

REPORT NUMBER: CAL-92-NO4

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

HONDA MOTOR COMPANY
1992 ACURA VIGOR LS
4-DOOR SEDAN

NHTSA NUMBER: MN5300

CALSPAN TEST NUMBER: 7946-4

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FINAL REPORT

PREPARED FOR:

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National Highway Traffic Safety Administration
Office of Market Incentives
400 Seventh Street, S.W.
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16. Abstract A frontal load cell barrier test of a 1992 Acura Vigor LS 4-Door Sedan was performed at Calspan Advanced Technology Center crash test facility in Buffalo, New York on October 8, 1991. The impact speed was 35.3 mph and the ambient temperature at the barrier face at the time of impact was 59°F. The maximum post-test vehicle crush was 20.7 inches. The test vehicle was equipped with a 3-point continuous belt system at each of the front outboard seating positions. The test vehicle was also equipped with a driver side airbag as a supplemental restraint device. With regard to FMVSS 208 "Occupant Crash Protection", injury criteria, the driver appears to exceed the maximum chest resultant and the passenger appears to exceed the maximum Head Injury Criteria.					
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Section 1
PURPOSE AND TEST PROCEDURE

This 35 mph frontal barrier impact test is part of the Composite FY 90 Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-90-D-02121. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 30 mph requirements.

The 35 mph frontal barrier impact test was conducted in accordance with the Office of Market Incentives (OMI) Laboratory Indicant Test procedure.

Section 2

SUMMARY OF TEST NUMBER MN5300

A load cell barrier consisting of 36 load cells was impacted by a 1992 Acura Vigor LS 4-Door Sedan at a velocity of 35.3 mph. The test was performed at the Calspan Corporation Advanced Technology Center on October 8, 1991. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The frontal barrier impact event was documented by one real-time camera and 15 high-speed cameras. Camera locations and other pertinent camera information can be found in this report.

Two Part 572, 50th percentile male anthropomorphic test devices (ATDs), were placed in the driver and right-front passenger seating positions according to dummy placement instructions specified in the Laboratory Indicant Test Procedure.

Both ATDs were fully instrumented with head and chest triaxial accelerometers and right/left femur load cells. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver ATD (Serial No. 358) was used in previous tests, MN5100 and MN5600. Injury criteria values were not exceeded for this ATD on both tests. The right front passenger ATD (Serial No. 320) was calibrated prior to this test. Certification details, along with instrumentation calibration data, are found in Appendices C and D.

The 67 channels of data were recorded on six 14-channel FM tape recorders. Appendix B contains the vehicle, load cell barrier and dummy response data traces. Accelerometer #3(x), located on the top of engine block, sustained a pinched wire at approximately 37 milliseconds. Accelerometer #5(x), located on the right front disc brake caliper, did not record accurately after approximately 39 milliseconds. The velocity and displacement data traces have been removed from this report for both accelerometers. Position 2 left femur transducer and Position 2 belt elongation potentiometer did not record accurately during test.

The driver's head HIC was 914.3. The maximum chest deceleration over 3 milliseconds was 66.0 g's and femur loads were 675.6 and 1656.9 pounds.

The right front passenger's HIC was 1191.7 and maximum chest deceleration over 3 milliseconds was 49.8 g's. The maximum right femur load was 621.5 pounds. The maximum left femur load will not be given due to the inaccuracy of the data trace.

Table 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Vehicle Year/Make/Model/Body Style: 1992 Acura Vigor LS 4-Door Sedan

NHTSA Test No.: MN5300 VIN.: JH4CC2643NC007281

Body Color: White Date of Manufacture: June 1991

Engine: 5 Cylinders; 150 C.I.D.; - Liters; - CC
X Gas; - Diesel; - Turbocharged
X Longitudinal; - Transverse

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

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

Date Received: 8-23-91 Odometer Reading: 77 miles

X A/C; X P/S; X P/B; X P/wdo;
X Tilt Wheel - P/seats; X Cruise Control

Type of Occupant Restraint: Driver Side Airbag; 3-point continuous belt restraints

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): Front 30 psi, Rear 28 psi

Recommended Tire Size: 205/60R15

Recommended Cold Tire Pressure: Front 30 psi, Rear 28 psi

Tires on Vehicle: 205/60R15; Manufacturer: Yokohama

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 Adj. With X Lever - Rot. Knob

Vehicle Capacity Weight (VCW) = 850 lbs. (A)

No. of Occupants x 150 lbs. = 750 lbs. (B)

Rated Cargo and Luggage
Weight (RCLW) A-B = 100 lbs.

GVWR 4245 lbs. GAWR: Front 2260 lbs. Rear 2050 lbs.

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (WITH MAXIMUM FLUIDS) = UDW:

Right Front = 960 lbs. Right Rear = 650 lbs.
 Left Front = 940 lbs. Left Rear = 620 lbs.
 TOTAL FRONT WEIGHT = 1900 lbs. (59.9 % of Total Vehicle Weight)
 TOTAL REAR WEIGHT = 1270 lbs. (40.1 % of Total Vehicle Weight)
 TOTAL DELIVERED WEIGHT = 3170 lbs.

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight (3170 lbs.)
 VCW = Vehicle Capacity Weight (850 lbs.)
 DSC = Designated Seating Capacity (5)
 RCLW = VCW - 150 (DSC) = 100 lbs.
 Target Test Weight = UDW + RCLW + (2 dummies x 164 lbs./dummy)
 Target Test Weight = 3598 lbs.

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 92 POUNDS CARGO:

Right Front = 960 lbs. Right Rear = 820 lbs.
 Left Front = 990 lbs. Left Rear = 820 lbs.
 TOTAL FRONT WEIGHT = 1950 lbs. (54.3 % of Total Vehicle Weight)
 TOTAL REAR WEIGHT = 1640 lbs. (45.7 % of Total Vehicle Weight)
 TOTAL TEST WEIGHT = 3590 lbs.
 Weight of ballast secured in vehicle trunk area = 0 lbs.

VEHICLE ATTITUDE (all dimensions in inches):

Delivered Attitude: RF 26.6" LF 26.9" RR 27.4" LR 27.6"
 Test Attitude: RF 26.5" LF 26.1" RR 25.7" LR 26.8"
 Wheel Base: 110.3 in.; C.G. = 50.4 in. rearward of front wheel C/L
 Remarks: 16.0 gallons of Stoddard solution was placed in fuel tank.

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

POST-IMPACT DATA:

Type of Test: Frontal Barrier Impact Angle: 0 °
 Date of Test: October 8, 1991 Time of Test: 12:15
 Ambient Temperature: 59 °F at impact area
 Temperature in Occupant Compartment: 70 °F
 Windshield Molding Temperature: 71 °F
 Required Impact Velocity Range: 34.5 to 35.5 mph
 Impact Velocity: primary = 35.3 mph, secondary = 35.3 mph
 Distance From Front Bumper to Barrier Face When
 Entering Speed Trap: 52 inches
 Exiting Speed Trap: 12 inches

VEHICLE REBOUND AND CRUSH (inches):

Vehicle Length: Pre-test = R 183.9 C_L 189.8 L 183.8
 Post-test = R 166.1 C_L 169.1 L 167.1
 Crush = R 17.8 C_L 20.7 L 16.7

Distance from front of test vehicle to point of impact:

R 15.3 C_L 11.3 L 15.1

VISIBLE DUMMY CONTACT POINTS:

	<u>Driver</u>	<u>Passenger</u>
Head	<u>Top of Head-Airbag</u>	1) chin contacted chest 2) Top of head contacted lower right femur. <u></u>
Chest	<u>Air Bag</u>	<u>No Contact</u>
Abdomen	<u>Air Bag</u>	<u>No Contact</u>
Left Knee	<u>Slight contact with Dash panel</u>	<u>Dash panel</u>
Right Knee	<u>Slight contact with Dash panel</u>	<u>Dash panel</u>

Table 1
GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

	<u>Front</u>		<u>Rear</u>	
	<u>Left</u>	<u>Right</u>	<u>Left</u>	<u>Right</u>
Door Opening	<u>Operable</u>	<u>Operable</u>	<u>Operable</u>	<u>Operable</u>

	<u>Front</u>		<u>Rear</u>	
<u>Seat Movement</u>	<u>Left</u>	<u>Right</u>	<u>Left</u>	<u>Right</u>
Seat Back Failure	<u>None</u>	<u>None</u>	<u>-</u>	<u>-</u>
Seat Shift (in.)	<u>0.0</u>	<u>0.0</u>	<u>-</u>	<u>-</u>

Glazing Damage

Backlight/Windshield Windshield sustained stress fractures but remained intact.

Other Notable Impact Effects: None

Section 3
OMI FINAL DATA

Occupant and Vehicle Information

I. OMI DATA

1. Dummy Injury Criteria Data Summary
2. Dummy Positioning Data
3. Seat Belt Positioning Data
4. Seat Belt Performance Assessment Data
5. Driver Dummy to Steering Column Dimensions
6. Camera Locations
7. Vehicle Target Locations

II. OVR DATA

1. Load Cell Barrier Data
2. Vehicle Accelerometer Data
3. Test Vehicle Measurements

Table 2

DUMMY INJURY CRITERIA VALUESNHTSA No.: MN5300 Vehicle: 1992 Acura Vigor LS 4-Door Sedan

	MAXIMUM HEAD ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-68.3	-25.3	55.5	88.2
Position #2 - Passenger	-55.7	20.7	77.4	79.4

	MAXIMUM CHEST ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-68.4	-24.0	18.0	66.0
Position #2 - Passenger	-47.9	25.9	-23.3	49.8

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

	MAXIMUM FORCE - FEMUR LOAD (lbs.)	
	LEFT FEMUR	RIGHT FEMUR
Position #1 - Driver	675.6	1656.9
Position #2 - Passenger	N/A	621.5

	MAXIMUM FORCE - SEAT BELT LOADS (lbs.)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
Position #1 - Driver	1742.9	-	1611.9
Position #2 - Passenger	2181.3	1550.2	-

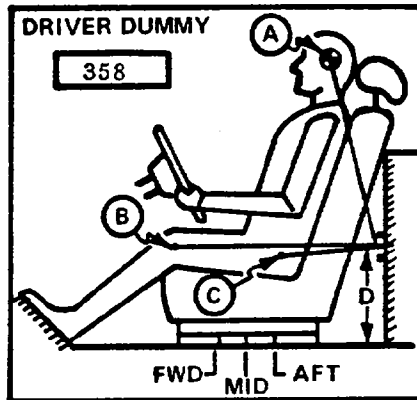
	HEAD INJURY CRITERIA (HIC)			
	HIC	t ₁ (SEC)	t ₂ (SEC)	Average Acceleration t ₁ TO t ₂
Position #1 - Driver	914.3	.05940	.09156	60.46
Position #2 - Passenger	1191.7	.07308	.10896	64.35

HIC is as defined in FMVSS 208. The maximum time interval from t₁ to t₂ is 36 milliseconds.

Figure 1
PART 572 DUMMY IN-VEHICLE POSITION

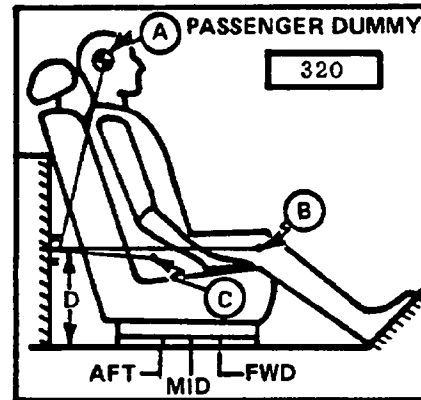
Test No.: MN5300 Vehicle: 1992 Acura Vigor LS 4-Door Sedan

<u>SEAT TYPE:</u>	<u>ADJUSTER TYPE:</u>	<u>SEAT BACK TYPE:</u>
<u> </u> Bench	<u> X </u> Manual	<u> </u> Fixed
<u> X </u> Bucket	<u> </u> Power	<u> X </u> Adjustable Reclining
<u> </u> Split Bench		



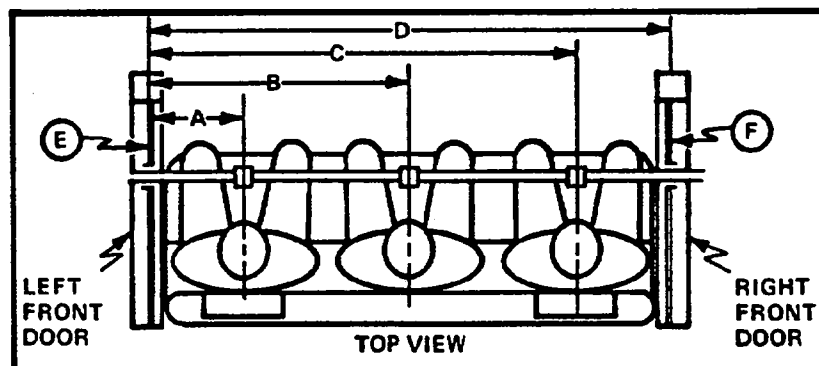
MEASUREMENT
LOCATION

- A - Head Target
- B - Knee Joint
- C - Approximate 'H' Point
- D - Sill to Reference Point



A = 17.8 in. -12 Degrees
 B = 20.7 in. 105 Degrees
 C = 8.7 in. 154 Degrees
 D = 15.0 in.

A = 18.4 in. -10 Degrees
 B = 20.0 in. 107 Degrees
 C = 8.7 in. 155 Degrees
 D = 15.0 in.



S/N 358

DUMMY ID

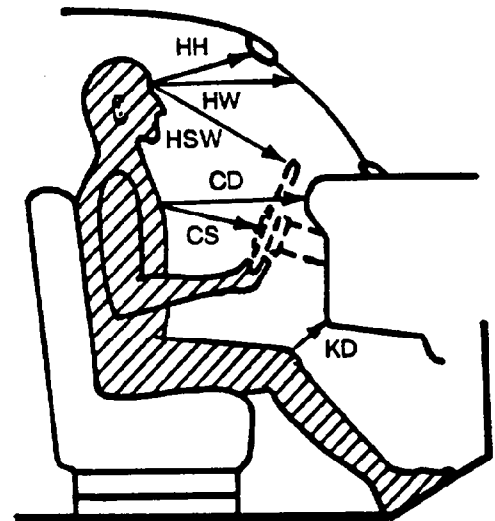
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A = Left Door to Driver Centerline	<u> 12.4 </u> in.
B = Left Door to Center Passenger Centerline	<u> - </u> in.
C = Left Door to Right Passenger Centerline	<u> 39.1 </u> in.
D = Left Door to Right Door	<u> 51.3 </u> in.
E, F = Window Glass Height (Right and Left Must Be Equal)	<u> 9.0 </u> in.

Figure 2

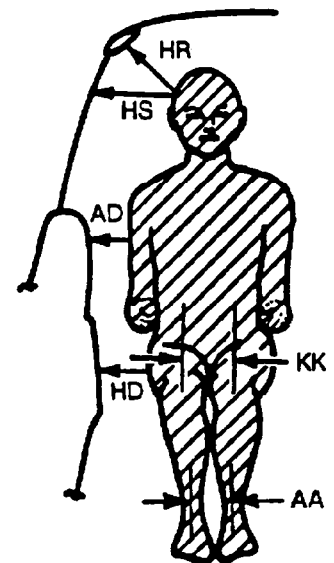
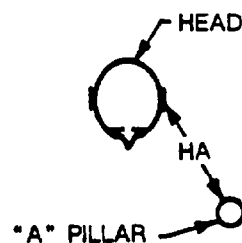
OCCUPANT CLEARANCE DIMENSIONS

	DRIVER (inches)	PASSENGER (inches)
HH	16.0	15.6
HW	22.9	22.3
CD	24.0	23.5
CS	15.8	-
KDL	6.1	6.6
KDR	6.5	7.5
SA	See Note	See Note
TA	25°	25°
HSW	22.1	-



HH = Head to Windshield Header
 HW = Head to Windshield
 HSW = Head to Steering Wheel
 CD = Chest to Dash
 CS = Chest to Steering Wheel
 KD(L/R) = Knee to Dash (Left/Right)
 SA = Seat Back Angle
 TA = Torso Angle

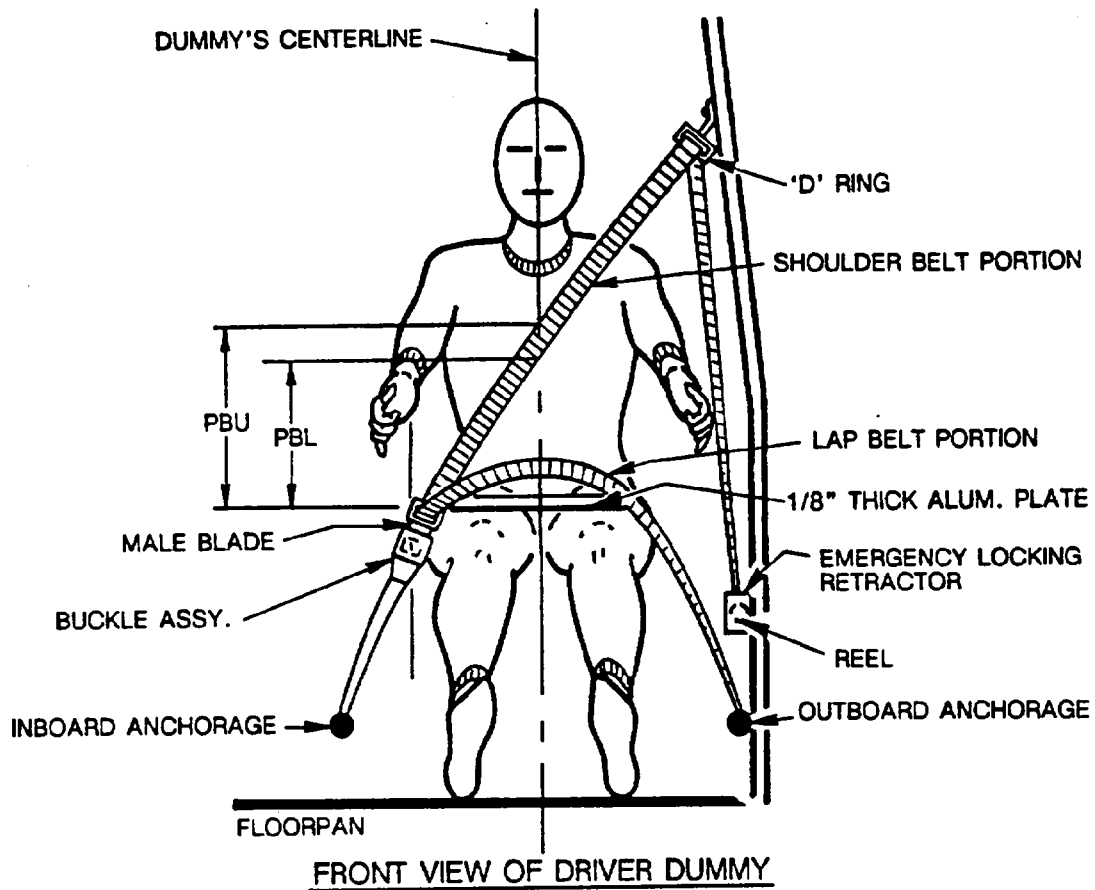
HA = Head Target to "A" Pillar
 HR = Head to Side Roof
 HS = Head to Side Window
 AD = Arm to Door
 HD = Hip to Door
 KK = Knee to Knee
 AA = Ankle to Ankle



	DRIVER (inches)	PASSENGER (inches)
HR	6.7	6.7
HS	9.2	9.1
AD	4.1	4.1
HD	5.3	5.0
KK	10.5	9.3
HA	24.1	23.2
AA	12.8	9.0

Note: Seat back was positioned according to manufacturer specifications.

Figure 3
SEAT BELT POSITIONING DATA



	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
<u>PBU</u> -- Top surface of alum. plate to upper edge	13.7	14.0
<u>PBL</u> -- Top surface of alum. plate to belt lower edge	10.5	10.8
<u>LAP BELT TENSION</u>	-	-
<u>SHOULDER BELT TENSION</u>	-	-

Table 3

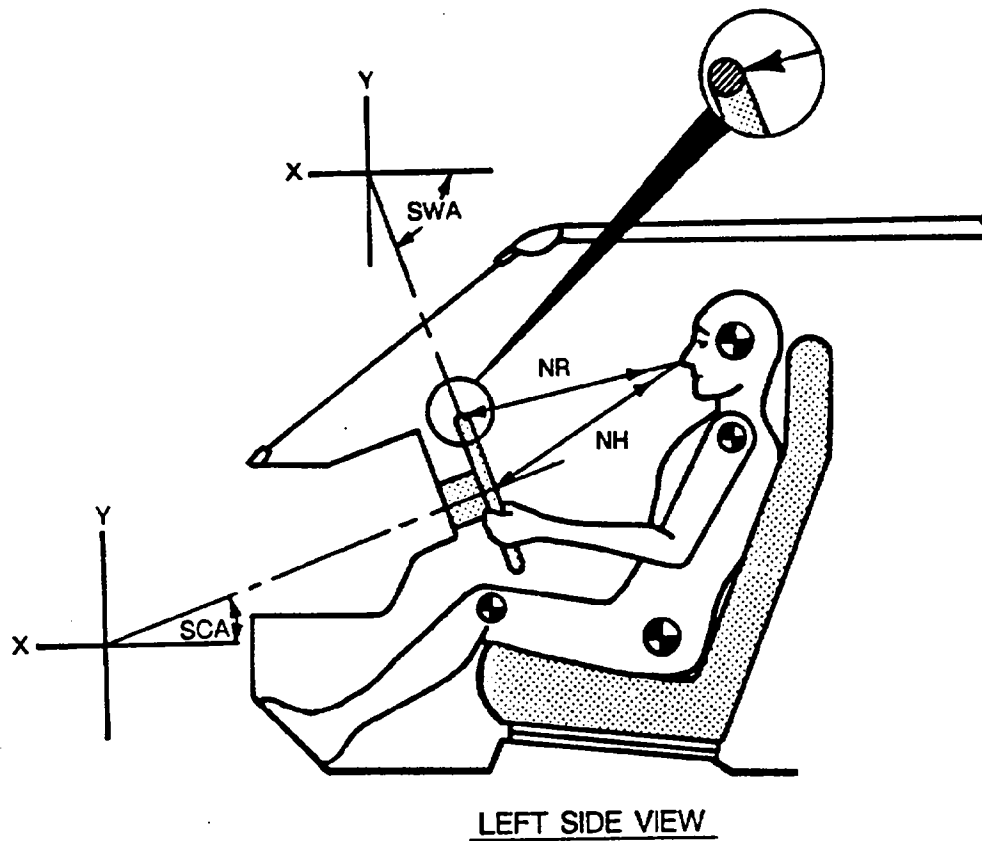
SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

<u>BELT LENGTH DATA:</u>	<u>Driver</u>	<u>Passenger</u>
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	<u>65.5</u> in.	<u>65.5</u> in.
Shoulder belt length as measured on Part 572 Dummy.	<u>30.5</u> in.	<u>30.5</u> in.
Lap belt length as measured on Part 572 Dummy.	<u>28.0</u> in.	<u>28.0</u> in.
<u>SHOULDER BELT SPOOL-OFF DATA:</u>		
As determined by film analysis.	<u>2.5</u> in.	<u>2.5</u> in.
As determined mechanically.	<u>2.3</u> in.	<u>2.4</u> in.
As determined electronically.	<u>-</u> in.	<u>-</u> in.
<u>BELT STRETCH DATA:</u>		
Measured electronically between shoulder belt load cell and the "D" ring.	<u>0.67</u> in/ft	<u>*</u> in/ft
Measured mechanically	<u>0</u> in/ft	<u>0</u> in/ft

*Belt elongation potentiometer did not record accurately during test.

Figure 4

DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSY. REFERENCE DIMENSIONS



		MEASUREMENTS	
<u>NR</u>	-- Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	20.7	Inches
<u>NH</u>	-- Distance from tip of dummy's nose to center of steering column hub	20.7	Inches
<u>SCA</u>	-- Angle of steering column relative to the horizontal X axis	22°	Degrees
<u>SWA</u>	-- Angle of steering wheel relative to the horizontal X axis	-68°	Degrees

Figure 5
CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 4

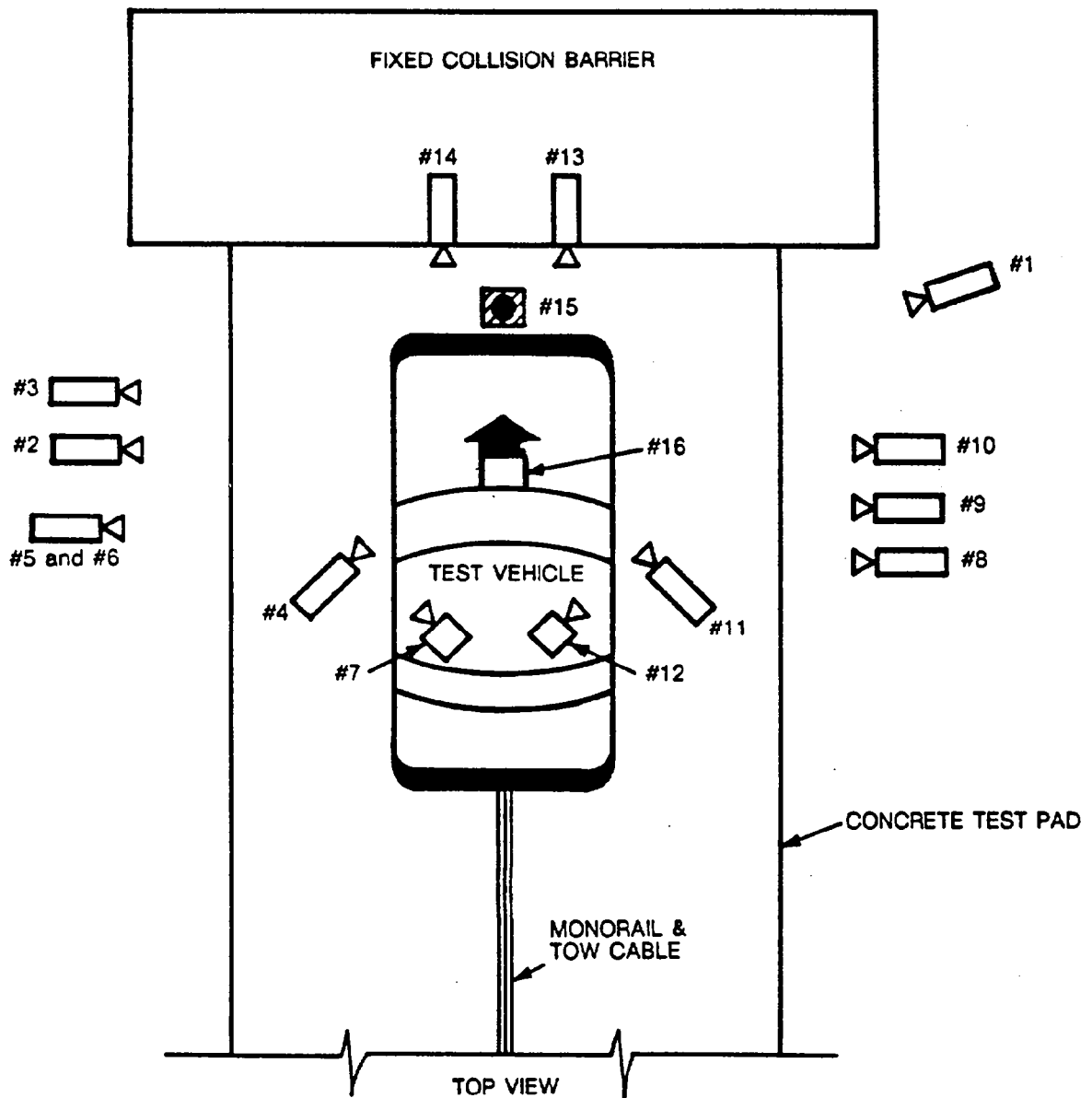


Table 4

HIGH-SPEED CAMERA LOCATIONS

CAMERA NO.	VIEW	CAMERA POSITIONS (in)*			ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	233	61	44	-4	217	13	540
3	Left Side View	272	37	41	-3	256	25	570
4	Driver and Interior View	118	105	67	-15	102	13	480
5	Steering Column (Bottom)	310	75	46	-5	294	25	540
6	Steering Column (Top)	310	75	70	-10	294	25	525
7	Left Belt	-	-	-	-	-	8	300
8	Overall Right Side	241	75	42	-4	225	13	570
9	Right Side View	308	47	41	-1	292	25	575
10	Right Passenger View	317	72	55	-4	301	35	530
11	Passenger and Interior View	120	102	67	-14	104	25	490
12	Right Belt	-	-	-	-	-	8	N.T.
13	Passenger Front View	24	-3	72	-40	-	13	550
14	Driver Front View	24	-4	72	-40	-	13	525
15	Windshield View	0	0	120	-46	-	13	540
16	Pit View of Engine	0	34	-120	90	-	13	730

*X = film plane to monorail centerline

N.T. = No Timing.

Y = film plane to impact location

Z = film plane to ground

** = referenced to horizontal plane

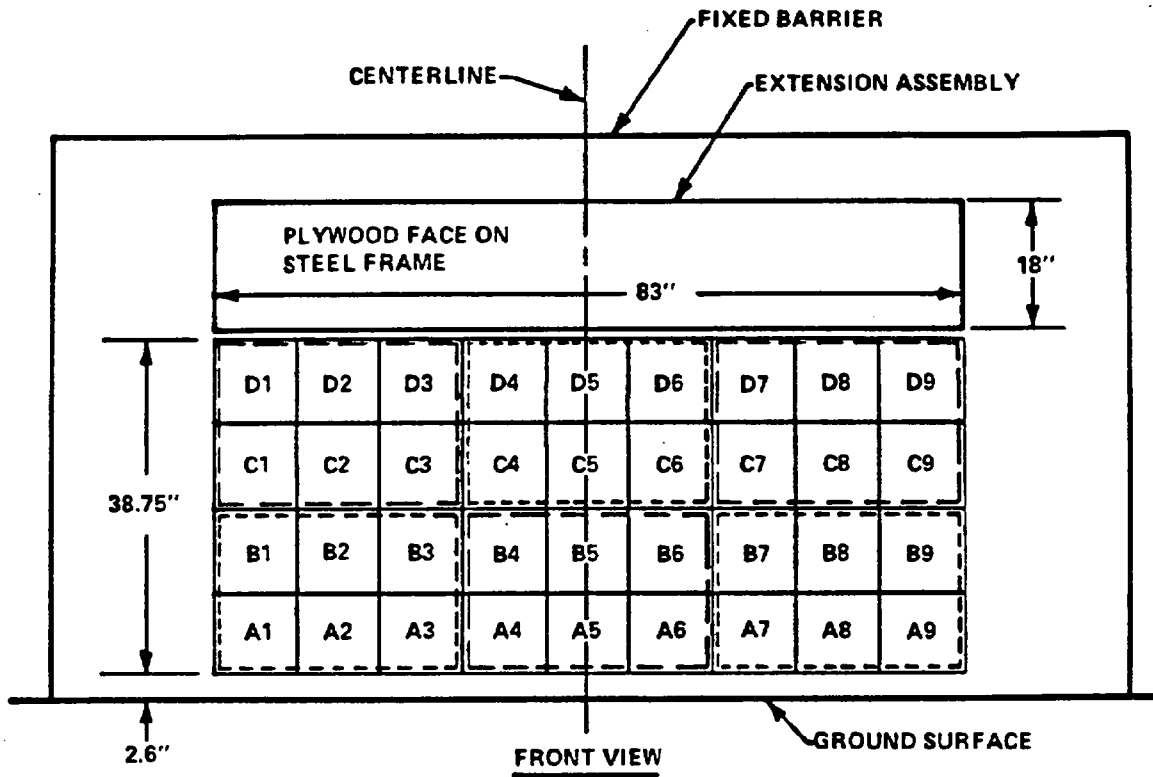
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Figure 7

LOAD CELL LOCATIONS ON FIXED BARRIER

- 36 Load Cells
- 4 Rows
- 9 Columns
- 6 Groupings (6 cells/group)



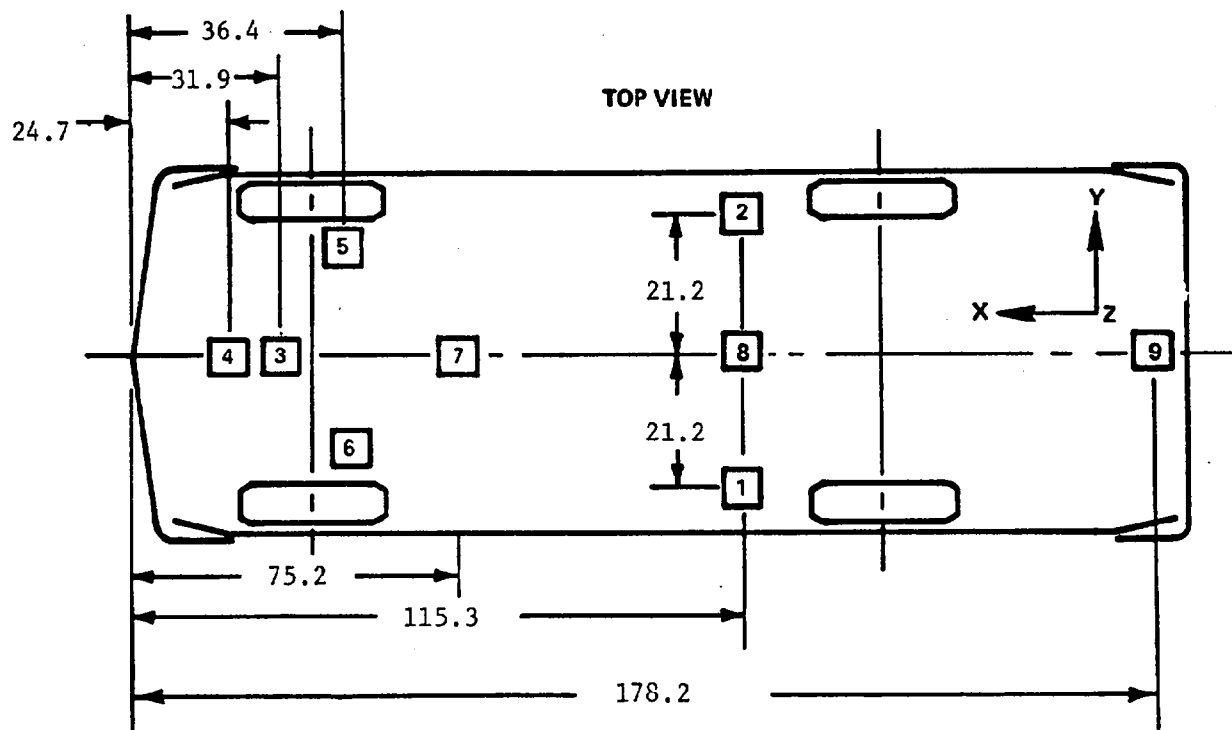
6 GROUPS OF 6 LOAD CELLS EACH

Group 4	Group 5	Group 6
C1 thru D3	C4 thru D6	C7 thru D9
Group 1	Group 2	Group 3
A1 thru B3	A4 thru B6	A7 thru B9

The following data is presented in Appendix B:

- (1) Data from 36 individual load cells
- (2) Total or Sum of 36 individual load cells
- (3) Data from 6 Groupings shown above (6 cells/group)

Figure 8
VEHICLE ACCELEROMETER LOCATIONS



ACCELEROMETER NUMBER*	ACCELEROMETER LOCATION	DIRECTION		
		X	Y	Z
1	Left Rear Seat Crossmember	X		
2	Right Rear Seat Crossmember	X		
3	Top of Engine	X		
4	Bottom of Engine	X		
5	Right Disc Brake Caliper	X		
6	Left Disc Brake Caliper	X		
7	Instrument Panel	X		
8	Rear Seat Crossmember			X
9	Trunk Centerline			X

*The accelerometer pack number can be correlated with the vehicle response data traces found in Appendix B.

Figure 9
TEST VEHICLE MEASUREMENTS

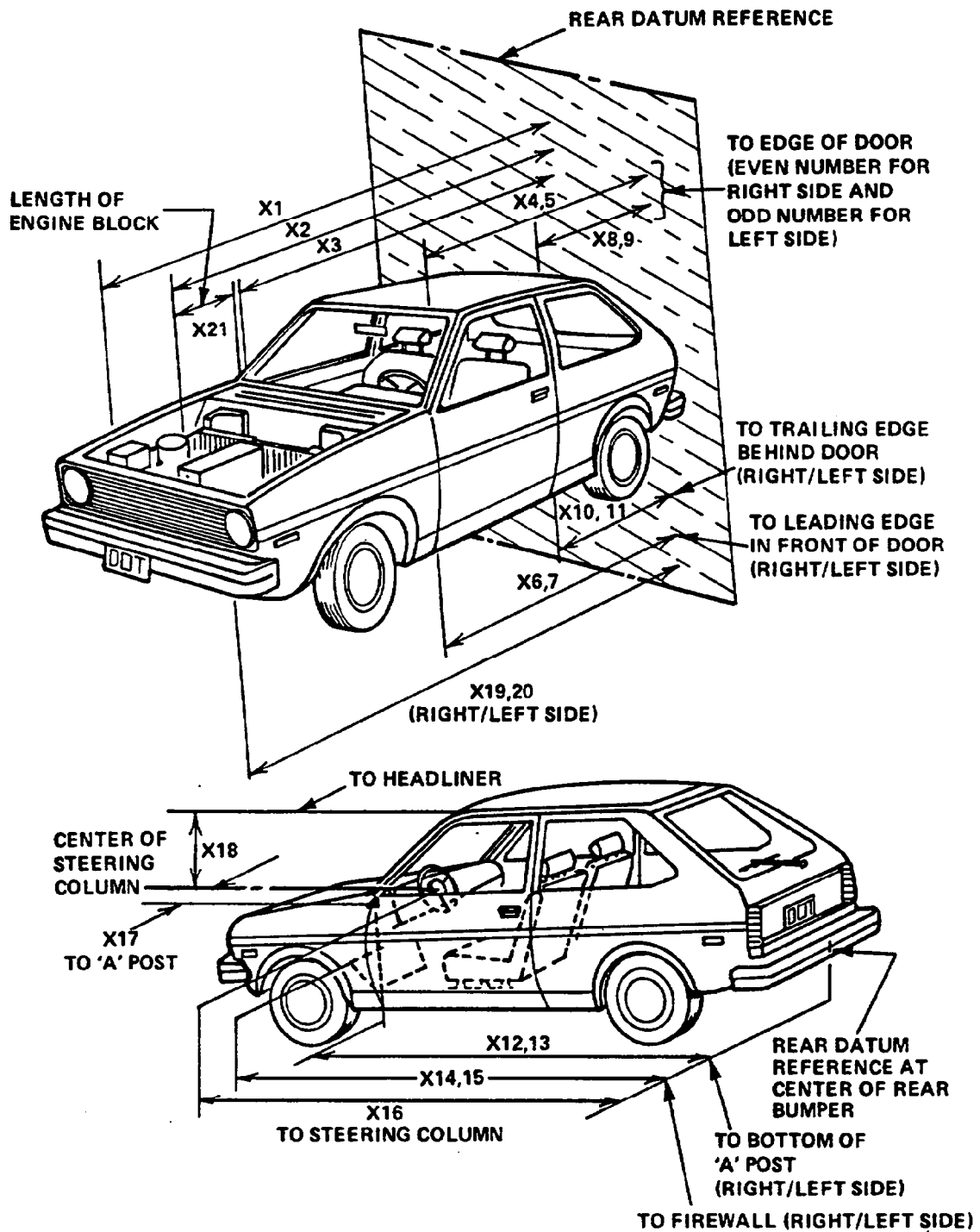


Table 5
VEHICLE MEASUREMENTS

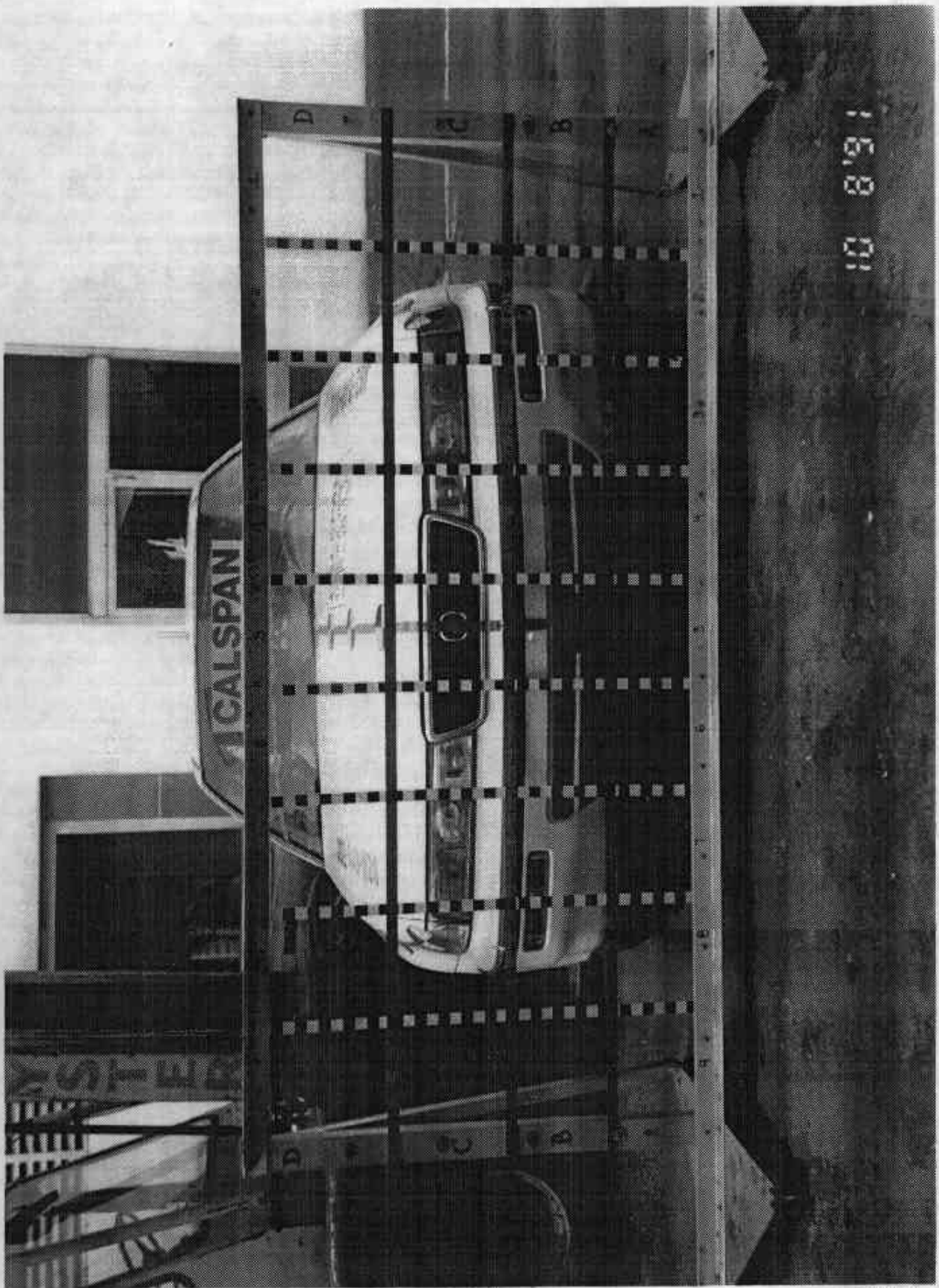
No.		All Dimensions in Inches		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	189.8	169.1	20.7
X2	Rear Surface of Vehicle to Front of Engine	169.1	160.2	8.9
X3	Rear Surface of Vehicle to Firewall	143.9	137.0	6.9
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	126.8	126.2	0.6
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	126.8	125.5	1.3
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	127.8	126.6	1.2
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	128.0	126.4	1.6
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	86.8	86.8	0.0
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	86.8	86.5	0.3
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	87.6	86.8	0.8
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	87.6	86.2	1.4
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	129.5	128.6	0.9
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	129.6	127.9	1.7
X14	Rear Surface of Vehicle to Firewall, Right Side	139.3	136.5	2.8
X15	Rear Surface of Vehicle to Firewall, Left Side	140.3	139.2	1.1
X16	Rear Surface of Vehicle to Steering Column	109.2	109.3	-0.1
X17	Center of Steering Column to "A" Post	15.1	14.9	0.2
X18	Center of Steering Column to Headliner	18.0	17.3	0.7
X19	Rear Surface of Vehicle to Right Side of Front Bumper	183.9	166.1	17.8
X20	Rear Surface of Vehicle to Left Side of Front Bumper	183.8	167.1	16.7
X21	Length of Engine Block	22.6	22.6	0.0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	117.7	116.8	0.9
CD	Rear Surface of Vehicle to Center of Dash Panel	118.3	116.4	1.9
LD	Rear Surface of Vehicle to Left Side of Dash Panel	117.3	116.2	1.1

Appendix A

PHOTOGRAPHS

PHOTOGRAPHS

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A-5	POST TEST LEFT SIDE VIEW	A-7
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A-13	POST-TEST WINDSHIELD VIEW	A-15
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A-24	PRE-TEST PASSENGER POSITION VIEW	A-26
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A-30	IMPACT VIEW	A-32



15.8 10

Figure A-1 LOAD CELL LOCATIONS



Figure A-2 PRE-TEST FRONT VIEW

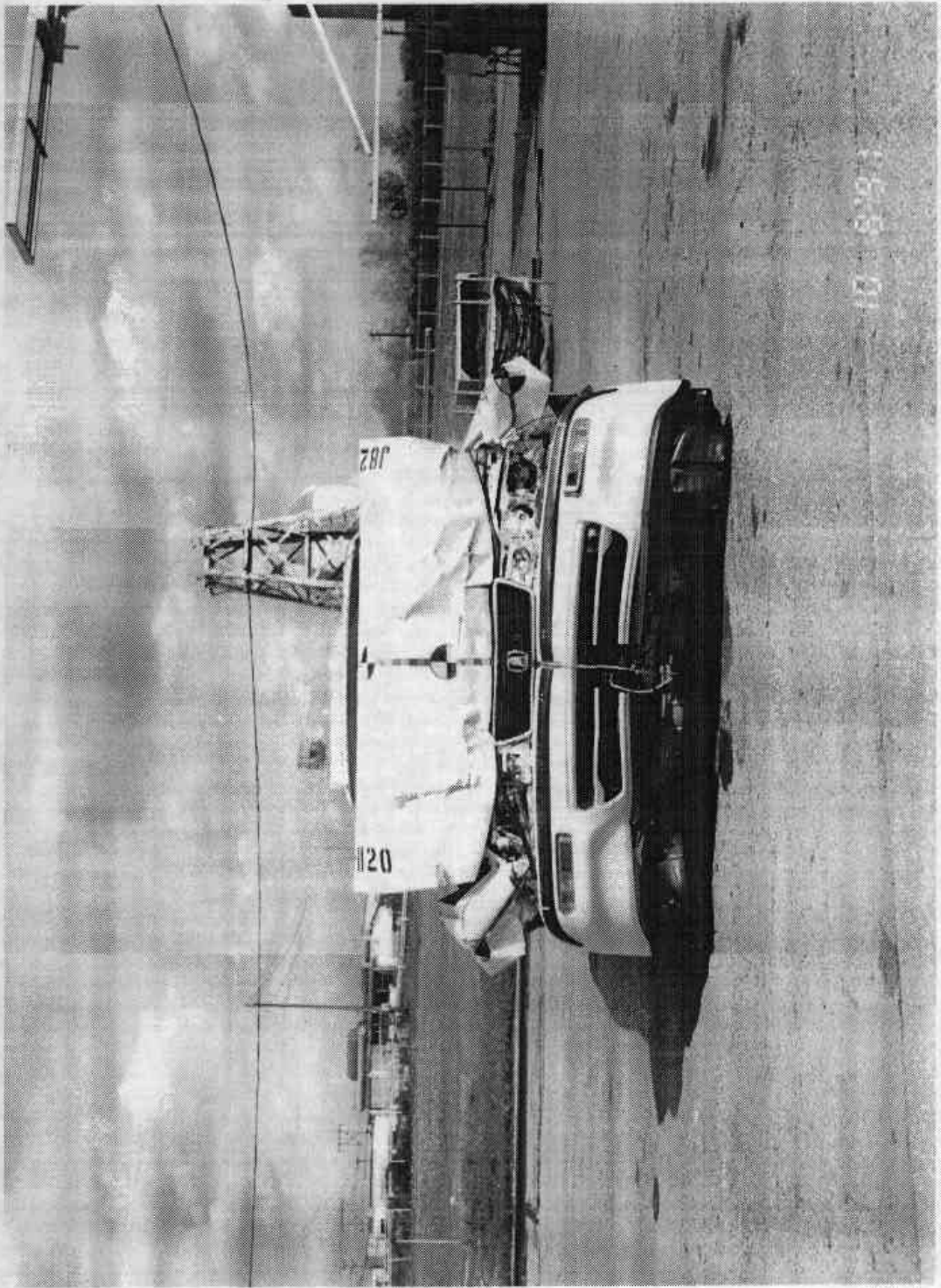


FIGURE A-3 POST TEST FRONT VIEW

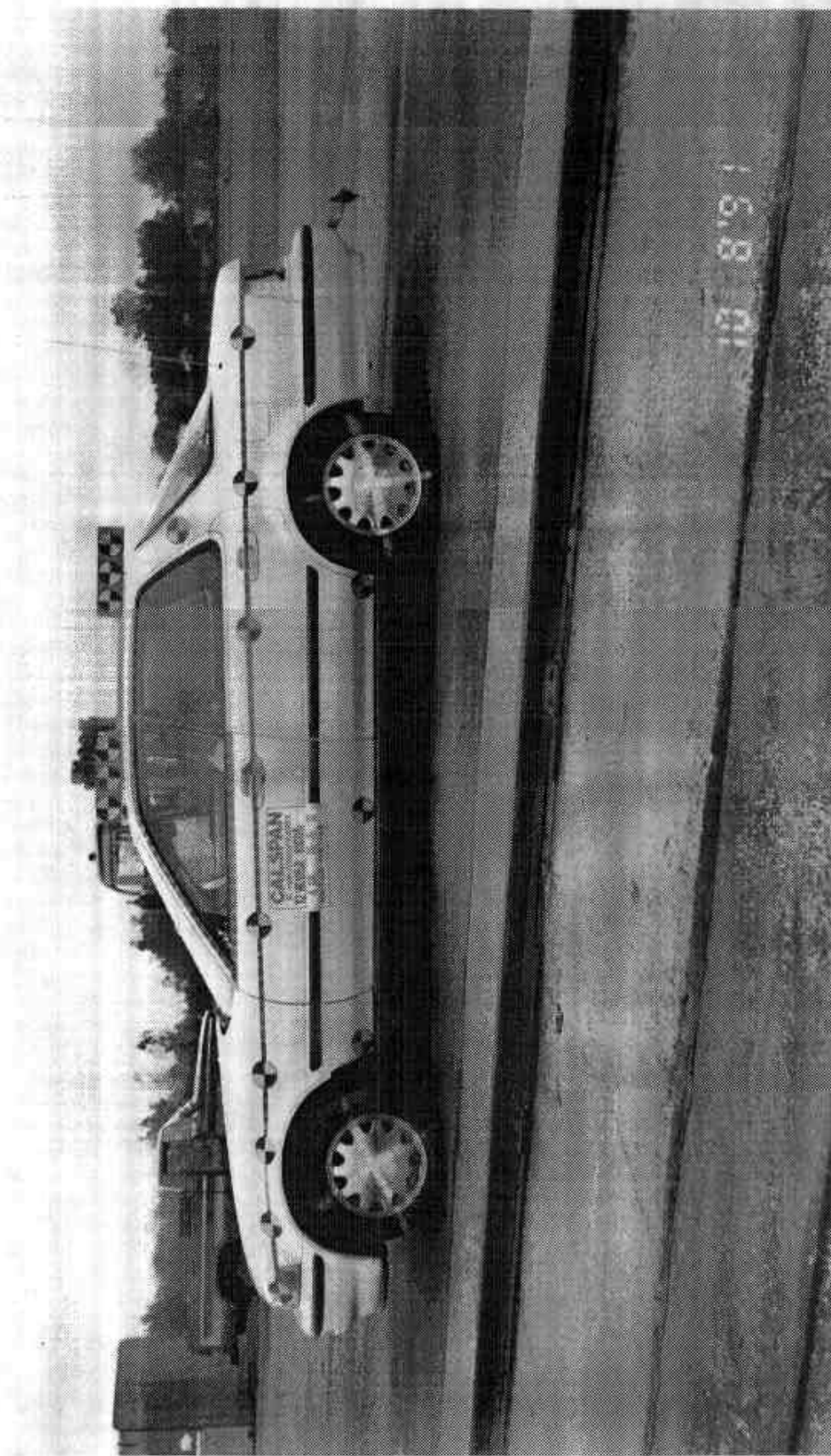


Figure A-4 PRE-TEST LEFT SIDE VIEW

A-6

7946-4

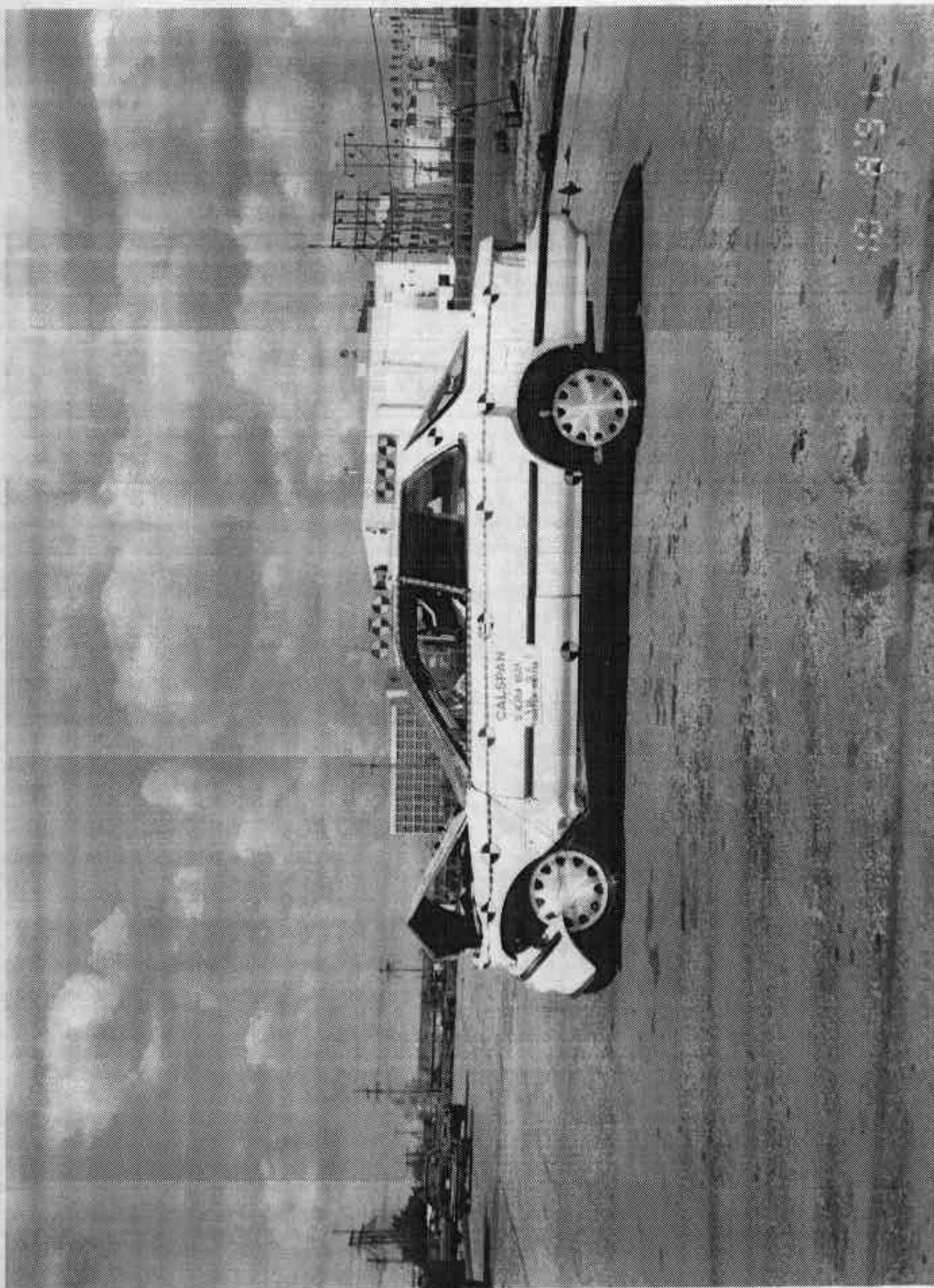


Figure A-5 POST TEST LEFT SIDE VIEW

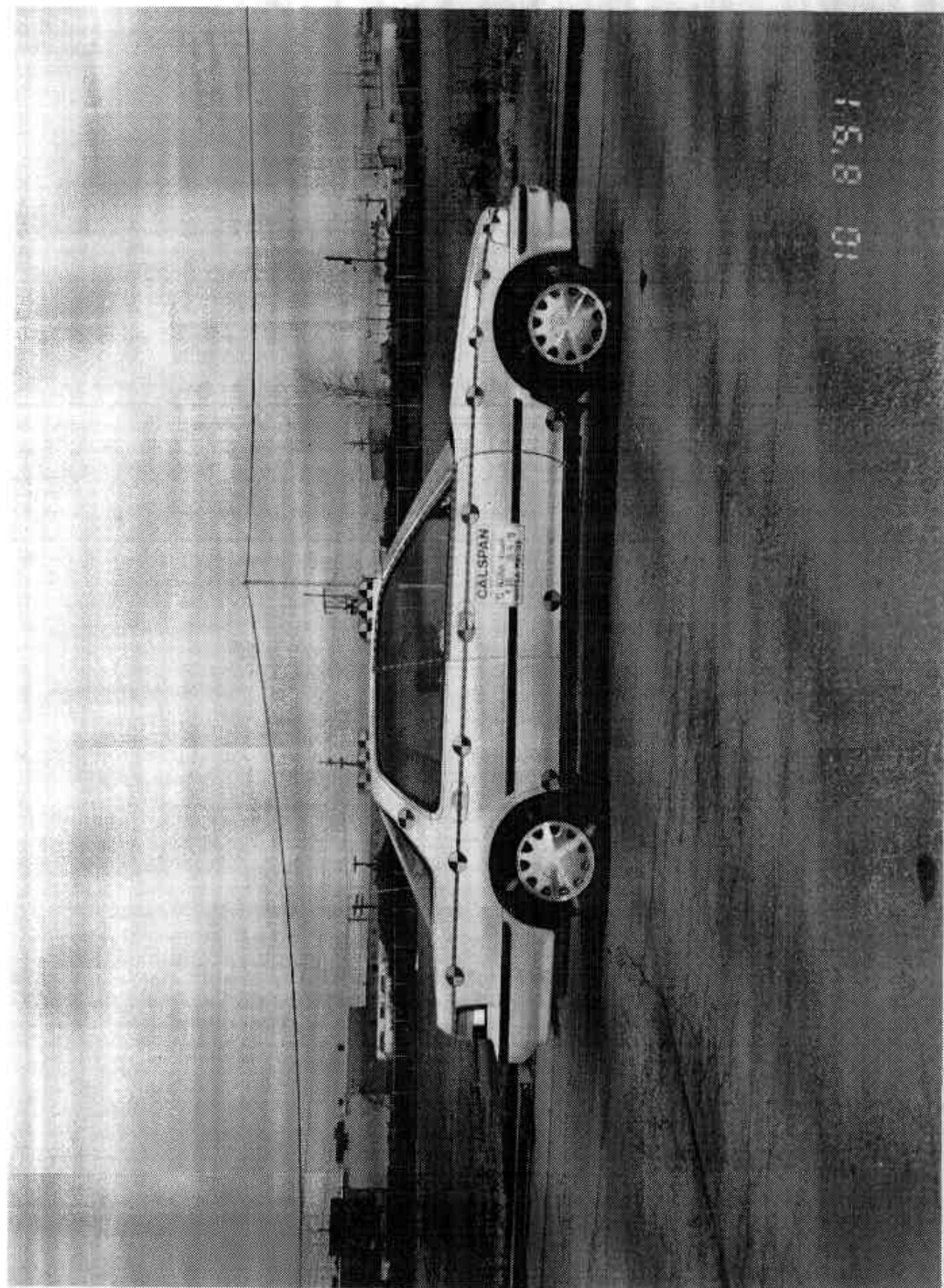


Figure A-8 PRE-TEST RIGHT SIDE VIEW

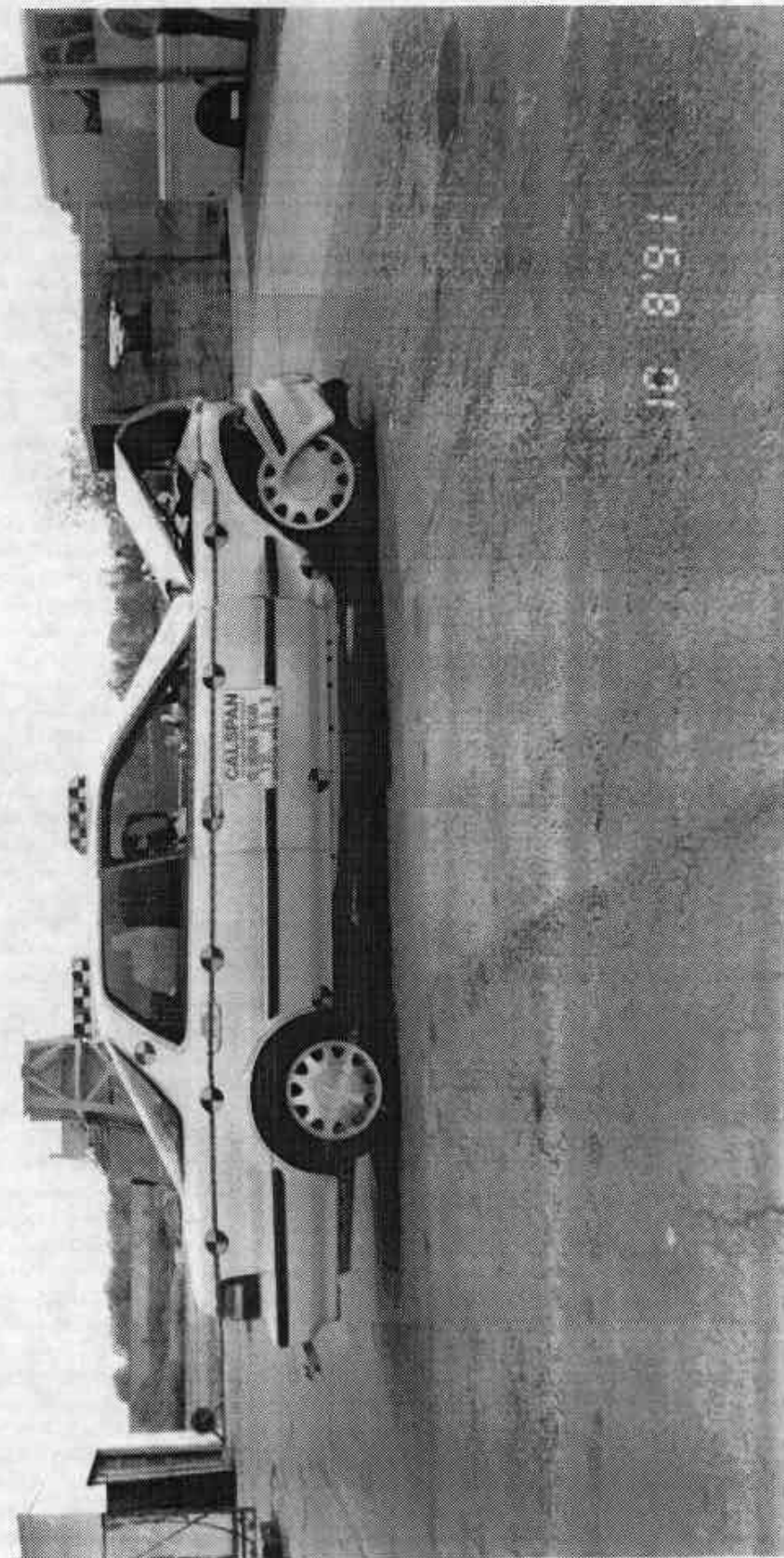


FIGURE A-7 POST-TEST RIGHT SIDE VIEW

A-9

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

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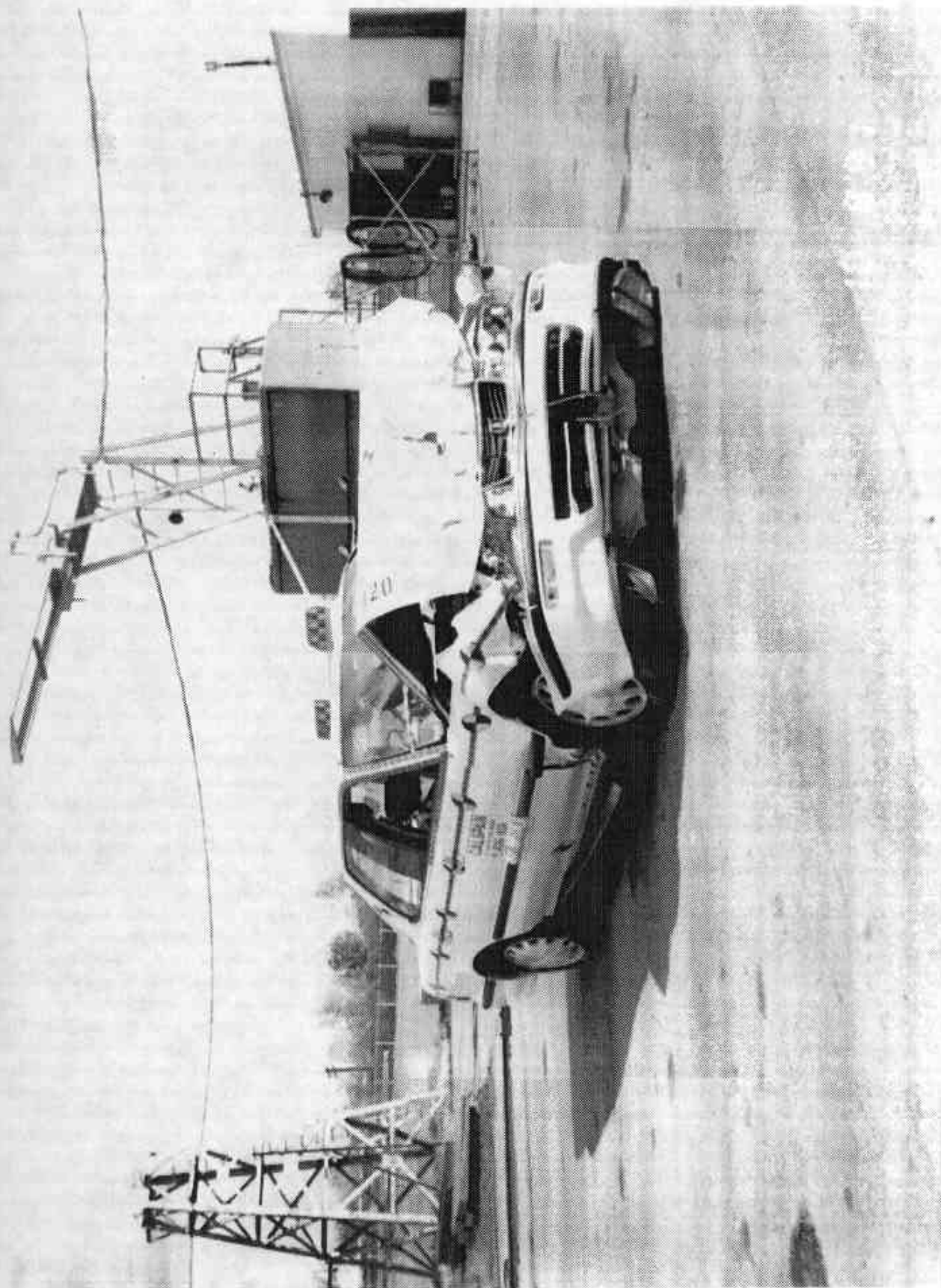


