

V3039

REPORT NUMBER: SNCAP-CAL-99-4

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

TOYOTA MOTOR MANUFACTURING OF CANADA, INC.
1999 TOYOTA SOLARA
2-DOOR COUPE

NHTSA NUMBER: MX5104

CALSPAN TEST NUMBER: 8506-4

CALSPAN CORPORATION
TRANSPORTATION SCIENCES CENTER
P.O. BOX 400
BUFFALO, NEW YORK 14225



February 2, 1999

FINAL REPORT

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Performance Standards
Office of Crashworthiness Standards
Mail Code: NPS-10
400 Seventh Street, SW, Room No. 5313
Washington, DC 20590

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-98-C-02001. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

Prepared By:

PAAG M D J R
Patrick G. MacDiarmid, Jr., Project Engineer

Approved By:

D J T
David J. Trayle, Program Manager
Transportation Sciences Center

Approval Date:

February 26, 1999

FINAL REPORT ACCEPTANCE BY:

Accepted By: _____

Acceptance Date: _____

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. SNCAP-CAL-99-4		2. Government Accession No.		3. Recipient's Catalog No.																															
4. Title and Subtitle Final Report of new Car Assessment Program Side Impact Testing of a 1999 Toyota Solara 2-Door Coupe NHTSA No.: MX5104				5. Report Date February 2, 1999																															
				6. Performing Organization Code CAL																															
7. Author(s) Patrick G. MacDiarmid, Jr., Project Engineer David J. Travale, Program Manager				8. Performing Organization Report No. 8506-4																															
9. Performing Organization Name and Address Calspan Transportation Sciences Center P.O. Box 400 Buffalo, New York 14225				10. Work Unit No.																															
				11. Contract or Grant No. DTNH22-98-C-02001																															
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards Mail Code: NPS-10 400 Seventh, SW, Room 5313 Washington, D.C. 20590				13. Type of Report and Period Covered Final Report, February 1999																															
				14. Sponsoring Agency Code NPS-10																															
15. Supplementary Notes																																			
16. Abstract A 55/28 kph 90° Impact Moving Deformable Barrier NCAP Side Impact Test Test was conducted on the subject 1999 Toyota Solara 2-Door Coupe in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted at the Calspan Corporation Crash Test Facility in Buffalo, New York, on February 2, 1999. The impact velocity of the Moving Deformable Barrier (MDB) was 62.4 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 386 mm at level 2. The test or target vehicle's performance is given below: <table border="0"> <thead> <tr> <th></th> <th align="center"><u>Front SID</u></th> <th></th> <th align="center"><u>Rear SID</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td align="center"><u>68</u></td> <td align="center">g's</td> <td align="center"><u>40</u></td> <td align="center">g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td align="center"><u>74</u></td> <td align="center">g's</td> <td align="center"><u>43</u></td> <td align="center">g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td align="center"><u>97</u></td> <td align="center">g's</td> <td align="center"><u>44</u></td> <td align="center">g's</td> </tr> <tr> <td>Thoracic Trauma Index (TTI):</td> <td align="center"><u>85</u></td> <td align="center">g's</td> <td align="center"><u>44</u></td> <td align="center">g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td align="center"><u>94</u></td> <td align="center">g's</td> <td align="center"><u>69</u></td> <td align="center">g's</td> </tr> </tbody> </table> The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.							<u>Front SID</u>		<u>Rear SID</u>		Left Upper Rib Acceleration:	<u>68</u>	g's	<u>40</u>	g's	Left Lower Rib Acceleration:	<u>74</u>	g's	<u>43</u>	g's	Lower Spine Acceleration:	<u>97</u>	g's	<u>44</u>	g's	Thoracic Trauma Index (TTI):	<u>85</u>	g's	<u>44</u>	g's	Pelvis Acceleration (PEV):	<u>94</u>	g's	<u>69</u>	g's
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17. Key Words New Car Assessment Program (NCAP) Side Impact MDB Side Impact Dummy (SID)			18. Distribution Statement <u>Copies of this report are available from:</u> National Highway Traffic Safety Administration Technical Reference Division Room 5108 (NAD-52) 400 Seventh St., S.W. Washington, D.C. 20590 Telephone No. (202) 366-4946 ATTN: Robert Hornicle																																
19. Security Classification of Report UNCLASSIFIED		20. Security Classification of Page UNCLASSIFIED		21. No. of Pages 260																															
				22. Price																															

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SECTION 1

PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY99 New Car Assessment Program Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-98-C-02001. The purpose of this test was to generate comparative side impact performance in a 1999 Toyota Solara 2-Door Coupe. The test was conducted in accordance with the Office of Crashworthiness Standards's Laboratory Test Procedure dated July, 1997.

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A 1999 Toyota Solara 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 62.4 kph (38.8 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 Calspan Corporation Transportation Sciences Center in Buffalo, New York on February 2, 1999. Pre- and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SIDs) are included in appendix A.

Two restrained Side Impact Dummies (SIDs) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions according to the instructions specified in the OCWS Side Impact Laboratory Test Procedure which is dated July, 1997. 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 SIDs were 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)

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 47 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)	85	44
PEV (g)	94	69

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET 1

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1999 Toyota Solara 2-Door Coupe

Vehicle Body Color: Silver VIN: 2T1CF22P0XC150966

Vehicle NHTSA No.: MX5104 Month & Year of Manufacture: 11/98

Engine Data: 6 Cylinders; - CID; 3.0 Liters; - cc

Engine Placement: - Longitudinal; or X Lateral

Transmission: 4 Speed; - Manual; X Automatic; X Overdrive

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

Odometer Reading 269 km

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

DATA FROM TIRE PLACARD

Tire Pressure* (at capacity); 200 kPa FRONT
200 kPa REAR

Recommended Tire Size: P205/65R15

Tires on Test Vehicle: P205/65R15 ; Manufacturer: B.F. Goodrich

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; - 3rd Seat; 5 Total

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

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

Vehicle Max Capacity Loading = 410 kg (A)

No. of Occupants x 68.04 kg. = 340.2 kg (B)

Vehicle Cargo Capacity = 69.8 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front	=	<u>467.5</u> kg	Left Rear	=	<u>275.0</u> kg
Right Front	=	<u>457.0</u> kg	Right Rear	=	<u>276.0</u> kg
TOTAL FRONT	=	<u>924.5</u> kg	TOTAL REAR	=	<u>551.0</u> kg
% of Total Weight	=	<u>62.7</u> %	% of Total Weight	=	<u>37.3</u> %
TOTAL WEIGHT	=	<u>1475.5</u> kg			

* Tire pressure used in test.

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Max. Fluids	=	<u>1475.5</u>	kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle	=	<u>69.8</u>	kg (B)
Weight of instrumented Side Impact Dummies	=	<u>162.4</u>	kg (C)
TEST VEHICLE TARGET WEIGHT:	=	<u>1707.7</u>	kg (A+B+C)

FULLY LOADED TEST VEHICLE (UDVW + 2 SIDs + CARGO):

Left Front	=	<u>511.0</u>	kg	Left Rear	=	<u>387.5</u>	kg
Right Front	=	<u>455.5</u>	kg	Right Rear	=	<u>353.0</u>	kg
TOTAL FRONT	=	<u>966.5</u>	kg	TOTAL REAR	=	<u>740.5</u>	kg
% of Total Weight	=	<u>56.6</u>	%	% of Total Weight	=	<u>43.4</u>	%
TOTAL TEST WEIGHT	=	<u>1707.0</u>	kg				

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

Left Front	=	<u>512.0</u>	kg	Left Rear	=	<u>384.0</u>	kg
Right Front	=	<u>452.5</u>	kg	Right Rear	=	<u>350.5</u>	kg
TOTAL FRONT	=	<u>964.5</u>	kg	TOTAL REAR	=	<u>734.5</u>	kg
% of Total Weight	=	<u>56.8</u>	%	% of Total Weight	=	<u>43.2</u>	%
TOTAL TEST WEIGHT	=	<u>1699.0</u>	kg				

TEST VEHICLE ATTITUDE (all dimensions in millimeters):

AS DELIVERED:

Left Front	<u>715</u>	Right Front	<u>715</u>	Left Rear	<u>709</u>	Right Rear	<u>708</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

FULLY LOADED:

Left Front	<u>702</u>	Right Front	<u>714</u>	Left Rear	<u>657</u>	Right Rear	<u>667</u>
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READY FOR TEST:

Left Front	<u>704</u>	Right Front	<u>715</u>	Left Rear	<u>659</u>	Right Rear	<u>670</u>
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Test Vehicle Wheelbase: 2660 millimeters

C.G. = 1150.0 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side	=	<u>4723</u>	millimeters
Left Side	=	<u>4726</u>	millimeters
Centerline	=	<u>4842</u>	millimeters

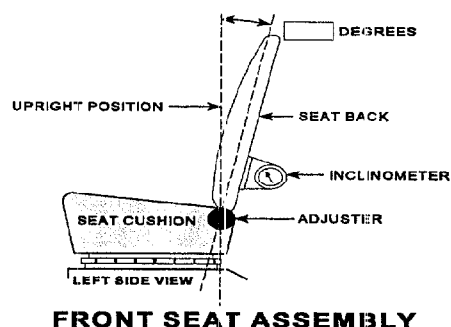
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

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:

Total Length of Adjustment Travel: 230 millimeters

Total Number of Adjustment Positions or Detents: Electronic seat was adjusted to mid travel. (115 mm)

FRONT SEAT BACK ADJUSTMENT POSITION:

Electronic seat was reclined 8° from most upright

Seat Back Torso Angle: 70 degrees

SECOND POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: Not Applicable millimeters

Seat Back Adjustment Position: Not Applicable

ADJUSTABLE STEERING COLUMN POSITION:

WINDOW POSITIONS:

Left Front: Closed

Left Rear: Closed

Right Front: Open

Right Rear: Open

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:

70.0 liters (Fuel Tank Usable Capacity)

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

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

Wheelbase = 2660 millimeters

Impact Point is 390 millimeters rearward of front axle centerline

(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 384 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 1999 Toyota Solara

Body Style: 2-Door Coupe

VIN: 2T1CF22P0XC150966

NHTSA No.: MX5104

Test Date: February 2, 1999

Overall Length = 4842 millimeters; Overall Width = 1801 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 512.0 kg Left Rear = 384.0 kg

Right Front = 452.5 kg Right Rear = 350.5 kg

TOTAL FRONT = 964.5 kg TOTAL REAR = 734.5 kg

TOTAL VEHICLE WEIGHT 1699.0 kg

Wheelbase = 2660 millimeters

Longitudinal C.G. from Center of Front Axle = 1150.0 millimeters

Impact Angle with Respect to Impactor = 90 degrees

ACTUAL IMPACT POINT

Actual Impact Point is 6 mm forward of nominal impact ref. line (Lateral)

Actual Impact Point is 6 mm above nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (253 mm above ground) = 226 millimeters

2. LEVEL 2 (459 mm above ground) = 386 millimeters

3. LEVEL 3 (606 mm above ground) = 376 millimeters

4. LEVEL 4 (871 mm above ground) = 310 millimeters

5. LEVEL 5 (1306 mm above ground) = 84 millimeters

Maximum Post-Test Intrusion = 386 millimeters

OCCUPANTS:

Front Passenger:

Rear Passenger:

Dummy Identification 268

015

Restraints Used 3-Point Safety Belt

3-Point Safety Belt

INSTRUMENTATION:

Number of Vehicle Data Channels: = 42

Number of Cameras: Onboard = 3

Offboard = 7

TOTAL = 10

DATA SHEET 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore, Inc. 089A1198-3 078C1198 3991-02

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>62.4</u>	kph				

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level	=	<u>164</u>	millimeters
2. Row B at Top of Bumper Level	=	<u>90</u>	millimeters
3. Row C at Mid Level	=	<u>131</u>	millimeters
4. Row D at Top of Stack Level	=	<u>171</u>	millimeters

INSTRUMENTATION:

Number of MDB Data Channels	=	<u>5</u>
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DATA SHEET 4

POST-TEST OBSERVATIONS

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head:	<u>Side of head and face to door frame. The back of the head to the right side of the headrest.</u>	<u>Side of the face and the back of the head to the side b pillar trim.</u>
Upper Torso:	<u>Door Panel</u>	<u>Door Panel</u>
Lower Torso:	<u>Door Panel</u>	<u>Door Panel</u>
Left Knee:	<u>None</u>	<u>None</u>
Right Knee:	<u>None</u>	<u>None</u>

DOOR OPENING:

	<u>LEFT DOOR</u>	<u>RIGHT DOOR</u>
Front:	<u>Closed/Inoperable</u>	<u>Closed/Operable</u>
Rear:	<u>-</u>	<u>-</u>

MDB DISTANCE FROM TARGET IMPACT POINT:

<u>Vertical: 6 mm above</u>
<u>Horizontal: 6 mm forward</u>

ARM REST LOCATIONS:

Front:	<u>The driver armrest moved inboard during the event and ended up at 262 mm below the sill.</u>
Rear:	<u>The passenger armrest moved inboard during the event and ended up at 330 mm below the sill.</u>

SEAT MOVEMENT:

Front:	<u>There was no movement.</u>
Rear:	<u>The rear seat cushion rotated slightly inward (clockwise) during the event.</u>

GLAZING DAMAGE:

Windshield:	<u>The windshield was cracked along the A-Pillar.</u>
Window:	<u>The front and rear side windows shattered during the event.</u>

PILLAR PERFORMANCE:

There were no tears or separation in either the vehicle A or B pillars after the event.

SILL SEPARATION:

There was no sill separation recorded during the event.

AIR BAG DEPLOYMENT STATUS:

	<u>DRIVER</u>	<u>FRONT PASSENGER</u>	<u>REAR PASSENGER</u>
<u>FRONT</u>	<u>NO</u>	<u>NO</u>	<u>N/A</u>
<u>SIDE</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

OTHER NOTABLE IMPACT EFFECTS:

This vehicle was not equipped with the optional front outboard seat bolster mounted side impact airbags.

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID INSTRUMENTATION DATA

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

	Front Dummy ID# 268				Rear Dummy ID# 015			
	Pos. Direction		Neg. Direction		Pos. Direction		Neg. Direction	
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS:								
Upper Rib Lateral . Y	68.0	26.3	-23.1	70.7	40.3	50.0	-5.3	194.4
Upper Rib Lateral . . Y(R)	70.1	26.2	-25.7	71.2	40.5	50.0	-5.2	131.3
Lower Rib Lateral . . Y	73.5	27.5	-15.8	70.6	43.3	35.6	-5.2	194.4
Lower Rib Lateral . Y(R)	71.7	28.8	-12.4	70.6	44.6	35.6	-4.7	193.8
SPINE ACCELERATIONS:								
Lower Lateral Y	97.1	31.9	-21.8	63.2	44.2	52.5	-5.2	81.9
Lower Lateral Y(R)	97.7	31.9	-21.6	63.2	45.0	52.5	-4.9	81.9
PELVIC ACCELERATIONS:								
Lateral Y	94.3	28.2	-9.2	54.4	69.1	35.0	-7.0	65.6
Lateral Y(R)	94.4	28.2	-9.5	54.4	64.2	36.3	-7.2	65.7

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

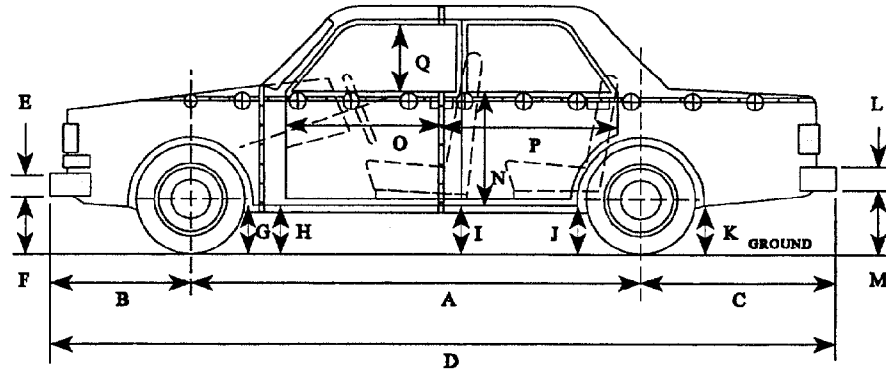
Note: Above data has been FIR filtered, Y(R) denotes redundant Y direction accelerometer.

DATA SHEET 6

VEHICLE SIDE MEASUREMENTS

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104



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	2660	-	2641	-19
B	963	-	958	-5
C	1219	-	1205	-14
D	4842	-	4804	-38
E	347	-	347	0
F	282	291	331	40
G	235	217	213	-4
H	236	217	206	-11
I	236	202	238	36
J1	209	167	182	15
J2	247	202	240	38
K	307	240	276	36
L	446	-	446	0
M	377	314	355	41
N	630	-	579	-51
O	1345	-	1317	-28
P	-	-	-	0
Q	419	-	384	-35
R	4723	-	4708	-15
S	4726	-	4673	-53
T	1801	-	1686	-115

D = Length at Centerline
T = Width at B-Pillar

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

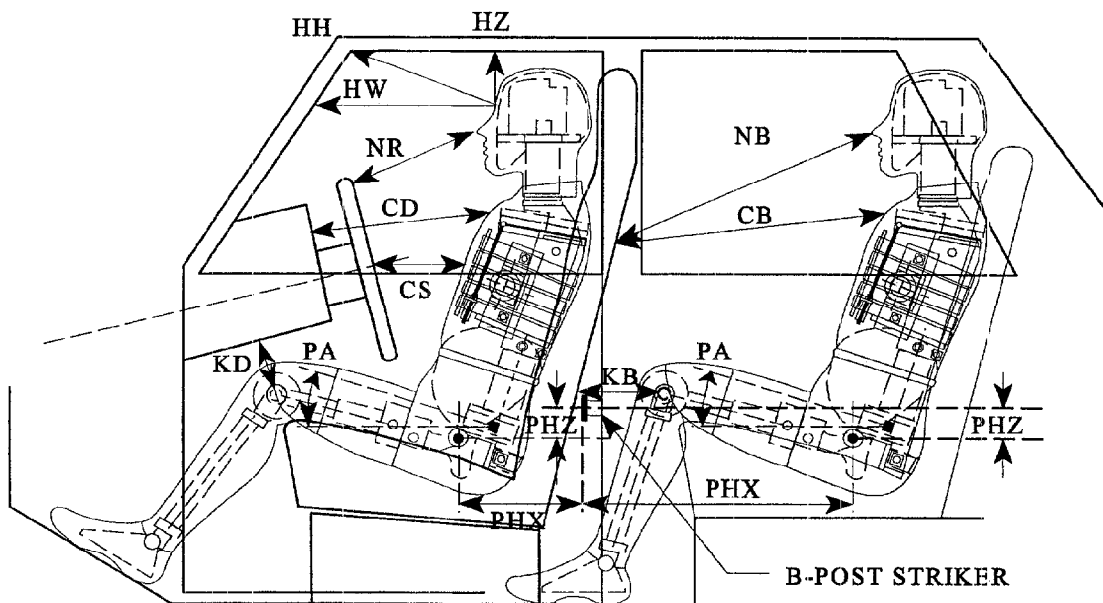
S = Left Side Length

DATA SHEET 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104



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# <u>268</u>	LEFT REAR PASS. ID# <u>015</u>
HH	411	N/A
HW	629	N/A
HZ	166	113
NR/NB	494	624
CD/CB	585	531
CS	307	N/A
KDL(KDA°)/KBL(KDA°)	191 / (41°)	188 / (40°)
KDR(KBA°)/KBR(KBA°)	198 / (43°)	191 / (43°)
PA°	23.2 °	24.3 °
PHX	481	431
PHZ	202	168

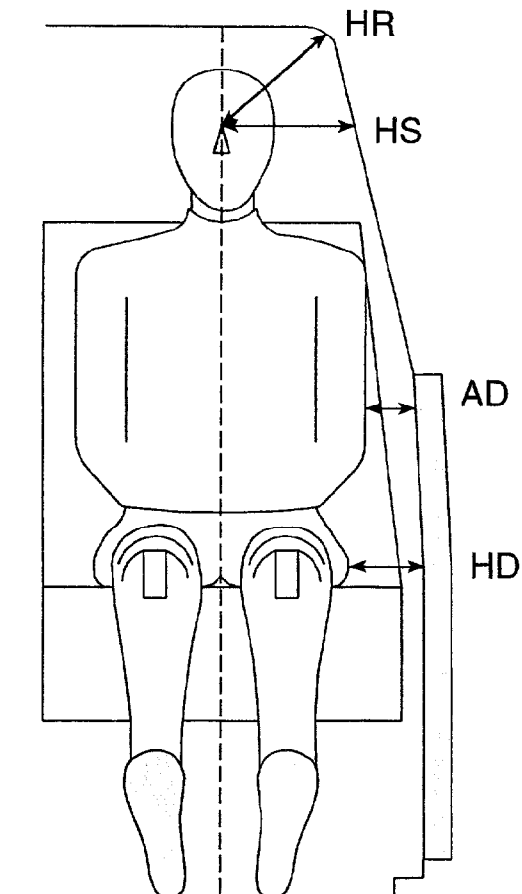
Note: 2-door vehicle shown. Rear dummy PHX & PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

DATA SHEET 8

SID LATERAL CLEARANCE DIMENSIONS

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104



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

	DRIVER ID # <u>268</u>		LEFT REAR PASS. ID # <u>015</u>	
HR	188		178	
HS	302		322	
AD*	LOWER: 110	UPPER: 90	LOWER: 99	UPPER: 61
HD	143		105	

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

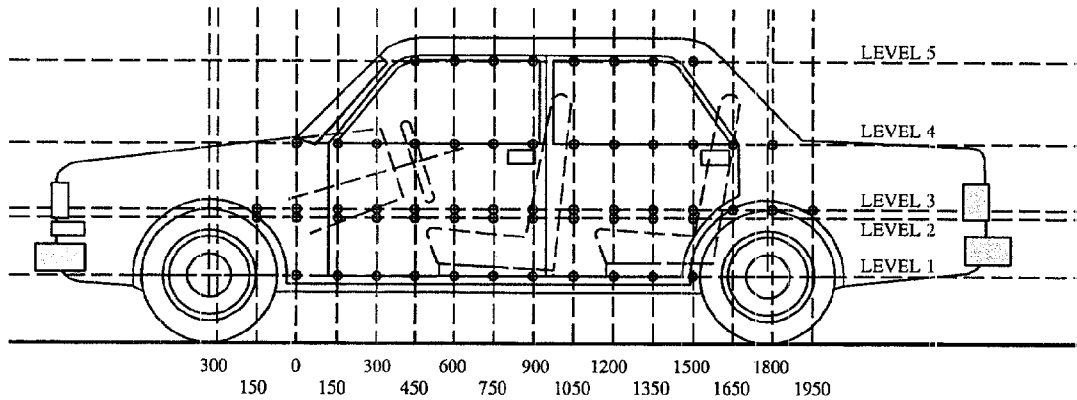
Upper measurement is taken laterally at the center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104



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 - AXLE CENTERLINE HEIGHT OR 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>1306</u>	millimeters
Level 4 @ Window Sill	=	<u>871</u>	millimeters
Level 3 @ Mid Door	=	<u>606</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>459</u>	millimeters
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>253</u>	millimeters

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

NHTSA No. MX5104

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

8506-4

DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES

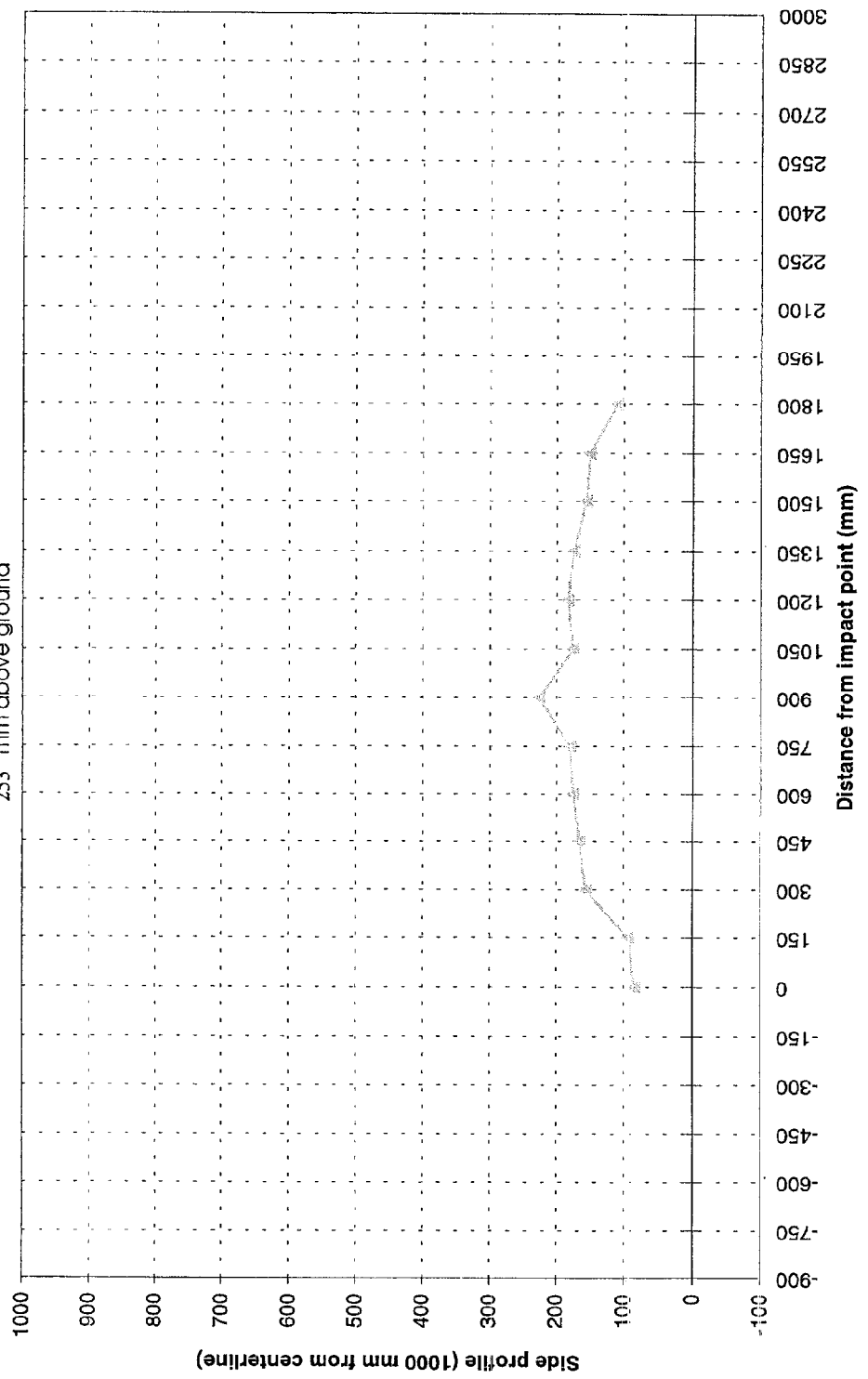
Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

CRUSH

SIDE PROFILE LEVEL 1

253 mm above ground

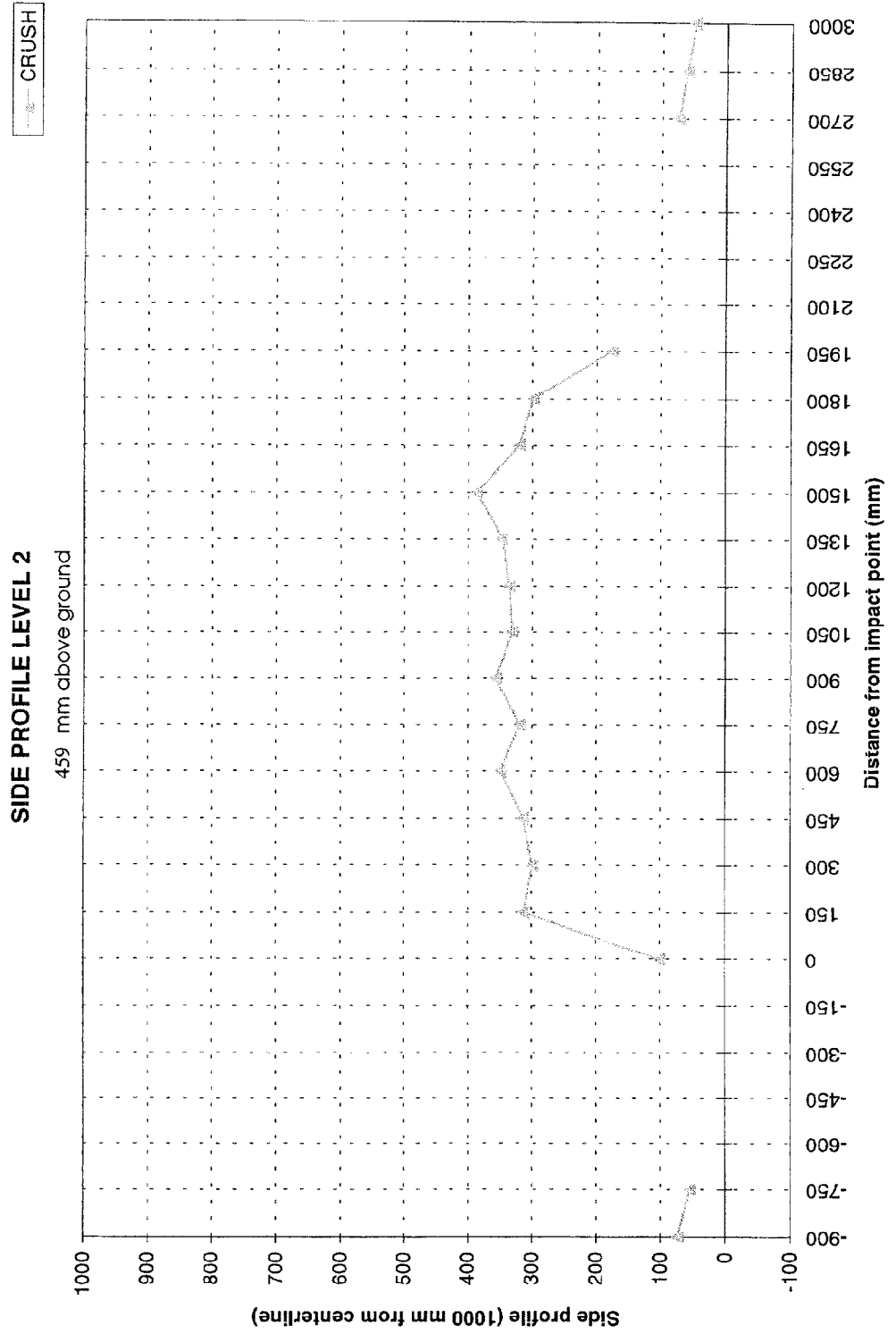


DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

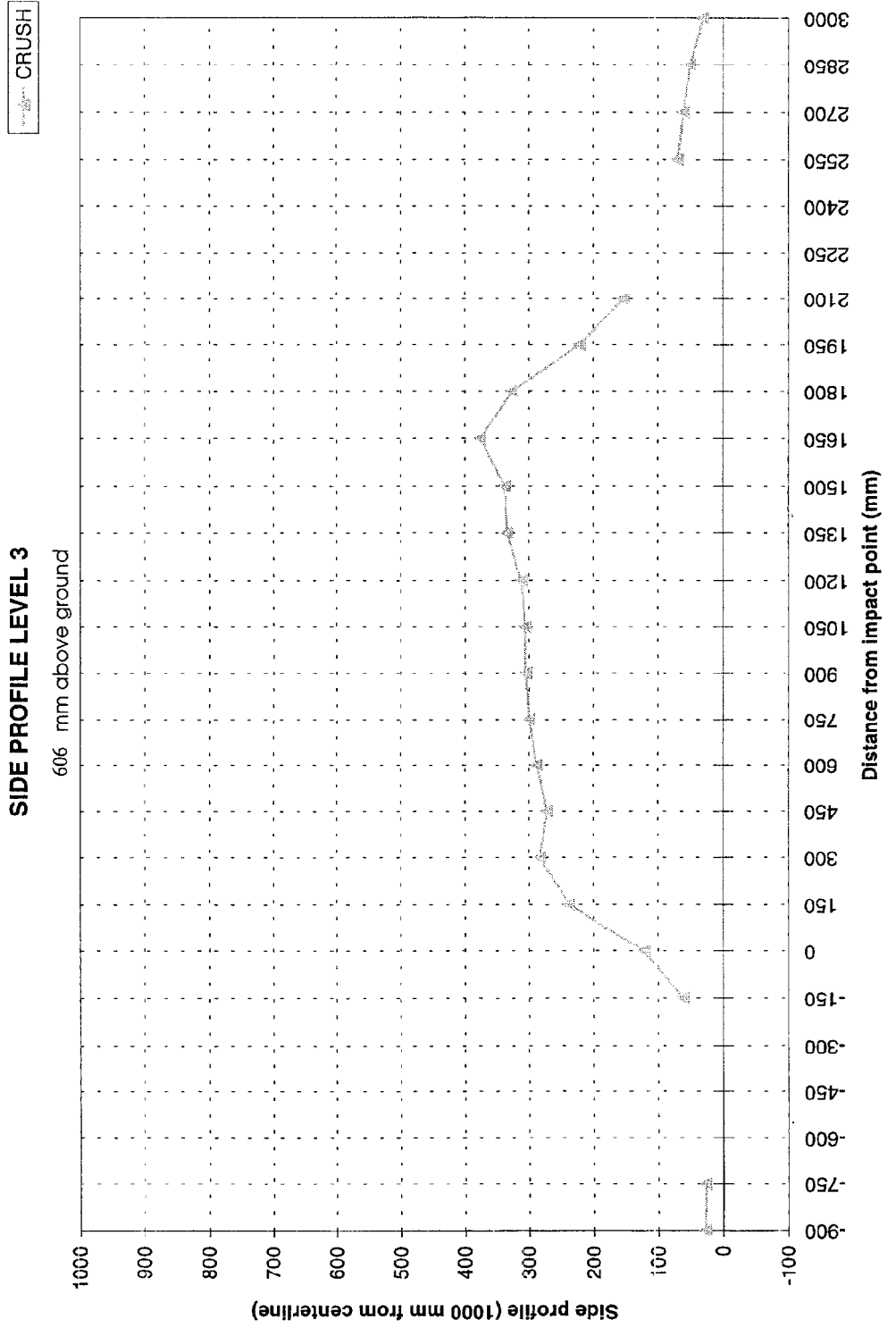


DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

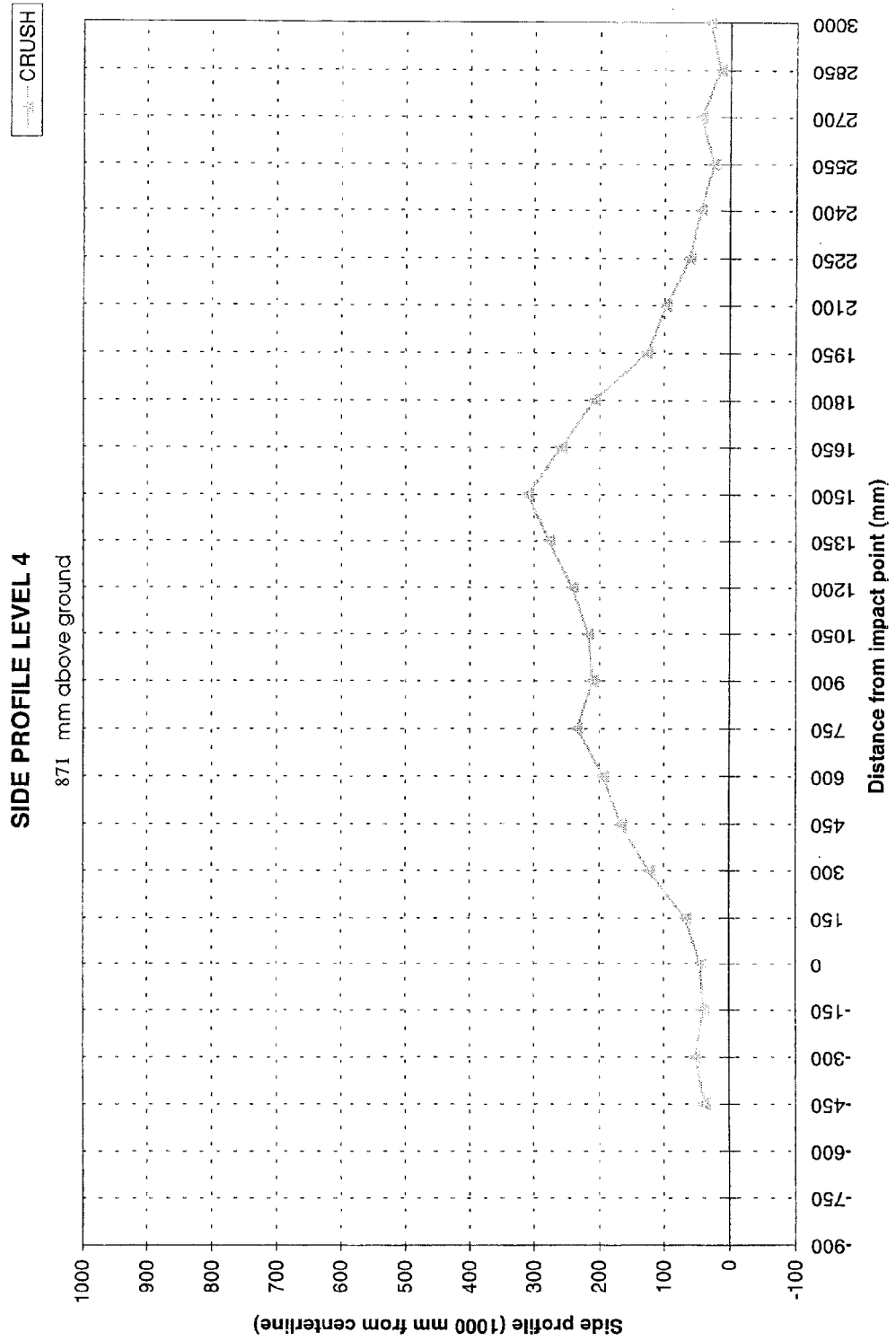


DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

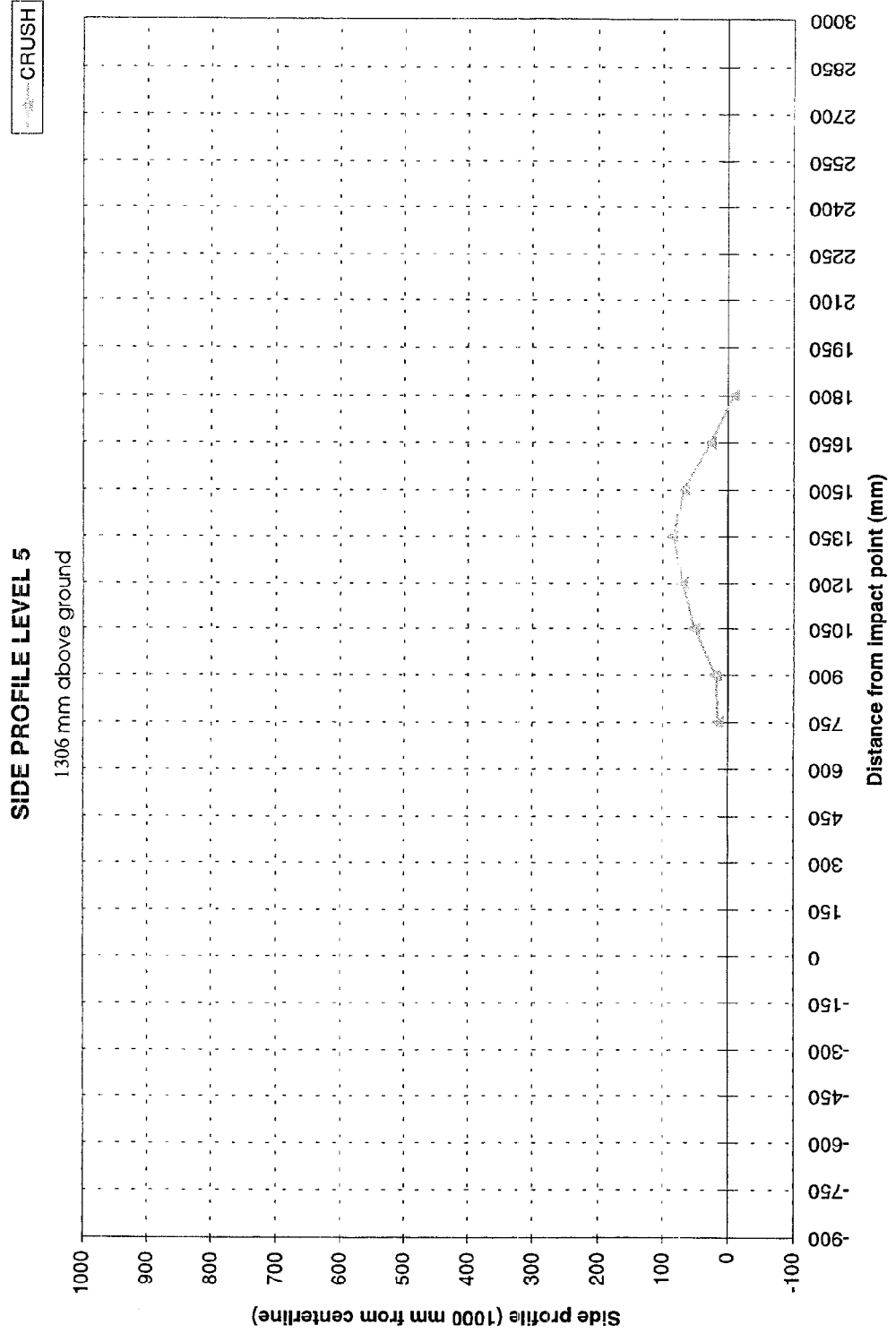


DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

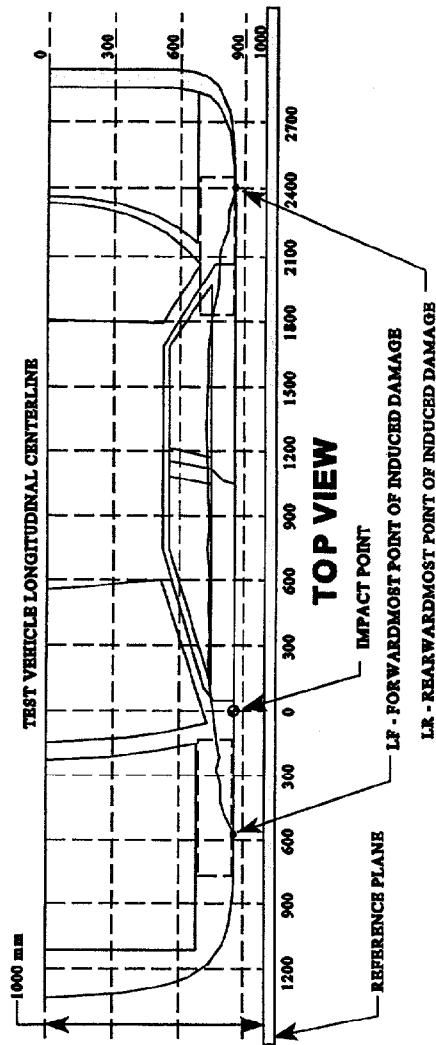


DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104



MEASUREMENT CONVENTIONS:
 Forward of the impact point (towards front of vehicle) is considered negative (-).
 Rearward of the impact point (toward rearward 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 (LF = 450 mm)	291	253	38
2 240	284	184	100
3 930	381	169	212
4 1620	446	177	269
5 2310	243	188	55
6 (LR = 3000 mm)	294	263	31

DATA SHEET 12

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE
(Grid as looking at MDB from front)

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

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

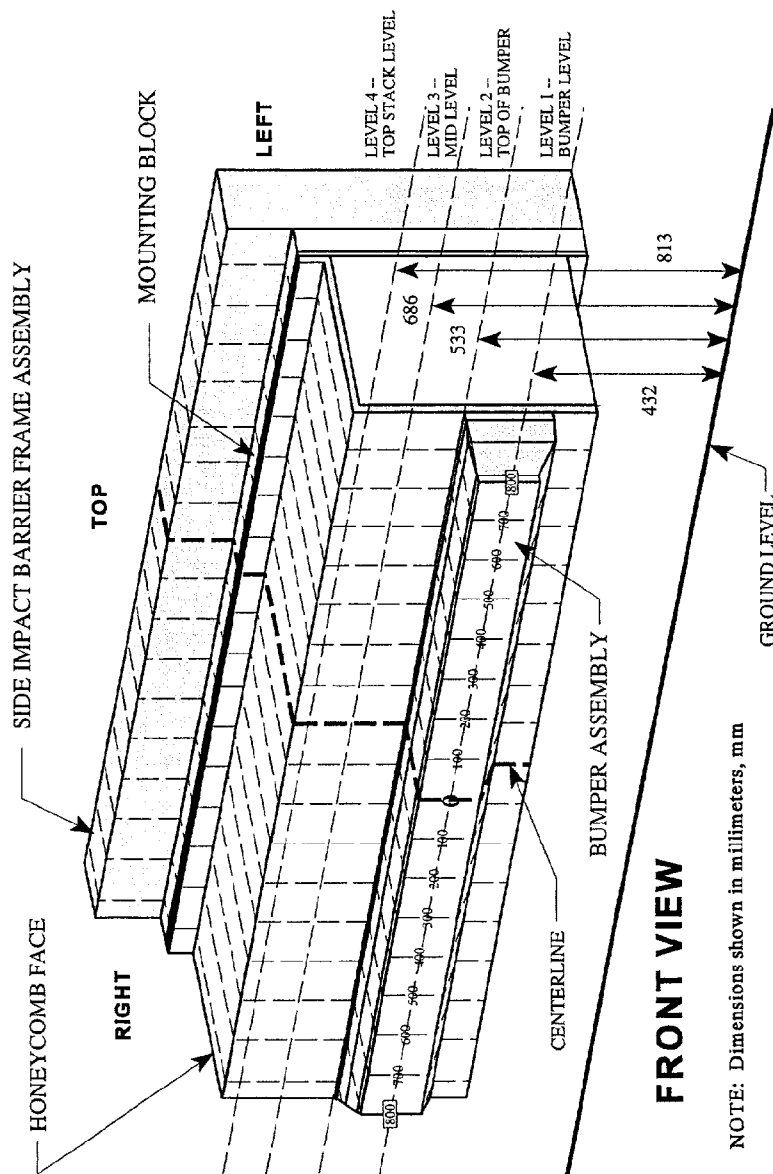
		DISTANCE RIGHT OF CENTER (mm)										DISTANCE LEFT OF CENTER (mm)									
		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800			
LEVEL	HEIGHT AT CL (mm)*																				
LEVEL 4	813	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619			
TOP		POST	687	636	614	613	618	616	623	626	630	632	634	637	647	666	698	737			
STACK		CRUSH	68	17	-5	-6	-1	-3	4	7	11	13	15	18	28	47	79	118			
LEVEL 3	686	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619			
MID		POST	671	623	622	638	629	622	622	617	621	621	625	631	634	642	656	691			
LEVEL		CRUSH	52	4	3	19	10	3	3	-2	2	2	6	12	15	23	37	72			
LEVEL 2	533	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619			
TOP		POST	700	690	684	685	669	658	655	651	653	648	654	654	653	660	666	678			
BUMPER		CRUSH	81	71	65	66	50	39	36	32	34	29	35	35	34	41	47	59			
LEVEL 1	432	PRE	535	519	518	518	518	518	518	518	518	518	518	518	518	518	519	535			
MID		POST	699	683	673	666	654	636	626	614	613	604	606	631	613	603	611	630			
BUMPER		CRUSH	164	164	155	148	136	118	108	96	95	86	88	113	95	85	93	111			

DATA SHEET 12 (continued)

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

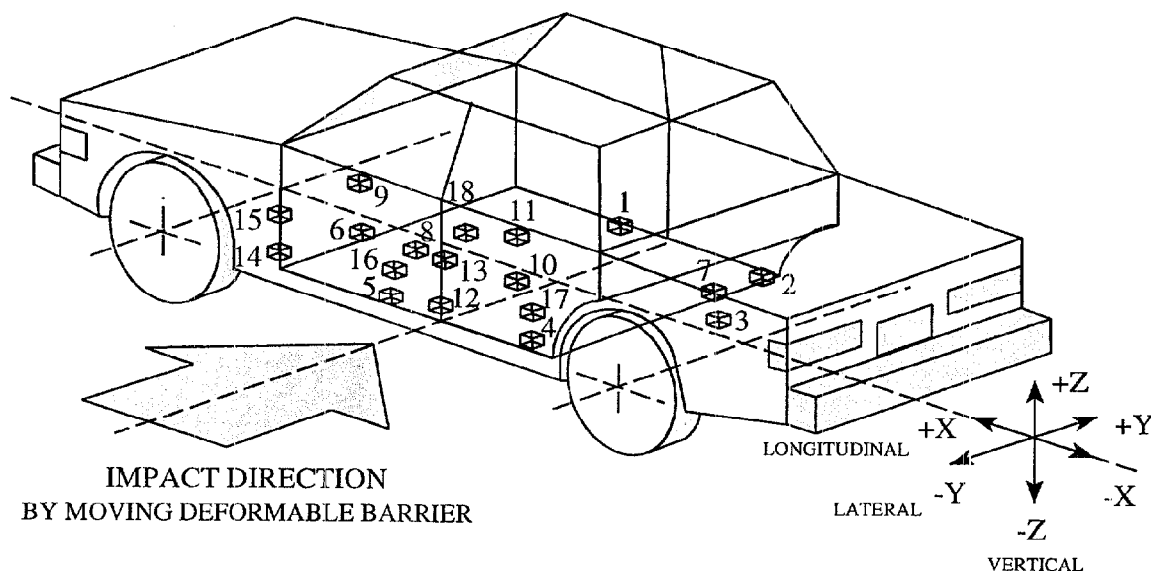


DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104



- 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: 1999 Toyota Solara

NHTSA No. MX5104

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	3084	840	309	pos. 3.6	61.5	29.0	5.3	16.9	5.5	33.5	5.3
					neg. -5.3	19.2	-2.3	150.3	-4.1	21.1	0.0	-28.9
2	Right Side Sill at Rear Seat	2084	840	300	pos. 4.1	61.6	36.2	5.5	14.9	14.7	37.3	5.5
					neg. -4.0	19.9	-7.0	20.1	-8.9	30.9	0.0	-46.2
3	Rear Floorpan Above Axle	1053	0	490	pos. 4.3	35.1	26.8	25.0	6.9	5.1	26.8	25.1
					neg. -9.3	17.0	-2.4	93.0	-6.0	20.6	0.0	-51.8
4	Left Side Sill at Rear Seat	2084	-728	462	pos. -	-	71.8	12.8	-	-	-	-
					neg. -	-	-23.3	23.1	-	-	-	-
5	Left Side Sill at Front Seat	3084	-728	213	pos. -	-	67.5	8.7	-	-	-	-
					neg. -	-	-24.8	14.5	-	-	-	-
6	Left Front Door on Centerline	2684	-747	770	pos. -	-	128.4	6.1	-	-	-	-
					neg. -	-	-71.0	23.8	-	-	-	-
7	Right Rear Occupant Compartment	2146	327	183	pos. -	-	30.2	5.1	-	-	-	-
					neg. -	-	-2.6	62.1	-	-	-	-
8	Midrear of Left Front Door	2482	-747	830	pos. -	-	135.0	7.5	-	-	-	-
					neg. -	-	-90.1	24.5	-	-	-	-
9	Left Front Door Upper Centerline	2684	-752	886	pos. -	-	136.1	16.5	-	-	-	-
					neg. -	-	-112.6	25.0	-	-	-	-
10	Midrear of Left Rear Door	1541	-900	638	pos. -	-	A	A	-	-	-	-
					neg. -	-	A	A	-	-	-	-
11	Left Rear Door Upper Centerline	1609	-890	817	pos. -	-	200.9	9.5	-	-	-	-
					neg. -	-	-77.1	24.8	-	-	-	-

*Reference: X - Rear Bumper (+ Forward) Y - Vehicle Centerline (+ To Right) Z - Ground Level (+ Up)
 **Accelerometer was not requested by COTR. A - Data is not accurate after 28 ms.

DATA SHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

Accel. No.	Location	Coordinates (mm) ±3			Lat. (y)			Vert. (z)			Resultant	
		mm			Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
		X*	Y*	Z*								
12	Left Lower B-Pillar	2026	-810	553	pos. neg.	- -	80.3 -58.2	2.7 23.8	- -	- -	- -	- -
13	Left Middle B-Pillar	2026	-890	740	pos. neg.	- -	92.2 -35.7	13.0 18.7	- -	- -	- -	- -
14	Left Lower A-Pillar	3878	-845	453	pos. neg.	- -	A A	A A	- -	- -	- -	- -
15	Left Middle A-Pillar	3711	-641	924	pos. neg.	- -	17.5 -2.3	18.4 85.7	- -	- -	- -	- -
16	Front Seat Track	2356	-550	283	pos. neg.	- -	55.0 -25.2	15.2 27.2	- -	- -	- -	- -
17	Rear Seat Track	1636	-755	497	pos. neg.	- -	95.5 -25.9	17.8 4.9	- -	- -	- -	- -
18	Vehicle CG	2725	0	446	pos. neg.	7.0 -9.2	35.0 -6.9	7.9 87.2	11.7 -23.6	63.8 17.6	36.3 0.0	8.0 -55.2

*Reference: X - Rear Bumper (+ Forward)

Y - Vehicle Centerline (+ To Right)

Z - Ground Level (+ Up)

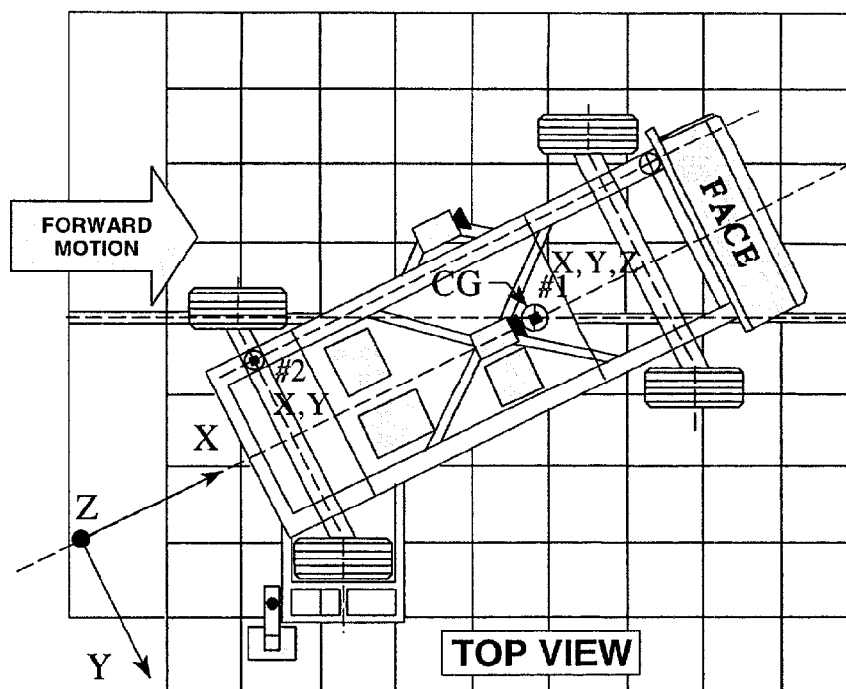
A - Data is not accurate after 17 ms.

DATA SHEET 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104



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	1.3	107.0	-21.5	38.4
	Lateral..... Y				1.6	64.1	-7.6	36.5
	Vertical..... Z				19.2	62.8	-21.6	18.5
	Resultant..... R				27.3	18.6	-	-
2	Rear Frame Member							
	Longitudinal... X	386	-660	660	2.4	91.2	-24.5	35.1
	Lateral..... Y				3.4	54.2	-3.1	62.3

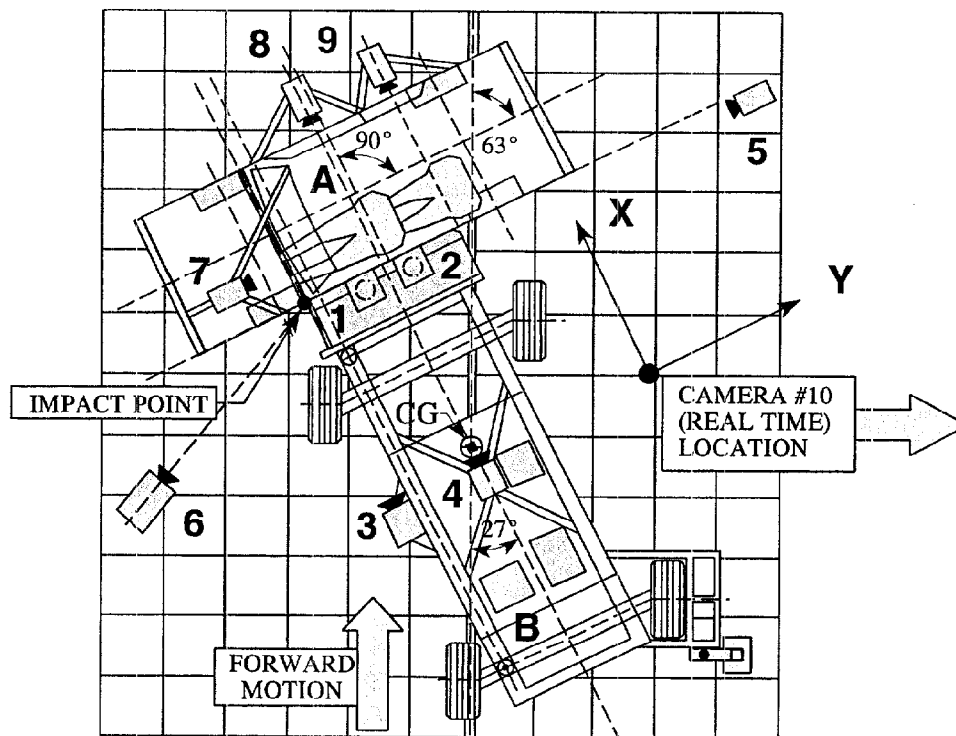
*Reference: X = Rear Bumper (+ Forward)
Y = Vehicle Centerline (+ To Right)
Z = Ground Level (+ Up)
All measurements accurate to within ± 3 mm.

DATA SHEET 15

HIGH SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Overhead view of test vehicle	-122	-813	4880	-90	13	1050
2	Overhead closeup view of impact plane	-475	-1030	4880	-90	12.5	1000
3	MDB onboard closeup view of impact point	1470	0	847	0	13	1000
4	MDB onboard view of driver dummy	1140	838	1586	-17	7.5	1030
5	Right side ground level overall view	92	9354	1092	-3	25	1000
6	Left side ground level overall view	-1851	-1697	1024	-8	13	1000
7	Test vehicle onboard driver front view	514	-405	1285	-9	13	1000
8	Test vehicle onboard driver side view	1721	931	998	-12	13	1000
9	Test vehicle onboard passenger side view	1700	1751	1022	-14	13	1000
10	Real time film coverage of test	-	-	-	-	-	24

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

+X = Forward

+Y = To Right

+Z = Upward

SECTION 5

FUEL SYSTEM INTEGRITY

DATA SHEET 16

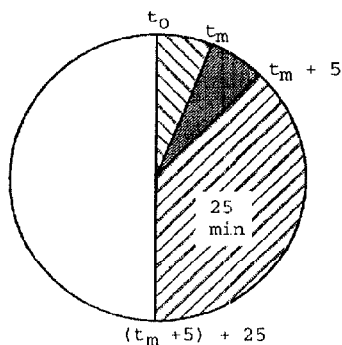
FMVSS 301 FUEL SYSTEM INTEGRITY DATA

NHTSA No.: MX5104 TEST DATE: February 2, 1999
 Vehicle Mfgr./Make/Model : 1999 Toyota Solara 2-Door Coupe

TEST VEHICLE IMPACT TYPE :

- Frontal (48.28 kph)
- Oblique (48.28 kph) with - ° 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 (62.0 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

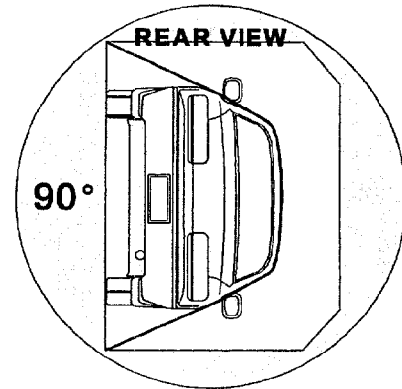
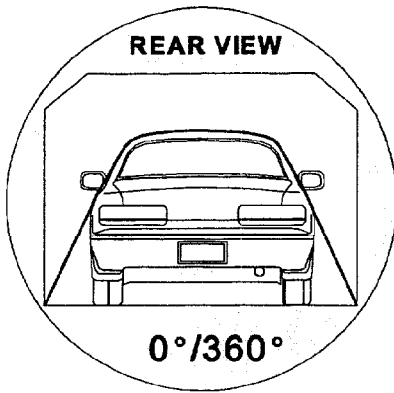
DATA SHEET 17

ROLLOVER DATA

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

0 - 90 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time	<u>1</u>	minutes	<u>16</u>	seconds
(Spec. Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>0</u>	seconds
	<u>6</u>	minutes	<u>16</u>	seconds
TOTAL	<u>7</u>	minutes		
Next whole minute interval				

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

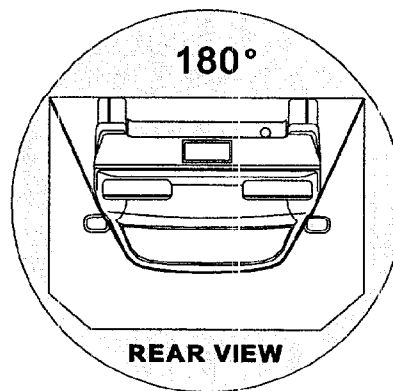
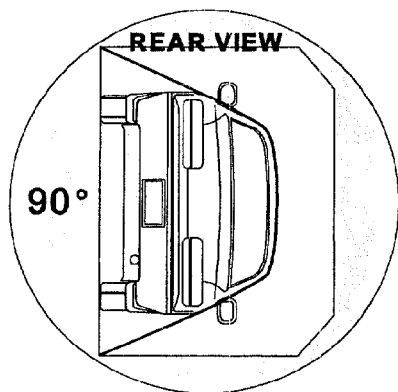
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

90 - 180 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time	<u>1</u> minutes <u>09</u> seconds
(Spec. Range = 1 to 3 minutes)	
FMVSS 301 Position Hold Time +	<u>5</u> minutes <u>0</u> seconds
TOTAL	<u>6</u> minutes <u>9</u> seconds
Next whole minute interval	<u>7</u> minutes

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

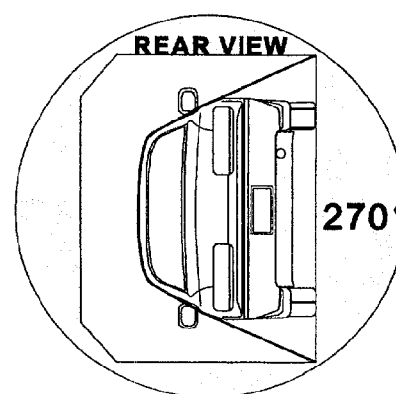
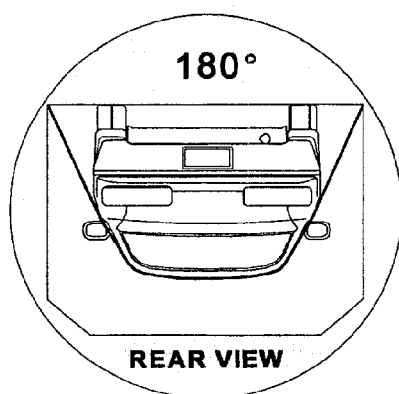
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

180 - 270 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

Rollover Fixture 90° Rotation Time	<u>1</u> minutes <u>03</u> seconds
(Spec. Range = 1 to 3 minutes)	
FMVSS 301 Position Hold Time +	<u>5</u> minutes <u>0</u> seconds
TOTAL	<u>6</u> minutes <u>3</u> seconds
Next whole minute interval	<u>7</u> minutes

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

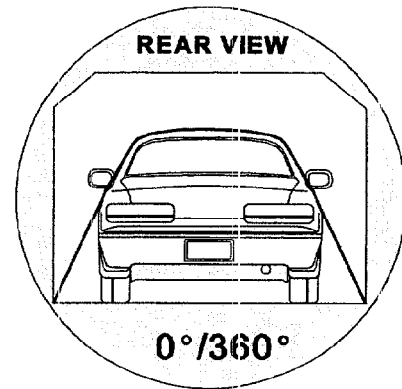
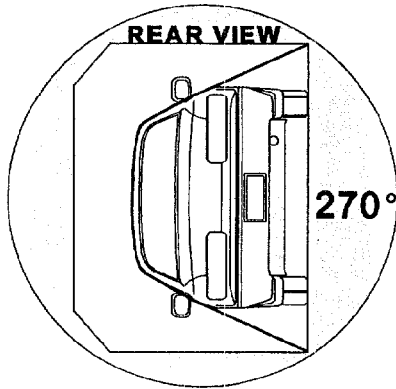
DATA SHEET 17 (continued)

ROLLOVER DATA

Vehicle: 1999 Toyota Solara

NHTSA No. MX5104

270 - 360 Degrees



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD :

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

II. FMVSS 301 REQUIREMENTS :

(1) Time Period

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S) :

None

APPENDIX A

PHOTOGRAPHS

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



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

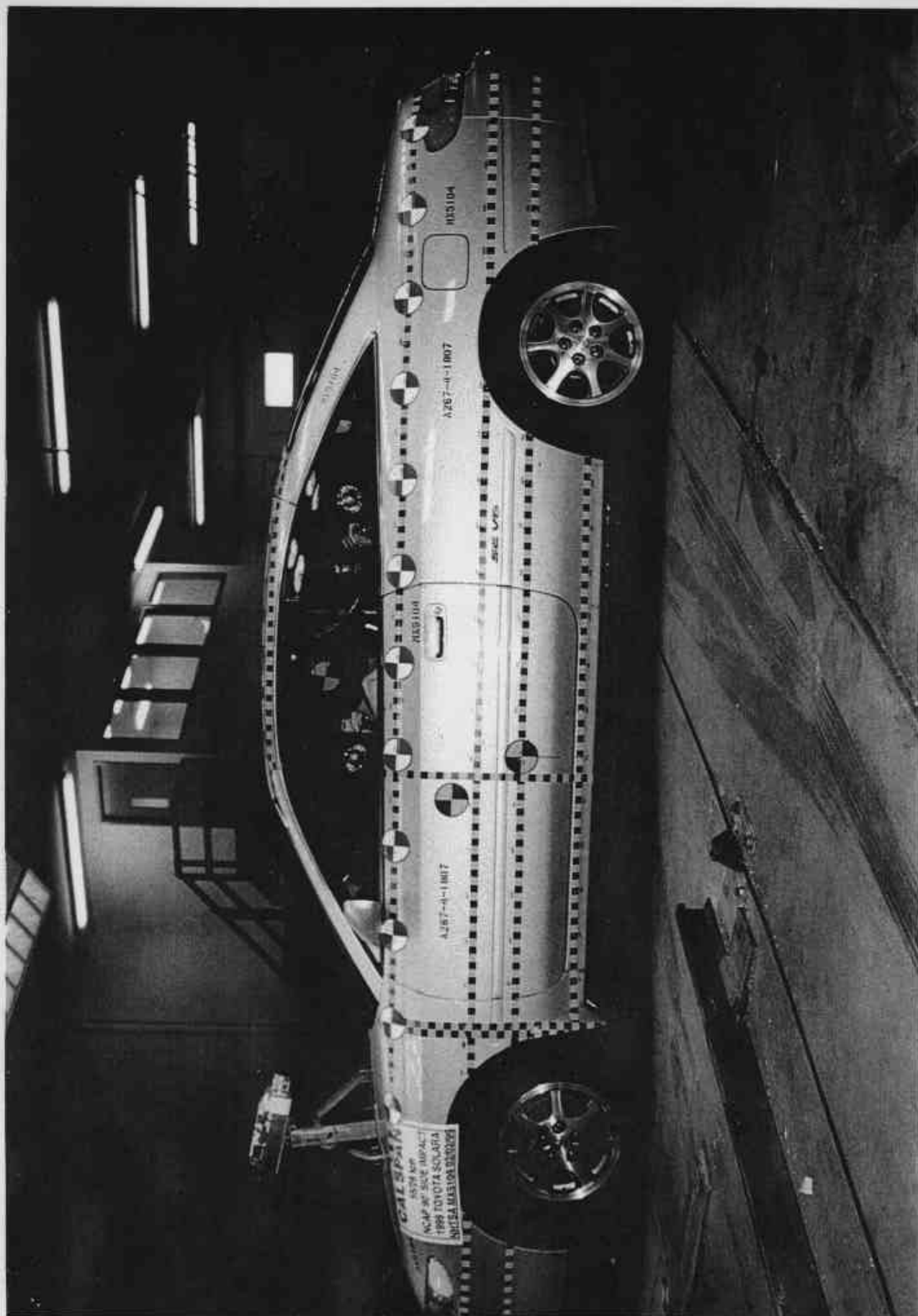
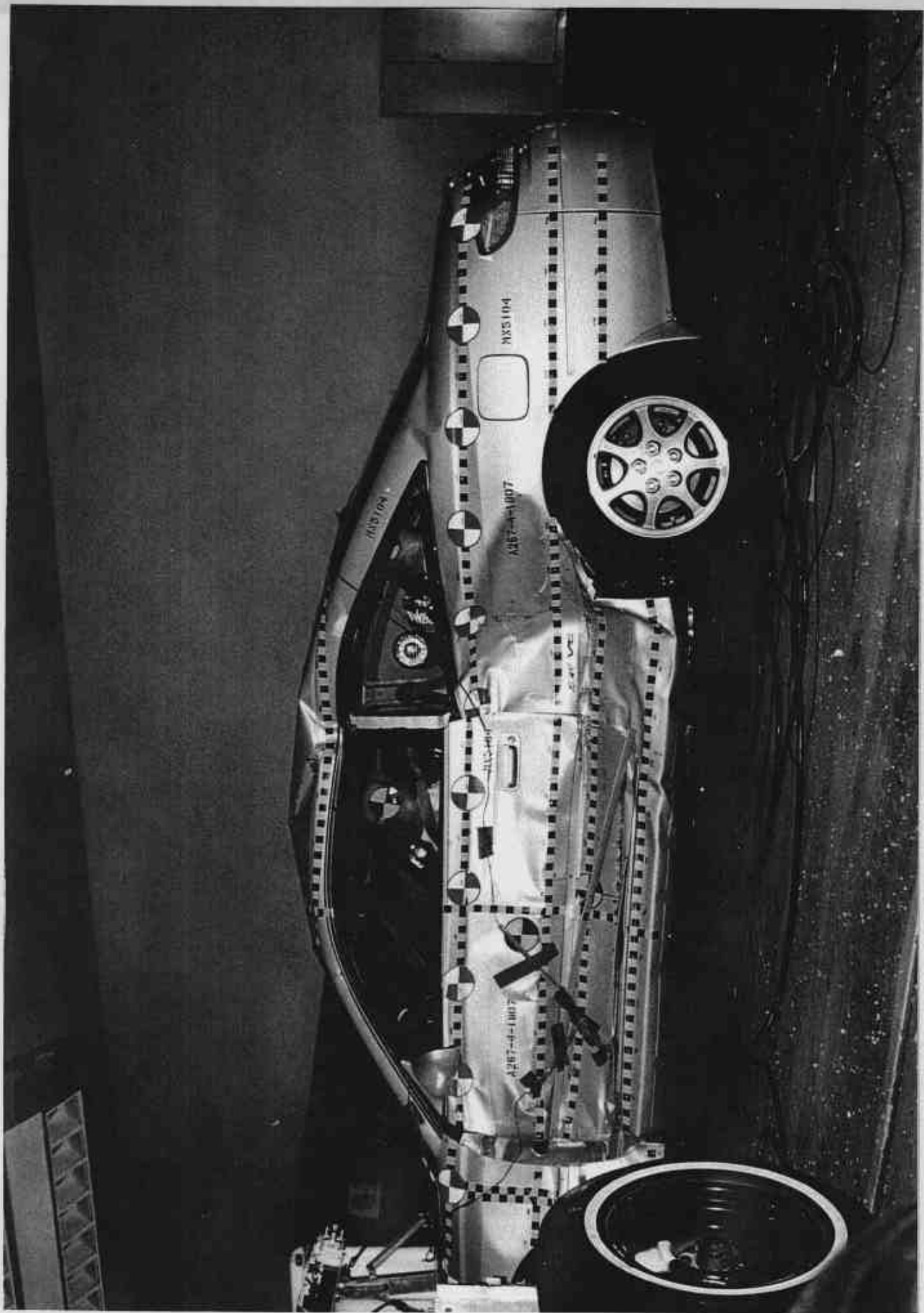


Figure A-5 PRE-TEST IMPACTED SIDE VIEW OF TEST VEHICLE

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



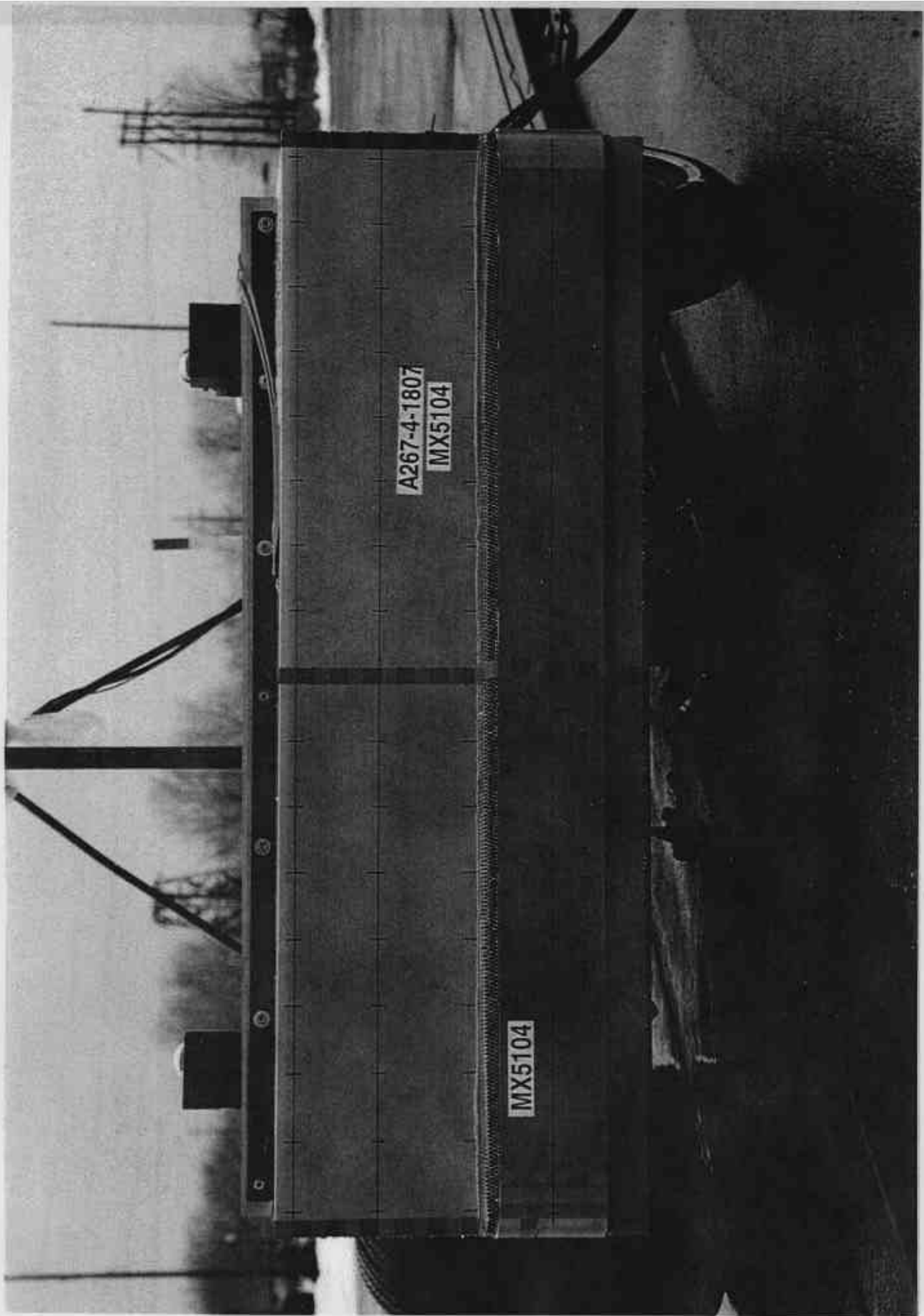


Figure A-7 PRE-TEST FRONTAL VIEW OF IMPACTOR FACE

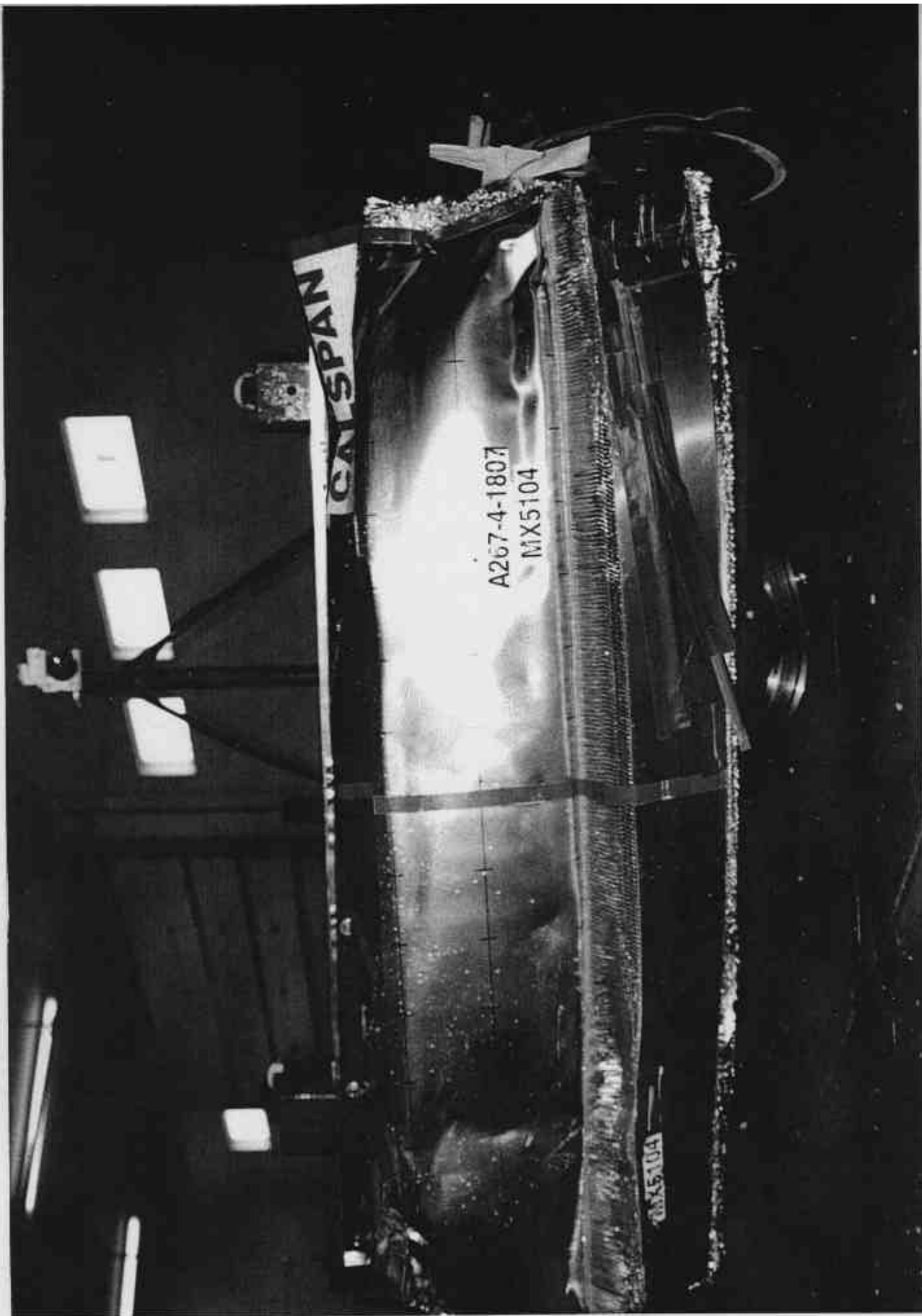


Figure A-8 POST-TEST FRONTAL VIEW OF IMPACTOR FACE

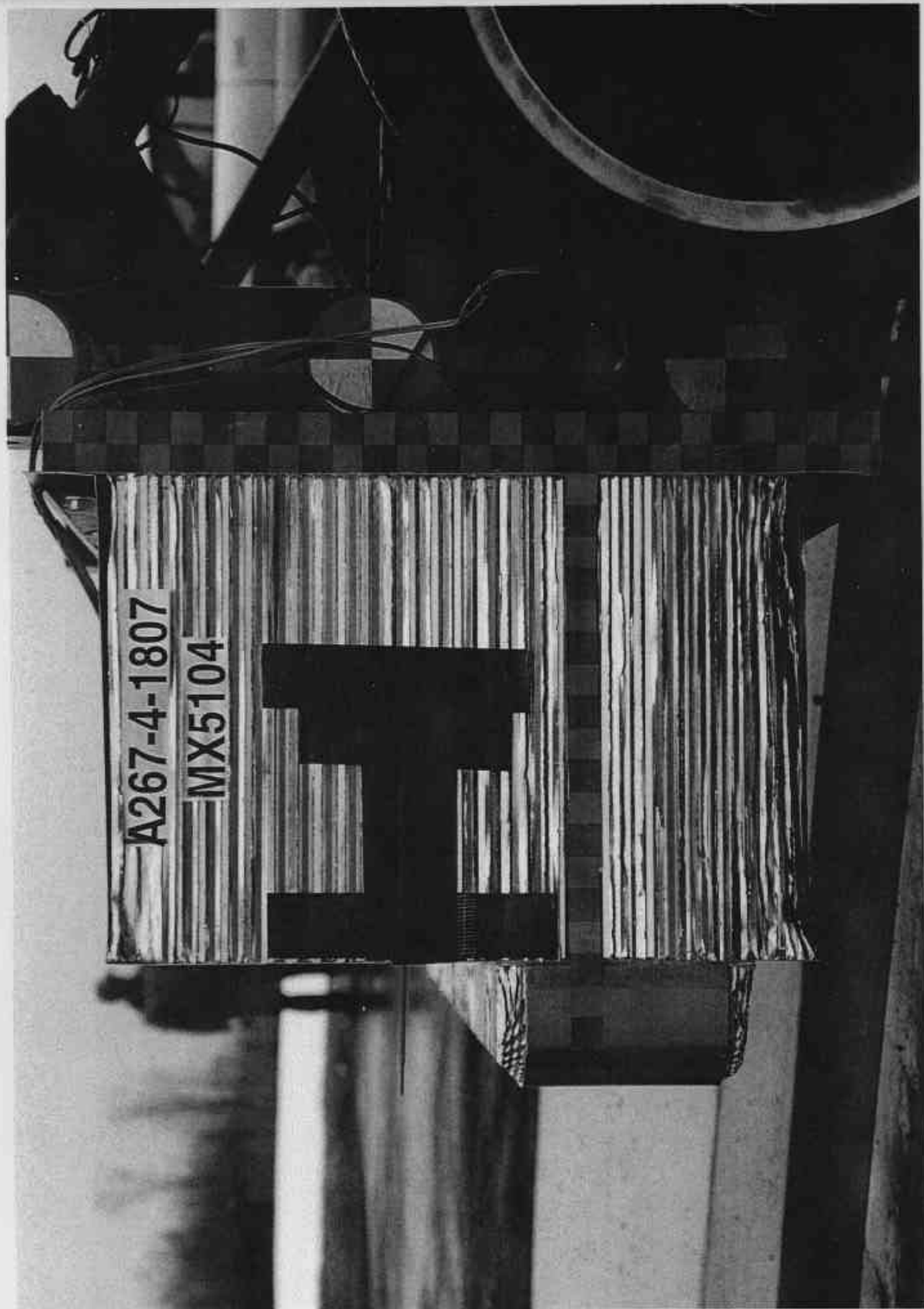


Figure A-9 PRE-TEST LEFT SIDE VIEW OF IMPACTOR FACE



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

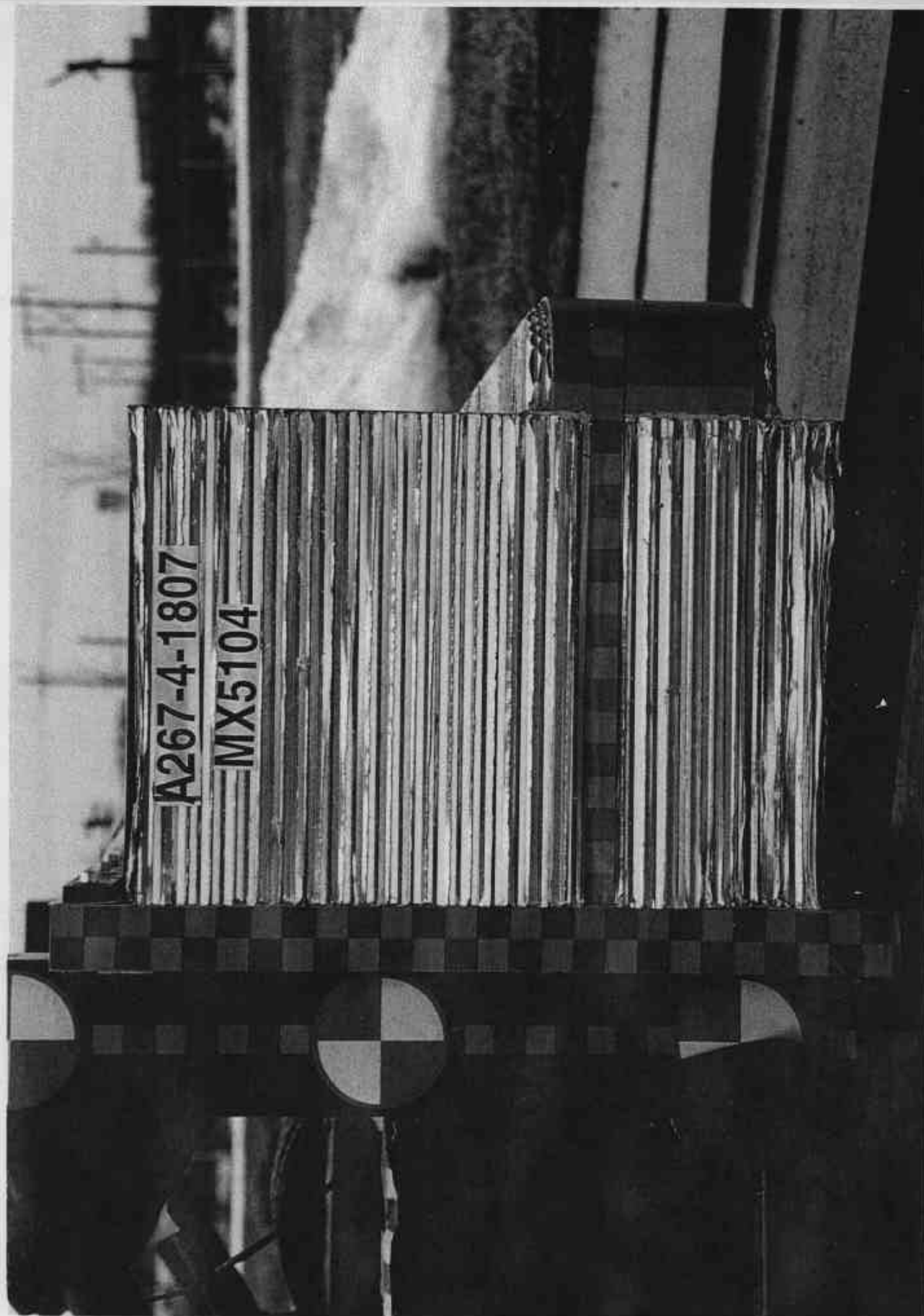


Figure A-11 PRE-TEST RIGHT SIDE VIEW OF IMPACTOR FACE



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

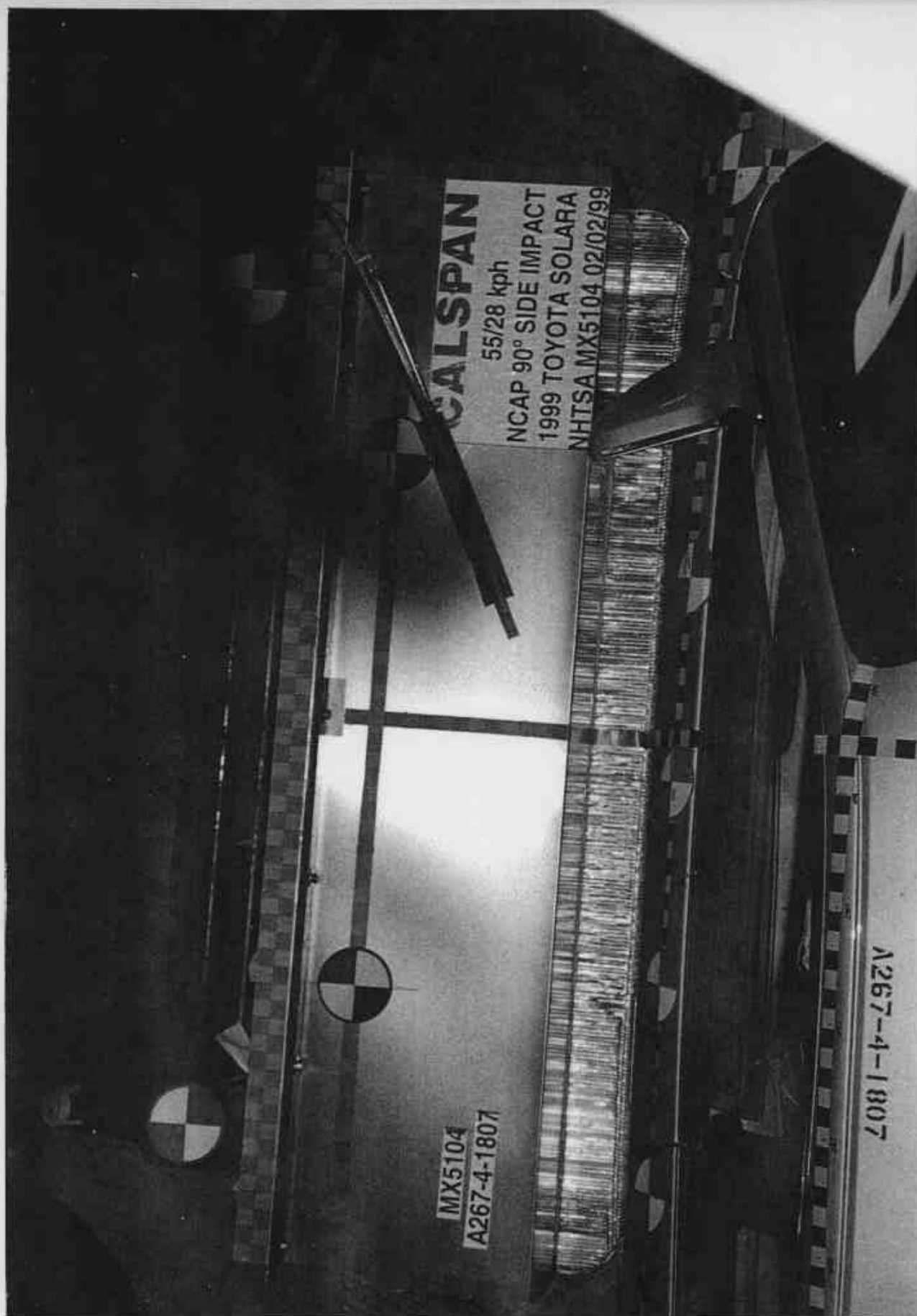


Figure A-13 PRE-TEST TOP VIEW OF IMPACTOR FACE

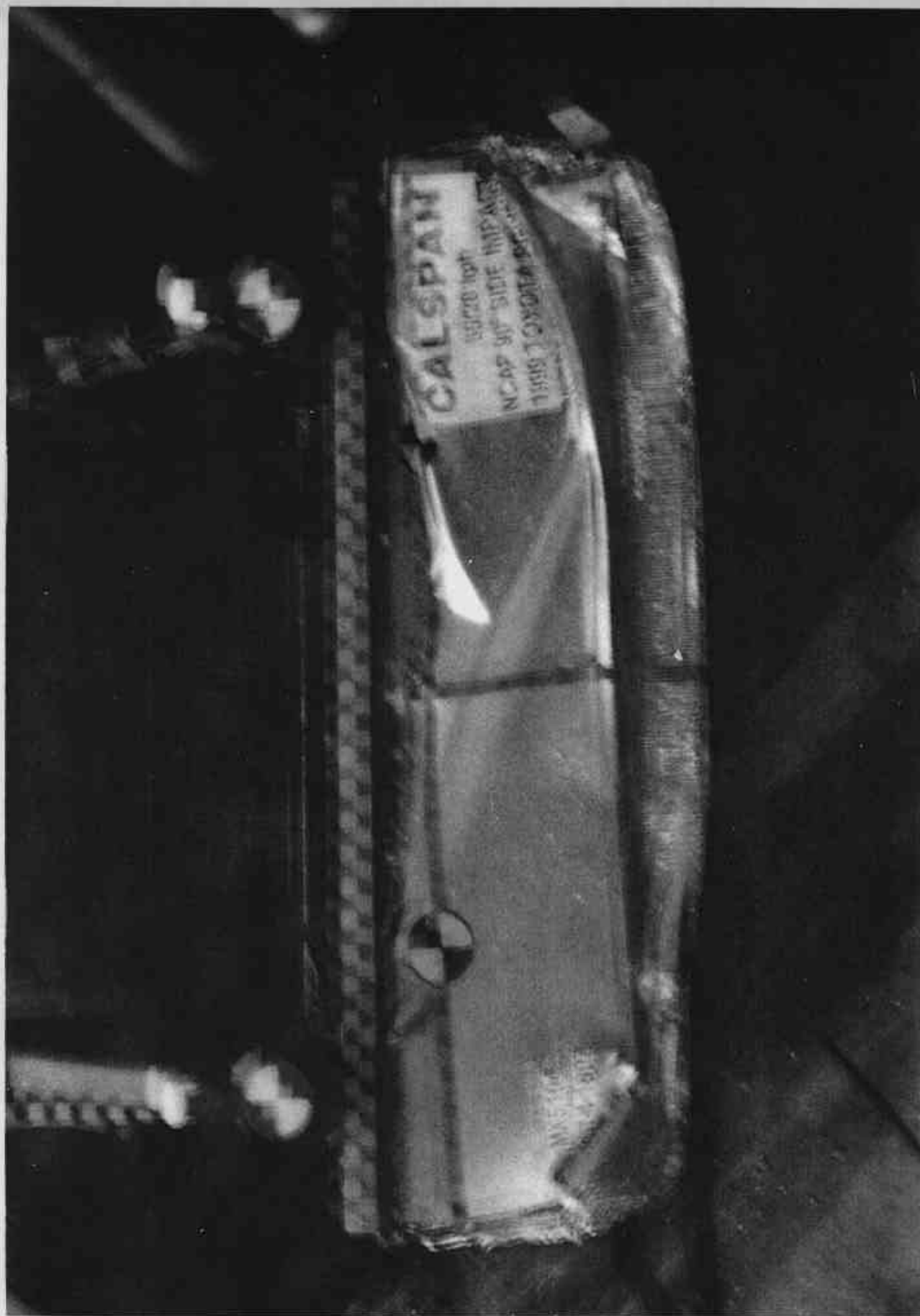


Figure A-14 POST-TEST TOP VIEW OF IMPACTOR FACE

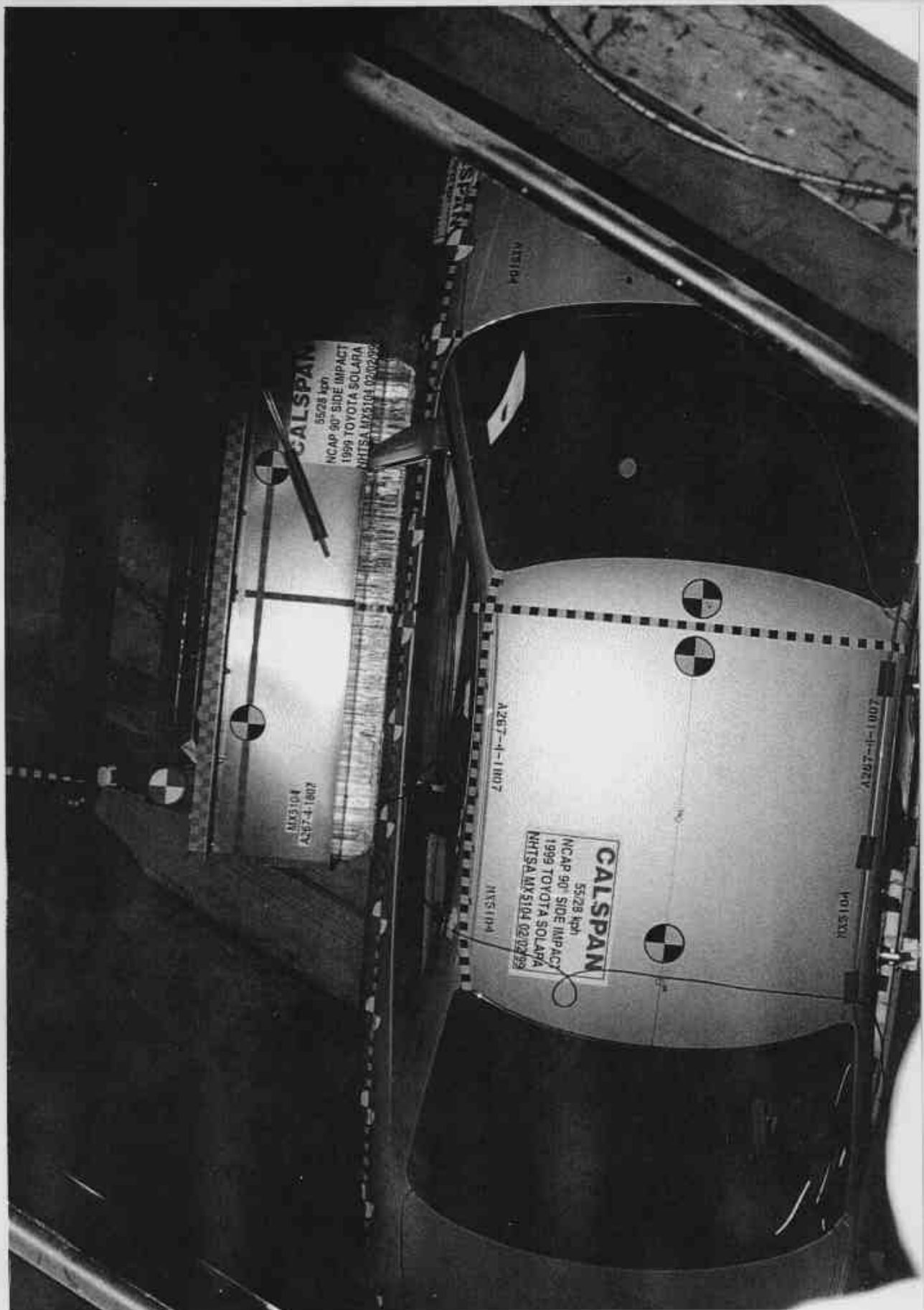


Figure A-15 PRE-TEST OVERHEAD VIEW OF ALIGNED MDB AND VEHICLE



Figure A-16 POST-TEST OVERHEAD VIEW OF MDB 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

