

REPORT NUMBER: CAL-95-N08

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

MITSUBISHI MOTORS CORPORATION
1995 MITSUBISHI ECLIPSE
2-DOOR COUPE

NHTSA NUMBER: MS5600

CALSPAN TEST NUMBER: 8227-8

January 16, 1995

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FINAL REPORT

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<p>16. <i>Abstract</i></p> <p>A frontal load cell barrier test of a 1995 Mitsubishi Eclipse 2-Door Coupe was performed at Calspan Advanced Technology Center crash test facility in Buffalo, New York, on January 16, 1995.</p> <p>The impact velocity was 56.5 kph and the temperature at the barrier face was 1°C. The maximum post-test vehicle crush was 485 mm. The test vehicle was equipped with a 3-point belt system at each of the front outboard seating positions. The test vehicle was also equipped with supplemental airbags at each of the front outboard seating position.</p> <p>With regard to FMVSS 208 "Occupant Crash Protection - Injury Criteria," both the driver and right-front passenger complied with head, chest, and femur requirements.</p>			
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Section 1

PURPOSE AND TEST PROCEDURE

This 56.5 kph frontal barrier impact test is part of the Composite FY92 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 MS5600

A load cell barrier consisting of 36 load cells was impacted by a 1995 Mitsubishi Eclipse 2-Door Coupe at a velocity of 56.5 kph. The test was performed at the Calspan Corporation Advanced Technology Center on January 16, 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 14 high-speed cameras. Camera locations and other pertinent camera information can be found in this report.

Two Part 572E, 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. 150) and the right-front passenger ATD (Serial No. 45) used in two previous tests (MS5301 and MS5601). Injury criteria were not exceeded in either of these previous tests. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 101 channels of data were recorded on a P.C. based data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces. Vehicle accelerometer #4 (Engine Bottom) sustained a cut wire during impact. Vehicle accelerometer #5 (Right disc brake caliper) contained questionable data from 50 to 131 milliseconds. Vehicle accelerometer #6 (Left disc brake caliper) contained questionable data after approximately 50 milliseconds. The integrations (velocity and displacement data) for the above accelerometers were not included in this test report. Position 1 belt elongation potentiometer did not function properly during impact event. Barrier load cell D6 did not record accurately during test. This load cell was not used in the load cell sum calculation.

The driver's HIC was 551.5. The maximum chest deceleration over 3 milliseconds was 54.1 g's and maximum chest deflection was -36.8 mm. Femur loads were -6155.3 newtons on the left femur and -4048.5 newtons on the right femur.

The right front passenger's HIC was 503.0. Maximum chest deceleration over 3 milliseconds was 46.6 g's and maximum chest deflection was -29.7 mm. Femur loads were -6395.1 newtons on the left and -5722.4 newtons on the right.

Table 1

GENERAL TEST AND VEHICLE DATA

Vehicle Year/Make/Model/Body Style:	1995 Mitsubishi Eclipse 2-Door Coupe							
Test No.:	MS5600	VIN.:	4A3AK34Y0SE028822					
Body Color:	Red	Date of Manufacturer:	6/94					
Date Received:	12/19/94	Odometer Reading:	352 miles					
Engine:	4	Cylinders;	--	C.I.D.;	2.0	Liters;	--	CC
	X	Gas;	--	Diesel;	--	Turbocharged;		
	--	Longitudinal;			X	Transverse;		
Transmission:	3	Speed;	--	Manual;	X	Automatic;	--	Overdrive
Final Drive:	X	Front Wheel;	--	Rear Wheel;	--	Four Wheel;		
Accessories:	X	A/C;	X	Pwr./Strg.;	X	Pwr./Brks.;	--	Pwr./Wdo
	X	Tilt Wheel;	--	Pwr./Seats;	--	Cruise Control;	--	Other
Type of Occupant Restraint:	3-point restraint system with supplemental driver and passenger airbag.							

DATA RECORDED FROM VEHICLE TIRE PLACARD:

Tire Pressure (at capacity):	Front	220	kPa,	Rear	200	kPa.
Recommended Tire Size:	P195/70R14					
Recommended Cold Tire Pressure:	Front	220	kPa,	Rear	200	kPa.
Tires on Vehicle:	P195/70R14		Manufacturer: Bridgestone			
Number of Occupants:	2	Front;	2	Rear;	--	3rd Seat; 4 TOTAL
Type of Front Seats:	X	Bucket;	--	Bench;	--	Split Bench
Type of Seat Back:	--	Fixed;	X	Adj. with	X	Lever; -- Rot. Knob
Vehicle Capacity Weight (VCW)	=	300	kgs. (A)			
No. of Occupants x 68 kgs.	=	272	kgs. (B)			
Rated Cargo and Luggage Weight (RCLW)	A-B =	28	kgs.			
GVWR	1690	kgs.	GAWR:	Front	1010	kgs. Rear 800 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>412</u>	kgs.	Right Rear	=	<u>230</u>	kgs.
Left Front	=	<u>419</u>	kgs.	Left Rear	=	<u>233</u>	kgs.
TOTAL FRONT WEIGHT:		<u>831</u>	kgs.			<u>64</u>	% of Total Vehicle Weight
TOTAL REAR WEIGHT:		<u>463</u>	kgs.			<u>36</u>	% of Total Vehicle Weight
TOTAL DELIVERED WEIGHT	=	<u>1294</u>	kgs.				

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight	<u>1294</u>	kgs.
VCW = Vehicle Capacity Weight	<u>300</u>	kgs.
DSC = Designated Seating Capacity	<u>3</u>	kgs.
RCLW = VCW - 68 (DSC) =	<u>28</u>	kgs.
Target Test Weight = UDW + RCLW + (2 dummies x 74.0 kgs.)		
Target Test Weight =	<u>1470</u>	kgs.

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 48 KGS. CARGO:

Right Front	=	<u>430</u>	kgs.	Right Rear	=	<u>295</u>	kgs.
Left Front	=	<u>460</u>	kgs.	Left Rear	=	<u>305</u>	kgs.
TOTAL FRONT WEIGHT:		<u>890</u>	kgs.			<u>60</u>	% of Total Vehicle Weight
TOTAL REAR WEIGHT:		<u>600</u>	kgs.			<u>40</u>	% of Total Vehicle Weight
TOTAL TEST WEIGHT	=	<u>1490</u>	kgs.				
Weight of ballast in vehicle trunk area =	<u>--</u>	kgs.					

VEHICLE ATTITUDE (all dimensions in millimeters):

Delivered Attitude:	RF	<u>709</u>	LF	<u>700</u>	RR	<u>716</u>	LR	<u>707</u>
Test Attitude	RF	<u>710</u>	LF	<u>706</u>	RR	<u>692</u>	LR	<u>678</u>
Wheel Base:	<u>2510</u>	mm.;	C.G.	<u>1011</u>	millimeters rearward of front wheel center.			

Remarks: Onboard cameras were removed to achieve target test weight. 55.8 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 deg.
 Date of Test: January 16, 1995 Time of Test: 13:40
 Ambient Temperature: 1 ° C at impact area
 Temperature in Occupant Compartment: 21 ° C
 Windshield Molding Temperature: 21 ° C
 Required Impact Velocity Range: 55.5 to 57.1 kph
 Impact Velocity: primary = 56.5 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>4255</u>	C _L	<u>4365</u>	L	<u>4242</u>
	Post-test = R	<u>3820</u>	C _L	<u>3880</u>	L	<u>3875</u>
	Crush = R	<u>435</u>	C _L	<u>485</u>	L	<u>367</u>

Distance from front of test vehicle to point of impact:

R 595 C_L 576 L 637

VISIBLE DUMMY CONTACT POINTS:

	<u>Driver</u>	<u>Passenger</u>
Head	<u>airbag</u>	<u>airbag</u>
Chest	<u>airbag</u>	<u>airbag</u>
Abdomen	<u>airbag</u>	<u>airbag</u>
Left Knee	<u>knee bolster</u>	<u>glove box door</u>
Right Knee	<u>knee bolster</u>	<u>glove box door</u>

Table 1

GENERAL TEST AND VEHICLE DATA (cont'd)

	<u>Front</u>		<u>Rear</u>	
	<u>Left</u>	<u>Right</u>	<u>Left</u>	<u>Right</u>
Door Opening	<u>operable</u>	<u>operable</u>	<u>--</u>	<u>--</u>
	<u>Front</u>		<u>Rear</u>	
<u>Seat Movement</u>	<u>Left</u>	<u>Right</u>	<u>Left</u>	<u>Right</u>
Seat Back Failure	<u>None</u>	<u>None</u>	<u>--</u>	<u>--</u>
Seat Shift (mm.)	<u>0</u>	<u>0</u>	<u>--</u>	<u>--</u>
<u>Glazing Damage</u>				
Backlight/Windshield:	<u>The top left side of the windshield lost 80 mm of retention.</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 VALUESTest No.: MS5600 Vehicle: 1995 Mitsubishi Eclipse 2-Door Coupe

	MAXIMUM HEAD ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-50.9	-15.2	26.1	54.8
Position #2 - Passenger	-58.2	28.1	31.5	64.5

	MAXIMUM CHEST ACCELERATION (g's)			
	X	Y	Z	R*
Position #1 - Driver	-55.5	-10.9	-10.1	54.1
Position #2 - Passenger	-47.5	-13.3	-28.5	46.6

* 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	-6155.3	-4048.5
Position #2 - Passenger	-6395.1	-5722.4

	MAXIMUM FORCE - SEAT BELT LOADS (nwt)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
Position #1 - Driver	5975.1	--	1985.0
Position #2 - Passenger	5193.4	2234.1	--

	HEAD INJURY CRITERIA (HIC)			
	HIC**	t ₁ (mSec)	t ₂ (mSec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	551.5	47.40	83.28	54.1
Position #2 - Passenger	503.0	43.68	78.00	46.6

** 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 Eclipse 2-Door Coupe
 Vehicle Test No.: MS5600 Test Date: January 16, 1995

MAXIMUM VALUES	DRIVER DUMMY ID #150:	PASSENGER DUMMY ID #45:
Neck Load X (nwt)	825.3	-1433.6
Neck Load Y (nwt)	-341.9	577.7
Neck Load Z (nwt)	1852.5	830.6
Neck Moment X (nwt-m)	32.6	-22.3
Neck Moment Y (nwt-m)	80.4	120.3
Neck Moment Z (nwt-m)	25.9	23.8
Chest Deflection X (mm.)	-36.8	-29.7
Time of Max. Occurrence (msec)	64.6	58.7

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

Figure 1

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

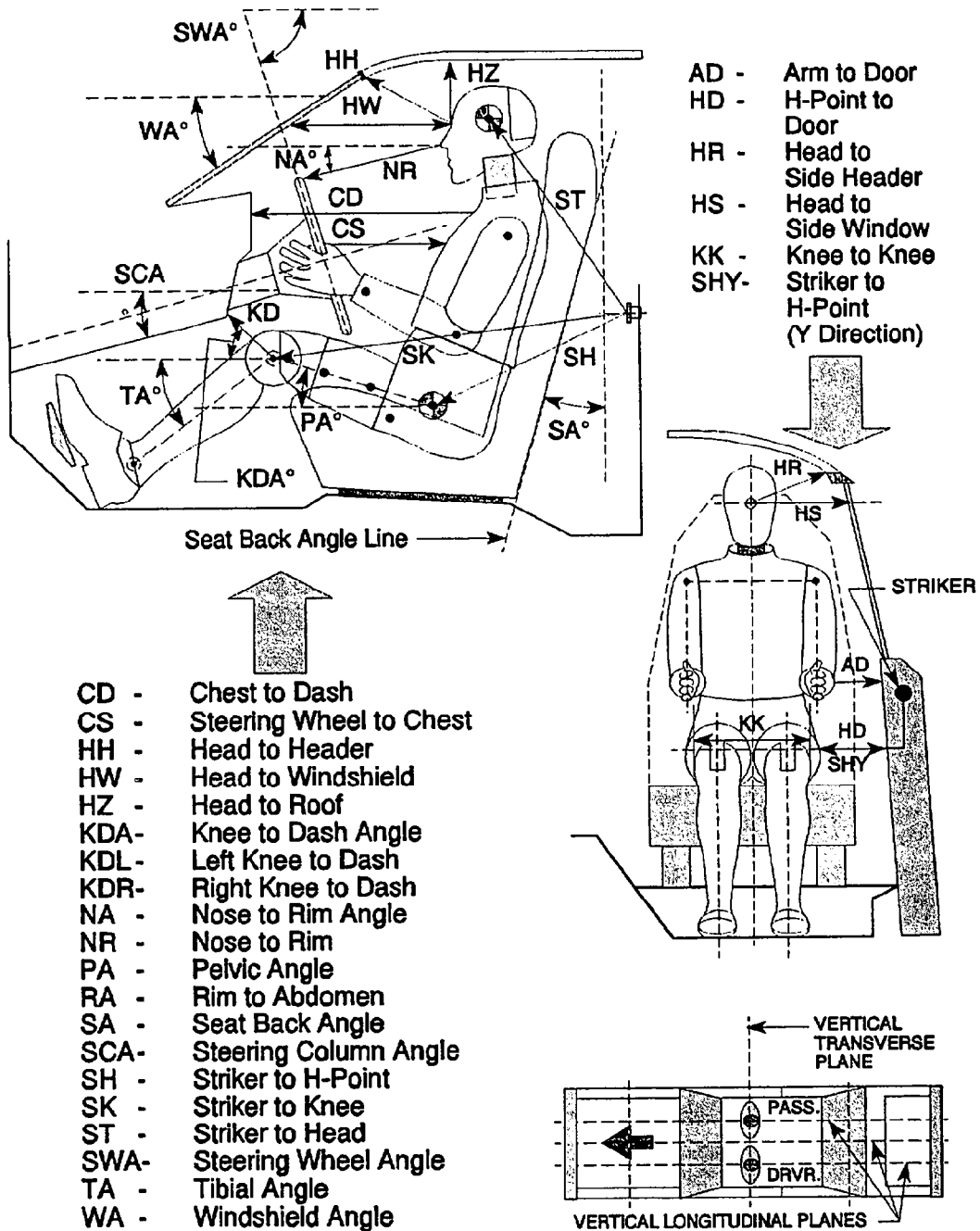


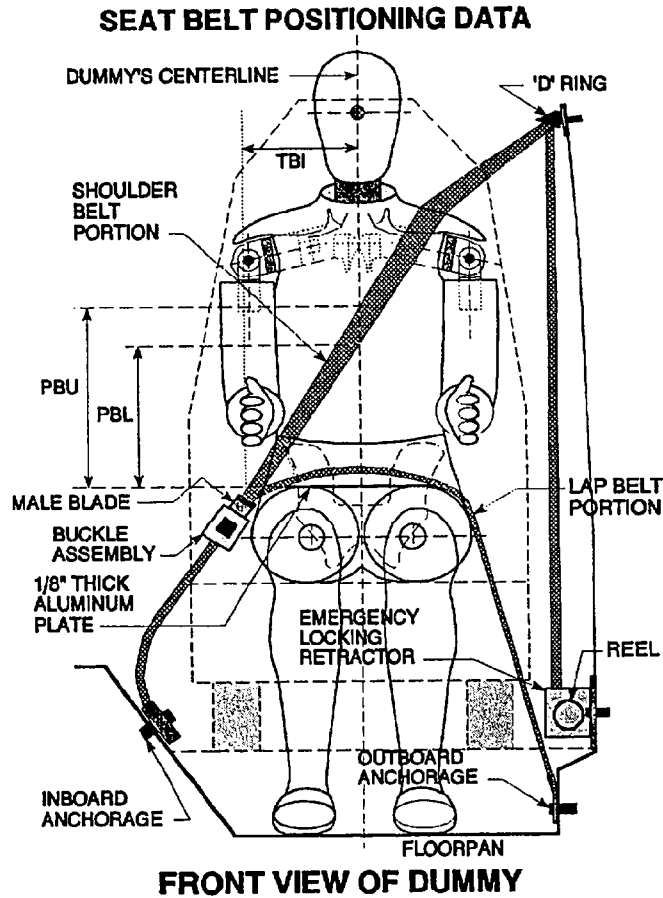
Table 4

FRONT SEAT OCCUPANT MEASUREMENTS

	DRIVER (Serial #150)			PASS. (Serial # 45)		
WA°	25 deg.			N/A		
SWA°	16 deg.			N/A		
SCA°	74 deg.			N/A		
SA°	27 deg.			27 deg.		
HZ	160 mm			160 mm		
HH	375 mm			377 mm		
HW	622 mm			618 mm		
HR	198 mm			192 mm		
NR	360 mm	Angle	13 deg.	N/A		
CD	548 mm			528 mm		
CS	277 mm			N/A		
RA	198 mm			N/A		
KDL	172 mm	Angle (KDA)	38 deg.	160 mm		
KDR	162 mm			164 mm	Angle (KDA)	34 deg.
PA°	23 deg.			24 deg.		
TA°	28 deg.			26 deg.		
KK	270 mm			232 mm		
ST	503 mm	Angle	38 deg.	490 mm	Angle	38 deg.
SK	813 mm	Angle	105 deg.	833 mm	Angle	100 deg.
SH	457 mm	Angle	120 deg.	470 mm	Angle	123 deg.
SHY	190 mm			180 mm		
HS	300 mm			290 mm		
HD	170 mm			150 mm		
AD	120 mm			110 mm		

Figure 2

SEAT BELT POSITIONING DATA



	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	340	365
PBL-- Top surface of alum. plate to belt lower edge	250	275
<u>LAP BELT TENSION</u>	--	--
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

Table 5

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

	<u>Driver</u>	<u>Passenger</u>
<u>BELT LENGTH DATA:</u>		
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	1800 mm	1790 mm
Shoulder belt length as measured on Part 572 Dummy.	950 mm	940 mm
Lap belt length as measured on Part 572 Dummy.	760 mm	760 mm
<u>SHOULDER BELT SPOOL-OFF DATA:</u>		
As determined by film analysis.	N/A	N/A
As determined mechanically.	91 mm	134 mm
As determined electronically.	N/A	N/A
<u>BELT STRETCH DATA:</u>		
Measured electronically between shoulder belt load cell and the "D" ring.	59 mm/m	89 mm/m
Measured mechanically.	25 mm/m	25 mm/m