Figure A-9 POST-TEST RIGHT FRONT THREE-QUARTER VIEW

Figure A-10

PRE-TEST LEFT REAR THREE-QUARTER VIEW

Photograph is not available



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

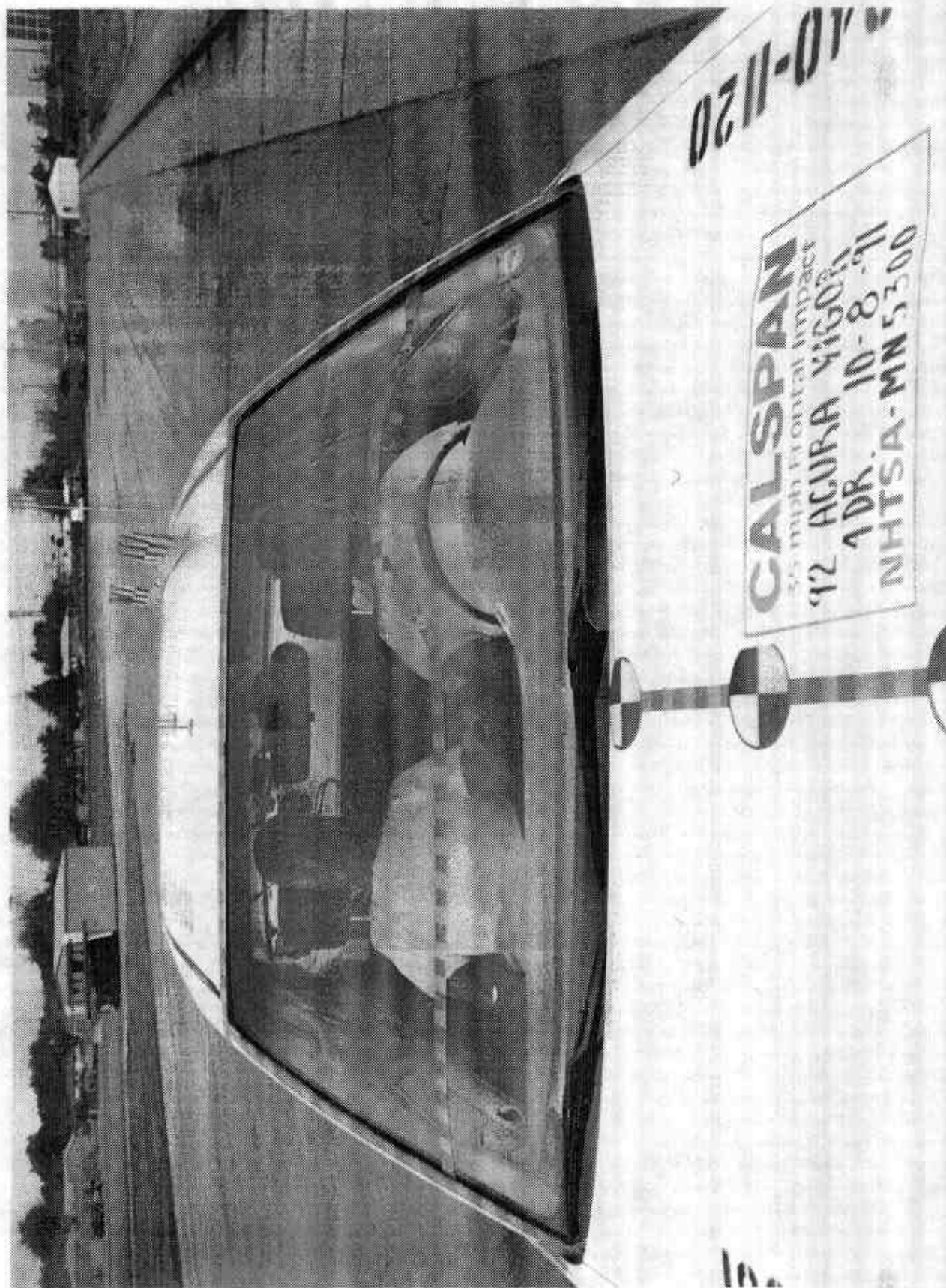
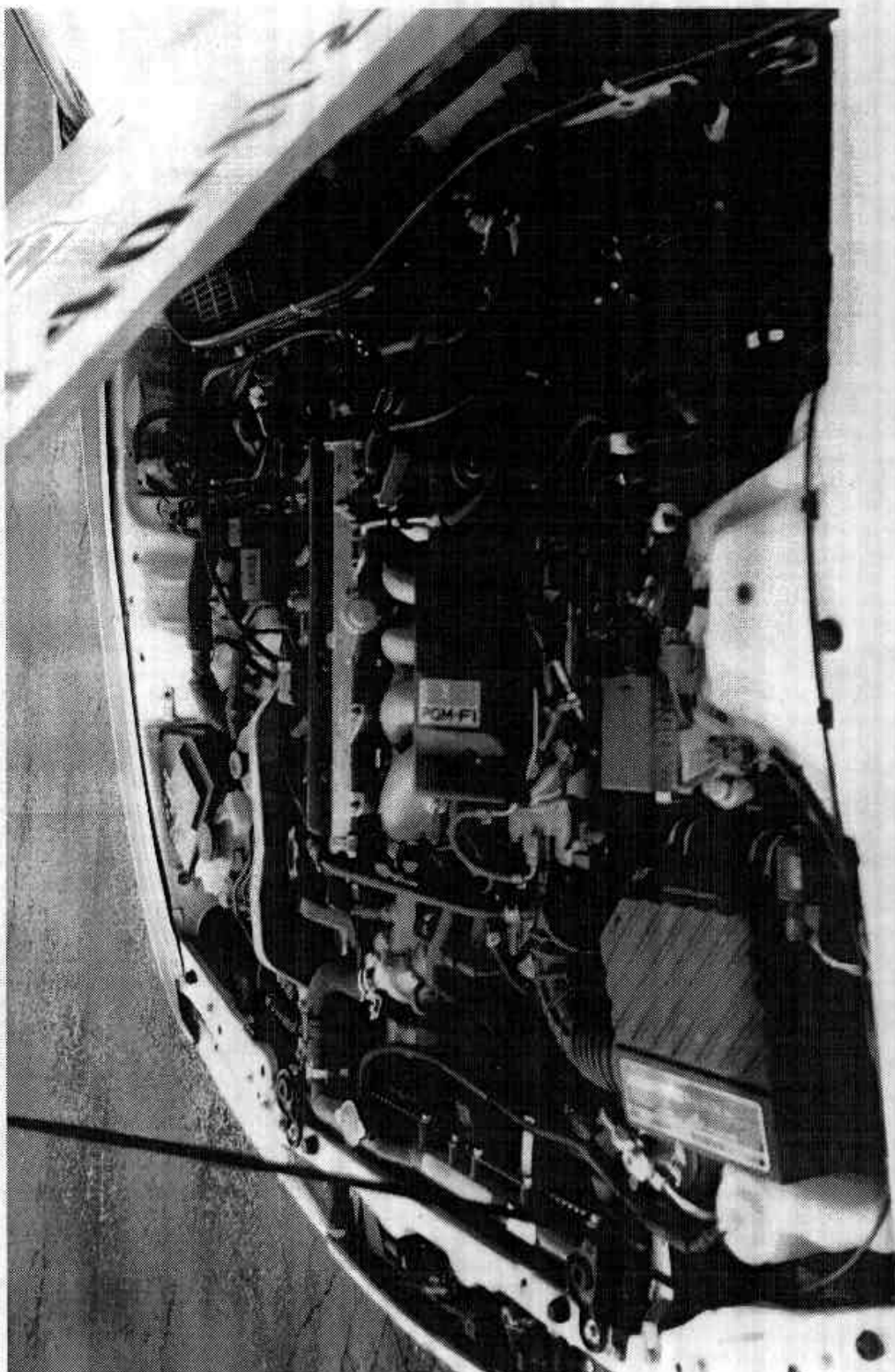


Figure A-12 PRE-TEST WINDSHIELD VIEW



Figure A-13 POST-TEST WINDSHIELD VIEW



A-16

7946-4

FIGURE A-14 PRE-TEST ENGINE COMPARTMENT VIEW

Figure A-15

FUEL CAP VIEW

Photograph is not available

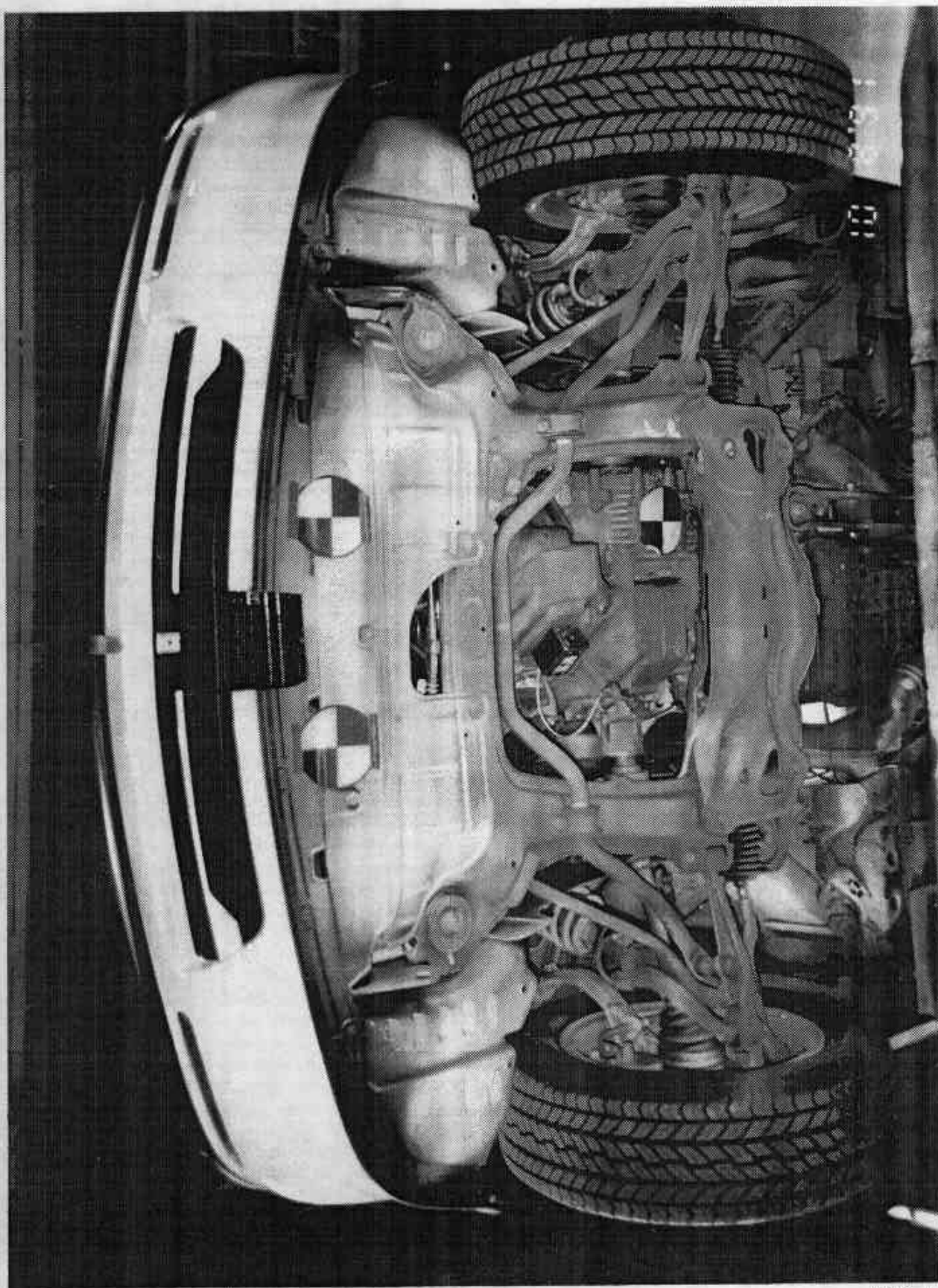


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

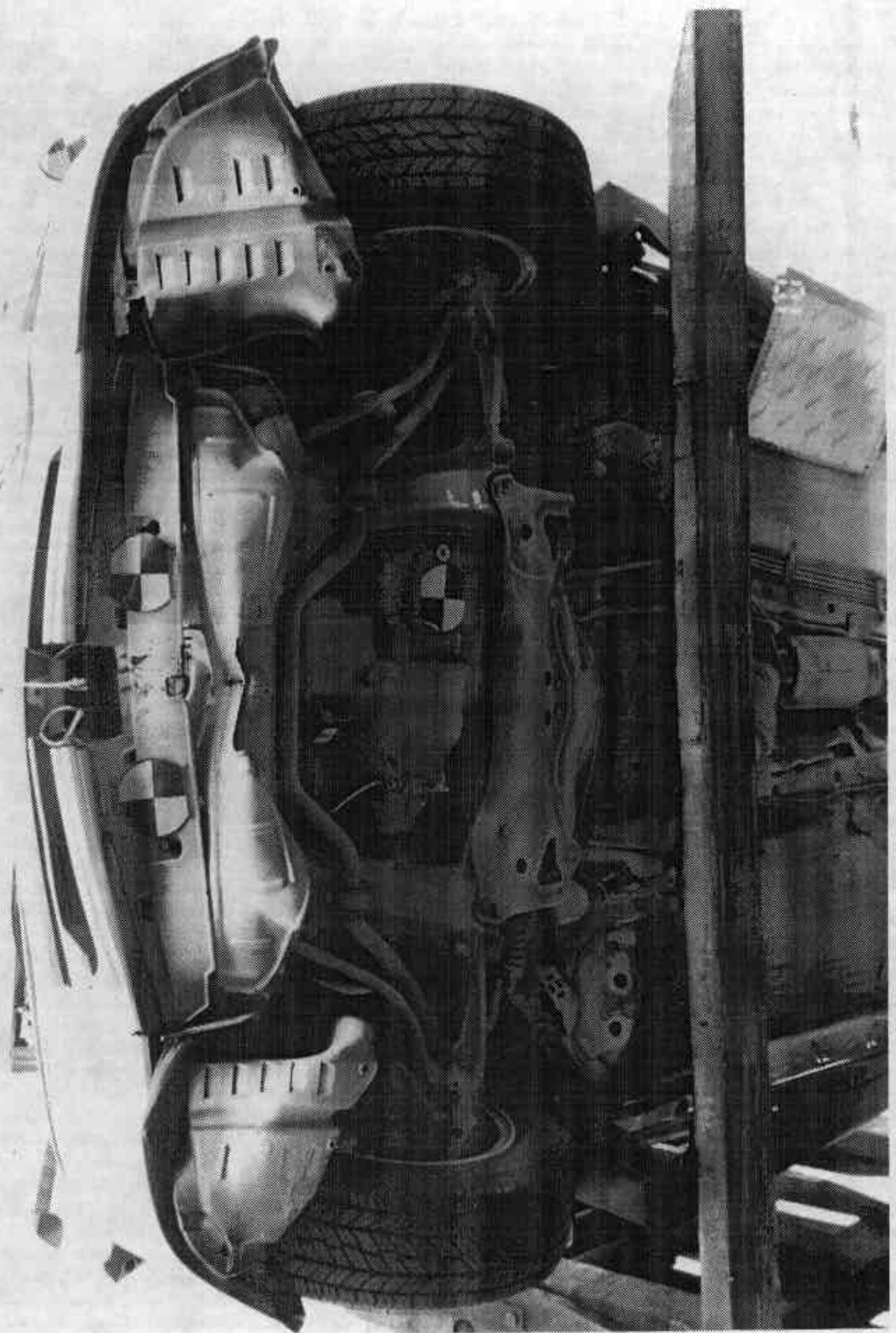


Figure A-17 POST-TEST FRONT UNDERBODY VIEW

A-19

7948-4

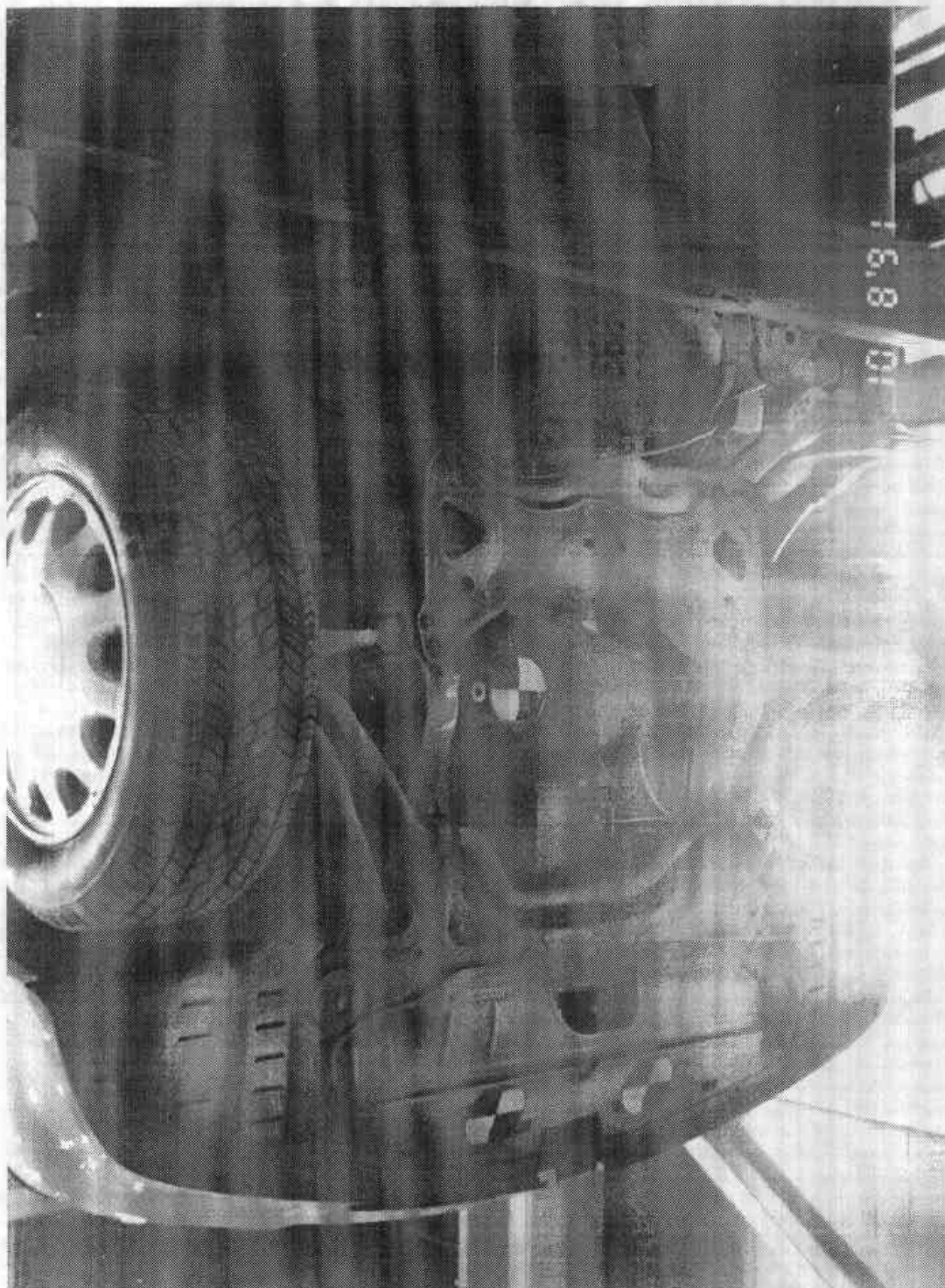


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW

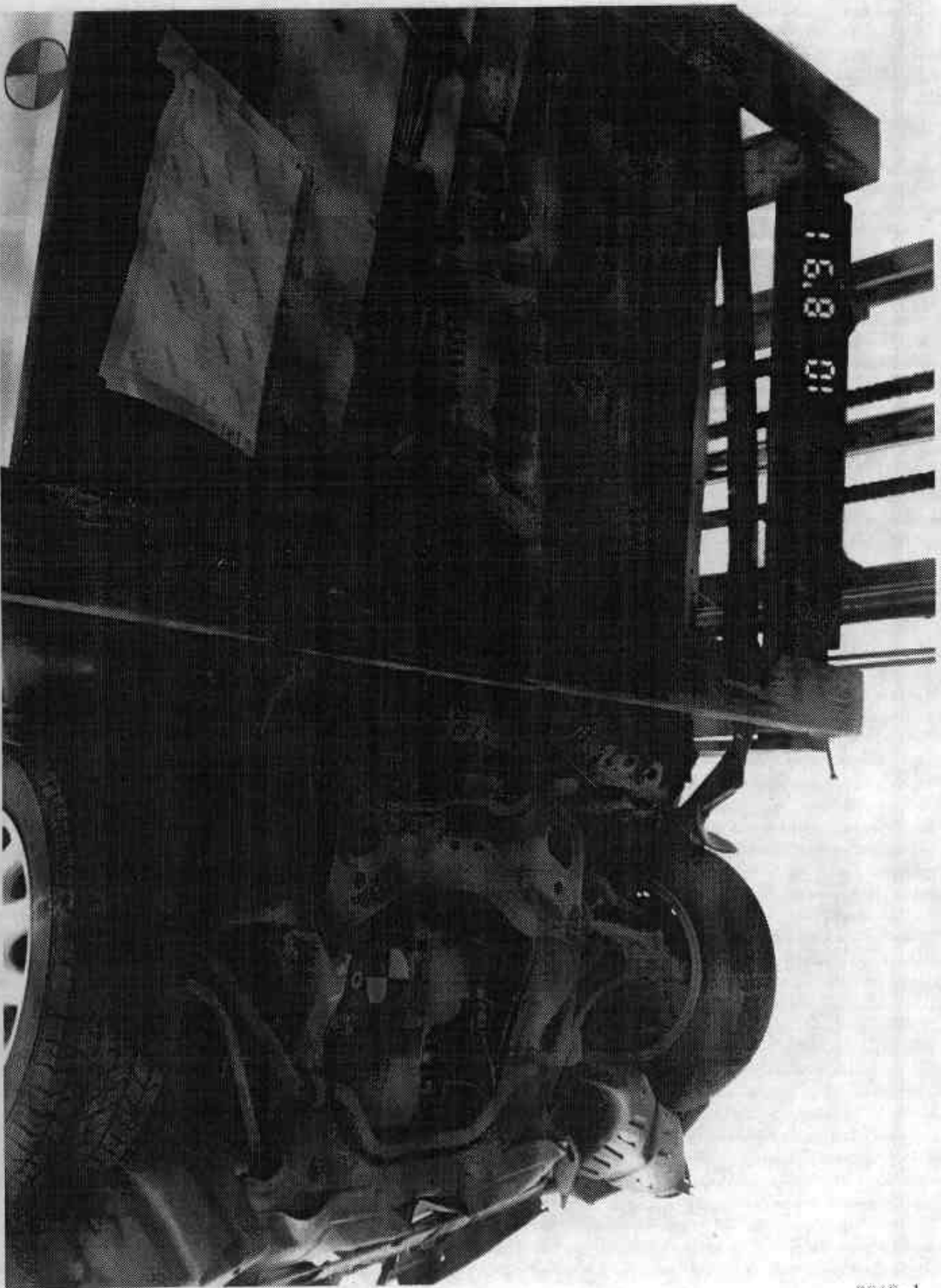


Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

A-21

7948-4

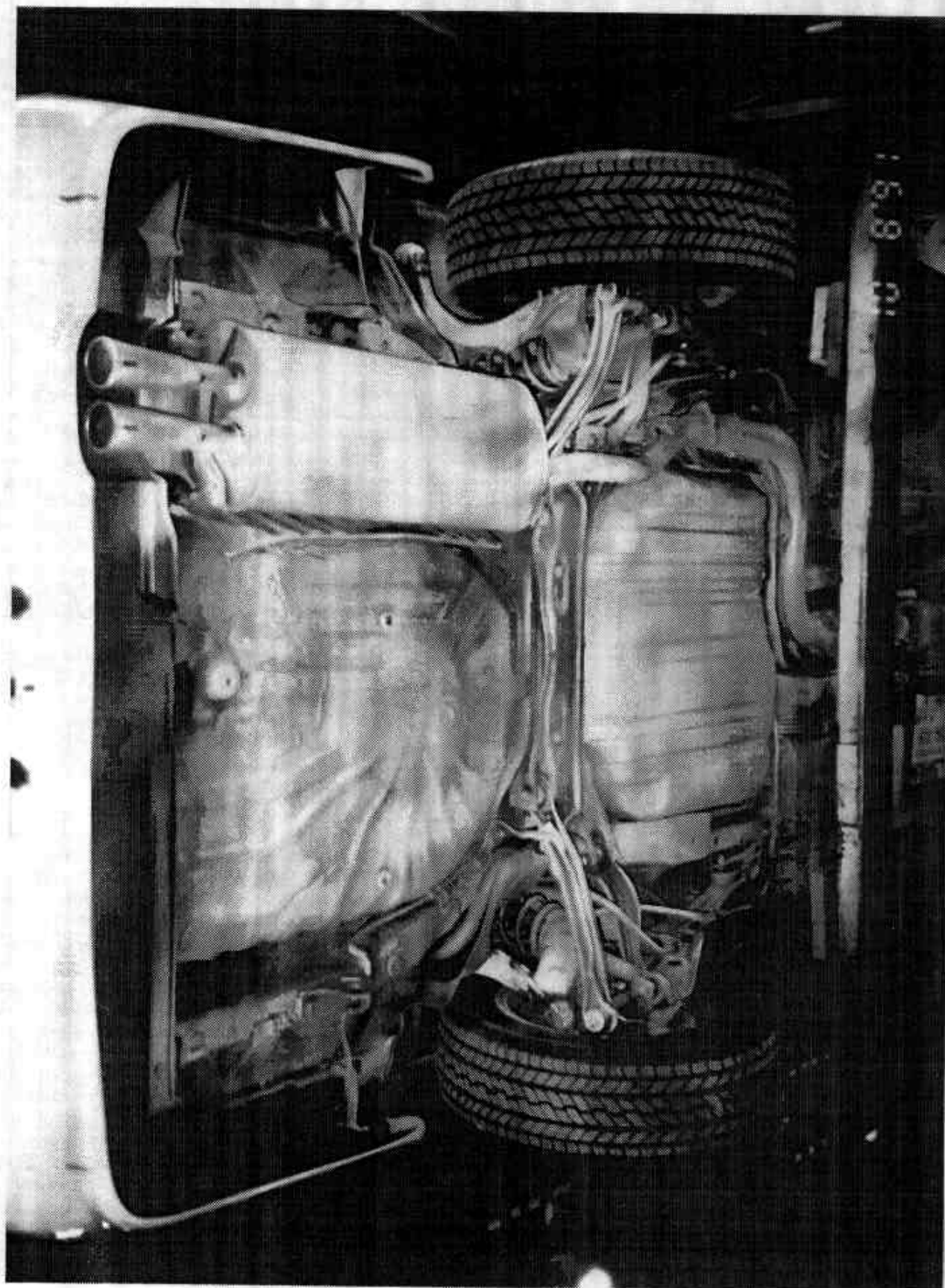


FIGURE A-20 PRE TEST REAR UNDERBODY VIEW

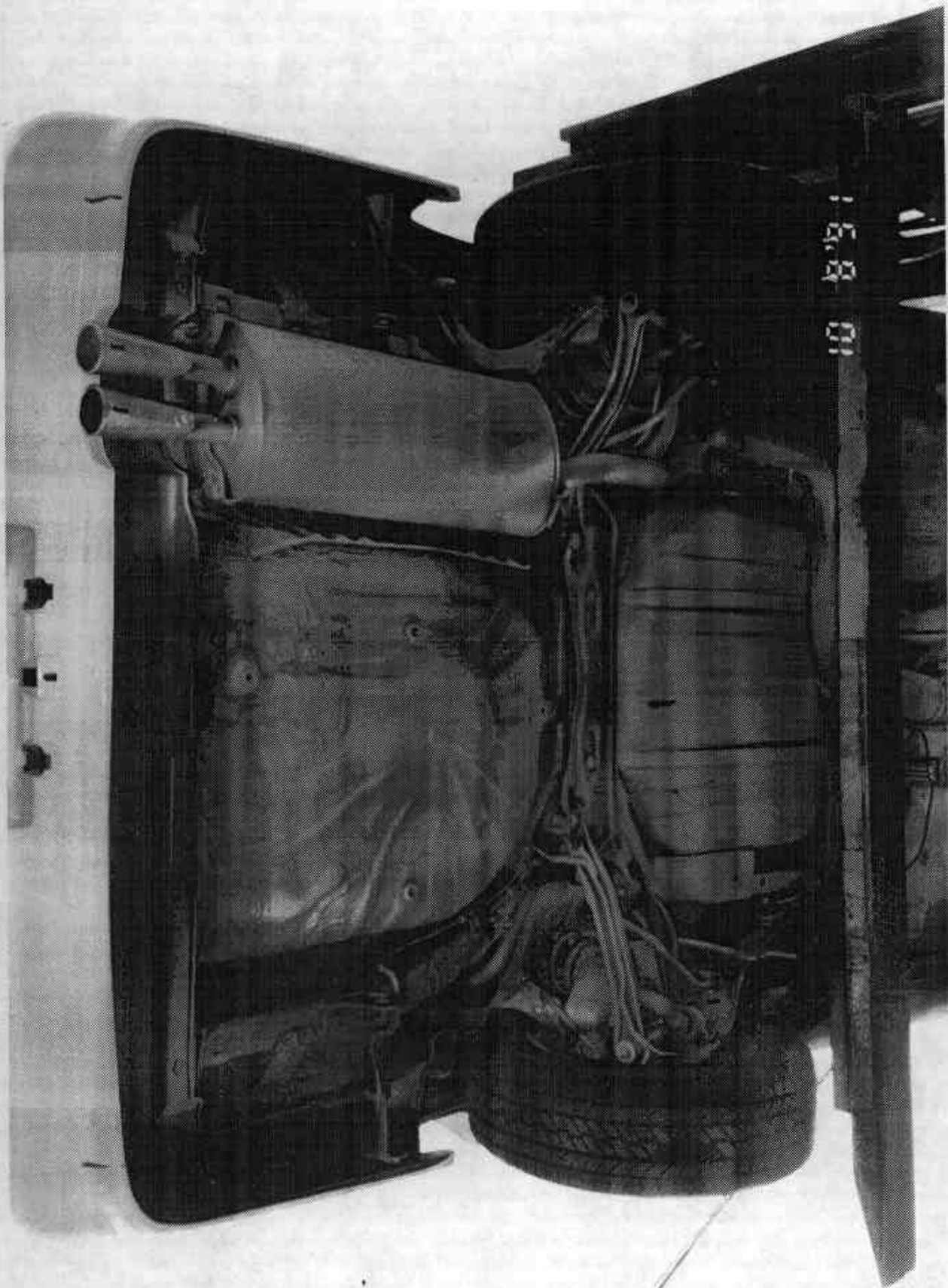


Figure A-21 POST-TEST REAR UNDERBODY VIEW



FIGURE A-22. PRE-TEST DRIVER POSITION VIEW



Figure A-23 POST-TEST DRIVER POSITION VIEW



FIGURE A-24 PRE-TEST PASSENGER POSITION VIEW



Figure A-25 POST-TEST PASSENGER POSITION VIEW

A-27

7946-4

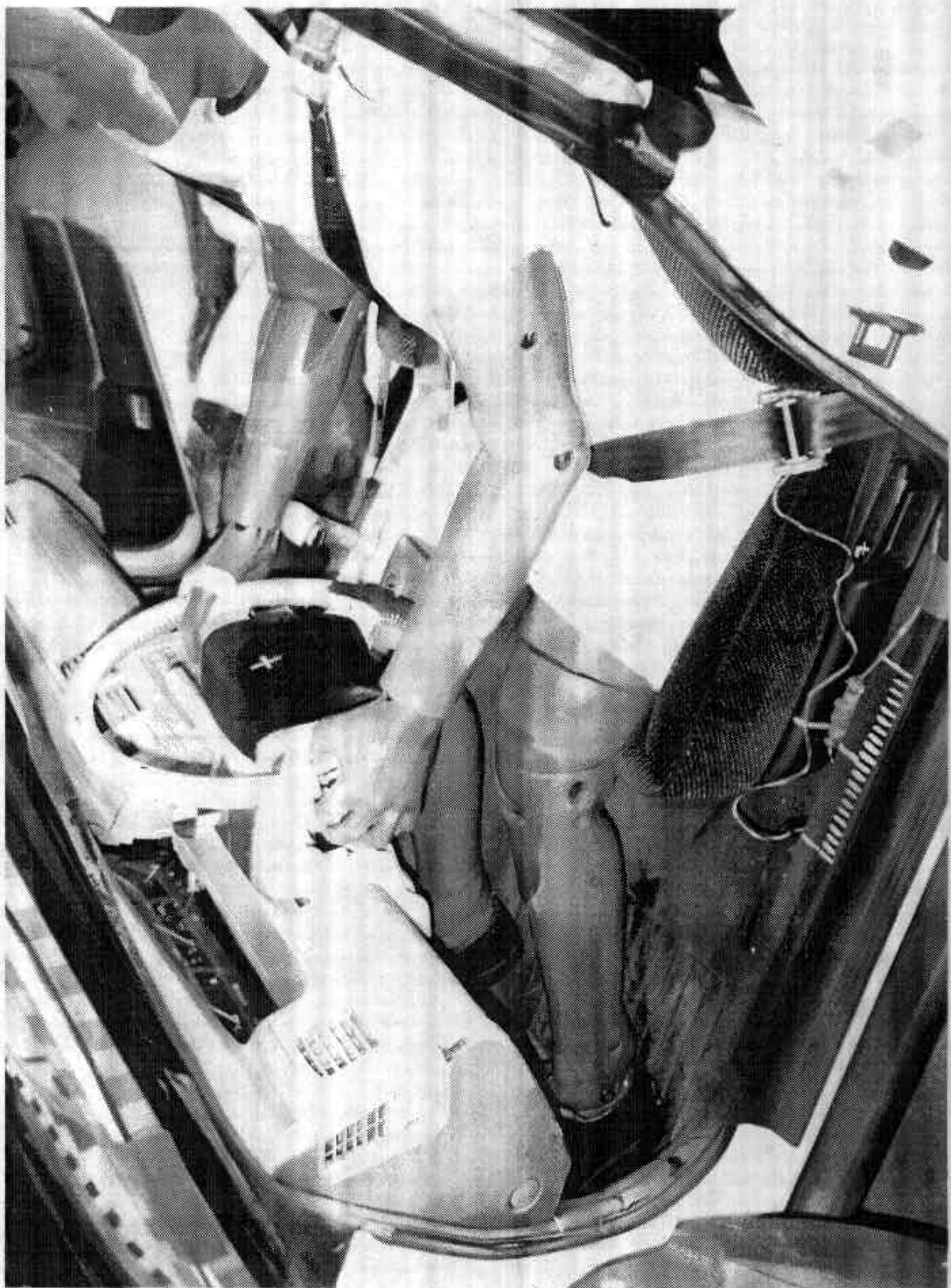


Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

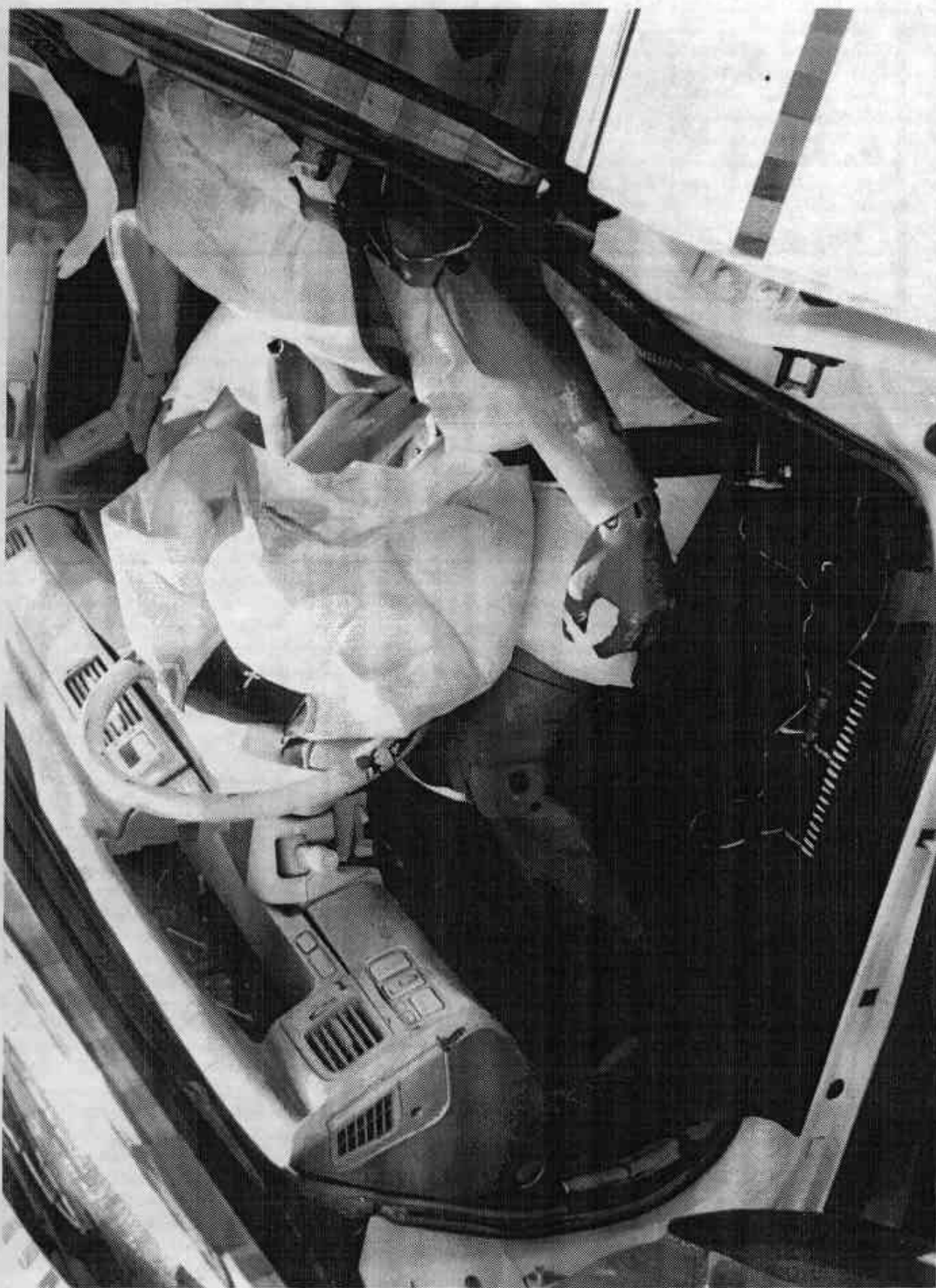


Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW



Figure A-26 PRE-TEST PASSENGER AND INTERIOR VIEW

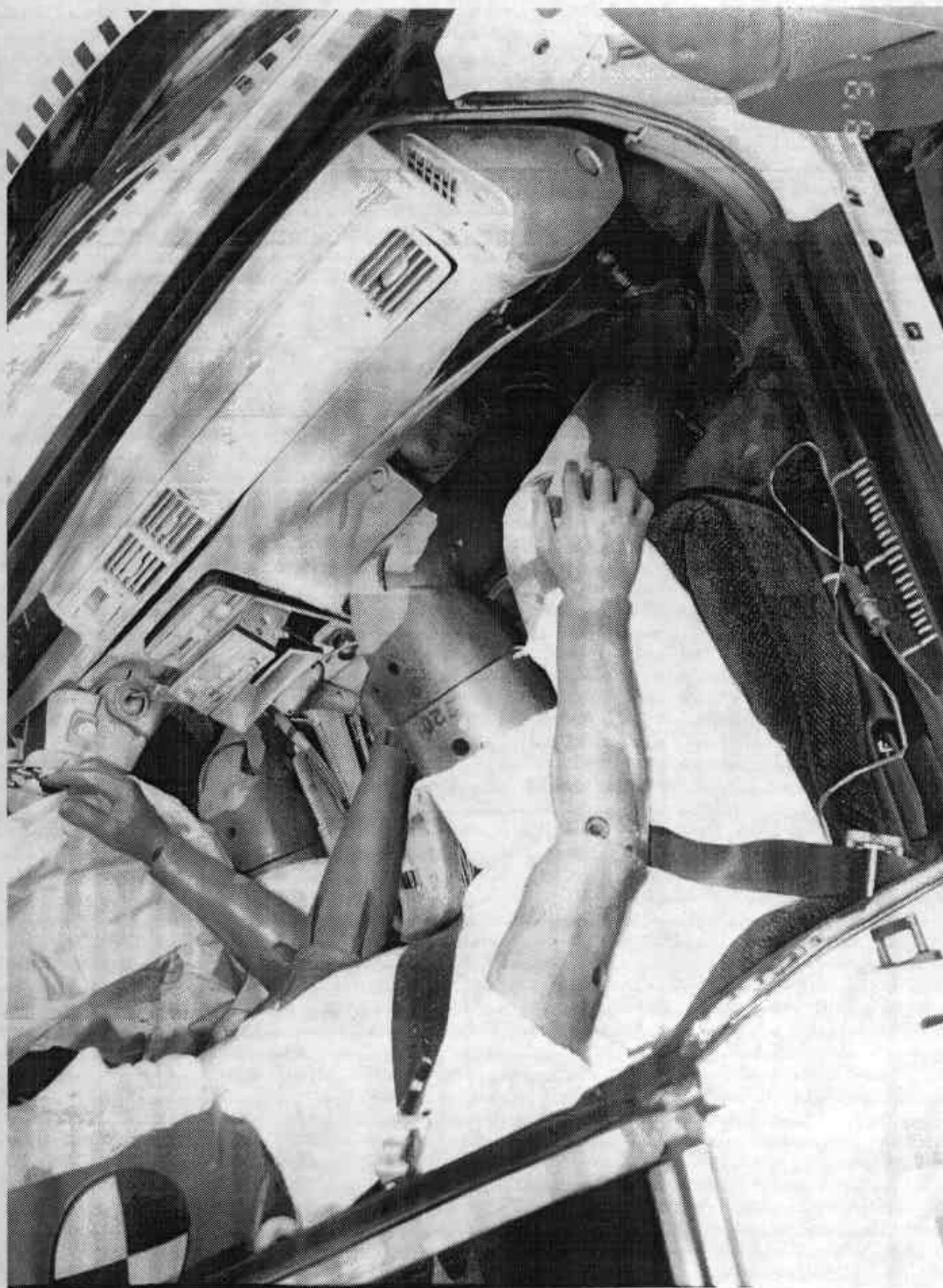


Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

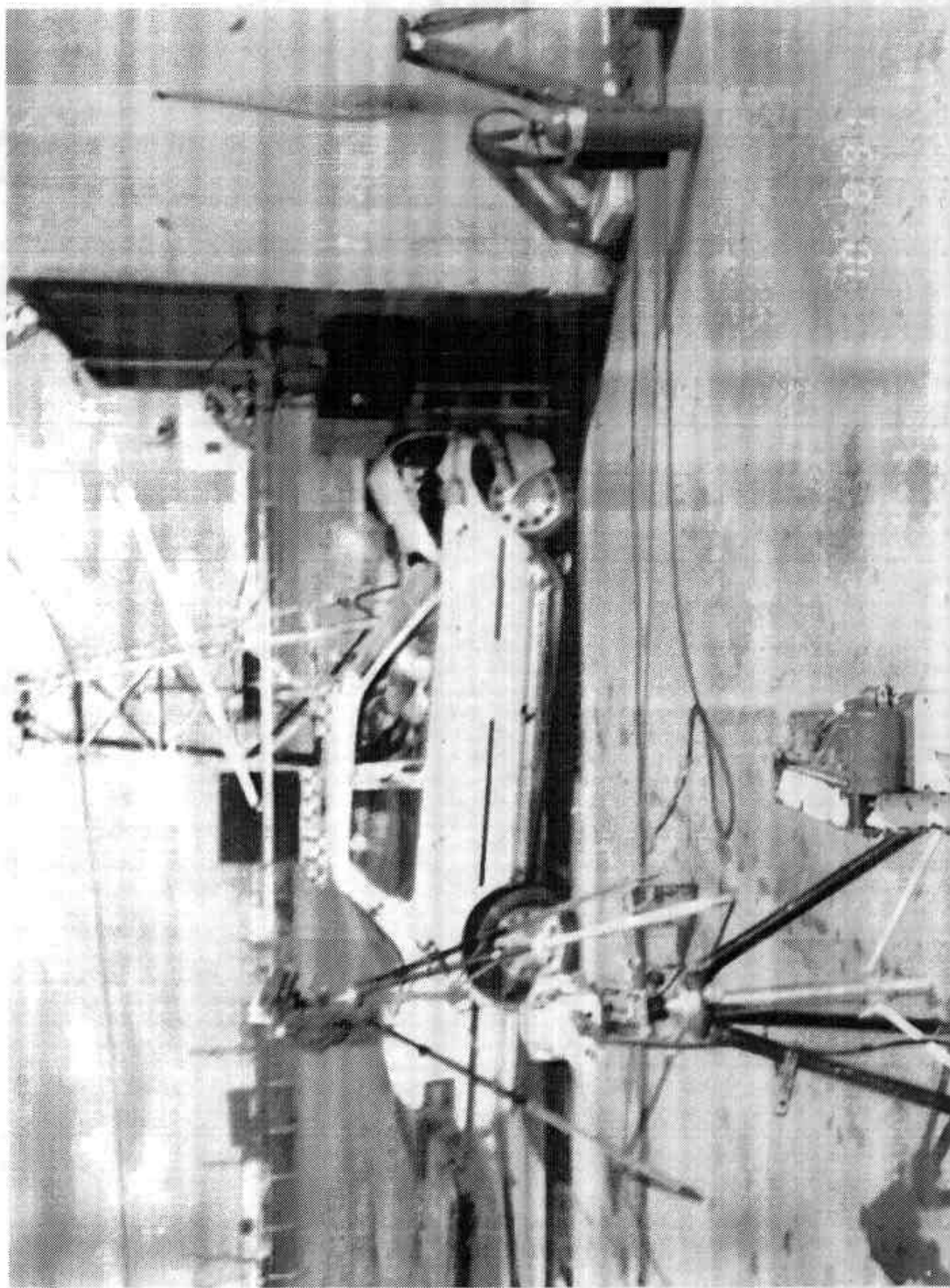


Figure A-30 IMPACT VIEW

A-32

7948-4

Appendix B

VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA

TEST NO. MN5300

VEHICLE DATA

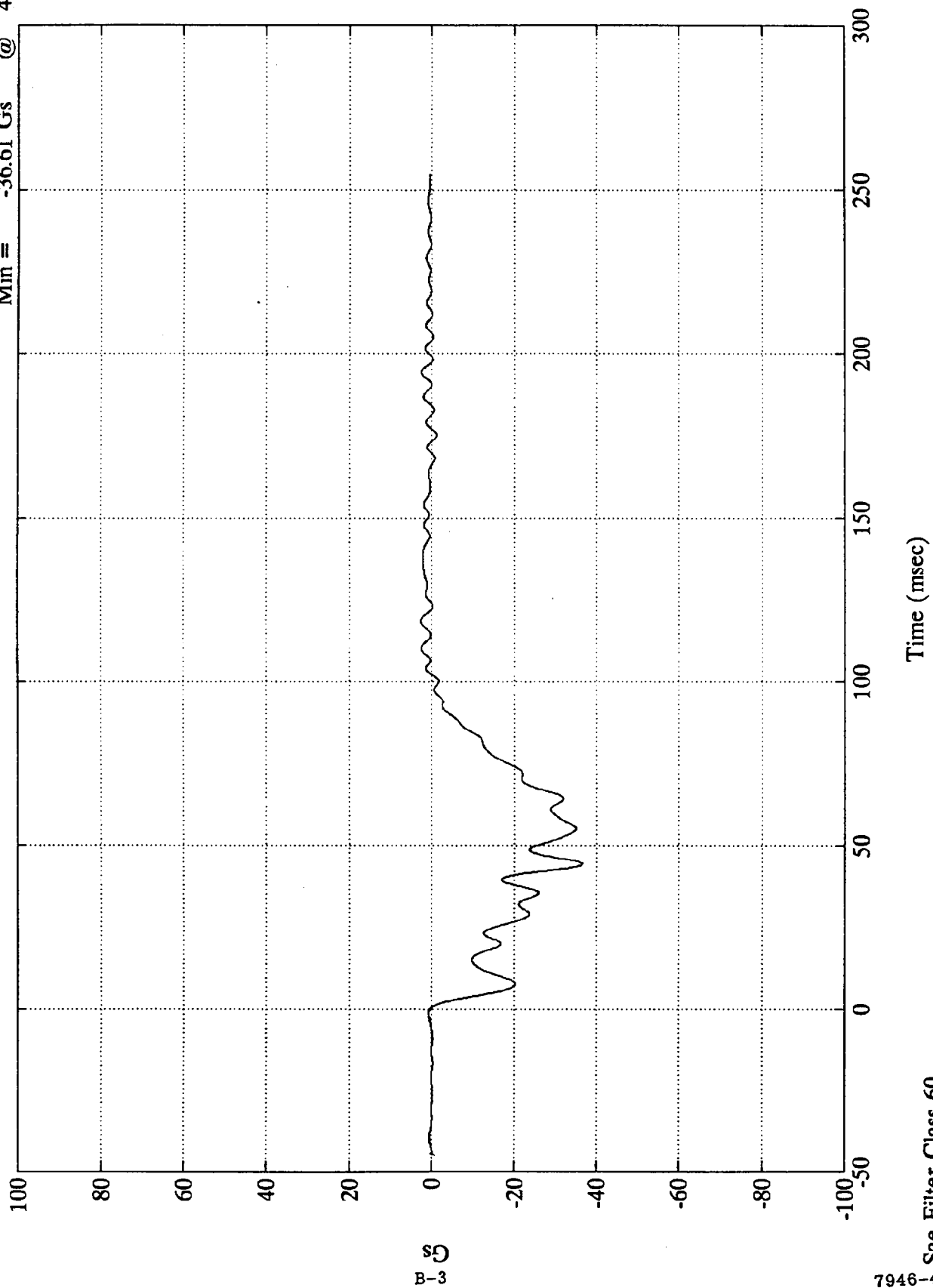
FILTER CHANNEL CLASS

60

NCAP TEST #4 1992 ACURA VIGOR

Acc. #1(x)

Max = 2.69 Gs @ 118.31 msec
Min = -36.61 Gs @ 44.39 msec



B-3

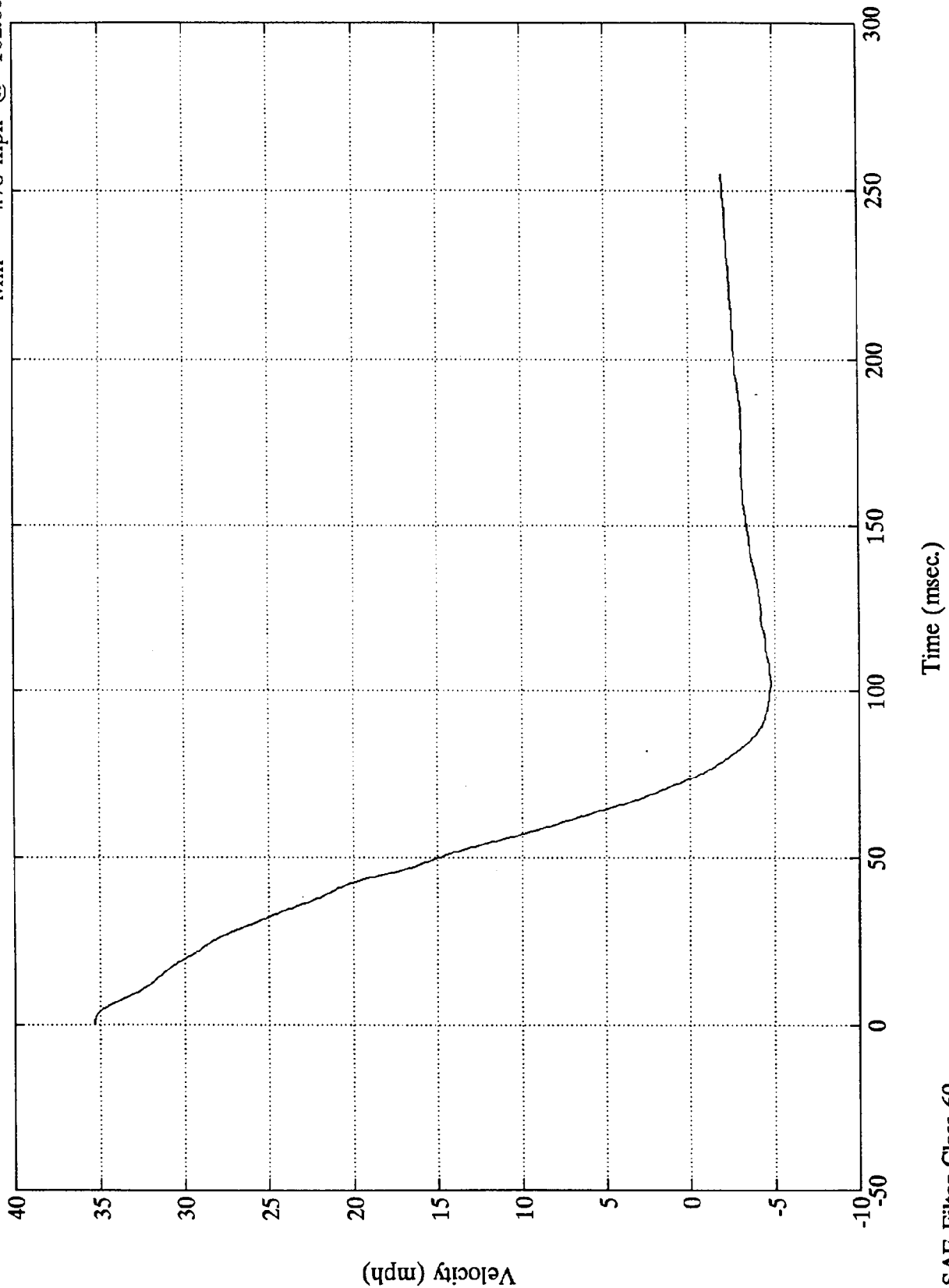
7946-4

Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 35.30 mph @ 0.96 msec
Min = -4.78 mph @ 102.00 msec

Acc. #1(x)

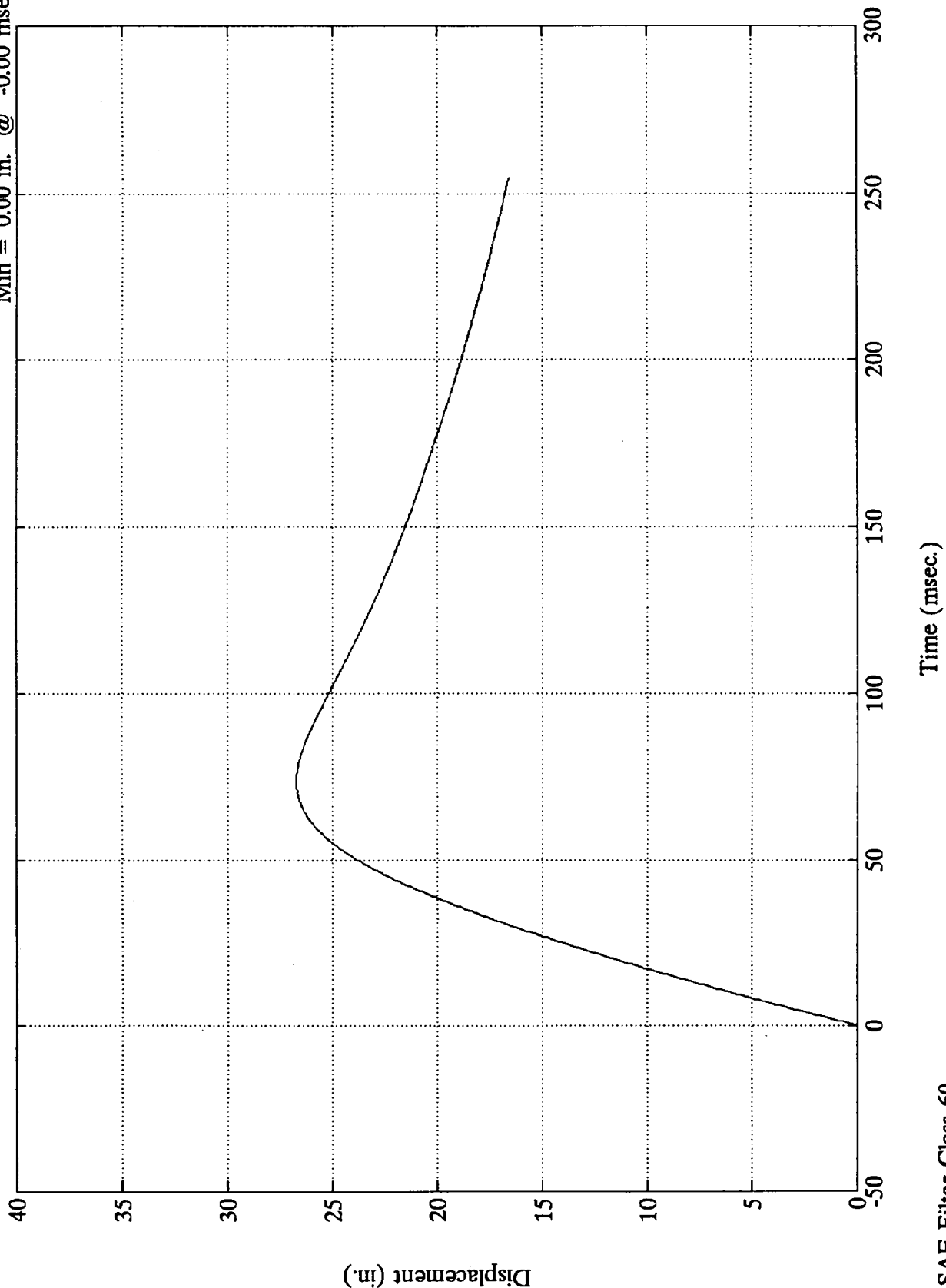


SAE Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Acc. #1(x)