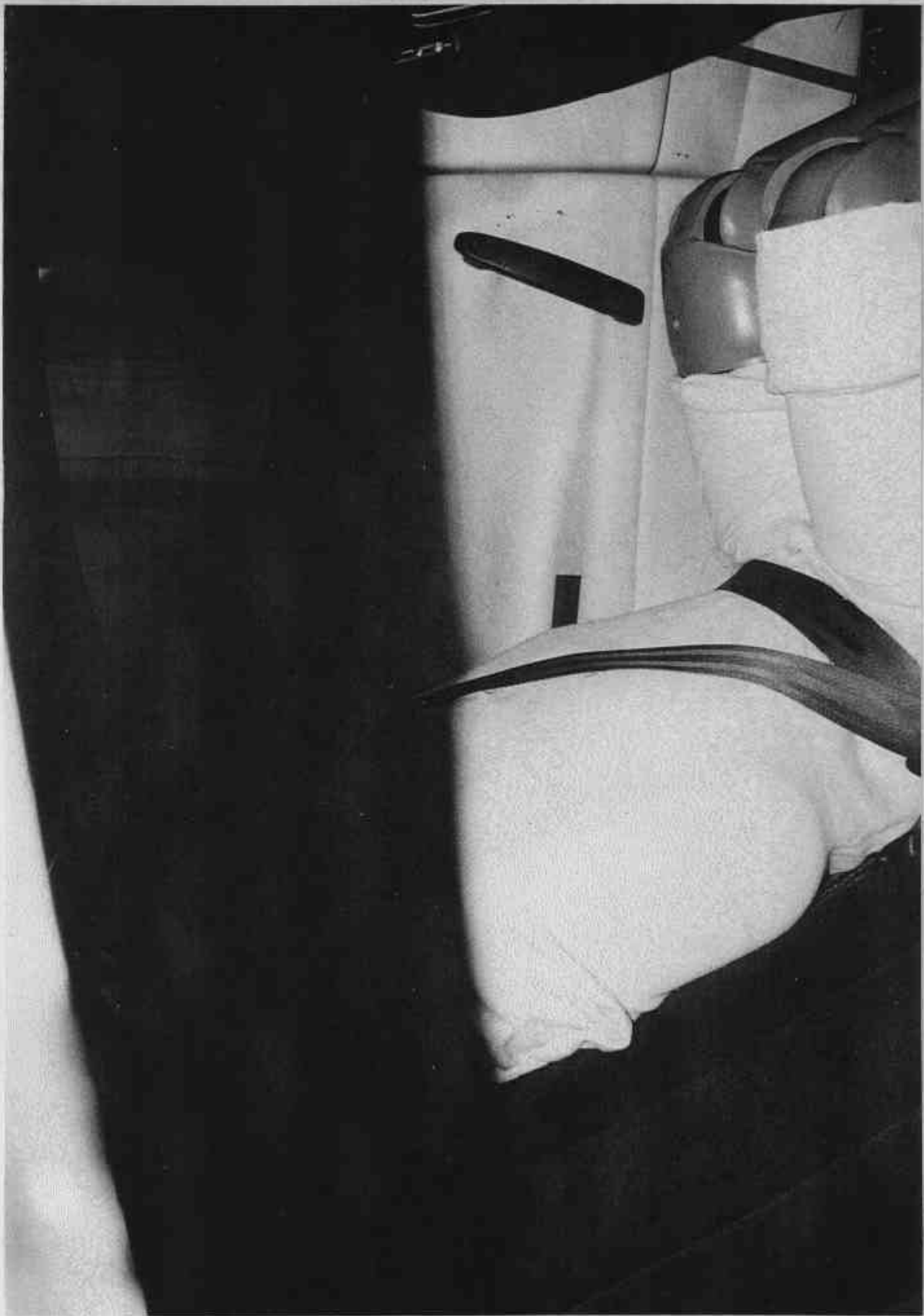


Figure A-19 PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID



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



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

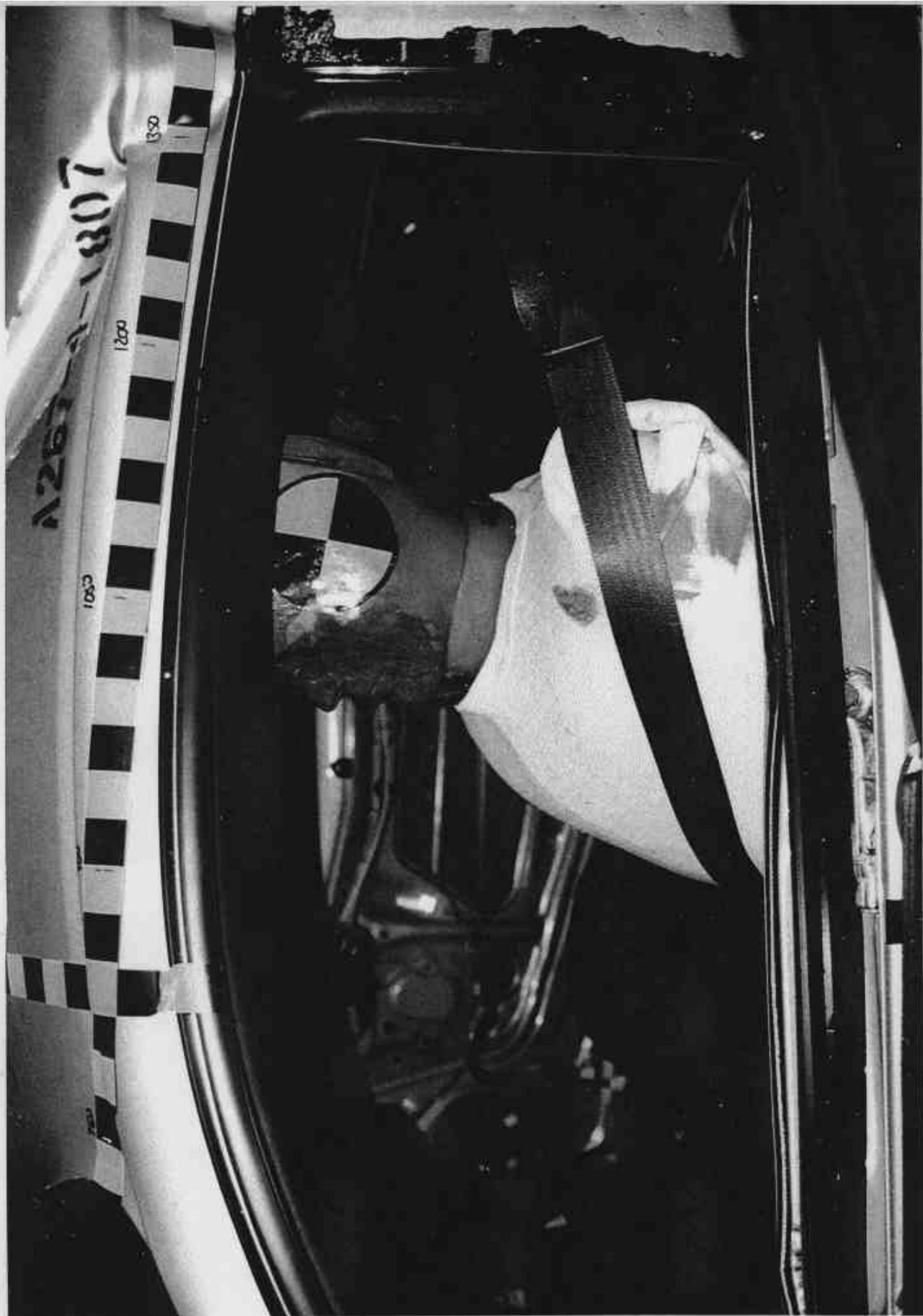


Figure A-22 POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID



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

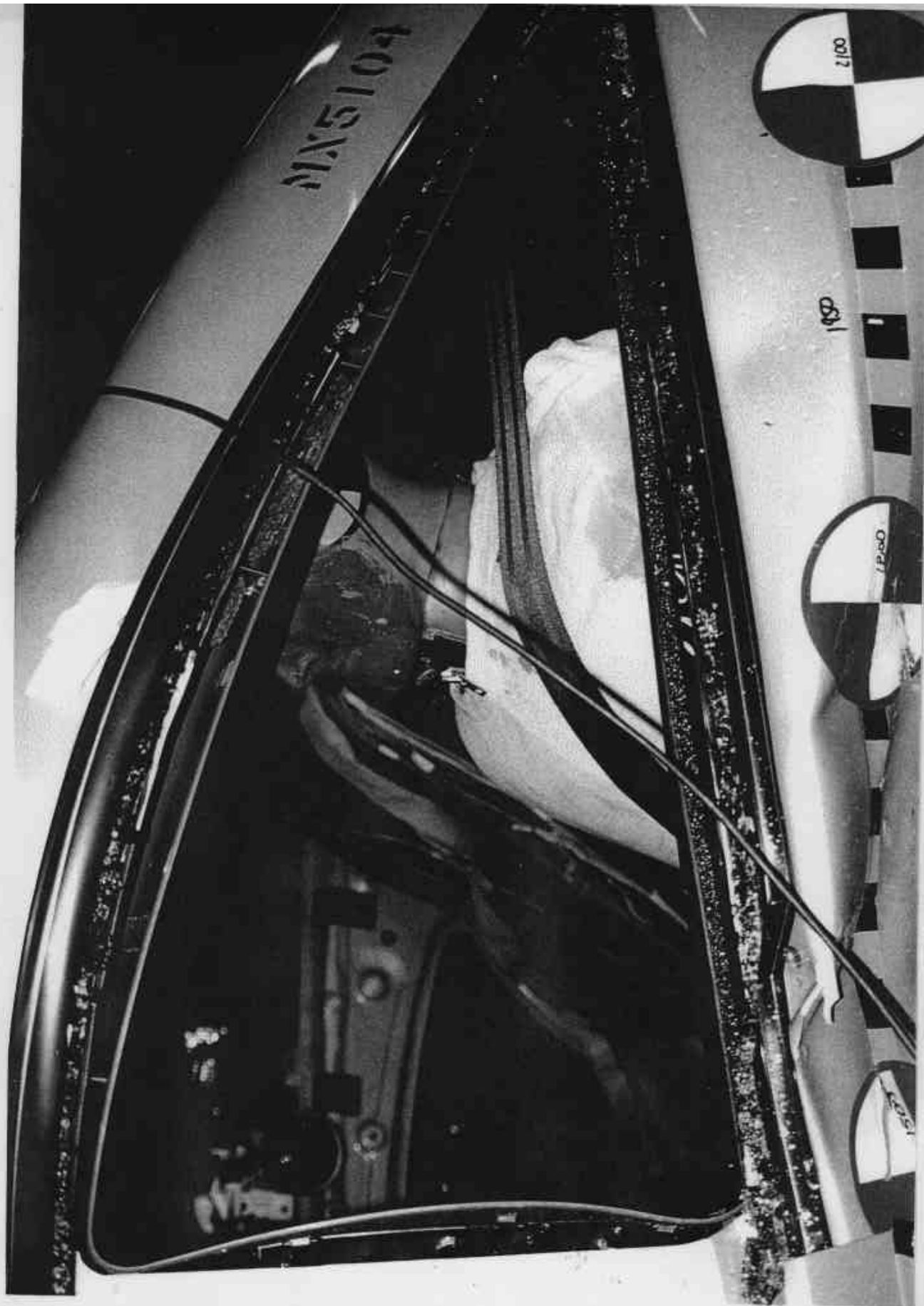


Figure A-24 POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID

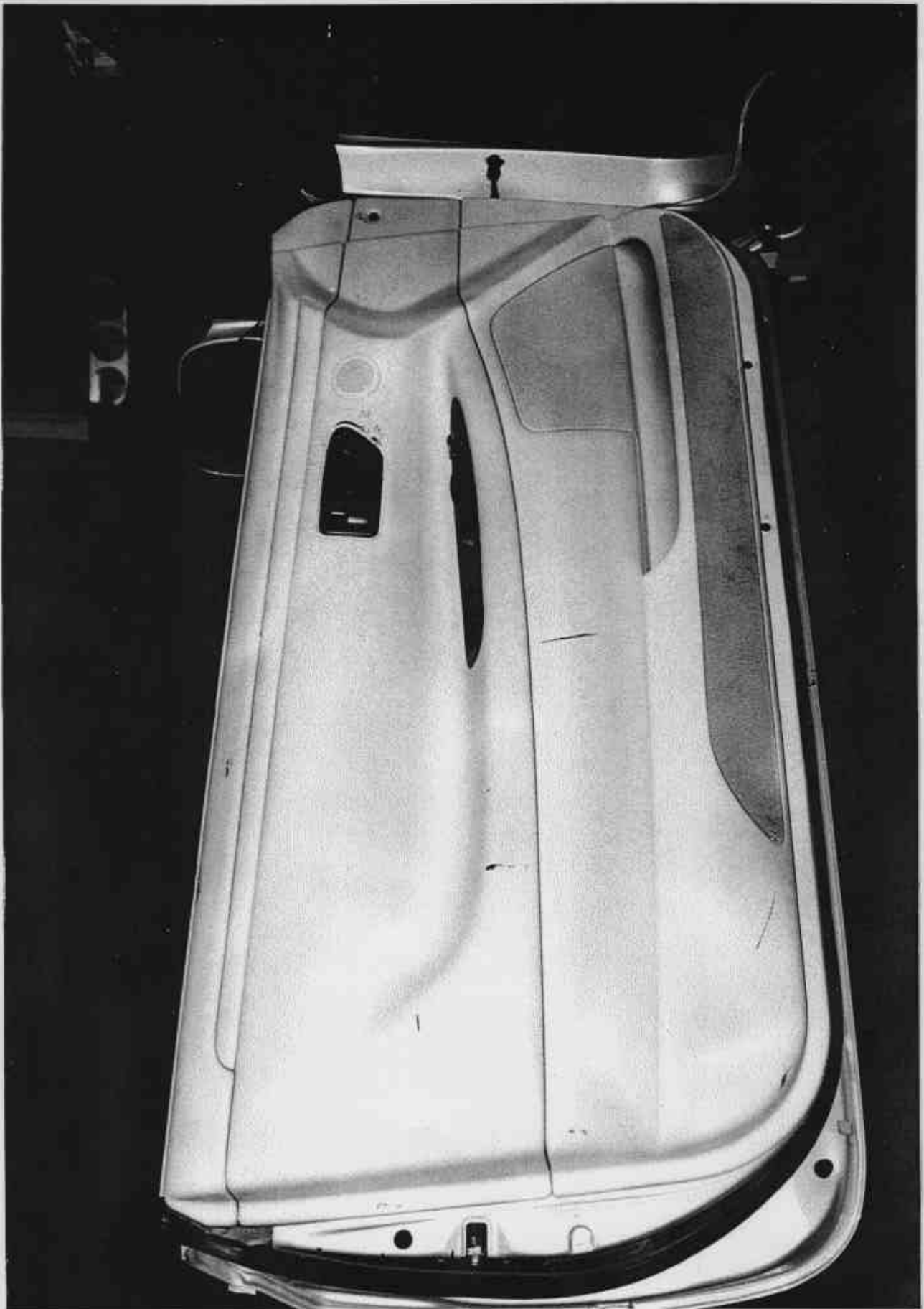


Figure A-25 PRE-TEST INTERIOR OF FRONT DOOR



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

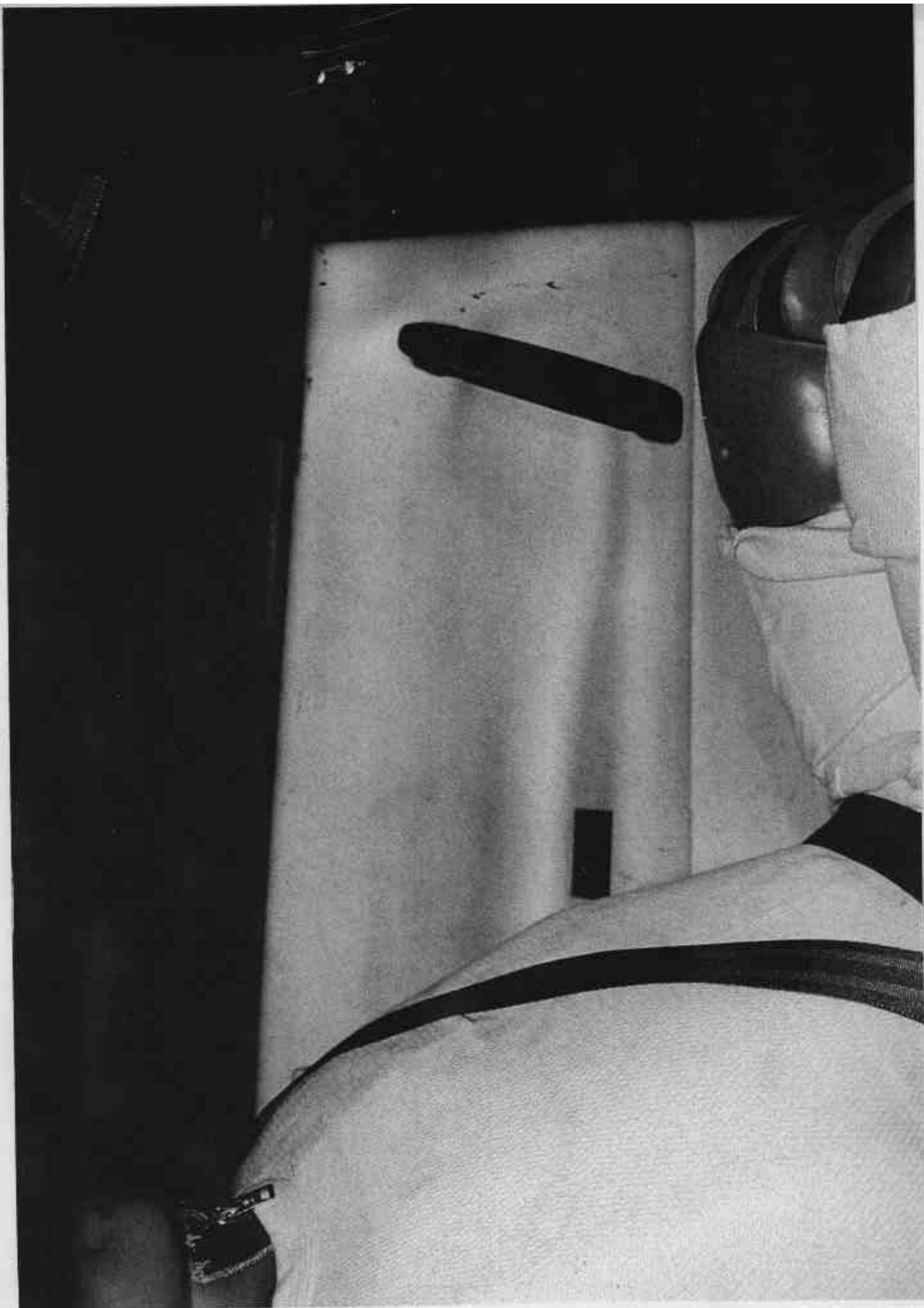


Figure A-27 PRE-TEST REAR INTERIOR PANEL



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

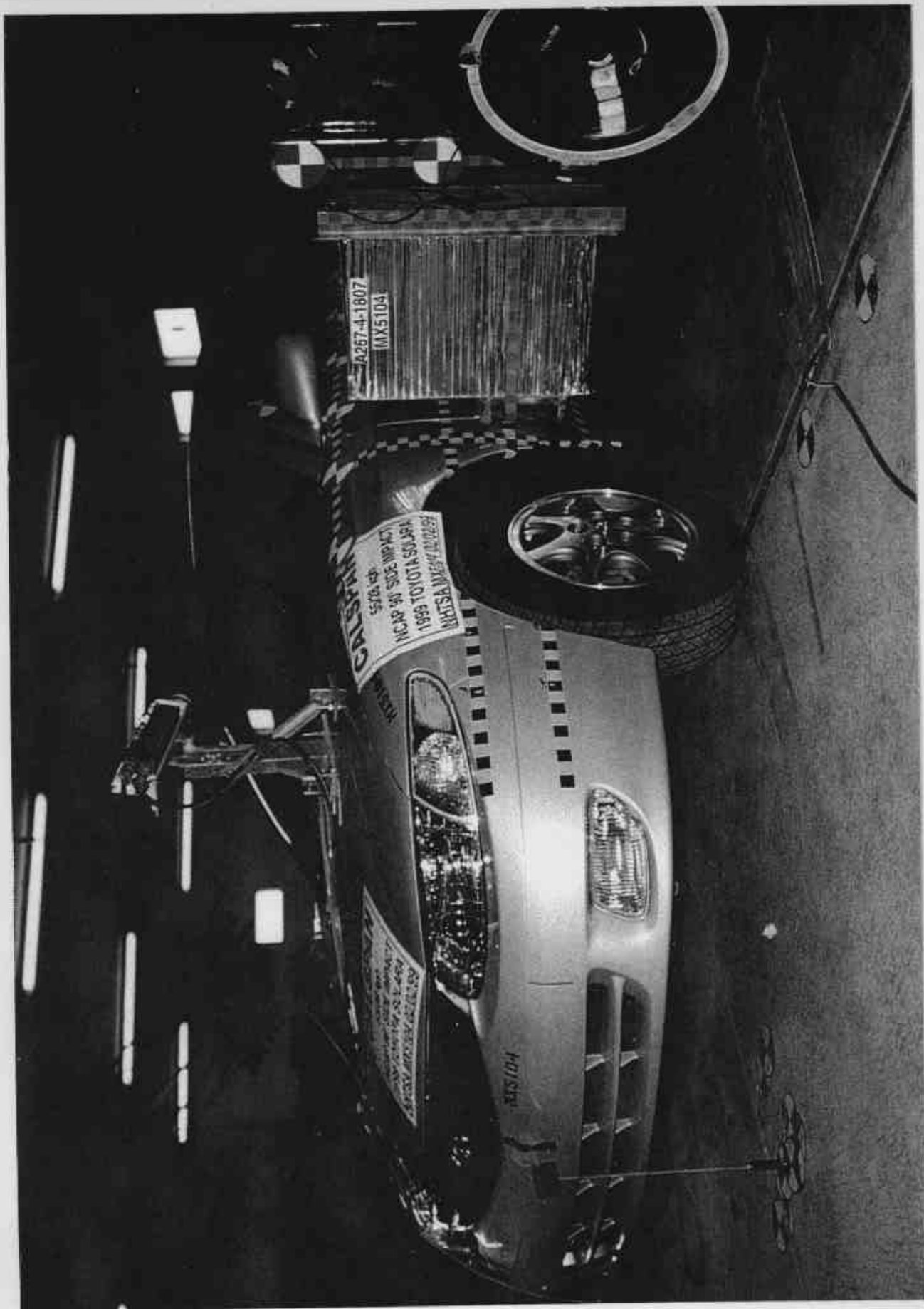


Figure A-29. PRE-TEST LEFT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION

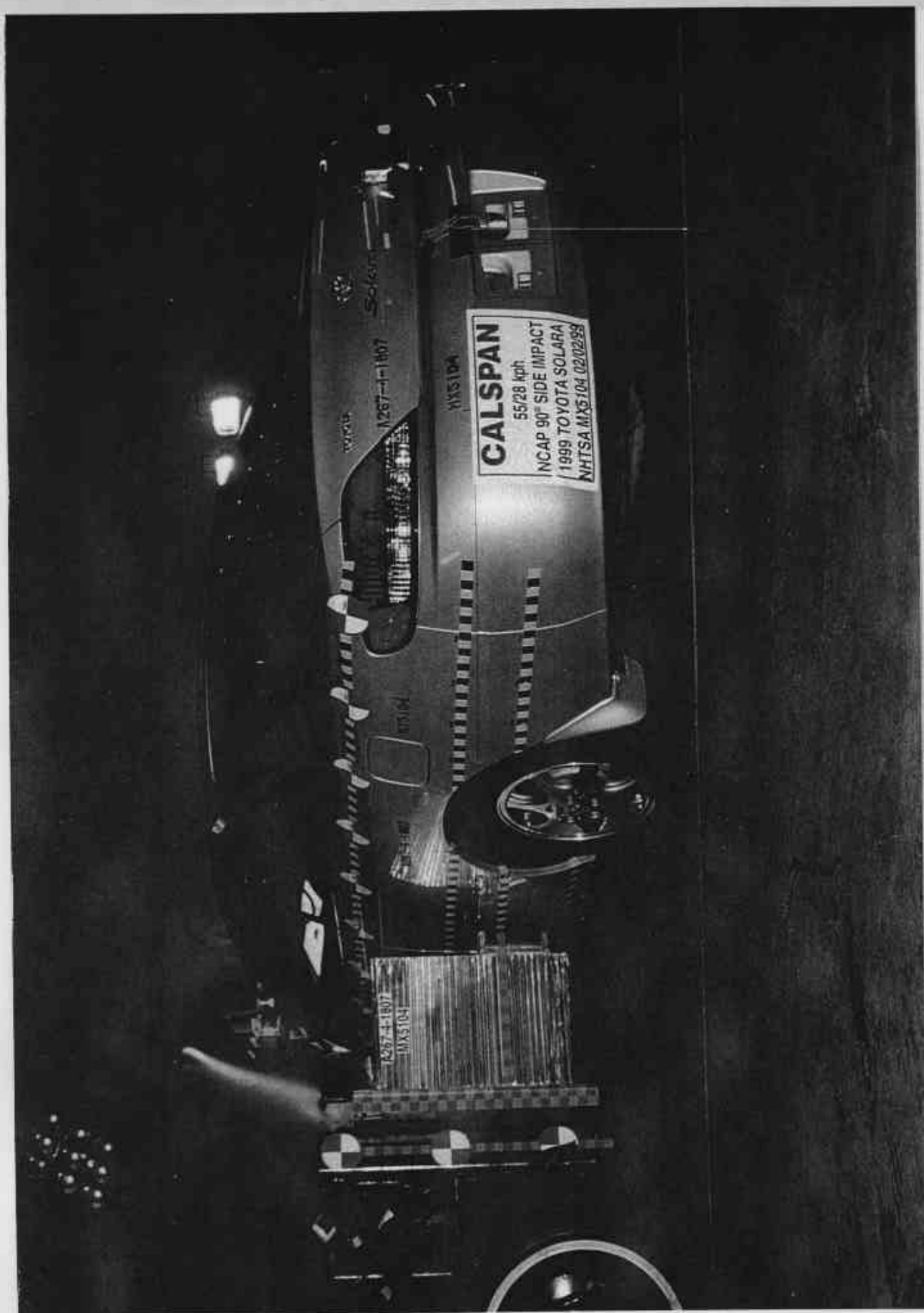


Figure A-30 PRE-TEST RIGHT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION

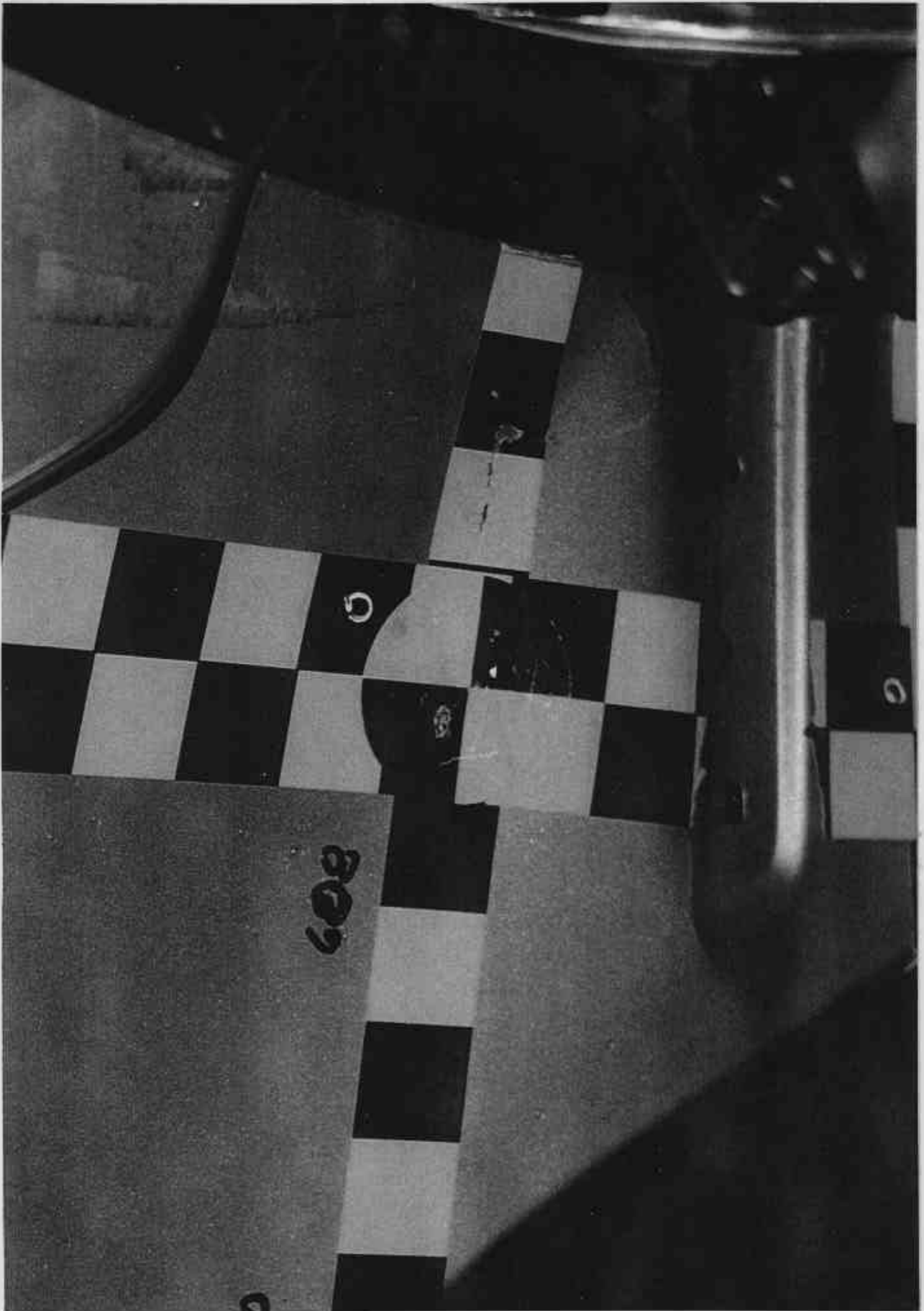


Figure A-31 POST-TEST CLOSE-UP VIEW OF IMPACT POINT TARGET



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

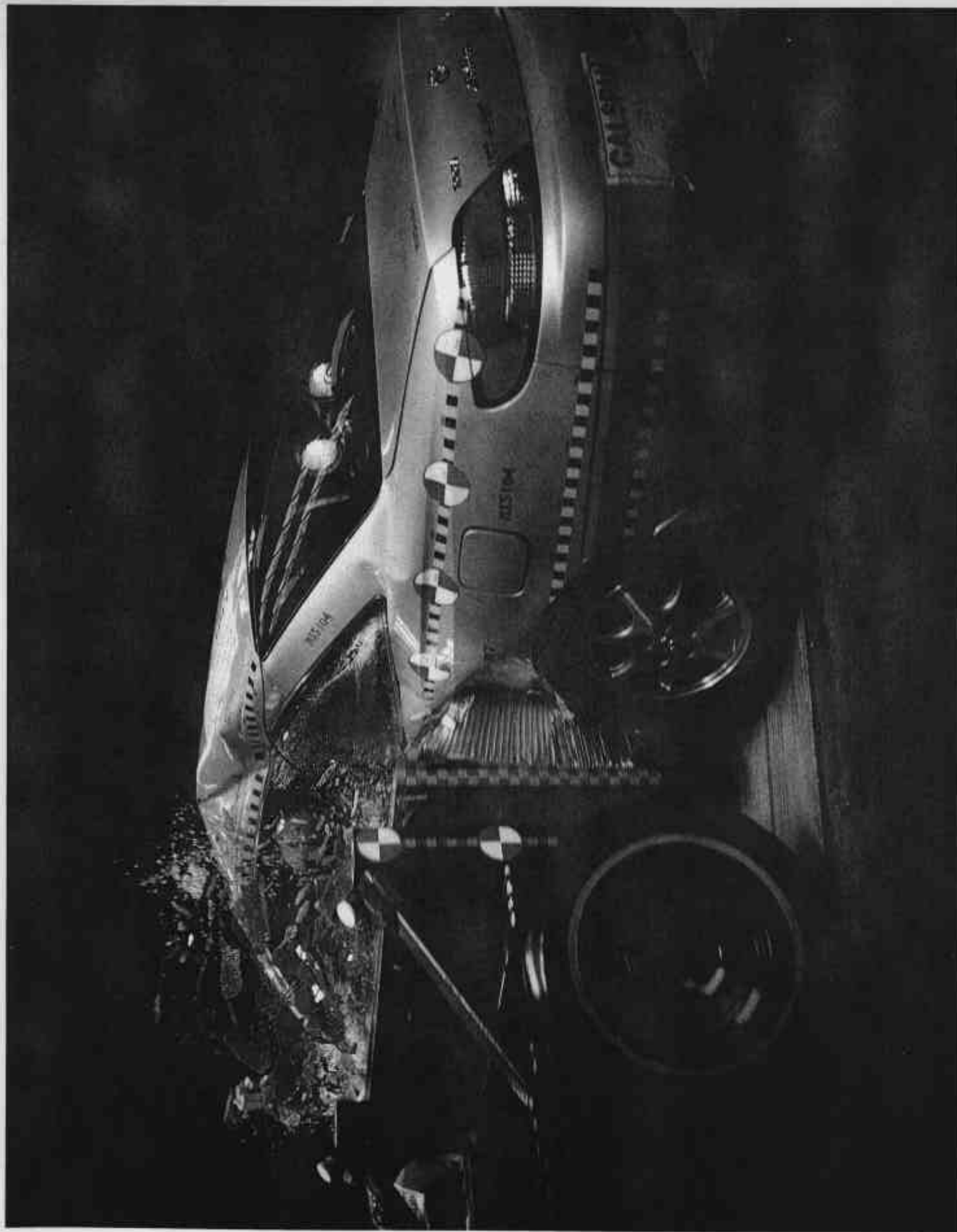


Figure A-34 IMPACT PHOTO



Figure A-35 ROLLOVER 90 DEGREES

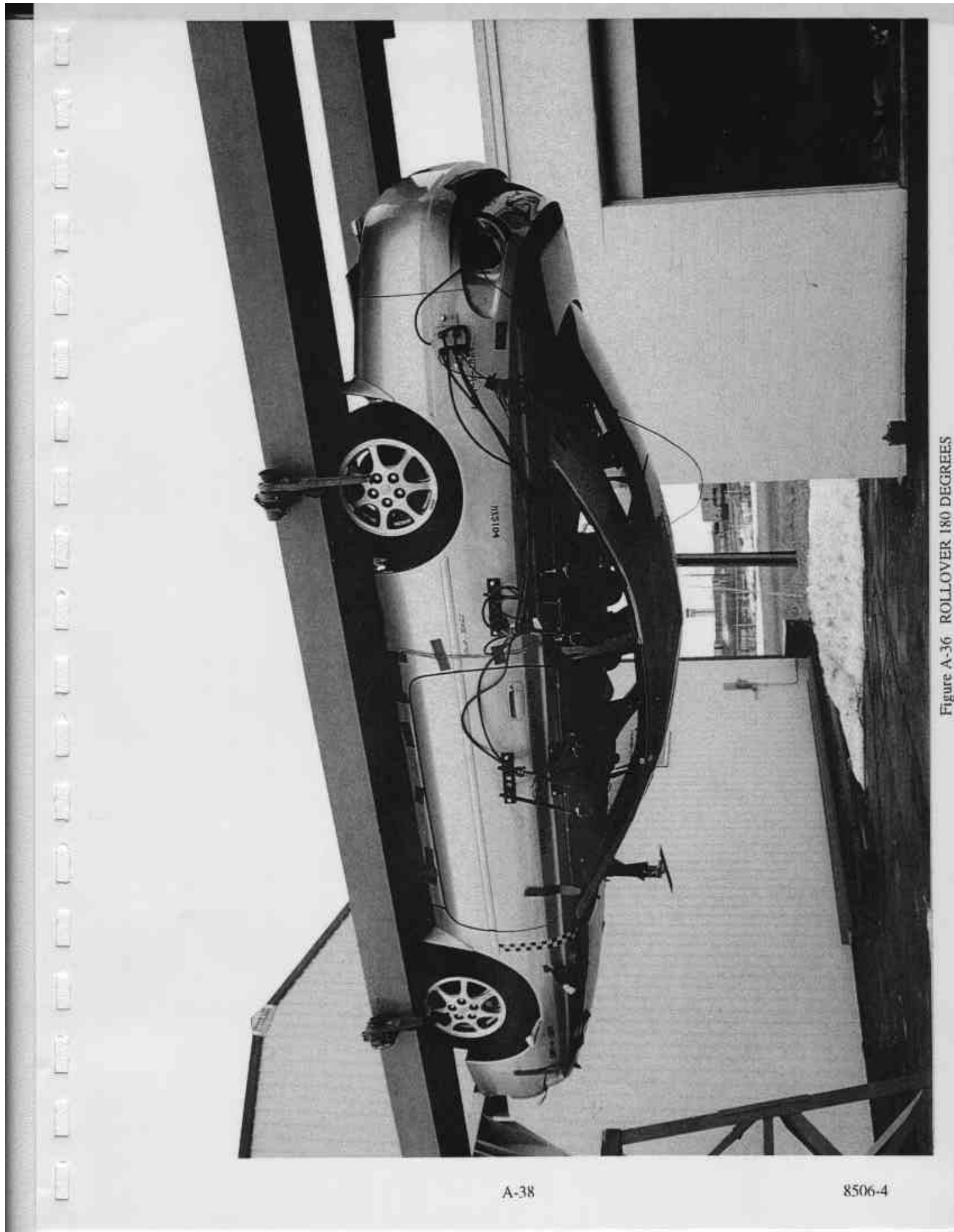


Figure A-36 ROLLOVER 180 DEGREES

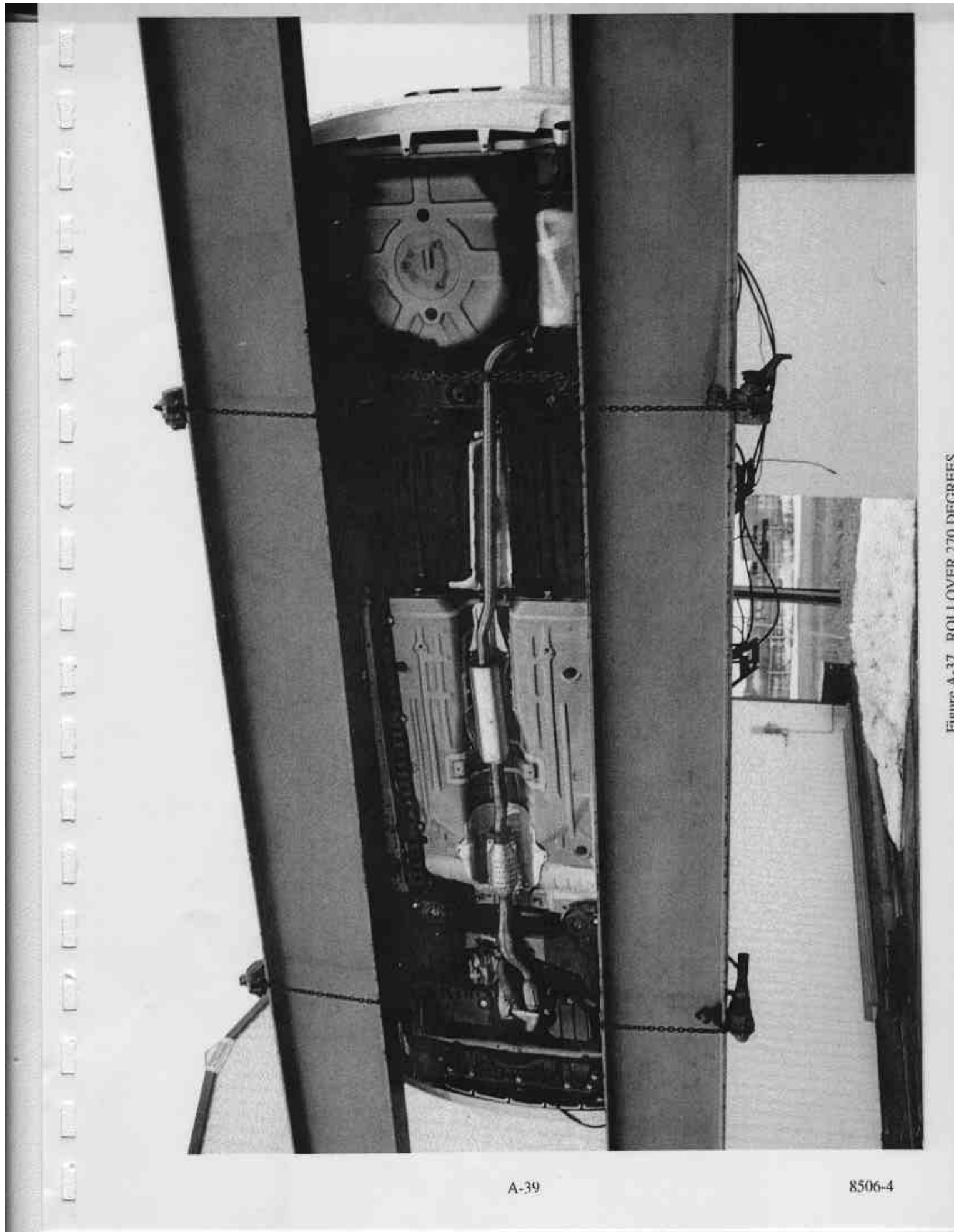


Figure A-37 ROLLOVER 270 DEGREES

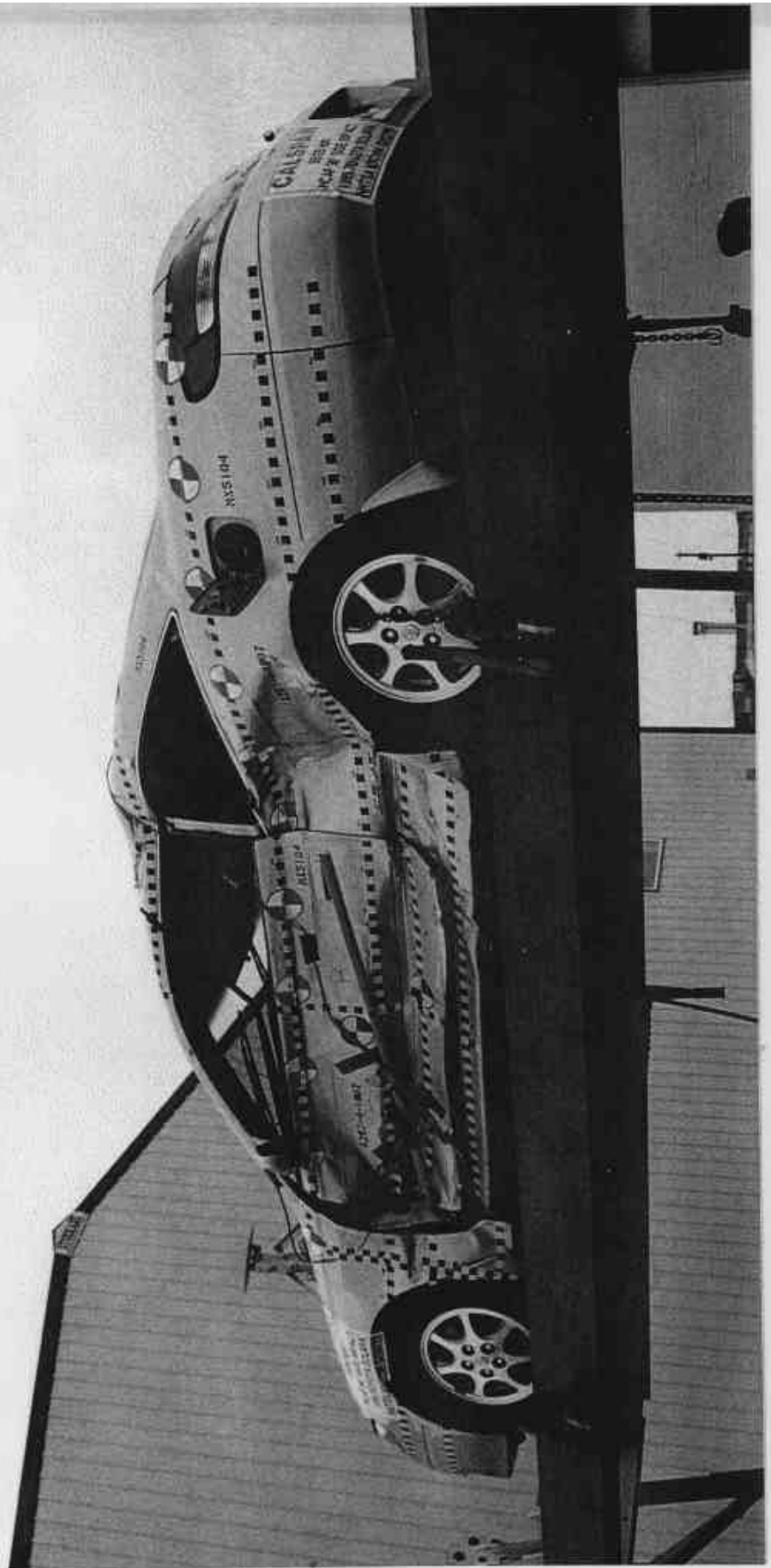


Figure A-38 ROLLOVER 360 DEGREES

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 180 INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
1	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 6
2	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 7
3	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 8
4	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 9
5	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 10
6	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 11
7	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 12
8	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 13
9	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 14
10	PASSENGER UPPER RIB (Y) VELOCITY VS TIME	B- 15
11	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 16
12	PASSENGER LOWER RIB (Y) VELOCITY VS TIME	B- 17
13	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 18
14	PASSENGER LOWER SPINE (Y) VELOCITY VS TIME	B- 19
15	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 20
16	PASSENGER PELVIC (Y) VELOCITY VS TIME	B- 21

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS ACCELERATION DATA - FIR FILTERED

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
17	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 23
18	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 24
19	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 25
20	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 26
21	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 27
22	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 28
23	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 29
24	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 30

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>
25	RIGHT SIDE SILL AT FRONT SEAT (X) ACCELERATION VS TIME	B- 30
26	RIGHT SIDE SILL AT FRONT SEAT (X) VELOCITY VS TIME	B- 31
27	RIGHT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 32
28	RIGHT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 33
29	RIGHT SIDE SILL AT FRONT SEAT (Z) ACCELERATION VS TIME	B- 34
30	RIGHT SIDE SILL AT FRONT SEAT (Z) VELOCITY VS TIME	B- 35
31	RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION VS TIME	B- 36
32	RIGHT SIDE SILL AT REAR SEAT (X) ACCELERATION VS TIME	B- 37
33	RIGHT SIDE SILL AT REAR SEAT (X) VELOCITY VS TIME	B- 38
34	RIGHT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 39
35	RIGHT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 40
36	RIGHT SIDE SILL AT REAR SEAT (Z) ACCELERATION VS TIME	B- 41
37	RIGHT SIDE SILL AT REAR SEAT (Z) VELOCITY VS TIME	B- 42
38	RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION VS TIME	B- 43
39	REAR FLOORPAN ABOVE AXLE (X) ACCELERATION VS TIME	B- 44
40	REAR FLOORPAN ABOVE AXLE (X) VELOCITY VS TIME	B- 45
41	REAR FLOORPAN ABOVE AXLE (Y) ACCELERATION VS TIME	B- 46
42	REAR FLOORPAN ABOVE AXLE (Y) VELOCITY VS TIME	B- 47
43	REAR FLOORPAN ABOVE AXLE (Z) ACCELERATION VS TIME	B- 48
44	REAR FLOORPAN ABOVE AXLE (Z) VELOCITY VS TIME	B- 49
45	REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION VS TIME	B- 50
46	LEFT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 51
47	LEFT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 52
48	LEFT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 53
49	LEFT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 54
50	LEFT FRONT DOOR ON CENTERLINE (Y) ACCELERATION VS TIME	B- 55
51	LEFT FRONT DOOR ON CENTERLINE (Y) VELOCITY VS TIME	B- 56
52	RIGHT REAR OCCUPANT COMPARTMENT (Y) ACCELERATION VS TIME	B- 57
53	RIGHT REAR OCCUPANT COMPARTMENT (Y) VELOCITY VS TIME	B- 58
54	MID REAR OF LEFT FRONT DOOR (Y) ACCELERATION VS TIME	B- 59
55	MID REAR OF LEFT FRONT DOOR (Y) VELOCITY VS TIME	B- 60
56	LEFT FRONT DOOR UPPER CENTERLINE (Y) ACCELERATION VS TIME	B- 61
57	LEFT FRONT DOOR UPPER CENTERLINE (Y) VELOCITY VS TIME	B- 62
58	MID REAR OF LEFT REAR DOOR (Y) ACCELERATION VS TIME	B- 63
59	MID REAR OF LEFT REAR DOOR (Y) VELOCITY VS TIME	B- 64
60	LEFT REAR DOOR UPPER CENTERLINE (Y) ACCELERATION VS TIME	B- 65
61	LEFT REAR DOOR UPPER CENTERLINE (Y) VELOCITY VS TIME	B- 66
62	LOWER B-POST (Y) ACCELERATION VS TIME	B- 67
63	LOWER B-POST (Y) VELOCITY VS TIME	B- 68
64	UPPER B-POST (Y) ACCELERATION VS TIME	B- 69
65	UPPER B-POST (Y) VELOCITY VS TIME	B- 70
66	LOWER A-POST (Y) ACCELERATION VS TIME	B- 71
67	LOWER A-POST (Y) VELOCITY VS TIME	B- 72
68	UPPER A-POST (Y) ACCELERATION VS TIME	B- 73
69	UPPER A-POST (Y) VELOCITY VS TIME	B- 74
70	FRONT SEAT TRACK (Y) ACCELERATION VS TIME	B- 75
71	FRONT SEAT TRACK (Y) VELOCITY VS TIME	B- 76

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>
72	REAR SEAT TRACK (Y) ACCELERATION VS TIME	B- 77
73	REAR SEAT TRACK (Y) VELOCITY VS TIME	B- 78
74	VEHICLE CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 79
75	VEHICLE CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 80
76	VEHICLE CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 81
77	VEHICLE CENTER OF GRAVITY (Y) VELOCITY ACCELERATION VS TIME	B- 82
78	VEHICLE CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 83
79	VEHICLE CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 84
80	VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 85

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>
81	MDB CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 86
82	MDB CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 87
83	MDB CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 88
84	MDB CENTER OF GRAVITY (Y) VELOCITY VS TIME	B- 89
85	MDB CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 90
86	MDB CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 91
87	MDB CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 92
78	MDB REAR (X) ACCELERATION VS TIME	B- 83
79	MDB REAR (X) VELOCITY VS TIME	B- 84
80	MDB REAR (Y) ACCELERATION VS TIME	B- 85
81	MDB REAR (Y) VELOCITY VS TIME	B- 86

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

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
82	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 87
83	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 88
84	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 89
85	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 90
86	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 91
87	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 92
88	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 93
89	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 94
90	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 95
91	PASSENGER UPPER RIB (Y) VELOCITY VS TIME	B- 96
92	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 97
93	PASSENGER LOWER RIB (Y) VELOCITY VS TIME	B- 98
94	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 99
95	PASSENGER LOWER SPINE (Y) VELOCITY VS TIME	B- 100
96	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 101
97	PASSENGER PELVIC (Y) VELOCITY VS TIME	B- 102

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

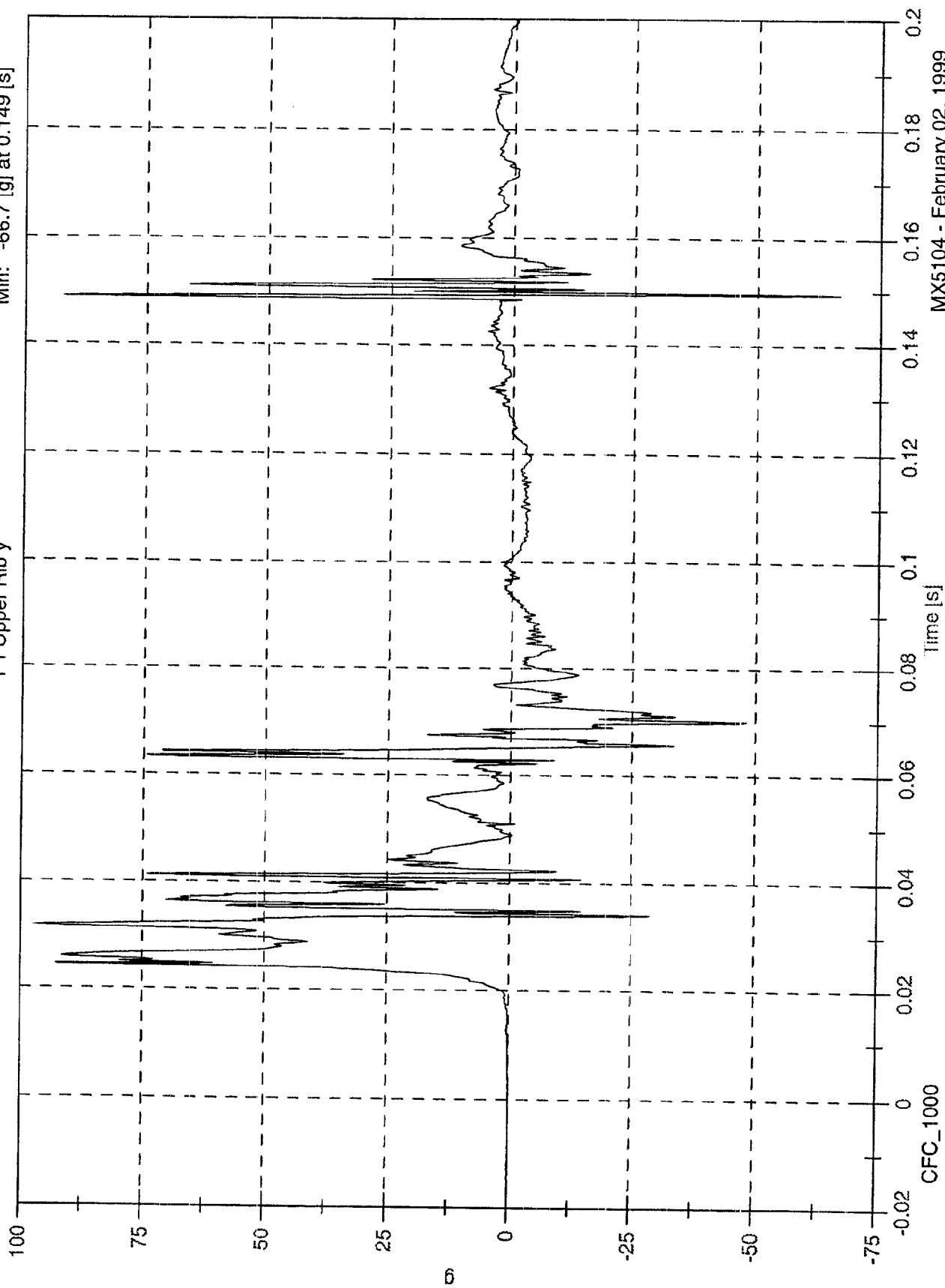
<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
98	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 103
99	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 104
100	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 105
101	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 106
102	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 107
103	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 108
104	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 109
105	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 110

SNCAP Test # 4 - 1999 Toyota Solara

Max: 97.4 [g] at 0.032 [s]

Min: -66.7 [g] at 0.149 [s]

P1 Upper Rib y

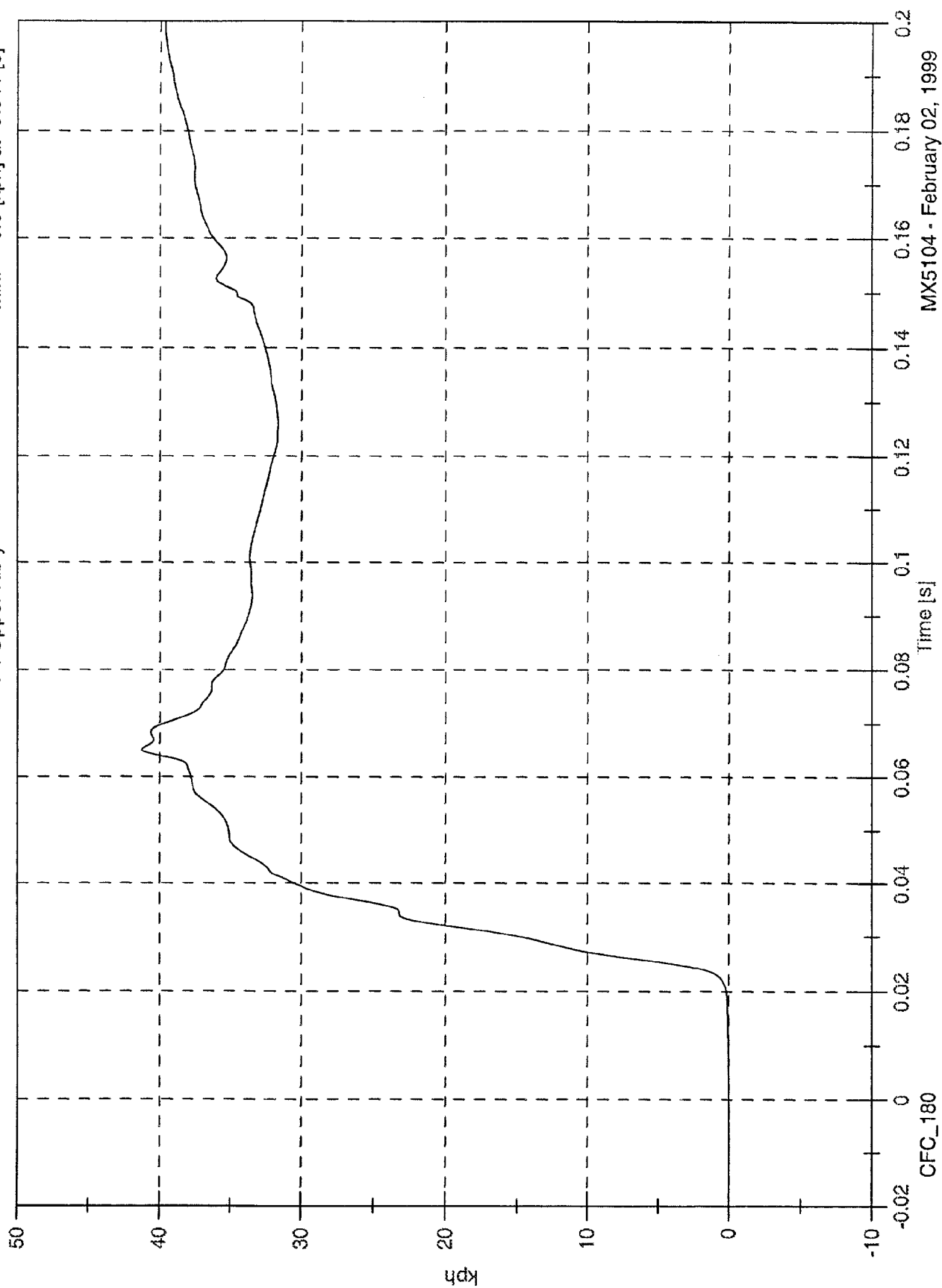


MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

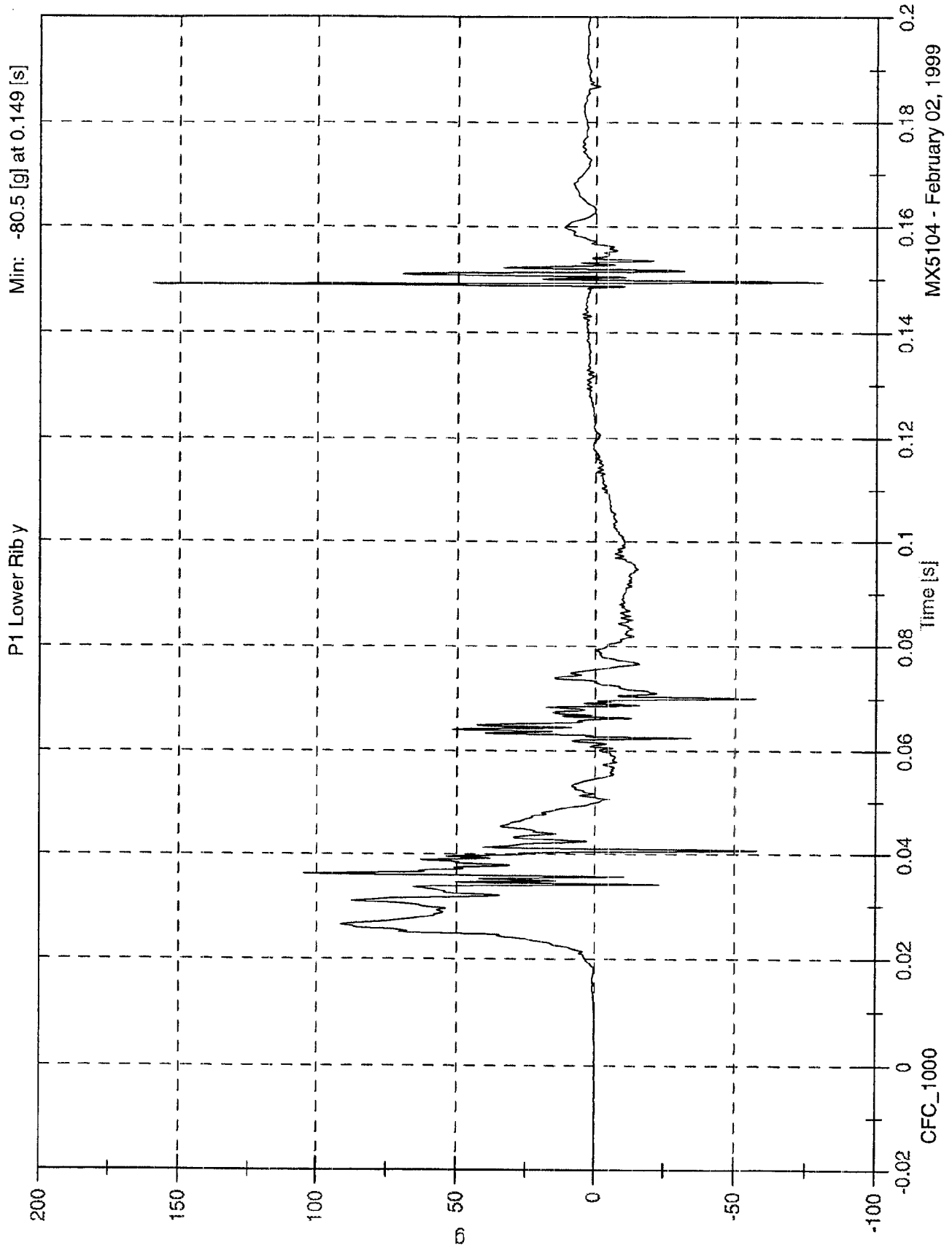
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Min: -0.0 [kph] at -0.041 [s]

P1 Upper Rib y



MX5104 - February 02, 1999

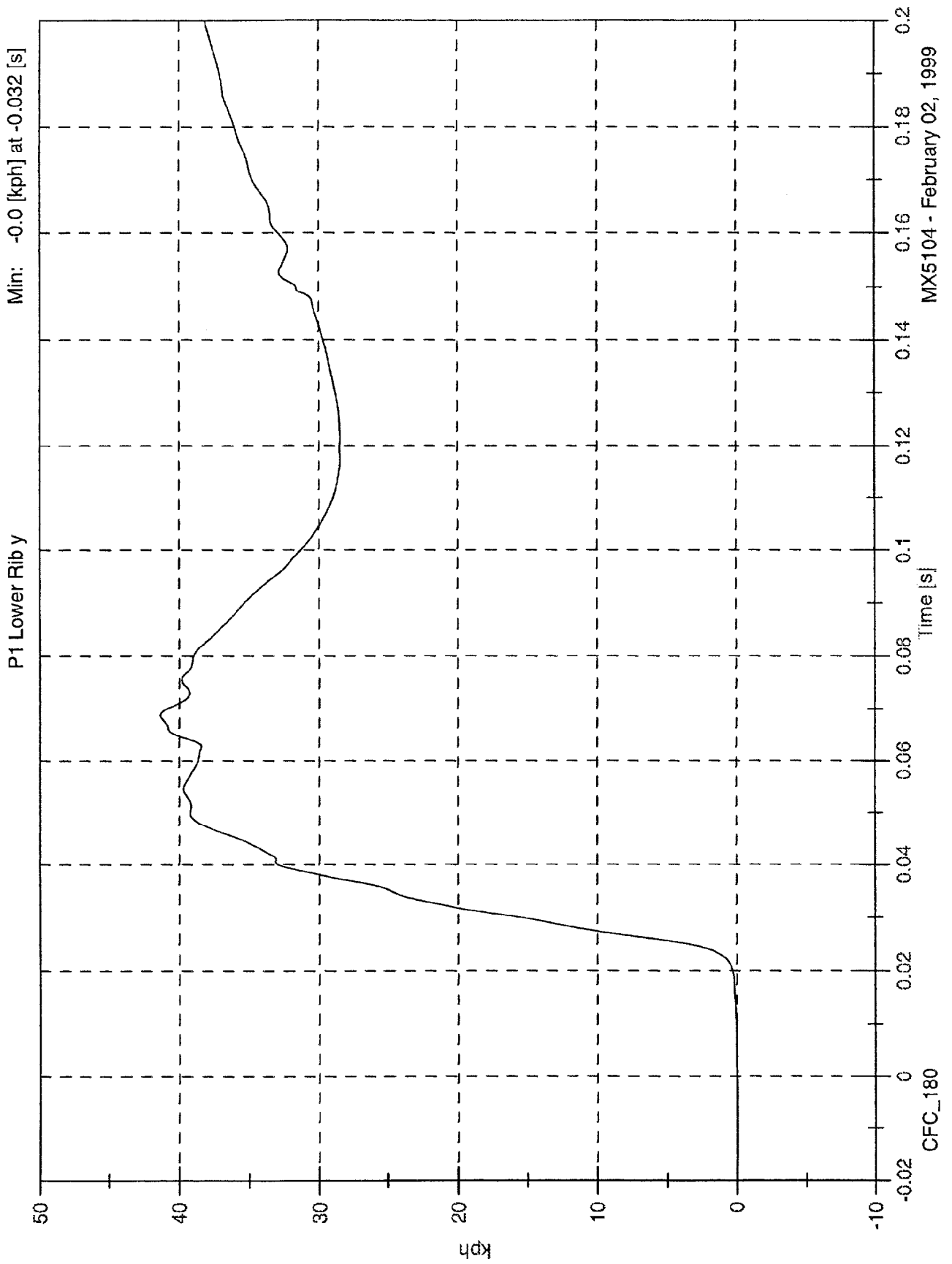
SNCAP Test # 4 - 1999 Toyota Solara



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

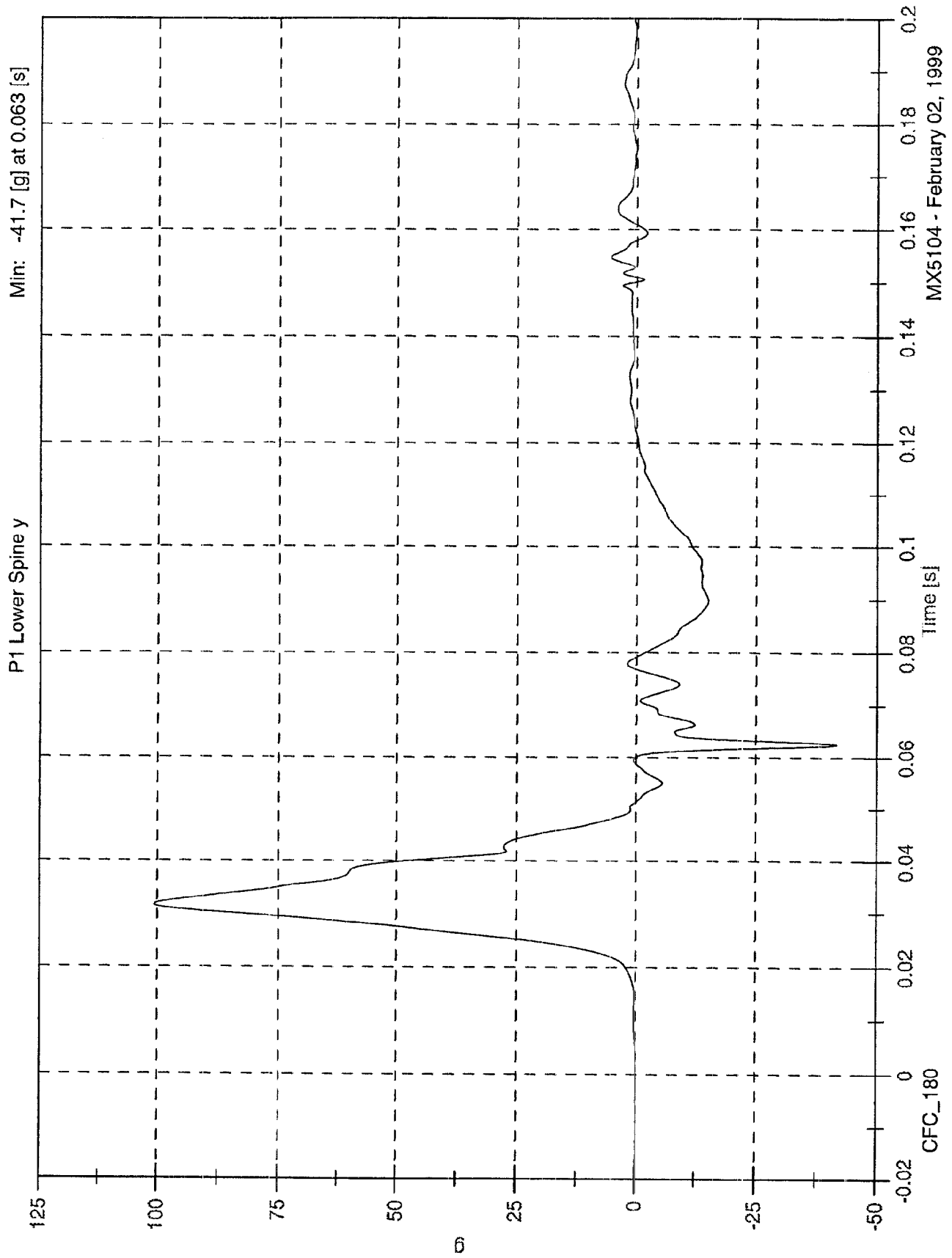
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MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

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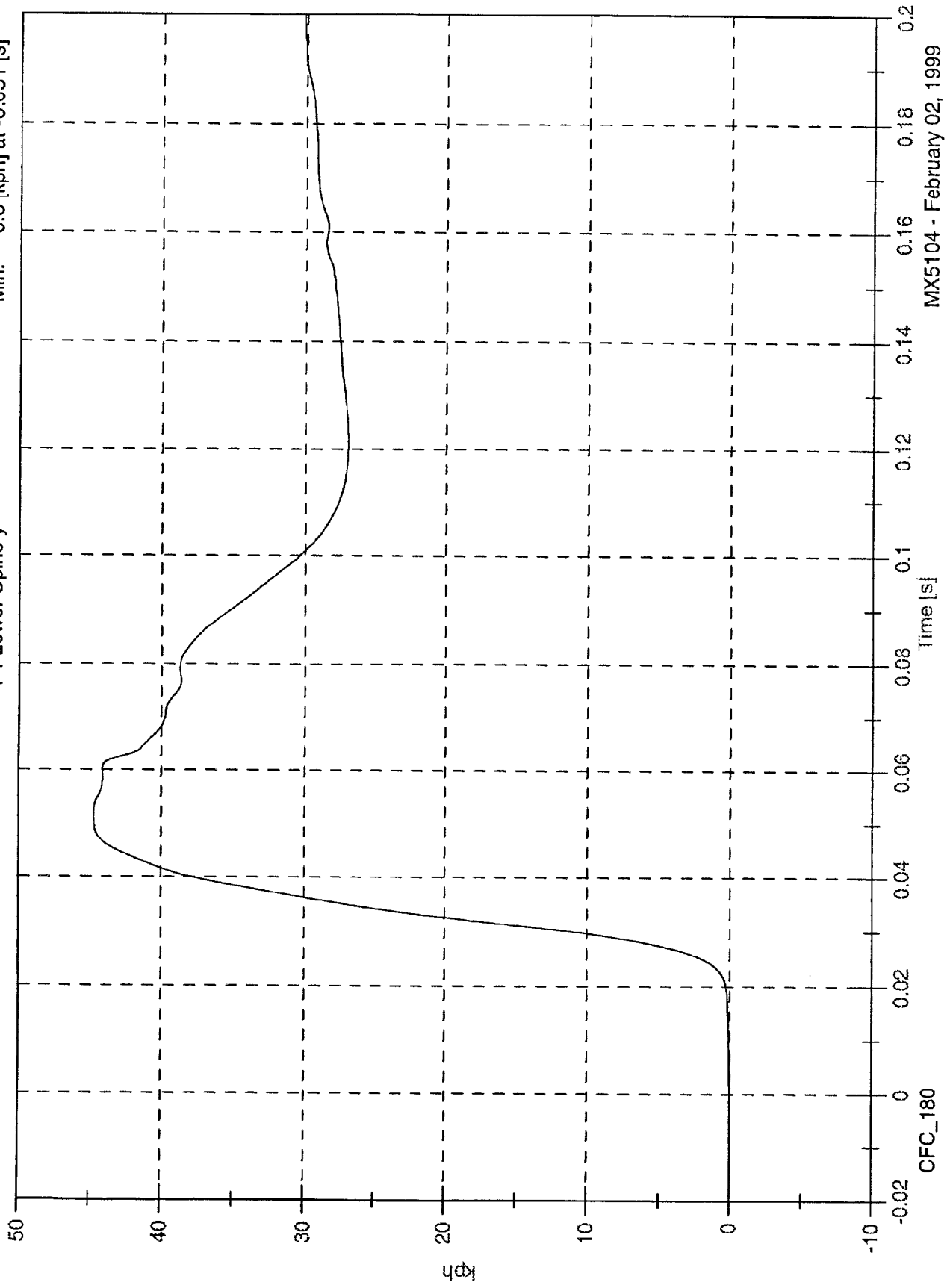


SNCAP Test # 4 - 1999 Toyota Solara

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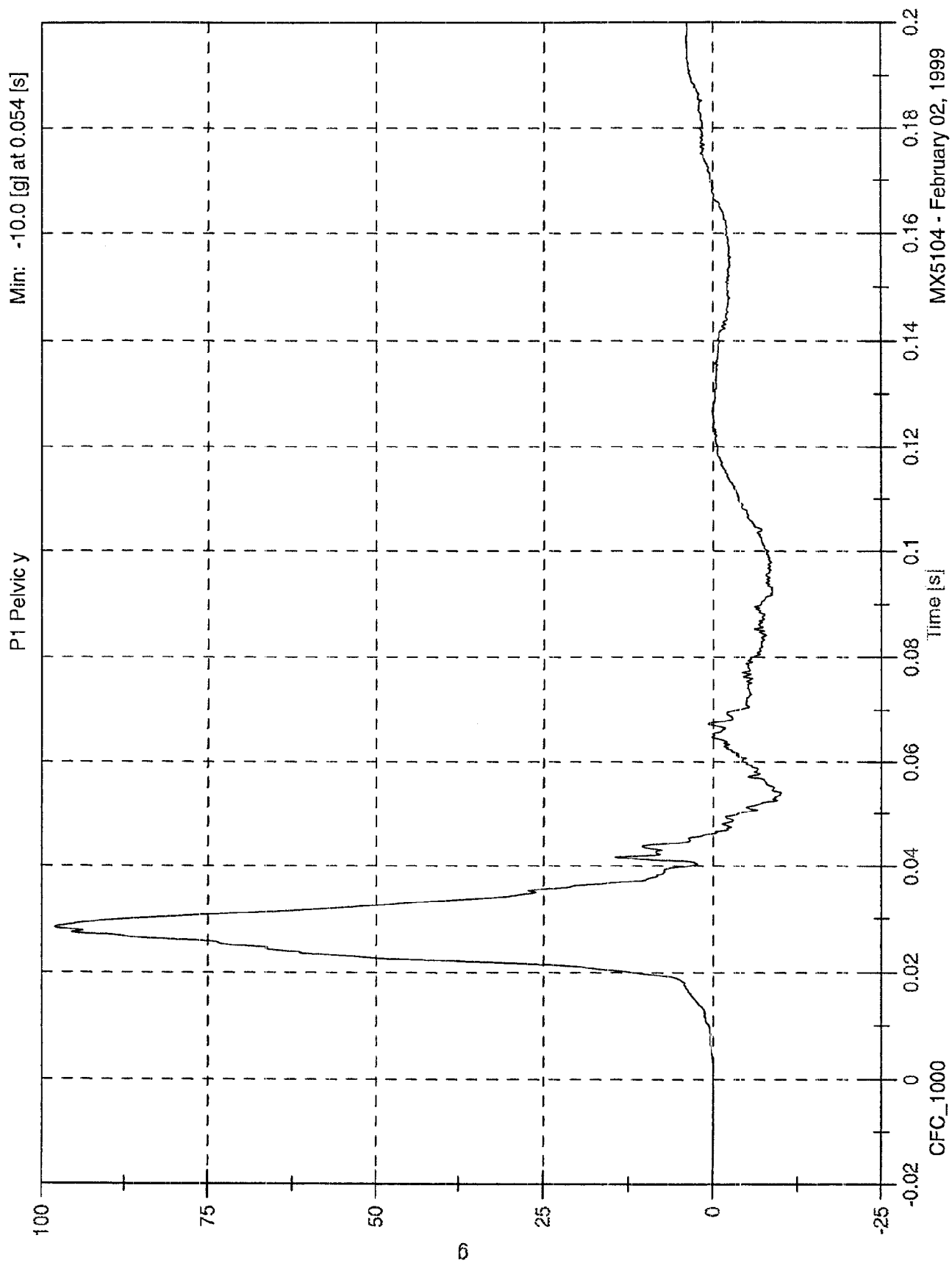
P1 Lower Spine y



MX5104 - February 02, 1999

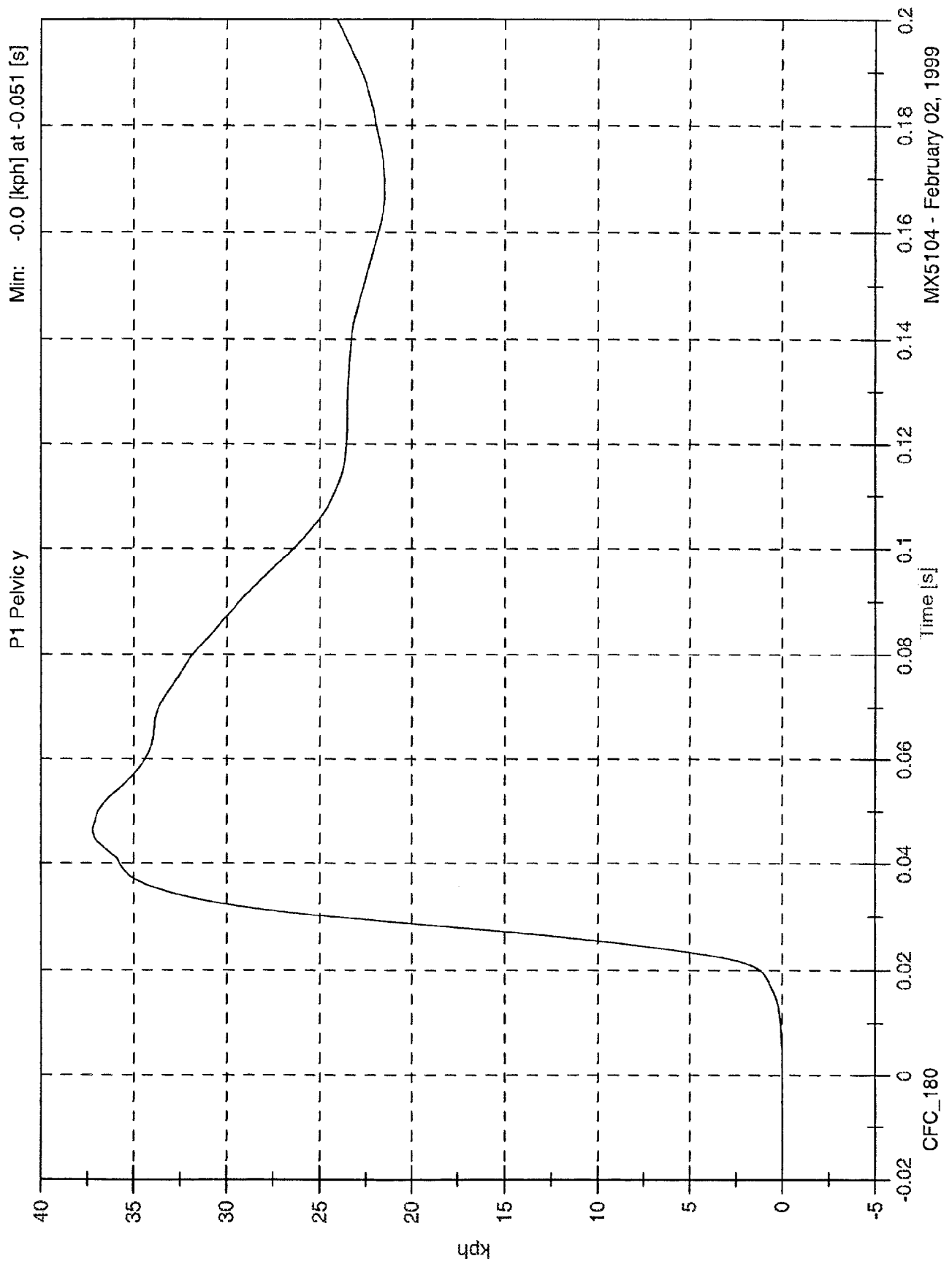
SNCAP Test # 4 - 1999 Toyota Solara

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SNCAP Test # 4 - 1999 Toyota Solara

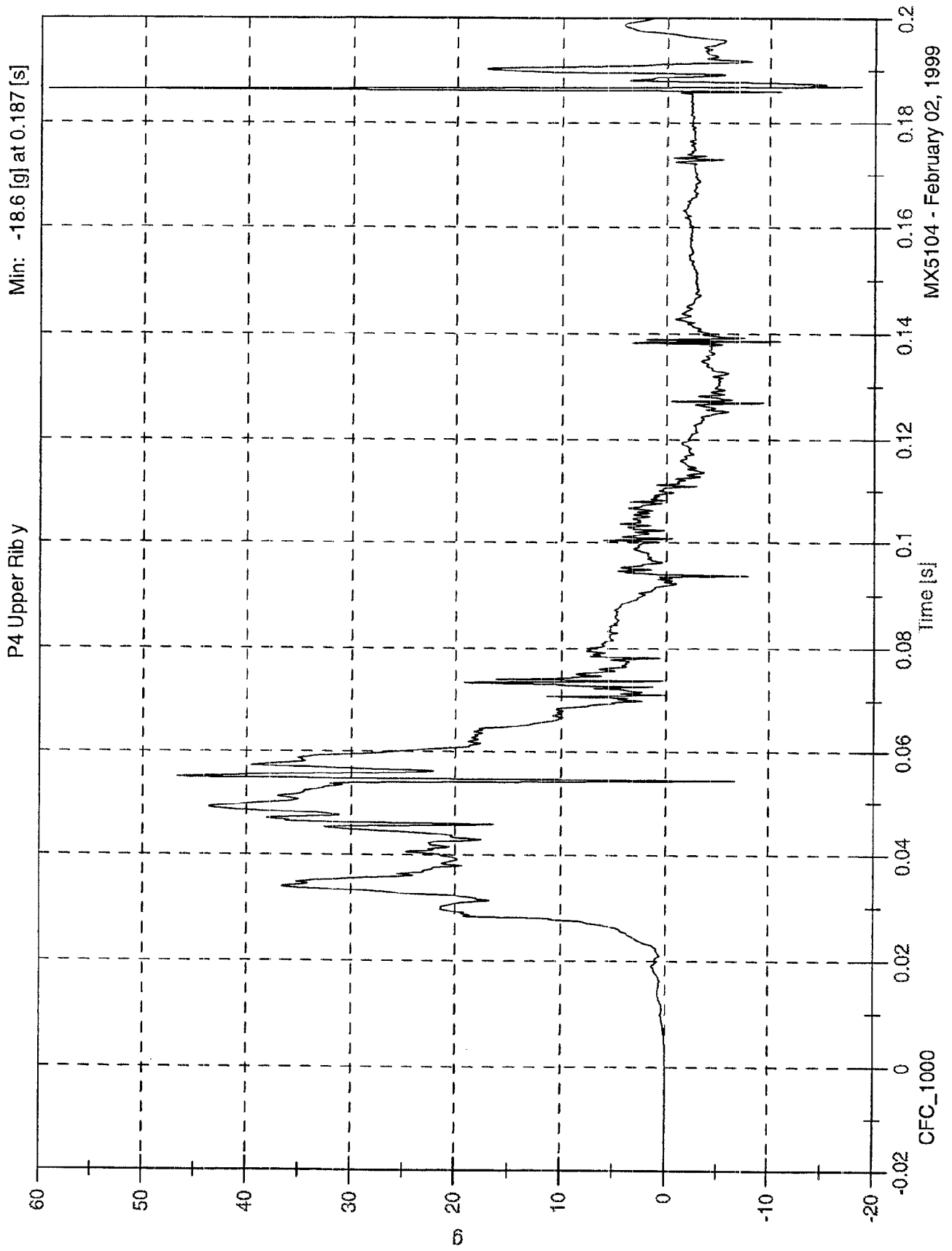
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MX5104 - February 02, 1999

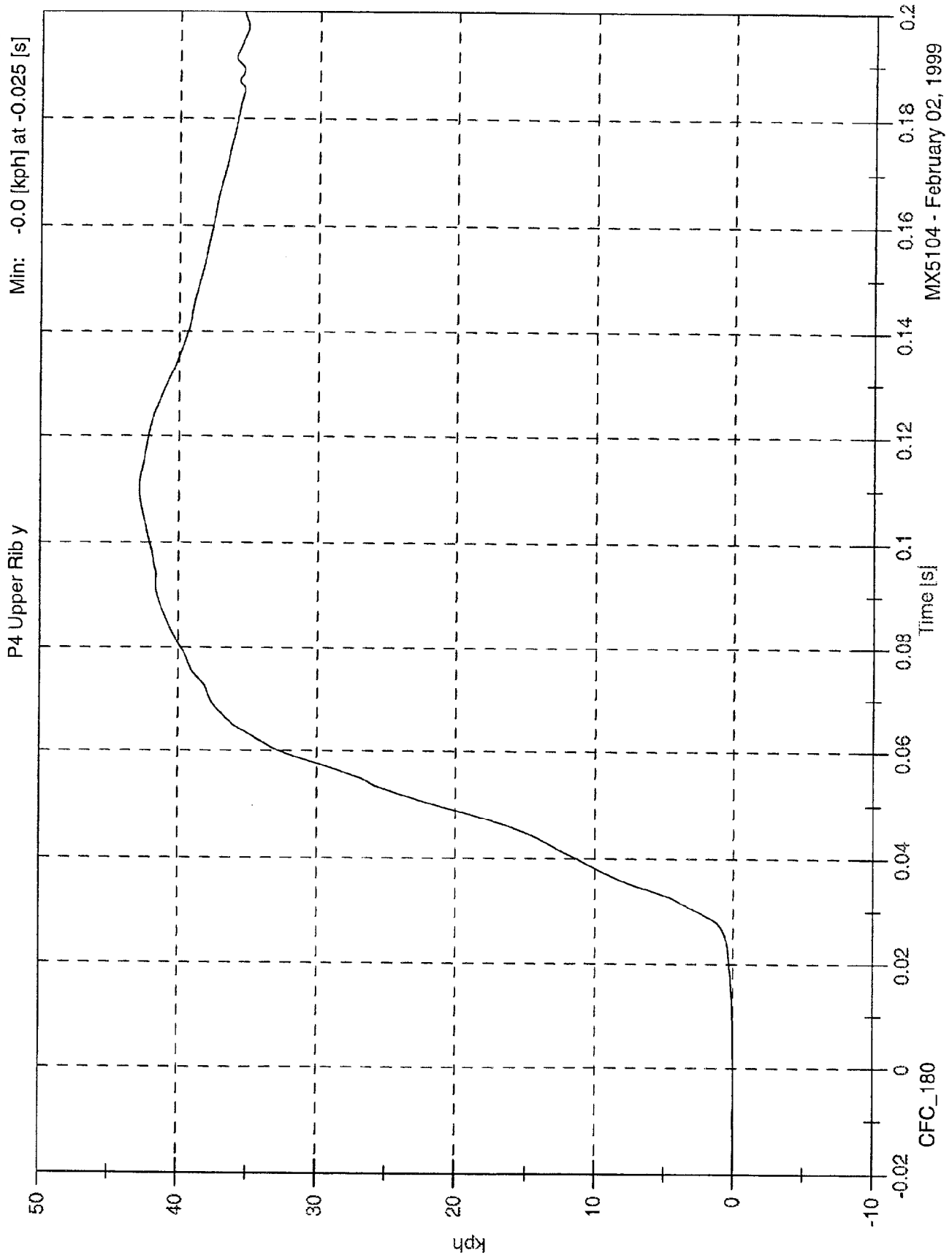
SNCAP Test # 4 - 1999 Toyota Solara

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SNCAP Test # 4 - 1999 Toyota Solara

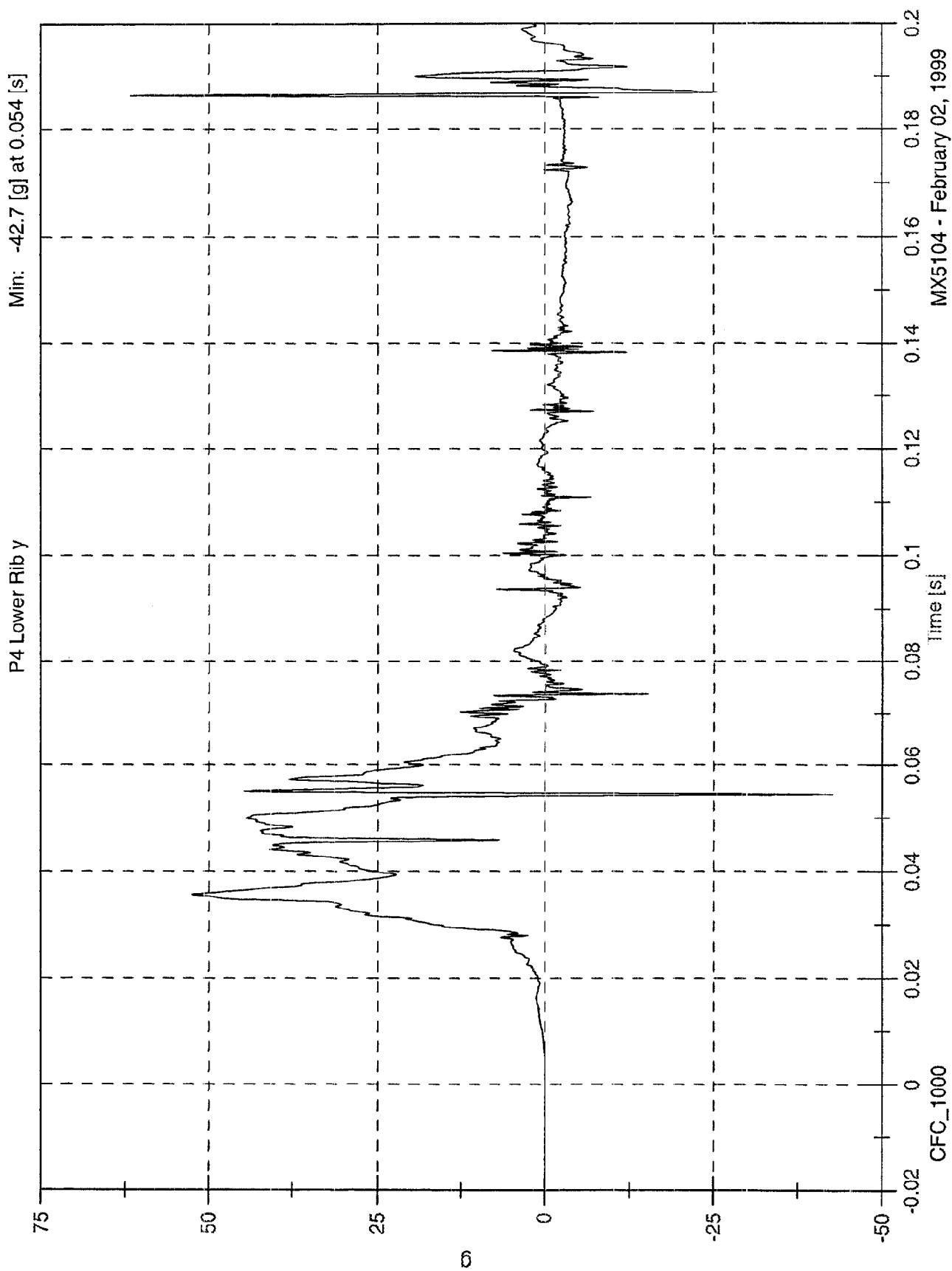
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MX5104 - February 02, 1999

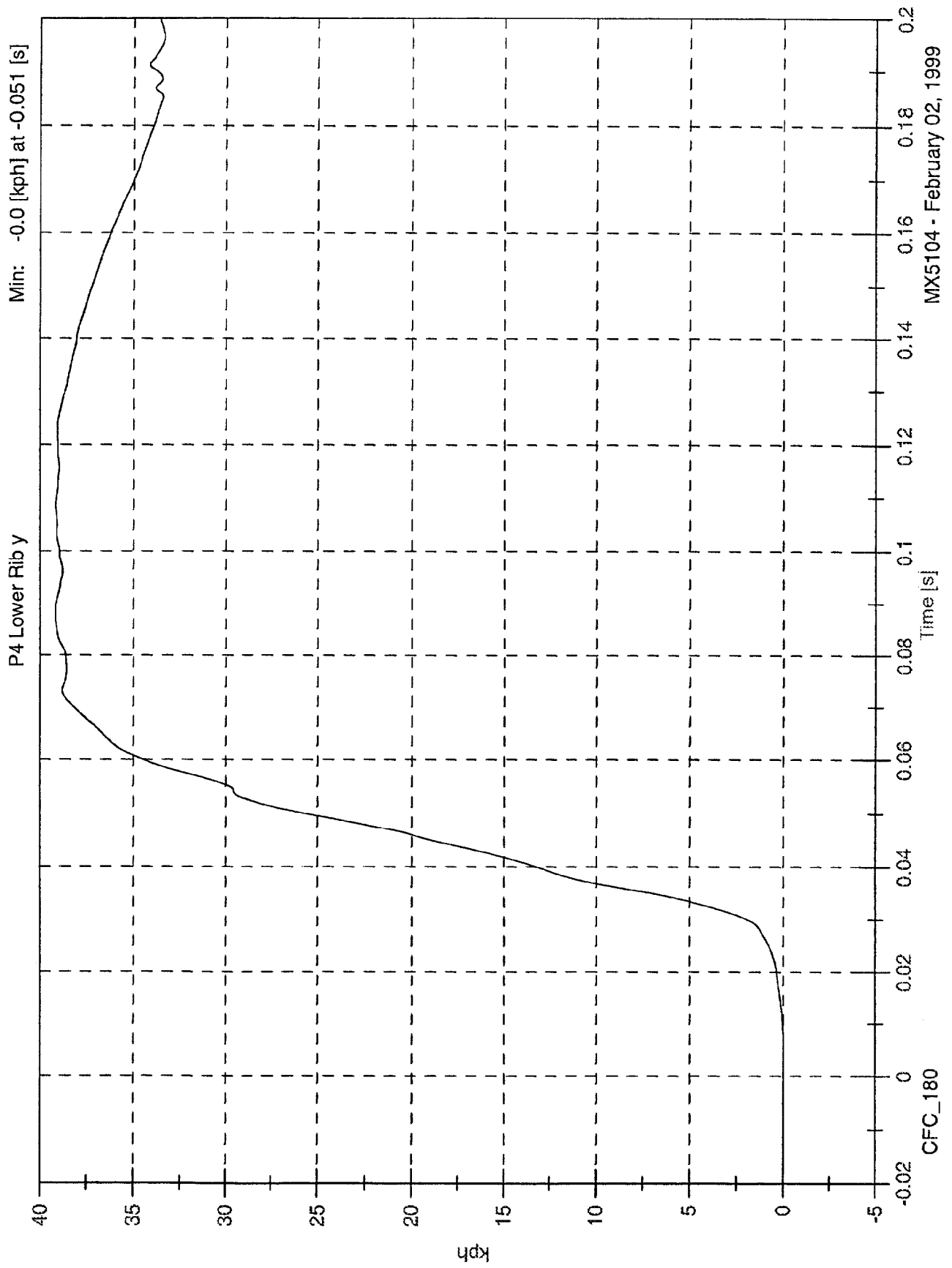
SNCAP Test # 4 - 1999 Toyota Solara

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Min: -42.7 [g] at 0.054 [s]



SNCAP Test # 4 - 1999 Toyota Solara

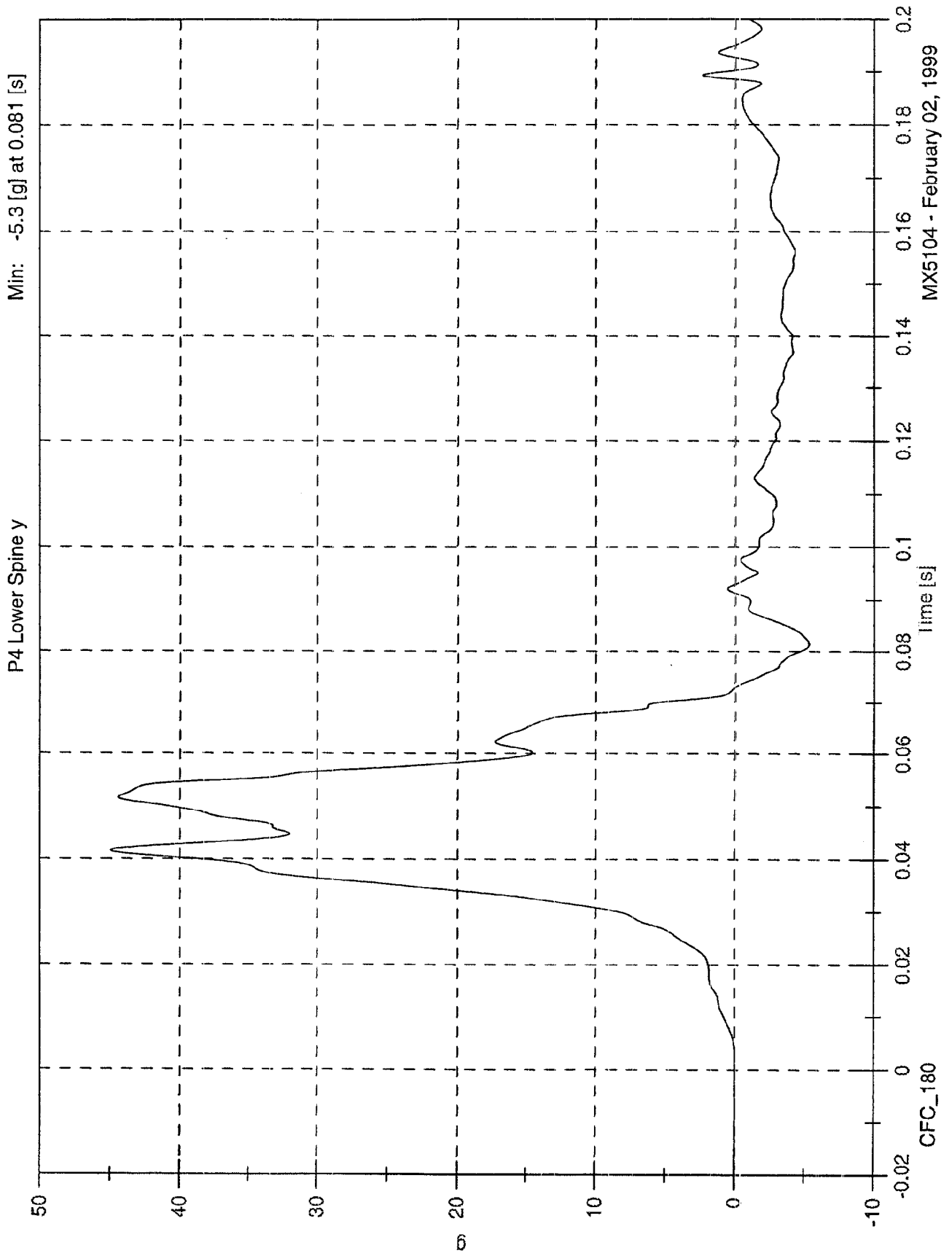
Max: 39.2 [kph] at 0.088 [s]
Min: -0.0 [kph] at -0.051 [s]



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 45.0 [g] at 0.042 [s]
Min: -5.3 [g] at 0.081 [s]



