

V1875

REPORT NUMBER: CAL-93-N10

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

**HONDA MOTOR CORPORATION
1993 HONDA ACCORD SE
4-DOOR SEDAN**

NHTSA NUMBER: MP5300

CALSPAN TEST NUMBER: 8058-6

FEBRUARY 9, 1993

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FINAL REPORT

PREPARED FOR:

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National Highway Traffic Safety Administration
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16. <i>Abstract</i> A frontal load cell barrier test of a 1993 Honda Accord SE 4-Door Sedan was performed at Calspan Advanced Technology Center crash test facility in Buffalo, New York on February 9, 1993. The impact velocity was 56.0 kph and the temperature at the barrier face was 21 deg. C. The maximum post-test vehicle crush was 536 mm. The test vehicle was equipped with 3-point manual belt systems at each of the front outboard seating positions. The vehicle was also equipped with supplemental airbags at each of the front outboard seating positions. 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.					
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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

A load cell barrier consisting of 36 load cells was impacted by a 1993 Honda Accord SE 4-Door Sedan at a velocity of 56.0 kph. The test was performed at the Calspan Corporation Advanced Technology Center on February 9, 1993. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The frontal barrier impact event was documented by 1 real-time camera and 16 high-speed cameras. Camera locations and other pertinent camera information can be found in this report.

Two Part 572B, 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. 357) was calibrated previous to this test. The right-front passenger ATD (Serial No. 358) was used in two previous tests (MP5200 and MP5302). The injury criteria were not exceeded in either 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. Vehicle Accelerometer 3(x) - Engine Top sustained a cut wire during impact.

The driver's head struck the airbag; the HIC was 554.6. The maximum chest deceleration over 3 milliseconds was 48.4 g's. Femur loads were 2100.4 newtons on the left femur and 4919.0 newtons on the right femur.

The right front passenger's HIC was 798.6. Maximum chest deceleration over 3 milliseconds was 47.7 g's. Femur loads were 5439.0 newtons on the left and 3426.1 newtons on the right.

Table 1

GENERAL TEST AND VEHICLE DATA

Vehicle Year/Make/Model/Body Style: 1993 Honda Accord SE 4-Door Sedan

NHTSA Test No.: MP5300 VIN.: JHMCB7684PC013757

Body Color: Gold Date of Manufacture: 8/92

Date Received: 1/4/93

Odometer Reading: 301 km

Engine: 4 Cylinders; 132 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

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

Type of Occupant Restraint: 3-point continuous belt system with supplemental airbags at each of the front outboard seating positions

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): Front 220 kPa, Rear 220 kPa

Recommended Tire Size: 195/60R15 87H

Recommended Cold Tire Pressure: Front 220 kPa, Rear 220 kPa

Tires on Vehicle: 195/60R15 87H Manufacturer: Michelin MXV4

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 kgs. = 340 kgs. (B)

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

GVWR 1801 kgs. GAWR: Front 971 kgs. Rear 855 kgs.

Table 1

GENERAL TEST AND VEHICLE DATA (cont'd)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with maximum fluids) = UDW:

Right Front =	<u>435</u>	kgs.	Right Rear =	<u>268</u>	kgs.
Left Front =	<u>417</u>	kgs.	Left Rear =	<u>268</u>	kgs.
TOTAL FRONT WEIGHT =	<u>852</u>	kgs.	(	<u>61</u>	% of Total Vehicle Weight)
TOTAL REAR WEIGHT =	<u>536</u>	kgs.	(	<u>39</u>	% of Total Vehicle Weight)
TOTAL DELIVERED WEIGHT =	<u>1388</u>	kgs.			

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight (1388 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 = 1582 kgs.

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 55 KGS OF CARGO:

Right Front =	<u>463</u>	kgs.	Right Rear =	<u>336</u>	kgs.
Left Front =	<u>449</u>	kgs.	Left Rear =	<u>331</u>	kgs.
TOTAL FRONT WEIGHT =	<u>912</u>	kgs.	(	<u>58</u>	% of Total Vehicle Weight)
TOTAL REAR WEIGHT =	<u>667</u>	kgs.	(	<u>42</u>	% of Total Vehicle Weight)
TOTAL TEST WEIGHT =	<u>1579</u>	kgs.			
Weight of ballast secured in vehicle trunk area =	<u>0</u>	kgs.			

VEHICLE ATTITUDE (all dimensions in mm):

Delivered Attitude:	RF	<u>687</u>	LF	<u>691</u>	RR	<u>689</u>	LR	<u>686</u>
Test Attitude:	RF	<u>684</u>	LF	<u>685</u>	RR	<u>660</u>	LR	<u>655</u>
Wheel Base:	<u>2723</u>	mm.;	C.G. =	<u>1144</u>	mm. rearward of front wheel C/L			
Remarks:	<u>60 liters of stoddard solution was placed in the fuel tank.</u>							

Table 1

GENERAL TEST AND VEHICLE DATA (cont'd)

POST -IMPACT DATA:

Type of Test: Frontal Barrier Impact Angle: 0 deg.
 Date of Test: February 9, 1993 Time of Test: 12:06
 Ambient Temperature: 21 ° C at impact area
 Temperature in Occupant Compartment: 21 ° C
 Windshield Molding Temperature: 21 ° C
 Required Impact Velocity Range: 55.5 to 57.1 kph
 Impact Velocity: primary = 56.0 kph, secondary = 55.8 kph
 Distance From Front Bumper to Barrier Face When
 Entering Speed Trap: 1321 mm
 Exiting Speed Trap: 305 mm

VEHICLE REBOUND AND CRUSH (mm):

Vehicle Length:	Pre-test = R	<u>4596</u>	C _L	<u>4701</u>	L	<u>4594</u>
	Post-test = R	<u>4184</u>	C _L	<u>4165</u>	L	<u>4156</u>
	Crush = R	<u>412</u>	C _L	<u>536</u>	L	<u>438</u>

Distance from front of test vehicle to point of impact:

R 440 mm C_L 435 mm L 480 mmVISIBLE DUMMY CONTACT POINTS:

	<u>Driver</u>	<u>Passenger</u>
Head	<u>Airbag</u>	<u>Airbag</u>
Chest	<u>Airbag</u>	<u>Airbag</u>
Abdomen	<u>No Contact</u>	<u>No Contact</u>
Left Knee	<u>Dashpanel</u>	<u>Glove Box Door</u>
Right Knee	<u>Dashpanel</u>	<u>Glove Box Door</u>

Table 1

GENERAL TEST AND VEHICLE 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>Seat Movement</u>	<u>Front</u>		<u>Rear</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 (mm.)	<u>0.0 mm</u>	<u>0.0 mm</u>	<u>-</u>	<u>-</u>
<u>Glazing Damage</u>				
Backlight/Windshield:	<u>Windshield sustained stress fractures but remained intact.</u>			
Other Notable Impact Effects:	<u>None</u>			

Section 3

OCCUPANT AND VEHICLE INFORMATION

I. DATA

1. Dummy Injury Criteria Data Summary
2. Dummy Positioning Data
3. Seat Belt Performance Assessment Data
4. Camera Locations
5. Vehicle Target Locations
6. Load Cell Barrier Data
7. Vehicle Accelerometer Data
8. Test Vehicle Measurements

Table 2

DUMMY INJURY CRITERIA VALUESNHTSA No.: MP5300Vehicle: 1993 Honda Accord SE 4-Door Sedan

	MAXIMUM HEAD ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-58.3	-12.6	26.6	62.9
Position #2 - Passenger	-50.2	13.2	60.4	77.4

	MAXIMUM CHEST ACCELERATION (g's)			
	X	Y	Z	R*
Position #1 - Driver	-50.4	-14.4	17.3	48.4
Position #2 - Passenger	-47.6	14.6	-15.4	47.7

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

	MAXIMUM FORCE - FEMUR LOAD (kgs)	
	LEFT FEMUR	RIGHT FEMUR
Position #1 - Driver	2100.4	4919.0
Position #2 - Passenger	5439.0	3426.1

	MAXIMUM FORCE - SEAT BELT LOADS (kgs)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
Position #1 - Driver	8631.3	-	6369.0
Position #2 - Passenger	7915.2	5278.6	-

	HEAD INJURY CRITERIA (HIC)			
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	554.6	55.2	91.08	47.39
Position #2 - Passenger	798.6	71.16	101.04	58.99

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

Figure 1

DUMMY MEASUREMENTS FOR FRONT SEAT PASSENGERS

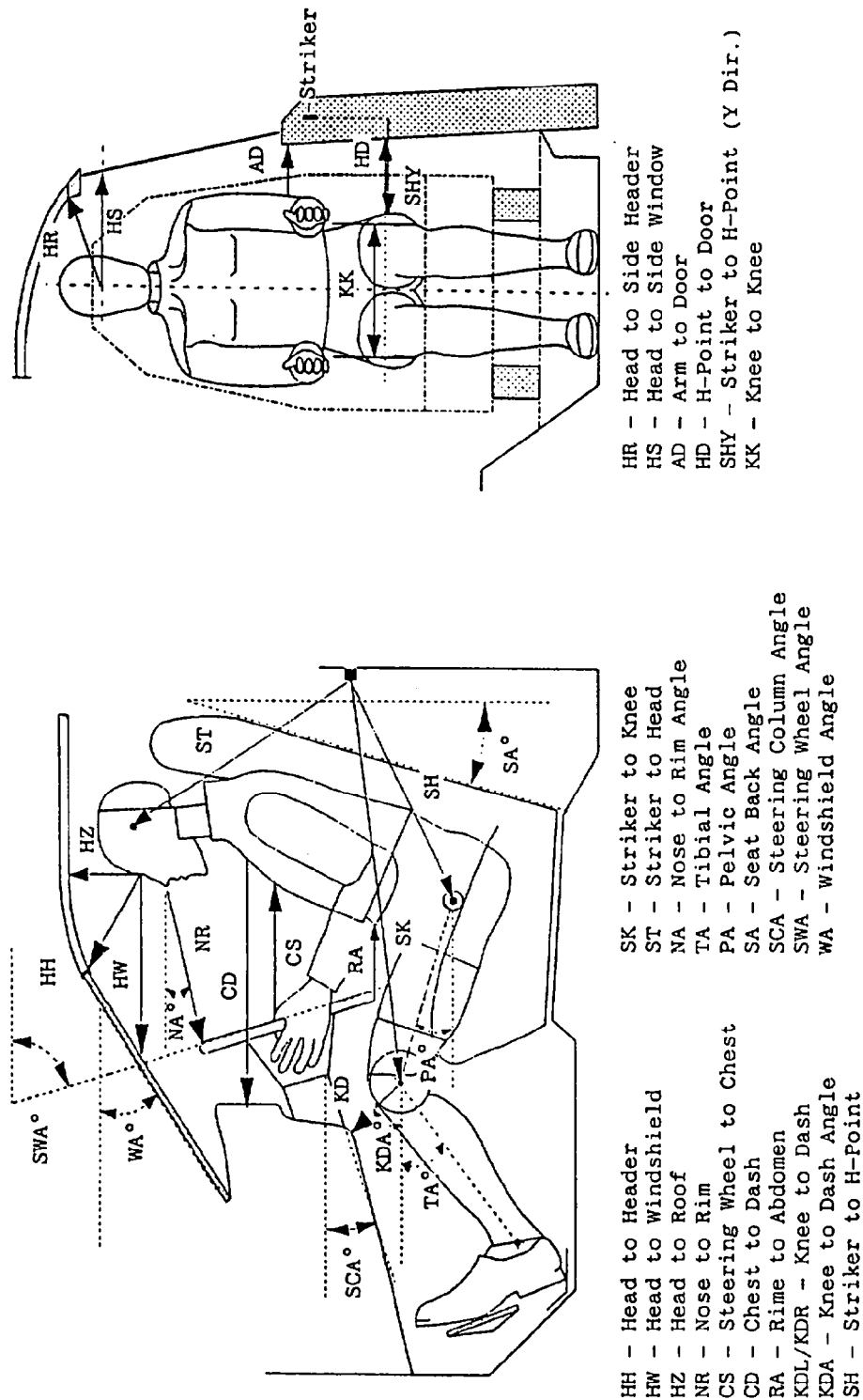
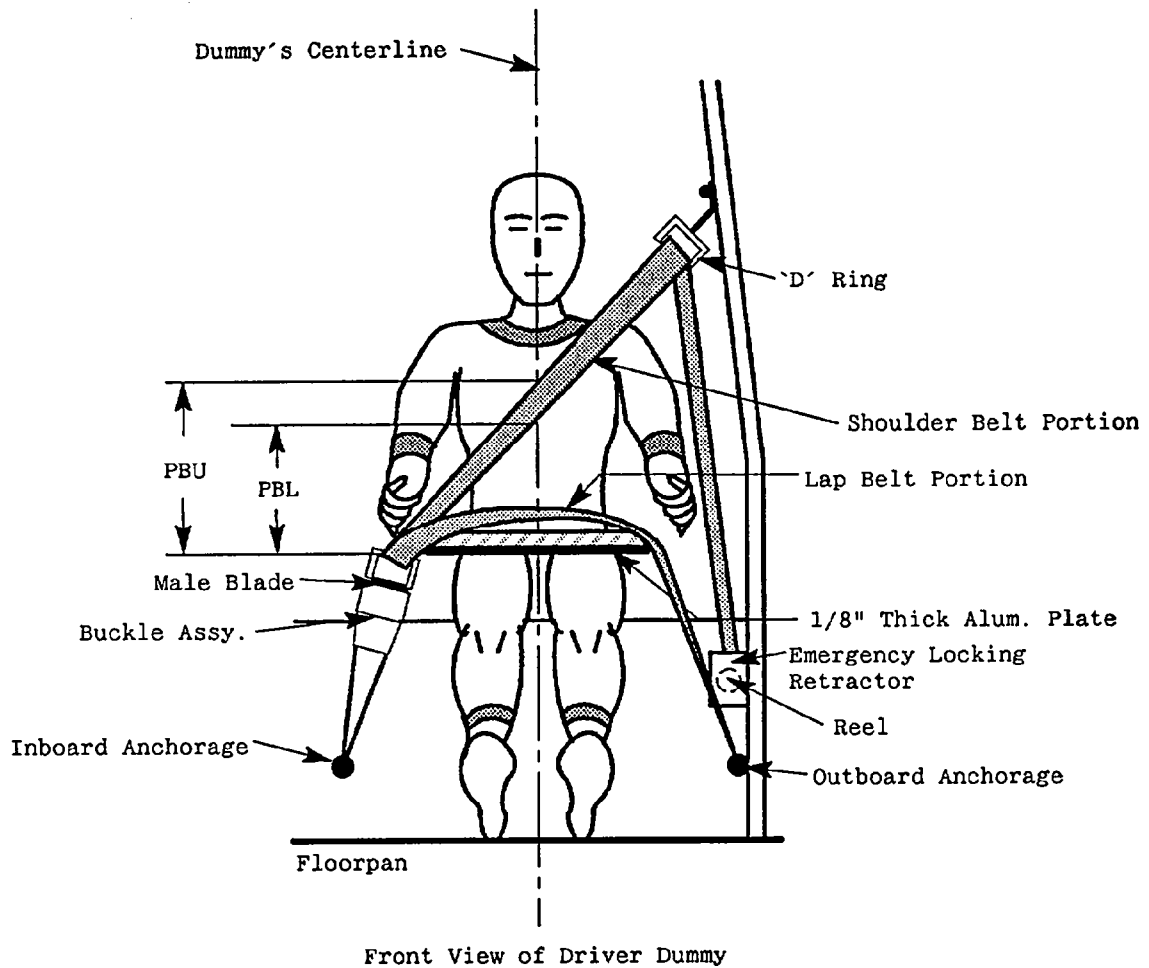


Table 3

FRONT SEAT OCCUPANT MEASUREMENTS

	DRIVER (Serial # 357)		PASS. (Serial # 358)	
WA°	28 deg.		28 deg.	
SWA°	64 deg.		N/A	
SCA°	26 deg.		N/A	
SA°	Seat backs were positioned as specified by the manufacturer			
HZ	140 mm		145 mm	
HH	419 mm		423 mm	
HW	605 mm		592 mm	
HR	165 mm		140 mm	
NR	525 mm	Angle 15 deg.	N/A	
CD	613 mm		620 mm	
CS	424 mm		N/A	
RA	228 mm		N/A	
KDL	234 mm	Angle (KDA) 33 deg.	218 mm	
KDR	227 mm		215 mm	Angle (KDA) 25 deg.
FA°	14 deg		14 deg.	
TA°	36 deg.		36 deg	
KK	370 mm		300 mm	
ST	495 mm	Angle 83 deg.	503 mm	Angle 81 deg.
SK	541 mm	Angle 10 deg.	554 mm	Angle 12 deg
SH	236 mm	Angle 43 deg.	206 mm	Angle 44 deg.
SHY	235 mm		240 mm	
HS	234 mm		238 mm	
HD	156 mm		167 mm	
AD	104 mm		111 mm	

Figure 2
SEAT BELT POSITIONING DATA



	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
<u>PBU</u> -- Top surface of alum. plate to upper edge	345	369
<u>PBL</u> -- Top surface of alum. plate to belt lower edge	260	280
<u>LAP BELT TENSION</u>	-	-
<u>SHOULDER BELT TENSION</u>	1 Kg	1 Kg

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.	1890 mm	1890 mm
Shoulder belt length as measured on Part 572 Dummy.	830 mm	830 mm
Lap belt length as measured on Part 572 Dummy.	810 mm	810 mm
<u>SHOULDER BELT SPOOL-OFF DATA:</u>		
As determined by film analysis.	50.8 mm	N/A
As determined mechanically.	35 mm	42 mm
As determined electronically.	N/A	N/A
<u>BELT STRETCH DATA:</u>		
Measured electronically between shoulder belt load cell and the "D" ring.	4.7 mm/M	72 mm/M
Measured mechanically.	0.0 mm/M	0.0 mm/M

Figure 3
CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 5

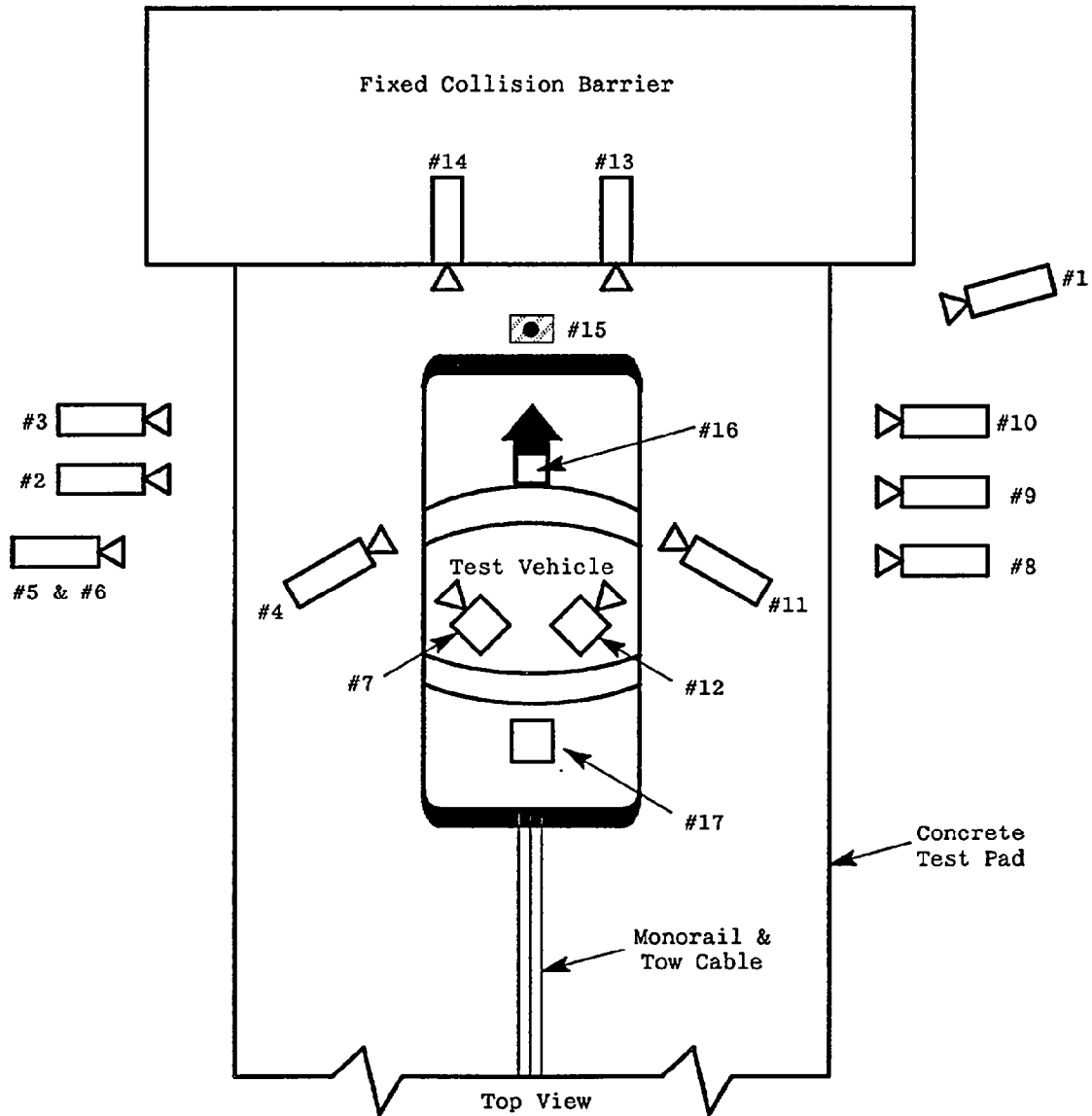


Table 5

HIGH-SPEED CAMERA LOCATIONS

Test No.		MP5300	Vehicle:		1993 Honda Accord SE 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	5994	1524	1067	-3	5552	13	560	
3	Left Side View	7722	965	1041	-3	7280	25	620	
4	Driver and Interior View	2997	2642	1626	-17	2555	13	580	
5	Steering Column (Bottom)	6909	1829	1168	-4	6467	25	770	
6	Steering Column (Top)	6909	1829	1778	-9	6467	25	770	
7	Left Belt	-	-	-	-	-	8	560	
8	Overall Right Side	5969	1753	1067	-4	5527	13	570	
9	Right Side View	7444	1295	1448	-4	7002	35	570	
10	Right Passenger View	7874	1880	1041	-3	7432	25	520	
11	Passenger and Interior View	2819	2692	1651	-17	2377	13	580	
12	Right Belt	-	-	-	-	-	8	N.T.	
13	Passenger Front View	610	-127	1778	-35	-	13	580	
14	Driver Front View	610	-127	1778	-35	-	13	600	
15	Windshield View	0	0	3048	-50	-	13	610	
16	Pit View of Engine	0	1100	-3048	90	-	13	740	
17	Pit View of Fuel Tank	0	3149	-3048	90	-	13	870	

*X = film plane to monorail centerline

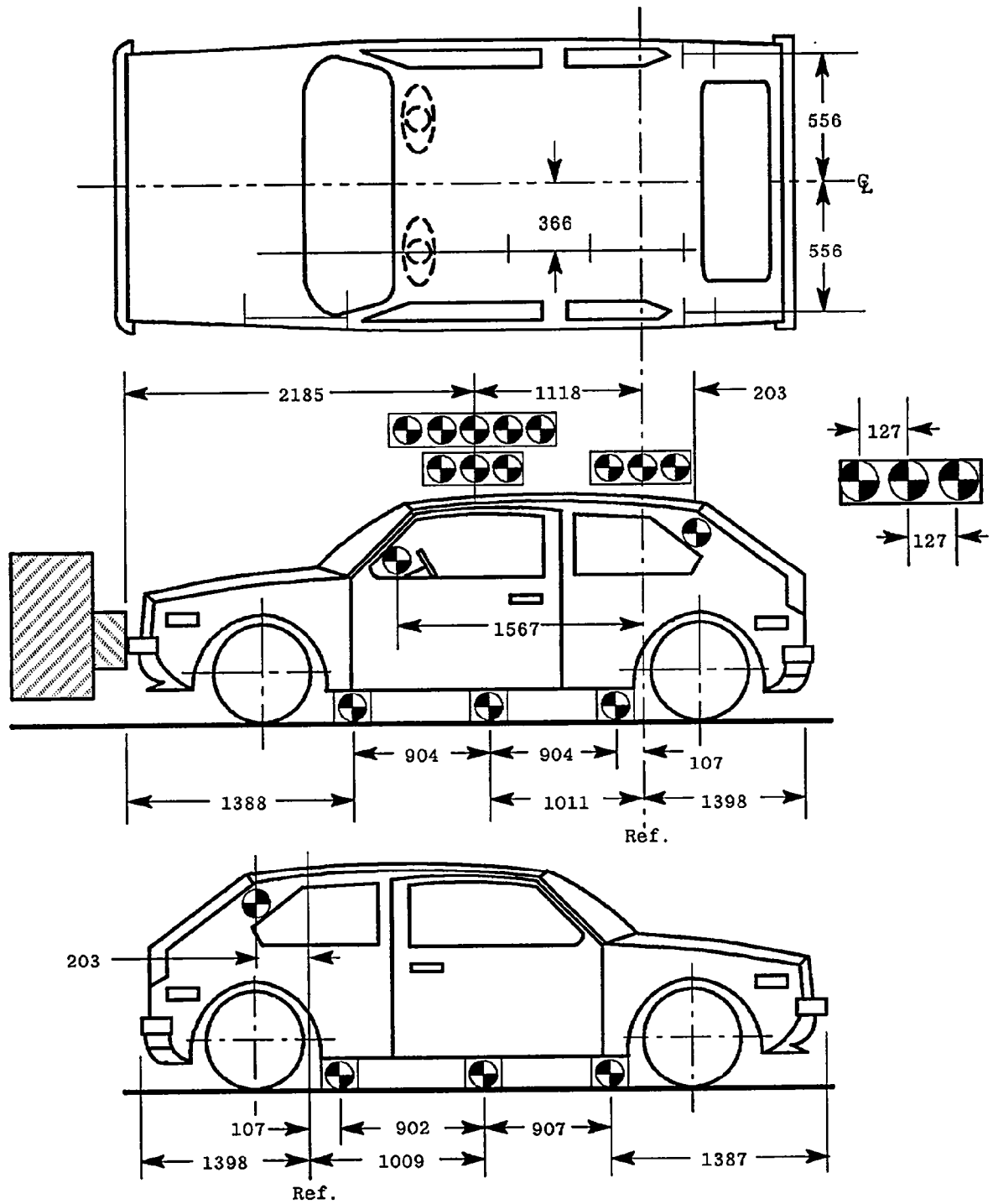
Y = film plane to impact location

Z = film plane to ground

** = referenced to horizontal plane

N.T. indicates No Timing

Figure 4
VEHICLE TARGET LOCATIONS

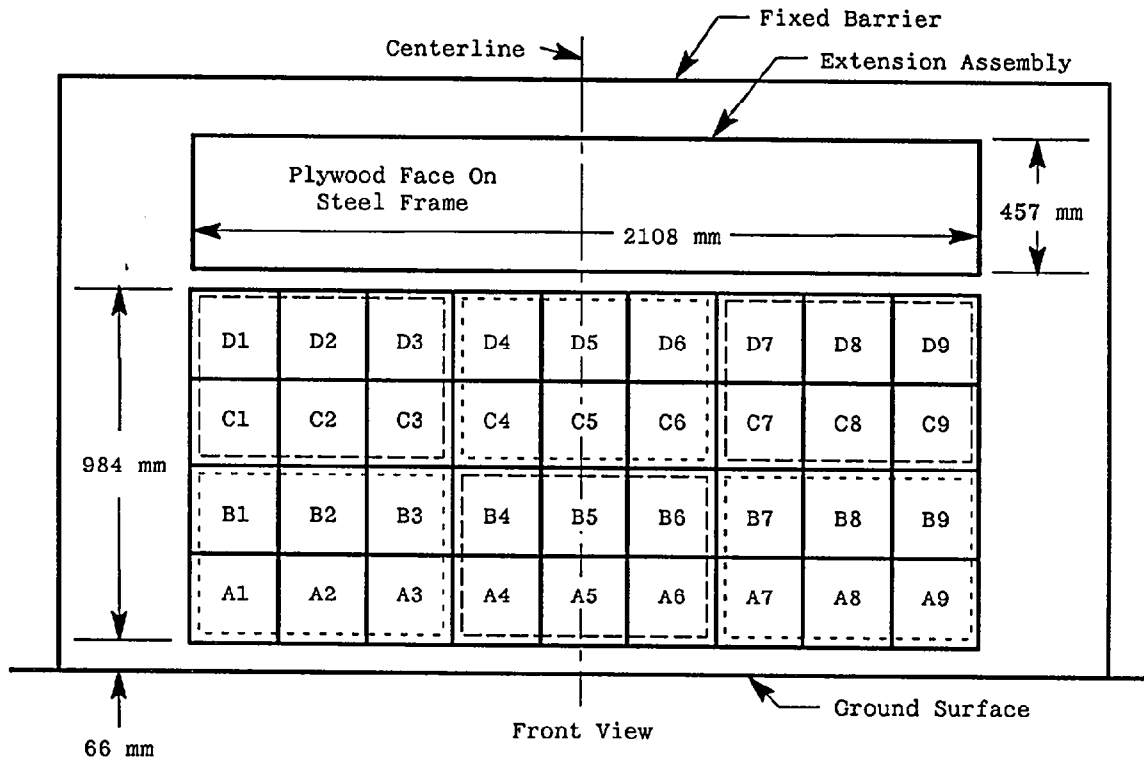


(Dimensions in millimeters)

Figure 5

LOAD CELL LOCATIONS ON FIXED BARRIER

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



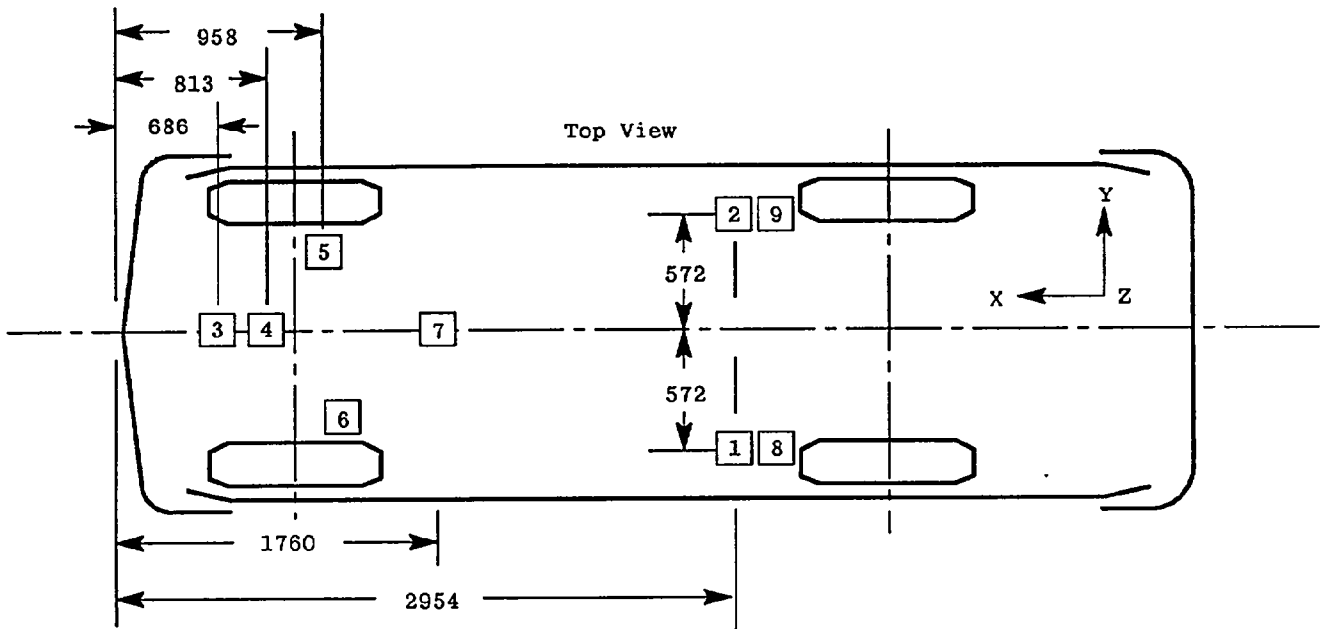
6 GROUPS OF 6 LOAD CELLS EACH

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 6
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 7
TEST VEHICLE MEASUREMENTS

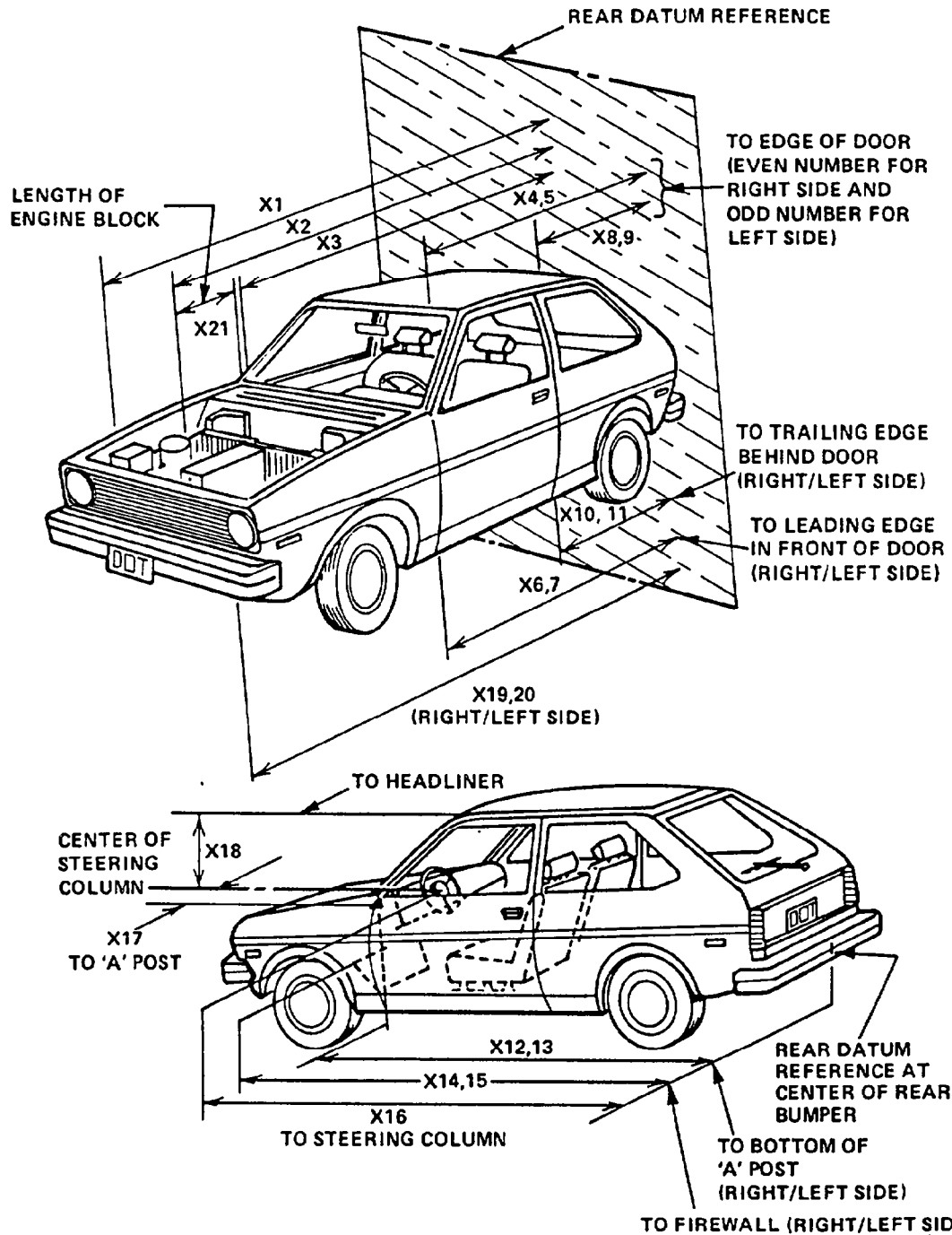


Table 6

VEHICLE MEASUREMENTS

No.		All Dimensions in mm		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4701	4165	536
X2	Rear Surface of Vehicle to Front of Engine	4084	3818	266
X3	Rear Surface of Vehicle to Firewall	3488	3450	38
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3238	3220	18
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3240	3230	10
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3265	3236	29
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3266	3258	8
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2172	2153	19
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2171	2165	6
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2200	2187	13
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2203	2200	3
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3263	3242	21
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3265	3255	10
X14	Rear Surface of Vehicle to Firewall, Right Side	3570	3430	140
X15	Rear Surface of Vehicle to Firewall, Left Side	3565	3516	49
X16	Rear Surface of Vehicle to Steering Column	2760	2755	5
X17	Center of Steering Column to "A" Post	400	452	-52
X18	Center of Steering Column to Headliner	425	373	52
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4596	4184	412
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4594	4156	438
X21	Length of Engine Block	440	440	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2955	2920	35
CD	Rear Surface of Vehicle to Center of Dash Panel	2965	2922	43
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2952	2930	22

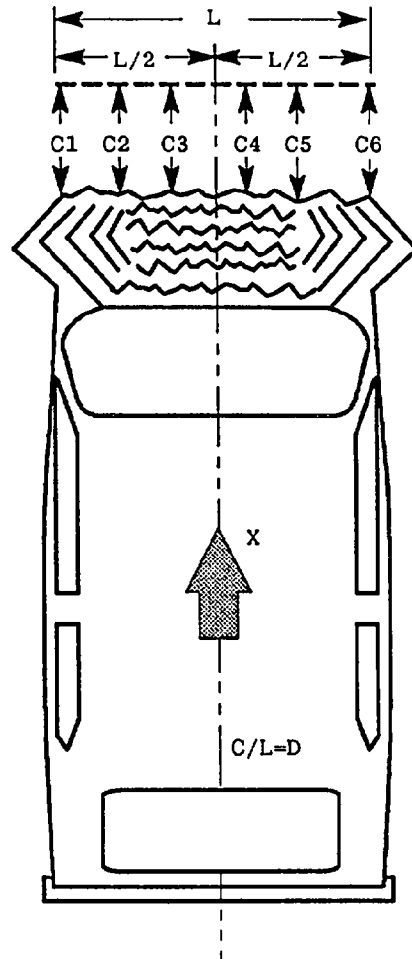
ACCIDENT INVESTIGATION DIVISION DATA
FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: 1993 Honda Accord SE 4-Door Sedan
 Vehicle NHTSA No.: MP5300 VIN: JHMCB7684PC013757
 Model Year: 1993 Build Date: 8/92 Test Date: 2/9/93
 Vehicle Size Category: Compact Test Weight: 1579 Kgs
 Vehicle Wheelbase: 2723 mm; Front Overhang: 1388 mm; Overall Width: 1705 mm
 Collision Deformation Classification (CDC) Code: 12FDEW2

Crush Depth C1 = 423 mm
 Dimensions: C2 = 481 mm
 C3 = 522 mm
 C4 = 523 mm
 C5 = 483 mm
 C6 = 376 mm

Midpoint of Damage: D = Vehicle Centerline (Longitud.)

Length of Damaged Region: L = 1460 mm



Section 4

SUMMARY OF RESULTS OF FMVSS NOS. 208, 212, 219 AND 301-75

- "Windshield Mounting," FMVSS No. 212 Data
- "Windshield Zone Intrusion," FMVSS No. 219 (Partial) Data
- "Fuel System Integrity," FMVSS No. 301-75

Figure 8

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

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

Windshield is bonded in place and covered with 22 mm wide molding.

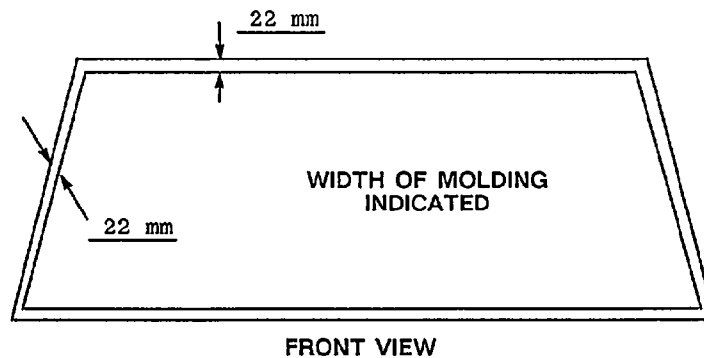
FMVSS 212 REQUIREMENTS:

The Post-Test periphery retention amount must be at least 75% of the Pre-Test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of windshield for vehicles equipped with automatic restraint systems for front occupants.

FMVSS 212 TEST DATA:

	WINDSHIELD PERIPHERY		PERCENT RETENTION
	PRE-TEST (mm)	POST-TEST (mm)	
RIGHT SIDE	2195	2195	100%
LEFT SIDE	2195	2195	100%
TOTAL	4390	4390	100%

AREA OF RETENTION FAILURE:



FAILURE DETAILS:

None

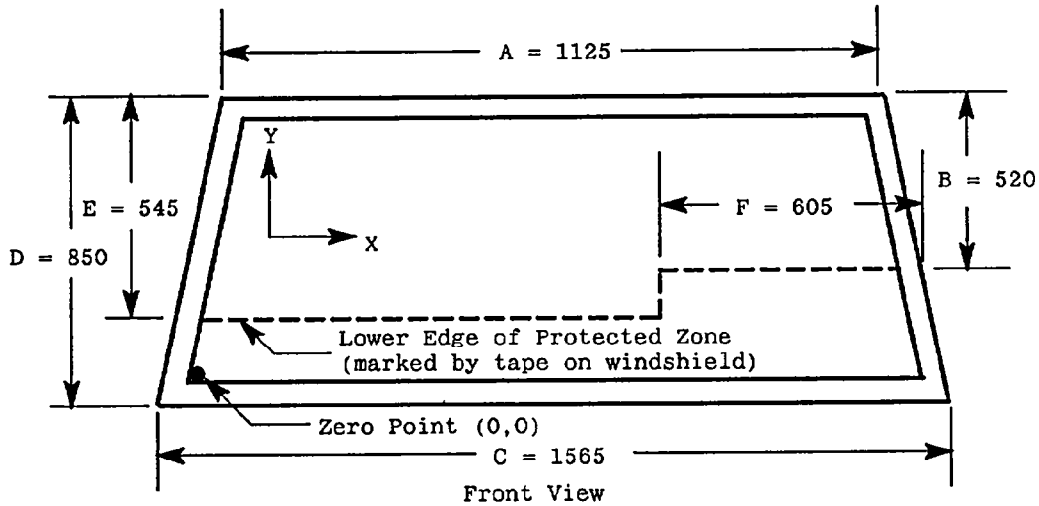
Figure 9

FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA

HONDA ACCORD PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 6.5" dia. rigid sphere weighing 15 pounds in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. The locus of points is drawn on the inner surface of the windshield contacted by the sphere across the width of the instrument panel. From the outermost contactable points, extend the locus line horizontally to the edges of the windshield, and then draw a line on the inner surface of the windshield below and 1/2" distant from the locus line. The LOWER EDGE OF THE PROTECTED ZONE is the longitudinal projection of this line onto the outer surface of the windshield.

FMVSS 219 TEST DATA: (Dimensions in mm)



DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 1/4":

(Show location of penetration on above sketch)

None

	COORDINATES	
	X	Y
1.		
2.		
3.		
4.		

FMVSS NO. 301

TEST DATE: February 9, 1993

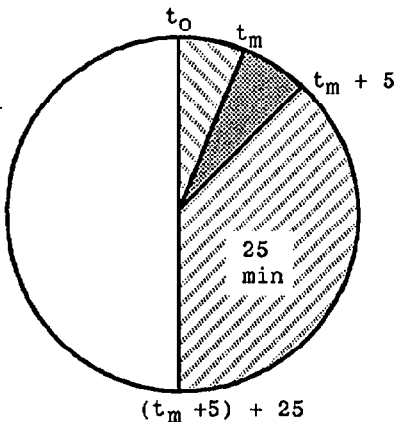
Vehicle Mfg./Make/Model: 1993 Honda Accord SE 4-Door Sedan

Test vehicle fuel tank filled to 92% to 94% of manufacturer's "usable" capacity and with electric fuel pump operating (if it will operate without engine operation). Part 572 test dummies located at each front designated seating position.

TEST VEHICLE IMPACT TYPE:

	X	Frontal (35 mph)
	_____	Oblique (30 mph) with _____° barrier face first contacting _____ (driver/passenger) side
	_____	Rear Moving Barrier (30 mph)
	_____	Lateral Moving Barrier (20 mph)

FUEL SPILLAGE MEASUREMENT:



1. From impact until vehicle motion ceases
2. For 5 minute period after vehicle motion ceases
3. For next 25 minutes

ACTUAL	MAX ALLOWED
0	1 oz.
0	5 oz.
0	1 oz./1 min.

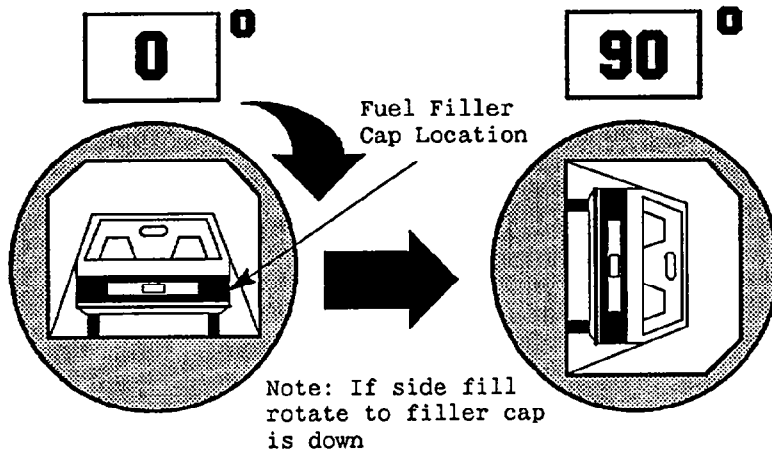
SOLVENT SPILLAGE DETAILS:

None

Table 8
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

Vehicle NHTSA ID No.:



MP5300

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time _____ 2 _____ minutes _____ 30 _____ seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + _____ 5 _____ minutes _____ 00 _____ seconds

TOTAL _____ 7 _____ minutes _____ 30 _____ seconds

Next whole minute interval _____ 8 _____ minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

147.8 ml	29.6 ml	29.6 ml	29.6 ml
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

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

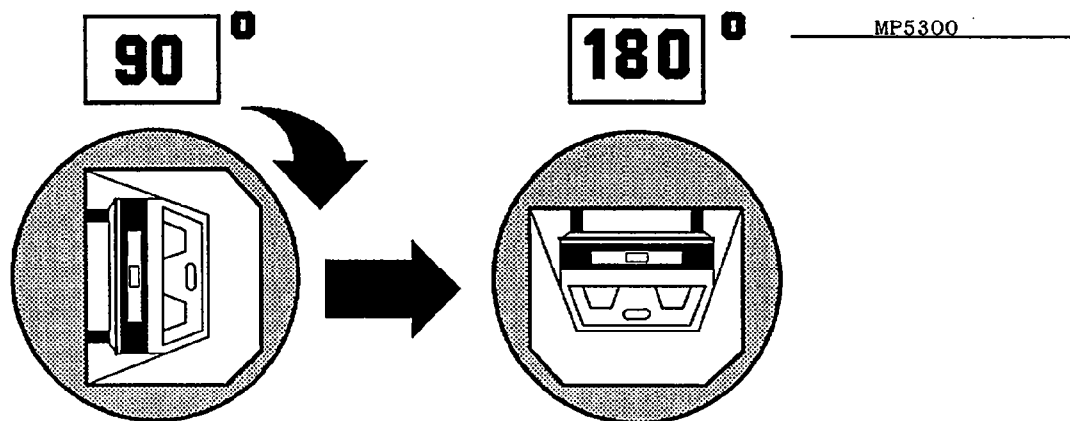
IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 8
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:

Vehicle NHTSA ID No.:



MP5300

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time _____ 2 _____ minutes _____ 30 _____ seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + _____ 5 _____ minutes _____ 00 _____ seconds

TOTAL _____ 7 _____ minutes _____ 30 _____ seconds

Next whole minute interval _____ 8 _____ minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

147.8 ml	29.6 ml	29.6 ml	29.6 ml
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

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

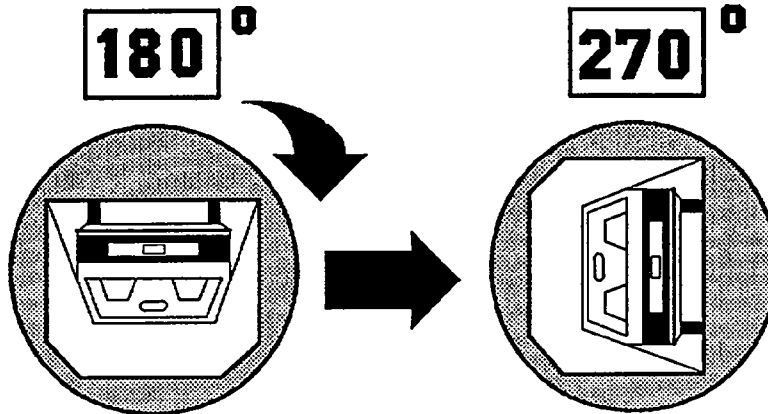
IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 8
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

TEST PHASE:

Vehicle NHTSA ID No.:



MP5300

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time _____ 2 _____ minutes _____ 30 _____ seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time + _____ 5 _____ minutes _____ 00 _____ seconds

TOTAL _____ 7 _____ minutes _____ 30 _____ seconds

Next whole minute interval _____ 8 _____ minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.

(2) Maximum Allowable Solvent Spillage

147.8 ml	29.6 ml	29.6 ml	29.6 ml
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

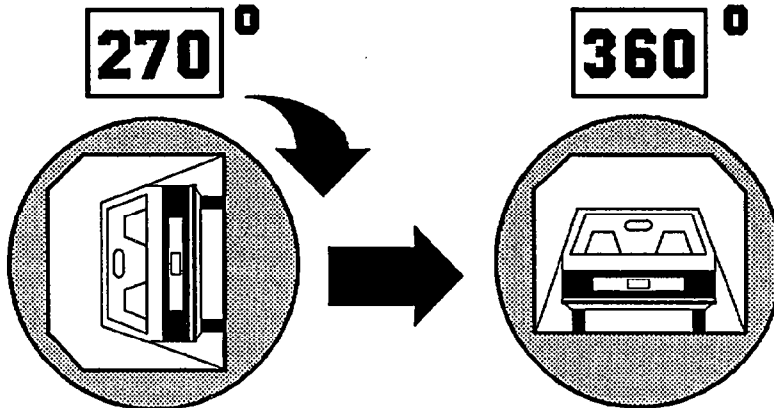
Table 8
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET (cont.)

022000

TEST PHASE:

Vehicle NHTSA ID No.:

MP5300



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time (Spec. Range = 1 to 3 minutes)	_____ 2 _____ minutes _____ 30 _____ seconds
FMVSS 301 Position Hold Time +	_____ 7 _____ minutes _____ 30 _____ seconds
TOTAL	_____ 7 _____ minutes _____ 30 _____ seconds
Next whole minute interval	_____ 8 _____ minutes

II. FMVSS 301 REQUIREMENTS:

(1) Time Period

First 5 min FROM onset of rotation	6th min.	7th min.	8th min. if reqd.
------------------------------------	----------	----------	----------------------

(2) Maximum Allowable Solvent Spillage

147.8 ml	29.6 ml	29.6 ml	29.6 ml
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0	0	0	0
---	---	---	---

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

Appendix A
PHOTOGRAPHS

PHOTOGRAPHS

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A-23	POST TEST DRIVER POSITION VIEW.....	A-25
A-24	PRE-TEST PASSENGER POSITION VIEW.....	A-26
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A-31	PRE-TEST PASSENGER HEAD LOCATION.....	A-33