Figure 3

CAMERA POSITIONS FOR FRONTAL IMPACTS

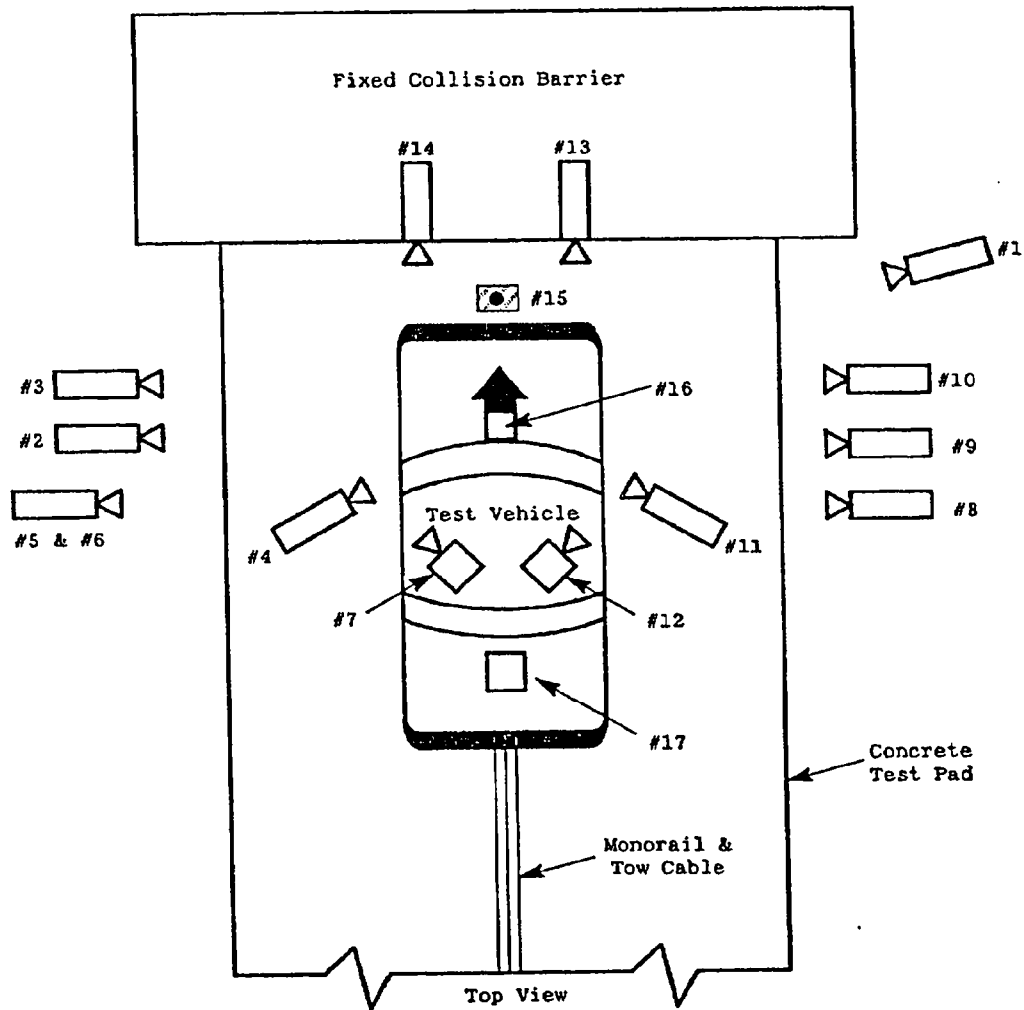


Table 6
HIGH-SPEED CAMERA LOCATIONS

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	5944	1524	1041	-2	5538	1010	
3	Left Side View	7493	1092	1041	-2	7087	960	
4	Driver and Interior View	2719	2718	1753	-22	-	960	
5	Steering Column (Bottom)	6883	1803	1168	-5	6477	1040	
6	Steering Column (Top)	6883	1803	1753	-11	6477	1040	
7	Overall Right Side	5918	1753	1092	-3	-	1060	
8	Right Side View	7645	1346	1041	-3	7239	980	
9	Right Passenger View	7341	1676	1397	-5	6935	840	
10	Passenger and Interior View	2591	2849	1778	-21	2185	1050	
11	Passenger Front View	560	127	1750	-39	-	1000	
12	Driver Front View	560	127	1750	-36	-	1010	
13	Windshield View	0	0	3040	-50	-	1040	
14	Pit View of Engine	0	505	-3048	90	-	860	
15	Pit View of Fuel Tank	0	3432	-3048	90	-	890	

*X = film plane to monorail centerline

Y = film plane to impact location

Z = film plane to ground

** = referenced to horizontal plane

N.T. indicates No Timing

Test No. MS5600 Vehicle: 1995 Mitsubishi Eclipse 2-Door Coupe

Figure 4

VEHICLE TARGET LOCATIONS

(All measurements in millimeters)

A	330
B	580
C	895
D	2215
E	100
F	1344
G	798
H	795
I	140
J	1377
K	935
L	1255
M	100
N	145
O	799
P	795
Q	1255
R	944
S	1371

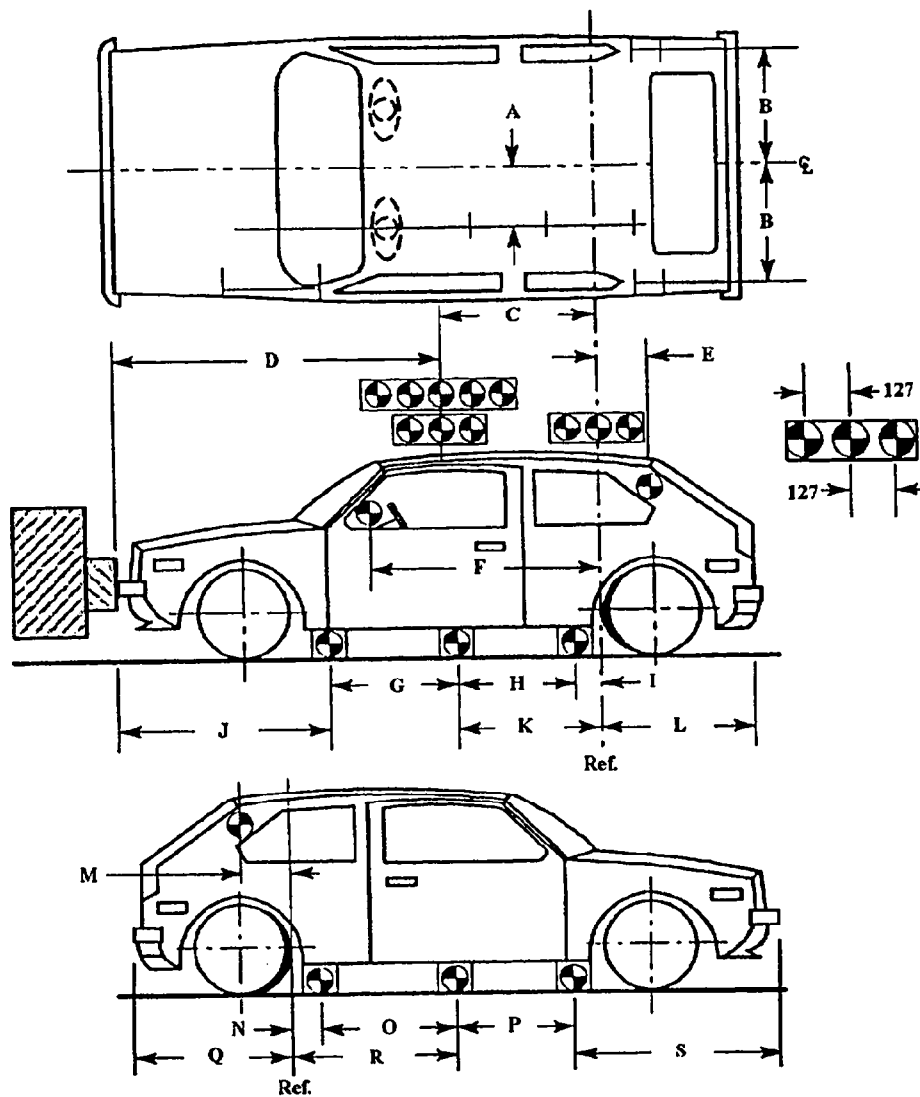
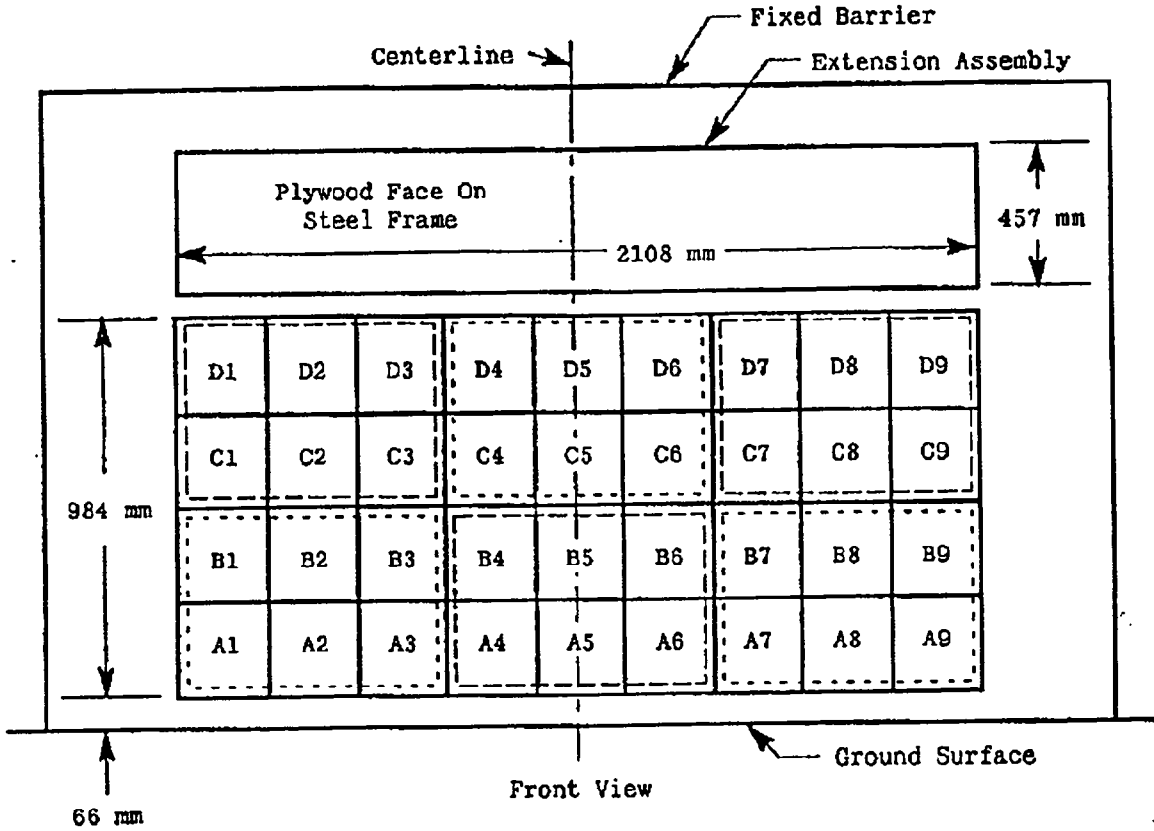


Figure 5

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

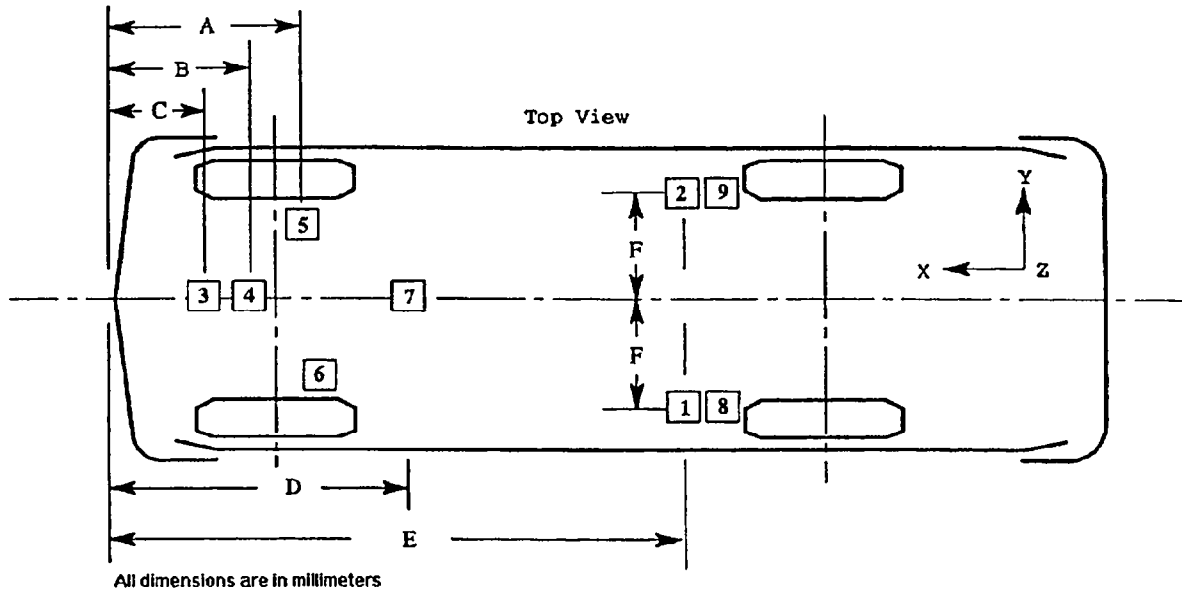
Group 4 C1 thru D3	Group 5 C4 thru D6	Group 6 C7 thru D9
Group 1 A1 thru B3	Group 2 A4 thru B6	Group 3 A7 thru B9

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= 2700	Y= 340
2	Right Rear Seat Crossmember [E/F]	X= 2700	Y= 340
3	Top of engine [C]	494	
4	Bottom of engine [B]	804	
5	Right Disc Brake Caliper [A]	960	
6	Left Disc Brake Caliper [A]	960	
7	Instrument Panel [D]	1830	
8	Left Rear Seat Crossmember [E/F]	X= 2700	Y= 340
9	Right Rear Seat Crossmember [E/F]	X= 2700	Y= 340

* 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

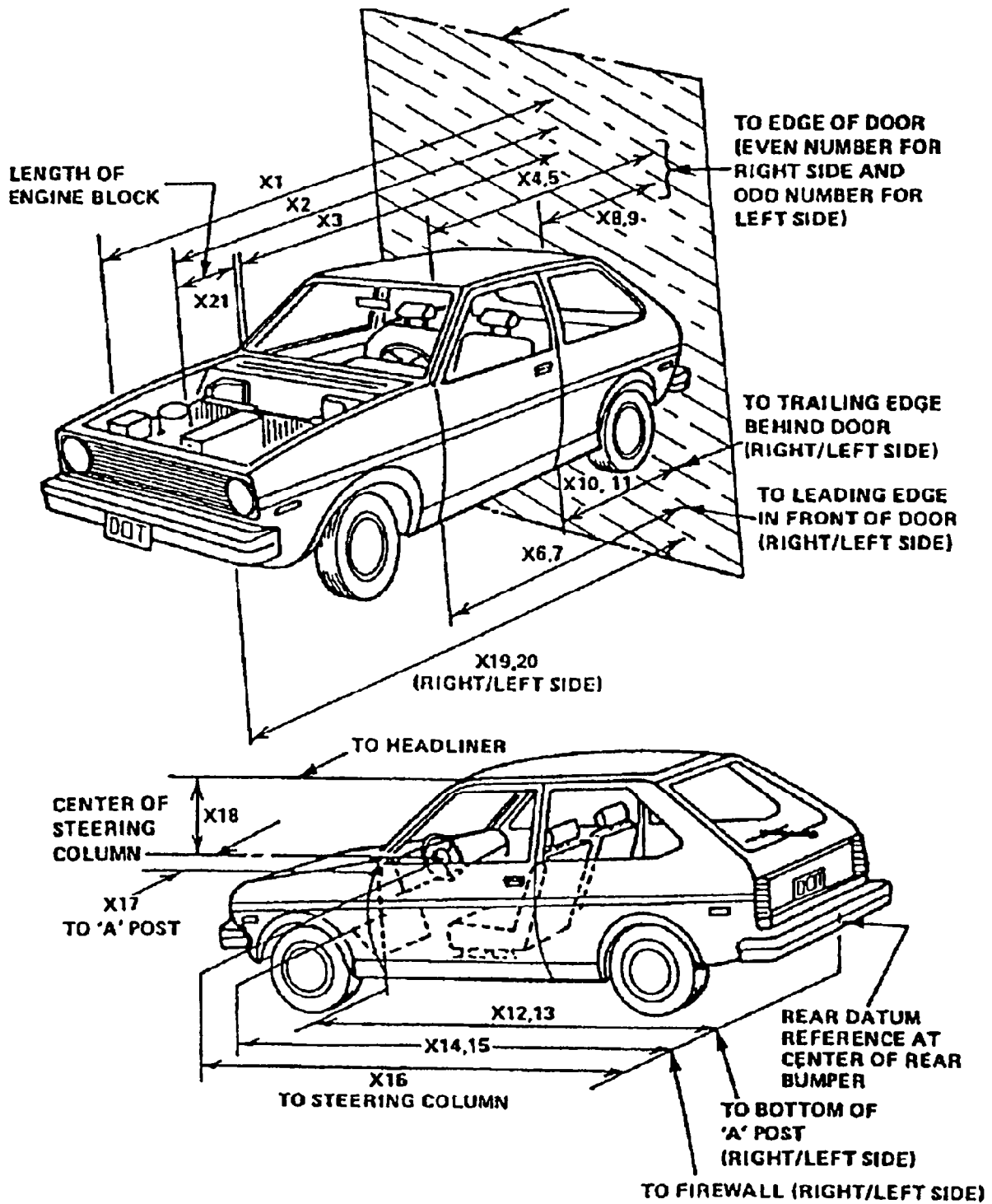


Table 7

VEHICLE MEASUREMENTS

No.		All Dimensions in mm		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4365	3880	485
X2	Rear Surface of Vehicle to Front of Engine	3710	3515	195
X3	Rear Surface of Vehicle to Firewall	3270	3135	135
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	2895	2889	6
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	2895	2896	-1
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	2906	2895	11
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	2905	2900	5
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	1668	1650	18
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	1656	1668	-12
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	1742	1730	12
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	1744	1740	4
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	2885	2878	7
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	2882	2878	4
X14	Rear Surface of Vehicle to Firewall, Right Side	3280	3150	130
X15	Rear Surface of Vehicle to Firewall, Left Side	3225	3220	5
X16	Rear Surface of Vehicle to Steering Column	2425	2480	-55
X17	Center of Steering Column to "A" Post	433	390	43
X18	Center of Steering Column to Headliner	395	420	-25
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4255	3820	435
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4242	3875	367
X21	Length of Engine Block	360	360	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2620	2590	30
CD	Rear Surface of Vehicle to Center of Dash Panel	2605	2570	35
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2620	2600	20

Table 8

ACCIDENT INVESTIGATION DIVISION DATA
FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Mitsubishi Eclipse 2-Door Coupe

Vehicle Test No.: MS5600 VIN: 4A3AK34Y0SE028822

Model Year: 1995 Build Date: 6/94 Test Date: January 16, 1995

Vehicle Size Category: Compact Test Weight: 1490 kgs.

