

V1801

REPORT NUMBER: CAL-93-N08

**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

HONDA OF AMERICAN, INC.
1993 HONDA CIVIC DX
4-DOOR SEDAN

NHTSA NUMBER: MP5302

CALSPAN TEST NUMBER: 8058-4

DECEMBER 8, 1992

CALSPAN CORPORATION
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FINAL REPORT

PREPARED FOR:

U. S. Department of Transportation
National Highway Traffic Safety Administration
Office of Market Incentives
400 Seventh Street, S.W.
Room No. 5313 (NRM-20)
Washington, DC 20590

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MAR 08 1993

Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. CAL-93-N08		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle NHTSA New Car Assessment Program (NCAP) Frontal Barrier Impact Test of a 1993 Honda Civic DX 4-Door Sedan				5. Report Date December 8, 1992	
				6. Performing Organization Code CAL	
7. Author(s) Michael J. Kilgallon, Project Engineer Walter E. Levan, Program Manager				8. Performing Organization Report No. 8058-4	
9. Performing Organization Name and Address Calspan Advanced Technology Center P.O. Box 400 Buffalo, New York 14225				10. Work Unit No. 260-040-1241	
				11. Contract or Grant No. DTNH22-90-D-02121	
				13. Type of Report and Period Covered December 1992	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Market Incentives (NRM-20) 400 Seventh Street, S.W., Washington, DC 20590				14. Sponsoring Agency Code DOT/NHTSA/RM/OMI	
15. Supplementary Notes					
16. Abstract A frontal load cell barrier test of a 1993 Honda Civic DX 4-Door Sedan was performed at Calspan Advanced Technology Center crash test facility in Buffalo, New York, on December 8, 1992. The impact velocity was 56.8 kph and the temperature at the barrier face was 0°C. The maximum post-test vehicle crush was 552 mm. The test vehicle was equipped with a 3-point manual belt system at each of the front outboard seating positions. The vehicle was equipped with a driver side airbag as a supplemental restraint device. With regard to FMVSS 208 "Occupant Crash Protection," injury criteria, both the driver and passenger dummies appear to comply with the maximum head, chest and femur requirements.					
17. Key Words Frontal Barrier Impact Test New Car Assessment Program (NCAP)			18. Distribution Statement <u>Copies of this report are available from:</u> Technical Reference Division National Highway Traffic Safety Admin. Nassif Building, Room 5108 400 Seventh St., S.W., Washington, DC 20590		
19. Security Classif. (of this report) UNCLASSIFIED		20. Security Classif. (of this page) UNCLASSIFIED		21. No. of Pages 22. Price	

Form DOT F1700.7 (8-69)

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Section 1

PURPOSE AND TEST PROCEDURE

This 56.3 kph frontal barrier impact test is part of the Composite FY 92 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 48.3 kph requirements.

The 56.3 kph 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 MP5302

A load cell barrier consisting of 36 load cells was impacted by a 1993 Honda Civic DX 4-Door Sedan at a velocity of 56.8 kph. The test was performed at the Calspan Corporation Advanced Technology Center on December 8, 1992. 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 16 high-speed cameras. Camera locations and other pertinent camera information can be found in this report.

Two PartB 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. 320) was used in previous tests (MP0200 and MP5200). The right-front passenger ATD (Serial No. 358) was used in a previous test (MP5200). Injury criteria values were not exceeded in any of these tests. Certification details, along with instrumentation calibration data, are found in Appendix C and D.

The 67 channels of data were recorded on a P.C. based data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces. Accelerometer #6(X), located on the left front brake caliper, contained questionable data between approximately 63 and 92 milliseconds. The velocity and displacement data curves for this accelerometer were removed from this report. Position 1 Left Femur transducer did not record accurately during the test.

The driver's head struck the airbag; the HIC was 743.6. The maximum chest deceleration over 3 milliseconds was 54.2 g's. The right femur load was -2540.6 newtons.

The right front passenger's HIC was 903.1. Maximum chest deceleration over 3 milliseconds was 43.2 g's. Femur loads were -6198.4 newtons on the left and -2943.6 newtons on the right.

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Vehicle Year/Make/Model/Body Style: 1993 Honda Civic DX 4-Door Sedan

NHTSA Test No.: MP5302 VIN.: 1HGE68641PL014624

Body Color: Gray-Black Date of Manufacture: 11/92

Engine: 4 Cylinders; - C.I.D.; - Liters; - CC
X Gas; - Diesel; - Turbocharged
- Longitudinal; X Transverse

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

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

Date Received: 11/19/92 Odometer Reading: 17 miles
- A/C; X P/S; X P/B; - P/wdo;
- Tilt Wheel - P/seats; - Cruise Control

Type of Occupant Restraint: 3-point manual lap belt; driver side airbag

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): Front 241 kPa, Rear 241 kPa

Recommended Tire Size: P175/70R13

Recommended Cold Tire Pressure: Front 221 kPa, Rear 221 kPa

Tires on Vehicle: P175/70R13; Manufacturer: Dunlop

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) = 386 kgs (A)

No. of Occupants x 68 kgs = 340 kgs (B)

Rated Cargo and Luggage
Weight (RCLW) A-B = 46 kgs

GVWR 1504 kgs GAWR: Front 801 kgs Rear 737 kgs

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

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

Right Front = 317 kgs Right Rear = 209 kgs
 Left Front = 340 kgs Left Rear = 199 kgs
 TOTAL FRONT WEIGHT = 657 kgs (62 % of Total Vehicle Weight)
 TOTAL REAR WEIGHT = 408 kgs (38 % of Total Vehicle Weight)
 TOTAL DELIVERED WEIGHT = 1065 kgs

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight (1065 kgs)
 VCW = Vehicle Capacity Weight (386 kgs)
 DSC = Designated Seating Capacity (5)
 RCLW = VCW - 68 (DSC) = 46 kgs
 Target Test Weight = UDW + RCLW + (2 dummies x 74.4 kgs/dummy)
 Target Test Weight = 1260 kgs

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 42.2 KILOGRAMS CARGO:

Right Front = 367 kgs Right Rear = 272 kgs
 Left Front = 354 kgs Left Rear = 263 kgs
 TOTAL FRONT WEIGHT = 721 kgs (57 % of Total Vehicle Weight)
 TOTAL REAR WEIGHT = 535 kgs (43 % of Total Vehicle Weight)
 TOTAL TEST WEIGHT = 1256 kgs
 Weight of ballast secured in vehicle trunk area = 0 kgs

VEHICLE ATTITUDE (all dimensions in millimeters):

Delivered Attitude: RF 656 LF 651 RR 648 LR 643
 Test Attitude: RF 635 LF 632 RR 595 LR 595
 Wheel Base: 2615 mm.; C.G. = 1114 mm. rearward of front wheel C/L
 Remarks: 41.6 liters of stoddard solution was placed in fuel tank. The
trunk lid was removed to achieve test weight.

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

POST-IMPACT DATA:

Type of Test: Frontal Barrier Impact Angle: 0°
 Date of Test: December 8, 1992 Time of Test: 12:10
 Ambient Temperature: 0 °C at impact area
 Temperature in Occupant Compartment: 21 °C
 Windshield Molding Temperature: 21 °C
 Required Impact Velocity Range: 56.2 to 57.8 kph
 Impact Velocity: primary = 56.8 kph, secondary = 56.8 kph
 Distance From Front Bumper to Barrier Face When
 Entering Speed Trap: 1321 mm
 Exiting Speed Trap: 305 mm

VEHICLE REBOUND AND CRUSH:

Vehicle Length: Pre-test = R 4270 mm C_L 4410 mm L 4271 mm
 Post-test = R 3860 mm C_L 3858 mm L 3794 mm
 Crush = R 410 mm C_L 552 mm L 477 mm
 Distance from front of test vehicle to point of impact:
 R 463 mm C_L 462 mm L 514 mm

VISIBLE DUMMY CONTACT POINTS:

	<u>Driver</u>	<u>Passenger</u>
Head	<u>Airbag</u>	<u>Top of head with dashpanel; forehead with right knee; chin with chest</u>
Chest	<u>Airbag</u>	<u>No contact</u>
Abdomen	<u>No contact</u>	<u>No contact</u>
Left Knee	<u>Lower dashpanel</u>	<u>Glove box door</u>
Right Knee	<u>Lower dashpanel</u>	<u>Glove box door</u>

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

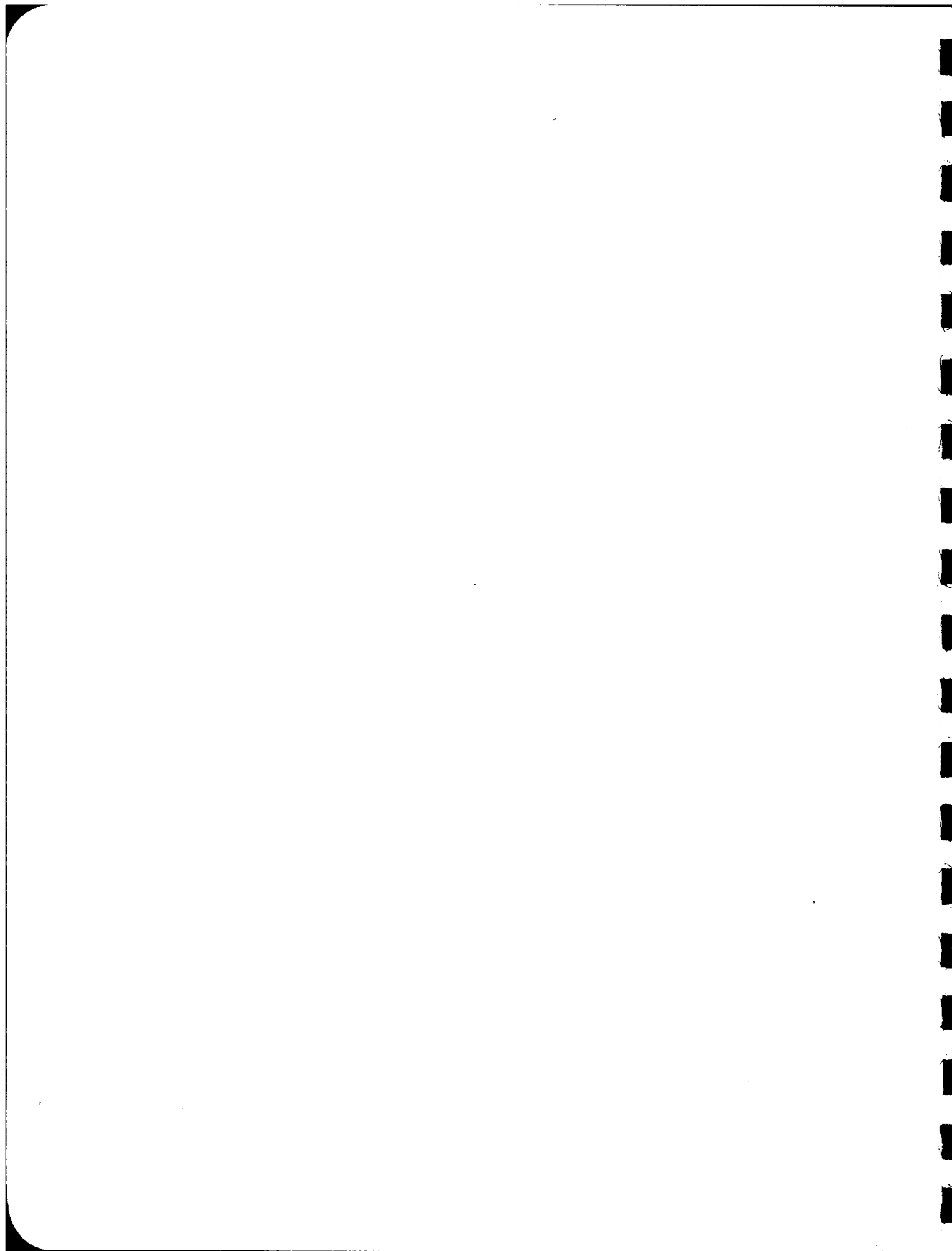
	<u>Front</u>		<u>Rear</u>	
	<u>Left</u>	<u>Right</u>	<u>Left</u>	<u>Right</u>
Door Opening	<u>operable</u>	<u>operable</u>	<u>operable</u>	<u>operable</u>

	<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>N/A</u>	<u>N/A</u>
Seat Shift (mm)	<u>0.0</u>	<u>0.0</u>	<u>N/A</u>	<u>N/A</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 Performance Assessment Data
4. Camera Locations
5. 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.: MP5302 Vehicle: 1993 Honda Civic DX 4-Door Sedan

	MAXIMUM HEAD ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-51.4	-8.2	49.1	69.9
Position #2 - Passenger	-48.5	32.1	66.6	68.7

	MAXIMUM CHEST ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-56.5	-14.8	19.3	54.2
Position #2 - Passenger	-42.6	21.2	19.0	43.2

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

	MAXIMUM FORCE - FEMUR LOAD (nwt)	
	LEFT FEMUR	RIGHT FEMUR
Position #1 - Driver	*	-2540.6
Position #2 - Passenger	-6198.4	-2943.6

	MAXIMUM FORCE - SEAT BELT LOADS (nwt)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
Position #1 - Driver	8781.8	-	4978.8
Position #2 - Passenger	8851.7	4937.6	-

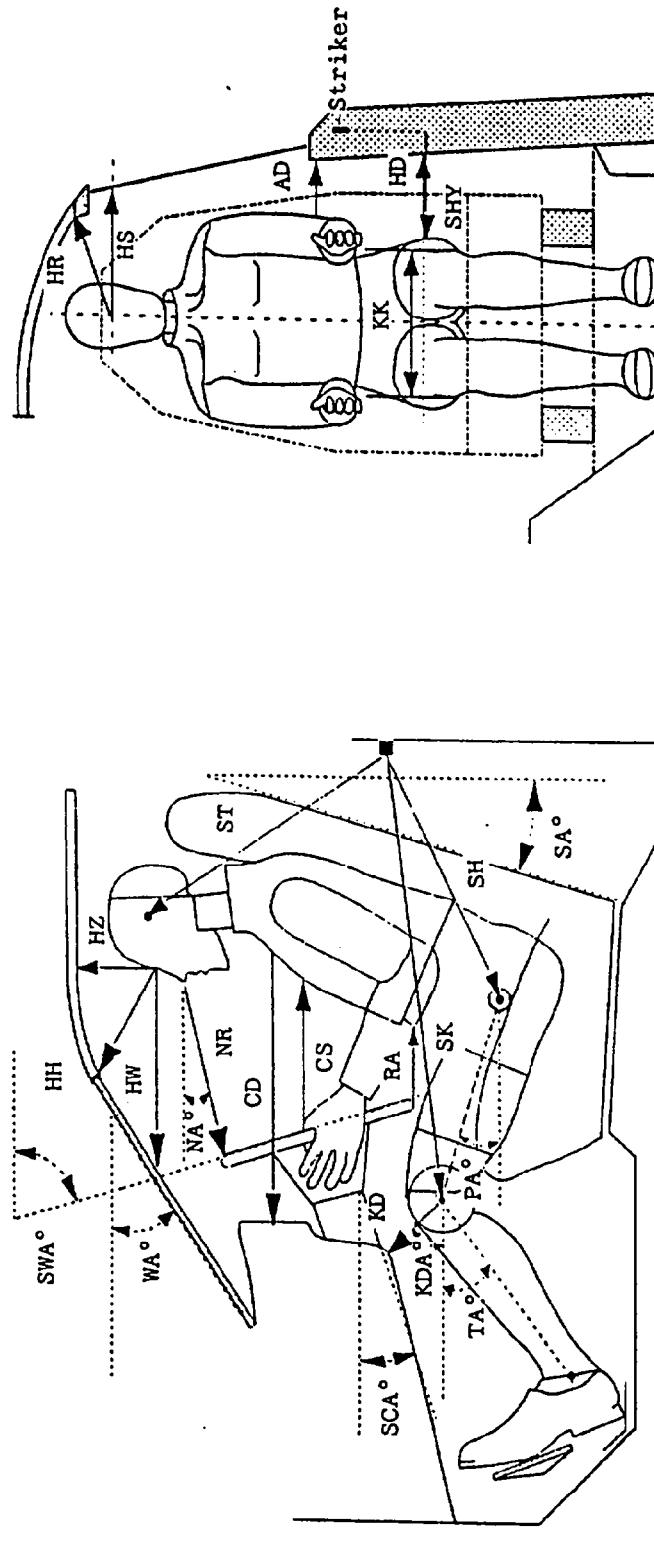
	HEAD INJURY CRITERIA (HIC)			
	HIC	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ TO t ₂
Position #1 - Driver	743.6	56.160	92.040	53.3
Position #2 - Passenger	903.1	70.560	106.440	57.6

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

*Left femur transducer did not record accurately during test.

Figure 1

DUMMY MEASUREMENTS FOR FRONT SEAT PASSENGERS

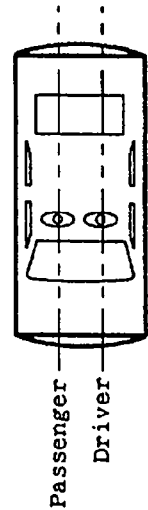


HH - Head to Head
HW - Head to Windshield
HZ - Head to Roof
NR - Nose to Rim
CS - Steering Wheel to Chest
CD - Chest to Dash
RA - Rime to Abdomen
KD - Knee to Dash
KDA - Knee to Dash Angle
SH - Striker to H-Point

SK - Striker to Knee
ST - Striker to Head
NA - Nose to Rim Angle
TA - Tibial Angle
PA - Pelvic Angle
SA - Seat Back Angle
SCA - Steering Column Angle
SWA - Steering Wheel Angle
WA - Windshield Angle

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

Vertical Longitudinal Planes



Passenger
Driver

Vertical Transverse Plane

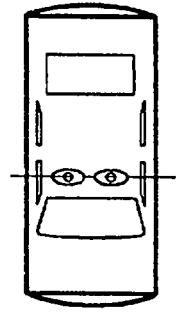


Table 3
FRONT SEAT OCCUPANT MEASUREMENTS

	DRIVER (Serial #320)	PASS (Serial #358)
WA°	29°	29°
SWA°	67°	N/A
SCA°	23°	N/A
SA°	See Note	See Note
HZ	148 mm	143 mm
HH	179 mm	382 mm
HW	556 mm	563 mm
HR	176 mm	188 mm
NR	500 mm Angle 16°	N/A
CD	605 mm	616 mm
CS	331 mm	N/A
RA	204 mm	N/A
KDL	131 mm Angle (KDA) 47°	161 mm
KDR	143 mm	150 mm Angle (KDA) 30°
FA°	12°	12°
TA°	30°	30°
KK	321 mm	299 mm
ST	483 mm Angle 96°	470 mm Angle 96°
SK	566 mm Angle 11°	561 mm Angle 10°
SH	223 mm Angle 55°	206 mm Angle 41°
SHY	218 mm	221 mm
HS	318 mm	330 mm
HD	158 mm	142 mm
AD	89 mm	104 mm

Note: Seat was positioned according to manufacturer specifications

Table 4
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>1935 mm</u>	<u>1960 mm</u>
Shoulder belt length as measured on Part 572 Dummy.	<u>860 mm</u>	<u>870 mm</u>
Lap belt length as measured on Part 572 Dummy.	<u>845 mm</u>	<u>860 mm</u>
<u>SHOULDER BELT SPOOL-OFF DATA:</u>		
As determined by film analysis.	<u>N/A</u>	<u>N/A</u>
As determined mechanically.	<u>74 mm</u>	<u>53 mm</u>
<u>BELT STRETCH DATA:</u>		
Measured electronically between shoulder belt load cell and the "D" ring.	<u>20.5 mm/m</u>	<u>61.4 mm/m</u>
Measured mechanically	<u>0.0 mm/m</u>	<u>0.0 mm/m</u>

Figure 2
CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 4

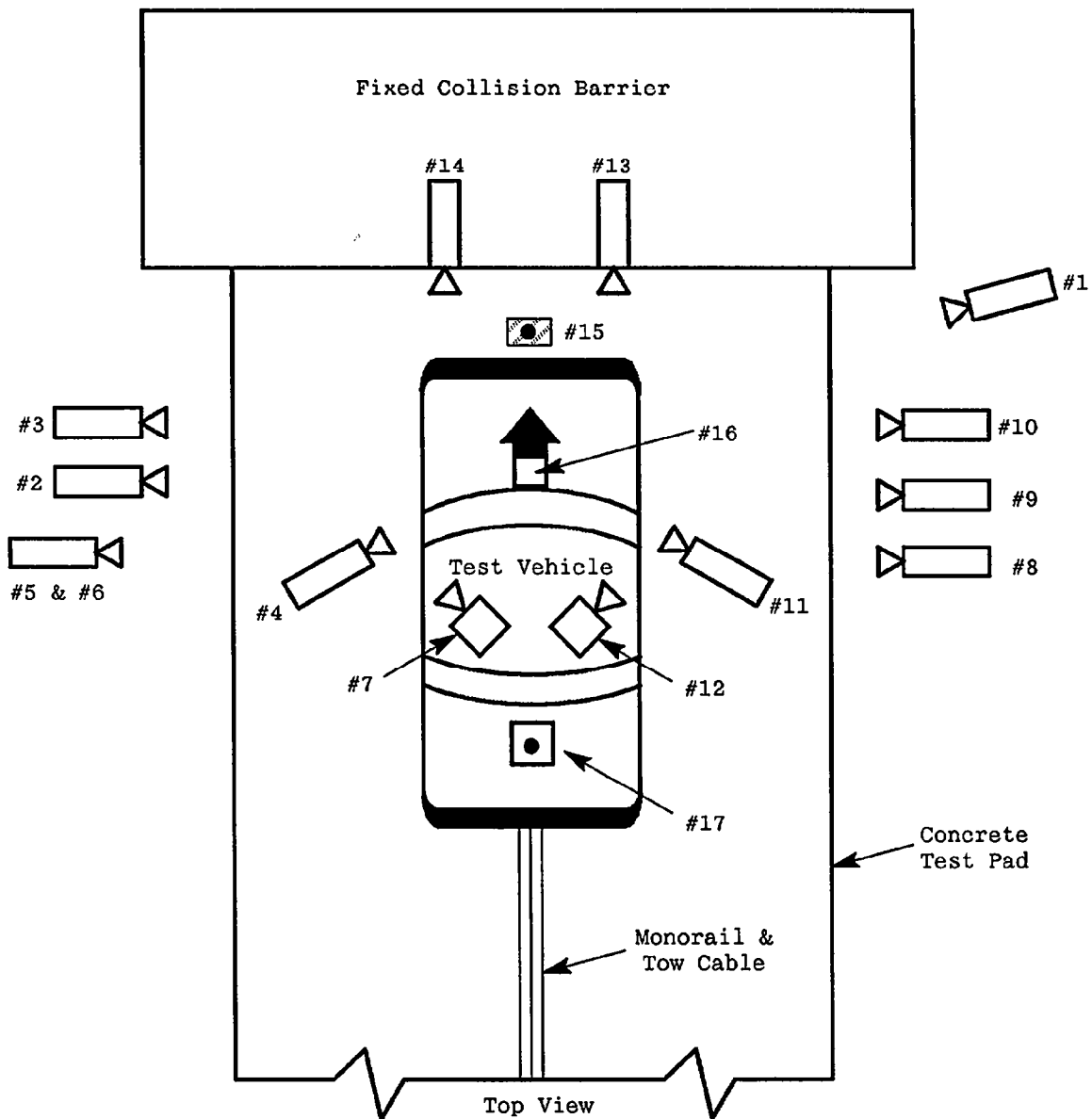
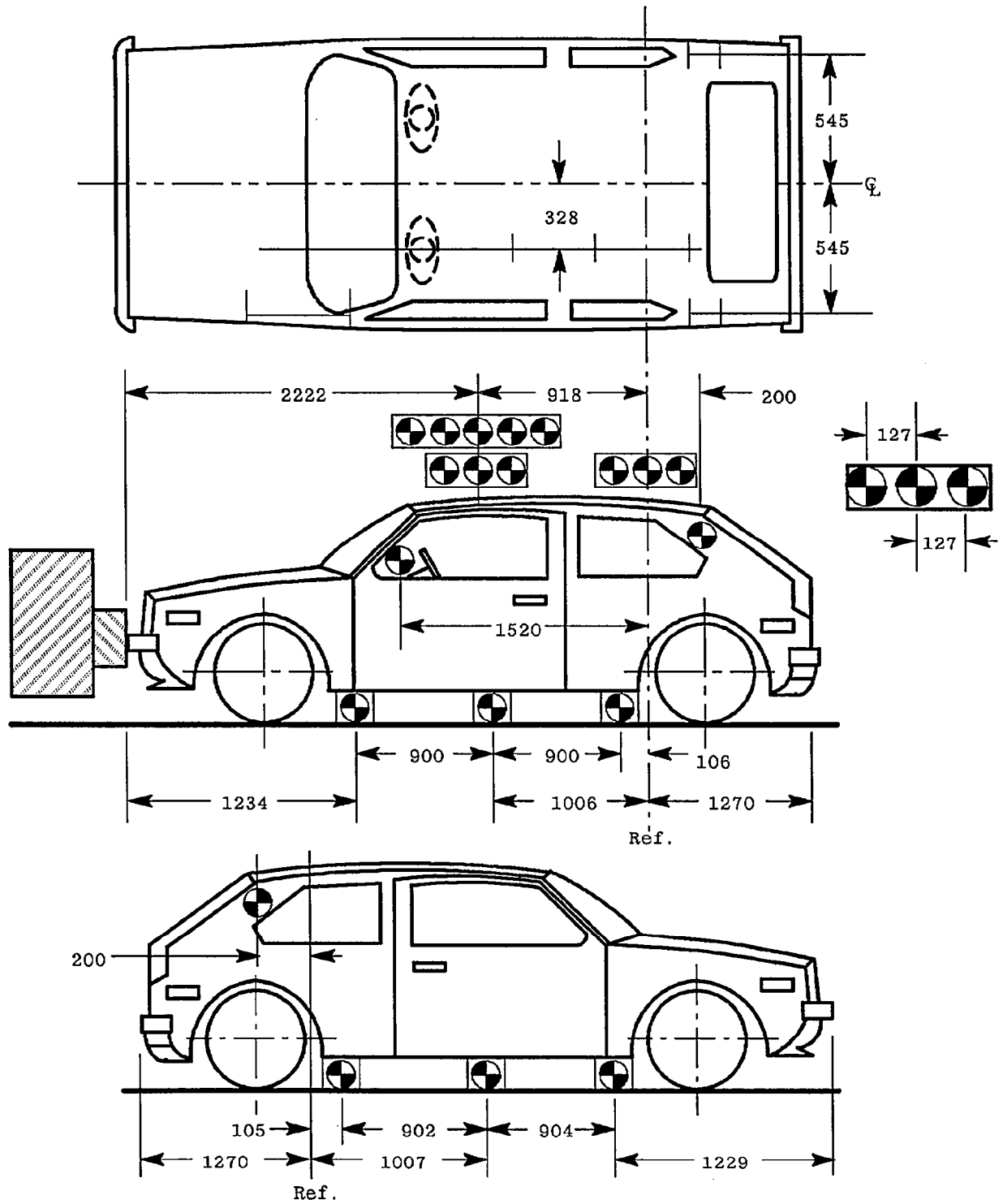


Table 5
HIGH-SPEED CAMERA LOCATIONS

NHTSA No.		MP5302		Vehicle: 1993 Honda Civic DX 4-Door Sedan				
CAMERA NO.	VIEW	CAMERA POSITIONS (mm)*			ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	5867	1422	1067	-5	5463	13	550
3	Left Side View	7671	914	1041	-4	7267	25	620
4	Driver and Interior View	2743	2591	1626	-5	2339	13	580
5	Steering Column (Bottom)	6680	1727	1168	-9	6276	13	600
6	Steering Column (Top)	6680	1727	1778	18	6276	13	575
7	Left Belt	-	-	-	-	-	8	655
8	Overall Right Side	5817	1178	1067	-5	5413	13	570
9	Right Side View	7518	1295	1041	-2	7114	25	570
10	Right Passenger View	7518	1753	1422	-5	7114	35	550
11	Passenger and Interior View	2794	2515	1600	-17	2390	25	575
12	Right Belt	-	-	-	-	-	8	N.T.
13	Passenger Front View	610	-127	1778	-39	-	13	620
14	Driver Front View	610	-127	1778	-34	-	13	600
15	Windshield View	0	0	3048	-52	-	13	600
16	Pit View of Engine	0	1100	-3048	90	-	13	770
17	Pit View of Fuel Tank	0	3277	-3048	90	-	13	850

*X = film plane to monorail centerline
Y = film plane to impact location
Z = film plan to ground
** = referenced to horizontal plane
N.T. = NO timing

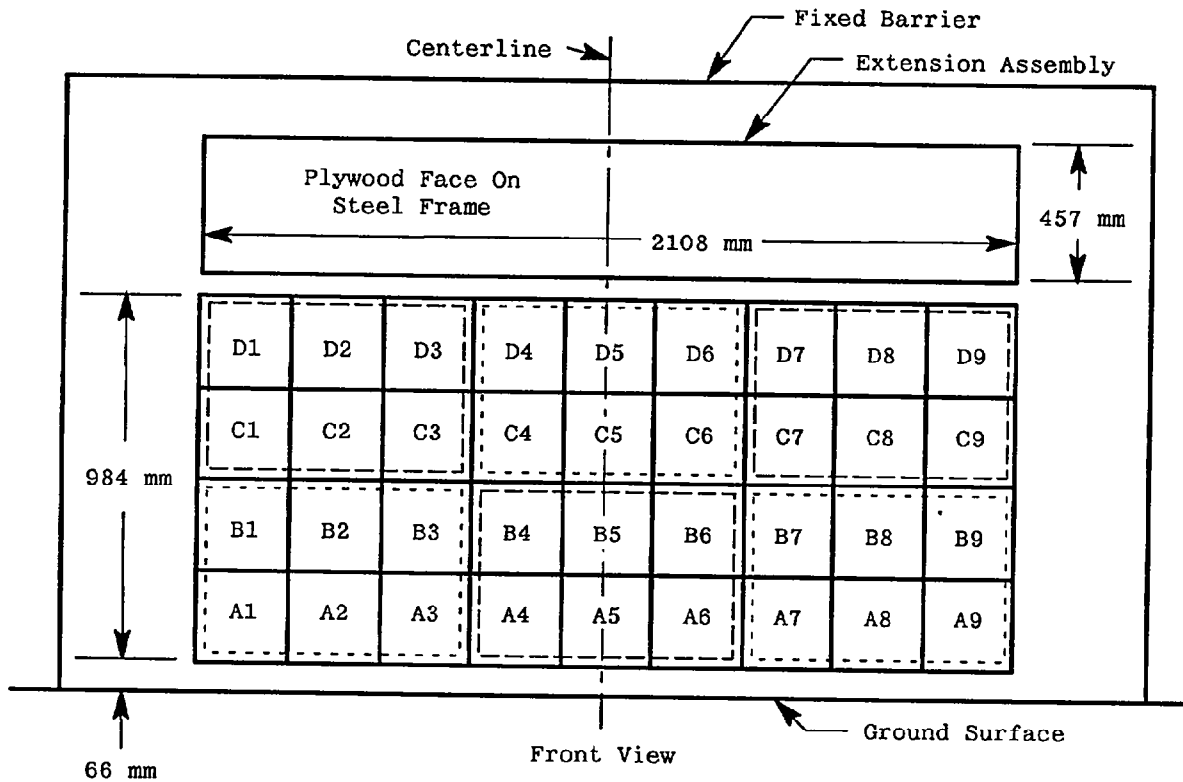
Figure 3
VEHICLE TARGET LOCATIONS



(Dimensions in millimeters)

Figure 4
LOAD CELL LOCATIONS ON FIXED BARRIER

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



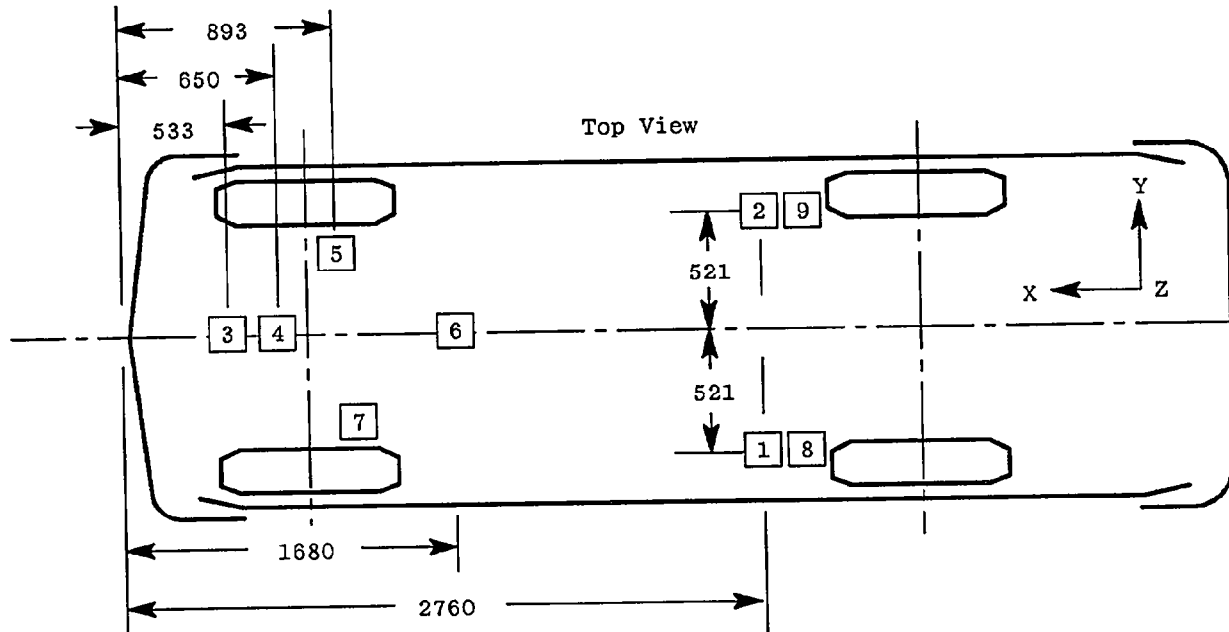
6 GROUPS OF 6 LOAD CELLS EACH

Group 4 C1 thru D3	Group 5 C4 thru D6	Group 6 C7 thru D9
Group 1 A1 thru B3	Group 2 A4 thru B6	Group 3 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 5
VEHICLE ACCELEROMETER LOCATIONS



All dimensions are in millimeters

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

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

Figure 6
TEST VEHICLE MEASUREMENTS

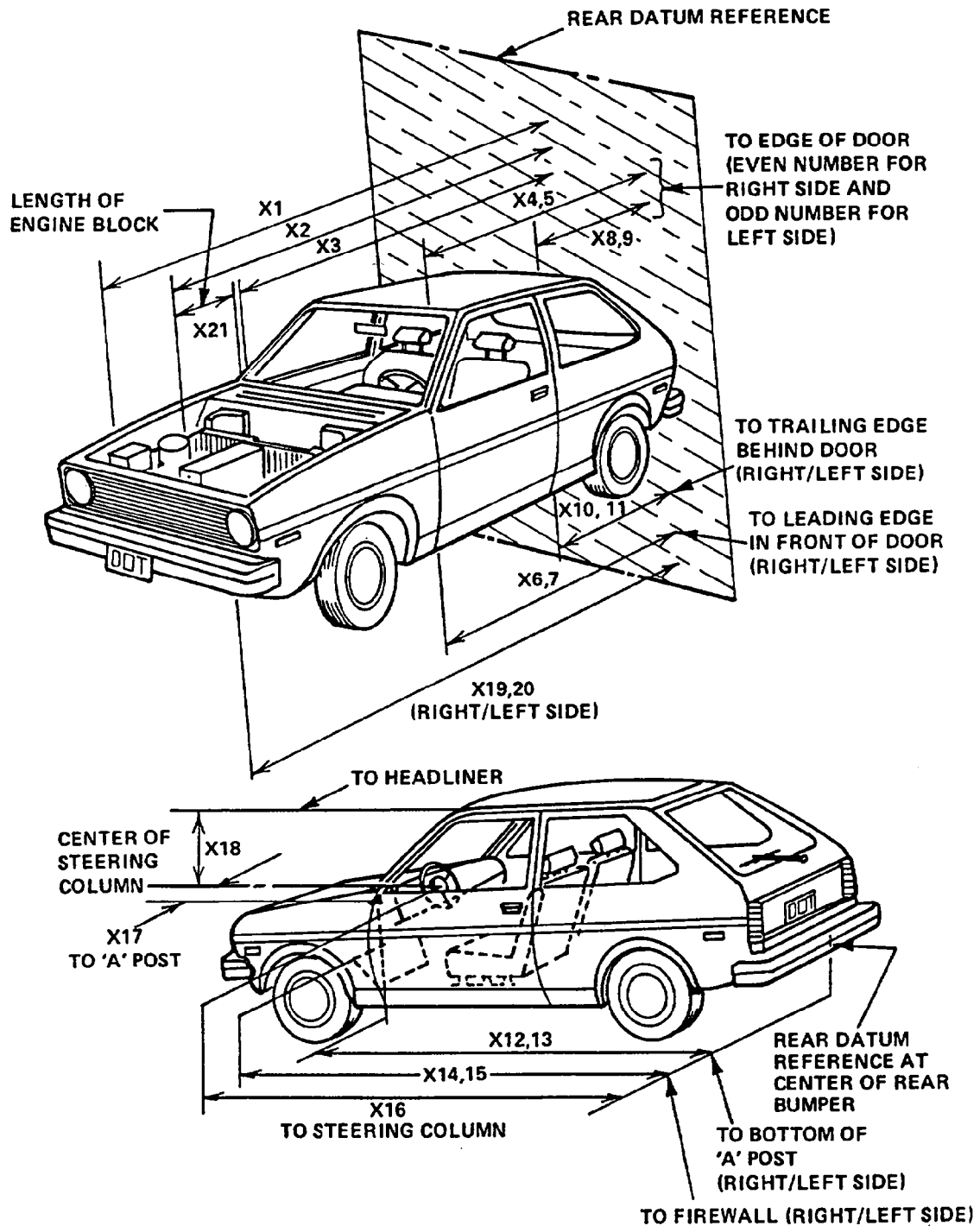


Table 6

VEHICLE MEASUREMENTS

No.		All Dimensions in Millimeters		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4410	3858	552
X2	Rear Surface of Vehicle to Front of Engine	3920	3627	293
X3	Rear Surface of Vehicle to Firewall	3376	3185	191
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3040	3007	33
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3035	3030	5
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3054	3022	32
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3050	3034	16
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	1989	1970	19
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	1990	1985	5
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2025	2005	20
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2026	2000	26
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3038	*	*
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3040	3006	34
X14	Rear Surface of Vehicle to Firewall, Right Side	3290	3186	104
X15	Rear Surface of Vehicle to Firewall, Left Side	3336	3285	51
X16	Rear Surface of Vehicle to Steering Column	2585	2540	45
X17	Center of Steering Column to "A" Post	395	375	20
X18	Center of Steering Column to Headliner	440	470	-30
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4270	3860	410
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4271	3794	477
X21	Length of Engine Block	420	420	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2770	2650	120
CD	Rear Surface of Vehicle to Center of Dash Panel	2762	2690	72
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2730	2730	0

*Post-test measurement was unable to be performed.

ACCIDENT INVESTIGATION DIVISION DATA
FOR 35 MPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: 1993 Honda Civic DX 4-Door Sedan

Vehicle NHTSA No.: MP5032; Vin: 1HCE68641PL014624

Model Year: 1993; Build Date: 11/92; Test Date: December 8, 1992

Vehicle Size Category: Compact; Test Weight: 1256 kgs

Vehicle Wheelbase: 2615 mm; Front Overhang: 1234 mm; Overall Width: 1699 mm

Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth C1= 465 mm

Dimensions: C2= 544 mm

C3= 545 mm

C4= 557 mm

C5= 550 mm

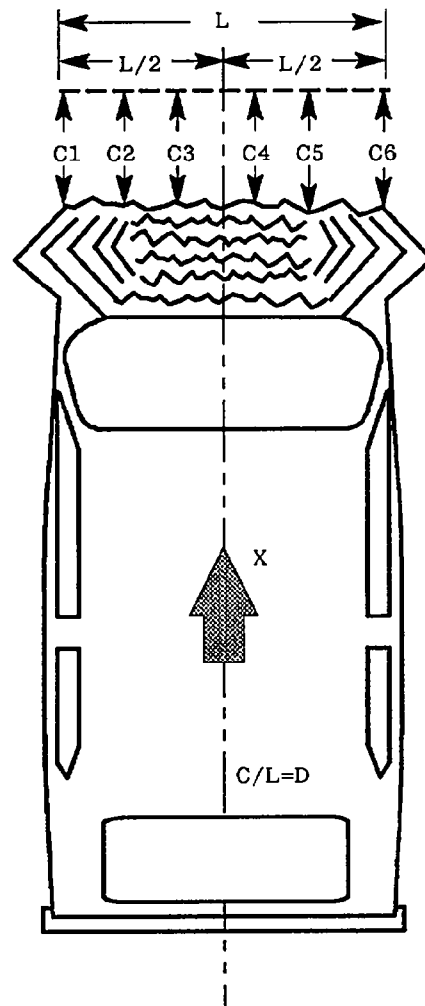
C6= 385 mm

Midpoint of
Damage:

D= Vehicle Centerline
(Longitud.)

Length of Damaged
Region:

L= 1390 mm

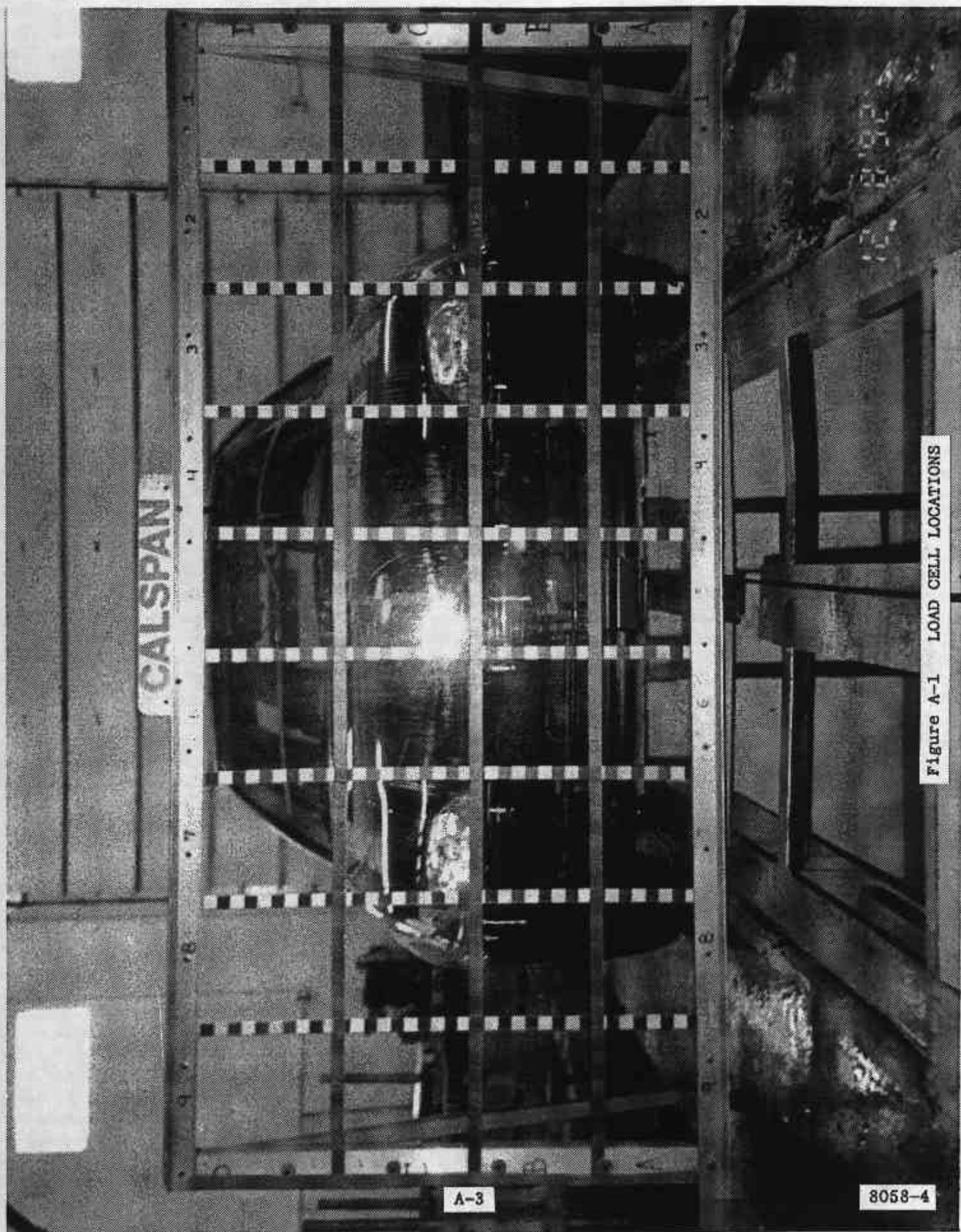


Appendix A

PHOTOGRAPHS

PHOTOGRAPHS

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CALSPAN

A-3

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Figure A-1 LOAD CELL LOCATIONS



Figure A-2 PRE-TEST FRONT VIEW

A-4

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Figure A-3 POST TEST FRONT VIEW