Max = 26.72 in. @ 74.64 msec
Min = 0.00 in. @ -0.00 msec

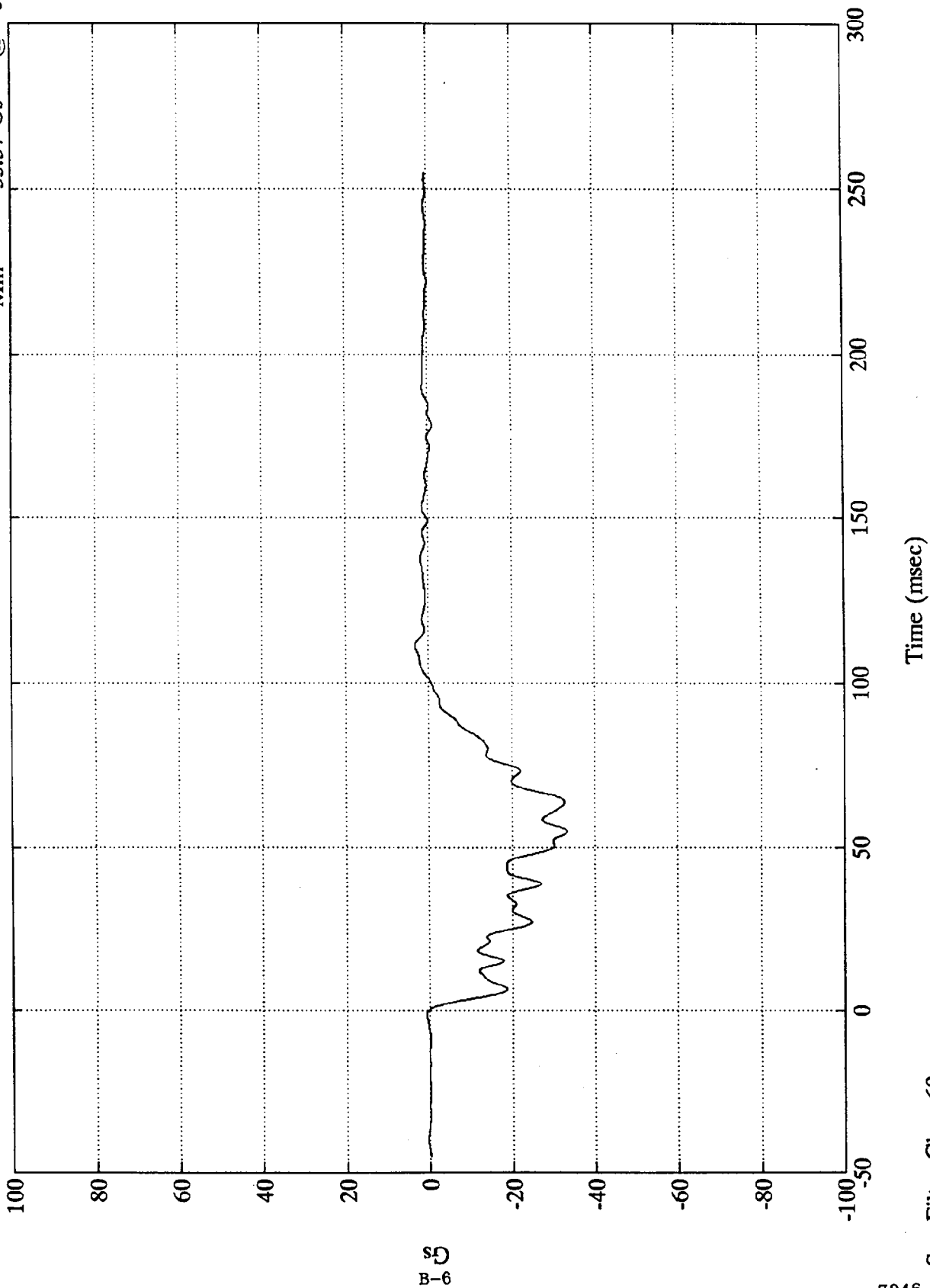


SAE Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 3.24 Gs @ 111.48 msec
 Min = -33.37 Gs @ 54.84 msec

Acc. #2(x)

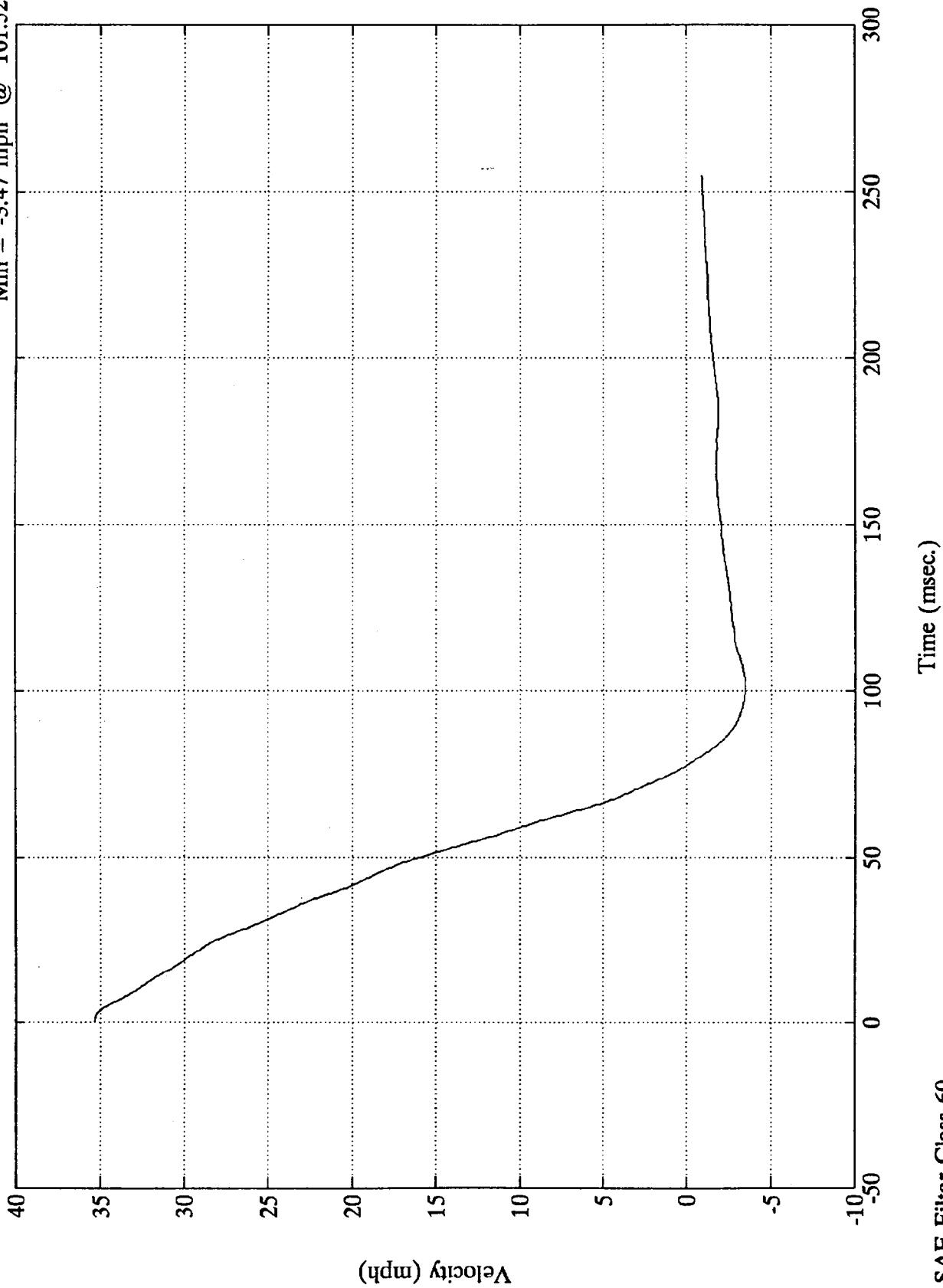


Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Acc. #2(x)

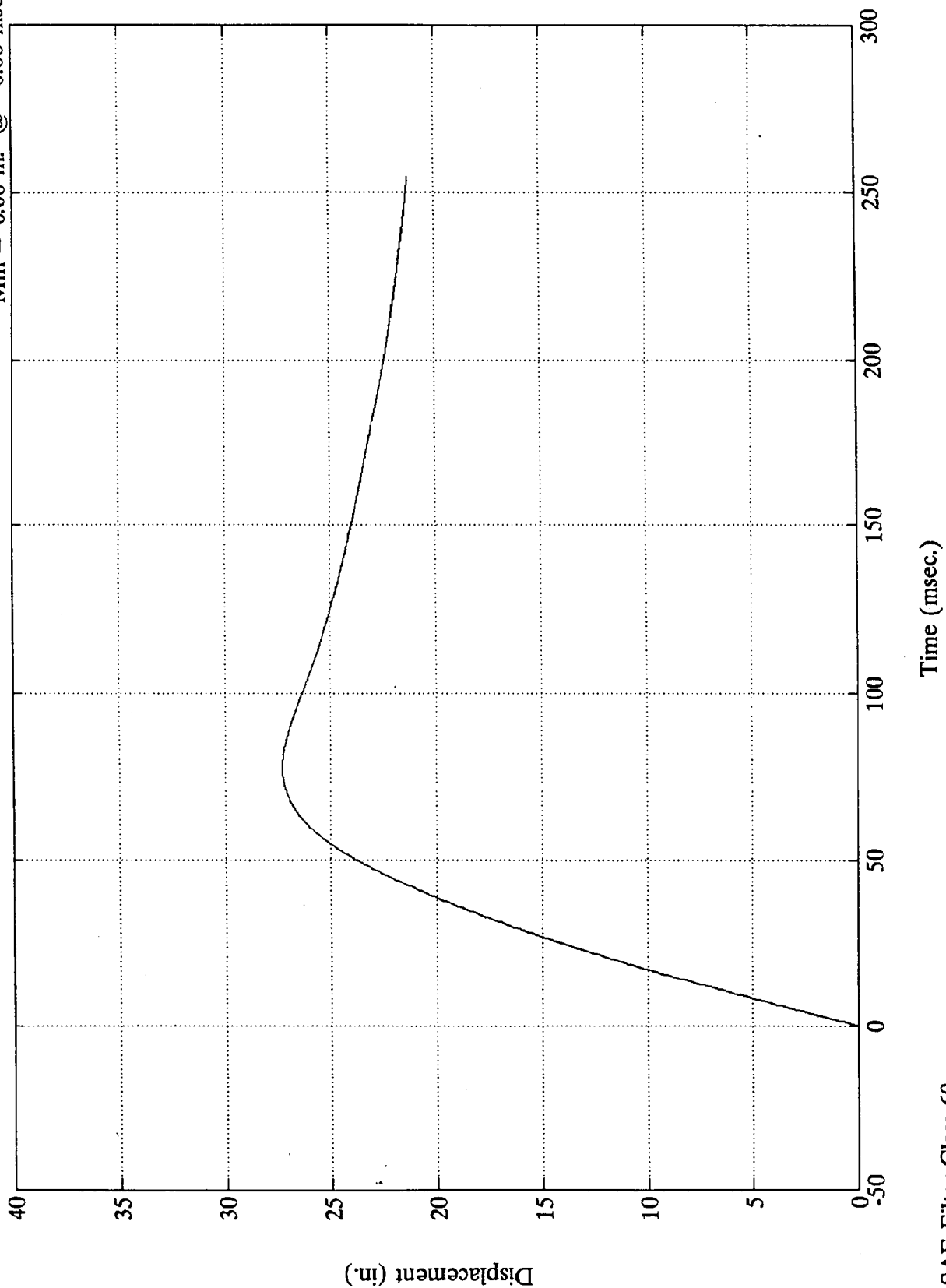
Max = 35.30 mph @ 0.72 msec
Min = -3.47 mph @ 101.52 msec



NCAP TEST #4 1992 ACURA VIGOR

Max = 27.30 in. @ 78.00 msec
Min = 0.00 in. @ -0.00 msec

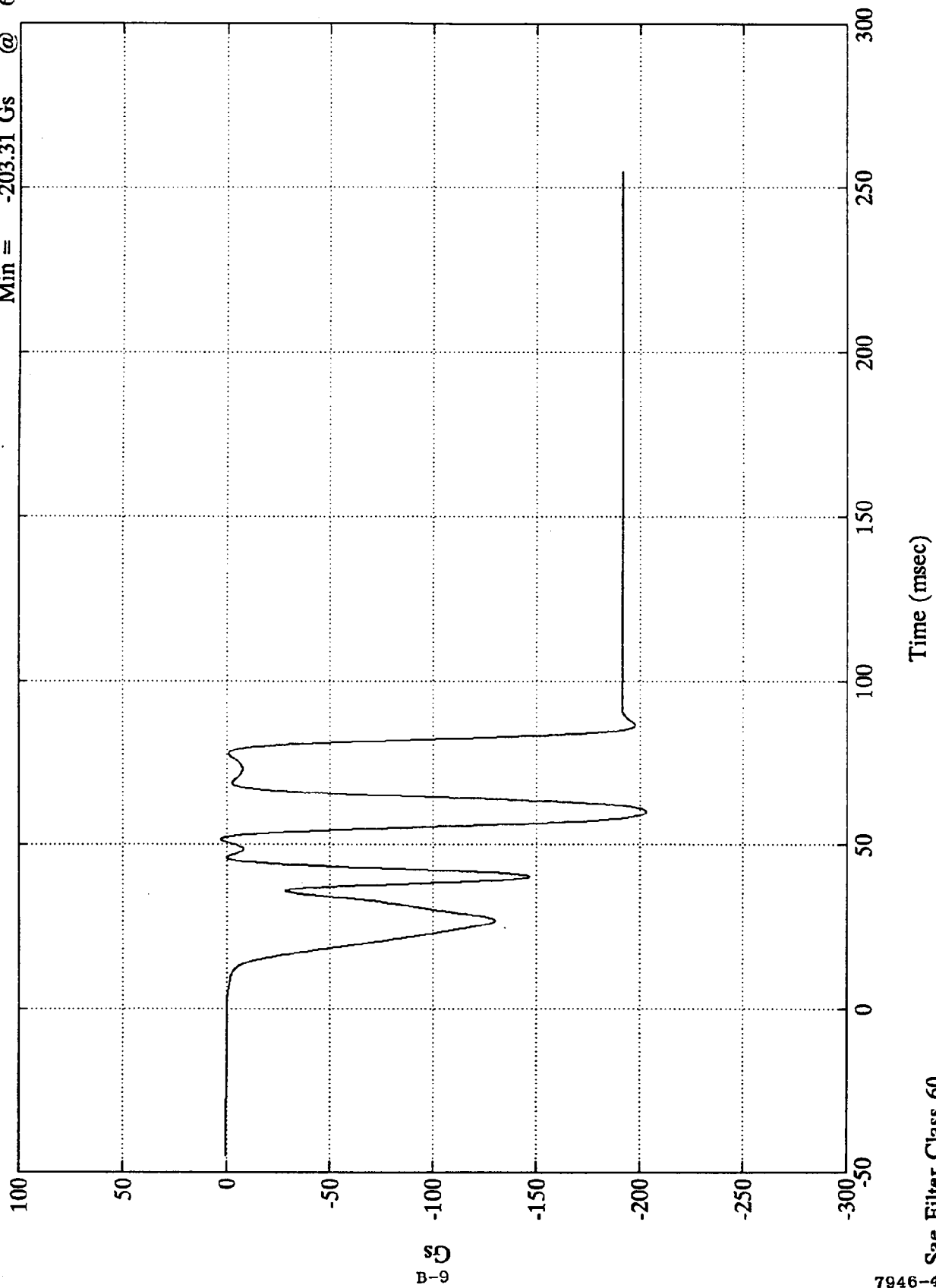
Acc. #2(x)



NCAP TEST #4 1992 ACURA VIGOR

Max = 2.54 Gs @ 51.60 msec
Min = -203.31 Gs @ 60.00 msec

Acc. #3(x)

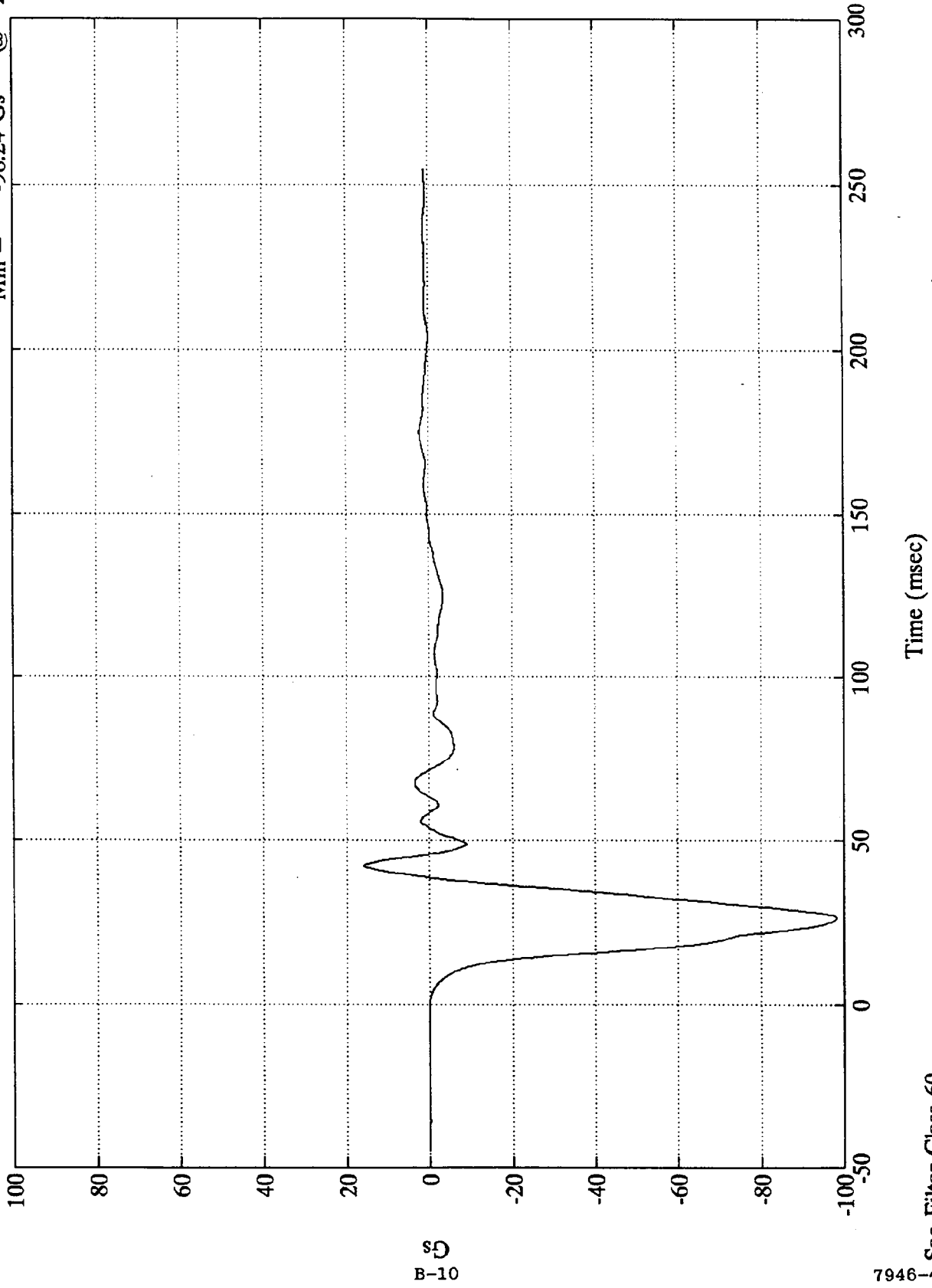


Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 15.99 Gs @ 42.11 msec
 Min = -98.24 Gs @ 26.39 msec

Acc. #4(x)

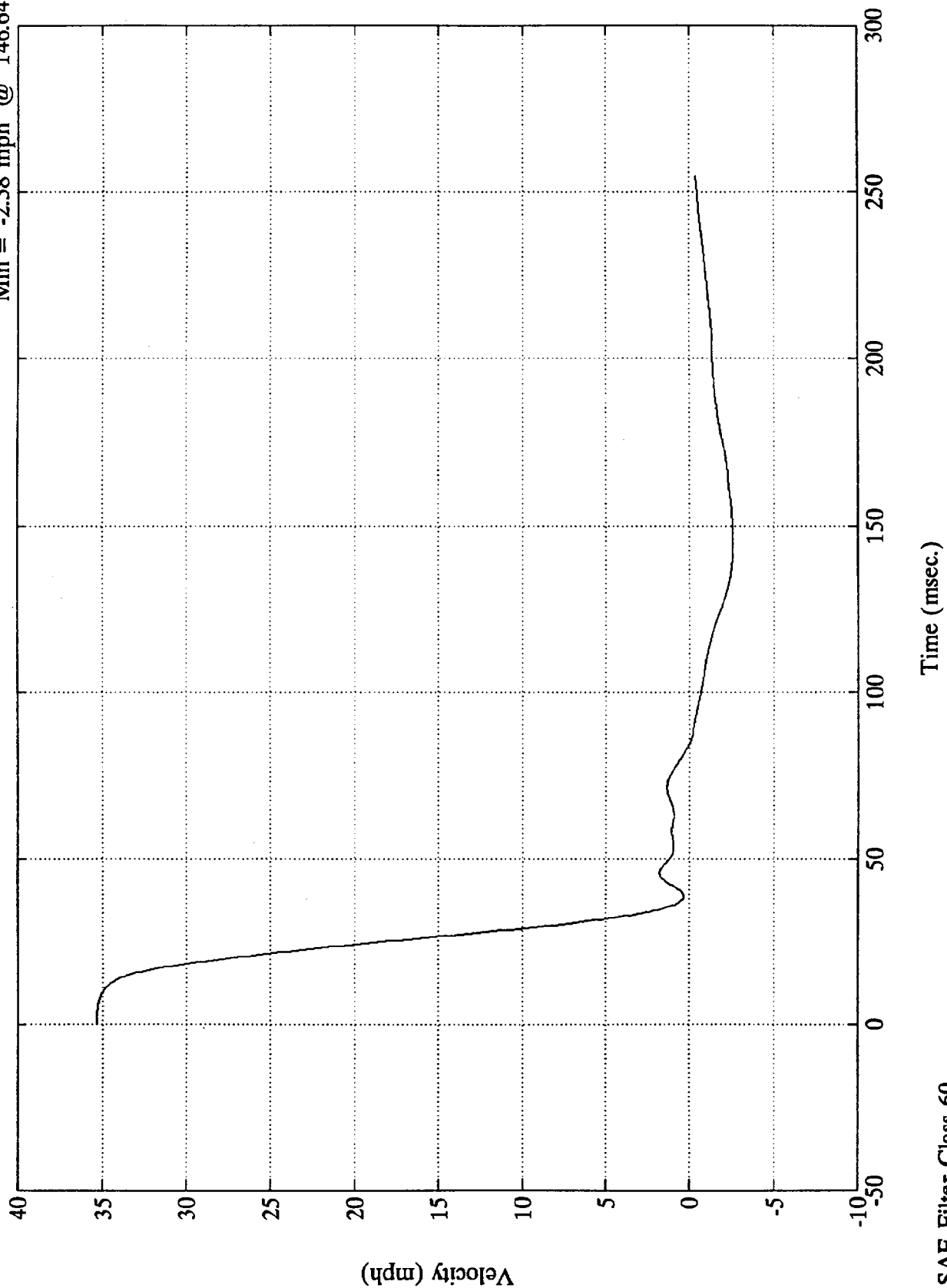


Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Acc. #4(x)

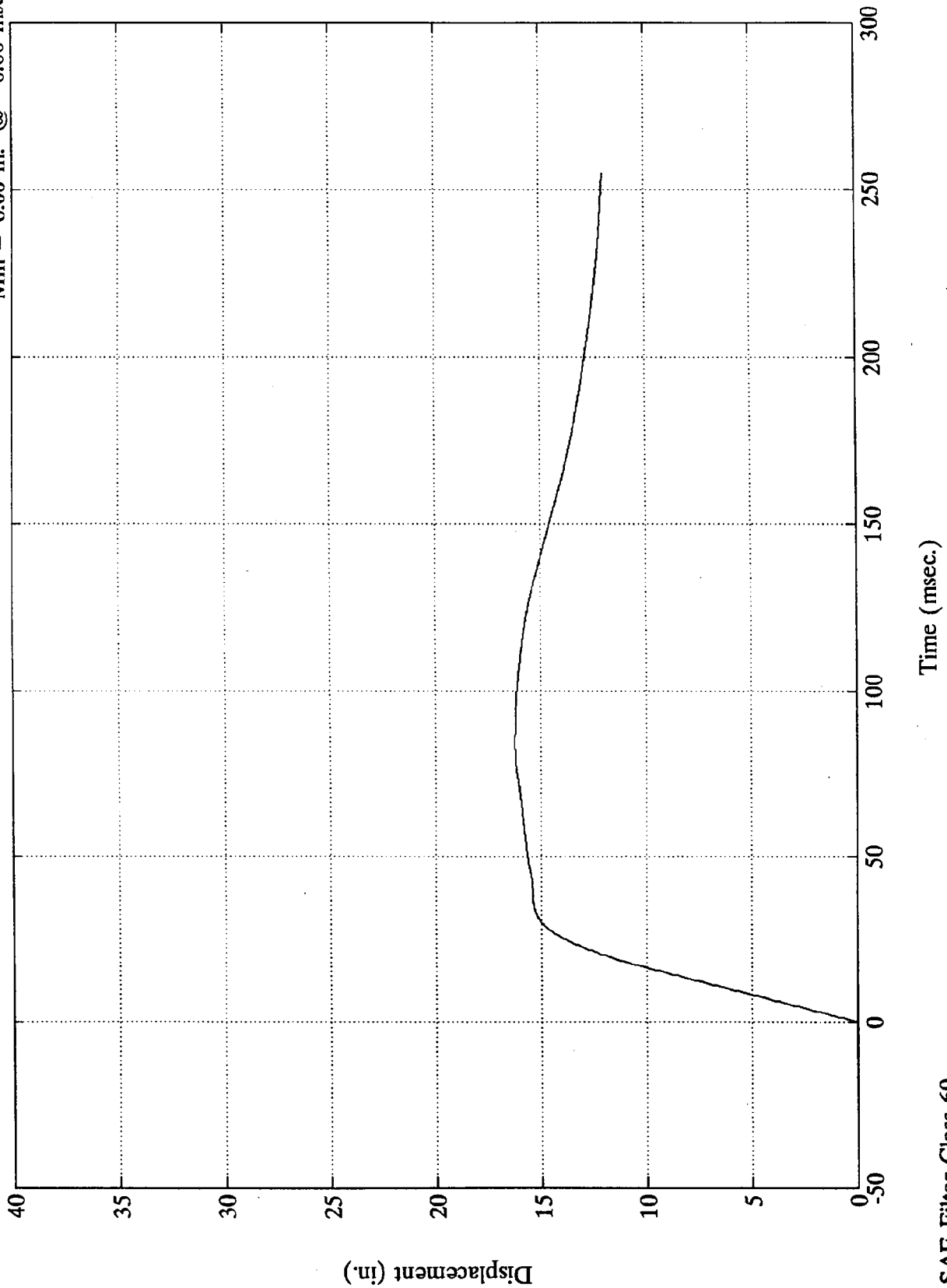
Max = 35.30 mph @ 2.64 msec
Min = -2.58 mph @ 146.64 msec



NCAP TEST #4 1992 ACURA VIGOR

Max = 16.23 in. @ 86.64 msec
Min = 0.00 in. @ -0.00 msec

Acc. #4(x)



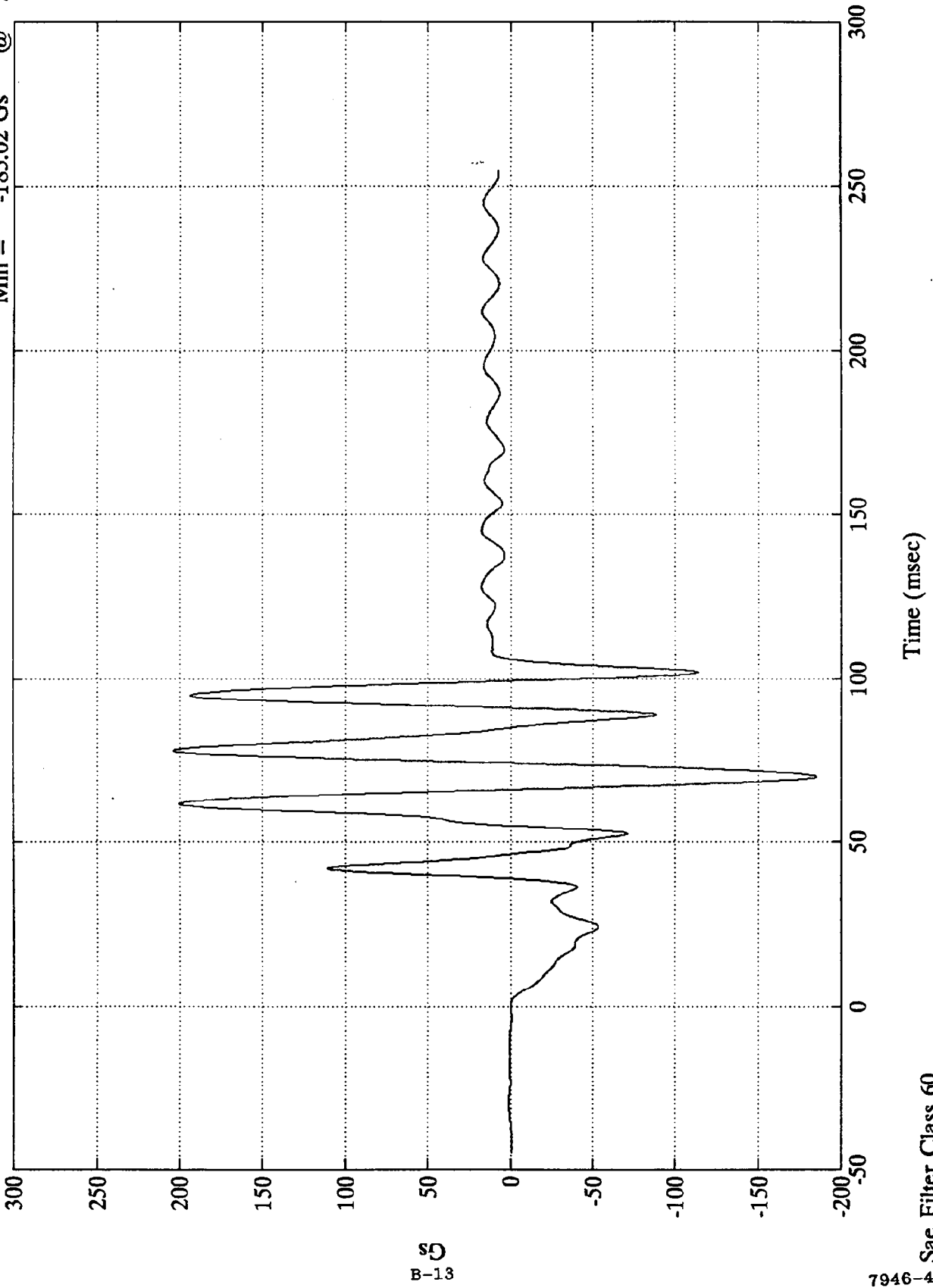
21-B

7946-4

SAE Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Acc. #5(x) Max = 203.91 Gs @ 78.00 msec
Min = -185.02 Gs @ 70.08 msec



B-13

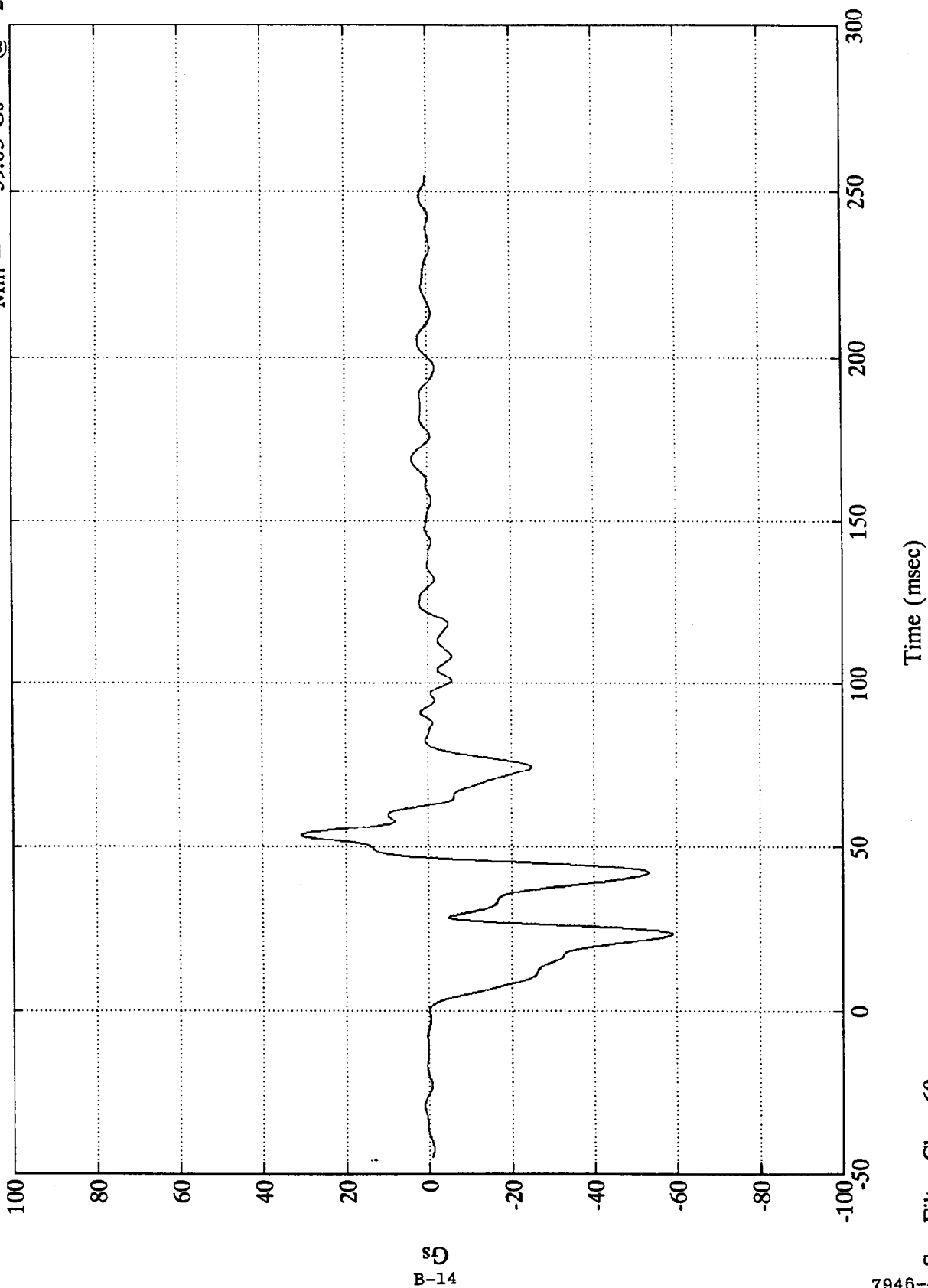
7946-4

Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 30.74 Gs @ 53.75 msec
 Min = -59.03 Gs @ 23.04 msec

Acc. #6(x)

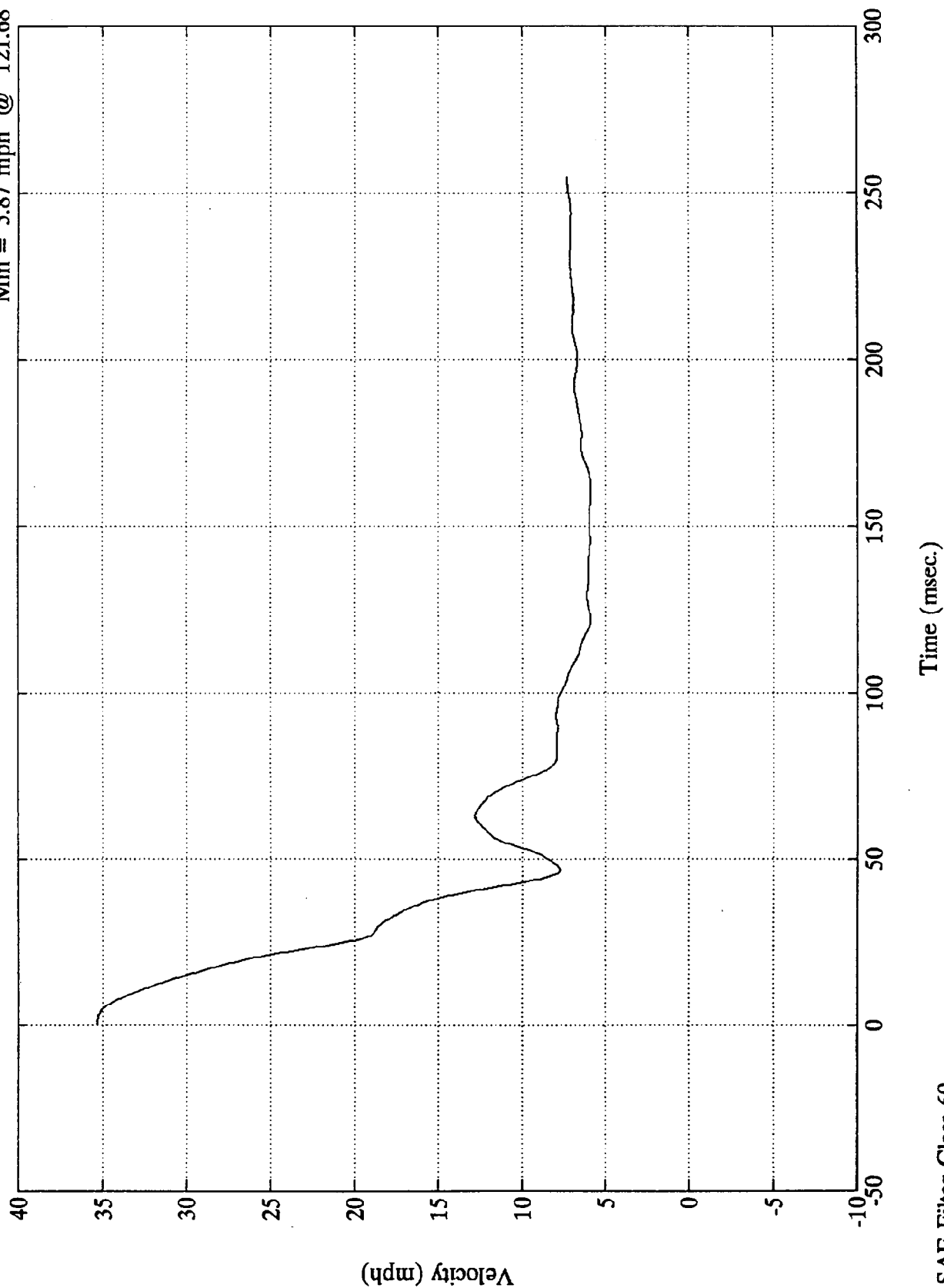


B-14

NCAP TEST #4 1992 ACURA VIGOR

Acc. #6(x)

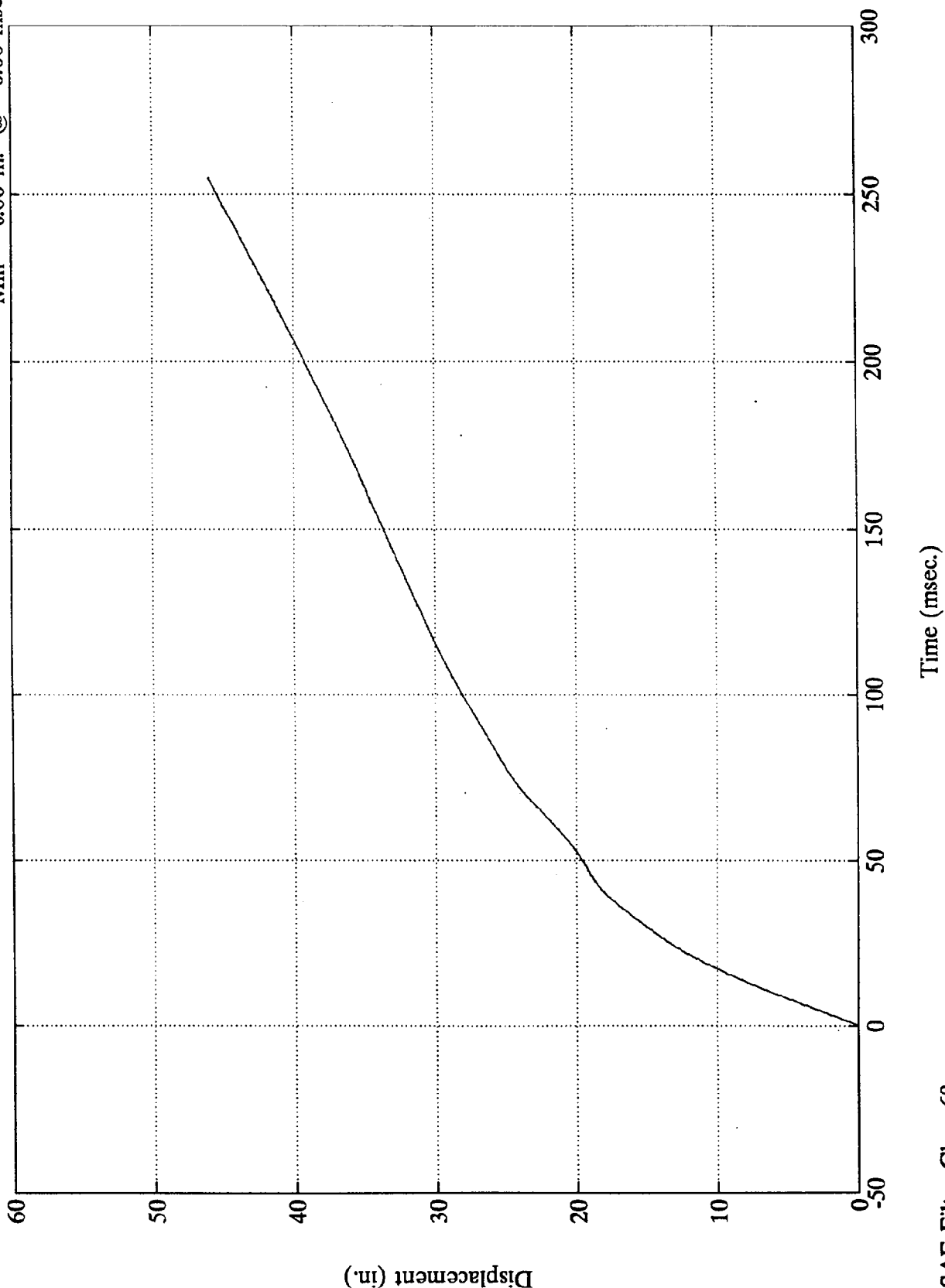
Max = 35.30 mph @ 0.72 msec
Min = 5.87 mph @ 121.68 msec



NCAP TEST #4 1992 ACURA VIGOR

Max = 46.01 in. @ 254.88 msec
Min = 0.00 in. @ -0.00 msec

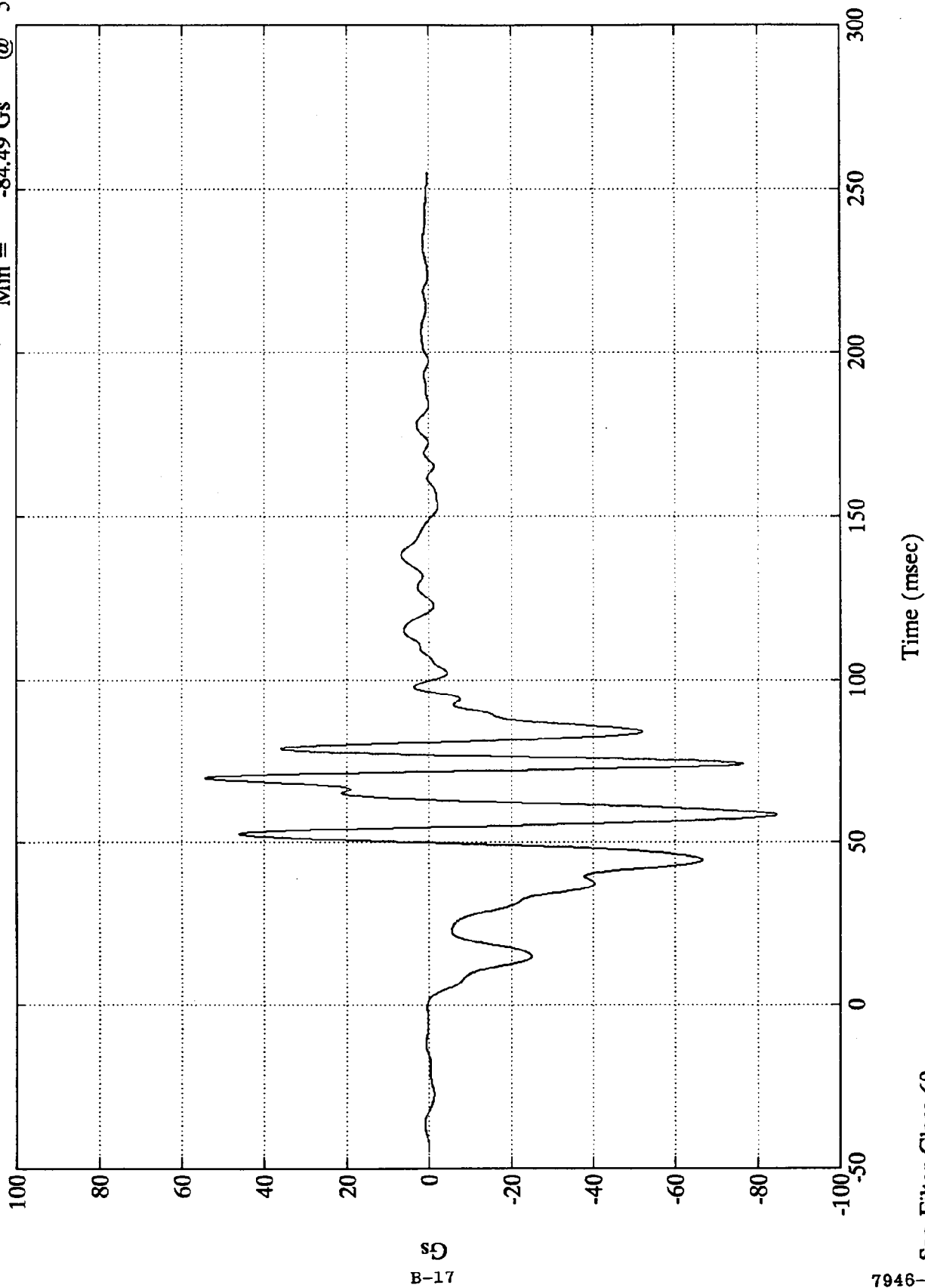
Acc. #6(x)



NCAP TEST #4 1992 ACURA VIGOR

Acc. #7(x)

Max = 54.39 Gs @ 69.83 msec
Min = -84.49 Gs @ 58.43 msec



B-17

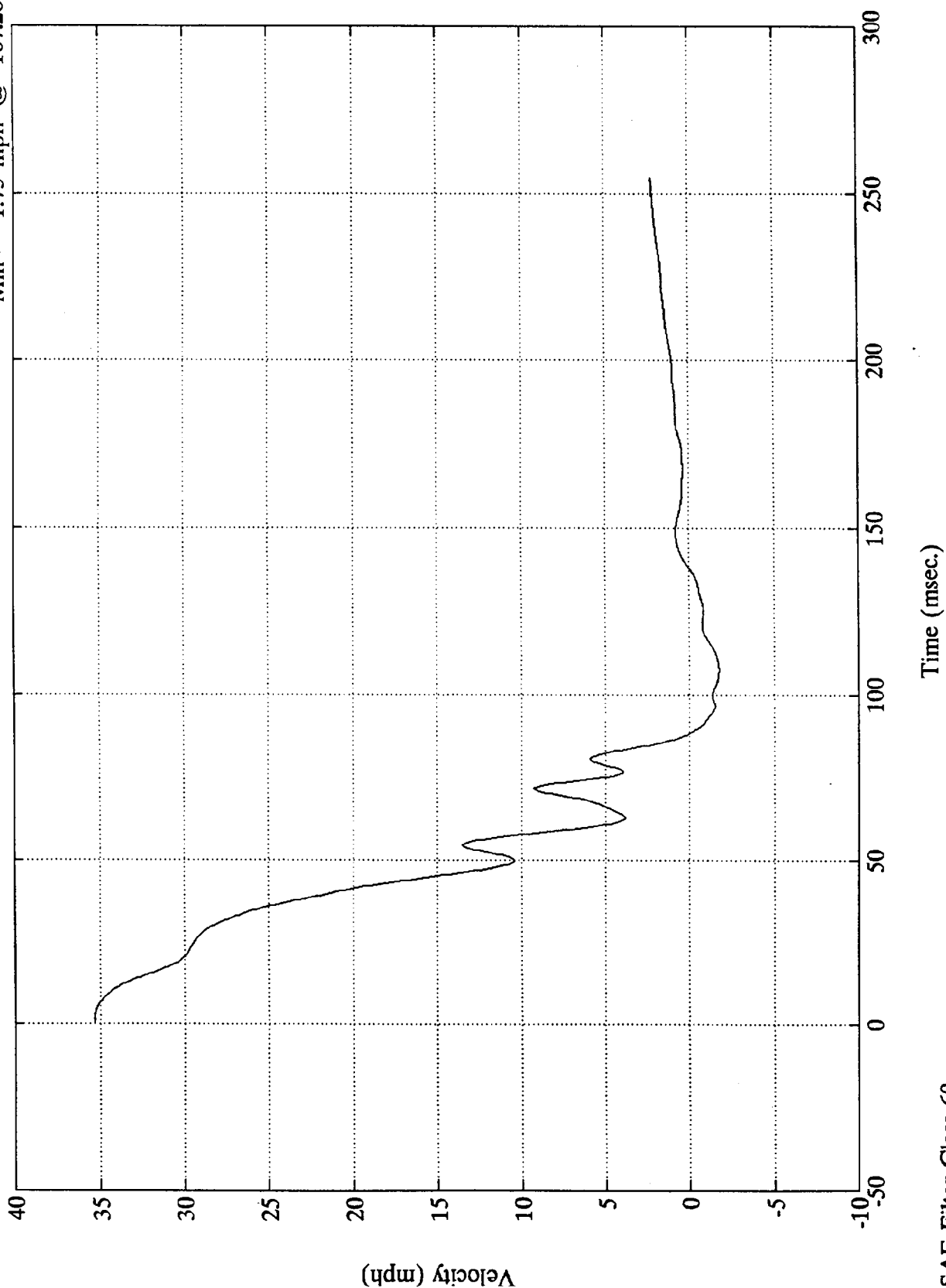
7946-4

Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 35.30 mph @ 2.40 msec
Min = -1.75 mph @ 107.28 msec

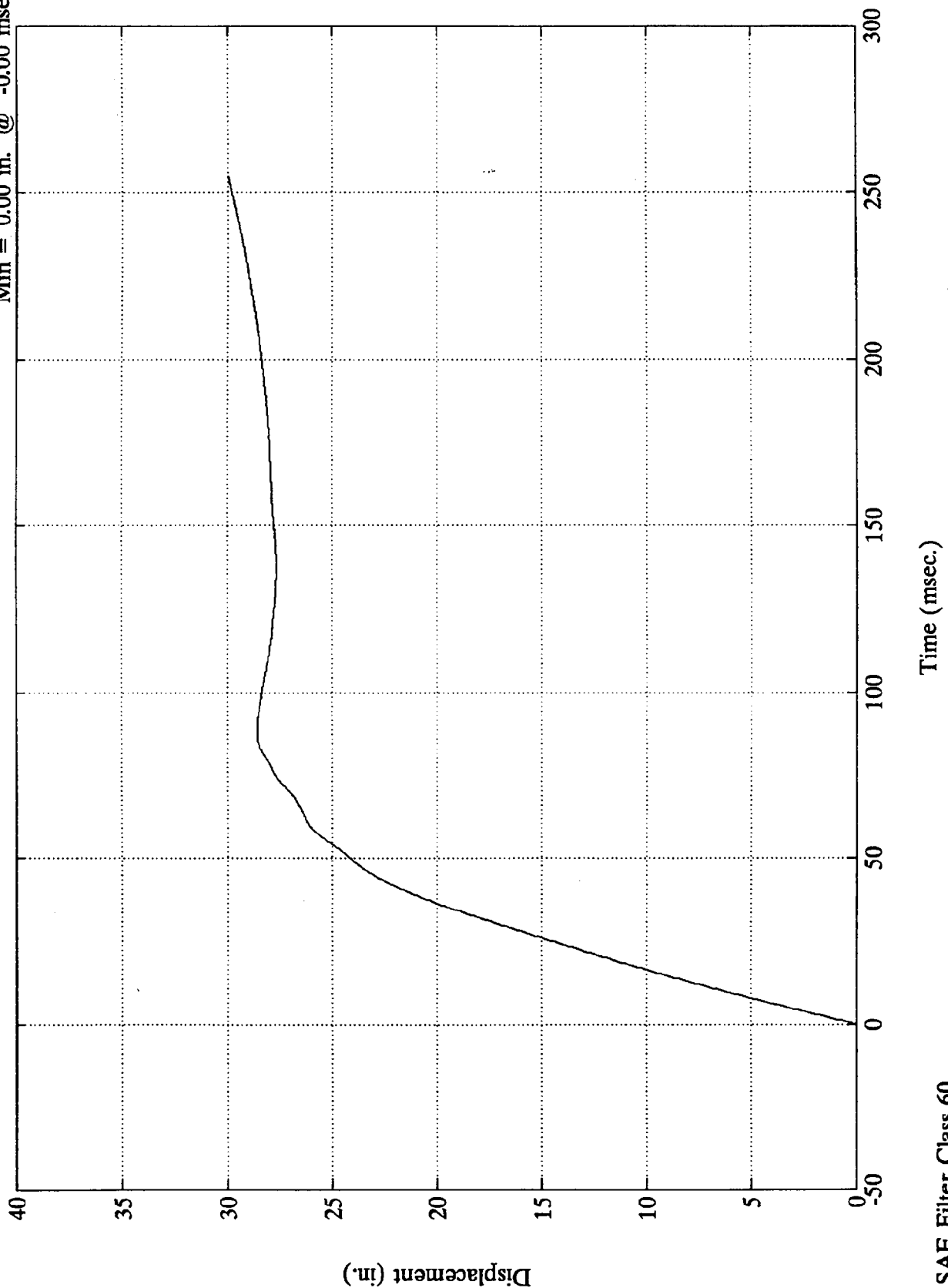
Acc. #7(x)



NCAP TEST #4 1992 ACURA VIGOR

Acc. #7(x)

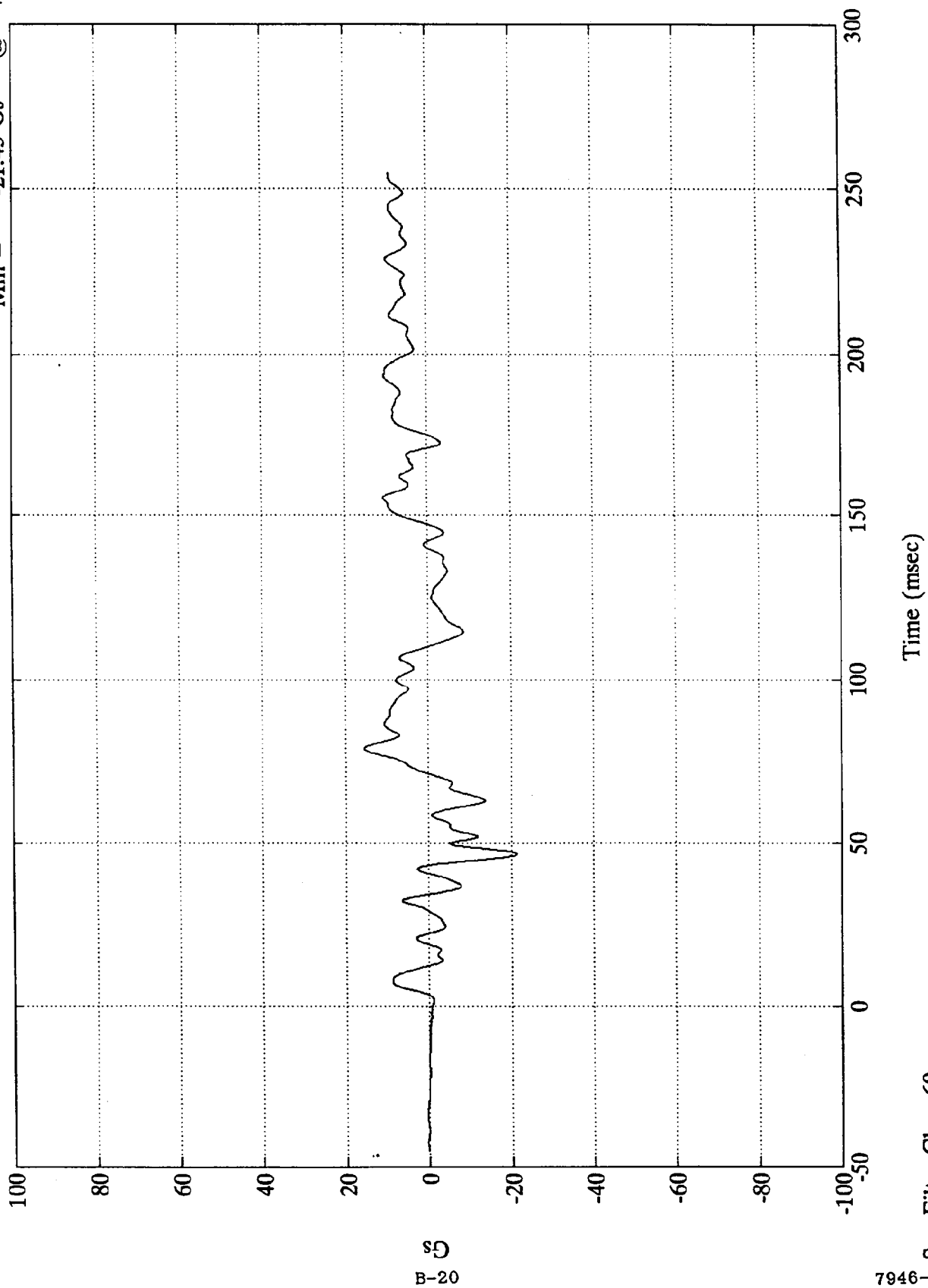
Max = 29.96 in. @ 254.88 msec
Min = 0.00 in. @ -0.00 msec



NCAP TEST #4 1992 ACURA VIGOR

Max = 15.43 Gs @ 78.84 msec
 Min = -21.43 Gs @ 46.68 msec

Acc. #8(z)

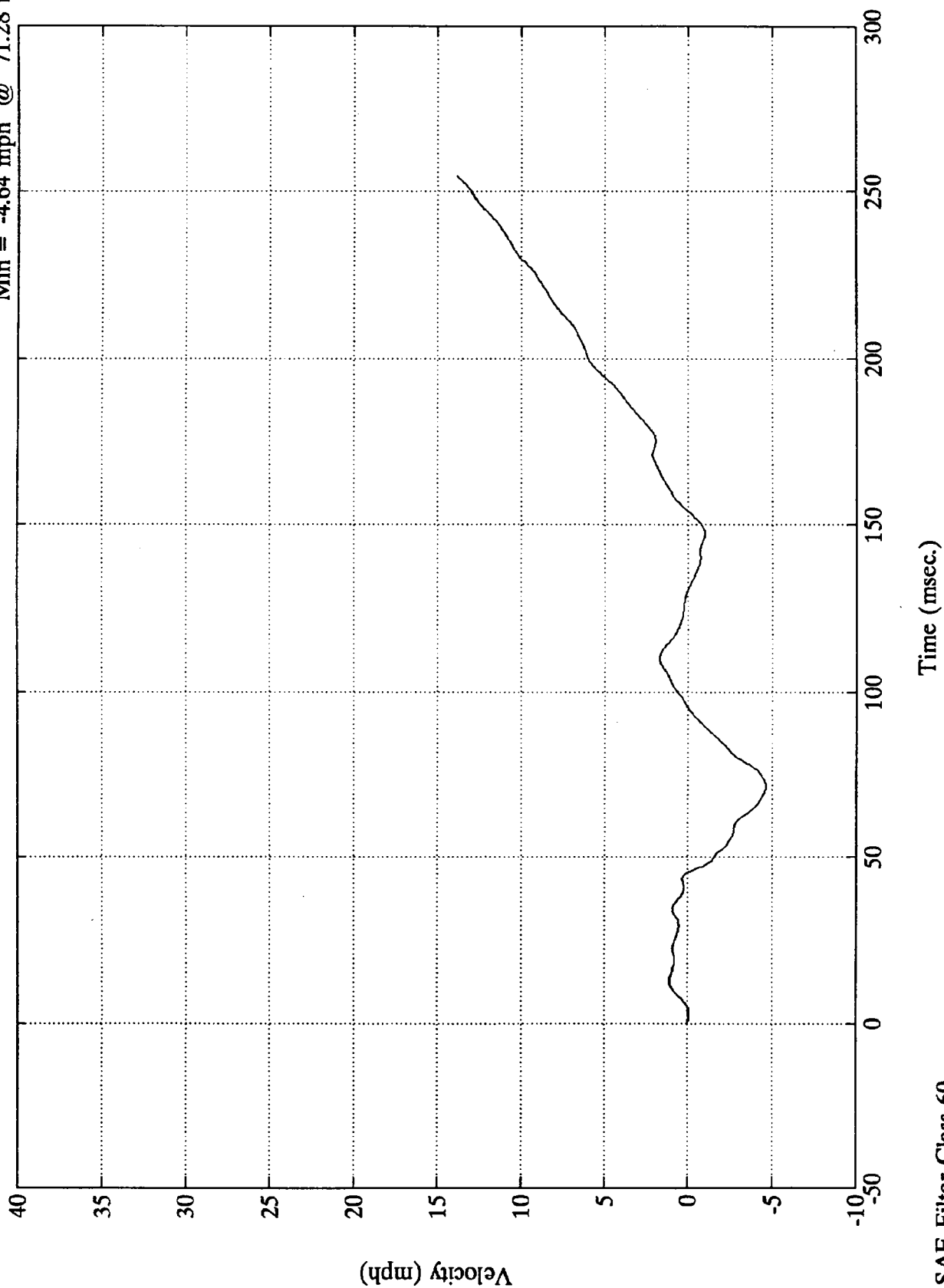


Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Acc. #8(z)