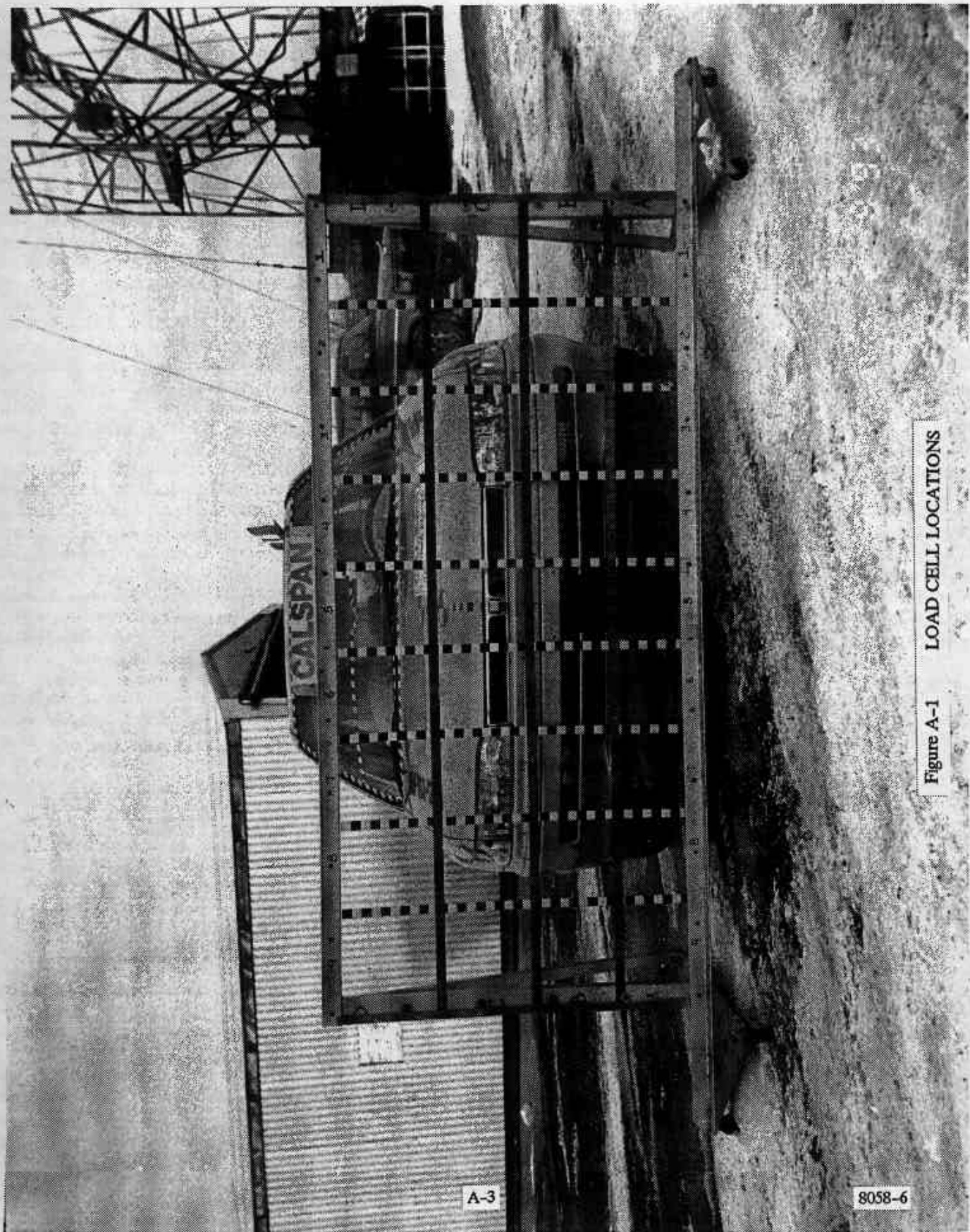


Figure A-1 LOAD CELL LOCATIONS

A-3

8058-6



Figure A-2 PRE-TEST FRONT VIEW

A-4

8058-6



Figure A-3 POST TEST FRONT VIEW

A-5

8058-6

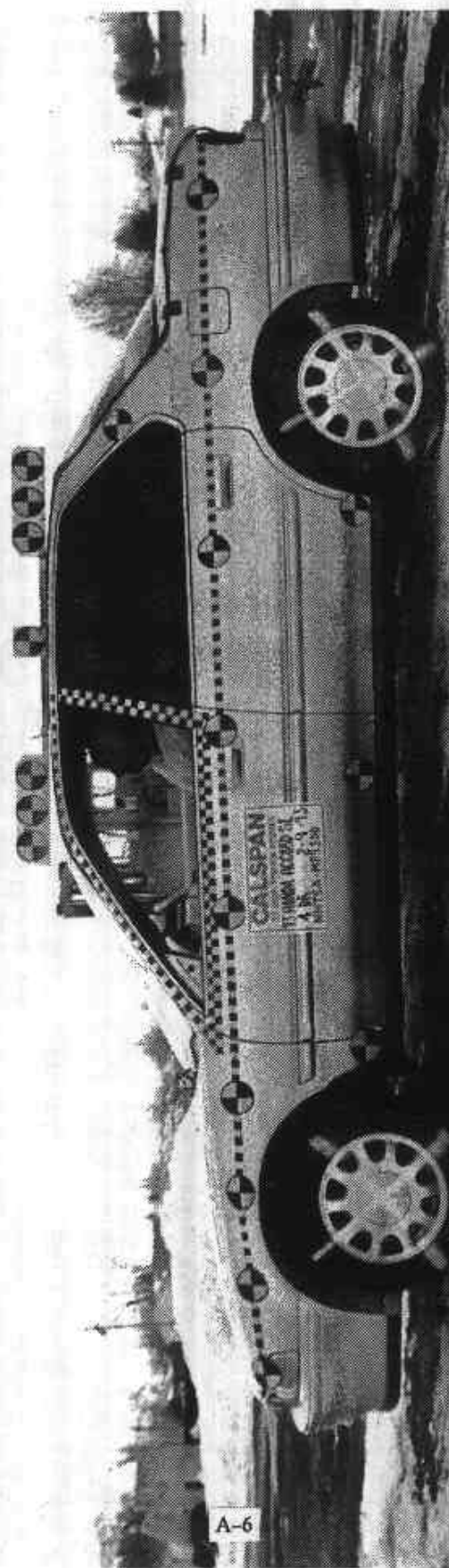


Figure A-4 PRE-TEST LEFT SIDE VIEW

A-6

8058-6

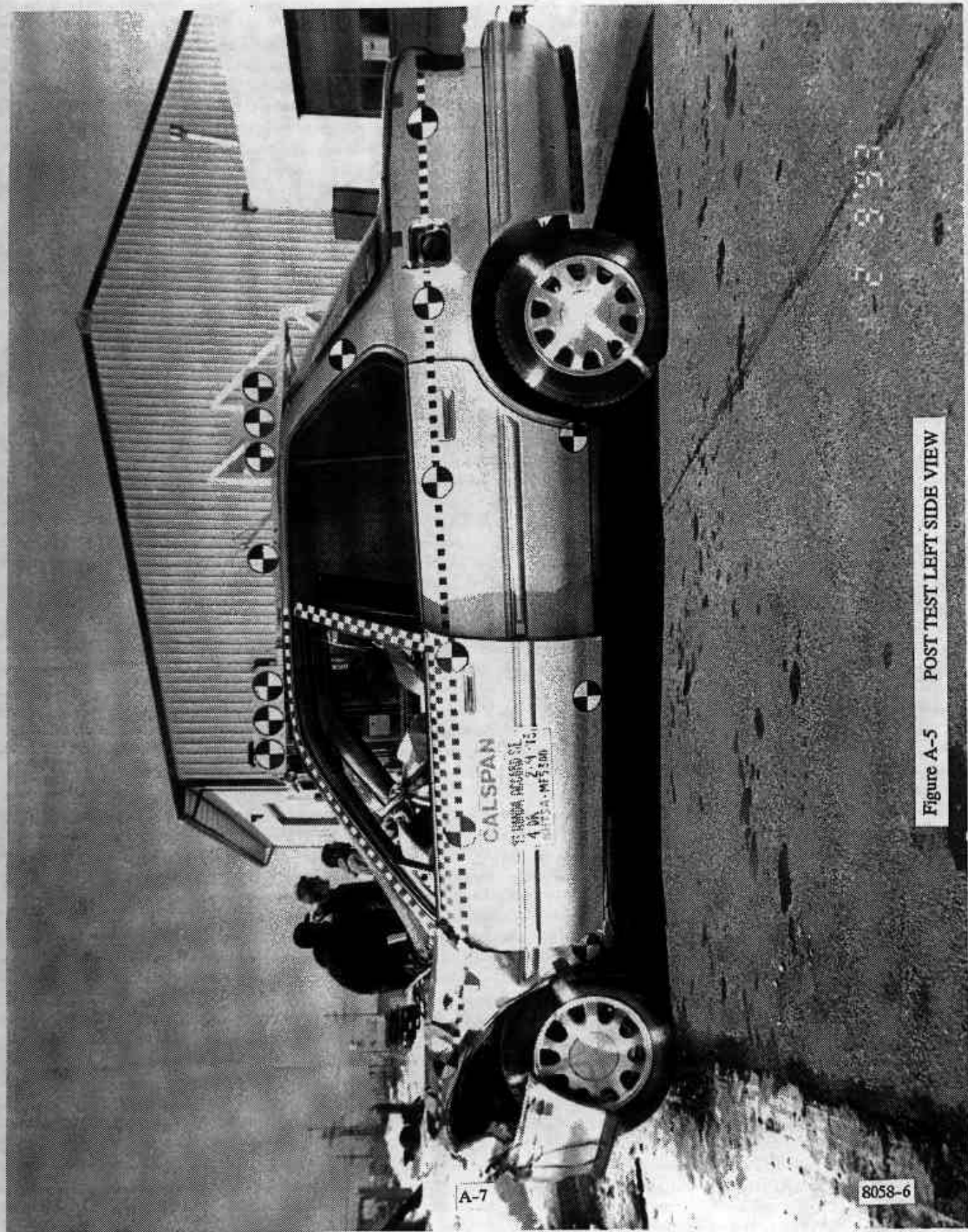


Figure A-5 POST TEST LEFT SIDE VIEW



Figure A-6 PRE-TEST RIGHT SIDE VIEW

A-8

8058-6



Figure A-7 POST-TEST RIGHT SIDE VIEW

A-9

8058-6



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

A-10

8058-6



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

A-11

8058-6

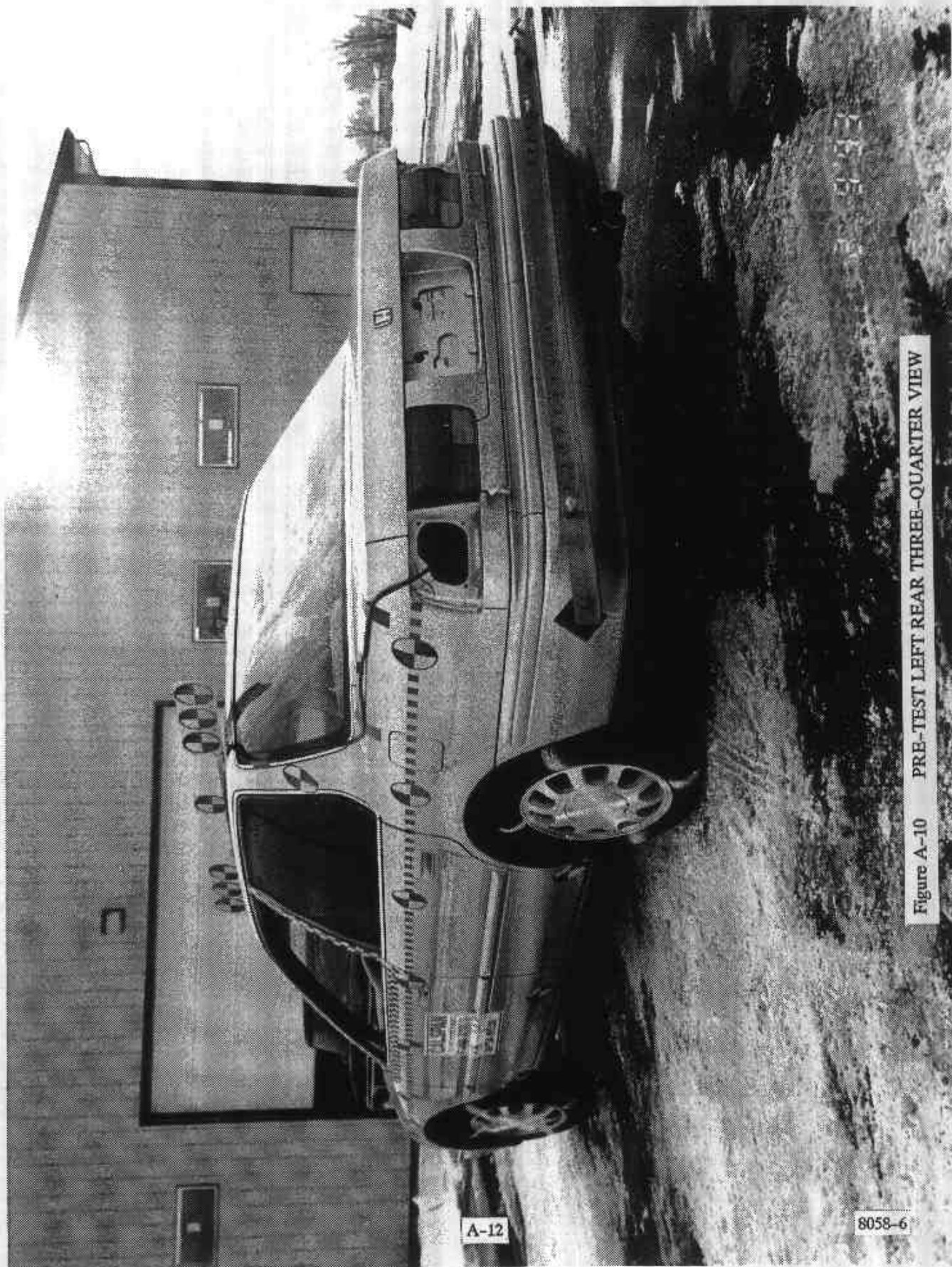


Figure A-10 PRE-TEST LEFT REAR THREE-QUARTER VIEW

A-12

8058-6



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

A-13

8058-6

2 9'93

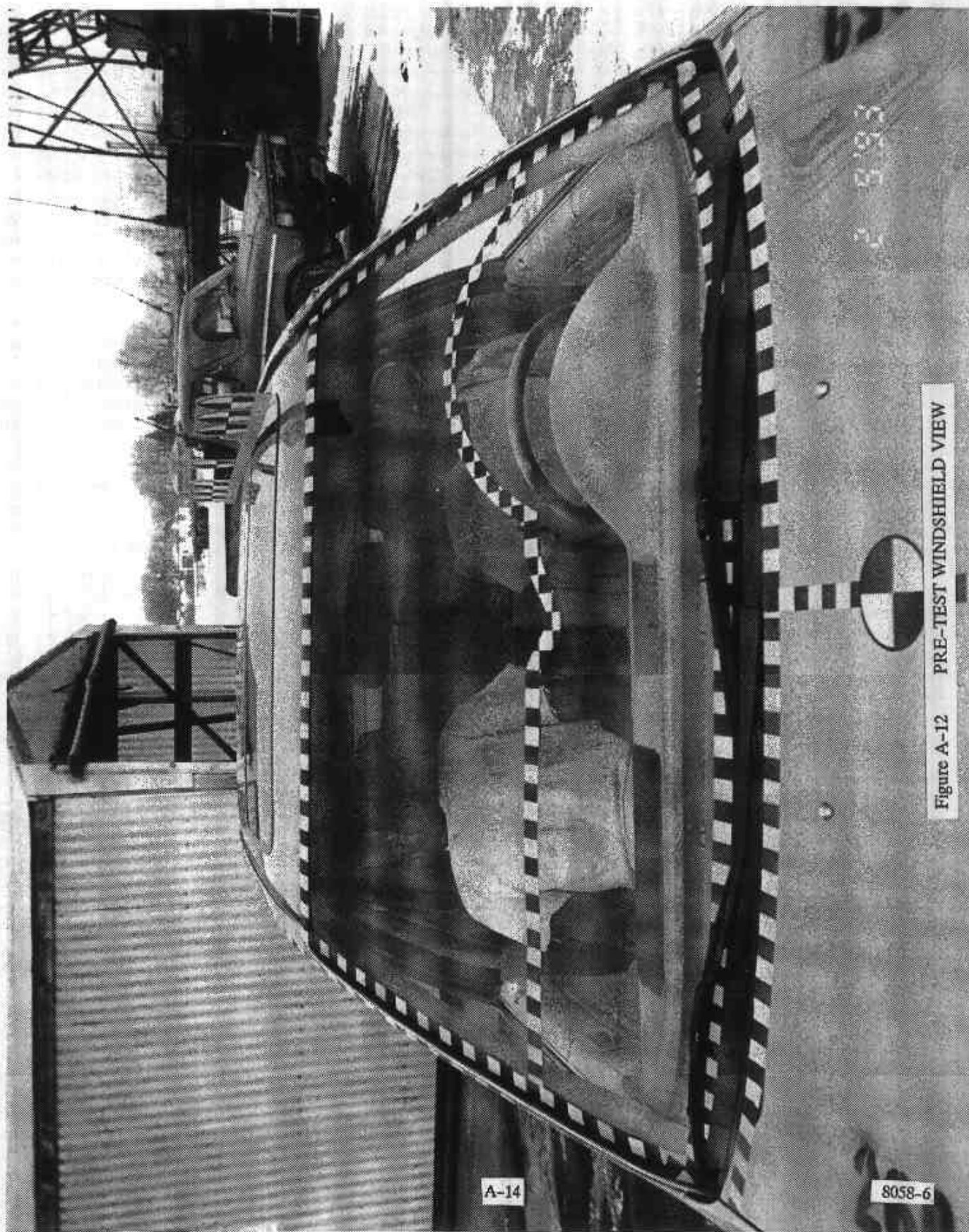


Figure A-12 PRE-TEST WINDSHIELD VIEW

A-14

8058-6

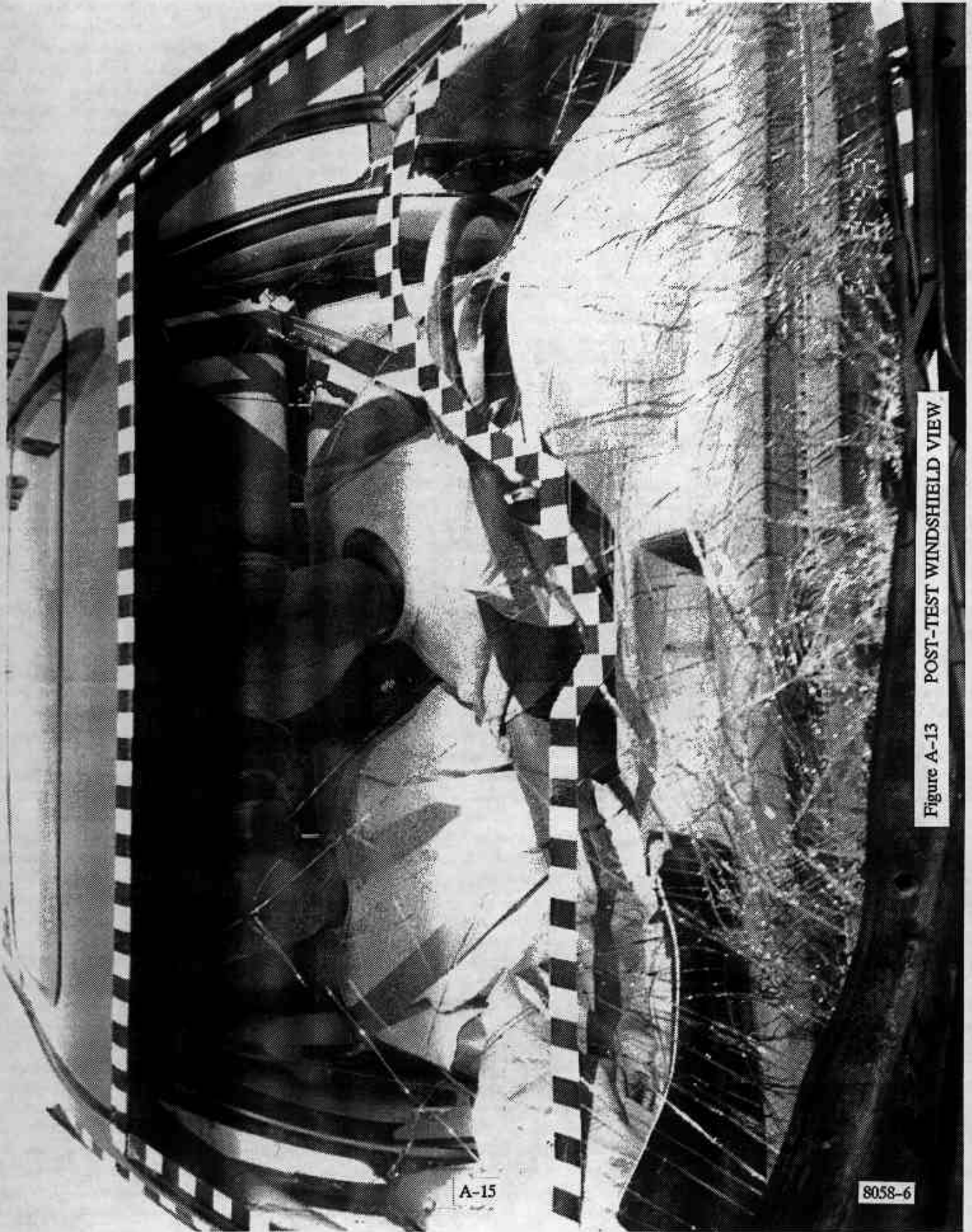


Figure A-13 POST-TEST WINDSHIELD VIEW

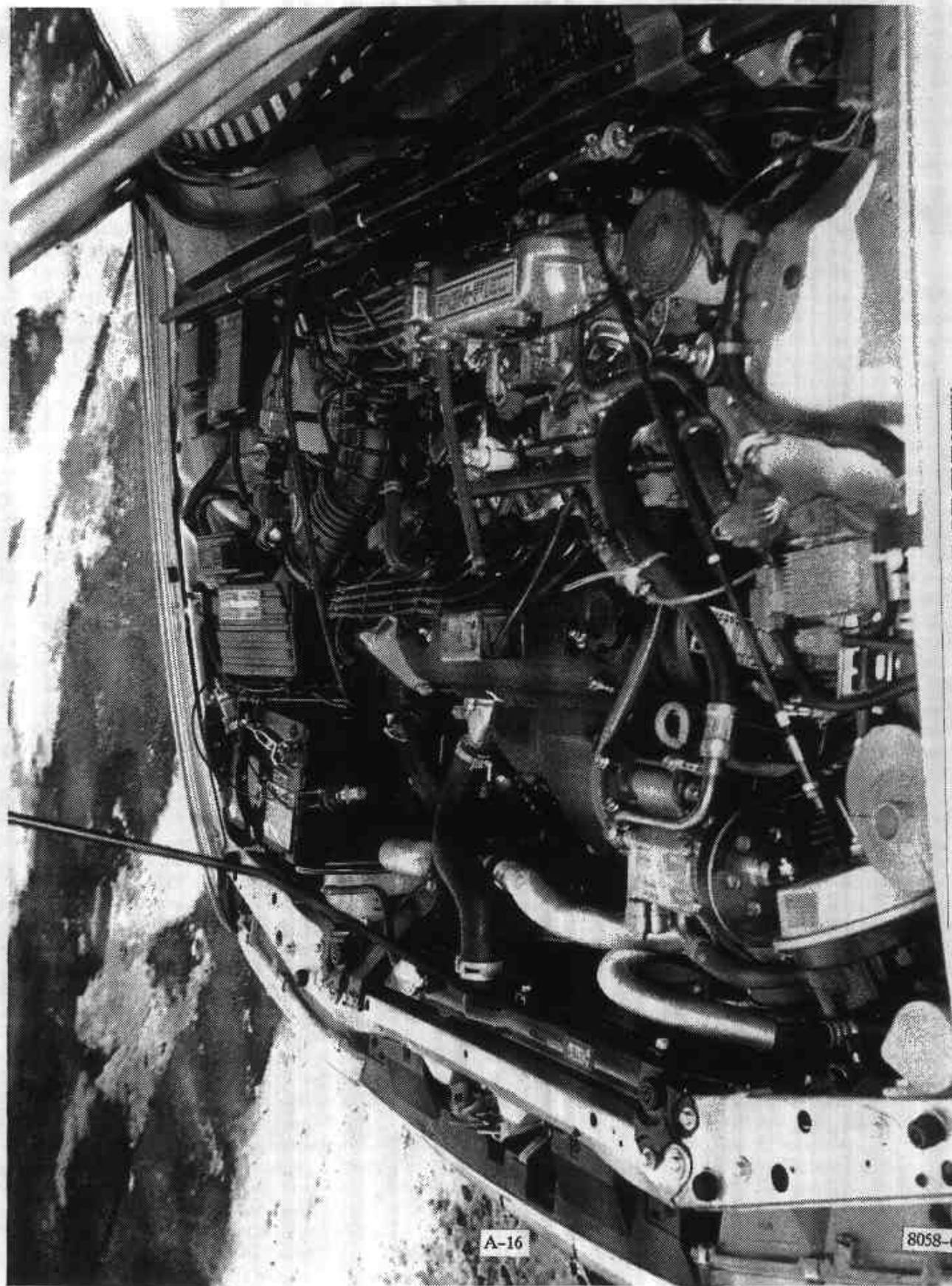


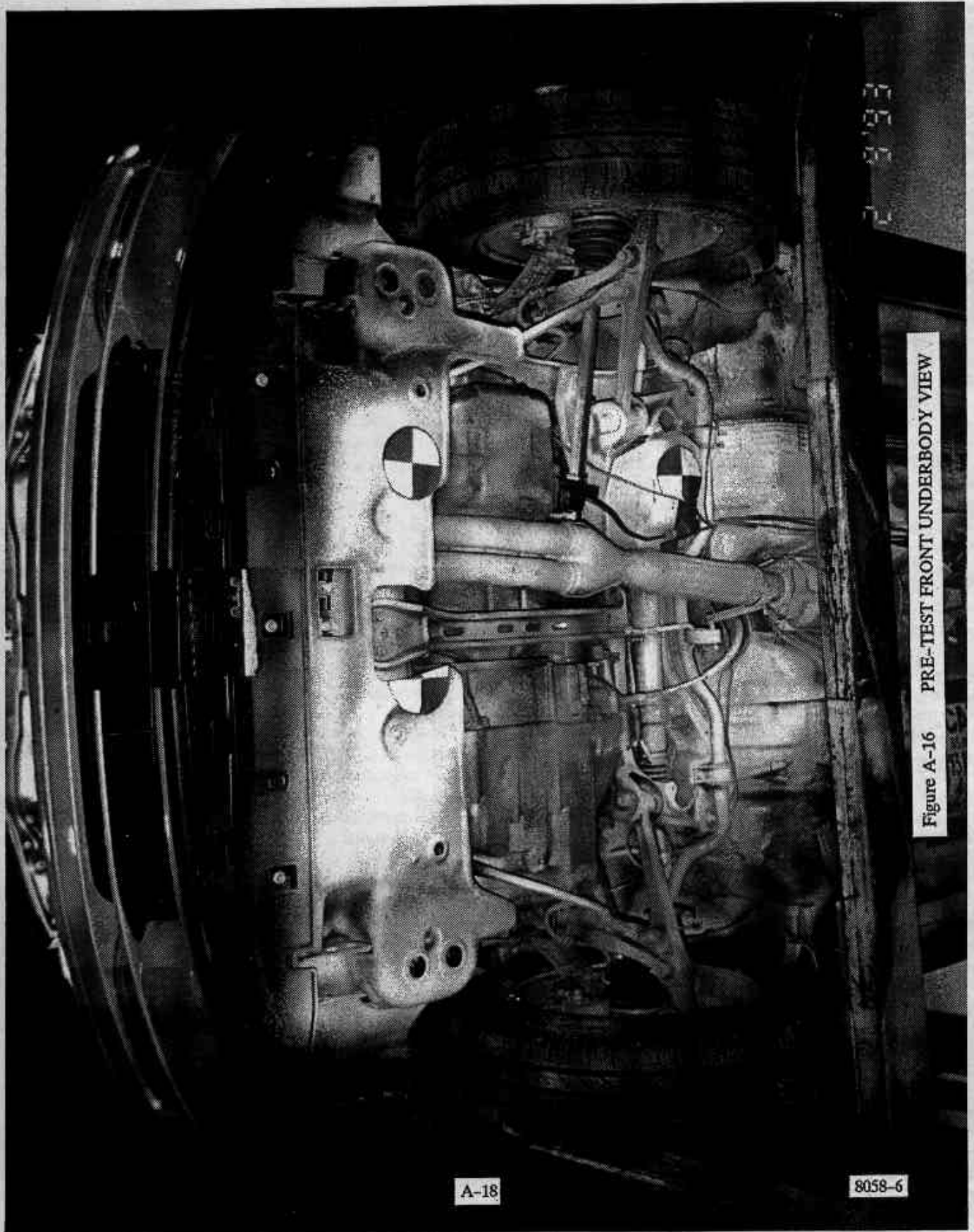
Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

A-16

8058-6

Figure A-15 FUEL CAP VIEW

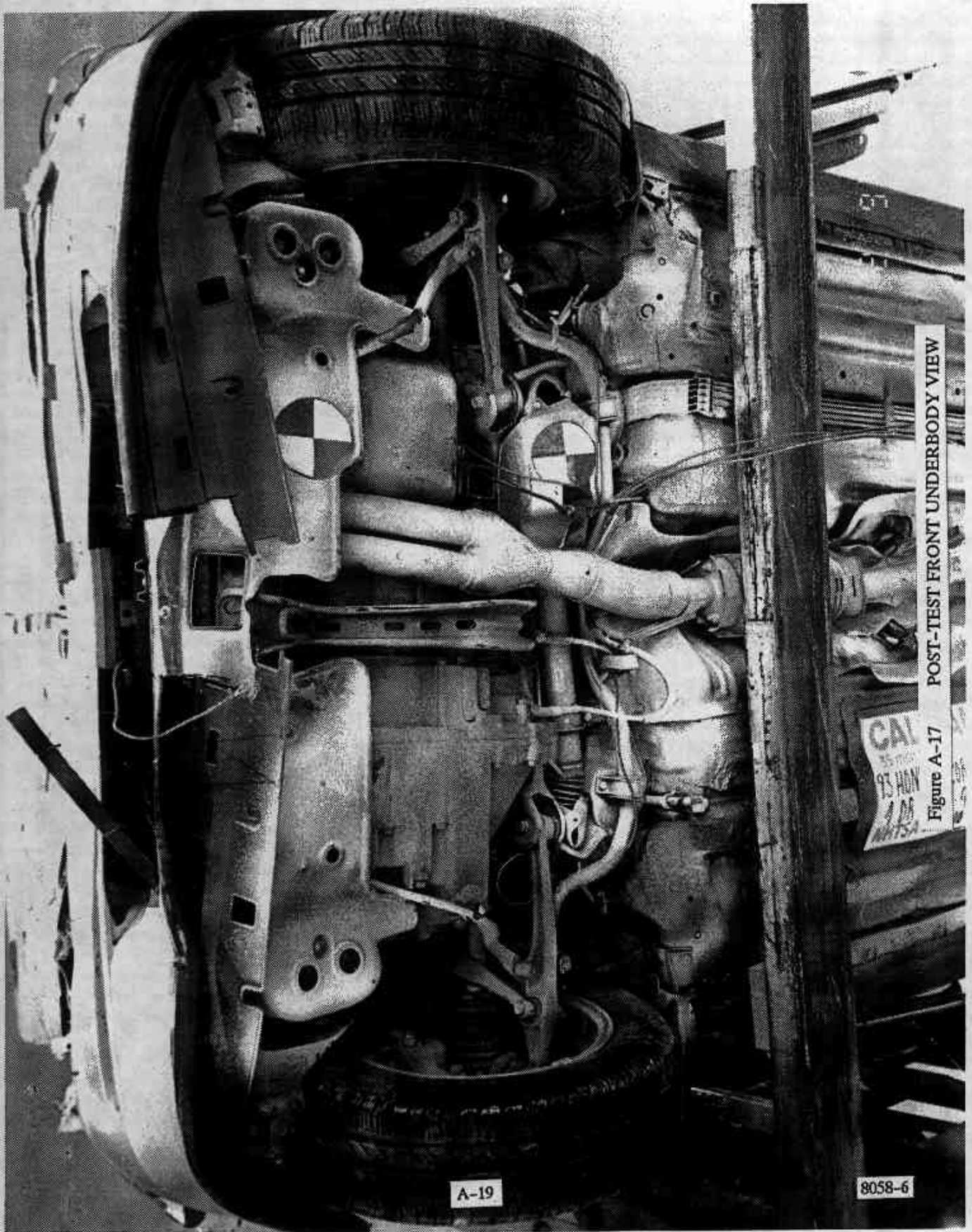
PHOTO NOT AVAILABLE



A-18

8058-6

Figure A-16 PRE-TEST FRONT UNDERBODY VIEW



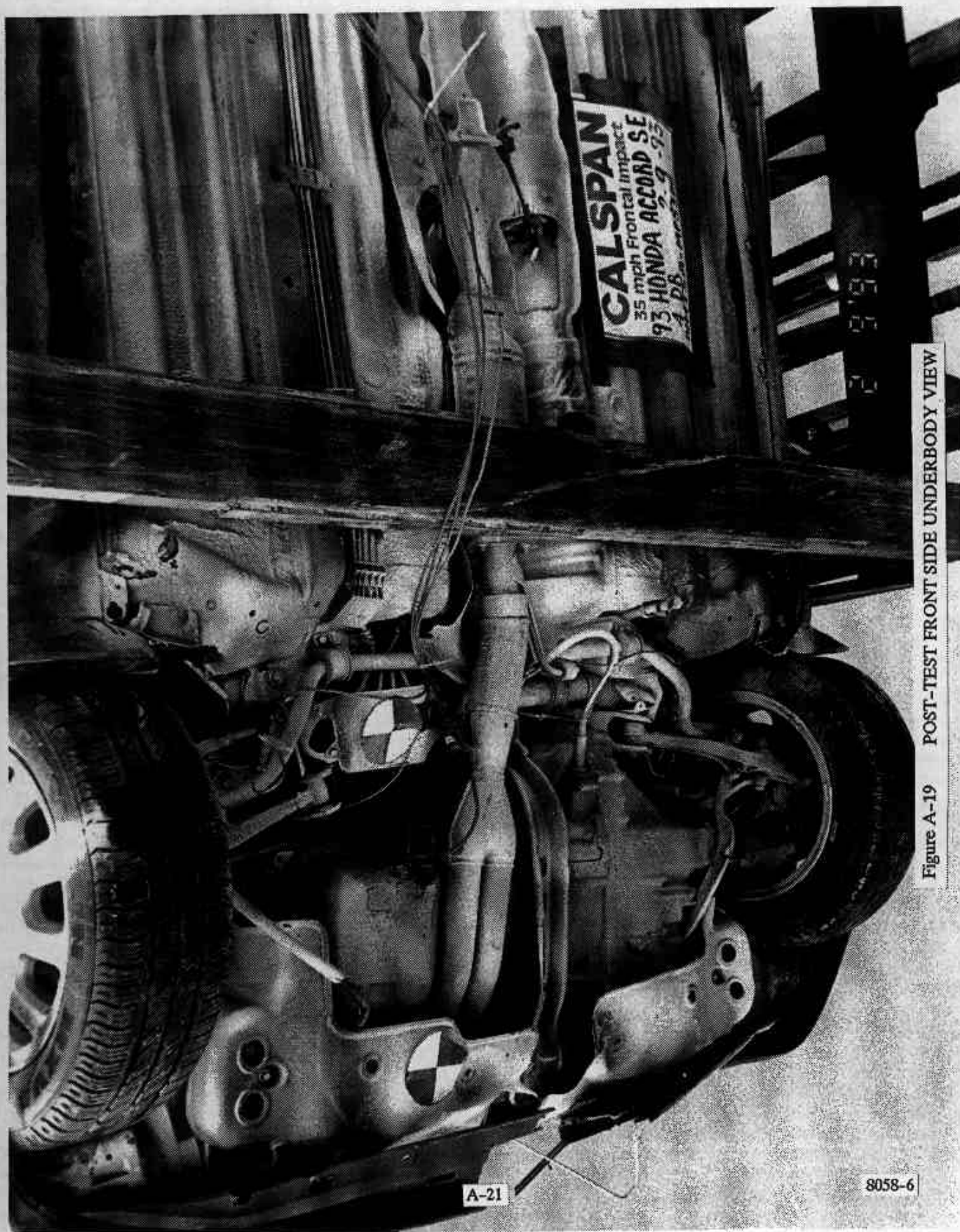


Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

8058-6

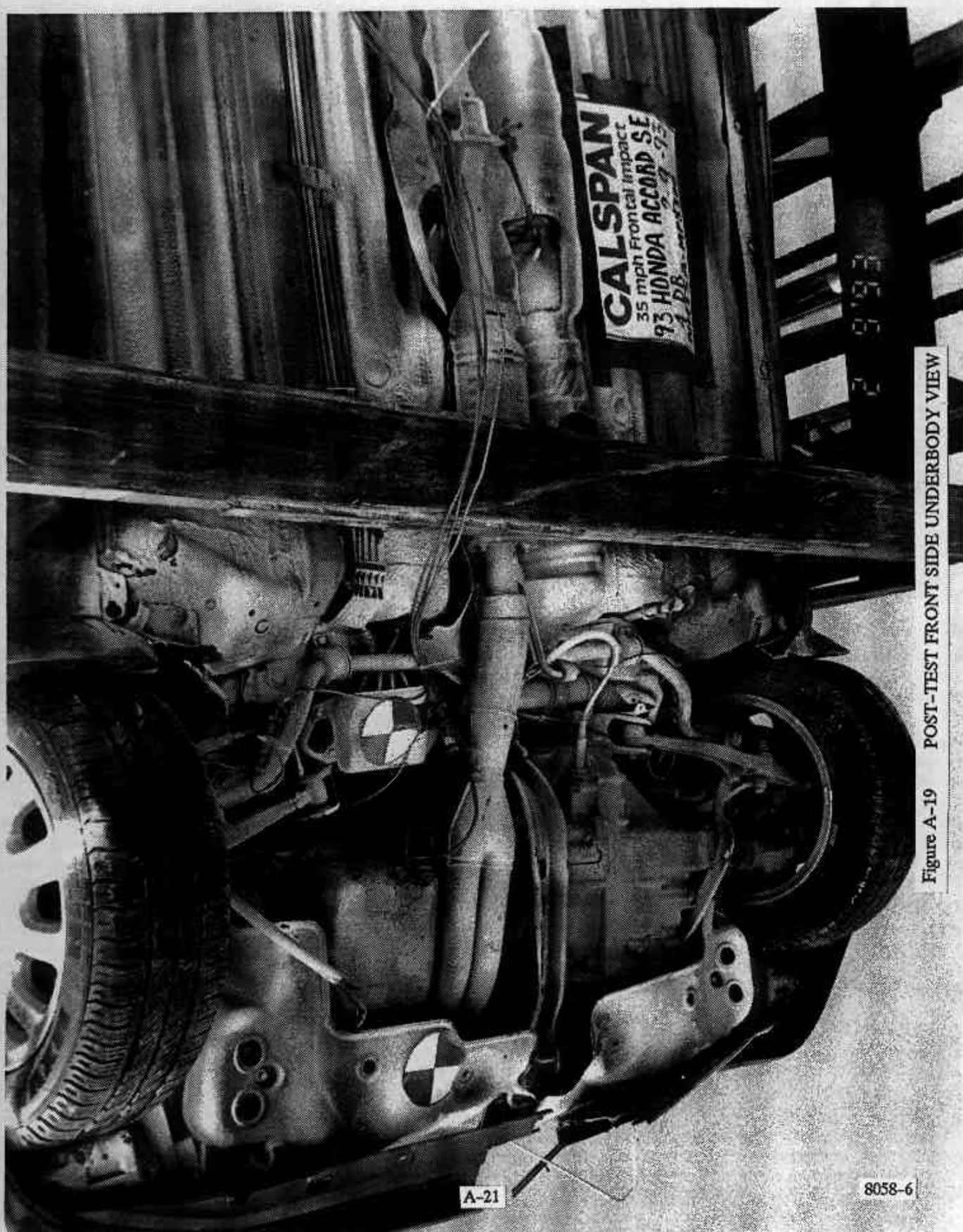


Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

A-21

8058-6

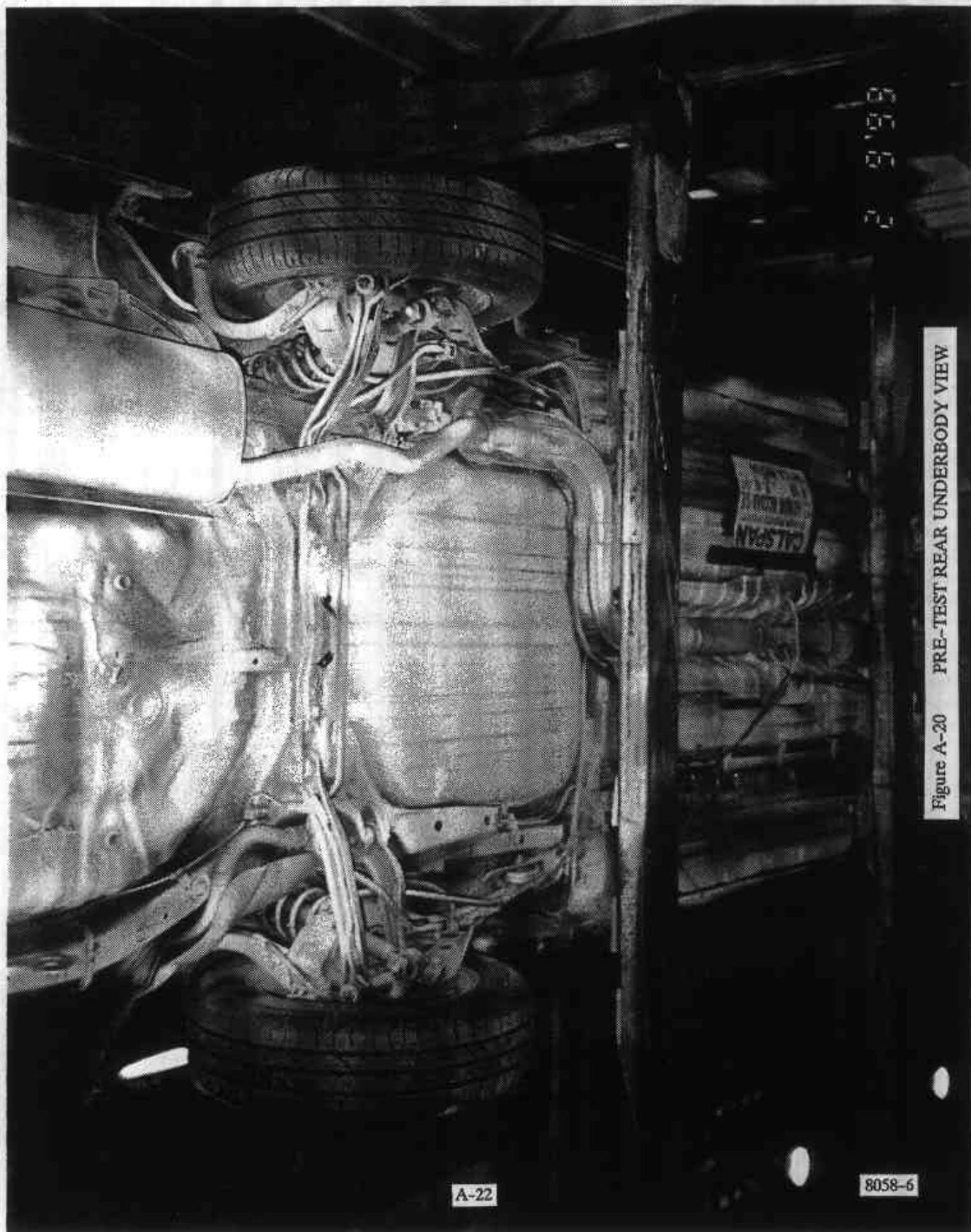


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

A-22

8058-6

2 9'33

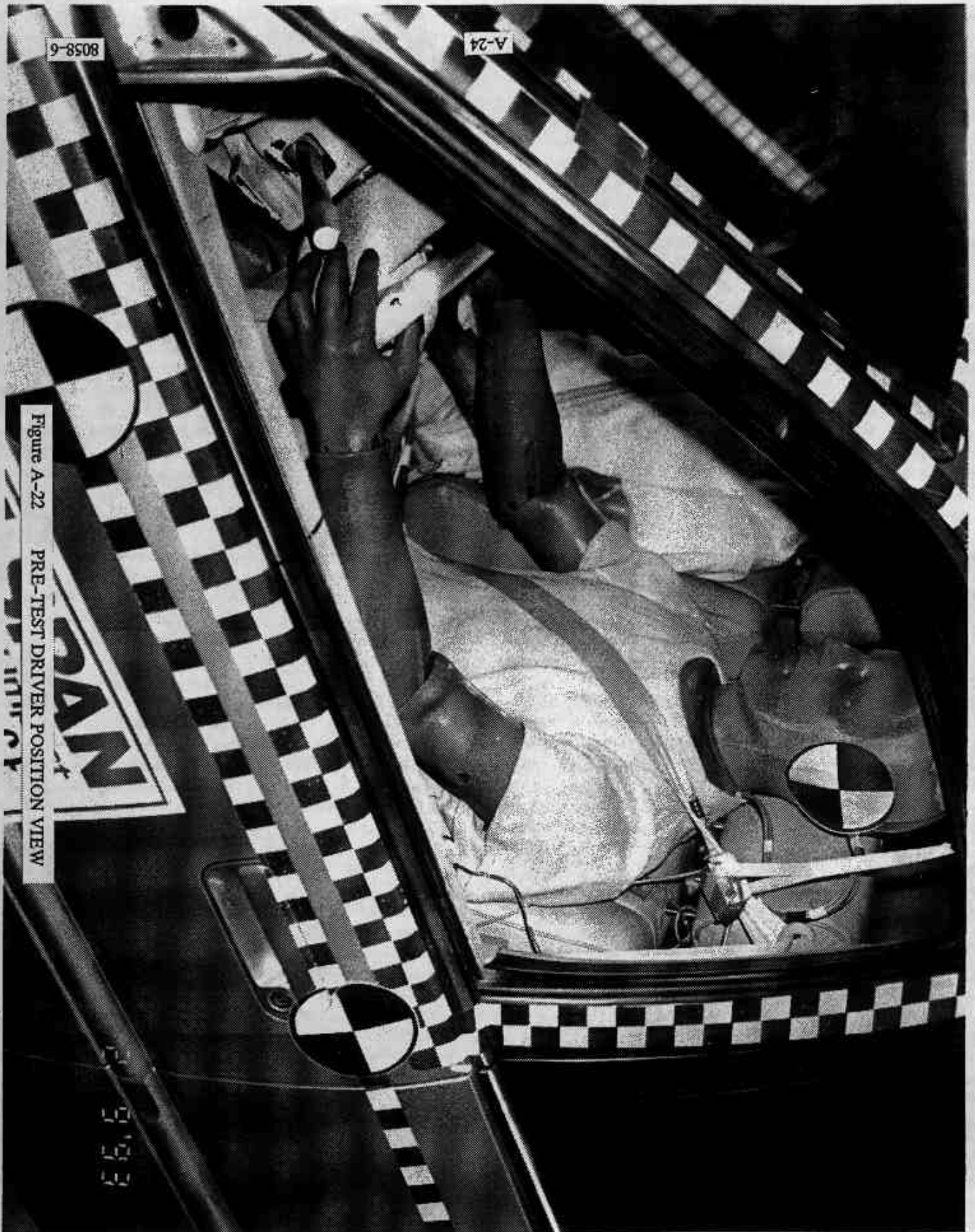


Figure A-22 PRE-TEST DRIVER POSITION VIEW

Figure A-21 POST-TEST REAR UNDERBODY VIEW

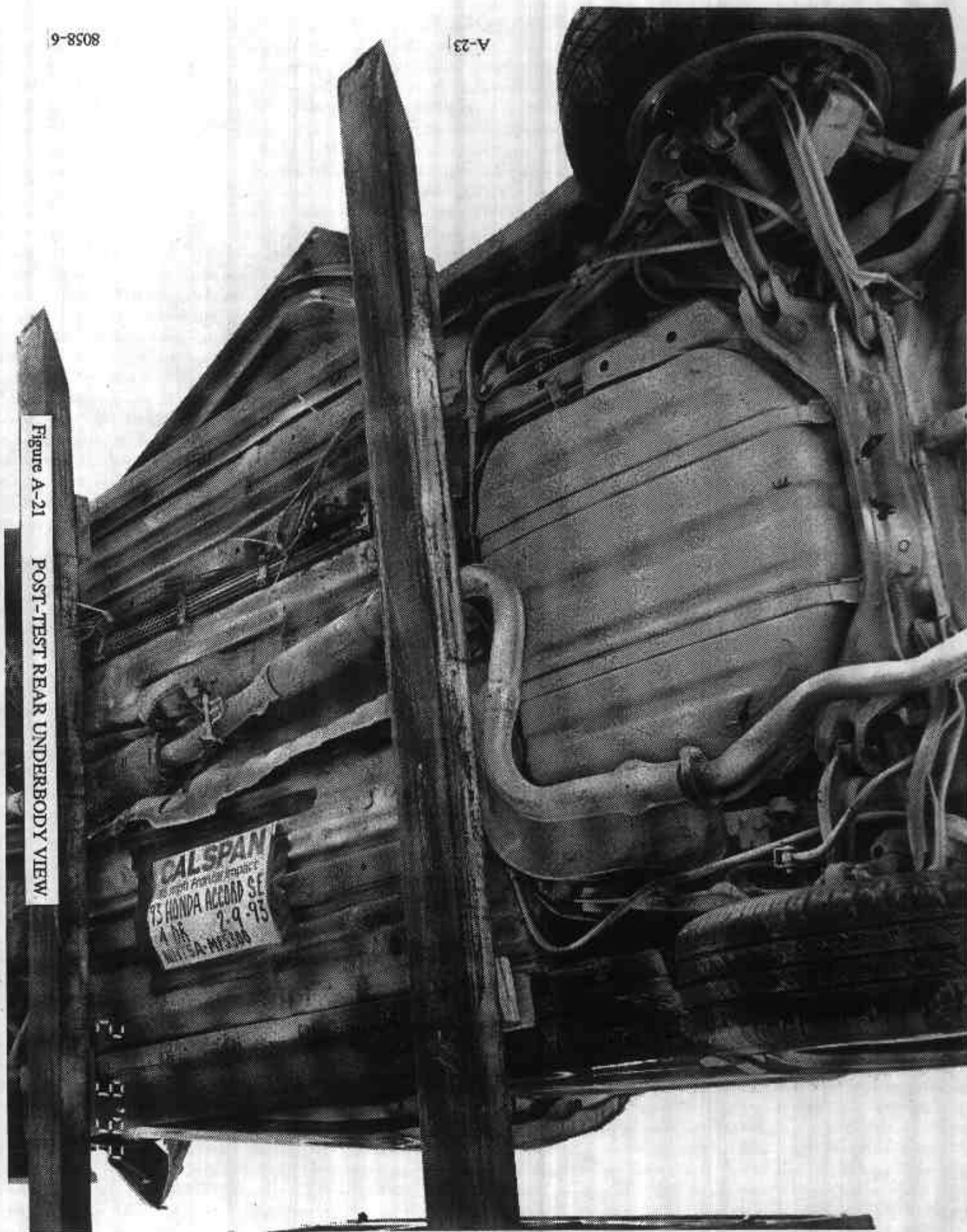




Figure A-23 POST-TEST DRIVER POSITION VIEW

A-25

8058-6



Figure A-24 PRE-TEST PASSENGER POSITION VIEW

A-26

8058-6



Figure A-25 POST-TEST PASSENGER POSITION VIEW

A-27

8058-6

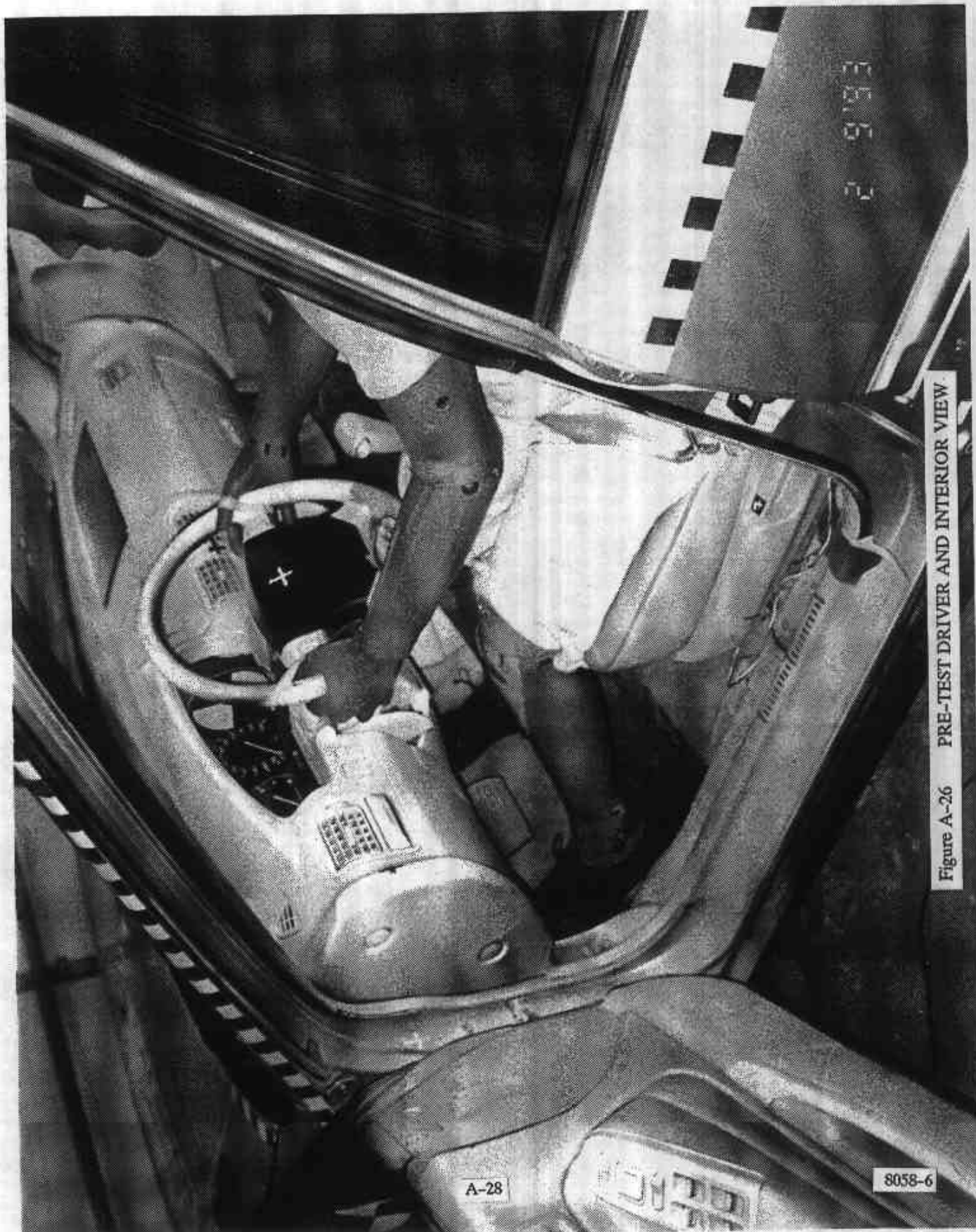


Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

A-28

8058-6



Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW

A-29

8058-6

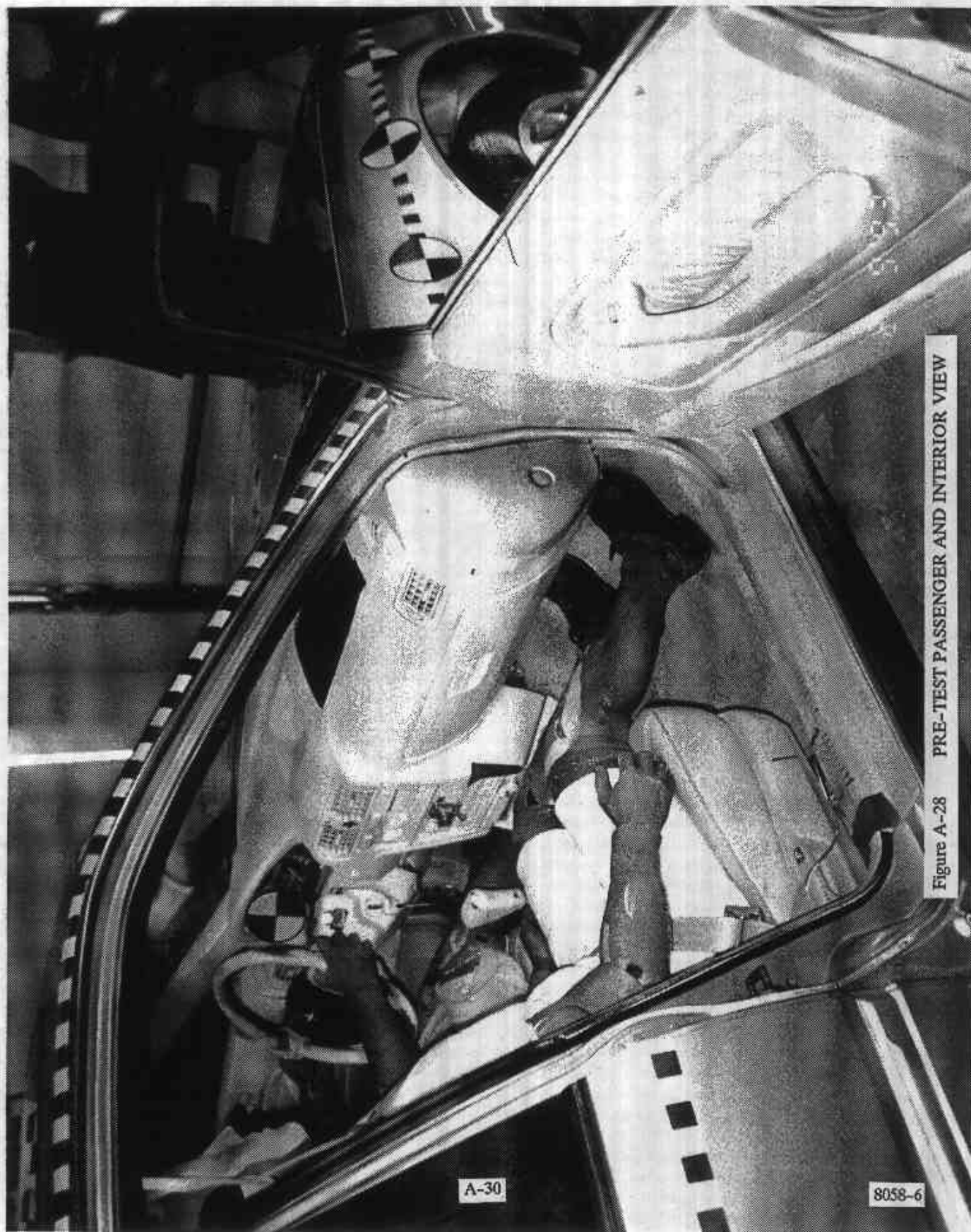


Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW

A-30

8058-6



Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

A-31

8058-6



Figure A-30 PRE-TEST DRIVER HEAD LOCATION



Figure A-31 PRE-TEST PASSENGER HEAD LOCATION

Appendix B

VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA

TEST NO. MP5300

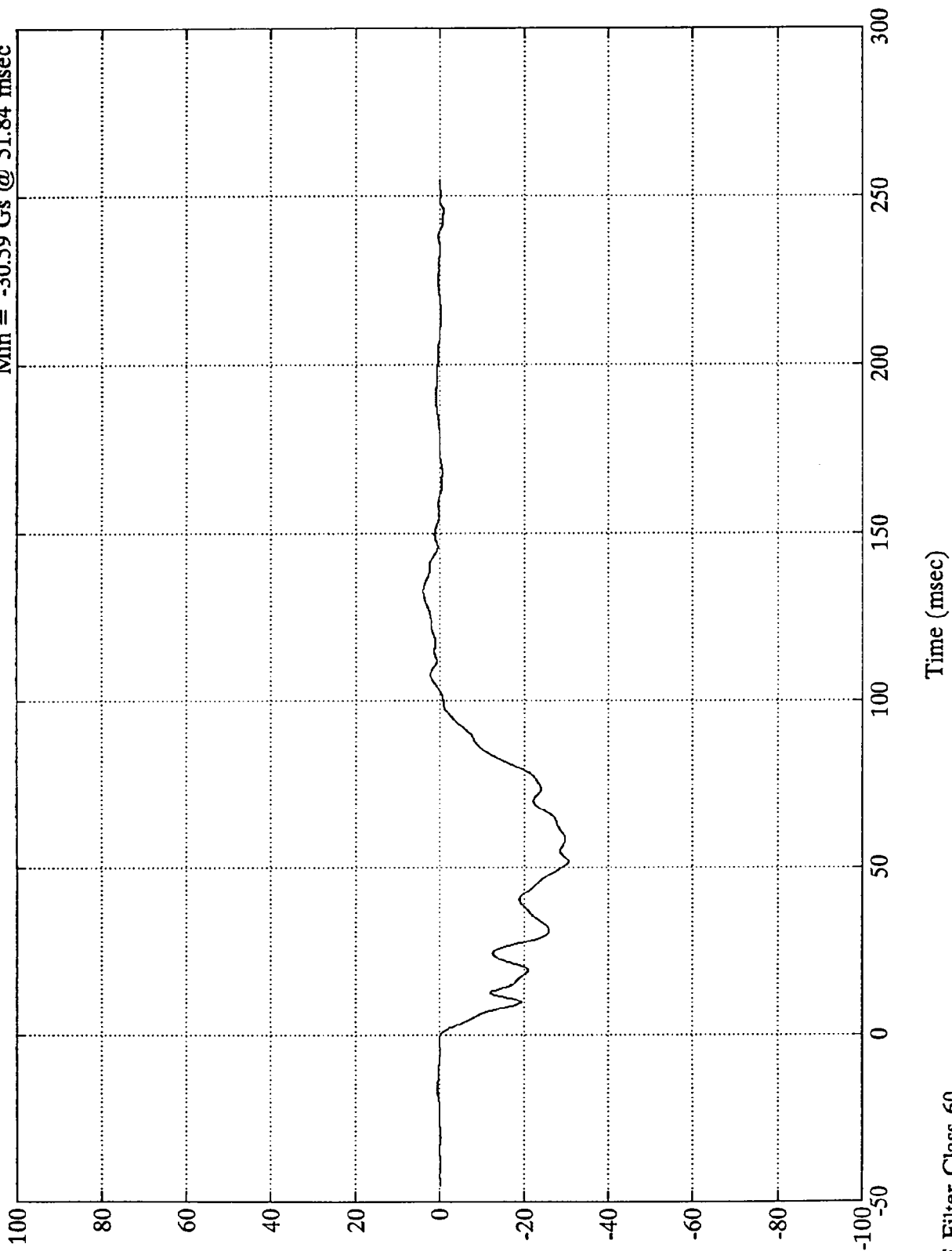
VEHICLE DATA

FILTER CHANNEL CLASS

60

NCAP TEST #10 1993 HONDA ACCORD

Acc. #1(x)
Max = 3.98 Gs @ 132.84 msec
Min = -30.59 Gs @ 51.84 msec



B-3

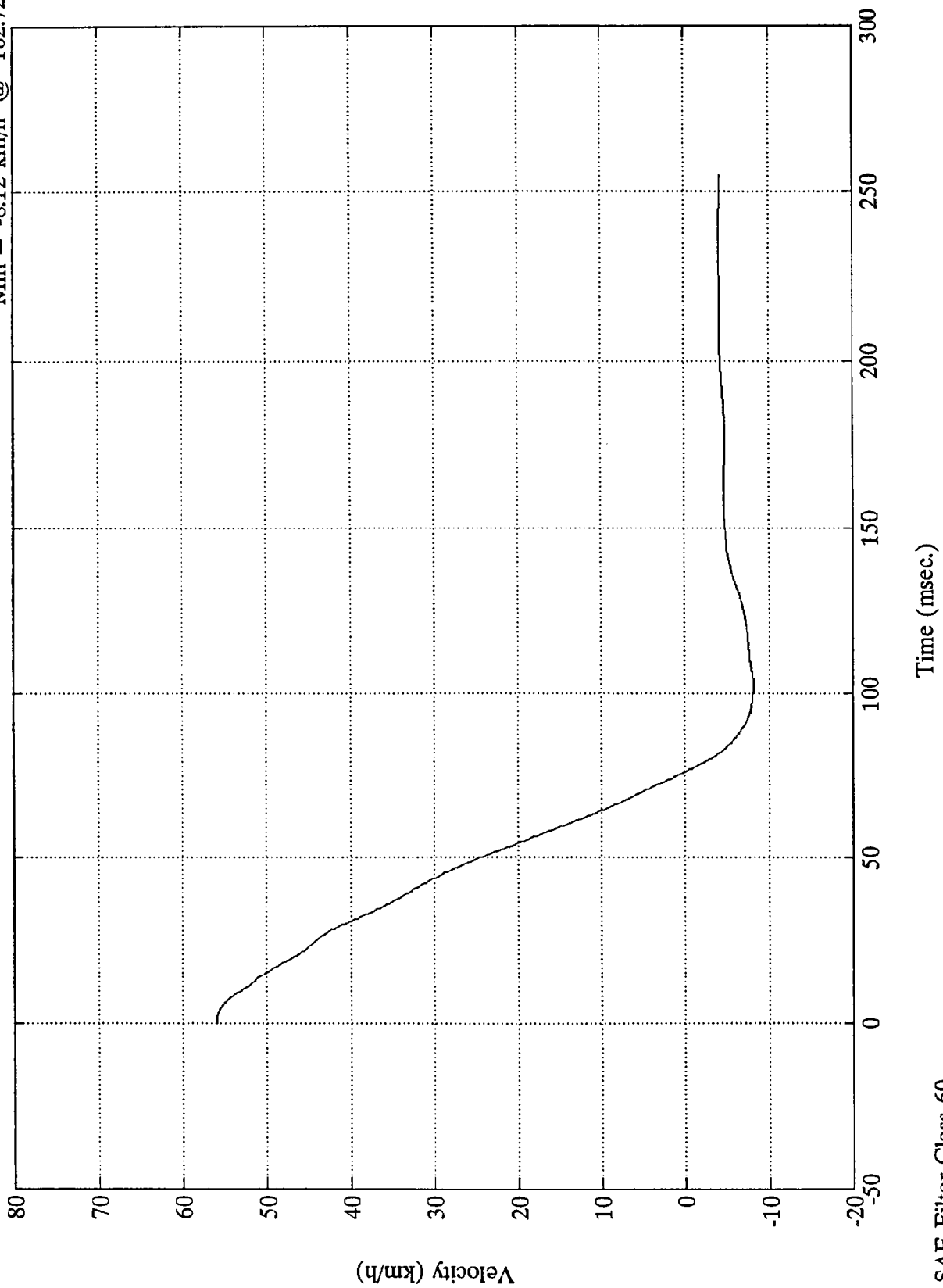
8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 56.00 km/h @ 0.48 msec
Min = -8.12 km/h @ 102.72 msec

Acc. #1(x)

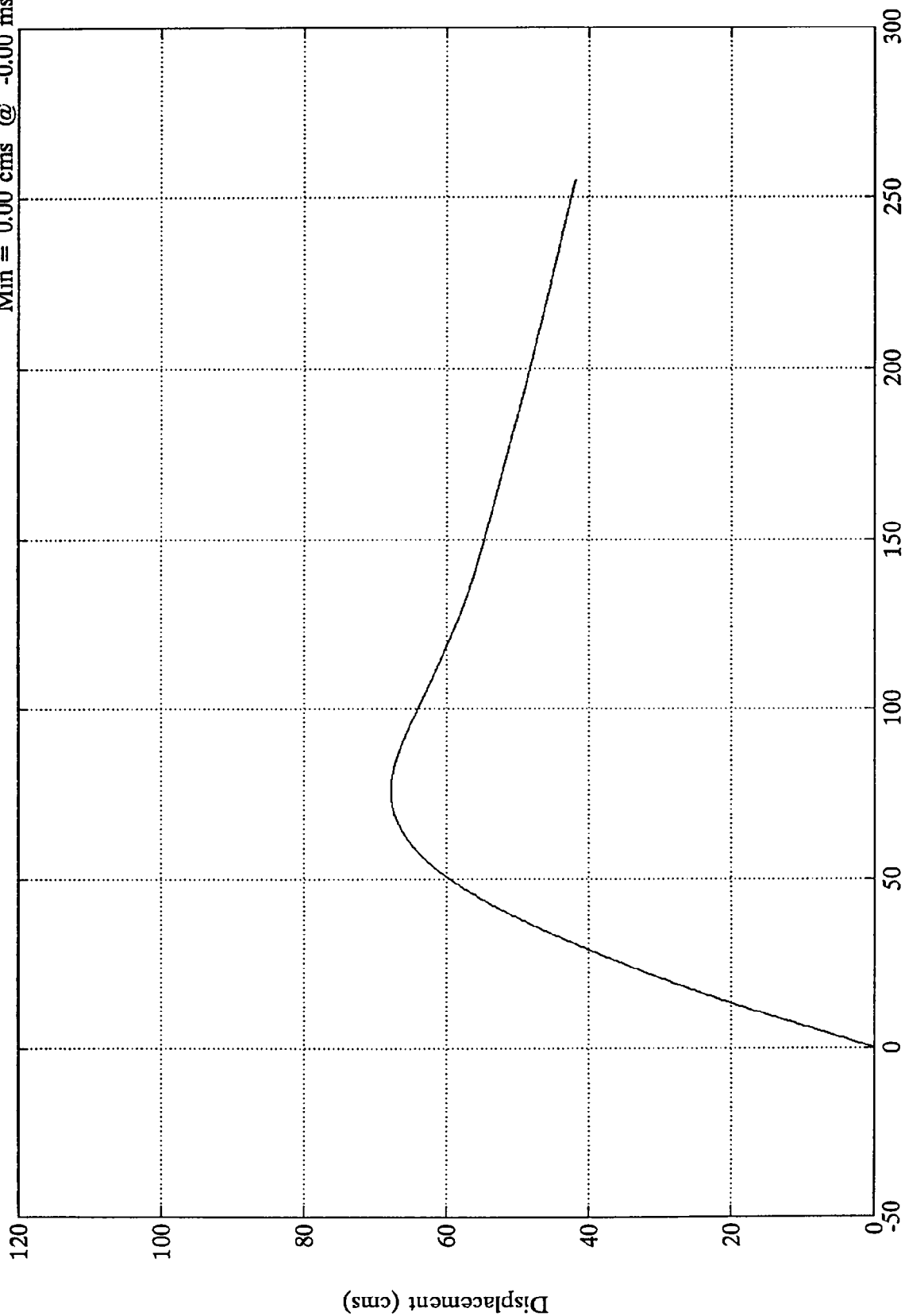


SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 67.86 cms @ 76.56 msec
Min = 0.00 cms @ -0.00 msec

Acc. #1(x)



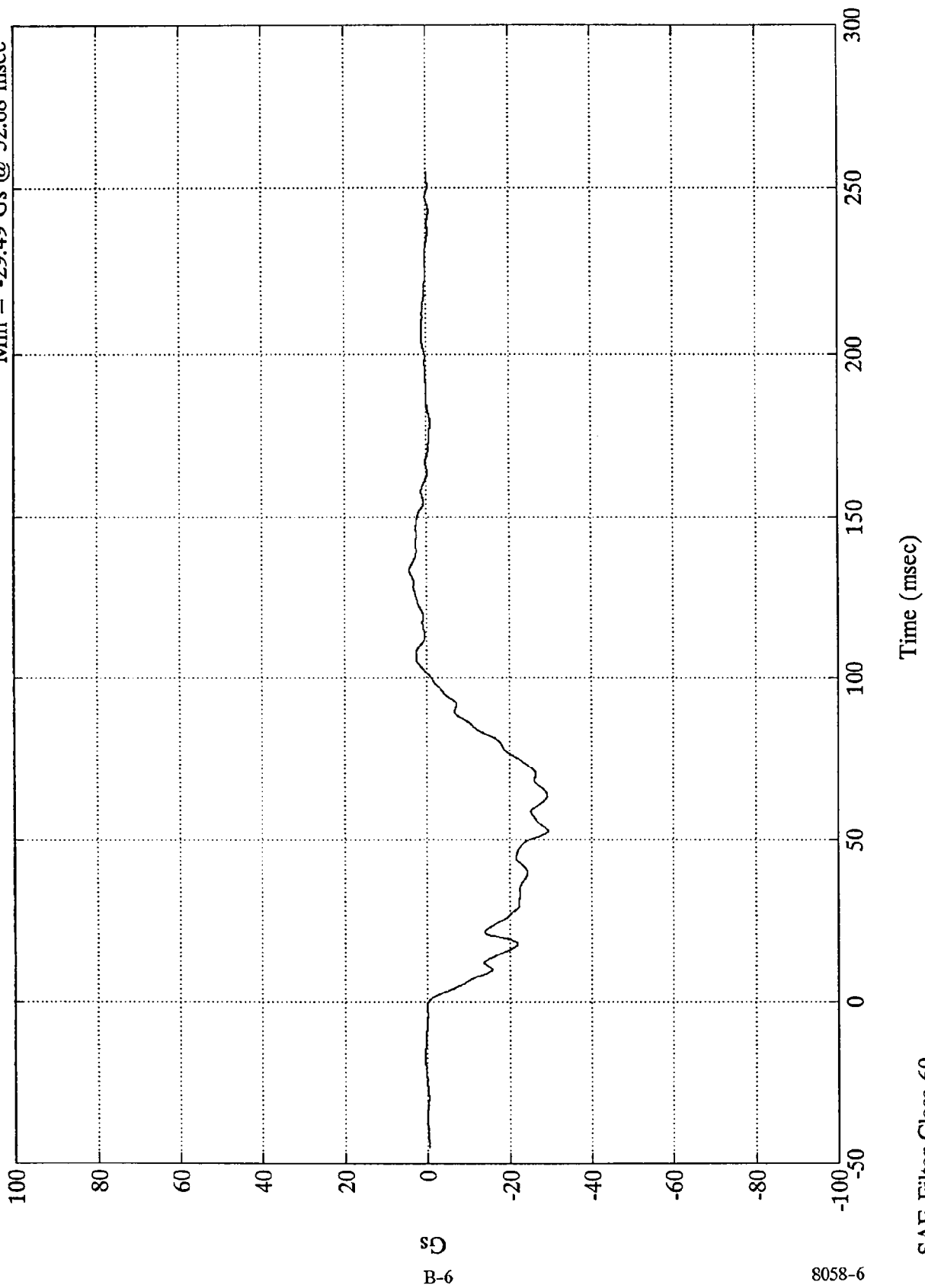
Time (msec.)