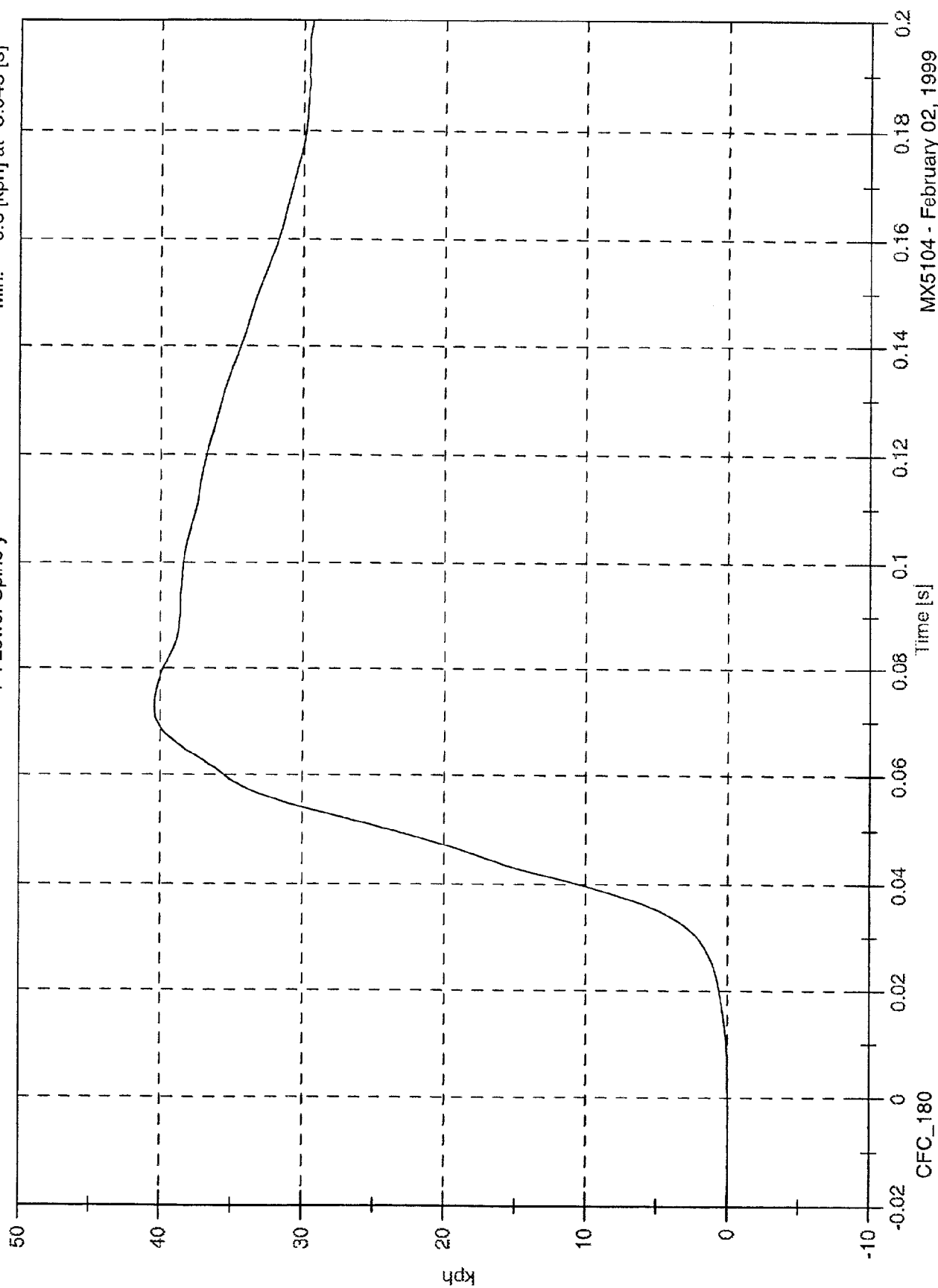
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 40.4 [kph] at 0.073 [s]

Min: -0.0 [kph] at -0.045 [s]

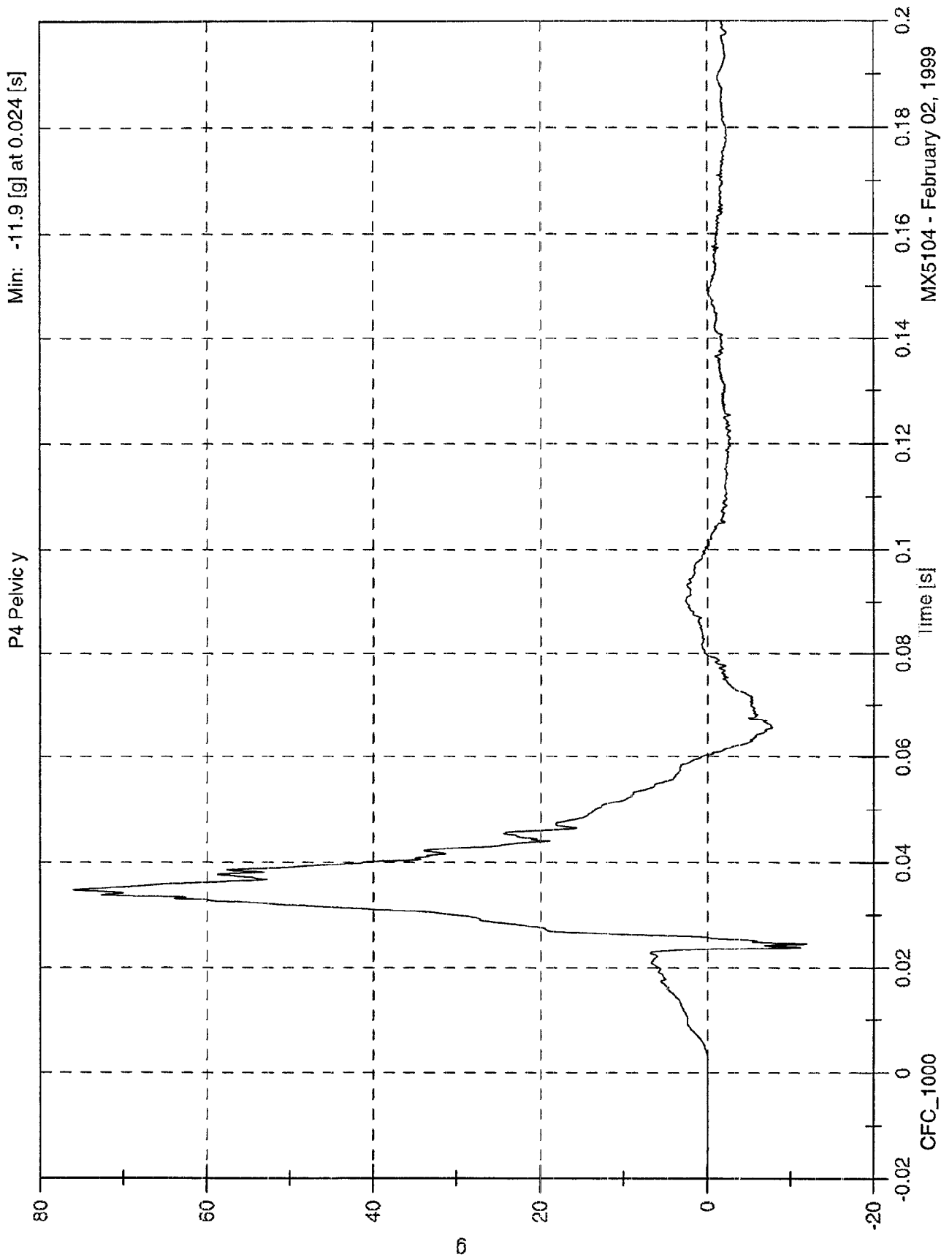
P4 Lower Spine y



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 76.1 [g] at 0.035 [s]
Min: -11.9 [g] at 0.024 [s]

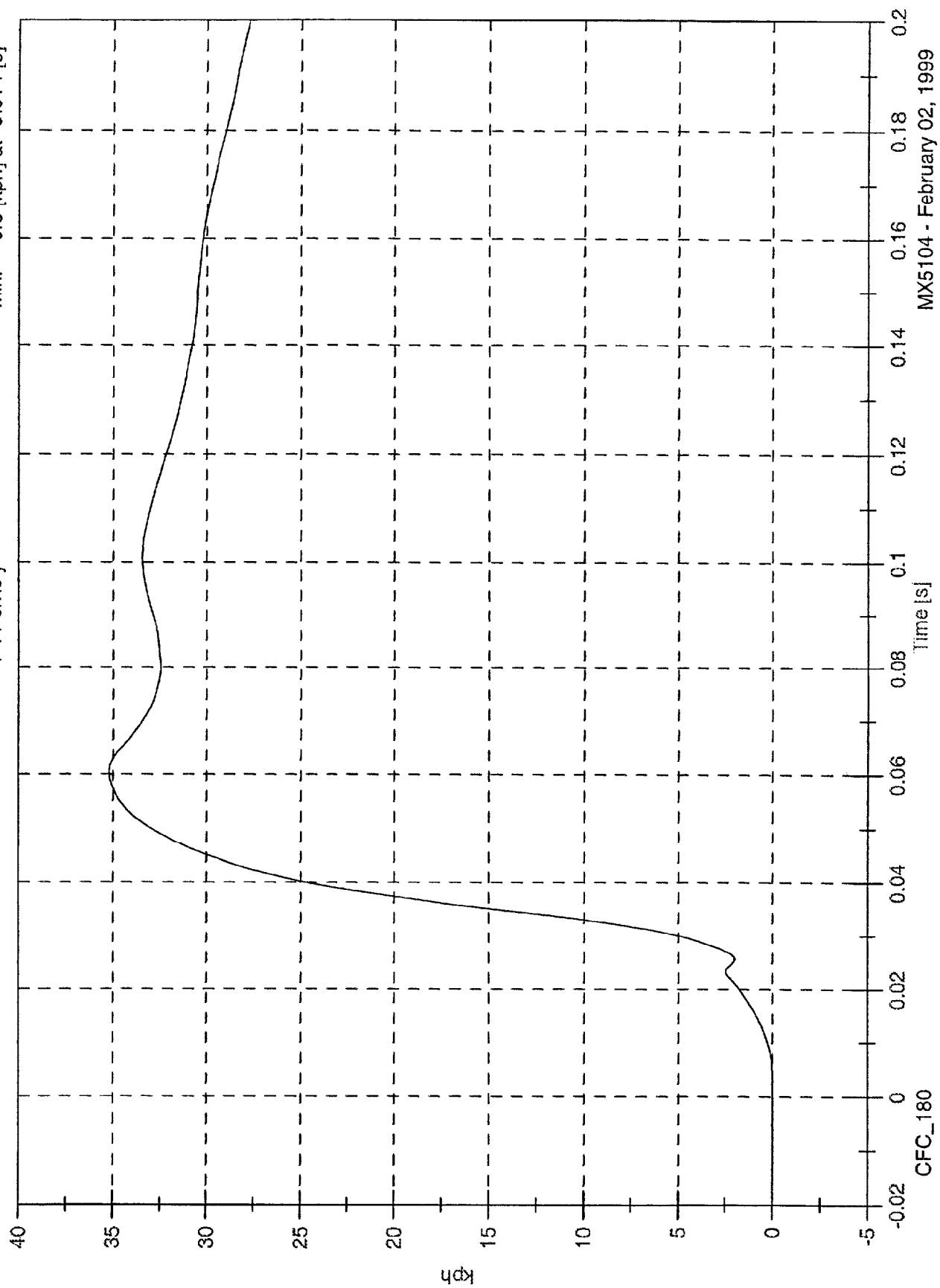


MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 35.2 [kph] at 0.060 [s]
Min: -0.0 [kph] at -0.014 [s]

P4 Pelvic y



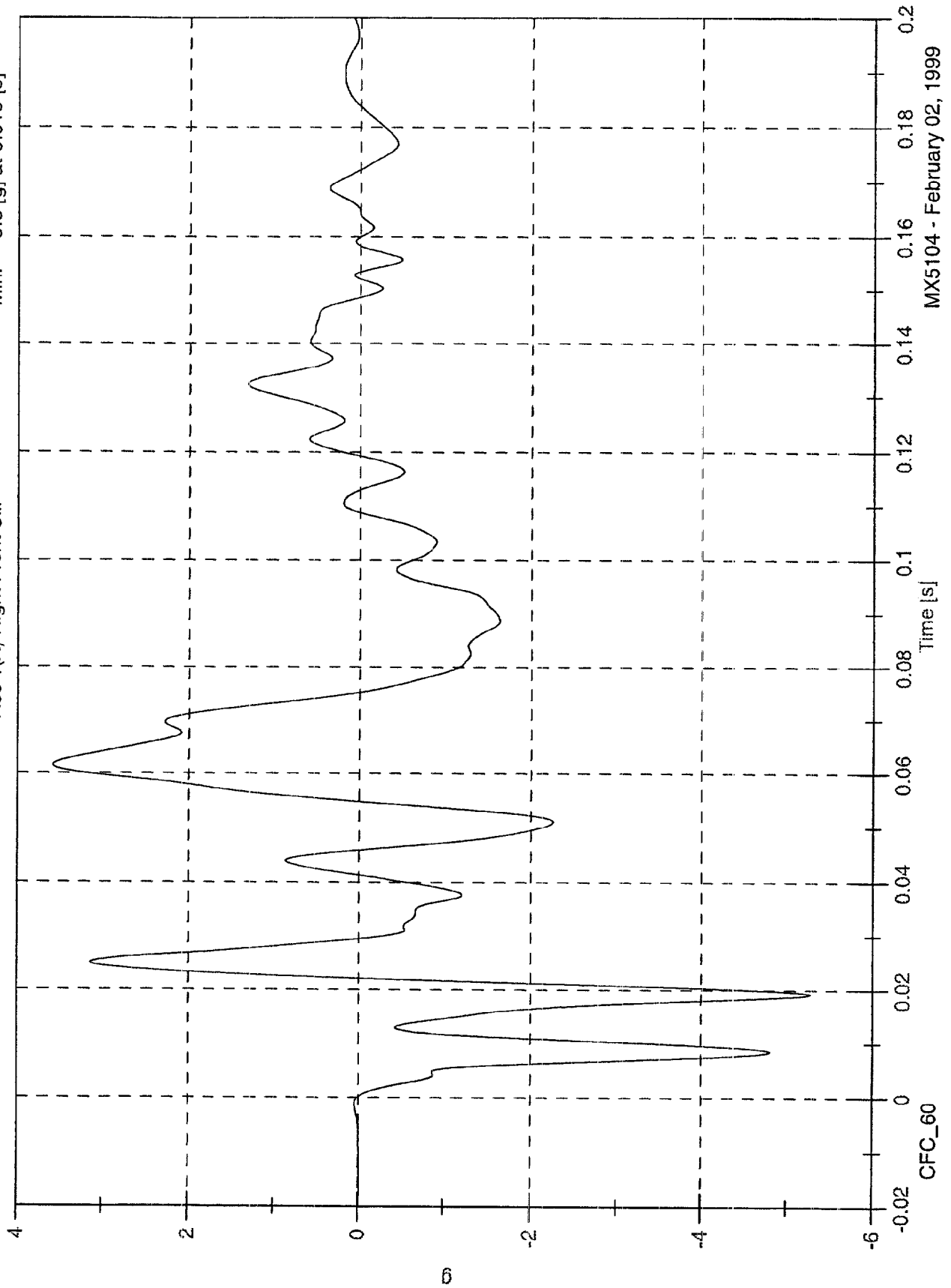
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 3.6 [g] at 0.062 [s]

Min: -5.3 [g] at 0.019 [s]

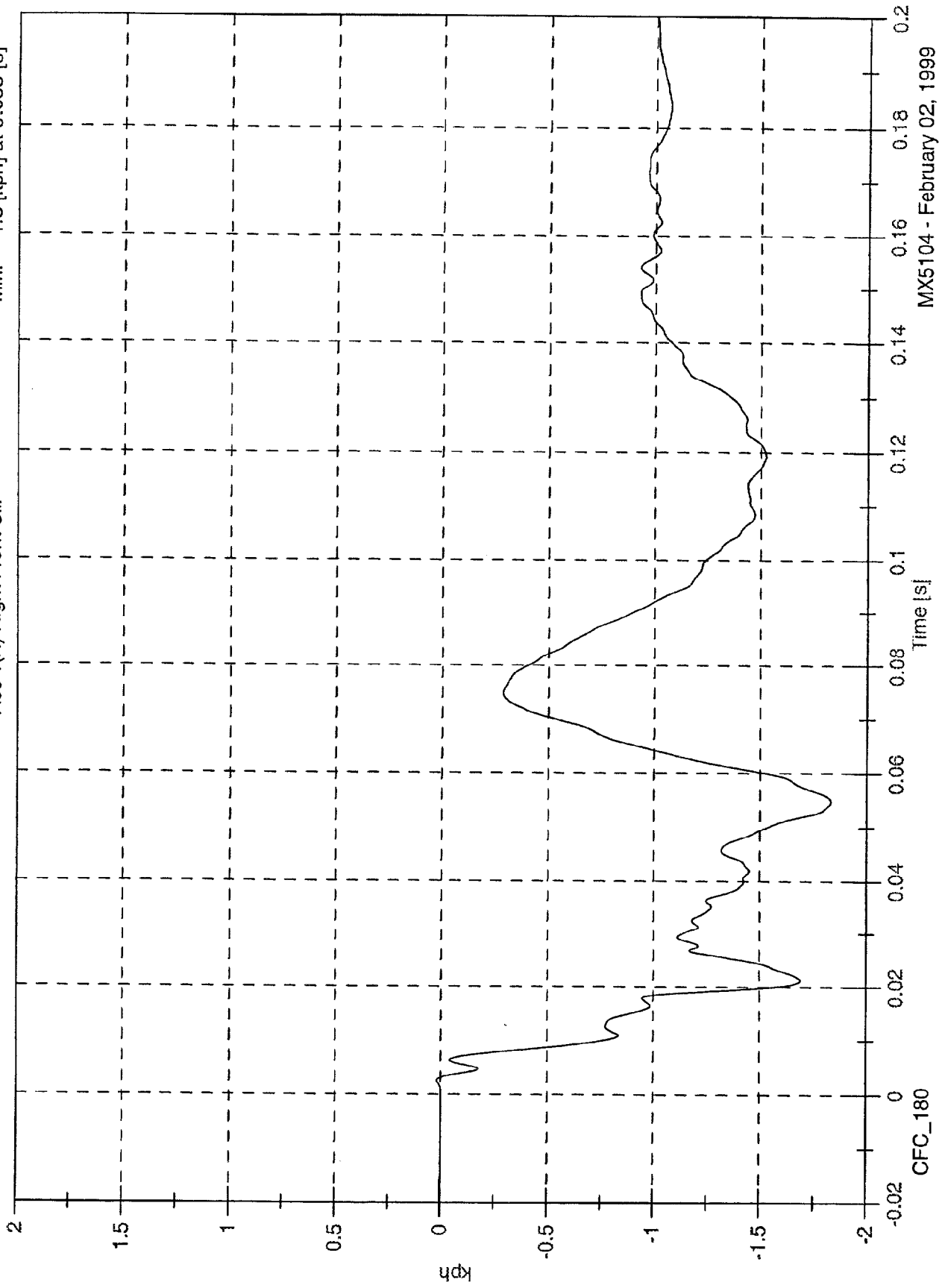
Acc 1(X) Right Front Sill



SNCAP Test # 4 - 1999 Toyota Solara

Max: 1.8 [kph] at 0.500 [s]
Min: -1.8 [kph] at 0.055 [s]

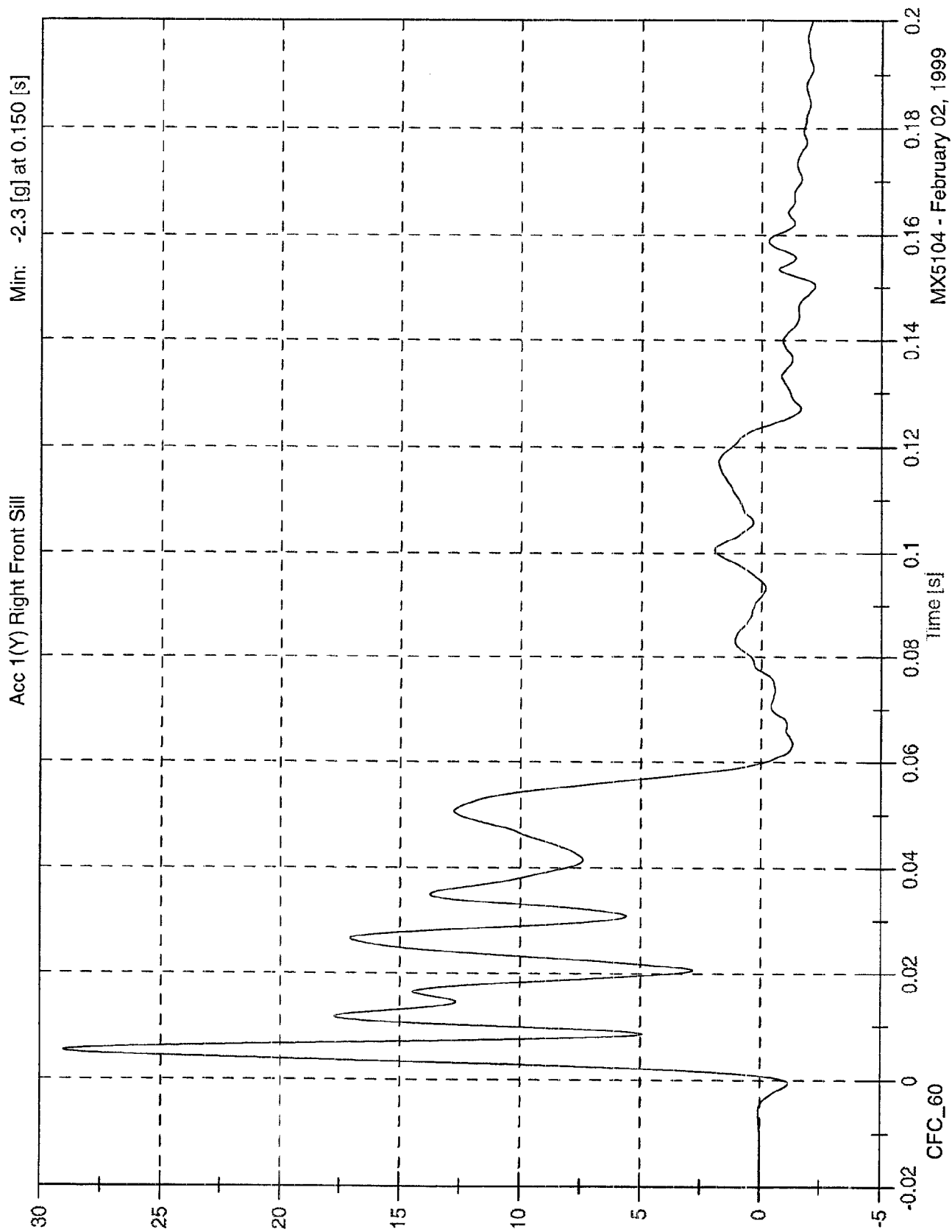
Acc 1(X) Right Front Sill



MX5104 - February 02, 1999

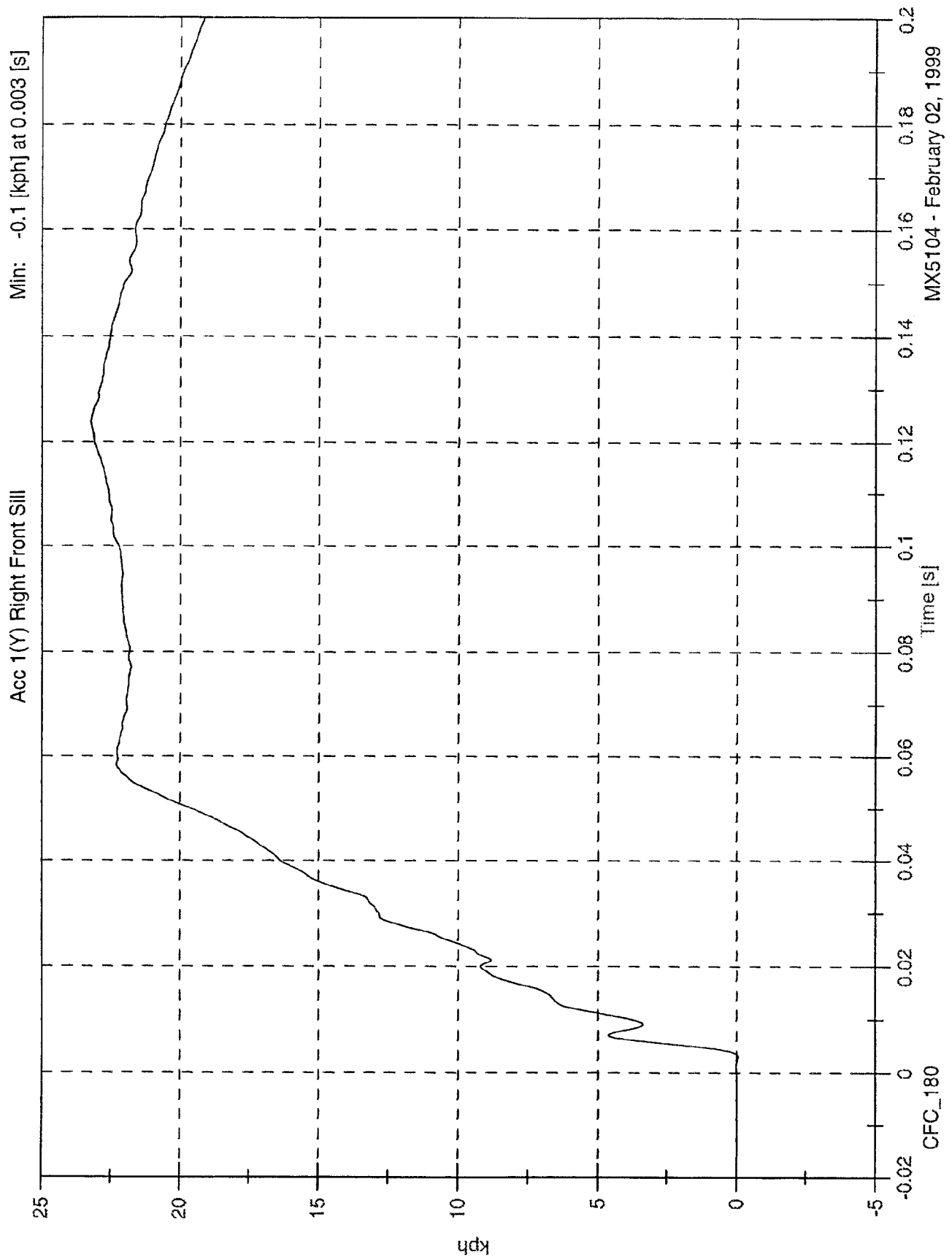
SNCAP Test # 4 - 1999 Toyota Solara

Max: 29.0 [g] at 0.005 [s]
 Min: -2.3 [g] at 0.150 [s]



SNCAP Test # 4 - 1999 Toyota Solara

Max: 23.2 [kph] at 0.124 [s]
Min: -0.1 [kph] at 0.003 [s]



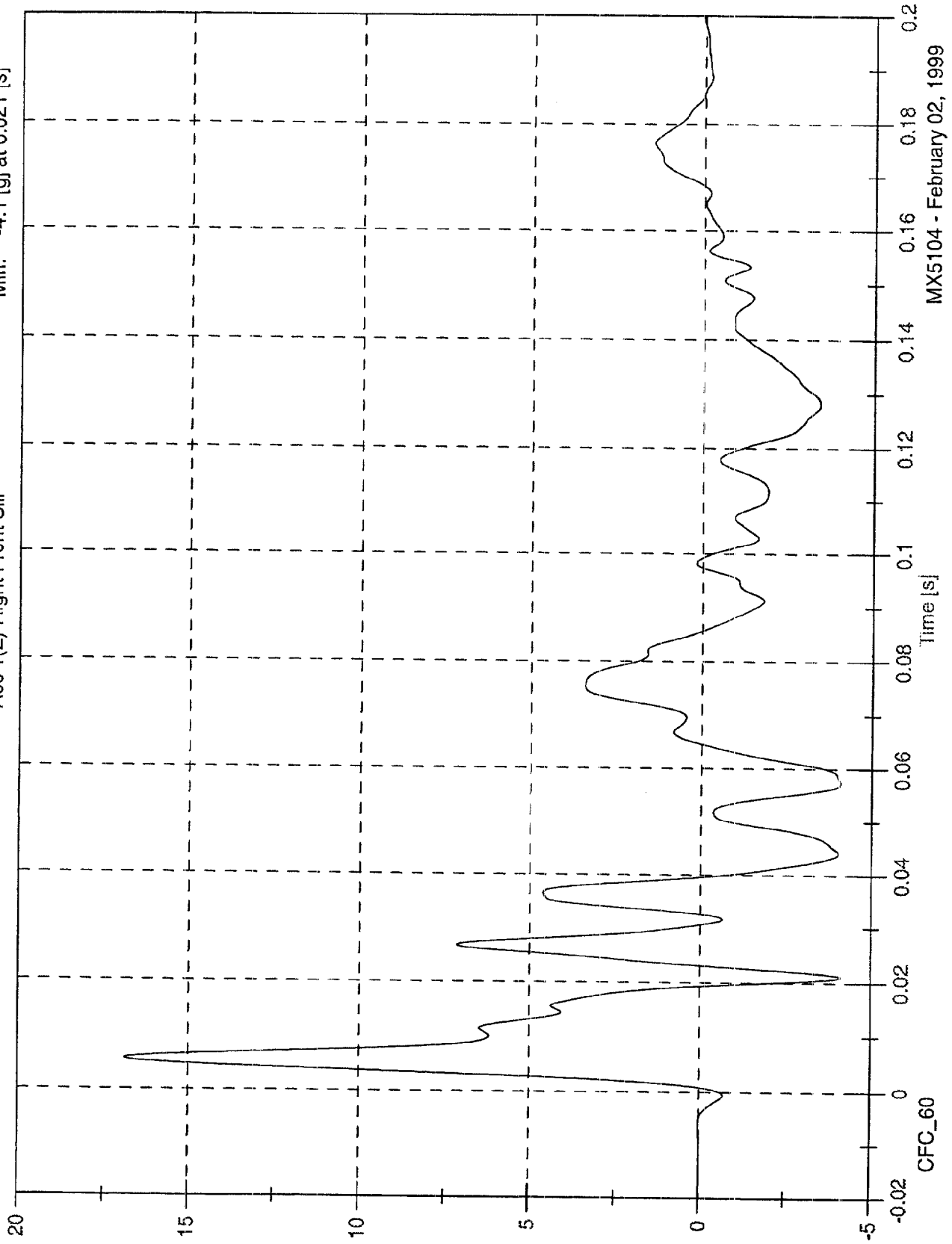
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 16.9 [g] at 0.005 [s]

Min: -4.1 [g] at 0.021 [s]

Acc 1(Z) Right Front Sill



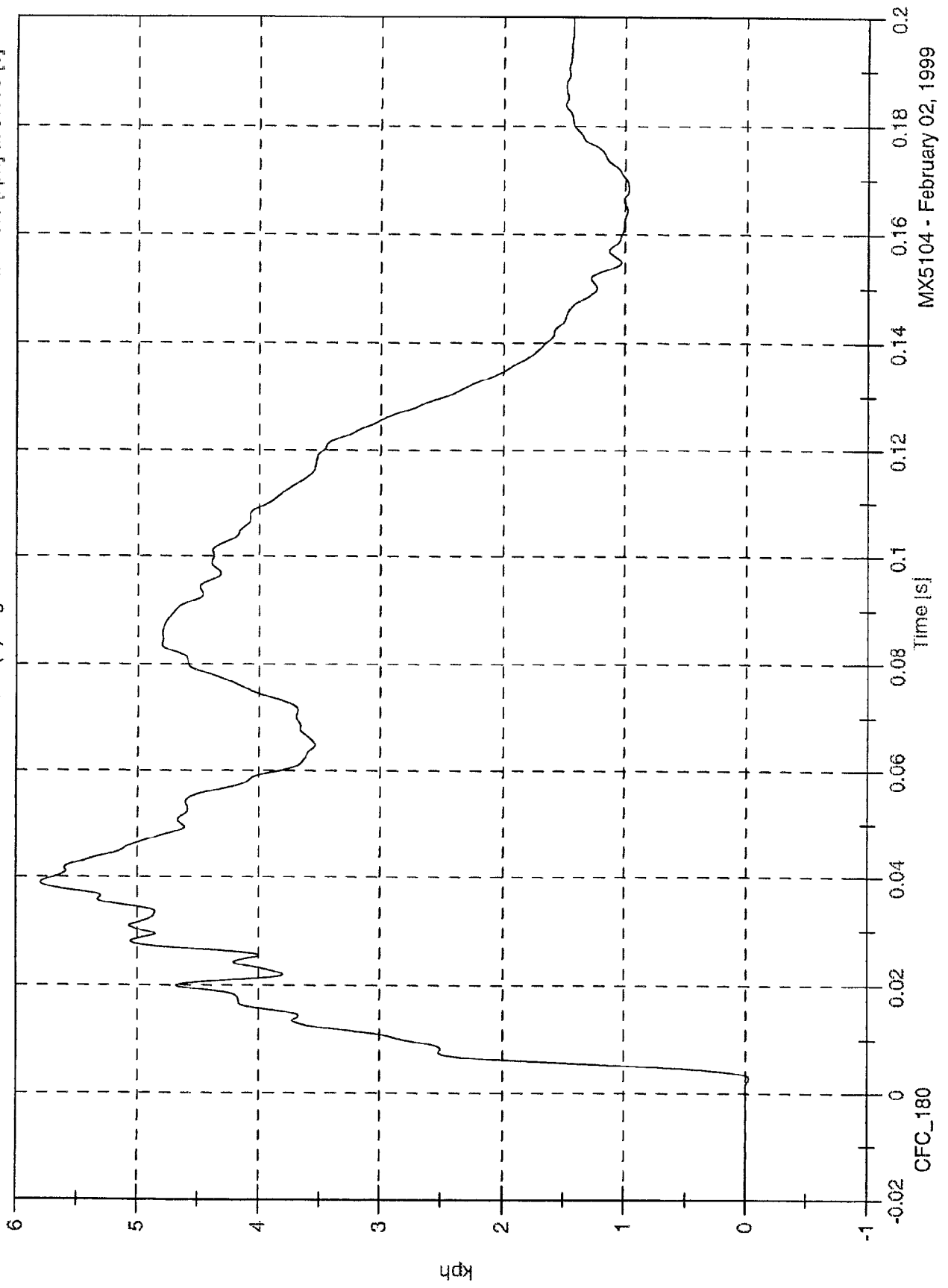
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 5.8 [kph] at 0.039 [s]

Min: -0.0 [kph] at 0.003 [s]

Acc 1(Z) Right Front Sill

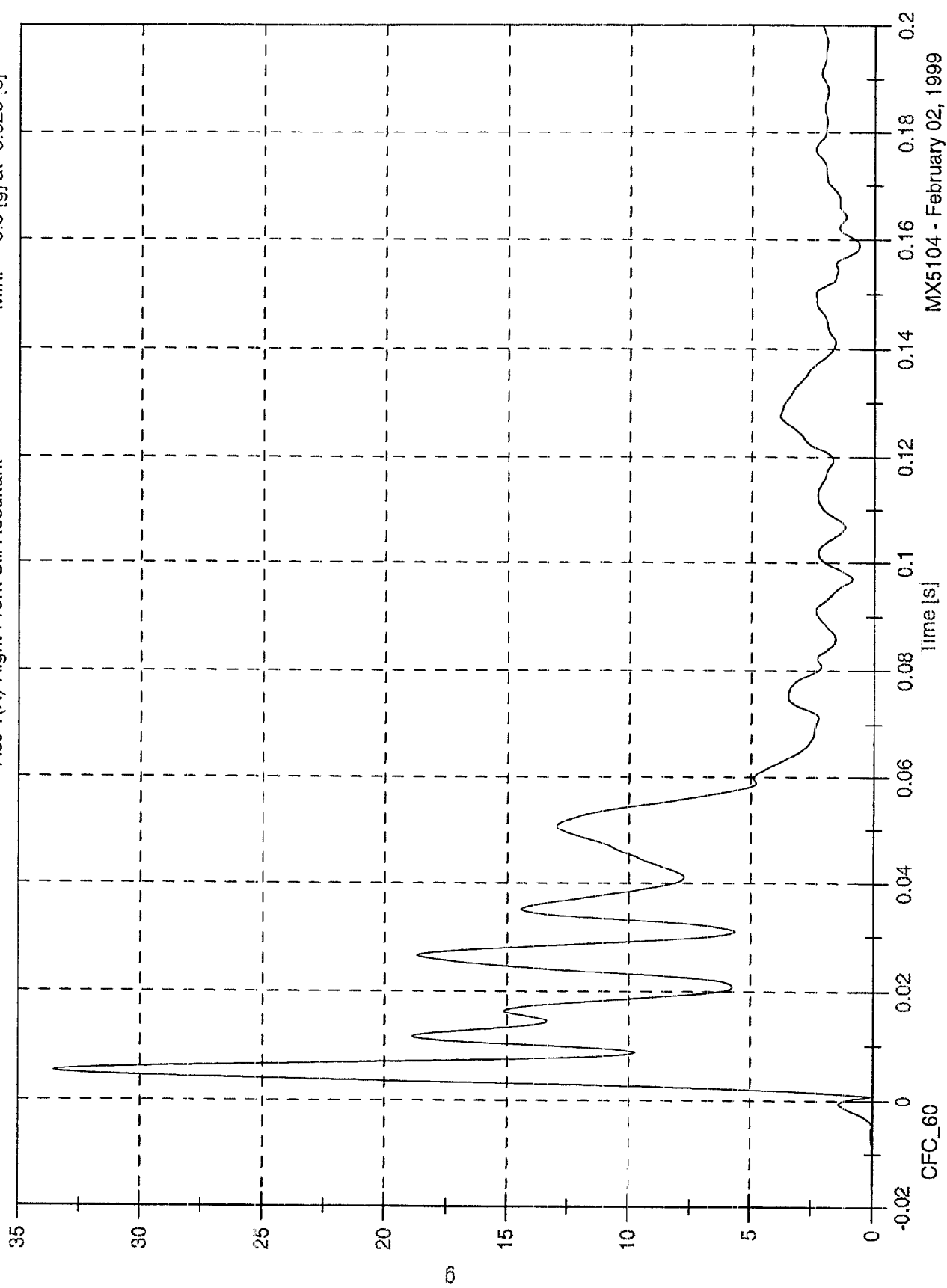


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SNCAP Test # 4 - 1999 Toyota Solara

Max: 33.5 [g] at 0.005 [s]
Min: 0.0 [g] at -0.029 [s]

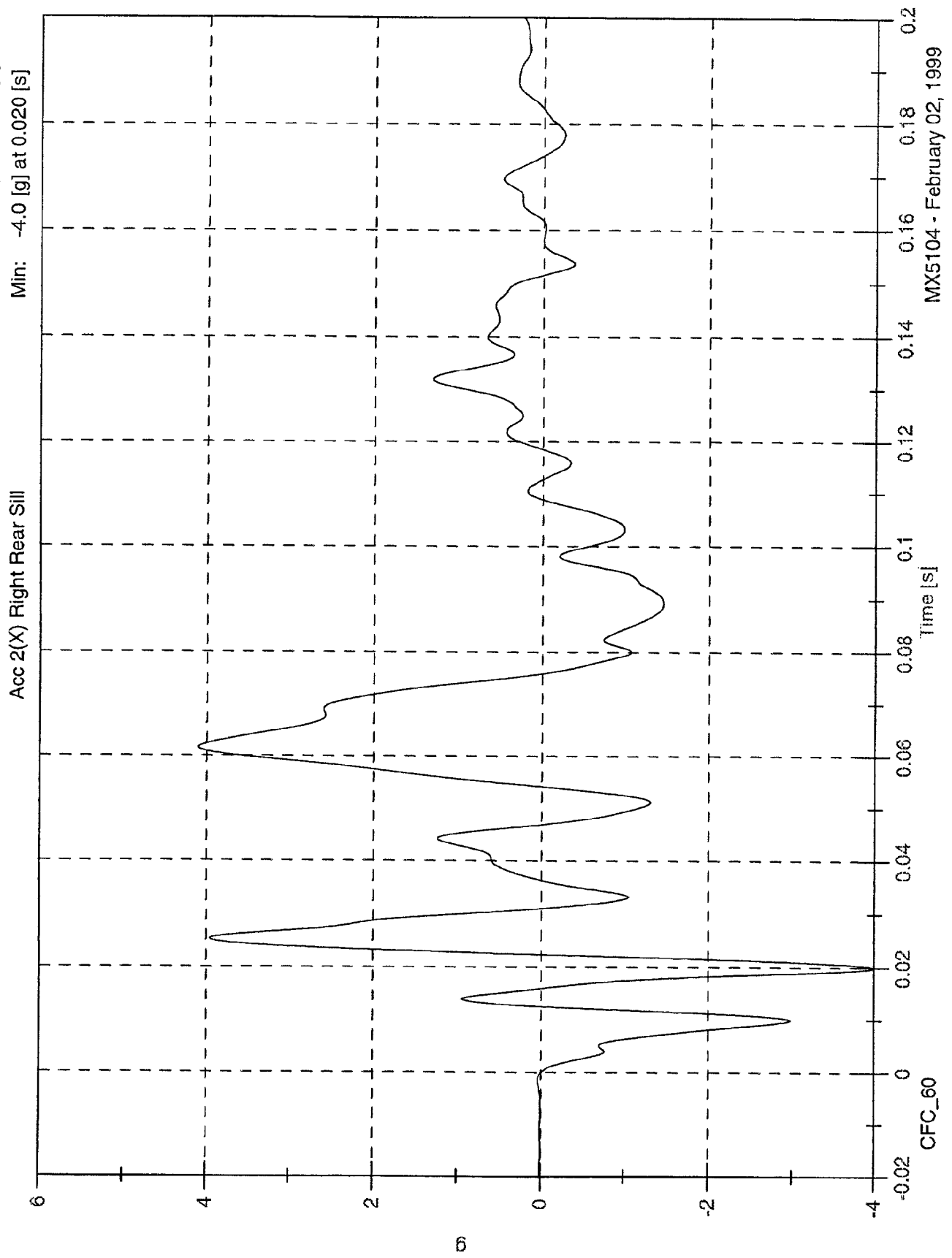
Acc 1(X) Right Front Sill Resultant



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

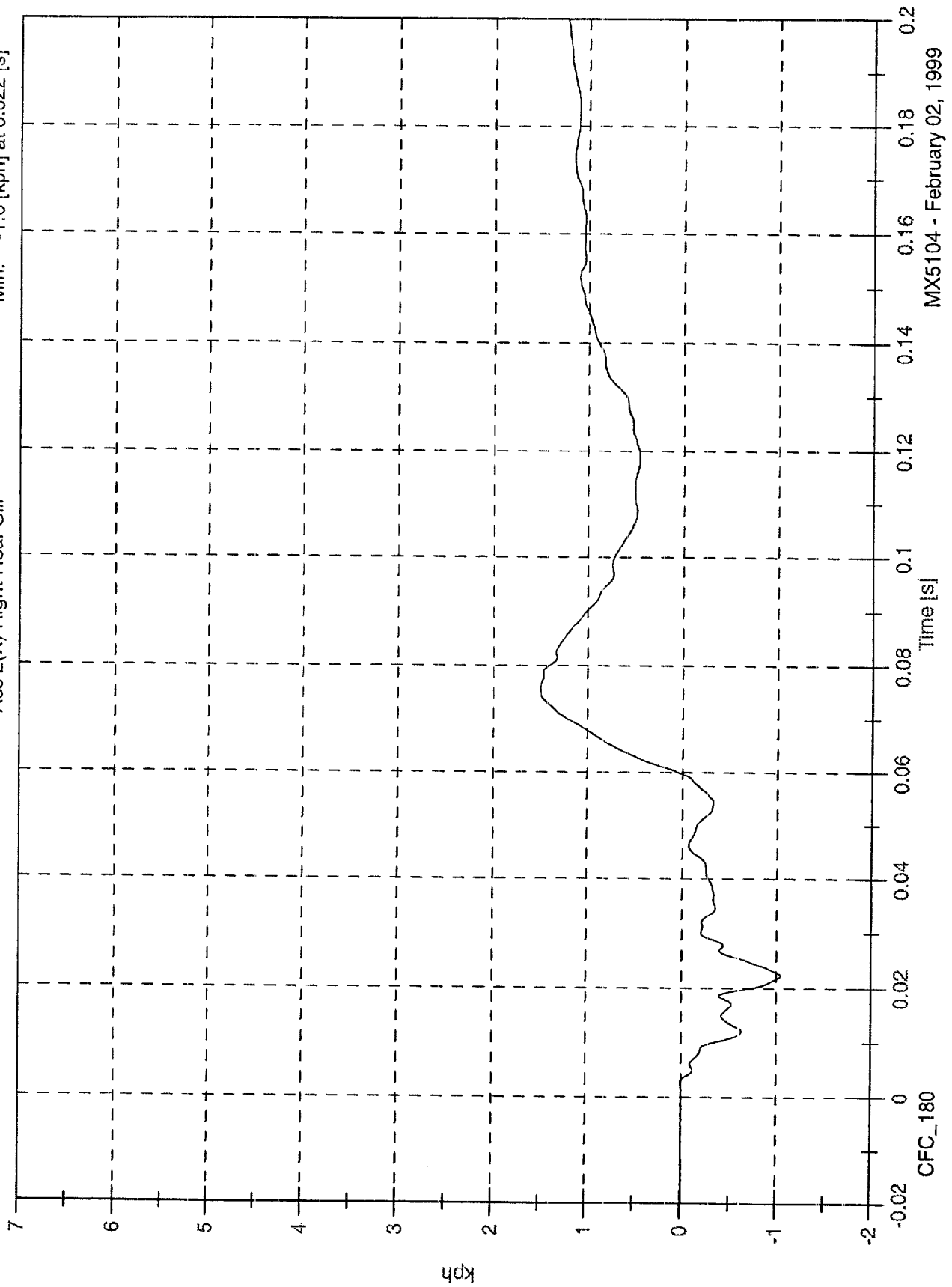
Max: 4.1 [g] at 0.062 [s]
Min: -4.0 [g] at 0.020 [s]



SNCAP Test # 4 - 1999 Toyota Solara

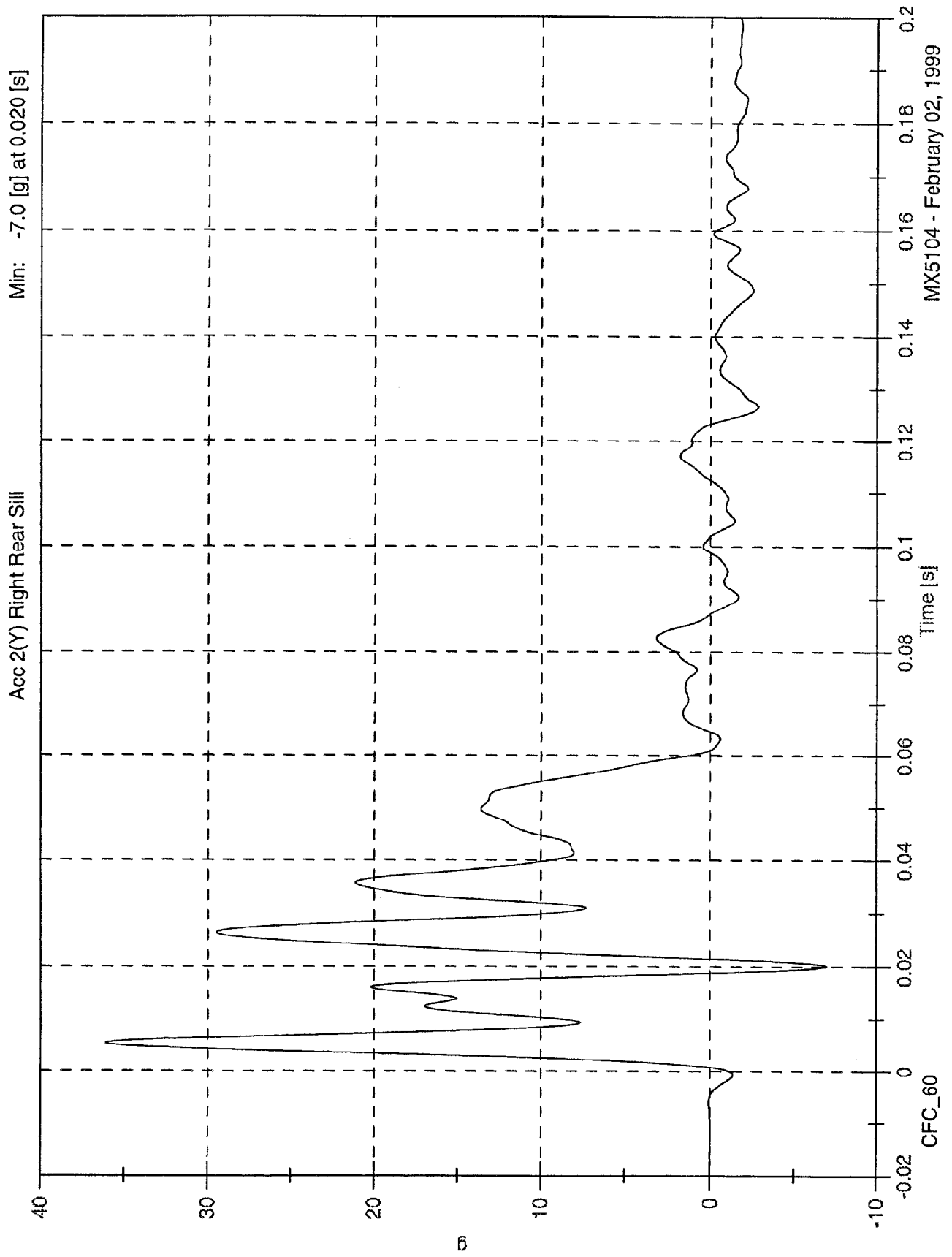
Max: 6.2 [kph] at 0.499 [s]
Min: -1.0 [kph] at 0.022 [s]

Acc 2(X) Right Rear Sill

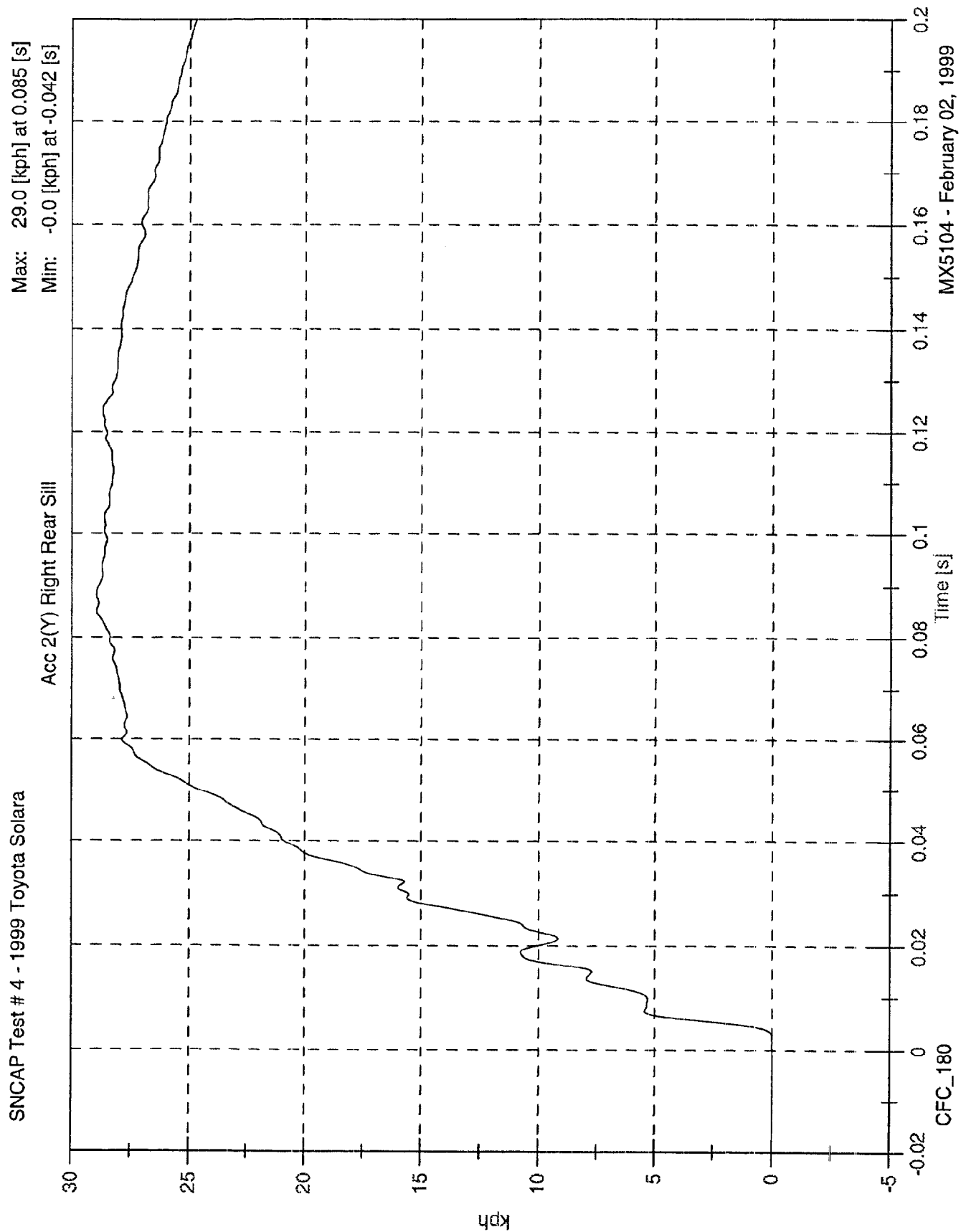


SNCAP Test # 4 - 1999 Toyota Solara

Max: 36.2 [g] at 0.005 [s]
Min: -7.0 [g] at 0.020 [s]

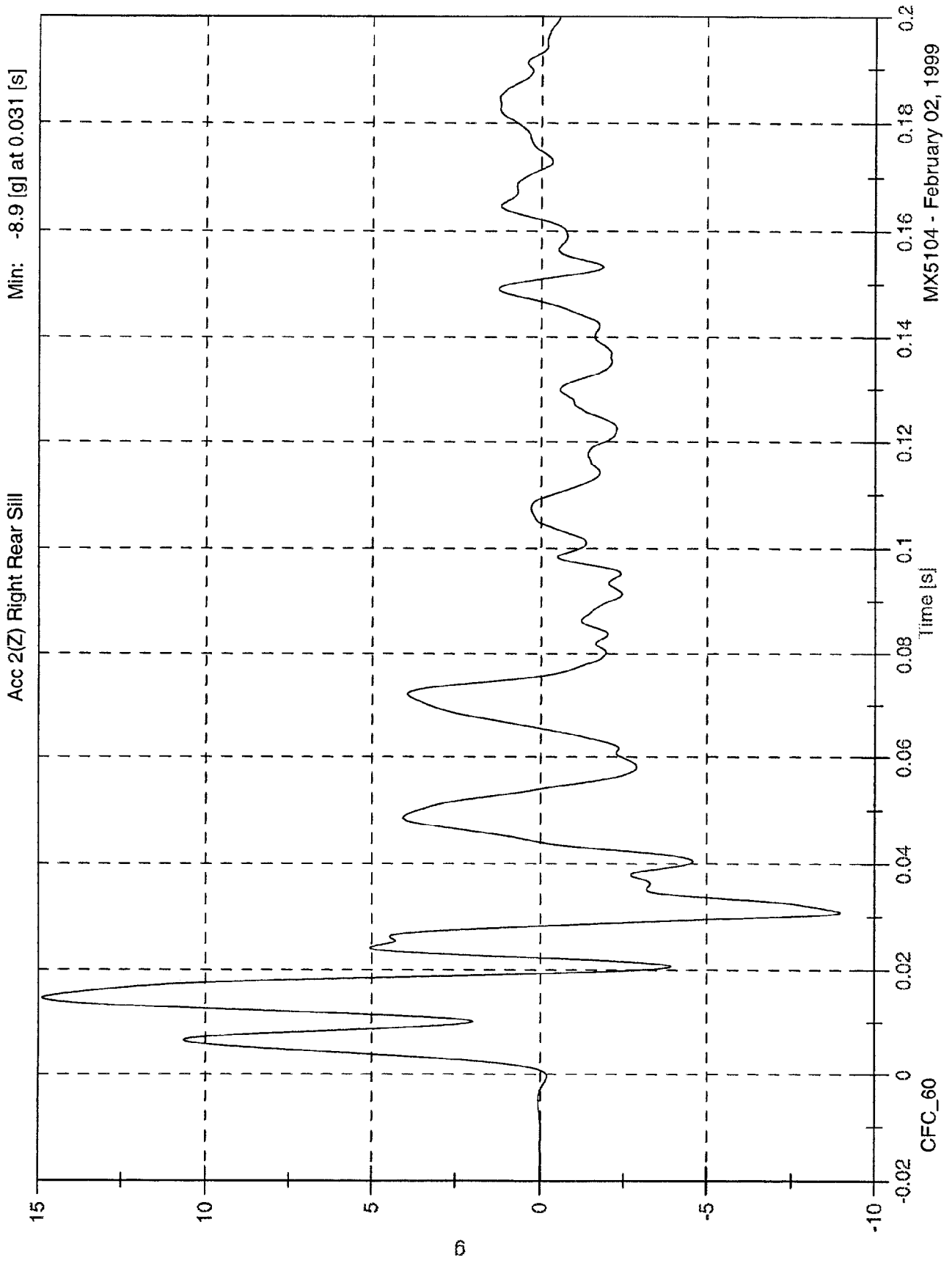


MX5104 - February 02, 1999



SNCAP Test # 4 - 1999 Toyota Solara

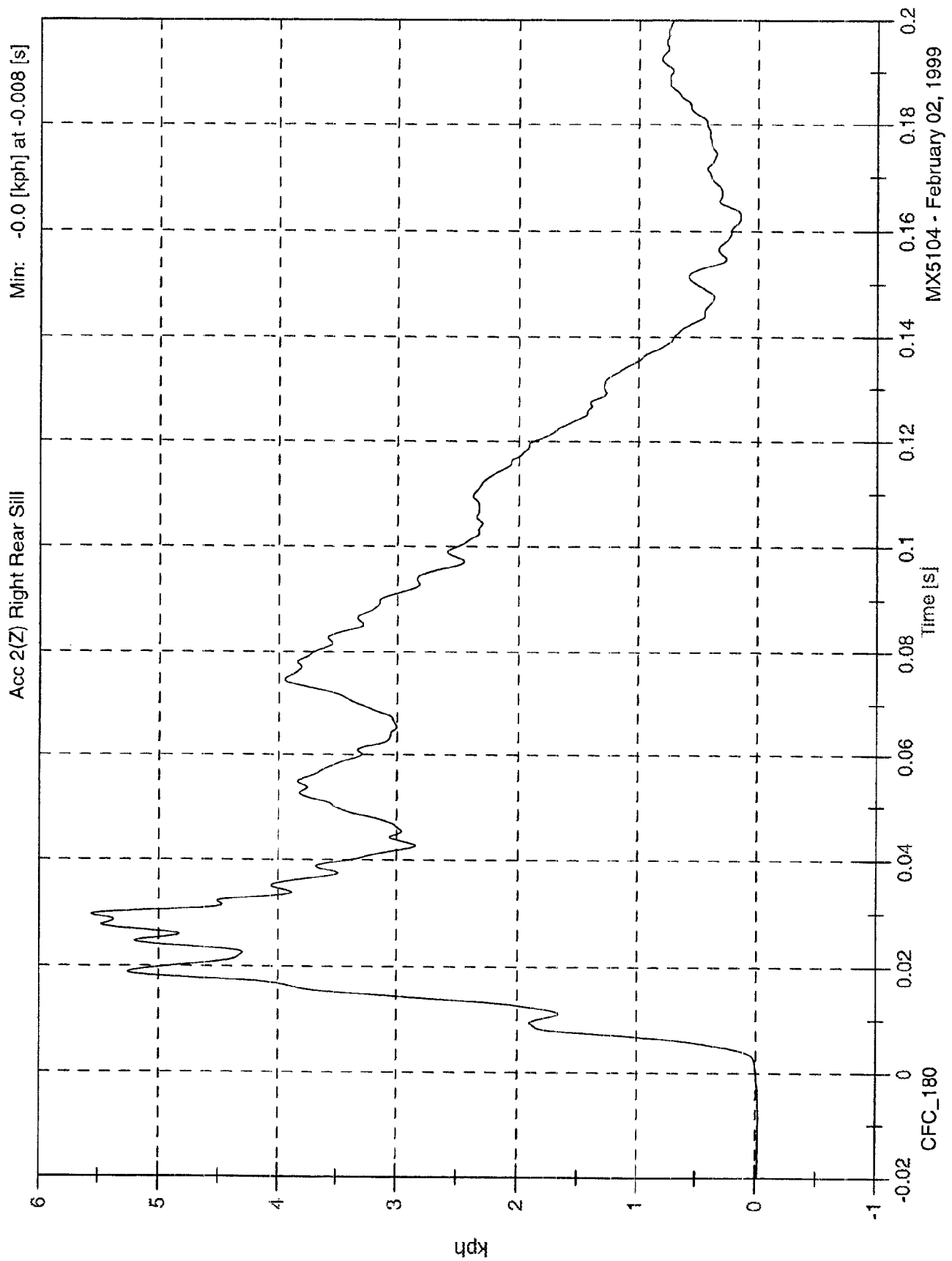
Max: 14.9 [g] at 0.015 [s]
Min: -8.9 [g] at 0.031 [s]



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 5.6 [kph] at 0.030 [s]
 Min: -0.0 [kph] at -0.008 [s]



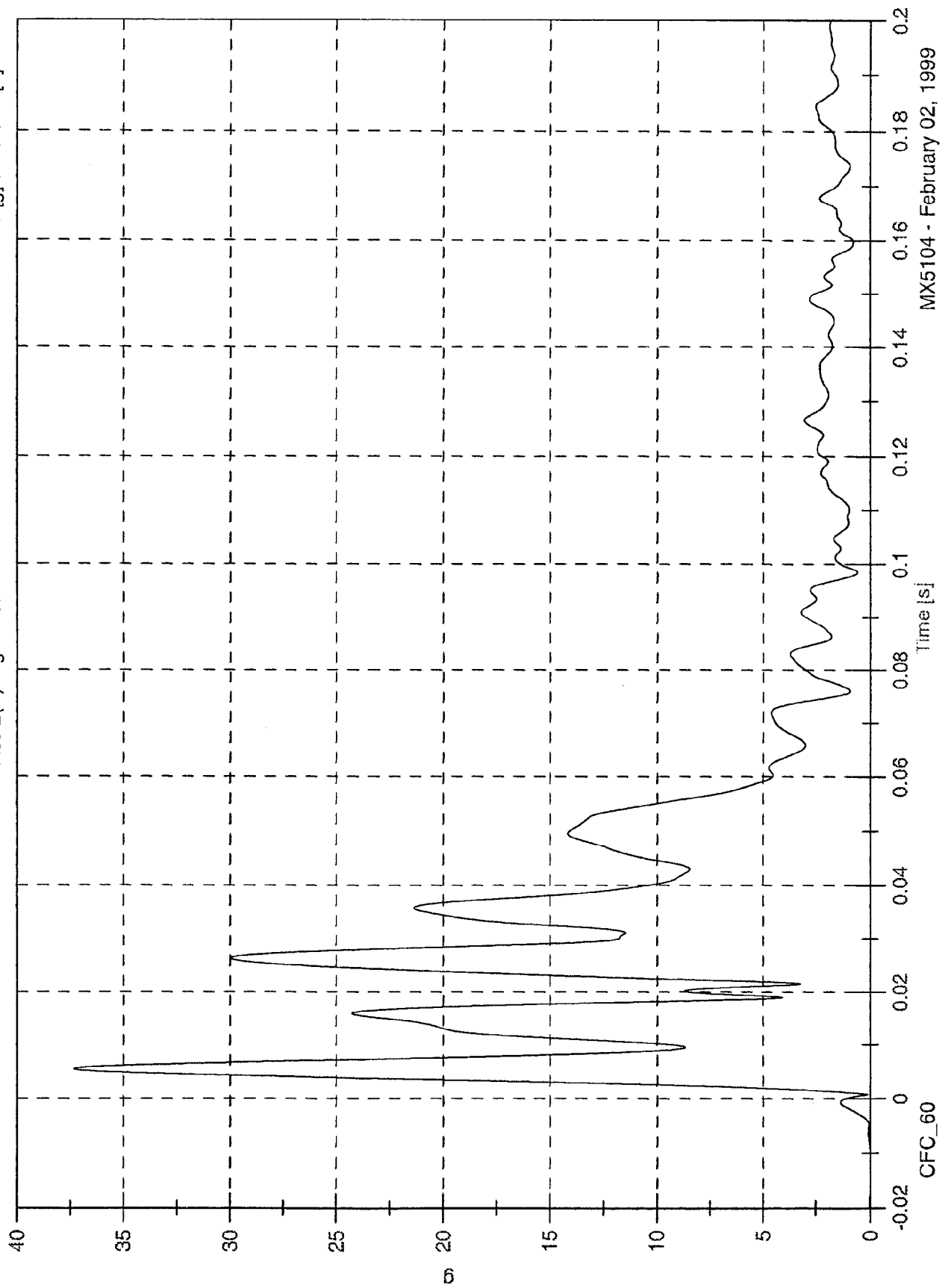
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 37.3 [g] at 0.005 [s]

Min: 0.0 [g] at -0.046 [s]

Acc 2(X) Right Rear Sill Resultant

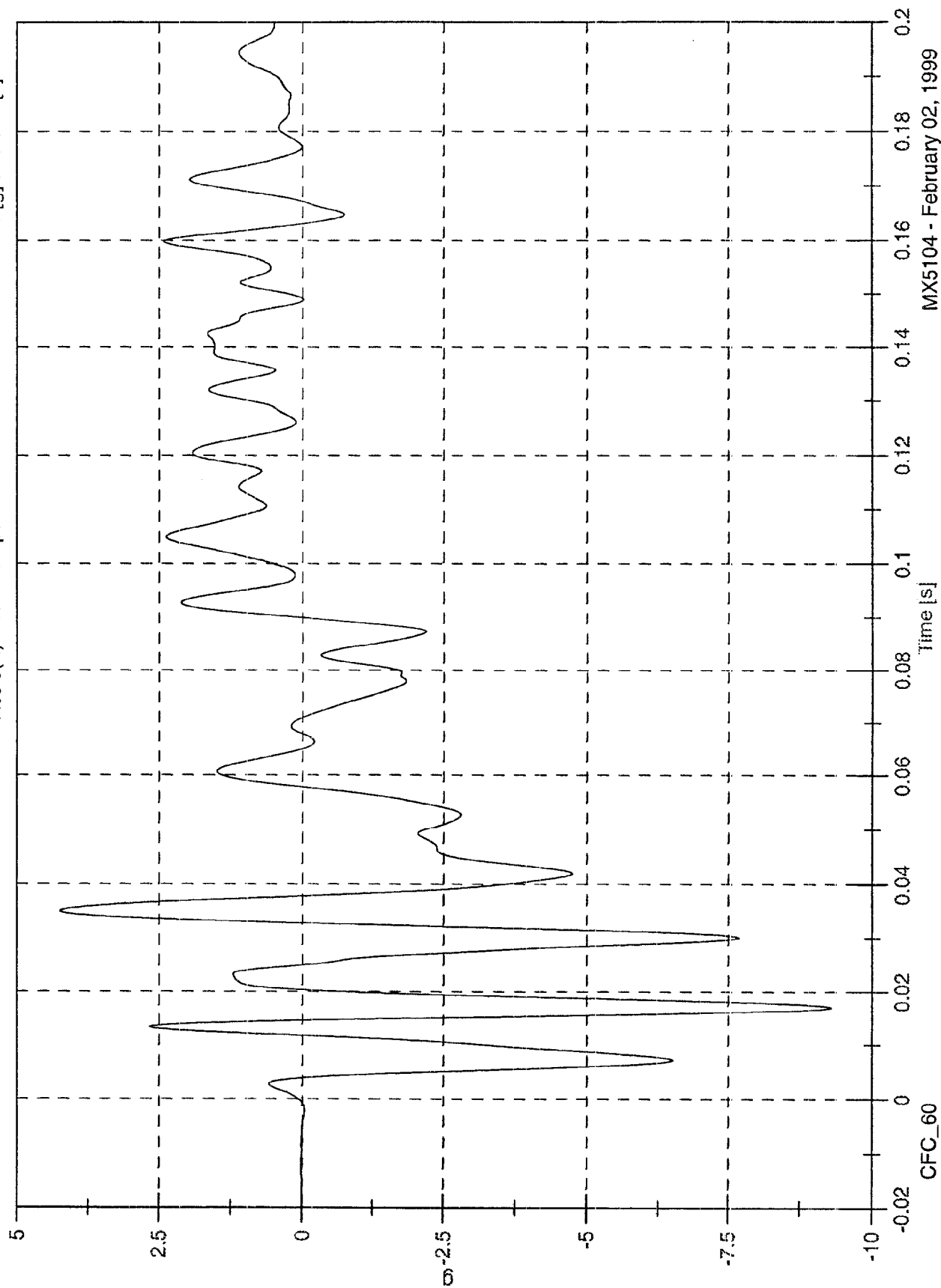


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SNCAP Test # 4 - 1999 Toyota Solara

Max: 4.3 [g] at 0.035 [s]
Min: -9.3 [g] at 0.017 [s]

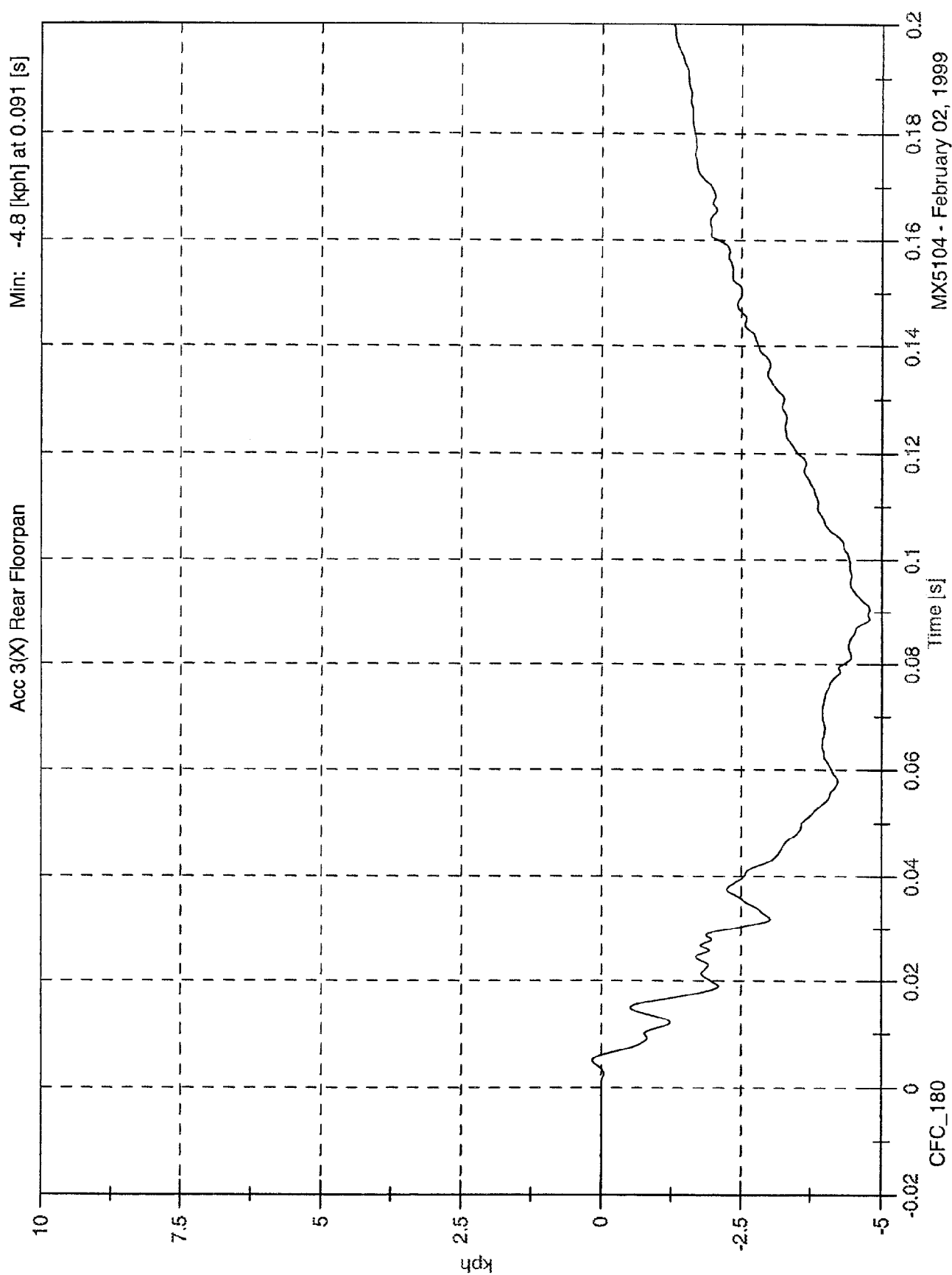
Acc 3(X) Rear Floorpan



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SNCAP Test # 4 - 1999 Toyota Solara

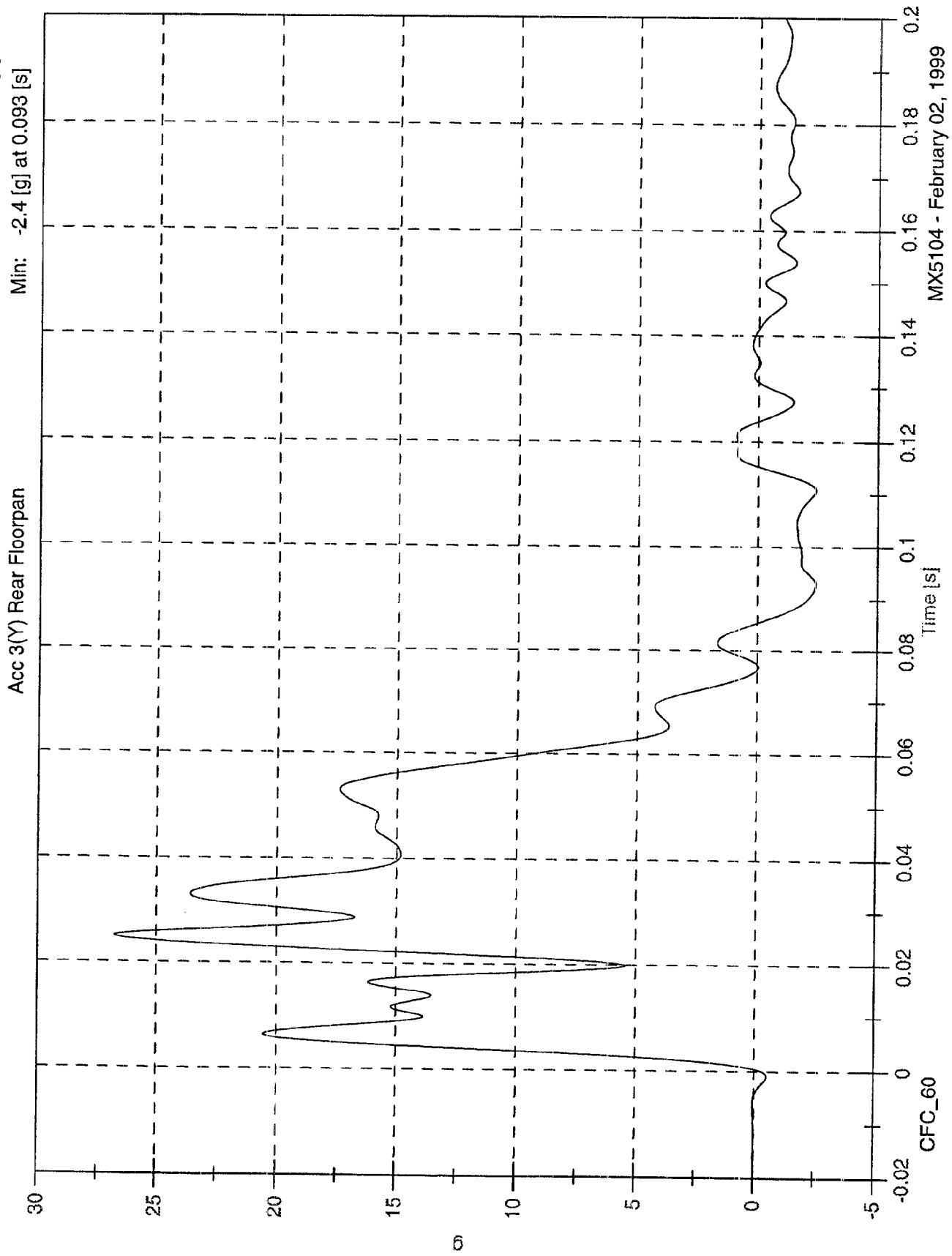
Max: 7.8 [kph] at 0.500 [s]
Min: -4.8 [kph] at 0.091 [s]



MX5104 - February 02, 1999

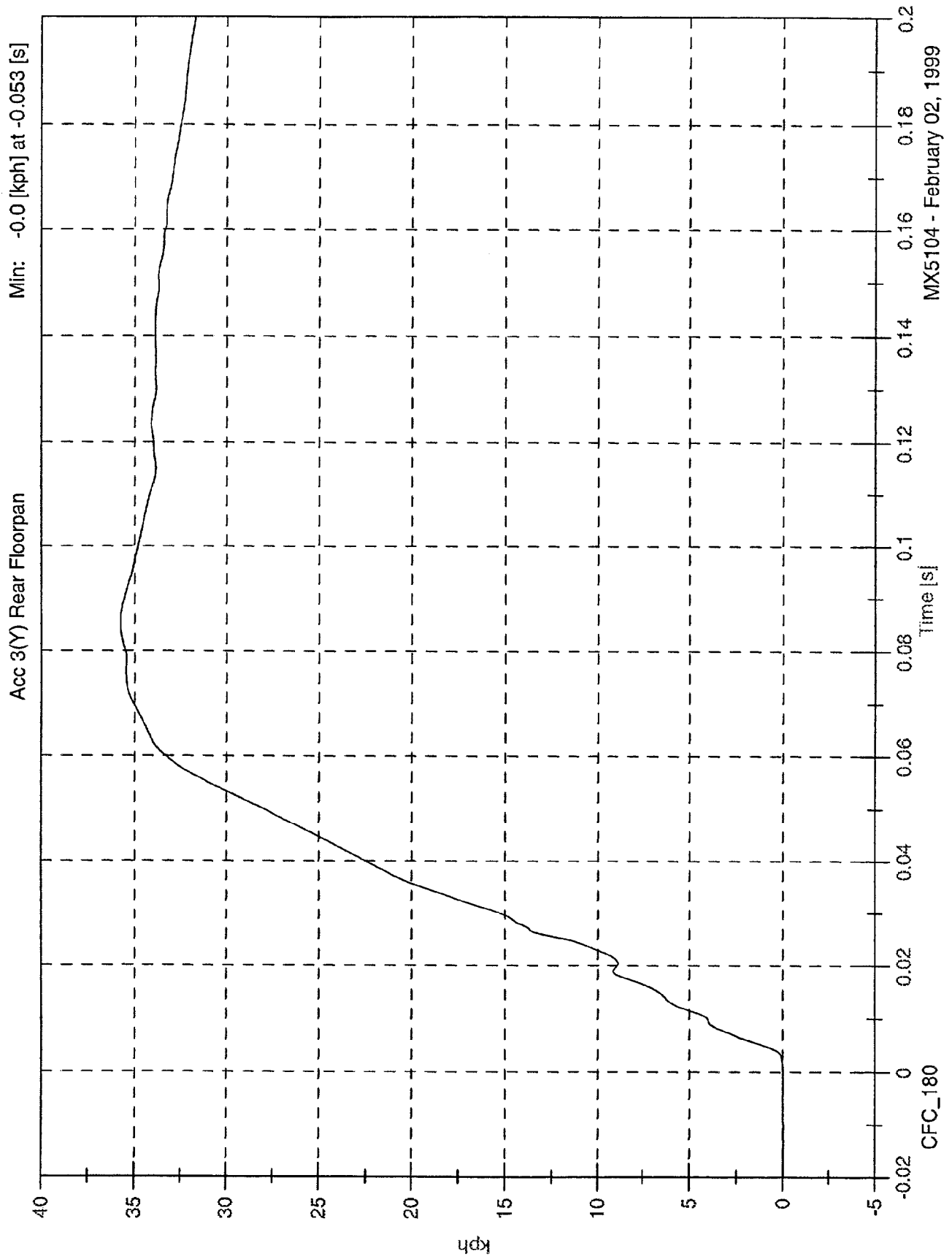
SNCAP Test # 4 - 1999 Toyota Solara

Max: 26.8 [g] at 0.025 [s]
Min: -2.4 [g] at 0.093 [s]



SNCAP Test # 4 - 1999 Toyota Solara

Max: 35.8 [kph] at 0.085 [s]
Min: -0.0 [kph] at -0.053 [s]

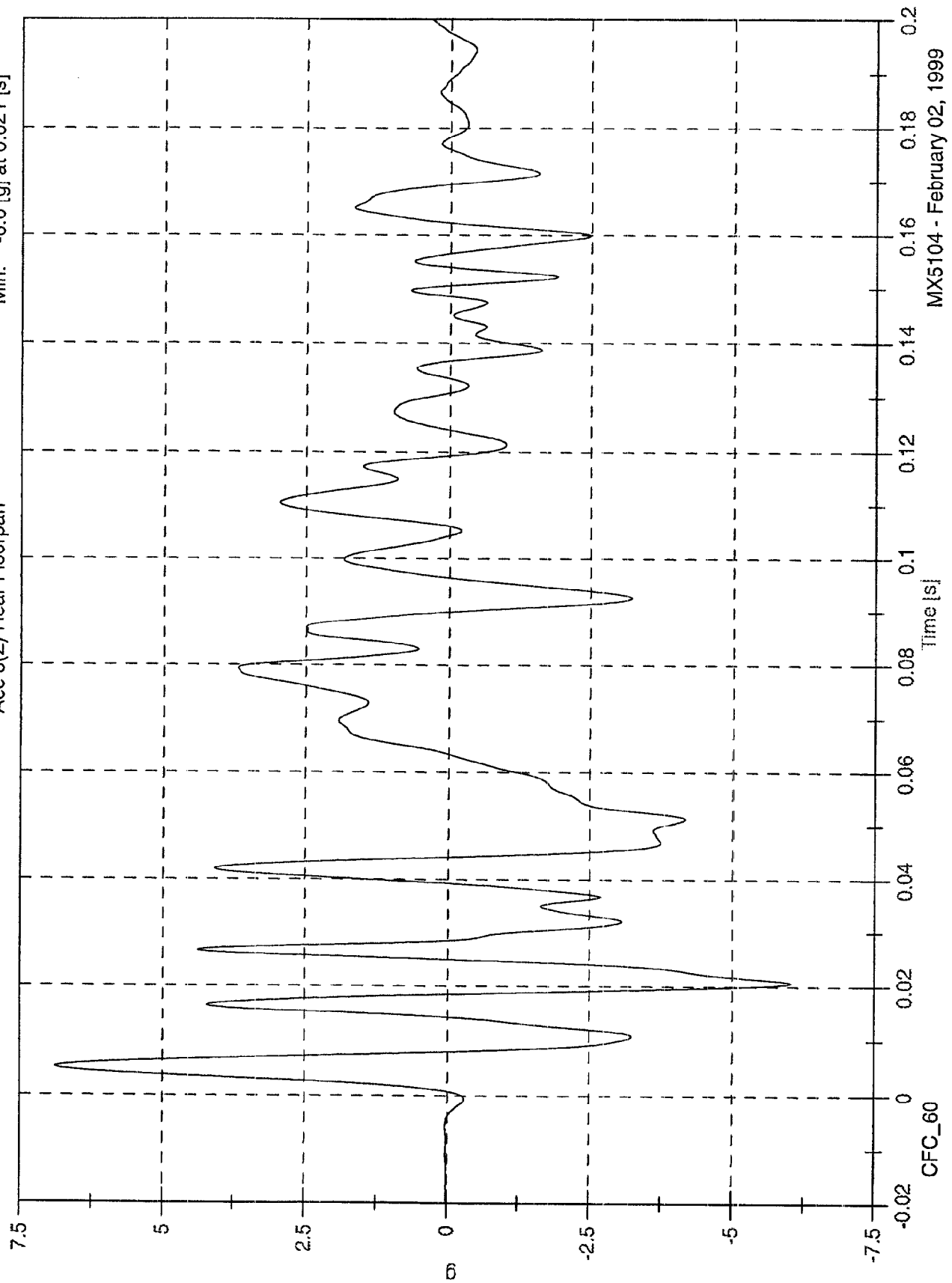


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SNCAP Test # 4 - 1999 Toyota Solara

Max: 6.9 [g] at 0.005 [s]
Min: -6.0 [g] at 0.021 [s]

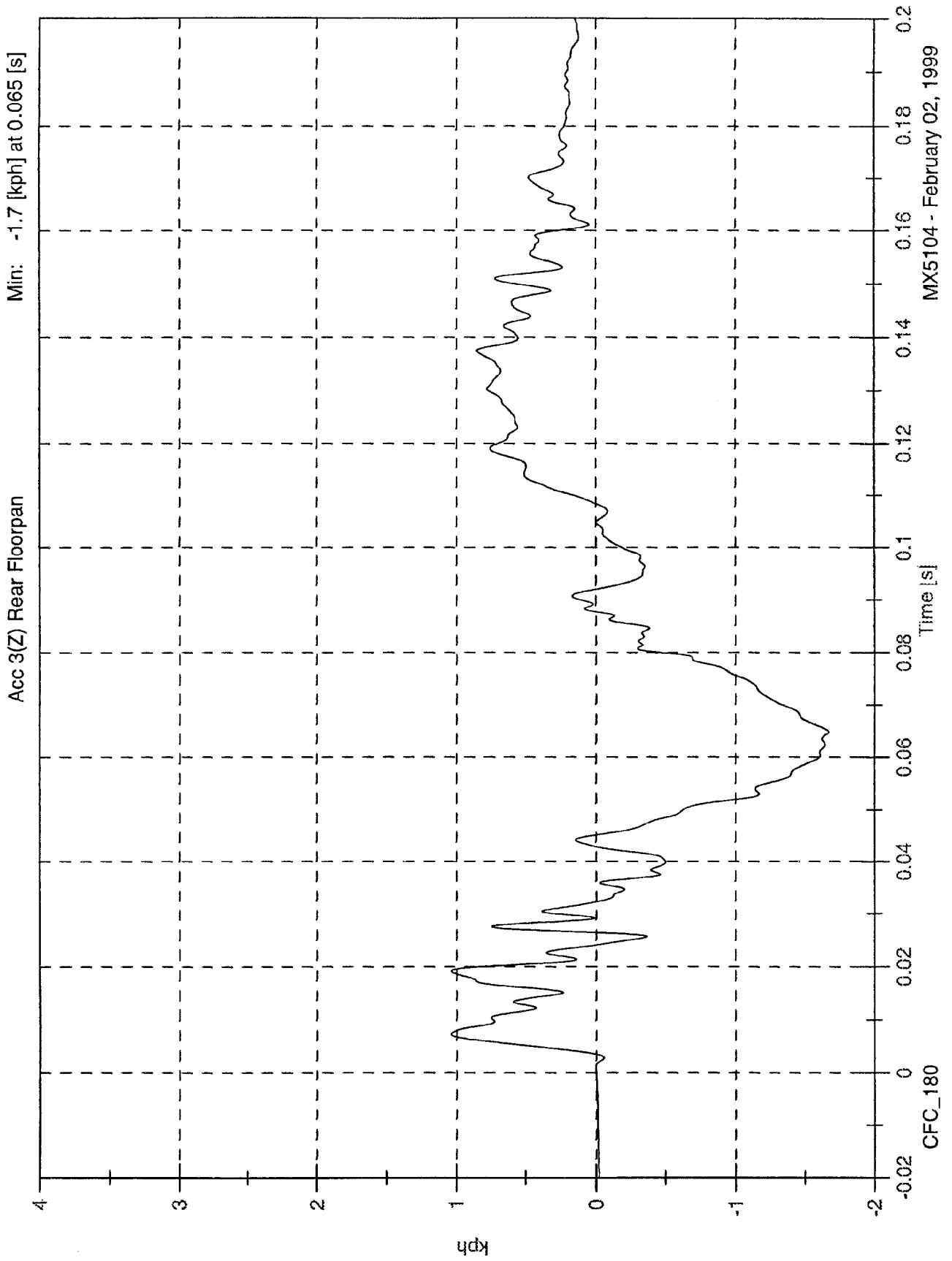
Acc 3(Z) Rear Floorpan



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SNCAP Test # 4 - 1999 Toyota Solara

Max: 3.4 [kph] at 0.500 [s]
 Min: -1.7 [kph] at 0.065 [s]

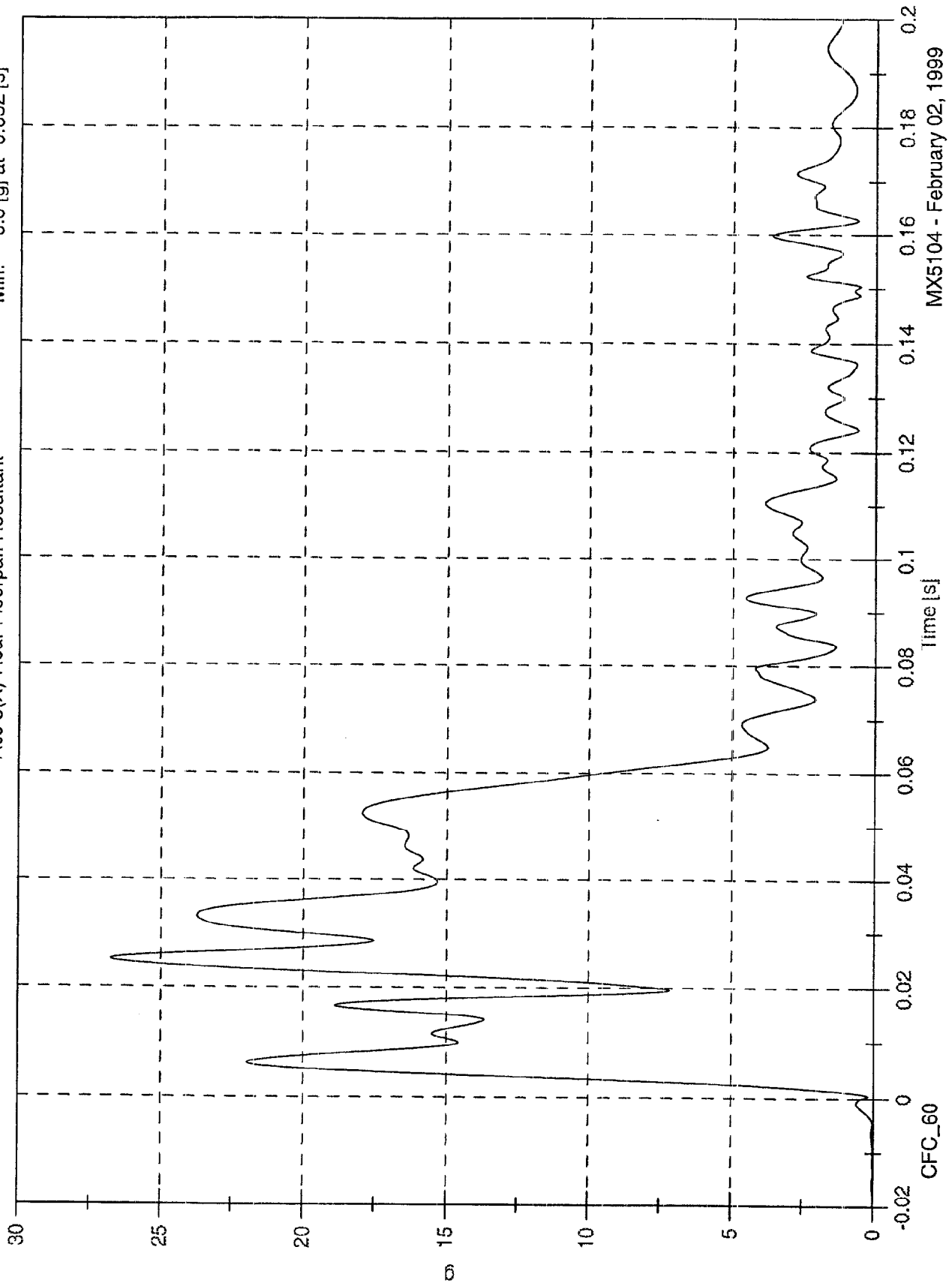


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SNCAP Test # 4 - 1999 Toyota Solara

Max: 26.8 [g] at 0.025 [s]
Min: 0.0 [g] at -0.052 [s]

Acc 3(X) Rear Floorpan Resultant

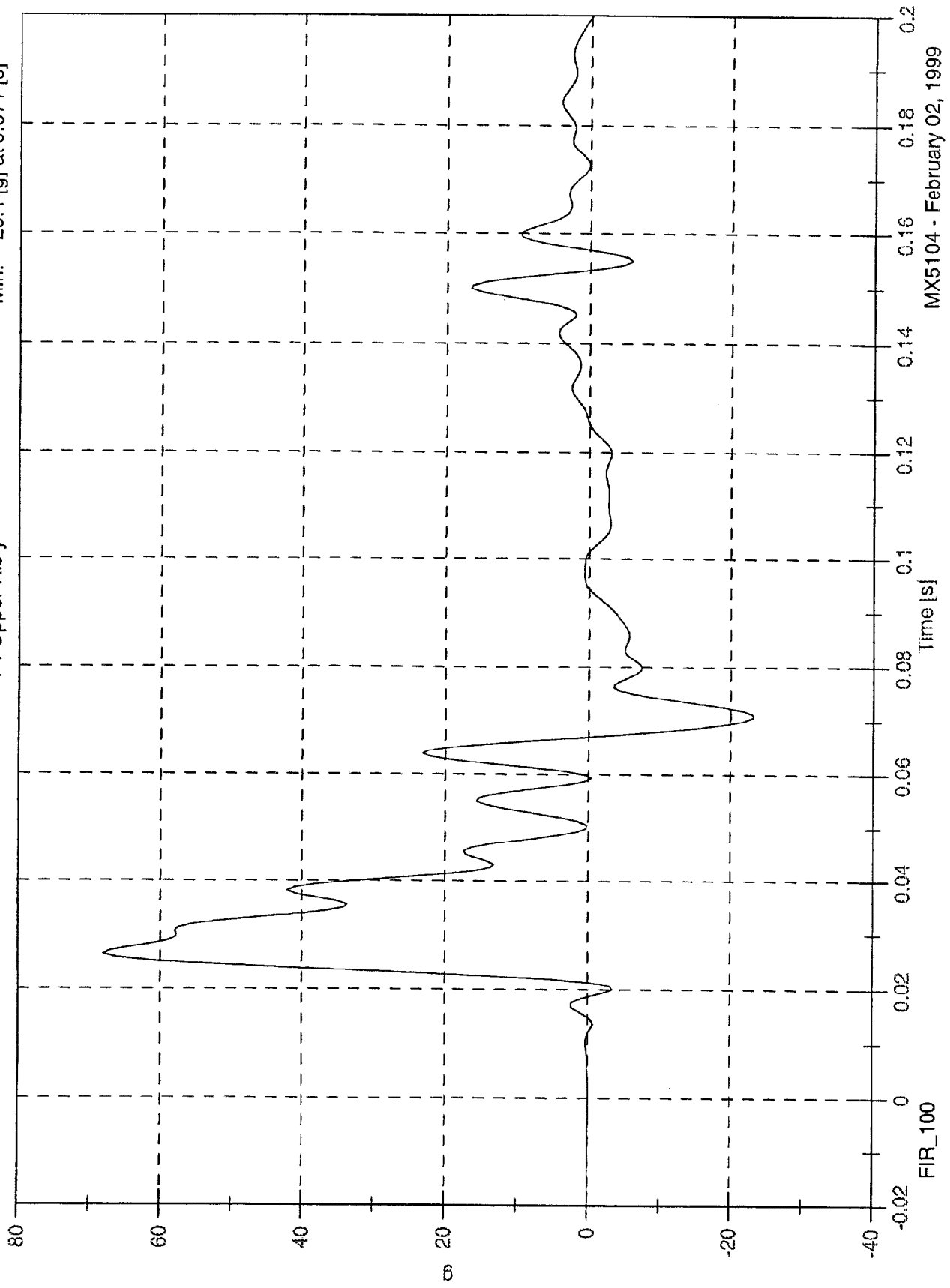


SNCAP Test # 4 - 1999 Toyota Solara

Max: 68.0 [g] at 0.026 [s]

Min: -23.1 [g] at 0.071 [s]

P1 Upper Rib y

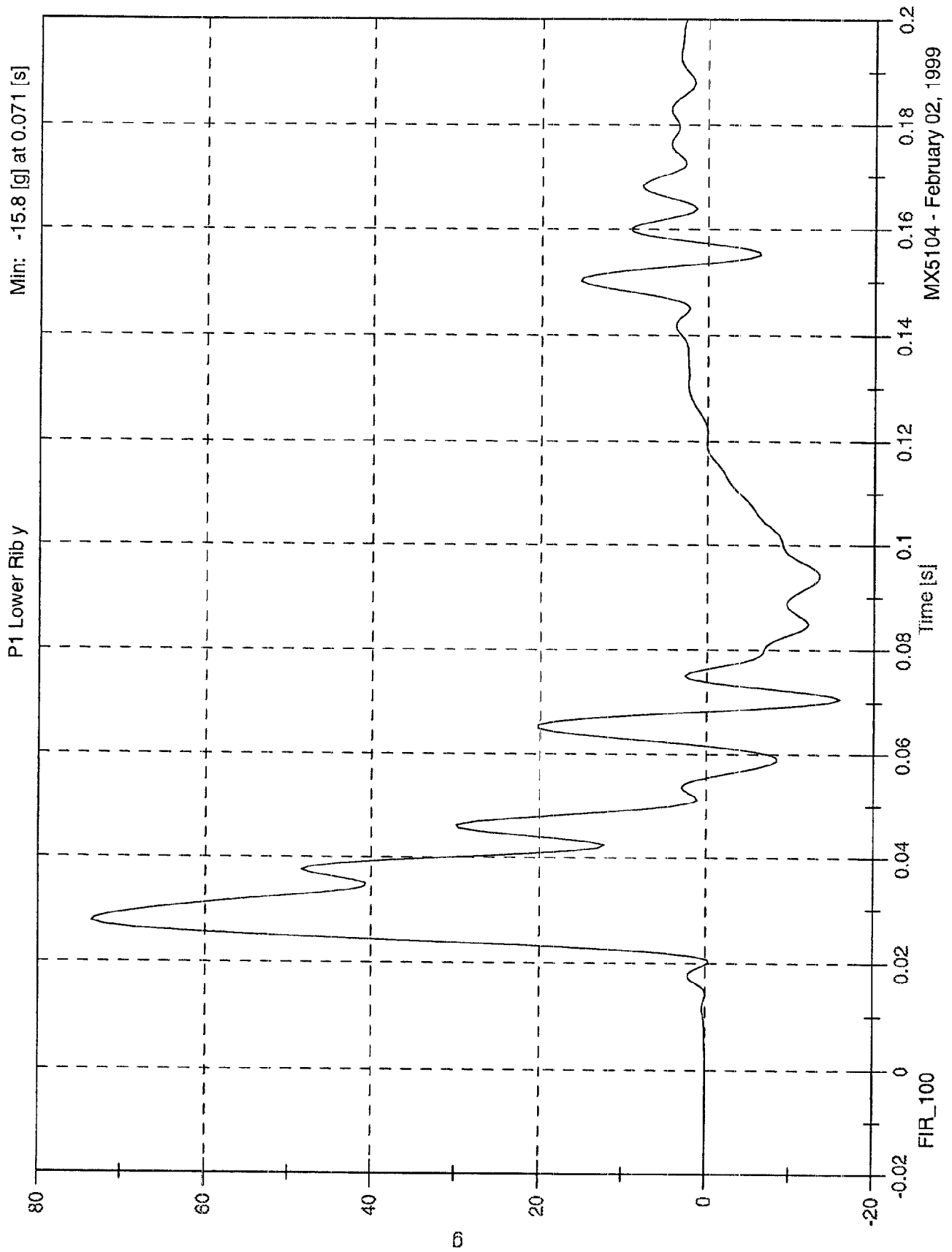


FIR_100

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SNCAP Test # 4 - 1999 Toyota Solara

Max: 73.5 [g] at 0.028 [s]
Min: -15.8 [g] at 0.071 [s]