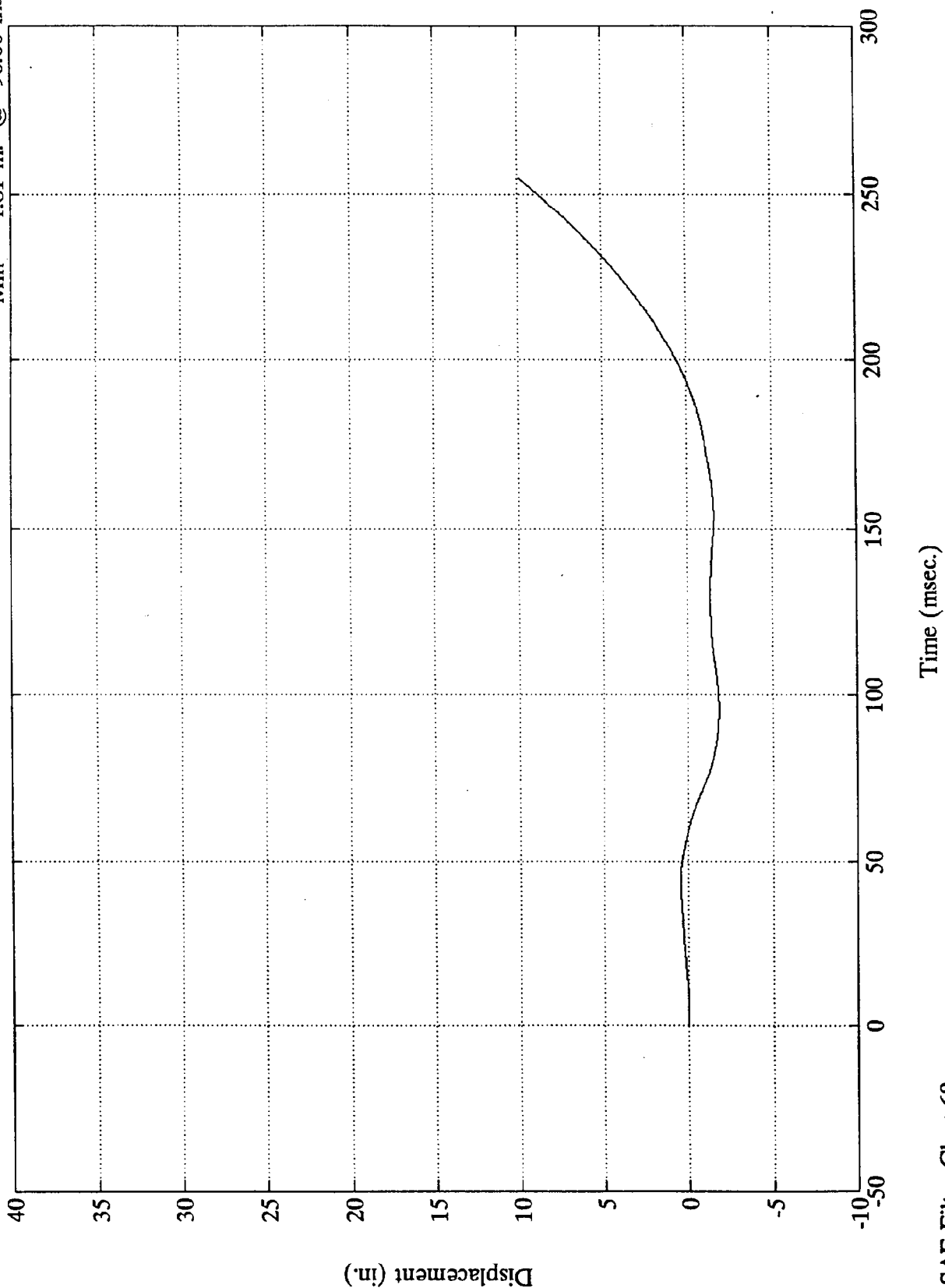
Max = 13.85 mph @ 254.88 msec
Min = -4.64 mph @ 71.28 msec



NCAP TEST #4 1992 ACURA VIGOR

Max = 9.89 in. @ 254.88 msec
Min = -1.81 in. @ 96.00 msec

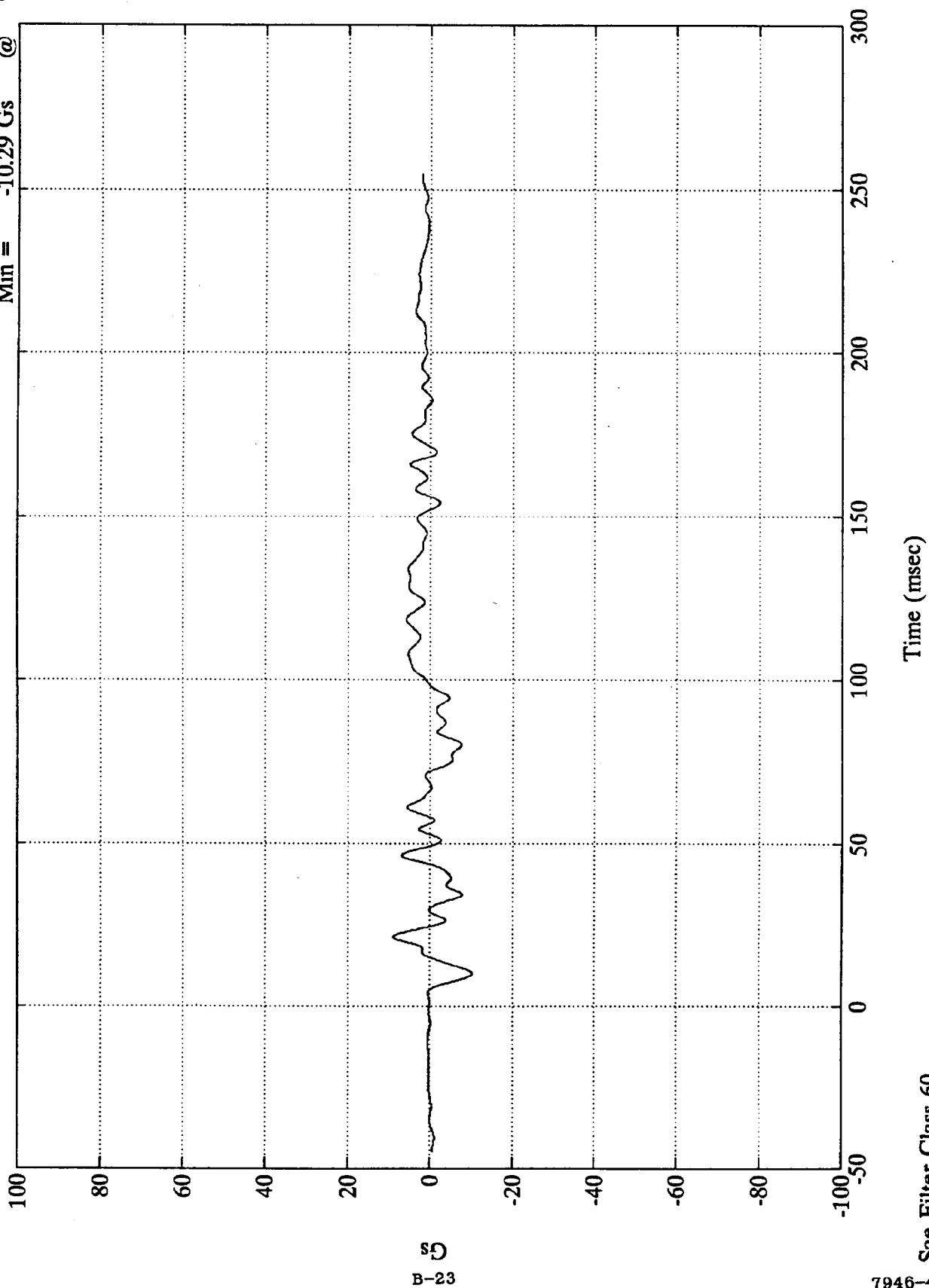
Acc. #8(z)



NCAP TEST #4 1992 ACURA VIGOR

Acc. #9(z)

Max = 8.92 Gs @ 21.23 msec
Min = -10.29 Gs @ 9.95 msec



B-23

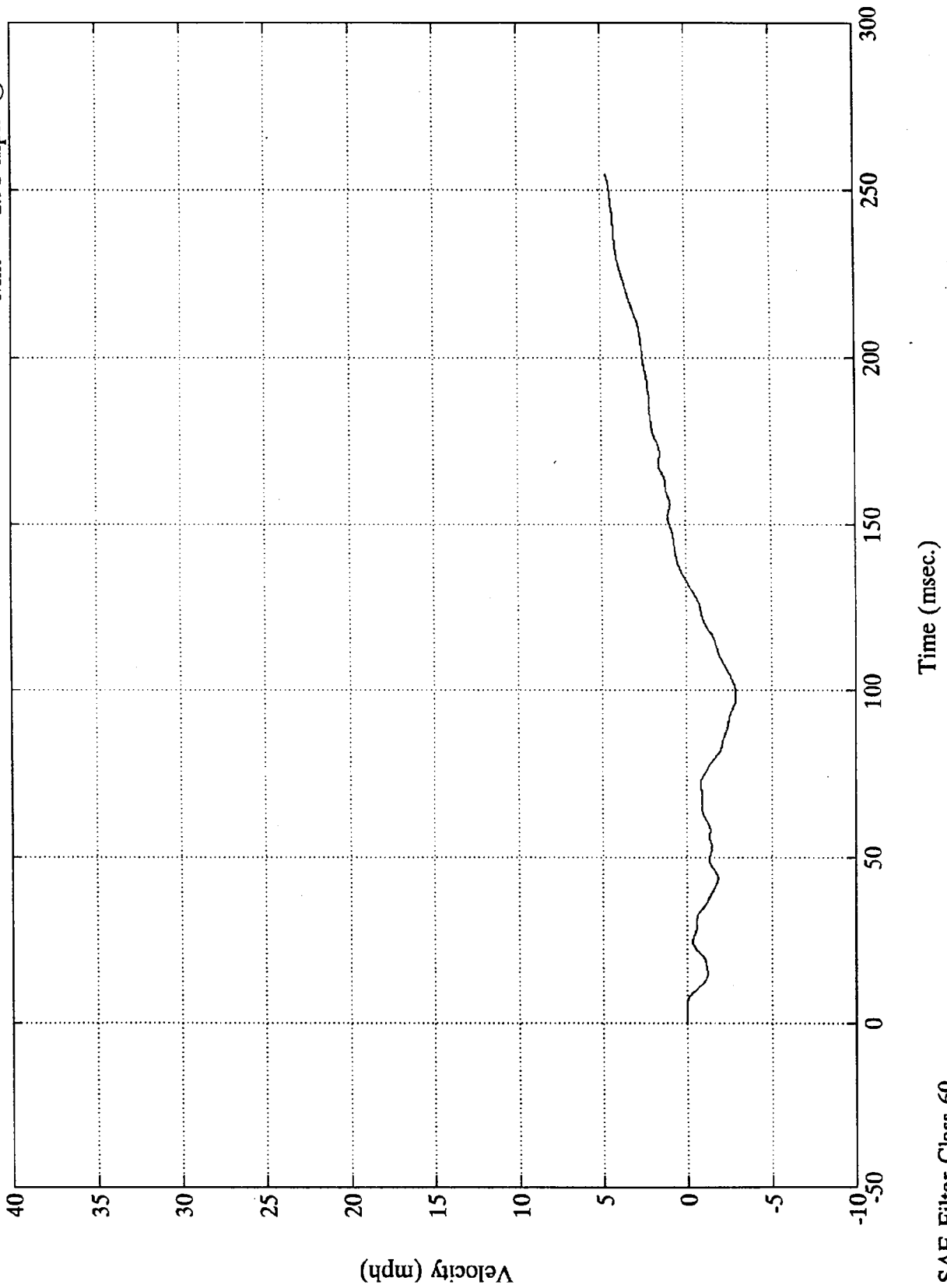
7946-4

Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 4.66 mph @ 254.88 msec
Min = -2.91 mph @ 98.40 msec

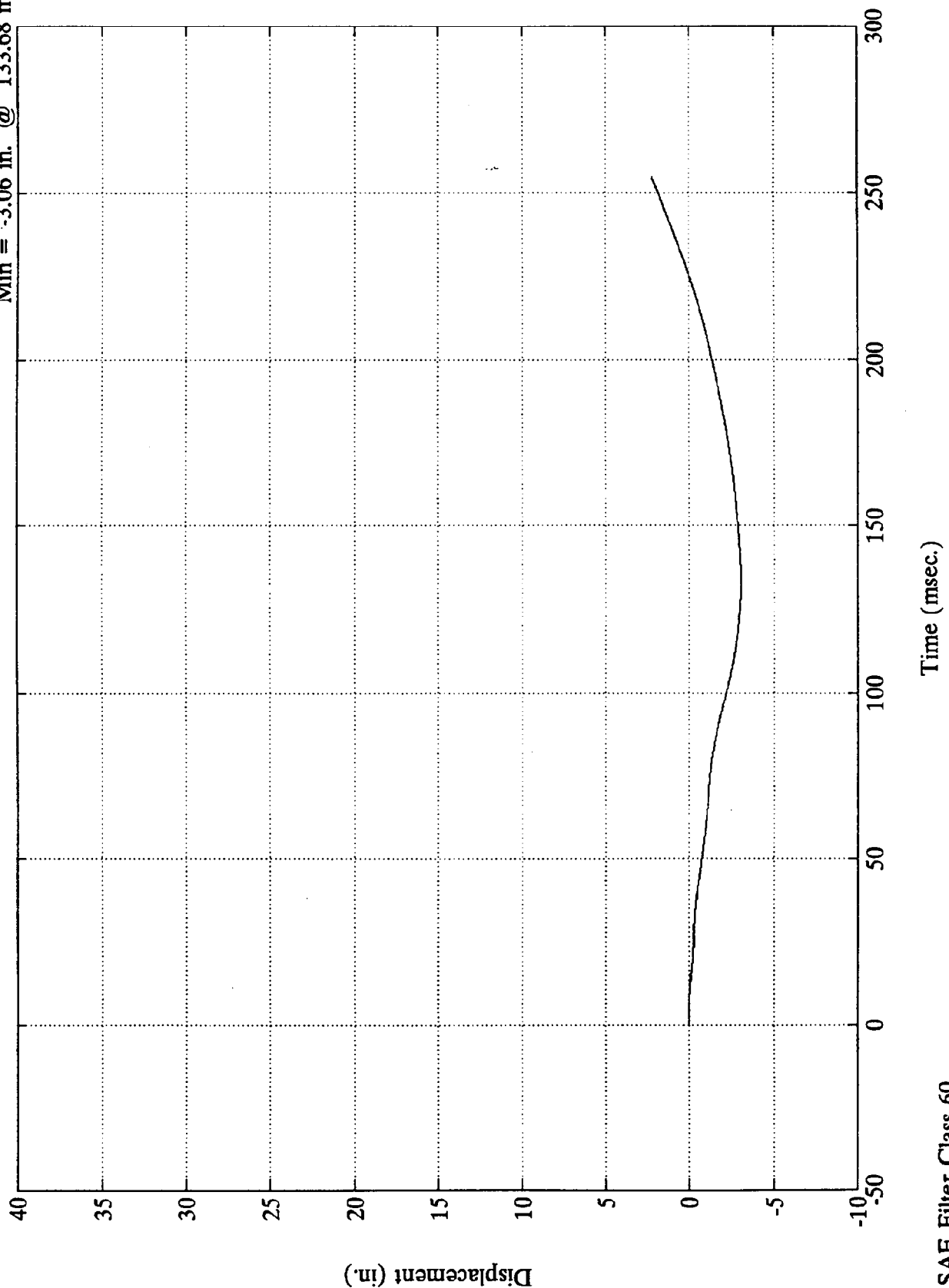
Acc. #9(z)



NCAP TEST #4 1992 ACURA VIGOR

Acc. #9(z)

Max = 2.22 in. @ 254.88 msec
Min = -3.06 in. @ 133.68 msec



TEST NO. MN5300

LOAD CELL BARRIER DATA

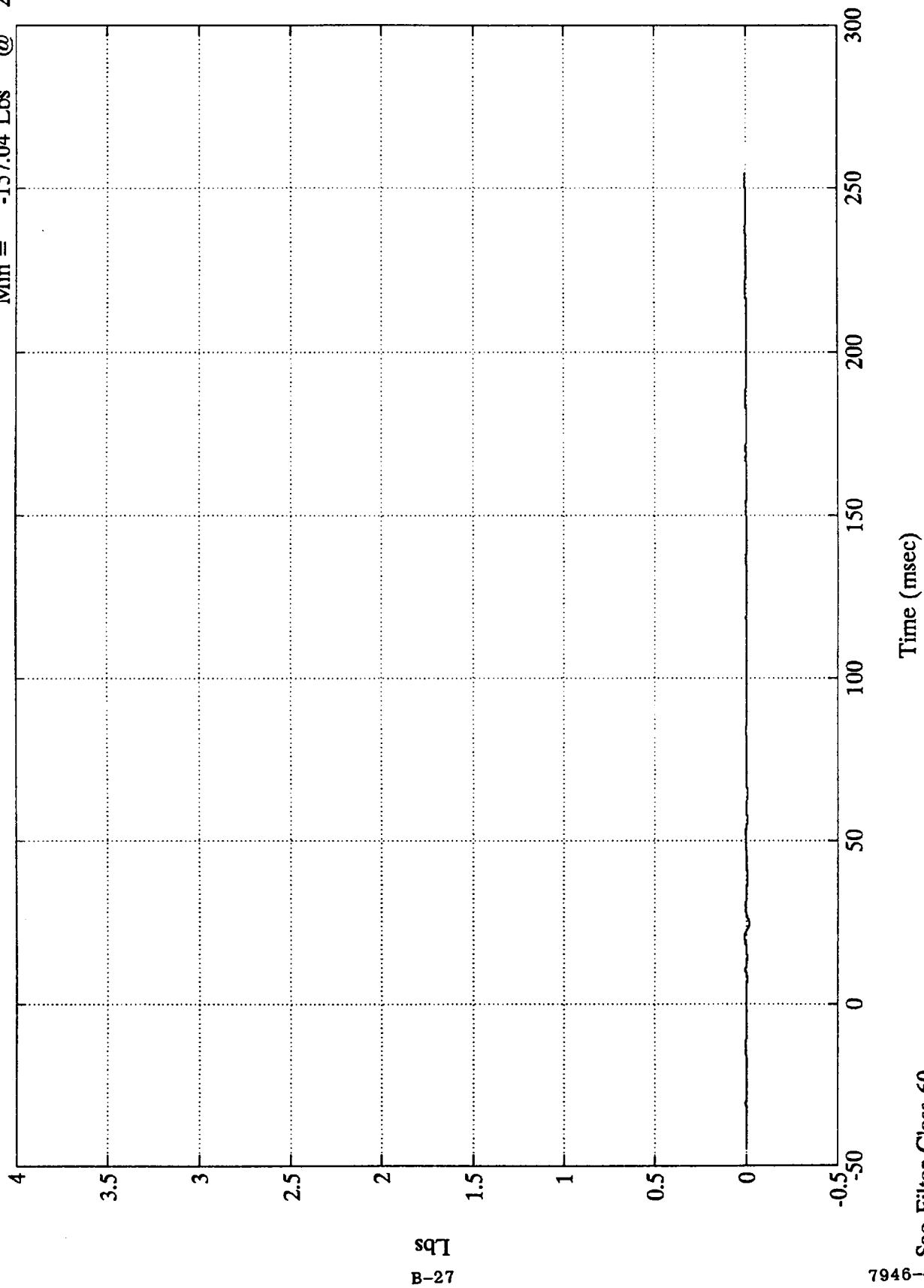
FILTER CHANNEL CLASS

60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell A1

Max = 84.32 Lbs @ 20.39 msec
Min = -157.04 Lbs @ 24.47 msec



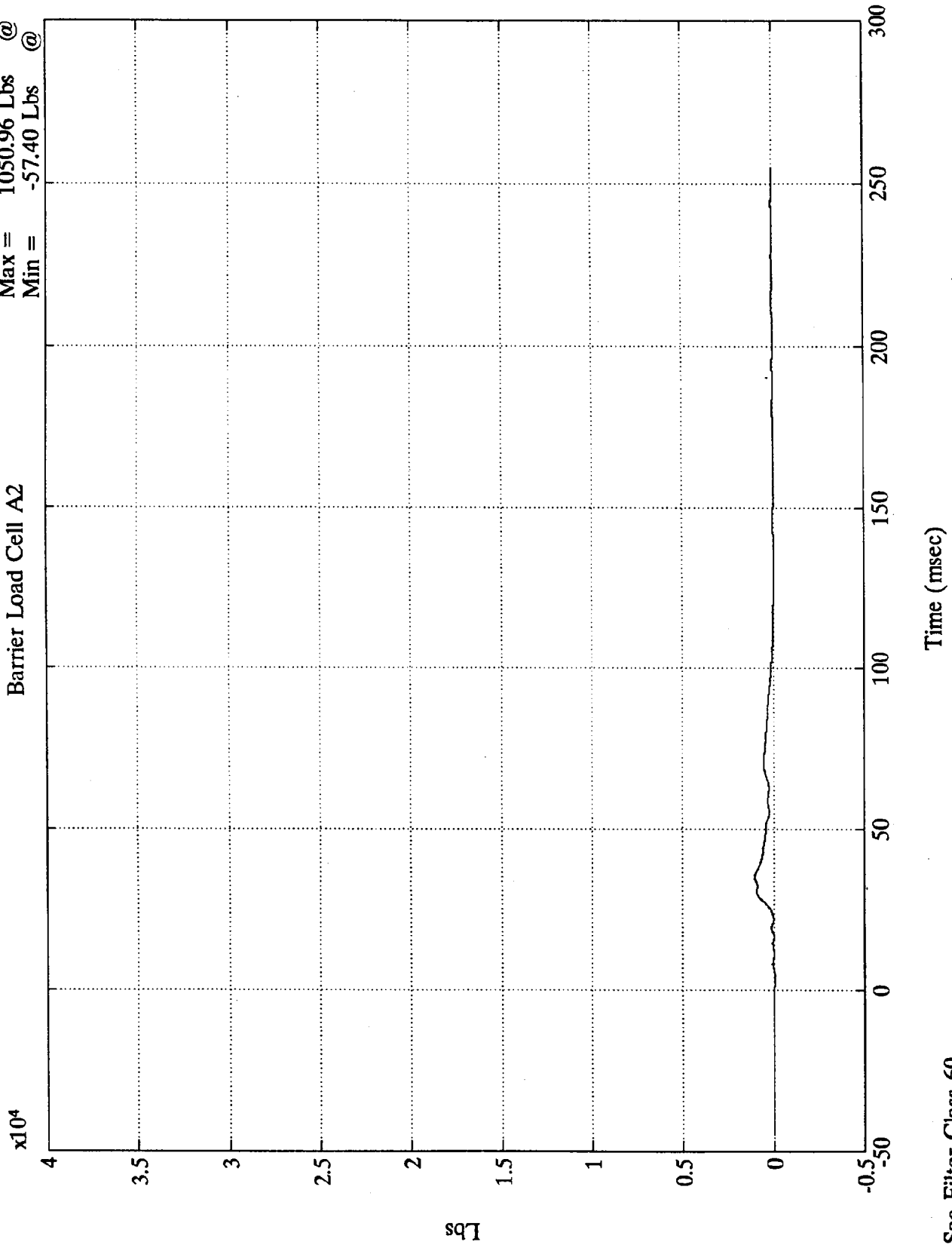
B-27

7946-4

Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell A2
Max = 1050.96 Lbs @ 35.03 msec
Min = -57.40 Lbs @ 3.95 msec



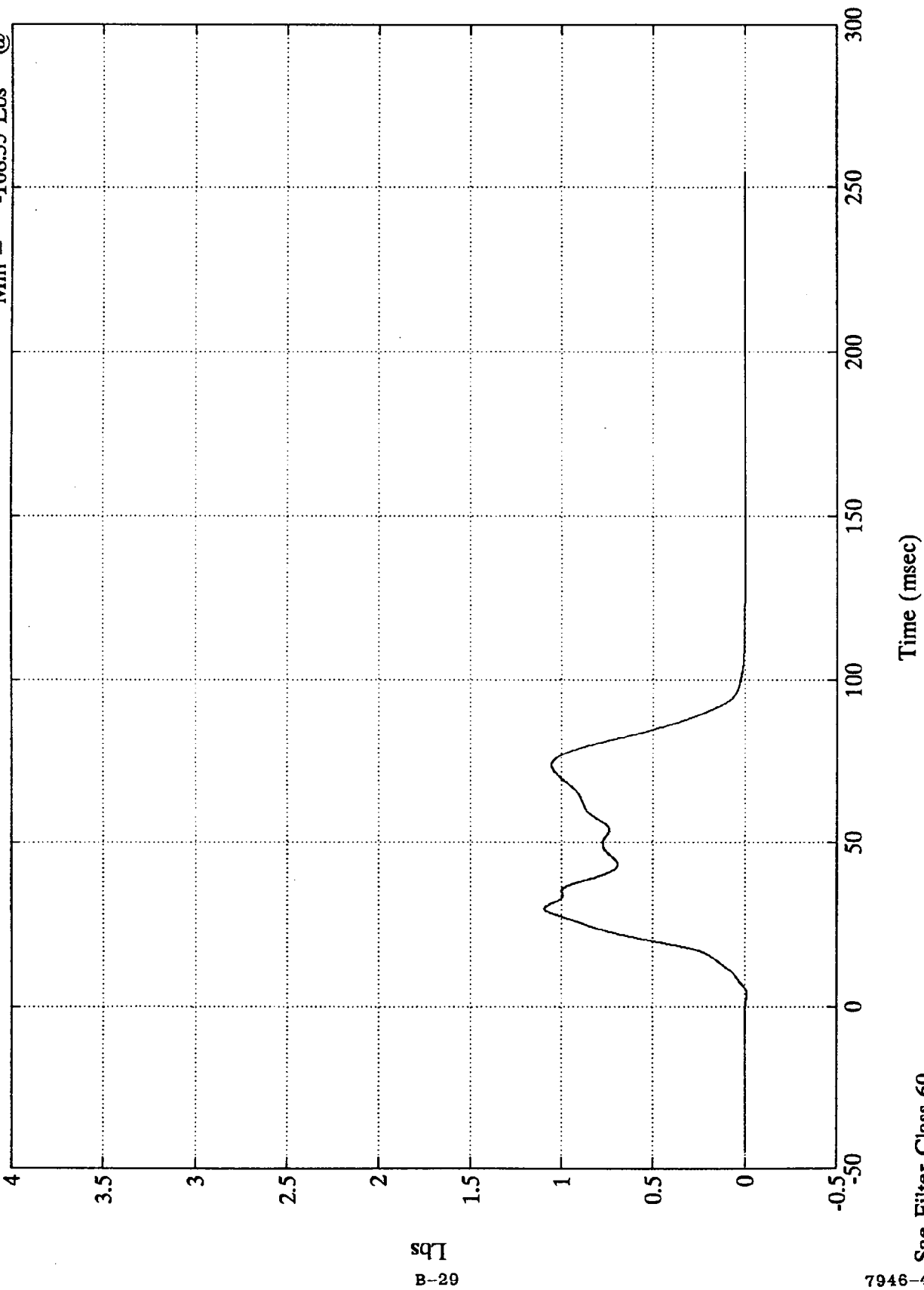
B-28

7946-4 Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell A3

Max = 10945.76 Lbs @ 29.63 msec
Min = -108.35 Lbs @ 3.71 msec



B-29
lbs

7946-4

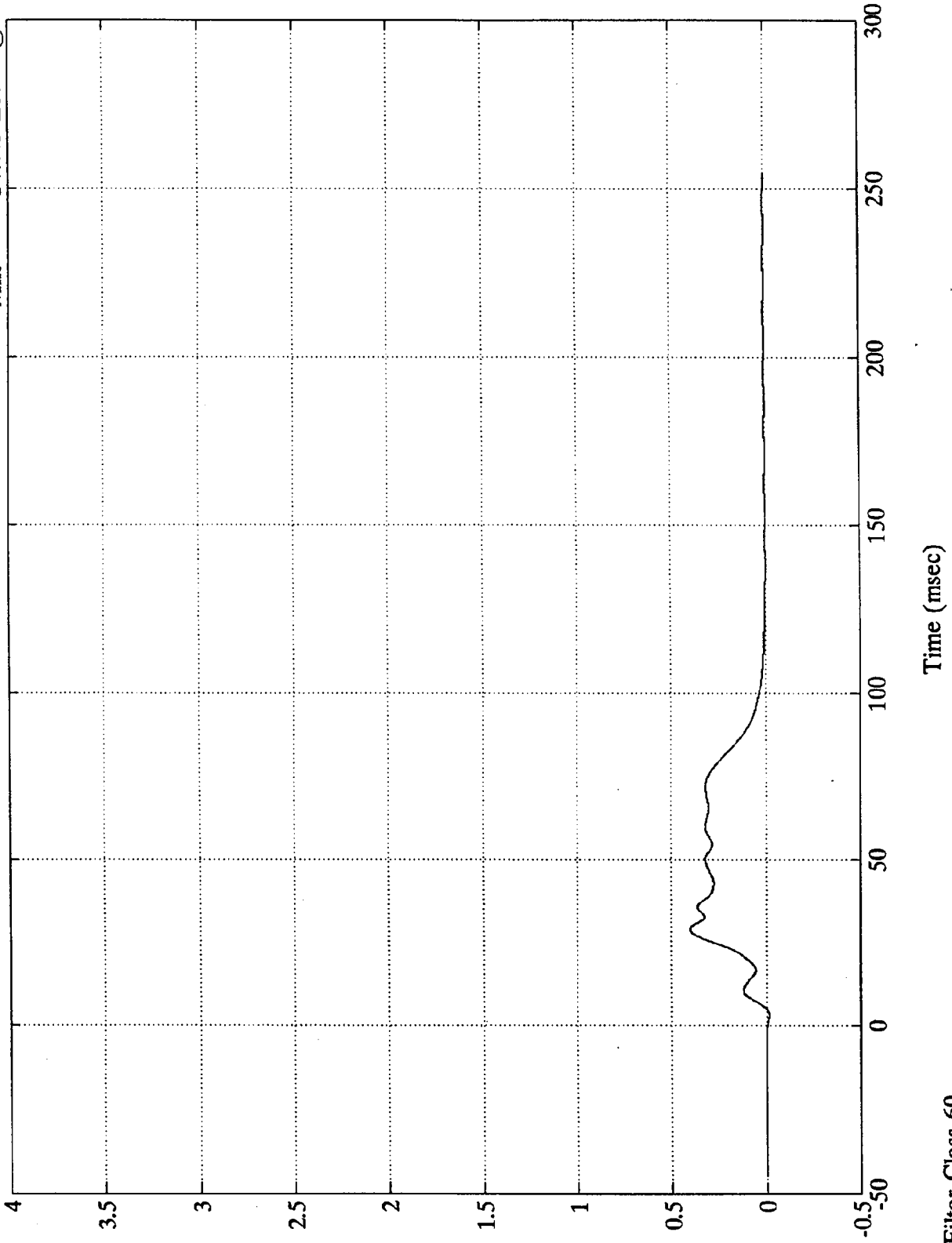
Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 4039.21 Lbs @ 28.68 msec
 Min = -147.43 Lbs @ 2.99 msec

Barrier Load Cell A4

x10⁴



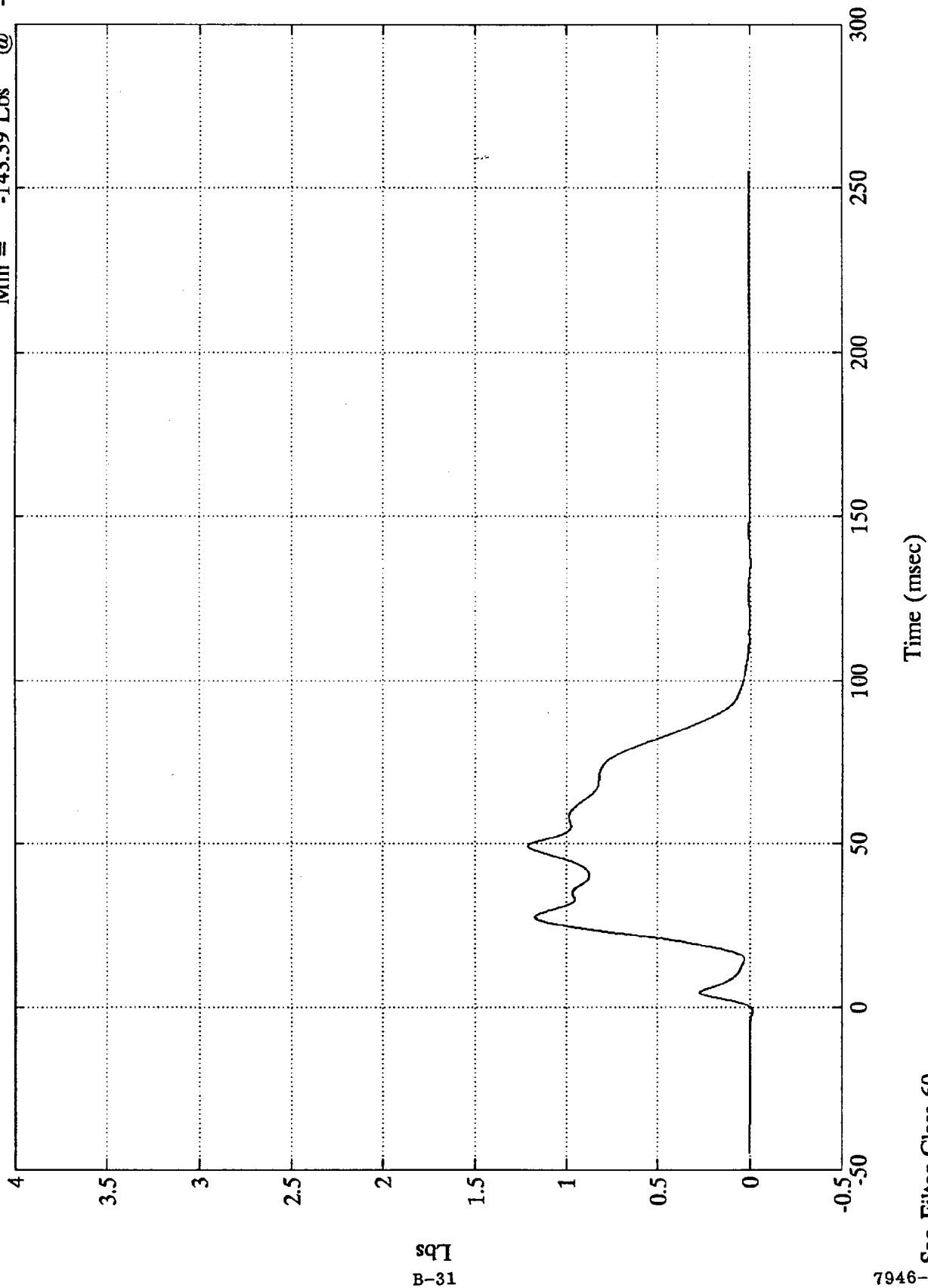
B-30

7946-4 Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell A5

Max = 12096.99 Lbs @ 49.20 msec
Min = -143.39 Lbs @ -1.32 msec



sq7
B-31

7946-4

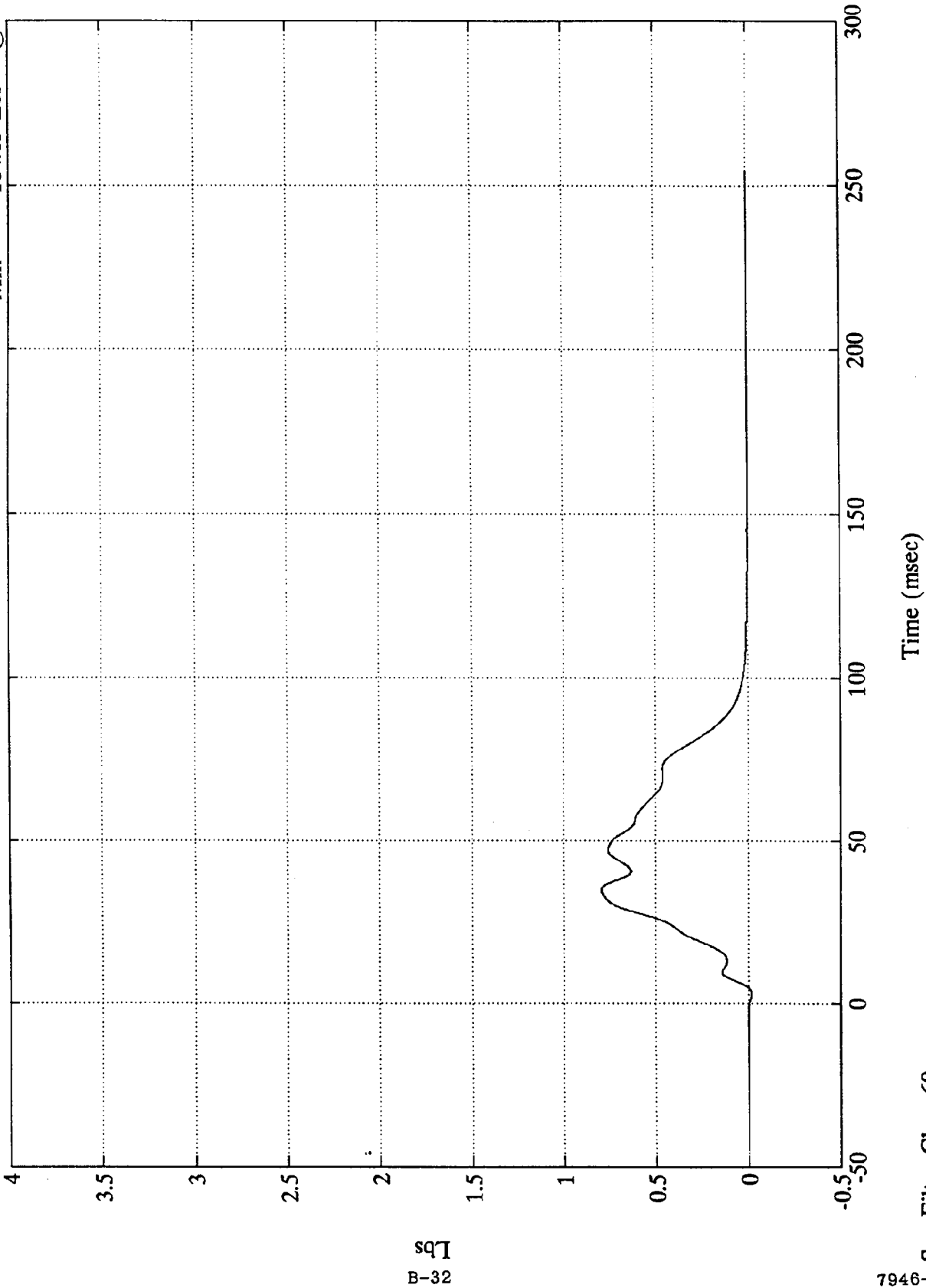
Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 7964.14 Lbs @ 34.68 msec
Min = -184.83 Lbs @ 2.87 msec

Barrier Load Cell A6

$\times 10^4$



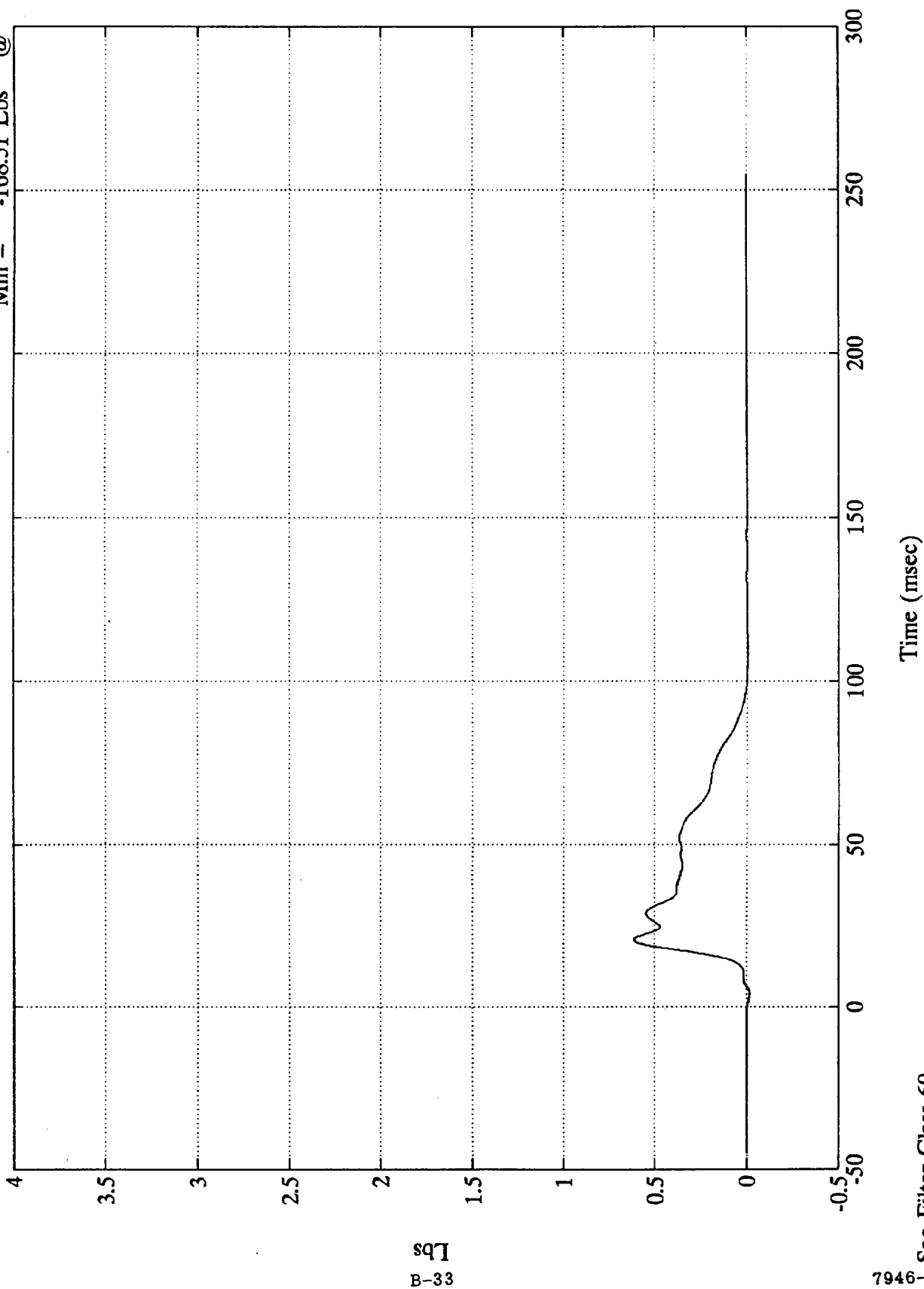
B-32
sq7

7946-4
Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell A7

Max = 6150.79 Lbs @ 20.63 msec
Min = -168.51 Lbs @ 3.95 msec



B-33

7946-4

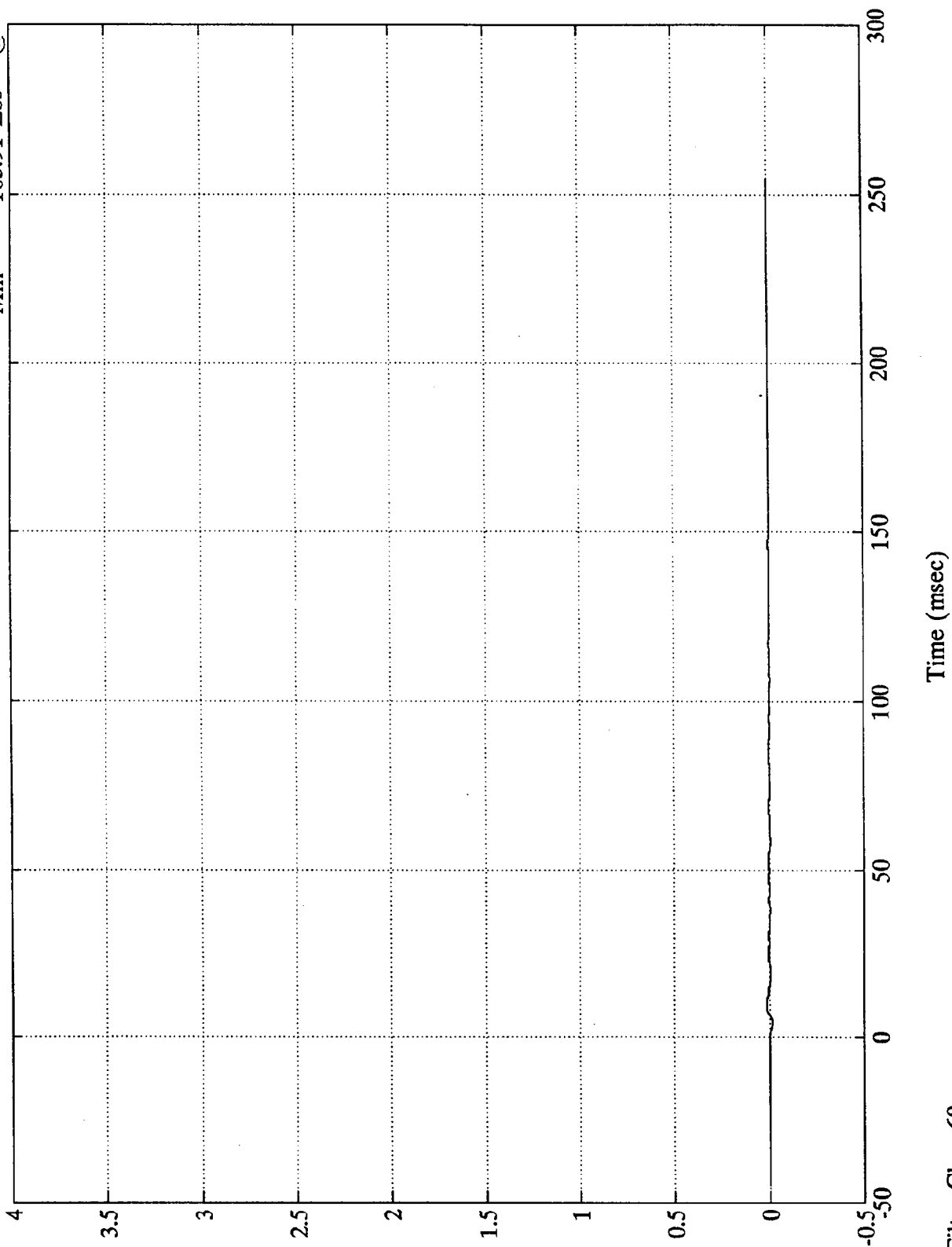
Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 158.58 Lbs @ 9.35 msec
 Min = -163.91 Lbs @ 4.31 msec

Barrier Load Cell A8

x10⁴



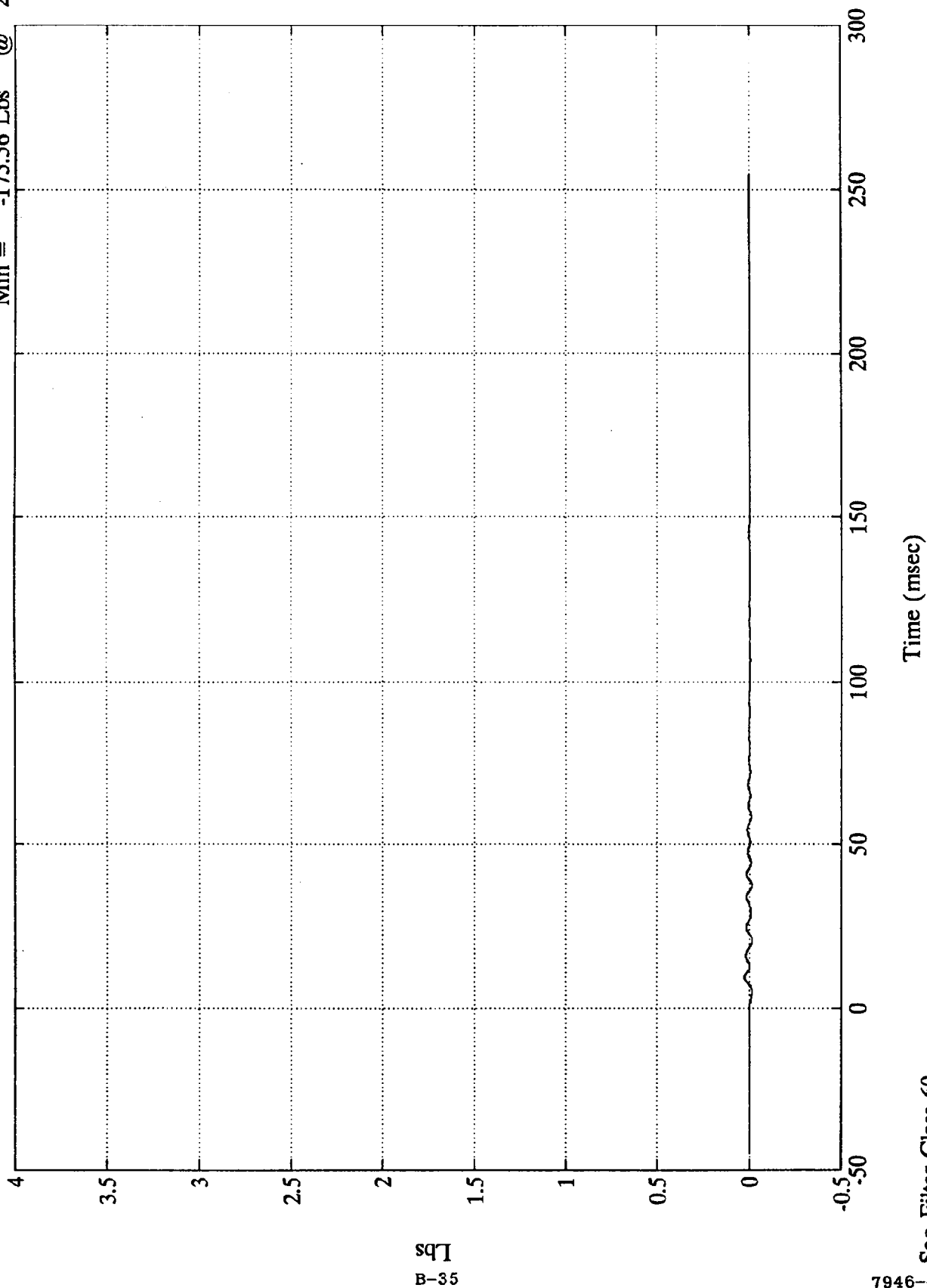
B-34

7946-4 Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 245.02 Lbs @ 9.35 msec
Min = -175.56 Lbs @ 20.39 msec

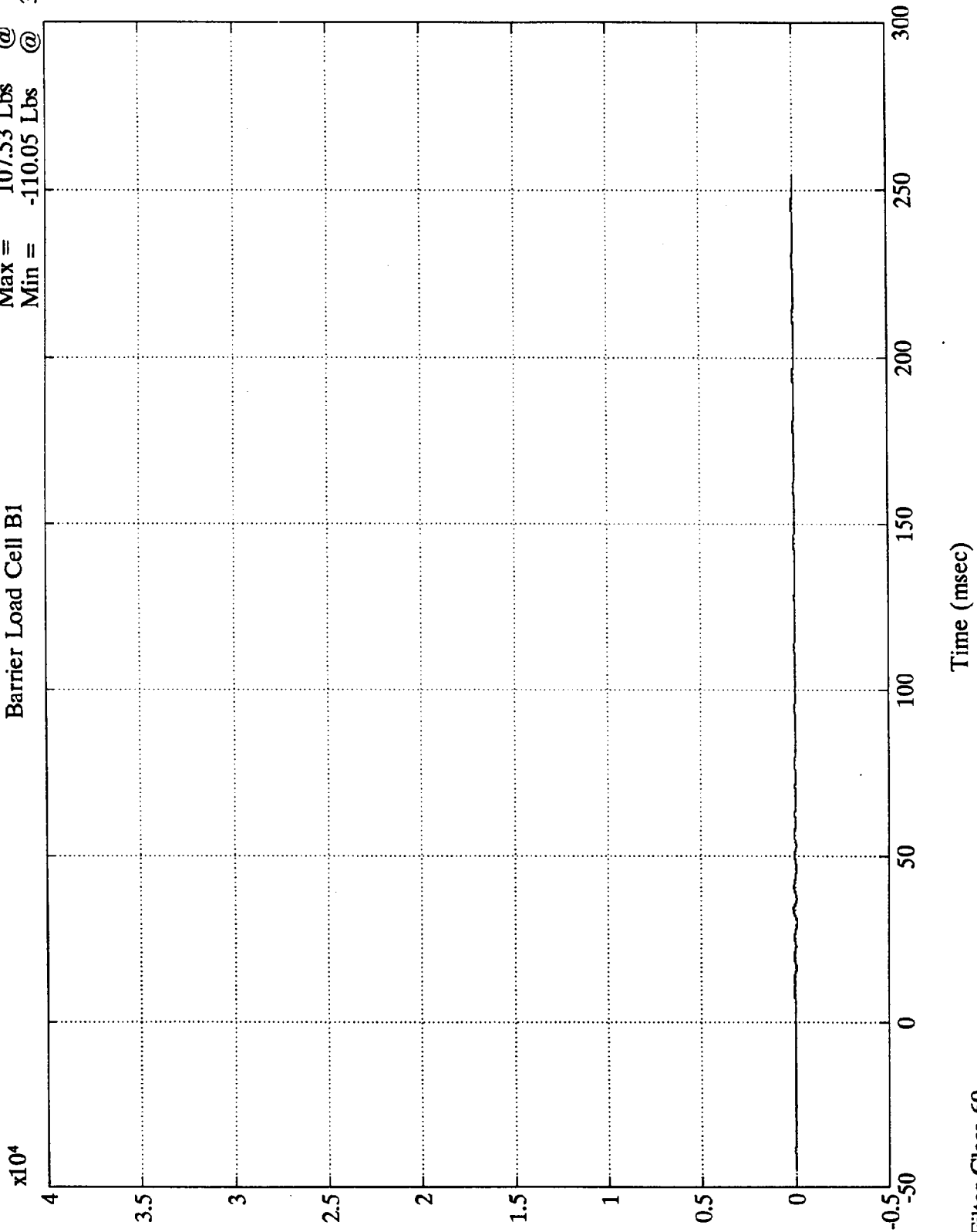
Barrier Load Cell A9



B-35

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell B1
Max = 107.53 Lbs @ 33.72 msec
Min = -110.05 Lbs @ 30.00 msec

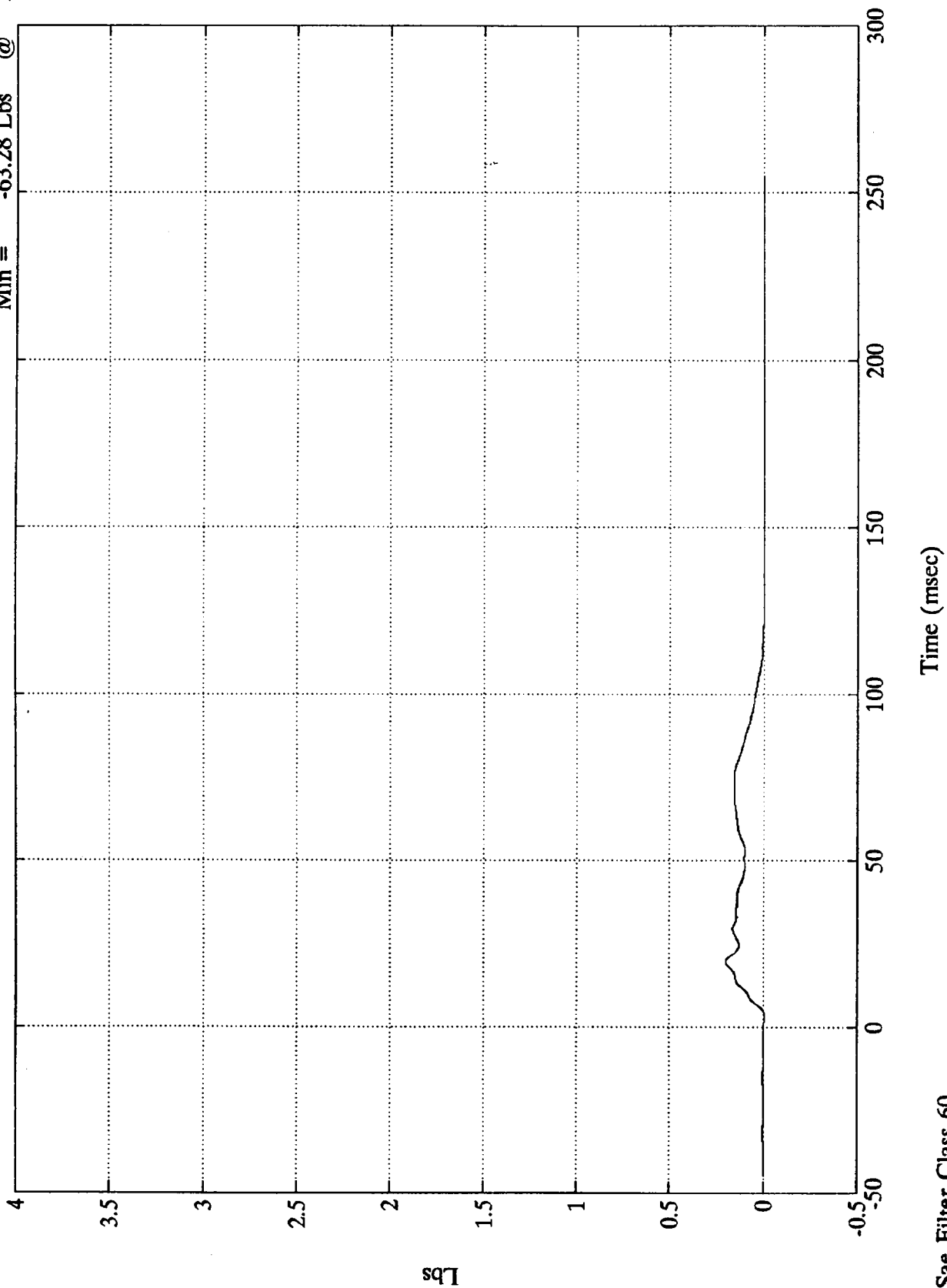


Lbs
B-36

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell B2

Max = 1999.41 Lbs @ 19.67 msec
Min = -63.28 Lbs @ 3.47 msec



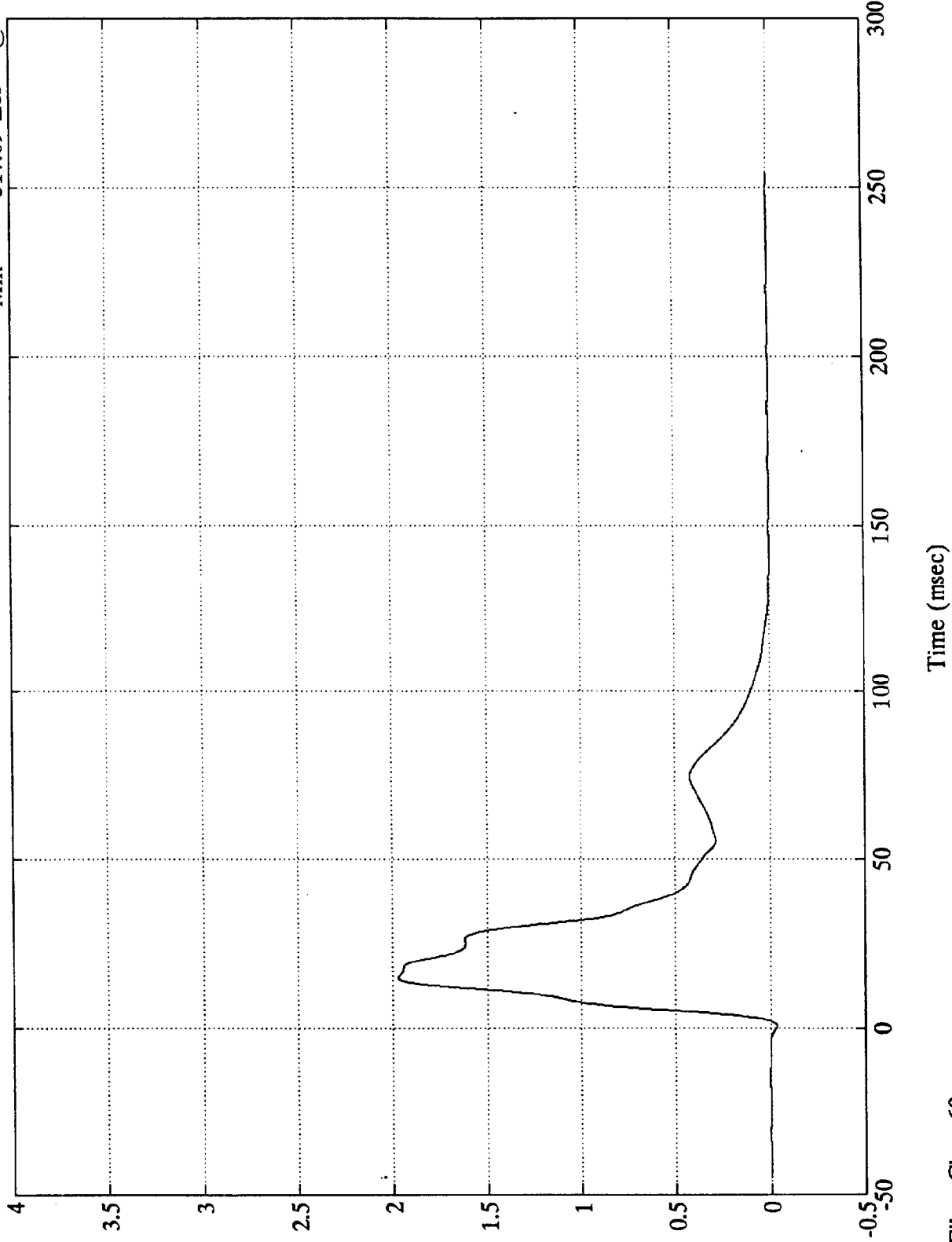
Lbs
B-37

NCAP TEST #4 1992 ACURA VIGOR

Max = 19711.48 Lbs @ 14.63 msec
 Min = -317.09 Lbs @ 0.47 msec

Barrier Load Cell B3

x10⁴



B-38

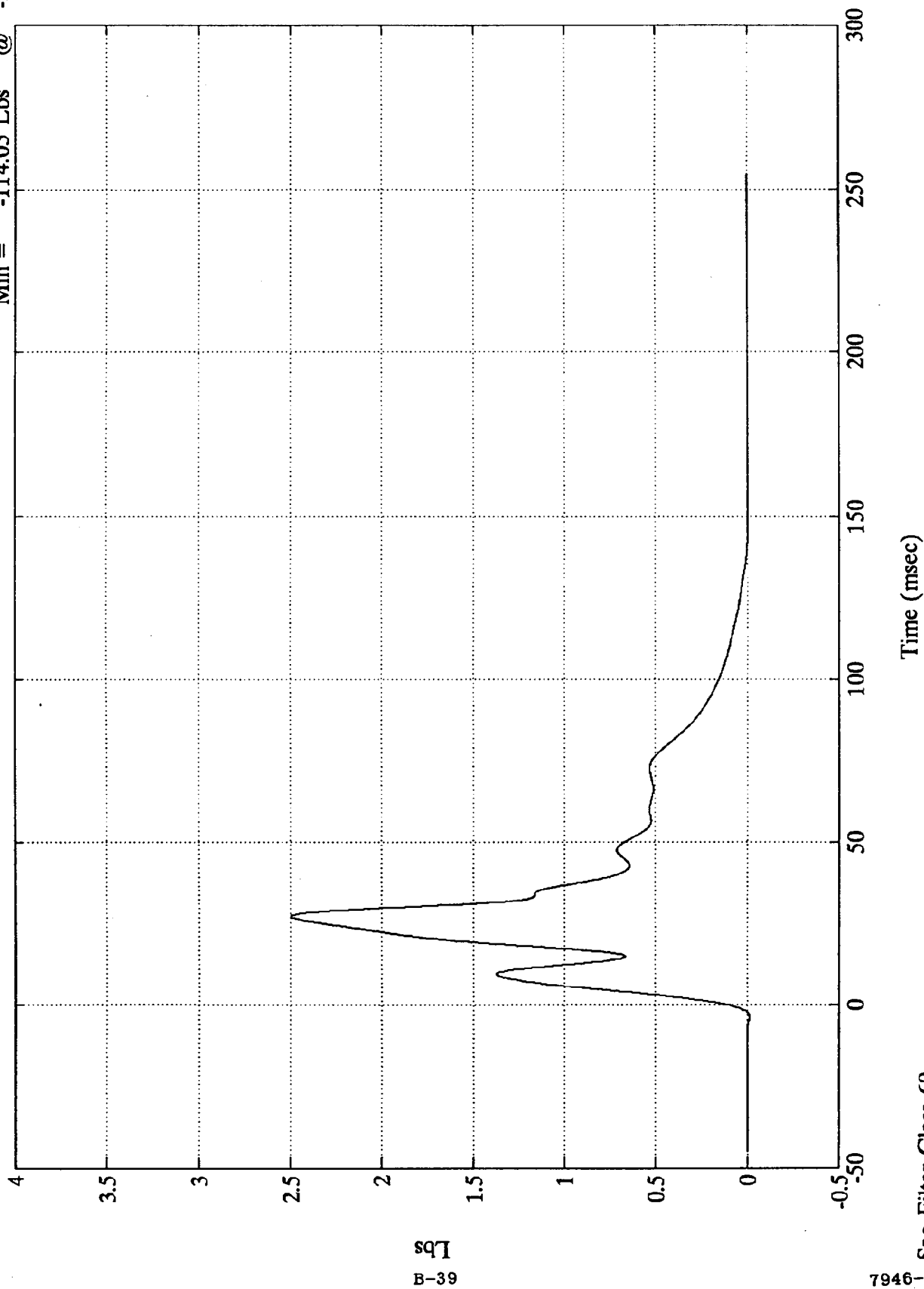
7946-4

Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell B4

Max = 24971.81 Lbs @ 27.00 msec
Min = -114.05 Lbs @ -3.72 msec



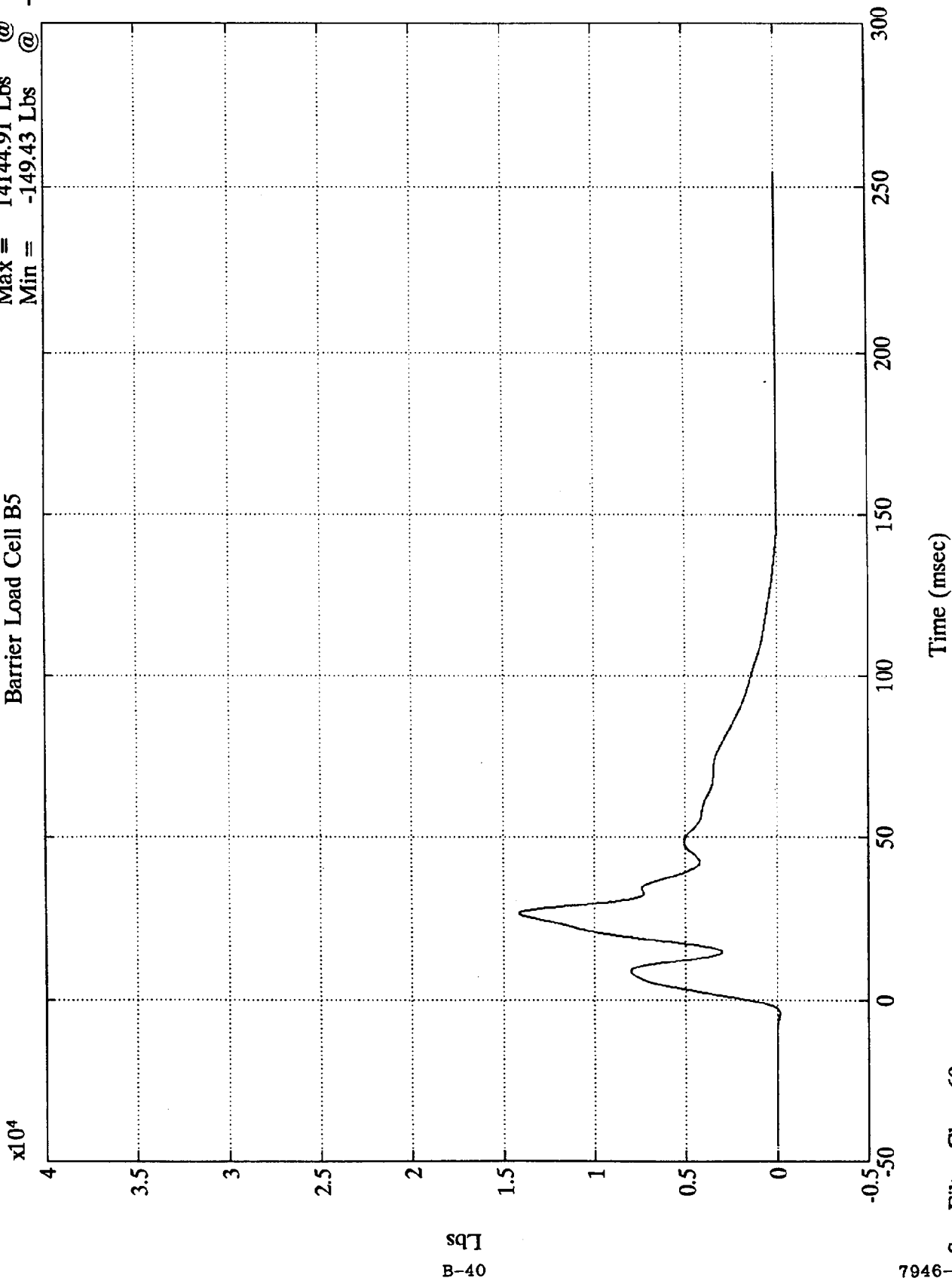
B-39

Sae Filter Class 60

7946-4

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell B5
Max = 14144.91 Lbs @ 26.51 msec
Min = -149.43 Lbs @ -4.20 msec