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 4.21 Gs @ 133.80 msec
Min = -29.49 Gs @ 52.68 msec

Acc. #2(x)



B-6

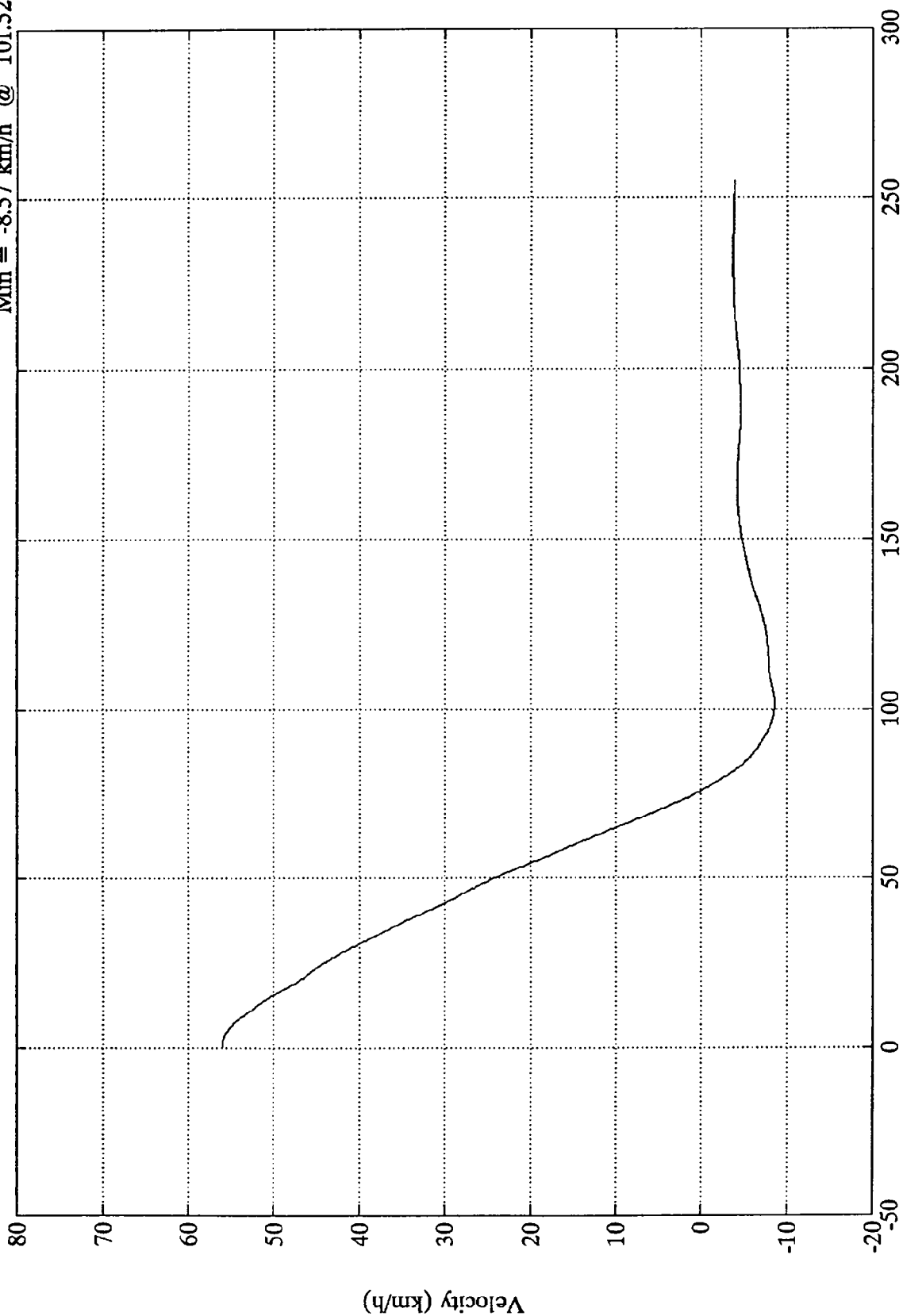
8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 56.00 km/h @ 0.48 msec
Min = -8.57 km/h @ 101.52 msec

Acc. #2(x)



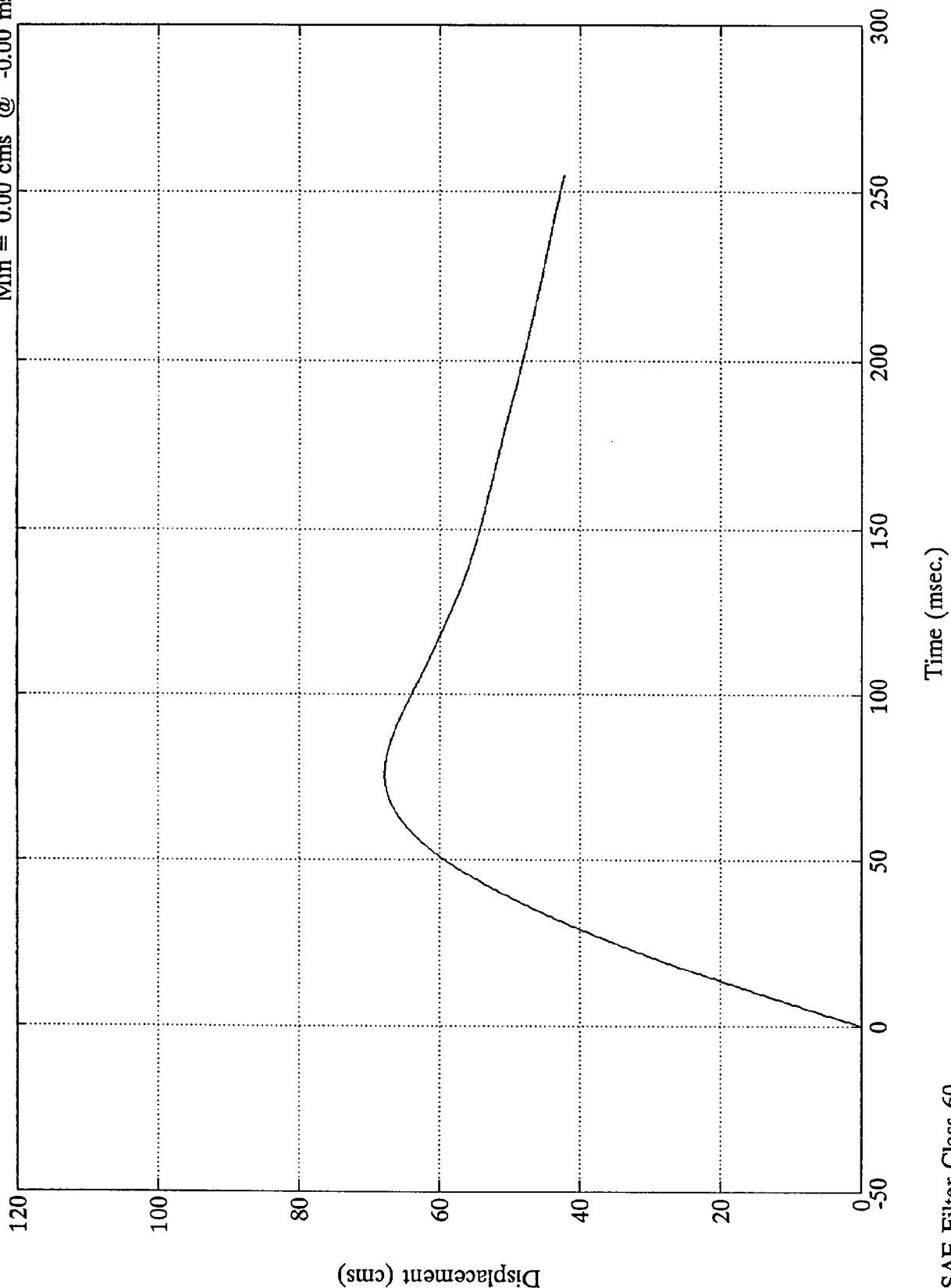
Time (msec.)

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 67.89 cms @ 76.32 msec
Min = 0.00 cms @ -0.00 msec

Acc. #2(x)



8-B

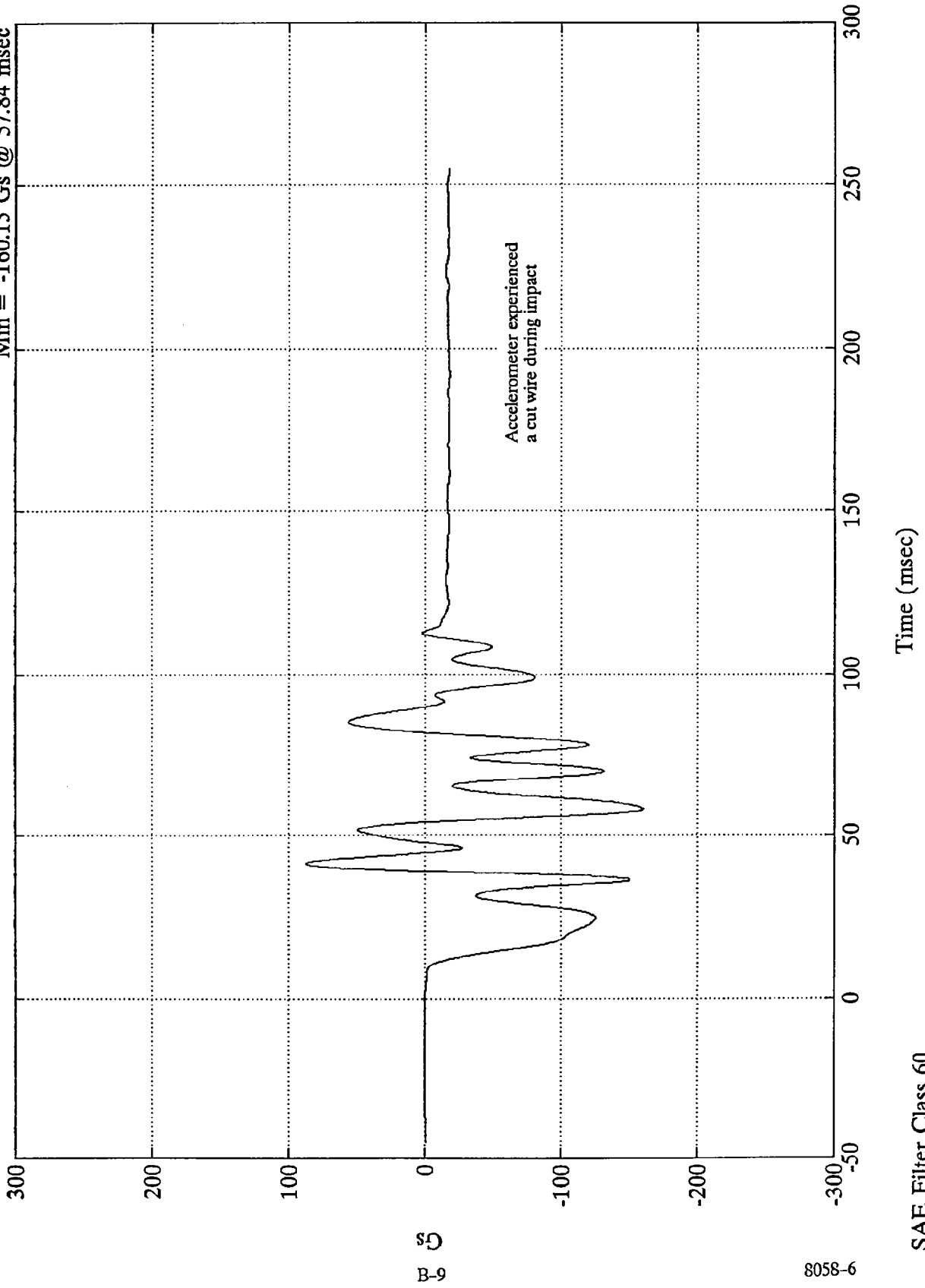
8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 87.56 Gs @ 41.28 msec
Min = -160.15 Gs @ 57.84 msec

Acc. #3(x)

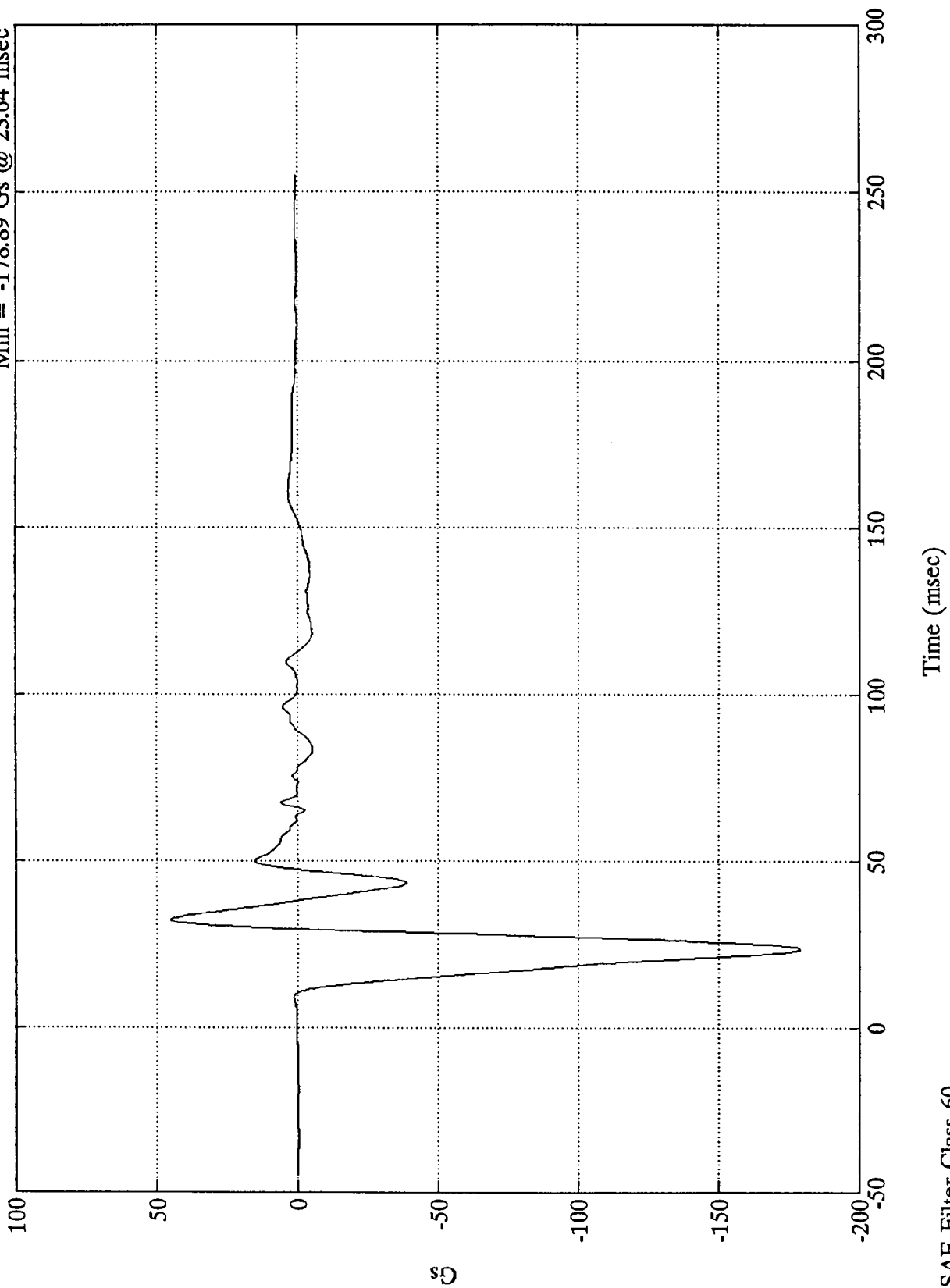


SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 45.03 Gs @ 32.16 msec
Min = -178.89 Gs @ 23.64 msec

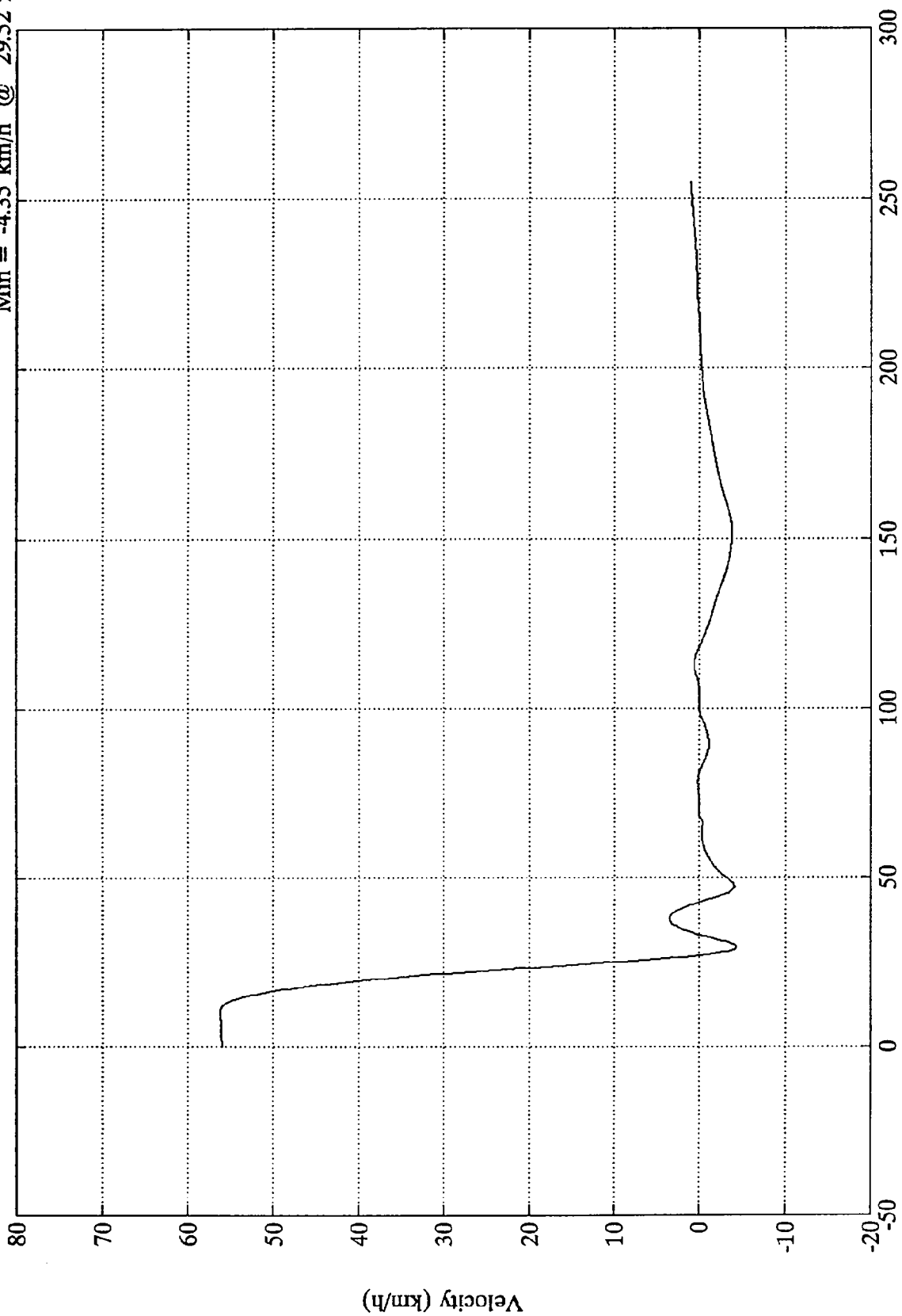
Acc. #4(x)



NCAP TEST #10 1993 HONDA ACCORD

Acc. #4(x)

Max = 56.22 km/h @ 10.32 msec
Min = -4.35 km/h @ 29.52 msec



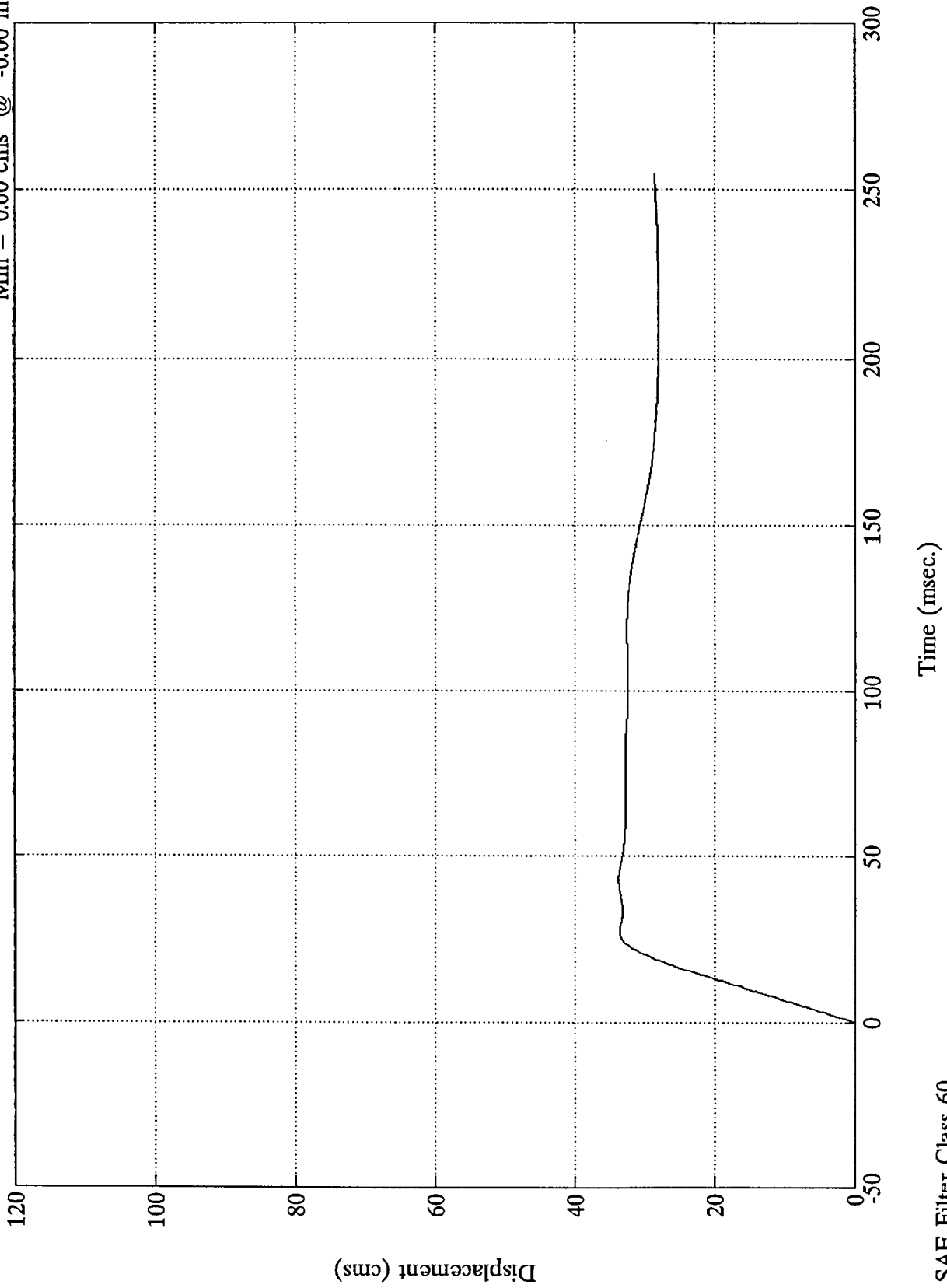
Time (msec.)

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

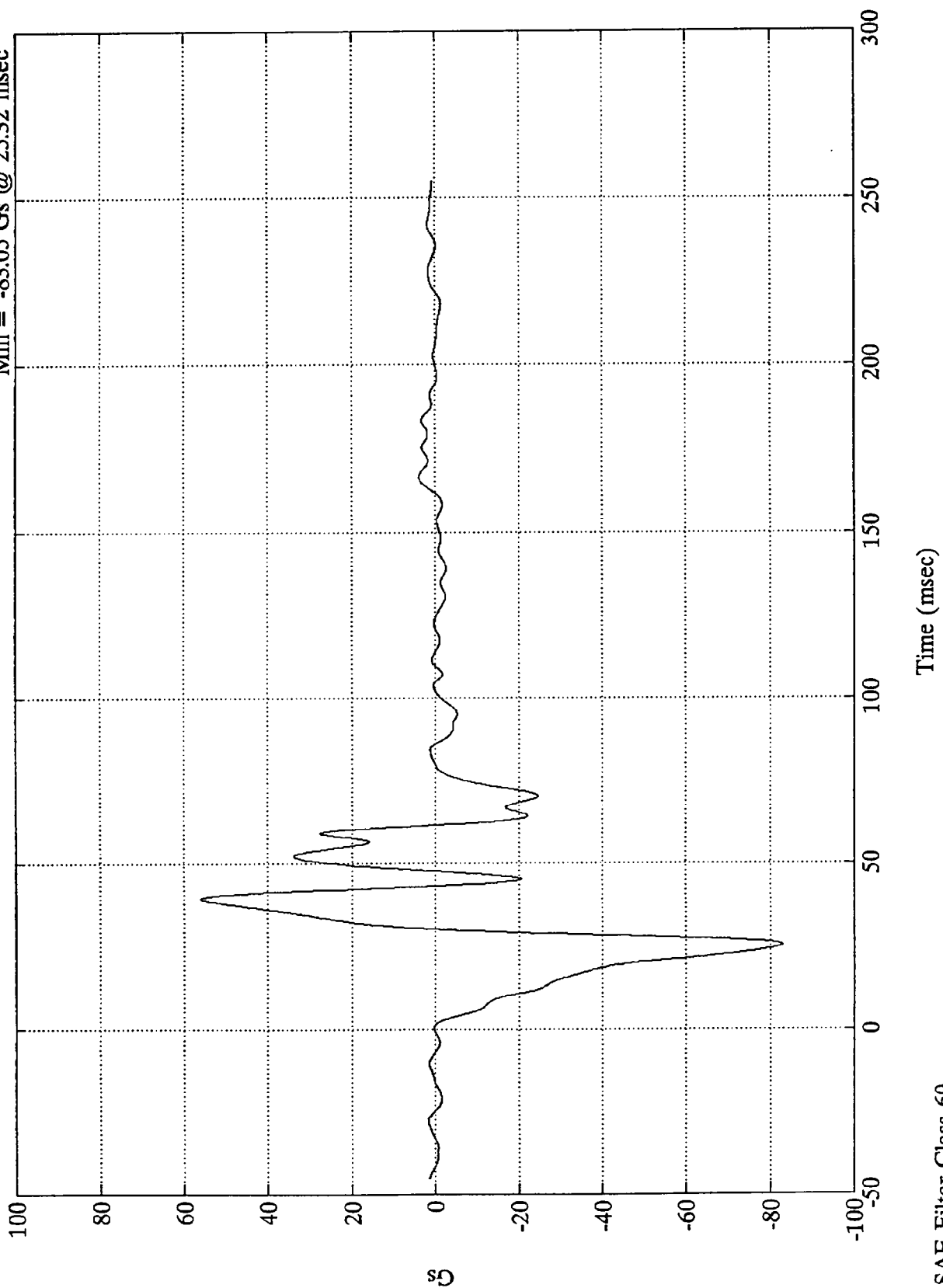
Max = 33.80 cms @ 43.44 msec
Min = 0.00 cms @ -0.00 msec

Acc. #4(x)



NCAP TEST #10 1993 HONDA ACCORD

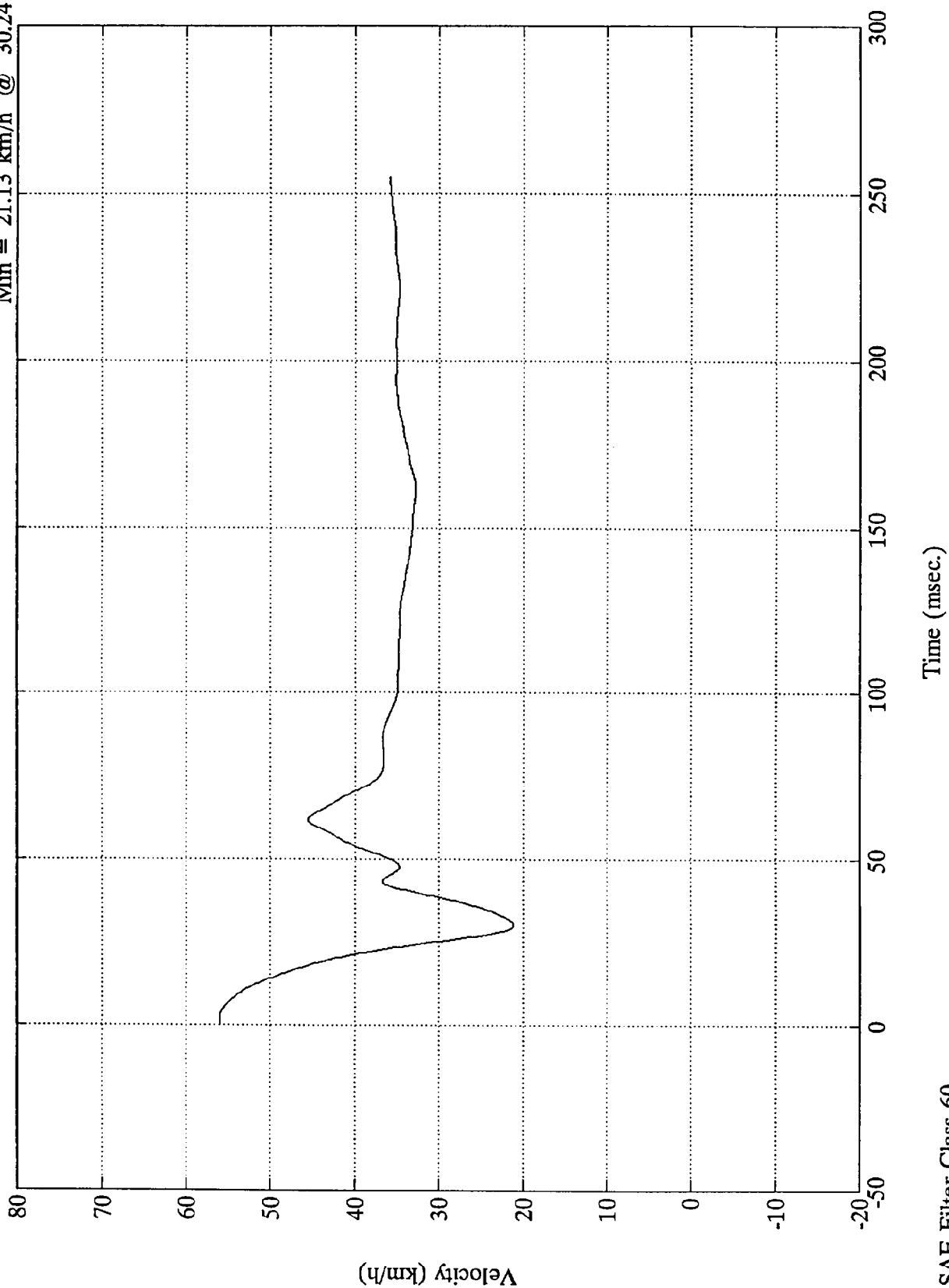
Acc. #5(x) Max = 55.94 Gs @ 39.48 msec
Min = -83.05 Gs @ 25.32 msec



NCAP TEST #10 1993 HONDA ACCORD

Max = 56.01 km/h @ 1.92 msec
Min = 21.13 km/h @ 30.24 msec

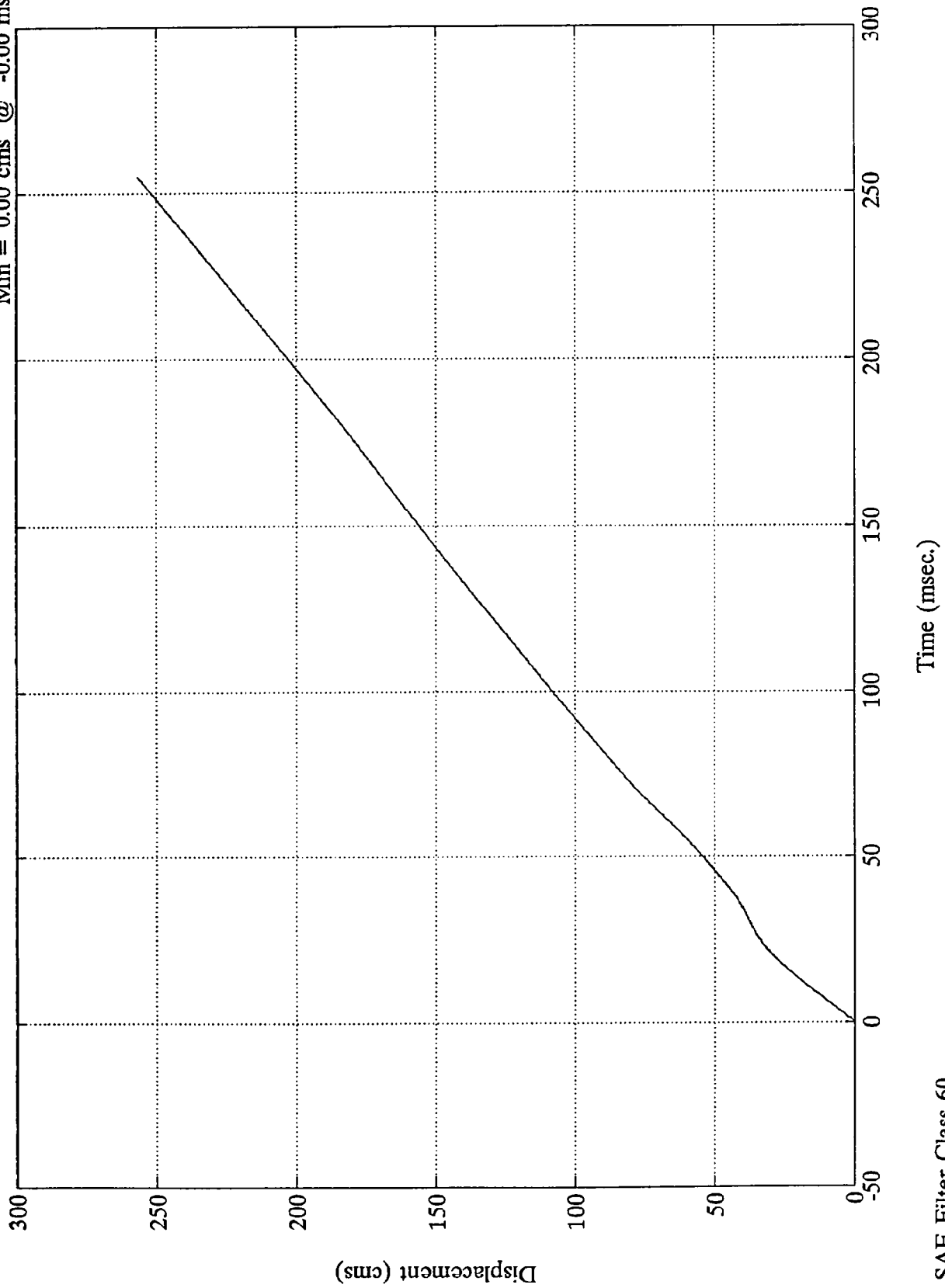
Acc. #5(x)



NCAP TEST #10 1993 HONDA ACCORD

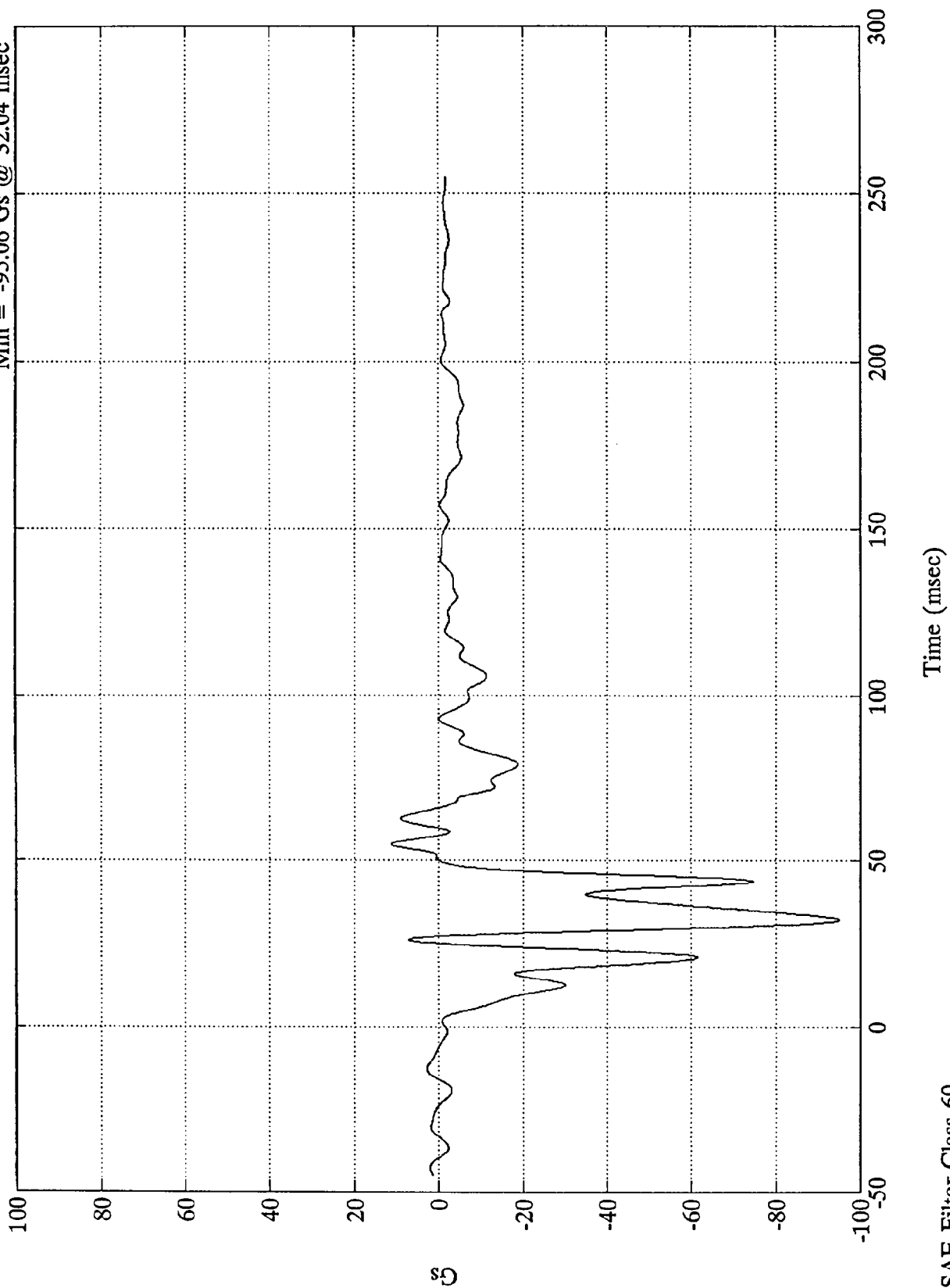
Max = 256.70 cms @ 254.88 msec
Min = 0.00 cms @ -0.00 msec

Acc. #5(x)



NCAP TEST #10 1993 HONDA ACCORD

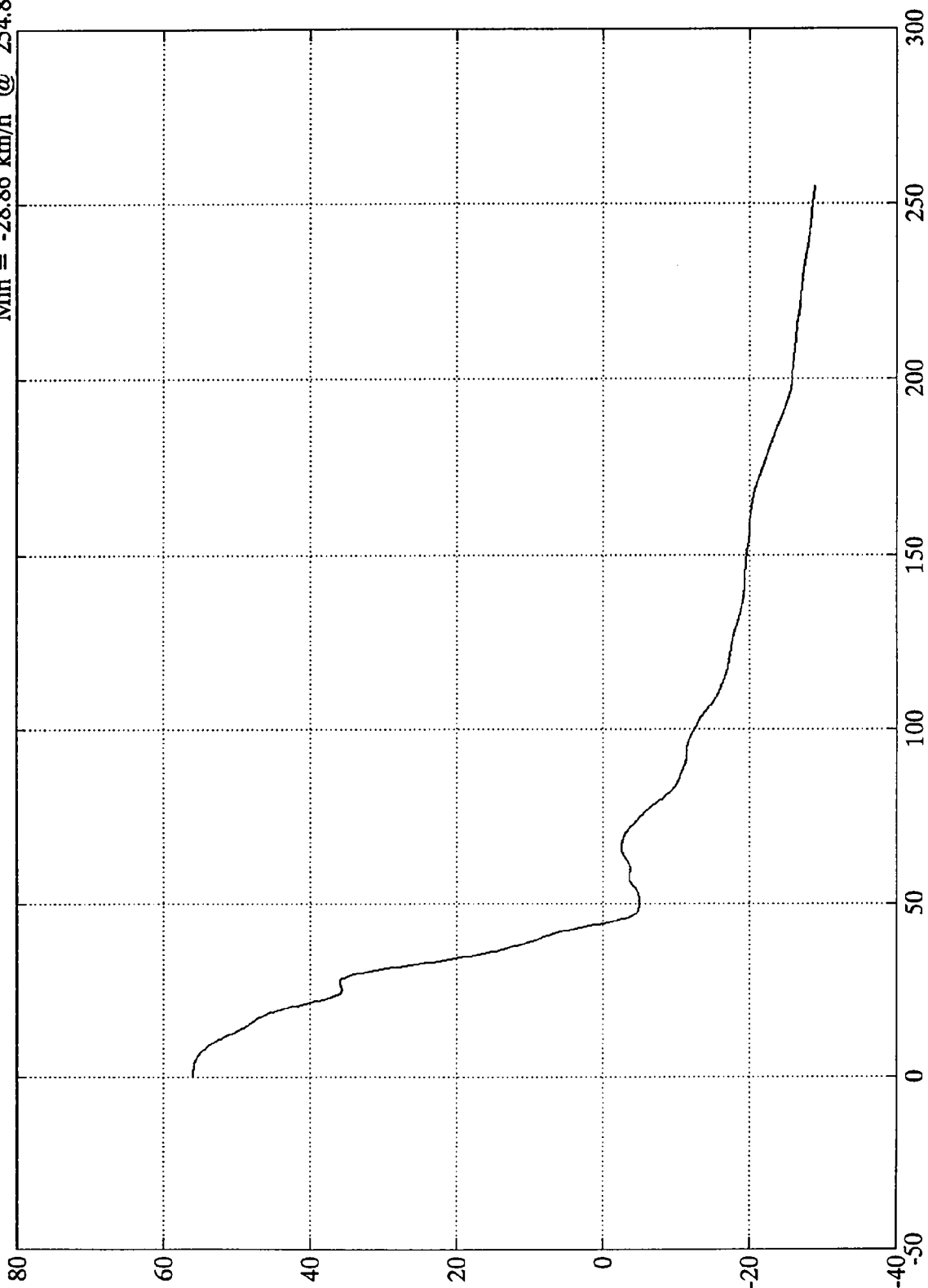
Acc. #6(x)
Max = 11.27 Gs @ 54.84 msec
Min = -95.06 Gs @ 32.04 msec



NCAP TEST #10 1993 HONDA ACCORD

Max = 56.00 km/h @ -0.00 msec
Min = -28.86 km/h @ 254.88 msec

Acc. #6(x)



Time (msec.)

SAE Filter Class 60

Velocity (km/h)

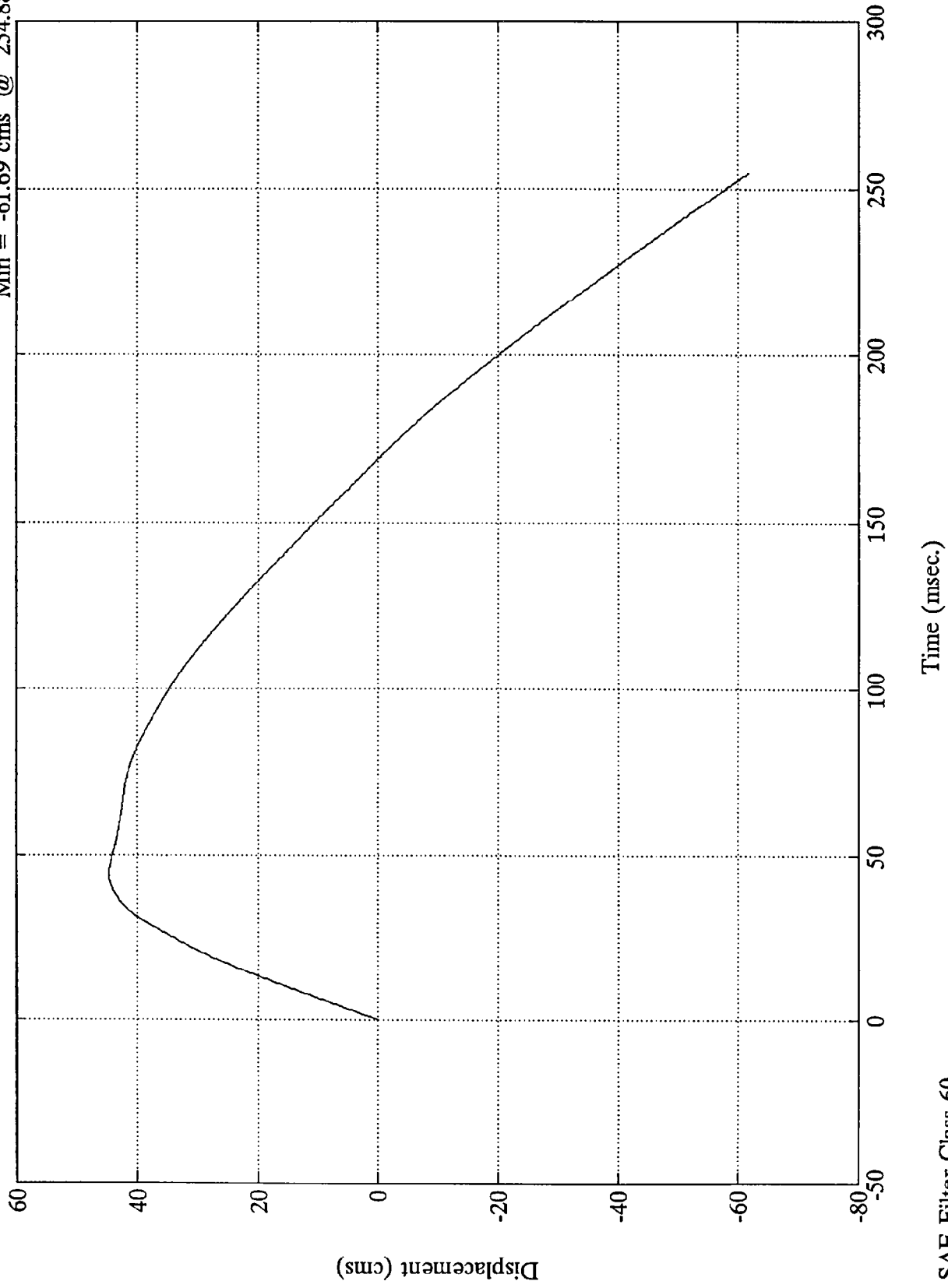
B-17

8058-6

NCAP TEST #10 1993 HONDA ACCORD

Max = 44.71 cms @ 44.40 msec
Min = -61.69 cms @ 254.88 msec

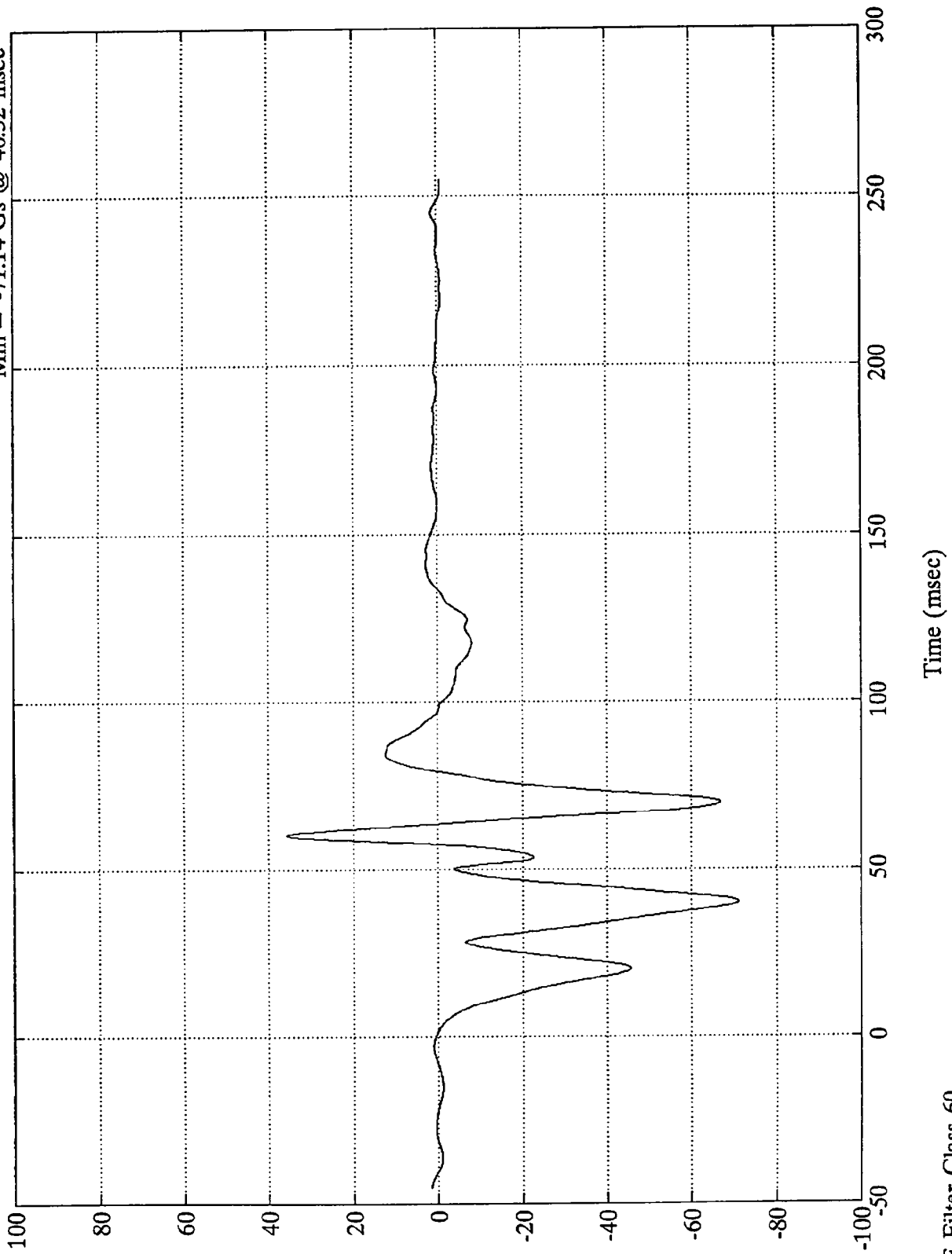
Acc. #6(x)



SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Acc. #7(x)
Max = 35.88 Gs @ 60.24 msec
Min = -71.14 Gs @ 40.32 msec



SD
B-19

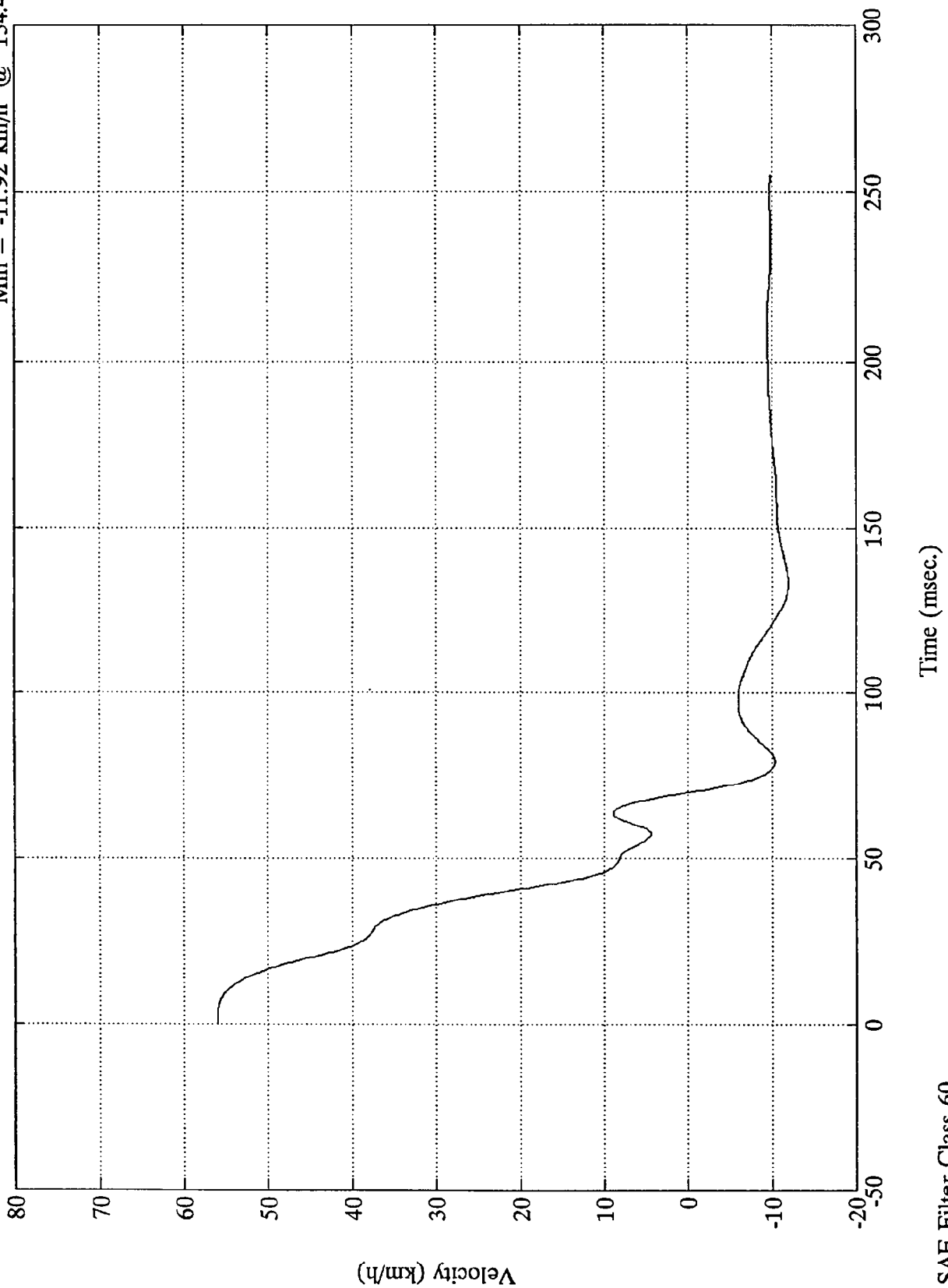
8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 56.02 km/h @ 1.92 msec
Min = -11.92 km/h @ 134.40 msec

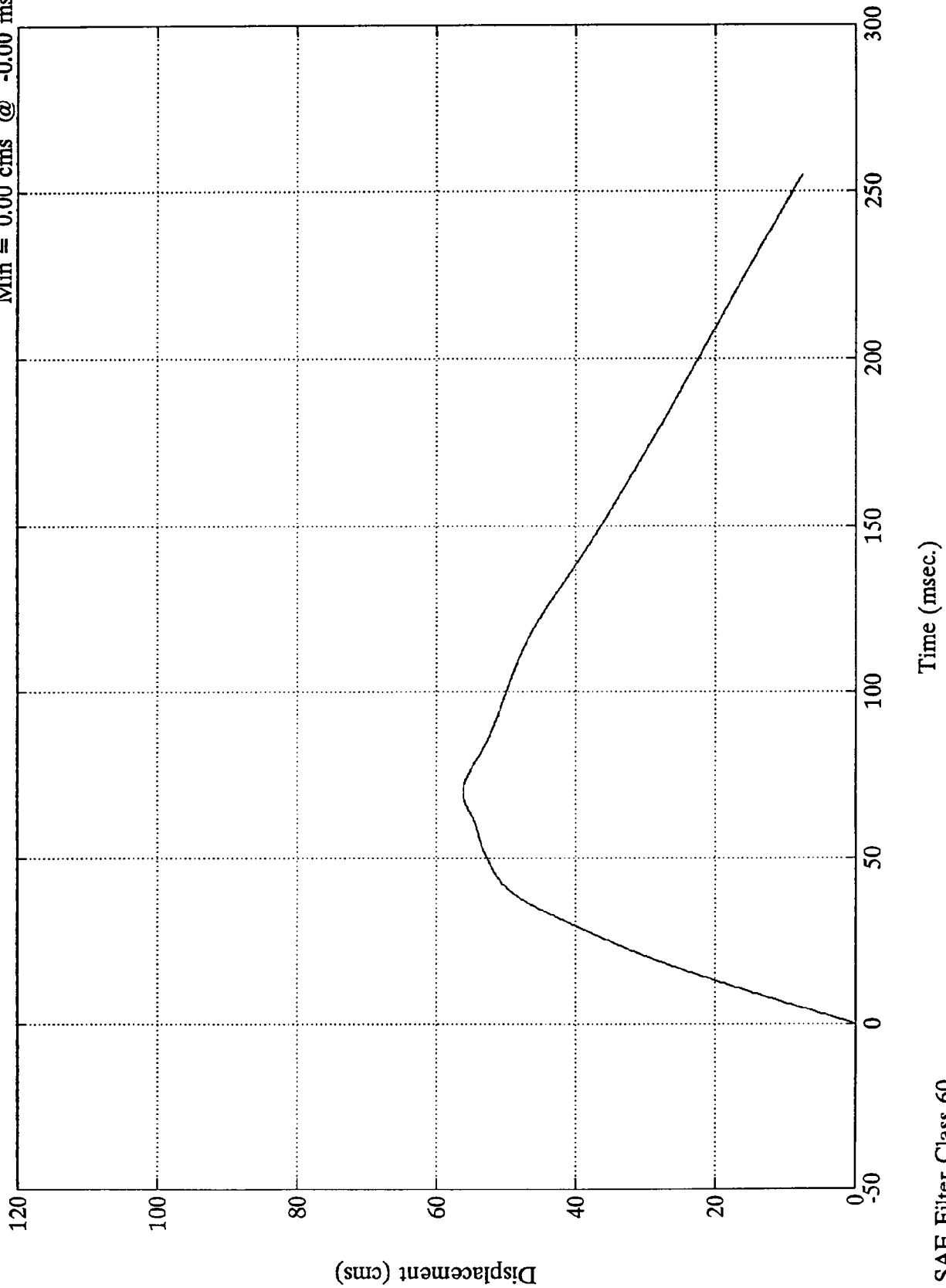
Acc. #7(x)



