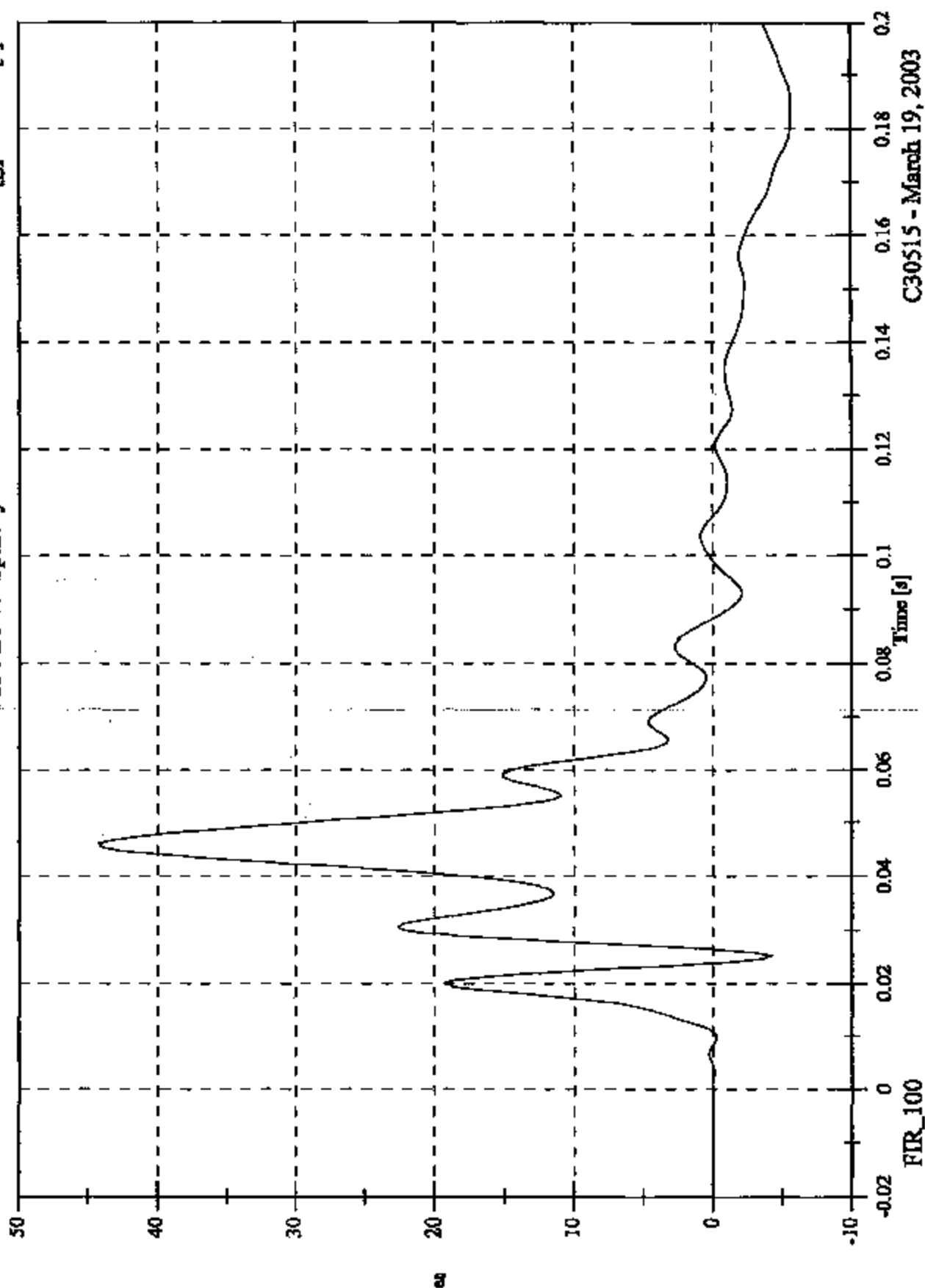


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 44.2 [g] at 0.046 [s]
Min: -5.7 [g] at 0.186 [s]

V2P1 Lower Spine y

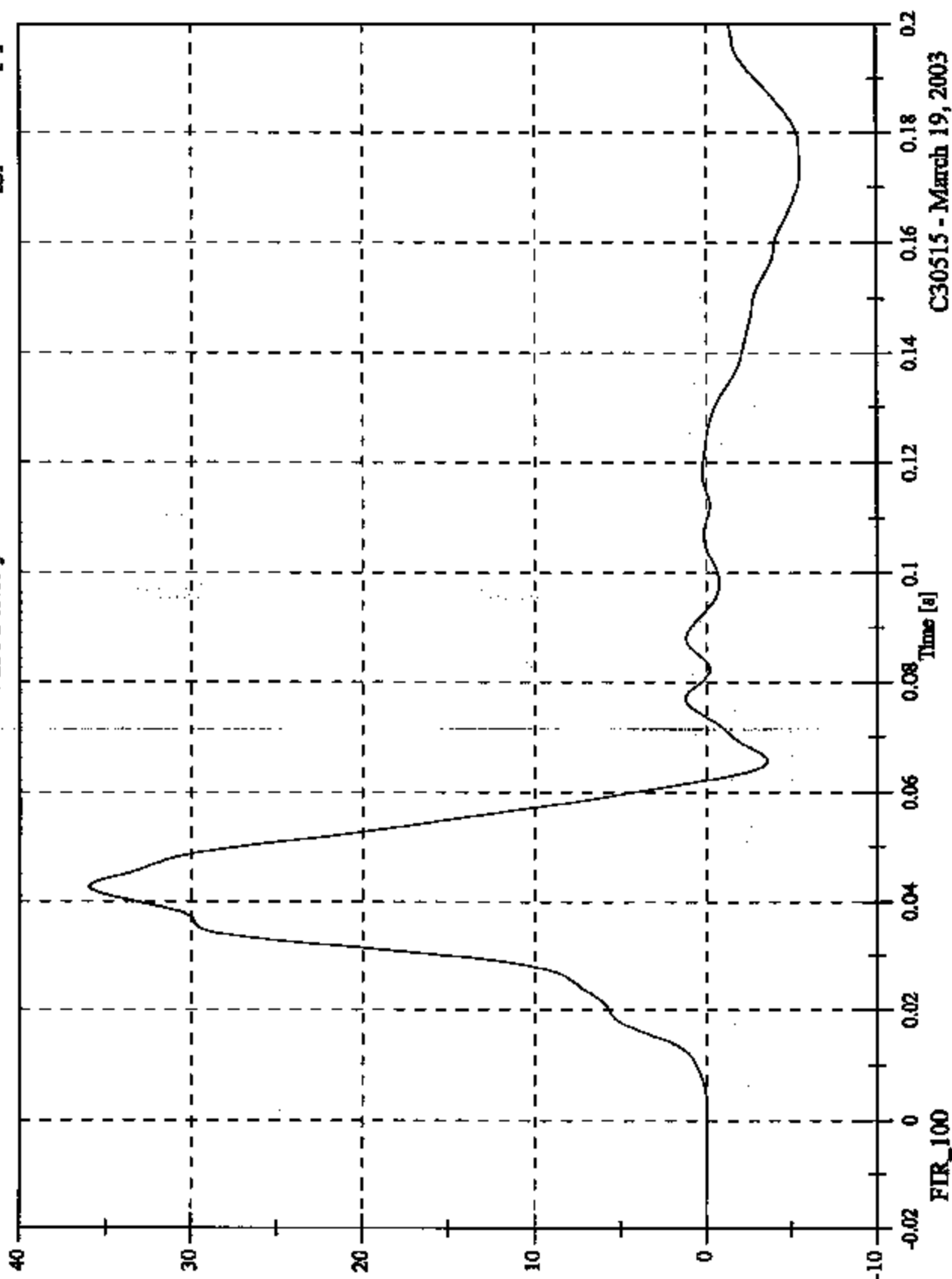


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 36.0 [g] at 0.043 [s]
Min: -5.5 [g] at 0.173 [s]

V2P1 Pelvic y



FIR_100

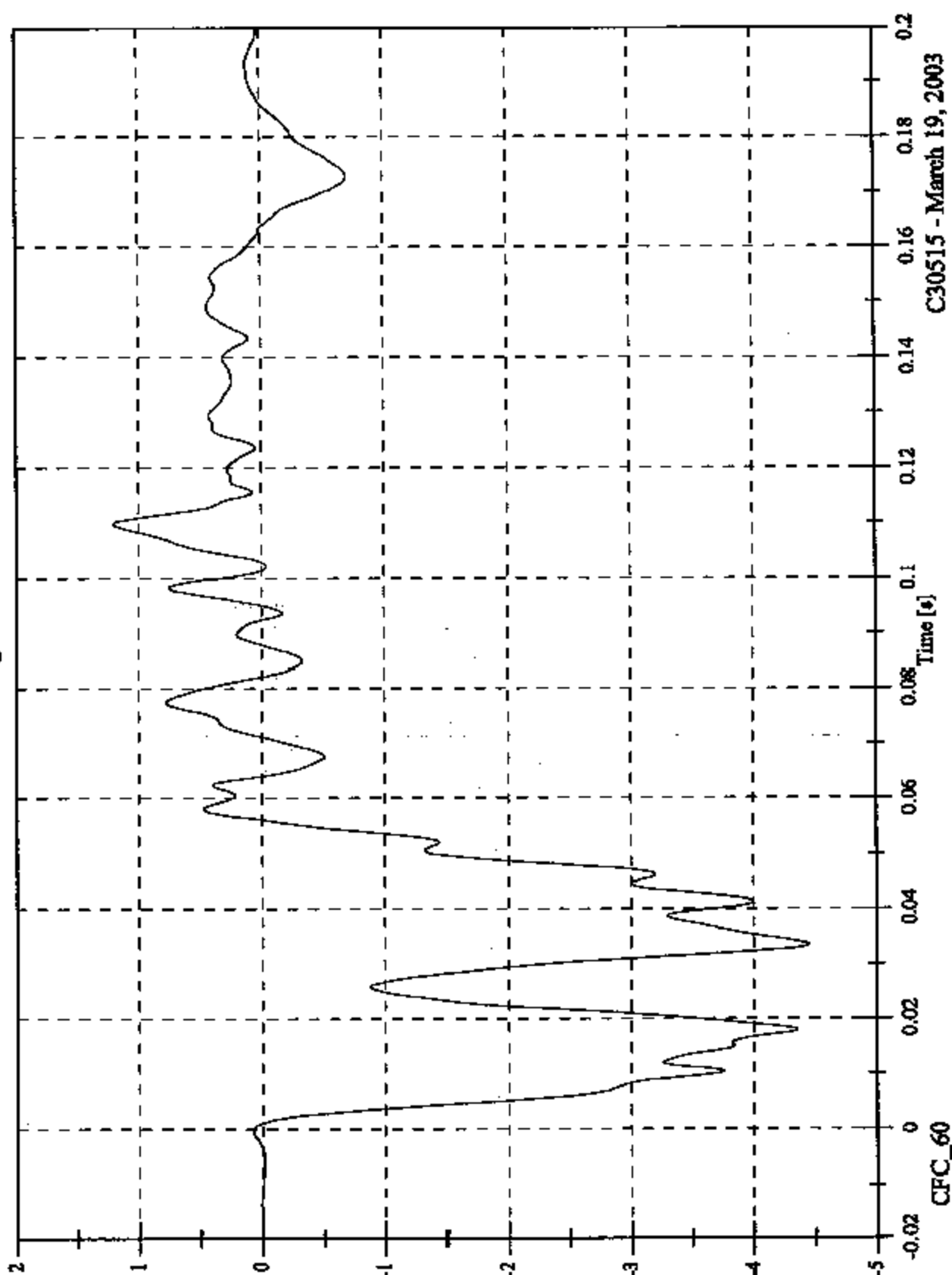
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A1 Right Front Sill X

Max: 1.2 [g] at 0.110 [s]

Min: -4.4 [g] at 0.033 [s]

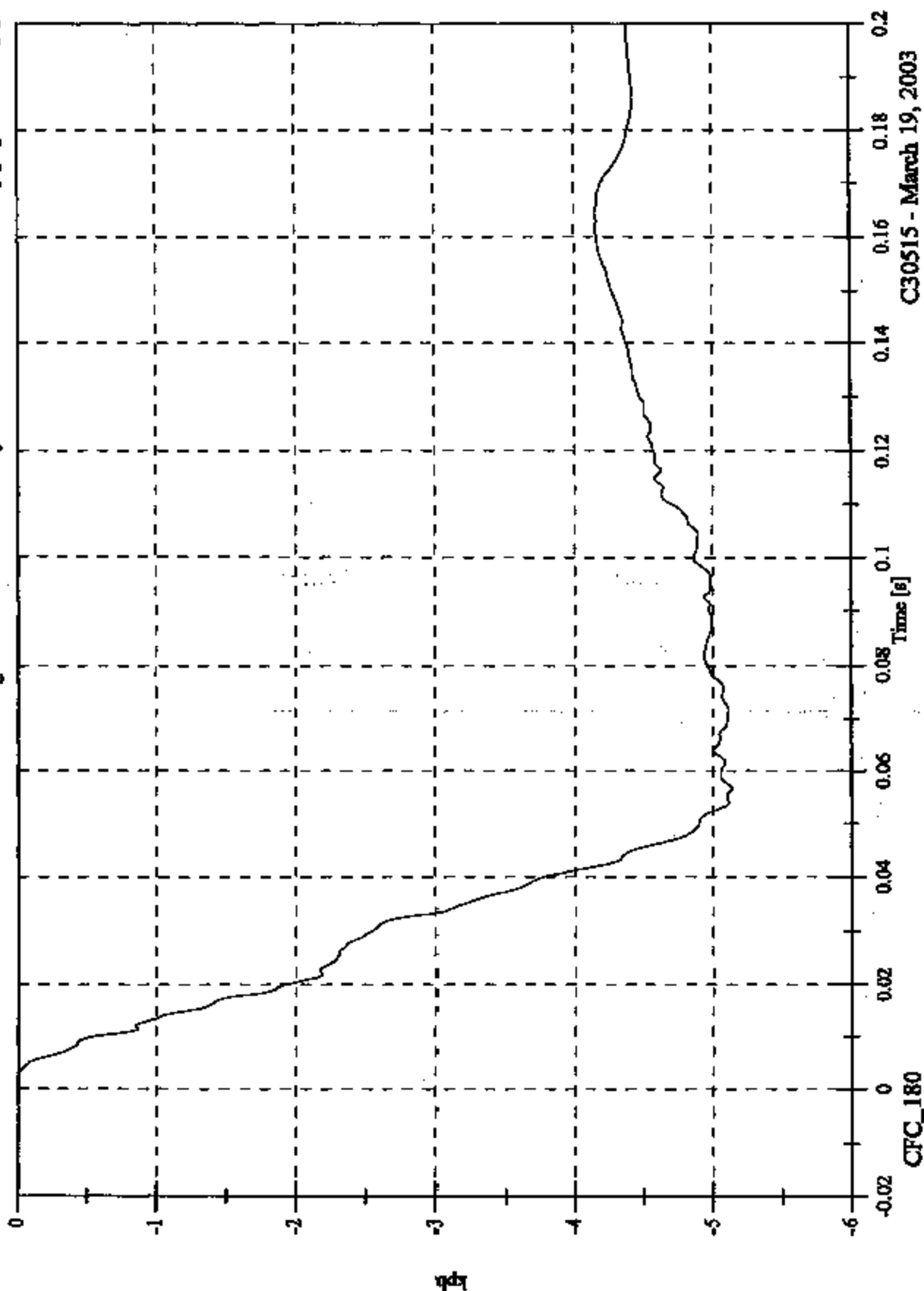


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A1 Right Front Sill X Velocity

Max: 0.0 [kph] at -0.012 [s]
Min: -5.1 [kph] at 0.057 [s]



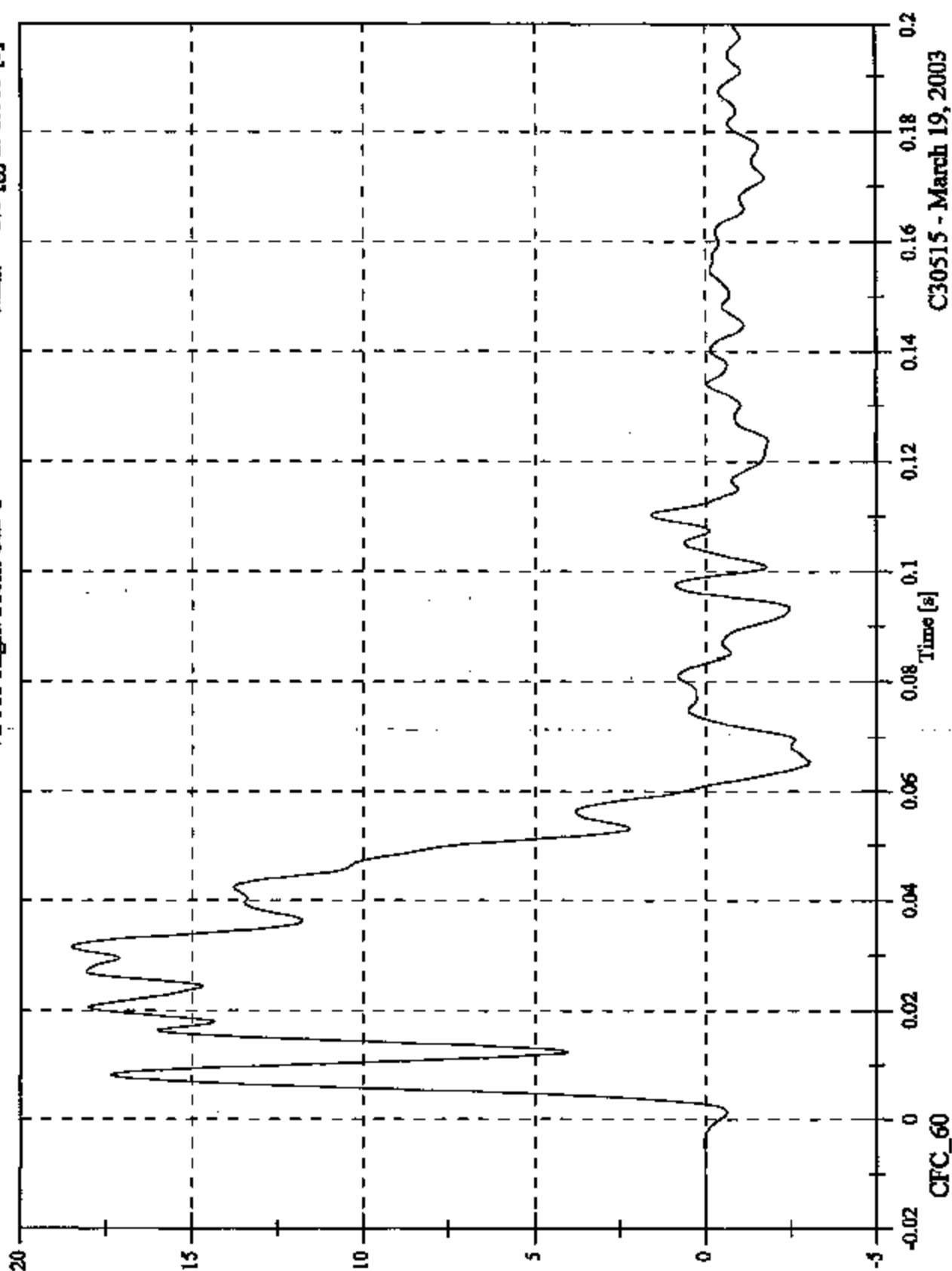
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A1 Right Front Sill Y

Max: 18.5 [g] at 0.032 [s]

Min: -3.0 [g] at 0.065 [s]

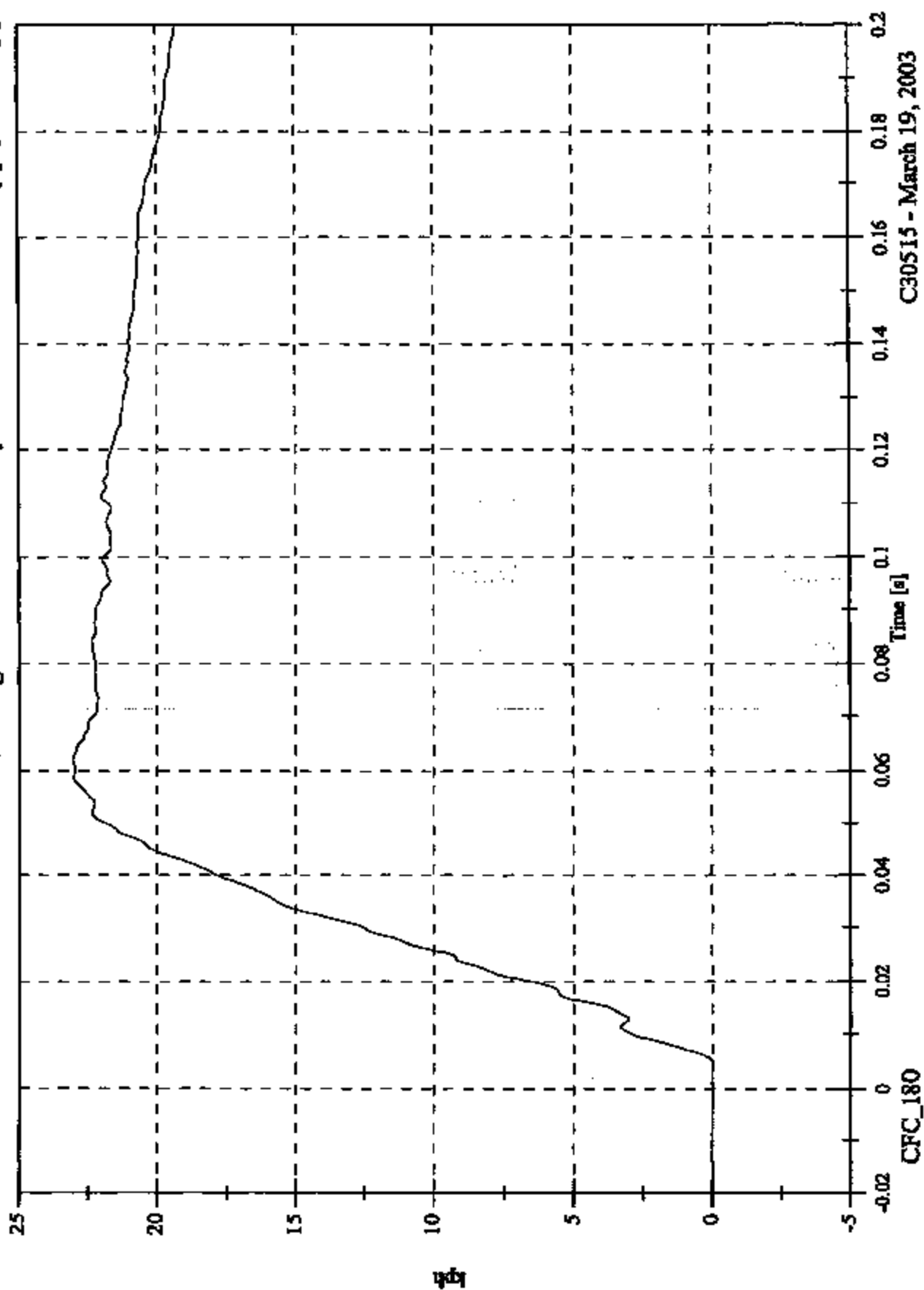


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A1 Right Front Sill Y Velocity

Max: 23.1 [kph] at 0.062 [s]
Min: -0.0 [kph] at 0.004 [s]



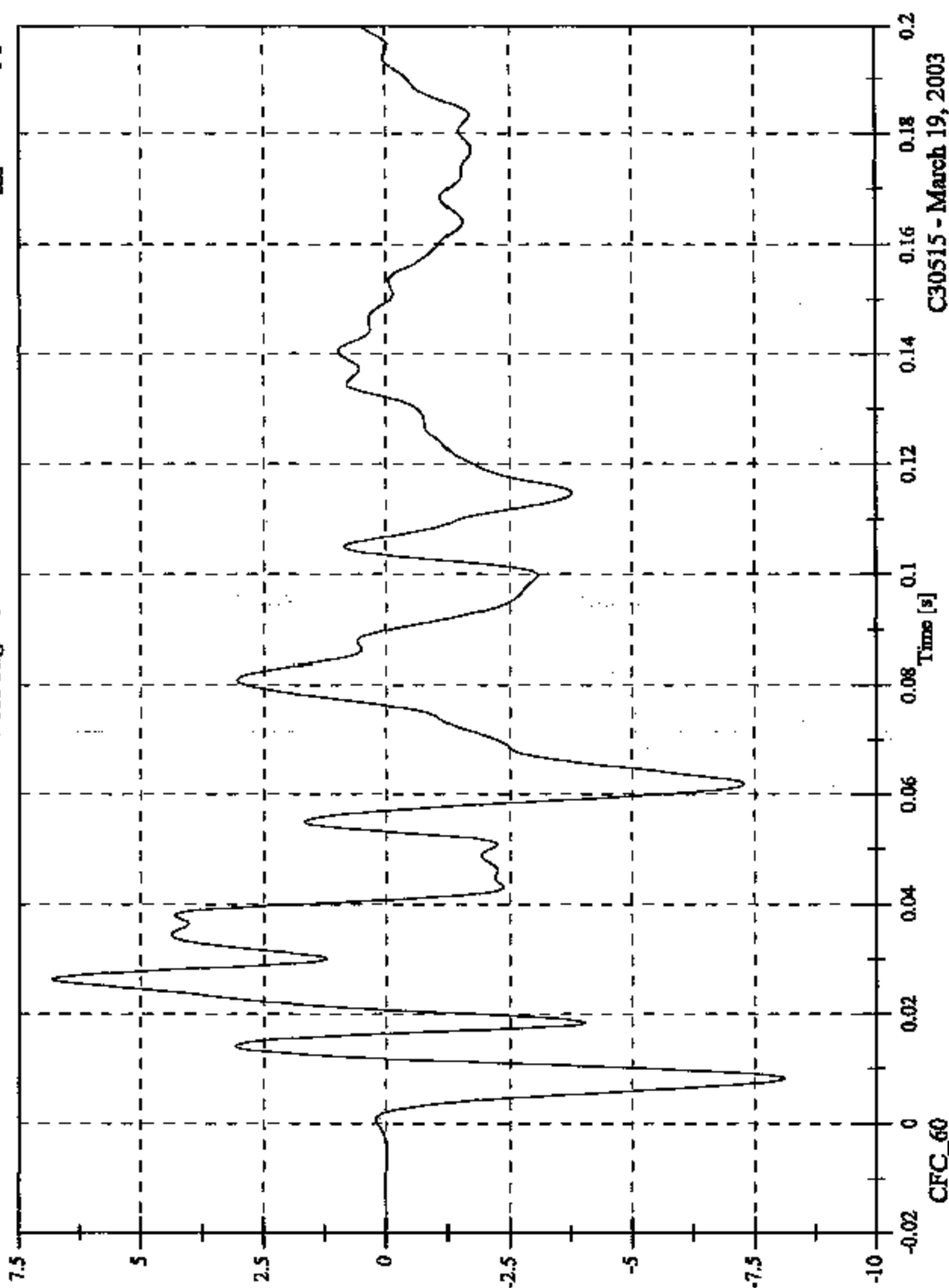
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A1 Right Front Sill Z

Max: 6.8 [g] at 0.026 [s]

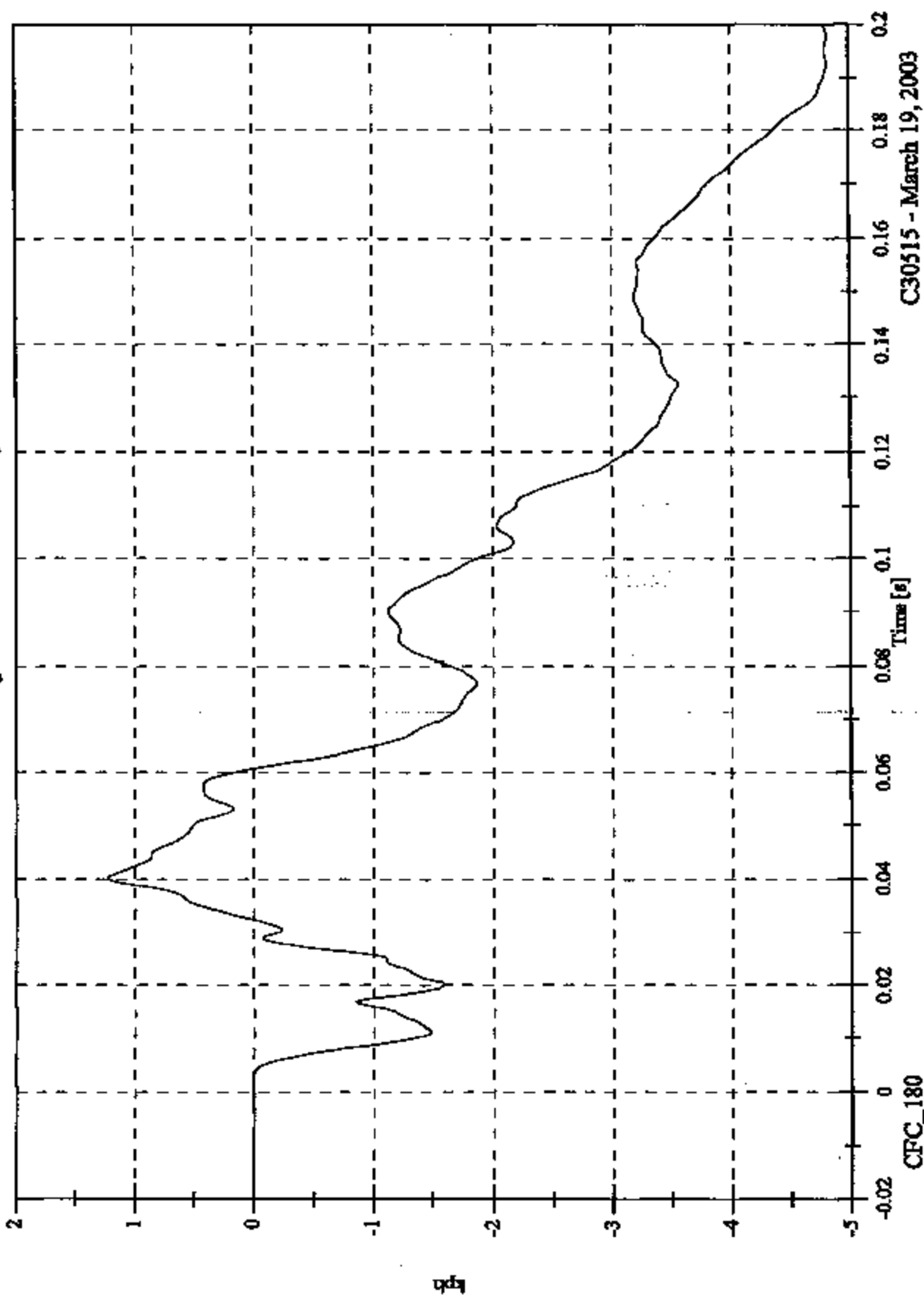
Min: -8.1 [g] at 0.008 [s]



FMVSS 214D - 2003 Porsche Boxster

V2 A1 Right Front Sill Z Velocity

Max: 1.2 [kph] at 0.040 [s]
Min: -4.8 [kph] at 0.192 [s]

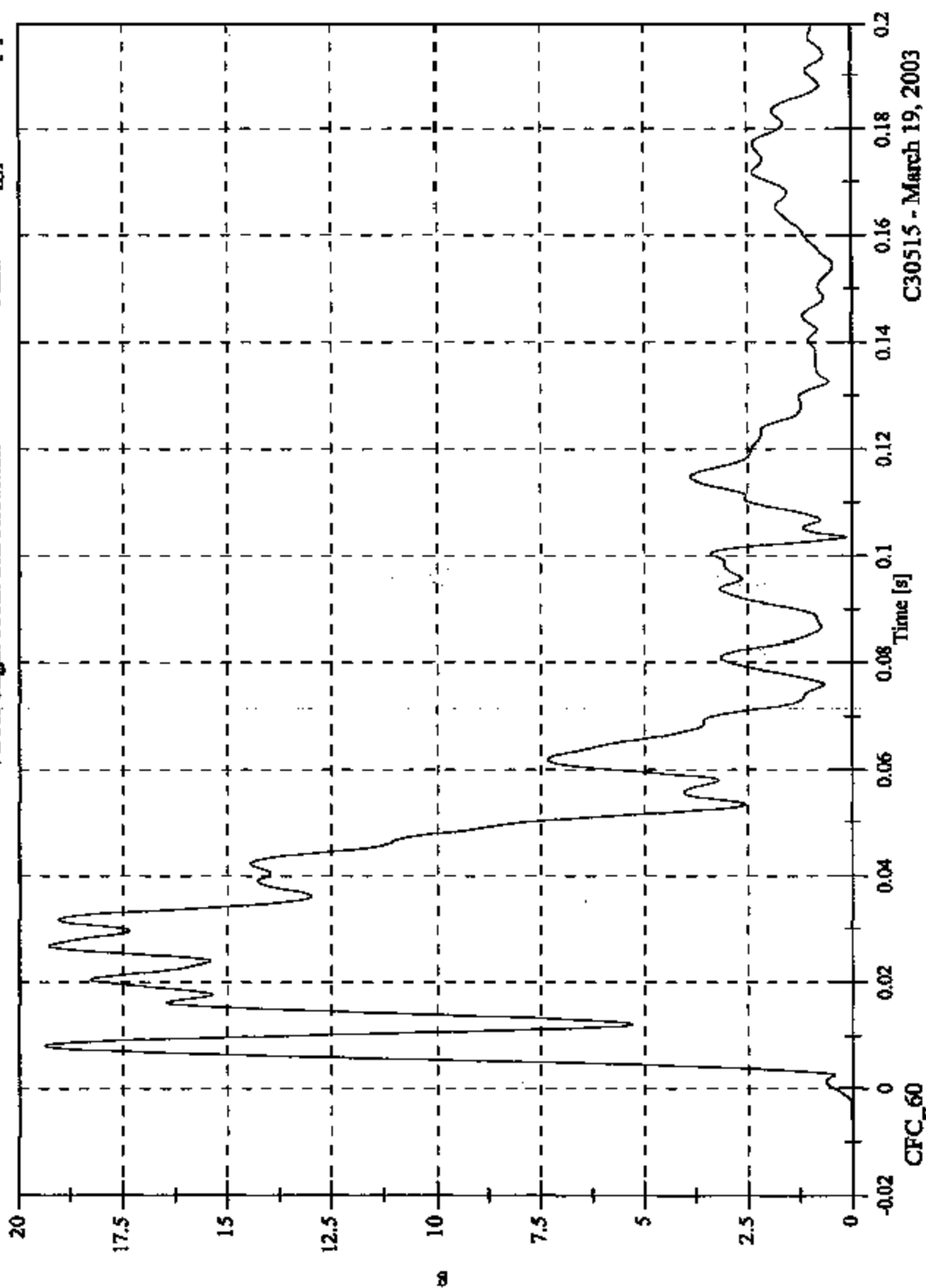


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 AI Right Front Sill Resultant

Max: 19.4 [g] at 0.008 [s]
Min: 0.0 [g] at -0.020 [s]

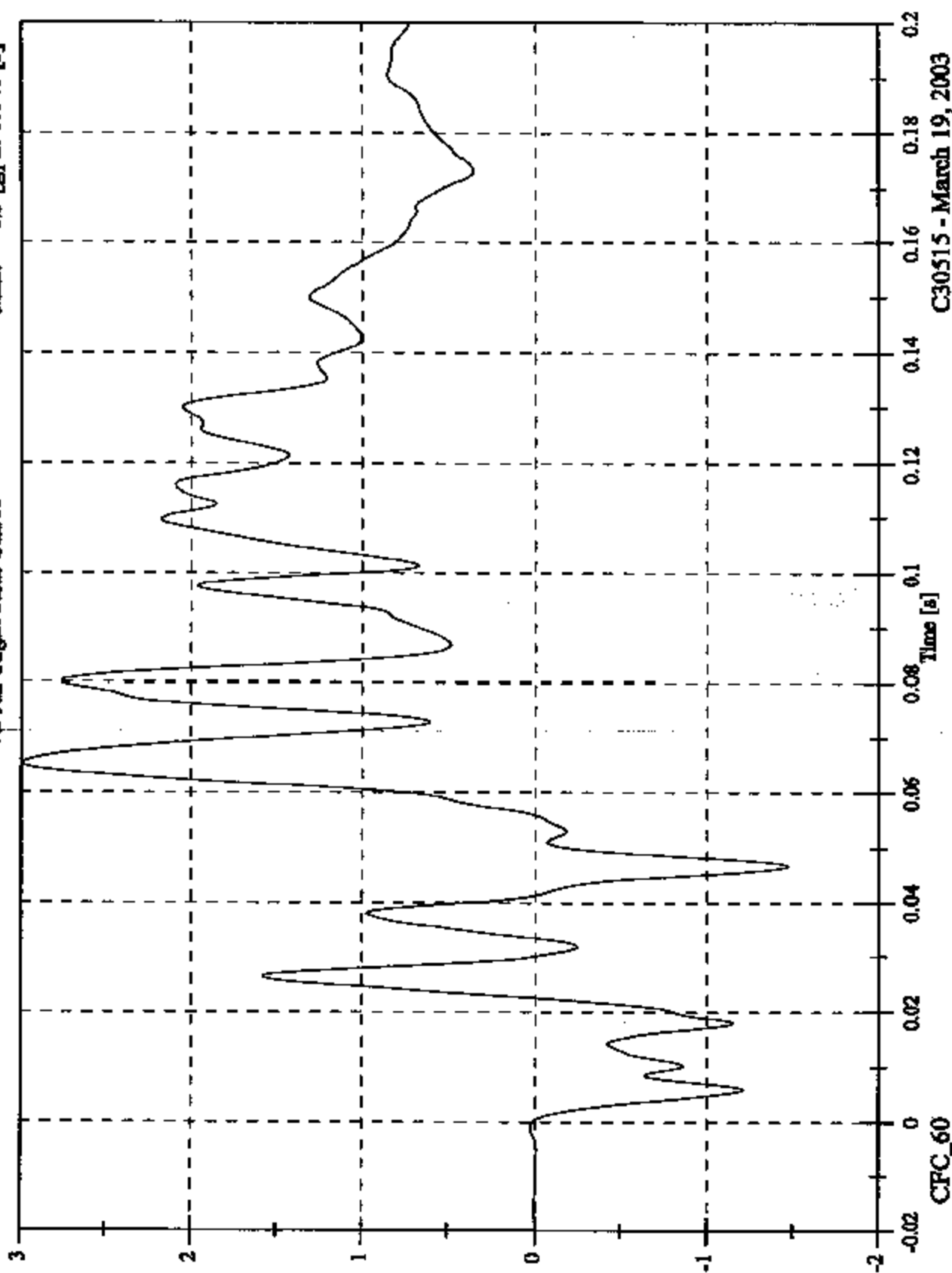


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A2 Right Rear Sill X

Max: 3.0 [g] at 0.066 [s]
Min: -1.5 [g] at 0.046 [s]

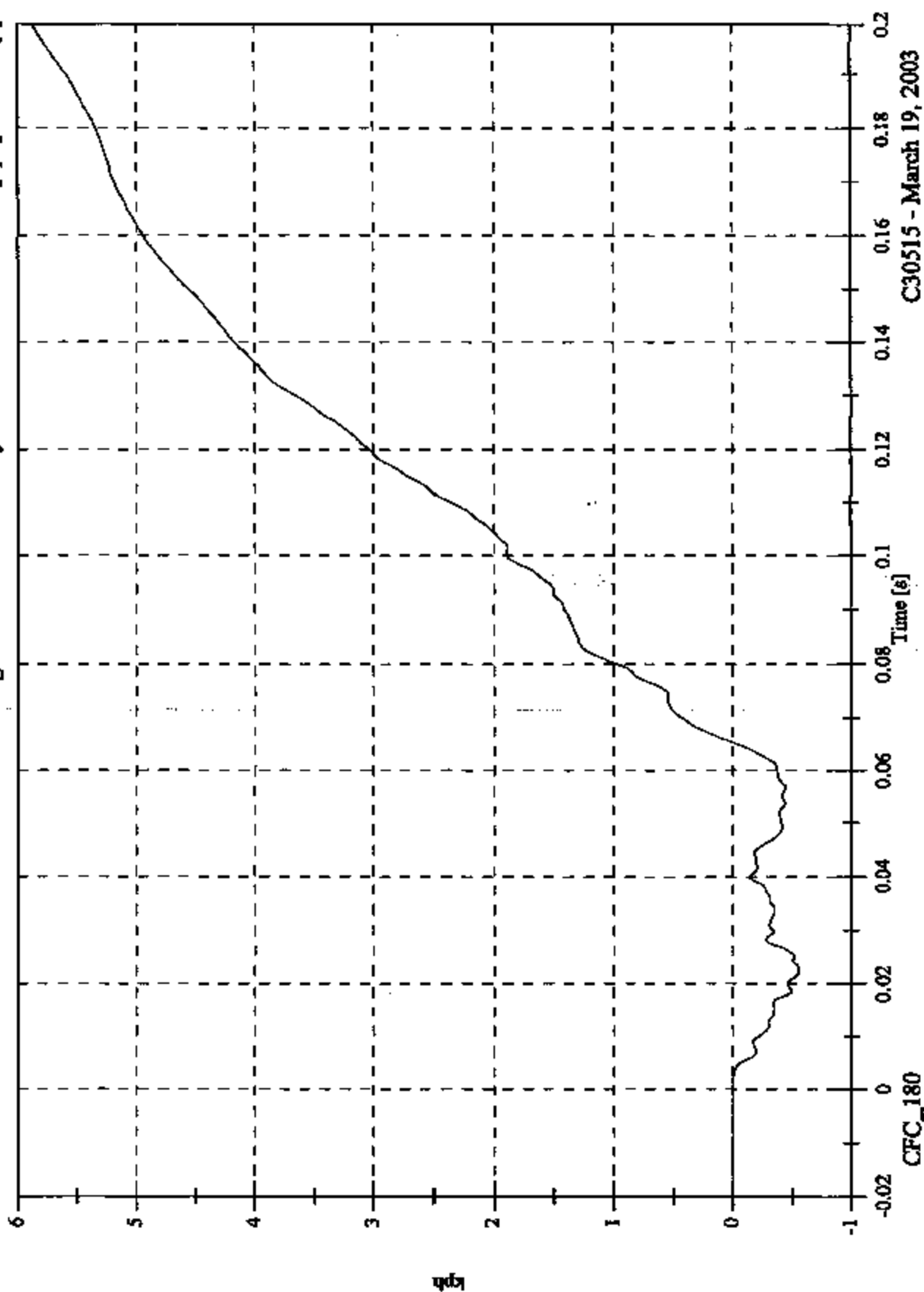


FMVSS 214D - 2003 Porsche Boxster

V2 A2 Right Rear Sill X Velocity

Max: 5.9 [kph] at 0.200 [s]

Min: -0.6 [kph] at 0.022 [s]

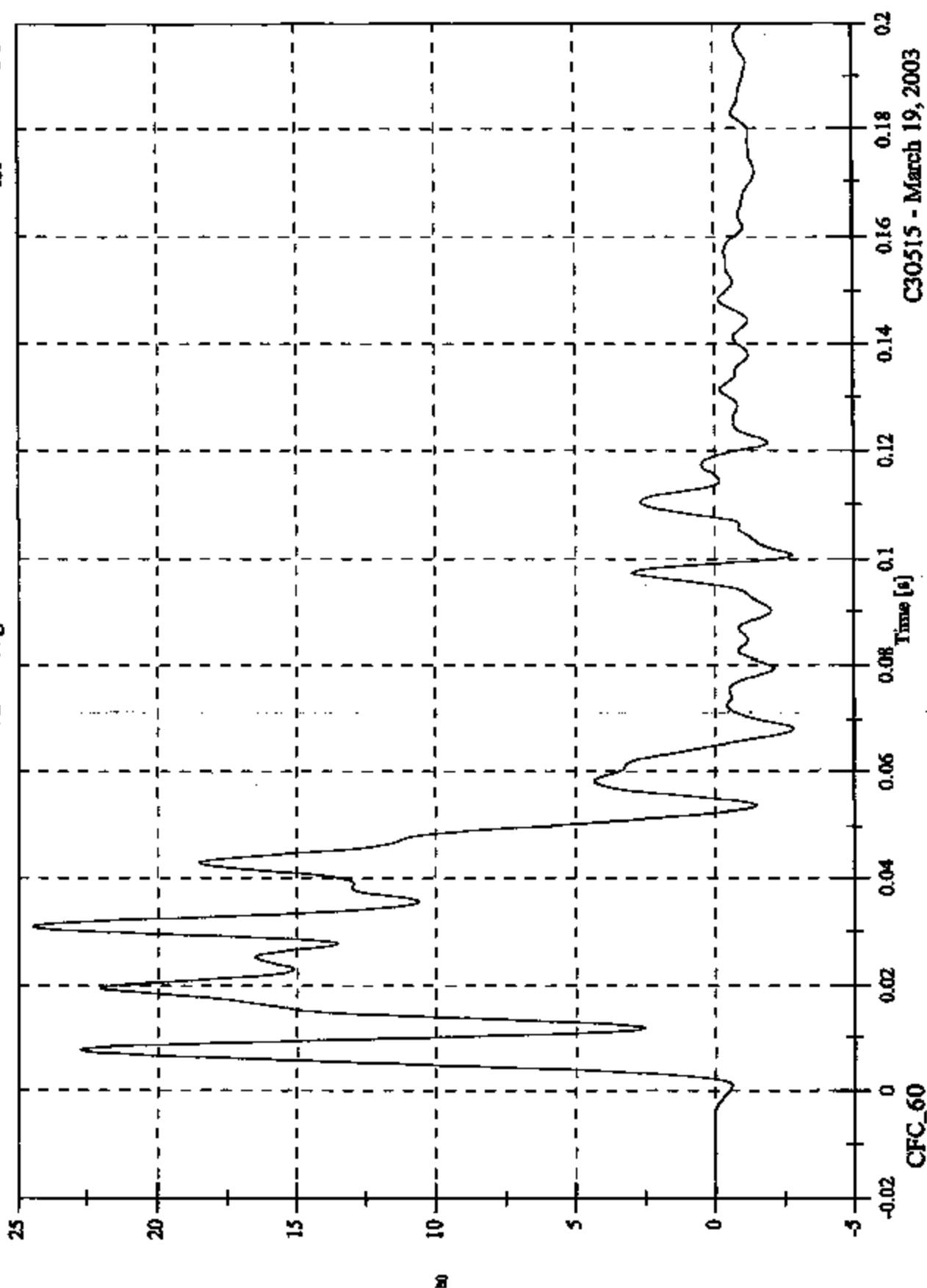


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A2 Right Rear Sill Y

Max: 24.5 [g] at 0.031 [s]
Min: -2.8 [g] at 0.068 [s]

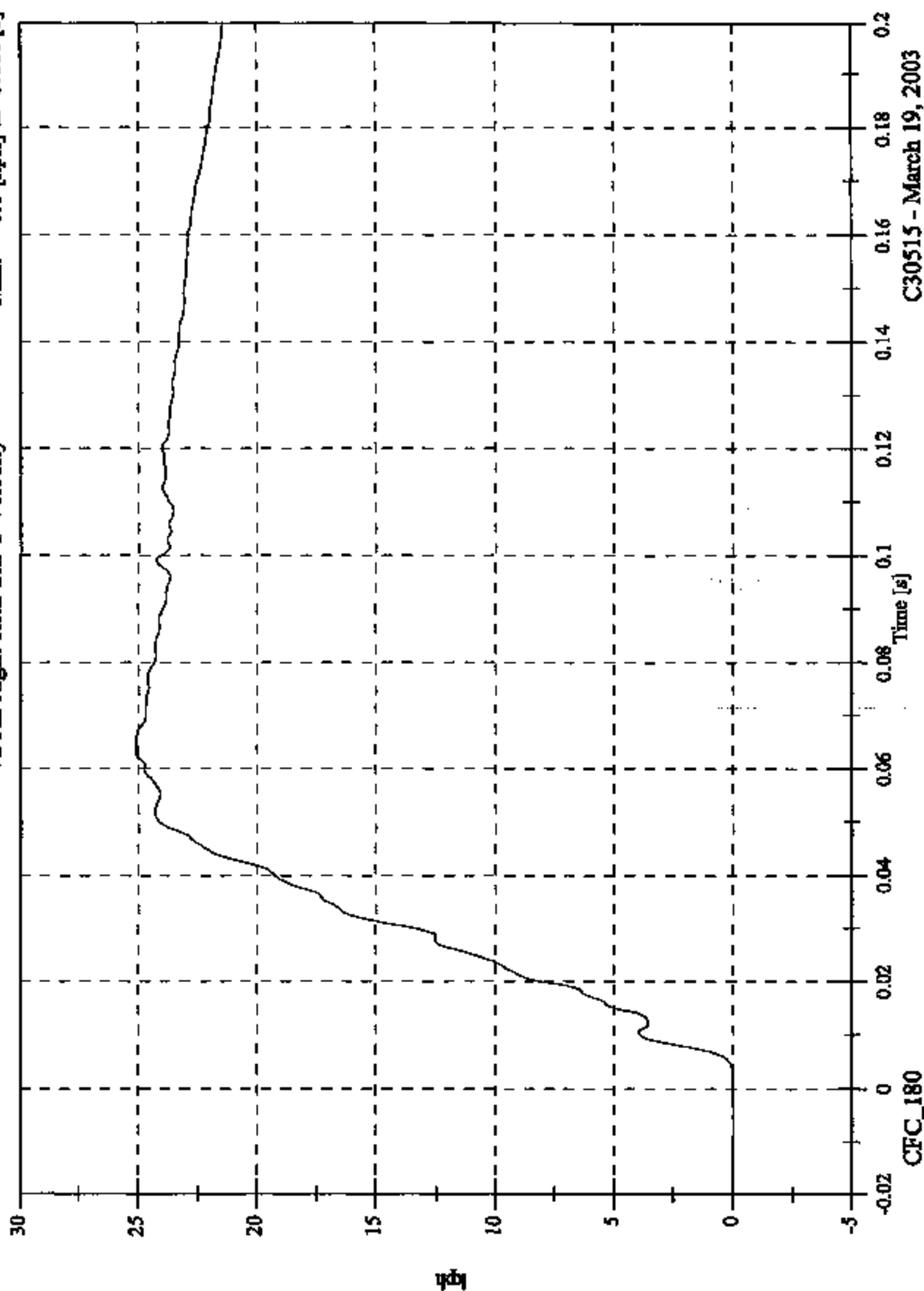


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A2 Right Rear Sill Y Velocity

Max: 25.1 [kph] at 0.063 [s]
Min: -0.0 [kph] at -0.016 [s]