lbs
B-40

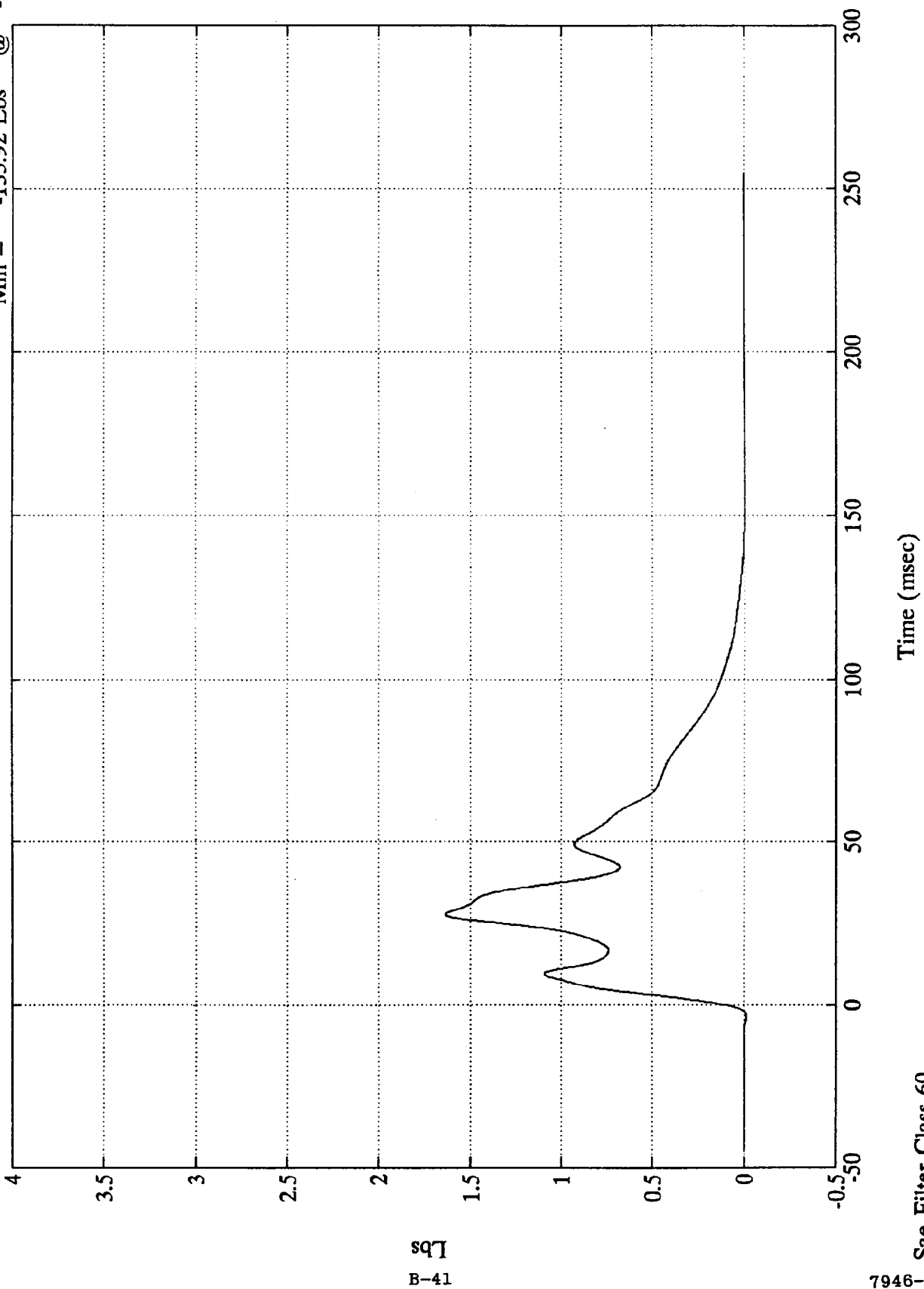
Sac Filter Class 60

7946-4

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell B6

Max = 16345.86 Lbs @ 27.60 msec
 Min = -135.92 Lbs @ -3.48 msec



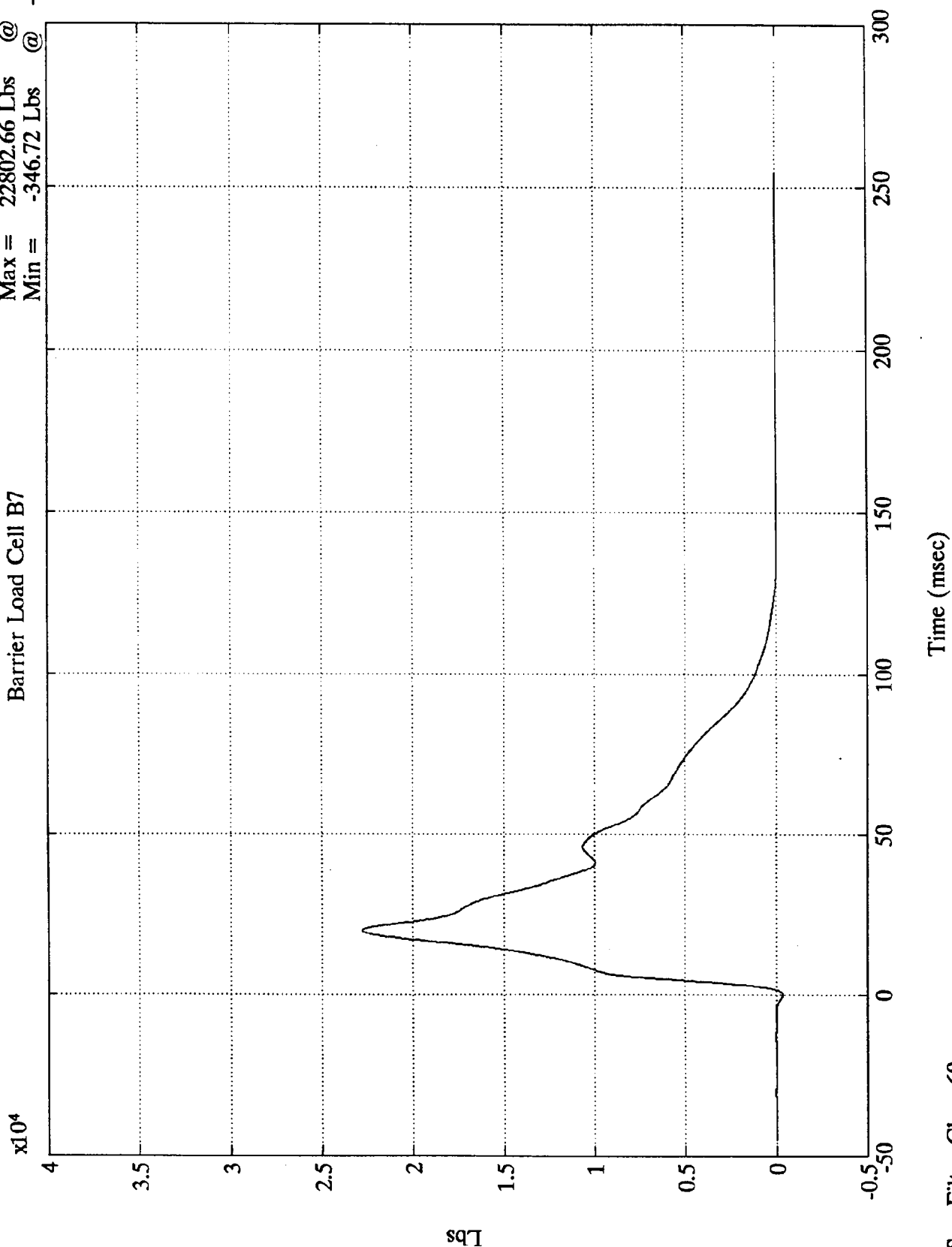
lbs
 B-41

7946-4
 Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell B7

Max = 22802.66 Lbs @ 19.91 msec
Min = -346.72 Lbs @ -0.12 msec

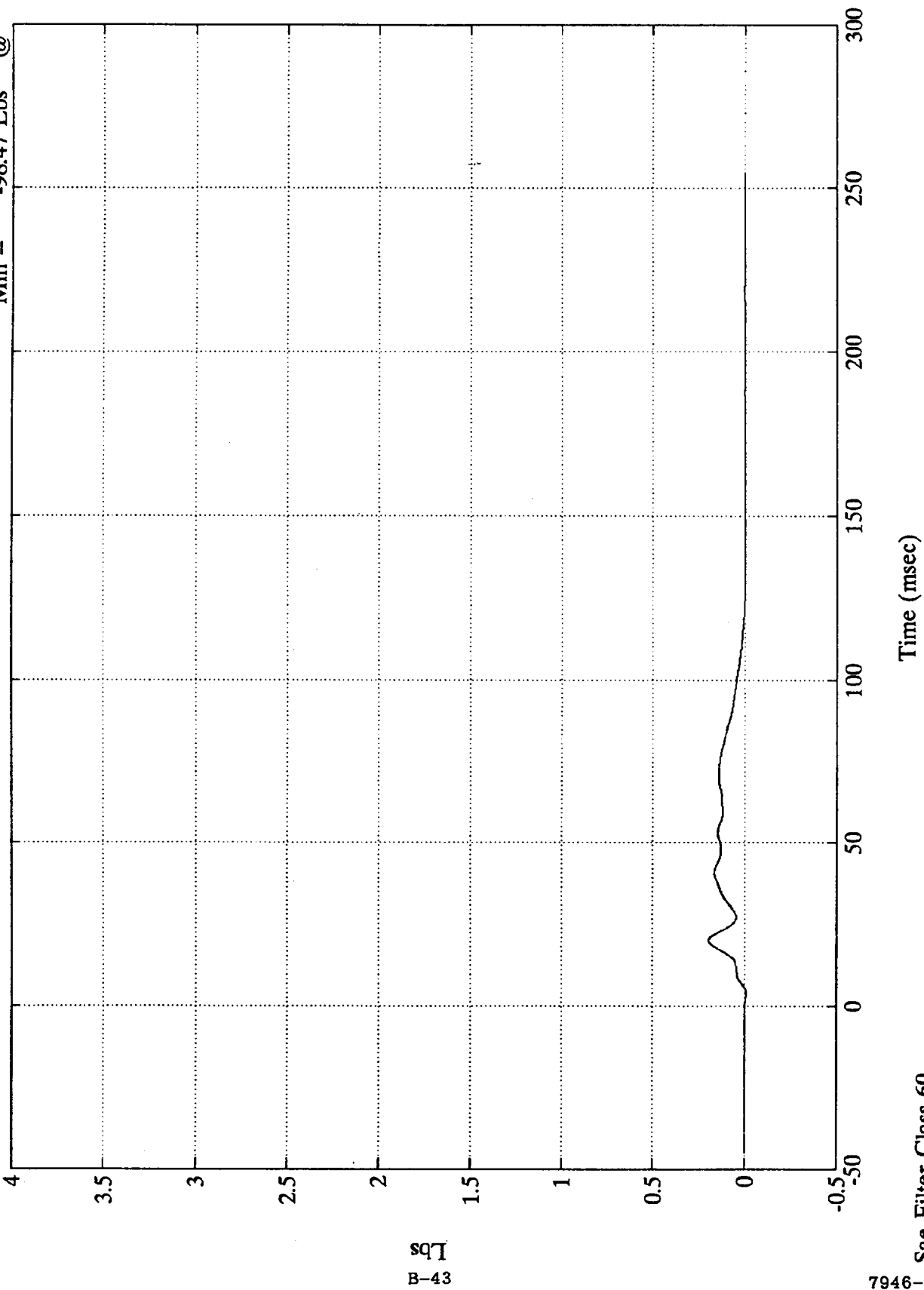


B-42
Lbs

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell B8

Max = 1938.89 Lbs @ 20.03 msec
Min = -98.47 Lbs @ 3.71 msec

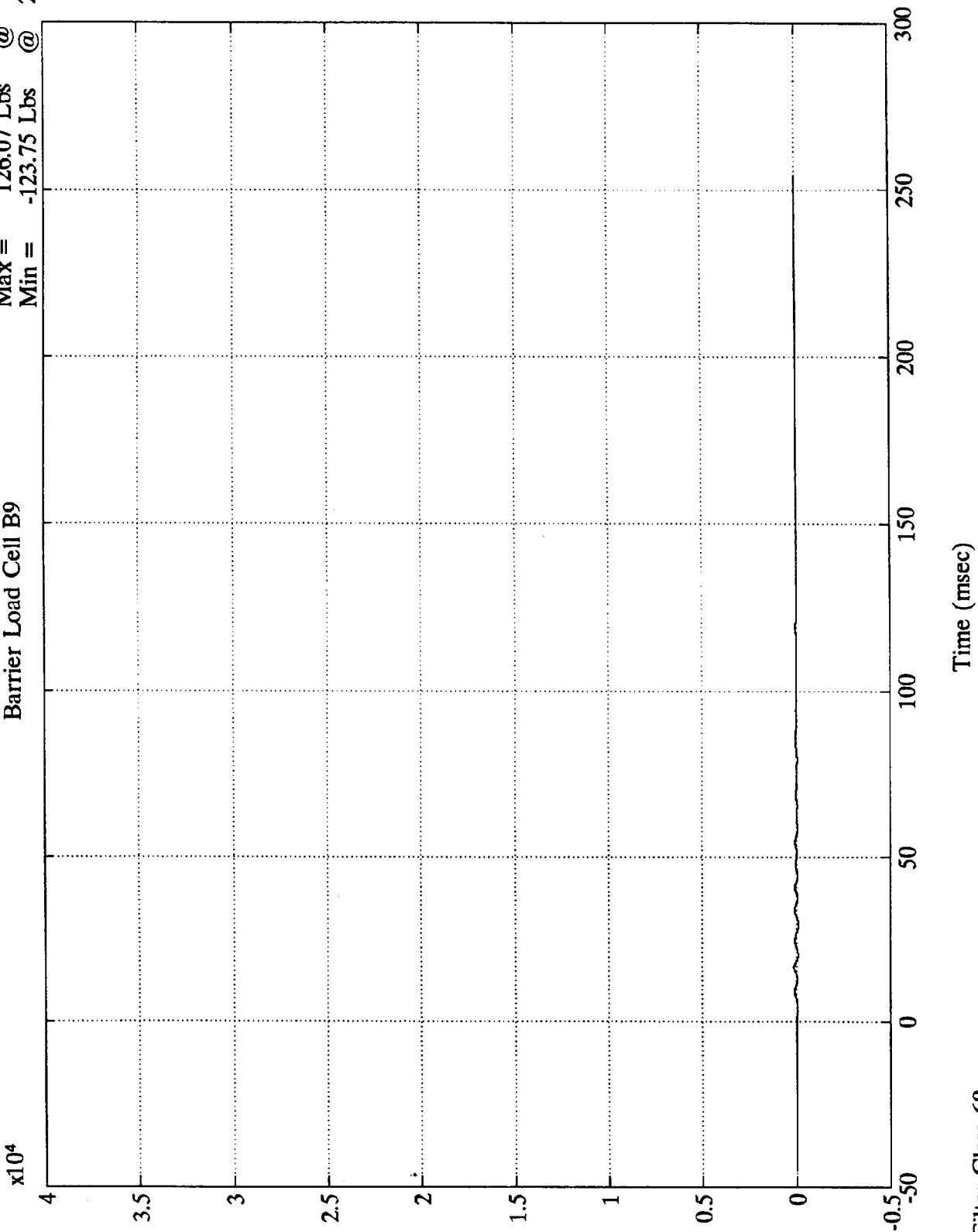


B-43
Lbs

7946-4
Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell B9
Max = 126.07 Lbs @ 16.31 msec
Min = -123.75 Lbs @ 29.27 msec



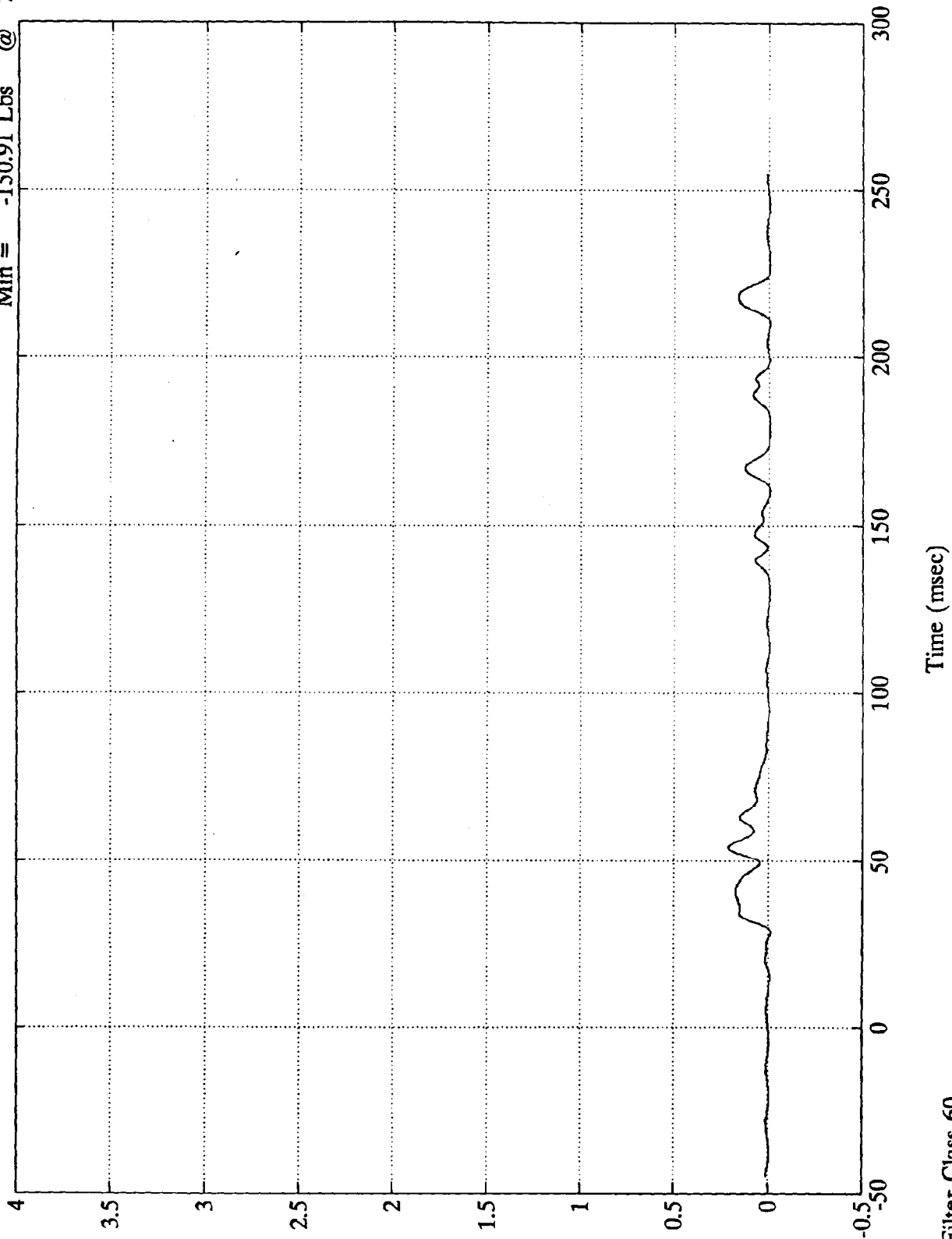
B-44

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell C1

Max = 2102.74 Lbs @ 54.11 msec
Min = -150.91 Lbs @ 28.44 msec

x10⁴



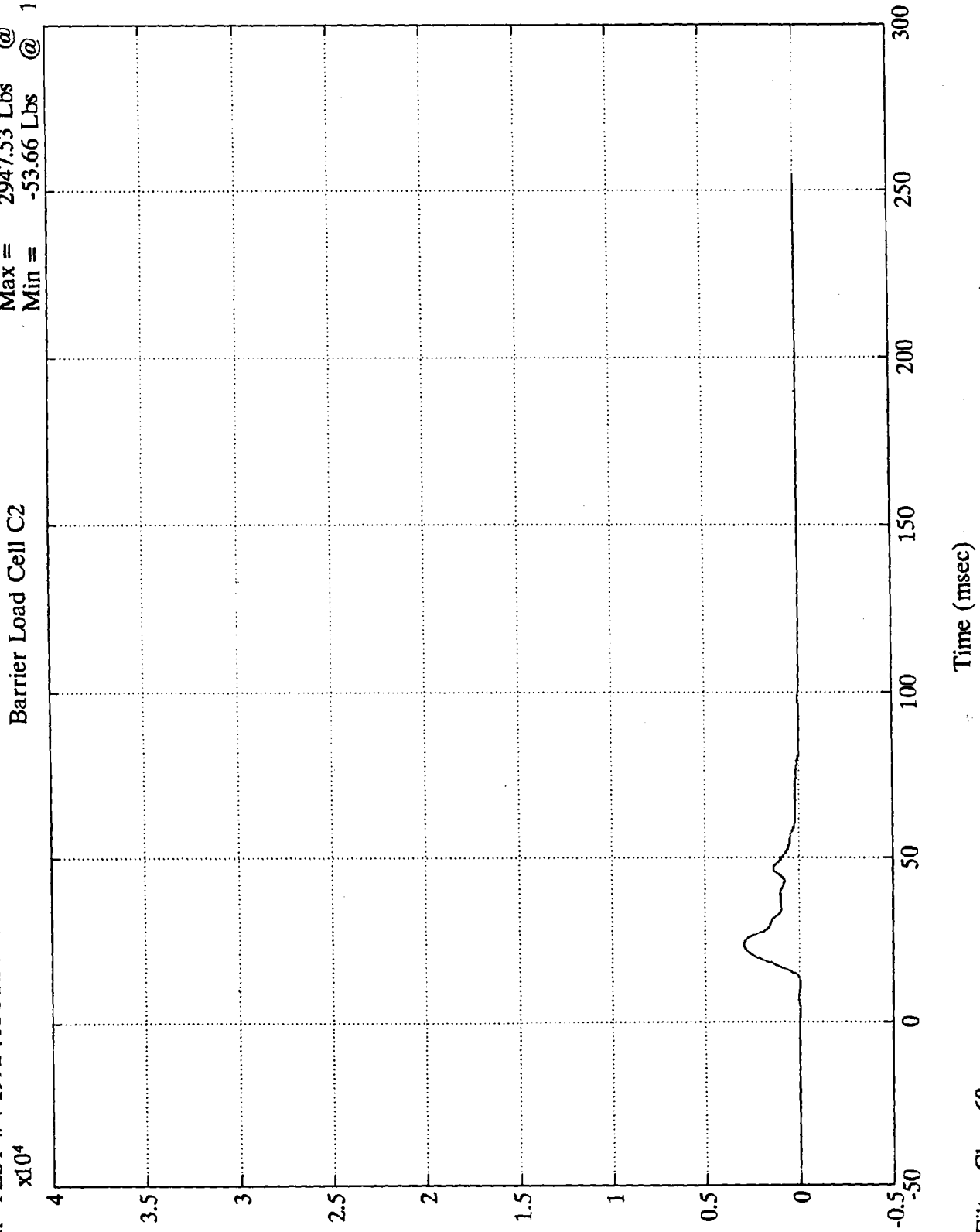
B-45
Lbs

7946-4

Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell C2
Max = 2947.53 Lbs @ 23.28 msec
Min = -53.66 Lbs @ 10.91 msec



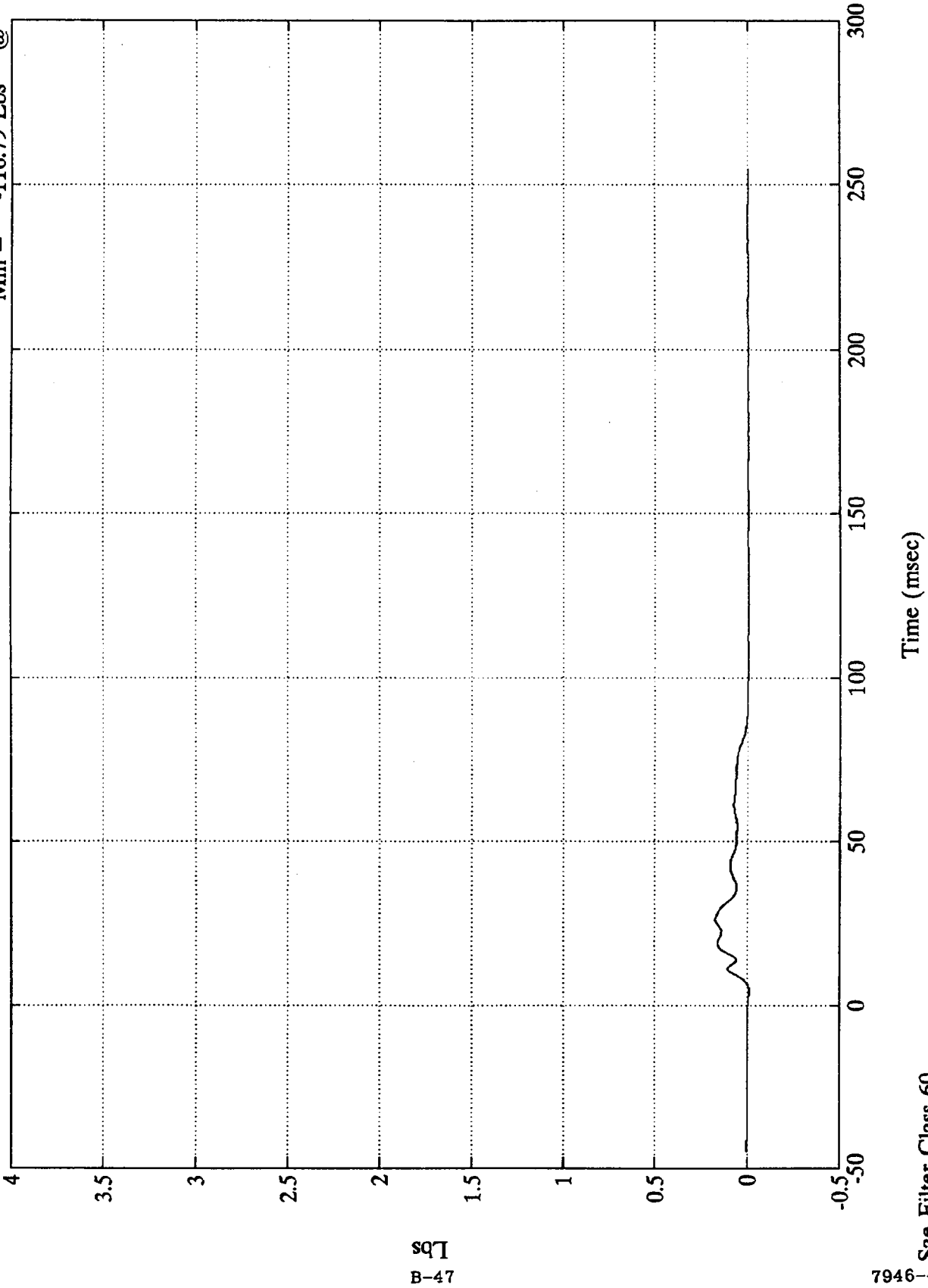
B-46
Lbs

Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 1733.90 Lbs @ 25.92 msec
Min = -116.79 Lbs @ 4.31 msec

Barrier Load Cell C3



B-47

7946-4

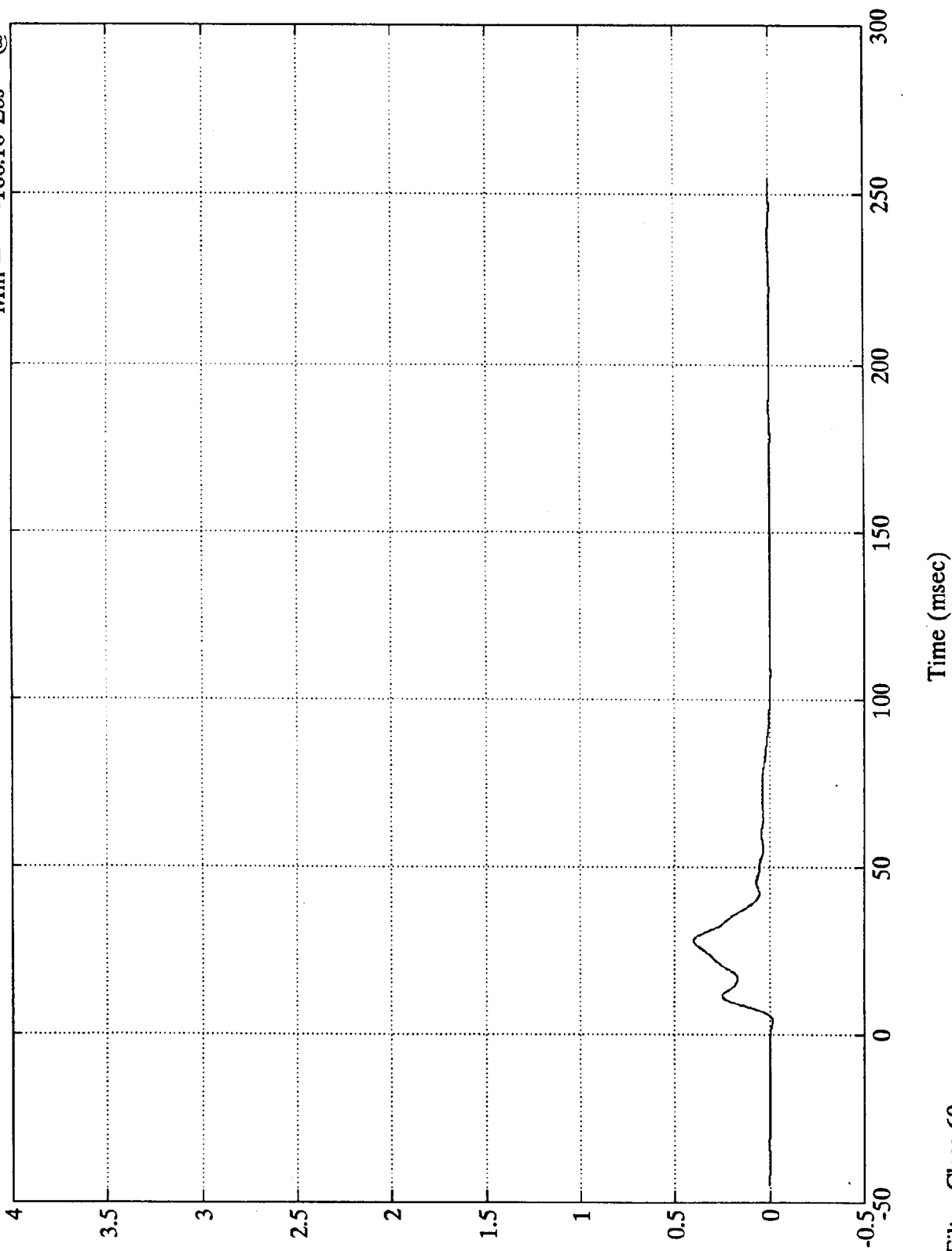
Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 4011.66 Lbs @ 27.96 msec
 Min = -166.16 Lbs @ 3.83 msec

Barrier Load Cell C4

$\times 10^4$

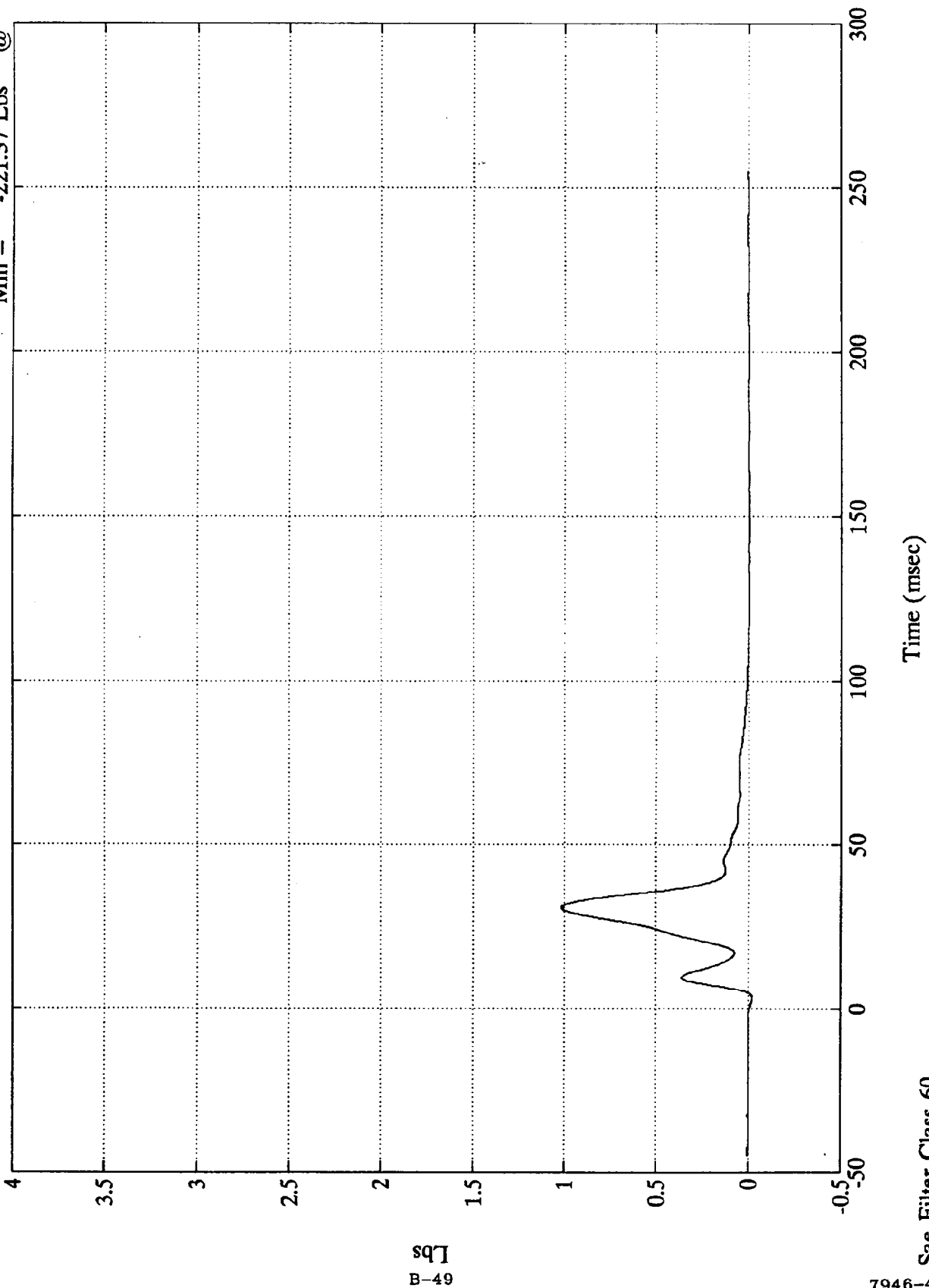


B-48

7946-4 Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell C5
Max = 10154.33 Lbs @ 30.71 msec
Min = -221.37 Lbs @ 3.23 msec



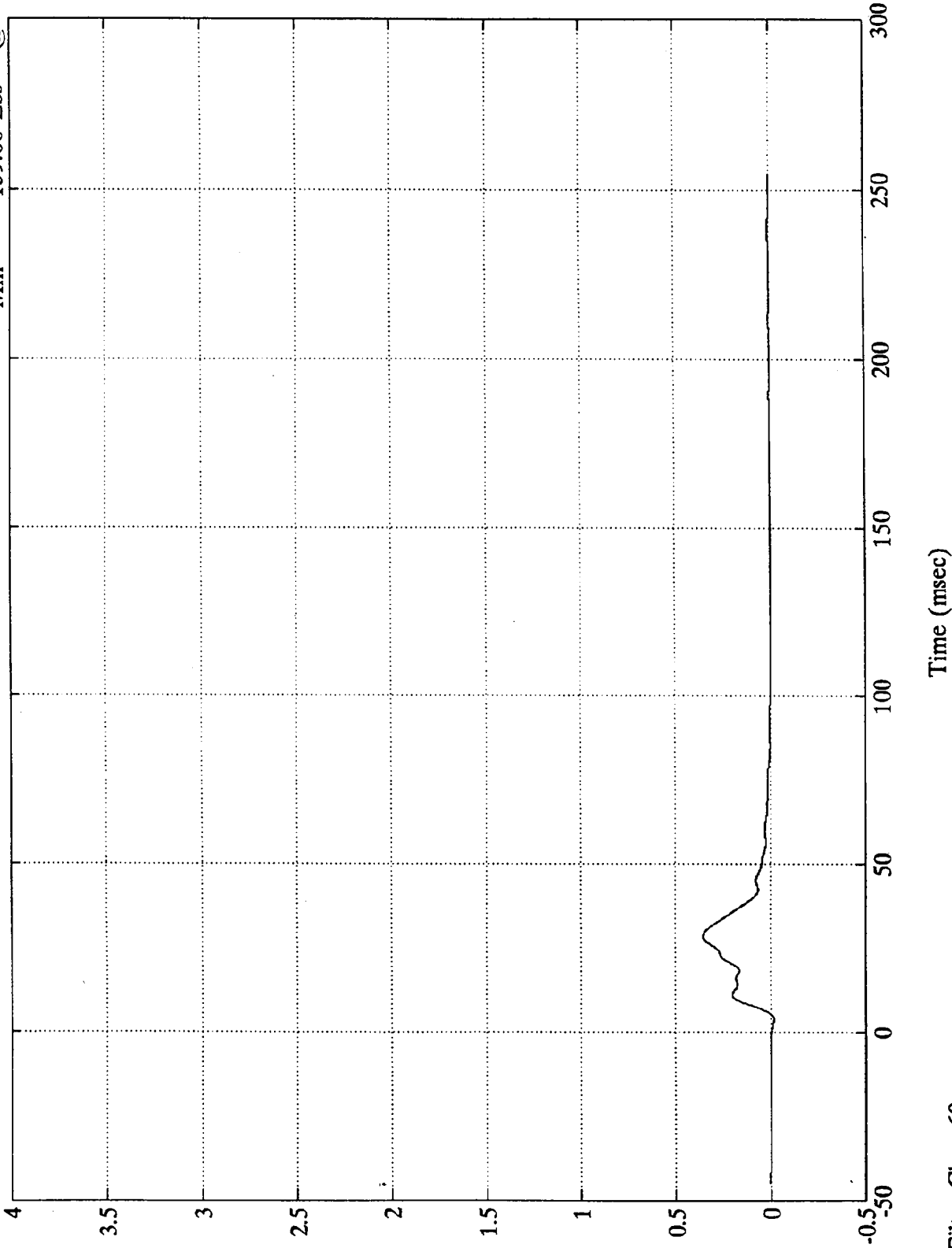
B-49

NCAP TEST #4 1992 ACURA VIGOR

Max = 3559.57 Lbs @ 28.31 msec
 Min = -159.06 Lbs @ 3.47 msec

Barrier Load Cell C6

$\times 10^4$

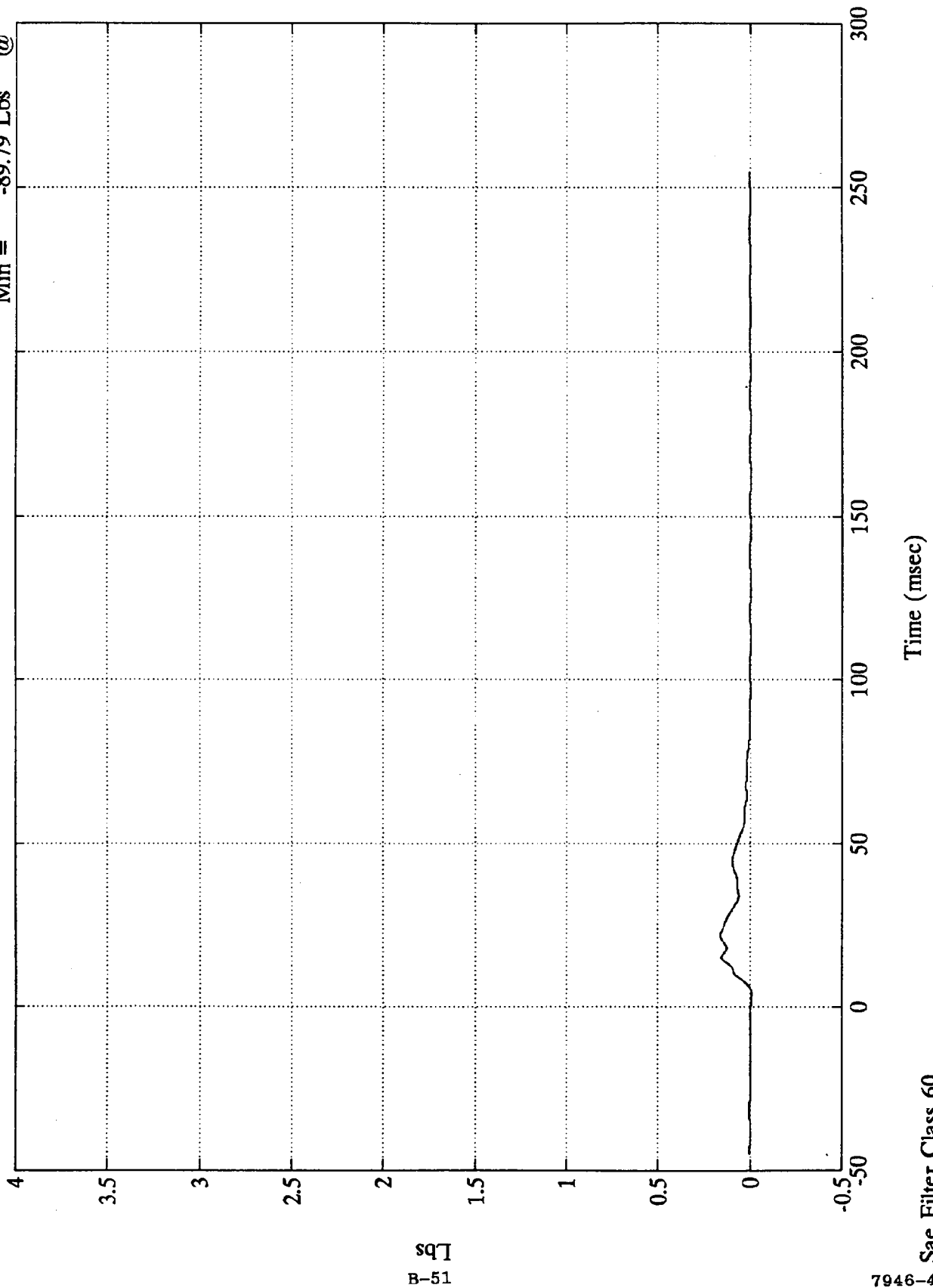


sq
 B-50

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell C7

Max = 1593.04 Lbs @ 21.59 msec
 Min = -89.79 Lbs @ 3.71 msec



B-51

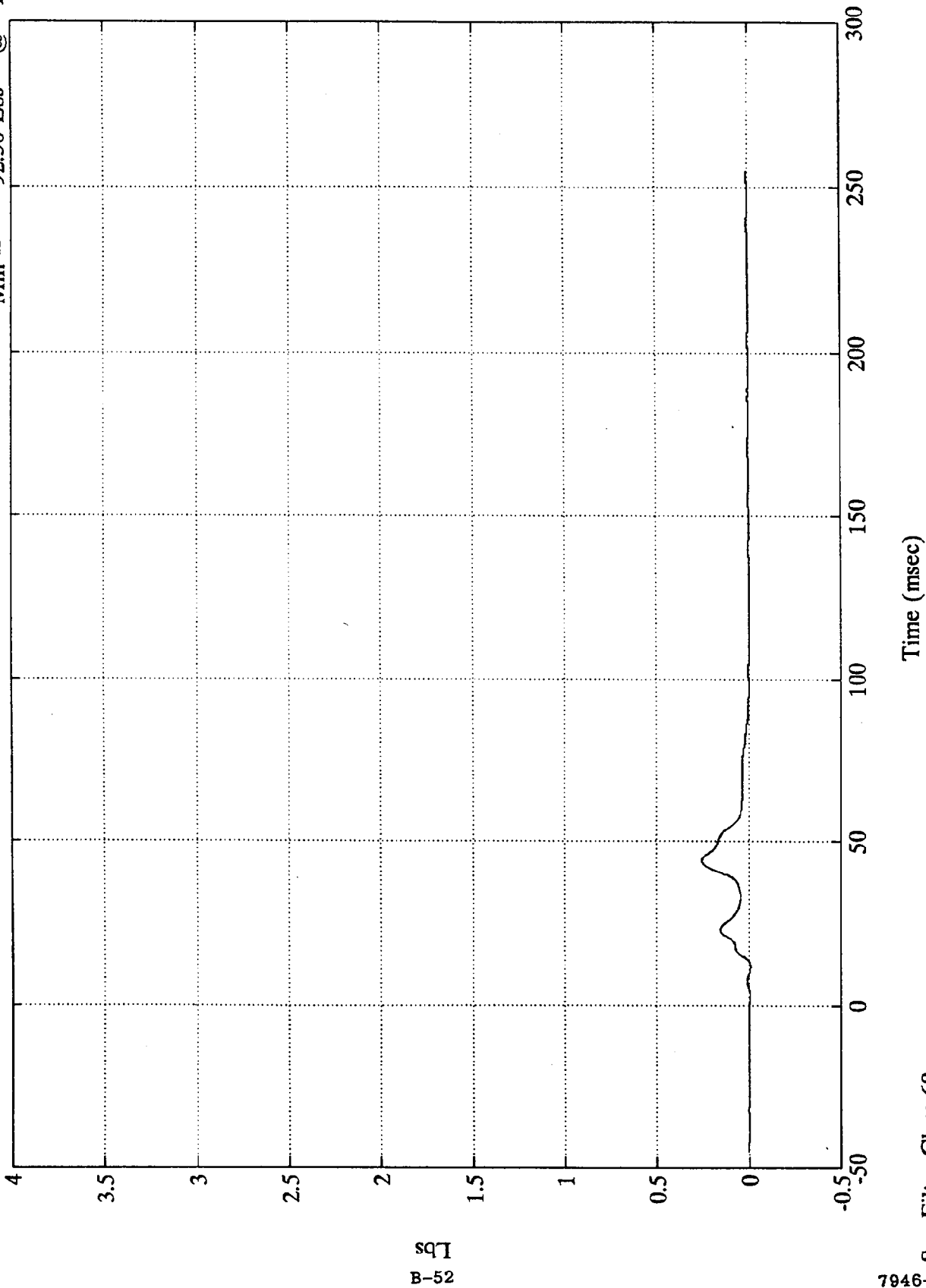
Sae Filter Class 60

7946-4

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell C8
Max = 2548.28 Lbs @ 44.15 msec
Min = -92.30 Lbs @ 11.99 msec

$\times 10^4$



B-52

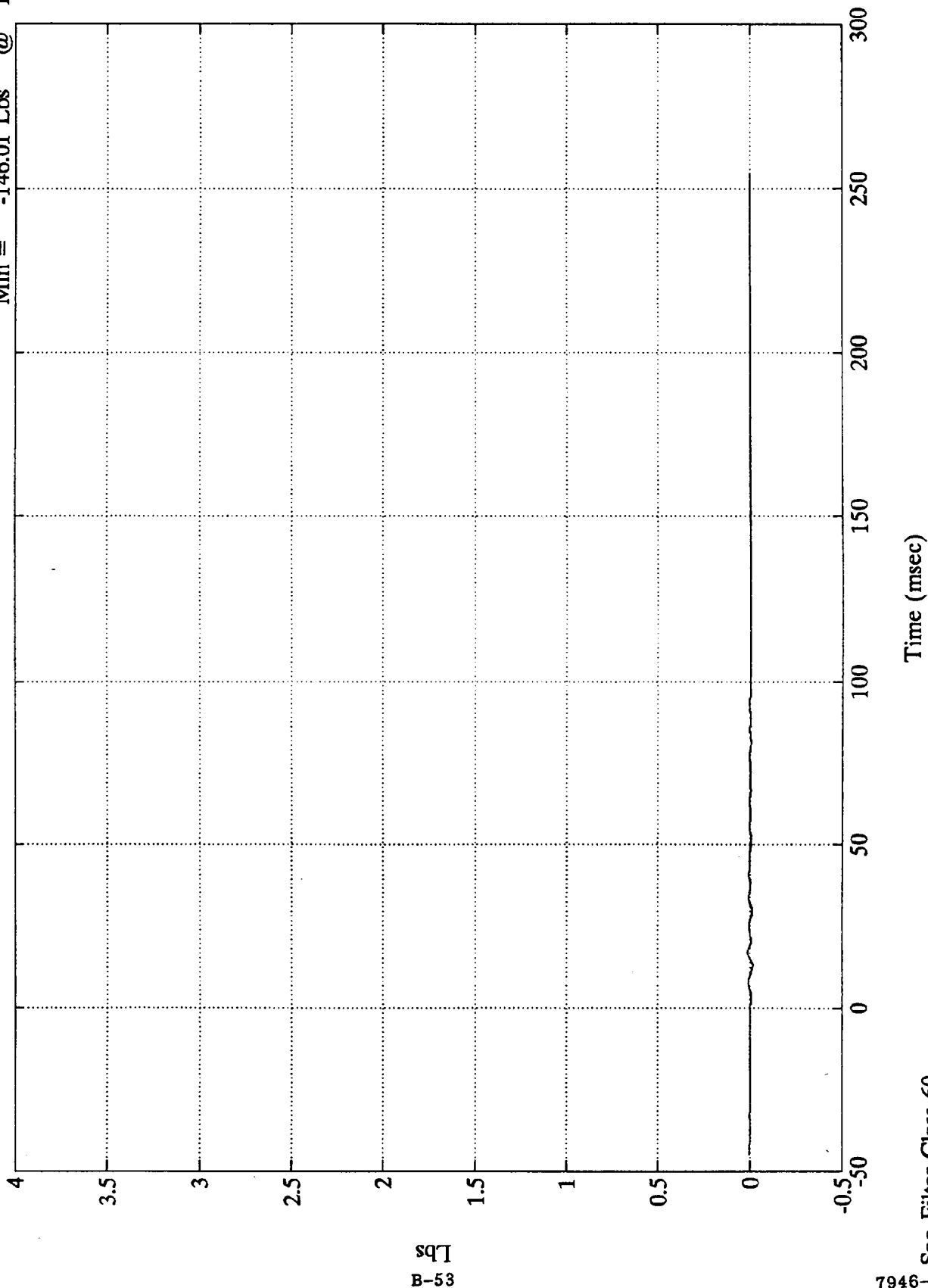
7946-4

Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 138.28 Lbs @ 16.79 msec
Min = -146.01 Lbs @ 13.07 msec

Barrier Load Cell C9

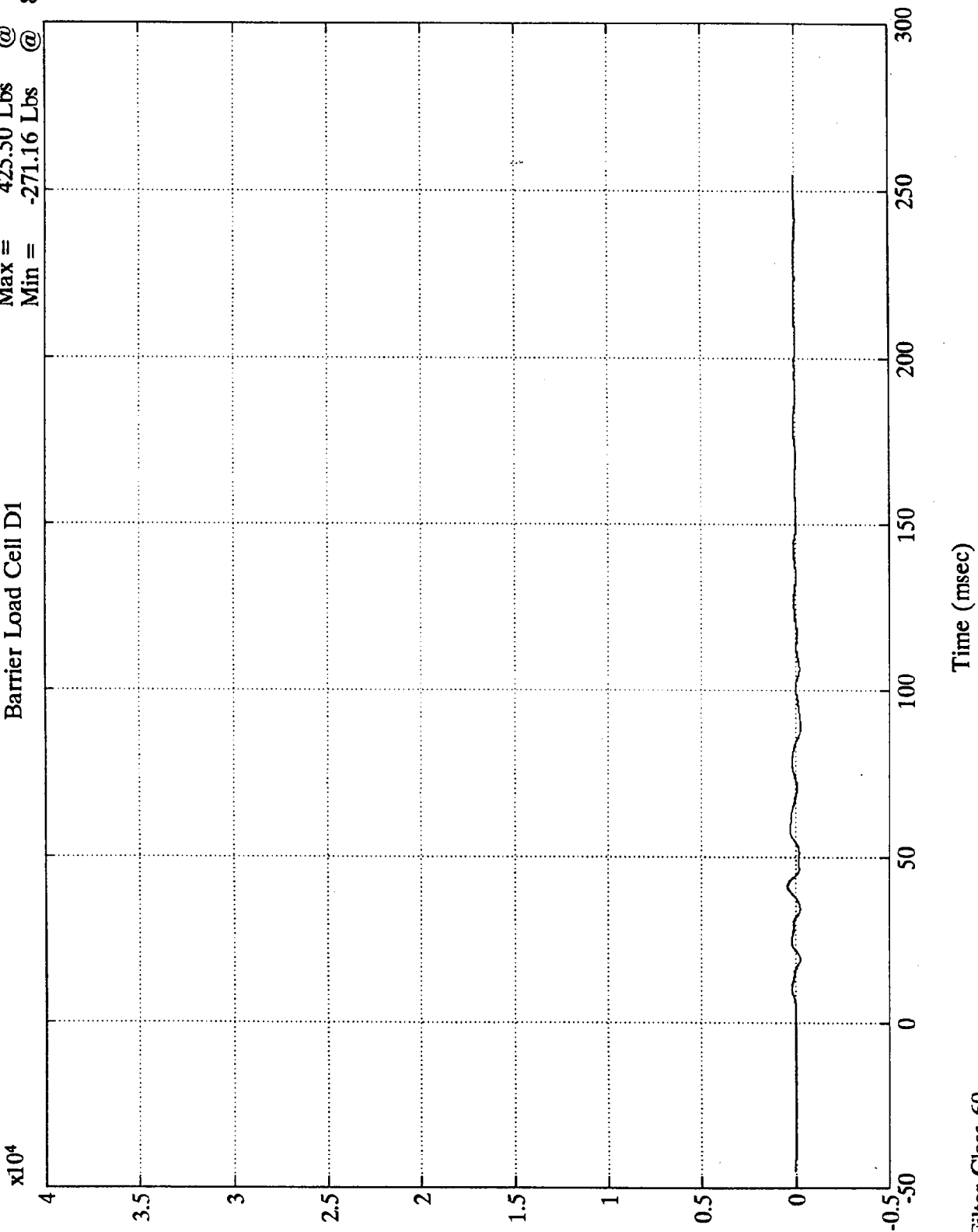


B-53
Lbs

7946-4 Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell D1
Max = 425.50 Lbs @ 41.15 msec
Min = -271.16 Lbs @ 89.04 msec