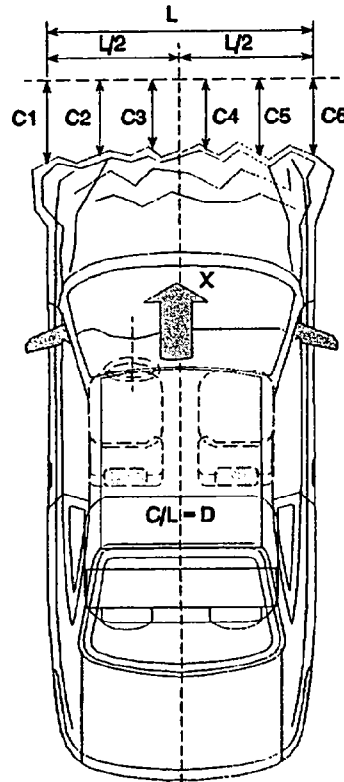
Wheel Base: 2510 mm; Front Overhang: 1374 mm;

Vehicle Overall Width: 1735 mm;

Collision Deformation Classification (CDC) Code: 12FDEW2

Crush Depth Dimensions:

C1 = 345 mm
 C2 = 437 mm
 C3 = 477 mm
 C4 = 497 mm
 C5 = 508 mm
 C6 = 377 mm



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

Longitude Length of Damaged Region: L = 1425 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 13 mm. molding.

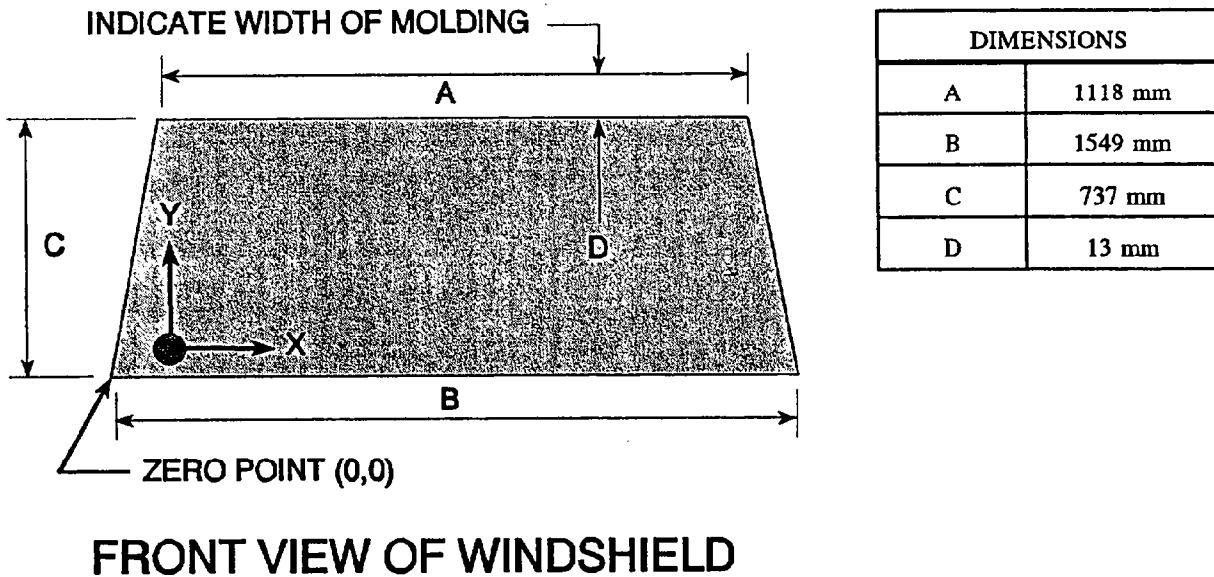
FMVSS 212 REQUIREMENTS:

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	2425.5	2345.5	96.7
LEFT SIDE	2425.5	2425.5	100
TOTAL	4851.0	4771.0	98.3

AREA OF RETENTION FAILURE: From (325, 737) to (405, 737) for a total of 80 mm.



FAILURE DETAILS: Measure from the top left corner of windshield and move inboard 110 mm. From this point, move an additional 80 mm inboard; this is the amount of retention loss (80 mm).

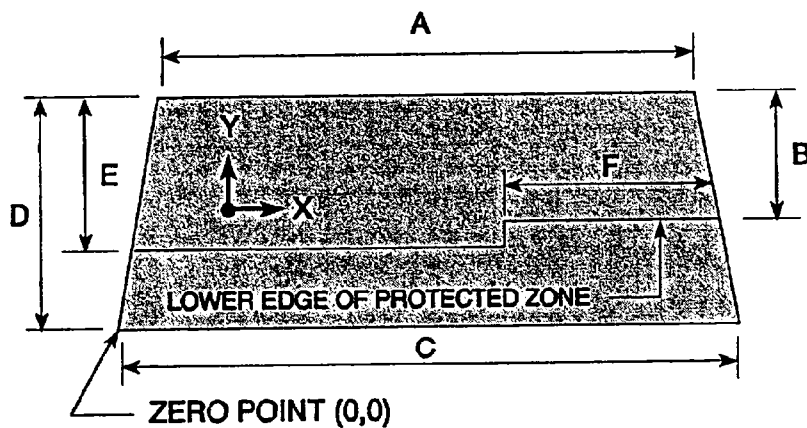
Figure 9

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	1118
B	431
C	1549
D	737
E	406
F	610

FRONT VIEW OF WINDSHIELD

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

(Show location of penetration on the above sketch)
None.

	COORDINATES	
	X	Y
1.		
2.		
3.		
4.		

Table 9

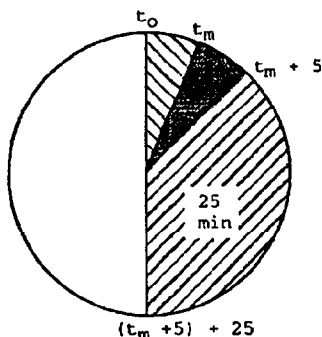
FMVSS NO. 301-75 "FUEL SYSTEM INTEGRITY" POST IMPACT TEST DATA

TEST VEHICLE NUMBER: MS5600 TEST DATE: January 16, 1995
VEHICLE MAKE/MODEL: 1995 Mitsubishi Eclipse

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
 contacting _____
 (driver/passenger) side
 _____ Rear Moving Barrier (30 mph)
 _____ Lateral Moving Barrier (20 mph)

FUEL SPILLAGE MEASUREMENT:



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

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

SOLVENT SPILLAGE DETAILS:

None

Table 10

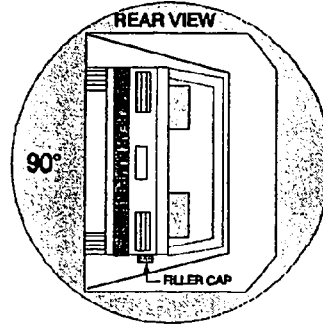
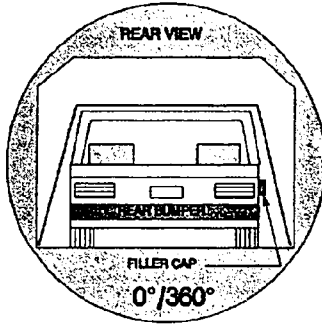
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

0 - 90 deg.

VEHICLE TEST No.

MS5600



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		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 oz.	0 oz.	0 oz.	0 oz.
-------	-------	-------	-------

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

IV. SOLVENT SPILLAGE LOCATION(S): None

Table 10

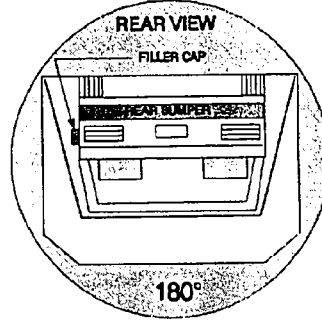
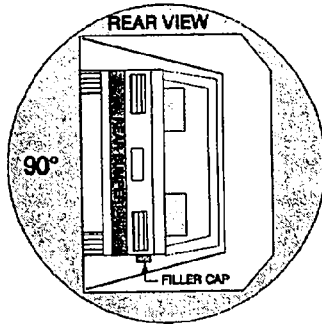
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

90 - 180 deg.

VEHICLE TEST No.

MS5600



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time +

TOTAL

Next whole minute interval

2	minutes	24	seconds
5	minutes	00	seconds
7	minutes	24	seconds
8	minutes		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 oz.	0 oz.	0 oz.	0 oz.
-------	-------	-------	-------

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

IV. SOLVENT SPILLAGE LOCATION(S): None

Table 10

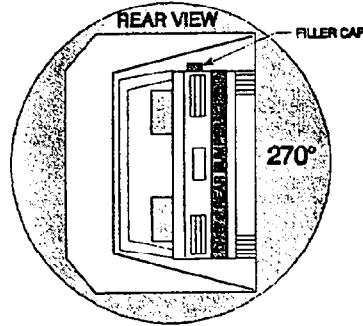
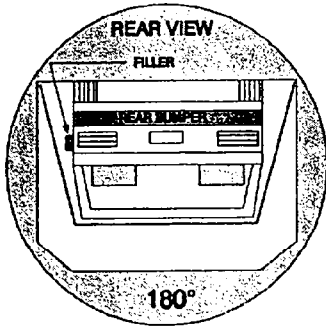
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

180 - 270 deg.

VEHICLE TEST No.

MS5600



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time +

TOTAL

Next whole minute interval

2	minutes	43	seconds
5	minutes	00	seconds
7	minutes	43	seconds
8	minutes		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 oz.	0 oz.	0 oz.	0 oz.
-------	-------	-------	-------

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

IV. SOLVENT SPILLAGE LOCATION(S): None.

Table 10

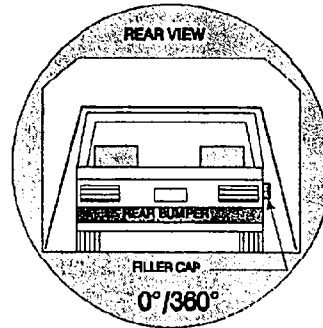
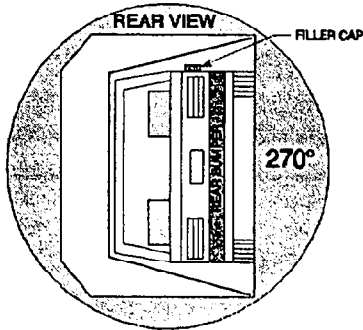
FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

270 - 360 deg.

VEHICLE TEST No.

MS5600



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time +

TOTAL

Next whole minute interval

2	minutes	15	seconds
5	minutes	00	seconds
7	minutes	15	seconds
8	minutes		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 oz.	0 oz.	0 oz.	0 oz.
-------	-------	-------	-------

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

IV. SOLVENT SPILLAGE LOCATION(S): None.

Appendix A
PHOTOGRAPHS

PHOTOGRAPHS

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A-5	POST TEST LEFT SIDE VIEW	A-7
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A-23	POST TEST DRIVER POSITION VIEW	A-25
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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