NCAP TEST #10 1993 HONDA ACCORD

Max = 56.19 cms @ 70.32 msec
Min = 0.00 cms @ -0.00 msec

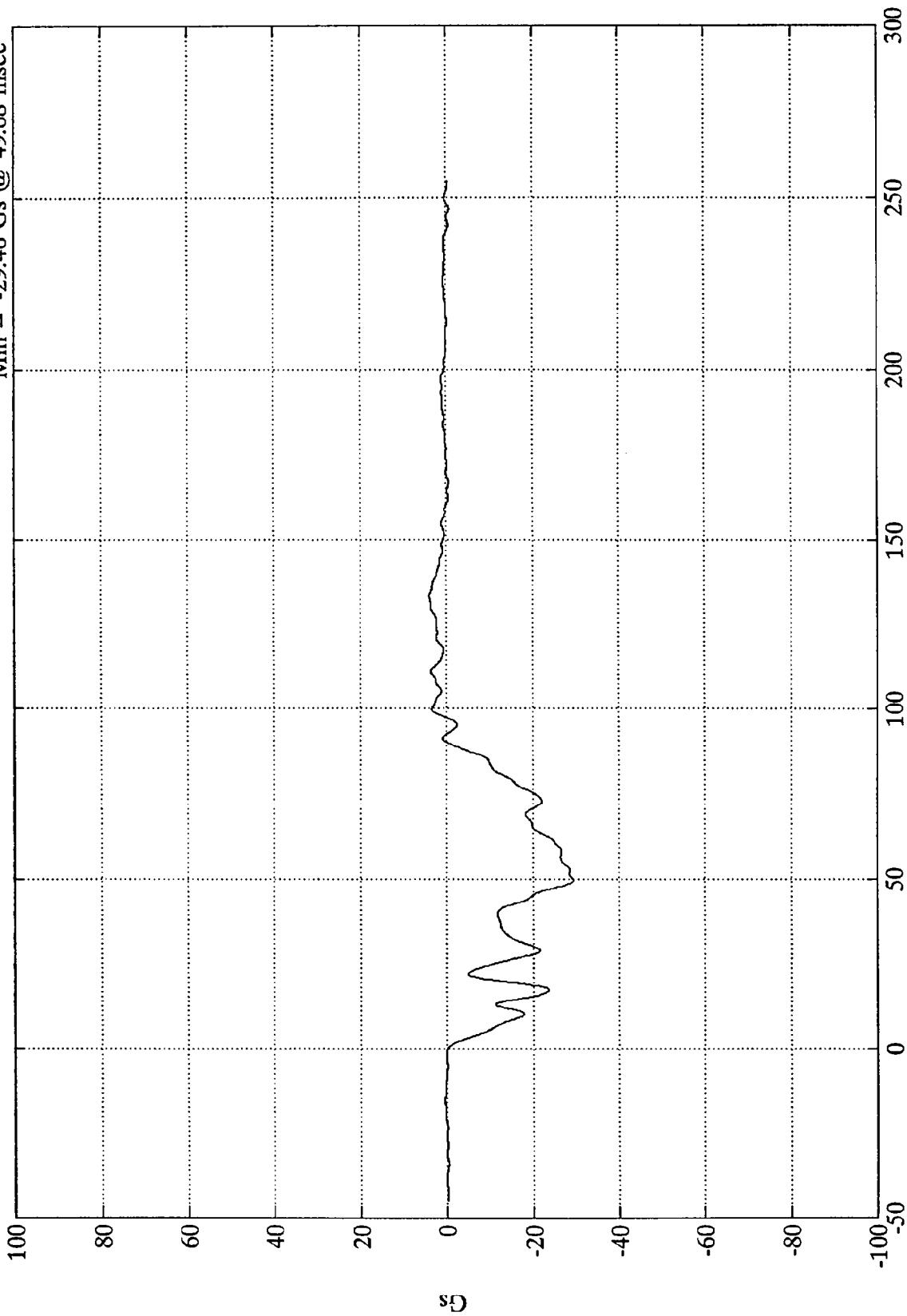
Acc. #7(x)



NCAP TEST #10 1993 HONDA ACCORD

Max = 3.95 Gs @ 133.68 msec
Min = -29.46 Gs @ 49.68 msec

Acc. #8(x)



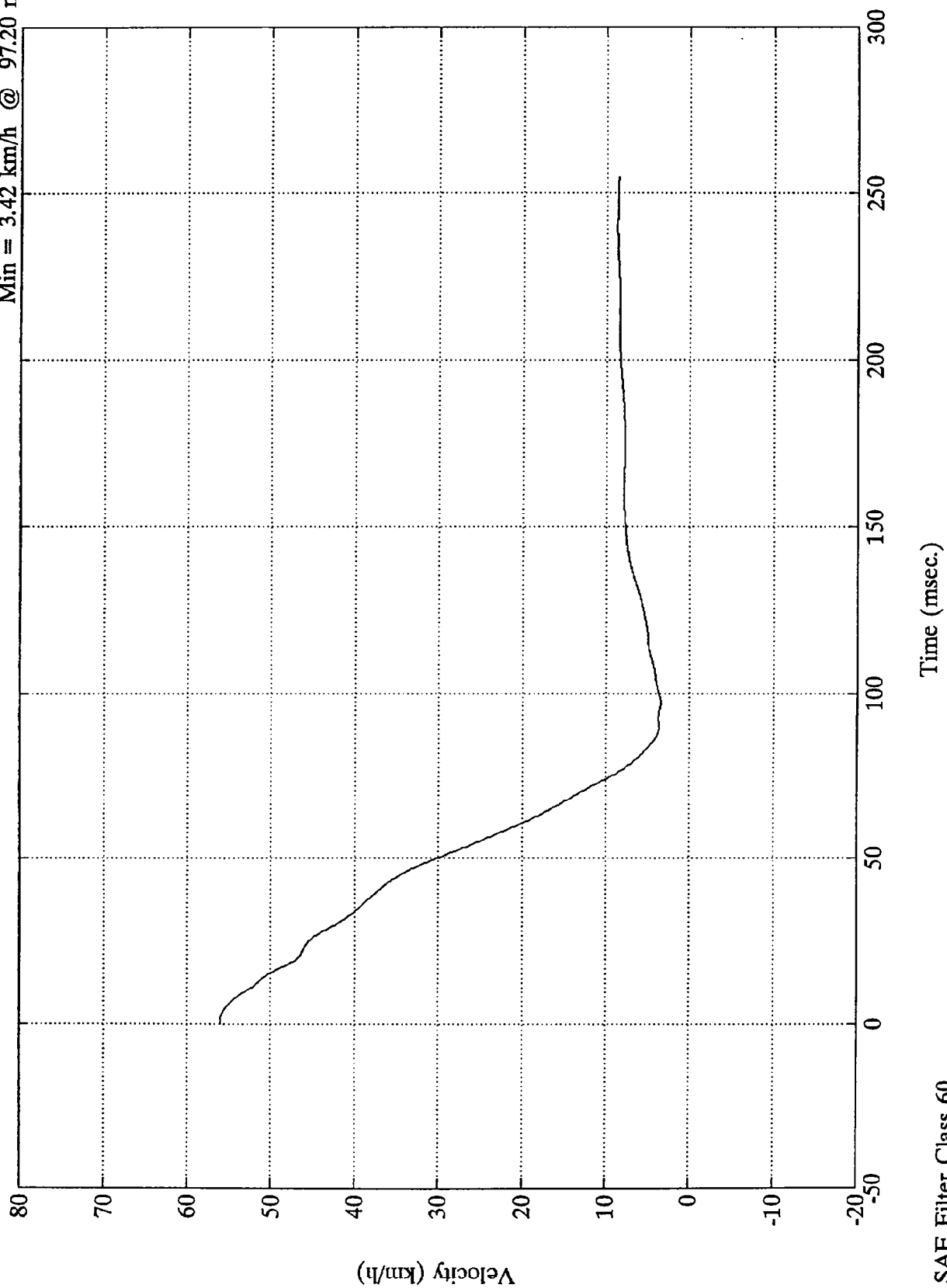
Time (msec)

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 56.00 km/h @ 0.48 msec
Min = 3.42 km/h @ 97.20 msec

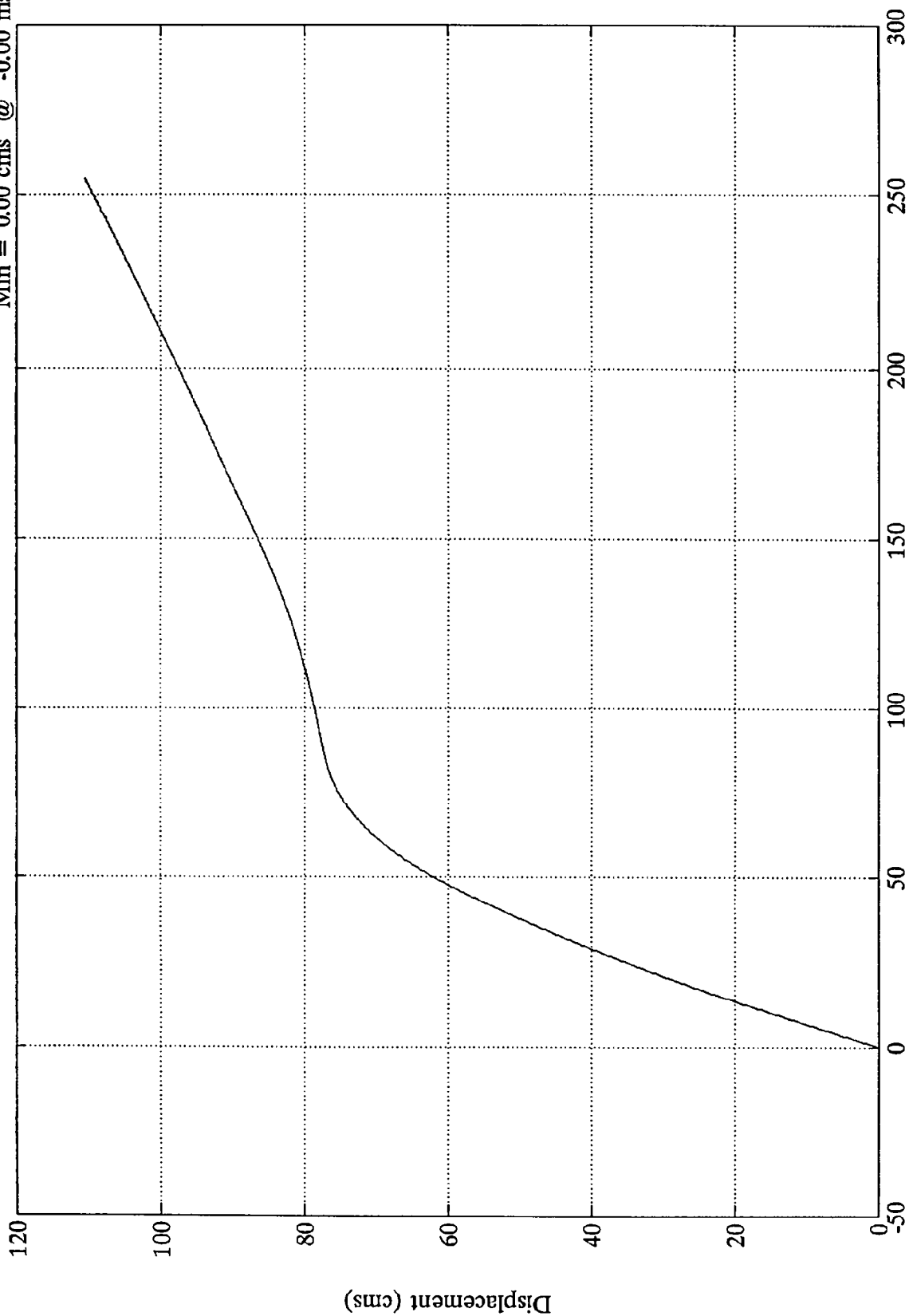
Acc. #8(x)



NCAP TEST #10 1993 HONDA ACCORD

Max = 110.50 cms @ 254.88 msec
Min = 0.00 cms @ -0.00 msec

Acc. #8(x)

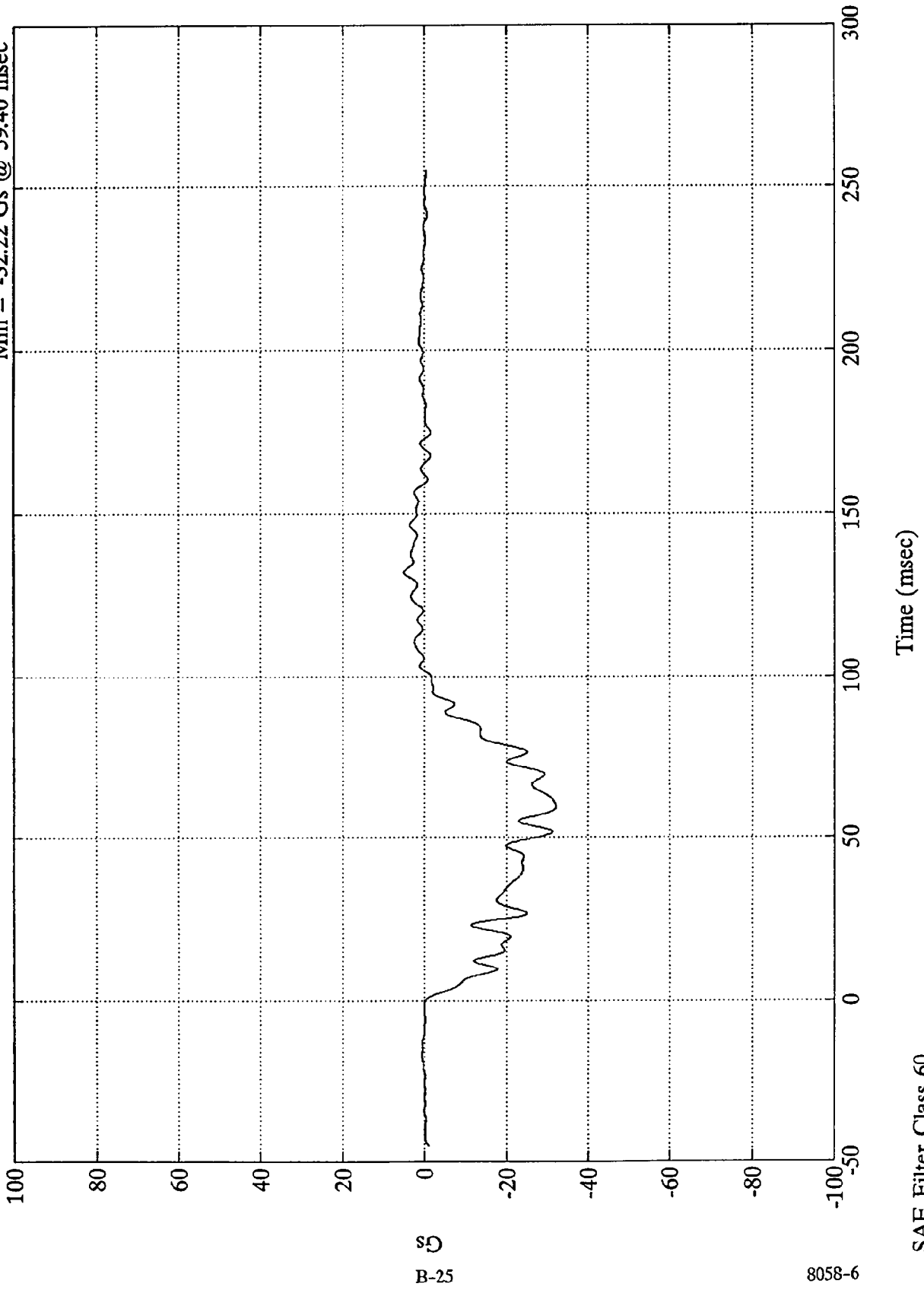


Time (msec.)

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Acc. 9(x)
Max = 5.09 Gs @ 132.00 msec
Min = -32.22 Gs @ 59.40 msec



B-25

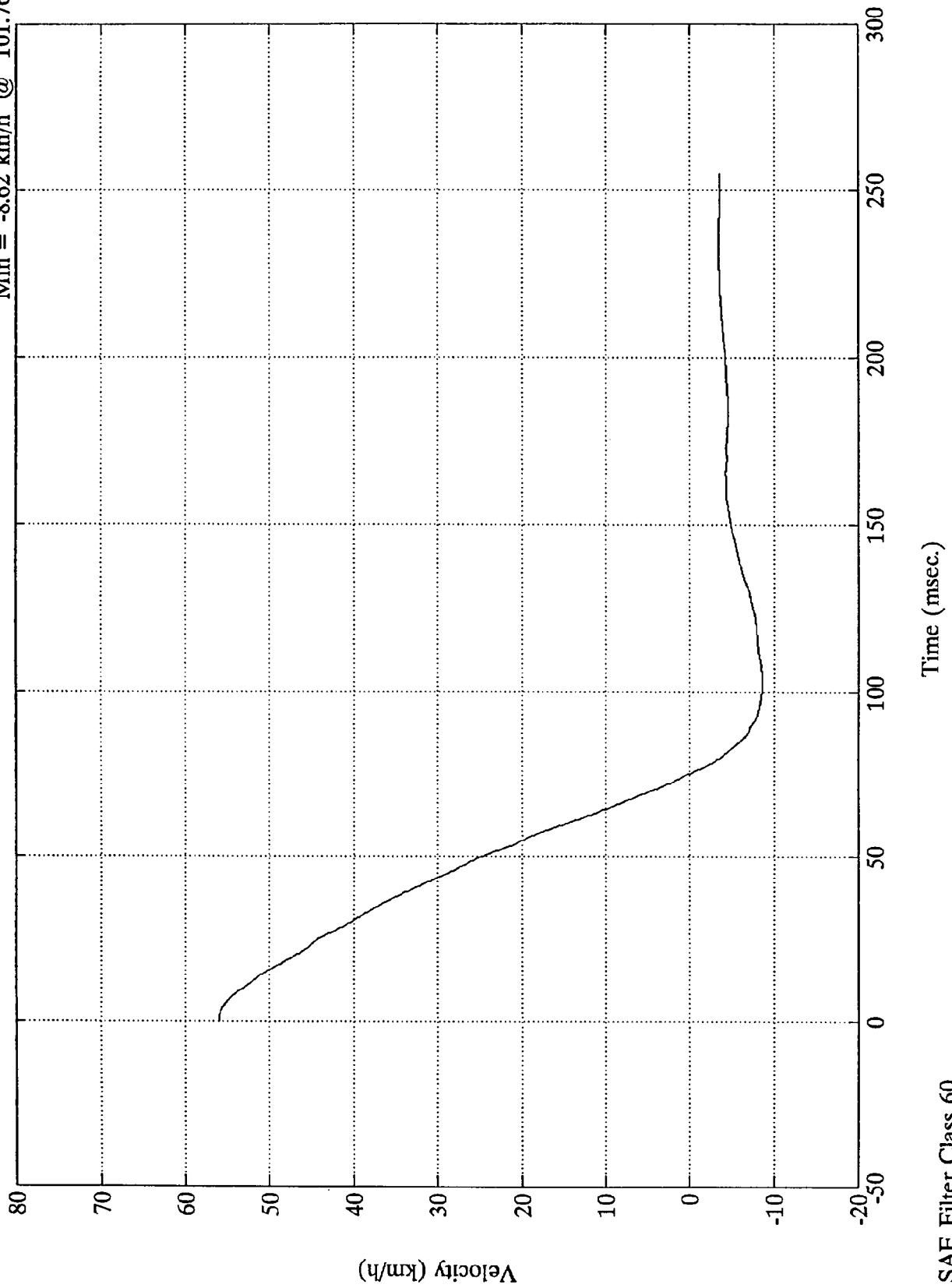
8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 56.00 km/h @ 0.48 msec
Min = -8.62 km/h @ 101.76 msec

Acc. #9(x)

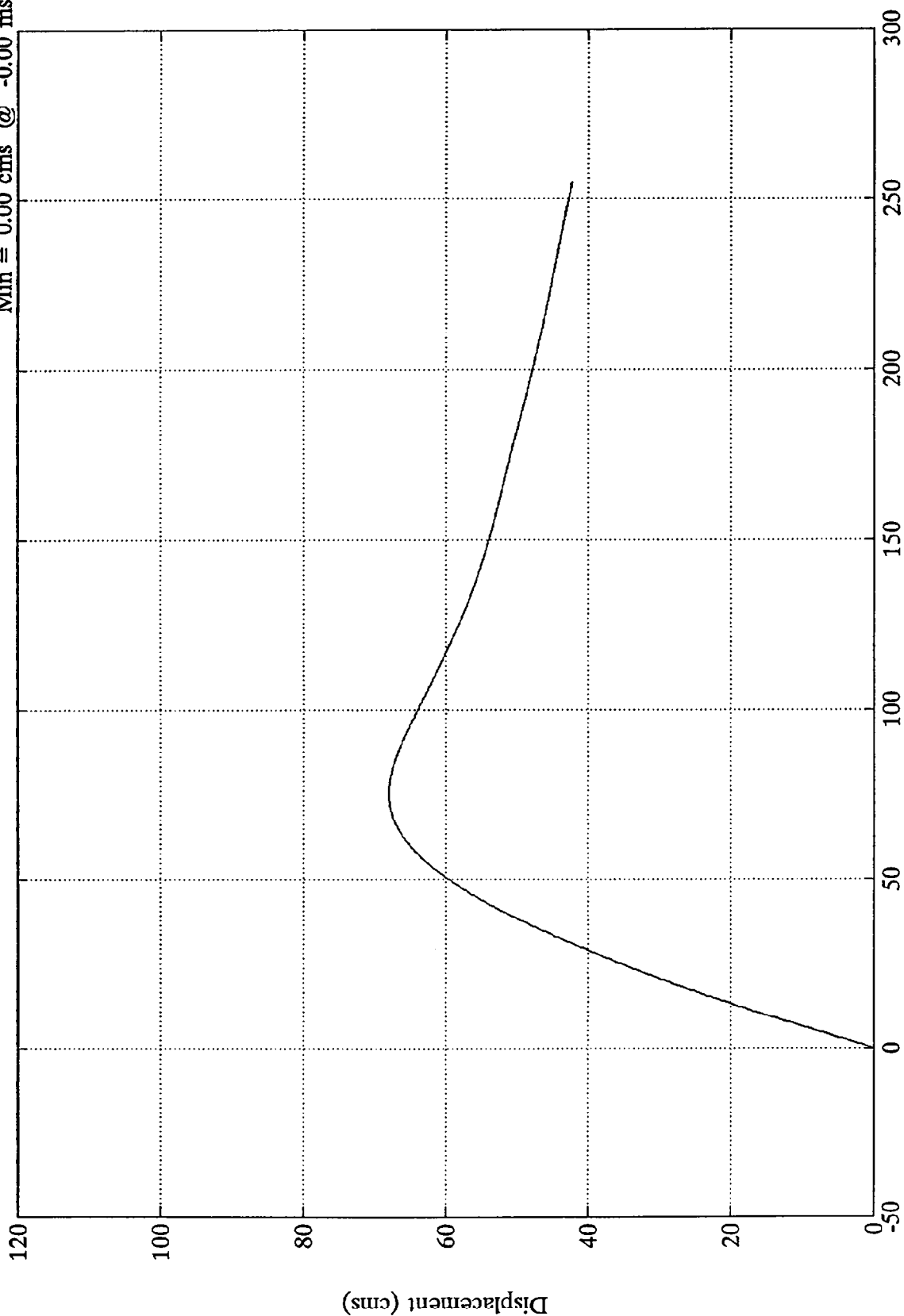


SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 68.07 cms @ 75.84 msec
Min = 0.00 cms @ -0.00 msec

Acc. #9(x)



Time (msec.)

SAE Filter Class 60

TEST NO. MP5300

LOAD CELL BARRIER DATA

FILTER CHANNEL CLASS

60

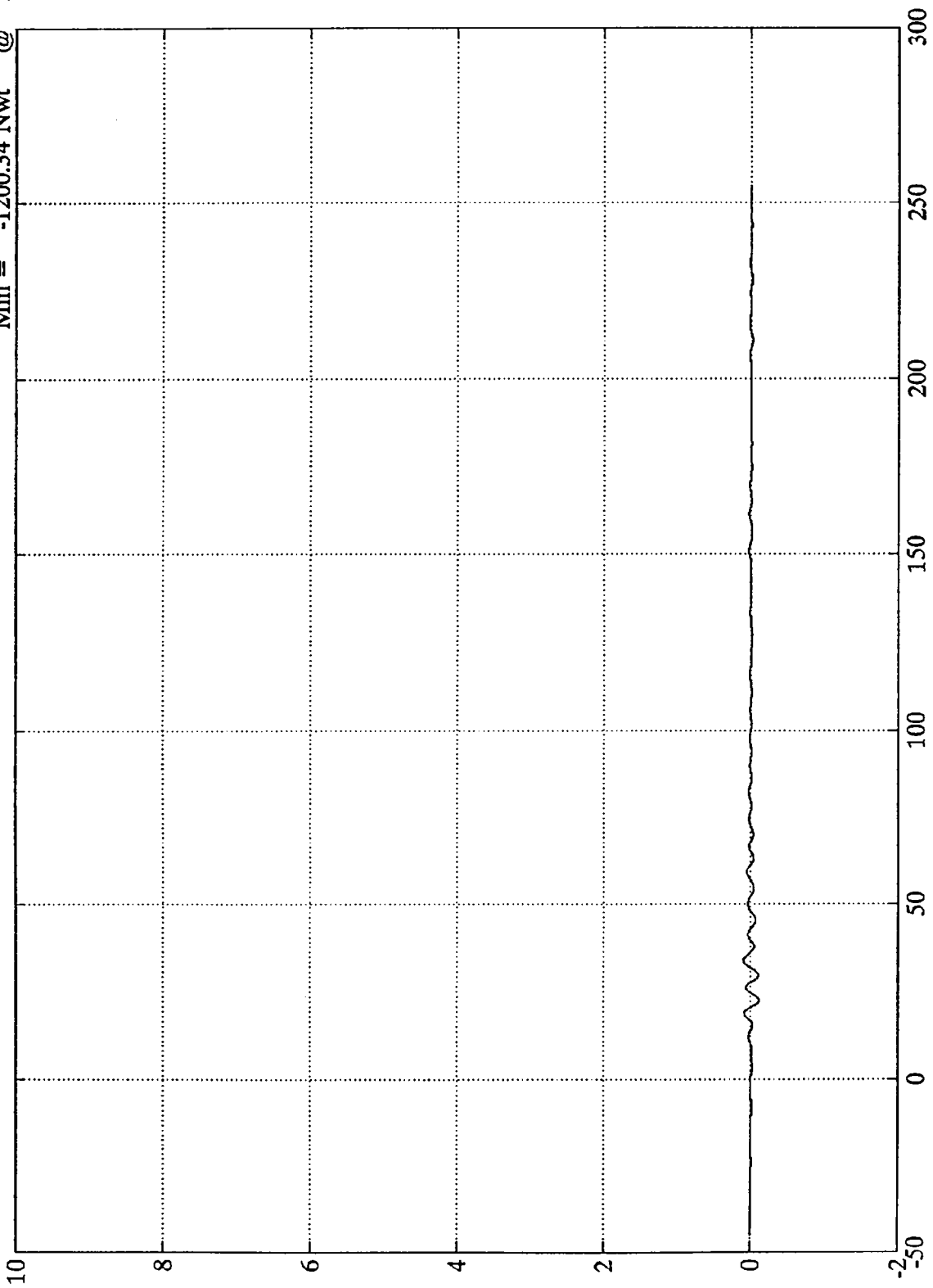
NCAP TEST #10 1993 HONDA ACCORD

33.84 msec
22.56 msec

Max = 959.16 Nwt @
Min = -1200.34 Nwt @

Barrier Load Cell A1

$\times 10^4$



Time (msec)

SAE Filter Class 60

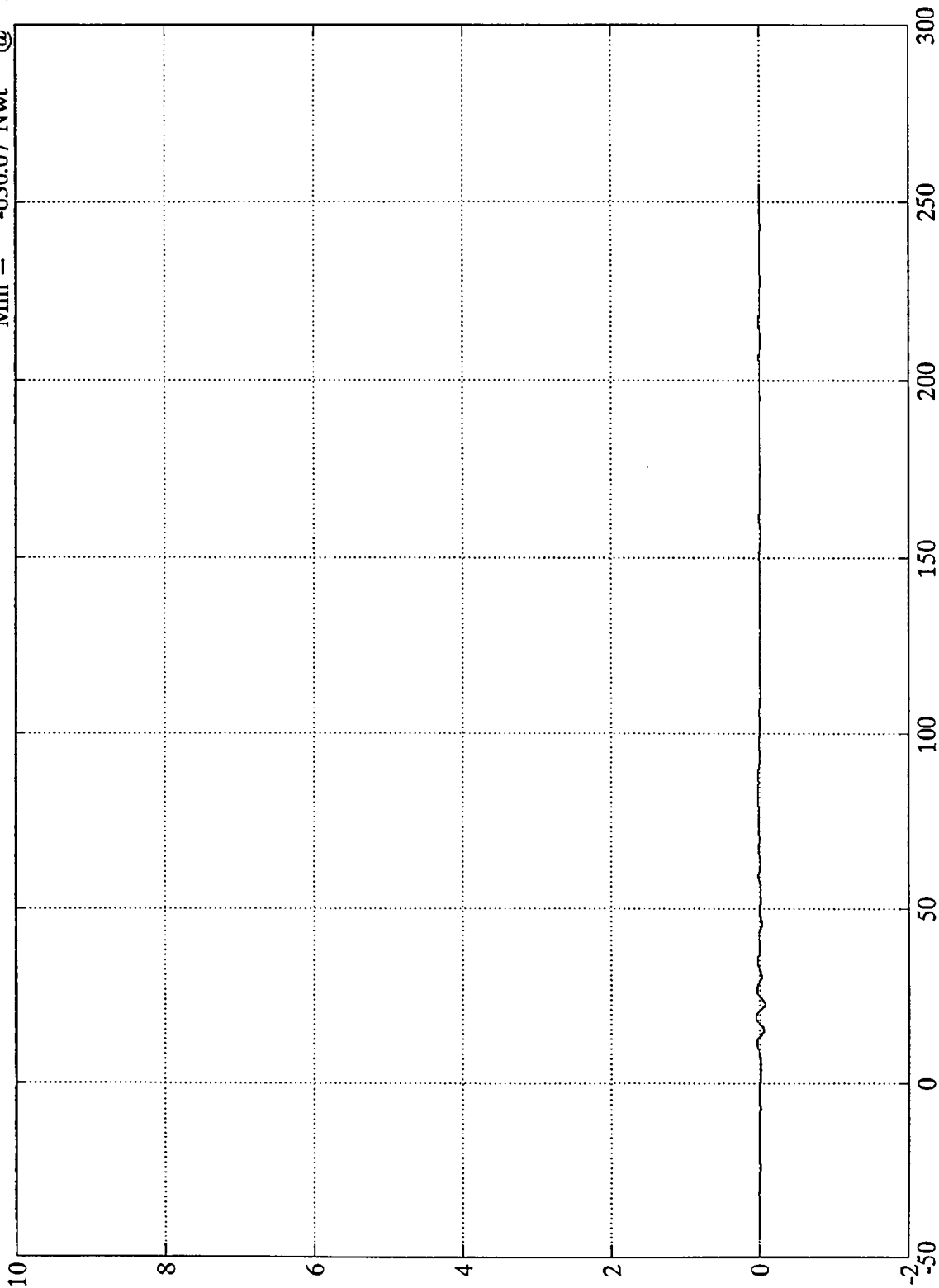
Nwt

NCAP TEST #10 1993 HONDA ACCORD

Max = 575.21 Nwt @ 18.84 msec
Min = -630.07 Nwt @ 22.43 msec

Barrier Load Cell A2

x10⁴



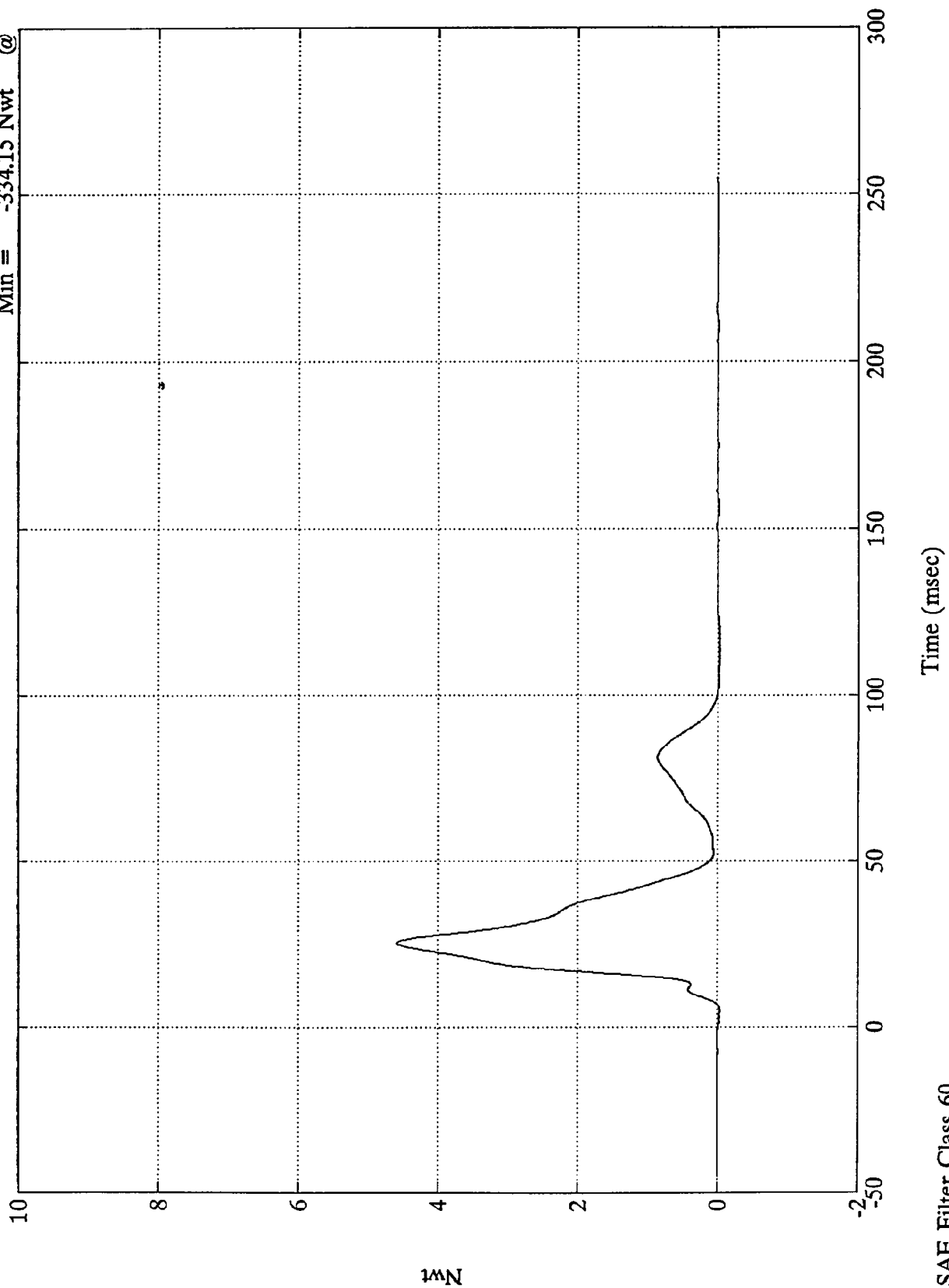
Time (msec)

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD
x10⁴

Max = 45956.89 Nwt @ 25.55 msec
Min = -334.15 Nwt @ 4.91 msec

Barrier Load Cell A3



1111
B-31

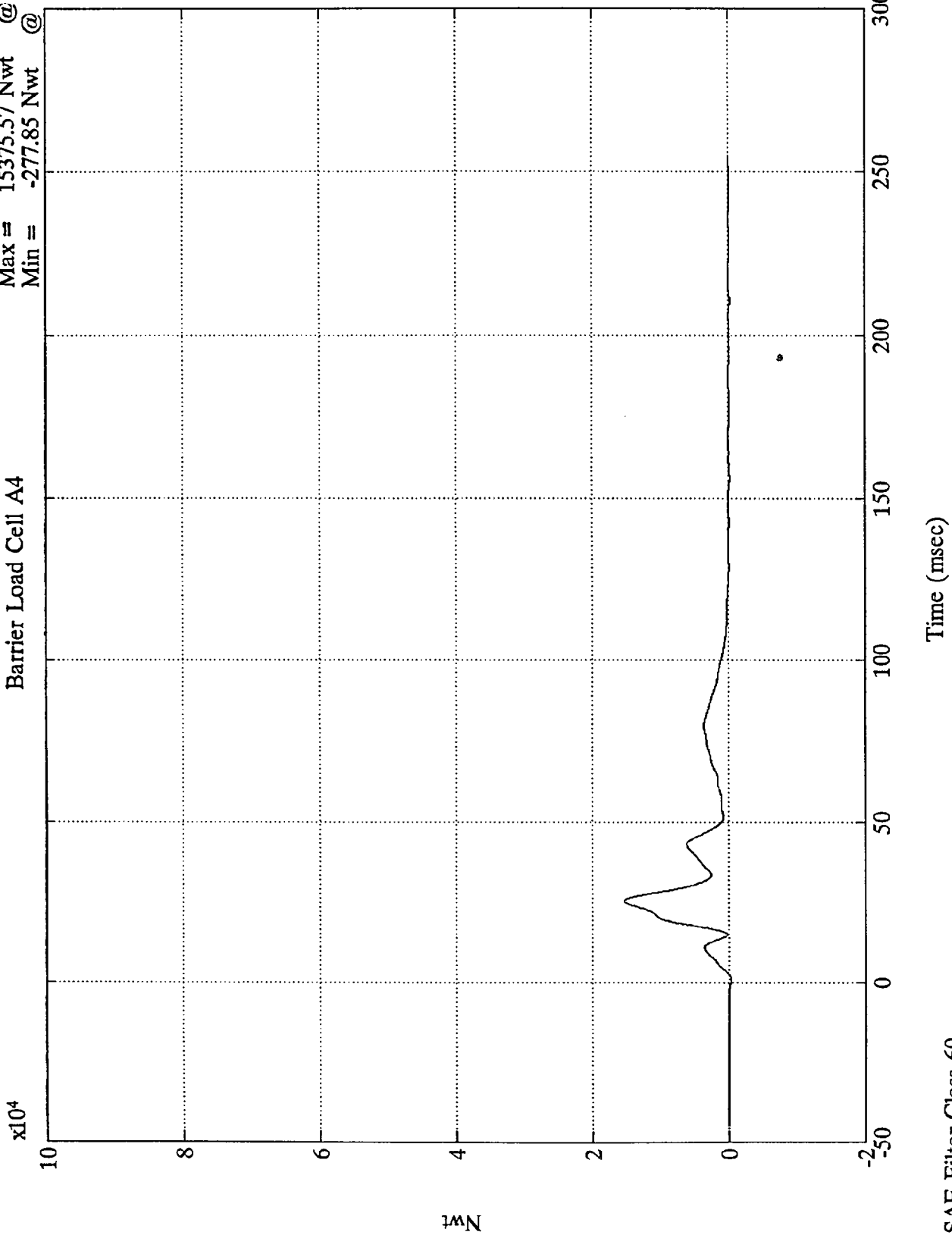
8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 15375.57 Nwt @ 25.68 msec
Min = -277.85 Nwt @ 0.83 msec

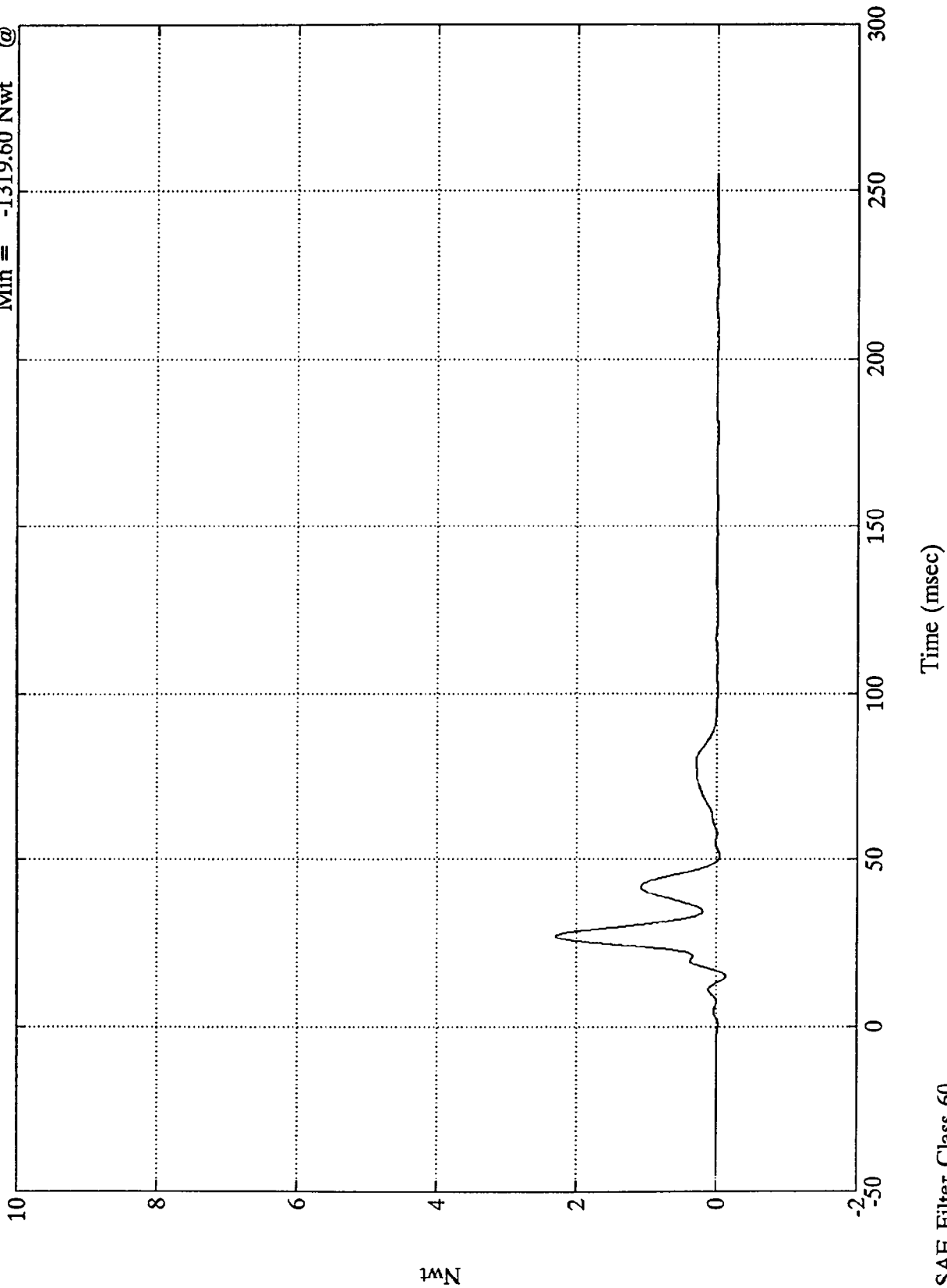
Barrier Load Cell A4



NCAP TEST #10 1993 HONDA ACCORD

Max = 22993.95 Nwt @ 27.00 msec
Min = -1319.60 Nwt @ 15.11 msec

Barrier Load Cell A5



B-33

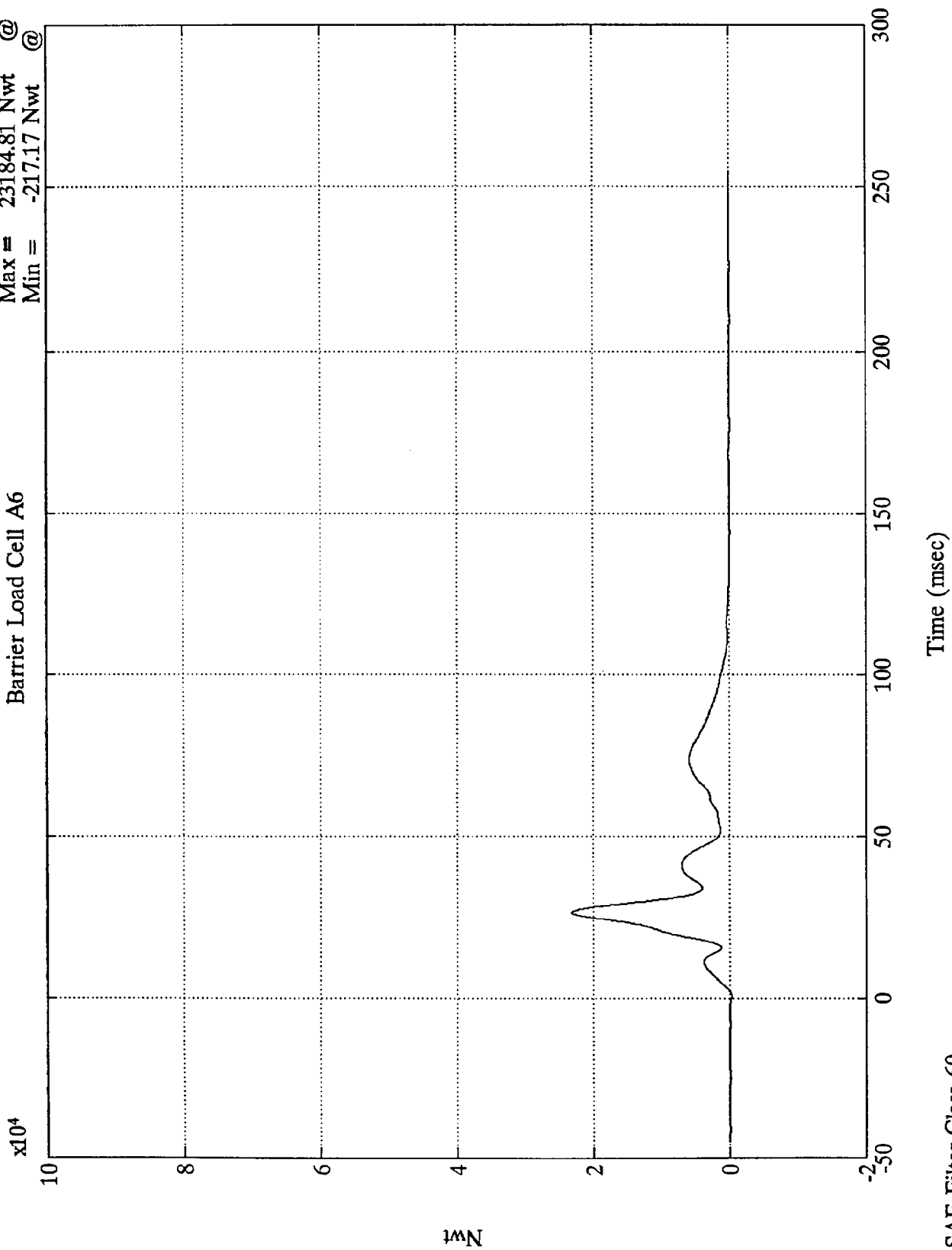
8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Barrier Load Cell A6

Max = 23184.81 Nwt @ 26.27 msec
 Min = -217.17 Nwt @ 0.59 msec



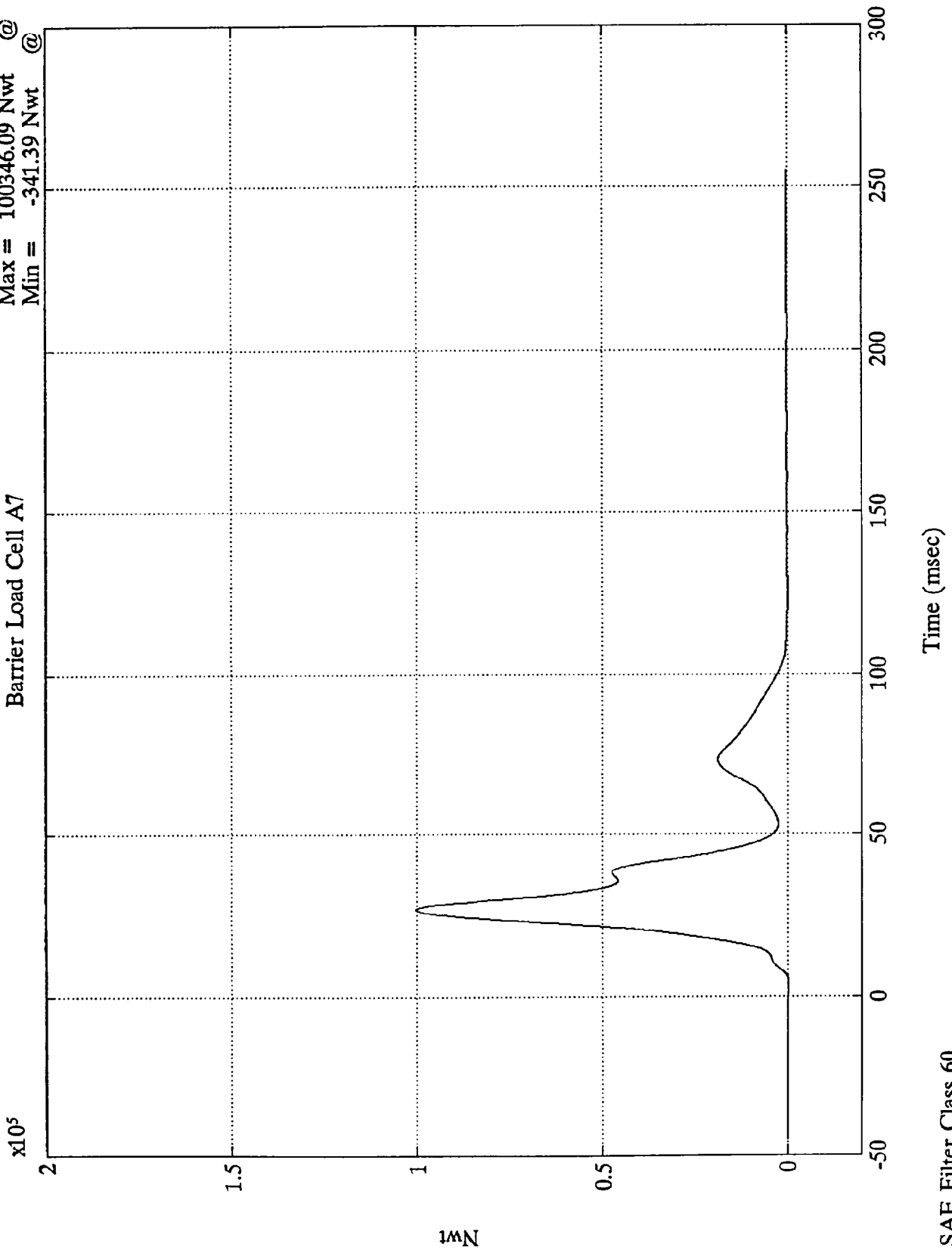
Nwt
B-34

8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Barrier Load Cell A7
Max = 100346.09 Nwt @ 26.63 msec
Min = -341.39 Nwt @ 4.31 msec



B-35

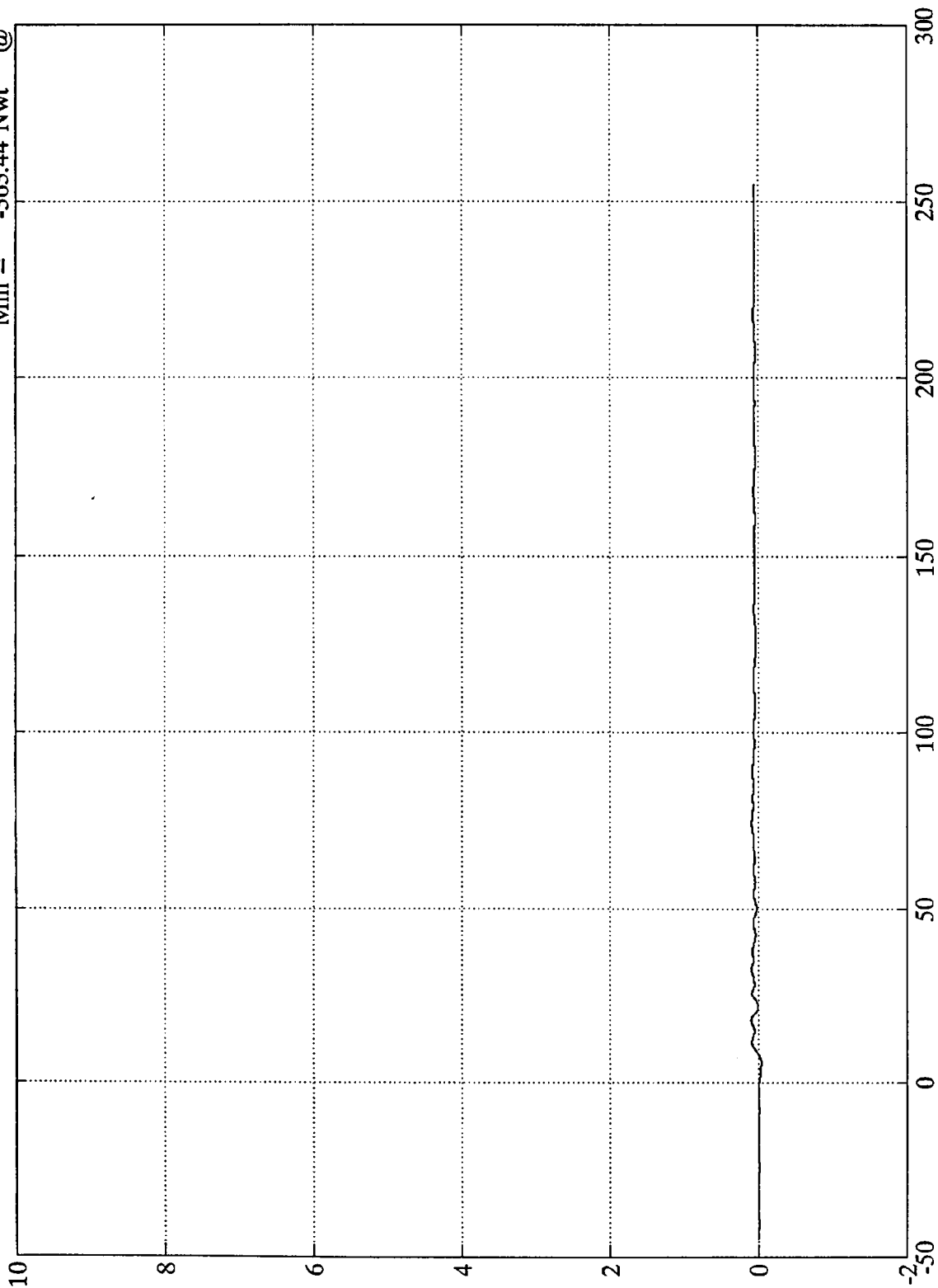
8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 1021.14 Nwt @ 18.00 msec
 Min = -363.44 Nwt @ 5.51 msec

Barrier Load Cell A8



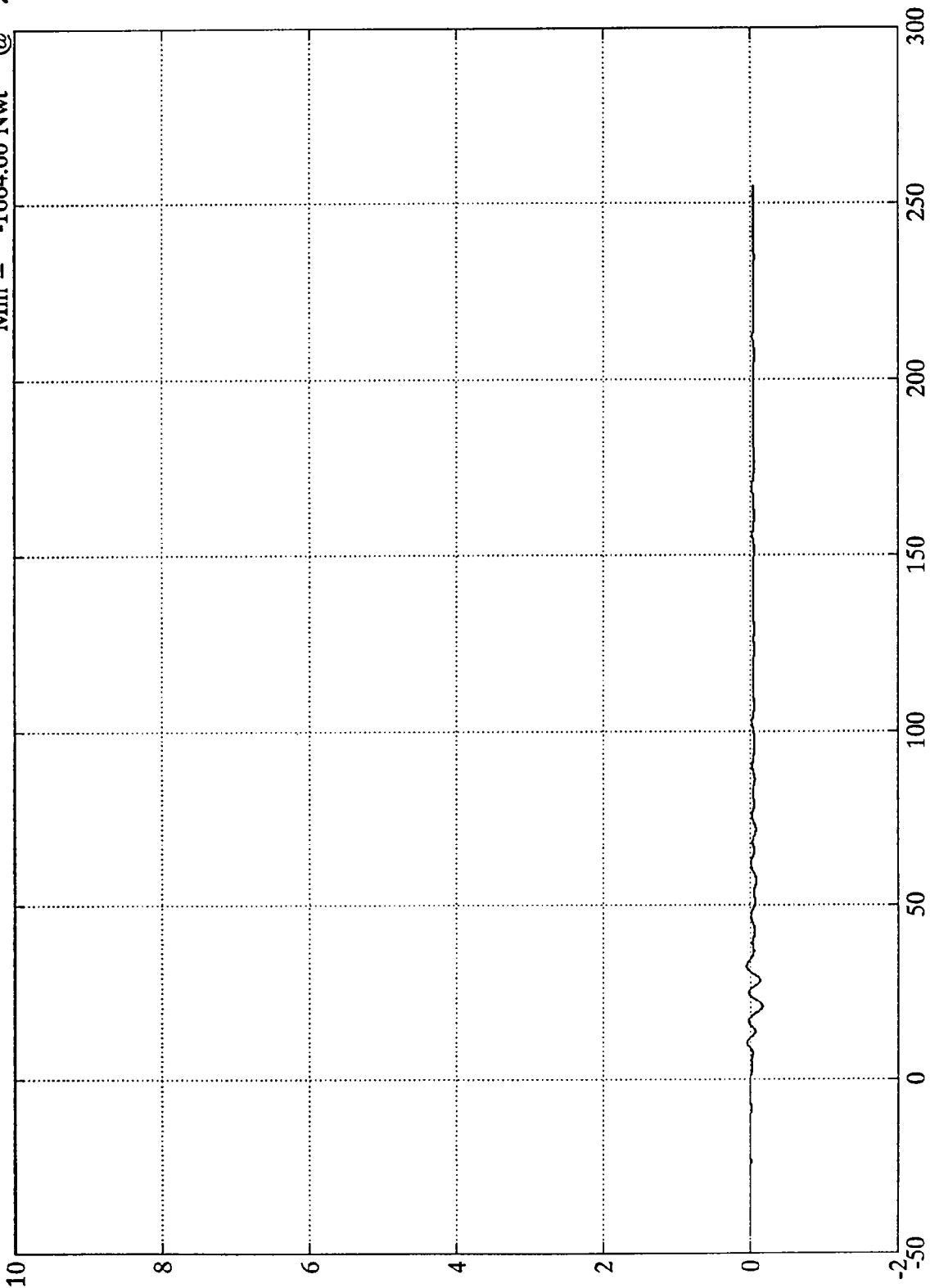
Time (msec)

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD
x10⁴

Barrier Load Cell A9

Max = 513.97 Nwt @ 32.52 msec
Min = -1664.60 Nwt @ 21.11 msec



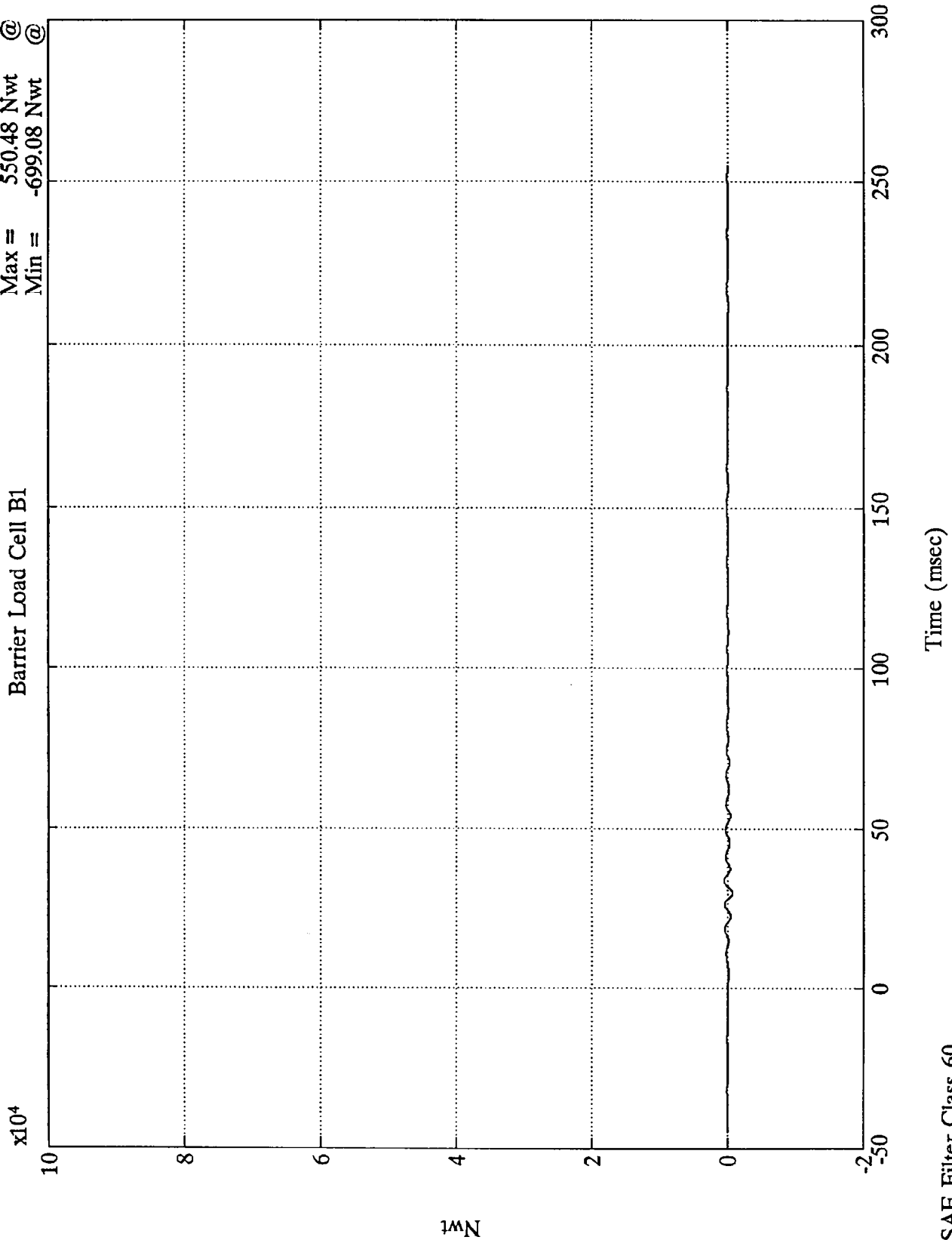
Time (msec)