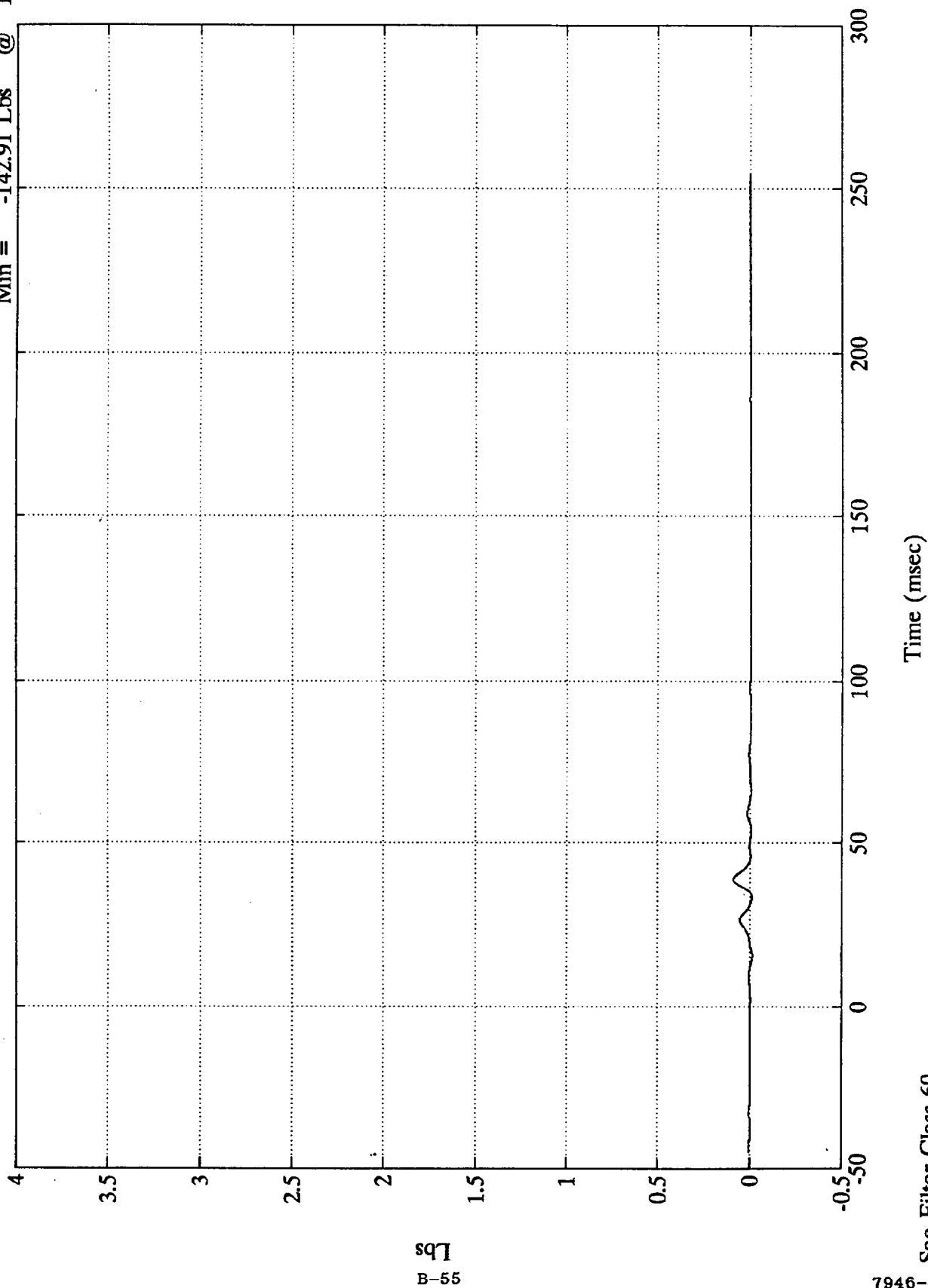


B-54
Lbs

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell D2

Max = 903.74 Lbs @ 38.75 msec
Min = -142.91 Lbs @ 15.59 msec



Lbs
B-55

Sae Filter Class 60

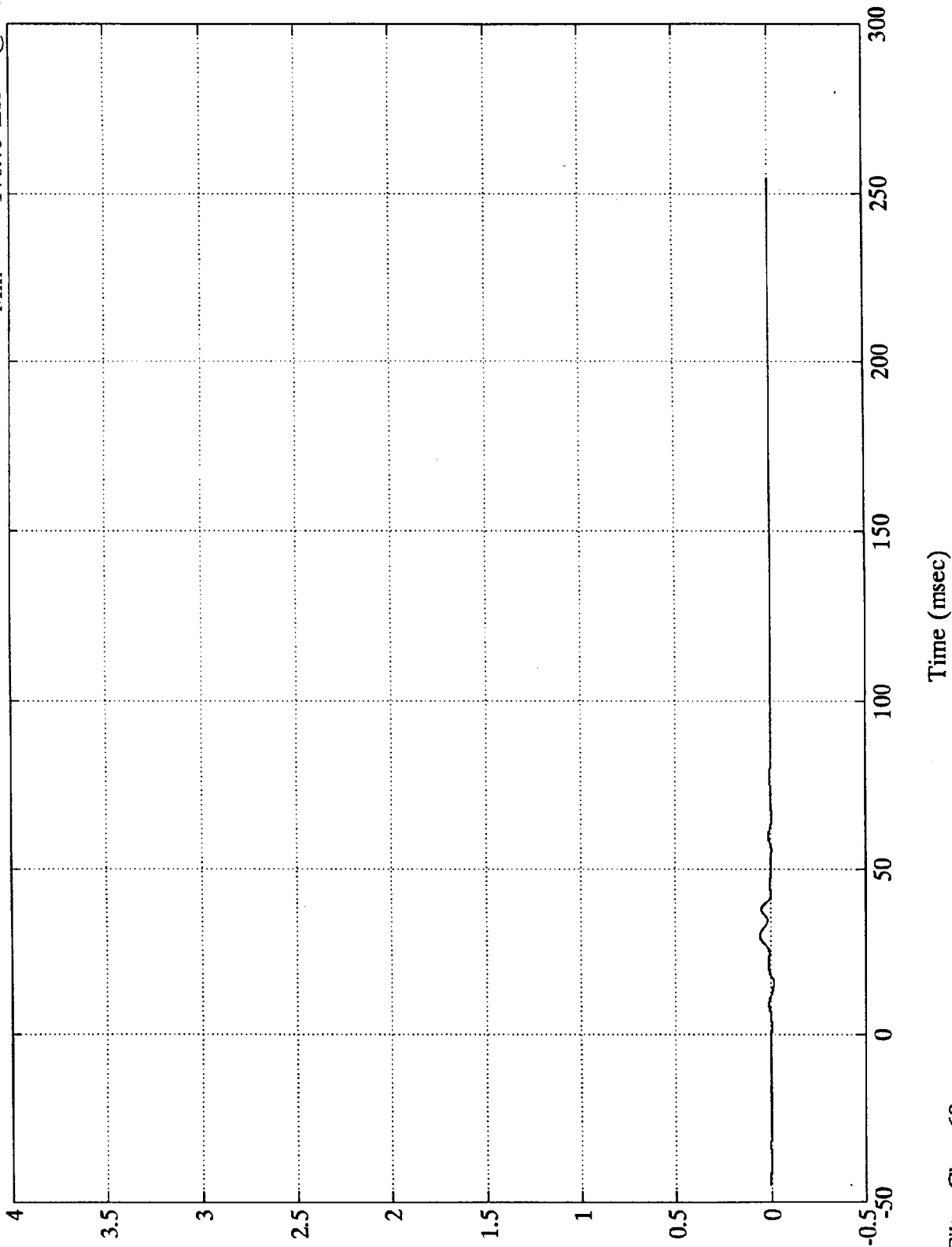
7946-4

NCAP TEST #4 1992 ACURA VIGOR

Max = 549.08 Lbs @ 29.39 msec
 Min = -170.75 Lbs @ 15.11 msec

Barrier Load Cell D3

x10⁴

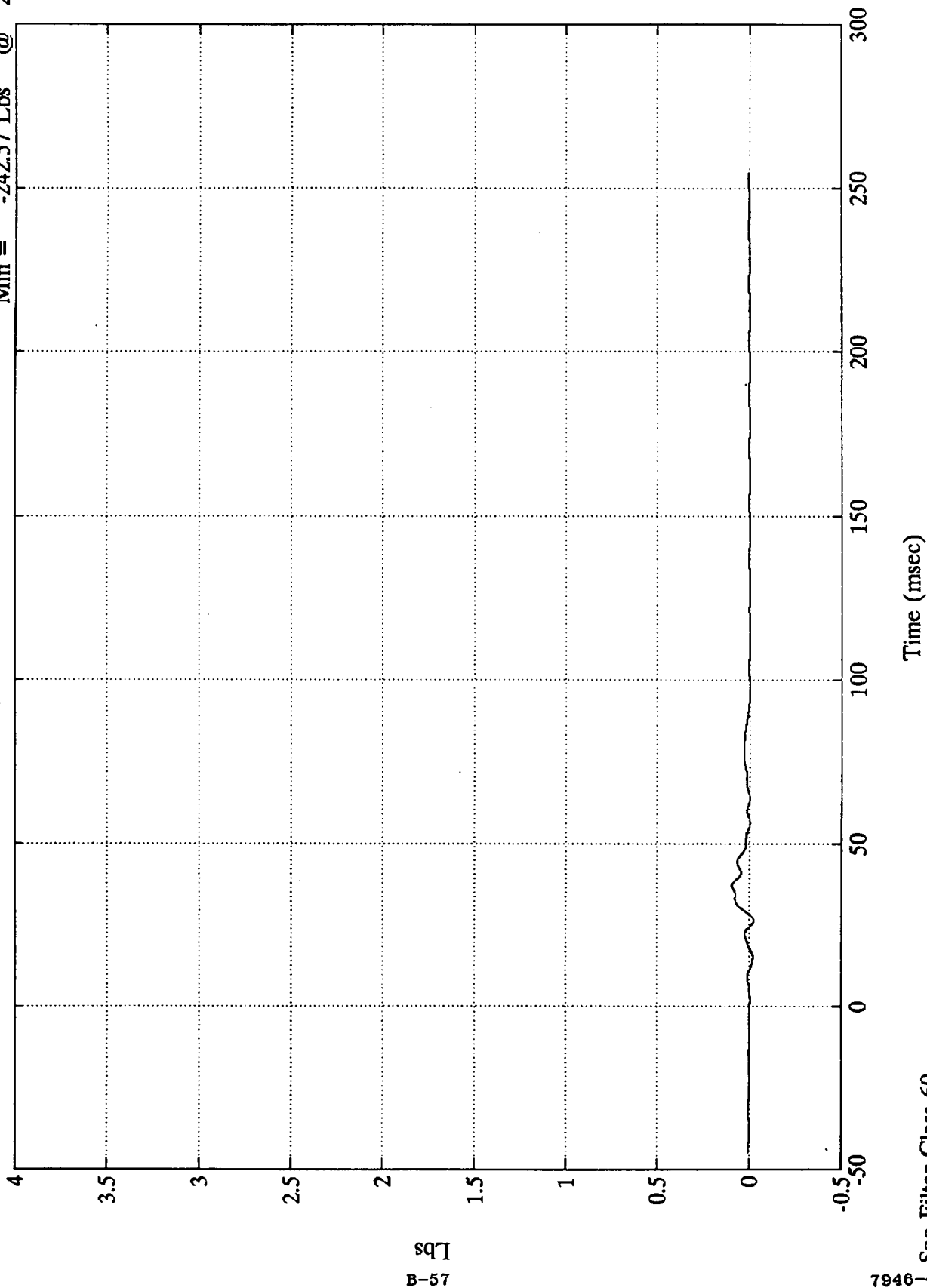


B-56

7946-4 Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell D4
 Max = 938.70 Lbs @ 37.08 msec
 Min = -242.57 Lbs @ 26.27 msec



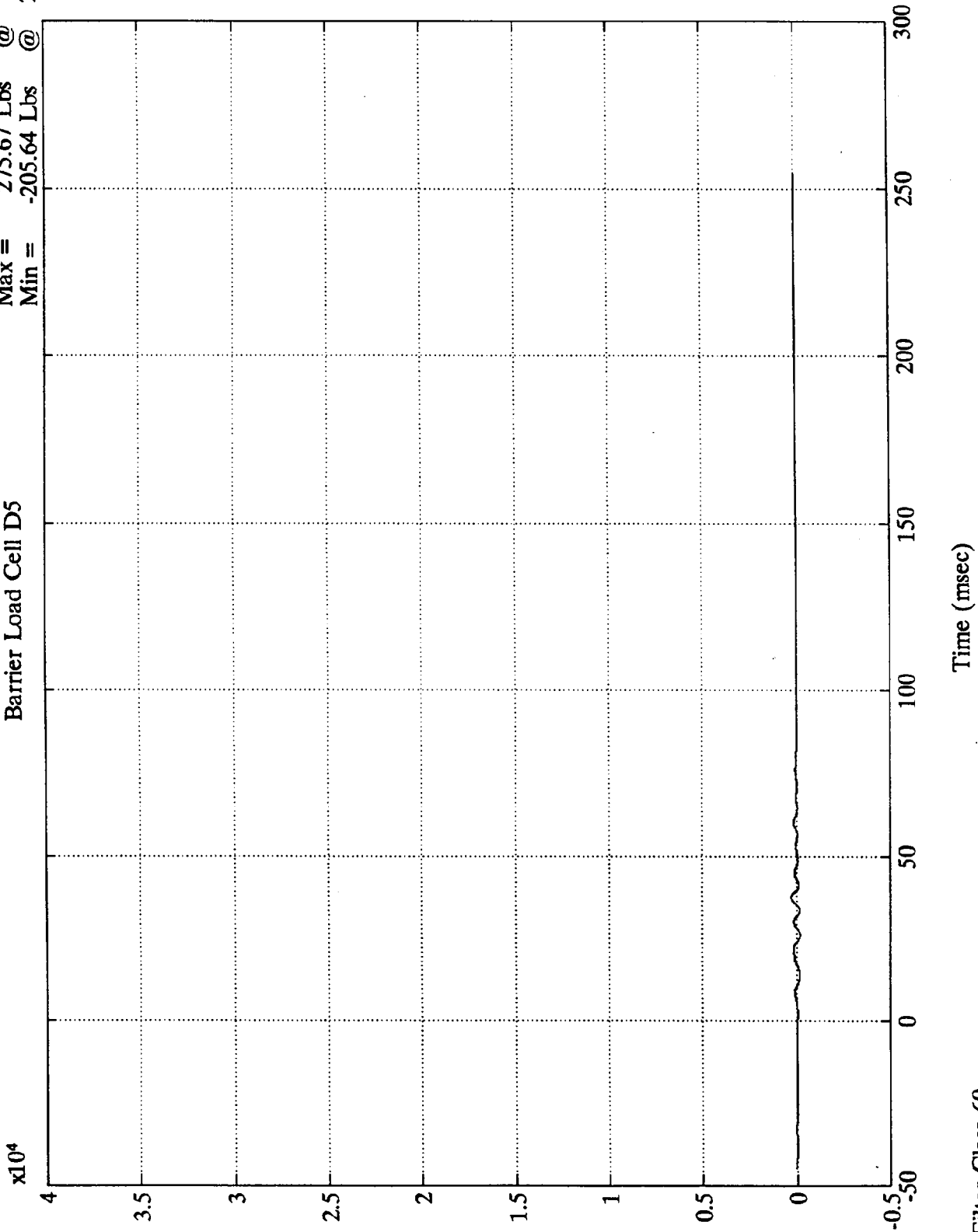
B-57

7946

Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell D5
Max = 275.67 Lbs @ 37.44 msec
Min = -205.64 Lbs @ 26.03 msec



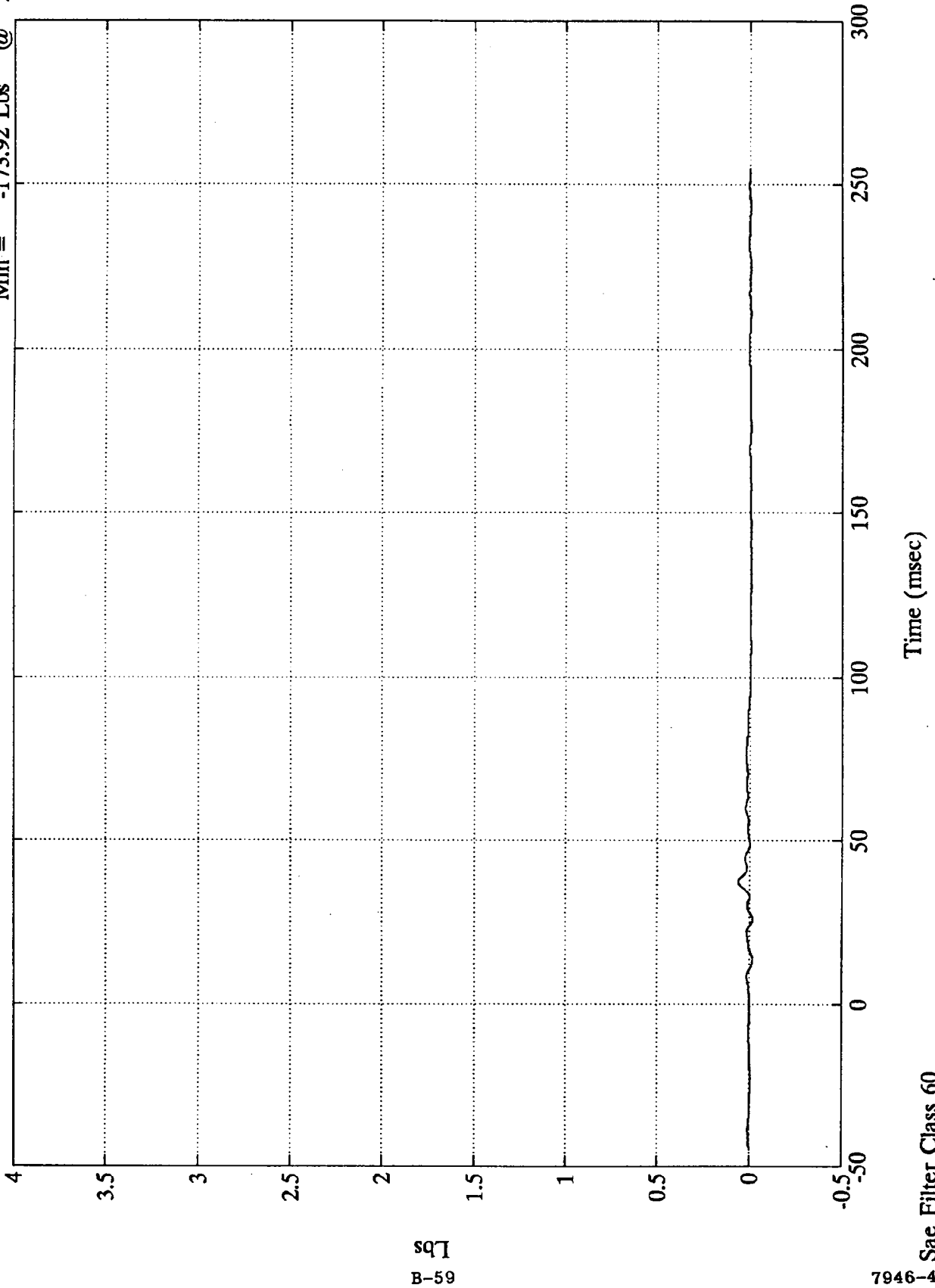
B-58

NCAP TEST #4 1992 ACURA VIGOR

x10⁴

Barrier Load Cell D6

Max = 596.45 Lbs @ 37.44 msec
Min = -173.92 Lbs @ 25.92 msec

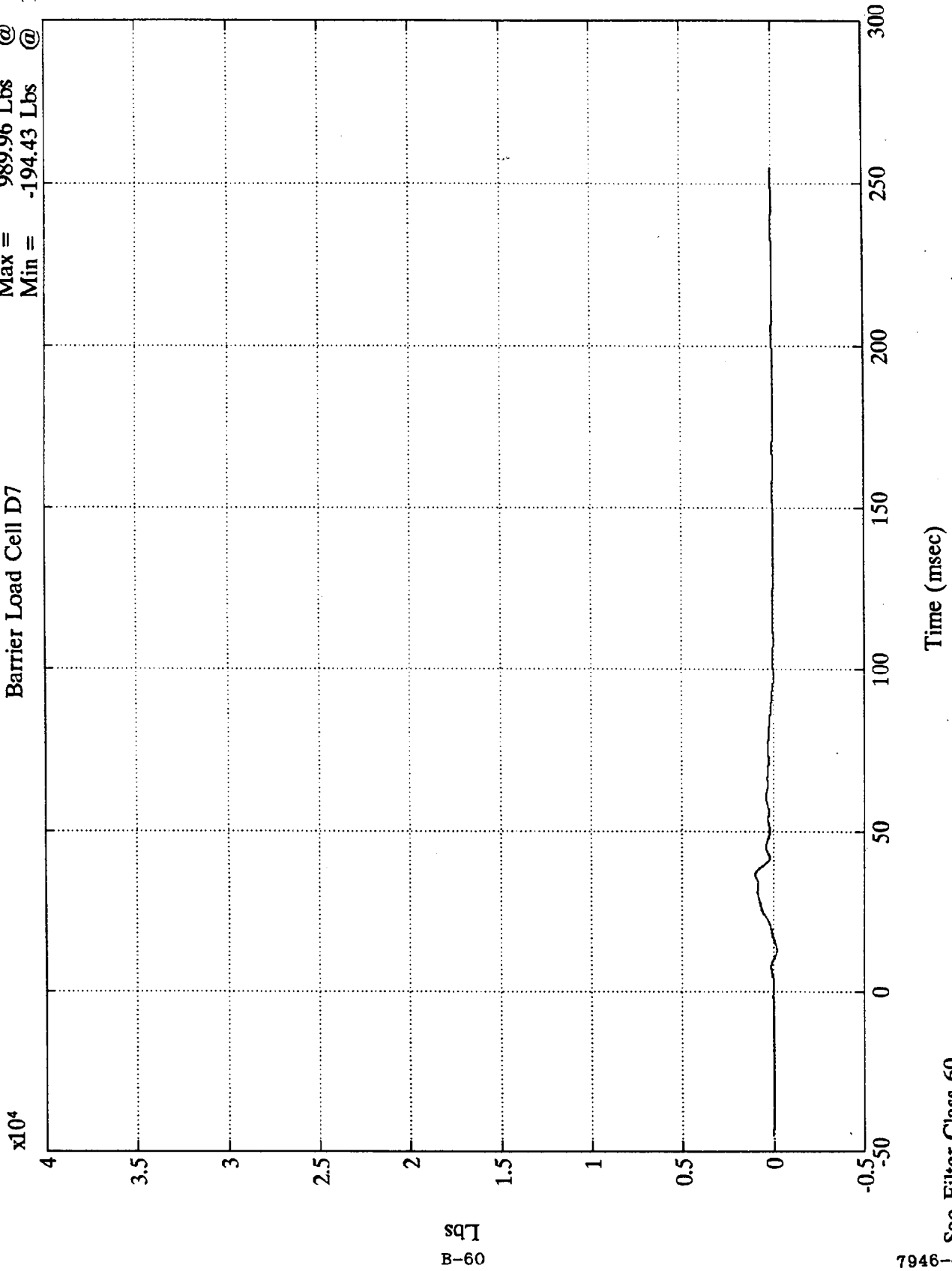


B-59
lbs

7946-4 Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell D7
Max = 989.96 Lbs @ 36.12 msec
Min = -194.43 Lbs @ 12.83 msec



B-60

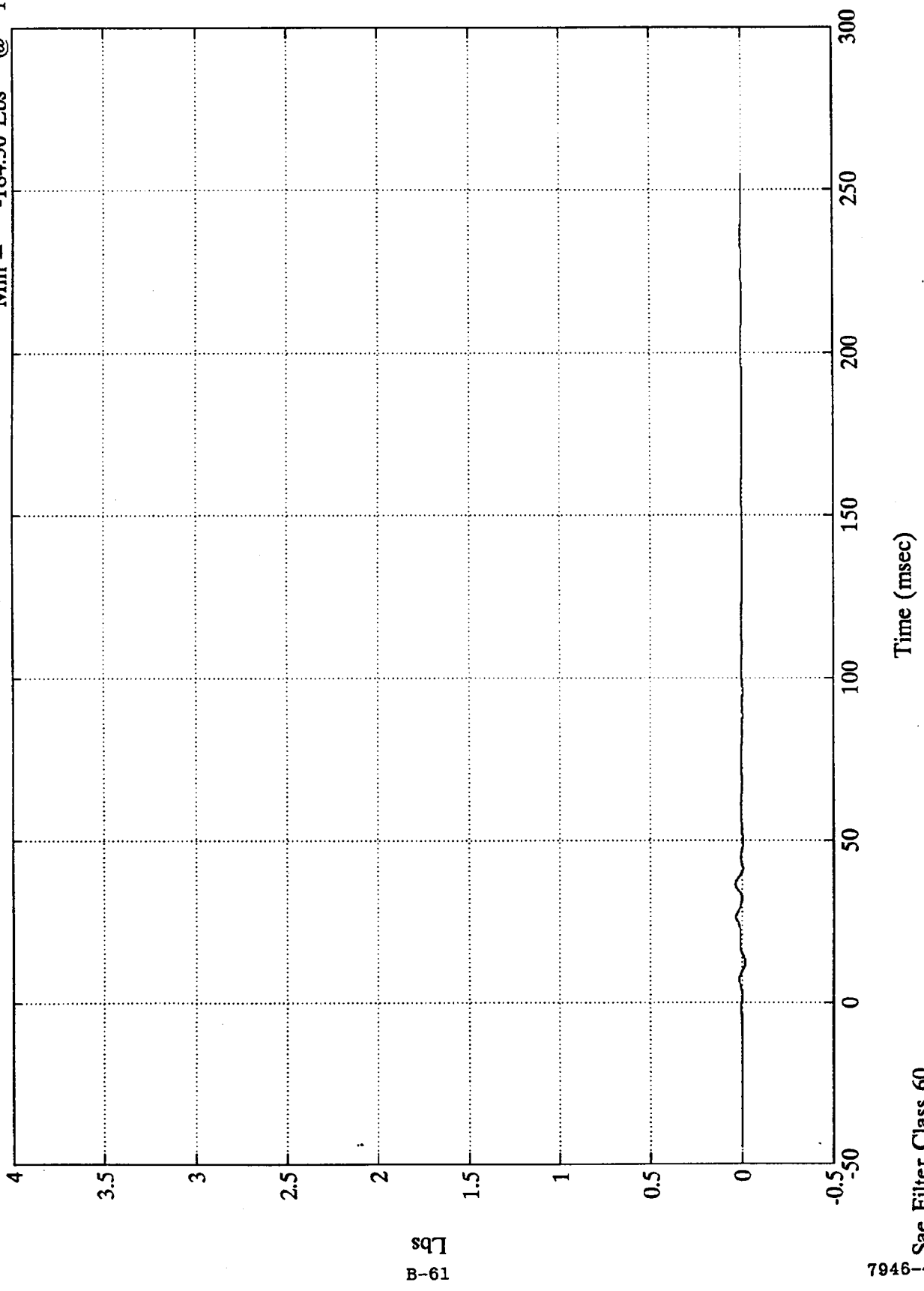
Sae Filter Class 60

7946-4

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell D8
Max = 366.18 Lbs @ 36.47 msec
Min = -184.30 Lbs @ 12.35 msec

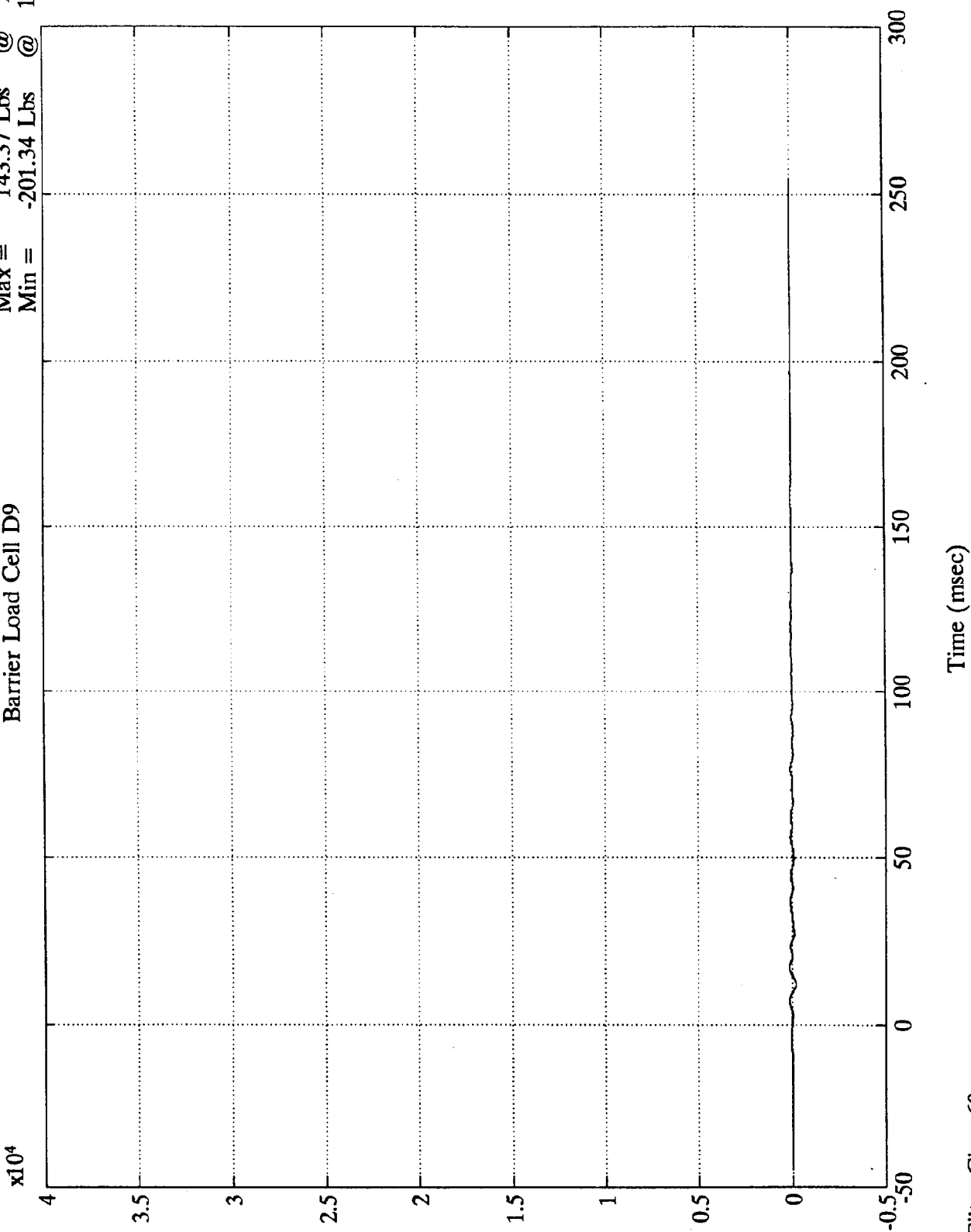
x10⁴



19-B
Lbs

NCAP TEST #4 1992 ACURA VIGOR

Barrier Load Cell D9
Max = 143.37 Lbs @ 17.15 msec
Min = -201.34 Lbs @ 11.99 msec

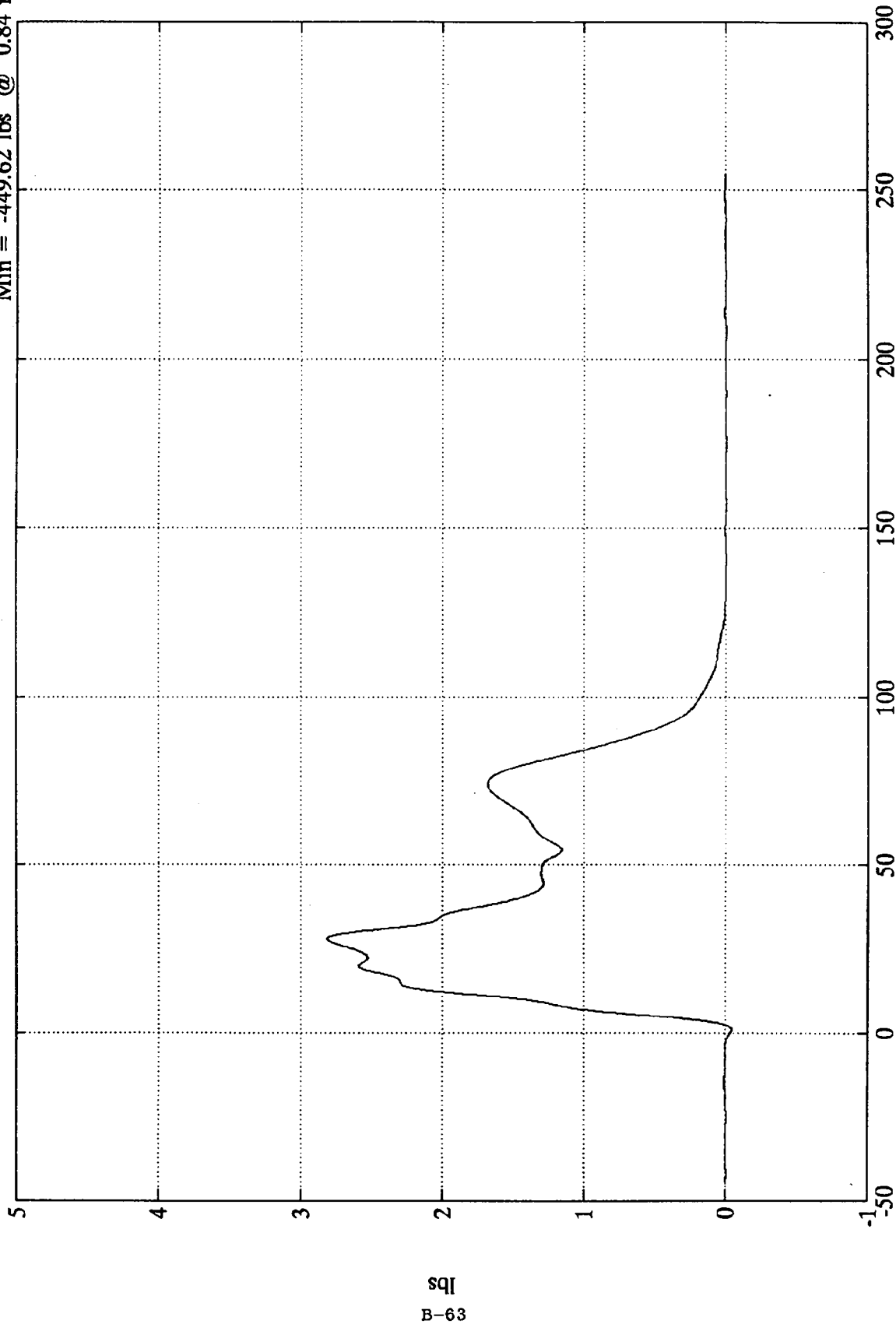


B-62
Lbs

NCAP TEST #4 1992 ACURA VIGOR

Group 1 Load Cell Sum

Max = 28157.00 lbs @ 28.08 msec
Min = -449.62 lbs @ 0.84 msec



Load Cells (A1,A2,A3,B1,B2,B3)

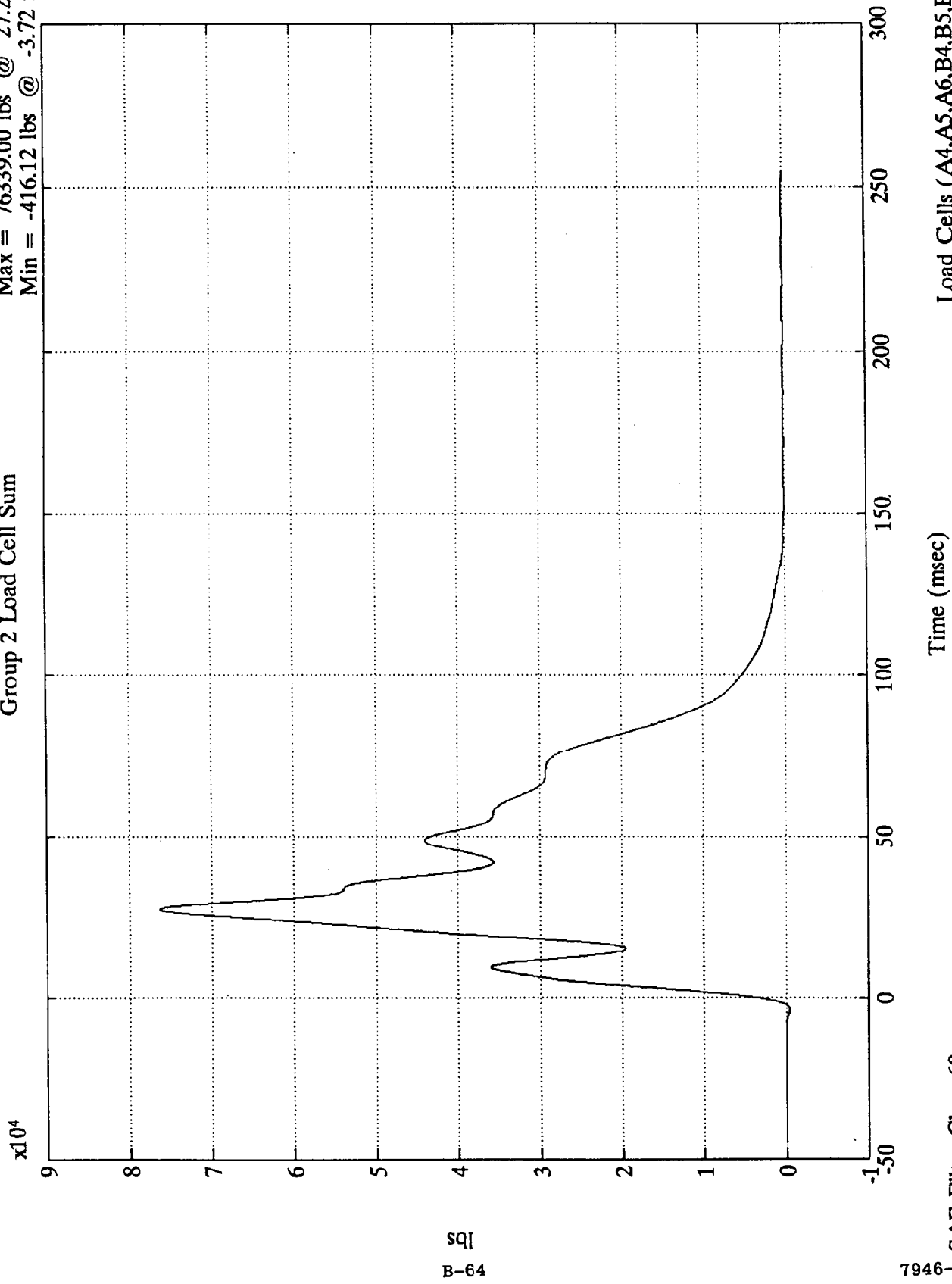
Time (msec)

SAE Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 76339.00 lbs @ 27.24 msec
 Min = -416.12 lbs @ -3.72 msec

Group 2 Load Cell Sum



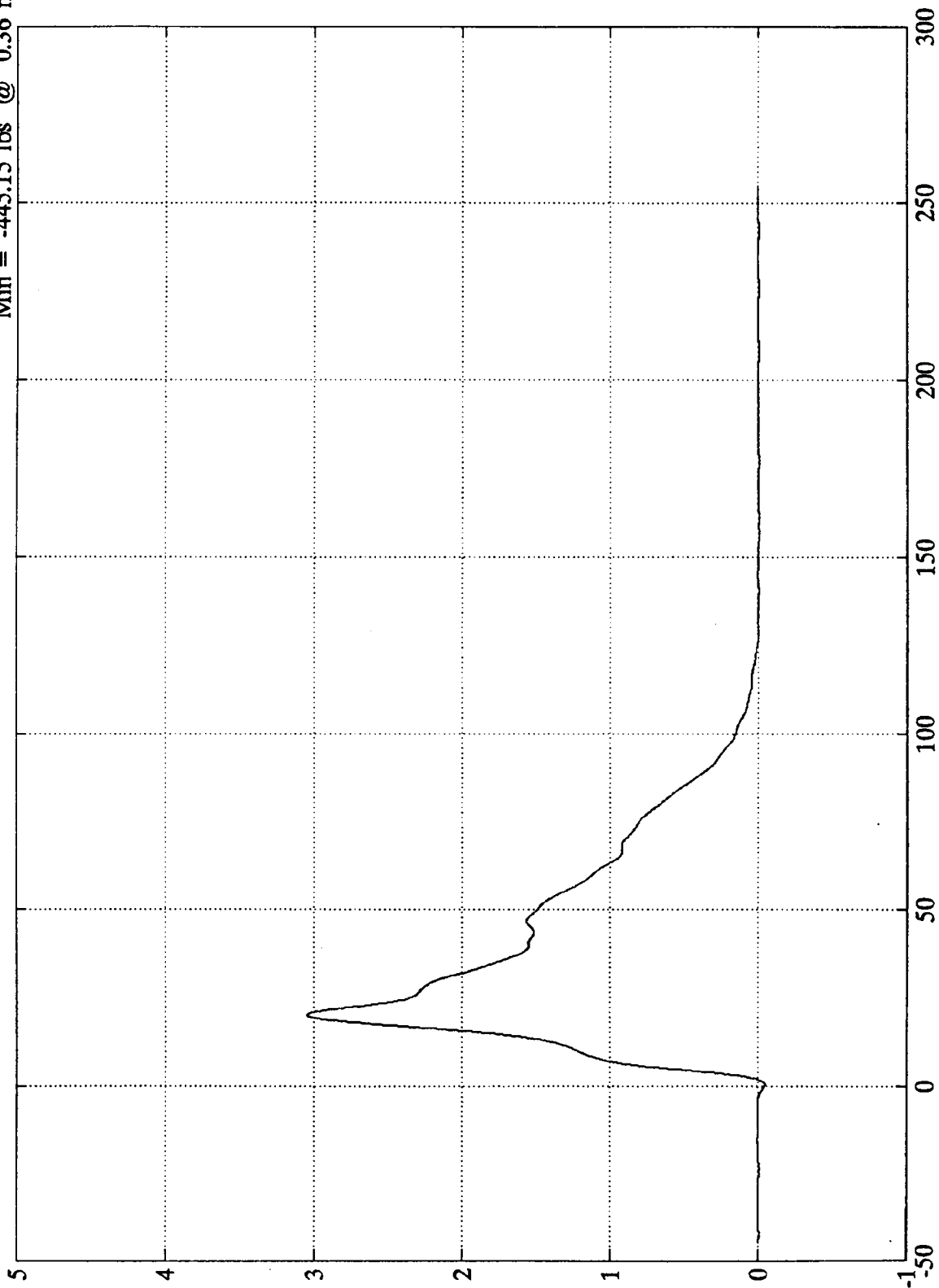
SAE Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 30487.00 lbs @ 20.16 msec
Min = -445.15 lbs @ 0.36 msec

Group 3 Load Cell Sum

$\times 10^4$



Load Cells (A7,A8,A9,B7,B8,B9)

Time (msec)

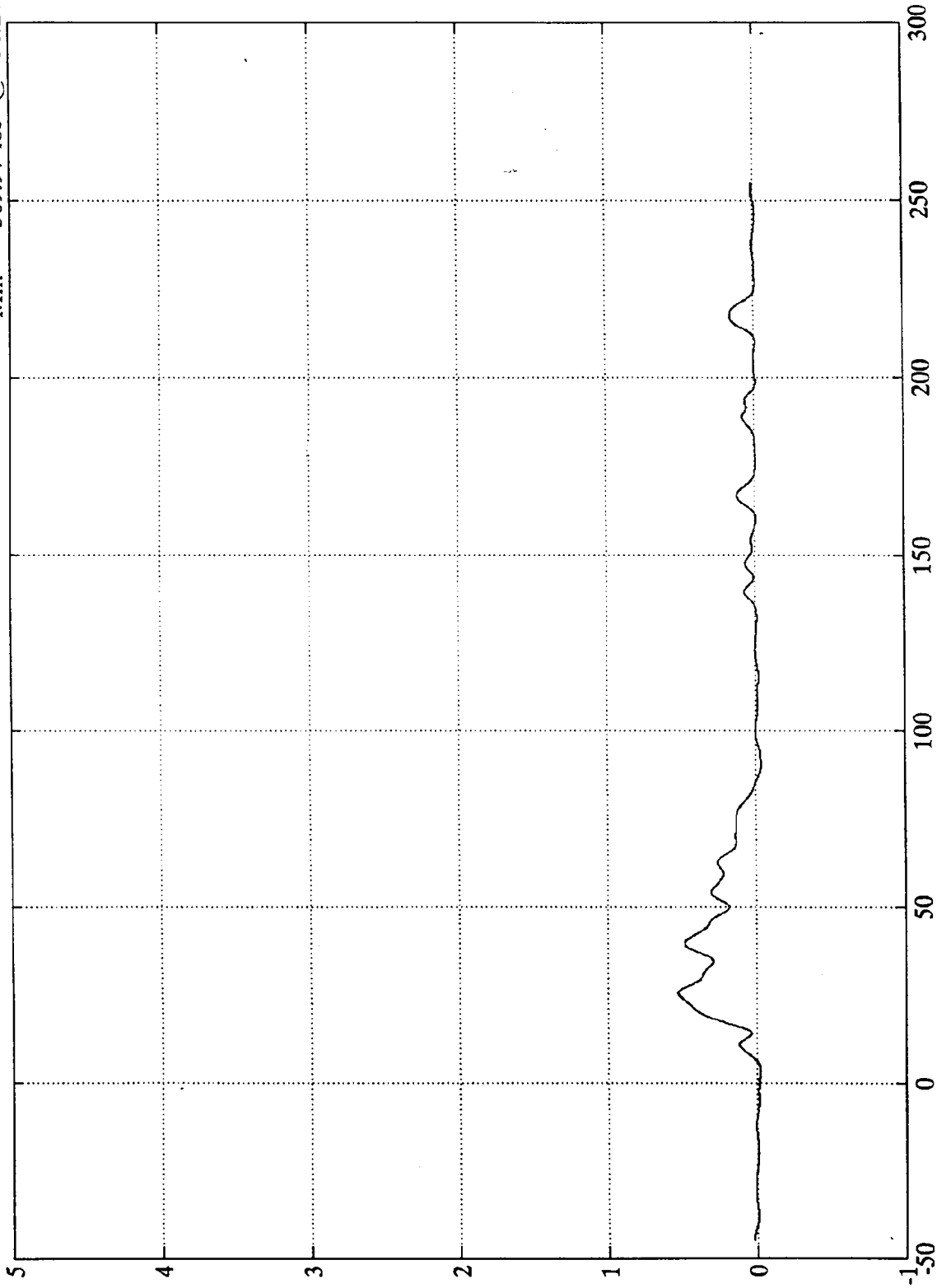
SAE Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 5281.10 lbs @ 25.32 msec
Min = -309.97 lbs @ 90.24 msec

Group 4 Load Cell Sum

$\times 10^4$



Load Cells (C1,C2,C3,D1,D2,D3)

Time (msec)

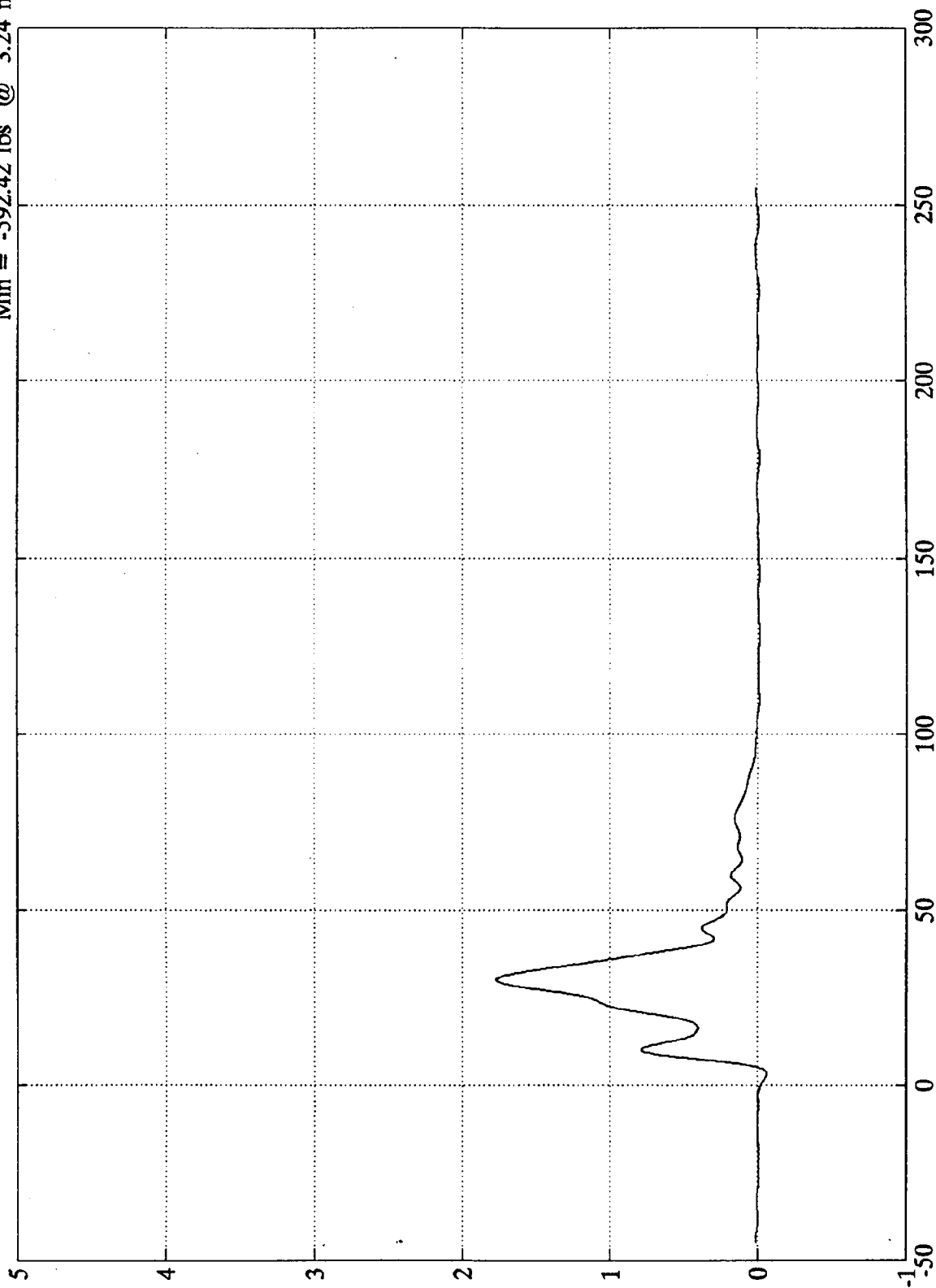
SAE Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Max = 17712.00 lbs @ 30.00 msec
Min = -592.42 lbs @ 3.24 msec

Group 5 Load Cell Sum

$\times 10^4$



Load Cells (C4,C5,C6,D4,D5,D6)

Time (msec)

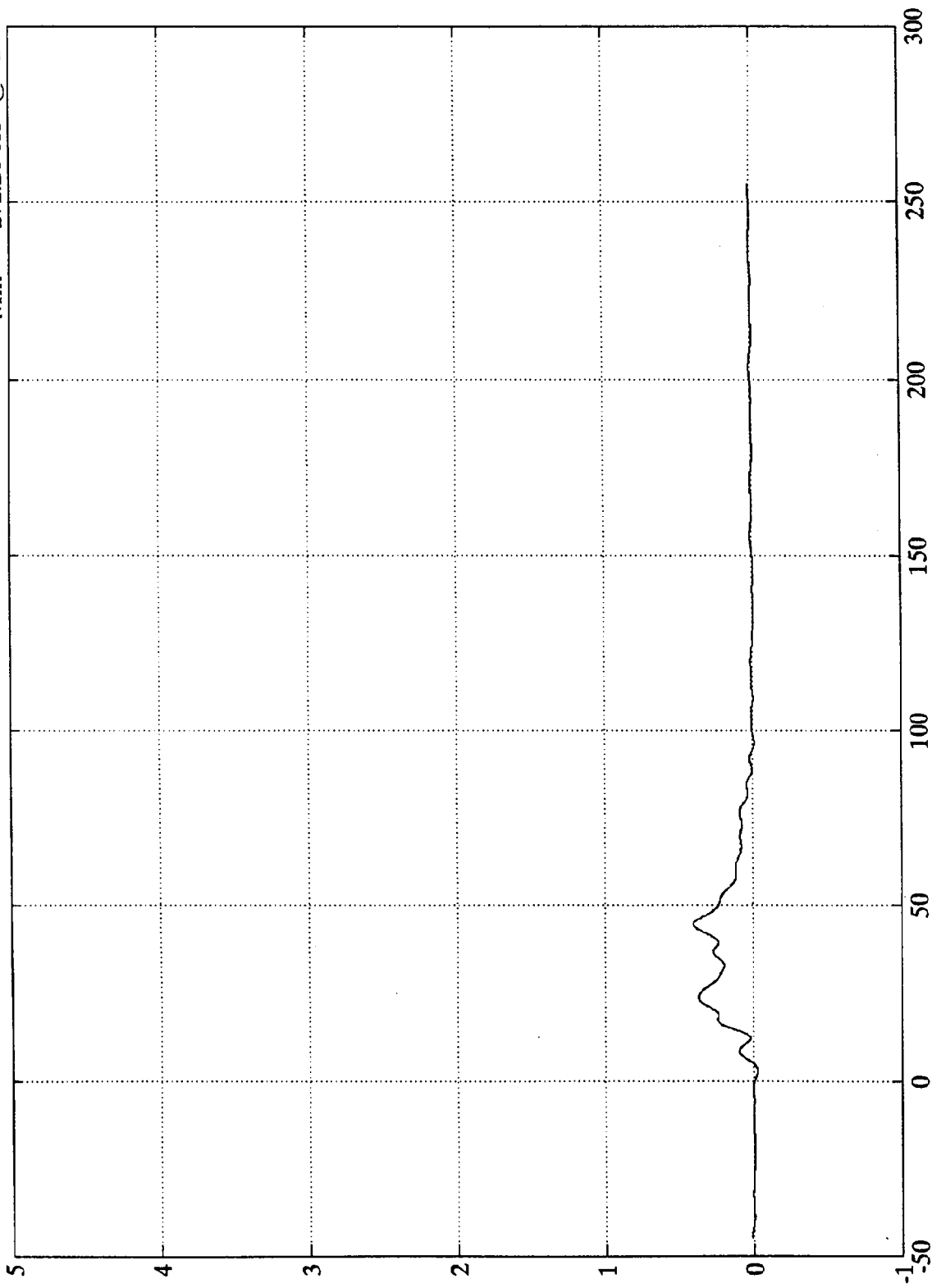
SAE Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

$\times 10^4$

Group 6 Load Cell Sum

Max = 4049.40 lbs @ 44.52 msec
Min = -272.20 lbs @ 2.64 msec



B-68

7946-4

SAE Filter Class 60

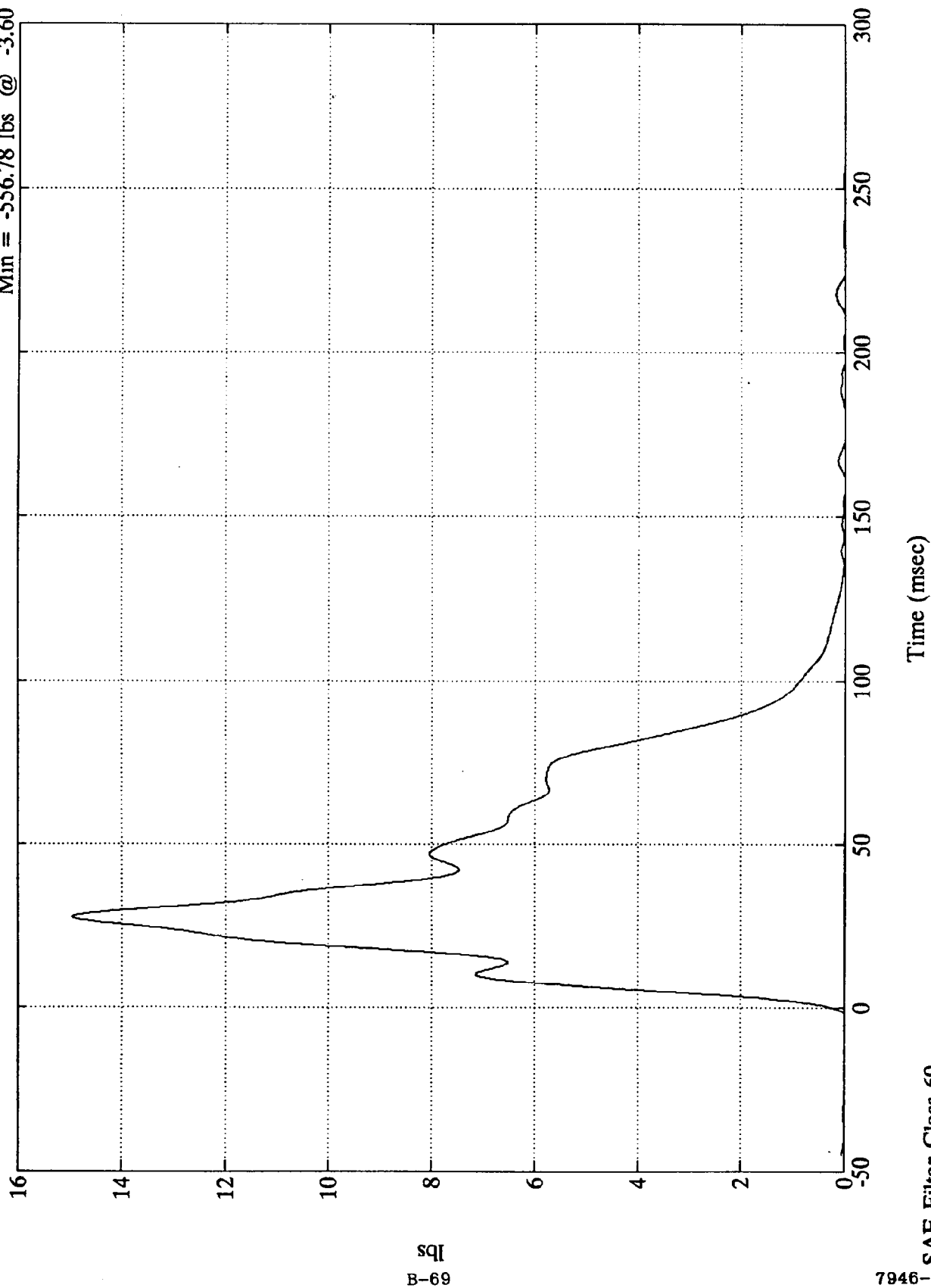
Time (msec)

Load Cells (C7,C8,C9,D7,D8,D9)

NCAP TEST #4 1992 ACURA VIGOR

Max = 149520.00 lbs @ 27.48 msec
Min = -556.78 lbs @ -3.60 msec

Total Load Cell Sum



B-69

7946-4

SAE Filter Class 60

TEST NO. MN5300

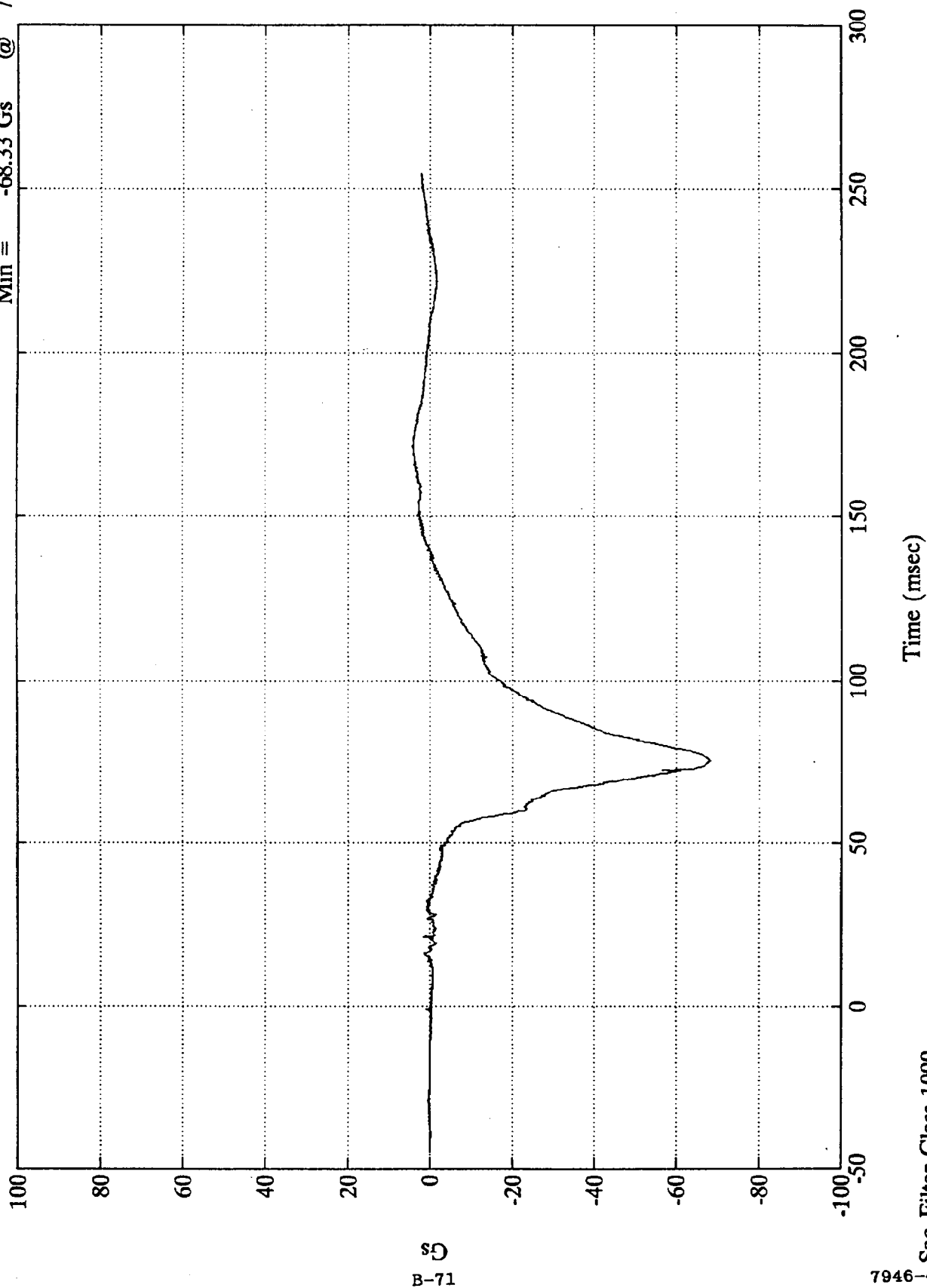
DUMMY DATA

CLASS	FILTER CHANNEL
Head Accelerations	1000
Chest Accelerations	180
Femur Forces	600
Belt Loads	60
Belt Displacements	180