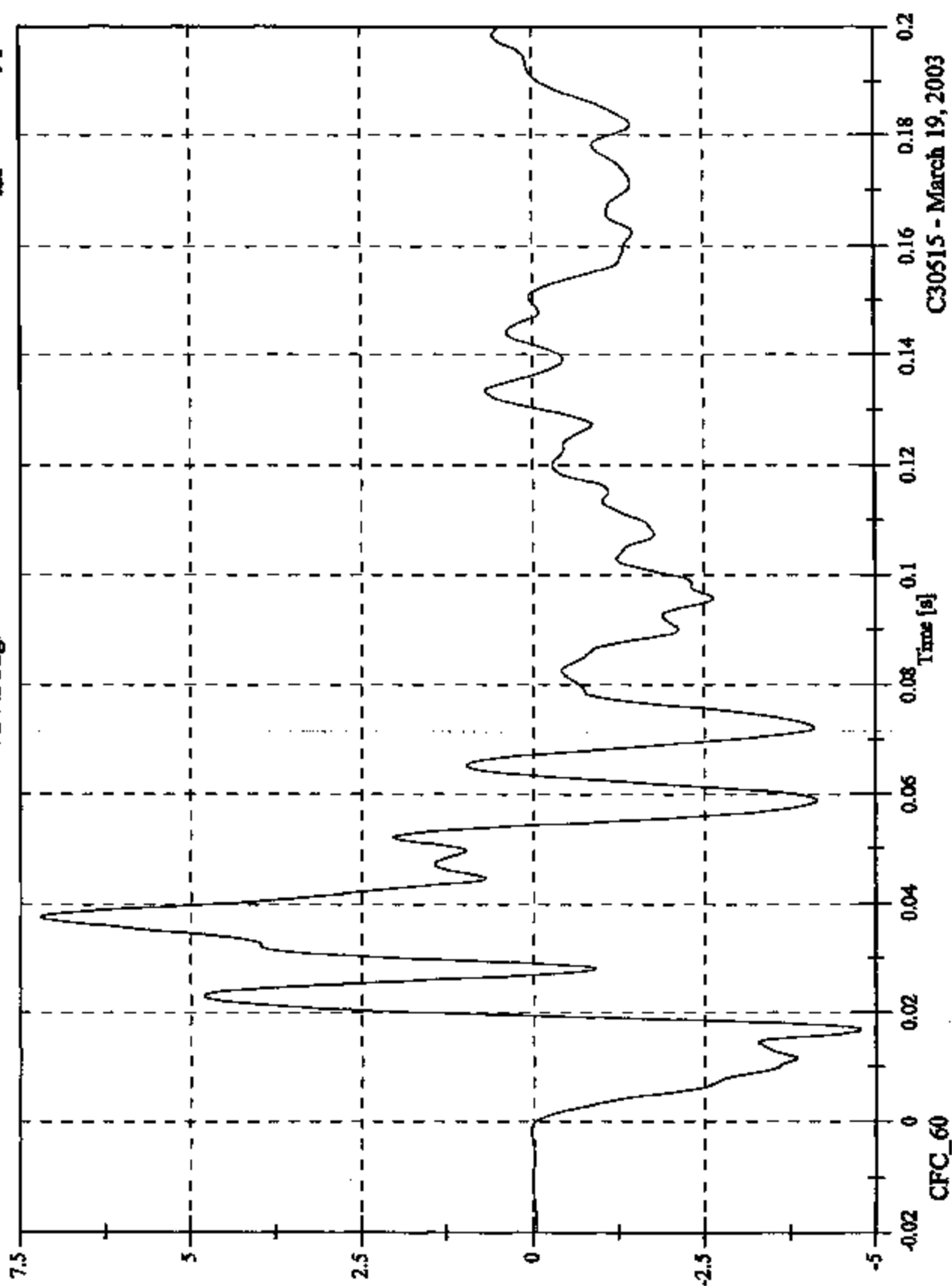


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A2 Right Rear Sill Z

Max: 7.2 [g] at 0.037 [s]
Min: -4.8 [g] at 0.017 [s]



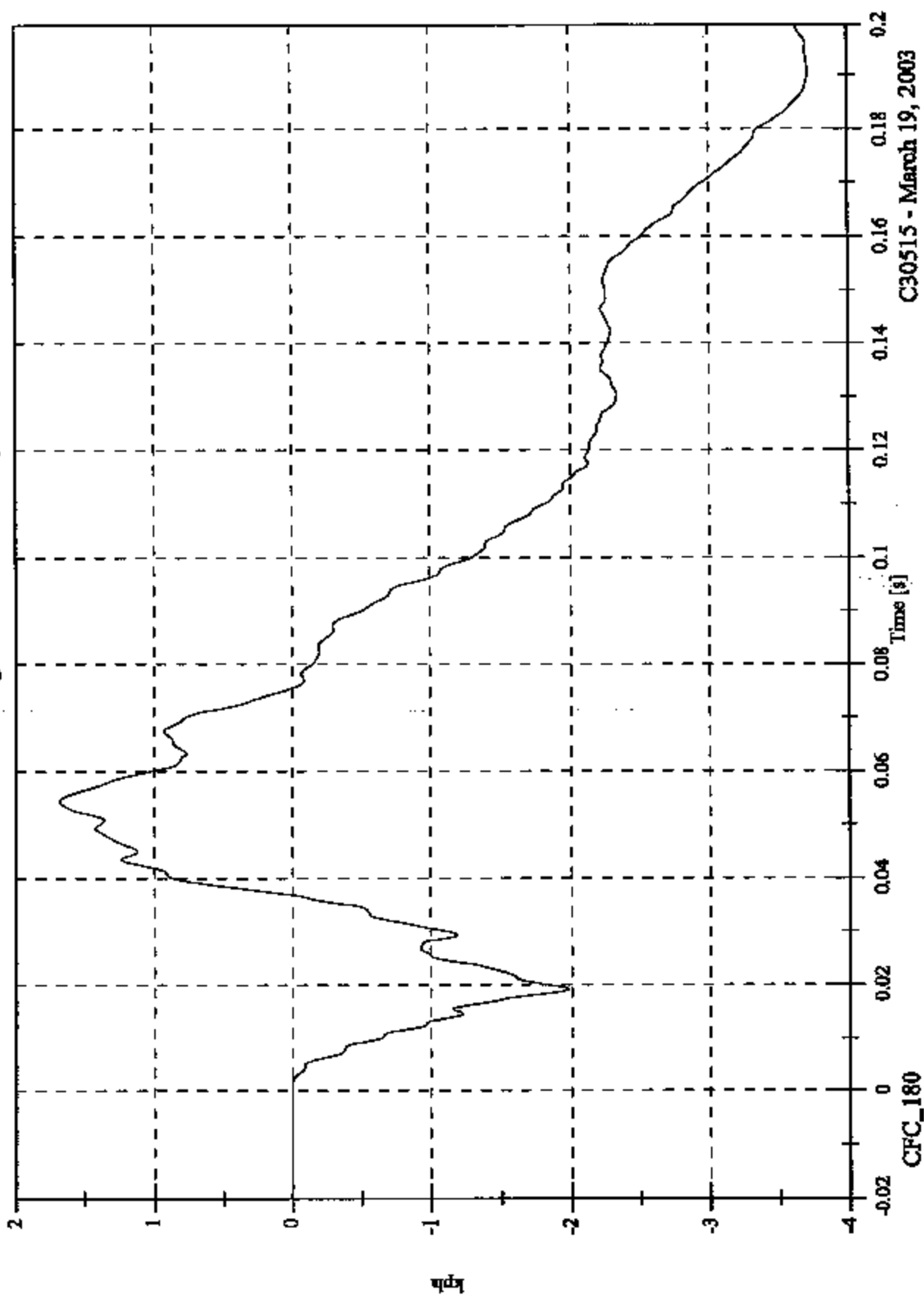
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 1.7 [kph] at 0.054 [s]

Min: -3.7 [kph] at 0.191 [s]

V2 A2 Right Rear Sill Z Velocity

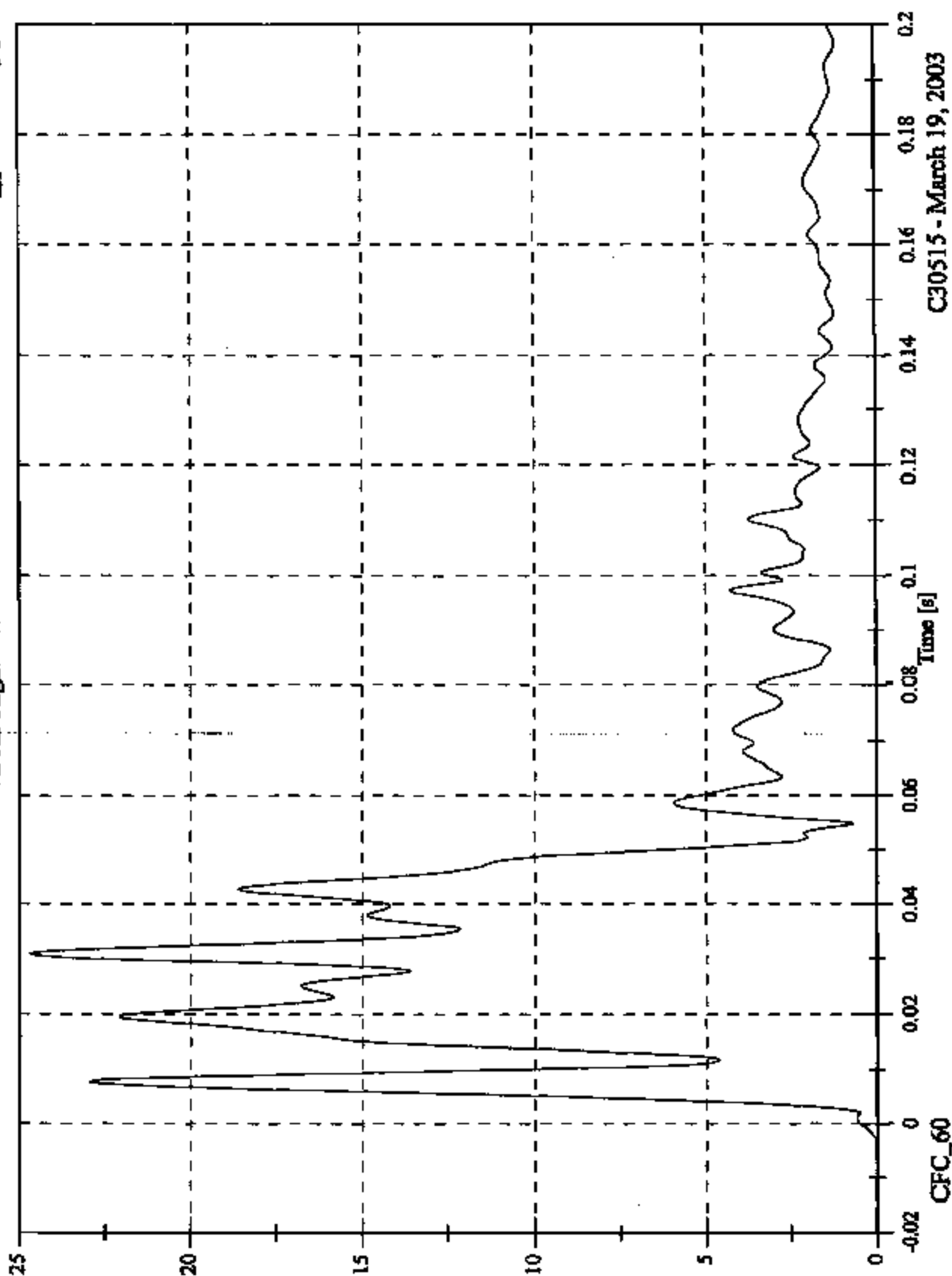


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 24.7 [g] at 0.031 [s]
Min: 0.0 [g] at -0.008 [s]

V2 A2 Right Rear Sill Resultant

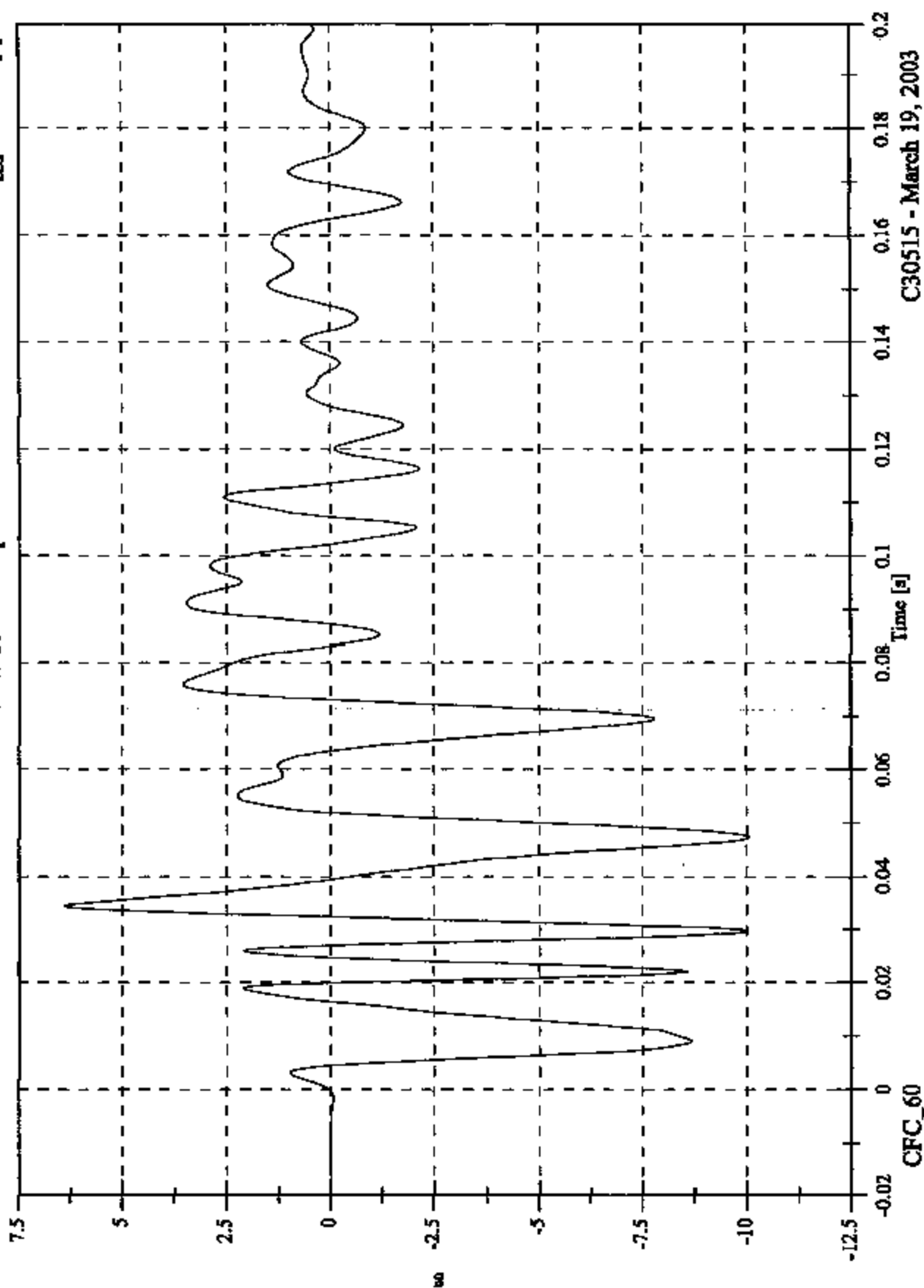


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A3 Rear Floorpan X

Max: 6.4 [g] at 0.034 [s]
Min: -10.1 [g] at 0.047 [s]

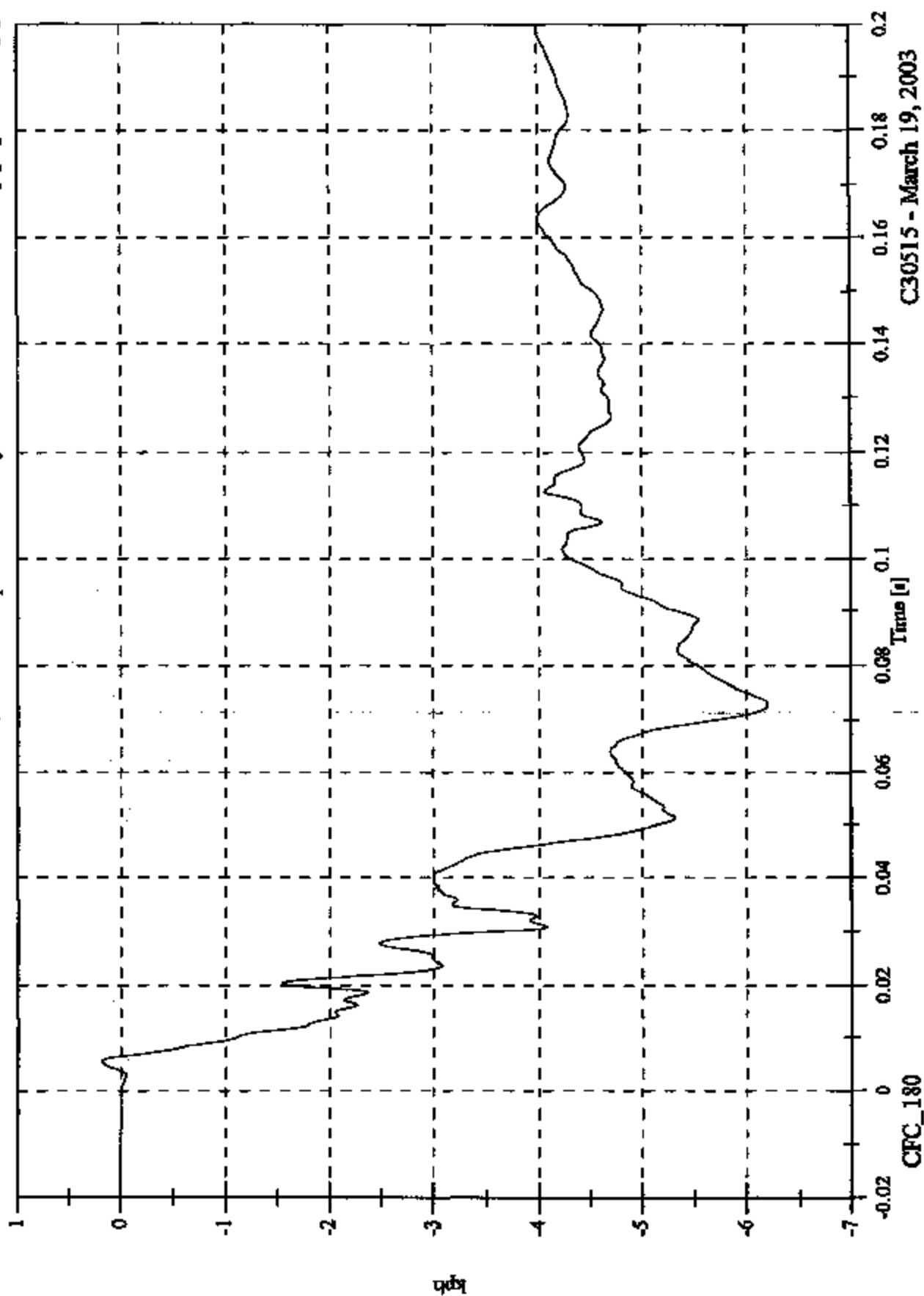


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A3 Rear Floorpan X Velocity

Max: 0.2 [kph] at 0.006 [s]
Min: -6.2 [kph] at 0.073 [s]



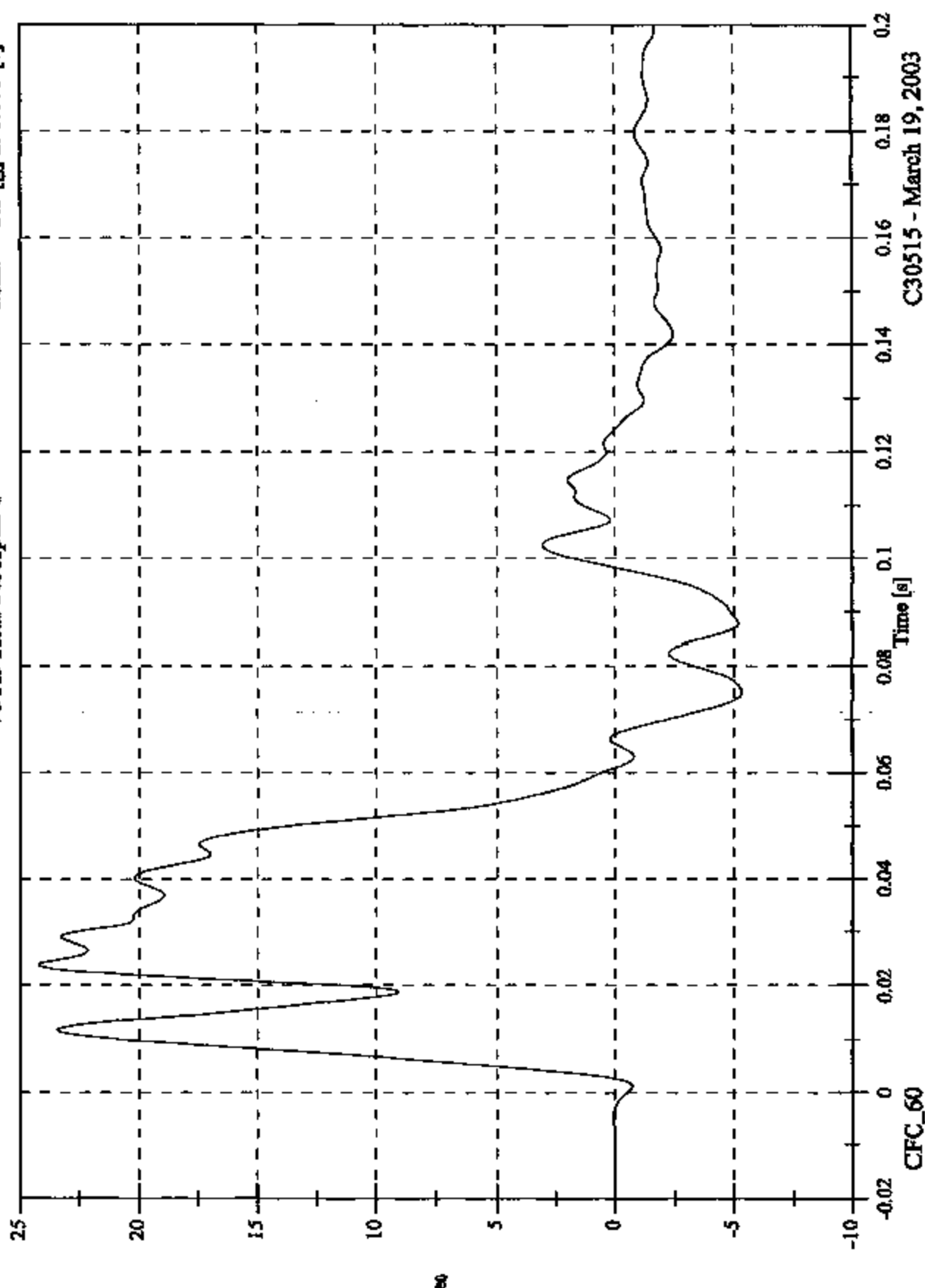
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A3 Rear Floorpan Y

Max: 24.2 [g] at 0.024 [s]

Min: -5.3 [g] at 0.075 [s]

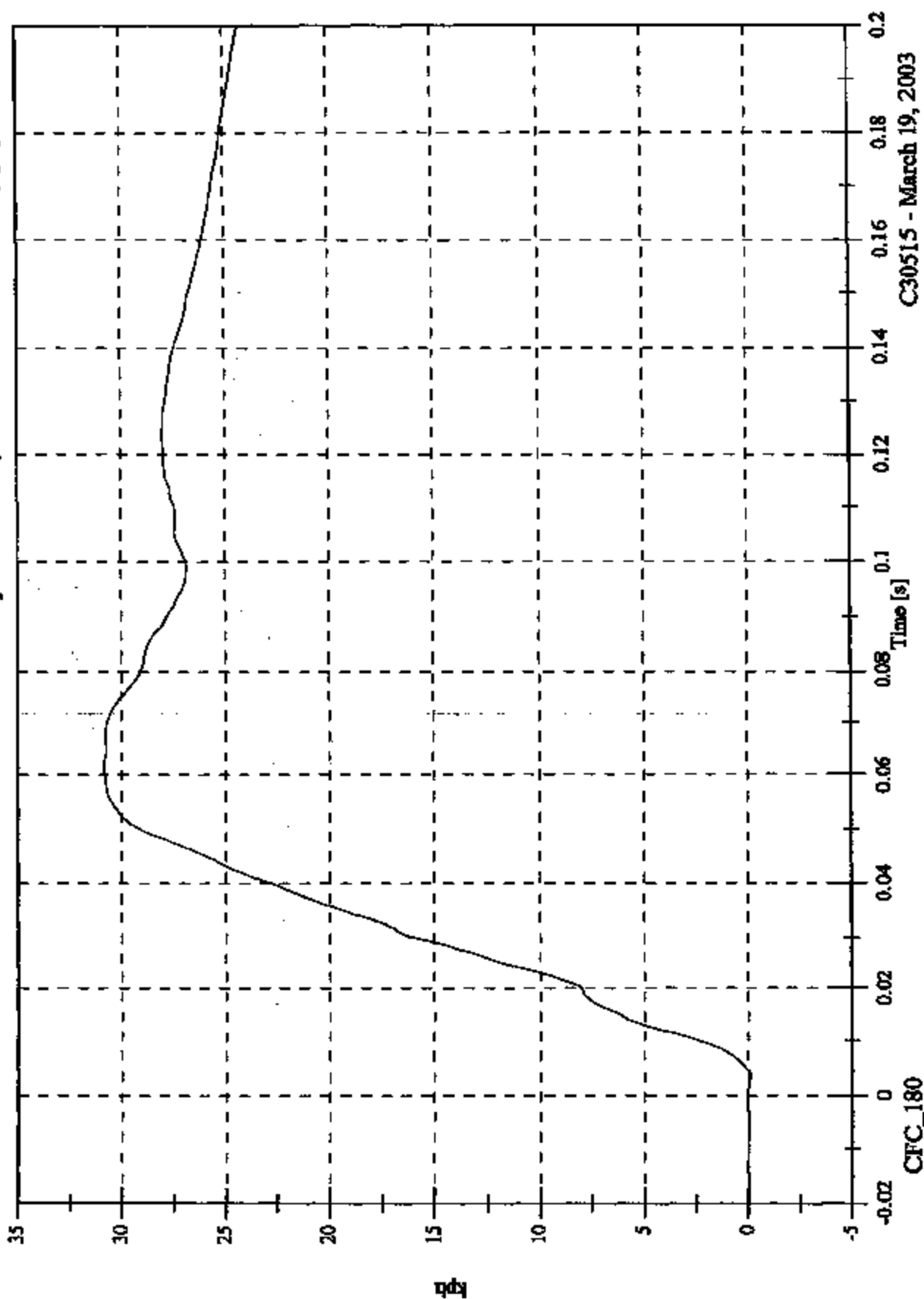


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A3 Rear Floorpan Y Velocity

Max: 30.9 [kph] at 0.061 [s]
Min: -0.1 [kph] at 0.004 [s]



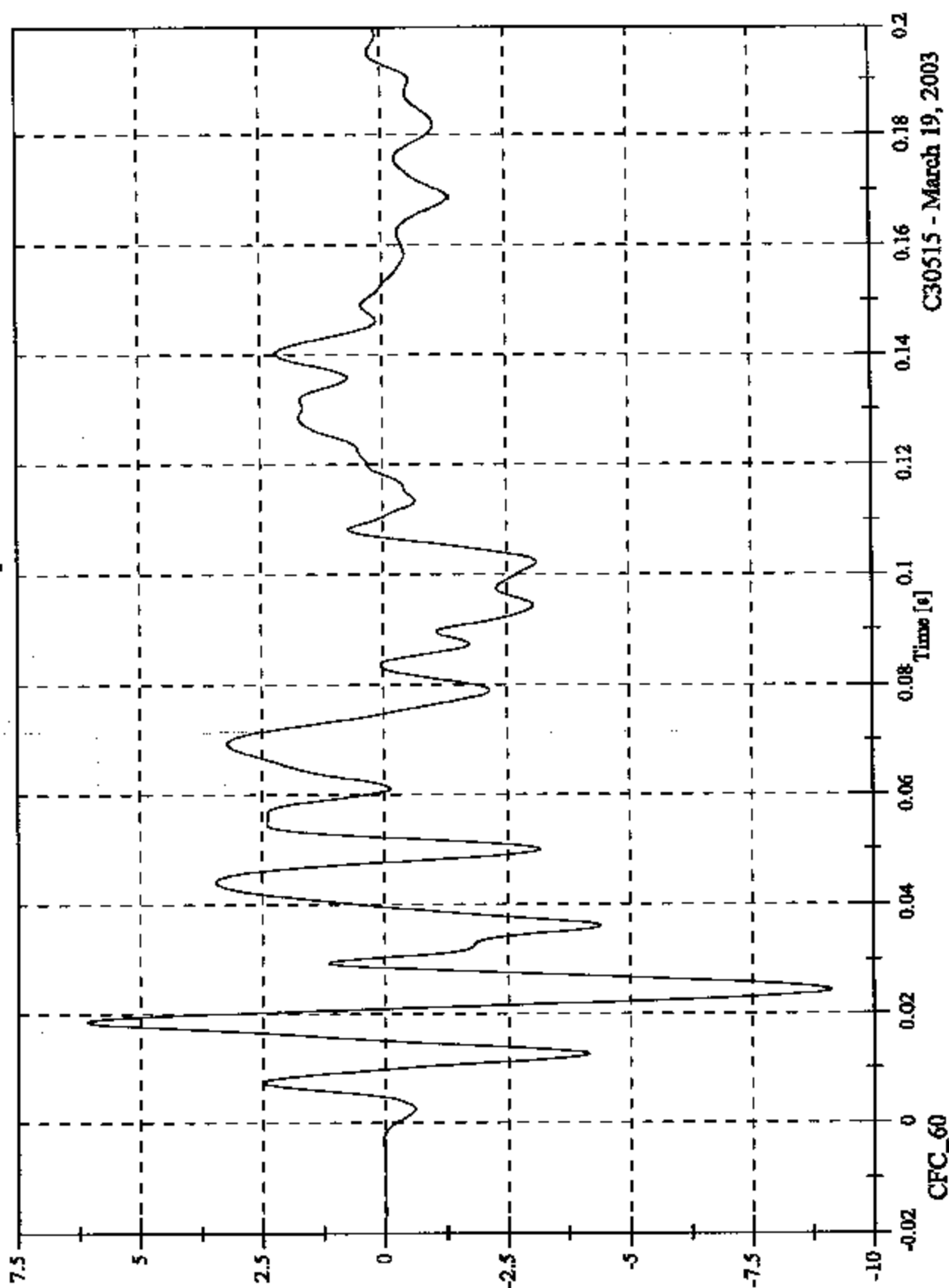
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A3 Rear Floorplan Z

Max: 6.1 [g] at 0.019 [s]

Min: -9.1 [g] at 0.024 [s]

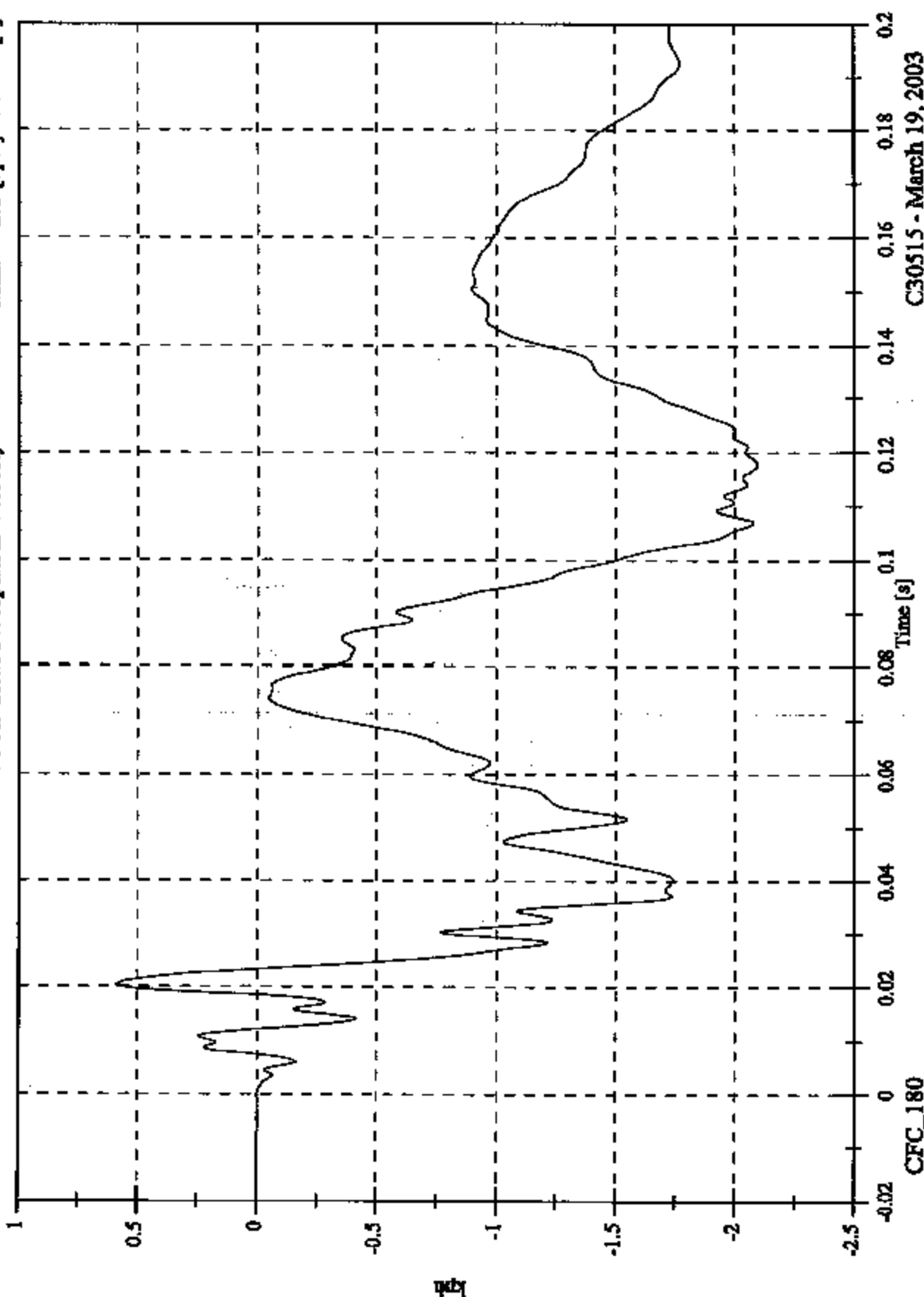


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A3 Rear Floorplan Z Velocity

Max: 0.6 [kph] at 0.020 [s]
Min: -2.1 [kph] at 0.118 [s]

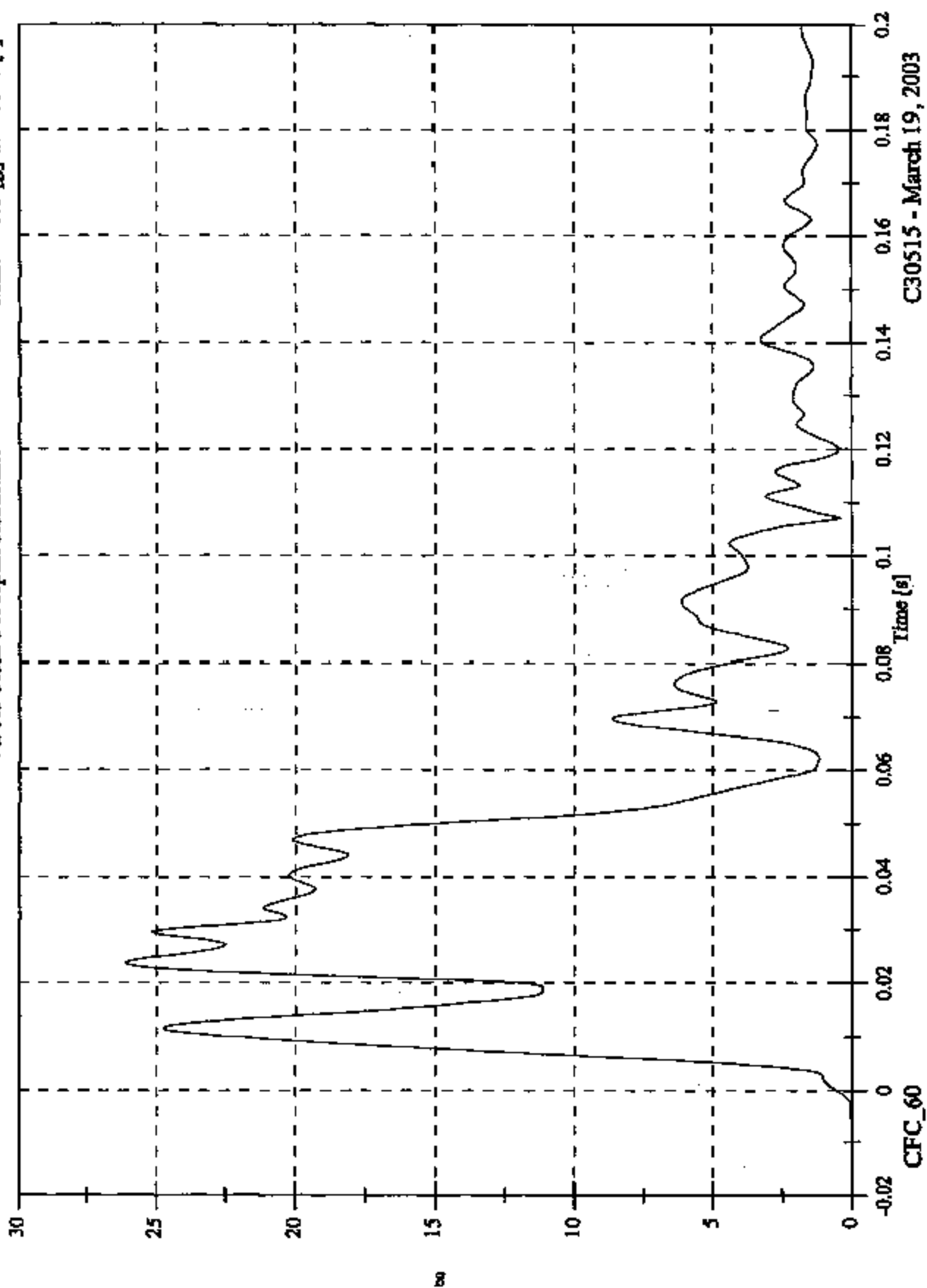


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A3 Rear Floorpan Resultant

Max: 26.1 [g] at 0.024 [s]
Min: 0.0 [g] at -0.020 [s]

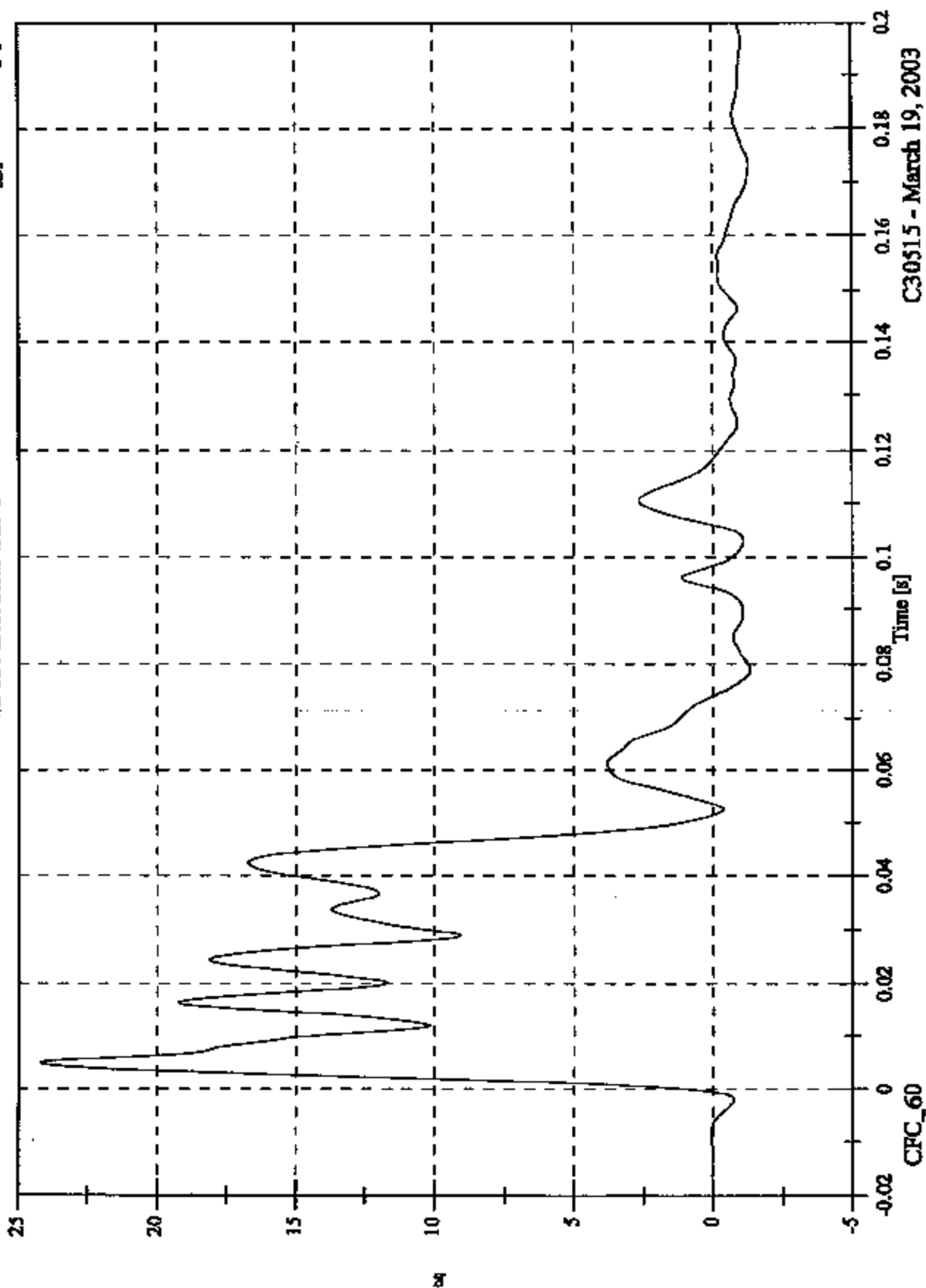


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A4 Left Rear Sill Y

Max: 24.2 [g] at 0.005 [s]
Min: -1.3 [g] at 0.079 [s]

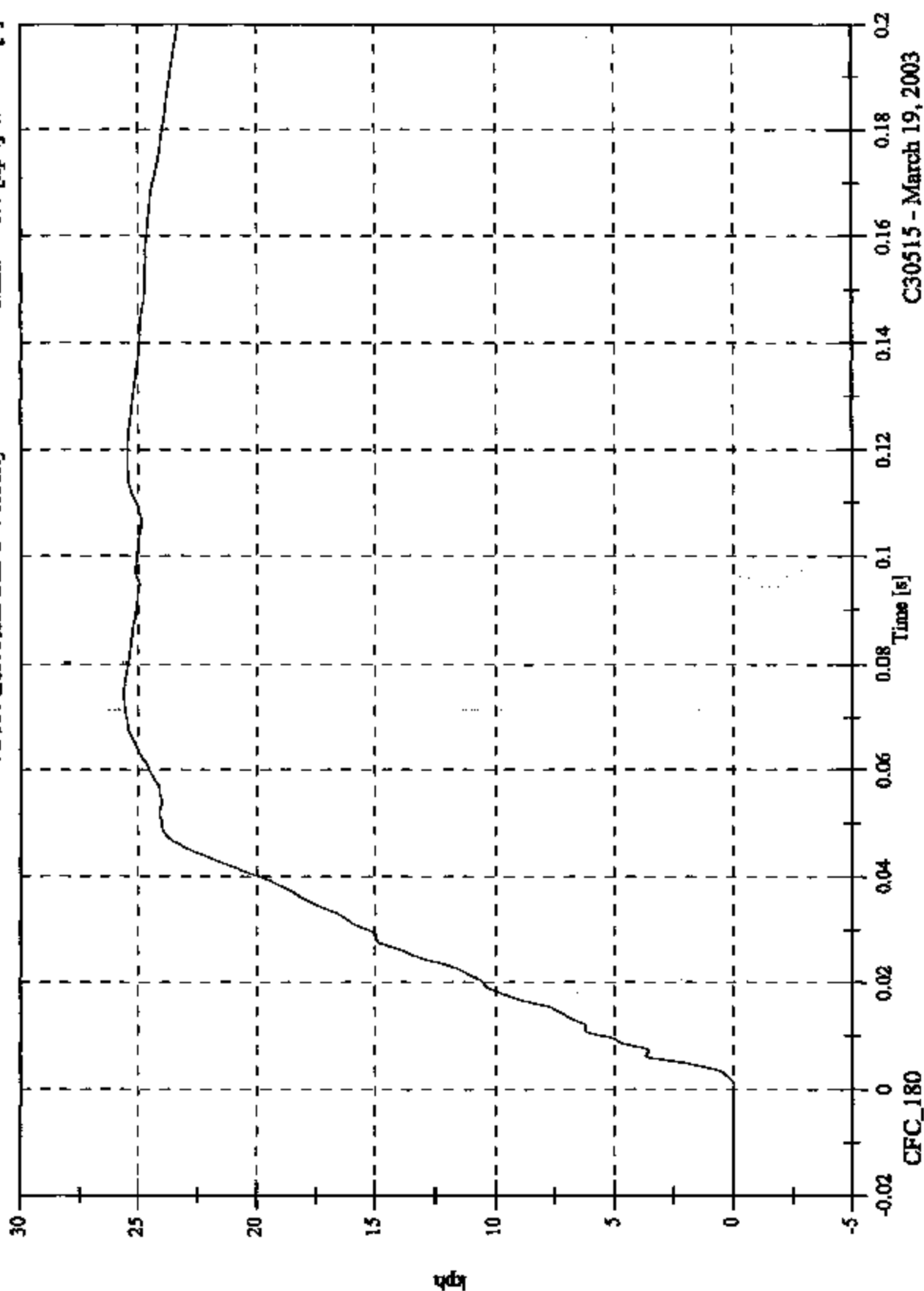


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 25.6 [kph] at 0.074 [s]
Min: -0.0 [kph] at 0.001 [s]

V2 A4 Left Rear Sill Y Velocity

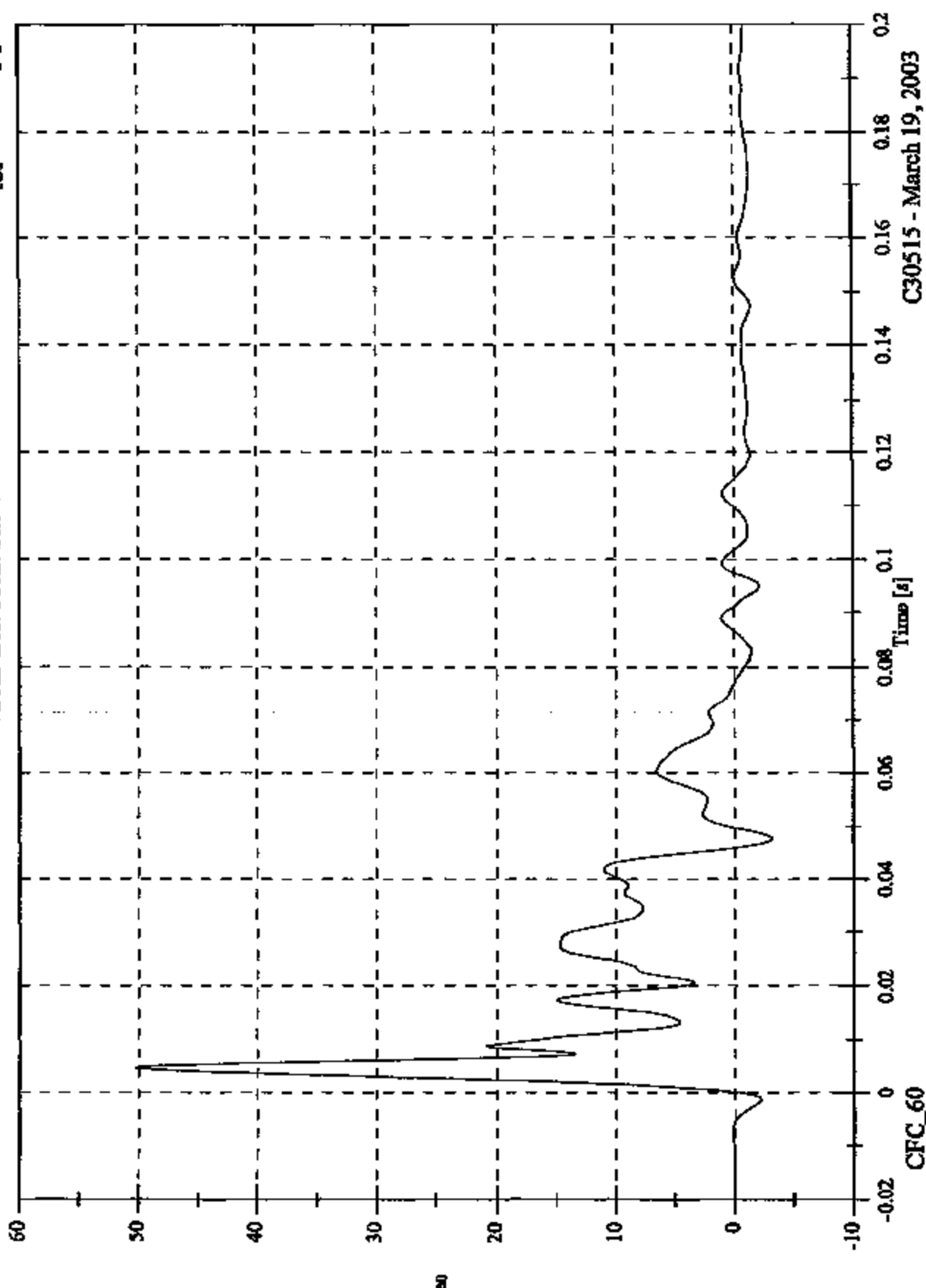


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A5 Left Front Sill Y

Max: 50.2 [g] at 0.004 [s]
Min: -3.2 [g] at 0.048 [s]