A-5

8058-4

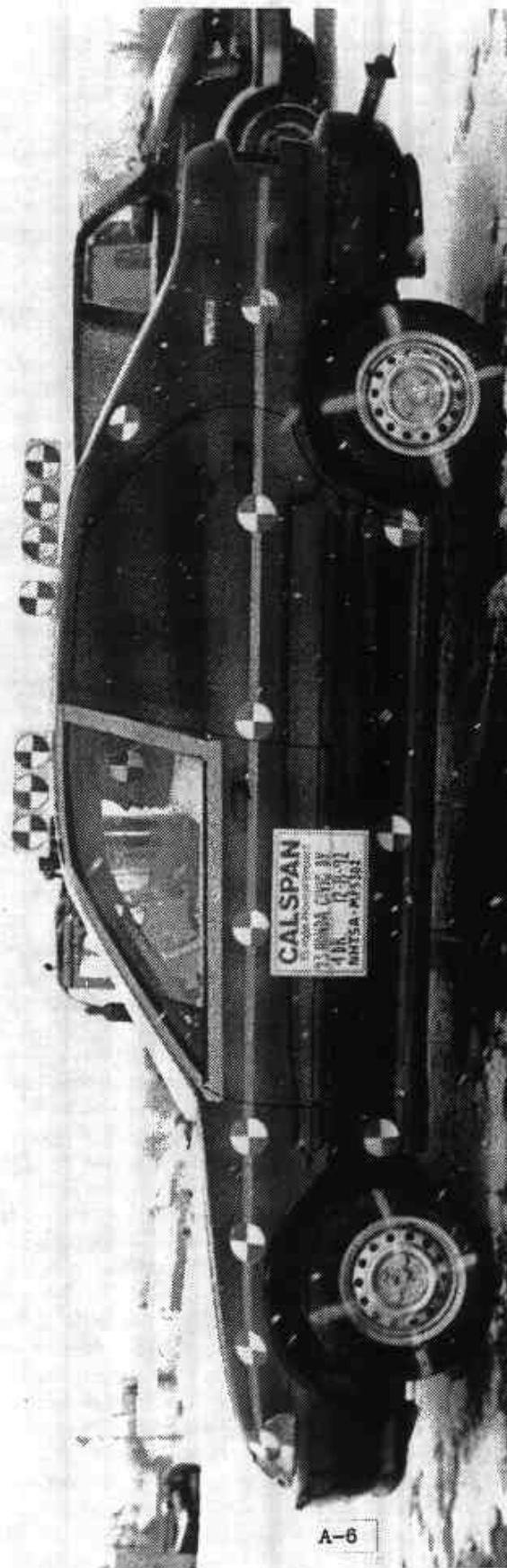


Figure A-4 PRE-TEST LEFT SIDE VIEW

A-6

8058-4

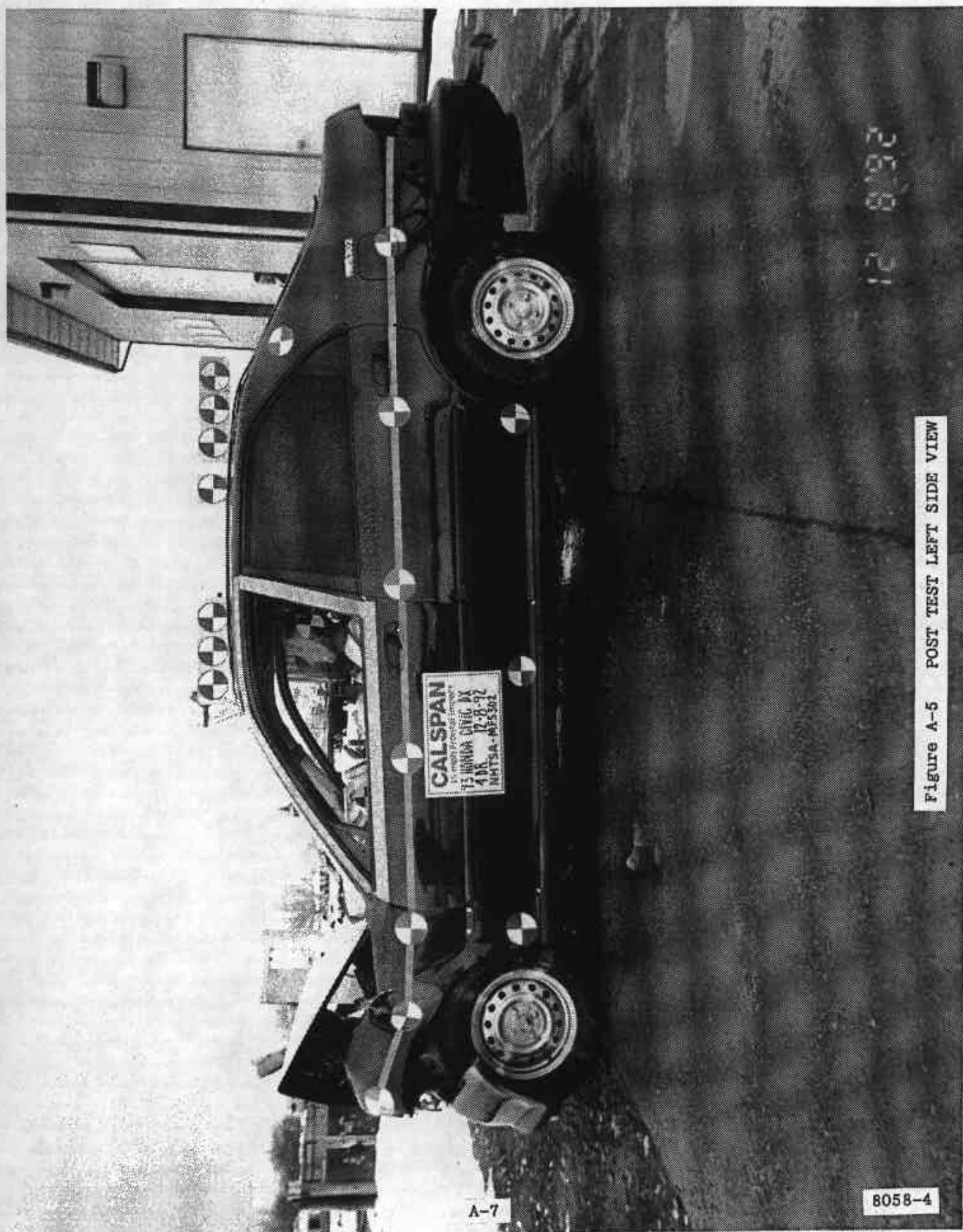


Figure A-5 POST TEST LEFT SIDE VIEW

A-7

8058-4

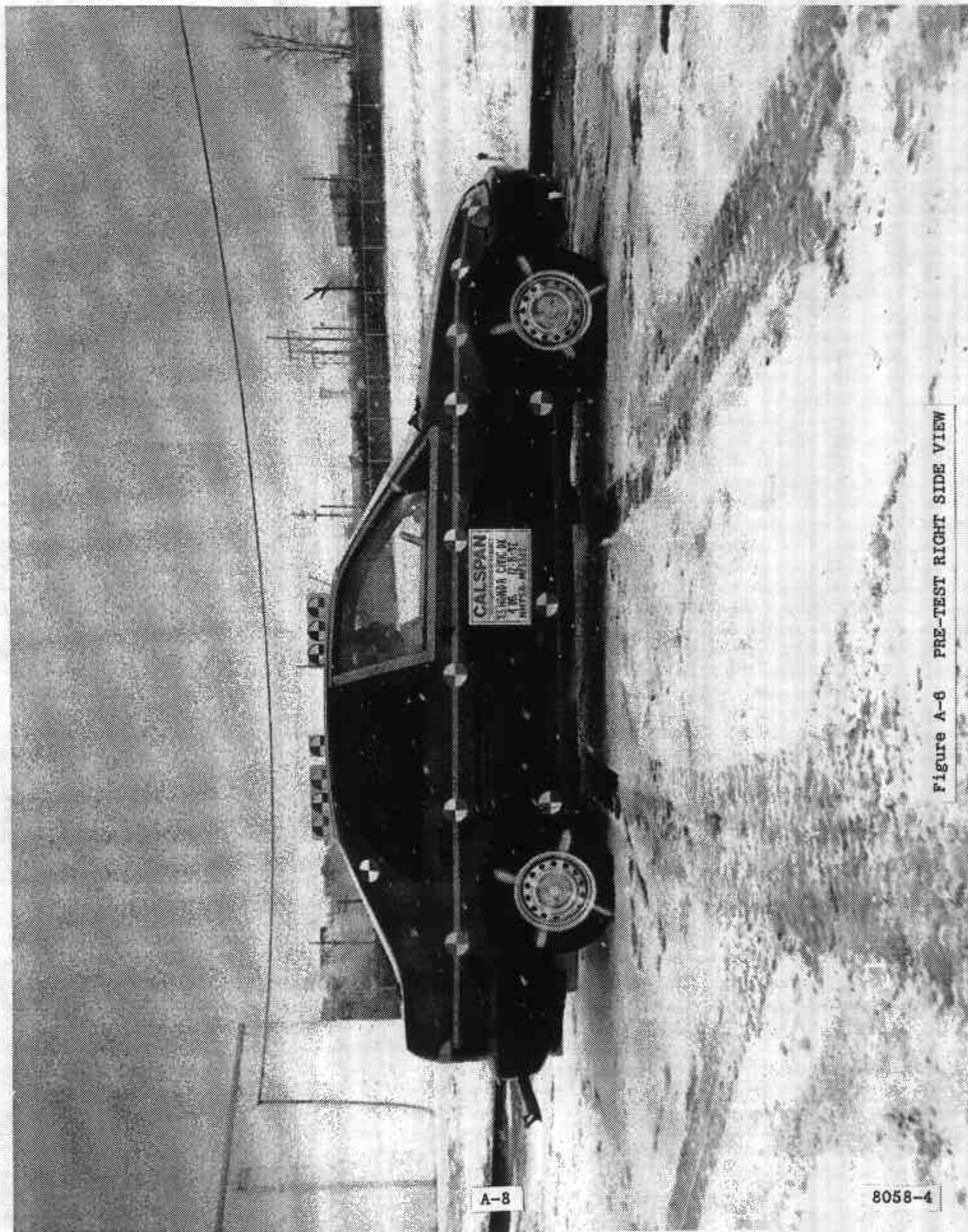


Figure A-8 PRE-TEST RIGHT SIDE VIEW

A-8

8058-4

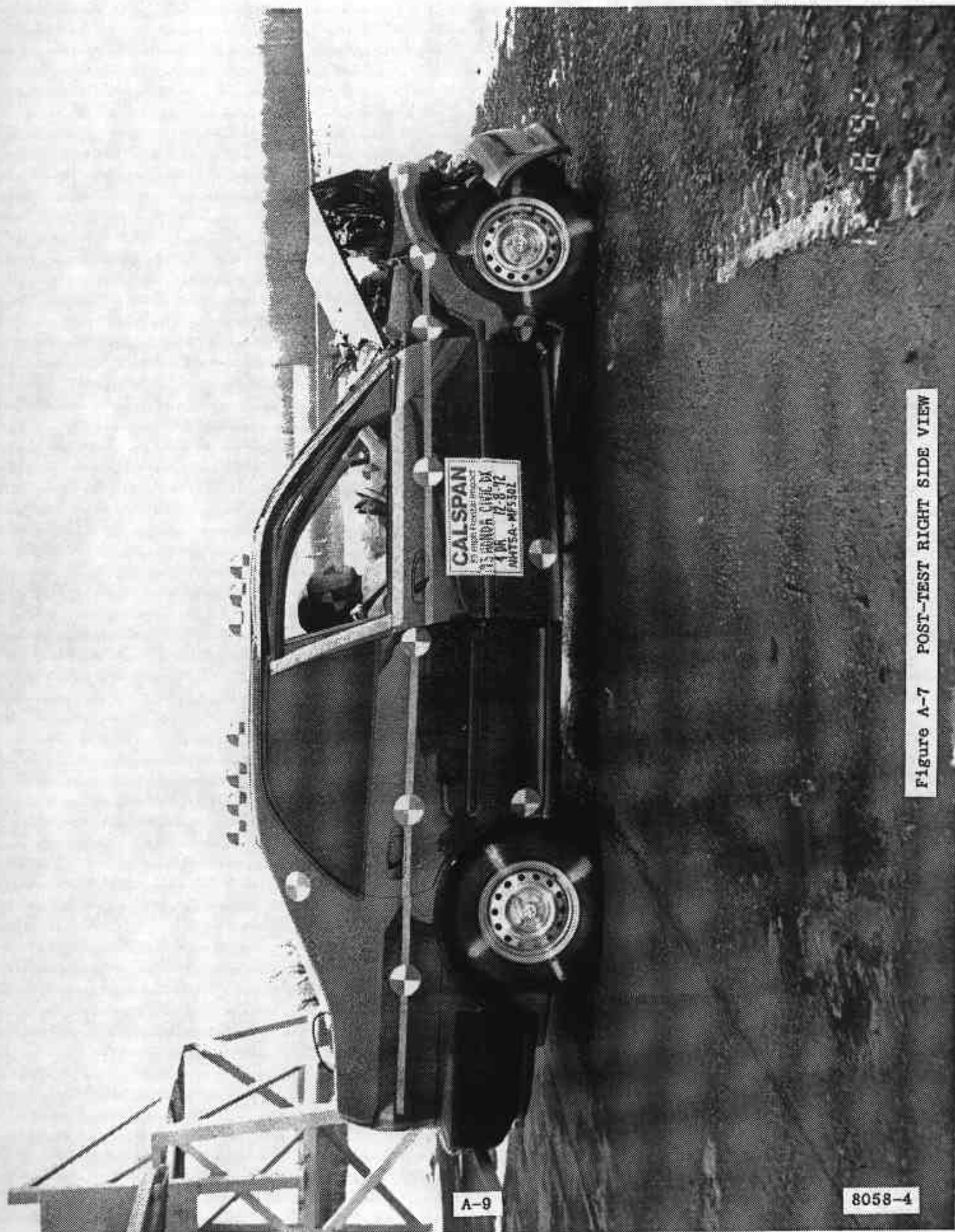


Figure A-7 POST-TEST RIGHT SIDE VIEW

A-9

8058-4



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

A-10

8058-4



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

A-11

8058-4



Figure A-10 PRE-TEST LEFT REAR THREE-QUARTER VIEW

A-12

8058-4

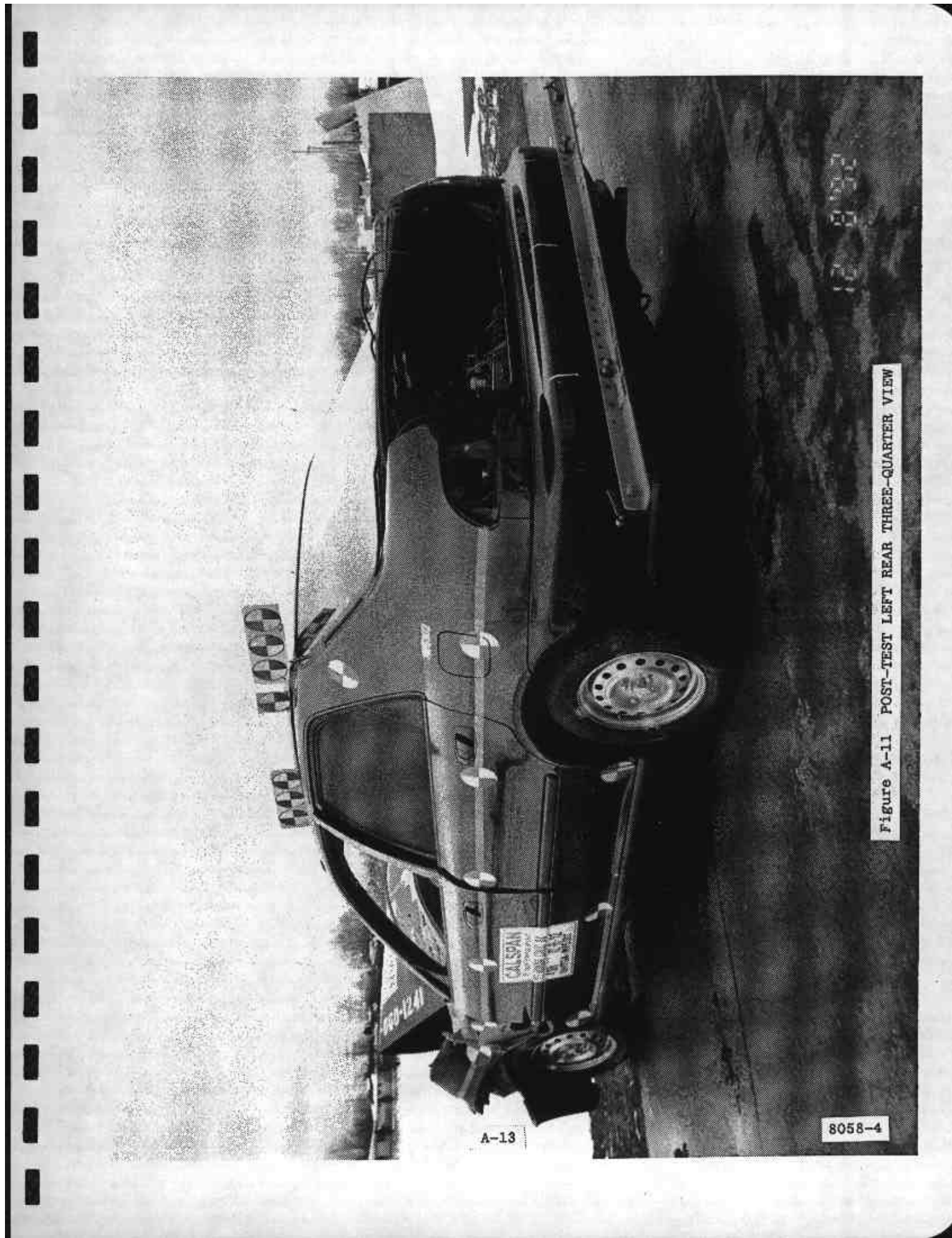


Figure A-11 POST-TEST LEFT REAR THREE-QUARTER VIEW

A-13

8058-4



Figure A-12 PRE-TEST WINDSHIELD VIEW



Figure A-13 POST-TEST WINDSHIELD VIEW

A-15

8058-4

12 APR 82



Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

A-16

8058-4

12 090

Figure A-15 FUEL CAP VIEW

8058-4

A-17



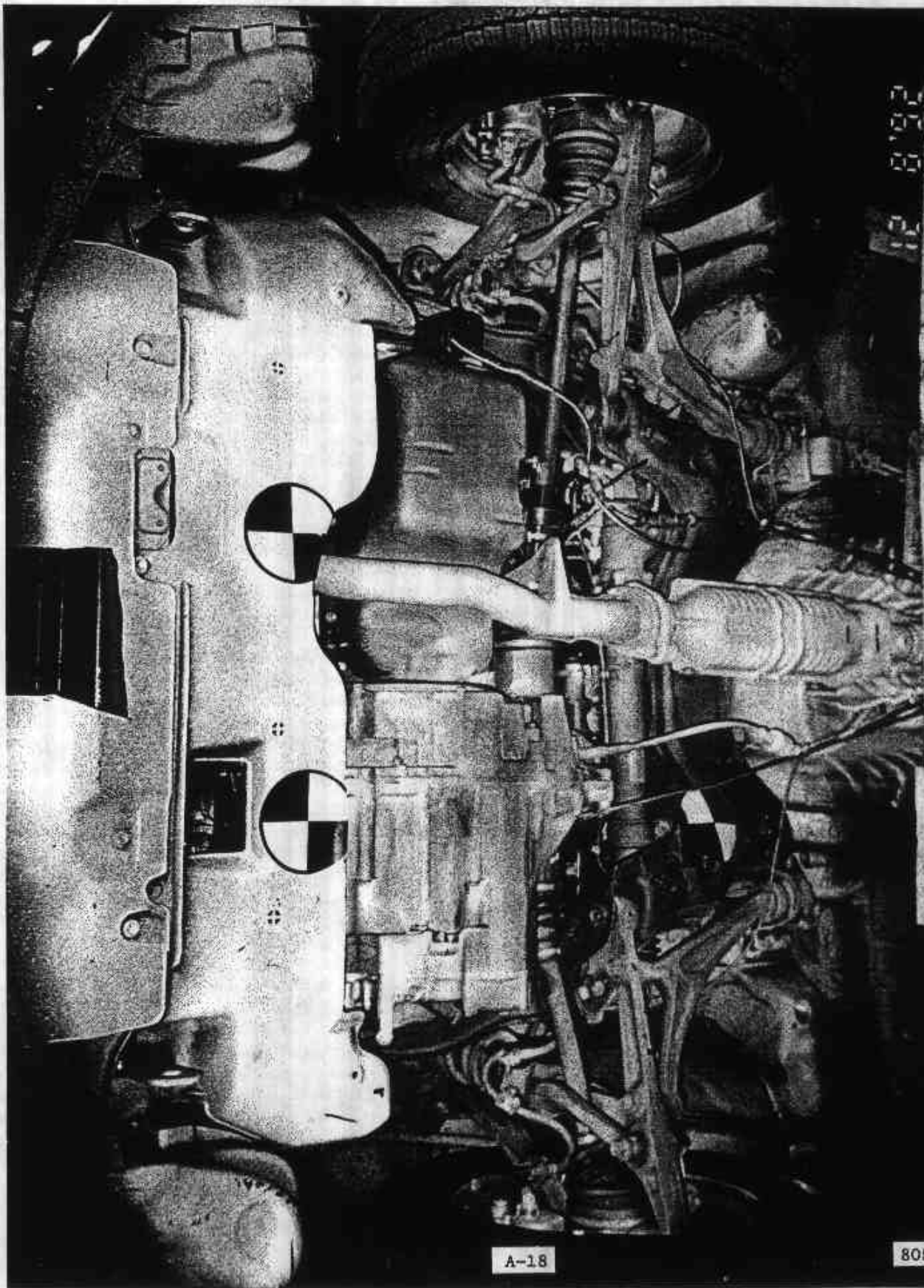


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

A-18

8058-4

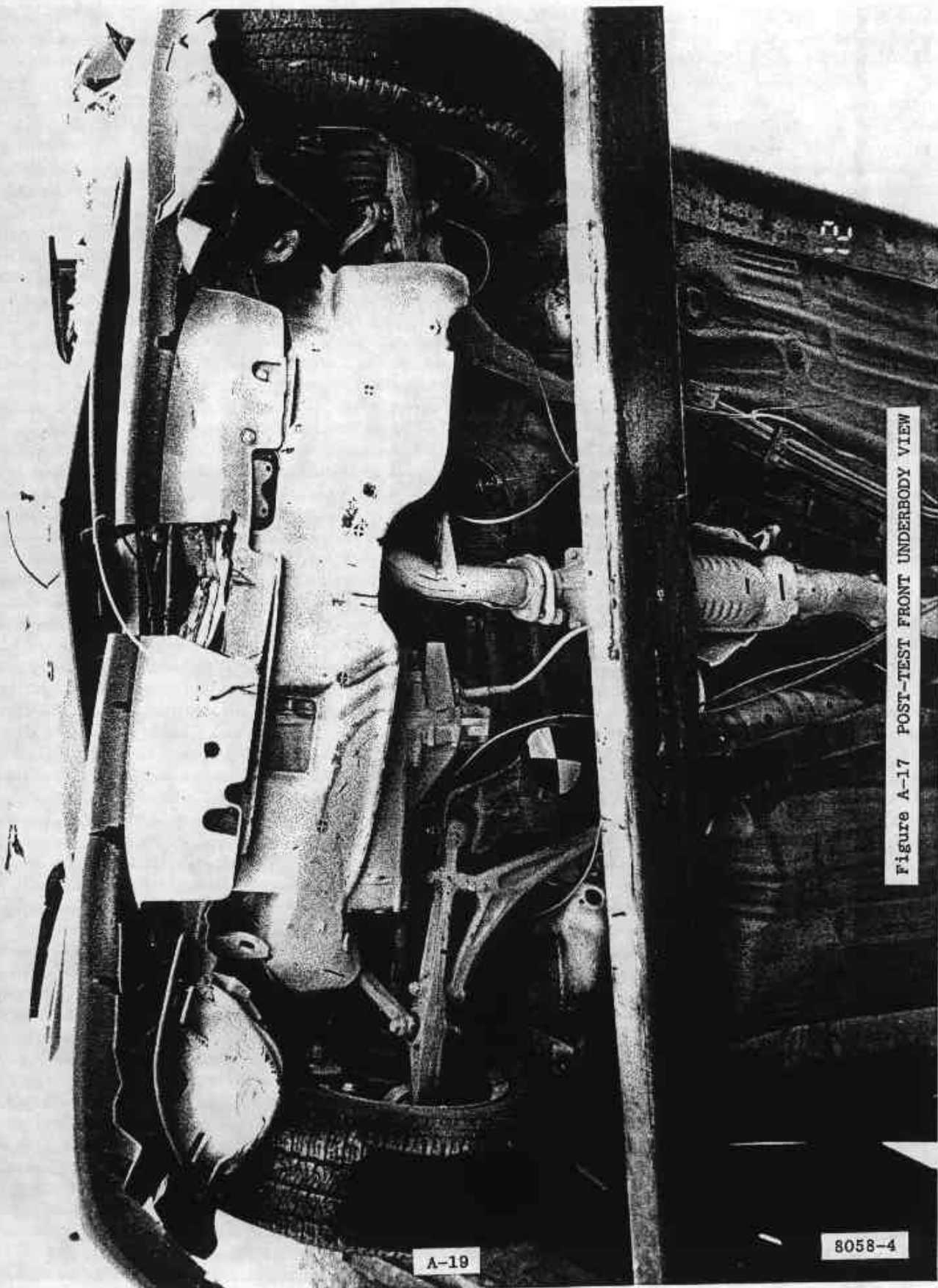


Figure A-17 POST-TEST FRONT UNDERBODY VIEW

A-19

8058-4

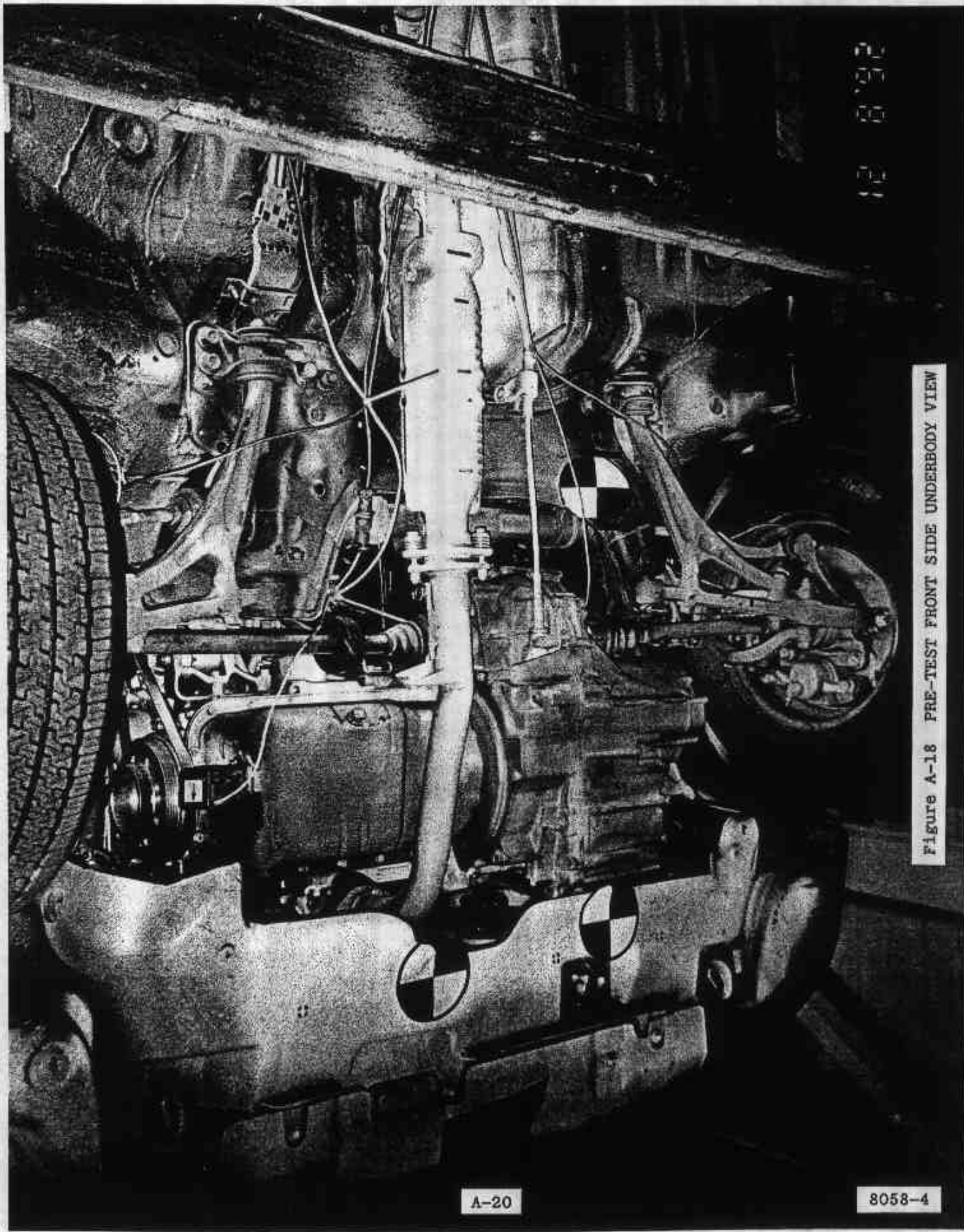


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW

A-20

8058-4

12 0'02

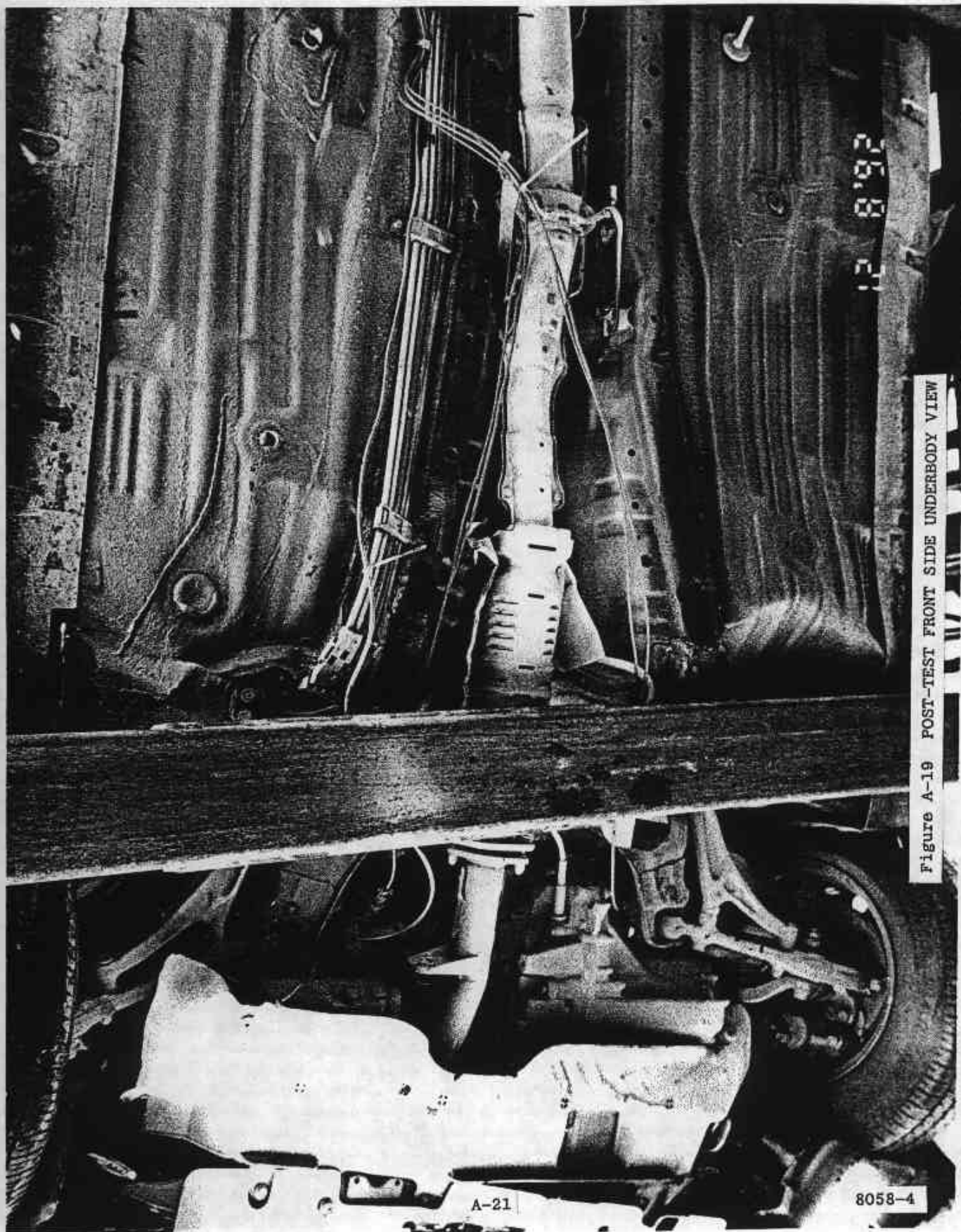
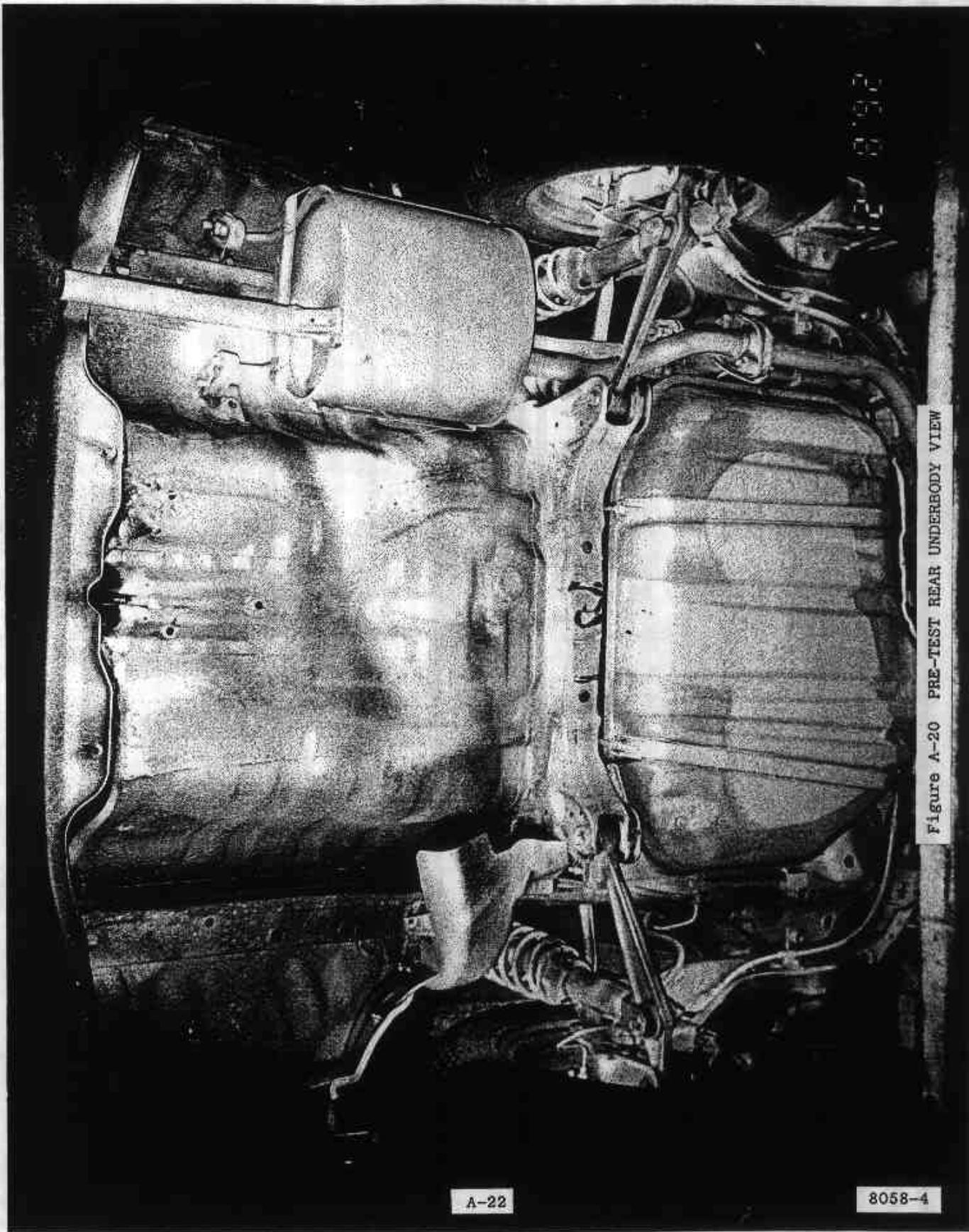


Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW



892

Figure A-20 PRE-TEST REAR UNDERBODY VIEW

A-22

8058-4

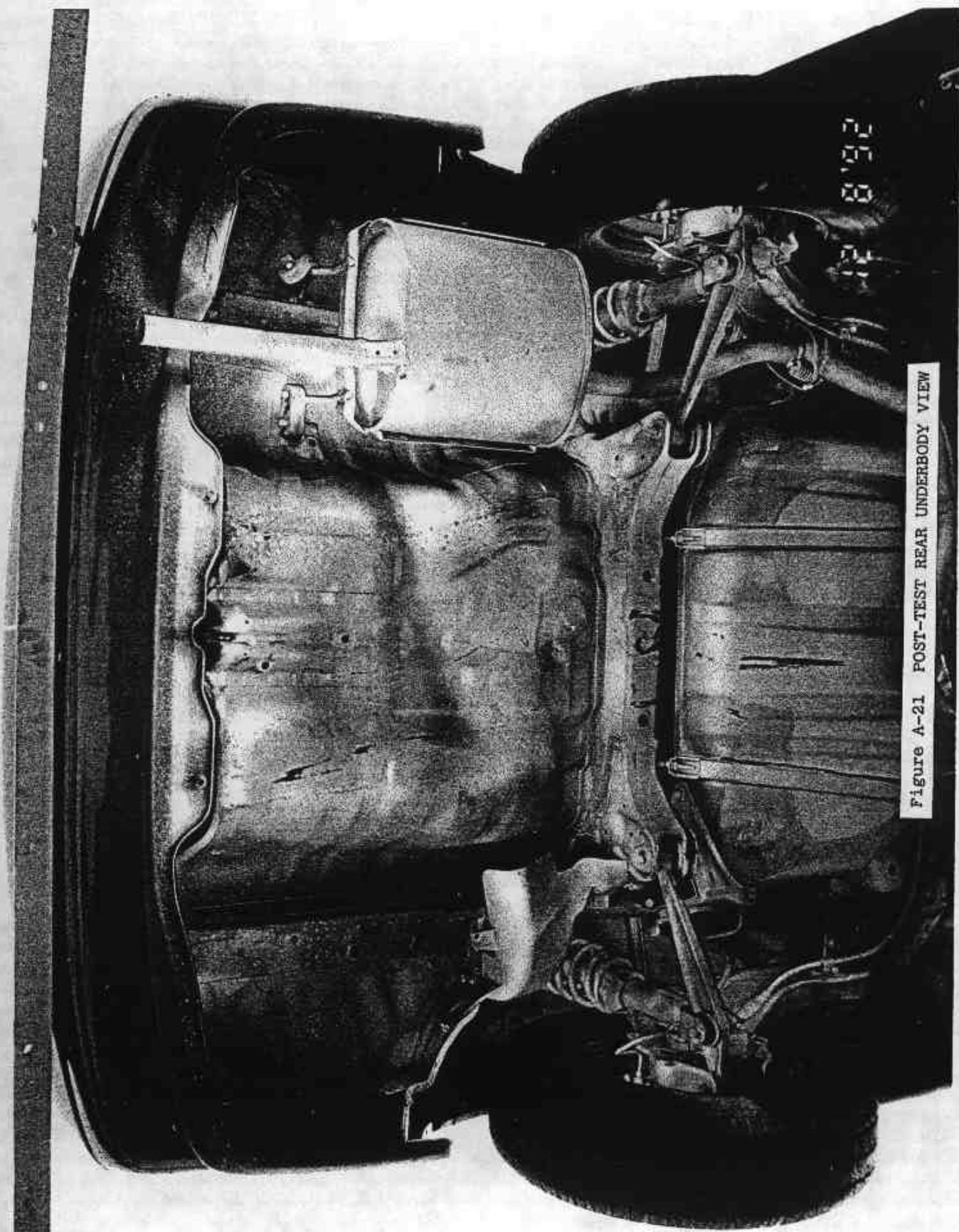


Figure A-21 POST-TEST REAR UNDERBODY VIEW



Figure A-22 PRE-TEST DRIVER POSITION VIEW

A-24

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Figure A-23 POST-TEST DRIVER POSITION VIEW

A-25

8058-4



Figure A-24 PRE-TEST PASSENGER POSITION VIEW

A-26

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Figure A-25 POST-TEST PASSENGER POSITION VIEW

A-27

8058-4



Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

A-28

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Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW

A-29

8058-4



Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW

A-30

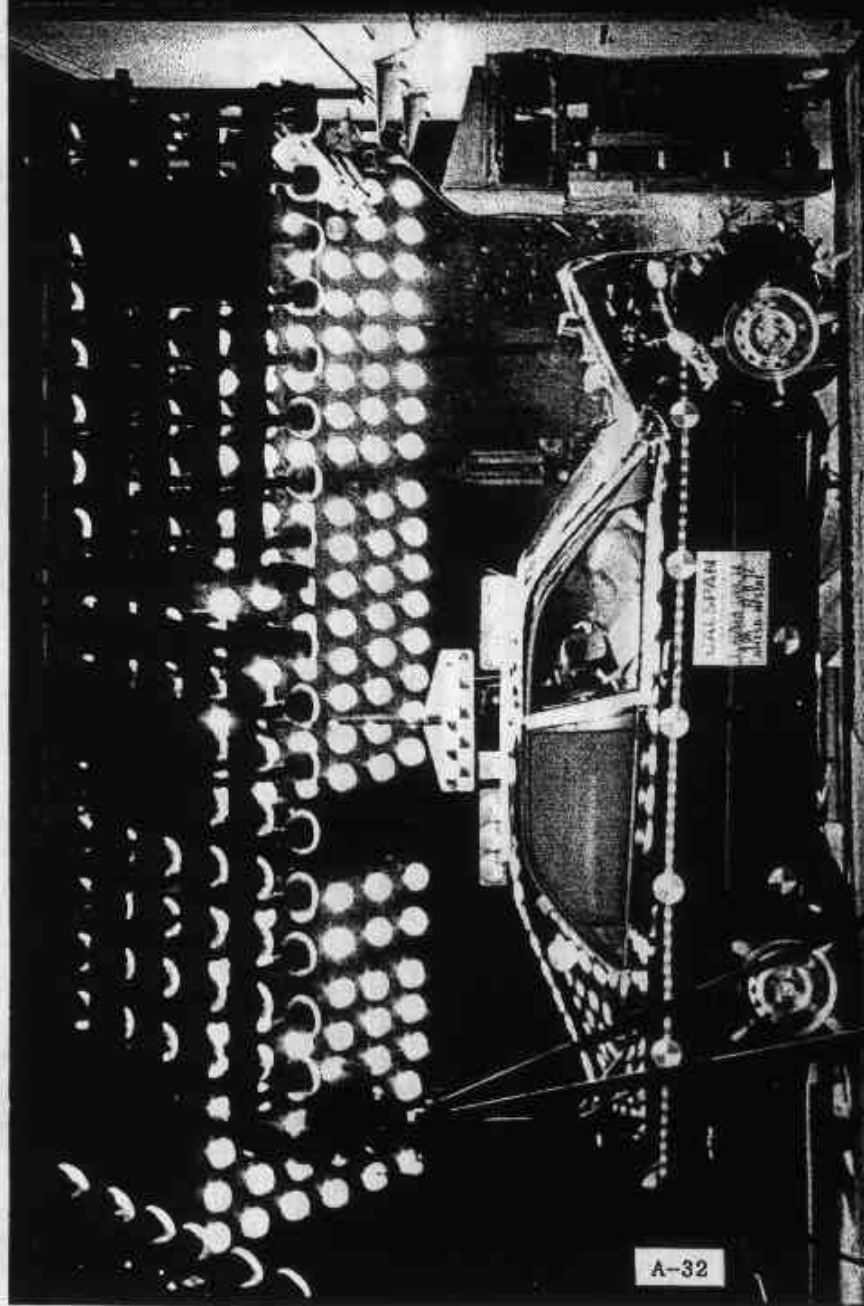
8058-4



Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

A-31

8058-4



A-32

8058-4

Figure A-30 IMPACT VIEW

12 8'92

Appendix B

VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA

TEST NO. MP5302

VEHICLE DATA

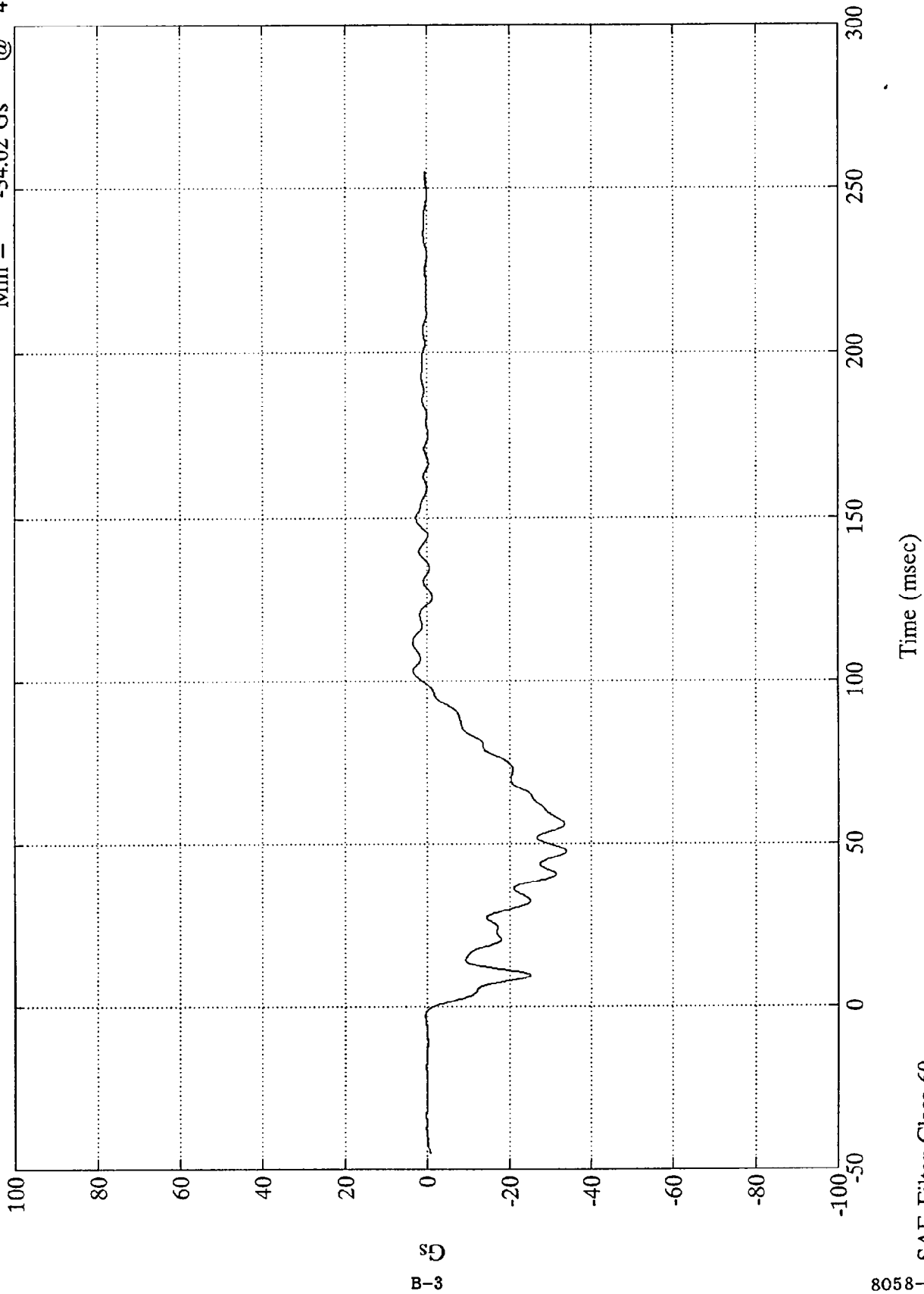
FILTER CHANNEL CLASS

60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 3.47 Gs @ 111.95 msec
Min = -34.02 Gs @ 47.63 msec

Acc. #1(x)

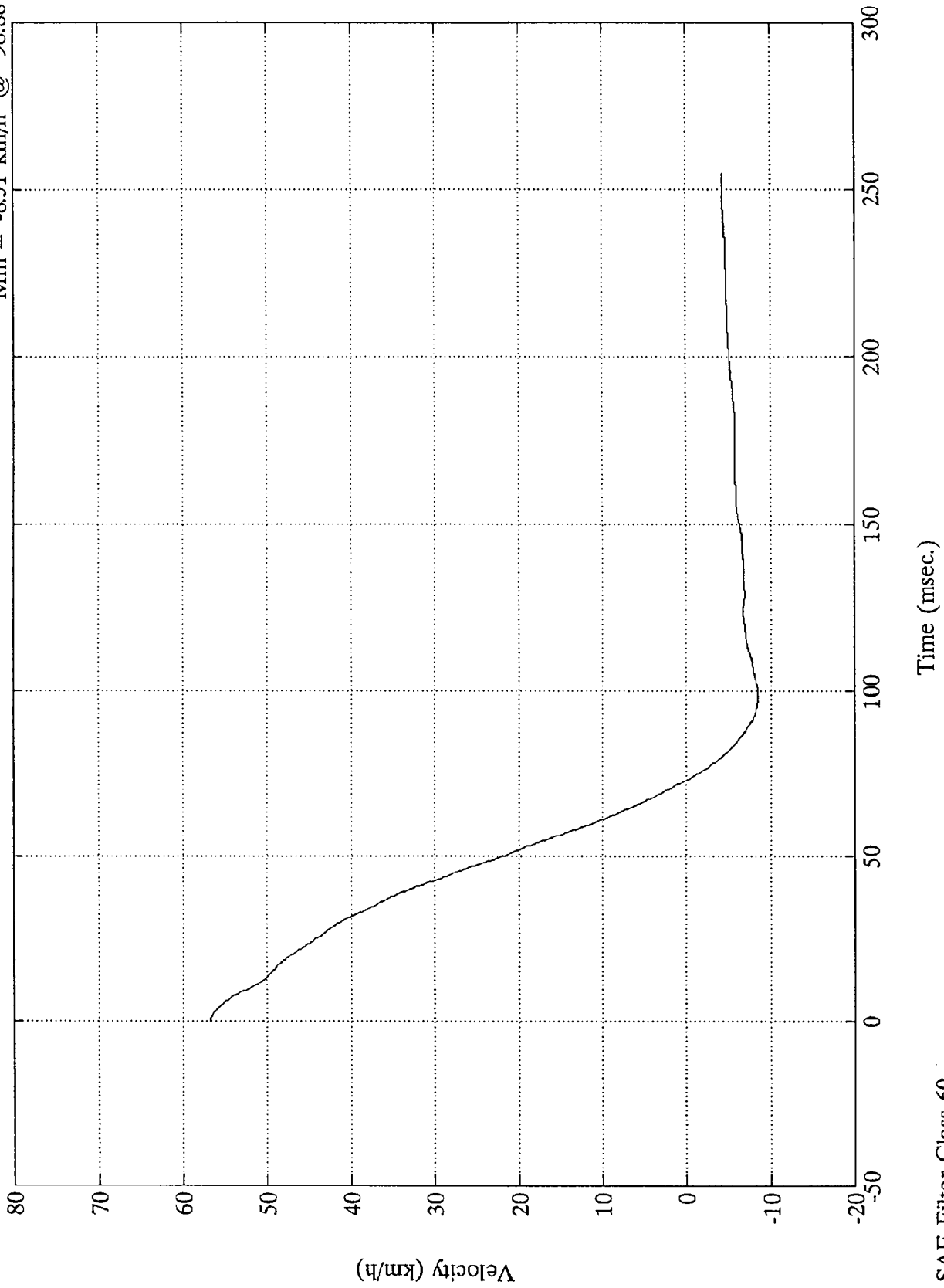


B-3

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 56.80 km/h @ -0.00 msec
Min = -8.51 km/h @ 98.88 msec

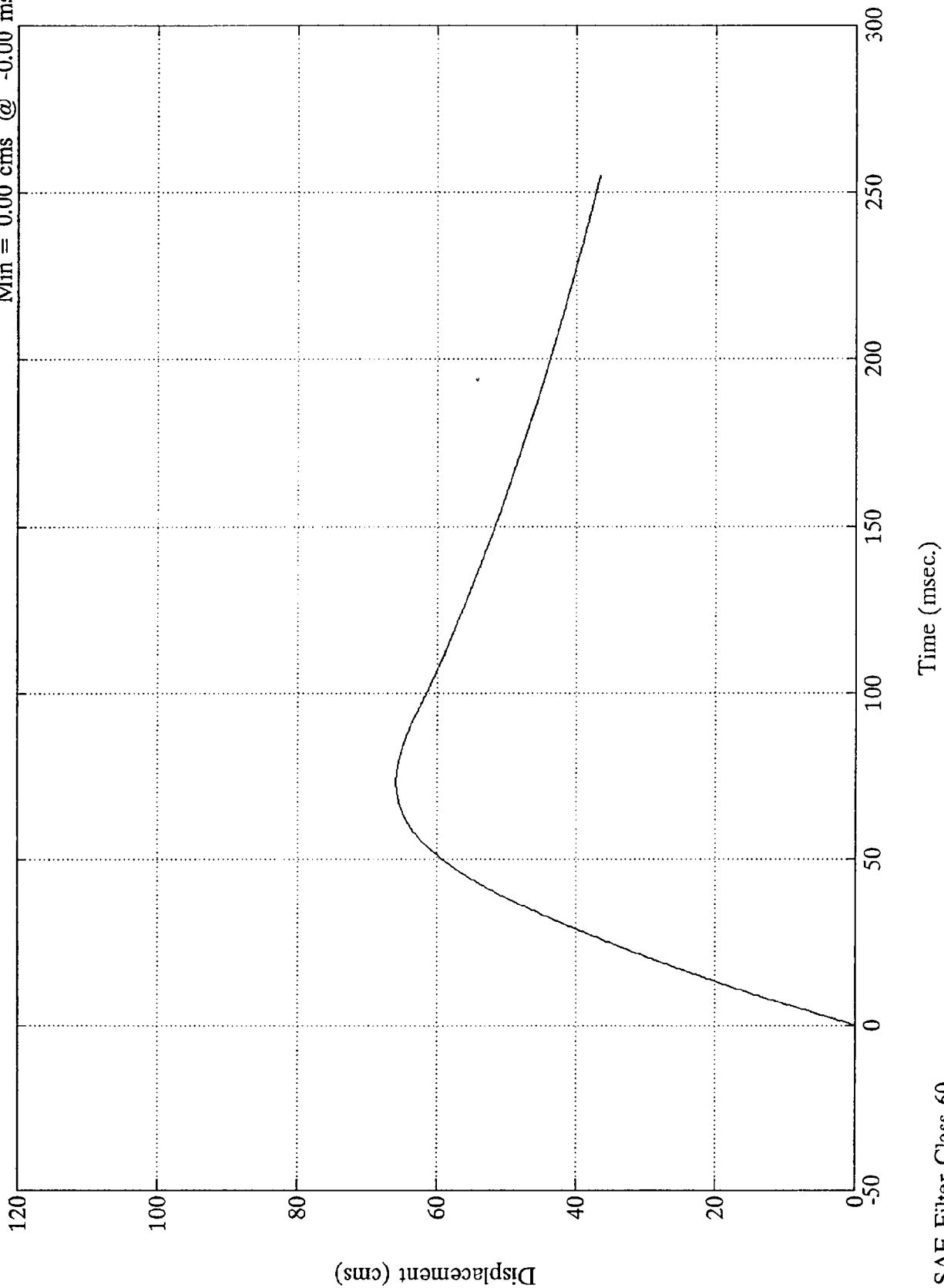
Acc. #1(x)



NCAP TEST #8 - 1993 HONDA CIVIC DX

Acc. #1(x)

Max = 65.86 cms @ 74.64 msec
Min = 0.00 cms @ -0.00 msec

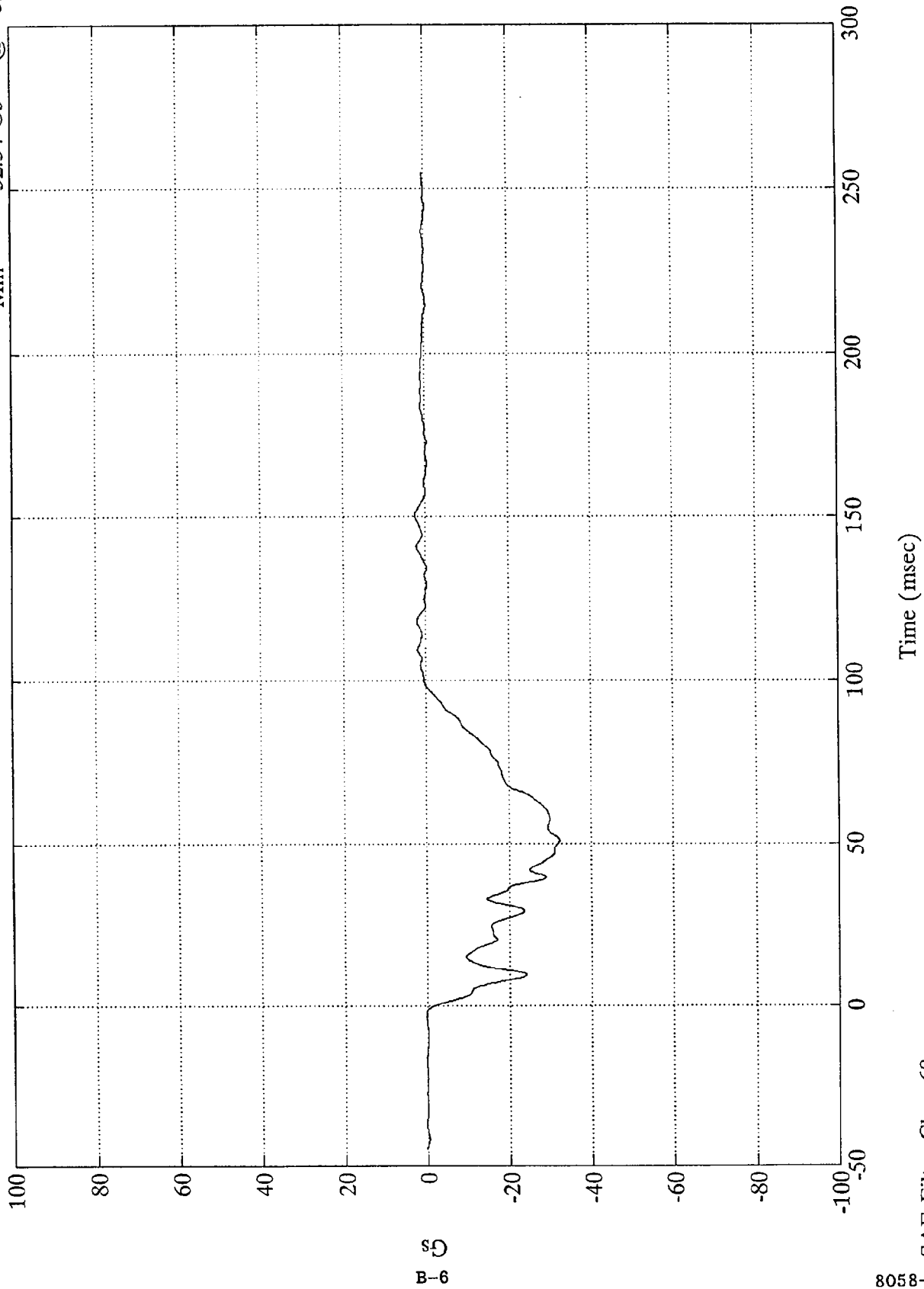


SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 2.55 Gs @ 150.36 msec
 Min = -32.34 Gs @ 51.12 msec

Acc. #2(x)



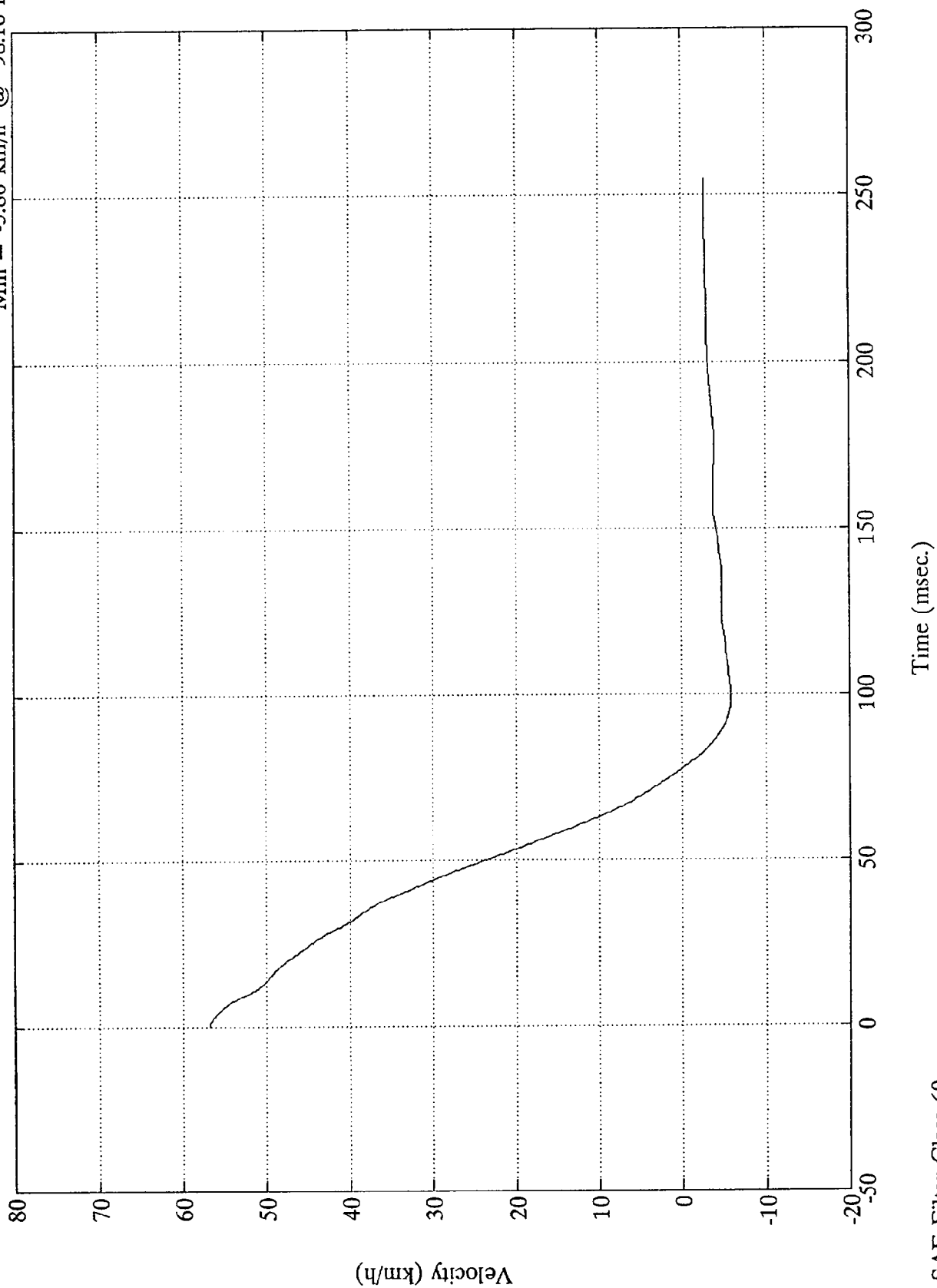
B-6

8058 4 SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Acc. #2(x)

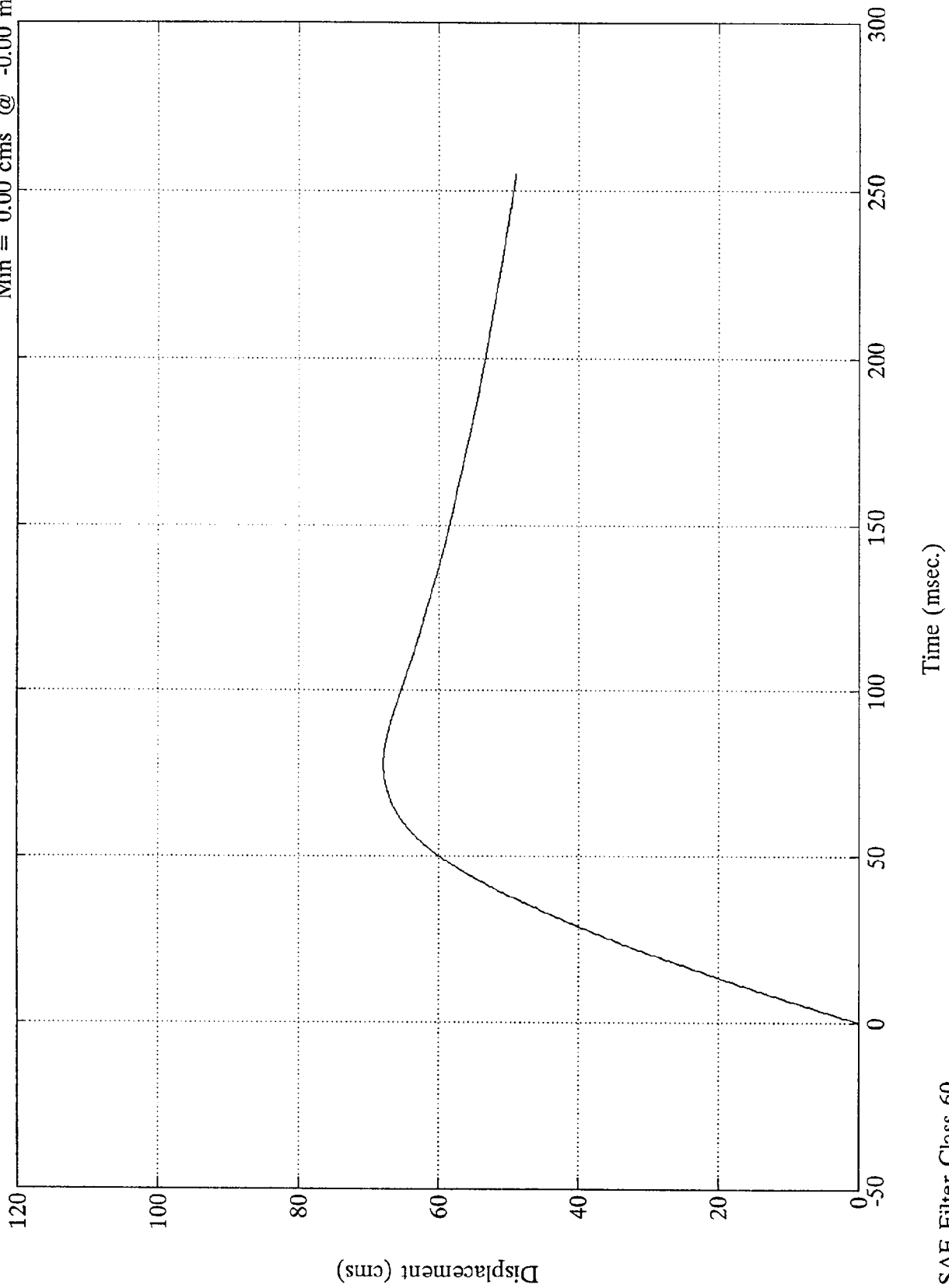
Max = 56.80 km/h @ -0.00 msec
Min = -5.80 km/h @ 98.16 msec



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 67.92 cms @ 78.00 msec
Min = 0.00 cms @ -0.00 msec

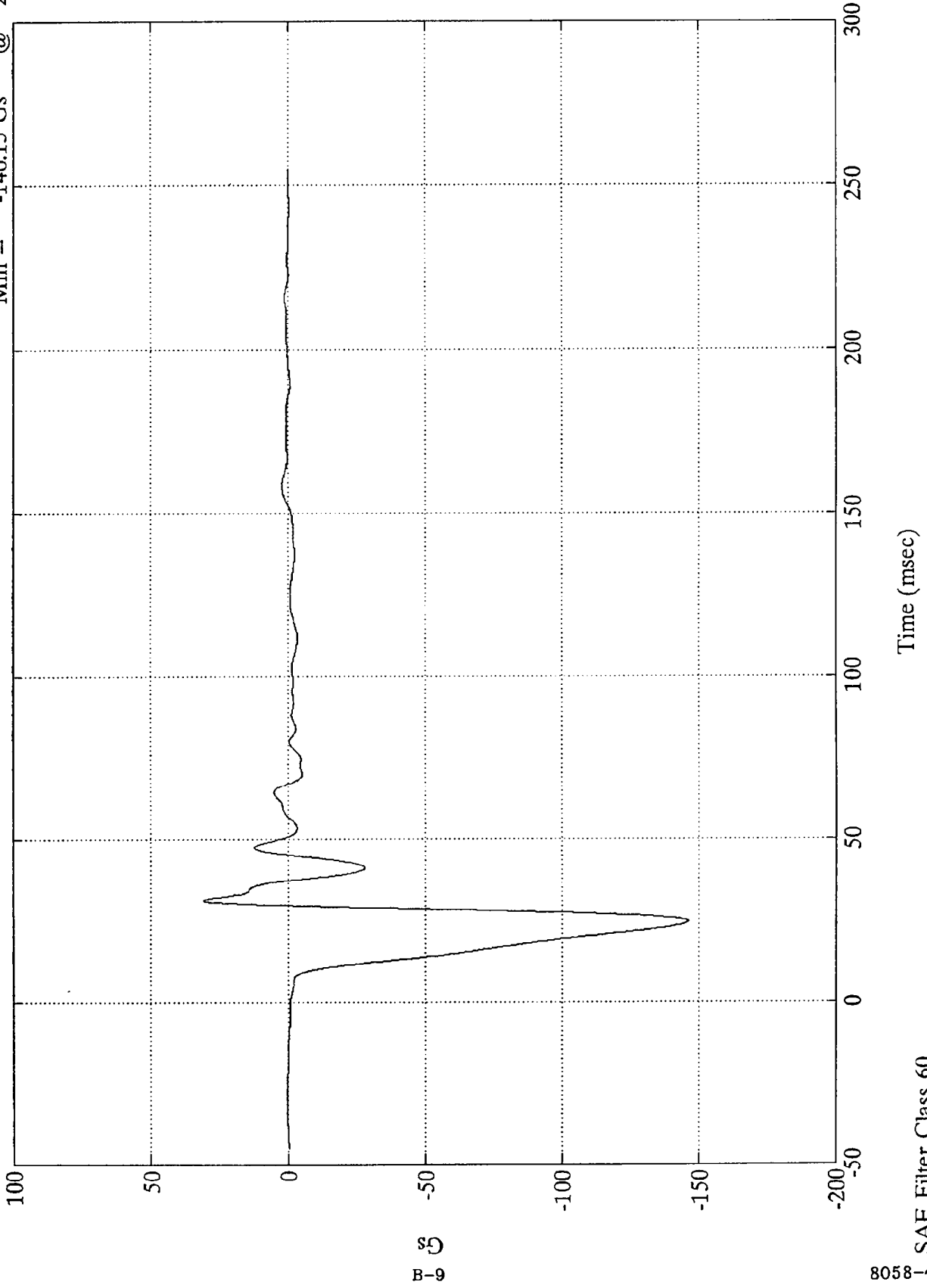
Acc. #2(x)



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 31.08 Gs @ 31.07 msec
Min = -146.15 Gs @ 24.47 msec

Acc. #3(x)

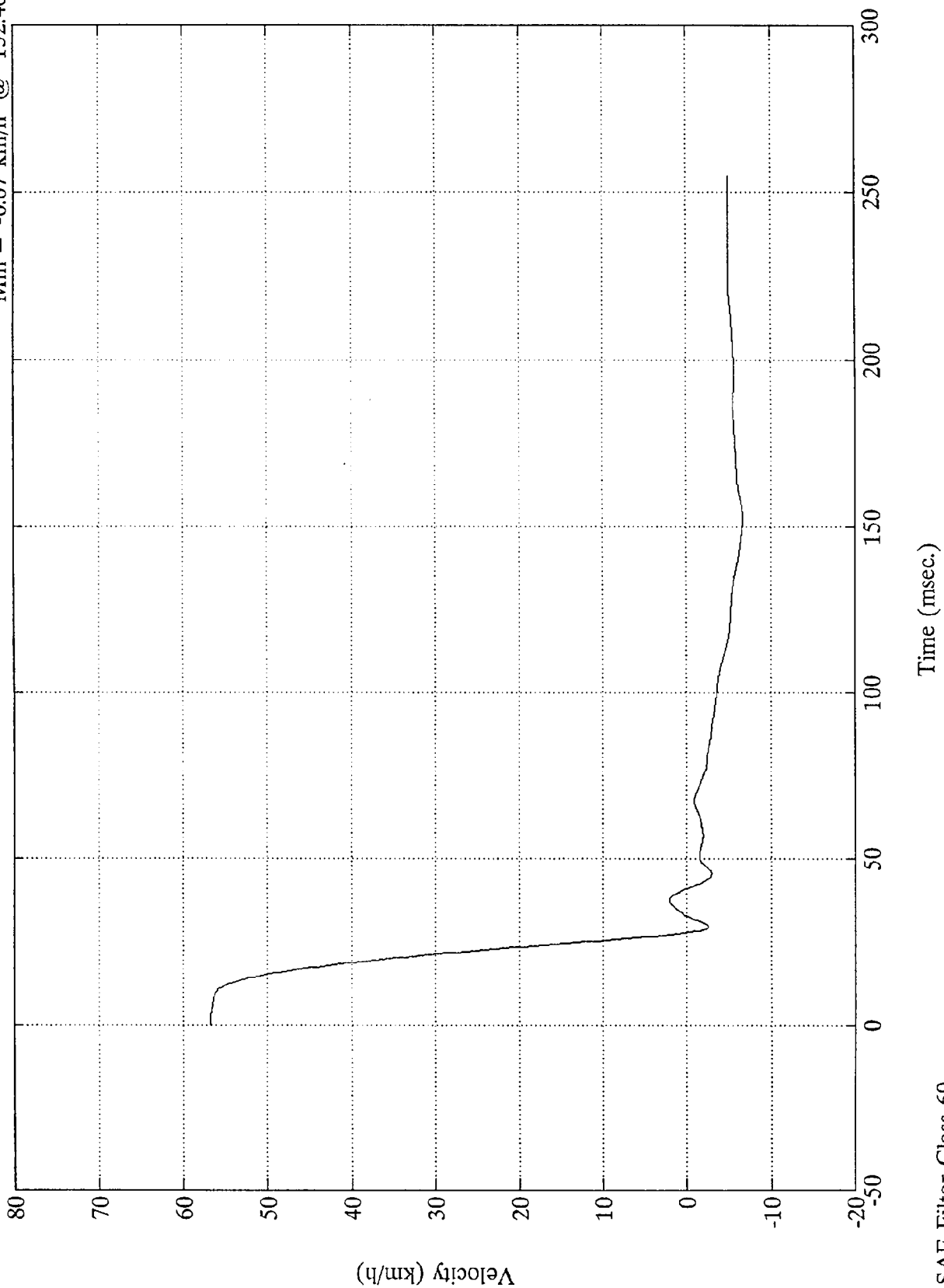


B-9

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 56.80 km/h @ 0.24 msec
Min = -6.67 km/h @ 152.40 msec

