

V2231

REPORT NUMBER: CAL-95-N07

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

**MITSUBISHI MOTORS CORPORATION
1995 MITSUBISHI MONTERO
4-DOOR MPV**

NHTSA NUMBER: MS5601

CALSPAN TEST NUMBER: 8227-7

JANUARY 12, 1995

**CALSPAN CORPORATION
ADVANCED TECHNOLOGY CENTER
P.O. BOX 400
BUFFALO, NEW YORK 14225**



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**

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

Prepared: Michael J. Kilgallon
Michael J. Kilgallon, Project Engineer

Approved: David J. Travale
David J. Travale, Program Manager
Transportation Research/
Physical Sciences Department

FINAL REPORT ACCEPTED BY:

St. J. Ford
Manager, New Car Assessment Program (NCAP)

APR 11 1995

APR 17 1995

Date of Report Acceptance

H. S. Chan
Contracting Officer's Tech. Rep. (COTR)

APR 17 1995

Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1. <i>Report No.</i> CAL-95-N07		2. <i>Government Accession No.</i>		3. <i>Recipient's Catalog No.</i>	
4. <i>Title and Subtitle</i> NHTSA New Car Assessment Program (NCAP) Frontal Barrier Impact Test of a 1995 Mitsubishi Montero 4-Door MPV				5. <i>Report Date</i> January 12, 1995	
				6. <i>Performing Organization Code</i> CAL	
7. <i>Author(s)</i> Cathryn A. Harrower, Author Michael J. Kilgallon, Project Engineer David J. Travale, Program Manager				8. <i>Performing Organization Report No.</i> 8227-7	
9. <i>Performing Organization Name and Address</i> Calspan Advanced Technology Center 4455 Genesee Street Buffalo, New York 14225				10. <i>Work Unit No.</i> X069-7-1485	
				11. <i>Contract or Grant No.</i> DTNH22-90-D-02121	
12. <i>Sponsoring Agency Name and Address</i> U.S. Department of Transportation National Highway Traffic Safety Administration 400 Seventh , S.W. Washington, D.C. 20590				13. <i>Type of Report and Period Covered</i> Final Report January - February 1995	
				14. <i>Sponsoring Agency Code</i> DOT/NHTSA/RM/OMI	
15. <i>Supplementary Notes</i>					
16. <i>Abstract</i> A frontal load cell barrier test of a 1995 Mitsubishi Montero 4-Door MPV was performed at Calspan Advanced Technology Center crash test facility in Buffalo, New York, on January 12, 1995. The impact velocity was 56.5 kph and the temperature at the barrier face was 9°C. The maximum post-test vehicle crash was 414 mm. The test vehicle was equipped with a 3-point continuous belt system at each of the front outboard seating positions. The vehicle was also equipped with a supplemental driver side airbag. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger complied with head, chest and femur requirements.					
17. <i>Key Words</i>			18. <i>Distribution Statement</i> <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. <i>Security Classif. (of this report)</i> UNCLASSIFIED		20. <i>Security Classif. (of this page)</i> UNCLASSIFIED		21. <i>No. of Pages</i>	
				22. <i>Price</i>	

Form DOT F1700.7 (8-69)

TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
1 PURPOSE AND TEST PROCEDURE	1-1
2 SUMMARY OF TEST	2-1
3 OCCUPANT AND VEHICLE INFORMATION	3-1
4 SUMMARY OF RESULTS FOR: FMVSS 212, "Windshield Mounting" FMVSS 219 (Partial), "Windshield Zone Intrusion" FMVSS 301, "Fuel System Integrity"	4-1
APPENDIX A PHOTOGRAPHS	A-1
APPENDIX B VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA	B-1
APPENDIX C PART 572 B/E DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION TESTS	C-1
APPENDIX D DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION	D-1
APPENDIX E VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS	E-1

LIST OF FIGURES

<u>Figure No.</u>		<u>Page No.</u>
1	Dummy Measurements for Front Seat Passengers	3-4
2	Seat Belt Positioning Data	3-6
3	Camera Positions for Frontal Impacts	3-8
4	Vehicle Target Locations	3-10
5	Load Cell Locations on Fixed Barrier	3-11
6	Vehicle Accelerometer Locations	3-12
7	Test Vehicle Measurements	3-13
8	FMVSS No. 212 - "Windshield Mounting" Data	4-2
9	FMVSS No. 219 (Partial) - "Windshield Intrusion" Data	4-3
10	Dummy Configuration Dimensions	C-3

LIST OF TABLES

<u>Table No.</u>		<u>Page No.</u>
1	General Test and Vehicle Data	2-2
2	Dummy Injury Criteria Values	3-2
3	Hybrid III Neck and Chest Data Sheet	3-3
4	Front Seat Occupant Measurements	3-5
5	Seat Belt Performance Assessment Test Data	3-7
6	High Speed Camera Locations	3-9
7	Vehicle Measurements	3-14
8	Accident Investigation Division Data	3-15
9	FMVSS No. 301-75 "Fuel System Integrity" Post Impact Test Data	4-4
10	FMVSS No. 301 - "Static Rollover" Data	4-5

Section 1

PURPOSE AND TEST PROCEDURE

This 56.5 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 56.5 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 MS5601

A load cell barrier consisting of 36 load cells was impacted by a 1995 Mitsubishi Montero 4-Door MPV at a velocity of 56.5 kph. The test was performed at the Calspan Corporation Advanced Technology Center on January 12, 1995. 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 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. 45) and the right-front passenger ATD (Serial No. 150) were used on one previous test (MS5301). Injury Criteria were not exceeded in that test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 99 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. Load cell B1 is not accurate.

The driver's HIC was 640.0. The maximum chest deceleration over 3 milliseconds was 43.2 g's and maximum chest deflection was 37.2 mm. Femur loads were -5911.1 newtons on the left femur and -4540.1 newtons on the right femur.

The right front passenger's HIC was 549.0. Maximum chest deceleration over 3 milliseconds was 45.0 g's and maximum chest deflection was 32.2 mm. Femur loads were -2131.8 newtons on the left and -1250.1 newtons on the right.

Table 1

GENERAL TEST AND VEHICLE DATA

Vehicle Year/Make/Model/Body Style: 1995 Mitsubishi Montero 4-Door MPV

NHTSA Test No.: MS5601 VIN.: JA4MR41H5SJ012283

Body Color: White Date of Manufacture: 10/94

Date Received: 12/6/94

Odometer Reading: 00033

Engine: 6 Cylinders; - C.I.D.; 3.0 Liters; - CC
X Gas; - Diesel; - Turbocharged
X Longitudinal; - Transverse

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

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

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

Type of Occupant Restraint: 3-point restraint system with supplemental driver side airbag.

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): Front 180 kPa, Rear 240 kPa

Recommended Tire Size: P235/75R15

Recommended Cold Tire Pressure: Front 180 kPa, Rear 240 kPa

Tires on Vehicle: P235/75R15 Manufacturer: Michelin

Number of Occupants: 2 Front; 3 Rear; 2 3rd Seat; 7 TOTAL

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

Type of Front Seat Back: - Fixed; X Adj. with X Lever - Rot. Knob

Rated Cargo and Luggage Weight (RCLW) A-B = 136 kgs.

GVWR 2600 kgs. GAWR: Front 1200 kgs. Rear 1650 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>461</u>	kgs.	Right Rear	=	<u>512</u>	kgs.
Left Front	=	<u>479</u>	kgs.	Left Rear	=	<u>530</u>	kgs.
TOTAL FRONT WEIGHT	=	<u>940</u>	kgs.	(<u>47</u> % of Total Vehicle Weight)			
TOTAL REAR WEIGHT	=	<u>1,042</u>	kgs.	(<u>53</u> % of Total Vehicle Weight)			
TOTAL DELIVERED WEIGHT	=	<u>1,982</u>	kgs.				

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight 1982 kgs.

RCLW = VCW - 68 (DSC) = 136 kgs.

Target Test Weight = UDW + RCLW + (2 dummies x 74.4 kgs./ dummy)

Target Test Weight = 2266

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 122 KGS CARGO:

Right Front	=	<u>512</u>	kgs.	Right Rear	=	<u>618</u>	kgs.
Left Front	=	<u>507</u>	kgs.	Left Rear	=	<u>615</u>	kgs.
TOTAL FRONT WEIGHT	=	<u>1,019</u>	kgs.	(<u>45</u> % of Total Vehicle Weight)			
TOTAL REAR WEIGHT	=	<u>1,233</u>	kgs.	(<u>55</u> % of Total Vehicle Weight)			
TOTAL TEST WEIGHT	=	<u>2,252</u>	kgs.				

Weight of ballast secured in vehicle trunk area = 91 kgs.

VEHICLE ATTITUDE (all dimensions in mm):

Delivered Attitude:	RF	<u>892</u>	LF	<u>883</u>	RR	<u>927</u>	LR	<u>918</u>
Test Attitude:	RF	<u>870</u>	LF	<u>870</u>	RR	<u>890</u>	LR	<u>885</u>

Wheel Base: 2725 mm.; C.G. = 1499 mm. rearward of front wheel C/L

Remarks: 86 liters of stoddard solution was placed in the fuel tank.

Table 1

GENERAL TEST AND VEHICLE DATA (cont'd)POST -IMPACT DATA:

Type of Test: Frontal Barrier Impact Angle: 0°
 Date of Test: January 12, 1995 Time of Test: 15:25
 Ambient Temperature: 9 ° C at impact area
 Temperature in Occupant Compartment: 9 ° C
 Windshield Molding Temperature: 9 ° C
 Required Impact Velocity Range: 55.5 to 57.1 kph
 Impact Velocity: primary = 56.5 kph, secondary = 56.6 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>4480</u>	C _L	<u>4555</u>	L	<u>4477</u>
	Post-test = R	<u>4080</u>	C _L	<u>4146</u>	L	<u>4110</u>
	Crush = R	<u>400</u>	C _L	<u>409</u>	L	<u>367</u>

Distance from front of test vehicle to point of impact:

R	<u>380</u>	C _L	<u>420</u>	L	<u>435</u>
---	------------	----------------	------------	---	------------

VISIBLE DUMMY CONTACT POINTS:

	<u>Driver</u>	<u>Passenger</u>
Head	<u>Airbag</u>	<u>No contact</u>
Chest	<u>Airbag</u>	<u>No contact</u>
Abdomen	<u>No contact</u>	<u>No contact</u>
Left Knee	<u>Lower dash</u>	<u>Glove box door</u>
Right Knee	<u>Lower dash</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>Not 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>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>
<u>Glazing Damage</u>				
Backlight/Windshield:	<u>Windshield sustained stress fracture 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.: MS5601 Vehicle: 1995 Mitsubishi Montero 4-Door MPV

	MAXIMUM HEAD ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-58.8	-8.0	31.8	60.3
Position #2 - Passenger	-46.1	-8.2	55.4	60.8

	MAXIMUM CHEST ACCELERATION (g's)			
	X	Y	Z	R*
Position #1 - Driver	-45.1	-7.6	19.2	43.2
Position #2 - Passenger	-43.0	-19.0	21.0	45.0

* 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	-5911.1	-4540.1
Position #2 - Passenger	-2131.8	-1250.1

	MAXIMUM FORCE - SEAT BELT LOADS (nwt)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
Position #1 - Driver	6917.9	-	7712.5
Position #2 - Passenger	7791.1	9774.4	-

	HEAD INJURY CRITERIA (HIC)			
	HIC**	t ₁ (mSec)	t ₂ (mSec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	640.0	52.68	88.56	50.18
Position #2 - Passenger	549.0	64.44	100.32	47.19

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

Table 3

HYBRID III NECK AND CHEST DATA SHEET

Vehicle Year/Make/Model/Body Style: 1995 Mitsubishi Montero 4-Door MPV
 Vehicle NHTSA No.: MS5601 Test Date: January 12, 1995

MAXIMUM VALUES	DRIVER DUMMY ID #45:	PASSENGER DUMMY ID #150:
Neck Load X (nwt)	428.4	1733.4
Neck Load Y (nwt)	-274.5	-414.2
Neck Load Z (nwt)	2476.0	2399.1
Neck Moment X (nwt-m)	18.9	-34.0
Neck Moment Y (nwt-m)	-41.0	82.1
Neck Moment Z (nwt-m)	9.7	8.1
Chest Deflection X (mm.)	37.2	32.2
Time of Max. Occurrence (msec)	70.0	70.8

Note: All values listed occur during the primary impact event.

Figure 1

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

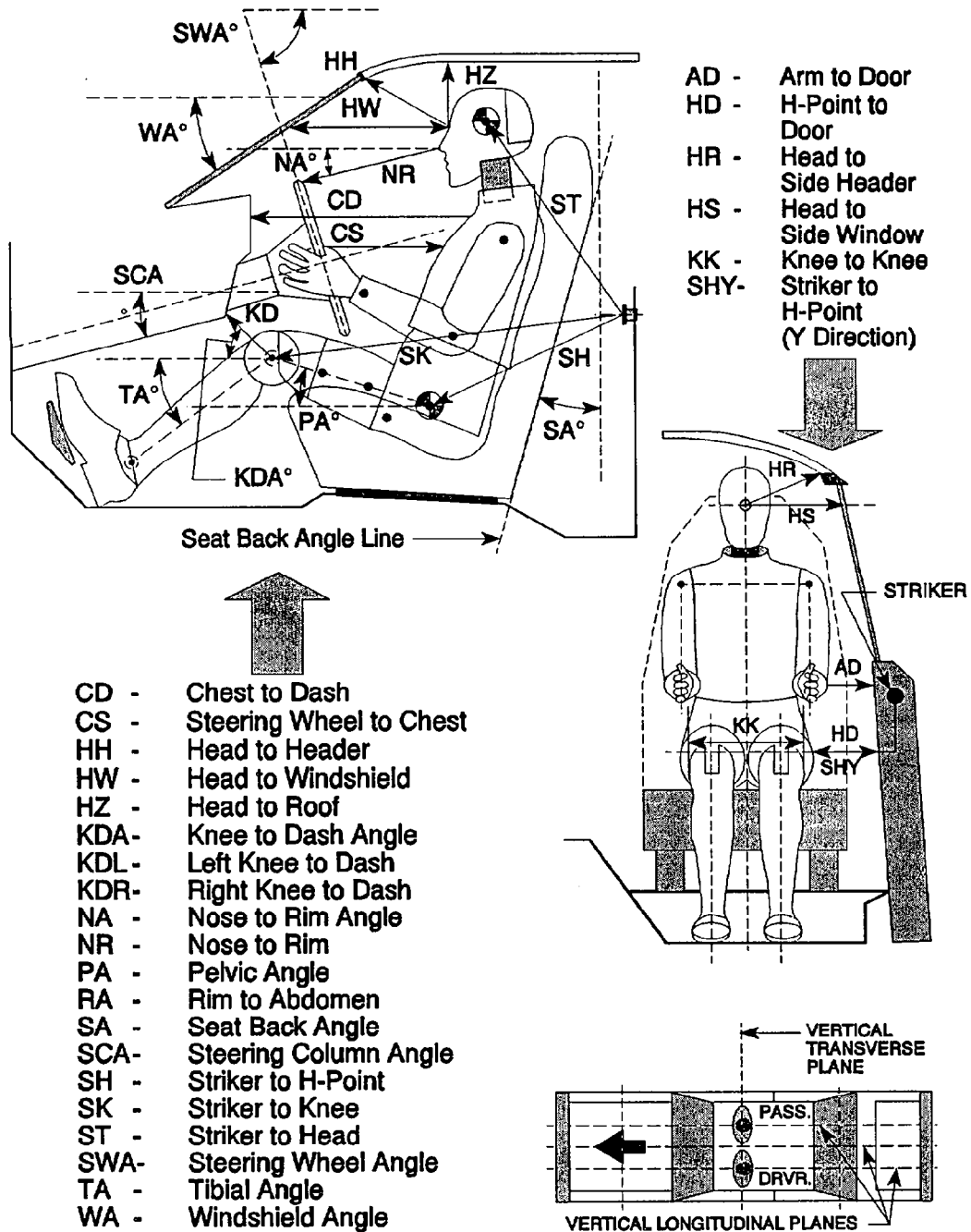


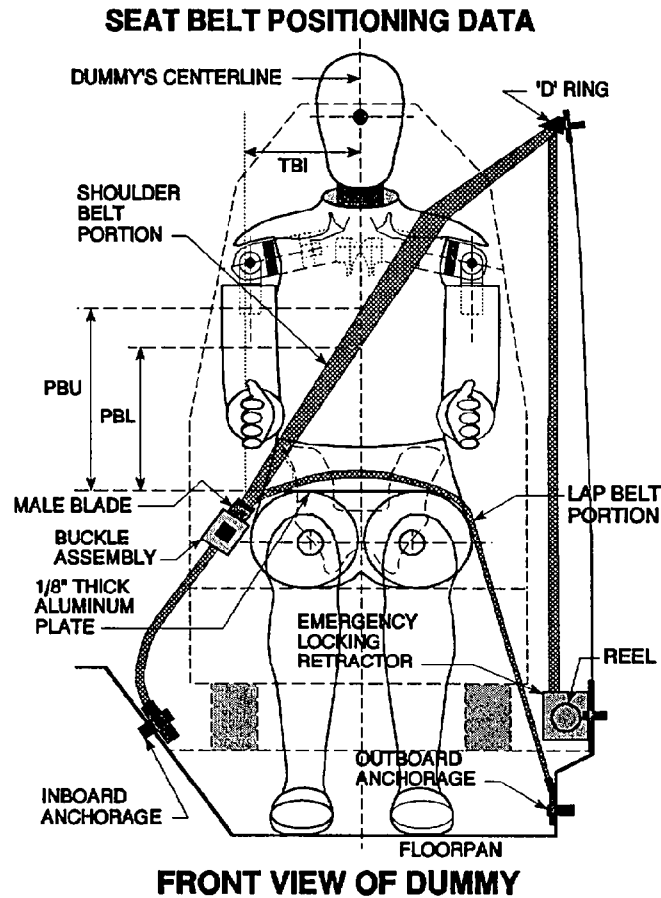
Table 4

FRONT SEAT OCCUPANT MEASUREMENTS

	DRIVER (Serial #45)			PASS. (Serial # 150)		
WA ^o	45 deg.			N/A		
SWA ^o	55 deg.			N/A		
SCA ^o	35 deg.			N/A		
SA ^o	16 deg.			16 deg.		
HZ	250			235		
HH	467			466		
HW	598			601		
HR	232			230		
NR	446	Angle	15 deg.	N/A		
CD	545			559		
CS	318			N/A		
RA	180			N/A		
KDL	125	Angle (KDA)	35 deg.	170		
KDR	144			165	Angle (KDA)	25 deg.
PA ^o	25 deg.			25 deg.		
TA ^o	50 deg.			50 deg.		
KK	330			270		
ST	614	Angle	15 deg.	610	Angle	13 deg.
SK	653	Angle	90 deg.	640	Angle	89 deg.
SH	249	Angle	110 deg.	241	Angle	105 deg.
SHY	185			185		
HS	280			280		
HD	140			125		
AD	65			70		

Figure 2

SEAT BELT POSITIONING DATA



	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	320	340
PBL-- Top surface of alum. plate to belt lower edge	235	240
<u>LAP BELT TENSION</u>	-	-
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

Table 5

SEAT BELT PERFORMANCE ASSESSMENT TEST DATABELT LENGTH DATA:

Belt length from trim panel exit
to bolt hole anchor point for
continuous webbing systems.

DriverPassenger

2150 mm

2150 mm

Shoulder belt length as measured
on Part 572 Dummy.

900 mm

900 mm

Lap belt length as measured
on Part 572 Dummy.

990 mm

990 mm

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.

50 mm

50 mm

As determined mechanically.

0.0 mm

0.0 mm

BELT STRETCH DATA:

Measured electronically between shoulder
belt load cell and the "D" ring.

119 mm/M

112 mm/M

Measured mechanically.

50 mm/M

46 mm/M

Figure 3

CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 6.

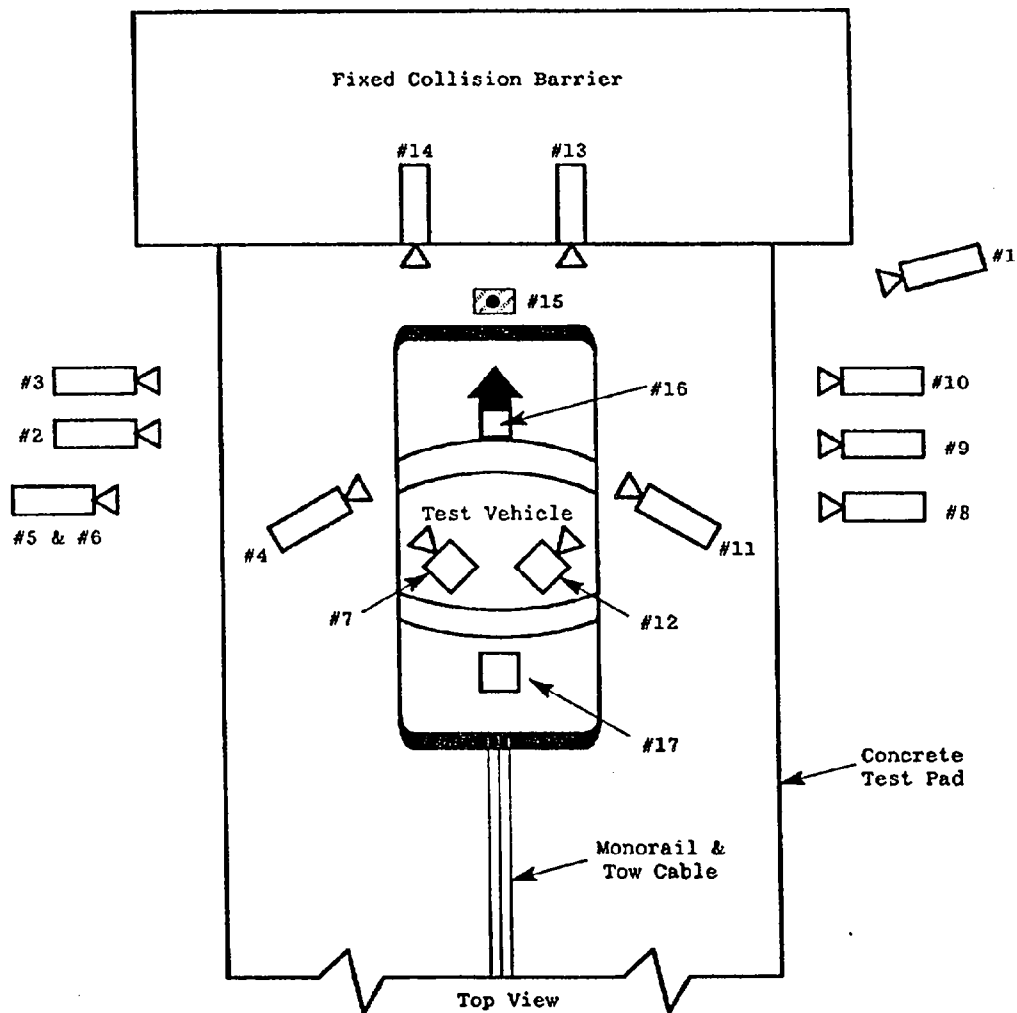


Table 6
HIGH-SPEED CAMERA LOCATIONS

Test No.	MS5601	Vehicle:	1995 Mitsubishi Montero 4-Door MPV					
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	1626	1041	-2	5419	13	1020
3	Left Side View	7391	1092	1067	-2	6943	25	1000
4	Driver and Interior View	2743	2565	1778	-17	-	13	1020
5	Steering Column (Bottom)	6833	1930	1194	-1	6385	25	1120
6	Steering Column (Top)	6833	1930	1778	-7	6385	25	1120
7	Left Belt	-	-	-	-	-	8	N.T.
8	Overall Right Side	6223	1854	1092	-4	5775	13	1060
9	Right Side View	7595	1372	1041	-1	7147	25	1030
10	Right Passenger View	7544	1829	1422	-2	7096	35	1070
11	Passenger and Interior View	2515	2591	1803	-17	-	13	1120
12	Right Belt	-	-	-	-	-	8	N.T.
13	Passenger Front View	560	127	1778	-32	-	13	1010
14	Driver Front View	560	127	1778	-31	-	13	1010
15	Windshield View	0	0	3048	-50	-	13	1050
16	Pit View of Engine	0	505	-3048	90	-	13	920
17	Pit View of Fuel Tank	0	3432	-3048	90	-	13	940

*X = film plane to monorail centerline ** = referenced to horizontal plane

Y = film plane to impact location

N.T. indicates No Timing

Z = film plane to ground

Figure 4

VEHICLE TARGET LOCATIONS

(Dimensions in millimeters)

A	372
B	698
C	1215
D	1855
E	500
F	1425
G	833
H	832
I	135
J	1270
K	967
L	1485
M	500
N	138
O	833
P	831
Q	1485
R	971
S	1268

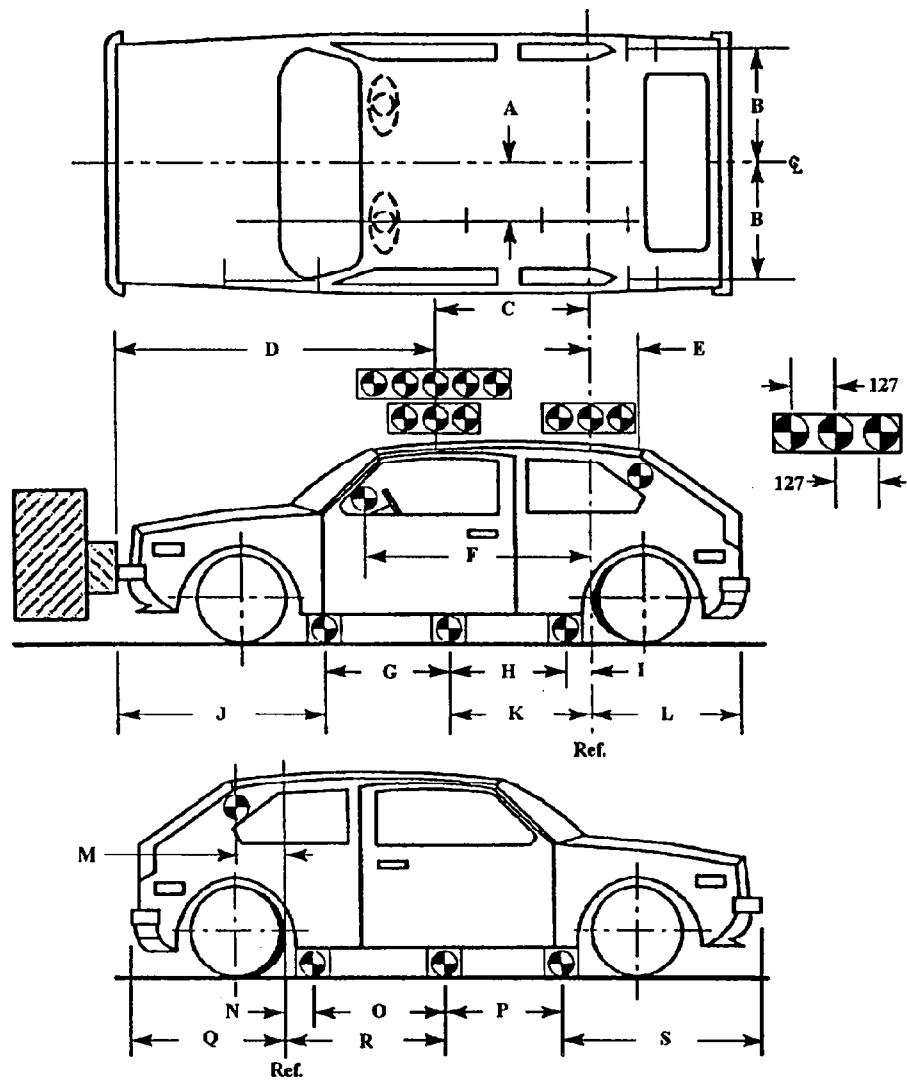
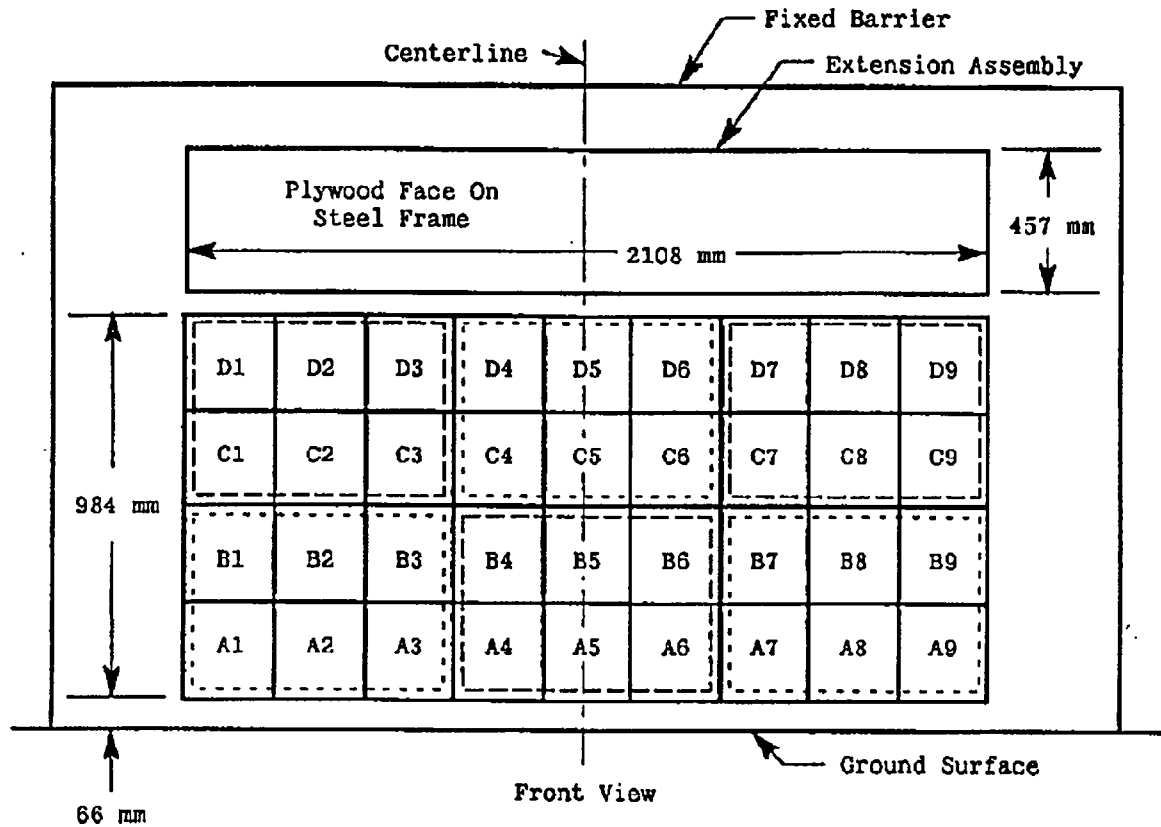


Figure 5

LOAD CELL LOCATIONS ON FIXED BARRIER

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



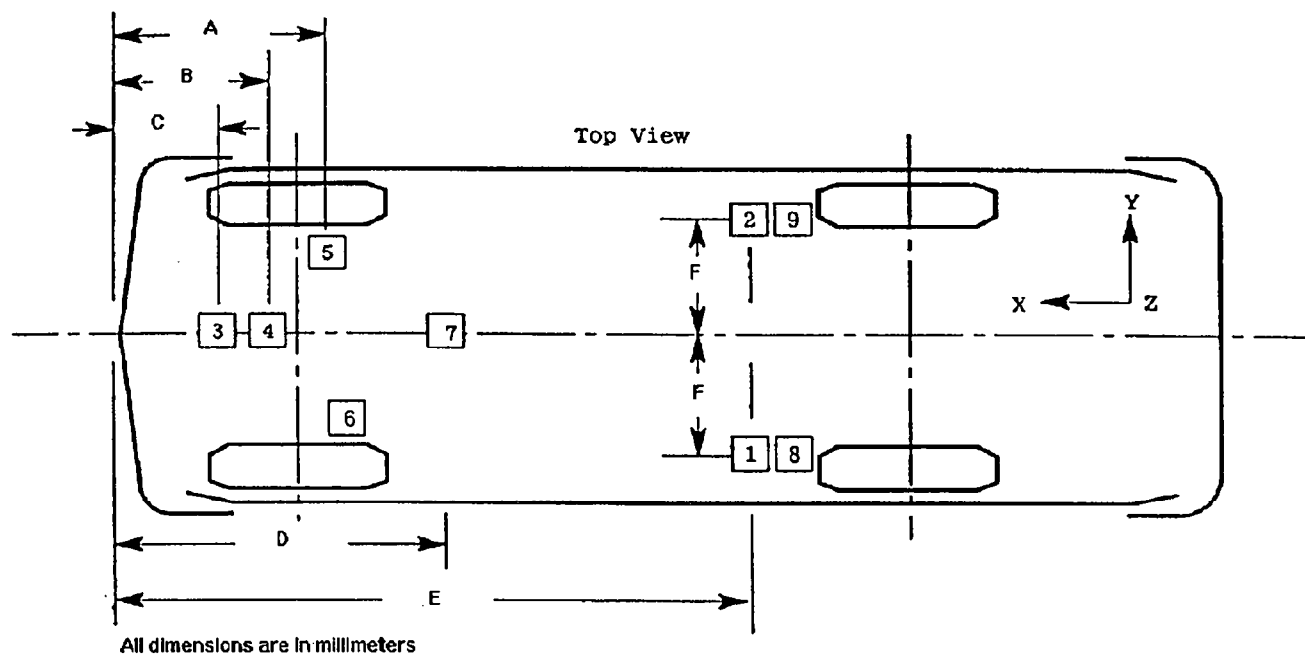
6 GROUPS OF 6 LOAD CELLS EACH

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

ACCELEROMETER NUMBER*	ACCELEROMETER LOCATION	Distances From Vehicle Front	
		All dimensions in millimeters	
1	Left Rear Seat Crossmember [E/F]	X = 3000	Y = 552
2	Right Rear Seat Crossmember [E/F]	X = 3000	Y = 552
3	Top of engine [C]	929	
4	Bottom of engine [B]	1220	
5	Right Disc Brake Caliper [A]	678	
6	Left Disc Brake Caliper [A]	678	
7	Instrument Panel [D]	1681	
8	Left Rear Seat Crossmember [E/F]	X = 3000	Y = 552
9	Right Rear Seat Crossmember [E/F]	X = 3000	Y = 552

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

Figure 7

TEST VEHICLE MEASUREMENTS

REAR DATUM REFERENCE

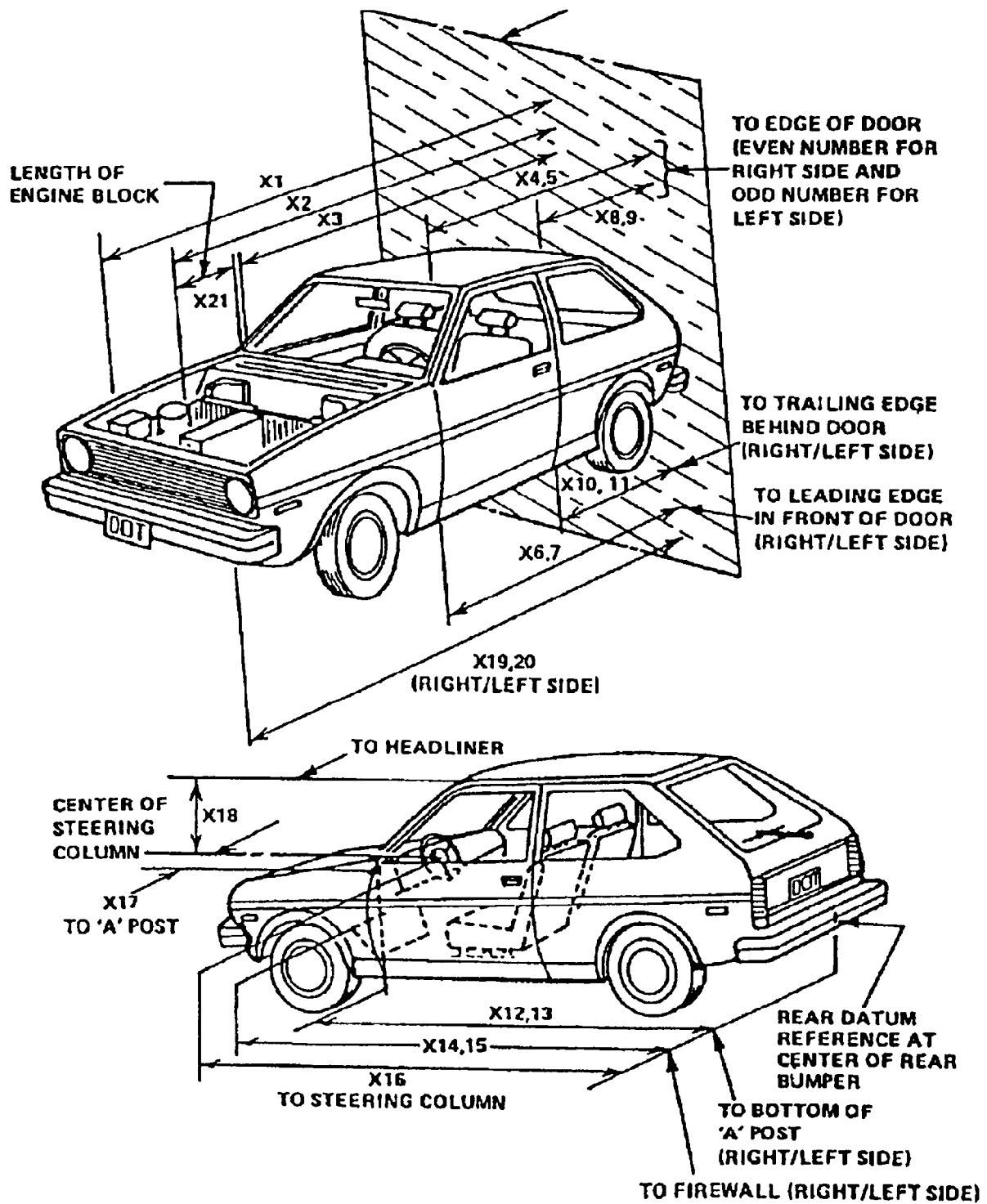


Table 7

VEHICLE MEASUREMENTS

No.		All Dimensions in mm		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4555	4146	409
X2	Rear Surface of Vehicle to Front of Engine	3960	3842	118
X3	Rear Surface of Vehicle to Firewall	3460	3400	60
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3223	3253	-30
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3214	3245	-31
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3199	3225	-26
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3185	3208	-23
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2160	2184	-24
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2141	2184	-43
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2141	2169	-28
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2131	2151	-20
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3206	3230	-24
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3194	3219	-25
X14	Rear Surface of Vehicle to Firewall, Right Side	3430	3428	2
X15	Rear Surface of Vehicle to Firewall, Left Side	3428	3435	-7
X16	Rear Surface of Vehicle to Steering Column	2785	2845	-60
X17	Center of Steering Column to "A" Post	385	345	40
X18	Center of Steering Column to Headliner	440	415	25
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4480	4080	400
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4477	4110	367
X21	Length of Engine Block	450	450	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2990	2995	-5
CD	Rear Surface of Vehicle to Center of Dash Panel	2930	2930	0
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2980	2238	742

Table 8

ACCIDENT INVESTIGATION DIVISION DATA
FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Mitsubishi Montero 4-Door MPV

Vehicle NHTSA No.: MS5601 VIN: JA4MR41H5SJ012283

Model Year: 1995 Build Date: 10/94 Test Date: January 12, 1995

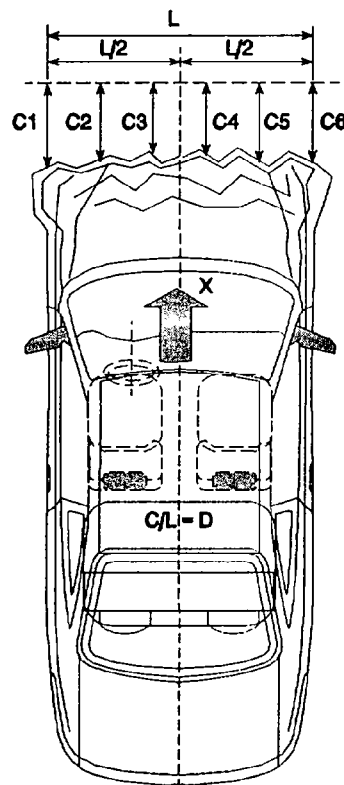
Vehicle Size Category: MPV Test Weight: 2252 Kgs

Vehicle Wheelbase: 2725 mm; Front Overhang: 1270 mm; Overall Width: 1695 mm

Collision Deformation Classification (CDC) Code: 12FDEW2

Crush Depth Dimensions;

C1 = 337 mm
 C2 = 382 mm
 C3 = 401 mm
 C4 = 414 mm
 C5 = 397 mm
 C6 = 394 mm



Midpoint of Damage: $D = \frac{\text{Vehicle Centerline}}{(\text{Longitud.})}$

Longitude Length of Damaged Region: $L = \underline{1695} \text{ mm}$

Section 4

SUMMARY OF RESULTS OF FMVSS 212, 219 (Partial) AND 301

"Windshield Mounting" FMVSS No. 212 Data

"Windshield Zone Intrusion" FMVSS No. 219 Data

"Fuel System Integrity" FMVSS No. 301

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 17 mm. molding.

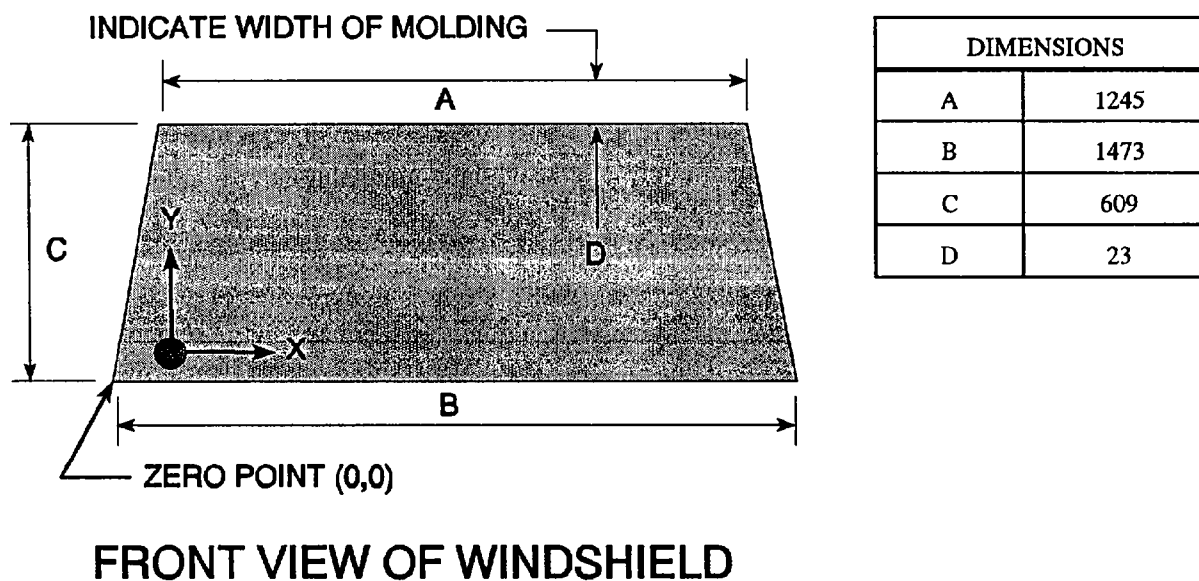
FMVSS 212 REQUIREMENTS:

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 the windshield for vehicles equipped with automatic restraint systems for front occupants,

FMVSS 212 TEST DATA

	WINDSHIELD PERIPHERY		% OF RETENTION
	PRE-TEST (mm)	POST-TEST(mm)	
RIGHT SIDE	1968	1968	100
LEFT SIDE	1968	1968	100
TOTAL	3,936	3,936	100

AREA OF RETENTION FAILURE:



FAILURE DETAILS:

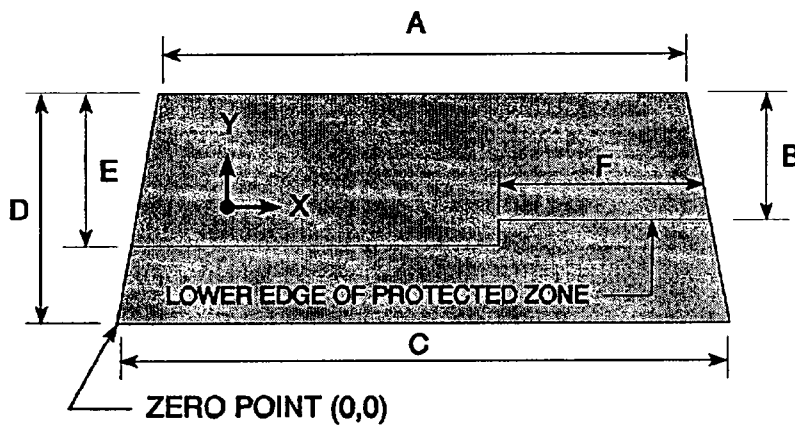
Figure 9

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

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 6.5" diameter 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, 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)



DIMENSIONS	
A	1245
B	279
C	1473
D	609
E	432
F	930

FRONT VIEW OF WINDSHIELD

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

(Show location of penetration on the above sketch)

COORDINATES		
	X	Y
1.		
2.		
3.		
4.		

Table 9

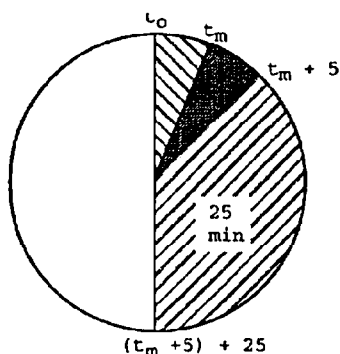
FMVSS NO. 301-75 "FUEL SYSTEM INTEGRITY" POST IMPACT TEST DATA

TEST VEHICLE NHTSA No.: MS5601 TEST DATE: January 12, 1995
VEHICLE MAKE/MODEL: 1995 Mitsubishi Montero

The test vehicle was filled from 92% to 94% of the manufacture's "usable" capacity. The electric fuel pump was operating if it will operate without engine operation. Two Part 572 anthropomorphic test devices were located at each of the front designated seating positions.

=====

TEST VEHICLE IMPACT TYPE: X Frontal (35 mph)
Oblique (30 mph) with _____ deg. barrier face first
(driver/passenger) side
Rear Moving Barrier (30 mph)
Lateral Moving Barrier (20 mph)

FUEL SPILLAGE MEASUREMENT:

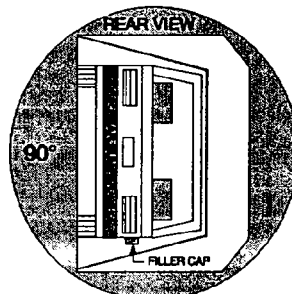
1. From impact until vehicle motion ceases
2. For 5 minute period after vehicle motion ceases
3. For next 25 minutes

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

SOLVENT SPILLAGE DETAILS:

None

Table 10

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET**TEST PHASE:**Vehicle NHTSA ID No.
MS5601**I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:**Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)2 minutes 30 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds**TOTAL**7 minutes 30 seconds

Next whole minute interval

8 minutes 00 seconds**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

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

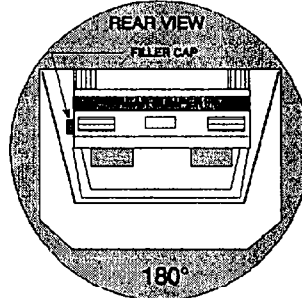
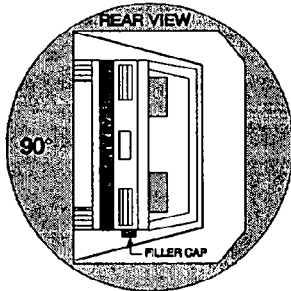
0	0	0	0
---	---	---	---

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 10

FMVSS NO. 301 STATIC ROLLOVER DATA SHEETTEST PHASE:Vehicle NHTSA ID No.
MS5601I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)2 minutes 30 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds**TOTAL**7 minutes 30 seconds

Next whole minute interval

8 minutes 00 secondsII. 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

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

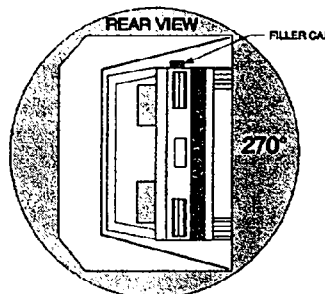
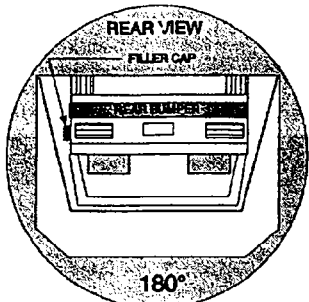
0	0	0	0
---	---	---	---

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 10

FMVSS NO. 301 STATIC ROLLOVER DATA SHEETTEST PHASE:Vehicle NHTSA ID No.
MS5601I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)

2	minutes	30	seconds
---	---------	----	---------

FMVSS 301 Position Hold Time +

5	minutes	00	seconds
---	---------	----	---------

TOTAL

7	minutes	30	seconds
---	---------	----	---------

Next whole minute interval

8	minutes	00	seconds
---	---------	----	---------

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

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

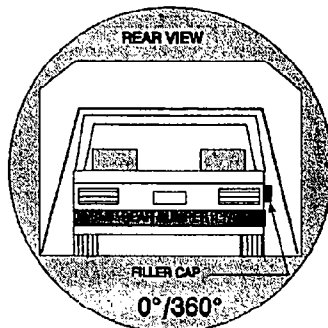
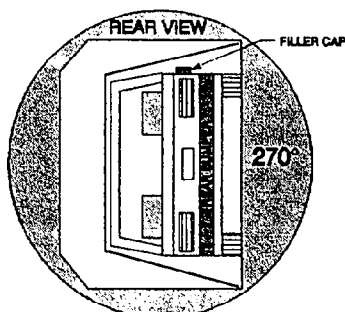
0	0	0	0
---	---	---	---

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

Table 10

FMVSS NO. 301 STATIC ROLLOVER DATA SHEETTEST PHASE:Vehicle NHTSA ID No.
MS5601I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)

2	minutes	30	seconds
---	---------	----	---------

FMVSS 301 Position Hold Time +

5	minutes	00	seconds
---	---------	----	---------

TOTAL

7	minutes	30	seconds
---	---------	----	---------

Next whole minute interval

8	minutes	00	seconds
---	---------	----	---------

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

5 ounces	1 ounce	1 ounce	1 ounce
----------	---------	---------	---------

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

<u>Figure</u>	<u>Title</u>	<u>Page</u>
A-1	LOAD CELL LOCATIONS.	A-3
A-2	PRE-TEST FRONT VIEW	A-4
A-3	POST TEST FRONT VIEW.	A-5
A-4	PRE-TEST LEFT SIDE VIEW	A-6
A-5	POST TEST LEFT SIDE VIEW	A-7
A-6	PRE-TEST RIGHT SIDE VIEW	A-8
A-7	POST TEST RIGHT SIDE VIEW	A-9
A-8	PRE-TEST RIGHT FRONT THREE-QUARTER VIEW	A-10
A-9	POST TEST RIGHT FRONT THREE-QUARTER VIEW	A-11
A-10	PRE-TEST LEFT REAR THREE-QUARTER VIEW	A-12
A-11	POST TEST LEFT REAR THREE-QUARTER VIEW	A-13
A-12	PRE-TEST WINDSHIELD VIEW	A-14
A-13	POST TEST WINDSHIELD VIEW	A-15
A-14	PRE-TEST ENGINE COMPARTMENT VIEW	A-16
A-15	FUEL CAP VIEW	A-17
A-16	PRE-TEST FRONT UNDERBODY VIEW	A-18
A-17	POST TEST FRONT UNDERBODY VIEW	A-19
A-18	PRE-TEST FRONT SIDE UNDERBODY VIEW	A-20
A-19	POST TEST FRONT SIDE UNDERBODY VIEW	A-21
A-20	PRE-TEST REAR UNDERBODY VIEW	A-22
A-21	POST TEST REAR UNDERBODY VIEW	A-23
A-22	PRE-TEST DRIVER POSITION VIEW	A-24
A-23	POST TEST DRIVER POSITION VIEW	A-25
A-24	PRE-TEST PASSENGER POSITION VIEW	A-26
A-25	POST TEST PASSENGER POSITION VIEW.	A-27
A-26	PRE-TEST DRIVER AND INTERIOR VIEW	A-28
A-27	POST TEST DRIVER AND INTERIOR VIEW	A-29
A-28	PRE-TEST PASSENGER AND INTERIOR VIEW	A-30
A-29	POST TEST PASSENGER AND INTERIOR VIEW	A-31
A-30	PRE-TEST DRIVER HEAD LOCATION	A-32
A-31	PRE-TEST PASSENGER HEAD LOCATION	A-33
A-32	IMPACT VIEW	A-34

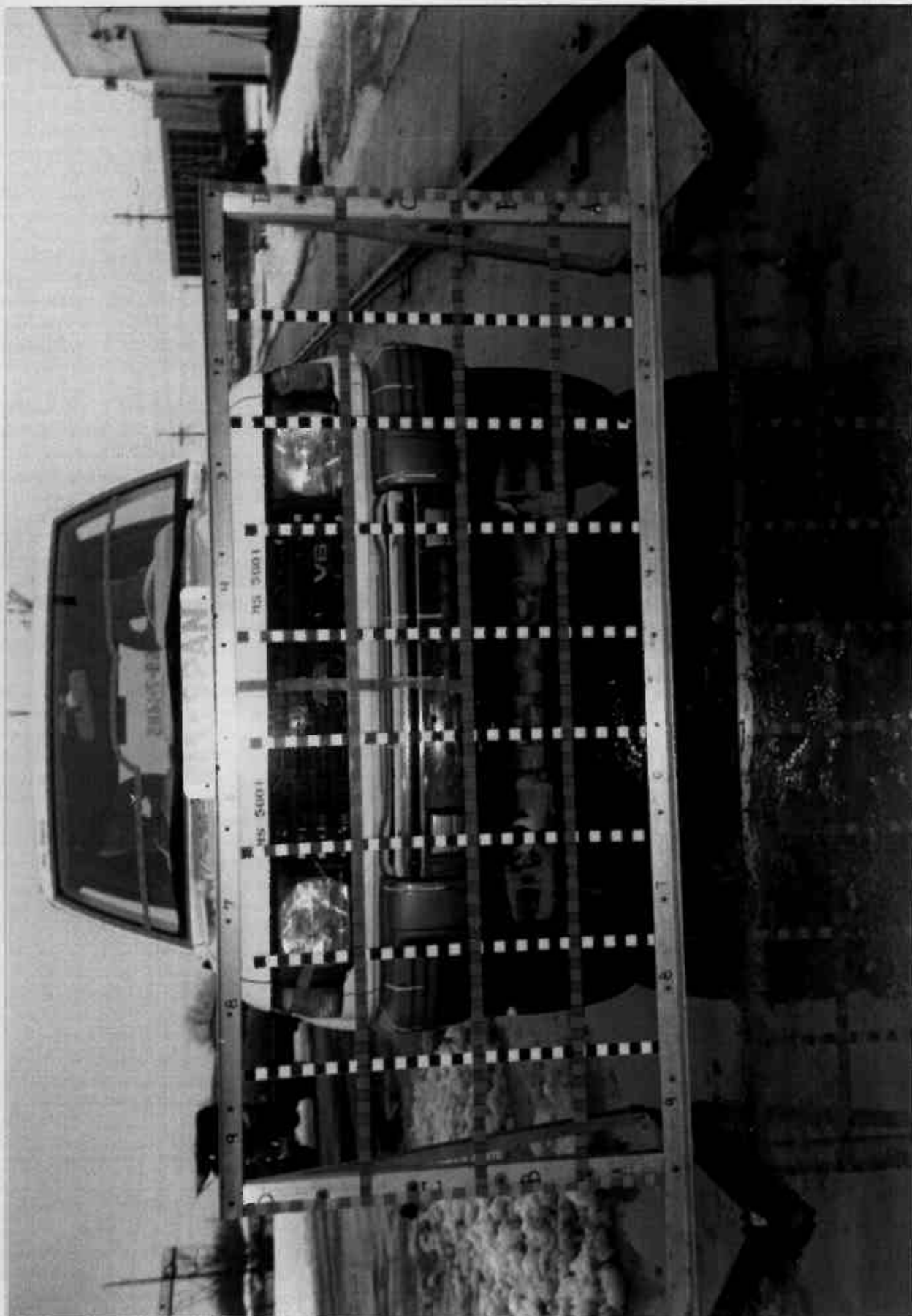


Figure A-1 LOAD CELL LOCATIONS



Figure A-2 PRE-TEST FRONT VIEW

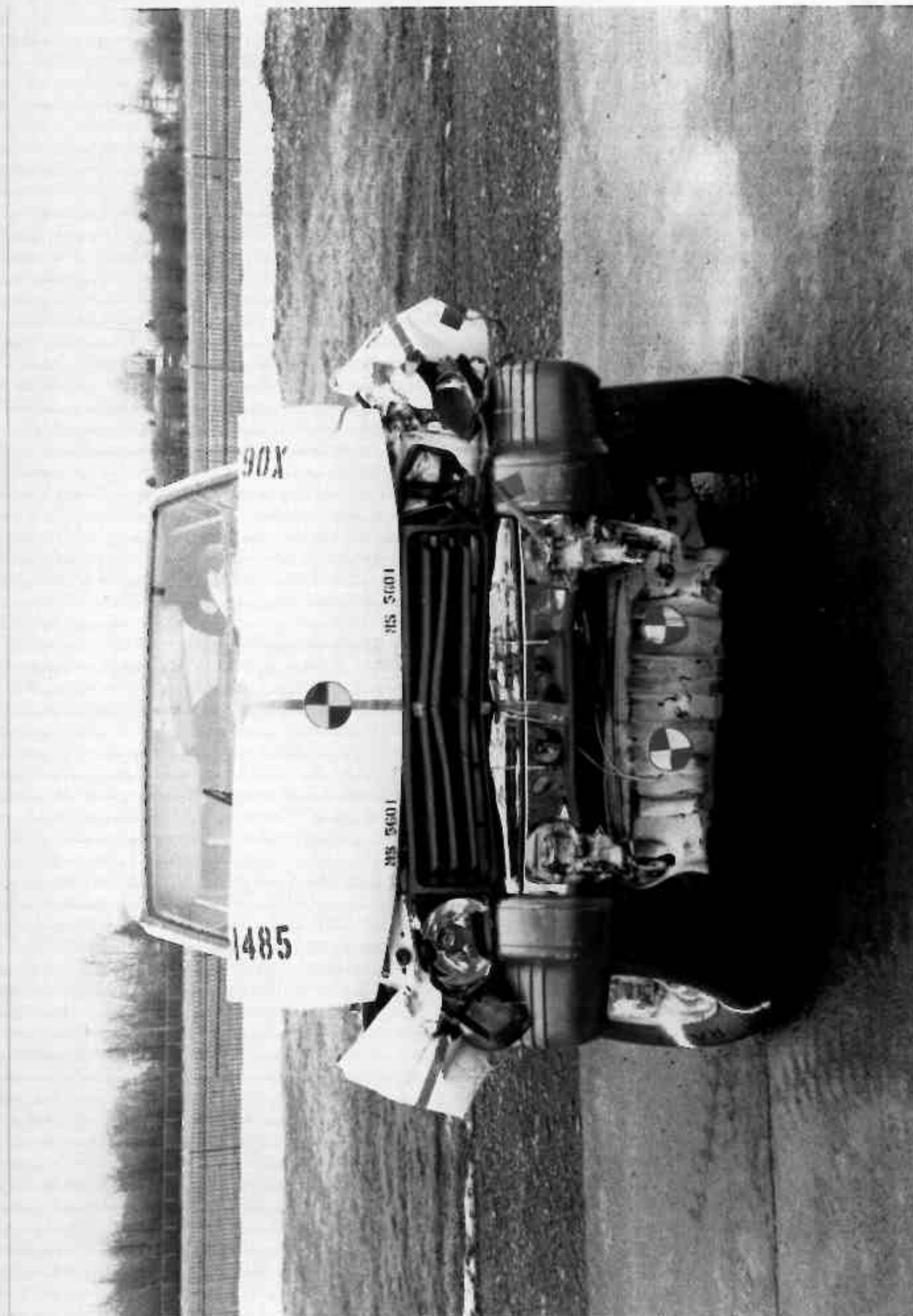


Figure A-3 POST-TEST FRONT VIEW



Figure A-4 PRE-TEST LEFT SIDE VIEW



Figure A-5 POST-TEST LEFT SIDE VIEW



Figure A-6 PRE-TEST RIGHT SIDE VIEW



Figure A-7 POST-TEST RIGHT SIDE VIEW



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



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



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



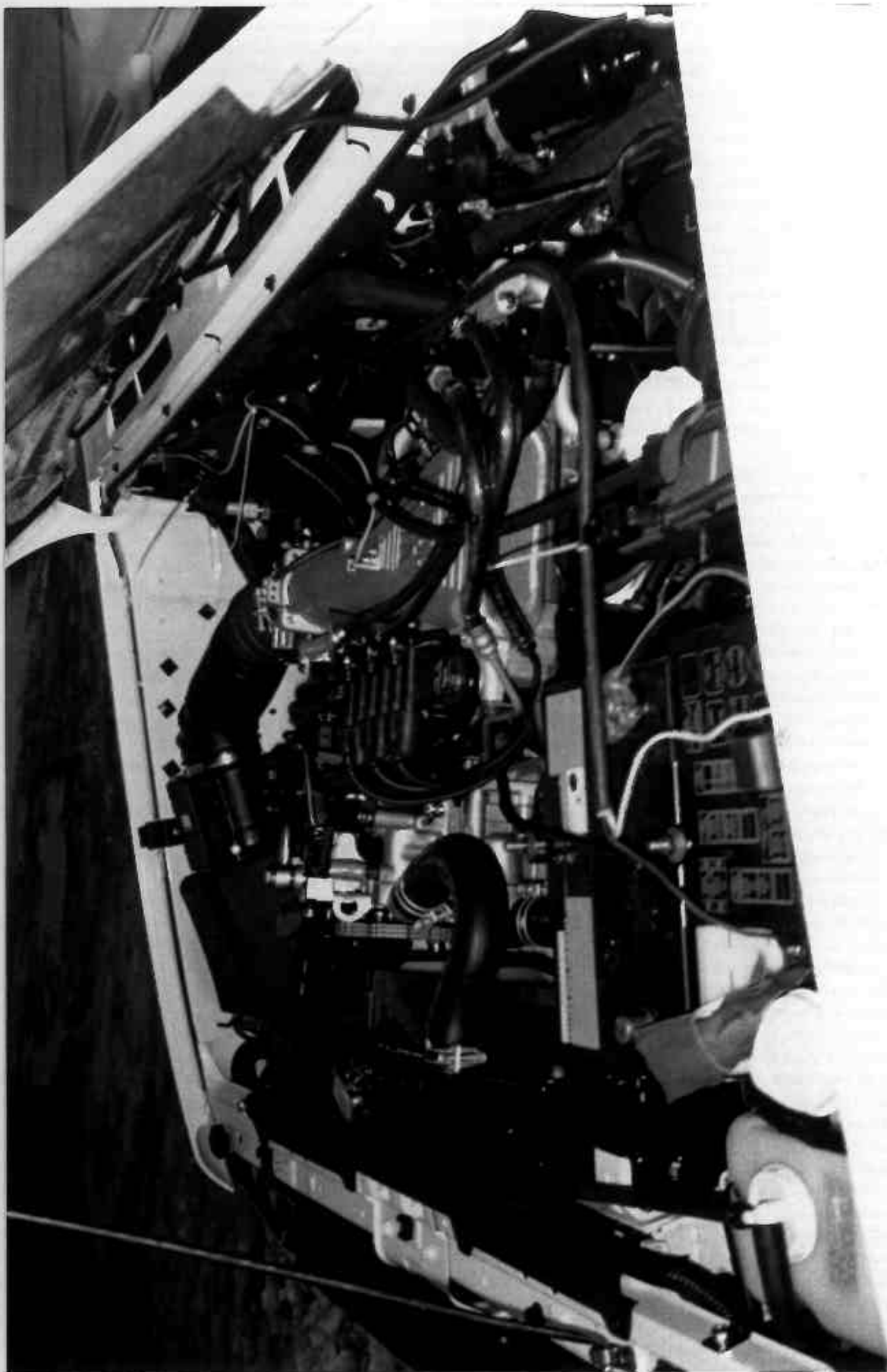
Figure A-11 POST-TEST LEFT REAR THREE-QUARTER VIEW



Figure A-12 PRE-TEST WINDSHIELD VIEW



Figure A-13 POST-TEST WINDSHIELD VIEW



MS 5001

Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW



Figure A-15 FUEL FILLER CAP

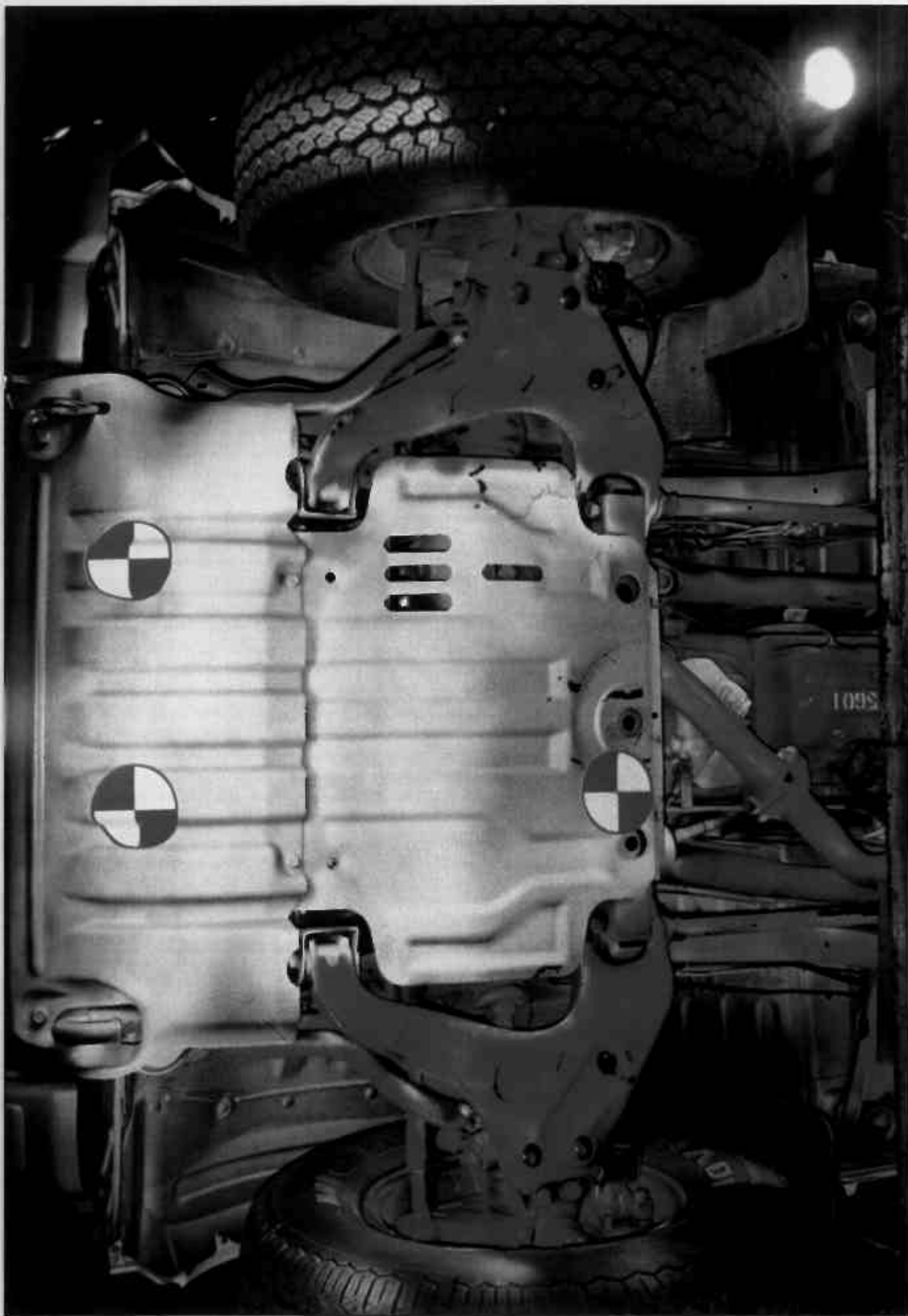


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW



Figure A-17 POST-TEST FRONT UNDERBODY VIEW

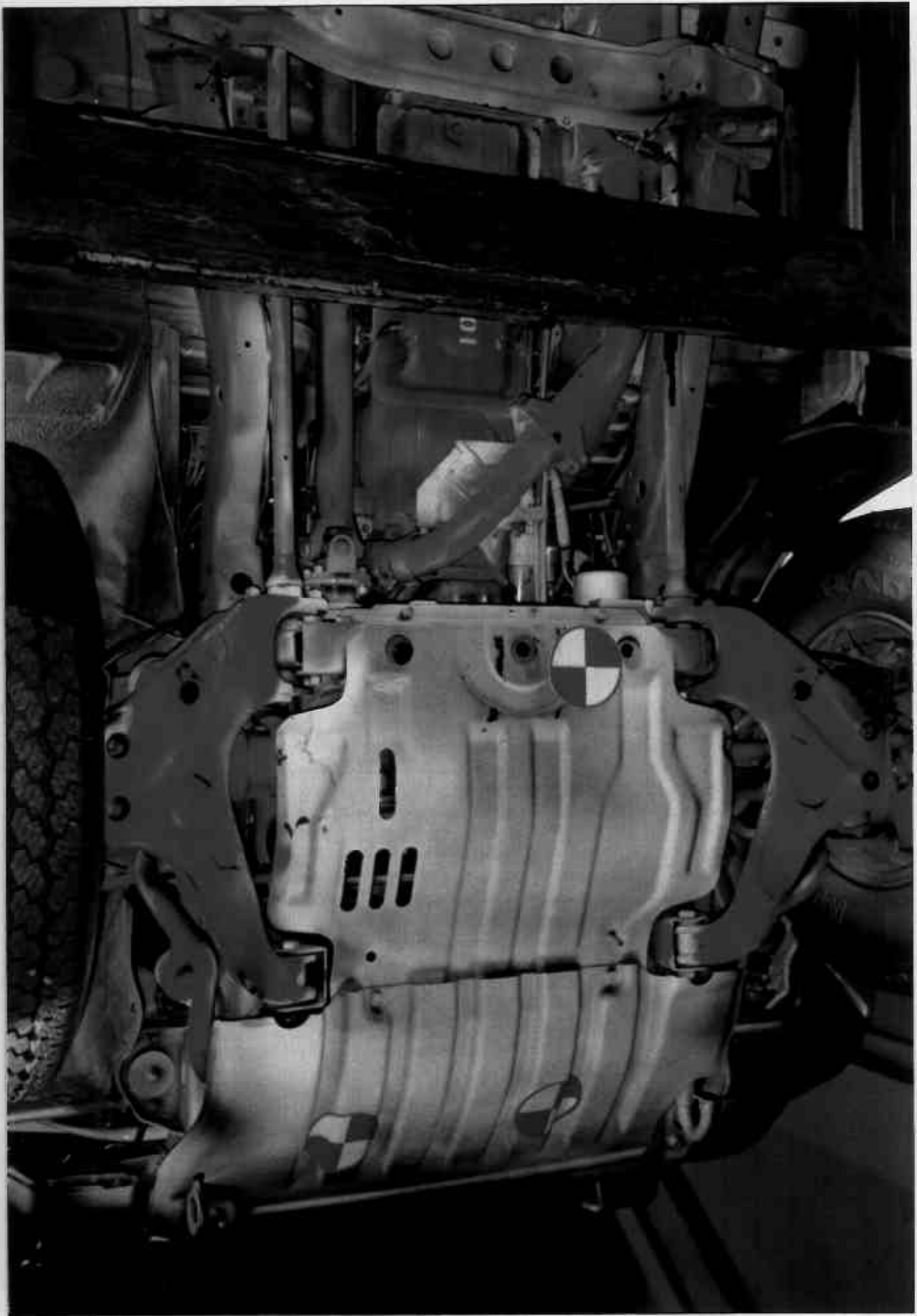


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW

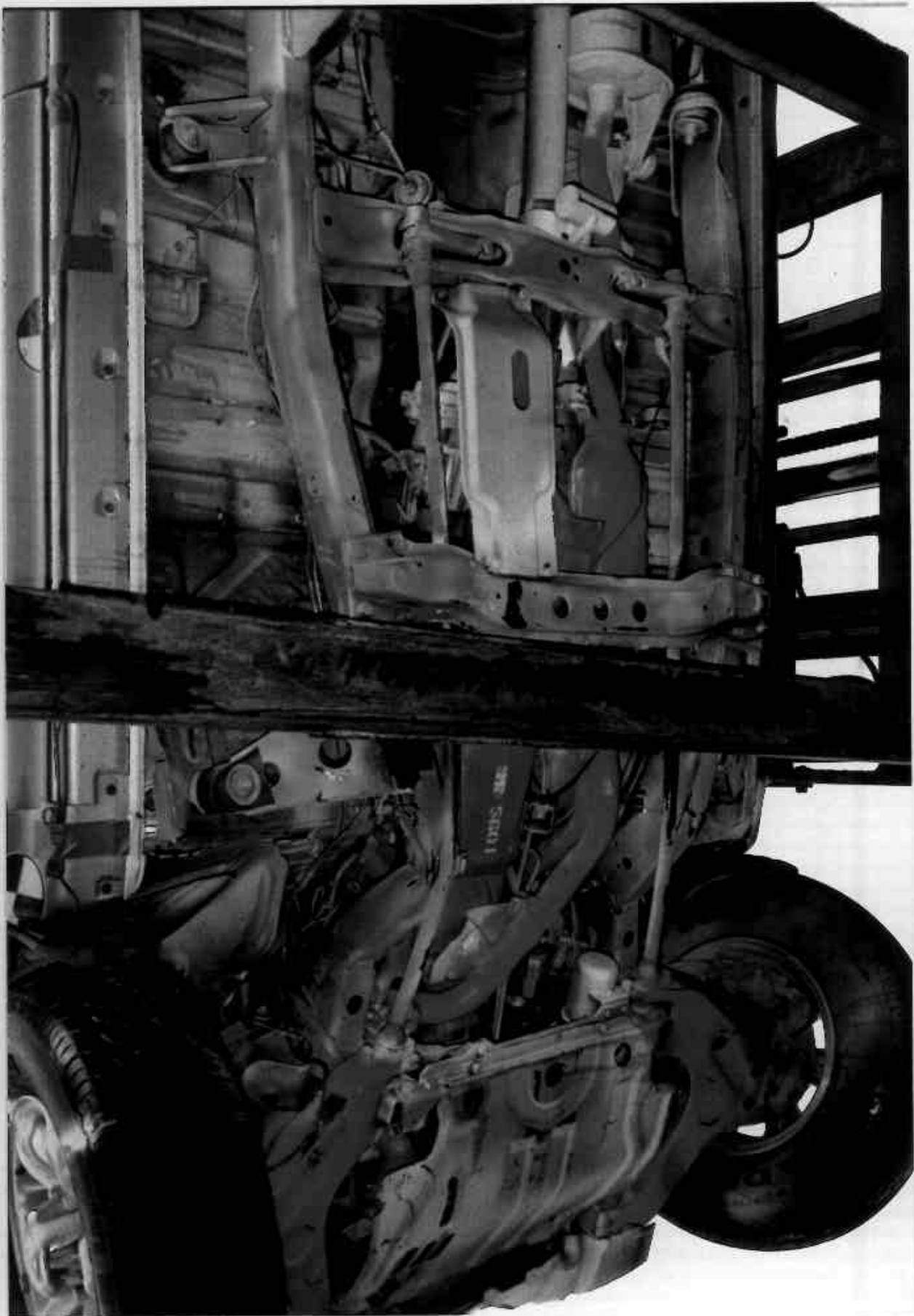


Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

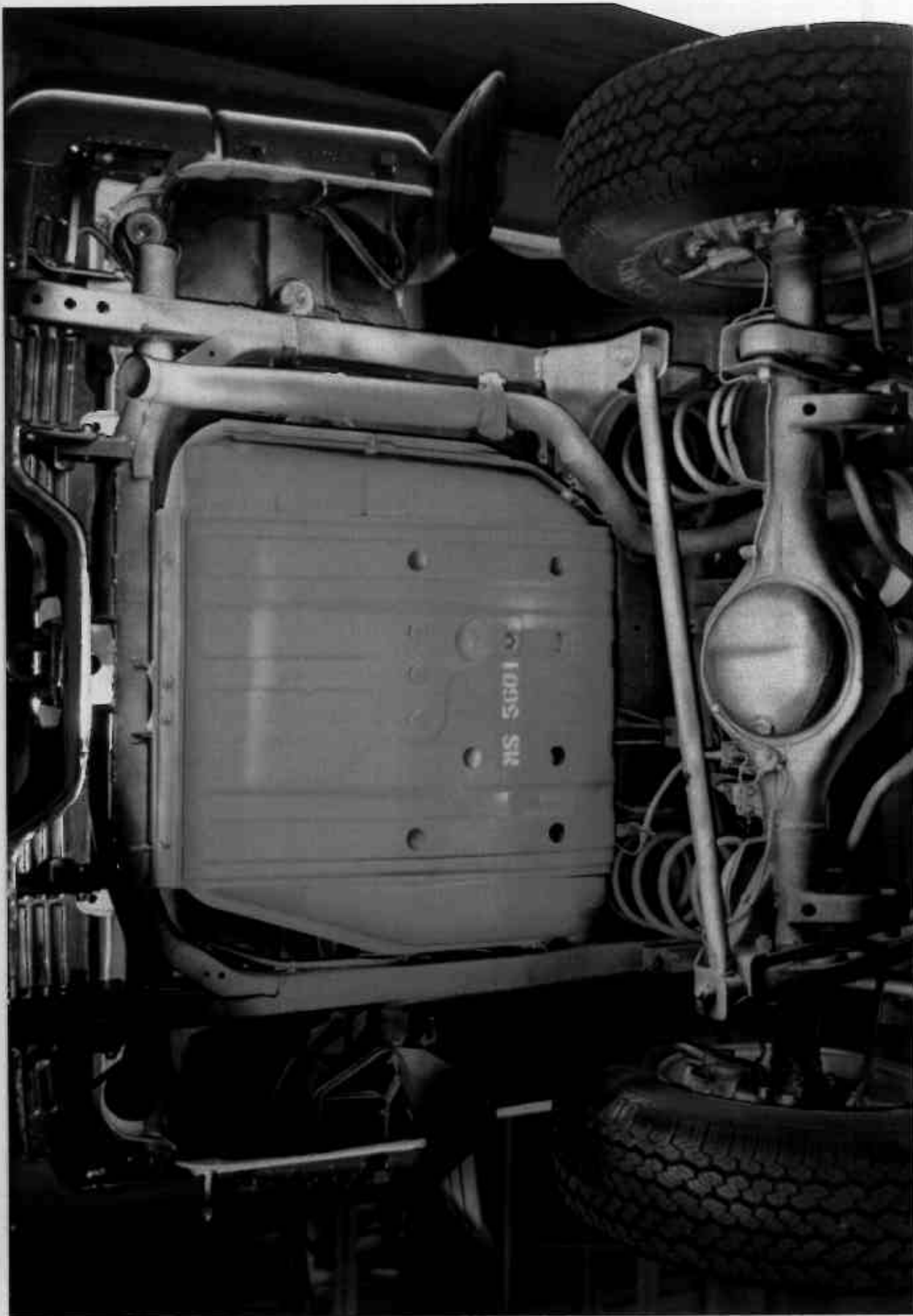


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

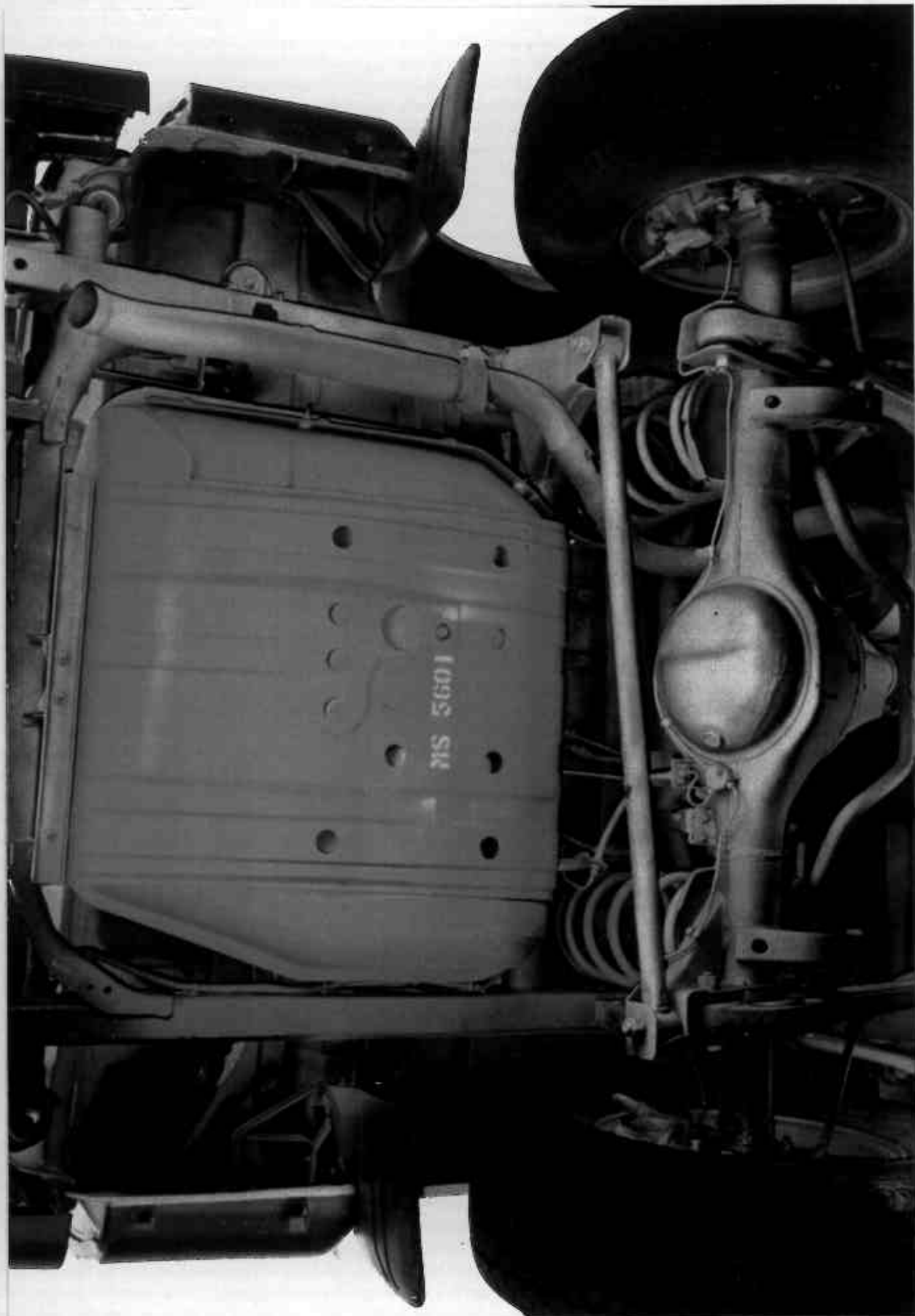


Figure A-21 POST-TEST REAR UNDERBODY VIEW



Figure A-22 PRE-TEST DRIVER POSITION VIEW



Figure A-23 POST-TEST DRIVER POSITION VIEW



Figure A-24 PRE-TEST PASSENGER POSITION VIEW



Figure A-25 POST-TEST PASSENGER POSITION VIEW



Figure A-26 PRE-TEST DRIVER DUMMY AND INTERIOR VIEW

PHOTOGRAPH NOT AVAILABLE



Figure A-28 PRE-TEST PASSENGER DUMMY AND INTERIOR VIEW



Figure A-29 POST-TEST PASSENGER DUMMY AND INTERIOR VIEW

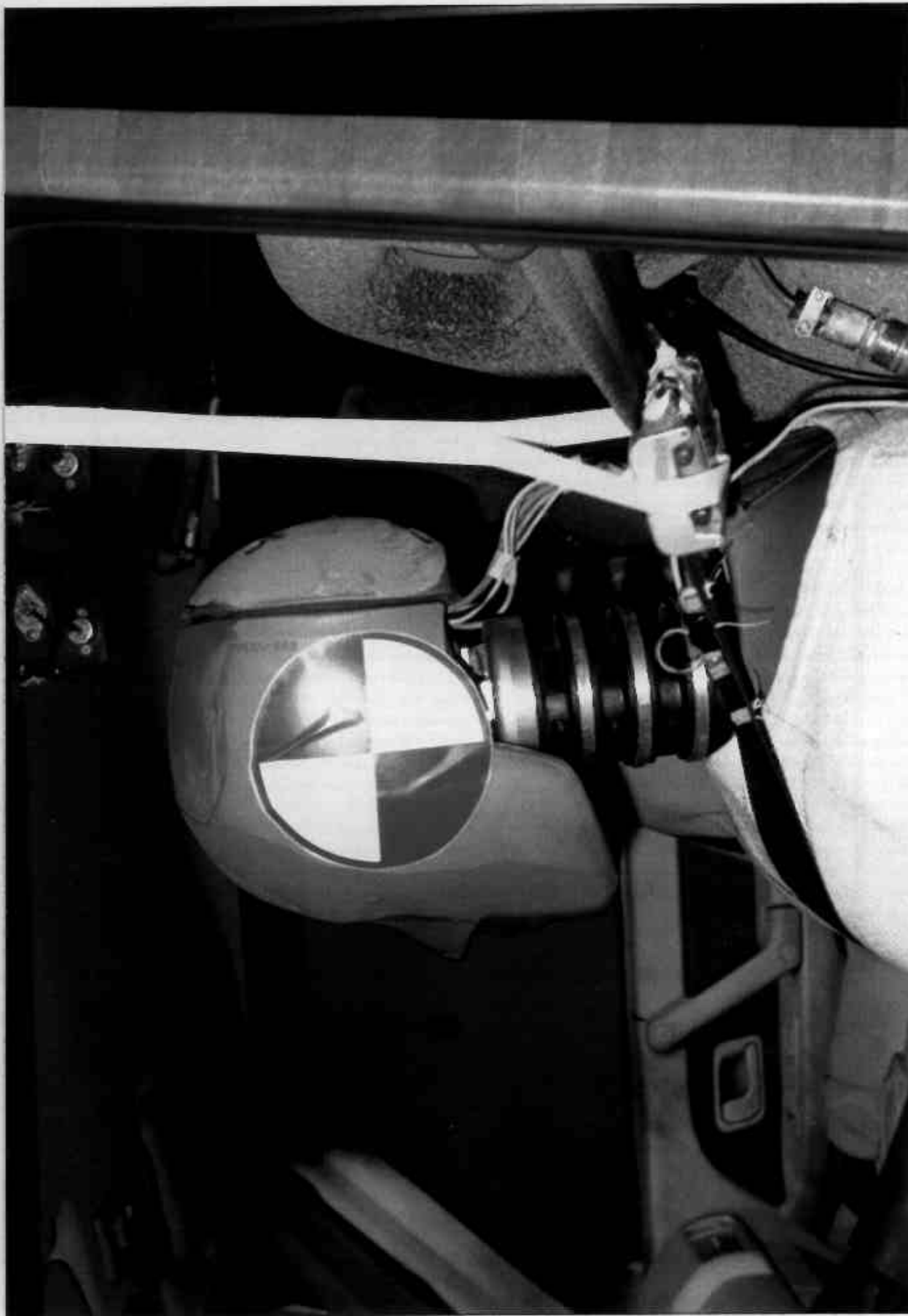


Figure A-30 PRE-TEST DRIVER HEAD LOCATION

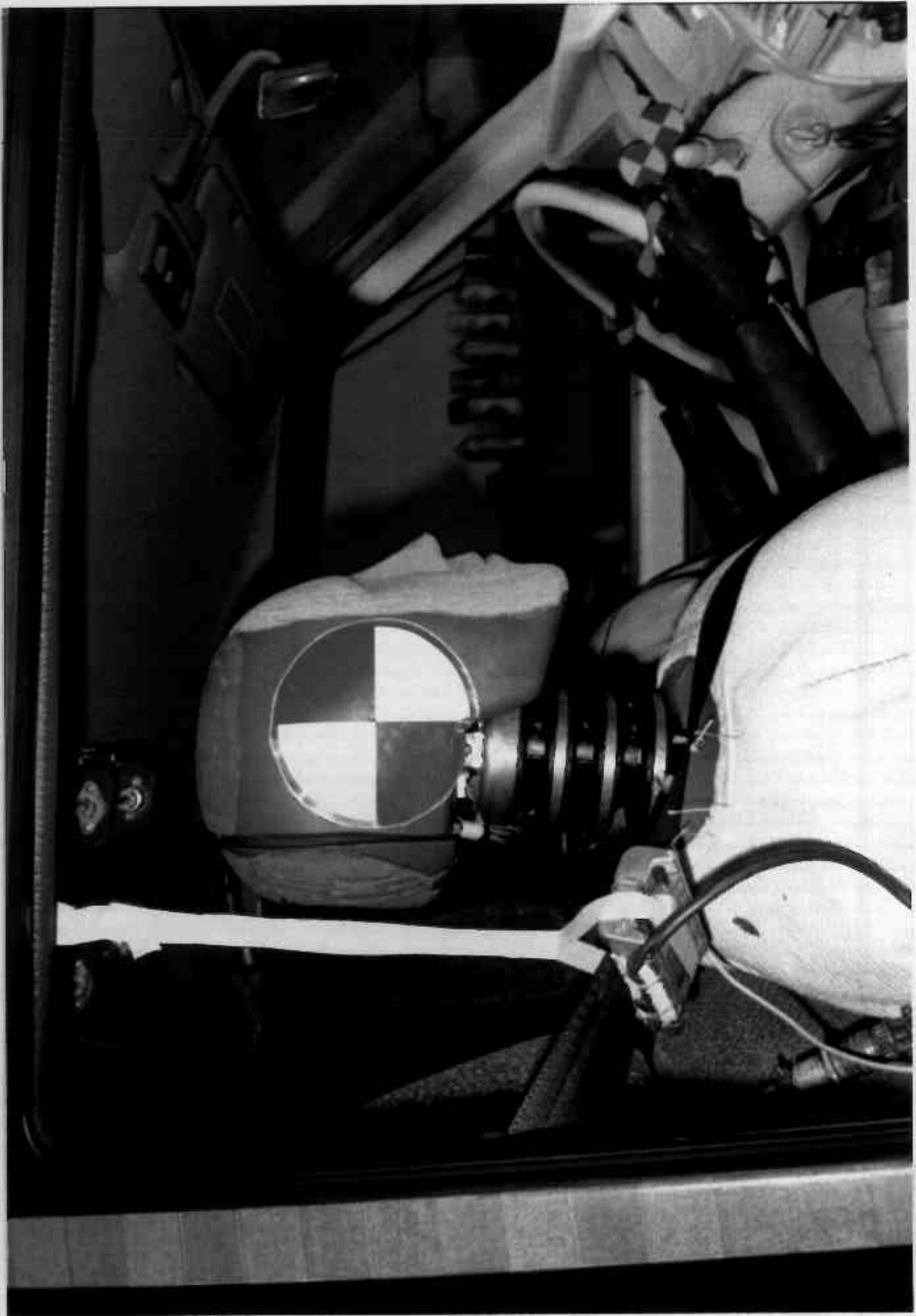


Figure A-31 PRE-TEST PASSENGER HEAD LOCATION



Figure A-32 VEHICLE IMPACT

Appendix B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

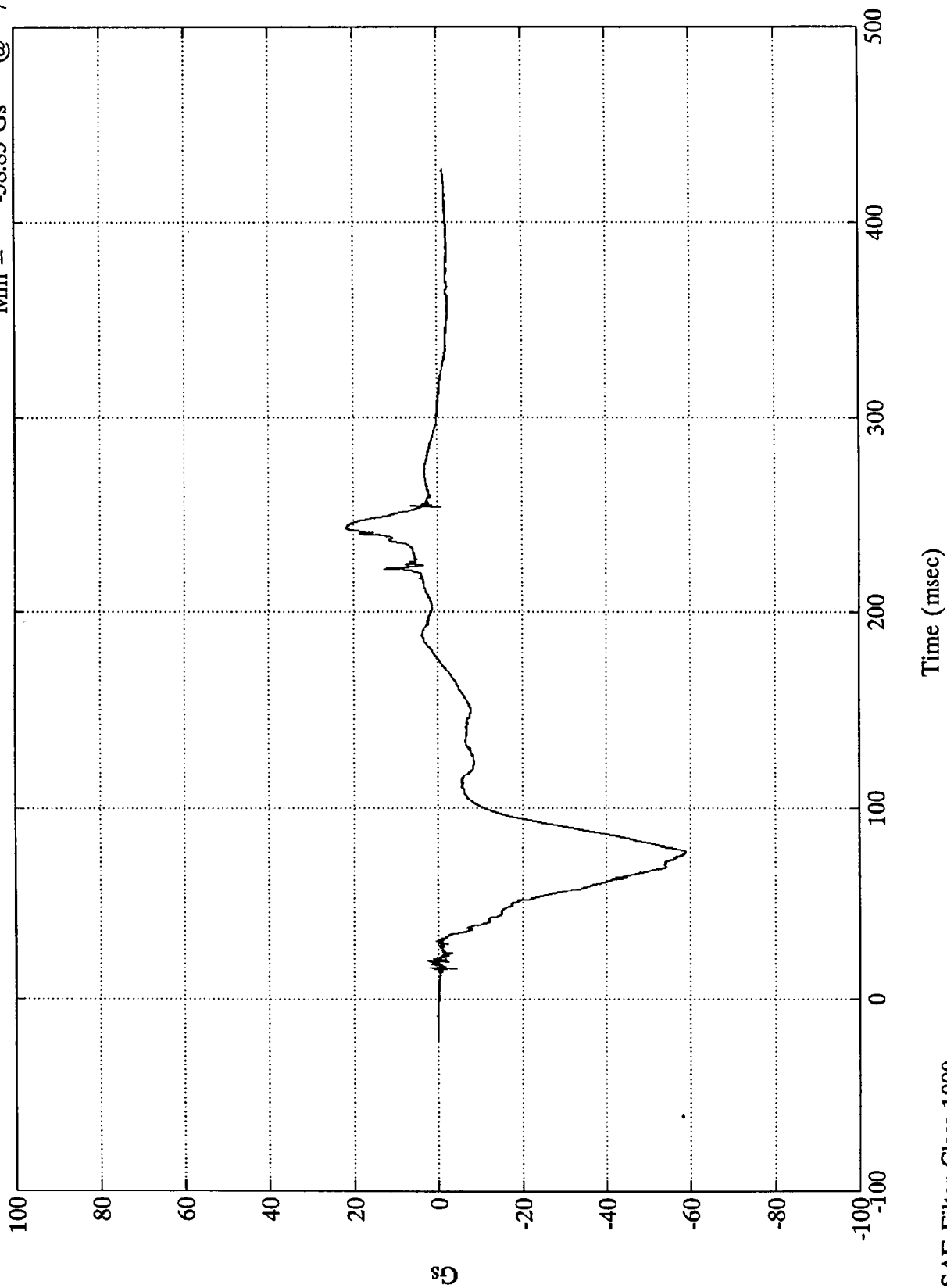
TEST NO. MS5601

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 #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Head X
Max = 21.84 Gs @ 243.24 msec
Min = -58.83 Gs @ 77.76 msec