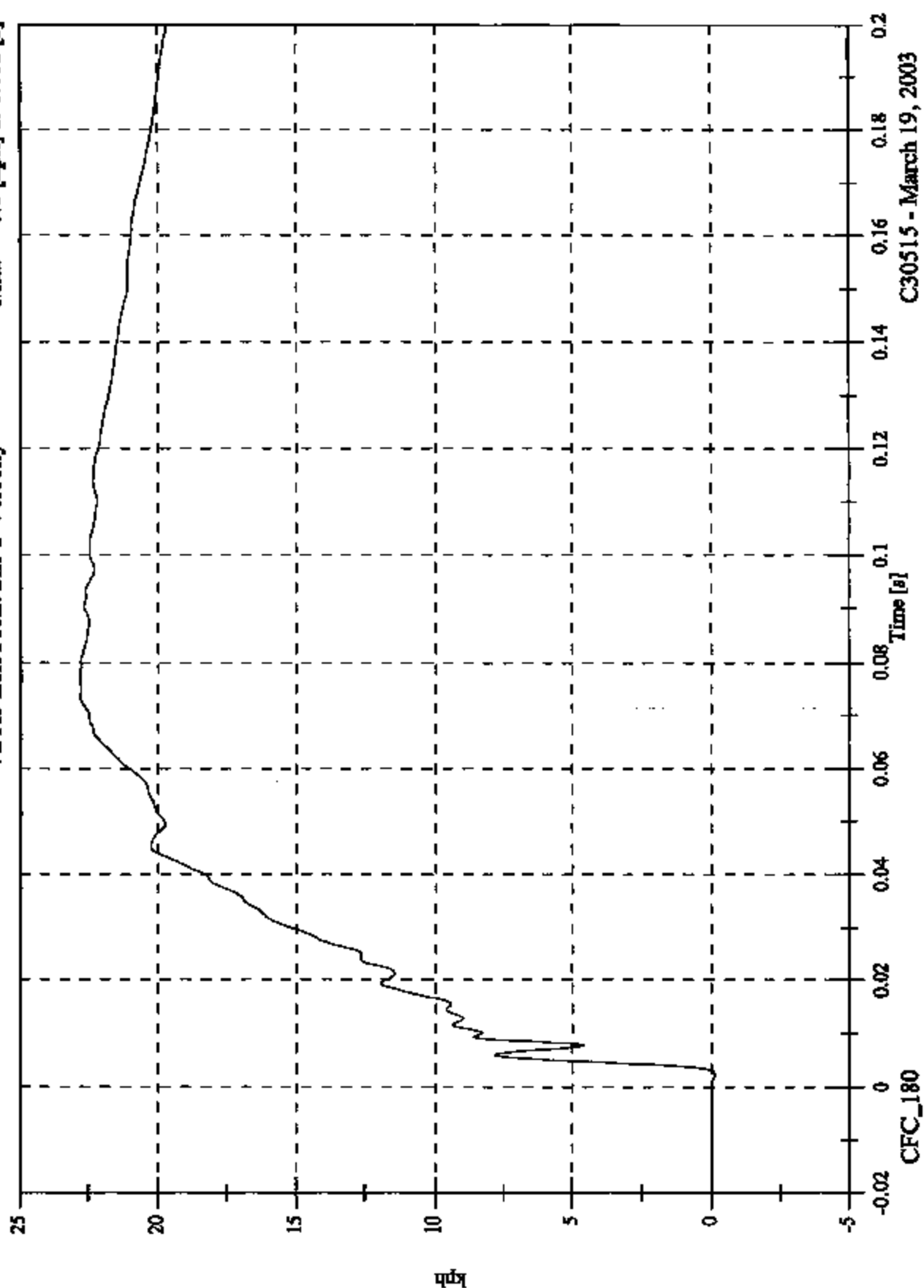


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A5 Left Front Sill Y Velocity

Max: 22.8 [kph] at 0.078 [s]
Min: -0.1 [kph] at 0.002 [s]

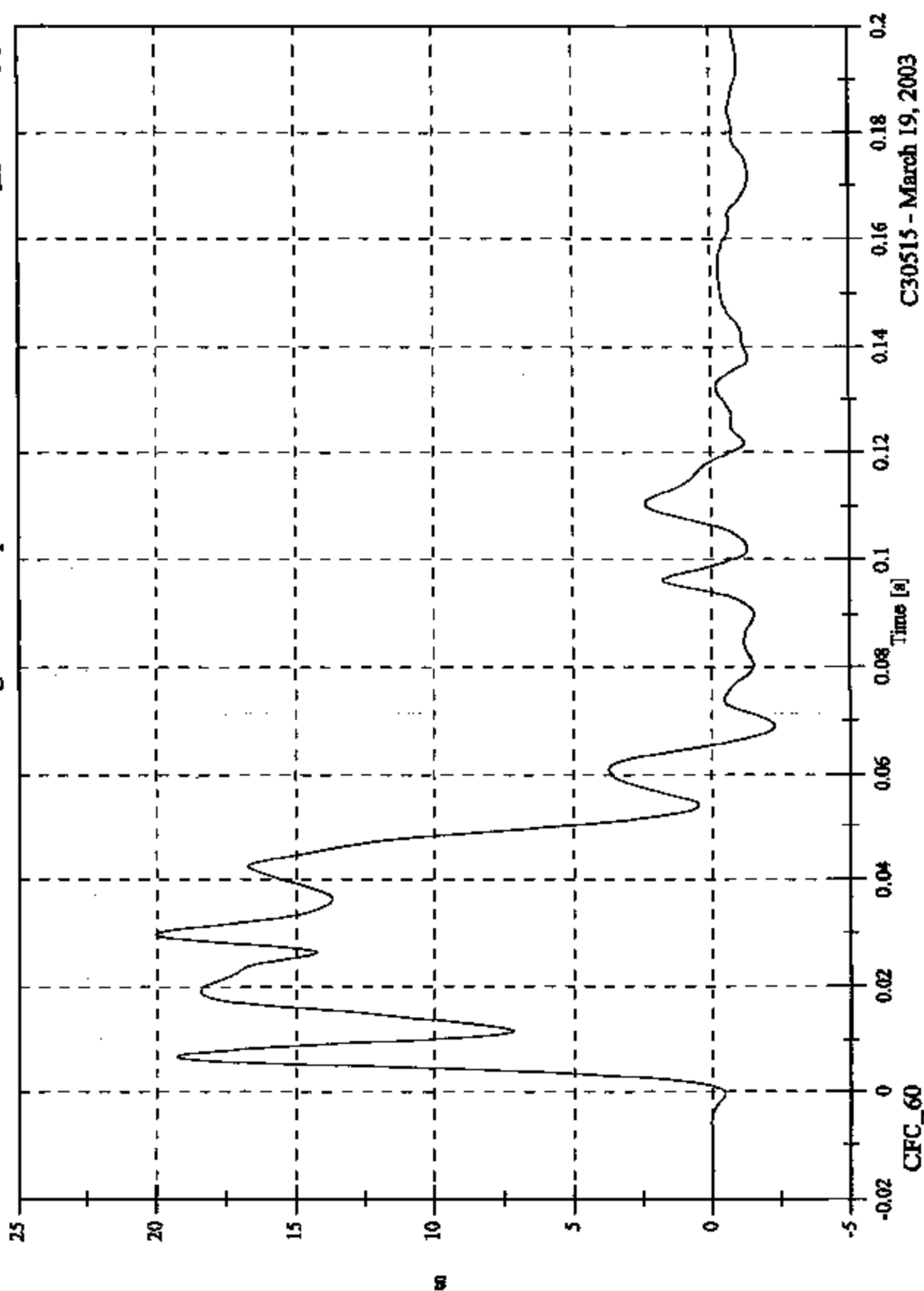


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A7 Right Rear Compartment Y

Max: 20.0 [g] at 0.030 [s]
Min: -2.3 [g] at 0.069 [s]

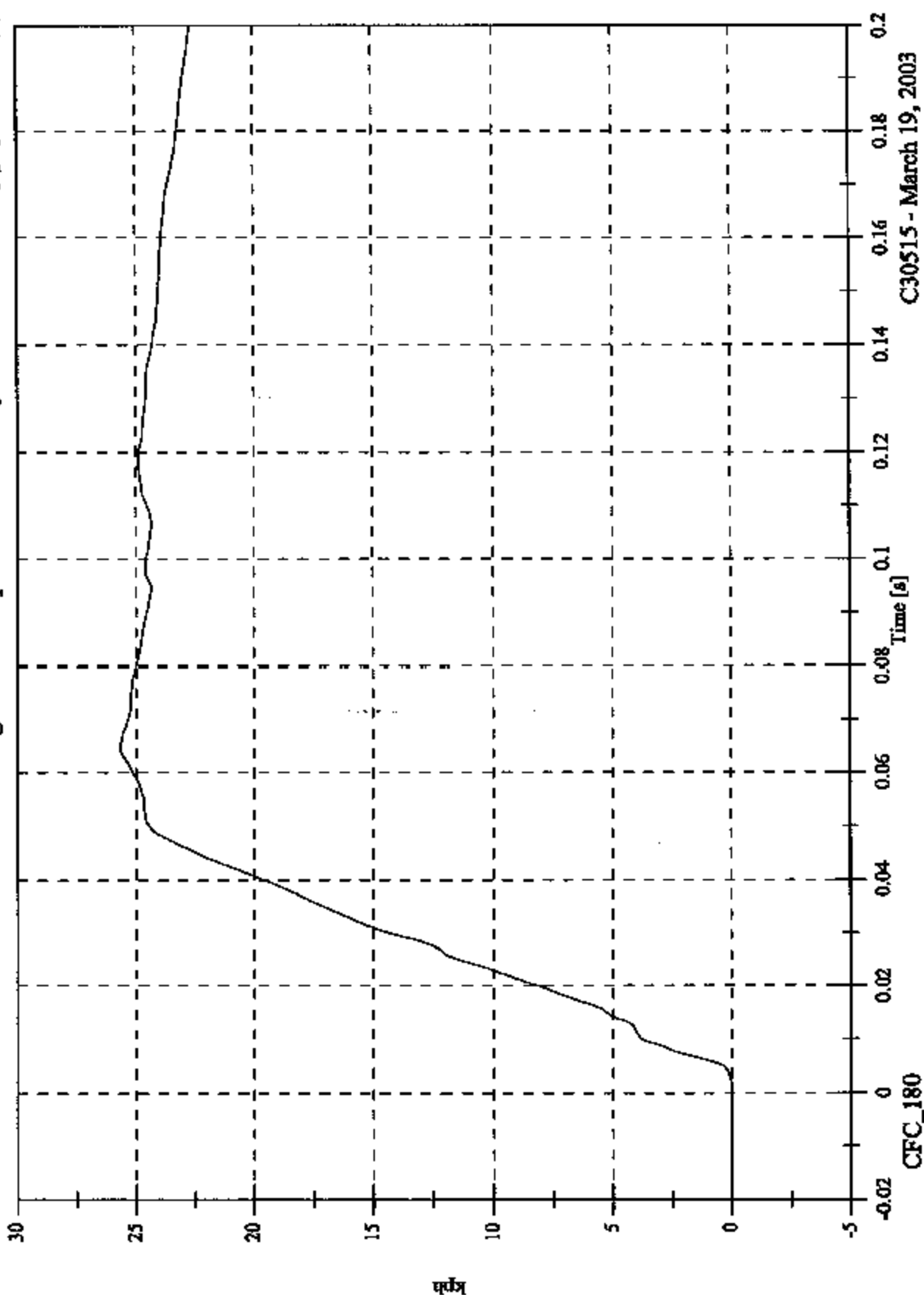


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 25.7 [kph] at 0.065 [s]
Min: -0.0 [kph] at -0.009 [s]

V2 A7 Right Rear Compartment Y Velocity

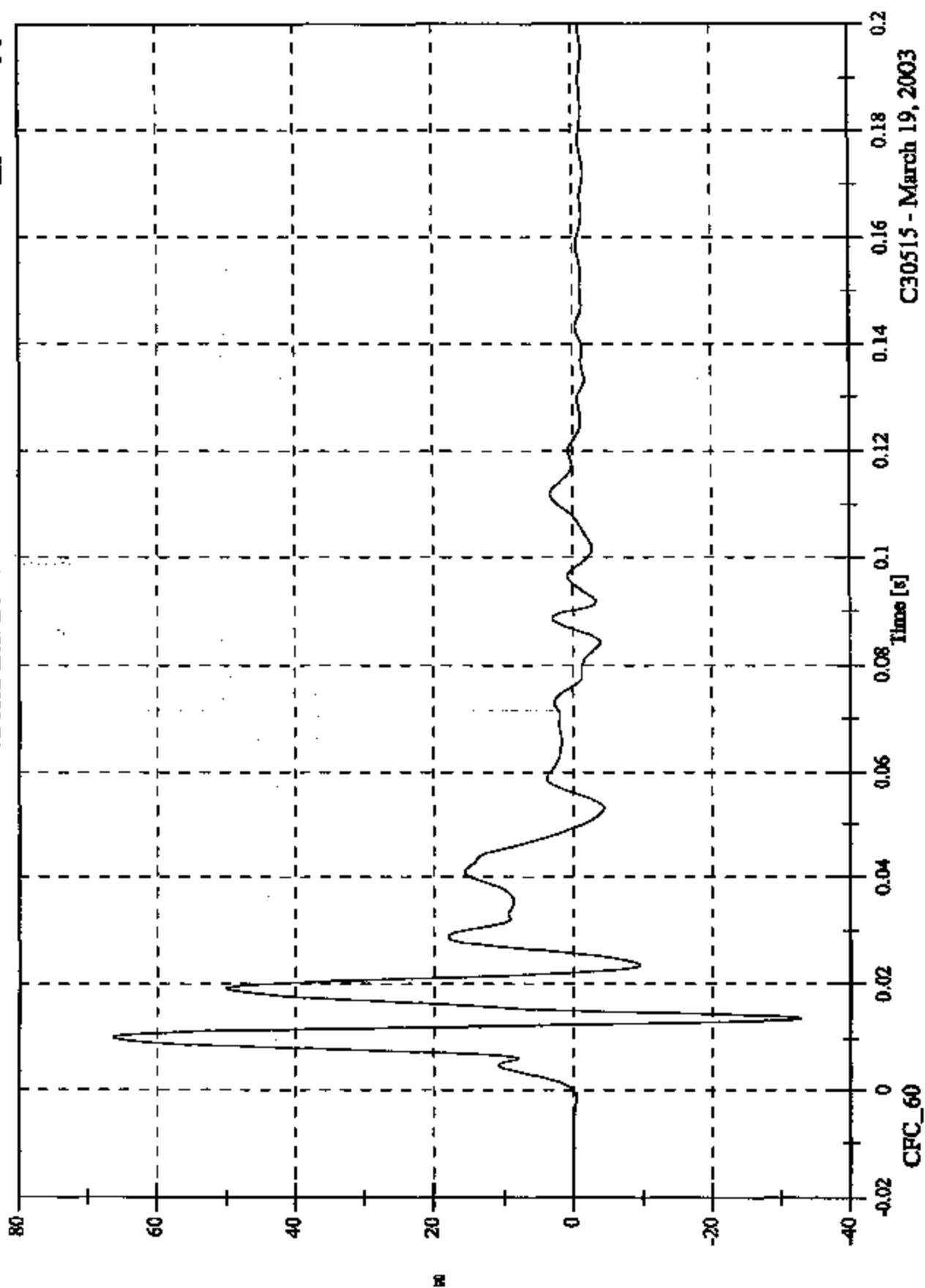


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A12 Left Lower B Post Y

Max: 66.2 [g] at 0.010 [s]
Min: -32.7 [g] at 0.013 [s]



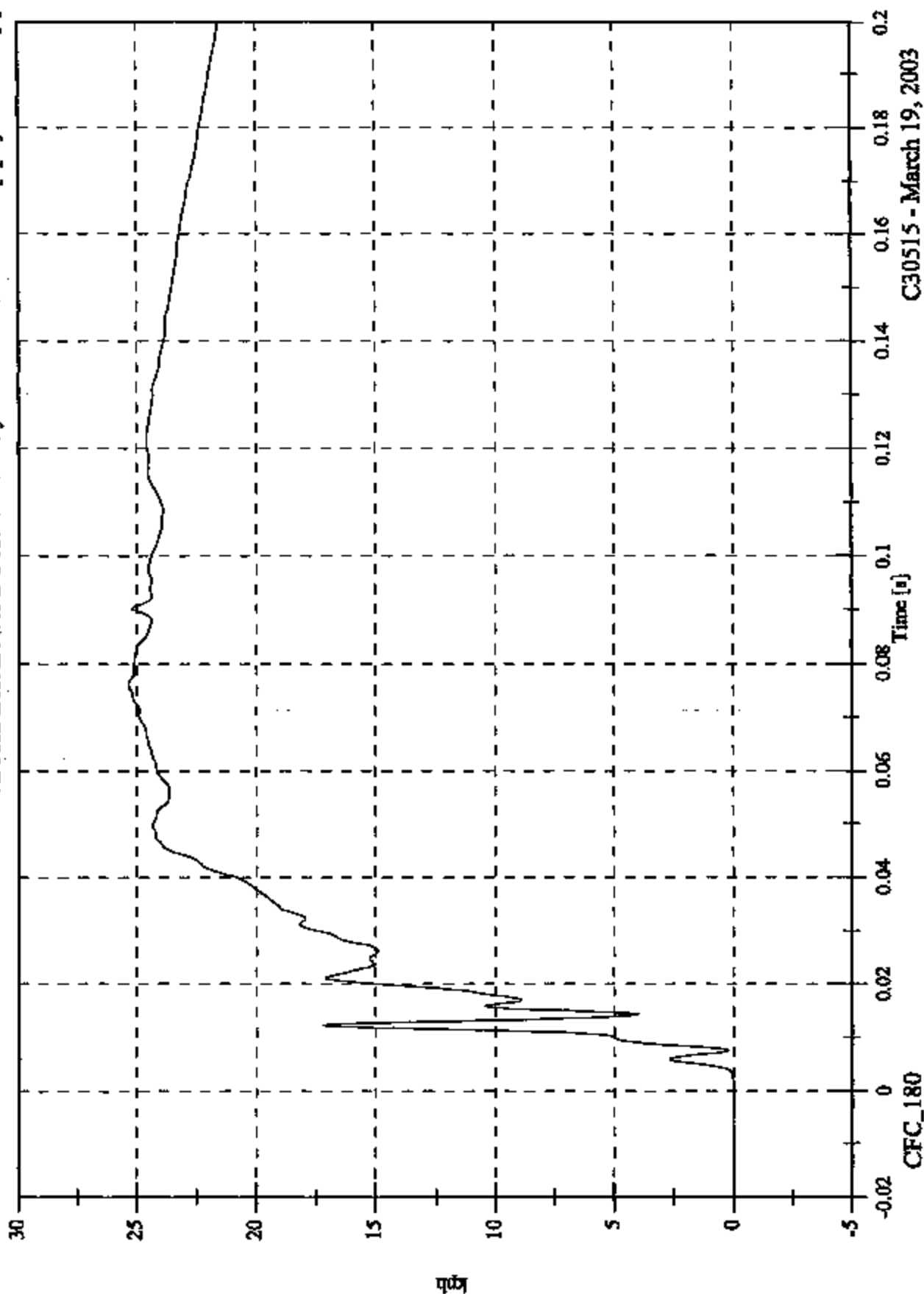
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A12 Left Lower B Post Y Velocity

Max: 25.4 [kph] at 0.076 [s]

Min: -0.0 [kph] at -0.019 [s]

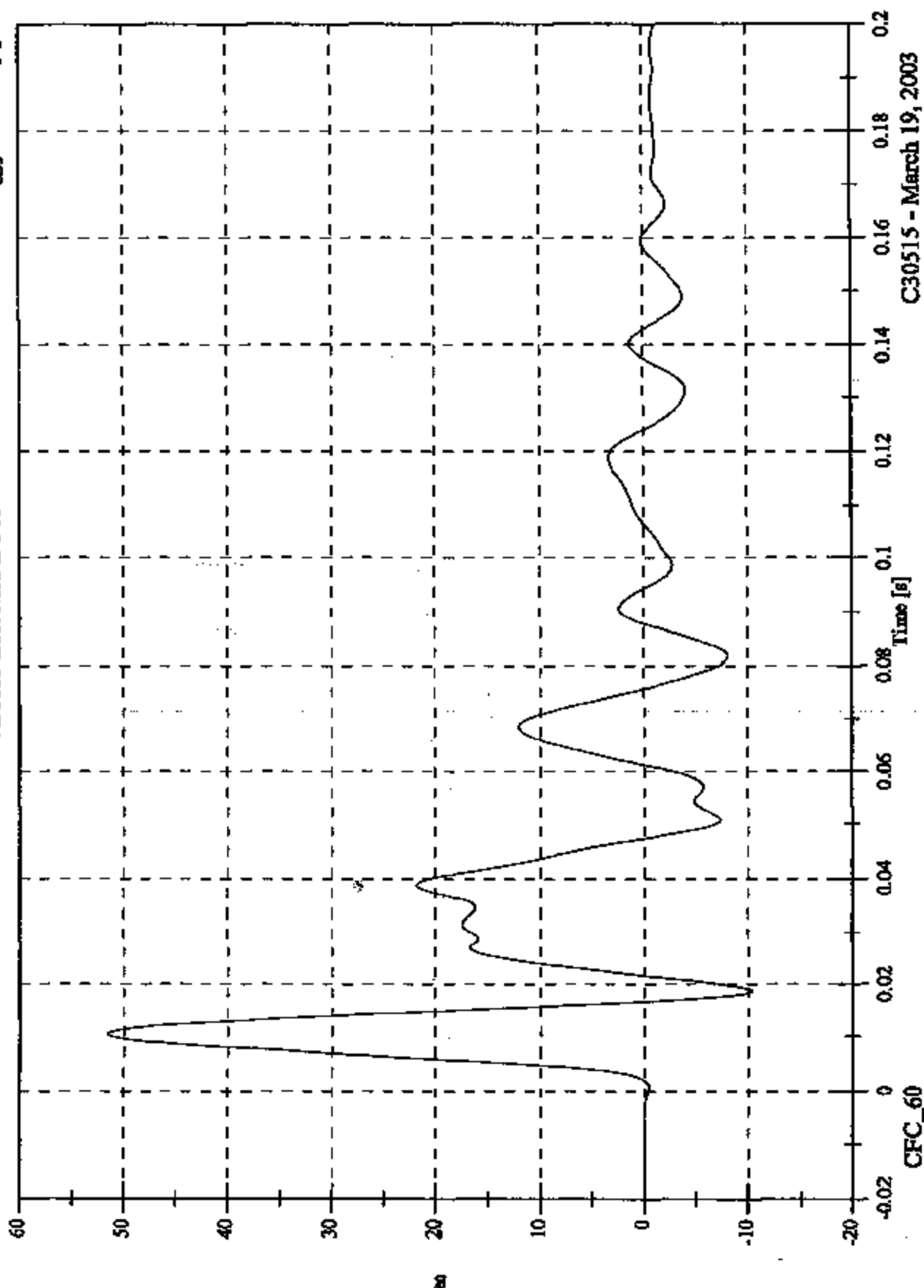


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A13 Left Mid B Post Y

Max: 51.5 [g] at 0.010 [s]
Min: -10.4 [g] at 0.019 [s]

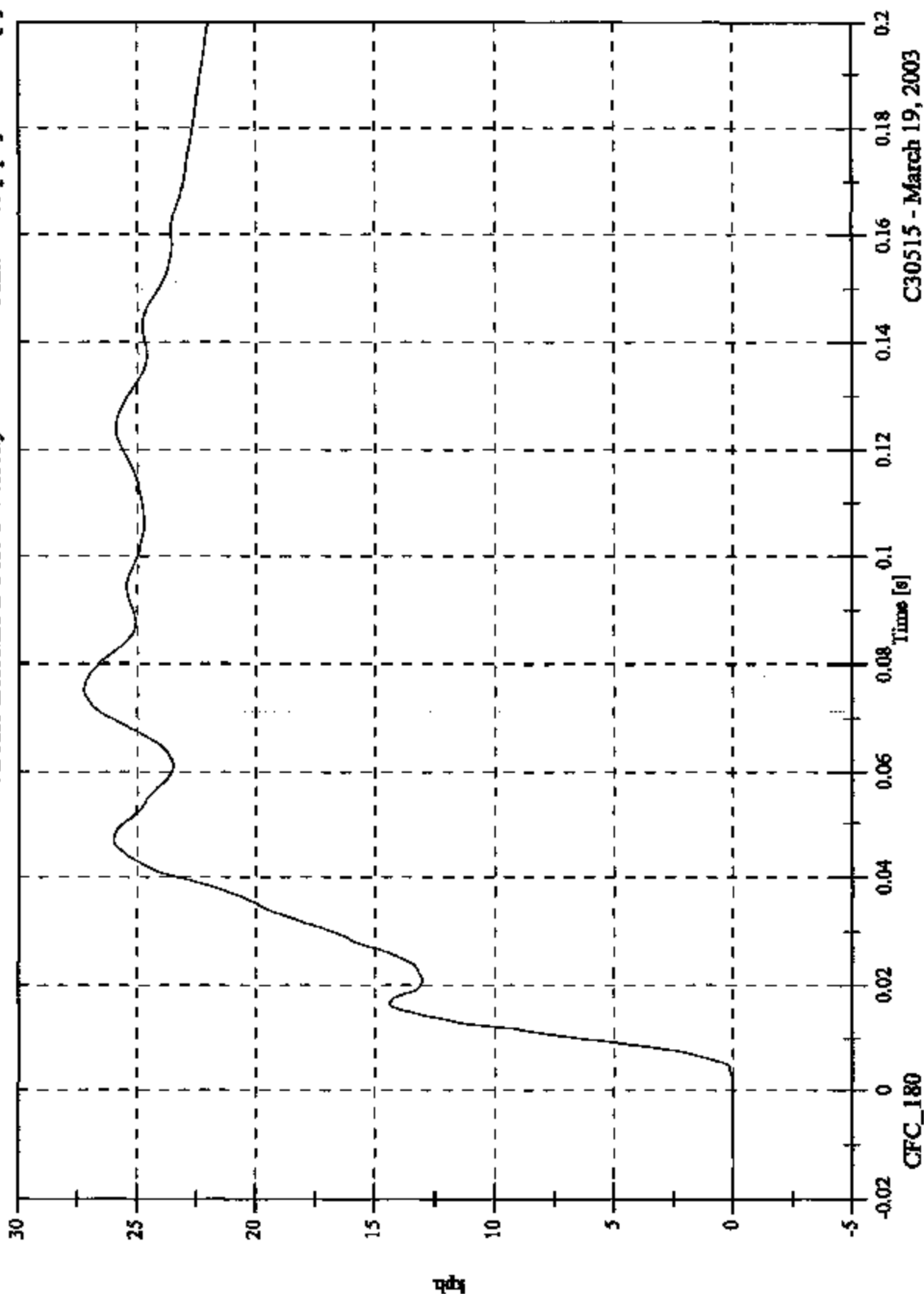


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A13 Left Mid B Post Y Velocity

Max: 27.3 [kph] at 0.075 [s]
Min: -0.0 [kph] at -0.020 [s]

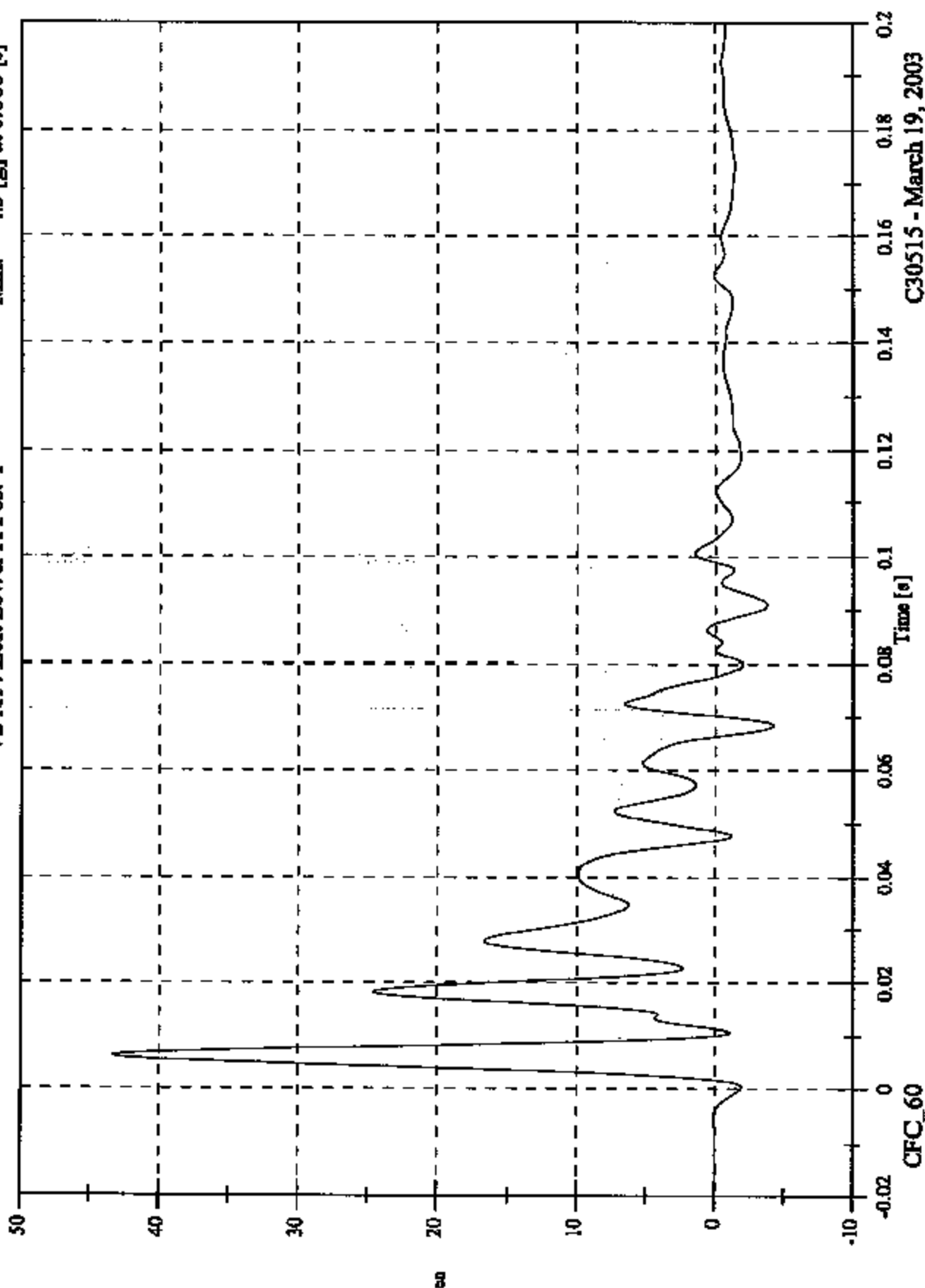


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 43.3 [g] at 0.006 [s]
Min: -4.3 [g] at 0.068 [s]

V2 A14 Left Lower A Post Y



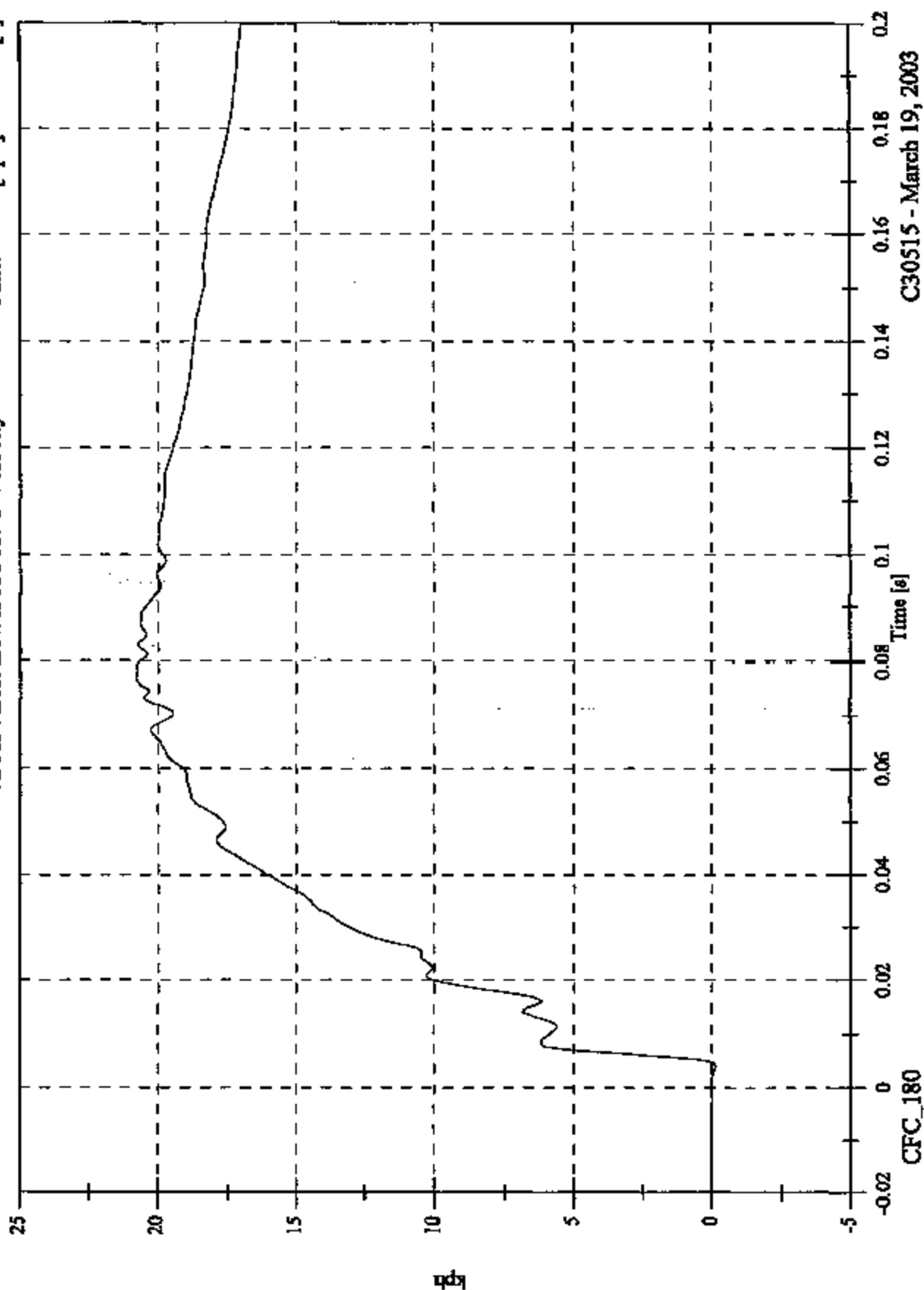
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 20.8 [kph] at 0.077 [s]

Min: -0.1 [kph] at 0.004 [s]

V2 A14 Left Lower A Post Y Velocity

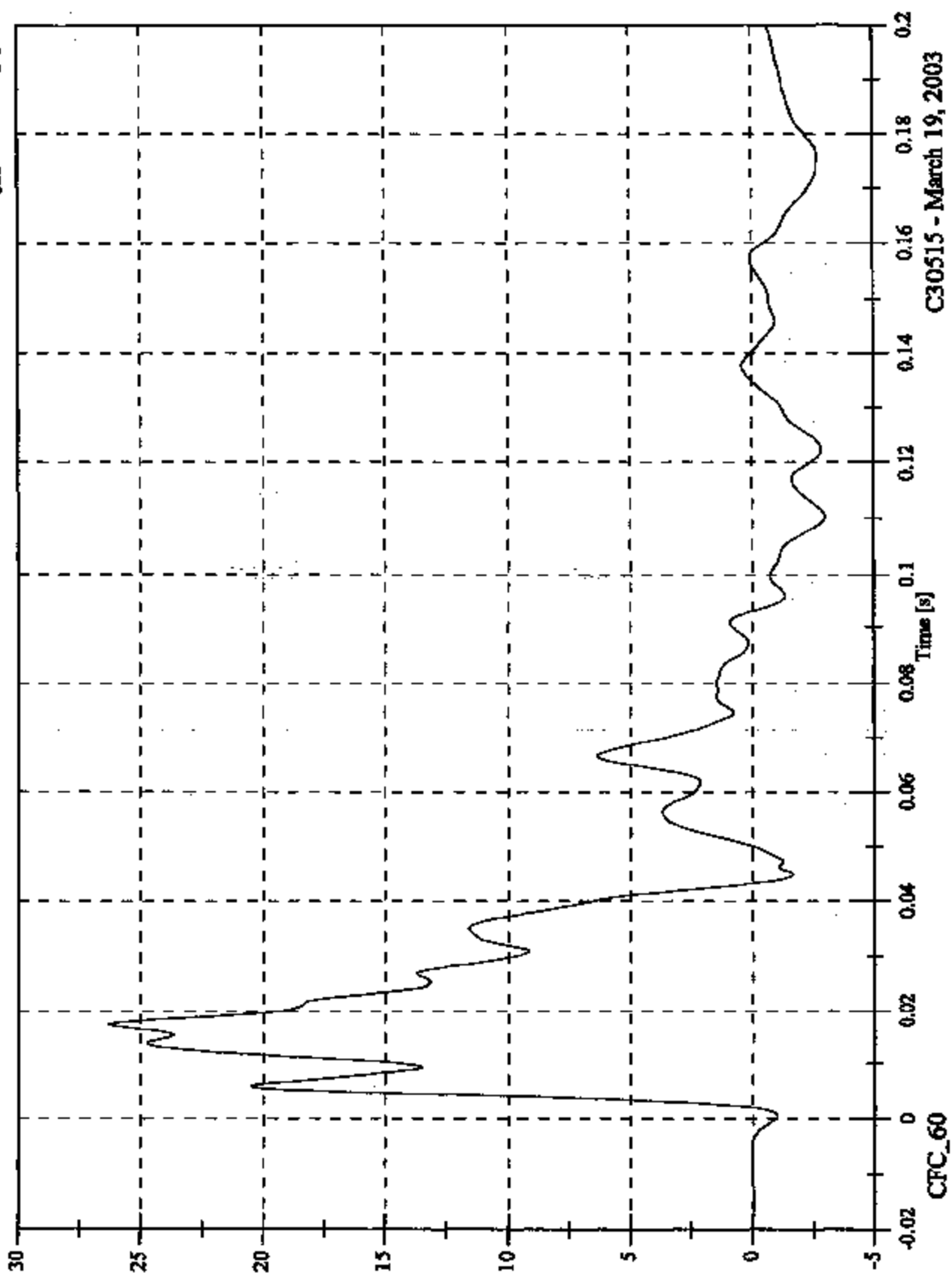


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A15 Left Mid A Post Y

Max: 26.3 [g] at 0.017 [s]
Min: -3.0 [g] at 0.110 [s]



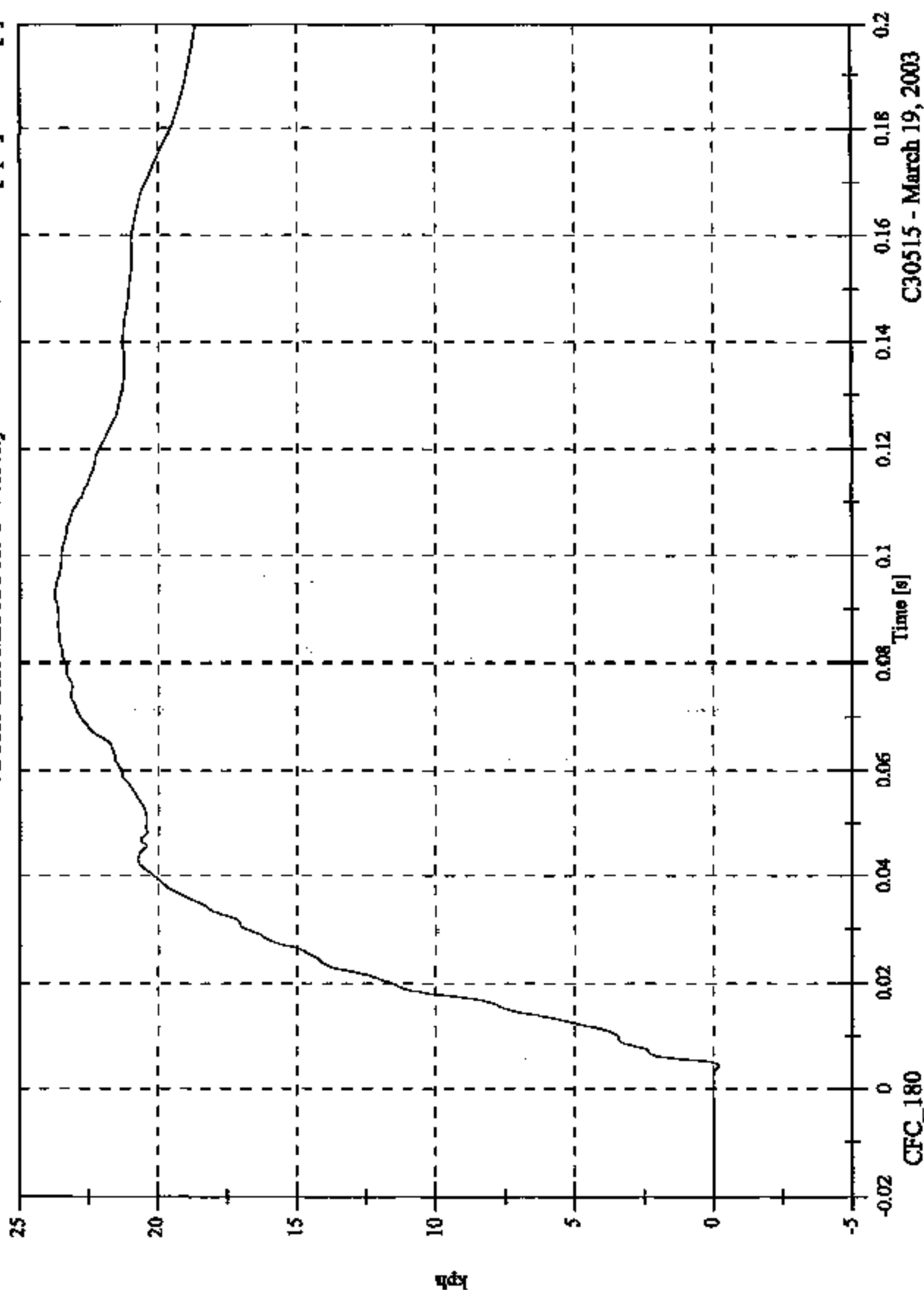
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 23.8 [kph] at 0.093 [s]

Min: -0.2 [kph] at 0.004 [s]

V2 A15 Left Mid A Post Y Velocity

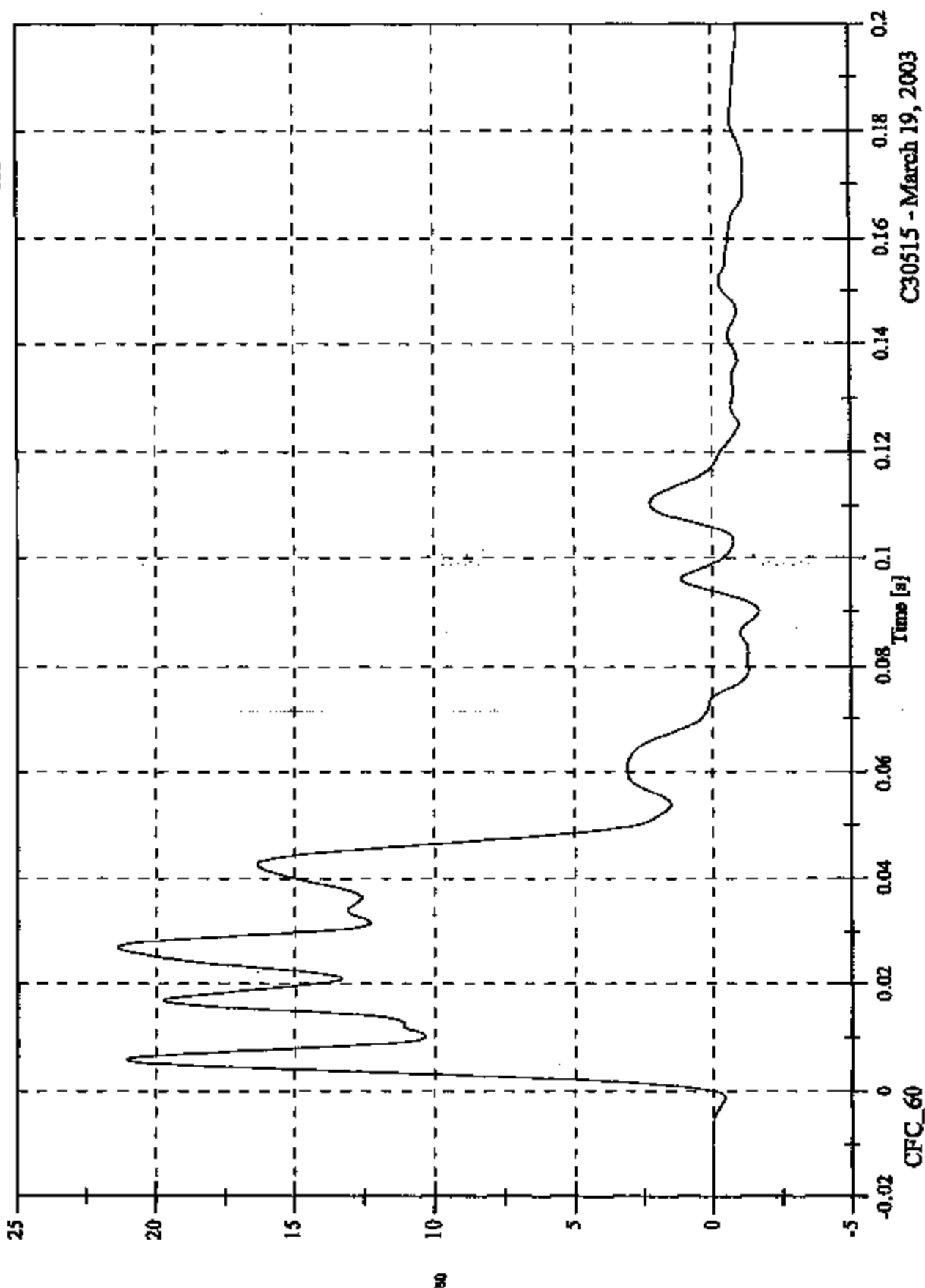


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A16 Front Seat Track Y

Max: 21.4 [g] at 0.027 [s]
Min: -1.7 [g] at 0.090 [s]

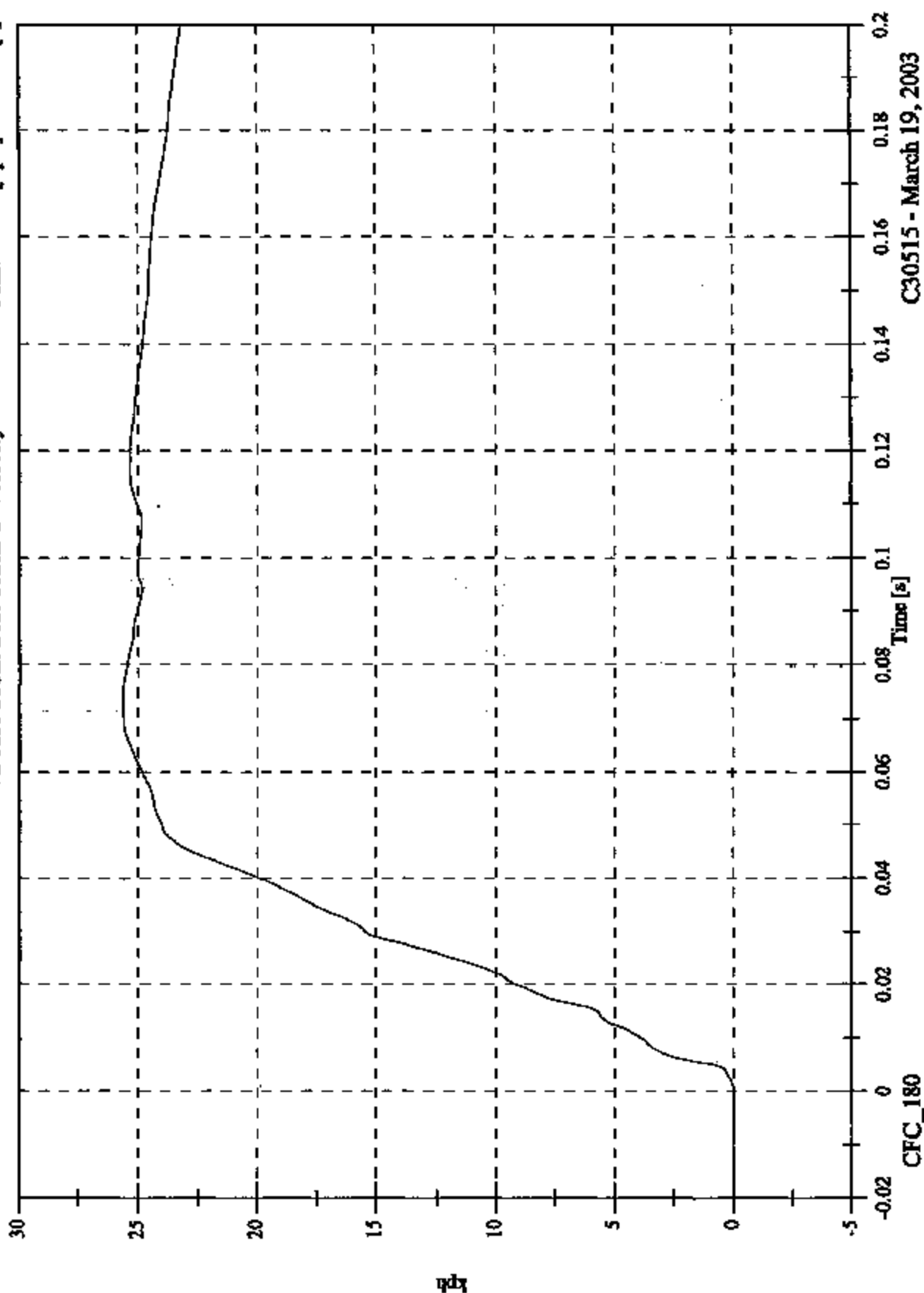


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A16 Front Seat Track Y Velocity

Max: 25.7 [kph] at 0.075 [s]
Min: -0.0 [kph] at 0.000 [s]

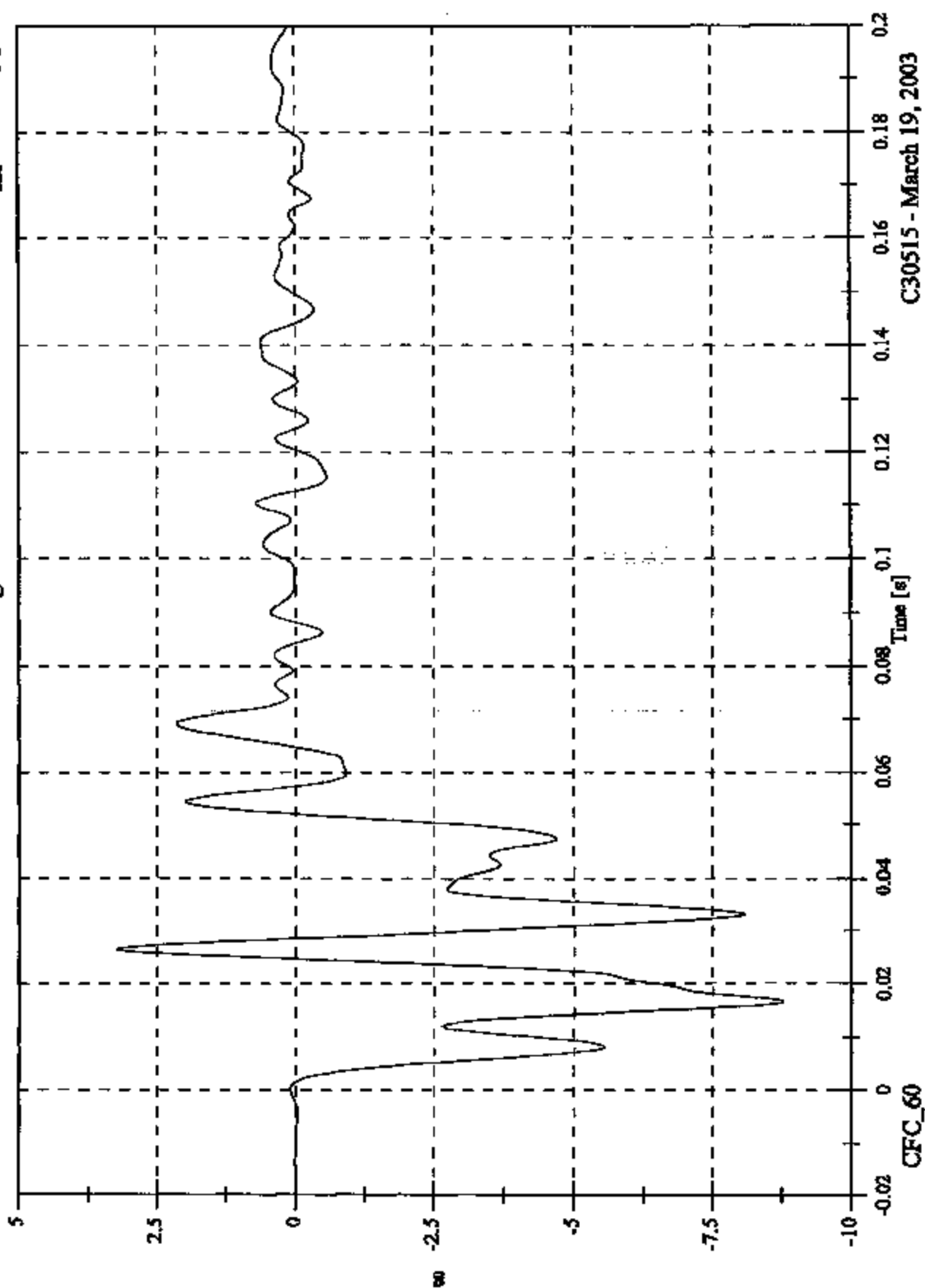


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A18 Target CG X

Max: 3.2 [g] at 0.026 [s]
Min: -8.8 [g] at 0.017 [s]