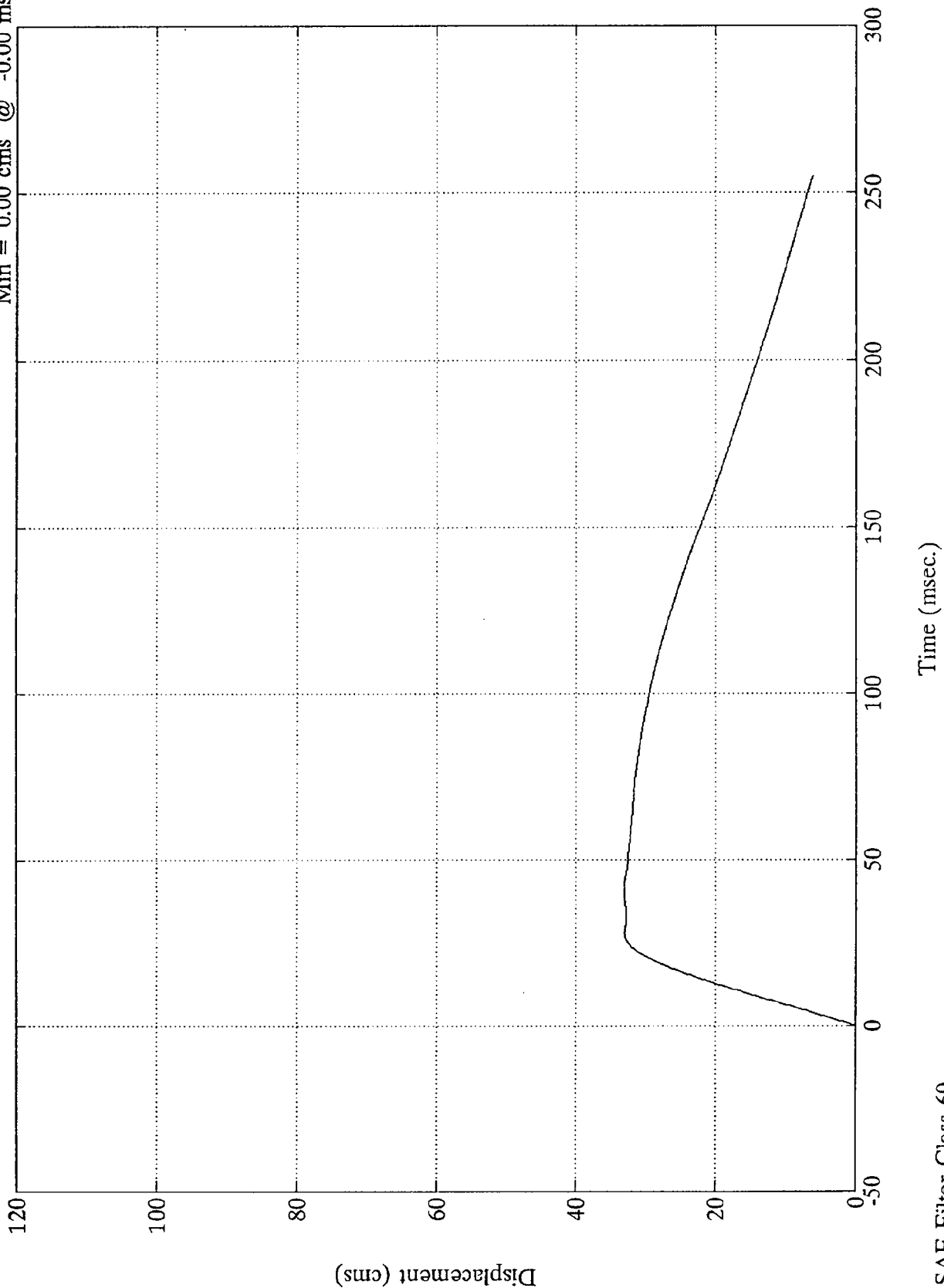
Acc. #3(x)



NCAP TEST #8 - 1993 HONDA CIVIC DX

Acc. #3(x)

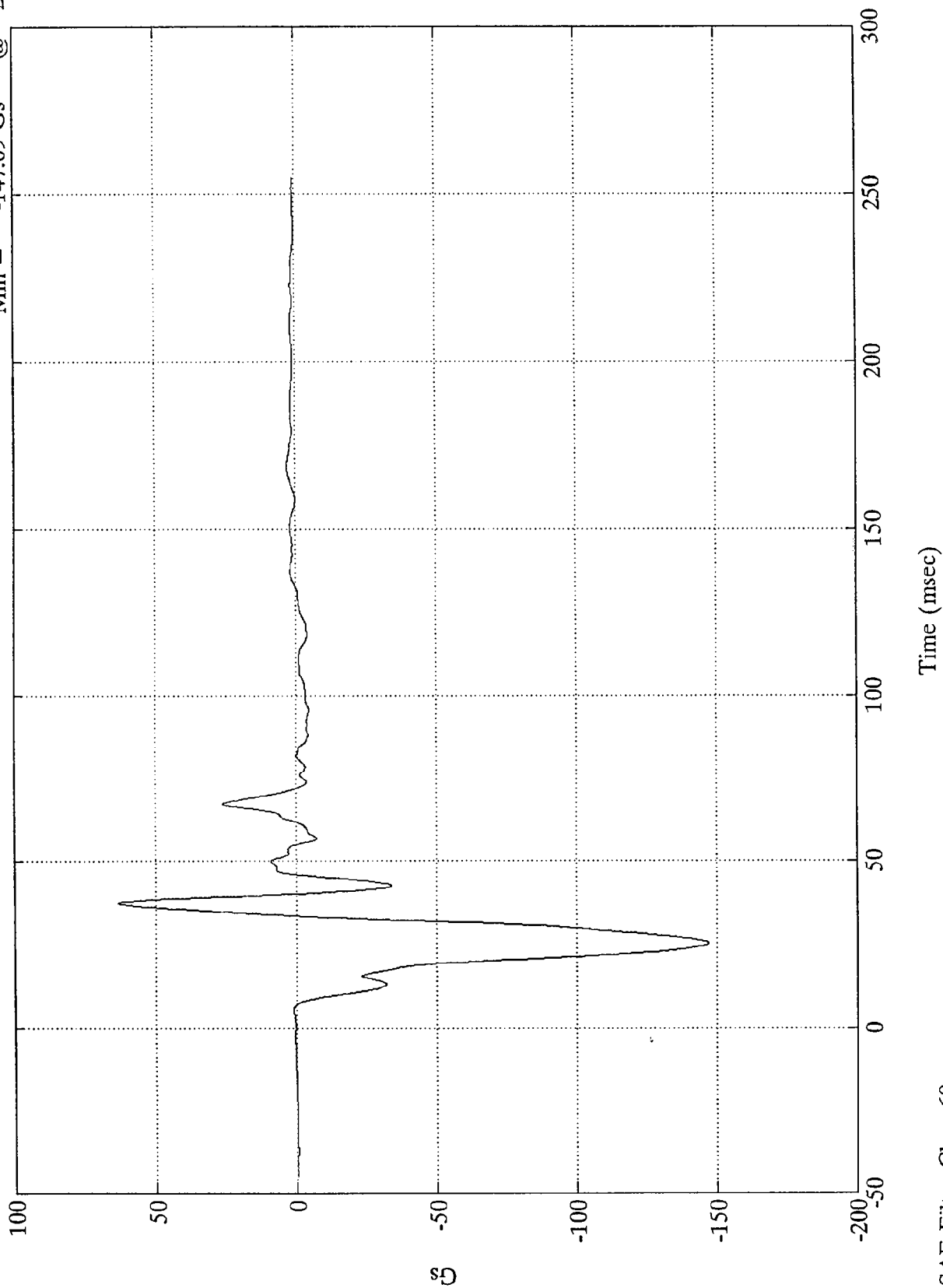
Max = 33.05 cms @ 41.76 msec
Min = 0.00 cms @ -0.00 msec



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 63.34 Gs @ 37.08 msec
 Min = -147.09 Gs @ 25.07 msec

Acc. #4(x)

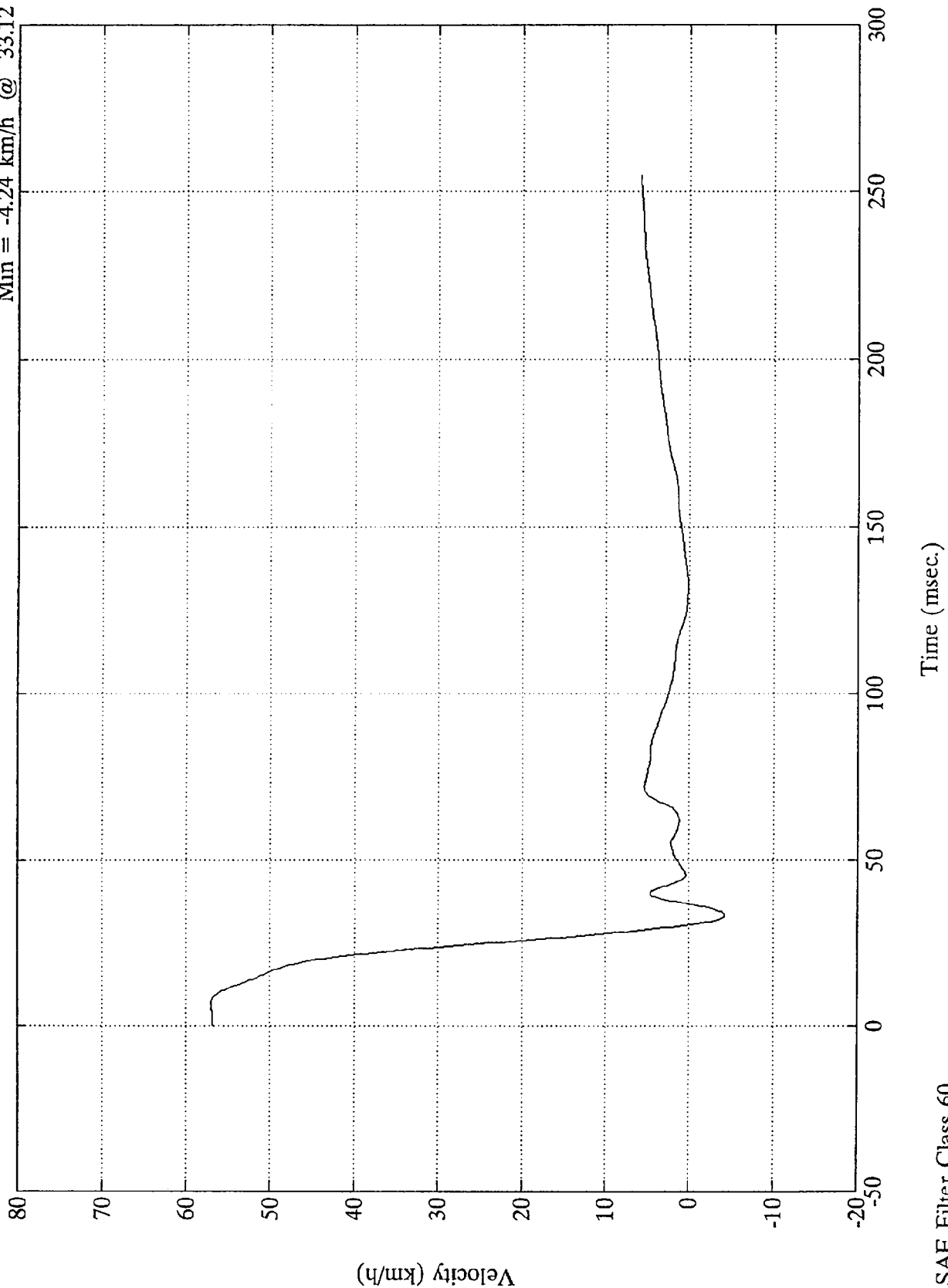


SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Acc. #4(x)

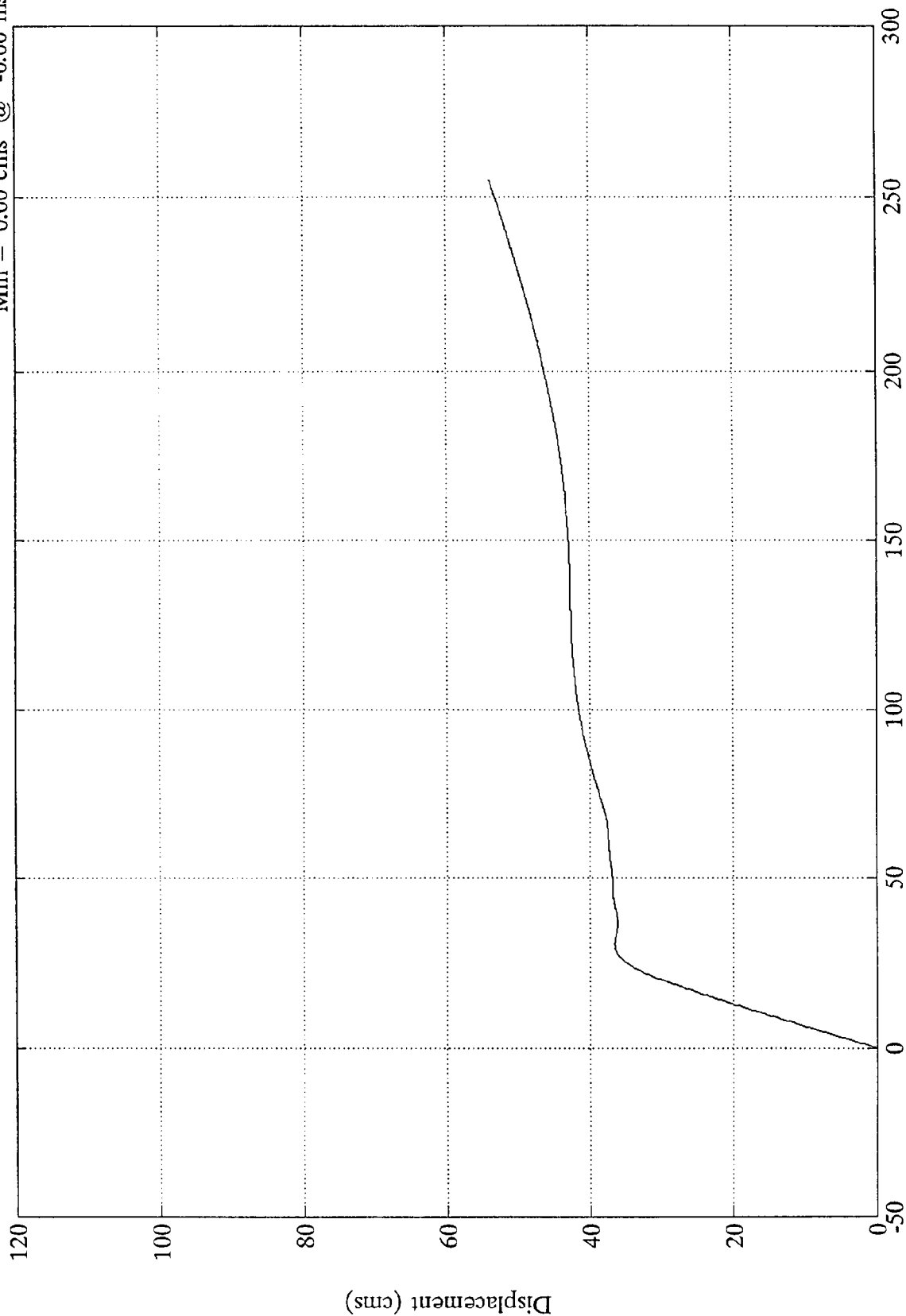
Max = 56.98 km/h @ 7.20 msec
Min = -4.24 km/h @ 33.12 msec



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 53.85 cms @ 254.88 msec
Min = 0.00 cms @ -0.00 msec

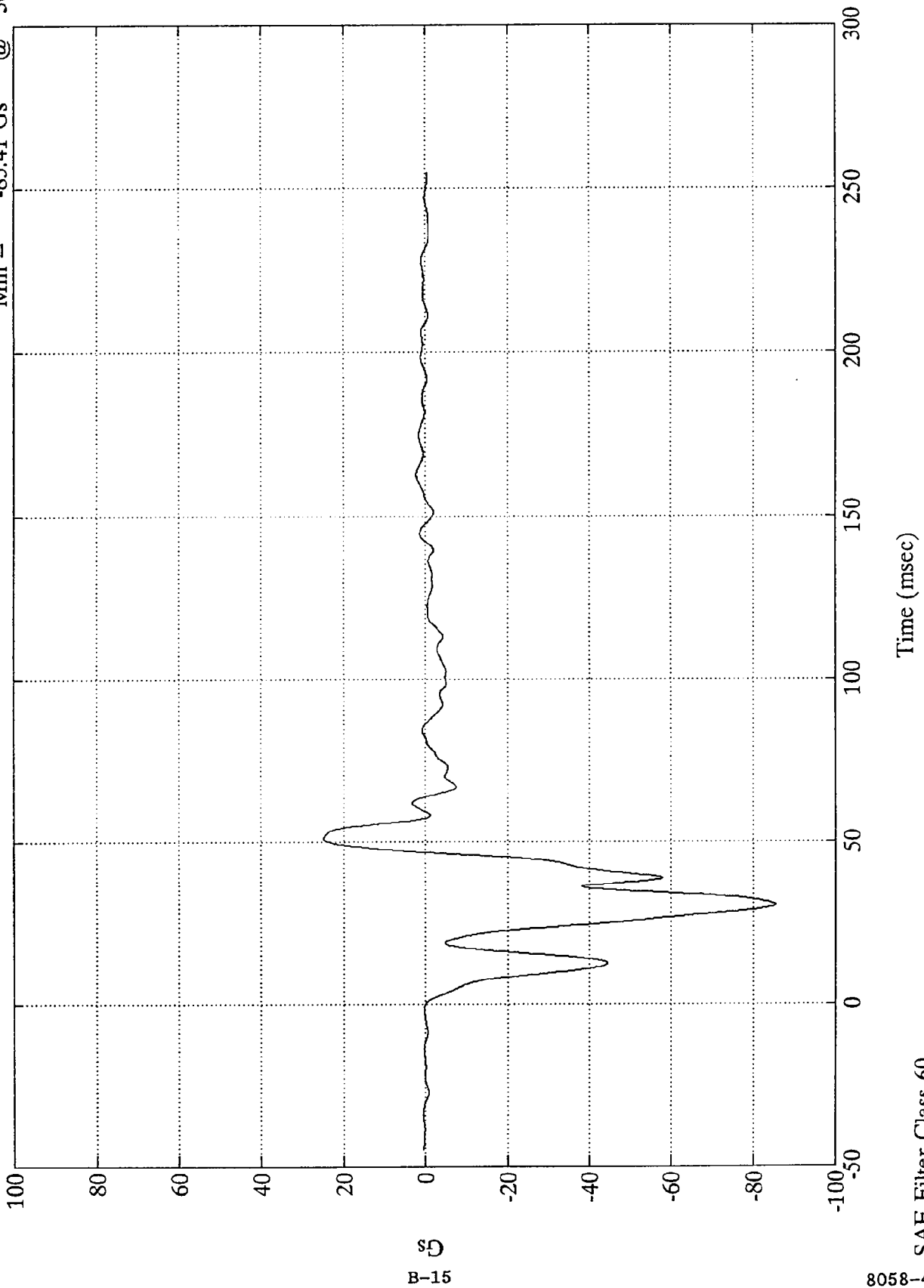
Acc. #4(x)



NCAP TEST #8 - 1993 HONDA CIVIC DX

Acc. #5(x)

Max = 24.81 Gs @ 51.12 msec
Min = -85.41 Gs @ 30.23 msec

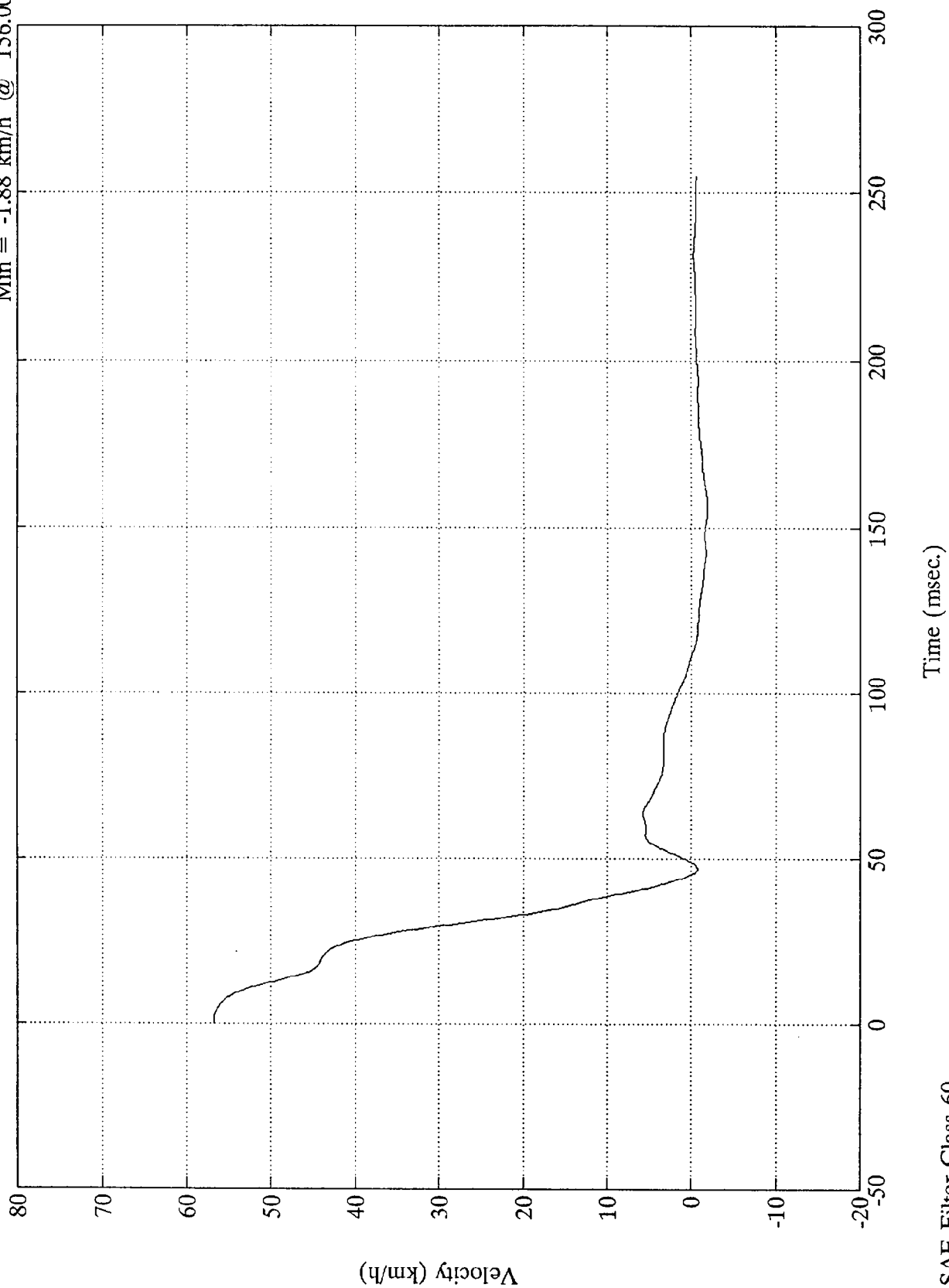


B-15

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 56.80 km/h @ 0.72 msec
Min = -1.88 km/h @ 156.00 msec

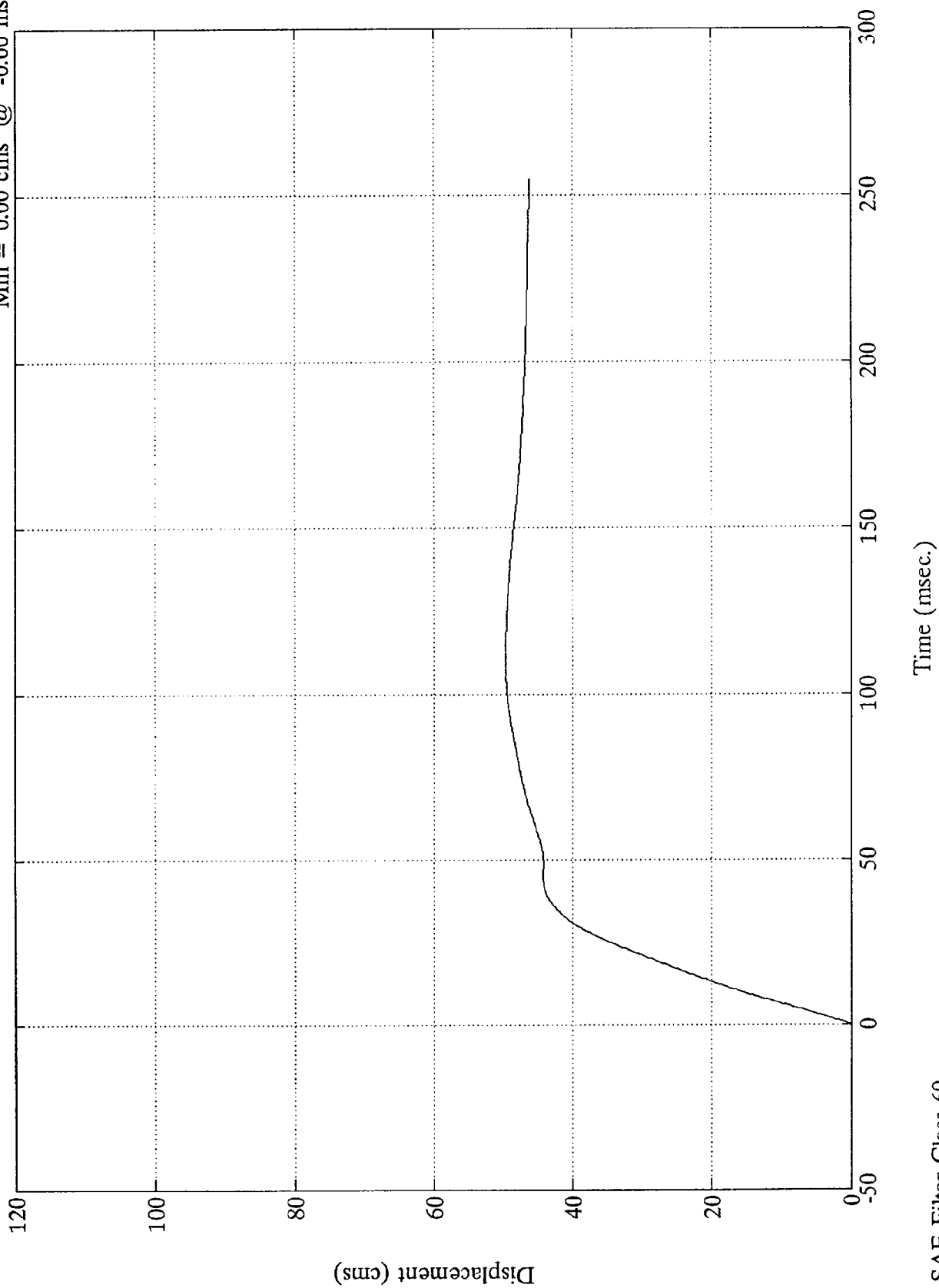
Acc. #5(x)



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 49.71 cms @ 114.48 msec
Min = 0.00 cms @ -0.00 msec

Acc. #5(x)

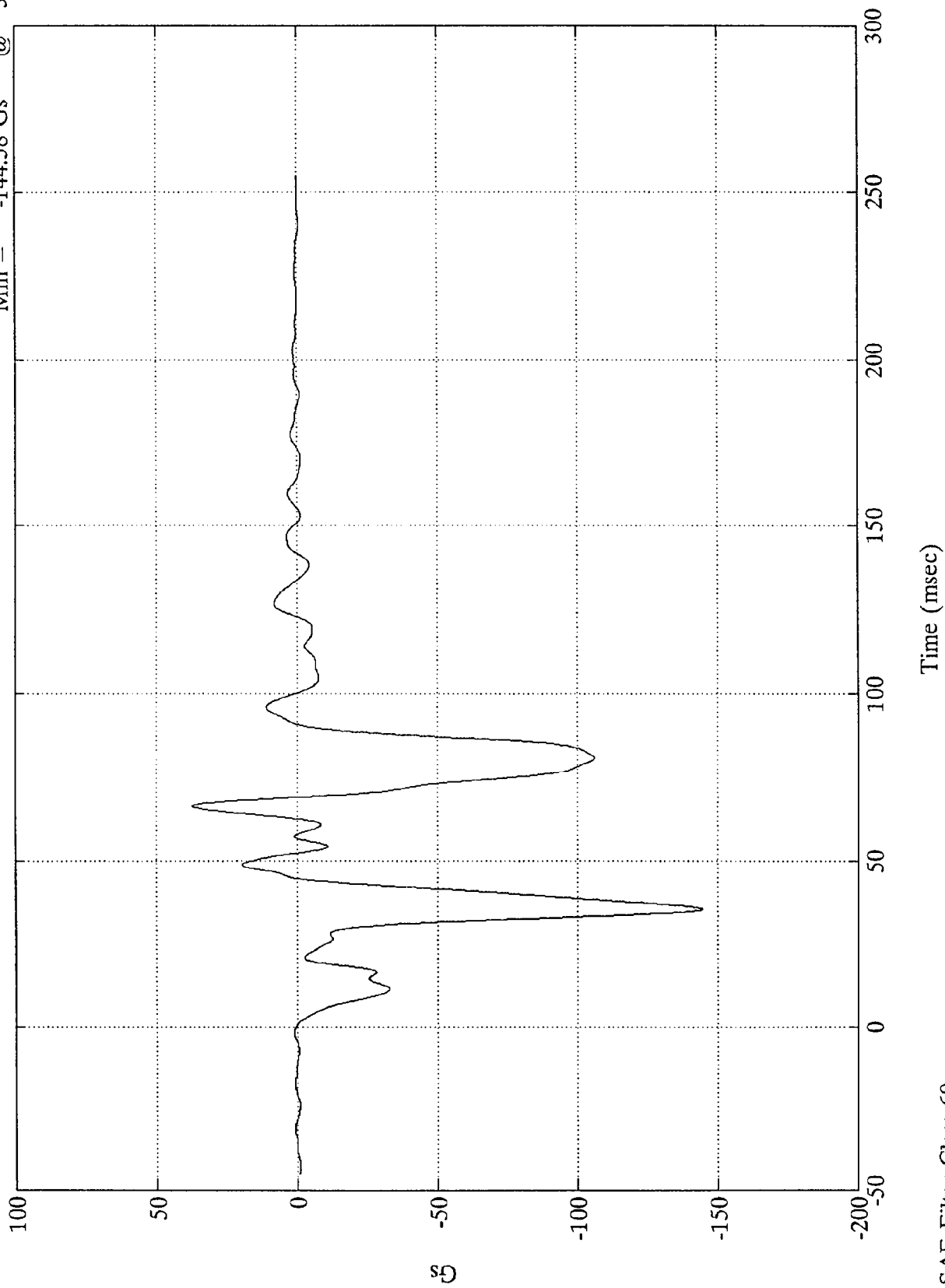


B-17

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 37.42 Gs @ 66.36 msec
 Min = -144.58 Gs @ 35.63 msec

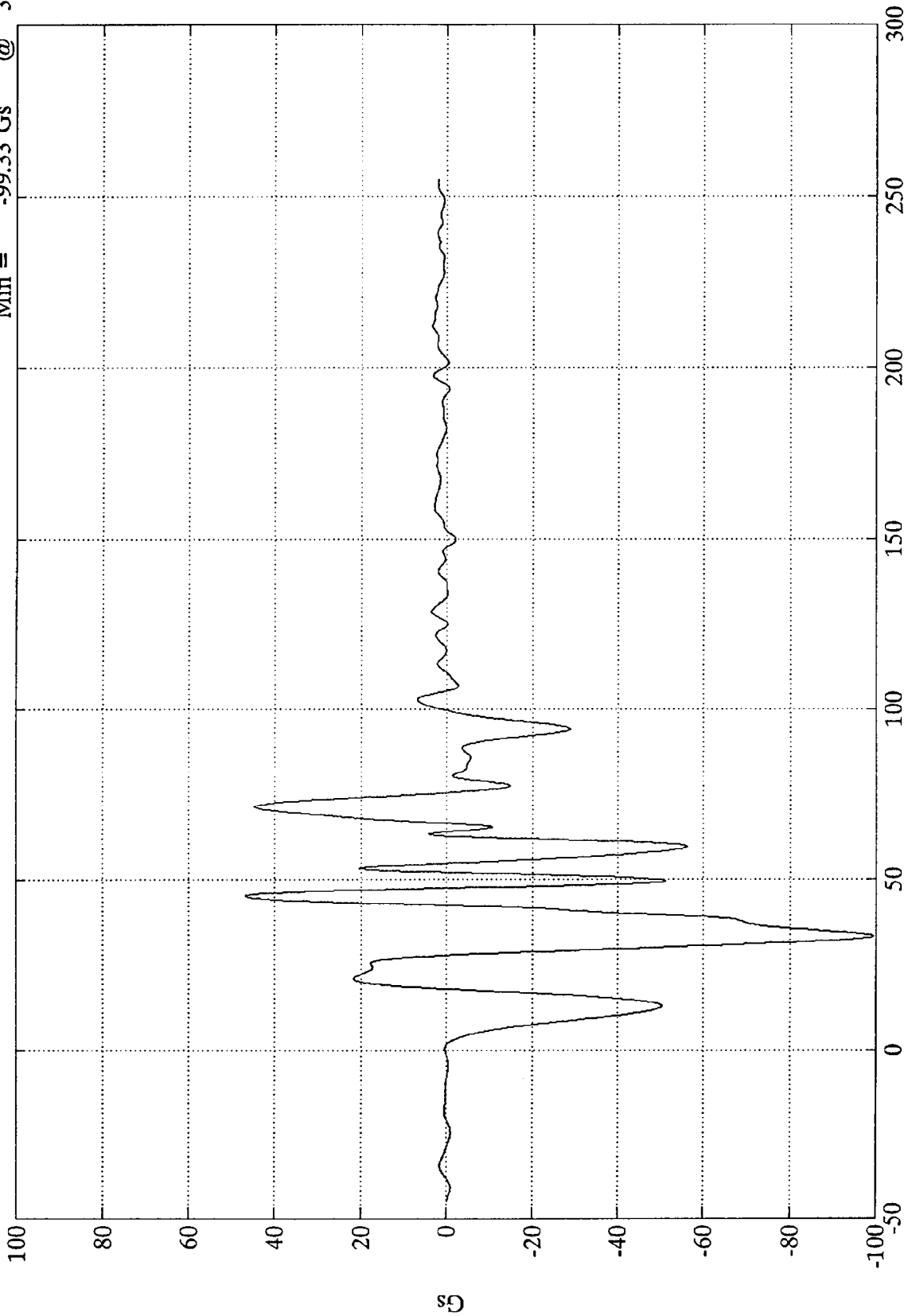
Acc. #6(x)



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 46.80 Gs @ 45.24 msec
Min = -99.33 Gs @ 33.11 msec

Acc. #7(x)



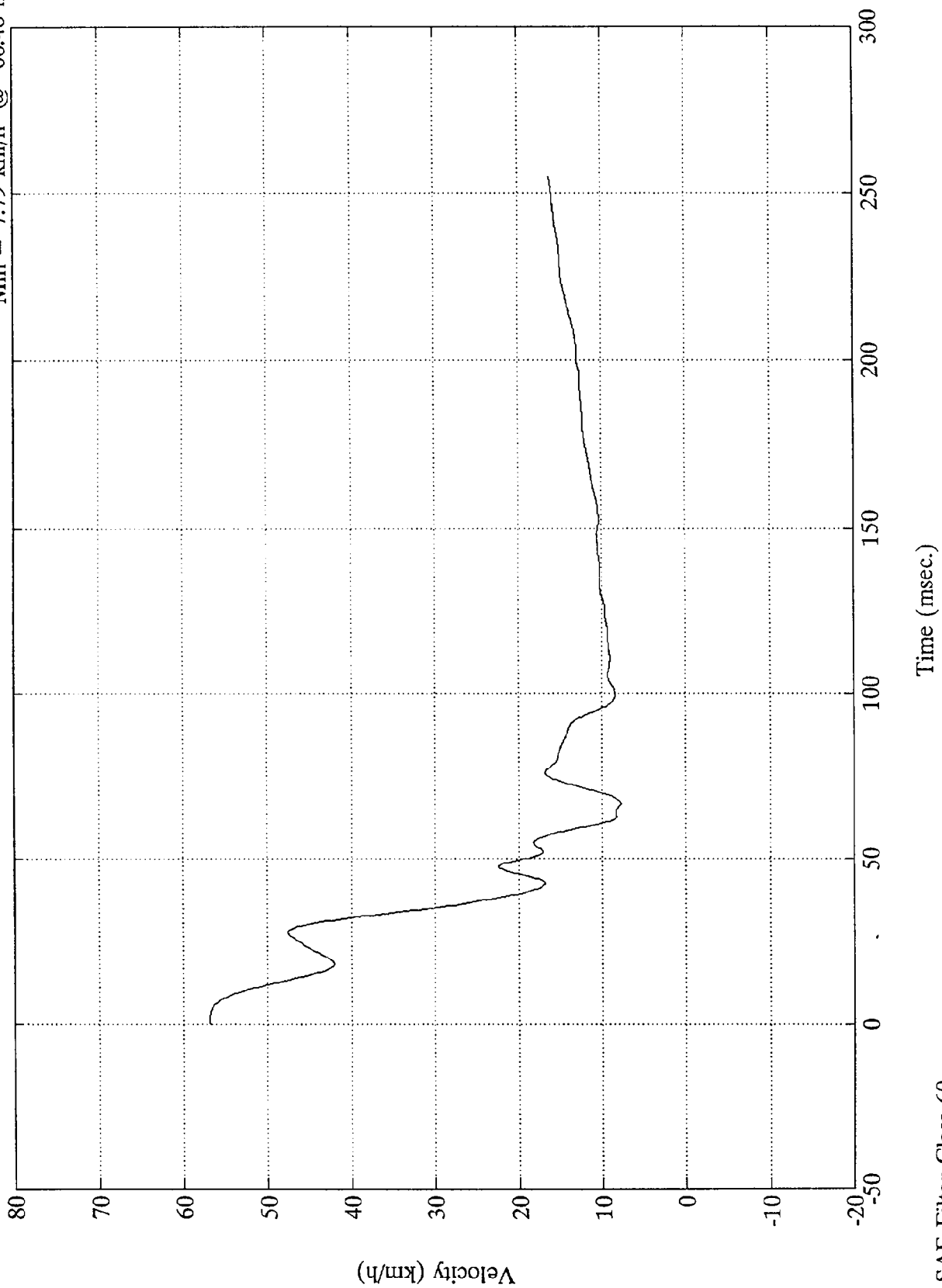
Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Acc. #7(x)

Max = 56.83 km/h @ 2.16 msec
Min = 7.79 km/h @ 66.48 msec



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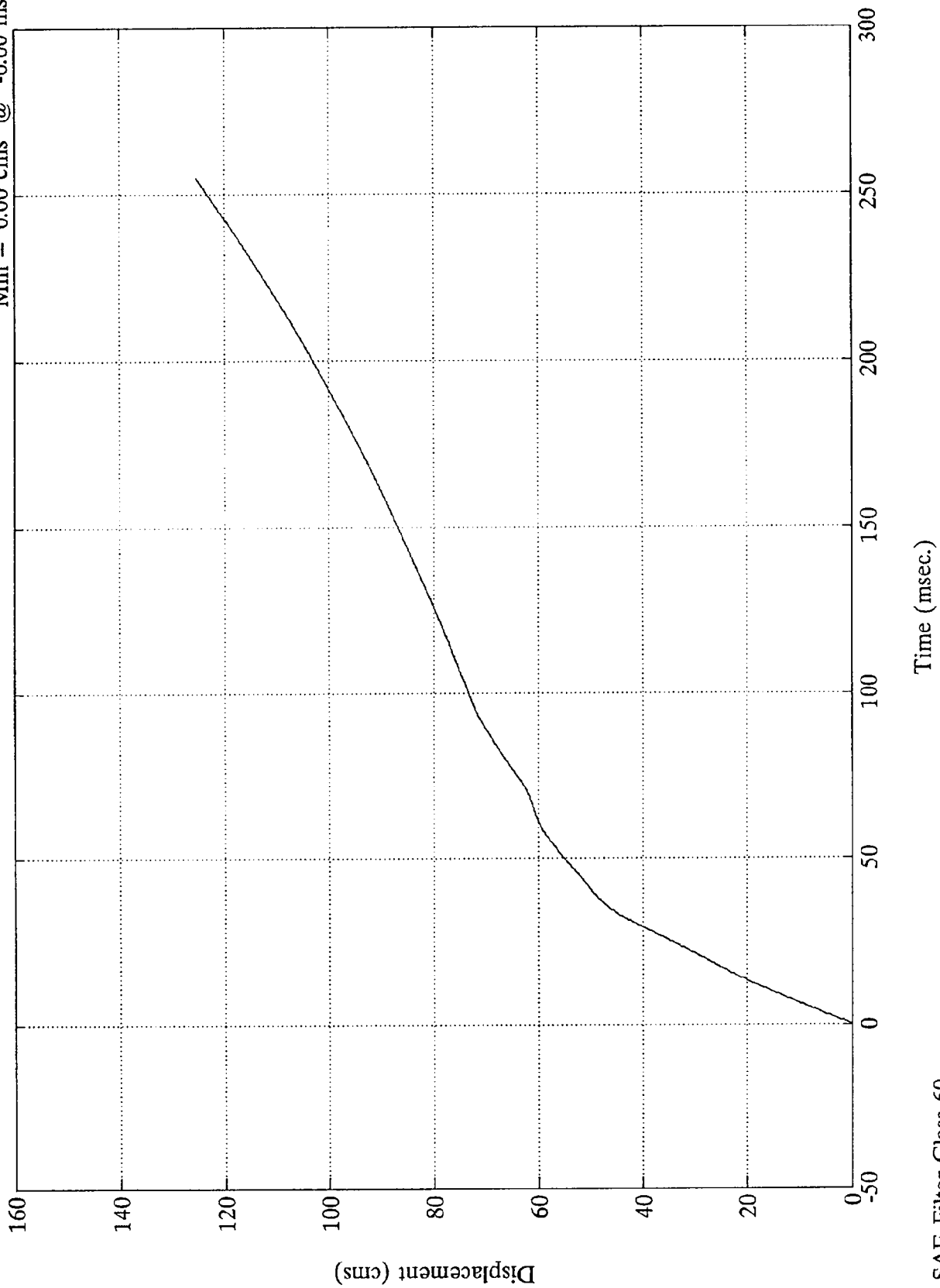
8058-4

SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 125.35 cms @ 254.88 msec
Min = 0.00 cms @ -0.00 msec

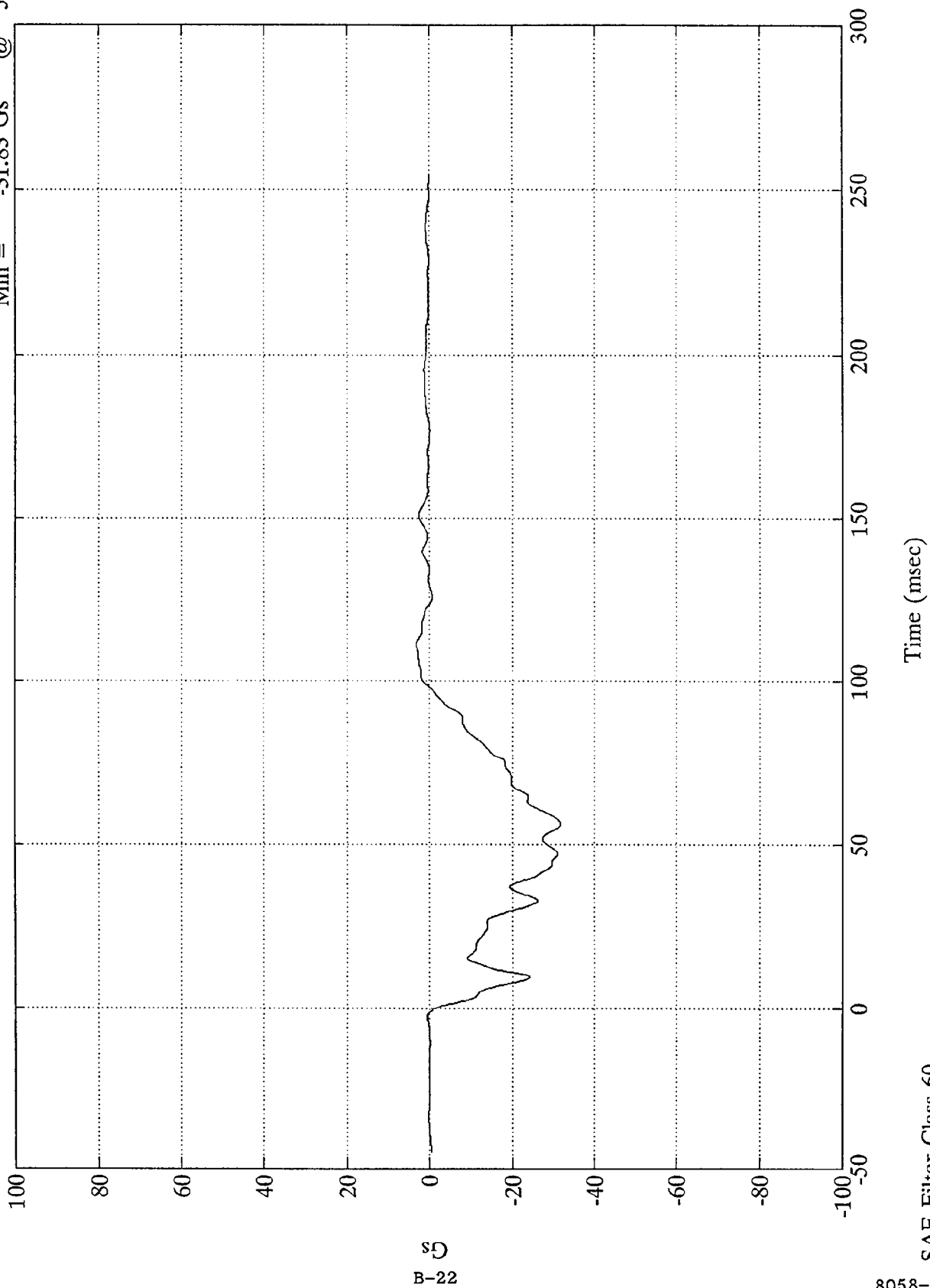
Acc. #7(x)



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 3.20 Gs @ 111.23 msec
 Min = -31.83 Gs @ 56.15 msec

Acc. #8(x)



B-22

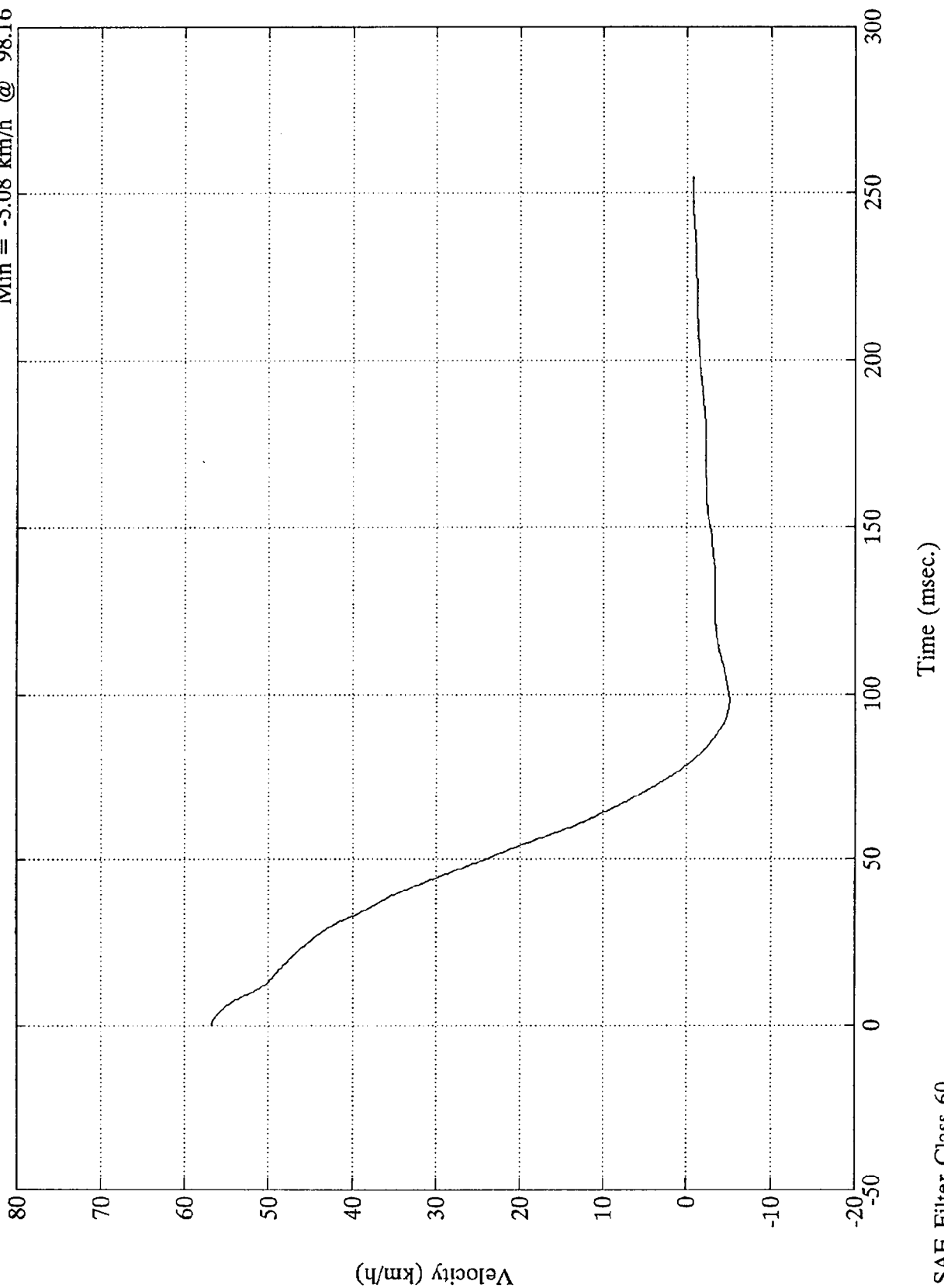
8058-4

SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 56.80 km/h @ -0.00 msec
Min = -5.08 km/h @ 98.16 msec

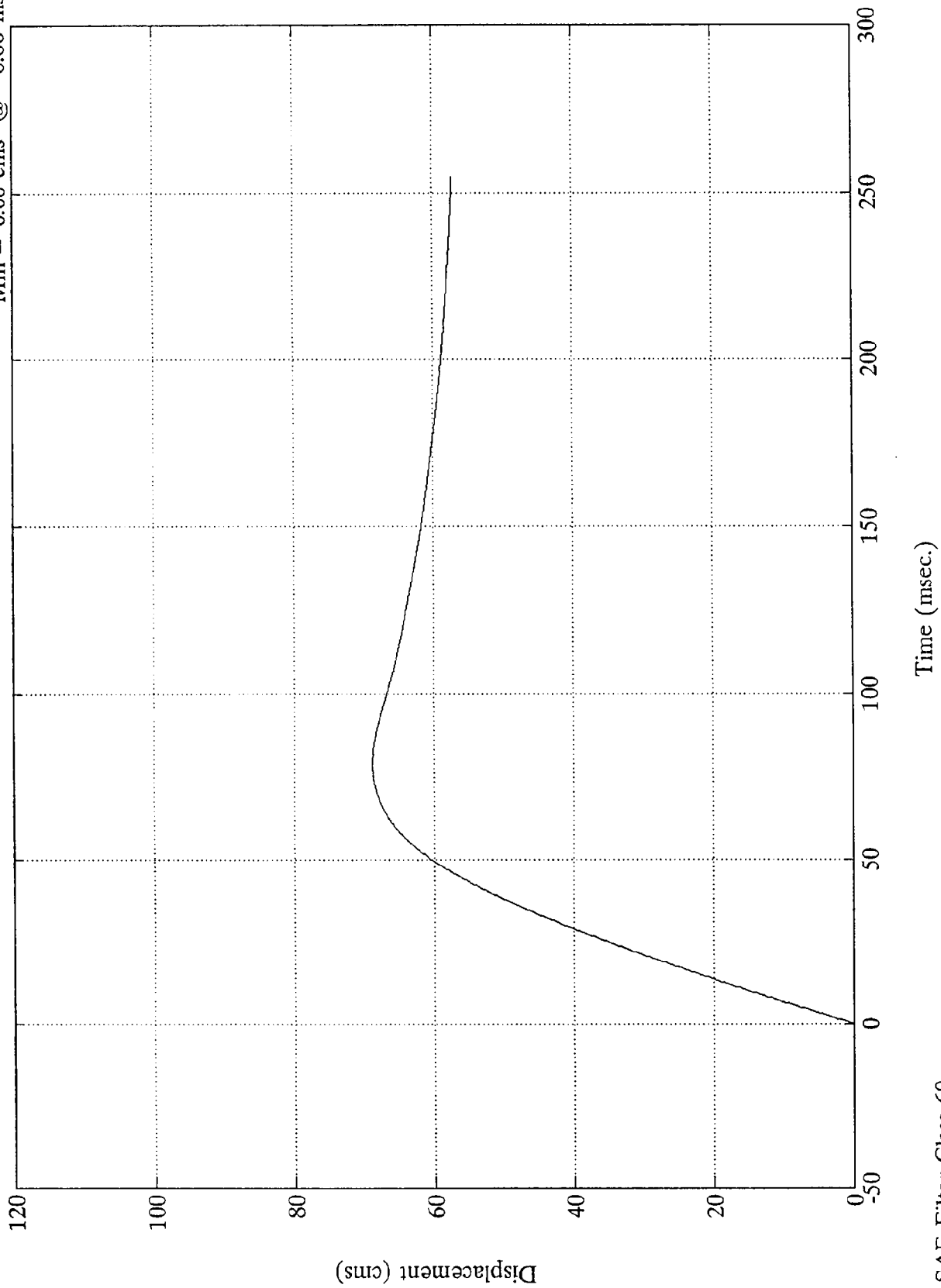
Acc. #8(x)



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 68.86 cms @ 79.20 msec
Min = 0.00 cms @ -0.00 msec

Acc. #8(x)



B-24

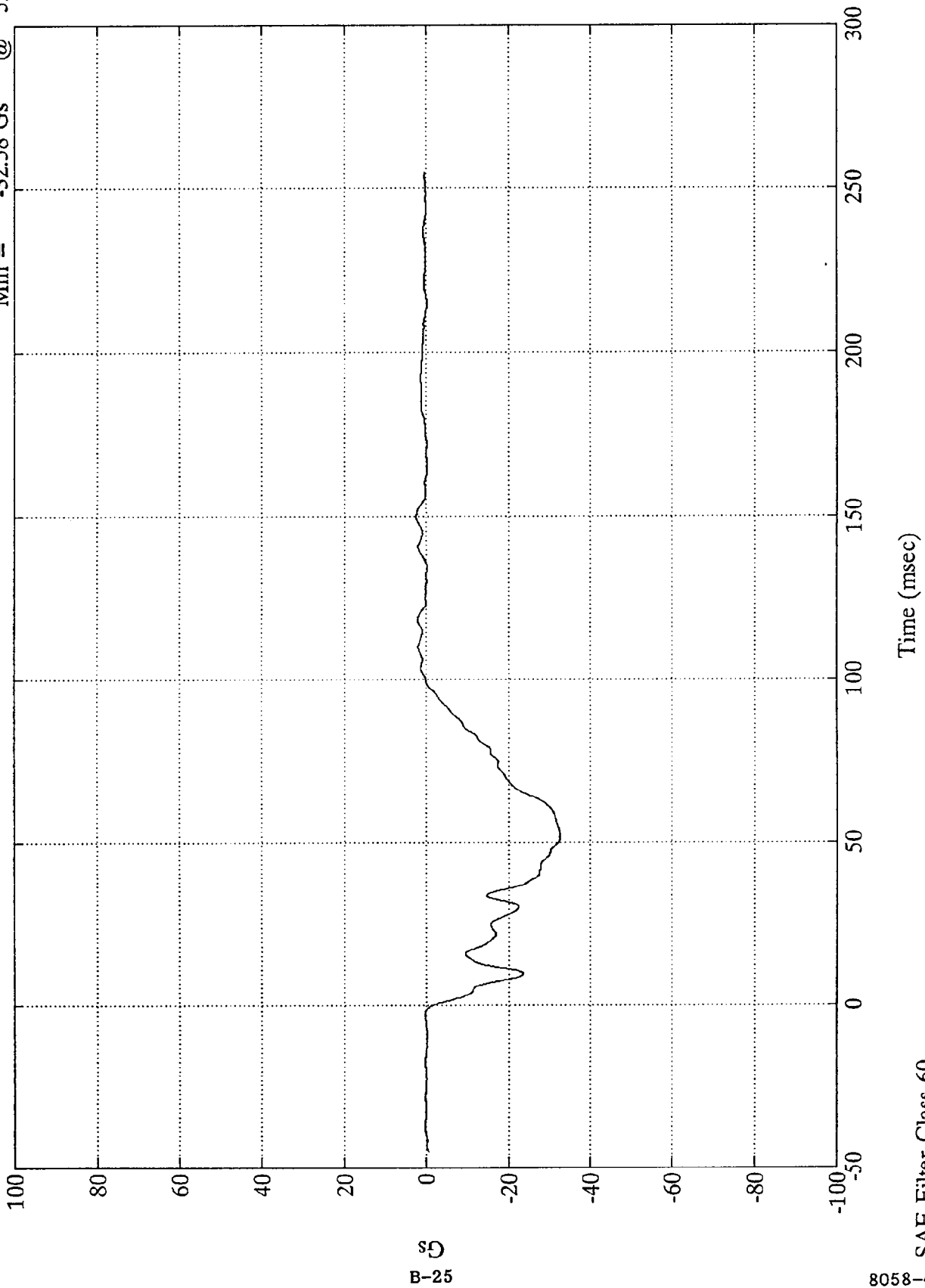
8058-4

SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 2.43 Gs @ 149.76 msec
Min = -32.58 Gs @ 52.92 msec

Acc. #9(x)

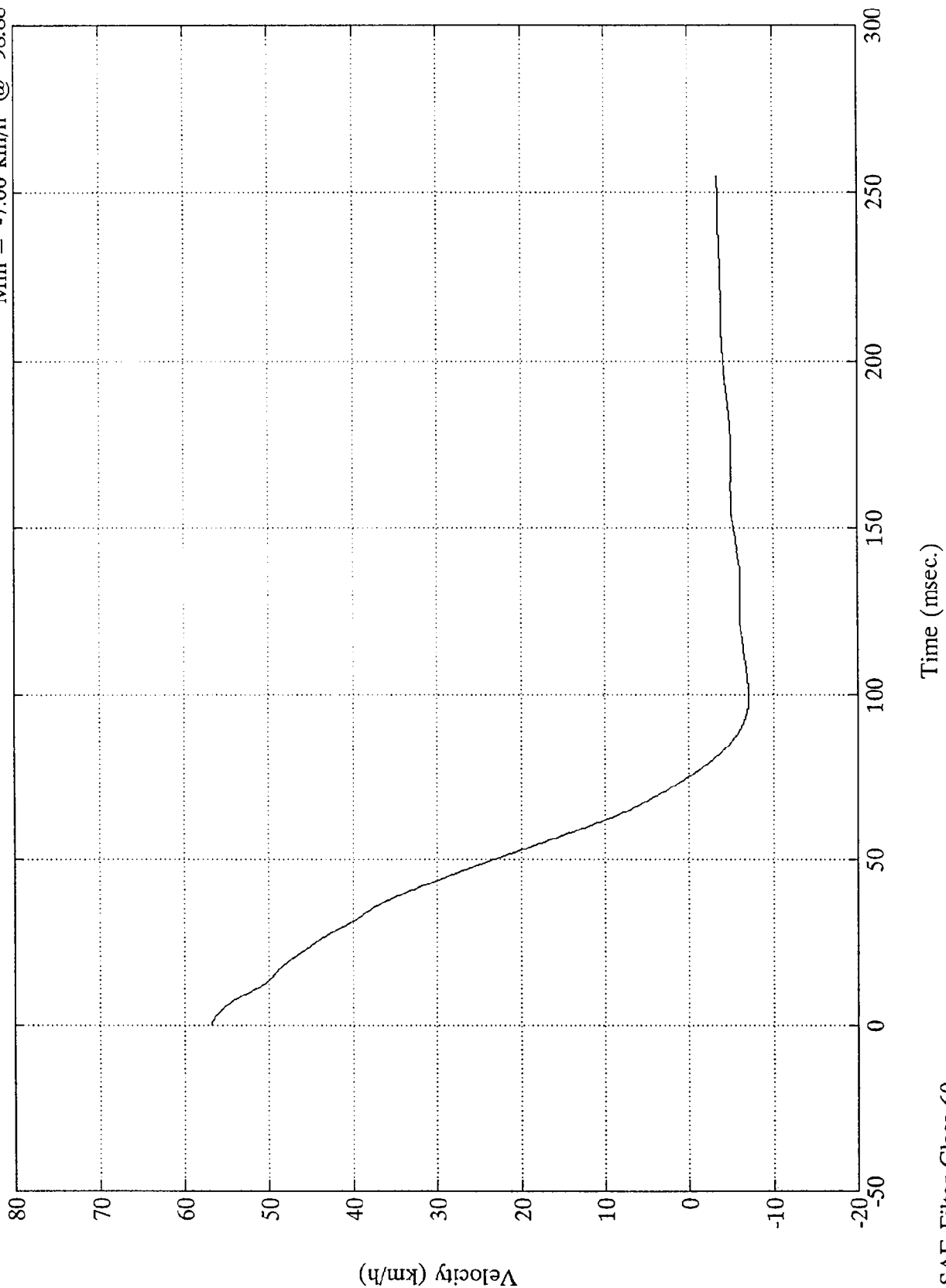


B-25

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 56.80 km/h @ -0.00 msec
Min = -7.06 km/h @ 98.88 msec