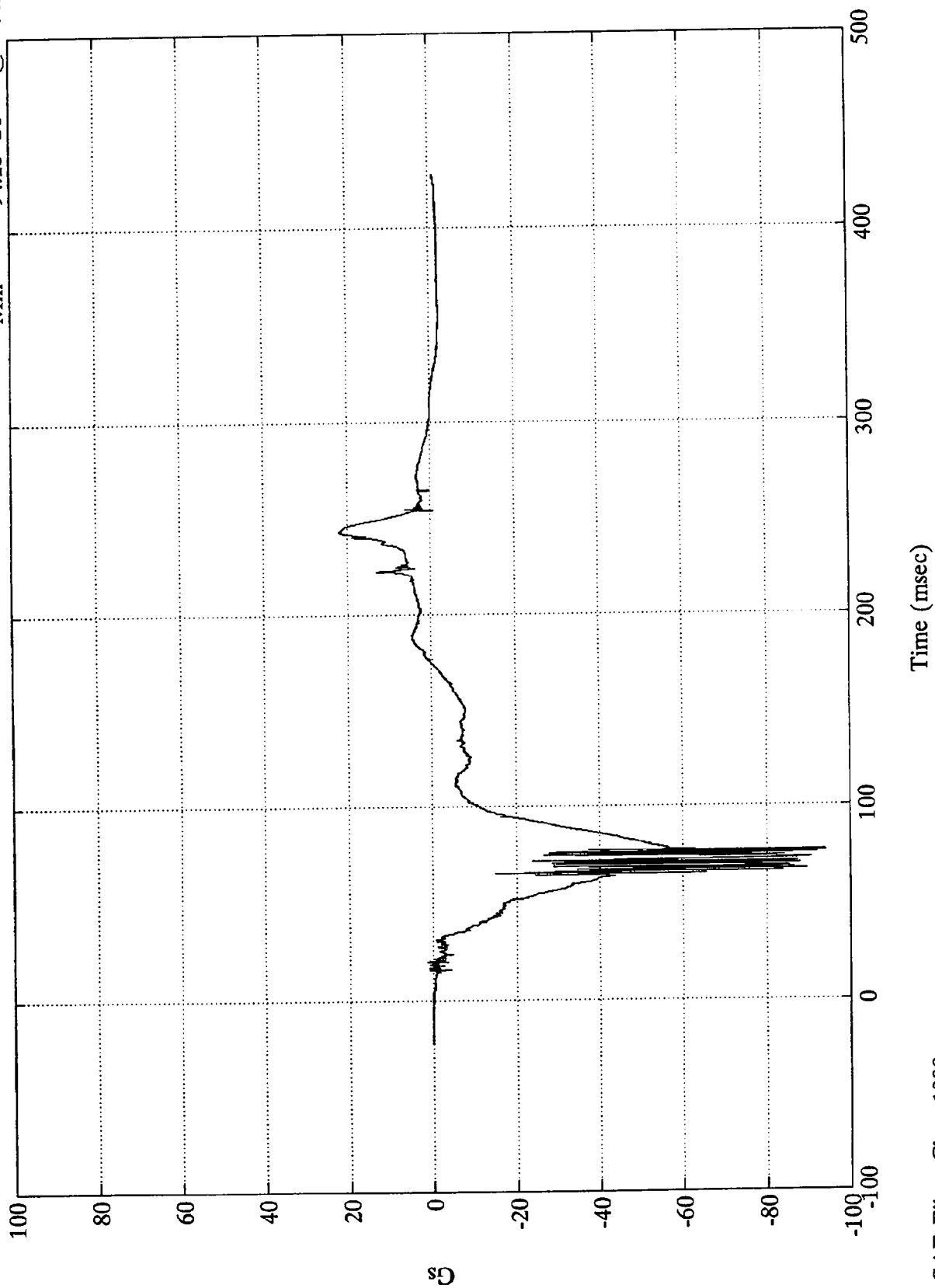


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Head X(R)

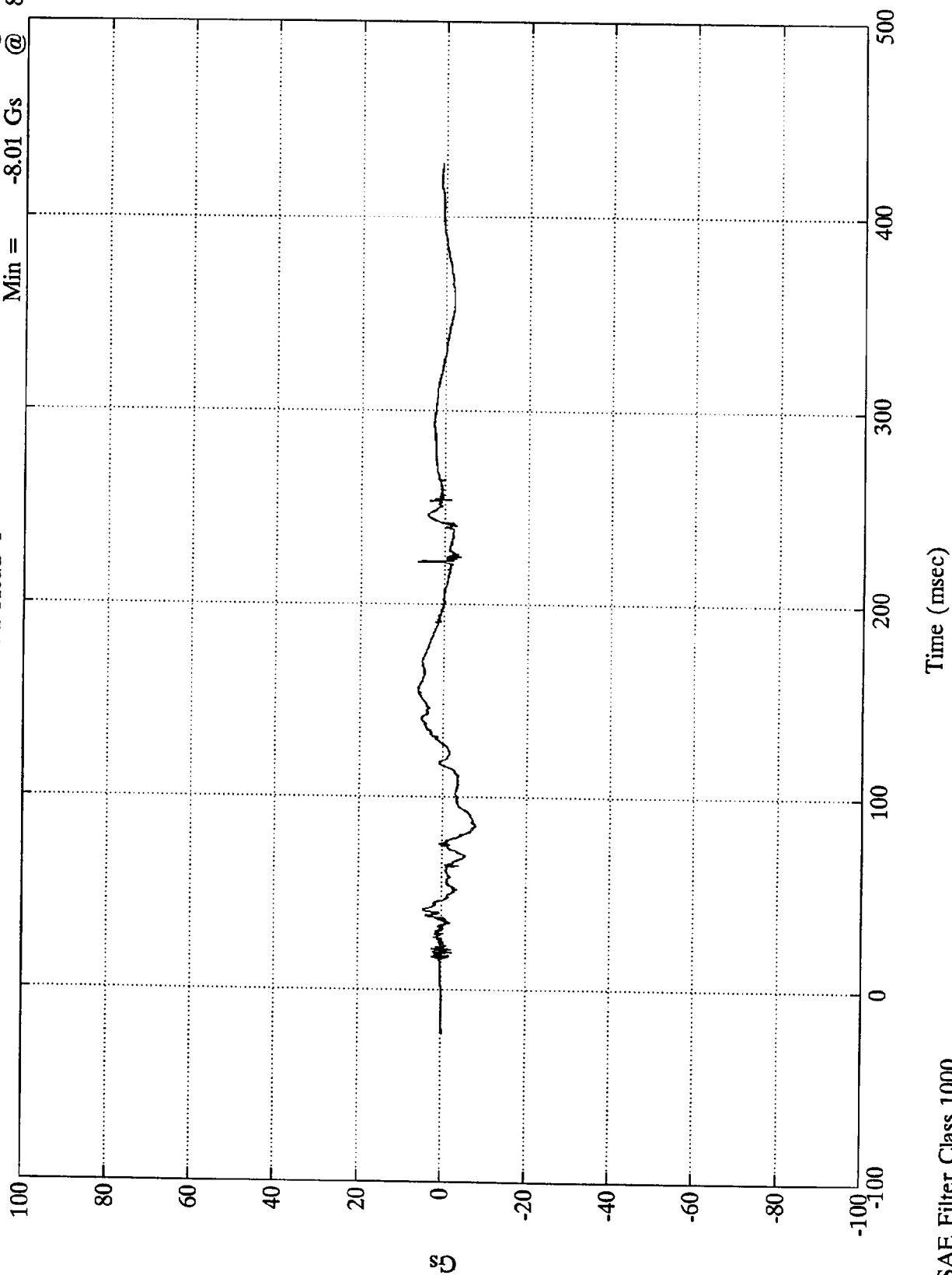
Max = 21.99 Gs @ 243.24 msec
Min = -94.13 Gs @ 76.80 msec



SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

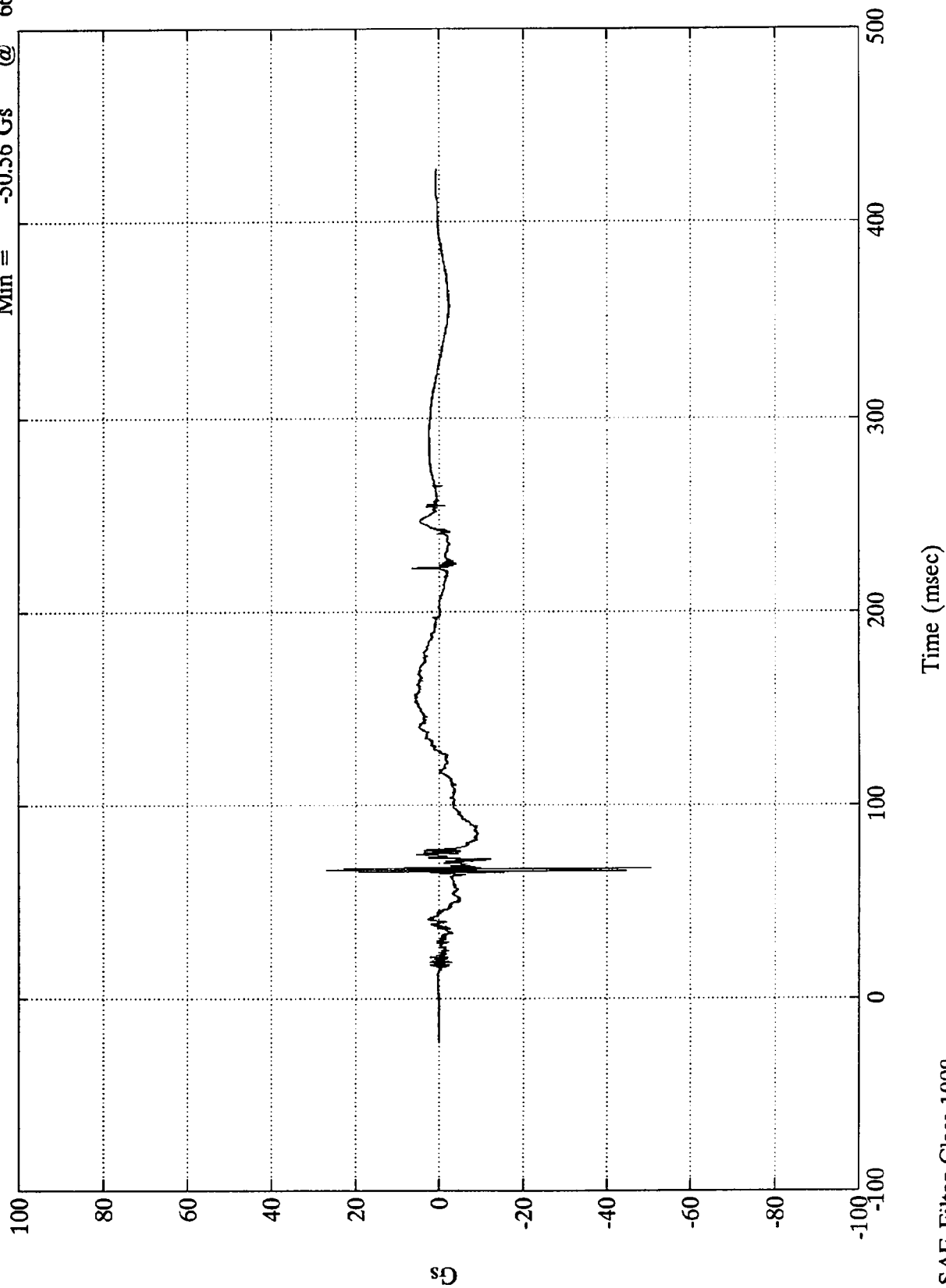
Pos. 1 Head Y
Max = 6.28 Gs @ 222.72 msec
Min = -8.01 Gs @ 84.72 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Head Y(R)

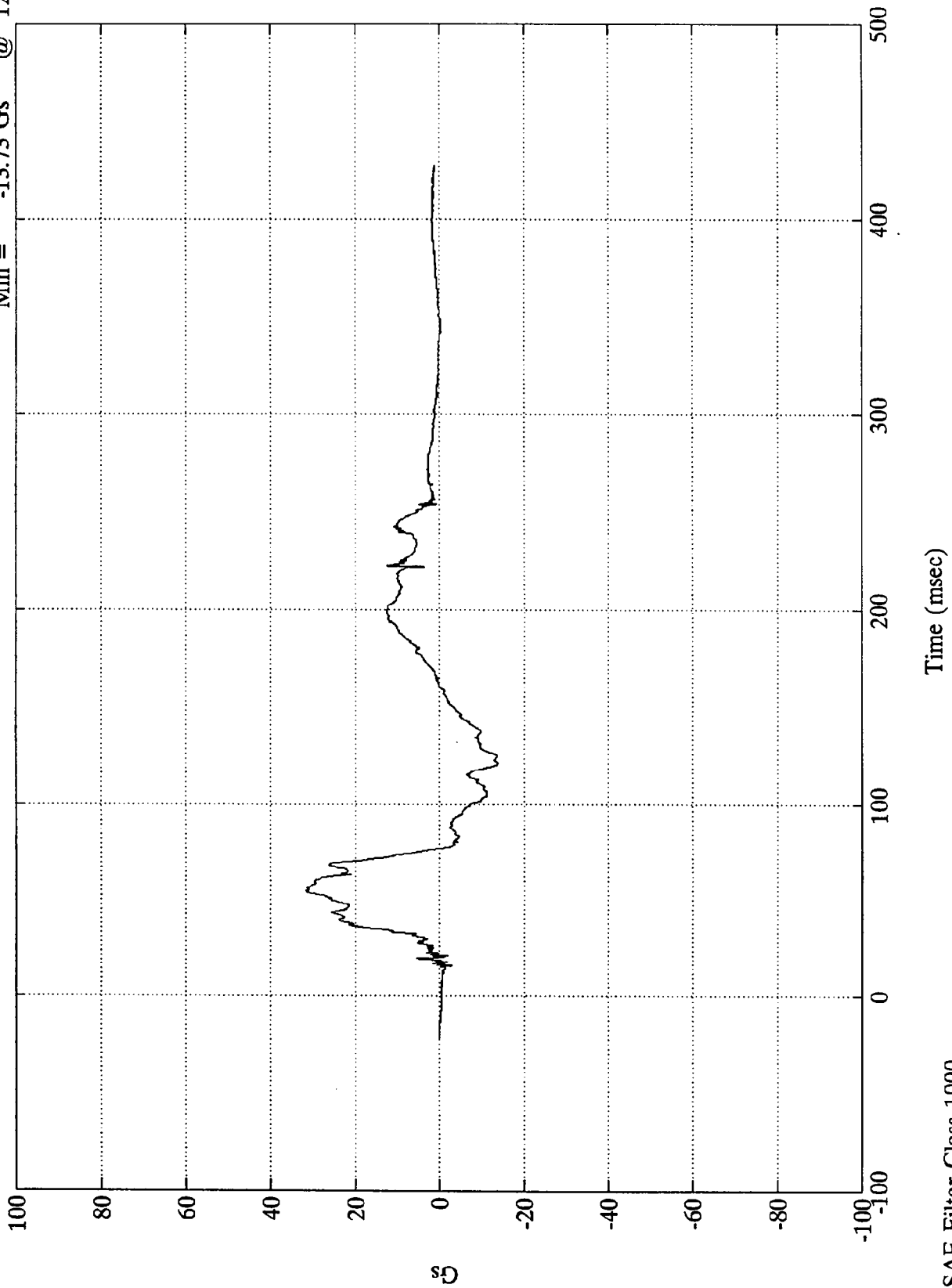
Max = 26.82 Gs @ 66.00 msec
Min = -50.56 Gs @ 66.95 msec



SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Head Z
Max = 31.76 Gs @ 55.32 msec
Min = -13.73 Gs @ 121.44 msec

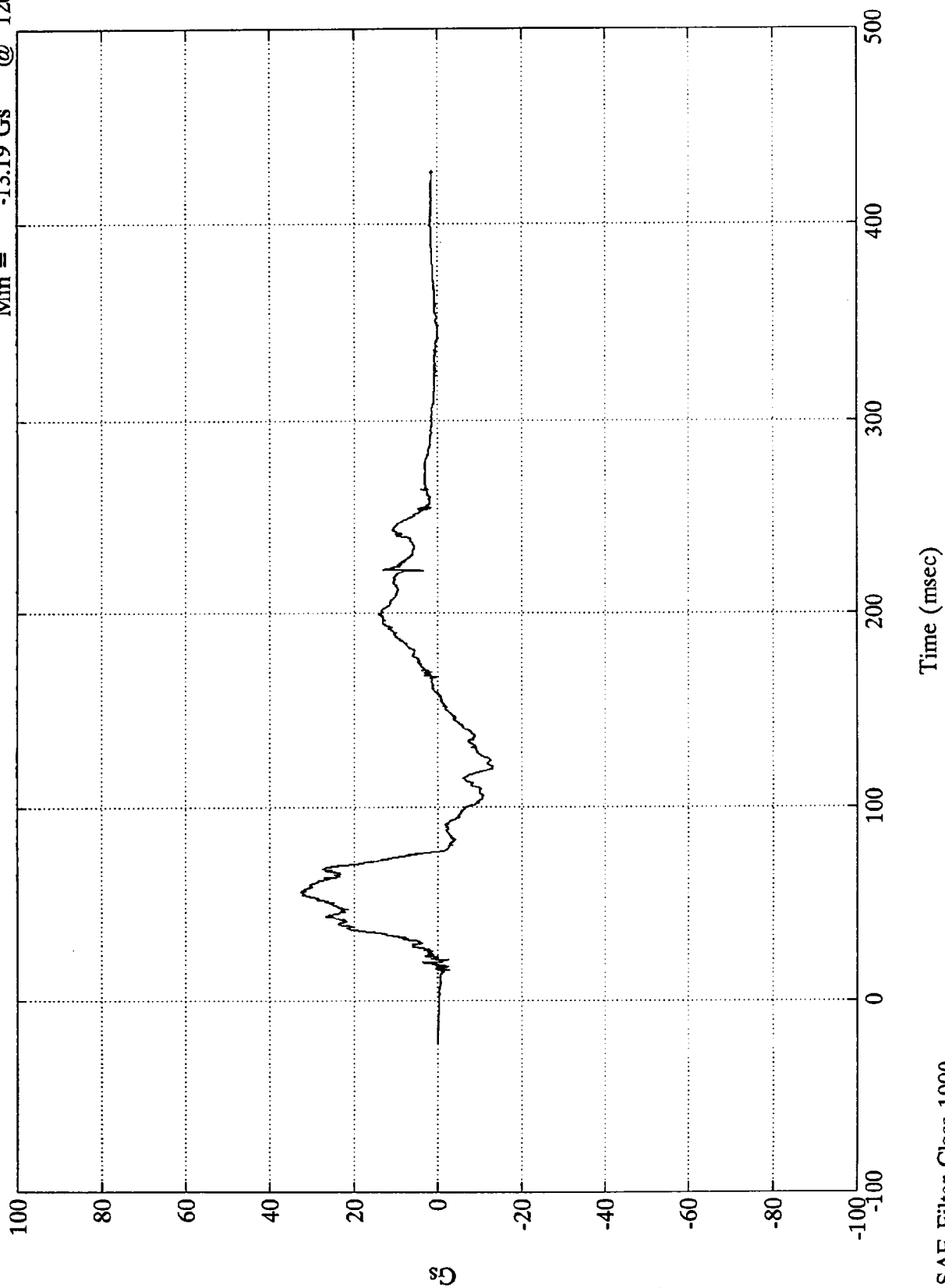


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

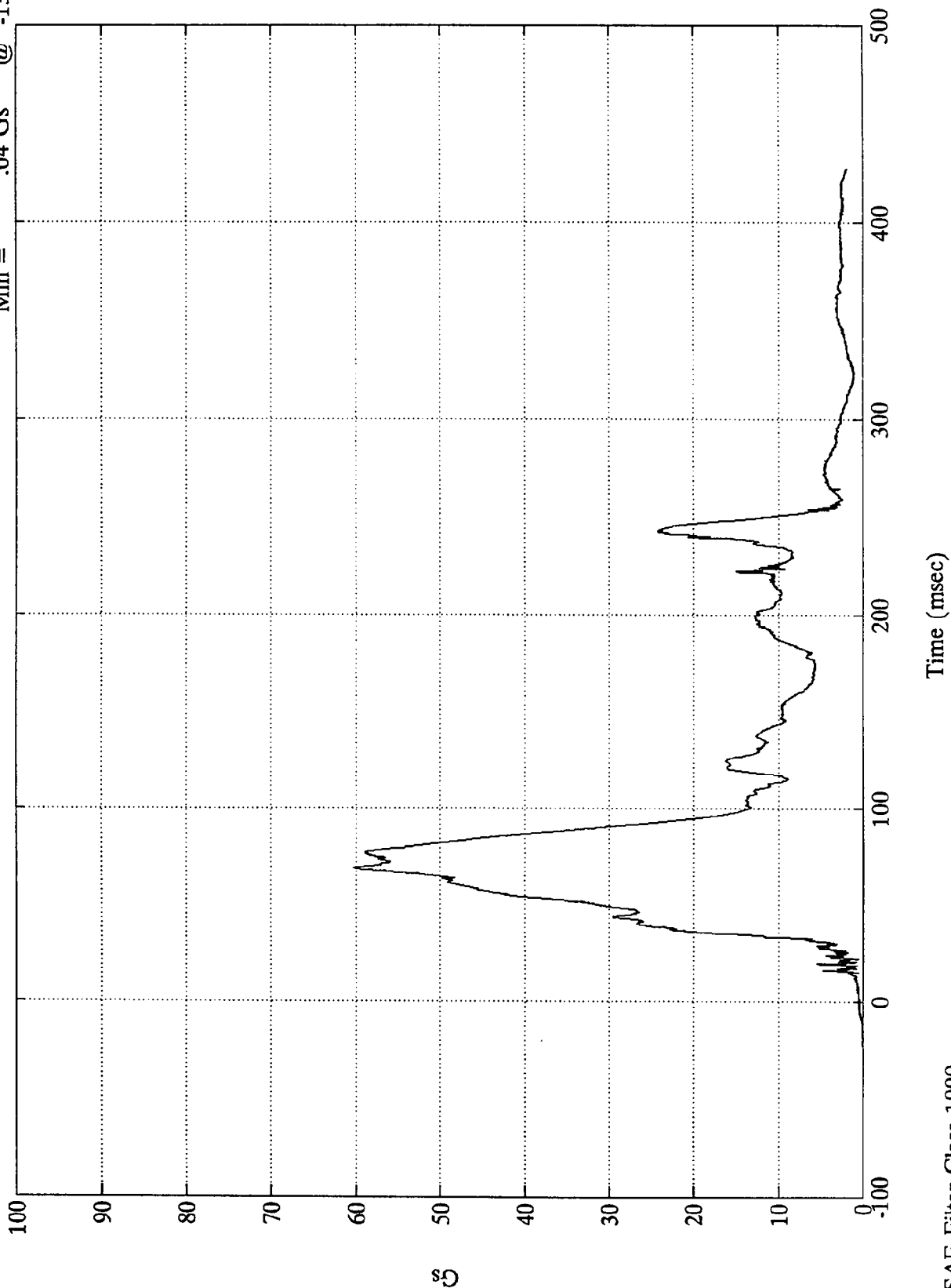
Pos. 1 Head Z(R)

Max = 32.41 Gs @ 56.76 msec
Min = -13.19 Gs @ 120.96 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Head Resultant
Max = 60.27 Gs @ 69.48 msec
Min = .04 Gs @ -13.68 msec

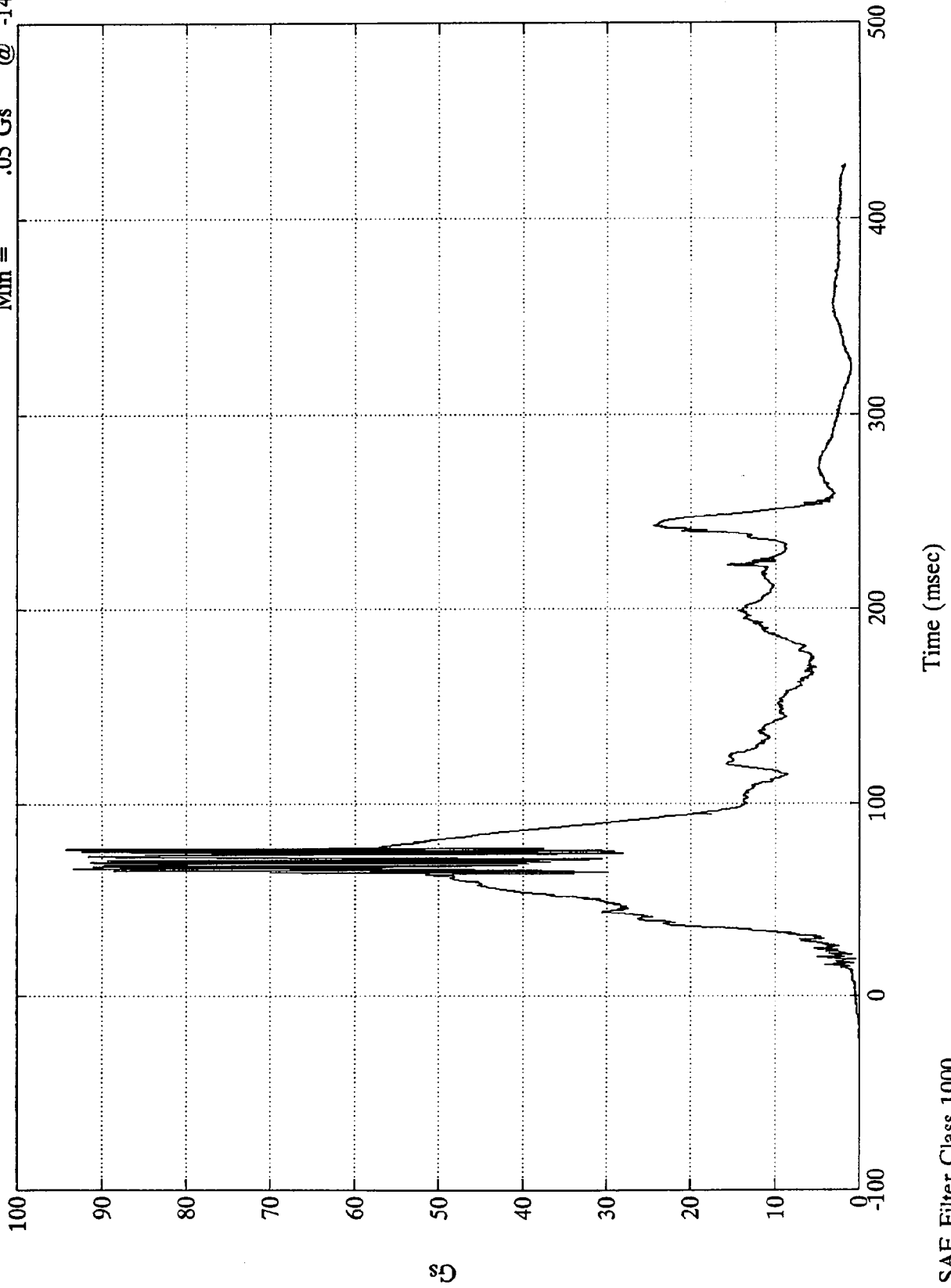


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Head Resultant(R)

Max = 94.20 Gs @ 76.80 msec
Min = .05 Gs @ -14.04 msec

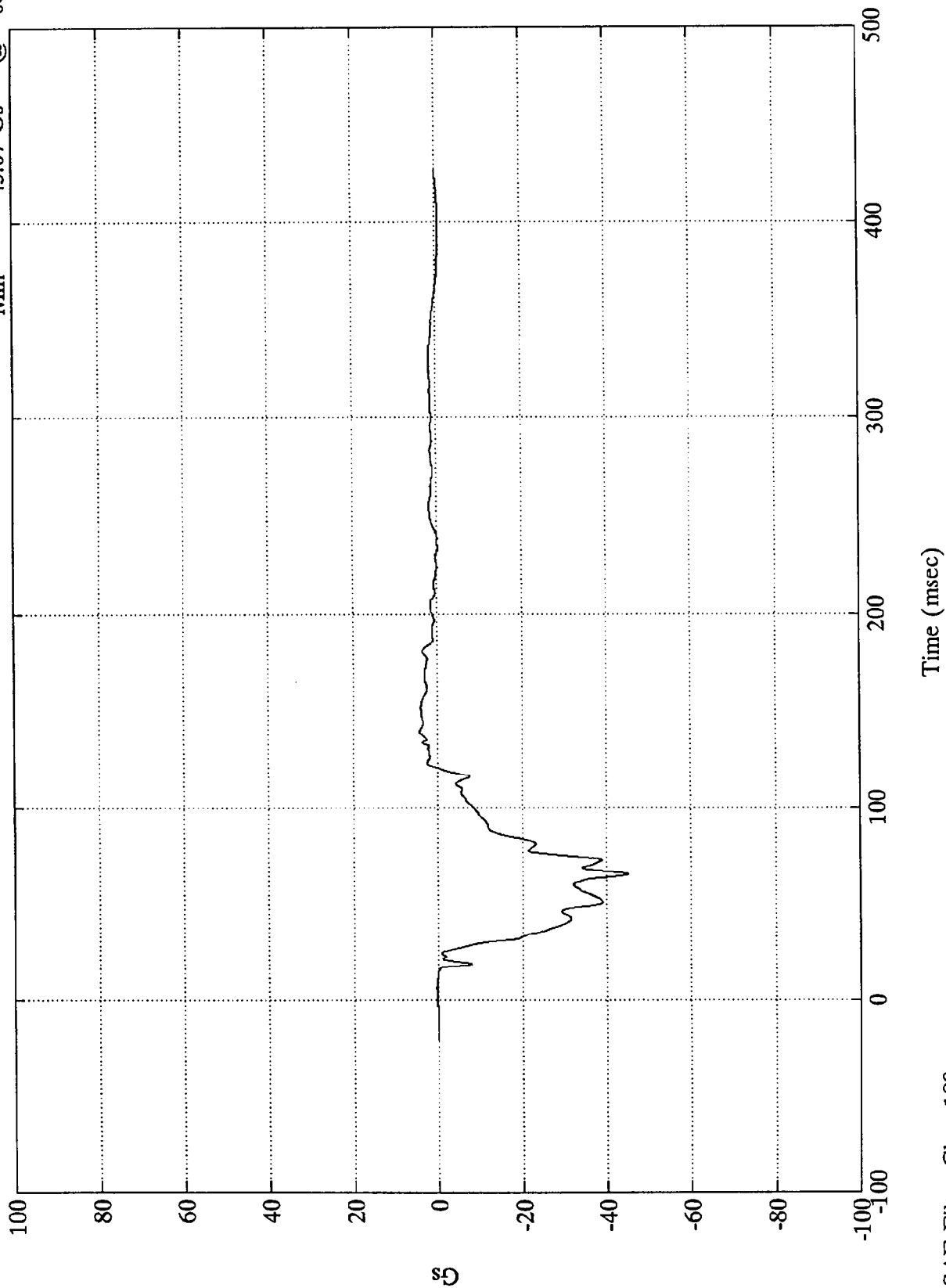


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Chest X

Max = 4.30 Gs @ 139.19 msec
Min = -45.07 Gs @ 66.24 msec

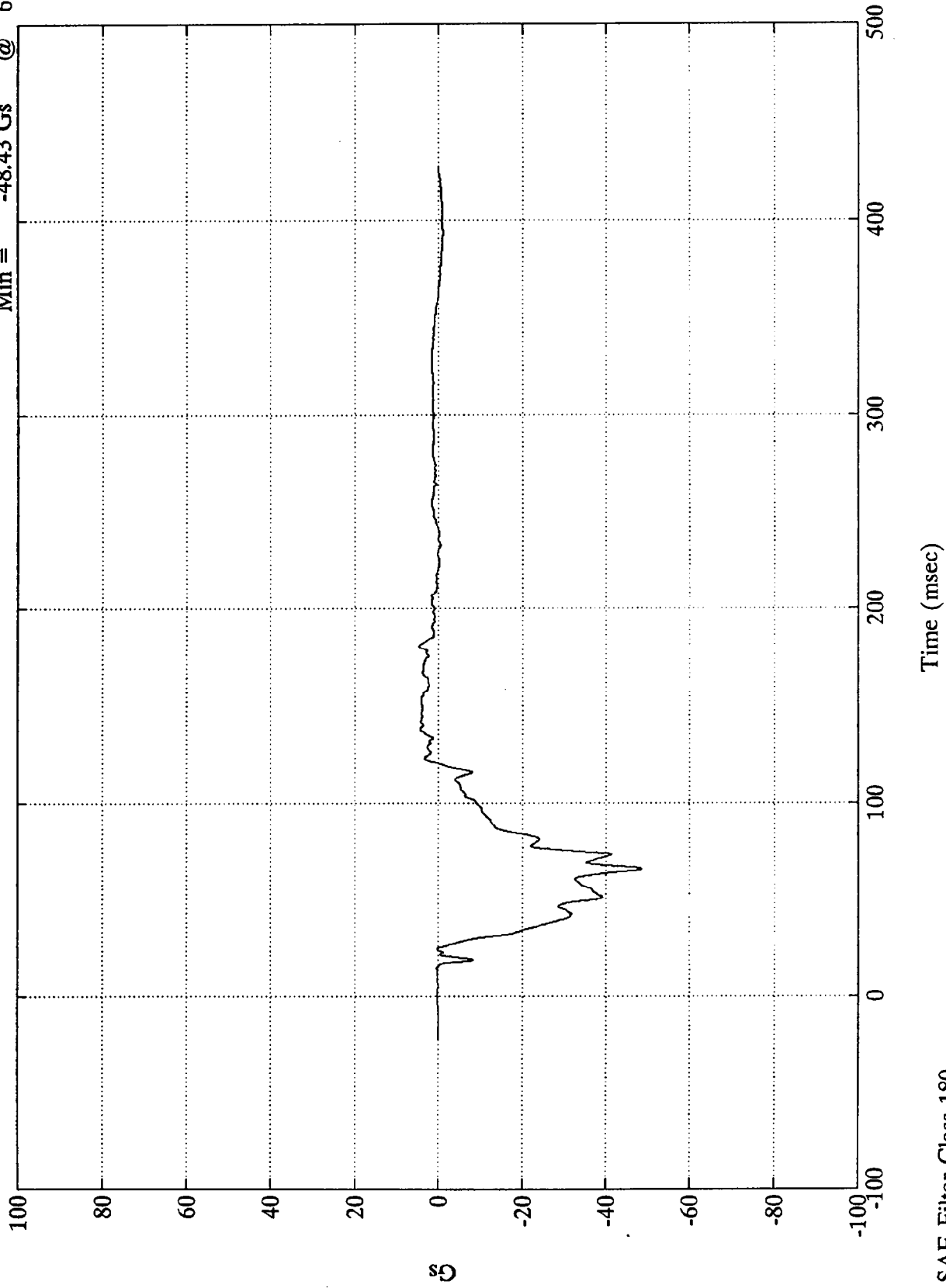


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Chest X(R)

Max = 4.80 Gs @ 180.83 msec
Min = -48.43 Gs @ 66.24 msec

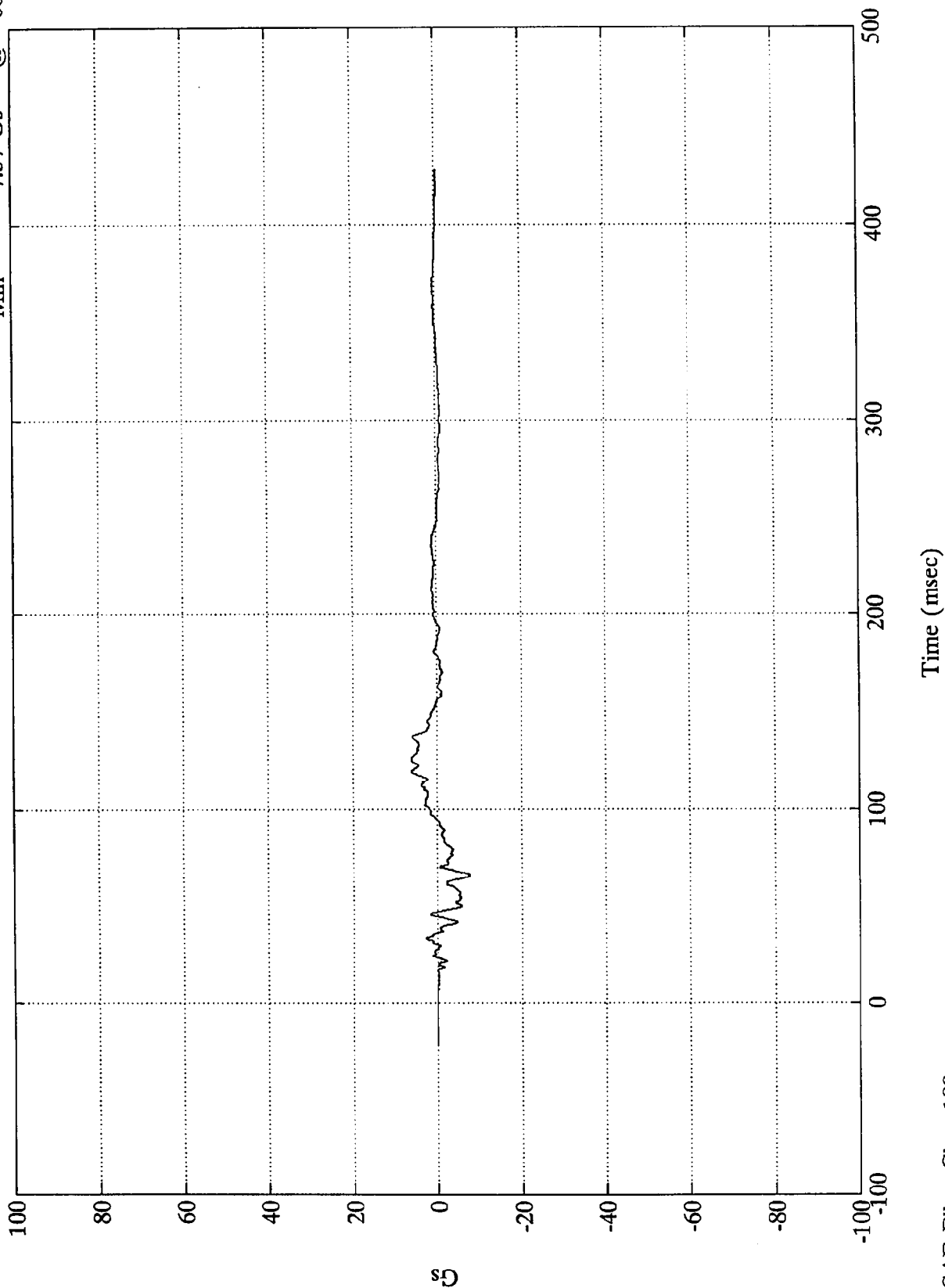


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Chest Y

Max = 6.15 Gs @ 125.88 msec
Min = -7.57 Gs @ 66.00 msec

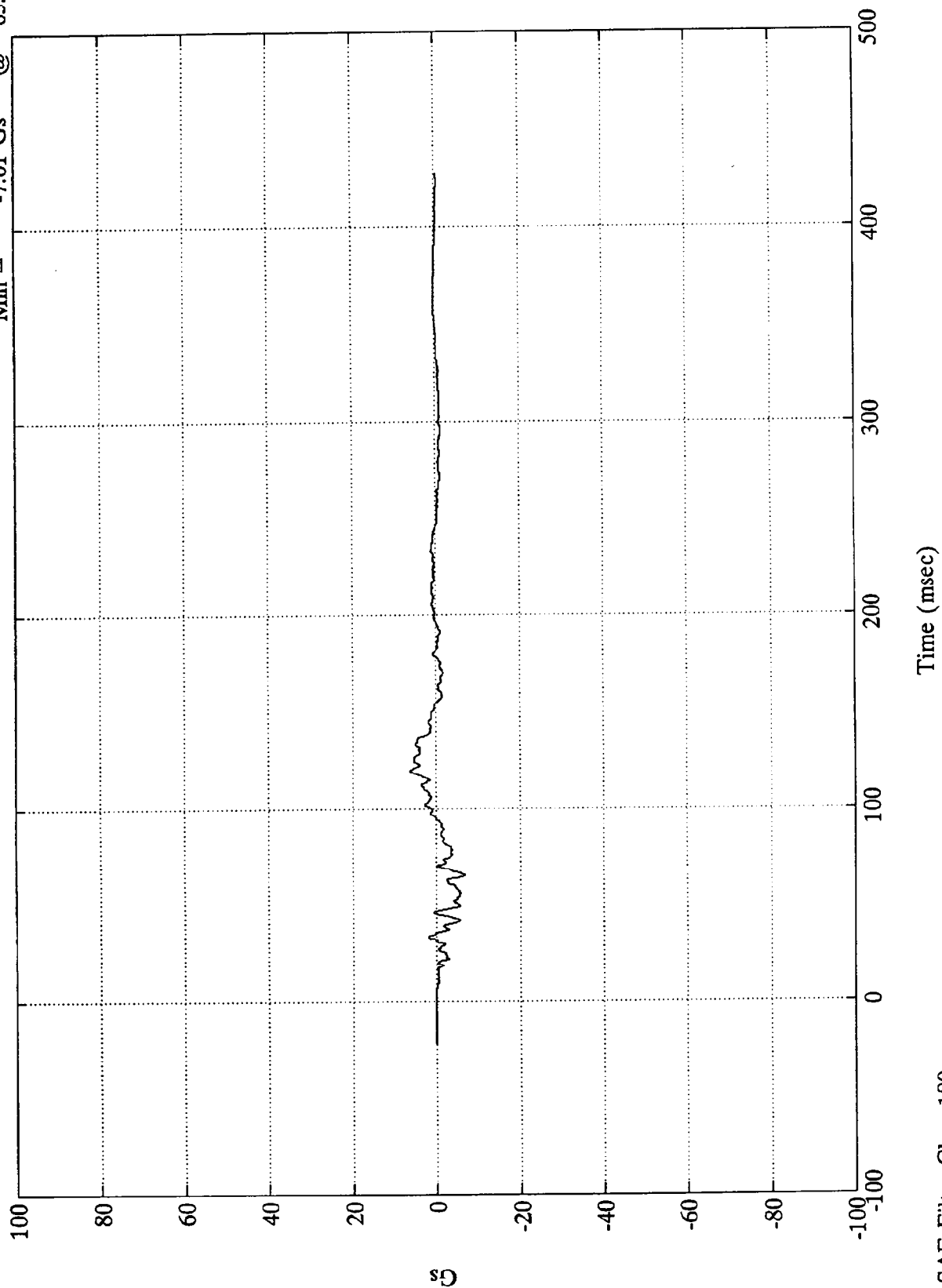


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Chest Y(R)

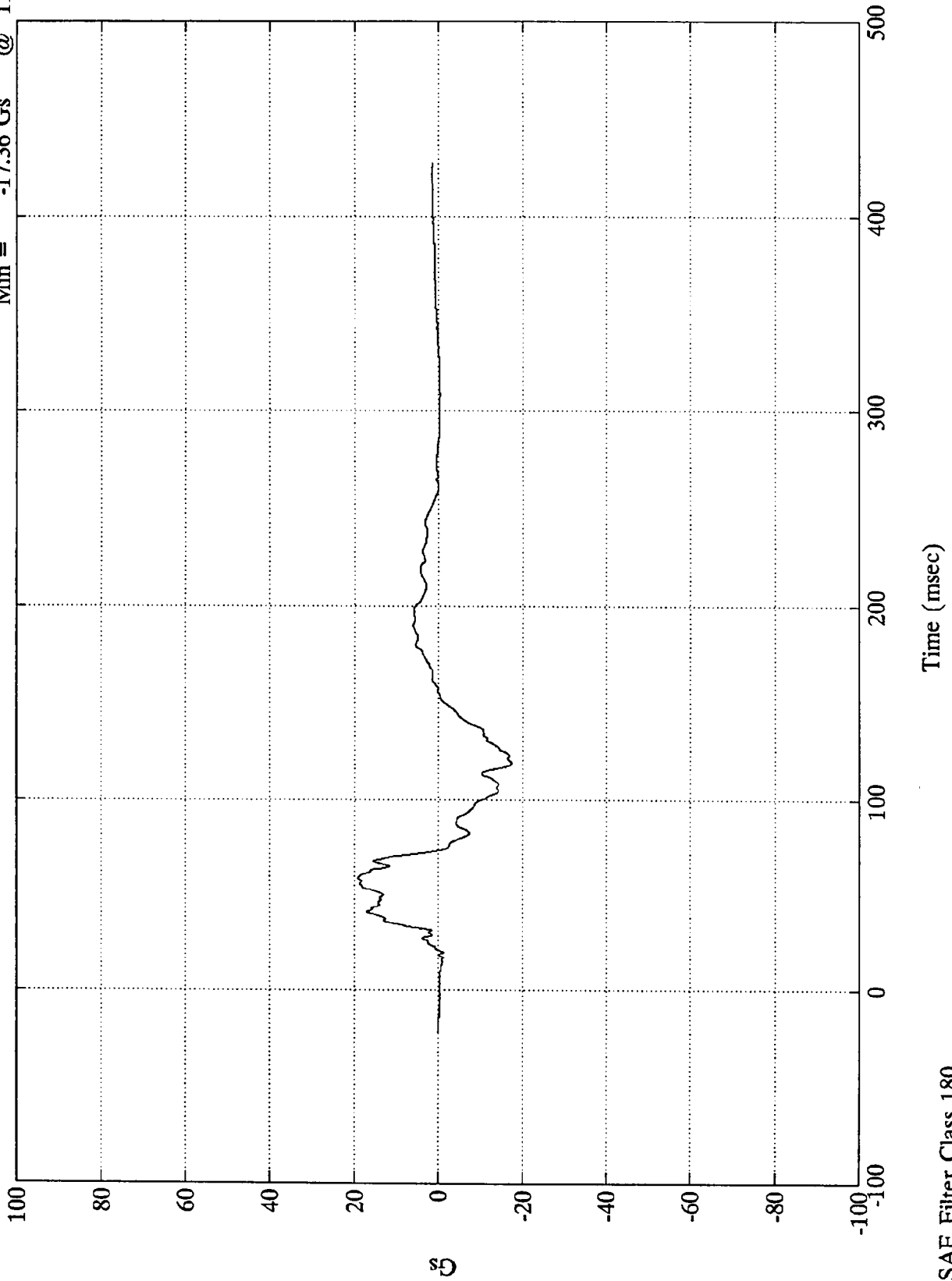
Max = 6.27 Gs @ 120.00 msec
Min = -7.01 Gs @ 65.63 msec



SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

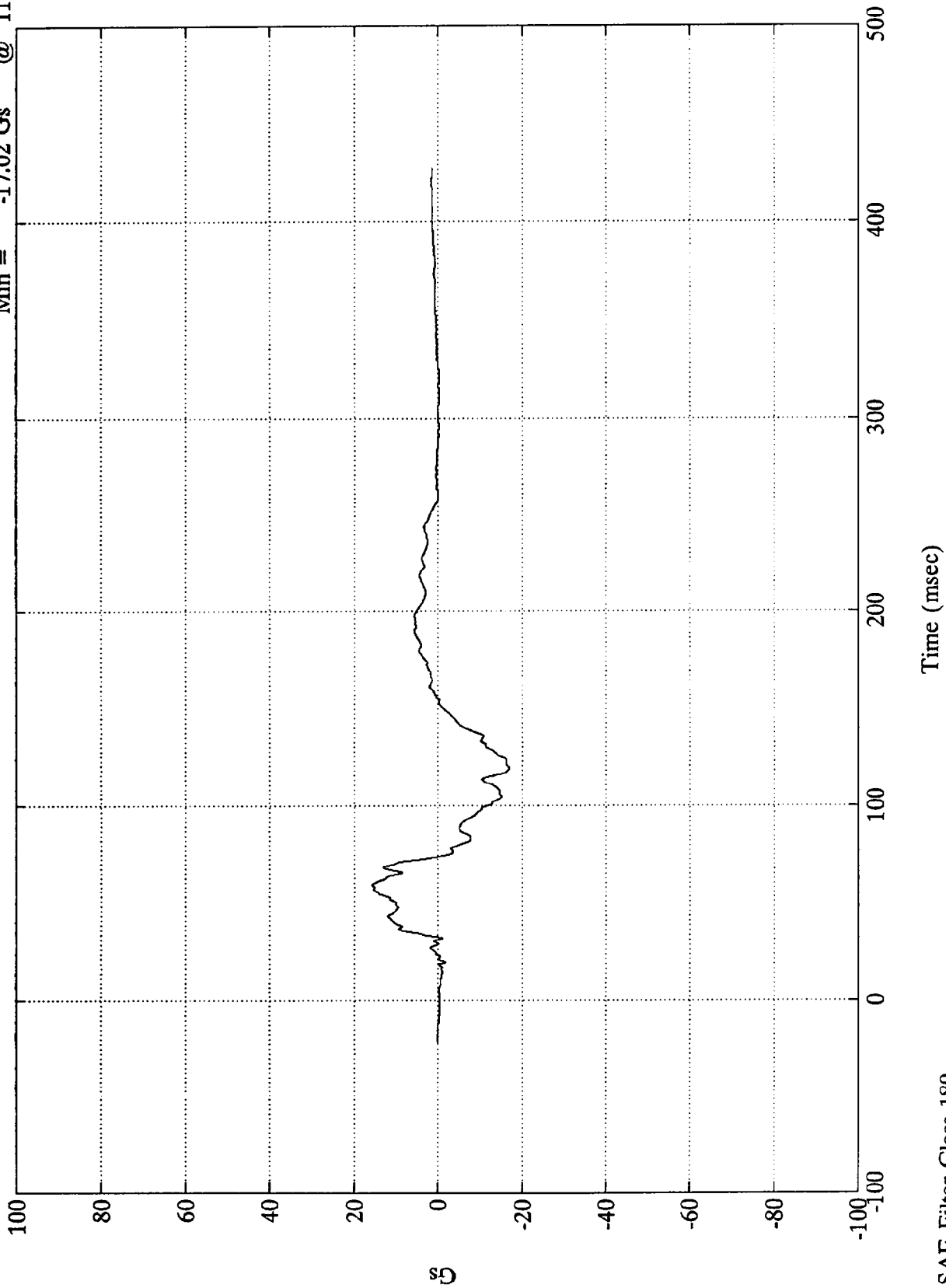
Pos. 1 Chest Z
Max = 19.20 Gs @ 59.27 msec
Min = -17.36 Gs @ 119.63 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Chest Z(R)

Max = 15.71 Gs @ 59.27 msec
Min = -17.02 Gs @ 119.88 msec

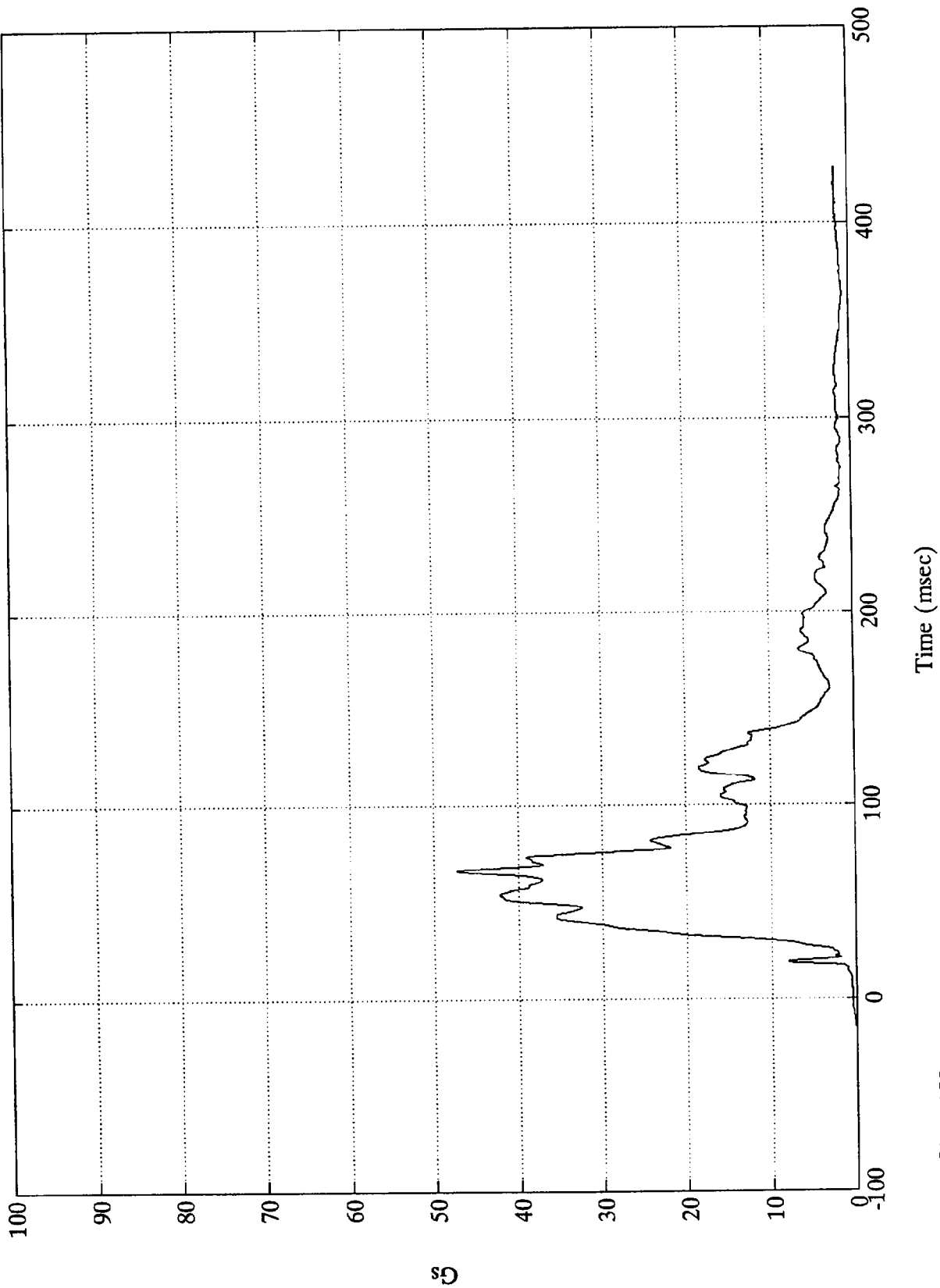


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Chest Resultant

Max = 47.28 Gs @ 66.24 msec
Min = .00 Gs @ -21.96 msec

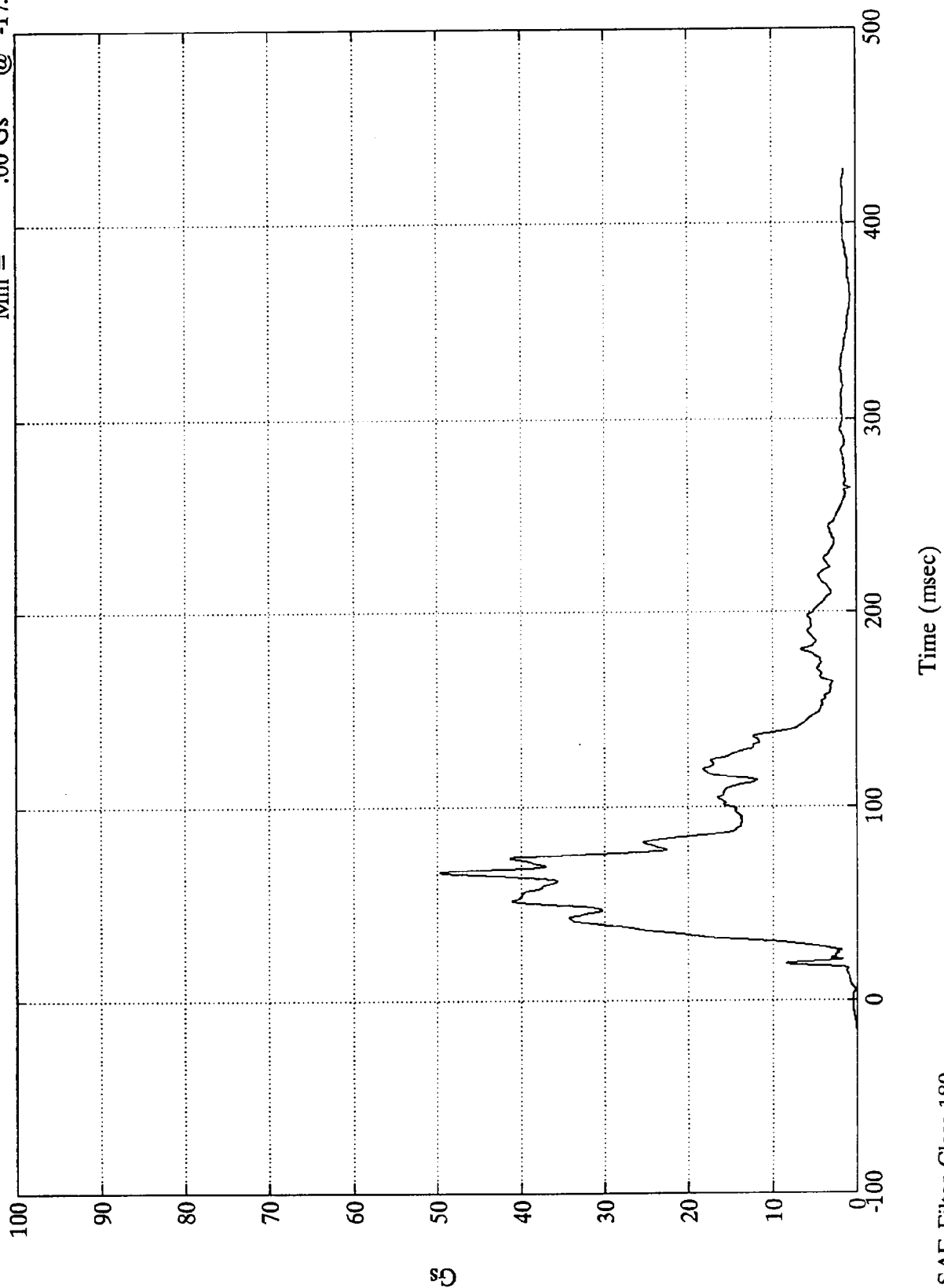


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Chest Res(R)

Max = 49.69 Gs @ 66.24 msec
Min = .00 Gs @ -17.88 msec

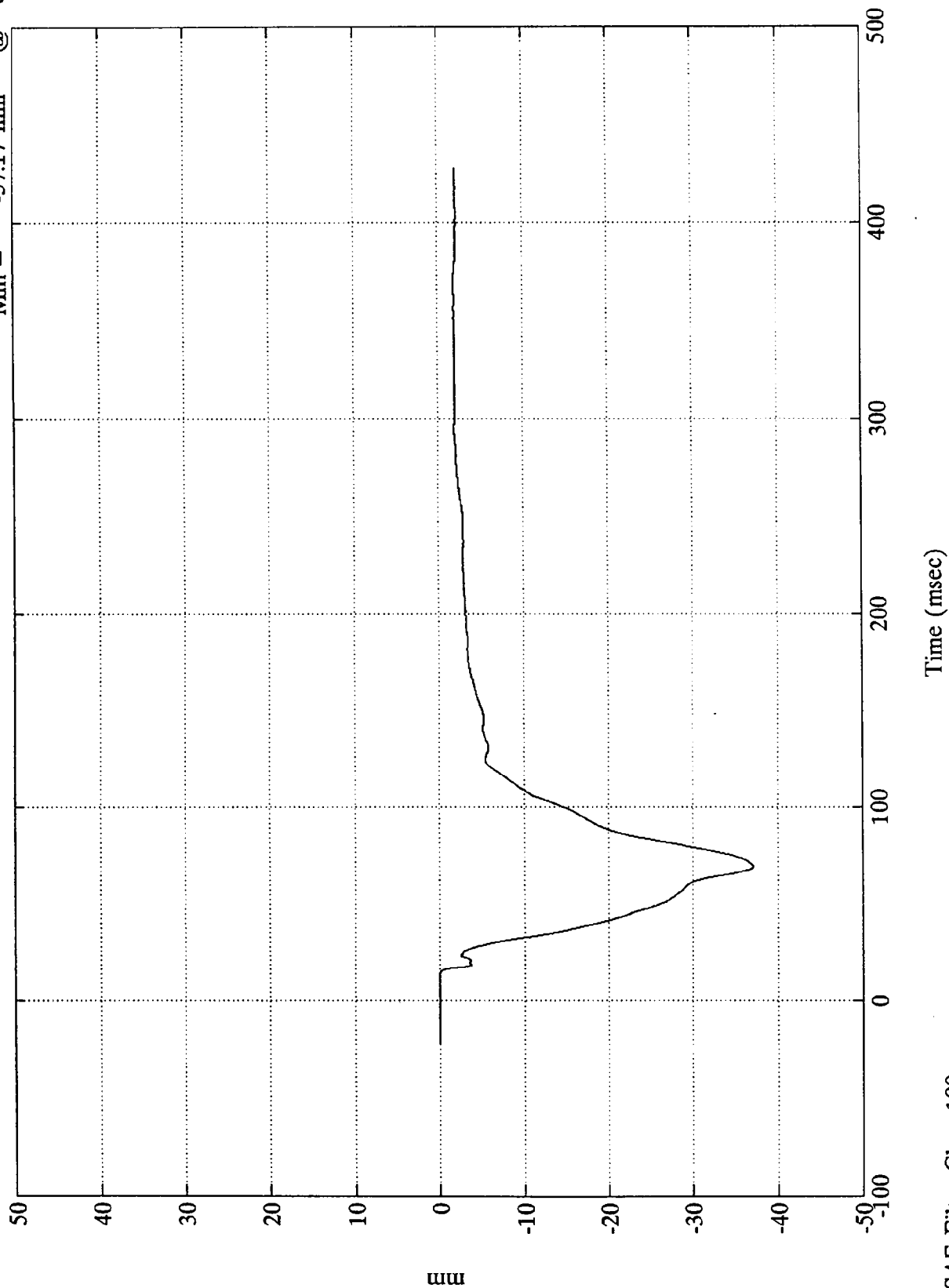


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Chest Disp.