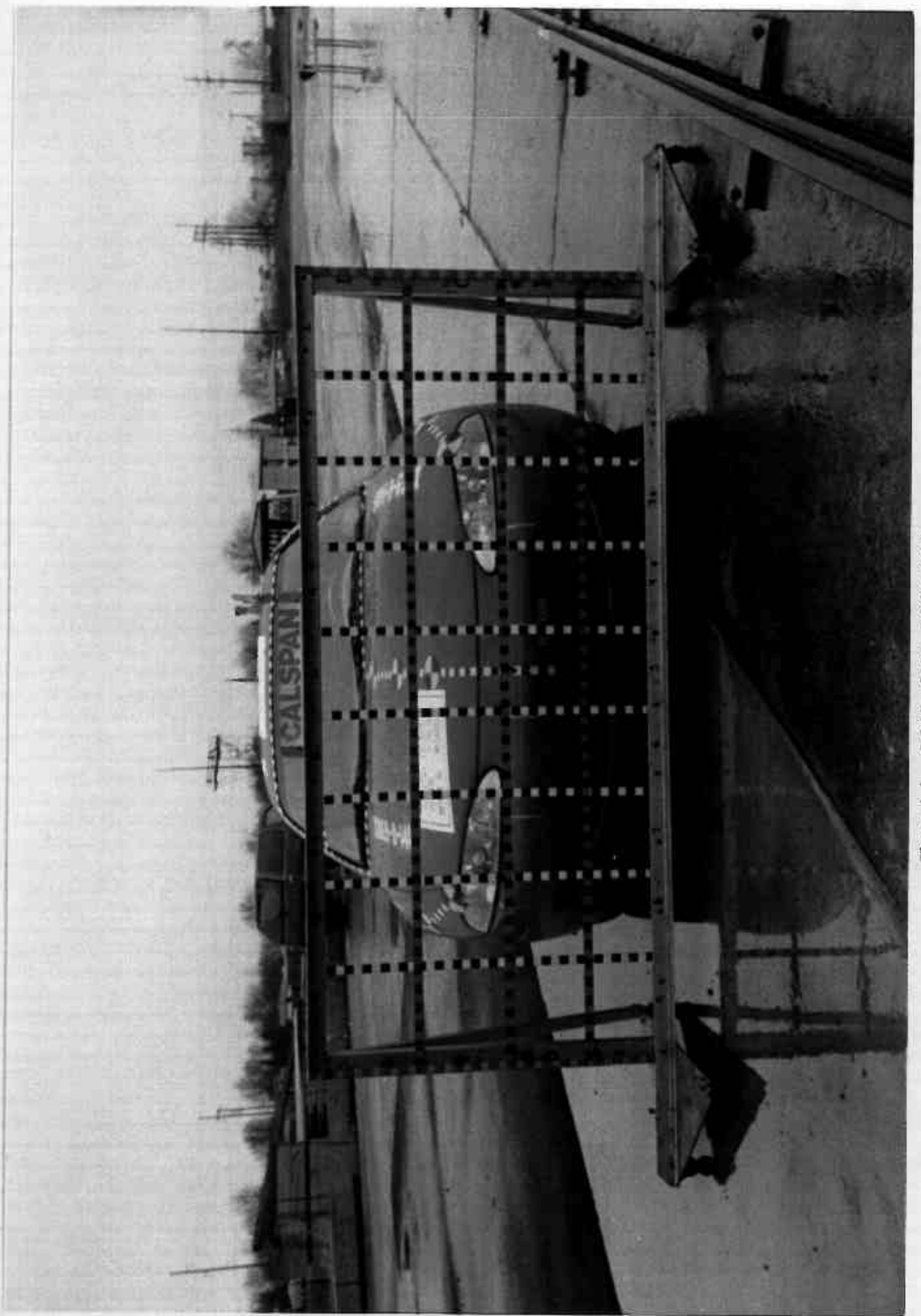


Figure A-1 LOAD CELL LOCATIONS

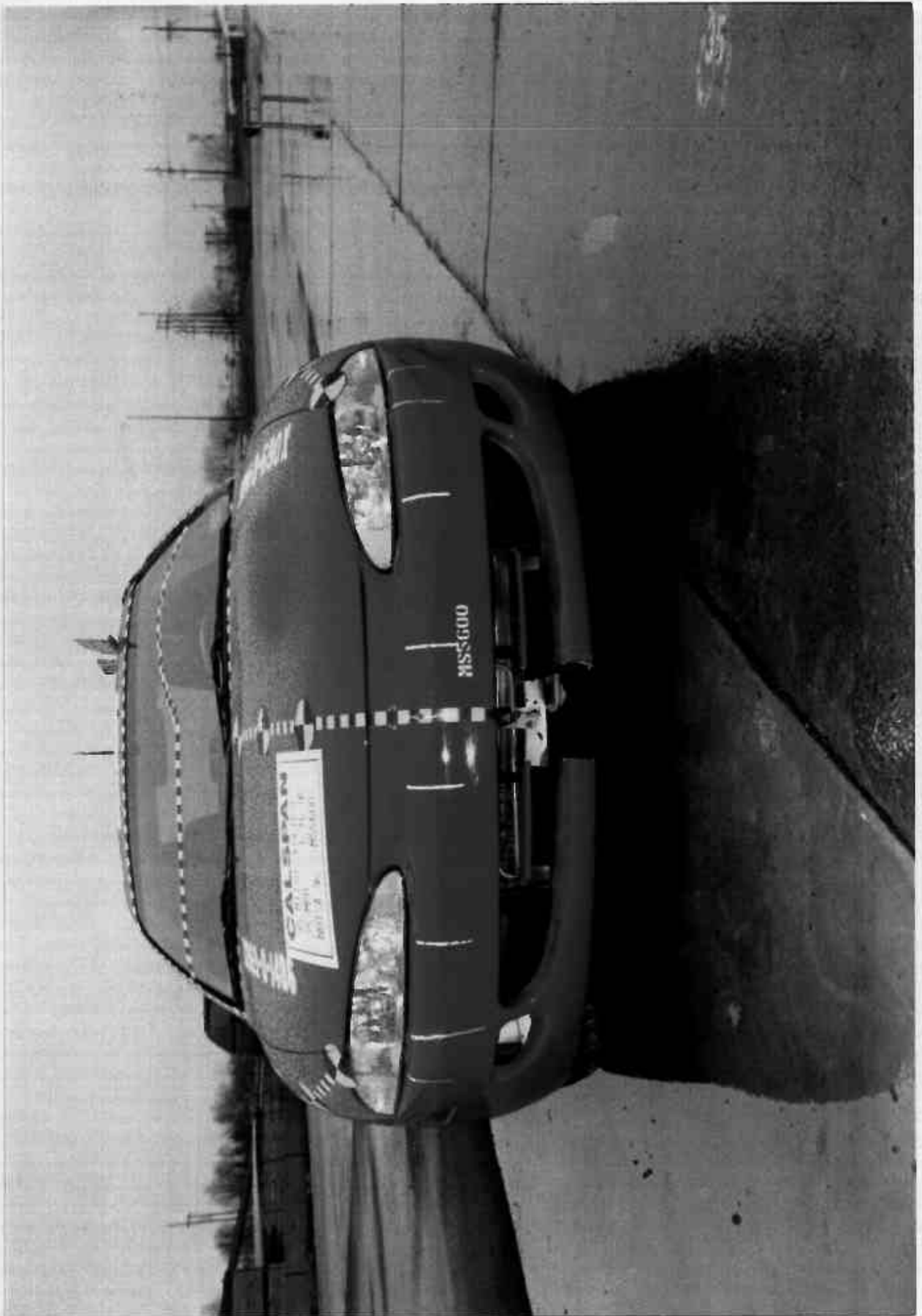


Figure A-2 PRE-TEST FRONT VIEW

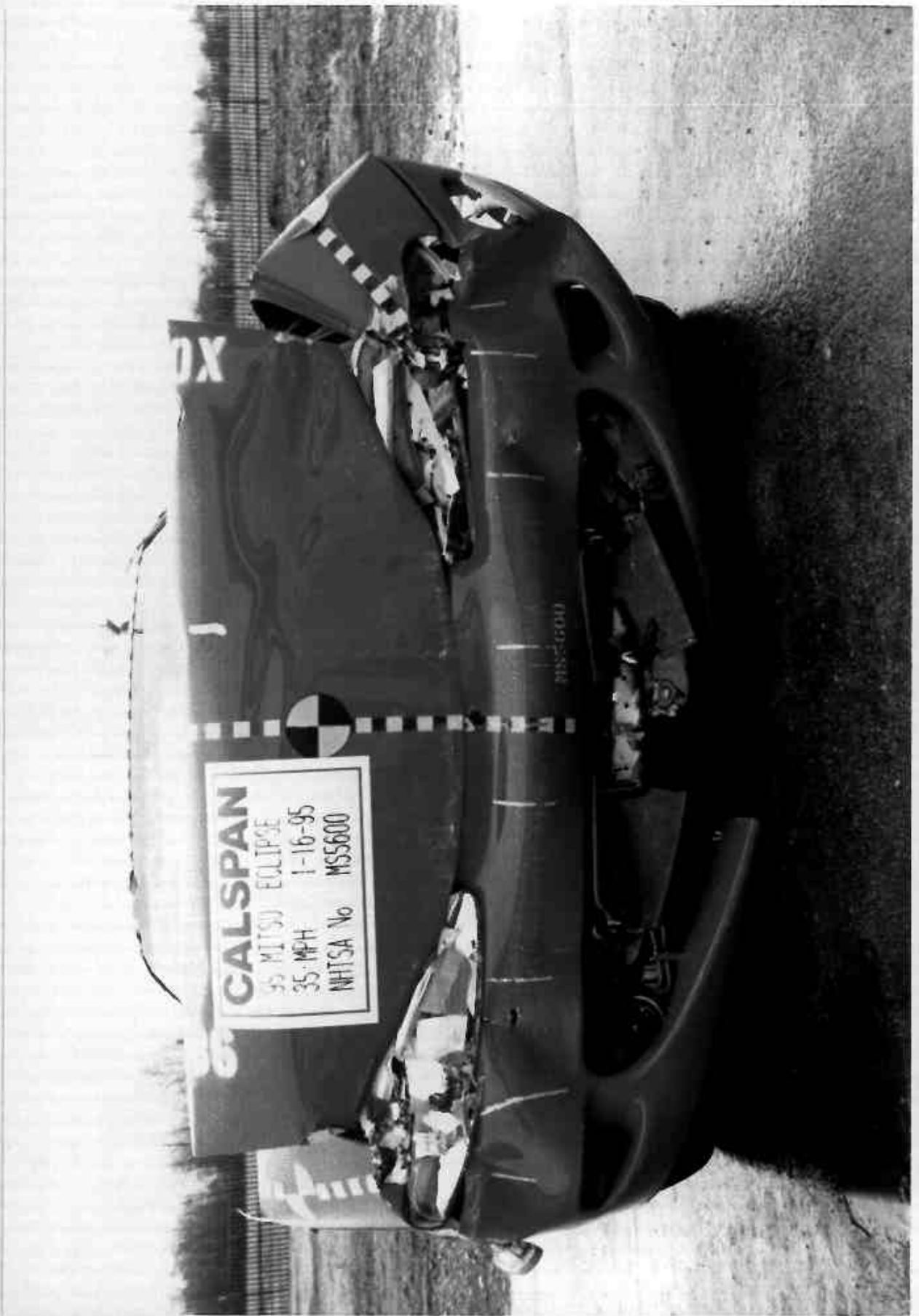


Figure A-3 POST-TEST FRONT VIEW

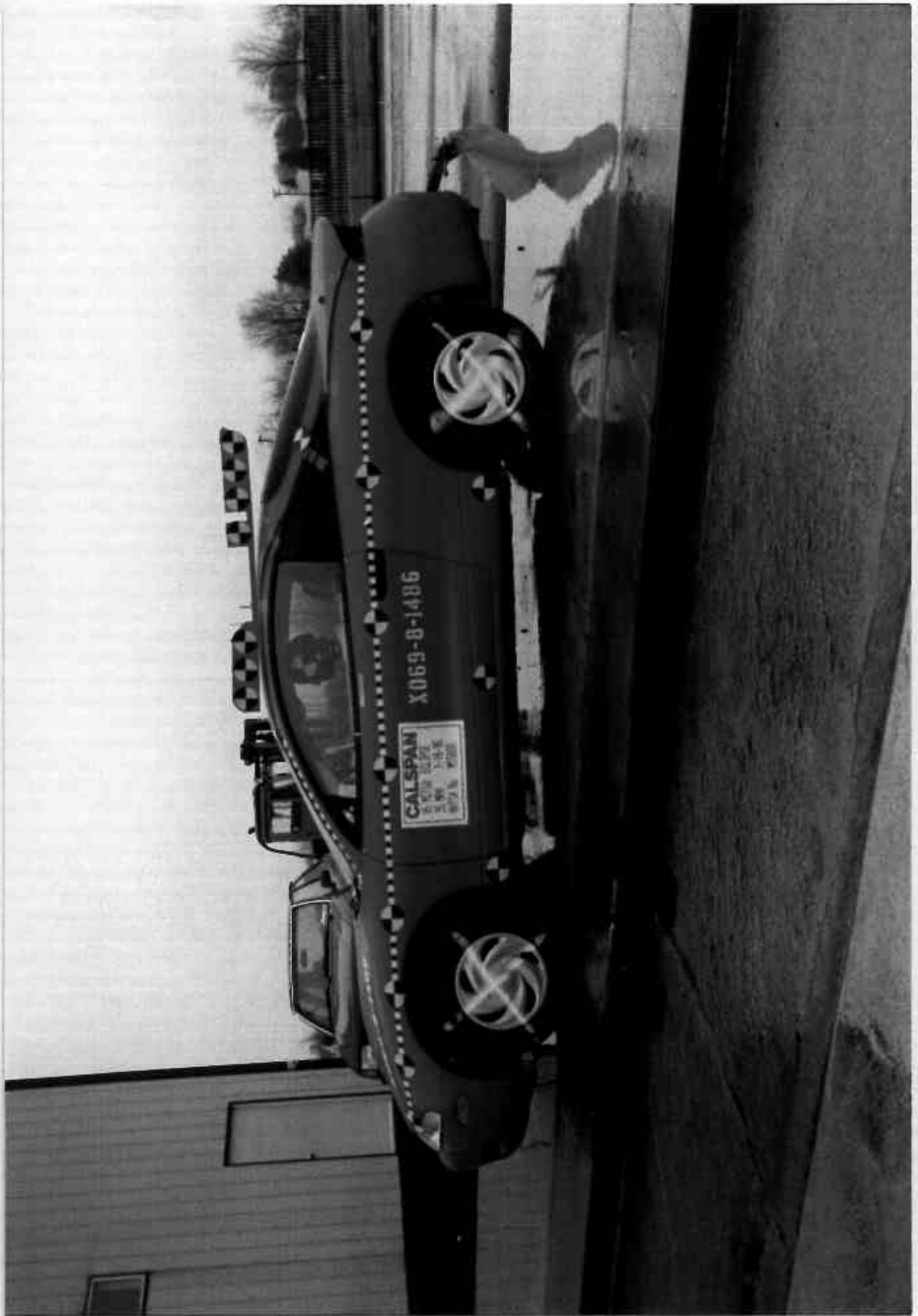


Figure A-4 PRE-TEST LEFT SIDE VIEW

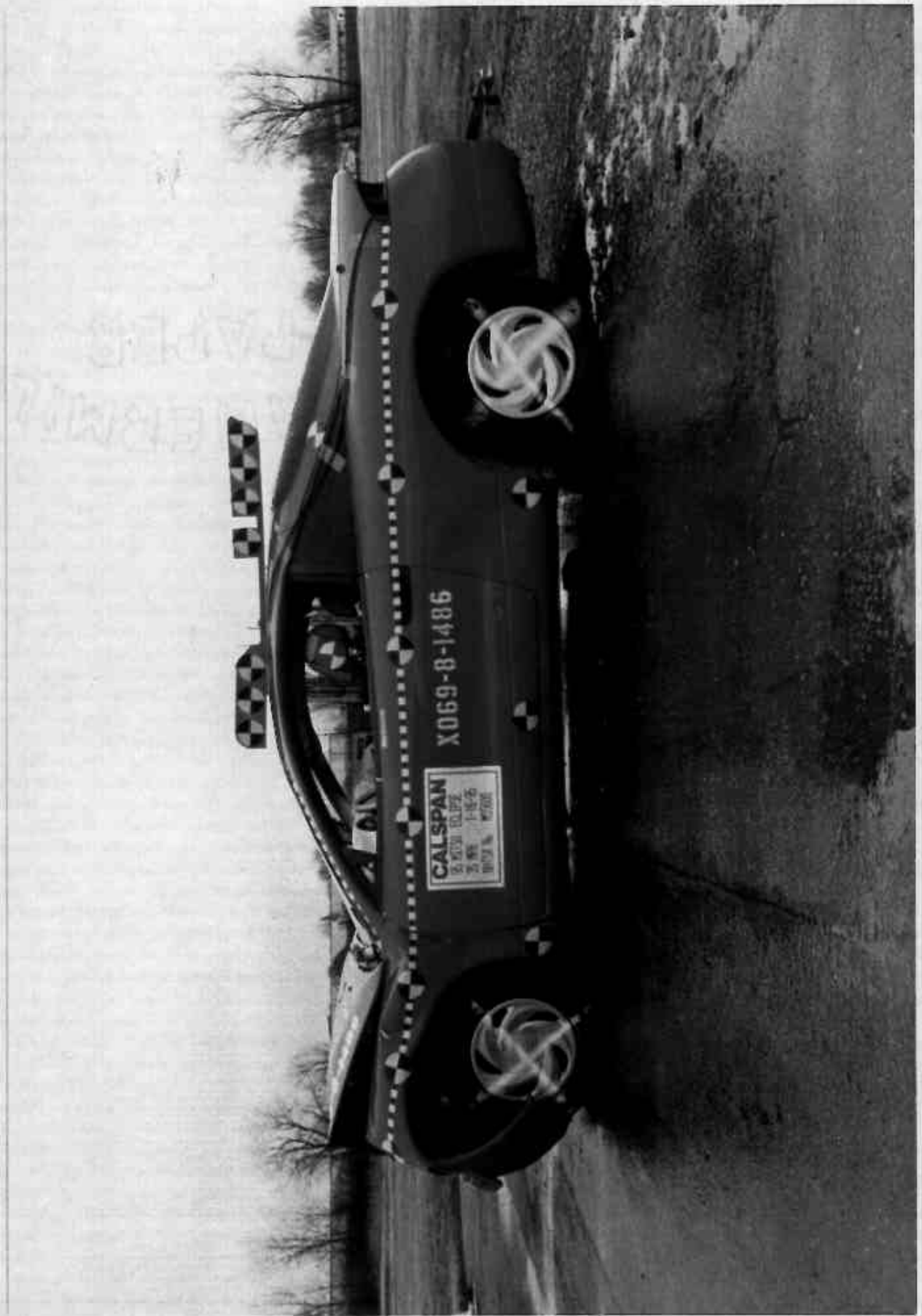


Figure A-5 POST-TEST LEFT SIDE VIEW

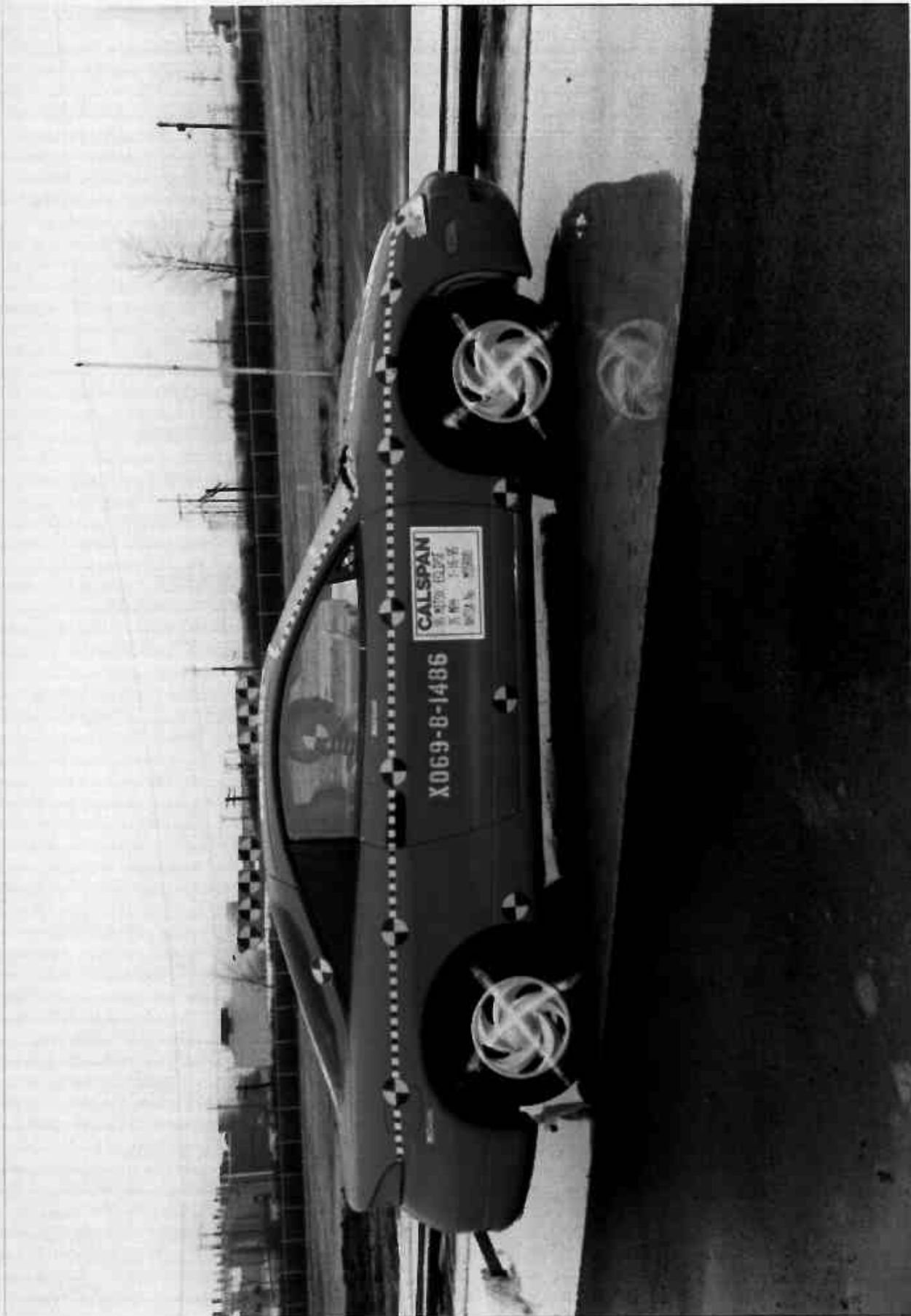


Figure A-6 PRE-TEST RIGHT SIDE VIEW

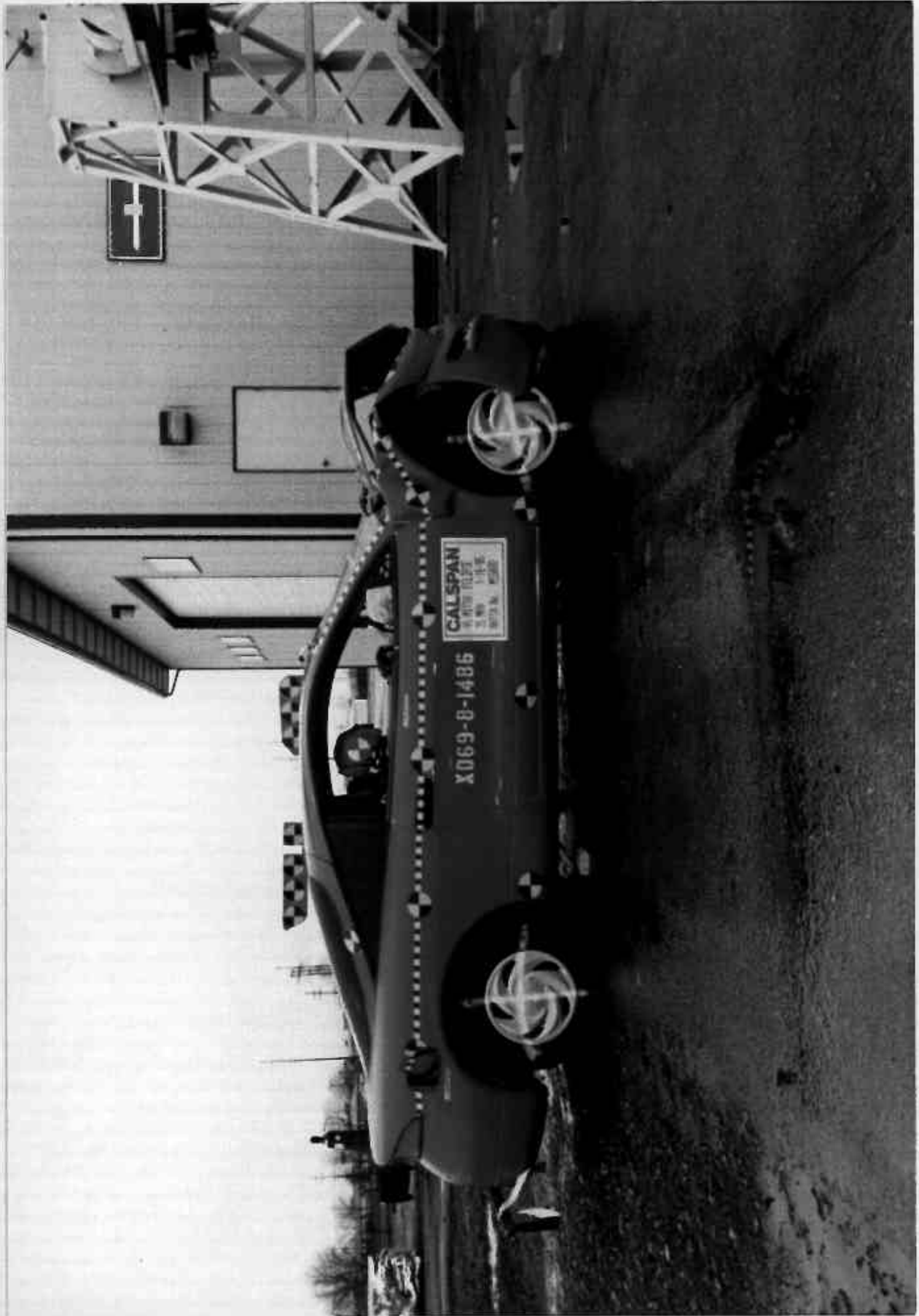


Figure A-7 POST-TEST RIGHT SIDE VIEW



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

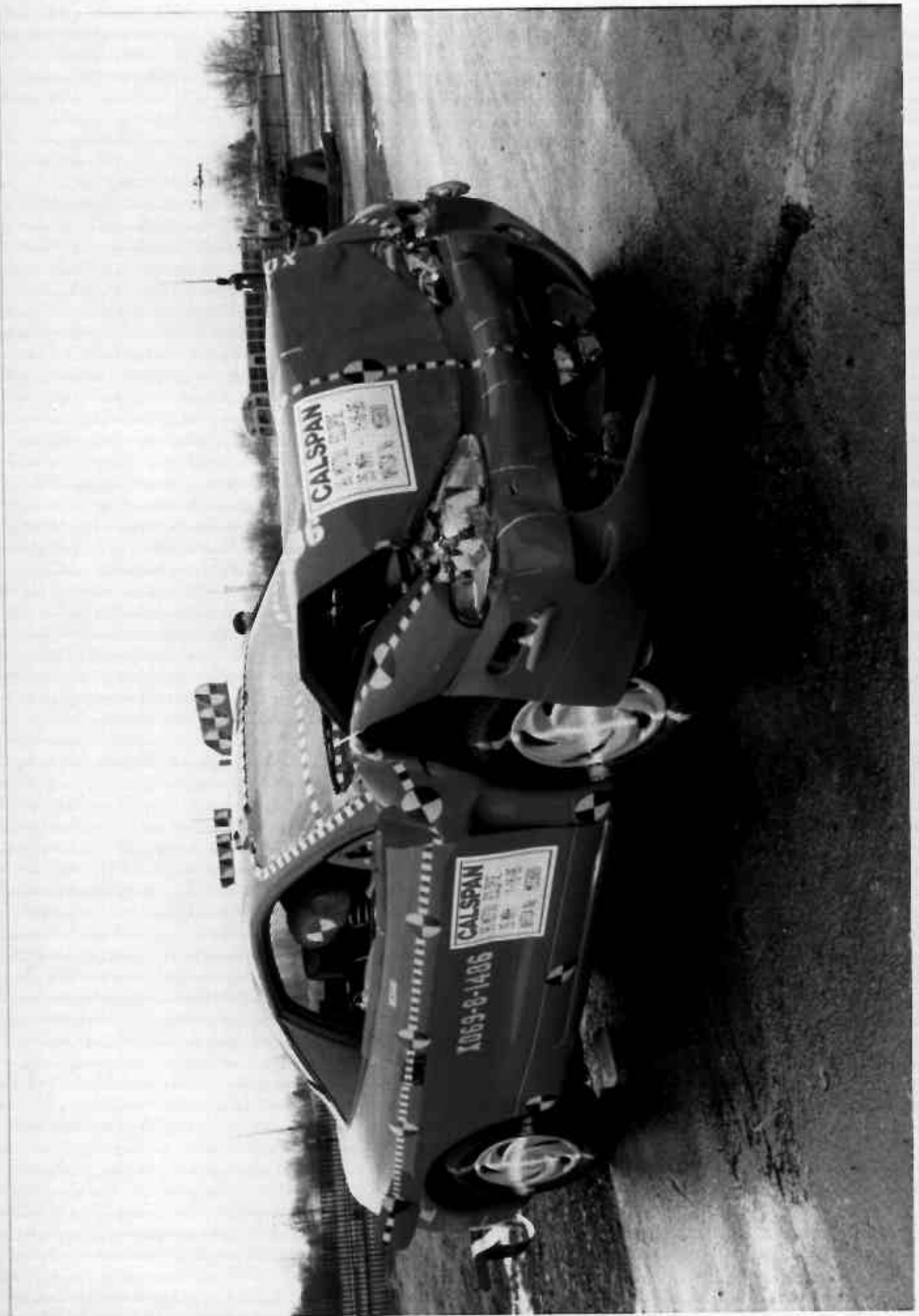


Figure A-9 POST-TEST RIGHT FRONT THREE-QUARTER VIEW