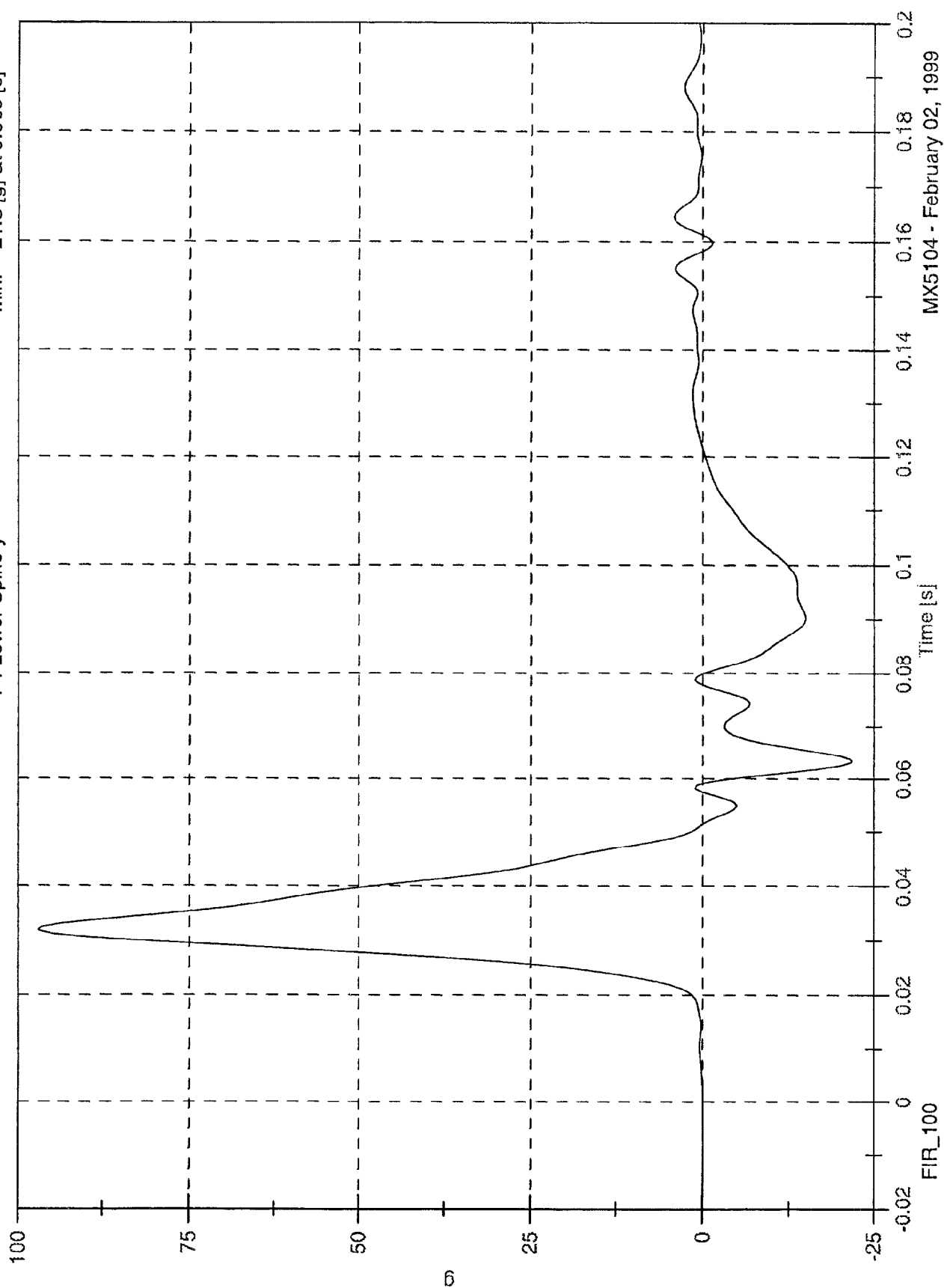


SNCAP Test # 4 - 1999 Toyota Solara

Max: 97.1 [g] at 0.032 [s]

Min: -21.8 [g] at 0.063 [s]

P1 Lower Spine y

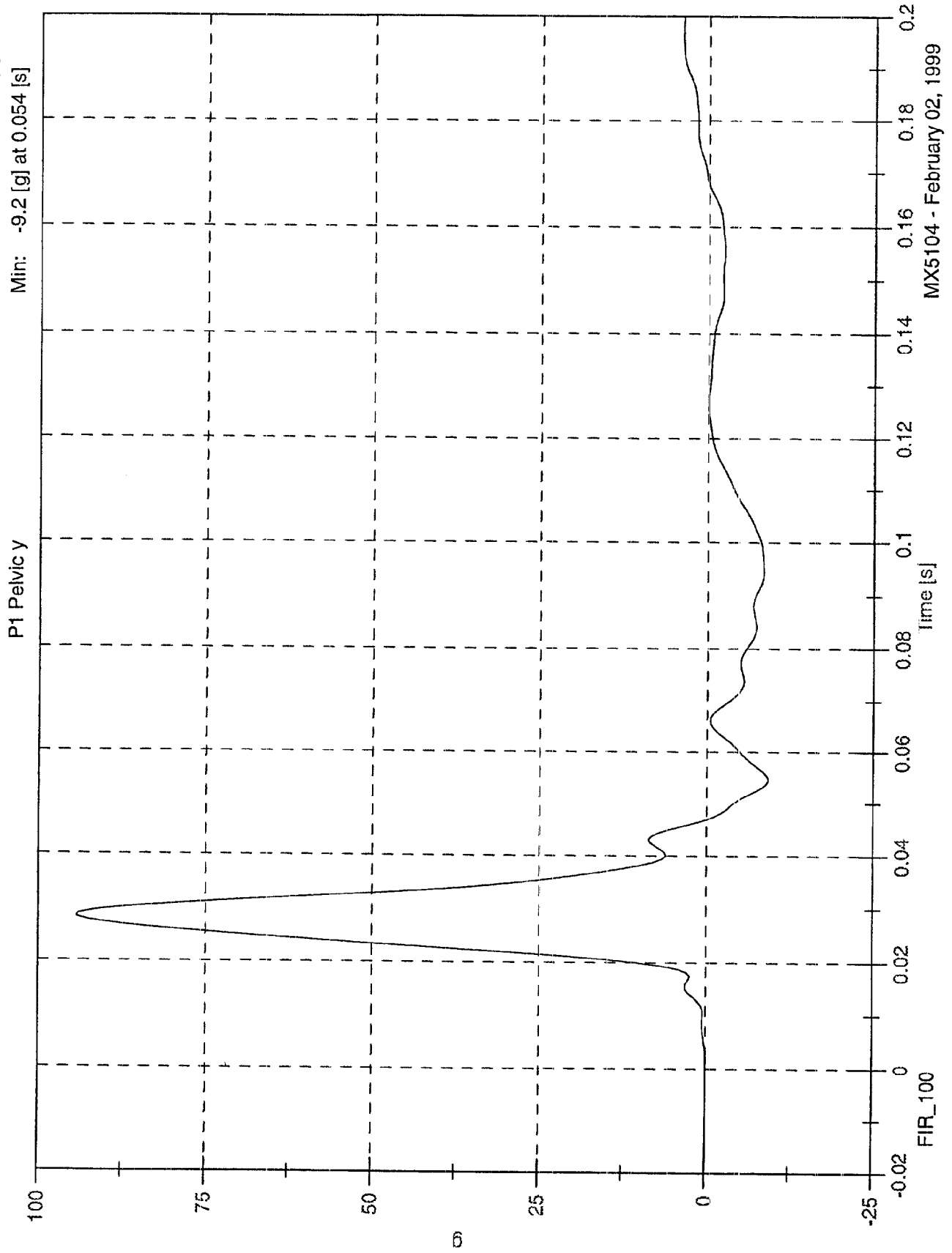


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SNCAP Test # 4 - 1999 Toyota Solara

Max: 94.3 [g] at 0.028 [s]

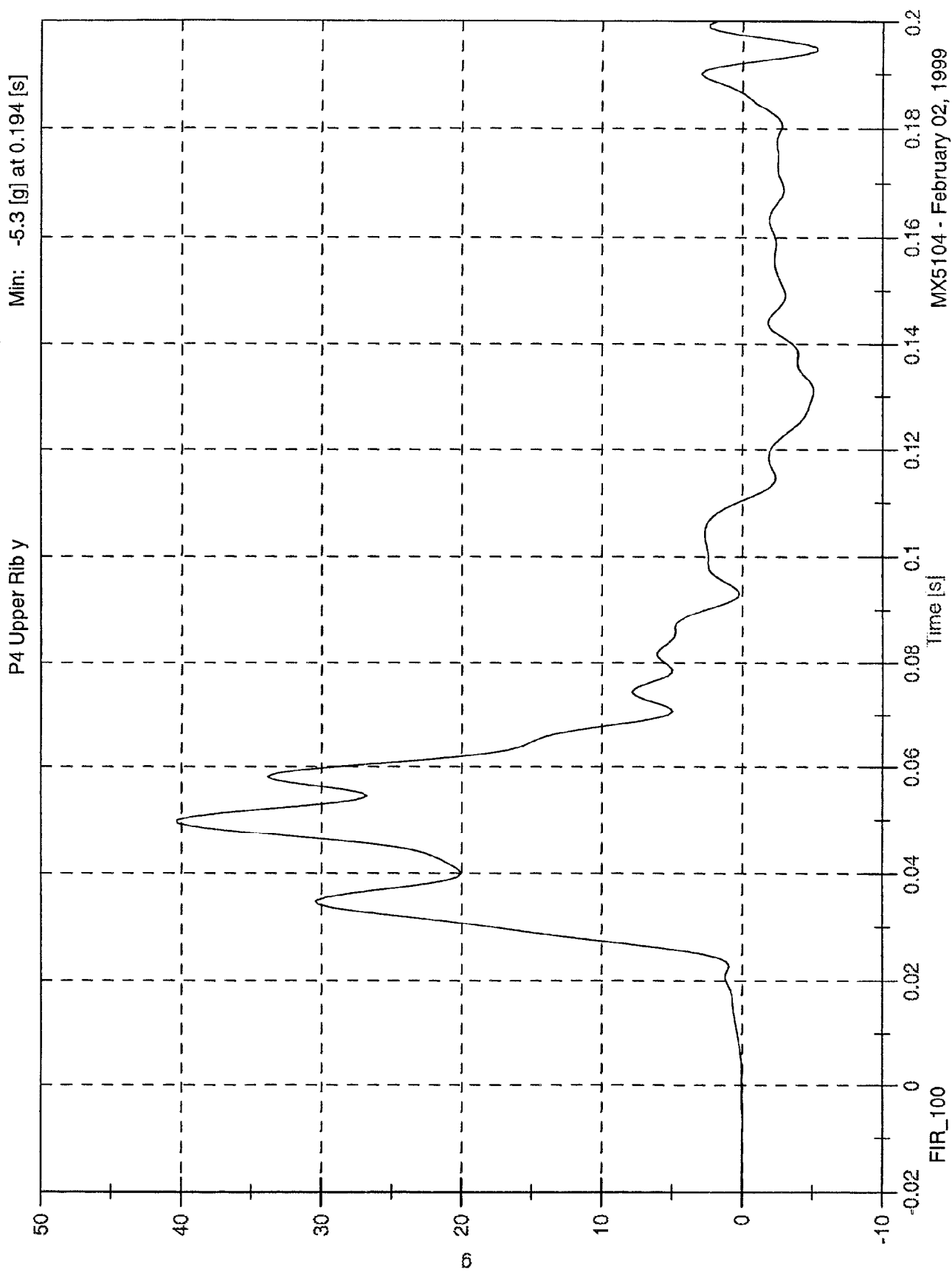
Min: -9.2 [g] at 0.054 [s]



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SNCAP Test # 4 - 1999 Toyota Solara

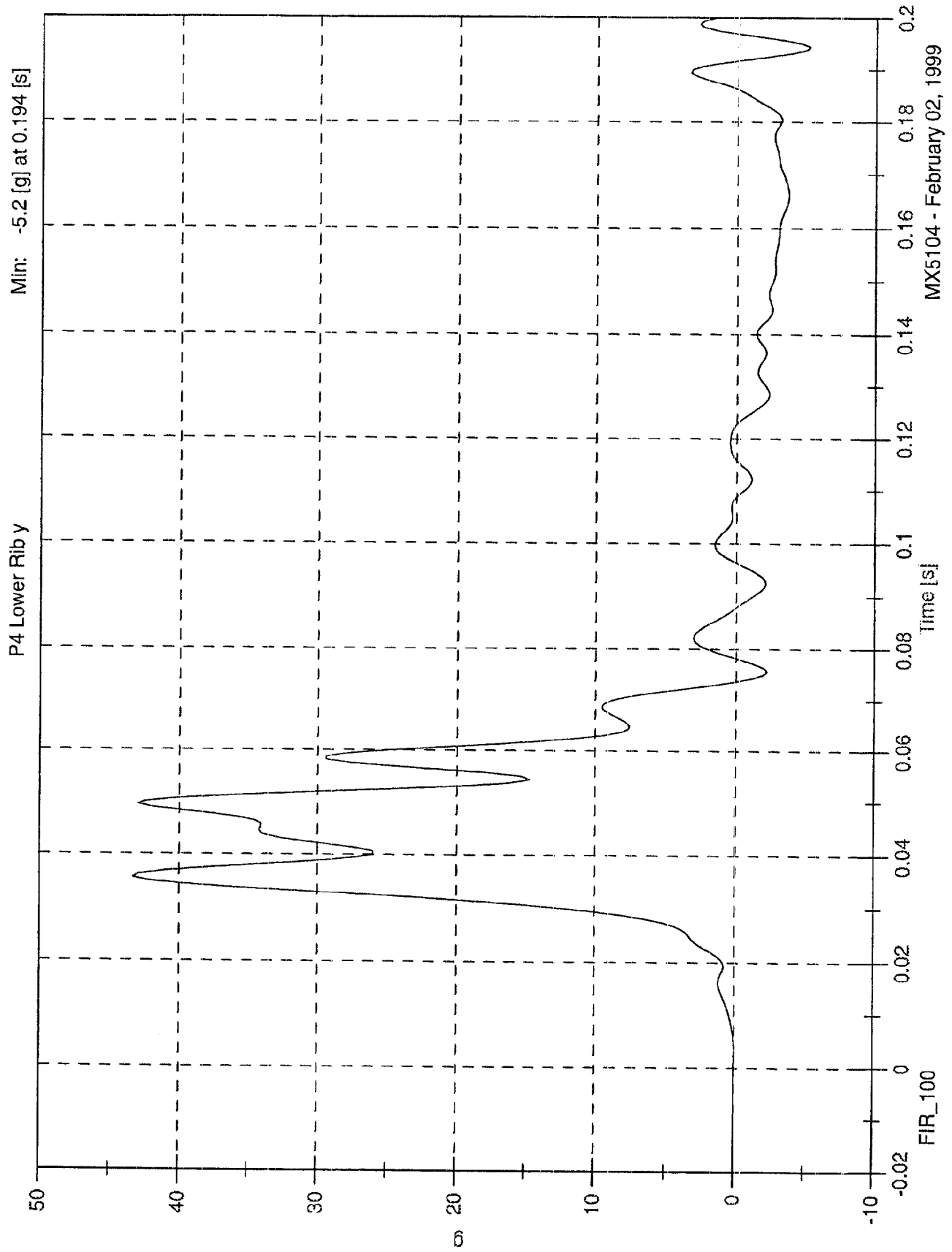
Max: 40.3 [g] at 0.050 [s]
Min: -5.3 [g] at 0.194 [s]



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SNCAP Test # 4 - 1999 Toyota Solara

Max: 43.3 [g] at 0.036 [s]
 Min: -5.2 [g] at 0.194 [s]

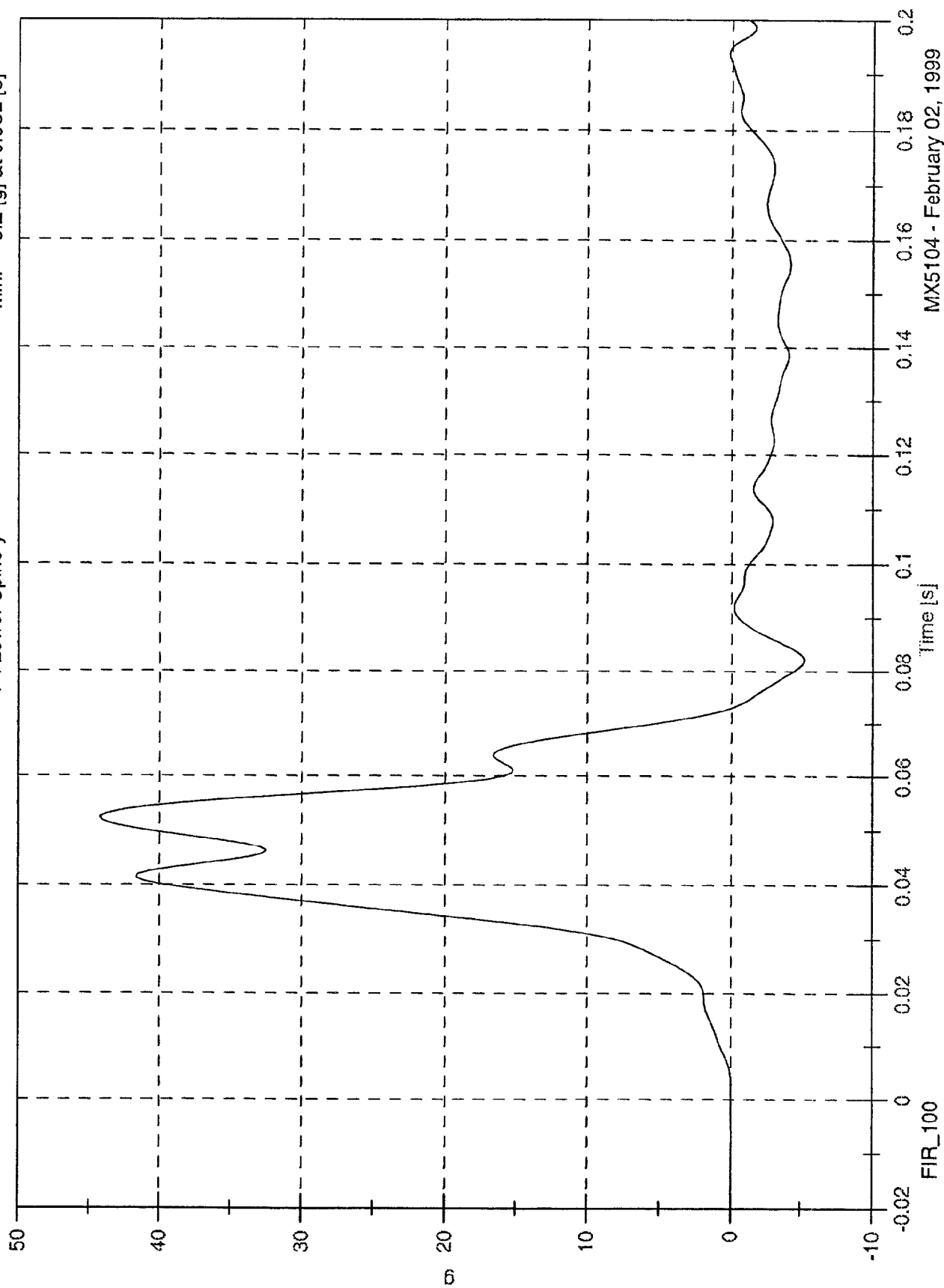


SNCAP Test # 4 - 1999 Toyota Solara

Max: 44.2 [g] at 0.053 [s]

Min: -5.2 [g] at 0.082 [s]

P4 Lower Spine y



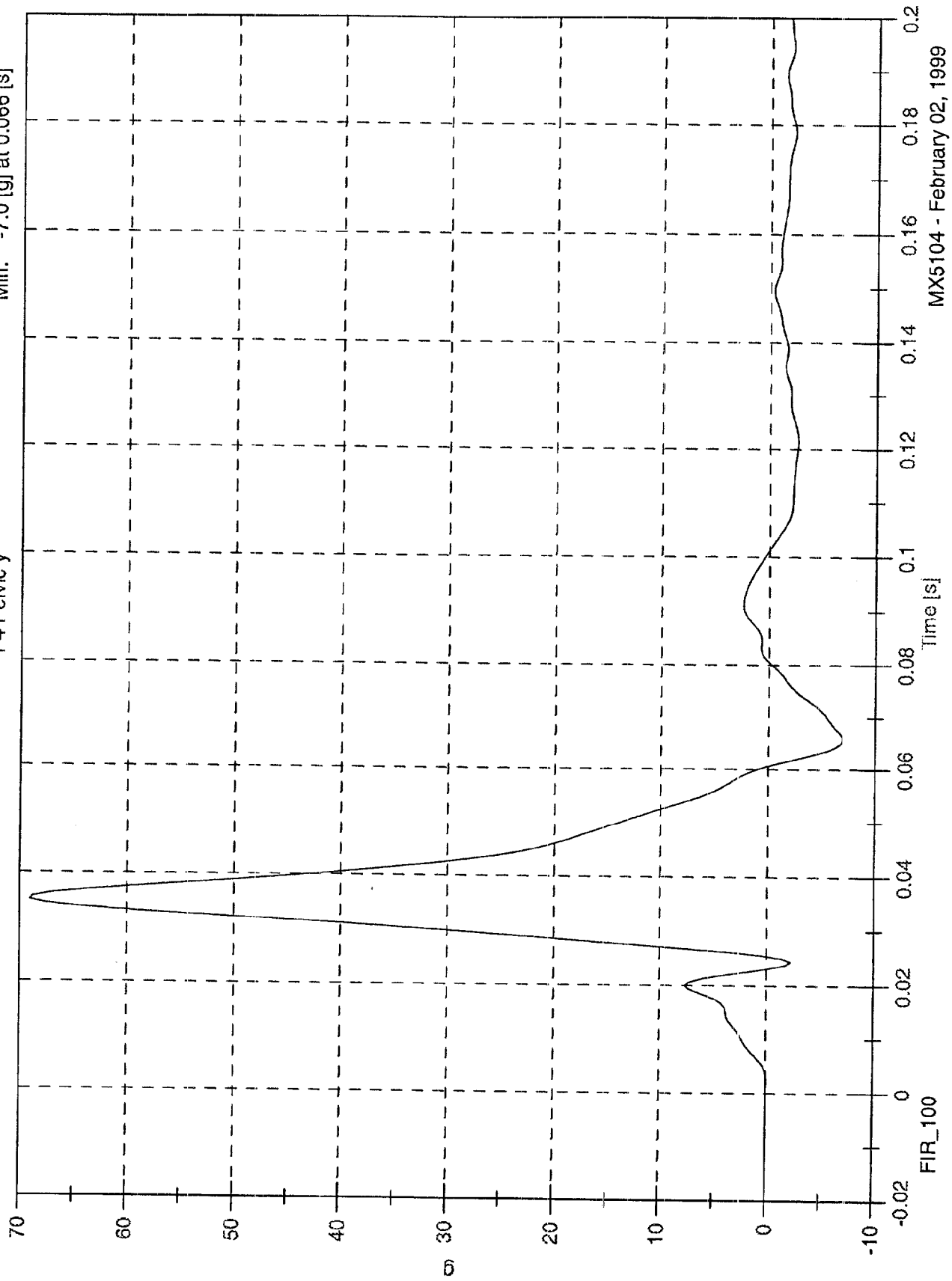
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 69.1 [g] at 0.035 [s]

Min: -7.0 [g] at 0.066 [s]

P4 Pelvic y

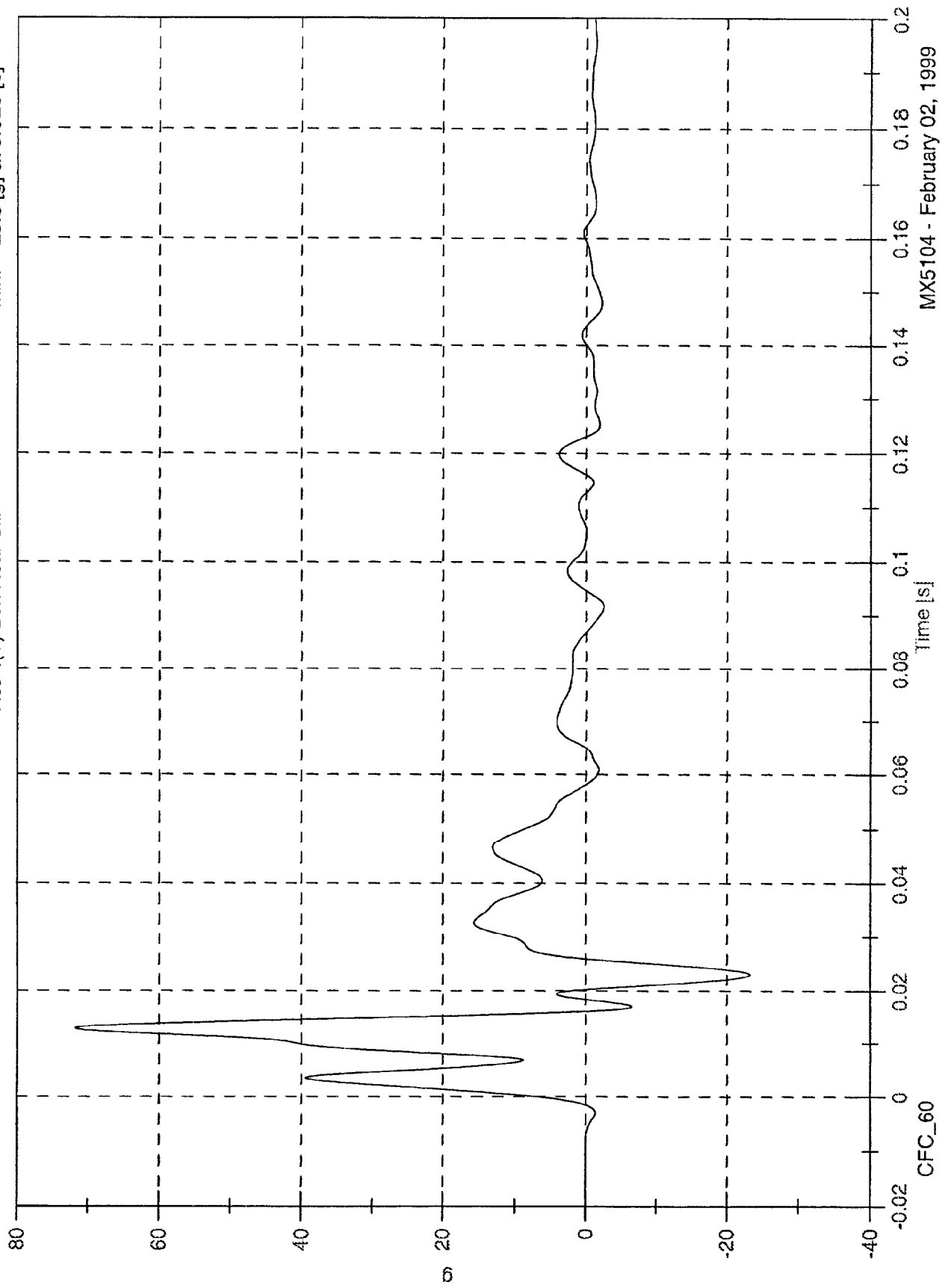


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SNCAP Test # 4 - 1999 Toyota Solara

Max: 71.8 [g] at 0.013 [s]
Min: -23.3 [g] at 0.023 [s]

Acc 4(Y) Left Rear Sill

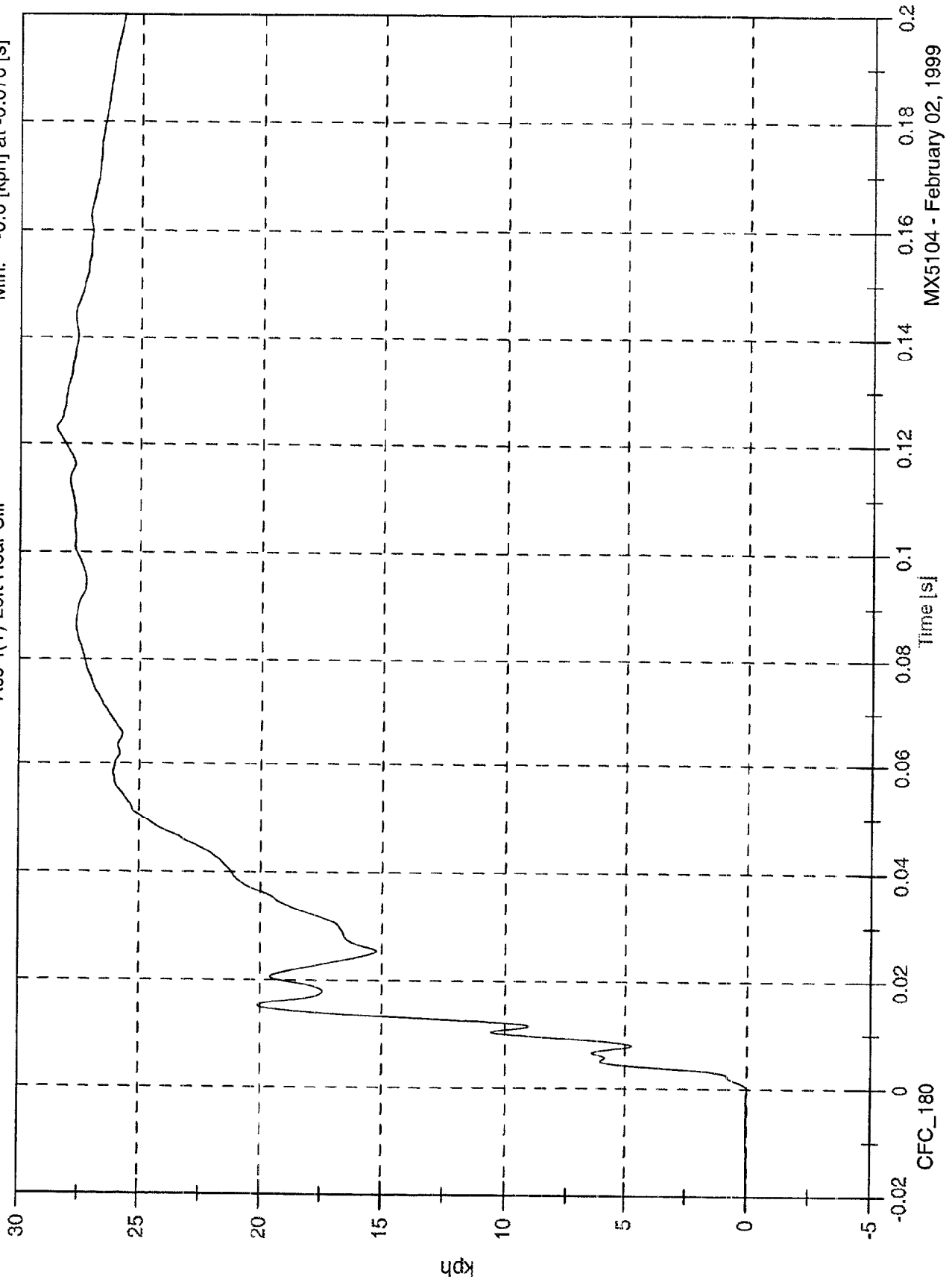


SNCAP Test # 4 - 1999 Toyota Solara

Max: 28.5 [kph] at 0.123 [s]

Min: -0.0 [kph] at -0.070 [s]

Acc 4(Y) Left Rear Sill



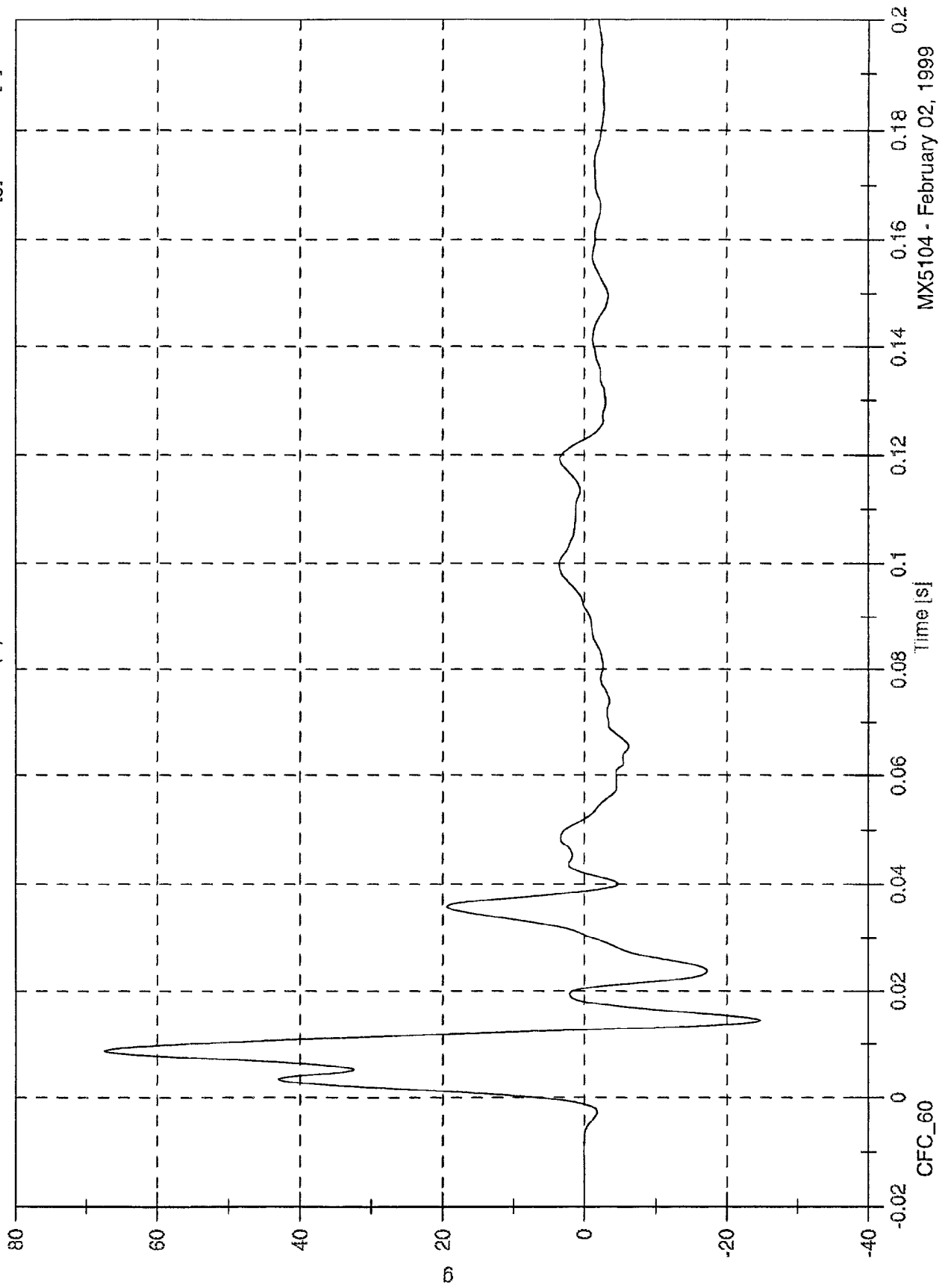
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 67.5 [g] at 0.009 [s]

Min: -24.8 [g] at 0.014 [s]

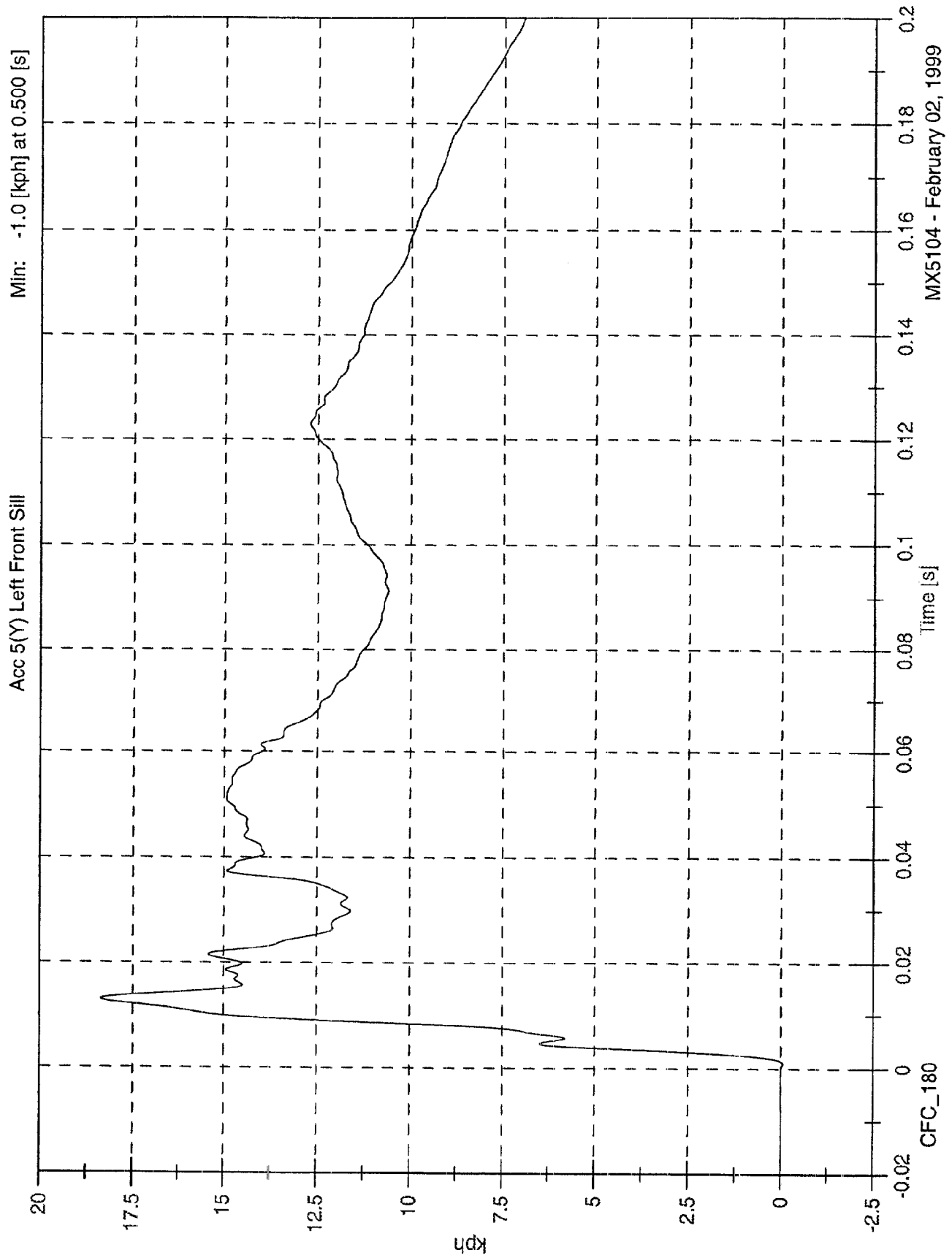
Acc 5(Y) Left Front Sill



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 18.4 [kph] at 0.013 [s]
 Min: -1.0 [kph] at 0.500 [s]



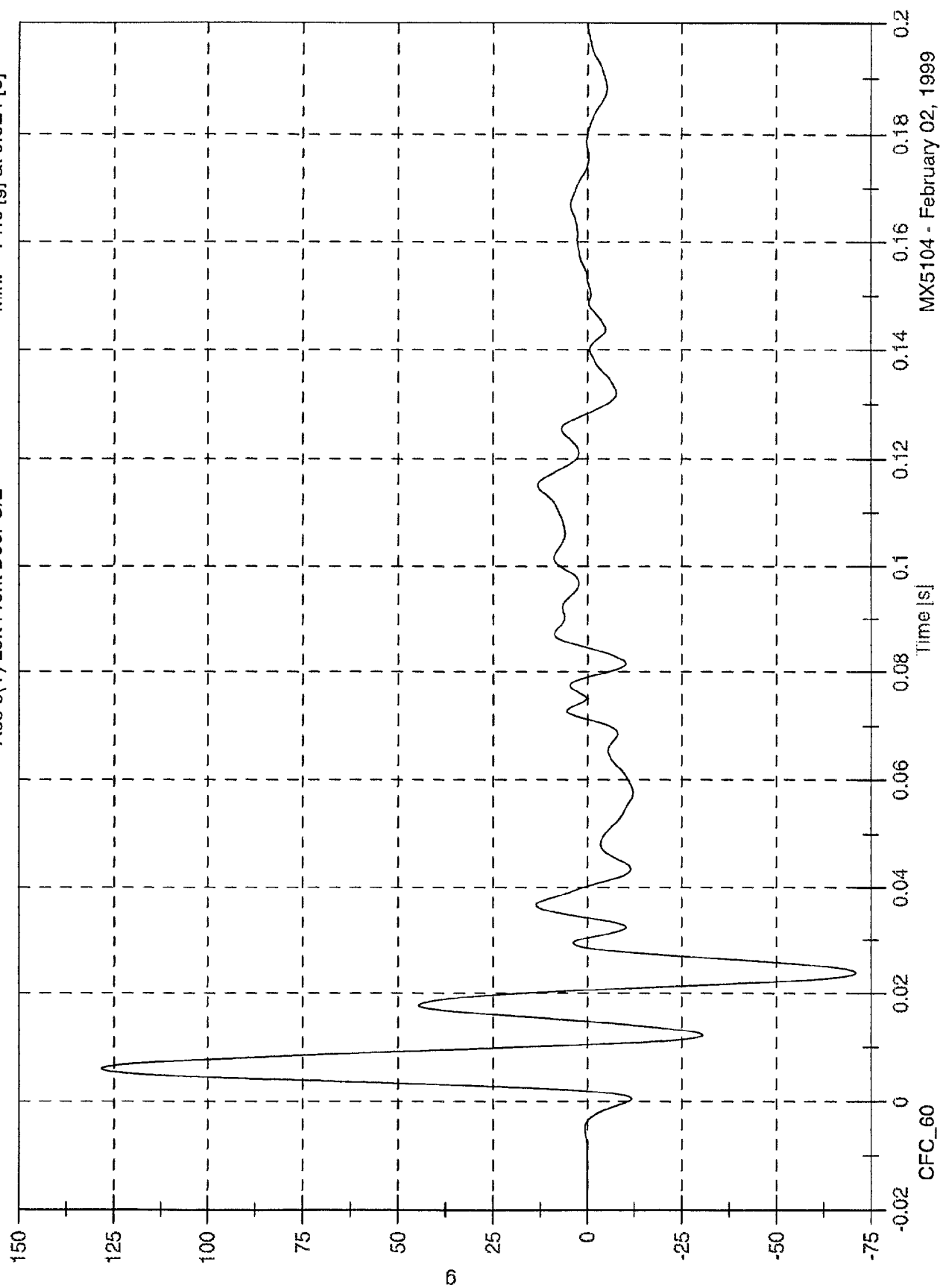
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 128.4 [g] at 0.006 [s]

Min: -71.0 [g] at 0.024 [s]

Acc 6(Y) Left Front Door C/L

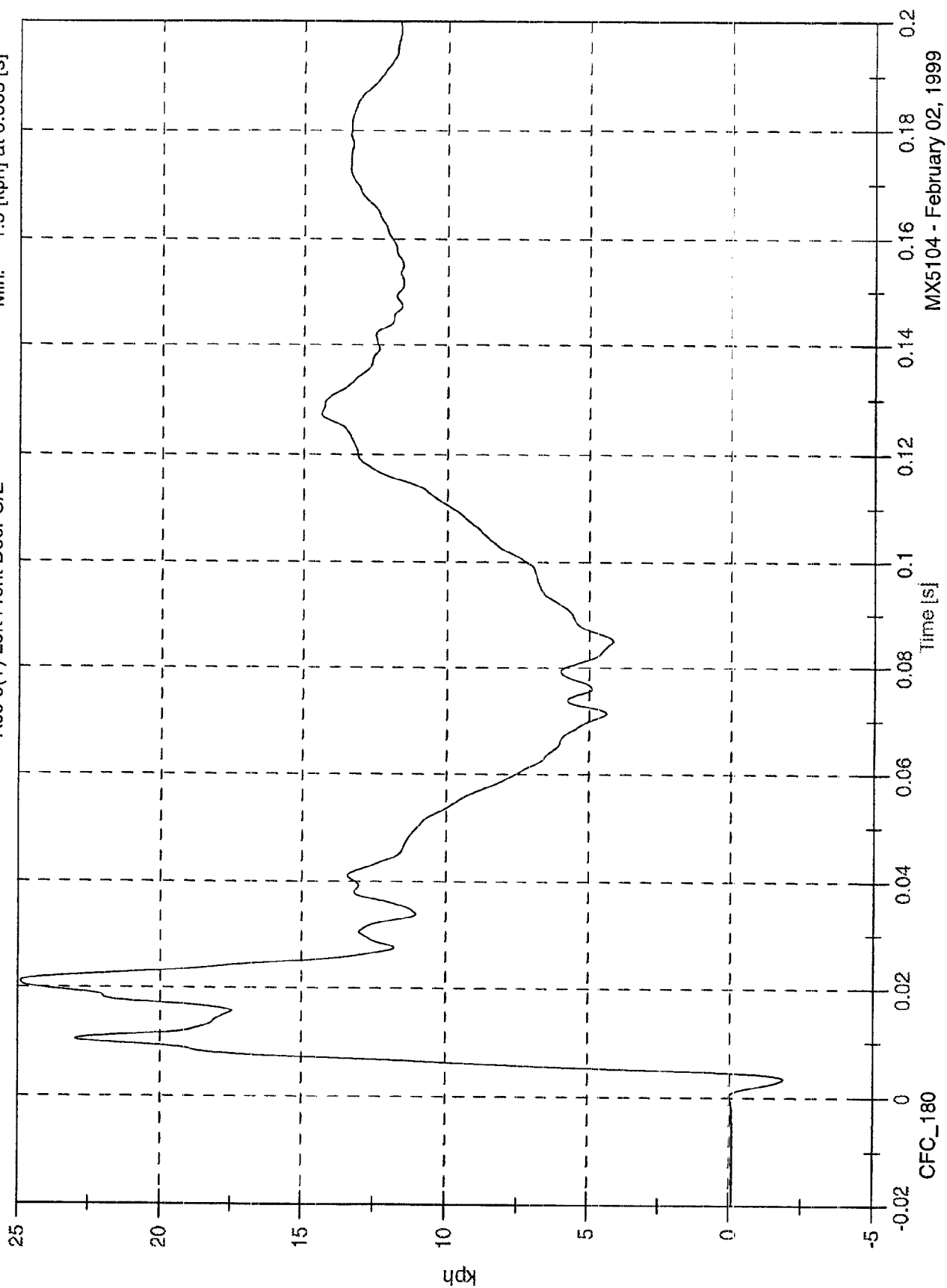


MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 24.9 [kph] at 0.021 [s]
Min: -1.9 [kph] at 0.003 [s]

Acc 6(Y) Left Front Door C/L



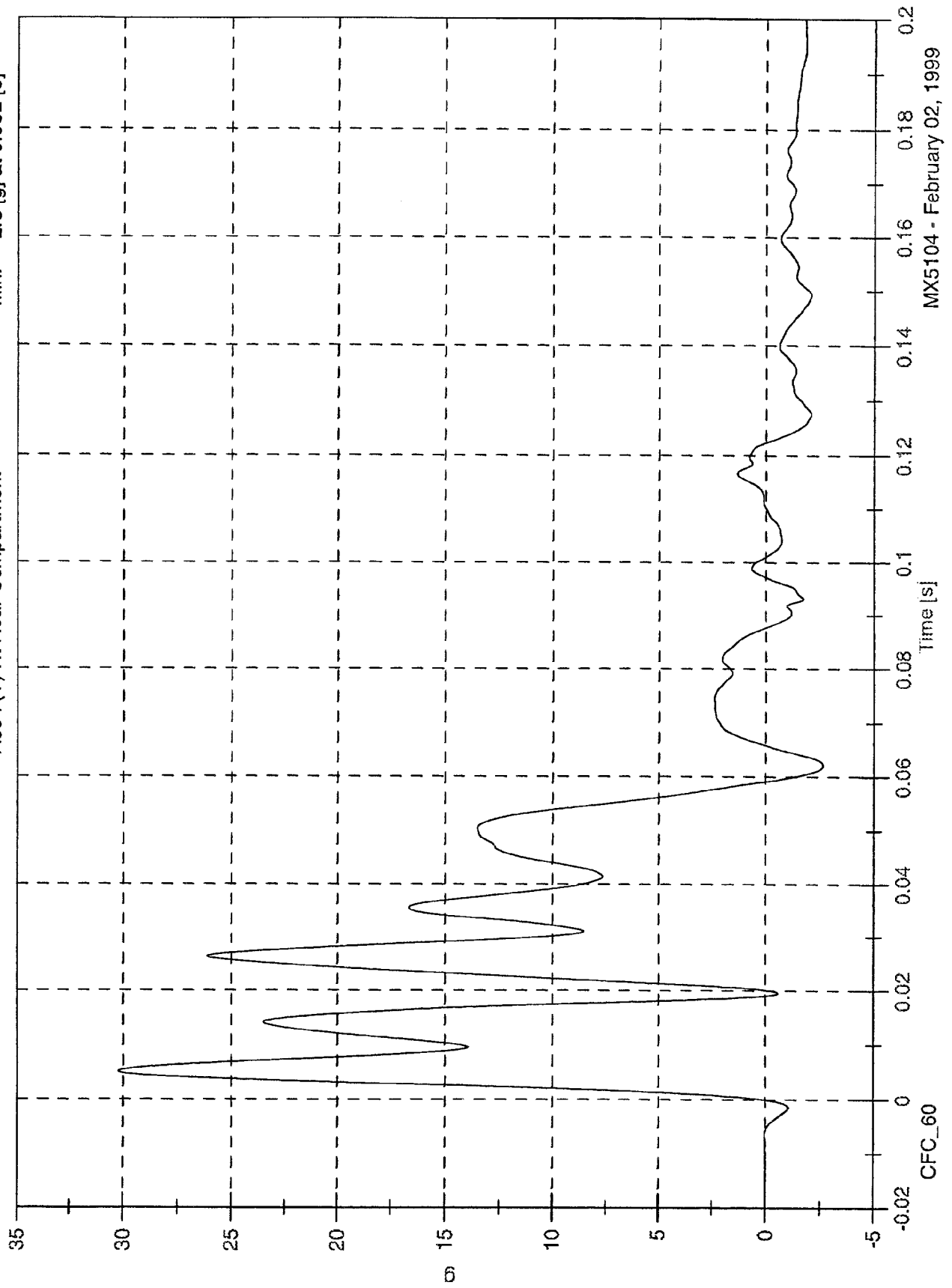
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 30.2 [g] at 0.005 [s]

Min: -2.6 [g] at 0.062 [s]

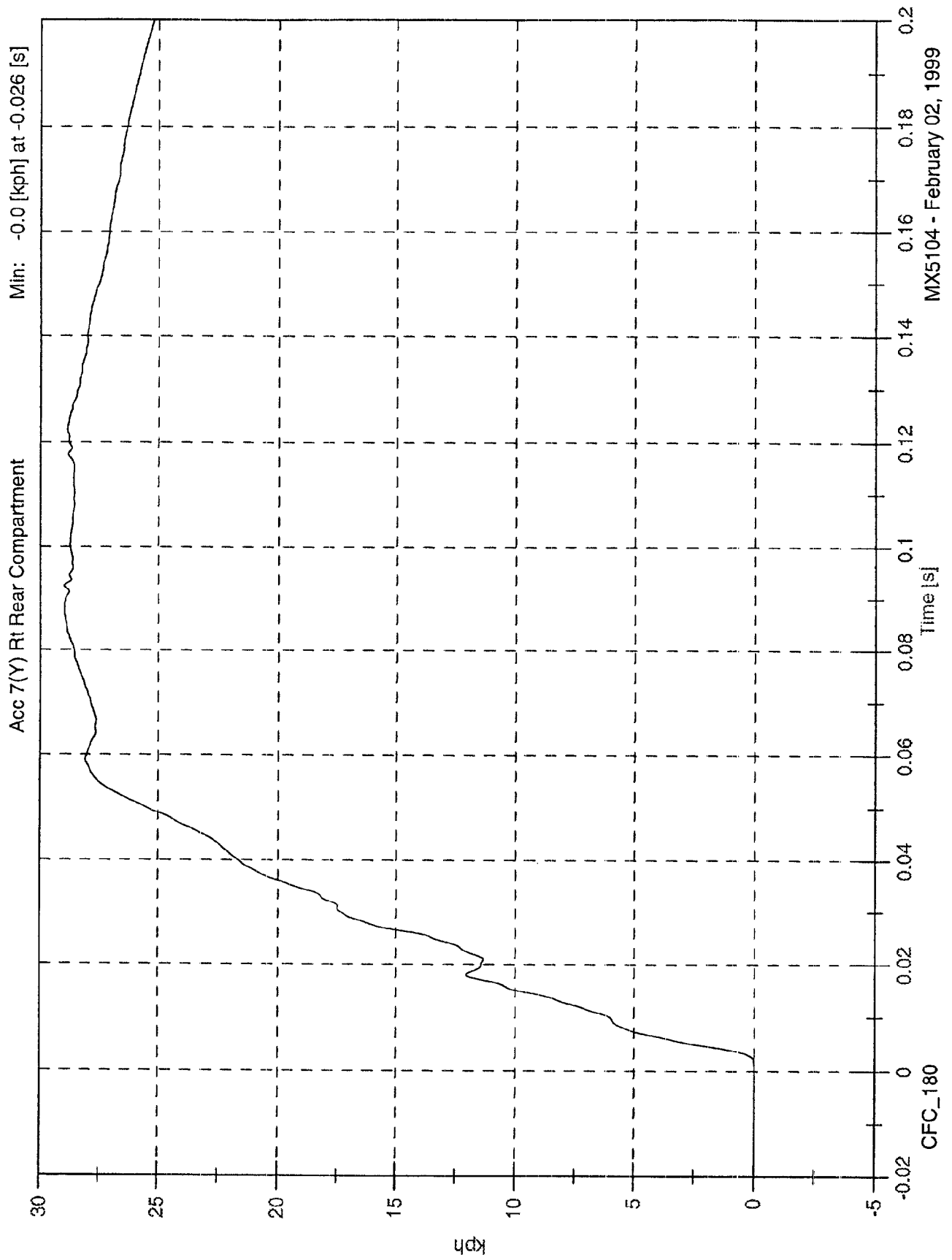
Acc 7(Y) Rt Rear Compartment



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SNCAP Test # 4 - 1999 Toyota Solara

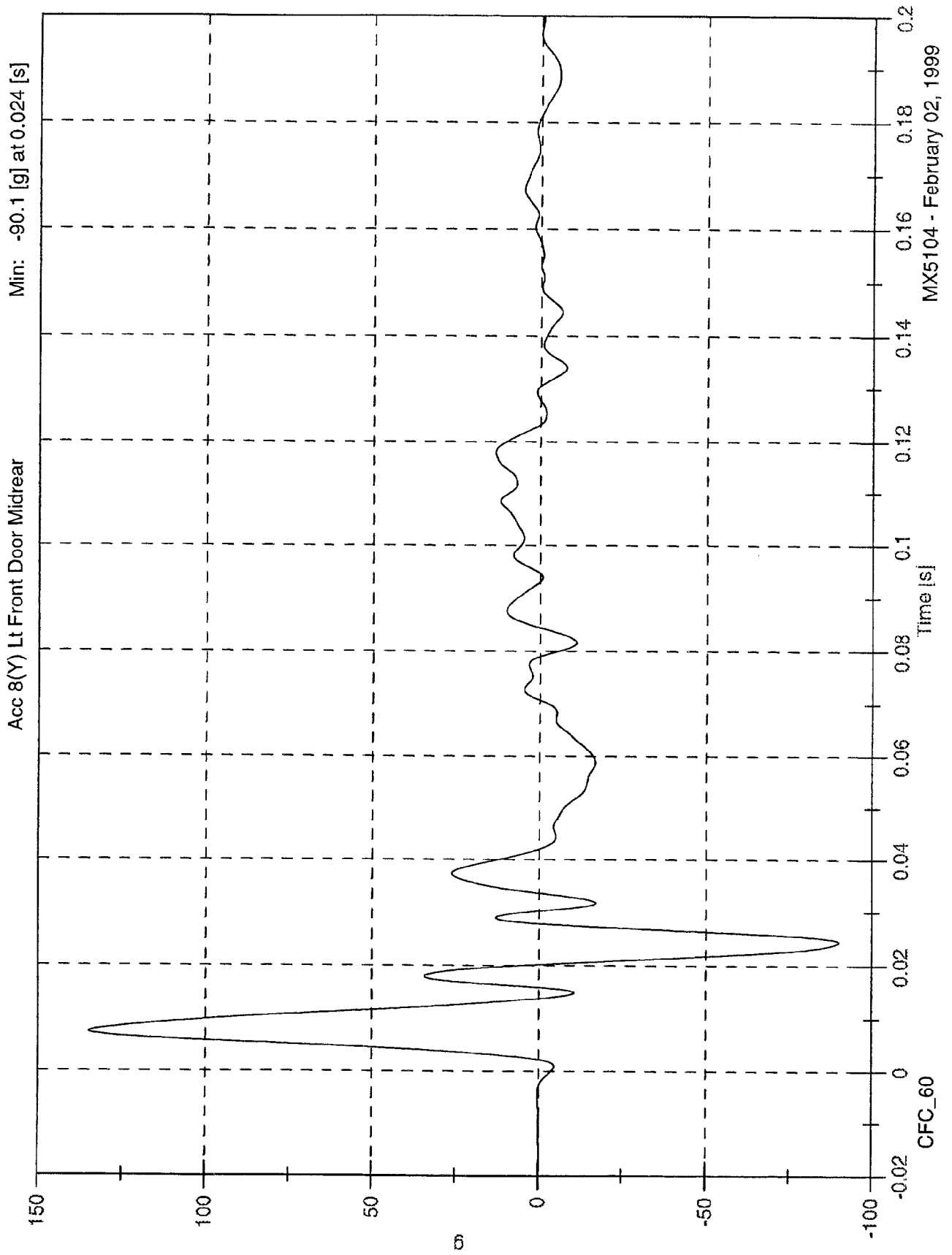
Max: 29.0 [kph] at 0.092 [s]
Min: -0.0 [kph] at -0.026 [s]



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SNCAP Test # 4 - 1999 Toyota Solara

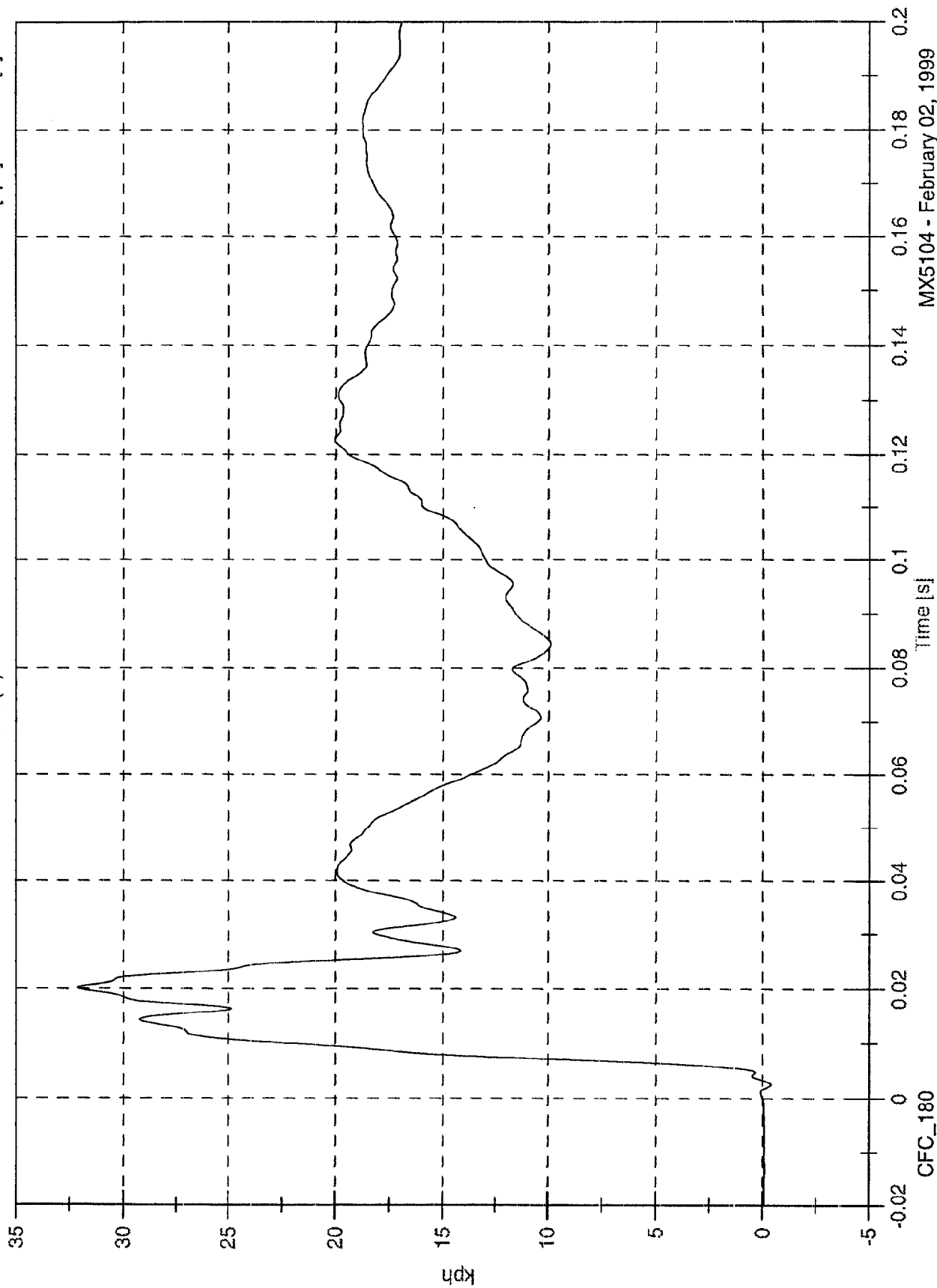
Max: 135.0 [g] at 0.008 [s]
Min: -90.1 [g] at 0.024 [s]



SNCAP Test # 4 - 1999 Toyota Solara

Max: 32.1 [kph] at 0.020 [s]
Min: -0.4 [kph] at 0.003 [s]

Acc 8(Y) Lt Front Door Midrear



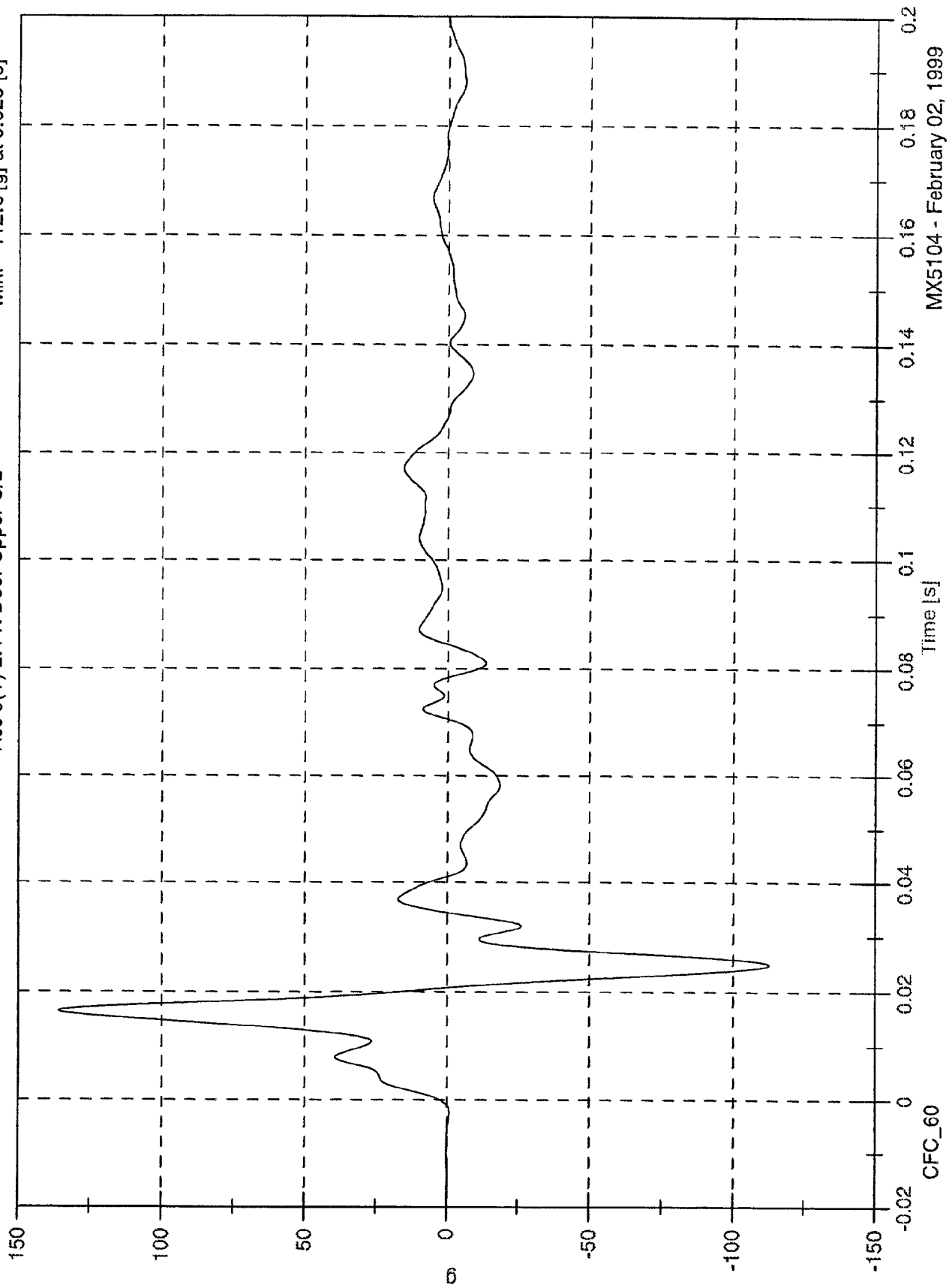
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 136.1 [g] at 0.017 [s]

Min: -112.6 [g] at 0.025 [s]

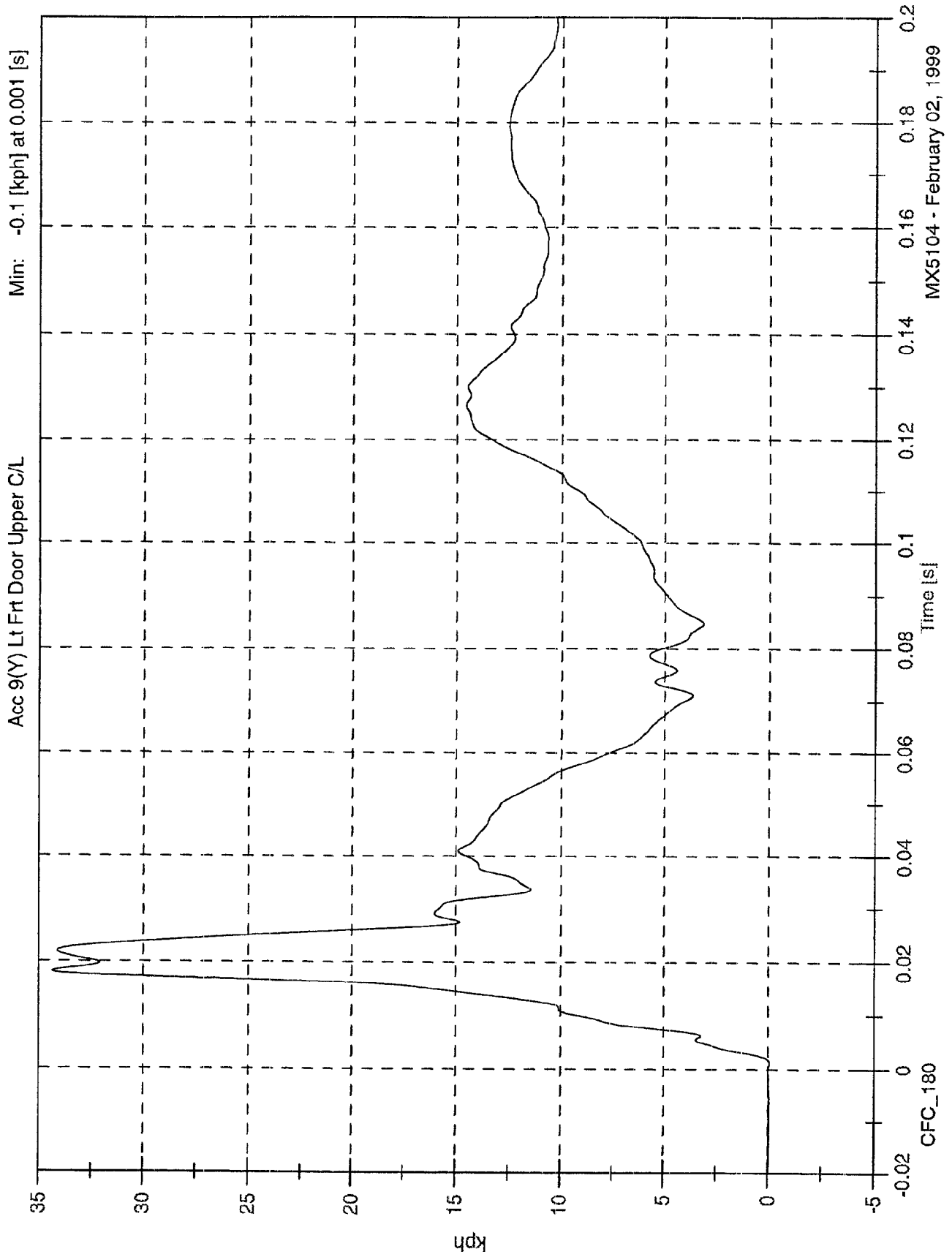
Acc 9(Y) Lt Frt Door Upper C/L



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 34.4 [kph] at 0.018 [s]
 Min: -0.1 [kph] at 0.001 [s]



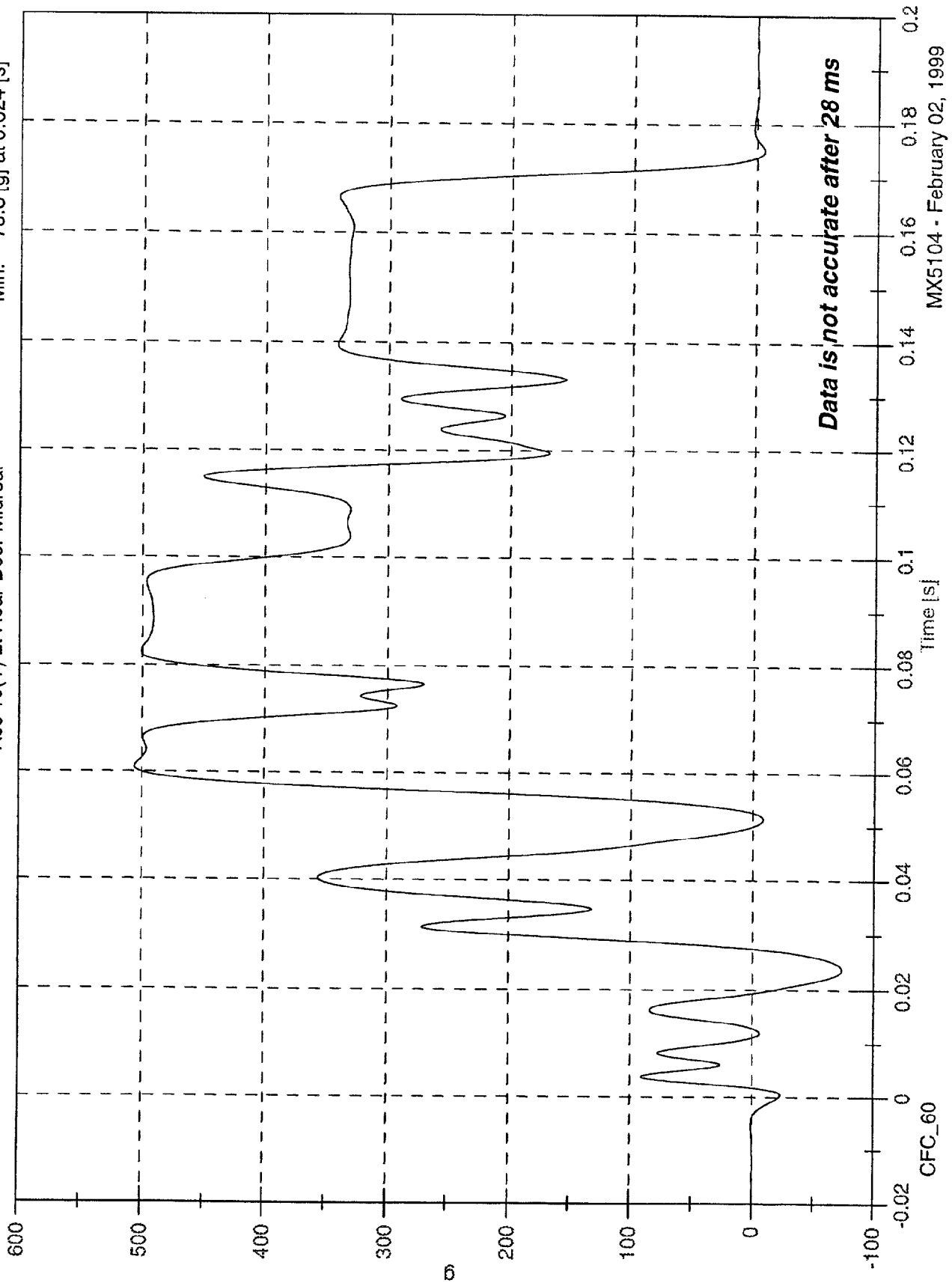
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 506.0 [g] at 0.061 [s]

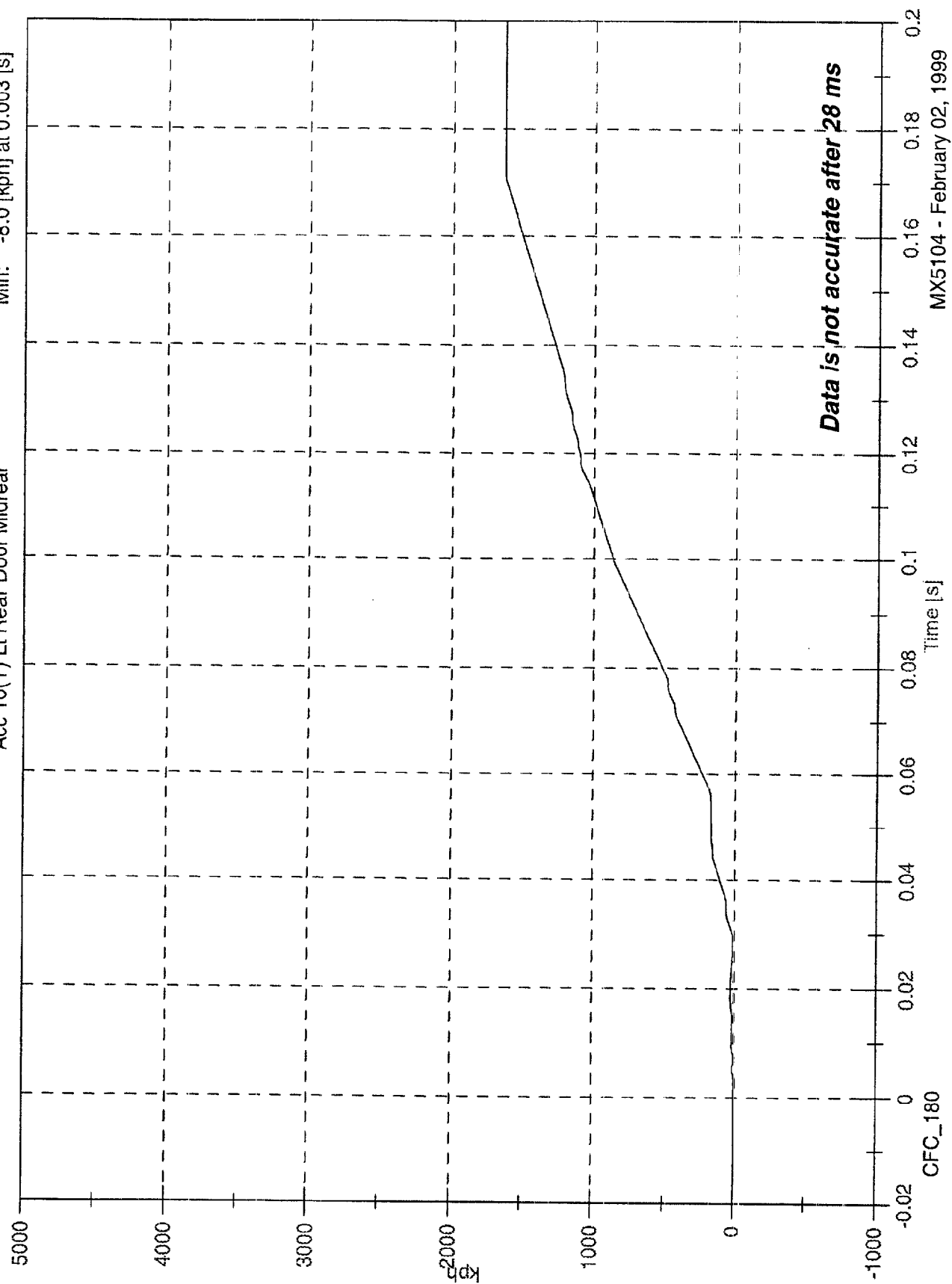
Min: -73.3 [g] at 0.024 [s]

Acc 10(Y) Lt Rear Door Midrear



MX5104 - February 02, 1999

Max: 4415.0 [kph] at 0.485 [s]
Min: -8.0 [kph] at 0.003 [s]

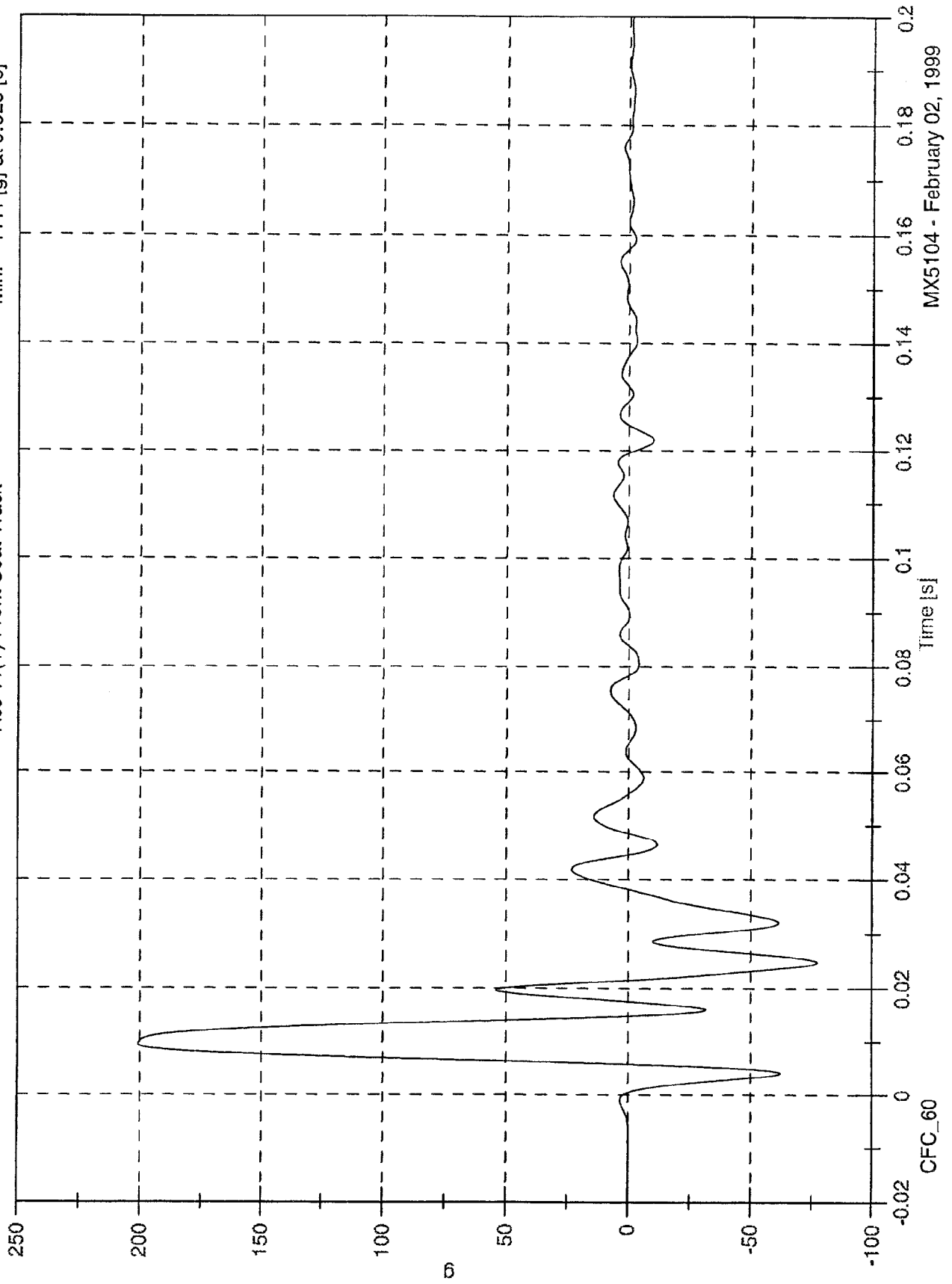


SNCAP Test # 4 - 1999 Toyota Solara

Max: 200.9 [g] at 0.010 [s]

Min: -77.1 [g] at 0.025 [s]

Acc 11(Y) Front Seat Track



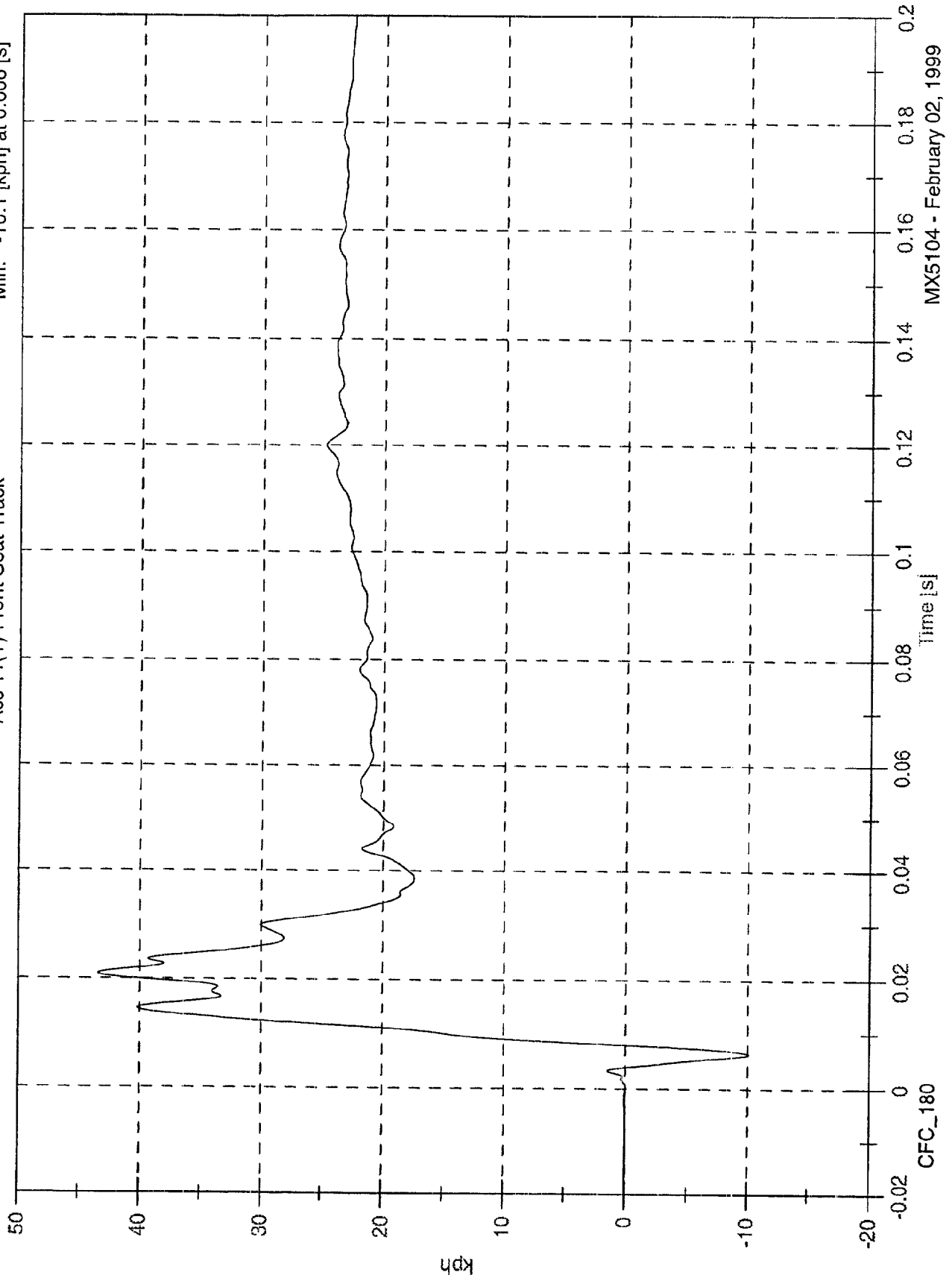
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 43.4 [kph] at 0.021 [s]

Min: -10.1 [kph] at 0.006 [s]

Acc 11(Y) Front Seat Track



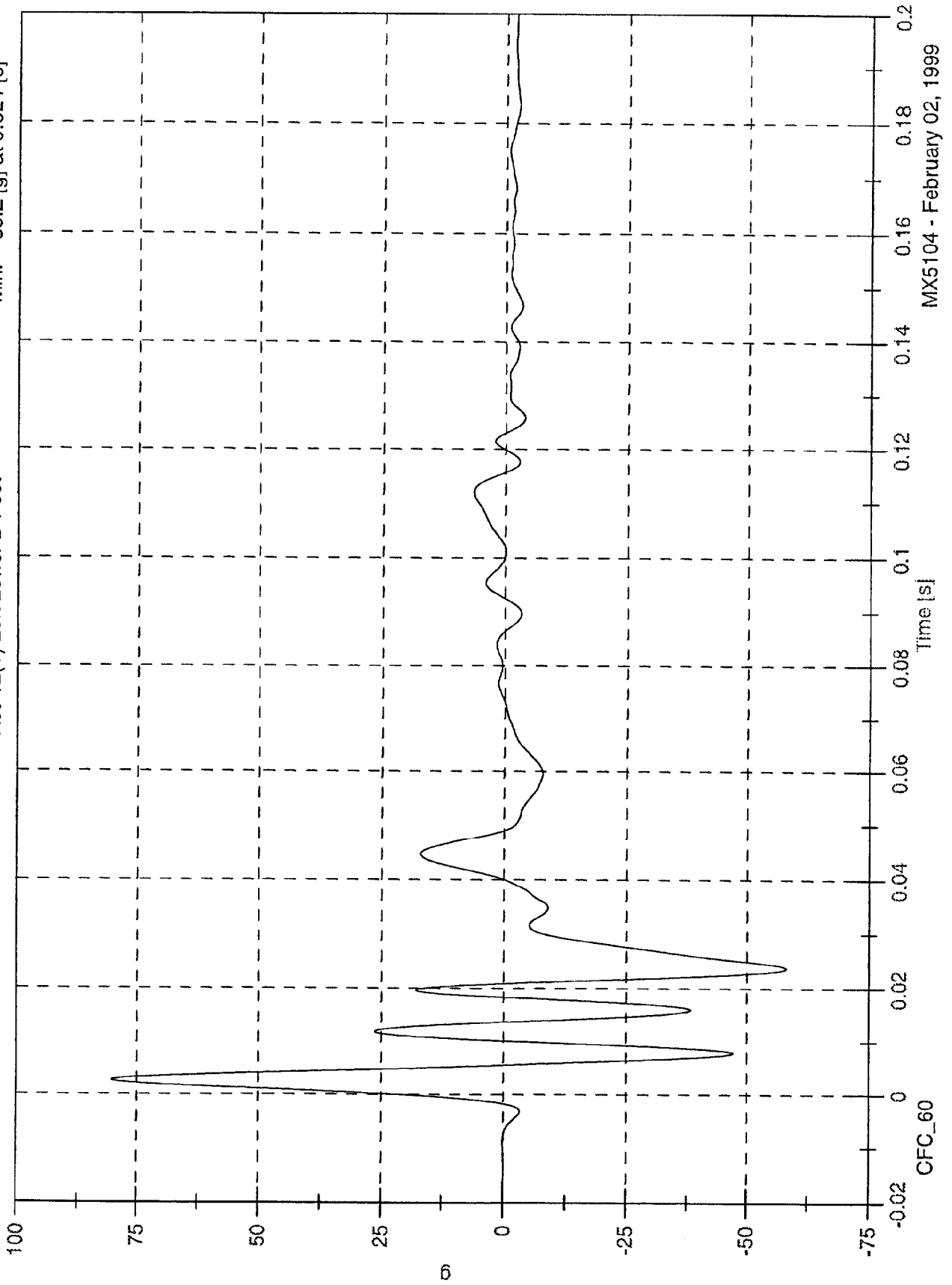
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 80.3 [g] at 0.003 [s]

Min: -58.2 [g] at 0.024 [s]

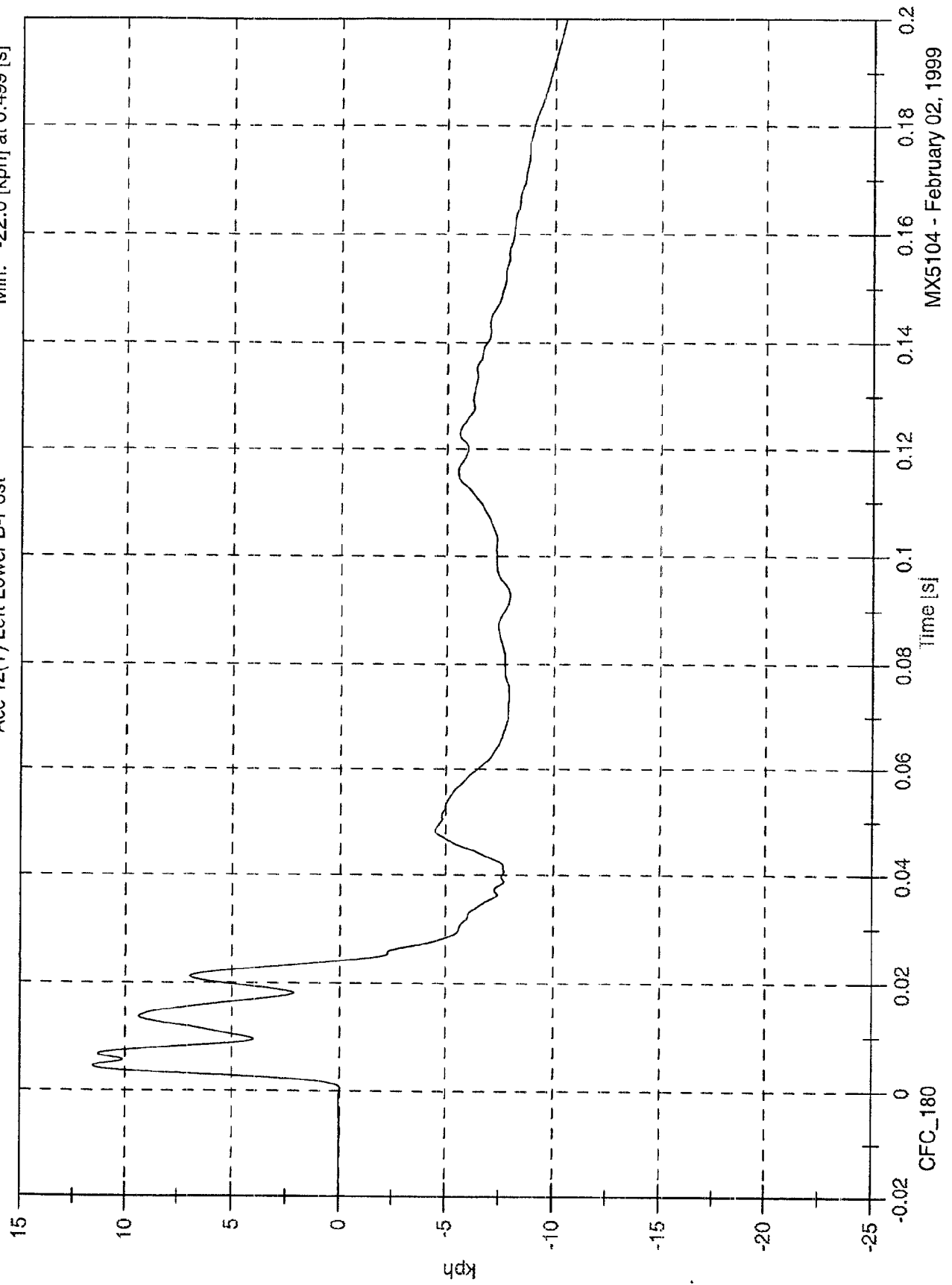
Acc 12(Y) Left Lower B-Post



SNCAP Test # 4 - 1999 Toyota Solara

Max: 11.6 [kph] at 0.005 [s]
Min: -22.0 [kph] at 0.499 [s]

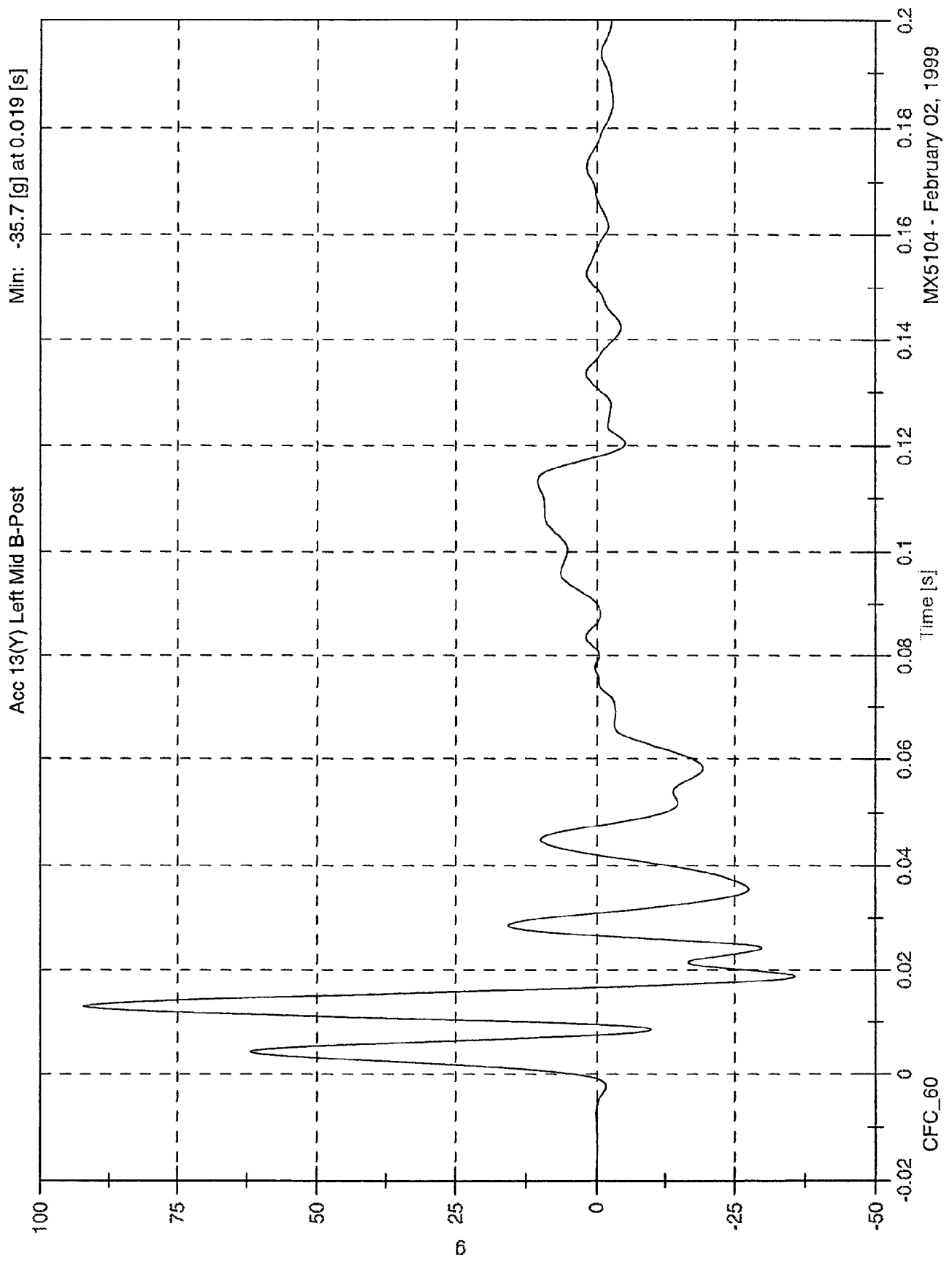
Acc 12(Y) Left Lower B-Post



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

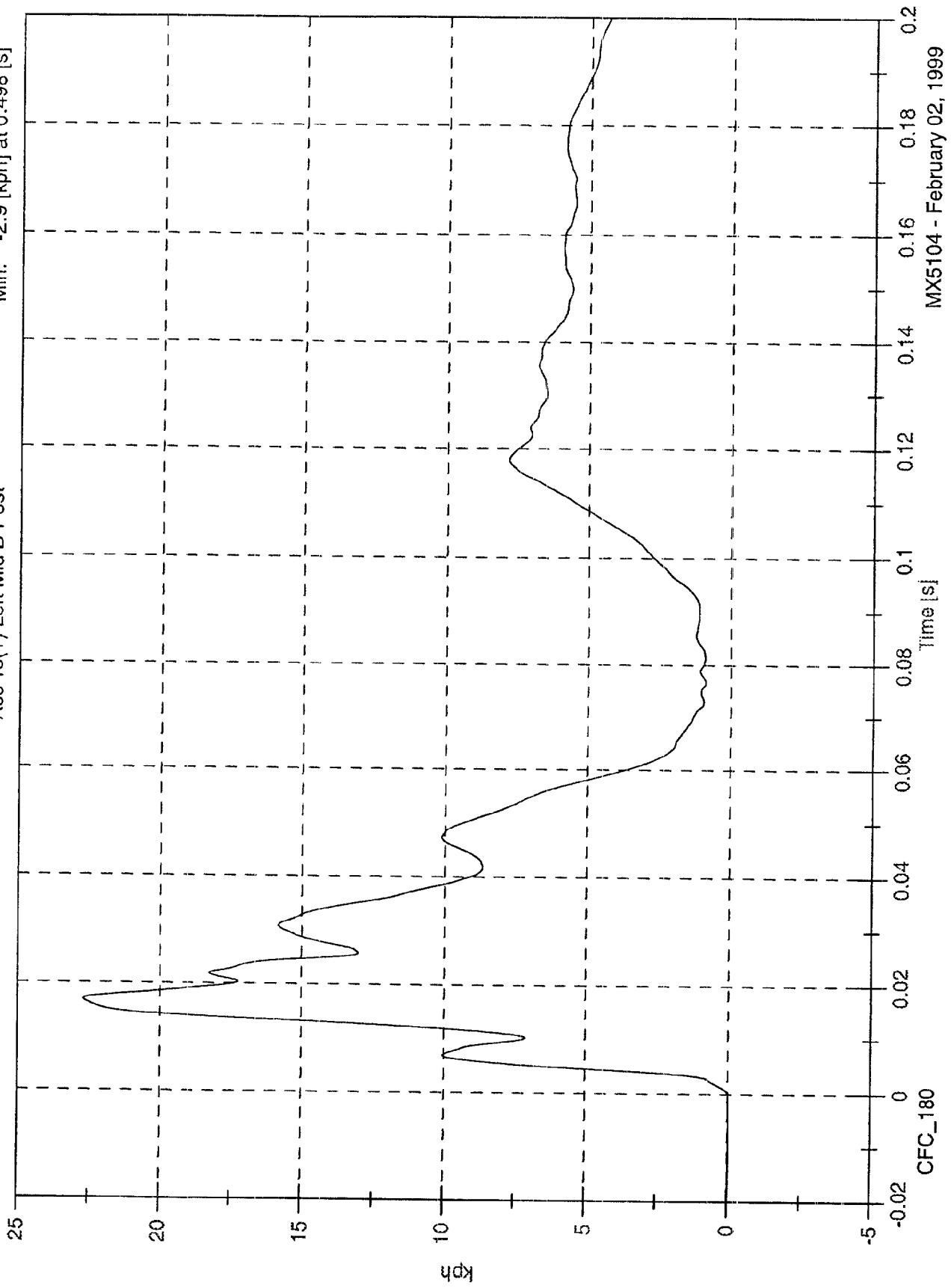
Max: 92.2 [g] at 0.013 [s]
Min: -35.7 [g] at 0.019 [s]



SNCAP Test # 4 - 1999 Toyota Solara

Max: 22.7 [kph] at 0.017 [s]
Min: -2.9 [kph] at 0.498 [s]