Max = .01 mm @ 6.35 msec
Min = -37.17 mm @ 69.96 msec



mm

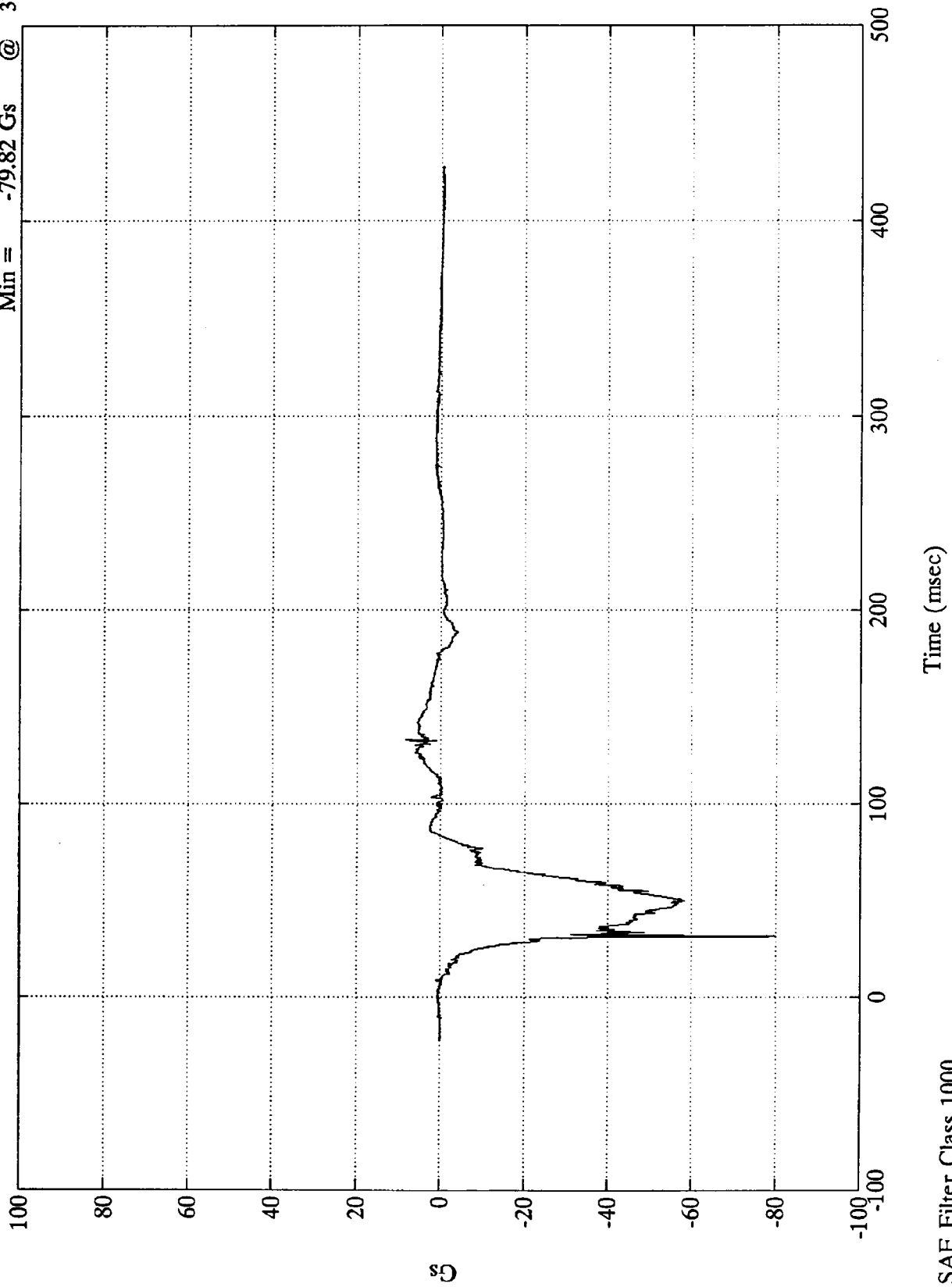
Time (msec)

SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Pelvic (X)

Max = 8.39 Gs @ 132.96 msec
Min = -79.82 Gs @ 31.44 msec



Gs

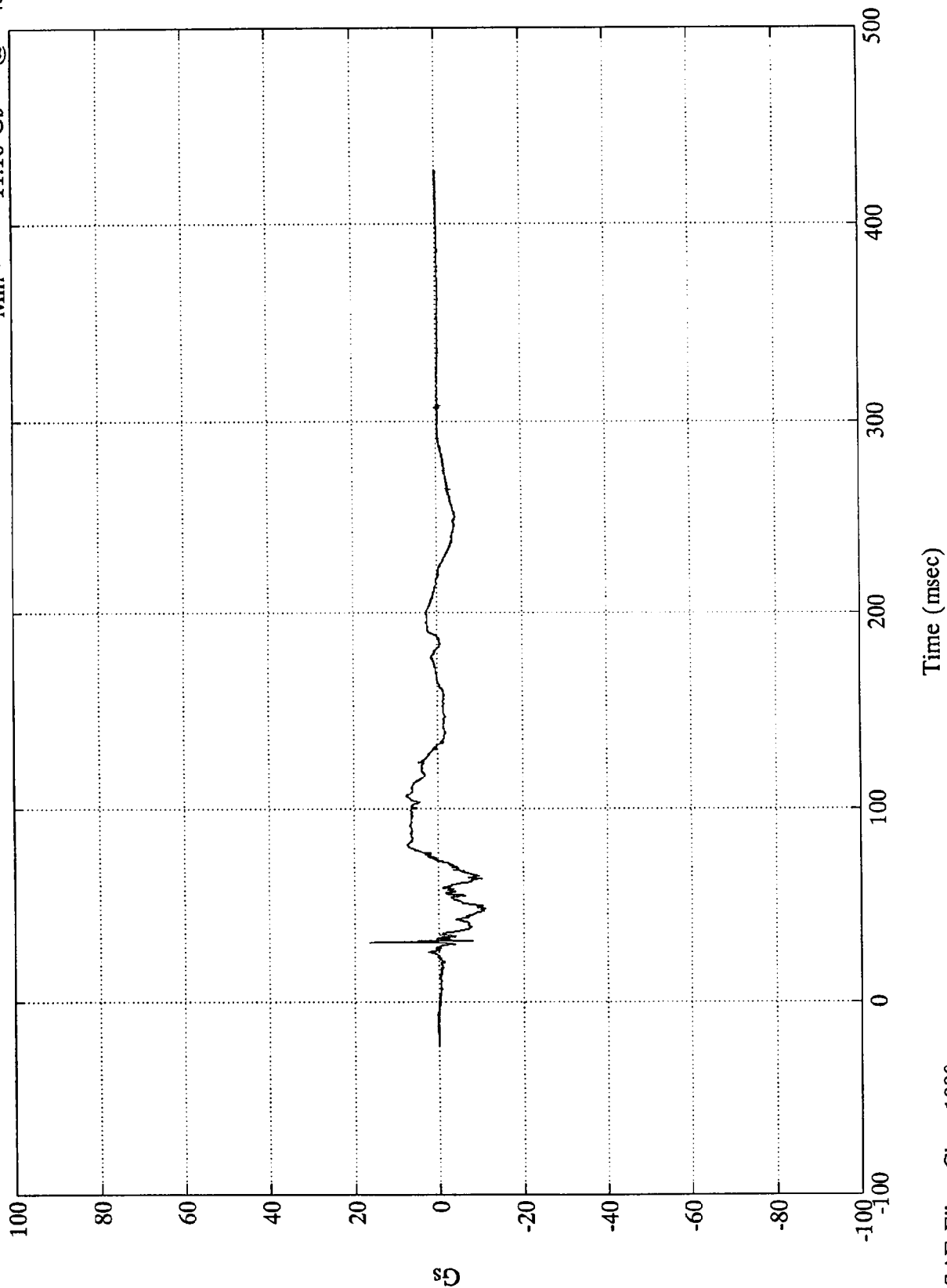
Time (msec)

SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Pelvic (Y)

Max = 16.27 Gs @ 31.32 msec
Min = -11.10 Gs @ 48.72 msec

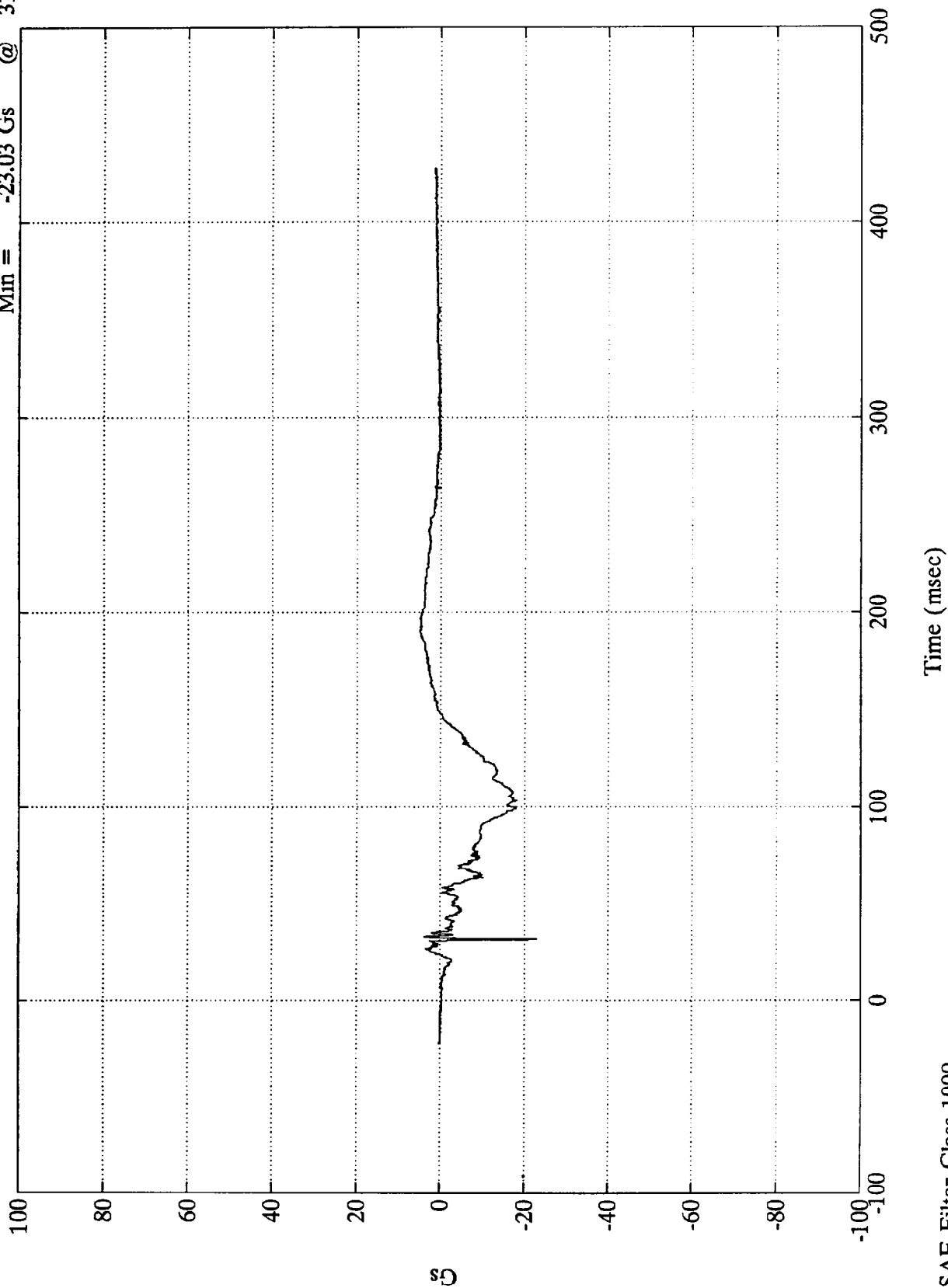


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Pelvic (Z)

Max = 4.97 Gs @ 190.56 msec
Min = -23.03 Gs @ 31.44 msec

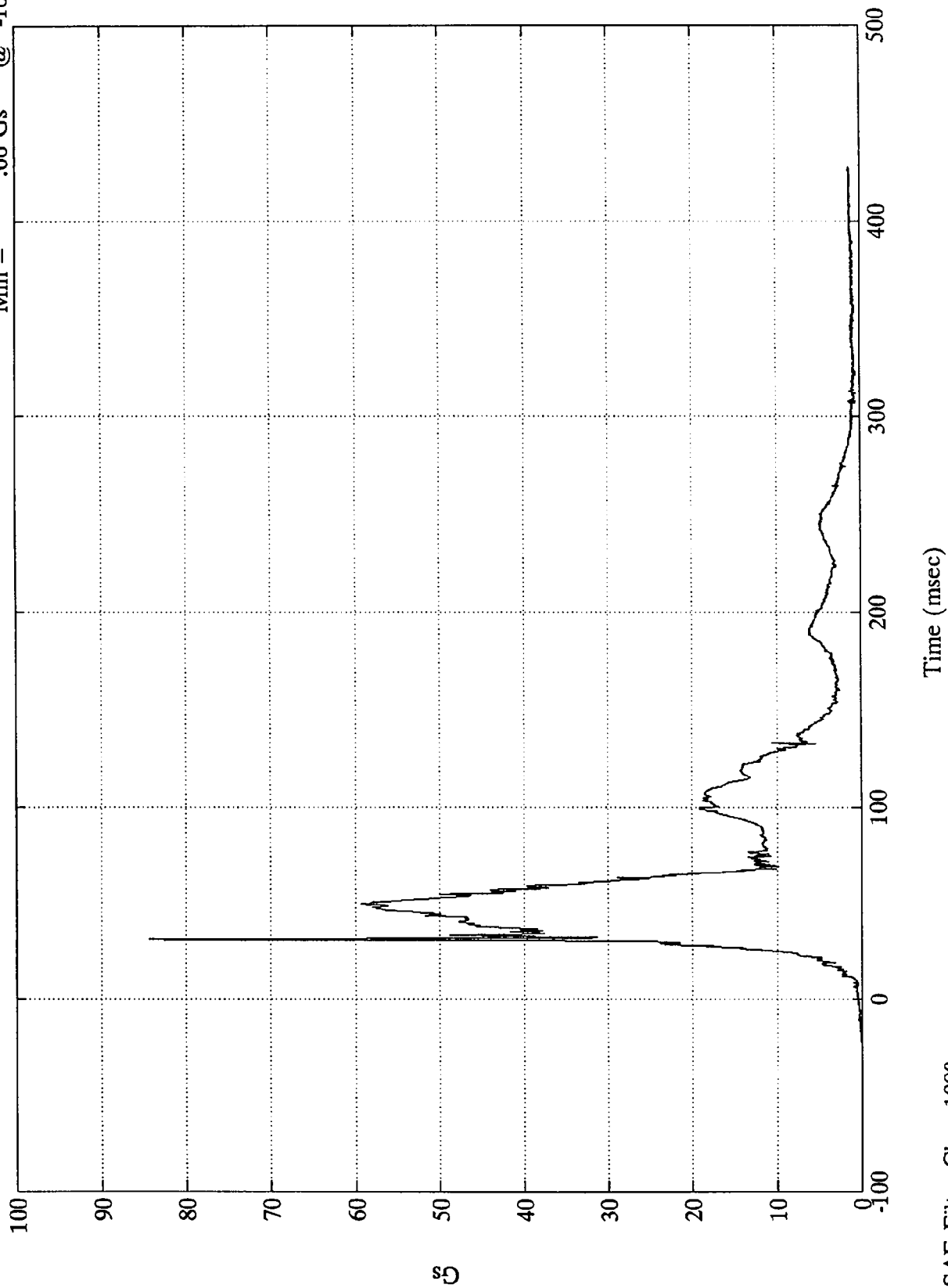


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Pelvic (R)

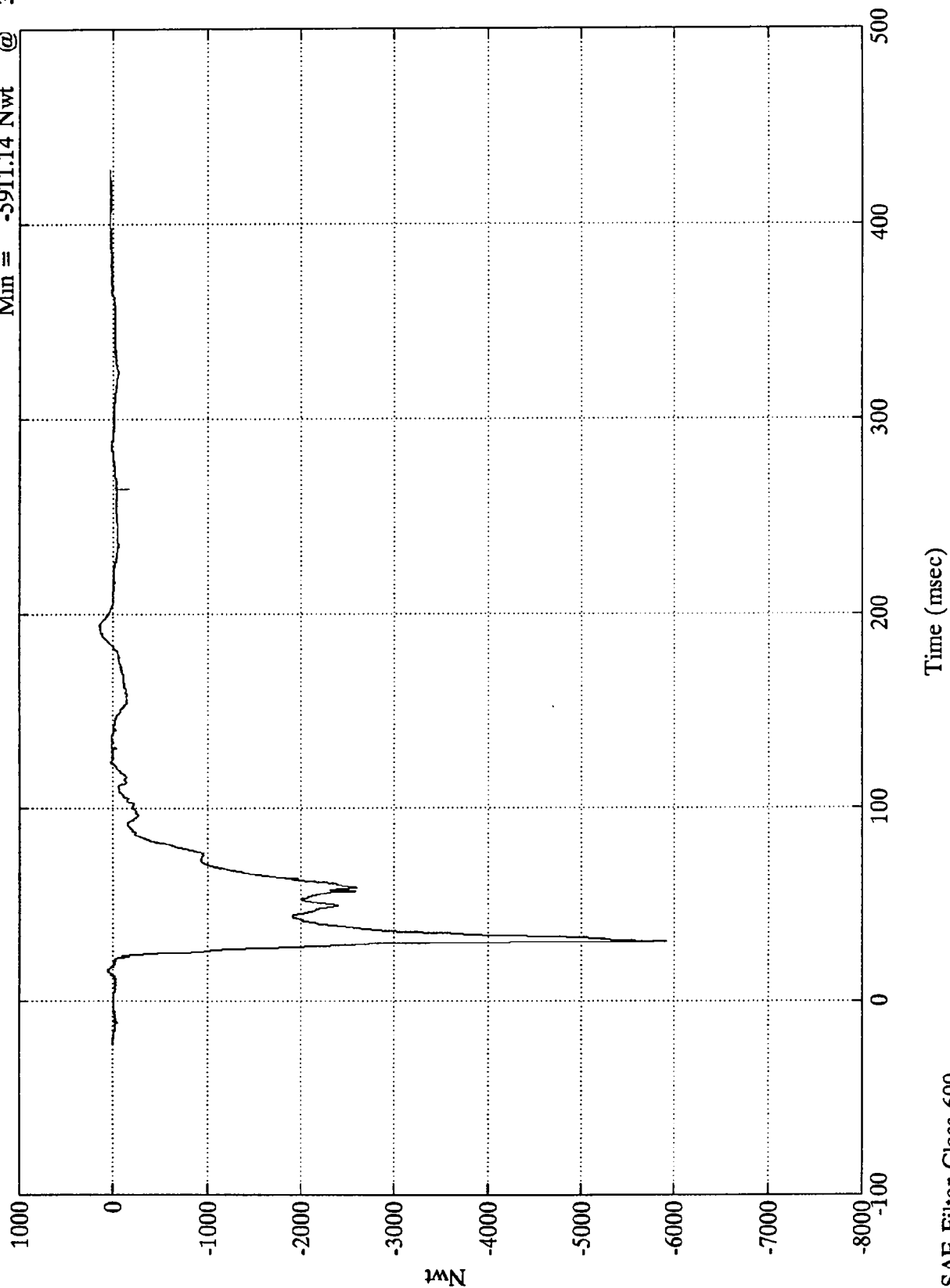
Max = 84.34 Gs @ 31.44 msec
Min = .06 Gs @ -16.44 msec



SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Left Femur
Max = 144.30 Nwt @ 193.44 msec
Min = -5911.14 Nwt @ 31.55 msec

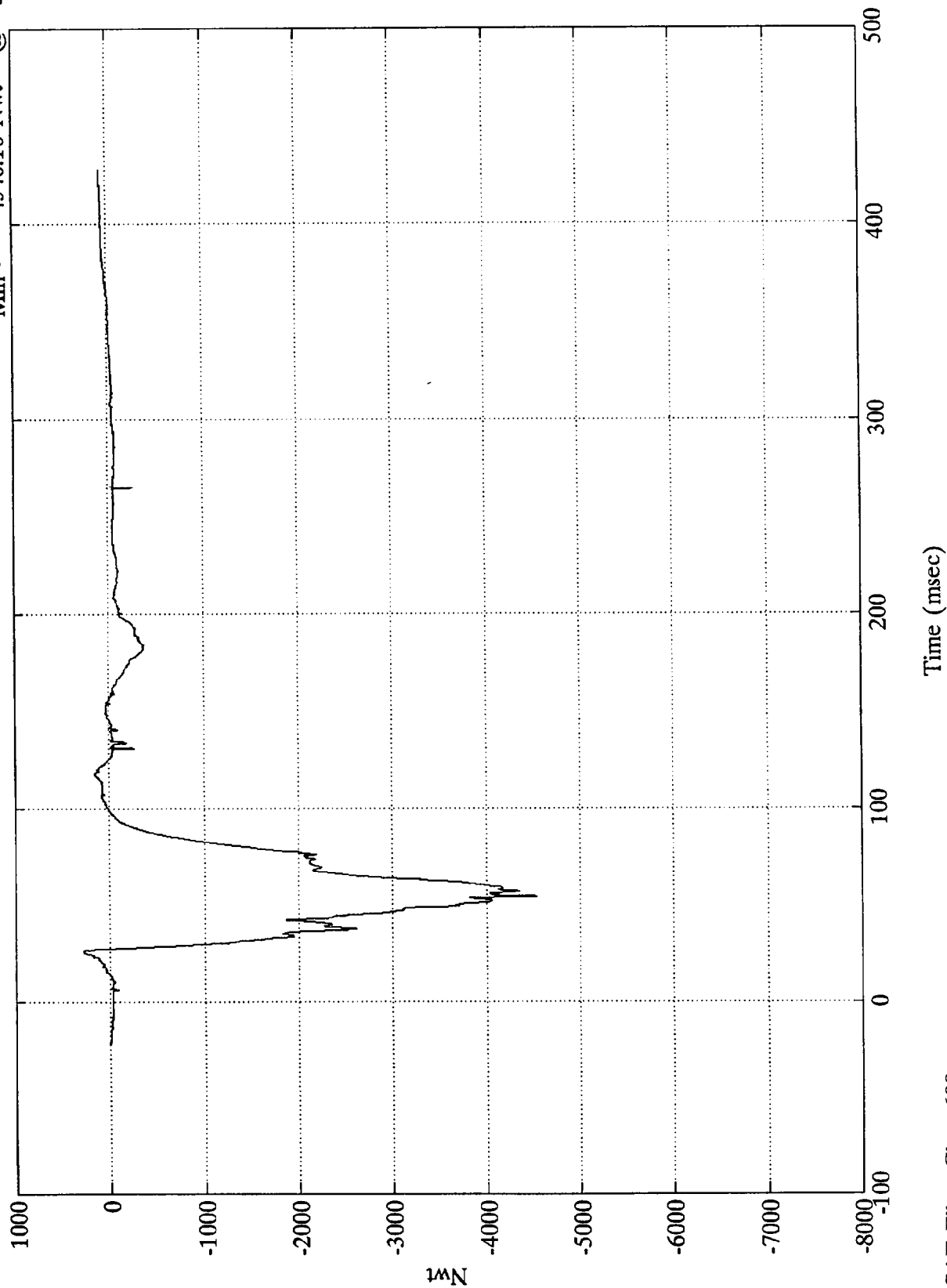


SAE Filter Class 600

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Right Femur

Max = 281.76 Nwt @ 26.76 msec
 Min = -4540.10 Nwt @ 54.72 msec

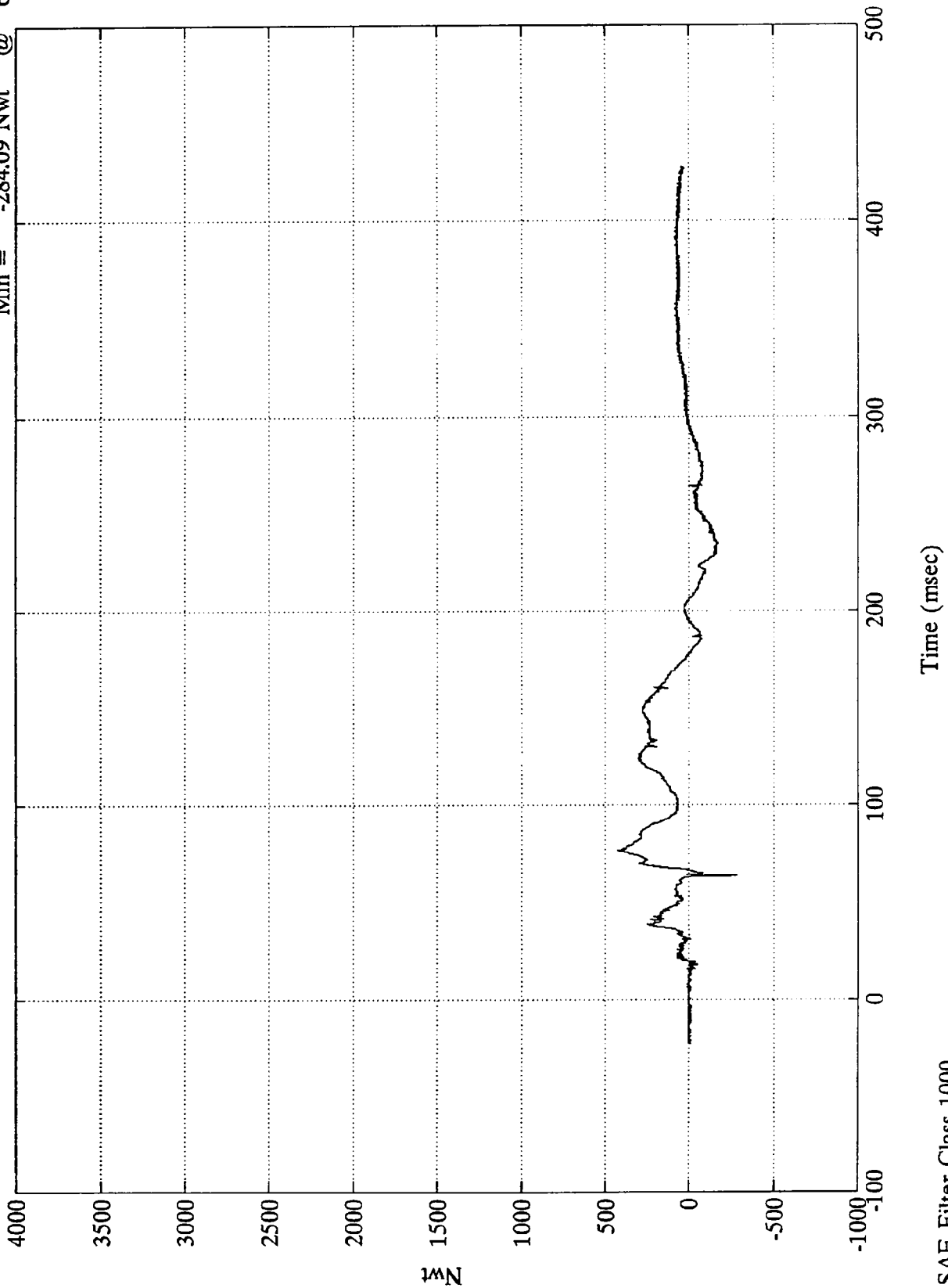


1wN

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Upper Neck Fx

Max = 428.43 Nwt @ 76.80 msec
Min = -284.09 Nwt @ 63.48 msec

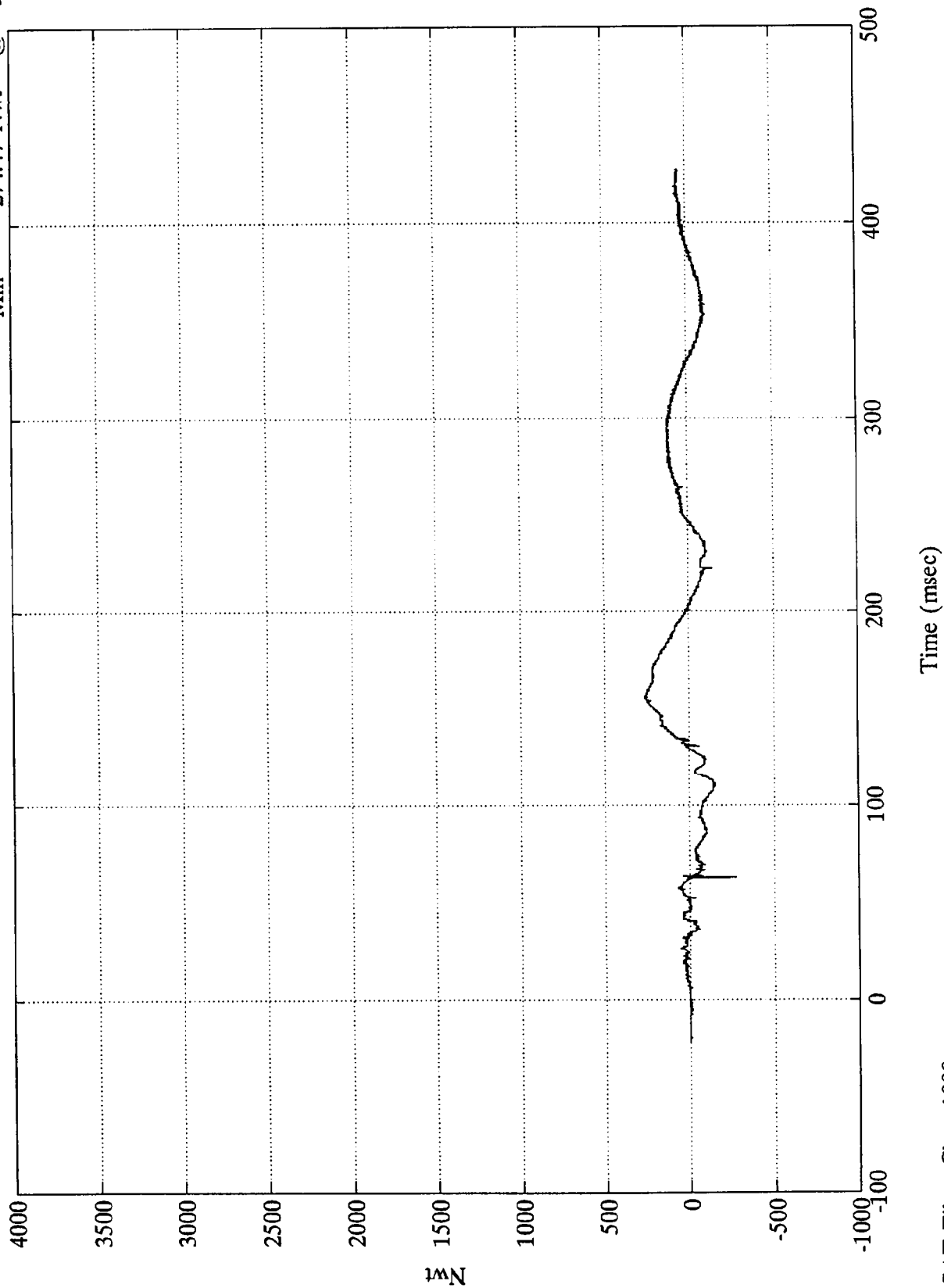


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Upper Neck Fy

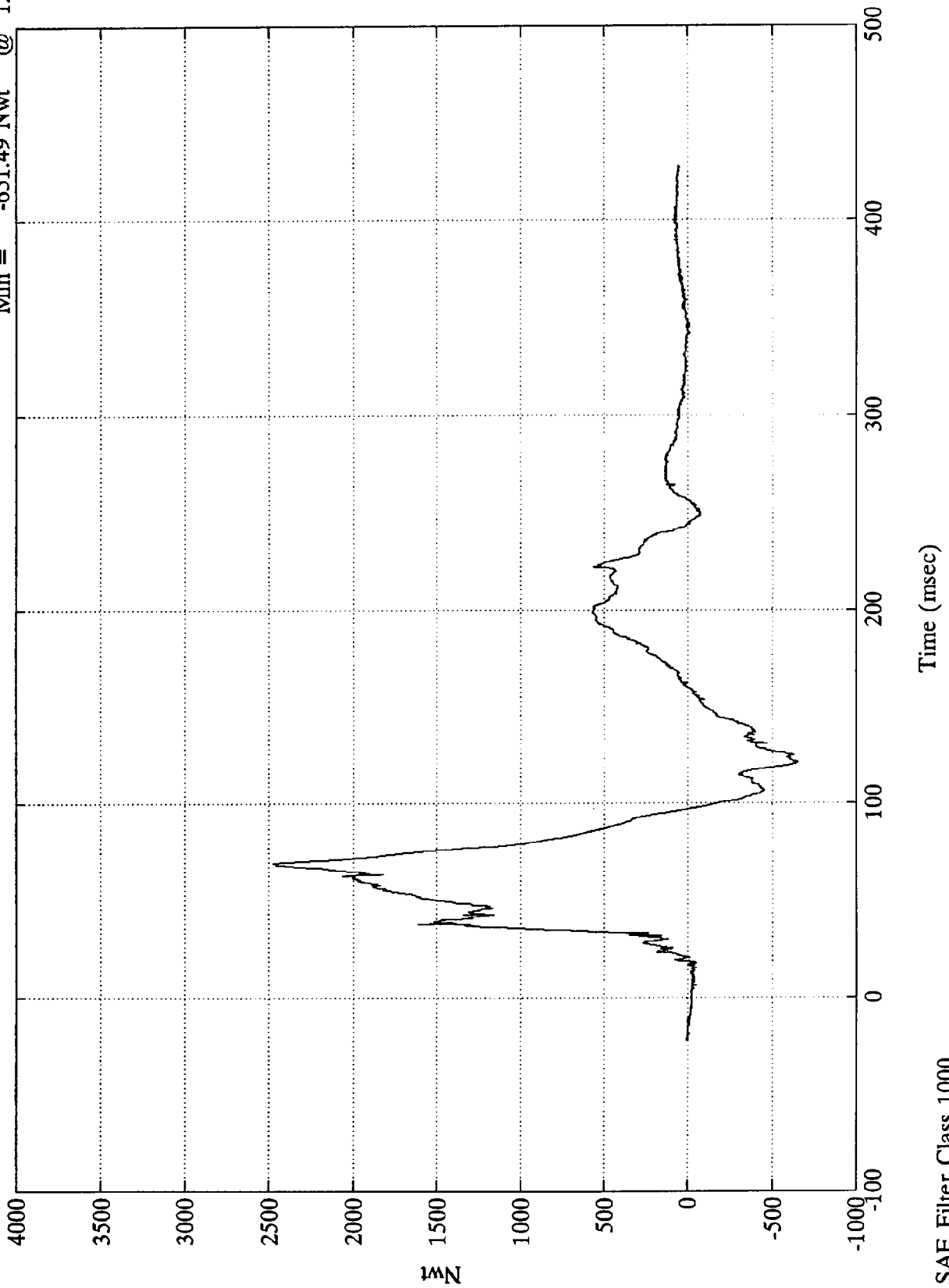
Max = 264.98 Nwt @ 156.11 msec
Min = -274.47 Nwt @ 63.48 msec



SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Upper Neck Fz
Max = 2475.99 Nwt @ 69.59 msec
Min = -651.49 Nwt @ 121.31 msec

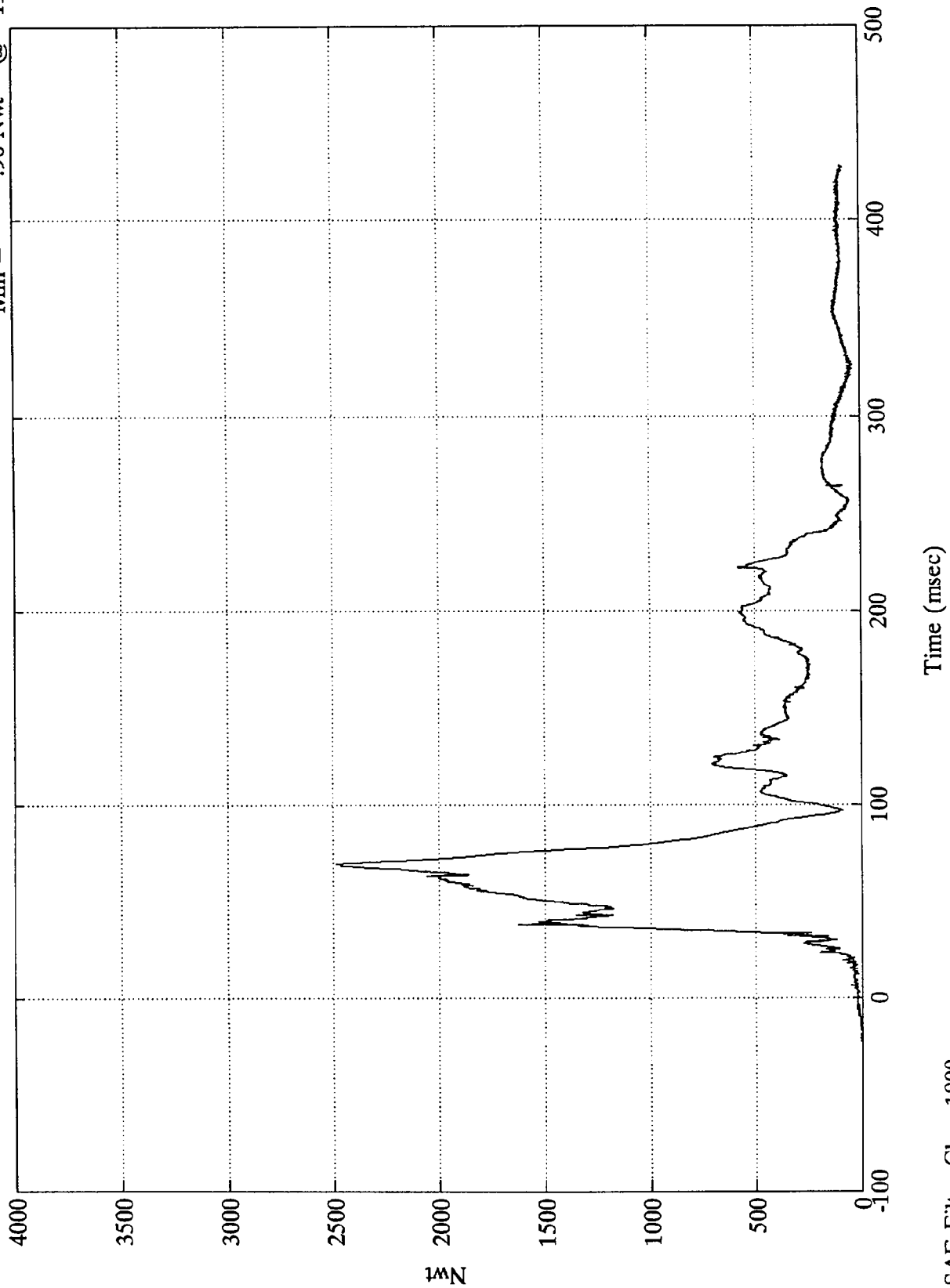


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Neck Force Res.

Max = 2489.32 Nwt @ 69.59 msec
Min = .96 Nwt @ -11.28 msec

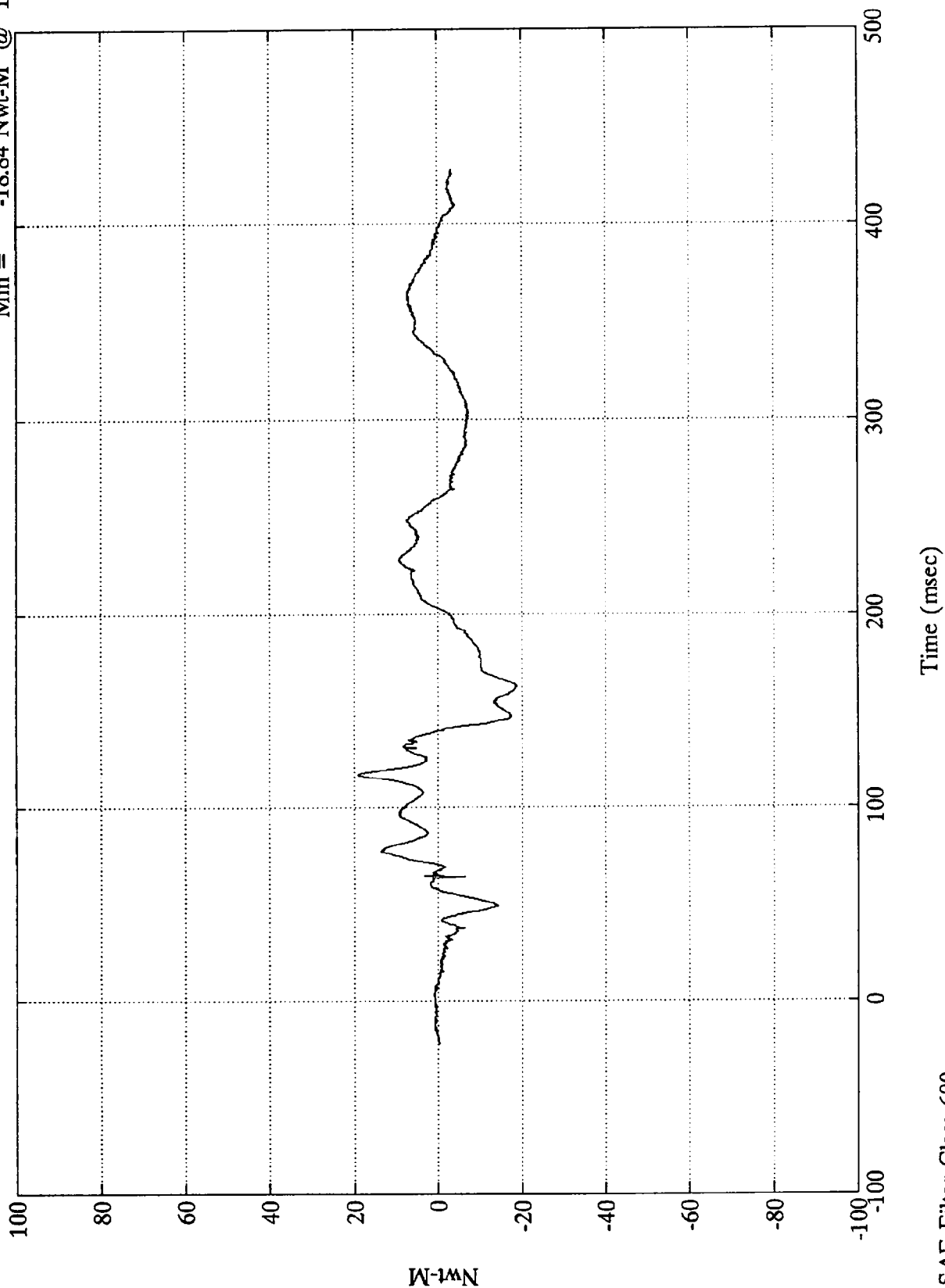


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Upper Neck Mx

Max = 18.93 Nwt-M @ 117.12 msec
Min = -18.84 Nwt-M @ 162.72 msec

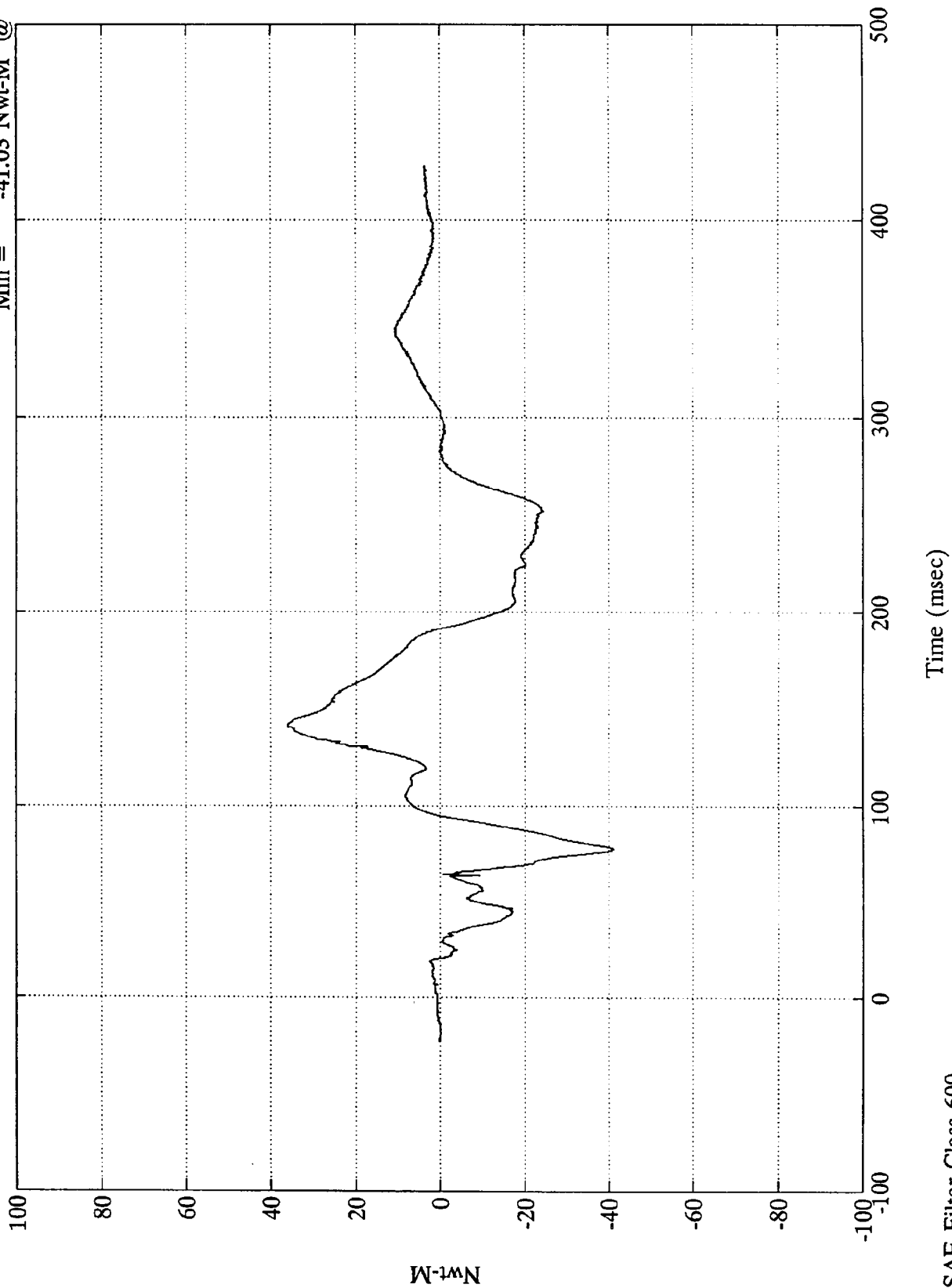


SAE Filter Class 600

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Upper Neck My

Max = 36.04 Nwt-M @ 141.24 msec
 Min = -41.03 Nwt-M @ 77.88 msec

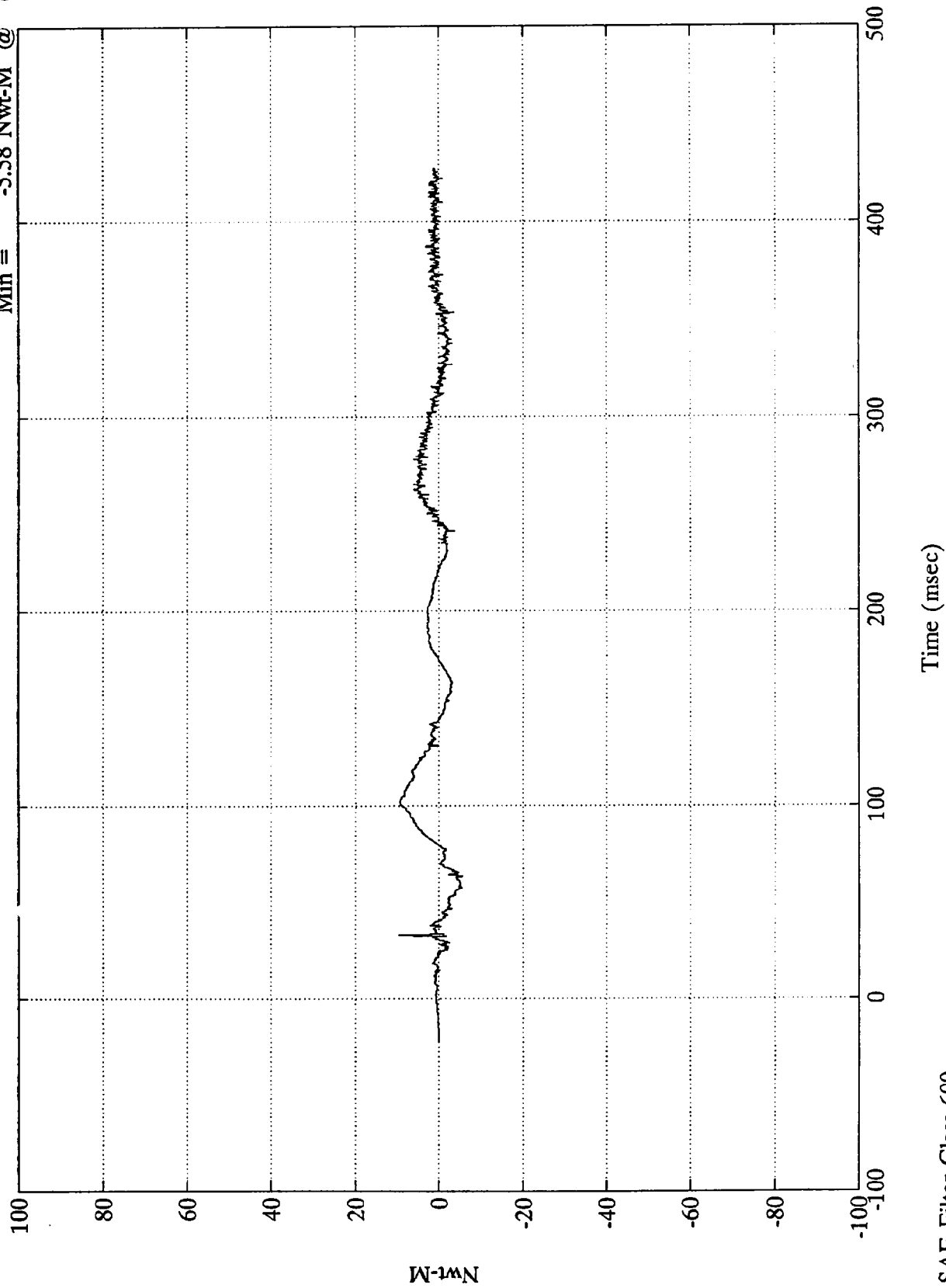


SAE Filter Class 600

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Upper Neck Mz

Max = 9.72 Nwt-M @ 33.00 msec
Min = -5.58 Nwt-M @ 63.60 msec

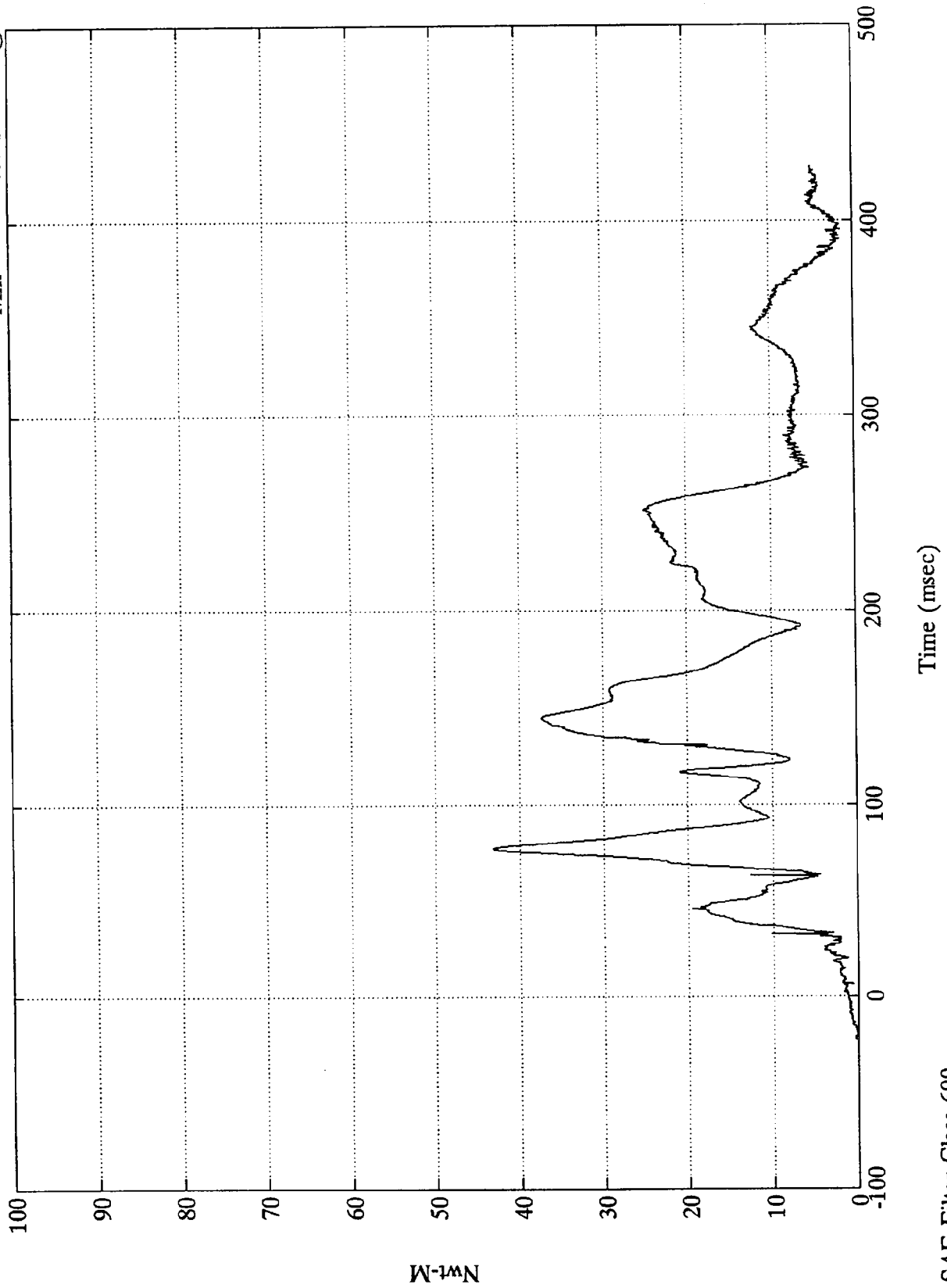


SAE Filter Class 600

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Neck Moment Res.

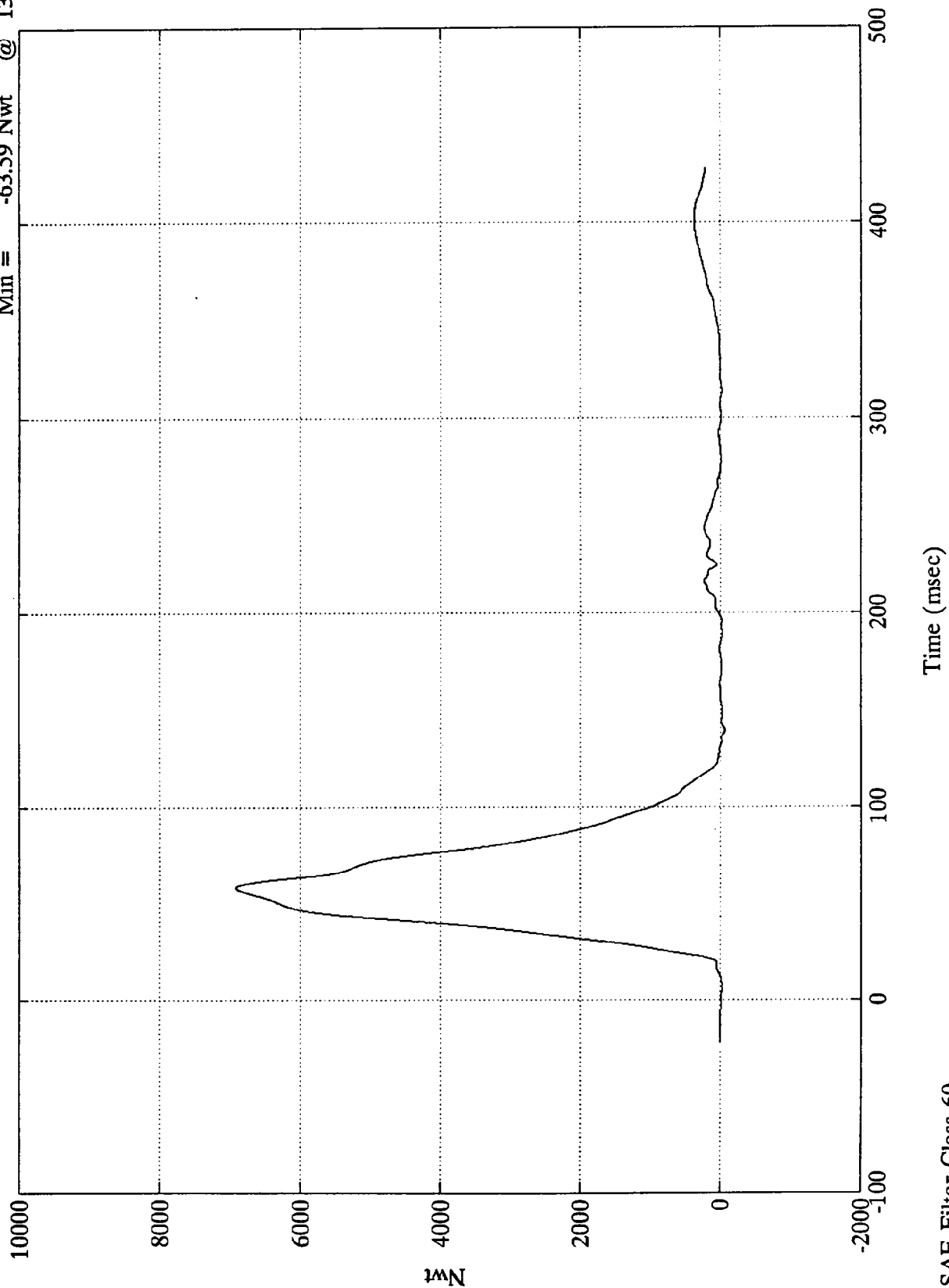
Max = 43.20 Nwt-M @ 77.88 msec
Min = .03 Nwt-M @ -18.84 msec



SAE Filter Class 600

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

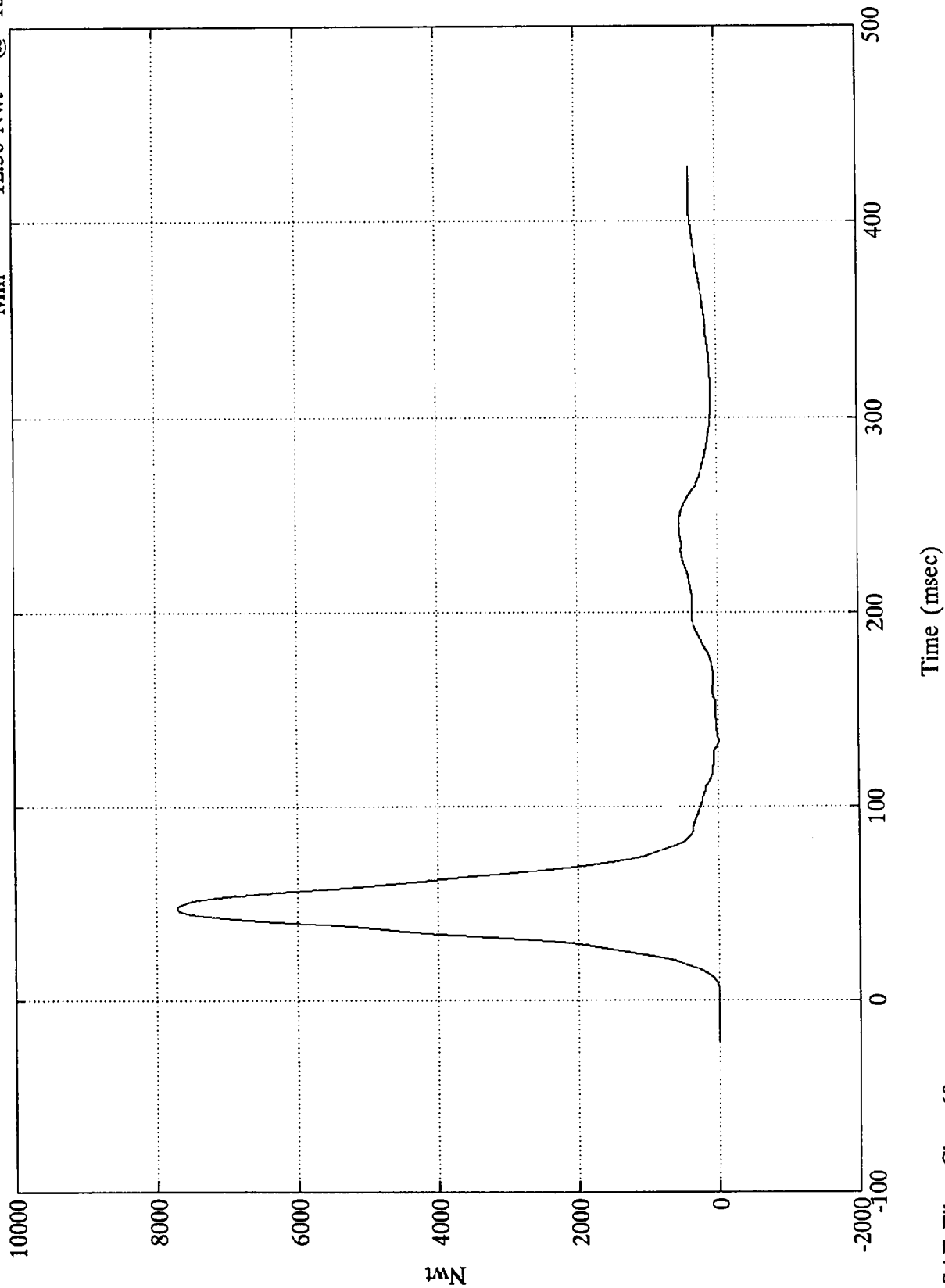
Pos. 1 Torso Belt Load
Max = 6917.94 Nwt @ 58.20 msec
Min = -63.59 Nwt @ 139.19 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Left Belt Load

Max = 7712.49 Nwt @ 47.15 msec
 Min = -12.30 Nwt @ 133.91 msec

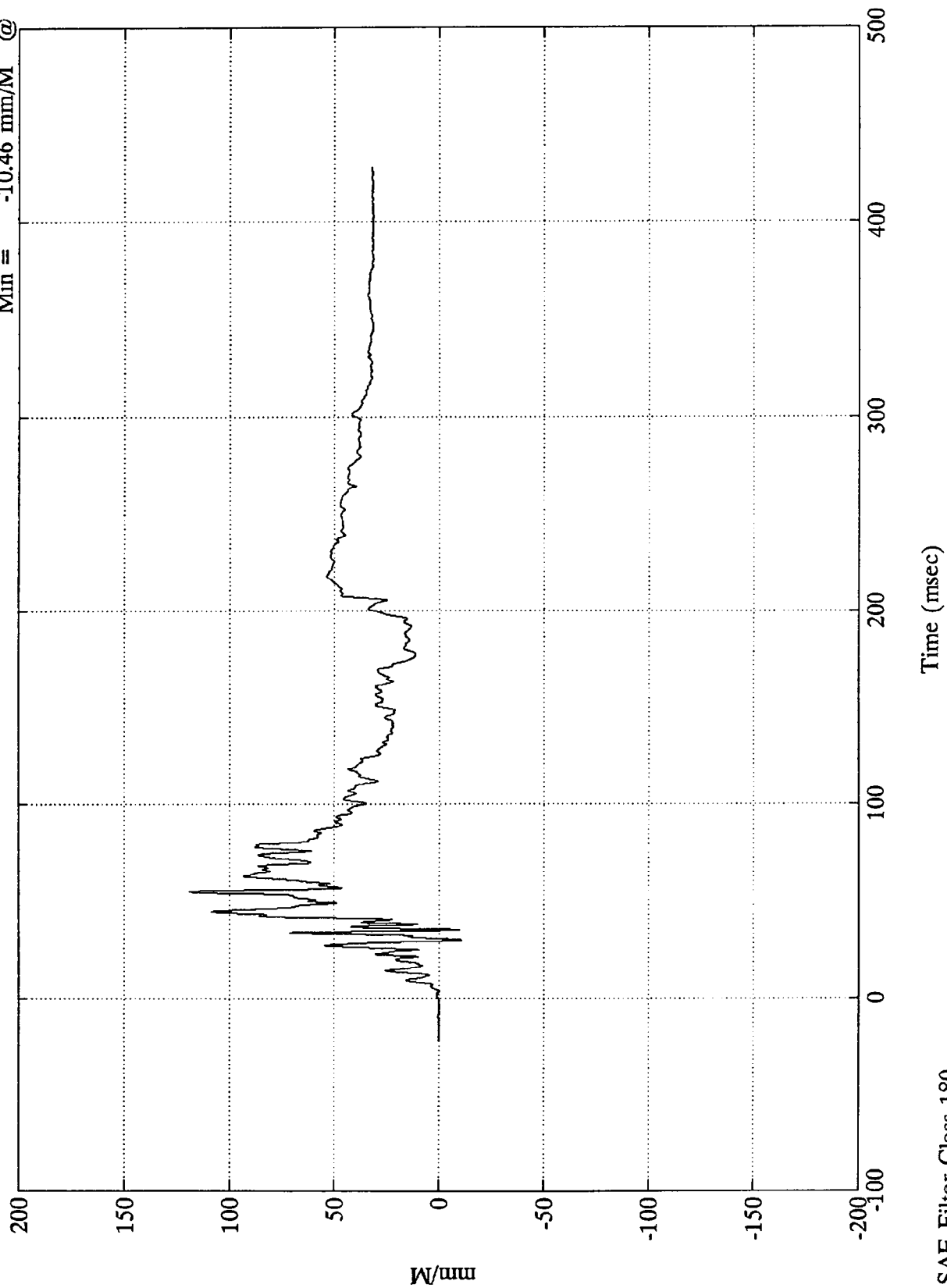


SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Belt Elongation

Max = 119.07 mm/M @ 54.96 msec
Min = -10.46 mm/M @ 30.36 msec



mm/M

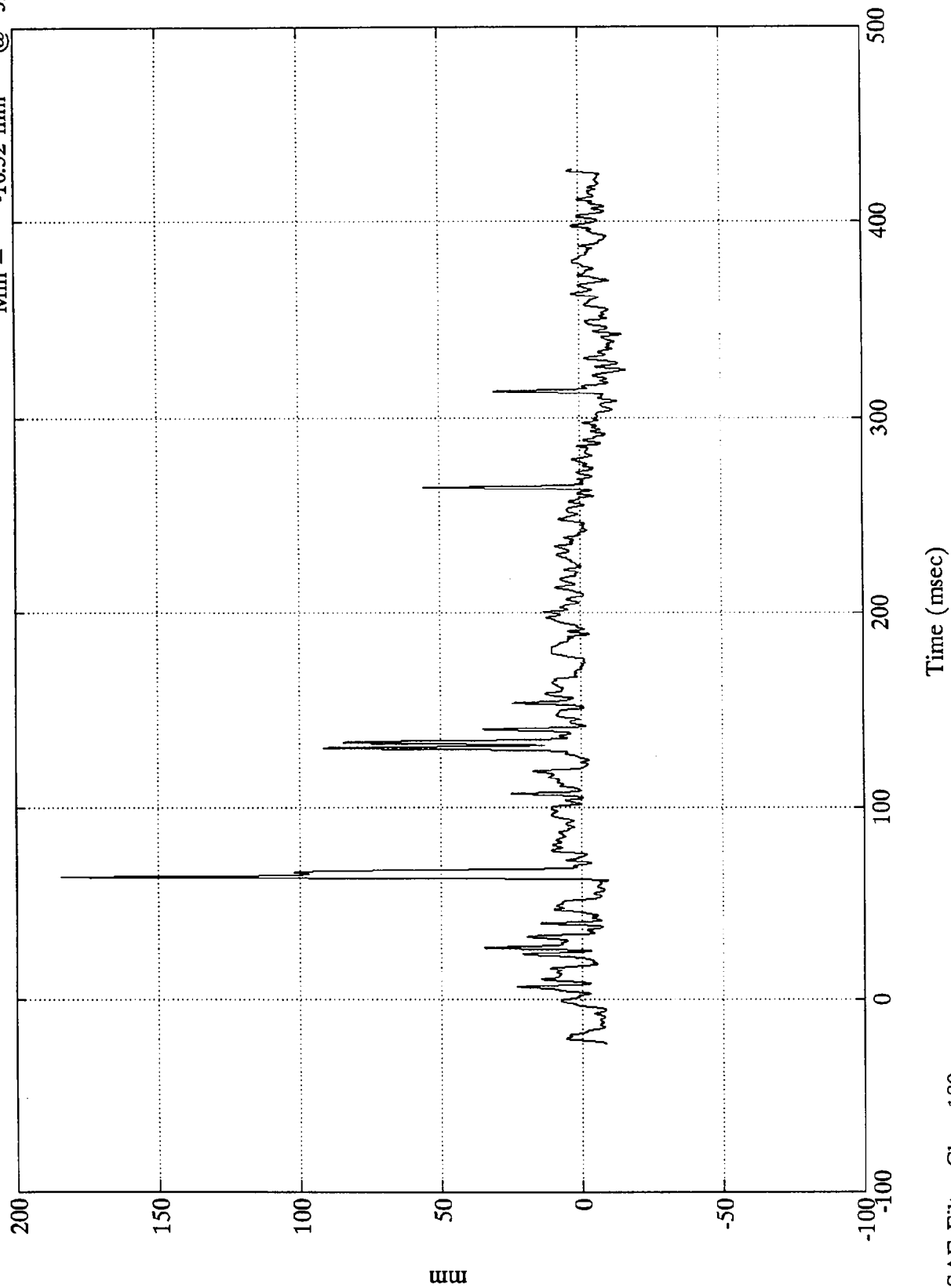
Time (msec)

SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 1 Belt Spool Out

Max = 184.19 mm @ 63.60 msec
Min = -16.52 mm @ 324.36 msec

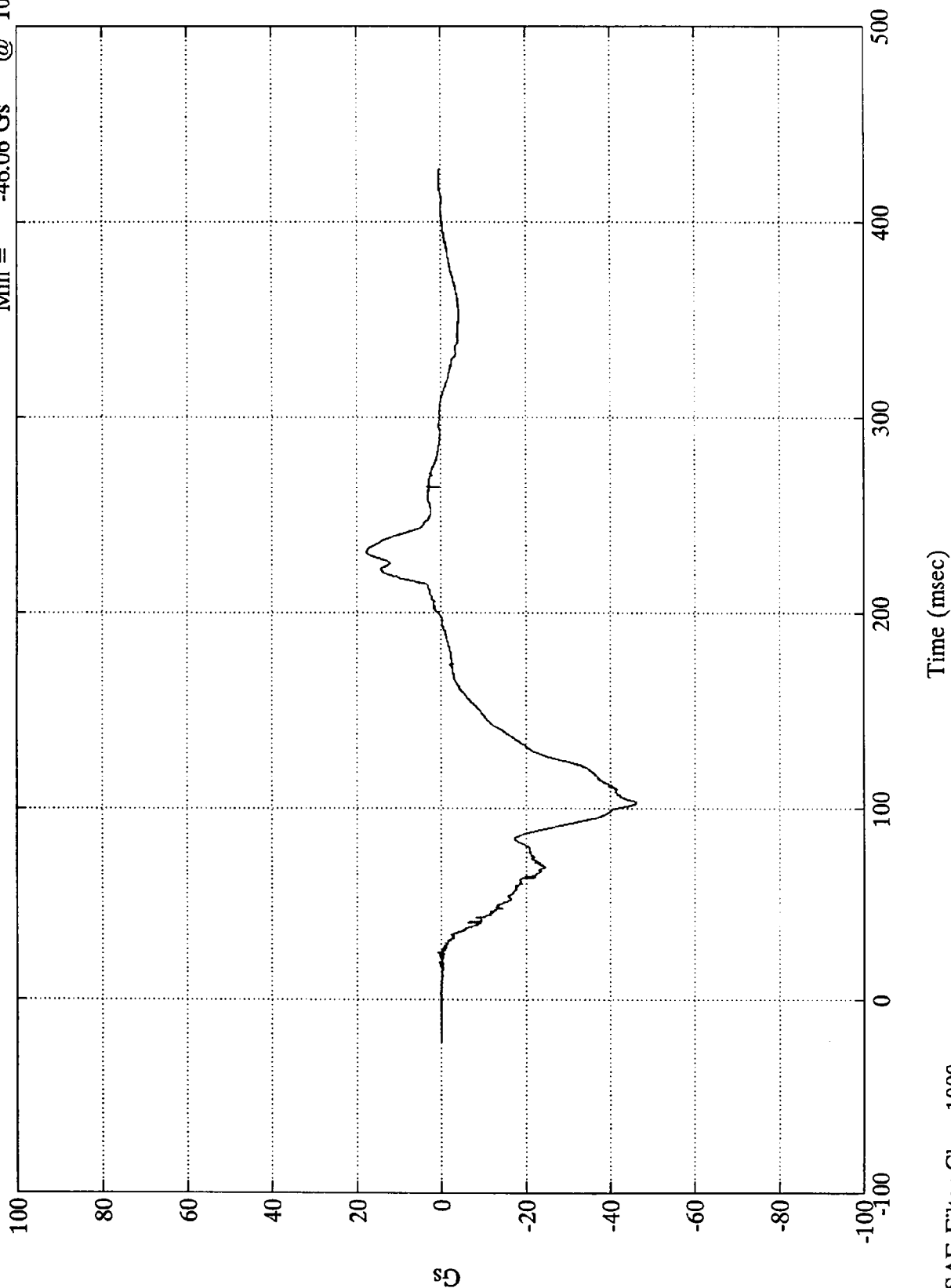


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Head X

Max = 17.72 Gs @ 232.32 msec
Min = -46.06 Gs @ 103.08 msec

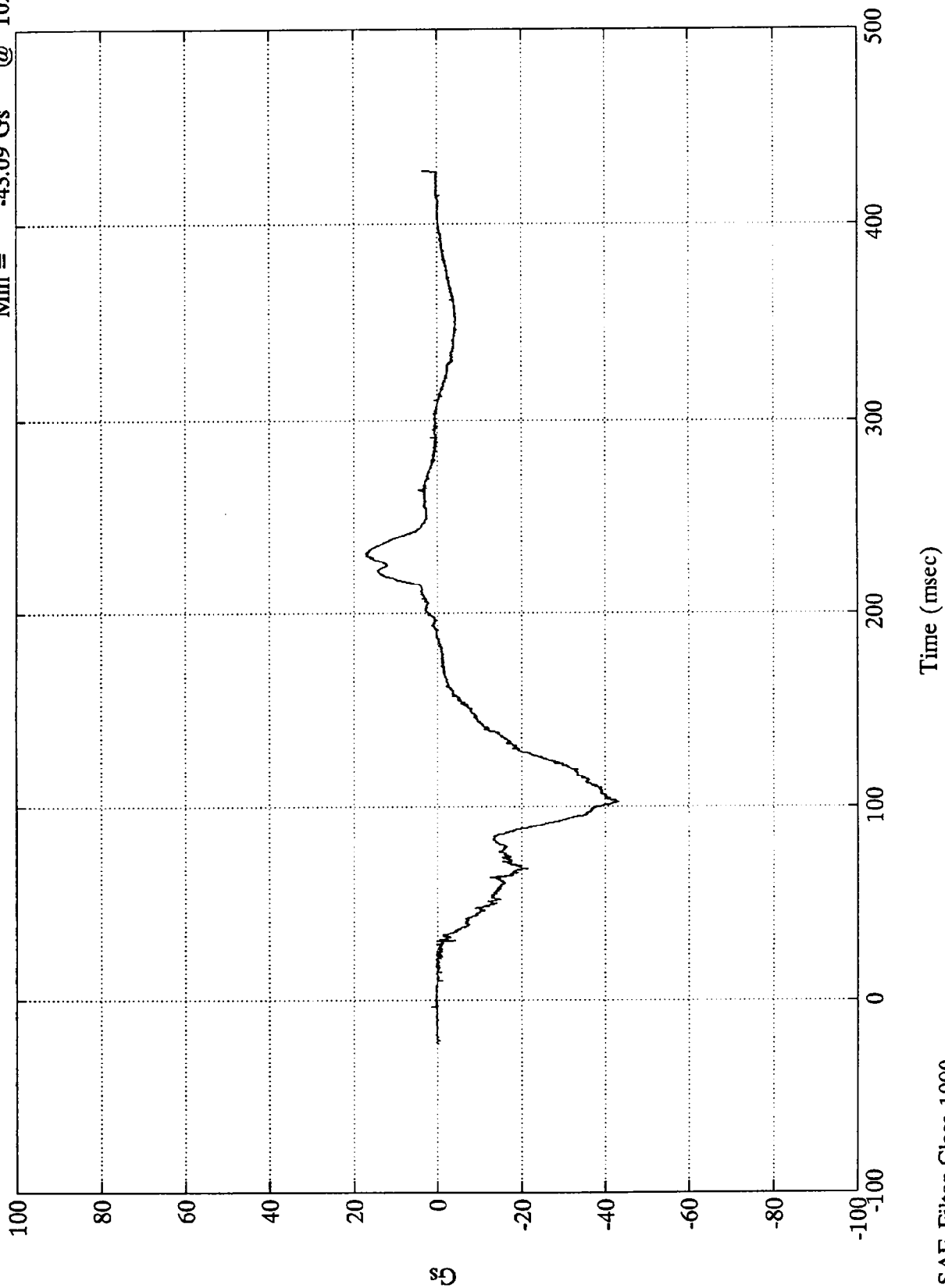


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Head X(R)

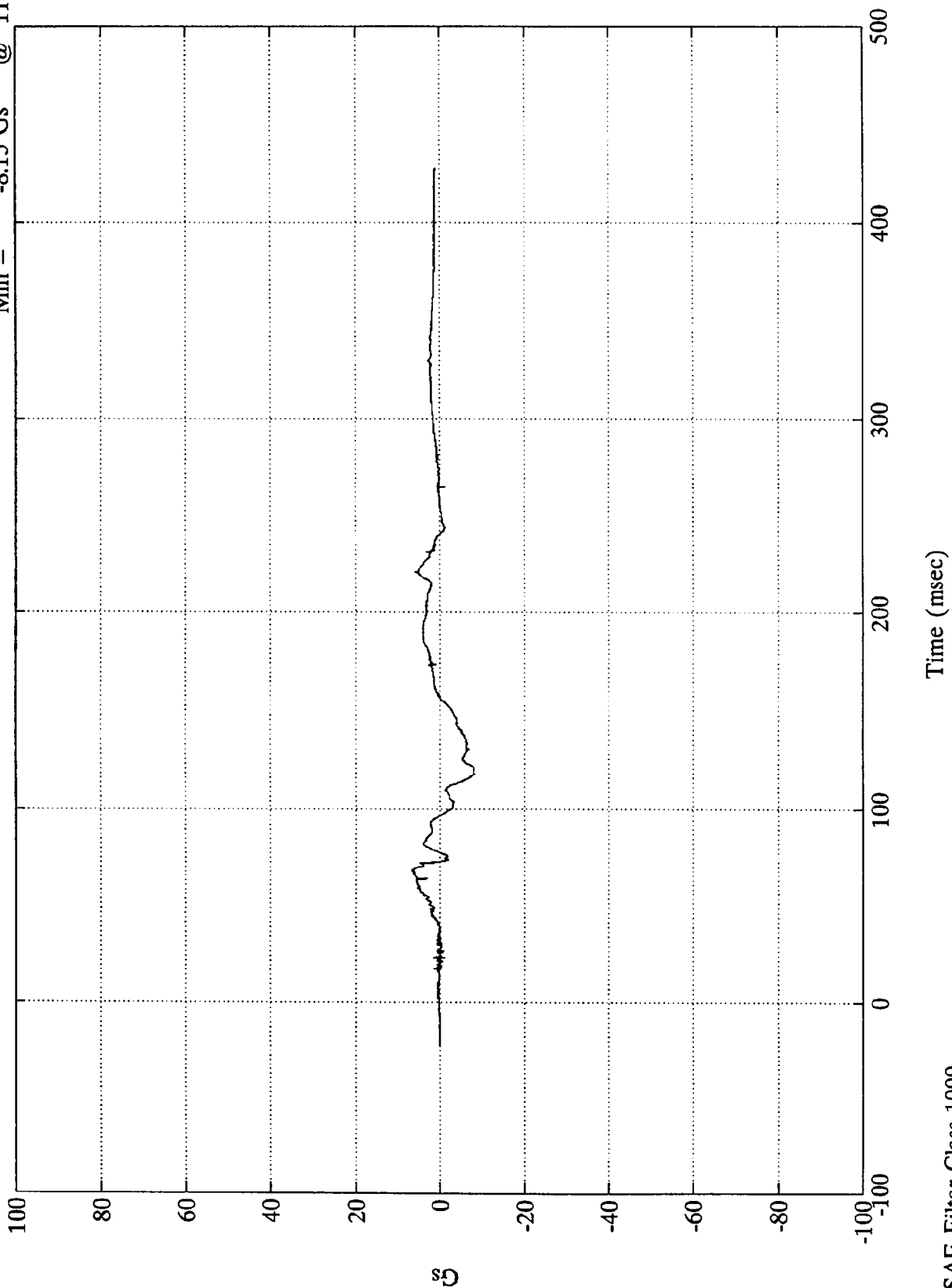
Max = 16.98 Gs @ 231.60 msec
Min = -43.09 Gs @ 102.48 msec



SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Head Y
Max = 6.64 Gs @ 68.28 msec
Min = -8.15 Gs @ 118.08 msec

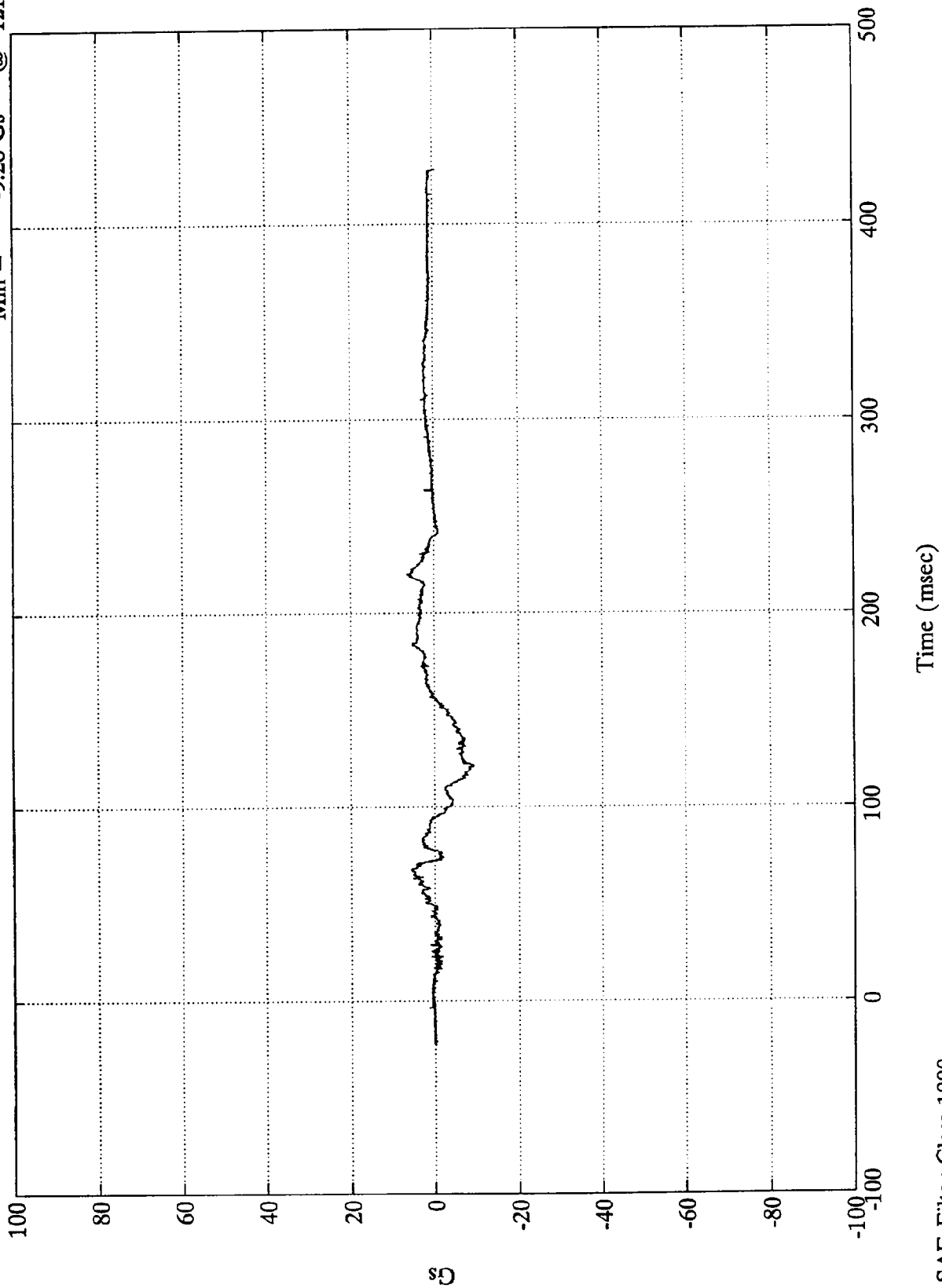


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Head Y(R)

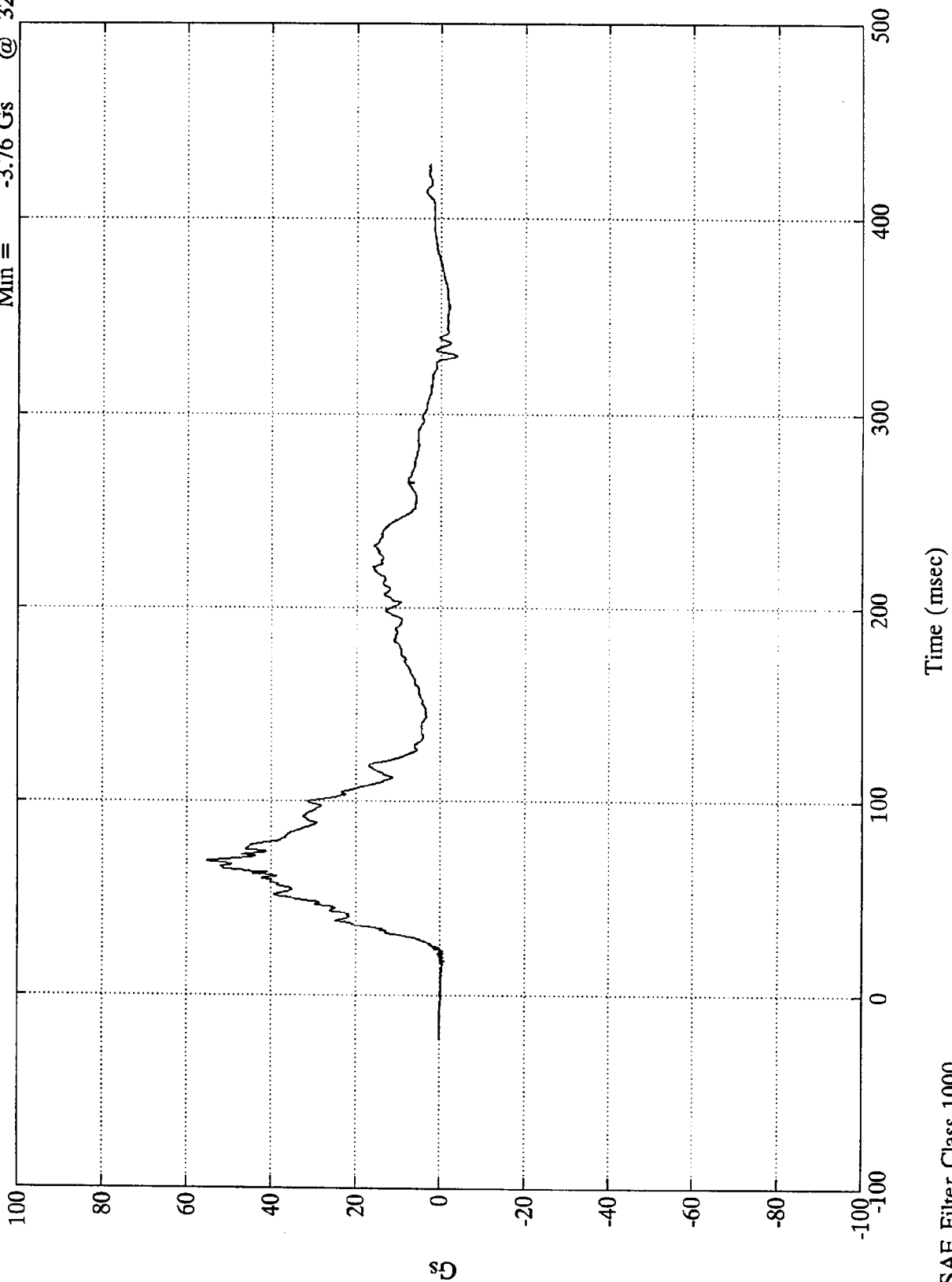
Max = 6.50 Gs @ 220.56 msec
Min = -9.28 Gs @ 121.68 msec



SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

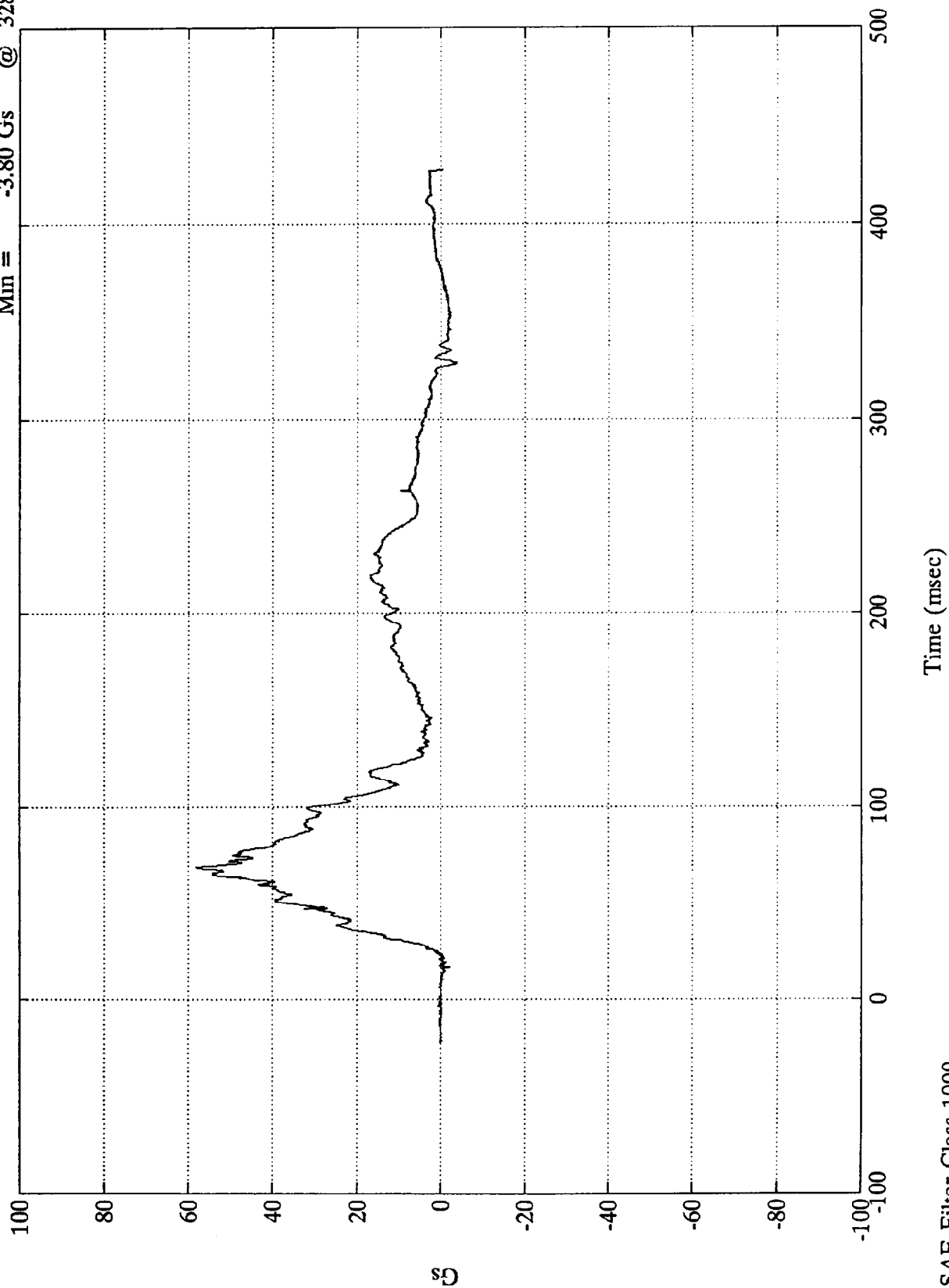
Pos. 2 Head Z
Max = 55.39 Gs @ 69.59 msec
Min = -3.76 Gs @ 329.76 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Head Z(R)