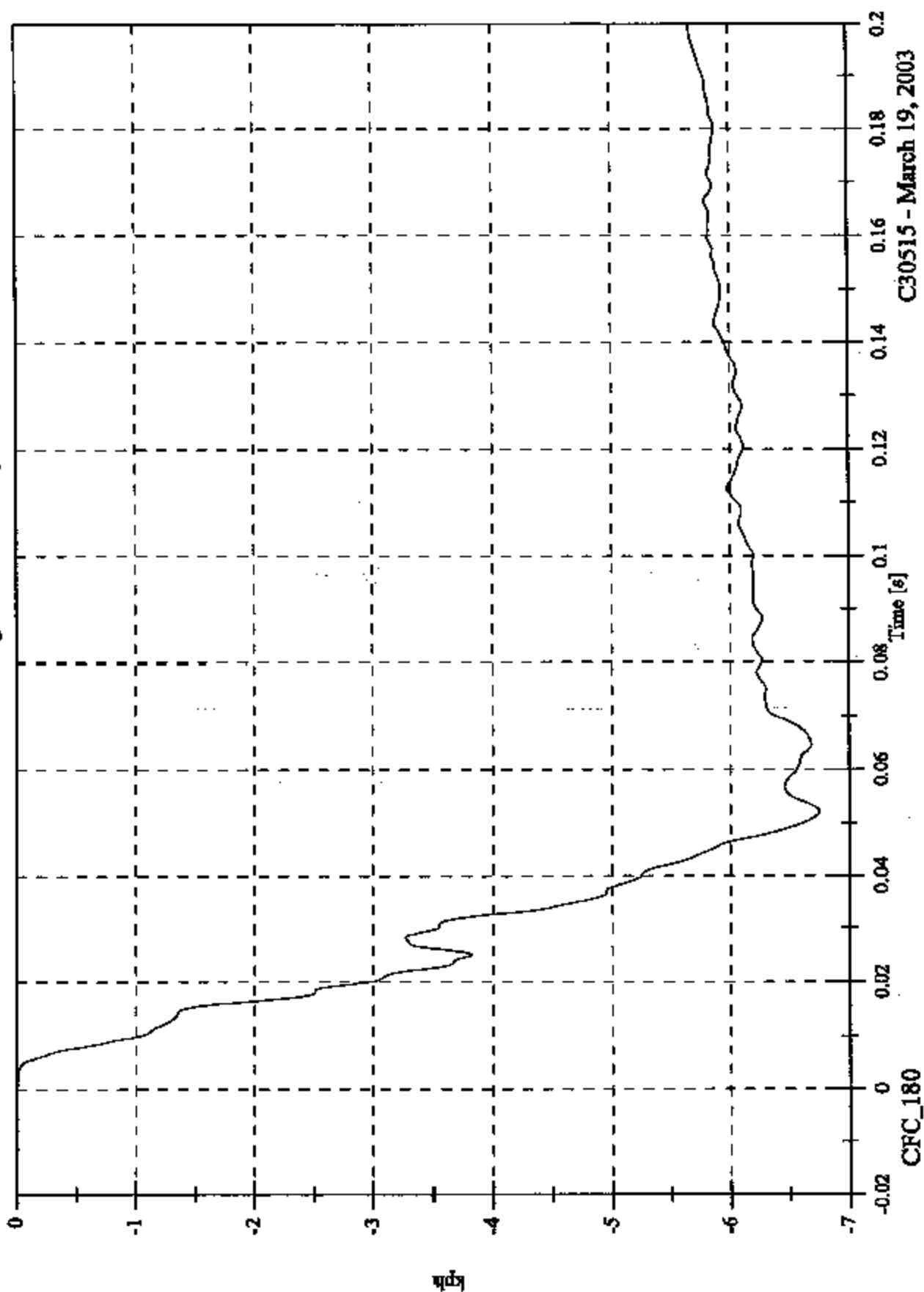


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 0.0 [kph] at -0.012 [s]
Min: -6.7 [kph] at 0.052 [s]

V2 A18 Target CG X Velocity

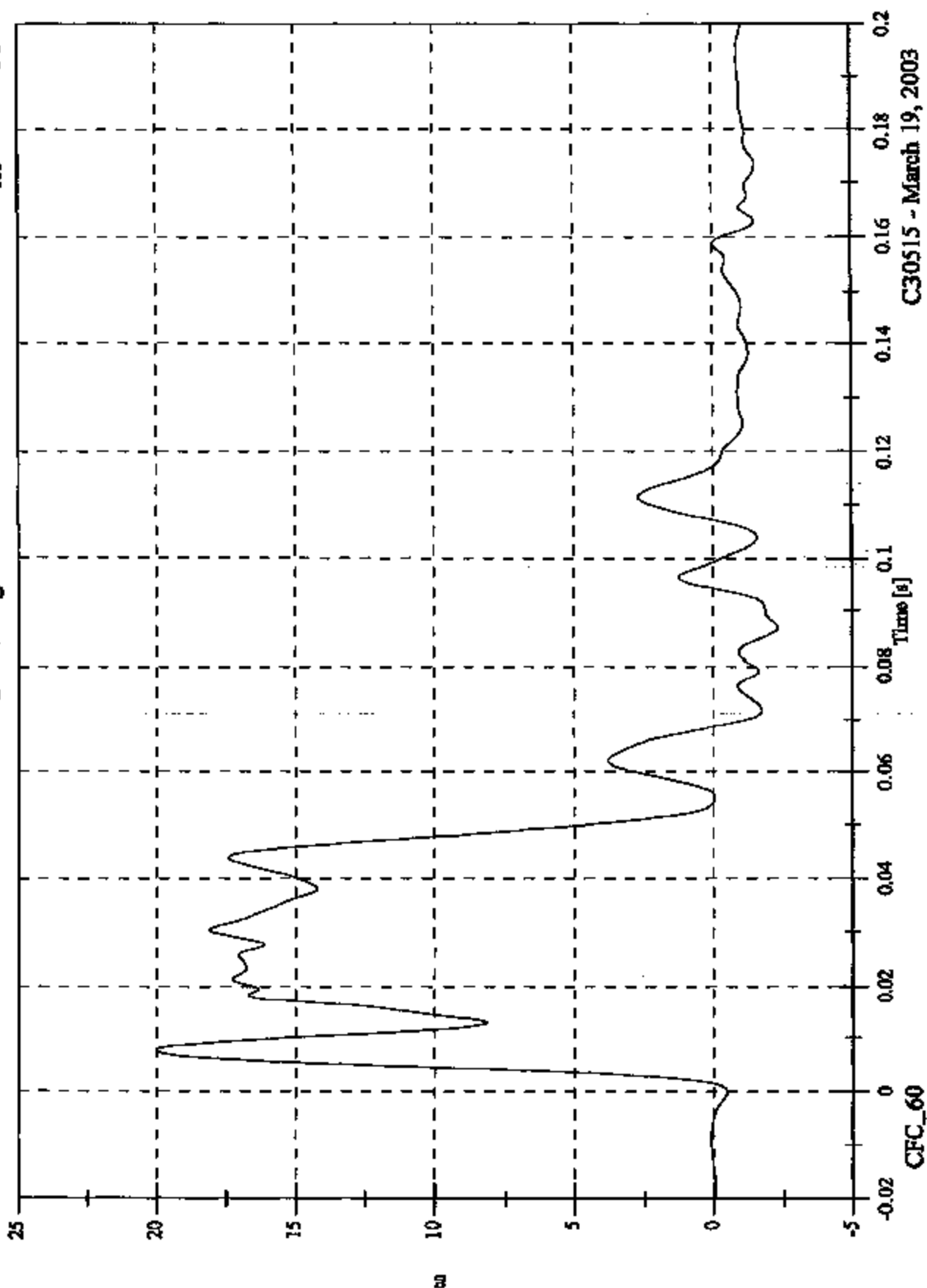


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A18 Target CG Y

Max: 20.0 [g] at 0.008 [s]
Min: -2.3 [g] at 0.087 [s]



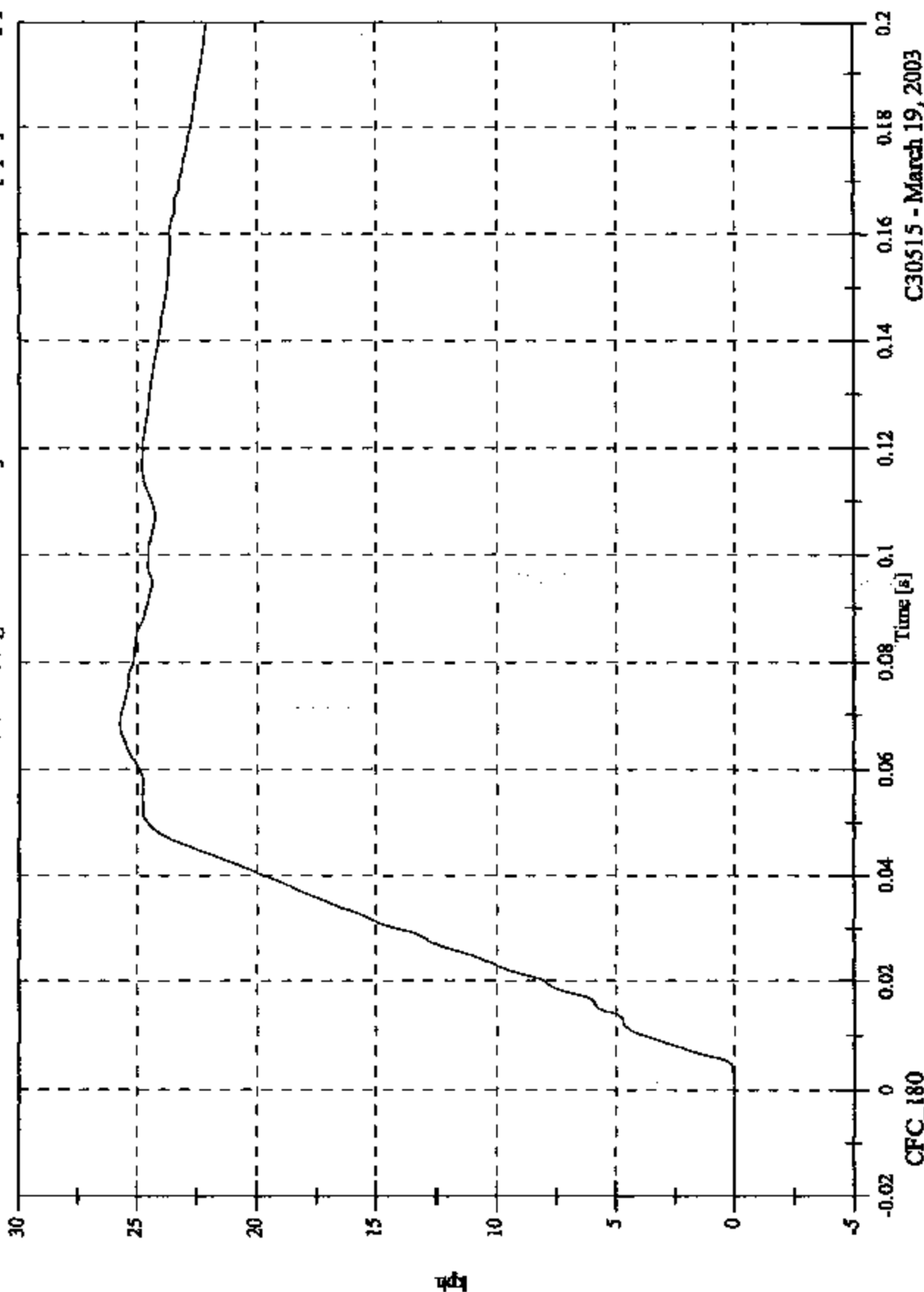
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 25.7 [kph] at 0.068 [s]

Min: -0.0 [kph] at -0.014 [s]

V2 A18 Target CG Y Velocity

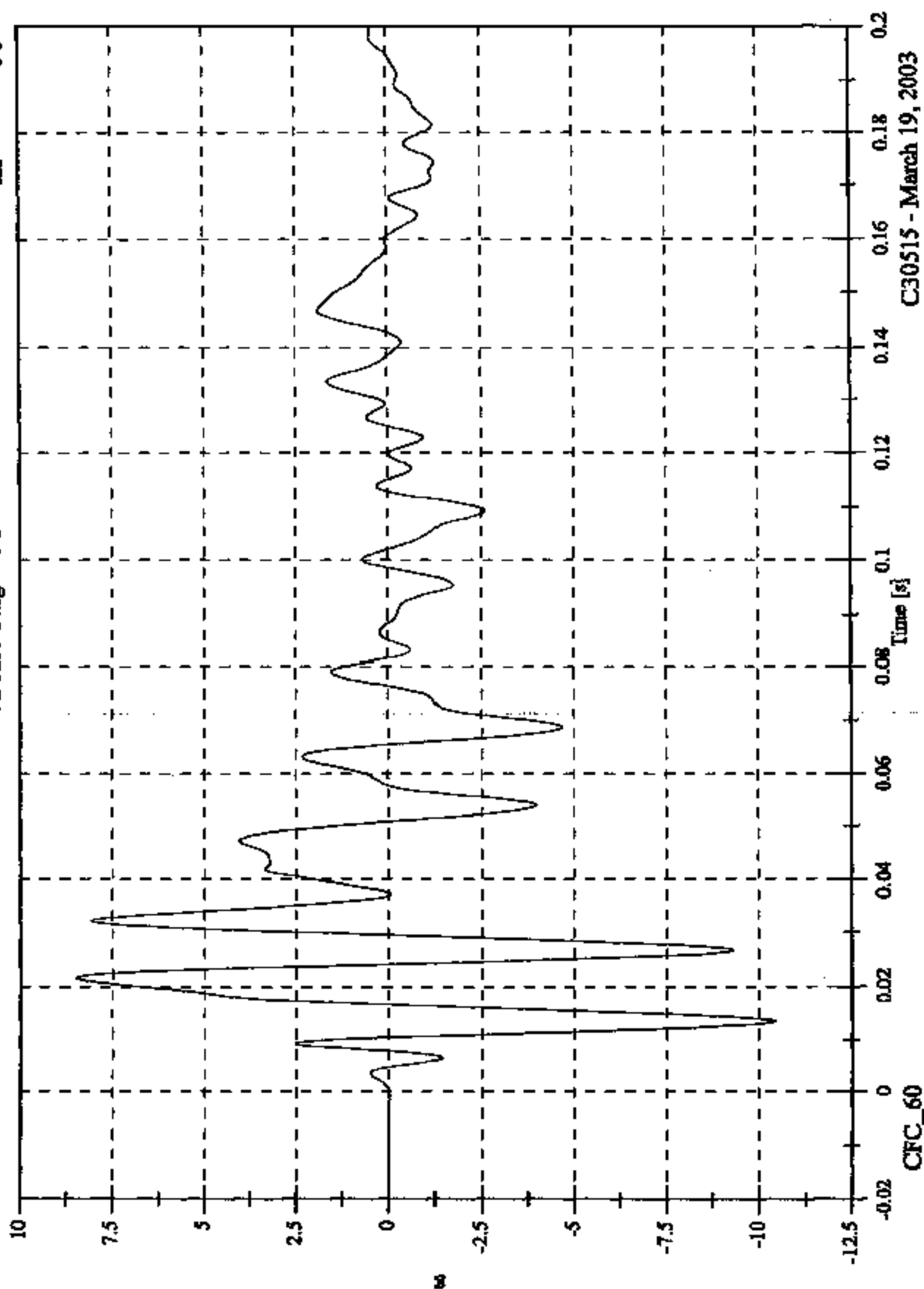


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A18 Target CGZ

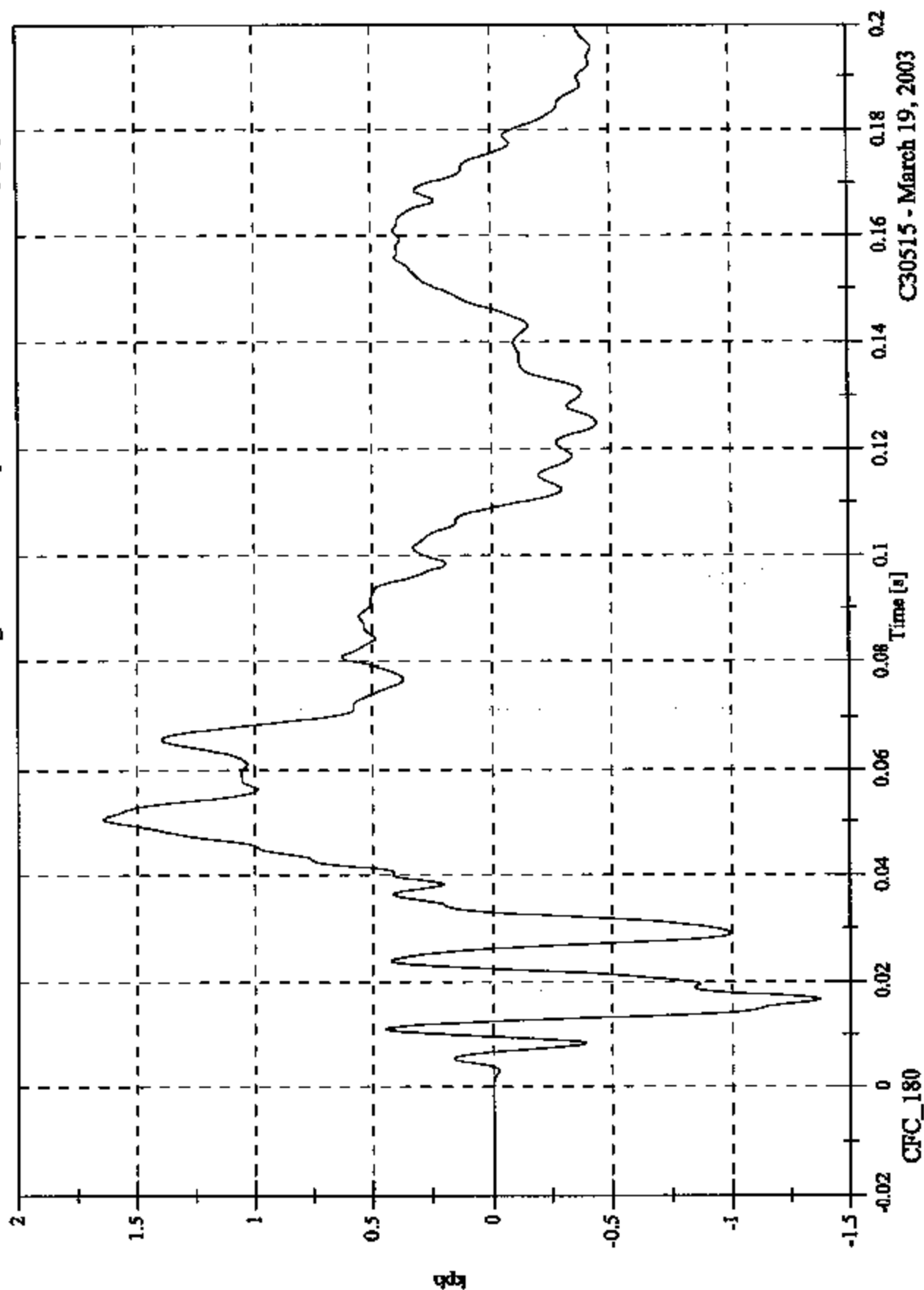
Max: 8.5 [g] at 0.022 [s]
Min: -10.4 [g] at 0.013 [s]



FMVSS 214D - 2003 Porsche Boxster

V2 A18 Target CG Z Velocity

Max: 1.6 [kph] at 0.050 [s]
Min: -1.4 [kph] at 0.016 [s]

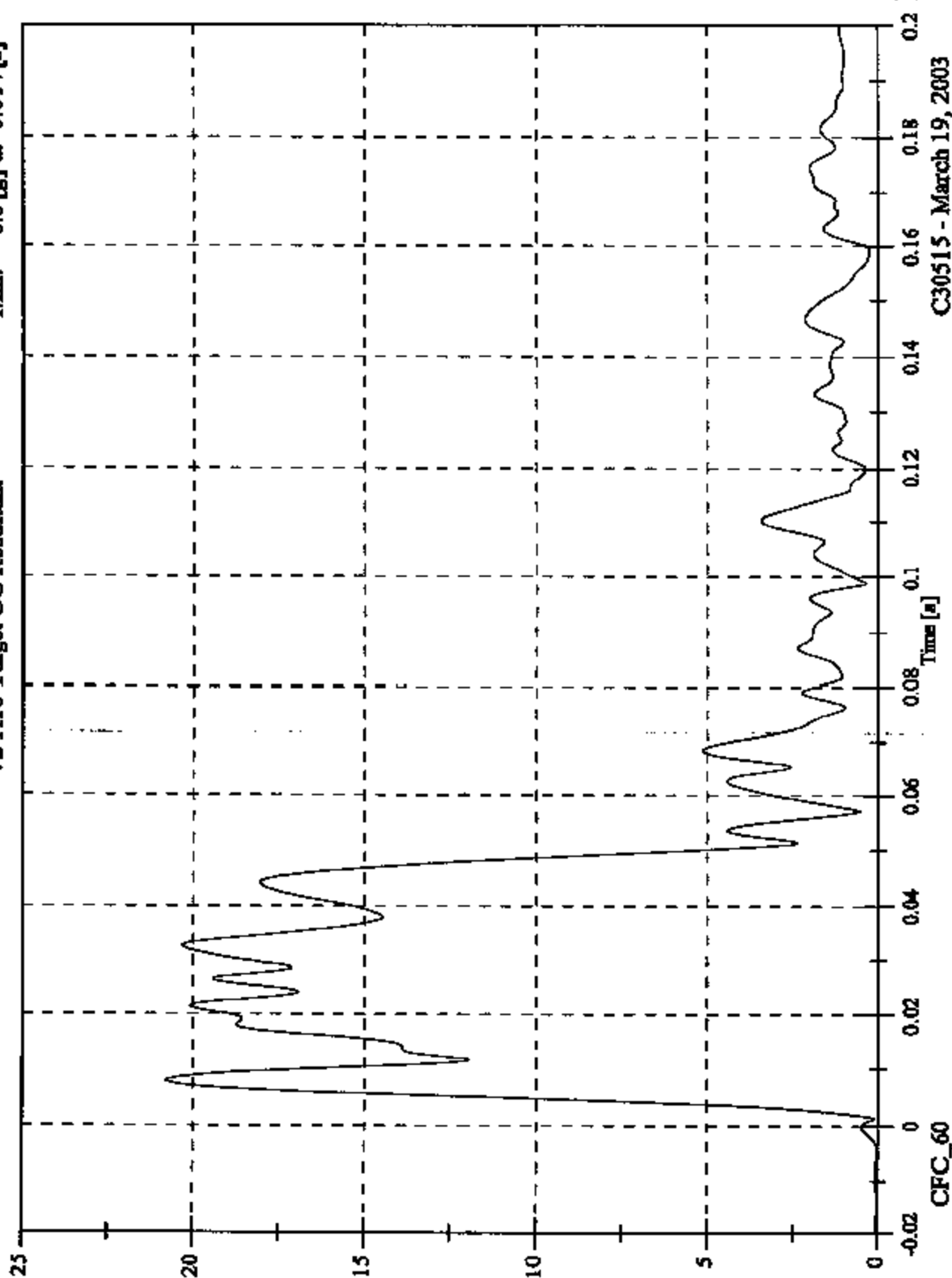


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2 A18 Target CG Resultant

Max: 20.8 [g] at 0.008 [s]
Min: 0.0 [g] at -0.014 [s]

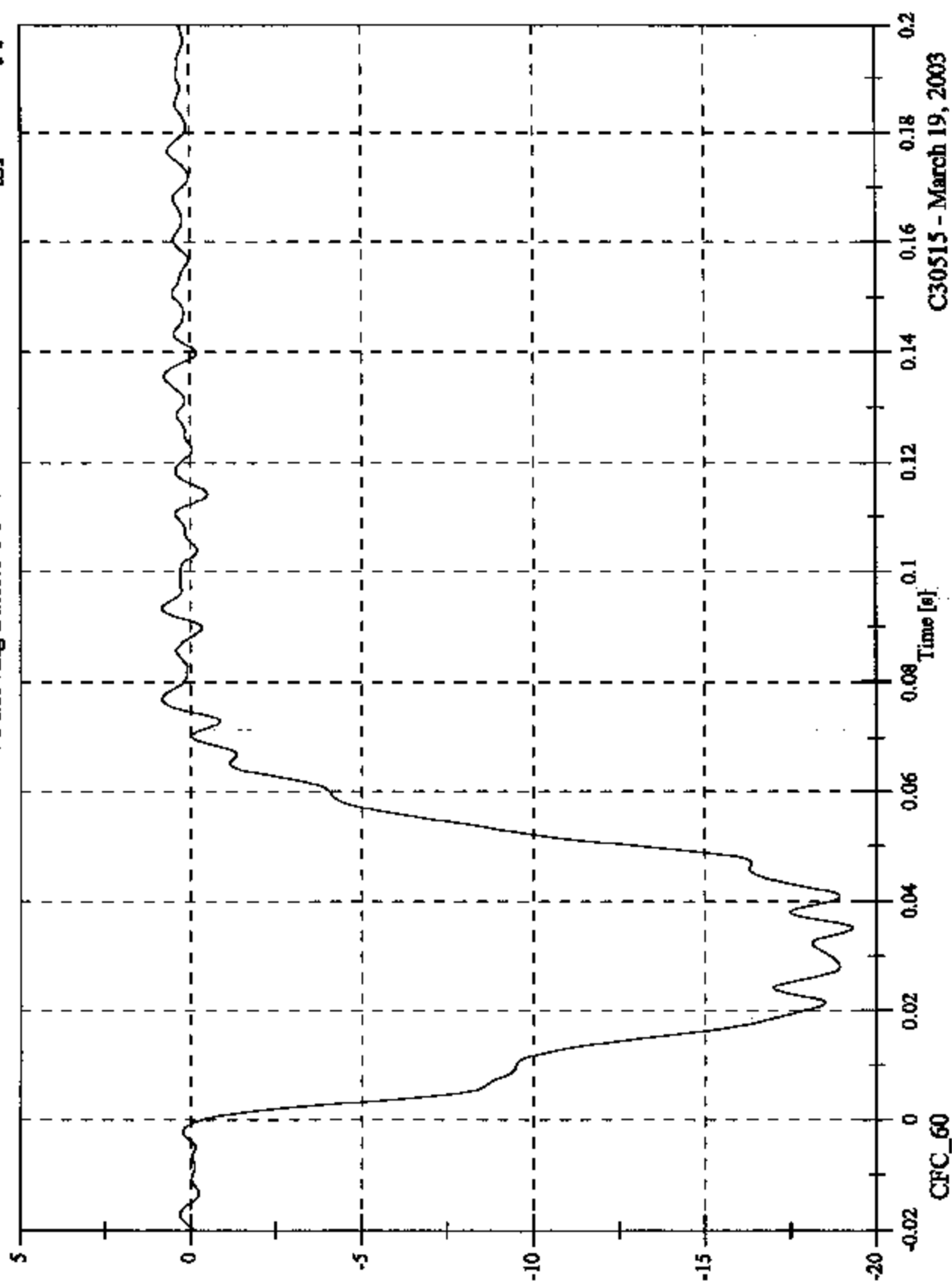


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V1 Moving Barrier CG X

Max: 0.8 [g] at 0.093 [s]
Min: -19.3 [g] at 0.035 [s]

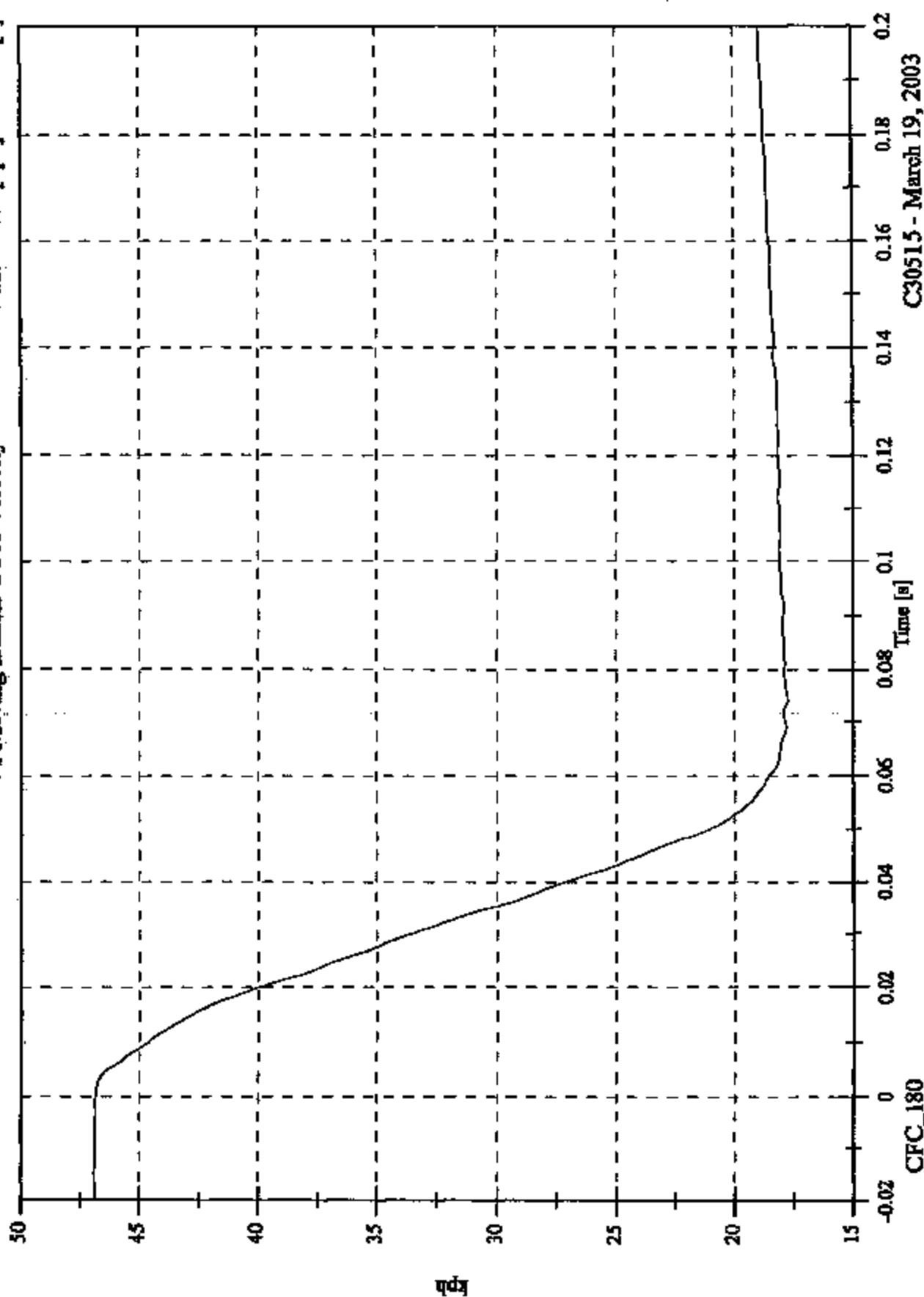


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 46.9 [kph] at -0.015 [s]
Min: 17.7 [kph] at 0.074 [s]

V1 Moving Barrier CGX Velocity

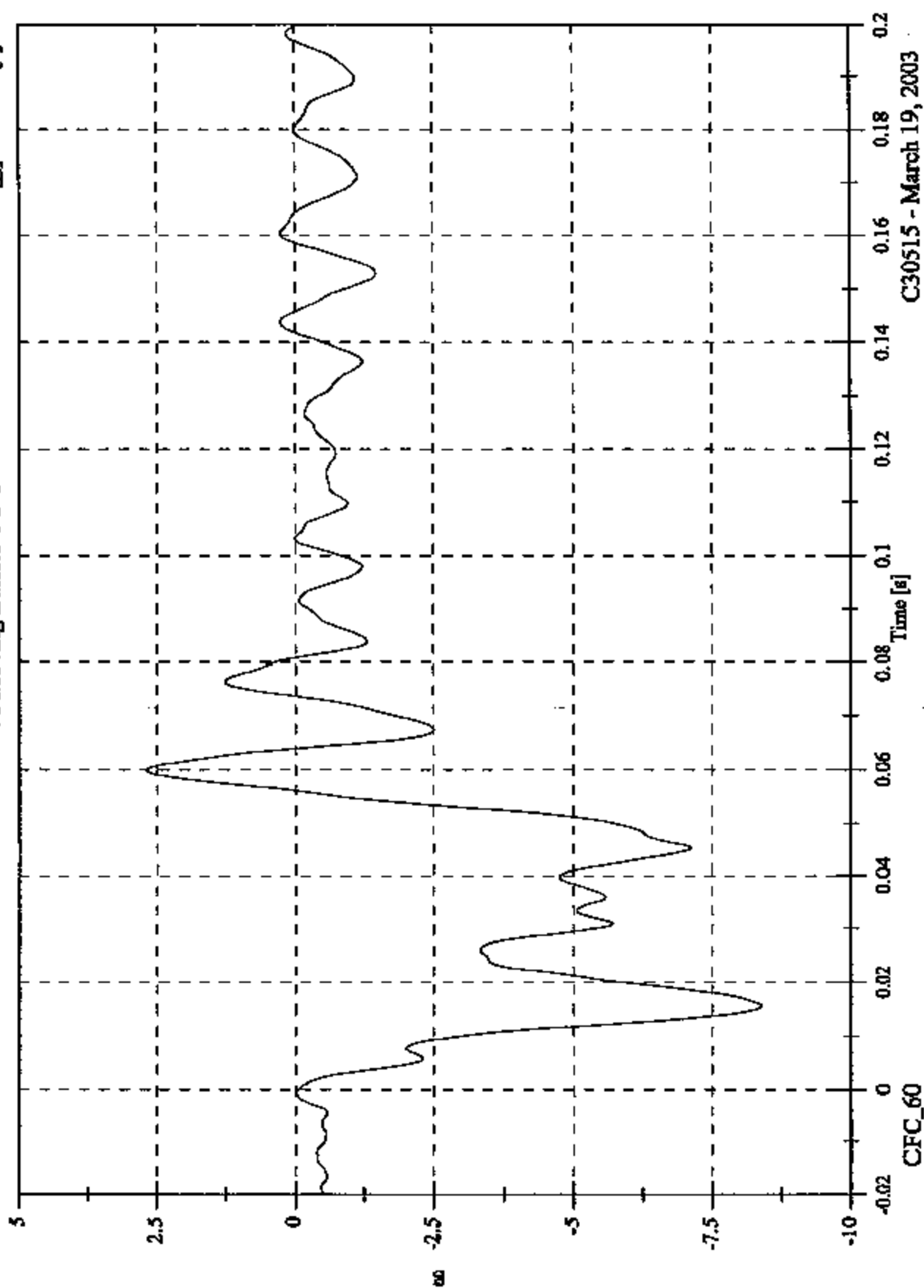


C30513 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V1 Moving Barrier CG Y

Max: 2.7 [g] at 0.060 [s]
Min: -8.4 [g] at 0.015 [s]

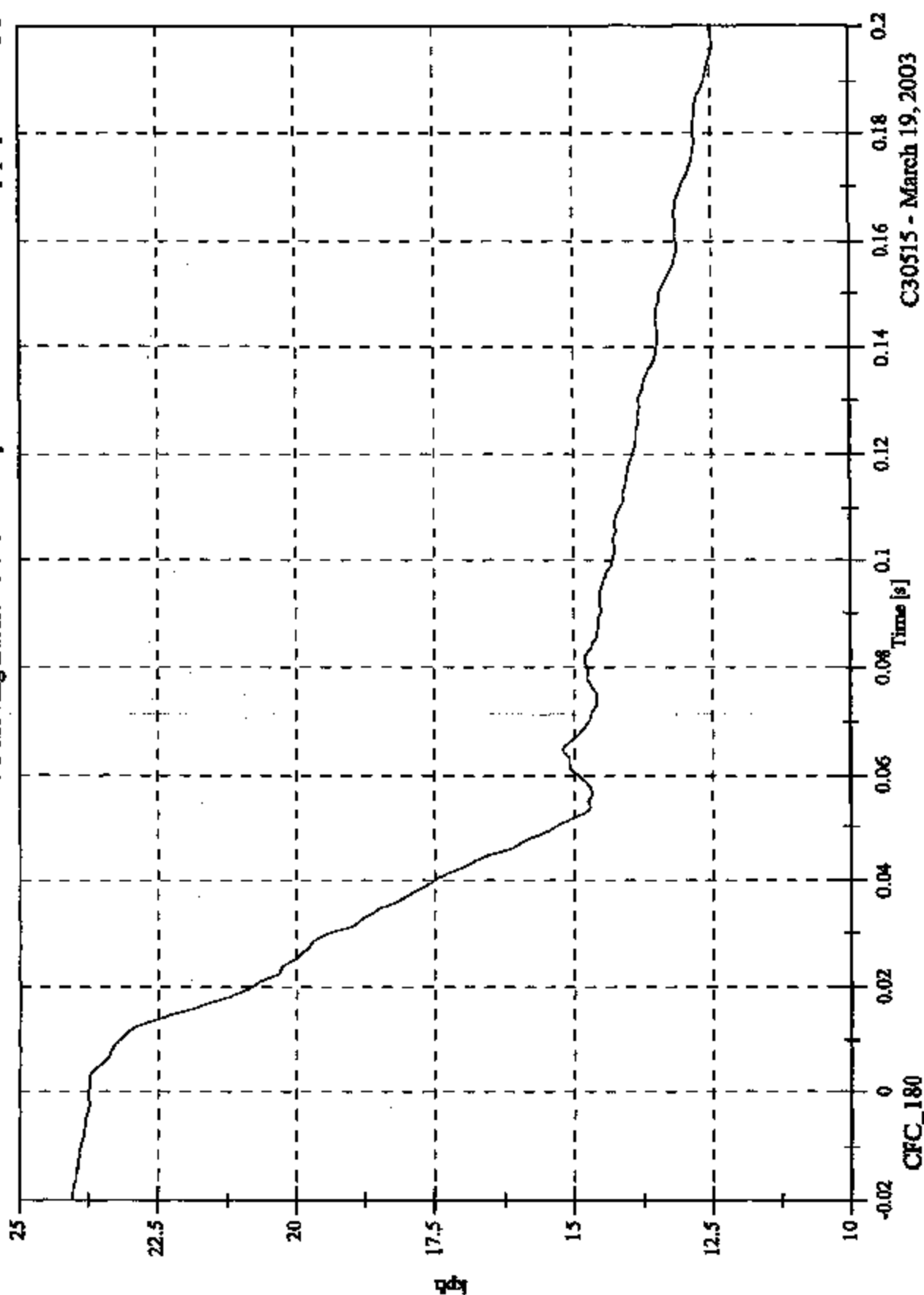


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 24.0 [kph] at -0.020 [s]
Min: 12.5 [kph] at 0.196 [s]

V1 Moving Barrier CG Y Velocity



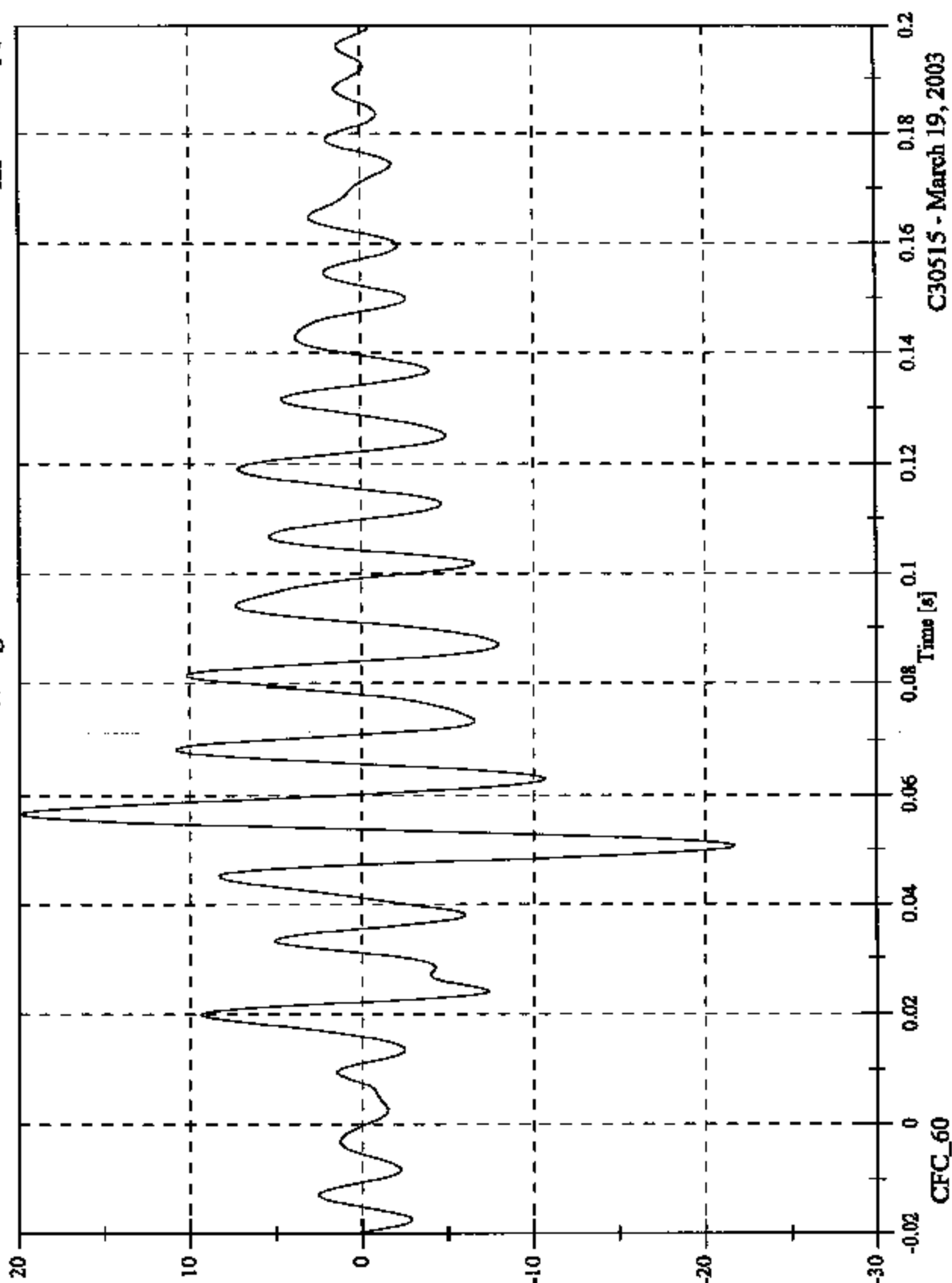
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V1 Moving Barrier CG Z

Max: 20.0 [g] at 0.057 [s]

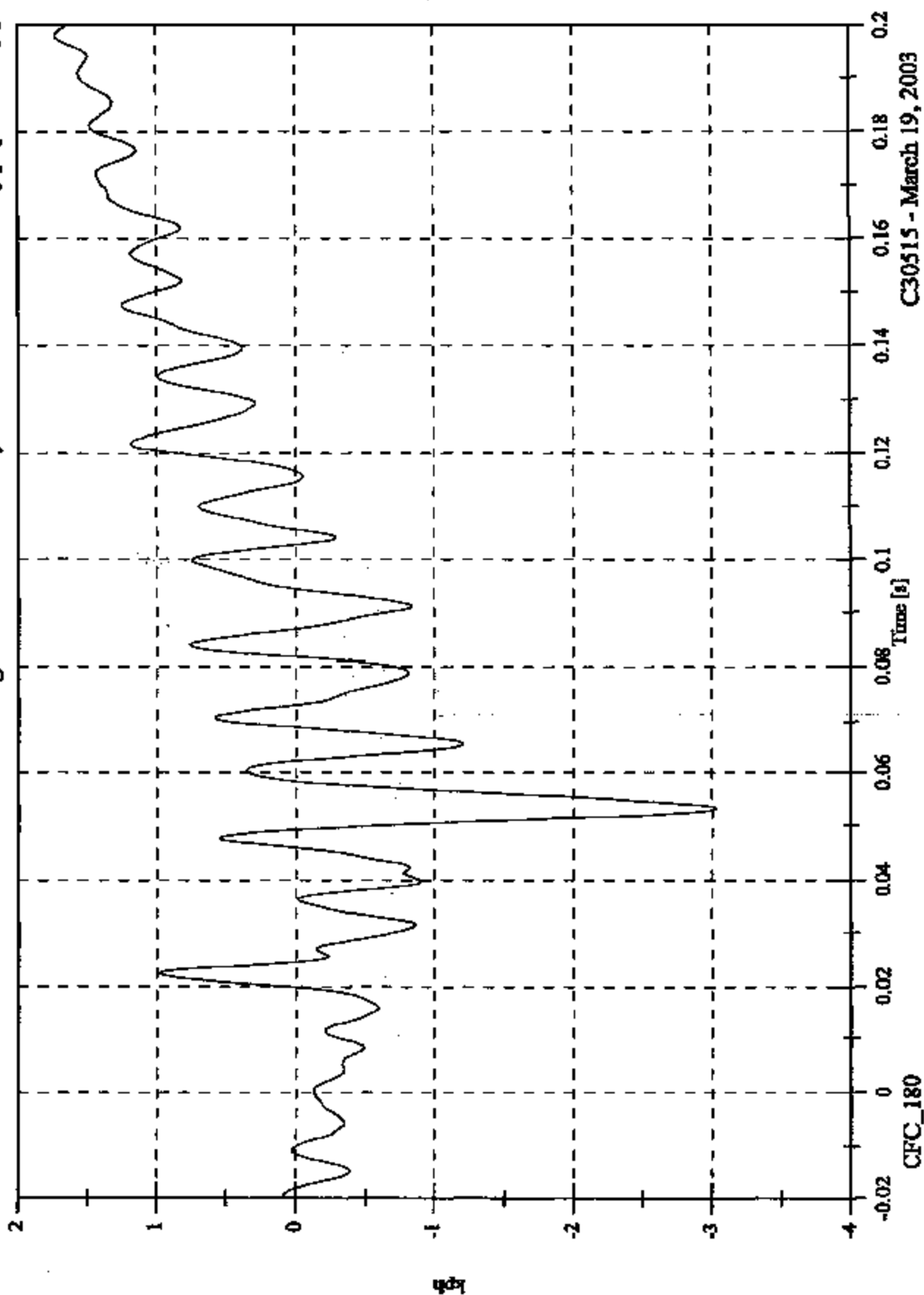
Min: -21.7 [g] at 0.051 [s]



FMVSS 214D - 2003 Porsche Boxster

V1 Moving Barrier CG Z Velocity

Max: 1.7 [kph] at 0.198 [s]
Min: -3.0 [kph] at 0.053 [s]

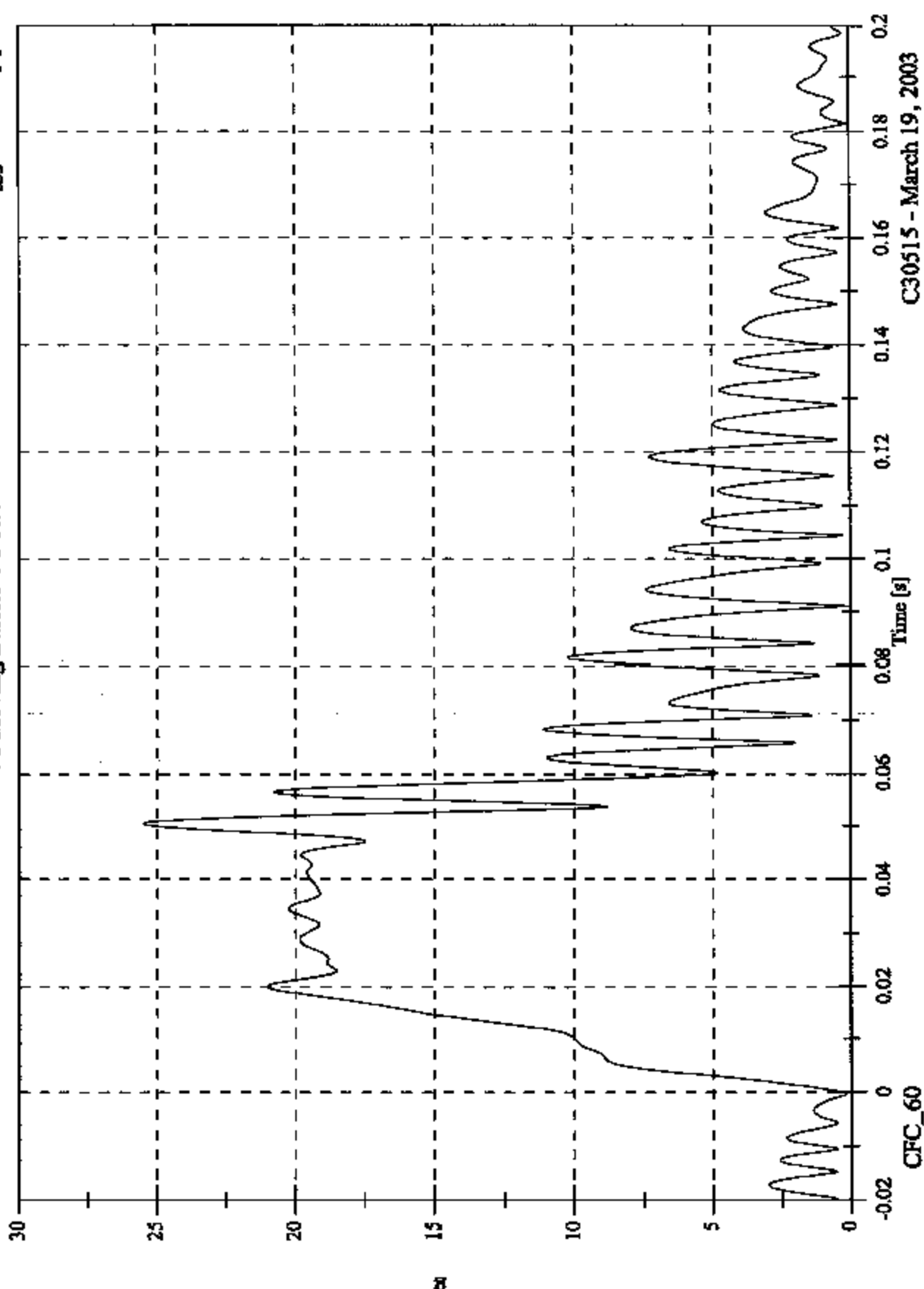


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 25.5 [g] at 0.050 [s]
Min: 0.1 [g] at 0.091 [s]