Acc 13(Y) Left Mid B-Post

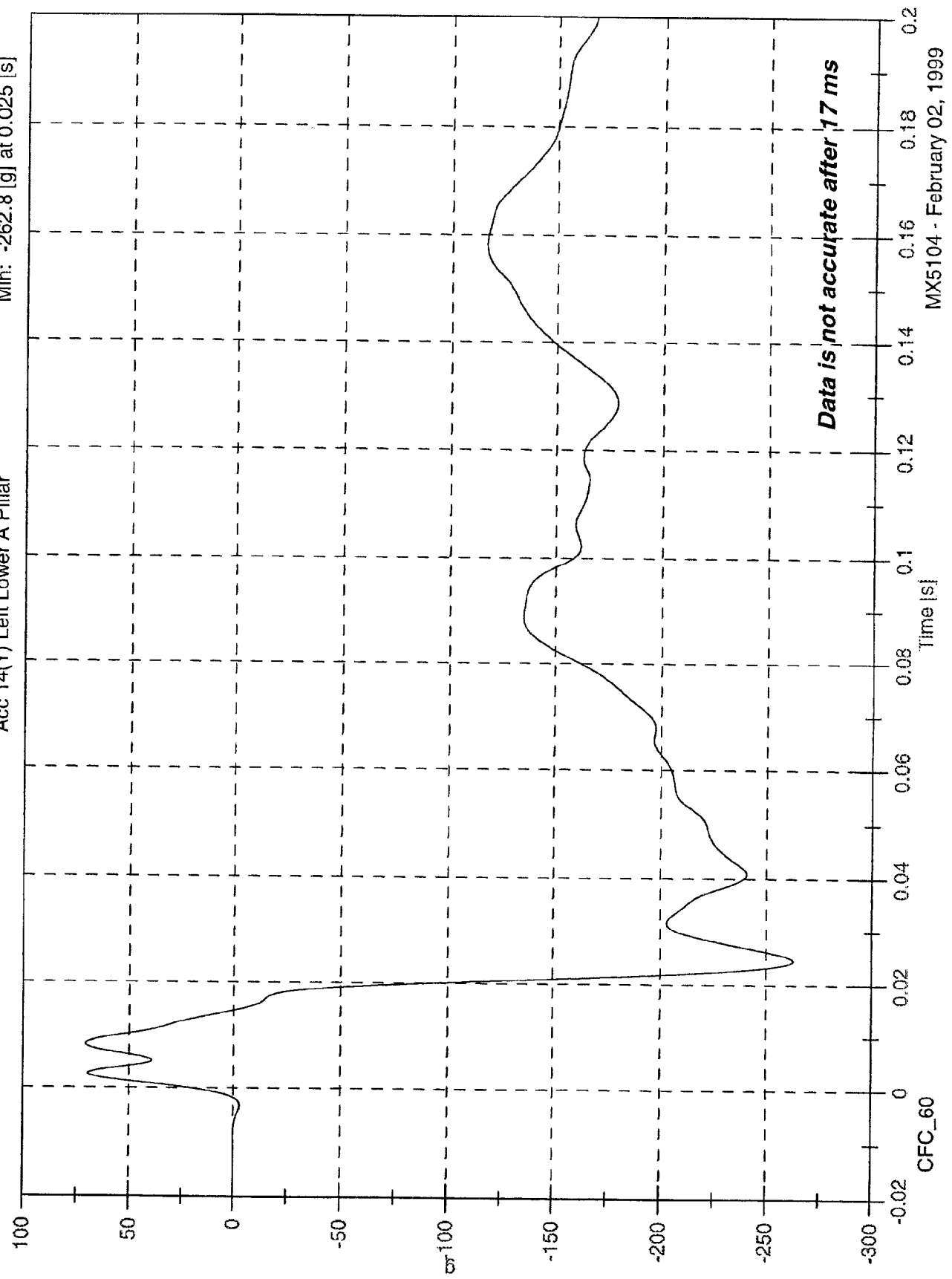


MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 70.7 [g] at 0.008 [s]
Min: -262.8 [g] at 0.025 [s]

Acc 14(Y) Left Lower A Pillar



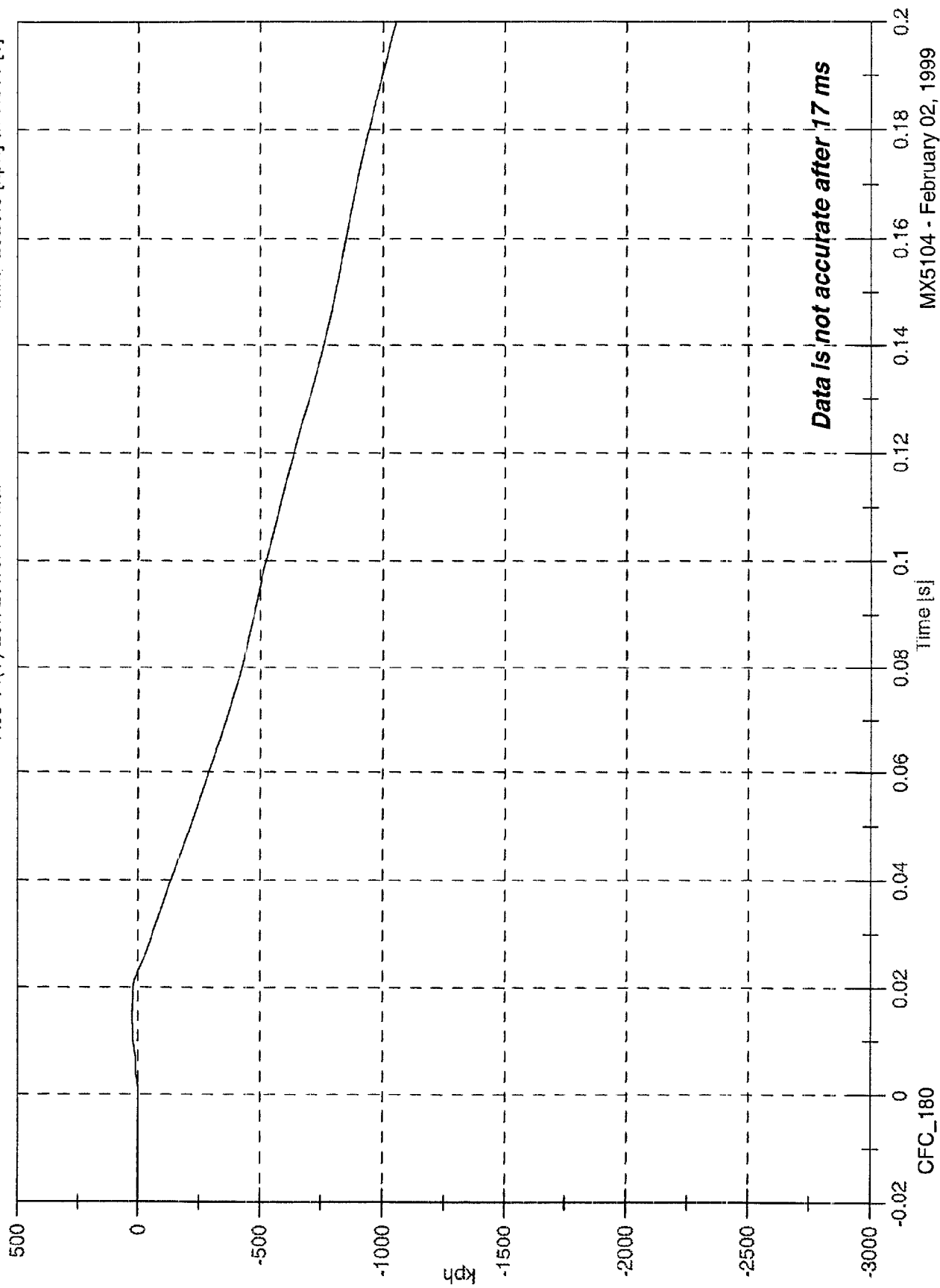
Data is not accurate after 17 ms

MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Acc 14(Y) Left Lower A Pillar

Max: 24.6 [kph] at 0.015 [s]
Min: -2920.5 [kph] at 0.500 [s]



Data is not accurate after 17 ms

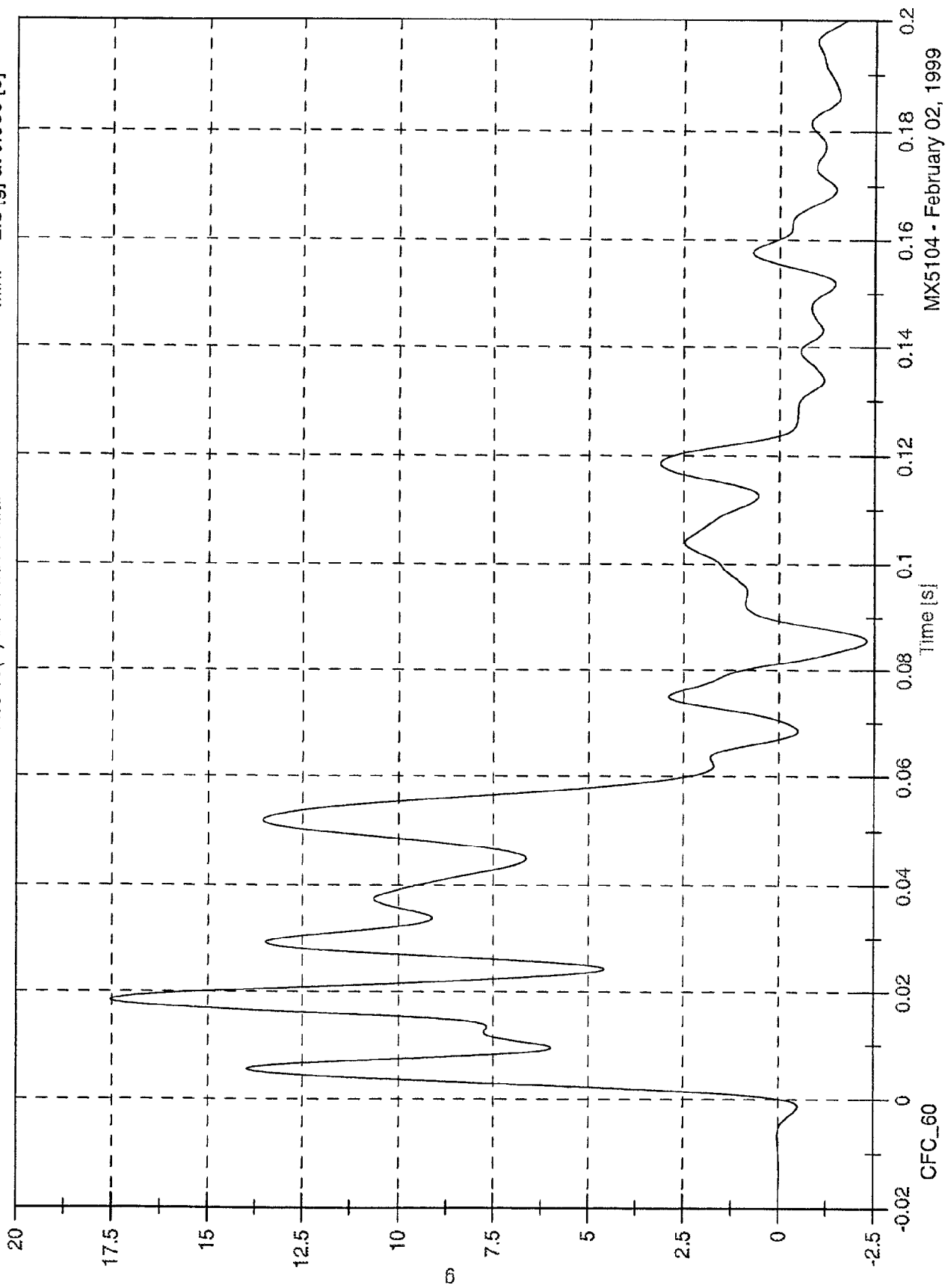
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 17.5 [g] at 0.018 [s]

Min: -2.3 [g] at 0.086 [s]

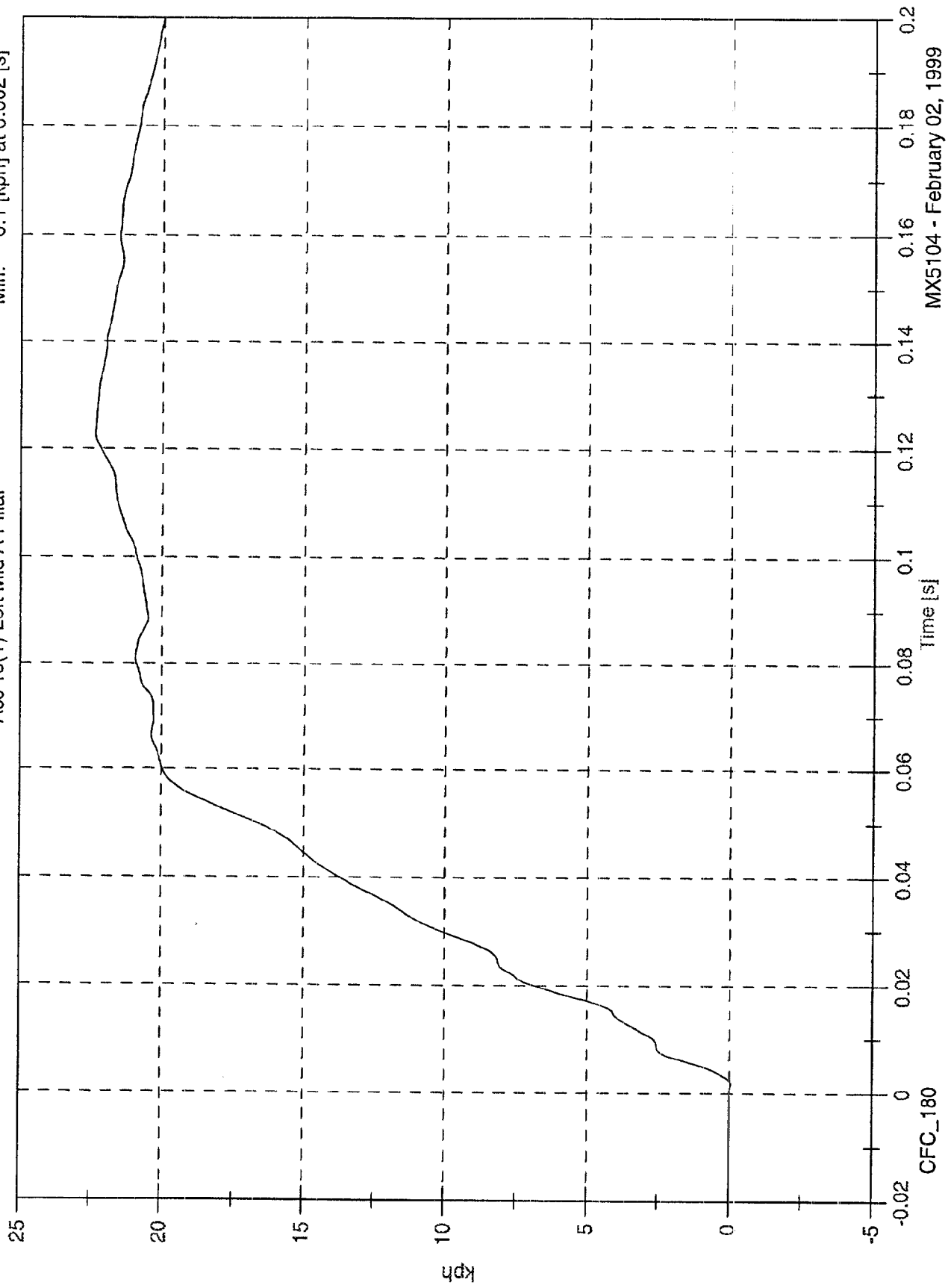
Acc 15(Y) Left Mid A Pillar



SNCAP Test # 4 - 1999 Toyota Solara

Max: 22.4 [kph] at 0.123 [s]
Min: -0.1 [kph] at 0.002 [s]

Acc 15(Y) Left Mid A Pillar



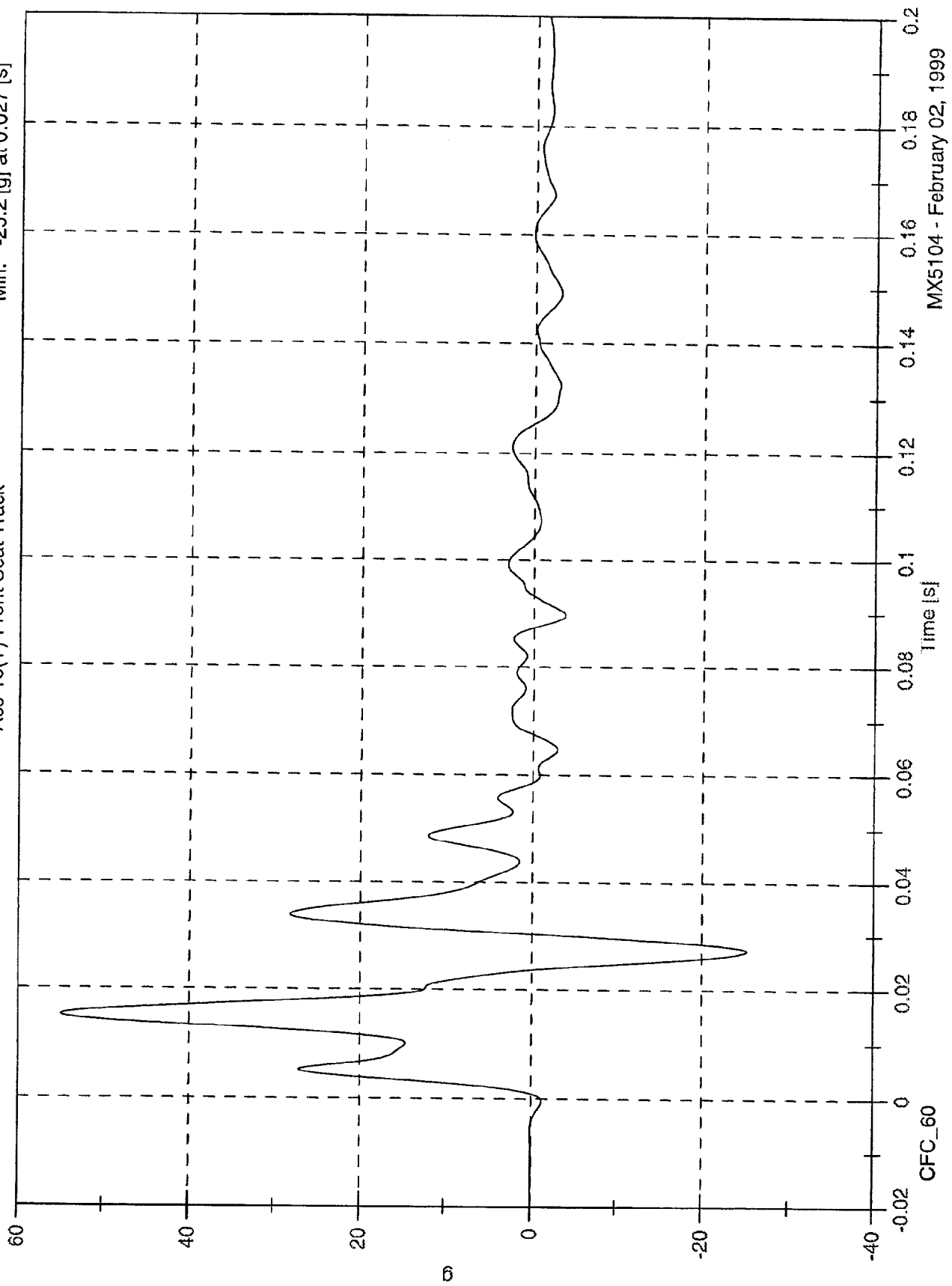
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 55.0 [g] at 0.015 [s]

Min: -25.2 [g] at 0.027 [s]

Acc 16(Y) Front Seat Track

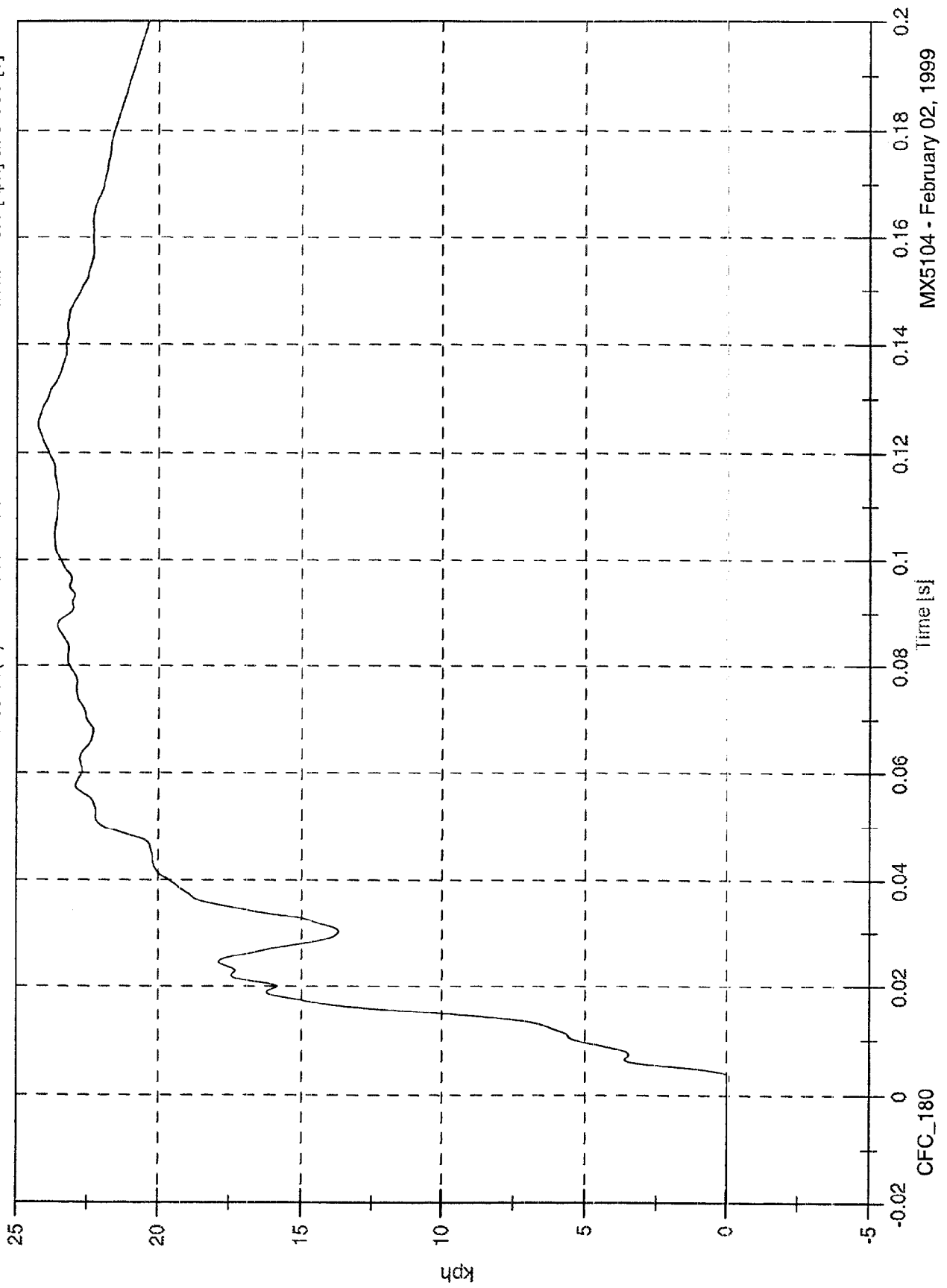


MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 24.3 [kph] at 0.125 [s]
Min: -0.1 [kph] at 0.003 [s]

Acc 16(Y) Front Seat Track

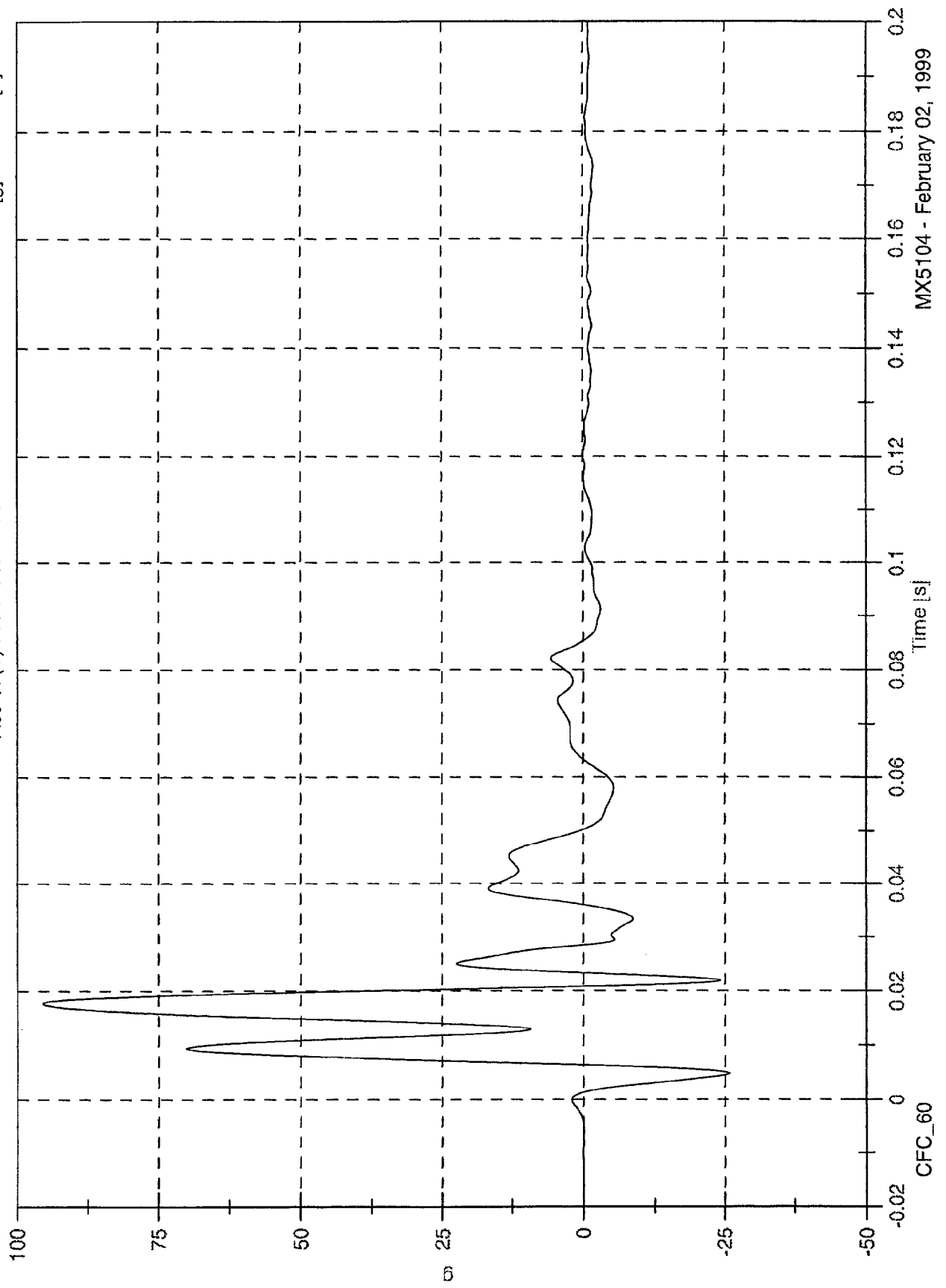


MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 95.5 [g] at 0.018 [s]
Min: -25.9 [g] at 0.005 [s]

Acc 17(Y) Front Seat Track

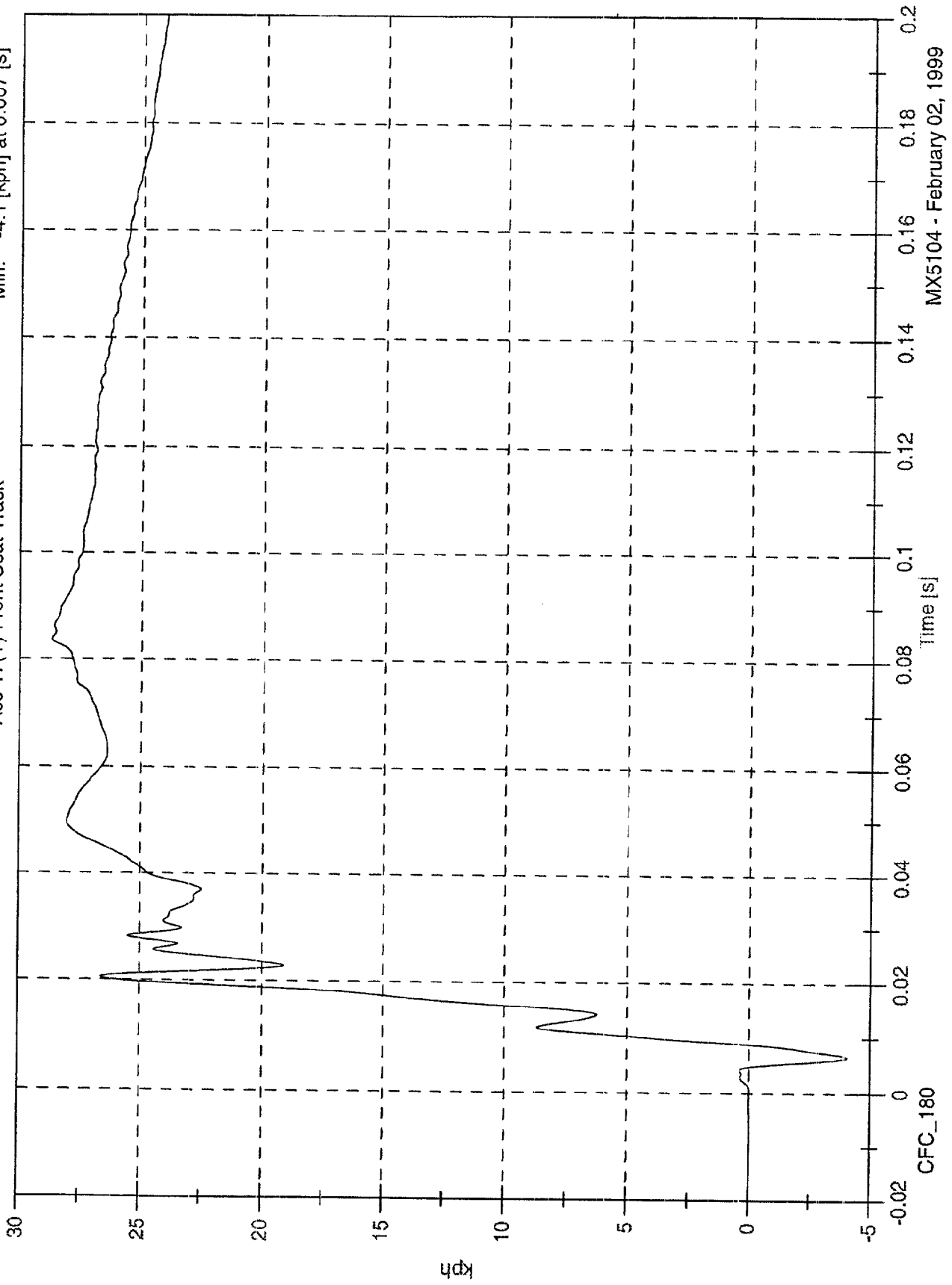


MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 28.7 [kph] at 0.084 [s]
Min: -4.1 [kph] at 0.007 [s]

Acc 17(Y) Front Seat Track



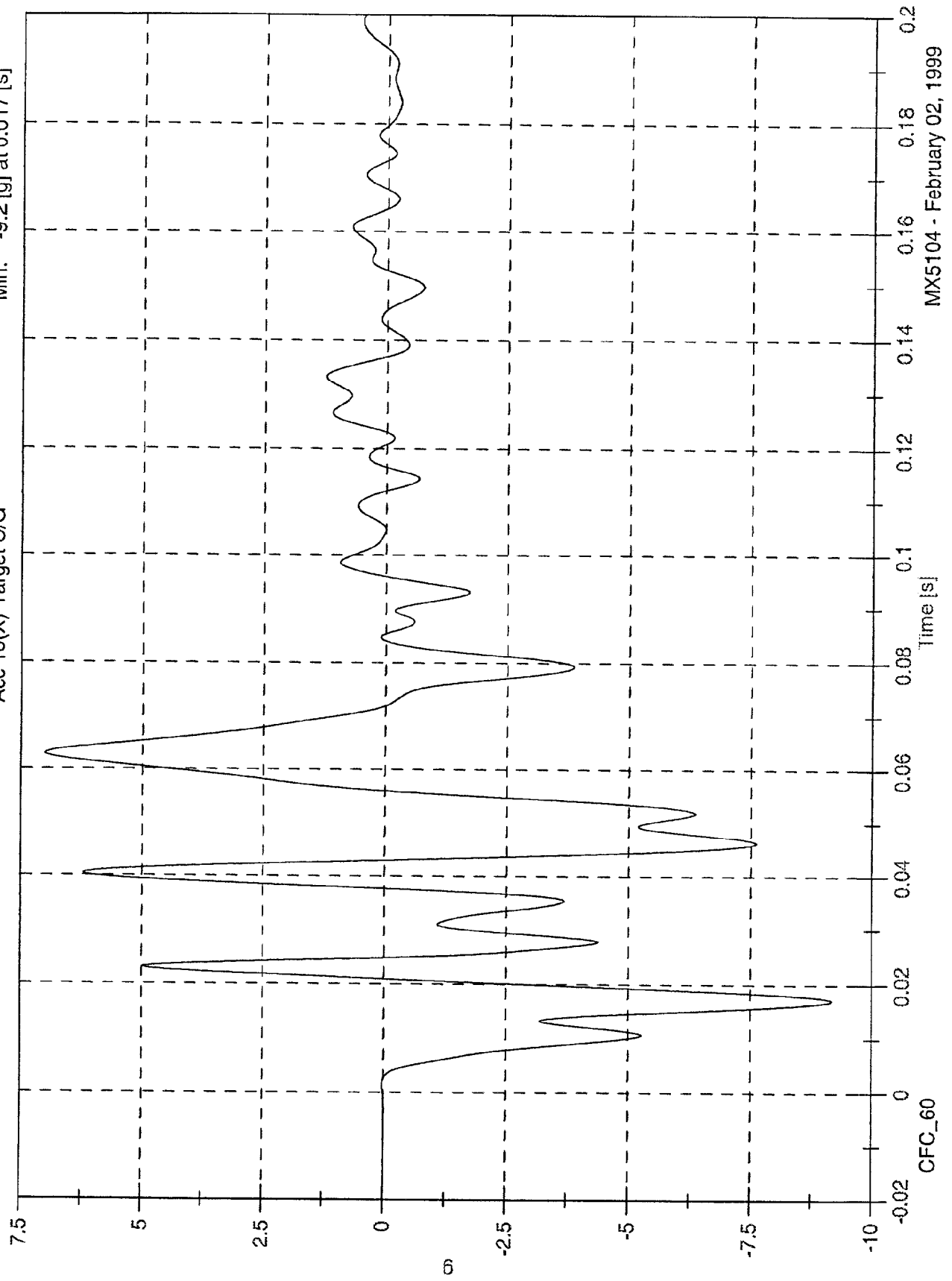
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 7.0 [g] at 0.063 [s]

Min: -9.2 [g] at 0.017 [s]

Acc 18(X) Target C/G



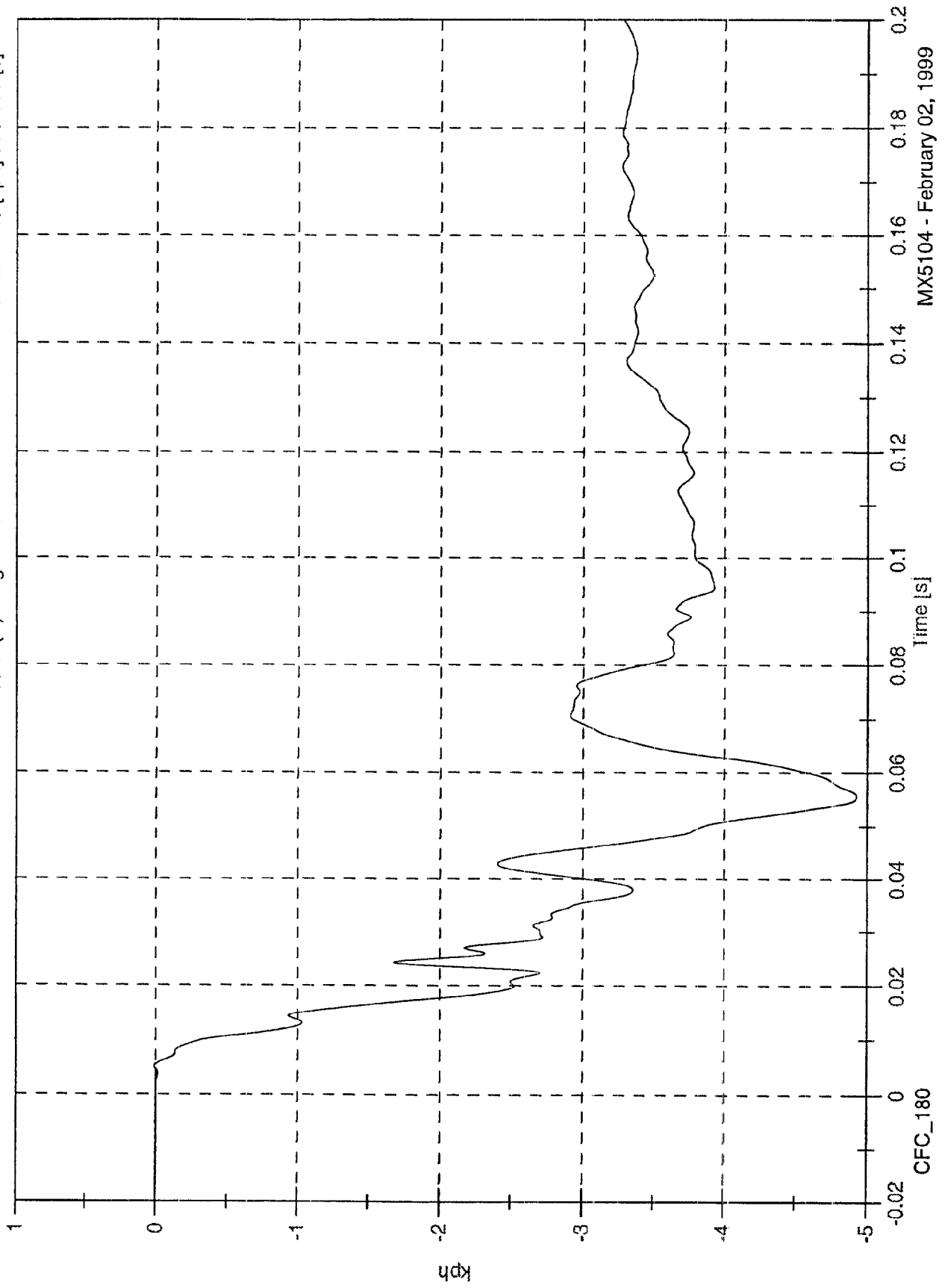
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 0.1 [kph] at 0.500 [s]

Min: -4.9 [kph] at 0.055 [s]

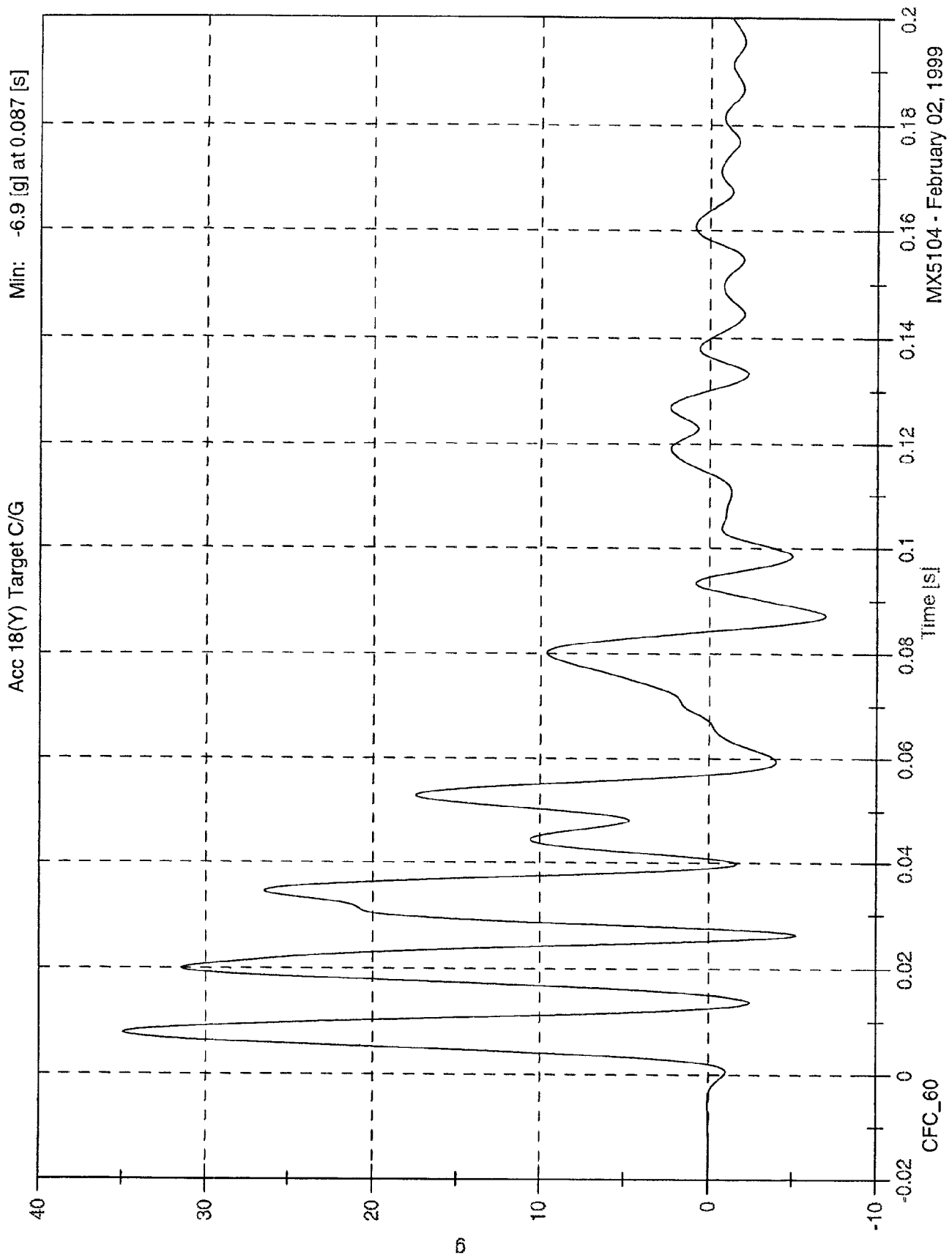
Acc 18(X) Target C/G



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

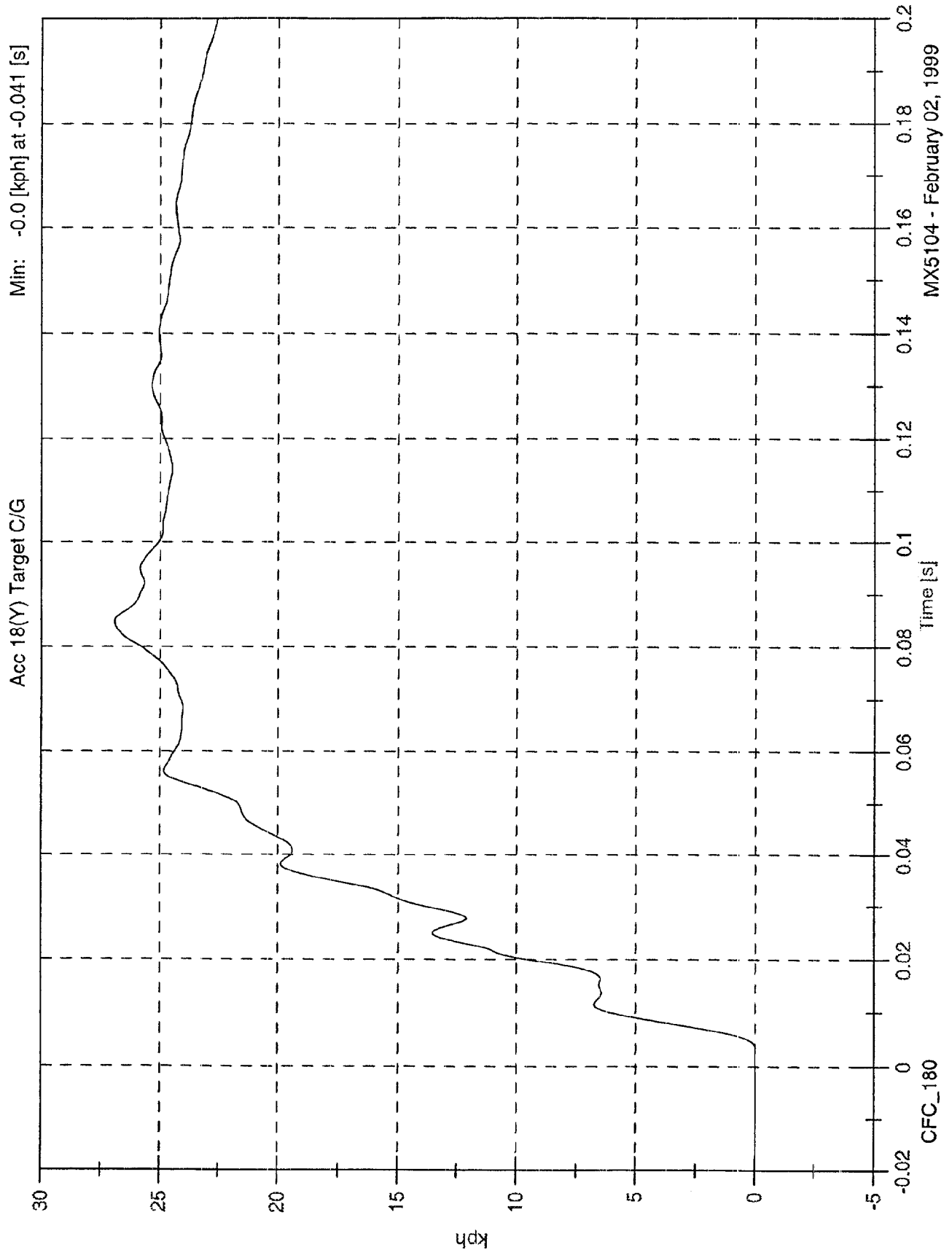
Max: 35.0 [g] at 0.008 [s]
 Min: -6.9 [g] at 0.087 [s]



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

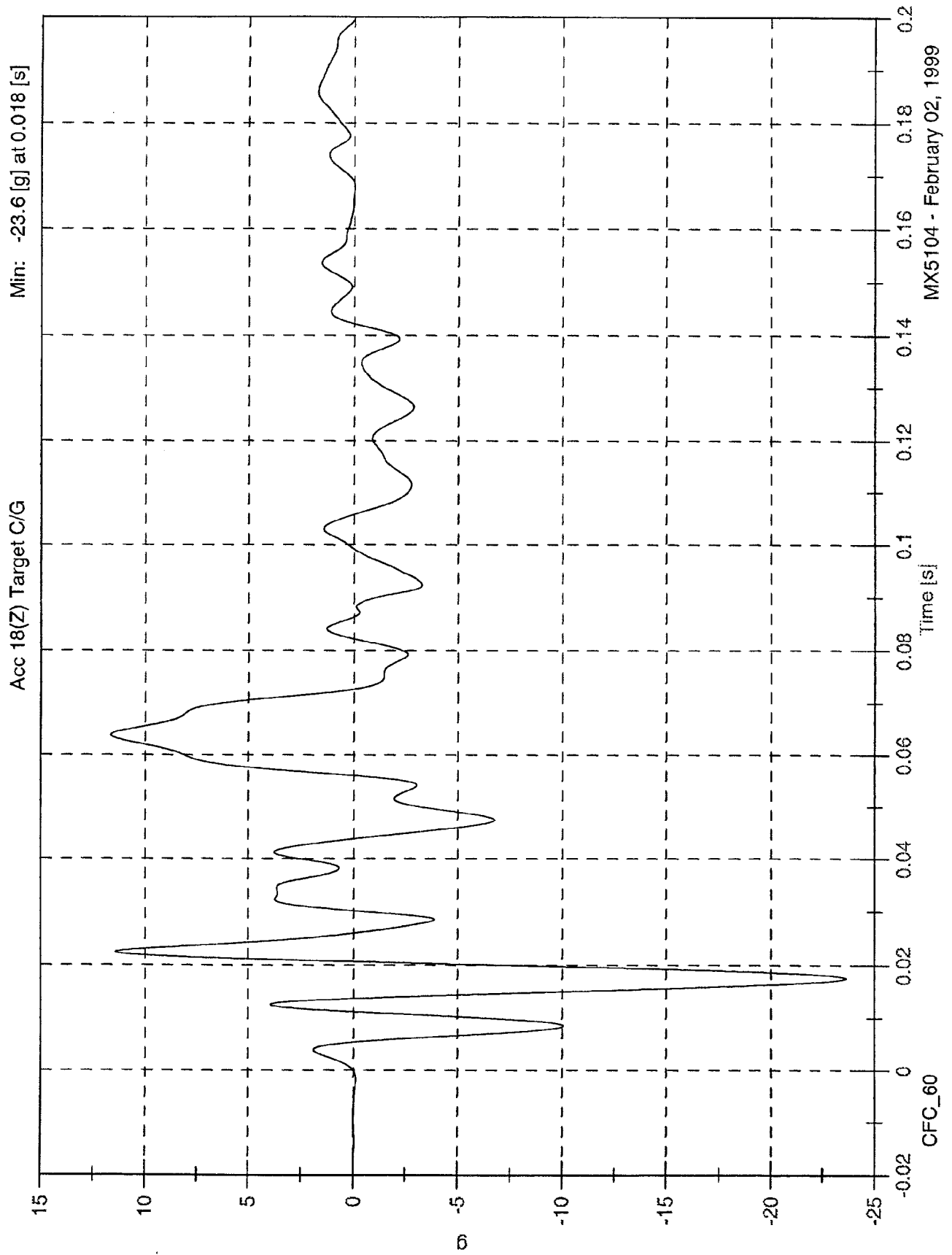
Max: 26.9 [kph] at 0.085 [s]
Min: -0.0 [kph] at -0.041 [s]



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

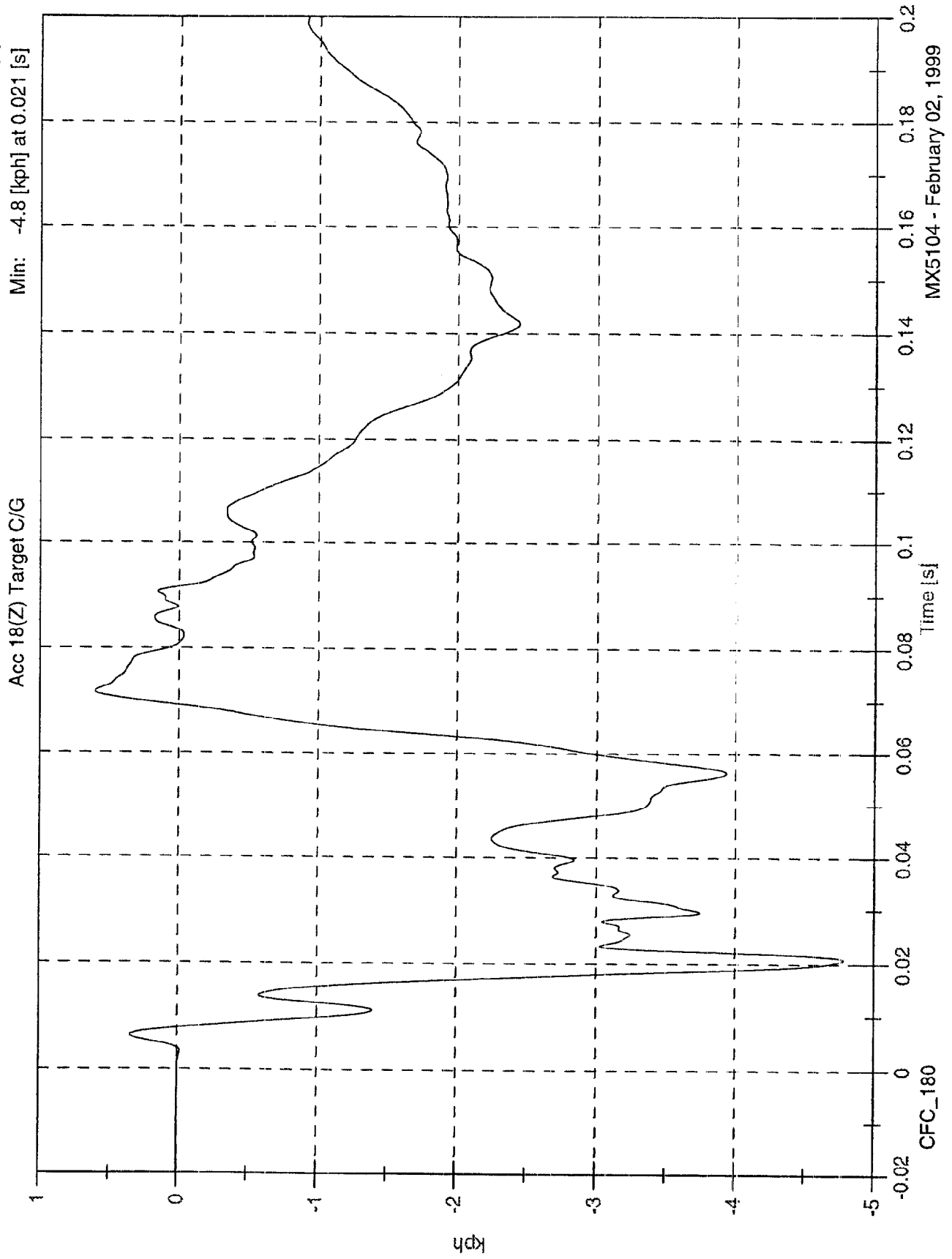
Max: 11.7 [g] at 0.064 [s]
Min: -23.6 [g] at 0.018 [s]



SNCAP Test # 4 - 1999 Toyota Solara

Max: 0.6 [kph] at 0.072 [s]

Min: -4.8 [kph] at 0.021 [s]



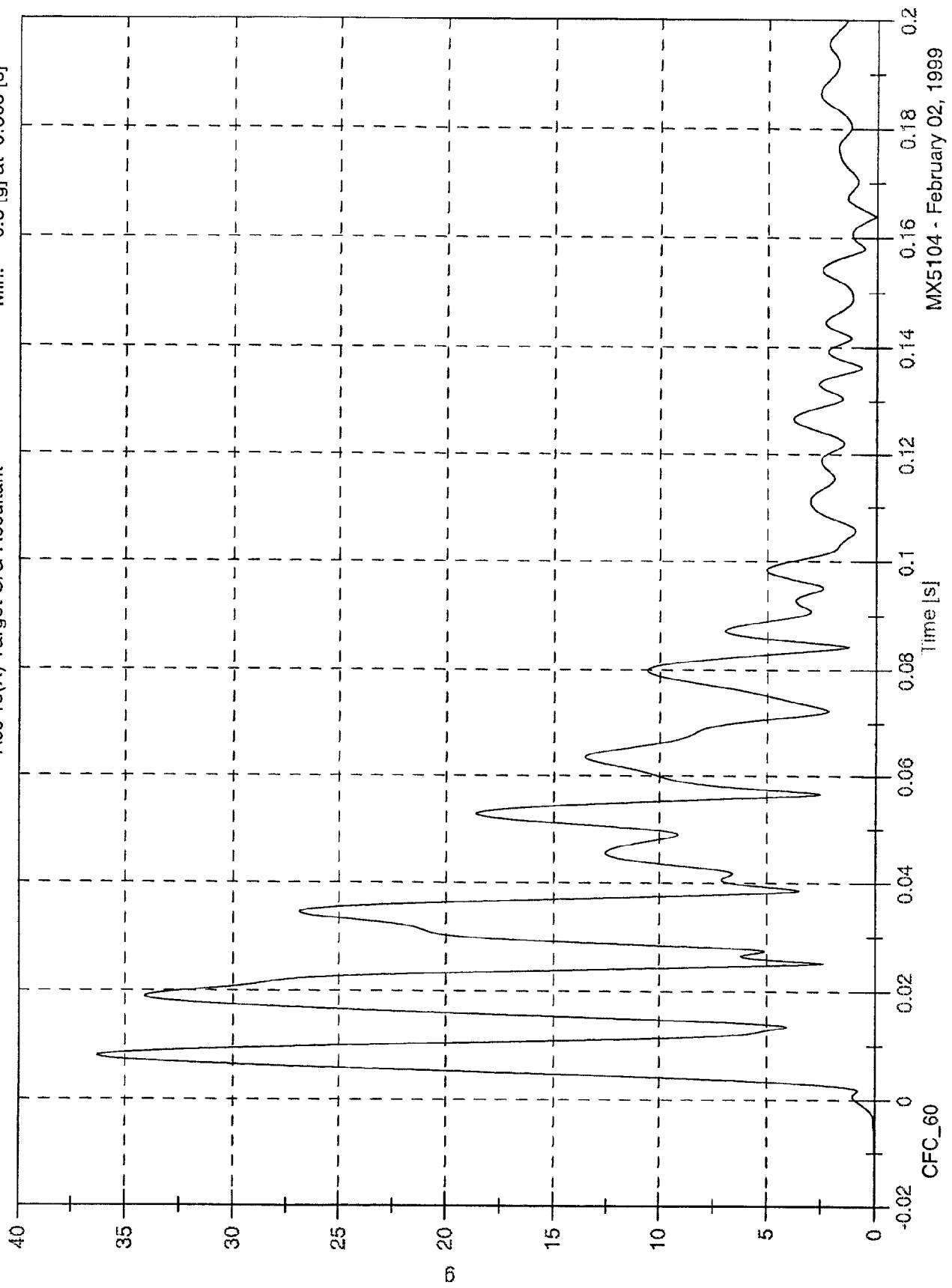
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 36.3 [g] at 0.008 [s]

Min: 0.0 [g] at -0.055 [s]

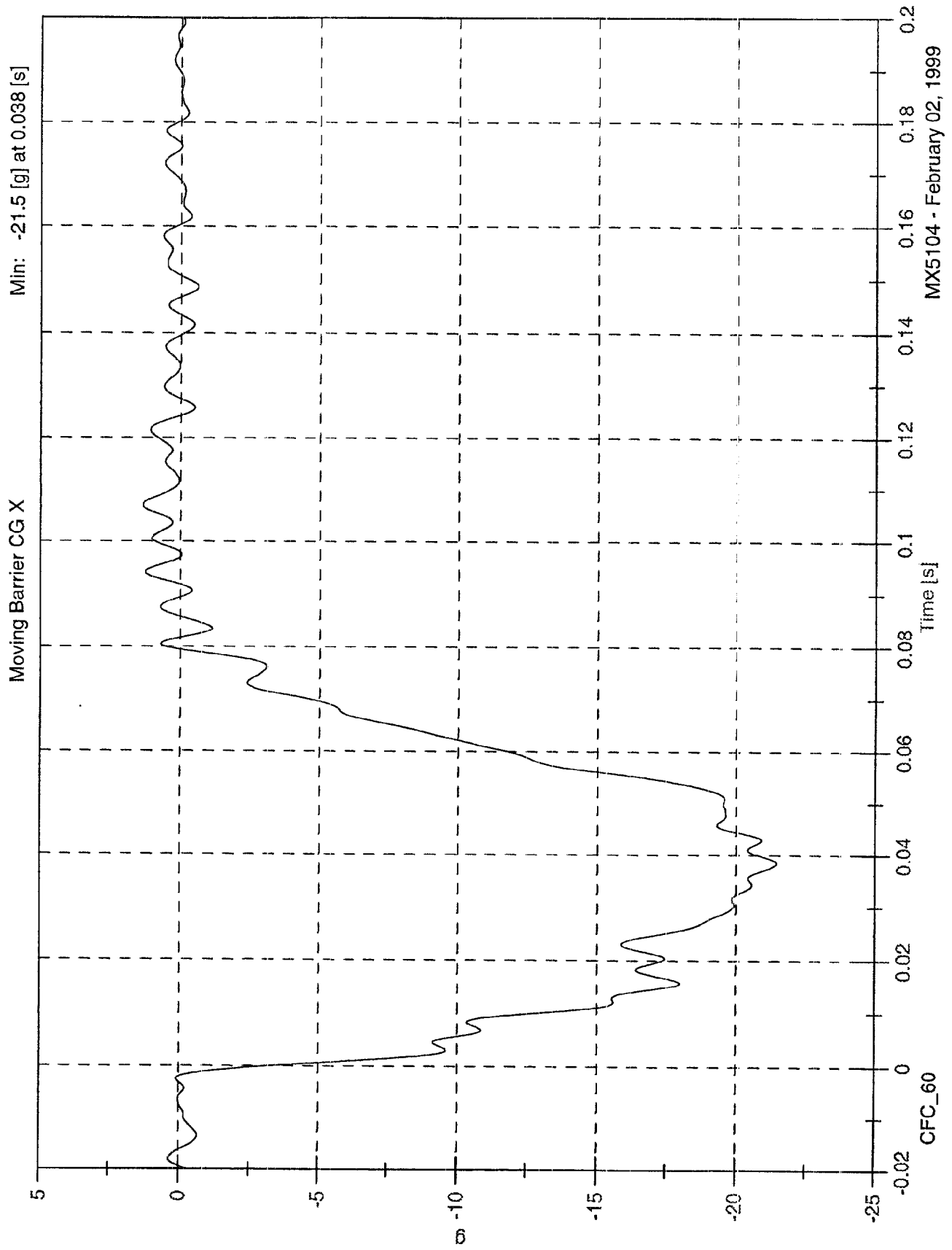
Acc 18(X) Target C/G Resultant



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 1.3 [g] at 0.107 [s]
Min: -21.5 [g] at 0.038 [s]

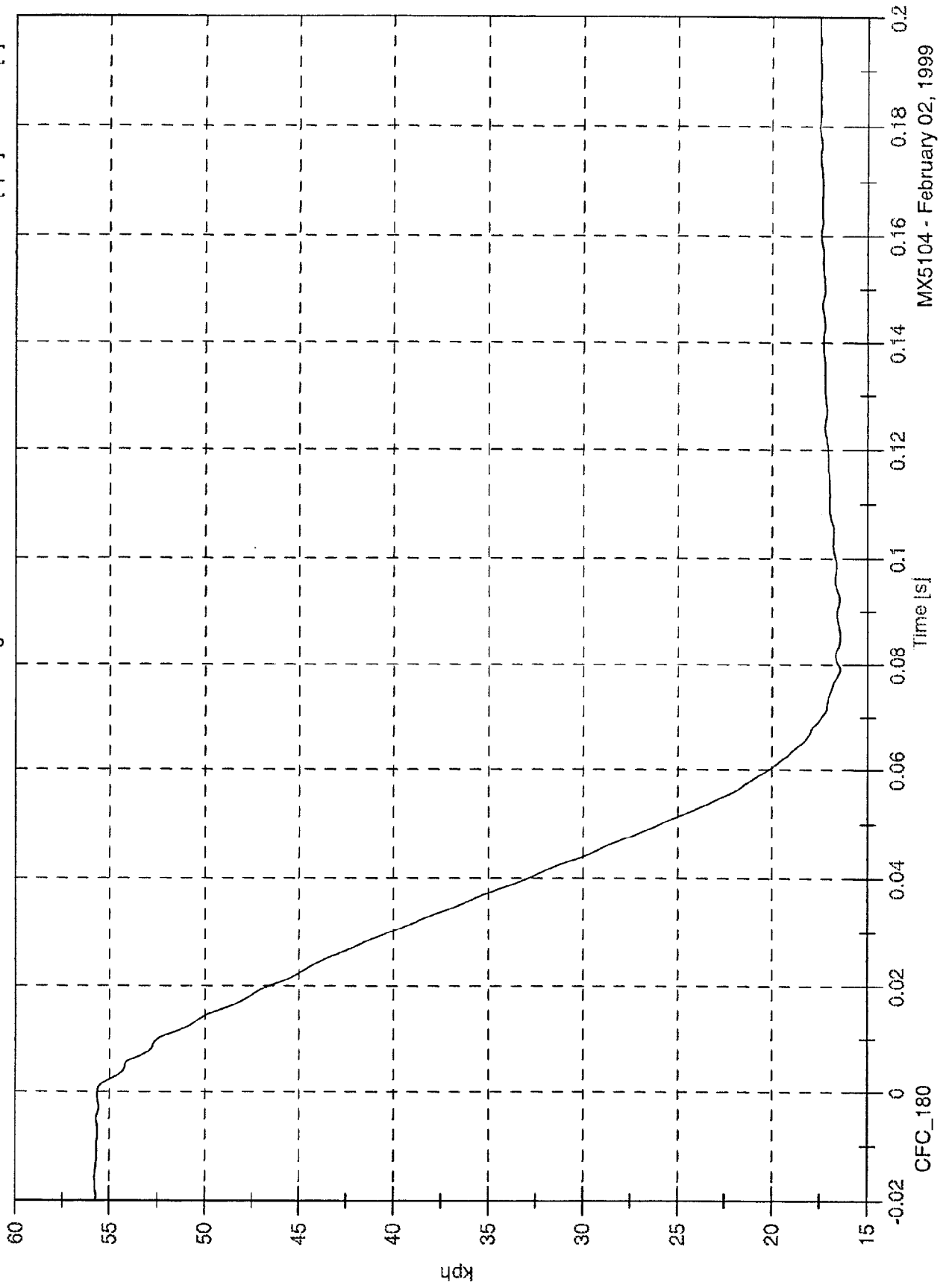


MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 55.9 [kph] at -0.033 [s]
Min: 16.4 [kph] at 0.079 [s]

Moving Barrier CG X



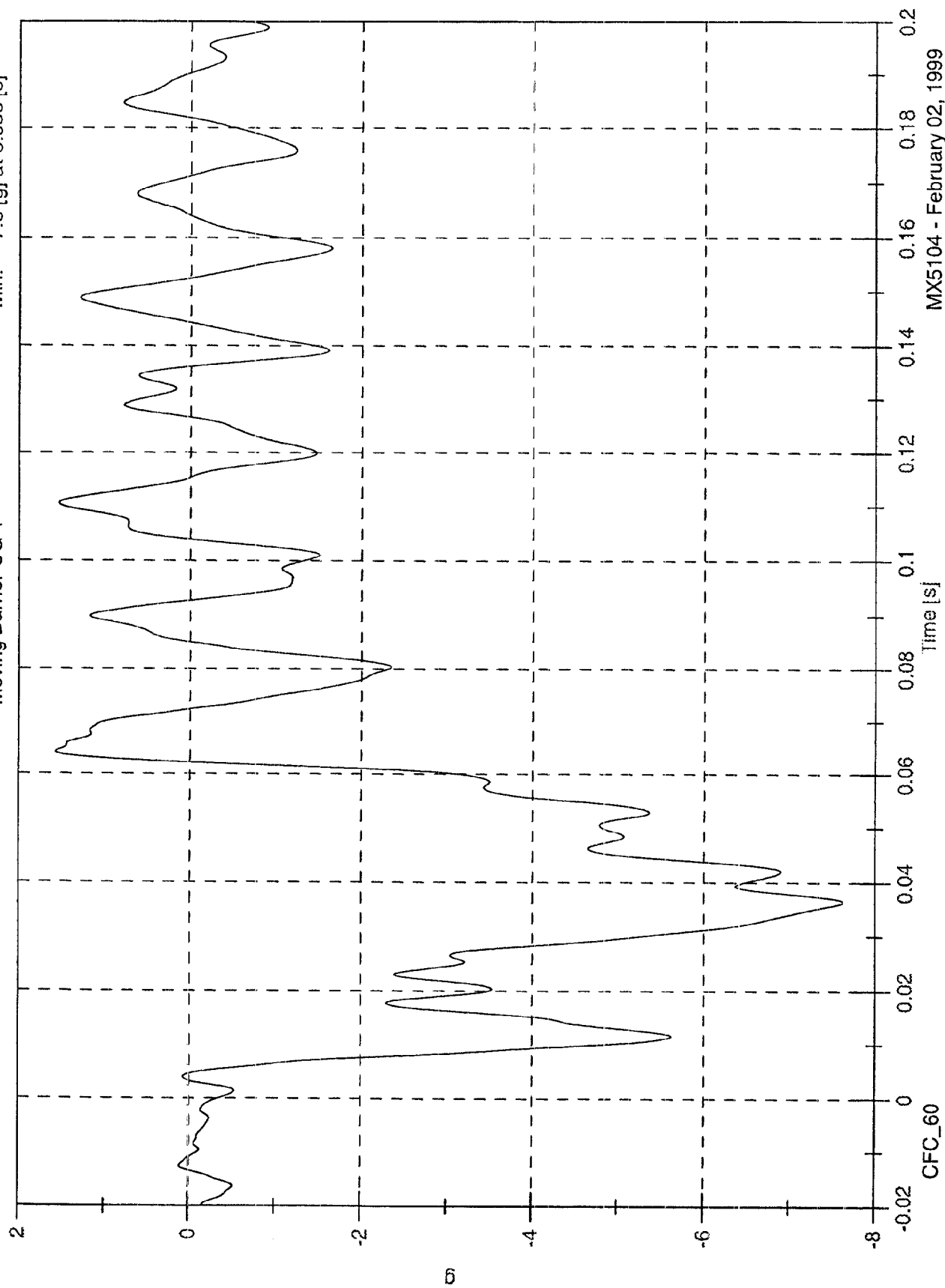
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 1.6 [g] at 0.064 [s]

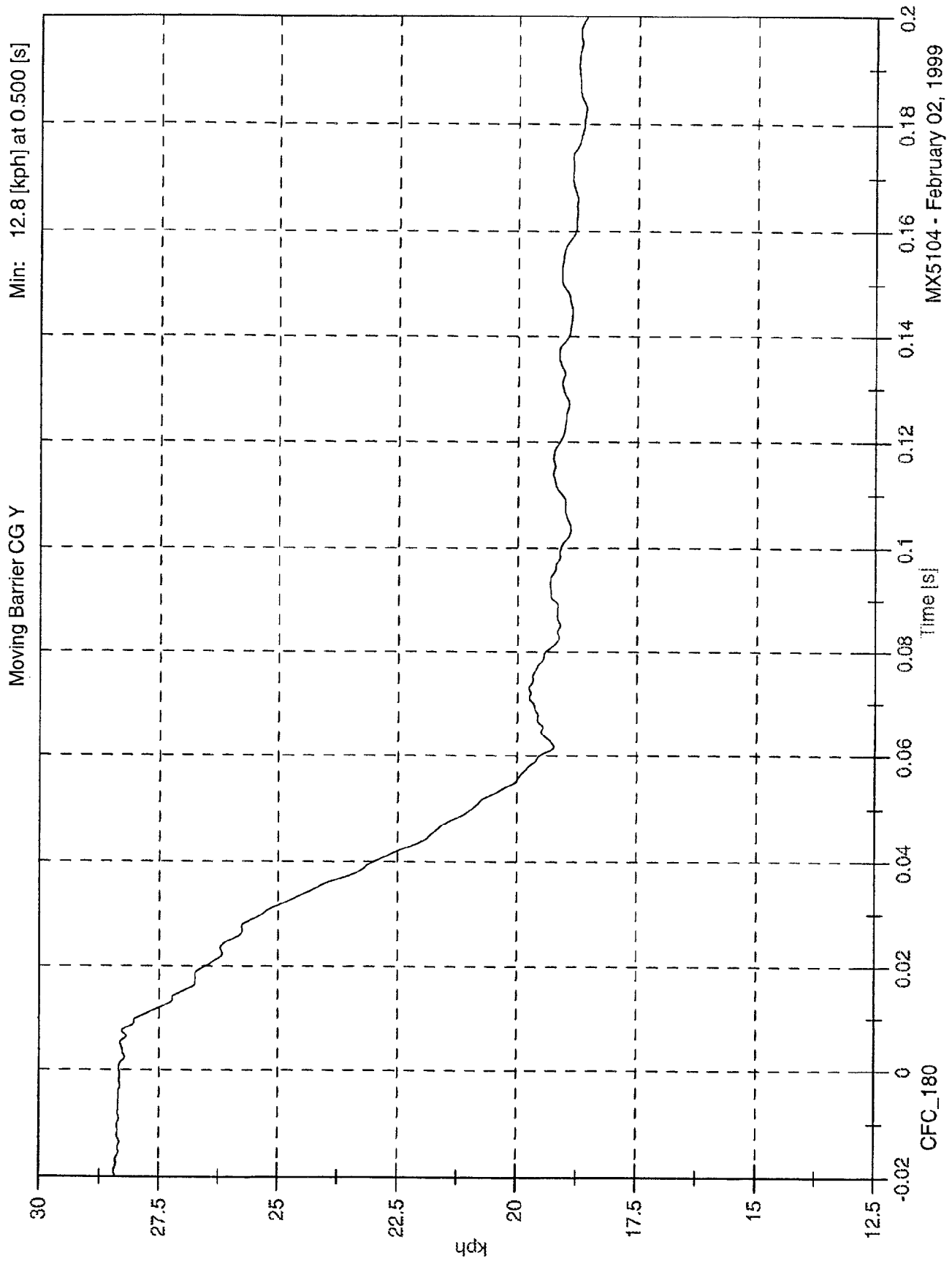
Min: -7.6 [g] at 0.036 [s]

Moving Barrier CG Y



SNCAP Test # 4 - 1999 Toyota Solara

Max: 28.5 [kph] at -0.041 [s]
Min: 12.8 [kph] at 0.500 [s]



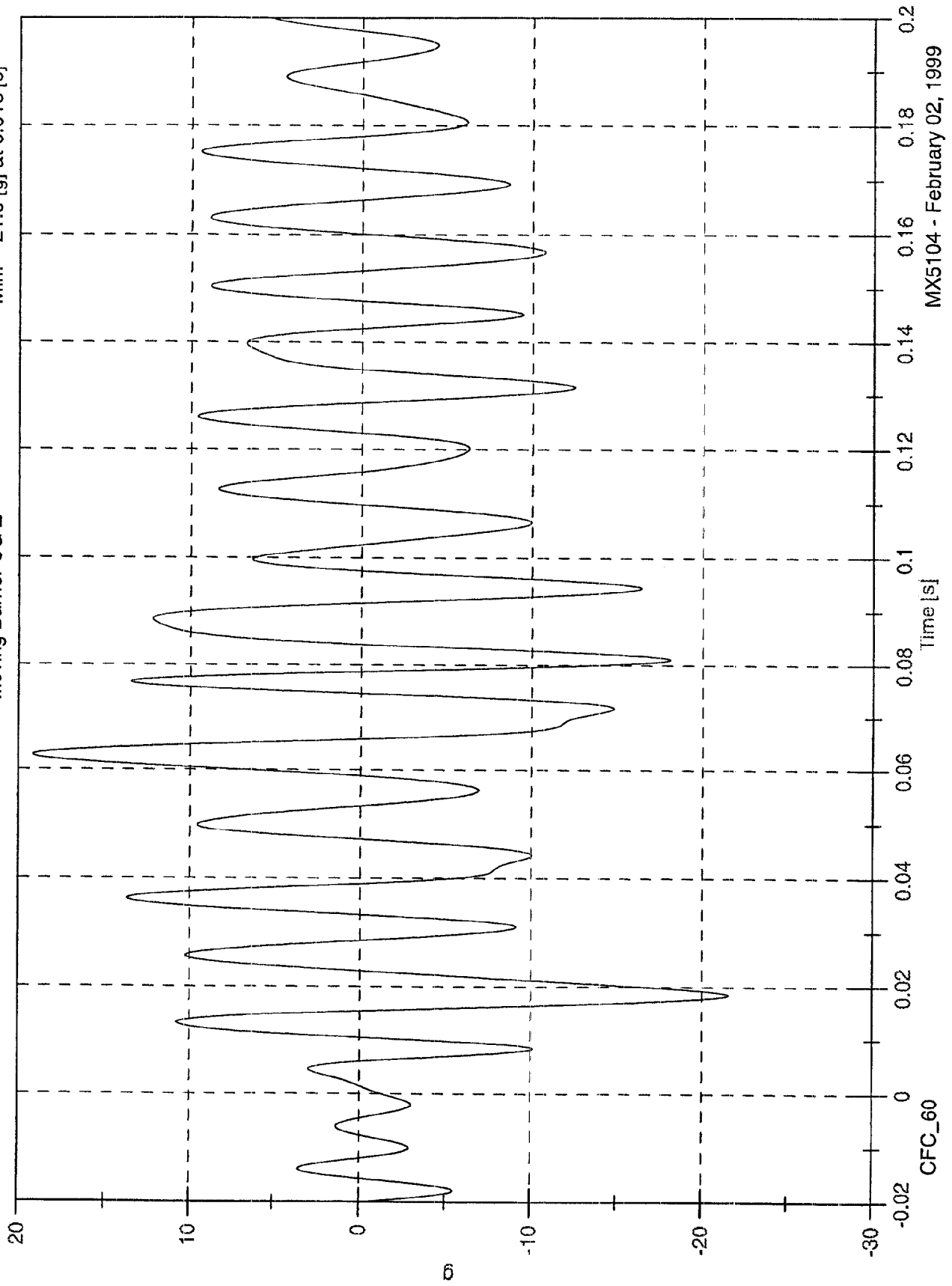
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 19.2 [g] at 0.063 [s]

Min: -21.6 [g] at 0.018 [s]

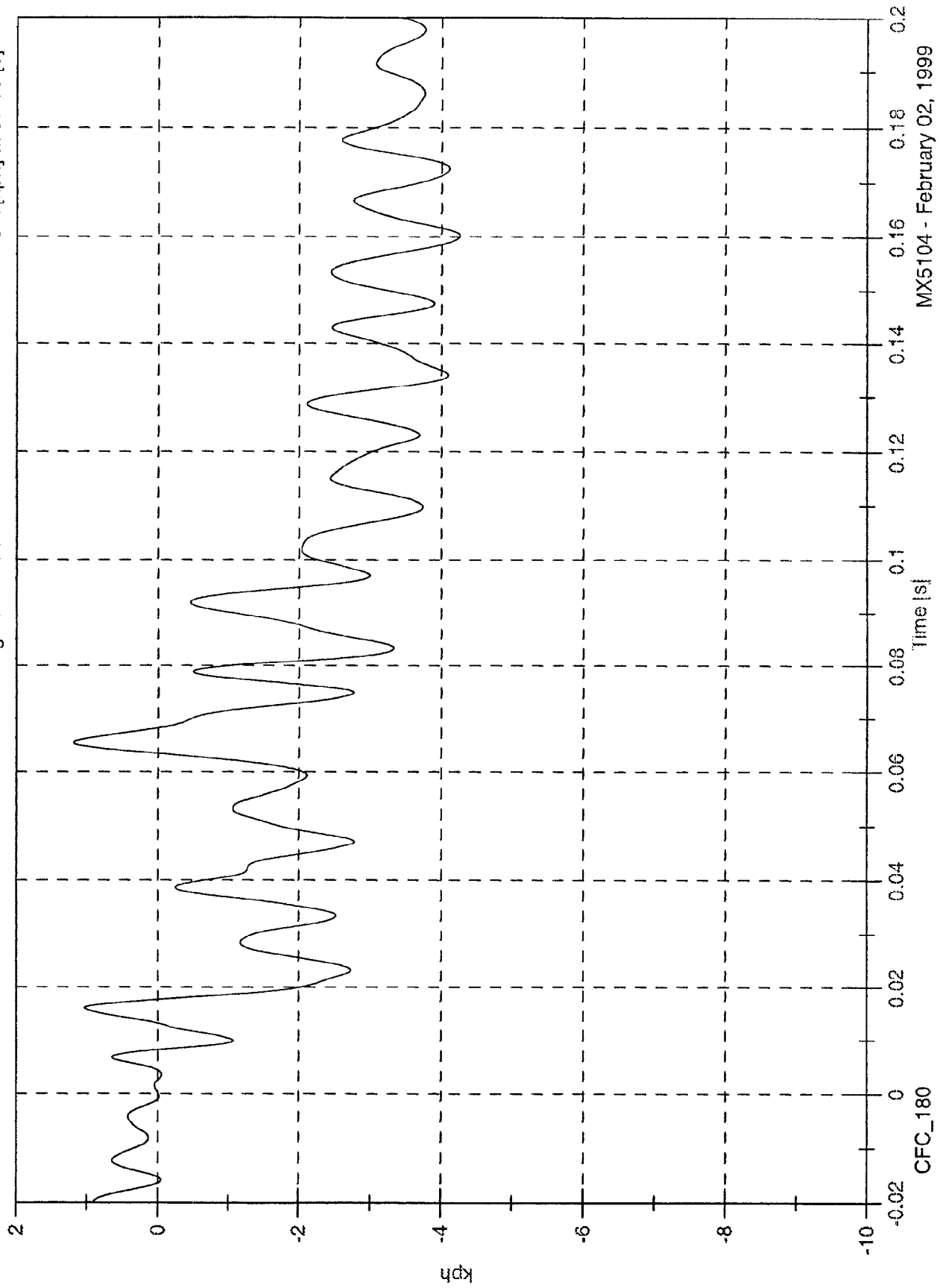
Moving Barrier CG Z



SNCAP Test # 4 - 1999 Toyota Solara

Max: 1.2 [kph] at 0.066 [s]
Min: -8.2 [kph] at 0.433 [s]

Moving Barrier CG Z



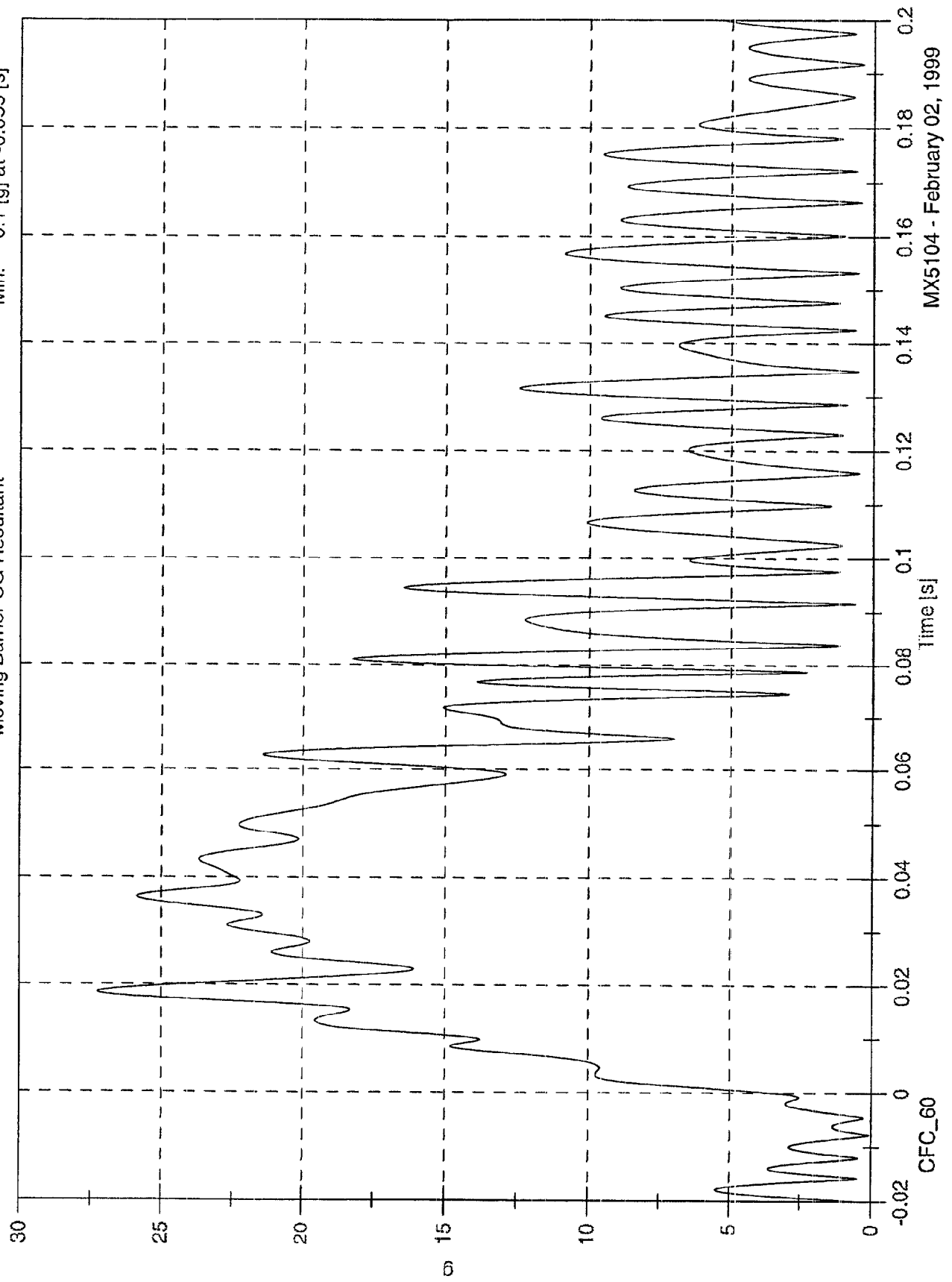
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 27.3 [g] at 0.019 [s]

Min: 0.1 [g] at -0.055 [s]

Moving Barrier CG Resultant

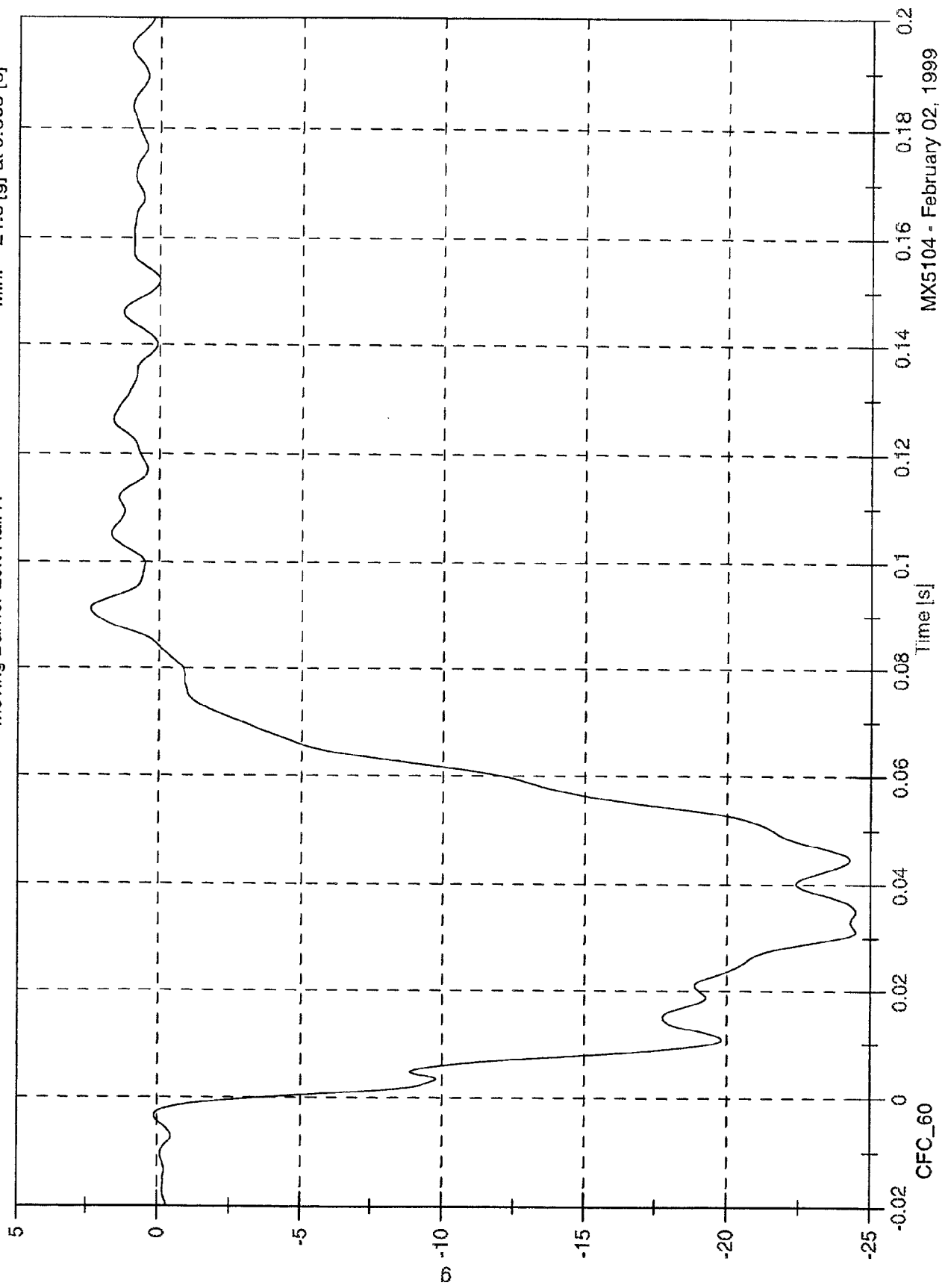


SNCAP Test # 4 - 1999 Toyota Solara

Max: 2.4 [g] at 0.091 [s]

Min: -24.5 [g] at 0.035 [s]

Moving Barrier Left Rail X

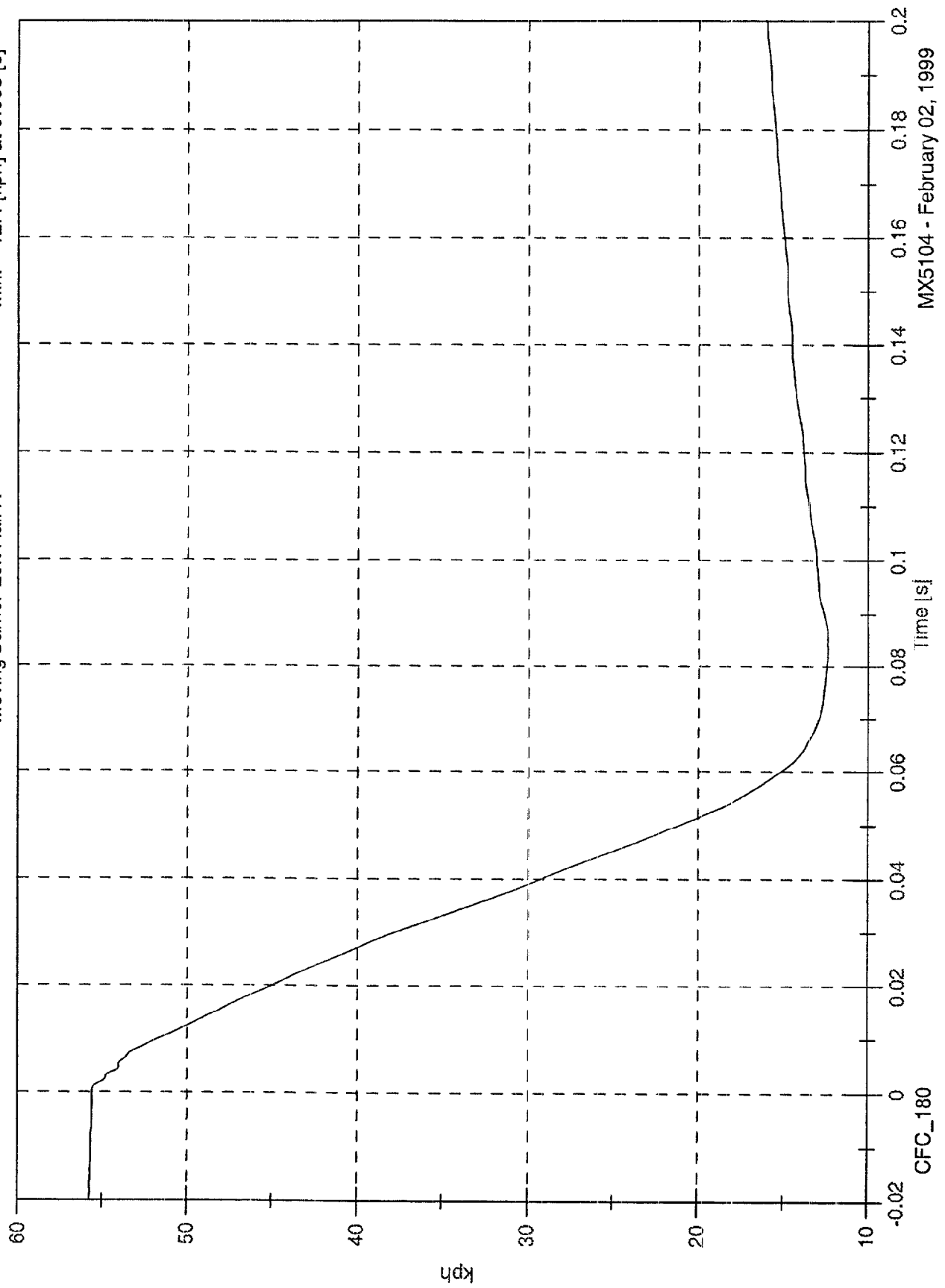


MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 55.9 [kph] at -0.031 [s]
Min: 12.4 [kph] at 0.083 [s]

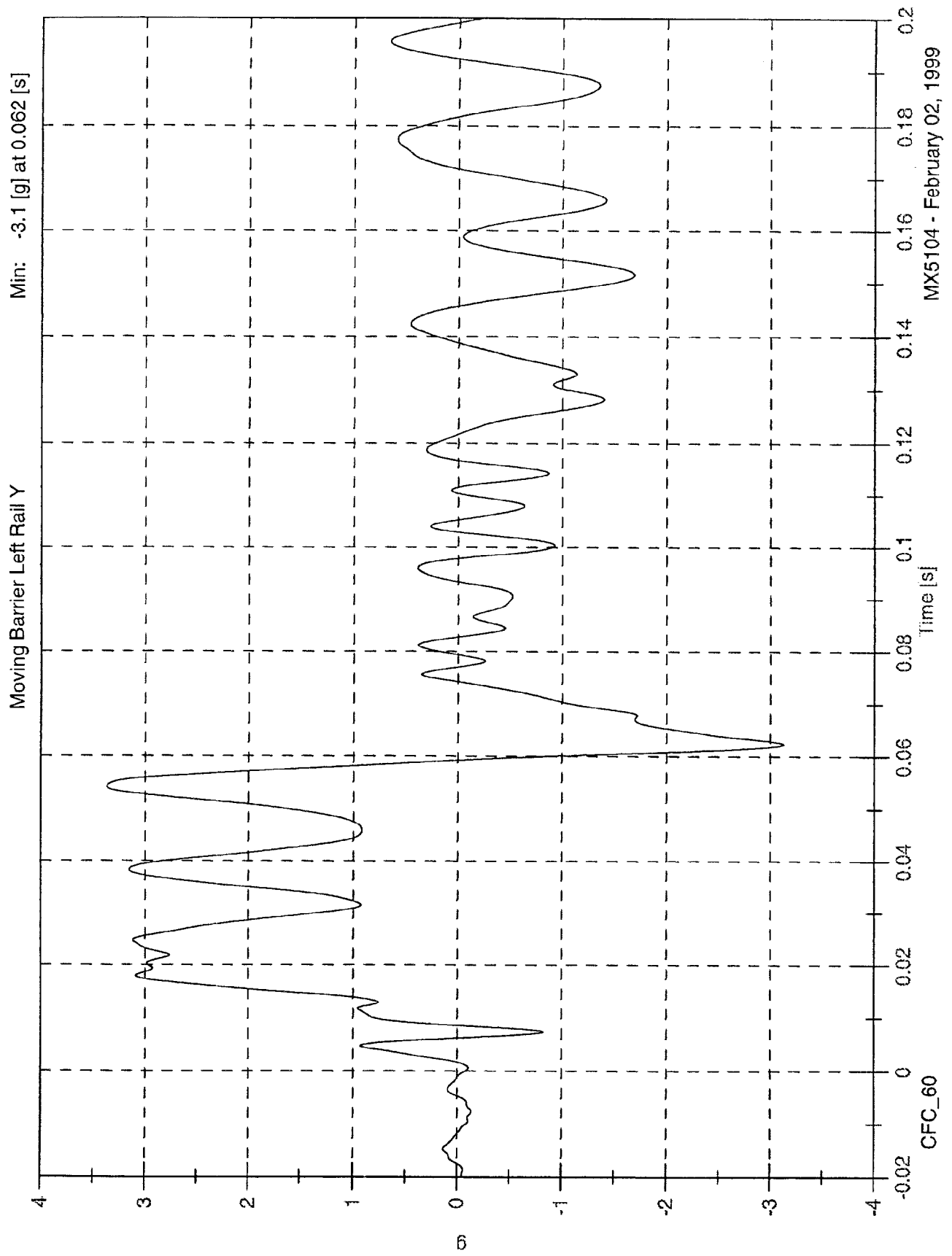
Moving Barrier Left Rail X



MX5104 - February 02, 1999

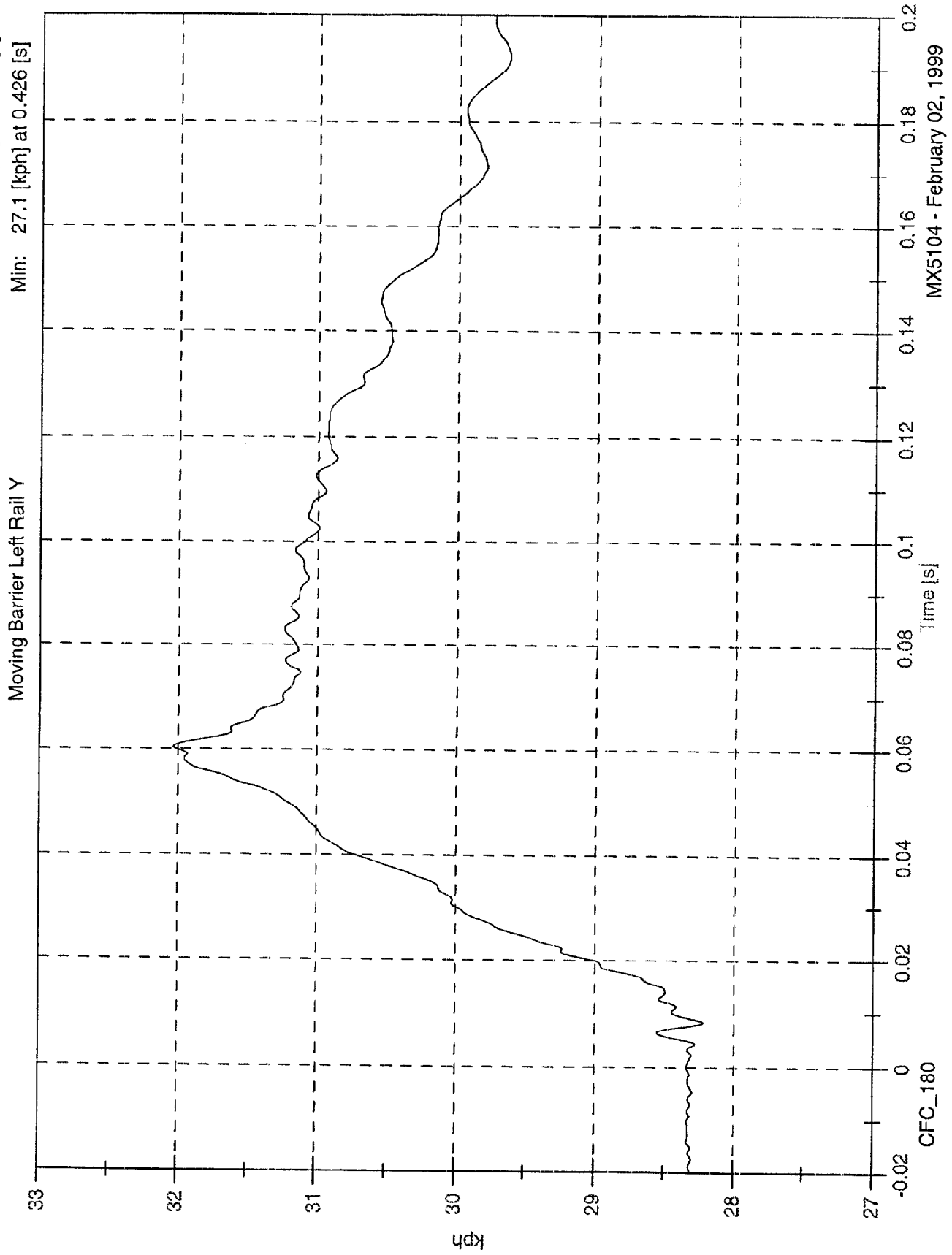
SNCAP Test # 4 - 1999 Toyota Solara

Max: 3.4 [g] at 0.054 [s]
Min: -3.1 [g] at 0.062 [s]



SNCAP Test # 4 - 1999 Toyota Solara

Max: 32.0 [kph] at 0.060 [s]
Min: 27.1 [kph] at 0.426 [s]