Max = 58.11 Gs @ 69.48 msec
Min = -3.80 Gs @ 328.56 msec

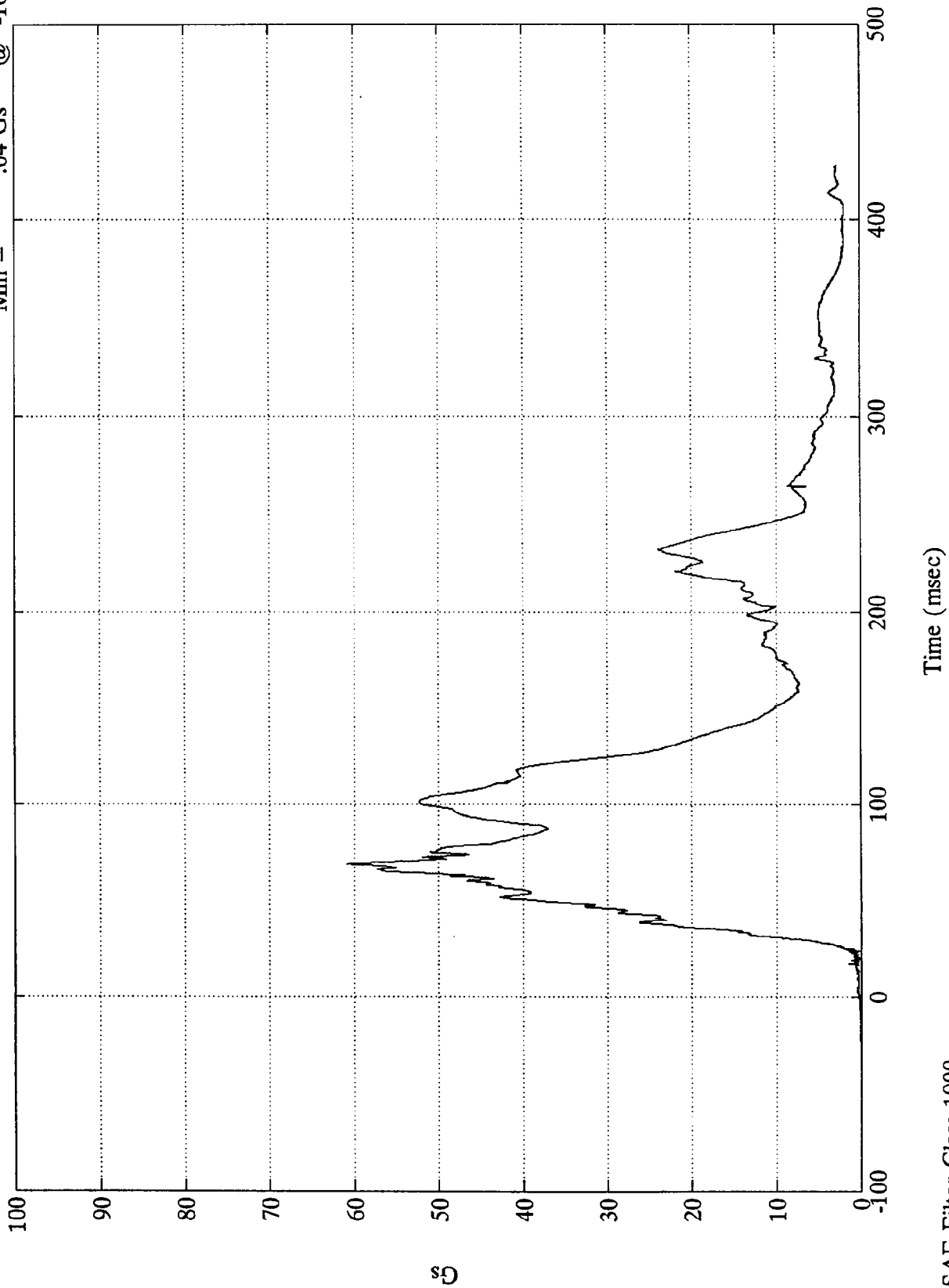


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Head Resultant

Max = 60.82 Gs @ 69.59 msec
Min = .04 Gs @ -10.20 msec

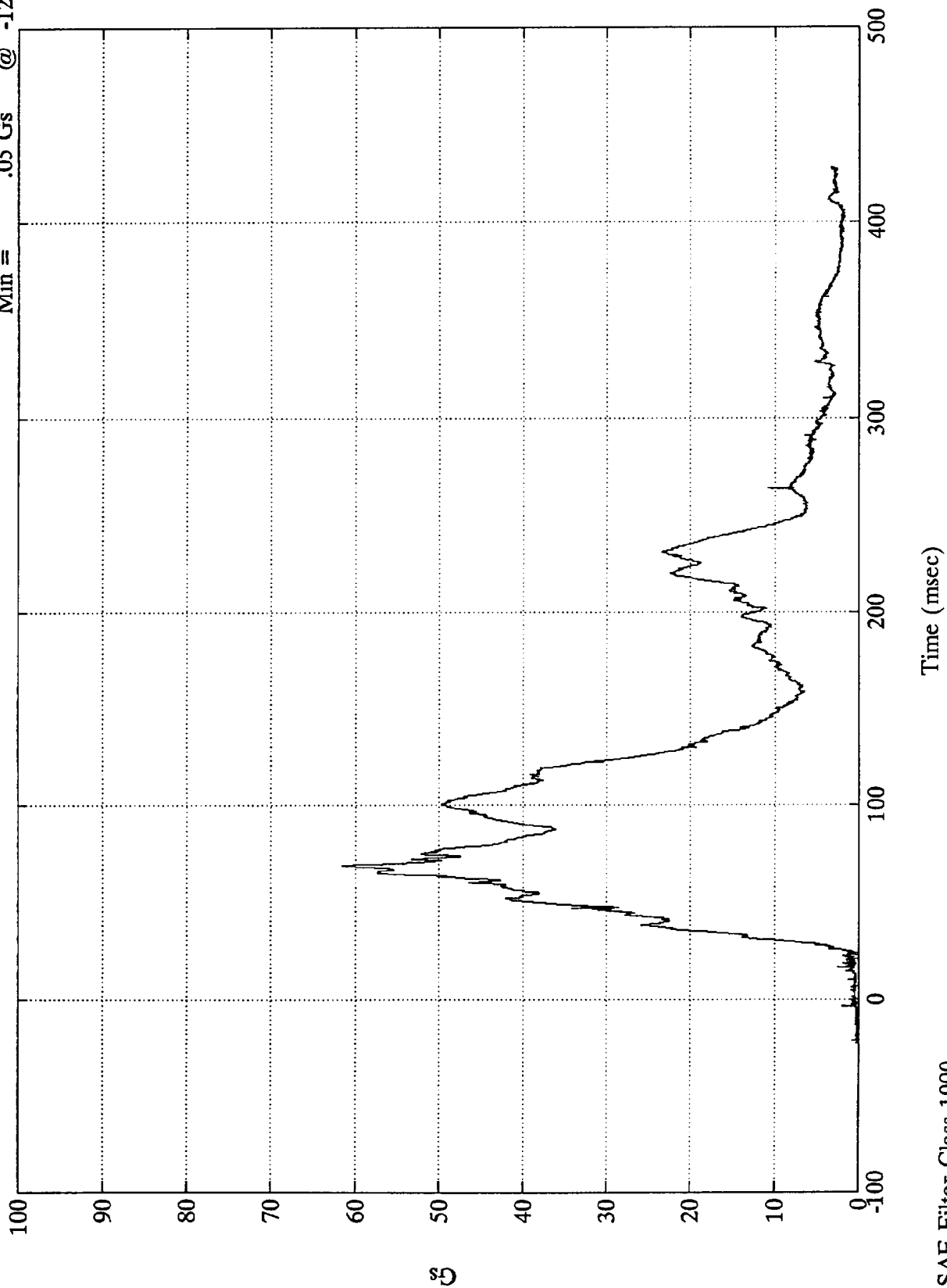


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Head Resultant(R)

Max = 61.52 Gs @ 69.48 msec
Min = .05 Gs @ -12.12 msec



Gs

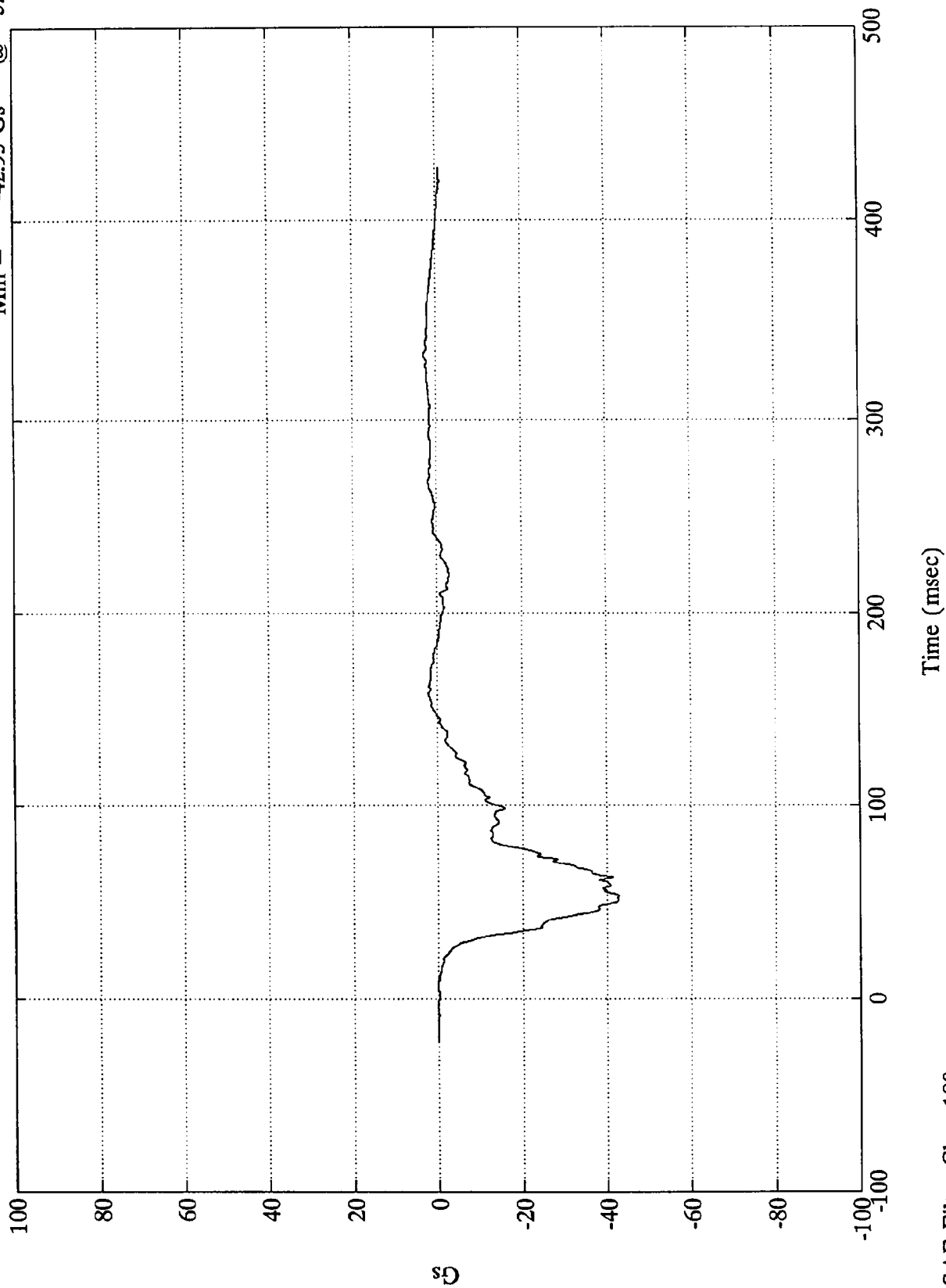
Time (msec)

SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Chest X

Max = 3.03 Gs @ 332.88 msec
Min = -42.95 Gs @ 52.68 msec

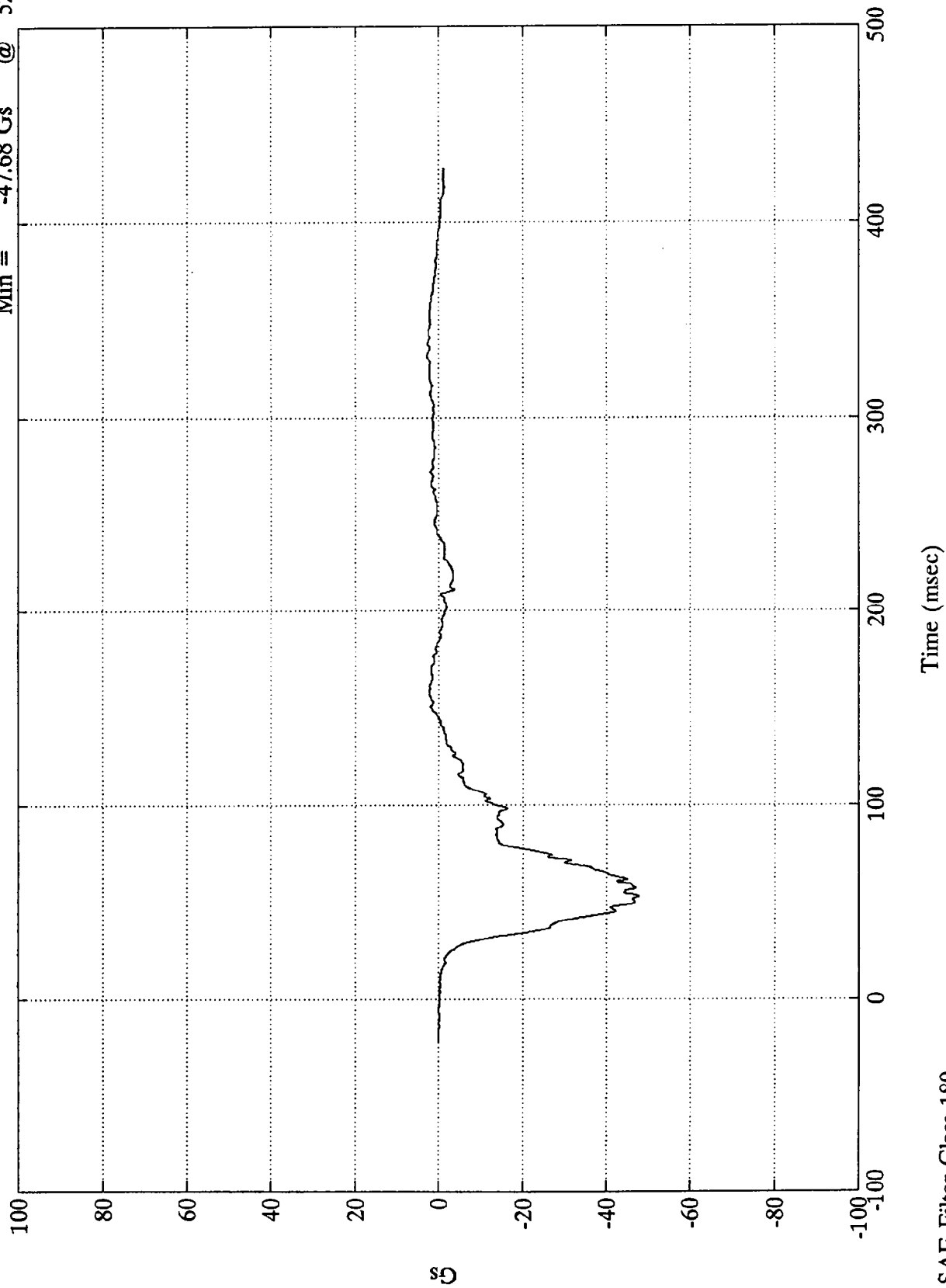


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

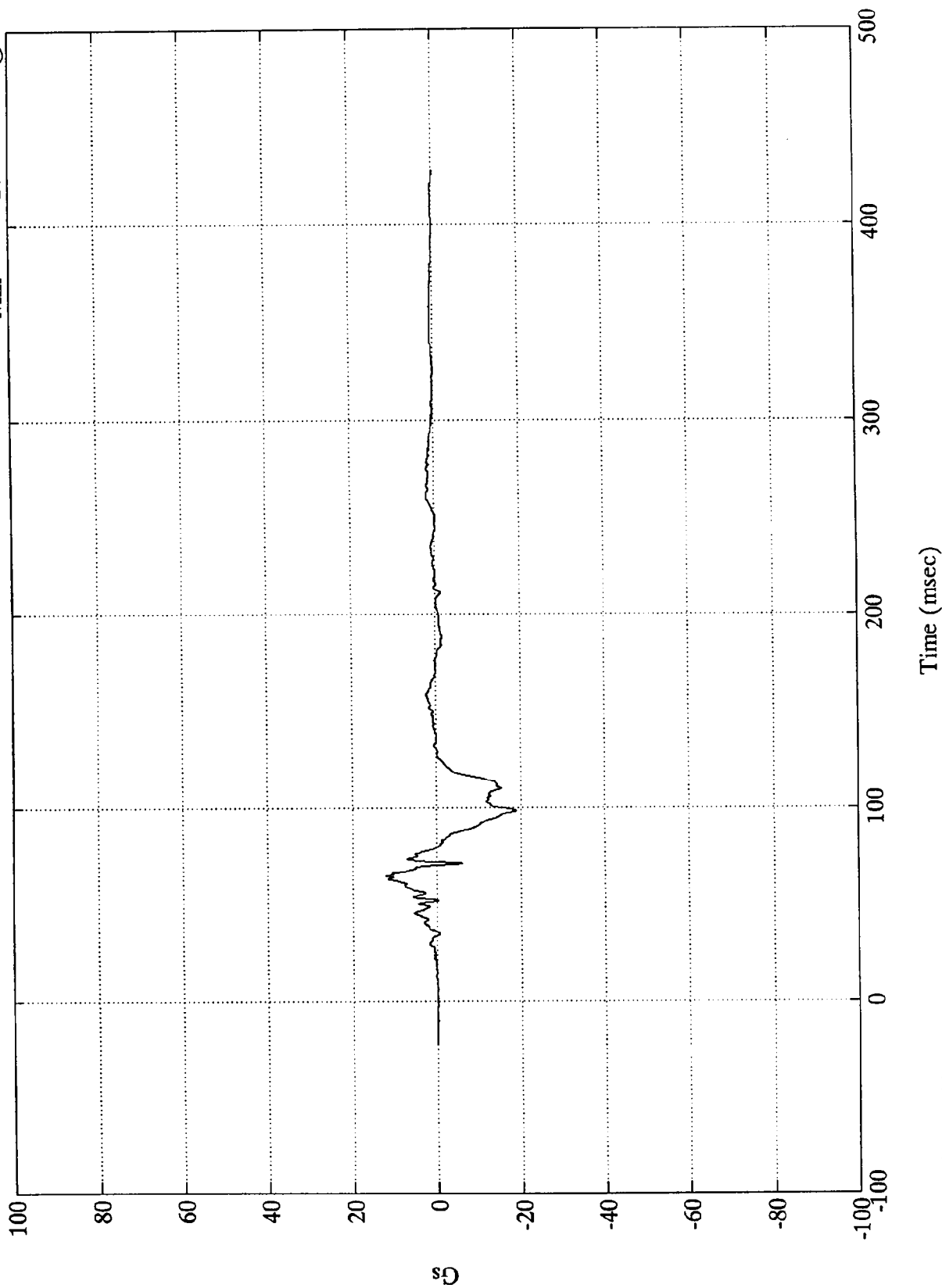
Pos. 2 Chest X(R)

Max = 2.93 Gs @ 330.95 msec
Min = -47.68 Gs @ 52.79 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Chest Y
Max = 12.18 Gs @ 65.04 msec
Min = -18.96 Gs @ 98.63 msec

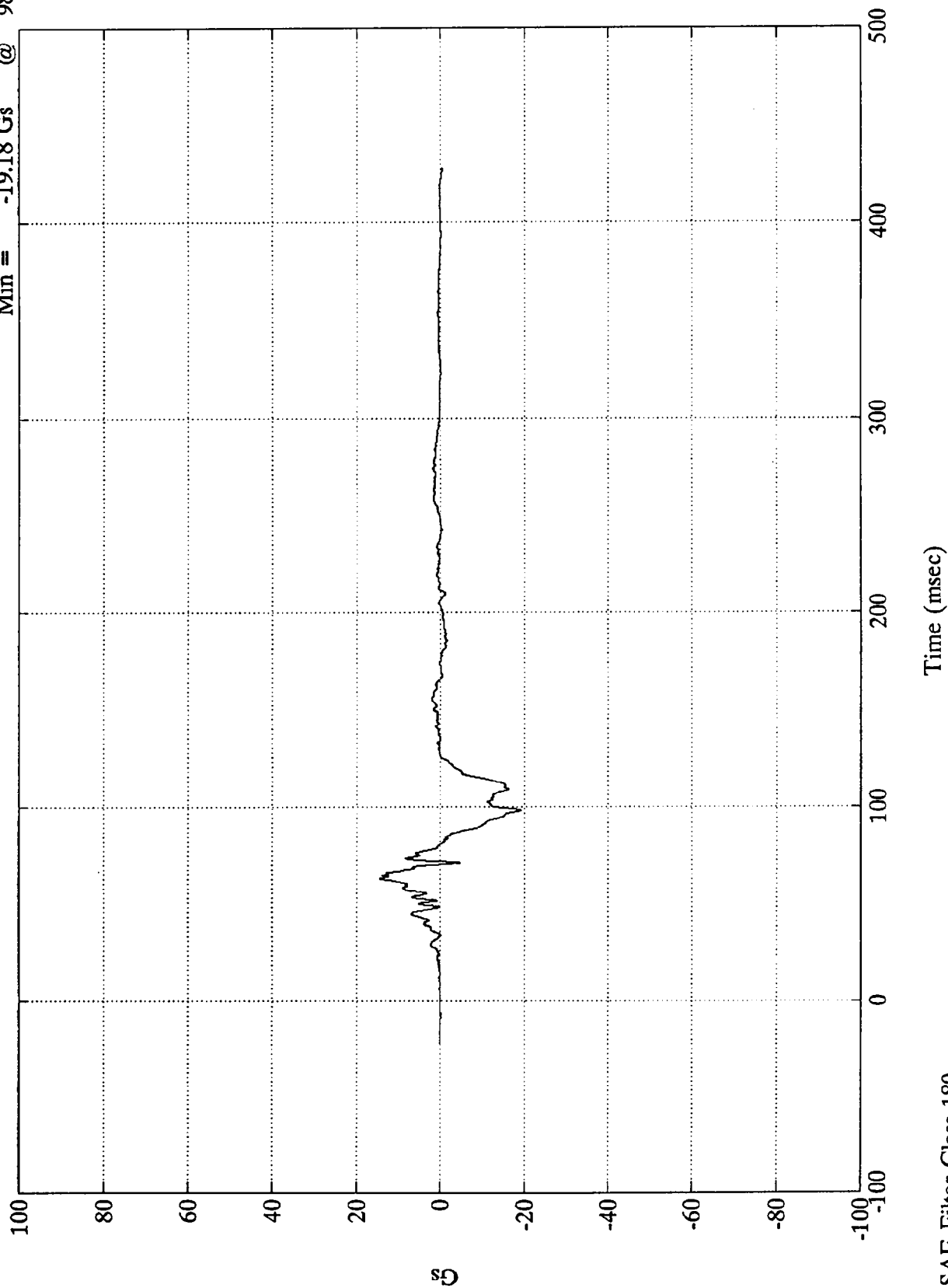


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Chest Y(R)

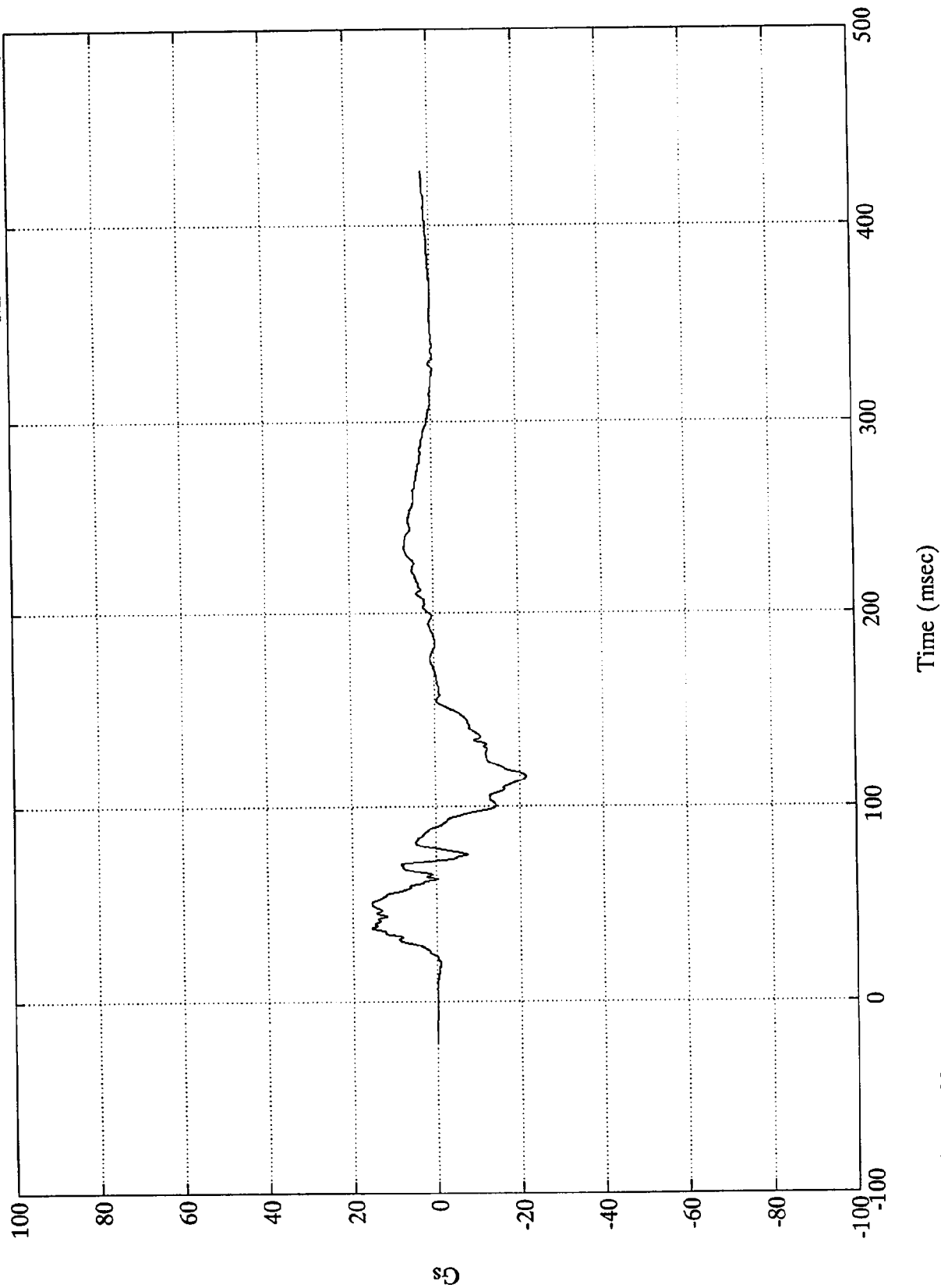
Max = 14.33 Gs @ 63.00 msec
Min = -19.18 Gs @ 98.28 msec



SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

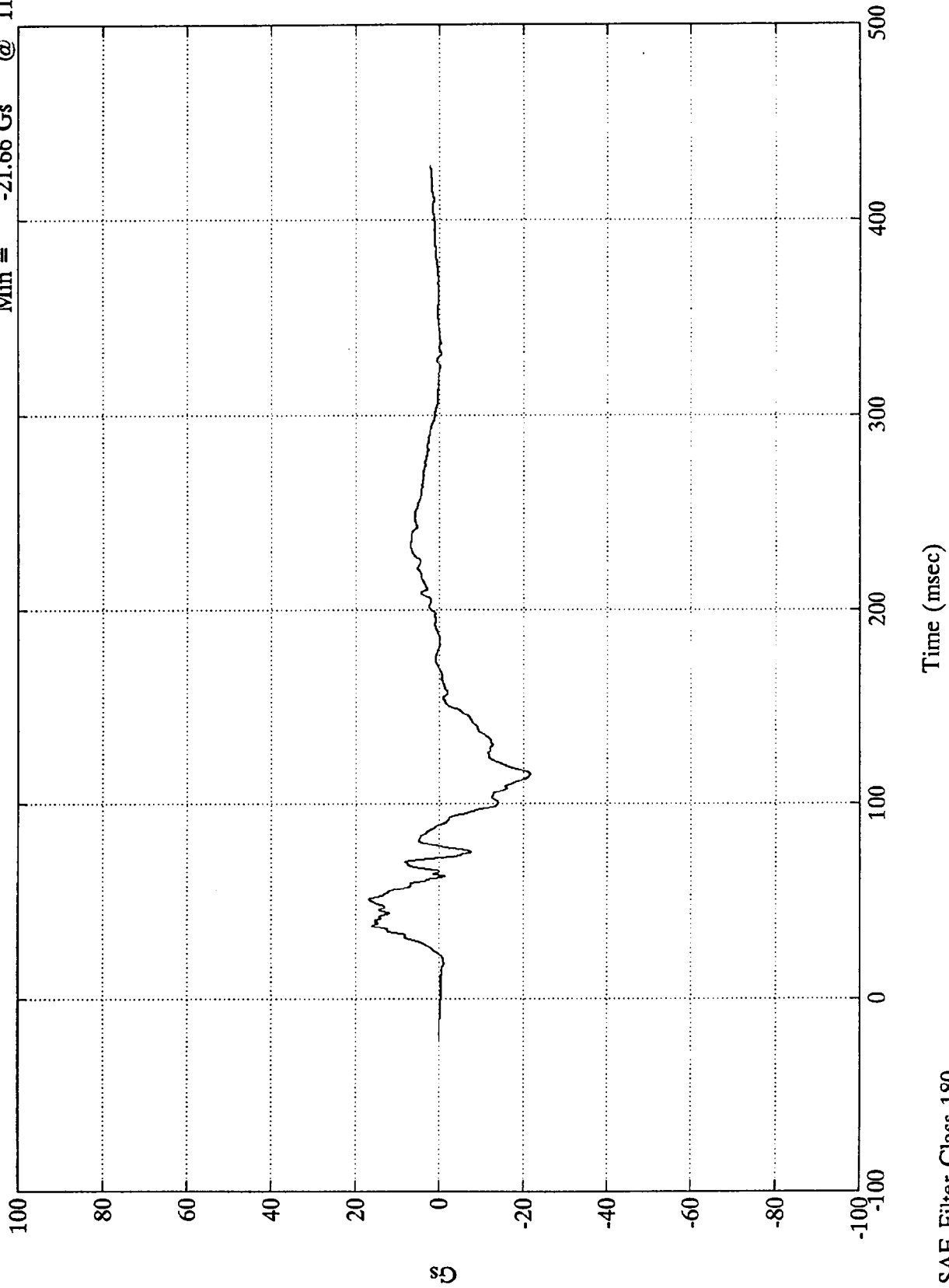
Pos. 2 Chest Z
Max = 15.39 Gs @ 37.92 msec
Min = -21.69 Gs @ 115.80 msec



SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Chest Z(R) Max = 16.83 Gs @ 50.88 msec
Min = -21.66 Gs @ 115.56 msec

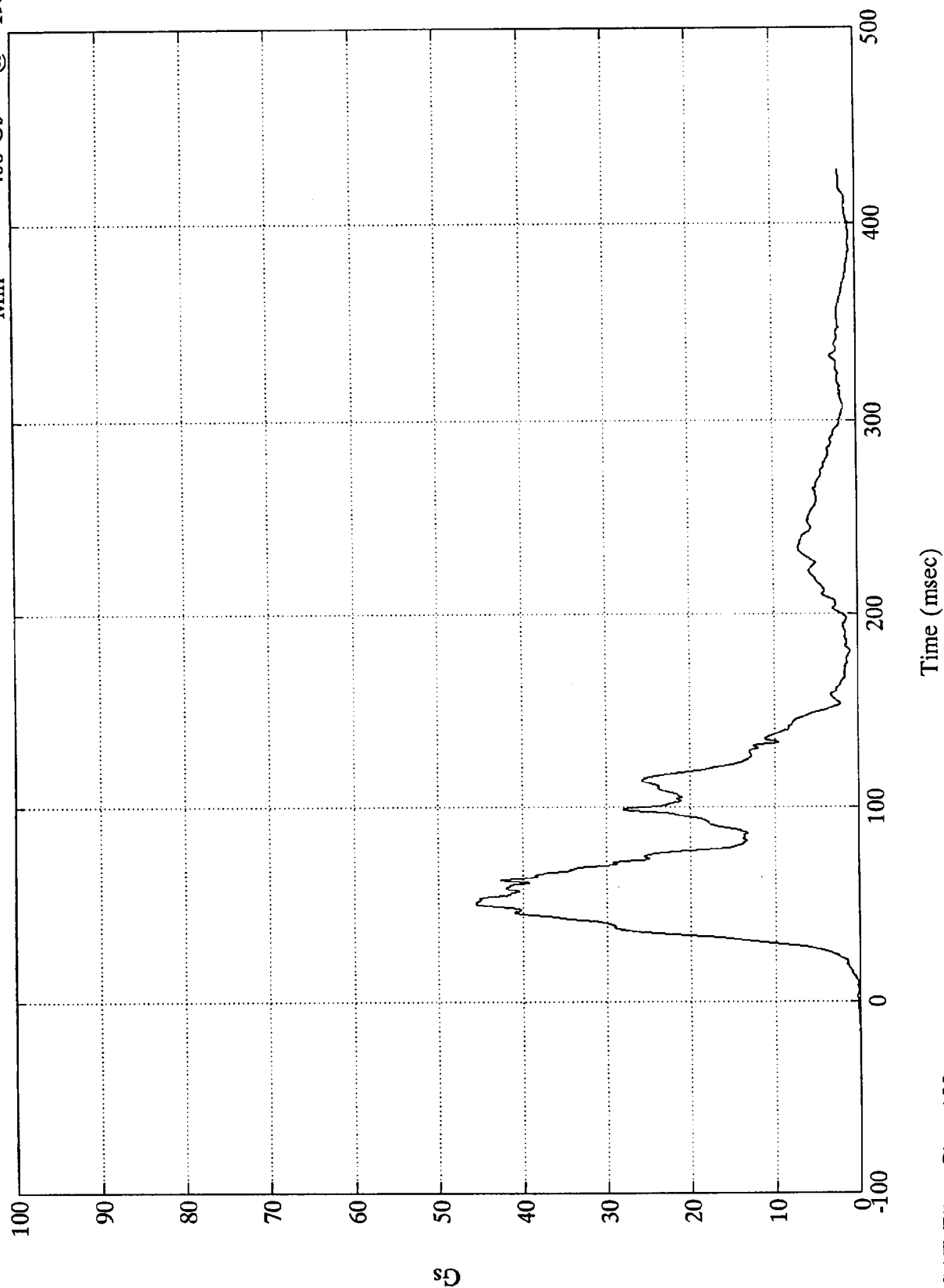


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Chest Resultant

Max = 45.57 Gs @ 50.28 msec
Min = .00 Gs @ -19.08 msec

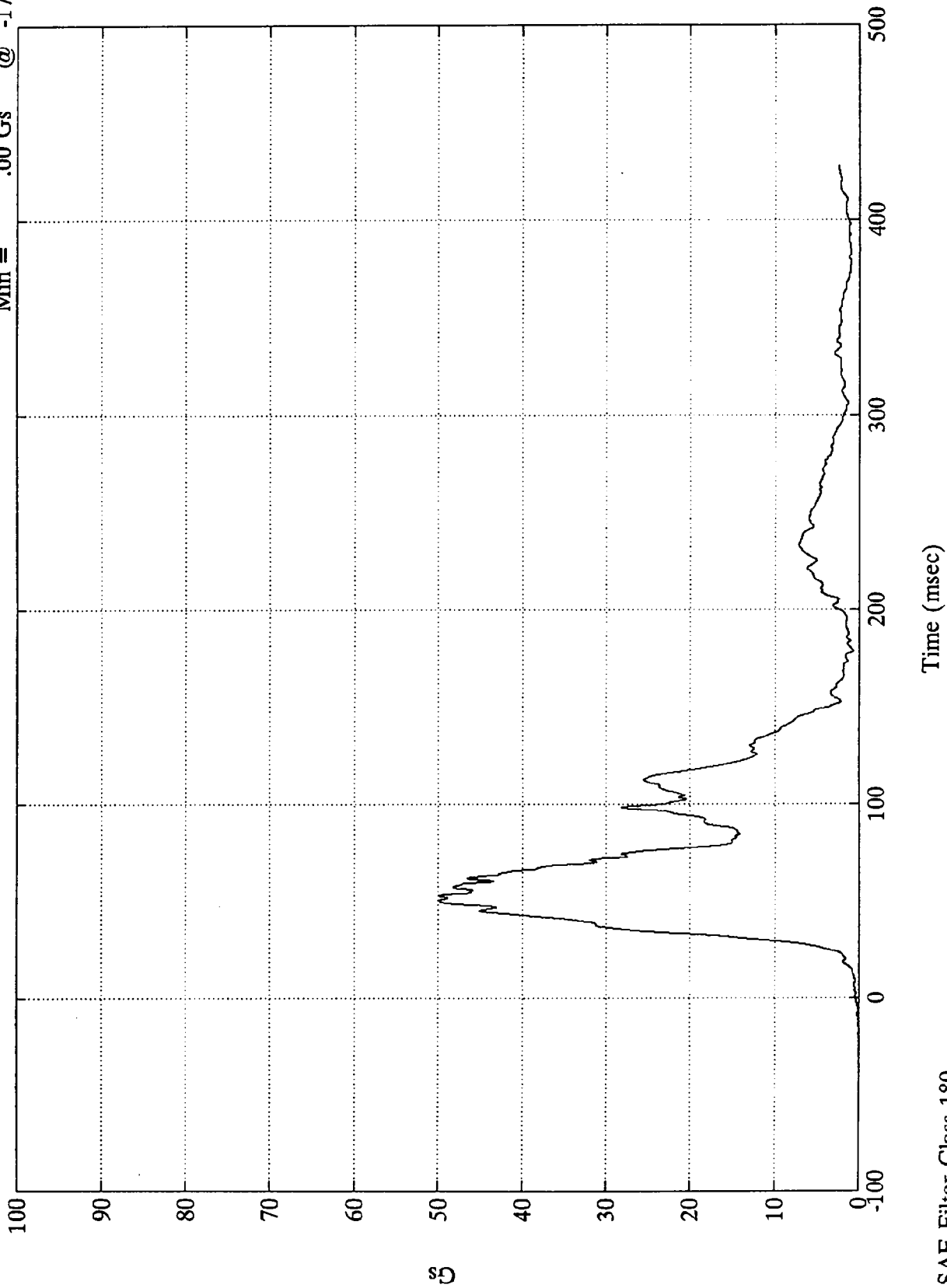


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Chest Res(R)

Max = 49.92 Gs @ 52.92 msec
Min = .00 Gs @ -17.28 msec

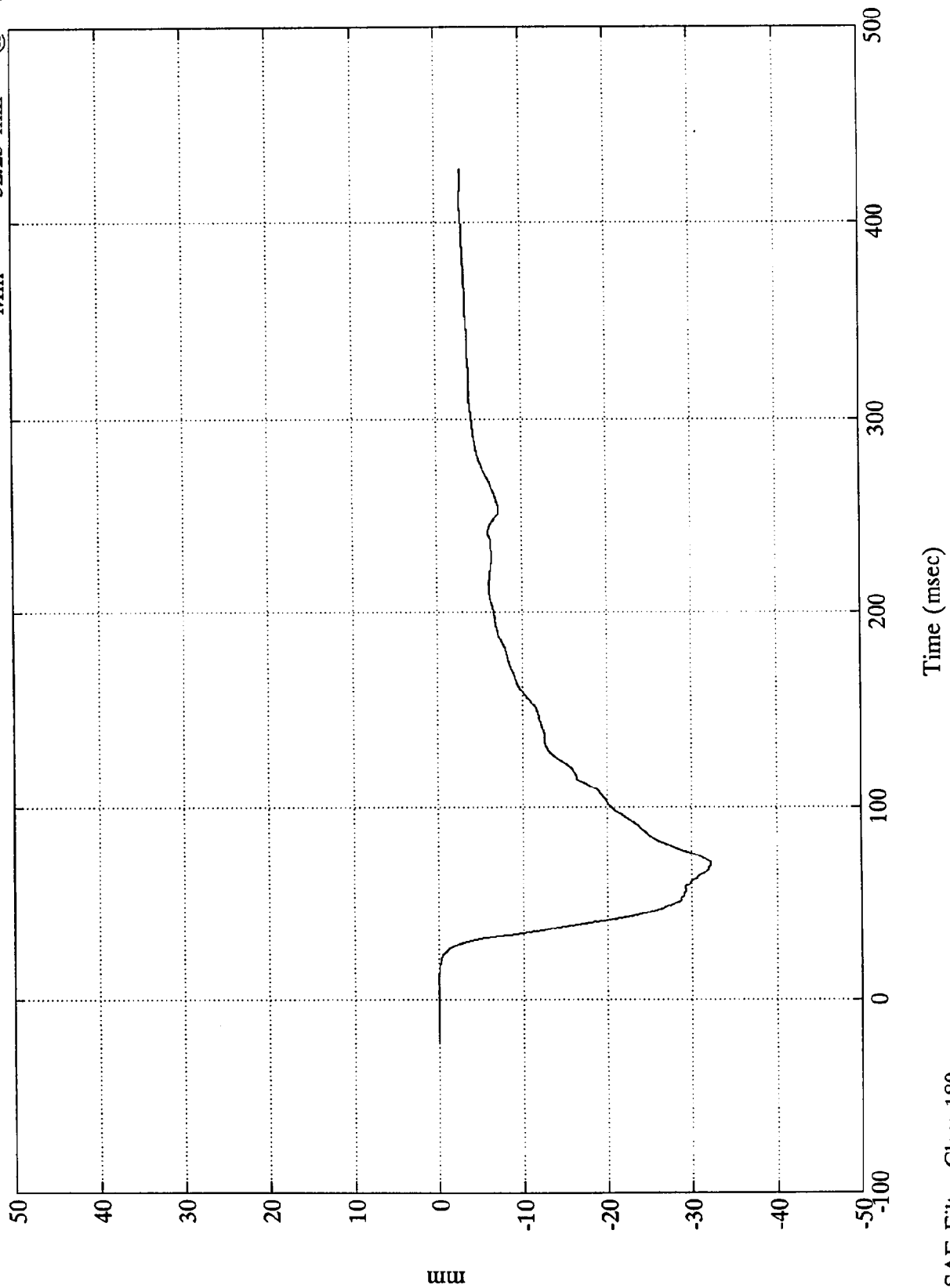


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Chest Disp.

Max =	.00 mm	@	-21.36 msec
Min =	-32.25 mm	@	70.79 msec

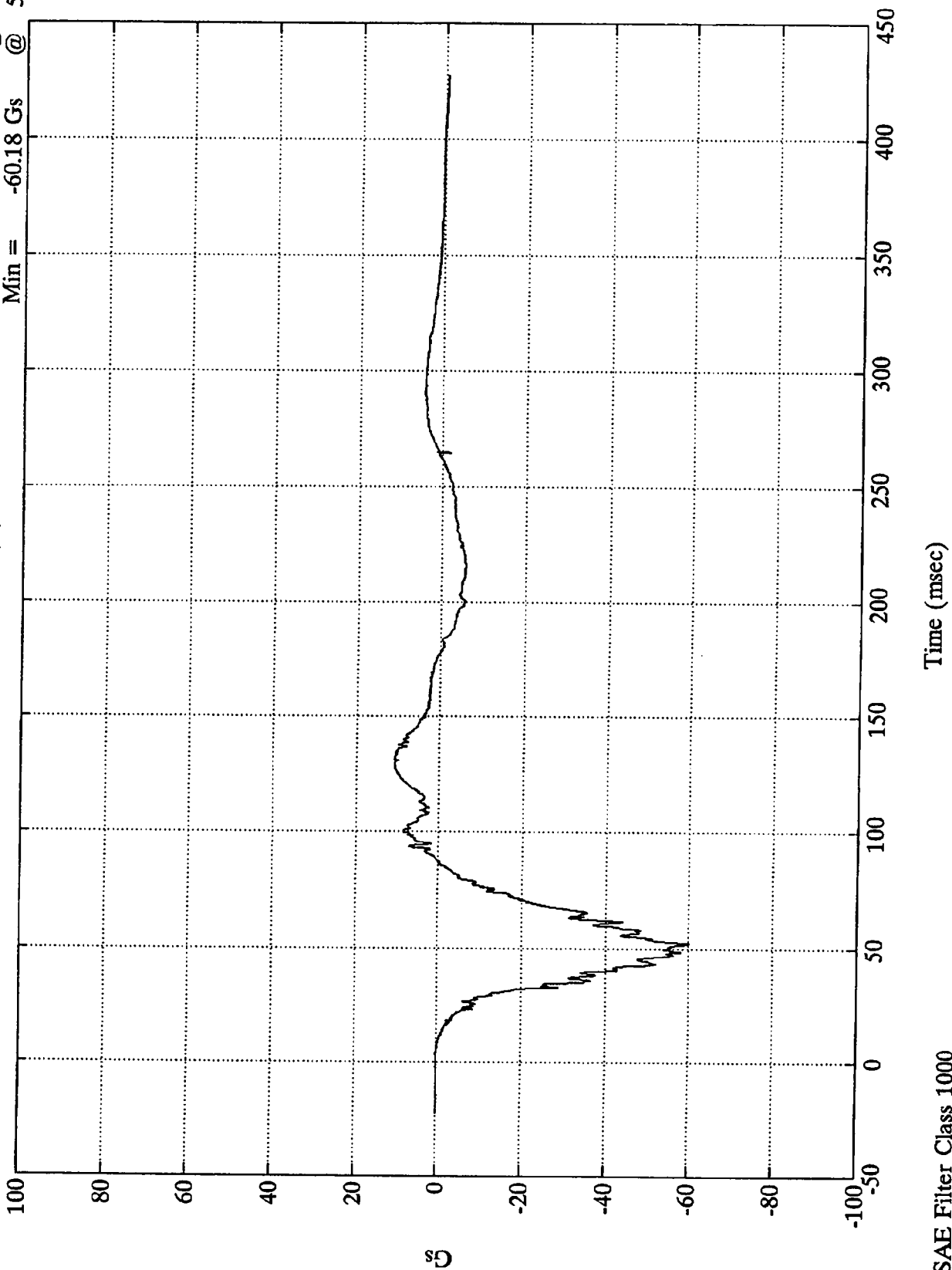


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Pelvic (X)

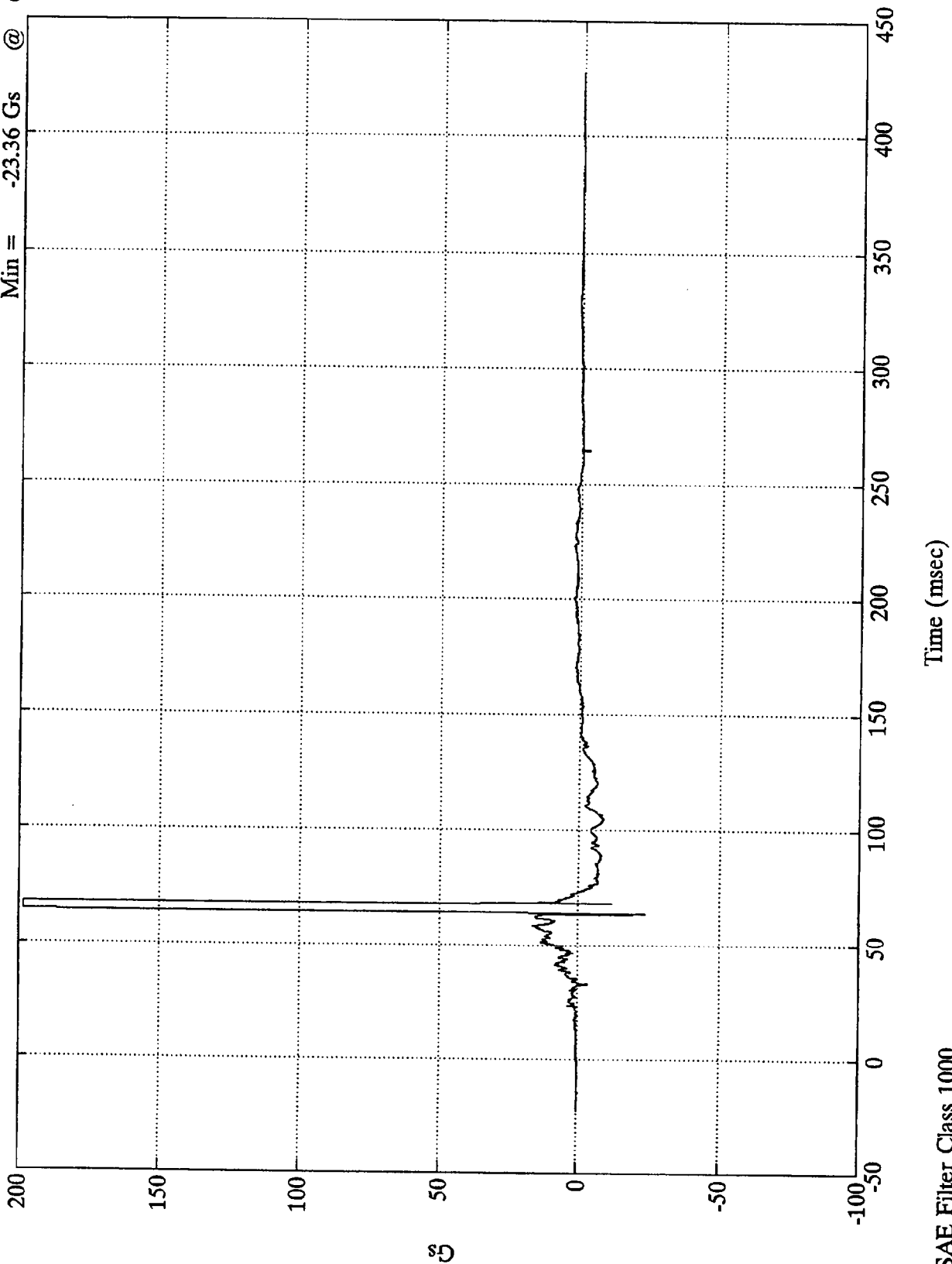
Max = 10.94 Gs @ 131.40 msec
Min = -60.18 Gs @ 52.31 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Pelvic (Y)

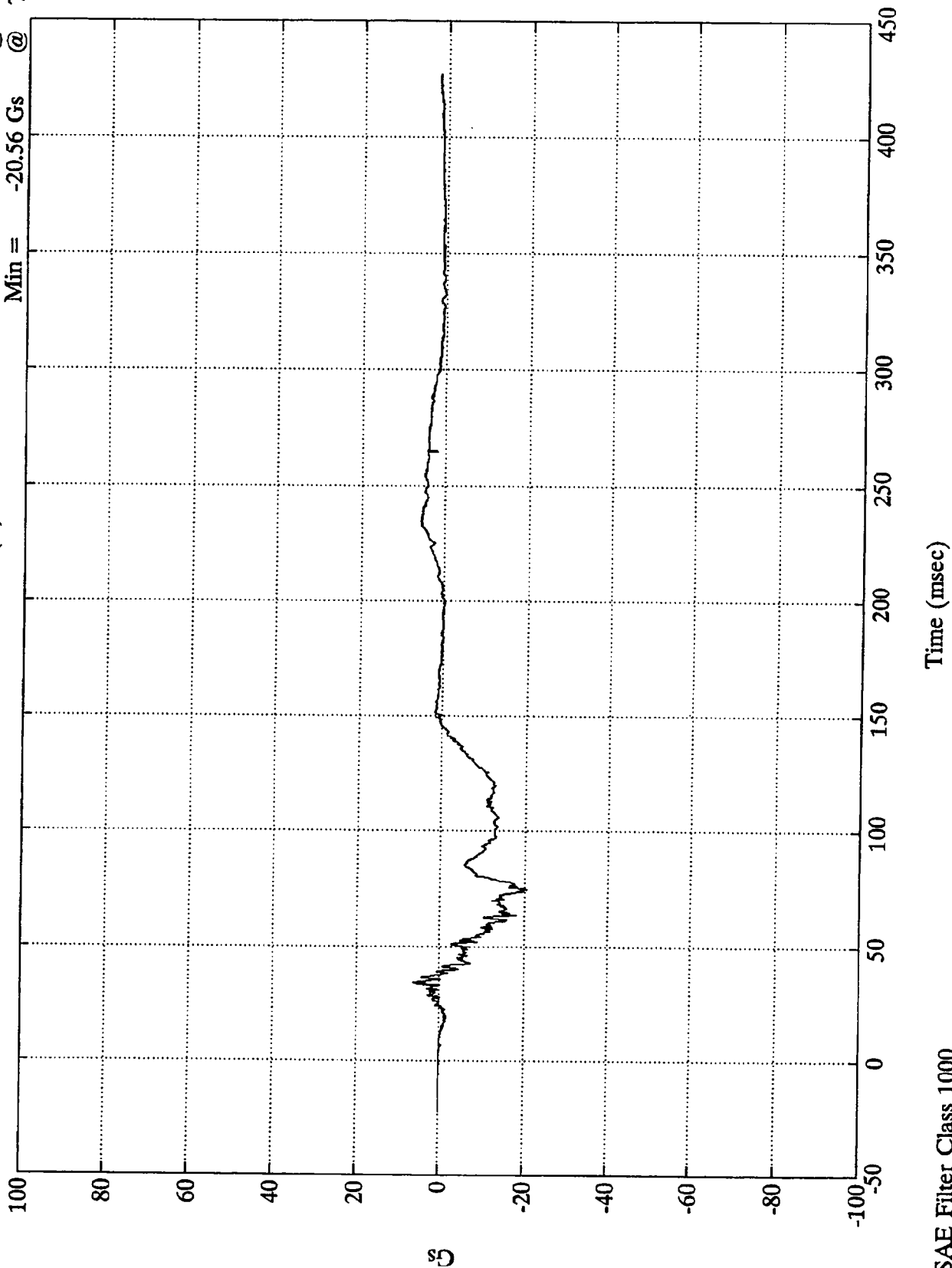
Max = 198.21 Gs @ 67.68 msec
Min = -23.36 Gs @ 63.60 msec



SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

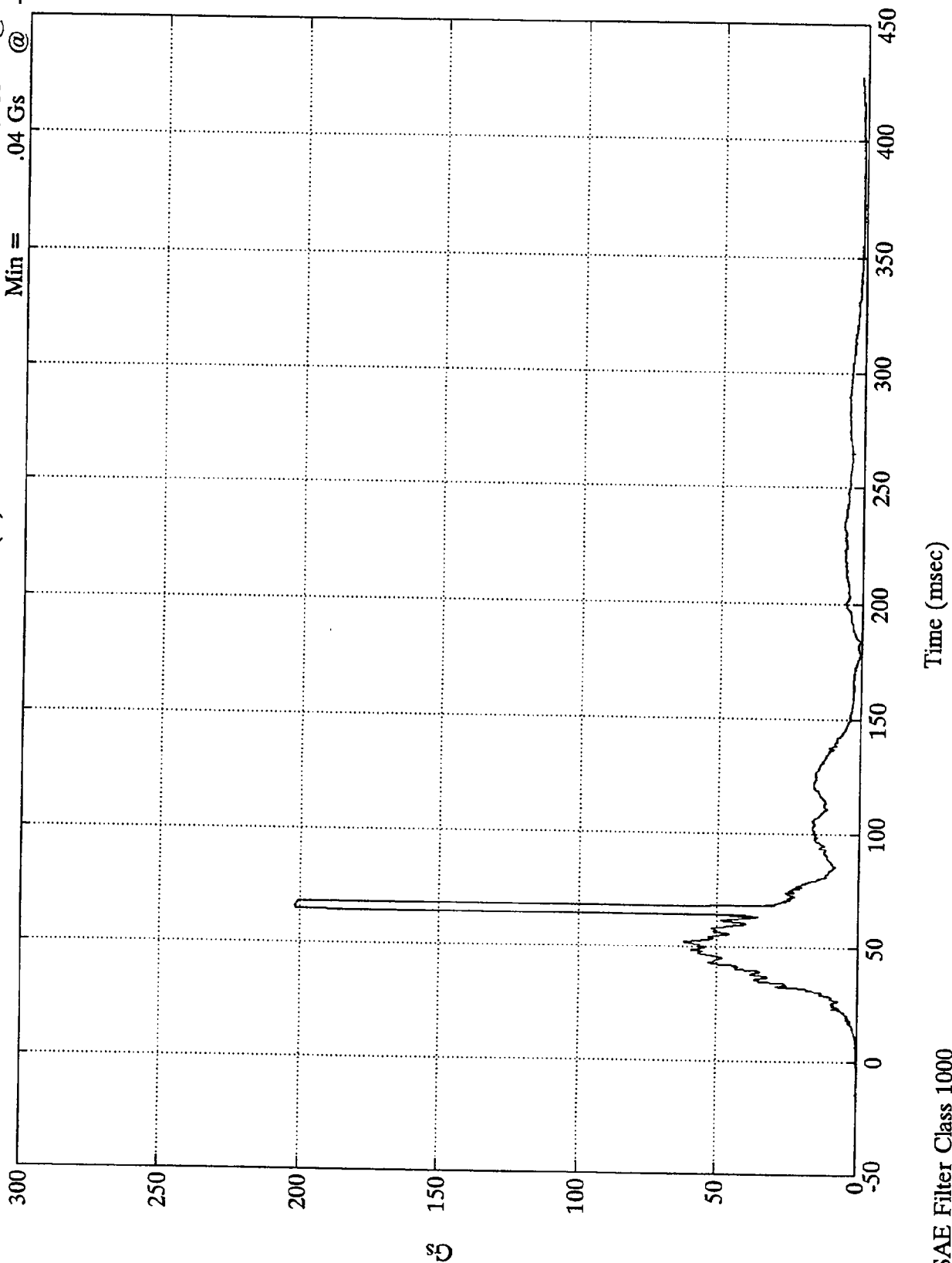
Pos. 2 Pelvic (Z) Max = 6.34 Gs @ 34.08 msec
Min = -20.56 Gs @ 74.88 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Pelvic (R)

Max = 201.97 Gs @ 65.52 msec
Min = .04 Gs @ -8.76 msec

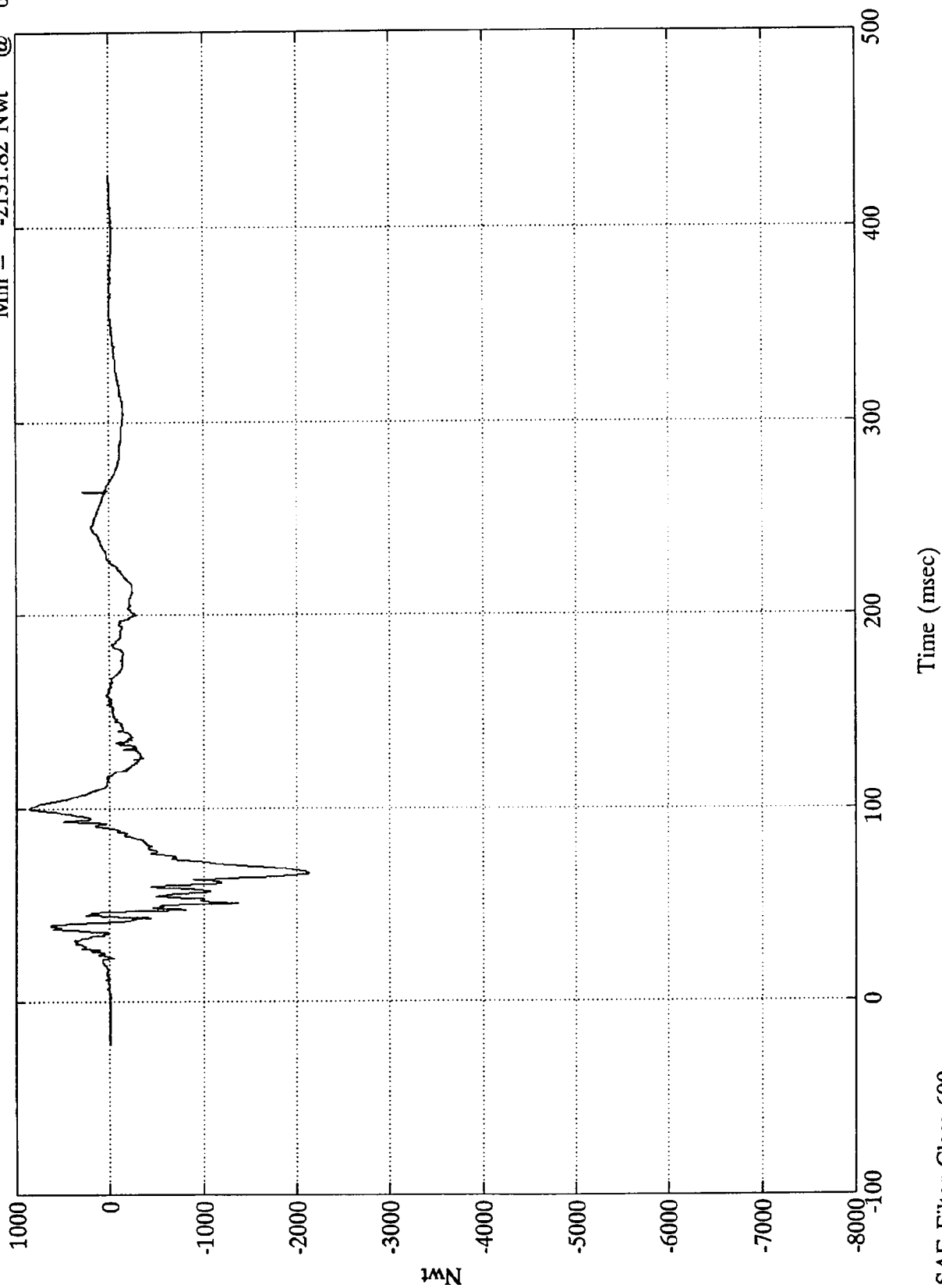


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 868.96 Nwt @ 99.95 msec
Min = -2131.82 Nwt @ 66.60 msec

Pos. 2 Left Femur



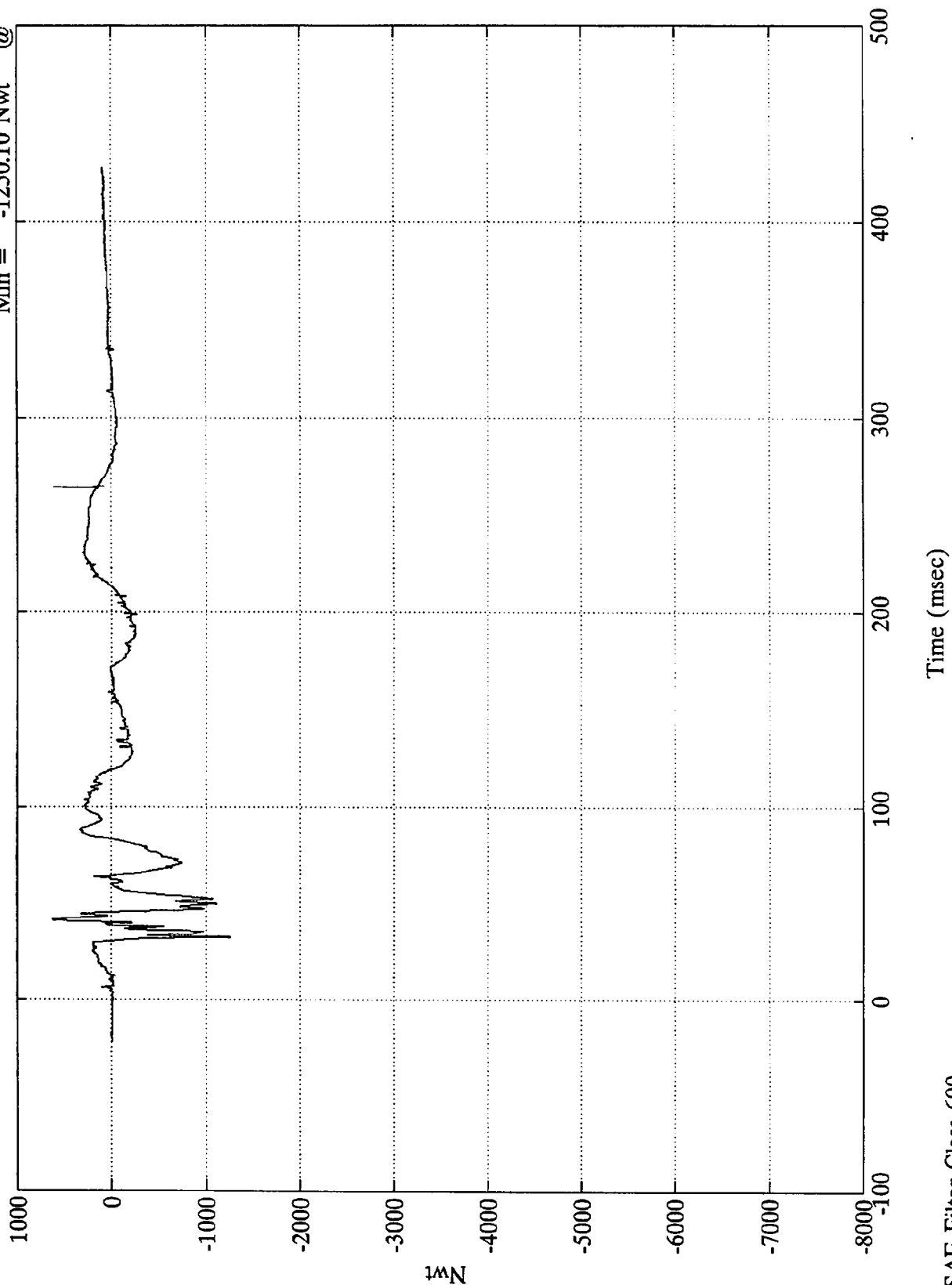
Nwt

Time (msec)

SAE Filter Class 600

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Right Femur
Max = 627.30 Nwt @ 41.64 msec
Min = -1250.10 Nwt @ 32.76 msec

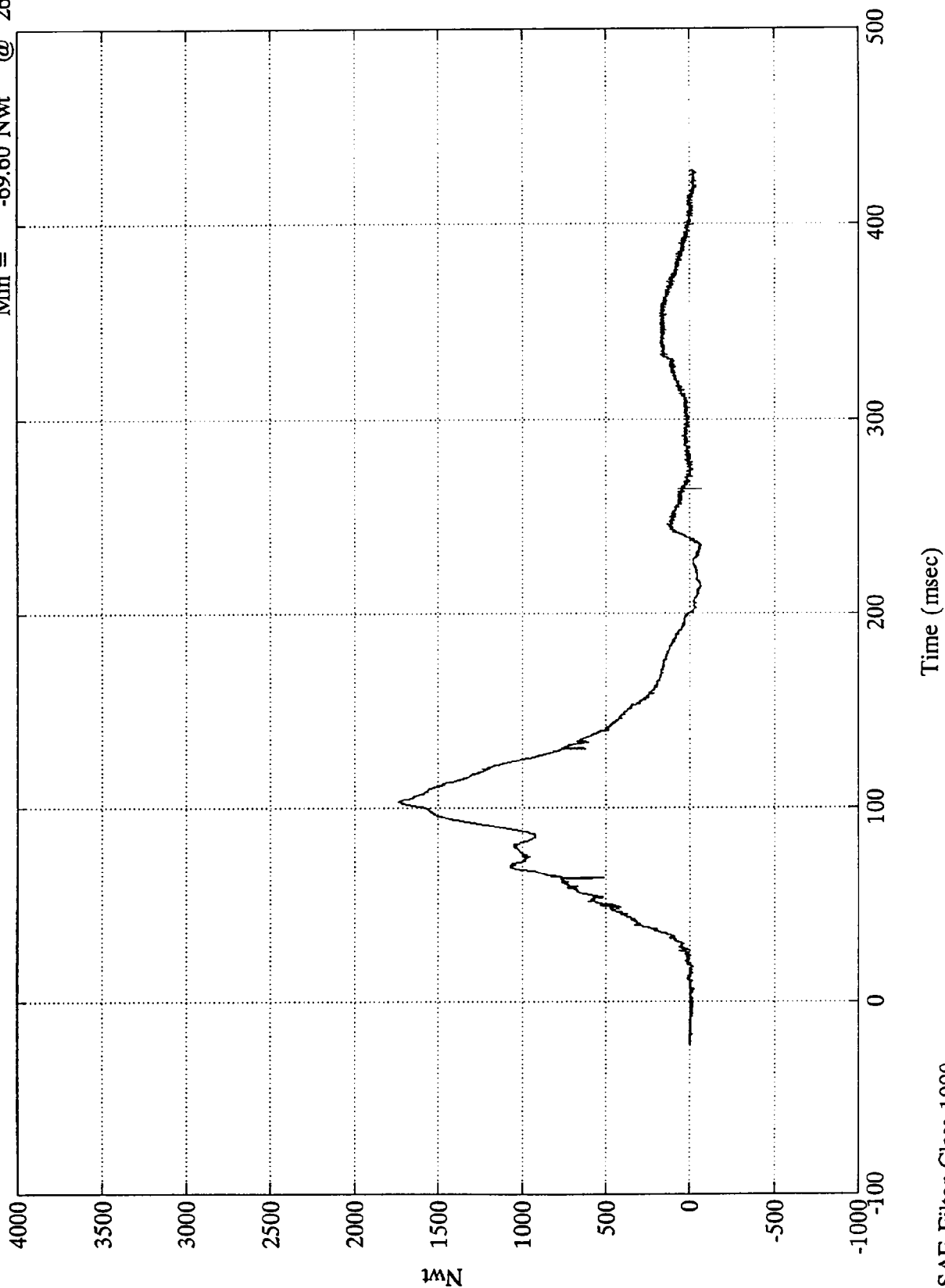


SAE Filter Class 600

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Upper Neck Fx

Max = 1733.36 Nwt @ 103.44 msec
Min = -69.60 Nwt @ 264.60 msec

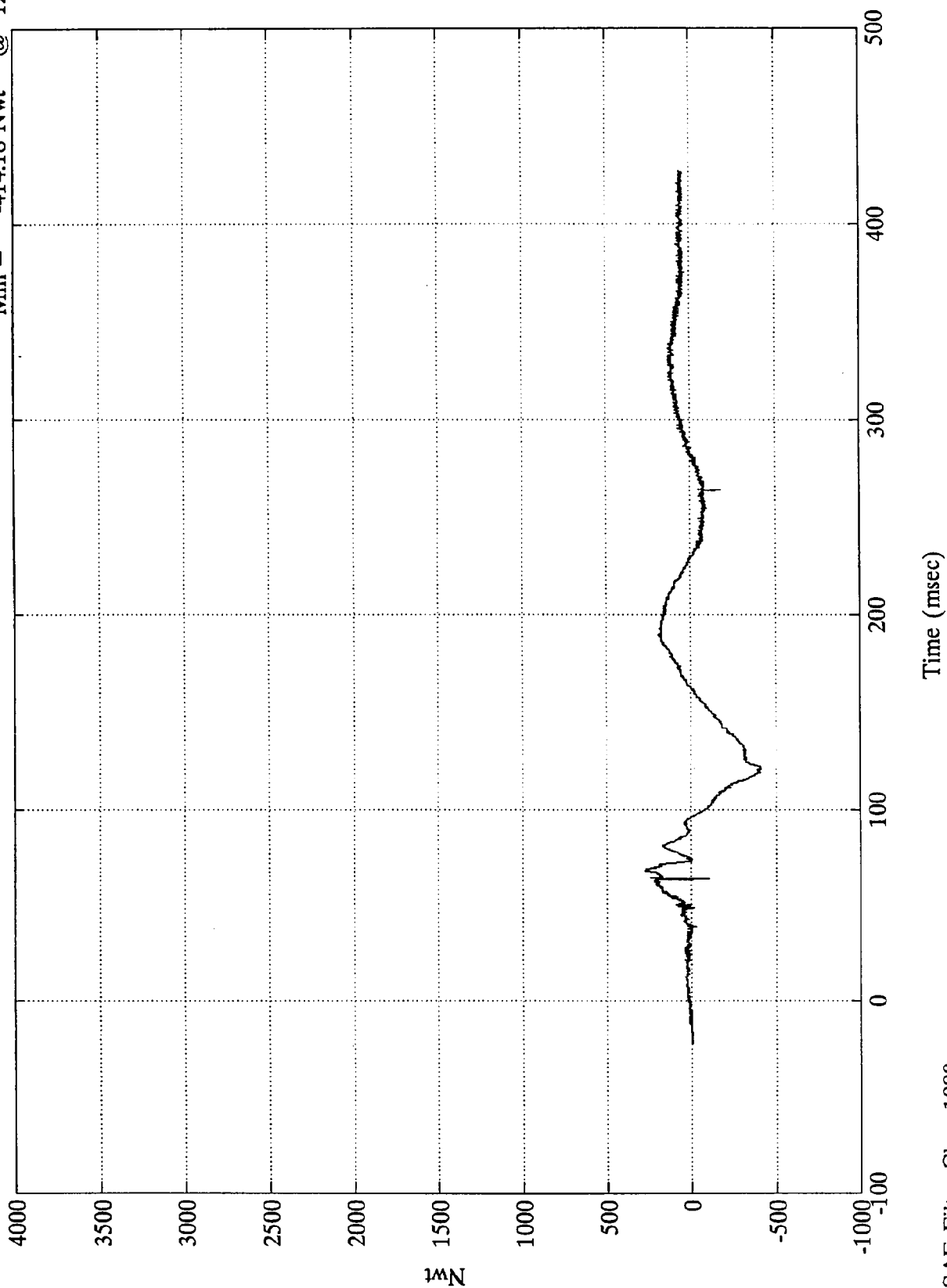


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Upper Neck Fy

Max = 277.77 Nwt @ 68.16 msec
Min = -414.18 Nwt @ 121.44 msec

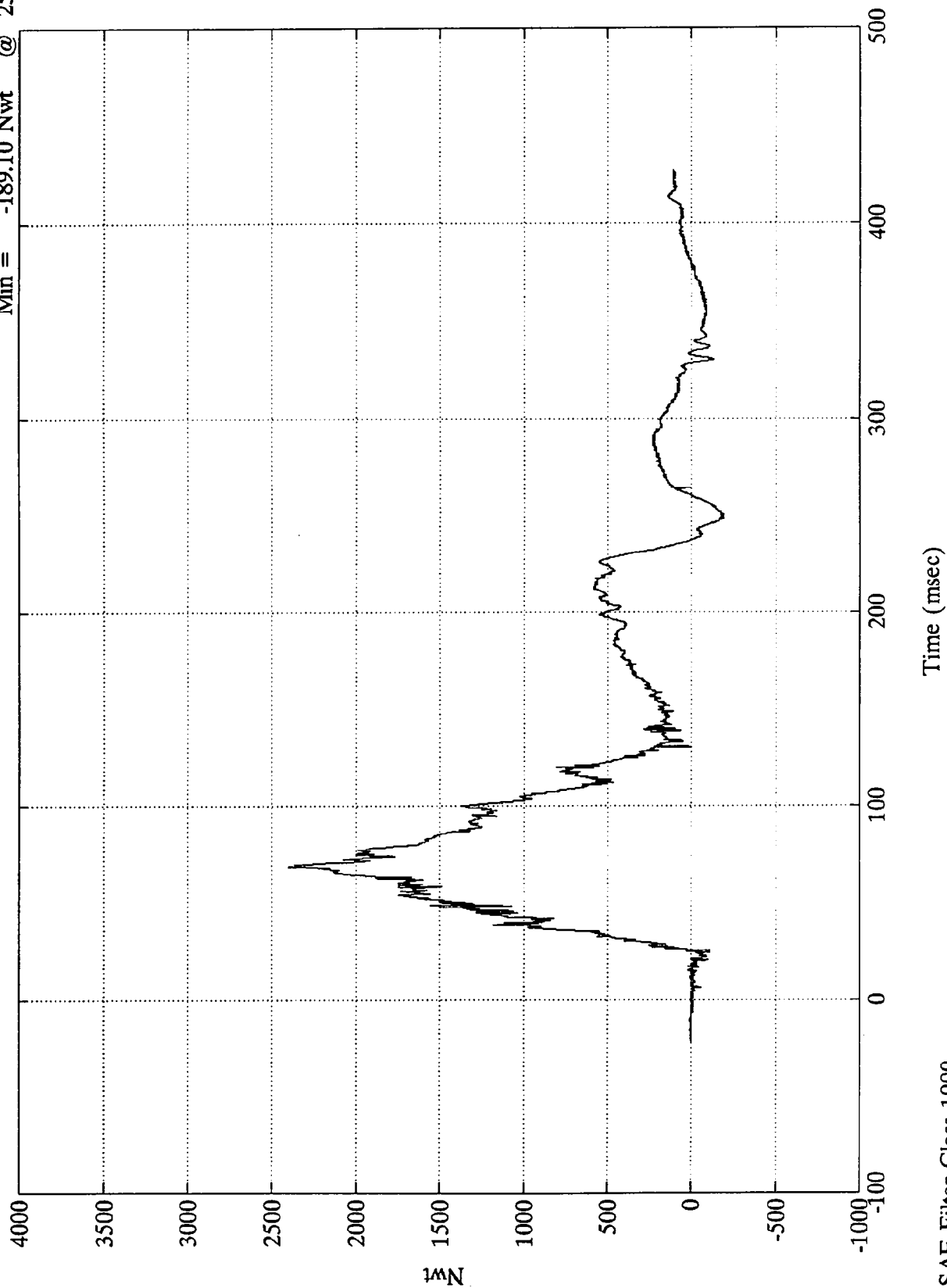


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Upper Neck Fz

Max = 2399.09 Nwt @ 69.36 msec
Min = -189.10 Nwt @ 251.28 msec



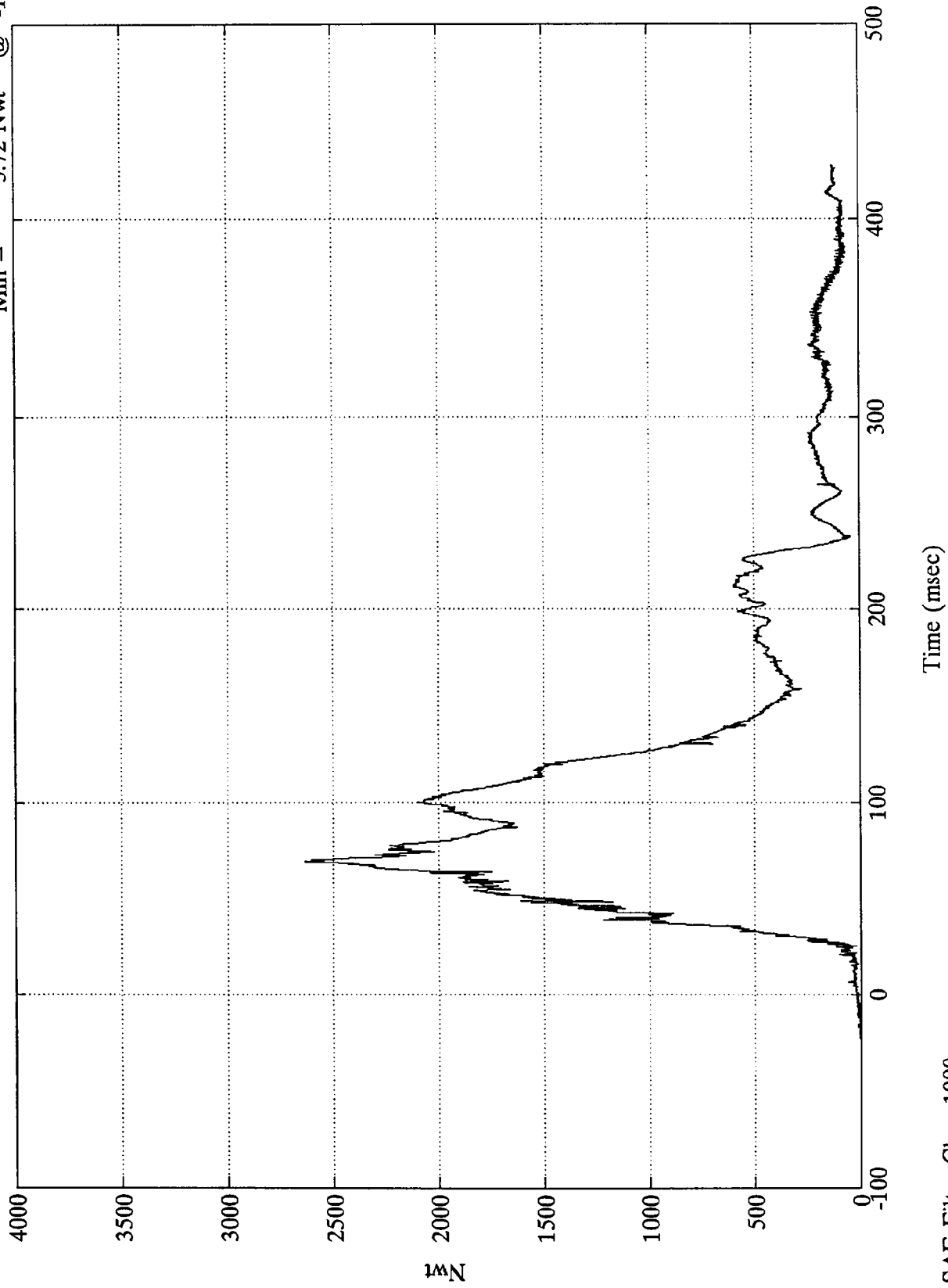
Nwt

SAE Filter Class 1000

Time (msec)

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Neck Force Res.
Max = 2634.24 Nwt @ 69.36 msec
Min = 5.72 Nwt @ -18.00 msec