V1 Moving Barrier CG Resultant

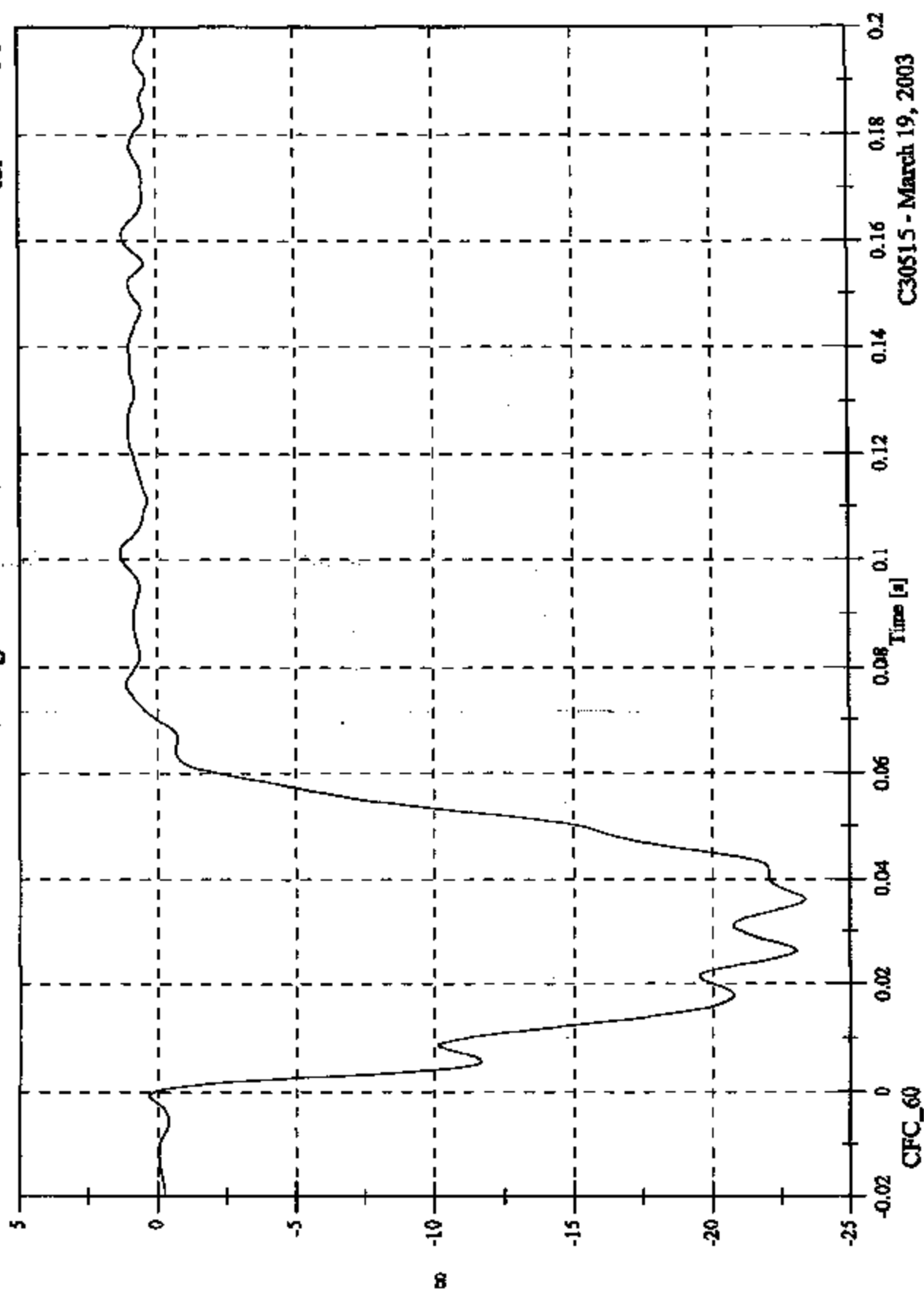


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V1 Moving Barrier Left Rail X

Max: 1.3 [g] at 0.101 [s]
Min: -23.4 [g] at 0.036 [s]



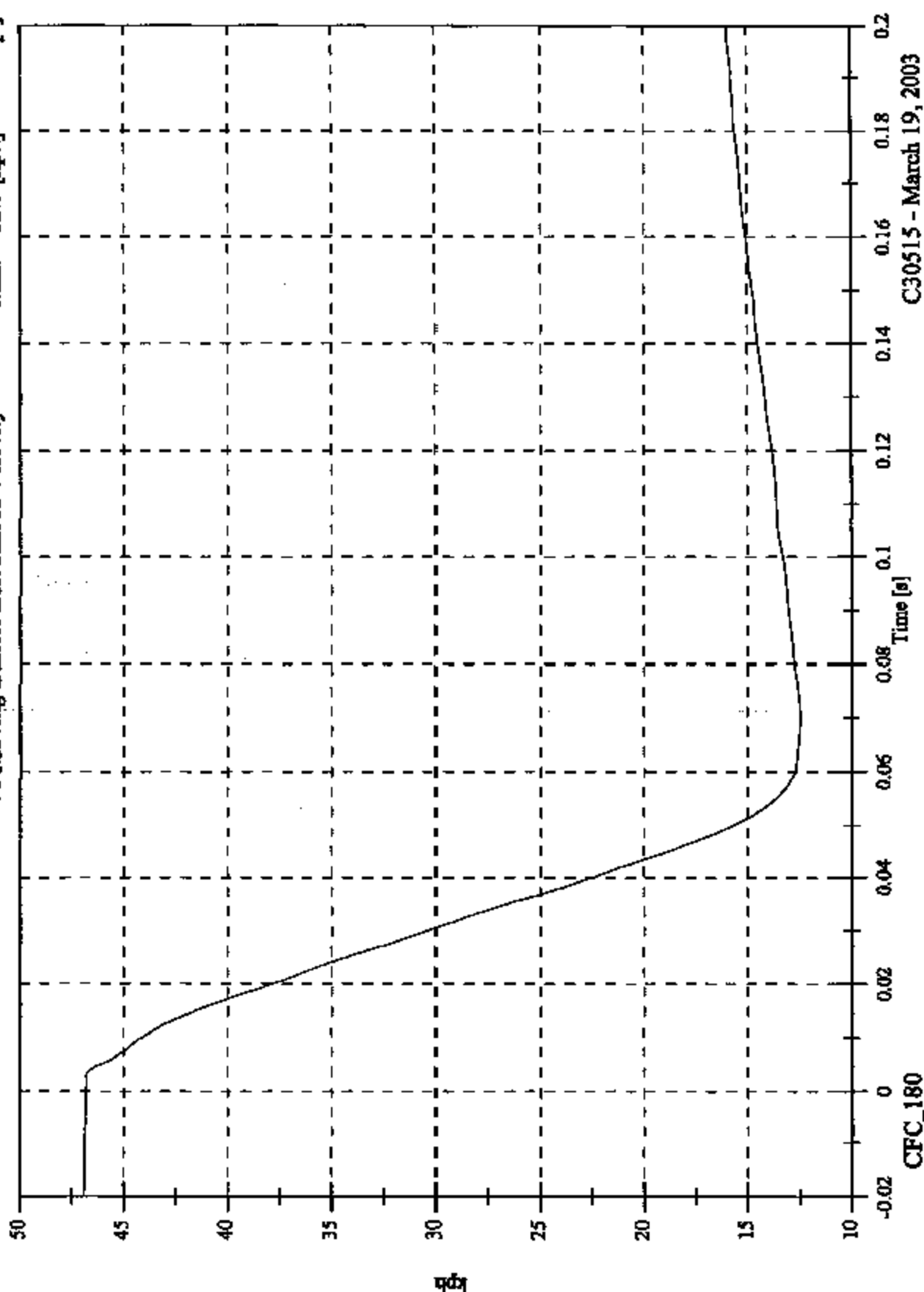
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 46.9 [kph] at -0.020 [s]

Min: 12.5 [kph] at 0.069 [s]

V1 Moving Barrier Left Rail X Velocity

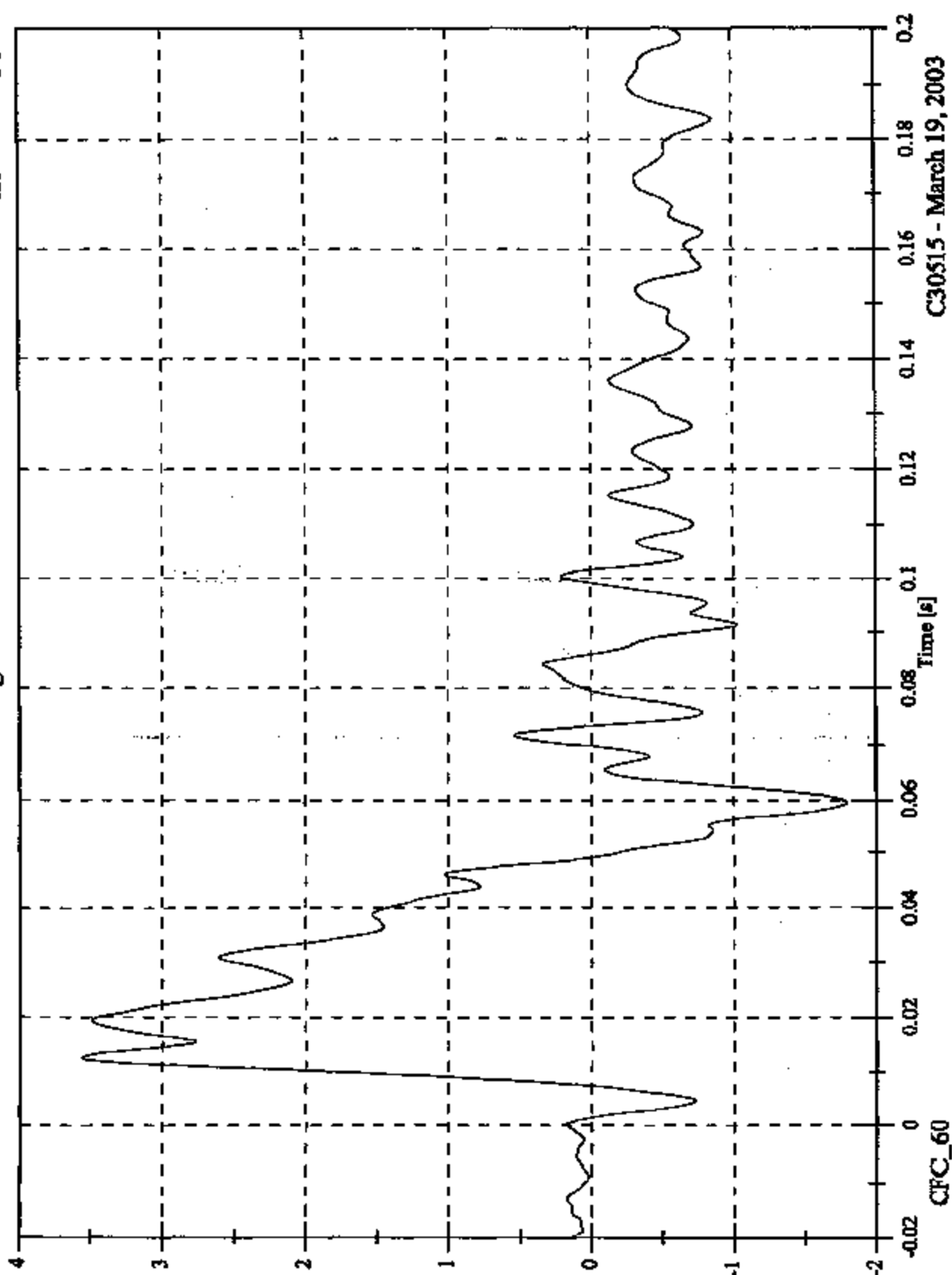


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

VI Moving Barrier Left Rail Y

Max: 3.6 [g] at 0.012 [s]
Min: -1.8 [g] at 0.060 [s]



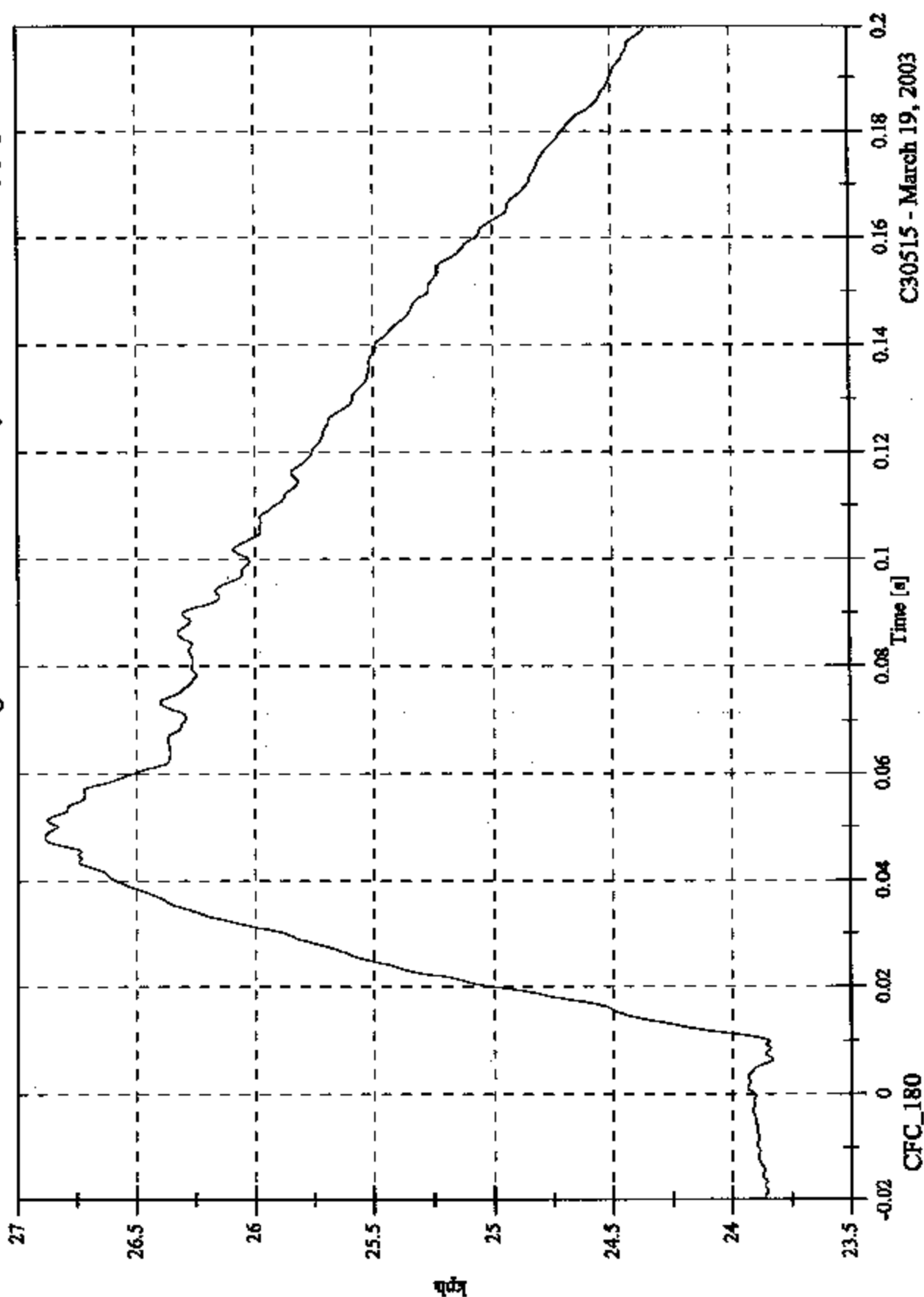
C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 26.9 [kph] at 0.048 [s]

Min: 23.8 [kph] at 0.006 [s]

V1 Moving Barrier Left Rail Y Velocity

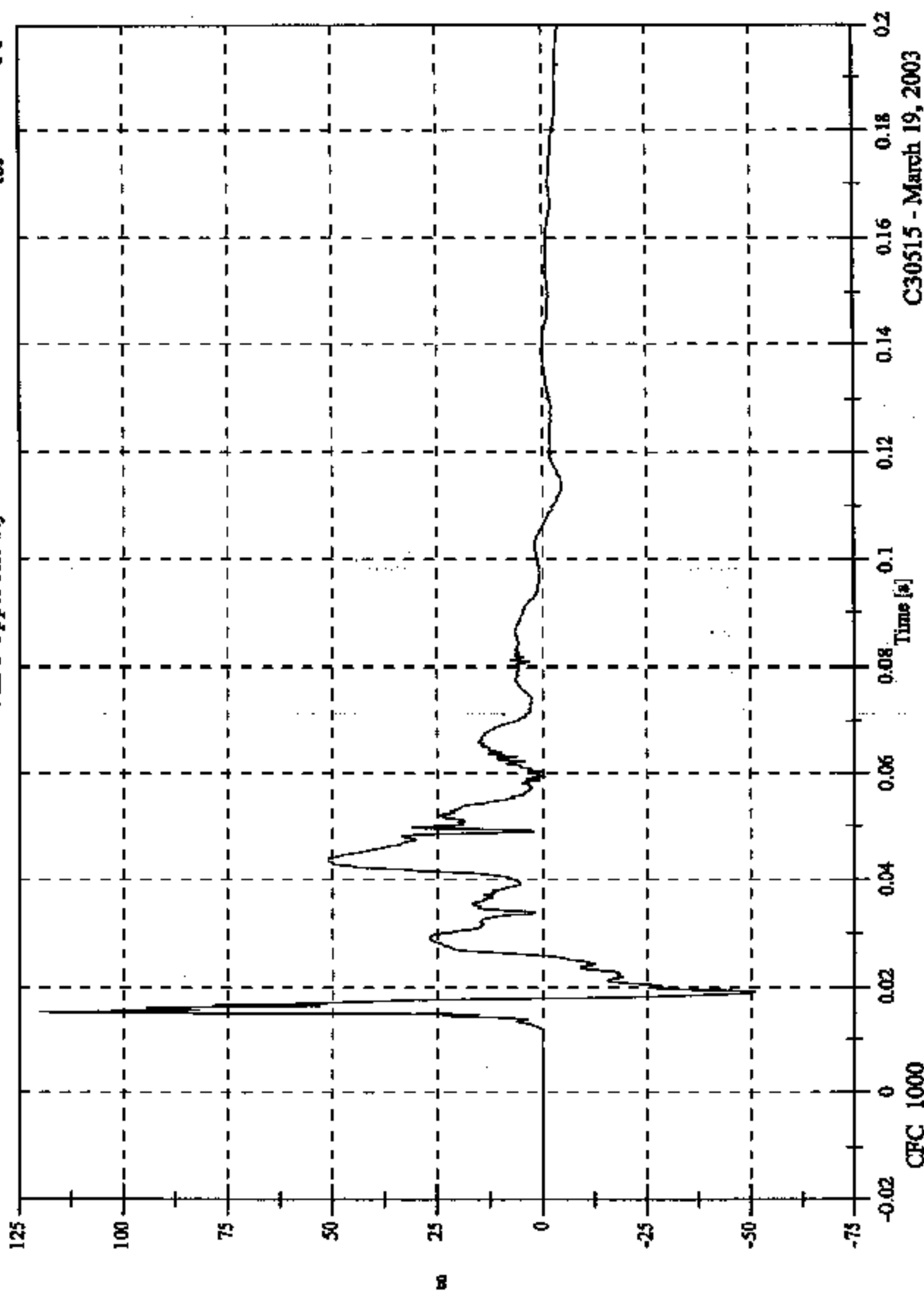


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 120.3 [g] at 0.015 [s]
Min: -50.9 [g] at 0.019 [s]

V2P1 Upper Rib Ry

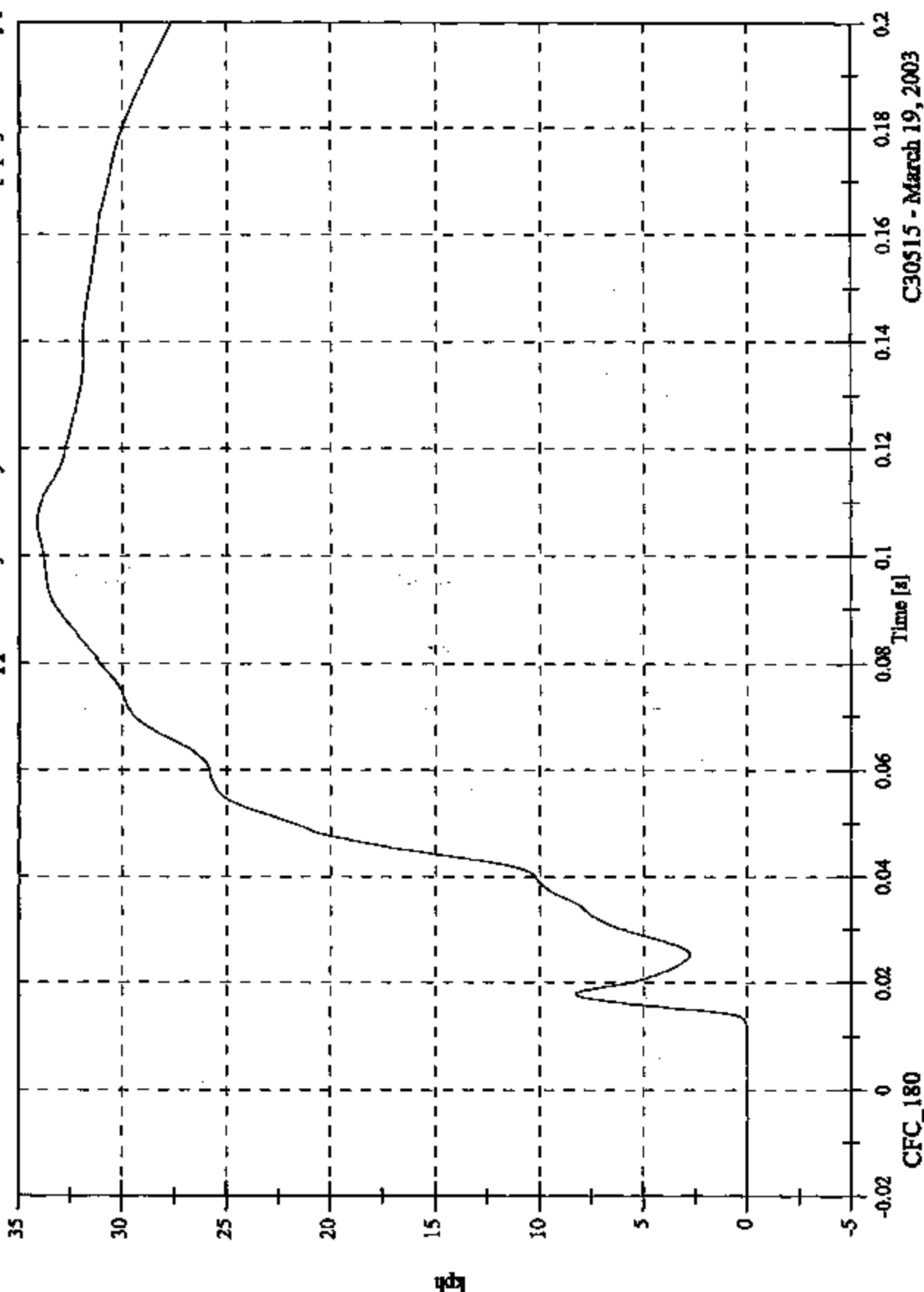


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2P1 Upper Rib Ry Velocity

Max: 34.1 [kph] at 0.106 [s]
Min: -0.0 [kph] at -0.001 [s]

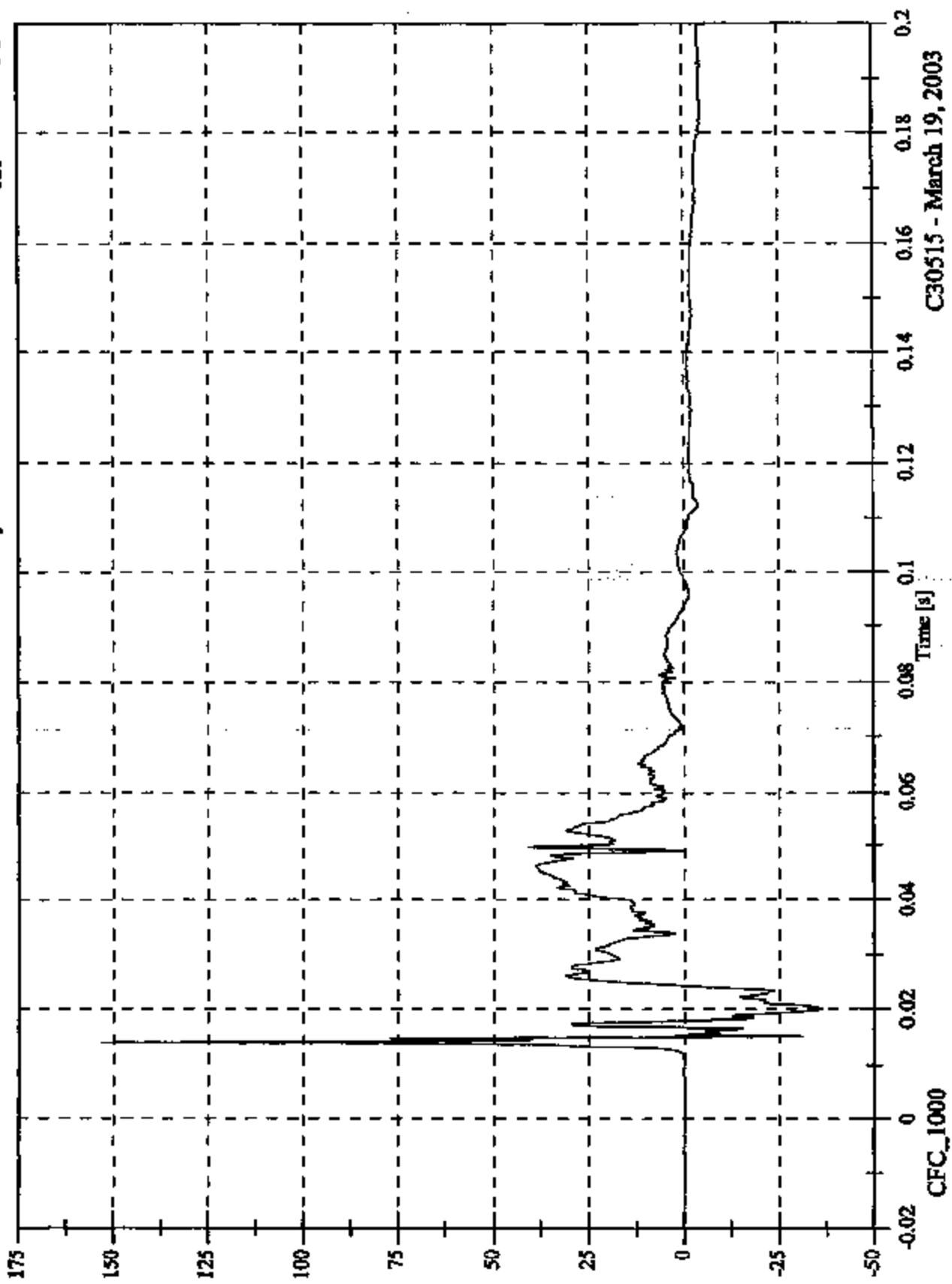


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2P1 Lower Rib Ry

Max: 153.3 [g] at 0.014 [s]
Min: -36.3 [g] at 0.020 [s]

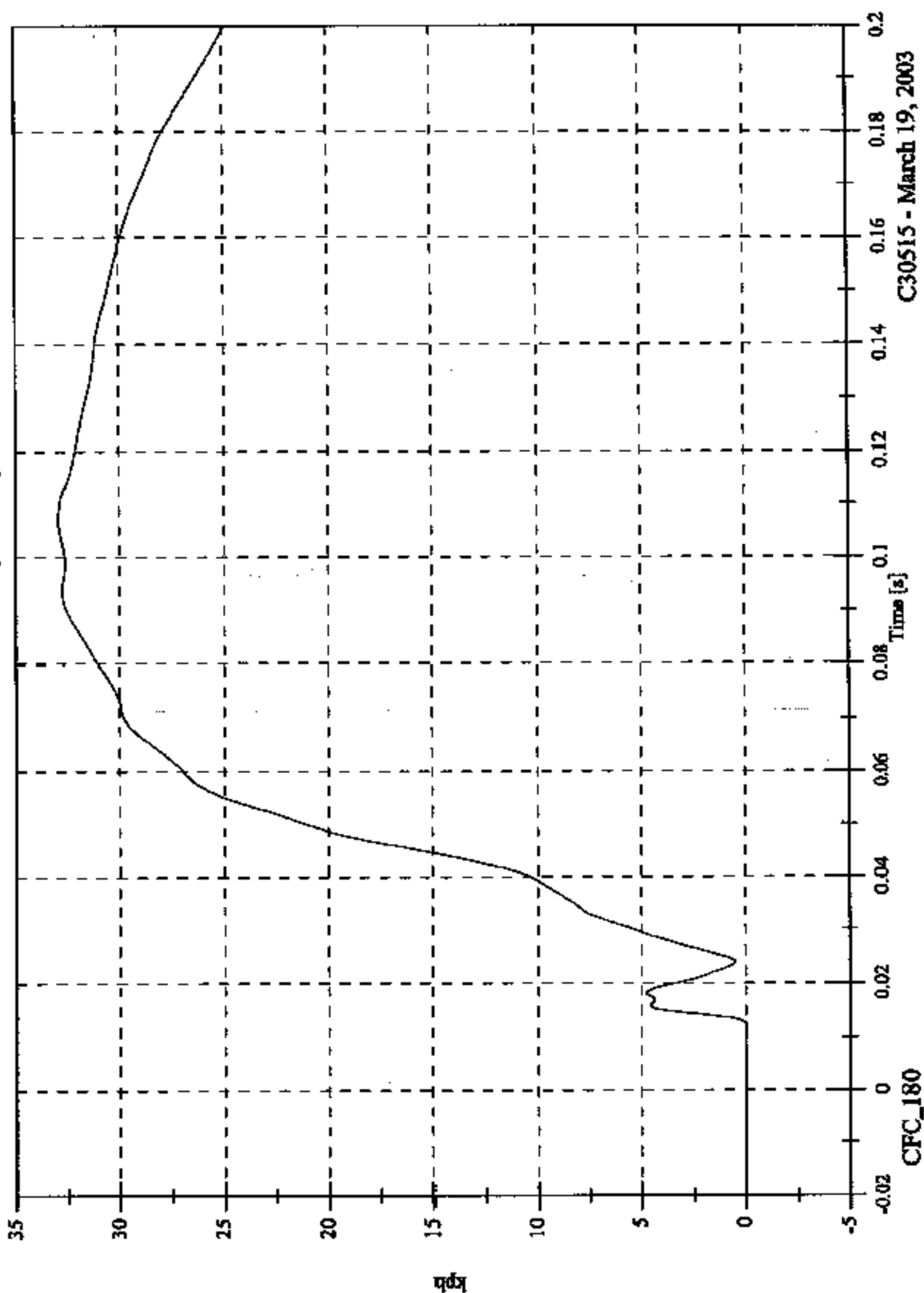


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 33.0 [kph] at 0.107 [s]
Min: -0.0 [kph] at 0.012 [s]

V2P1 Lower Rib Ry Velocity



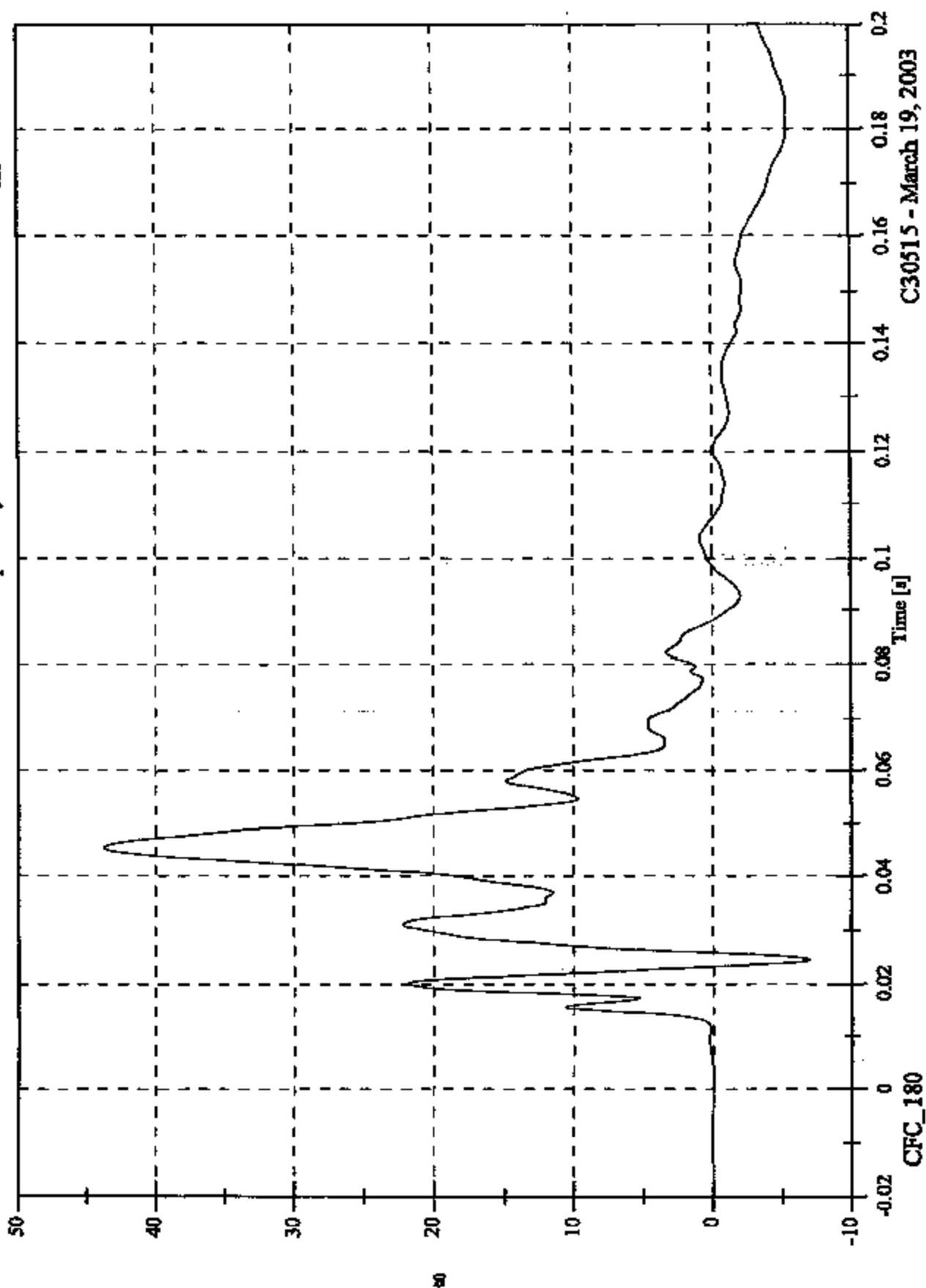
CFC_180

C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2P1 Lower Spine Ry

Max: 43.7 [g] at 0.046 [s]
Min: -6.9 [g] at 0.024 [s]

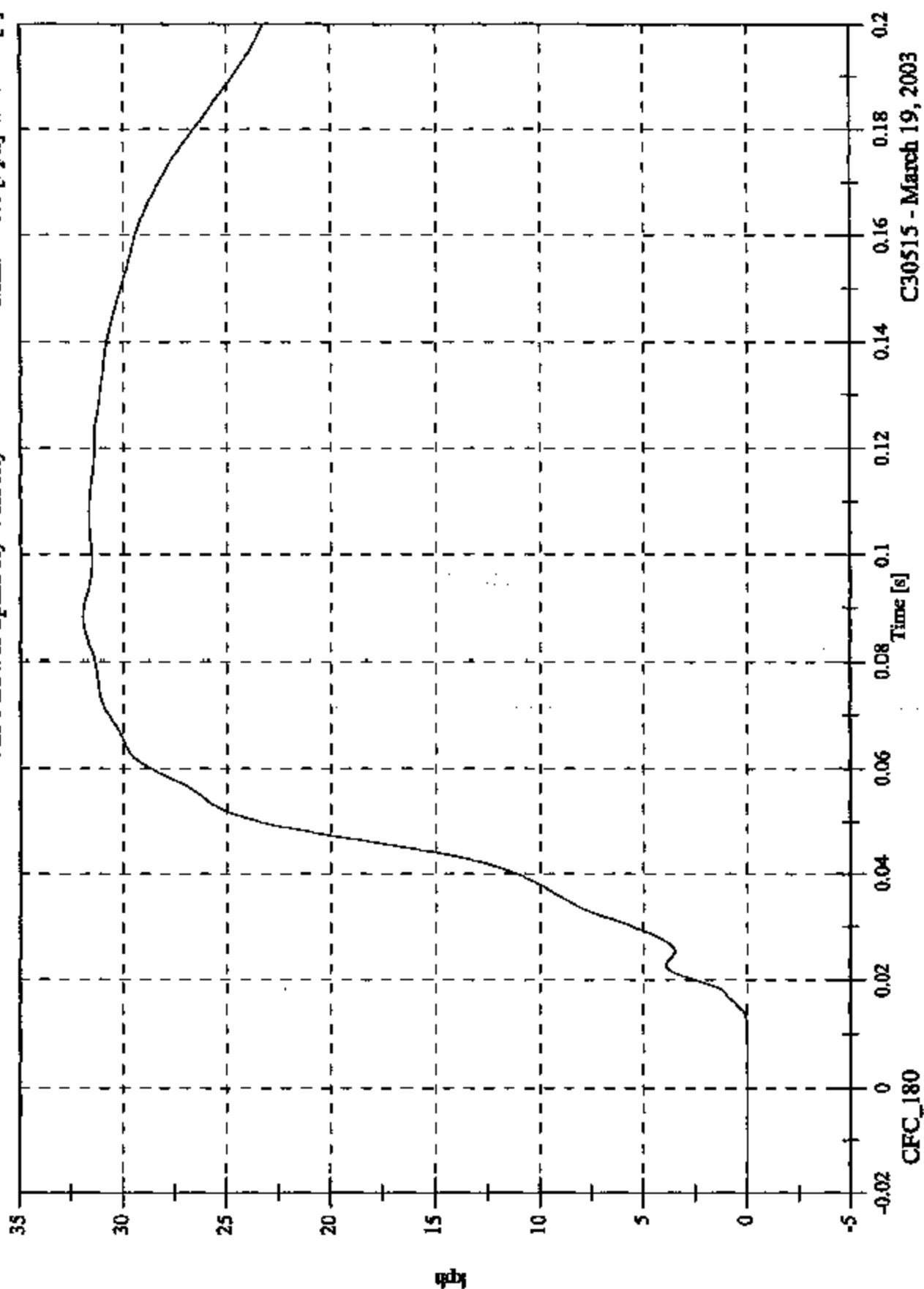


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 32.0 [kph] at 0.088 [s]
Min: -0.0 [kph] at -0.016 [s]

V2P1 Lower Spine Ry Velocity

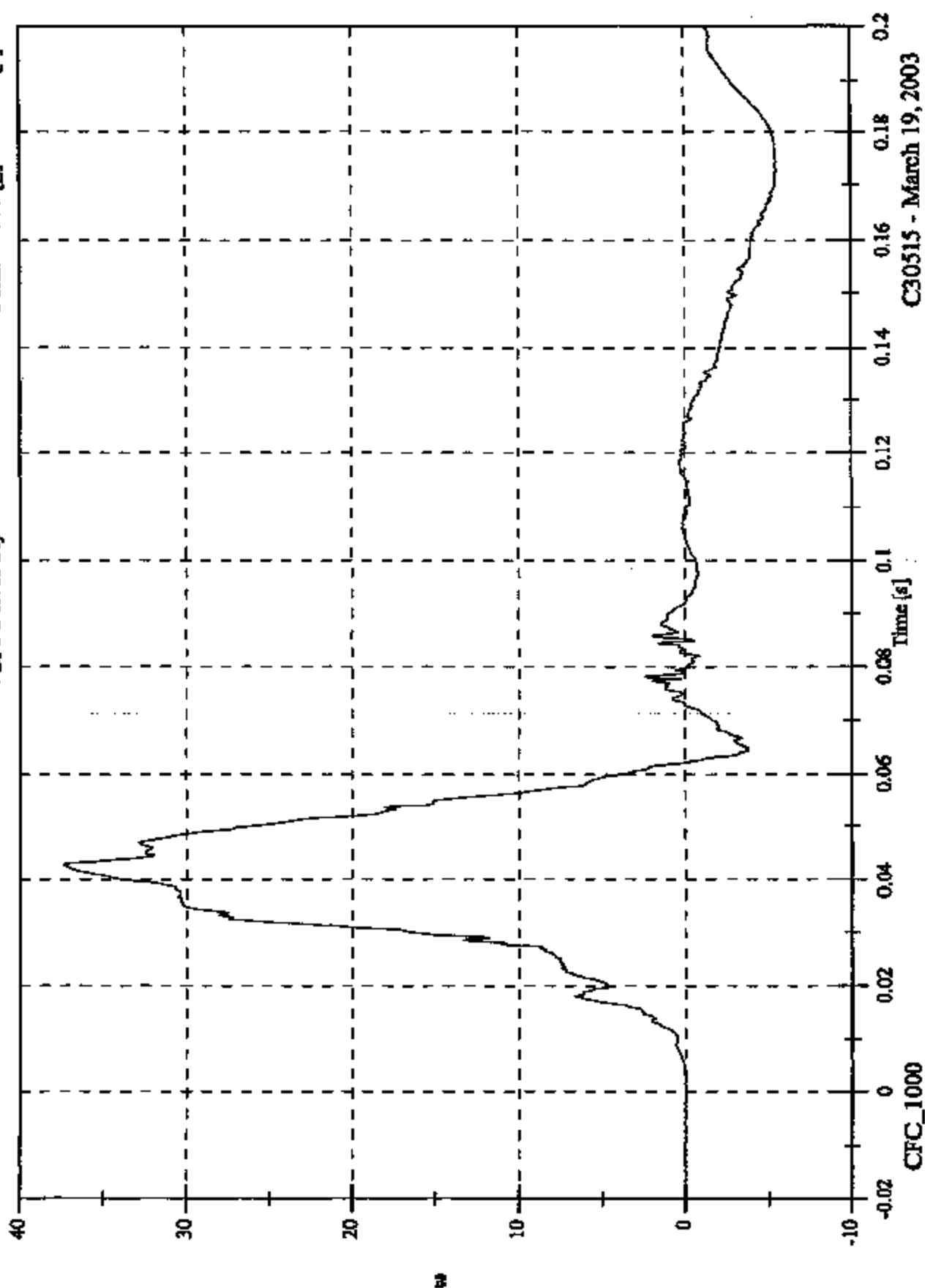


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2PI Pelvic Ry

Max: 37.4 [g] at 0.043 [s]
Min: -5.6 [g] at 0.173 [s]

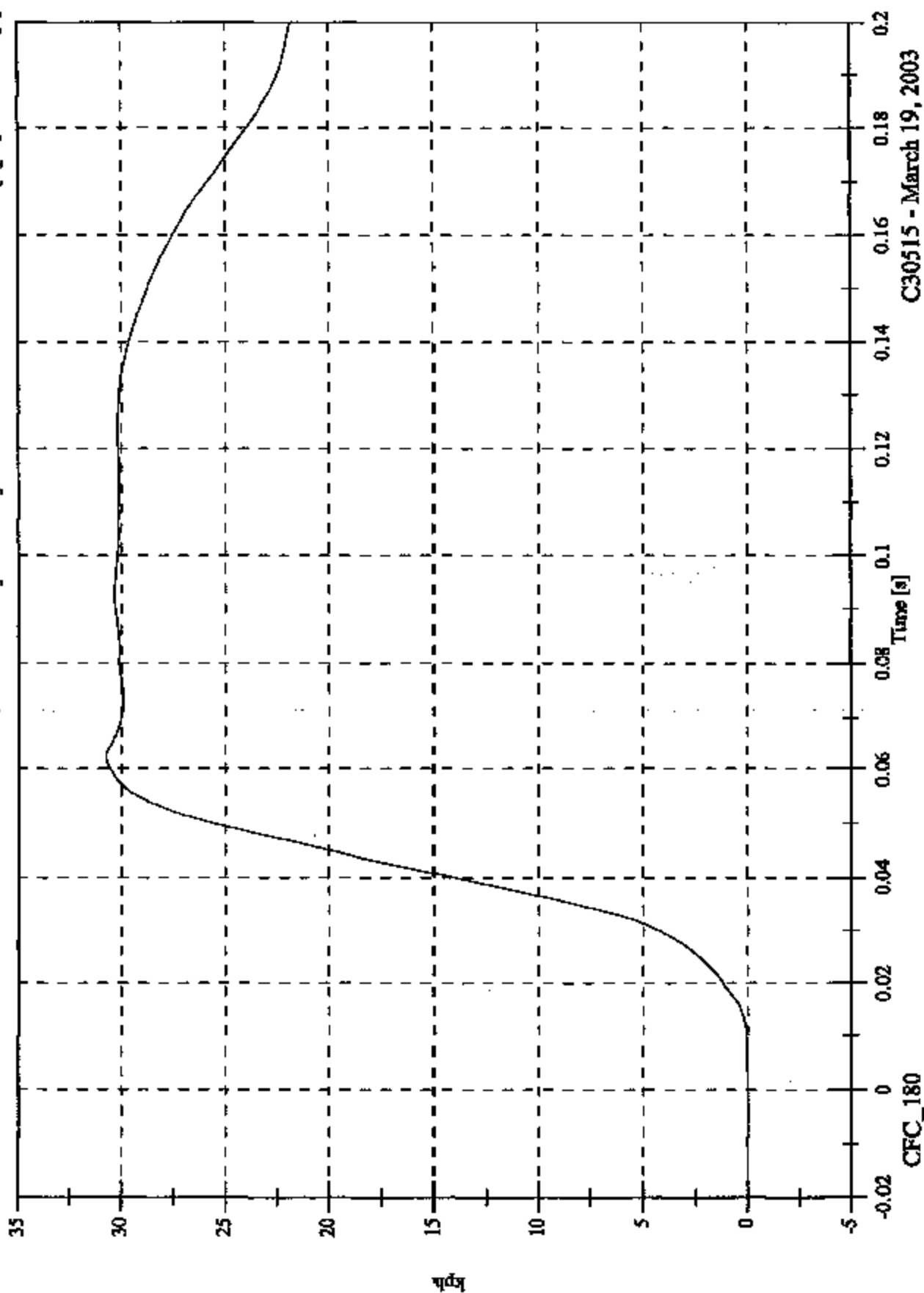


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

Max: 30.7 [kph] at 0.062 [s]
 Min: -0.0 [kph] at -0.015 [s]

V2P1 Pelvic Ry Velocity

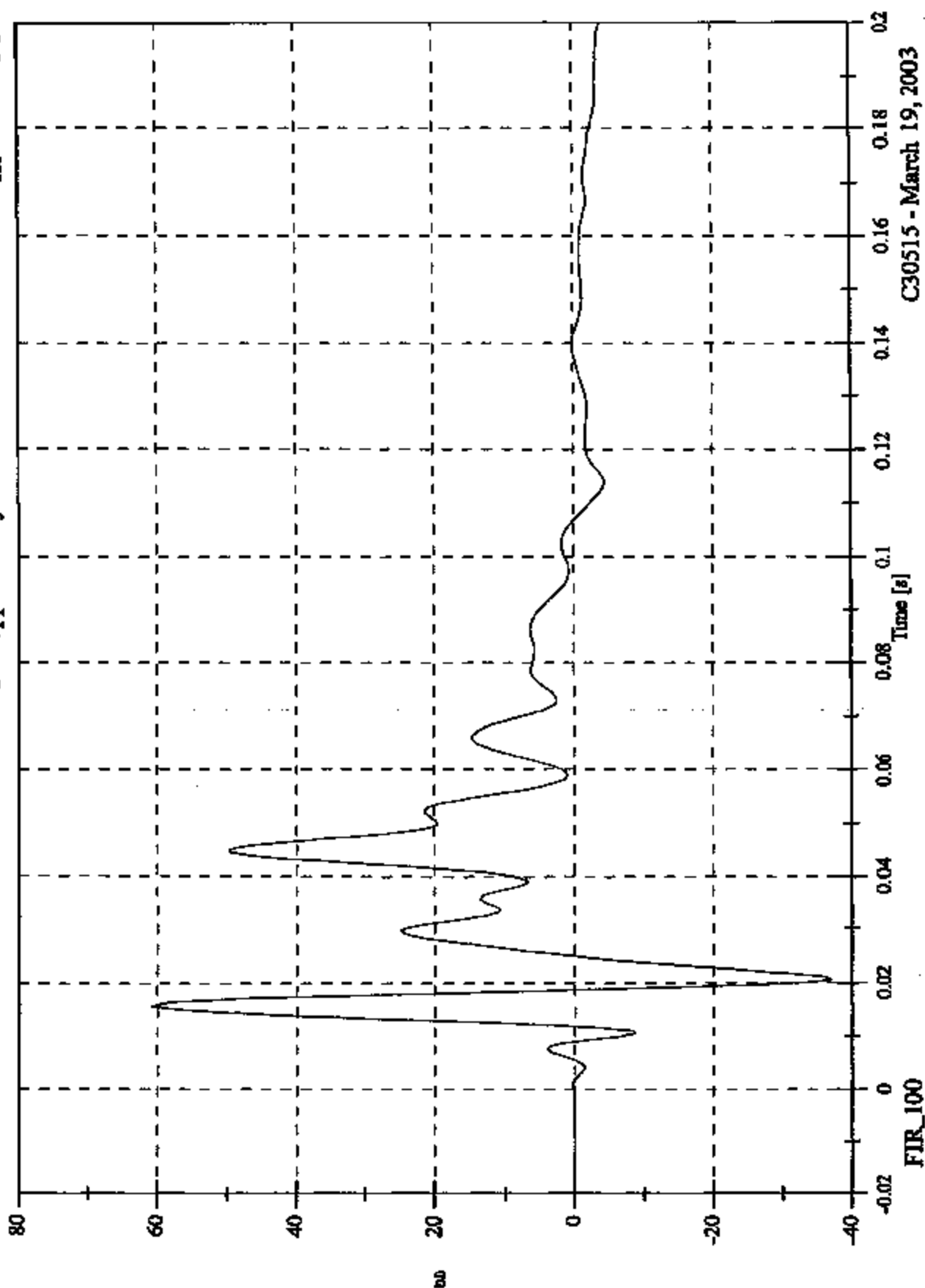


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2PI Upper Rib Ry

Max: 60.8 [g] at 0.016 [s]
Min: -36.9 [g] at 0.021 [s]