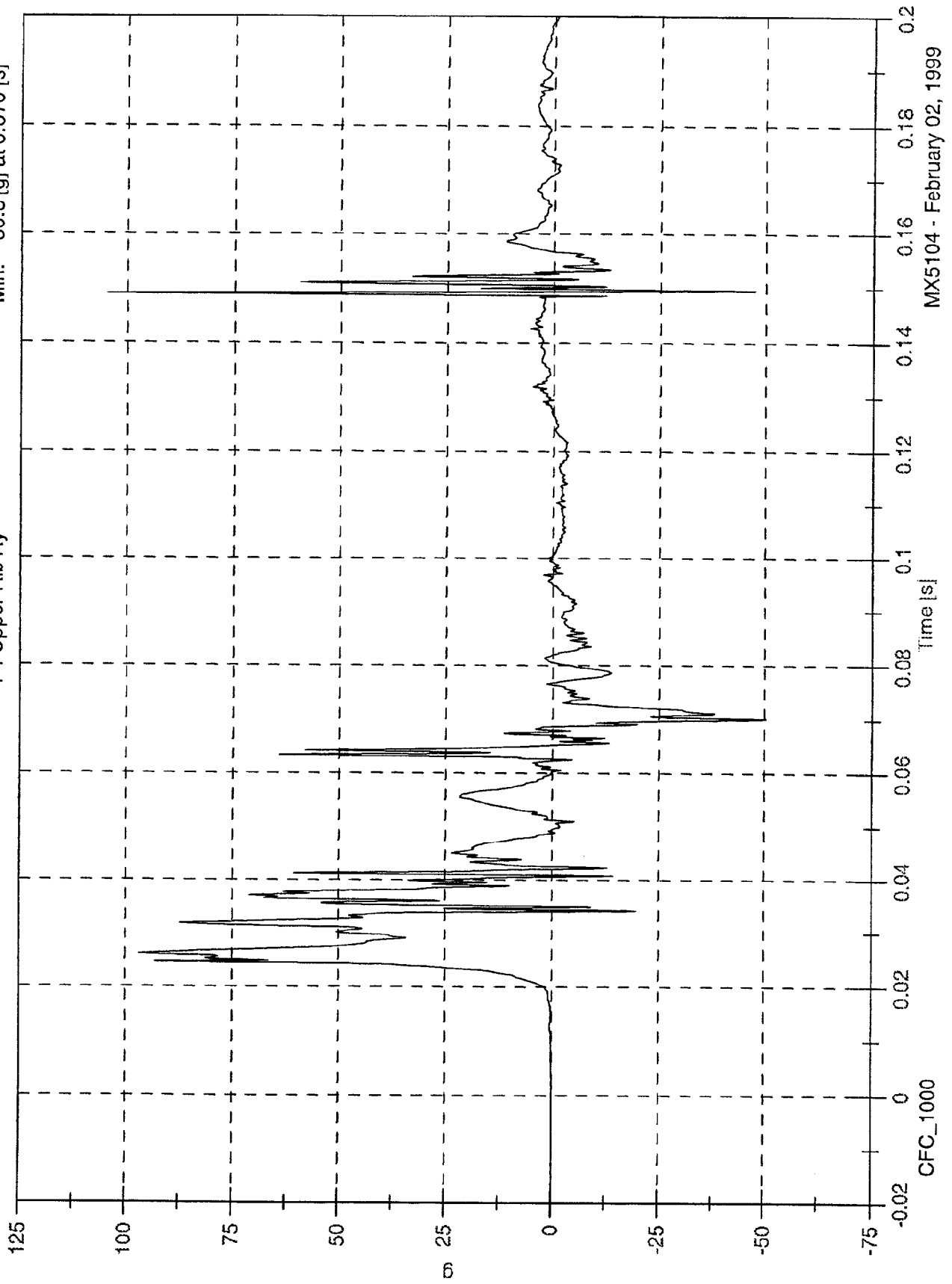


SNCAP Test # 4 - 1999 Toyota Solara

Max: 104.9 [g] at 0.149 [s]

Min: -50.3 [g] at 0.070 [s]

P1 Upper Rib Ry

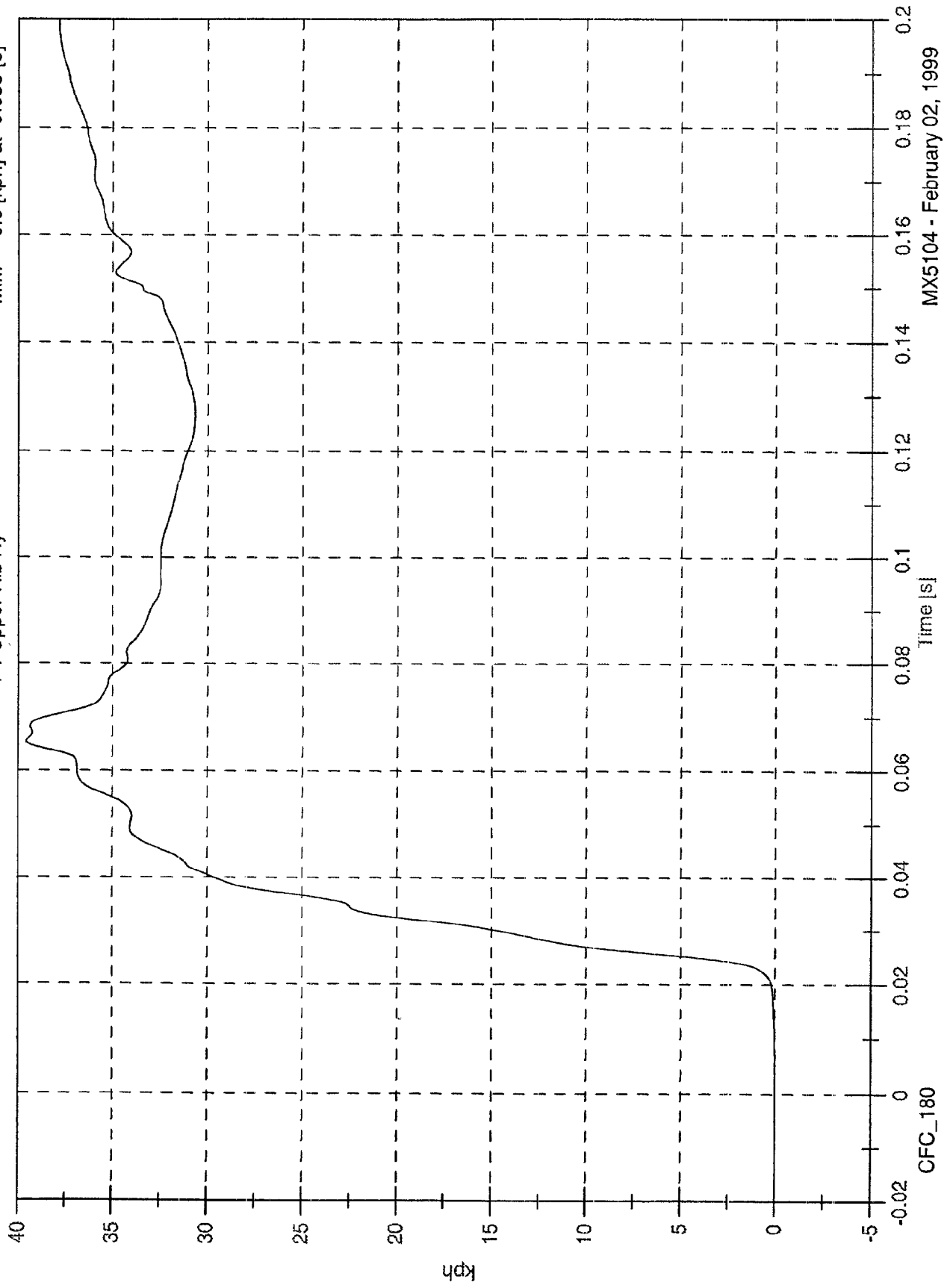


SNCAP Test # 4 - 1999 Toyota Solara

Max: 39.6 [kph] at 0.065 [s]

Min: -0.0 [kph] at -0.055 [s]

P1 Upper Rib Ry



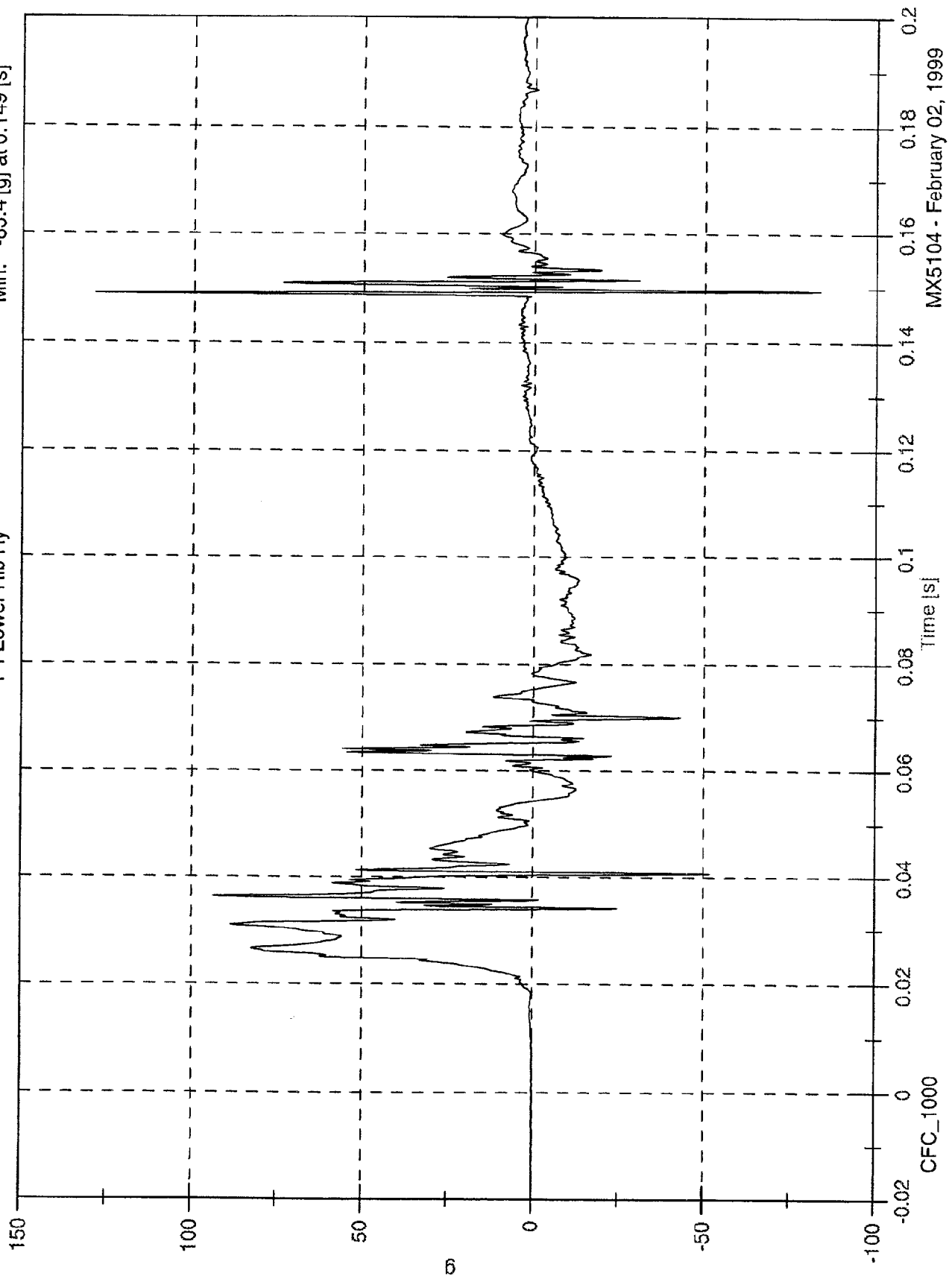
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 128.8 [g] at 0.149 [s]

Min: -83.4 [g] at 0.149 [s]

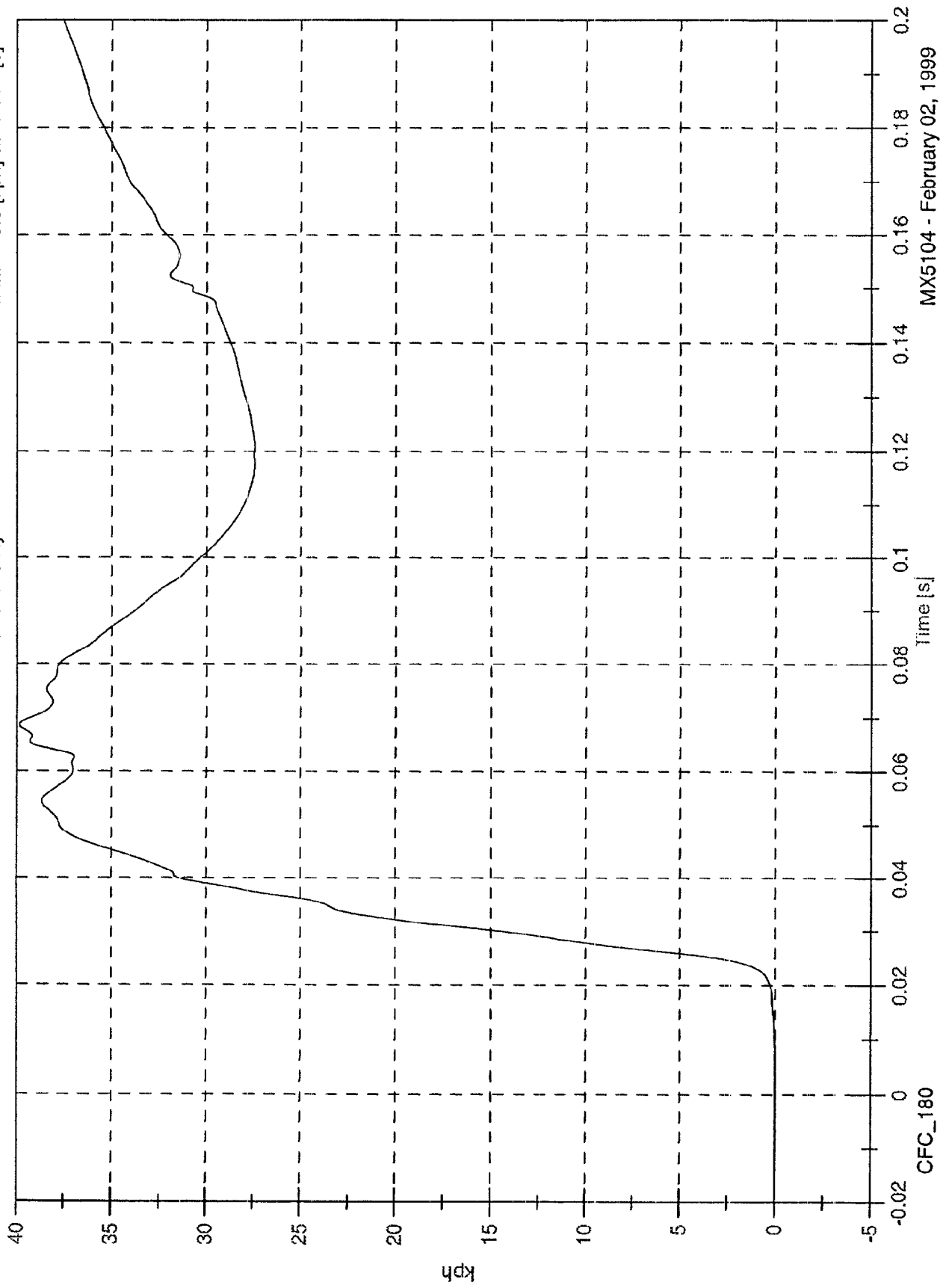
P1 Lower Rib Ry



SNCAP Test # 4 - 1999 Toyota Solara

Max: 39.8 [kph] at 0.069 [s]
Min: -0.0 [kph] at -0.032 [s]

P1 Lower Rib Ry



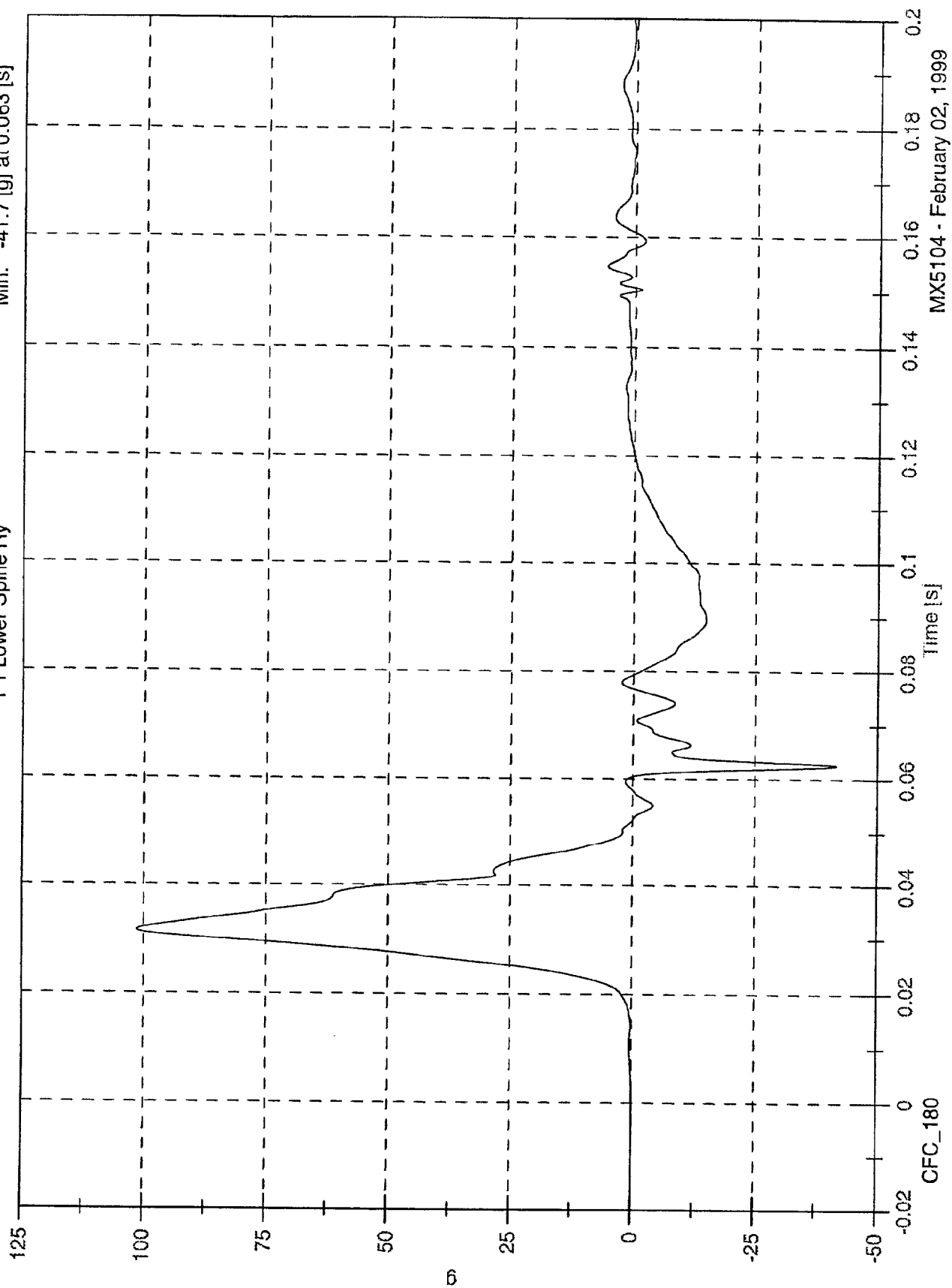
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 101.4 [g] at 0.031 [s]

Min: -41.7 [g] at 0.063 [s]

P1 Lower Spine Ry



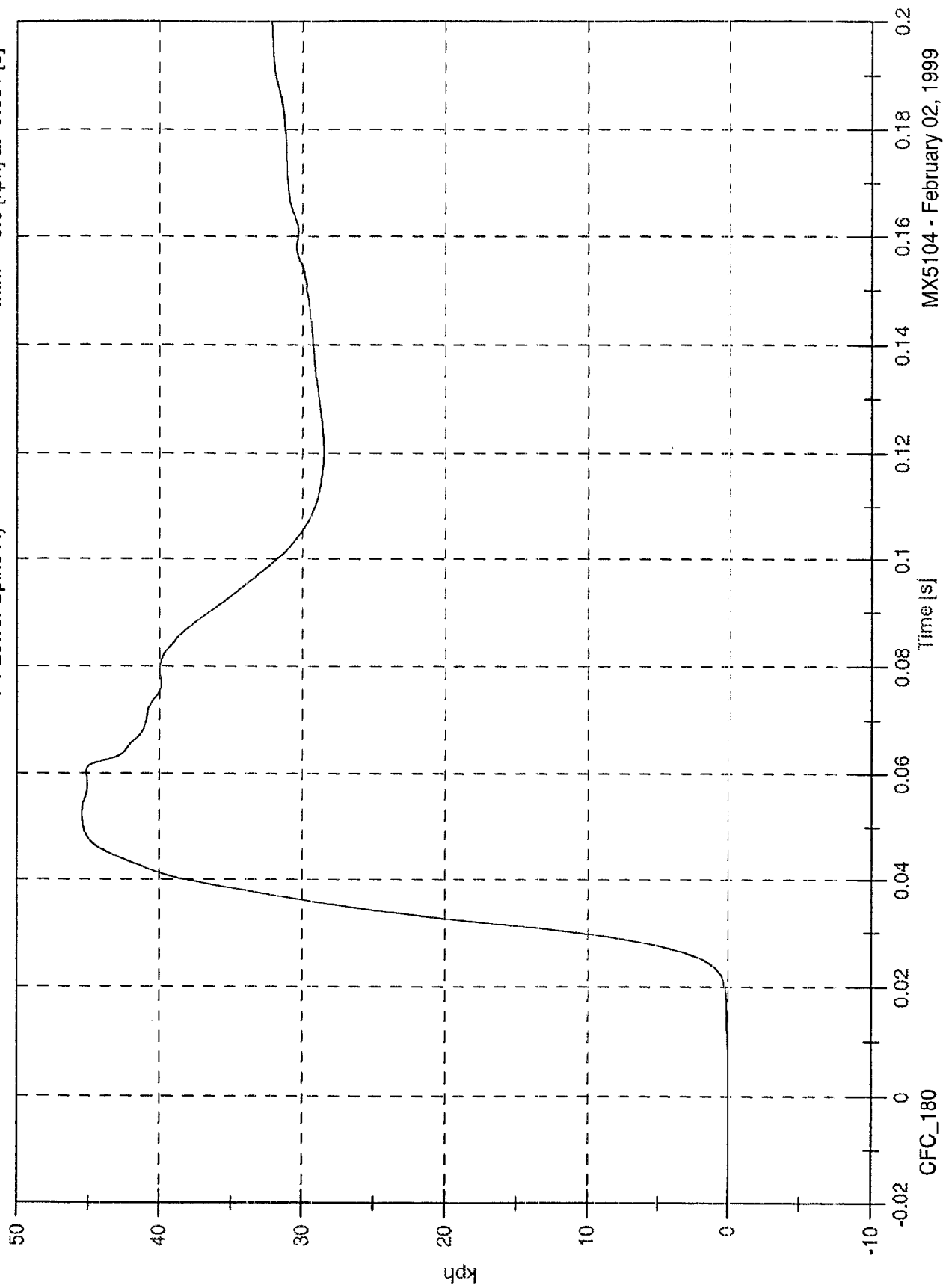
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 45.5 [kph] at 0.052 [s]

Min: -0.0 [kph] at -0.051 [s]

P1 Lower Spine Ry



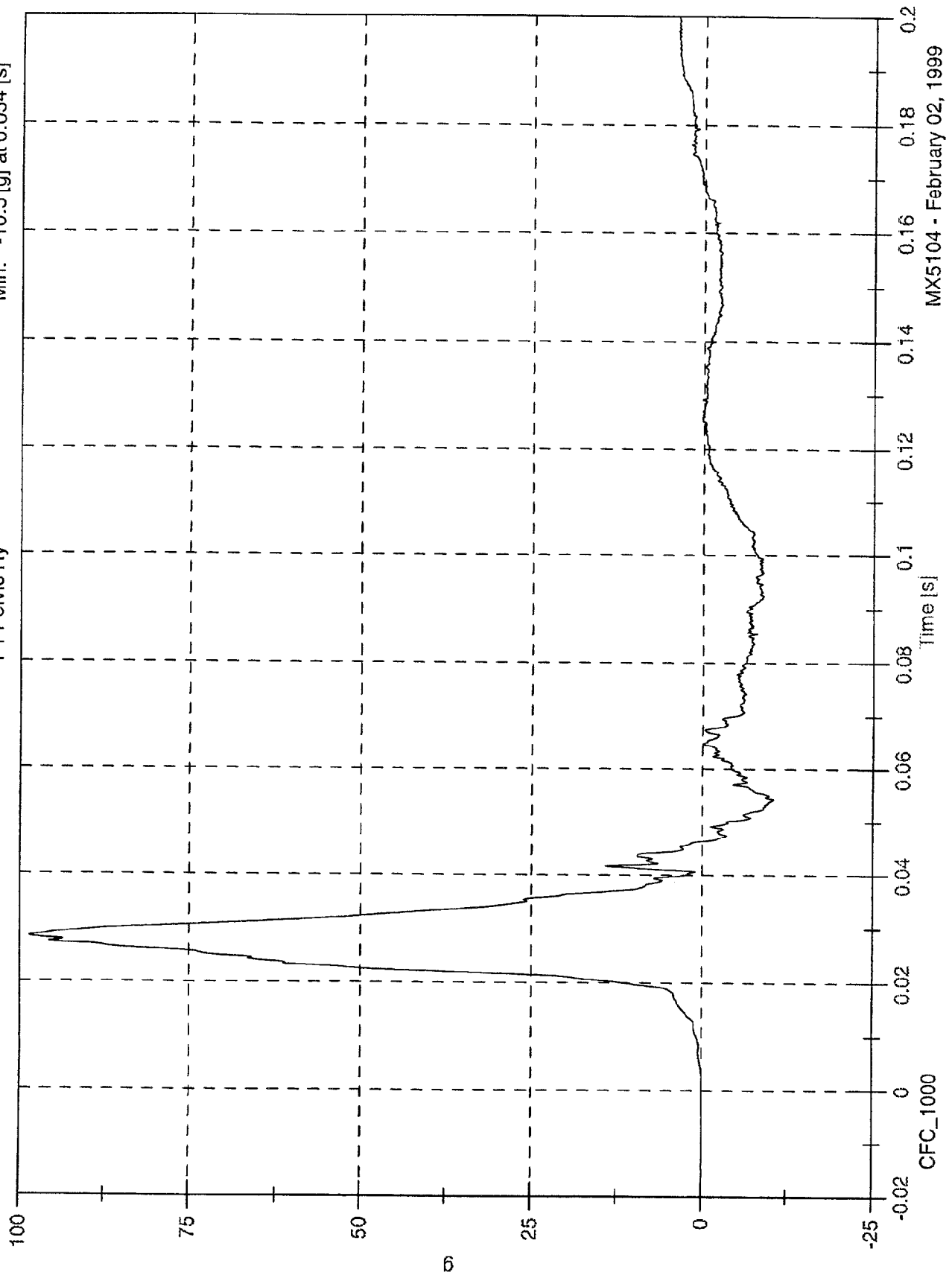
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 98.6 [g] at 0.028 [s]

Min: -10.5 [g] at 0.054 [s]

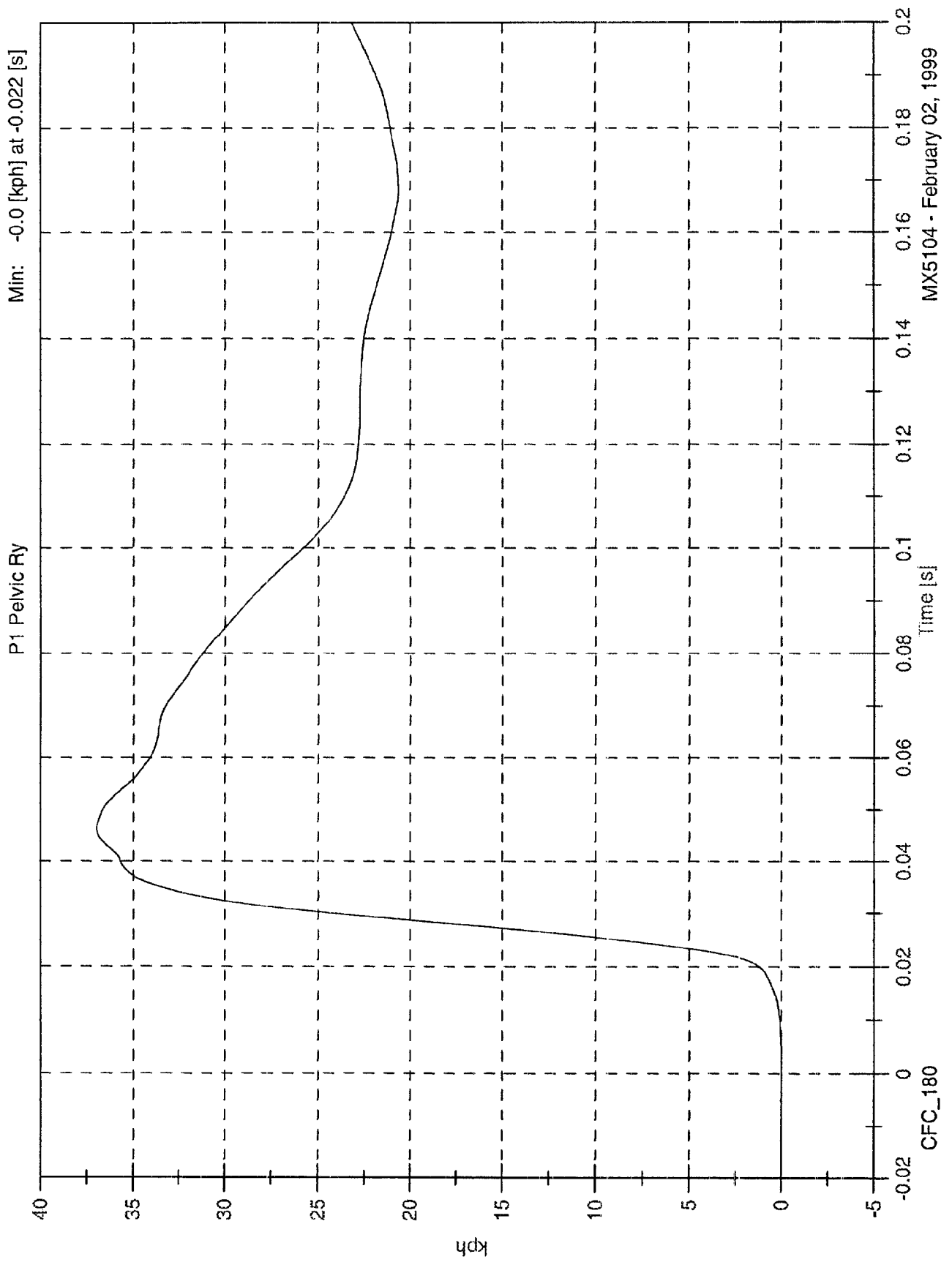
P1 Pelvic Ry



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 37.0 [kph] at 0.046 [s]
Min: -0.0 [kph] at -0.022 [s]



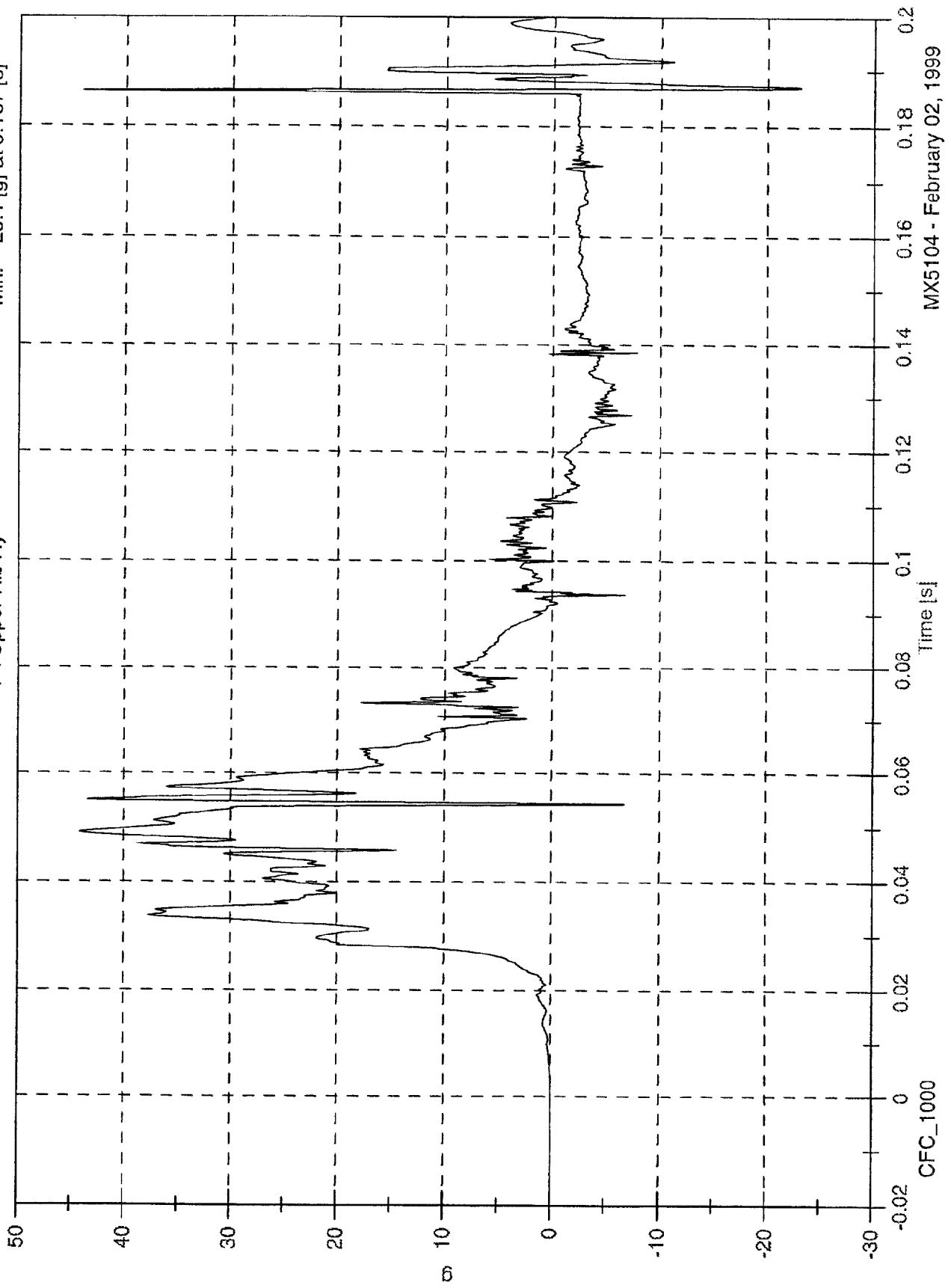
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 44.2 [g] at 0.049 [s]

Min: -23.1 [g] at 0.187 [s]

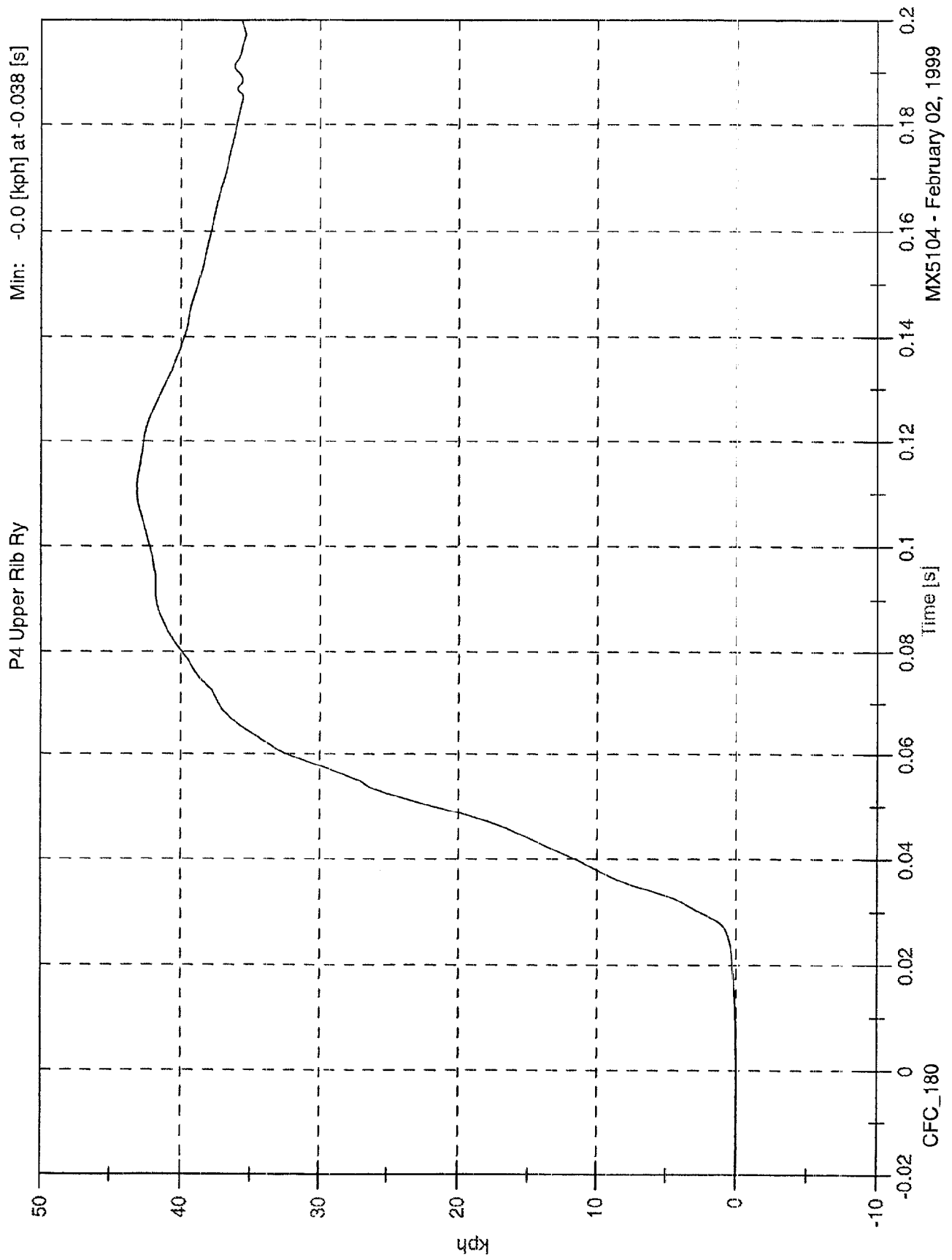
P4 Upper Rib Ry



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 43.1 [kph] at 0.110 [s]
Min: -0.0 [kph] at -0.038 [s]



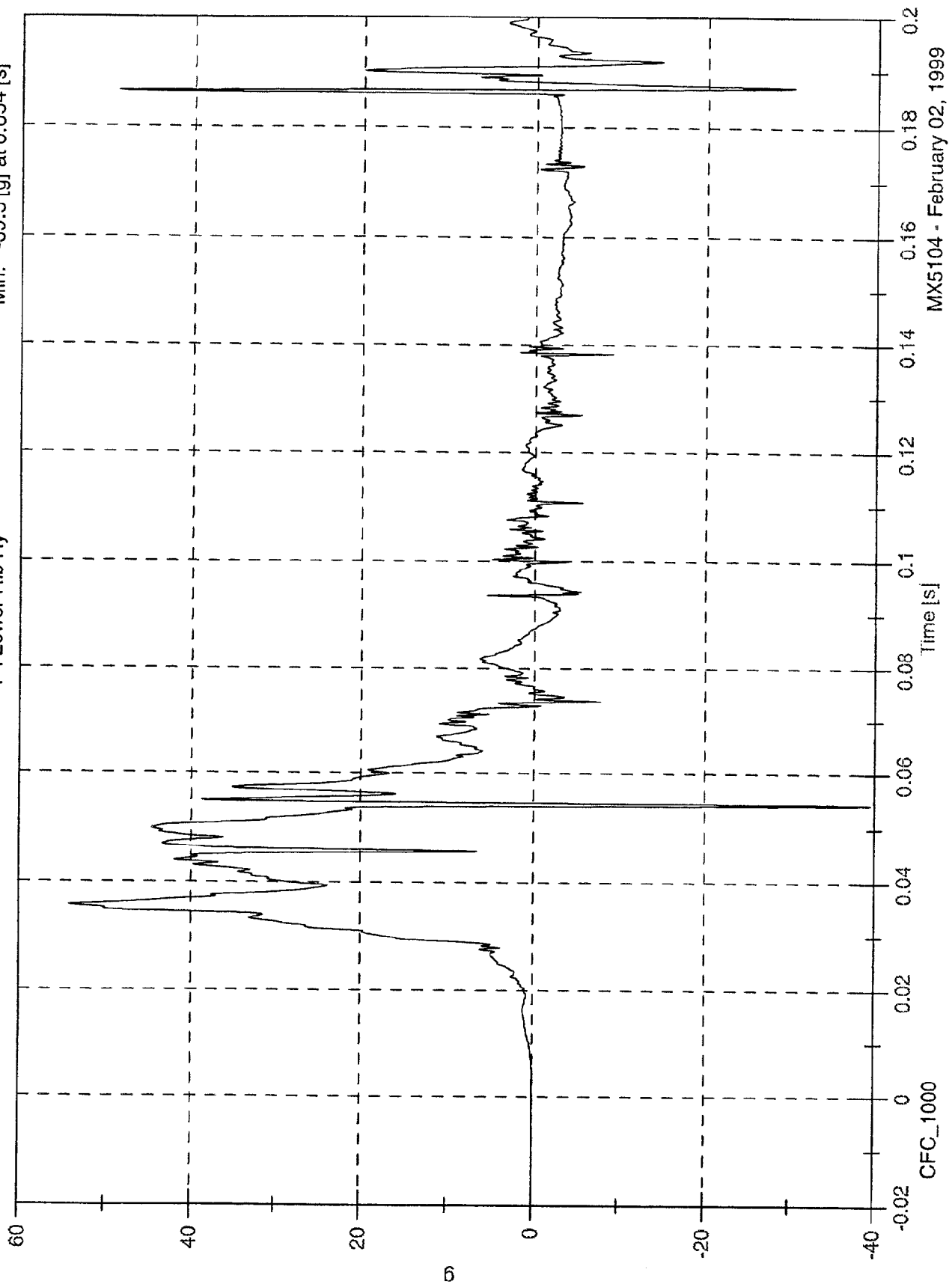
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 54.2 [g] at 0.036 [s]

Min: -39.5 [g] at 0.054 [s]

P4 Lower Rib Ry

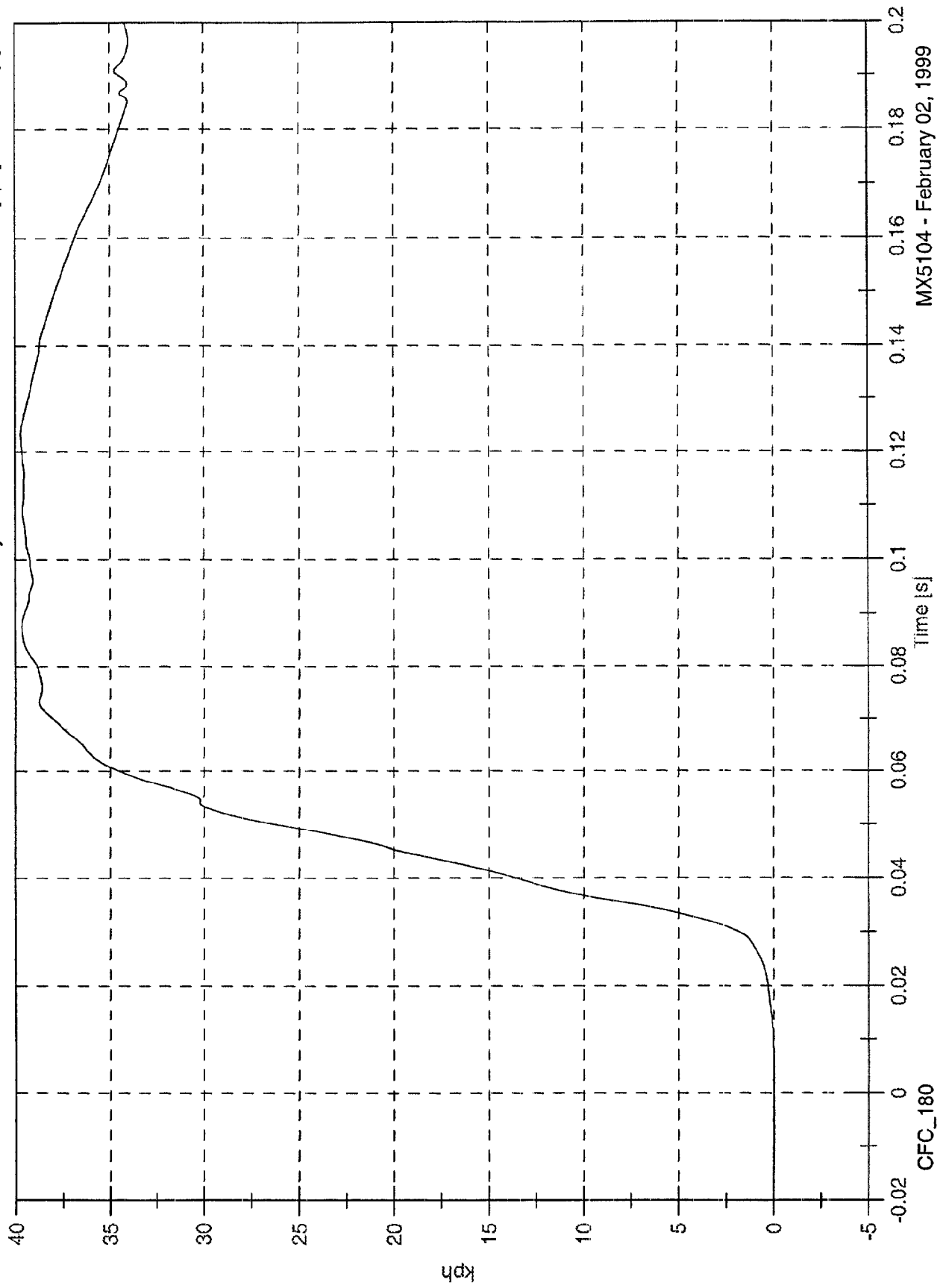


MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

P4 Lower Rib Ry

Max: 39.7 [kph] at 0.123 [s]
Min: -0.0 [kph] at -0.051 [s]



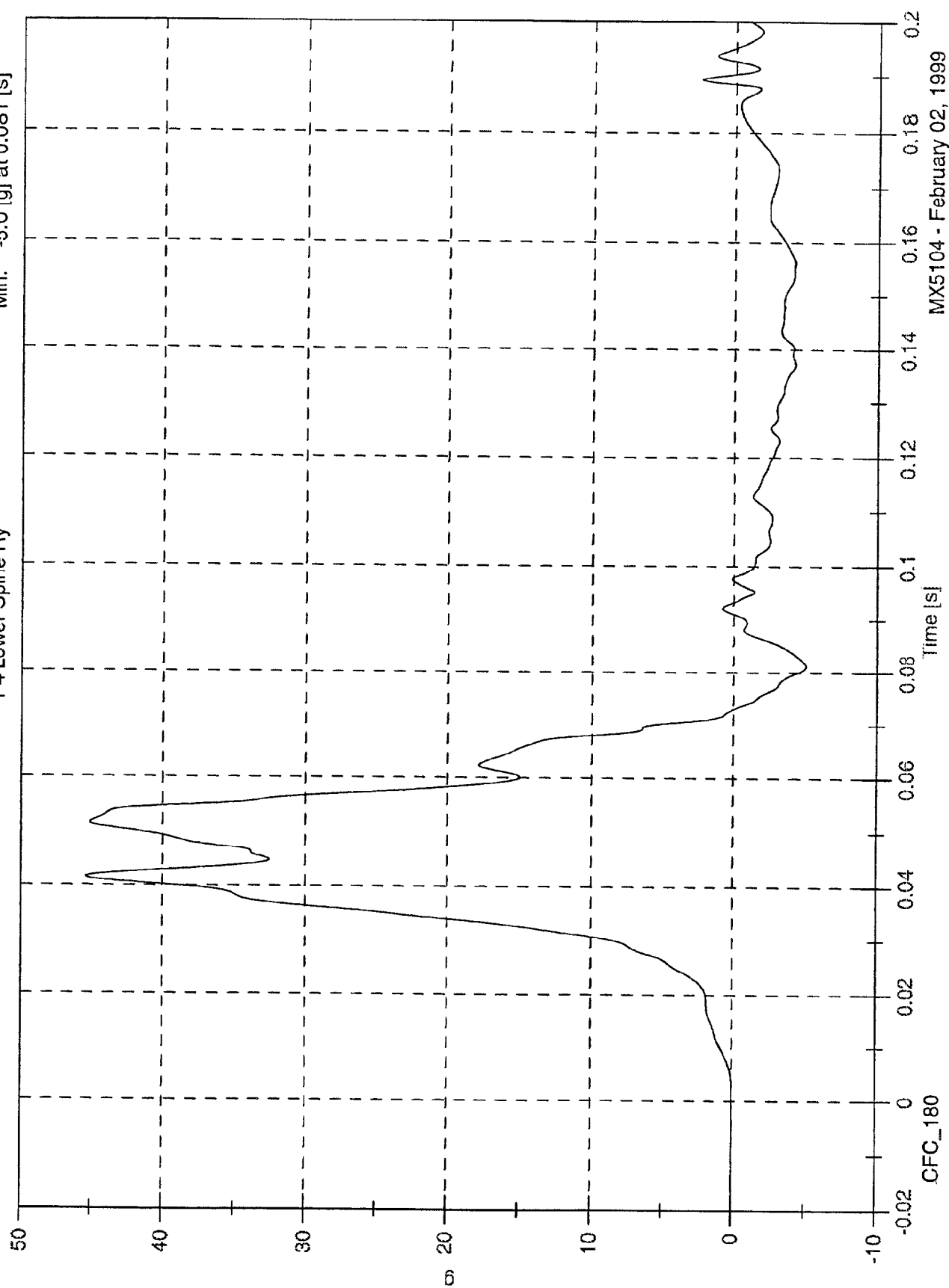
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 45.4 [g] at 0.042 [s]

Min: -5.0 [g] at 0.081 [s]

P4 Lower Spine Ry



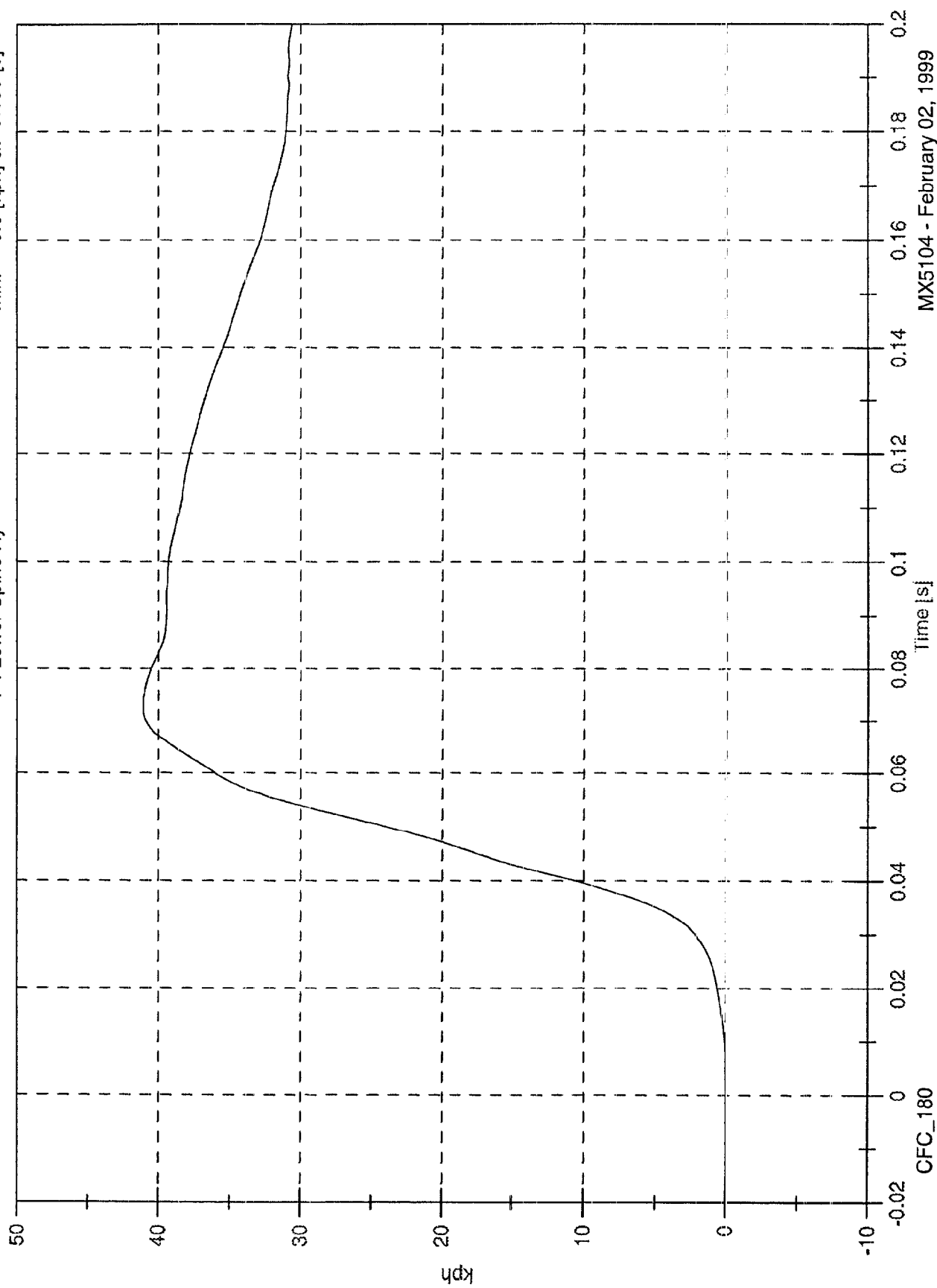
CFC_180

MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 41.1 [kph] at 0.073 [s]
Min: -0.0 [kph] at -0.059 [s]

P4 Lower Spine Ry



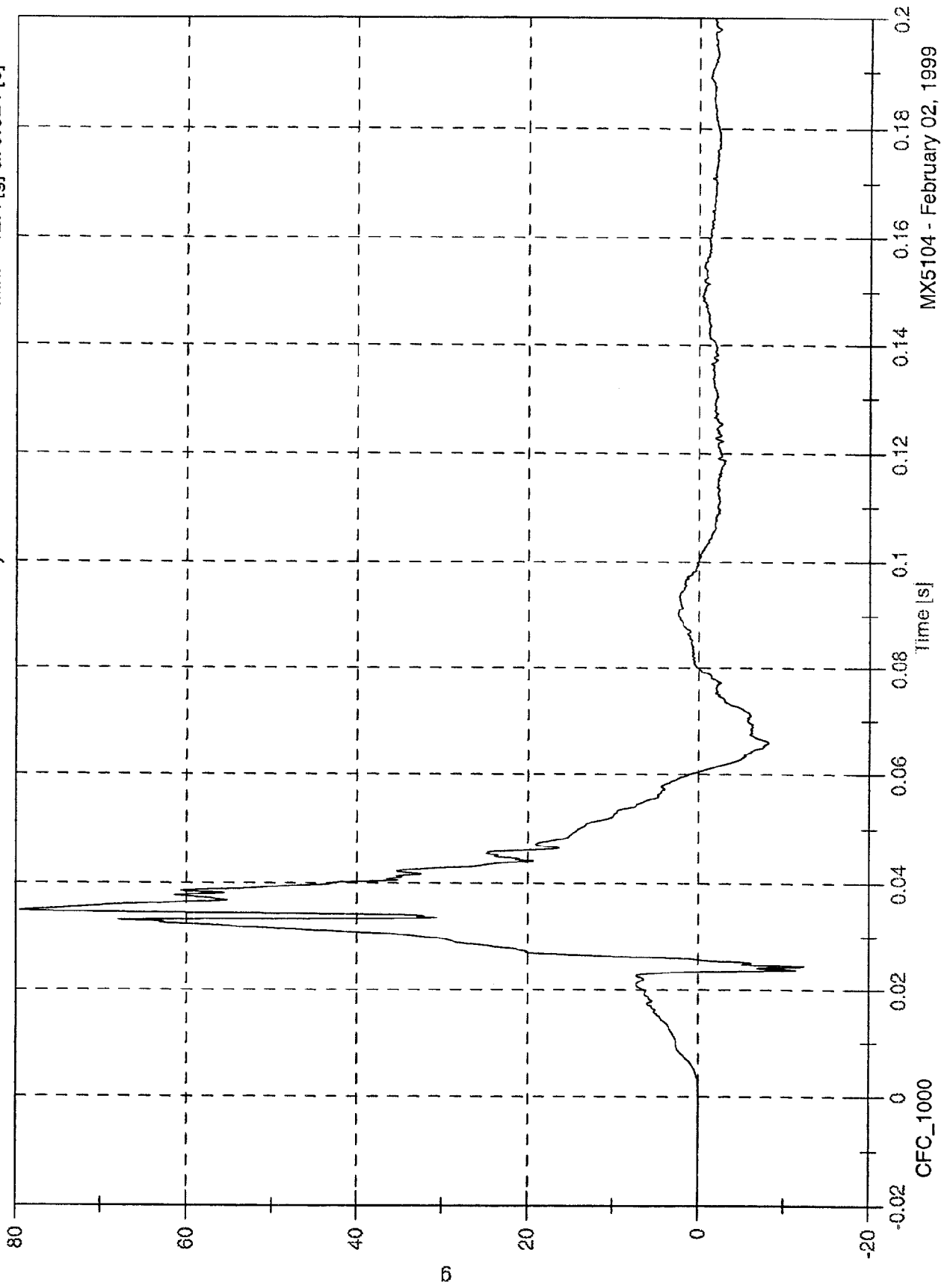
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 79.5 [g] at 0.035 [s]

Min: -12.4 [g] at 0.024 [s]

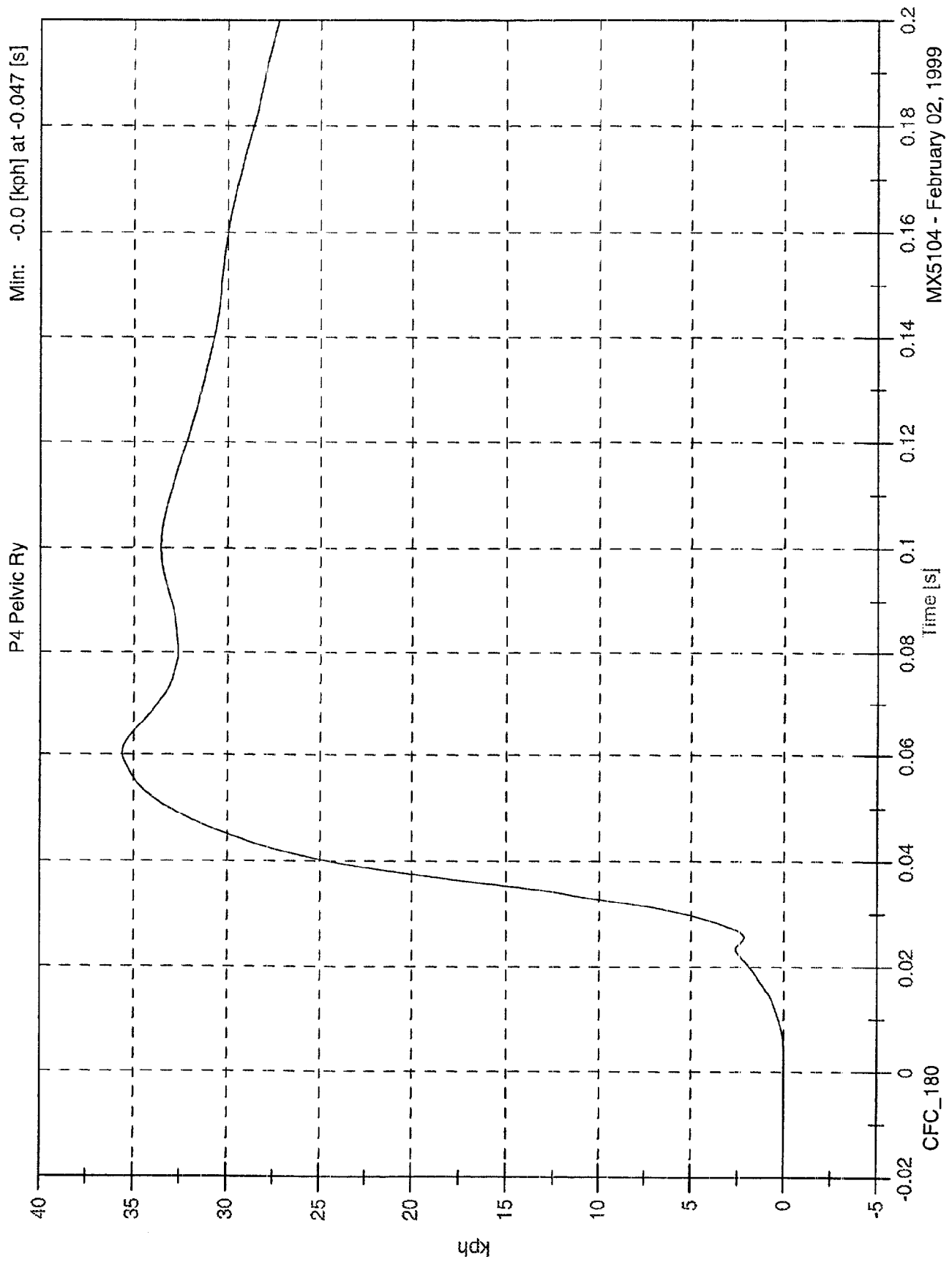
P4 Pelvic Ry



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

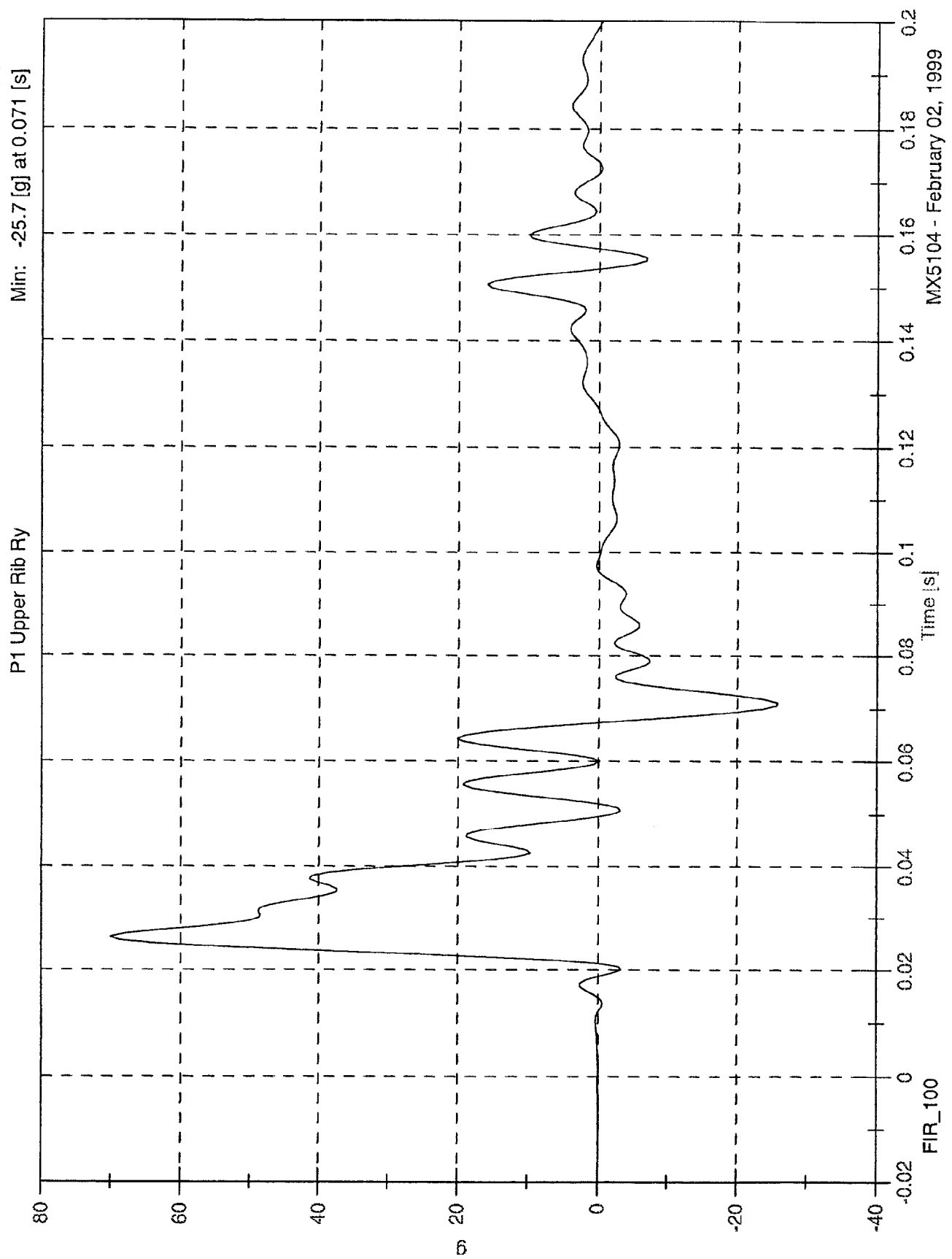
Max: 35.6 [kph] at 0.060 [s]
Min: -0.0 [kph] at -0.047 [s]



MX5104 - February 02, 1999

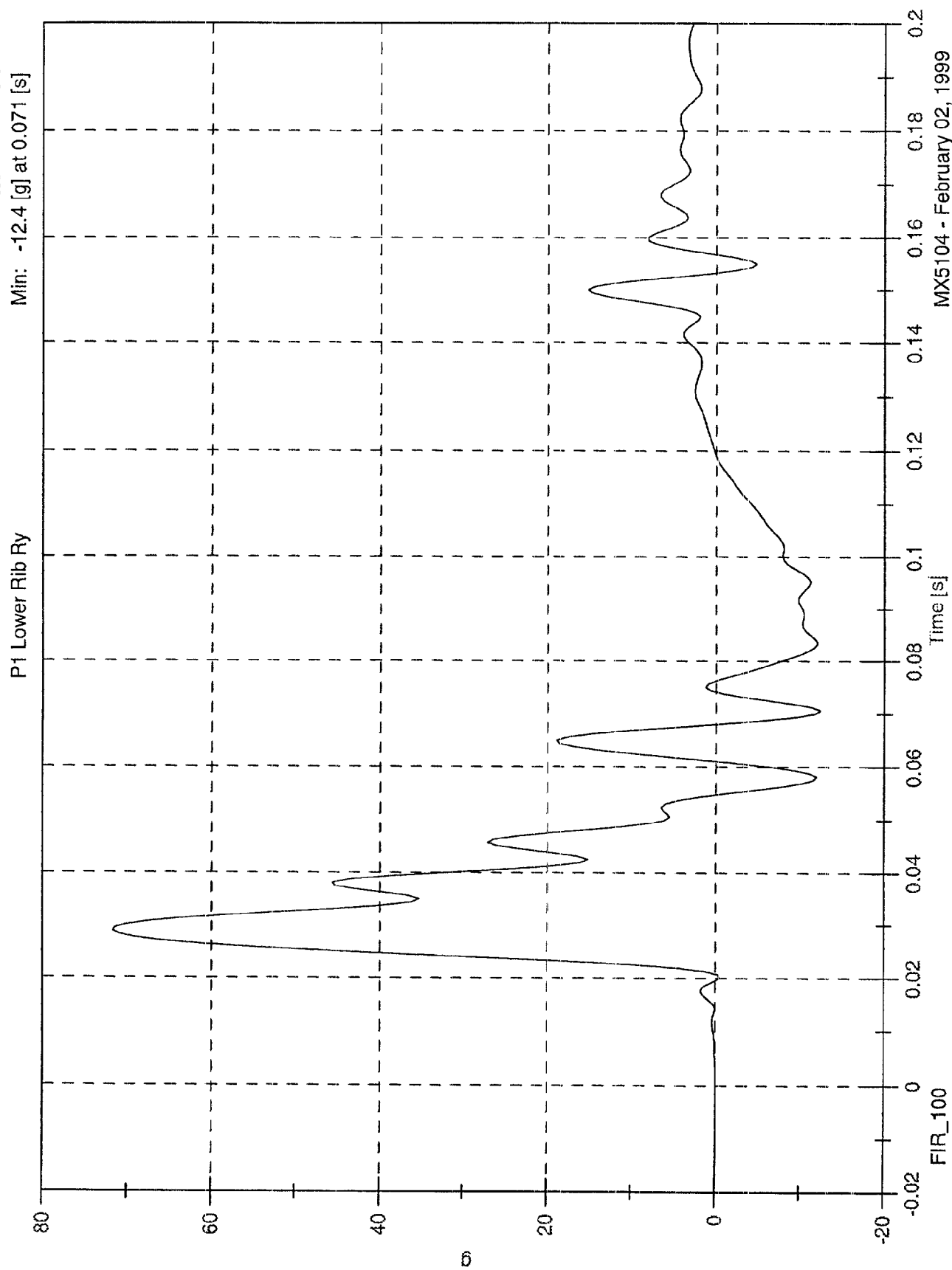
SNCAP Test # 4 - 1999 Toyota Solara

Max: 70.1 [g] at 0.026 [s]
Min: -25.7 [g] at 0.071 [s]



SNCAP Test # 4 - 1999 Toyota Solara

Max: 71.7 [g] at 0.029 [s]
Min: -12.4 [g] at 0.071 [s]



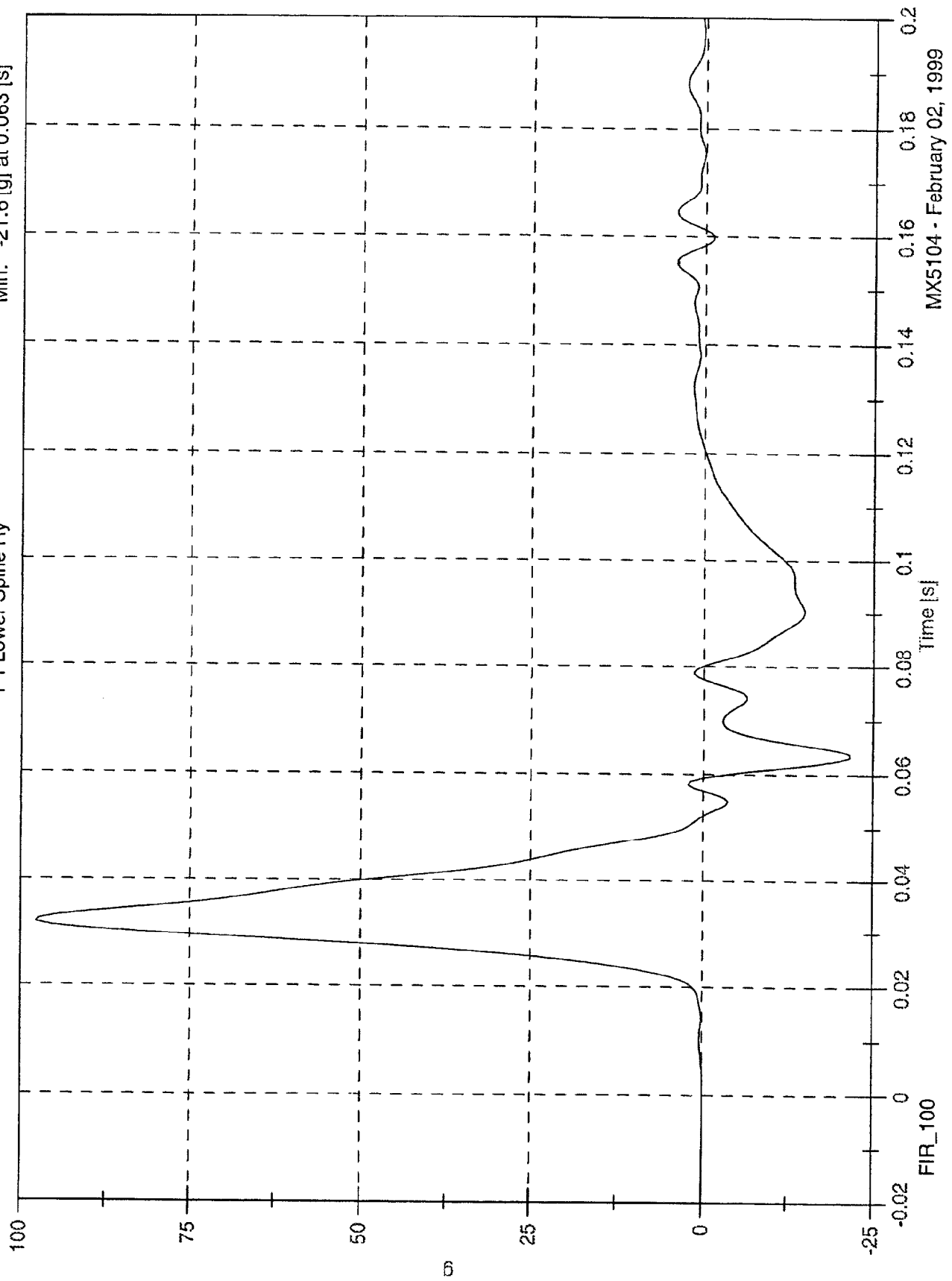
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 97.7 [g] at 0.032 [s]

Min: -21.6 [g] at 0.063 [s]

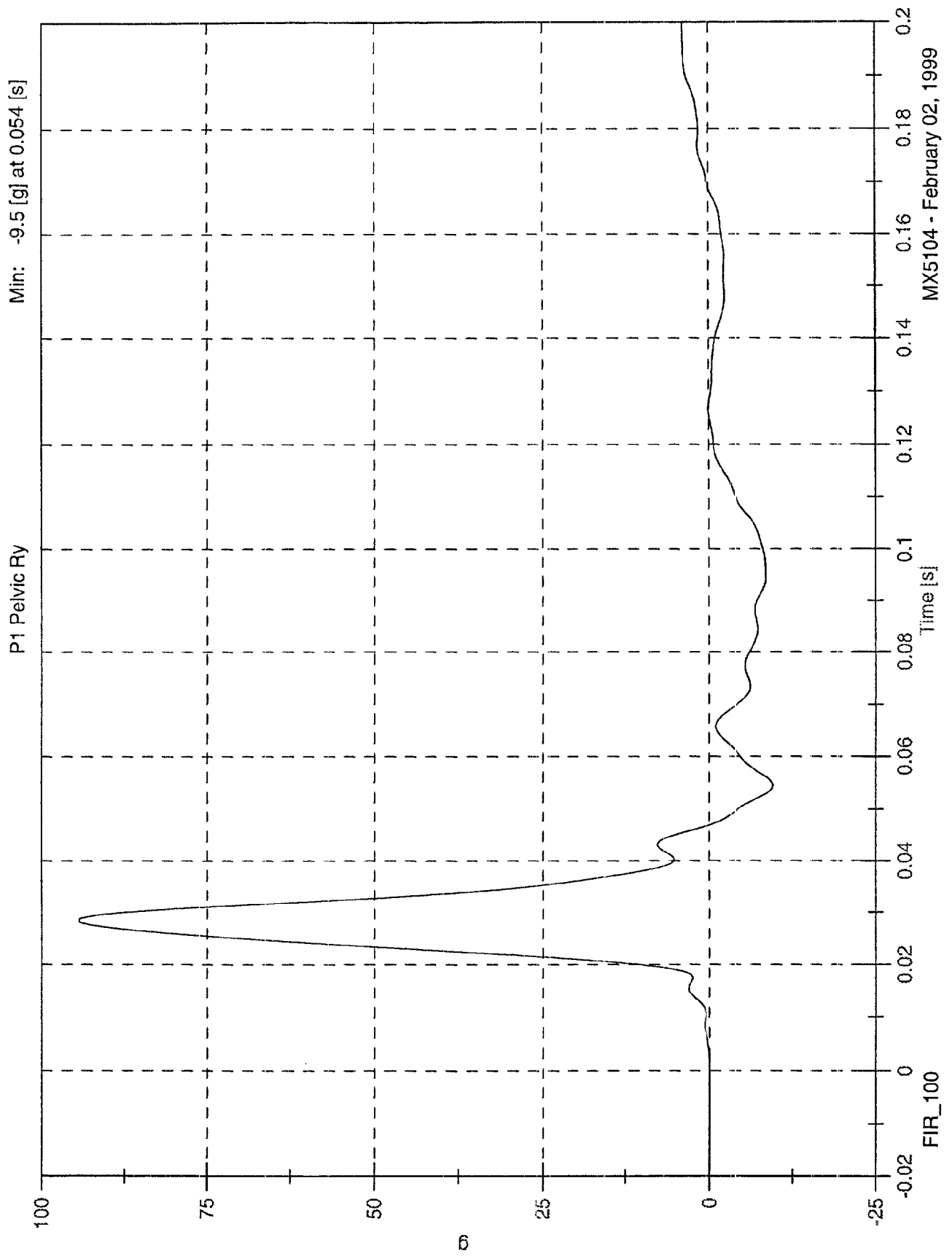
P1 Lower Spine Ry



MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 94.4 [g] at 0.028 [s]
Min: -9.5 [g] at 0.054 [s]



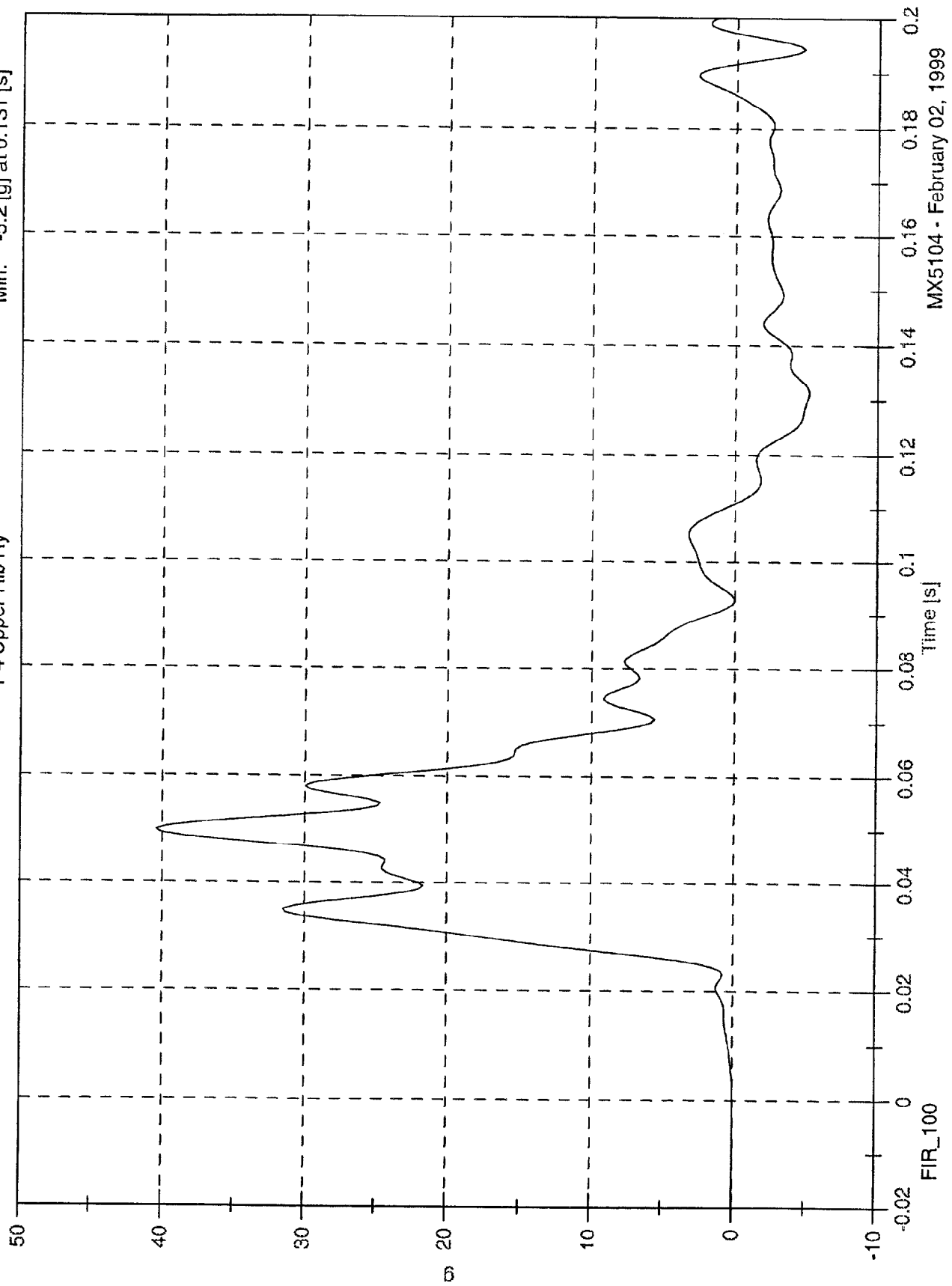
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 40.5 [g] at 0.050 [s]

Min: -5.2 [g] at 0.131 [s]

P4 Upper Rib Ry



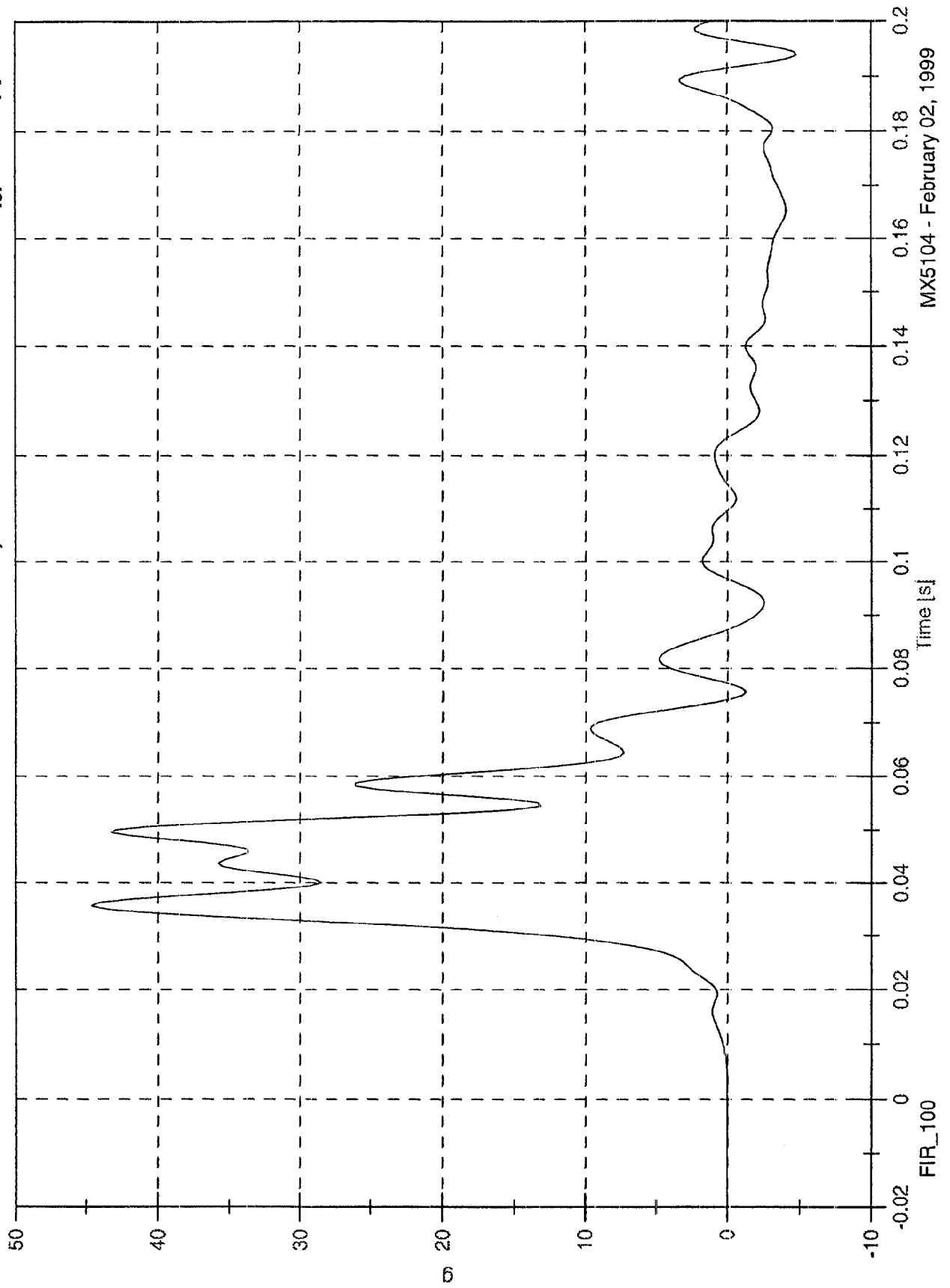
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 44.6 [g] at 0.036 [s]

Min: -4.7 [g] at 0.194 [s]

P4 Lower Rib Ry



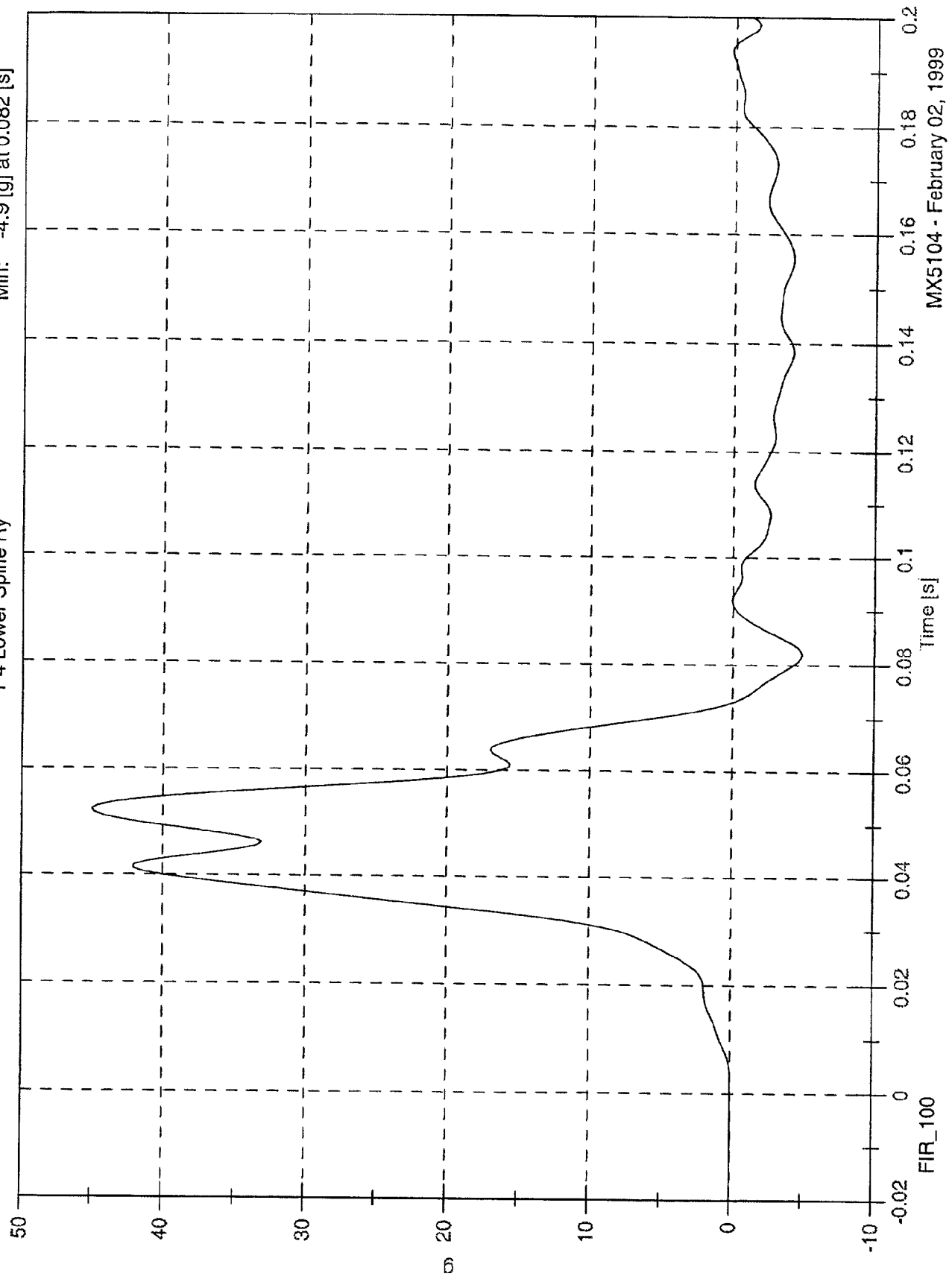
MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 45.0 [g] at 0.053 [s]

Min: -4.9 [g] at 0.082 [s]

P4 Lower Spine Ry

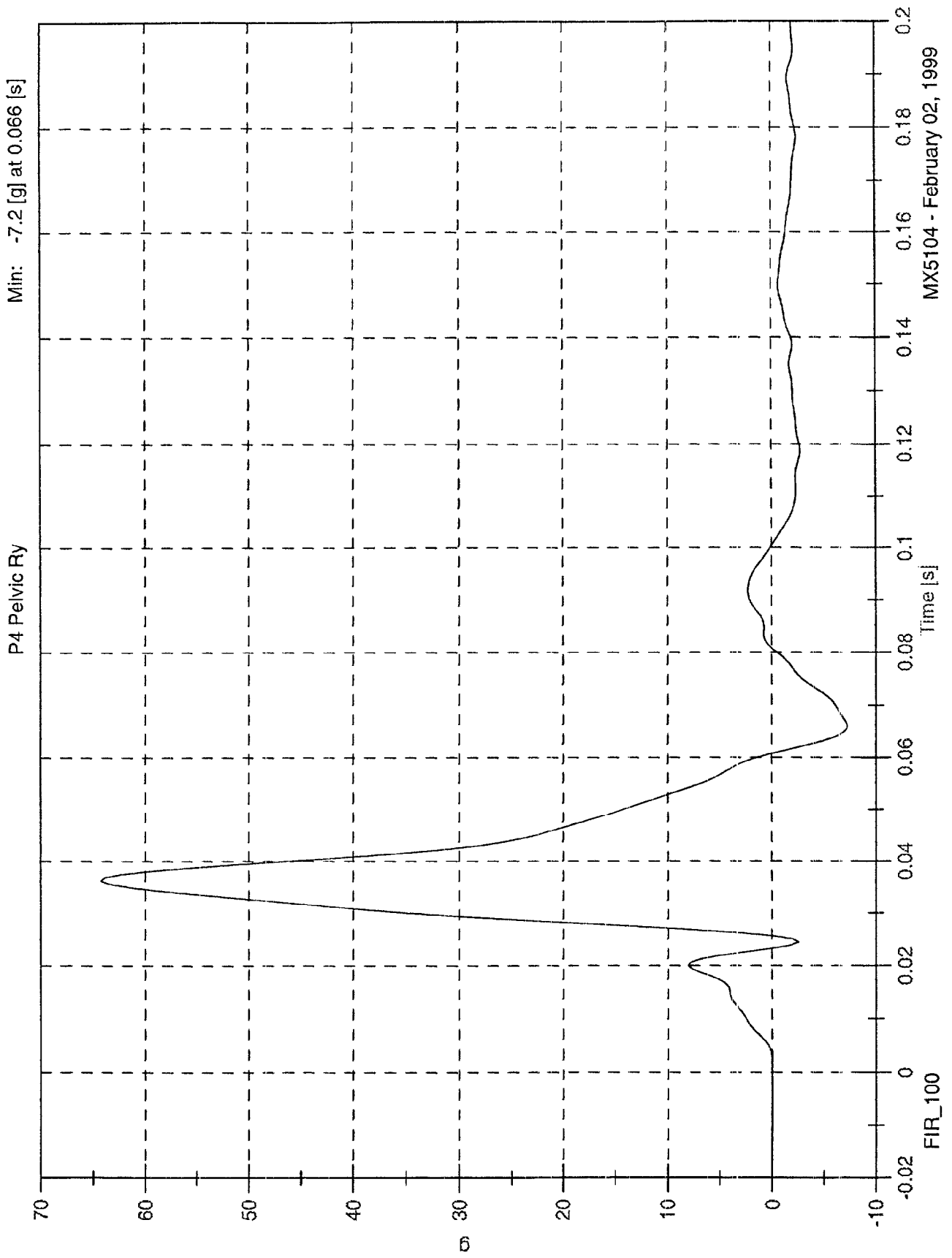


FIR_100

MX5104 - February 02, 1999

SNCAP Test # 4 - 1999 Toyota Solara

Max: 64.2 [g] at 0.036 [s]
Min: -7.2 [g] at 0.066 [s]



MX5104 - February 02, 1999

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID PRE & POST TEST CALIBRATION

CONFIGURED FOR LEFT SIDE IMPACT

Date: 01-28-99 and 02-18-99

Calspan Sequential Test Number: 1

Laboratory Technician:

B. Swiecicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	SID NO.: 268		SID NO.: 015	
		PRE TEST	POST TEST	PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909	899	899	904	904
RH- Rib Height (mm)	501 - 521	516	516	509	511
HP- Hip Pivot Height (mm)	99 ref.	99	99	99	99
RD- Rib from Back Line (mm)	229 - 241	231	234	236	236
KV- Knee Pivot from Back Line (mm)	511 - 526	518	518	521	521
SW- Knee Pivot to Floor (mm)	490 - 505	495	495	493	493
HW- Hip Width (mm)	356 - 391	371	371	368	368
THORAX IMPACTS					
TEMPERATURE (°C)	18.9 - 25.5	22.8	21.7	22.8	21.7
RELATIVE HUMIDITY (%)	10 - 70	22	20	22	20
PROBE SPEED (m/s)	4.27 - 4.33	4.28	4.29	4.27	4.29
UPPER RIB (g's)	37 - 46	41.4	43.6	45.6	44.7
LOWER RIB (g's)	37 - 46	43.6	44.5	45.8	45.5
LOWER SPINE (g's)	15 - 22	21.4	21.7	21.9	21.8
PELVIS IMPACT					
TEMPERATURE (°C)	18.9 - 25.5	22.8	21.7	22.8	21.7
RELATIVE HUMIDITY (%)	10 - 70	22	20	22	20
PROBE SPEED (m/s)	4.27 - 4.33	4.29	4.31	4.31	4.30
PELVIS (g's)	40 - 60	54.5	58.9	41.1	47.0

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

Calspan Sequential Test Number: 1

Date: 01-28-99

Laboratory Technician: B. Swiecicki, G. Serbinowski

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.
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.: 268Calspan Sequential Test Number: 1Date: 01-28-99Laboratory Technician: B. Swiecicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	516
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	231
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	371

REMARKS: None

THORACIC SHOCK ABSORBER TESTS
PRE-TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268

Calspan Sequential Test Number: 1

Date: 09-21-98

Laboratory Technician: B. Swięcicki, G. Serbinowski

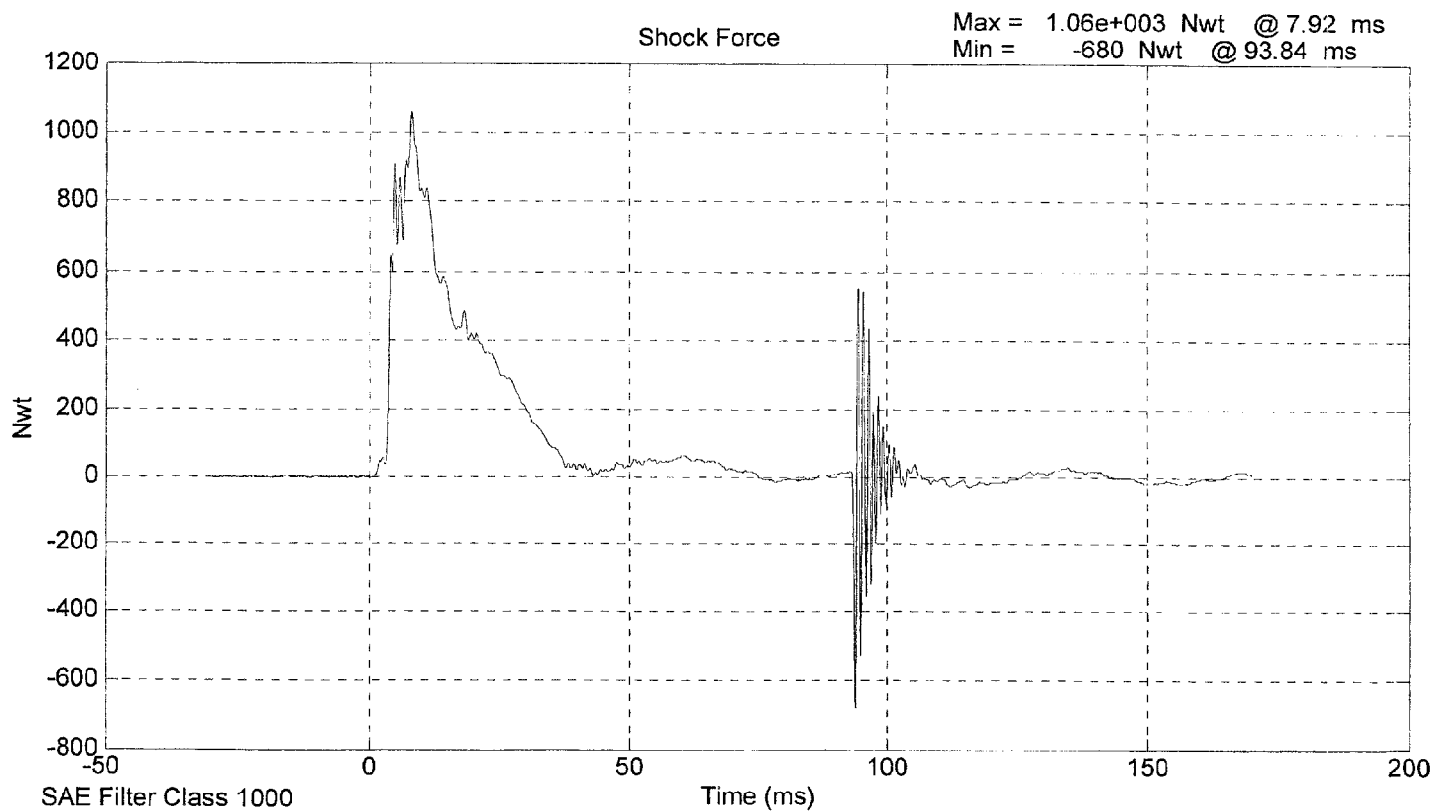
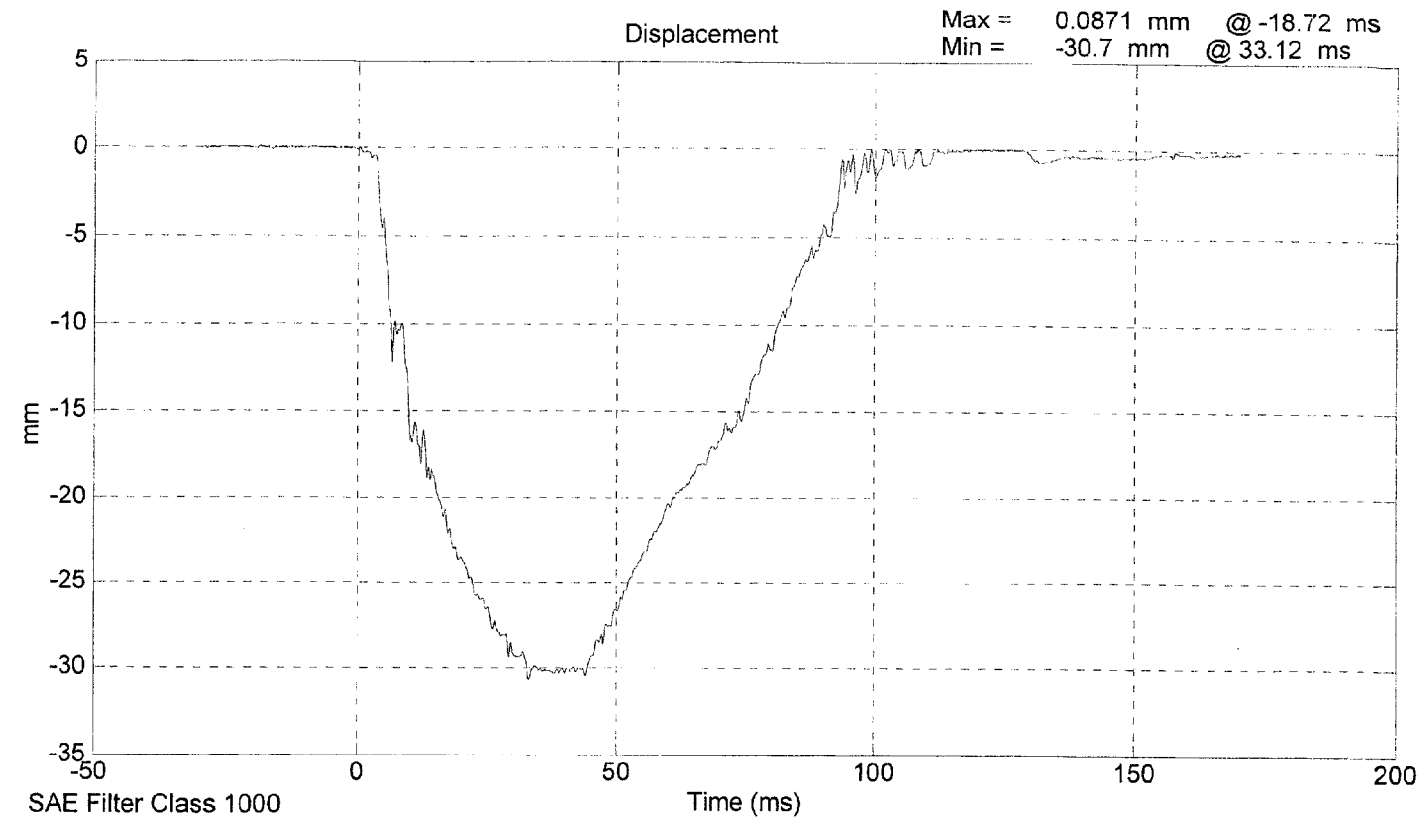
DAMPER IDENTIFICATION: 268