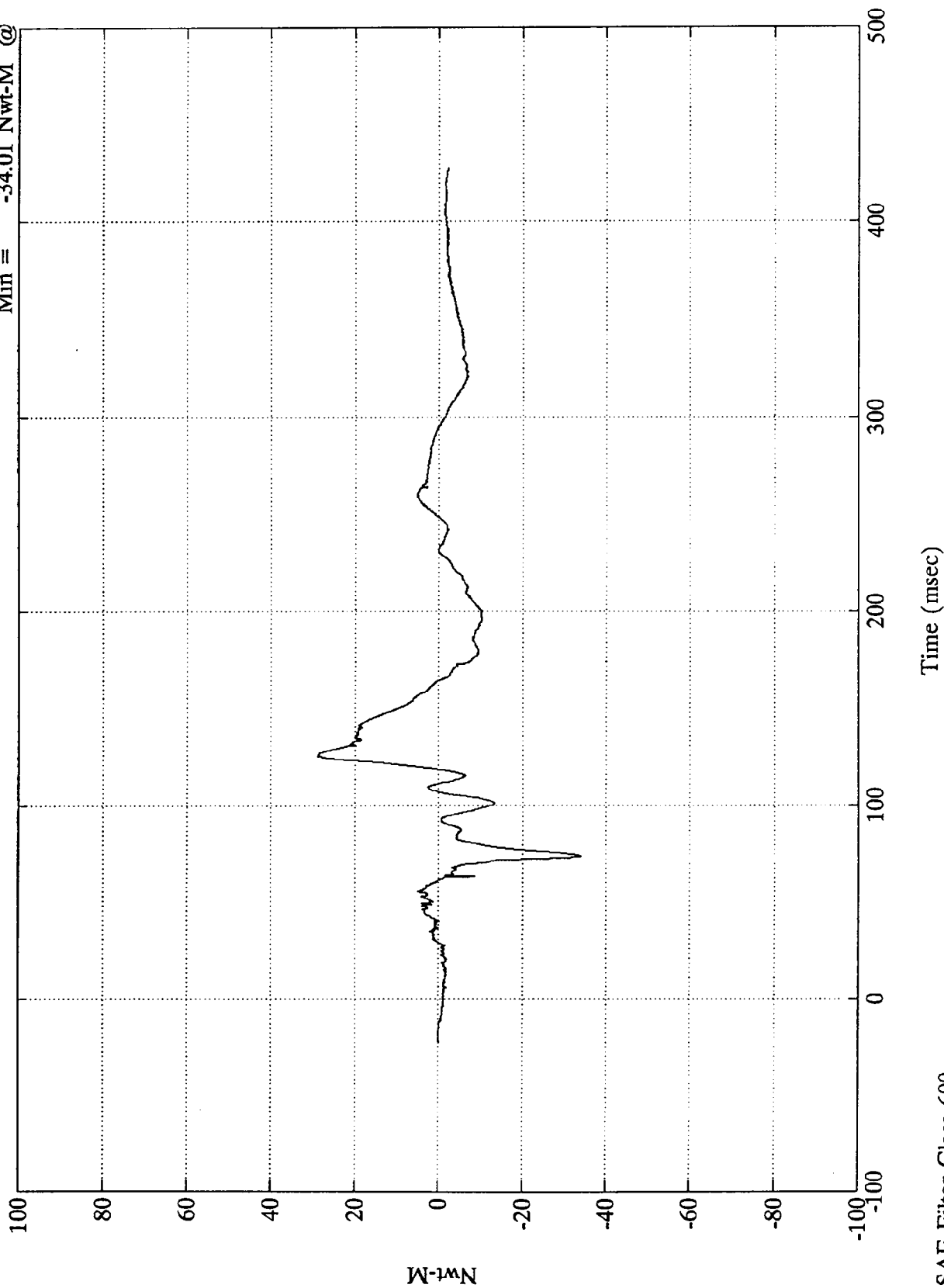


SAE Filter Class 1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Upper Neck Mx

Max = 28.82 Nwt-M @ 125.52 msec
Min = -34.01 Nwt-M @ 73.80 msec

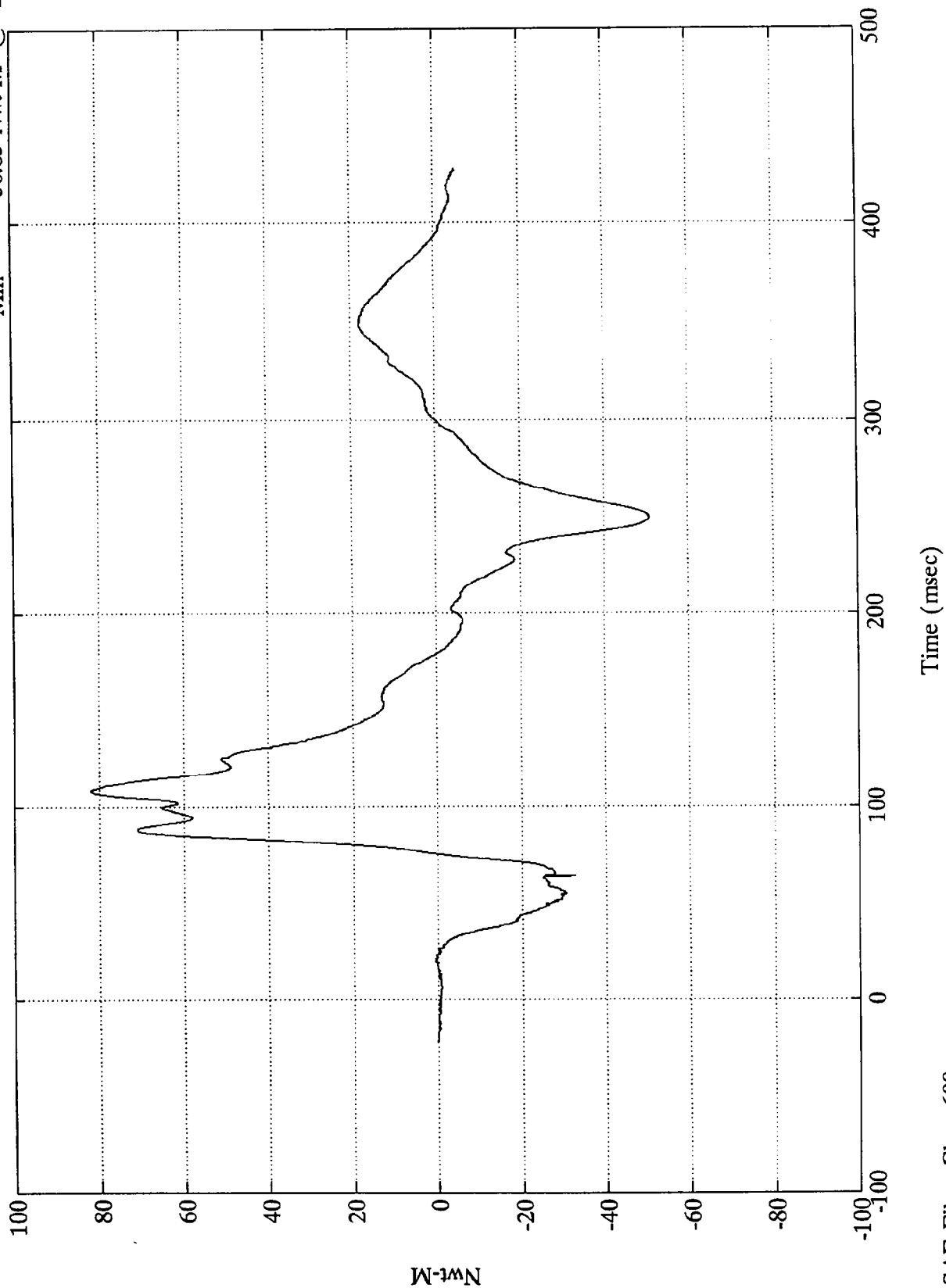


SAE Filter Class 600

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Upper Neck My

Max = 82.07 Nwt-M @ 108.48 msec
Min = -50.83 Nwt-M @ 249.24 msec

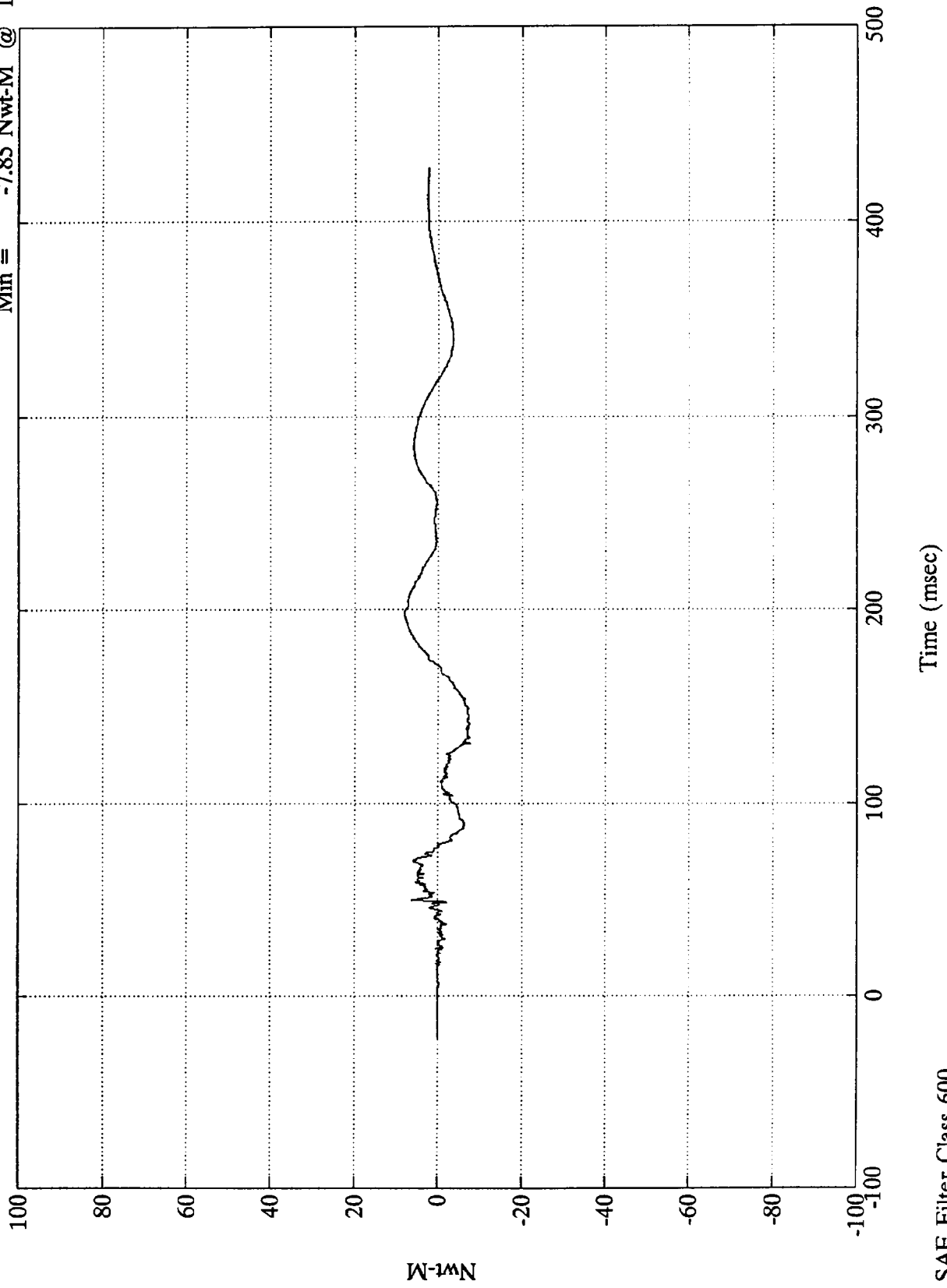


SAE Filter Class 600

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Upper Neck Mz

Max = 8.12 Nwt-M @ 198.96 msec
Min = -7.85 Nwt-M @ 130.92 msec



Nwt-M

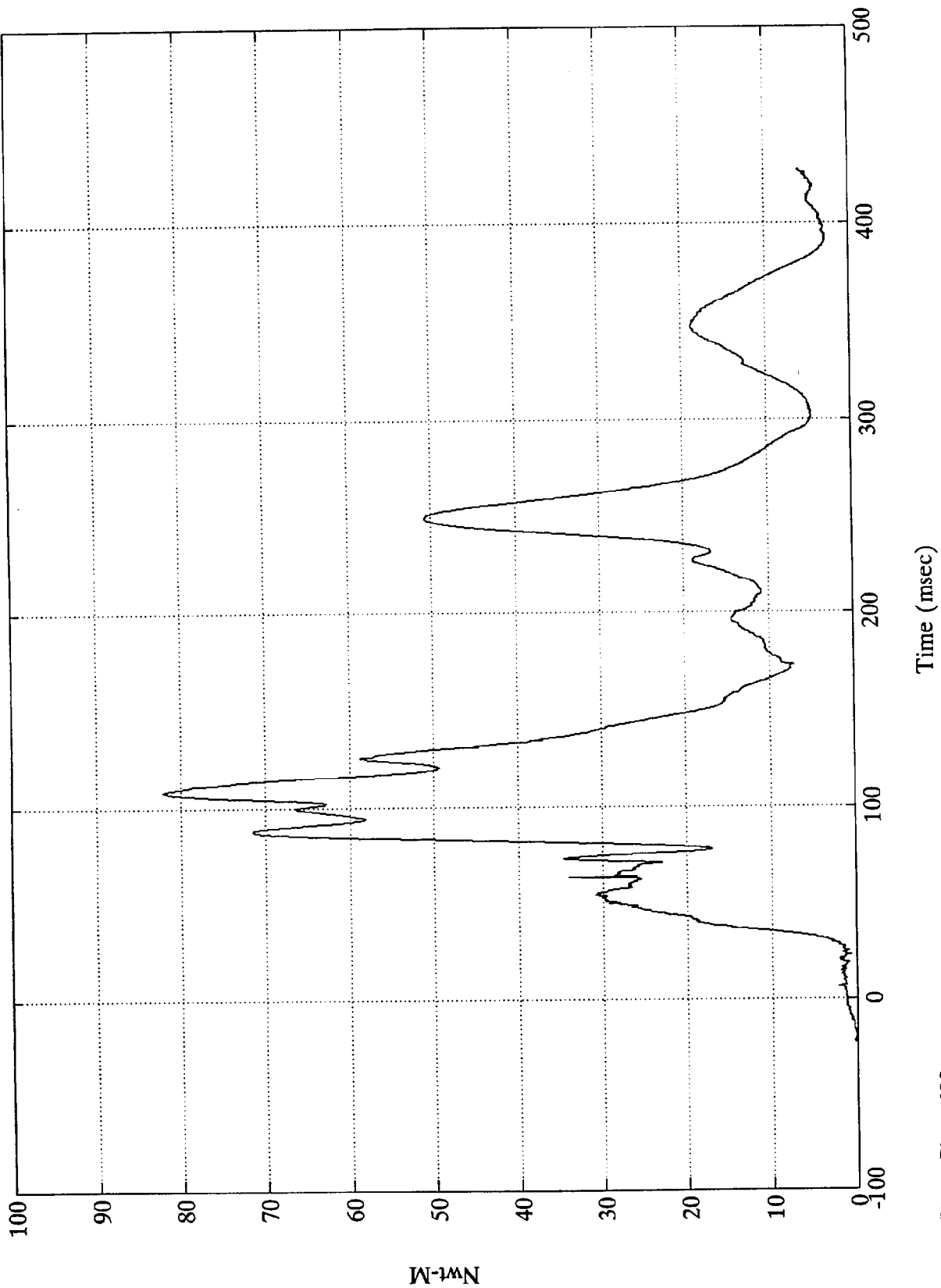
SAE Filter Class 600

Time (msec)

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 82.11 Nwt-M @ 108.48 msec
Min = .02 Nwt-M @ -19.44 msec

Pos. 2 Neck Moment Res.

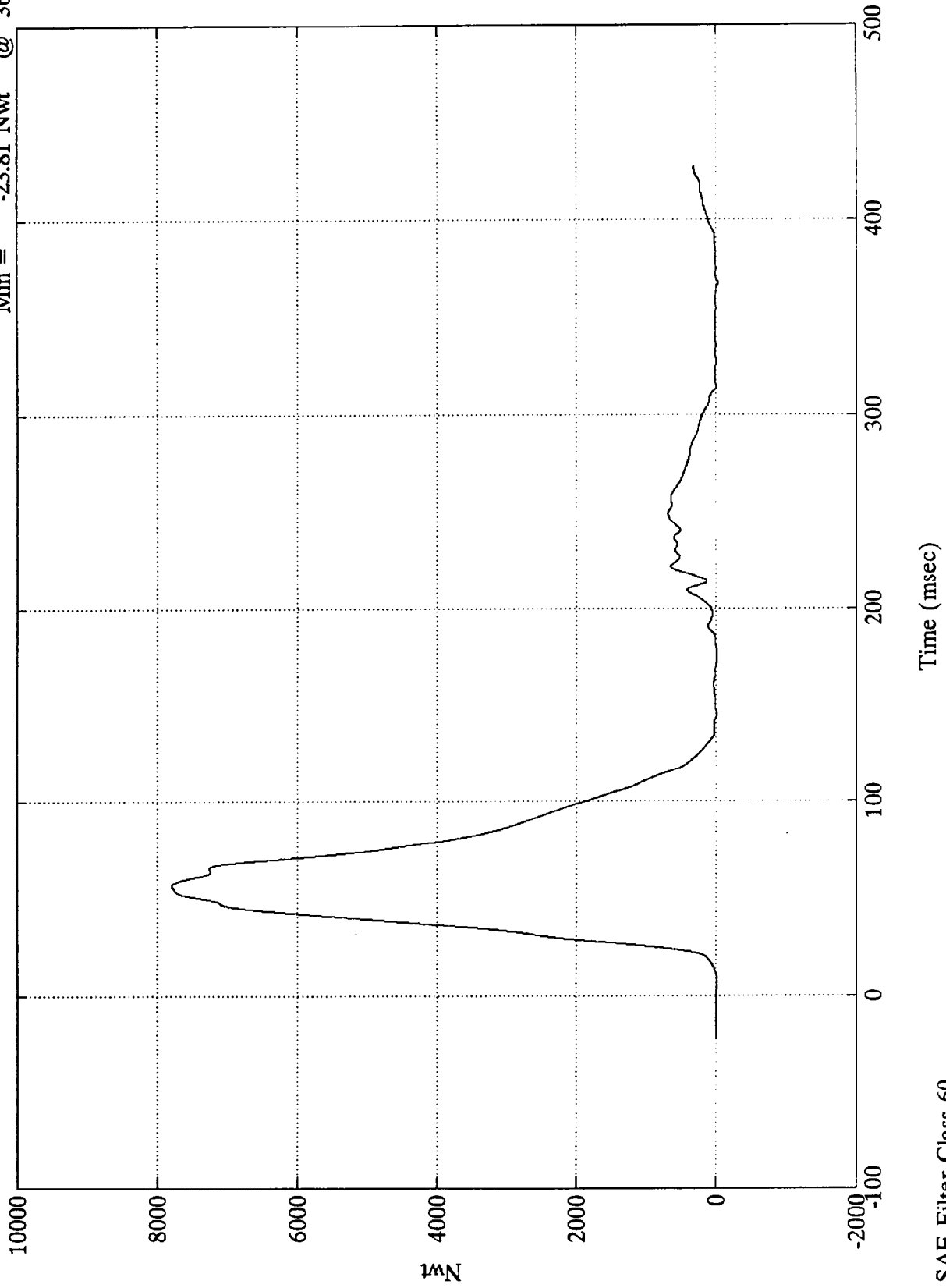


SAE Filter Class 600

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 7791.11 Nwt @ 57.12 msec
Min = -23.81 Nwt @ 367.44 msec

Pos. 2 Torso Belt Load

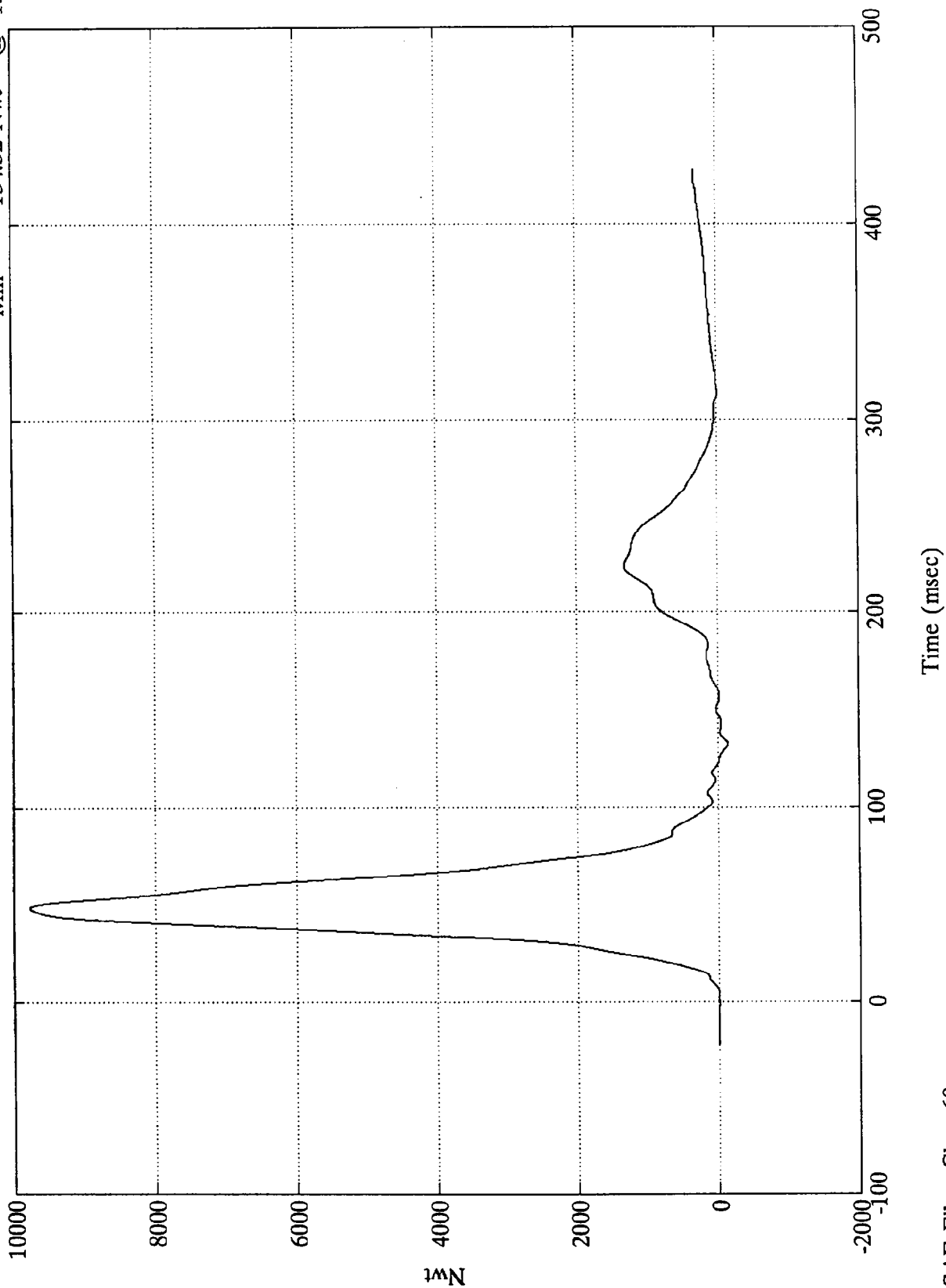


SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Right Belt Load

Max = 9774.41 Nwt @ 48.72 msec
Min = -134.32 Nwt @ 132.60 msec

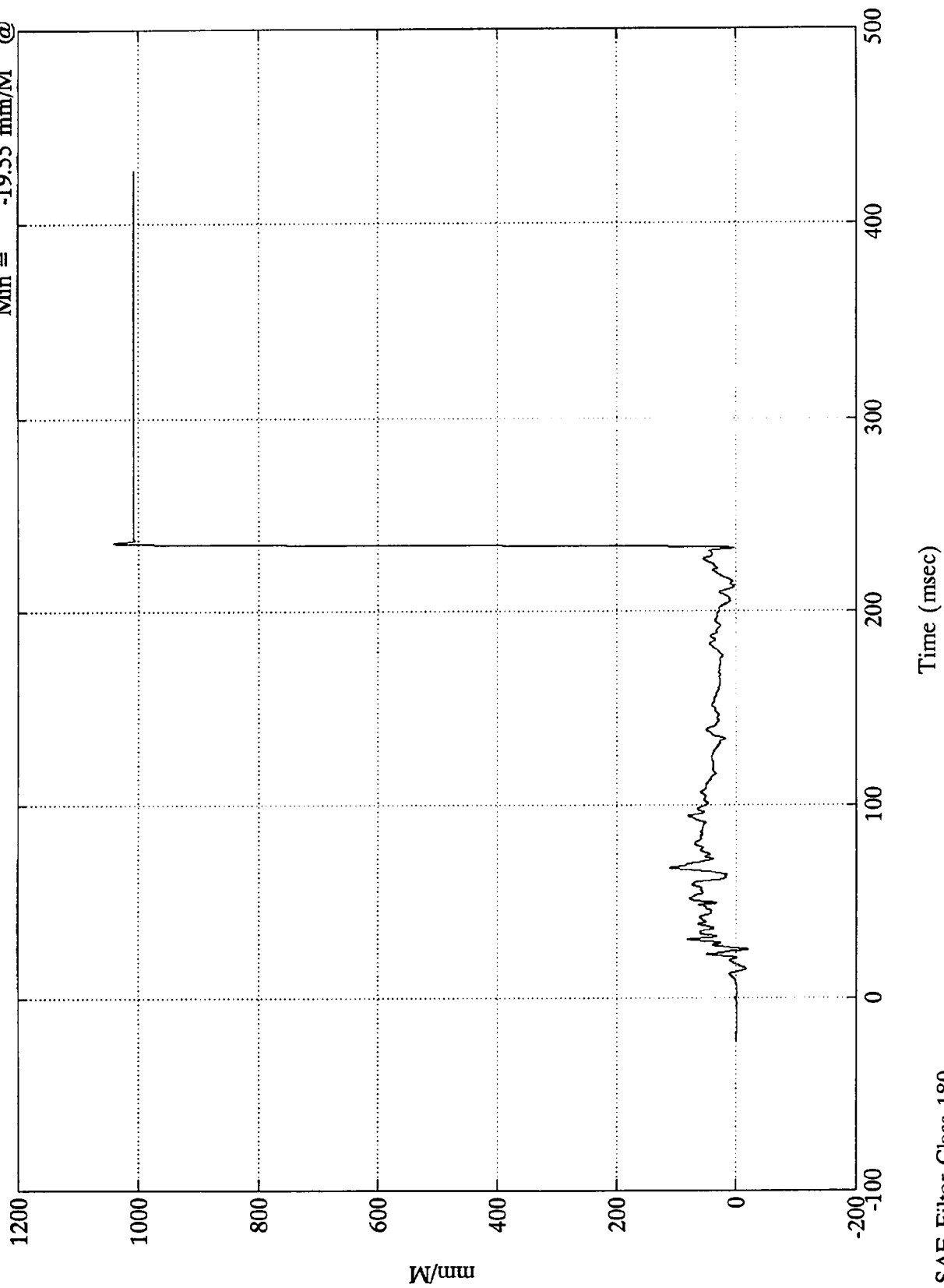


SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Belt Elongation

Max = 1040.89 mm/M @ 236.04 msec
Min = -19.55 mm/M @ 25.56 msec



mm/M

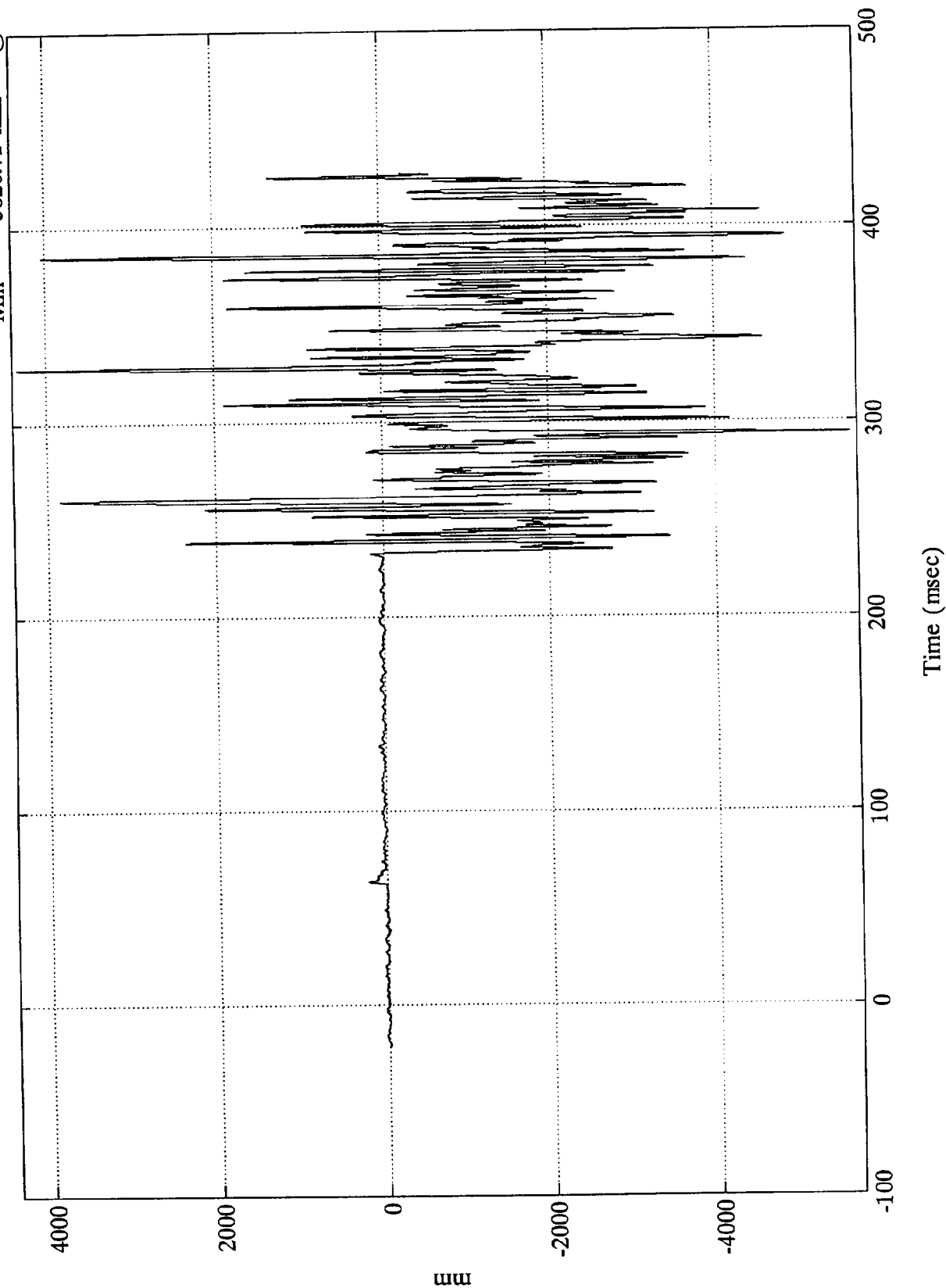
Time (msec)

SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Pos. 2 Belt Spool Out

Max = 4345.06 mm @ 327.72 msec
Min = -5620.71 mm @ 293.76 msec



SAE Filter Class 180

TEST NO. MS5601

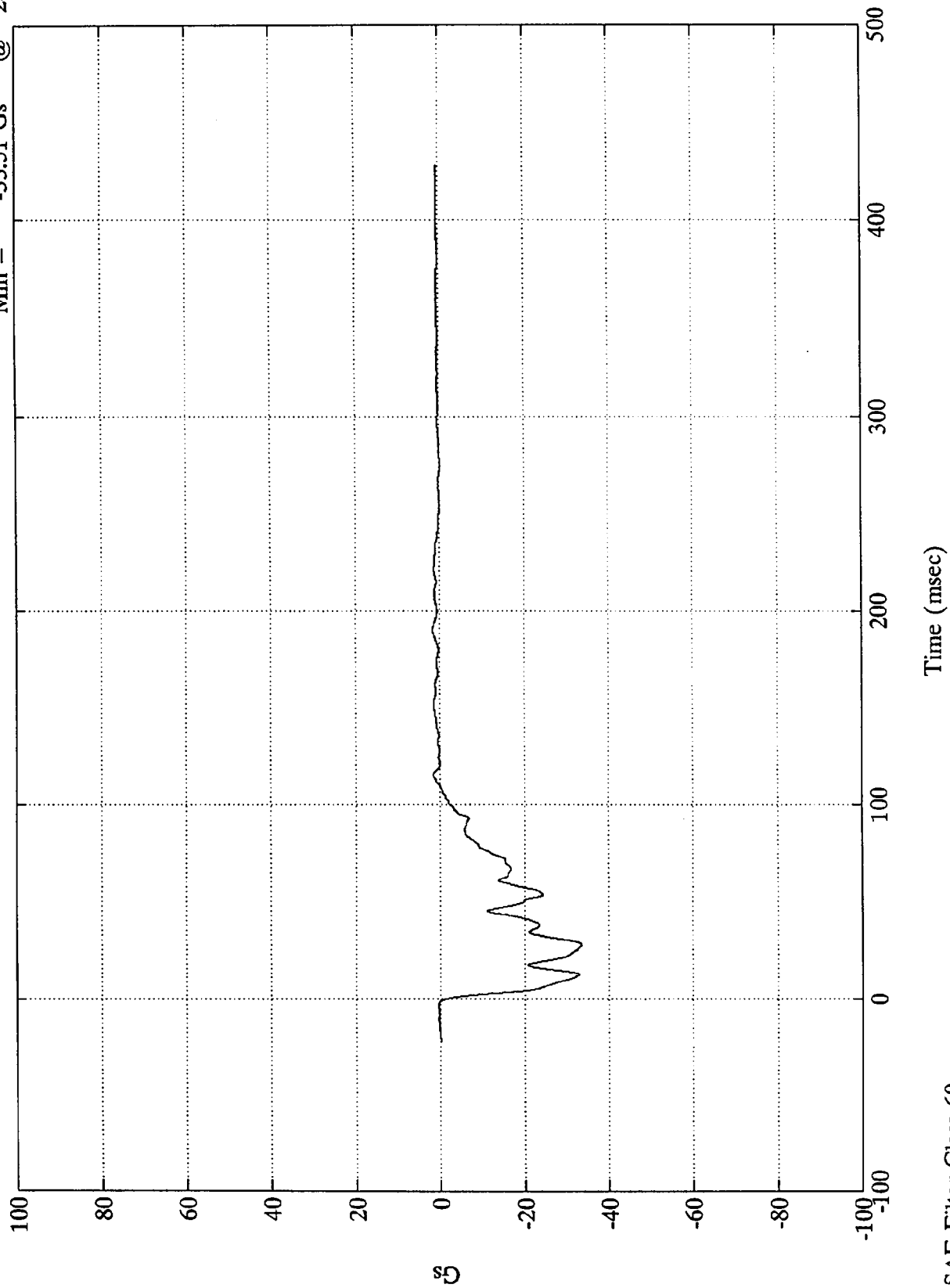
VEHICLE DATA

FILTER CHANNEL CLASS

60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Acc. #1(x) Max = 1.68 Gs @ 115.80 msec
 Min = -33.51 Gs @ 28.92 msec

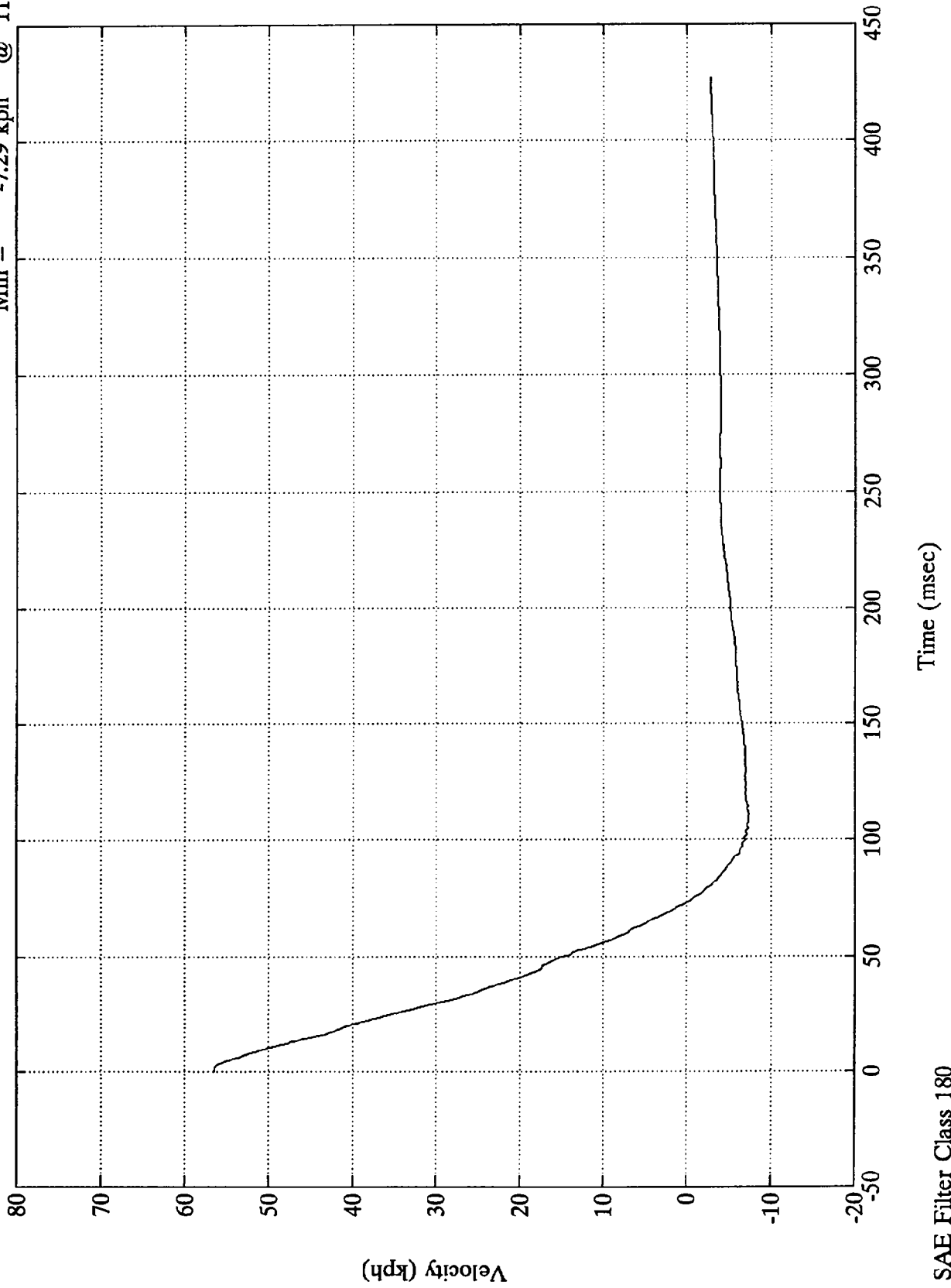


SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

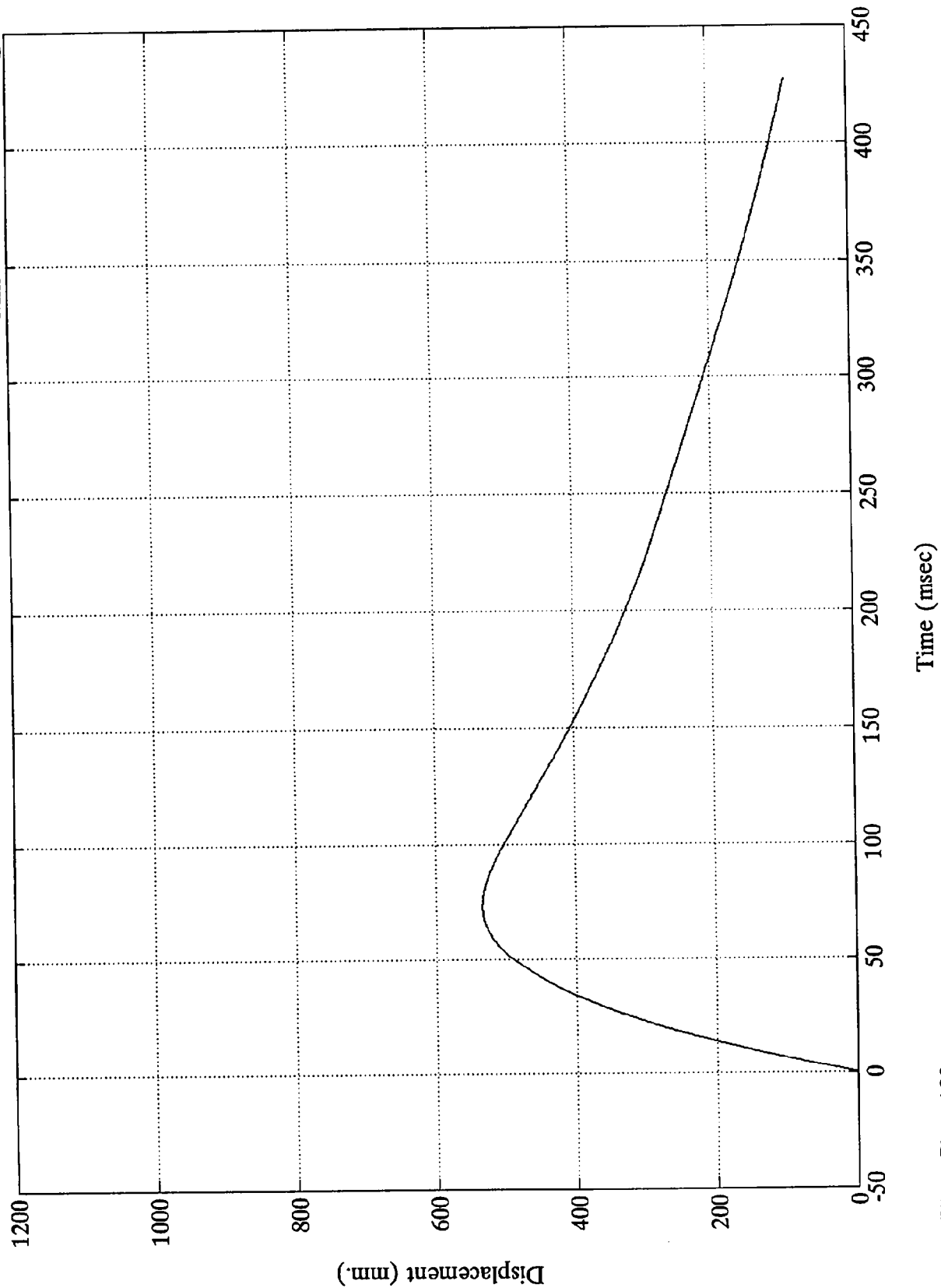
Max = 56.49 kph @ -0.00 msec
Min = -7.29 kph @ 110.88 msec

Acc. #1(x)



NCAP TEST #7 - 1995 MISUBISHI MONTERO

Acc. #1(x) Max = 533.84 mm @ 72.96 msec
Min = .00 mm @ -22.44 msec

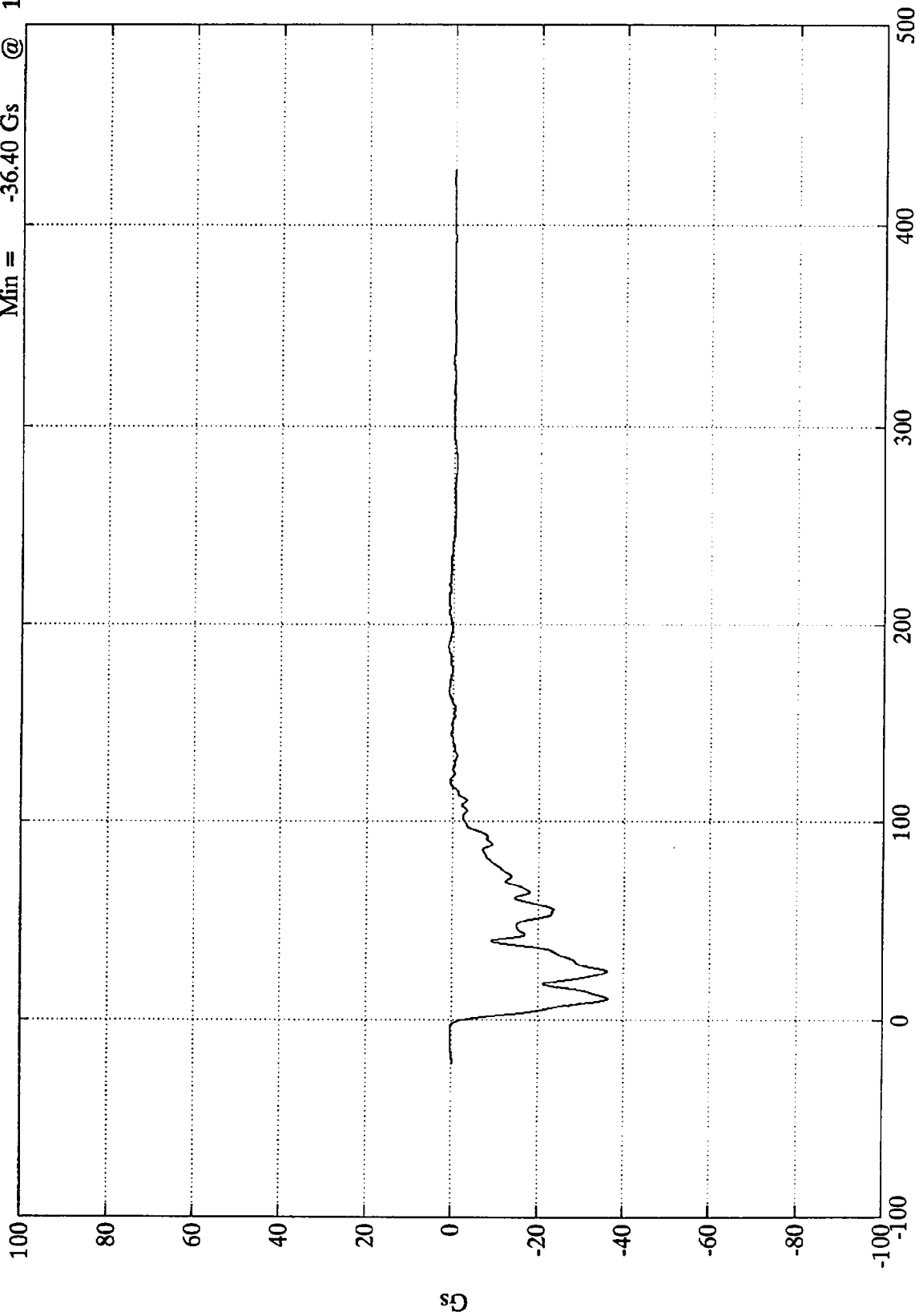


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 1.09 Gs @ 189.24 msec
Min = -36.40 Gs @ 10.79 msec

Acc. #2(x)



Time (msec)

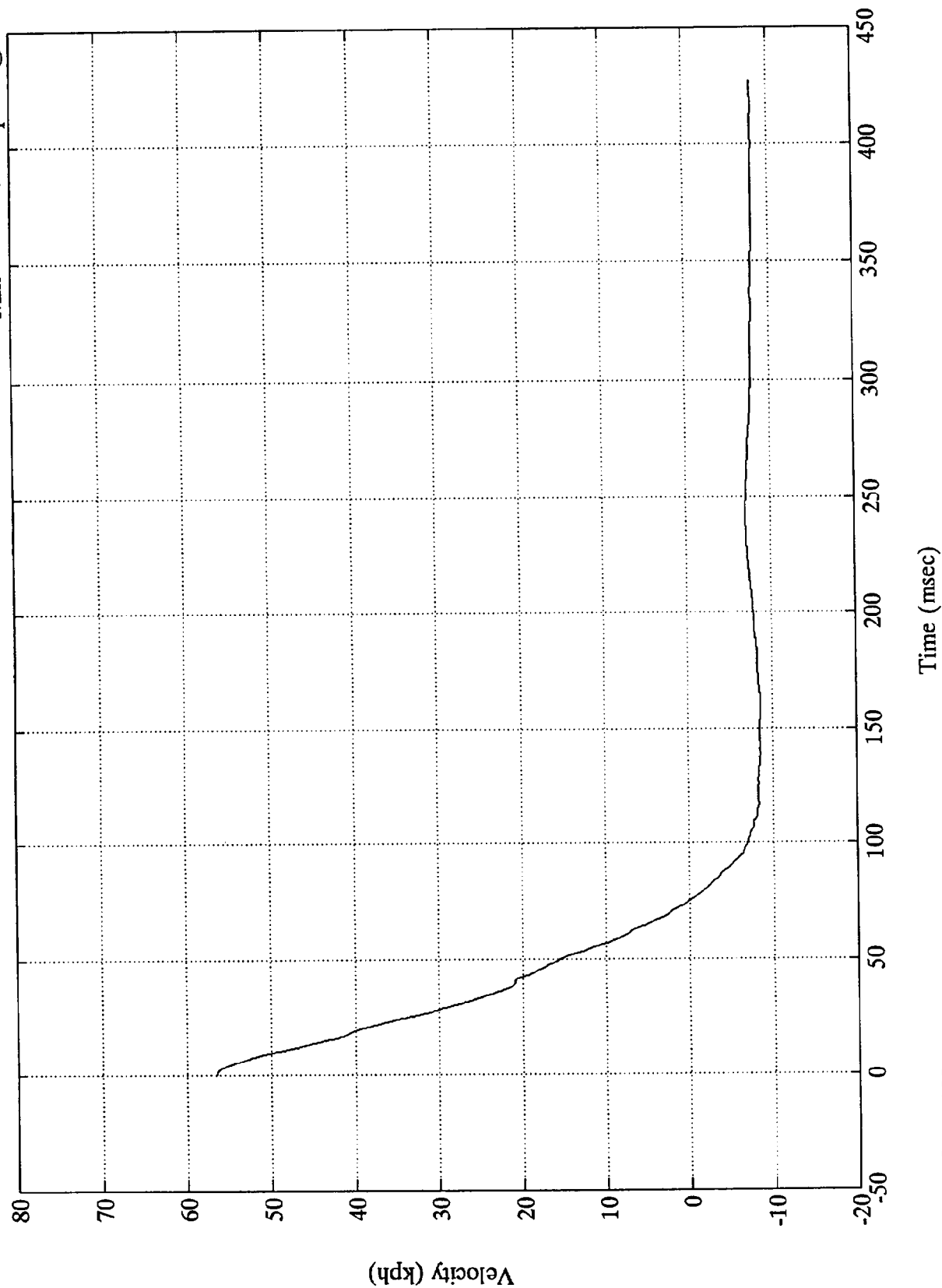
SAE Filter Class 60

Gs

NCAP TEST #7 - 1995 MISUBISHI MONTERO

Max = 56.49 kph @ -0.00 msec
Min = -8.62 kph @ 159.24 msec

Acc. #2(x)

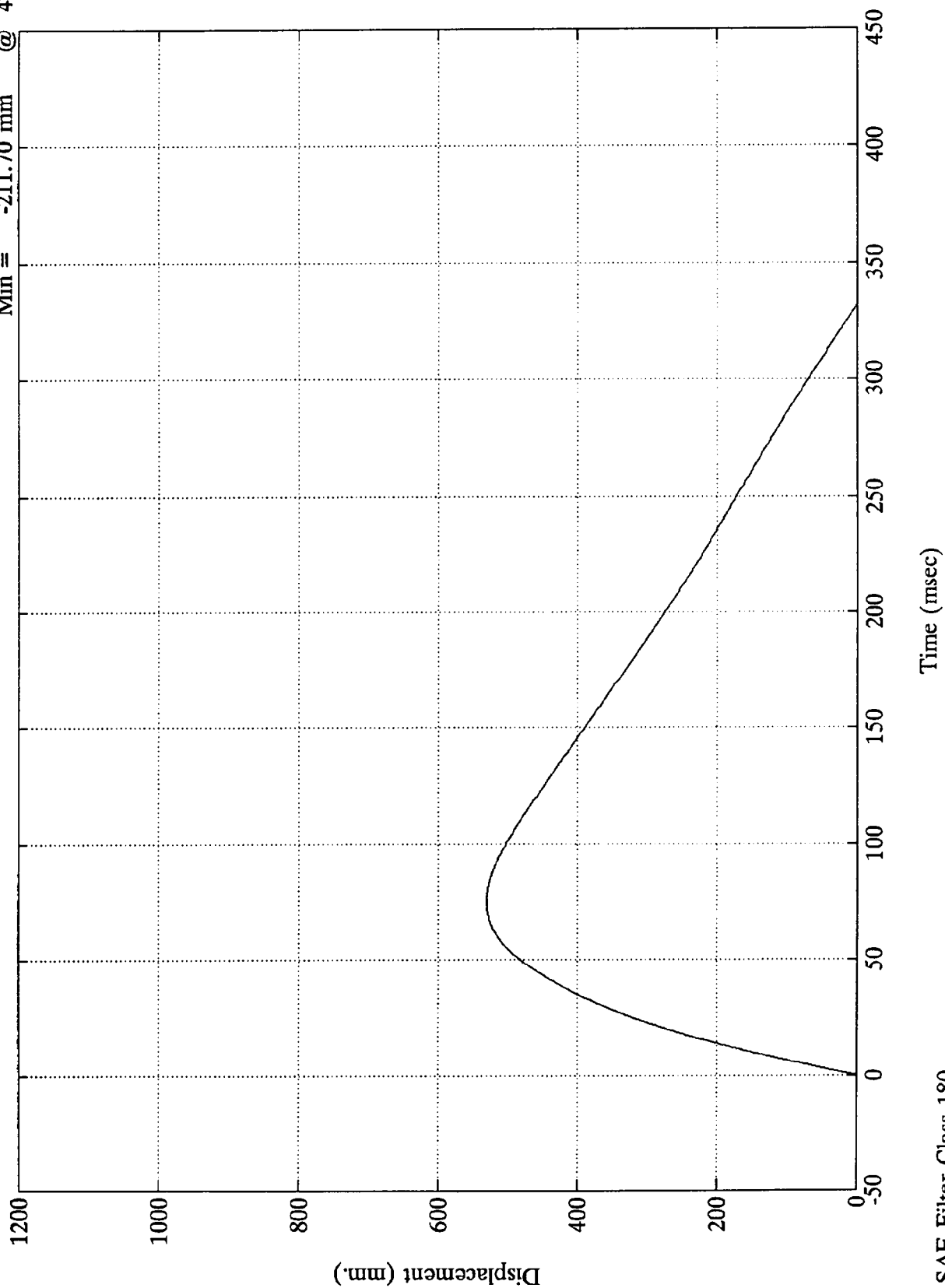


SAE Filter Class 180

NCAP TEST #7 - 1995 MISUBISHI MONTERO

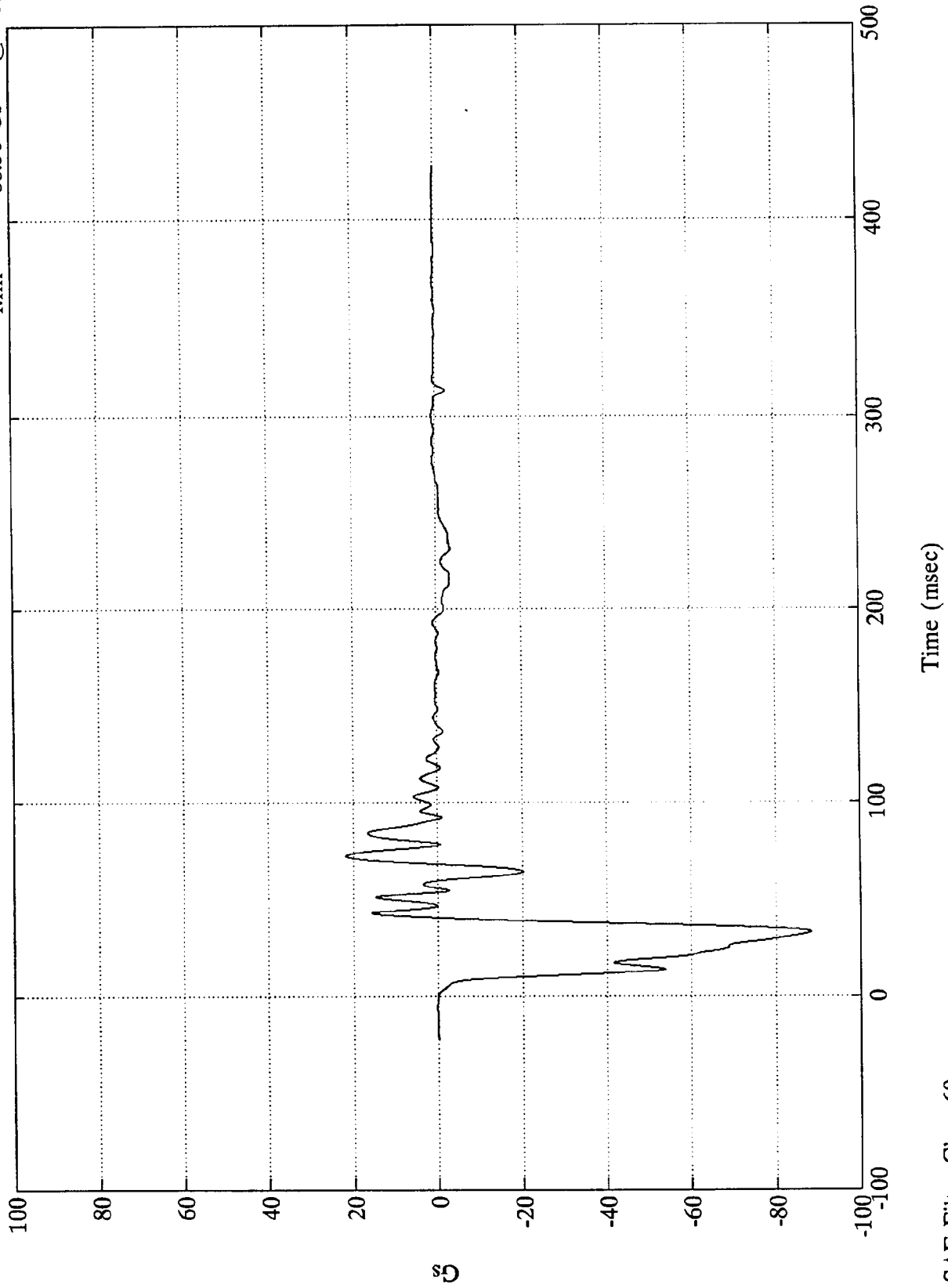
Max = 530.61 mm @ 75.00 msec
Min = -211.70 mm @ 427.32 msec

Acc. #2(x)



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

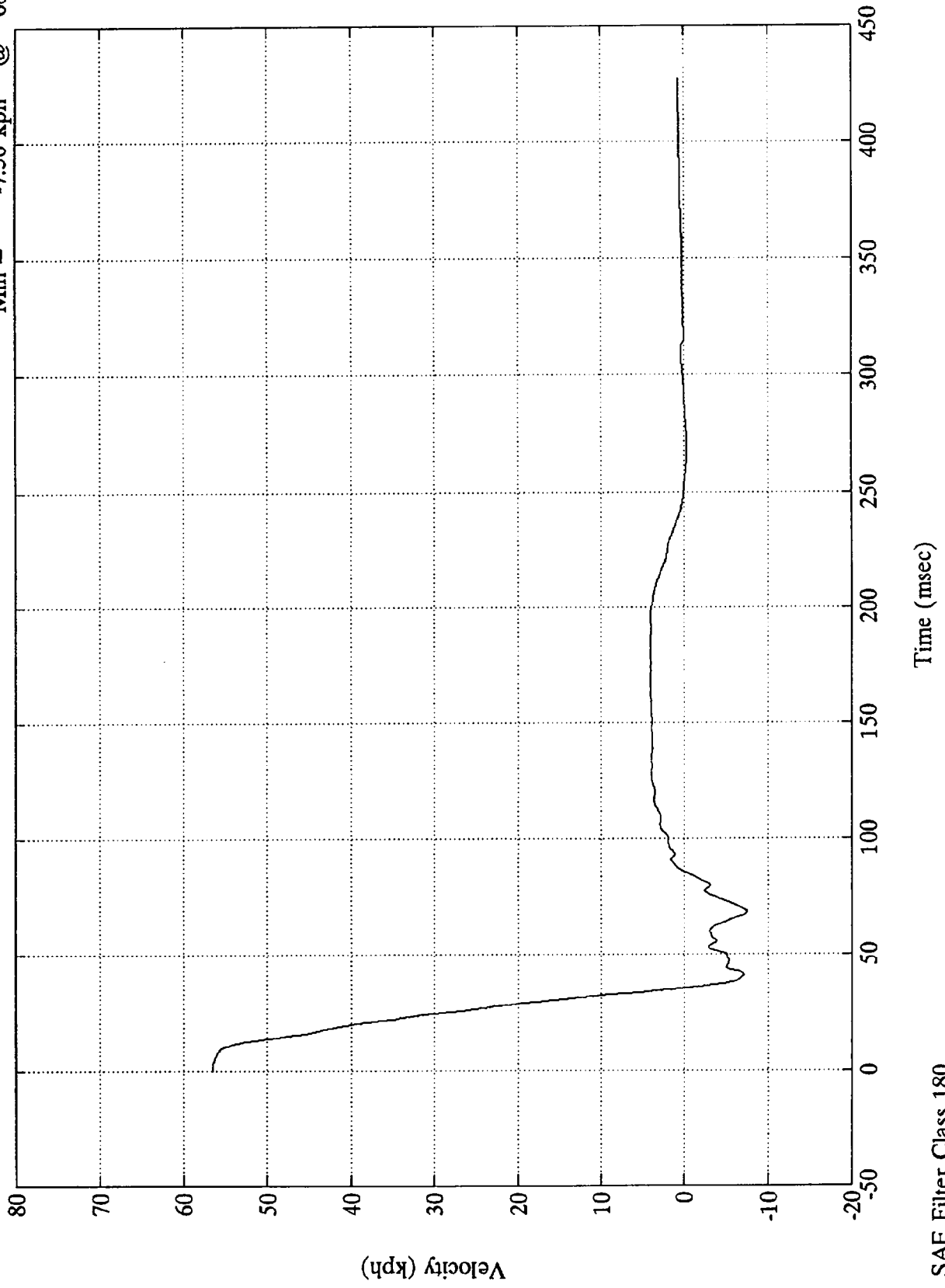
Acc. #3(x) Max = 21.71 Gs @ 72.72 msec
 Min = -88.30 Gs @ 33.11 msec



SAE Filter Class 60

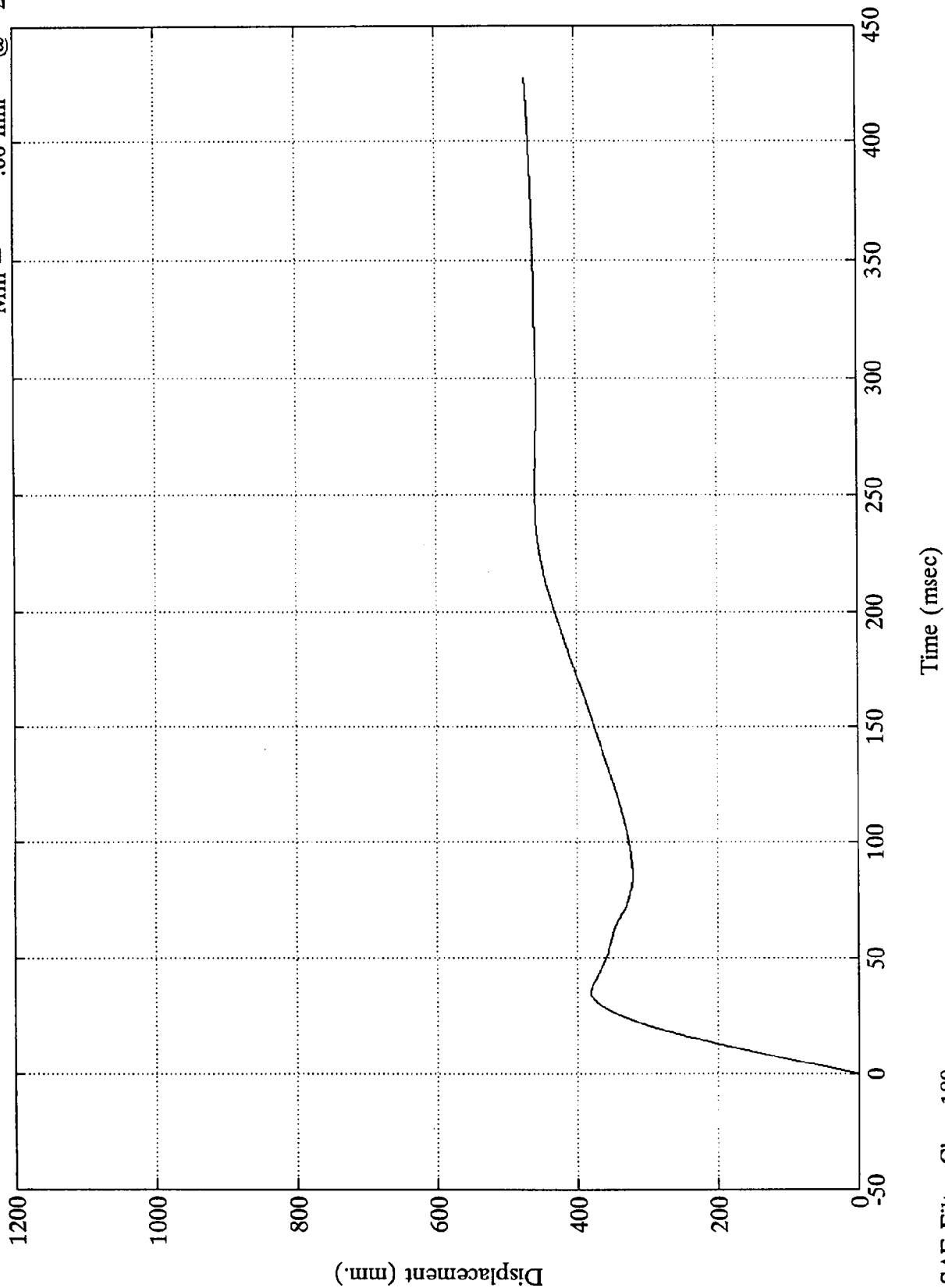
NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Acc. #3(x) Max = 56.49 kph @ 0.95 msec
Min = -7.50 kph @ 68.52 msec



NCAP TEST #7 - 1995 MISUBISHI MONTERO

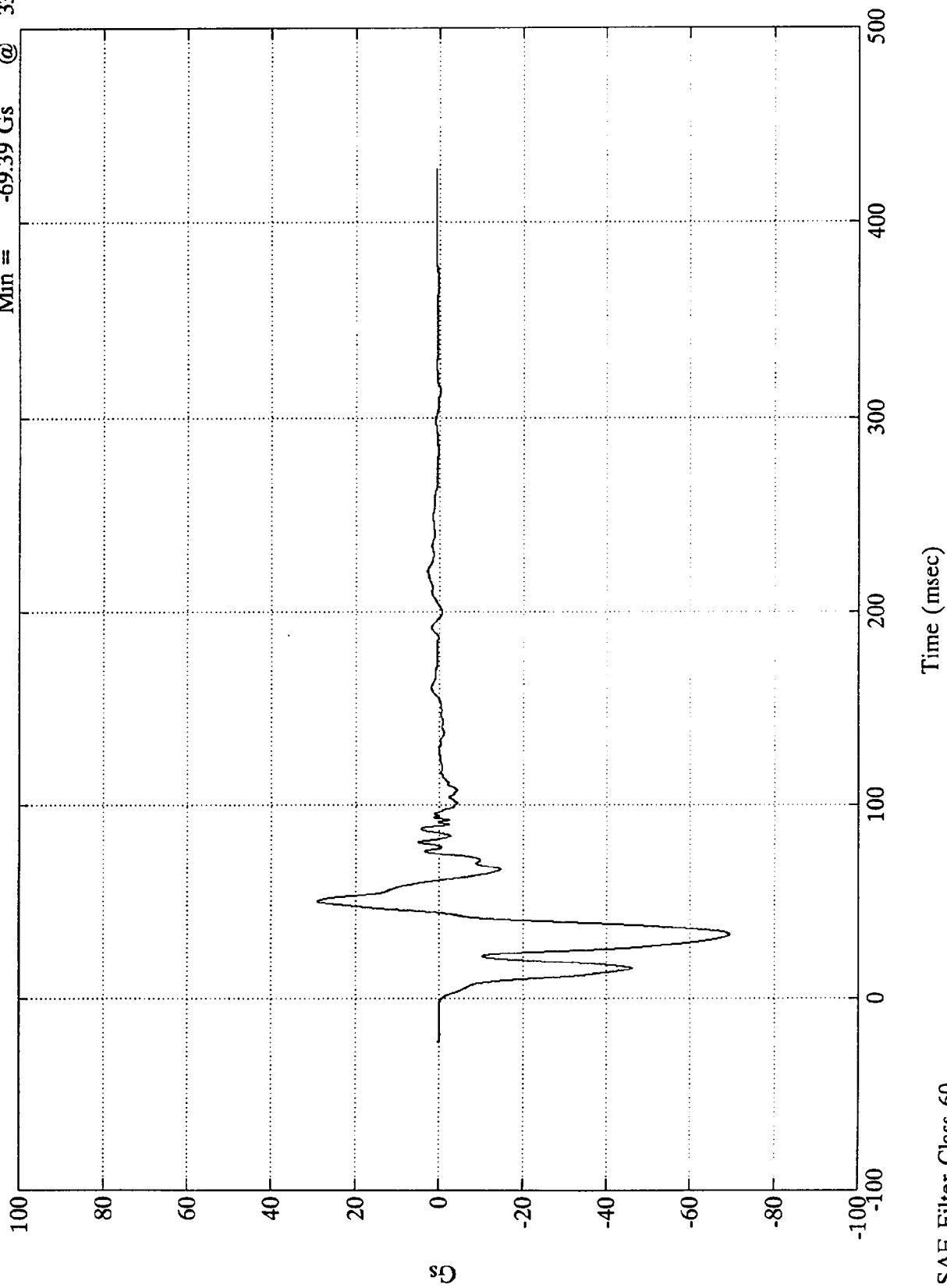
Acc. #3(x) Max = 471.08 mm @ 427.32 msec
Min = .00 mm @ -22.44 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 29.17 Gs @ 50.28 msec
Min = -69.39 Gs @ 33.00 msec

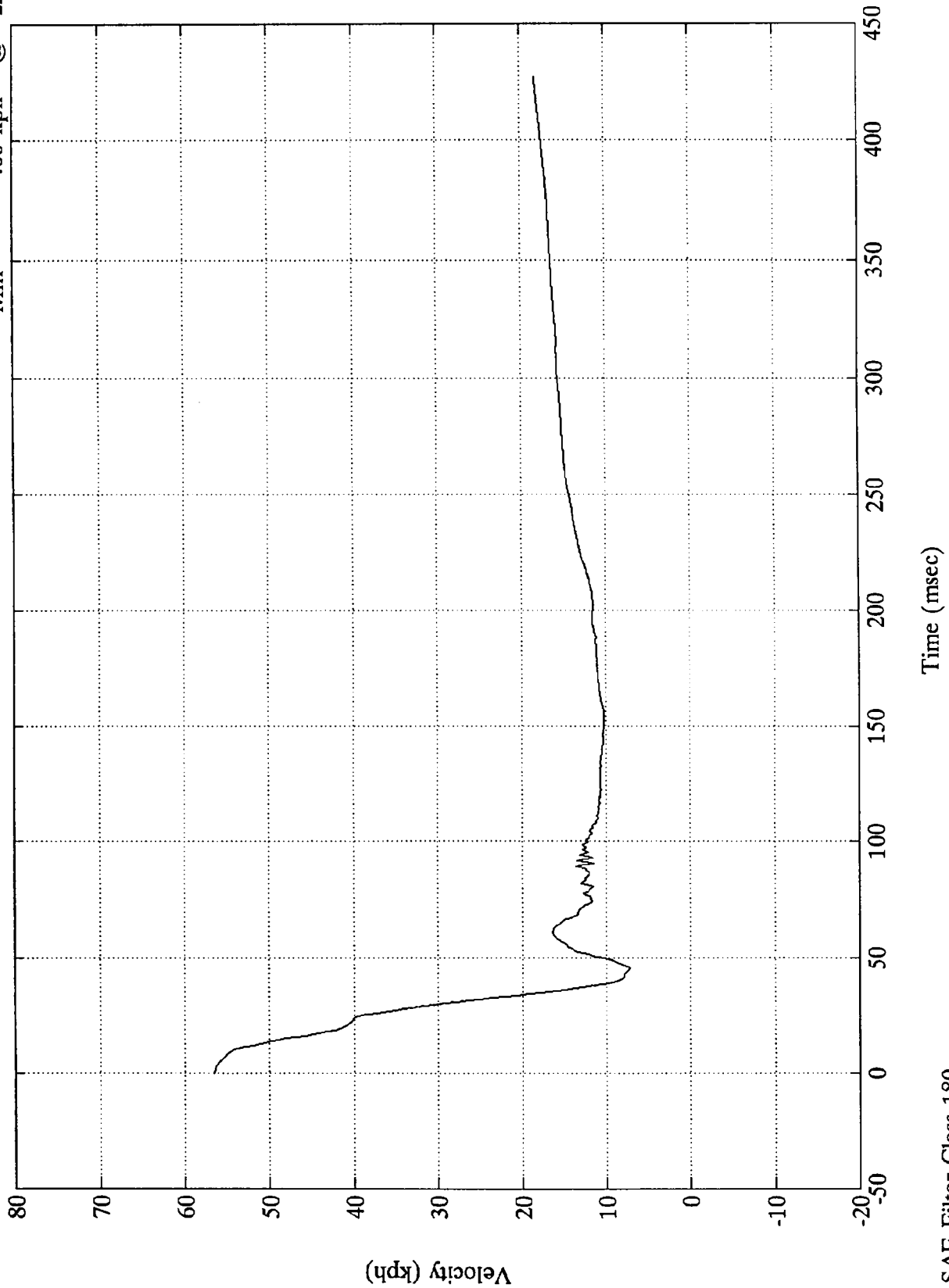
Acc. #4(x)



SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

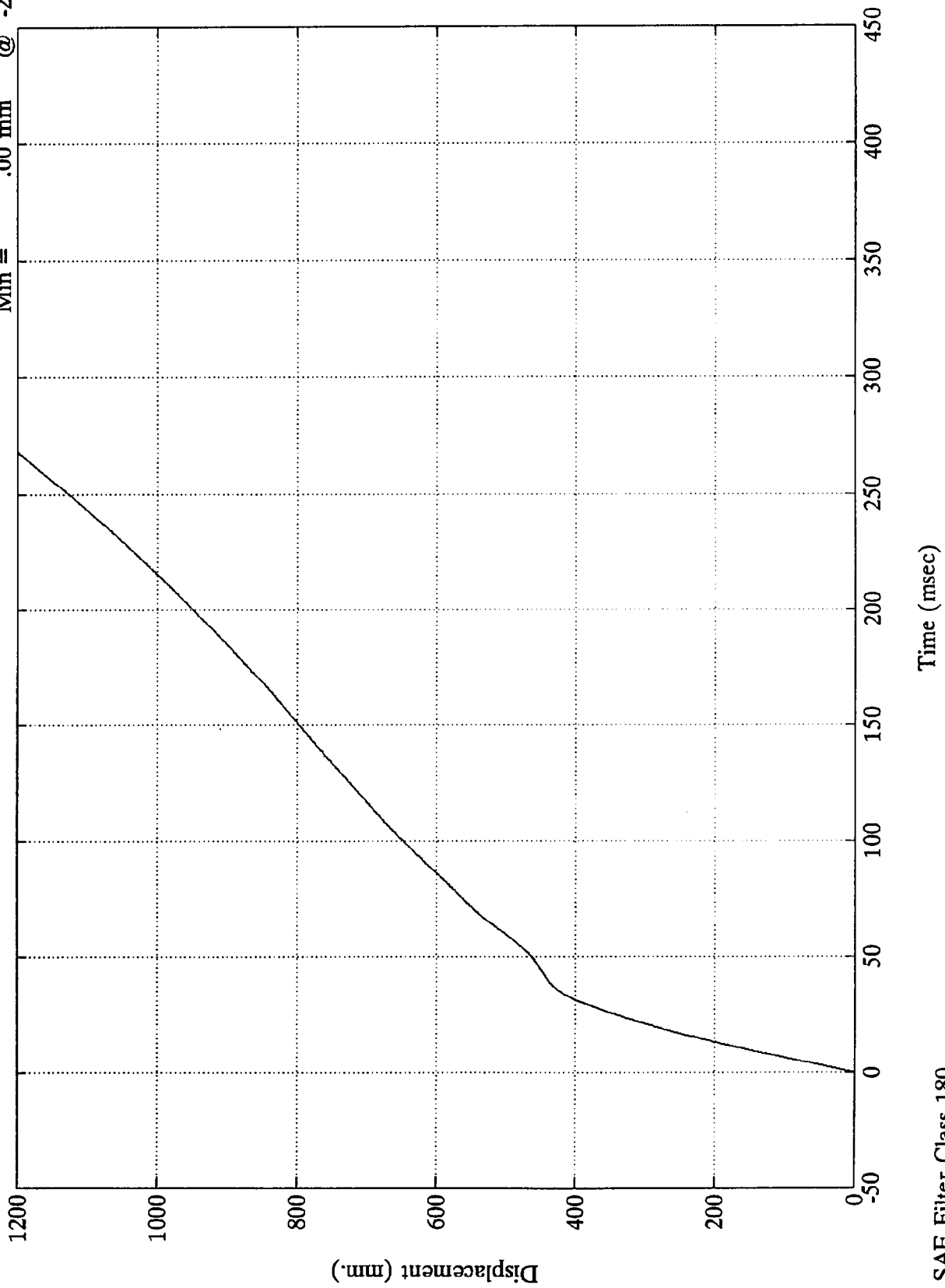
Acc. #4(x) Max = 56.49 kph @ -0.00 msec
Min = .00 kph @ -22.44 msec



SAE Filter Class 180

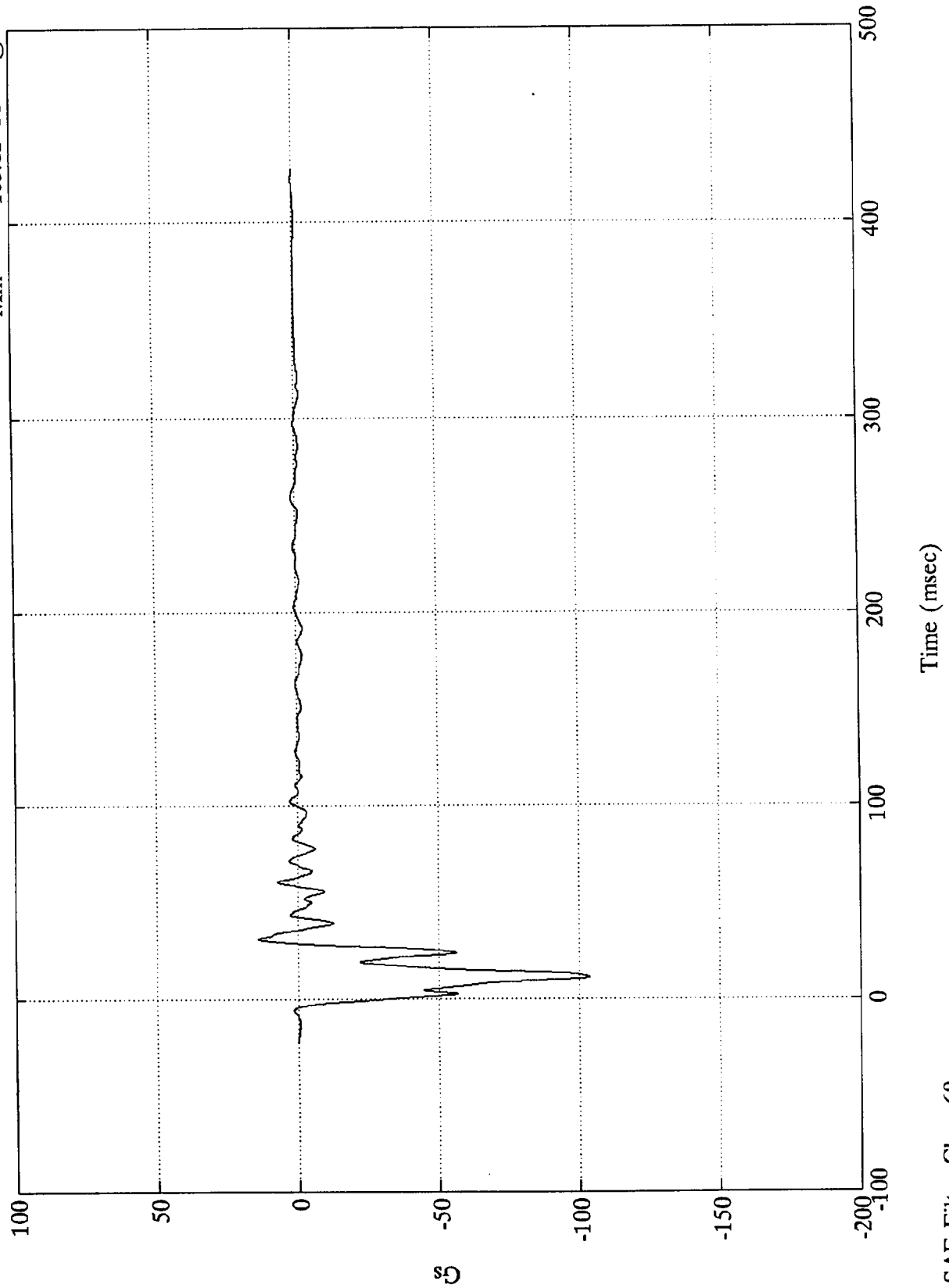
NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Acc. #4(x)
Max = 1925.77 mm @ 427.32 msec
Min = .00 mm @ -22.44 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Acc. #5(x) Max = 14.26 Gs @ 31.44 msec
Min = -103.81 Gs @ 10.92 msec