NCAP TEST #4 1992 ACURA VIGOR

Max = 4.19 Gs @ 171.84 msec
Min = -68.33 Gs @ 75.23 msec

Pos. 1 Head X



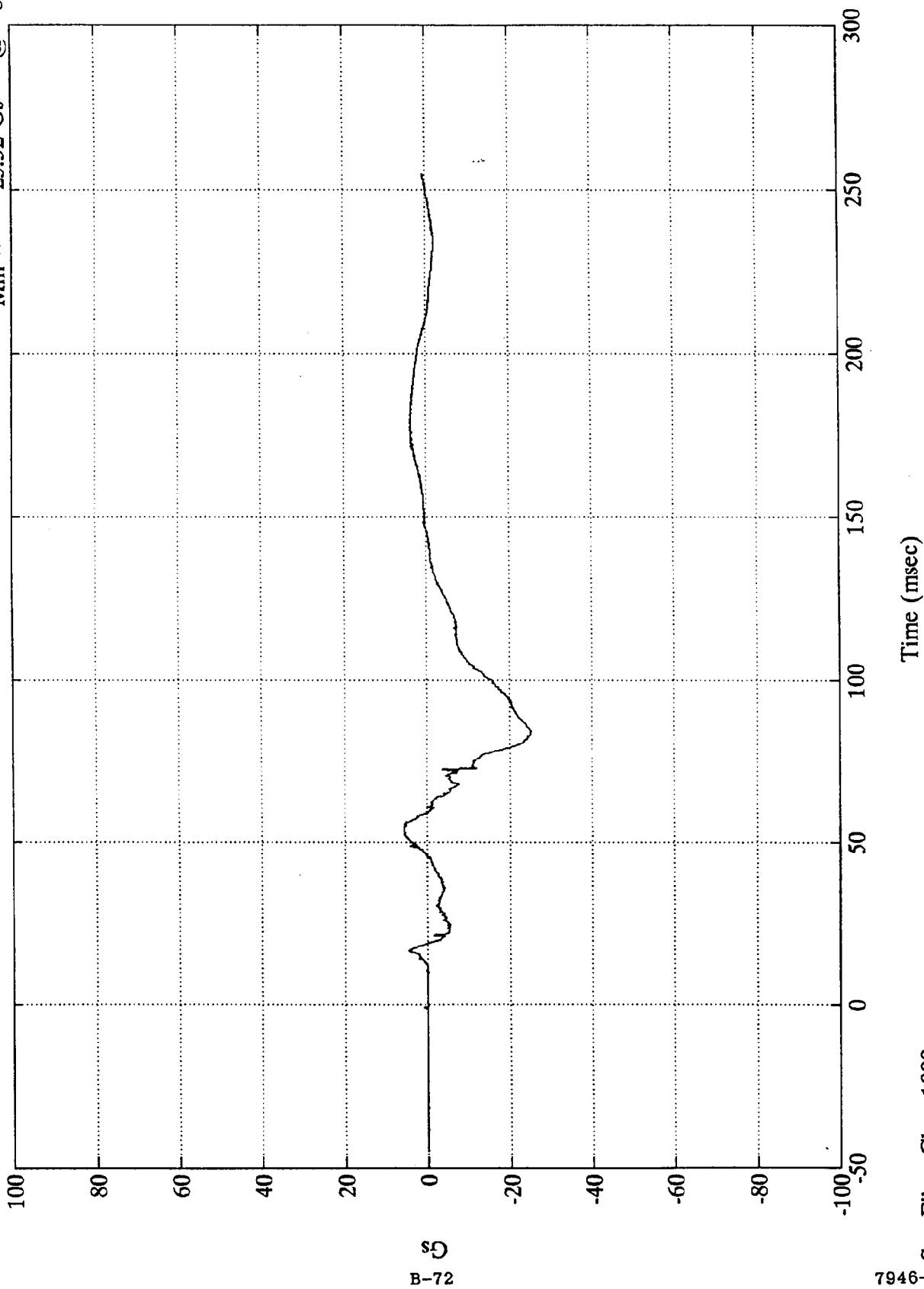
B-71

7946-4 Sae Filter Class 1000

NCAP TEST #4 1992 ACURA VIGOR

Max = 5.73 Gs @ 55.68 msec
 Min = -25.32 Gs @ 84.48 msec

Pos. 1 Head Y



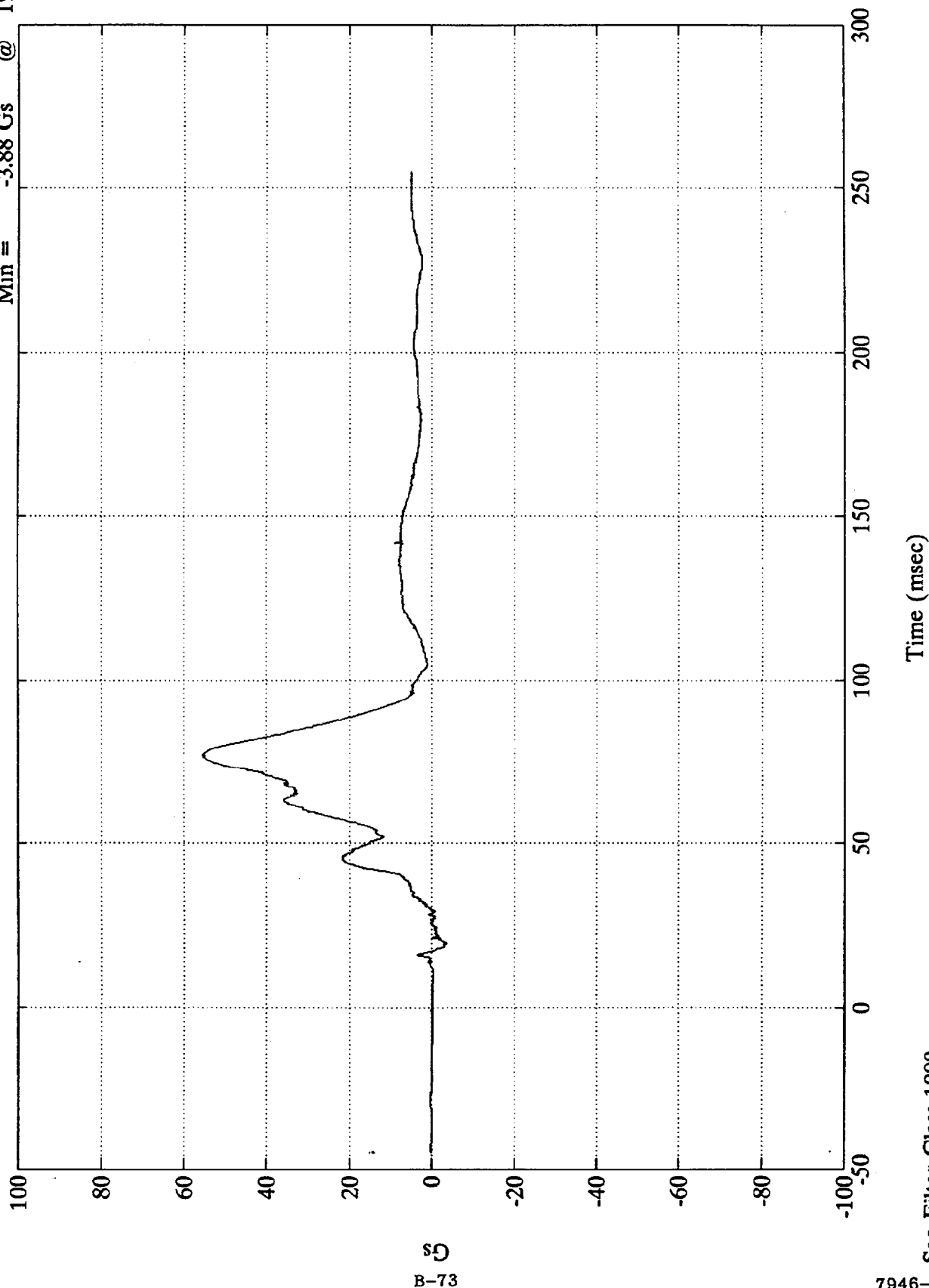
B-72

7946-4 Sae Filter Class 1000

NCAP TEST #4 1992 ACURA VIGOR

Max = 55.46 Gs @ 77.04 msec
Min = -3.88 Gs @ 19.43 msec

Pos. 1 Head Z

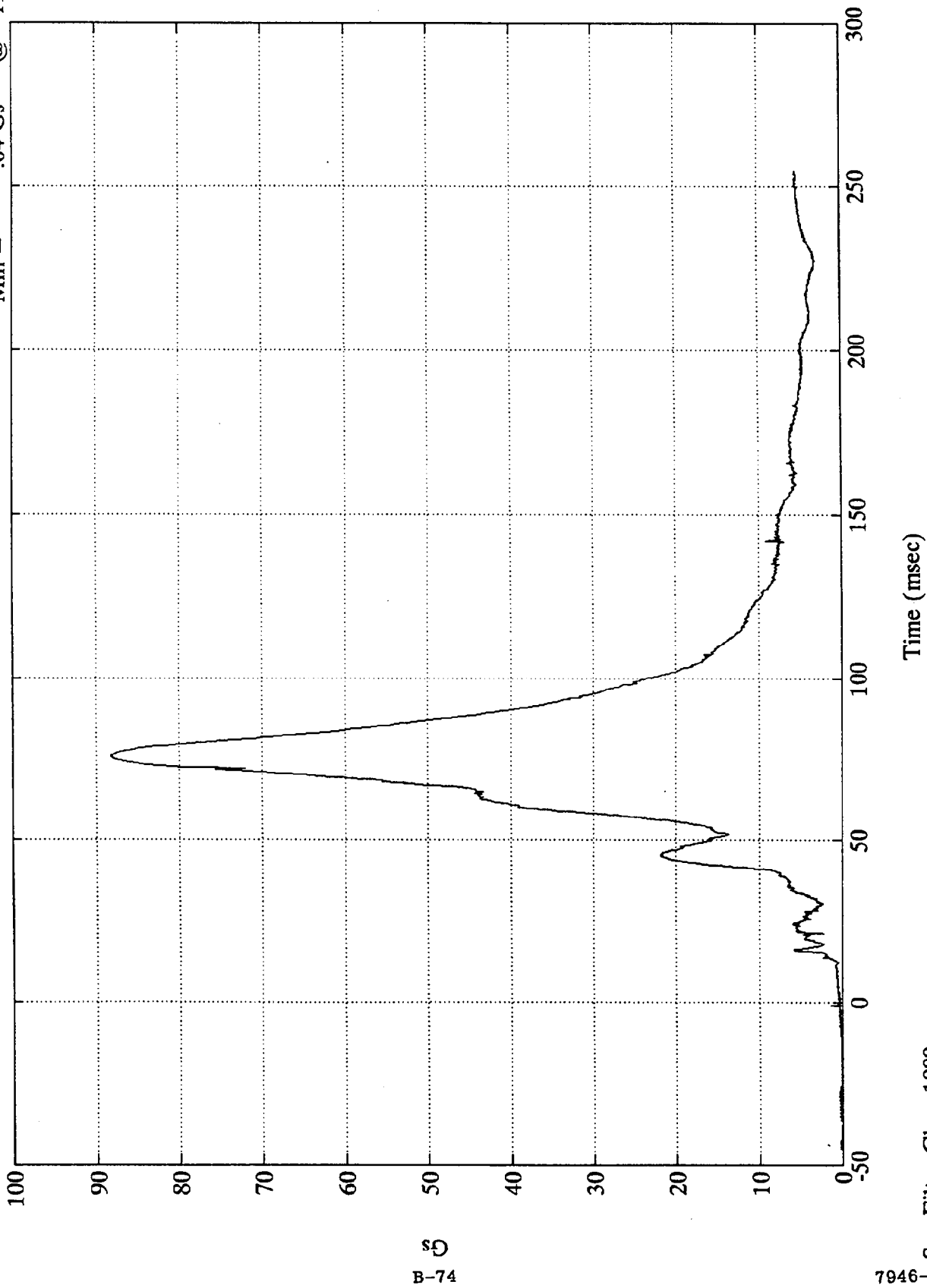


B-73

NCAP TEST #4 1992 ACURA VIGOR

Max = 88.16 Gs @ 75.84 msec
 Min = .04 Gs @ -11.52 msec

Pos. 1 Head Resultant



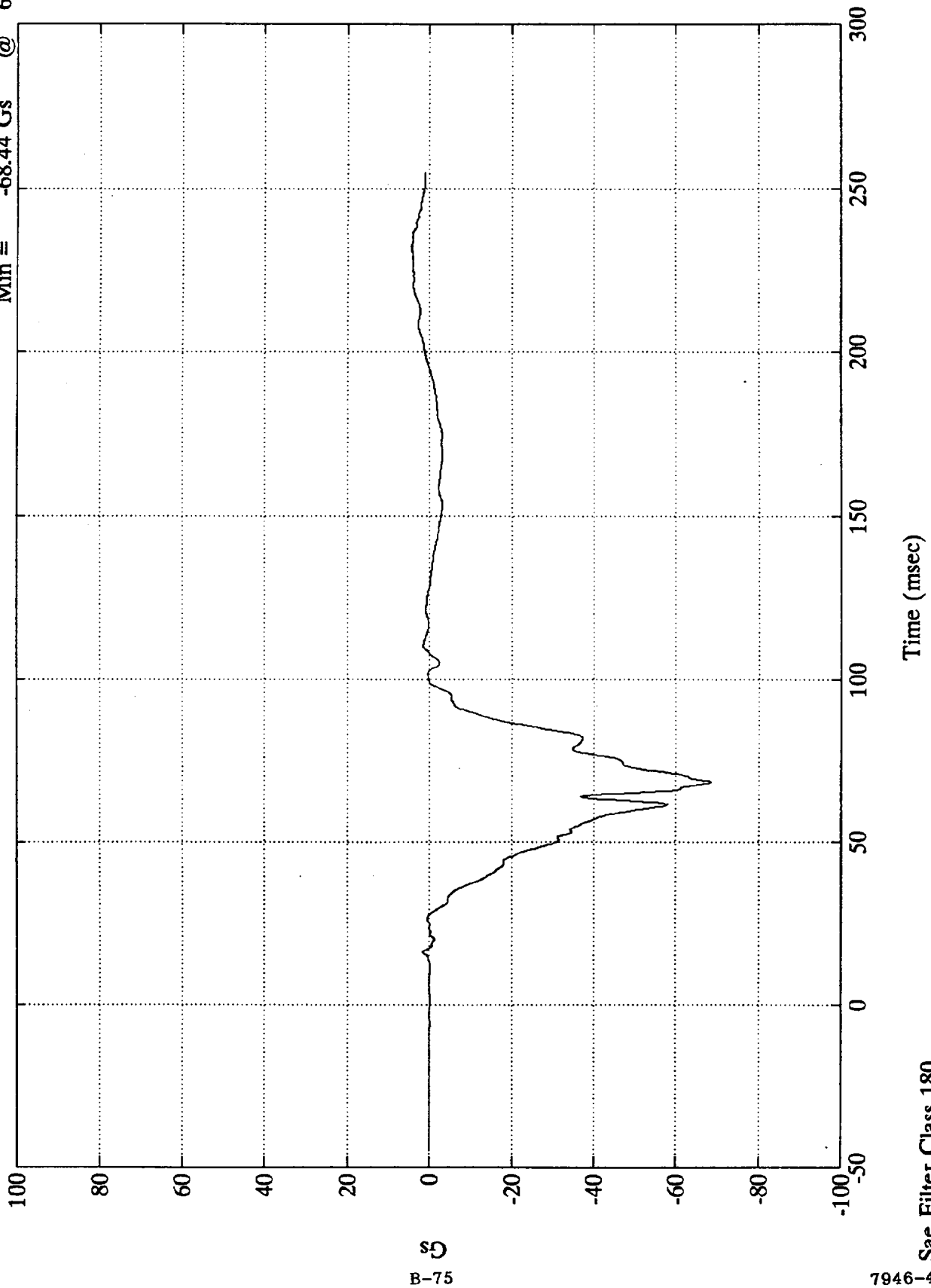
Sae Filter Class 1000

7946-4

NCAP TEST #4 1992 ACURA VIGOR

Pos. 1 Chest X

Max = 4.39 Gs @ 232.08 msec
Min = -68.44 Gs @ 68.52 msec



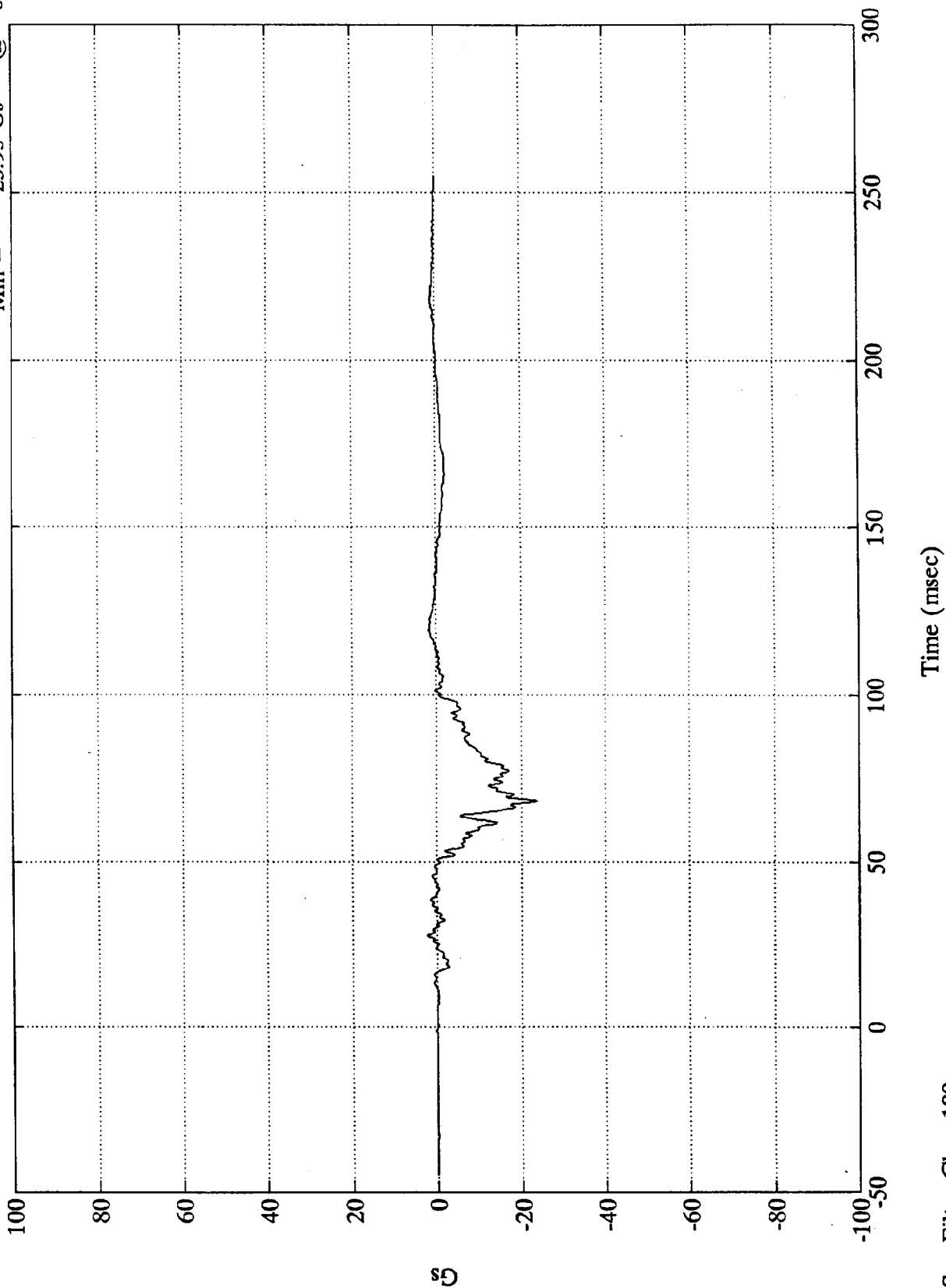
B-75

7946-4 Sae Filter Class 180

NCAP TEST #4 1992 ACURA VIGOR

Max = 2.33 Gs @ 27.84 msec
Min = -23.95 Gs @ 68.16 msec

Pos. 1 Chest Y



B-76

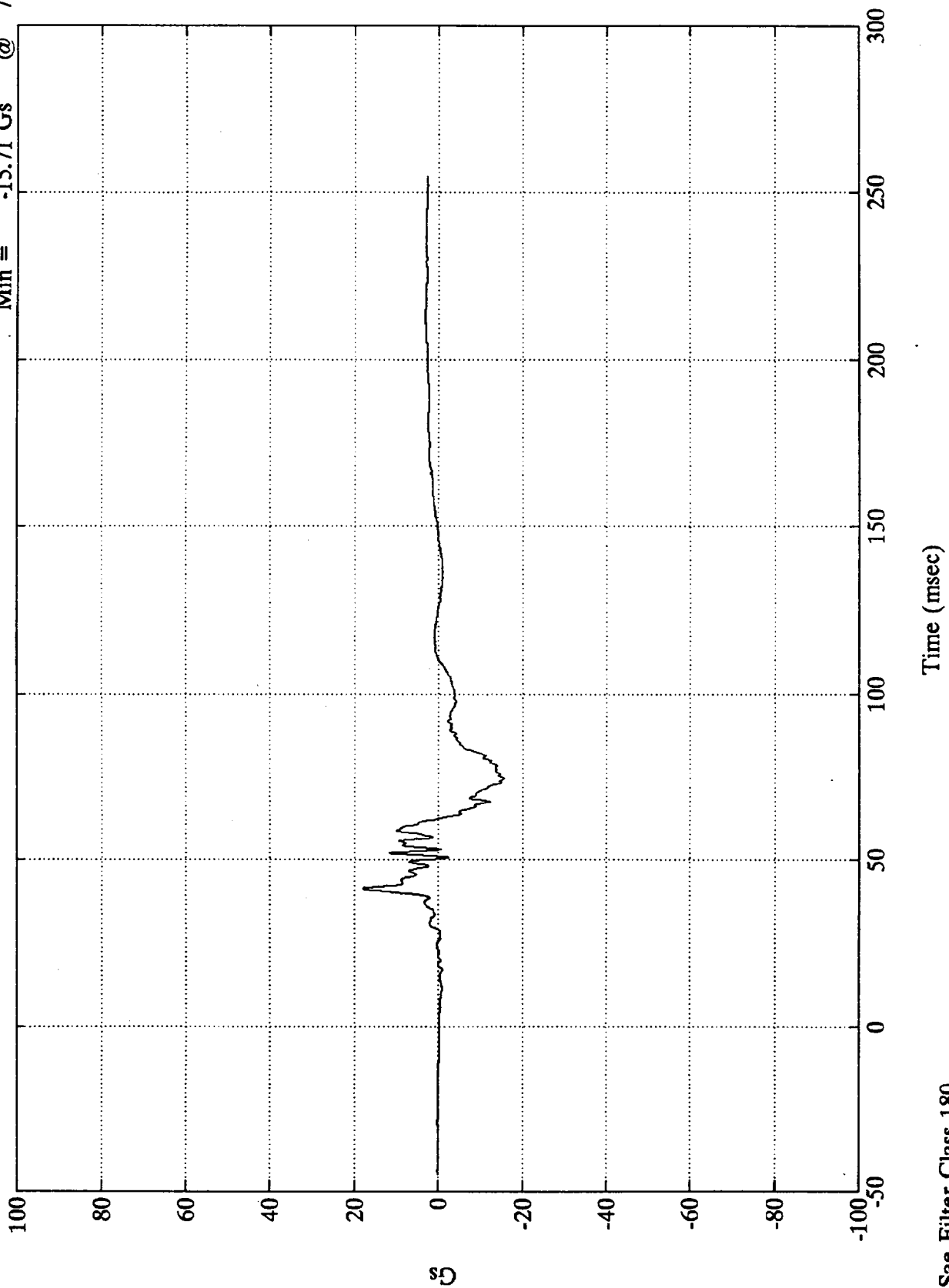
7946-4

Sae Filter Class 180

NCAP TEST #4 1992 ACURA VIGOR

Max = 17.97 Gs @ 41.28 msec
Min = -15.71 Gs @ 74.51 msec

Pos. 1 Chest Z



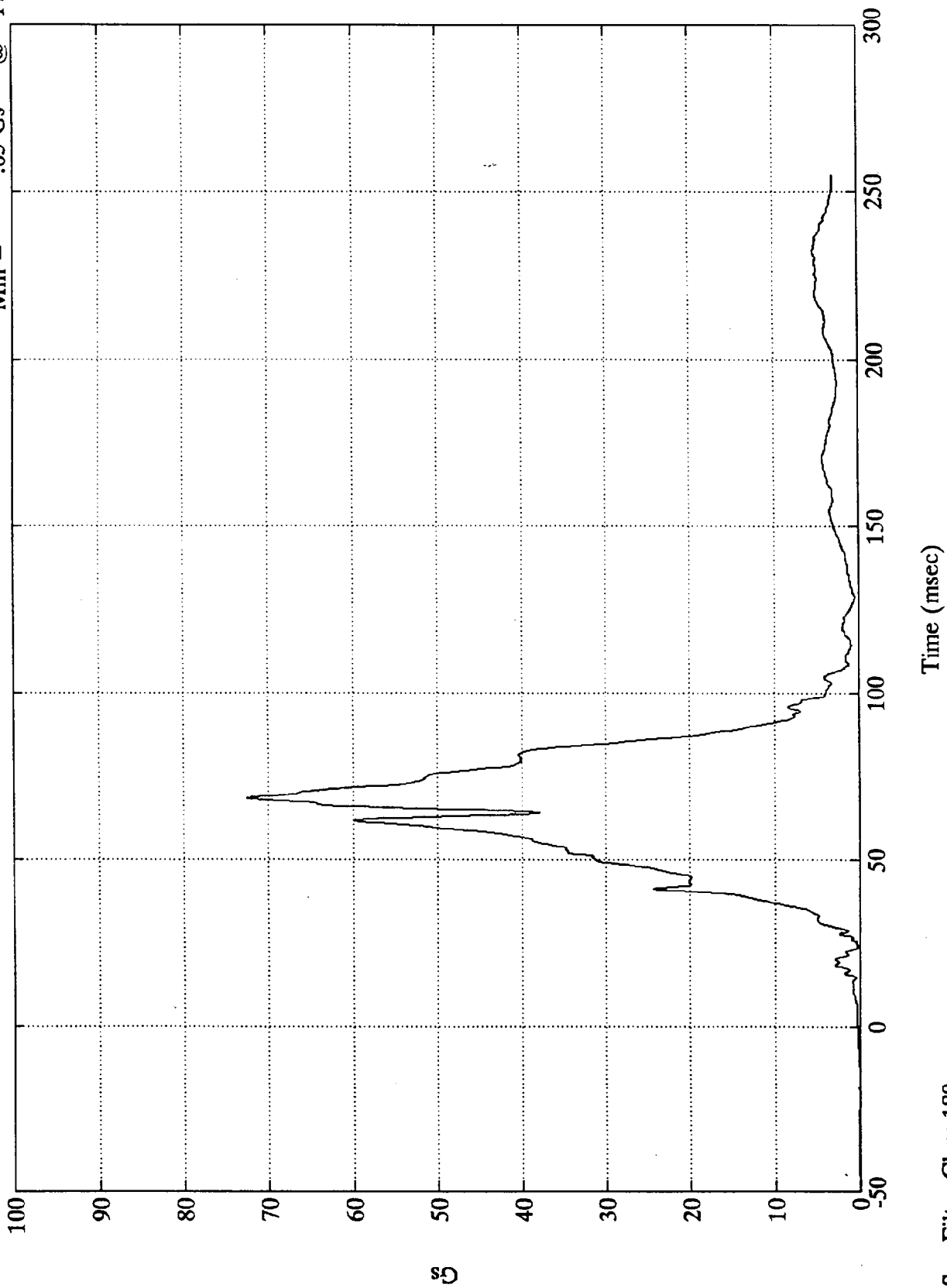
B-77

7946-4

Sae Filter Class 180

NCAP TEST #4 1992 ACURA VIGOR

Pos. 1 Chest Resultant
 Max = 72.51 Gs @ 68.40 msec
 Min = .03 Gs @ -17.16 msec



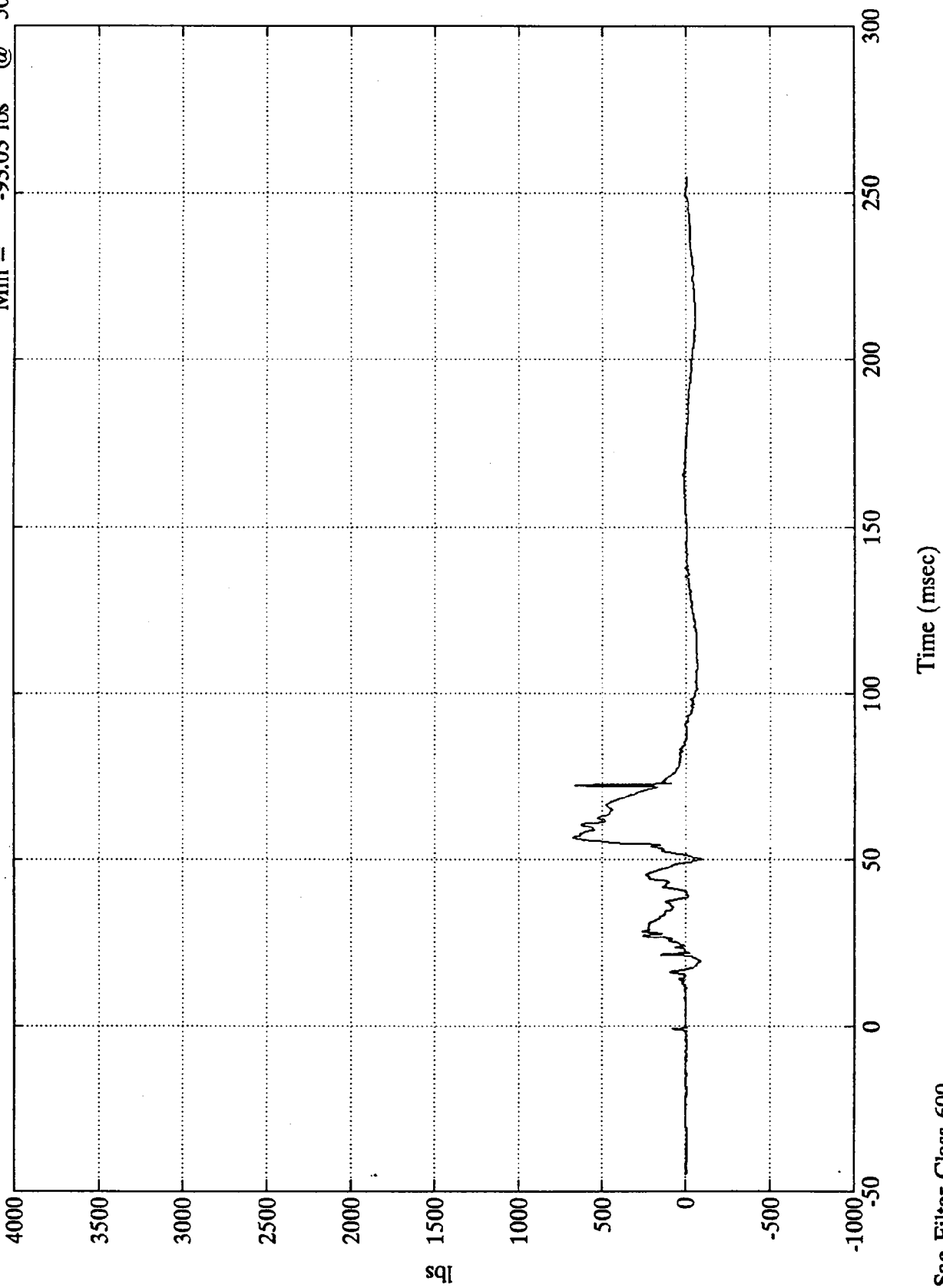
B-78

7946-4 Sae Filter Class 180

NCAP TEST #4 1992 ACURA VIGOR

Max = 675.62 lbs @ 56.76 msec
Min = -93.03 lbs @ 50.16 msec

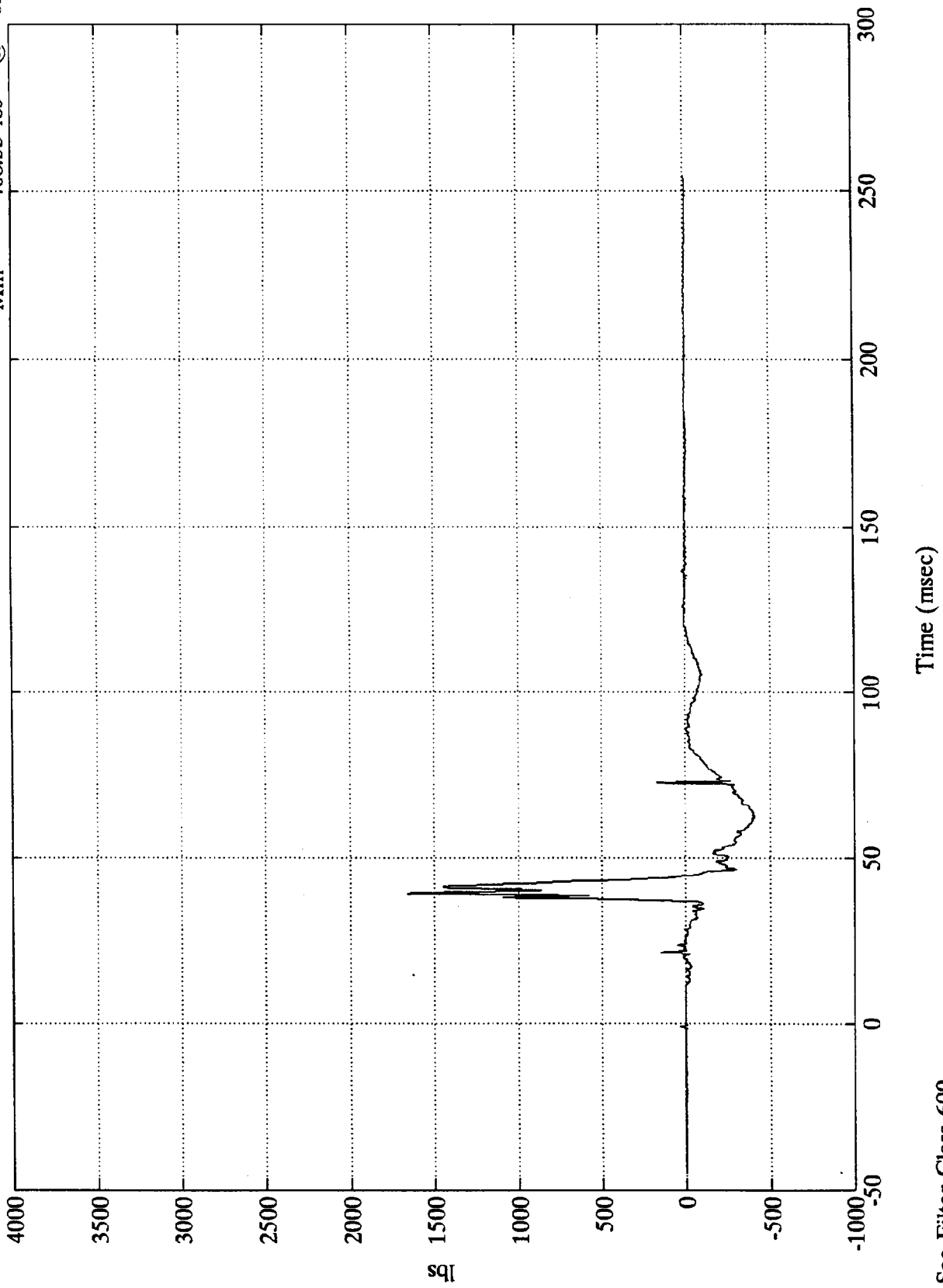
Pos. 1 Left Femur



NCAP TEST #4 1992 ACURA VIGOR

Pos. 1 Right Femur

Max = 1656.89 lbs @ 39.11 msec
Min = -408.53 lbs @ 62.27 msec

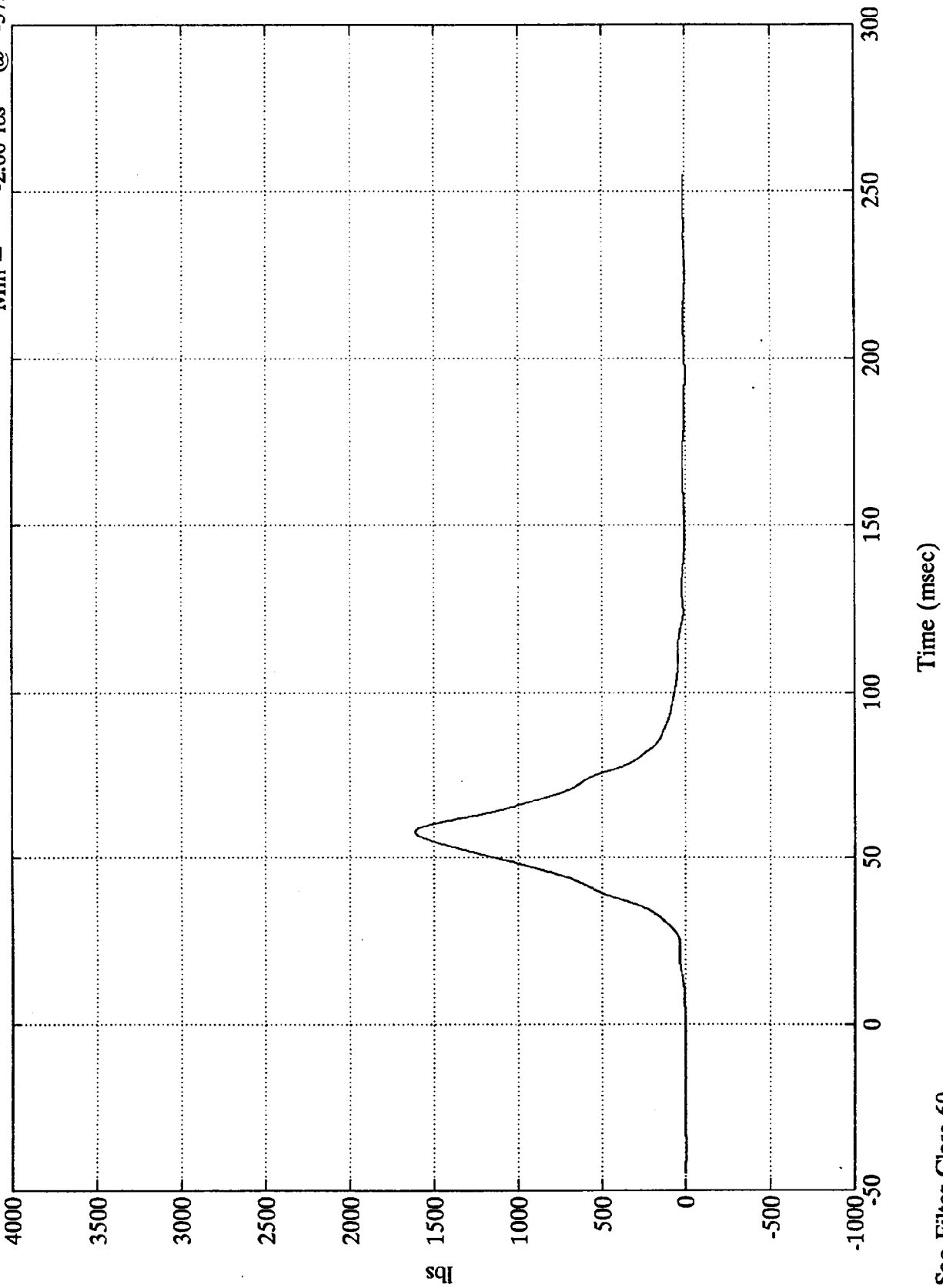


Sae Filter Class 600

NCAP TEST #4 1992 ACURA VIGOR

Pos. 1 Left Belt Load

Max = 1611.92 lbs @ 57.72 msec
Min = -2.00 lbs @ -37.92 msec



B-81

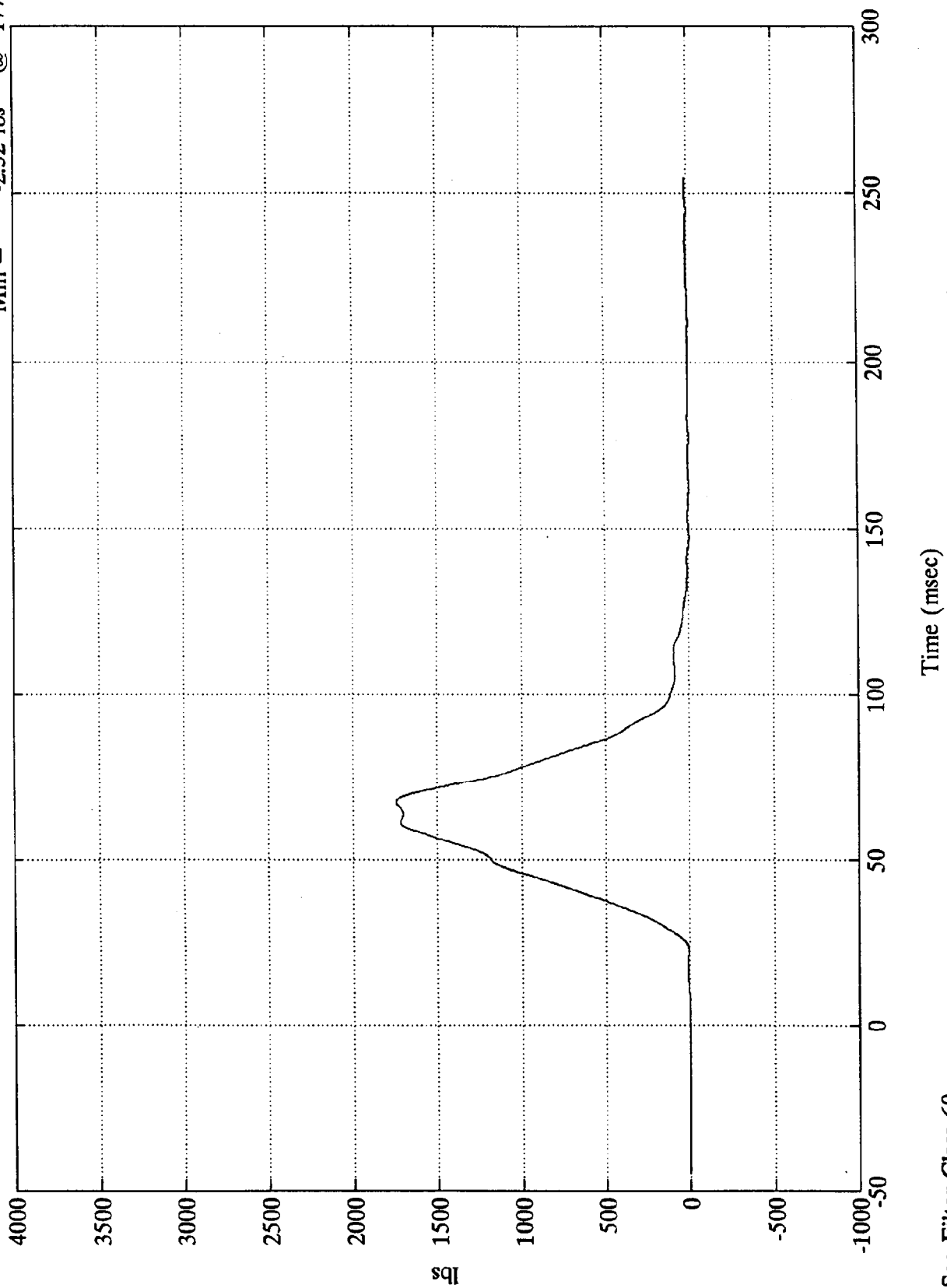
7946-4

Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Pos. 1 Torso Belt Load

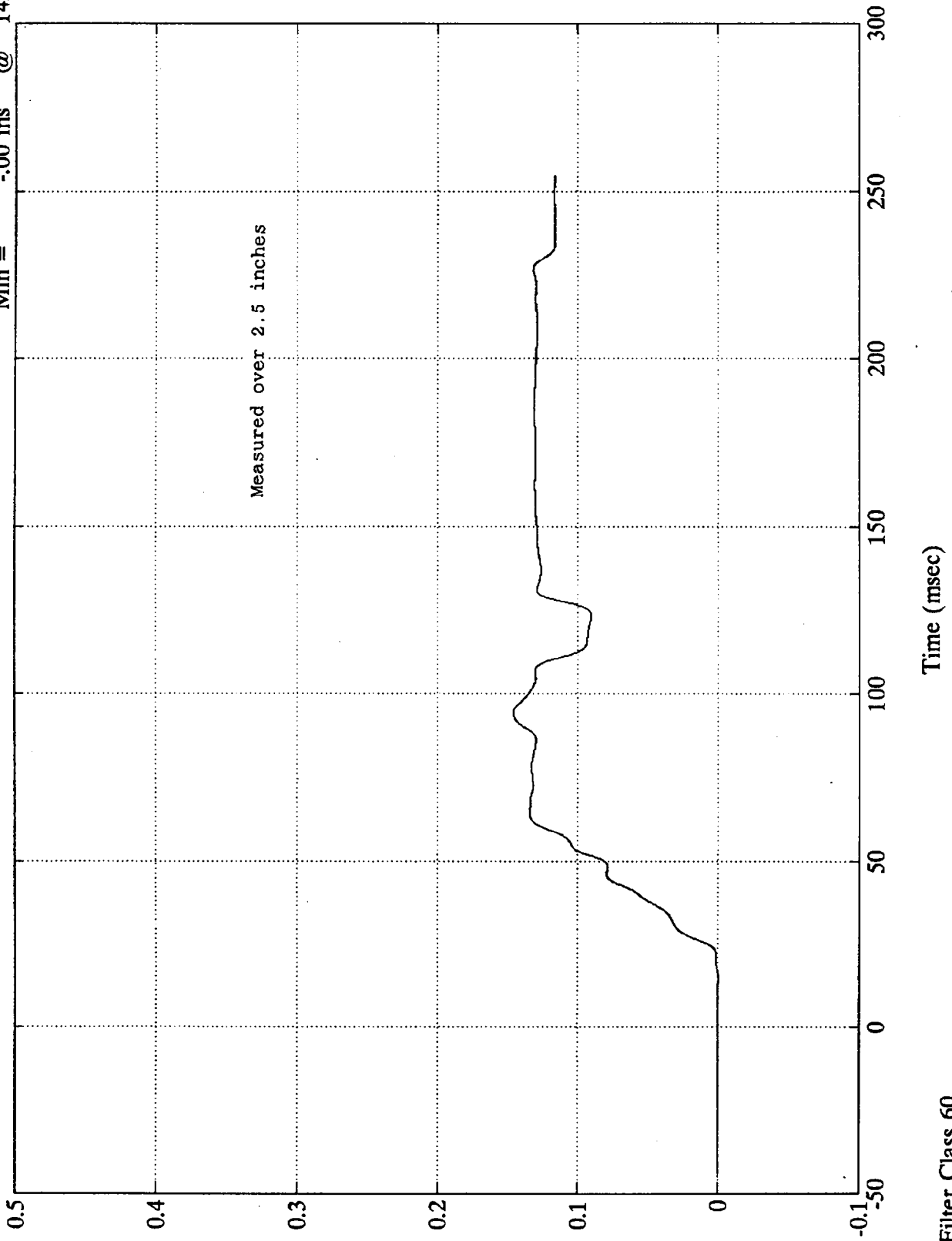
Max = 1742.86 lbs @ 67.44 msec
Min = -2.52 lbs @ 177.48 msec



NCAP TEST #4 1992 ACURA VIGOR

Pos. 1 Belt Elongation

Max = .14 ins @ 94.31 msec
Min = -.00 ins @ 14.88 msec

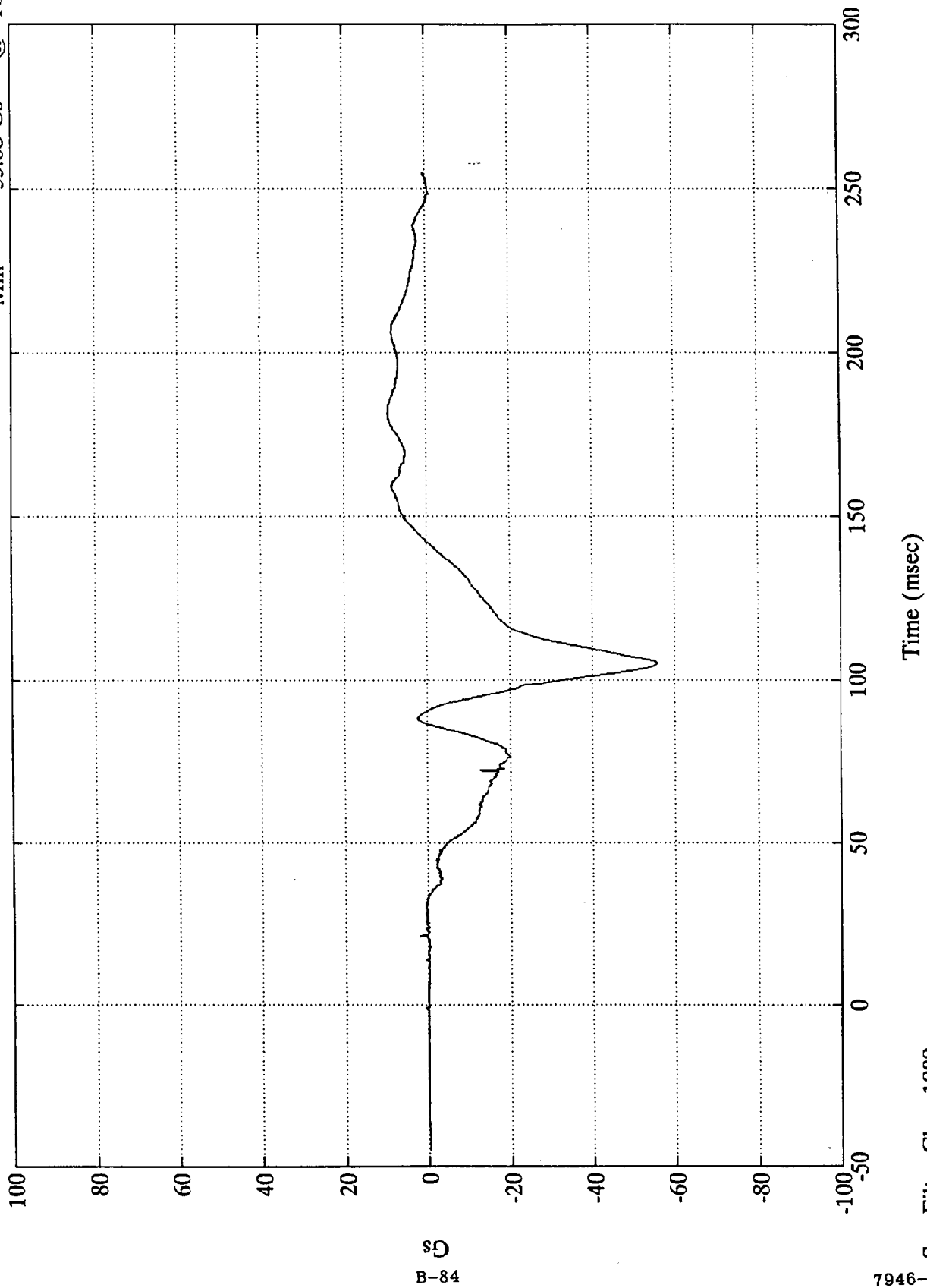


SUI
B-83

NCAP TEST #4 1992 ACURA VIGOR

Max = 9.39 Gs @ 181.20 msec
Min = -55.68 Gs @ 105.24 msec

Pos. 2 Head X



B-84

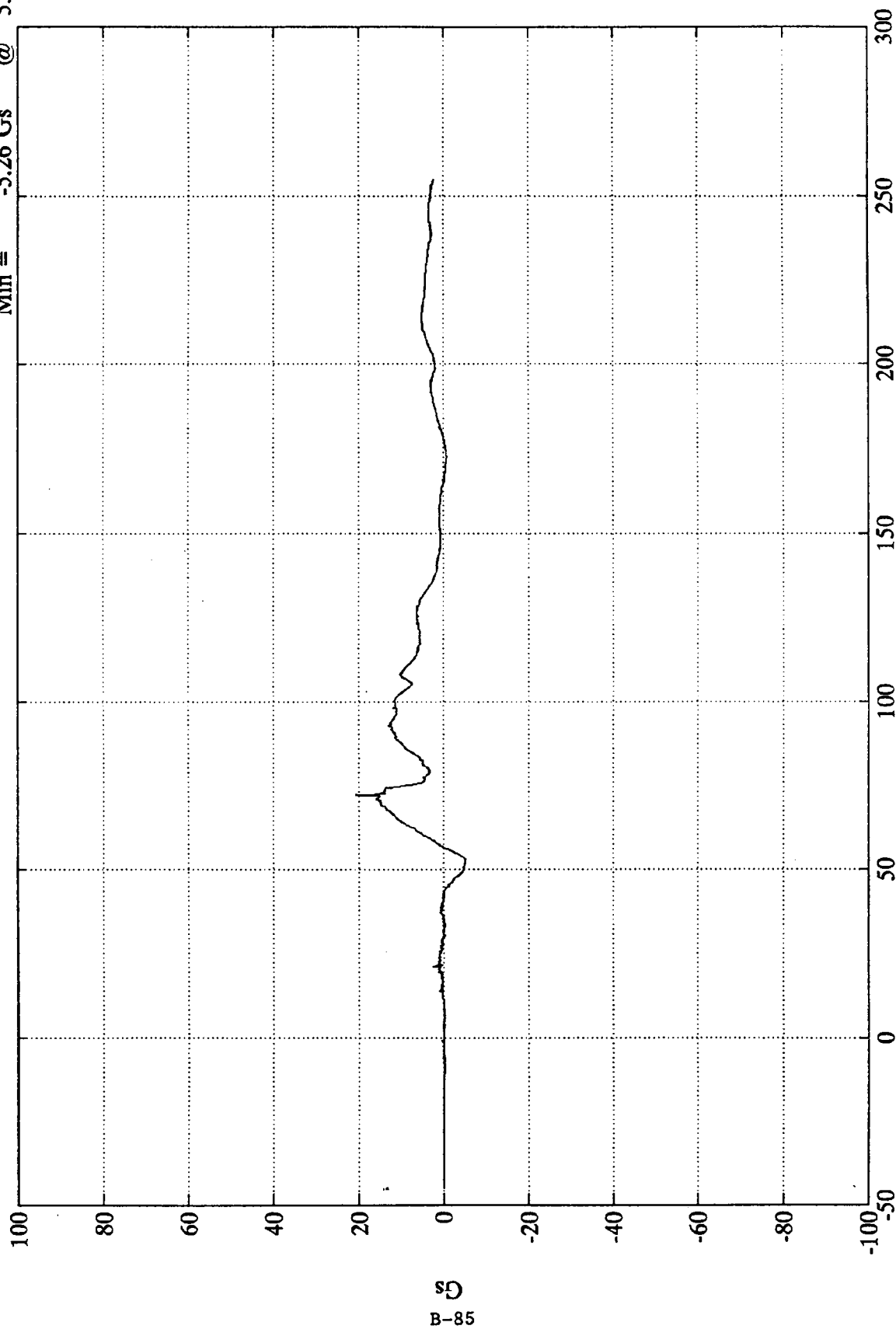
7946-4

Sae Filter Class 1000

NCAP TEST #4 1992 ACURA VIGOR

Max = 20.65 Gs @ 72.36 msec
Min = -5.26 Gs @ 53.04 msec

Pos. 2 Head Y



Time (msec)

Sae Filter Class 1000

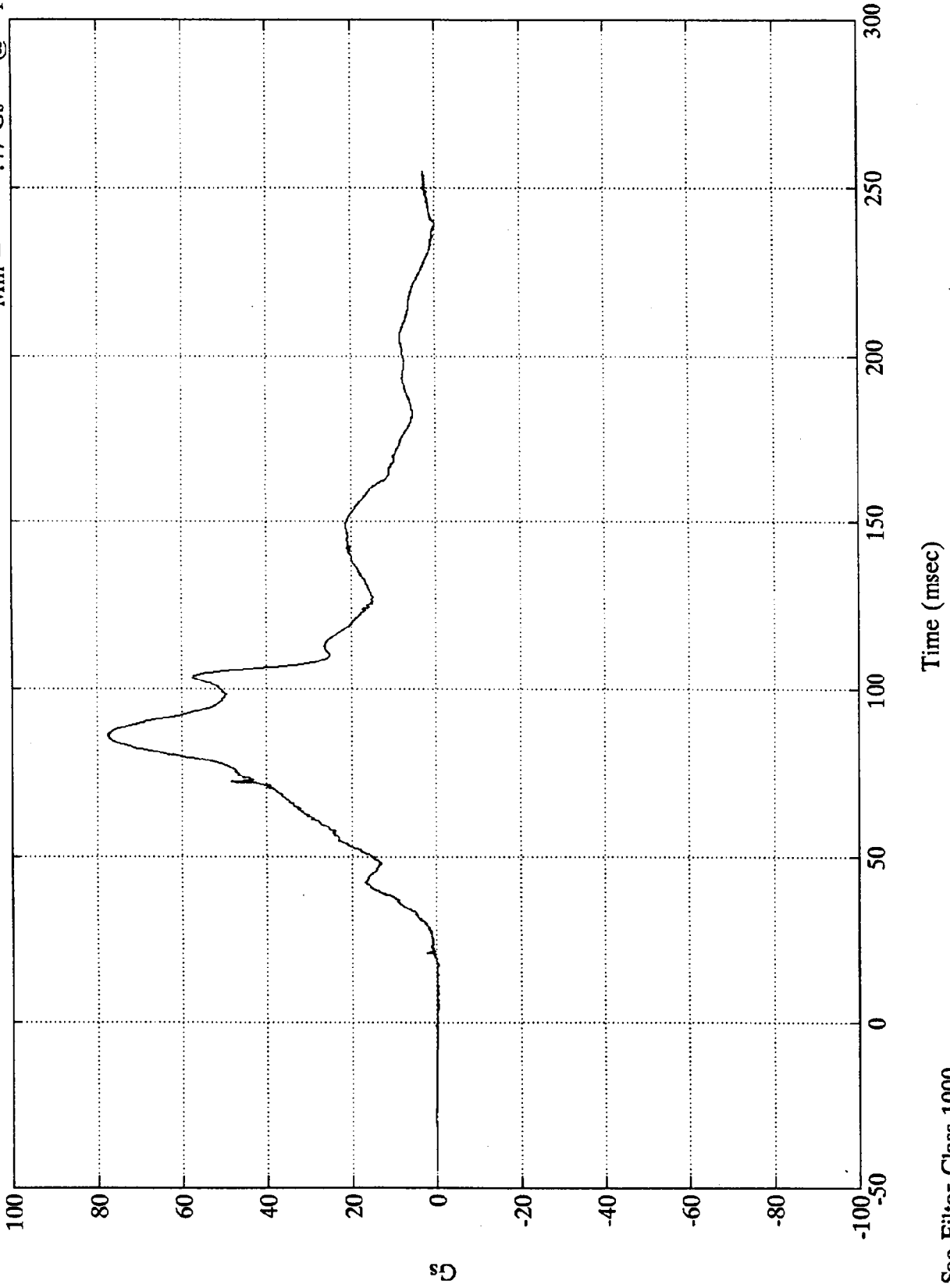
B-85

7946-4

NCAP TEST #4 1992 ACURA VIGOR

Max = 77.40 Gs @ 86.63 msec
Min = -47 Gs @ 18.12 msec

Pos. 2 Head Z



B-86

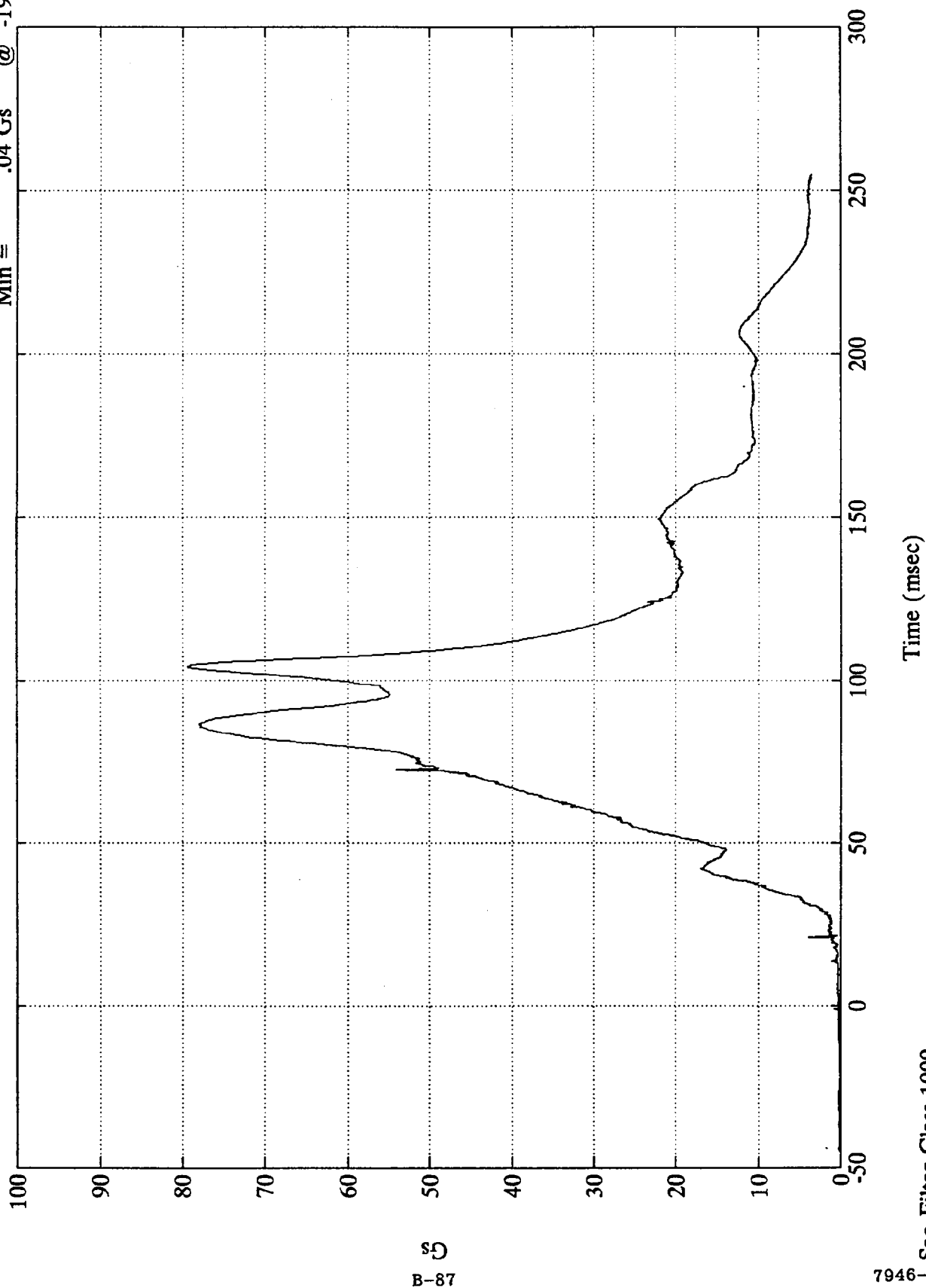
7946-4

Sae Filter Class 1000

NCAP TEST #4 1992 ACURA VIGOR

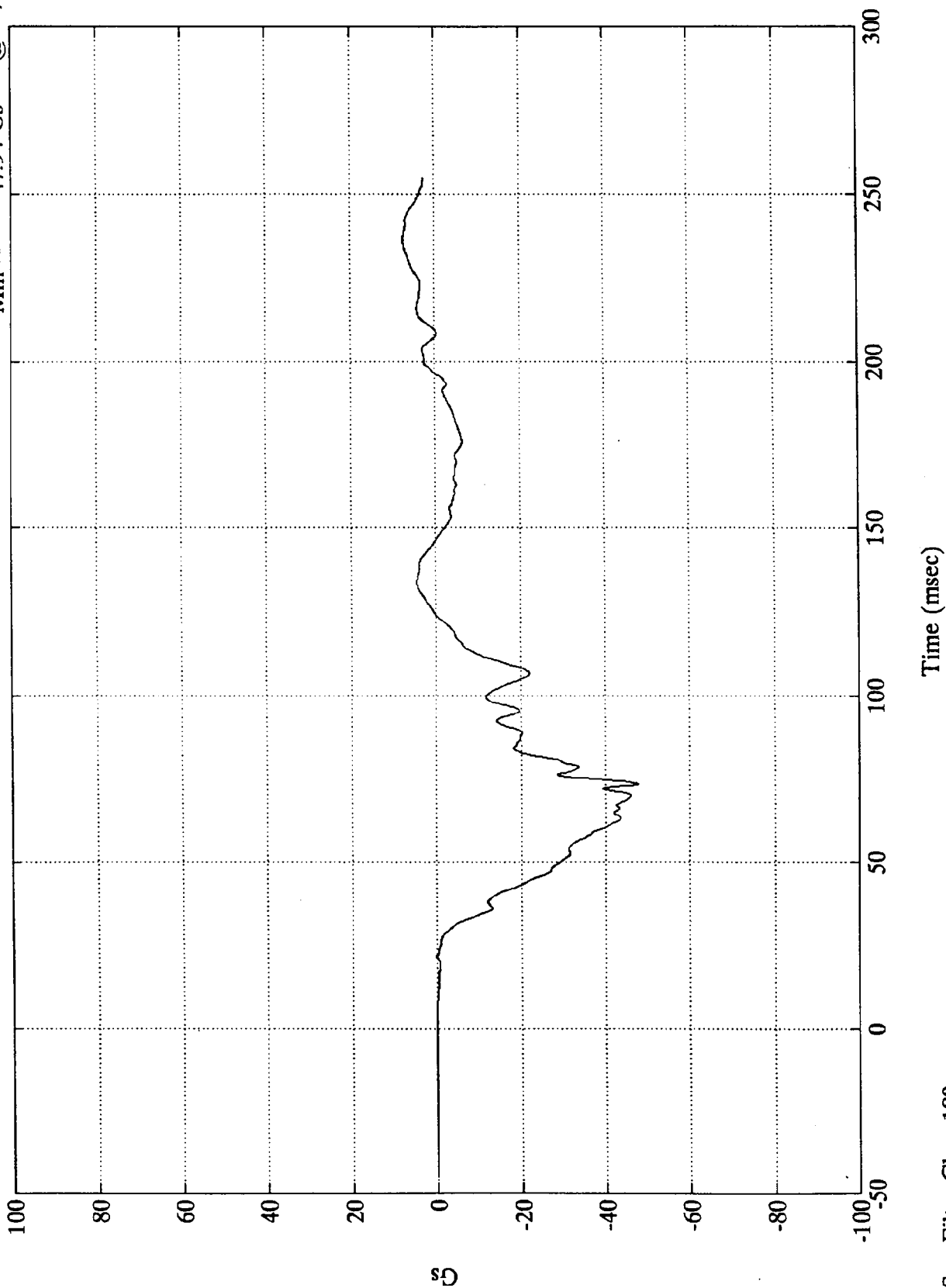
Pos. 2 Head Resultant

Max = 79.42 Gs @ 104.16 msec
Min = .04 Gs @ -19.20 msec



NCAP TEST #4 1992 ACURA VIGOR

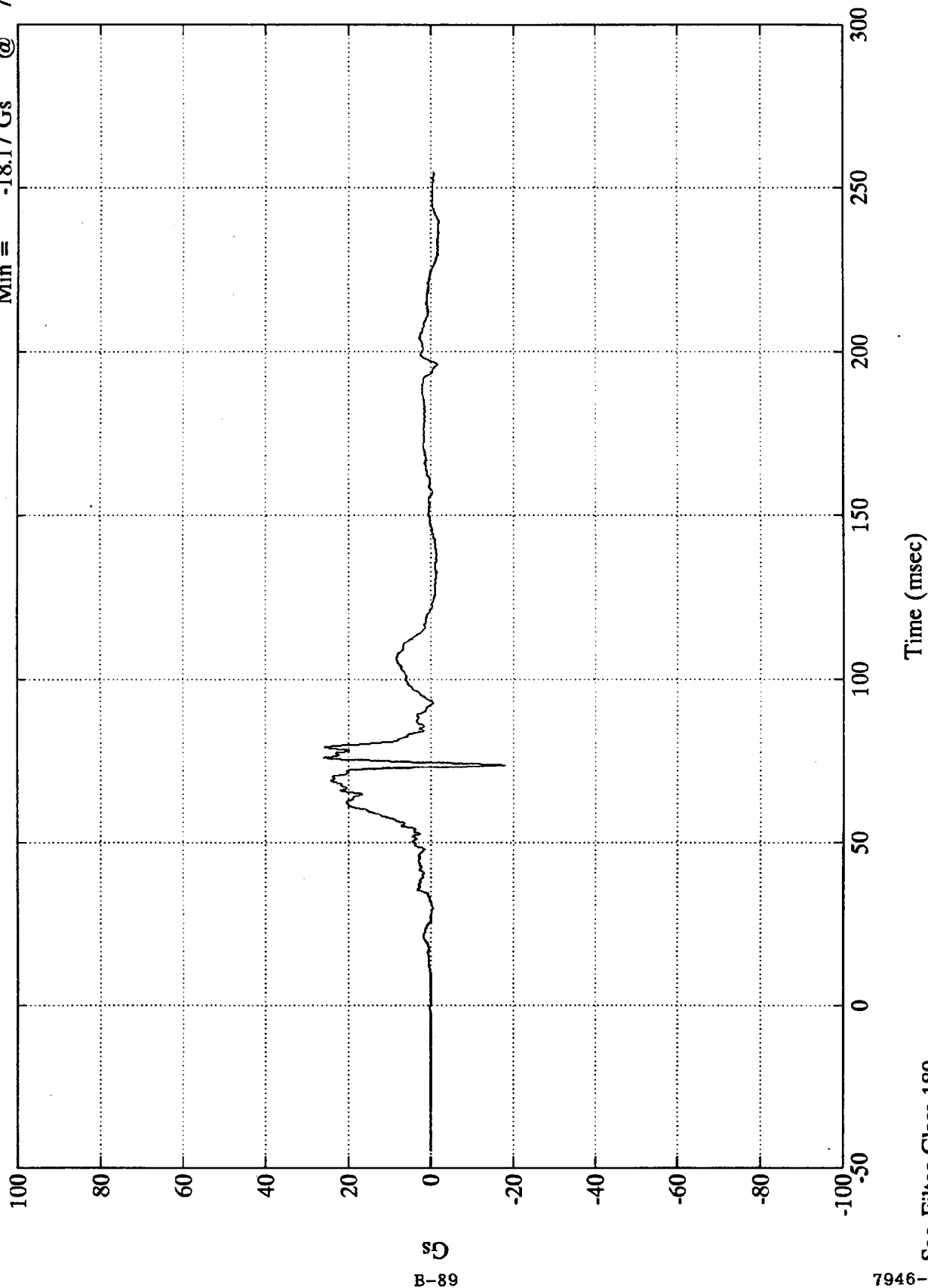
Pos. 2 Chest X
Max = 7.37 Gs @ 235.55 msec
Min = -47.94 Gs @ 73.55 msec