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)		18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)		10 - 70	45
VELOCITY 3.05 m/s	FORCE (N)	836 - 1125	1059
	DISPLACEMENT (mm)	30 - 35	30
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099	1986
	DISPLACEMENT (mm)	32 - 37	33
VELOCITY 6.10 m/s	FORCE (N)	3741 - 4448	4098
	DISPLACEMENT (mm)	33 - 40	36

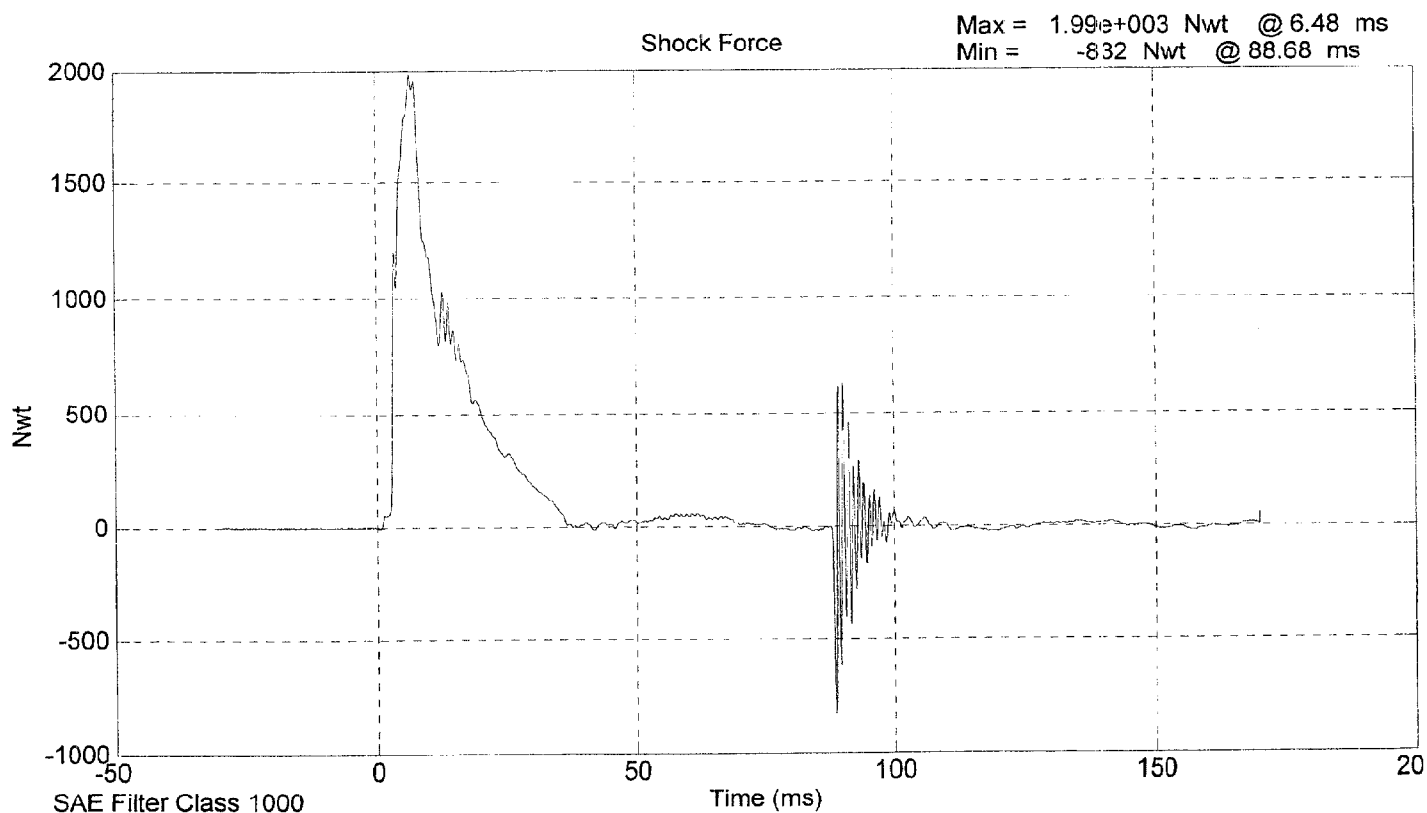
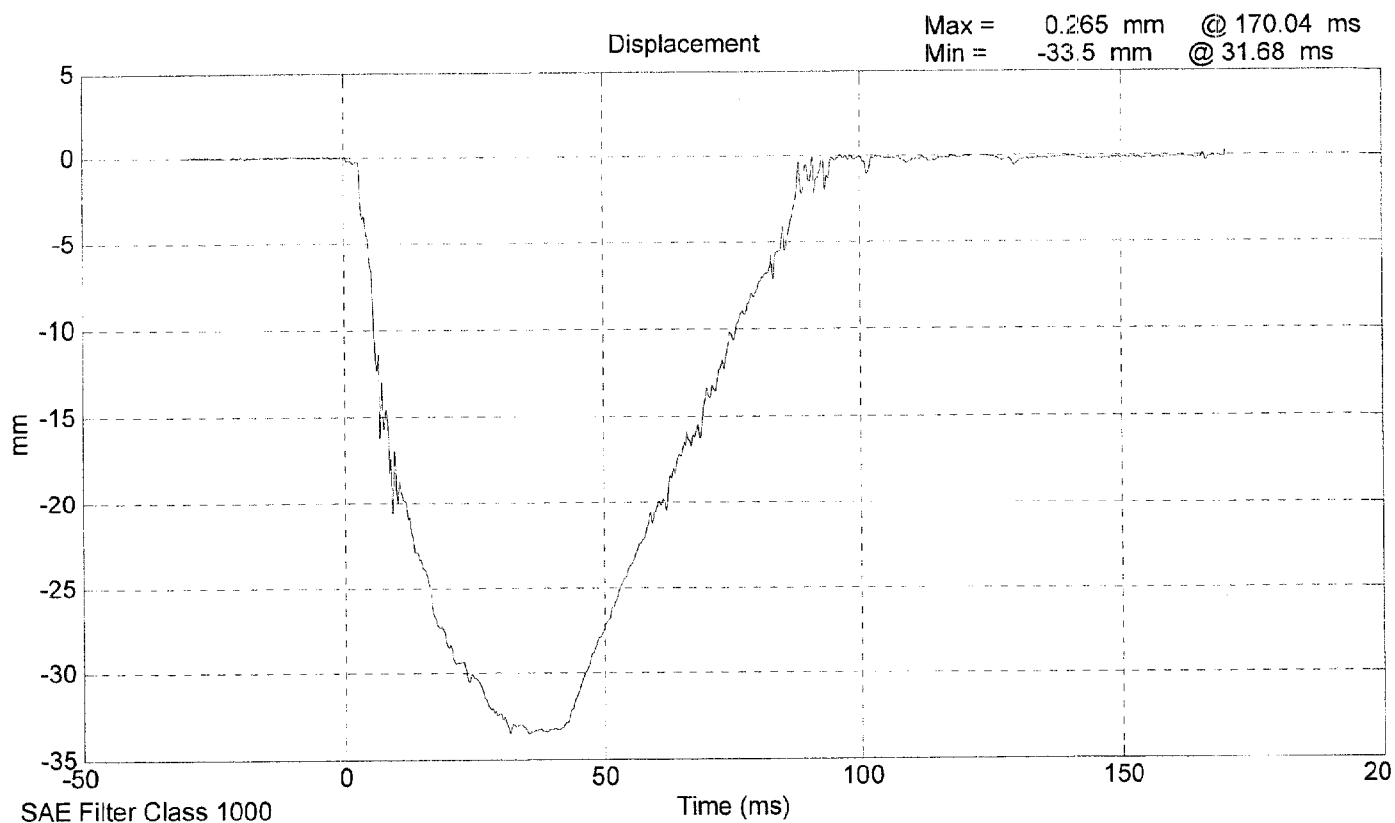
DAMPER SETTING: 5

REMARKS: None

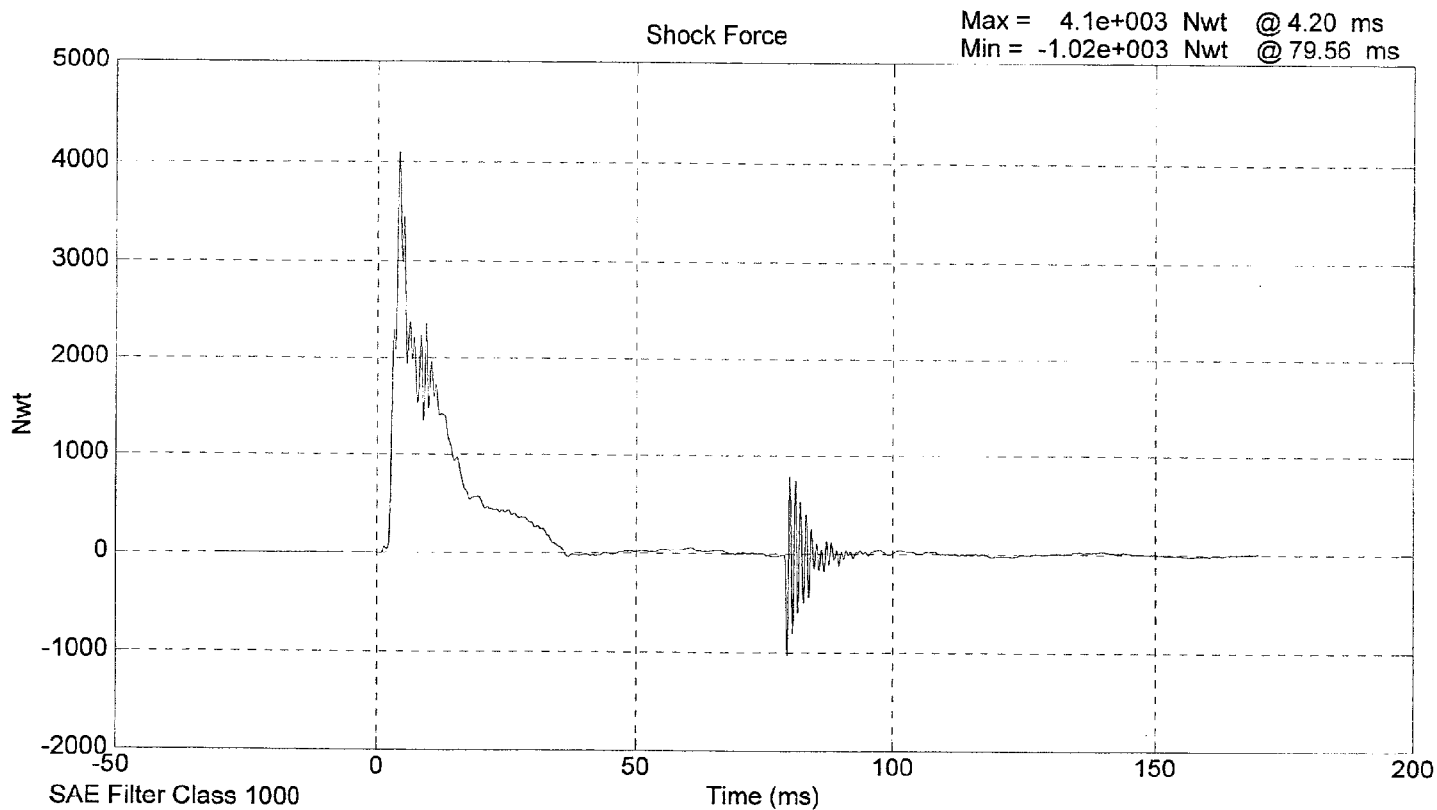
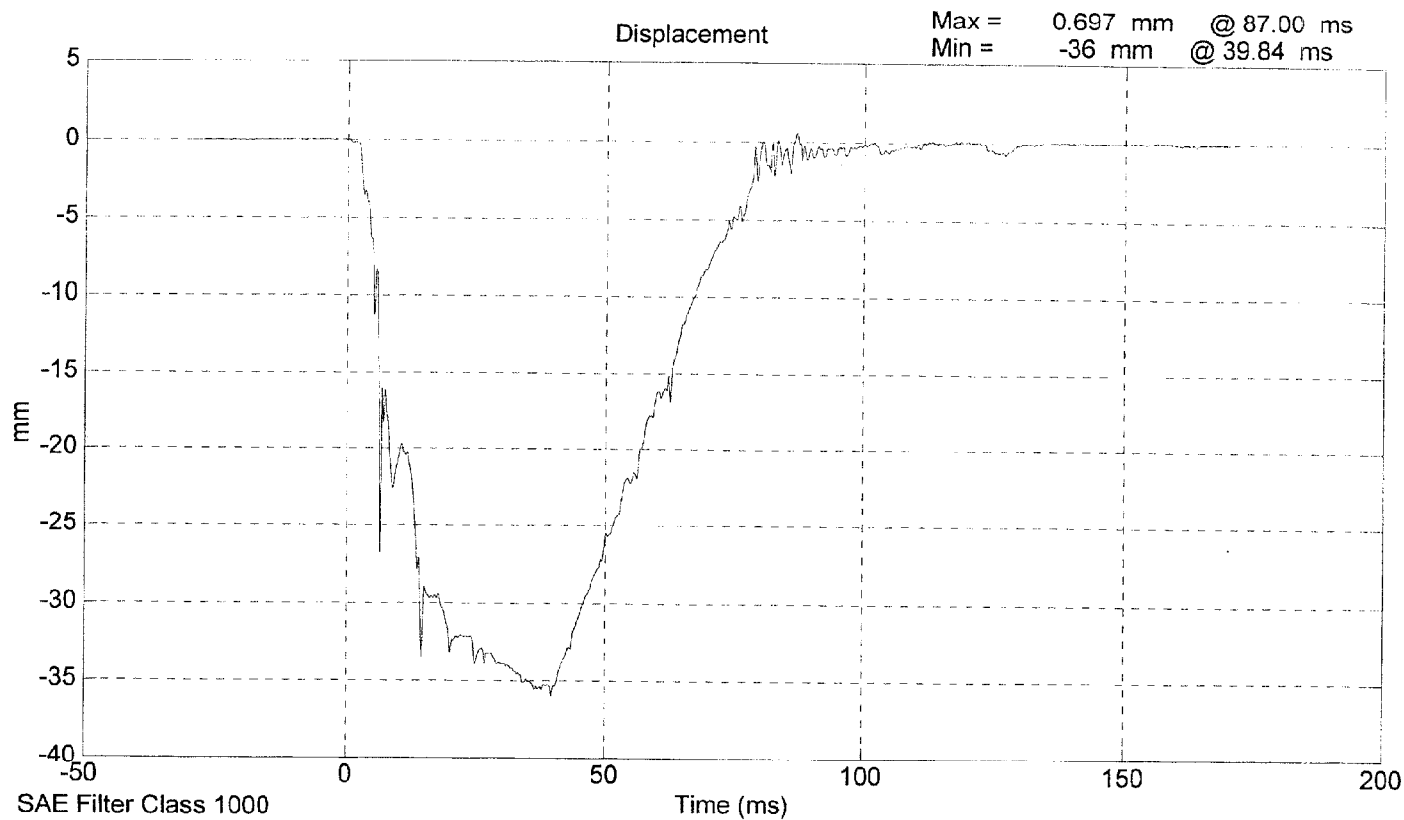
SID Shock Absorber Impact Test 268 @ 3.045 m/s



SID Shock Absorber Impact Test 268 @ 4.2642 m/s



SID Shock Absorber Impact Test 268 @ 6.1265 m/s



**LATERAL THORAX IMPACT TEST
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268

Calspan Sequential Test Number: 1

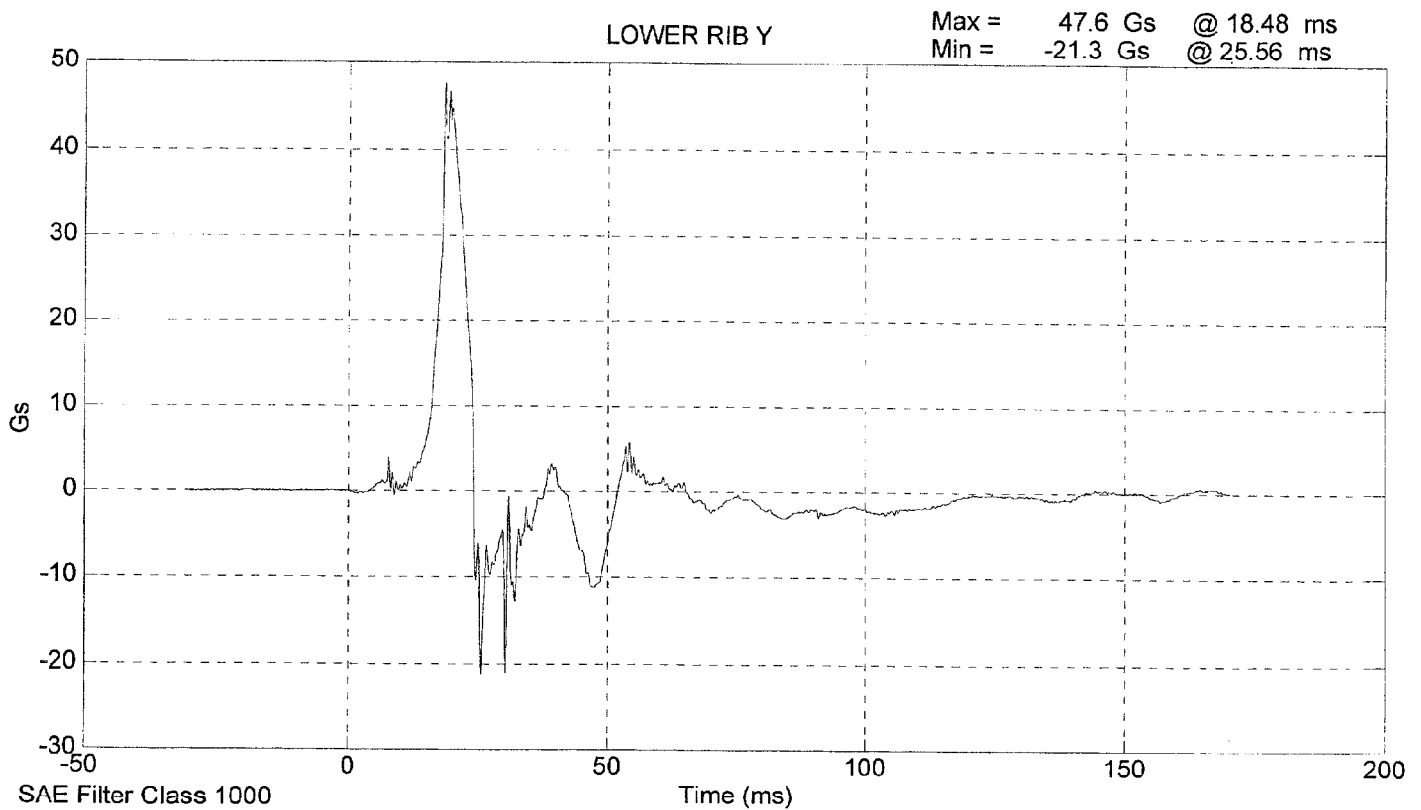
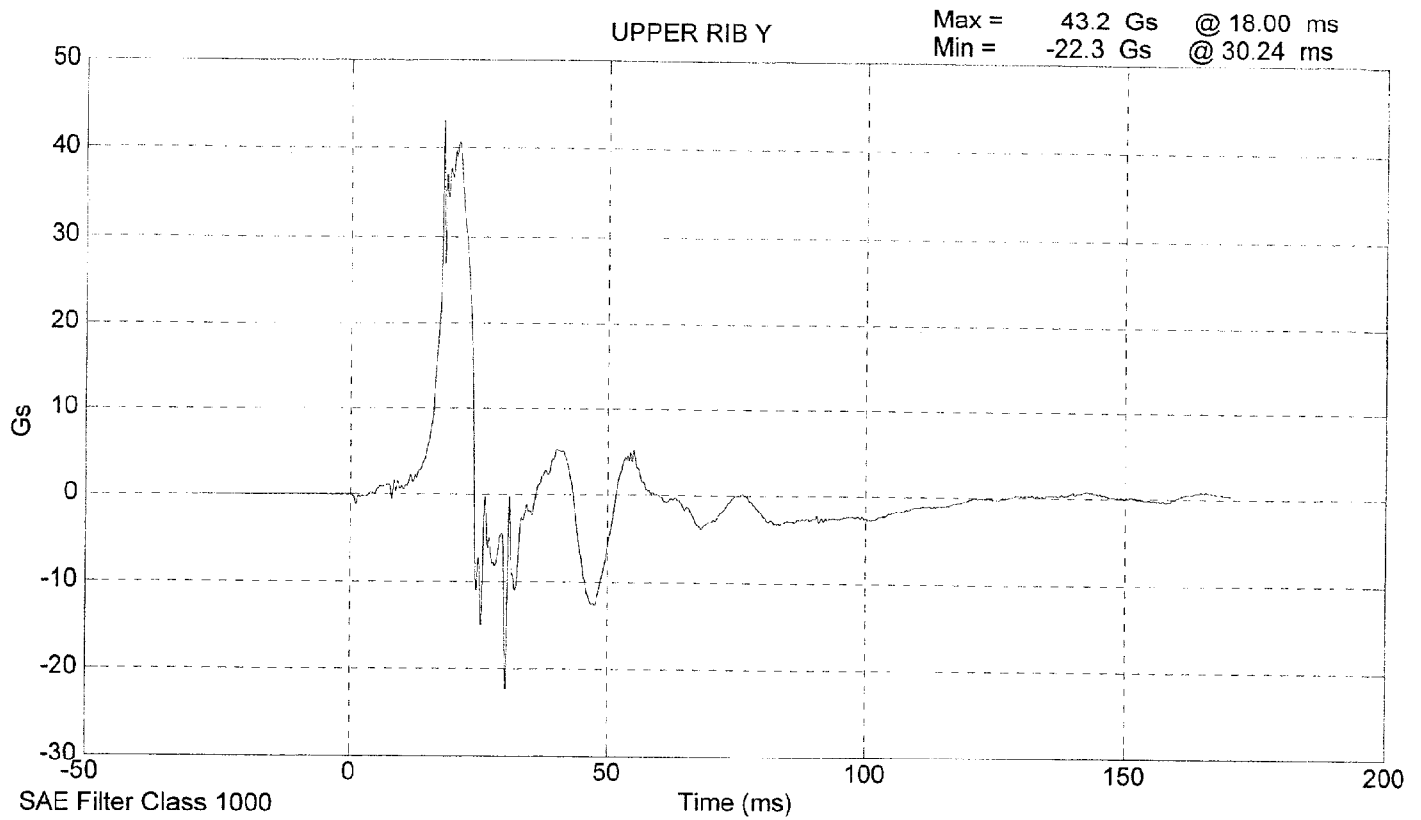
Date: 01-28-99

Laboratory Technician: B. Swiecicki, G. Serbinowski

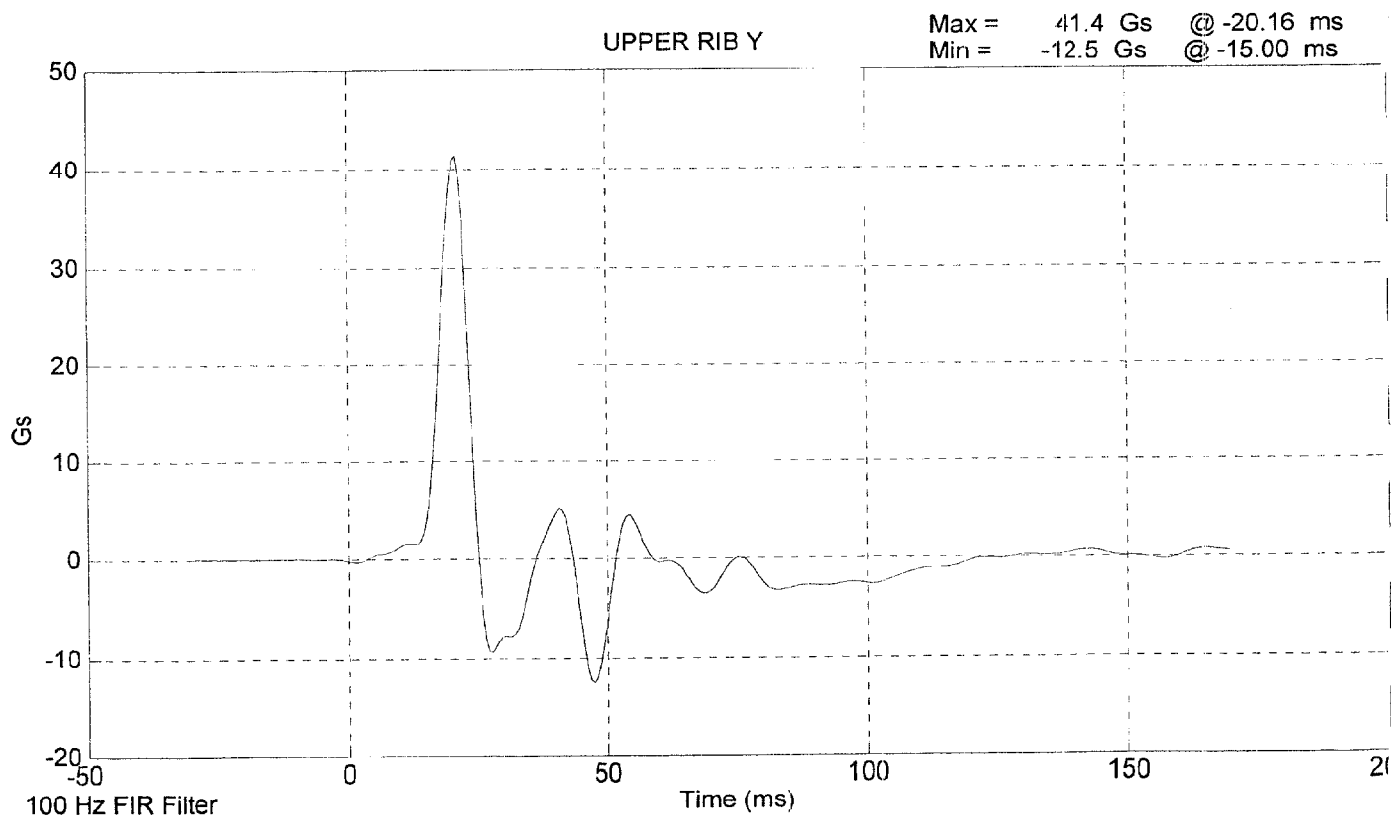
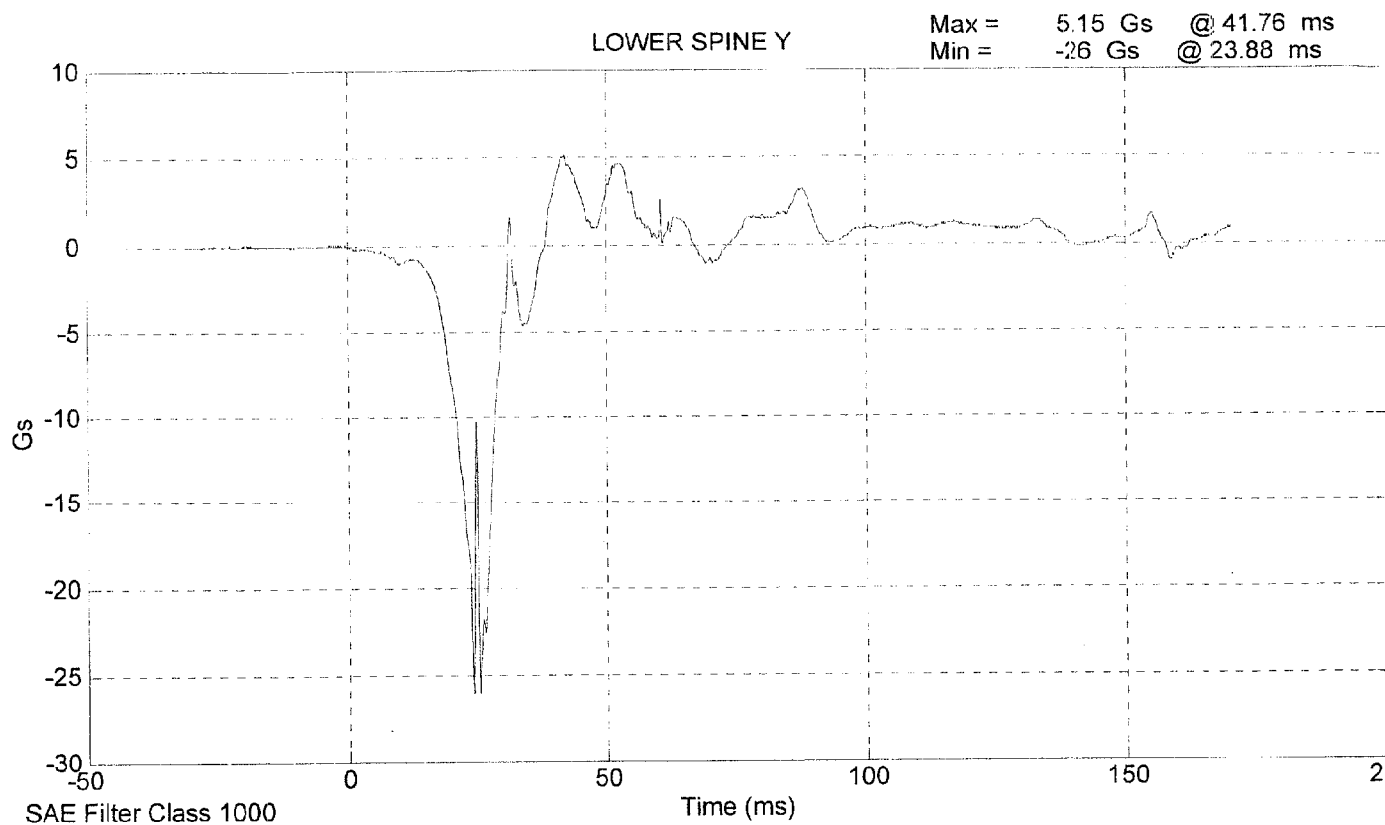
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	22.8
RELATIVE HUMIDITY (%)	10 - 70	22
PROBE SPEED (m/s)	4.27 - 4.33	4.28
UPPER RIB (g's)	37 - 46	41.40
LOWER RIB (g's)	37 - 46	43.56
LOWER SPINE (g's)	15 - 22	21.44

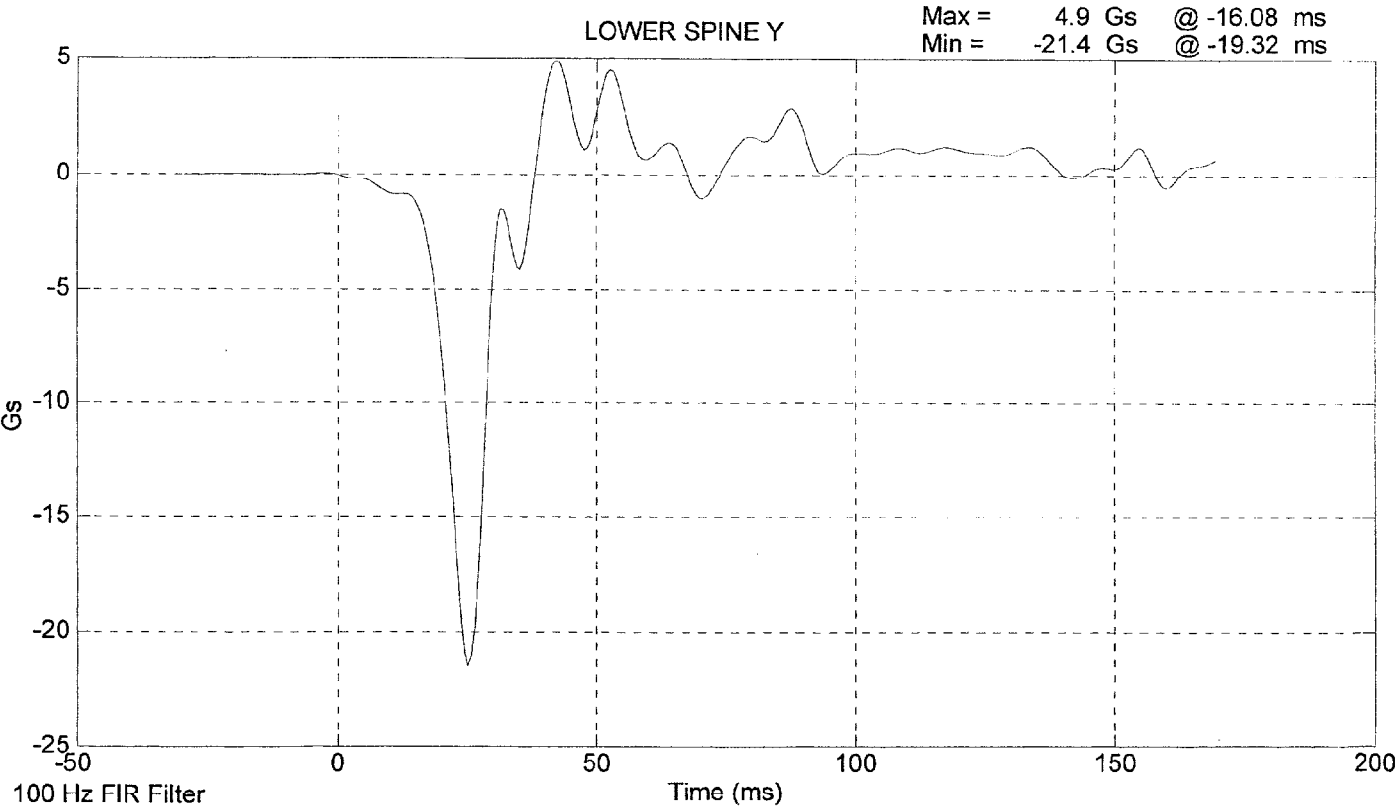
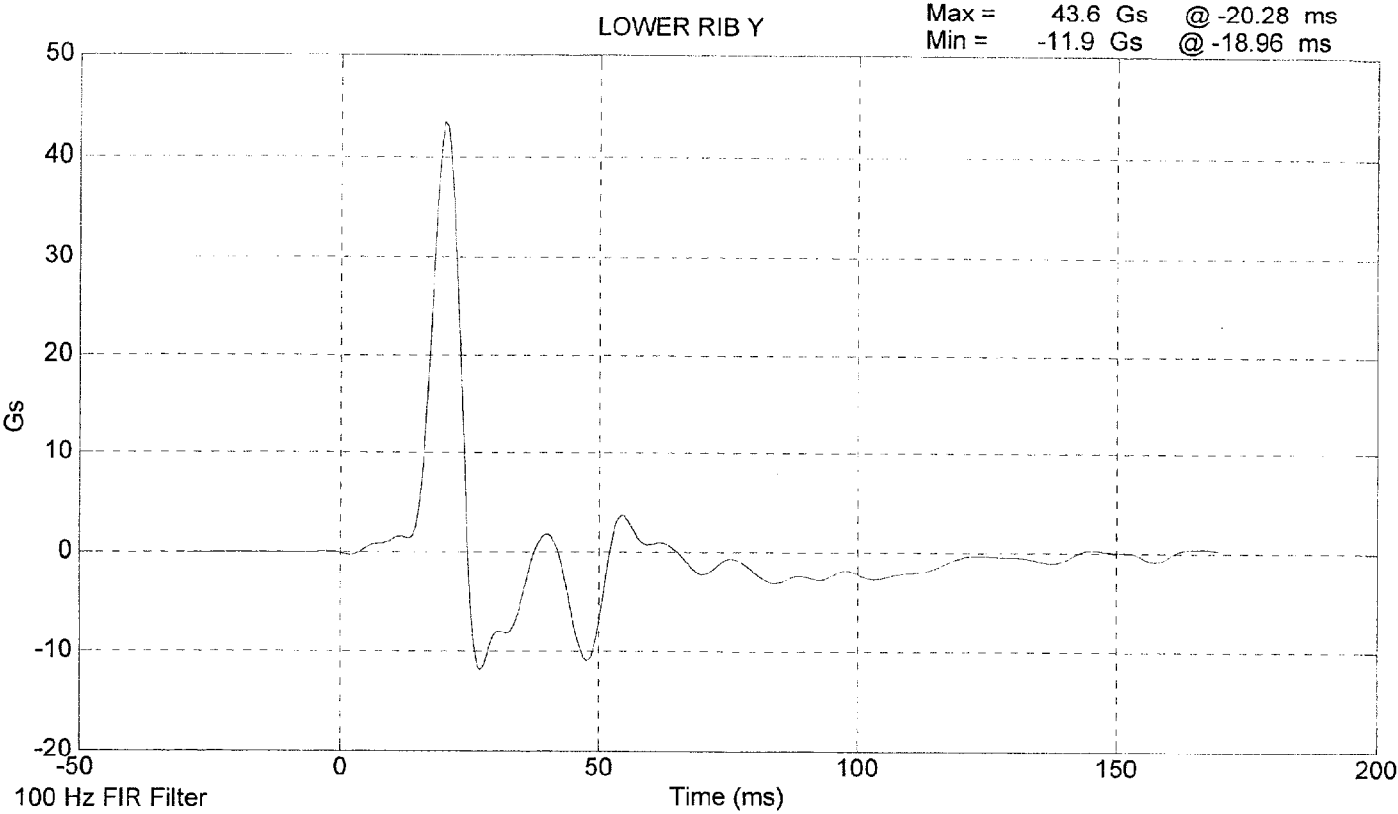
REMARKS: None

SID 268 THORAX IMPACT TEST @ 4.2763 m/s



SID 268 THORAX IMPACT TEST @ 4.2763 m/s





**LATERAL PELVIS IMPACT TEST
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268

Calspan Sequential Test Number: 1

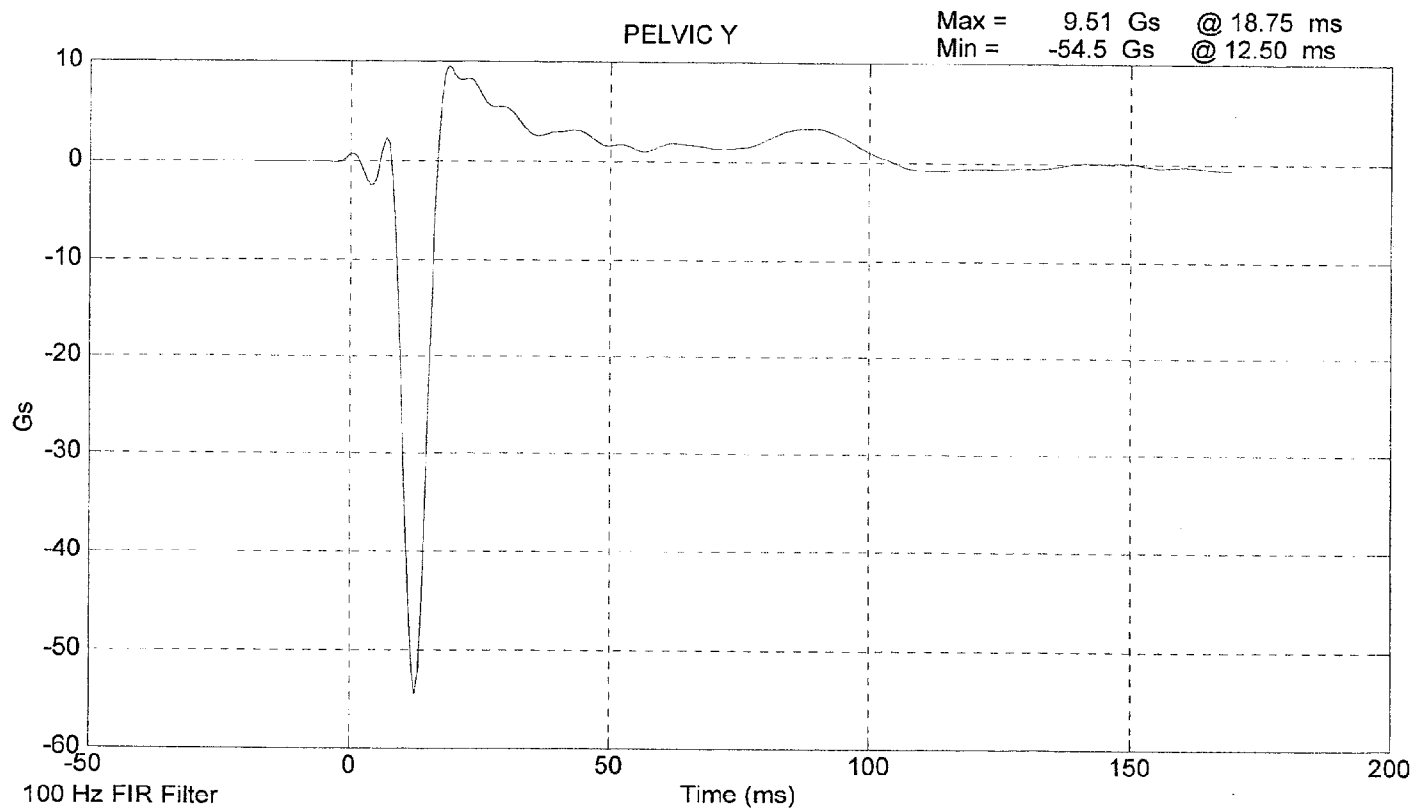
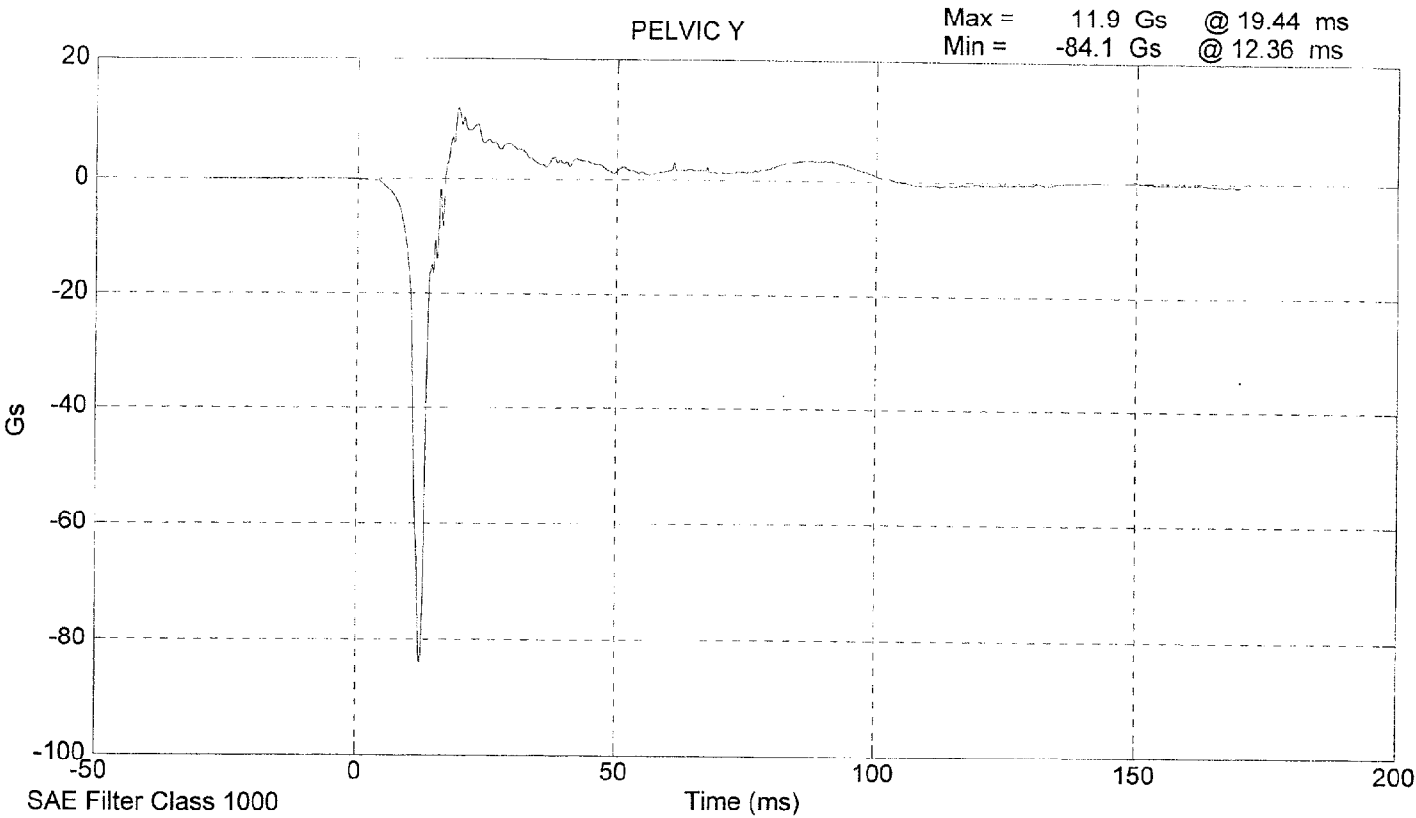
Date: 01-28-99

Laboratory Technician: B. Swiecicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	22.8
RELATIVE HUMIDITY (%)	10 - 70	22
PROBE SPEED (m/s)	4.27 - 4.33	4.29
PELVIS ACCELERATION (g's)	40 - 60	54.48

REMARKS: None

SID 268 PELVIC IMPACT TEST @ 4.2916 m/s



ABDOMINAL COMPRESSION TEST**PRE-TEST**

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACTSID Serial No.: 268Calspan Sequential Test Number: 1Date: 01-28-99Laboratory Technician: B. Swiecicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	22.8
RELATIVE HUMIDITY (%)	10 - 70	22
FORCE @ 13 mm (N)	104 - 162	117.9
FORCE @ 19 mm (N)	163 - 221	175.7
FORCE @ 25 mm (N)	222 - 280	246.9
FORCE @ 33 mm (N)	325 - 391	382.5

REMARKS: None

Dummy S/N 268

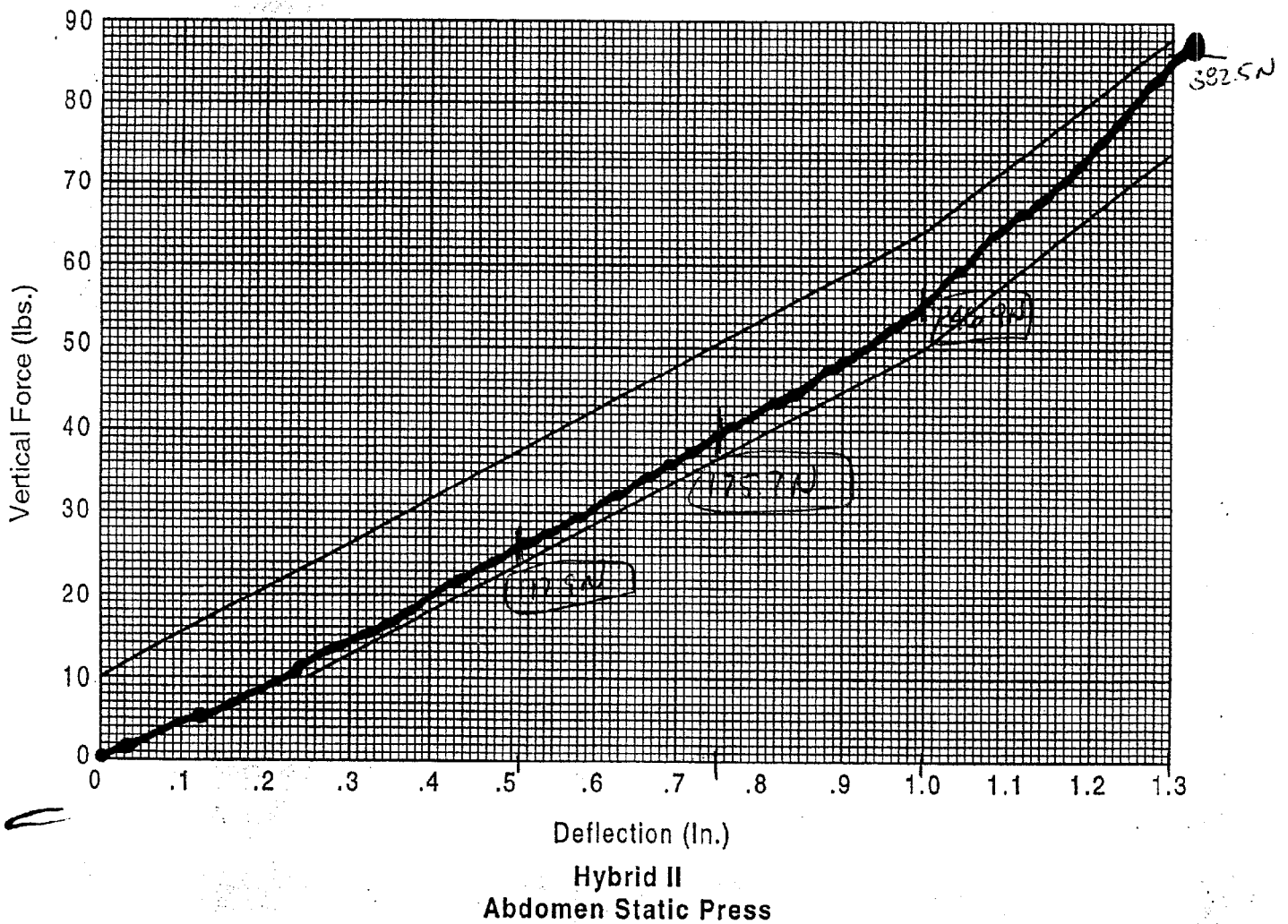
W/A _____

Date 1/28/99

Performed By BS + (signature)

Temp. 73'

Humidity 22%



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

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268
Date: 01-28-99

Calspan Sequential Test Number: 1
Laboratory Technician: B. Swięcicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	22.8
RELATIVE HUMIDITY (%)	10 - 70	22
FORCE @ 0° (N)	0 - 26.7	0
FORCE @ 20° (N)	97.8 - 151.2	142.3
FORCE @ 30° (N)	151.2 - 204.6	193.5
FORCE @ 40° (N)	204.6 - 258	255.8
RETURN ANGLE	12° max.	9.8

REMARKS: None

268

1/29/99

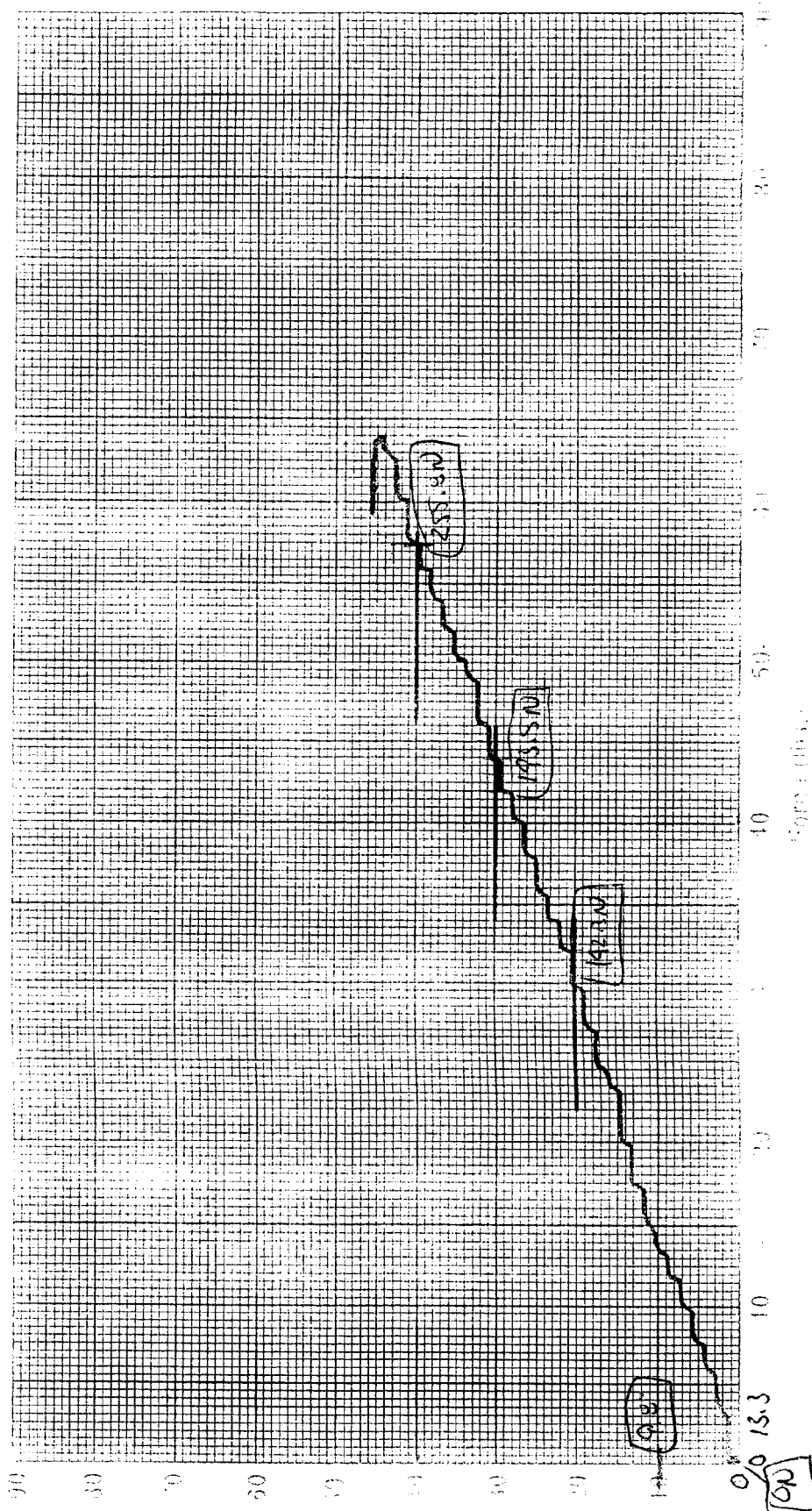
Perform By

73

Temp.

22%

Humidity



PRE-TEST DUMMY INSPECTION LIST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268
Date: 01-28-99

Calspan Sequential Test Number: 1
Laboratory Technician: B. Swiecicki, G. Serbinowski

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
PRE-TEST**

SID NO.: 015

CONFIGURED FOR LEFT SIDE IMPACT

CALIBRATION TEST RESULTS SUMMARY
PRE-TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015

Calspan Sequential Test Number: 1

Date: 01-28-99

Laboratory Technician: B. Swiecicki, G. Serbinowski

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.
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.: 015
Date: 01-28-99

Calspan Sequential Test Number: 1
Laboratory Technician: B. Swiecicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	904
RH- Rib Height (mm)	502 - 520	509
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	521
KV- Knee Pivot to Floor (mm)	490 - 505	493
HW- Hip Width (mm)	356 - 391	368

REMARKS: None

THORACIC SHOCK ABSORBER TESTS
PRE-TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015

Calspan Sequential Test Number: 2

Date: 1-28-99

Laboratory Technician: B. Swięcicki, G. Serbinowski

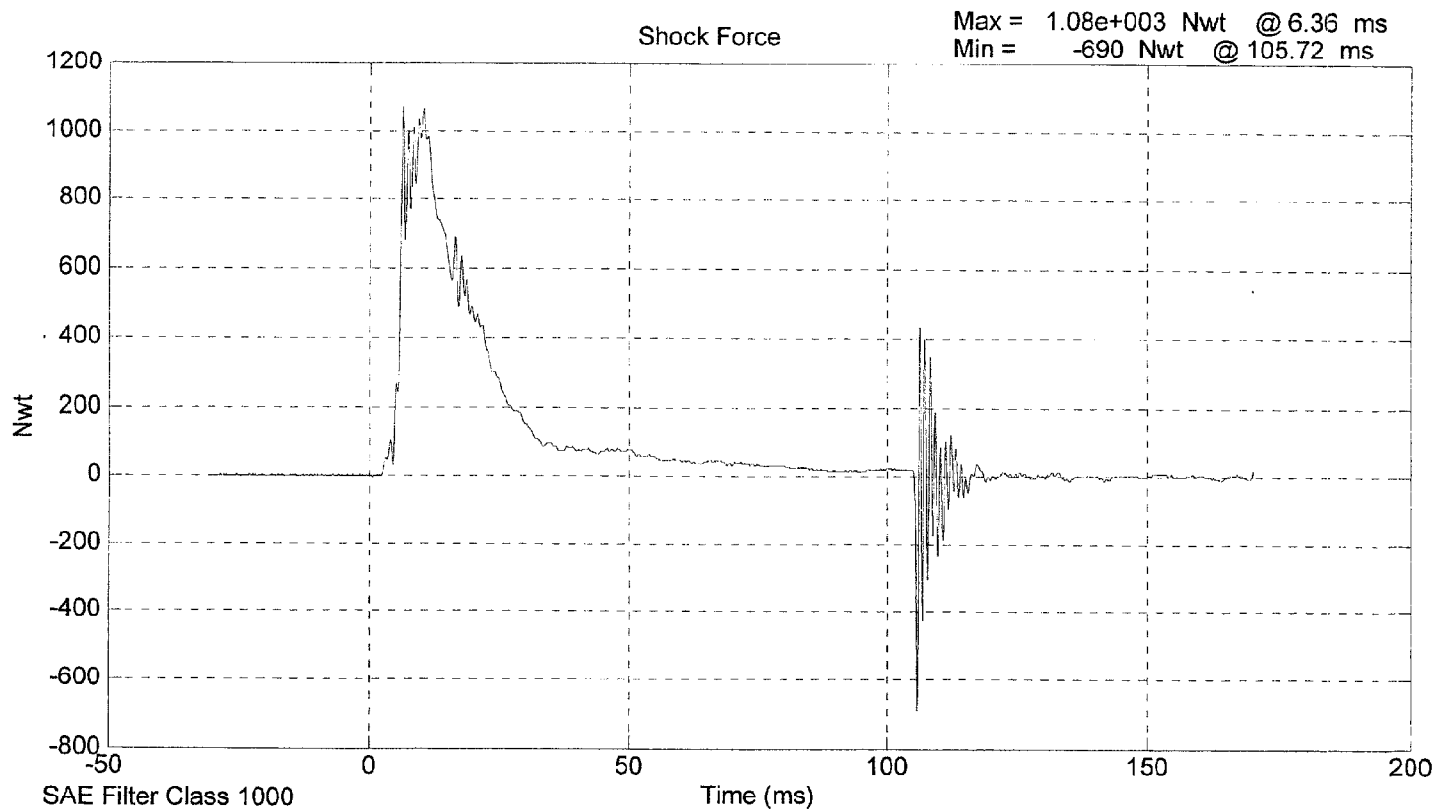
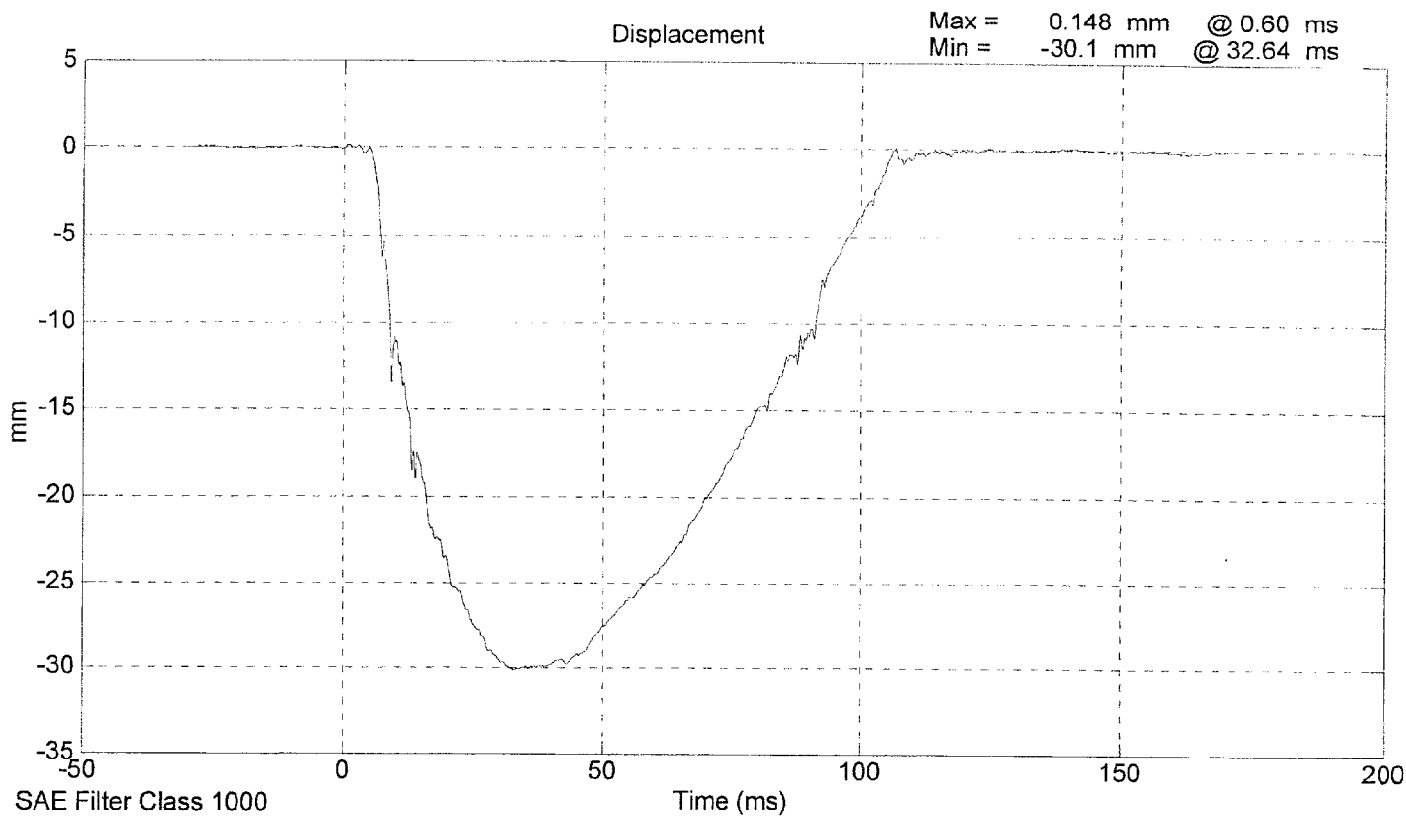
DAMPER IDENTIFICATION: 015

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)		18.9 - 25.5	22.8
RELATIVE HUMIDITY (%)		10 - 70	22
VELOCITY 3.05 m/s	FORCE (N)	836 - 1125	1075.0
	DISPLACEMENT (mm)	30 - 35	30
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099	1859.7
	DISPLACEMENT (mm)	32 - 37	32.8
VELOCITY 6.10 m/s	FORCE (N)	3741 - 4448	3848.2
	DISPLACEMENT (mm)	33 - 40	35.6

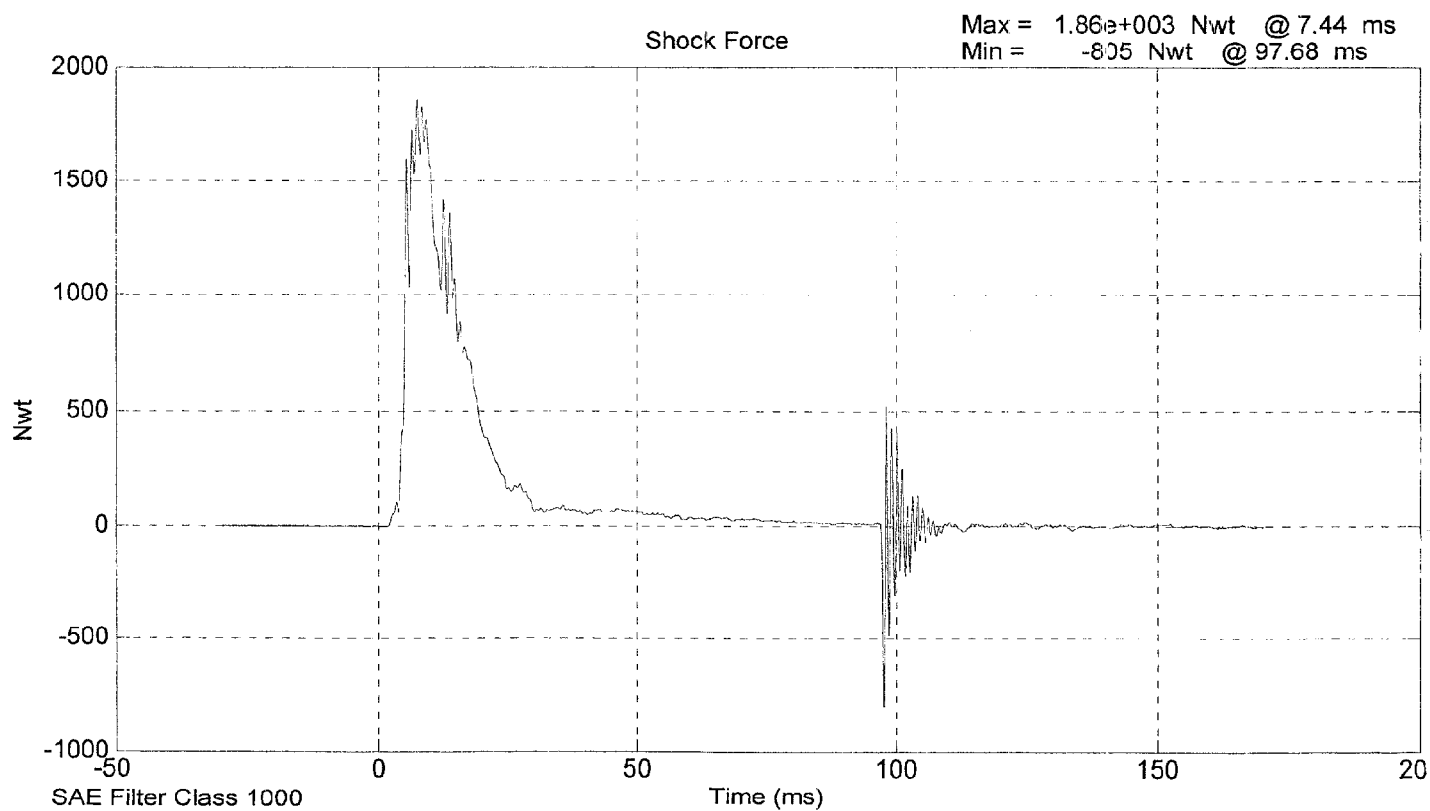
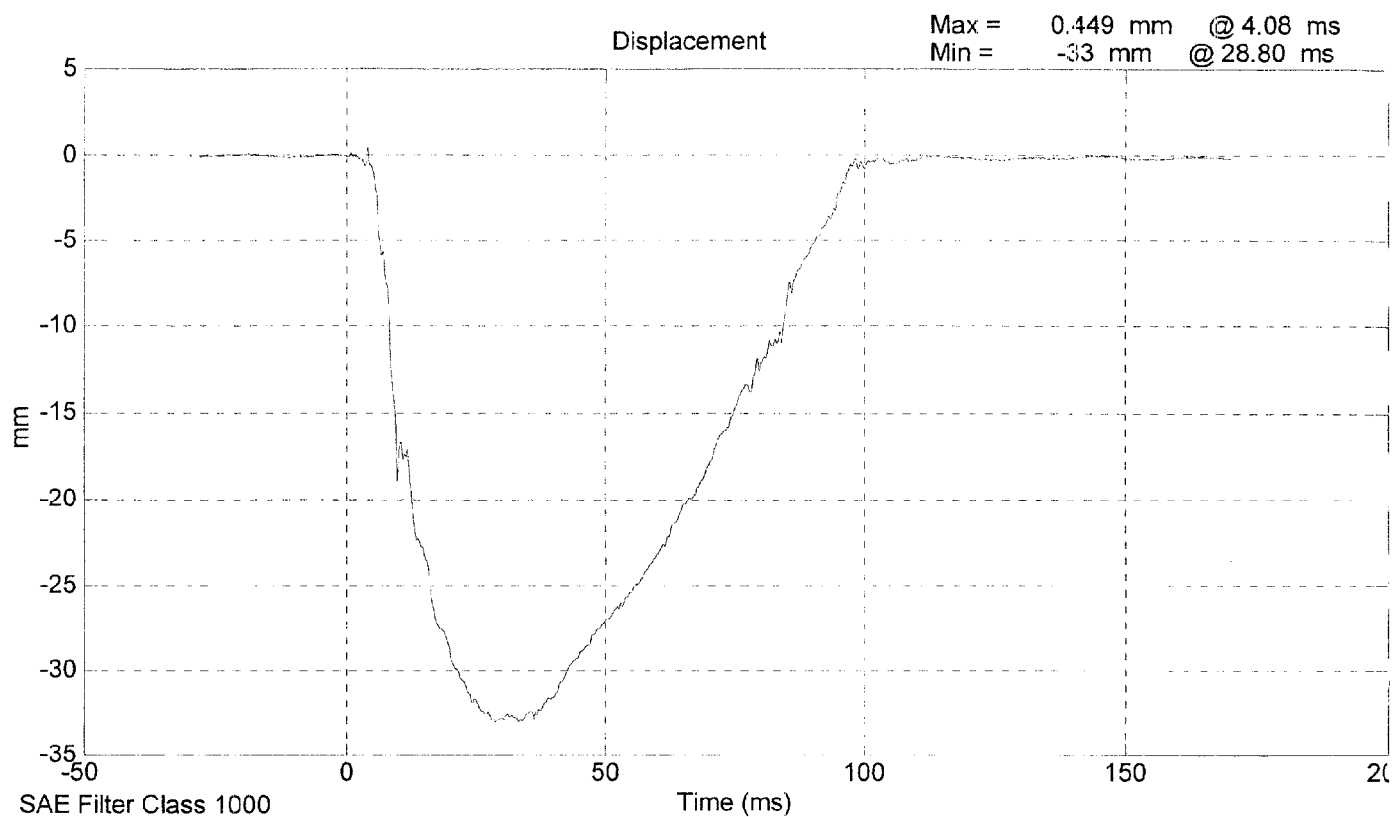
DAMPER SETTING: 5

REMARKS: None

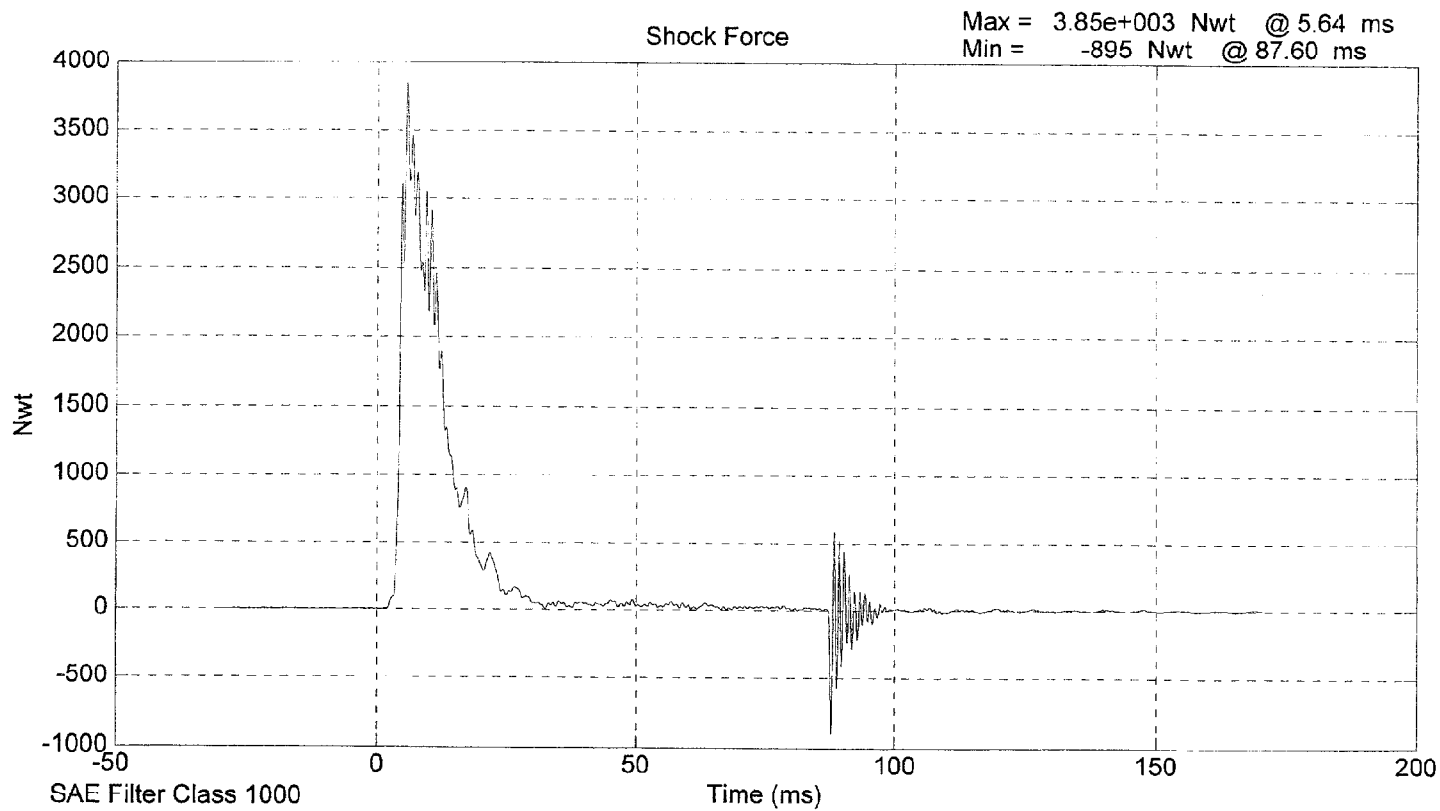
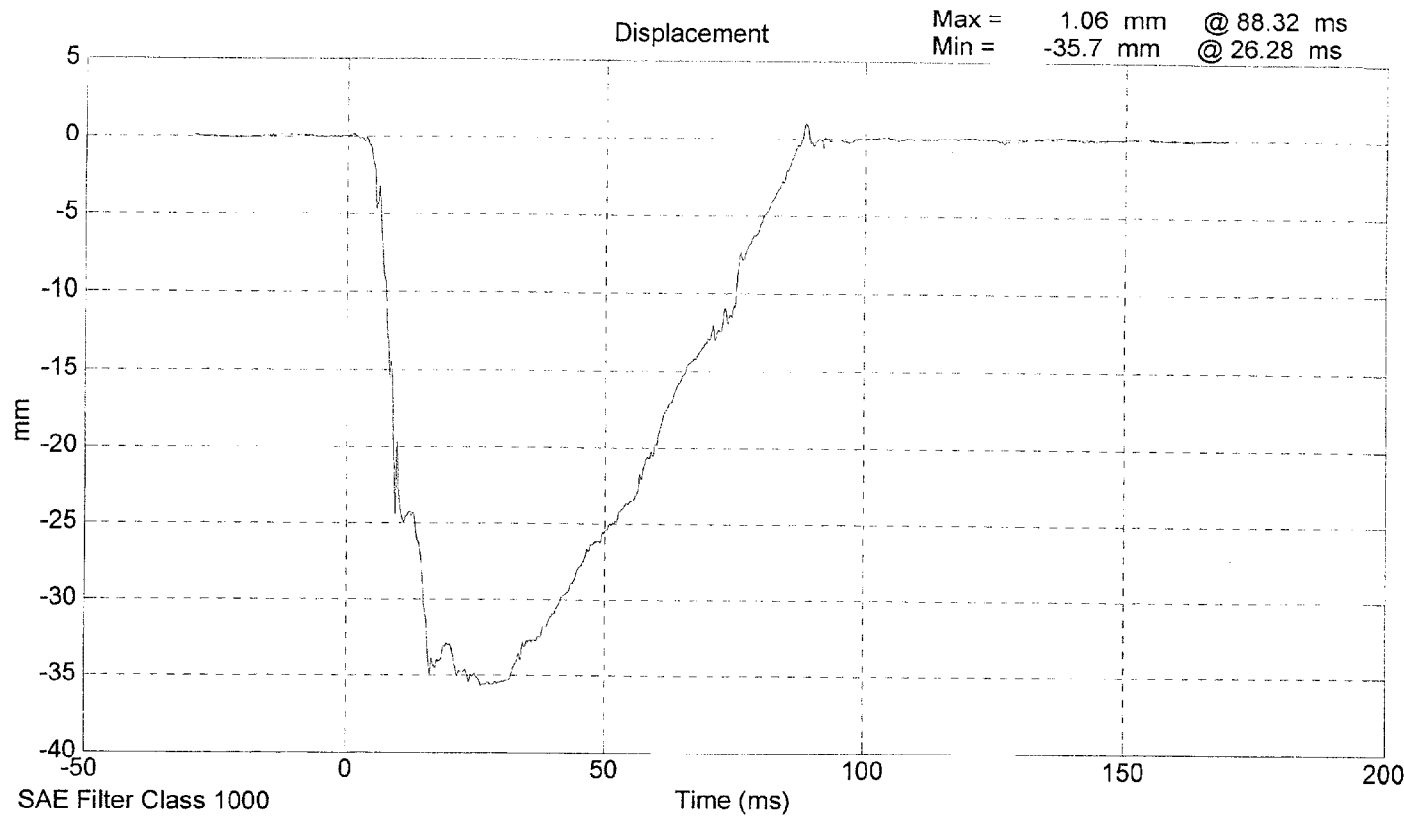
SID Shock Absorber Impact Test 015 @ 3.048 m/s



SID Shock Absorber Impact Test 015 @ 4.2763 m/s



SID Shock Absorber Impact Test 015 @ 6.1204 m/s



**LATERAL THORAX IMPACT TEST
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015

Calspan Sequential Test Number: 1

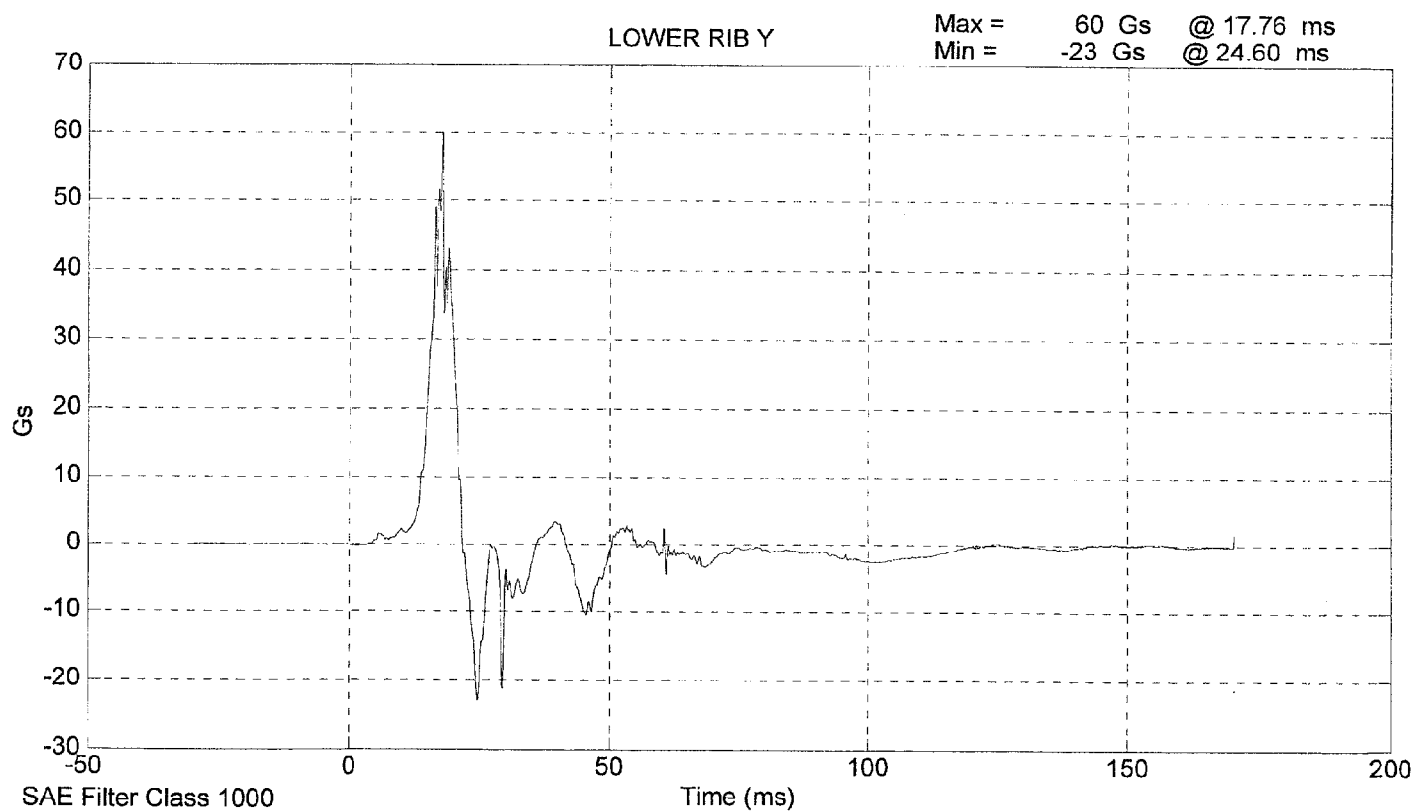
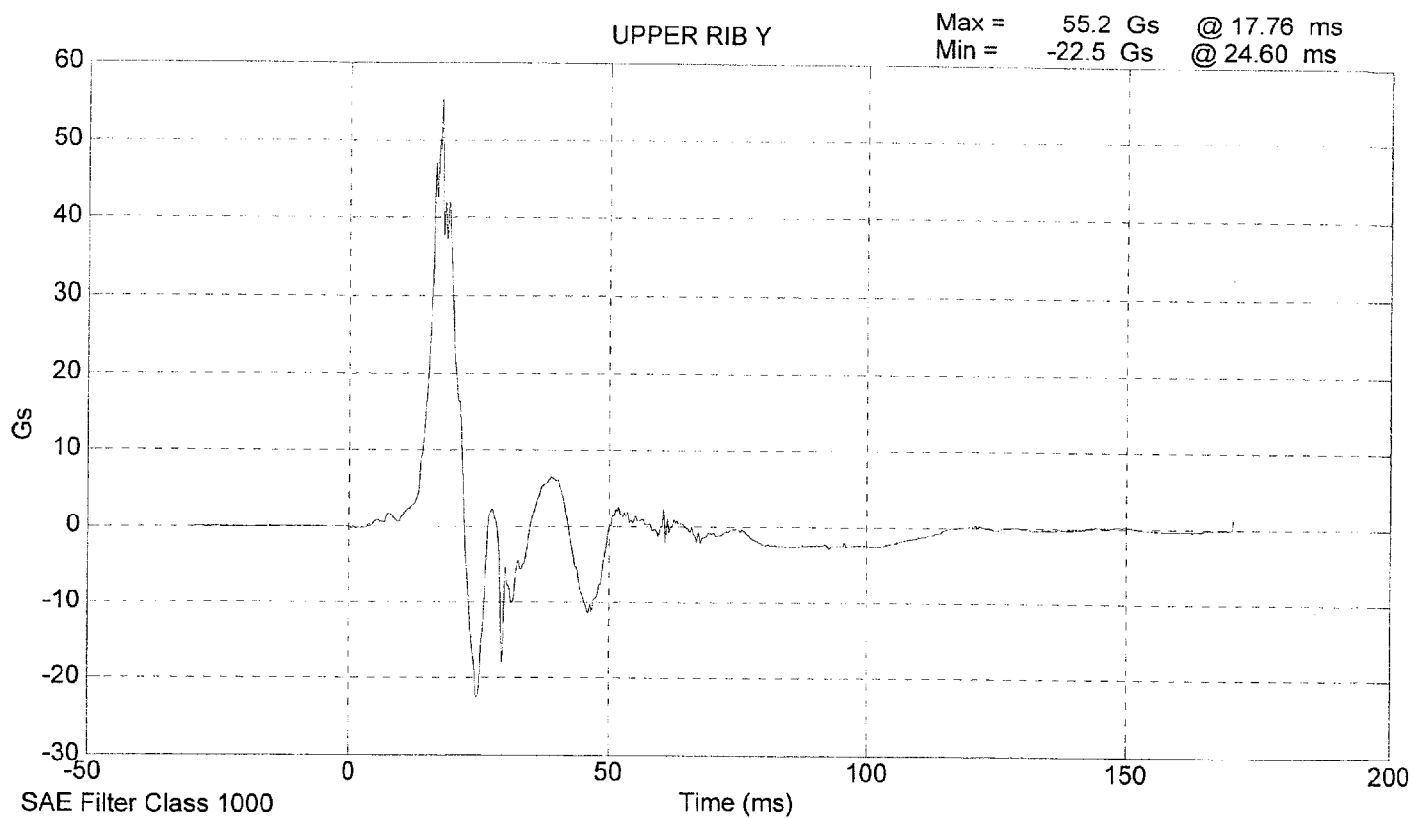
Date: 01-27-99

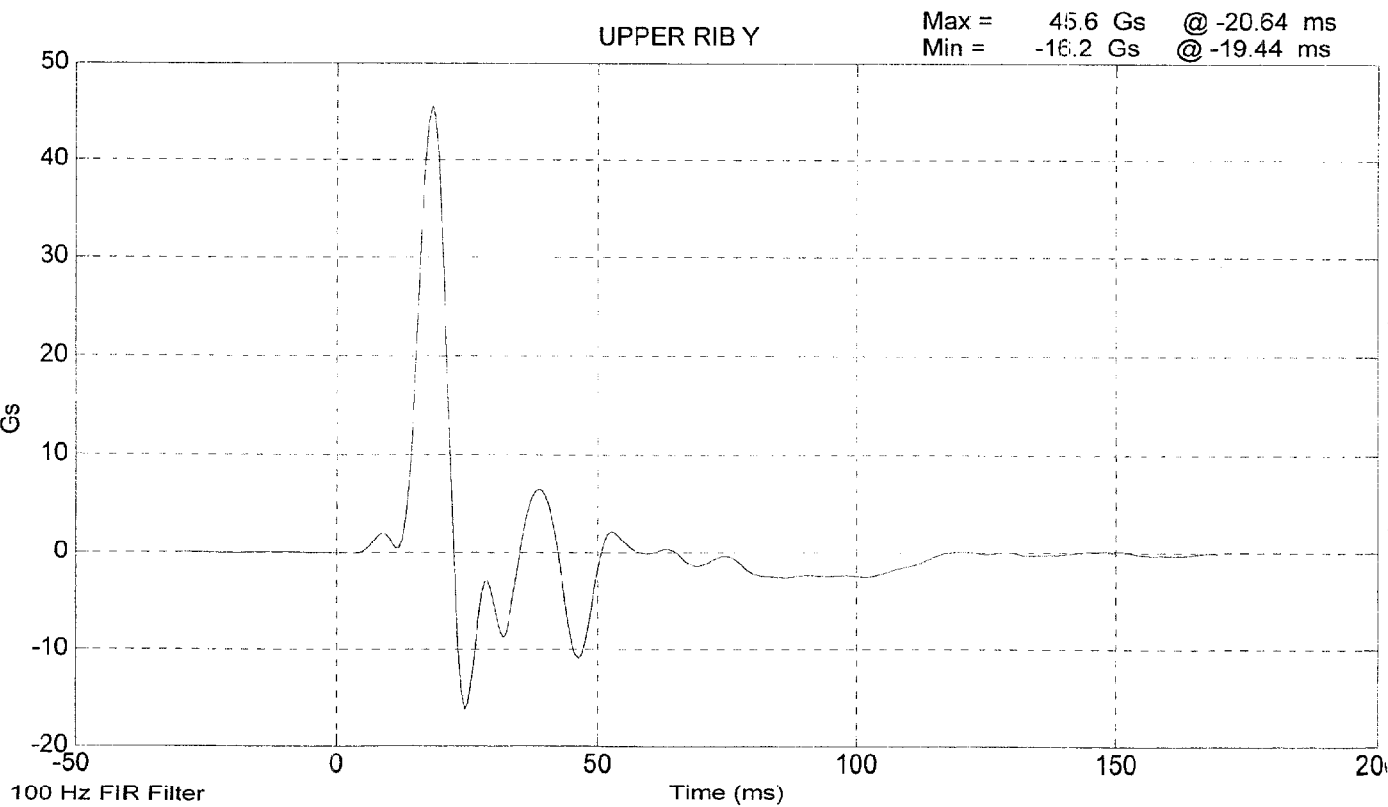
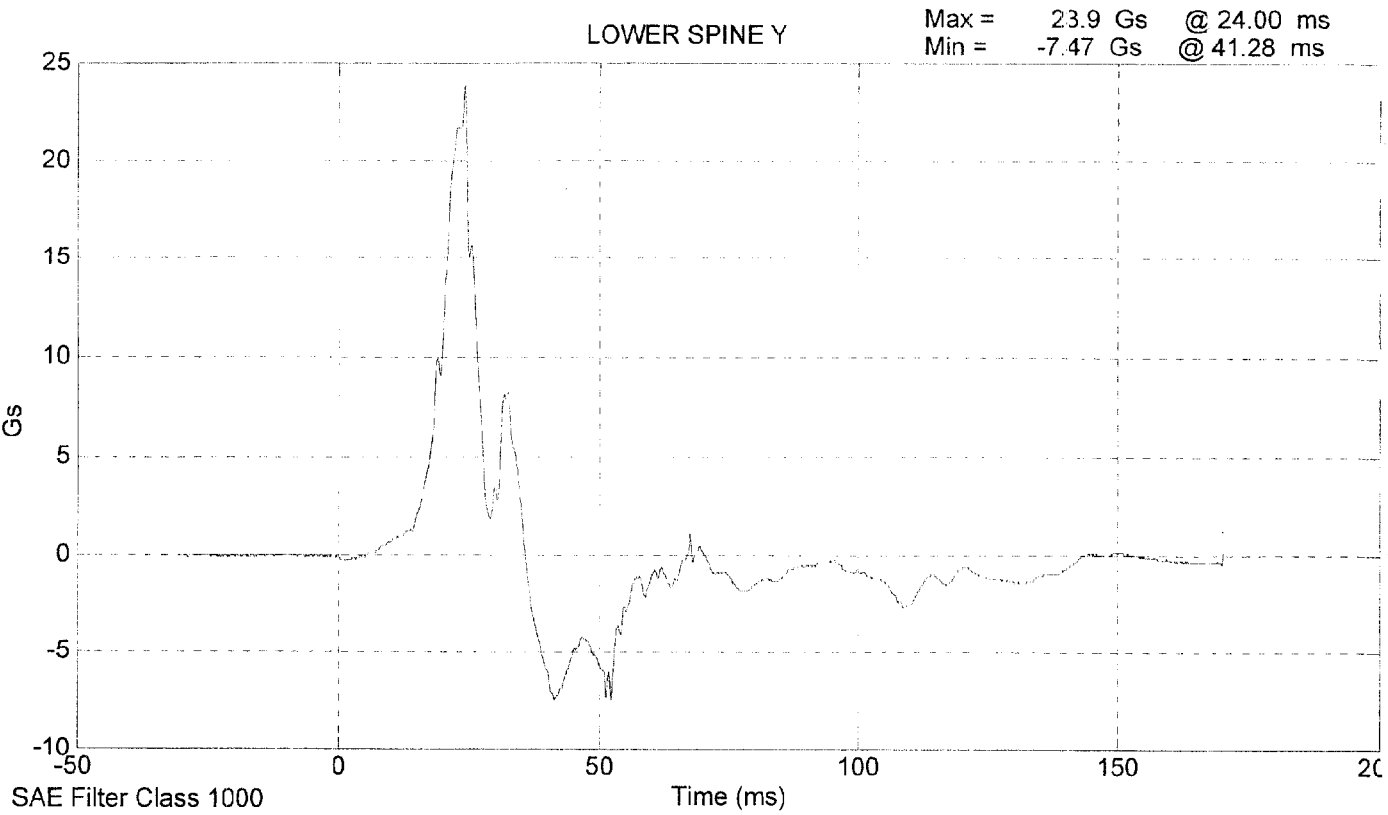
Laboratory Technician: B. Swiecicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	22.8
RELATIVE HUMIDITY (%)	10 - 70	22
PROBE SPEED (m/s)	4.27 - 4.33	4.27
UPPER RIB (g's)	37 - 46	45.59
LOWER RIB (g's)	37 - 46	45.78
LOWER SPINE (g's)	15 - 22	21.89

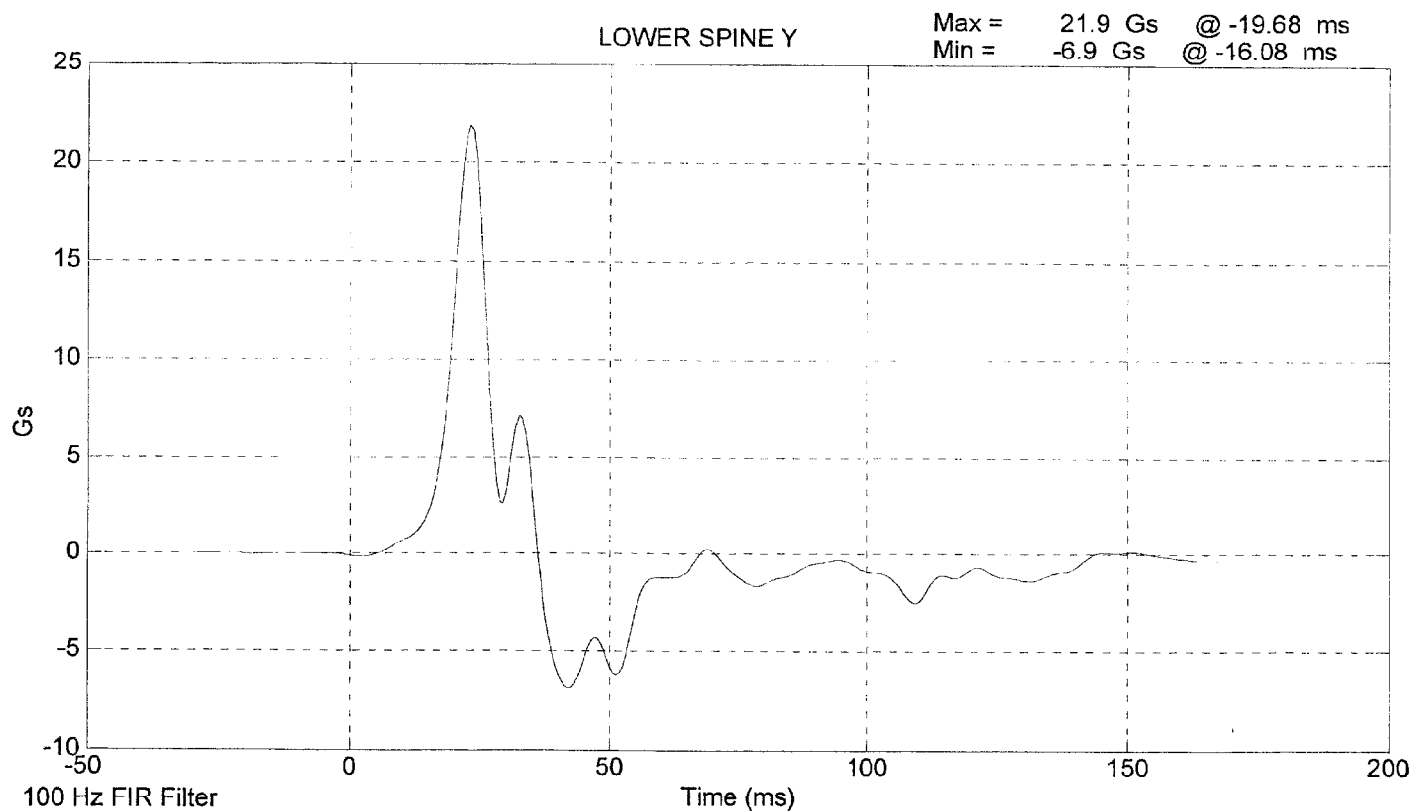
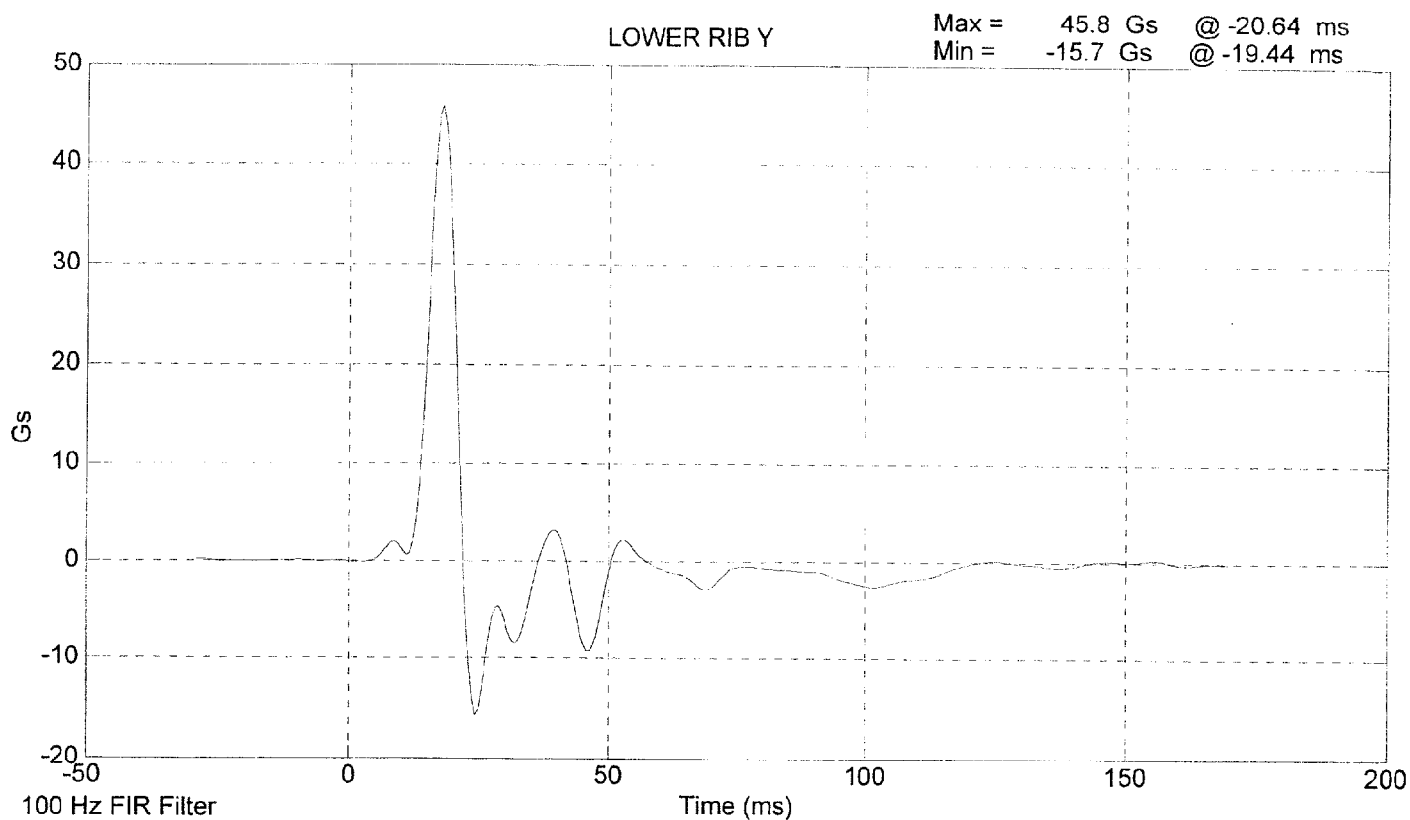
REMARKS: None

SID 015 THORAX IMPACT TEST @ 4.2763 m/s





SID 015 THORAX IMPACT TEST @ 4.2763 m/s



LATERAL PELVIS IMPACT TEST
PRE-TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015