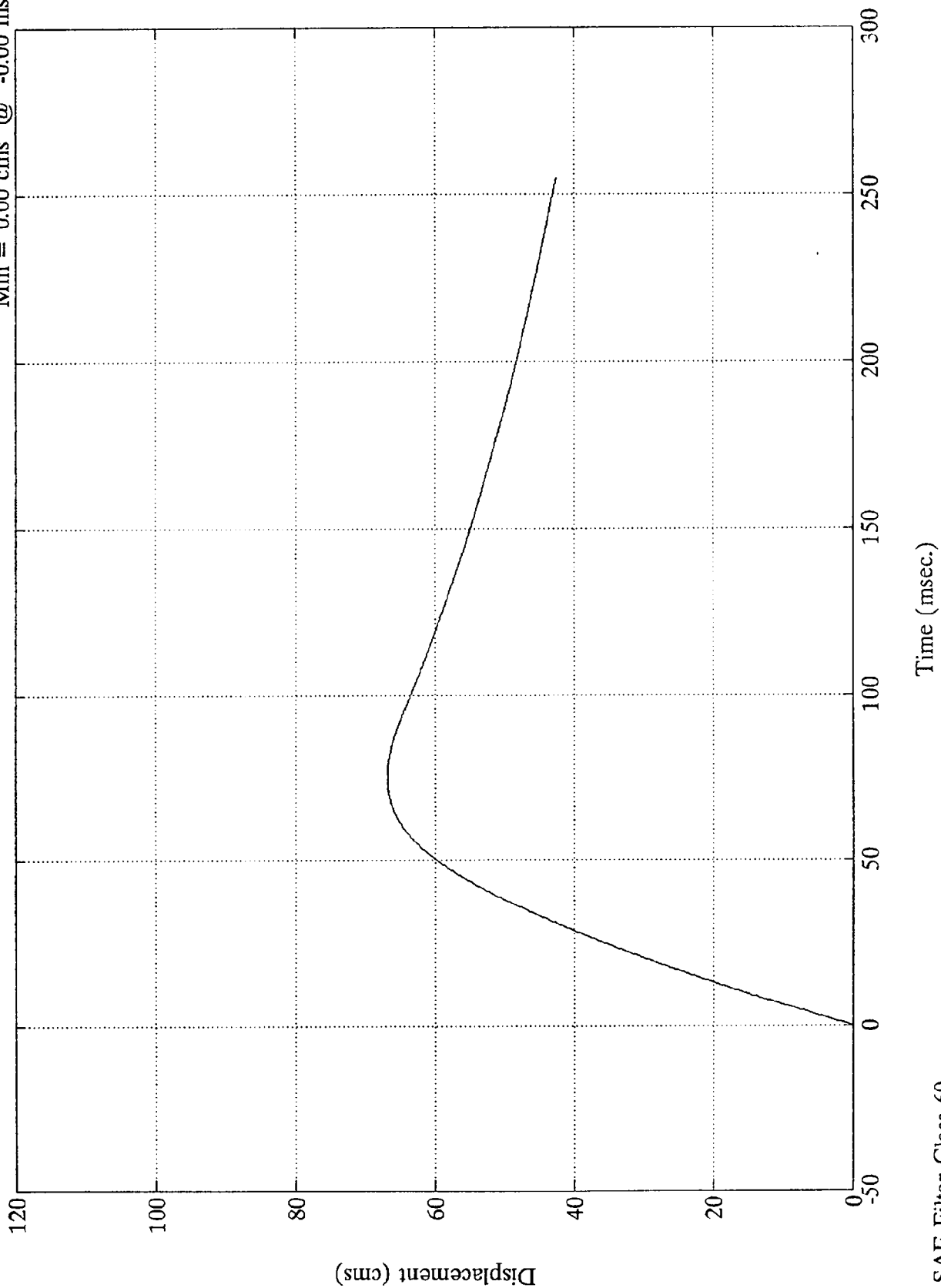
Acc. #9(x)



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 66.93 cms @ 75.60 msec
Min = 0.00 cms @ -0.00 msec

Acc. #9(x)



B-27

TEST NO. MP5302

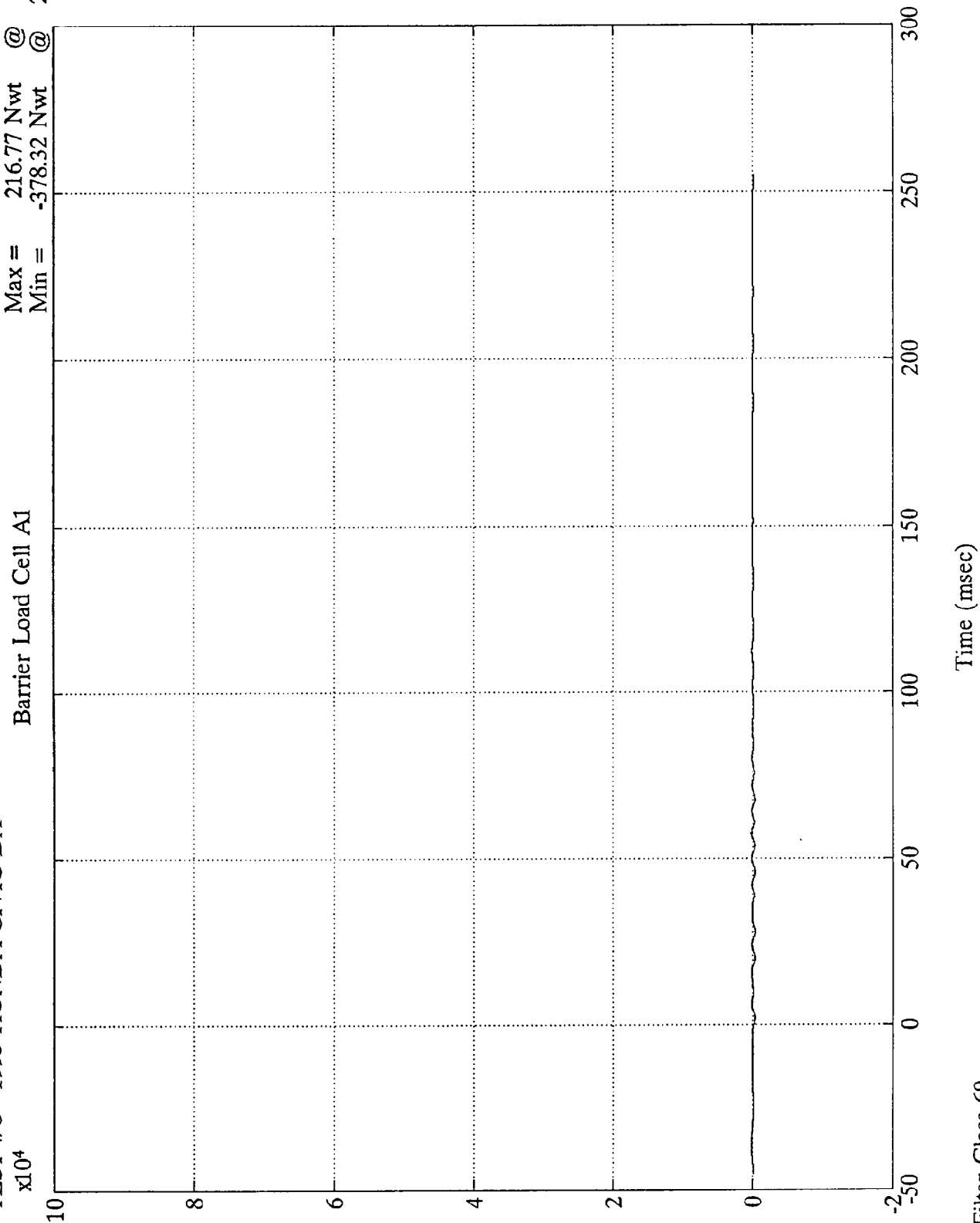
LOAD CELL BARRIER DATA

FILTER CHANNEL CLASS

60

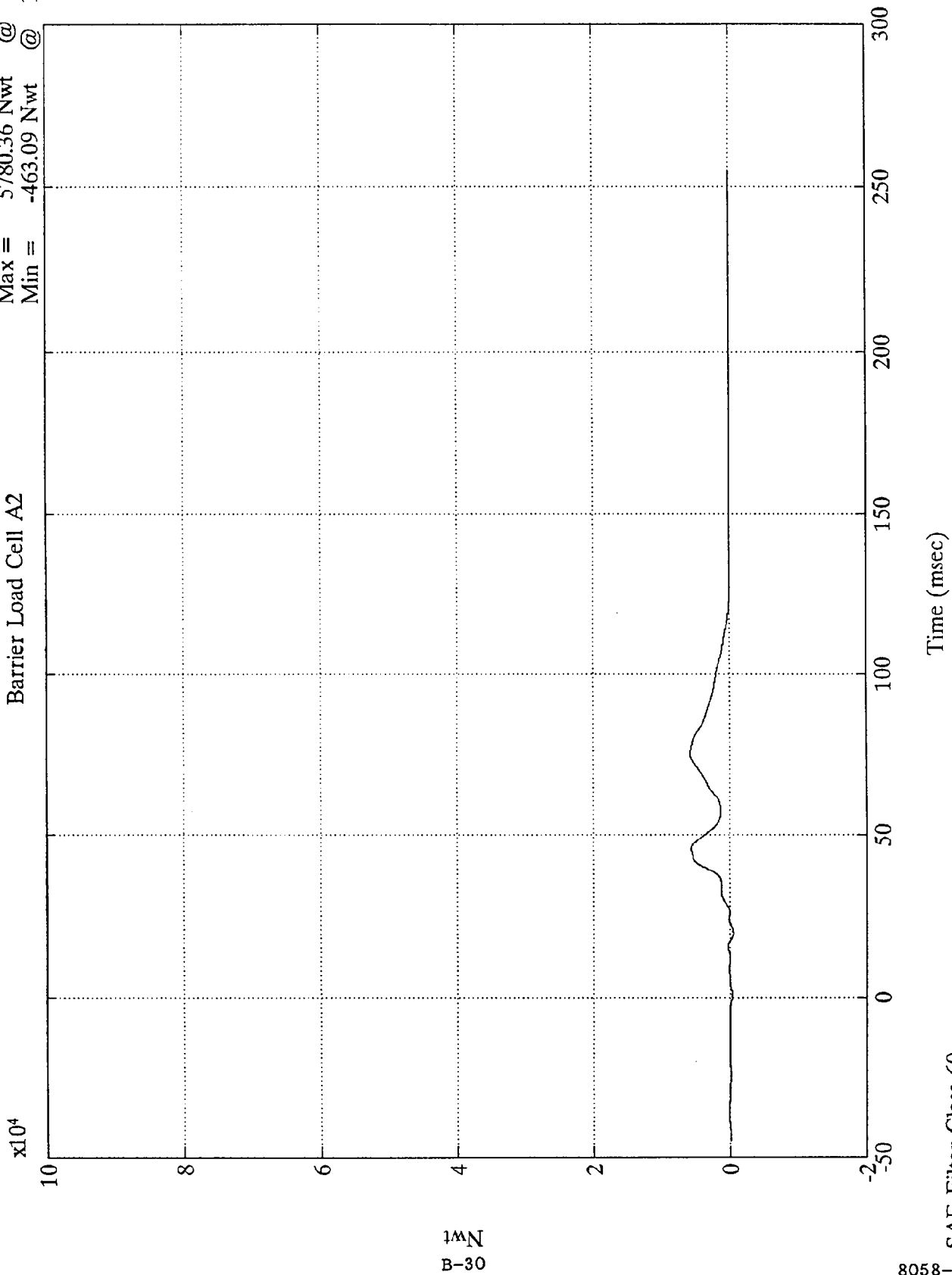
NCAP TEST #8 - 1993 HONDA CIVIC DX

Barrier Load Cell A1
Max = 216.77 Nwt @ 57.47 msec
Min = -378.32 Nwt @ 28.07 msec



NCAP TEST #8 - 1993 HONDA CIVIC DX

Barrier Load Cell A2
Max = 5780.36 Nwt @ 75.12 msec
Min = -463.09 Nwt @ 19.67 msec

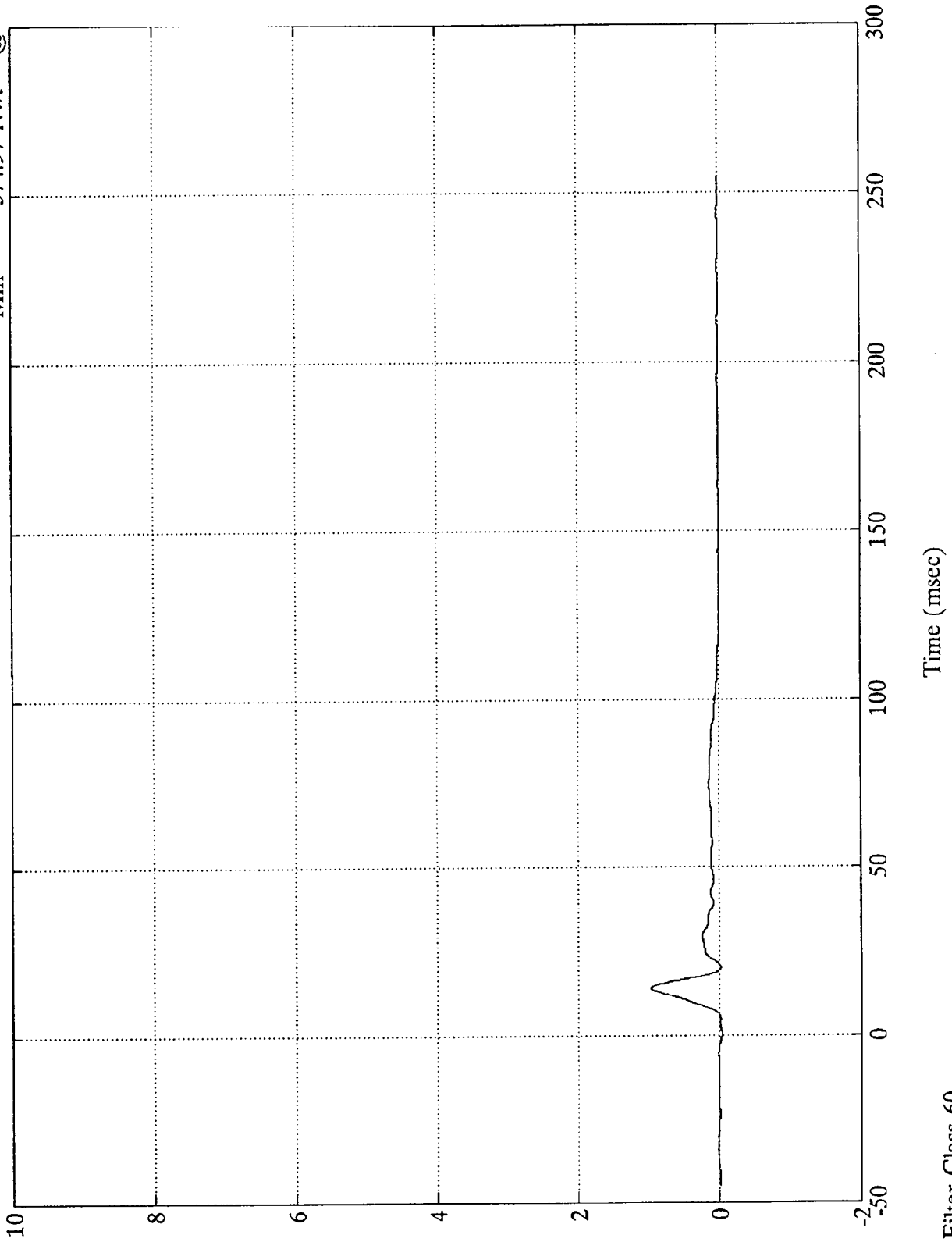


10N
B-30

NCAP TEST #8 - 1993 HONDA CIVIC DX
x10⁴

Max = 9685.87 Nwt @ 14.03 msec
Min = -374.97 Nwt @ 0.35 msec

Barrier Load Cell A3



10⁴N
B-31

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 6555.32 Nwt @ 6.47 msec
Min = -224.83 Nwt @ -2.28 msec

Barrier Load Cell A4

@

Nwt

@

Nwt

@

Nwt

@

Nwt

@

Nwt

@

Nwt

@

Nwt

@

Nwt

@

Nwt

@

Nwt

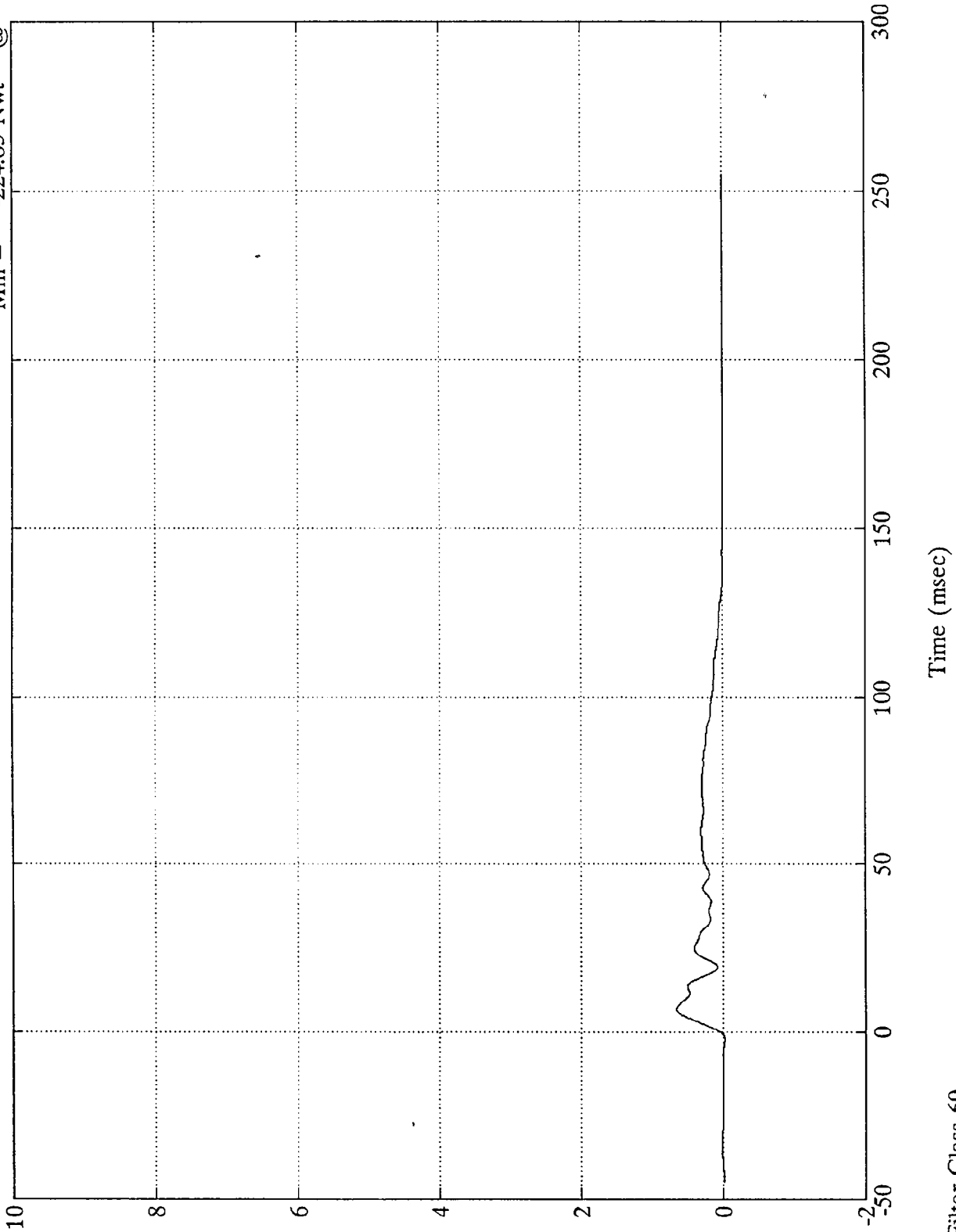
@

Nwt

@

Nwt

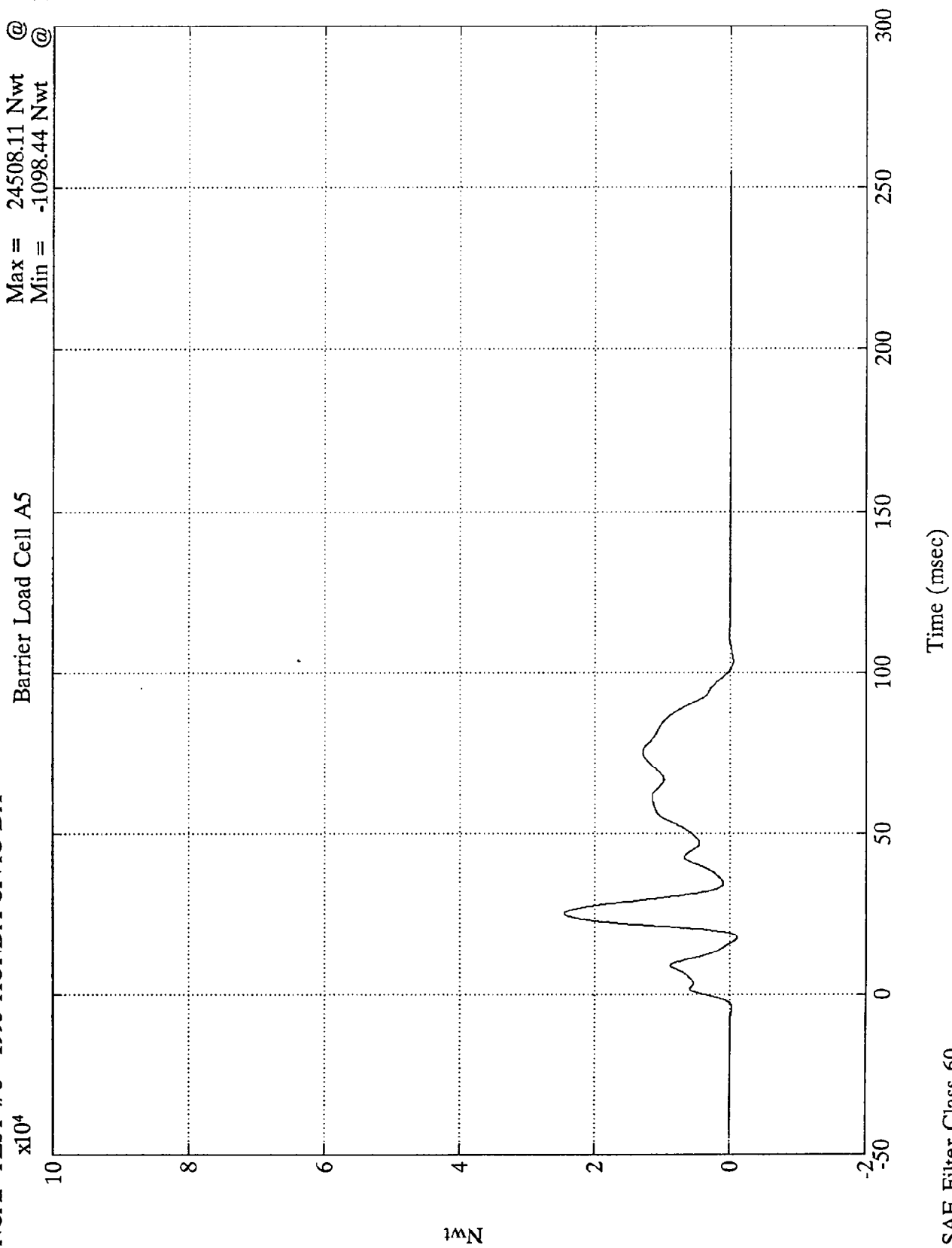
@



13N
B-32

NCAP TEST #8 - 1993 HONDA CIVIC DX

Barrier Load Cell A5
Max = 24508.11 Nwt @ 25.20 msec
Min = -1098.44 Nwt @ 17.75 msec



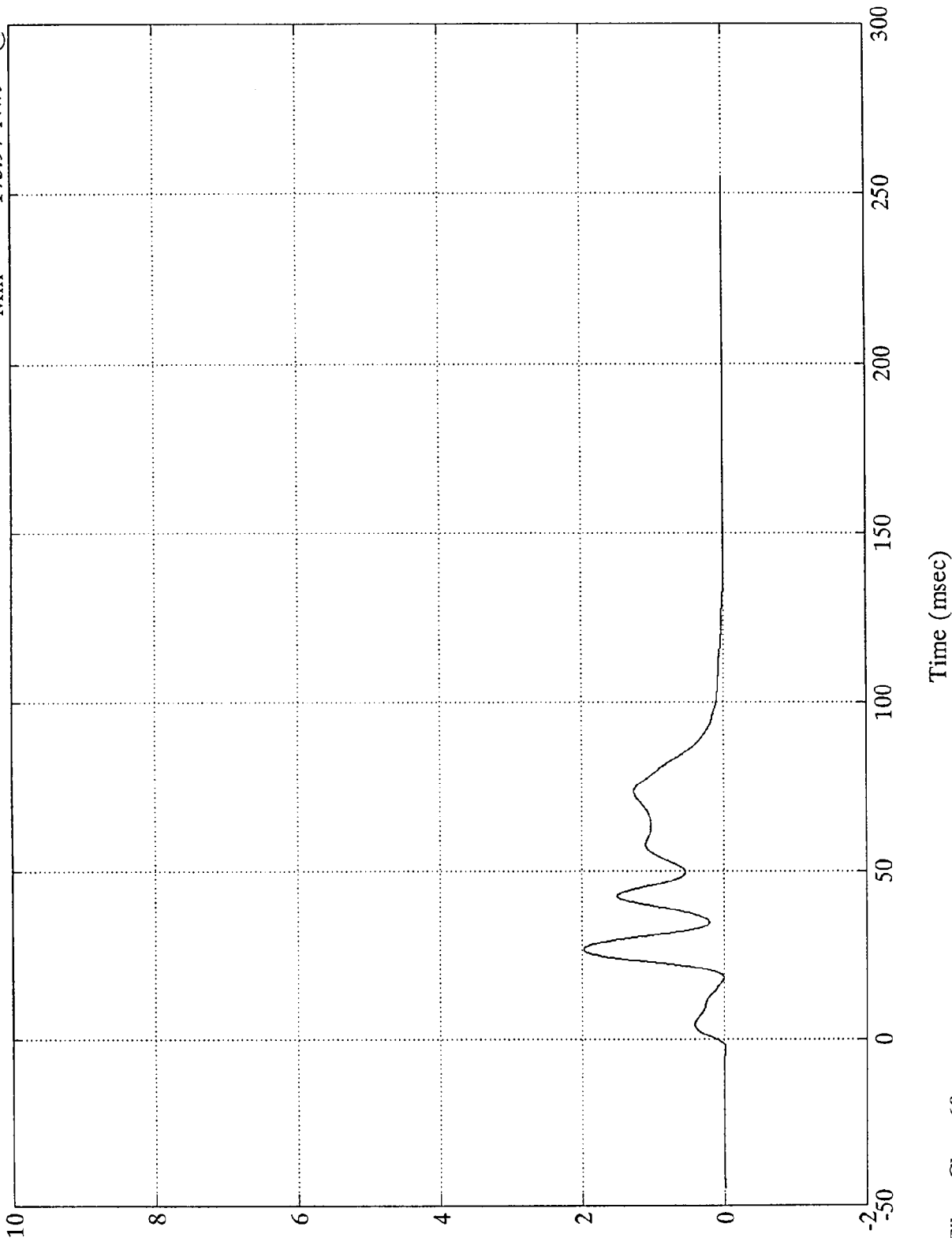
B-33
1wN

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 19745.48 Nwt @ 26.63 msec
 Min = -173.97 Nwt @ -3.00 msec

Barrier Load Cell A6

x10⁴



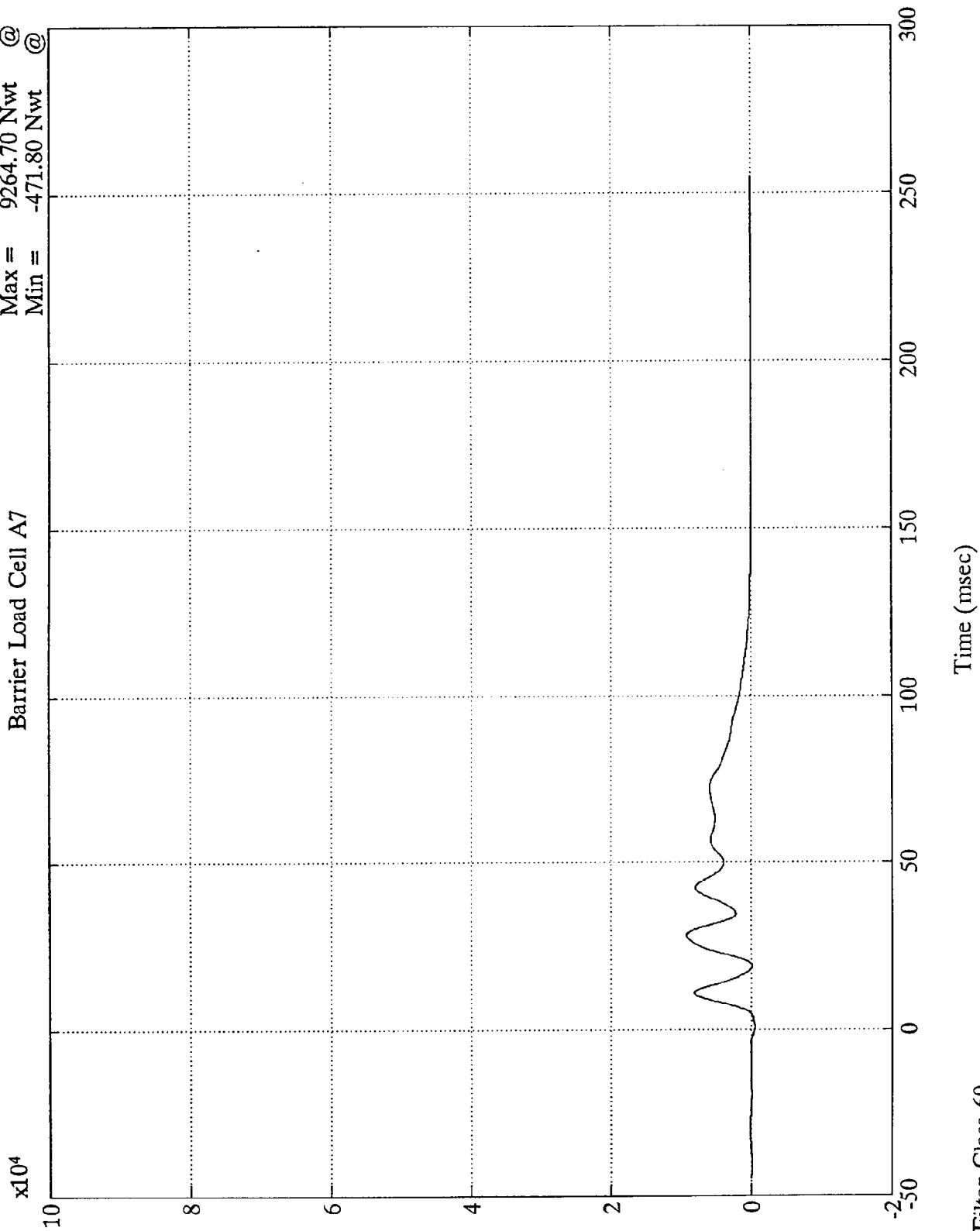
B-34

8058-4 SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 9264.70 Nwt @ 27.84 msec
Min = -471.80 Nwt @ 0.71 msec

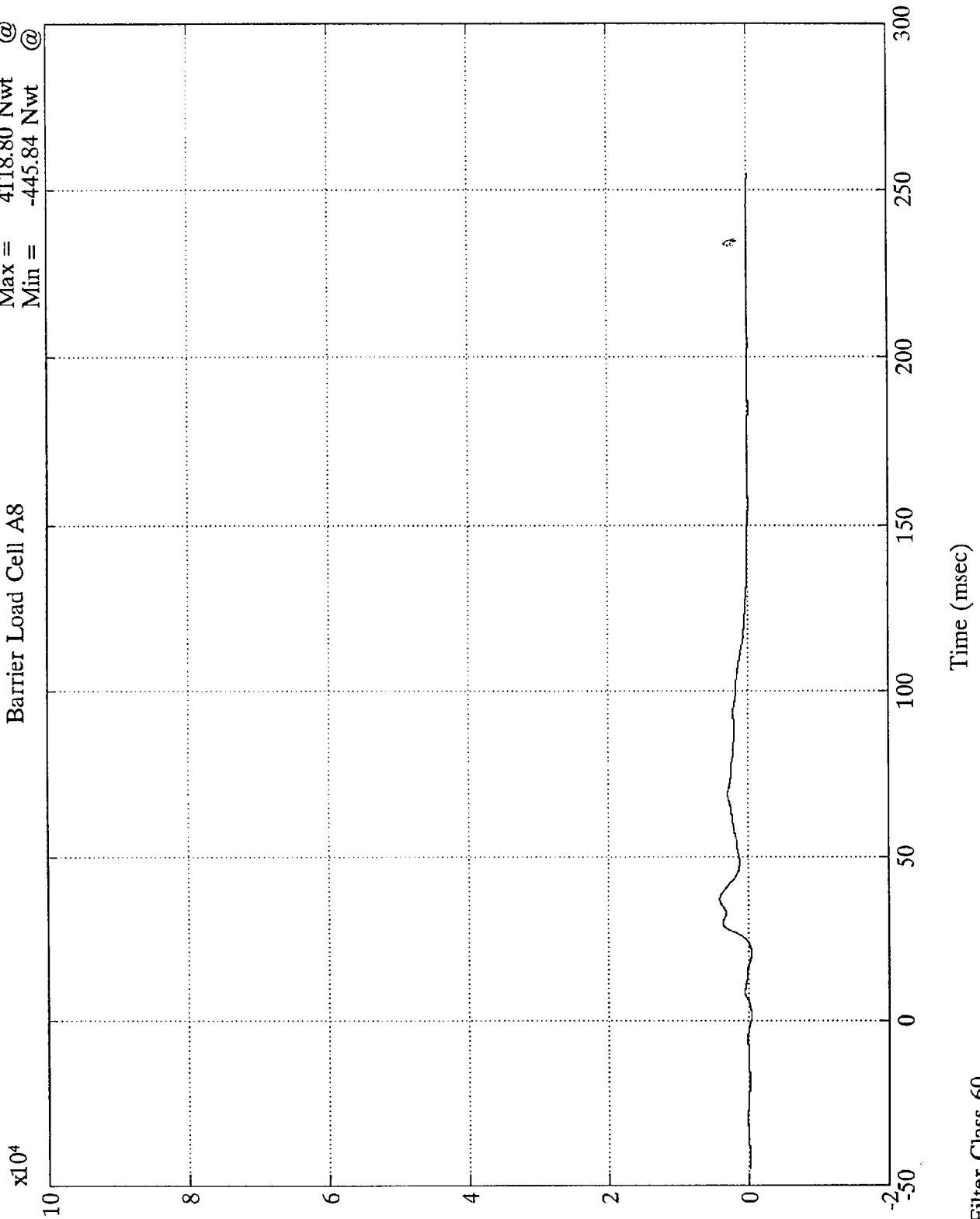
Barrier Load Cell A7



1Nwt
B-35

NCAP TEST #8 - 1993 HONDA CIVIC DX

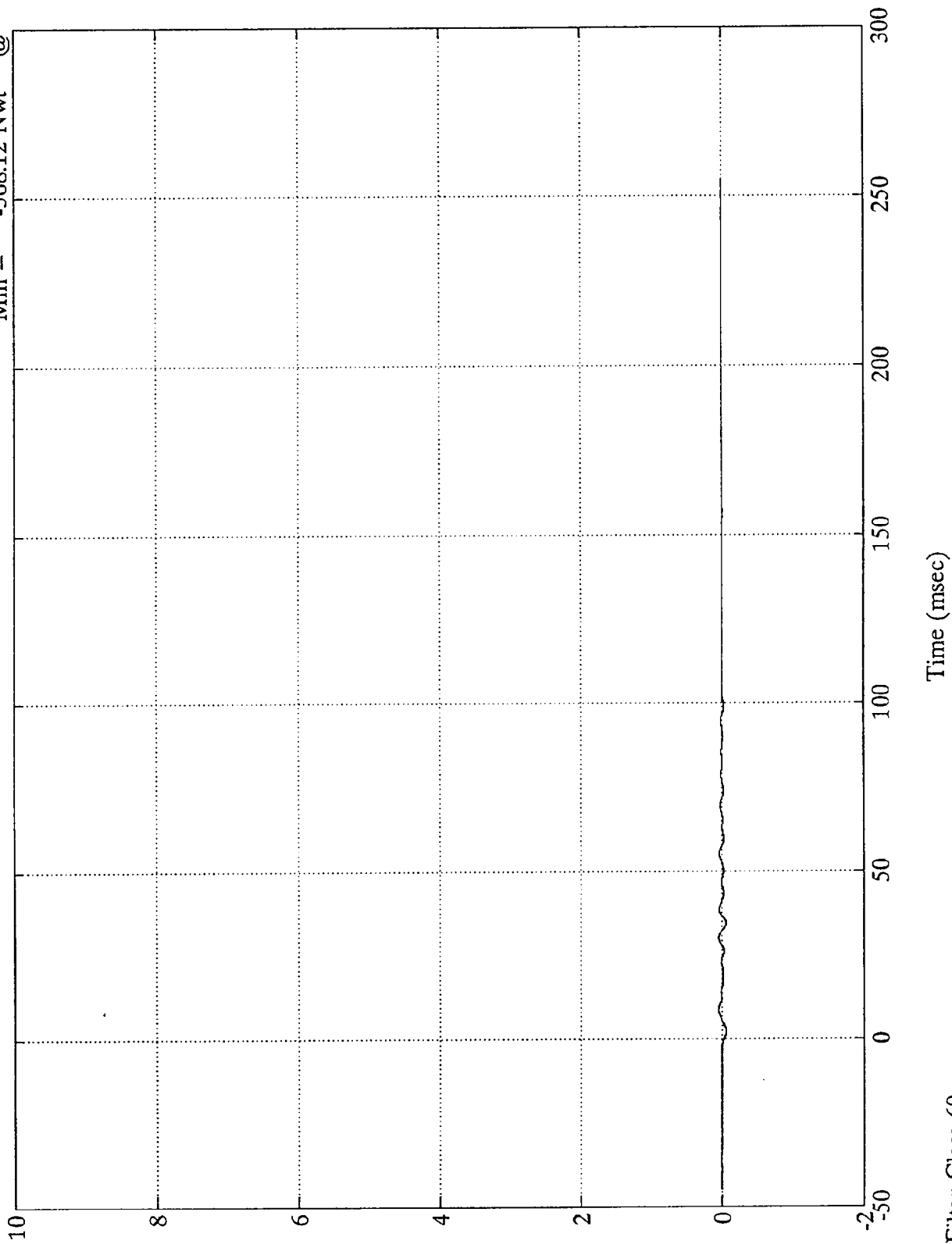
Barrier Load Cell A8
 Max = 4118.80 Nwt @ 36.72 msec
 Min = -445.84 Nwt @ 1.31 msec



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 592.80 Nwt @ 8.87 msec
Min = -568.12 Nwt @ 2.15 msec

Barrier Load Cell A9



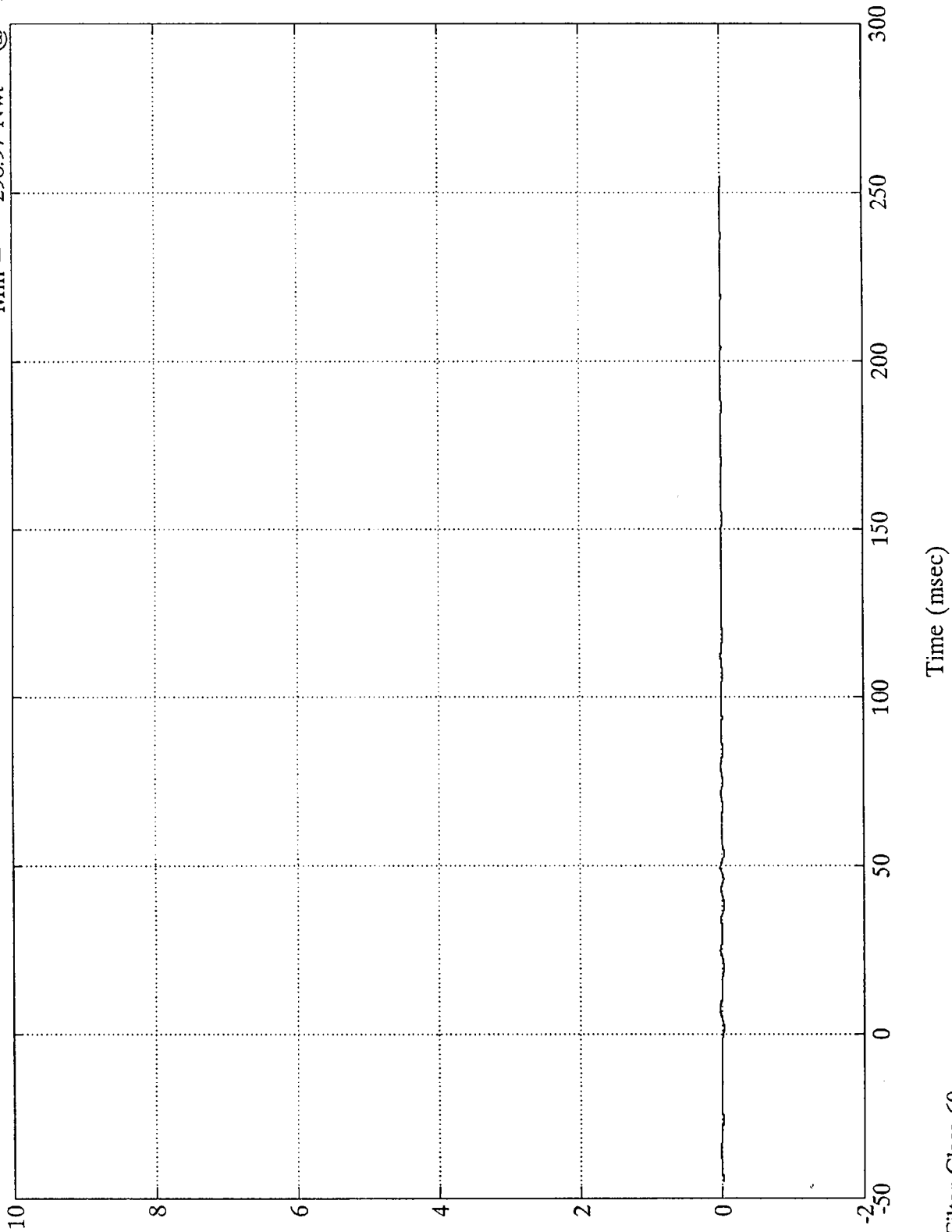
10N
B-37

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 281.74 Nwt @ 7.43 msec
 Min = -298.97 Nwt @ 37.79 msec

Barrier Load Cell B1

x10⁴

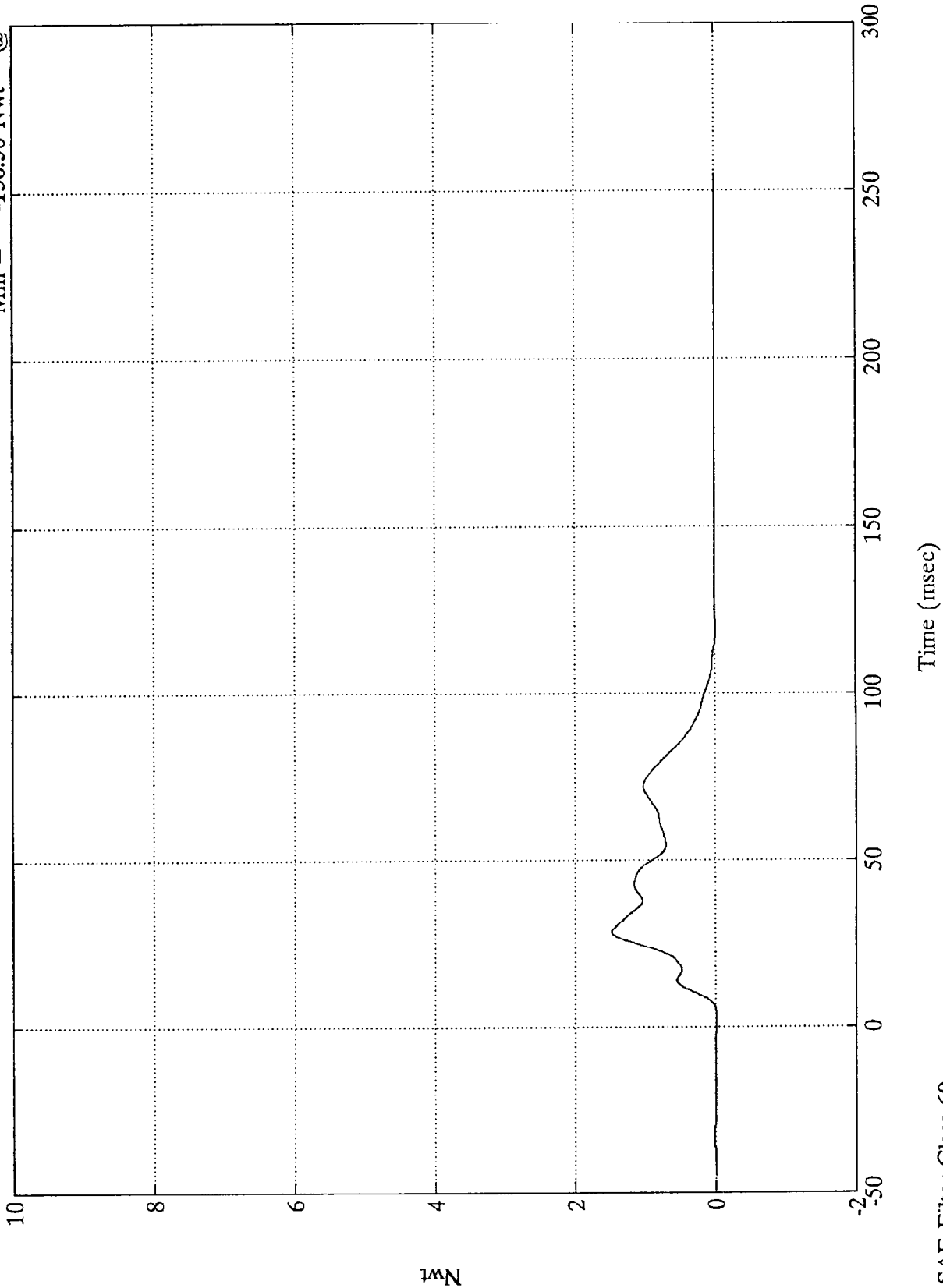


1Nwt
 B-38

NCAP TEST #8 - 1993 HONDA CIVIC DX
x10⁴

Barrier Load Cell B2

Max = 14802.17 Nwt @ 28.31 msec
Min = -136.50 Nwt @ 0.59 msec

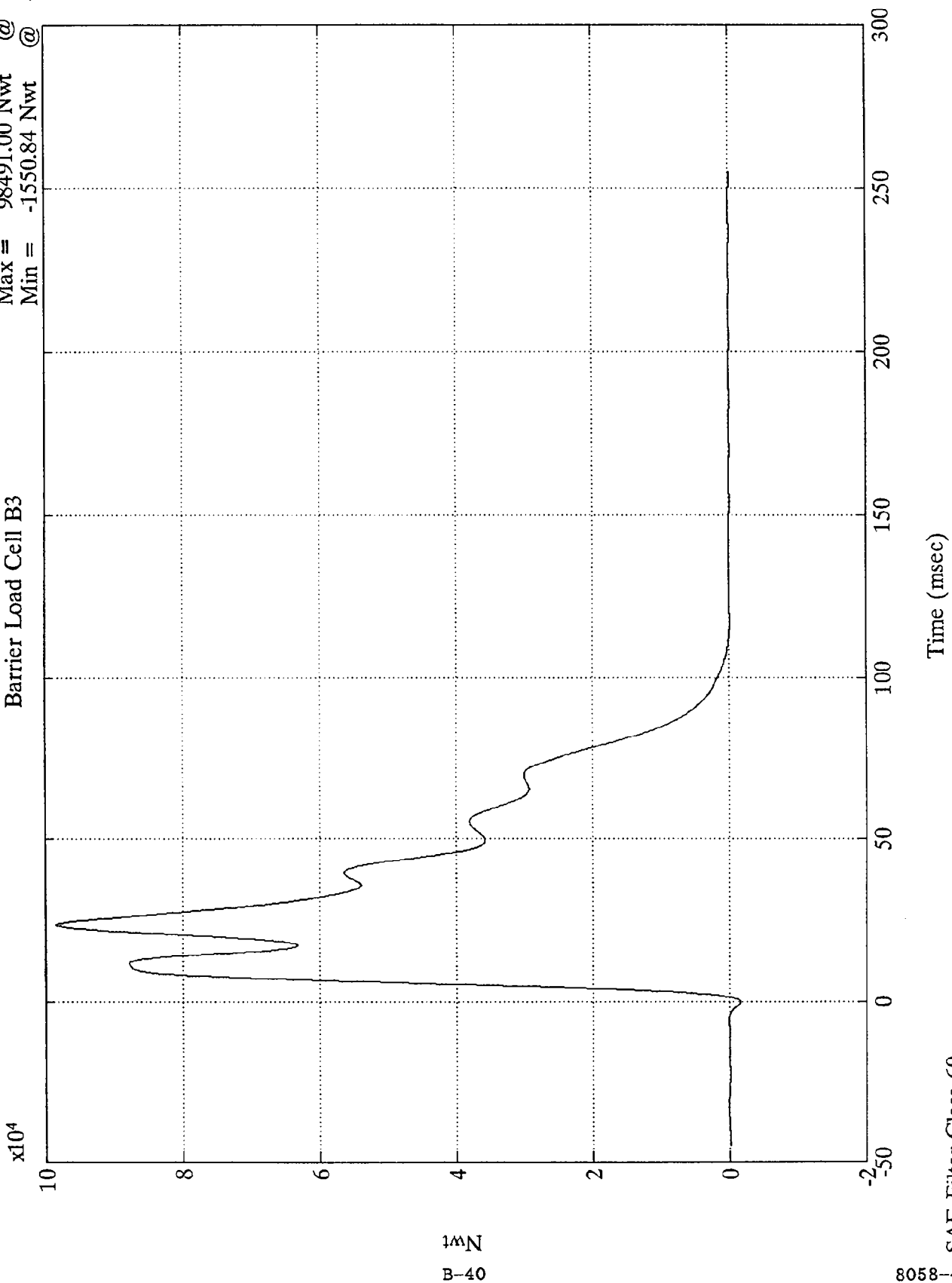


11N
B-39

NCAP TEST #8 - 1993 HONDA CIVIC DX

Barrier Load Cell B3

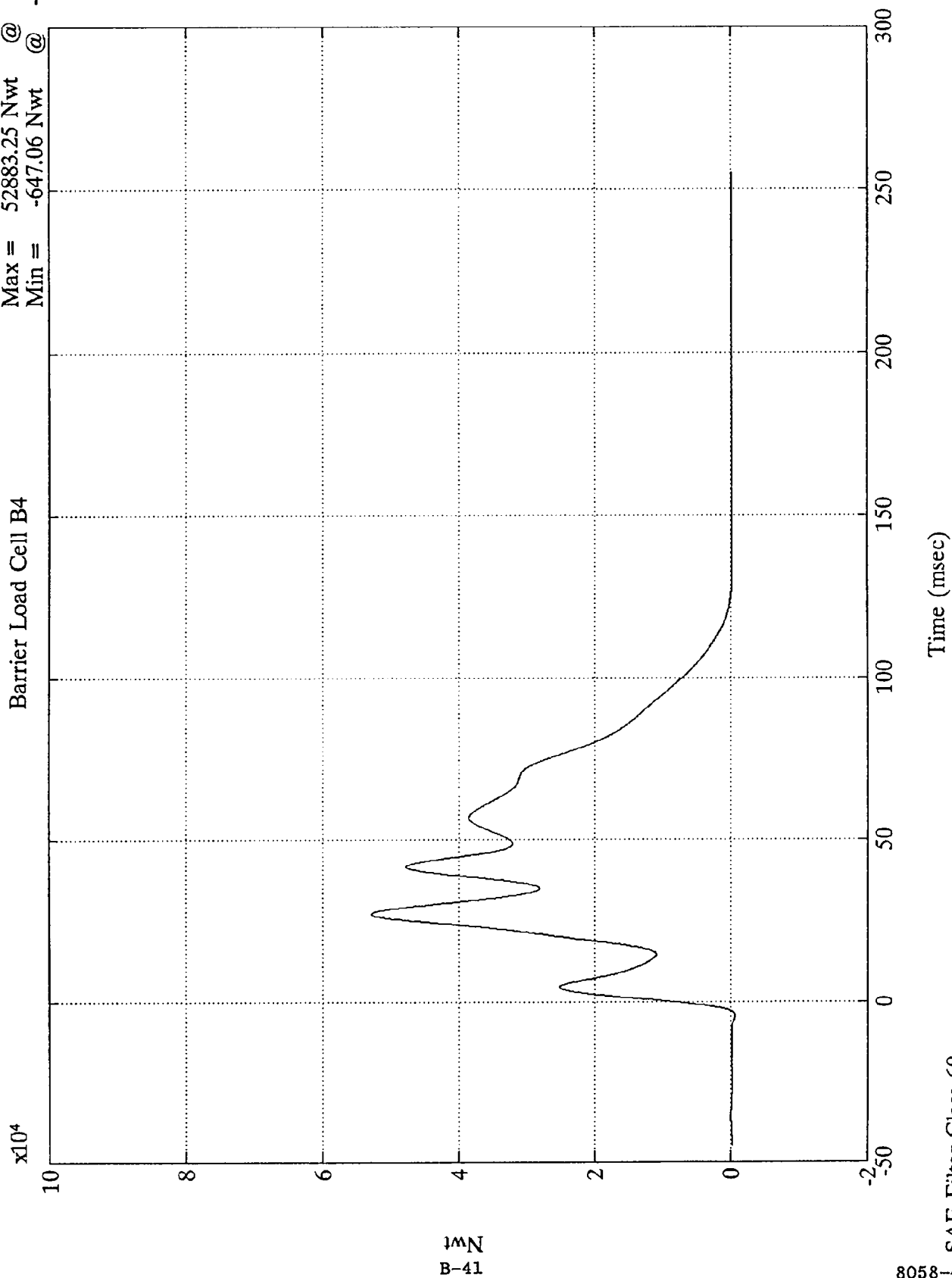
Max = 98491.00 Nwt @ 23.76 msec
 Min = -1550.84 Nwt @ -0.24 msec



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 52883.25 Nwt @ 27.23 msec
Min = -647.06 Nwt @ -4.44 msec

Barrier Load Cell B4



B-41

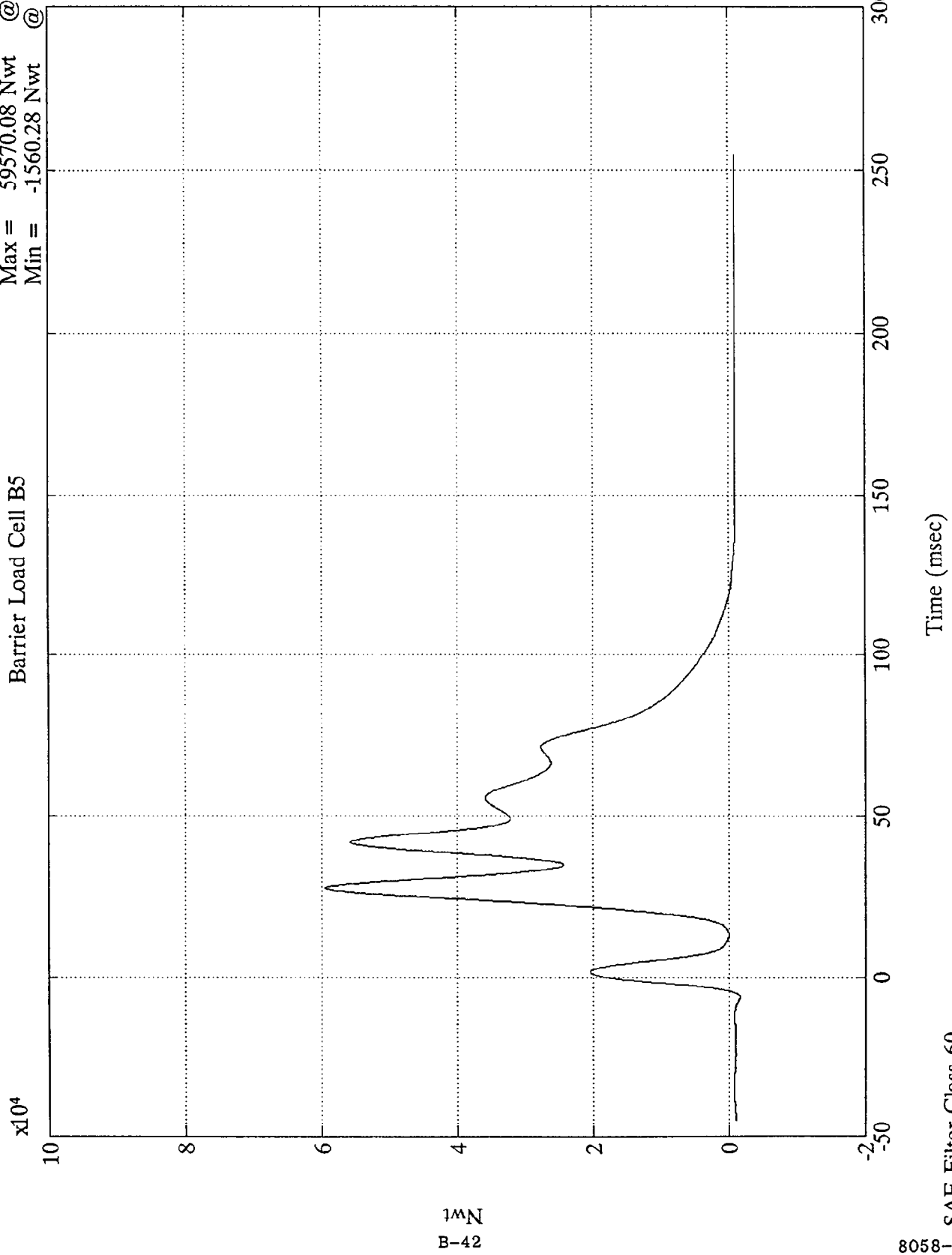
8058-4

SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 59570.08 Nwt @ 27.48 msec
Min = -1560.28 Nwt @ -6.24 msec

Barrier Load Cell B5



B-42
1Nwt

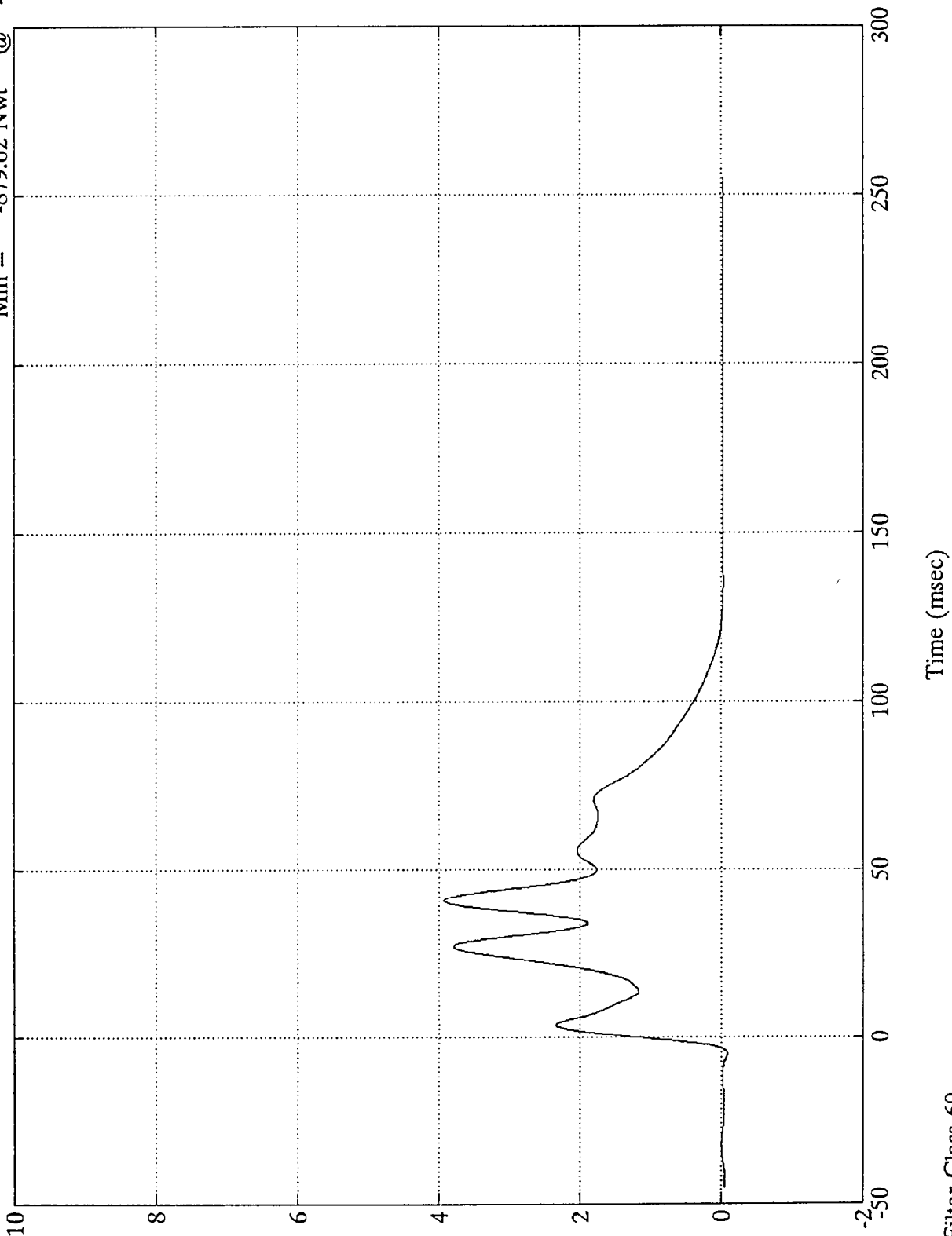
8058
SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 39317.29 Nwt @ 40.92 msec
Min = -879.62 Nwt @ -5.04 msec