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Barrier Load Cell B1

Max = 550.48 Nwt @ 33.59 msec
Min = -699.08 Nwt @ 29.76 msec

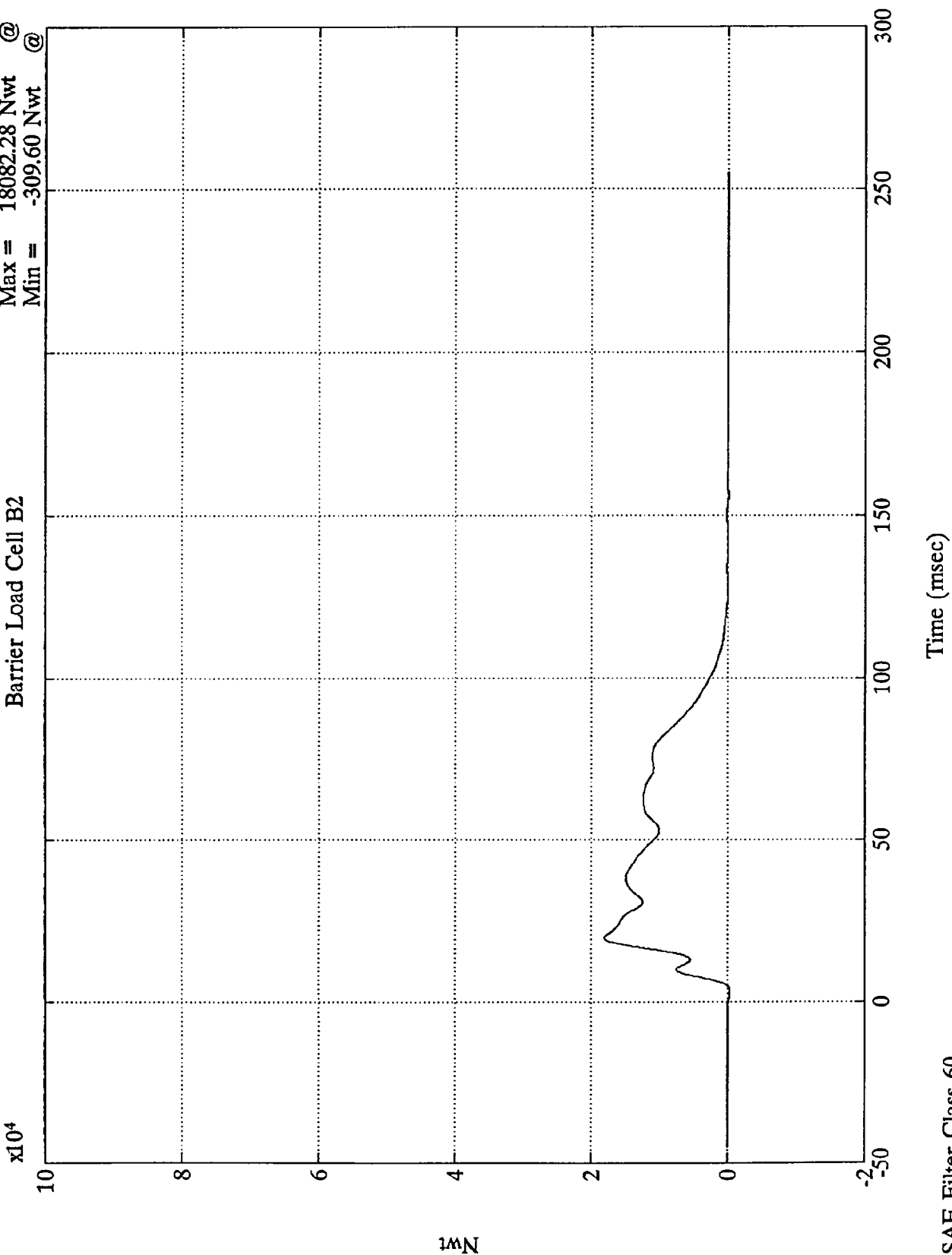


SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 18082.28 Nwt @ 19.79 msec
Min = -309.60 Nwt @ 3.11 msec

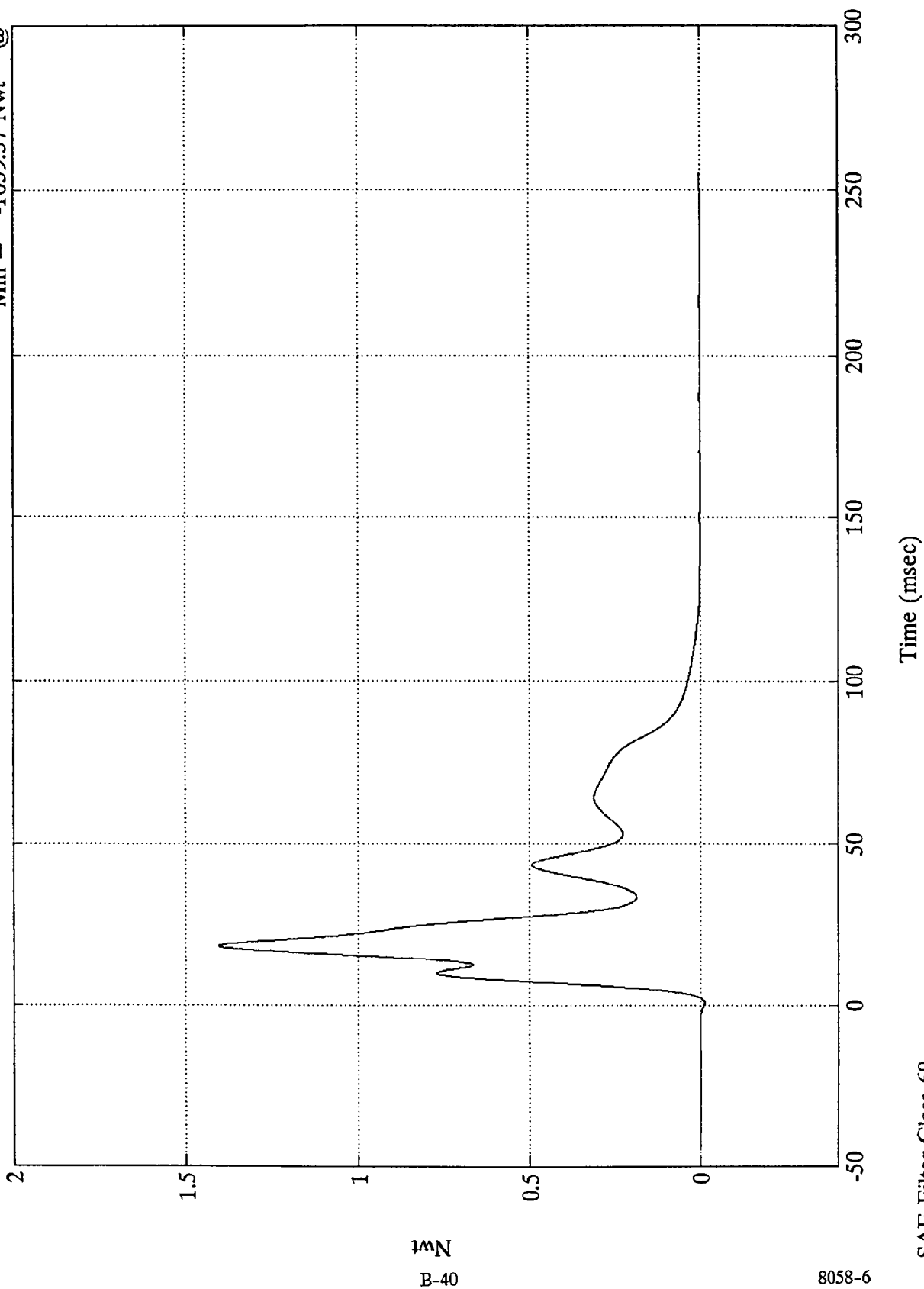
Barrier Load Cell B2



NCAP TEST #10 1993 HONDA ACCORD

Max = 140564.06 Nwt @ 18.60 msec
Min = -1039.37 Nwt @ 0.71 msec

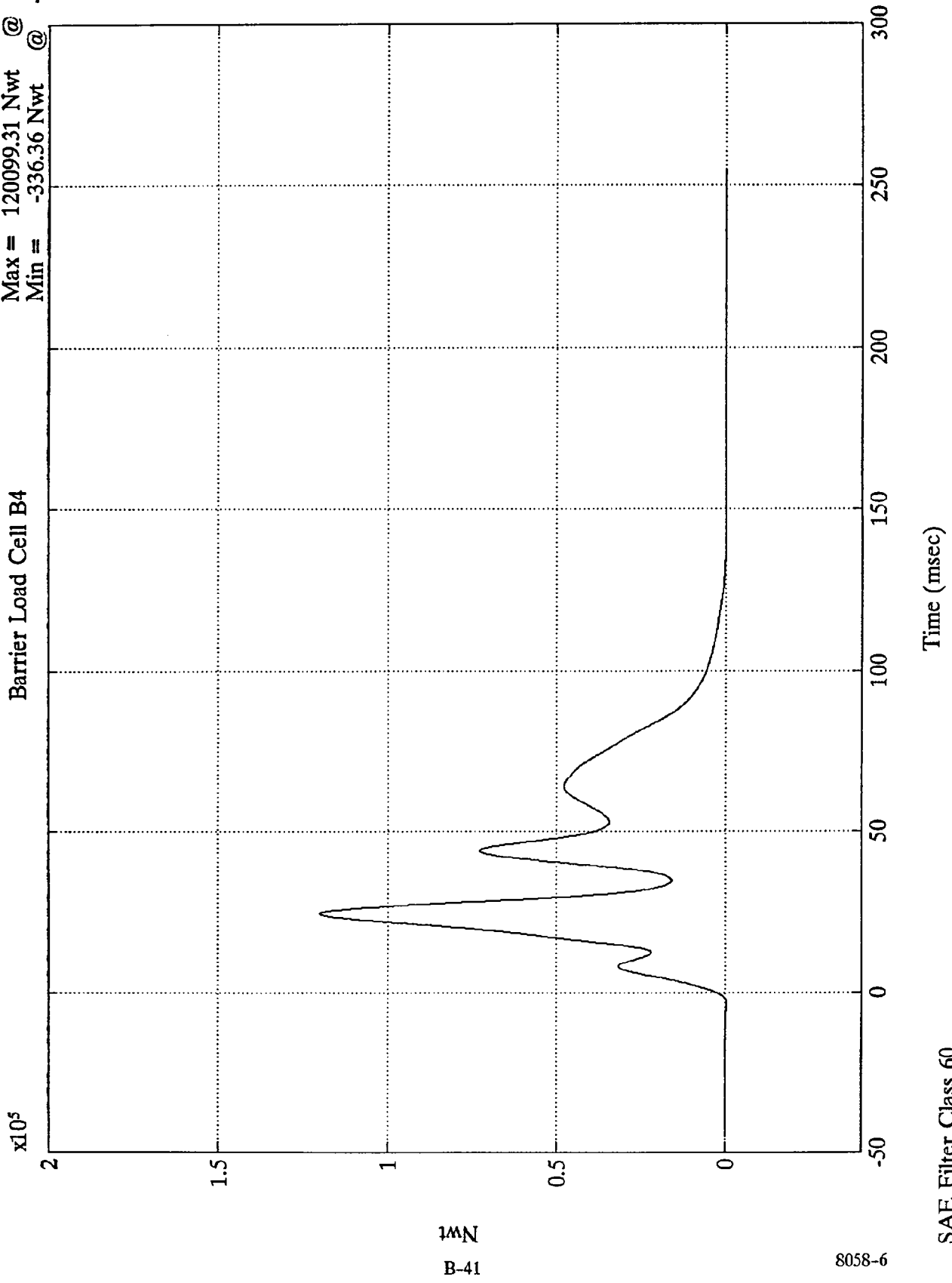
Barrier Load Cell B3



SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Barrier Load Cell B4
Max = 120099.31 Nwt @ 24.59 msec
Min = -336.36 Nwt @ -3.48 msec

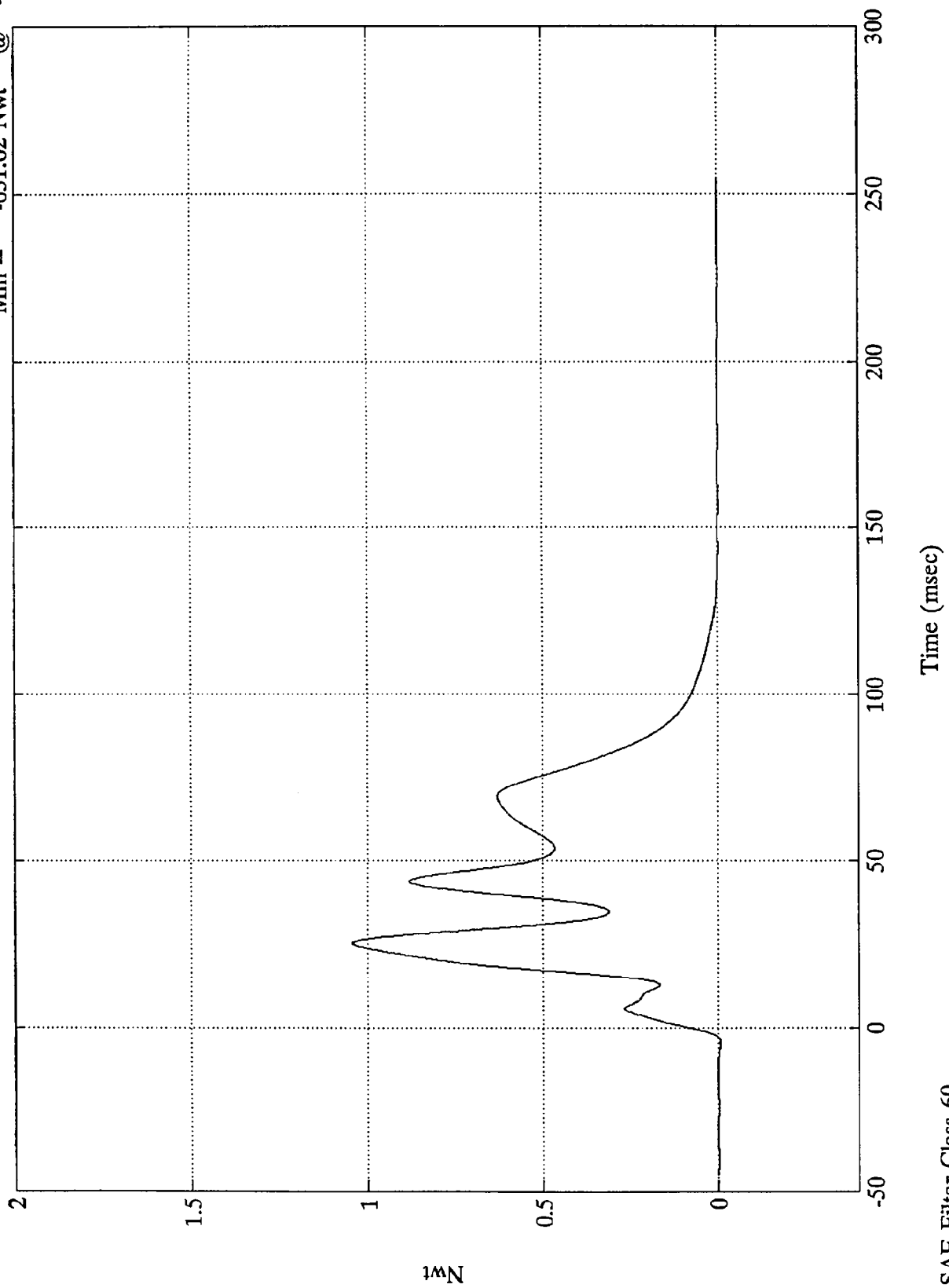


SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 104189.02 Nwt @ 25.31 msec
 Min = -631.62 Nwt @ -4.44 msec

Barrier Load Cell B5



B-42

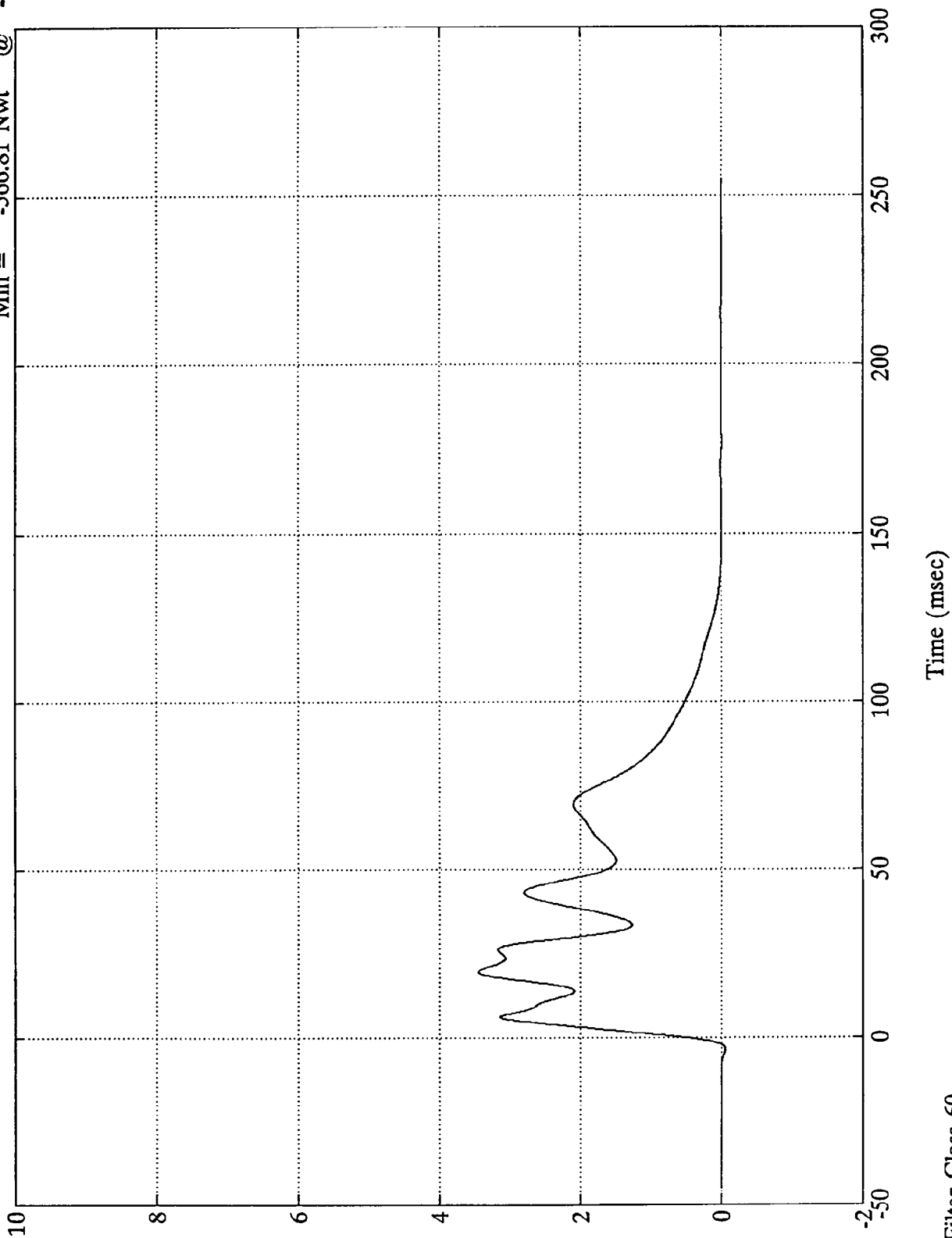
8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD
x10⁴

Max = 34475.17 Nwt @ 19.67 msec
Min = -566.81 Nwt @ -3.60 msec

Barrier Load Cell B6



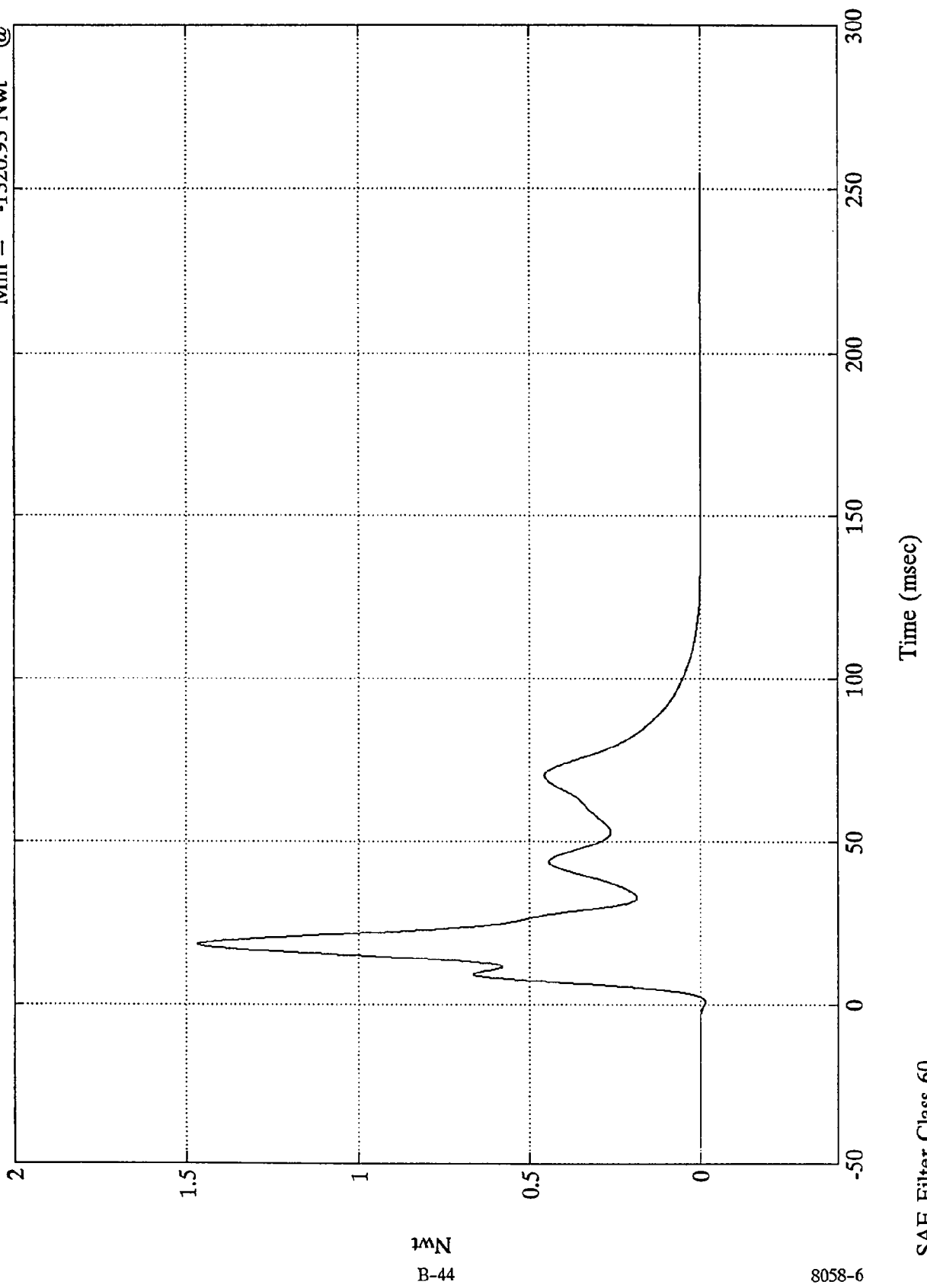
1W
B-43

8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Barrier Load Cell B7
Max = 146812.67 Nwt @ 18.12 msec
Min = -1320.93 Nwt @ 0.71 msec



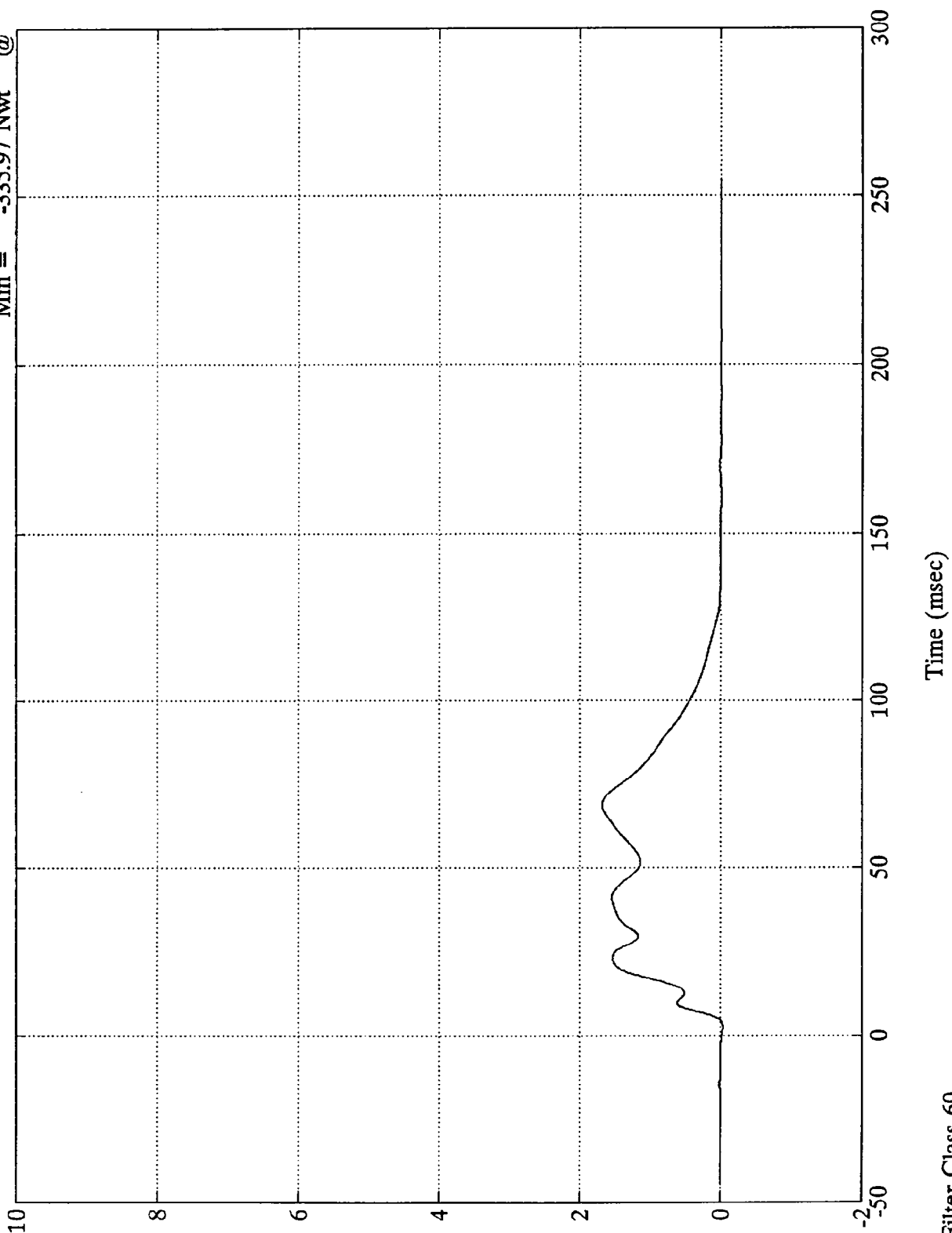
SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 16844.56 Nwt @ 68.76 msec
 Min = -335.97 Nwt @ 2.27 msec

Barrier Load Cell B8

x10⁴



1wN
 B-45

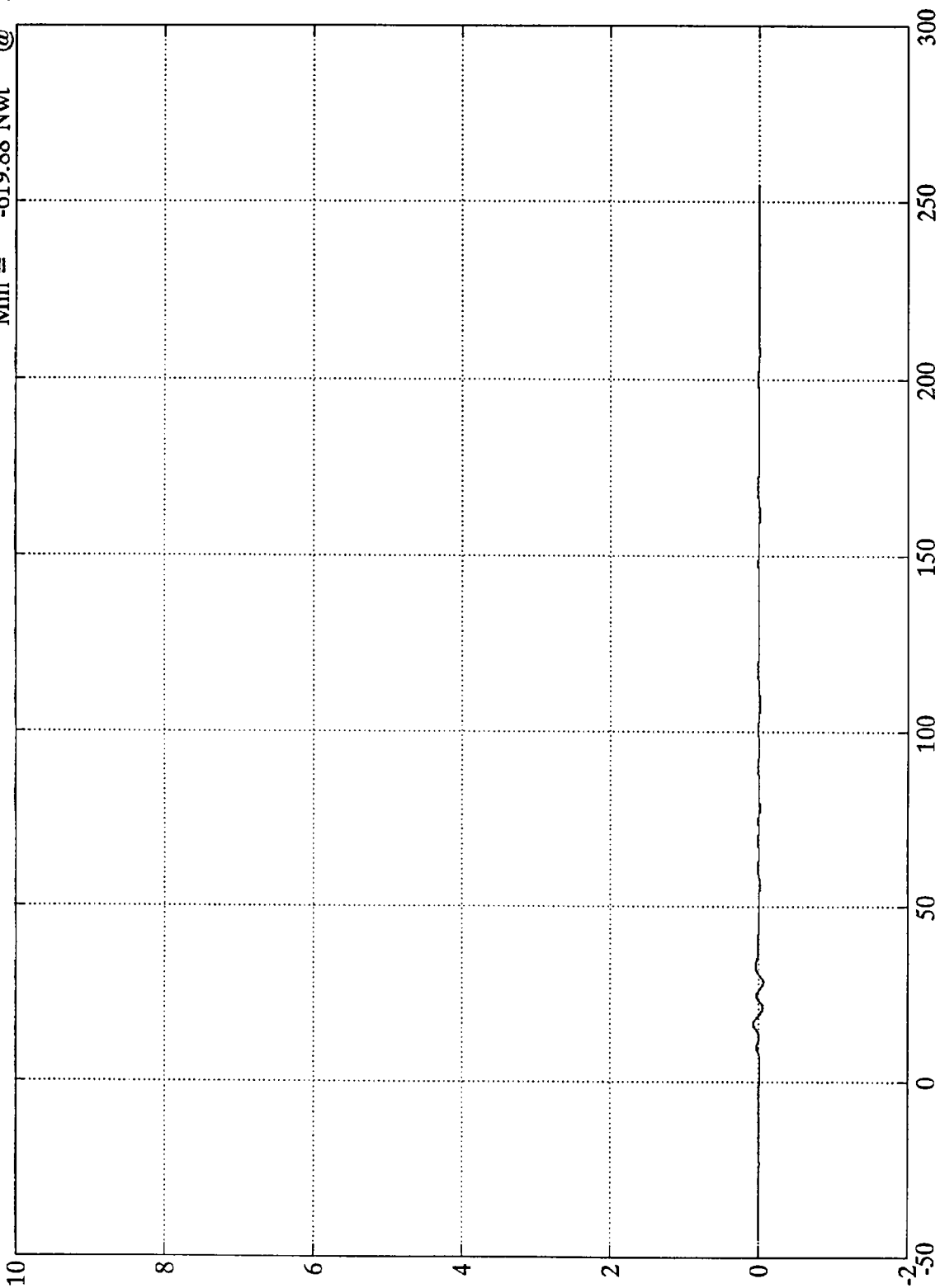
8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD
x10⁴

Barrier Load Cell B9

Max = 690.17 Nwt @ 16.55 msec
Min = -619.88 Nwt @ 28.44 msec



Time (msec)

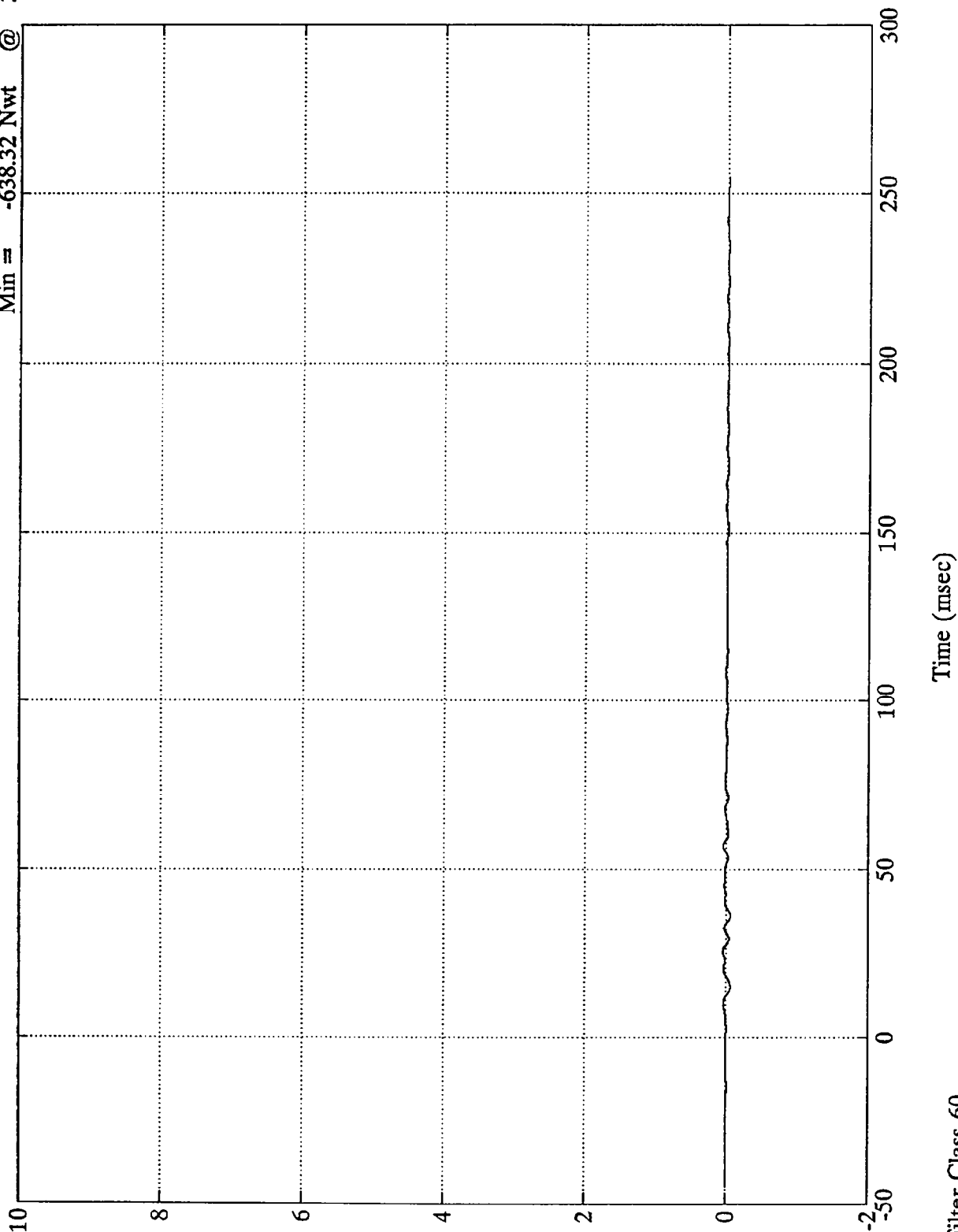
SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 466.53 Nwt @ 25.68 msec
 Min = -638.32 Nwt @ 36.24 msec

Barrier Load Cell C1

x10⁴



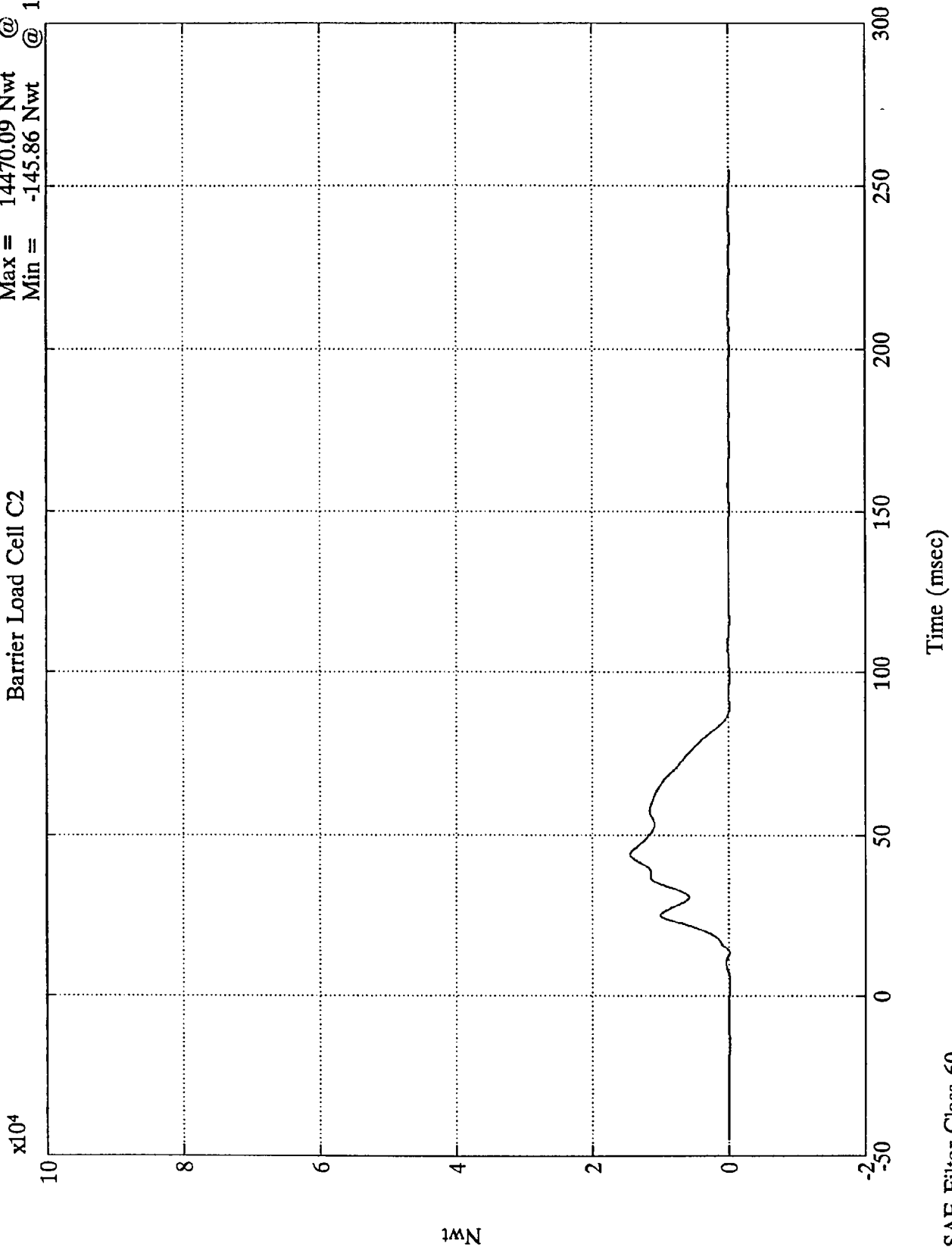
10N
 B-47

8058-6

SAE Filter Class 60

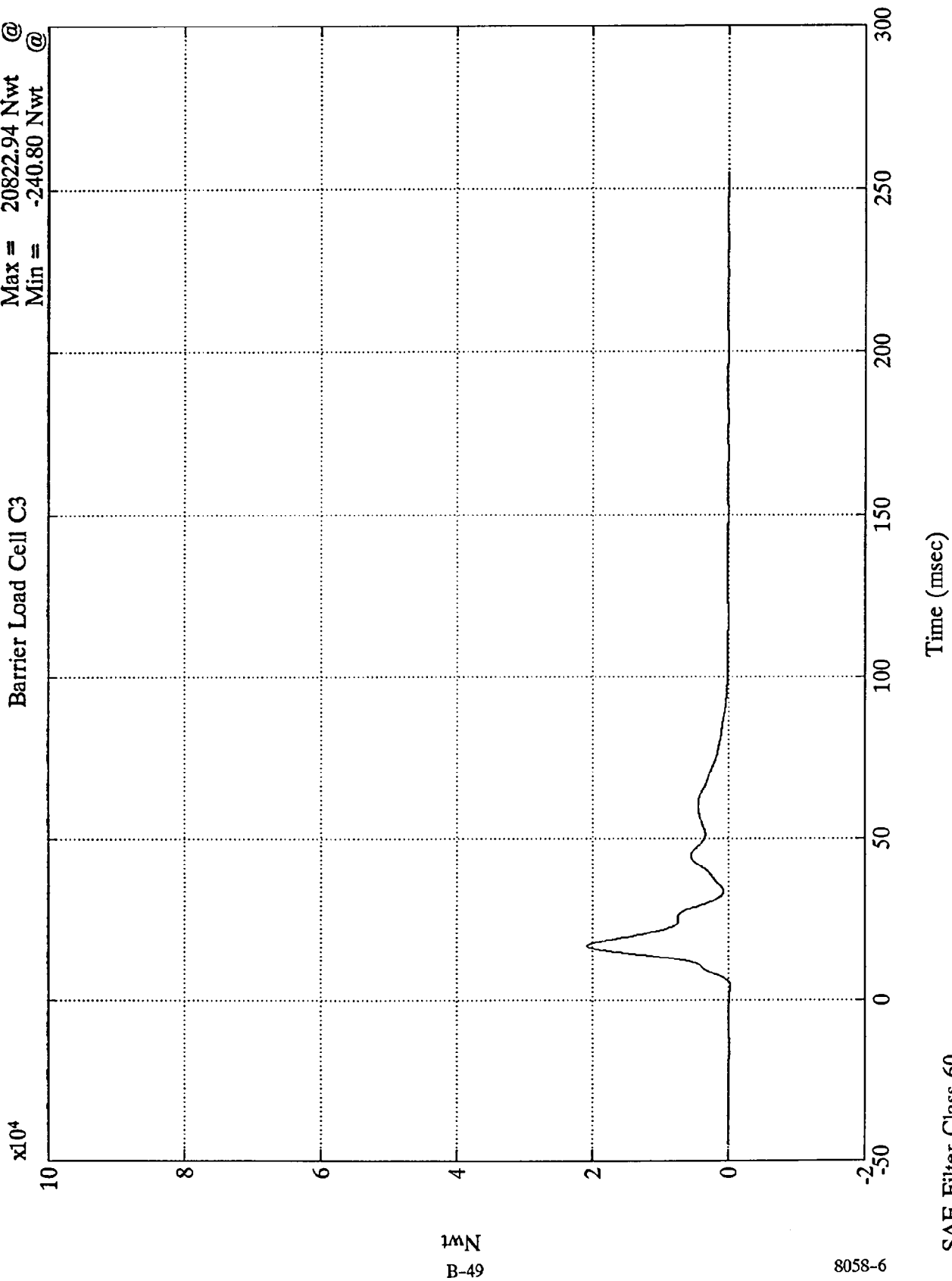
NCAP TEST #10 1993 HONDA ACCORD

Barrier Load Cell C2
Max = 14470.09 Nwt @ 44.04 msec
Min = -145.86 Nwt @ 150.60 msec



NCAP TEST #10 1993 HONDA ACCORD

Barrier Load Cell C3
 Max = 20822.94 Nwt @ 16.79 msec
 Min = -240.80 Nwt @ 4.19 msec



1wN
 B-49

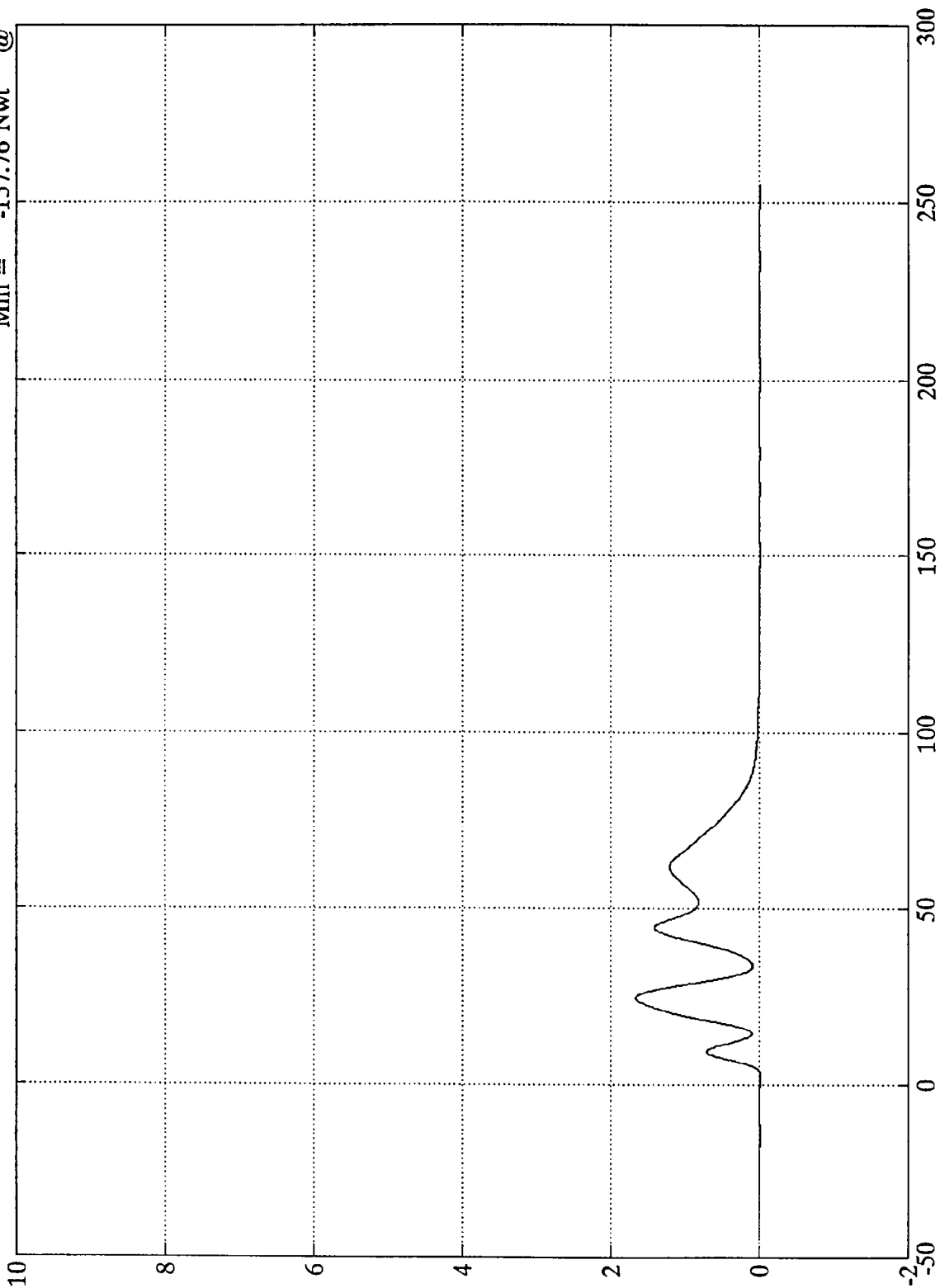
8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 16604.64 Nwt @ 24.59 msec
 Min = -157.76 Nwt @ 2.15 msec

Barrier Load Cell C4



Time (msec)

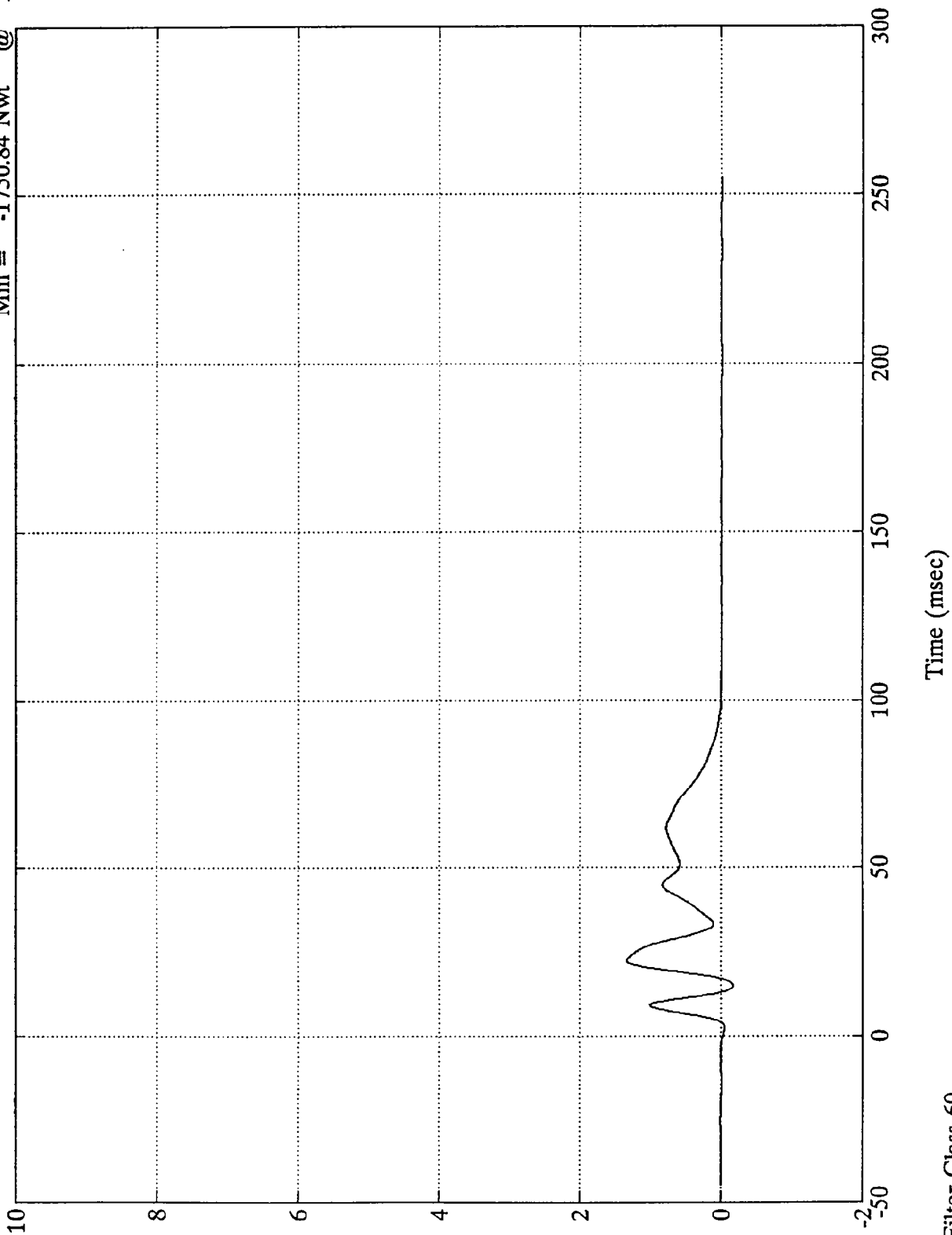
SAE Filter Class 60

Nwt
 B-50

8058-6

NCAP TEST #10 1993 HONDA ACCORD
x10⁴

Barrier Load Cell C5
Max = 13366.75 Nwt @ 22.43 msec
Min = -1750.84 Nwt @ 15.00 msec



1wN
B-51

8058-6

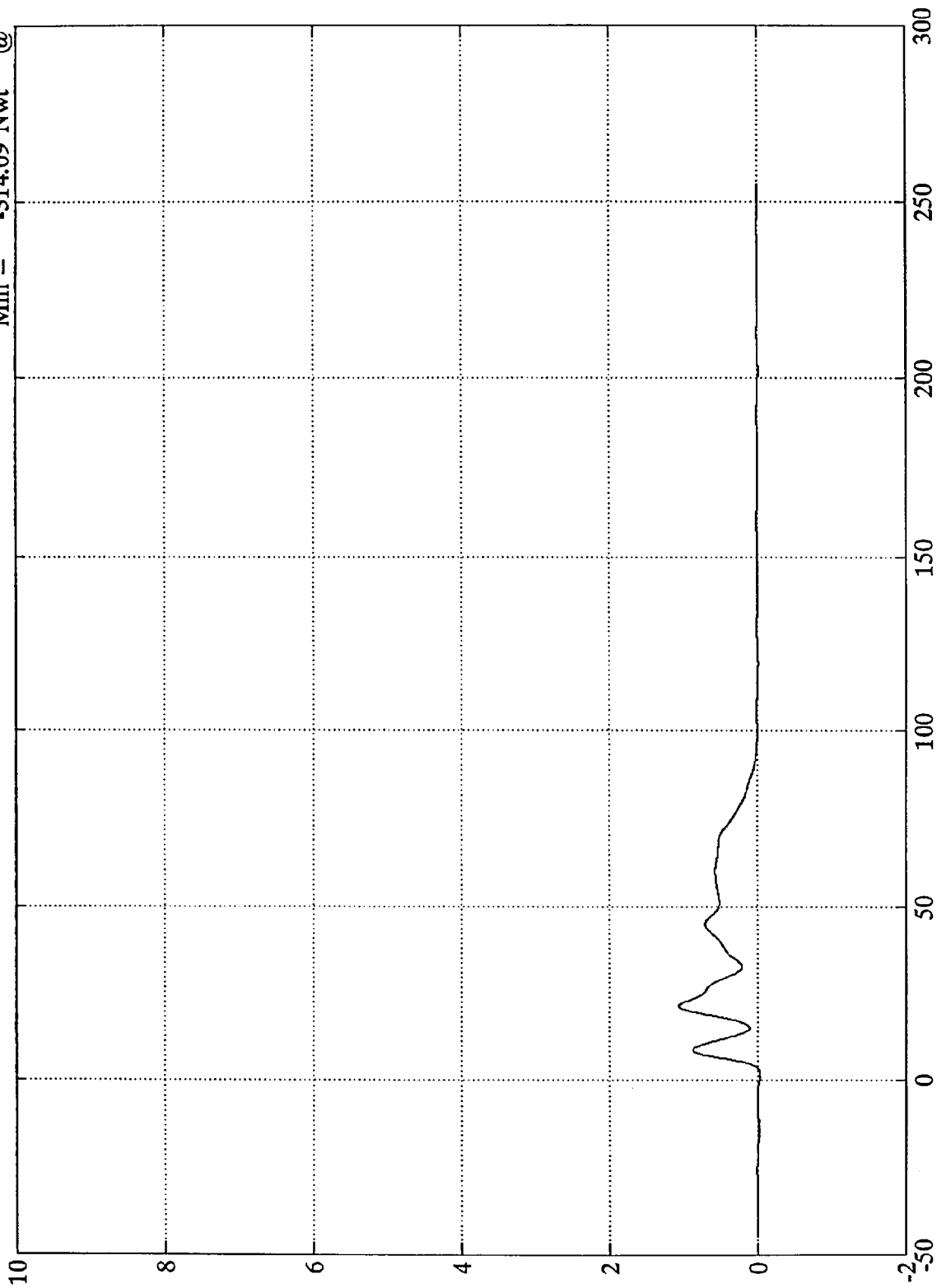
SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 10680.04 Nwt @ 21.23 msec
Min = -314.09 Nwt @ 1.43 msec

Barrier Load Cell C6

x10⁴



Time (msec)

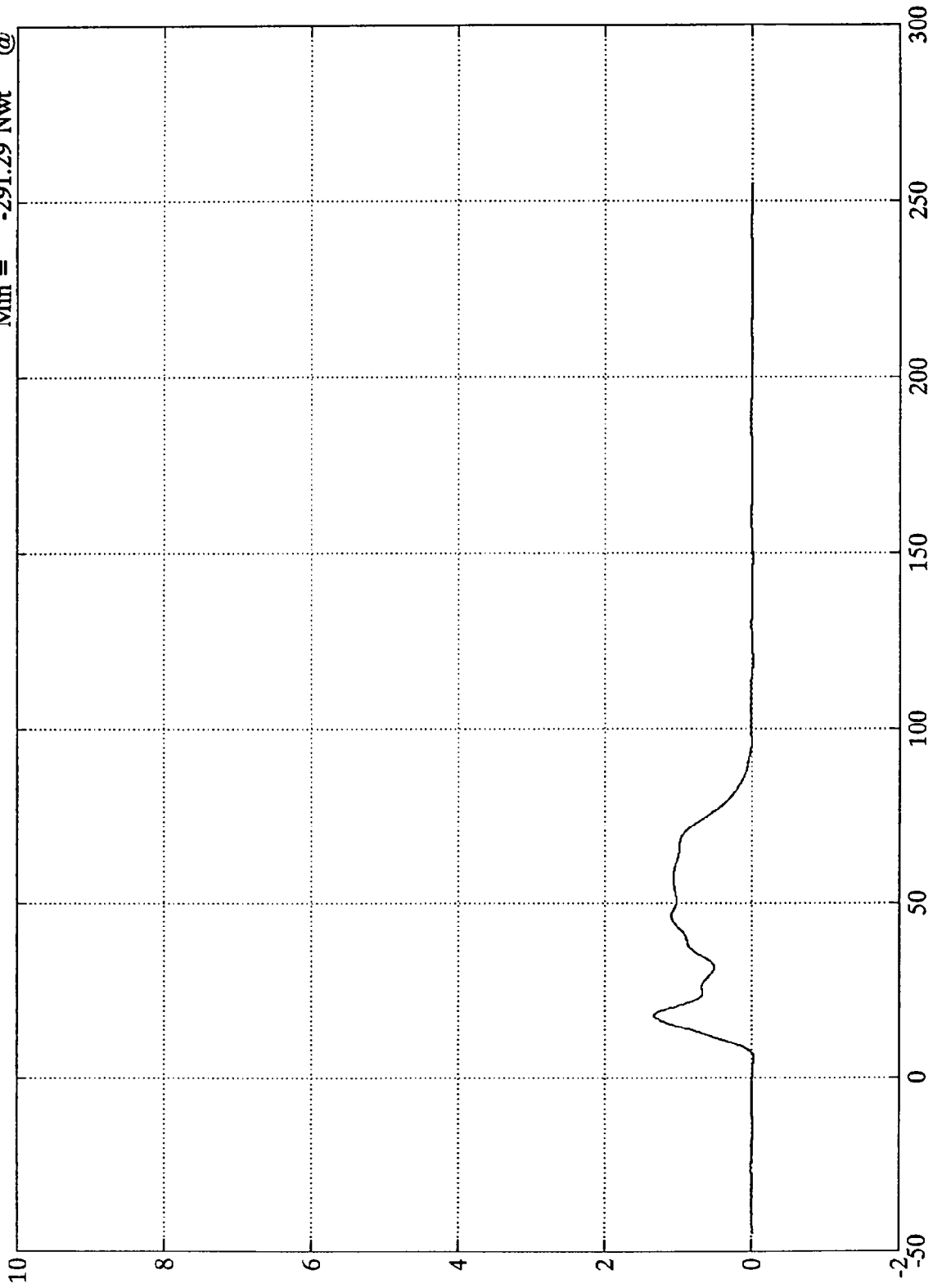
SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 13336.90 Nwt @ 18.12 msec
Min = -291.29 Nwt @ 5.63 msec

Barrier Load Cell C7

x10⁴



Time (msec)

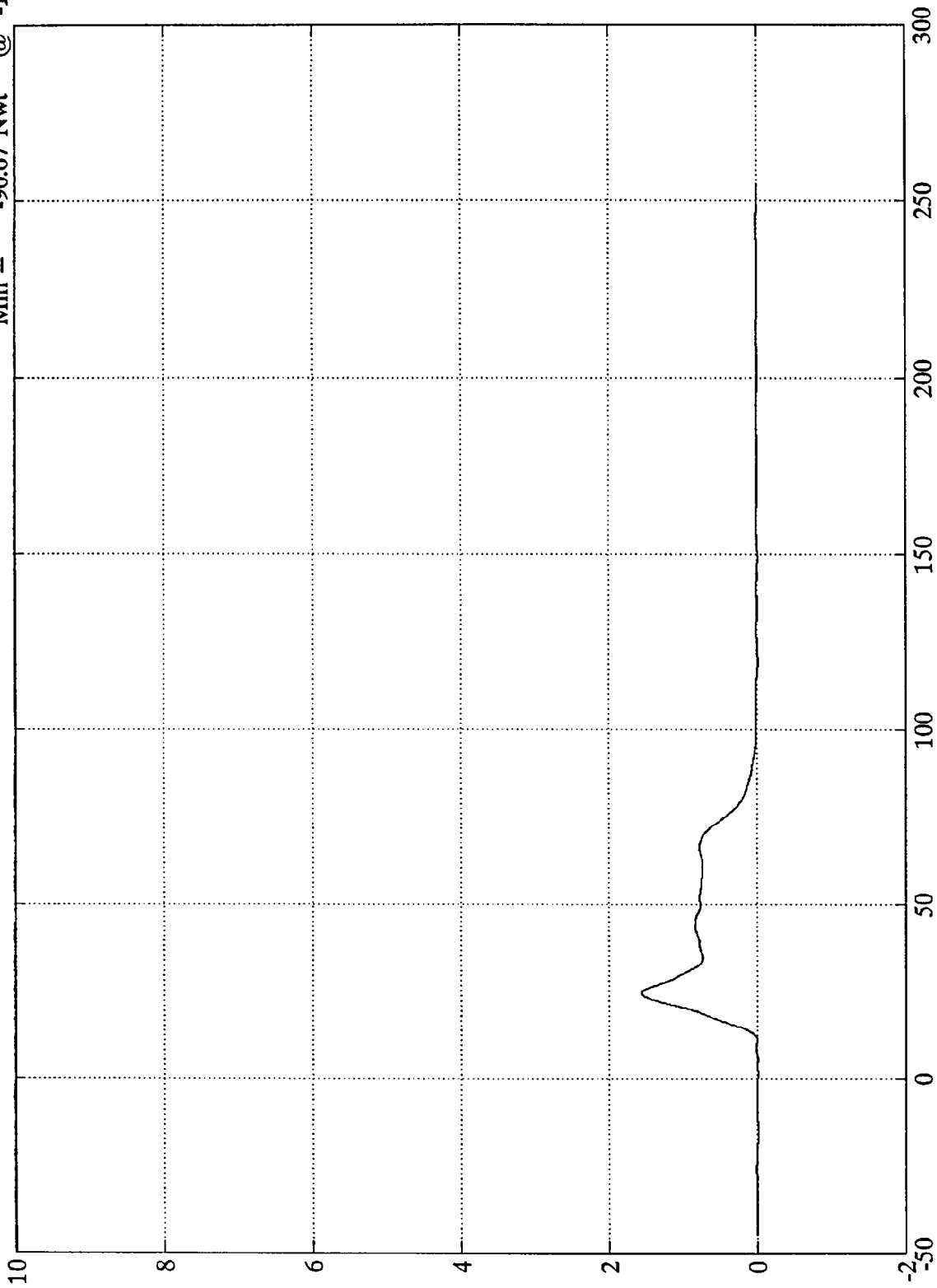
SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 15617.23 Nwt @ 24.47 msec
Min = -90.67 Nwt @ -15.48 msec

Barrier Load Cell C8

x10⁴



Time (msec)