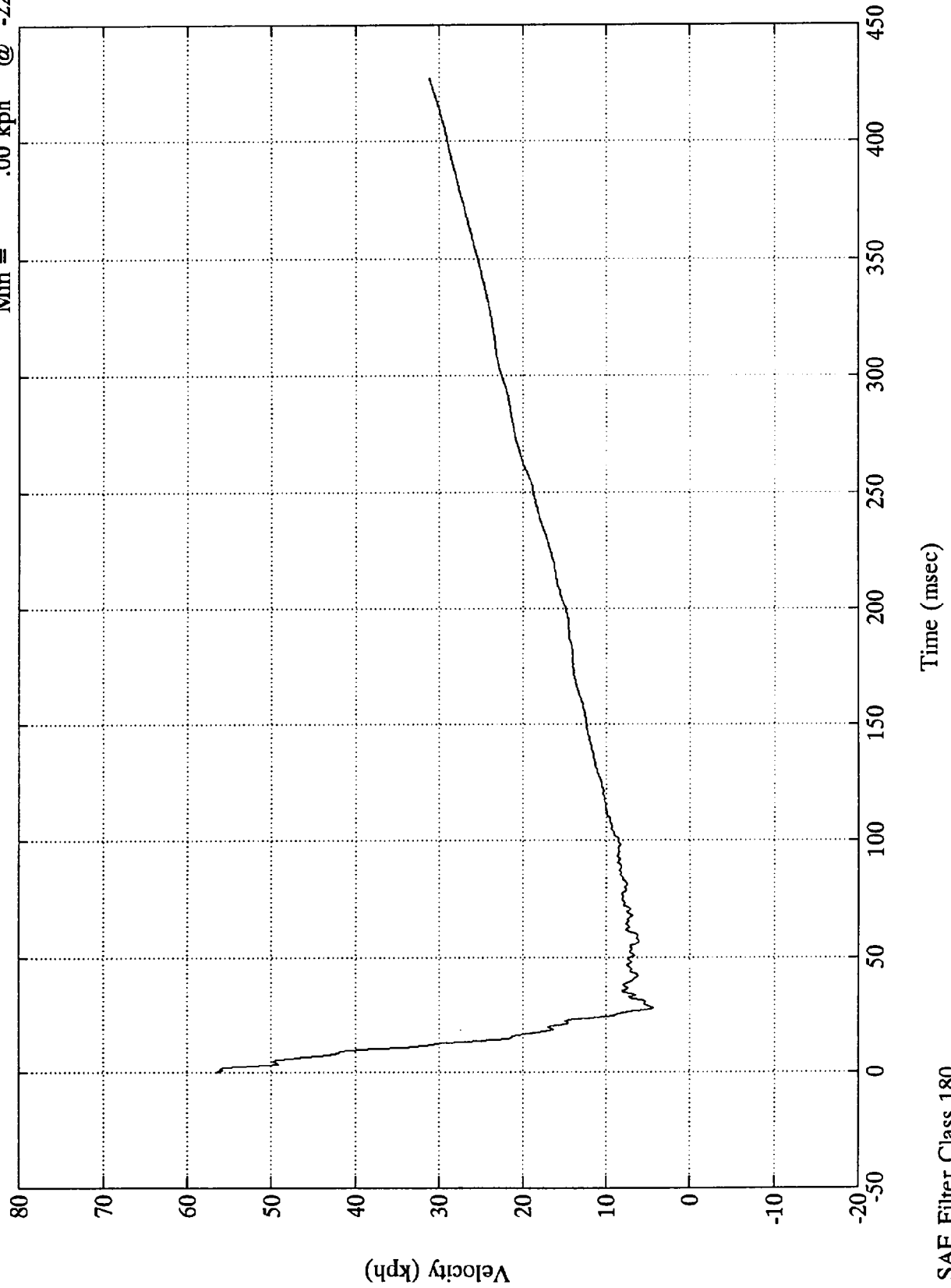


Gs

SAE Filter Class 60

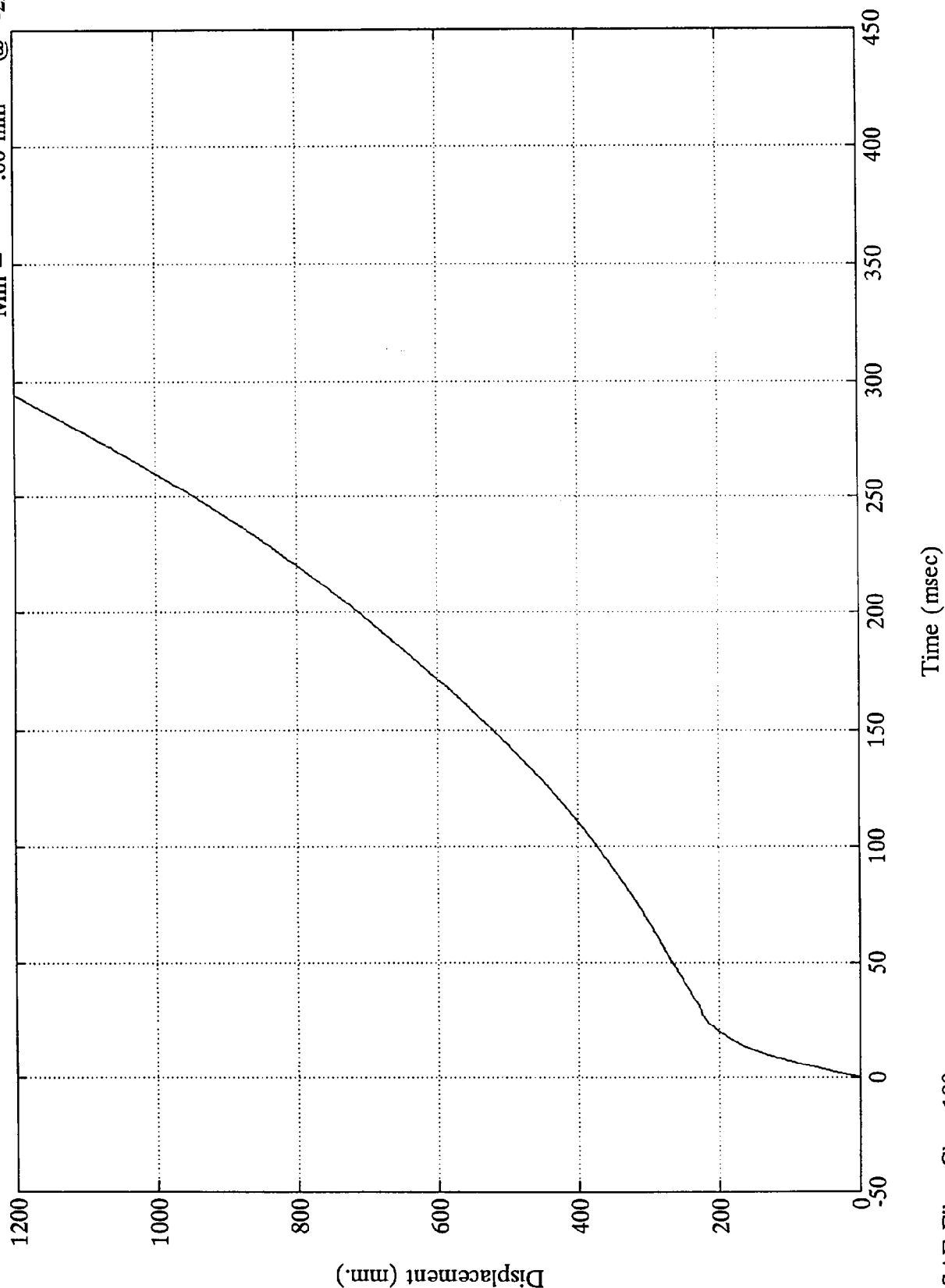
NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Acc. #5(x) Max = 56.49 kph @ -0.00 msec
Min = .00 kph @ -22.44 msec



NCAP TEST #7 - 1995 MISUBISHI MONTERO

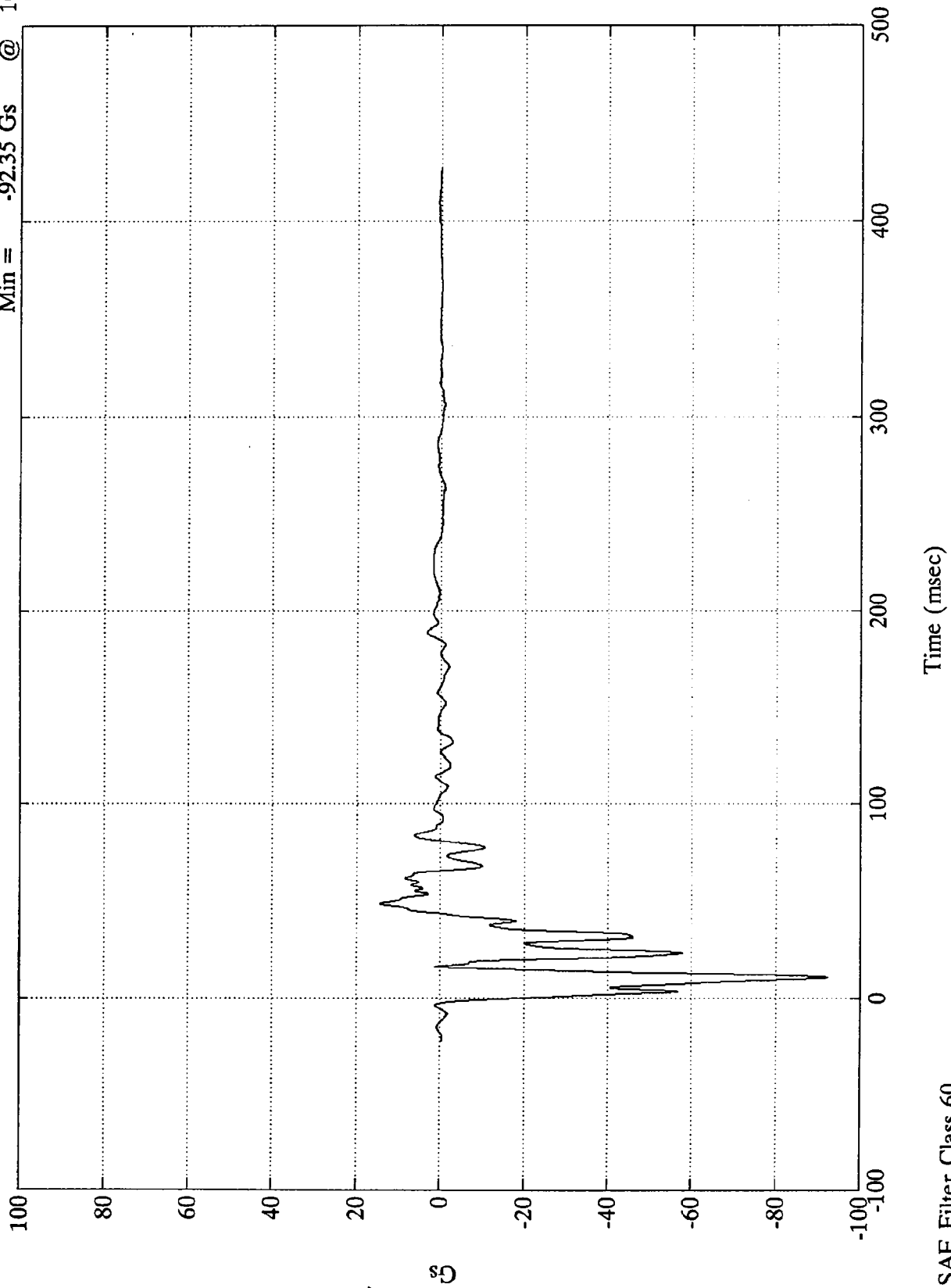
Acc. #5(x) Max = 2172.33 mm @ 427.32 msec
Min = .00 mm @ -22.44 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Acc. #6(x)

Max = 14.45 Gs @ 48.47 msec
Min = -92.35 Gs @ 10.79 msec

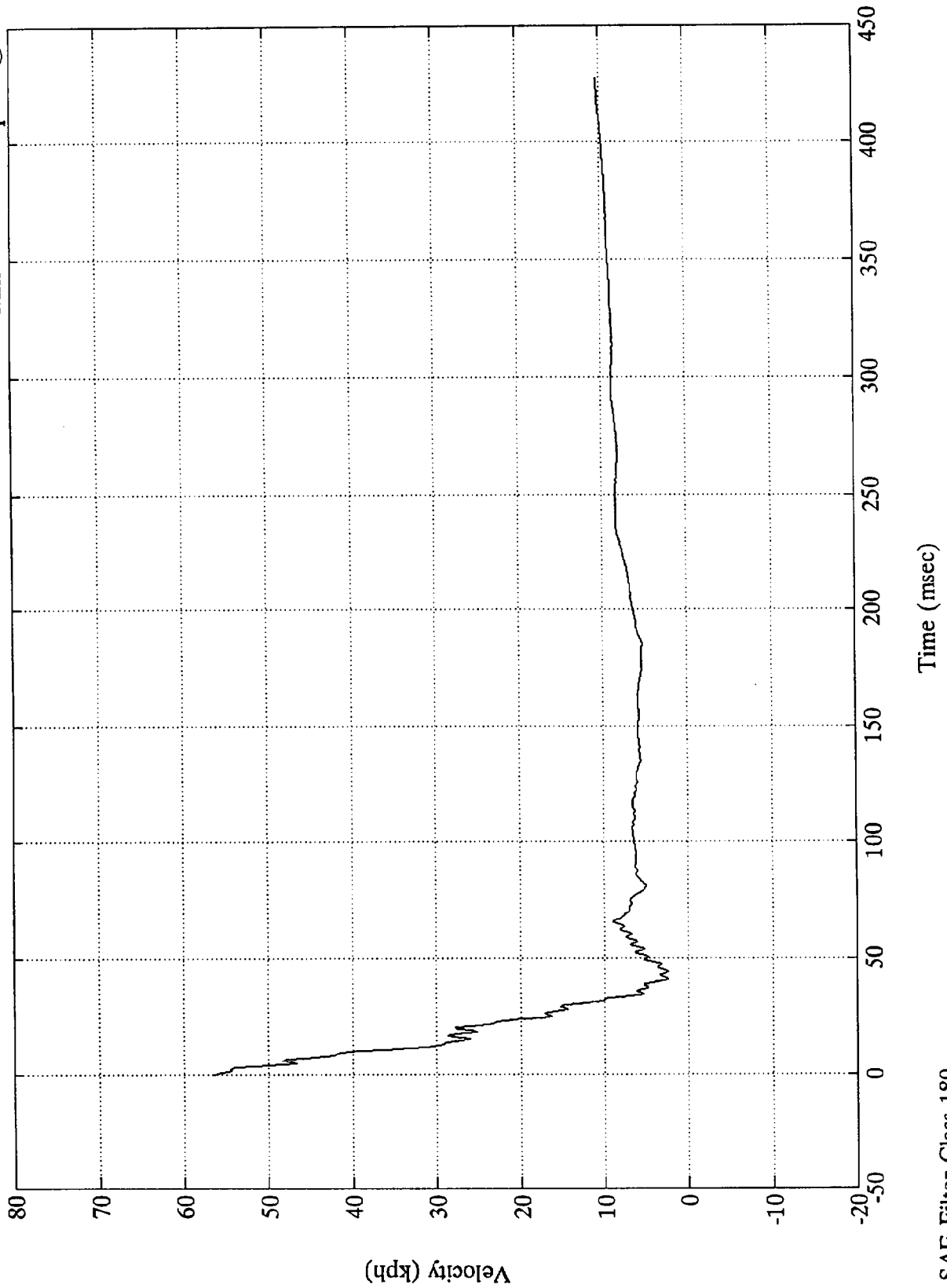


SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 56.49 kph @ -0.00 msec
Min = .00 kph @ -22.44 msec

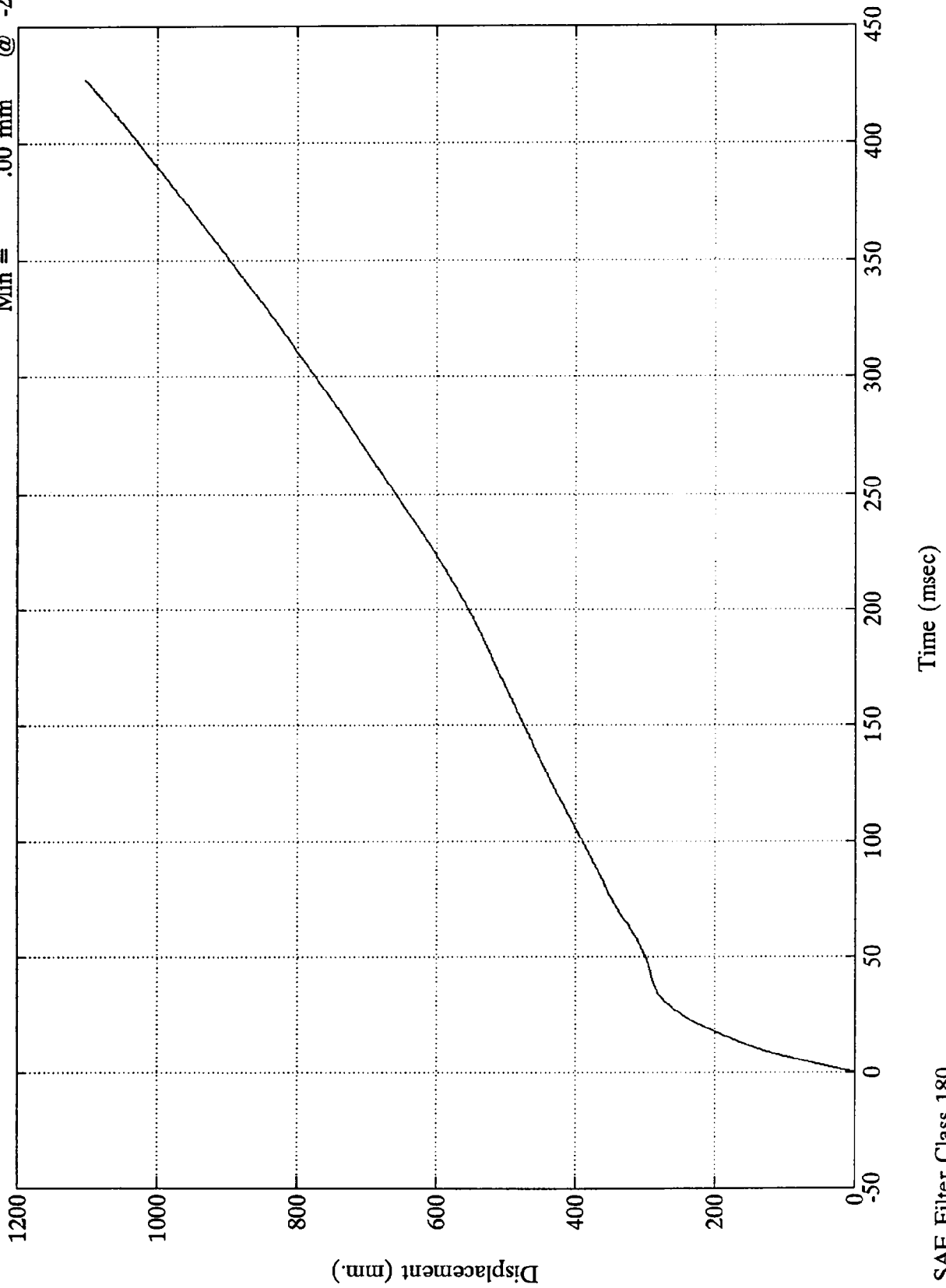
Acc. #6(x)



SAE Filter Class 180

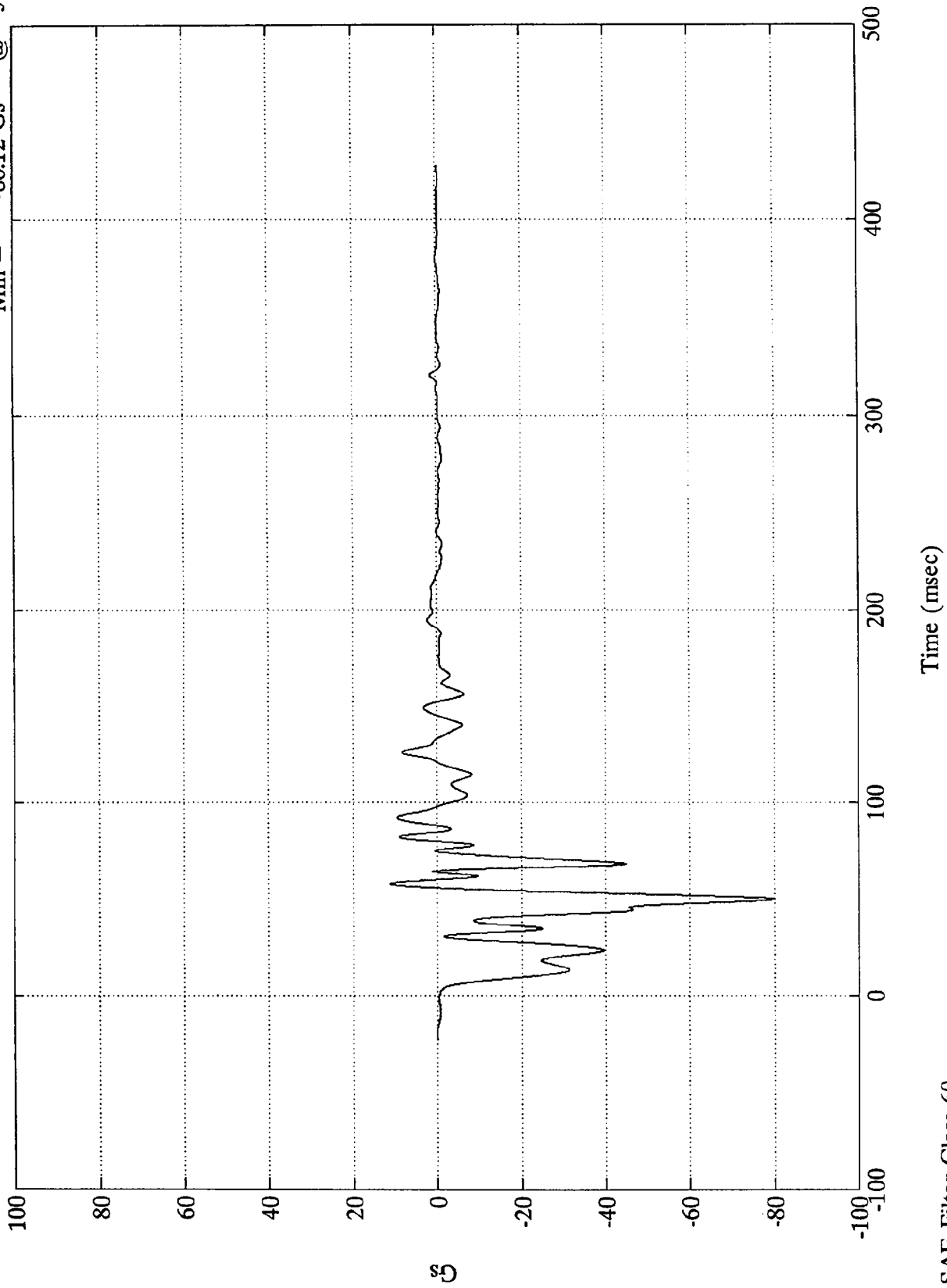
NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Acc. #6(x) Max = 1103.65 mm @ 427.32 msec
Min = .00 mm @ -22.44 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Acc. #7(x) Max = 11.31 Gs @ 57.84 msec
Min = -80.12 Gs @ 50.28 msec

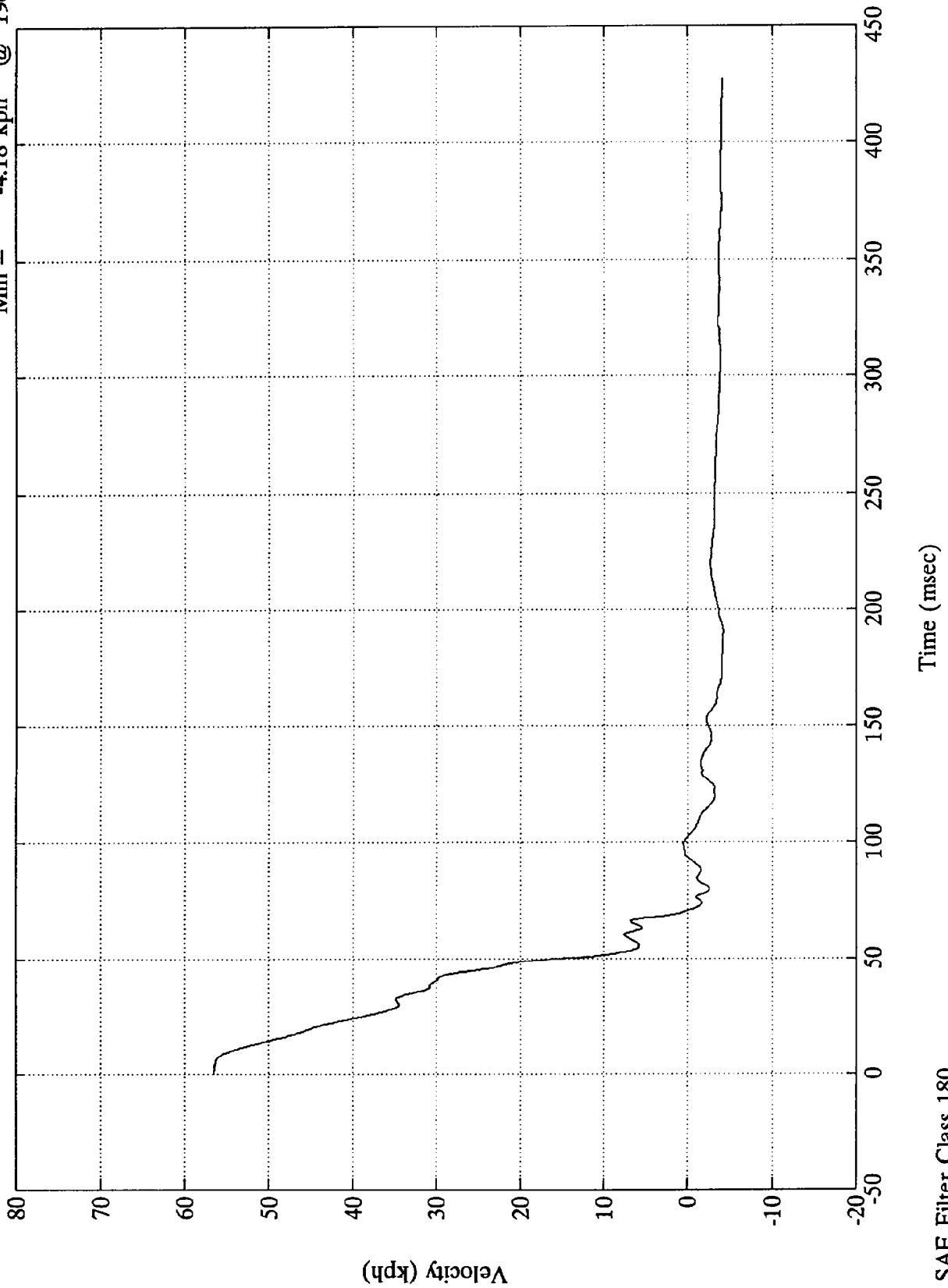


SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 56.49 kph @ -0.00 msec
Min = -4.18 kph @ 190.68 msec

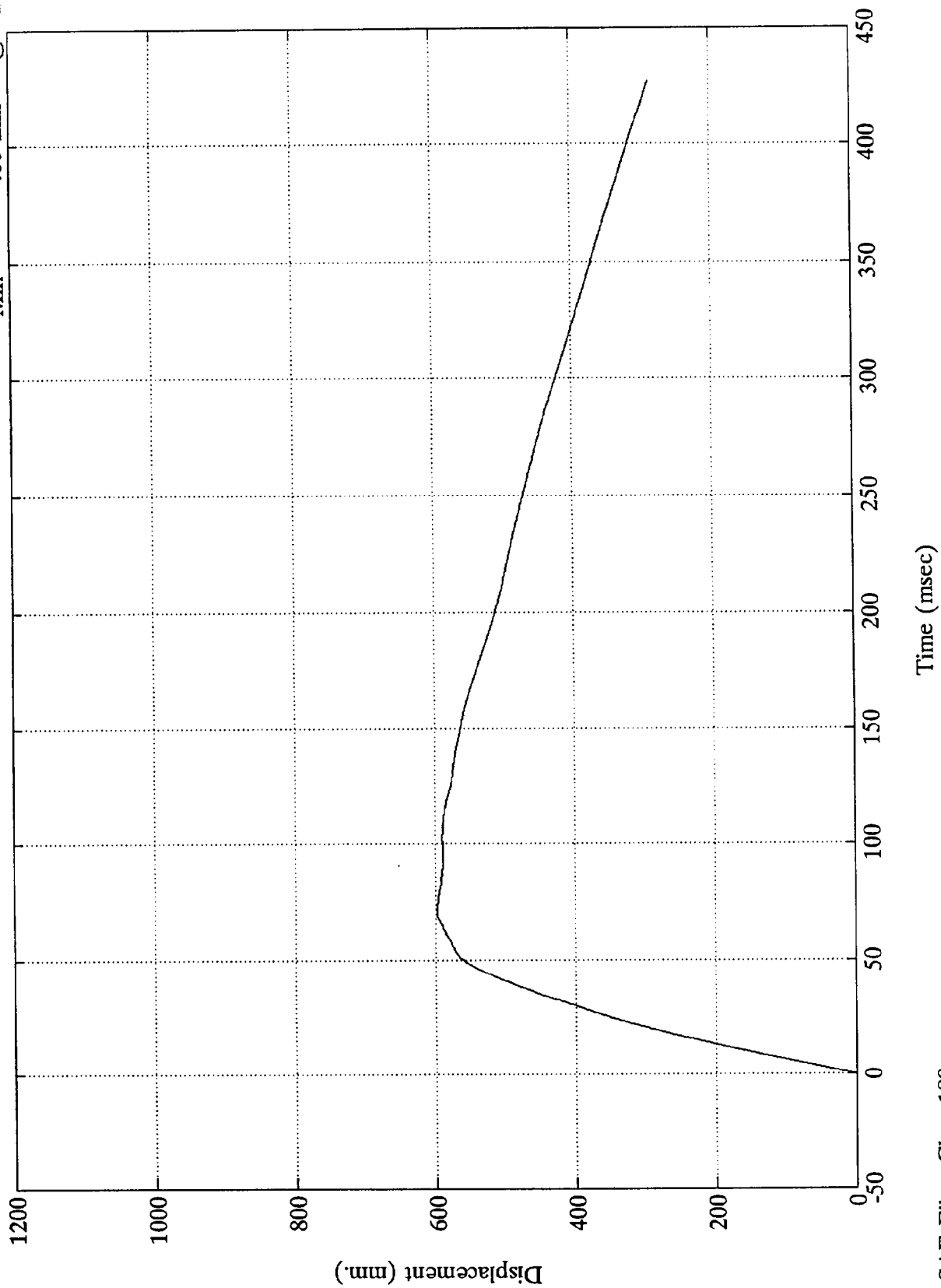
Acc. #7(x)



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 597.70 mm @ 70.92 msec
Min = .00 mm @ -22.44 msec

Acc. #7(x)

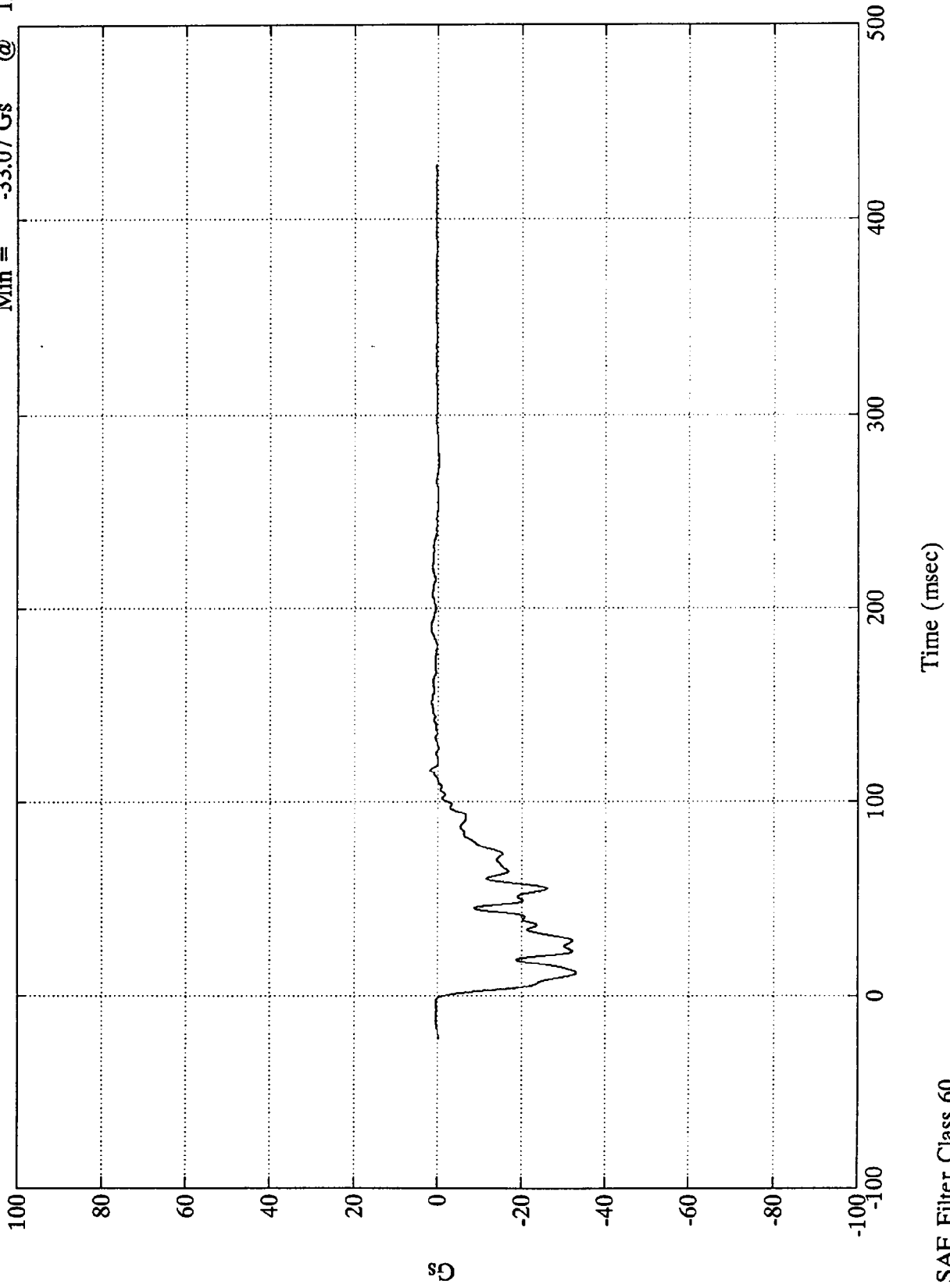


SAE Filter Class 180

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 1.74 Gs @ 116.63 msec
Min = -33.07 Gs @ 12.00 msec

Acc. #8(x)

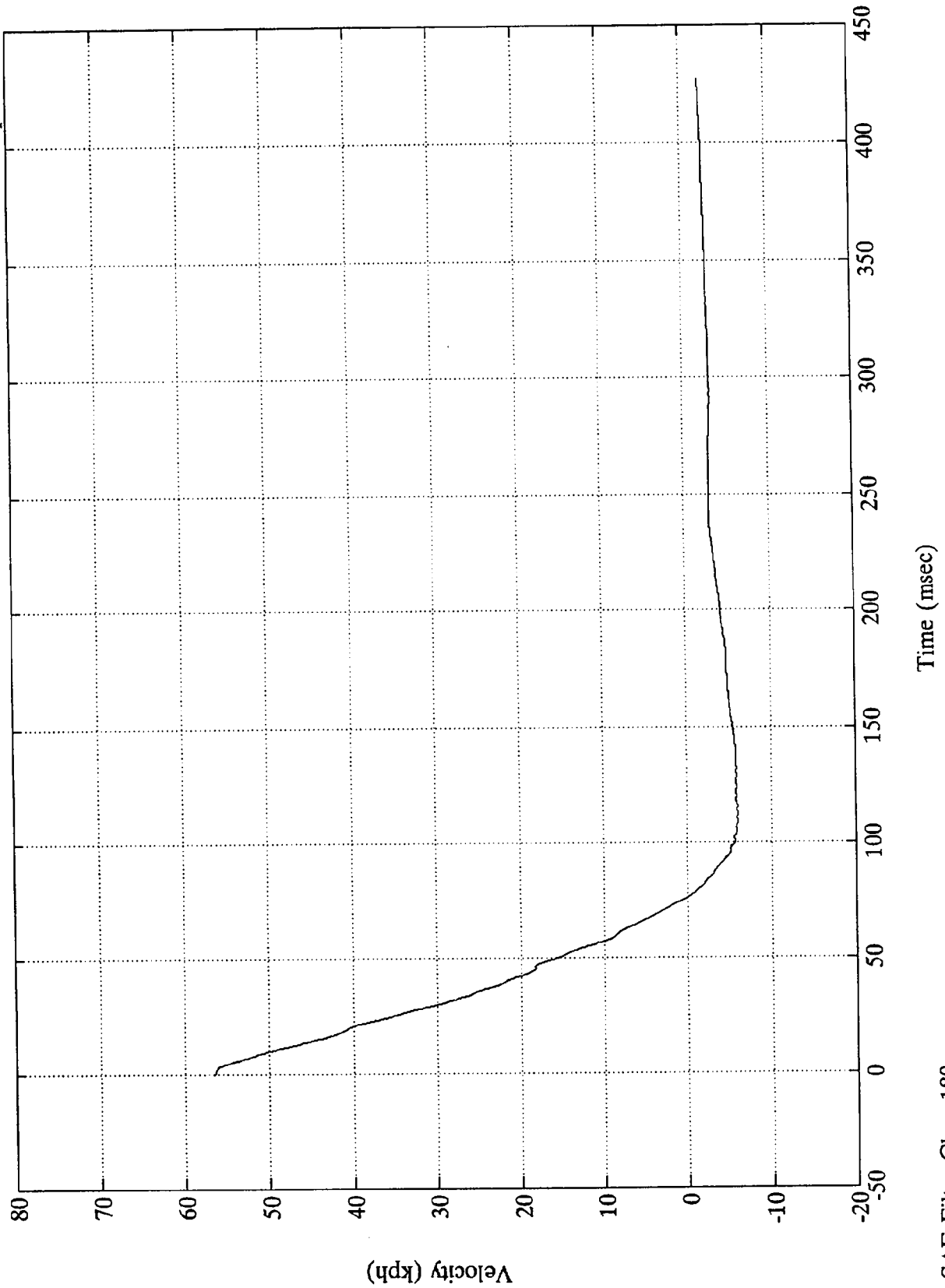


SAE Filter Class 60

NCAP TEST #7 - 1995 MISUBISHI MONTERO

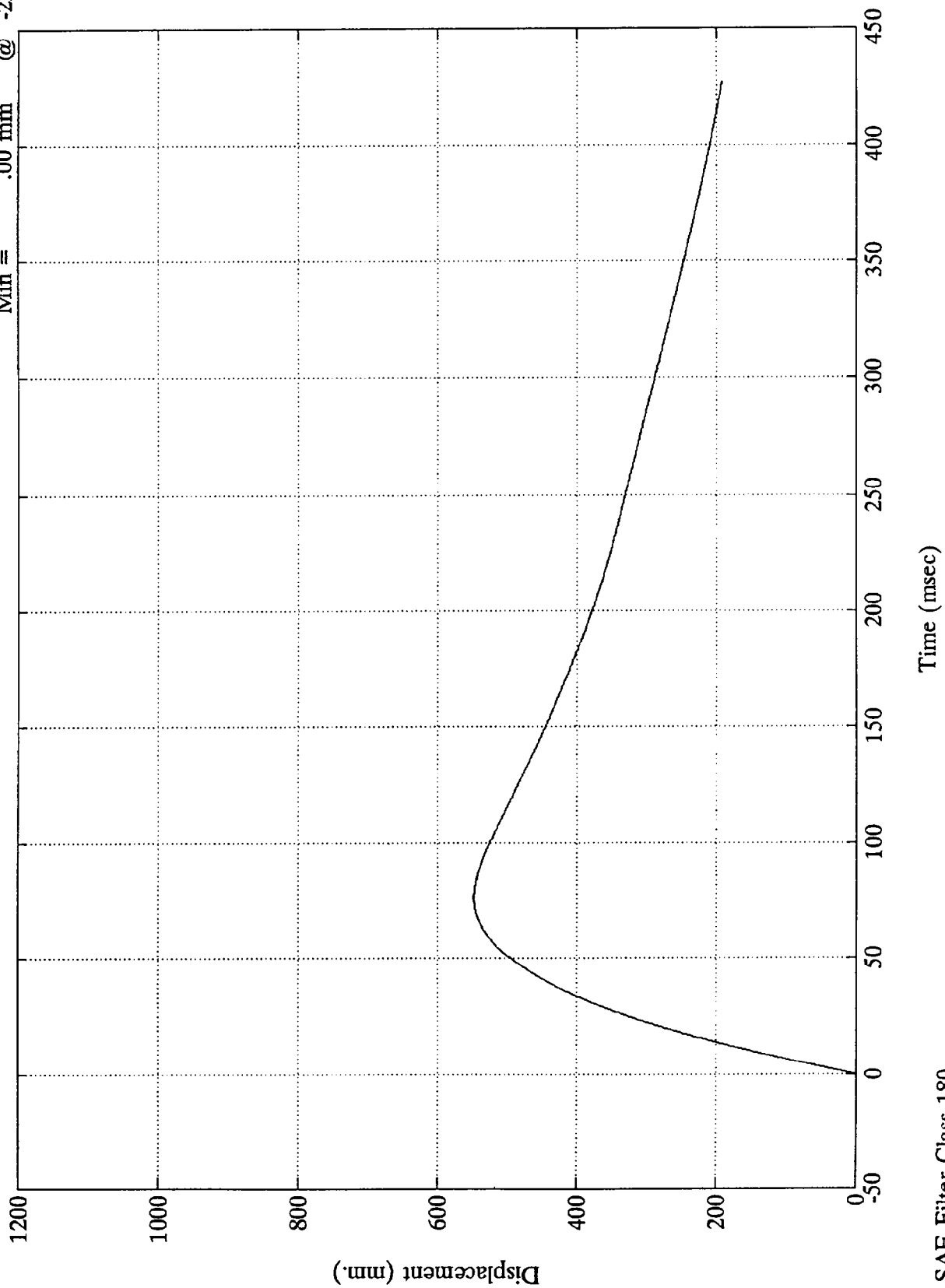
Max = 56.49 kph @ -0.00 msec
Min = -6.06 kph @ 112.56 msec

Acc. #8(x)



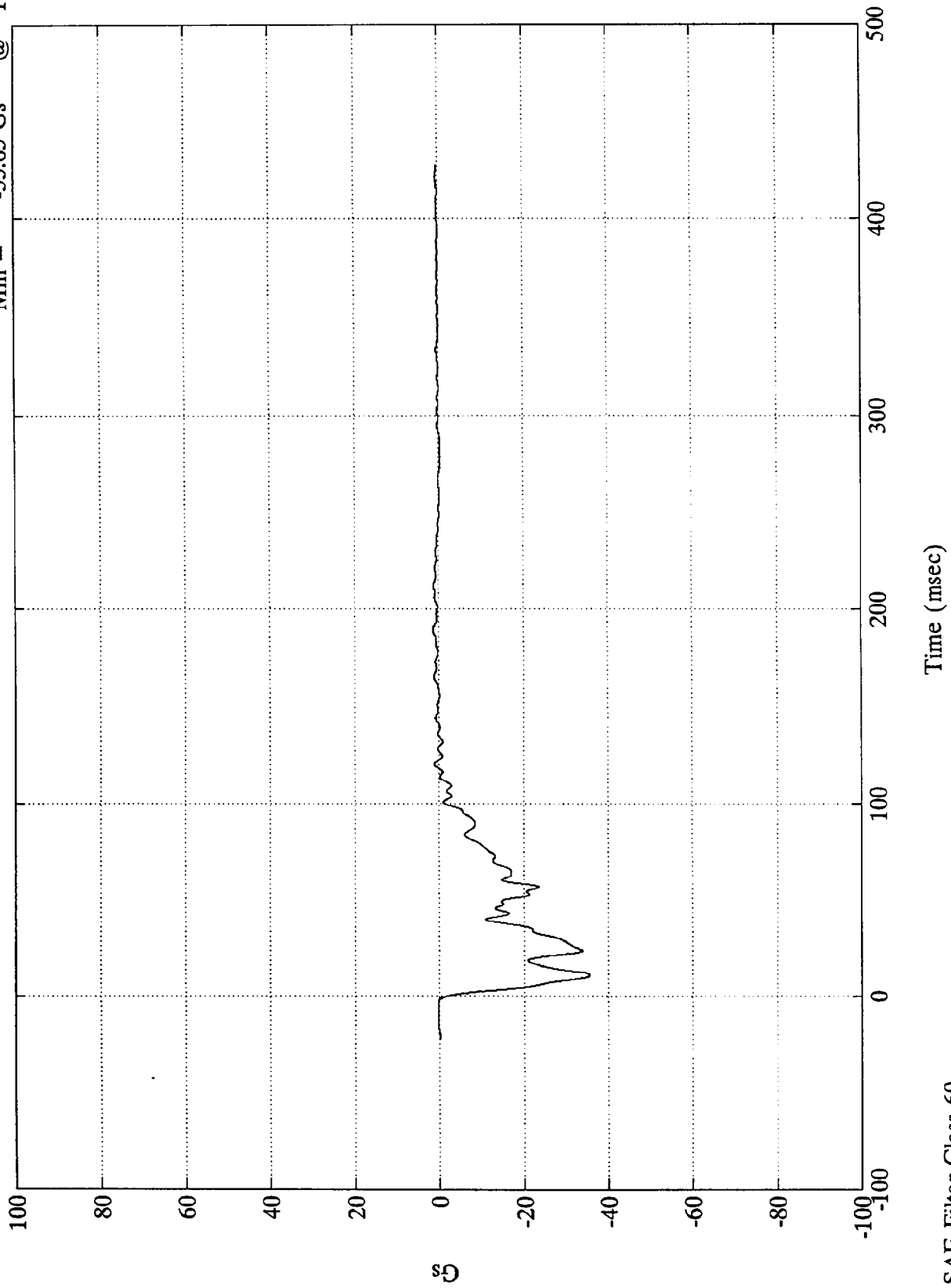
NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Acc. #8($\bar{x}$)
Max = 547.40 mm @ 75.72 msec
Min = .00 mm @ -22.44 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

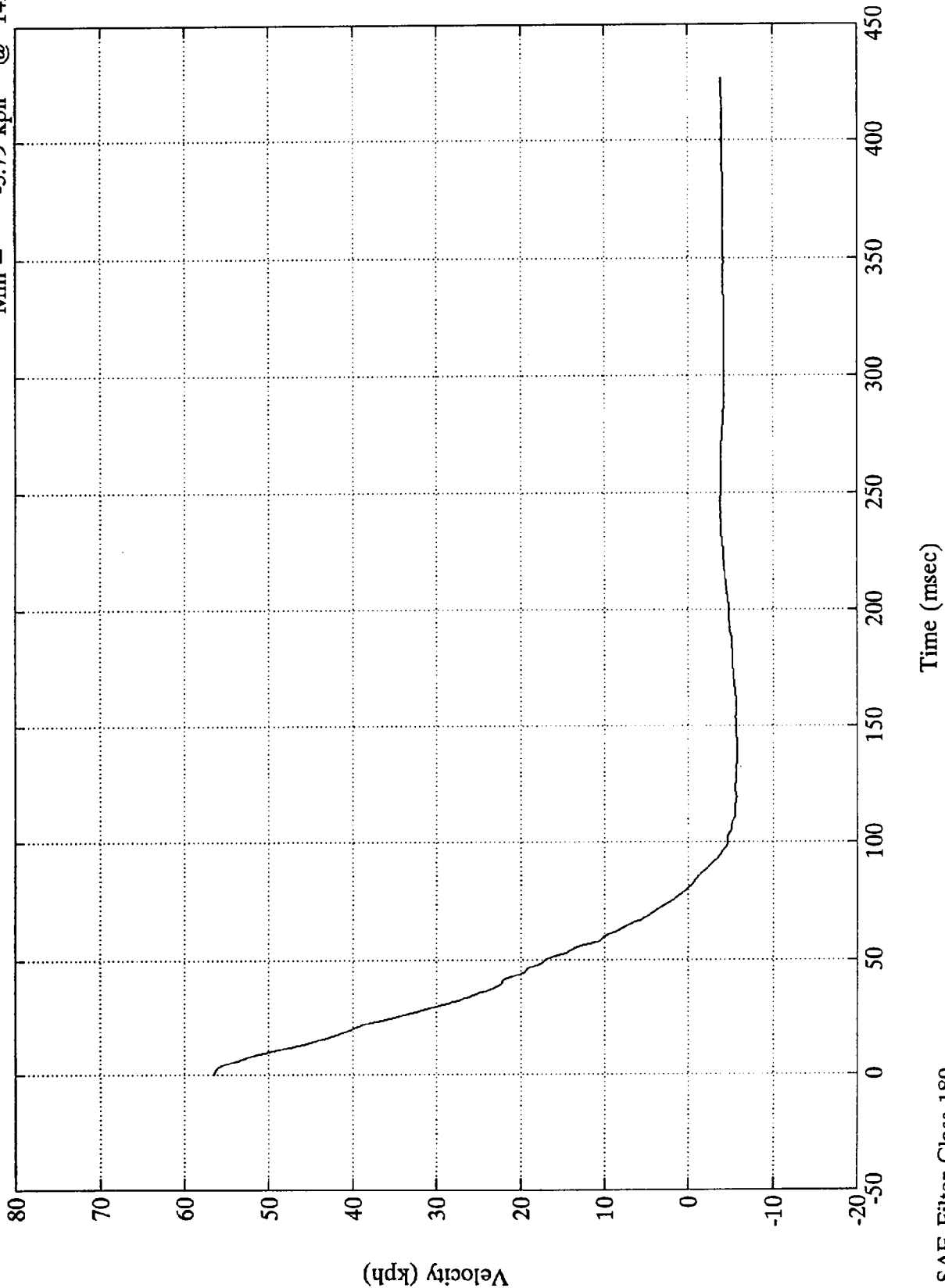
Acc. #9(x) Max = 1.45 Gs @ 189.96 msec
Min = -35.63 Gs @ 11.15 msec



SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

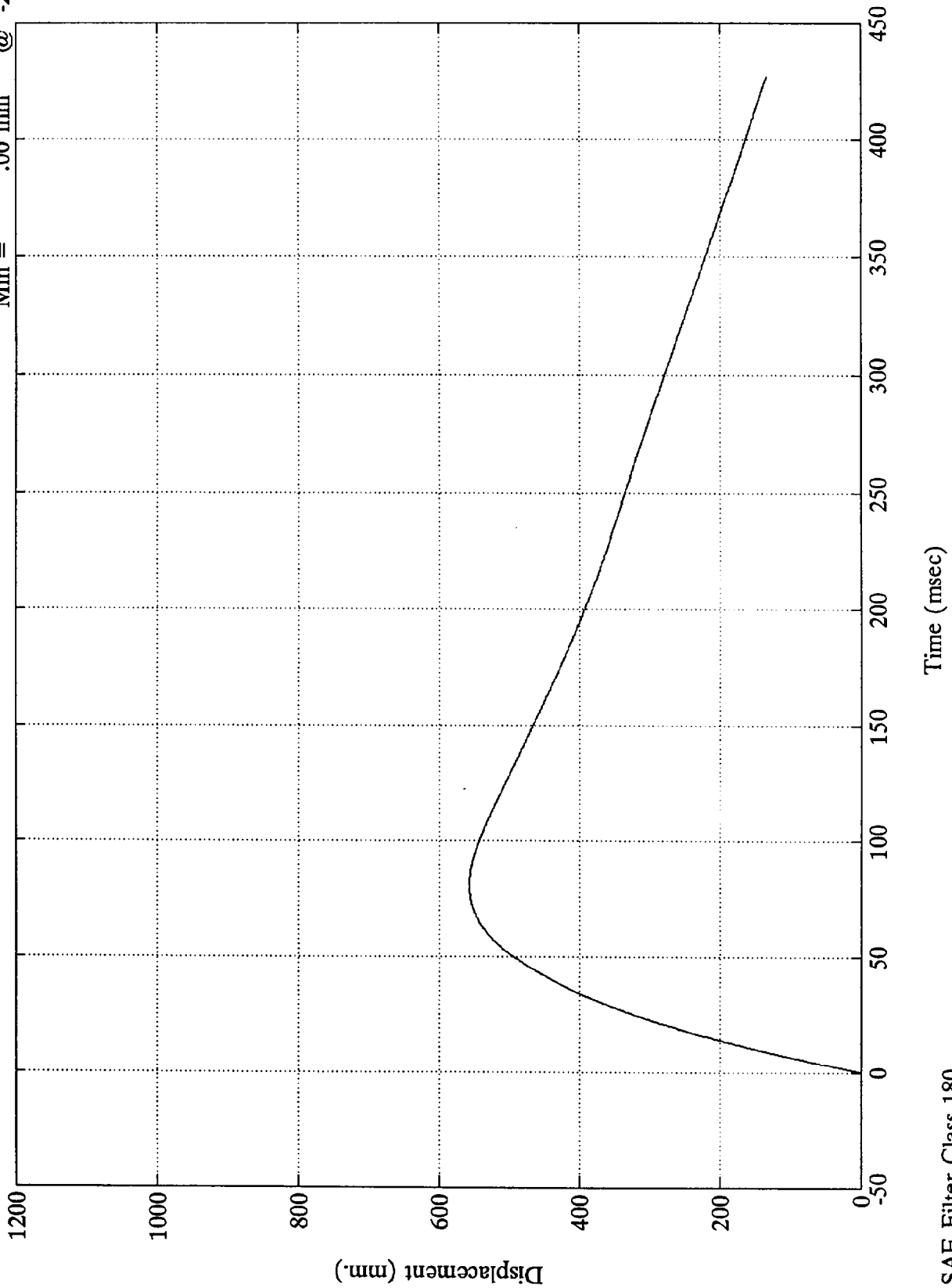
Acc. #9(x) Max = 56.49 kph @ -0.00 msec
Min = -5.79 kph @ 142.32 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 557.04 mm @ 80.40 msec
Min = .00 mm @ -22.44 msec

Acc. #9(x)



SAE Filter Class 180

TEST NO. MS5601

LOAD CELL BARRIER DATA

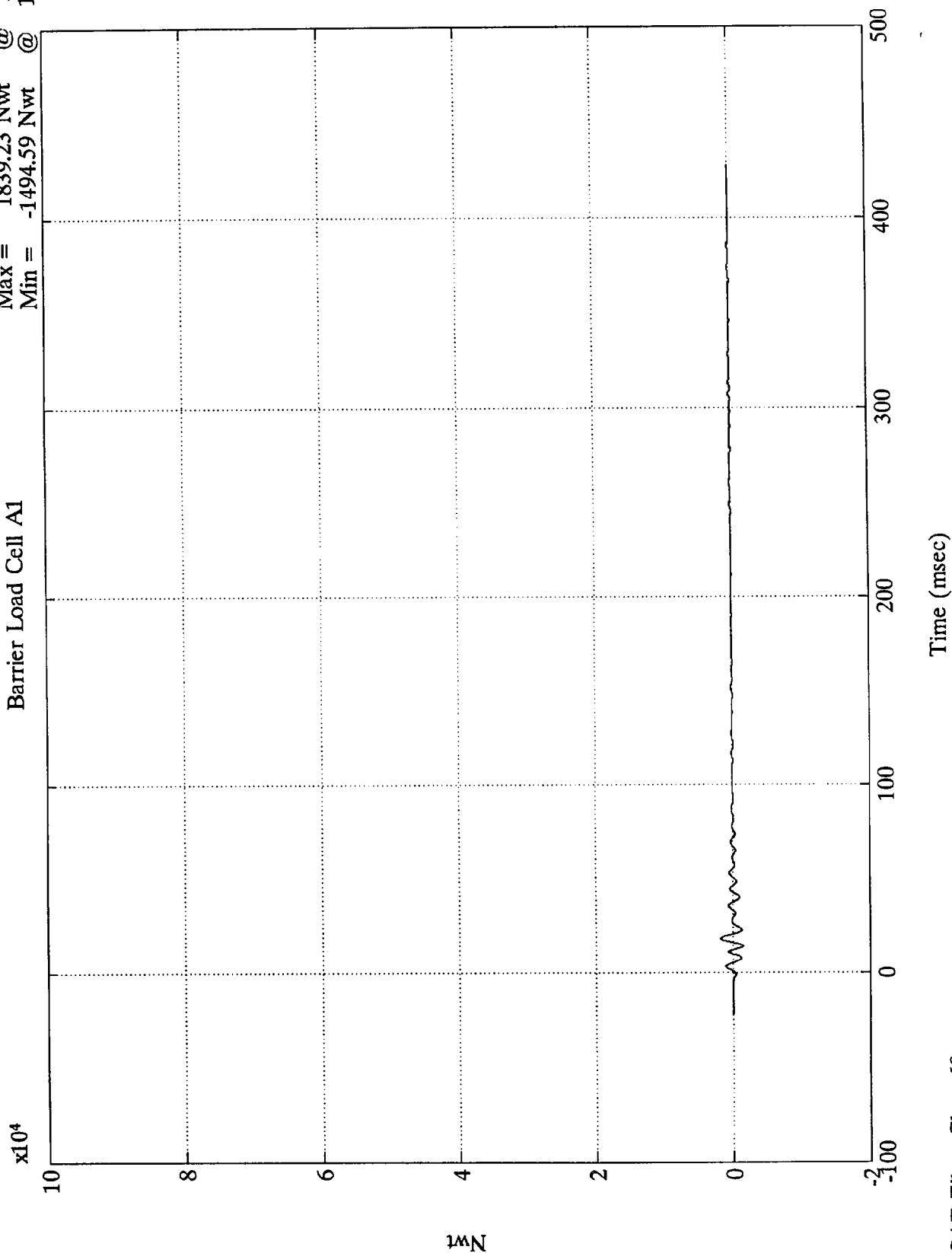
FILTER CHANNEL CLASS

60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell A1

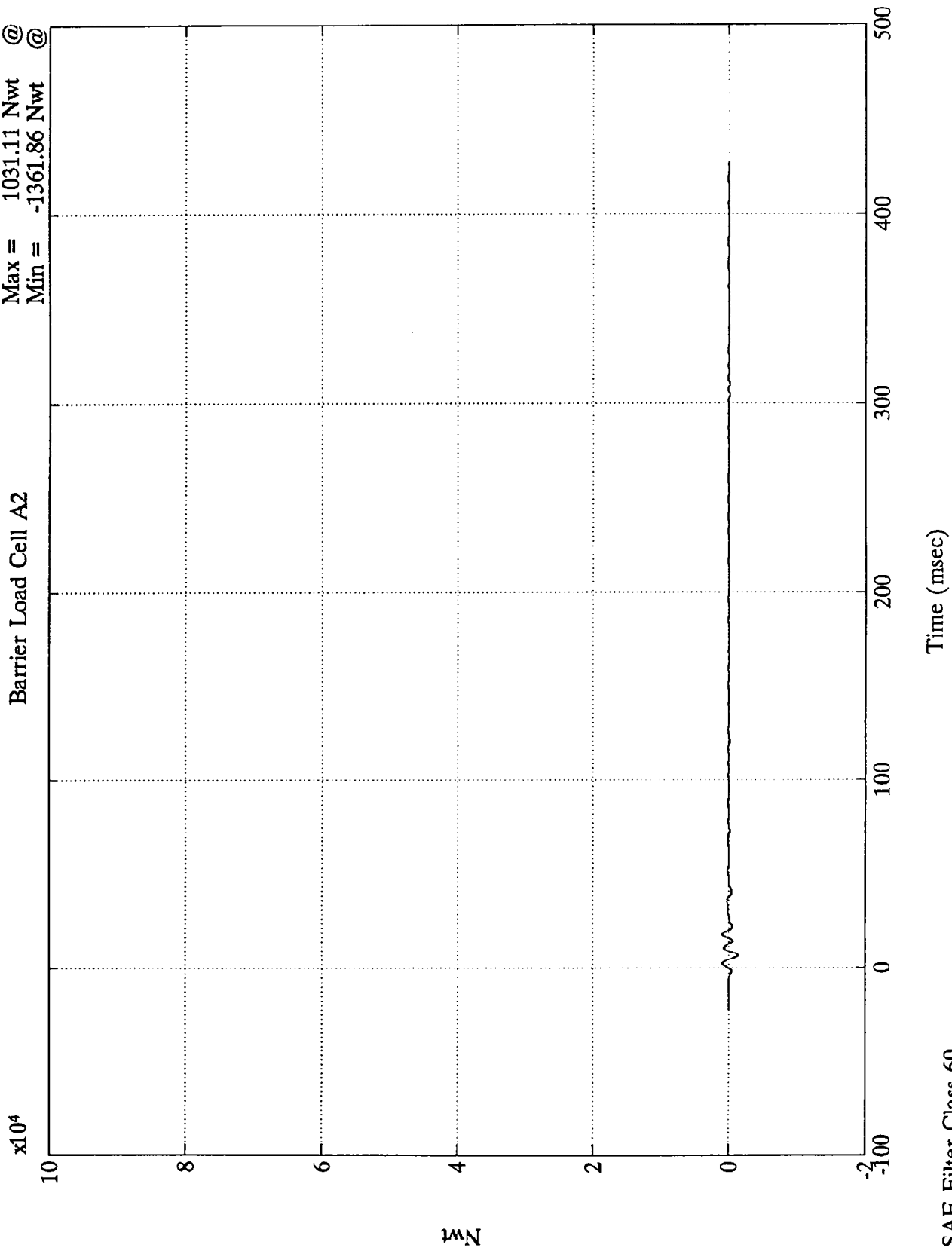
Max = 1839.23 Nwt @ 18.12 msec
 Min = -1494.59 Nwt @ 14.03 msec



SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell A2
Max = 1031.11 Nwt @ 18.12 msec
Min = -1361.86 Nwt @ 6.95 msec

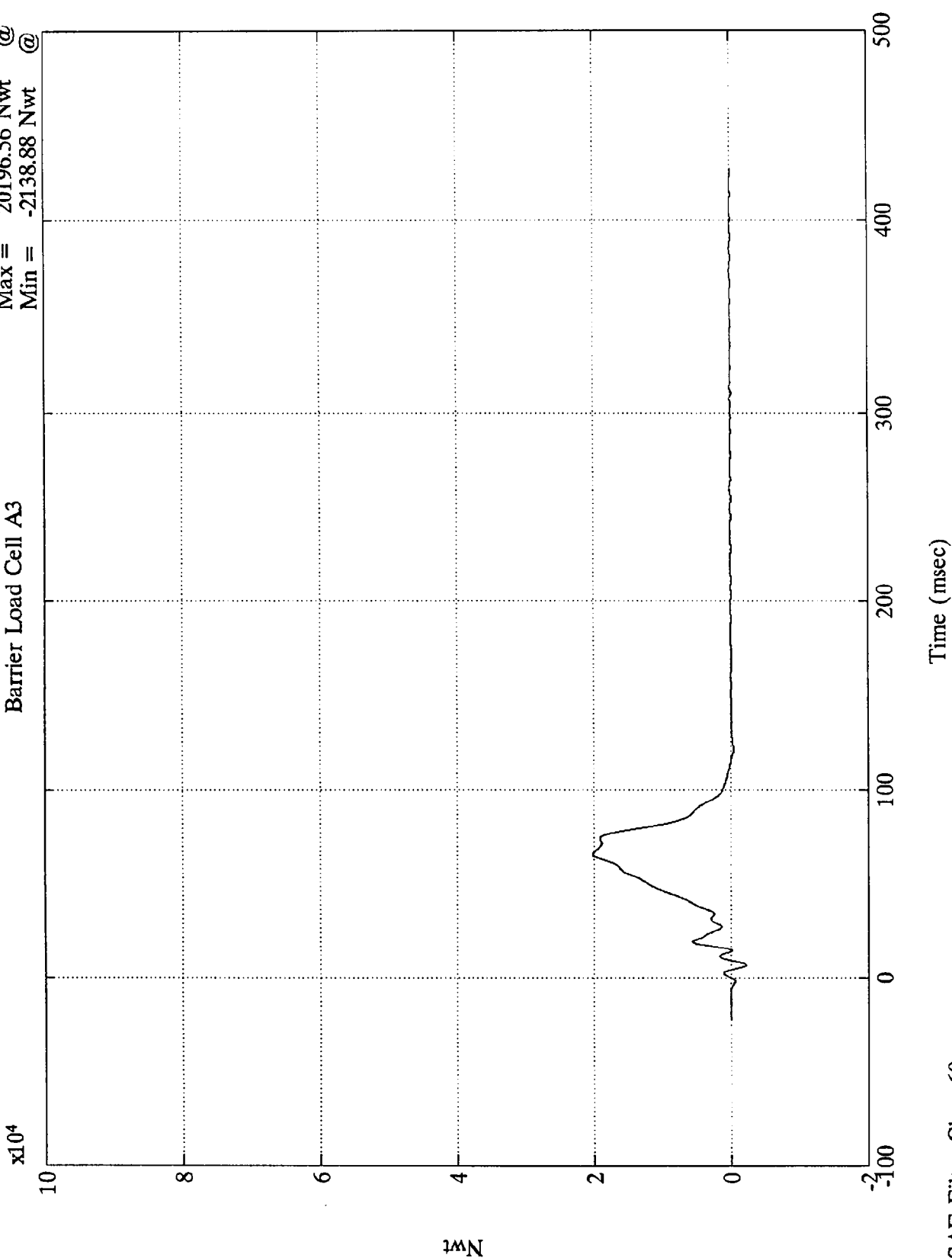


SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 20196.56 Nwt @ 65.76 msec
Min = -2138.88 Nwt @ 6.83 msec

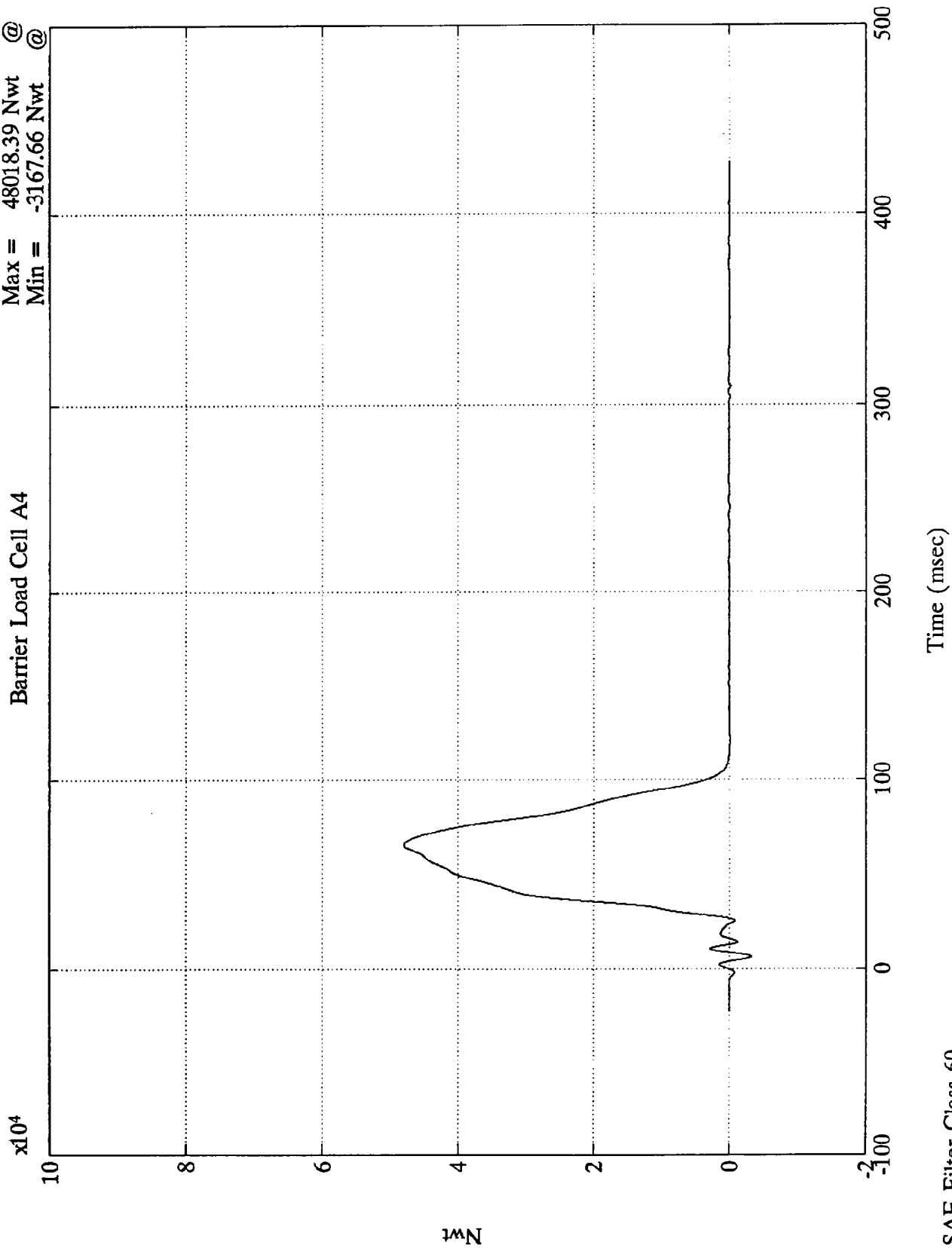
Barrier Load Cell A3



SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell A4
Max = 48018.39 Nwt @ 65.87 msec
Min = -3167.66 Nwt @ 6.71 msec



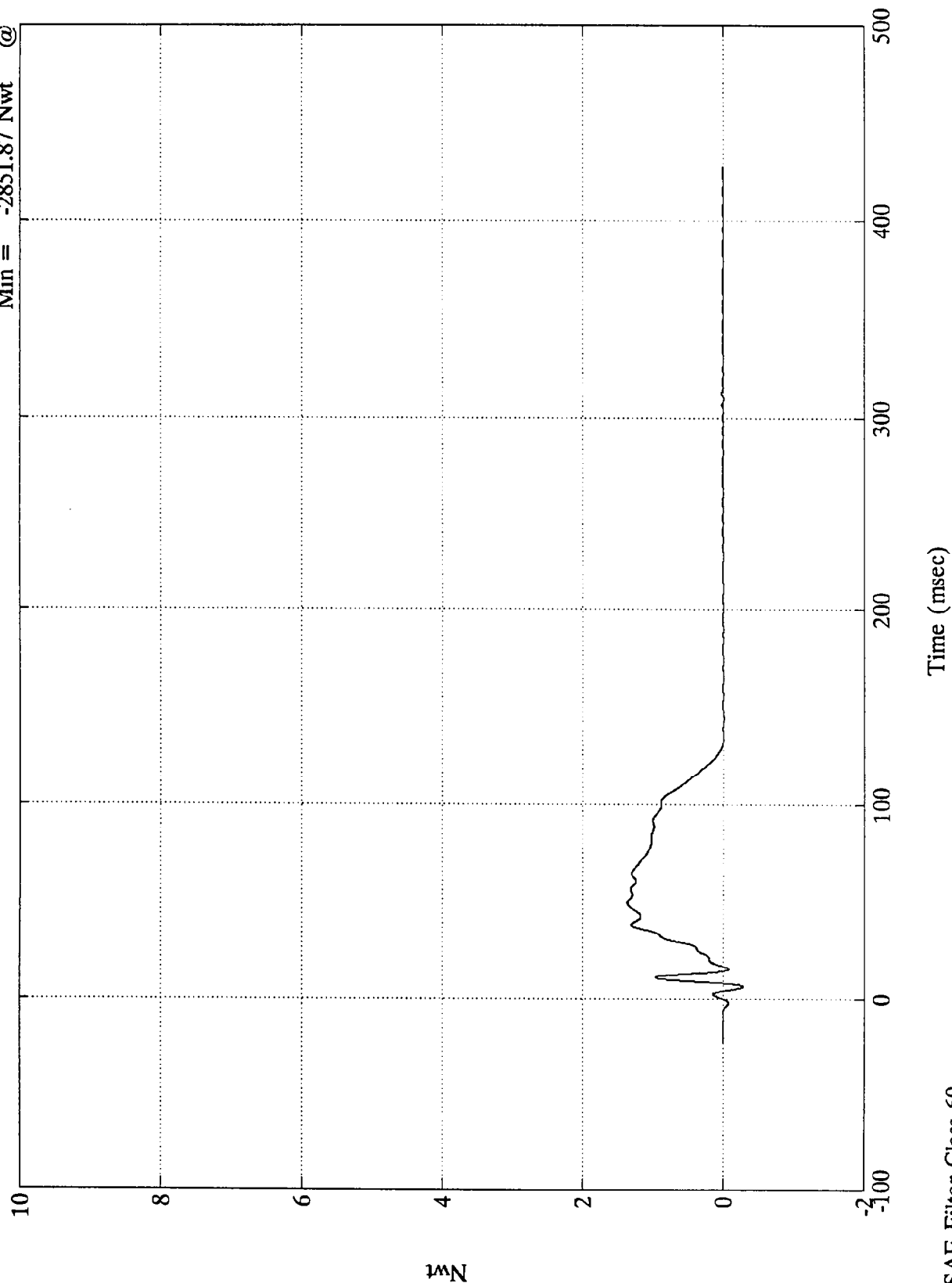
SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 13653.15 Nwt @ 48.84 msec
 Min = -2851.87 Nwt @ 6.35 msec

Barrier Load Cell A5

$\times 10^4$

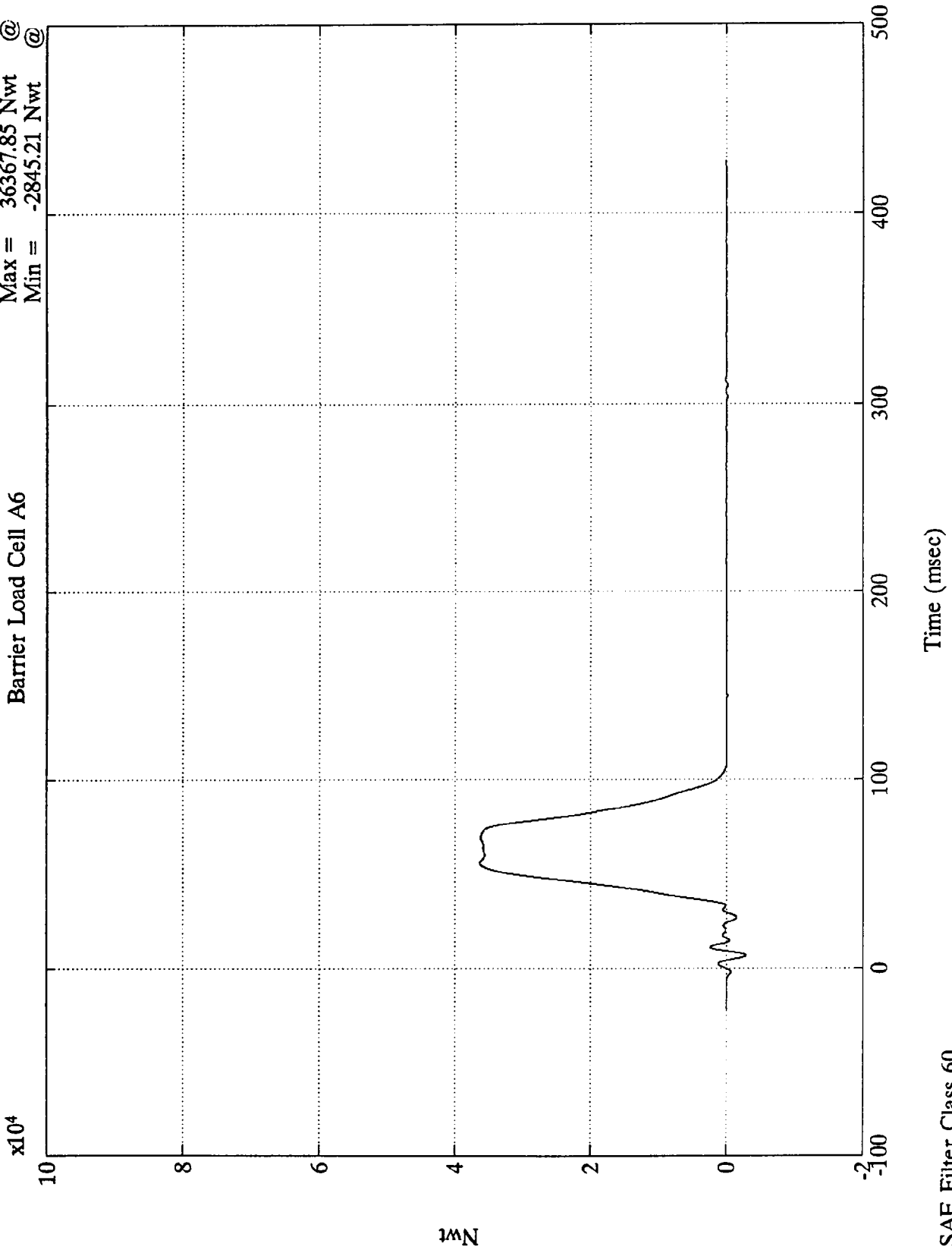


SAE Filter Class 60

Nwt

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

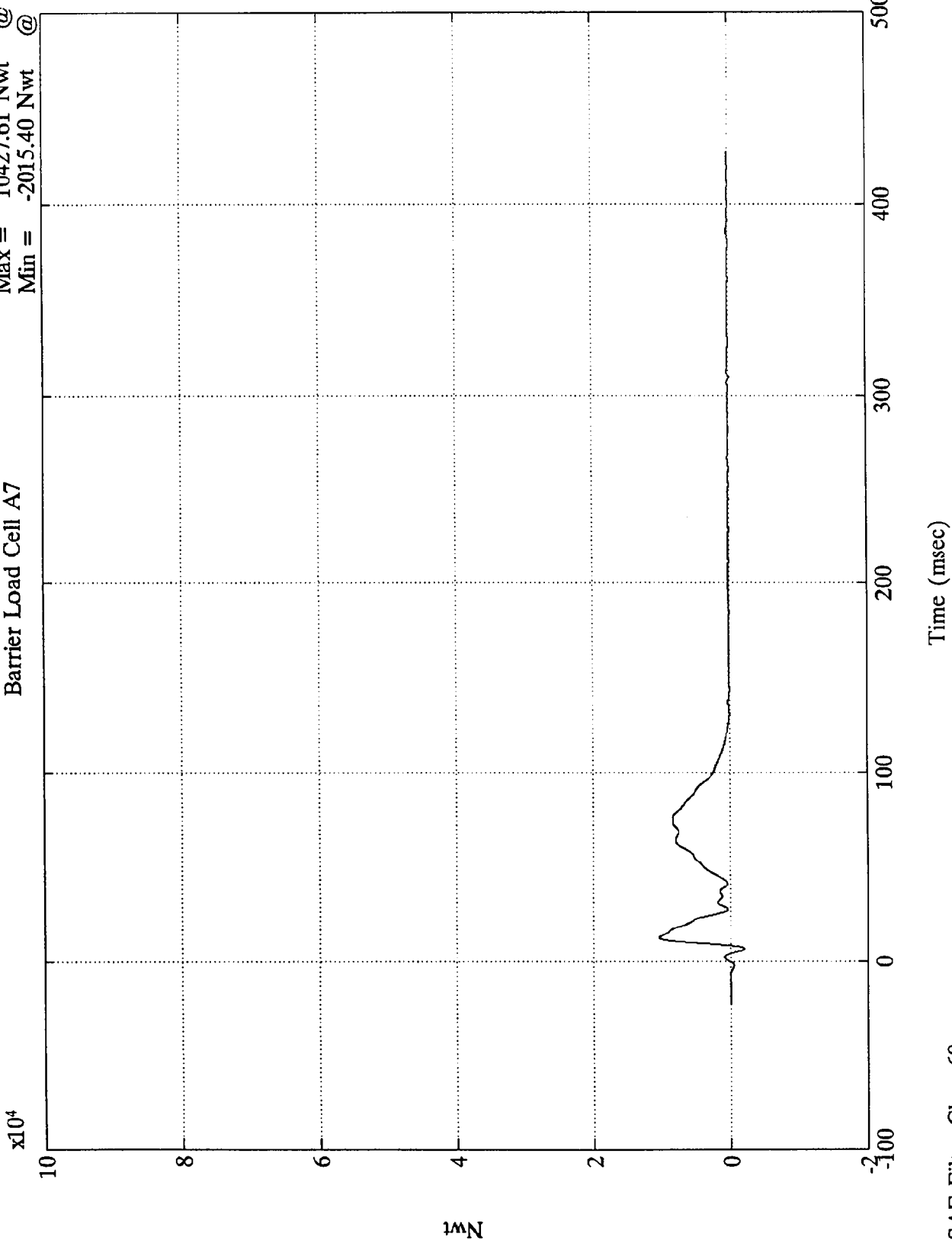
Barrier Load Cell A6
Max = 36367.85 Nwt @ 55.68 msec
Min = -2845.21 Nwt @ 6.95 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 10427.61 Nwt @ 12.35 msec
Min = -2015.40 Nwt @ 6.59 msec

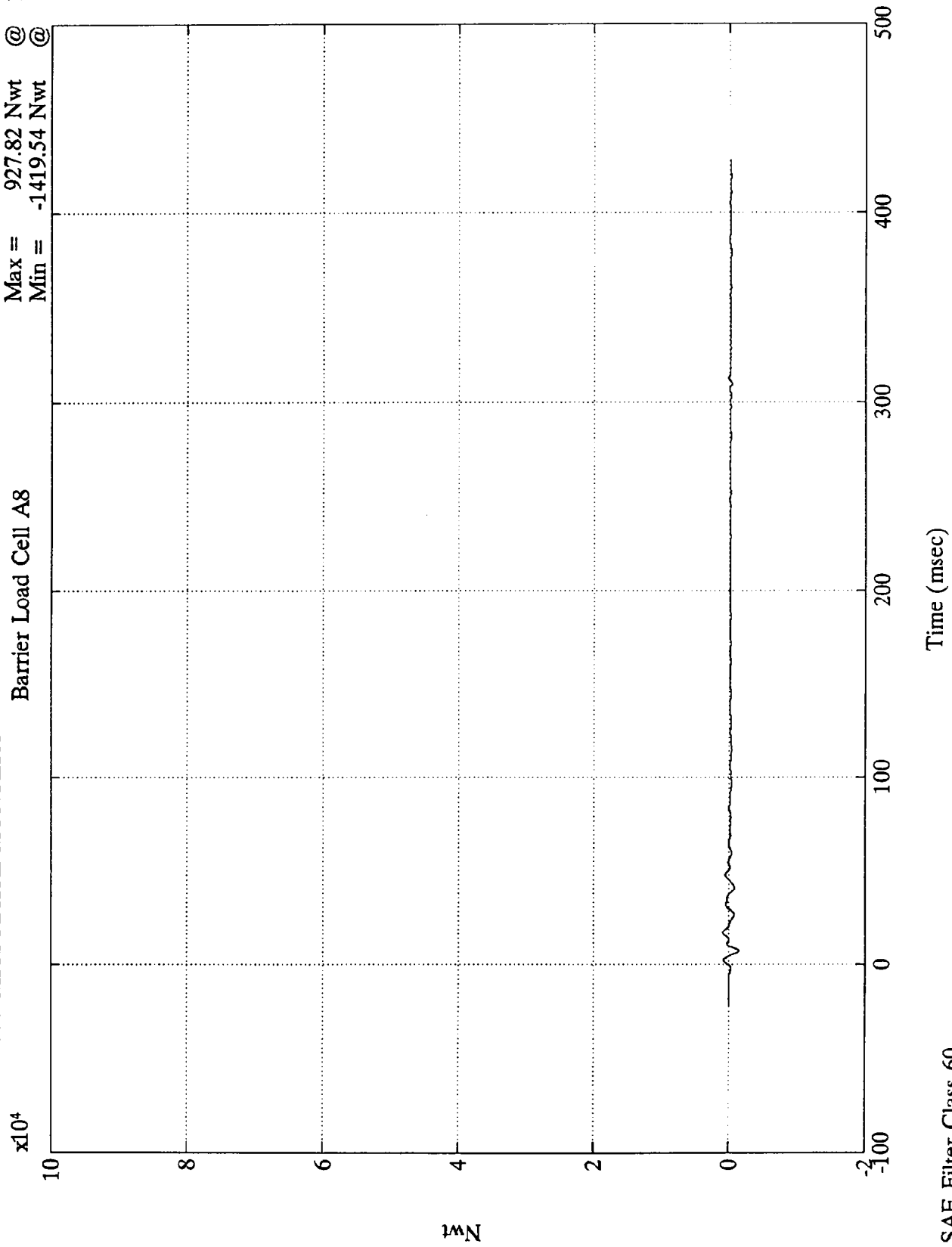
Barrier Load Cell A7



SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell A8
Max = 927.82 Nwt @ 17.27 msec
Min = -1419.54 Nwt @ 7.31 msec