Barrier Load Cell B6

x10⁴

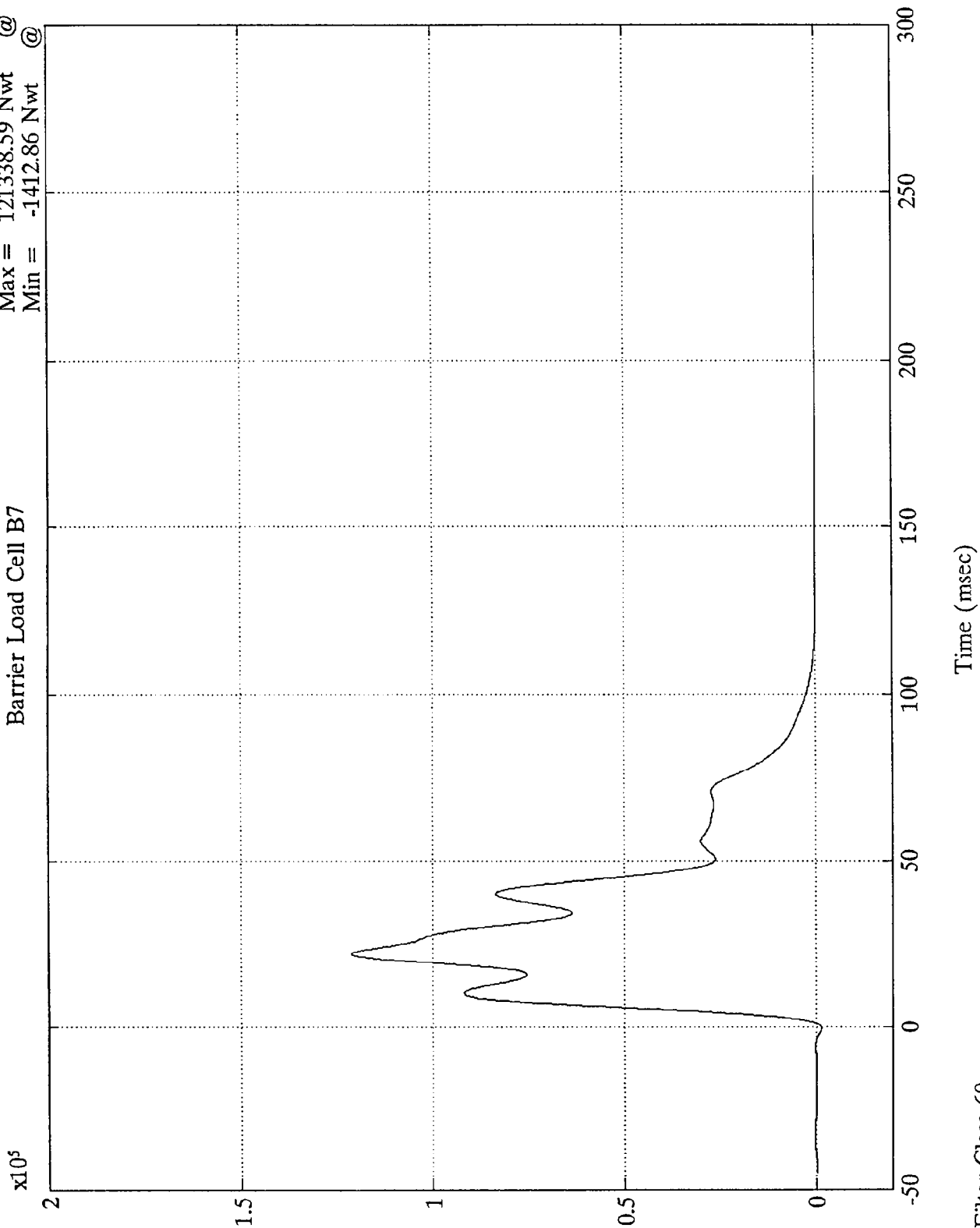


10N
B-43

8058-4
SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

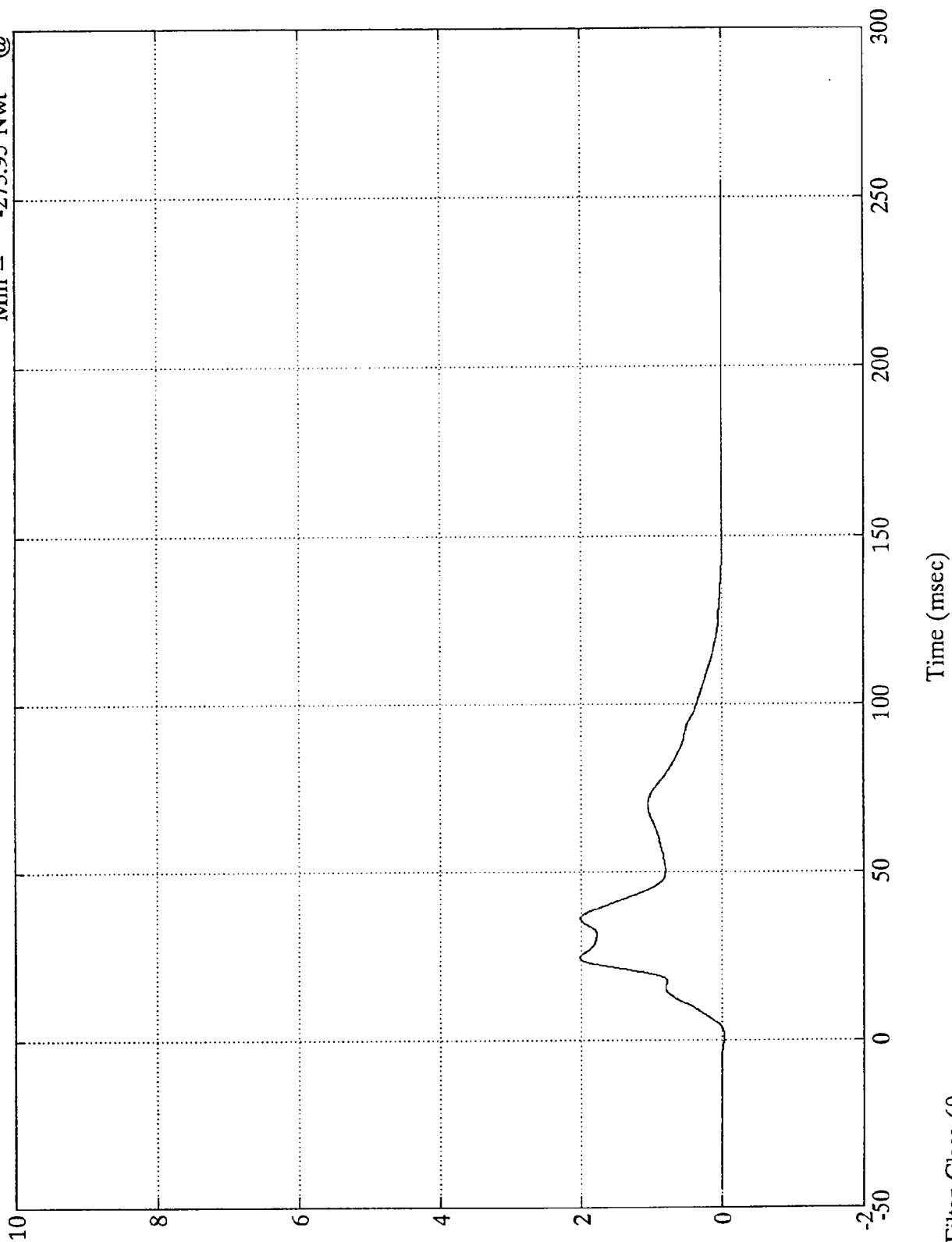
Barrier Load Cell B7
Max = 121338.59 Nwt @ 22.07 msec
Min = -1412.86 Nwt @ -0.60 msec



B-44

NCAP TEST #8 - 1993 HONDA CIVIC DX
x10⁴

Barrier Load Cell B8
Max = 20175.62 Nwt @ 24.47 msec
Min = -275.95 Nwt @ 1.07 msec



1wN
B-45

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 359.33 Nwt @ 7.31 msec
Min = -288.94 Nwt @ 1.91 msec

Barrier Load Cell B9

@

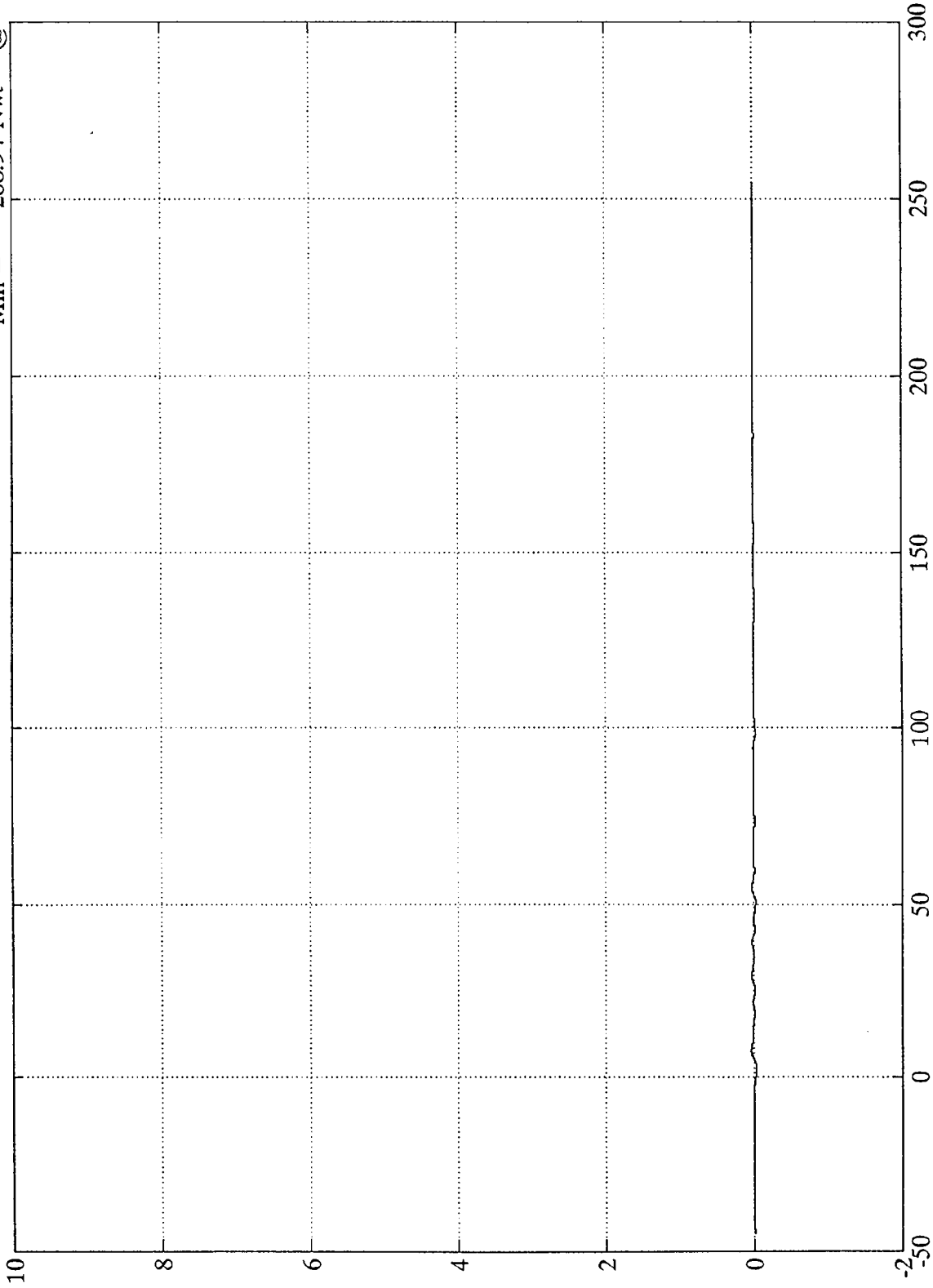
359.33 Nwt
-288.94 Nwt

Max =
Min =

@

7.31 msec
1.91 msec

$\times 10^4$



B-46

8058-4

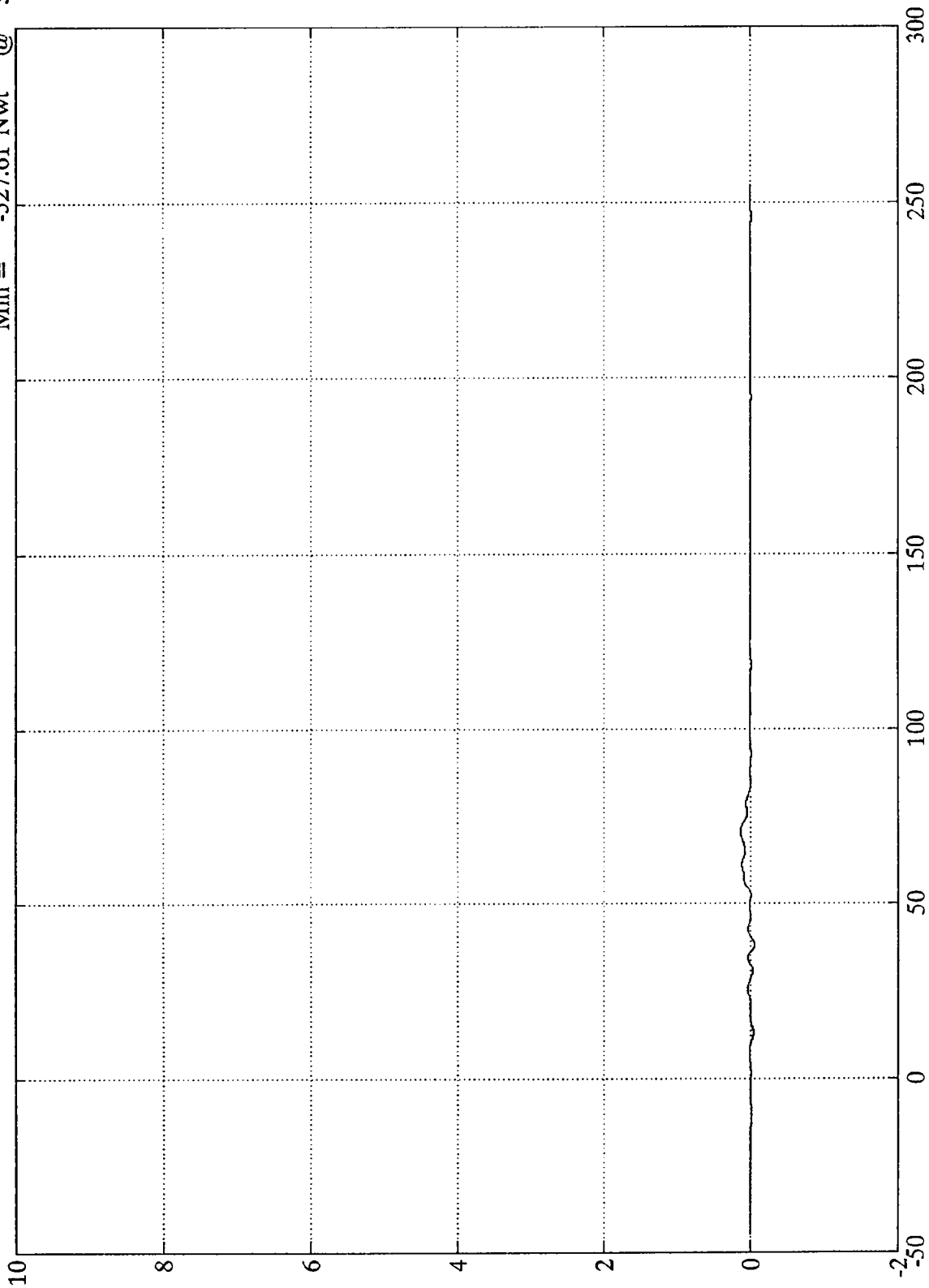
SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 1396.32 Nwt @ 70.79 msec
Min = -527.61 Nwt @ 38.27 msec

Barrier Load Cell C1

$\times 10^4$



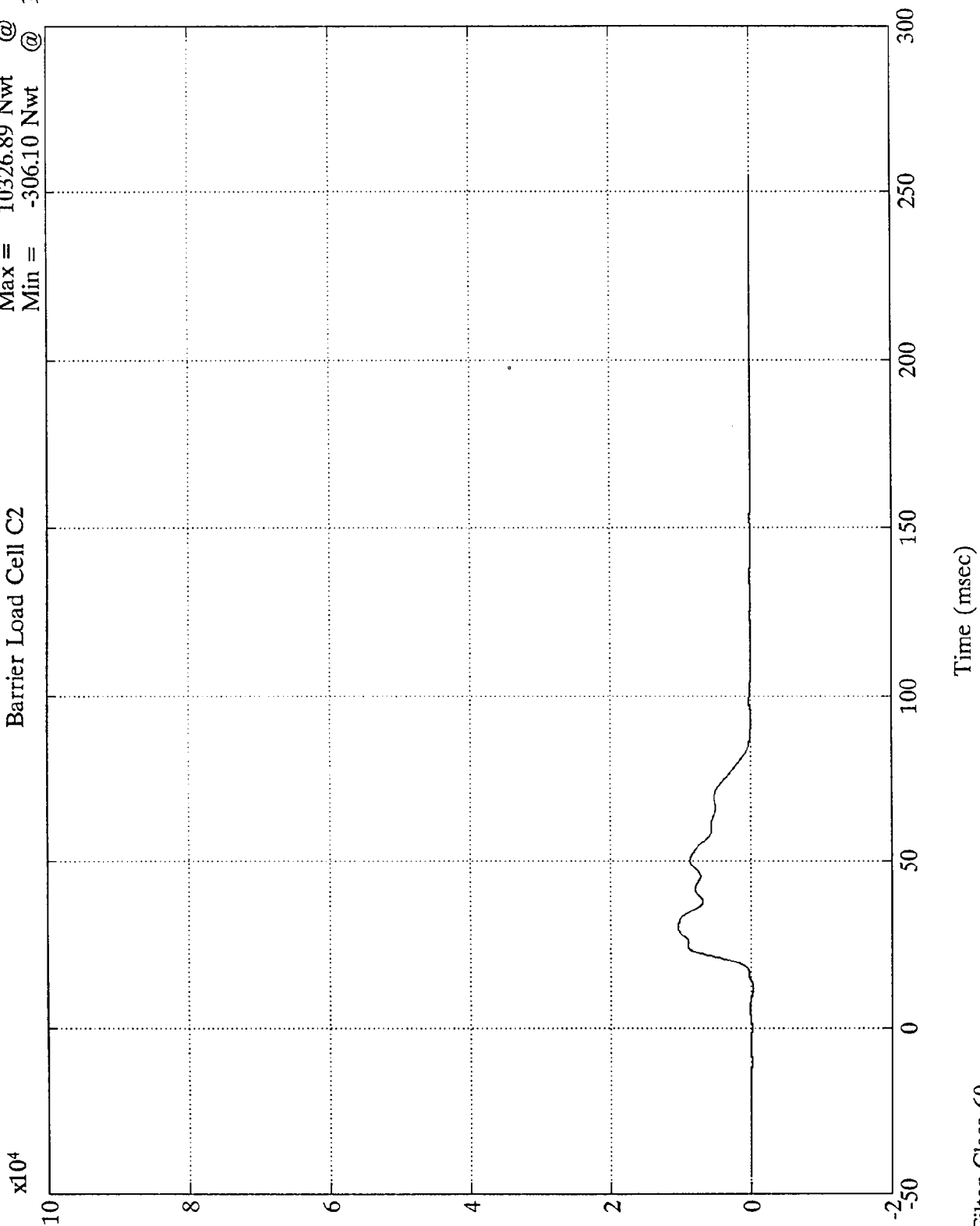
1MN
B-47

Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

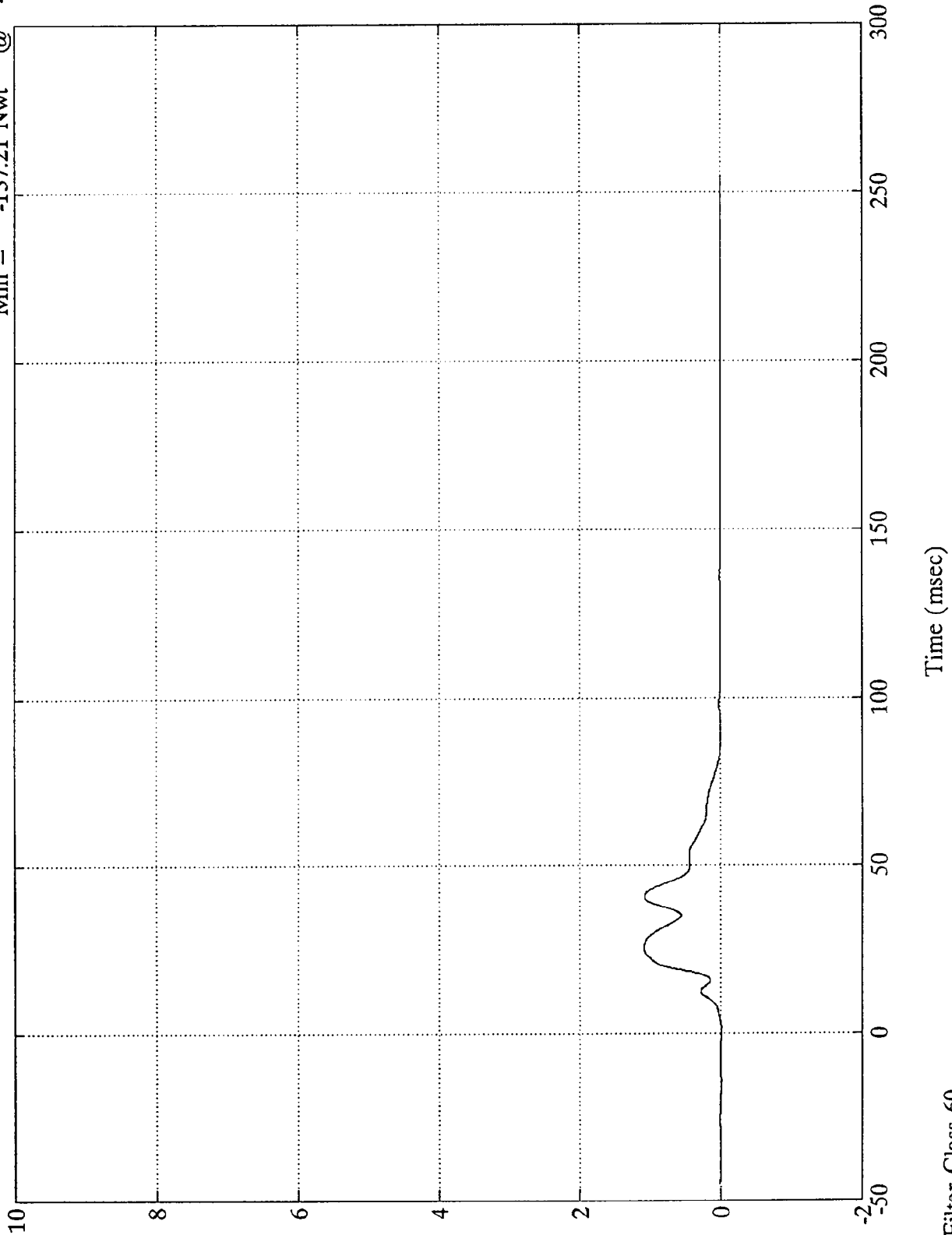
Barrier Load Cell C2
Max = 10326.89 Nwt @ 30.00 msec
Min = -306.10 Nwt @ 12.11 msec



1wN
B-48

NCAP TEST #8 - 1993 HONDA CIVIC DX
x10⁴

Barrier Load Cell C3
Max = 10896.08 Nwt @ 25.44 msec
Min = -137.21 Nwt @ -0.00 msec

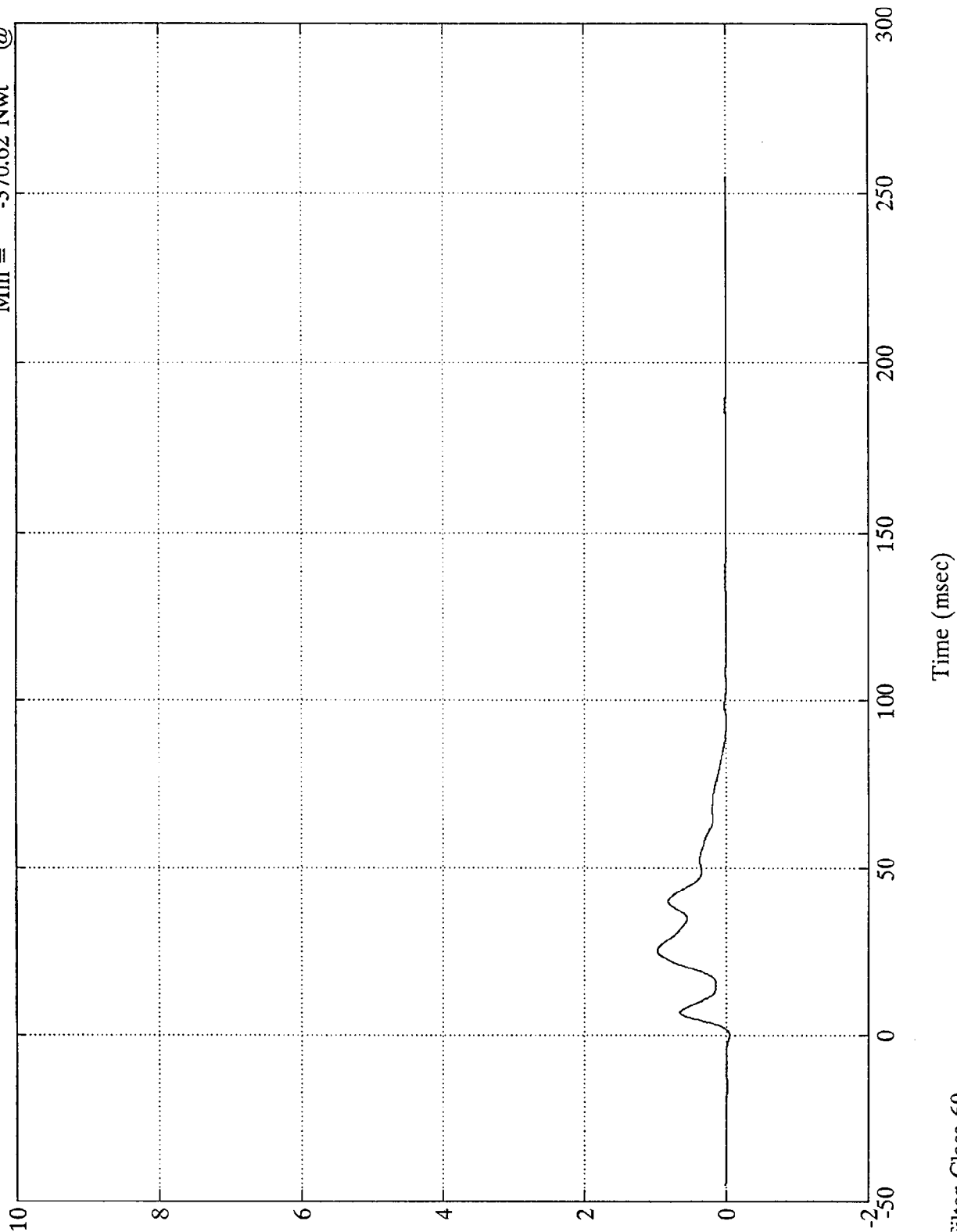


10⁴ N
B-49

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 9707.91 Nwt @ 25.31 msec
 Min = -370.62 Nwt @ -0.12 msec

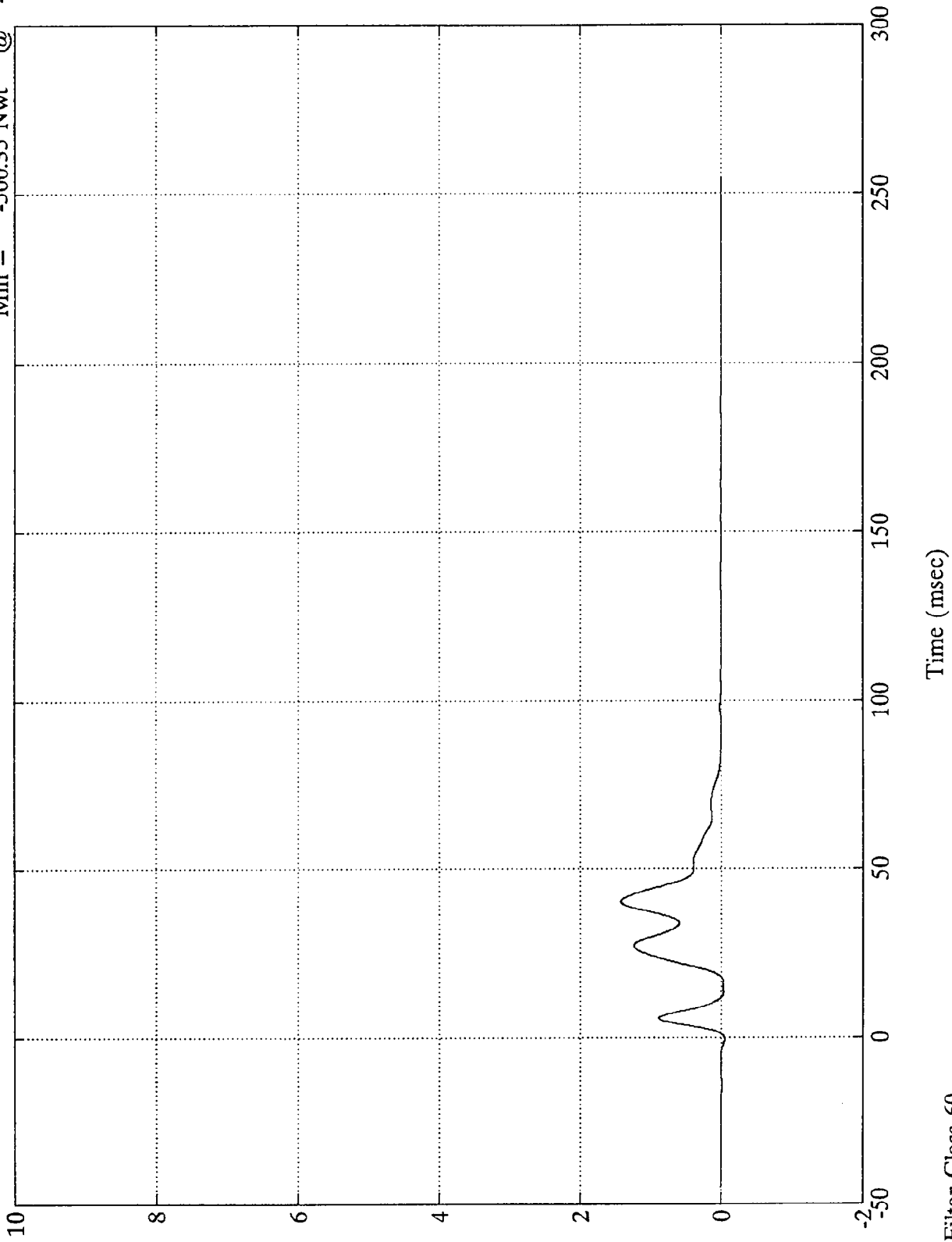
Barrier Load Cell C4



1N
 B-50

NCAP TEST #8 - 1993 HONDA CIVIC DX
x10⁴

Barrier Load Cell C5
Max = 14216.79 Nwt @ 40.44 msec
Min = -500.35 Nwt @ -0.60 msec

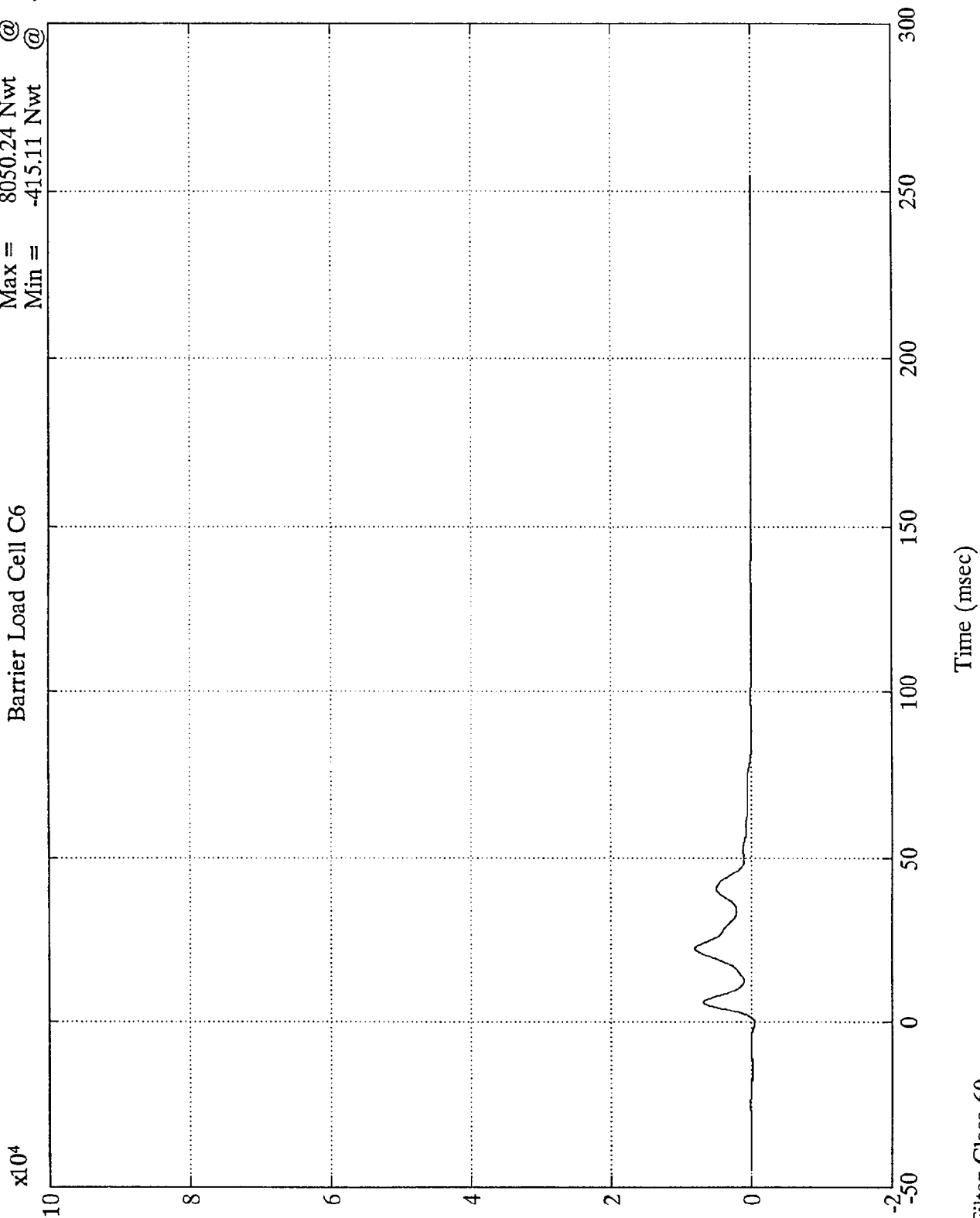


B-51
Nwt

8058-4
SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Barrier Load Cell C6
 Max = 8050.24 Nwt @ 22.31 msec
 Min = -415.11 Nwt @ -0.48 msec



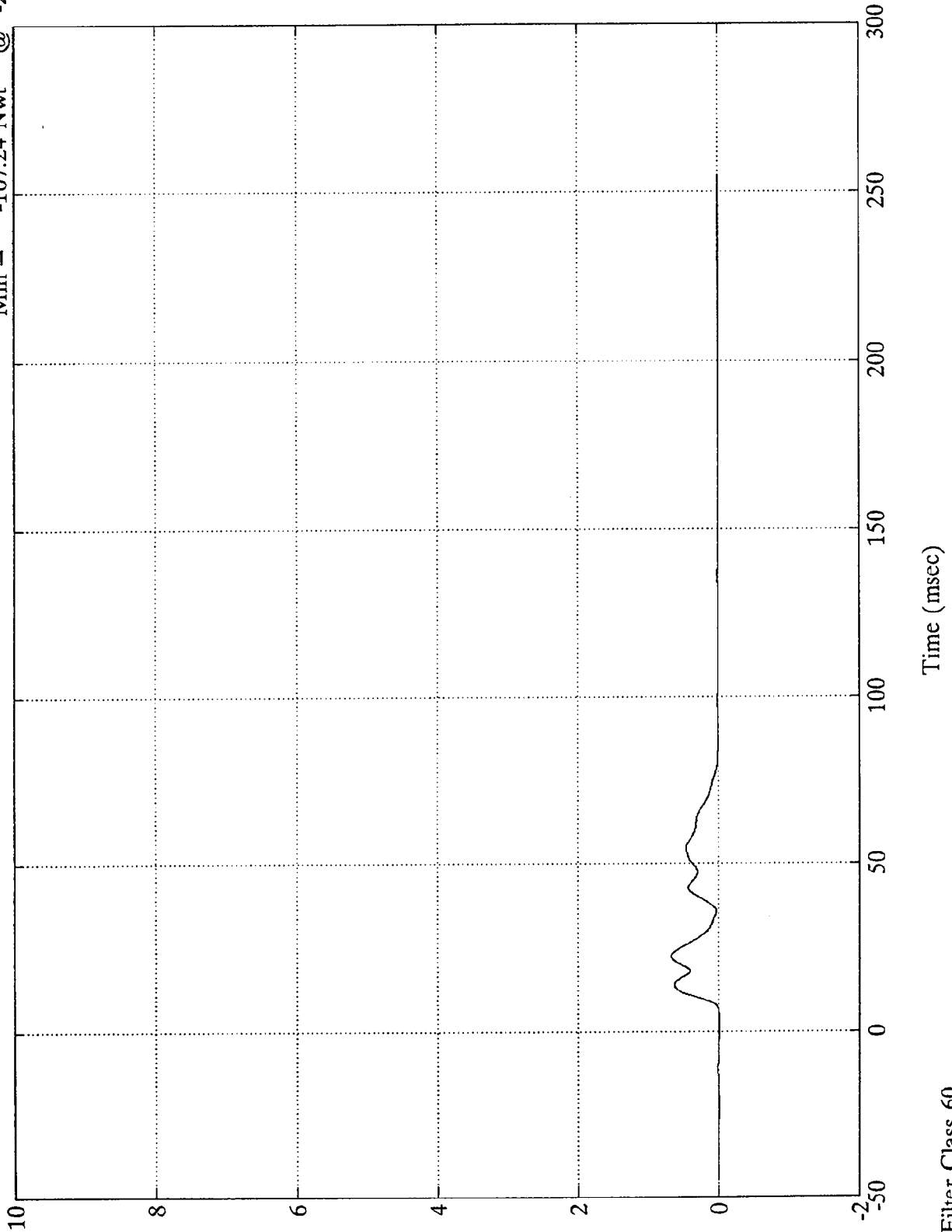
10⁴N
 B-52

8058-4 SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 6708.82 Nwt @ 22.31 msec
Min = -107.24 Nwt @ -22.92 msec

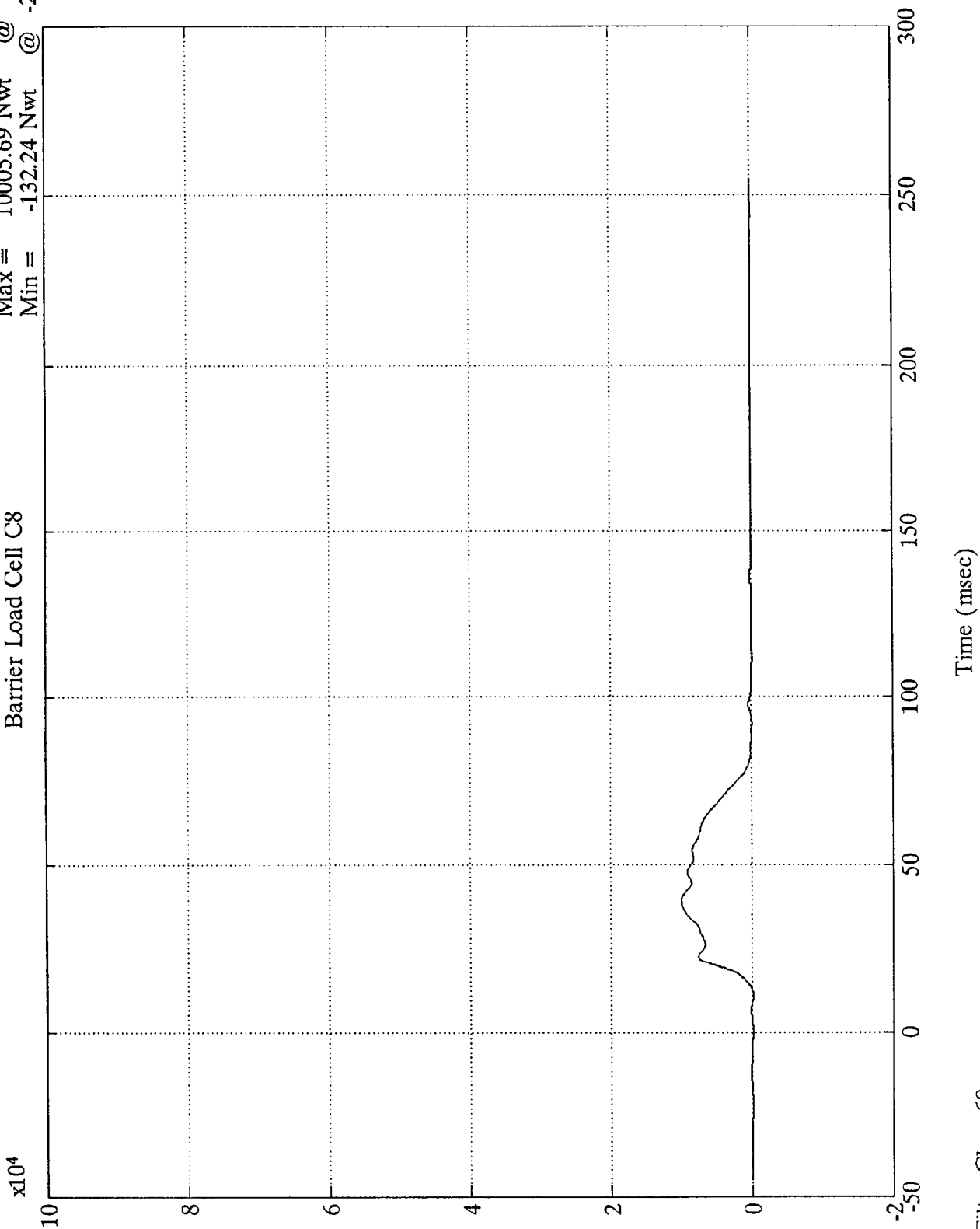
Barrier Load Cell C7



1MN
B-53

NCAP TEST #8 - 1993 HONDA CIVIC DX

Barrier Load Cell C8
Max = 10005.69 Nwt @ 38.88 msec
Min = -132.24 Nwt @ -22.44 msec



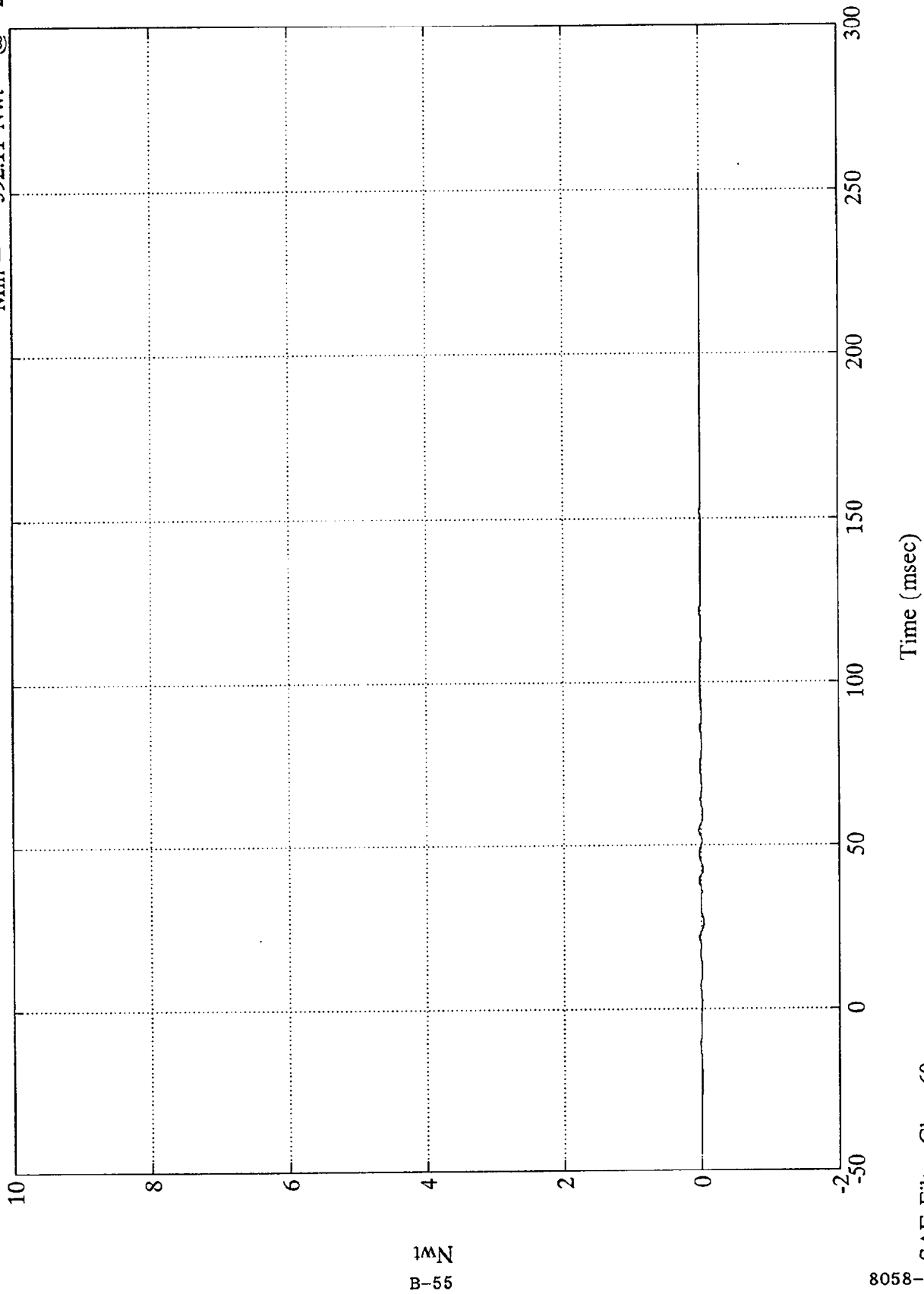
10N
B-54

8058-4 SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Barrier Load Cell C9

Max = 363.48 Nwt @ 54.59 msec
Min = -392.11 Nwt @ 26.15 msec

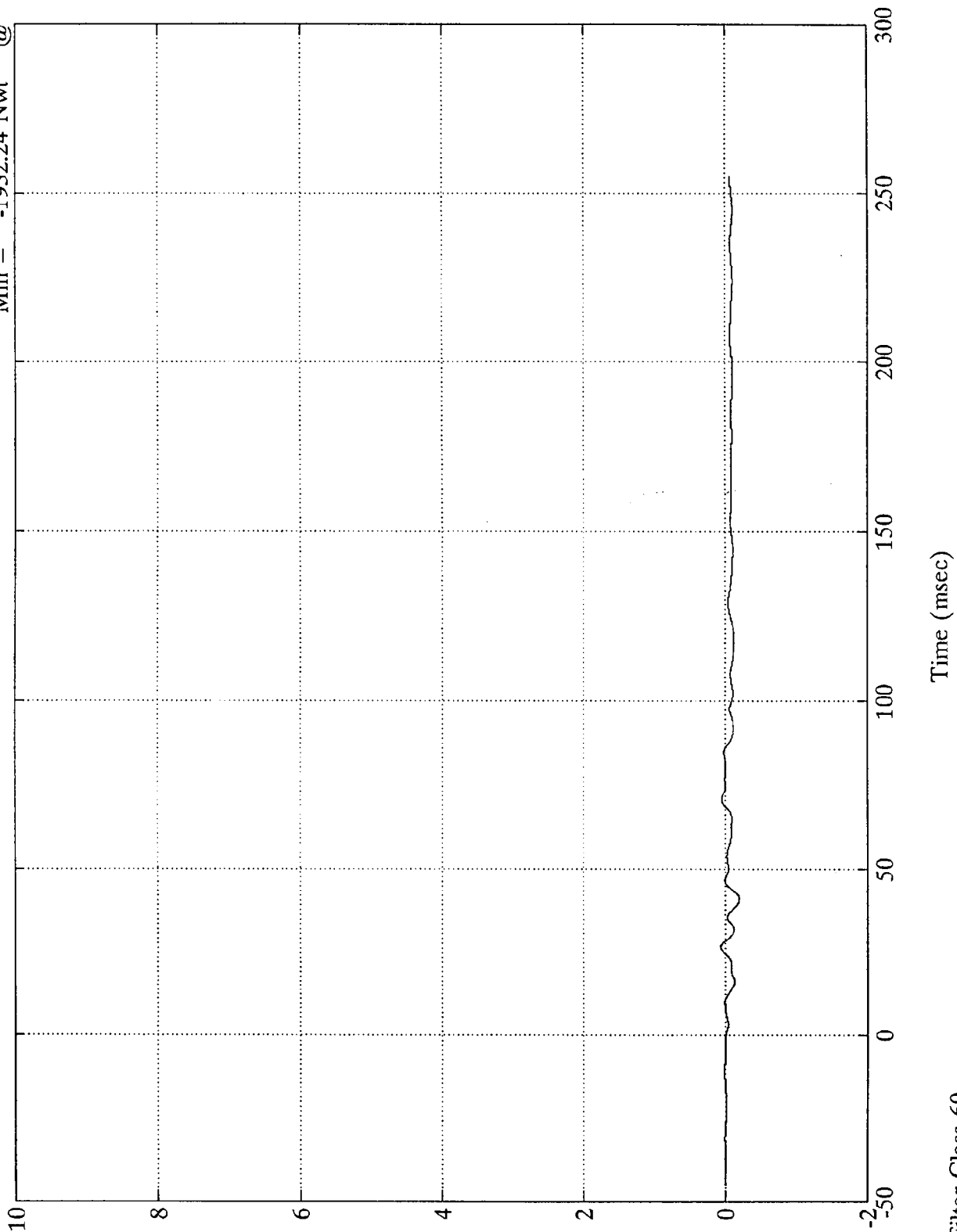


10⁴N
B-55

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 693.11 Nwt @ 26.87 msec
 Min = -1932.24 Nwt @ 41.15 msec

Barrier Load Cell D1



10⁴N
 B-56

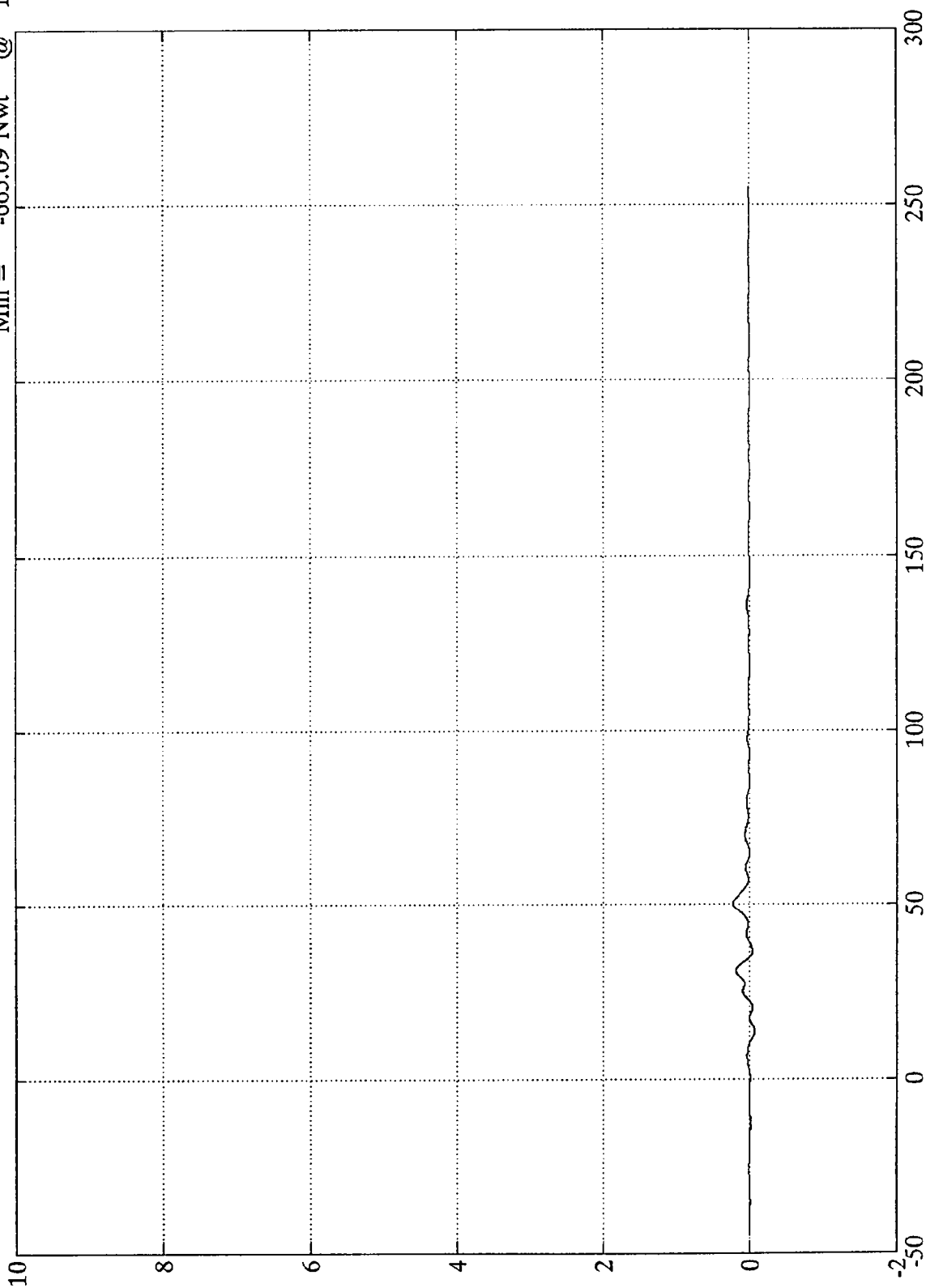
SAE Filter Class 60
 8058-4

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 2321.20 Nwt @ 50.04 msec
Min = -665.09 Nwt @ 13.79 msec

Barrier Load Cell D2

$\times 10^4$



1Nwt
B-57

Time (msec)

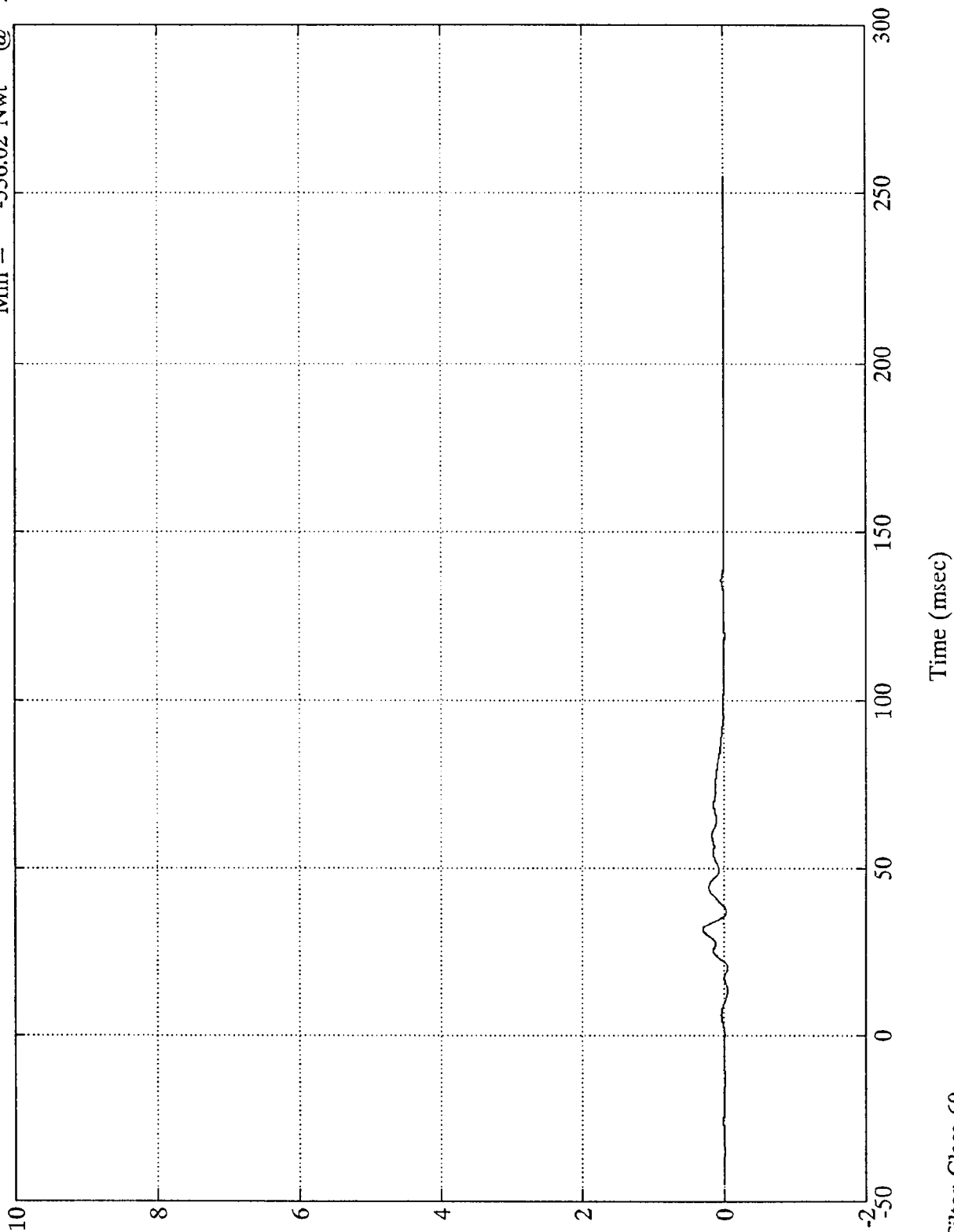
SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 3010.88 Nwt @ 31.55 msec
Min = -536.02 Nwt @ 20.28 msec