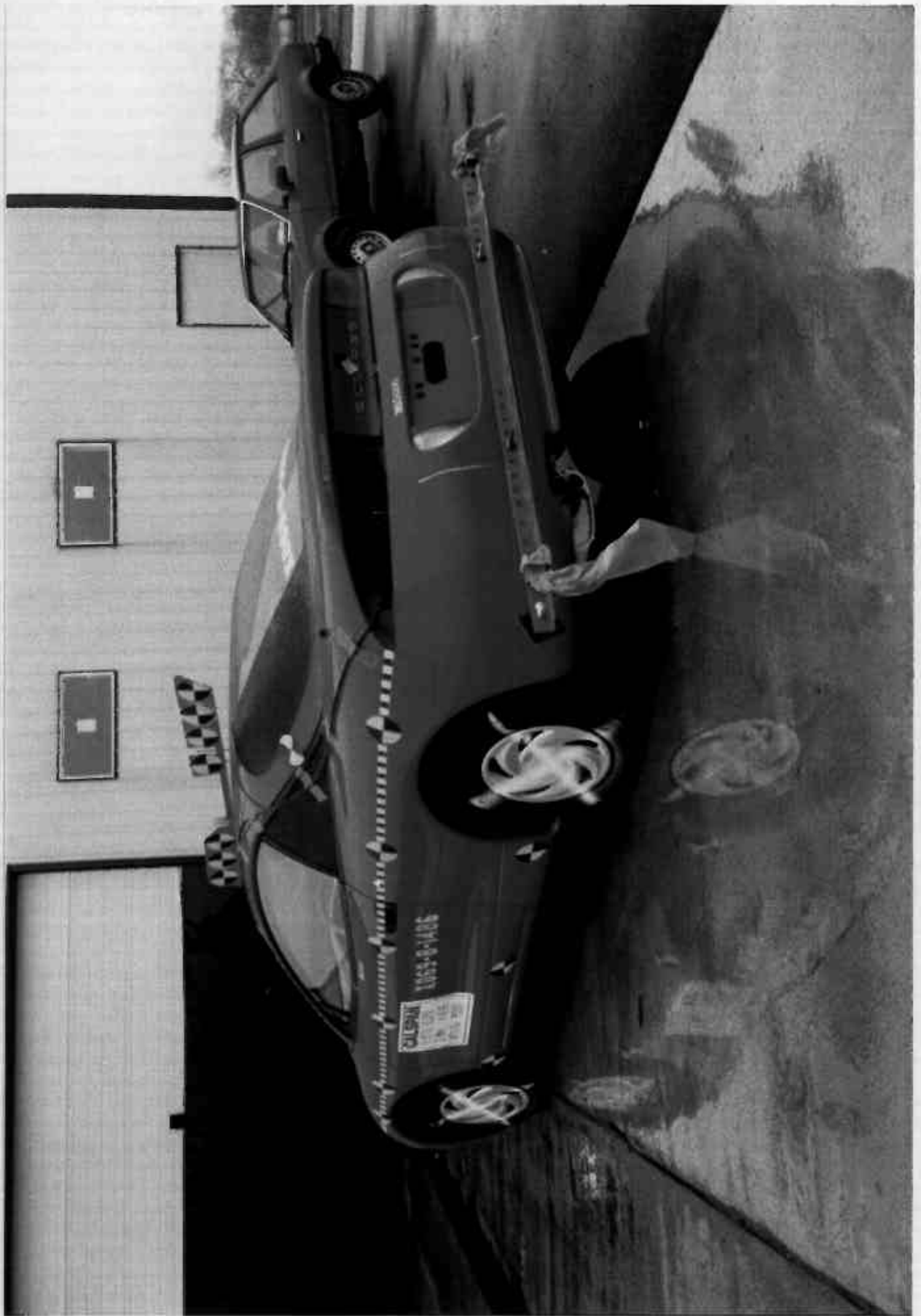


Figure A-10 PRE-TEST LEFT REAR THREE-QUARTER VIEW



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

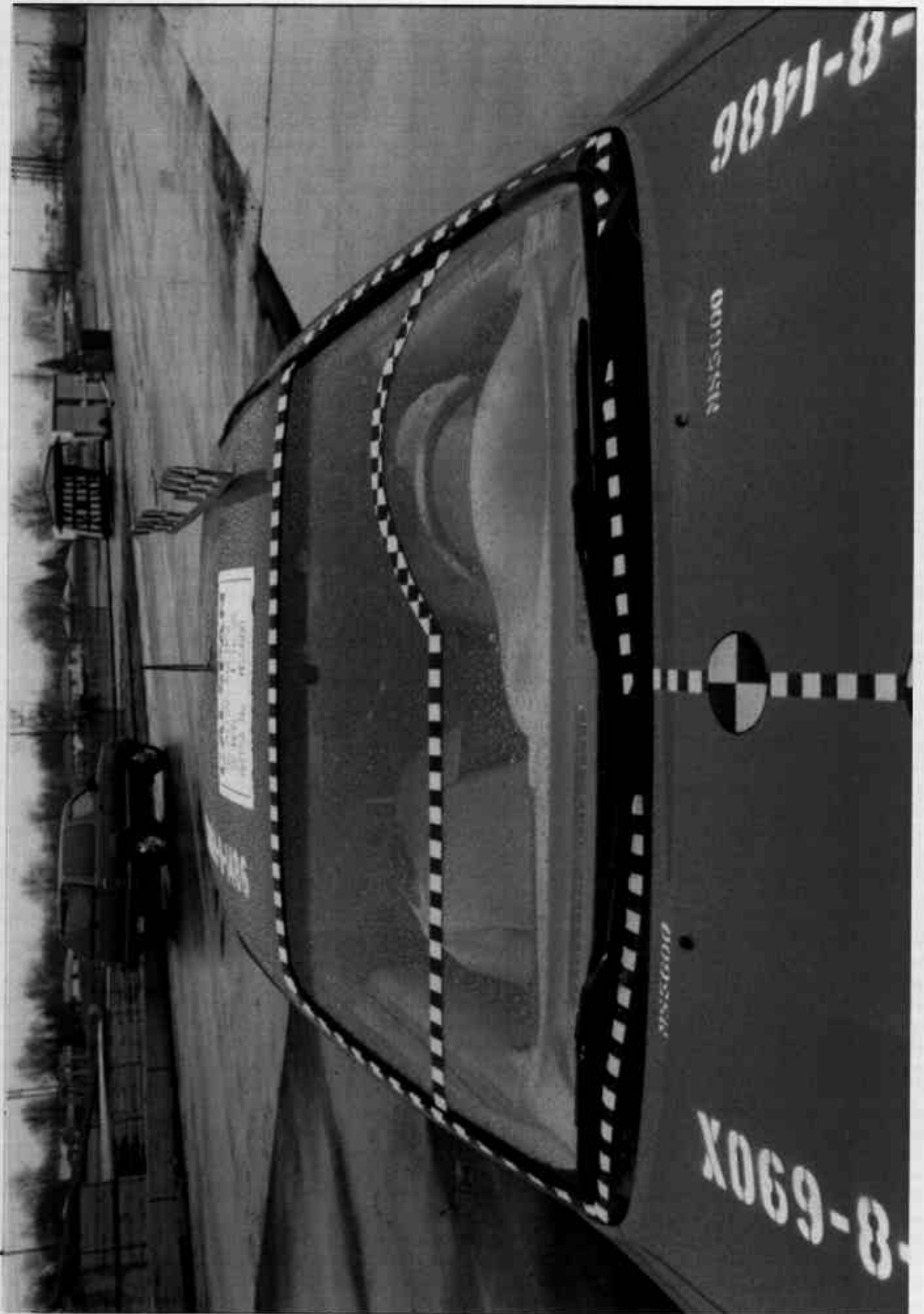


Figure A-12 PRE-TEST WINDSHIELD VIEW

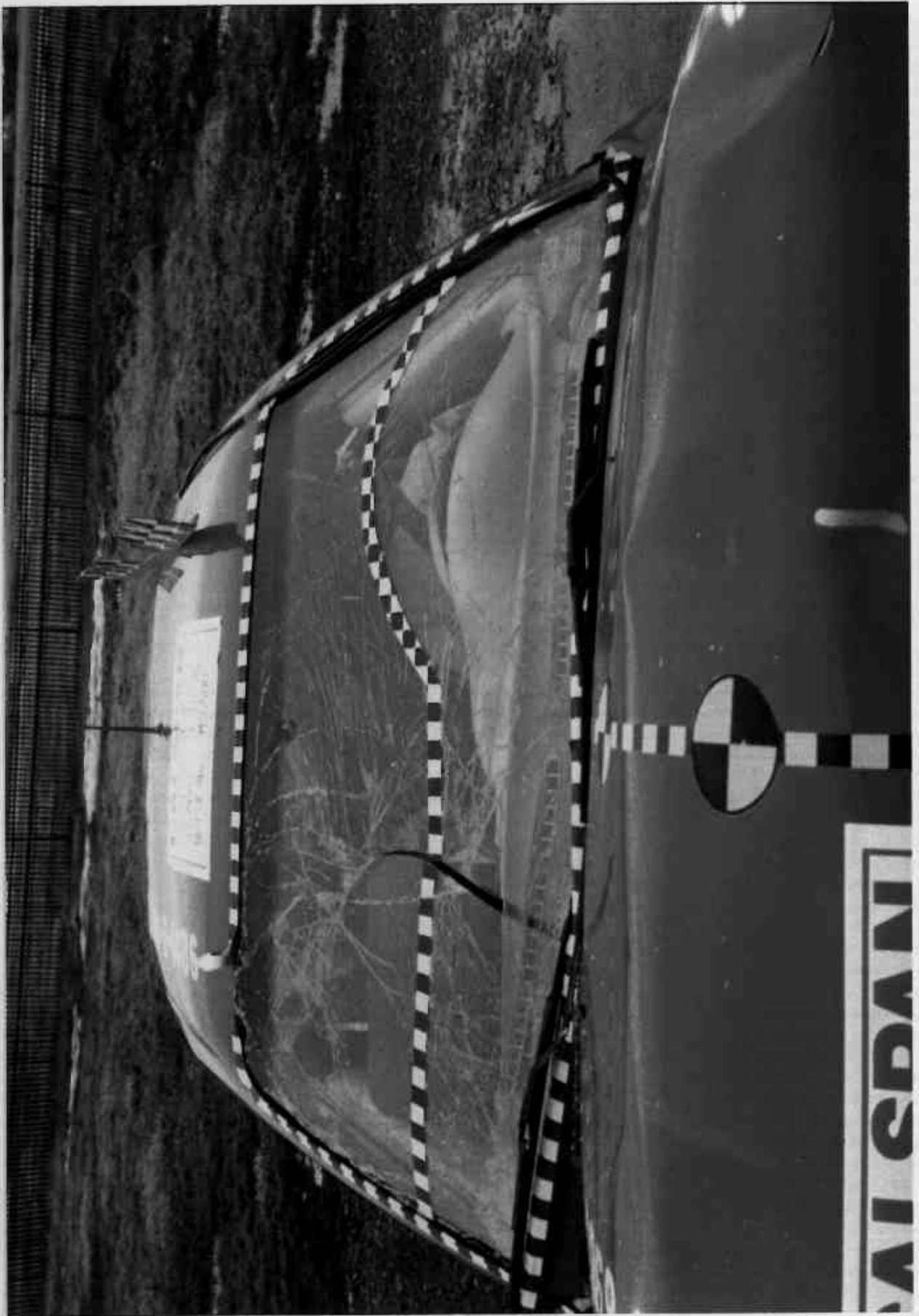


Figure A-13 POST-TEST WINDSHIELD VIEW

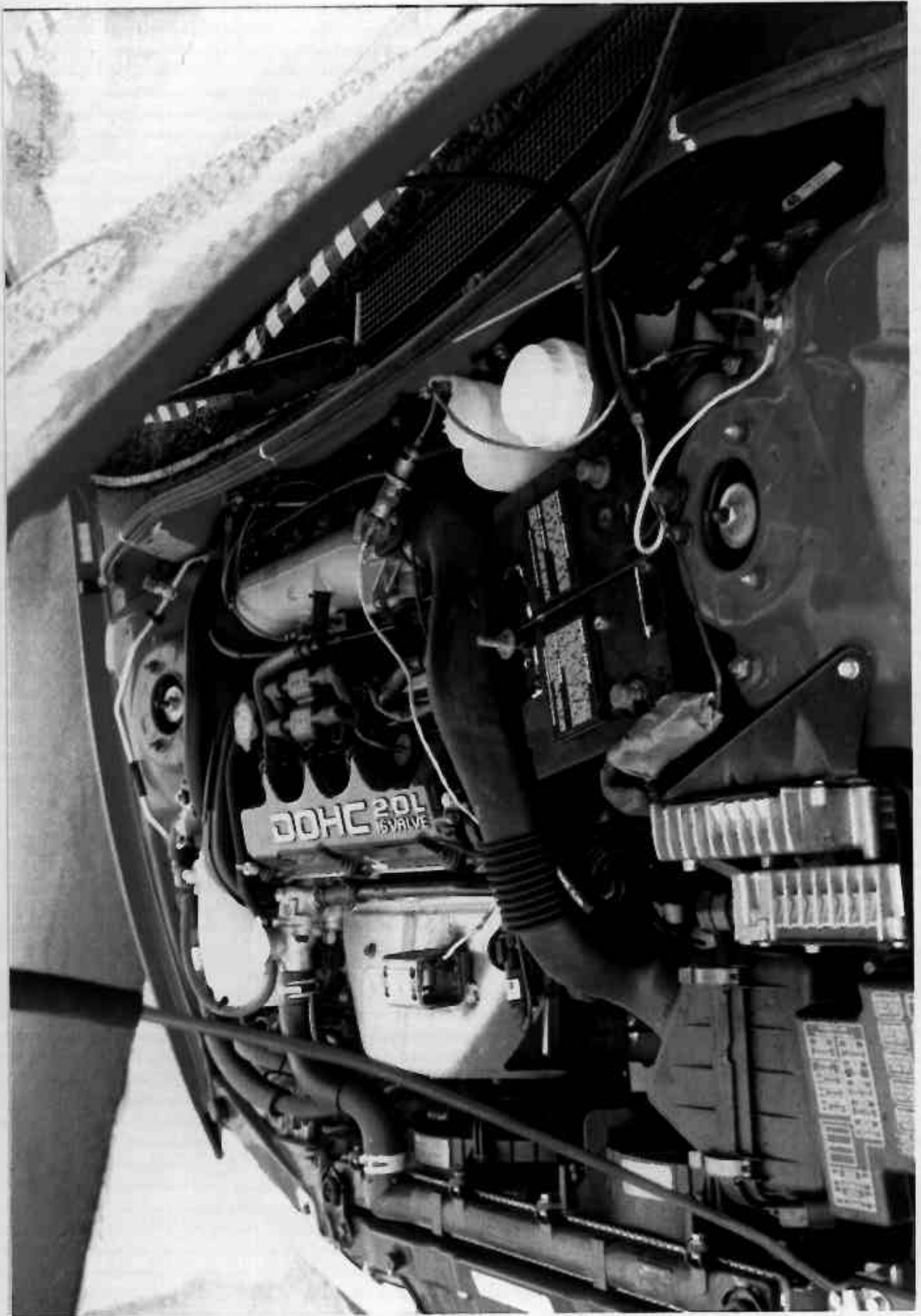


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW



Figure A-15 FUEL CAP VIEW

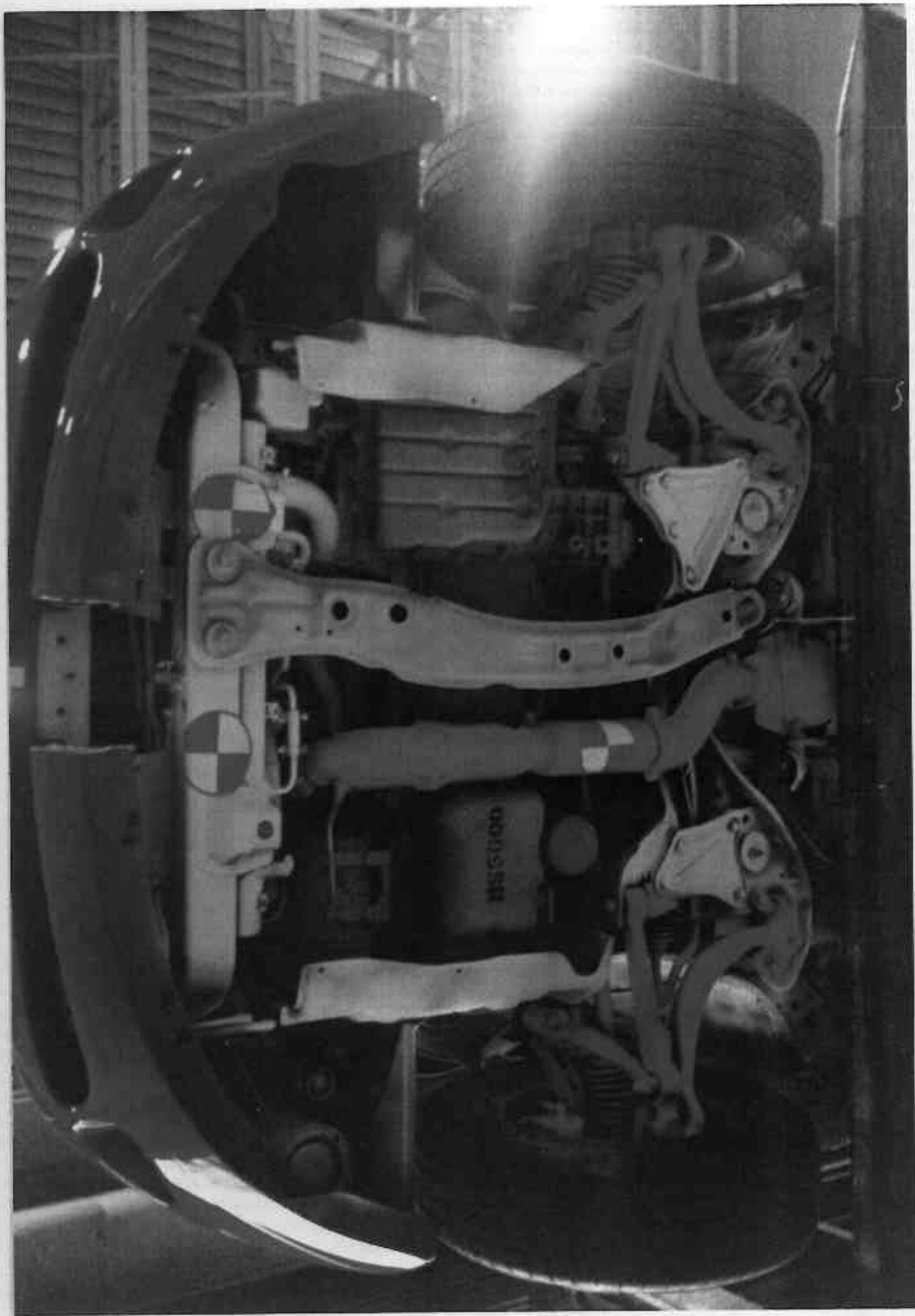


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW



Figure A-17 POST-TEST FRONT UNDERBODY VIEW

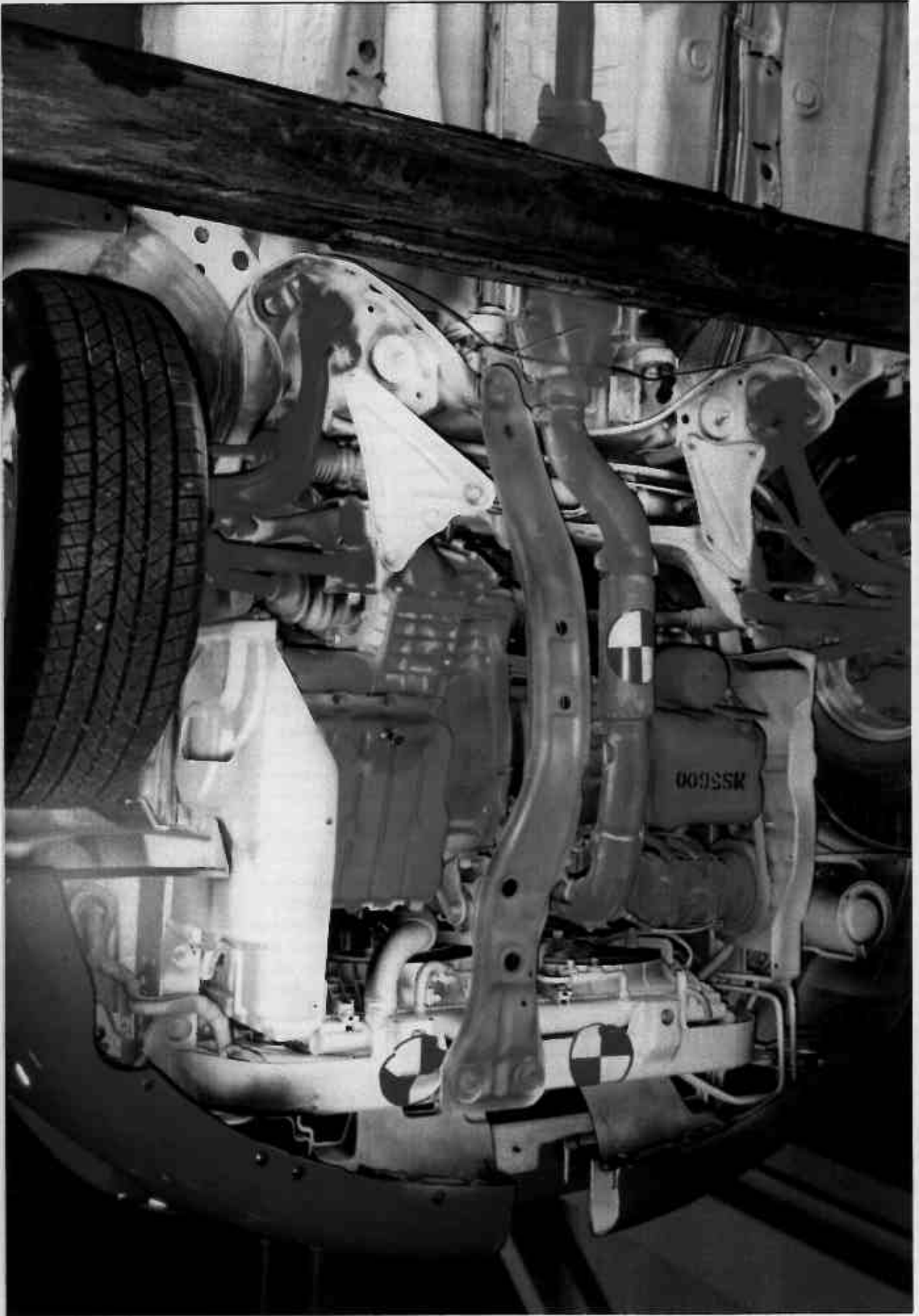


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW



Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