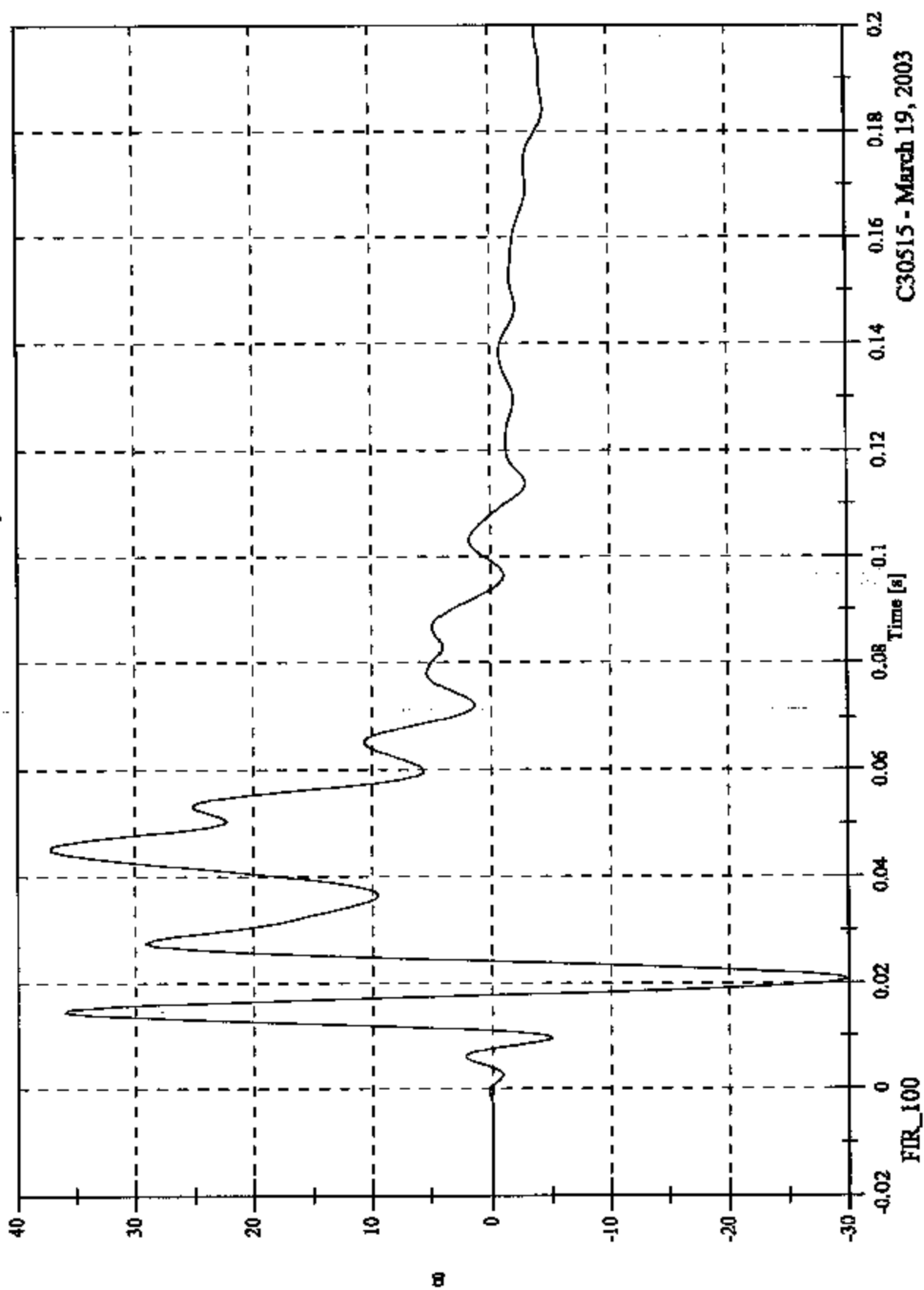


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2P1 Lower Rib Ry

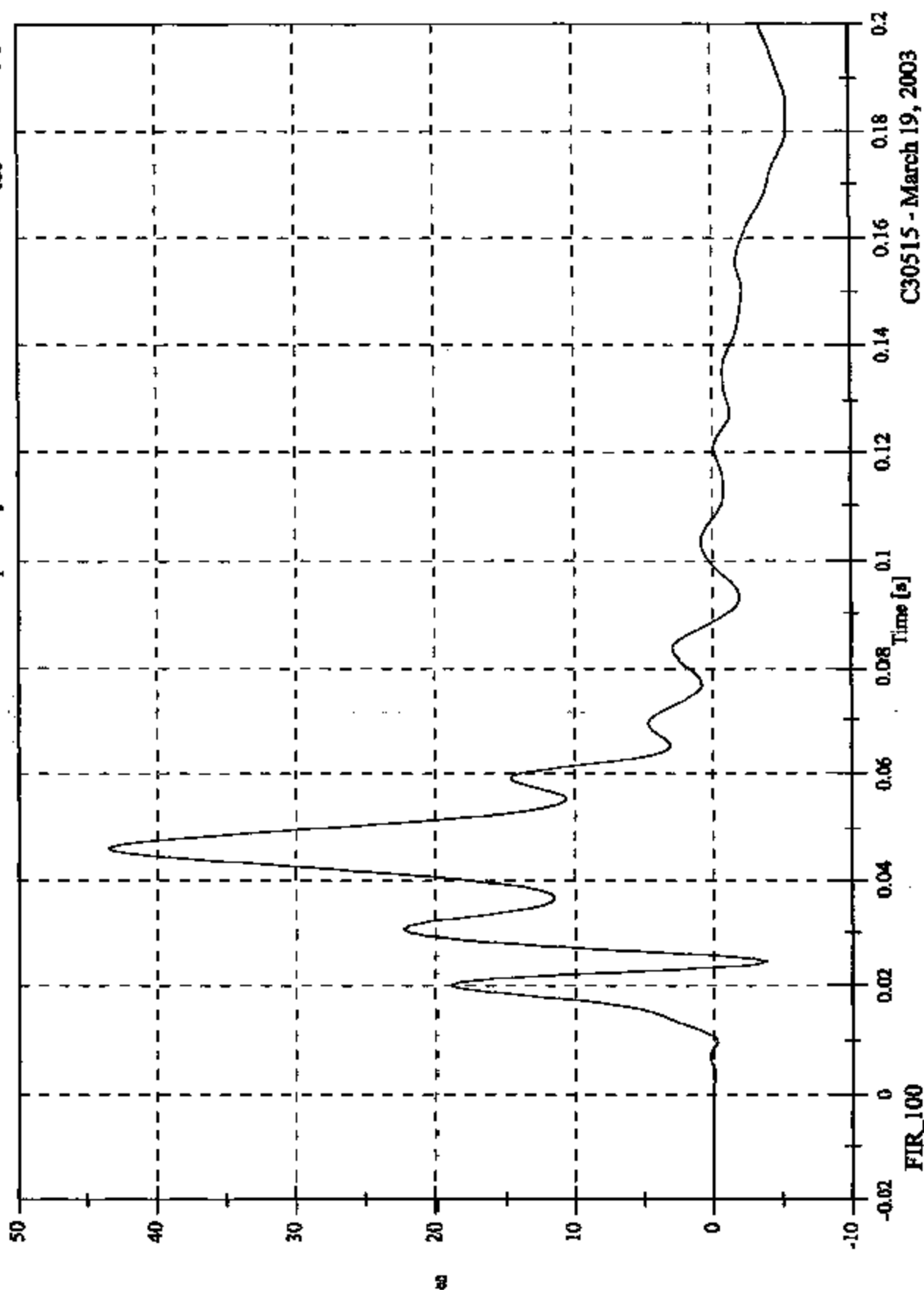
Max: 37.2 [g] at 0.045 [s]
Min: -29.9 [g] at 0.021 [s]



FMVSS 214D - 2003 Porsche Boxster

Max: 43.4 [g] at 0.046 [s]
Min: -5.5 [g] at 0.186 [s]

V2P1 Lower Spine Ry

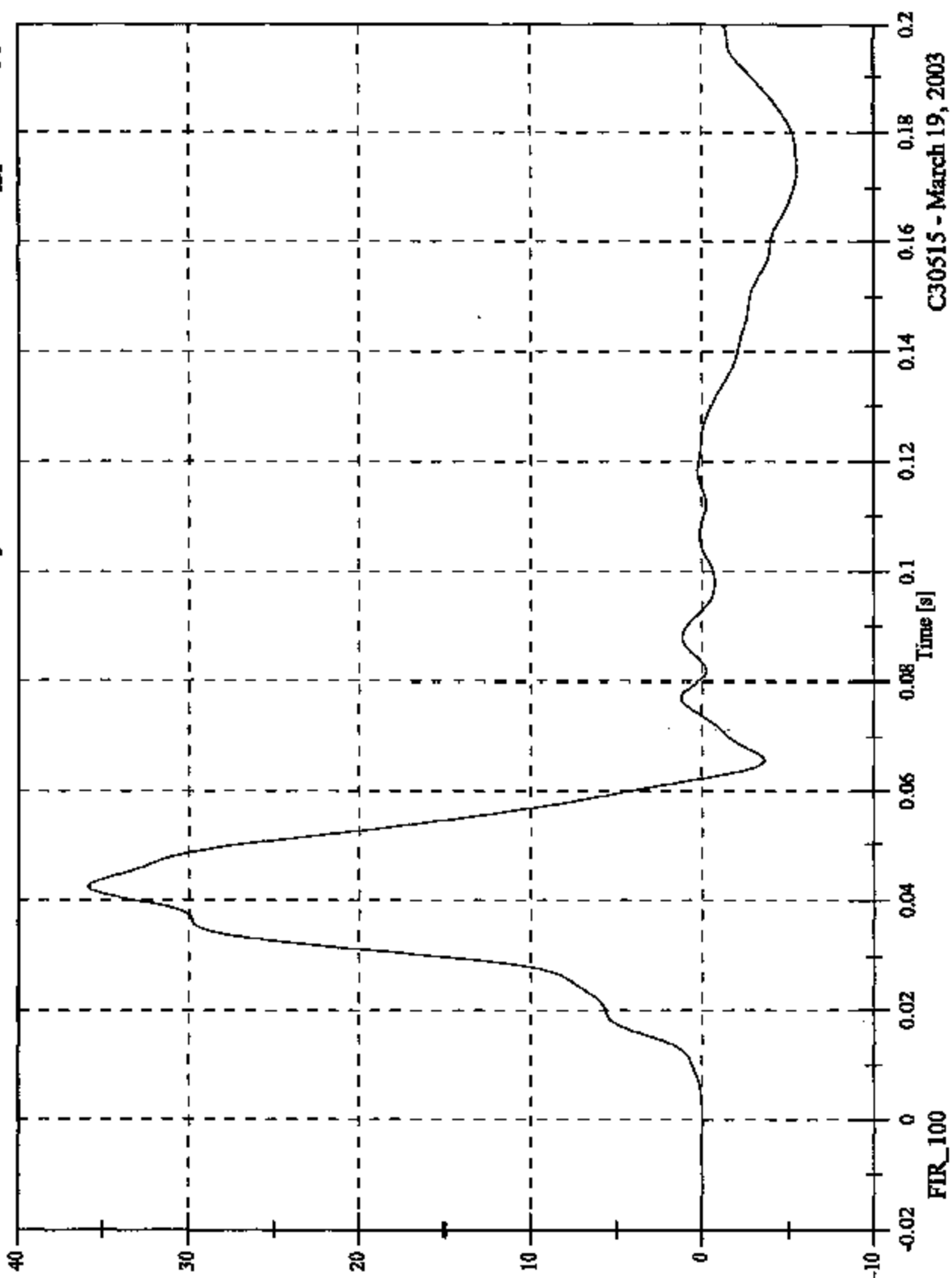


C30515 - March 19, 2003

FMVSS 214D - 2003 Porsche Boxster

V2P1 Pelvic Ry

Max: 35.9 [g] at 0.043 [s]
Min: -5.5 [g] at 0.174 [s]



C30515 - March 19, 2003

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID PRE & POST TEST CALIBRATION
CONFIGURED FOR LEFT SIDE IMPACT

Date: 3/13/03

Sequential Test Number:

1.1

Laboratory Technician:

B. Swiecicki

TEST PARAMETER	SPECIFICATION	SID NO.: 268		SID NO.: -	
		PRE TEST	POST TEST	PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909	899	899	-	-
RH- Rib Height (mm)	501 - 521	513	513	-	-
HP- Hip Pivot Height (mm)	99 ref.	99	99	-	-
RD- Rib from Back Line (mm)	229 - 241	236	236	-	-
KV- Knee Pivot from Back Line (mm)	511 - 526	518	518	-	-
SW- Knee Pivot to Floor (mm)	490 - 505	495	495	-	-
HW- Hip Width (mm)	356 - 391	381	381	-	-
THORAX IMPACTS					
TEMPERATURE (°C)	18.9 - 25.5	21.1	21.1	-	-
RELATIVE HUMIDITY (%)	10 - 70	37	36	-	-
PROBE SPEED (m/s)	4.27 - 4.33	4.32	4.28	-	-
UPPER RIB (g's)	37 - 46	45.49	43.1	-	-
LOWER RIB (g's)	37 - 46	45.09	40.5	-	-
LOWER SPINE (g's)	15 - 22	21.5	20.7	-	-
PELVIS IMPACT					
TEMPERATURE (°C)	18.9 - 25.5	21.1	21.1	-	-
RELATIVE HUMIDITY (%)	10 - 70	37	36	-	-
PROBE SPEED (m/s)	4.27 - 4.33	4.3	4.27	-	-
PELVIS (g's)	40 - 60	41.53	44.56	-	-

REMARKS: None

CALIBRATION TEST RESULTS

PRE-TEST

SID NO.: 268

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268 Sequential Test Number: 1
Date: 3/13/03 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
THORACIC SHOCK ABSORBER TEST	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268 Sequential Test Number: 1
Date: 3/13/03 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 – 909	899
RH- Rib Height (mm)	502 – 520	513
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 – 241	236
KH- Knee Pivot from Back Line (mm)	511 – 526	518
KV- Knee Pivot to Floor (mm)	490 – 505	495
HW- Hip Width (mm)	356 – 391	381

REMARKS: None

**THORACIC SHOCK ABSORBER TESTS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268 Sequential Test Number: 1
 Date: 3/12/03 Laboratory Technician: B. Swieckki

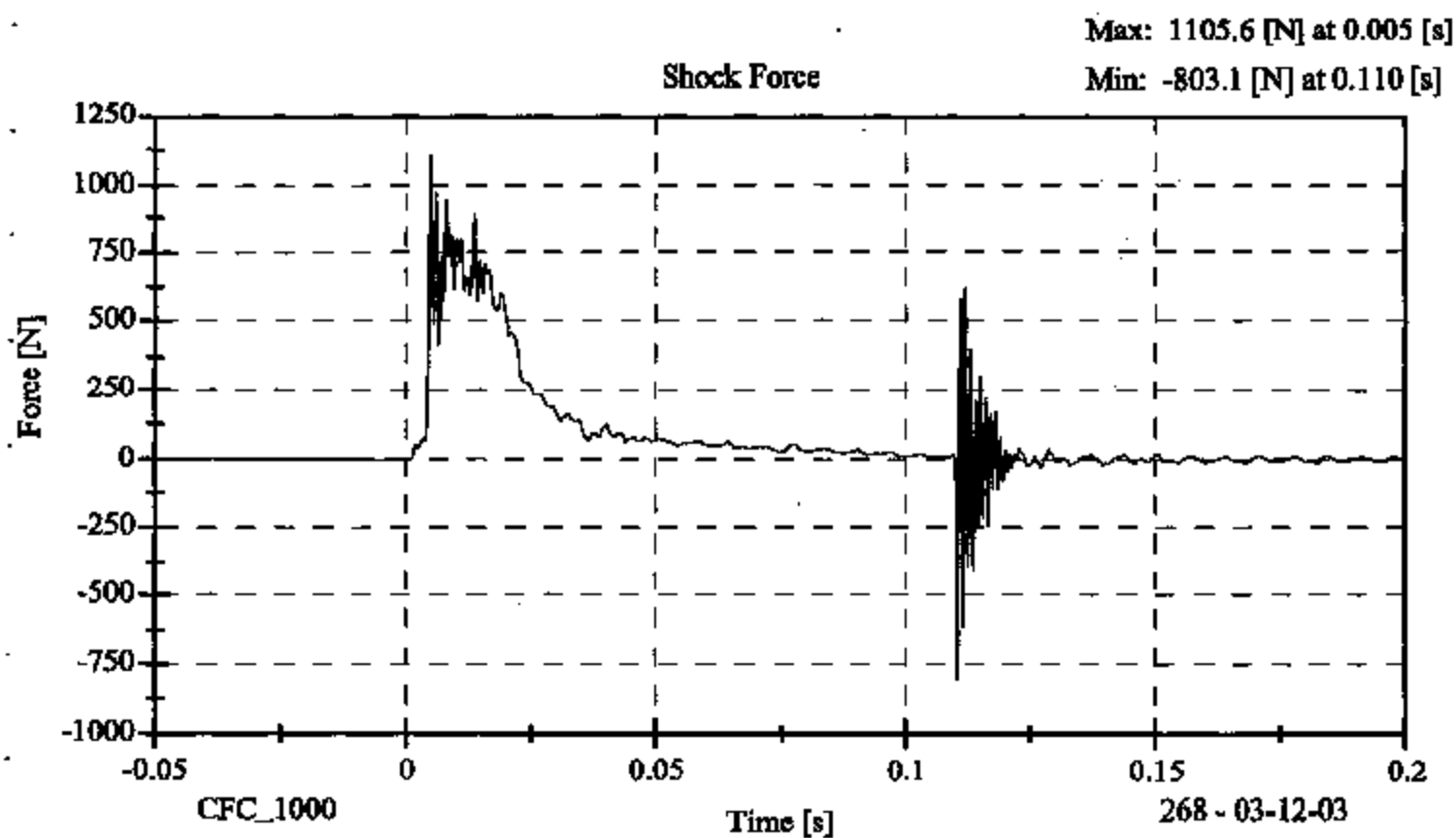
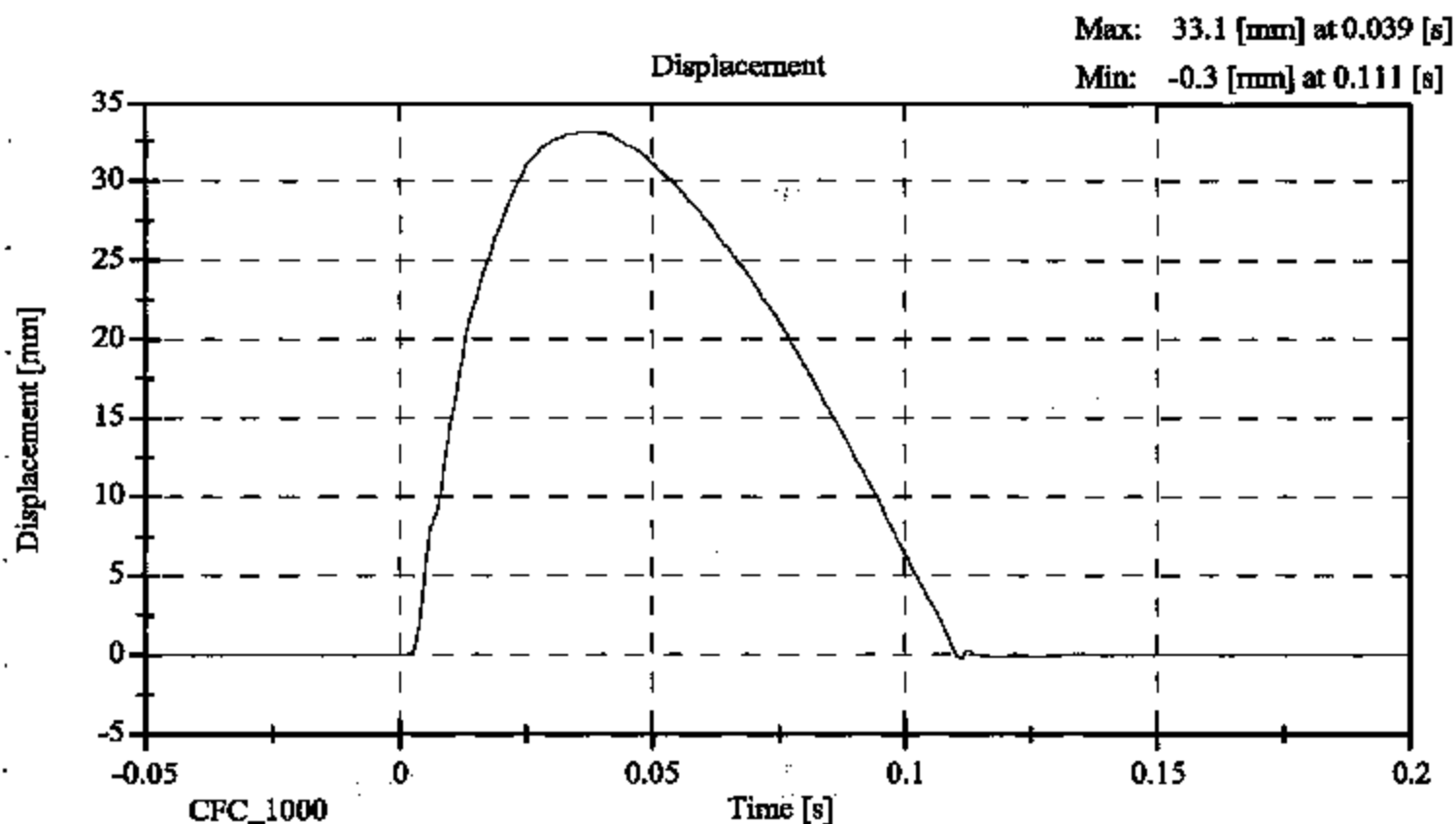
DAMPER IDENTIFICATION: 268

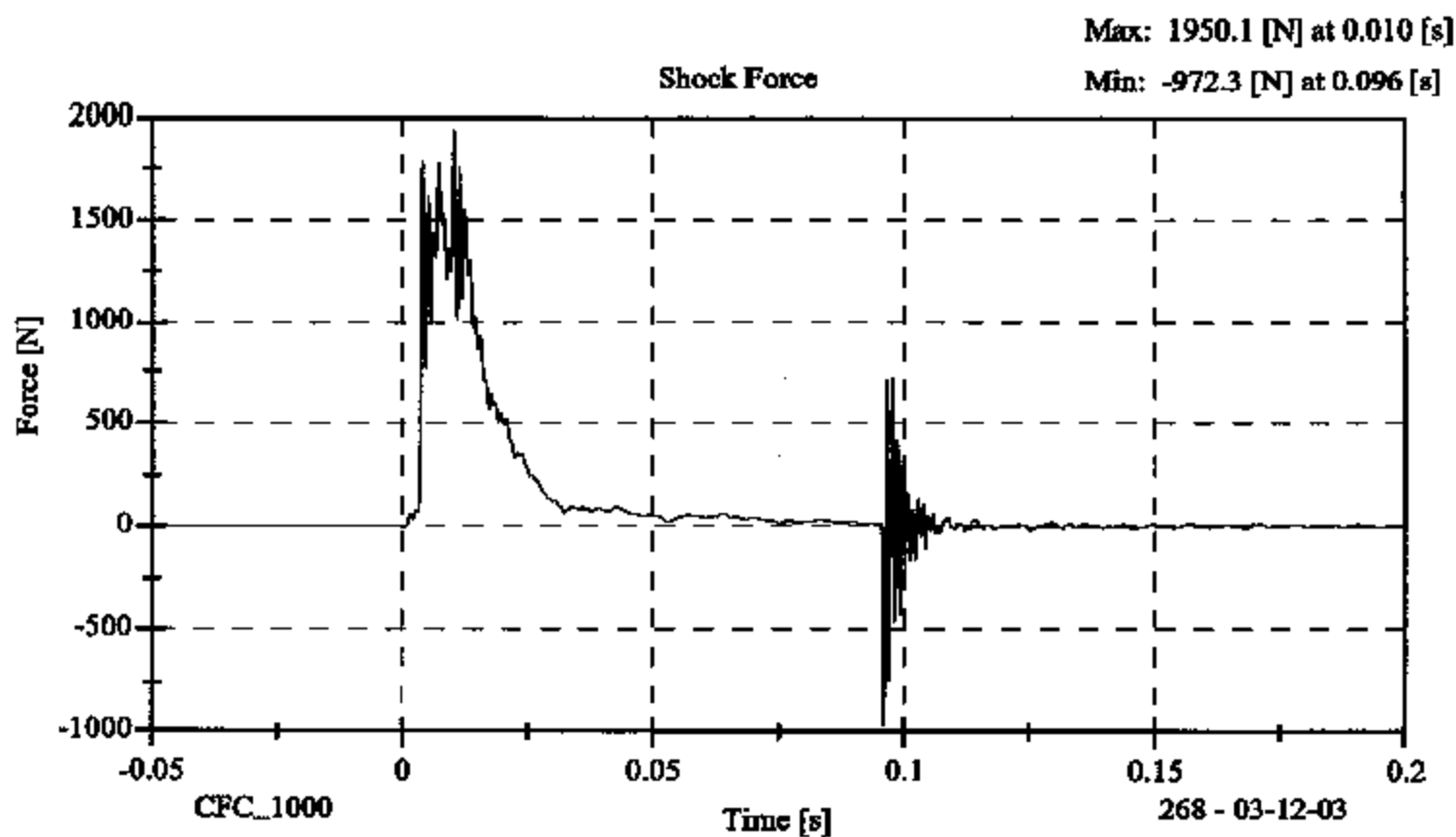
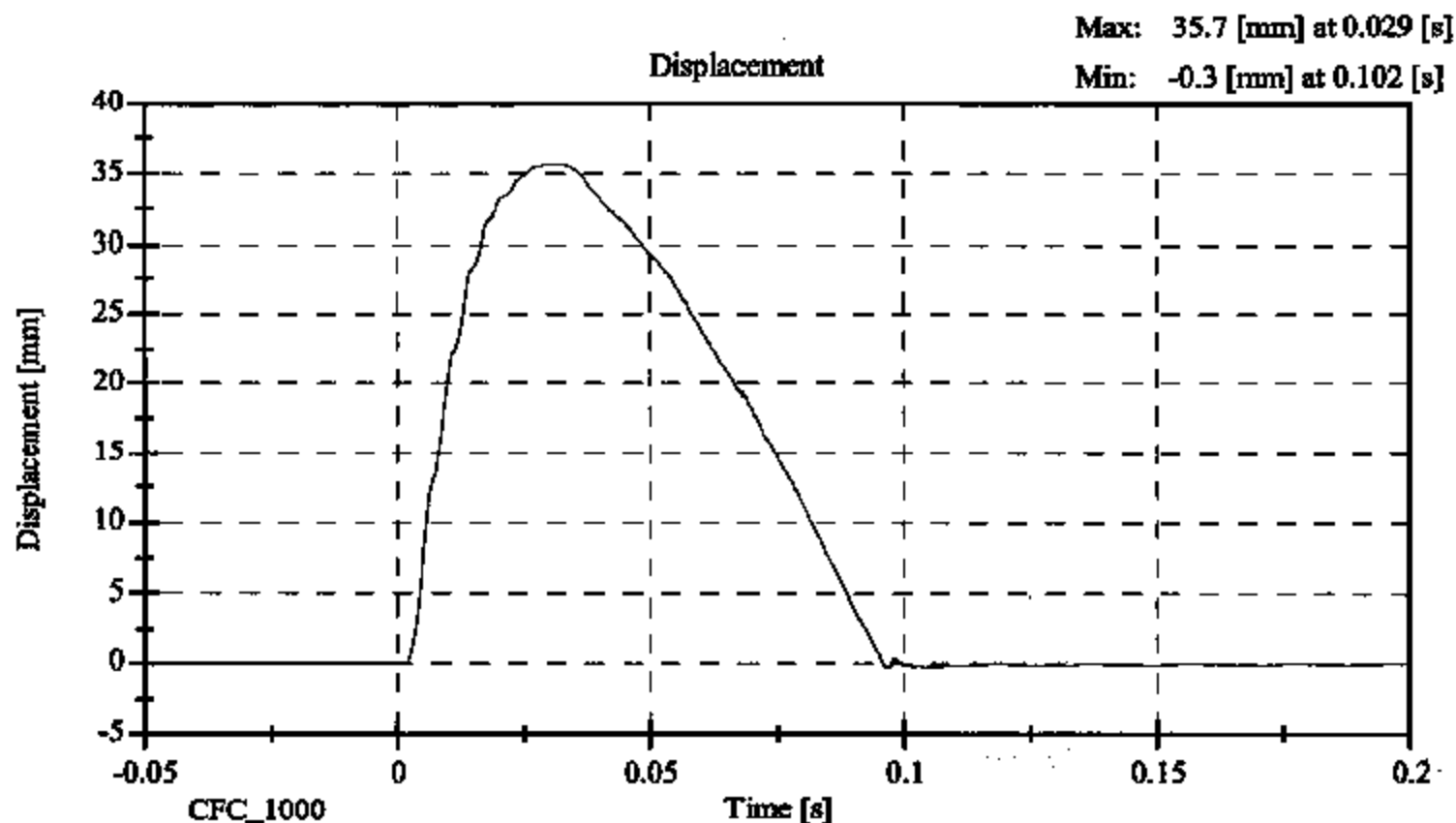
TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)		18.9 - 23.5	21.1
RELATIVE HUMIDITY (%)		10 - 70	32.0
VELOCITY 3.05 m/s	FORCE (N)	836 - 1125	1105.6
	DISPLACEMENT (mm)	30 - 35	33.1
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099	1950.1
	DISPLACEMENT (mm)	32 - 37	35.7
VELOCITY 6.10 m/s	FORCE (N)	3741 - 4448	4434.6
	DISPLACEMENT (mm)	33 - 40	38.4

DAMPER SETTING: 5

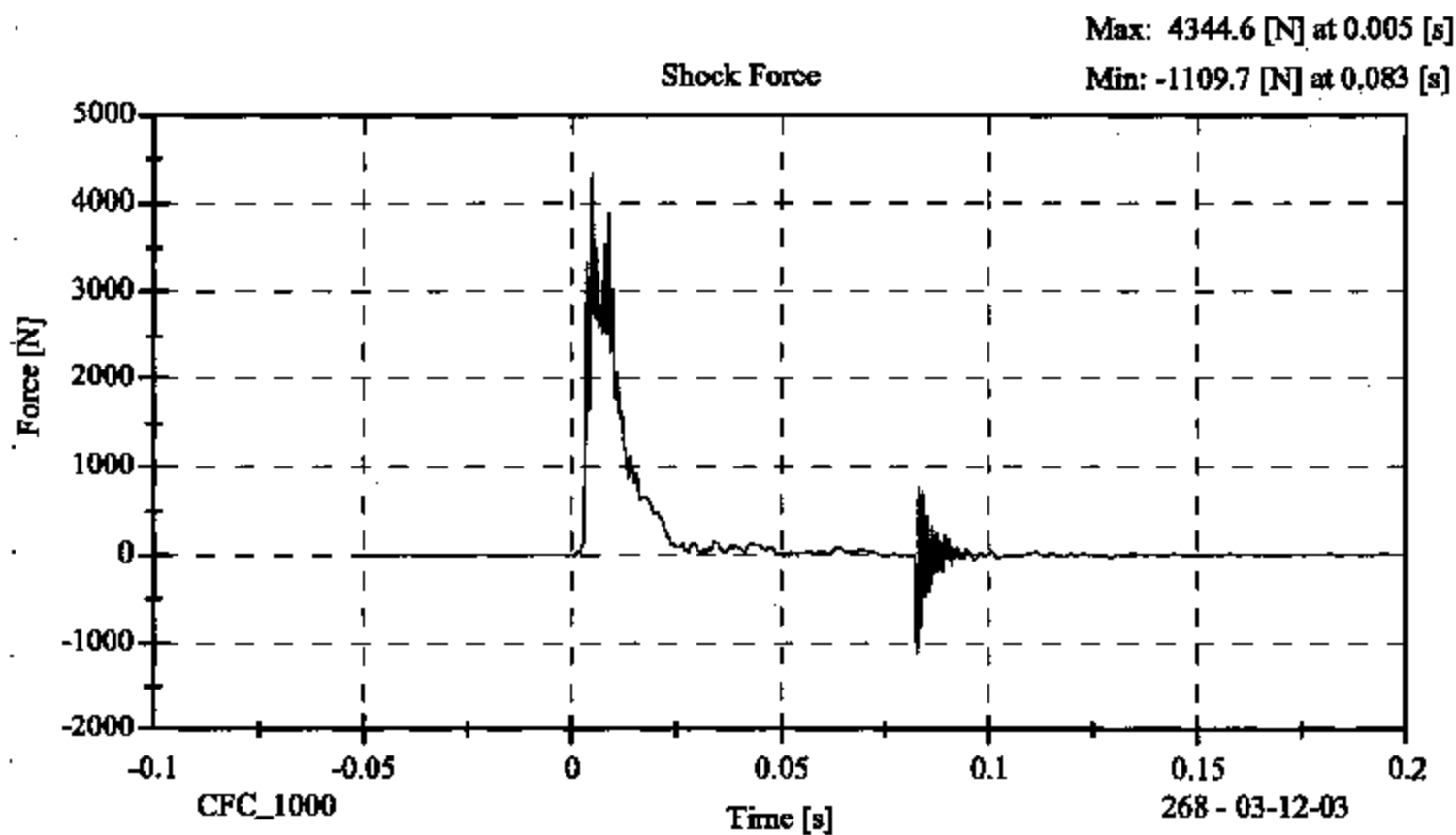
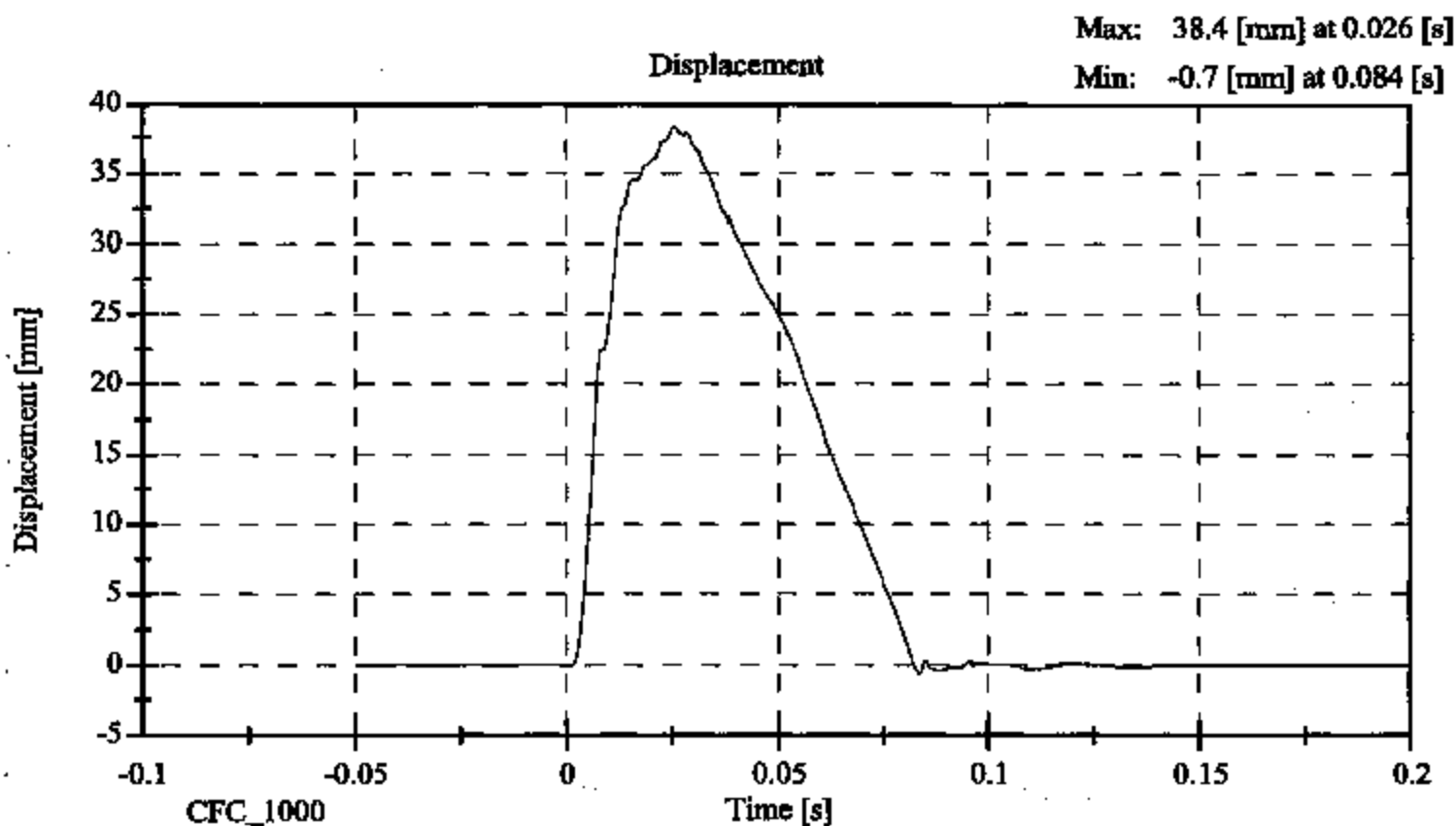
REMARKS: None

Shock - Low





Shock - High



**LATERAL THORAX IMPACT TEST
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268
Date: 3/13/03

Sequential Test Number:
Laboratory Technician:

1
B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	37.0
PROBE SPEED (m/s)	4.27 - 4.33	4.32
UPPER RIB (g's)	37 - 46	45.49
LOWER RIB (g's)	37 - 46	45.09
LOWER SPINE (g's)	15 - 22	21.50

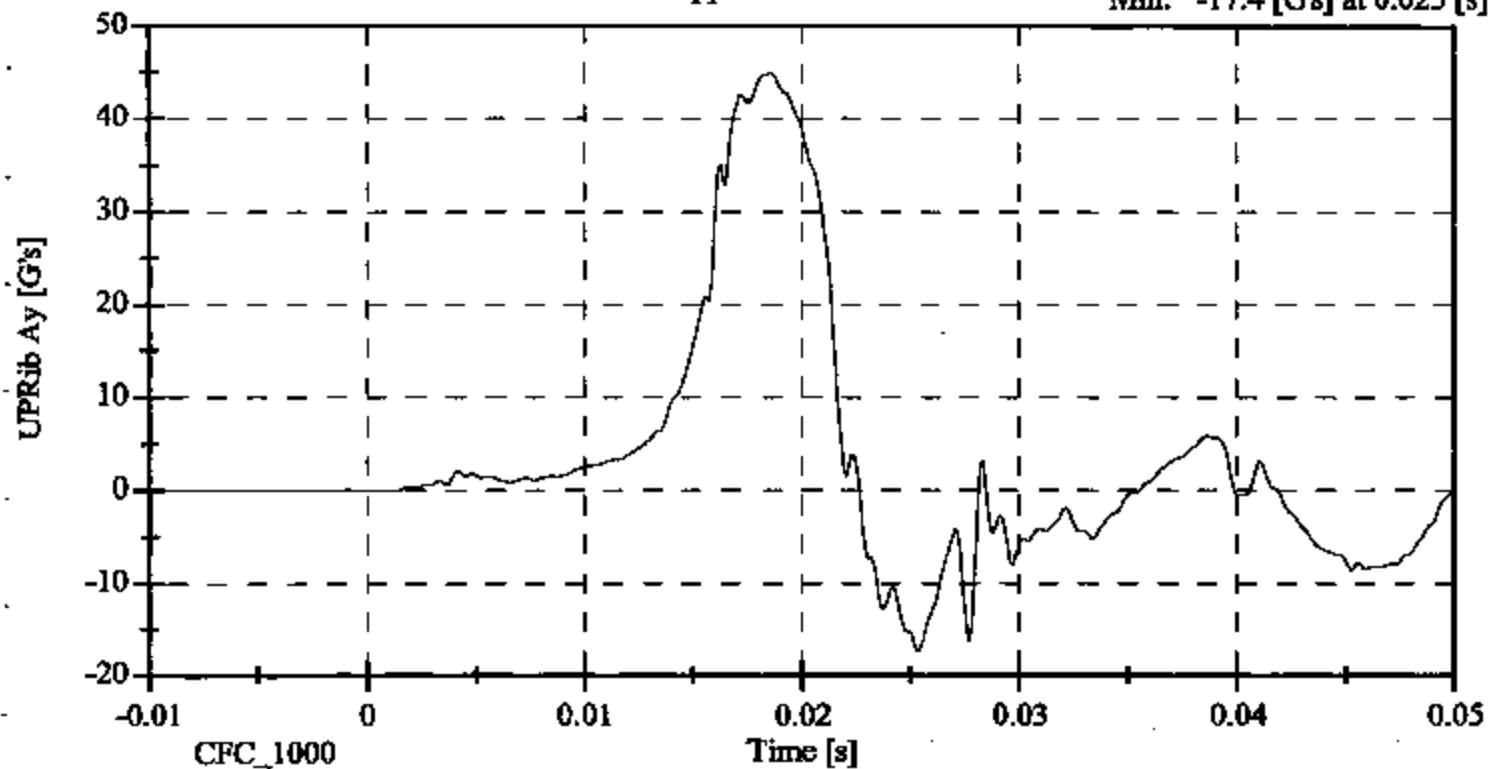
REMARKS: None

Thorax Impact

Upper Rib Y Acceleration

Max: 44.8 [G's] at 0.019 [s]

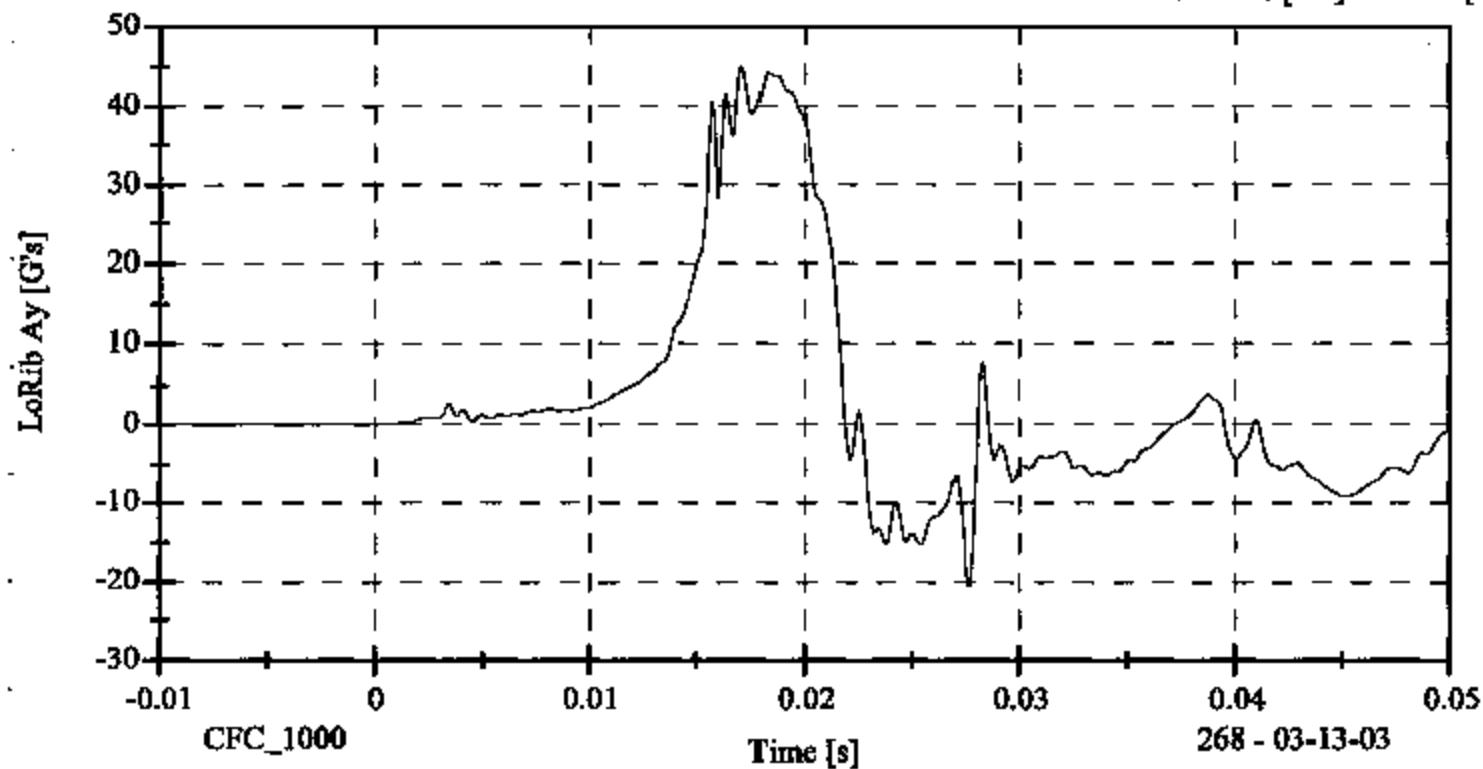
Min: -17.4 [G's] at 0.025 [s]



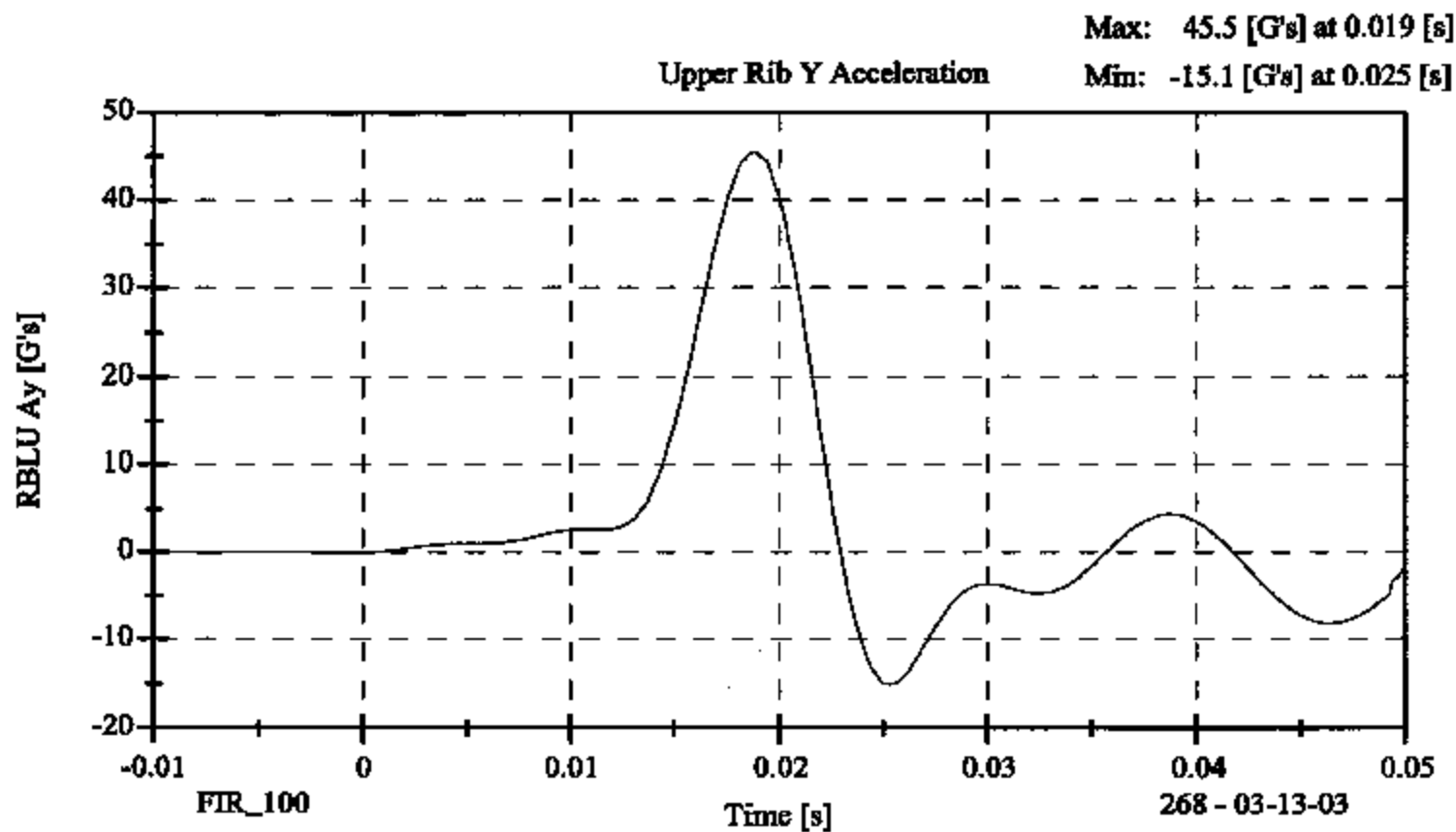
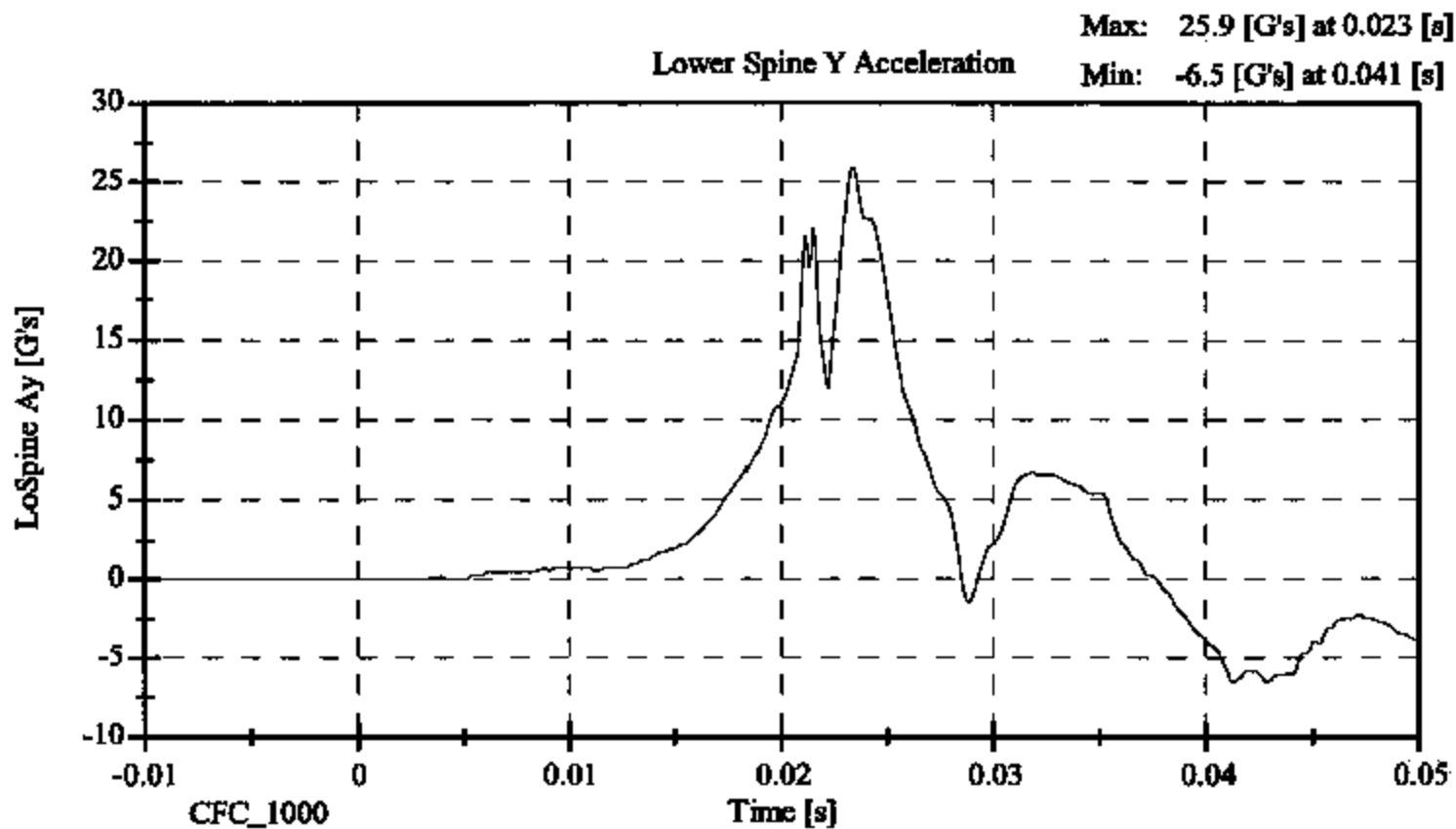
Lower Rib Y Acceleration