Barrier Load Cell D3

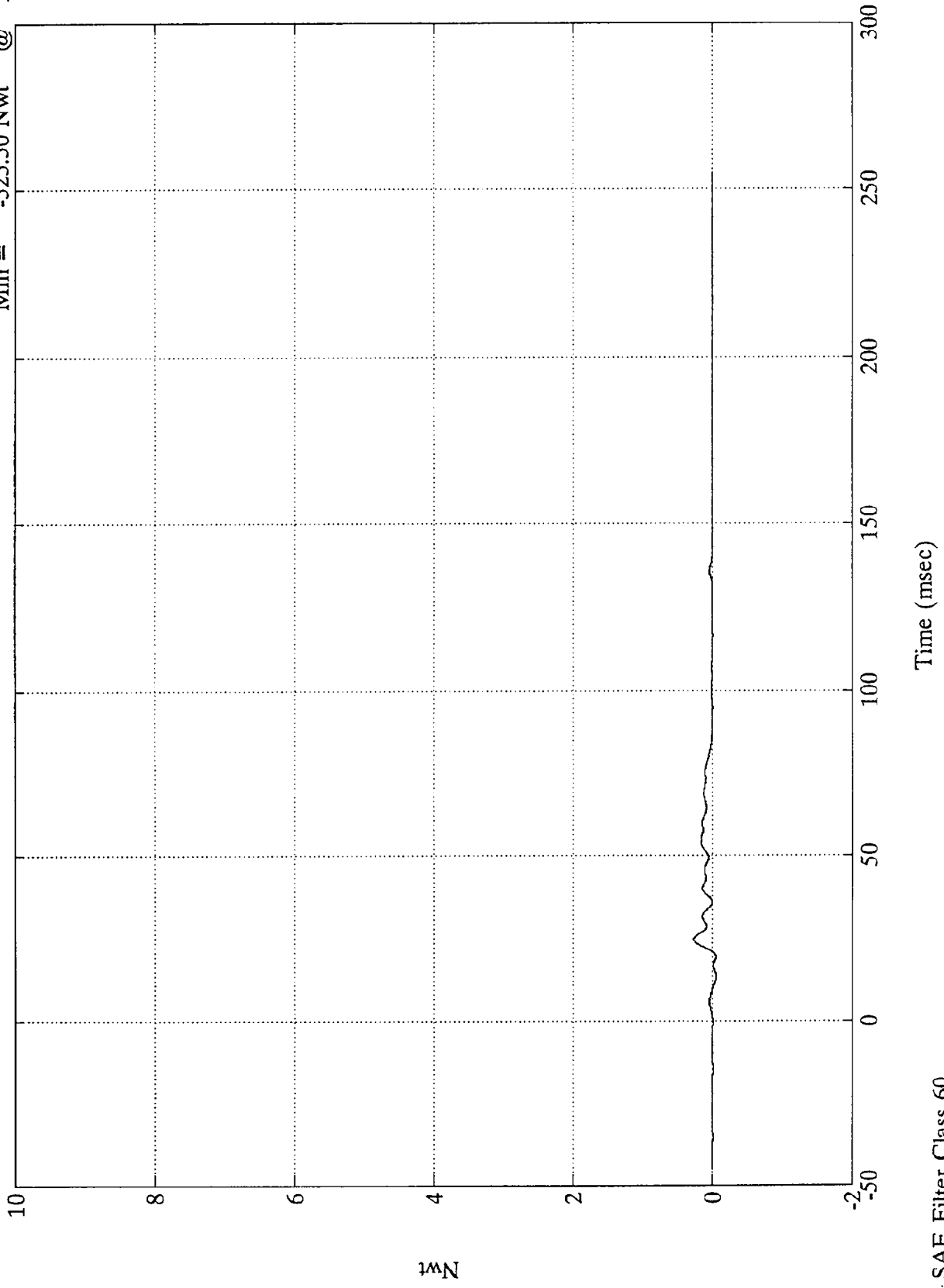
$\times 10^4$



B-58

NCAP TEST #8 - 1993 HONDA CIVIC DX

Barrier Load Cell D4
Max = 2665.63 Nwt @ 24.71 msec
Min = -525.50 Nwt @ 13.67 msec

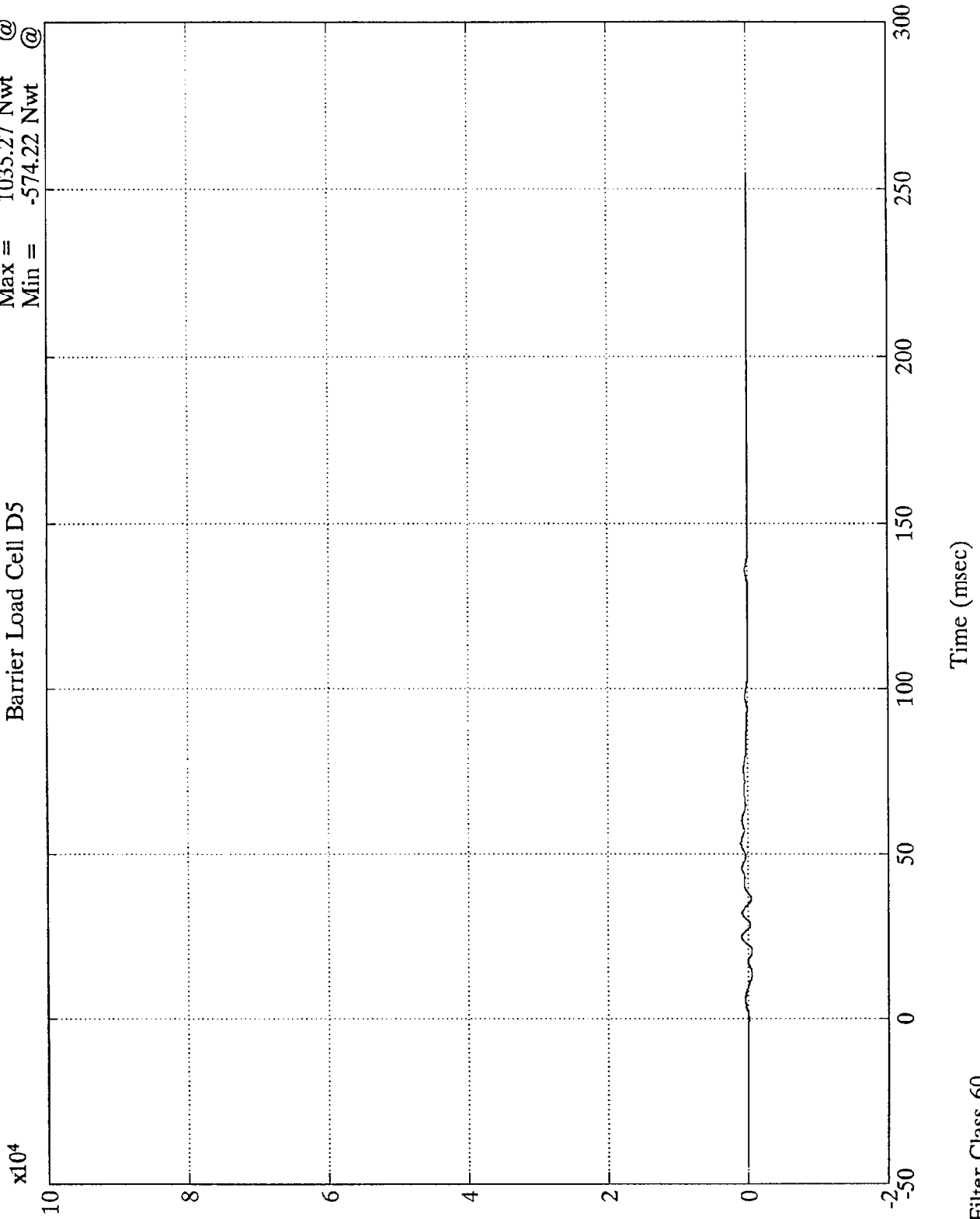


B-59

8058 1 SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

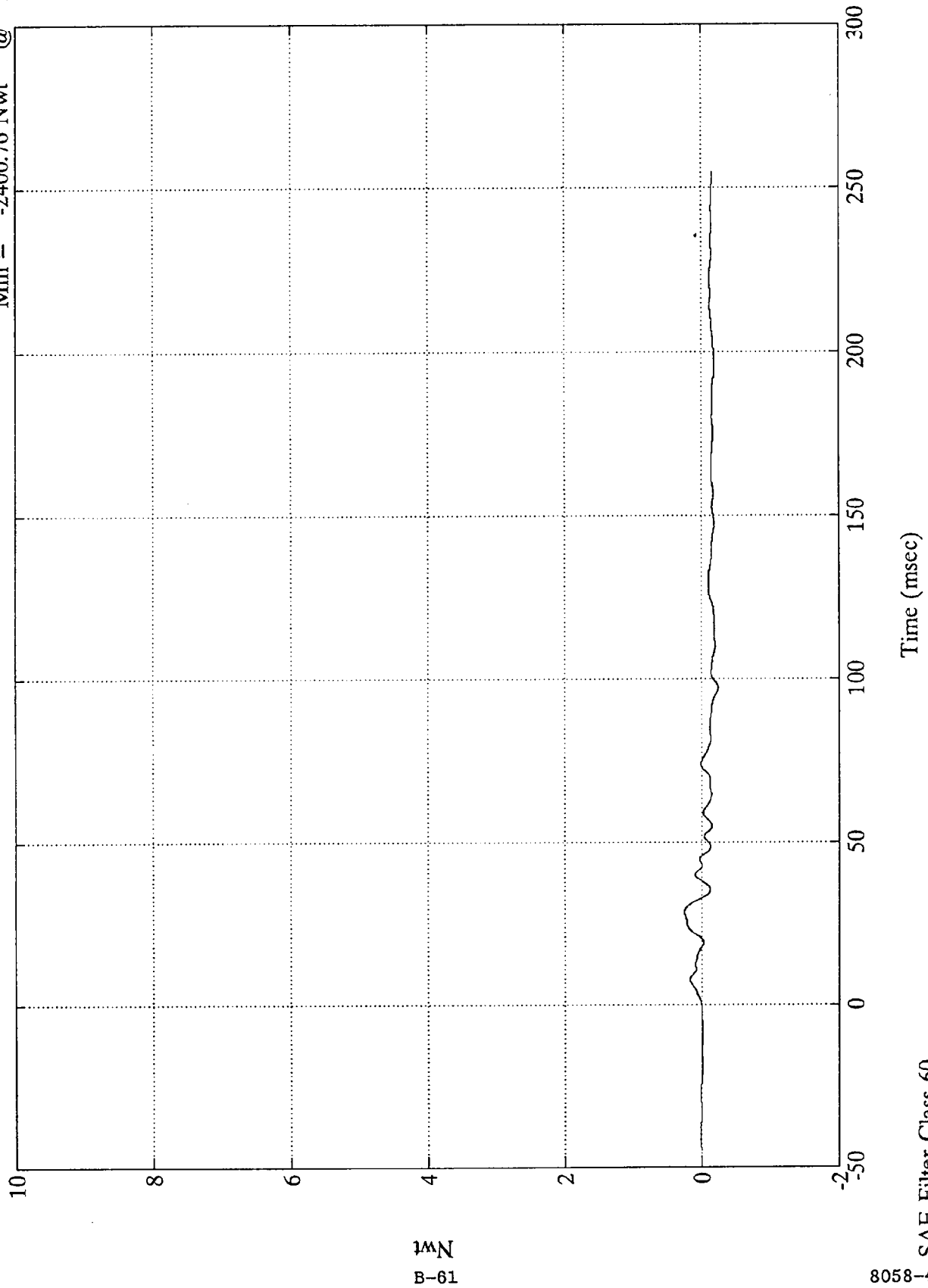
Barrier Load Cell D5
Max = 1035.27 Nwt @ 53.15 msec
Min = -574.22 Nwt @ 20.28 msec



10N
B-60

NCAP TEST #8 - 1993 HONDA CIVIC DX

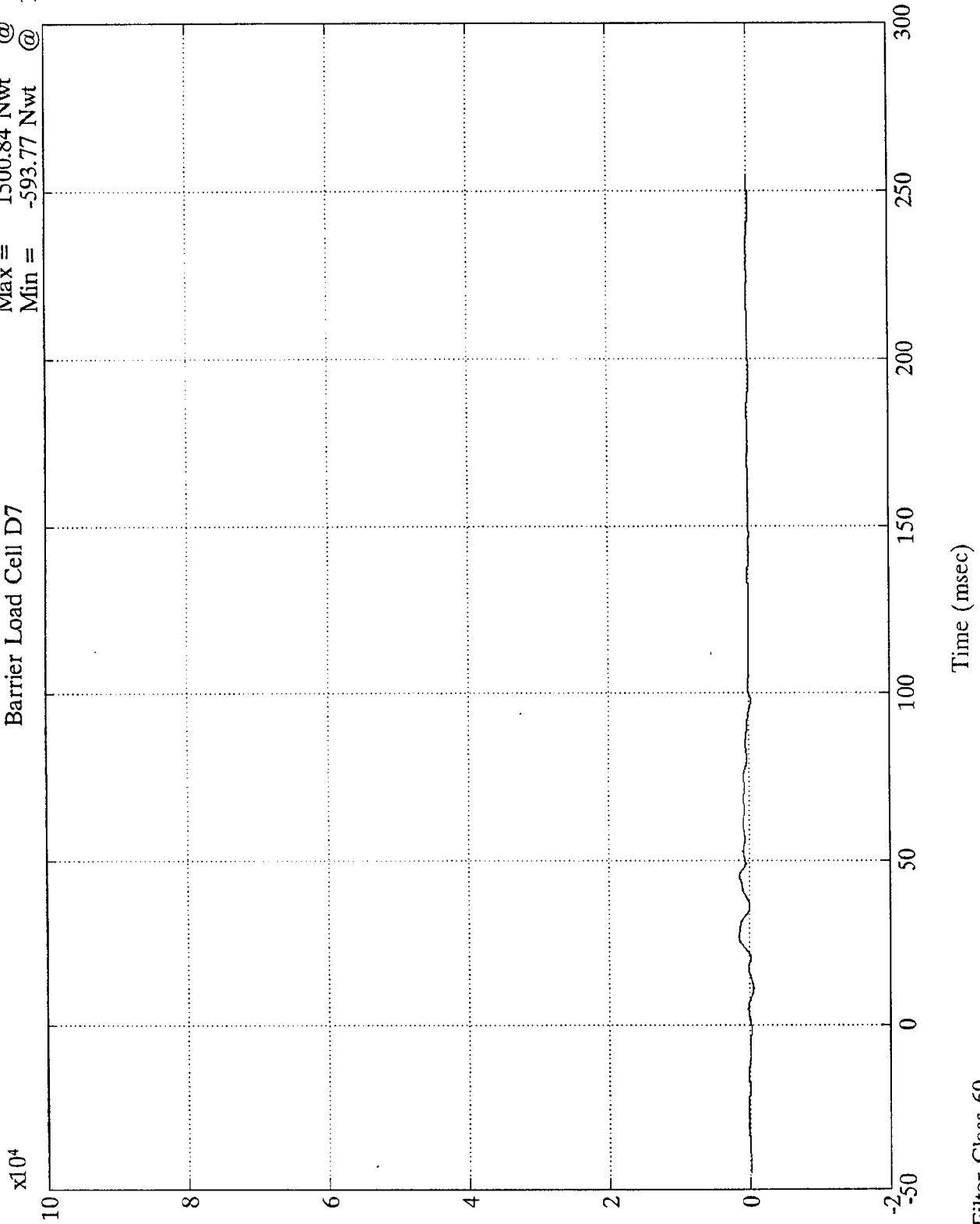
Barrier Load Cell D6
Max = 2561.22 Nwt @ 28.20 msec
Min = -2400.76 Nwt @ 97.08 msec



B-61

NCAP TEST #8 - 1993 HONDA CIVIC DX

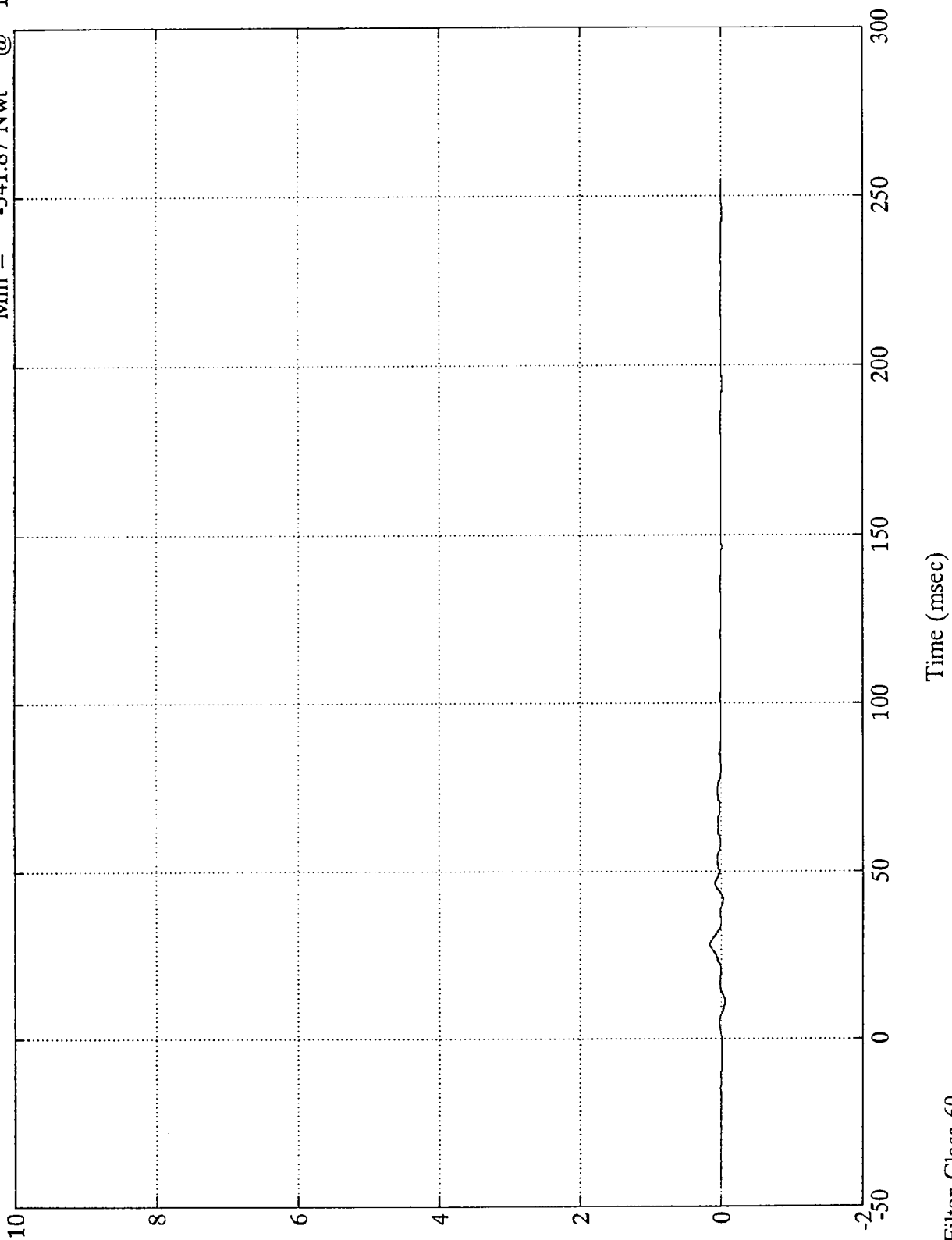
Barrier Load Cell D7
Max = 1500.84 Nwt @ 26.63 msec
Min = -593.77 Nwt @ 10.67 msec



B-62
1Nwt

NCAP TEST #8 - 1993 HONDA CIVIC DX

Barrier Load Cell D8
Max = 1611.28 Nwt @ 28.07 msec
Min = -541.87 Nwt @ 11.03 msec

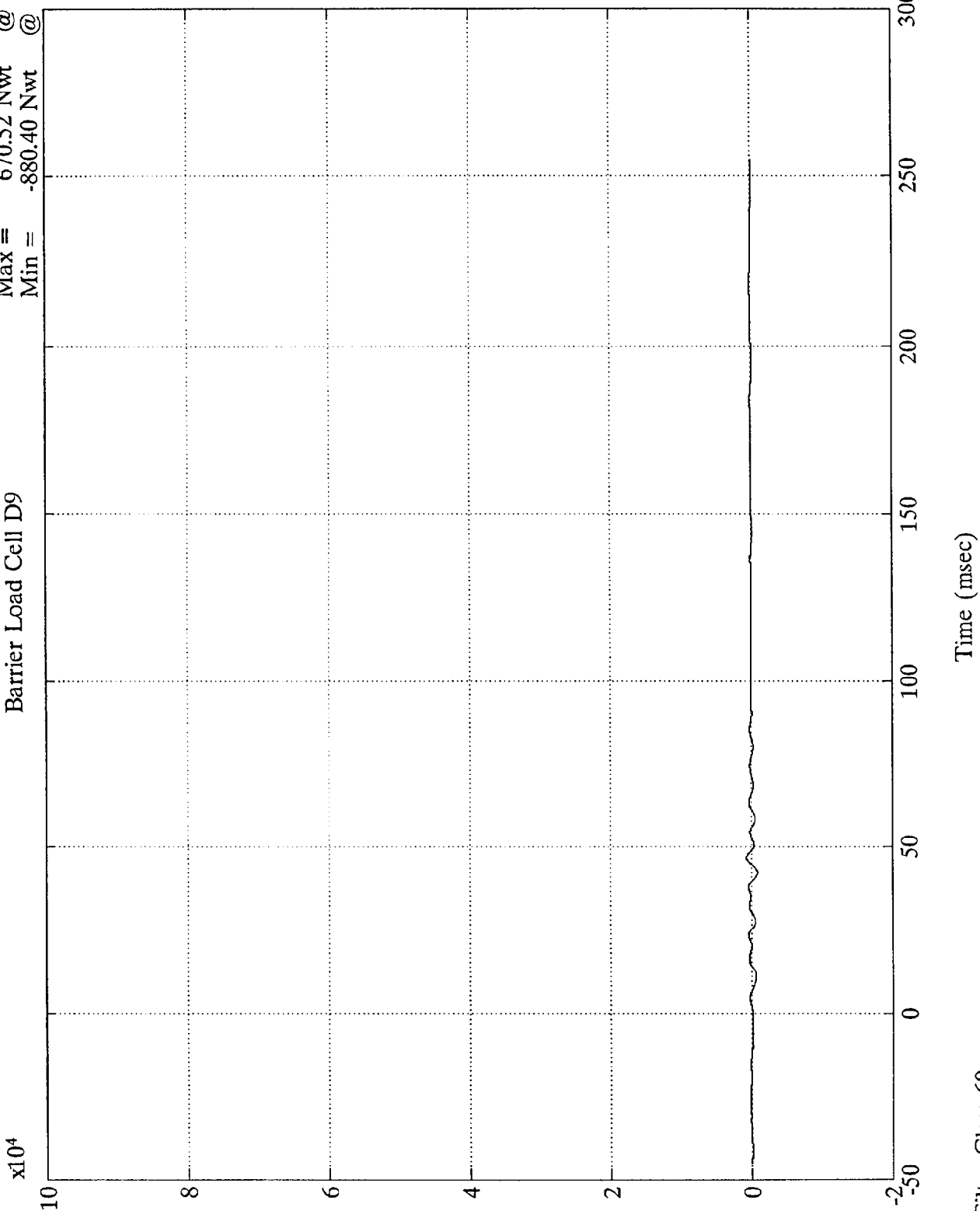


1N
B-63

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 670.52 Nwt @ 46.56 msec
Min = -880.40 Nwt @ 42.00 msec

Barrier Load Cell D9



1wN
B-64

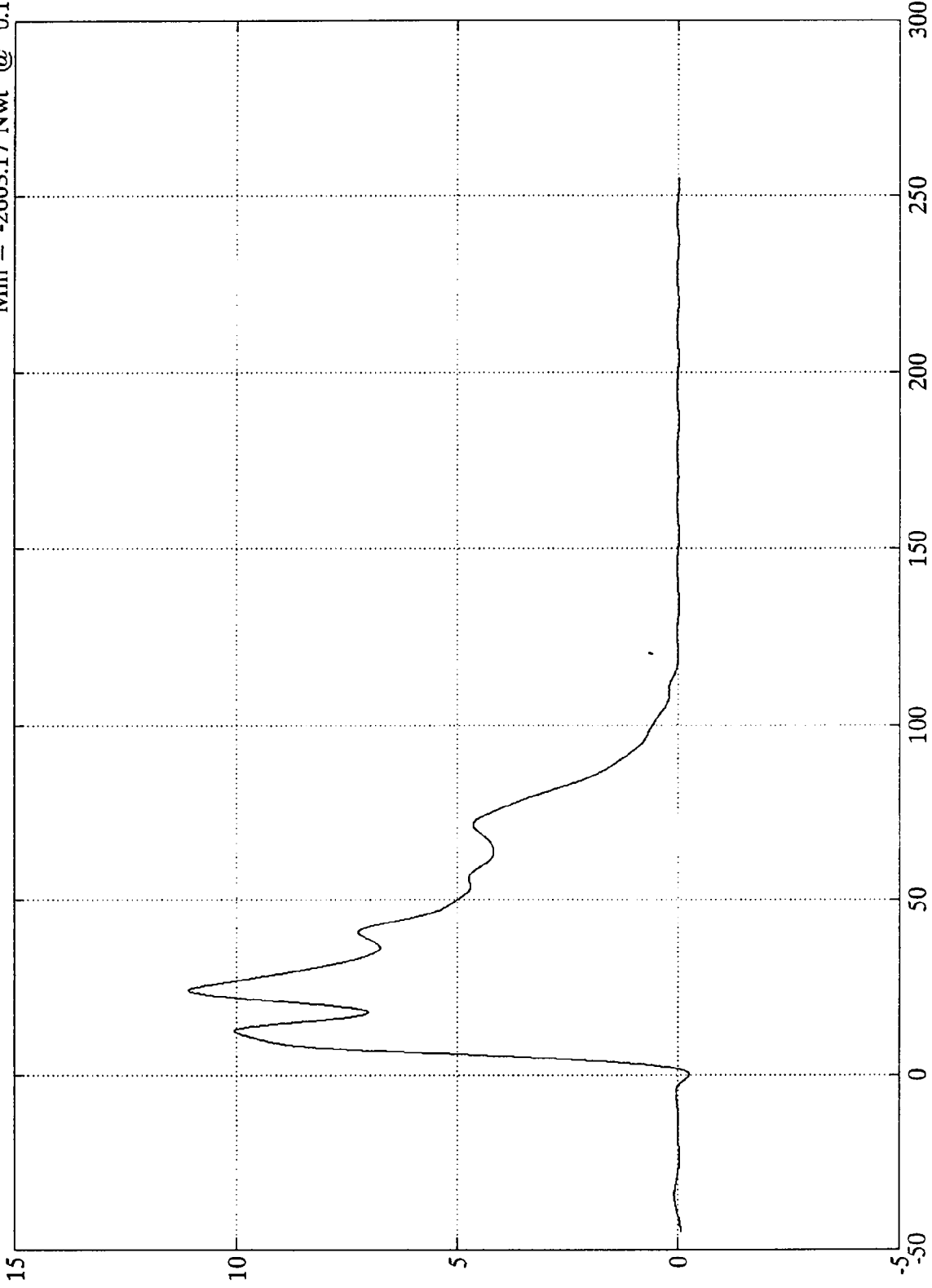
8058-4 SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

x10⁴

Group 1 Load Cell Sum

Max = 110824.00 Nwt @ 24.24 msec
Min = -2603.17 Nwt @ 0.12 msec



Time (msec)

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

B-65

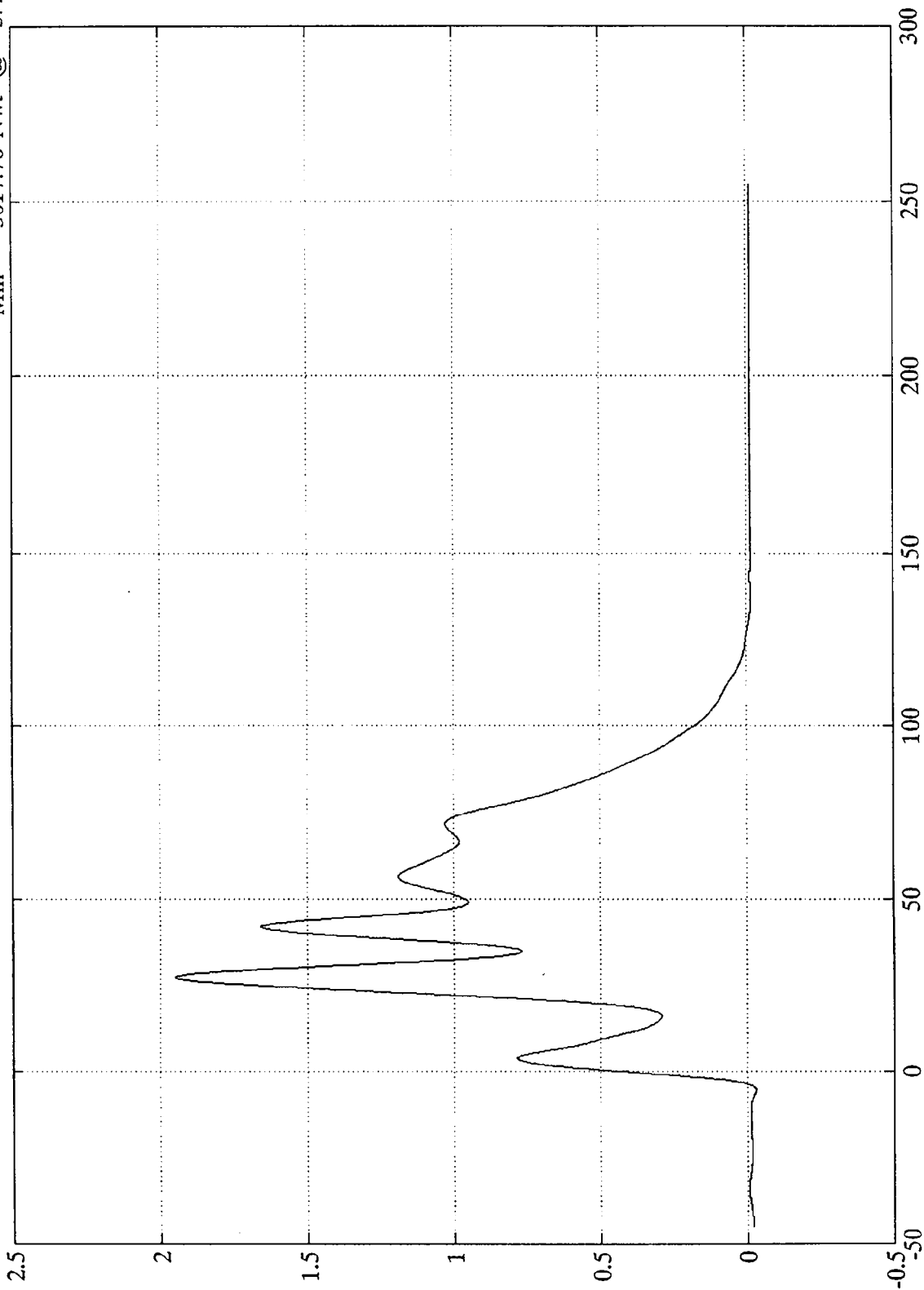
8058-4 SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Group 2 Load Cell Sum

Max = 194885.00 Nwt @ 27.00 msec
 Min = -3017.70 Nwt @ -5.40 msec

$\times 10^5$



Load Cells (A4,A5,A6,B4,B5,B6)

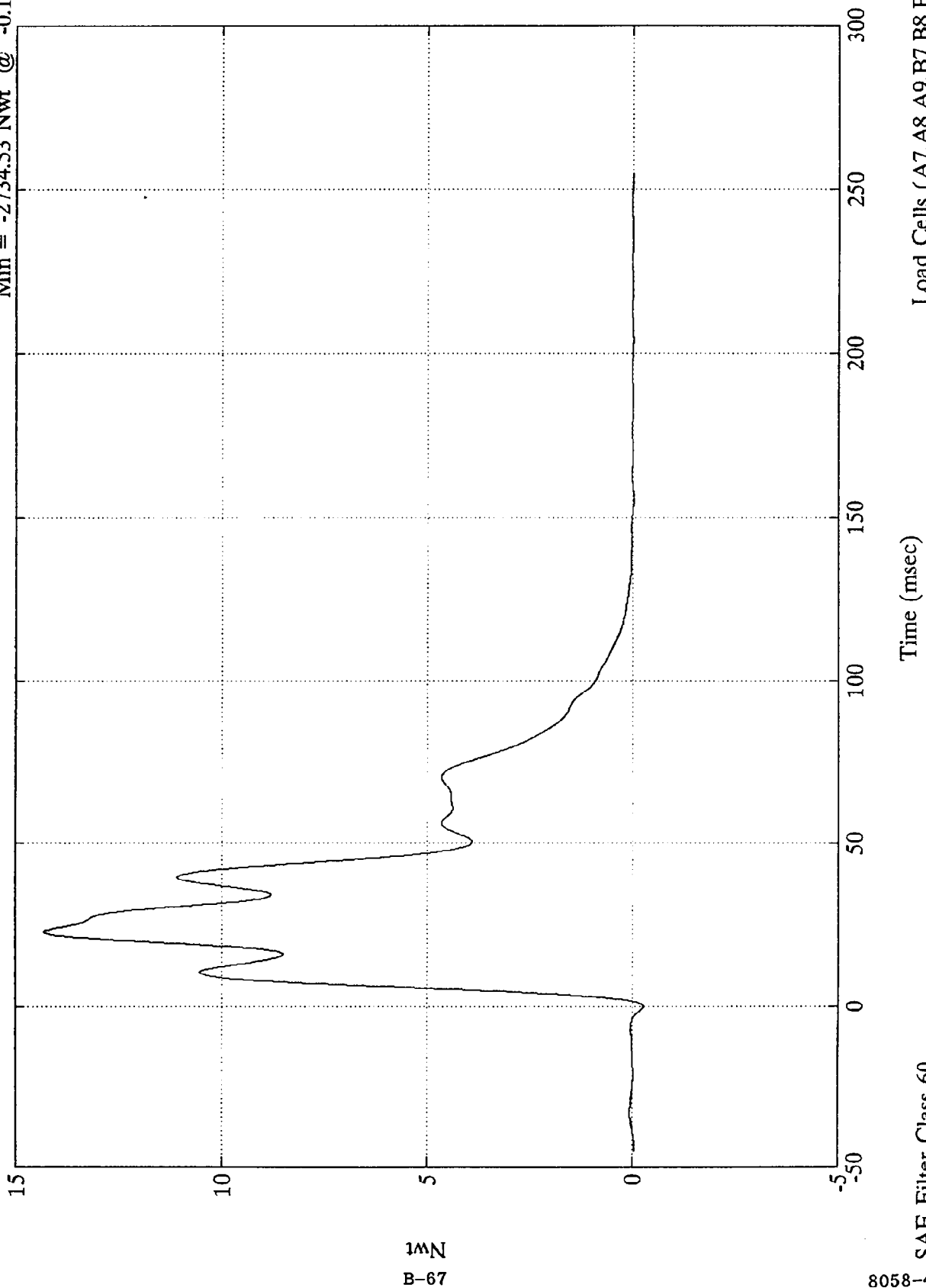
Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Group 3 Load Cell Sum
Max = 143019.00 Nwt @ 22.80 msec
Min = -2734.53 Nwt @ -0.12 msec

x10⁴



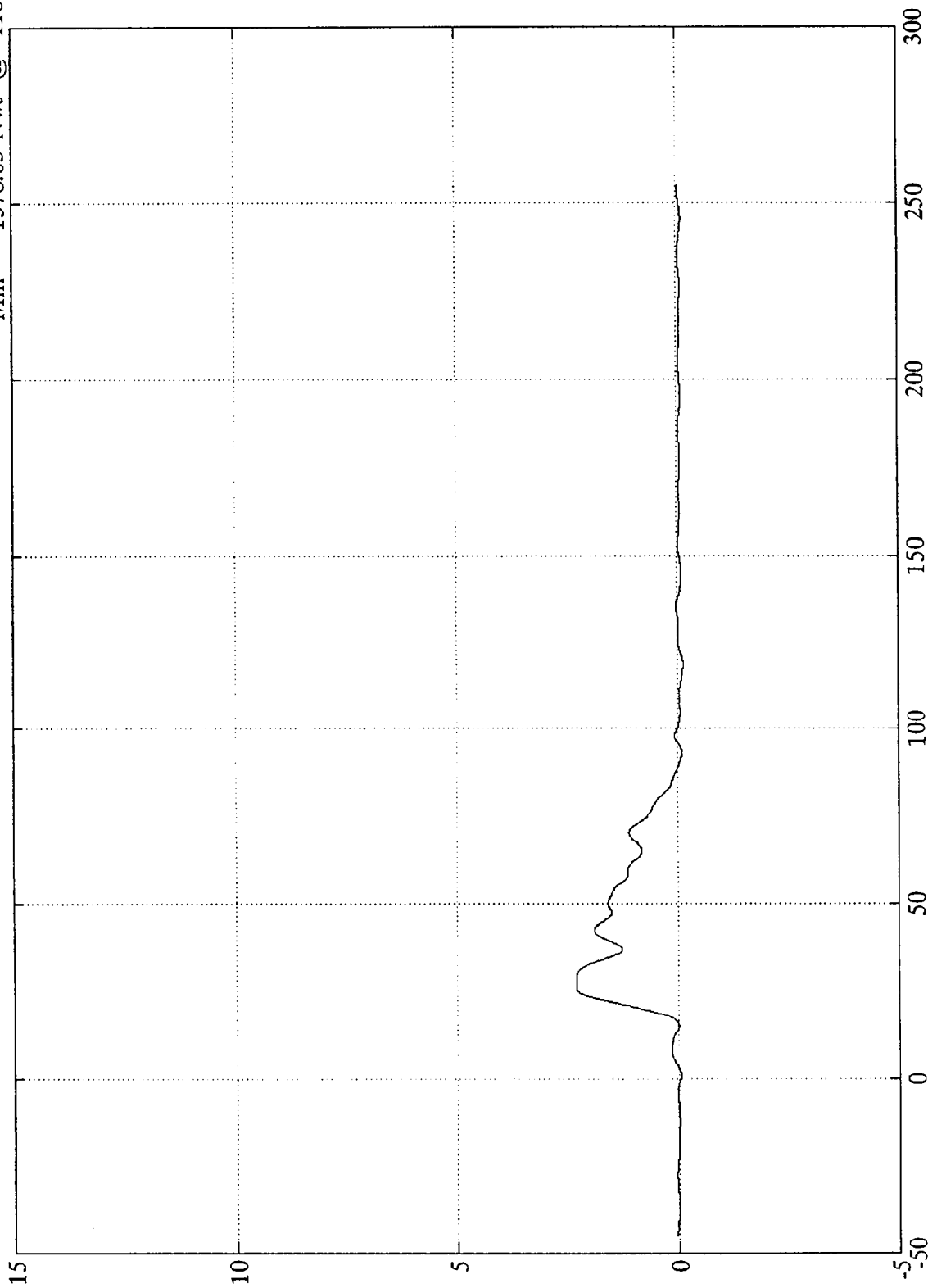
Load Cells (A7,A8,A9,B7,B8,B9)

Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Group 4 Load Cell Sum
Max = 23053.40 Nwt @ 25.92 msec
Min = -1378.03 Nwt @ 118.56 msec



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

Time (msec)

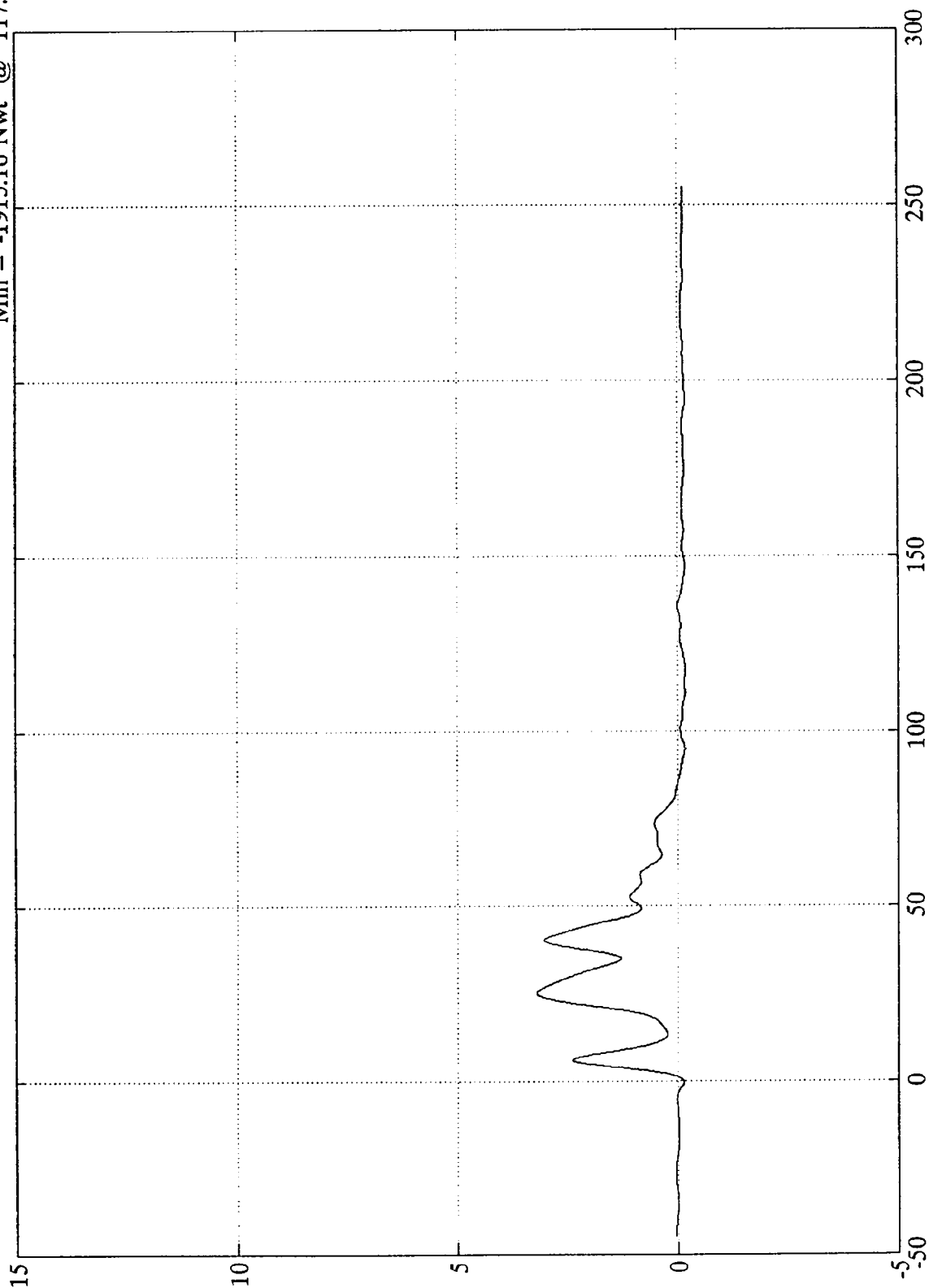
SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Group 5 Load Cell Sum

Max = 31977.40 Nwt @ 24.96 msec
Min = -1915.16 Nwt @ 117.36 msec

$\times 10^4$



1wN
B-69

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

Time (msec)

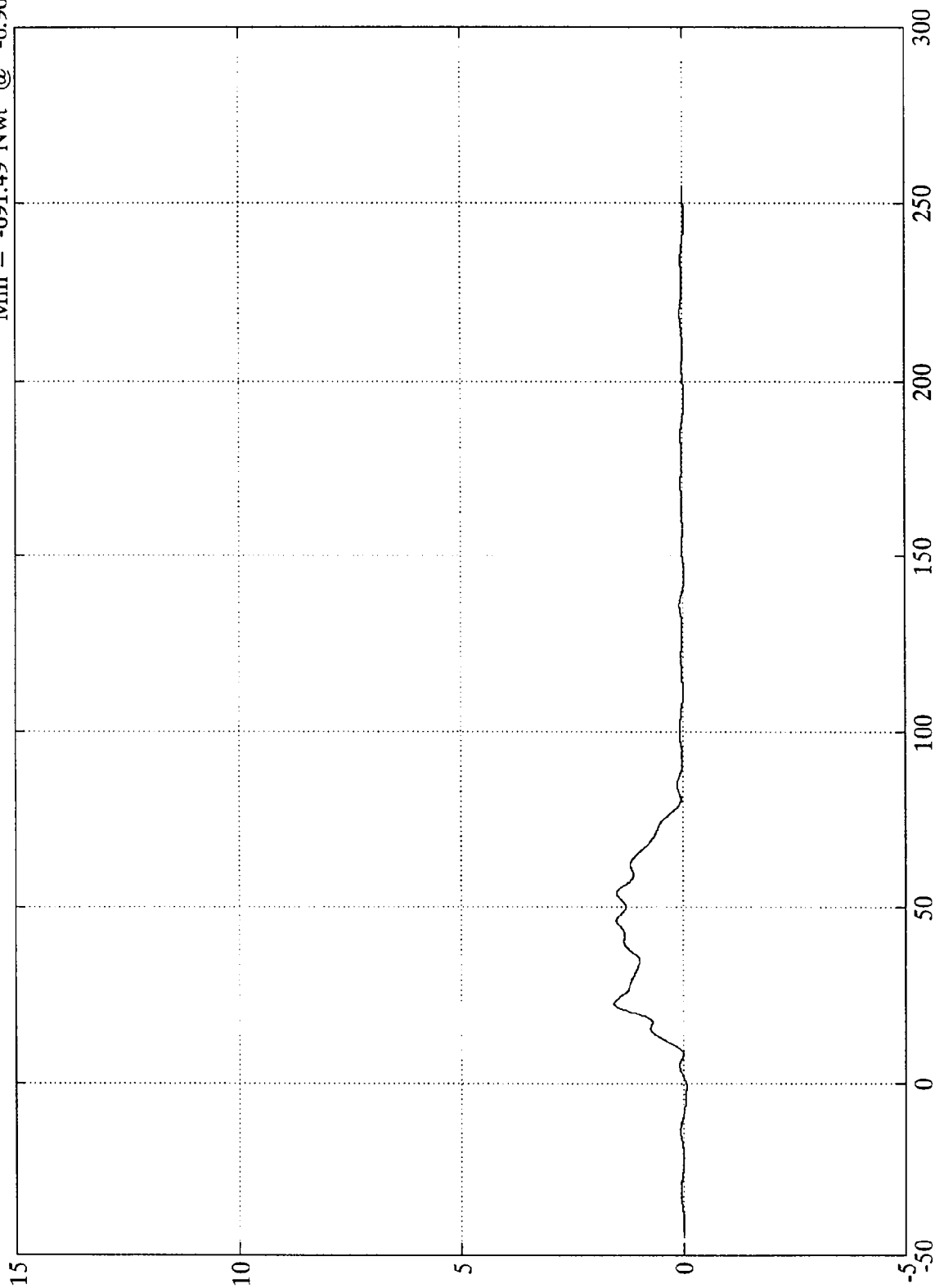
SAE Filter Class 60

8058-4

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 15562.00 Nwt @ 22.80 msec
Min = -691.49 Nwt @ -0.96 msec

Group 6 Load Cell Sum



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

Time (msec)

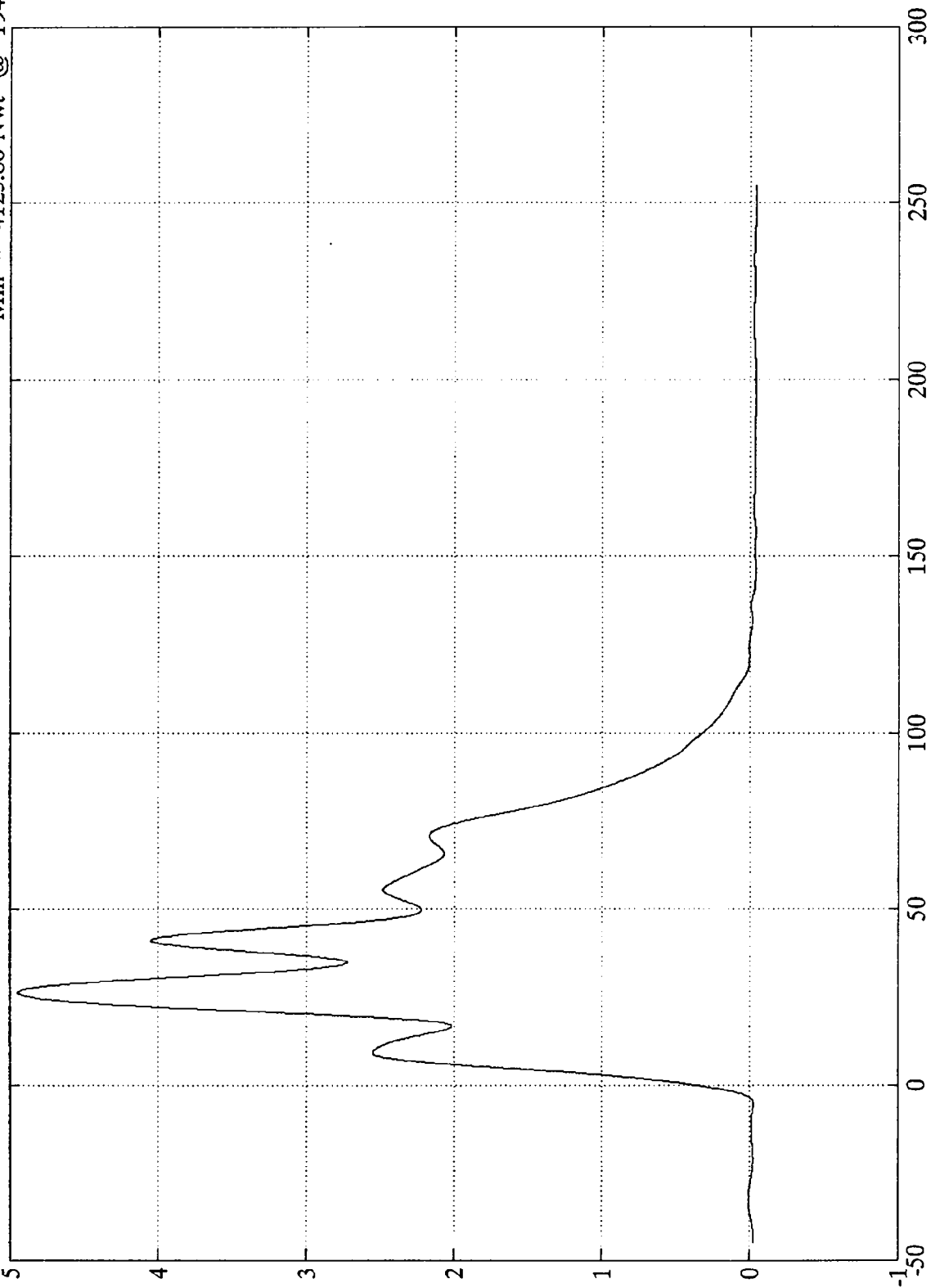
SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 494551.00 Nwt @ 26.16 msec
Min = -4125.86 Nwt @ 194.16 msec

Total Load Cell Sum

$\times 10^5$



1N
B-71

TEST NO. MP5302

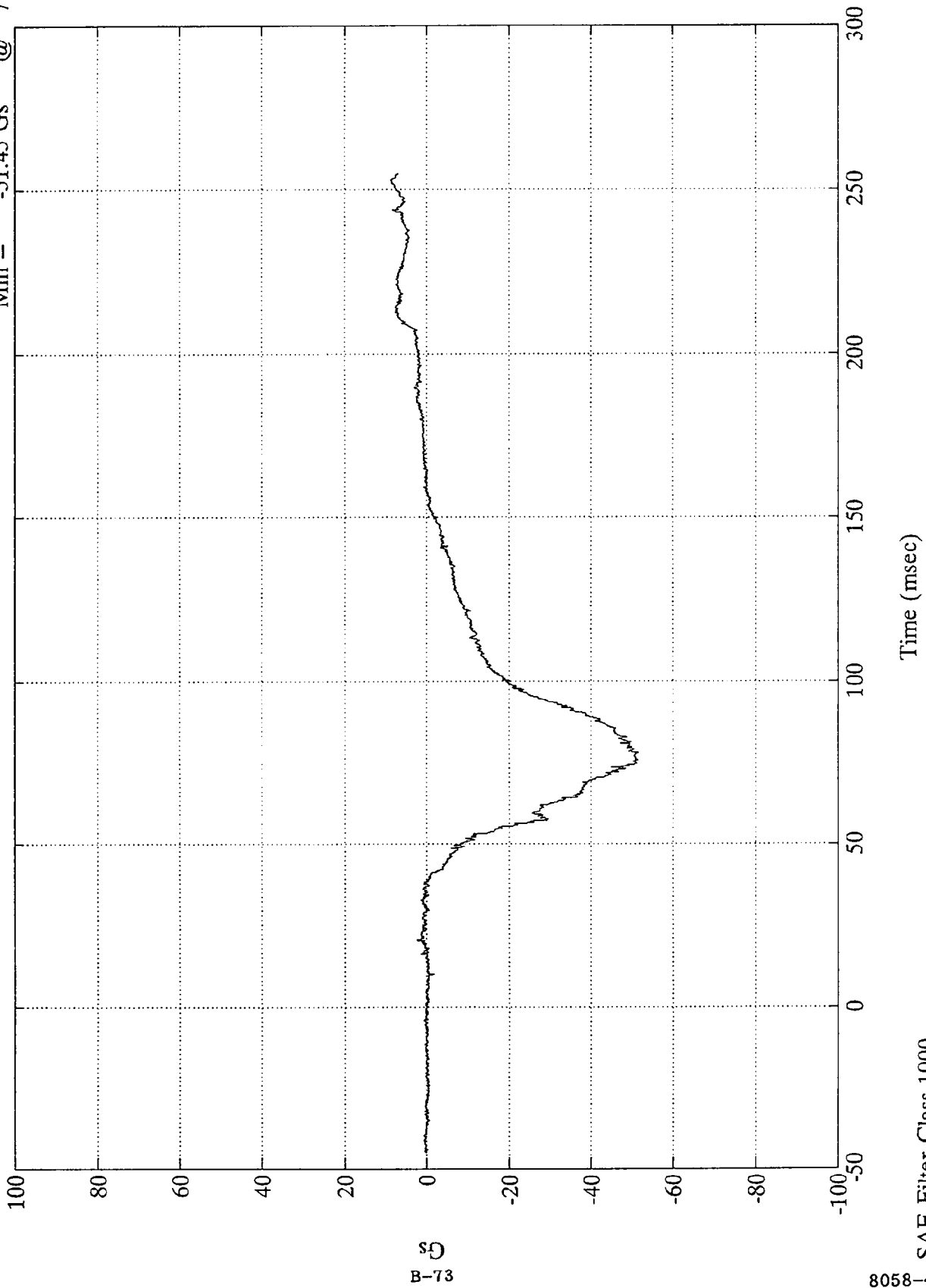
DUMMY DATA

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

NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 1 Head X

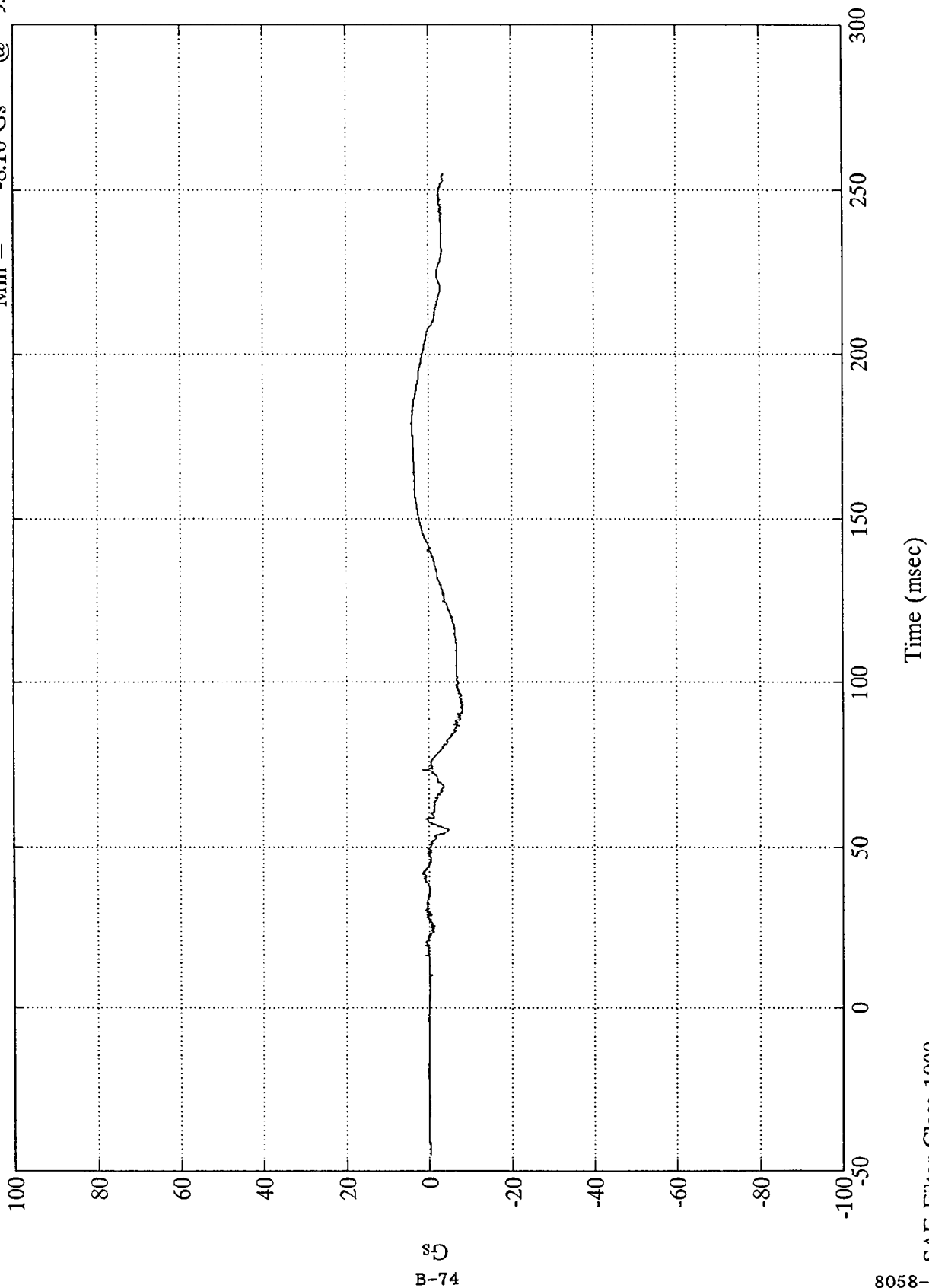
Max = 8.66 Gs @ 252.95 msec
Min = -51.45 Gs @ 77.88 msec



B-73

NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 1 Head Y
Max = 4.18 Gs @ 178.68 msec
Min = -8.16 Gs @ 93.00 msec



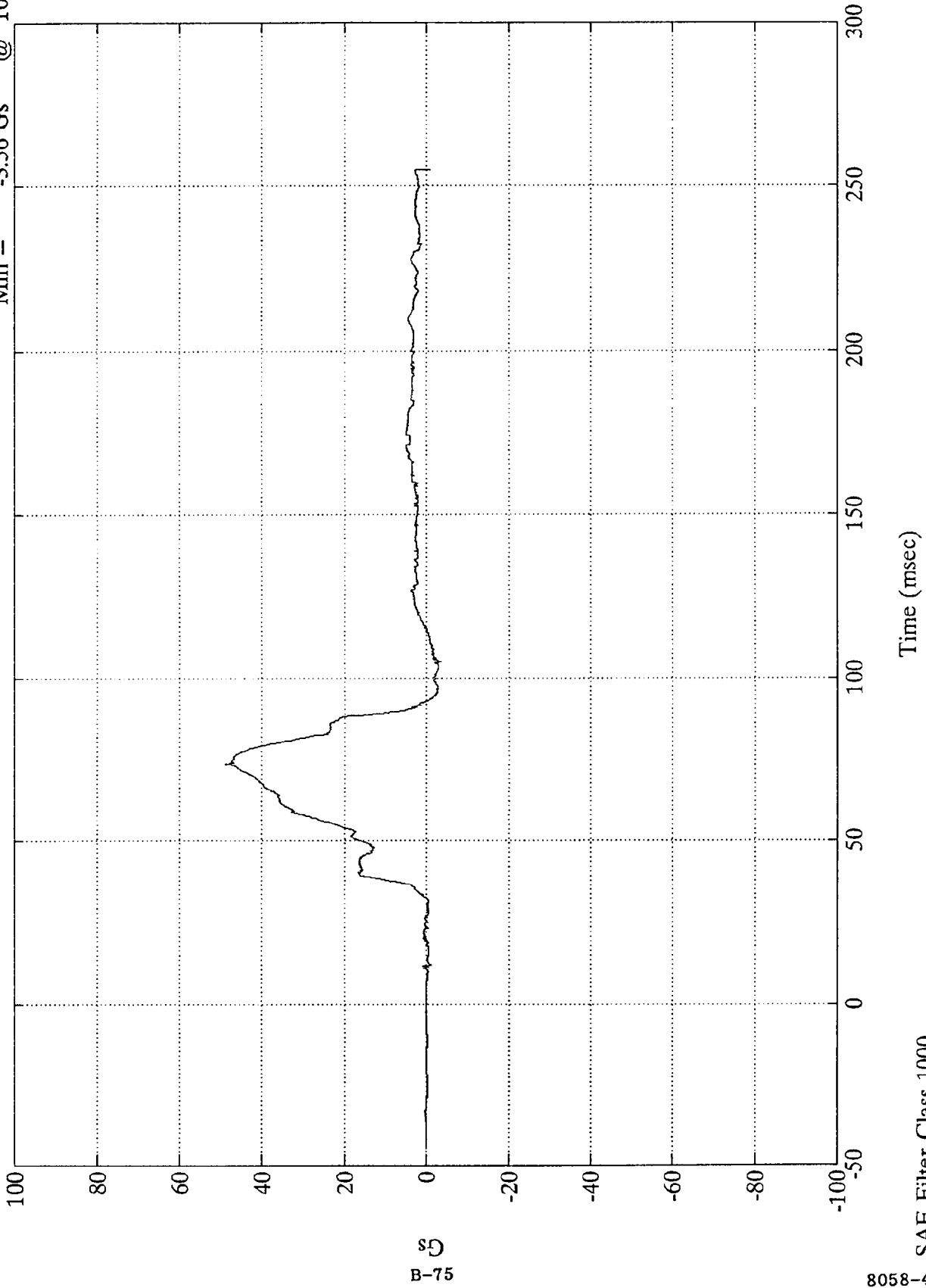
B-74

8058-4 SAE Filter Class 1000

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 49.08 Gs @ 73.55 msec
Min = -3.56 Gs @ 104.88 msec