NCAP TEST #4 1992 ACURA VIGOR

Max = 25.92 Gs @ 75.84 msec
Min = -18.17 Gs @ 73.55 msec

Pos. 2 Chest Y



B-89

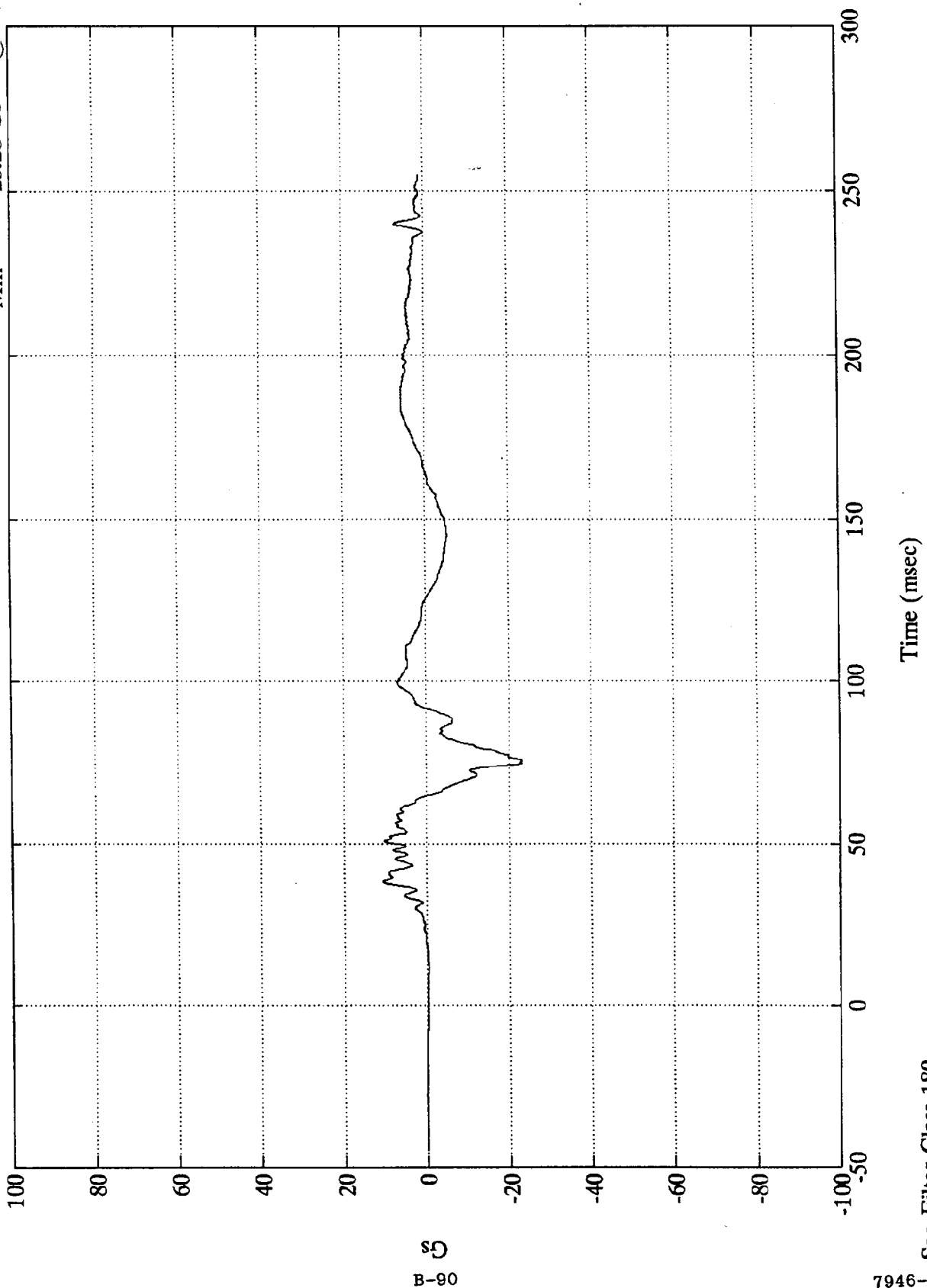
7946-4

Sae Filter Class 180

NCAP TEST #4 1992 ACURA VIGOR

Max = 10.63 Gs @ 38.15 msec
Min = -23.28 Gs @ 75.72 msec

Pos. 2 Chest Z

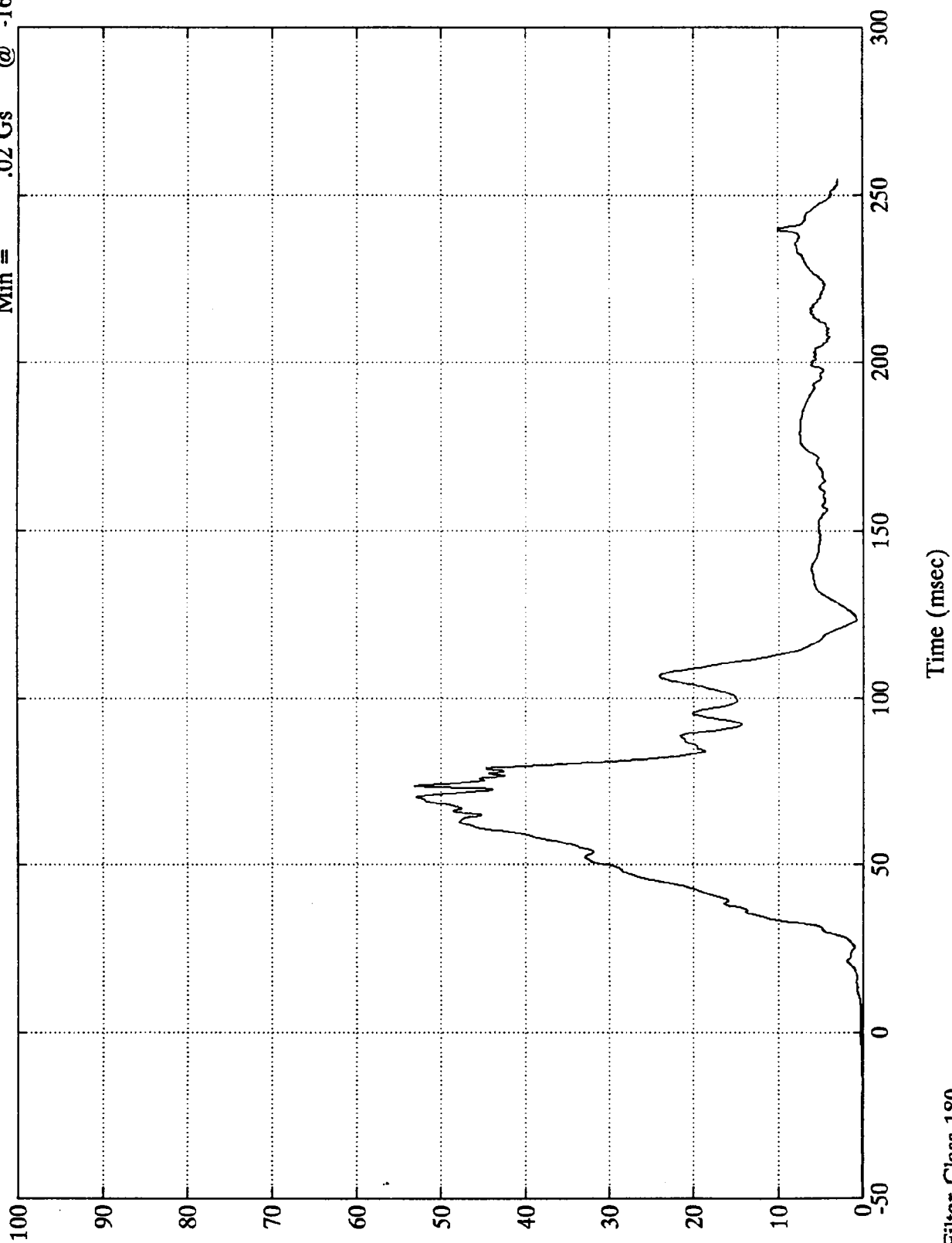


Sae Filter Class 180

NCAP TEST #4 1992 ACURA VIGOR

Max = 53.13 Gs @ 73.55 msec
 Min = .02 Gs @ -16.92 msec

Pos. 2 Chest Resultant

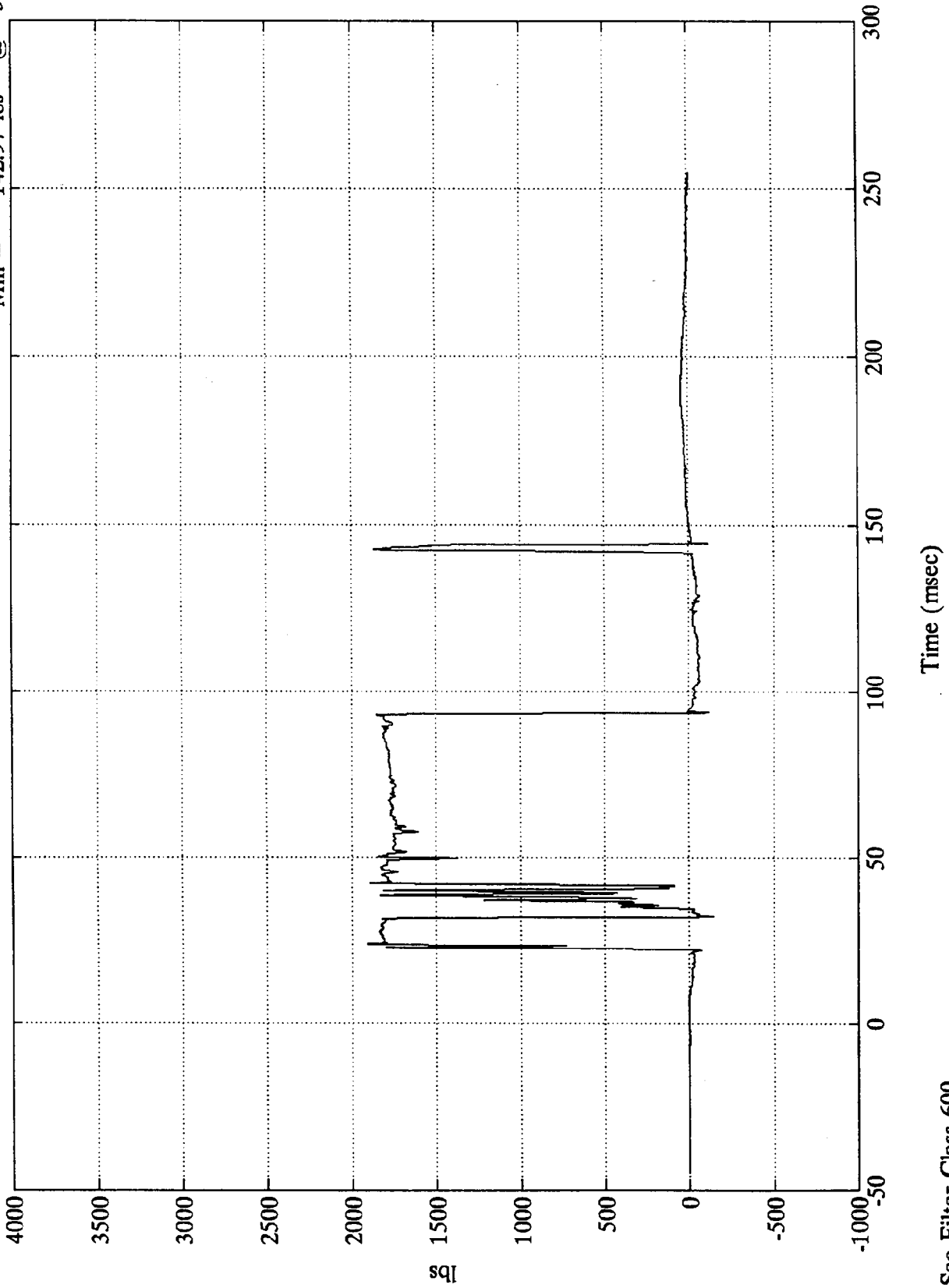


B-91

7946-4 Sae Filter Class 180

NCAP TEST #4 1992 ACURA VIGOR

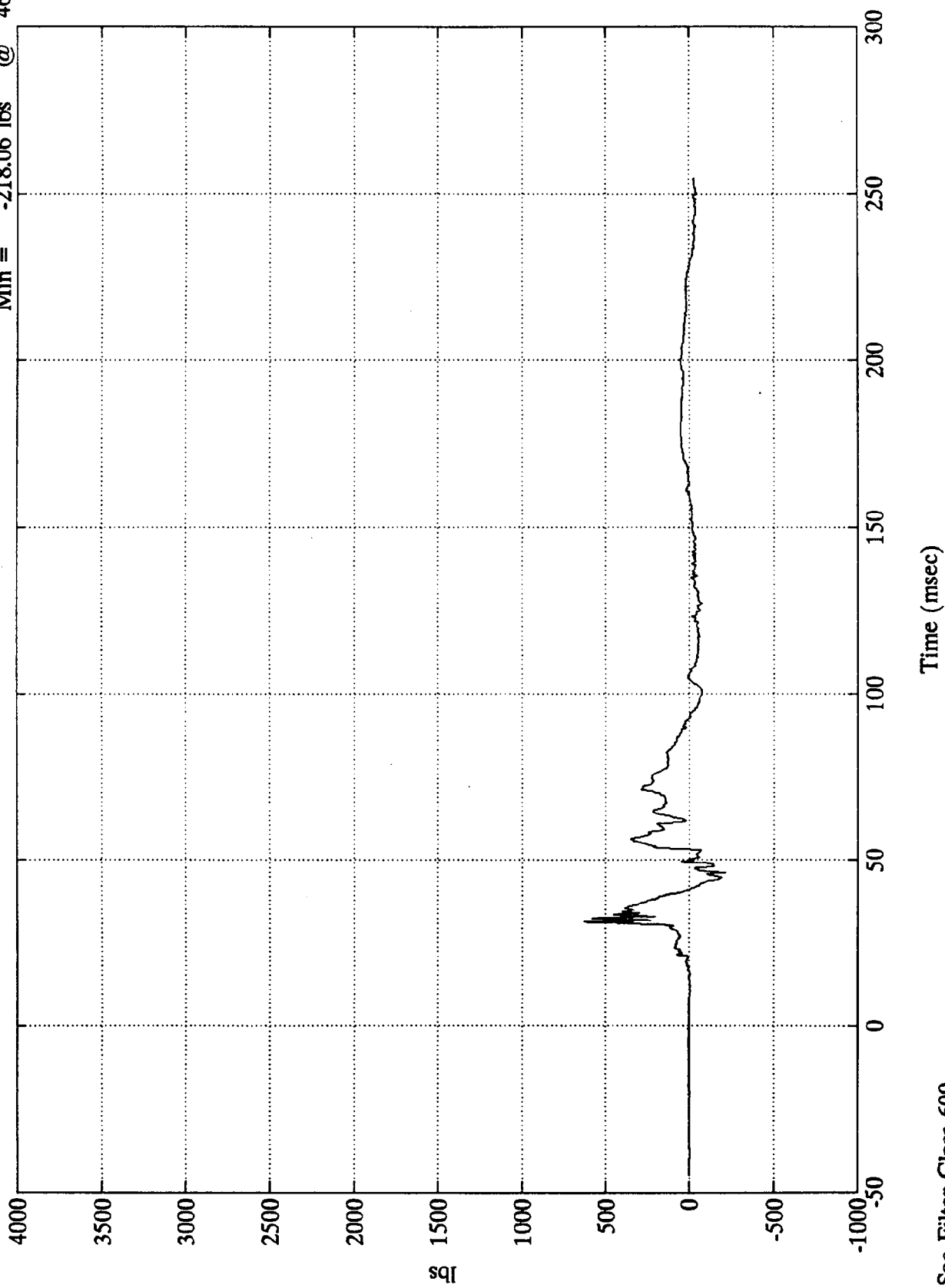
Pos. 2 Left Femur
Max = 1911.58 lbs @ 23.76 msec
Min = -142.97 lbs @ 32.28 msec



NCAP TEST #4 1992 ACURA VIGOR

Pos. 2 Right Femur

Max = 621.51 lbs @ 31.19 msec
Min = -218.06 lbs @ 46.31 msec



sqi
B-93

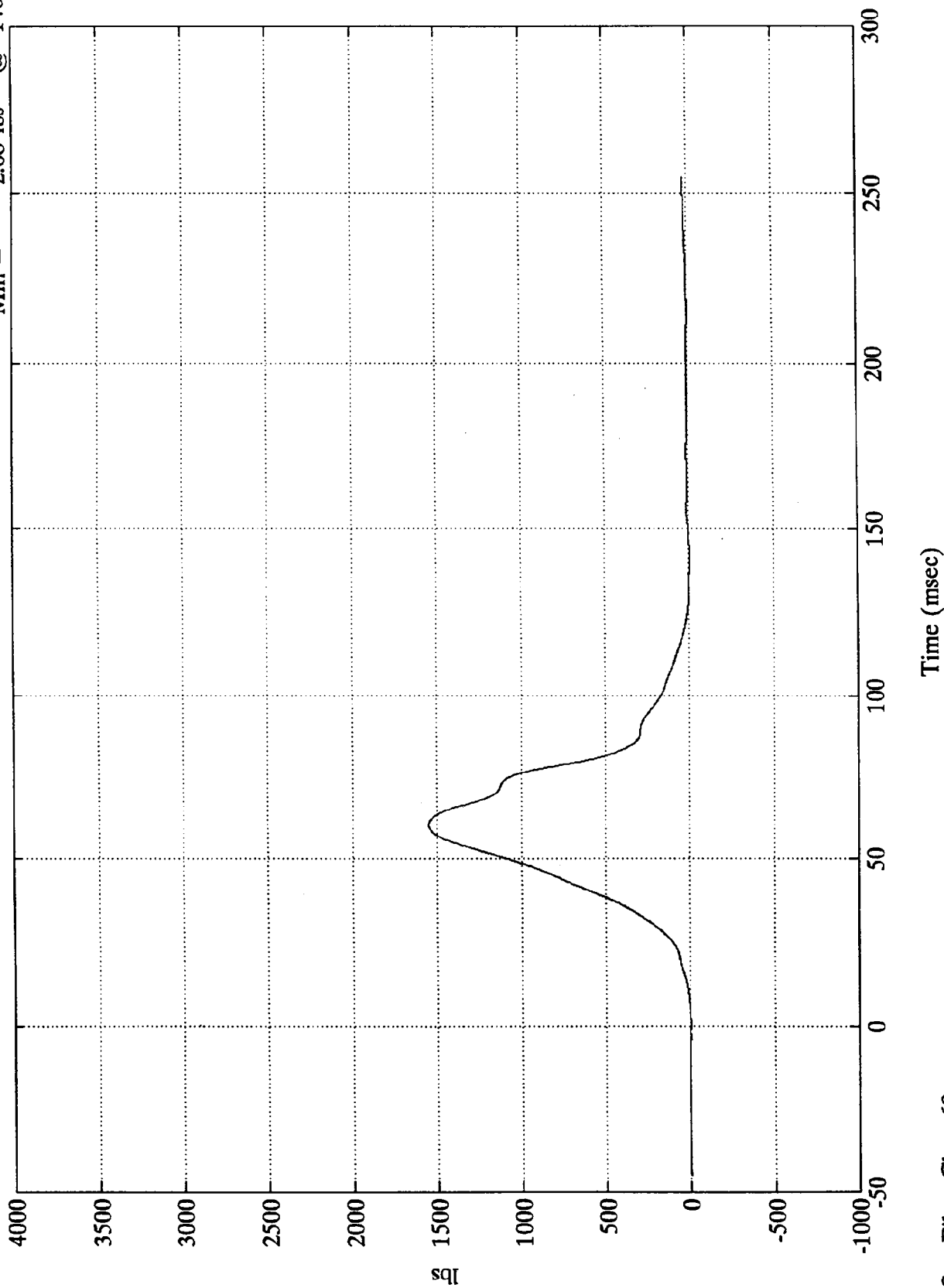
Sae Filter Class 600

7946-4

NCAP TEST #4 1992 ACURA VIGOR

Pos. 2 Right Belt Load

Max = 1550.15 lbs @ 60.36 msec
Min = -2.68 lbs @ 140.63 msec



sqi
B-94

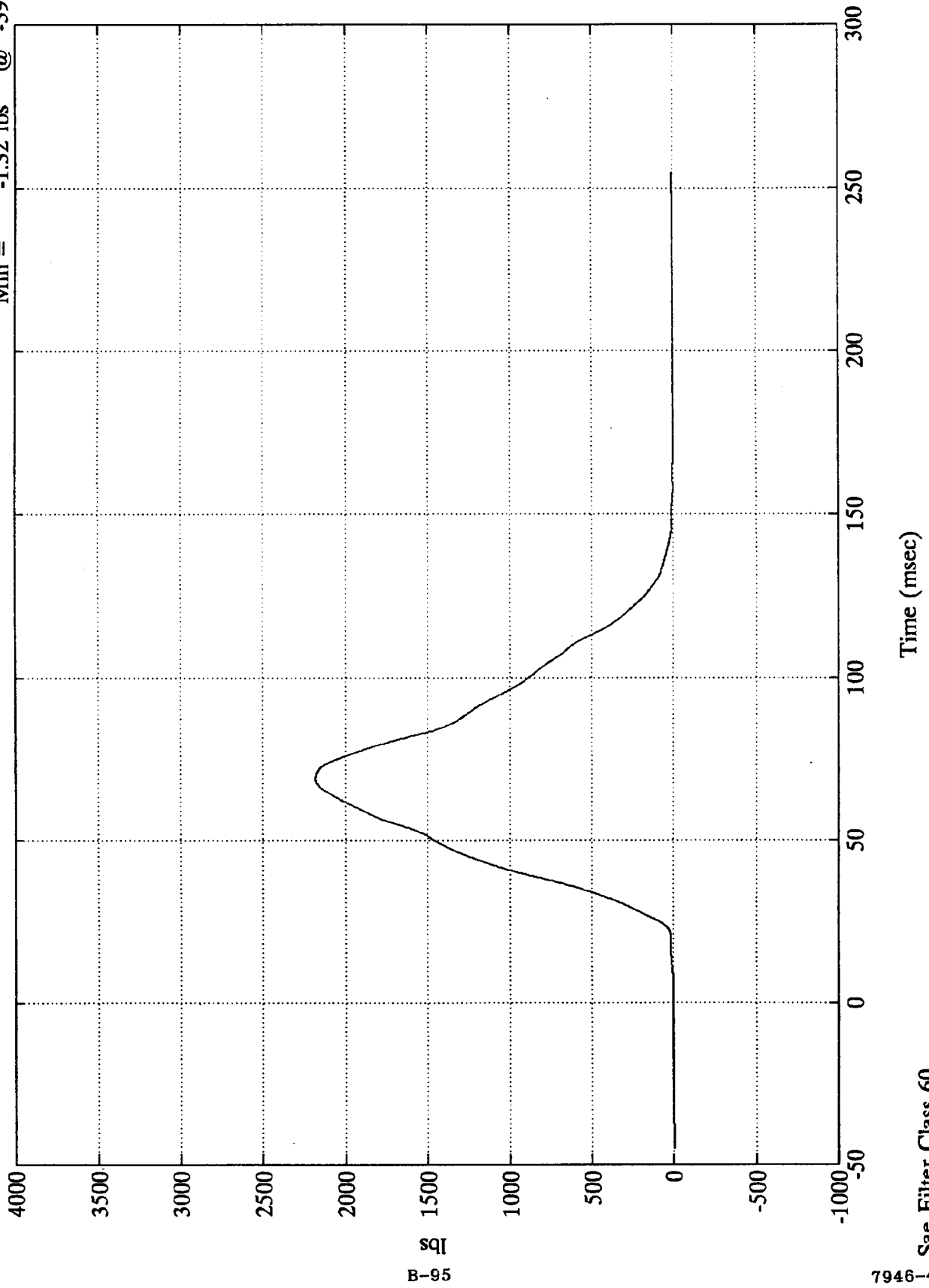
Sae Filter Class 60

7946-4

NCAP TEST #4 1992 ACURA VIGOR

Pos. 2 Torso Belt Load

Max = 2181.33 lbs @ 69.00 msec
Min = -1.32 lbs @ -39.12 msec



B-95

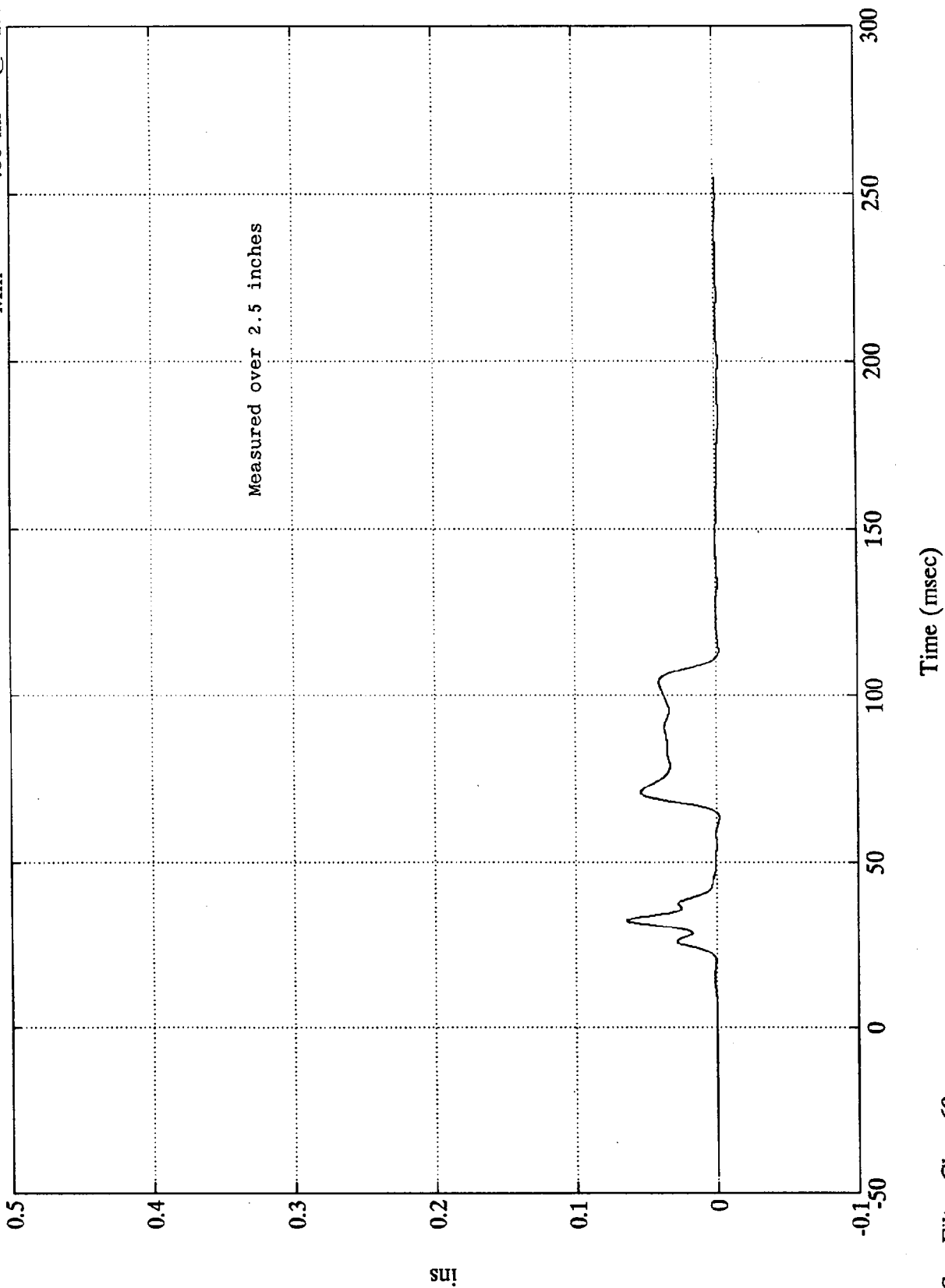
7946-4

Sae Filter Class 60

NCAP TEST #4 1992 ACURA VIGOR

Pos. 2 Belt Elongation

Max = .06 ins @ 32.40 msec
Min = -.00 ins @ 199.80 msec



B-96

7946-4
Sae Filter Class 60

Appendix C

PART 572B DUMMY CONFIGURATION

AND PERFORMANCE VERIFICATION DATA SHEETS

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

The tests were conducted at the Dummy Certification Test Facility of Calspan Corporation, Advanced Technology Center. A summary of the test results, and Part 572 specifications are included in this Appendix.

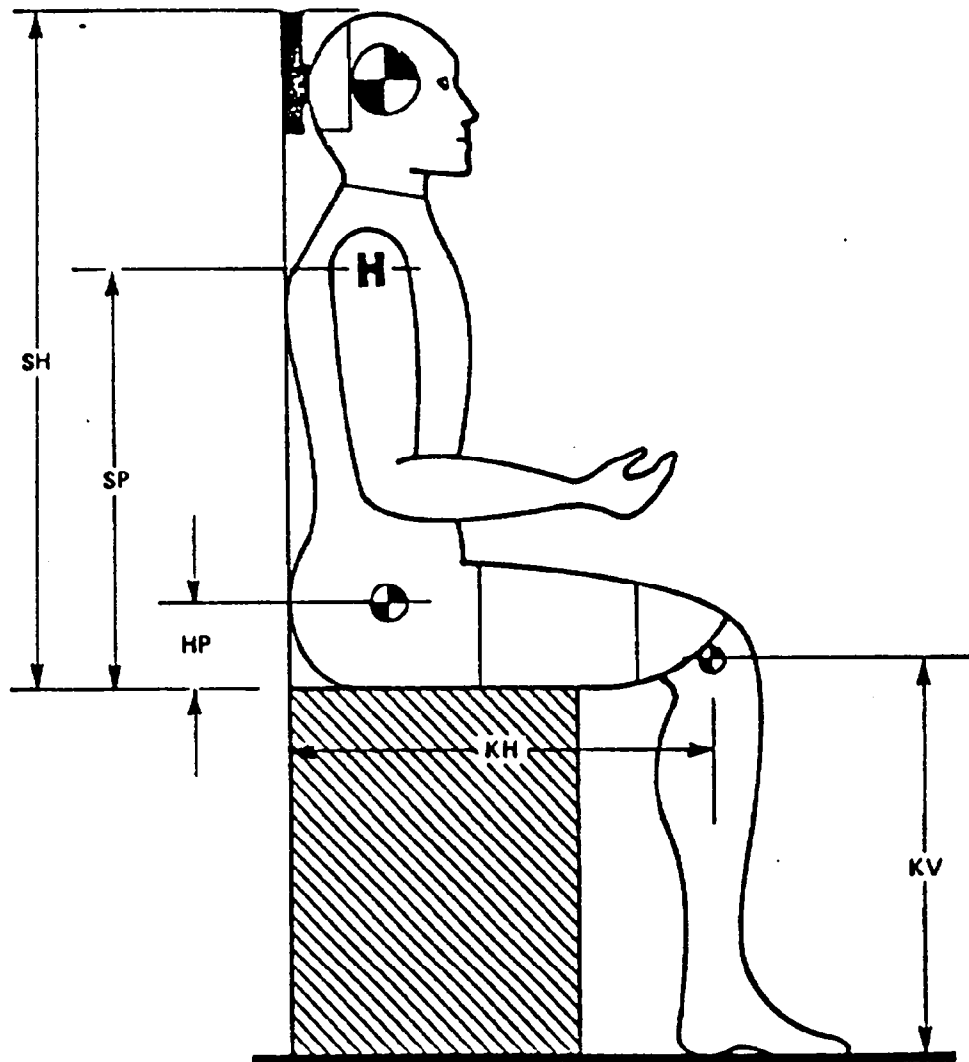
Dummy serial numbers and certification dates are:

<u>Serial No.</u>	<u>Completion Date</u>
358	9-13-91
320	9-18-91

Electronic Test Equipment

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

Figure 10
DUMMY CONFIGURATION DIMENSIONS



PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NUMBER: 358

I. CONFIGURATION VERIFICATION DATA:

	P. 572 SPECIFICATION	PRE-TEST if required	POST-TEST if required
DATE OF CONFIGURATION VERIFICATION	XXXXXXXXXXXXXX	9-13-91	
VERIFICATION NUMBER FOR DUMMY (*)	XXXXXXXXXXXXXX	1	
SH - Seated Height	35.6 to 35.8"	35.6 "	"
SP - Shoulder Pivot Height	21.8 to 22.4"	22.1 "	"
HP - Hip Pivot Height	3.9" ref.	3.9 "	"
KH - Knee Pivot from Back Line	20.1 to 20.7"	20.5 "	"
KV - Knee Pivot from floor	19.3 to 19.9"	19.6 "	"
SW - Shoulder Width	17.8 to 18.4"	18.0 "	"
HW - Hip Width	14.0 to 15.4"	14.8 "	"

II. PERFORMANCE VERIFICATION DATA:

		PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION		9-13-91	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY (*)		1	
VERIFICATION LAB TEMPERATURE (66 to 78 deg.)		69-70 deg	deg
VERIFICATION LAB HUMIDITY (10 TO 70 %)		42-44 %	%
TEST PARAMETER	SPECIFICATION		
<u>1. HEAD DROP TEST</u>			
a. peak resultant accel.	210 to 260 G's	241.5 G's	G's
b. peak lateral accel.	<= 10 G's	4.5 G's	G's
c. Time above 100 G's	0.9 to 1.5 ms.	1.38 ms	ms

* Sequential number beginning with "1" at the start of each fiscal year crash test program.

TECHNICIAN'S NAME: Ivan Minkewicz

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA...continued

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 358

TEST PARAMETER		SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST				
a. Pendulum Speed		21.5 to 25.5 fps.	23.9 fps	fps
b. Pend. Avg. Decel. over t3 to t2		20 to 24 G's	23.0 G's	G's
c. Peak Resultant Head Acceleration		26 G's max.	25.98 G's	G's
d. Pendulum Decel. (t2-t1)		<= 3 ms.	2.85 ms	ms
e. Pendulum Decel. (t3-t2)		25 to 30 ms.	26.79 ms	ms
f. Pendulum Decel. (t4-t3)		<= 10 ms.	6.82 ms	ms
g. Max. Head Rotation		63 to 73 deg.	69.86 deg	deg
h. Chordal Displacement				
HEAD ROTATION ANGLE				
0 deg.	Time	-2 to 2 ms.	0.0 ms	ms
	Displ.	-.5 to .5"	0.0 "	"
30 deg.	Time	25.6 to 34.4 ms.	29.39 ms	ms
	Displ.	2.1 to 3.1"	2.61 "	"
60 deg.	Time	40.3 to 51.7 ms.	44.02 ms	ms
	Displ.	4.3 to 5.3"	4.88 "	"
Maximum	Time	53.2 to 66.8 ms.	56.67 ms	ms
	Displ.	5.0 to 6.0"	5.54 "	"
60 deg.	Time	67.0 to 83.0 ms.	72.42 ms	ms
	Displ.	4.3 to 5.3"	4.84 "	"
30 deg.	Time	85.4 to 104.6 ms.	89.29 ms	ms
	Displ.	2.1 to 3.1"	2.36 "	"
0 deg.	Time	101.0 - 123.0 ms.	103.3 ms	ms
	Displ.	-.5 to 0.5"	0.0 "	"

TECHNICIANS NAME: Ivan Minkewicz

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA (continued)

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 358

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
3. <u>ABDOMINAL COMPRESSION TEST:</u> (preload = 50 lbs.)			
a. Force @ 0.5"	23 to 36 lbs.	23.5 lbs	lbs
b. Force @ 0.75"	36 to 50 lbs.	37 lbs	lbs
c. Force @ 1.0"	50 to 63 lbs.	54 lbs	lbs
d. Force @ 1.3"	73 to 88 lbs.	81 lbs	lbs
4. <u>LUMBAR FLEXION TEST:</u>			
a. Force @ 20 deg.	22 to 34 lbs.	25 lbs	lbs
b. Force @ 30 deg.	34 to 46 lbs.	39 lbs	lbs
c. Force @ 40 deg.	46 to 58 lbs.	49 lbs	lbs
d. Return Angle	12 deg. maximum	11 deg	deg
5. <u>CHEST IMPACT TESTS:</u>			
A. <u>High Speed</u>			
(1) Probe Speed	21.78-22.22 fps.	21.9 fps	fps
(2) Peak Deflection	1.7" maximum	1.53 "	"
(3) Peak Resistive Force	2250 lbs maximum	2110 lbs	lbs
(4) Internal Hysteresis	50 to 70%	59 %	%
B. <u>Low Speed</u>			
(1) Probe Speed	13.86-14.14 fps.	14.0 fps	fps
(2) Peak Deflection	1.1" maximum	1.04 "	"
(3) Peak Resistive Force	1450 lbs maximum	1287 lbs	lbs
(4) Internal Hysteresis	50 to 70%	51.7 %	%

TECHNICIAN'S NAME: Ivan Minkewicz

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA (continued)

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 358

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
6. <u>KNEE IMPACT TEST</u>			
A. <u>Left Knee</u>			
(1) Probe Speed	6.76 to 7.04 fps	7.0 fps	fps
(2) Maximum Force	1850 to 2500 lbs	2015 lbs	lbs
(3) Time above 1000 lbs.	1.7 ms. minimum	1.875 ms	ms
B. <u>Right Knee</u>			
(1) Probe Speed	6.76 to 7.04 fps	7.0 fps	fps
(2) Maximum Force	1850 to 2500 lbs	1902 lbs	lbs
(3) Time Above 1000 lbs.	1.7 ms. minimum	1.875 ms	ms

REMARKS:

TECHNICIAN'S NAME: Ivan Minkewicz

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY I.D. NUMBER: 358

A. DUMMY INSTRUMENTS

	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. HEAD ACCELEROMETER				
HX LONGITUDINAL	ENDEVCO	CS75	4/91	10/91
HY LATERAL	ENDEVCO	CY89	4/91	10/91
HZ VERTICAL	ENDEVCO	CE76	4/91	10/91
2. CHEST ACCELEROMETER				
CX LONGITUDINAL	CEC	A147	4/91	10/91
CY LATERAL	ENDEVCO	CJ54	4/91	10/91
CZ VERTICAL	CEC	A148	4/91	10/91
3. FEMUR LOAD CELLS				
LEFT SIDE	GSE	951	9/91	3/92
RIGHT SIDE	GSE	952	9/91	3/92

B. CALIBRATION LABORATORY
INSTRUMENTS

	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. PENDULUM ACC.	CEC	A160	5/91	11/91
2. TEST PROBE ACCELEROMETER	CEC	A161	5/91	11/91
3. LUMBAR FLEXION TEST PUSH FORCE GAUGE	TRANS- DUCER INC	20051	7/91	1/92
4. ABDOMINAL COMPRESS. TEST FORCE GAUGE	BLH	72952	7/91	1/92
5. ABDOMINAL COMPRESS. TEST FORCE GAUGE	CIC	567-11	7/91	1/92

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NUMBER: 320

I. CONFIGURATION VERIFICATION DATA:

	P. 572 SPECIFICATION	PRE-TEST if required	POST-TEST if required
DATE OF CONFIGURATION VERIFICATION	XXXXXXXXXXXXXX	9-18-91	
VERIFICATION NUMBER FOR DUMMY (*)	XXXXXXXXXXXXXX	1	
SH - Seated Height	35.6 to 35.8"	35.7 "	"
SP - Shoulder Pivot Height	21.8 to 22.4"	22.0 "	"
HP - Hip Pivot Height	3.9" ref.	3.9 "	"
KH - Knee Pivot from Back Line	20.1 to 20.7"	20.4 "	"
KV - Knee Pivot from floor	19.3 to 19.9"	19.6 "	"
SW - Shoulder Width	17.8 to 18.4"	18.1 "	"
HW - Hip Width	14.0 to 15.4"	14.8 "	"

II. PERFORMANCE VERIFICATION DATA:

		PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION		9-18-91	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY (*)		1	
VERIFICATION LAB TEMPERATURE (66 to 78 deg.)		68-71 deg	deg
VERIFICATION LAB HUMIDITY (10 TO 70 %)		44-46 %	%
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST			
a. peak resultant accel.	210 to 260 G's	239.2 G's	G's
b. peak lateral accel.	<= 10 G's	3.3 G's	G's
c. Time above 100 G's	0.9 to 1.5 ms.	1.13 ms	ms

* Sequential number beginning with "1" at the start of each fiscal year crash test program.

TECHNICIAN'S NAME: Ivan Minkewicz

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA...continued

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 320

TEST PARAMETER		SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST				
a. Pendulum Speed		21.5 to 25.5 fps.	23.6 fps	fps
b. Pend. Avg. Decel. over t3 to t2		20 to 24 G's	23.7 G's	G's
c. Peak Resultant Head Acceleration		26 G's max.	25.66 G's	G's
d. Pendulum Decel. (t2-t1)		<= 3 ms.	2.6 ms	ms
e. Pendulum Decel. (t3-t2)		25 to 30 ms.	28.15 ms	ms
f. Pendulum Decel. (t4-t3)		<= 10 ms.	4.46 ms	ms
g. Max. Head Rotation		63 to 73 deg.	72.3 deg	deg
h. Chordal Displacement				
HEAD ROTATION ANGLE				
0 deg.	Time	-2 to 2 ms.	0.0 ms	ms
	Displ.	-.5 to .5"	0.0 "	"
30 deg.	Time	25.6 to 34.4 ms.	29.76 ms	ms
	Displ.	2.1 to 3.1"	2.58 "	"
60 deg.	Time	40.3 to 51.7 ms.	43.15 ms	ms
	Displ.	4.3 to 5.3"	4.75 "	"
Maximum	Time	53.2 to 66.8 ms.	58.66 ms	ms
	Displ.	5.0 to 6.0"	5.42 "	"
60 deg.	Time	67.0 to 83.0 ms.	73.91 ms	ms
	Displ.	4.3 to 5.3"	4.64 "	"
30 deg.	Time	85.4 to 104.6 ms.	91.02 ms	ms
	Displ.	2.1 to 3.1"	2.24 "	"
0 deg.	Time	101.0 - 123.0 ms.	104.29 ms	ms
	Displ.	-.5 to 0.5"	0.0 "	"

TECHNICIANS NAME: Ivan Minkewicz

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA (continued)

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 320

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
3. <u>ABDOMINAL COMPRESSION</u> <u>TEST: (preload = 50 lbs.)</u>			
a. Force @ 0.5"	23 to 36 lbs.	23.5 lbs	lbs
b. Force @ 0.75"	36 to 50 lbs.	37.5 lbs	lbs
c. Force @ 1.0"	50 to 63 lbs.	54 lbs	lbs
d. Force @ 1.3"	73 to 88 lbs.	79 lbs	lbs
4. <u>LUMBAR FLEXION TEST:</u>			
a. Force @ 20 deg.	22 to 34 lbs.	26 lbs	lbs
b. Force @ 30 deg.	34 to 46 lbs.	40 lbs	lbs
c. Force @ 40 deg.	46 to 58 lbs.	51 lbs	lbs
d. Return Angle	12 deg. maximum	8.5 deg	deg
5. <u>CHEST IMPACT TESTS:</u>			
A. <u>High Speed</u>			
(1) Probe Speed	21.78-22.22 fps.	21.9 fps	fps
(2) Peak Deflection	1.7" maximum	1.59 "	"
(3) Peak Resistive Force	2250 lbs maximum	2108 lbs	lbs
(4) Internal Hysteresis	50 to 70%	51.2 %	%
B. <u>Low Speed</u>			
(1) Probe Speed	13.86-14.14 fps.	13.9 fps	fps
(2) Peak Deflection	1.1" maximum	1.09 "	"
(3) Peak Resistive Force	1450 lbs maximum	1322 lbs	lbs
(4) Internal Hysteresis	50 to 70%	56.6 %	%

TECHNICIAN'S NAME: Ivan Minkewicz

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA (continued)

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 320

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
6. <u>KNEE IMPACT TEST</u>			
A. <u>Left Knee</u>			
(1) Probe Speed	6.76 to 7.04 fps	7.0 fps	fps
(2) Maximum Force	1850 to 2500 lbs	1928 lbs	lbs
(3) Time above 1000 lbs.	1.7 ms. minimum	1.75 ms	ms
B. <u>Right Knee</u>			
(1) Probe Speed	6.76 to 7.04 fps	7.0 fps	fps
(2) Maximum Force	1850 to 2500 lbs	2019 lbs	lbs
(3) Time Above 1000 lbs.	1.7 ms. minimum	1.75 ms	ms

REMARKS:

TECHNICIAN'S NAME: Ivan Minkewicz

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY I.D. NUMBER: 320

A. DUMMY INSTRUMENTS

1. HEAD ACCELEROMETER

HX LONGITUDINAL

HY LATERAL

HZ VERTICAL

2. CHEST ACCELEROMETER

CX LONGITUDINAL

CY LATERAL

CZ VERTICAL

3. FEMUR LOAD CELLS

LEFT SIDE

RIGHT SIDE

MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
ENDEVCO	EL86	9/91	3/92
ENDEVCO	FR42	9/91	3/92
ENDEVCO	GK20	9/91	3/92
CEC	A150	9/91	3/92
ENDEVCO	EL79	9/91	3/92
CEC	A151	9/91	3/92
GSE	311	4/91	10/91
GSE	312	4/91	10/91

**B. CALIBRATION LABORATORY
INSTRUMENTS**

1. PENDULUM ACC.

**2. TEST PROBE
ACCELEROMETER**

**3. LUMBAR FLEXION TEST
PUSH FORCE GAUGE**

**4. ABDOMINAL COMPRESS.
TEST FORCE GAUGE**

**5. ABDOMINAL COMPRESS.
TEST FORCE GAUGE**

MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
CEC	A160	5/91	11/91
CEC	A161	5/91	11/91
TRANS- DUCER INC	20051	7/91	1/92
BLH	72952	7/91	1/92
CIC	567-11	7/91	1/92

Appendix D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X	CS75	ENDEVCO	4/91	10/91
Y	CY89	ENDEVCO	4/91	10/91
Z	CE76	ENDEVCO	4/91	10/91
Chest				
X	A147	CEC	4/91	10/91
Y	CJ54	ENDEVCO	4/91	10/91
Z	A148	CEC	4/91	10/91
Right Femur Load Cell	952	GSE	9/91	3/92
Left Femur Load Cell	951	GSE	9/91	3/92
Neck Load Cell		DENTON		
X		DENTON		
Y		DENTON		
Z		DENTON		
Neck Moment		DENTON		
X		DENTON		
Y		DENTON		
Z		DENTON		
Chest Deflection Gauge Hybrid III Use Only		HUMANOID		
Lap Belt Load Cells	123	LEBOW	4/91	10/91
Shoulder Belt Load Cells	127	LEBOW	4/91	10/91
Spool-Out Potentiometer	-	SERVONIC INST.	-	-
Belt Stretch Transducer	E1	CALSPAN	4/91	10/91

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head	X	ENDEVCO	9/91	3/92
	Y	ENDEVCO	9/91	3/92
	Z	ENDEVCO	9/91	3/92
Chest	X	CEC	9/91	3/92
	Y	ENDEVCO	9/91	3/92
	Z	CEC	9/91	3/92
Right Femur Load Cell	312	GSE	4/91	10/91
Left Femur Load Cell	311	GSE	4/91	10/91
Neck Load Cell	X	DENTON		
	Y	DENTON		
	Z	DENTON		
Neck Moment	X	DENTON		
	Y	DENTON		
	Z	DENTON		
Chest Deflection Gauge Hybrid III Use Only		HUMANOID		
Lap Belt Load Cells	133	LEBOW	4/91	10/91
Shoulder Belt Load Cells	135	LEBOW	4/91	10/91
Spool-Out Potentiometer	-	SERVONIC INST.	-	-
Belt Stretch Transducer	E3	CALSPAN	4/91	10/91

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	A52	CEC	7/91	1/92
Right Rear Seat Crossmember	A159	CEC	4/91	10/91
Top of Engine	A101	CEC	7/91	1/92
Bottom of Engine	A75	CEC	7/91	1/92
Left Disc Brake Caliper	A189	CEC	4/91	10/91
Right Disc Brake Caliper	A69	CEC	7/91	1/92
Instrument Panel	A142	CEC	6/91	12/91
Center Rear Crossmember Z	A144	CEC	4/91	10/91
Vehicle Rear Z	A152	CEC	4/91	10/91

INSTRUMENT CALIBRATION FOR LABORATORY INSTRUMENTS
(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Neck Bending Pendulum Accel.	A160	CEC	5/91	11/91
Neck Bending Rotary Potentiometer	None	BOURNS	7/91	1/92
Femur Probe Accelerometer	A161	CEC	5/91	11/91
Chest/Thorax Probe Accel.	A161	CEC	5/91	11/91
Lumbar Flexion Force Gauge	20051	TRANSDUCER INC.	7/91	1/92



Appendix E

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

Seat Belts

The seat belts in your Acura are designed to help protect you in a collision. If you wear them properly, they can reduce your injuries and could even save your life. It is the law in many states, and all of Canada, that you wear your seat belt at all times.

A crash, sudden stop, or emergency maneuver can cause you to be seriously injured or killed if you are not wearing your seat belt.

Be sure you and your passengers are properly wearing their seat belts.

Your car has seat belts at all five seating positions. Except for the center of the back seat, all belts are one-piece lap/shoulder belts and have automatic retractors. The belt in the center of the back seat is lap-only. Each seat belt should be worn by only one person.

The automatic retractors allow you to move freely while keeping adequate tension on the seat belt. These retractors will lock up fully during a collision or sudden stop. They will not lock up if you just pull on the seat belt suddenly while sitting still.

The seat belts are designed for adults and larger children. Infants and small children should ride in a proper child restraint. See **Child Restraint Systems** (page 11) for more information.

Do not install comfort clips, shoulder belt pads, or any other commercially-available accessory on your car's seat belts. These accessories reduce the effectiveness of the seat belts, increasing your chance of injury.

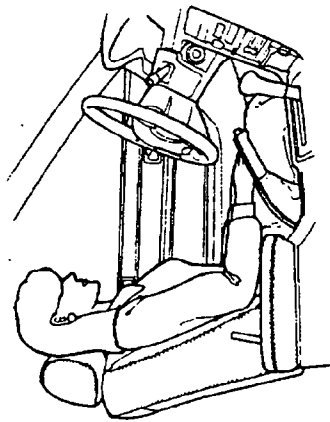
Wearing the Front Seat Belts

For your safety, position the seat belts as directed. An improperly-positioned seat belt can worsen your injuries in a crash.

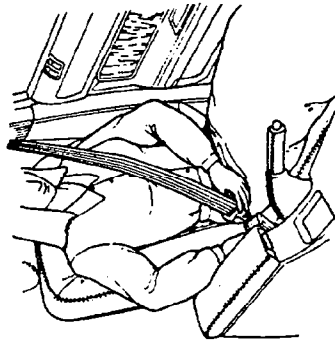
To fasten the driver's or passenger's seat belt:

1. Make sure the doors are securely closed and locked.

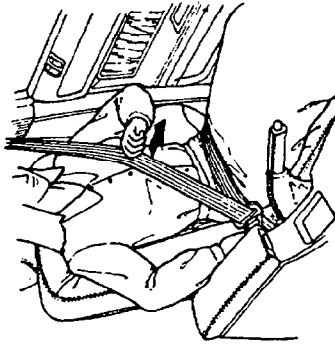
Seat Belts



2. Adjust the seat to a comfortable, but upright position (see page 46). Sit straight up and well back in the seat.

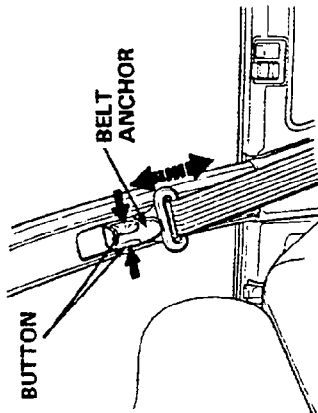


3. Pull the latch plate across your chest and snap it into the buckle. Tug on the latch plate to make sure it is securely locked.

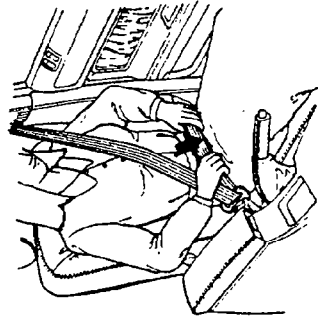


4. Make sure the seat belt is not twisted. Pull up on the shoulder belt to remove any slack. Place the shoulder belt across your chest and over your collarbone, not under your arm.

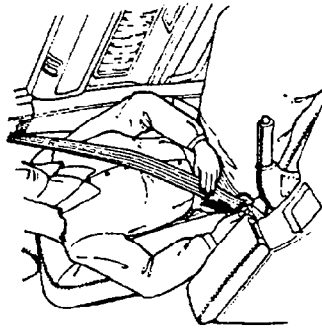
Seat Belts



5. The shoulder belt should cross over your collarbone. It should not cut into your neck, or cross your shoulder. If necessary, adjust the height of the belt anchor at the door pillar adjuster. Squeeze the two buttons on the adjuster and raise or lower the anchor so the belt rides comfortably. The anchor has four adjustment positions.



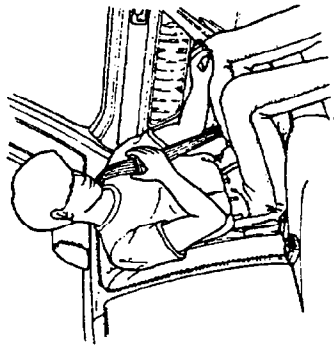
6. Position the lap portion across your hips, not your abdomen.



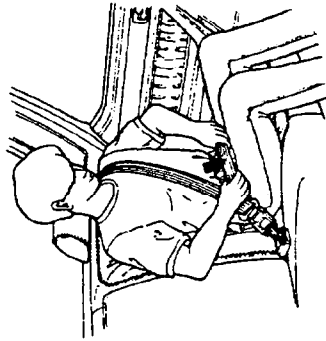
To unlatch the seat belt, push the red PRESS button on the buckle. The seat belt will retract out of your way. If it doesn't, pull it out and check for twists or kinks in the belt.

Seat Belts

Wearing the Rear Seat Belts Corner Seating Positions

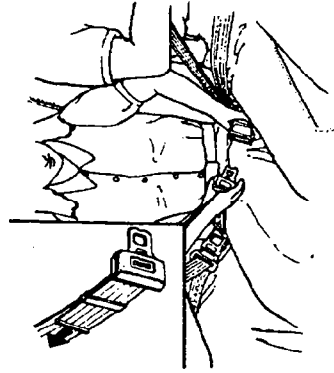


1. Pull the latch plate across your chest and snap it into the buckle. Pull up on the shoulder belt to remove any slack.



2. Check the seat belt to make sure it is not twisted. Position the belt low on your hips, not across your abdomen.

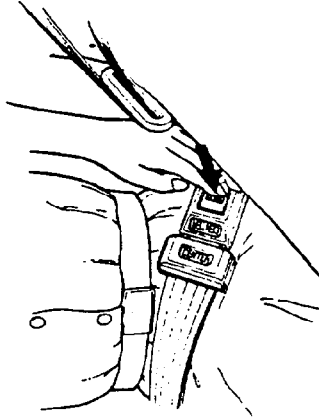
Center Seating Position



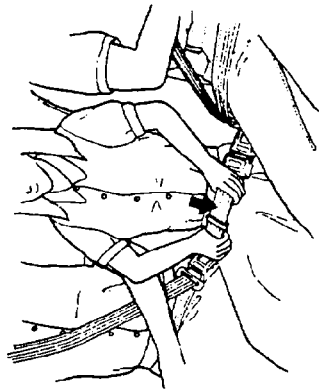
- Check the belt to make sure it is not twisted.
1. Pull the latch plate across your hips and snap it into the buckle marked **CENTER**. The **CENTER** buckle should be used only with the lap belt.
- If the belt is too short, hold the latch plate at a right angle to the belt and pull the latch plate.

Seat Belts

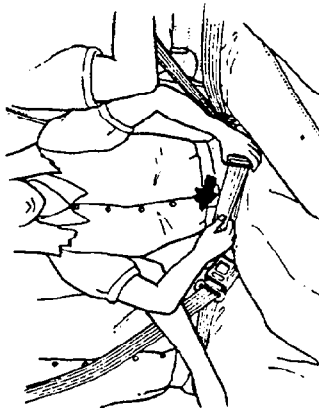
Unlatching the Rear Seat Belts



To unlatch any of the rear seat belts, push the red PRESS button on the buckle. The seat belts for the corner seating positions will retract out of your way. If they don't, pull them out and check for twists or kinks in the belt.



3. Position the belt low on your hips, not across your abdomen.



2. Remove the slack by pulling the end of the belt away from the latch plate.

Child Restraint Systems, Pregnancy, Supplemental Restraint System

If a tether is required, the bracket, and necessary mounting hardware are supplied by the child restraint's manufacturer. You can also obtain the bracket and hardware by writing to:

American Honda Motor Co., Inc.
Consumer Affairs
1919 Torrance Blvd.
Torrance, CA 90501-2746

Pregnancy

You should always wear the lap/shoulder belt during pregnancy. Position the lap portion as low as possible on the hips, not across your abdomen.

Ask your doctor if you can drive, and about the best way to position the lap/shoulder belt, each time you go for a medical check-up.

Supplemental Restraint System

Your Acura is equipped with a Supplemental Restraint System (SRS). This system consists of an airbag in the center of the steering wheel and a padded knee bolster on the bottom of the dashboard. For the system to give the greatest protection, you should use the seat belts whenever you drive.

A crash, sudden stop, or emergency maneuver can cause you to be seriously injured or killed if you are not wearing your seat belt.

Be sure you and your passengers are both properly wearing your seat belts.

Supplemental Restraint System



The airbag is designed to inflate if the car is involved in a frontal collision at road speeds. The airbag cushions the driver's face and chest, while the knee bolster helps prevent the driver from sliding under the dashboard while helping to protect the driver's knees. The SRS will not protect the driver in a side impact, rear impact, or roll-over collision. The driver and passenger should wear their seat belts at all times for maximum protection.



When the airbag deploys in a collision, you may hear a fairly loud noise and see some smoke and powder. This is from the propellant charge that deploys the airbag. It is normal and not harmful. The airbag is designed to inflate and deflate almost instantaneously, so it cushions the driver during impact but does not block the driver's vision.



The SRS is designed to be used only once. After it is activated, the airbag module must be replaced and the rest of the system checked. As a reminder, the SRS indicator light on the instrument panel will stay lit (see page 27). Only your Acura dealer should perform the replacement and checks.

CONTINUED

Supplemental Restraint System

The possibility that the SRS would deploy the airbag when there is no collision is very small. If this should ever happen, the bag will deflate immediately and not interfere with your ability to control the car.

The SRS sensors, control unit, air bag activator and wiring are monitored at all times when the ignition is ON (II). If a problem is detected, the SRS indicator will light. See page 27 for more information.

Modifying system components, or tampering with any SRS wiring, could make the system inoperative or cause the airbag to deploy accidentally.

The system has sensors located behind the dashboard and a control unit in the center console. All wiring is bright yellow.

The installation of "custom" steering wheels, additional trim materials, or badges can interfere with the operation of the airbag.

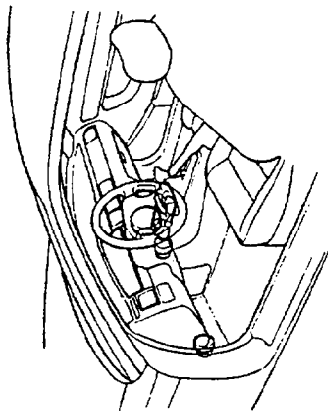
System Servicing

To ensure its reliability, the Supplemental Restraint System must be inspected by your dealer ten years after the car's date of manufacture. This date can be found on the certification label attached to the driver's door jamb.

The impact sensors for the SRS are located under the dashboard, and the control unit is under the console compartment. Wiring and other components are located near the steering column and in the steering wheel.

Supplemental Restraint System

Removing and discarding an undeployed airbag without using the proper tools and following the procedures in the Service Manual can be hazardous. Scrapping an entire car that contains undeployed SRS components can also be dangerous. All disposal should be done by your dealer.



None of the components in the SRS are user-serviceable. Doing mechanical or electrical work near SRS components, or disconnecting the SRS wiring, could disable the system or cause it to activate accidentally. If your car needs service or repair in any of those areas, have your dealer do the work.