Max: 45.0 [G's] at 0.017 [s]

Min: -20.6 [G's] at 0.028 [s]



Thorax Impact

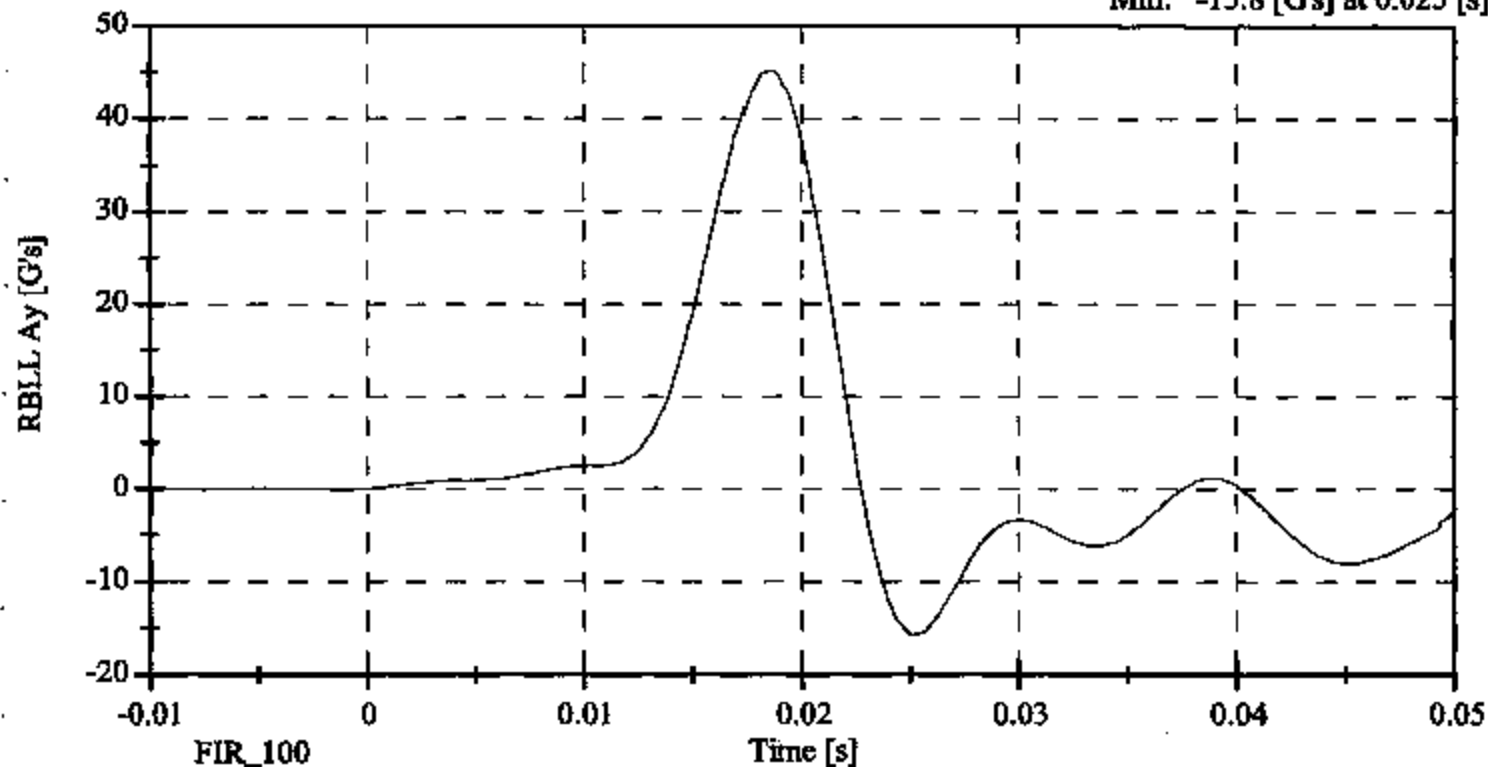


Thorax Impact

Lower Rib Y Acceleration

Max: 45.1 [G's] at 0.019 [s]

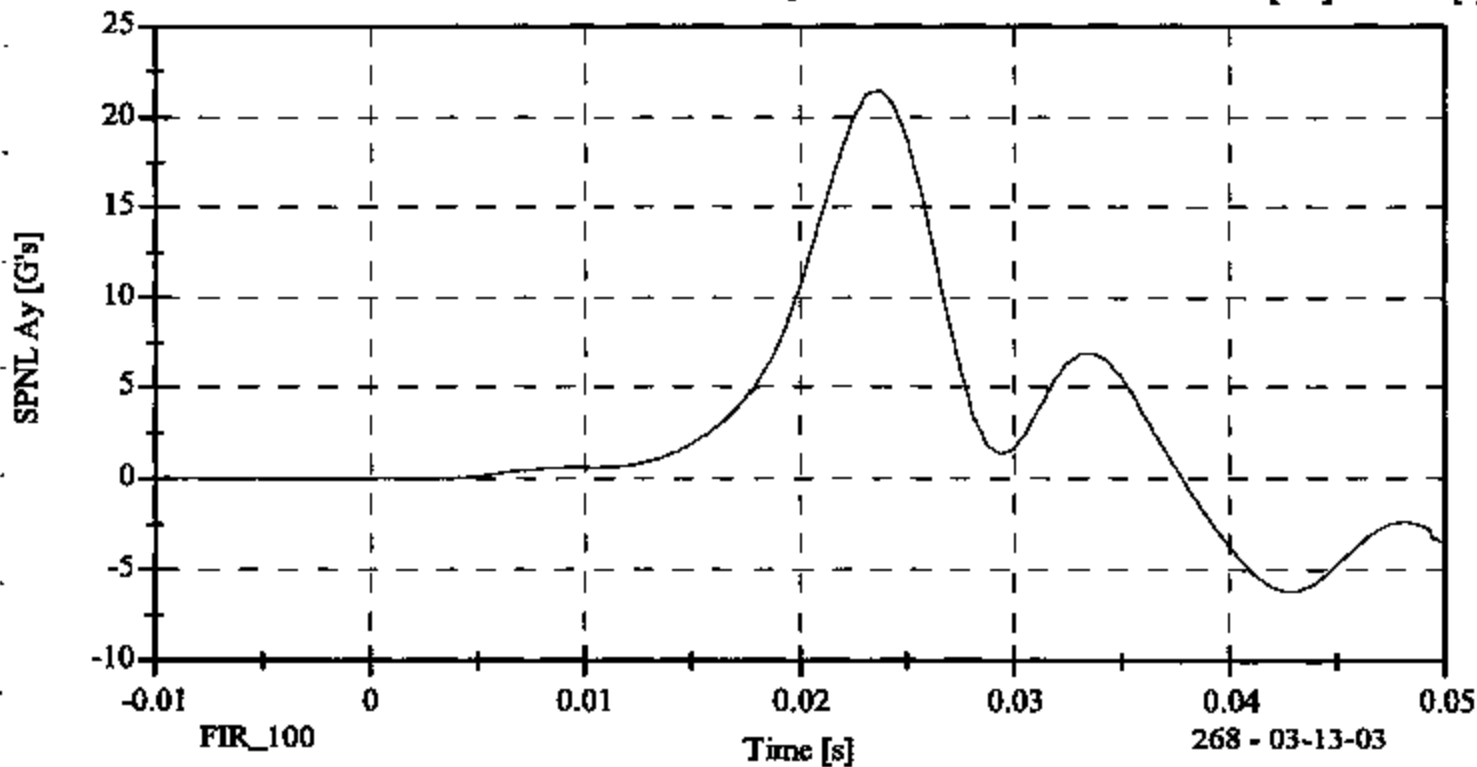
Min: -15.8 [G's] at 0.025 [s]



Lower Spine Y Acceleration

Max: 21.5 [G's] at 0.024 [s]

Min: -6.2 [G's] at 0.043 [s]



**LATERAL PELVIS IMPACT TEST
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268 Sequential Test Number: 1
Date: 3/13/03 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	37.0
PROBE SPEED (m/s)	4.27 - 4.33	4.30
PELVIS ACCELERATION (g's)	40 - 60	41.53

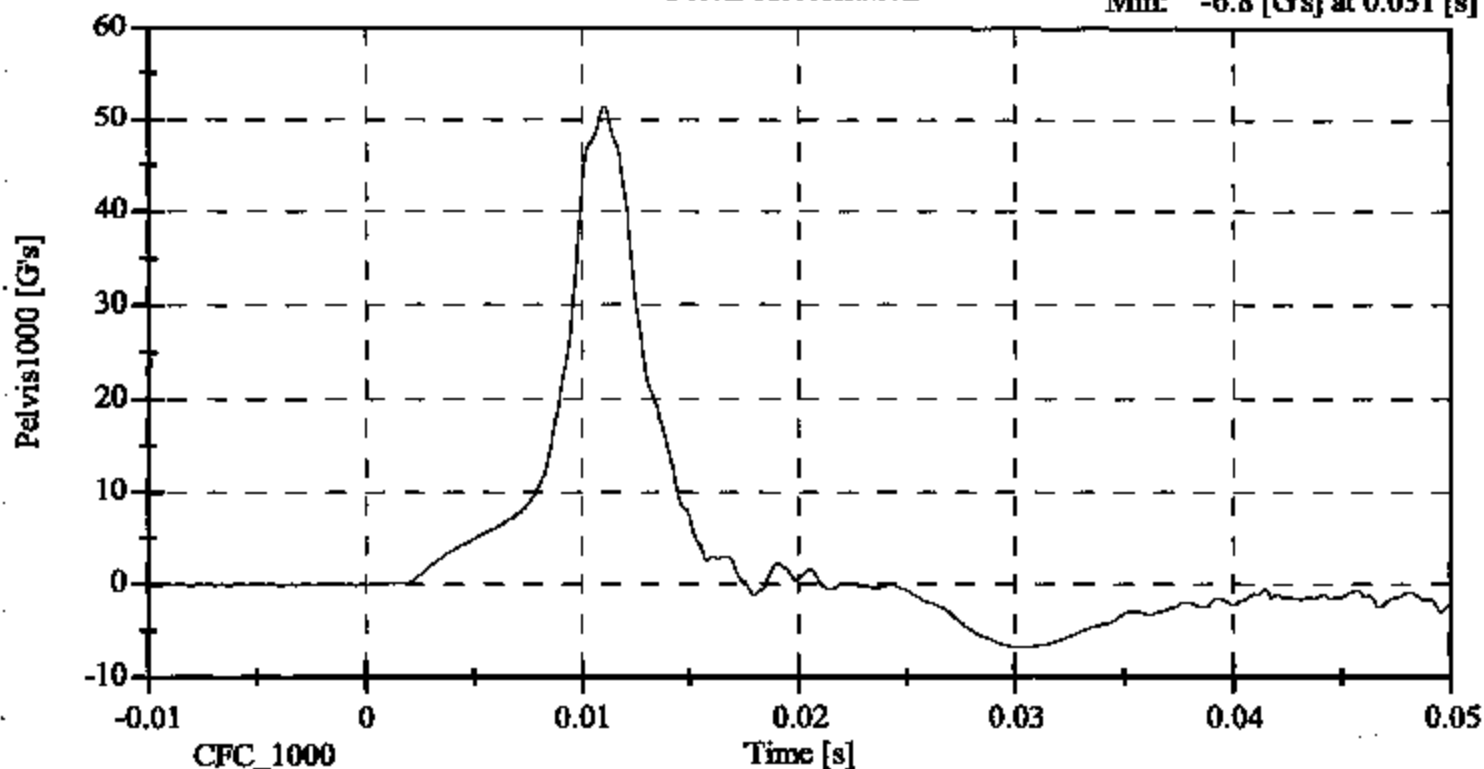
REMARKS: None

Pelvic Impact

Pelvis Acceleration

Max: 51.5 [G's] at 0.011 [s]

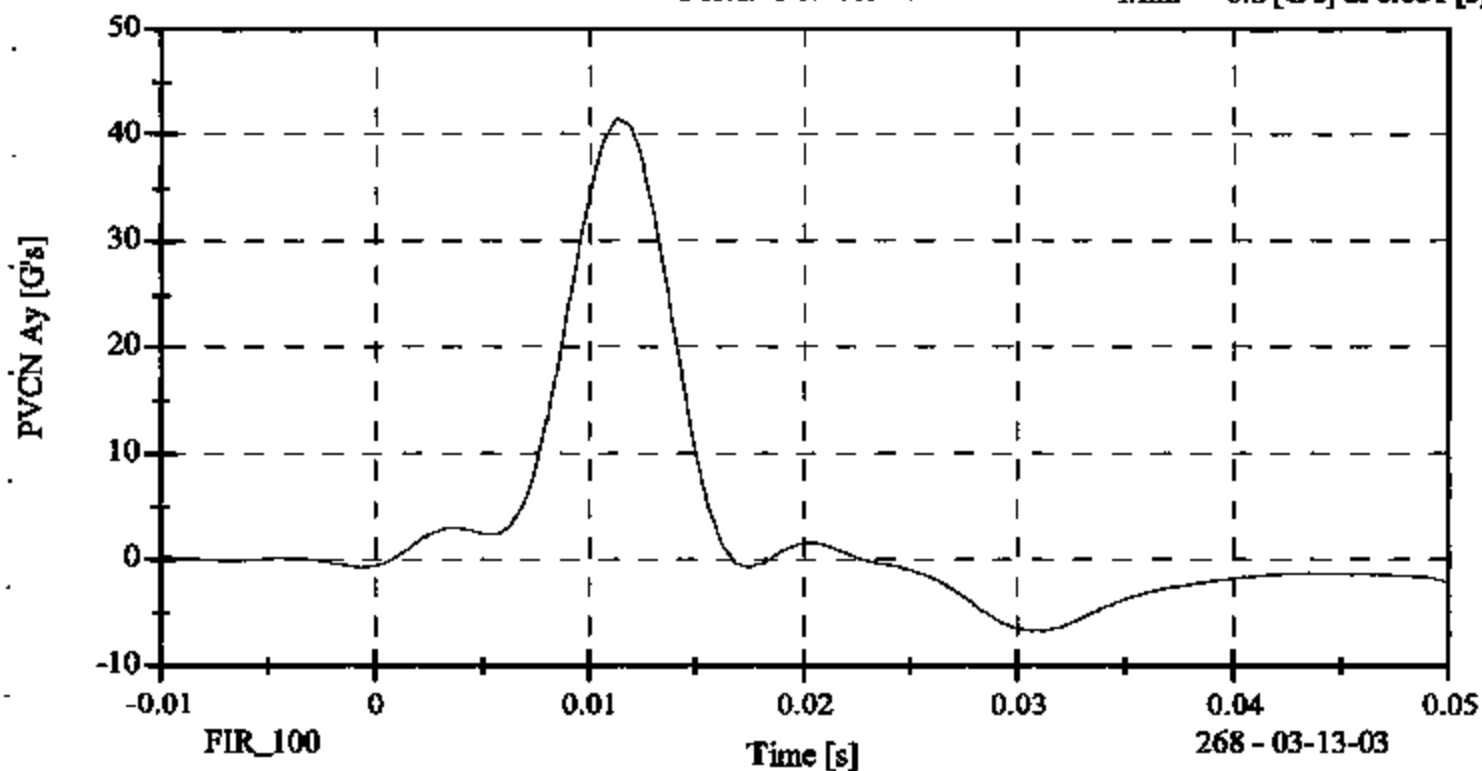
Min: -6.8 [G's] at 0.031 [s]



Pelvis Y Acceleration

Max: 41.5 [G's] at 0.011 [s]

Min: -6.8 [G's] at 0.031 [s]



HEAD DROP TEST
PRE-TEST
(Test not required for SID certification)

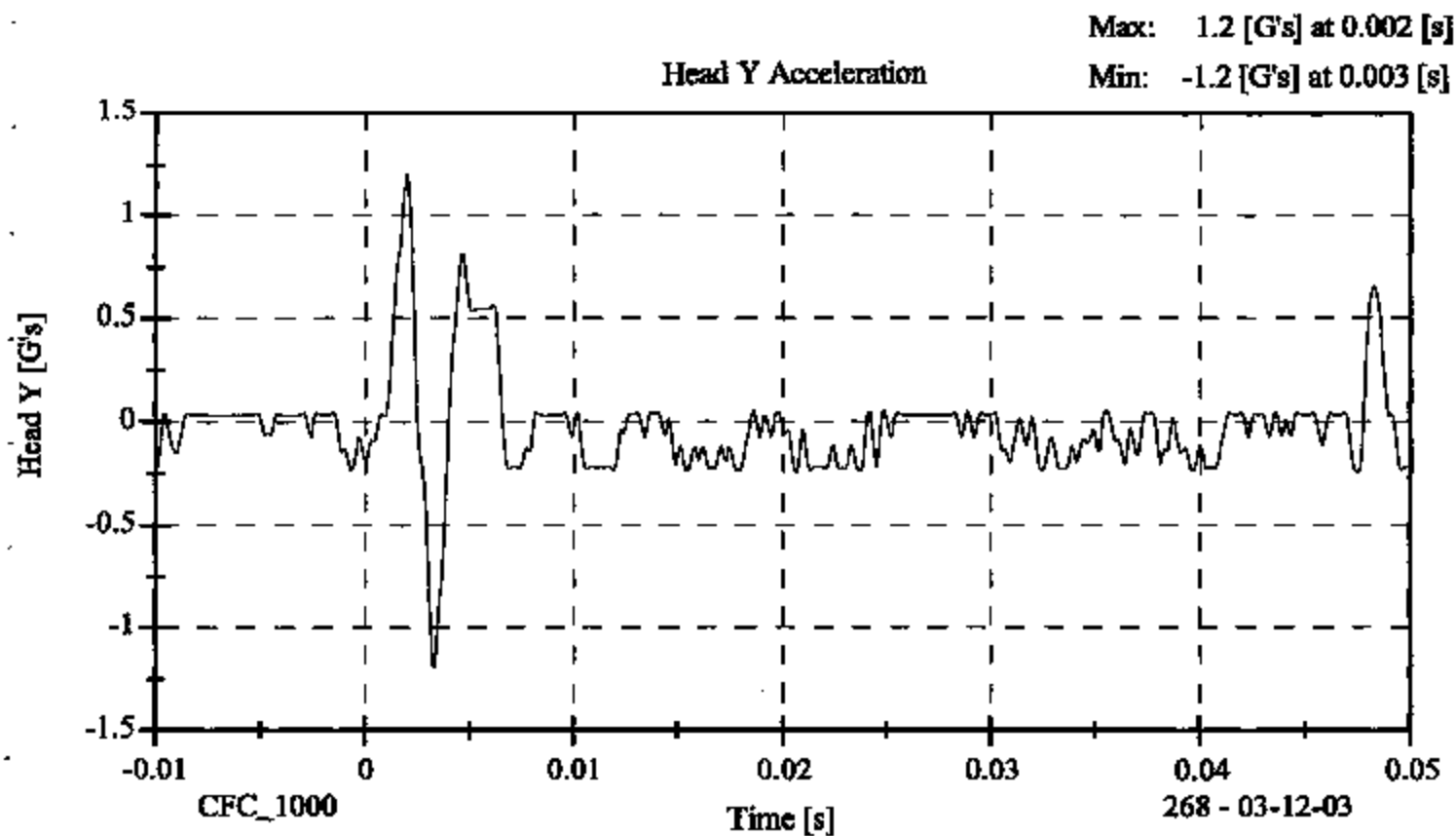
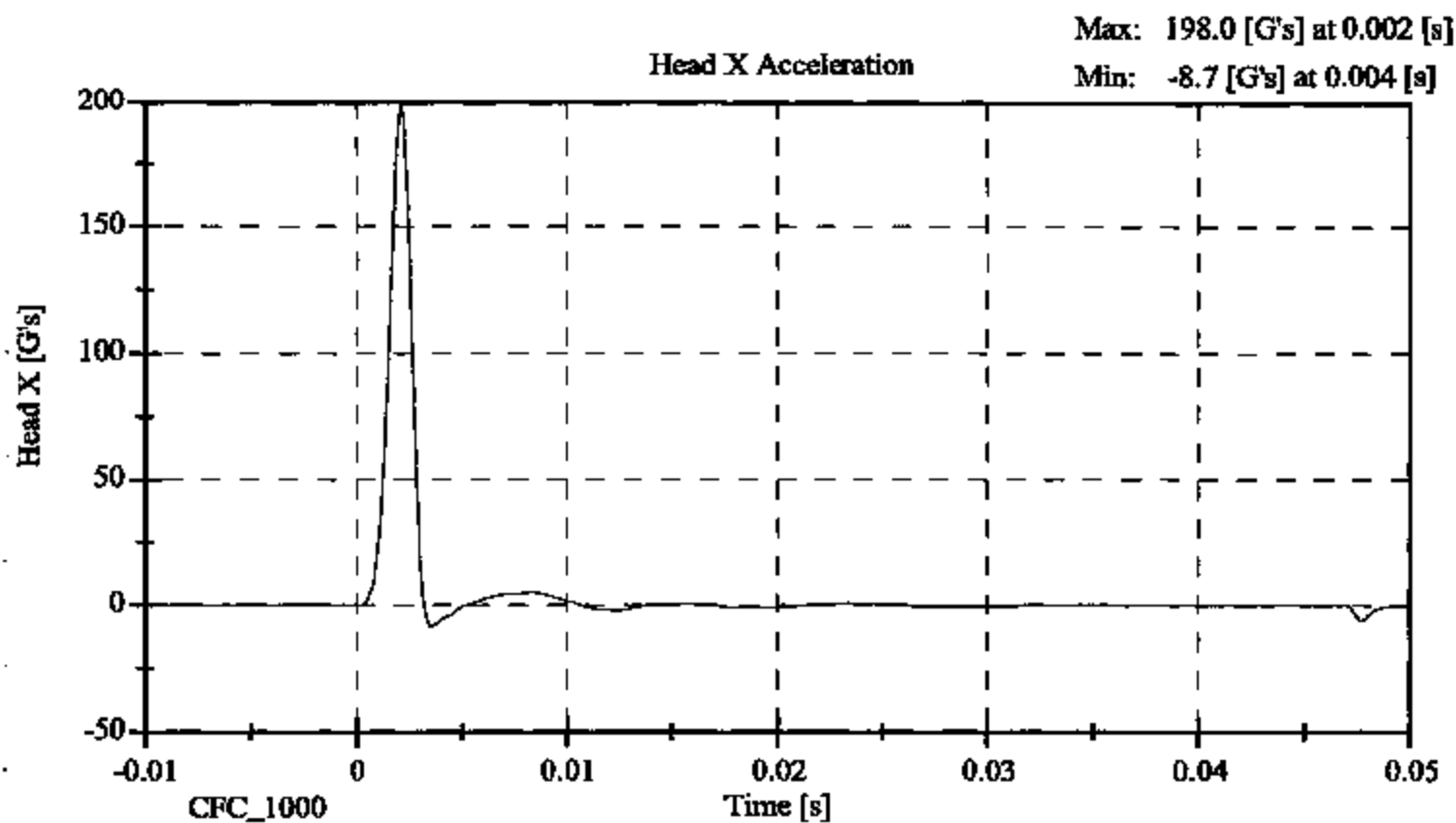
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268 Sequential Test Number: 1
Date: 3/12/03 Laboratory Technician: B. Swiecicki

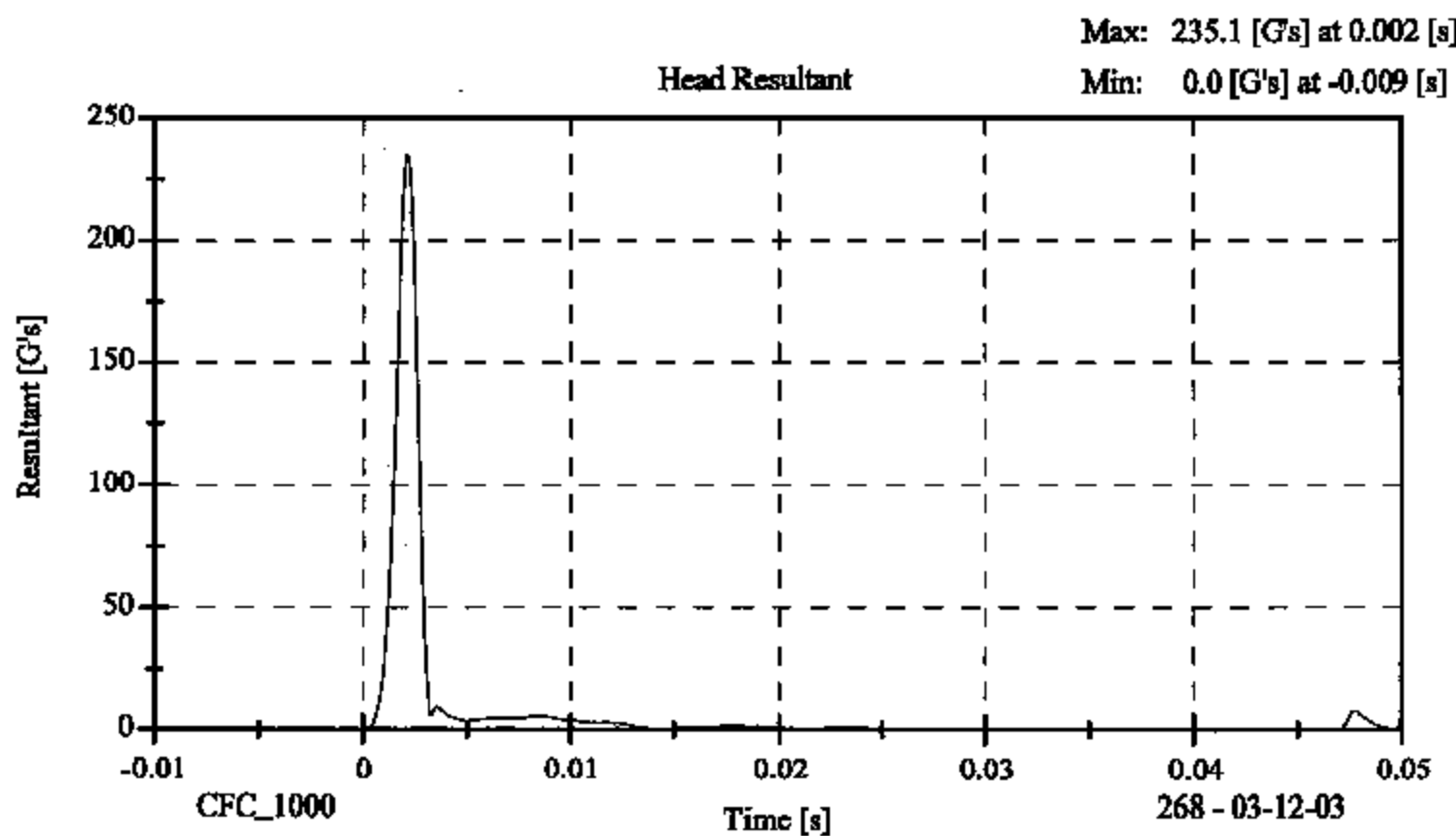
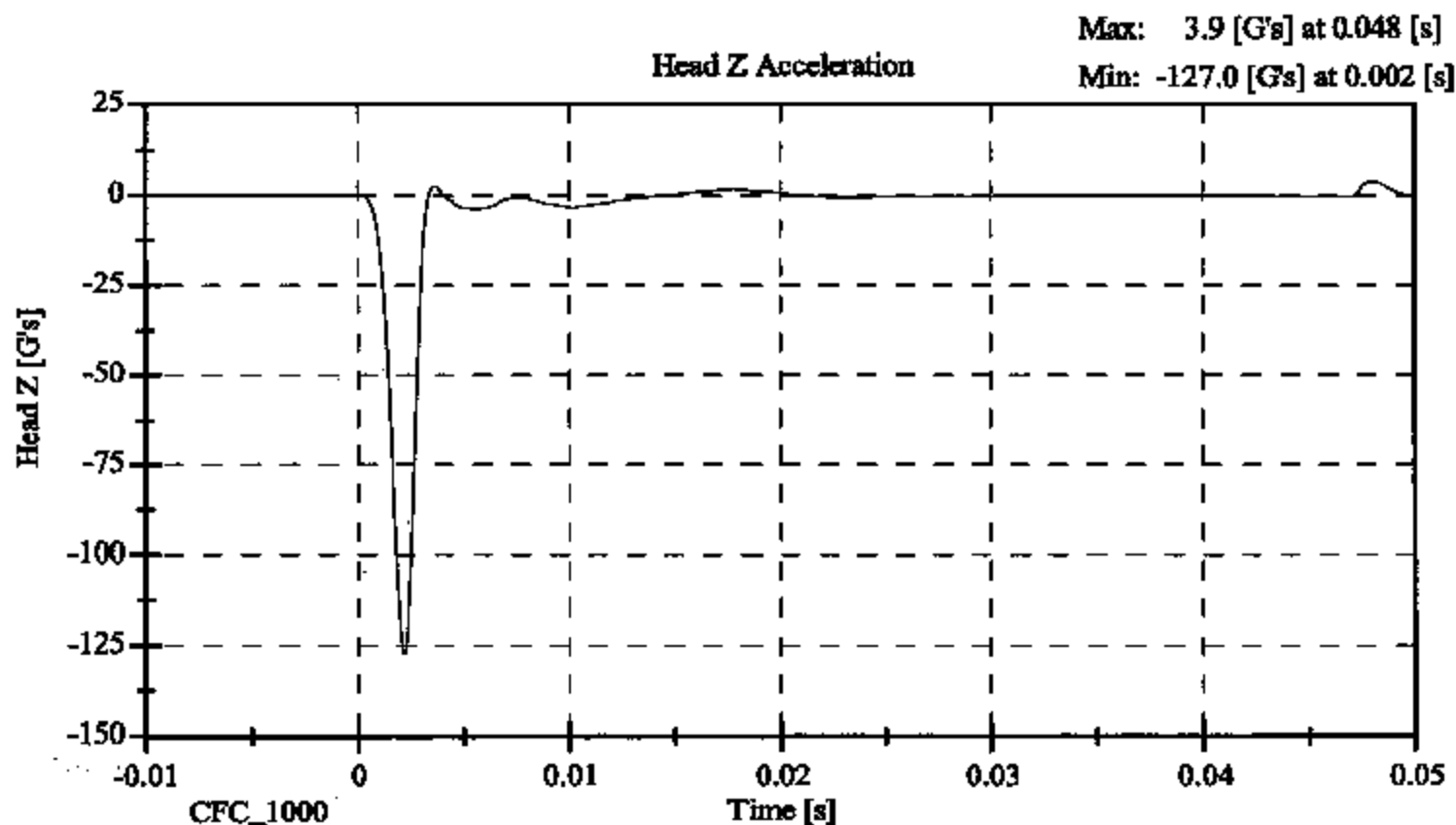
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	33.0
PEAK RESULTANT ACCELERATION (Gs)	210 - 260	235.11
PEAK LATERAL ACCELERATION (Gs)	Not to Exceed 10	1.20
UNIMODAL CRITERIA ABOVE 100 Gs (ms)	0.9 - 1.5	1.27

REMARKS: None

Head Drop



Head Drop



268 - 03-12-03

**ABDOMINAL COMPRESSION TEST
PRE-TEST**

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.:	<u>268</u>	Sequential Test Number:	<u>1</u>
Date:	<u>3/13/03</u>	Laboratory Technician:	<u>B. Swiecicki</u>

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	35.0
FORCE @ 13 mm (N)	104 - 162	114.8
FORCE @ 19 mm (N)	163 - 221	179.3
FORCE @ 25 mm (N)	222 - 280	255.8
FORCE @ 33 mm (N)	325 - 391	368.8

REMARKS: None

Dummy S/N 268

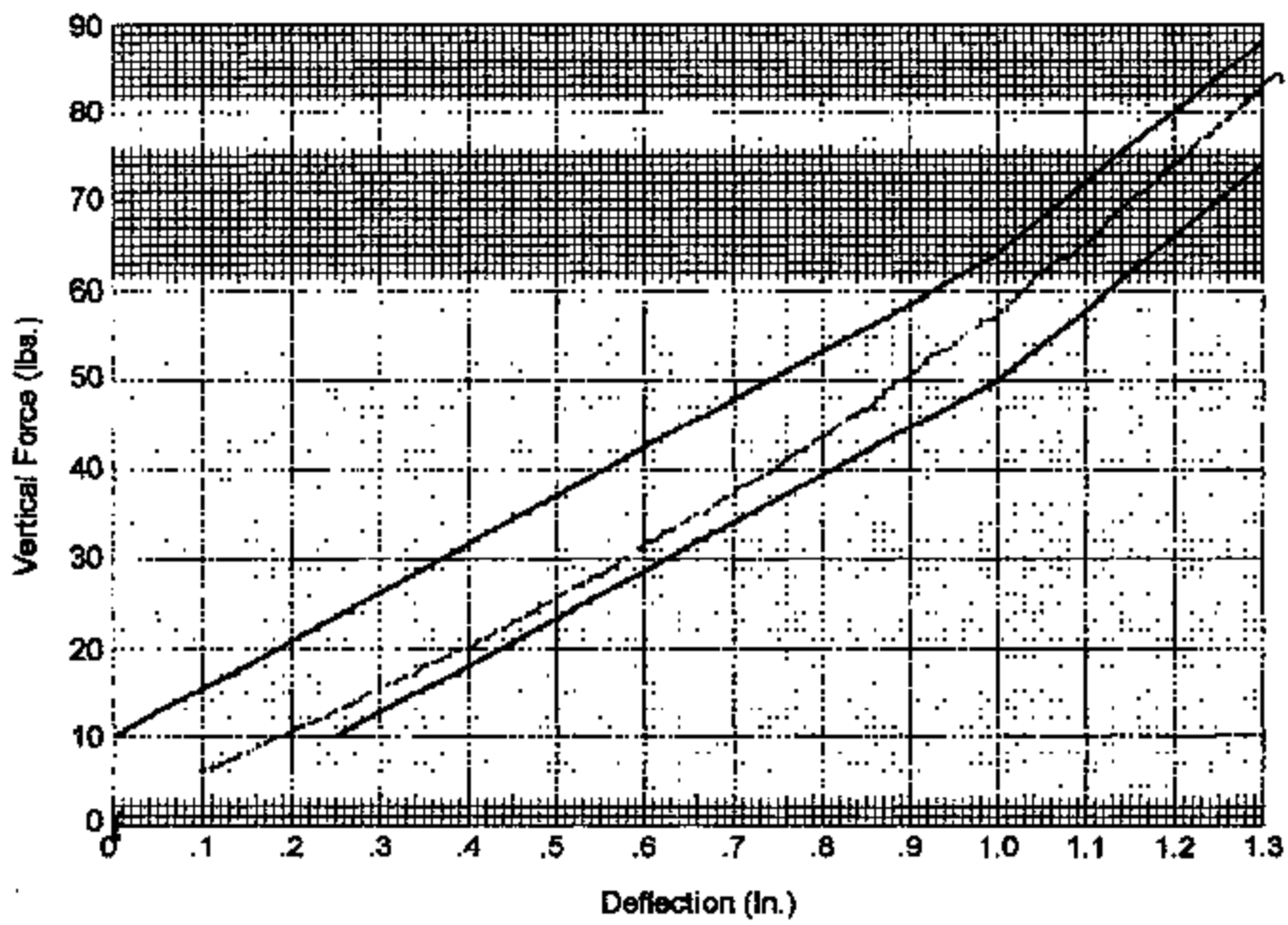
W/A _____

Date 3-13-03

Performed By [Signature]

Temp. 70°

Humidity 35%



Hybrid II
Abdomen Static Press

LUMBAR FLEXION TEST
PRE-TEST
(Test not required for SID certification)

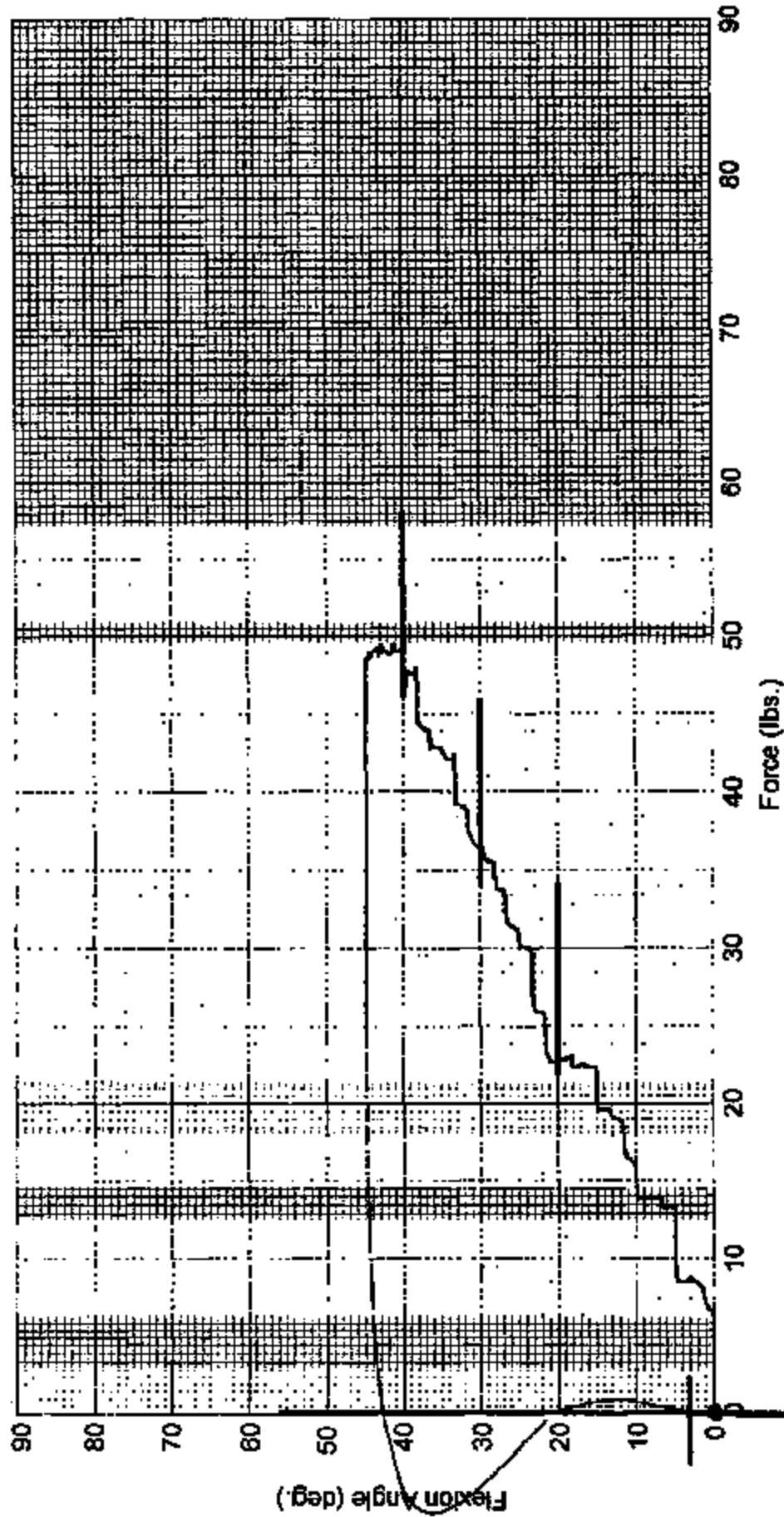
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268 Sequential Test Number: 1
Date: 3/13/03 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	35.0
FORCE @ 0° (N)	0 - 26.7	0.0
FORCE @ 20° (N)	97.8 - 151.2	101.9
FORCE @ 30° (N)	151.2 - 204.6	161.9
FORCE @ 40° (N)	204.6 - 258	213.5
RETURN ANGLE	12° max.	3°

REMARKS: None

Dummy S/N 268
W/A _____
Date 3-13-03
Performed By [Signature]
Temp. 70°
Humidity 35%



Hybrid II Lumbar Spine Flexion Test

PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268 Sequential Test Number: 1
 Date: 3/13/03 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

POST TEST

SID NO.: 268

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268 Sequential Test Number: 1
Date: 3/25/03 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268

Sequential Test Number:

1

Date: 3/25/03

Laboratory Technician:

B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	513
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	236
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	381

REMARKS: None

**LATERAL THORAX IMPACT TEST
POST TEST**

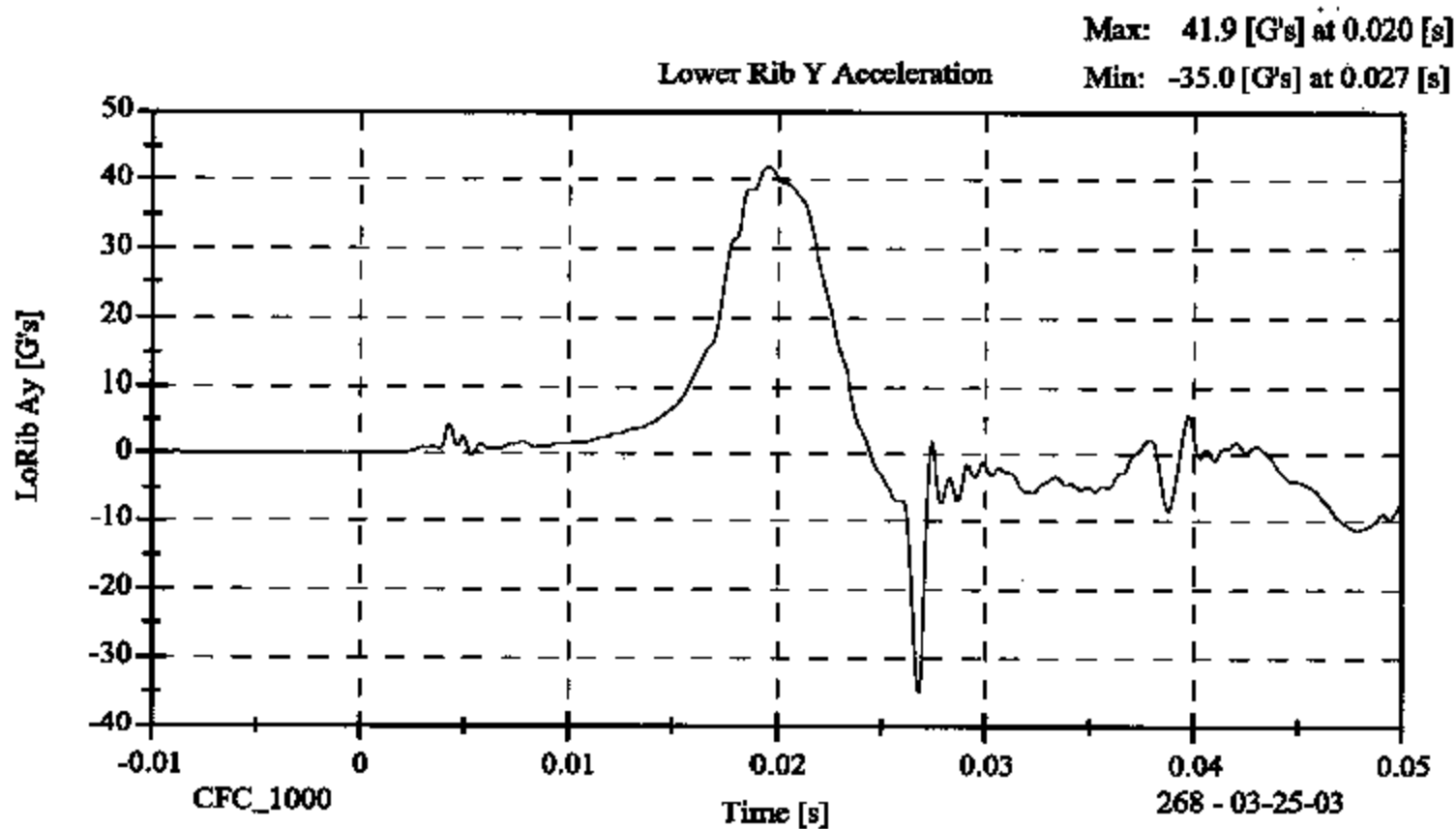
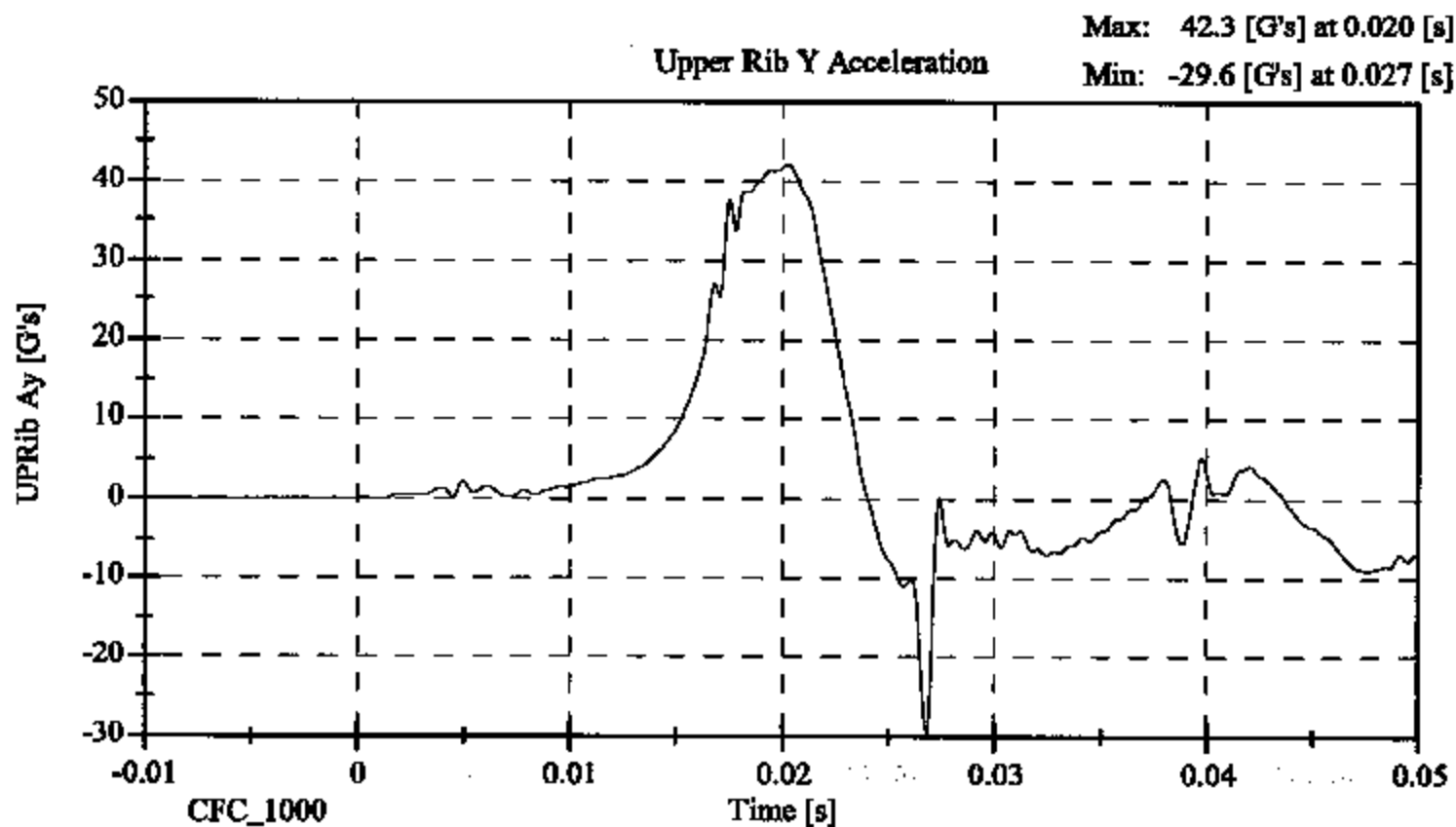
CONFIGURED FOR LEFT SIDE IMPACT

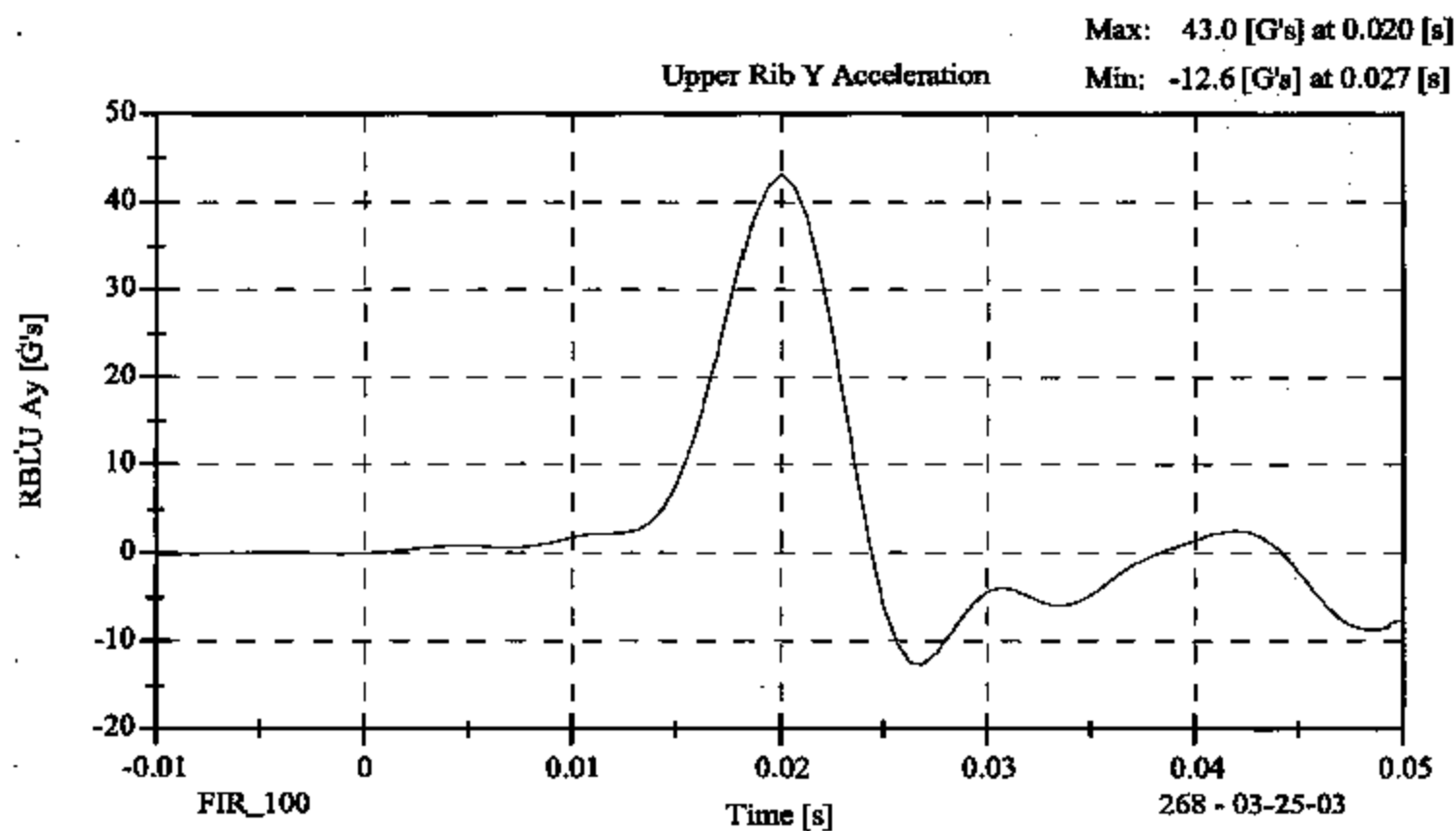
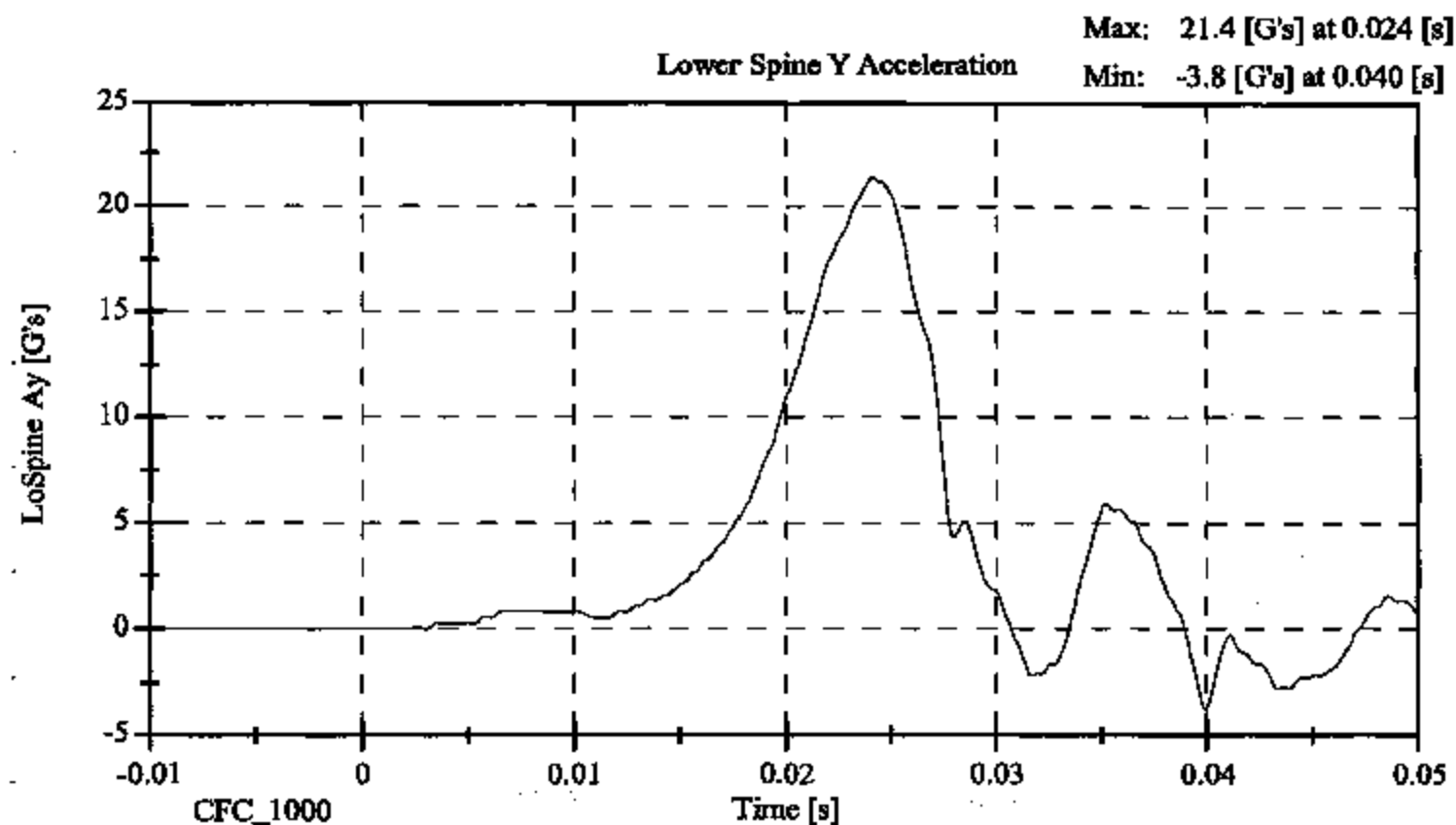
SID Serial No.: 268 Sequential Test Number: 1
Date: 3/25/03 Laboratory Technician: B. Swiscicki