Pos. 1 Head Z

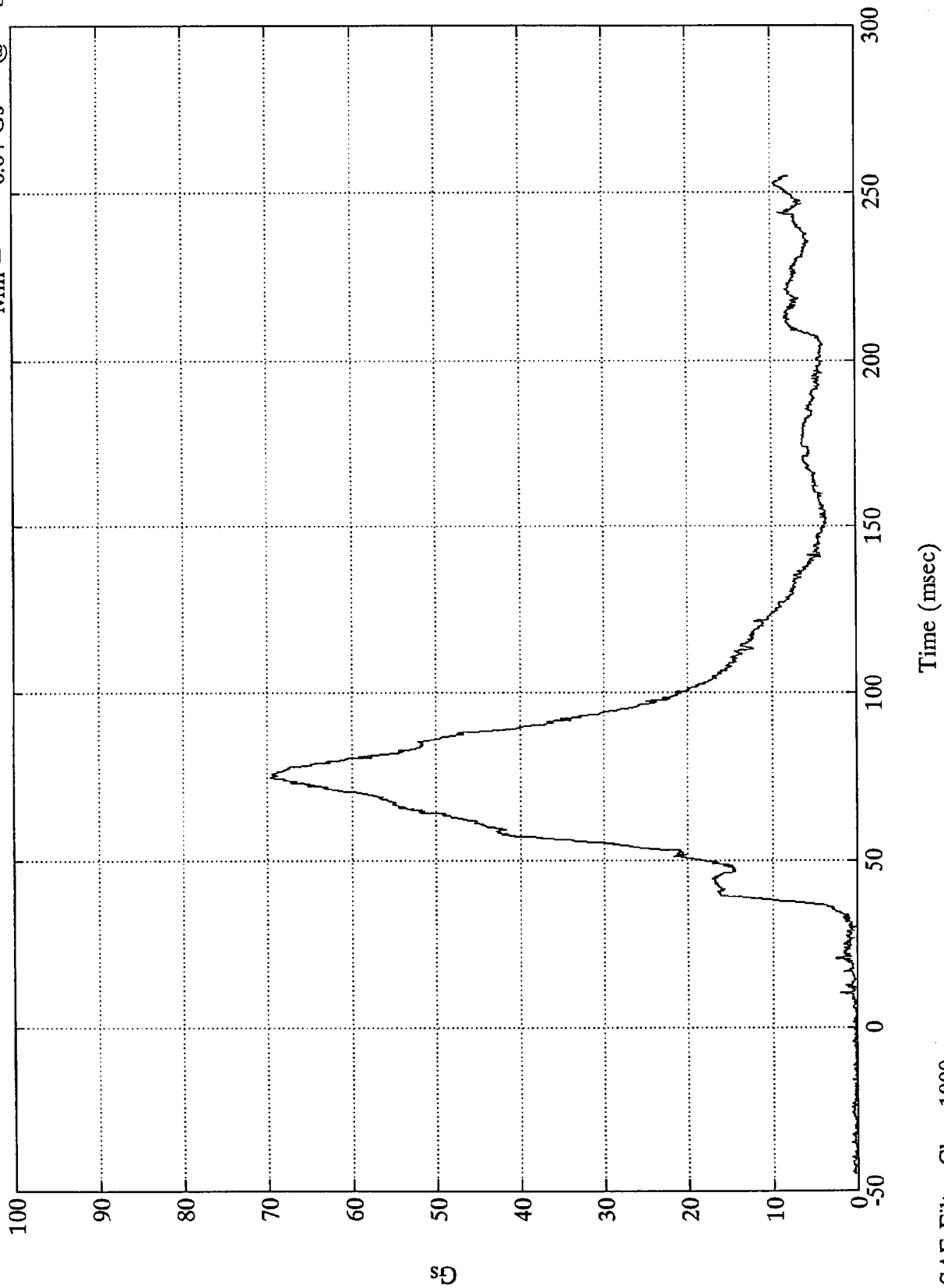


B-75

NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 1 Head Resultant

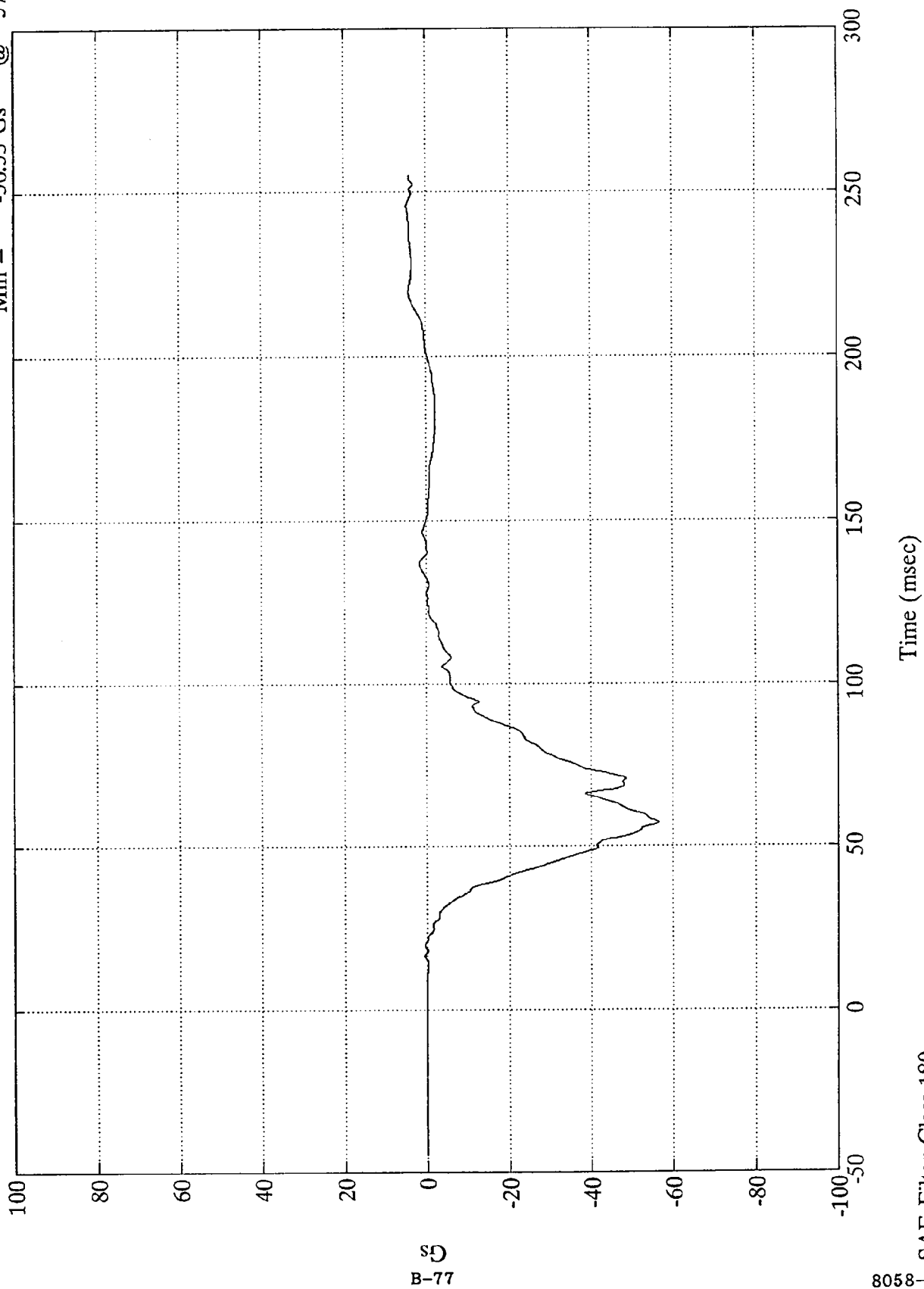
Max = 69.95 Gs @ 74.76 msec
 Min = 0.04 Gs @ -6.84 msec



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 4.65 Gs @ 245.76 msec
Min = -56.53 Gs @ 57.11 msec

Pos. 1 Chest X



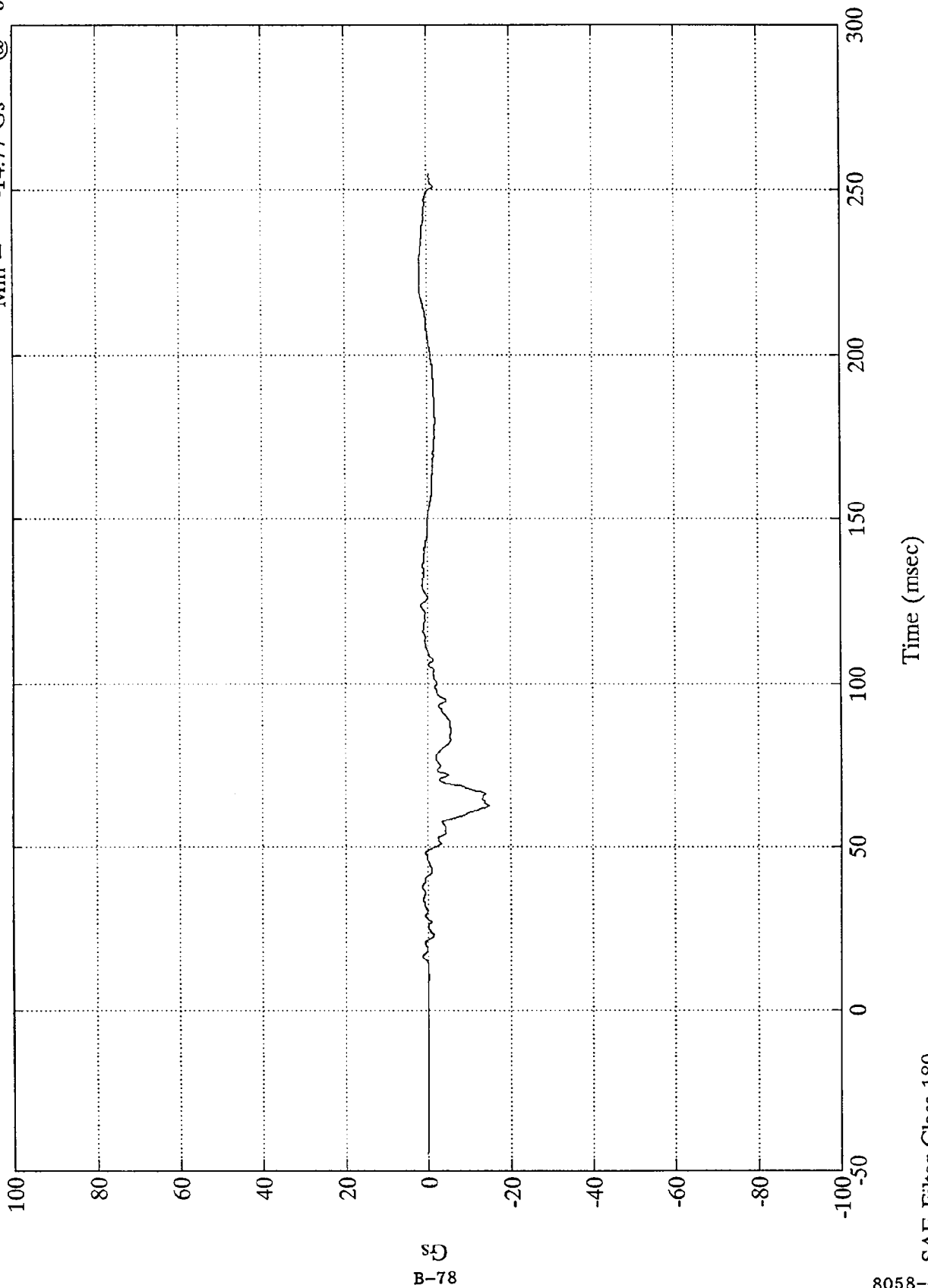
B-77

8058-4 SAE Filter Class 180

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 1.88 Gs @ 223.20 msec
Min = -14.77 Gs @ 62.64 msec

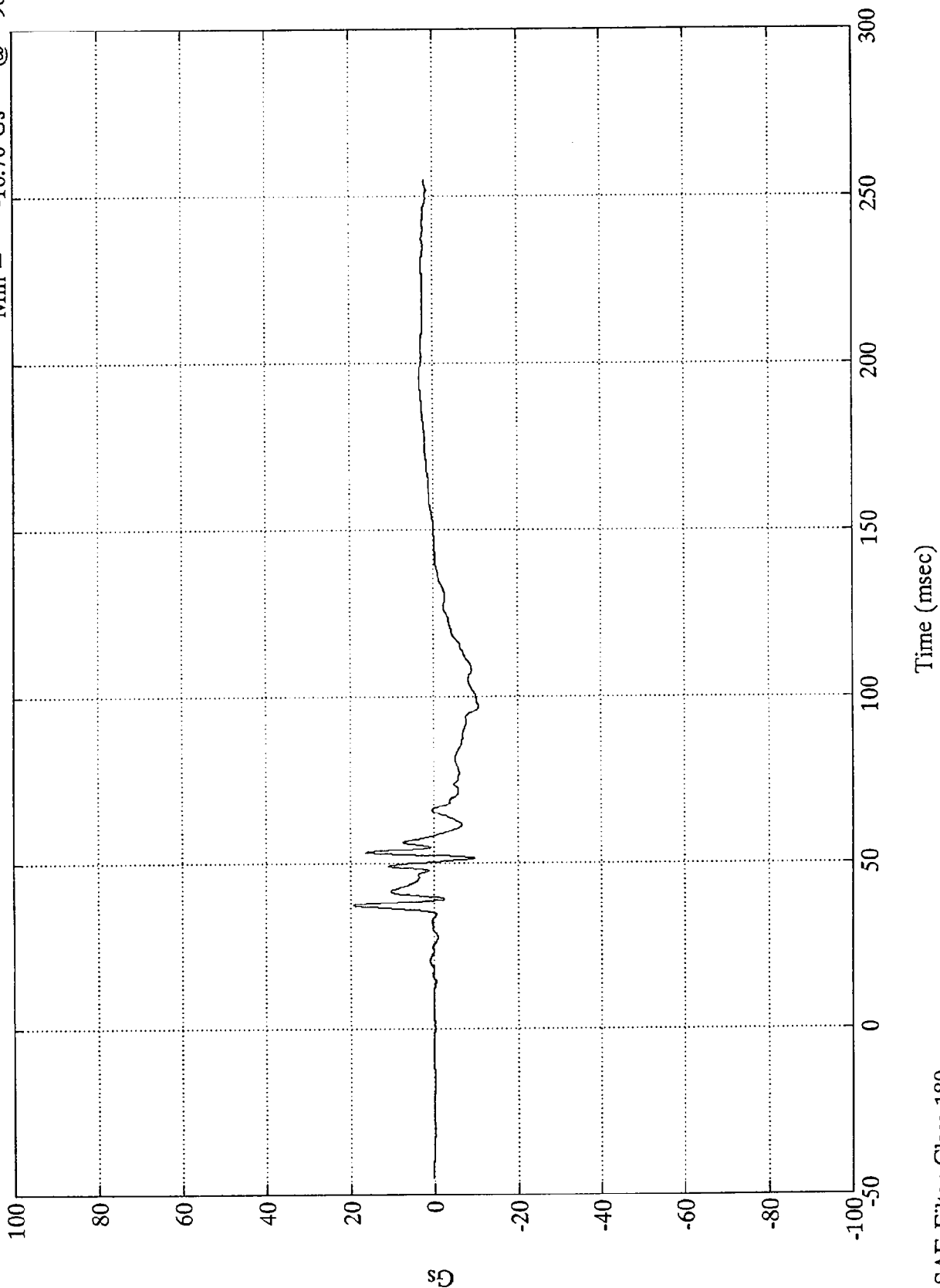
Pos. 1 Chest Y



B-78

NCAP TEST #8 - 1993 HONDA CIVIC DX

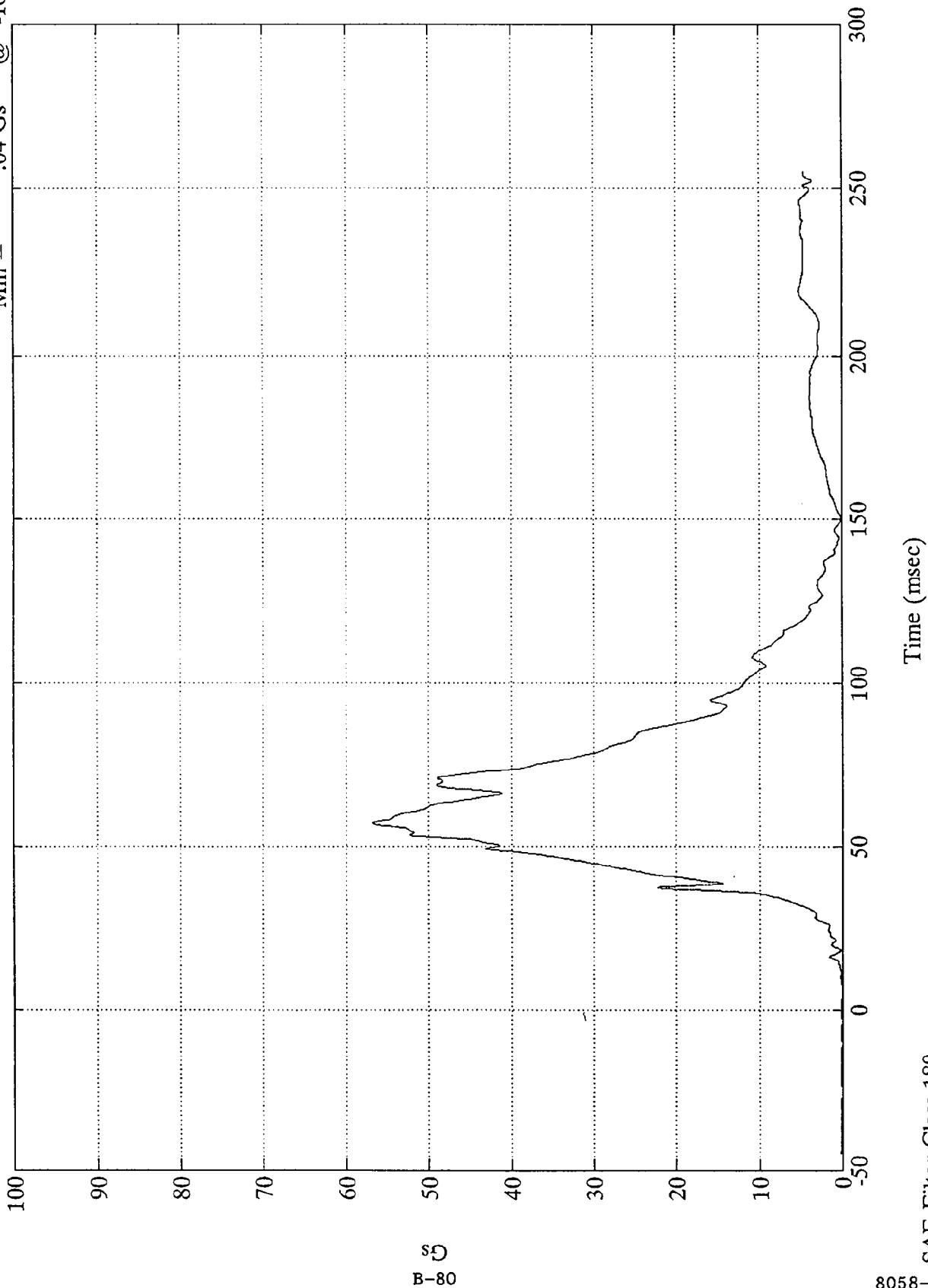
Pos. 1 Chest Z
Max = 19.31 Gs @ 37.31 msec
Min = -10.70 Gs @ 96.72 msec



B-79

NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 1 Chest Resultant
Max = 56.81 Gs @ 57.00 msec
Min = .04 Gs @ -10.92 msec

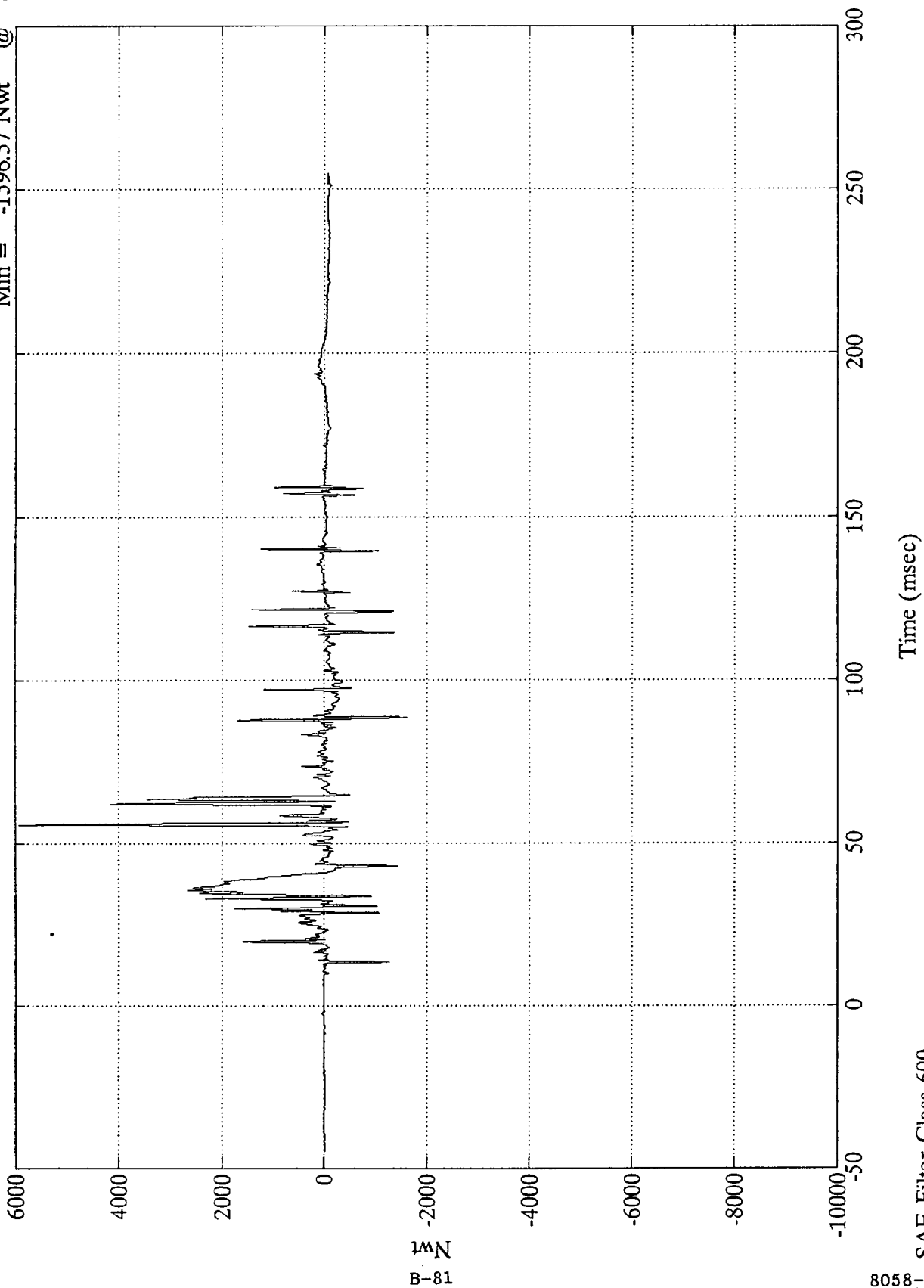


B-80

NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 1 Left Femur

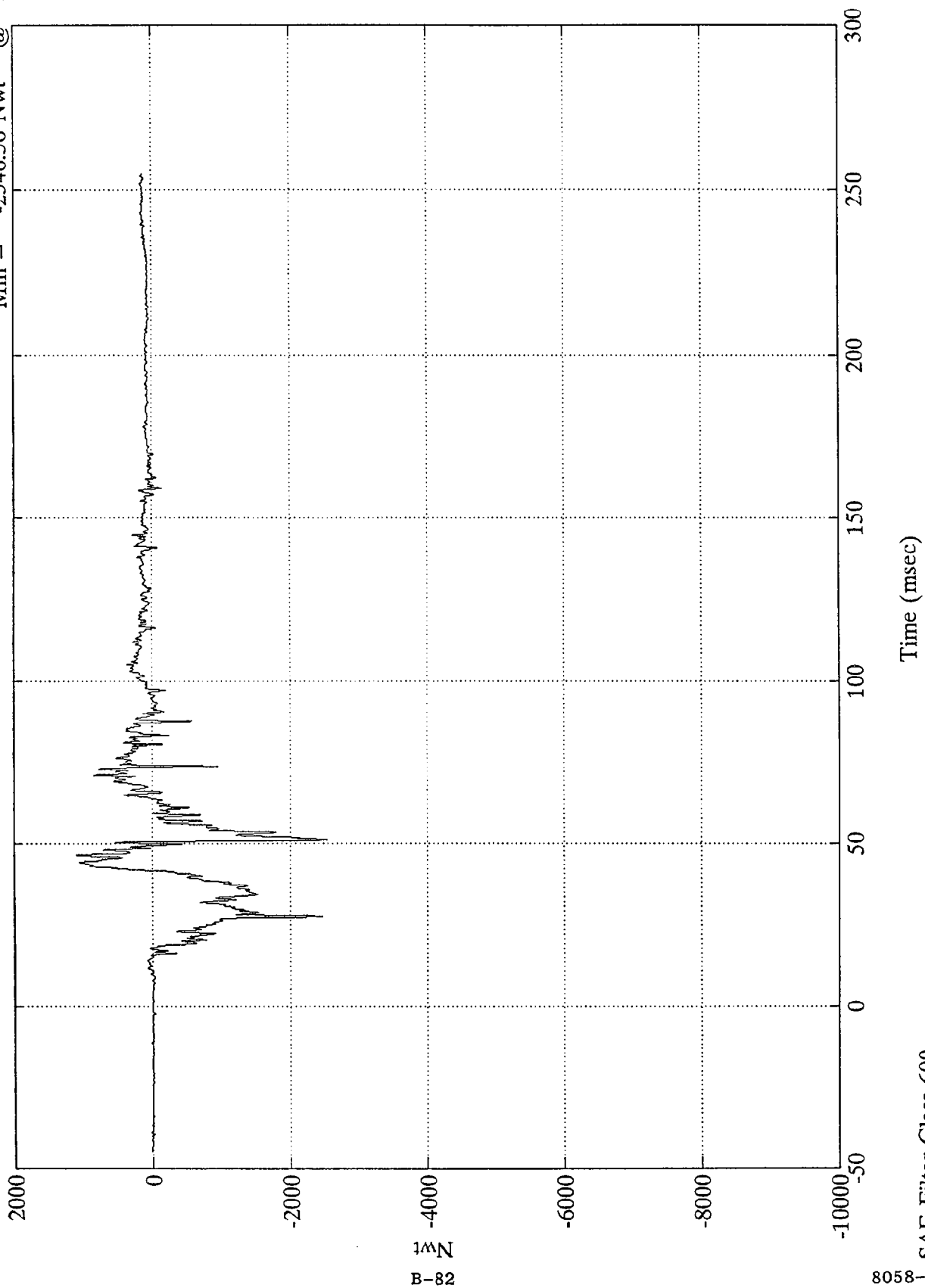
Max = 5930.29 Nwt @ 55.80 msec
Min = -1596.57 Nwt @ 88.31 msec



1N
B-81

NCAP TEST #8 - 1993 HONDA CIVIC DX

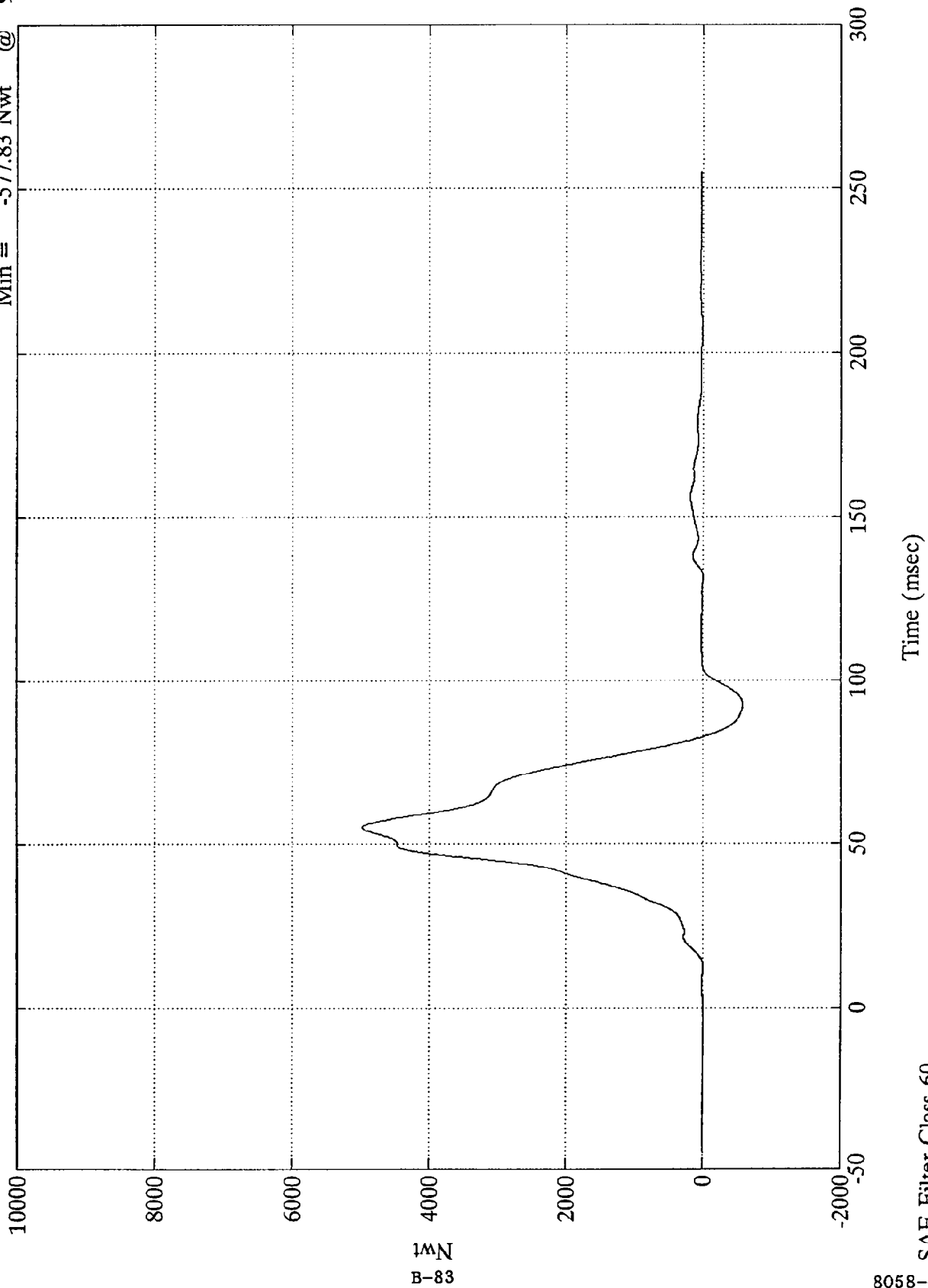
Pos. 1 Right Femur
Max = 1101.08 Nwt @ 46.56 msec
Min = -2540.56 Nwt @ 51.12 msec



NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 4978.79 Nwt @ 54.96 msec
Min = -577.83 Nwt @ 92.40 msec

Pos. 1 Left Belt Load

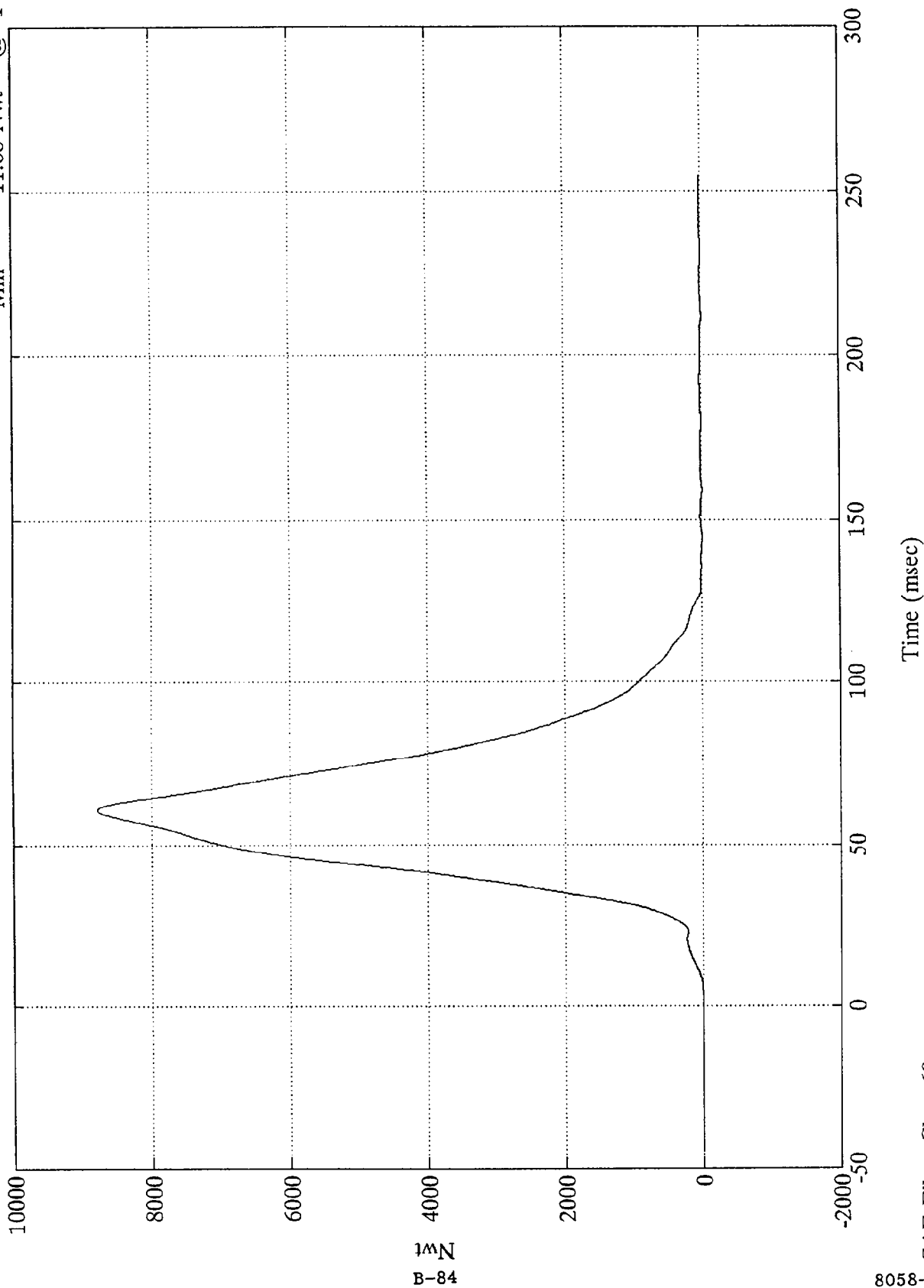


1kN
B-83

NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 1 Torso Belt Load

Max =	8781.83 Nwt	@	61.08 msec
Min =	-11.68 Nwt	@	144.60 msec



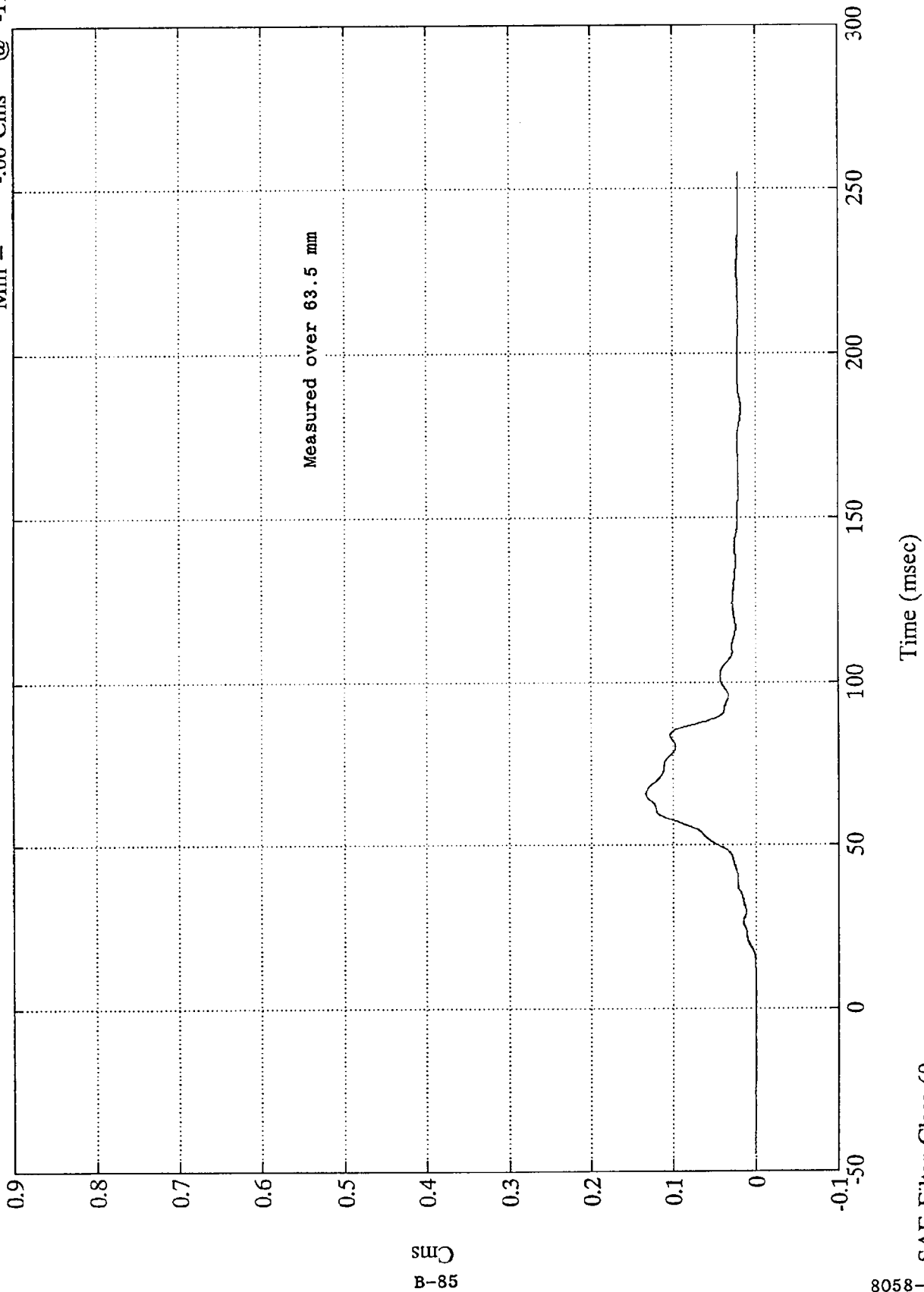
1wN
B-84

8058-4 SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

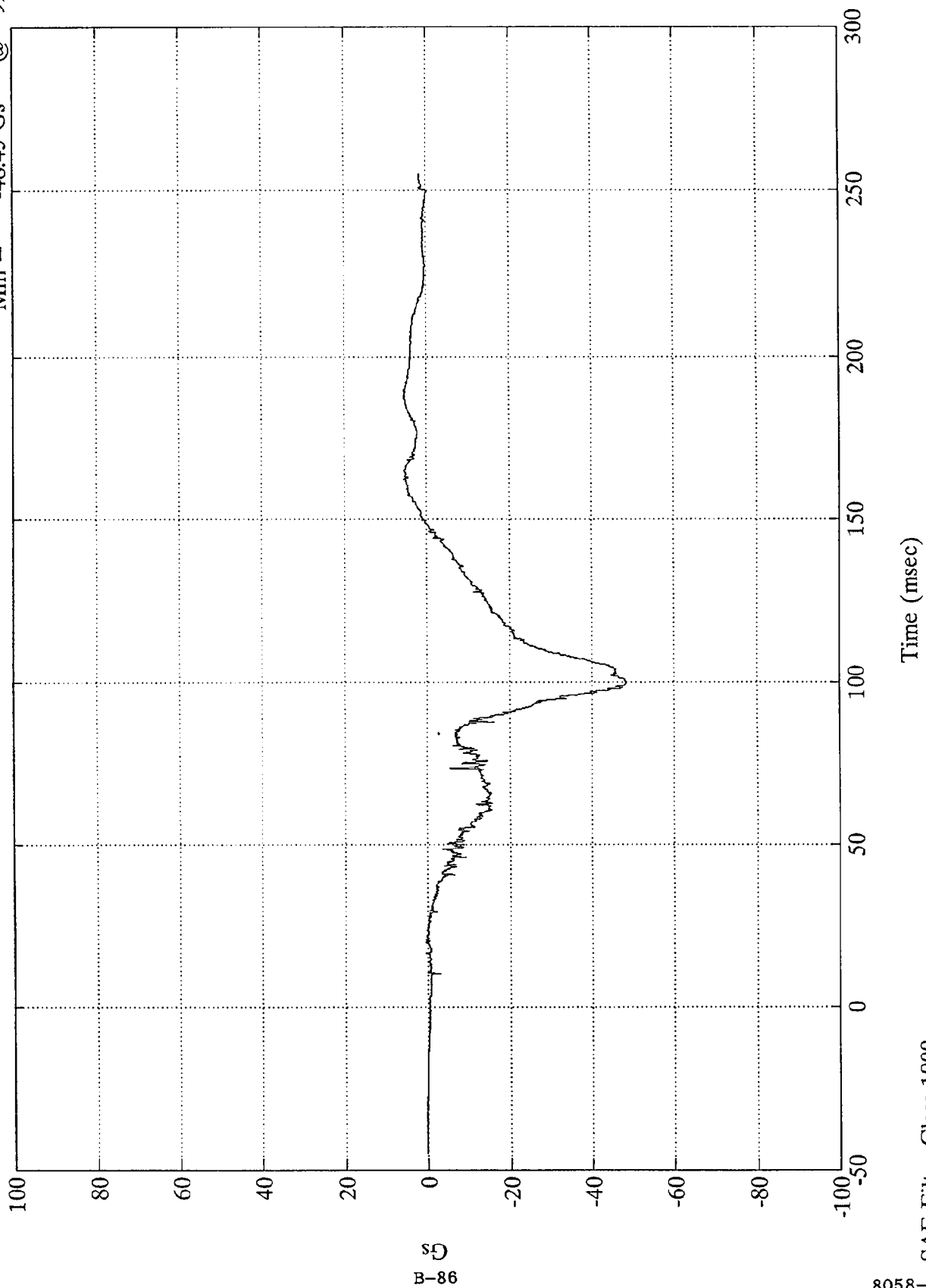
Pos. 1 Belt Elongation

Max = .13 Cms @ 65.63 msec
Min = -.00 Cms @ -19.80 msec



NCAP TEST #8 - 1993 HONDA CIVIC DX

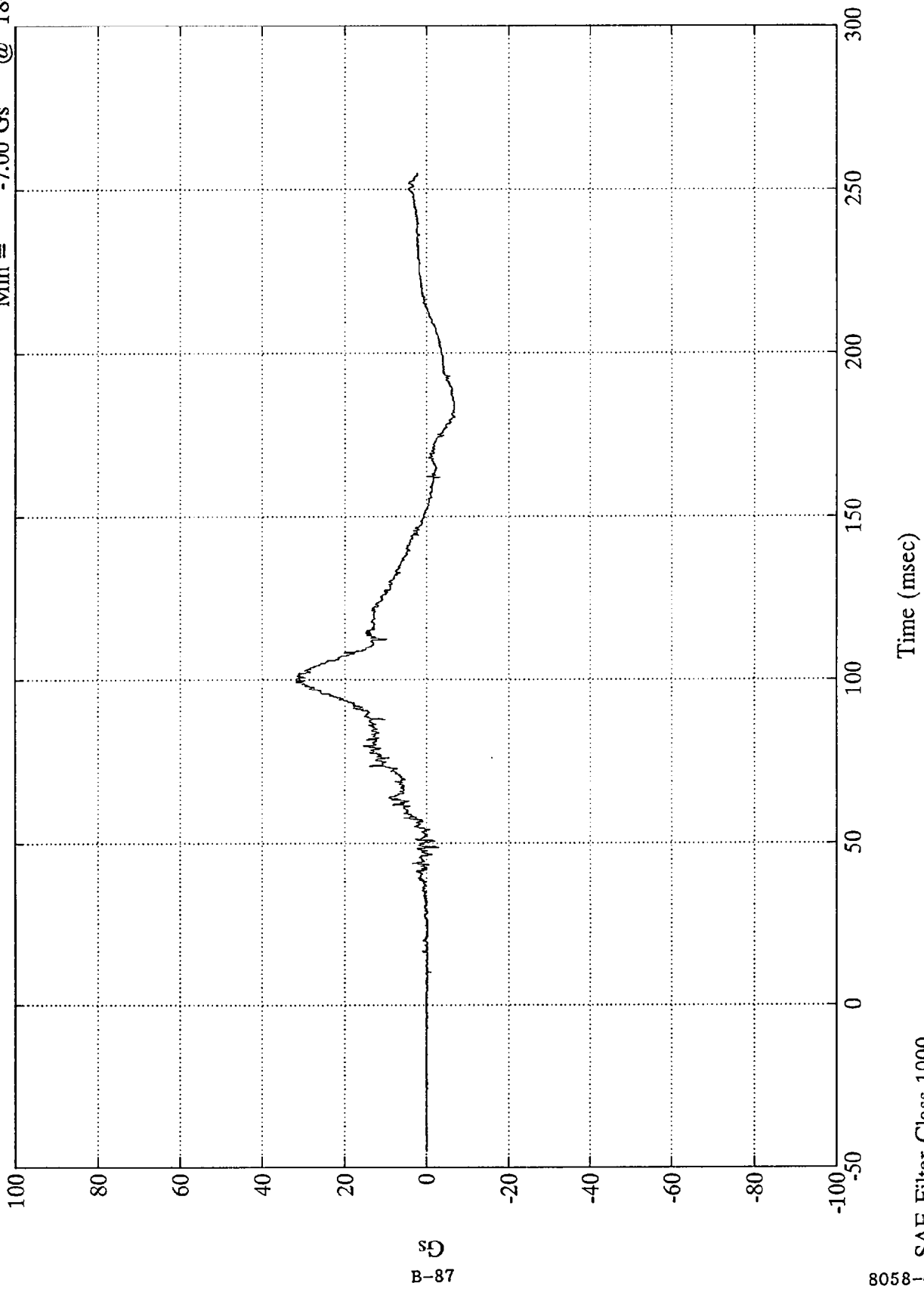
Pos. 2 Head X
Max = 5.53 Gs @ 162.36 msec
Min = -48.45 Gs @ 99.84 msec



B-86
Gs

NCAP TEST #8 - 1993 HONDA CIVIC DX

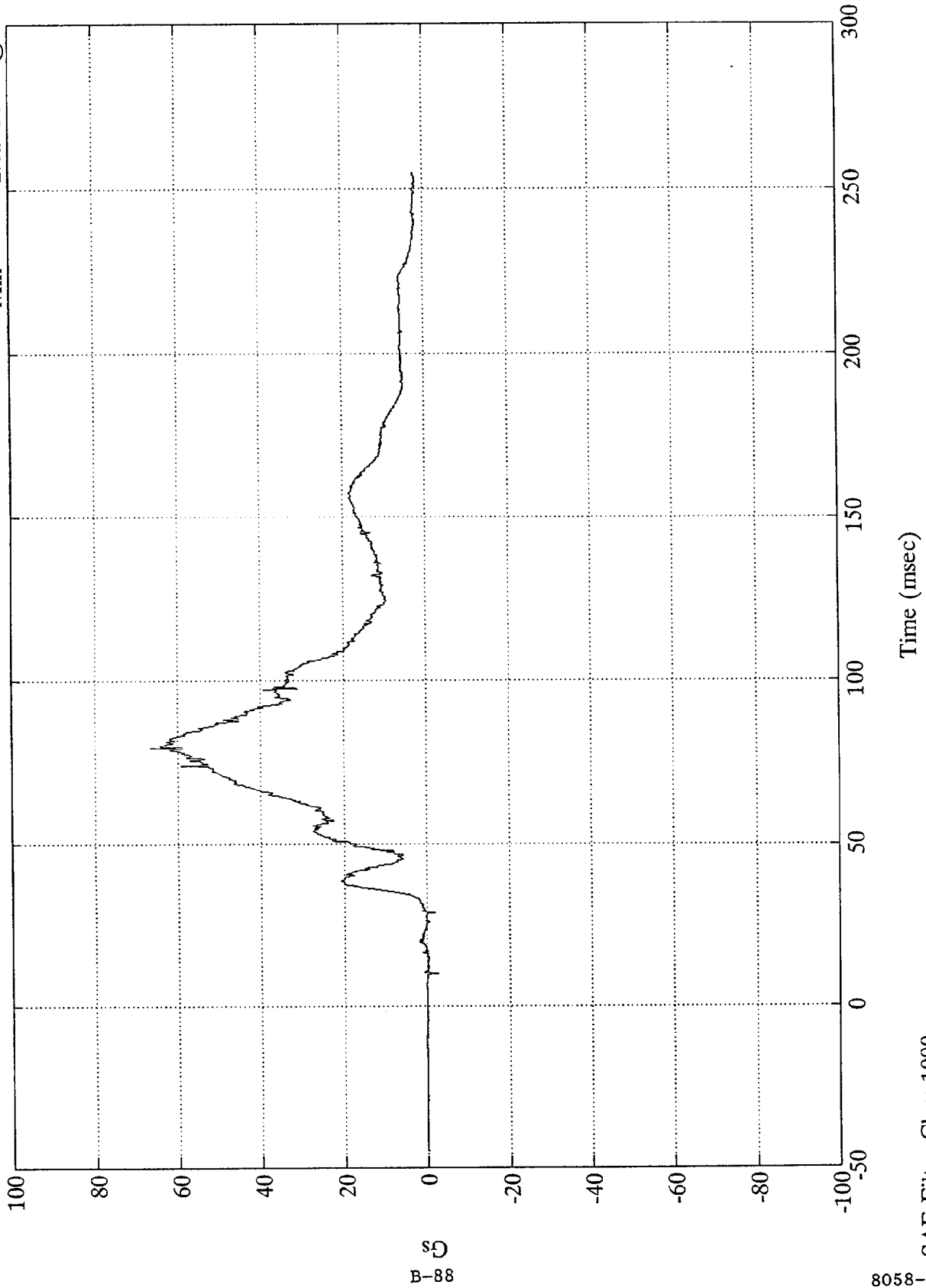
Pos. 2 Head Y
Max = 32.06 Gs @ 99.84 msec
Min = -7.00 Gs @ 180.24 msec



B-87

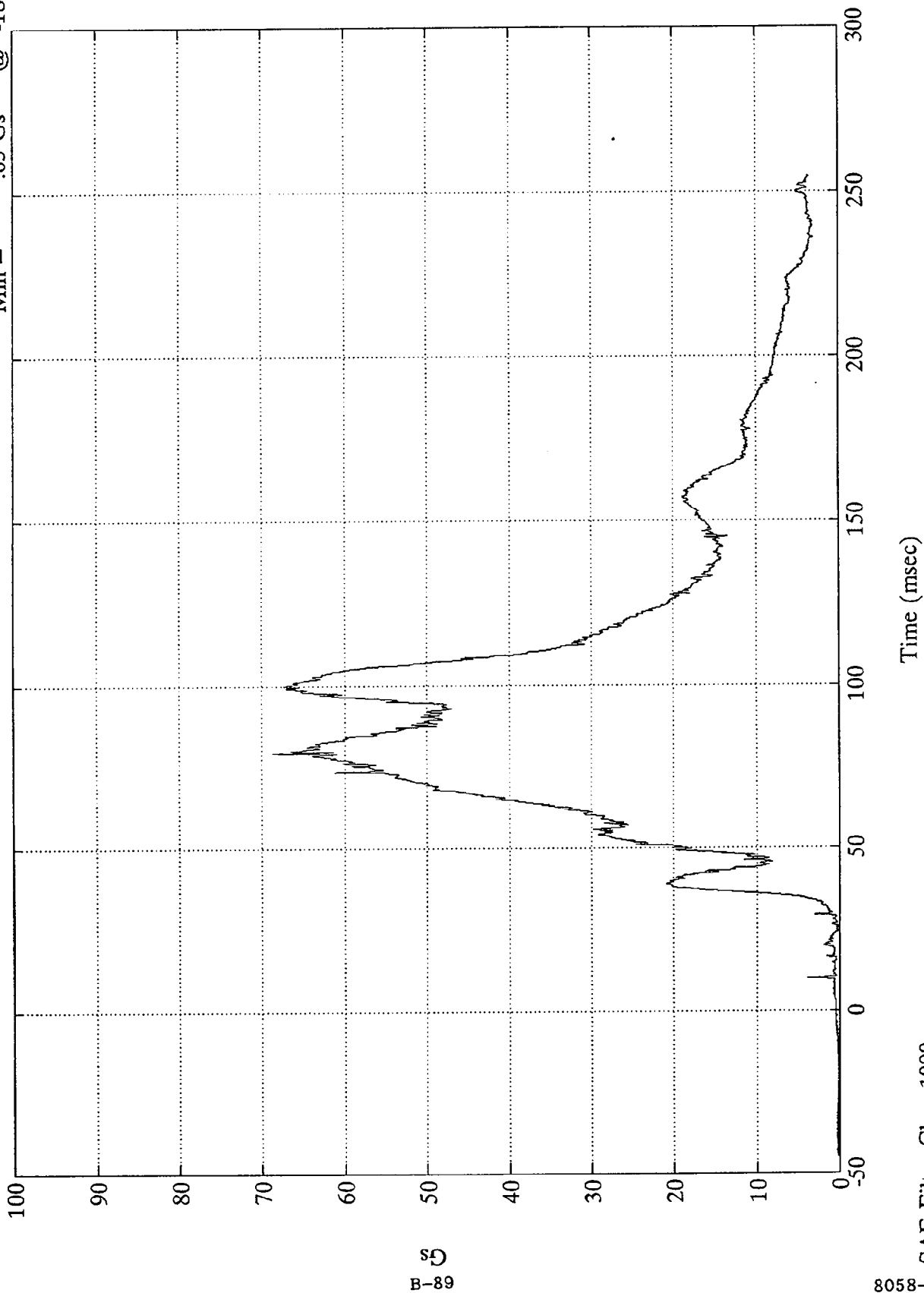
NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 2 Head Z
Max = 66.59 Gs @ 79.44 msec
Min = -2.61 Gs @ 10.07 msec



NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 2 Head Resultant
Max = 68.68 Gs @ 79.44 msec
Min = .05 Gs @ -18.84 msec

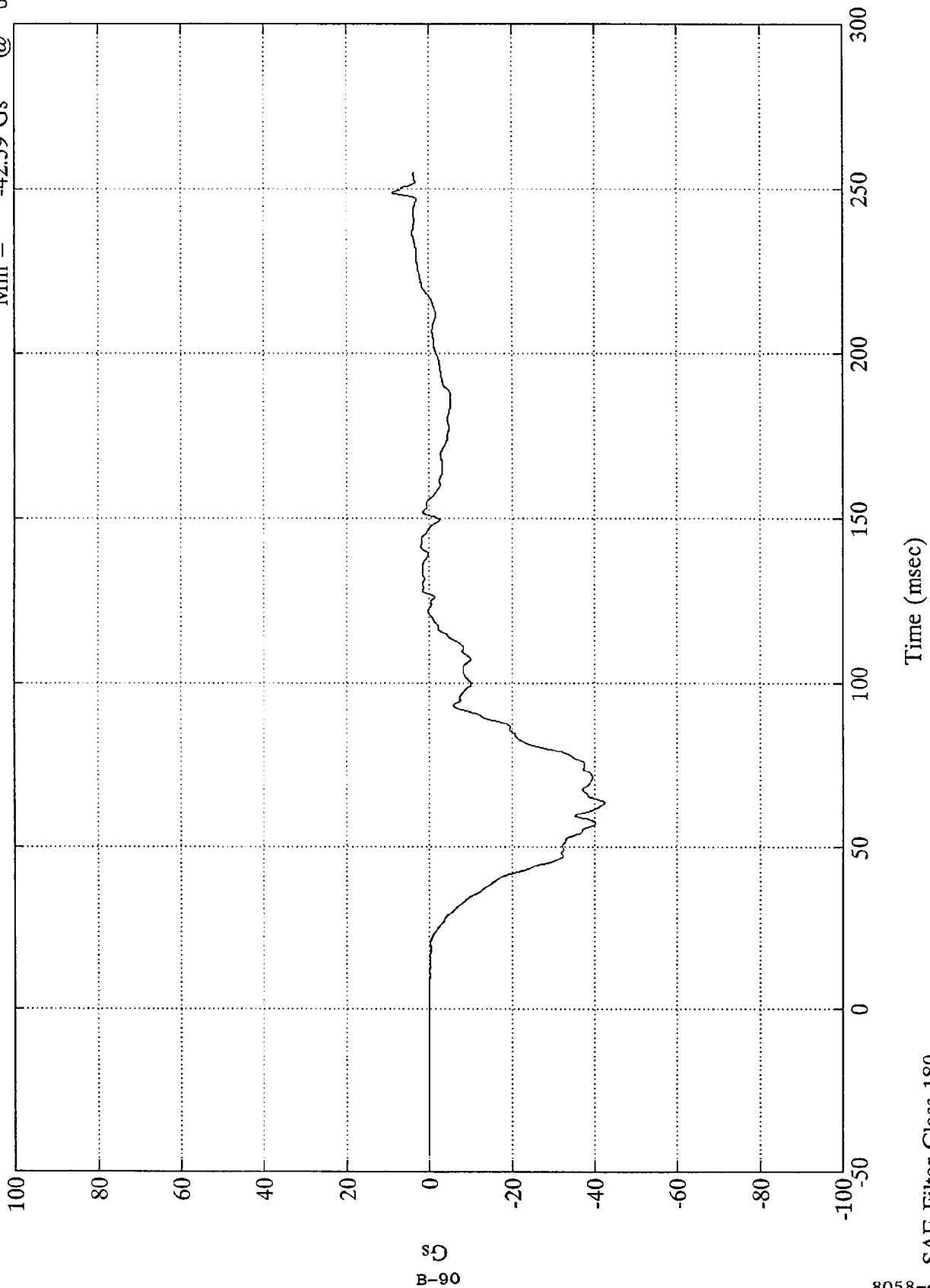


B-89

8058-4 SAE Filter Class 1000

NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 2 Chest X
Max = 8.82 Gs @ 248.88 msec
Min = -42.59 Gs @ 63.60 msec

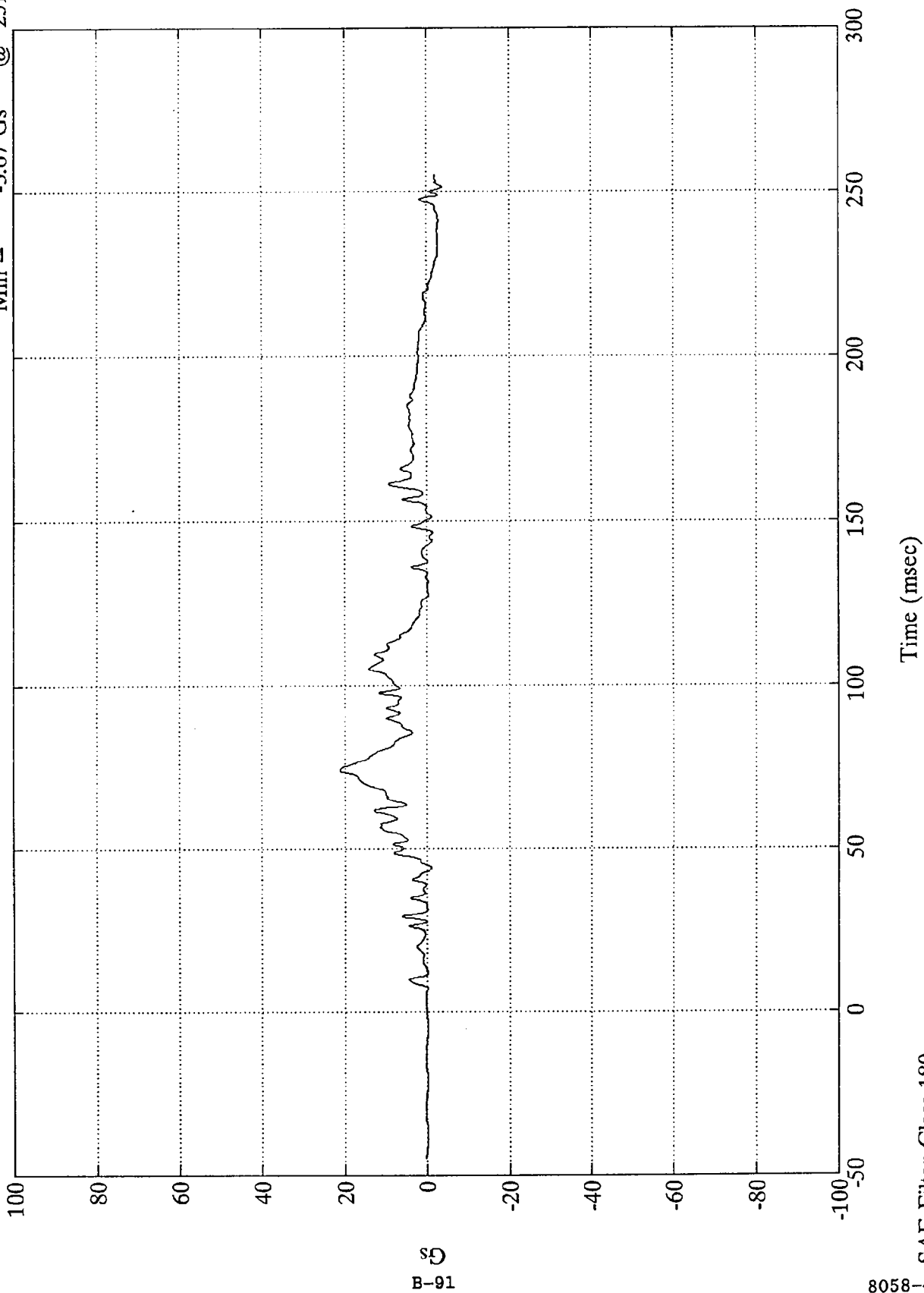


B-90

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 21.17 Gs @ 74.04 msec
Min = -3.67 Gs @ 251.39 msec