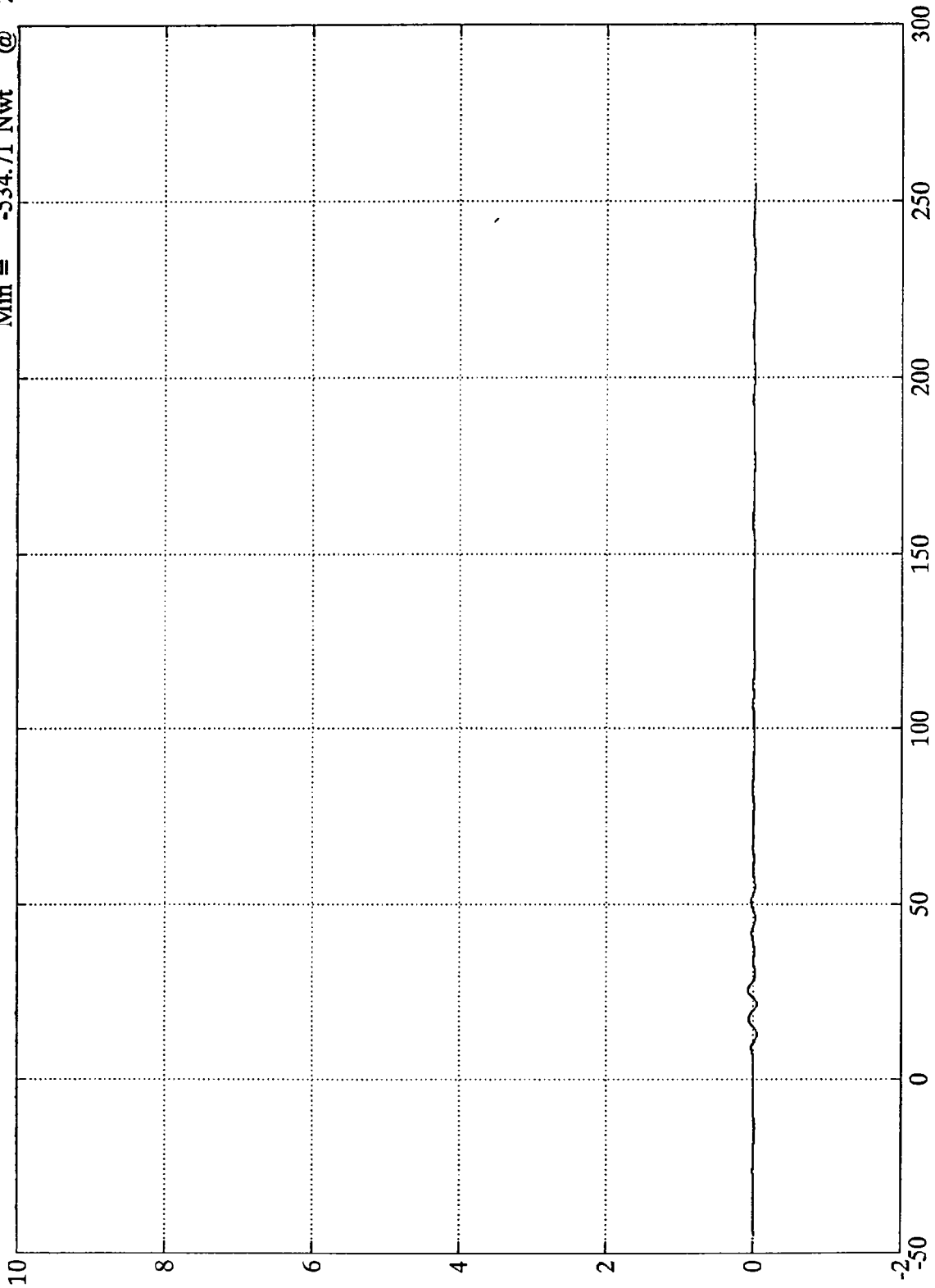
SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 691.09 Nwt @ 25.31 msec
 Min = -534.71 Nwt @ 21.47 msec

Barrier Load Cell C9

x10⁴



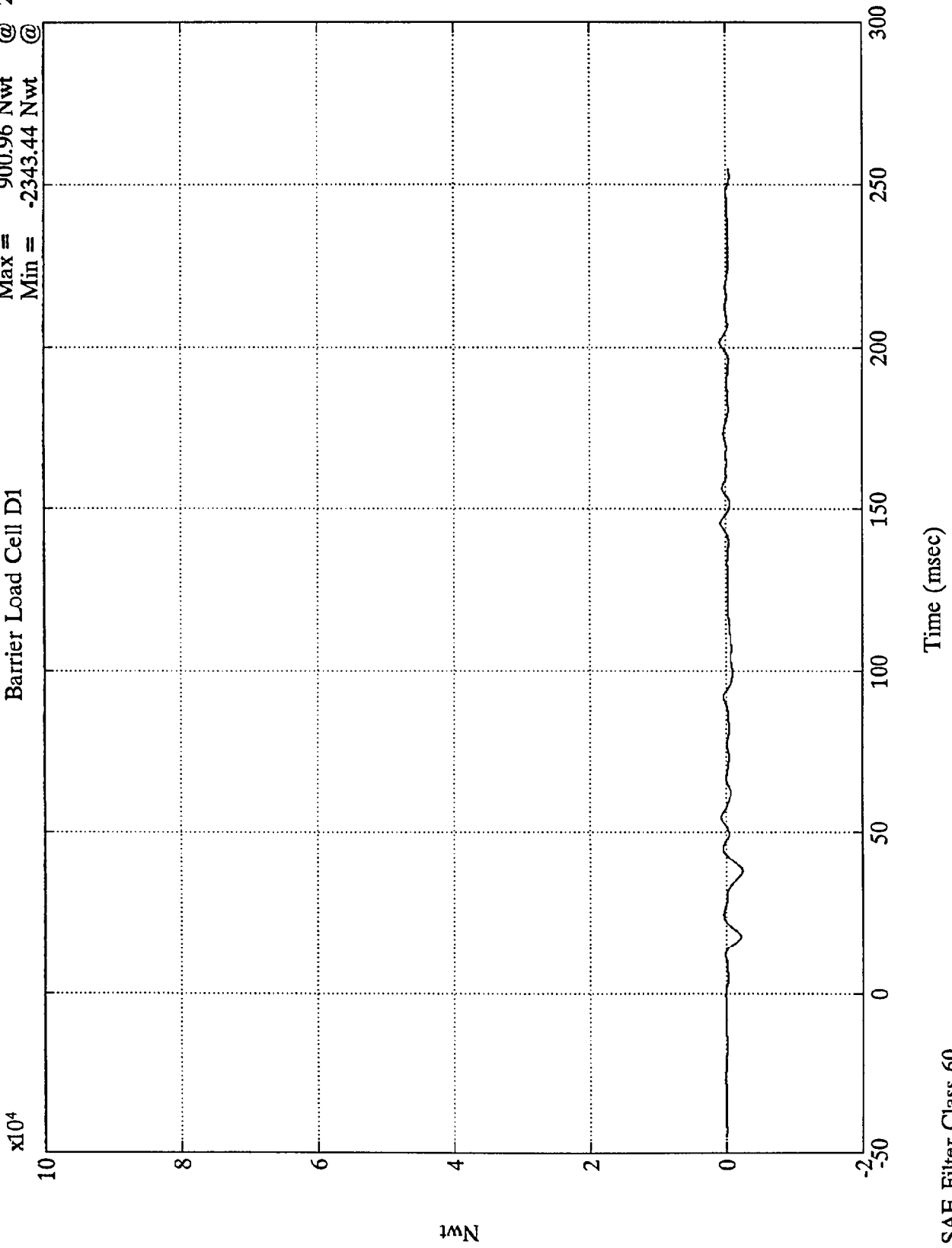
Time (msec)

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 900.96 Nwt @ 201.47 msec
Min = -2343.44 Nwt @ 38.04 msec

Barrier Load Cell D1



B-56

8058-6

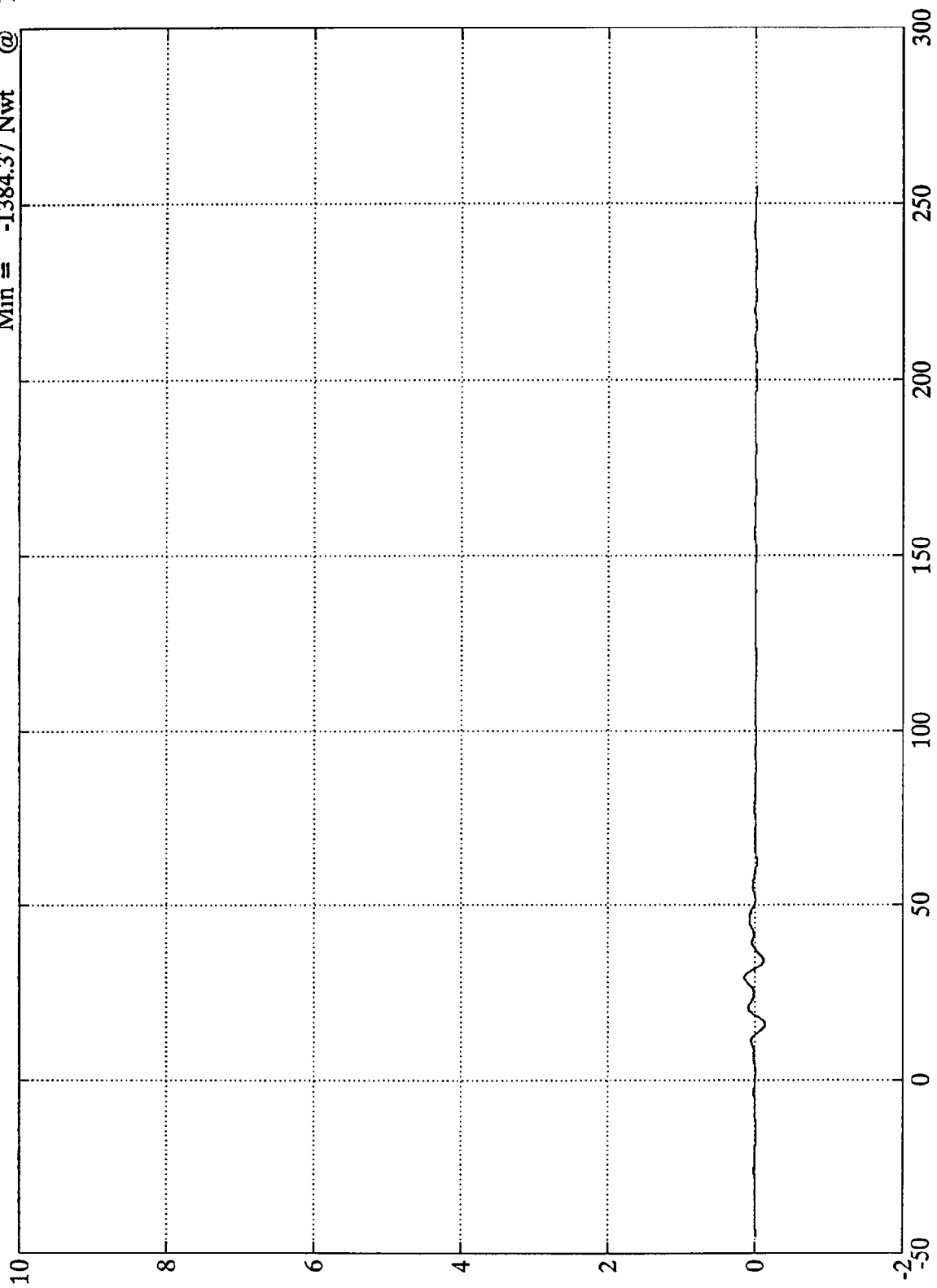
SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 1440.29 Nwt @ 29.15 msec
Min = -1384.37 Nwt @ 15.95 msec

Barrier Load Cell D2

x10⁴

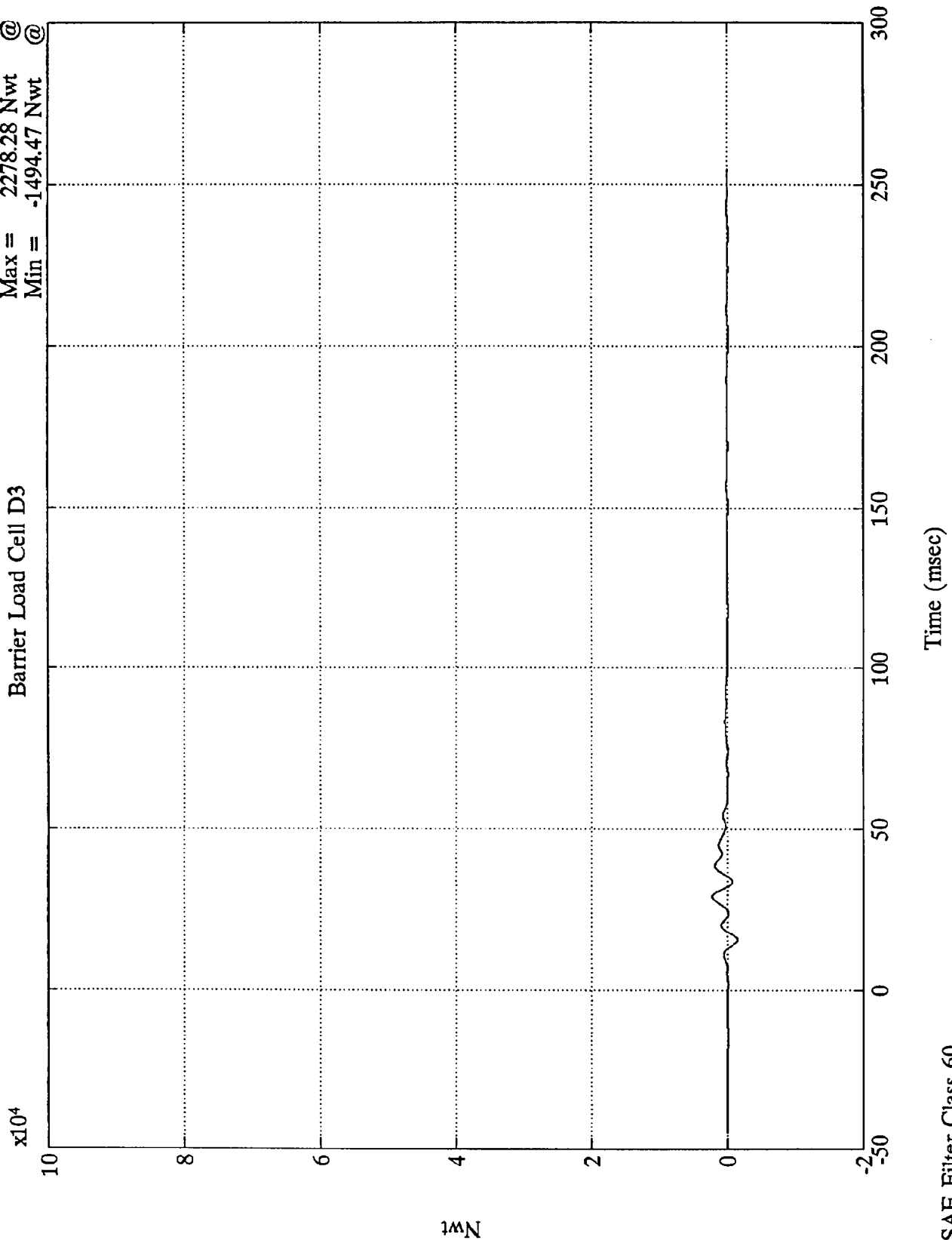


Time (msec)

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Barrier Load Cell D3
 Max = 2278.28 Nwt @ 28.92 msec
 Min = -1494.47 Nwt @ 15.35 msec

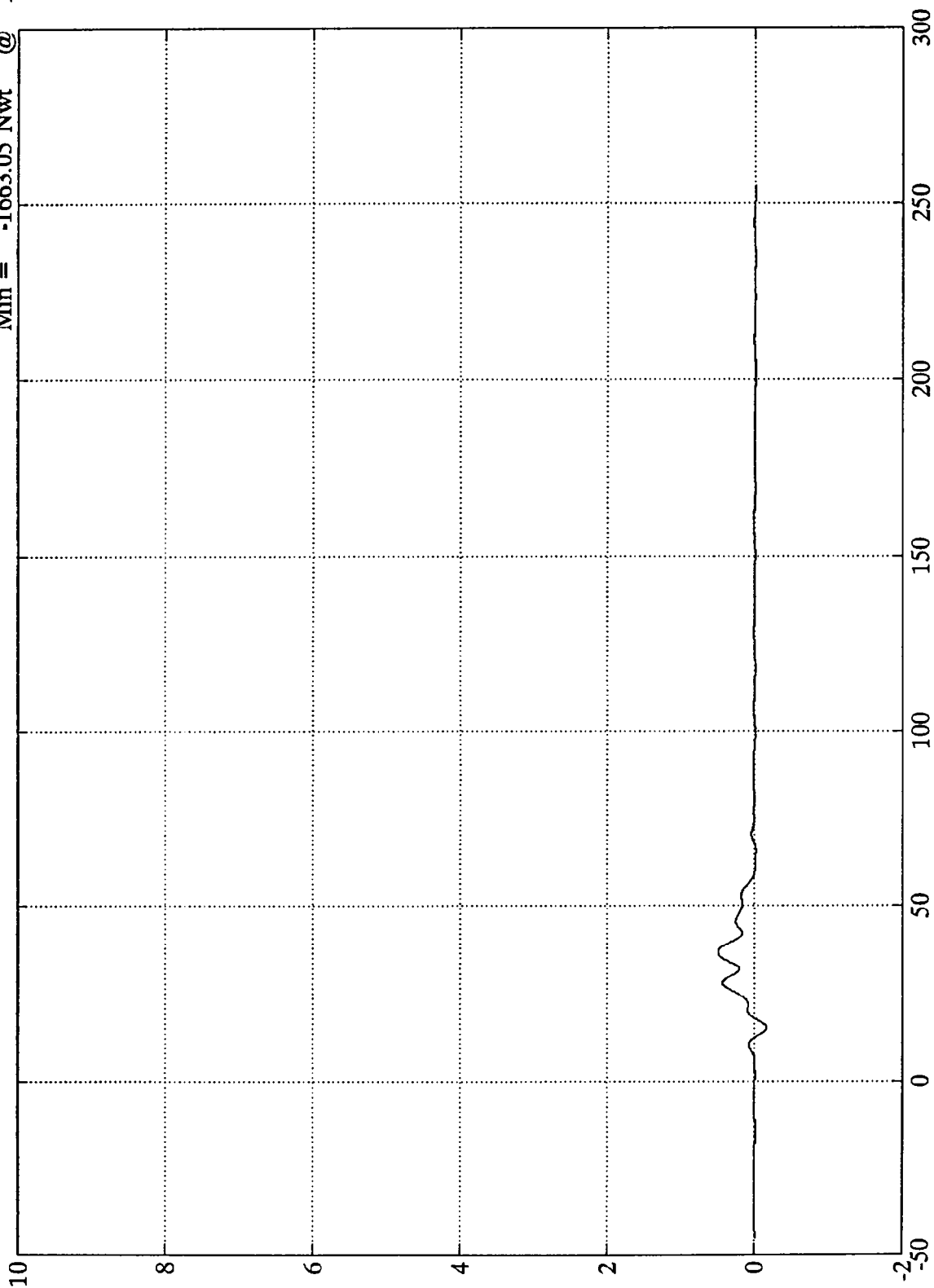


NCAP TEST #10 1993 HONDA ACCORD

Barrier Load Cell D4

Max = 4905.69 Nwt @ 36.60 msec
Min = -1663.05 Nwt @ 15.47 msec

x10⁴



Time (msec)

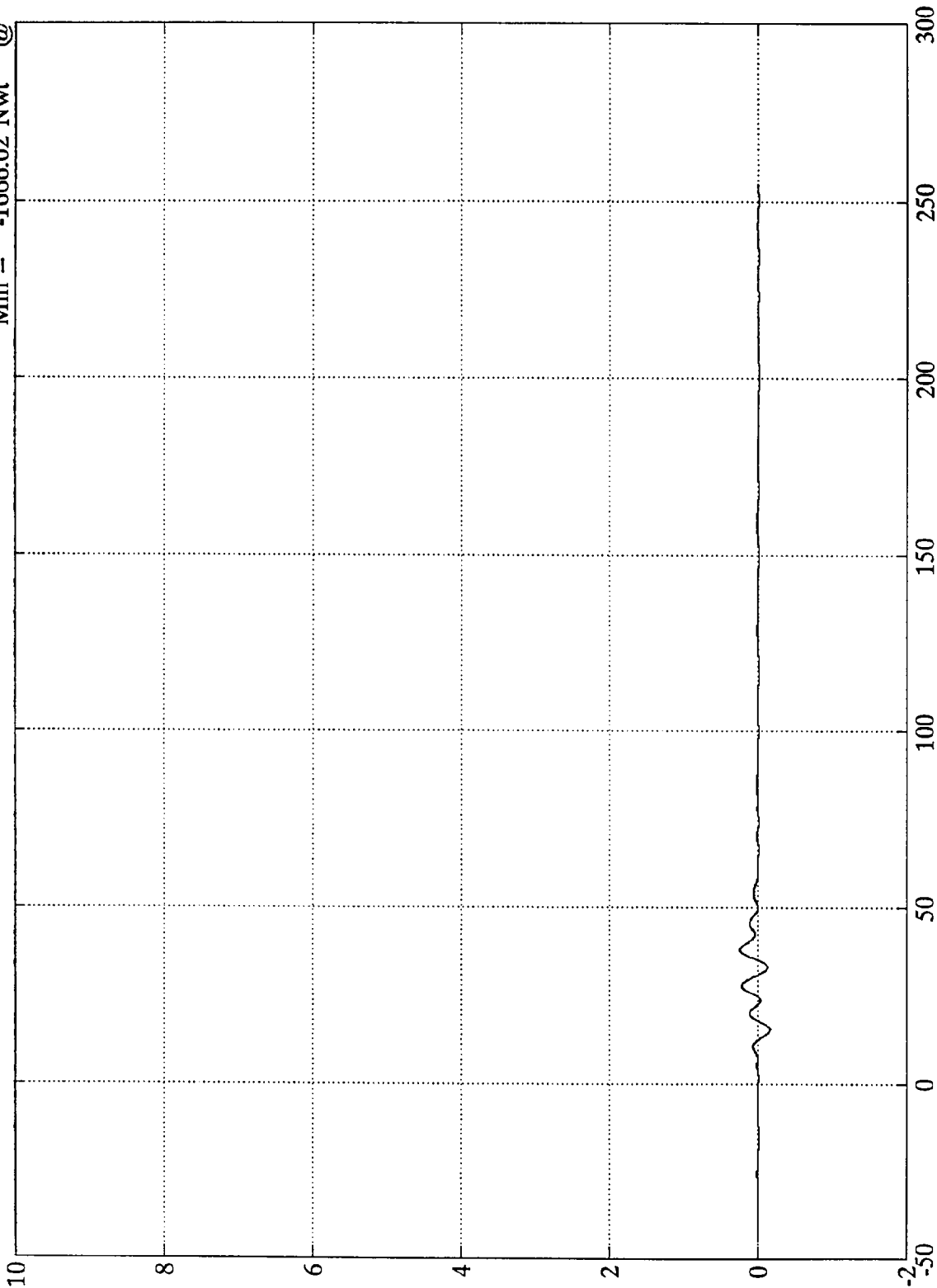
SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 2434.61 Nwt @ 37.92 msec
 Min = -1666.02 Nwt @ 15.35 msec

Barrier Load Cell D5

x10⁴



Time (msec)

SAE Filter Class 60

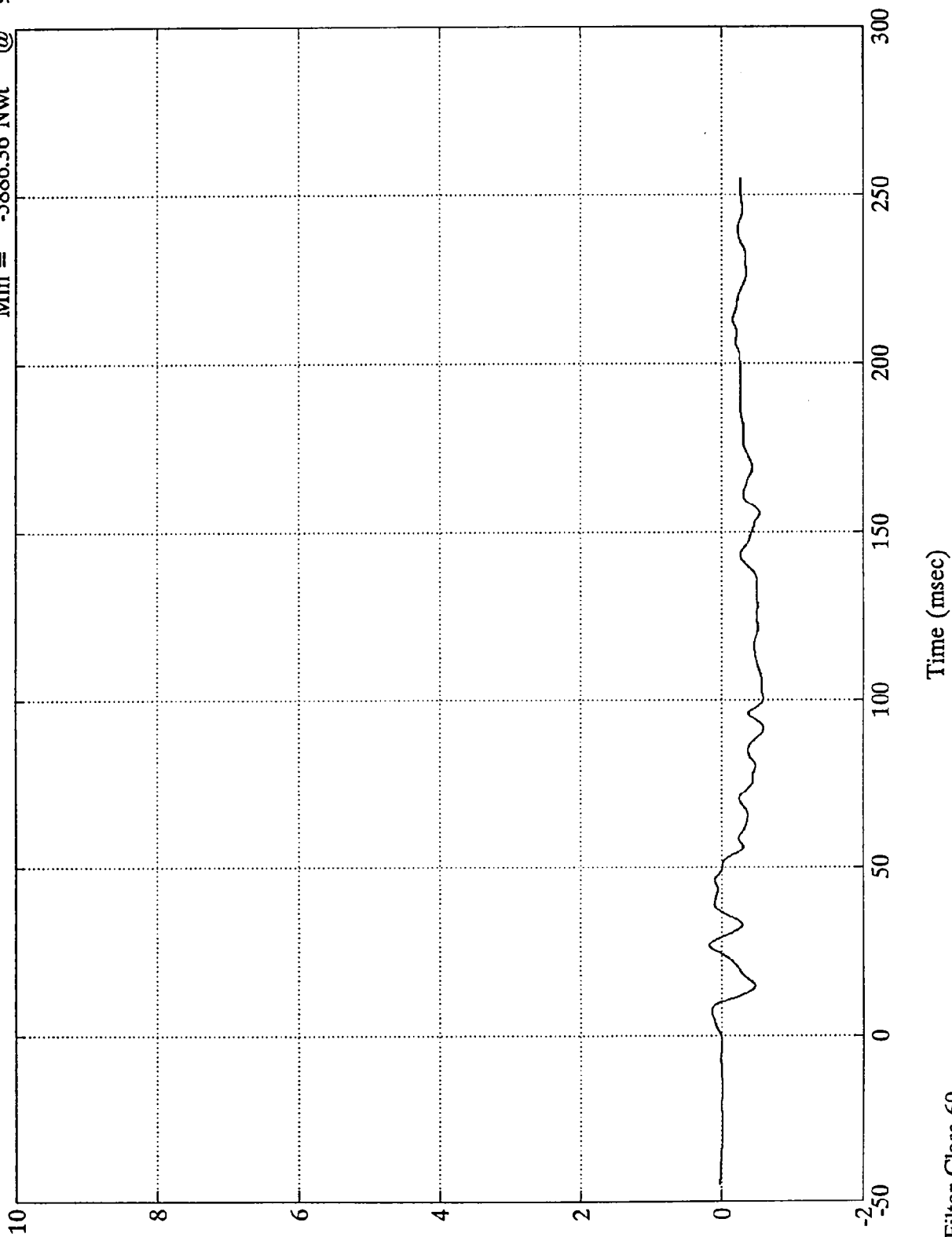
Nwt
B-60

8058-6

NCAP TEST #10 1993 HONDA ACCORD

Max = 1729.30 Nwt @ 26.87 msec
 Min = -5886.36 Nwt @ 91.44 msec

Barrier Load Cell D6



11N
 B-61

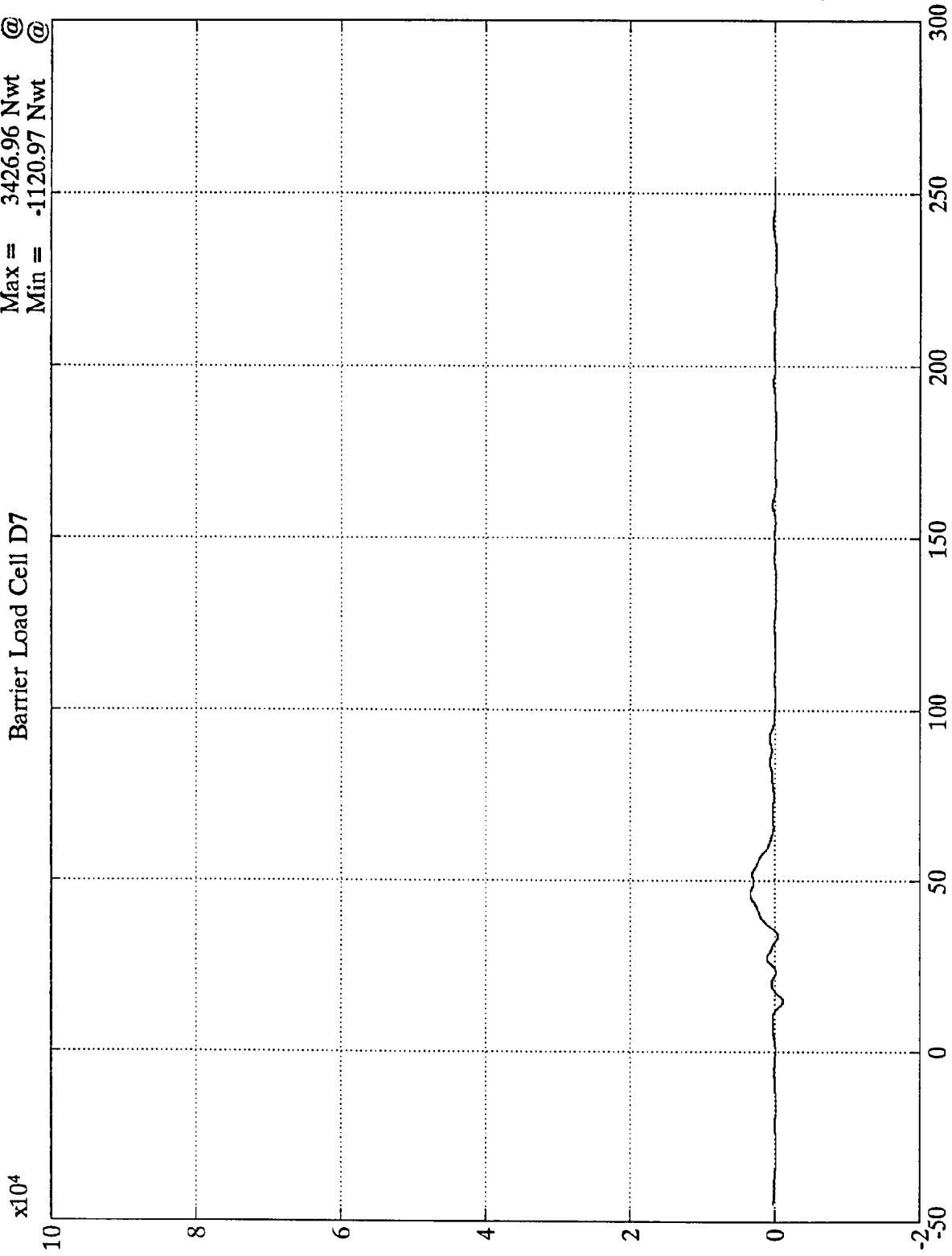
8058-6

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Barrier Load Cell D7

Max = 3426.96 Nwt @ 46.20 msec
 Min = -1120.97 Nwt @ 14.75 msec

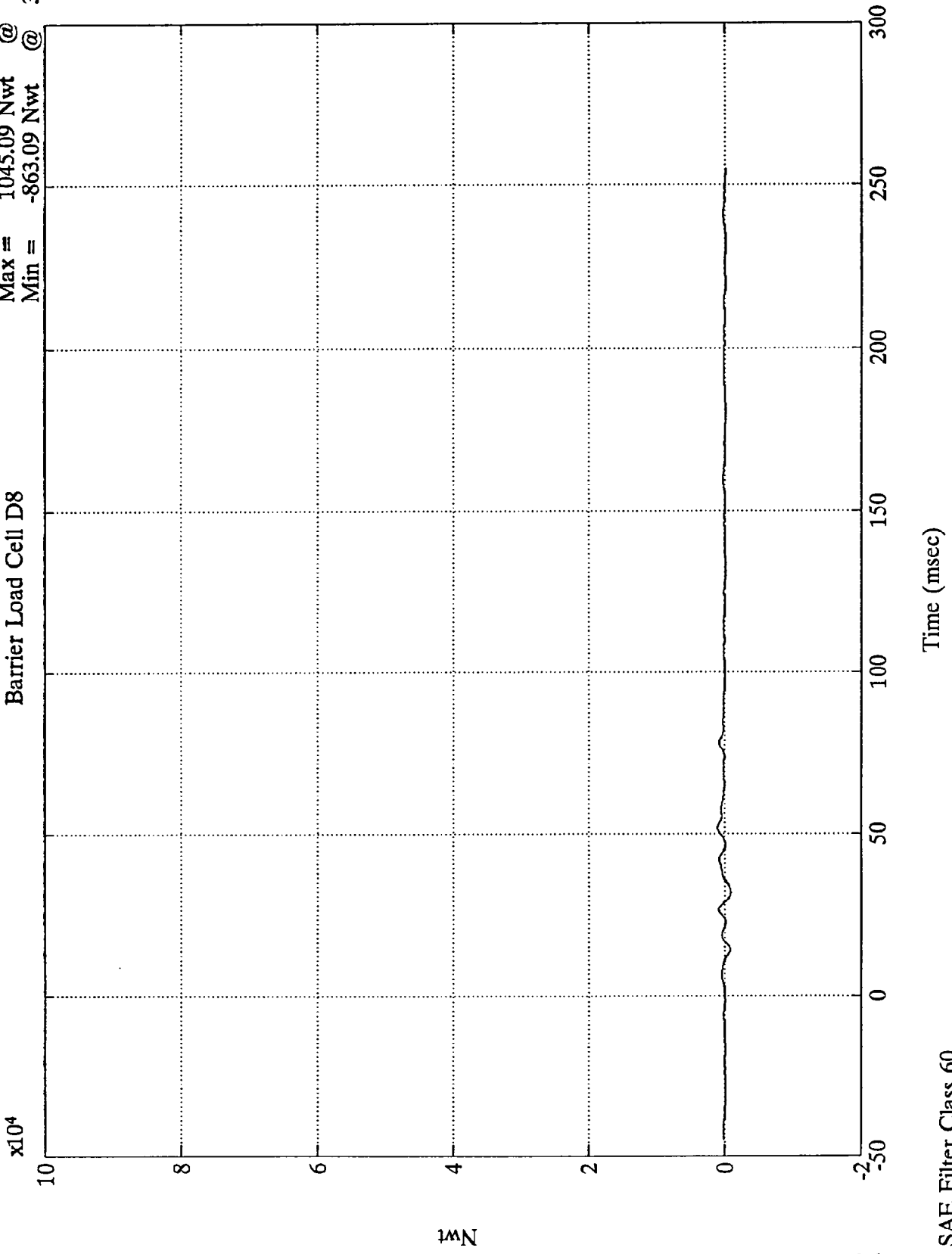


Time (msec)

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Barrier Load Cell D8
Max = 1045.09 Nwt @ 51.72 msec
Min = -863.09 Nwt @ 31.92 msec



1045.09 Nwt
B-63

8058-6

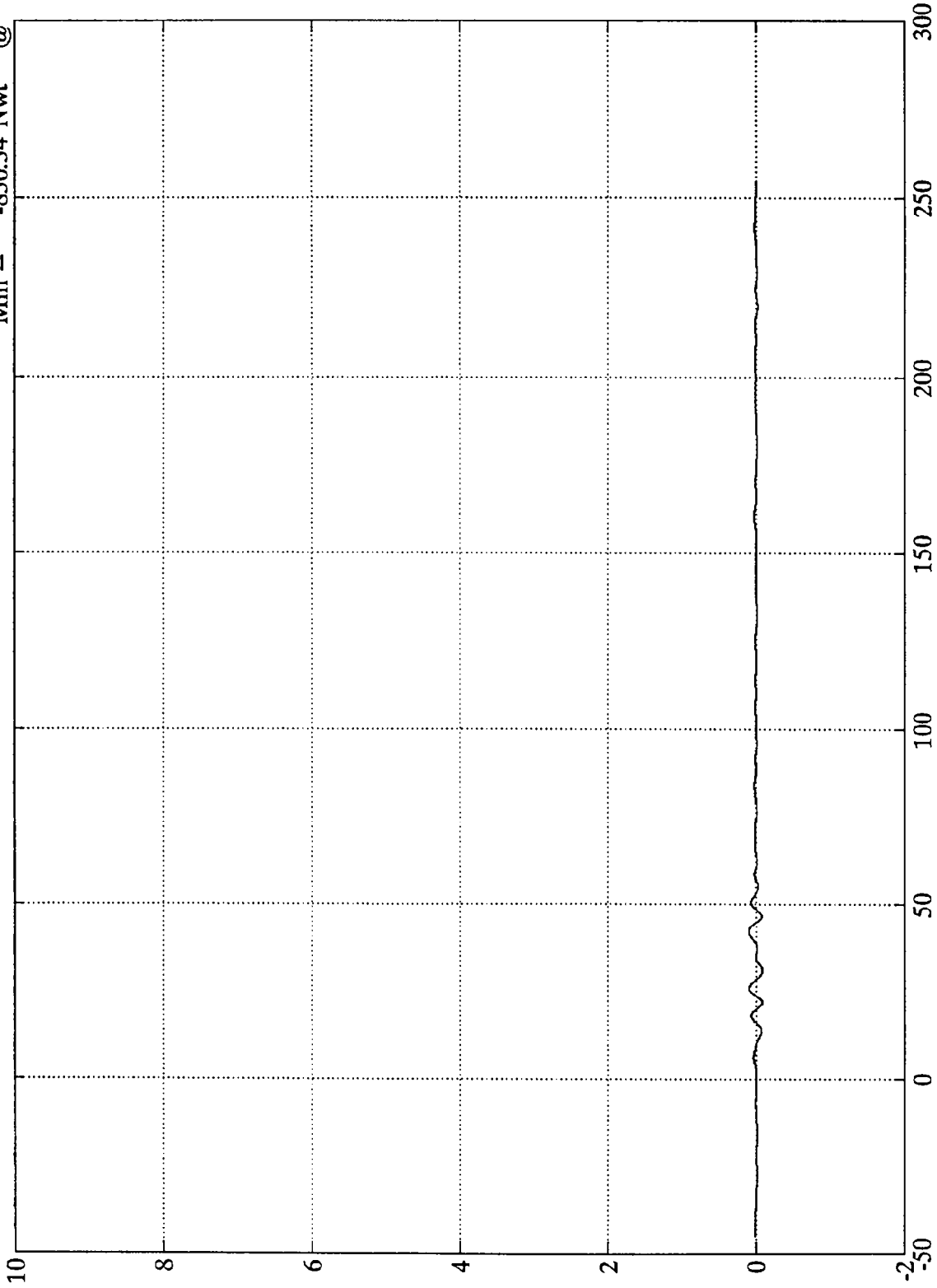
SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Barrier Load Cell D9

Max = 1016.42 Nwt @ 42.11 msec
Min = -830.34 Nwt @ 30.95 msec

$\times 10^4$



Time (msec)

SAE Filter Class 60

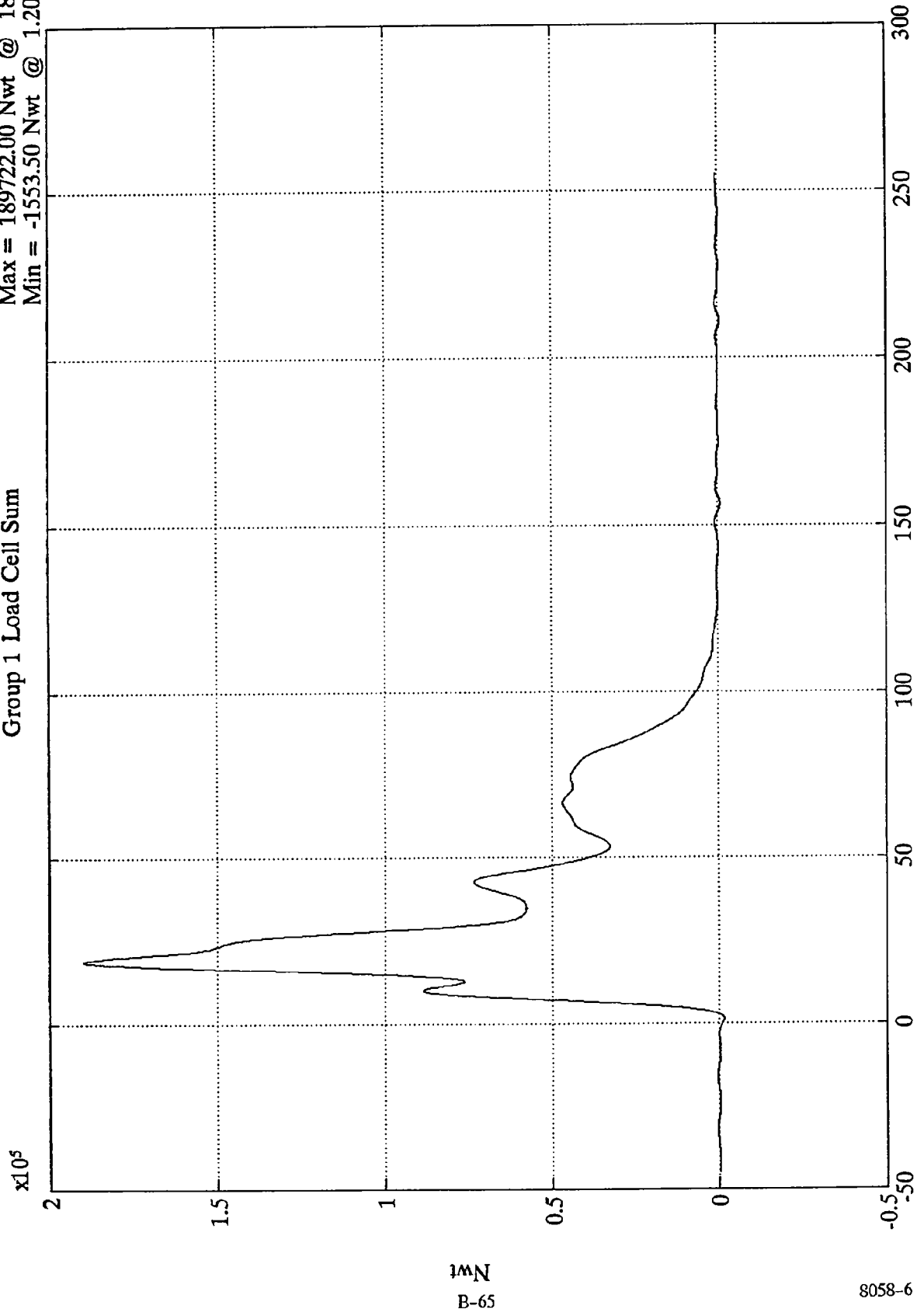
Nwt
B-64

8058-6

NCAP TEST #10 1993 HONDA ACCORD

Group 1 Load Cell Sum

Max = 189722.00 Nwt @ 18.96 msec
Min = -1553.50 Nwt @ 1.20 msec



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

Time (msec)

SAE Filter Class 60

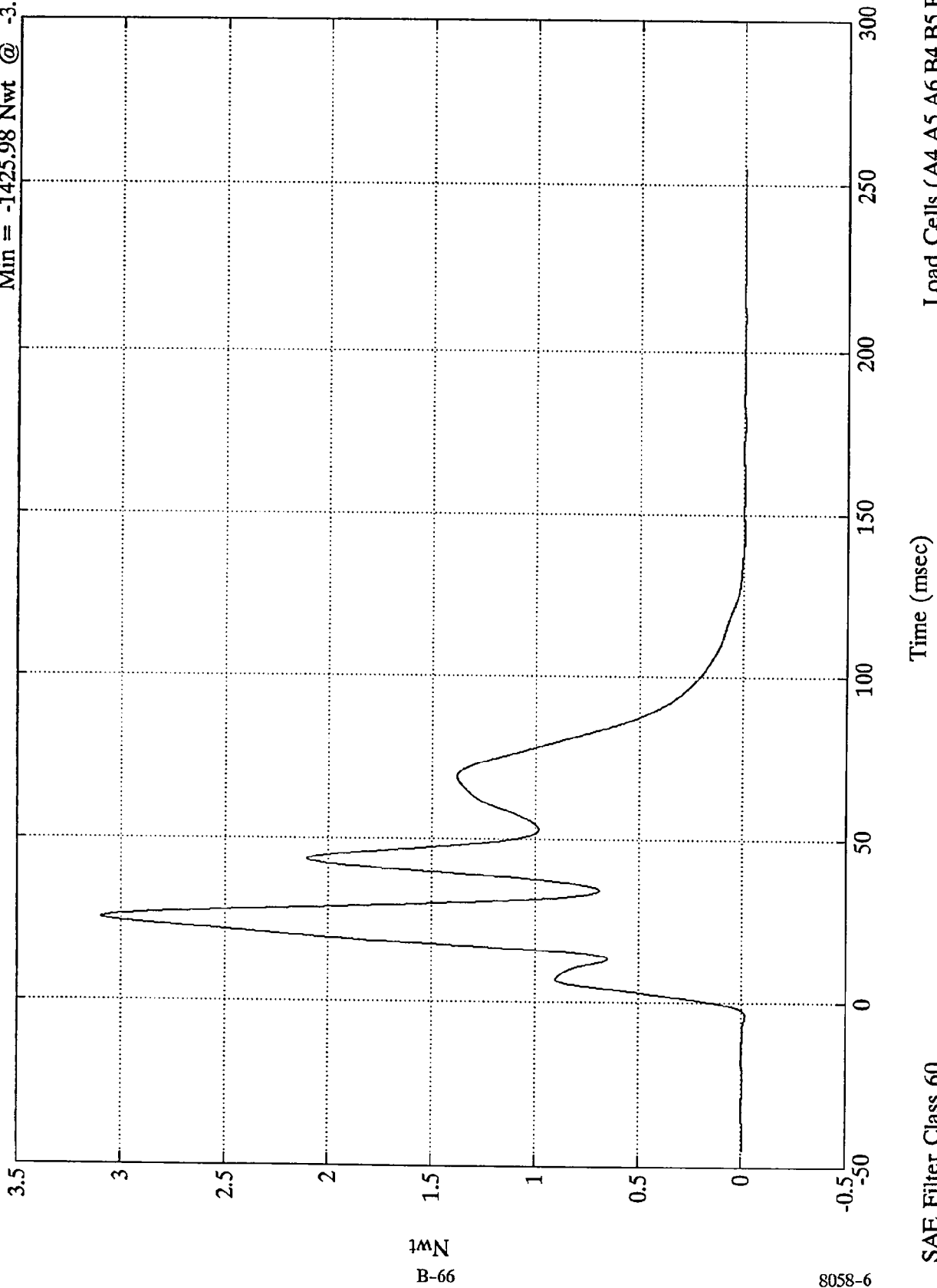
1Wt
B-65

8058-6

NCAP TEST #10 1993 HONDA ACCORD
x10⁵

Group 2 Load Cell Sum

Max = 309537.00 Nwt @ 25.44 msec
Min = -1425.98 Nwt @ -3.96 msec



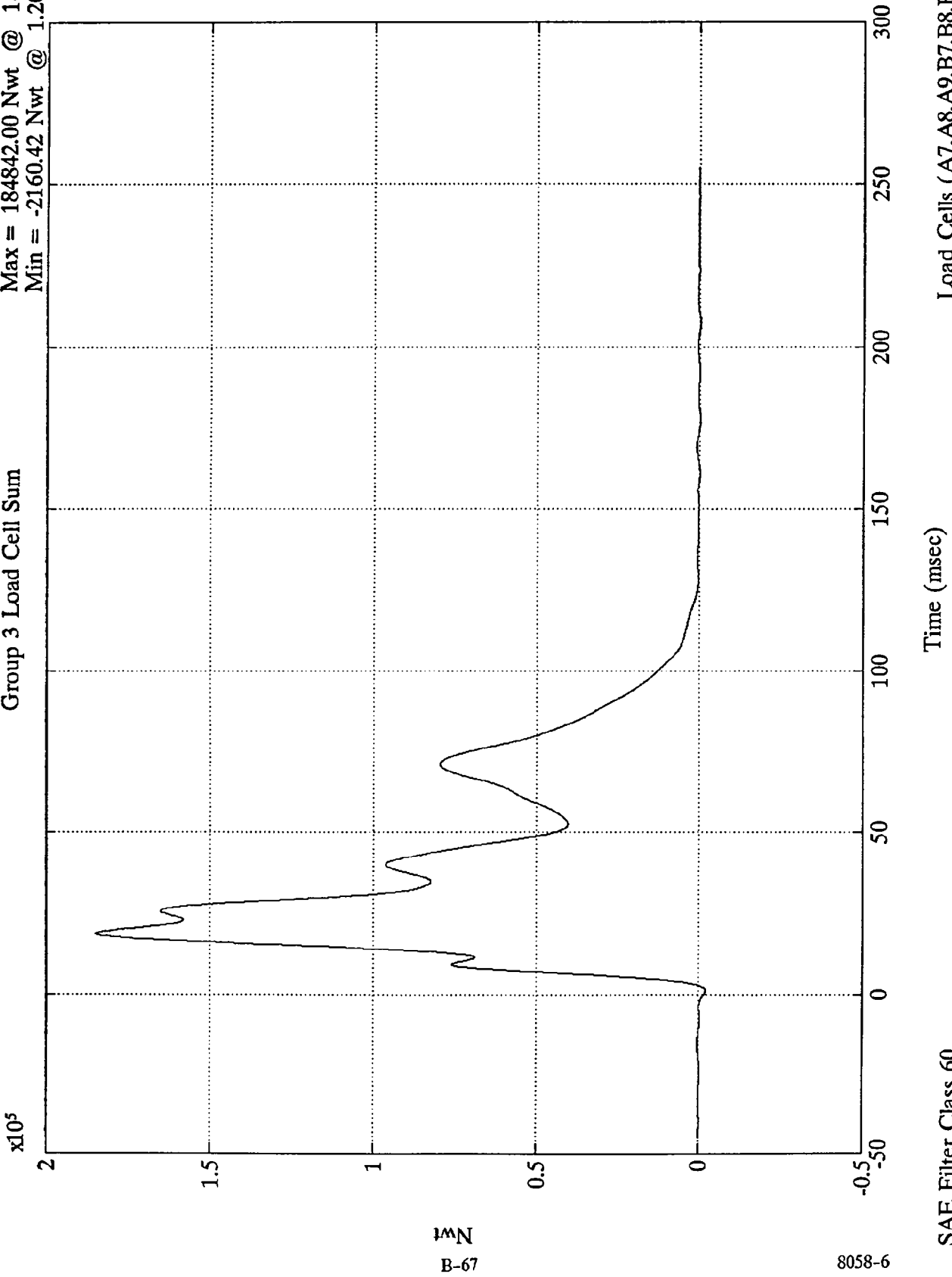
SAE Filter Class 60

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

NCAP TEST #10 1993 HONDA ACCORD

Group 3 Load Cell Sum

Max = 184842.00 Nwt @ 18.60 msec
Min = -2160.42 Nwt @ 1.20 msec



SAE Filter Class 60

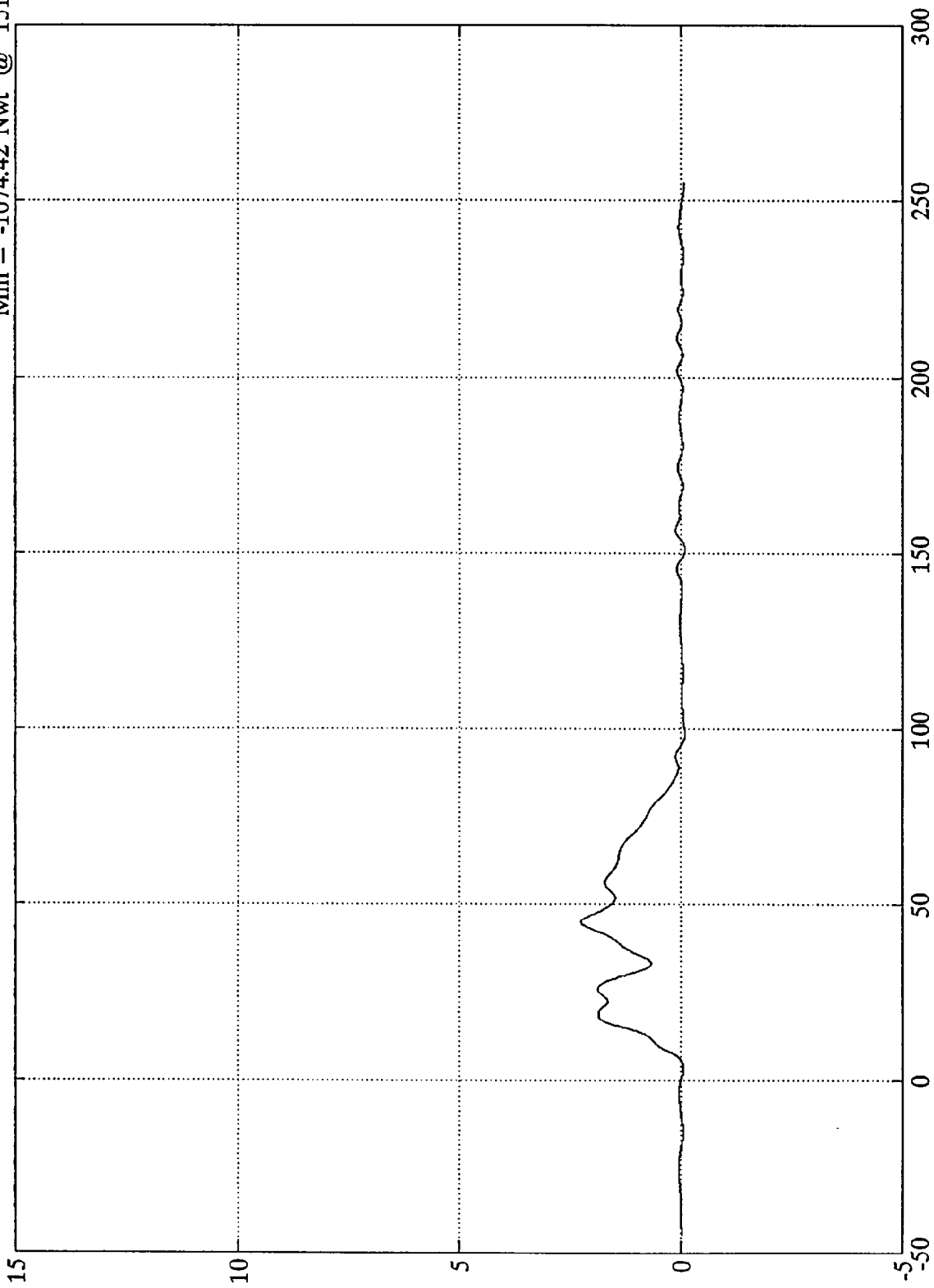
Time (msec)

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

NCAP TEST #10 1993 HONDA ACCORD
x10⁴

Group 4 Load Cell Sum

Max = 22590.10 Nwt @ 44.76 msec
Min = -1074.42 Nwt @ 151.08 msec



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

Time (msec)

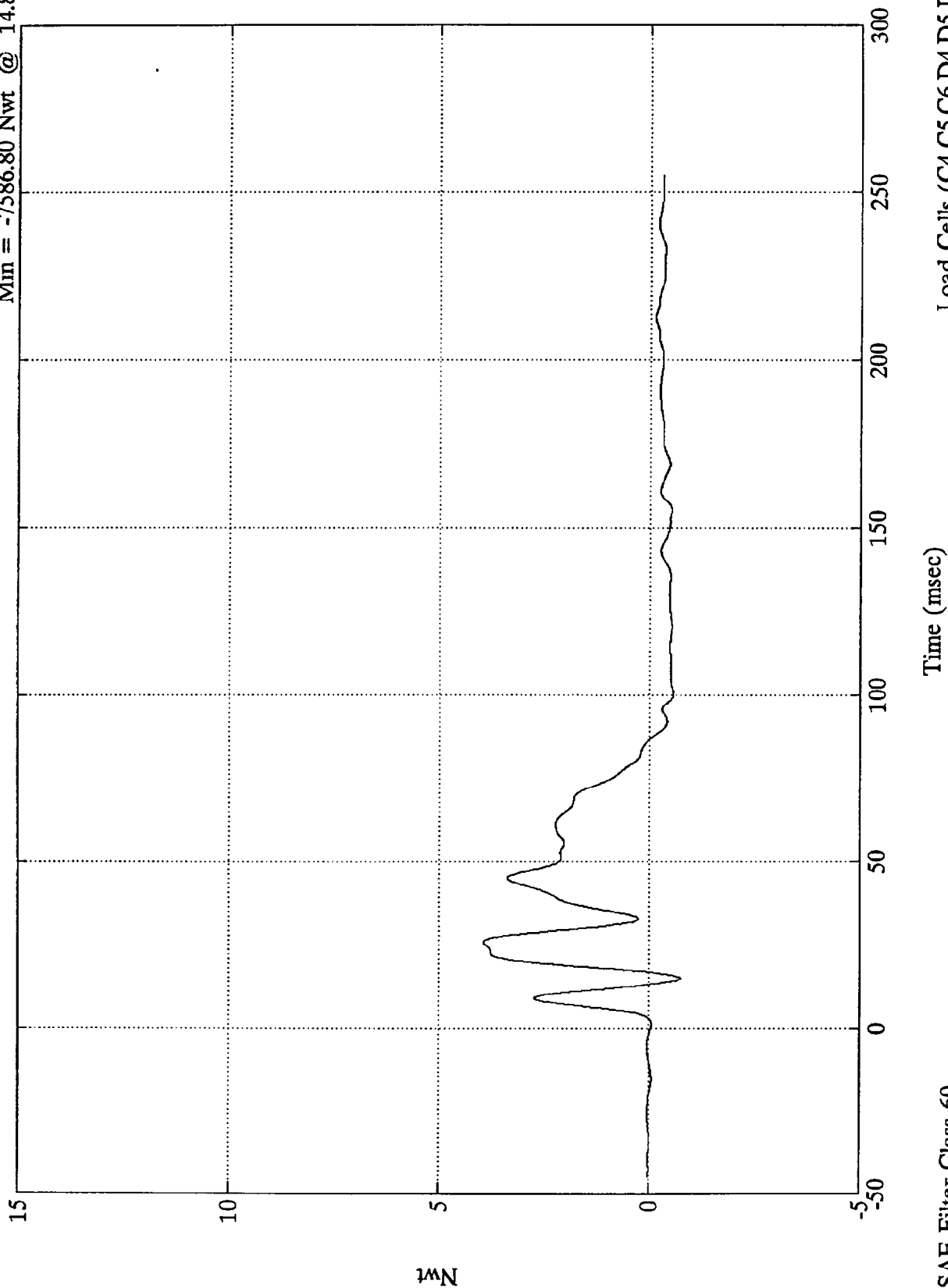
SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Group 5 Load Cell Sum

Max = 39397.10 Nwt @ 25.92 msec
Min = -7586.80 Nwt @ 14.88 msec

$\times 10^4$



SAE Filter Class 60

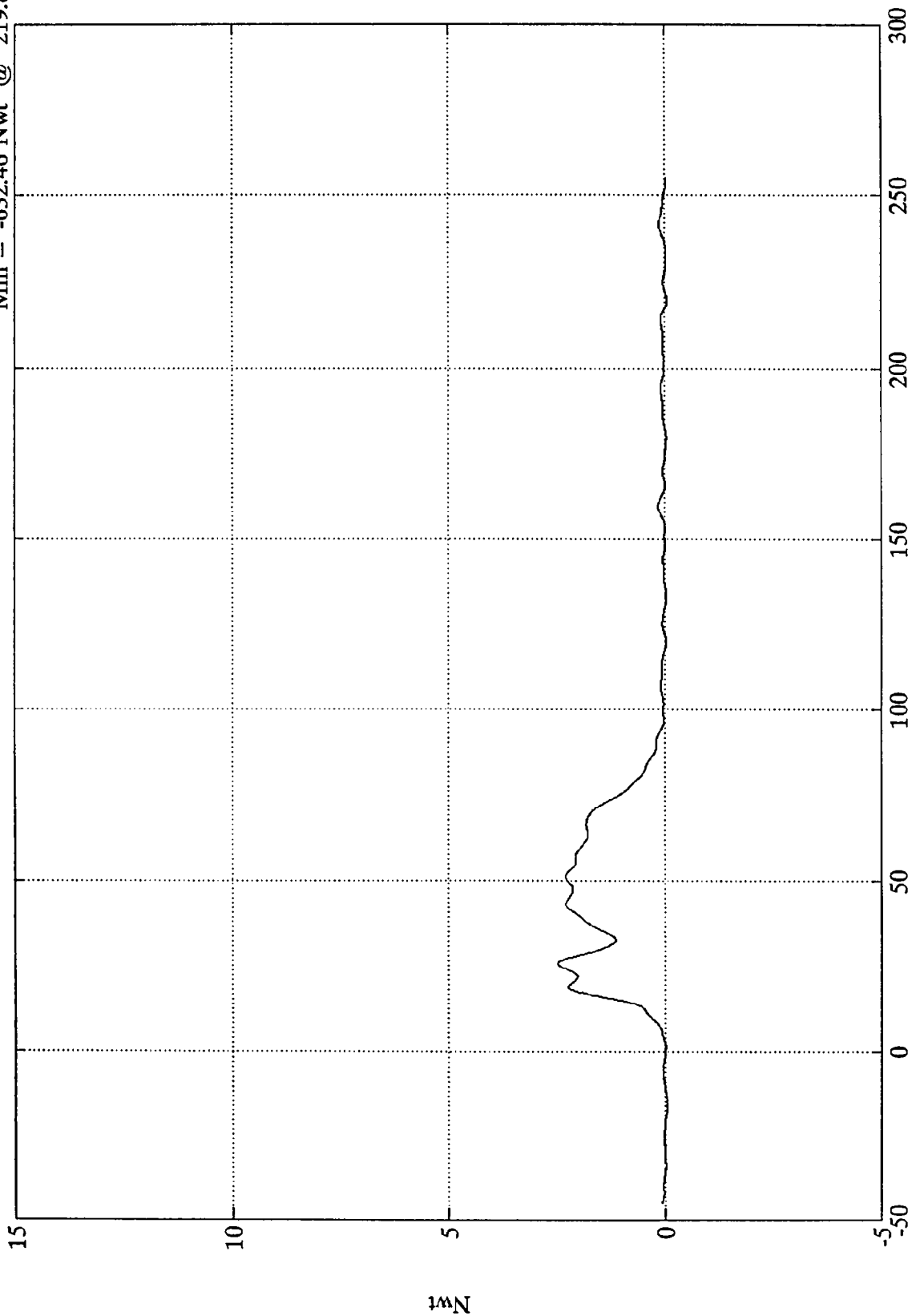
Time (msec)