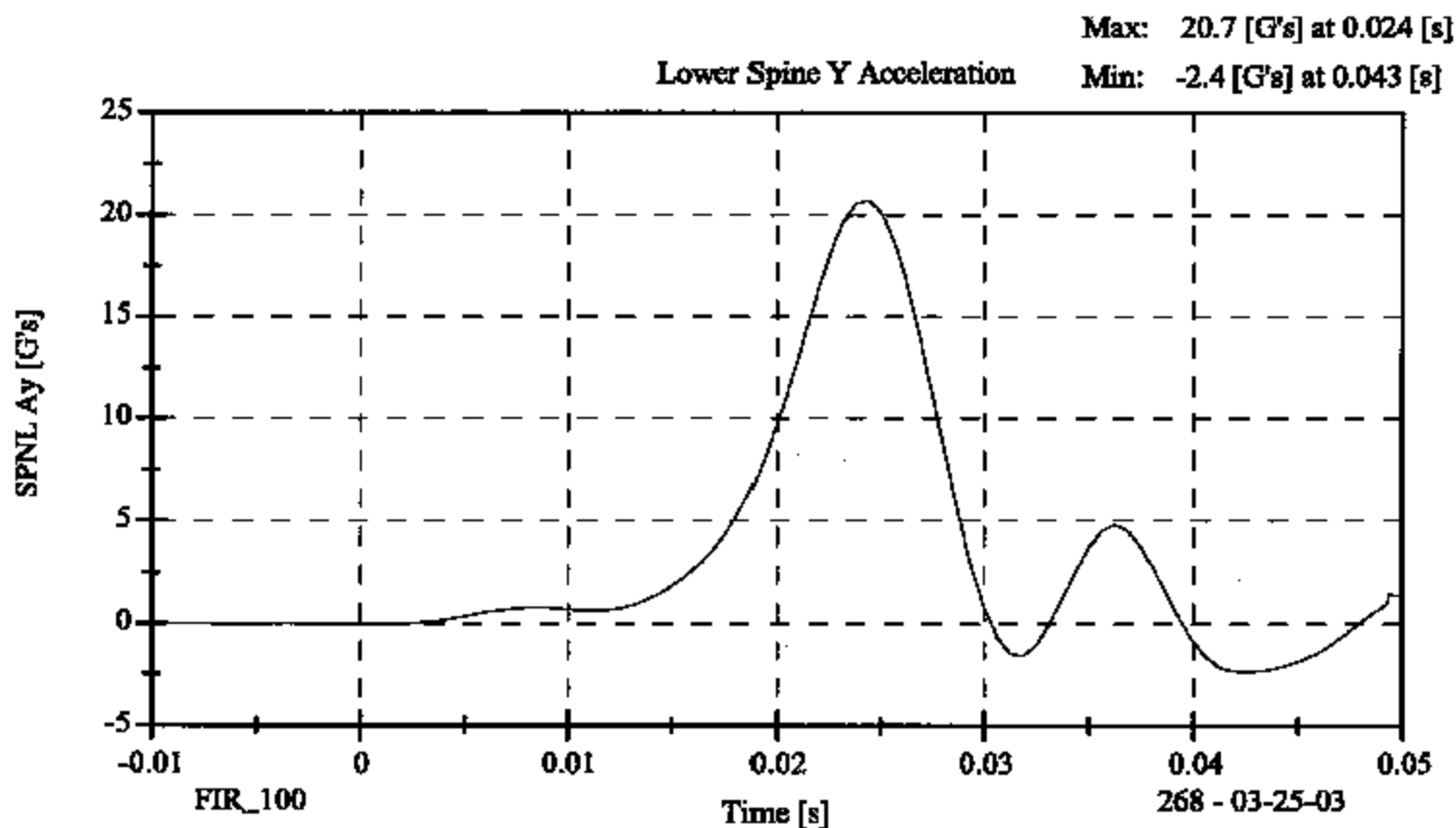
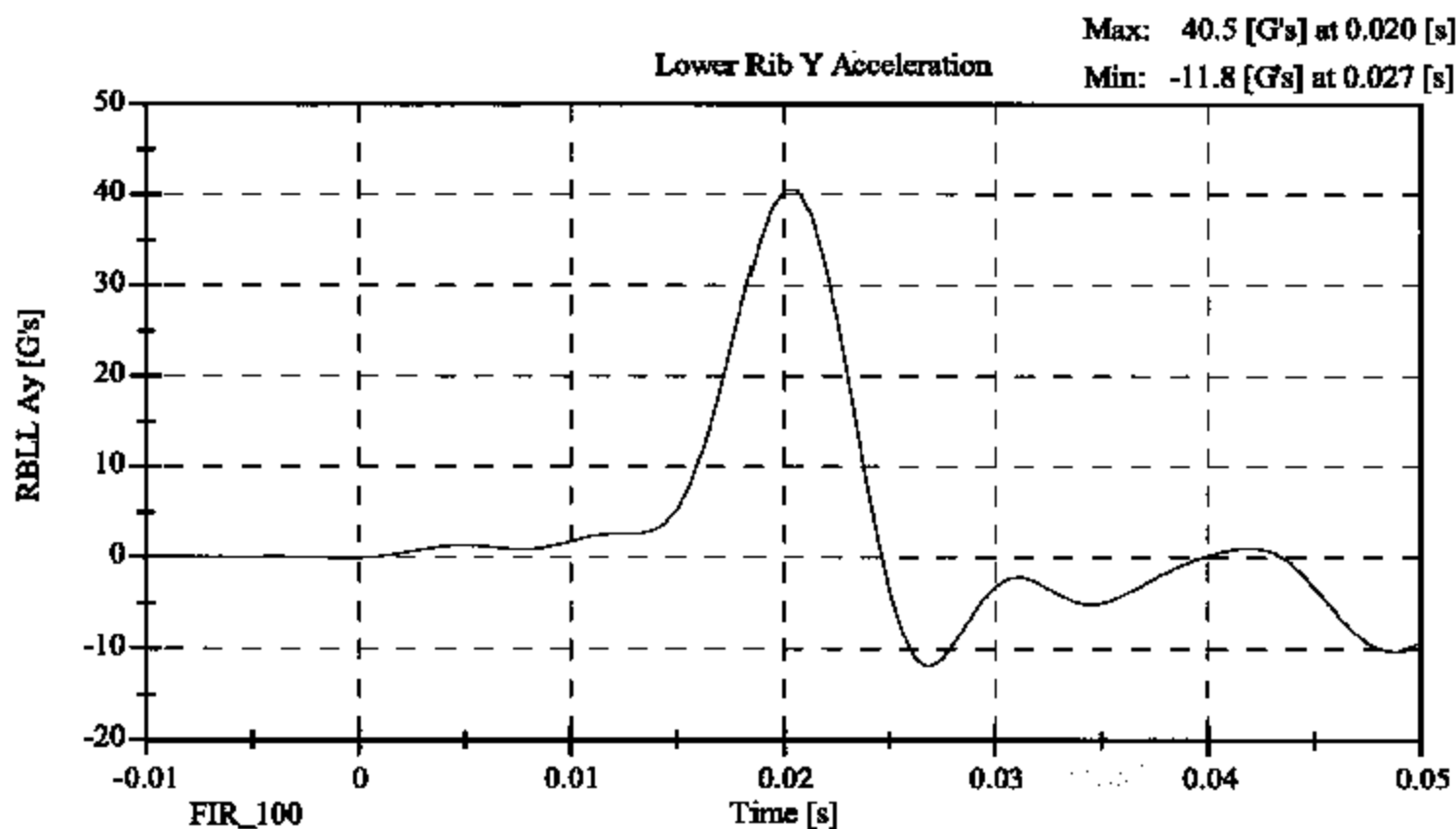
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	36.0
PROBE SPEED (m/s)	4.27 - 4.33	4.28
UPPER RIB (g's)	37 - 46	43.1
LOWER RIB (g's)	37 - 46	40.5
LOWER SPINE (g's)	15 - 22	20.7

REMARKS: None

Thorax Impact







**LATERAL PELVIS IMPACT TEST
POST TEST**

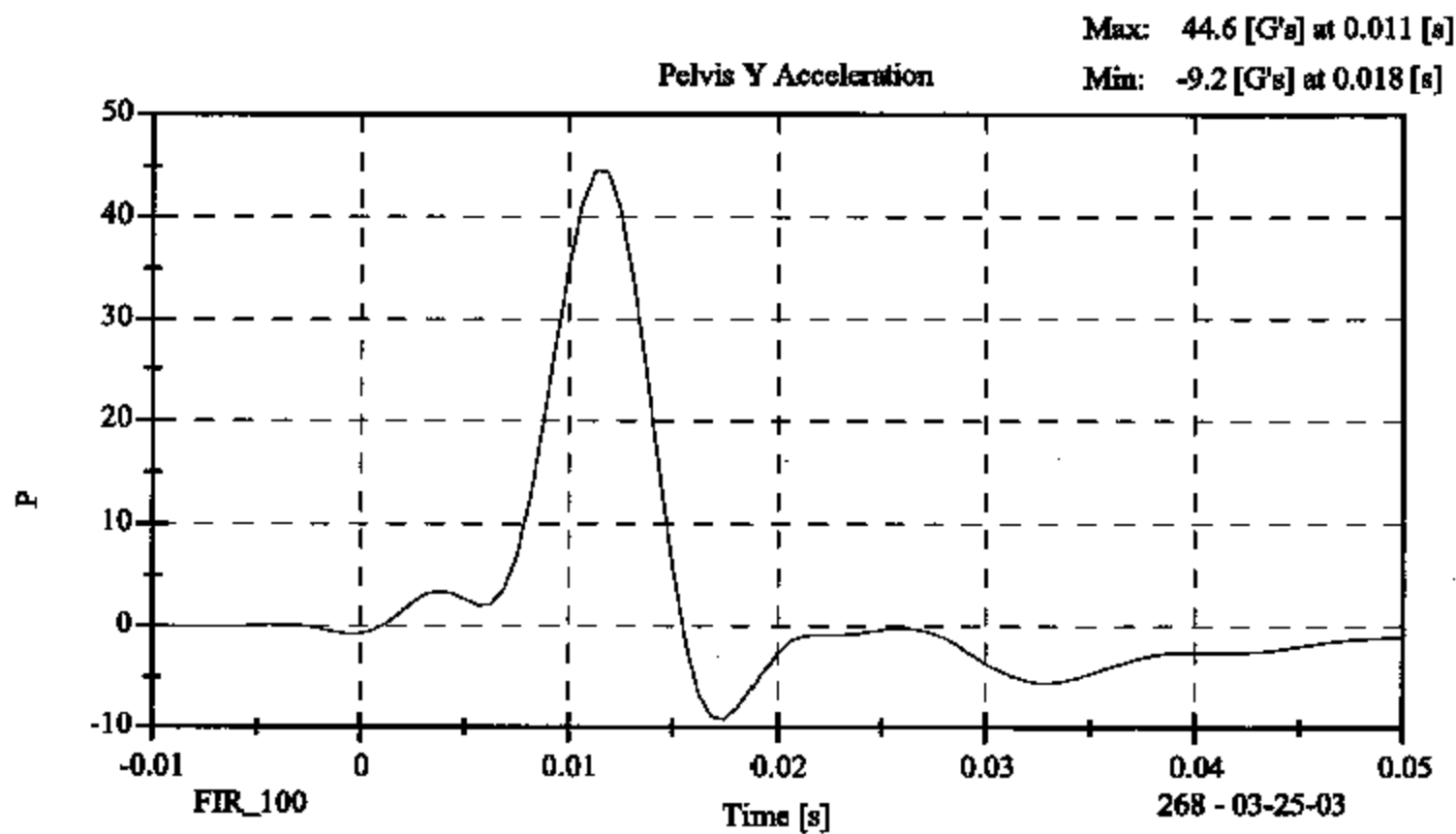
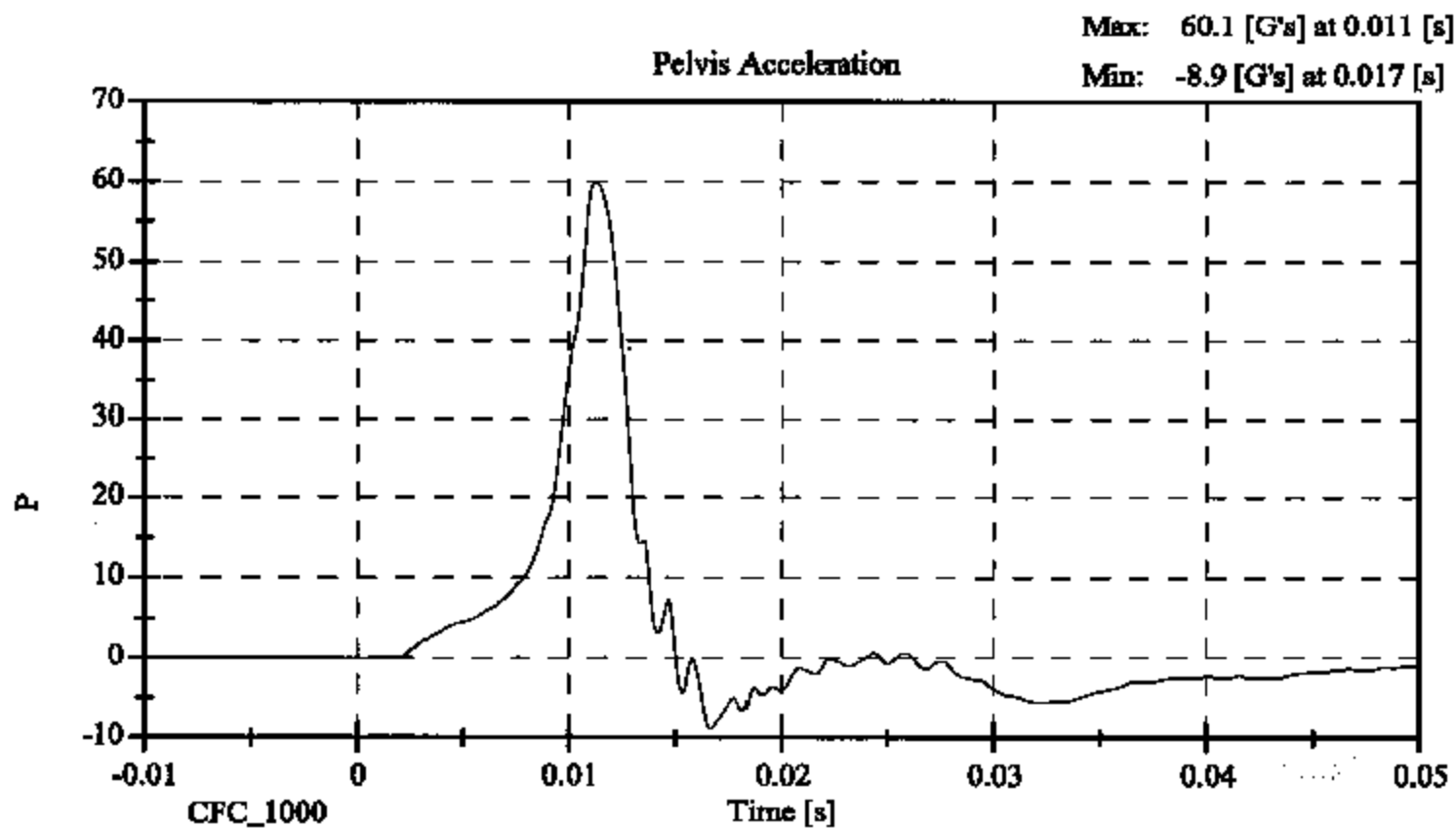
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268 Sequential Test Number: 1
Date: 3/25/03 Laboratory Technician: B. Swieczicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	36.0
PROBE SPEED (m/s)	4.27 - 4.33	4.27
PELVIS ACCELERATION (g's)	40 - 60	44.56

REMARKS: None

Pelvic Impact



**HEAD DROP TEST
POST-TEST**
(Test not required for SID certification)

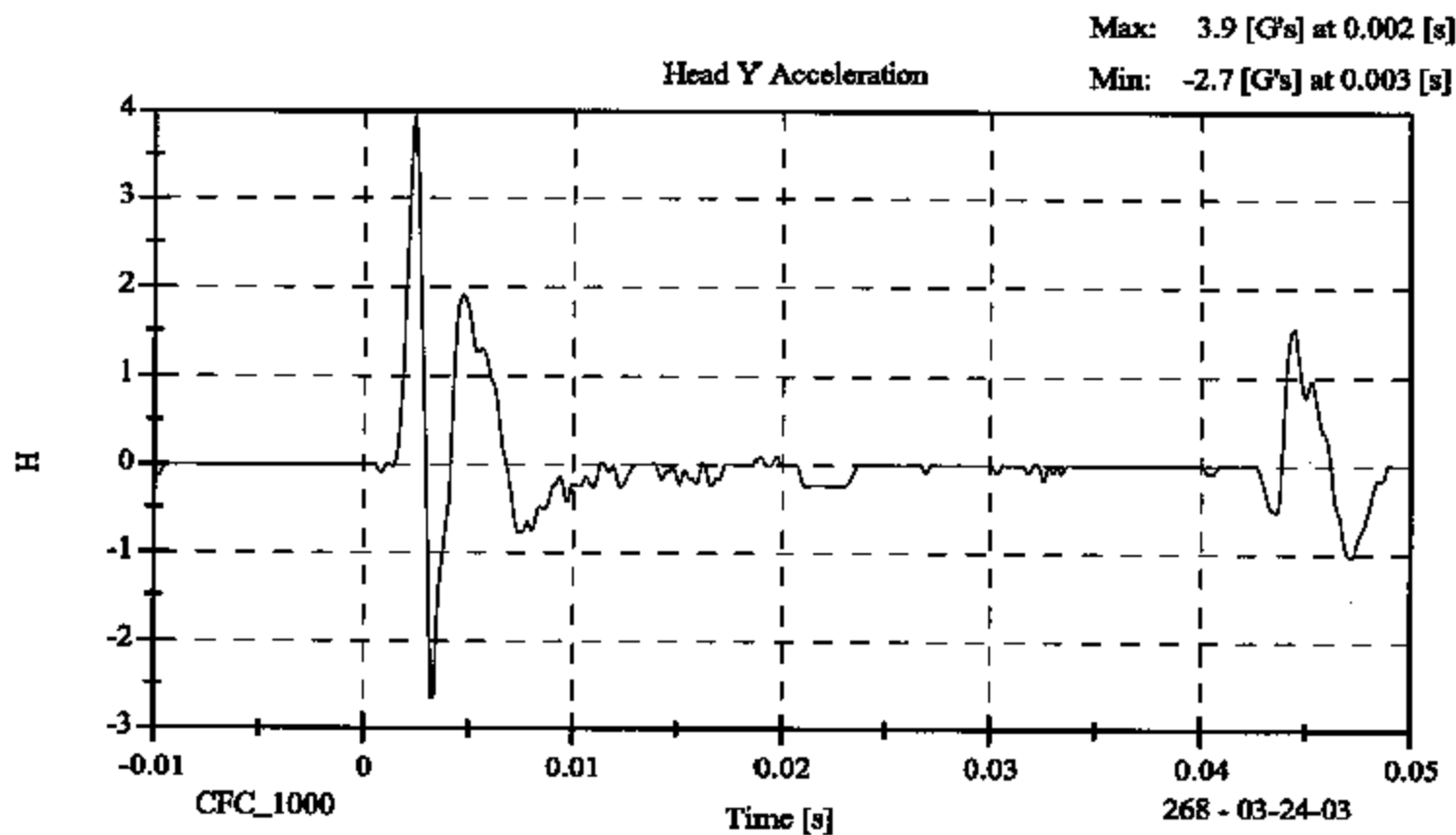
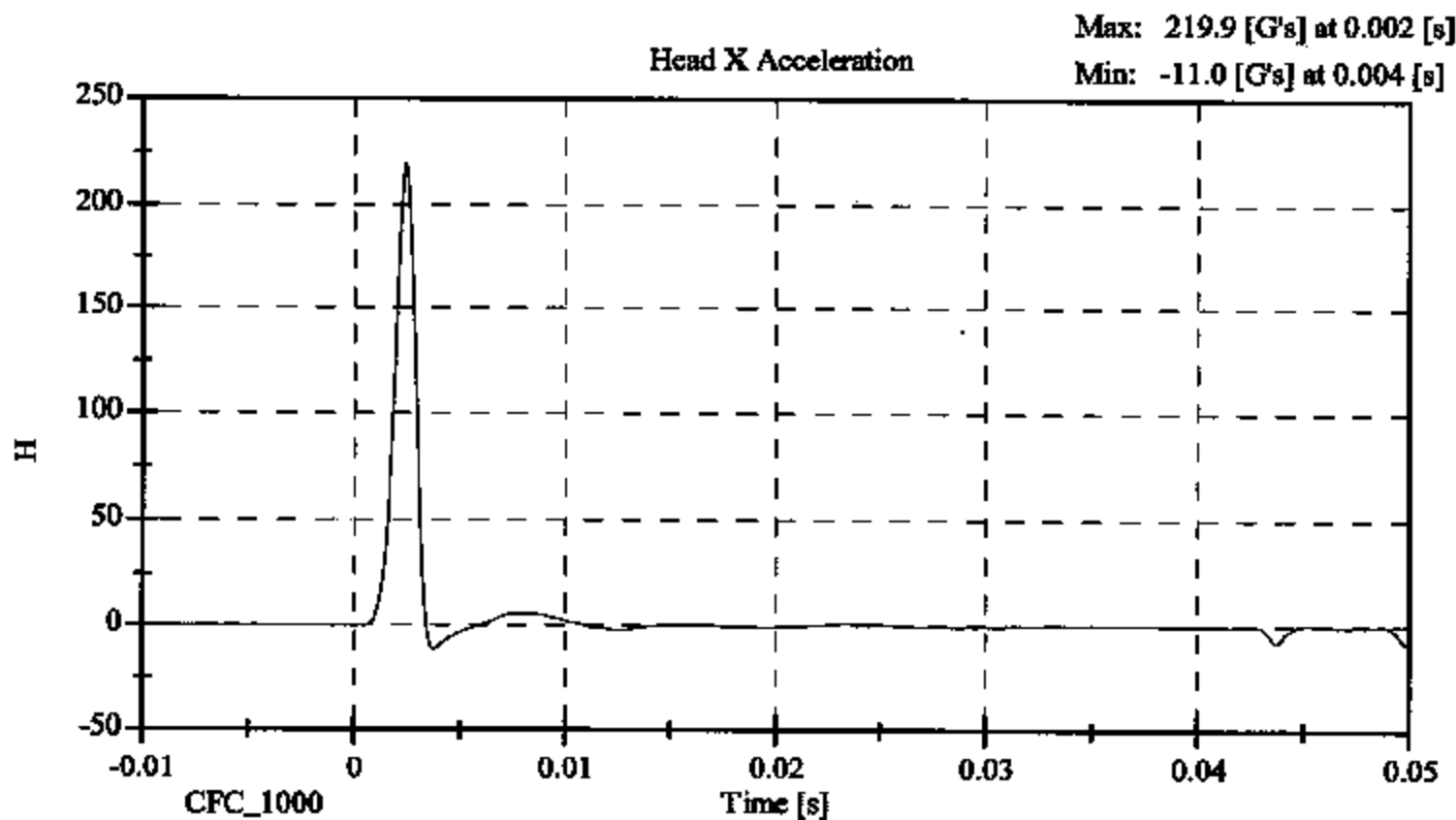
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268 Sequential Test Number: 1
Date: 3/24/03 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	31.0
PEAK RESULTANT ACCELERATION (Gs)	210 - 260	258.61
PEAK LATERAL ACCELERATION (Gs)	Not to Exceed 10	3.94
UNIMODAL CRITERIA ABOVE 100 Gs (ms)	0.9 - 1.5	1.24

REMARKS: None

Head Drop

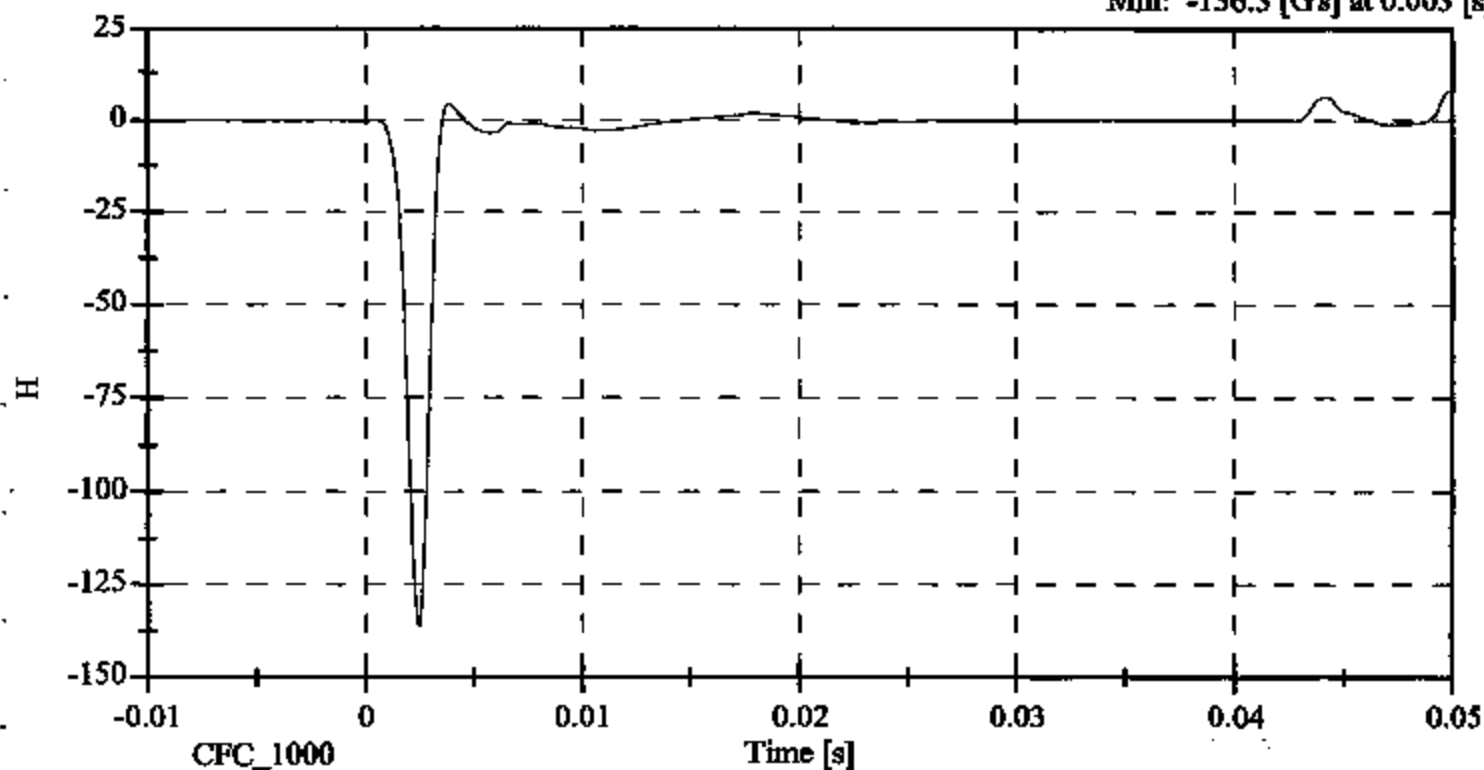


Head Drop

Head Z Acceleration

Max: 7.5 [G's] at 0.050 [s]

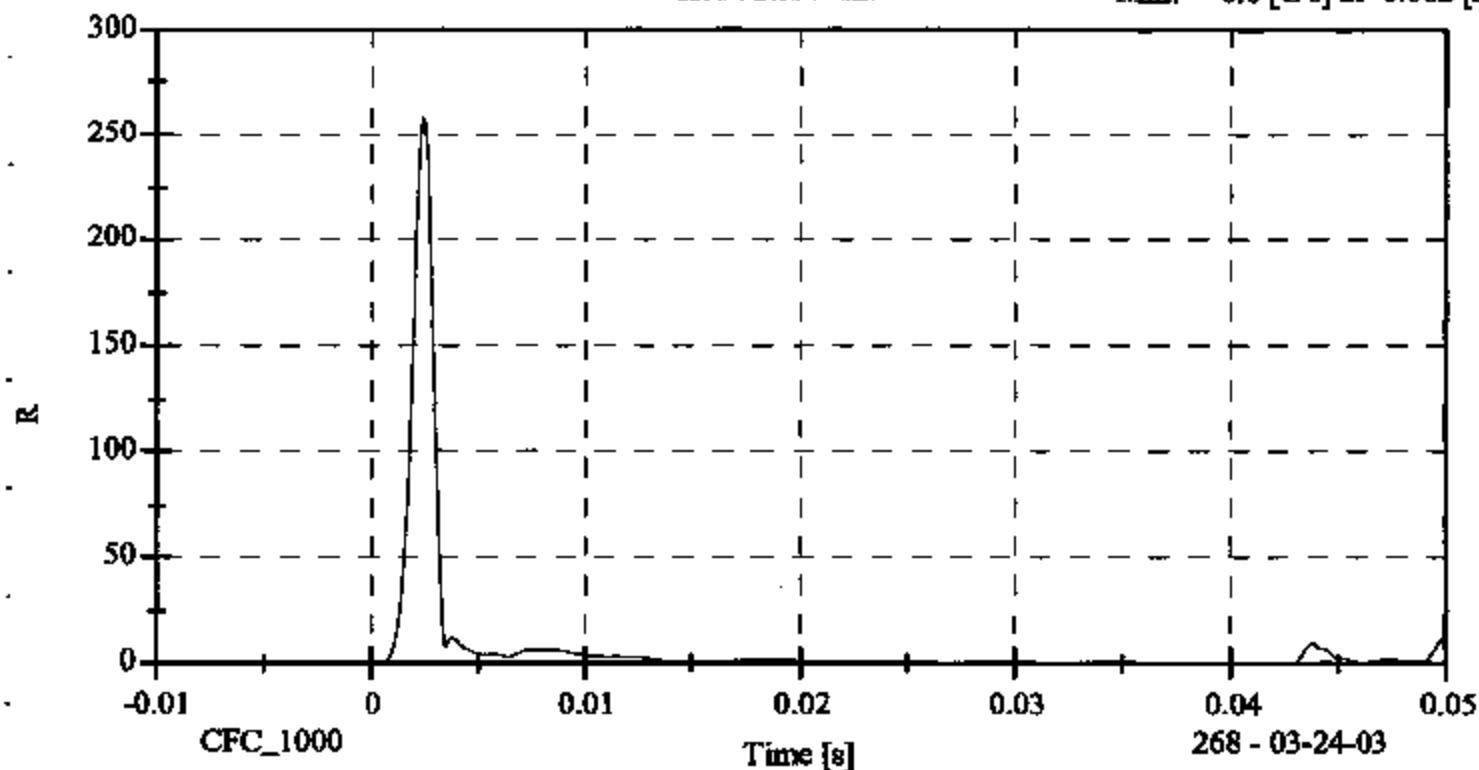
Min: -136.3 [G's] at 0.003 [s]



Head Resultant

Max: 258.6 [G's] at 0.002 [s]

Min: 0.0 [G's] at -0.002 [s]



ABDOMINAL COMPRESSION TEST**POST TEST**

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACTSID Serial No.: 268Sequential Test Number: 1Date: 3/25/03Laboratory Technician: B. Swiscicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	36.0
FORCE @ 13 mm (N)	104 - 162	121.0
FORCE @ 19 mm (N)	163 - 221	190.8
FORCE @ 25 mm (N)	222 - 280	271.8
FORCE @ 33 mm (N)	325 - 391	387.0

REMARKS: None

Dummy S/N 268

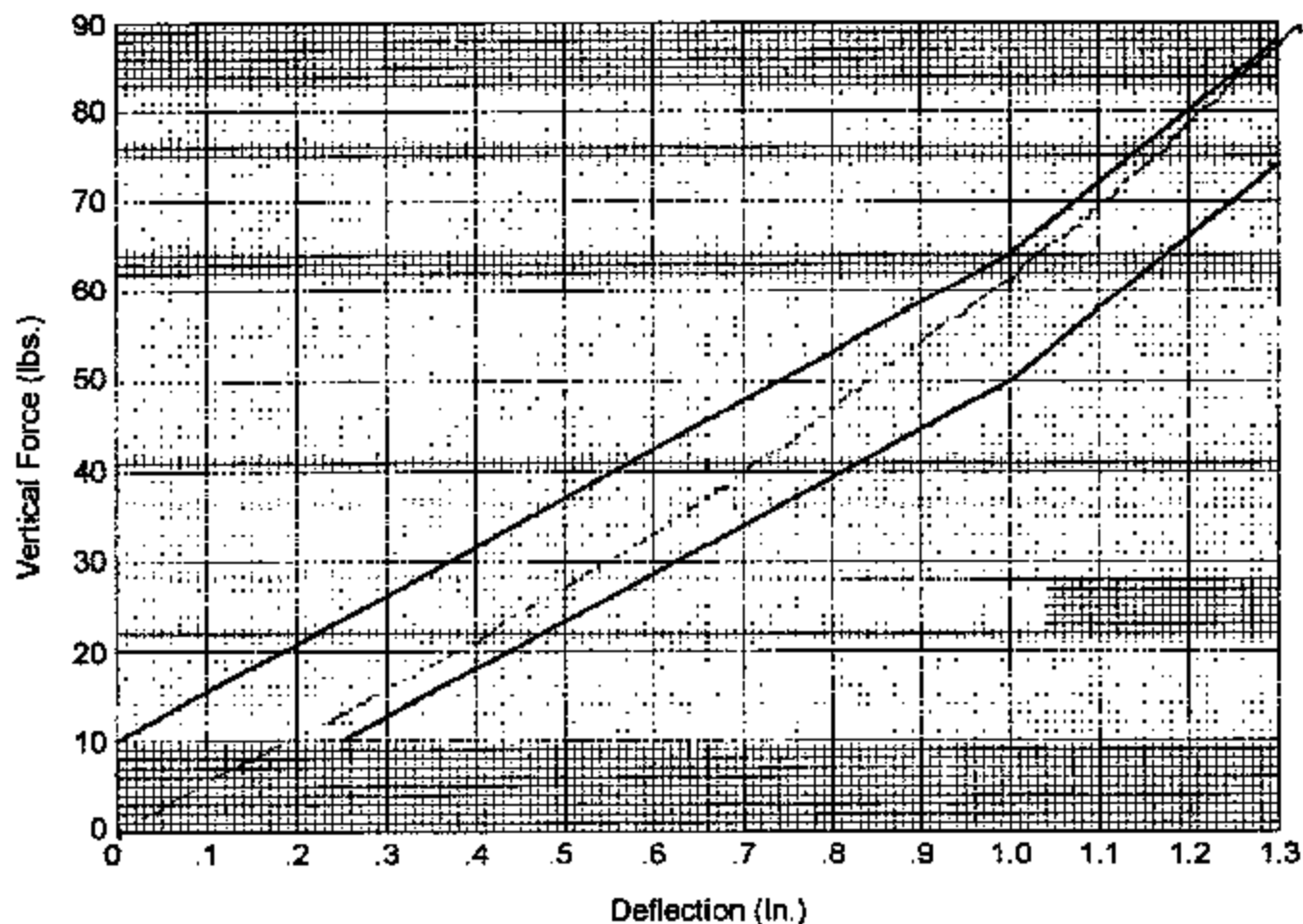
W/A _____

Date 03-25-03

Performed By [Signature]

Temp. 70°

Humidity 36%



Hybrid II
Abdomen Static Press

LUMBAR FLEXION TEST
POST TEST
(Test not required for SID certification)

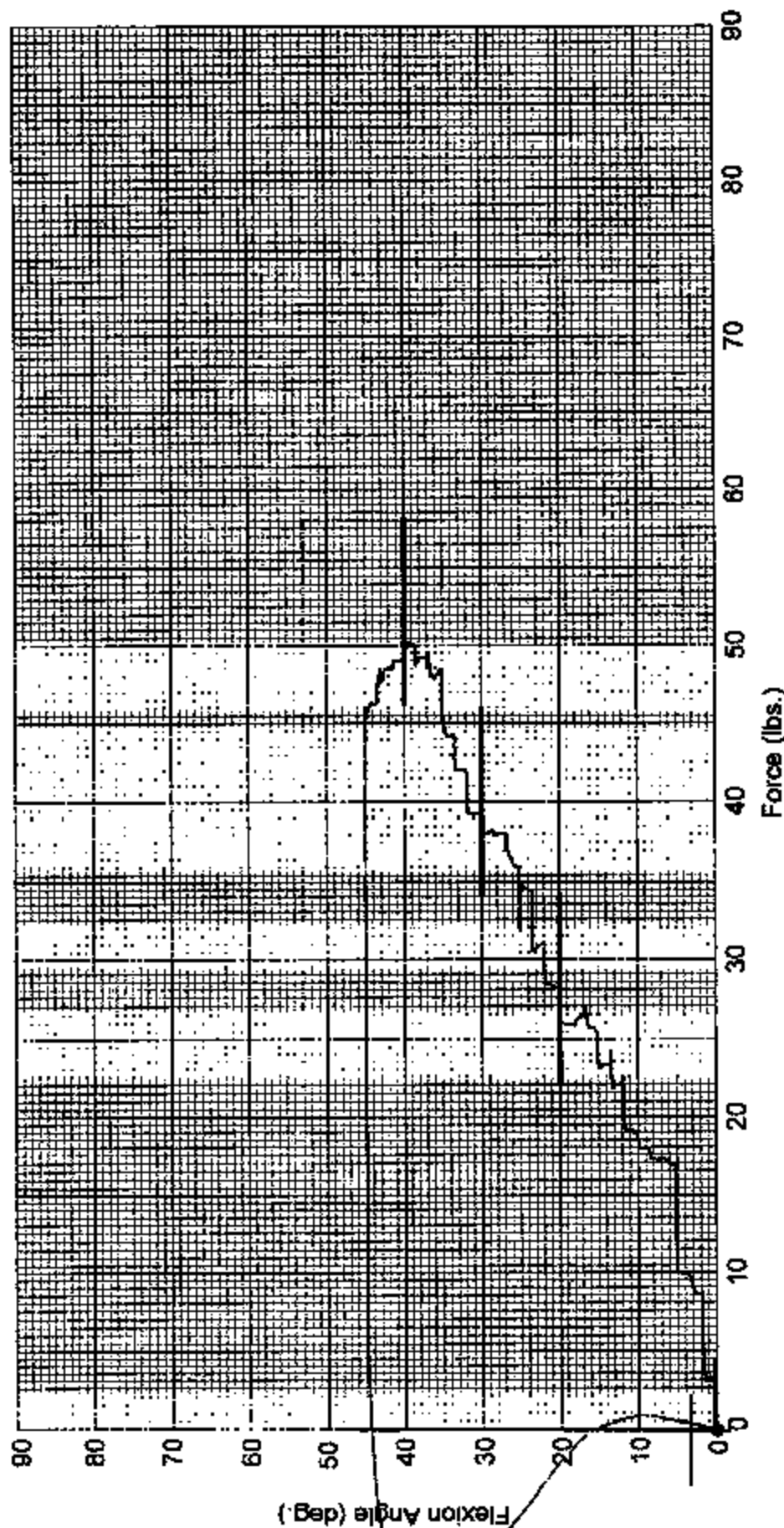
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268 Sequential Test Number: 1
Date: 3/25/03 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	36.0
FORCE @ 0° (N)	0 - 26.7	0.0
FORCE @ 20° (N)	97.8 - 151.2	120.5
FORCE @ 30° (N)	151.2 - 204.6	171.7
FORCE @ 40° (N)	204.6 - 258	220.2
RETURN ANGLE	12° max.	3.3°

REMARKS: None

Dummy S/N 268
W/A _____
Date 03-25-03
Performed By BQ
Temp. 70
Humidity 36%



Hybrid II Lumbar Spine Flexion Test

C-39

8675-F214-03

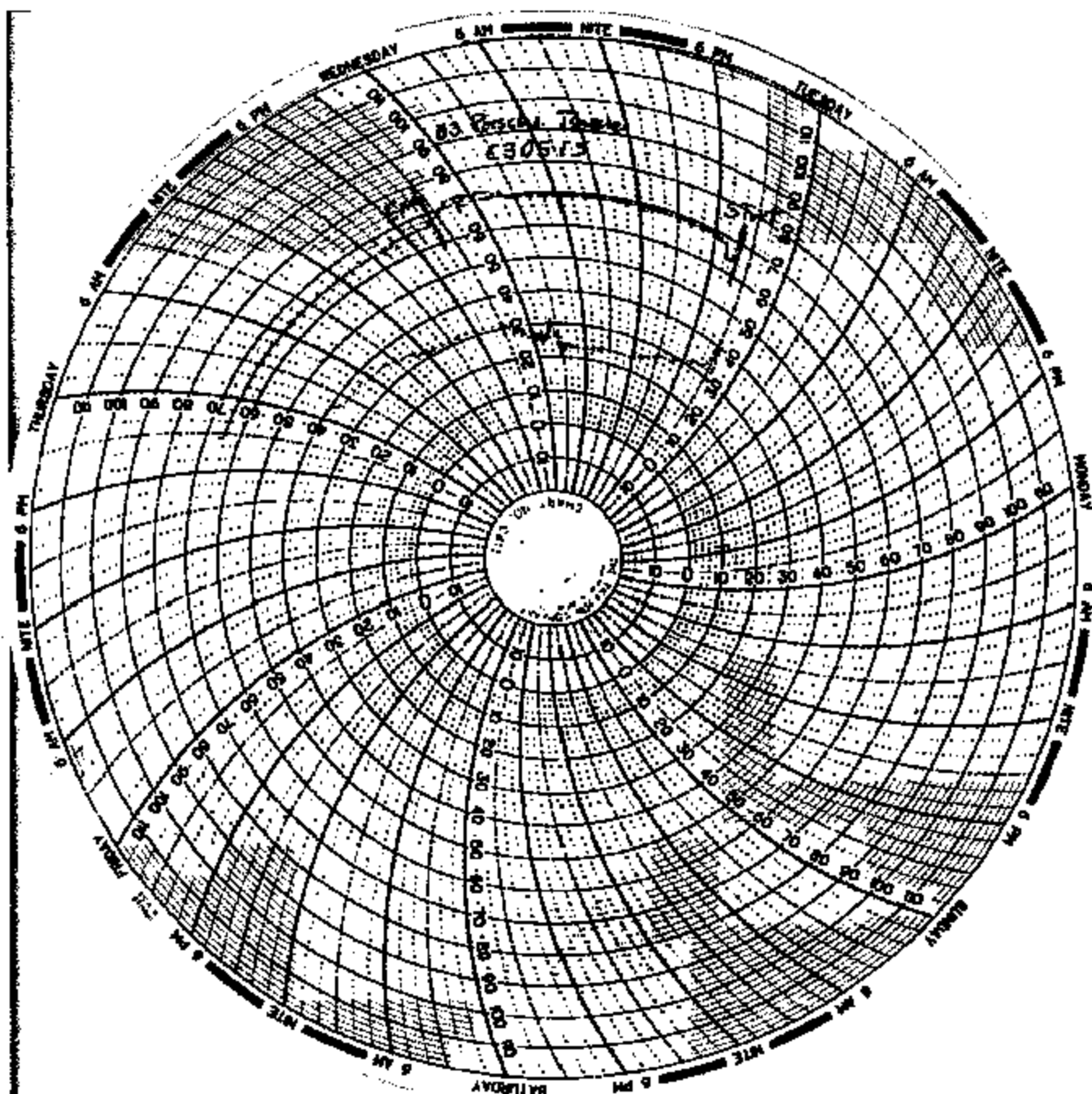
POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268 Sequential Test Number: 1
 Date: 3/25/03 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

TEMPERATURE TRACE



APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

SID INSTRUMENTATION

	FRONT SID NO.: 268		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P19246	ENDEVCO	03/07/03
HEAD AY	AC-P21516	ENDEVCO	03/07/03
HEAD AZ	AC-P21441	ENDEVCO	03/07/03
UPPER RIB	AC-P21399	ENDEVCO	03/07/03
LOWER RIB	AC-P23155	ENDEVCO	03/07/03
LOWER SPINE	AC-P23885	ENDEVCO	03/07/03
PELVIS	AC-P17299	ENDEVCO	01/21/03
UPPER RIB REDUNDANT	AC-P23282	ENDEVCO	03/07/03
LOWER RIB REDUNDANT	AC-P23358	ENDEVCO	03/07/03
LOWER SPINE REDUNDANT	AC-P18731	ENDEVCO	01/21/03
PELVIS REDUNDANT	AC-P16662	ENDEVCO	01/21/03

	REAR SID NO.: -		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	-	-	-
HEAD AY	-	-	-
HEAD AZ	-	-	-
UPPER RIB	-	-	-
LOWER RIB	-	-	-
LOWER SPINE	-	-	-
PELVIS	-	-	-
UPPER RIB REDUNDANT	-	-	-
LOWER RIB REDUNDANT	-	-	-
LOWER SPINE REDUNDANT	-	-	-
PELVIS REDUNDANT	-	-	-

REMARKS: None

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

VEHICLE AND MDB INSTRUMENTATION

	VEHICLE AND MDB INSTRUMENTS		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
RIGHT FRONT SILL (X)	AC-B11408	ENDEVCO	02/10/03
RIGHT FRONT SILL (Y)	AC-A13513	ENDEVCO	02/10/03
RIGHT FRONT SILL (Z)	AC-B10827	ENDEVCO	02/10/03
RIGHT REAR SILL (X)	AC-BB51	ENDEVCO	02/11/03
RIGHT REAR SILL (Y)	AC-J32791	ENDEVCO	02/11/03
RIGHT REAR SILL (Z)	AC-J31042	ENDEVCO	02/10/03
REAR FLOORPAN ABOVE AXLE (X)	AC-P17145	ENDEVCO	02/11/03
REAR FLOORPAN ABOVE AXLE (Y)	AC-P16813	ENDEVCO	02/11/03
REAR FLOORPAN ABOVE AXLE (Z)	AC-P17253	ENDEVCO	02/11/03
LEFT REAR SILL (Y)	AC-P23804	ENDEVCO	10/10/02
LEFT FRONT SILL (Y)	AC-MB16	ENTRAN	09/23/02
LEFT FRONT DOOR CENTERLINE (Y)	-	-	-
RIGHT REAR SEAT OCCUPANT COMP. (Y)	AC-P18682	ENDEVCO	09/29/02
MID REAR OF LEFT FRONT DOOR (Y)	-	-	-
LEFT FRONT DOOR UPPER CL (Y)	-	-	-
MID REAR OF LEFT REAR DOOR (Y)	-	-	-
LEFT REAR DOOR UPPER CL (Y)	-	-	-
LOWER LEFT B-PILLAR (Y)	AC-P23802	ENDEVCO	10/11/02
MIDDLE LEFT B-PILLAR (Y)	AC-P18728	ENDEVCO	10/01/02
LOWER LEFT A-PILLAR (Y)	AC-P24011	ENDEVCO	10/04/02
UPPER LEFT A-PILLAR (Y)	AC-P23884	ENDEVCO	10/10/02
FRONT SEAT TRACK (Y)	AC-P23976	ENDEVCO	10/04/02
REAR SEAT TRACK (Y)	-	-	-
VEHICLE CG (X)	AC-J29805	ENDEVCO	01/21/03
VEHICLE CG (Y)	AC-J32383	ENDEVCO	01/21/03
VEHICLE CG (Z)	AC-J25745	ENDEVCO	01/21/03
MDB CG (X)	AC-C16682	ENDEVCO	03/18/03
MDB CG (Y)	AC-CJ54	ENDEVCO	03/18/03
MDB CG (Z)	AC-GK12	ENDEVCO	03/18/03
MDB REAR FRAME MEMBER (X)	AC-CX05	ENDEVCO	03/18/03
MDB REAR FRAME MEMBER (Y)	AC-C16685	ENDEVCO	03/18/03

REMARKS: None