Nwt

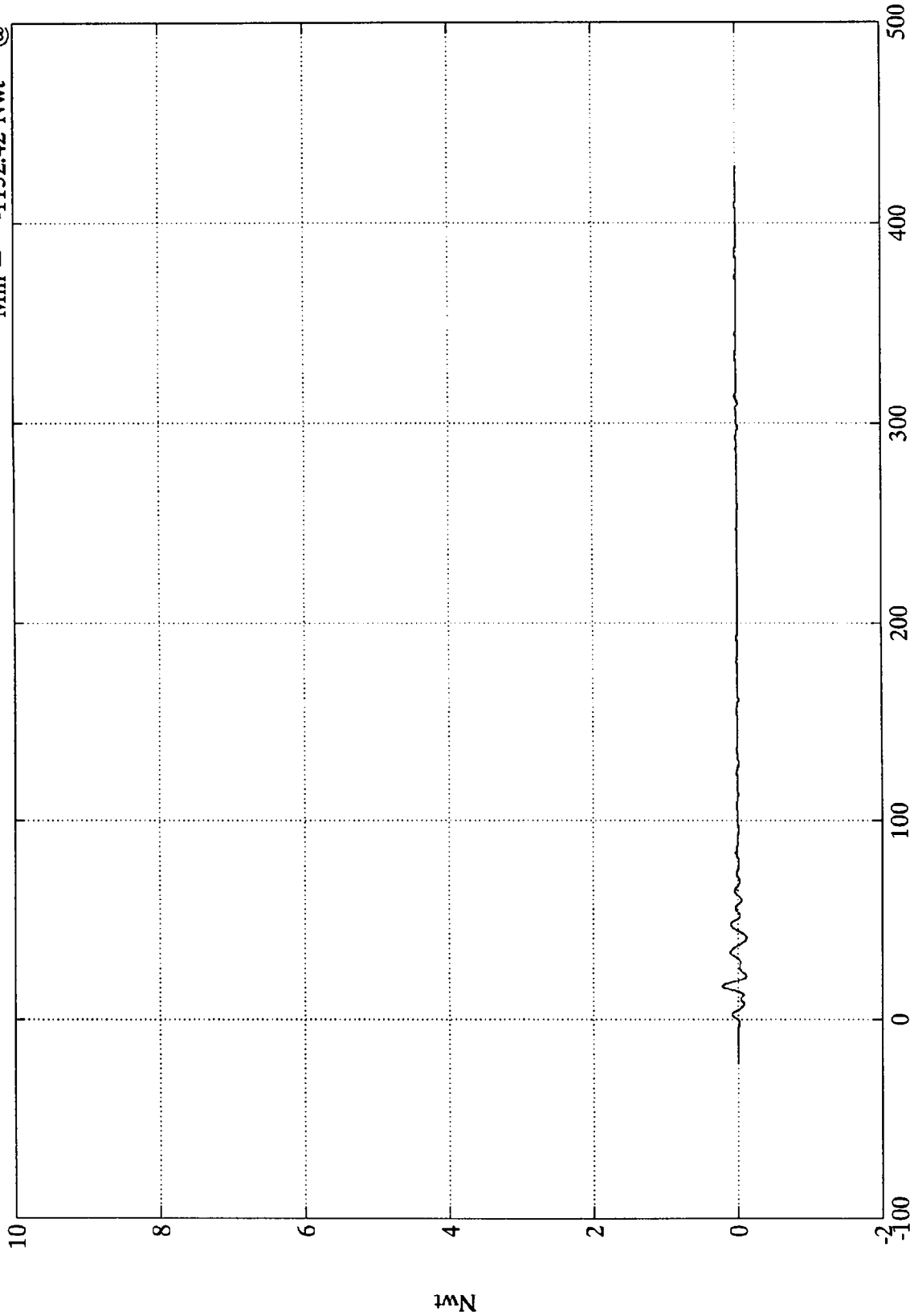
SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 2119.65 Nwt @ 17.27 msec
 Min = -1152.42 Nwt @ 41.28 msec

Barrier Load Cell A9

x10⁴



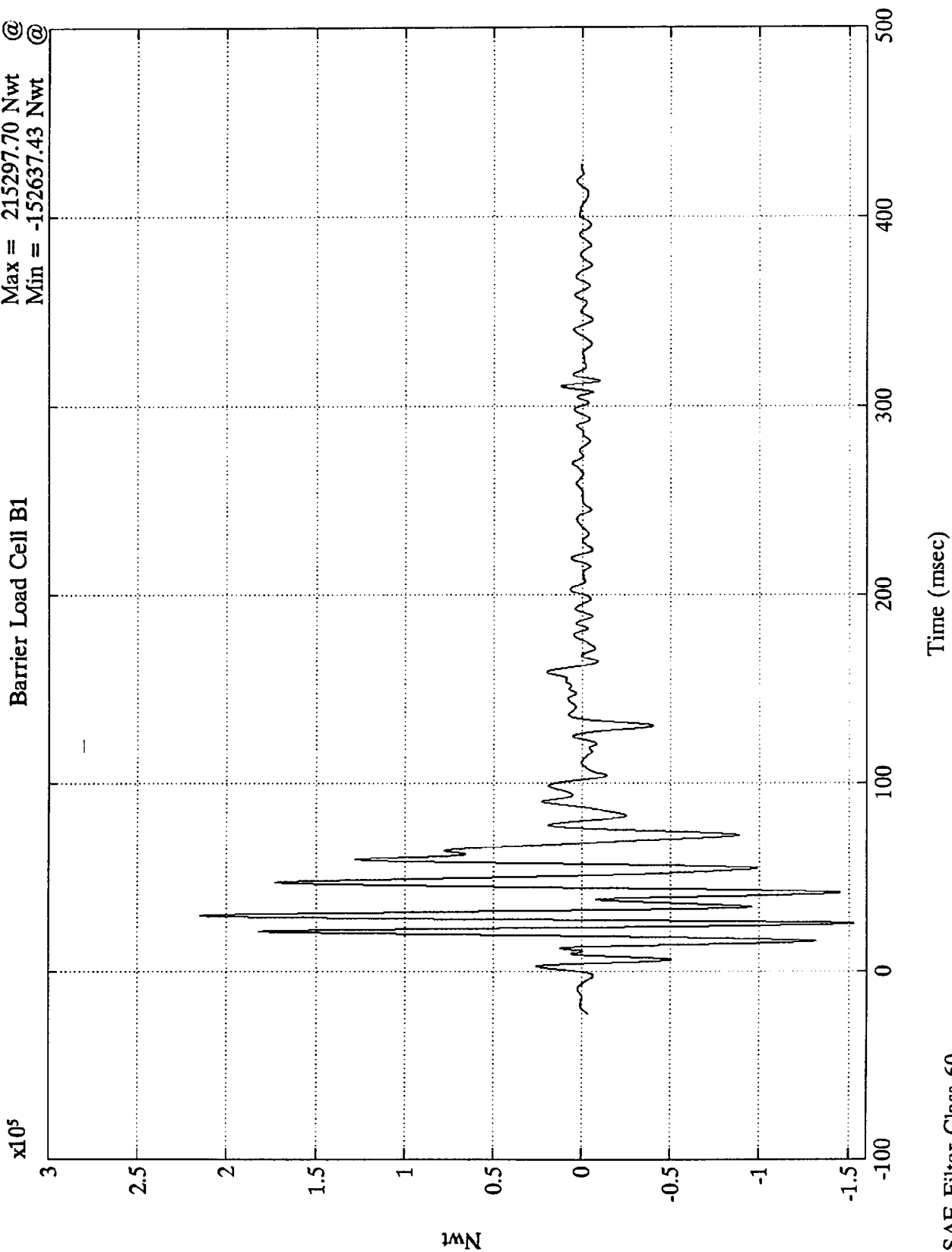
Time (msec)

SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 215297.70 Nwt @ 29.76 msec
Min = -152637.43 Nwt @ 25.68 msec

Barrier Load Cell B1

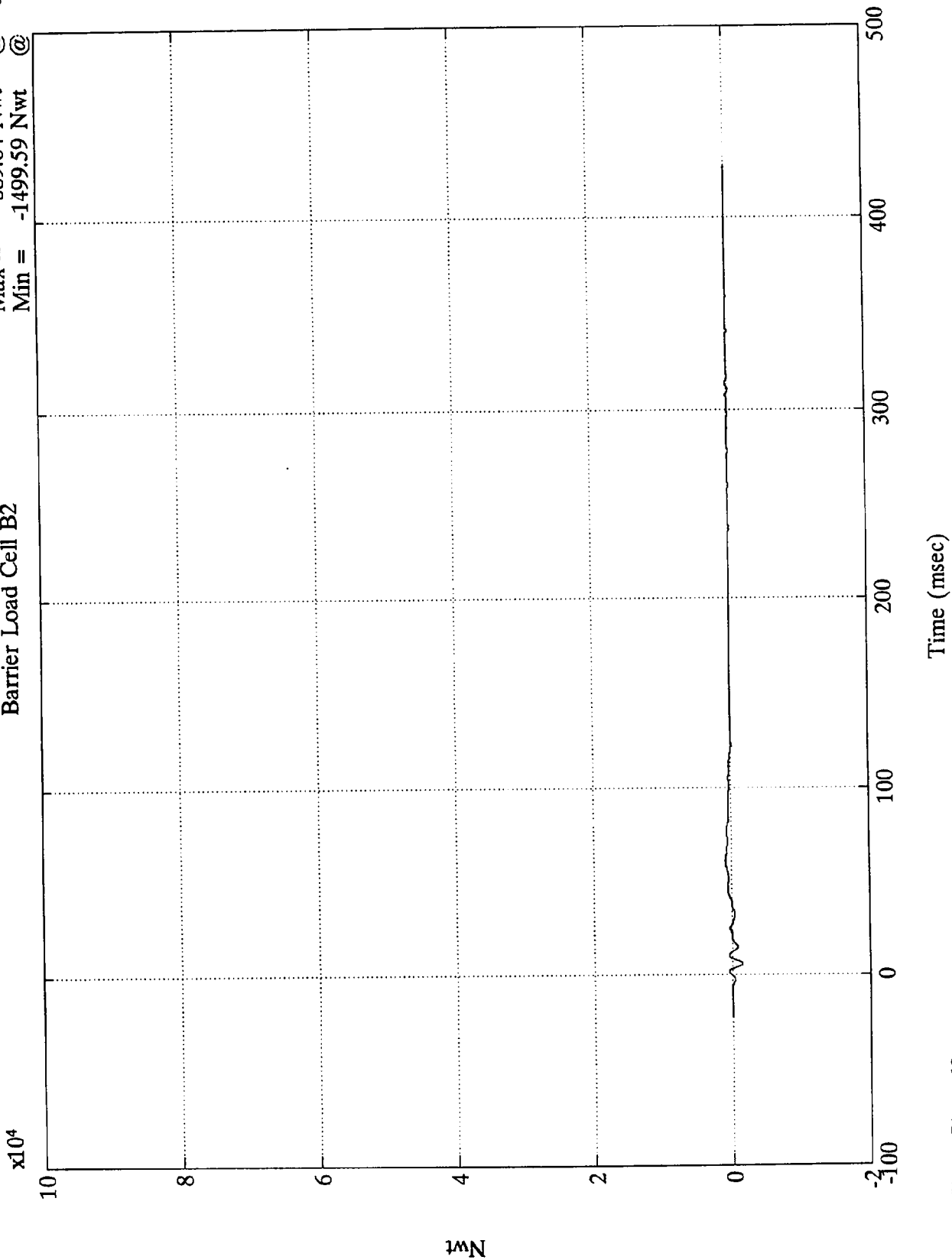


SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 889.84 Nwt @ 60.72 msec
Min = -1499.59 Nwt @ 5.87 msec

Barrier Load Cell B2

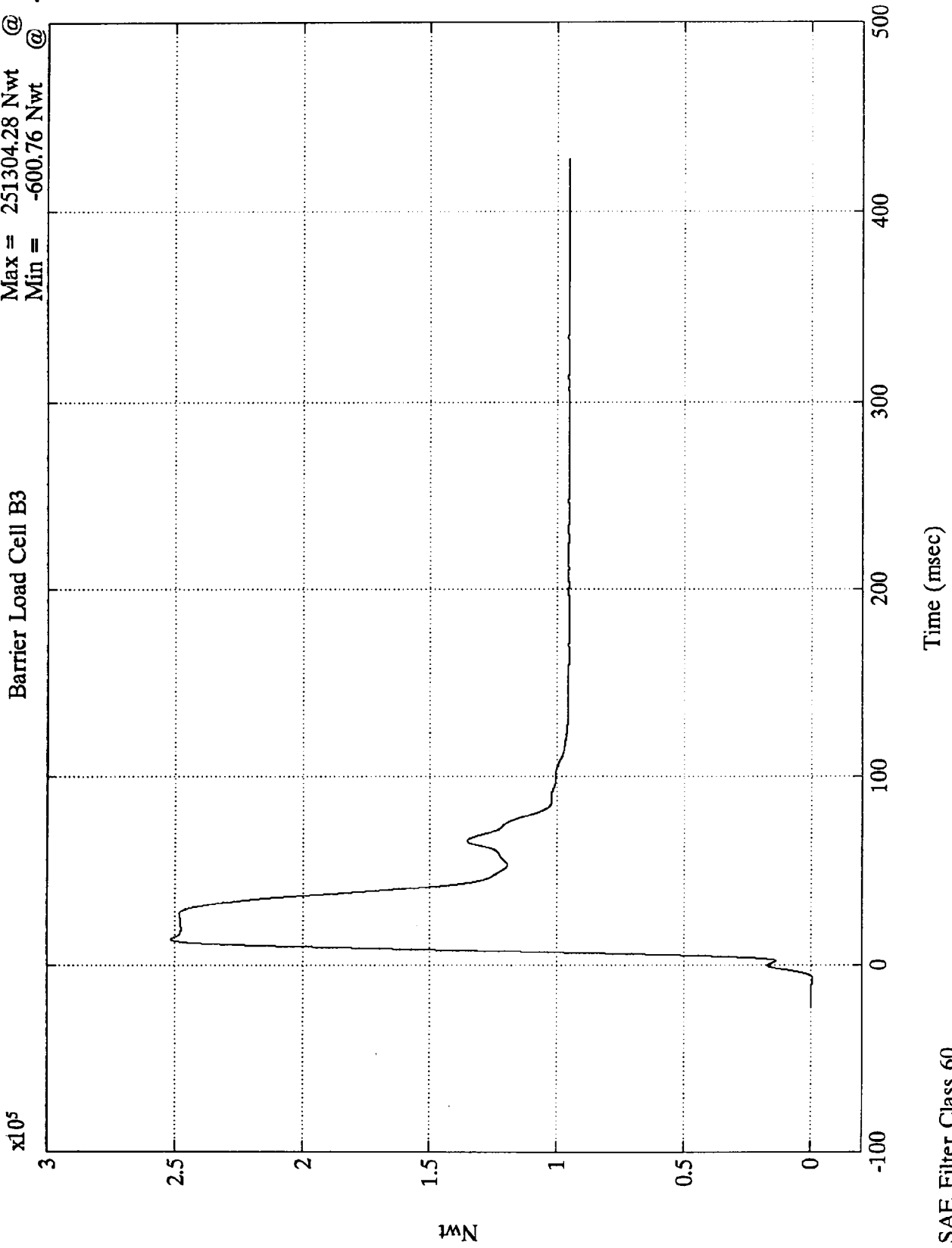


SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell B3

Max = 251304.28 Nwt @ 13.68 msec
Min = -600.76 Nwt @ -6.96 msec

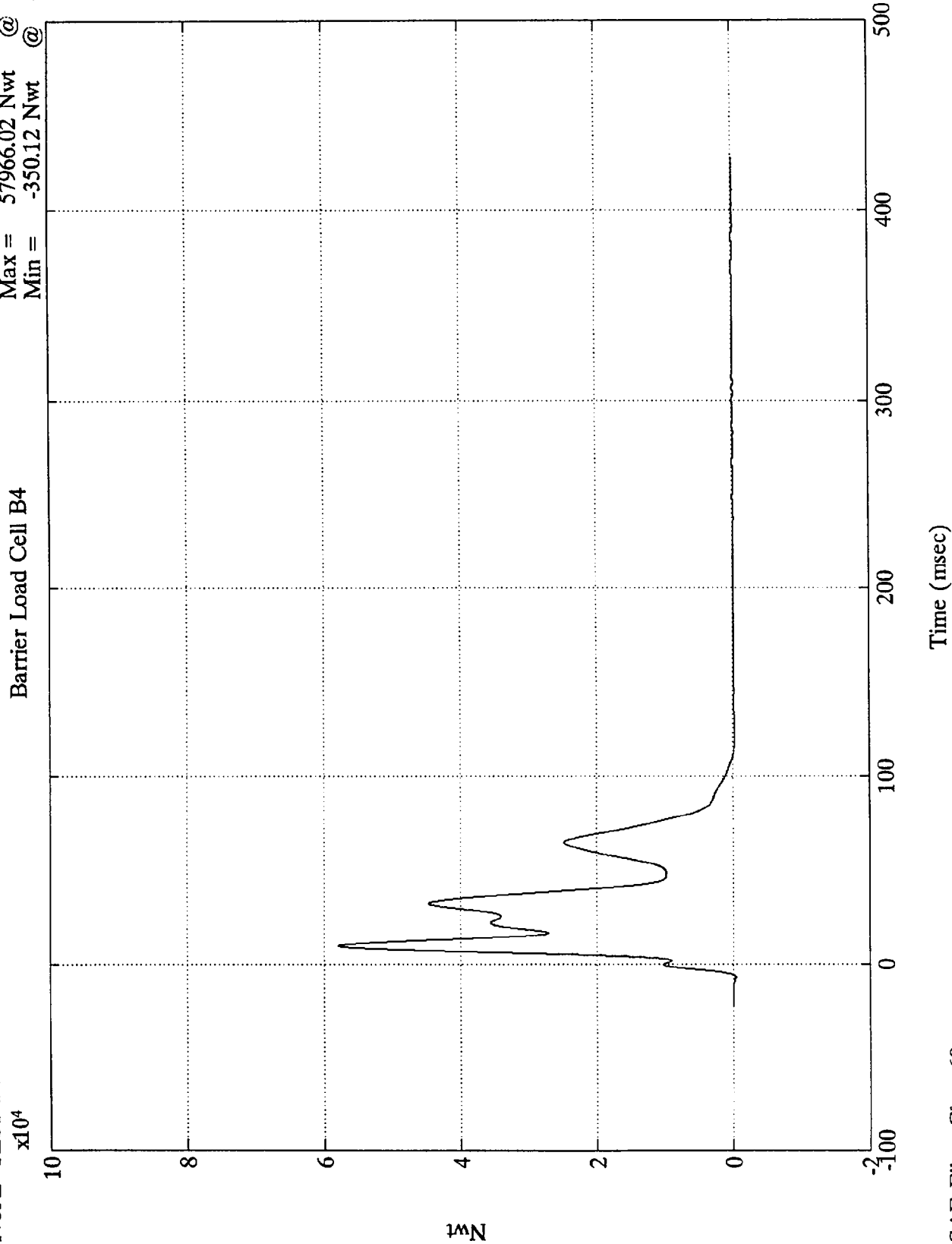


NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 57966.02 Nwt @ 9.83 msec
 Min = -350.12 Nwt @ -6.84 msec

Barrier Load Cell B4

Max = 57966.02 Nwt @ 9.83 msec
 Min = -350.12 Nwt @ -6.84 msec



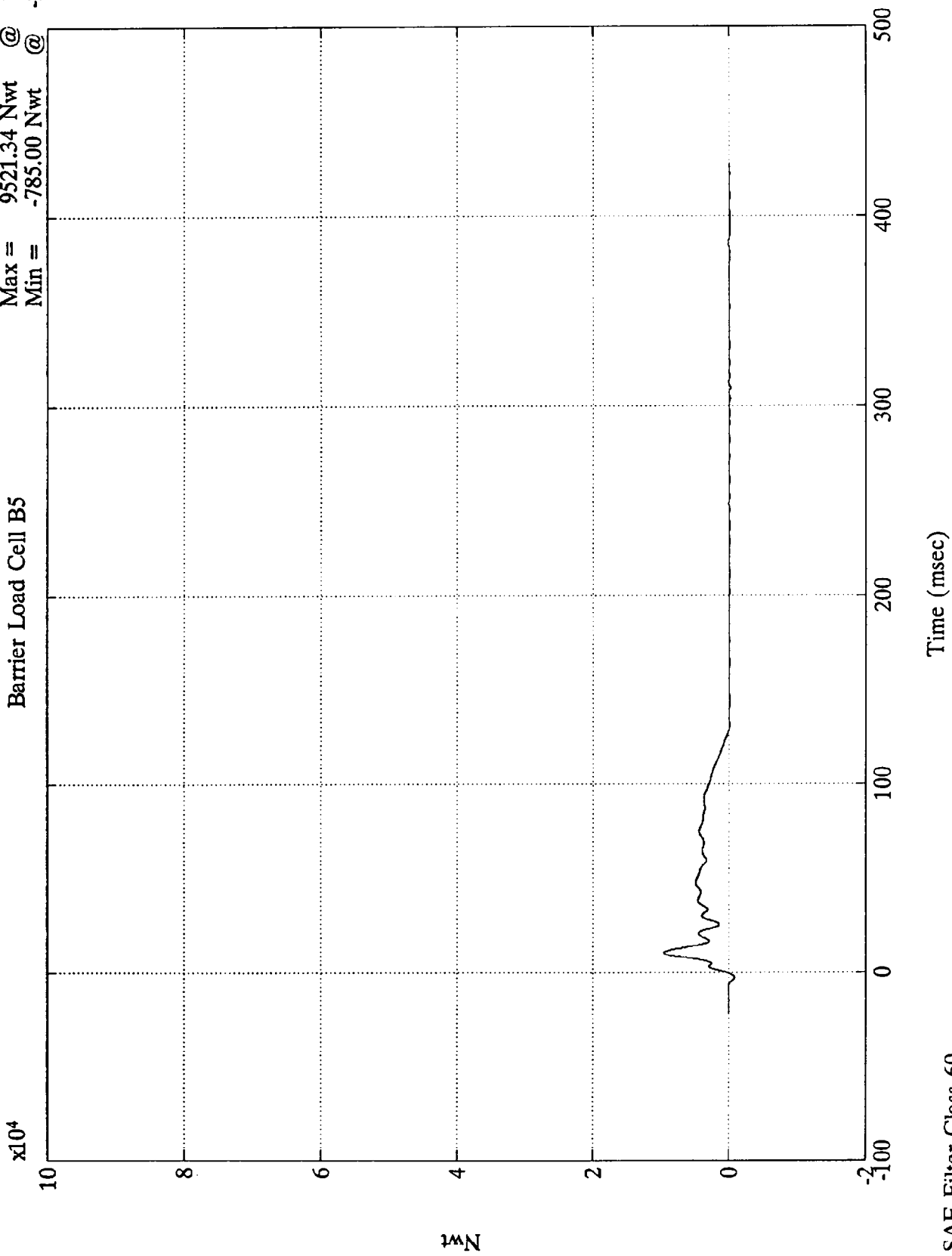
SAE Filter Class 60

Time (msec)

Nwt

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

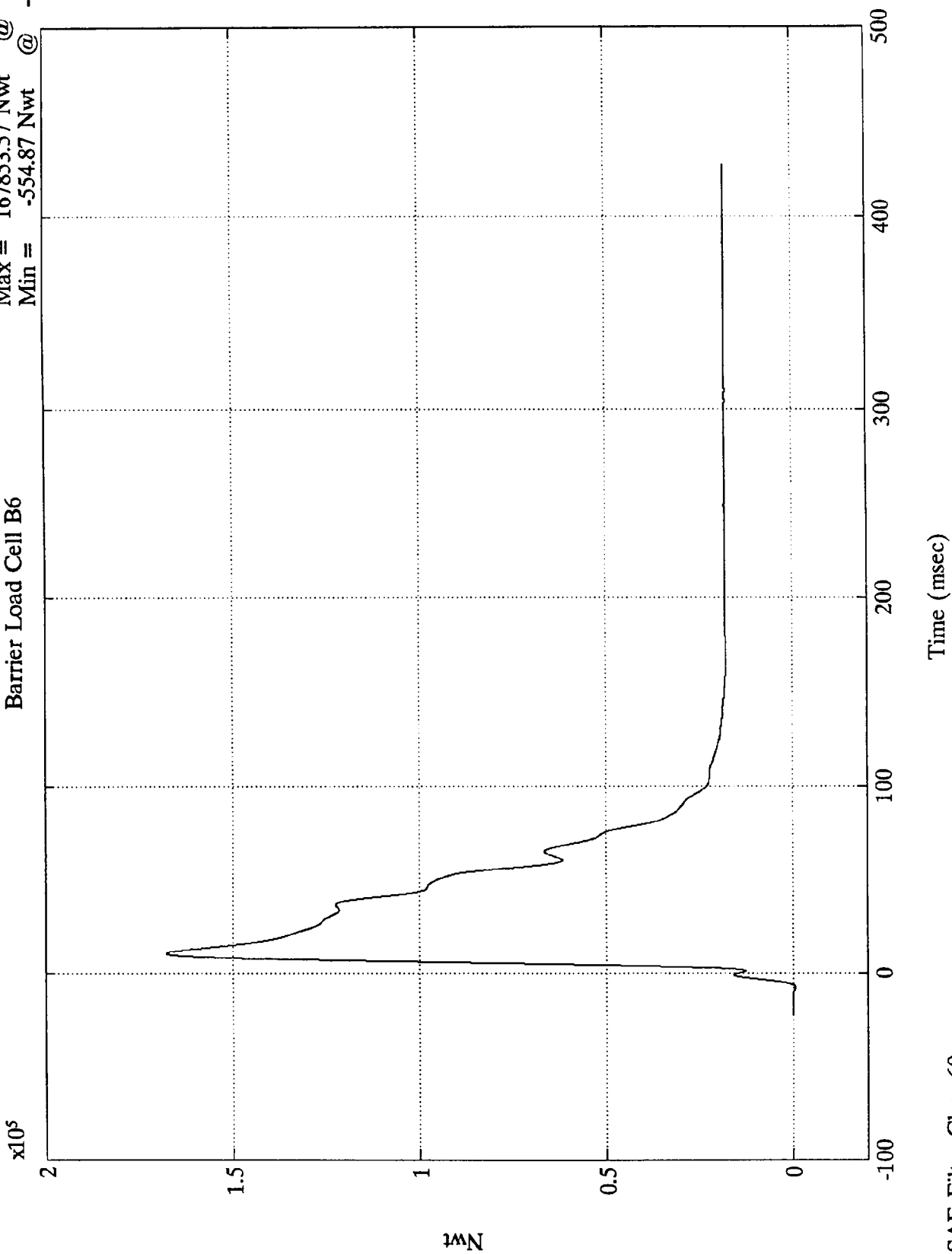
Barrier Load Cell B5
 Max = 9521.34 Nwt @ 10.79 msec
 Min = -785.00 Nwt @ -2.64 msec



SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell B6
 Max = 167853.57 Nwt @ 10.67 msec
 Min = -554.87 Nwt @ -7.44 msec

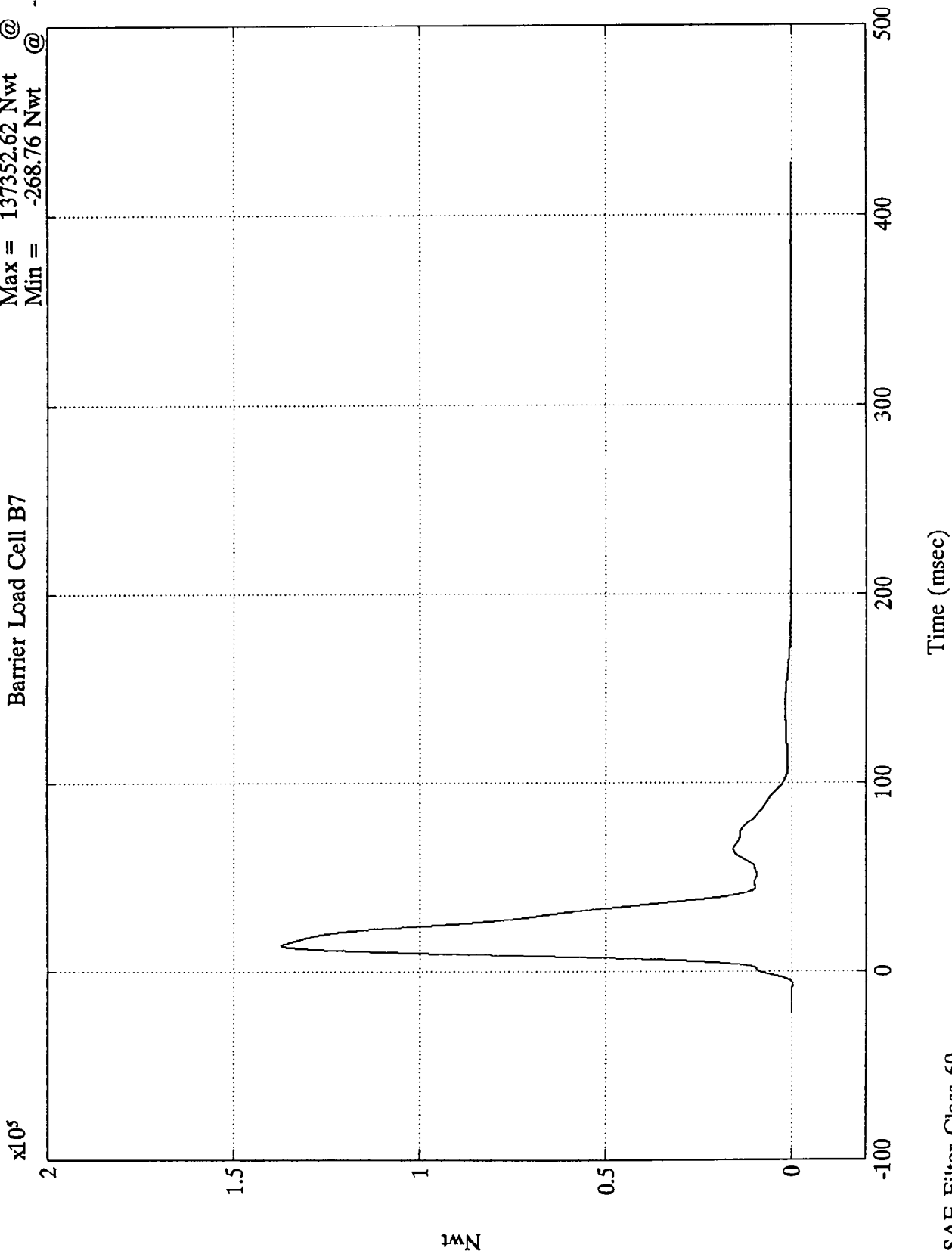


SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell B7

Max = 137352.62 Nwt @ 14.27 msec
Min = -268.76 Nwt @ -6.60 msec



Nwt

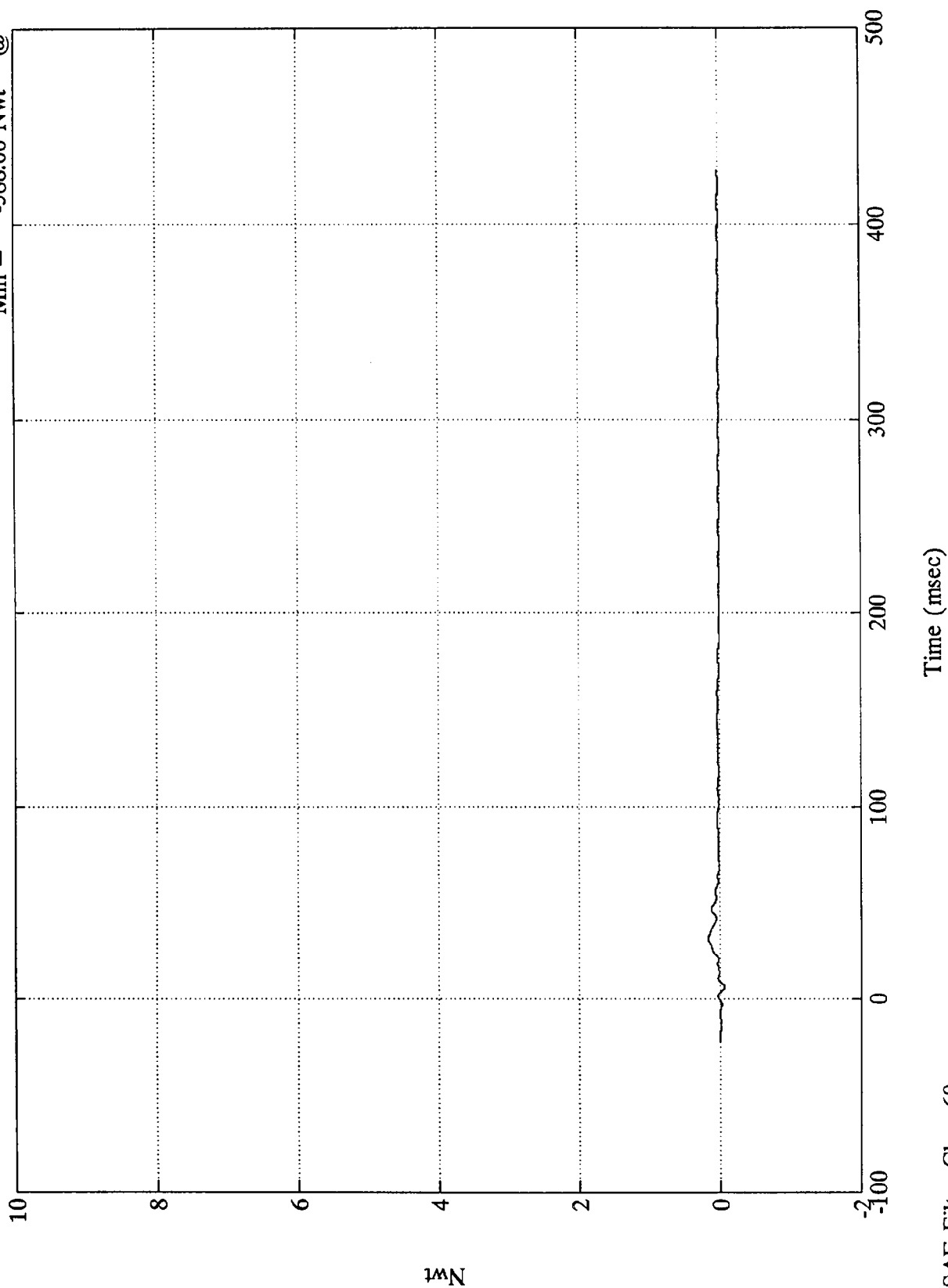
SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 1802.63 Nwt @ 31.32 msec
Min = -588.06 Nwt @ 6.23 msec

Barrier Load Cell B8

$\times 10^4$

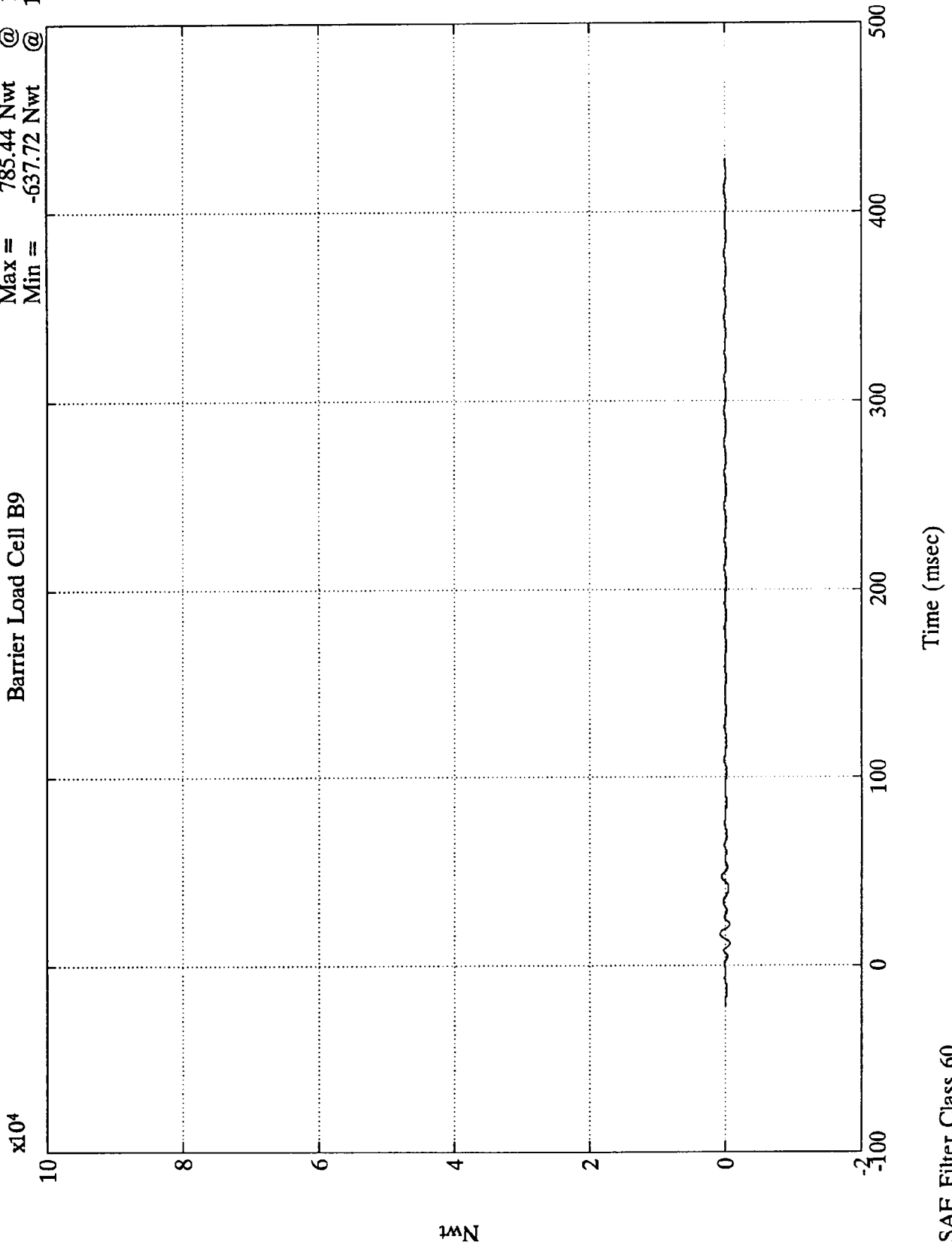


SAE Filter Class 60

Nwt

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell B9
Max = 785.44 Nwt @ 17.27 msec
Min = -637.72 Nwt @ 12.23 msec



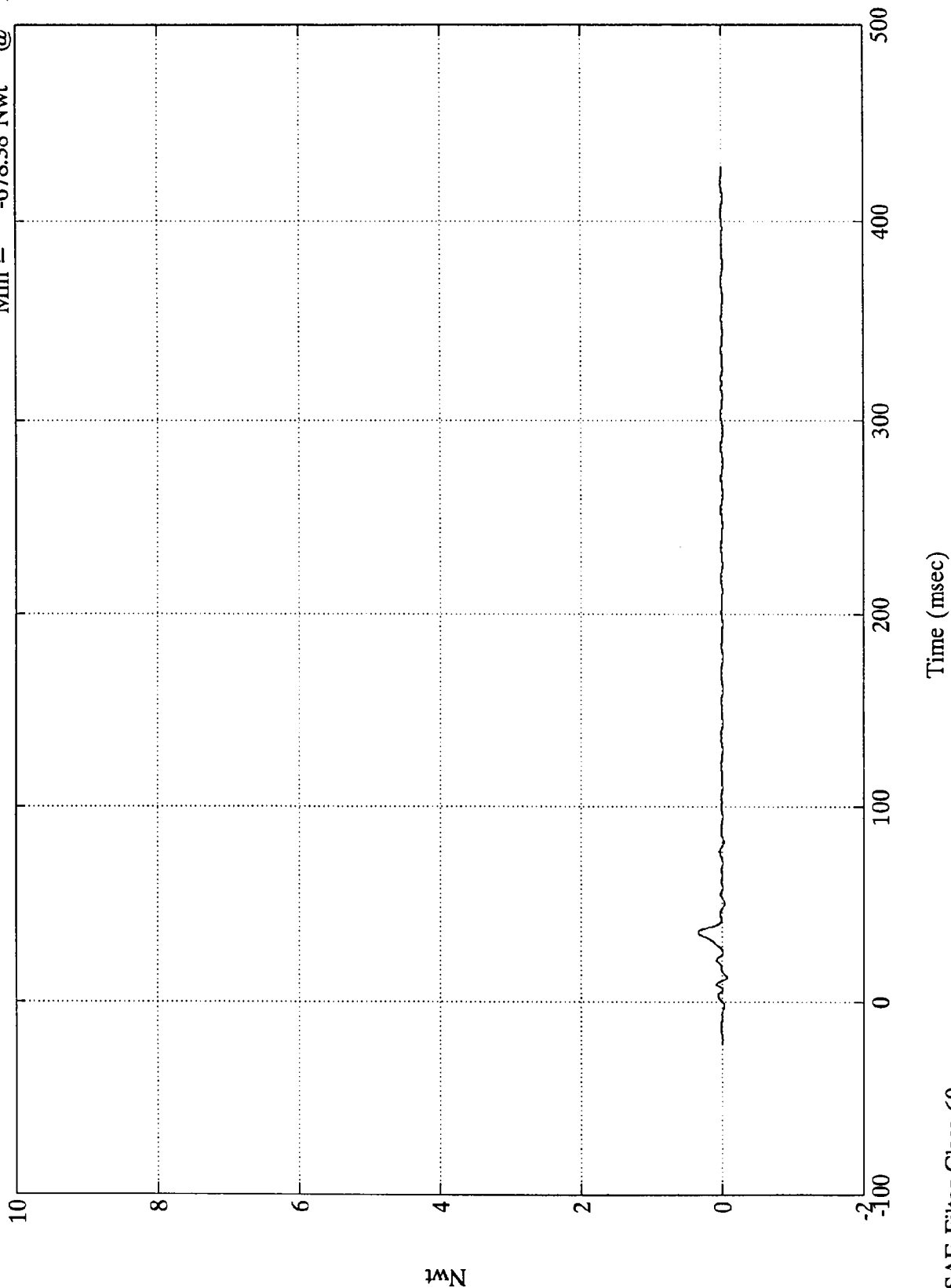
SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 3413.11 Nwt @ 35.88 msec
Min = -678.38 Nwt @ 12.84 msec

Barrier Load Cell C1

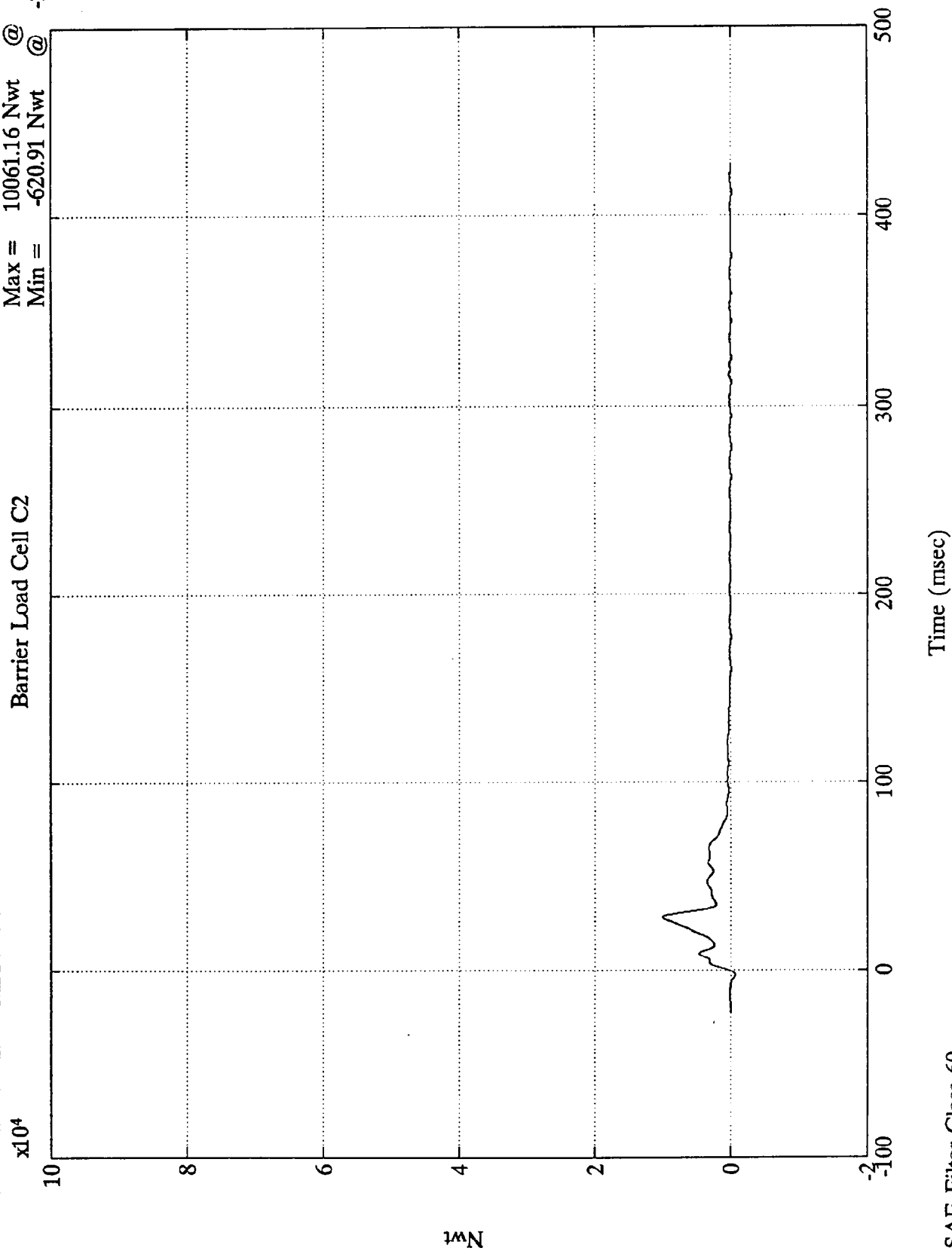
x10⁴



SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell C2
Max = 10061.16 Nwt @ 28.31 msec
Min = -620.91 Nwt @ -2.28 msec



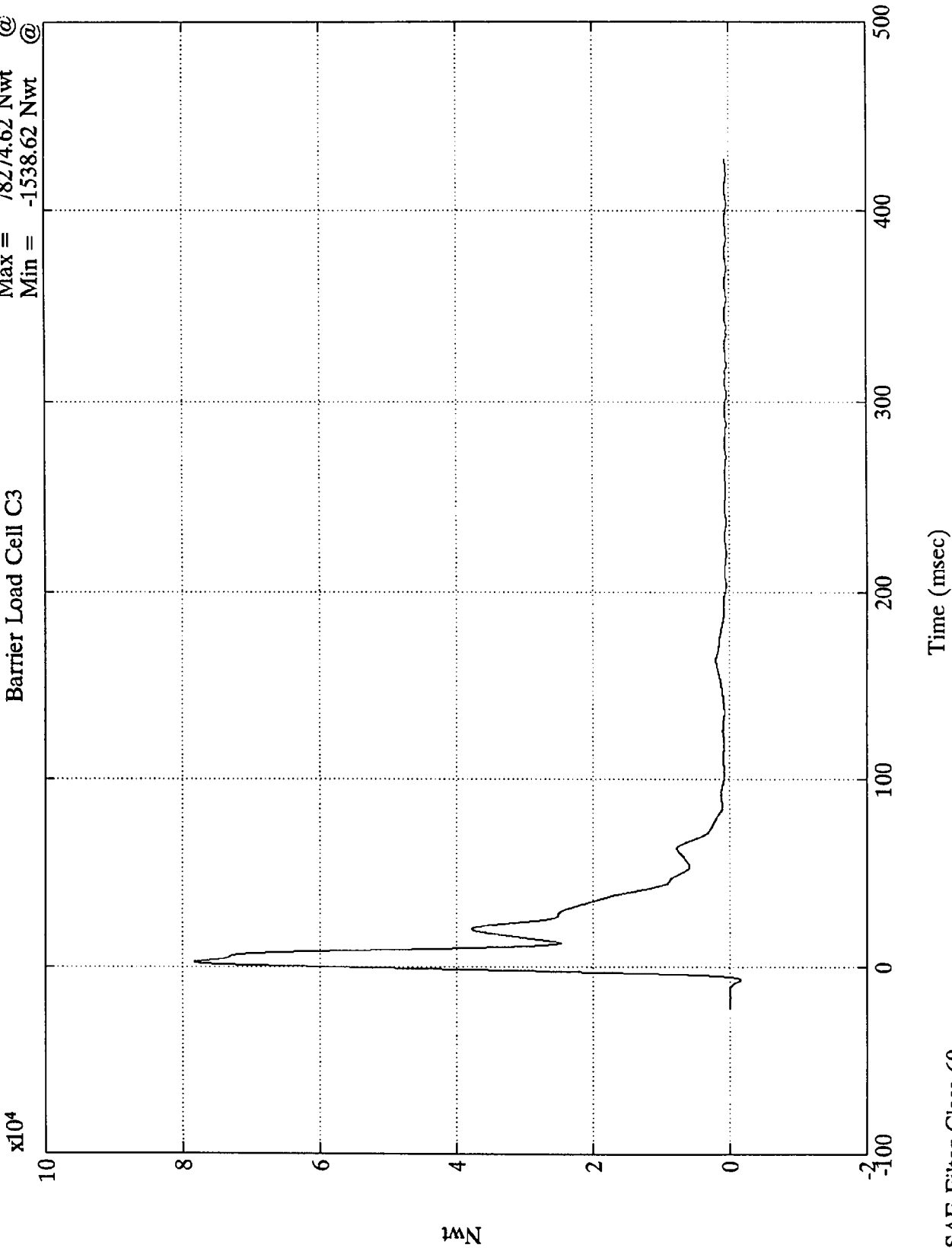
Nwt

SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 78274.62 Nwt @ 2.63 msec
Min = -1538.62 Nwt @ -6.72 msec

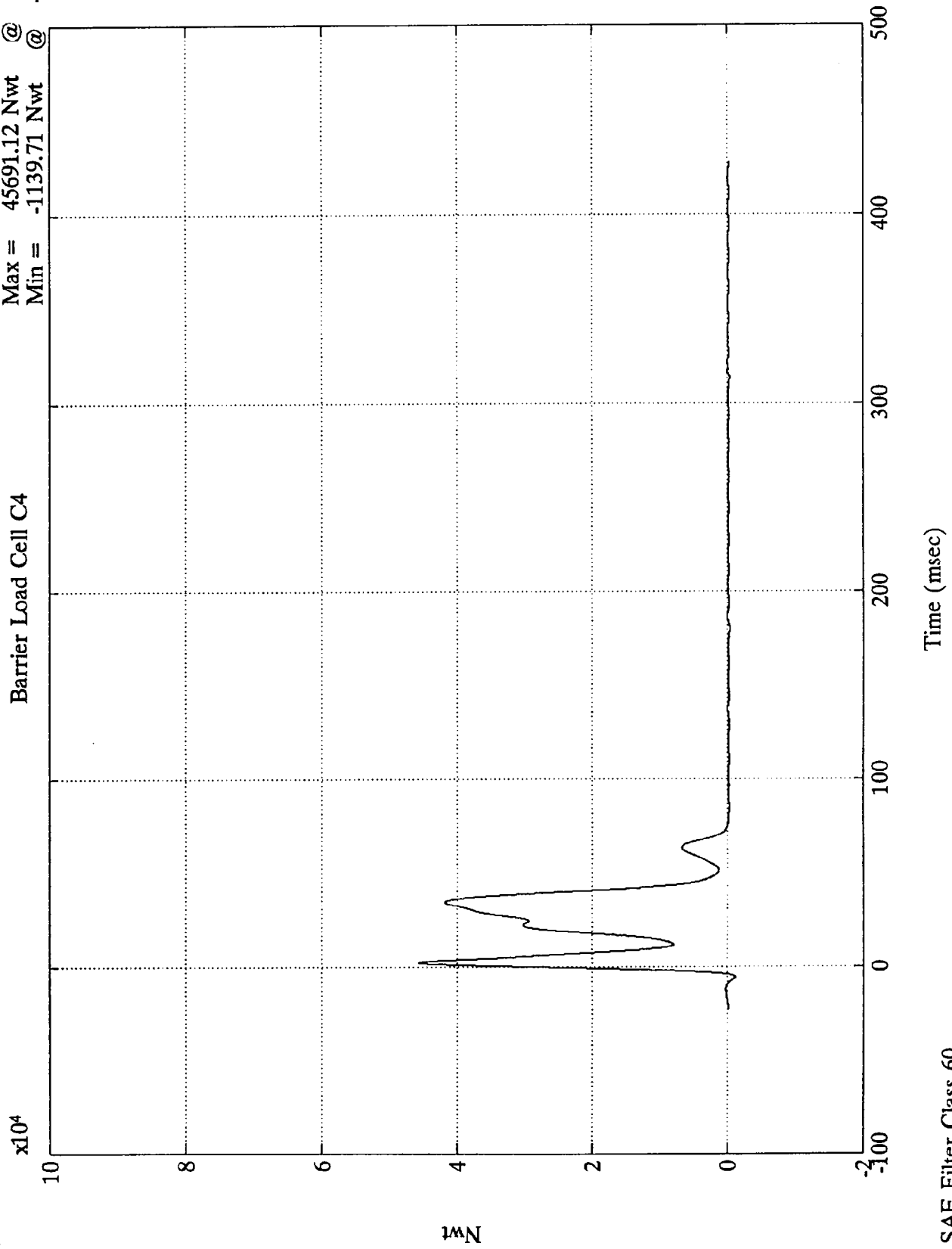
Barrier Load Cell C3



SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

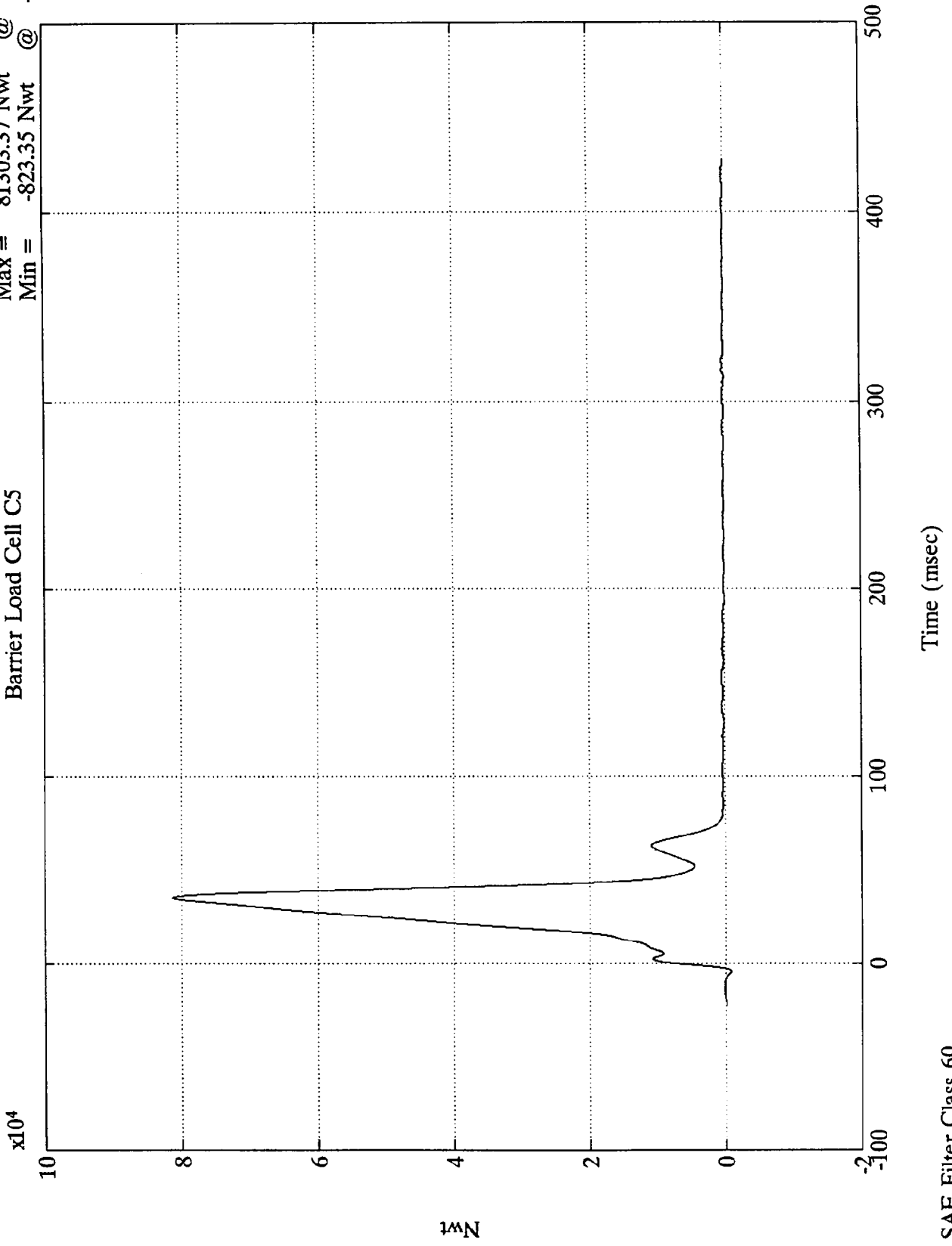
Barrier Load Cell C4
Max = 45691.12 Nwt @ 2.27 msec
Min = -1139.71 Nwt @ -5.28 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell C5

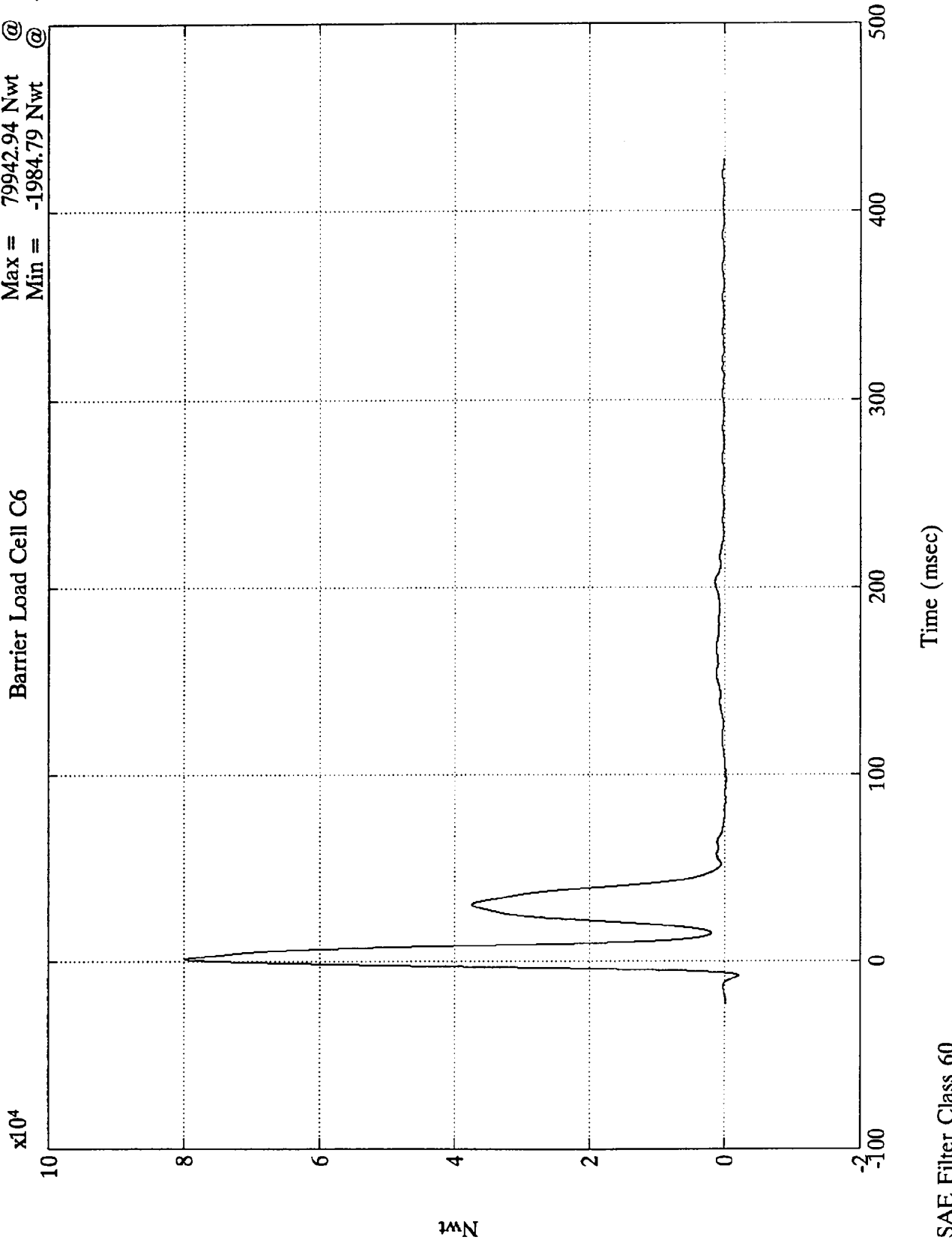
Max = 81303.37 Nwt @ 35.15 msec
Min = -823.35 Nwt @ -4.08 msec



SAE Filter Class 60

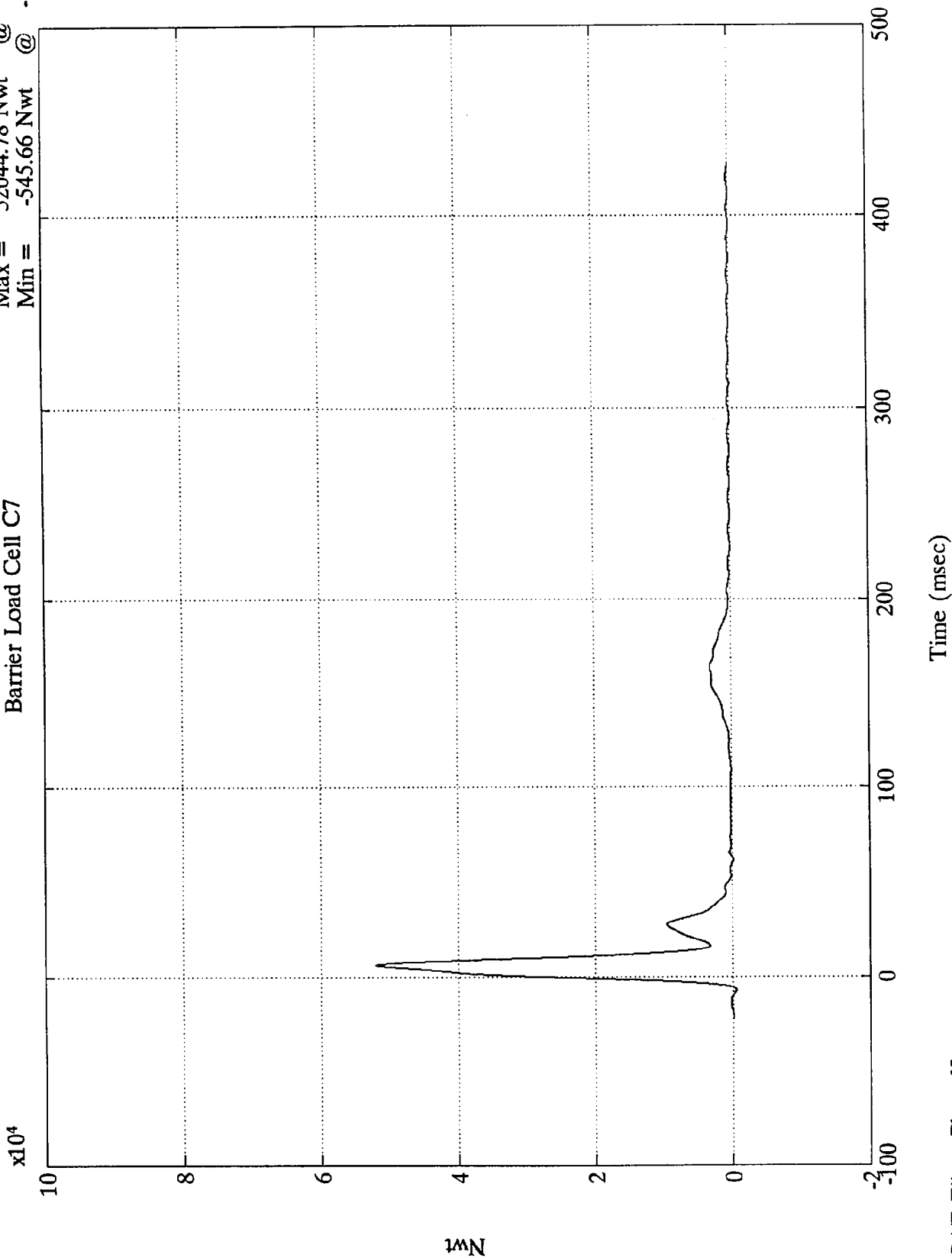
NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell C6
Max = 79942.94 Nwt @ 1.31 msec
Min = -1984.79 Nwt @ -7.44 msec



NCAP TEST #7 - 1995 MITSUBISHI MONTERO

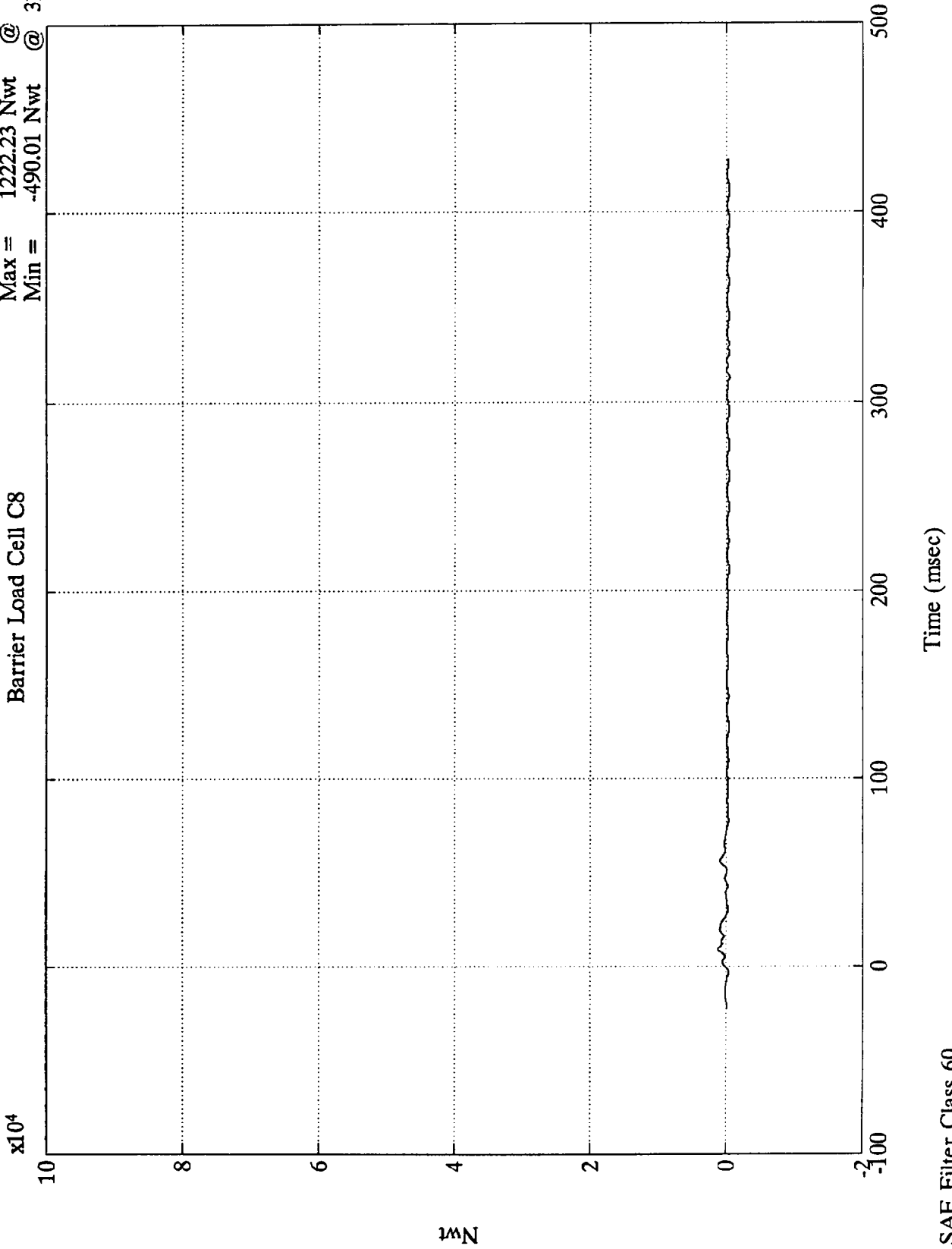
Barrier Load Cell C7
Max = 52044.78 Nwt @ 6.35 msec
Min = -545.66 Nwt @ -6.72 msec



SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell C8
Max = 1222.23 Nwt @ 9.11 msec
Min = -490.01 Nwt @ 312.72 msec



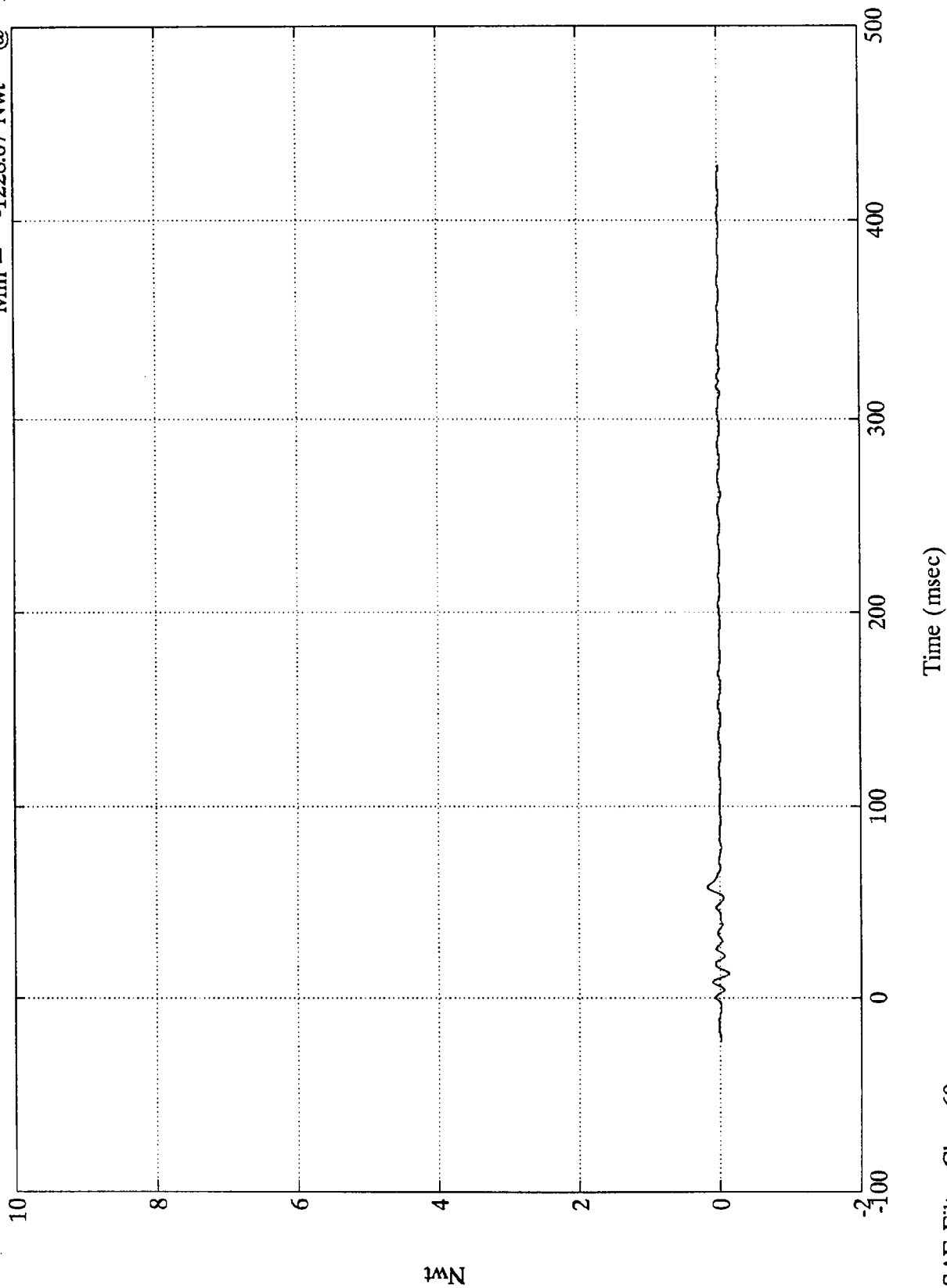
Nwt

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 1741.61 Nwt @ 57.36 msec
Min = -1228.67 Nwt @ 12.35 msec

Barrier Load Cell C9

$\times 10^4$

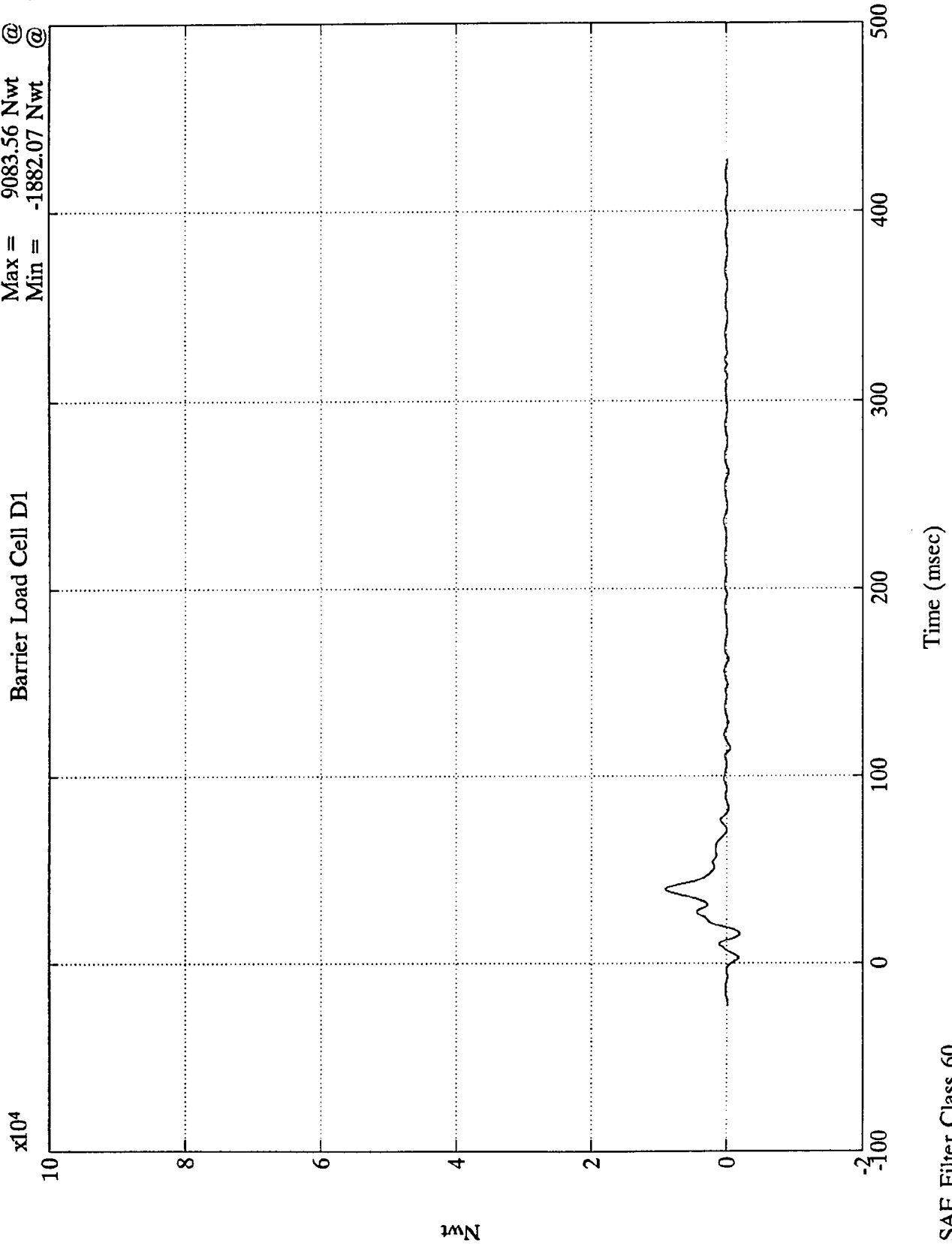


SAE Filter Class 60

1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

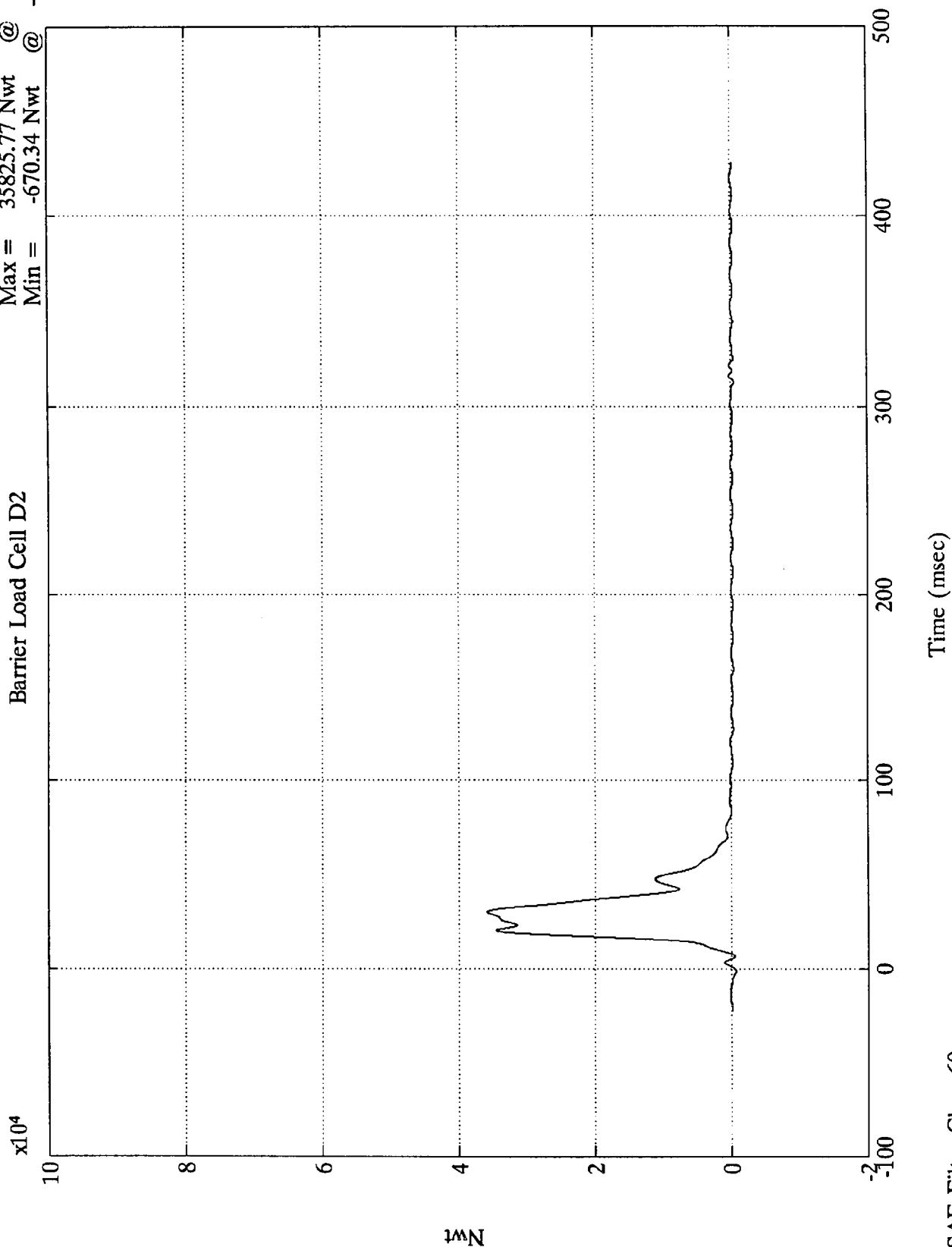
Barrier Load Cell D1
Max = 9083.56 Nwt @ 39.84 msec
Min = -1882.07 Nwt @ 16.44 msec



11N

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

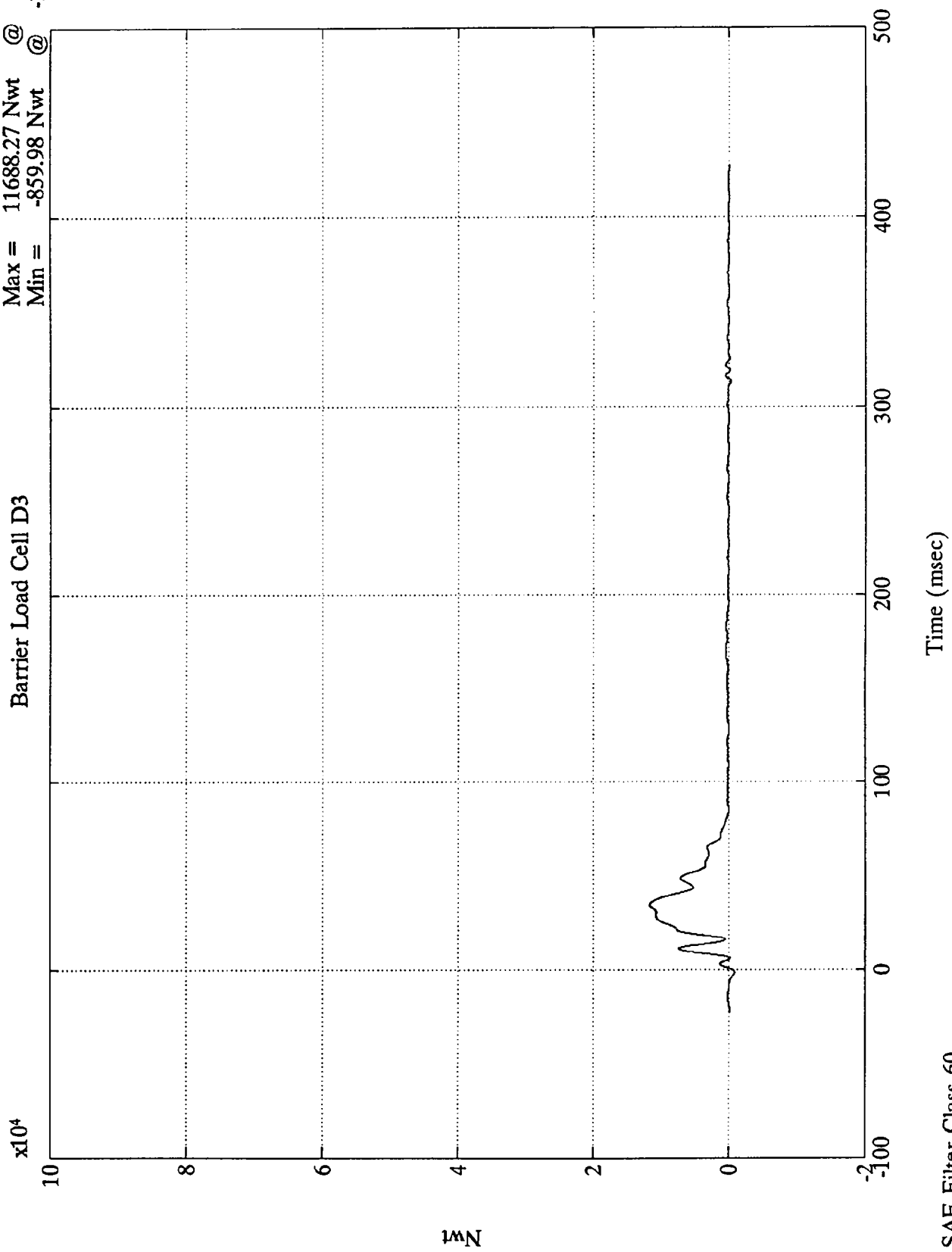
Barrier Load Cell D2
Max = 35825.77 Nwt @ 30.36 msec
Min = -670.34 Nwt @ -1.20 msec



10⁴N

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell D3
Max = 11688.27 Nwt @ 34.79 msec
Min = -859.98 Nwt @ -1.44 msec