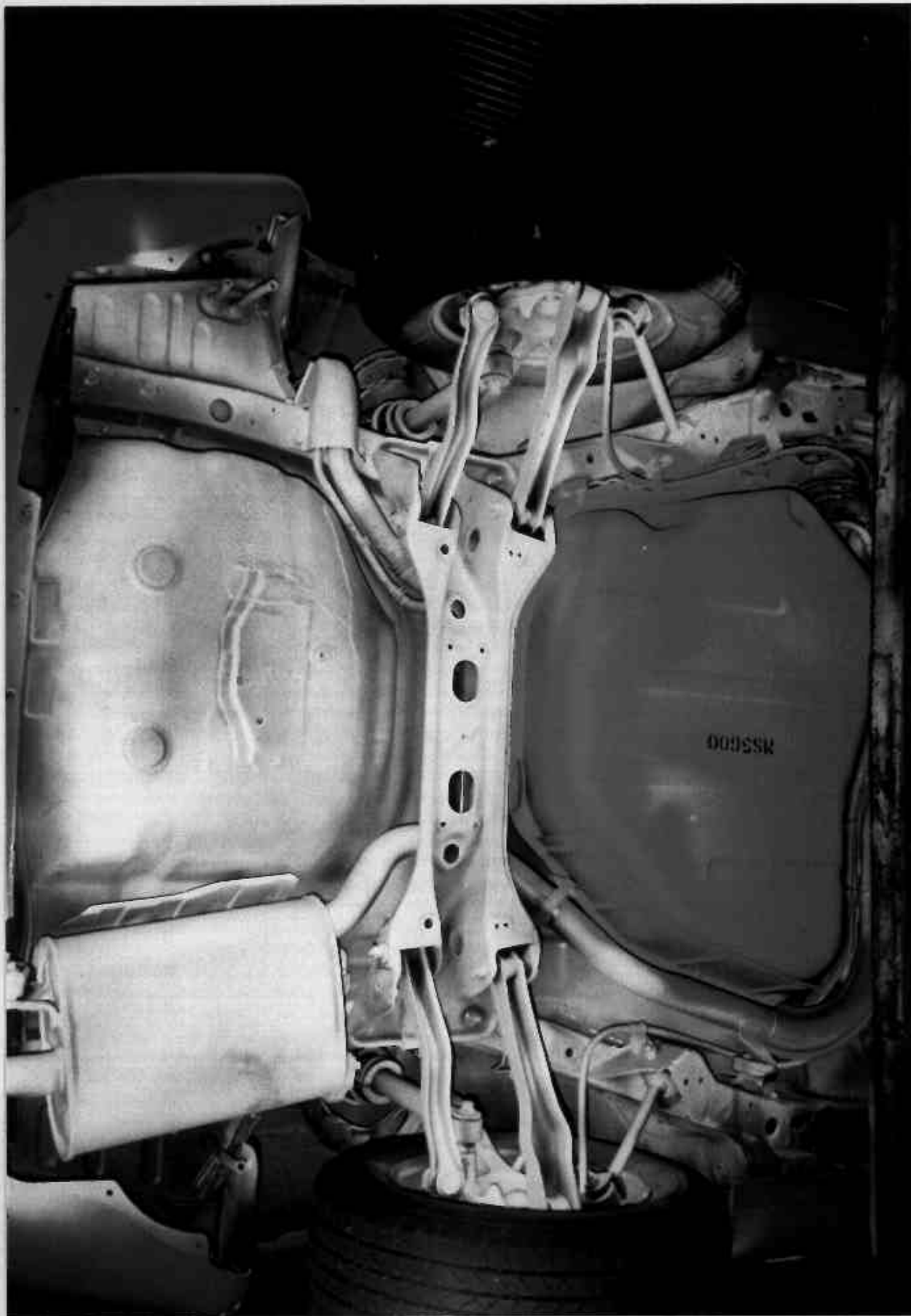


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

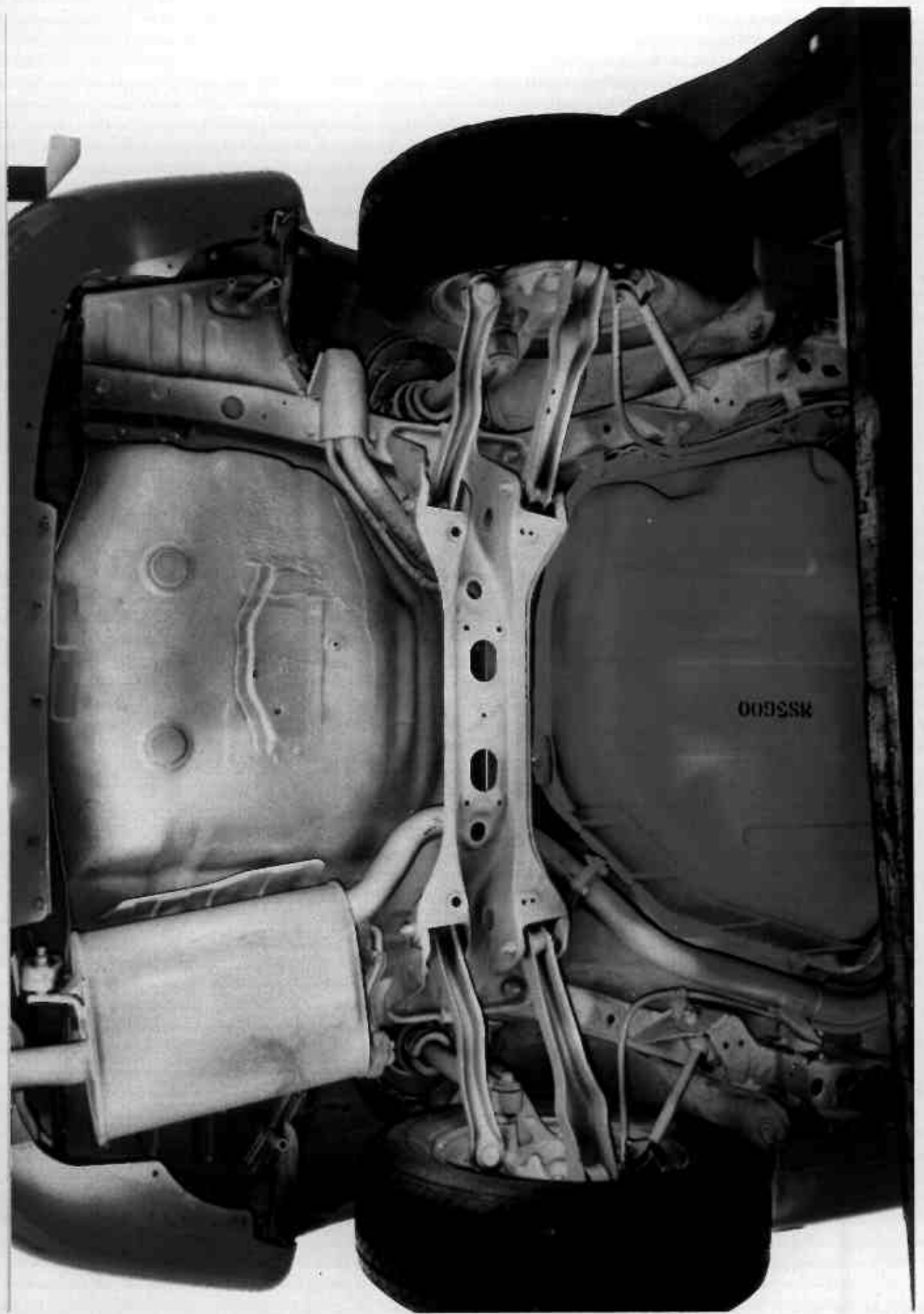


Figure A-21 POST-TEST REAR UNDERBODY VIEW



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 AND INTERIOR VIEW

A-28

8227-8



Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW
A-29



Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW

A-30

8227-8



Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW
A-31

8227-8



Figure A-30 PRE-TEST DRIVER HEAD LOCATION

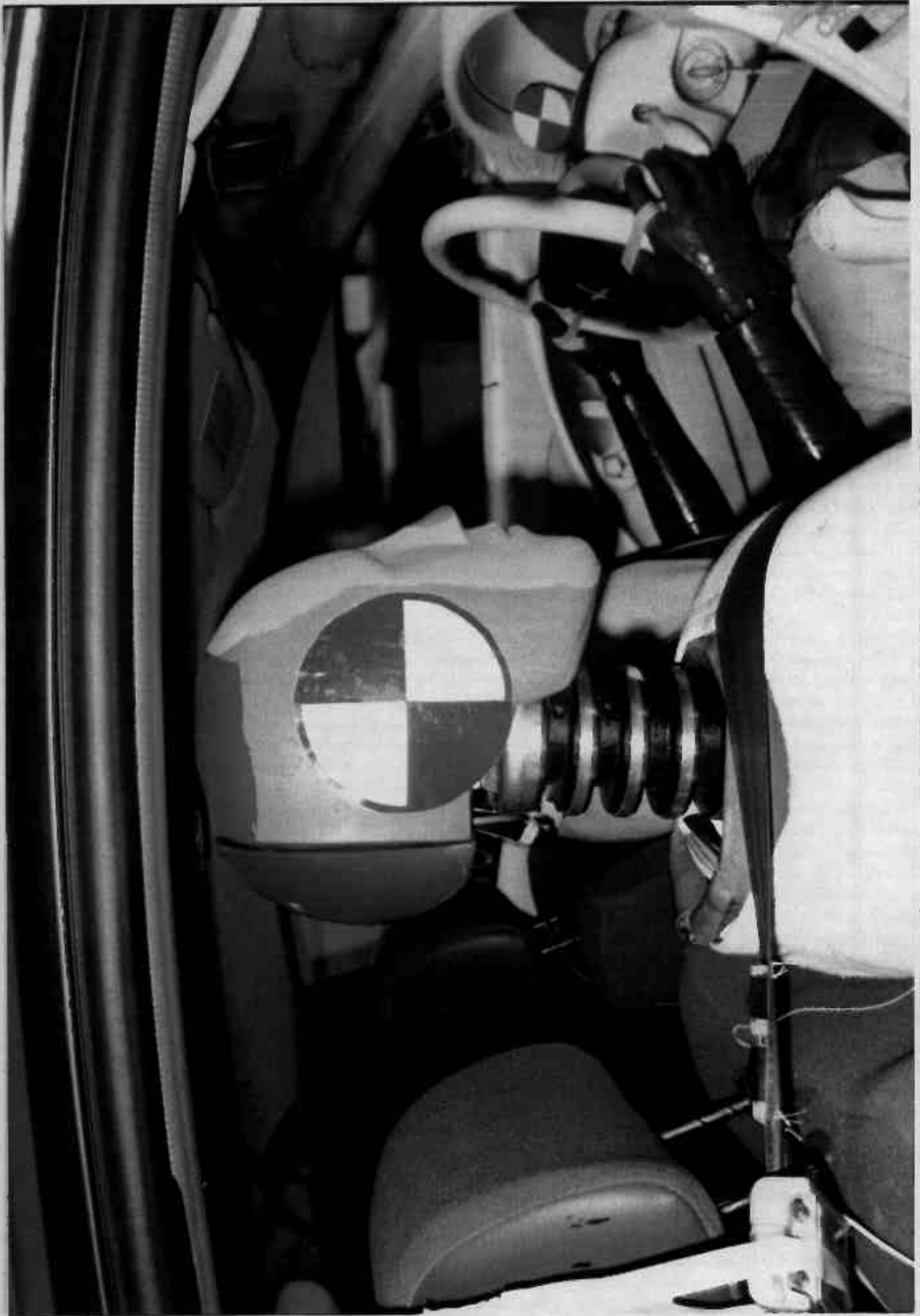


Figure A-31 PRE-TEST PASSENGER HEAD LOCATION

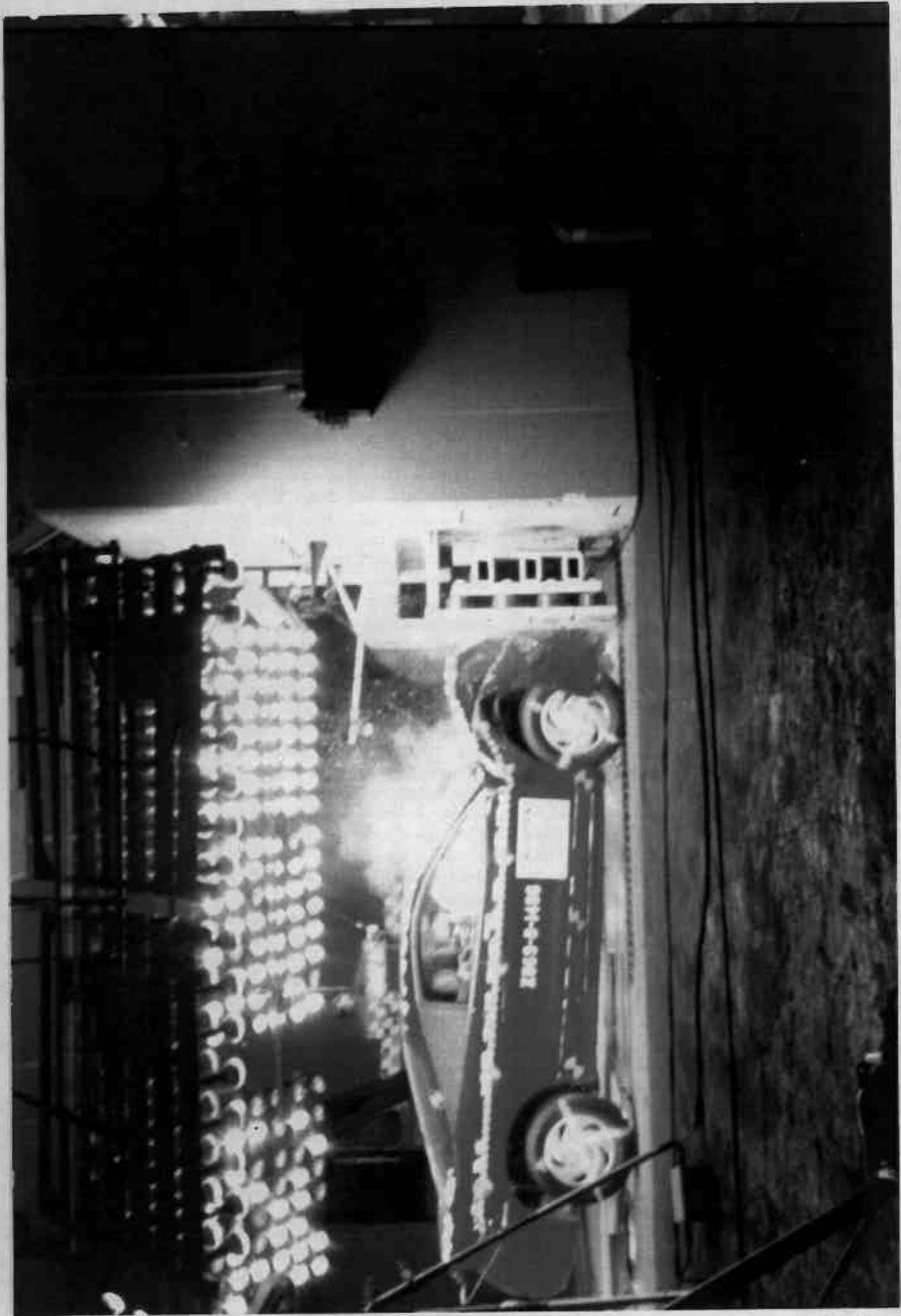


Figure A-32 IMPACT VIEW