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

NCAP TEST #10 1993 HONDA ACCORD

Group 6 Load Cell Sum

Max = 24795.80 Nwt @ 25.56 msec
Min = -632.46 Nwt @ 219.84 msec



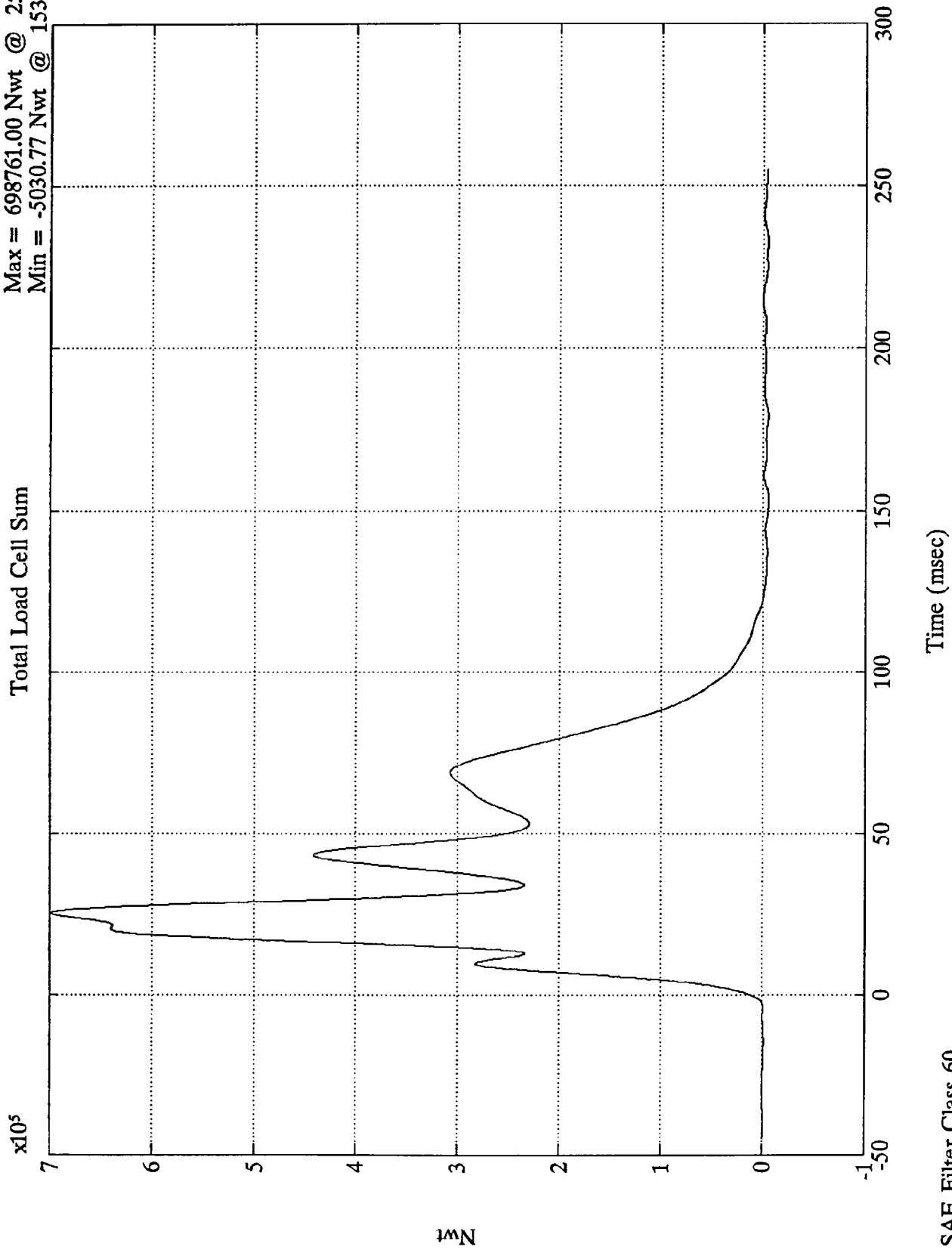
Load Cells (C7,C8,C9,D7,D8,D9)

Time (msec)

SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 698761.00 Nwt @ 25.20 msec
Min = -5030.77 Nwt @ 153.96 msec



SAE Filter Class 60

TEST NO. MP5300

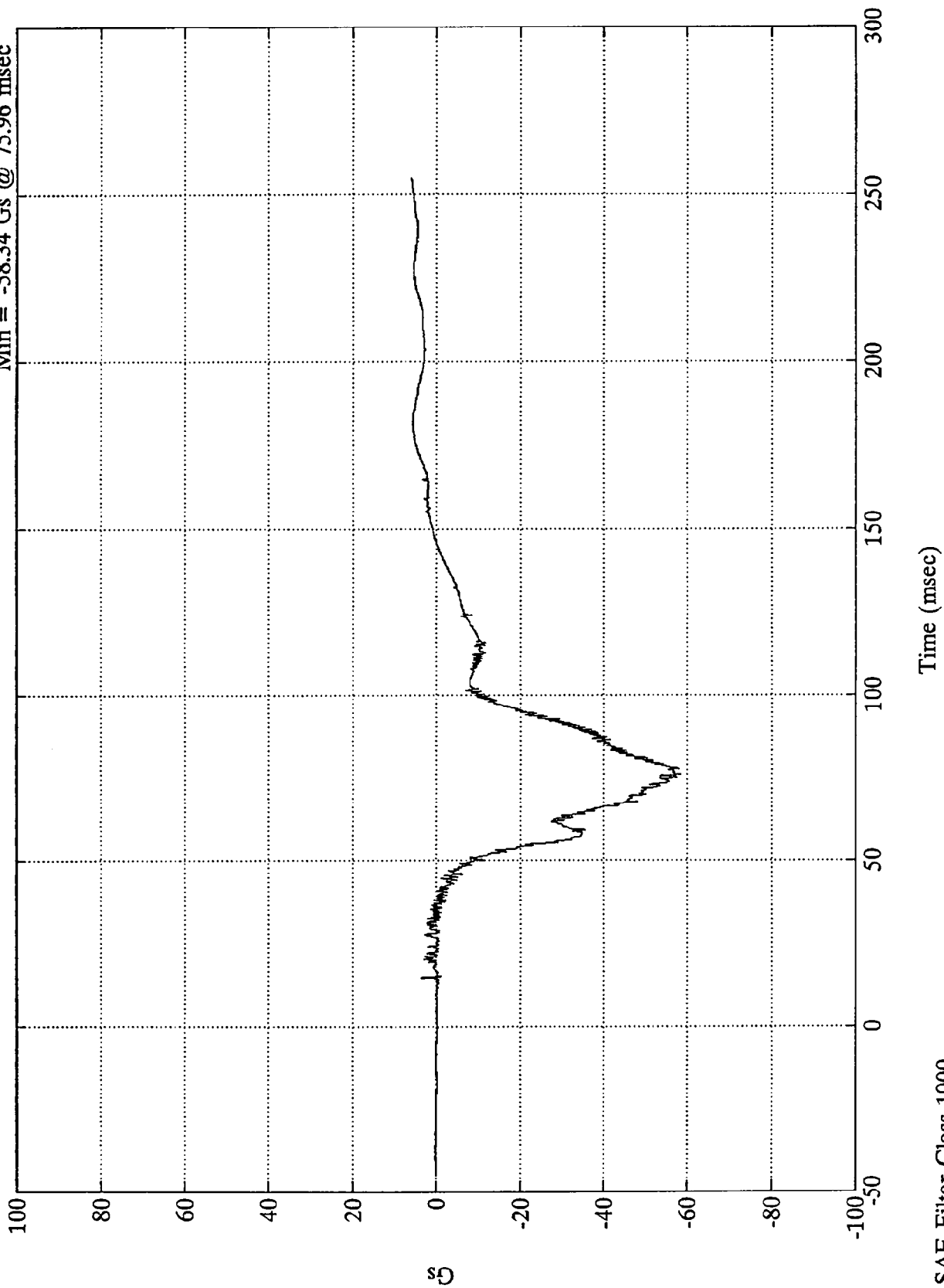
DUMMY DATA

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

NCAP TEST #10 1993 HONDA ACCORD

Pos. 1 Head X

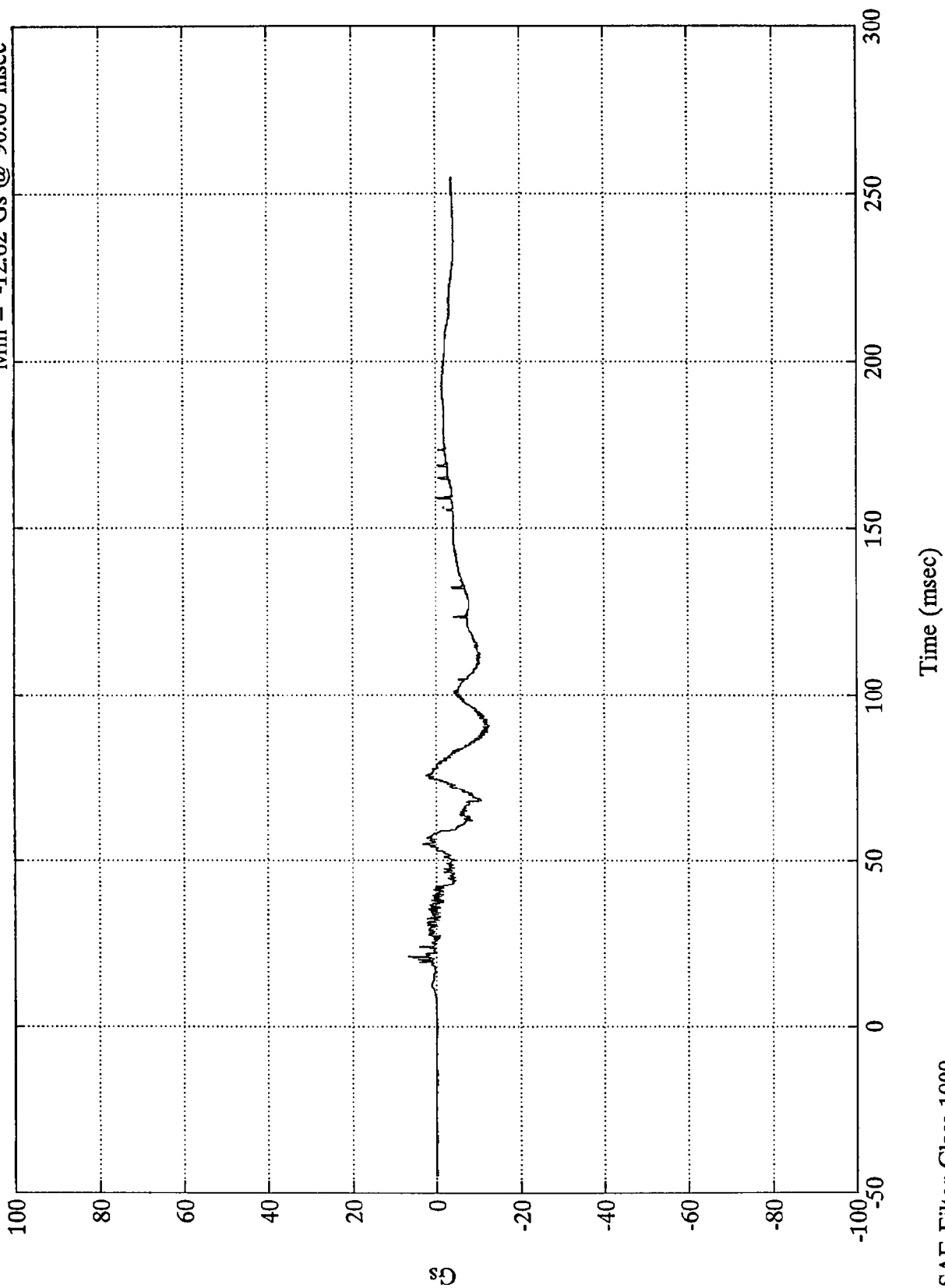
Max = 6.15 Gs @ 254.88 msec
Min = -58.34 Gs @ 75.96 msec



NCAP TEST #10 1993 HONDA ACCORD

Max = 6.64 Gs @ 21.00 msec
Min = -12.62 Gs @ 90.60 msec

Pos. 1 Head Y

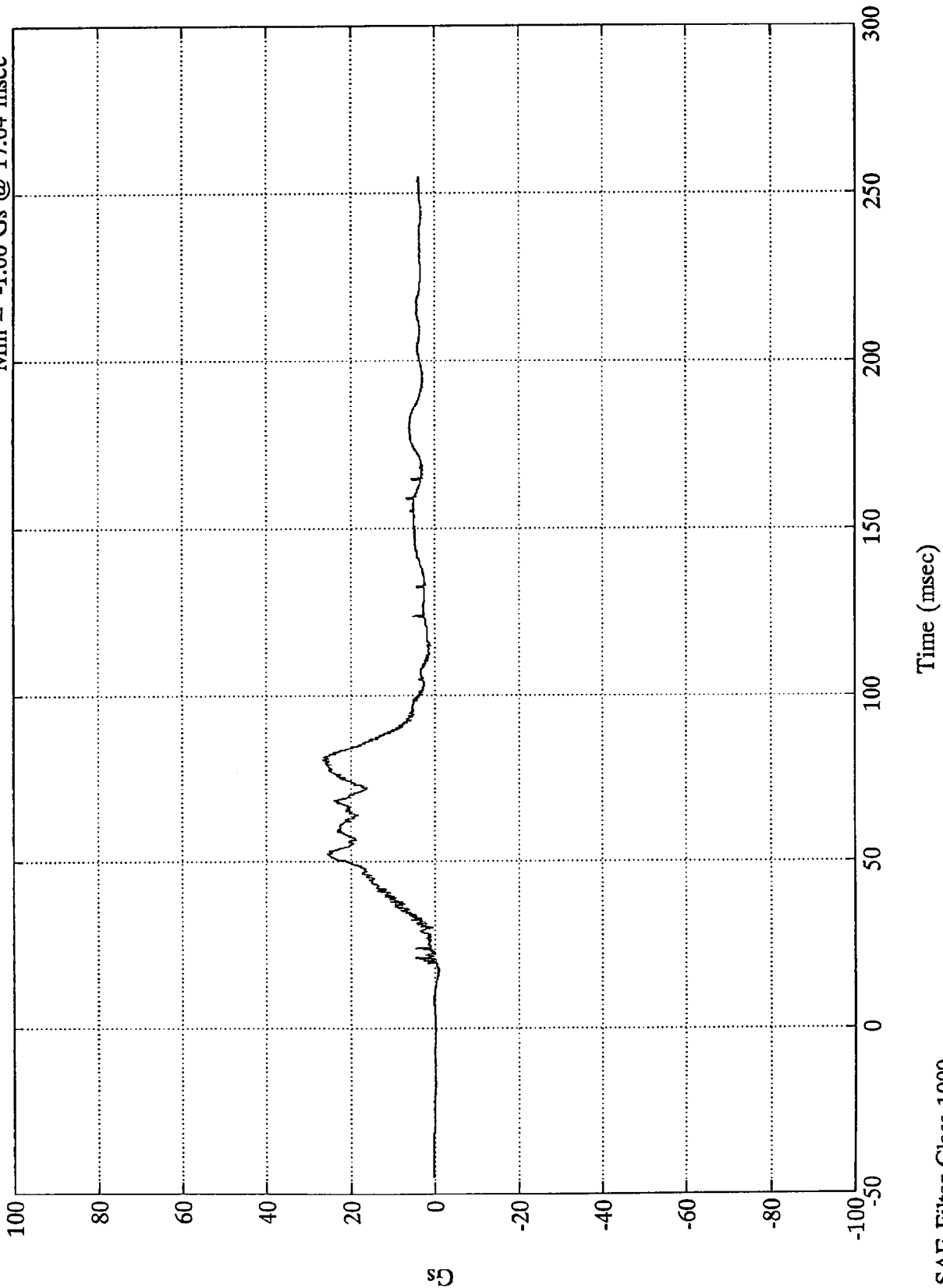


SAE Filter Class 1000

NCAP TEST #10 1993 HONDA ACCORD

Max = 26.64 Gs @ 80.64 msec
Min = -1.00 Gs @ 17.64 msec

Pos. 1 Head Z



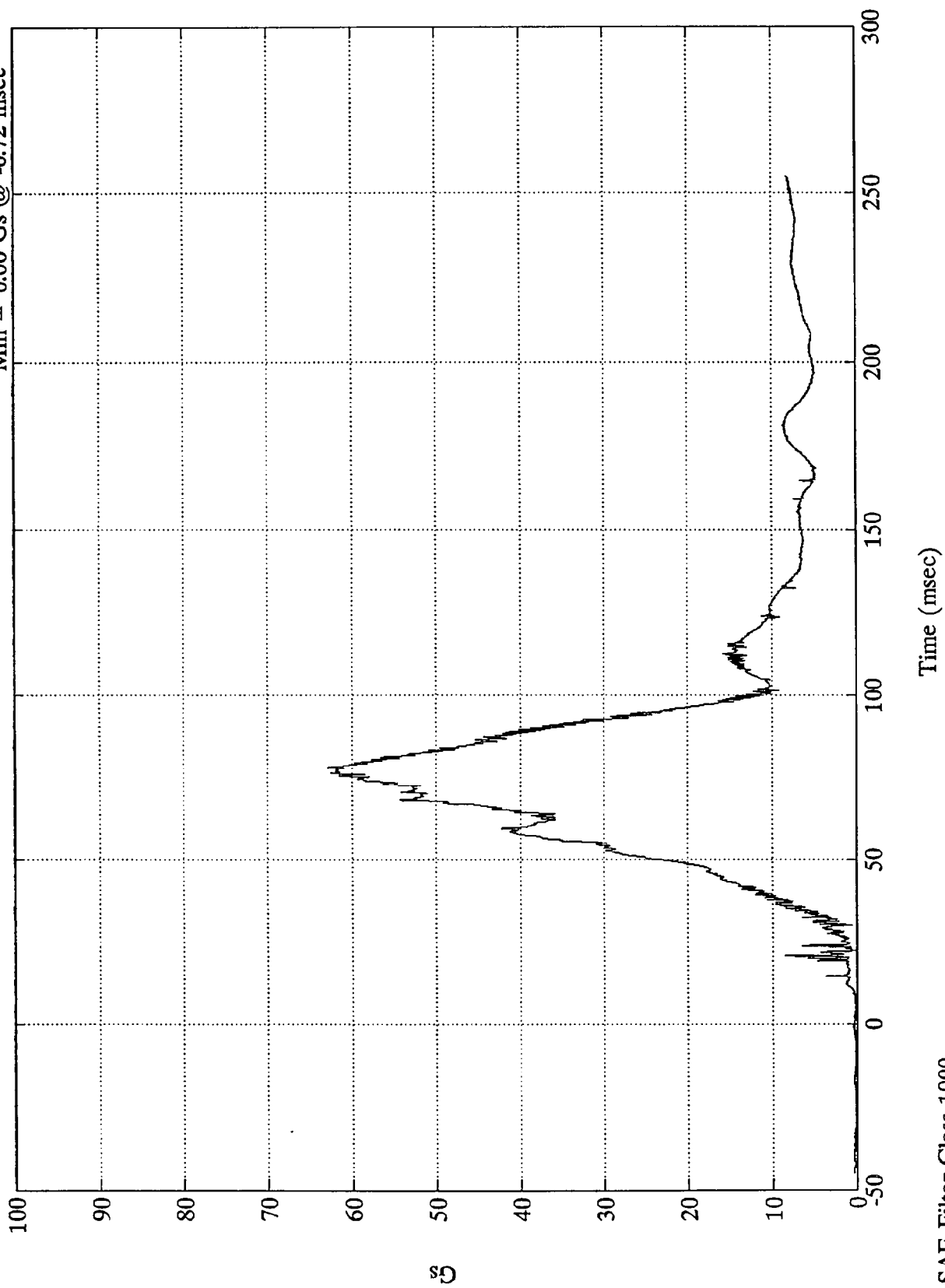
Gs
B-75

8058-6

SAE Filter Class 1000

NCAP TEST #10 1993 HONDA ACCORD

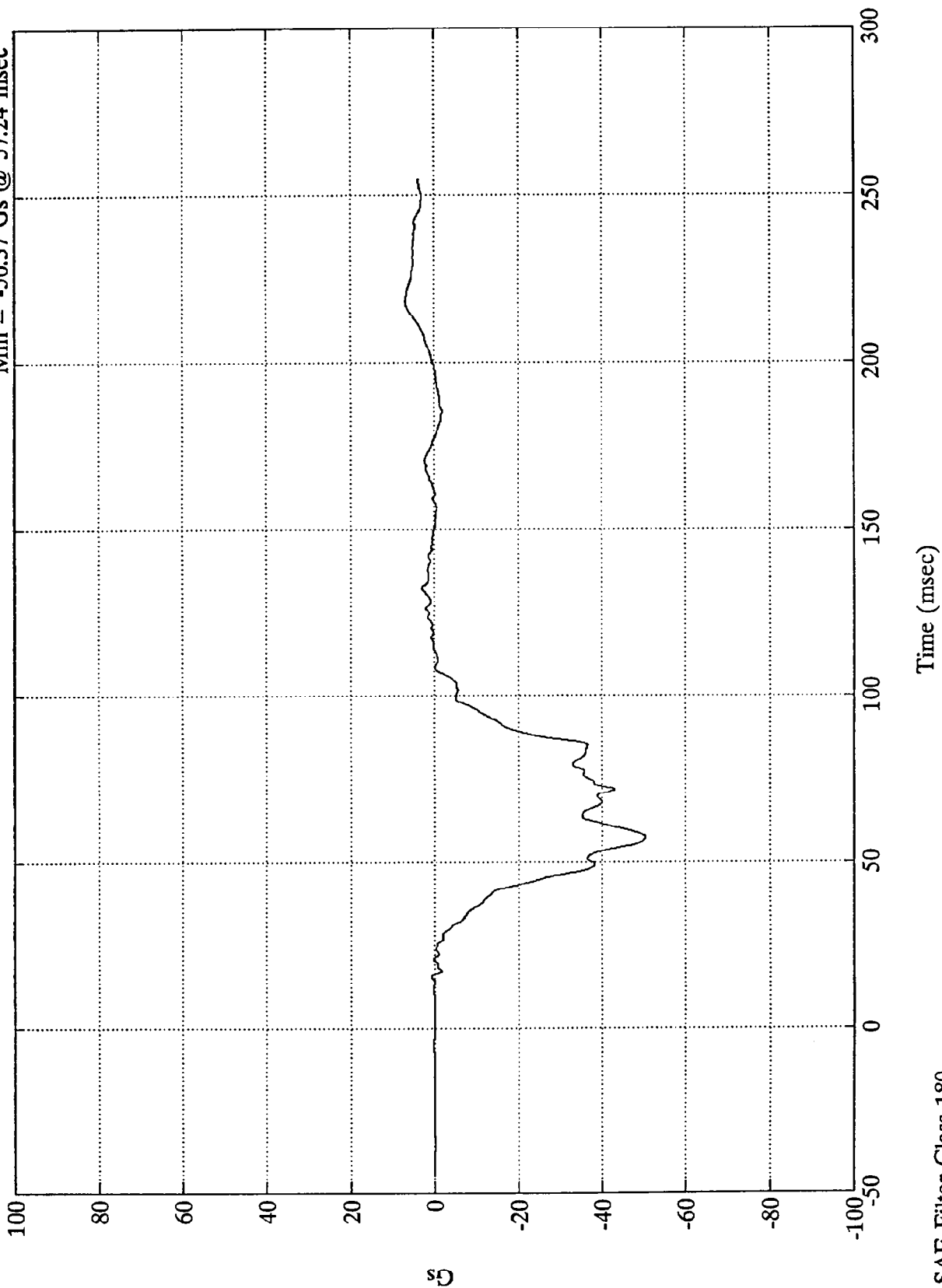
Pos. 1 Head Resultant
Max = 62.93 Gs @ 77.88 msec
Min = 0.06 Gs @ -6.72 msec



NCAP TEST #10 1993 HONDA ACCORD

Max = 6.85 Gs @ 218.40 msec
Min = -50.37 Gs @ 57.24 msec

Pos. 1 Chest X



Gs
B-77

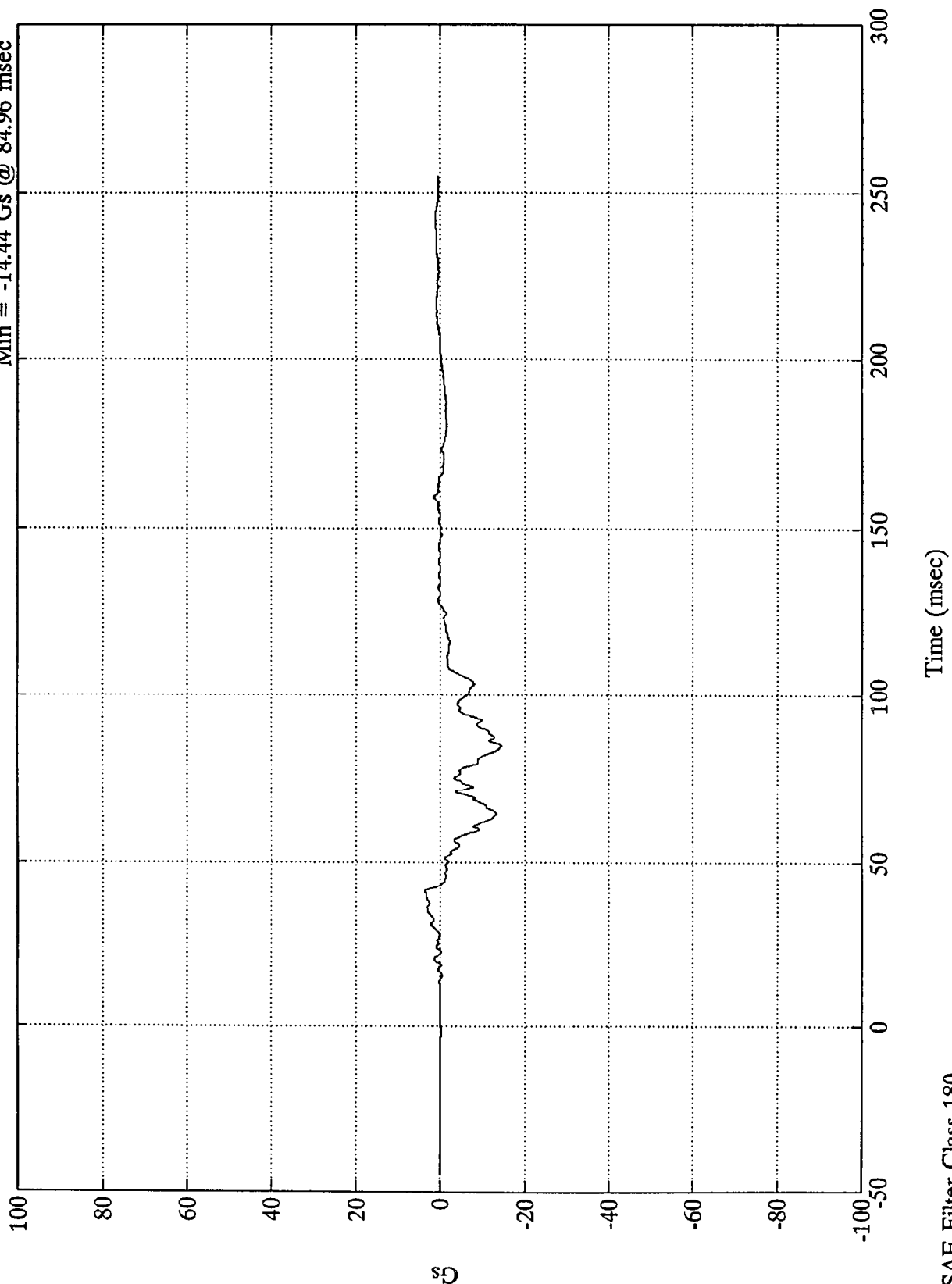
8058-6

SAE Filter Class 180

NCAP TEST #10 1993 HONDA ACCORD

Max = 3.66 Gs @ 41.16 msec
Min = -14.44 Gs @ 84.96 msec

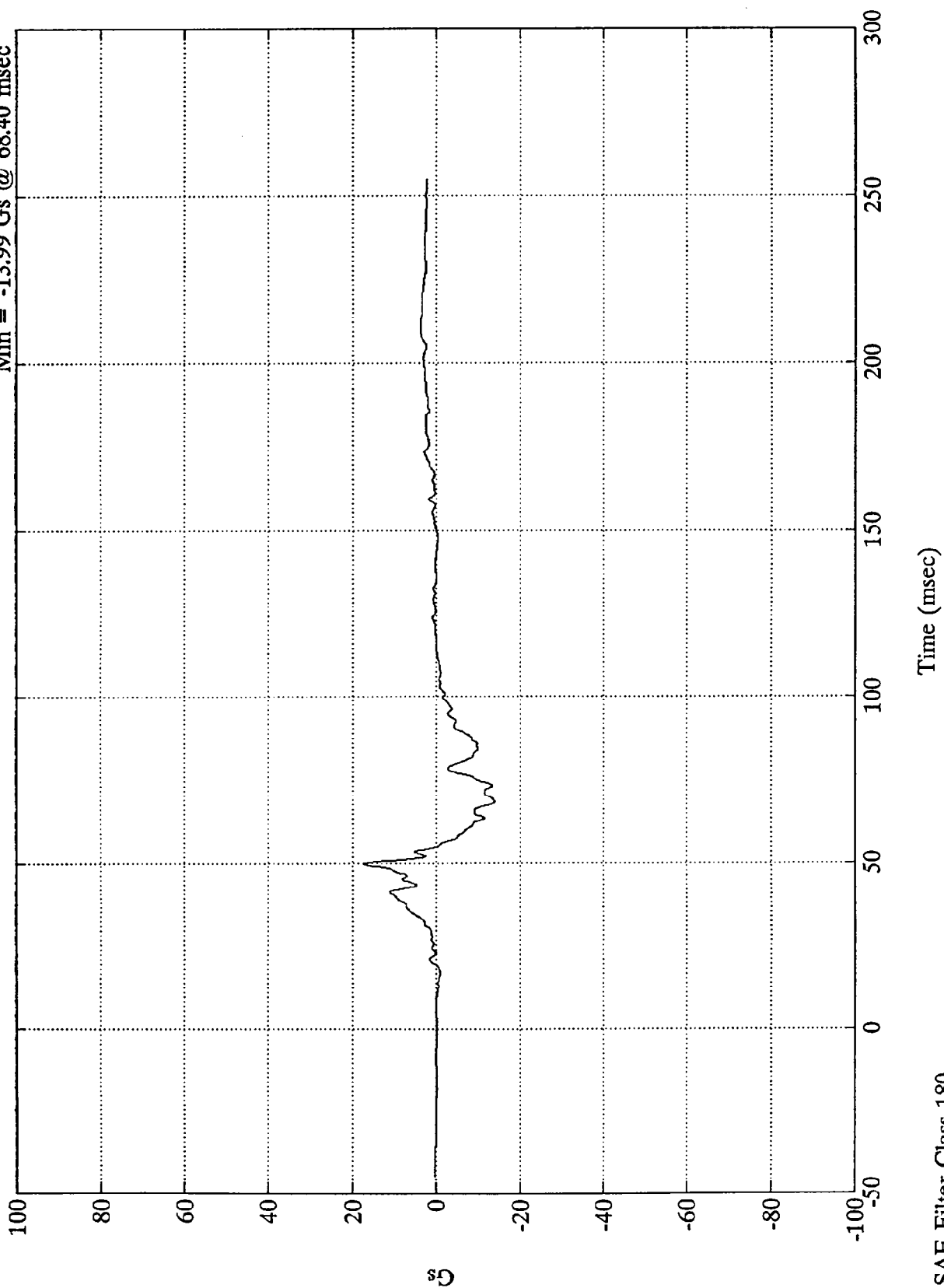
Pos. 1 Chest Y



NCAP TEST #10 1993 HONDA ACCORD

Max = 17.28 Gs @ 49.92 msec
Min = -13.99 Gs @ 68.40 msec

Pos. 1 Chest Z



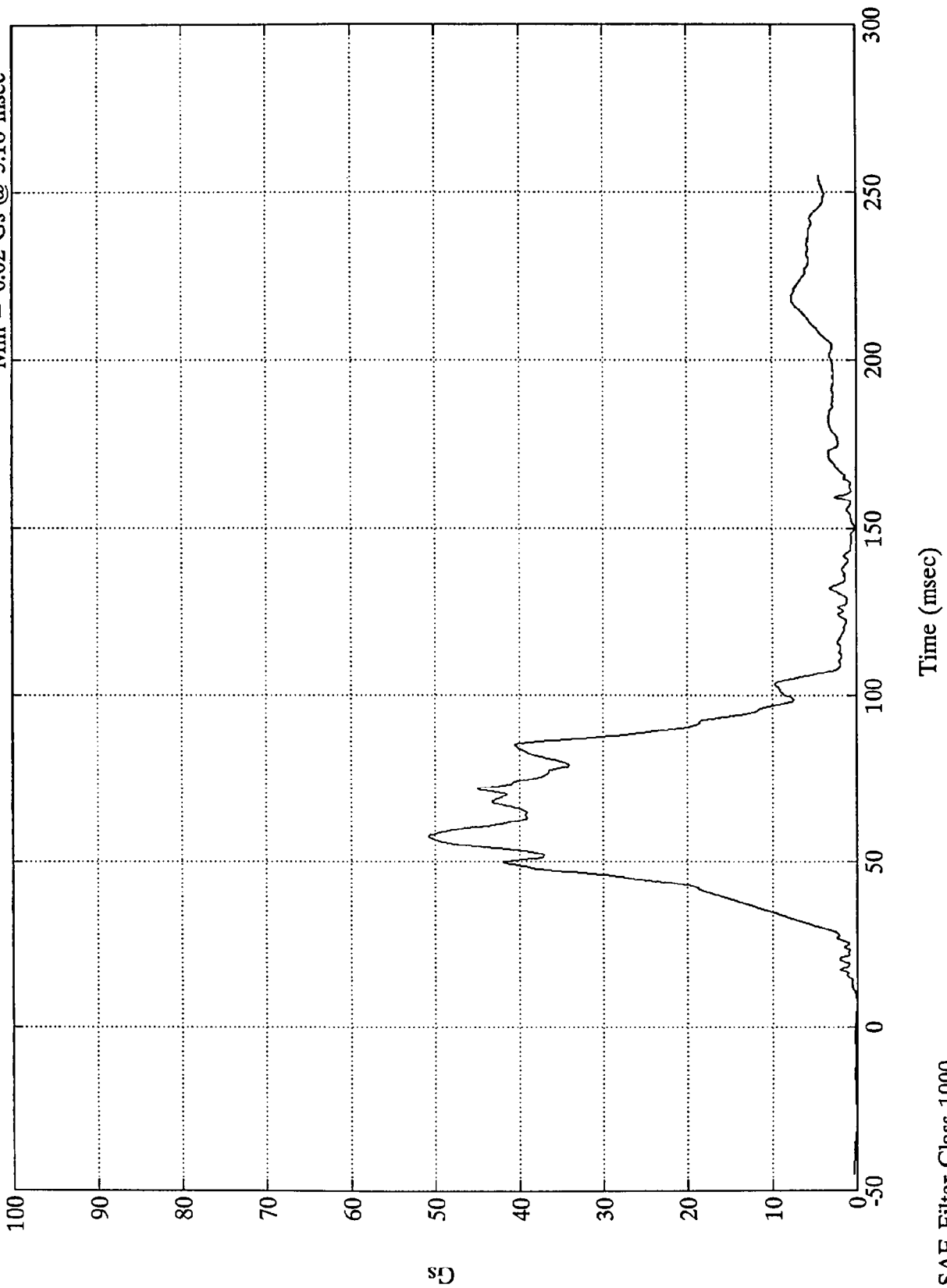
B-79

8058-6

SAE Filter Class 180

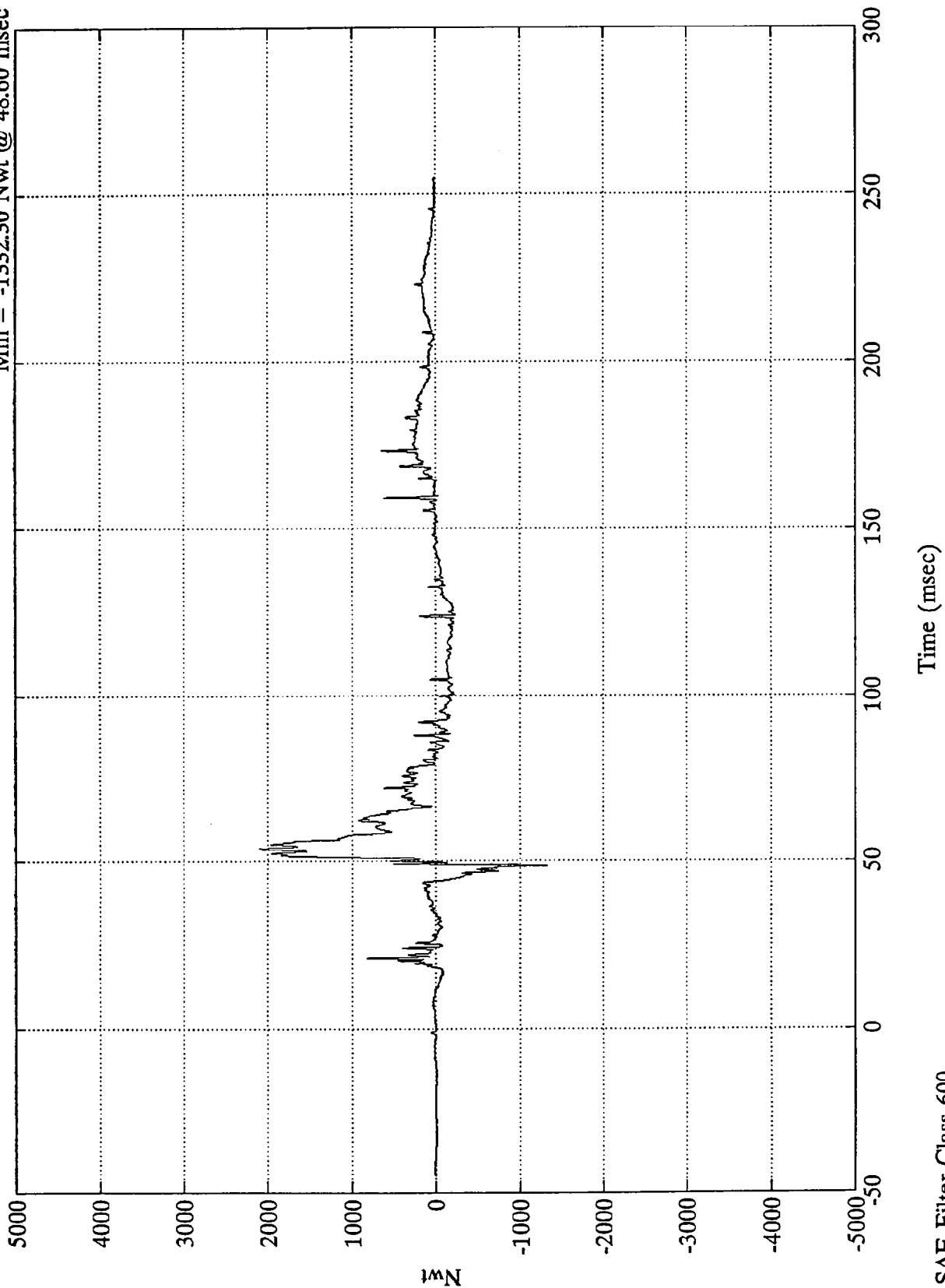
NCAP TEST #10 1993 HONDA ACCORD

Pos. 1 Chest Resultant
Max = 50.77 Gs @ 57.48 msec
Min = 0.02 Gs @ 5.16 msec



NCAP TEST #10 1993 HONDA ACCORD

Pos. 1 Left Femur
Max = 2100.36 Nwt @ 53.64 msec
Min = -1332.30 Nwt @ 48.60 msec

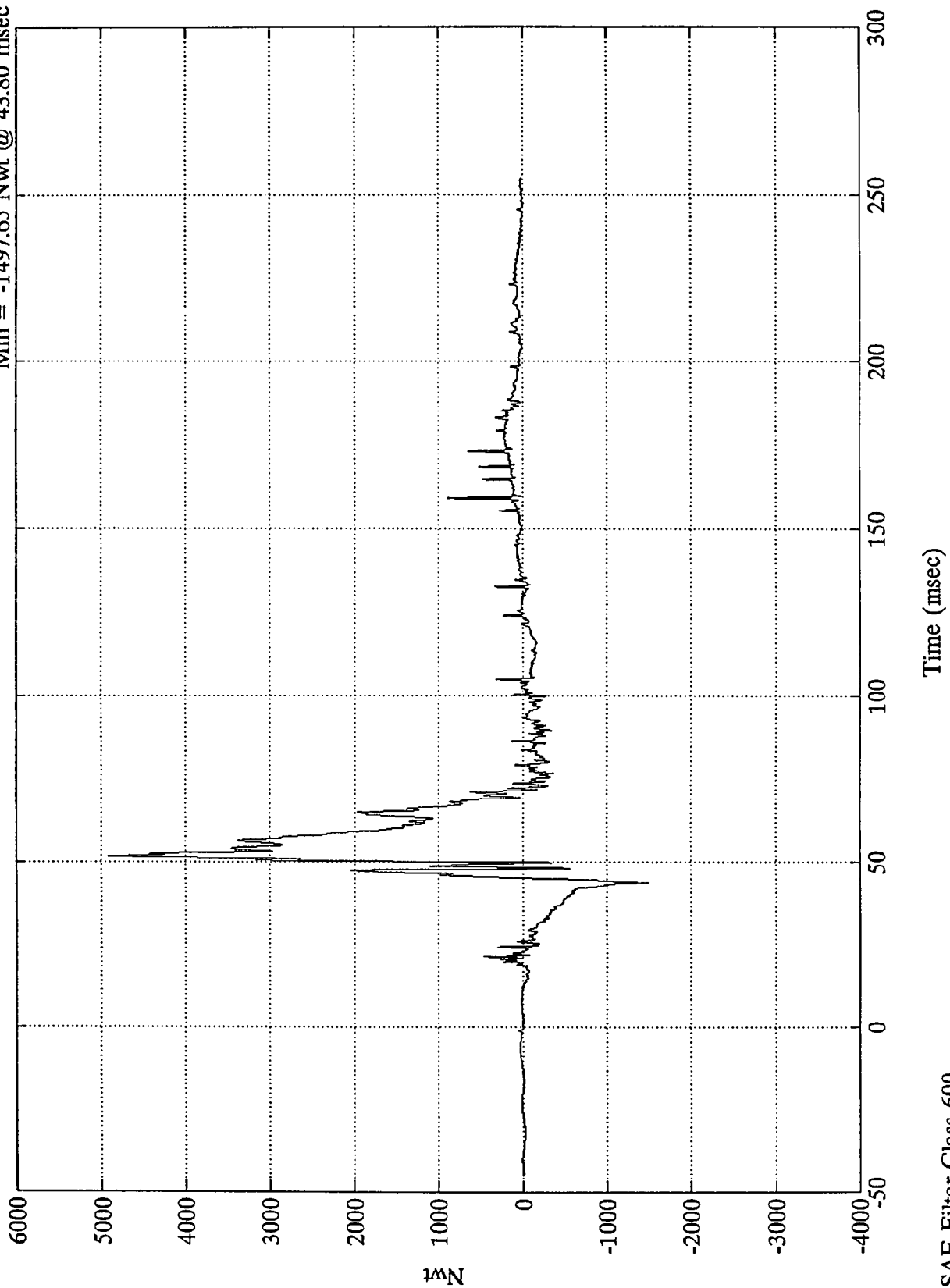


SAE Filter Class 600

NCAP TEST #10 1993 HONDA ACCORD

Pos. 1 Right Femur

Max = 4919.02 Nwt @ 51.72 msec
Min = -1497.65 Nwt @ 43.80 msec



B-82

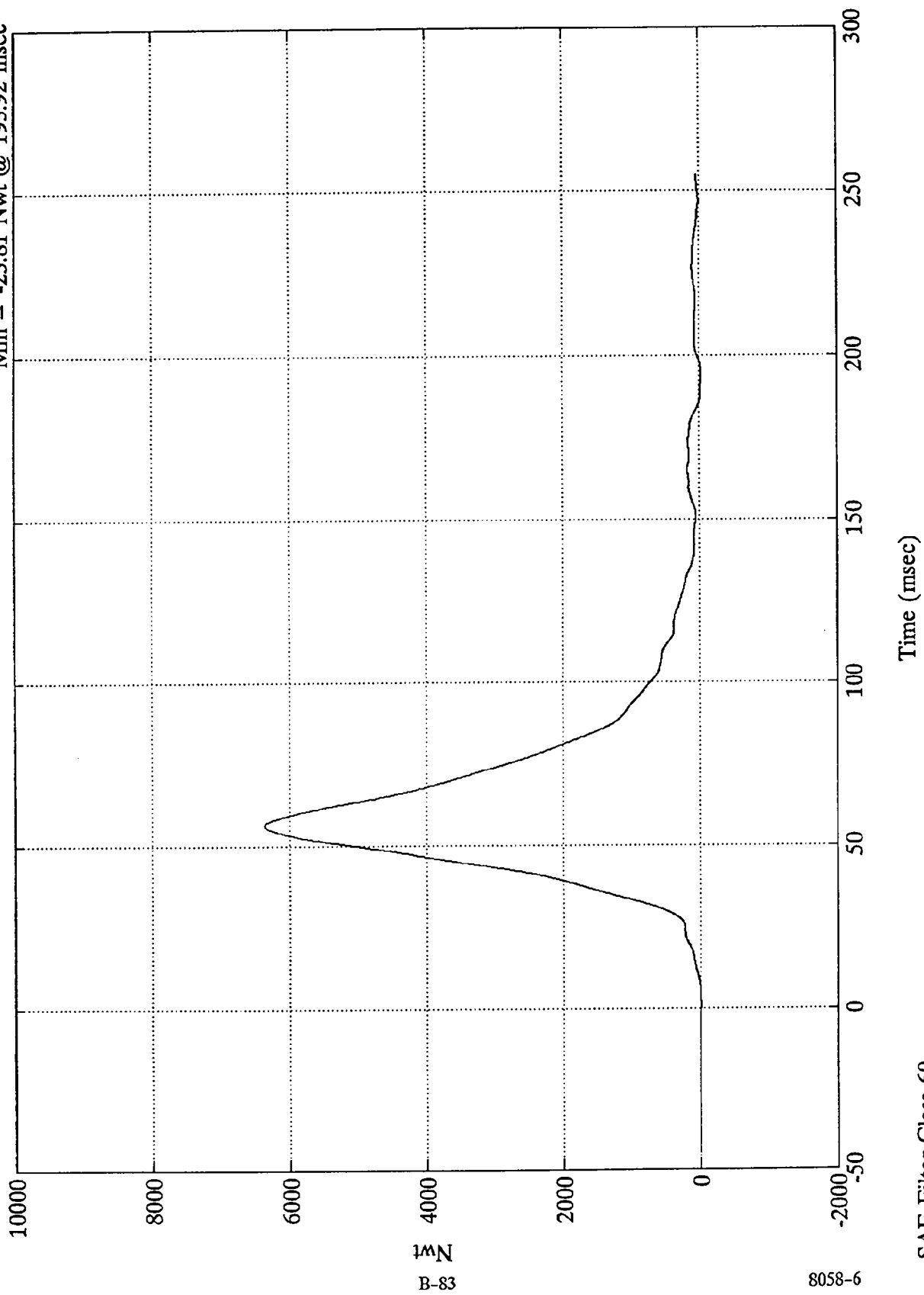
8058-6

SAE Filter Class 600

NCAP TEST #10 1993 HONDA ACCORD

Pos. 1 Left Belt Load

Max = 6368.95 Nwt @ 56.16 msec
Min = -23.81 Nwt @ 193.92 msec

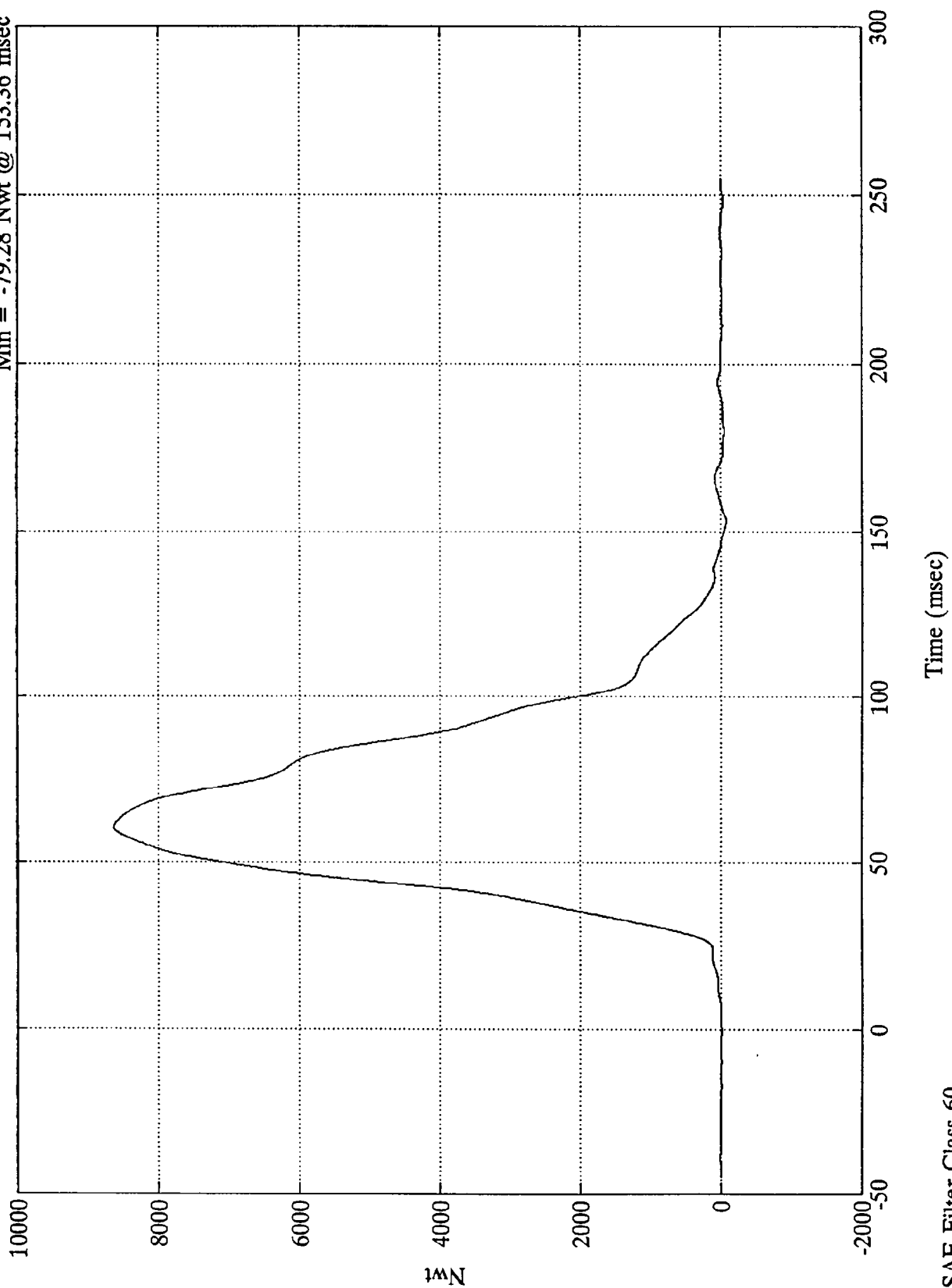


SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Max = 8631.26 Nwt @ 60.36 msec
Min = -79.28 Nwt @ 153.36 msec

Pos. 1 Torso Belt Load

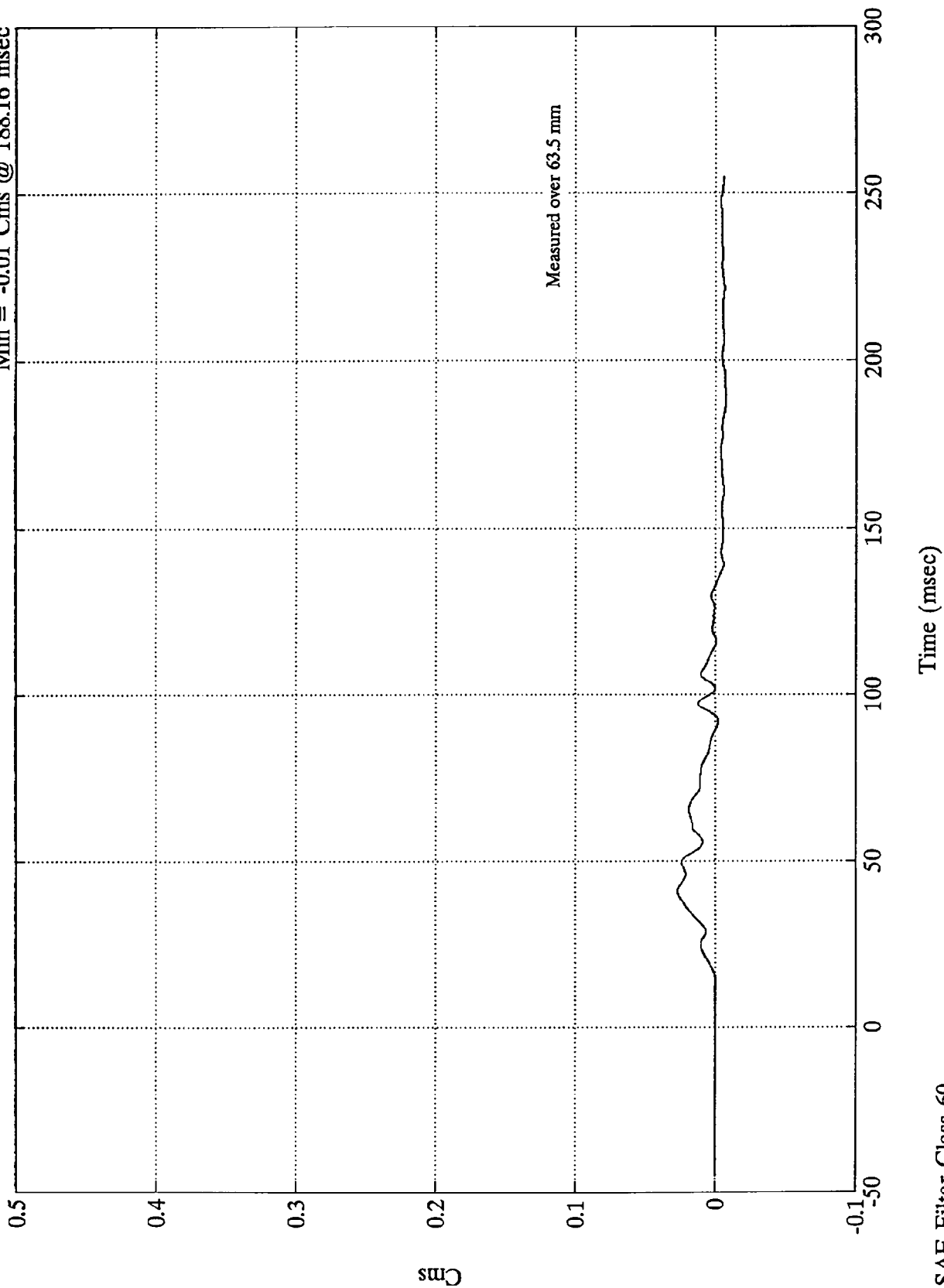


SAE Filter Class 60

NCAP TEST #10 1993 HONDA ACCORD

Pos. 1 Belt Elongation

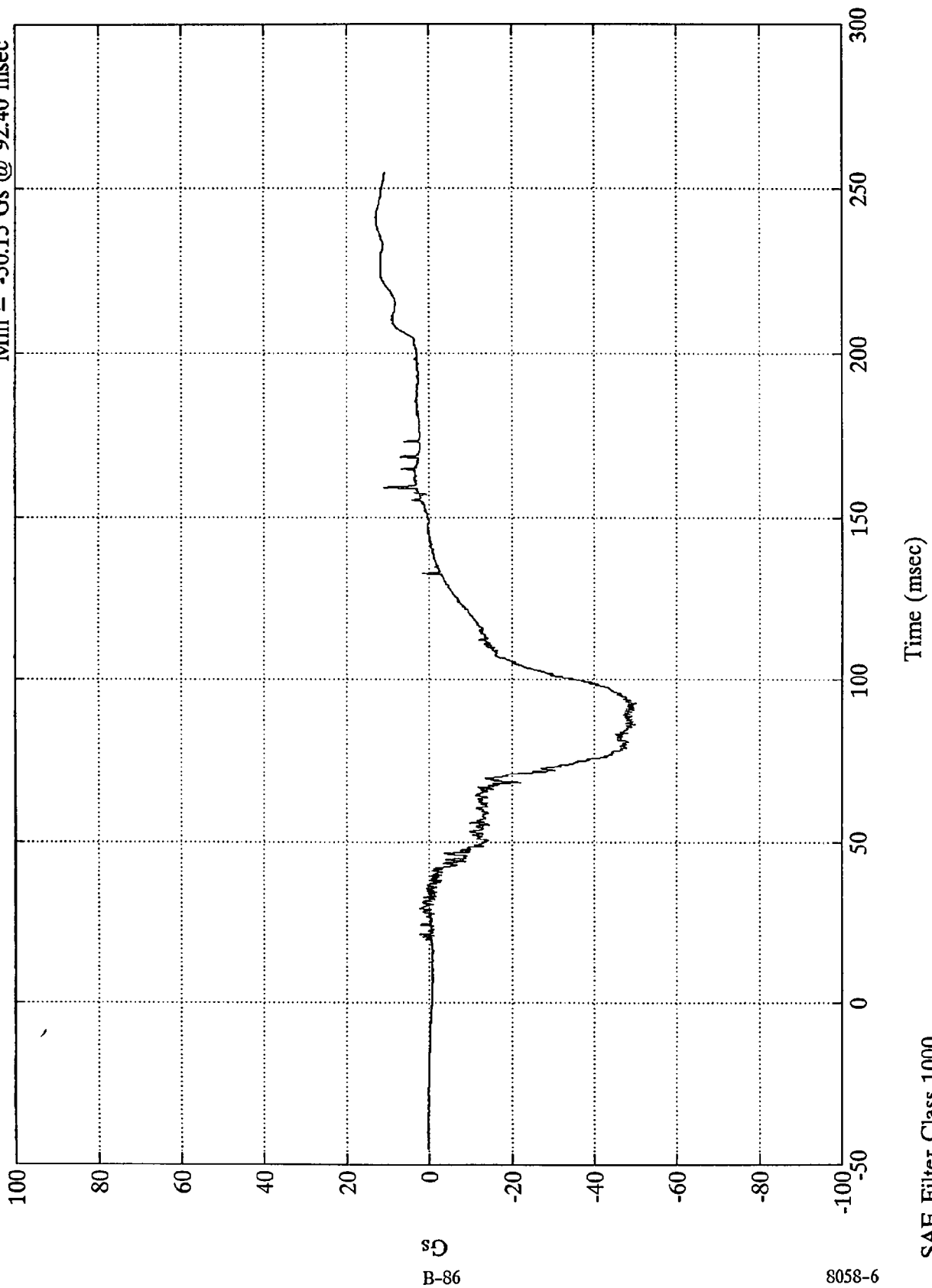
Max = 0.03 Cms @ 40.92 msec
Min = -0.01 Cms @ 188.16 msec