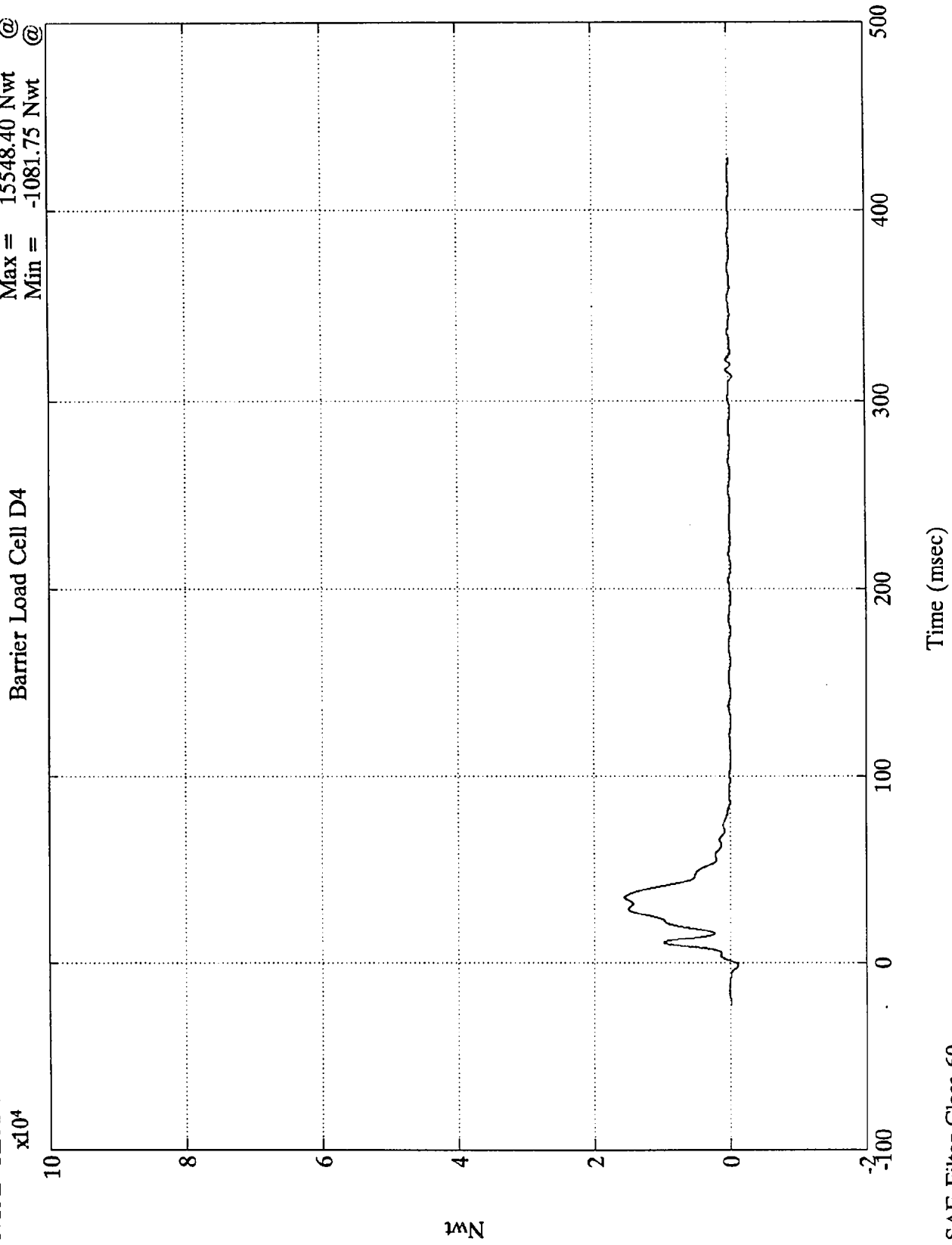
Nwt

SAE Filter Class 60

Time (msec)

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell D4
Max = 15548.40 Nwt @ 34.79 msec
Min = -1081.75 Nwt @ -1.20 msec



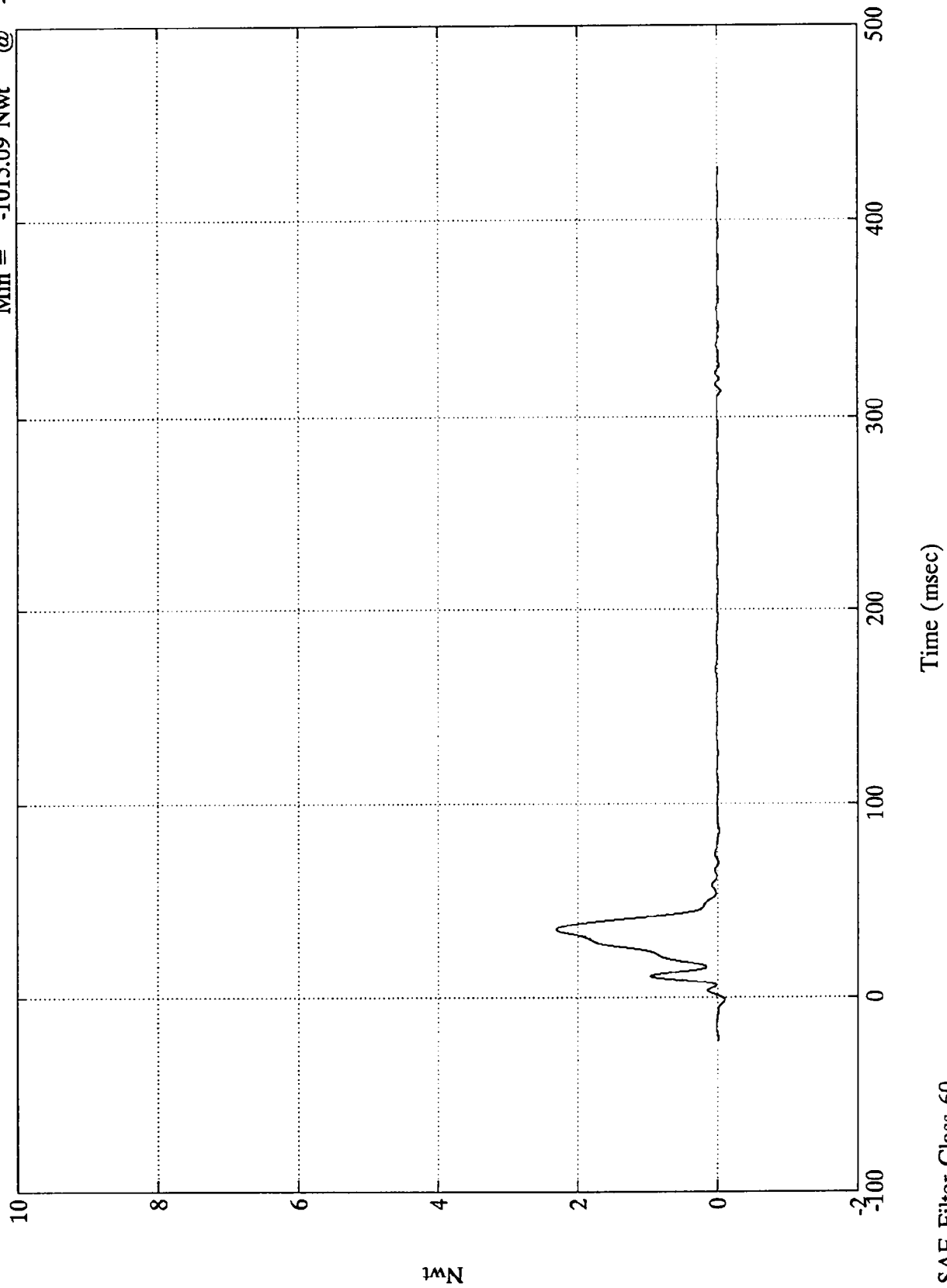
1000

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 23157.86 Nwt @ 35.04 msec
Min = -1015.09 Nwt @ -1.20 msec

Barrier Load Cell D5

x10⁴

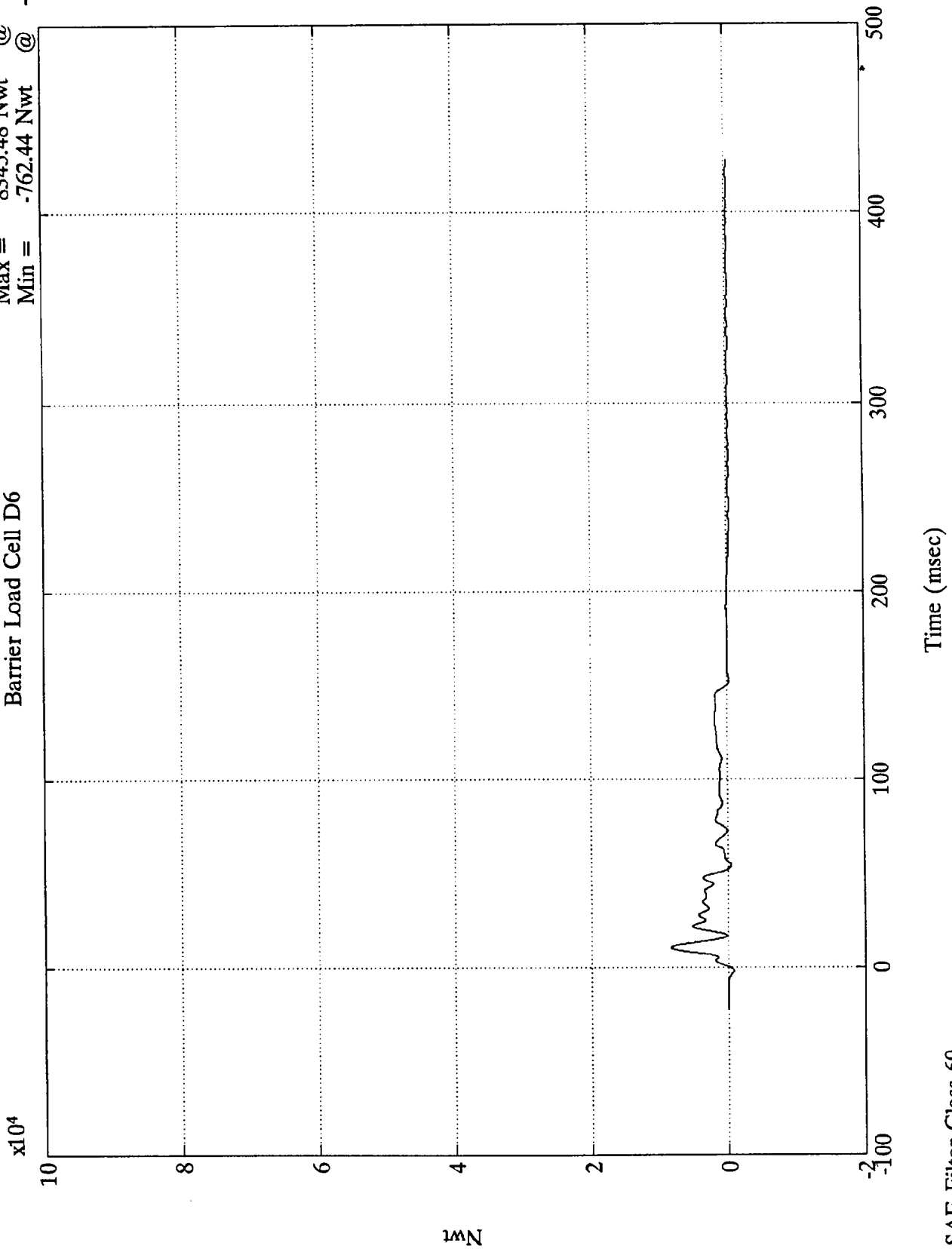


SAE Filter Class 60

13N

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell D6
Max = 8345.48 Nwt @ 10.67 msec
Min = -762.44 Nwt @ -1.56 msec



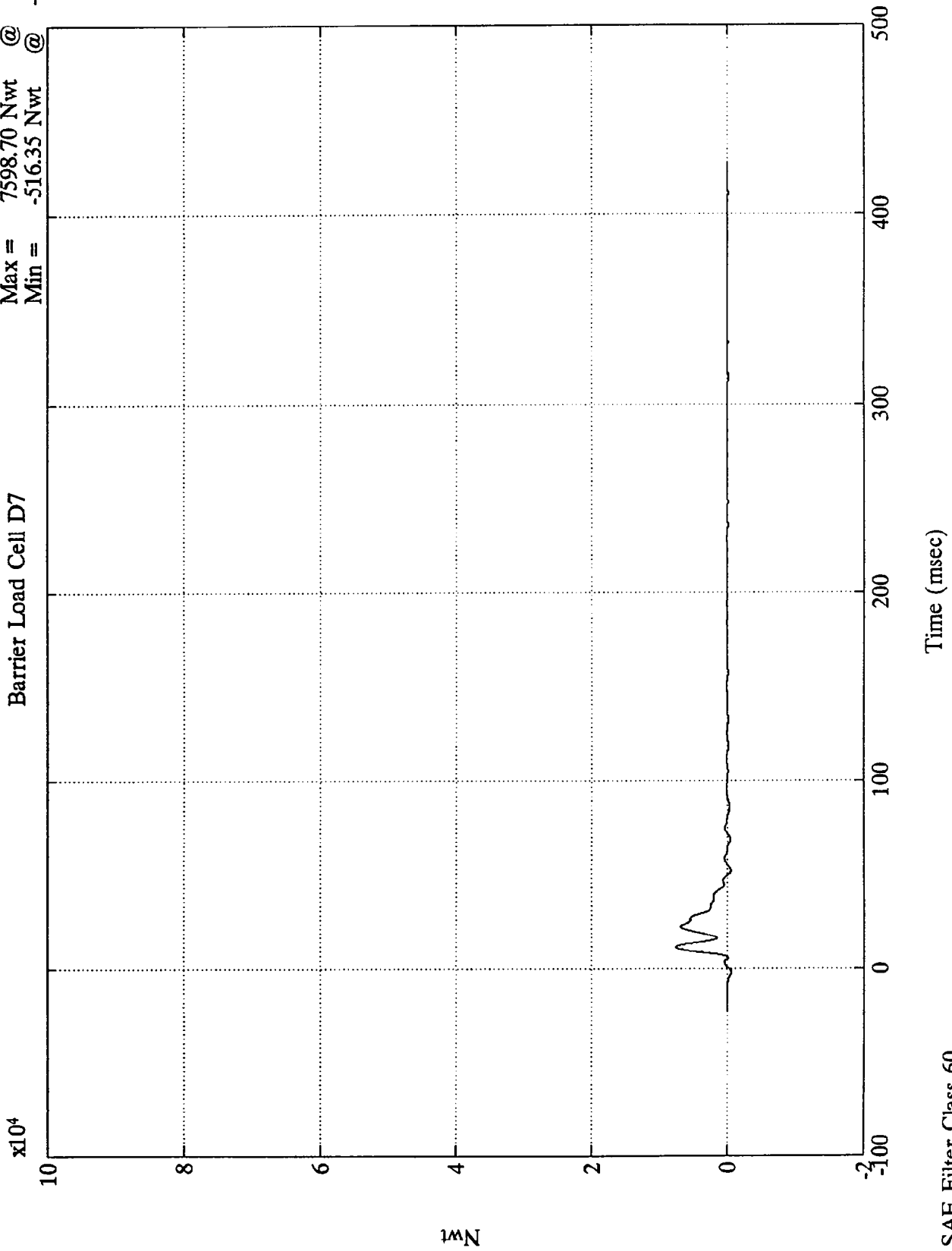
SAE Filter Class 60

1Wt

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell D7

Max = 7598.70 Nwt @ 11.40 msec
Min = -516.35 Nwt @ -1.68 msec

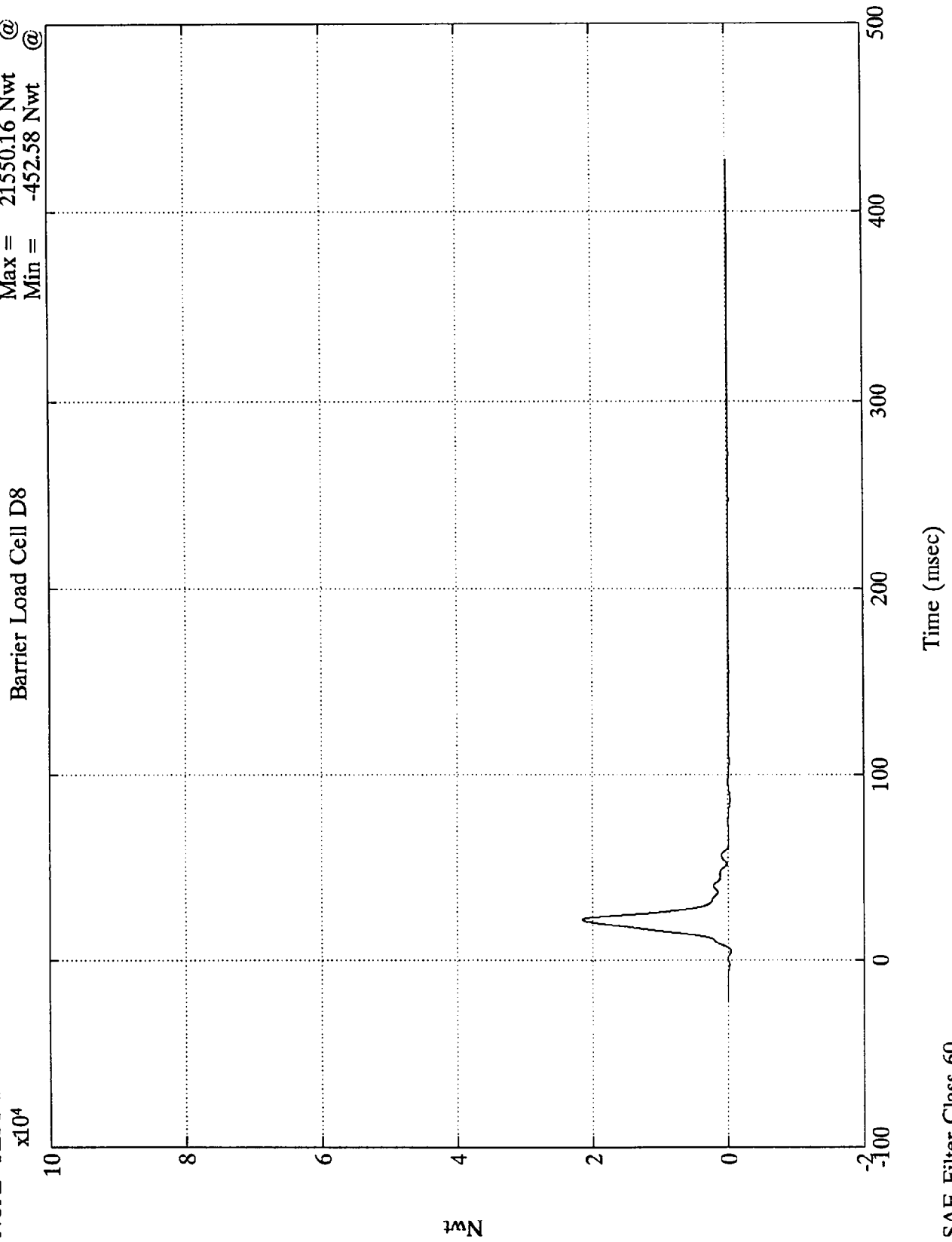


10N

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Barrier Load Cell D8

Max = 21550.16 Nwt @ 22.07 msec
Min = -452.58 Nwt @ 5.03 msec



SAE Filter Class 60

Nwt

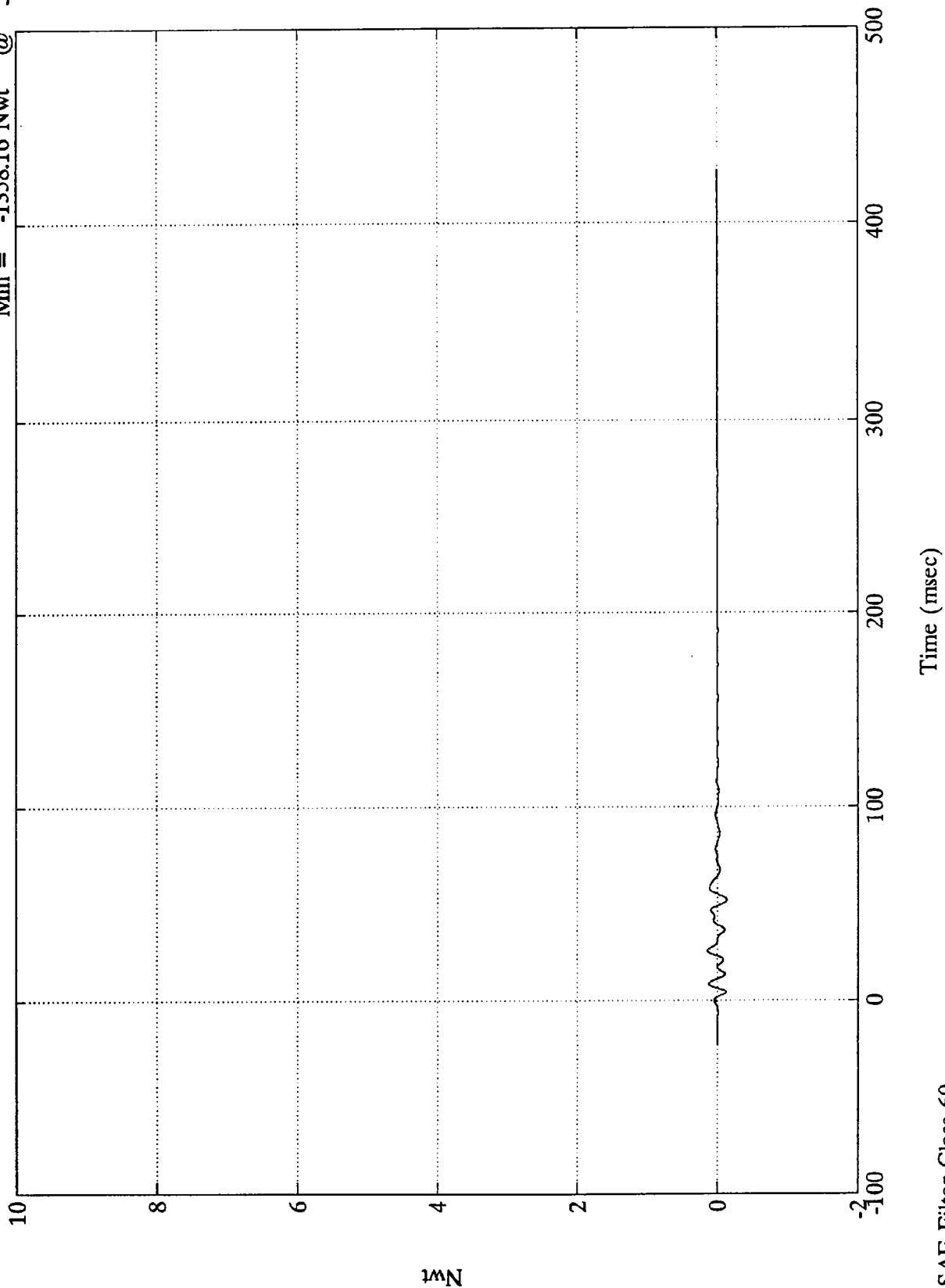
Time (msec)

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 1462.40 Nwt @ 25.68 msec
 Min = -1358.16 Nwt @ 51.72 msec

Barrier Load Cell D9

x10⁴

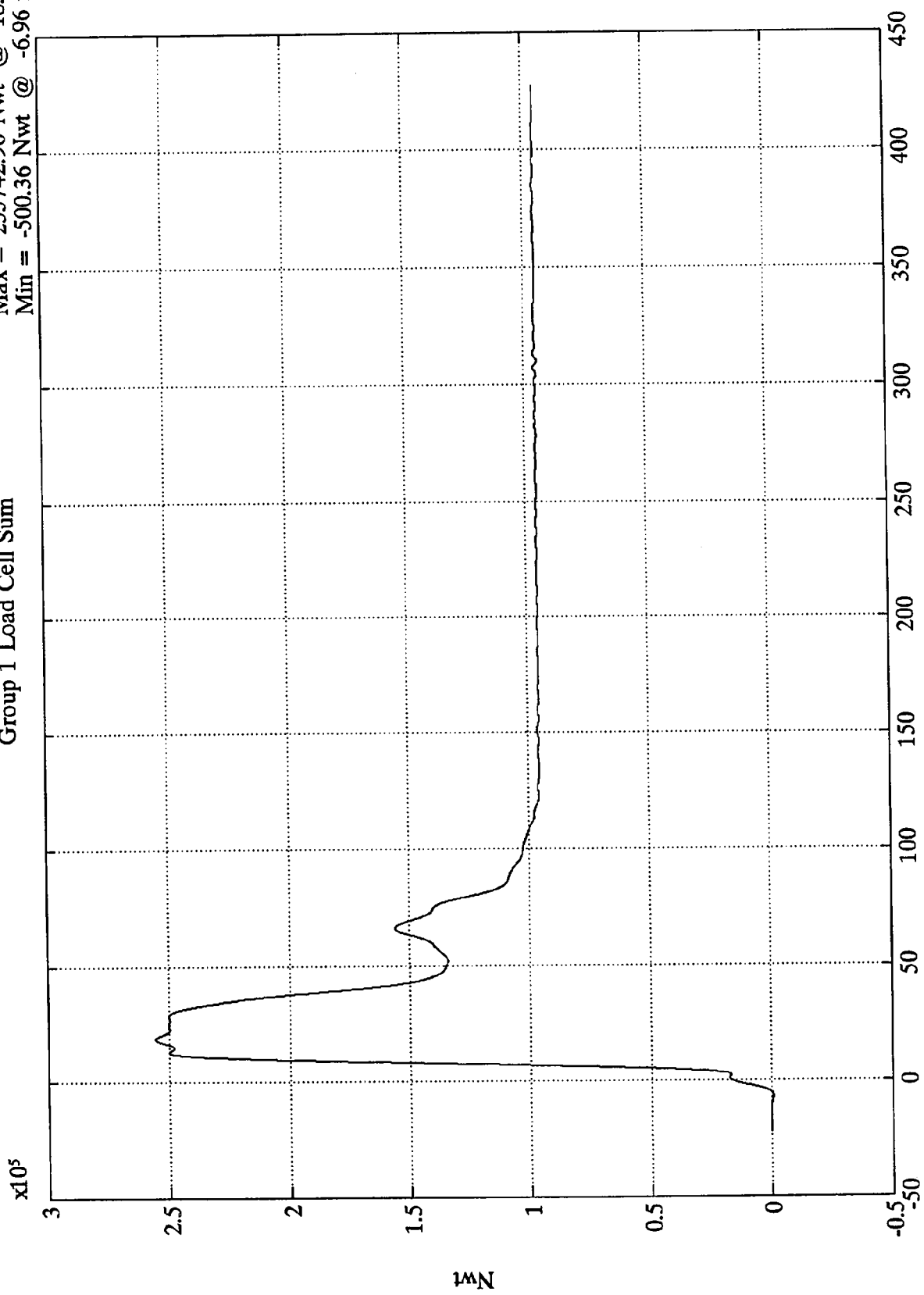


1wN

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 255742.96 Nwt @ 18.60 msec
Min = -500.36 Nwt @ -6.96 msec

Group 1 Load Cell Sum



Load Cells (A1,A2,A3,B2,B3,)not (B1)

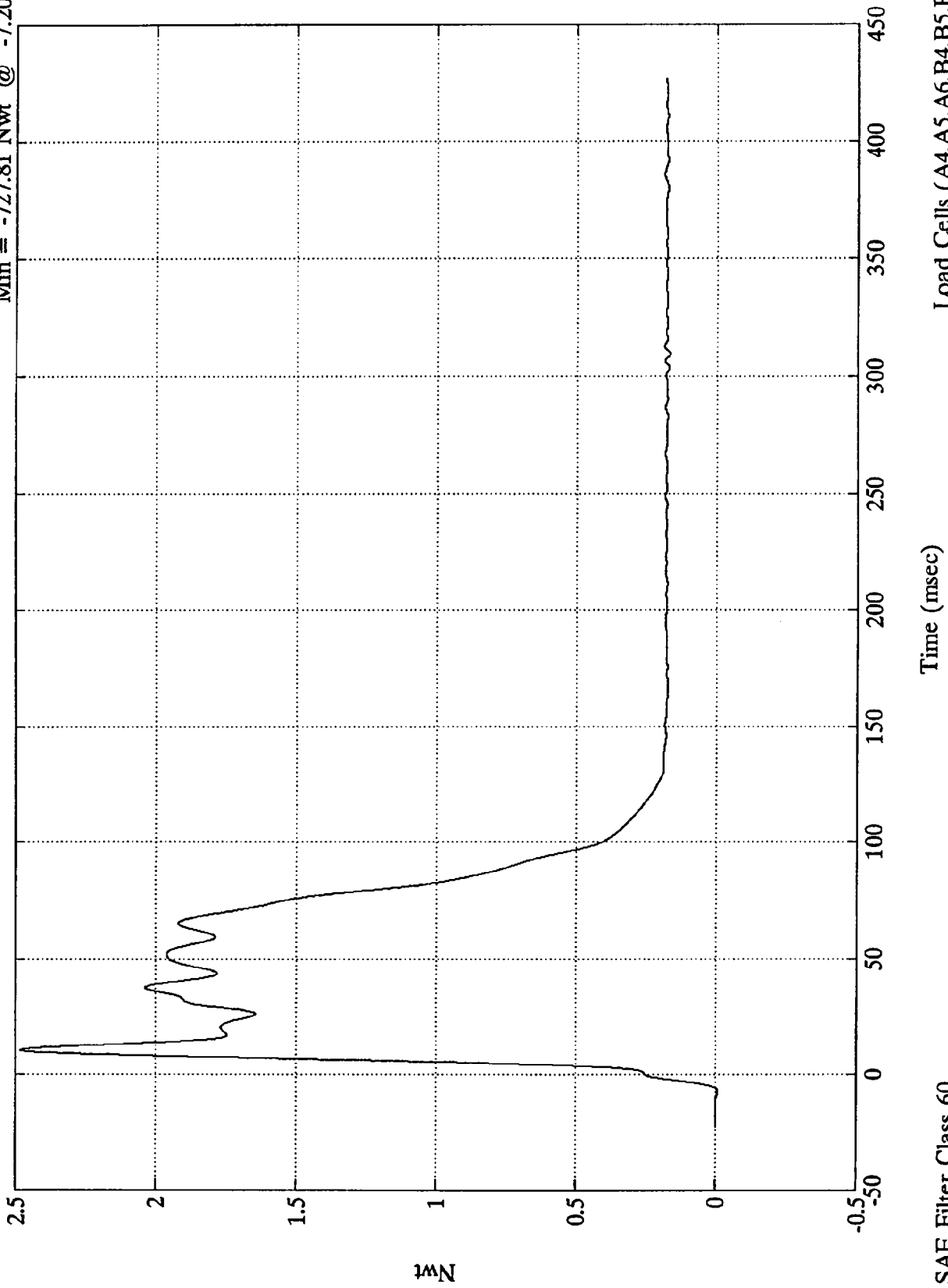
SAE Filter Class 60

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 248511.20 Nwt @ 10.56 msec
Min = -727.81 Nwt @ -7.20 msec

Group 2 Load Cell Sum

$\times 10^5$



SAE Filter Class 60

Time (msec)

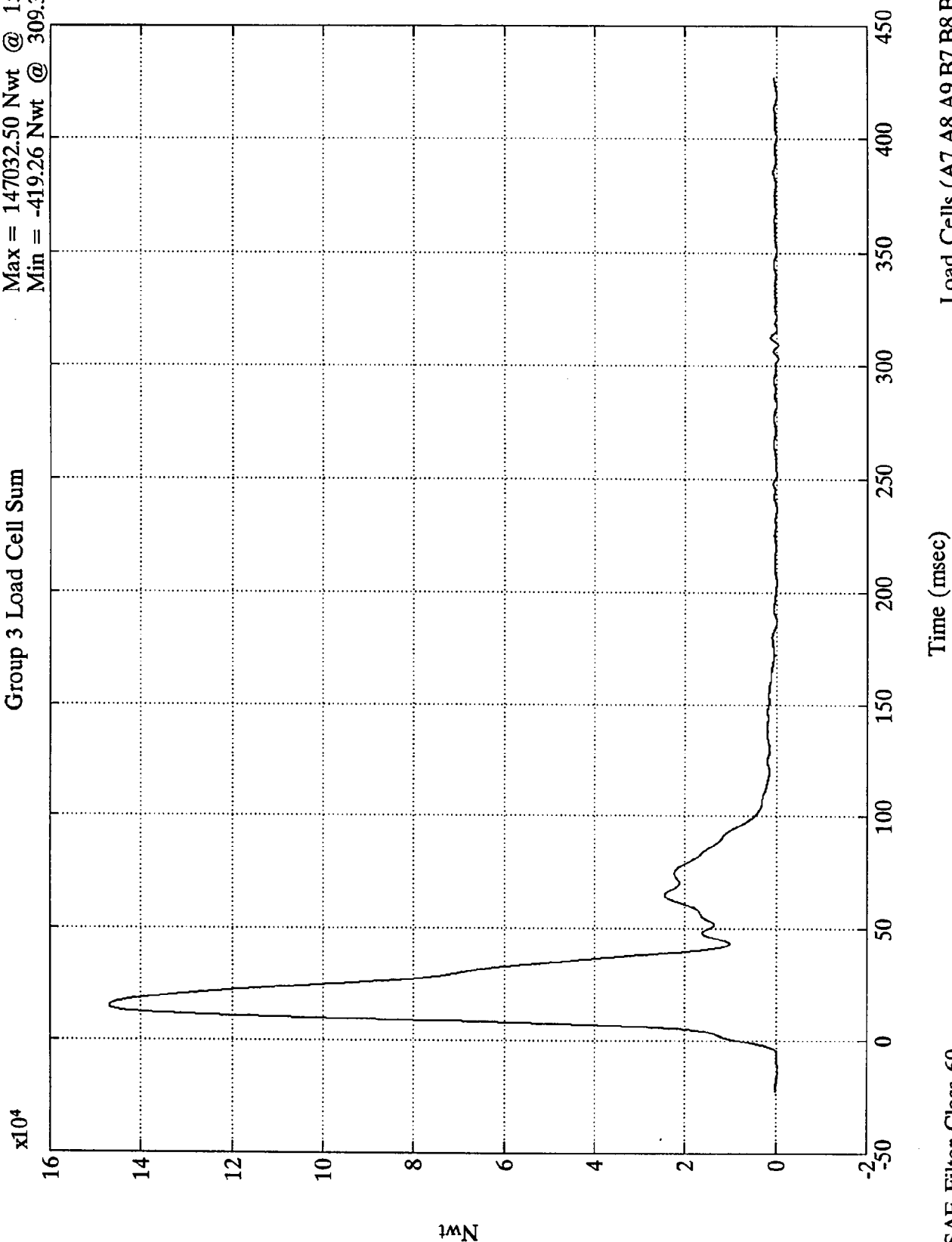
Load Cells (A4,A5,A6,B4,B5,B6)

Nwt

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Group 3 Load Cell Sum

Max = 147032.50 Nwt @ 15.00 msec
Min = -419.26 Nwt @ 309.36 msec



SAE Filter Class 60

Time (msec)

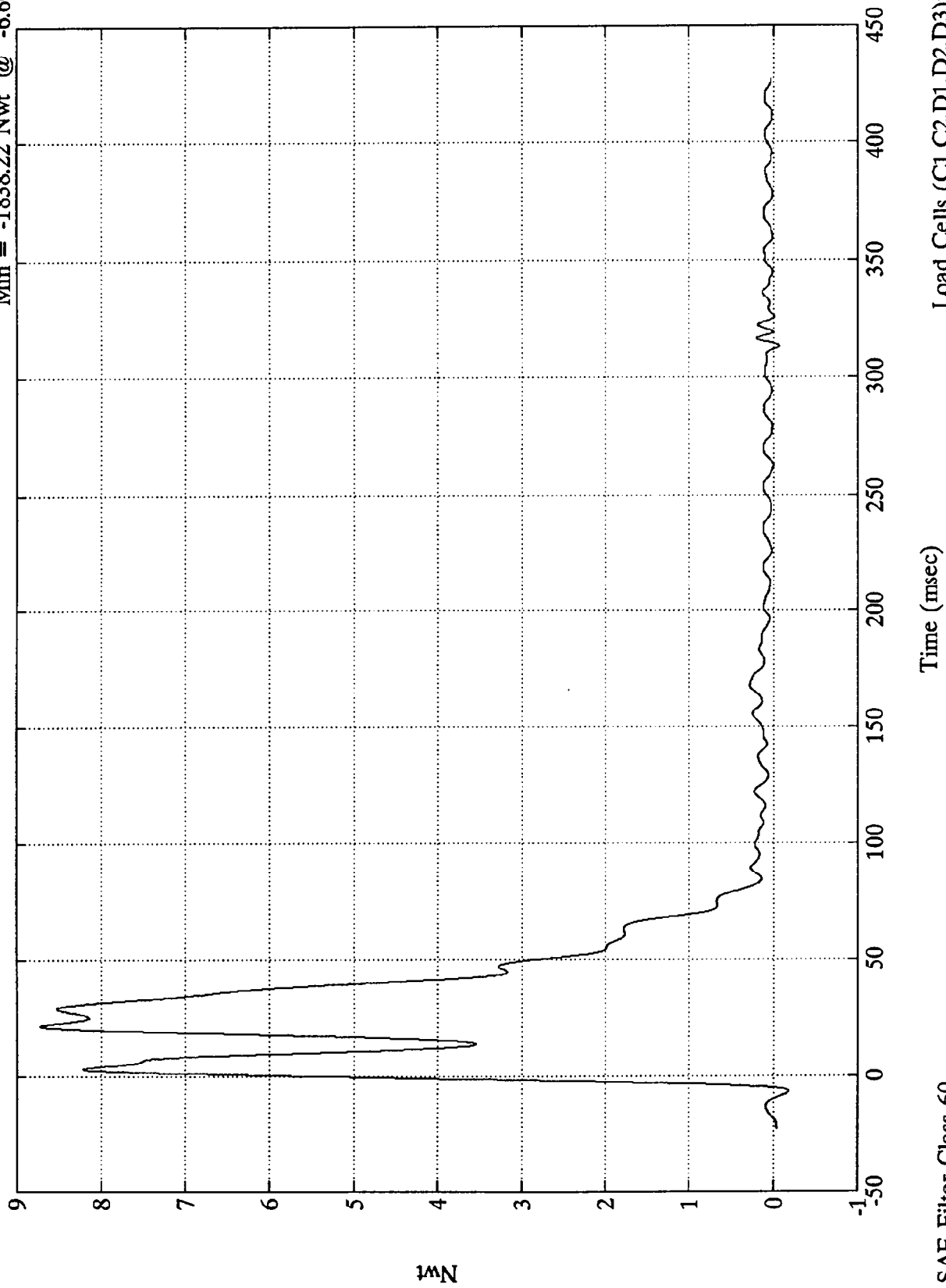
Load Cells (A7,A8,A9,B7,B8,B9)

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 87191.15 Nwt @ 21.24 msec
Min = -1838.22 Nwt @ -6.60 msec

Group 4 Load Cell Sum

$\times 10^4$



SAE Filter Class 60

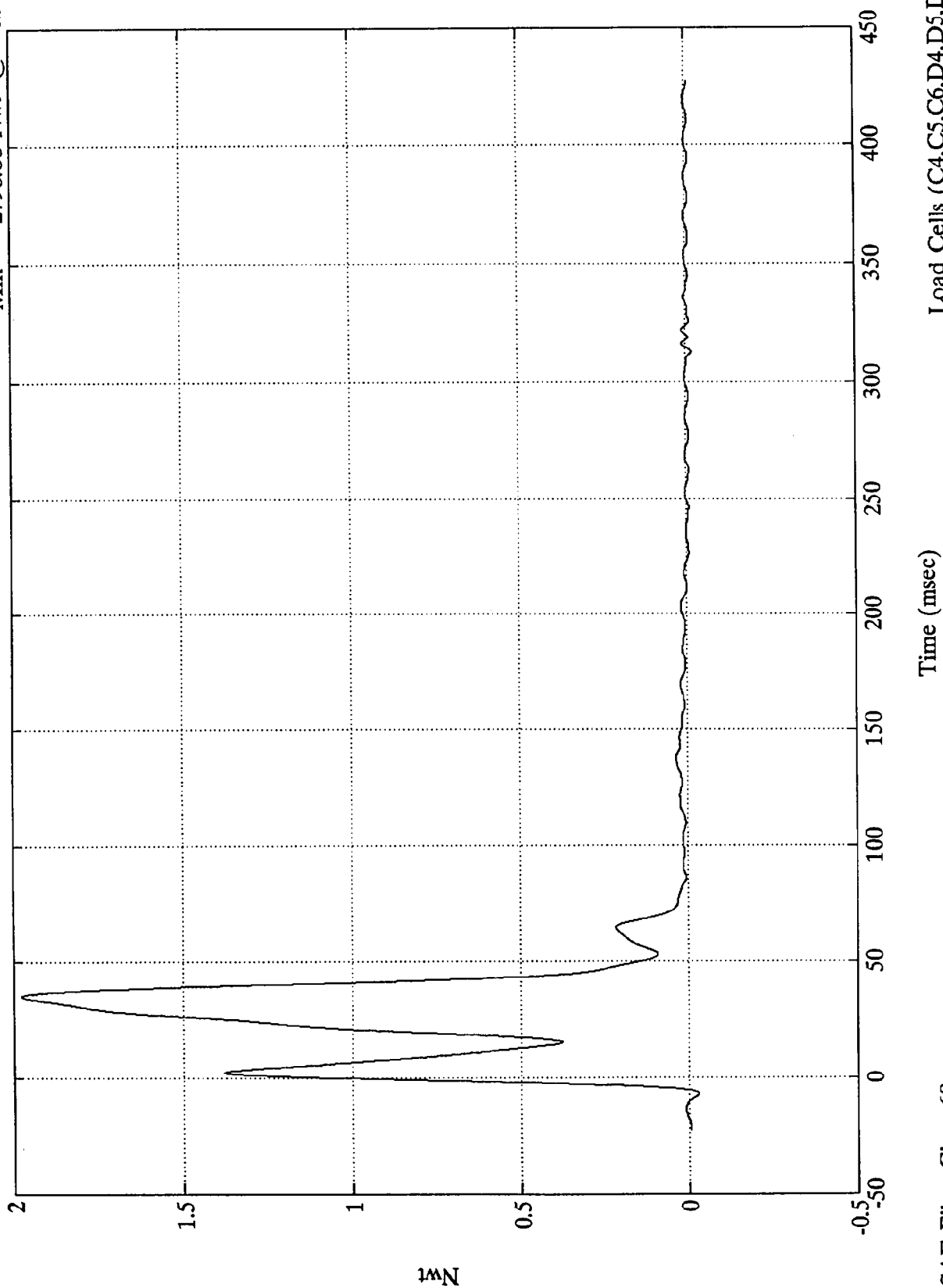
Time (msec)

Load Cells (C1,C2,D1,D2,D3)not(C3)

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Group 5 Load Cell Sum

Max = 197725.10 Nwt @ 34.80 msec
Min = -2798.88 Nwt @ -6.96 msec



SAE Filter Class 60

Time (msec)

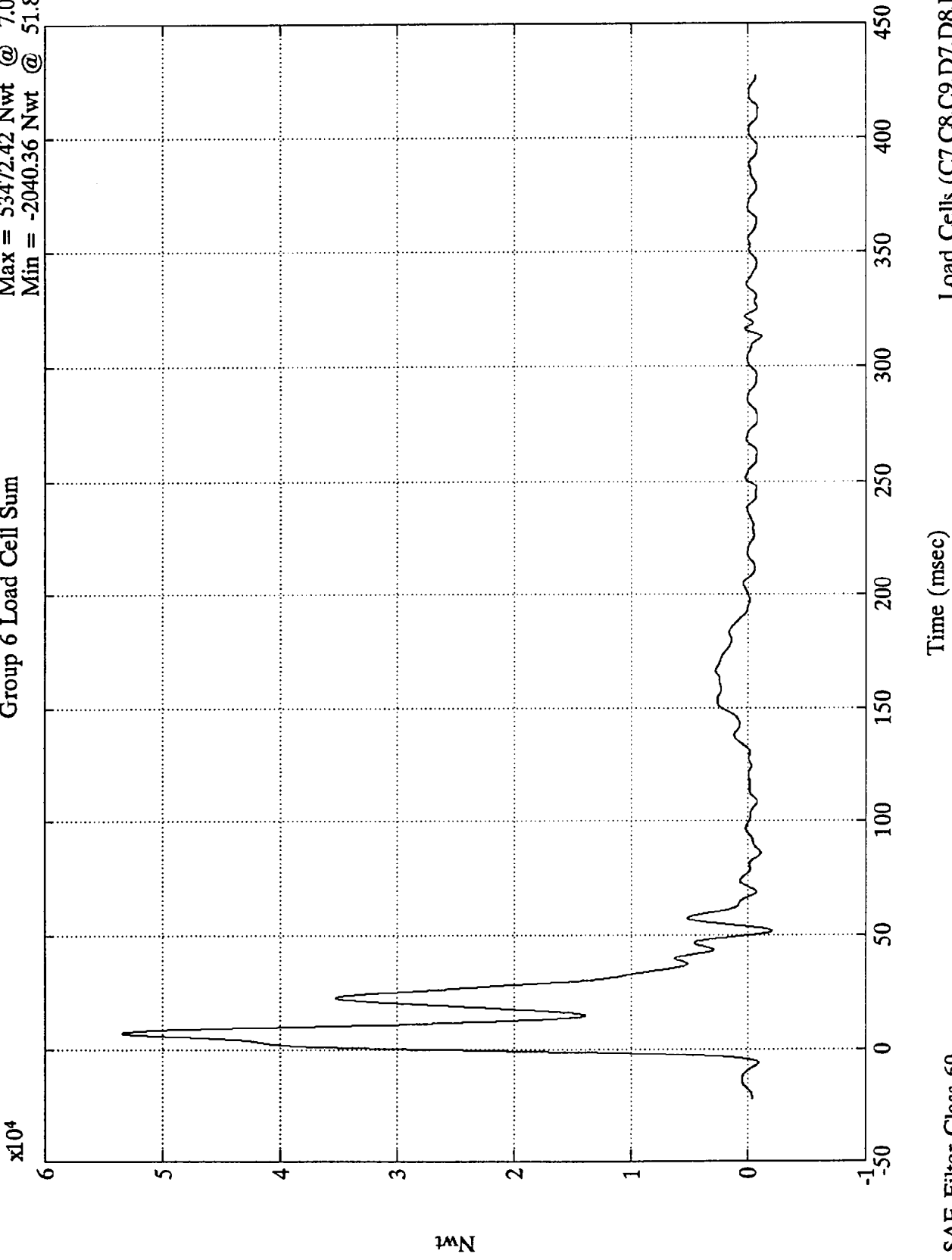
Load Cells (C4,C5,C6,D4,D5,D6)

1wN

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 53472.42 Nwt @ 7.08 msec
Min = -2040.36 Nwt @ 51.84 msec

Group 6 Load Cell Sum



SAE Filter Class 60

Time (msec)

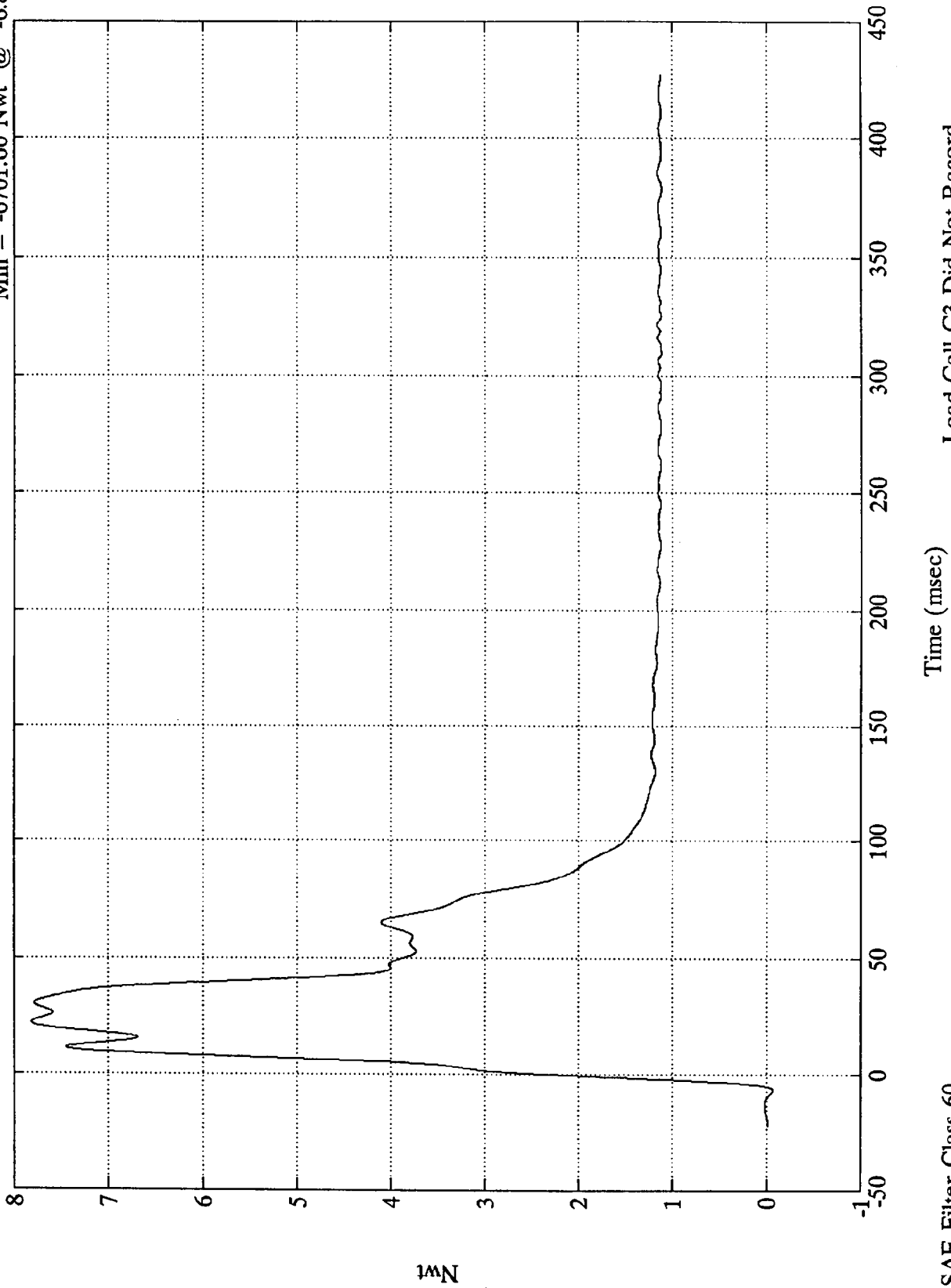
Load Cells (C7,C8,C9,D7,D8,D9)

NCAP TEST #7 - 1995 MITSUBISHI MONTERO

Max = 782174.68 Nwt @ 21.84 msec
Min = -6701.60 Nwt @ -6.84 msec

Total Load Cell Sum

$\times 10^5$



SAE Filter Class 60

Time (msec)

Load Cell C3 Did Not Record

Appendix C

PART 572B/E 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>
45	12/1/94
150	12/5/94

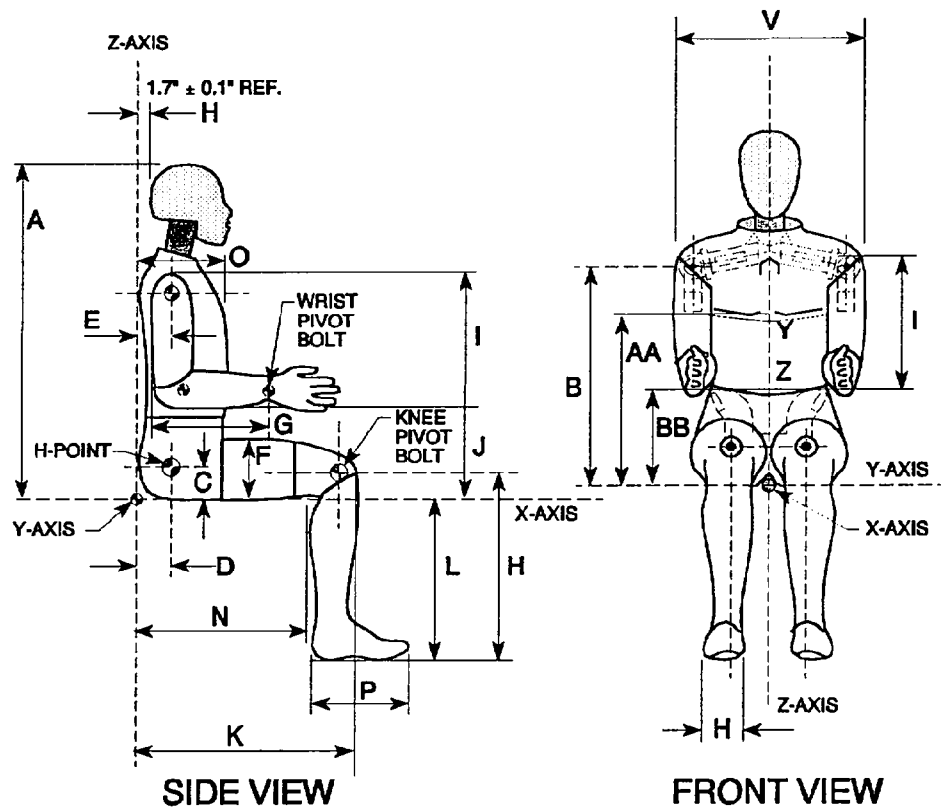
Electronic Test Equipment

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

**EXTERNAL DIMENSIONS
SPECIFICATIONS**



NOTE: Figure is referenced to the erect seated position. The curved lumbar does not allow the Hybrid III to be positioned in a perfect erect attitude. (REF: S572.31(A)(6))

HYBRID III EXTERNAL DIMENSIONS

S/N 45 HUMANOID

DUMMY SERIAL NO. 45

DATE: 12/1/94

TEMPERATURE		20.5 DEG. C
RELATIVE HUMIDITY		31 %
LOCATION FOR CHEST CIRCUMFERENCE (AA)	429-434 mm	432 mm
LOCATION FOR WAIST CIRCUMFERENCE (BB)	226-231 mm	228 mm
CHEST CIRCUMFERENCE (Y)	970-1001 mm	1000 mm
WAIST CIRCUMFERENCE (Z)	815-866 mm	866 mm
CHEST DEPTH (O)	213-229 mm	213 mm
H-POINT HEIGHT (C)	84-89 mm	89 mm
H-POINT FROM SEAT BACK (D)	135-140 mm	137 mm
SKULL CAP TO BACKLINE (H)	41-46 mm	43 mm
TOTAL SITTING HEIGHT (A)	879-889 mm	879 mm
THIGH CLEARANCE (F)	140-155 mm	147 mm
BUTTOCK KNEE LENGTH (K)	580-605 mm	602 mm
BUTTOCK POPLITAL LENGTH (N)	452-477 mm	475 mm
POPLITEAL LENGTH (L)	430-455 mm	447 mm
KNEE PIVOT HEIGHT (M)	485-501 mm	487 mm
FOOT LENGTH (P)	252-267 mm	259 mm
FOOT BREADTH (W)	91-107 mm	101 mm
SHOULDER PIVOT FROM BACKLINE (E)	84-94 mm	94 mm
SHOULDER BREADTH (V)	422-437 mm	426 mm
SHOULDER PIVOT HEIGHT (B)	505-521 mm	510 mm
ELBOW REST HEIGHT (J)	190-211 mm	195 mm
SHOULDER-ELBOW LENGTH (I)	330-345 mm	337 mm
BACK OF ELBOW TO WRIST PIVOT (G)	290-305 mm	292 mm

DUMMY MEETS SPECIFICATIONS

TECHNICIAN: IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

HEAD DROP TEST

HYBRID III

DATE : 11/17/94

CALSPAN SEQUENTIAL NUMBER 5

HY3 SN: 045 HEAD DROP CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19 - 25 DEG. C	20.5 DEG. C
RELATIVE HUMIDITY	10% - 70%	43 %
PEAK RESULTANT ACCELERATION	225 - 275 G'S	234 G'S
PEAK LATERAL ACCELERATION	15 G'S MAX	13 G'S
IS ACCELERATION CURVE UNIMODAL?	YES	YES

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

NECK FLEXION TEST

HYBRID III

DATE : 12/1/94

6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 5

HY3 SN:045 CAL NECK FLEXION

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.5-22.2 DEG. C	20.5 DEG. C
RELATIVE HUMIDITY		10% - 70%	31 %
IMPACT VELOCITY		24.8 - 25.7 KPH	25.3 KPH
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G'S	24.93 G'S
	20 MS	17.60 - 22.60 G'S	21.37 G'S
	30 MS	12.50 - 18.50 G'S	17.11 G'S
MAX PENDULUM G'S ABOVE 30 MS		29 G'S MAX	17.11 G'S
DECELERATION -TIME CURVE DECAY TIME TO 5 G'S		34 - 42 MS	41.4 MS
D PLANE ROTATION	MAX	64 - 78 DEG.	75.89 DEG.
	TIME	57 - 64 MS	58.5 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88 - 108 N-M	97 N-M
	TIME	47 - 58 MS	53.5 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	114.63 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	100.63 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

NECK EXTENSION TEST

HYBRID III

DATE : 12/1/94

6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 5

HY3 SN:045 CAL NECK EXTENSION

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.5 - 22.2 DEG. C	20.5 DEG. C
RELATIVE HUMIDITY		10% - 70%	31 %
IMPACT VELOCITY		21.4 - 22.3 KPH	22 KPH
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G'S	20.24 G'S
	20 MS	14.00 - 19.00 G'S	17.39 G'S
	30 MS	11.00 - 16.00 G'S	14.71 G'S
MAX PENDULUM G'S ABOVE 30 MS		22 G'S MAX	14.71 G'S
DECELERATION -TIME CURVE DECAY TIME TO 5 G'S		38 - 46 MS	43.63 MS
D PLANE ROTATION	MAX	81 - 106 DEG.	87.84 DEG.
	TIME	72 - 82 MS	75.63 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	-80.0/-52.9 N-M	-70.46 N-M
	TIME	65 - 79 MS	68.63 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	149.88 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	127.25 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
THORAX IMPACT TEST
HYBRID III

DATE : 11/29/94

CALSPAN SEQUENTIAL NUMBER 5

HY3 SN 045 H.S. THORAX CAL

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.5 - 22.2 DEG. C	20.5 DEG. C
RELATIVE HUMIDITY	10% - 70%	33 %
PENDULUM VELOCITY	23.7 - 24.6 KPH	23.7 KPH
MAXIMUM DEFLECTION	64 - 73 mm	64.8 mm
MAXIMUM RESISTIVE FORCE	5160 - 5894 NEWTONS	5778 NEWTONS
INTERNAL HYSTERESIS	69% - 85%	69.5 %

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

KNEE IMPACT TEST

HYBRID III

DATE : 11/15/94

KNEE: LEFT

CALSPAN SEQUENTIAL NUMBER 5

HY3 SN: 045 KNEE 4.9 KGS CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19 - 25 DEG. C	21 DEG. C
RELATIVE HUMIDITY	10% - 70%	41 %
PROBE VELOCITY	7.5 - 7.7 KPH	7.68 KPH
PEAK KNEE IMPACT FORCE	4715 - 5782 N	4928 N
PROBE WEIGHT	4.9 KGS	

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

KNEE IMPACT TEST

HYBRID III

DATE : 11/15/94

KNEE: RIGHT

CALSPAN SEQUENTIAL NUMBER 5

HY3 SN: 045 KNEE 4.9 KGS CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19 - 25 DEG. C	21 DEG. C
RELATIVE HUMIDITY	10% - 70%	41 %
PROBE VELOCITY	7.5 - 7.7 KPH	7.68 KPH
PEAK KNEE IMPACT FORCE	4715 - 5782 N	4884 N
PROBE WEIGHT	4.9 KGS	

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY I.D. NUMBER: 045

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	AC2M6	8/94	2/95
ENDEVCO	AF5C9	8/94	2/95
ENDEVCO	ACT12	10/94	4/95
ENDEVCO	AF5P8	8/94	2/95
ENDEVCO	AF5C4	10/94	4/95
ENDEVCO	AE8K1	8/94	2/95
GSE	231	11/94	5/95
GSE	232	11/94	5/95

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	6/94	12/94
CEC	A161	7/94	1/95
TRANS- DUCER INC	20051	6/94	12/94
BLH	72952	6/94	12/94
CIC	567-11	6/94	12/94

HYBRID III EXTERNAL DIMENSIONS

S/N 150 HUMANOID

DUMMY SERIAL NO. 150

DATE: 12/5/94

TEMPERATURE		20.5 DEG. C
RELATIVE HUMIDITY		45 %
LOCATION FOR CHEST CIRCUMFERENCE (AA)	429-434 mm	431 mm
LOCATION FOR WAIST CIRCUMFERENCE (BB)	226-231 mm	228 mm
CHEST CIRCUMFERENCE (Y)	970-1001 mm	998 mm
WAIST CIRCUMFERENCE (Z)	815-866 mm	863 mm
CHEST DEPTH (O)	213-229 mm	213 mm
H-POINT HEIGHT (C)	84-89 mm	88 mm
H-POINT FROM SEAT BACK (D)	135-140 mm	137 mm
SKULL CAP TO BACKLINE (H)	41-46 mm	43 mm
TOTAL SITTING HEIGHT (A)	879-889 mm	881 mm
THIGH CLEARANCE (F)	140-155 mm	142 mm
BUTTOCK KNEE LENGTH (K)	580-605 mm	591 mm
BUTTOCK POPLITAL LENGTH (N)	452-477 mm	470 mm
POPLITEAL LENGTH (L)	430-455 mm	452 mm
KNEE PIVOT HEIGHT (M)	485-501 mm	500 mm
FOOT LENGTH (P)	252-267 mm	259 mm
FOOT BREADTH (W)	91-107 mm	96 mm
SHOULDER PIVOT FROM BACKLINE (E)	84-94 mm	94 mm
SHOULDER BREADTH (V)	422-437 mm	429 mm
SHOULDER PIVOT HEIGHT (B)	505-521 mm	513 mm
ELBOW REST HEIGHT (J)	190-211 mm	208 mm
SHOULDER-ELBOW LENGTH (I)	330-345 mm	337 mm
BACK OF ELBOW TO WRIST PIVOT (G)	290-305 mm	292 mm

DUMMY MEETS SPECIFICATIONS

TECHNICIAN: IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

HEAD DROP TEST

HYBRID III

DATE : 11/17/94

CALSPAN SEQUENTIAL NUMBER 3

HY3 SN: 150 HEAD DROP CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19 - 25 DEG. C	20.5 DEG. C
RELATIVE HUMIDITY	10% - 70%	34 %
PEAK RESULTANT ACCELERATION	225 - 275 G'S	233.8 G'S
PEAK LATERAL ACCELERATION	15 G'S MAX	6.5 G'S
IS ACCELERATION CURVE UNIMODAL?	YES	YES

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

NECK FLEXION TEST

HYBRID III

DATE : 12/5/94

6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 3

HY3 SN:150 CAL NECK FLEXION

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.5-22.2 DEG. C	20.5 DEG. C
RELATIVE HUMIDITY		10% - 70%	46 %
IMPACT VELOCITY		24.8 - 25.7 KPH	25.1 KPH
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G'S	24.68 G'S
	20 MS	17.60 - 22.60 G'S	20.87 G'S
	30 MS	12.50 - 18.50 G'S	17.84 G'S
MAX PENDULUM G'S ABOVE 30 MS		29 G'S MAX	17.84 G'S
DECELERATION -TIME CURVE DECAY TIME TO 5 G'S		34 - 42 MS	40.38 MS
D PLANE ROTATION	MAX	64 - 78 DEG.	74.54 DEG.
	TIME	57 - 64 MS	58.38 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88 - 108 N-M	100.8 N-M
	TIME	47 - 58 MS	53.63 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	119.25 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	97.88 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

NECK EXTENSION TEST

HYBRID III

DATE : 12/5/94

6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 3

HY3 SN:150 CAL NECK EXTENSION

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.5 - 22.2 DEG. C	20.5 DEG. C
RELATIVE HUMIDITY		10% - 70%	46 %
IMPACT VELOCITY		21.4 - 22.3 KPH	22.16 KPH
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G'S	19.83 G'S
	20 MS	14.00 - 19.00 G'S	18.07 G'S
	30 MS	11.00 - 16.00 G'S	14.27 G'S
MAX PENDULUM G'S ABOVE 30 MS		22 G'S MAX	14.27 G'S
DECELERATION -TIME CURVE DECAY TIME TO 5 G'S		38 - 46 MS	45.25 MS
D PLANE ROTATION	MAX	81 - 106 DEG.	94.53 DEG.
	TIME	72 - 82 MS	73.38 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	-80.0/-52.9 N-M	-77.9 N-M
	TIME	65 - 79 MS	66.63 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	147 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	126 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION

TRANSPORTATION RESEARCH DEPARTMENT

THORAX IMPACT TEST

HYBRID III

DATE : 11/29/94

CALSPAN SEQUENTIAL NUMBER 3

HY3 SN 150 H.S. THORAX CAL

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.5 - 22.2 DEG. C	20.5 DEG. C
RELATIVE HUMIDITY	10% - 70%	34 %
PENDULUM VELOCITY	23.7 - 24.6 KPH	23.8 KPH
MAXIMUM DEFLECTION	64 - 73 mm	65.8 mm
MAXIMUM RESISTIVE FORCE	5160 - 5894 NEWTONS	5818 NEWTONS
INTERNAL HYSTERESIS	69% - 85%	69.3 %

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

KNEE IMPACT TEST

HYBRID III

DATE : 11/15/94

KNEE: LEFT

CALSPAN SEQUENTIAL NUMBER 3

HY3 SN: 150 KNEE 4.9 KGS CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19 - 25 DEG. C	21 DEG. C
RELATIVE HUMIDITY	10% - 70%	41 %
PROBE VELOCITY	7.5 - 7.7 KPH	7.68 KPH
PEAK KNEE IMPACT FORCE	4715 - 5782 N	5053 N
PROBE WEIGHT	4.9 KGS	

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

KNEE IMPACT TEST

HYBRID III

DATE : 11/15/94

KNEE: RIGHT

CALSPAN SEQUENTIAL NUMBER 3

HY3 SN: 150 KNEE 4.9 KGS CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19 - 25 DEG. C	21 DEG. C
RELATIVE HUMIDITY	10% - 70%	41 %
PROBE VELOCITY	7.5 - 7.7 KPH	7.68 KPH
PEAK KNEE IMPACT FORCE	4715 - 5782 N	5084 N
PROBE WEIGHT	4.9 KGS	

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY I.D. NUMBER: 150

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	AF5B3	8/94	2/95
ENDEVCO	AF5F7	8/94	2/95
ENDEVCO	AF5E1	8/94	2/95
ENDEVCO	AF5C1	10/94	4/95
ENDEVCO	AF480	10/94	4/95
ENDEVCO	AF5H9	10/94	4/95
GSE	255	11/94	5/95
GSE	256	11/94	5/95

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	6/94	12/94
CEC	A161	7/94	1/95
TRANS- DUCER INC	20051	6/94	12/94
BLH	72952	6/94	12/94
CIC	567-11	6/94	12/94

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	AC2M6	ENDEVCO	8/94	2/95
Y	AF5C9	ENDEVCO	8/94	2/95
Z	ACT12	ENDEVCO	10/94	4/95
Chest				
X	AF5P8	ENDEVCO	8/94	2/95
Y	AF5C4	ENDEVCO	10/94	4/95
Z	AE8K1	ENDEVCO	8/94	2/95
Right Femur Load Cell	F232	GSE	12/94	6/95
Left Femur Load Cell	F231	GSE	12/94	6/95
Neck Load Cell				
X	076	DENTON	8/94	2/95
Y	076	DENTON	8/94	2/95
Z	076	DENTON	8/94	2/95
Neck Moment				
X	076	DENTON	8/94	2/95
Y	076	DENTON	8/94	2/95
Z	076	DENTON	8/94	2/95
Chest Deflection Gauge				
Hybrid III Use Only	CP45	HUMANOID	8/94	2/95
Lap Belt Load Cells				
Shoulder Belt Load Cells	706	LEBOW	7/94	1/95
	707	LEBOW	7/94	1/95
Belt Stretch Transducer	E6	CALSPAN	8/94	2/95

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X (R)	AEW70	ENDEVCO	11/94	5/95
Y (R)	AET34	ENDEVCO	11/94	5/95
Z (R)	AKD93	ENDEVCO	11/94	5/95
Chest				
X (R)	AKD92	ENDEVCO	11/94	5/95
Y (R)	AFPJ7	ENDEVCO	11/94	5/95
Z (R)	AJP62	ENDEVCO	11/94	5/95
Pelvic				
X	AFHM9	ENDEVCO	11/94	5/95
Y	AE8R7	ENDEVCO	11/94	5/95
Z	AH5F3	ENDEVCO	12/94	6/95

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X	AF5B3	ENDEVCO	10/94	4/95
Y	AF5F7	ENDEVCO	10/94	4/95
Z	AF5E1	ENDEVCO	10/94	4/95
Chest				
X	AF5C1	ENDEVCO	10/94	4/95
Y	AF480	ENDEVCO	10/94	4/95
Z	AF5H9	ENDEVCO	10/94	4/95
Right Femur Load Cell	F256	GSE	12/94	6/95
Left Femur Load Cell	F255	GSE	12/94	6/95
Neck Load Cell	269	DENTON	8/94	2/95
X	269	DENTON	8/94	2/95
Y	269	DENTON	8/94	2/95
Z	269	DENTON	8/94	2/95
Neck Moment	269	DENTON	8/94	2/95
X	269	DENTON	8/94	2/95
Y	269	DENTON	8/94	2/95
Z	269	DENTON	8/94	2/95
Chest Deflection Gauge	CP150	HUMANOID	8/94	2/95
Hybrid III Use Only				
Lap Belt Load Cells	710	LEBOW	7/94	1/95
Shoulder Belt Load Cells	711	LEBOW	7/94	1/95
Belt Stretch Transducer	E7	CALSPAN	8/94	2/95

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head	X (R)	ENDEVCO	11/94	5/95
	Y (R)	ENDEVCO	11/94	5/95
	Z (R)	ENDEVCO	11/94	5/95
Chest	X (R)	ENDEVCO	11/94	5/95
	Y (R)	ENDEVCO	11/94	5/95
	Z (R)	ENDEVCO	11/94	5/95
Pelvic	X	ENDEVCO	12/94	6/95
	Y	ENDEVCO	12/94	6/95
	Z	ENDEVCO	12/94	6/95

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

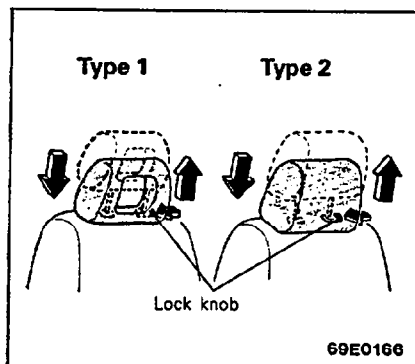
(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	A145	CEC	8/94	2/95
Right Rear Seat Crossmember	A157	CEC	8/94	2/95
Top of Engine	X75	CEC	11/94	5/95
Bottom of Engine	A149	CEC	8/94	2/95
Left Disc Brake Caliper	A147	CEC	7/94	1/95
Right Disc Brake Caliper	A68	CEC	8/94	2/95
Instrument Panel	A56	CEC	11/94	5/95
Left Rear Crossmember Redundant	A129	CEC	11/94	5/95
Right Rear Crossmember Redundant	A73	CEC	11/94	5/95

Appendix E

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

SEAT AND SEAT BELT

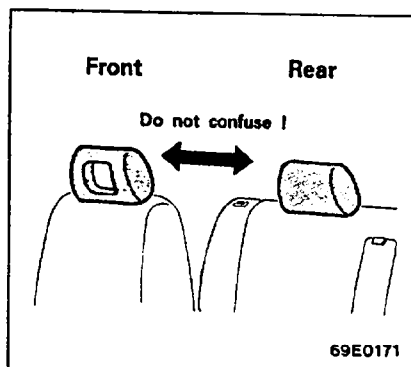


Removal of the head restraint

ND05B-Ja

To remove the head restraints, press the lock knob in the direction indicated by the arrows and pull the head restraints up.

To remount the head restraints, first confirm that they are facing the correct direction, and then insert them into the seatback and push down while pressing the lock knob until they lock. Confirm that the lock knobs are correct as shown in the illustration, and also pull the head restraints up to confirm that they do not come out of the seatback.



WARNING

- (1) Driving with the head restraints removed is dangerous. Always have them mounted when operating the vehicle. Failure to having them properly mounted may increase the chance of injury in the event of a collision.
- (2) The head restraints for the front and rear seats differ in shape. When installing head restraints, be sure not to confuse the front and rear seat head restraints. The head restraints for the front seat are larger in both height and thickness.

Seat belts

ND06A-Bd

Seat belts are installed in your vehicle for the protection of the driver and passengers. Always use the seat belts. In the event of an accident, injury to the driver and passengers may be reduced if seat belts are properly used. The following pages contain the recommended procedure for fastening, adjusting, and wearing of the belts for comfort and safety.

WARNING

- (1) Never use one seat belt for more than one occupant.
- (2) Never wear the shoulder portion of the seat belt behind your arm, under your arm or out of position. Always wear both the seat and shoulder belt and in the proper position.
- (3) Do not make any modifications that could change the effectiveness of the seat belts.
- (4) Never attempt to repair or replace the seat belt assemblies on your own. All repairs and replacements should be made by an authorized dealer.

SEAT AND SEAT BELT

NOTE

Legislation in your state may require seat belt usage, but even if not required, they should always be worn.

Seat unbelt restraint system

ND06B-Mc

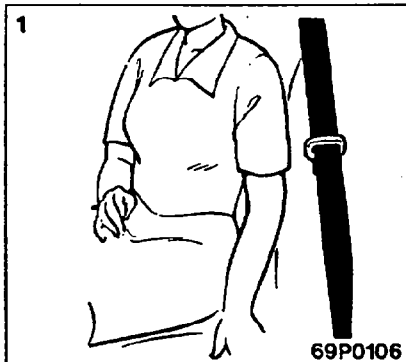
Front seats and both sides of the rear seat are equipped with a UNIBELT system which uses a single belt and an emergency locking retractor.

This system is designed to provide comfort and safety by permitting full extension and automatic retraction of the belts during normal vehicle operation.

A sensing device inside the belt retractor is designed to lock the retractor in the event of an abrupt change in vehicle motion.

NOTE

For instruction on how to install a child restraint system to the rear seat, see "Installing a child restraint system to a UNIBELT" on page 43.



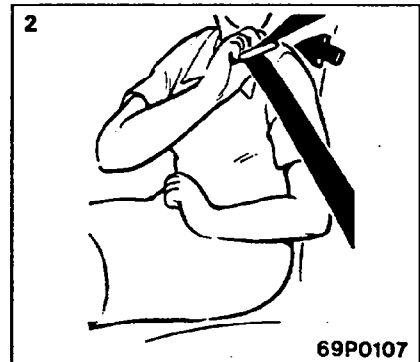
Unibelt instructions

ND06D-Be

1. Get in the vehicle and sit in the normal correct posture.

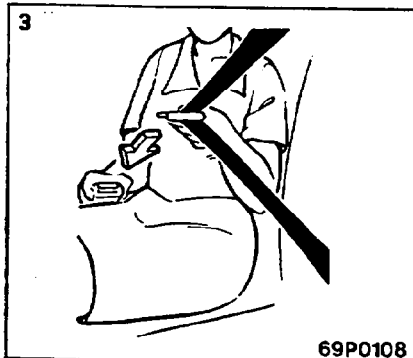
WARNING

To minimize risk of personal injury in the event of collision or sudden stop both the driver and passenger seatbacks should always be in a nearly upright position while the vehicle is in motion. The protection provided by the seat belts may be reduced significantly when the seatback is reclined. There is greater risk that the passenger will slide under the belt, resulting in serious injury, when the seatback is reclined.

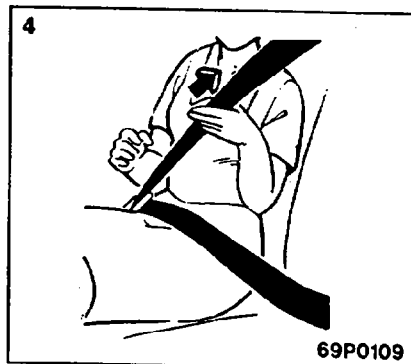


2. Grasp the movable latch plate and slide it up the webbing as far as necessary so that it will be easy to pull across your body. After a couple of tries, this will become an automatic one-handed operation.

SEAT AND SEAT BELT



3. Pull the webbing, and move the movable latch plate toward the buckle. This system will not lock up if you stop or hesitate, so relax and continue to "buckle-up". Push the latch plate into the buckle until a "click" is heard.

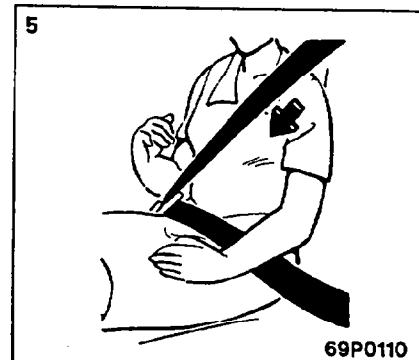


4. Pull up on the shoulder belt to ensure that there is no slack in the seat belt. The seat belt will not tighten during use; therefore you can set it once for safe, comfortable snugness.

WARNING

Be sure the seat belt portion is fitted snugly and as low as possible around the hips, not around the waist.

Failure to do so may increase the change or severity of injury in the event of a collision.



5. Check the belt slackness. The belt will retain the small amount of slack necessary for comfort when you return to your normal seating position. If the belt is still too tight, pull out 6" or 8" of webbing, let it return to your chest, and repeat the above motion.

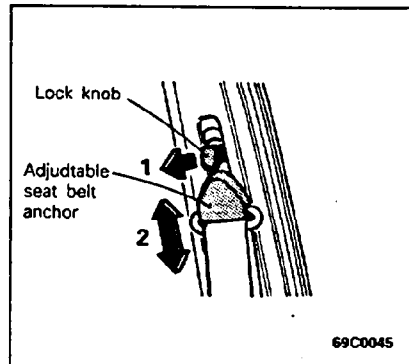
SEAT AND SEAT BELT



6. The shoulder belt will allow unrestricted movement under normal conditions. The belt will lock in the event of an abrupt change in vehicle motion. To release the belt, push the button on the buckle. To return the belt to its stowed position, pull the shoulder belt down slightly and release immediately.

WARNING

Be sure to lock all doors before driving. Locking the doors and properly using the seat belts provided will minimize the risk of injury or ejection in an accident.



Adjustable seat belt anchor (front seats)

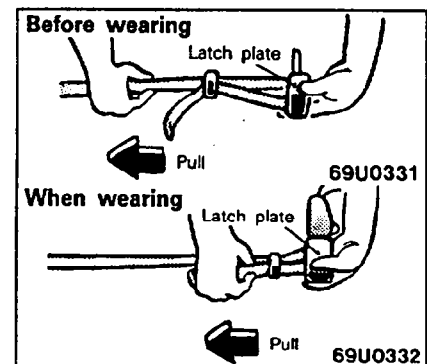
ND06E-A

The seat belt anchor height can be adjusted.

- 1 - Pull the lock knob.
- 2 - Slide the seat belt anchor up or down to the position that best fits your body and release the knob. Make sure that a click is heard and that the seat belt anchor is locked firmly.

WARNING

When adjusting the seat belt anchor, set it at a position that is sufficiently high so that the belt will make full contact with your shoulder but will not touch your neck.



Second seat lap belt

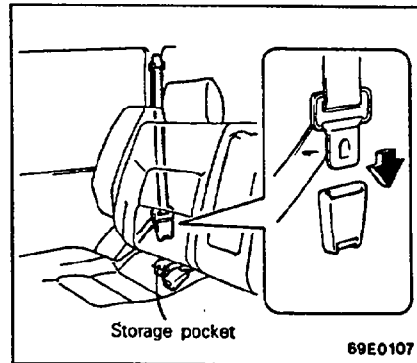
ND06C-N

Center belt

The center belt should be adjusted by holding the belt and latch plate at right angles to each other, and then pulling the belt as illustrated above to a snug fit around the occupant.

NEVER USE THE SAME LAP BELT ON MORE THAN ONE PERSON AT A TIME.

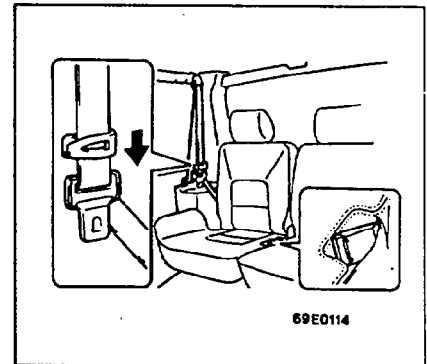
SEAT AND SEAT BELT



Second seat belt pocket

ND06L-F

When the seat belt is not in use, store it in the storage pocket.
For compact storage of the center seat plate, coil it around the plate.



Third seat belt pocket (if so equipped)

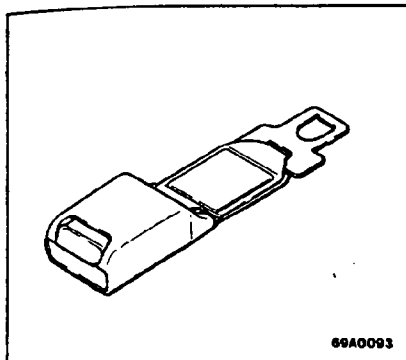
ND06L-A

When the seat belt is not in use, store as shown in the illustration.

NOTE

The buckle and plate of the center lap belt are marked with "CENTER". Be sure to check the marking before wearing the center lap belt.
The outboard restraint system buckle and center restraint system tongue are not compatible and will not engage with one another.

SEAT AND SEAT BELT



Seat belt extender

ND06J-Ad

If the seat belt is too short, even when fully extended, a seat belt extender is available from your dealer. The extender may be used for either front seating position. This extender should only be used if the existing belt is not long enough. When not required, it must be removed and stowed because the use of the extender when not required may deactivate the seat belt locking mechanism.

WARNING

Persons who can use the standard seat belt should not use an extender. Such unnecessary use could result in serious personal injury in the event of any accident.

Child restraint

ND06FOWc

When transporting children in your vehicle, some type of child restraint system should be used according to the size of the child. This is required by law in most states.

WARNING

- (1) Accident statistics indicate that children are safer when properly restrained in the second or third seat rather than in the front seat. Accordingly, Mitsubishi Motor Sales of America, Inc. recommends the child be restrained in the second or third seat.
- (2) Holding a child in your arms is no substitute for a restraint system. Failure to use a proper restraint system can result in severe or fatal injury to your child.

Infants and small children

For infants small enough for infants seats, an infant carrier should be used. For small children, a child seat should be used. Both types of seats are generally available from your authorized dealer or from most automotive parts and accessory supply outlets.

The child restraint system should be appropriate for your child's weight and height and properly fit the vehicle seat. For a higher degree of safety, THE CHILD RESTRAINT SYSTEM SHOULD BE INSTALLED IN THE SECOND OR THIRD SEAT.

When installing a child restraint system, refer to the instructions provided by the manufacturer of the restraint system and follow the directions listed under the following illustrations.

When not in use, keep your child or infant seat secured with the seat belt or remove it from the vehicle in order to prevent injury your child.