Appendix B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

TEST NO. MS5600

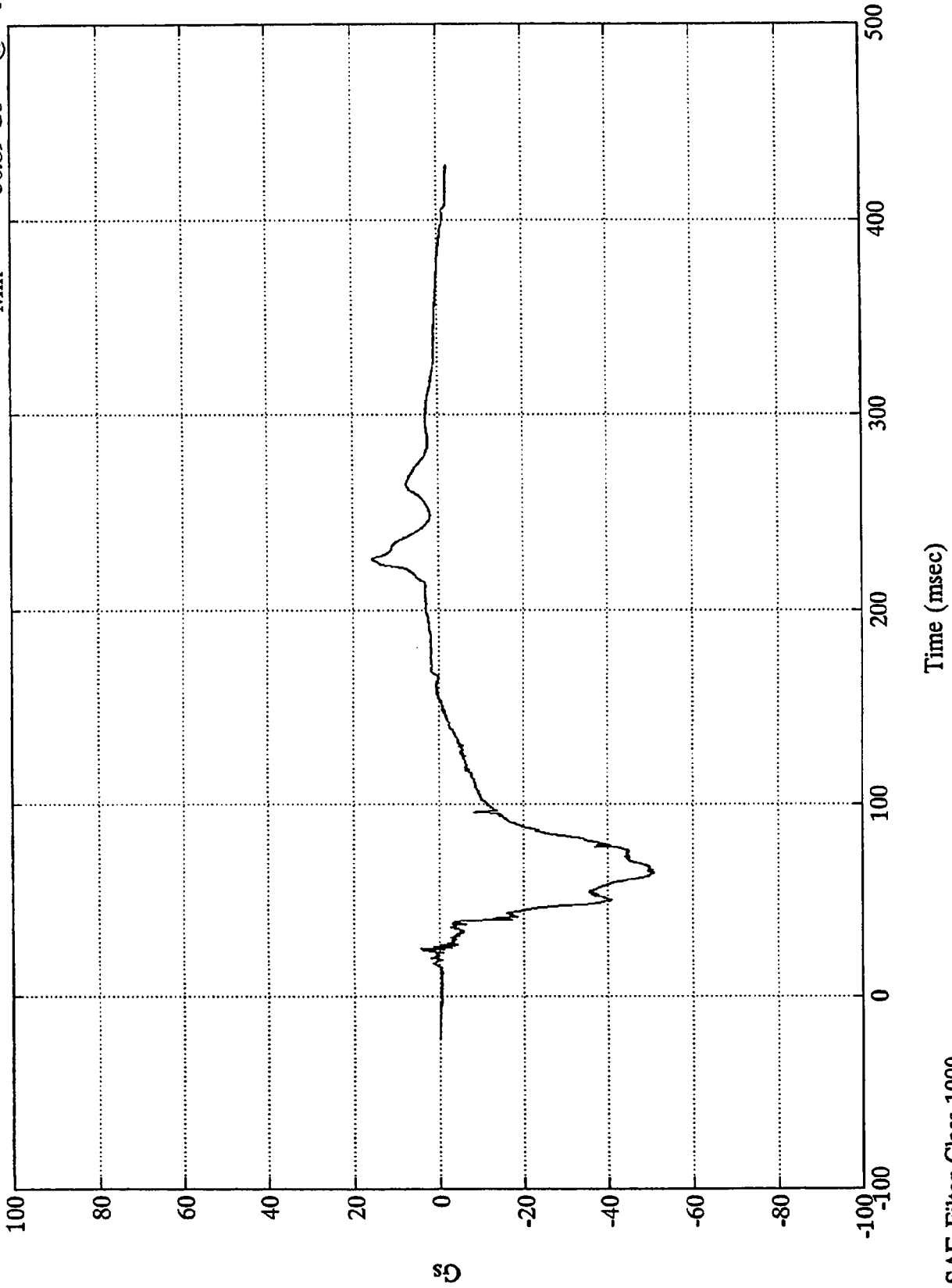
DUMMY DATA

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 #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Head X

Max = 15.41 Gs @ 226.20 msec
Min = -50.89 Gs @ 64.80 msec

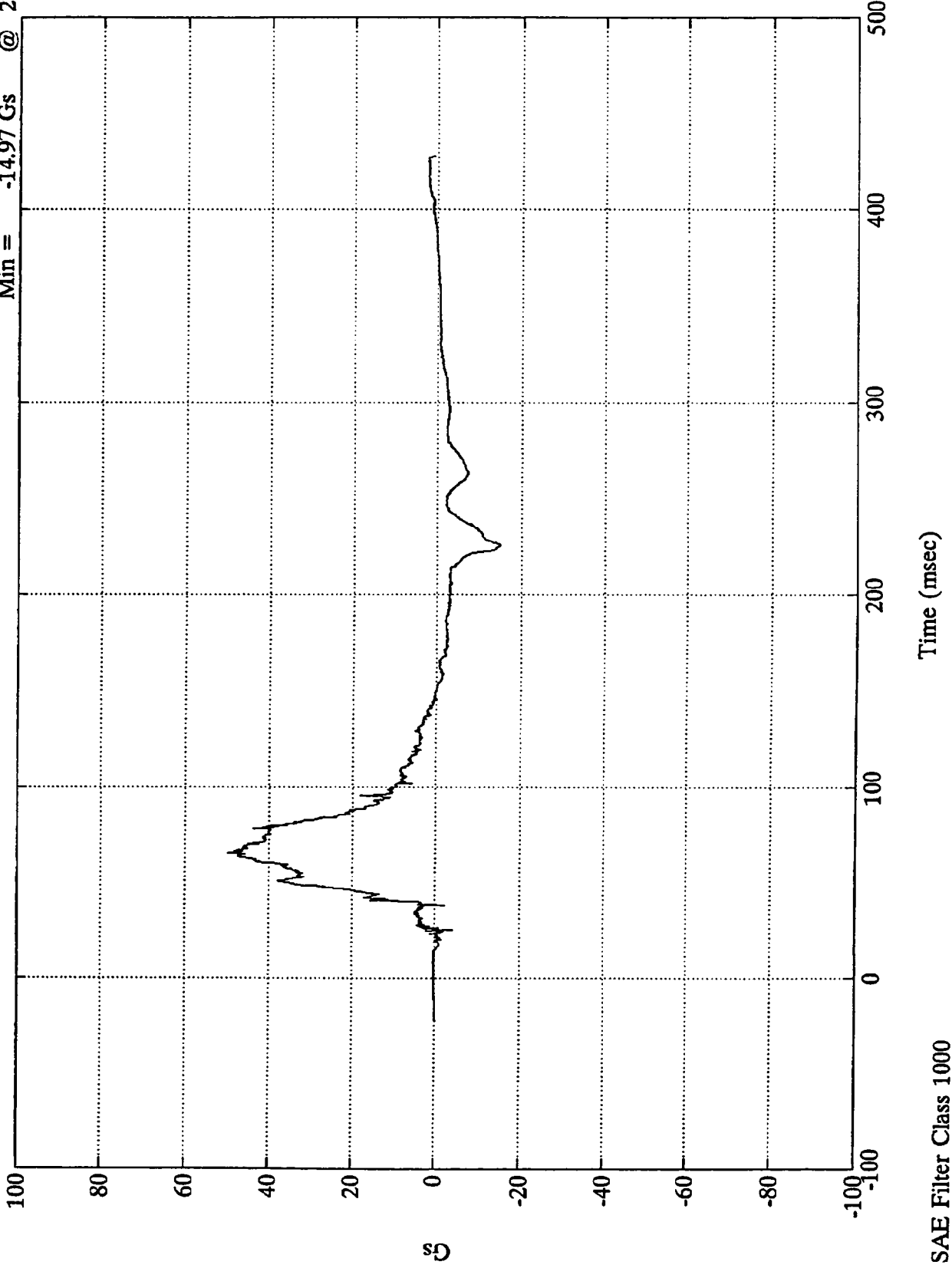


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Head X(R)

Max = 49.99 Gs @ 65.40 msec
Min = -14.97 Gs @ 226.32 msec

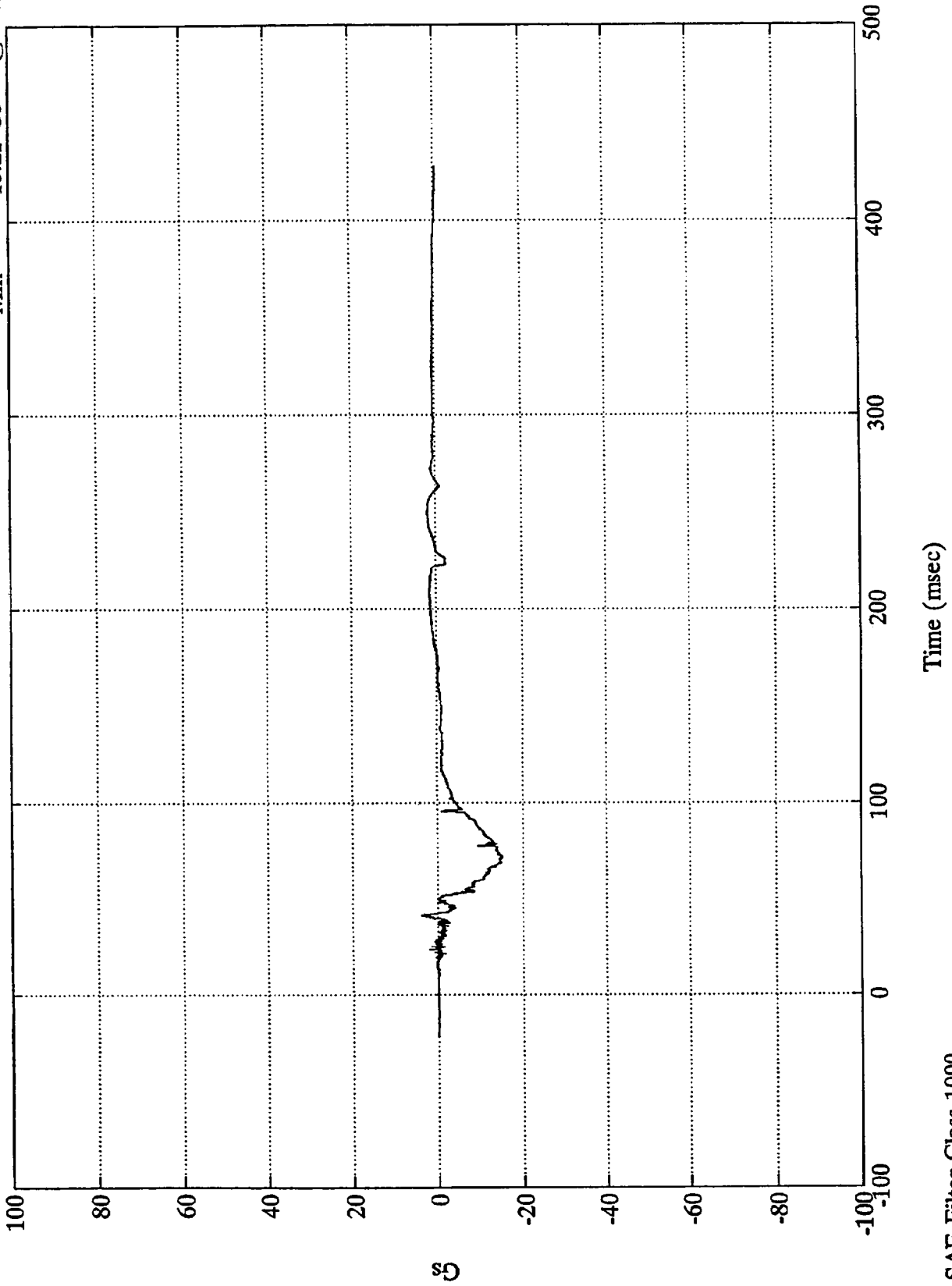


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Head Y

Max = 3.92 Gs @ 41.88 msec
Min = -15.21 Gs @ 72.59 msec

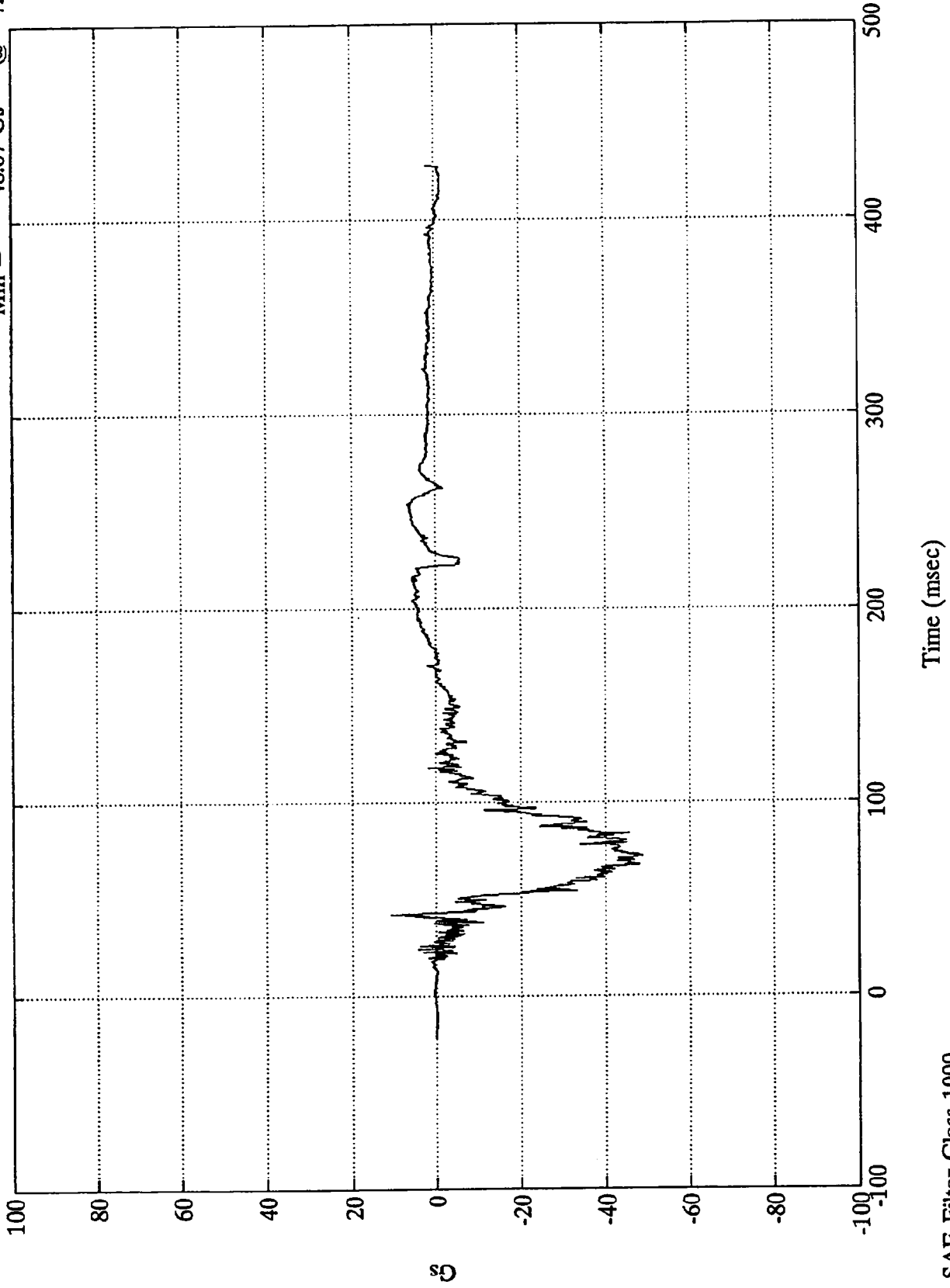


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Head Y(R)