Pos. 2 Chest Y

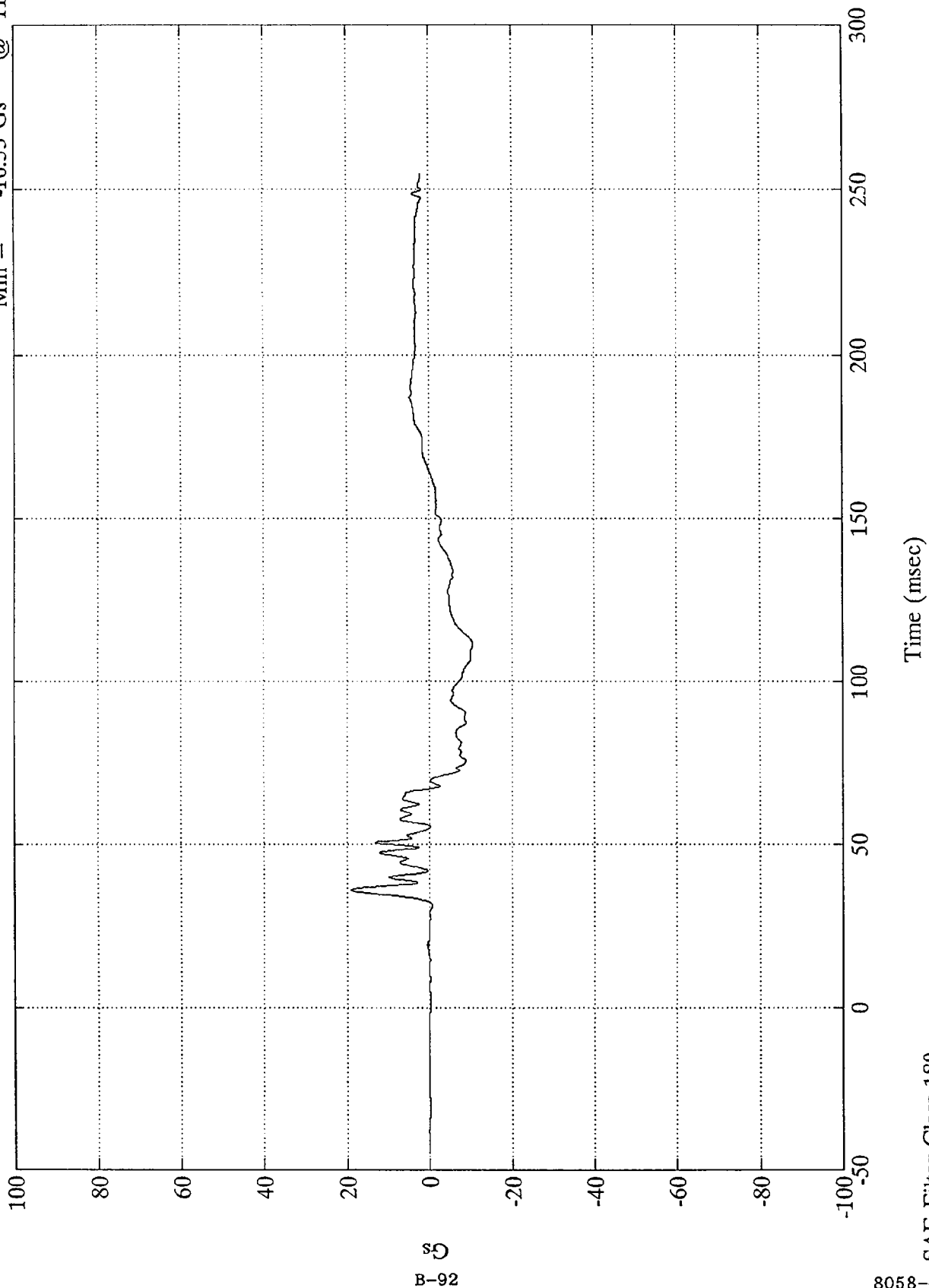


B-91

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 18.99 Gs @ 35.88 msec
Min = -10.53 Gs @ 111.23 msec

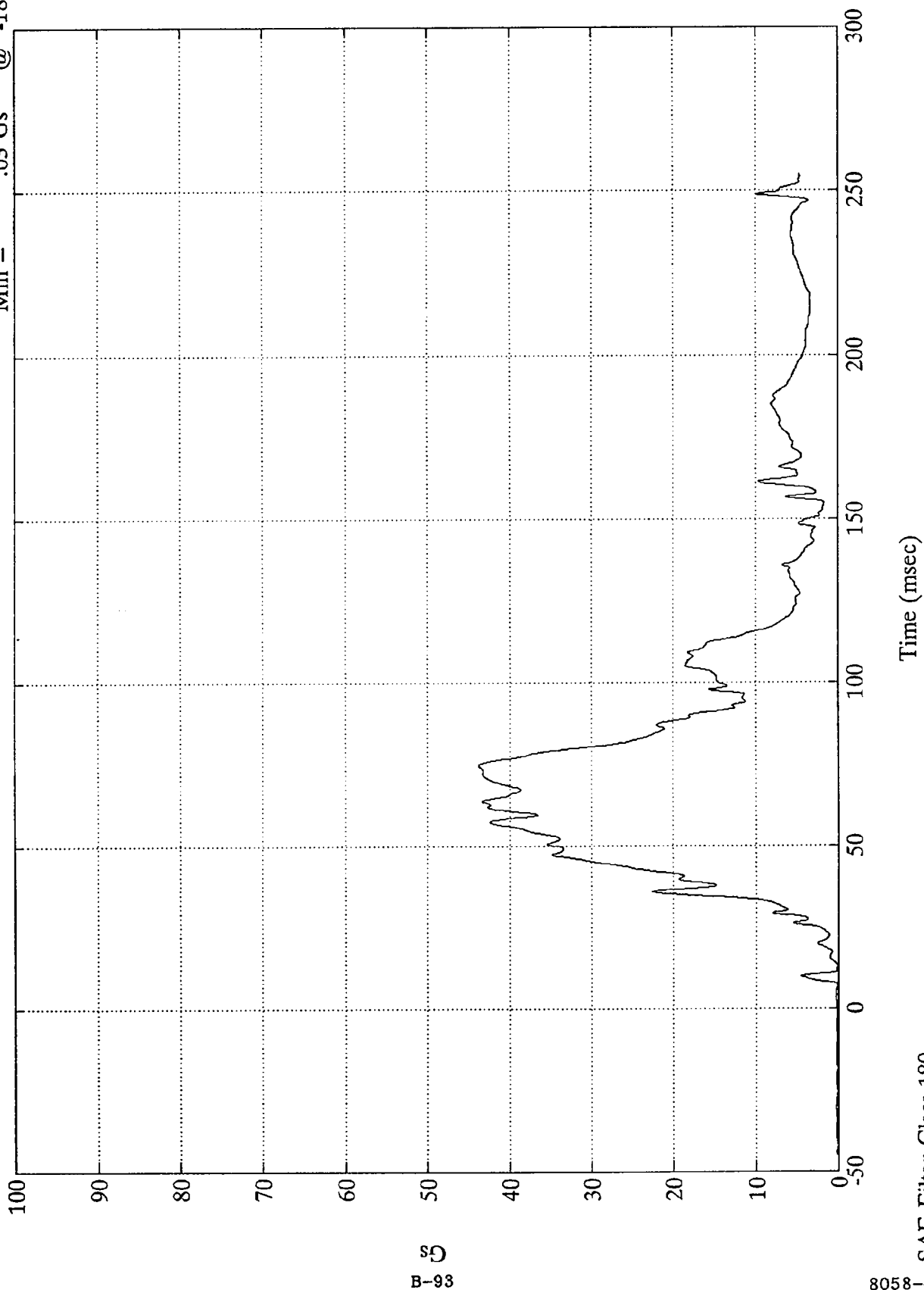
Pos. 2 Chest Z



B-92

NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 2 Chest Resultant
Max = 43.77 Gs @ 74.63 msec
Min = .03 Gs @ -18.36 msec

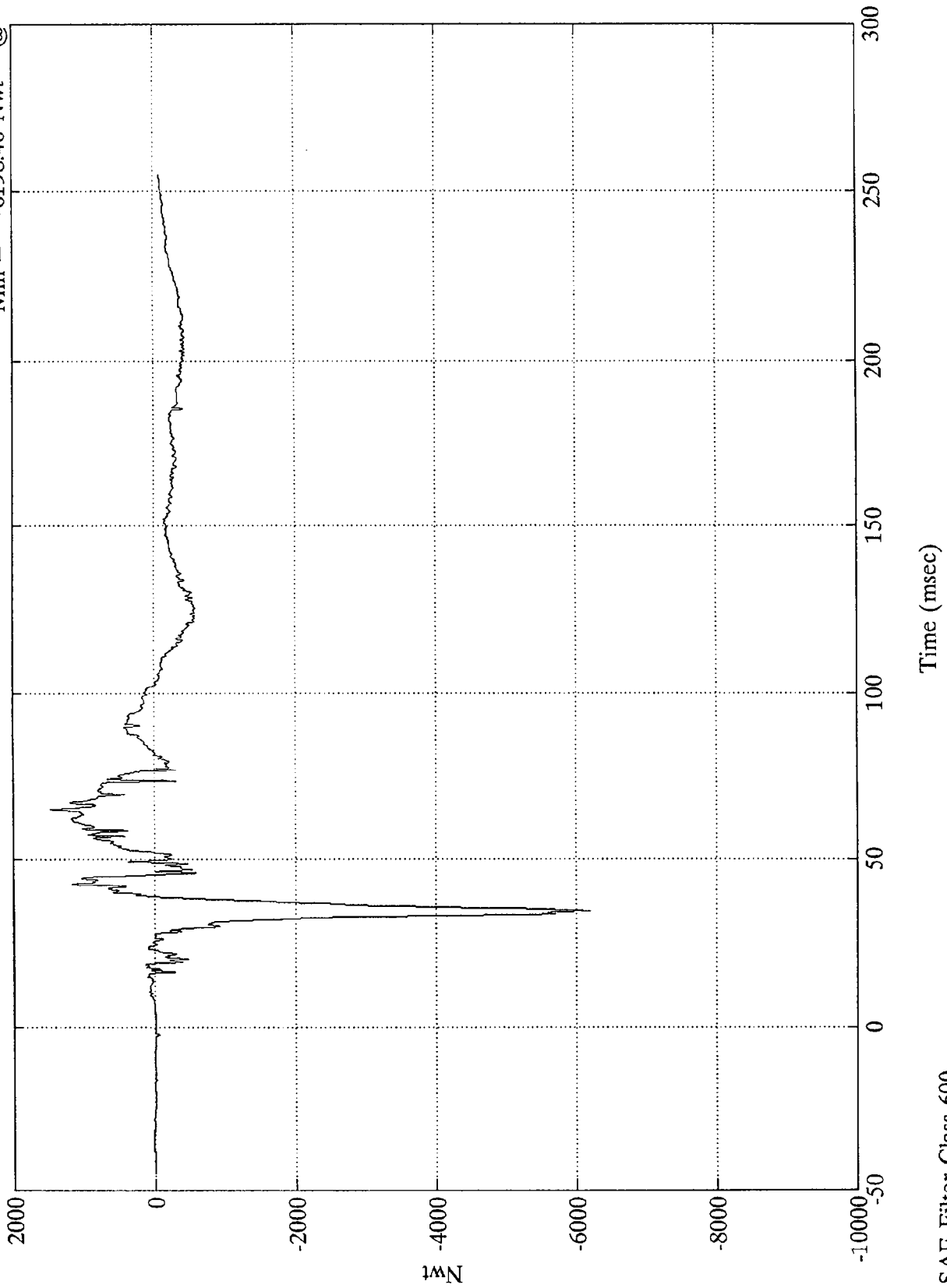


B-93

NCAP TEST #8 - 1993 HONDA CIVIC DX

Max = 1482.67 Nwt @ 64.91 msec
Min = -6198.40 Nwt @ 34.43 msec

Pos. 2 Left Femur

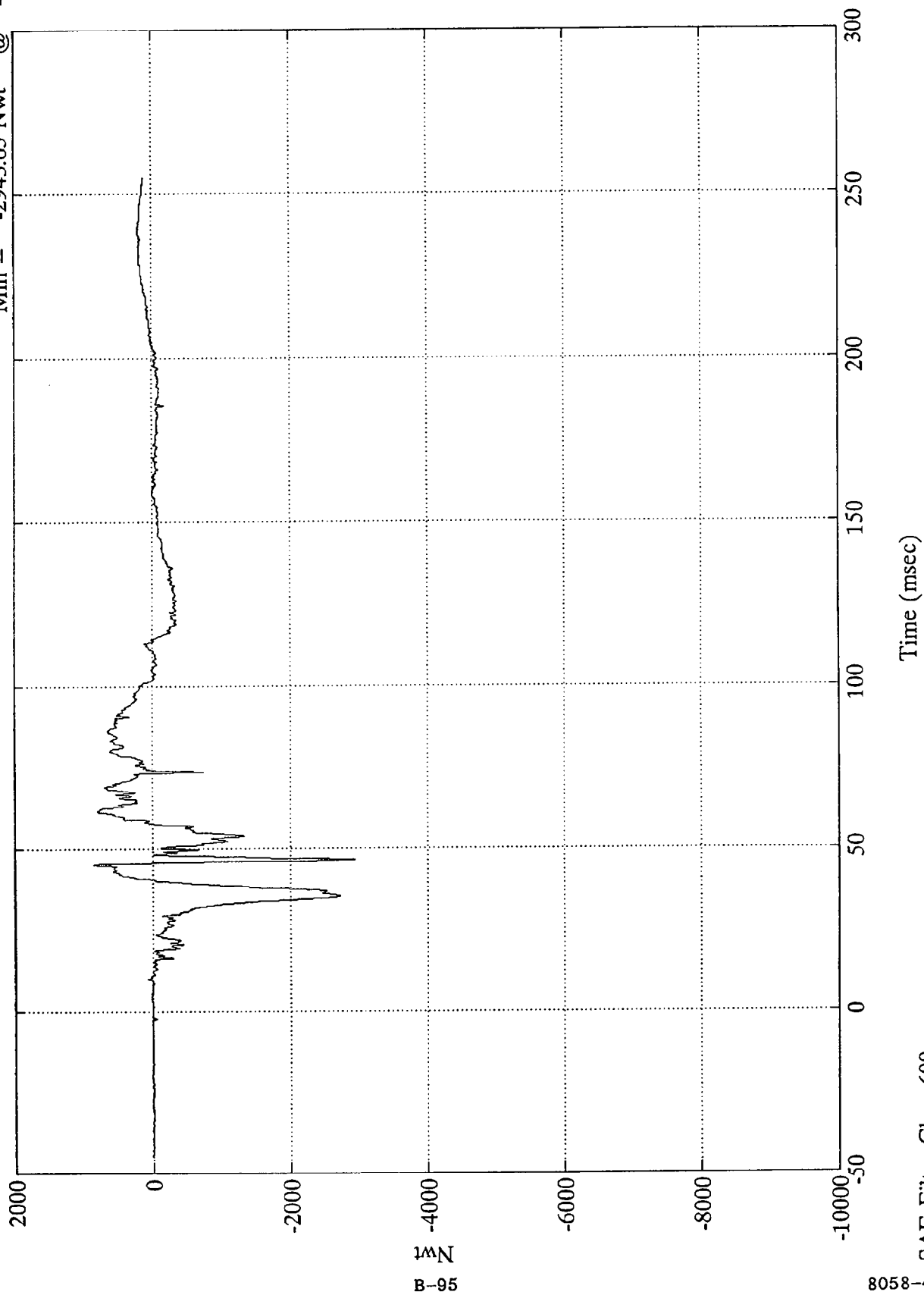


SAE Filter Class 600

NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 2 Right Femur

Max = 861.62 Nwt @ 45.12 msec
Min = -2943.63 Nwt @ 46.56 msec



1N
B-95

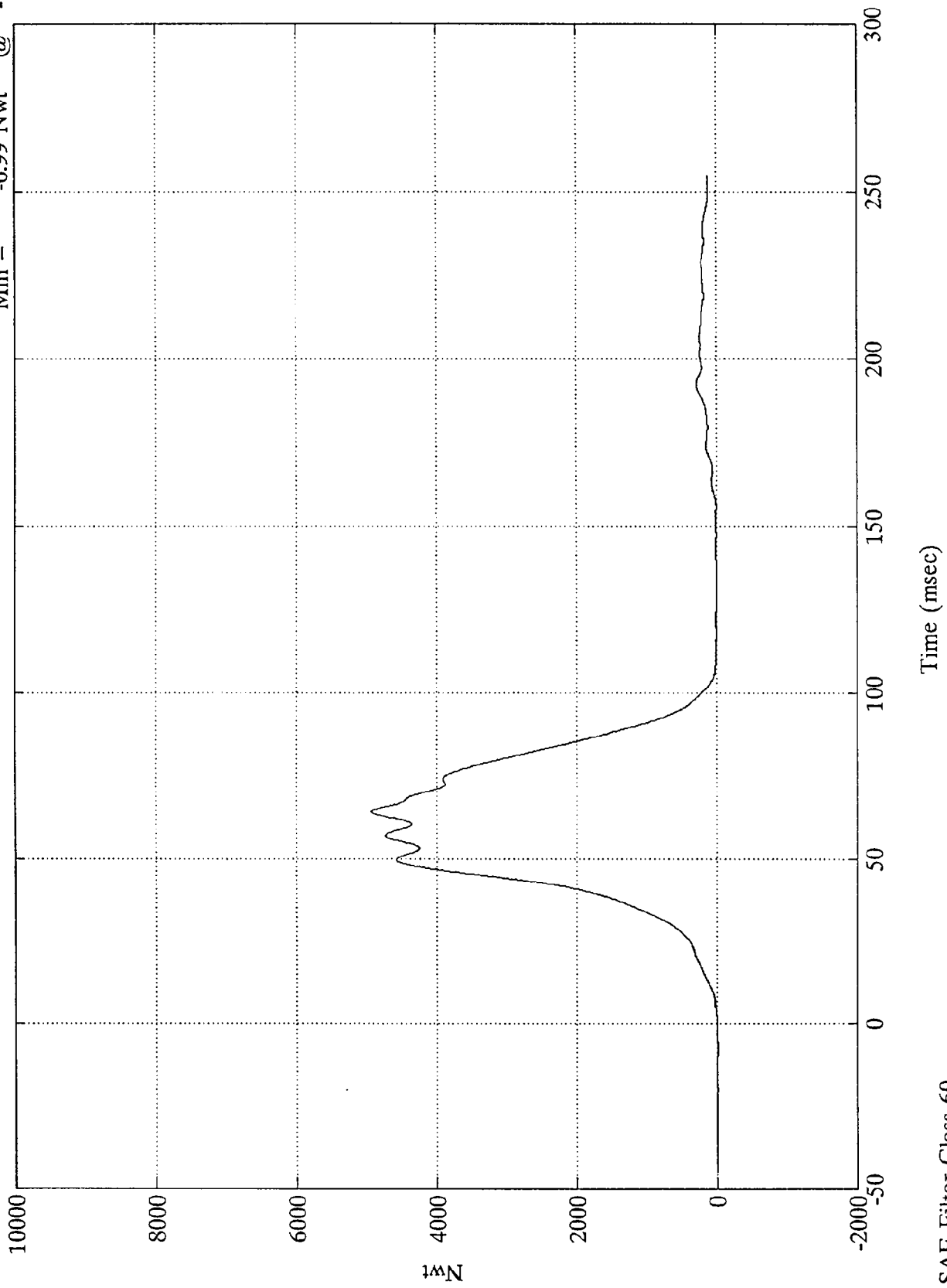
SAE Filter Class 600

8058-4

NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 2 Right Belt Load

Max = 4937.65 Nwt @ 64.31 msec
Min = -6.99 Nwt @ -7.44 msec



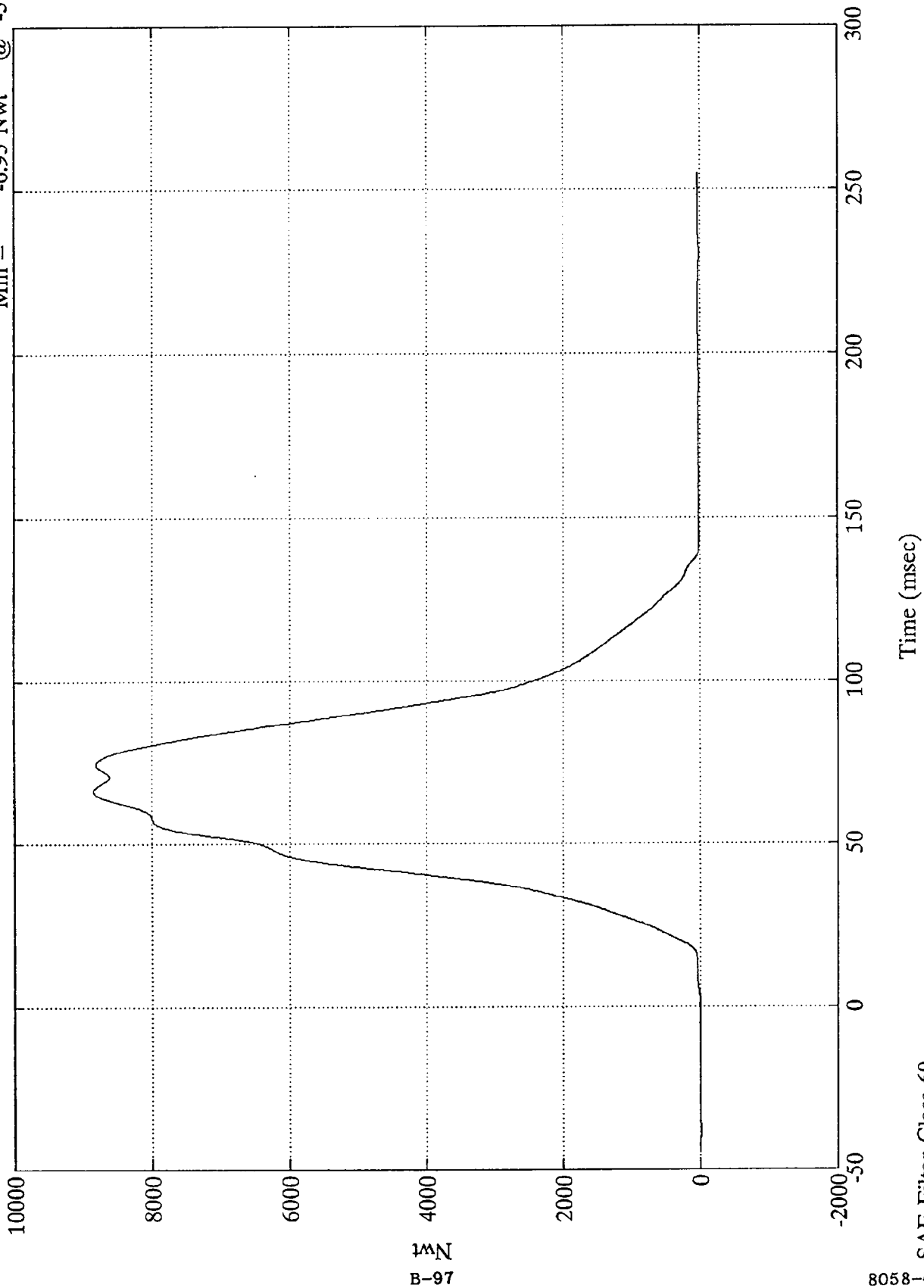
13N
B-96

8058-4 SAE Filter Class 60

NCAP TEST #8 - 1993 HONDA CIVIC DX

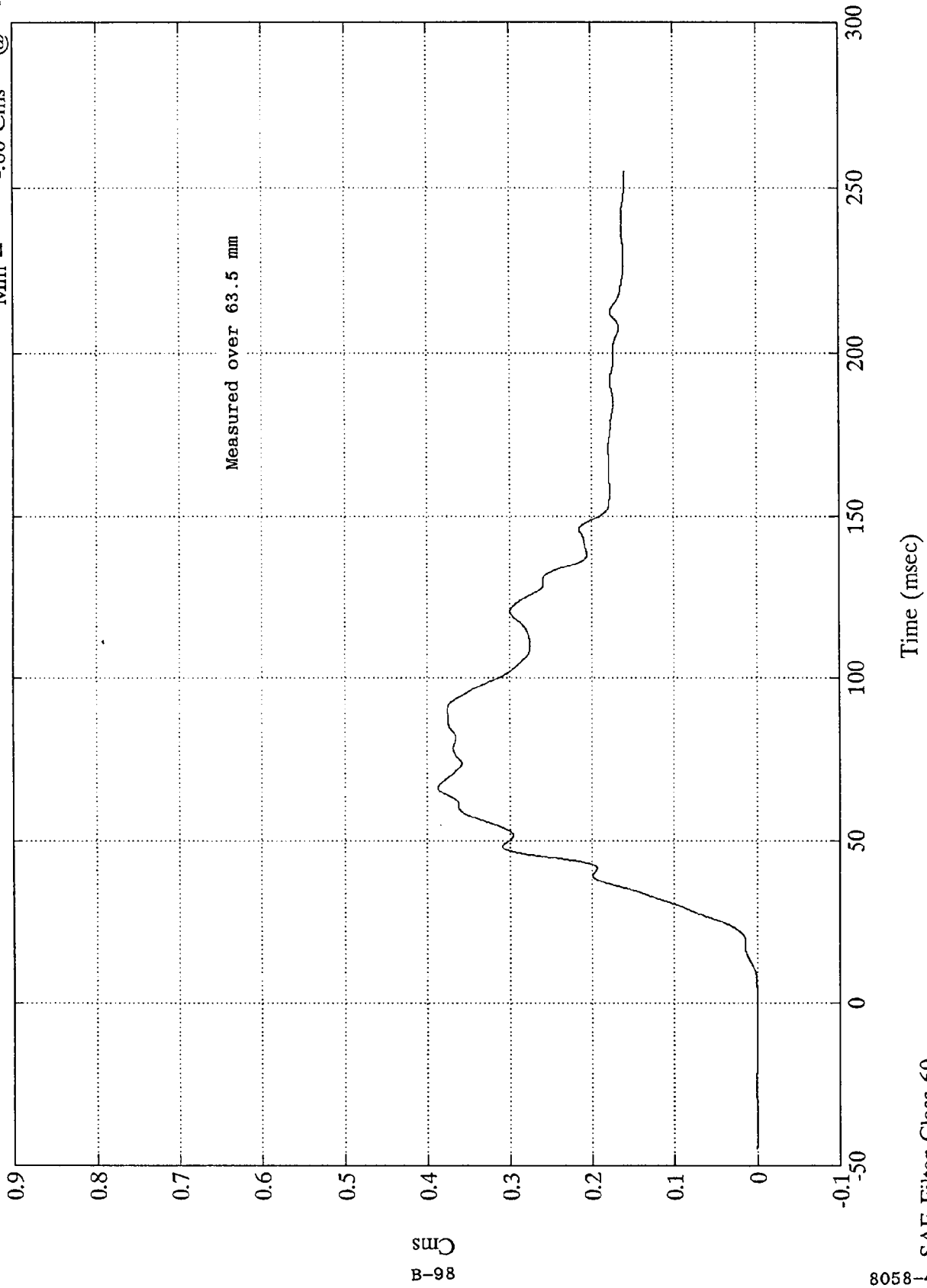
Max = 8851.73 Nwt @ 66.36 msec
Min = -6.95 Nwt @ -37.92 msec

Pos. 2 Torso Belt Load



NCAP TEST #8 - 1993 HONDA CIVIC DX

Pos. 2 Belt Elongation
Max = .39 Cms @ 66.00 msec
Min = -.00 Cms @ -2.64 msec



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.

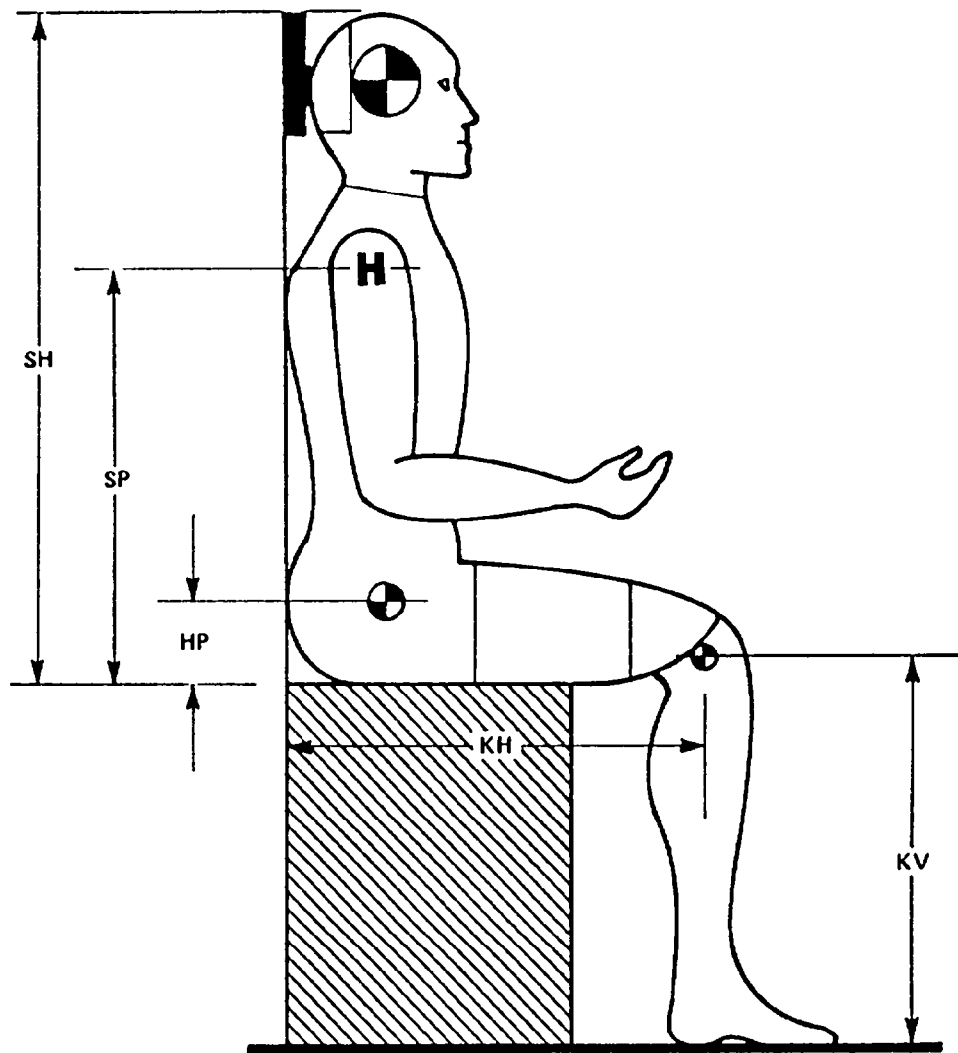
Dummy serial numbers and certification dates are:

<u>Serial No.</u>	<u>Completion Date</u>
320	7/20/92
358	10/2/92

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 7
DUMMY CONFIGURATION DIMENSIONS



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	7/20/92	
VERIFICATION NUMBER FOR DUMMY (*)	XXXXXXXXXXXXXX	1	
SH - Seated Height	904 to 909 mm	906 mm	mm
SP - Shoulder Pivot Height	554 to 569 mm	559 mm	mm
HP - Hip Pivot Height	99 mm ref.	99 mm	mm
KH - Knee Pivot from Back Line	510 to 526 mm	518 mm	mm
KV - Knee Pivot from floor	490 to 505 mm	498 mm	mm
SW - Shoulder Width	452 to 467 mm	460 mm	mm
HW - Hip Width	356 to 391 mm	376 mm	mm

II. PERFORMANCE VERIFICATION DATA:

		PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION		7/20/92	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY (*)		1	
VERIFICATION LAB TEMPERATURE (19 to 25 C)		20.5-22 C	C
VERIFICATION LAB HUMIDITY (10 TO 70 %)		41-50 %	%
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST			
a. peak resultant accel.	210 to 260 G's	214.2 G's	G's
b. peak lateral accel.	<= 10 G's	2.0 G's	G's
c. Time above 100 G's	0.9 to 1.5 ms.	1.25 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. <u>NECK BENDING TEST</u>				
a. Pendulum Speed		23.6 to 28.0 kph	24.8 kph	kph
b. Pend. Avg. Decel. over t3 to t2		20 to 24 G's	22.4 G's	G's
c. Peak Resultant Head Acceleration		26 G's max.	22.9 G's	G's
d. Pendulum Decel. (t2-t1)		<= 3 ms.	2.98 ms	ms
e. Pendulum Decel. (t3-t2)		25 to 30 ms.	25.67 ms	ms
f. Pendulum Decel. (t4-t3)		<= 10 ms.	7.69 ms	ms
g. Max. Head Rotation		63 to 73 deg.	67.26 deg	deg
h. Chordal Displacement				
HEAD ROTATION ANGLE				
0 deg.	Time	-2 to 2 ms.	0.0 ms	ms
	Displ.	-13 to 13 mm	0.0 mm	mm
30 deg.	Time	25.6 to 34.4 ms.	31.13 ms	ms
	Displ.	53 to 79 mm	67 mm	mm
60 deg.	Time	40.3 to 51.7 ms.	46.5 ms	ms
	Displ.	109 to 135 mm	116.6 mm	mm
Maximum	Time	53.2 to 66.8 ms.	55.93 ms	ms
	Displ.	127 to 152 mm	134.4 mm	mm
60 deg.	Time	67.0 to 83.0 ms.	67.96 ms	ms
	Displ.	109 to 135 mm	130.8 mm	mm
30 deg.	Time	85.4 to 104.6 ms.	88.79 ms	ms
	Displ.	53 to 79 mm	55.9 mm	mm
0 deg.	Time	101.0 - 123.0 ms.	103.42 ms	ms
	Displ.	-13 to 13 mm	0.0 mm	mm

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. ABDOMINAL COMPRESSION <u>TEST:</u> (preload = 222 N)			
a. Force @ 1.3 mm	102 to 160 N	111 N	N
b. Force @ 1.9 mm	160 to 222 N	173.5 N	N
c. Force @ 2.5 mm	222 to 280 N	251 N	N
d. Force @ 3.3 mm	325 to 391 N	373 N	N
4. LUMBAR FLEXION TEST:			
a. Force @ 20 deg.	98 to 151 N	117.8 N	N
b. Force @ 30 deg.	151 to 205 N	178 N	N
c. Force @ 40 deg.	205 to 257 N	227 N	N
d. Return Angle	12 deg. maximum	8 deg	deg
5. CHEST IMPACT TESTS:			
A. High Speed			
(1) Probe Speed	23.9 to 24.4 kph	23.9 kph	kph
(2) Peak Deflection	43 mm maximum	42.9 mm	mm
(3) Peak Resistive Force	10008 N maximum	9390 N	N
(4) Internal Hysteresis	50 to 70%	60.4 %	%
B. Low Speed			
(1) Probe Speed	15.0 to 15.5 kph	15.25 kph	kph
(2) Peak Deflection	28 mm maximum	27.8 mm	mm
(3) Peak Resistive Force	6449 N maximum	5293 N	N
(4) Internal Hysteresis	50 to 70%	58.1 %	%

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	7.4 to 7.7 kph	7.68 kph	kph
(2) Maximum Force	8229 to 11120 N	8362 N	N
(3) Time above 1000 lbs.	1.7 ms. minimum	2.00 ms	ms
B. <u>Right Knee</u>			
(1) Probe Speed	7.4 to 7.7 kph	7.68 kph	kph
(2) Maximum Force	8229 to 11120 N	9065 N	N
(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: 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	GK20	7/92	1/93
ENDEVCO	EL86	7/92	1/93
ENDEVCO	FR42	7/92	1/93
ENDEVCO	CK11	10/92	4/93
ENDEVCO	ER72	10/92	4/93
ENDEVCO	GD54	10/92	4/93
GSE	548	11/92	5/93
GSE	549	11/92	5/93

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	7/92	1/93
CEC	A161	7/92	1/93
TRANS- DUCER INC	20051	7/92	1/93
BLH	72952	7/92	1/93
CIC	567-11	7/92	1/93

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	10/2/92	
VERIFICATION NUMBER FOR DUMMY (*)	XXXXXXXXXXXXXX	2	
SH - Seated Height	904 to 909 mm	904.2 mm	mm
SP - Shoulder Pivot Height	554 to 569 mm	561 mm	mm
HP - Hip Pivot Height	99 mm ref.	99 mm	mm
KH - Knee Pivot from Back Line	510 to 526 mm	520 mm	mm
KV - Knee Pivot from floor	490 to 505 mm	498 mm	mm
SW - Shoulder Width	452 to 467 mm	457 mm	mm
HW - Hip Width	356 to 391 mm	376 mm	mm

II. PERFORMANCE VERIFICATION DATA:

		PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION		10/2/92	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY (*)		2	
VERIFICATION LAB TEMPERATURE (19 to 25 C)		20.5-21 C	C
VERIFICATION LAB HUMIDITY (10 TO 70 %)		38-46 %	%
TEST PARAMETER	SPECIFICATION		
<u>1. HEAD DROP TEST</u>			
a. peak resultant accel.	210 to 260 G's	232 G's	G's
b. peak lateral accel.	<= 10 G's	7.1 G's	G's
c. Time above 100 G's	0.9 to 1.5 ms.	1.25 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		23.6 to 28.0 kph	25.3 kph	kph
b. Pend. Avg. Decel. over t3 to t2		20 to 24 G's	22.7 G's	G's
c. Peak Resultant Head Acceleration		26 G's max.	25.83 G's	G's
d. Pendulum Decel. (t2-t1)		<= 3 ms.	2.85 ms	ms
e. Pendulum Decel. (t3-t2)		25 to 30 ms.	26.54 ms	ms
f. Pendulum Decel. (t4-t3)		<= 10 ms.	4.96 ms	ms
g. Max. Head Rotation		63 to 73 deg.	70.41 deg	deg
h. Chordal Displacement				
HEAD ROTATION ANGLE				
0 deg.	Time	-2 to 2 ms.	0.0 ms	ms
	Displ.	-13 to 13 mm	0.0 mm	mm
30 deg.	Time	25.6 to 34.4 ms.	29.39 ms	ms
	Displ.	53 to 79 mm	71.8 mm	mm
60 deg.	Time	40.3 to 51.7 ms.	43.15 ms	ms
	Displ.	109 to 135 mm	127.5 mm	mm
Maximum	Time	53.2 to 66.8 ms.	56.05 ms	ms
	Displ.	127 to 152 mm	139.9 mm	mm
60 deg.	Time	67.0 to 83.0 ms.	68.82 ms	ms
	Displ.	109 to 135 mm	131.3 mm	mm
30 deg.	Time	85.4 to 104.6 ms.	87.8 ms	ms
	Displ.	53 to 79 mm	64.8 mm	mm
0 deg.	Time	101.0 - 123.0 ms.	102.06 ms	ms
	Displ.	-13 to 13 mm	0.0 mm	mm

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. ABDOMINAL COMPRESSION			
<u>TEST: (preload = 222 N)</u>			
a. Force @ 1.3 mm	102 to 160 N	106.75 N	N
b. Force @ 1.9 mm	160 to 222 N	169 N	N
c. Force @ 2.5 mm	222 to 280 N	242 N	N
d. Force @ 3.3 mm	325 to 391 N	369 N	N
4. LUMBAR FLEXION TEST:			
a. Force @ 20 deg.	98 to 151 N	131 N	N
b. Force @ 30 deg.	151 to 205 N	171 N	N
c. Force @ 40 deg.	205 to 257 N	211 N	N
d. Return Angle	12 deg. maximum	11 deg	deg
5. CHEST IMPACT TESTS:			
<u>A. High Speed</u>			
(1) Probe Speed	23.9 to 24.4 kph	24.2 kph	kph
(2) Peak Deflection	43 mm maximum	39.9 mm	mm
(3) Peak Resistive Force	10008 N maximum	8963 N	N
(4) Internal Hysteresis	50 to 70%	60.6 %	%
<u>B. Low Speed</u>			
(1) Probe Speed	15.0 to 15.5 kph	15.25 kph	kph
(2) Peak Deflection	28 mm maximum	27.7 mm	mm
(3) Peak Resistive Force	6449 N maximum	5782 N	N
(4) Internal Hysteresis	50 to 70%	61.5 %	%

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	7.4 to 7.7 kph	7.68 kph	kph
(2) Maximum Force	8229 to 11120 N	8335 N	N
(3) Time above 1000 lbs.	1.7 ms. minimum	1.875 ms	ms
B. <u>Right Knee</u>			
(1) Probe Speed	7.4 to 7.7 kph	7.68 kph	kph
(2) Maximum Force	8229 to 11120 N	8722 N	N
(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

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	ER74	9/92	3/93
ENDEVCO	A57G	9/92	3/93
ENDEVCO	A84J	9/92	3/93
ENDEVCO	CD75	7/92	1/93
ENDEVCO	FY05	7/92	1/93
ENDEVCO	GD98	7/92	1/93
GSE	551	11/92	5/93
GSE	552	11/92	5/93

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	7/92	1/93
CEC	A161	7/92	1/93
TRANS- DUCER INC	20051	7/92	1/93
BLH	72952	7/92	1/93
CIC	567-11	7/92	1/93

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	GK20	ENDEVCO	7/92	1/93
	EL86	ENDEVCO	7/92	1/93
	FR42	ENDEVCO	7/92	1/93
Chest X	CK11	ENDEVCO	10/92	4/93
	ER72	ENDEVCO	10/92	4/93
	GD54	ENDEVCO	10/92	4/93
Right Femur Load Cell	549	GSE	11/92	5/93
Left Femur Load Cell	548	GSE	11/92	5/93
Lap Belt Load Cells	123	LEBOW	11/92	5/92
Shoulder Belt Load Cells	127	LEBOW	11/92	5/93
Spool-Out Potentiometer	-	SERVONIC INST.	-	-
Belt Stretch Transducer	E1	CALSPAN	-	-

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head X	ER74	ENDEVCO	9/92	3/93
Y	A57G	ENDEVCO	9/92	3/93
Z	A84J	ENDEVCO	9/92	3/93
Chest X	CD75	ENDEVCO	7/92	1/93
Y	FY05	ENDEVCO	7/92	1/93
Z	GD98	ENDEVCO	7/92	1/93
Right Femur Load Cell	552	GSE	11/92	5/93
Left Femur Load Cell	551	GSE	11/92	5/93
Lap Belt Load Cells	133	LEBOW	11/92	5/93
Shoulder Belt Load Cells	135	LEBOW	11/92	5/93
Spool-Out Potentiometer	-	SERVONIC INST.	-	-
Belt Stretch Transducer	E2	CALSPAN	-	-

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	A178	CEC	10/92	4/93
Right Rear Seat Crossmember	A128	CEC	6/92	12/92
Top of Engine	A101	CEC	11/92	5/93
Bottom of Engine	A157	CEC	11/92	5/93
Left Disc Brake Caliper	A181	CEC	11/92	5/93
Right Disc Brake Caliper	A152	CEC	10/92	4/93
Instrument Panel	A183	CEC	10/92	4/93
Left Rear Crossmember	A69	CEC	8/92	2/93
Right Rear Crossmember	A70	CEC	8/92	2/93

Appendix E

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

Your Occupant Protection System

Your Honda is equipped with seat belts and other features that work together to protect you and your passengers during a crash.

Seat belts are the most important part of your occupant protection system. When worn properly, seat belts can reduce the chance of serious injury or death in a crash.

For added protection during a severe frontal collision, all Civics sold in the U.S. and Canada (except the Canadian LX model) have a Supplemental Restraint System (SRS) with a driver's airbag. The Supplemental Restraint System is optional on the Canadian LX model.

Two indicator lights are also part of your safety system. One reminds you to make sure you and your passengers wear your seat belts. The other alerts you to a possible

problem with your supplemental restraint system (see page 13).

The seats, head restraints, and door locks also play a role in occupant safety. For example, reclining the seat-back can decrease the effectiveness of your seat belt. Head restraints can help protect your neck and head, especially during rear-end impacts. Door locks help keep your doors from being accidentally opened during a crash.

To get the maximum protection from your occupant protection system, check the following before you drive away:

- Everyone in the car is wearing a seat belt properly (see page 7).
- Infants and small children are properly secured in child safety seats.
- All doors are closed and locked (see page 15).
- Seat-backs are upright (see page 15).
- There are no loose items that could be thrown around and hurt someone during a crash or sudden stop (see page 16).

By following these guidelines, you can reduce injuries to yourself and your passengers in many crash situations. Remember, however, that no safety system can prevent all injuries or deaths that can occur in severe crashes.

4 Driver and Passenger Safety

The Seat Belt System and How It Works

Why Wear Seat Belts

Wearing seat belts, and wearing them properly, is fundamental to your safety and the safety of your passengers.

During a crash or emergency stop, seat belts can help keep you from being thrown against the inside of the car, against other occupants, or out of the car.

Of course, seat belts cannot completely protect you in every crash. But, in most cases, seat belts reduce your chance of serious injury. They can even save your life. That is why many states and all Canadian provinces require you to wear seat belts.

WARNING

Not wearing a seat belt increases the chance of being killed or seriously hurt in a crash.

Be sure you and your passengers always wear seat belts and wear them properly.

Important Safety Reminders

Seat belts are designed for adults and larger children. All infants and small children must be properly restrained in child safety seats (see page 17).

A pregnant woman needs to wear a seat belt to protect herself and her unborn child (see page 10).

Two people should never use the same seat belt. If they do, they could be very seriously injured in a crash.

Do not place the shoulder portion of a lap/shoulder belt under your arm or behind your back. This could increase the chance of serious injuries in a crash.

Do not put shoulder belt pads or other accessories on seat belts. They can reduce the effectiveness of the belts and increase the chance of injury.

The Seat Belt System and How It Works

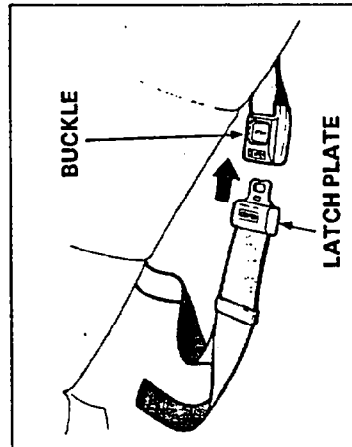
Seat Belt System Components

Your Honda has seat belts in all five seating positions. The front seats and the outside positions of the rear seat have lap/shoulder belts. The center position of the rear seat has a lap belt.

Your seat belt system also includes a light on the instrument panel to remind you to fasten your seat belt, and to make sure your passengers fasten theirs. This light comes on when you turn on the ignition if you have not fastened your seat belt. A beeper also sounds for several seconds (see page 30).

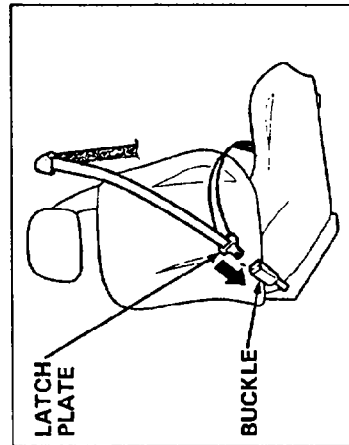
The following pages cover more about the seat belt components and how they work.

Lap Belt



The lap belt has one manually-adjusted belt that fits across the hips. It is similar to safety belts used in airplanes.

Lap/Shoulder Belt



This style of seat belt has a single belt that goes over your shoulder, across your chest, and across your hips.

Each lap/shoulder belt has an emergency locking retractor. In normal driving, the retractor lets you move freely in your seat while it keeps some tension on the belt. During a collision or sudden stop, the retractor automatically locks the belt to help restrain your body.

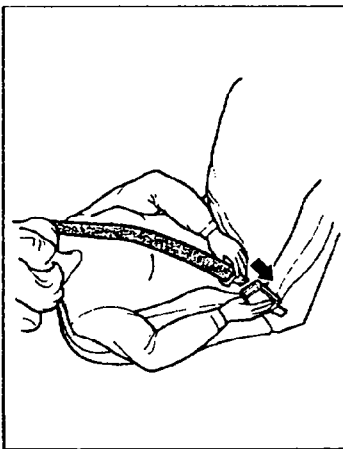
The Seat Belt System and How It Works

Wearing Seat Belts Properly
You can increase the effectiveness of your seat belts if you take a little time to read the following pages and make sure you know how to wear seat belts properly.

Not wearing a seat belt properly increases the chance of serious injury or death in a crash.

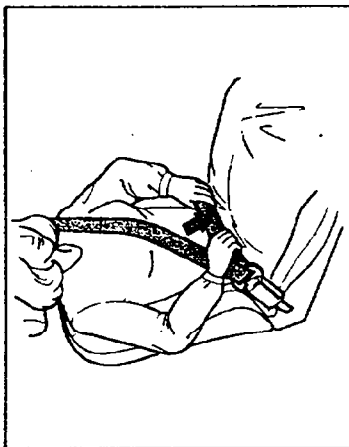
Be sure you and your passengers always wear seat belts and wear them properly.

Wearing a Lap/Shoulder Belt



Before putting on a front seat belt, be sure your seat is adjusted forward or backward to a good driving or riding position and the back of your seat is upright (see page 50).

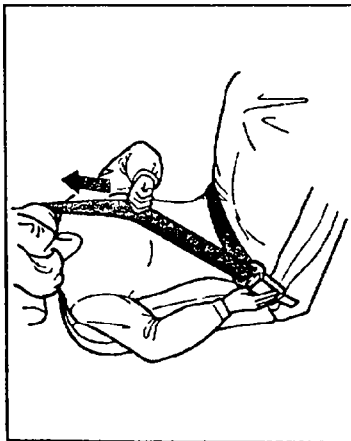
1. Pull the latch plate across your body and insert it into the buckle. Tug on the belt to make sure the latch is securely locked.



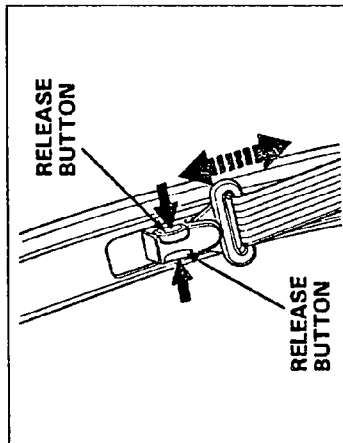
2. Check that the belt is not twisted.
3. Position the lap portion of the belt as low as possible across your hips, not across your stomach. This lets your strong pelvic bones take the force of a crash.

CONTINUED

The Seat Belt System and How It Works



4. Pull up on the shoulder part of the belt to remove any slack. Make sure the belt goes over your collarbone and across your chest.



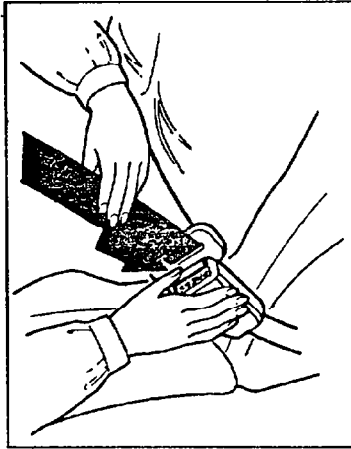
5. If the belt crosses your neck, you need to adjust the belt anchor height or your seating position.

Front seats:

Adjust the belt anchor by squeezing the two buttons and sliding the anchor downward (it has four positions).

Rear seat:

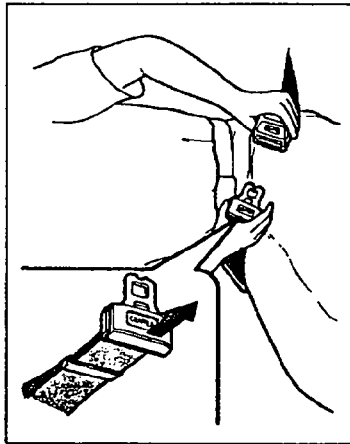
Move toward the center of the seat until the belt fits over your collarbone.



To unlatch the seat belt, push the red PRESS button on the buckle. Guide the belt across your body to the door pillar. If the belt doesn't retract easily, pull it out and check for twists or kinks.

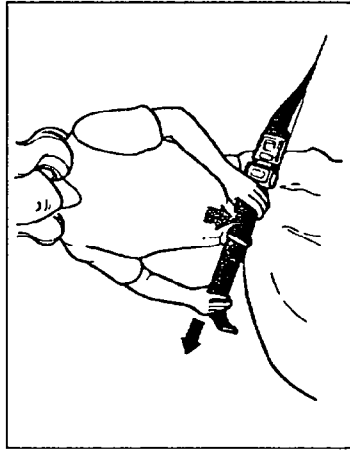
The Seat Belt System and How It Works

Wearing the Lap Belt

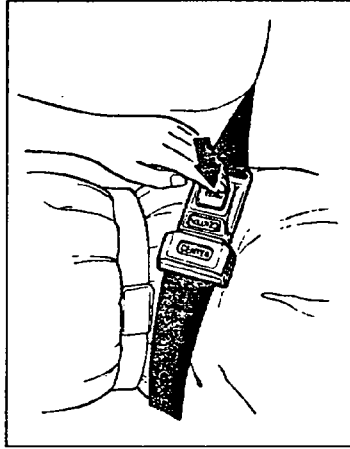


1. Pull the latch plate across your hips and insert it into the buckle marked **CENTER**.

If the belt is too short, hold the latch plate at a right angle and pull to extend the belt. Insert the latch plate into the buckle.



2. Position the belt as low as possible across your hips and pelvic bones, not across your stomach. Pull the loose end of the belt to adjust for a snug but comfortable fit.



To unlatch the belt, push the red **PRESS** button on the buckle.

Supplemental Restraint System

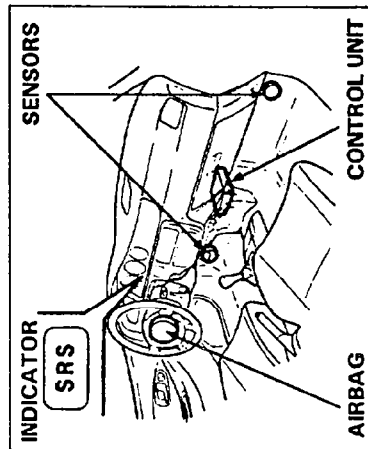
All Civics sold in the U.S. and Canada (except the Canadian LX model) are equipped with a Supplemental Restraint System (SRS) as a standard equipment. It is optional on the Canadian LX model.

The supplemental restraint system includes an airbag to help protect your head and chest during a severe frontal collision. This system does not replace your seat belt. It supplements, or adds to, the protection offered by your seat belt.

WARNING

Not wearing a seat belt increases the chance of serious injury or death in a crash, even if you have an airbag.

Be sure you and your passengers always wear seat belts and wear them properly.



The main components in your SRS are:

- An airbag in the steering wheel.
- A diagnostic system that, when the ignition is ON (II), continually monitors the sensors, control unit, airbag activator, and all related wiring.
- An indicator light to warn you of a possible problem with the system.

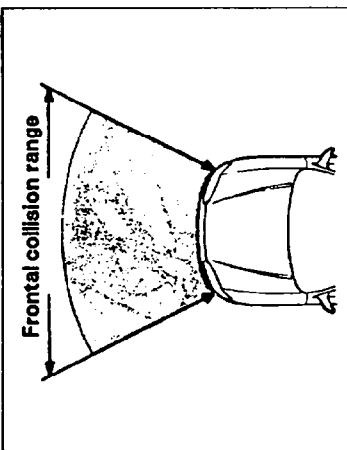
CONTINUED

Driver and Passenger Safety **11**

Supplemental Restraint System

- Emergency power backup in case your car's electrical system is disconnected in a crash.

Important Safety Reminder



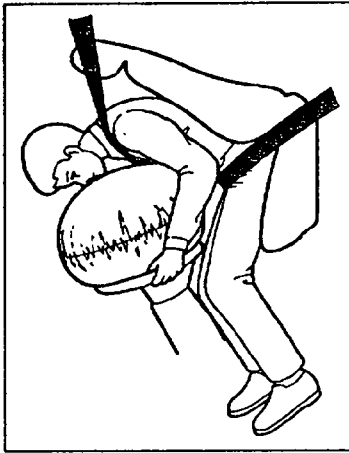
Even with an airbag, you need to wear a seat belt. The reasons are:

- Airbags only inflate in severe frontal collisions. They offer no protection in rear impacts, side impacts, rollovers, or moderate frontal collisions.

- An airbag inflates and deflates very quickly. It cannot protect you during any additional impacts that can occur during a crash.

- A seat belt helps keep you in the proper position when an airbag inflates. An airbag opens with considerable force and can hurt you if you are not in the proper position.

How the Airbag Works



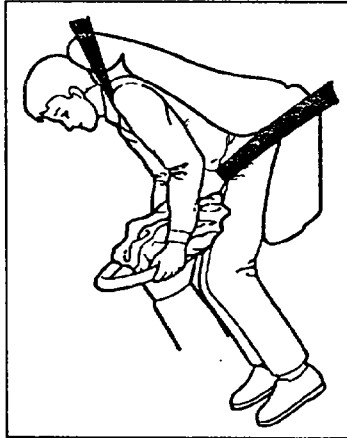
If you ever have a severe frontal collision, your airbag will instantly inflate to help protect your head and chest.

When the airbag inflates, you may hear a fairly loud noise and you might see smoke and powder. This is normal; it is caused by the inflation of the airbag.

12 Driver and Passenger Safety

Supplemental Restraint System

To do its job, the airbag inflates with considerable force. So, while it can reduce serious injuries and even save your life, the airbag might cause some facial or other abrasions.



After the bag completely inflates, it immediately starts deflating so it won't interfere with your visibility, ability to steer, or ability to operate other controls.

SRS

How the SRS Indicator Light Works
The purpose of the SRS light on your instrument panel is to alert you of a potential problem with your supplemental restraint system.

Have the system checked if:

- The light does not come on when you turn the ignition ON (II).
- The light stays on after the engine starts.
- The light comes on or flashes while you are driving.

The airbag is stored in the center of the steering wheel. For your safety, do not attach any items to the steering wheel. They could interfere with the proper operation of the airbag. Or, if the airbag inflates, they could be propelled inside the car and hurt someone.

Supplemental Restraint System

System Service

Your supplemental restraint system is virtually maintenance-free. There are no parts you can safely service.

You must have the system serviced by an authorized Honda dealer:

- If your airbag ever inflates. The airbag must be replaced. Do not try to remove or discard the airbag by yourself. This must be done by a Honda dealer.
- If the SRS indicator light alerts you of a problem. Have the supplemental restraint system checked as soon as possible. Otherwise, your airbag might not inflate when you need it.
- When the car is ten years old. Have the dealer inspect the system. The production date is on the driver's door jamb for your convenience.

System Service Precautions
Do not modify your steering wheel or any other part of the supplemental restraint system. Modifications could make the system ineffective.

Do not tamper with the system's components or wiring. This could cause the airbag to inflate inadvertently, possibly injuring someone very seriously.

Tell anyone who works on your car that you have a supplemental restraint system. Failure to follow the procedures and precautions in the official Honda service manual could result in personal injury or damage to the system.

Scrapping an entire car that has an uninflated airbag can be dangerous. Get assistance from a Honda dealer if your car must be scrapped.

If you sell your car, please be sure to tell the new owner that the car has a supplemental restraint system. Alert them to the information and precautions in this part of the owner's manual.

Additional Safety Information

The seat belts and airbag are obviously important parts of your occupant protection system.

In addition, you should know that sitting upright, locking the doors, and stowing things properly can also increase your safety and possibly even save your life.

Seat-back Position

The seat-backs should be in an upright position for you and your passengers to get the most protection from the seat belts.

If you recline a seat-back, you reduce the protective capability of your seat belt. The farther a seat-back is reclined, the greater the risk that you will slide under the belt in a severe crash and be very seriously injured.

For information on how to adjust the seat-back, see page 50.

Door Locks

It is not safe to leave your car doors unlocked. A passenger, especially a child, could open a door and accidentally fall out. Also, there is a greater chance of being thrown out of the car during a crash when the doors are not locked.