NCAP TEST #10 1993 HONDA ACCORD

Pos. 2 Head X

Max = 12.97 Gs @ 240.84 msec
Min = -50.15 Gs @ 92.40 msec

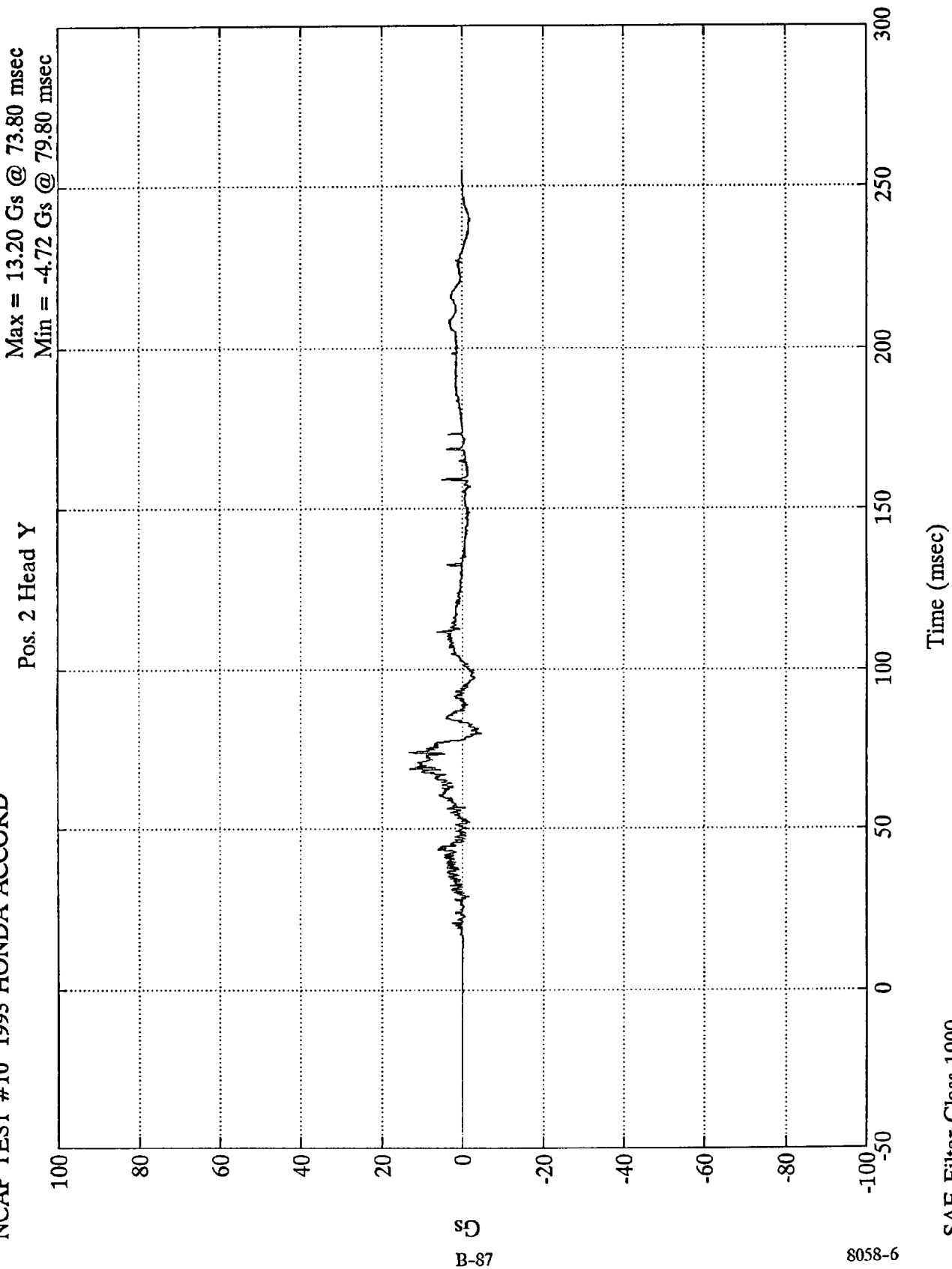


B-86

8058-6

SAE Filter Class 1000

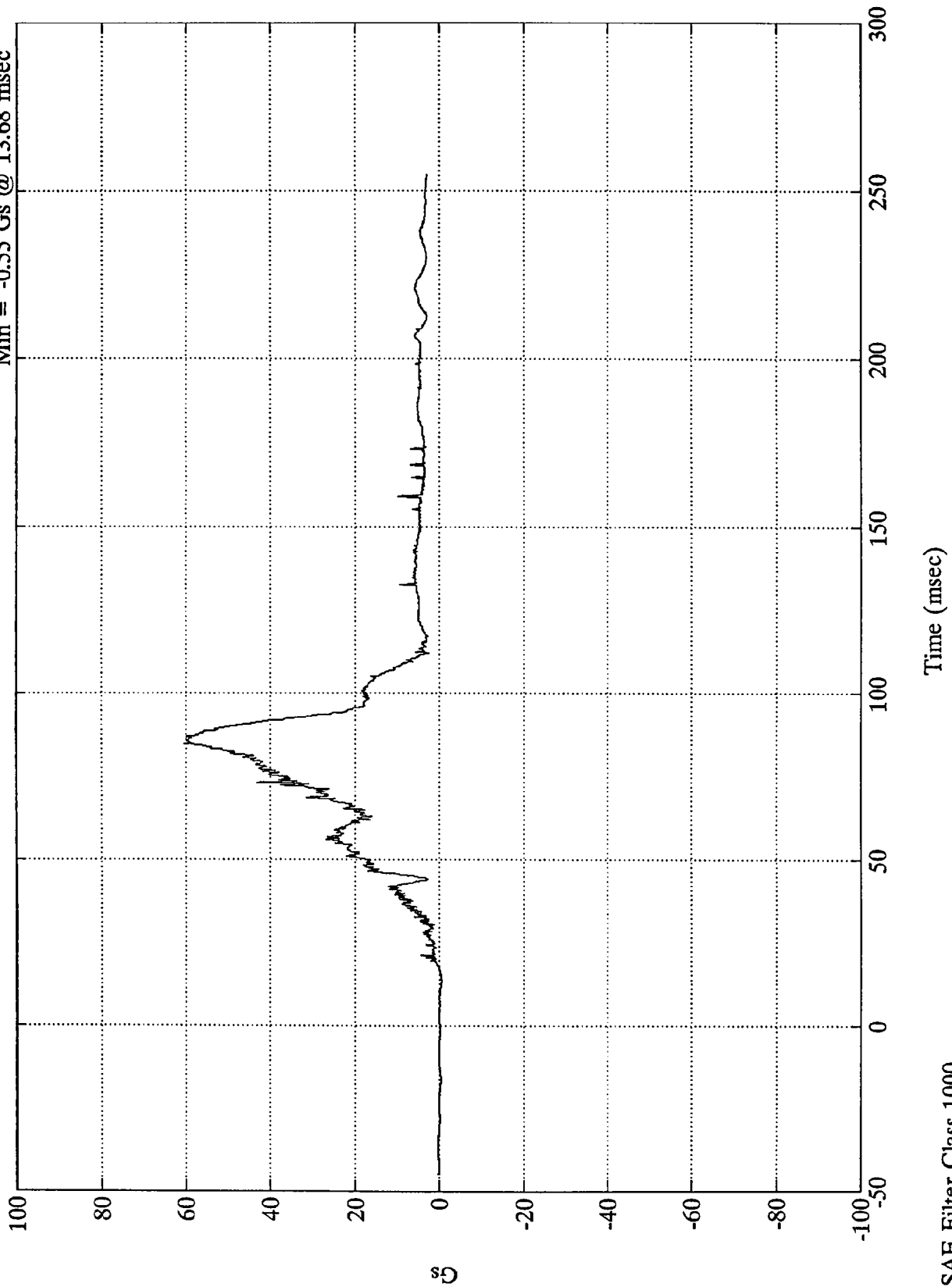
NCAP TEST #10 1993 HONDA ACCORD



NCAP TEST #10 1993 HONDA ACCORD

Pos. 2 Head Z

Max = 60.45 Gs @ 84.60 msec
Min = -0.55 Gs @ 13.68 msec



B-88

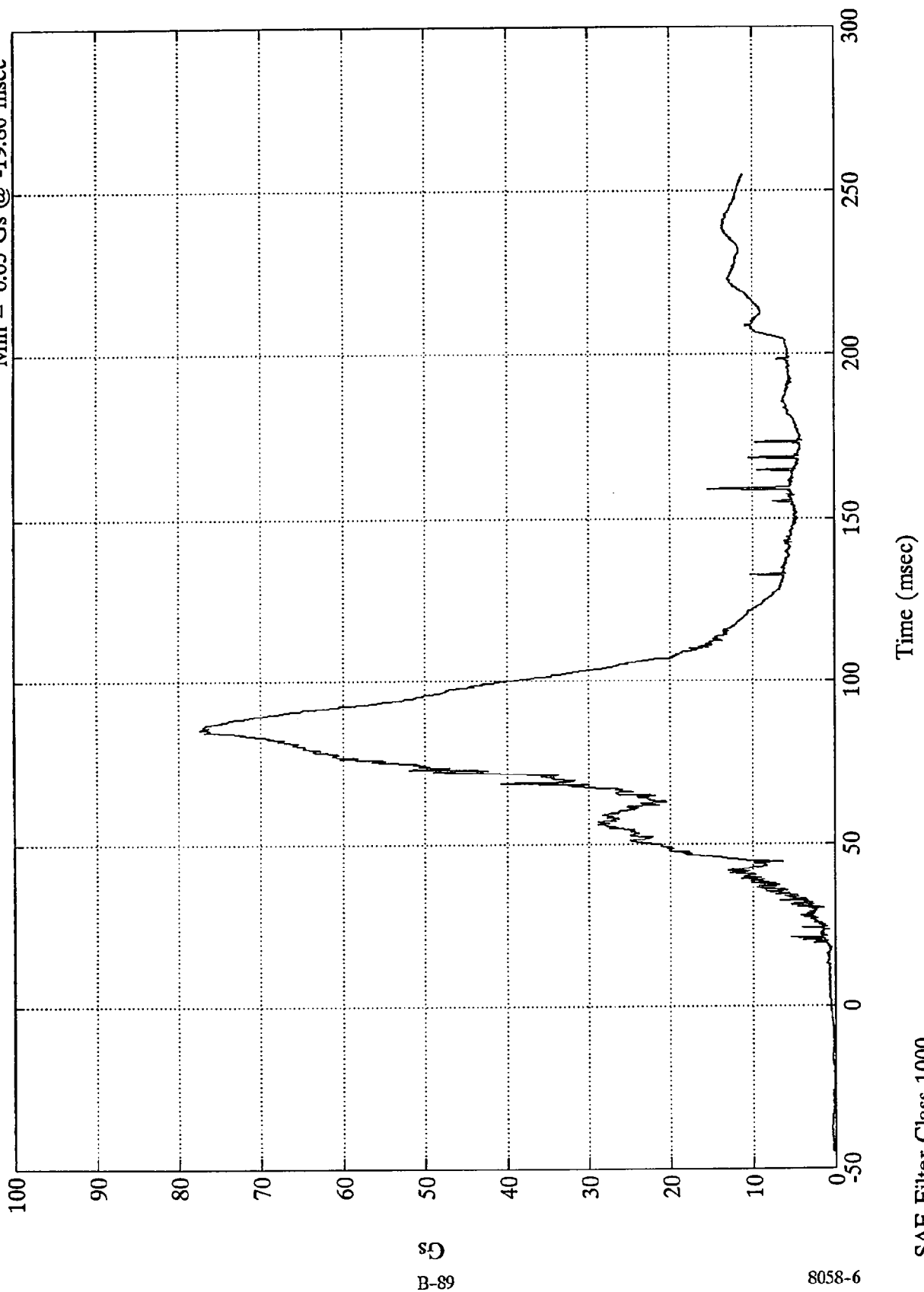
8058-6

SAE Filter Class 1000

NCAP TEST #10 1993 HONDA ACCORD

Pos. 2 Head Resultant

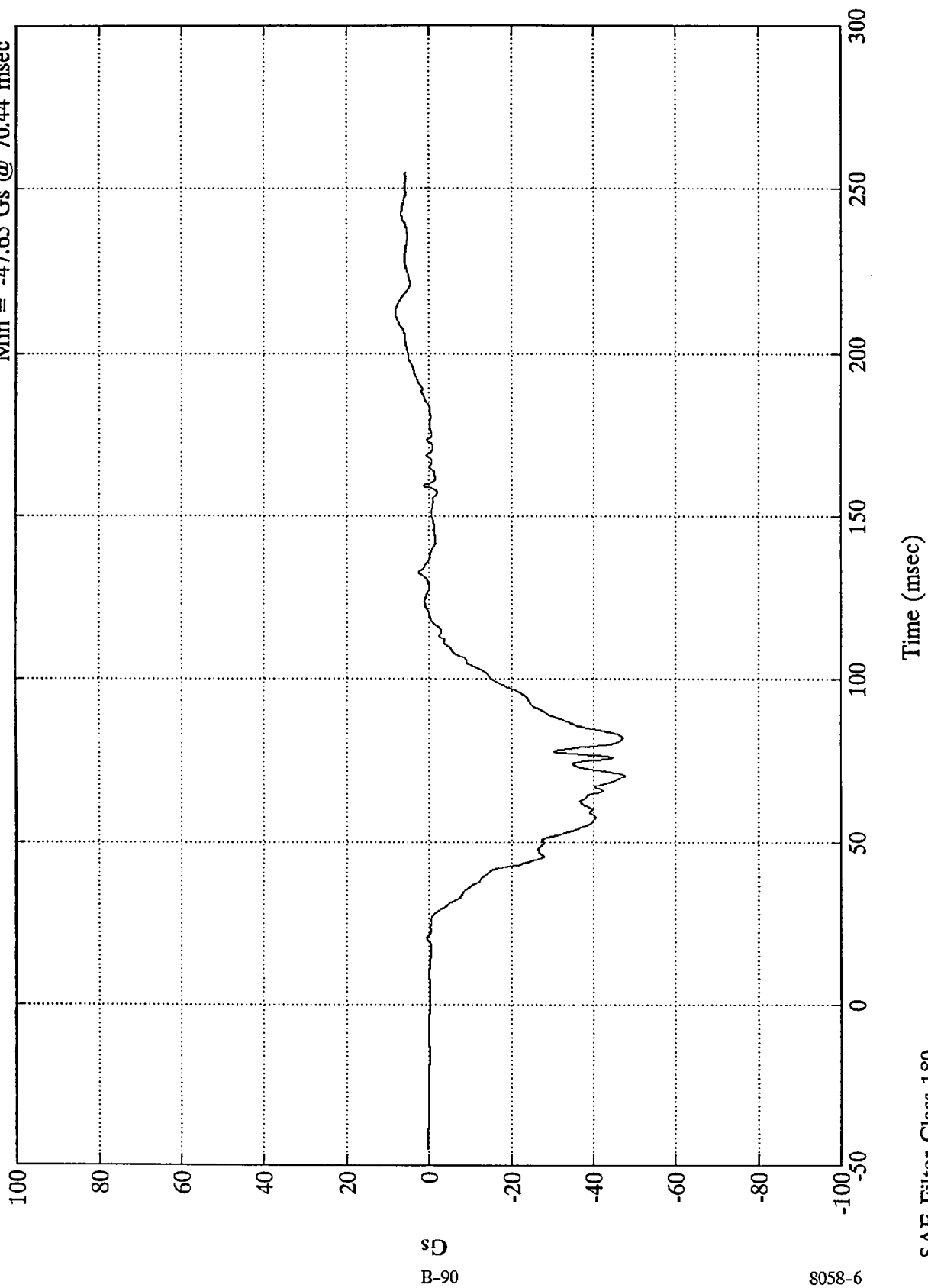
Max = 77.43 Gs @ 85.56 msec
Min = 0.05 Gs @ -19.80 msec



NCAP TEST #10 1993 HONDA ACCORD

Max = 8.17 Gs @ 212.16 msec
Min = -47.65 Gs @ 70.44 msec

Pos. 2 Chest X

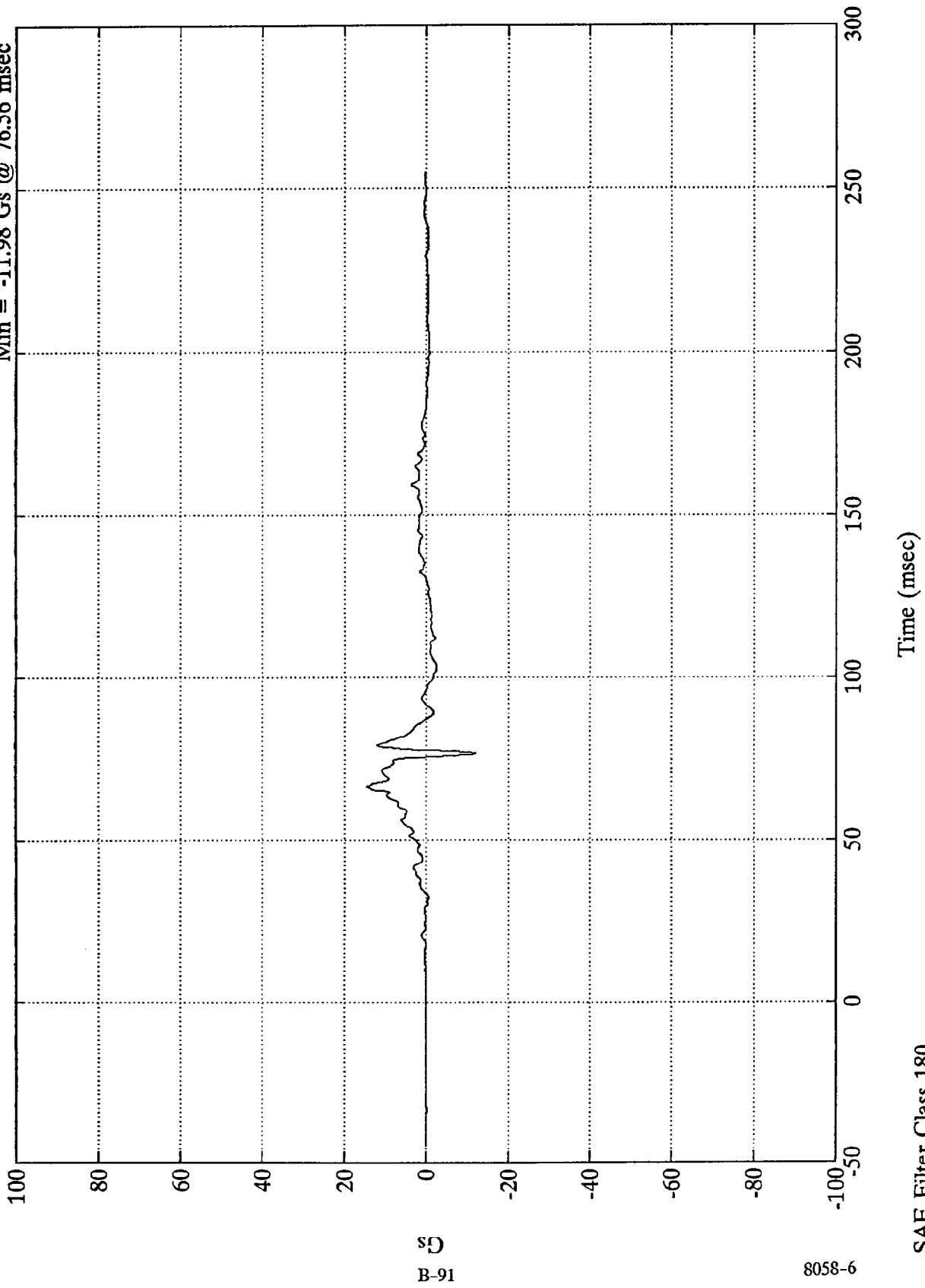


SAE Filter Class 180

NCAP TEST #10 1993 HONDA ACCORD

Pos. 2 Chest Y

Max = 14.65 Gs @ 66.24 msec
Min = -11.98 Gs @ 76.56 msec



B-91

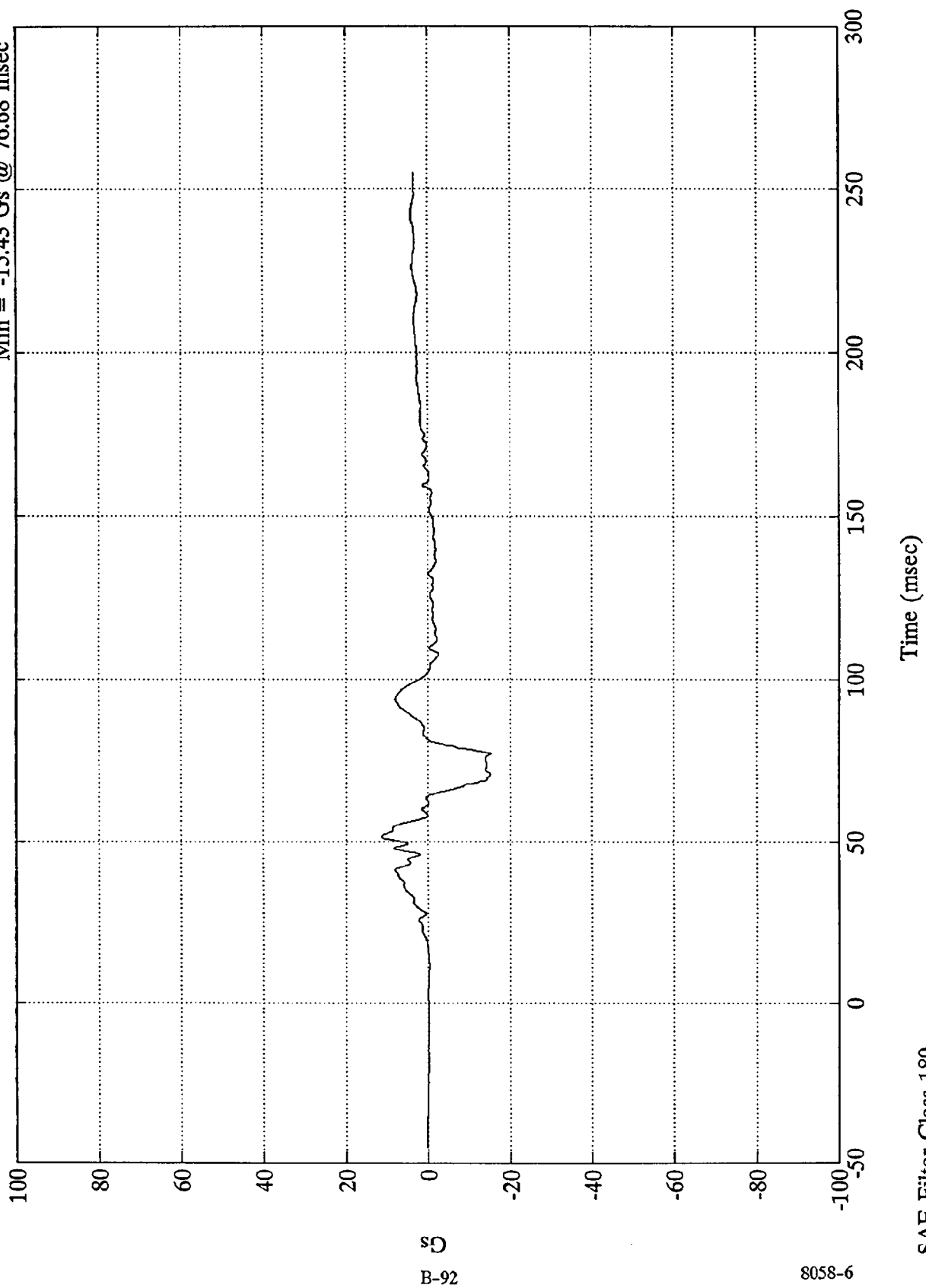
8058-6

SAE Filter Class 180

NCAP TEST #10 1993 HONDA ACCORD

Max = 11.23 Gs @ 51.60 msec
Min = -15.43 Gs @ 76.68 msec

Pos. 2 Chest Z



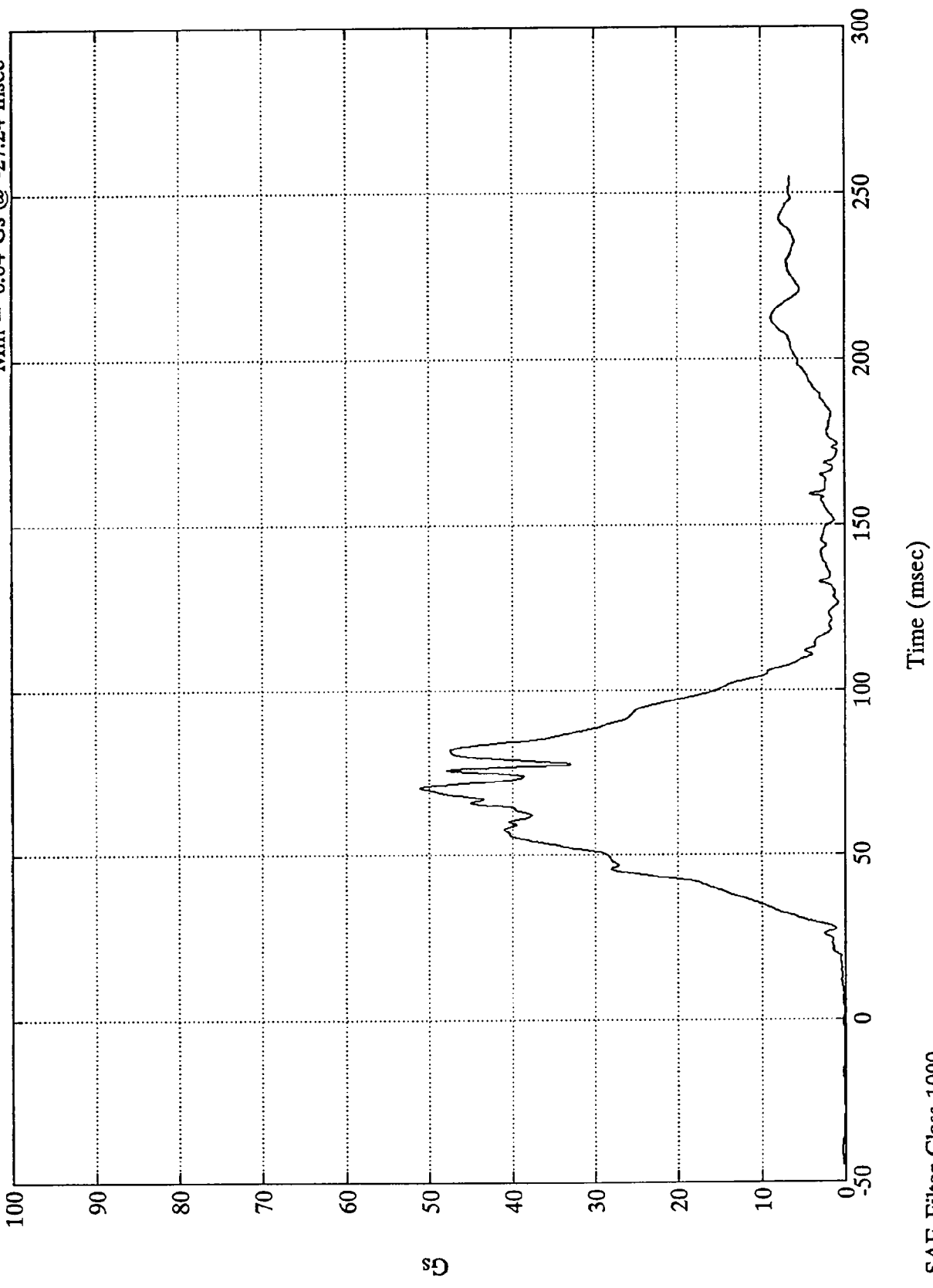
SAE Filter Class 180

8058-6

NCAP TEST #10 1993 HONDA ACCORD

Pos. 2 Chest Resultant

Max = 51.13 Gs @ 70.44 msec
Min = 0.04 Gs @ -27.24 msec



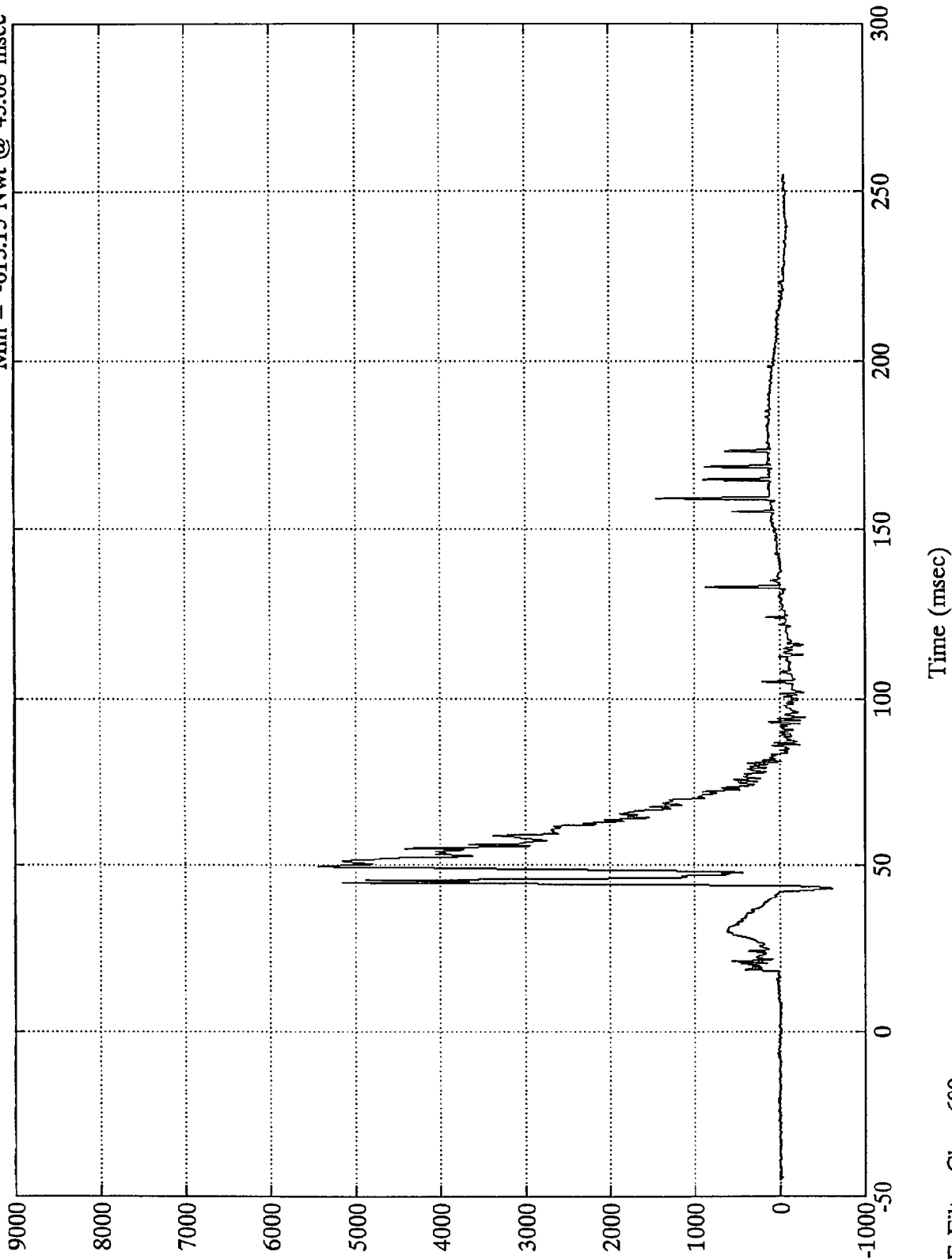
B-93

8058-6

SAE Filter Class 1000

NCAP TEST #10 1993 HONDA ACCORD

Pos. 2 Left Femur
Max = 5439.05 Nwt @ 49.56 msec
Min = -613.13 Nwt @ 43.08 msec



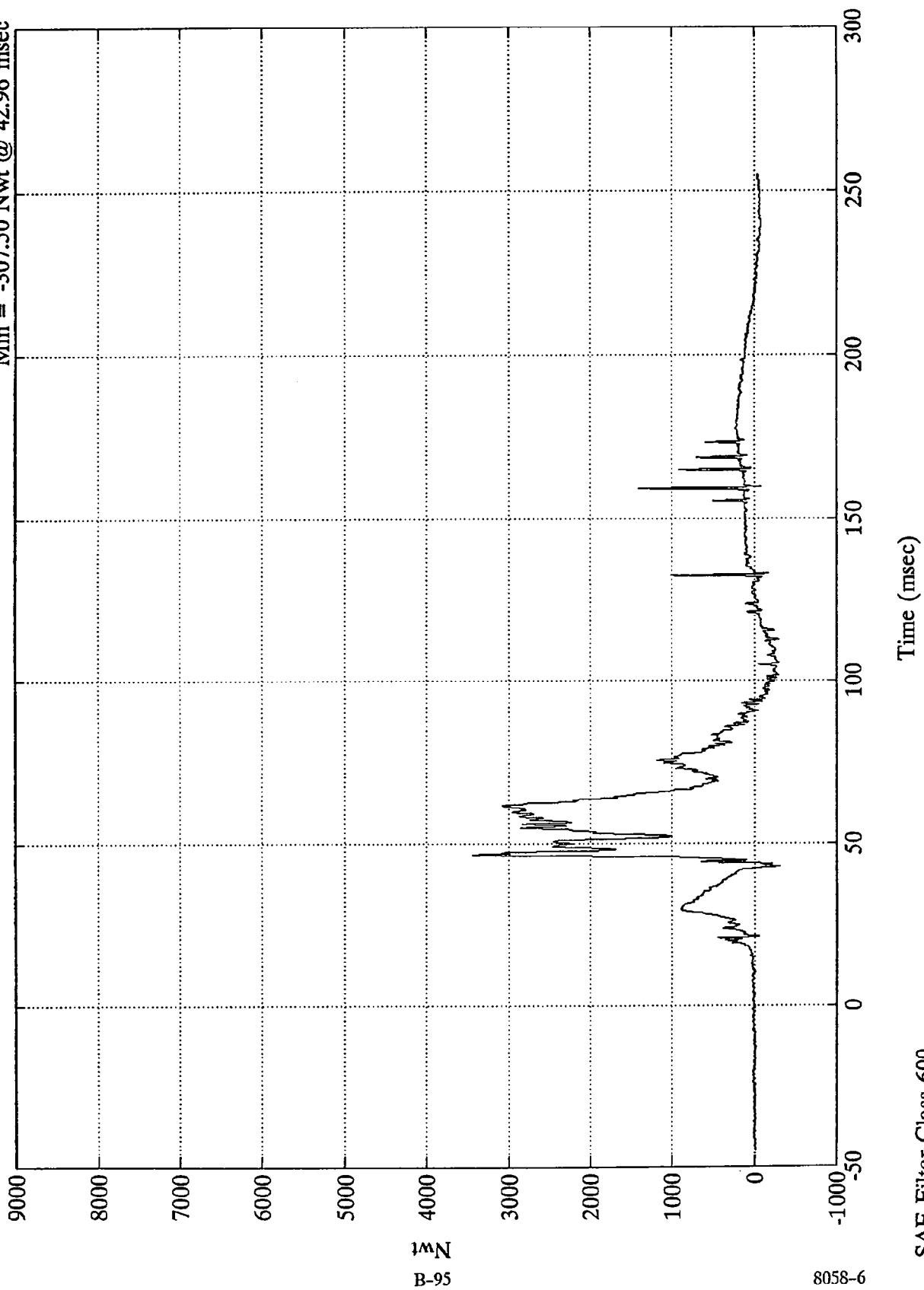
1Nwt
B-94

8058-6

SAE Filter Class 600

NCAP TEST #10 1993 HONDA ACCORD

Pos. 2 Right Femur
Max = 3426.12 Nwt @ 46.68 msec
Min = -307.50 Nwt @ 42.96 msec



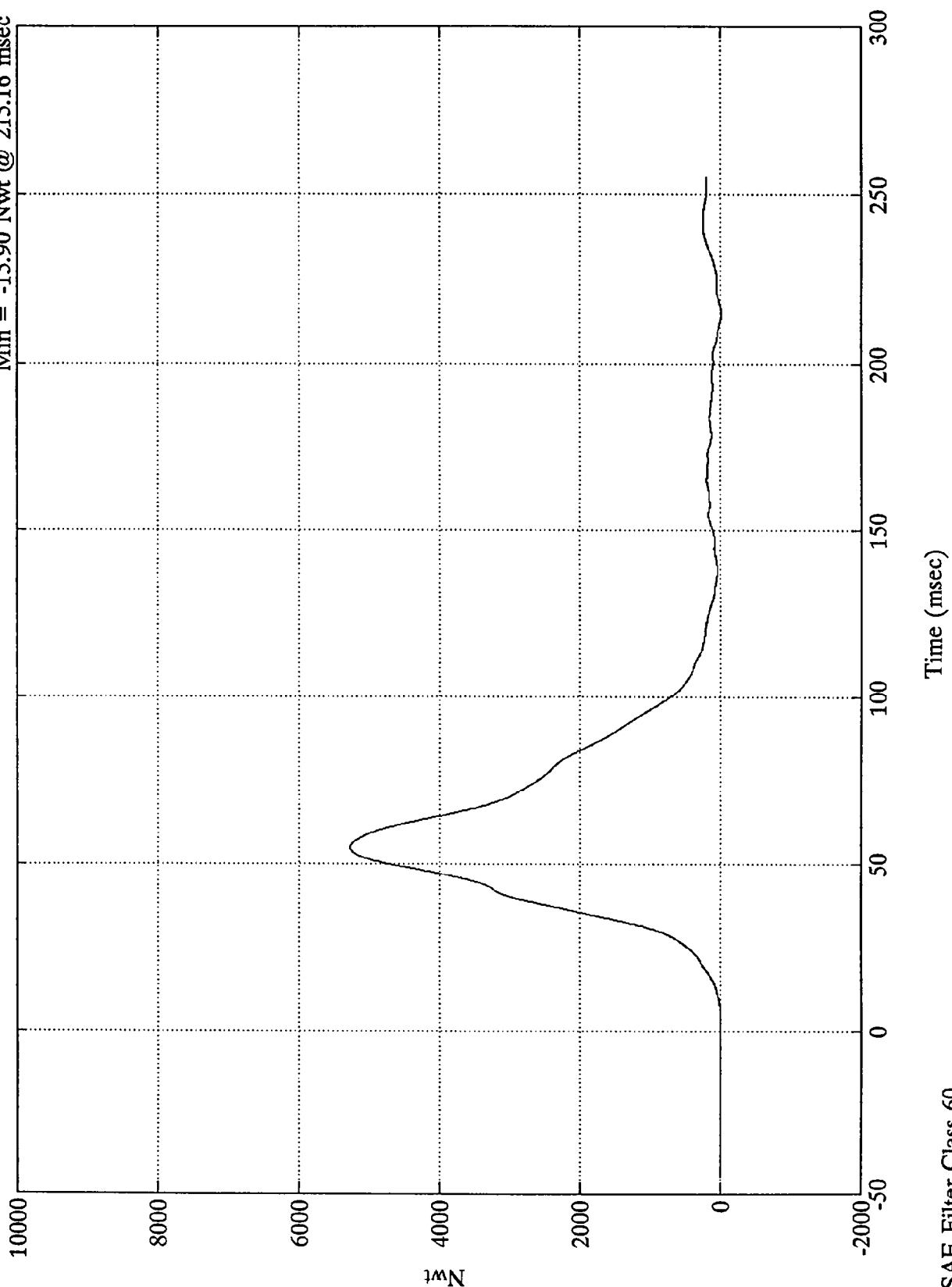
B-95

8058-6

SAE Filter Class 600

NCAP TEST #10 1993 HONDA ACCORD

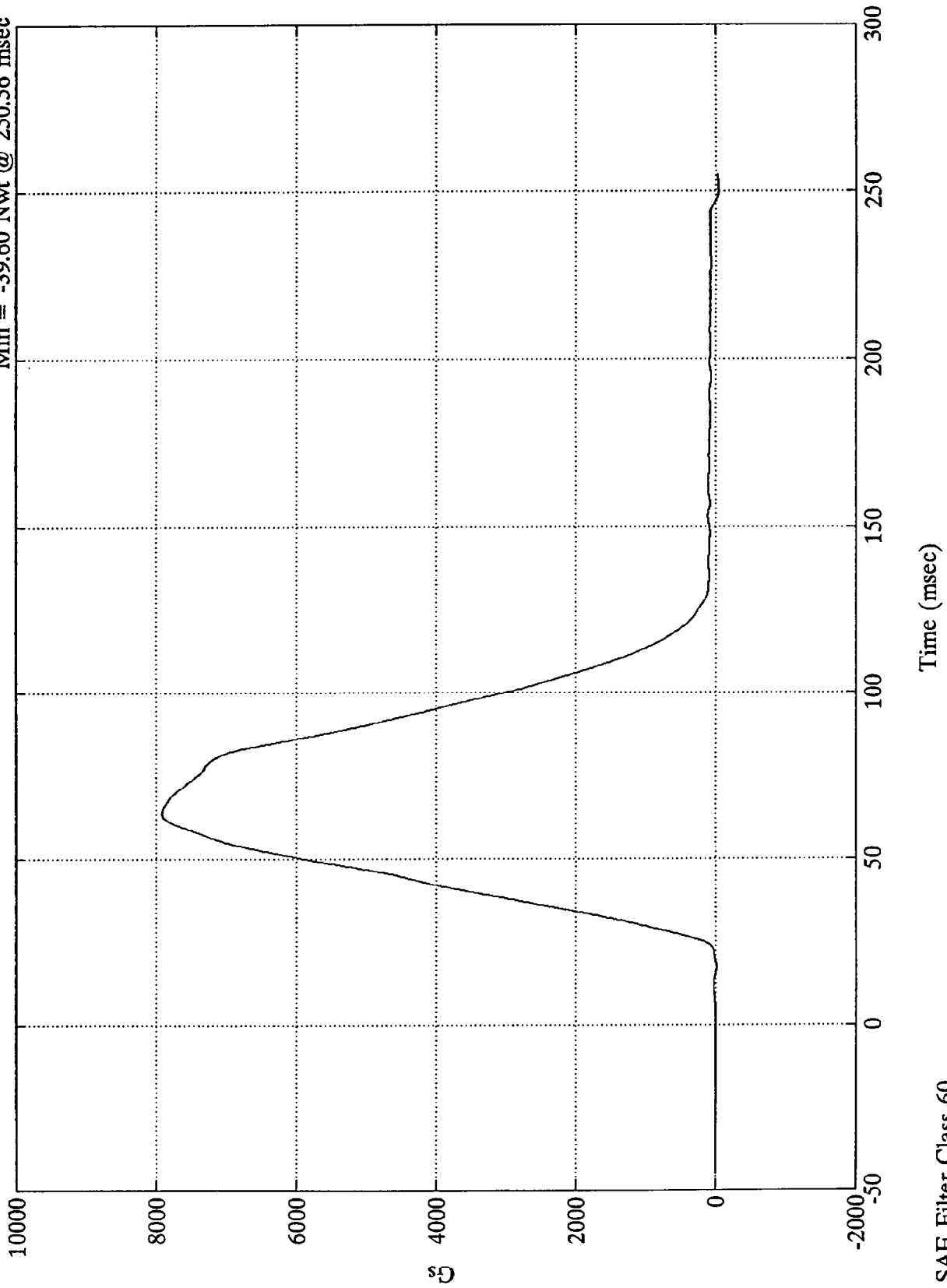
Pos. 2 Right Belt Load
Max = 5278.58 Nwt @ 54.84 msec
Min = -15.90 Nwt @ 215.16 msec



NCAP TEST #10 1993 HONDA ACCORD

Pos. 2 Torso Belt Load

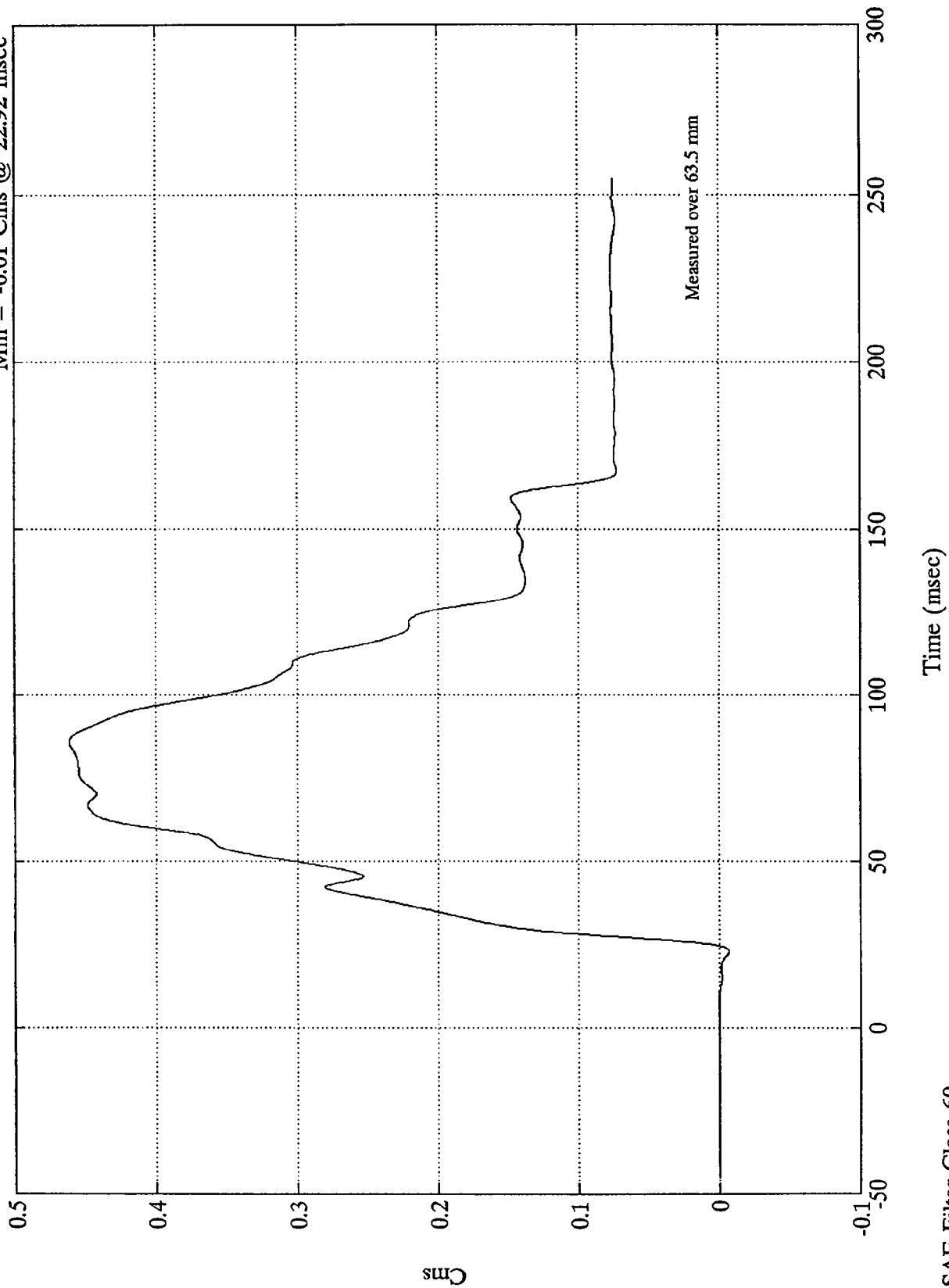
Max = 7915.16 Nwt @ 63.60 msec
Min = -39.60 Nwt @ 250.56 msec



NCAP TEST #10 1993 HONDA ACCORD

Pos. 2 Belt Elongation

Max = 0.46 Cms @ 85.68 msec
Min = -0.01 Cms @ 22.92 msec



B-98

8058-6

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:

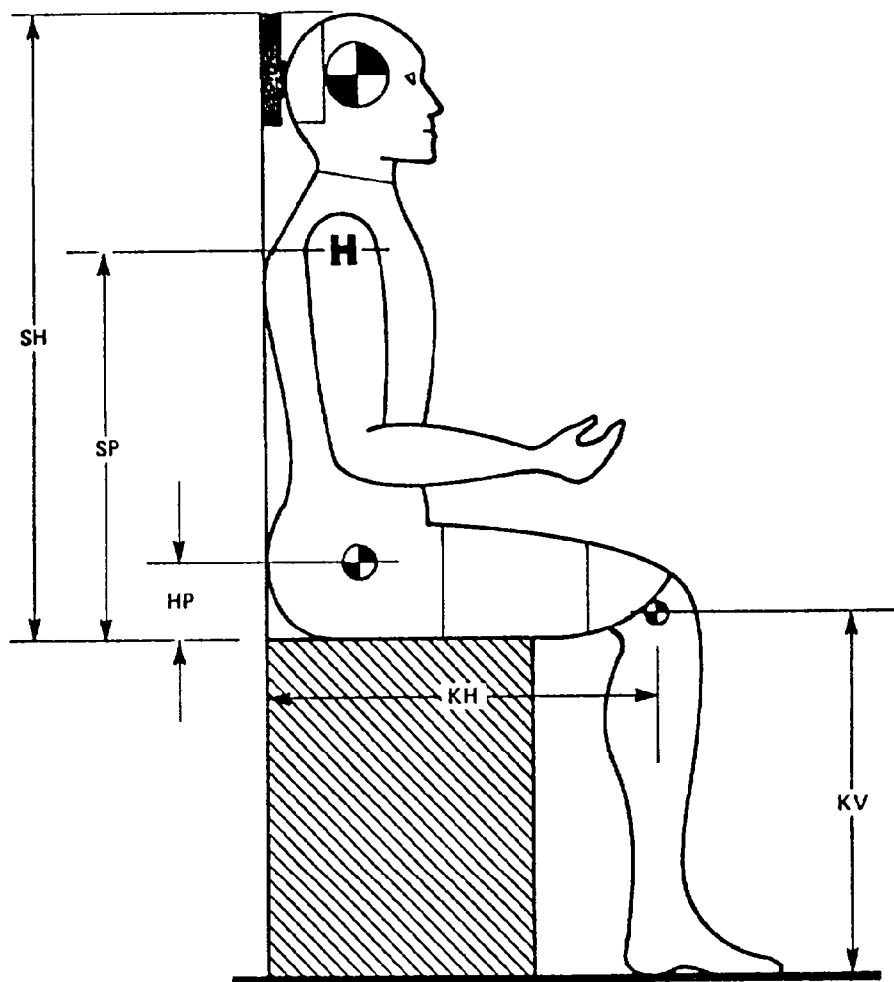
<u>Serial No.</u>	<u>Completion Date</u>
357	1/15/93
358	10/2/92

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 10

DUMMY CONFIGURATION DIMENSIONS



PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NUMBER: 357

I. CONFIGURATION VERIFICATION DATA:

	P. 572 SPECIFICATION	PRE-TEST if required	POST-TEST if required
DATE OF CONFIGURATION VERIFICATION	XXXXXXXXXXXXXX	1/15/93	
VERIFICATION NUMBER FOR DUMMY (*)	XXXXXXXXXXXXXX	1	
SH - Seated Height	904 to 909 mm	904 mm	mm
SP - Shoulder Pivot Height	554 to 569 mm	556 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	495 mm	mm
SW - Shoulder Width	452 to 467 mm	457 mm	mm
HW - Hip Width	356 to 391 mm	363 mm	mm

II. PERFORMANCE VERIFICATION DATA:

		PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION		1/15/93	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY (*)		1	
VERIFICATION LAB TEMPERATURE (19 to 25 C)		20.5-21 C	C
VERIFICATION LAB HUMIDITY (10 TO 70 %)		29-35 %	%
TEST PARAMETER	SPECIFICATION		
1. <u>HEAD DROP TEST</u>			
a. peak resultant accel.	210 to 260 G's	217.8 G's	G's
b. peak lateral accel.	<= 10 G's	7.2 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: 357

TEST PARAMETER		SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST				
a. Pendulum Speed		23.6 to 28.0 kph	24.9 kph	kph
b. Pend. Avg. Decel. over t3 to t2		20 to 24 G's	22.9 G's	G's
c. Peak Resultant Head Acceleration		26 G's max.	25.8 G's	G's
d. Pendulum Decel. (t2-t1)		<= 3 ms.	2.73 ms	ms
e. Pendulum Decel. (t3-t2)		25 to 30 ms.	26.17 ms	ms
f. Pendulum Decel. (t4-t3)		<= 10 ms.	7.69 ms	ms
g. Max. Head Rotation		63 to 73 deg.	66.87 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.	30.38 ms	ms
	Displ.	53 to 79 mm	65 mm	mm
60 deg.	Time	40.3 to 51.7 ms.	46.5 ms	ms
	Displ.	109 to 135 mm	126 mm	mm
Maximum	Time	53.2 to 66.8 ms.	56.55 ms	ms
	Displ.	127 to 152 mm	134 mm	mm
60 deg.	Time	67.0 to 83.0 ms.	67.58 ms	ms
	Displ.	109 to 135 mm	128 mm	mm
30 deg.	Time	85.4 to 104.6 ms.	87.55 ms	ms
	Displ.	53 to 79 mm	58.4 mm	mm
0 deg.	Time	101.0 - 123.0 ms.	101.69 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: 357

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
3. <u>ABDOMINAL COMPRESSION</u> <u>TEST:</u> (preload = 222 N)			
a. Force @ 1.3 mm	102 to 160 N	124.5 N	N
b. Force @ 1.9 mm	160 to 222 N	186.8 N	N
c. Force @ 2.5 mm	222 to 280 N	262.4 N	N
d. Force @ 3.3 mm	325 to 391 N	371.4 N	N
4. <u>LUMBAR FLEXION TEST:</u>			
a. Force @ 20 deg.	98 to 151 N	129 N	N
b. Force @ 30 deg.	151 to 205 N	180 N	N
c. Force @ 40 deg.	205 to 257 N	226.8 N	N
d. Return Angle	12 deg. maximum	9 deg	deg
5. <u>CHEST IMPACT TESTS:</u>			
A. <u>High Speed</u>			
(1) Probe Speed	23.9 to 24.4 kph	24 kph	kph
(2) Peak Deflection	43 mm maximum	41.1 mm	mm
(3) Peak Resistive Force	10008 N maximum	9305 N	N
(4) Internal Hysteresis	50 to 70%	58.9 %	%
B. <u>Low Speed</u>			
(1) Probe Speed	15.0 to 15.5 kph	15.36 kph	kph
(2) Peak Deflection	28 mm maximum	27.7 mm	mm
(3) Peak Resistive Force	6449 N maximum	5795 N	N
(4) Internal Hysteresis	50 to 70%	52.7 %	%

TECHNICIAN'S NAME: Ivan Minkewicz

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA (continued)

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 357

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	8642 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	9185 N	N
(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: 357

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	AC2K4	12/92	6/93
ENDEVCO	AC2K3	12/92	6/93
ENDEVCO	AC2M6	12/92	6/93
ENDEVCO	A12C	9/92	3/93
ENDEVCO	A60C	9/92	3/93
ENDEVCO	A84G	9/92	3/93
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	11/92	5/93
CEC	A161	11/92	5/93
TRANS- DUCER INC	20051	11/92	5/93
BLH	72952	11/92	5/93
CIC	567-11	11/92	5/93

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		
1. <u>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:</u> (preload = 222 N)			
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:			
A. High Speed			
(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 %	%
B. Low Speed			
(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	FB32L	11/92	5/93
ENDEVCO	A33A	1/93	7/93
ENDEVCO	A67A	1/93	7/93
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	11/92	5/93
CEC	A161	11/92	5/93
TRANS- DUCER INC	20051	11/92	5/93
BLH	72952	11/92	5/93
CIC	567-11	11/92	5/93



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	ENDEVCO	12/92	6/93
	Y	ENDEVCO	12/92	6/93
	Z	ENDEVCO	12/92	6/93
Chest	X	ENDEVCO	9/92	3/93
	Y	ENDEVCO	9/92	3/93
	Z	ENDEVCO	9/92	3/93
Right Femur Load Cell	952	GSE	11/92	5/93
Left Femur Load Cell	951	GSE	11/92	5/93
Neck Load Cell	X	DENTON	-	-
	Y	DENTON	-	-
	Z	DENTON	-	-
Neck Moment	X	DENTON	-	-
	Y	DENTON	-	-
	Z	DENTON	-	-
Chest Deflection Gauge	Not Used	HUMANOID	-	-
Lap Belt Load Cells	123	LEBOW	11/92	5/93
Shoulder Belt Load Cells	127	LEBOW	11/92	5/93
Spool-Out Potentiometer	Not Used	SERVONIC INST.	-	-
Belt Stretch Transducer	E1	CALSPAN	11/92	5/93

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	FB32L	ENDEVCO	11/92	5/93
Y	A33A	ENDEVCO	1/93	7/93
Z	A67A	ENDEVCO	1/93	7/93
Right Femur Load Cell	552	GSE	11/92	5/93
Left Femur Load Cell	551	GSE	11/92	5/93
Neck Load Cell X	Not Used	DENTON	-	-
Y	Not Used	DENTON	-	-
Z	Not Used	DENTON	-	-
Neck Moment X	Not Used	DENTON	-	-
Y	Not Used	DENTON	-	-
Z	Not Used	DENTON	-	-
Chest Deflection Gauge	Not Used	HUMANOID	-	-
Hybrid III Use Only				
Lap Belt Load Cells		LEBOW		
Shoulder Belt Load Cells	135	LEBOW	11/92	5/93
Spool-Out Potentiometer	Not Used	SERVONIC INST.	-	-
Belt Stretch Transducer	E2	CALSPAN	11/92	5/93

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	A175	CEC	11/92	5/93
Right Rear Seat Crossmember	A128	CEC	1/93	7/93
Top of Engine	A89	CEC	11/92	5/93
Bottom of Engine	A101	CEC	11/92	5/93
Left Disc Brake Caliper	A152	CEC	10/92	4/93
Right Disc Brake Caliper	A159	CEC	11/92	5/93
Instrument Panel	A182	CEC	11/92	5/93
Center Rear Crossmember	A142	CEC	1/93	7/93
Vehicle Rear Z	A178	CEC	10/92	4/93

Appendix E

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

Your Occupant Protection System

Your Accord 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 Accords have a Supplemental Restraint System (SRS) with a driver's airbag. The SE model also has a passenger's airbag.

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 22).

The seats, head restraints, and door locks also play a role in occupant safety. For example, reclining your 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 13).
- Infants and small children are properly secured in child safety seats.
- All doors are closed and locked (see page 25).
- Seat-backs are upright and head restraints are properly adjusted (see page 24).
- There are no loose items that could be thrown around and hurt someone during a crash or sudden stop (see page 25).

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.

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, and 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 27).

A pregnant woman needs to wear a seat belt to protect herself and her unborn child (see page 18).

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.

(cont'd)

The Seat Belt System and How It Works (cont'd)

Seat Belt System Components

Your Accord 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.

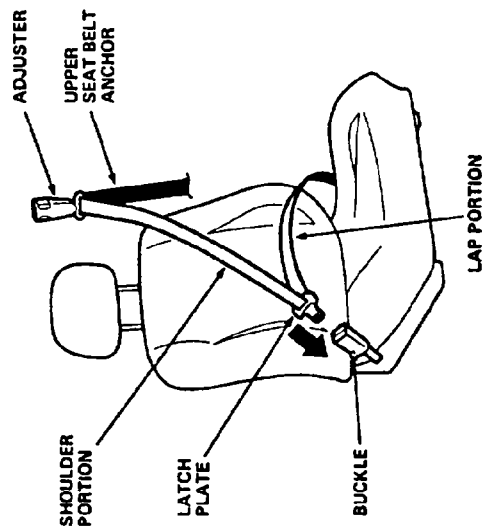
Your seat belt system also includes a light on the instrument panel to remind you to fasten your seat belt, and to make sure your passengers fasten theirs. This light comes on when you turn on the ignition if you have not fastened your seat belt. A beeper also sounds for several seconds (see page 39).

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

Lap/Shoulder Belt

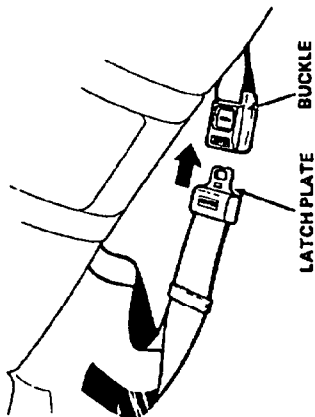
This style of seat belt has a single belt that goes over your shoulder, across your chest, and across your hips.

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.



Lap Belt

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



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.

WARNING

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

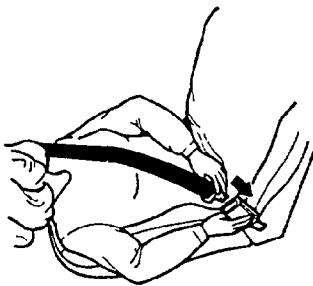
Be sure you and your passengers always wear seat belts and wear them properly.

The Seat Belt System and How It Works (cont'd)

Wearing a Lap/Shoulder Belt

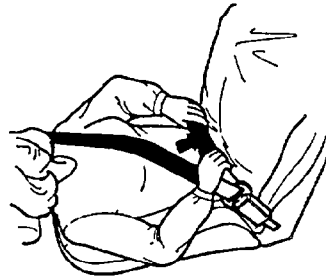
Before putting on a front seat belt, be sure your seat is adjusted forward or backward to a good driving or riding position and the back of your seat is upright (see page 24).

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.

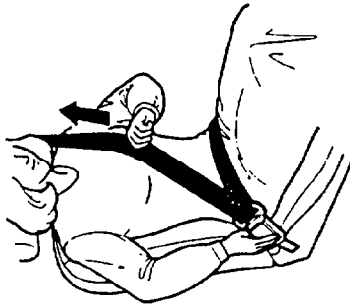


2. Check that the belt is not twisted.

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.



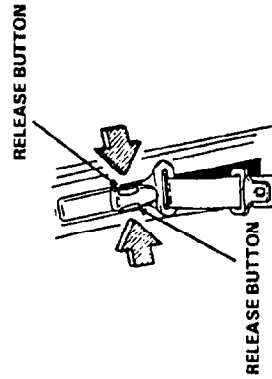
4. Pull up on the shoulder part of the belt to remove any slack. Make sure the belt goes over your collarbone and across your chest.



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

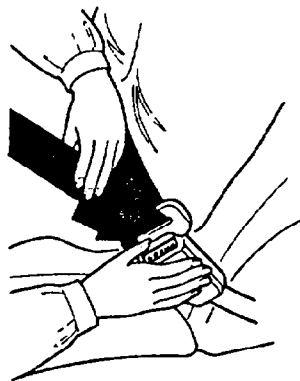
Front seats: Adjust the belt anchor by squeezing the two buttons and sliding the anchor downward (it has four positions).

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



The Seat Belt System and How It Works (cont'd)

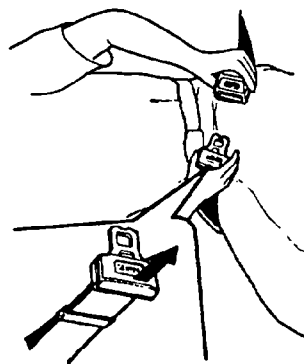
To unlatch the seat belt, push the red PRESS button on the buckle. Guide the belt across your body to the door pillar. If the belt doesn't retract easily, pull it out and check for twists or kinks.



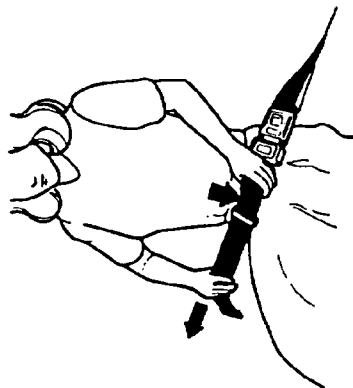
Wearing the Lap Belt

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

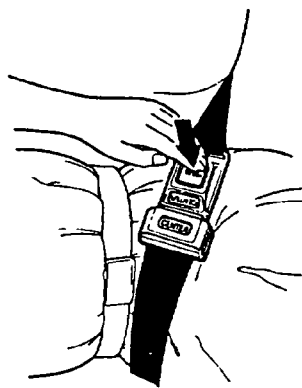
If the belt is too short, hold the latch plate at a right angle and pull to extend the belt. Insert the latch plate into the buckle.



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.

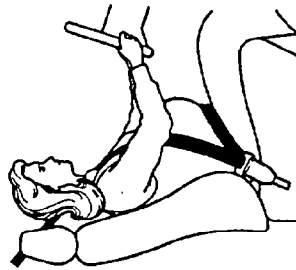


The Seat Belt System and How It Works (cont'd)

Advice For Pregnant Women

Protecting the mother is the best way to protect her unborn child. Therefore, a pregnant woman should wear a properly-positioned seat belt whenever she drives or rides in a car.

If possible, use a lap/shoulder seat belt, remembering to keep the lap portion as low as possible (see page 14). Each time you have a check-up, ask your doctor if it's okay for you to drive and how you should position a lap/shoulder seat belt.



Seat Belt Maintenance

For safety, you should check the condition of your seat belts regularly.

Pull out each belt fully and look for frays, cuts, burns, and wear. Check that the latches work smoothly and the lap/shoulder belts retract easily. Any belt not in good condition or not working properly should be replaced.

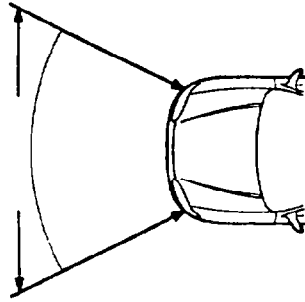
If a seat belt is worn during a crash, have your dealer replace the belt and check the anchors for damage.

If your seat belts get dirty, you can use a soft brush with a mixture of mild soap and warm water to clean them. Do not use bleach, dye, or cleaning solvents. They can weaken the belt material. Let the belts air-dry before you use the car.

Dirt build-up in the metal loops of the seat belt anchors can cause the belts to retract slowly. Wipe the inside of the loops with a clean cloth dampened in isopropyl alcohol.

Supplemental Restraint System

FRONTAL COLLISION RANGE



All Accords are equipped with a Supplemental Restraint System (SRS) 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. The system on the SE model also includes a front passenger's airbag.

⚠ 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.