Calspan Sequential Test Number: 1

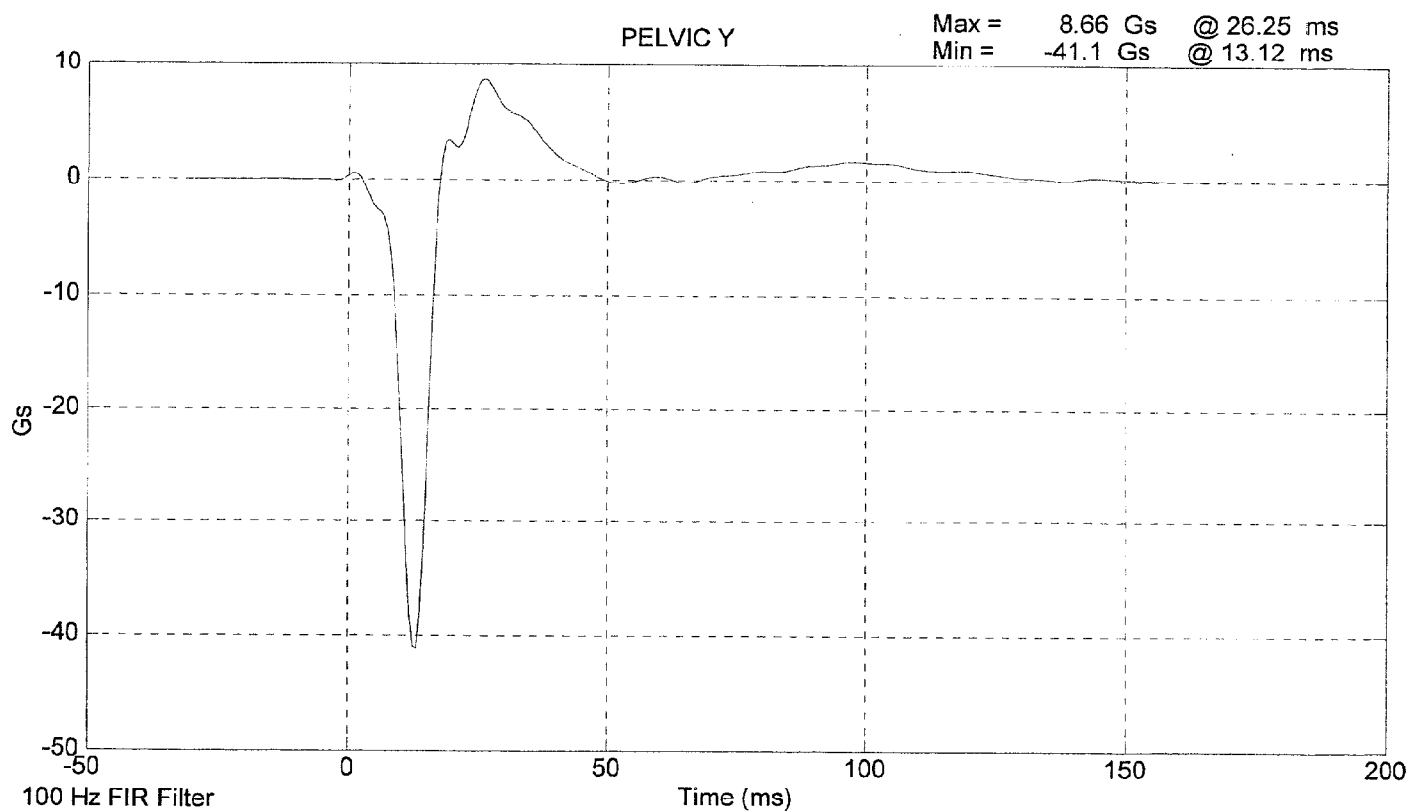
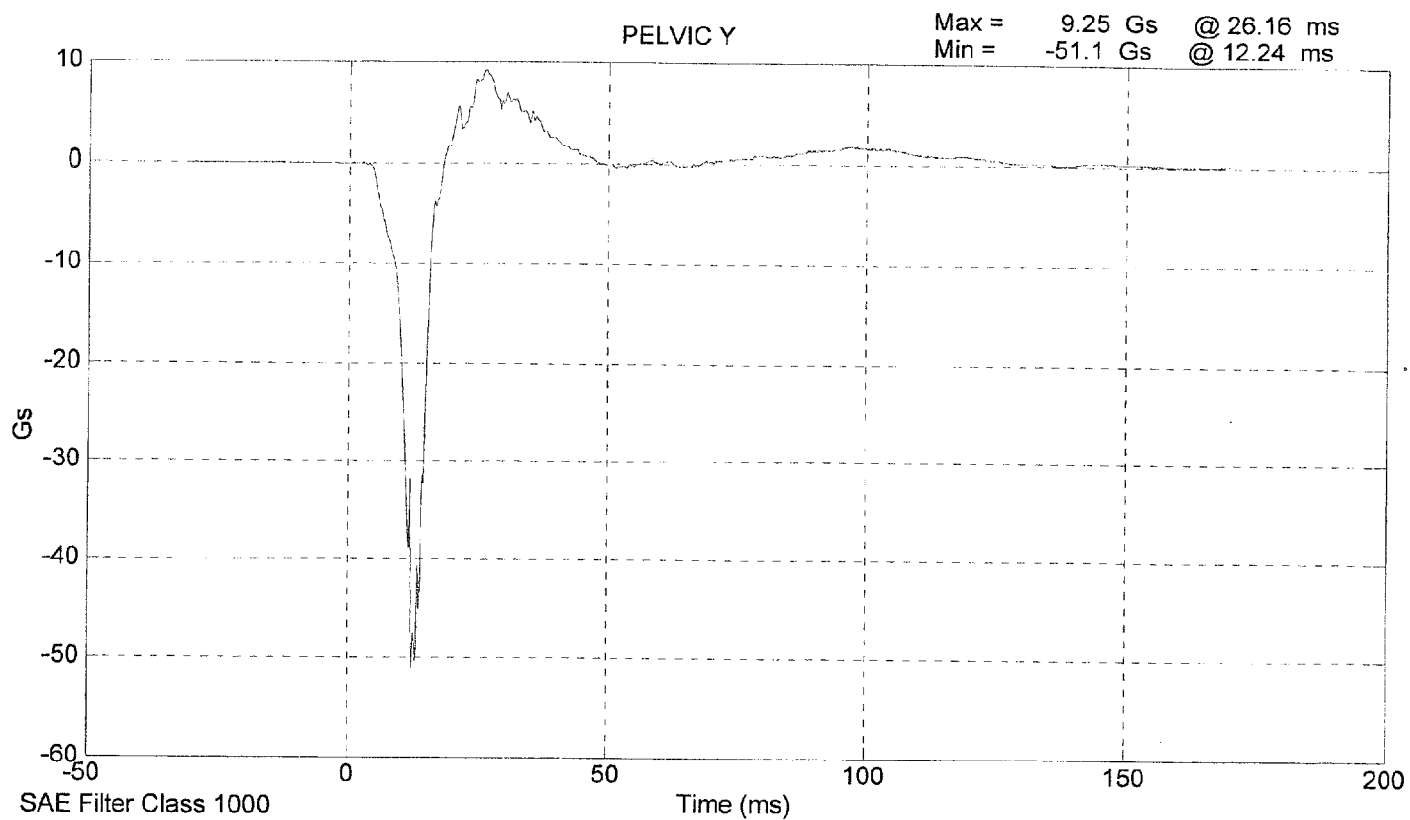
Date: 01-28-99

Laboratory Technician: B. Swiecicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	22.8
RELATIVE HUMIDITY (%)	10 - 70	22
PROBE SPEED (m/s)	4.27 - 4.33	4.31
PELVIS ACCELERATION (g's)	40 - 60	41.1

REMARKS: None

SID 015 PELVIC IMPACT TEST @ 4.3099 m/s



ABDOMINAL COMPRESSION TEST**PRE-TEST**

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACTSID Serial No.: 015Calspan Sequential Test Number: 1Date: 01-28-99

Laboratory Technician:

B. Swięcicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	22.8
RELATIVE HUMIDITY (%)	10 - 70	22
FORCE @ 13 mm (N)	104 - 162	106.8
FORCE @ 19 mm (N)	163 - 221	177.0
FORCE @ 25 mm (N)	222 - 280	258.0
FORCE @ 33 mm (N)	325 - 391	390.6

REMARKS: None

Dummy S/N 015

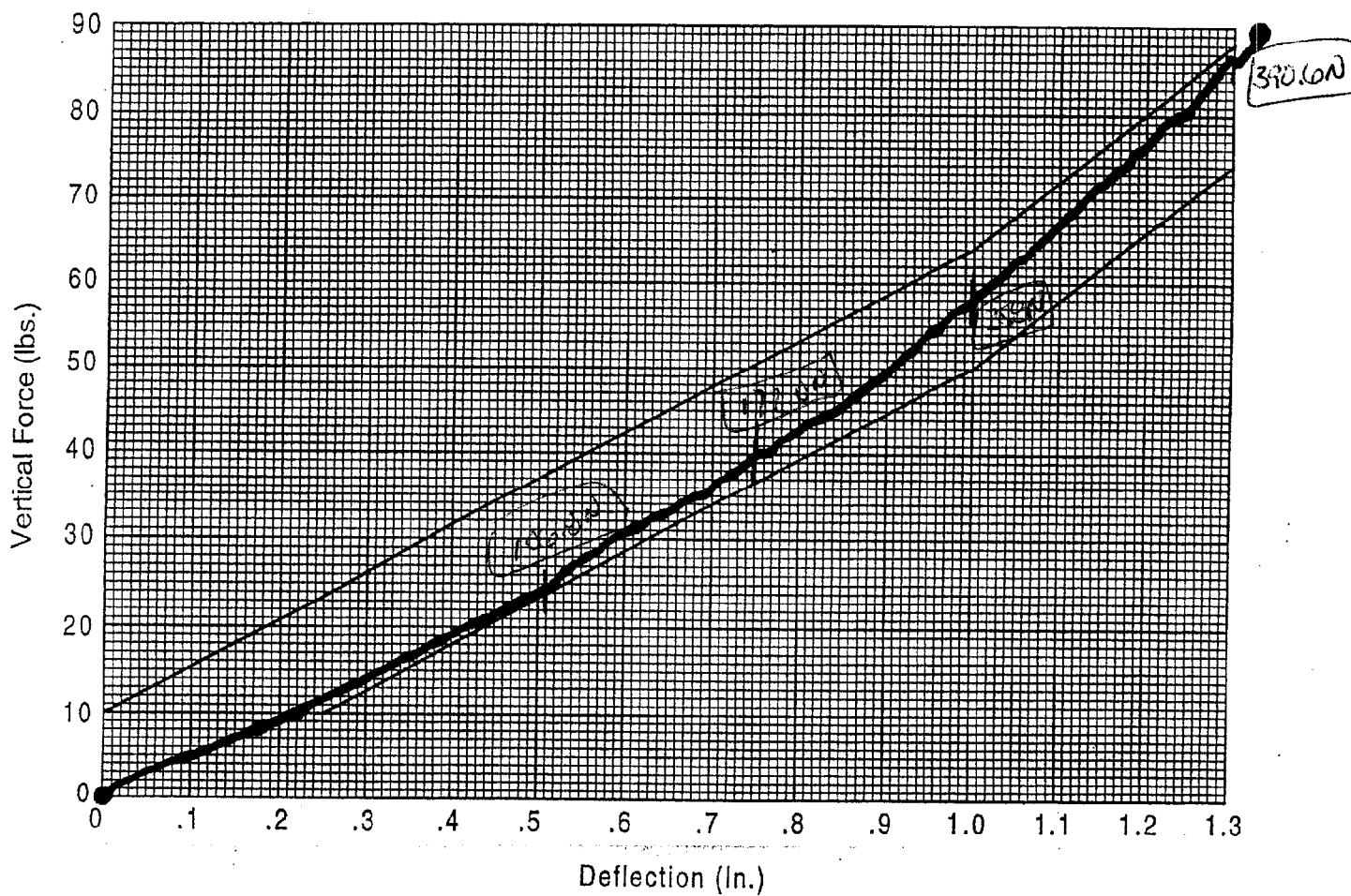
W/A _____

Date 1/25/79

Performed By BS + (signature)

Temp. 73°

Humidity 22%



Hybrid II
Abdomen Static Press

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

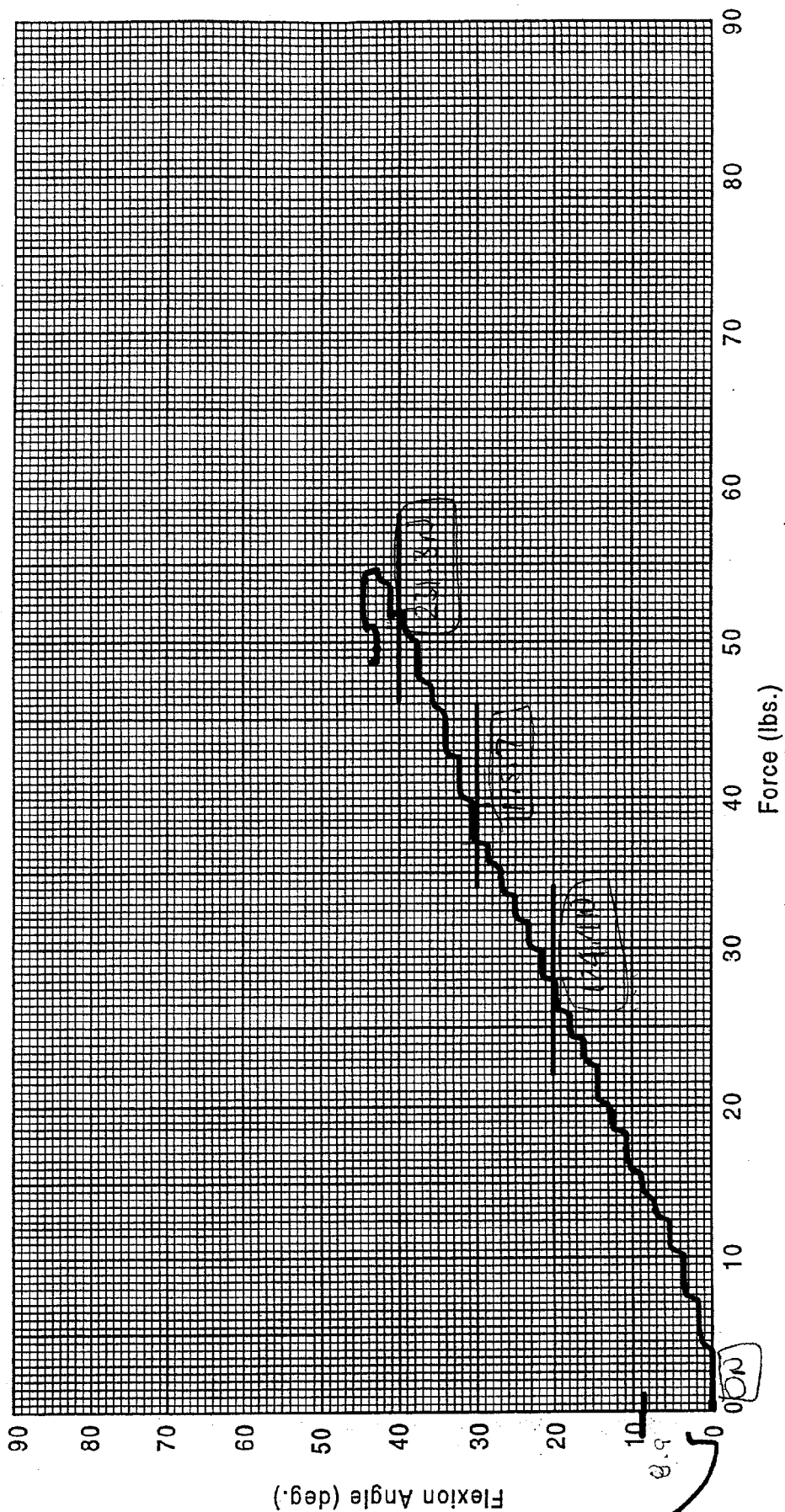
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015 Calspan Sequential Test Number: 1
Date: 01-28-99 Laboratory Technician: B. Swiecicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	22.8
RELATIVE HUMIDITY (%)	10 - 70	22
FORCE @ 0° (N)	0 - 26.7	0
FORCE @ 20° (N)	97.8 - 151.2	124.4
FORCE @ 30° (N)	151.2 - 204.6	175.7
FORCE @ 40° (N)	204.6 - 258	231.3
RETURN ANGLE	12° max.	8.9

REMARKS: None

Dummy S/N 015
 W/A _____
 Date 1/20/99
 Performed By BS + G
 Temp. 73°
 Humidity 22%



Hybrid II Lumbar Spine Flexion Test

PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015
Date: 01-28-99

Calspan Sequential Test Number: 1
Laboratory Technician: B. Swiecicki, G. Serbinowski

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
Date: 02-15-99

Calspan Sequential Test Number: 1
Laboratory Technician: B. Swieczicki, G. Serbinowski

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT 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
Date: 02-15-99

Calspan Sequential Test Number: 1
Laboratory Technician: B. Swiecicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	516
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	234
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	371

REMARKS: None

**LATERAL THORAX IMPACT TEST
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268

Calspan Sequential Test Number: 1

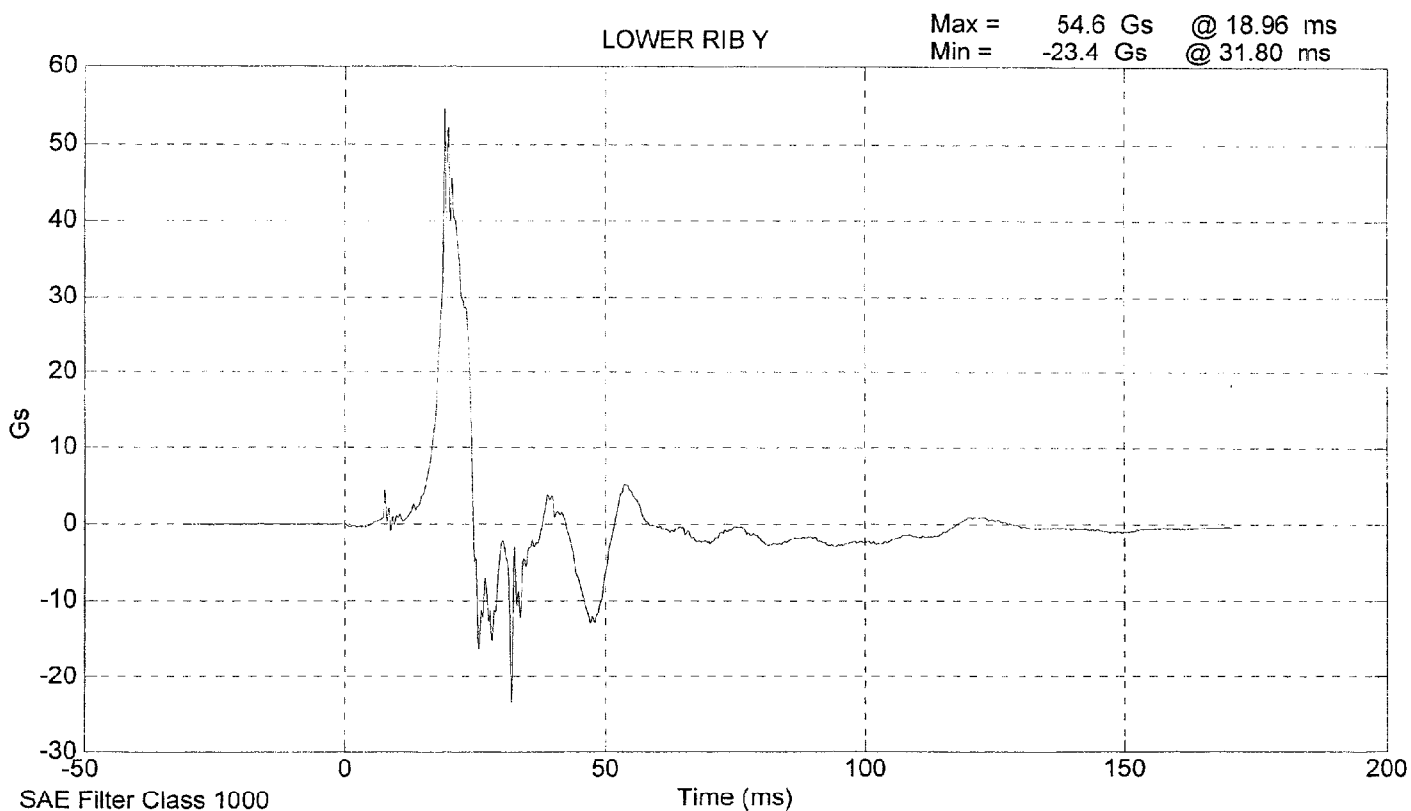
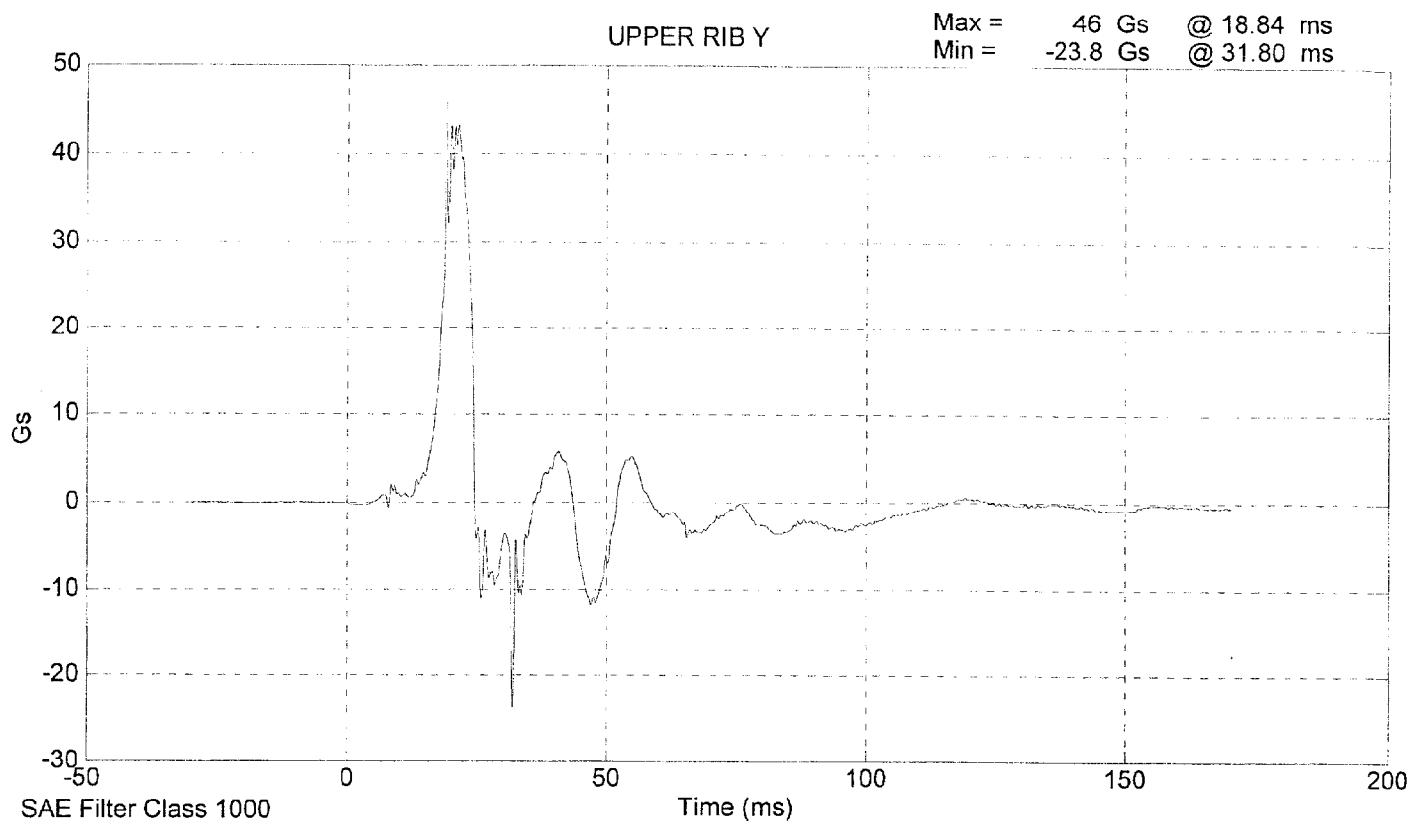
Date: 02-16-99

Laboratory Technician: B. Swięcicki, G. Serbinowski

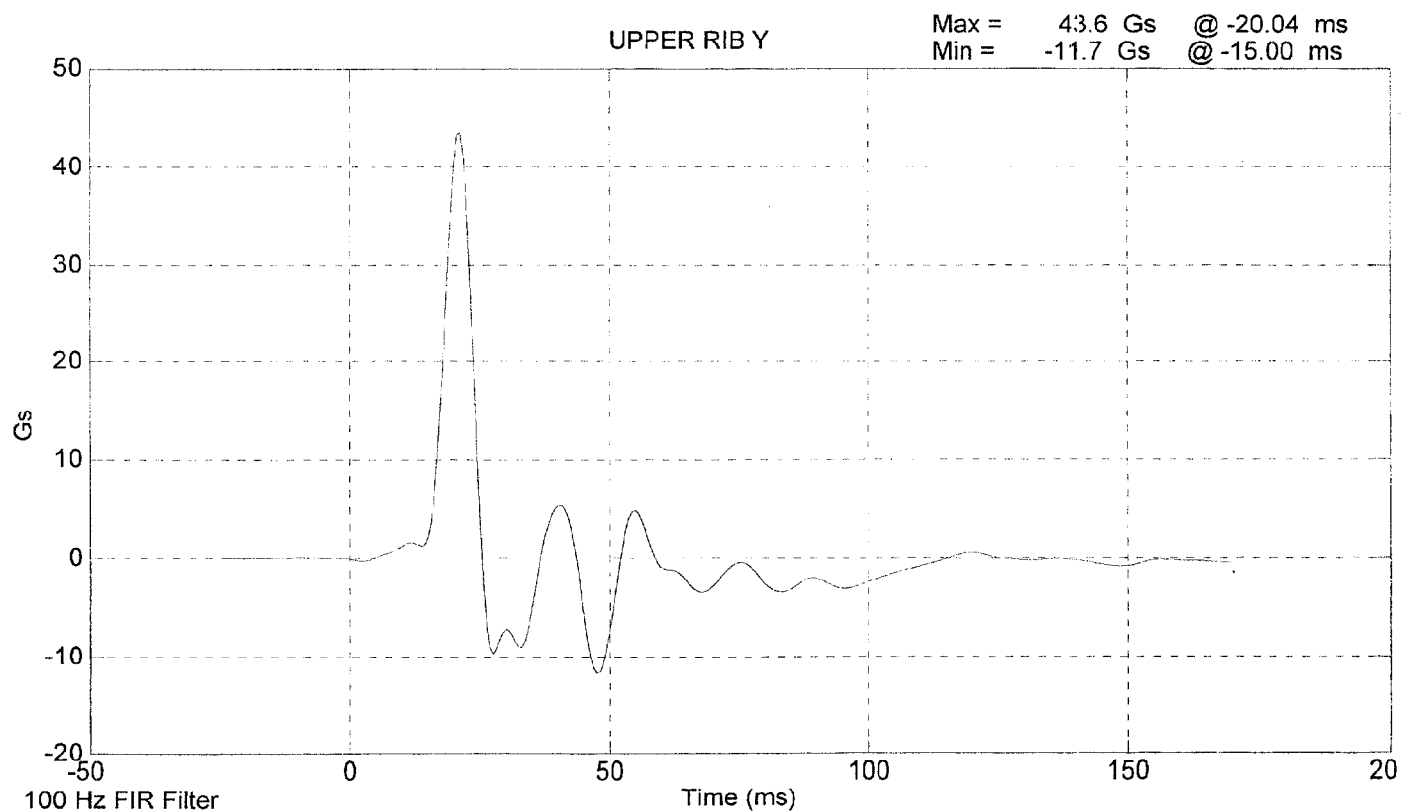
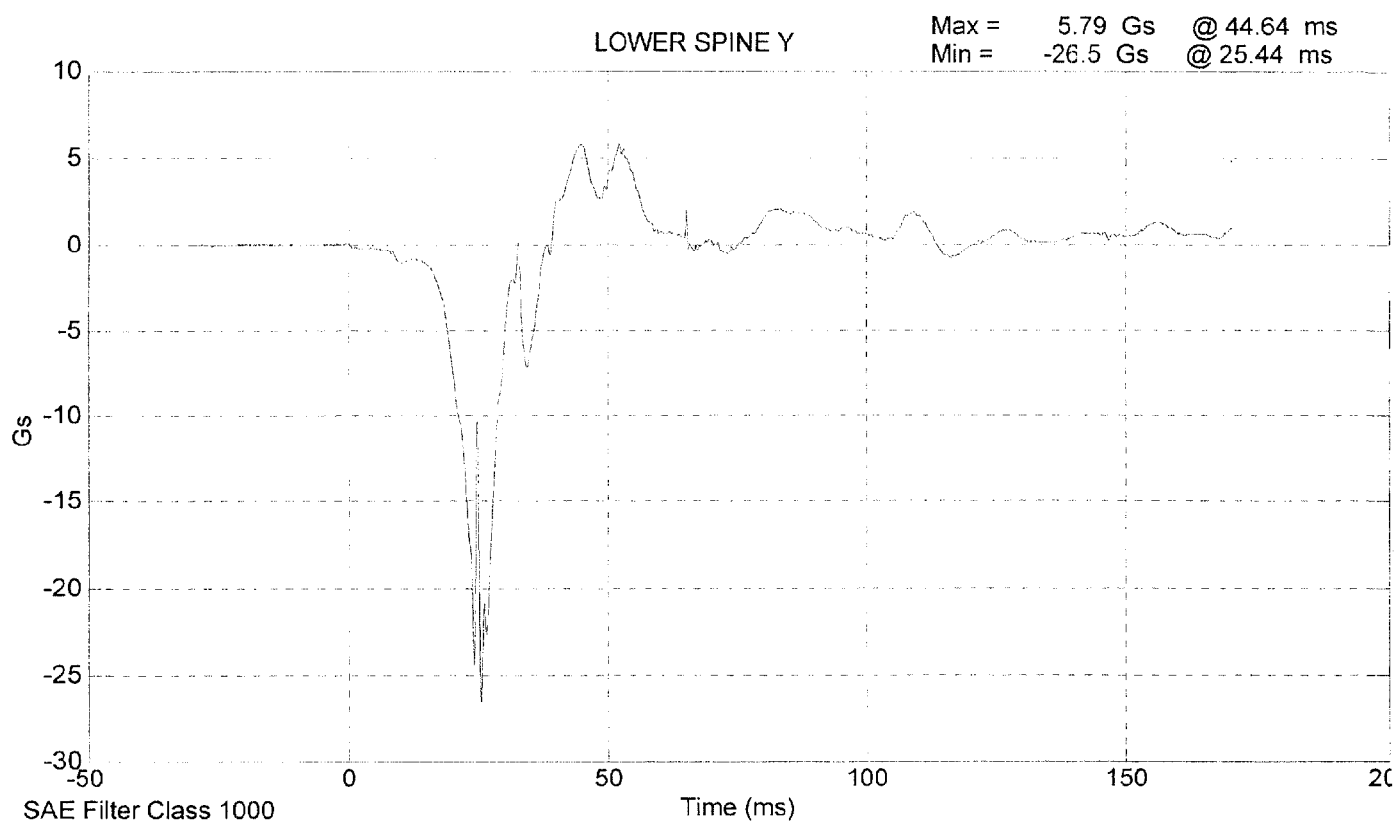
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	20
PROBE SPEED (m/s)	4.27 - 4.33	4.29
UPPER RIB (g's)	37 - 46	43.6
LOWER RIB (g's)	37 - 46	44.5
LOWER SPINE (g's)	15 - 22	21.4

REMARKS: None

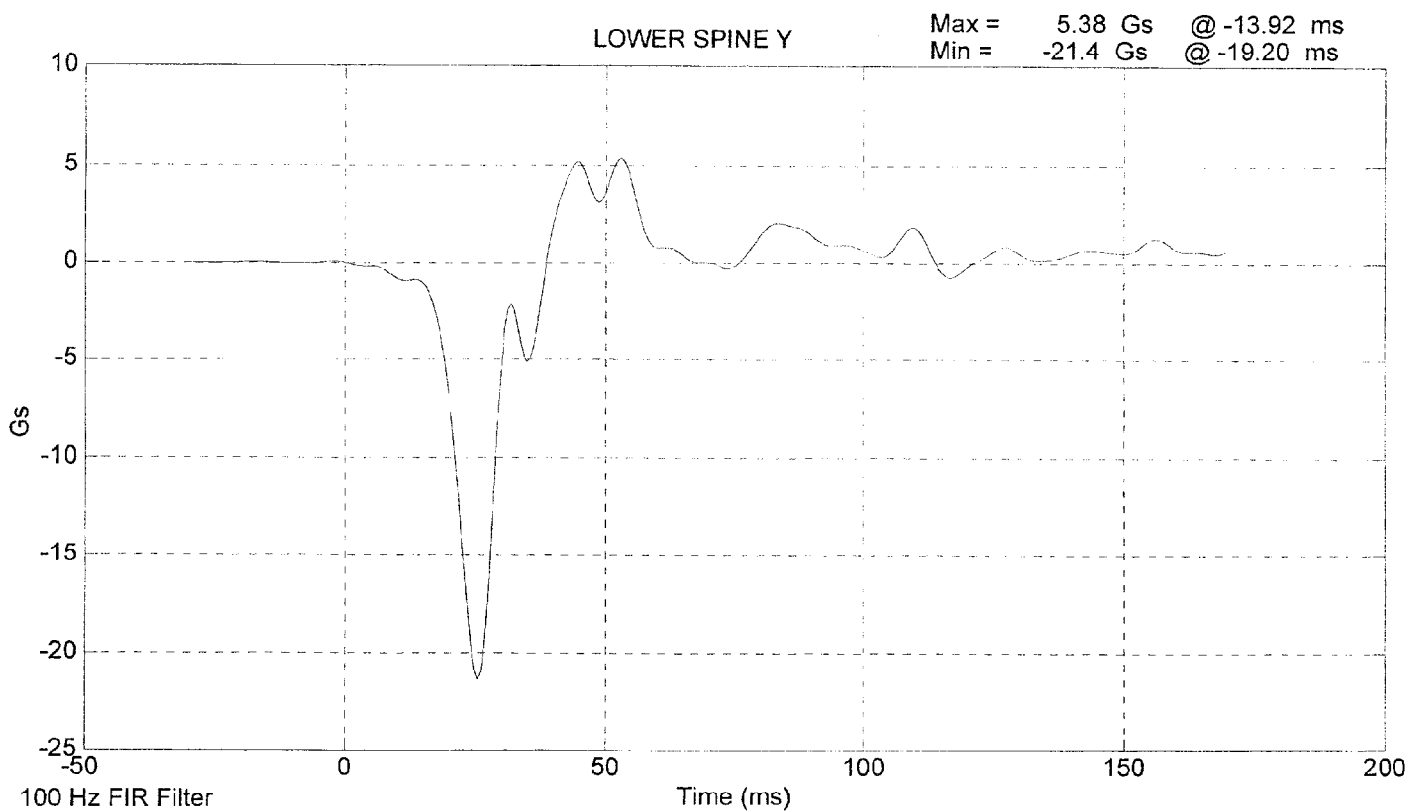
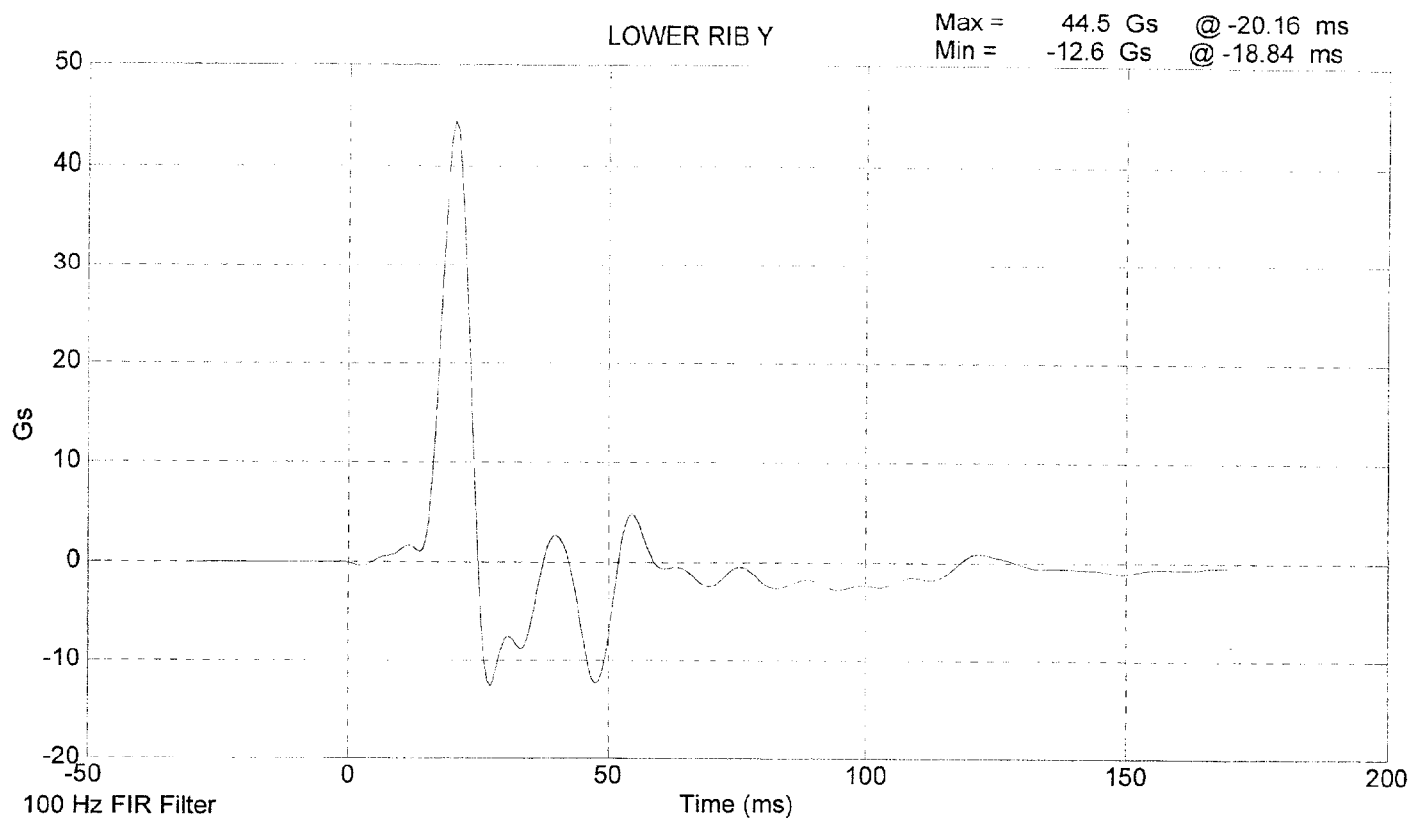
SID 268 THORAX IMPACT TEST @ 4.2885 m/s



SID 268 THORAX IMPACT TEST @ 4.2885 m/s



SID 268 THORAX IMPACT TEST @ 4.2885 m/s



**LATERAL PELVIS IMPACT TEST
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268

Calspan Sequential Test Number: 1

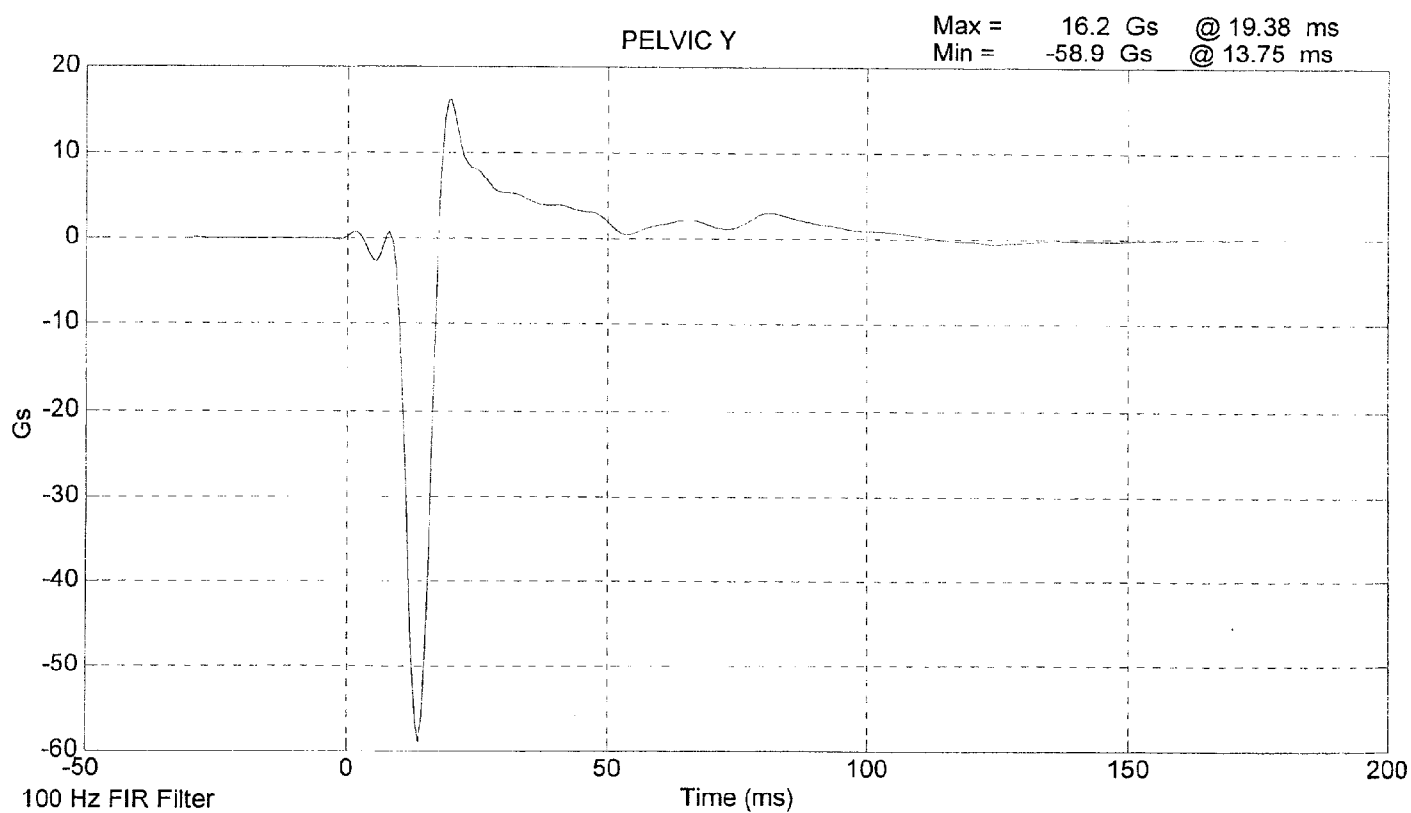
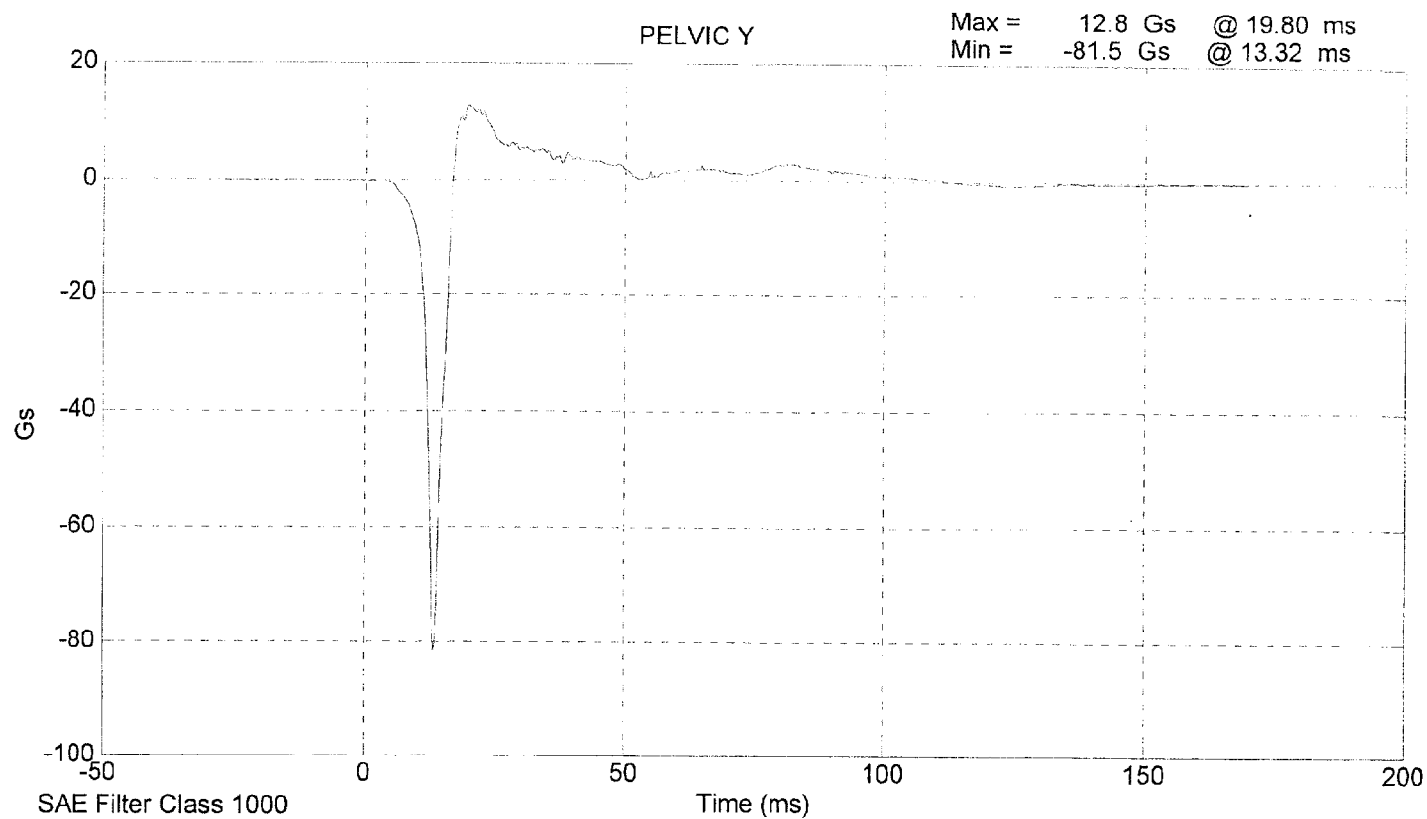
Date: 02-16-99

Laboratory Technician: B. Swieczicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	20
PROBE SPEED (m/s)	4.27 - 4.33	4.31
PELVIS ACCELERATION (g's)	40 - 60	58.9

REMARKS: None

SID 268 PELVIC IMPACT TEST @ 4.3129 m/s



ABDOMINAL COMPRESSION TEST
POST TEST

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268
Date: 02-18-99

Calspan Sequential Test Number: 1
Laboratory Technician: B. Swieczicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	20
FORCE @ 13 mm (N)	104 - 162	120.1
FORCE @ 19 mm (N)	163 - 221	182.4
FORCE @ 25 mm (N)	222 - 280	264.7
FORCE @ 33 mm (N)	325 - 391	384.8

REMARKS: None

Dummy S/N 268

W/A _____

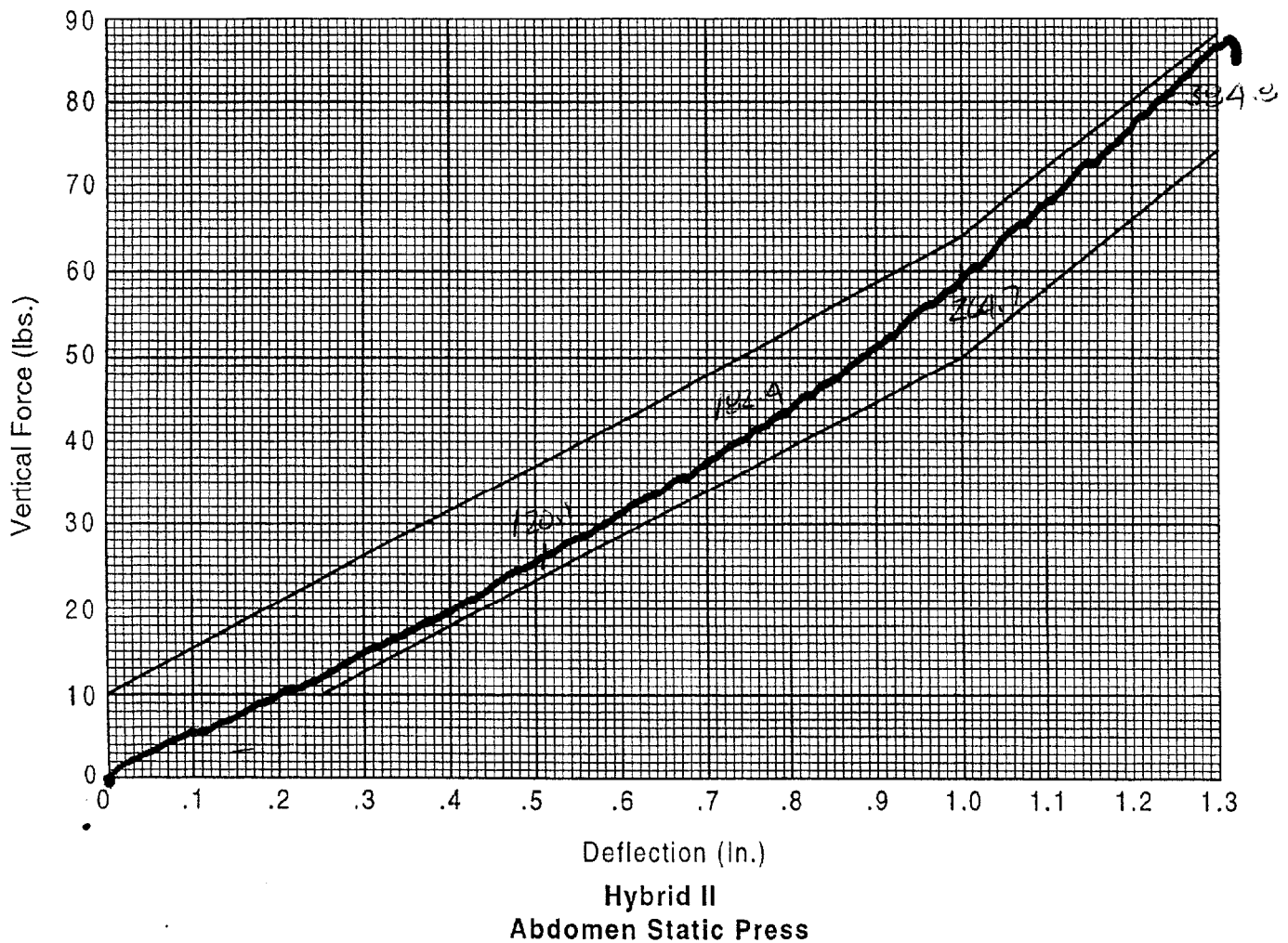
Date 2-18-99

Performed By CS

Temp. 71°

Humidity 20%

ORIGINAL



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

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268
Date: 02-18-99

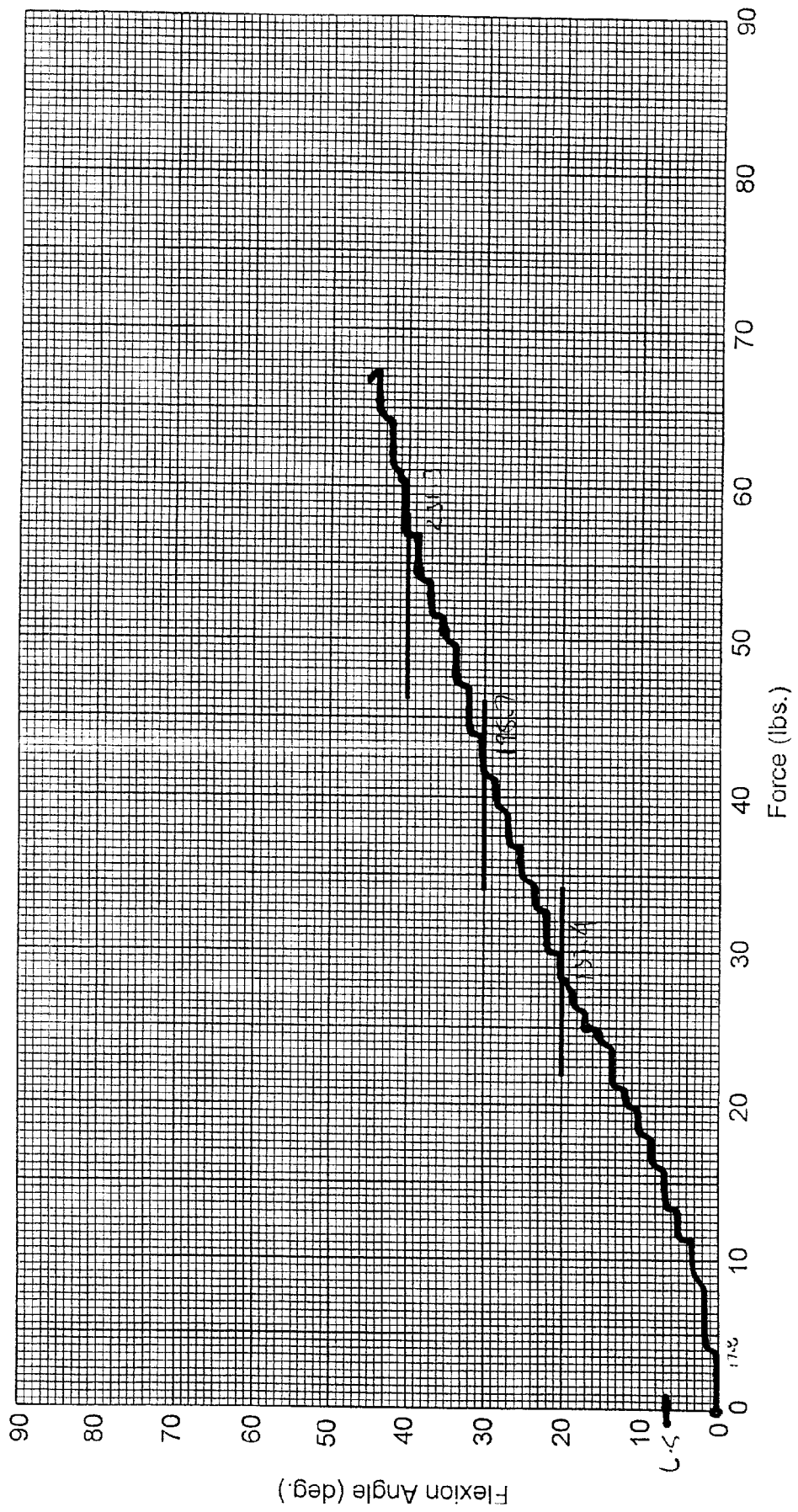
Calspan Sequential Test Number: 1
Laboratory Technician: B. Swiecicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	20
FORCE @ 0° (N)	0 - 26.7	17.8
FORCE @ 20° (N)	97.8 - 151.2	133.4
FORCE @ 30° (N)	151.2 - 204.6	195.7
FORCE @ 40° (N)	204.6 - 258	231.3
RETURN ANGLE	12° max.	6.5

REMARKS: None

Dummy S/N 2-68
 W/A _____
 Date 2-18-99
 Performed By J. B. S.
 Temp. 71°
 Humidity 20%

ORIGINAL



Hybrid II Lumbar Spine Flexion Test

POST TEST DUMMY INSPECTION LIST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 268
 Date: 02-18-99

Calspan Sequential Test Number: 1
 Laboratory Technician: B. Swiecicki, G. Serbinowski

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.: 015

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015

Calspan Sequential Test Number: 1

Date: 02-15-99

Laboratory Technician: B. Swiecicki, G. Serbinowski

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT 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.: 015
Date: 02-15-99

Calspan Sequential Test Number: 1
Laboratory Technician: B. Swiecicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	904
RH- Rib Height (mm)	502 - 520	511
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	521
KV- Knee Pivot to Floor (mm)	490 - 505	493
HW- Hip Width (mm)	356 - 391	368

REMARKS: None

**LATERAL THORAX IMPACT TEST
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015

Calspan Sequential Test Number: 1

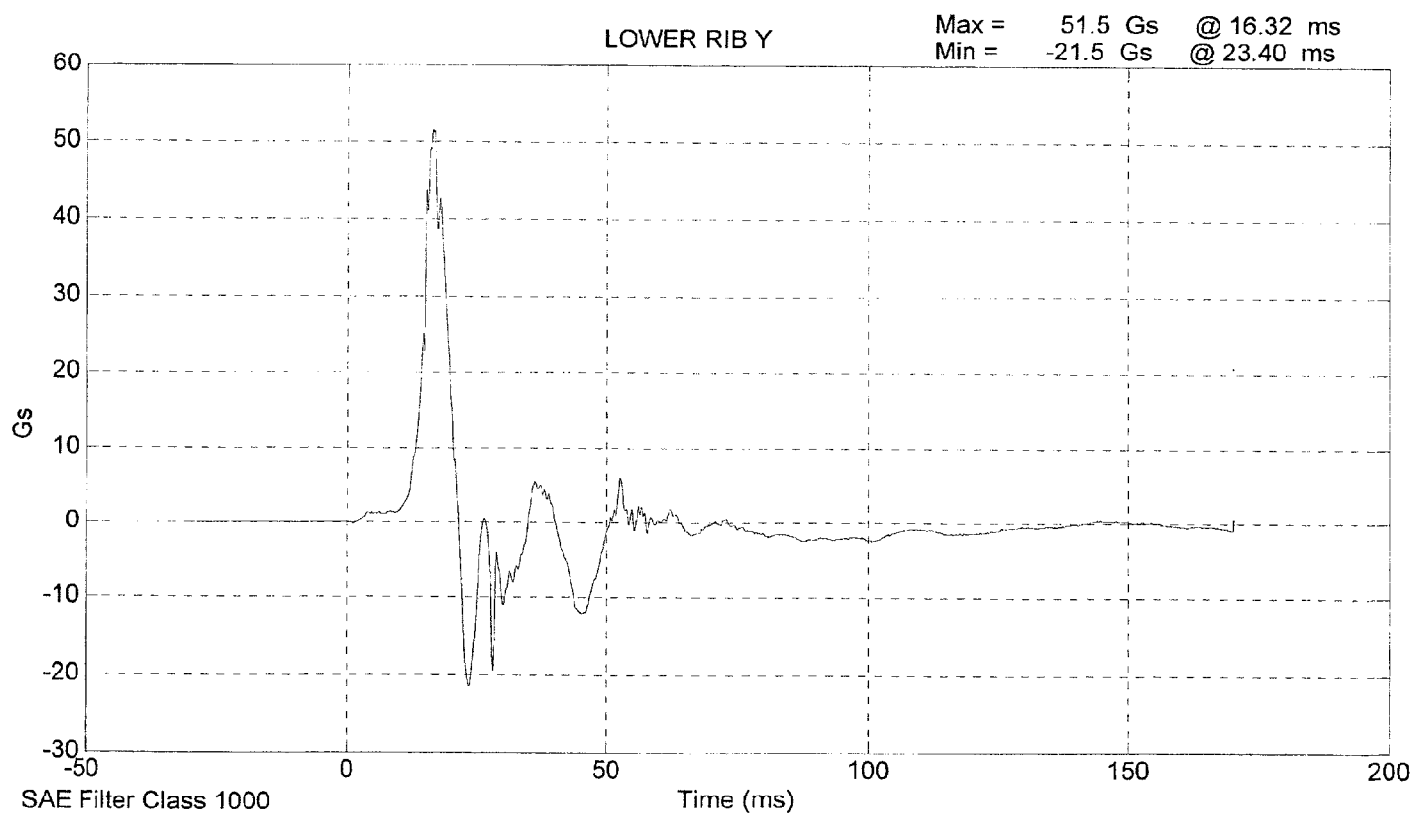
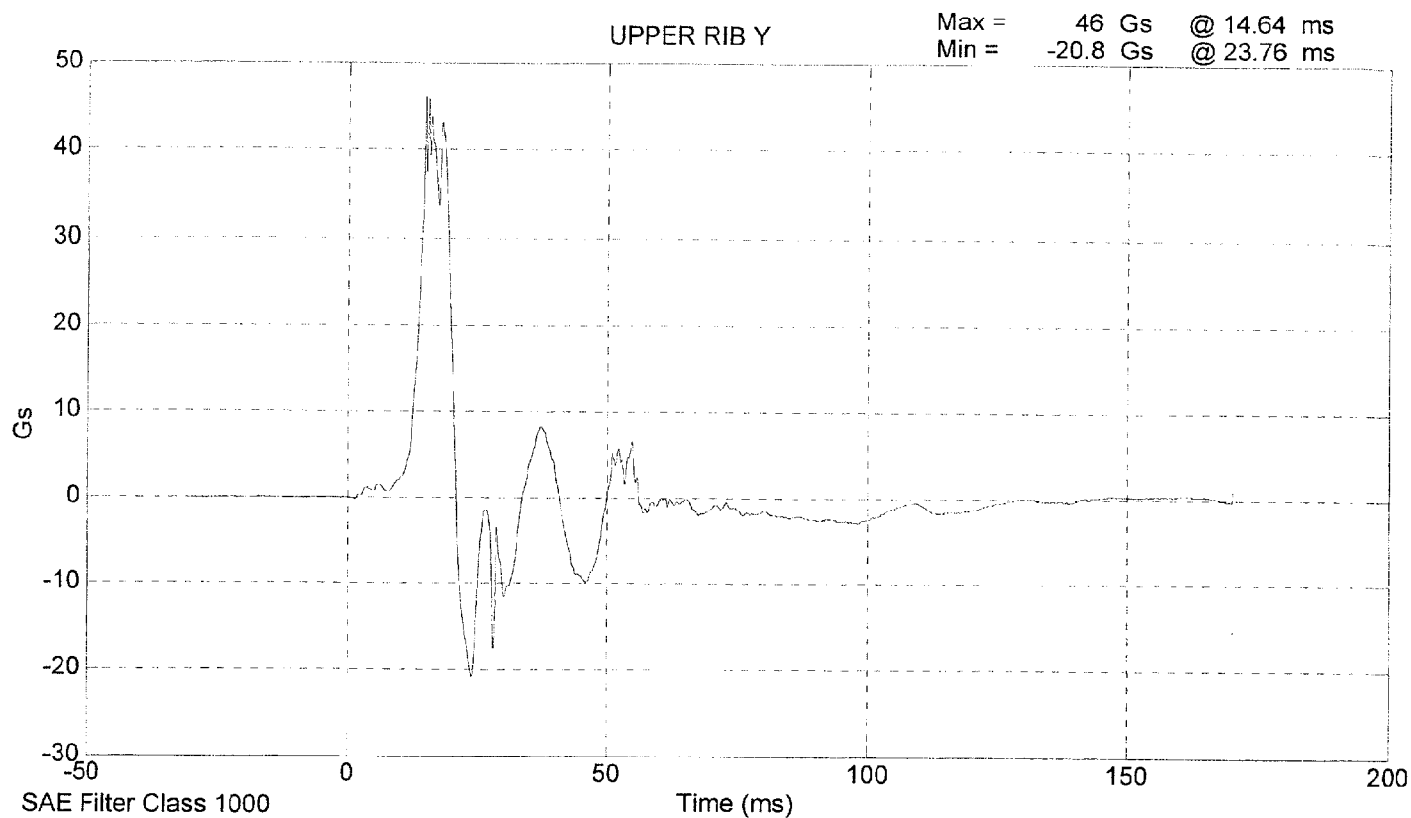
Date: 02-16-99

Laboratory Technician: B. Swiecicki, G. Serbinowski

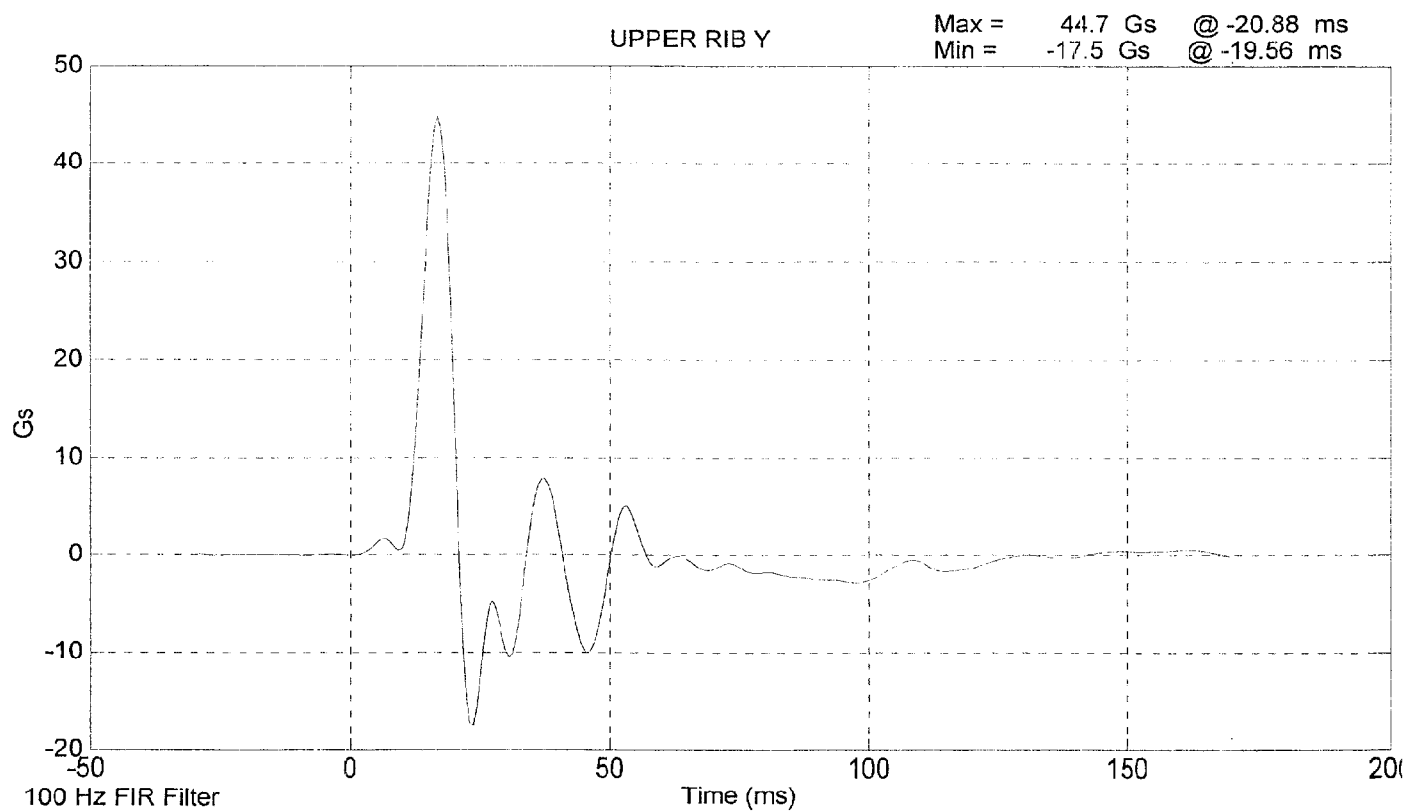
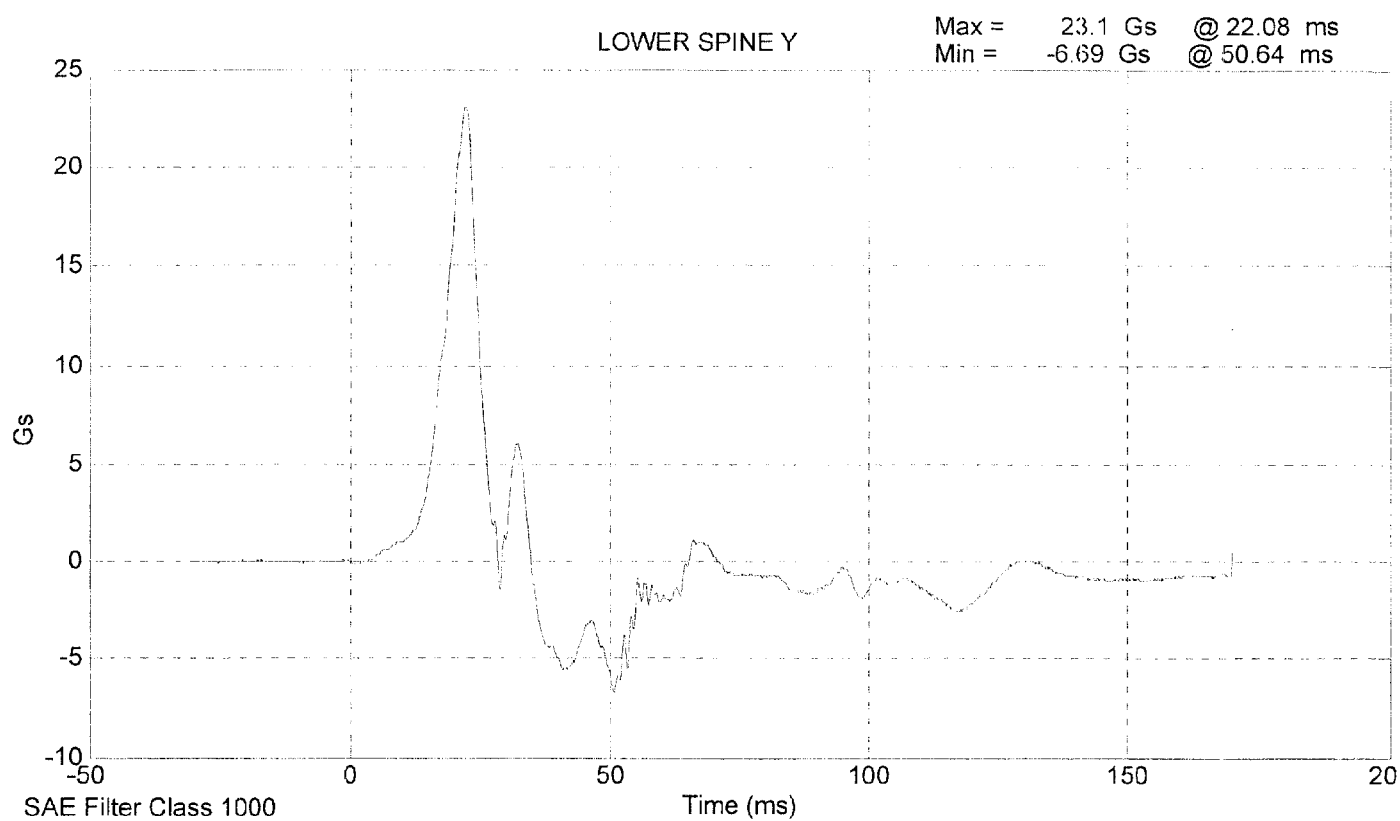
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	20
PROBE SPEED (m/s)	4.27 - 4.33	4.29
UPPER RIB (g's)	37 - 46	44.7
LOWER RIB (g's)	37 - 46	45.5
LOWER SPINE (g's)	15 - 22	21.8

REMARKS: None

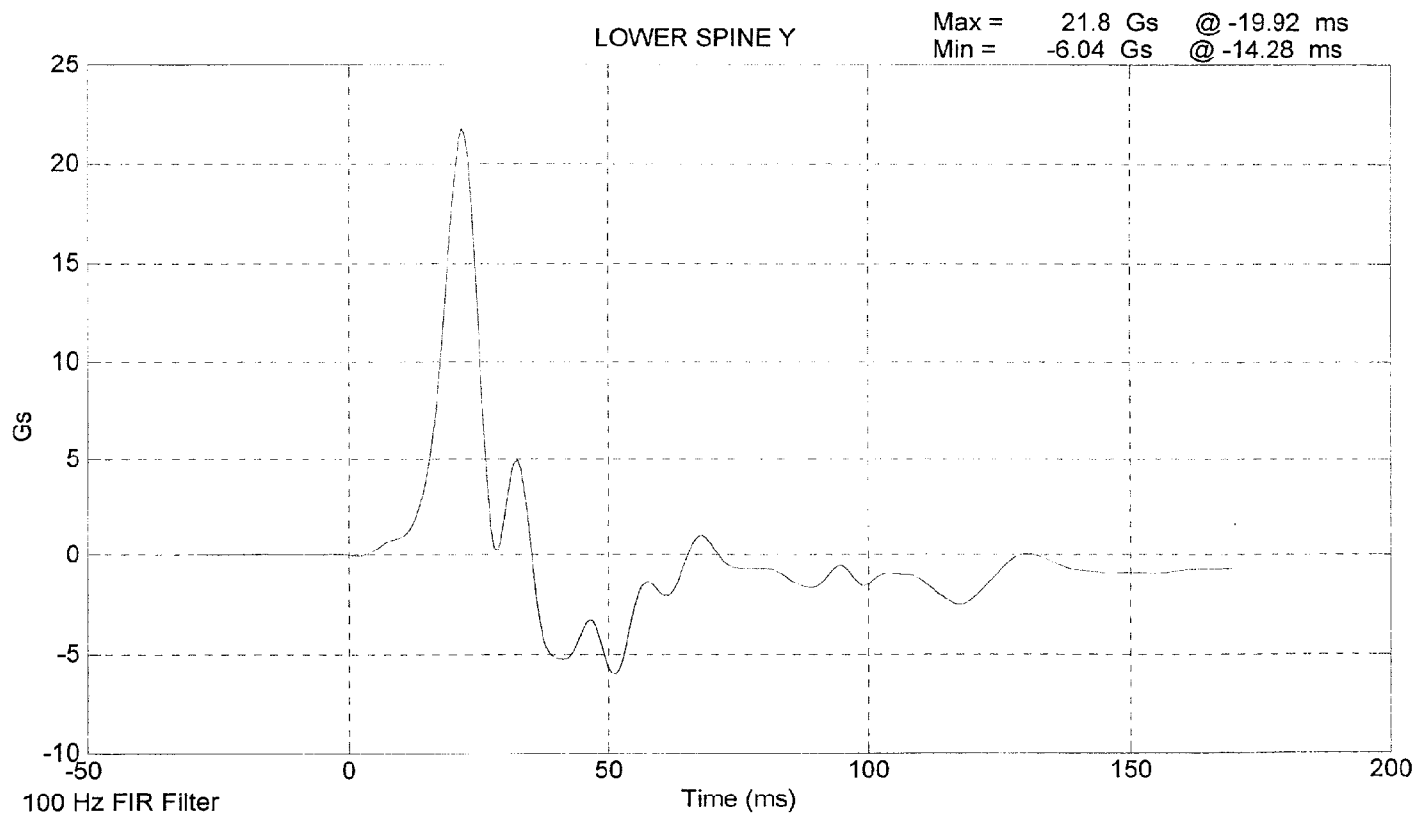
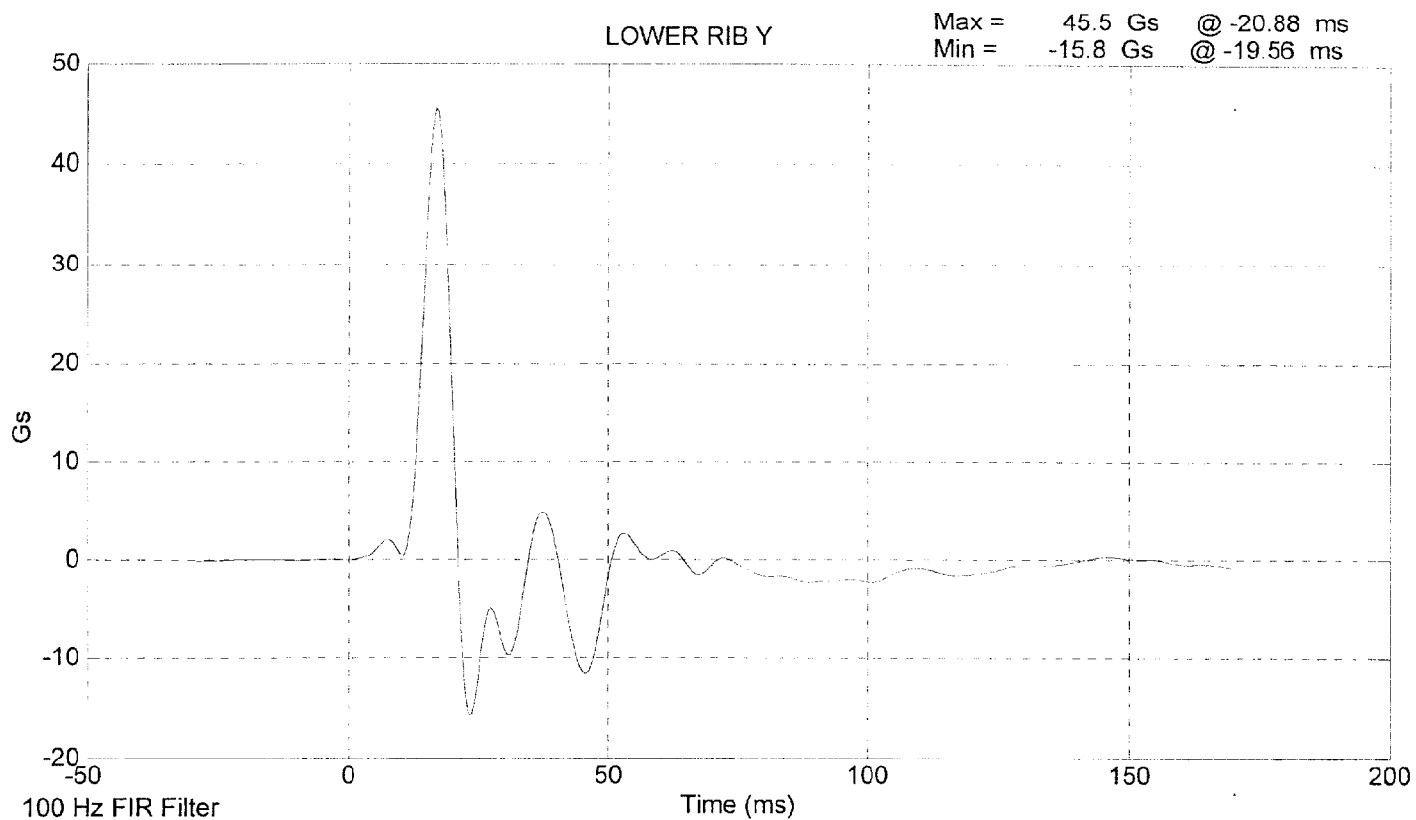
SID 015 THORAX IMPACT TEST @ 4.2946 m/s



SID 015 THORAX IMPACT TEST @ 4.2946 m/s



SID 015 THORAX IMPACT TEST @ 4.2946 m/s



**LATERAL PELVIS IMPACT TEST
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015

Calspan Sequential Test Number: 1

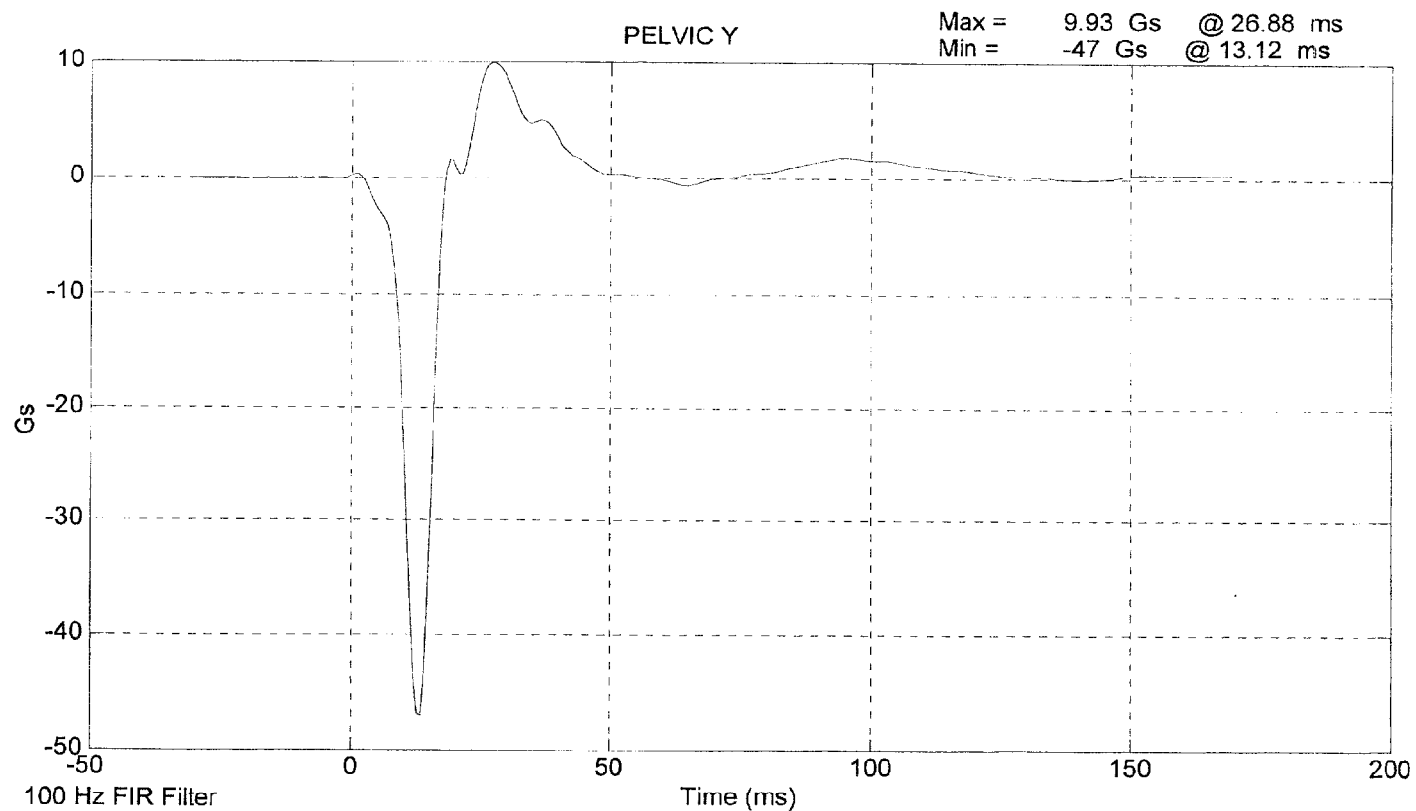
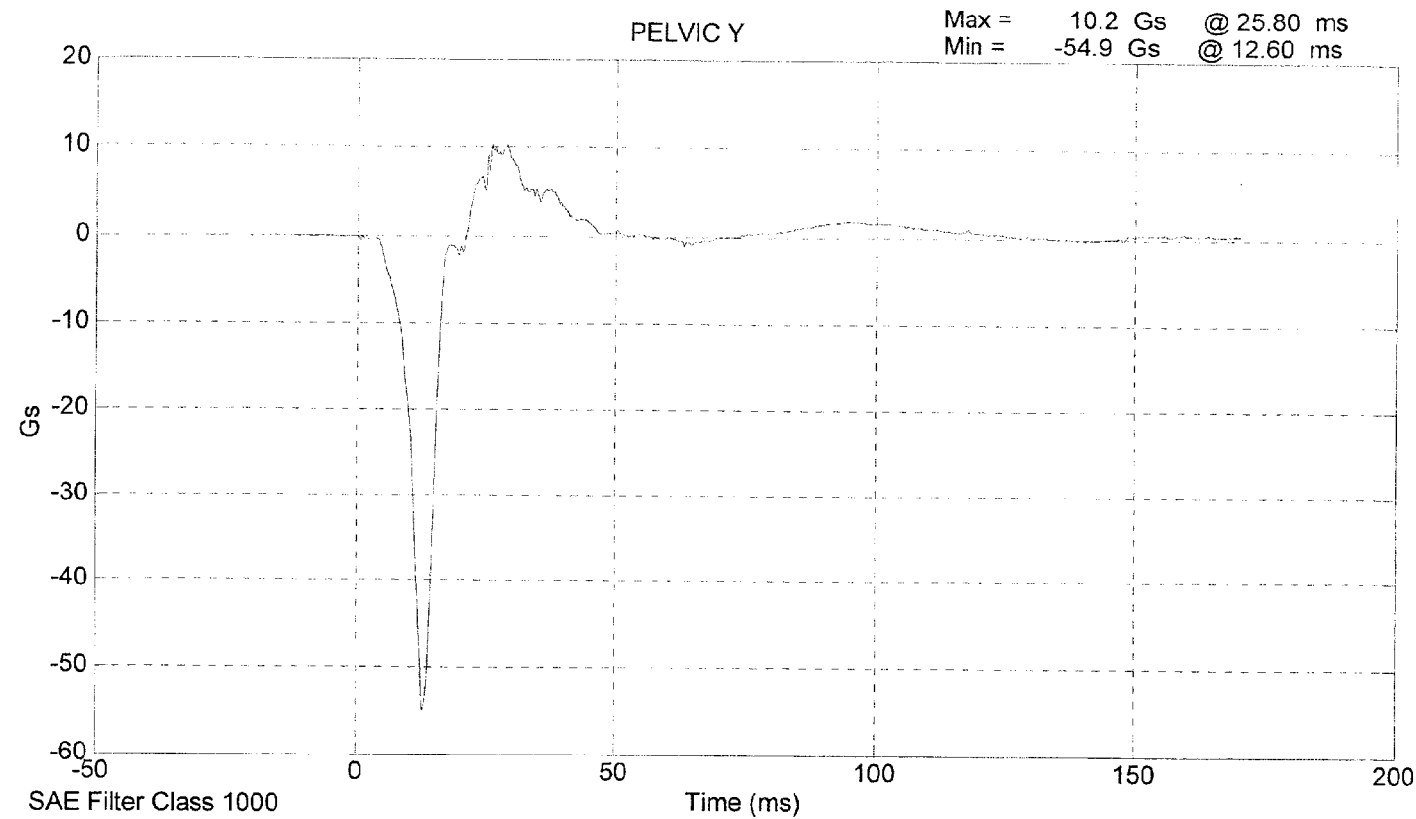
Date: 02-16-99

Laboratory Technician: B. Swiecicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	20
PROBE SPEED (m/s)	4.27 - 4.33	4.30
PELVIS ACCELERATION (g's)	40 - 60	47.0

REMARKS: None

SID 015 PELVIC IMPACT TEST @ 4.3038 m/s



ABDOMINAL COMPRESSION TEST
POST TEST

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015

Calspan Sequential Test Number: 1

Date: 02-18-99

Laboratory Technician: B. Swieczicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	20
FORCE @ 13 mm (N)	104 - 162	113.4
FORCE @ 19 mm (N)	163 - 221	171.3
FORCE @ 25 mm (N)	222 - 280	253.5
FORCE @ 33 mm (N)	325 - 391	375.9

REMARKS: None

Dummy S/N 015

W/A _____

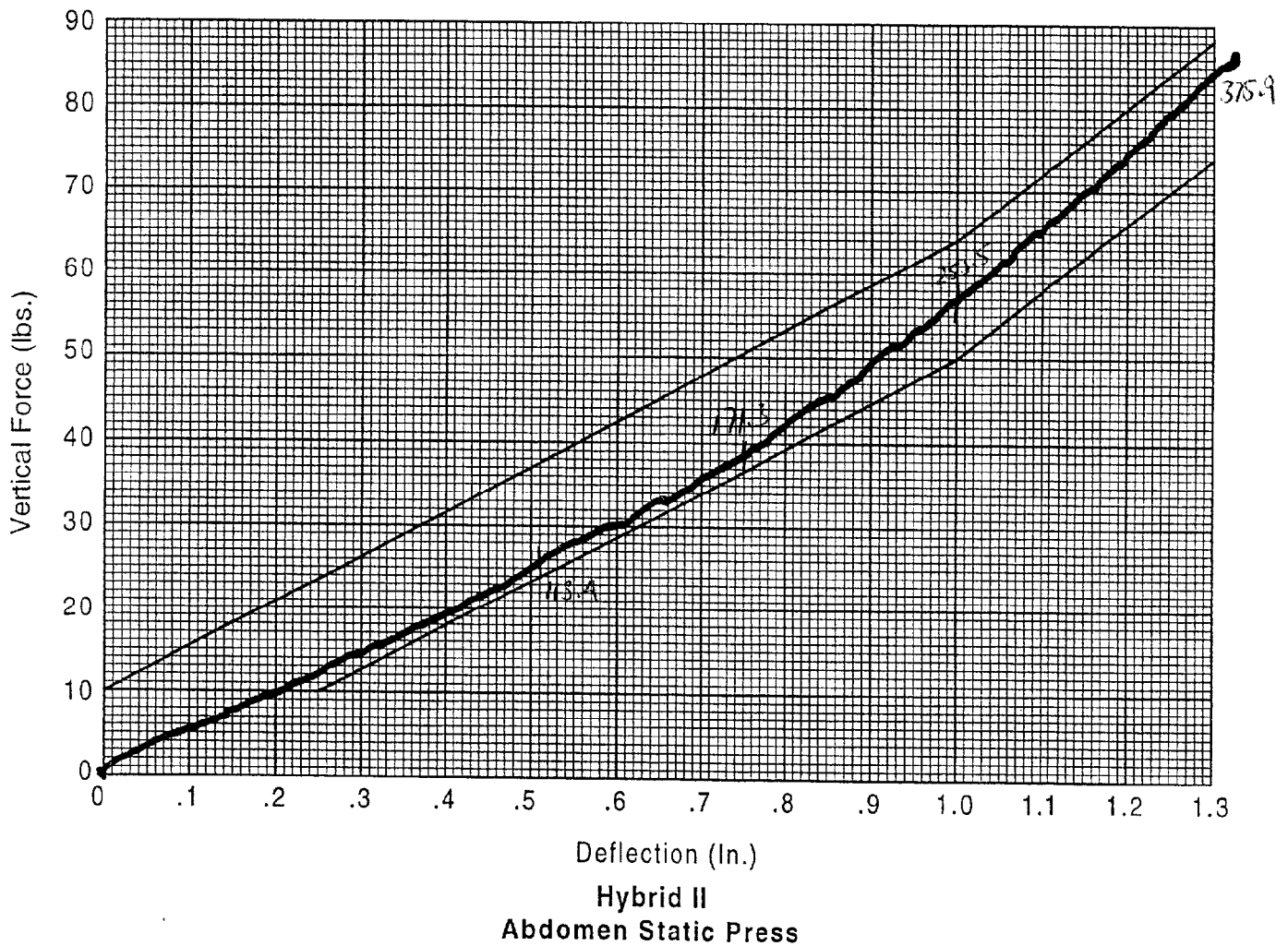
Date 2-18-99

Performed By GS

Temp. 71°

Humidity 20.7

ORIGINAL



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

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015

Calspan Sequential Test Number: 1

Date: 02-18-99

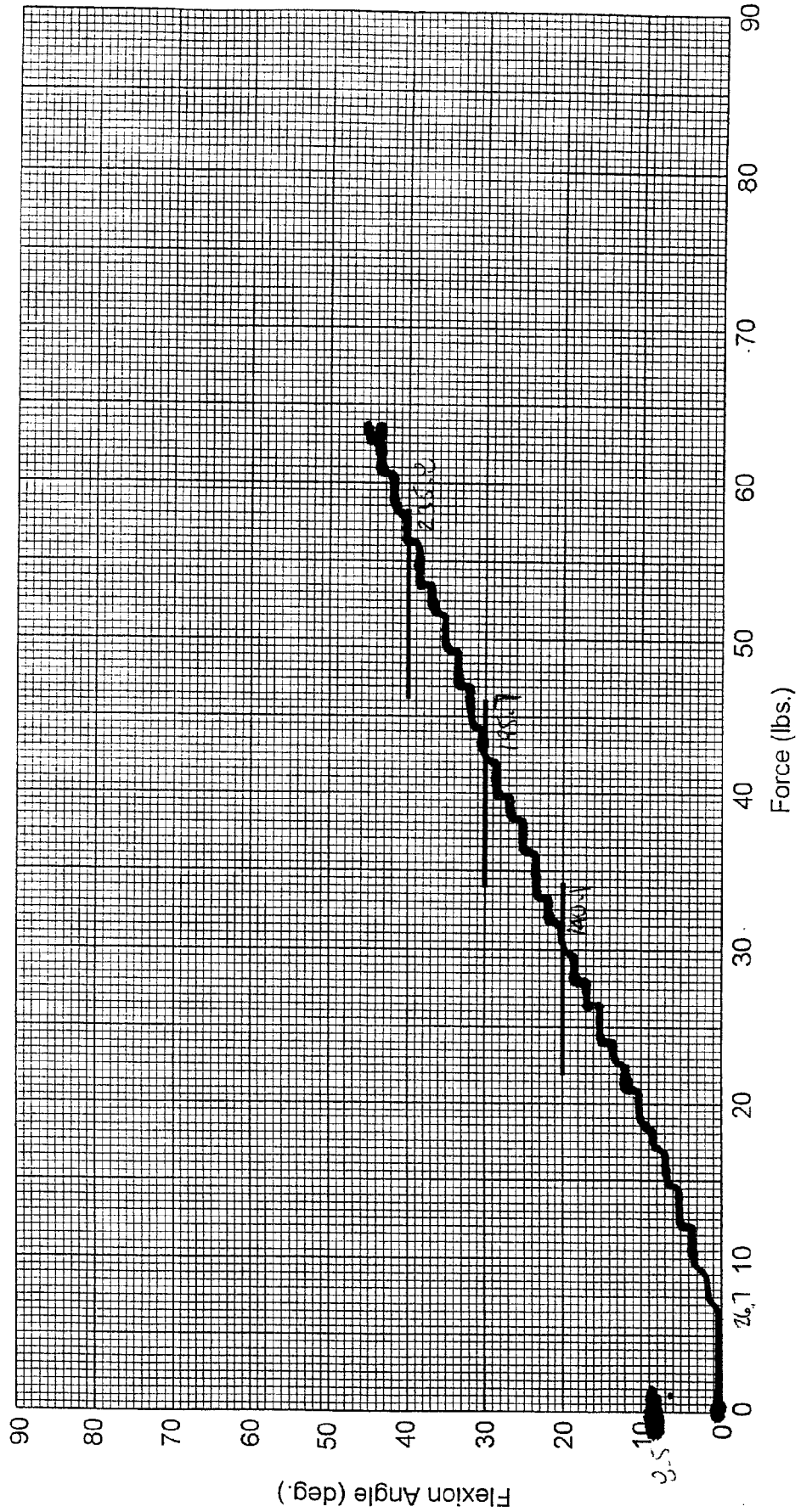
Laboratory Technician: B. Swieczicki, G. Serbinowski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	20
FORCE @ 0° (N)	0 - 26.7	26.7
FORCE @ 20° (N)	97.8 - 151.2	140.1
FORCE @ 30° (N)	151.2 - 204.6	195.7
FORCE @ 40° (N)	204.6 - 258	235.8
RETURN ANGLE	12° max.	8.5

REMARKS: None

Dummy S/N 015
 W/A _____
 Date 2-18-99
 Performed By [Signature]
 Temp. 71°
 Humidity 20%

ORIGINAL



Hybrid II Lumbar Spine Flexion Test

POST TEST DUMMY INSPECTION LIST

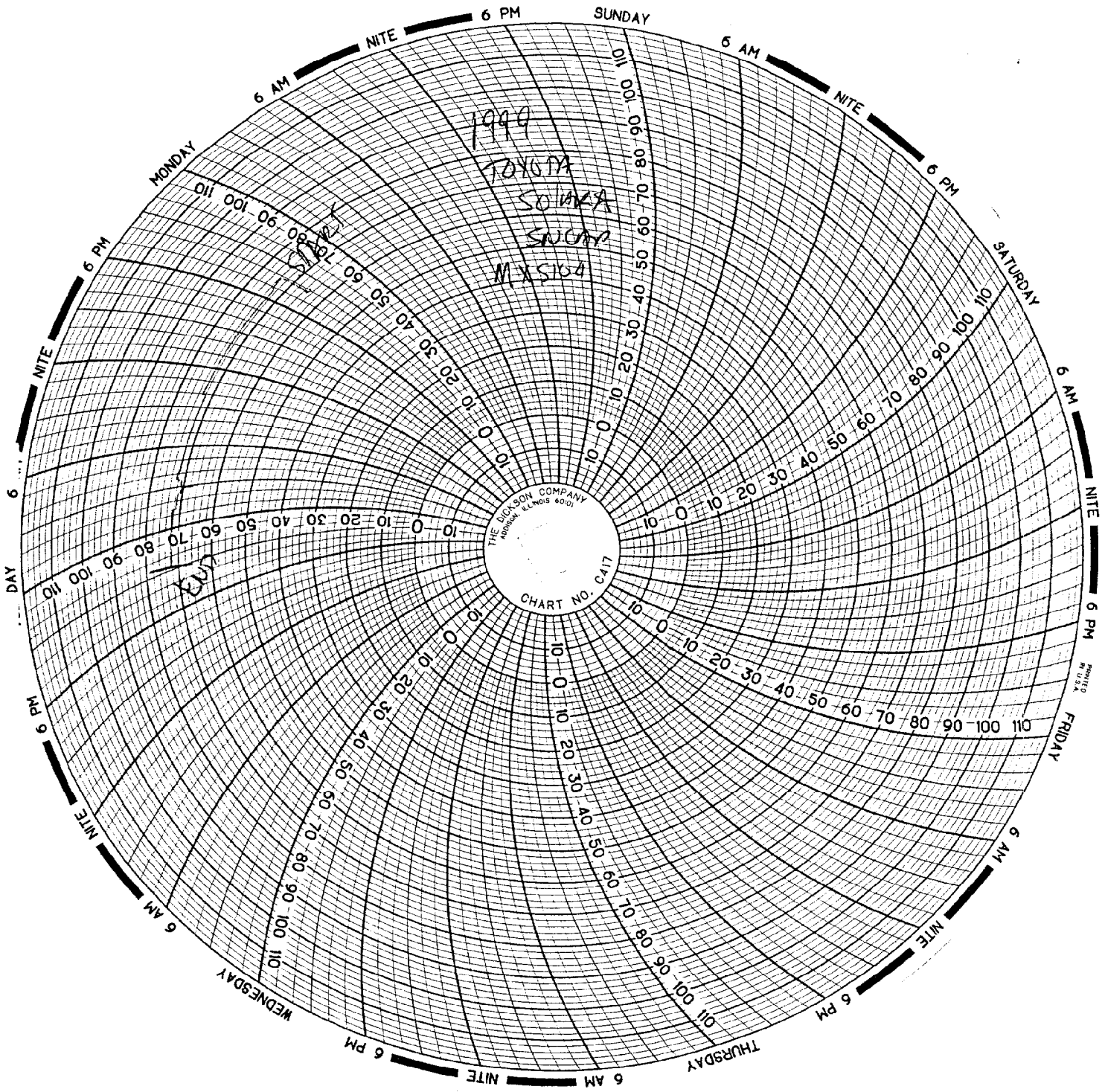
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 015
Date: 02-18-99

Calspan Sequential Test Number: 1
Laboratory Technician: B. Swiecicki, G. Serbinowski

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



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
UPPER RIB	A14256	Endevco	12/08/98
LOWER RIB	A14314	Endevco	12/07/98
LOWER SPINE	A13941	Endevco	12/02/98
PELVIS	A14131	Endevco	01/25/99
UPPER RIB REDUNDANT	A13012	Endevco	12/21/98
LOWER RIB REDUNDANT	A13926	Endevco	12/21/98
LOWER SPINE REDUNDANT	A13937	Endevco	12/02/98
PELVIS REDUNDANT	A13850	Endevco	12/28/98

REAR SID NO.: 015			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
UPPER RIB	A14173	Endevco	12/21/98
LOWER RIB	A13568	Endevco	12/21/98
LOWER SPINE	A13565	Endevco	12/22/98
PELVIS	A14172	Endevco	09/01/98
UPPER RIB REDUNDANT	A12776	Endevco	12/21/98
LOWER RIB REDUNDANT	A13599	Endevco	12/21/98
LOWER SPINE REDUNDANT	A13599	Endevco	12/22/98
PELVIS REDUNDANT	B11351	Endevco	09/01/98

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)	J18650	Endevco	10/27/98
RIGHT FRONT SILL (Y)	J18429	Endevco	08/28/98
RIGHT FRONT SILL (Z)	AN943	Endevco	10/27/98
RIGHT REAR SILL (X)	APBB6	Endevco	10/21/98
RIGHT REAR SILL (Y)	J18400	Endevco	10/21/98
RIGHT REAR SILL (Z)	J18469	Endevco	10/21/98
REAR FLOORPAN ABOVE AXLE (X)	J18622	Endevco	10/15/98
REAR FLOORPAN ABOVE AXLE (Y)	AP1B7	Endevco	10/14/98
REAR FLOORPAN ABOVE AXLE (Z)	AN967	Endevco	10/14/98
LEFT REAR SILL (Y)	Z02	Entran	11/25/98
LEFT FRONT SILL (Y)	D03	Entran	11/25/98
LEFT FRONT DOOR CENTERLINE (Y)	AP1B5	Endevco	12/28/98
RIGHT REAR SEAT OCCUPANT COMP. (Y)	D69	ICS	08/18/98
MID REAR OF LEFT FRONT DOOR (Y)	J18406	Endevco	12/28/98
LEFT FRONT DOOR UPPER C/L (Y)	J18570	Endevco	12/02/98
MID REAR OF LEFT REAR DOOR (Y)	J18515	Endevco	01/27/99
LEFT REAR DOOR UPPER C/L (Y)	J18555	Endevco	10/27/98
LOWER LEFT B- PILLAR (Y)	J18646	Endevco	08/28/98
MIDDLE LEFT B-PILLAR (Y)	J18439	Endevco	09/01/98
LOWER LEFT A-PILLAR (Y)	AN25	Endevco	12/28/98
UPPER LEFT A-PILLAR (Y)	D79	ICS	12/11/98
FRONT SEAT TRACK (Y)	Z08	Entran	11/25/98
REAR SEAT TRACK (Y)	AP064	Endevco	10/21/98
VEHICLE CG (X)	AC7W8	Endevco	11/24/98
VEHICLE CG (Y)	AHRC9	Endevco	11/24/98
VEHICLE CG (Z)	ACC06	Endevco	11/24/98
MDB CG (X)	CL60	Endevco	09/17/98
MDB CG (Y)	CJ54	Endevco	09/17/98
MDB CG (Z)	CH35	Endevco	09/18/98
MDB REAR FRAME MEMBER (X)	FL04	Endevco	09/17/98
MDB REAR FRAME MEMBER (Y)	GL77	Endevco	09/19/98

REMARKS: None