Max = 10.85 Gs @ 41.76 msec
Min = -48.67 Gs @ 72.48 msec

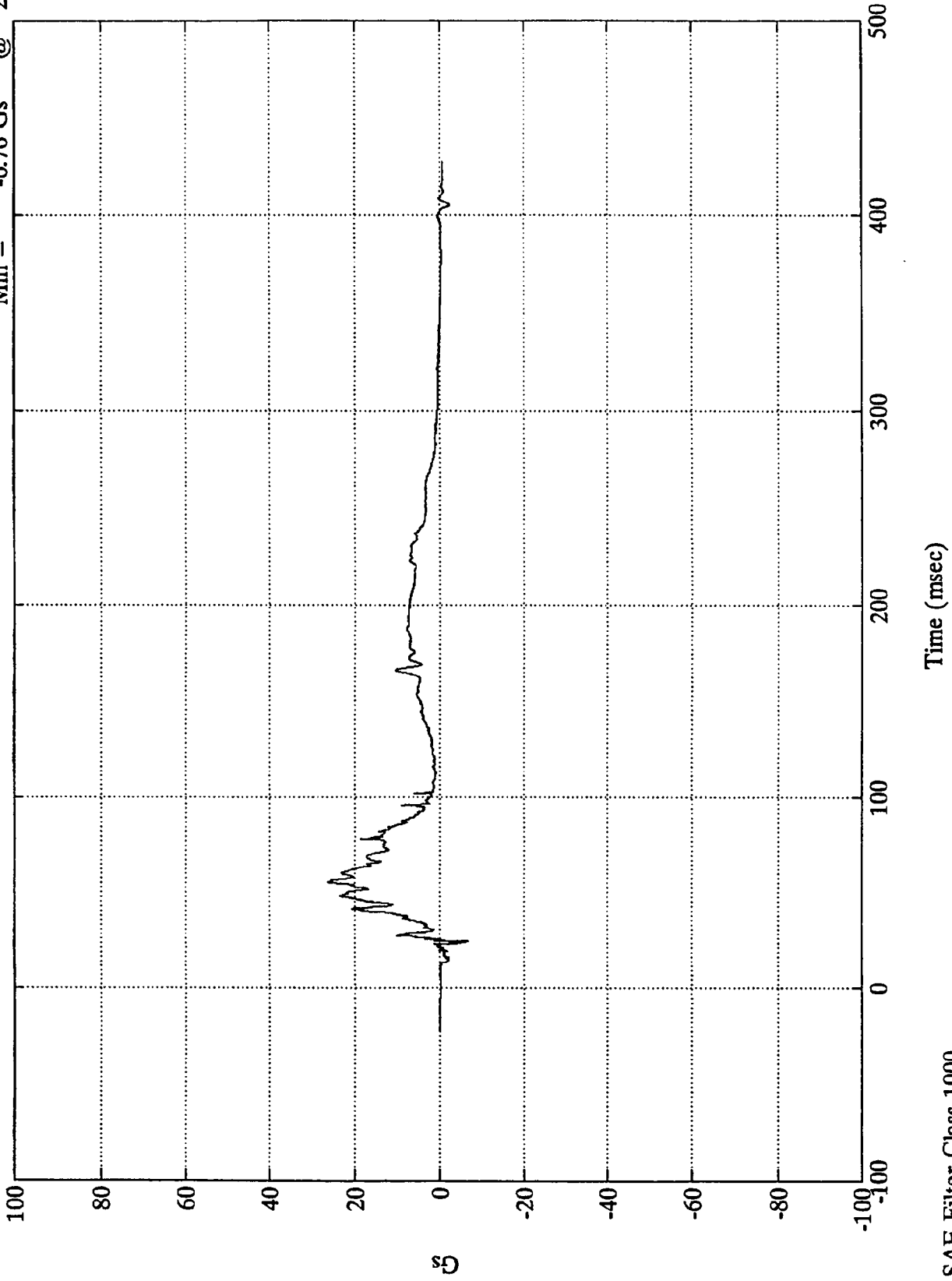


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Head Z

Max = 26.13 Gs @ 55.80 msec
Min = -6.76 Gs @ 24.71 msec

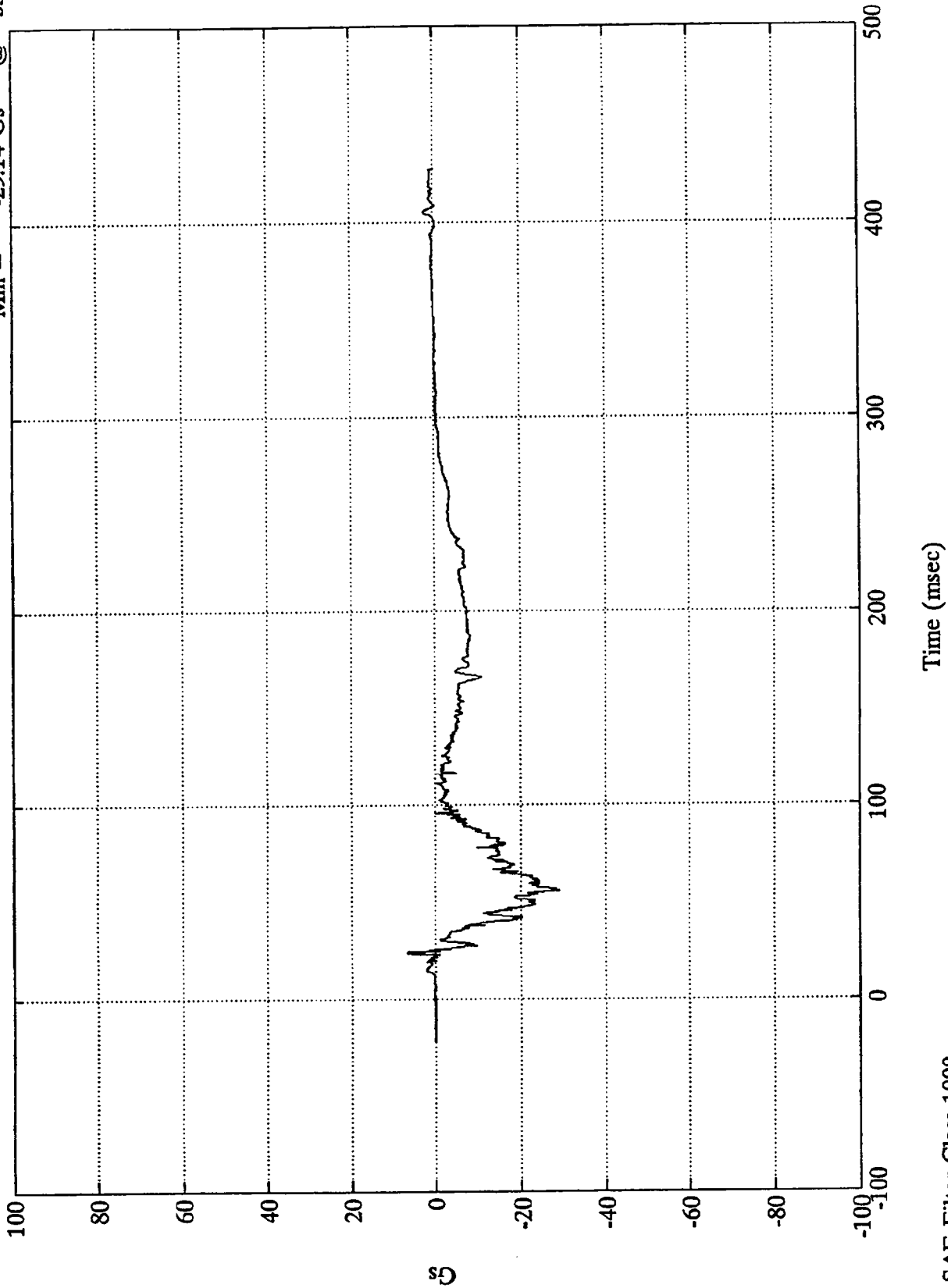


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Head Z(R)

Max = 6.73 Gs @ 23.76 msec
Min = -29.14 Gs @ 55.80 msec

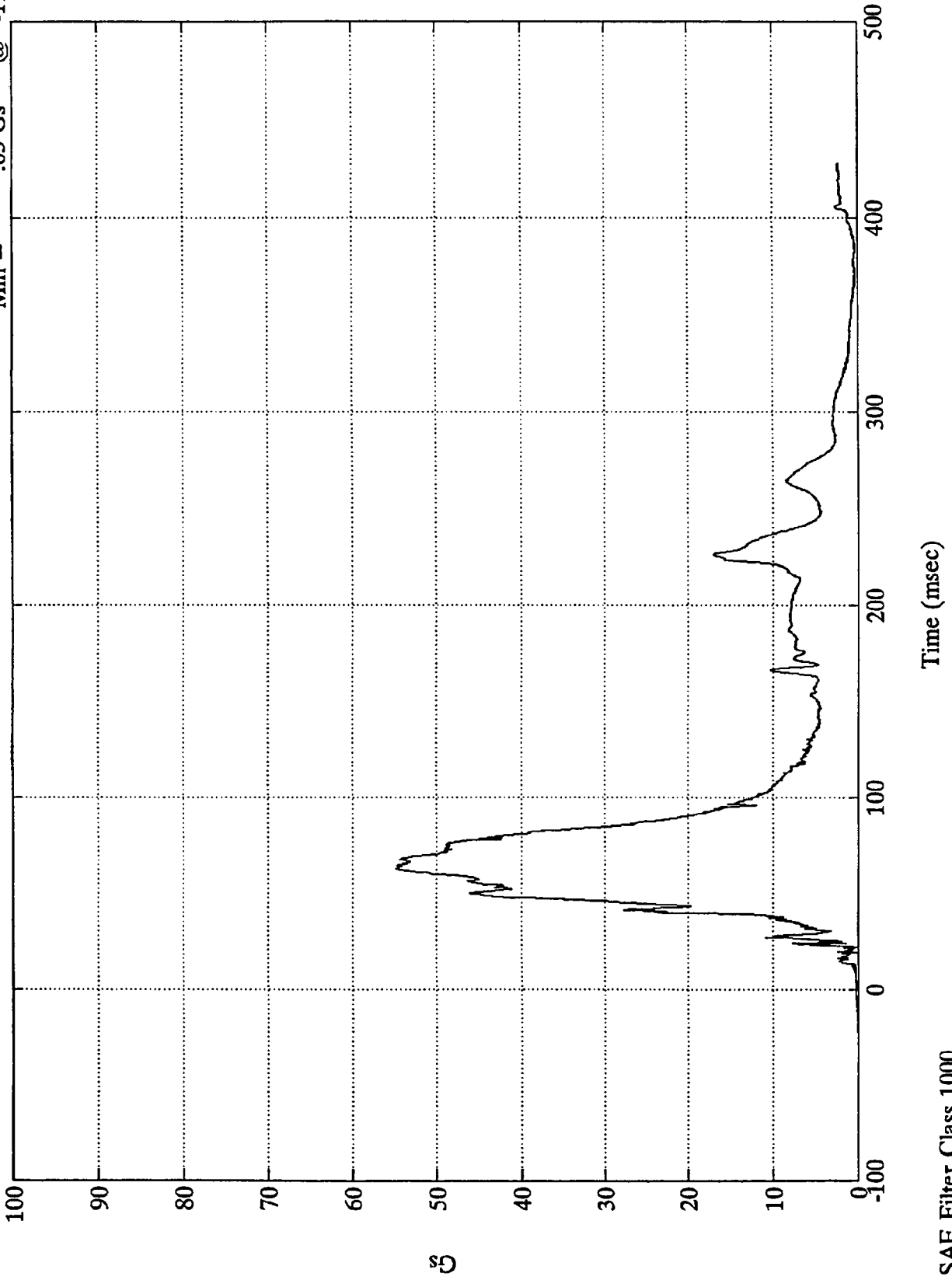


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Head Resultant

Max = 54.79 Gs @ 63.11 msec
Min = .03 Gs @ -11.52 msec

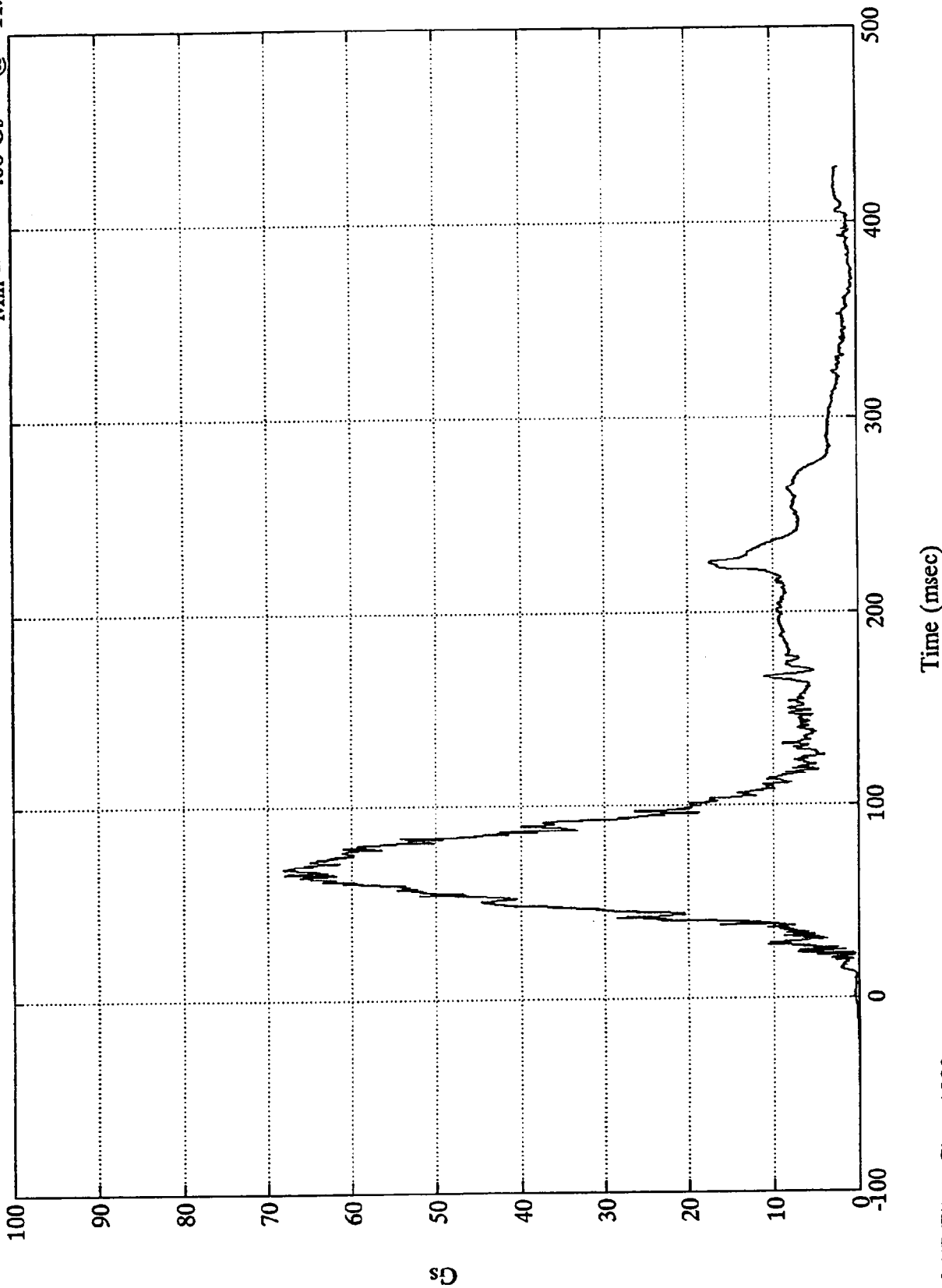


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Head Resultant(R)

Max = 68.16 Gs @ 67.91 msec
Min = .06 Gs @ -11.40 msec

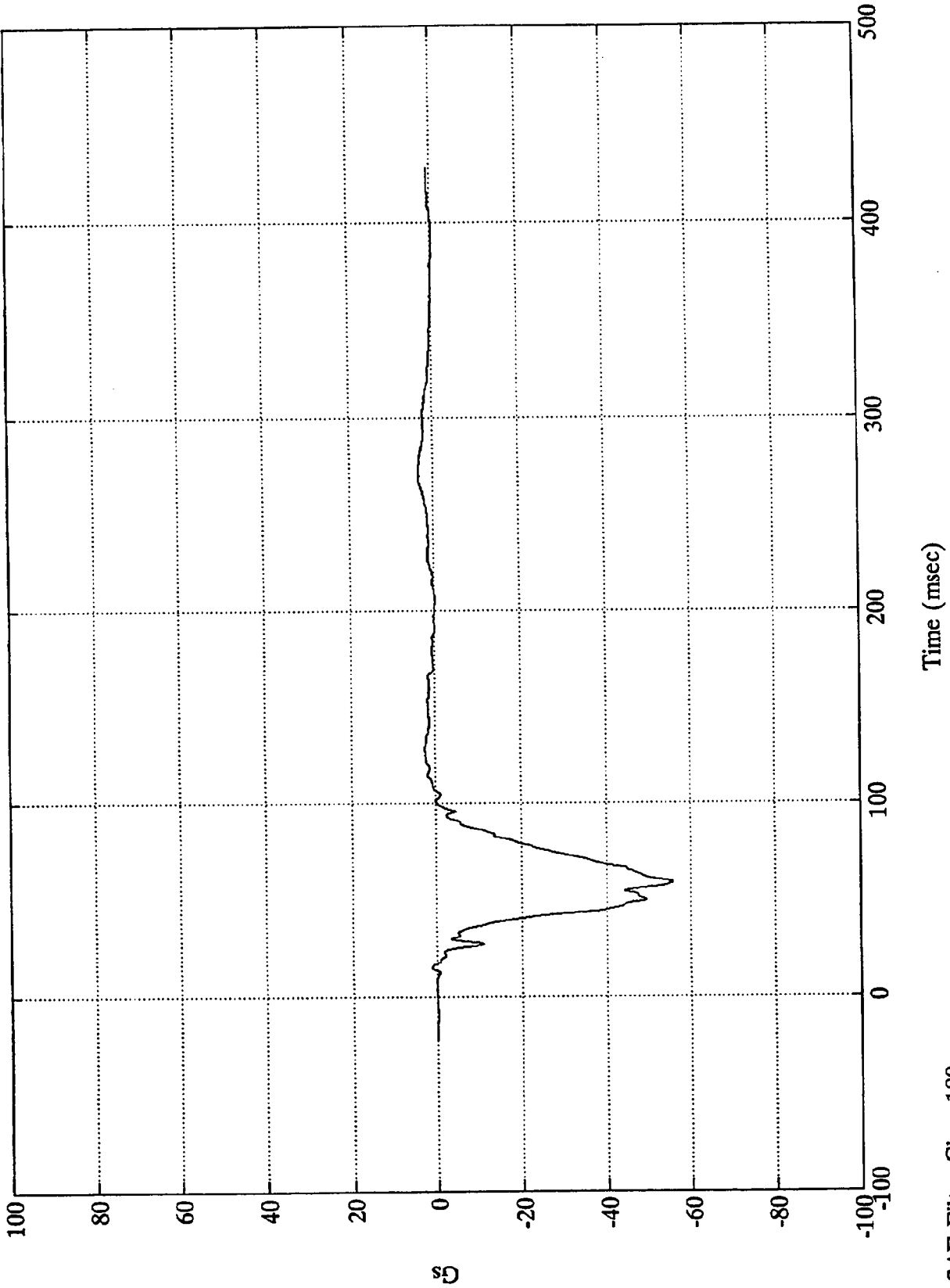


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Chest X

Max = 3.40 Gs @ 273.36 msec
Min = -55.54 Gs @ 58.91 msec

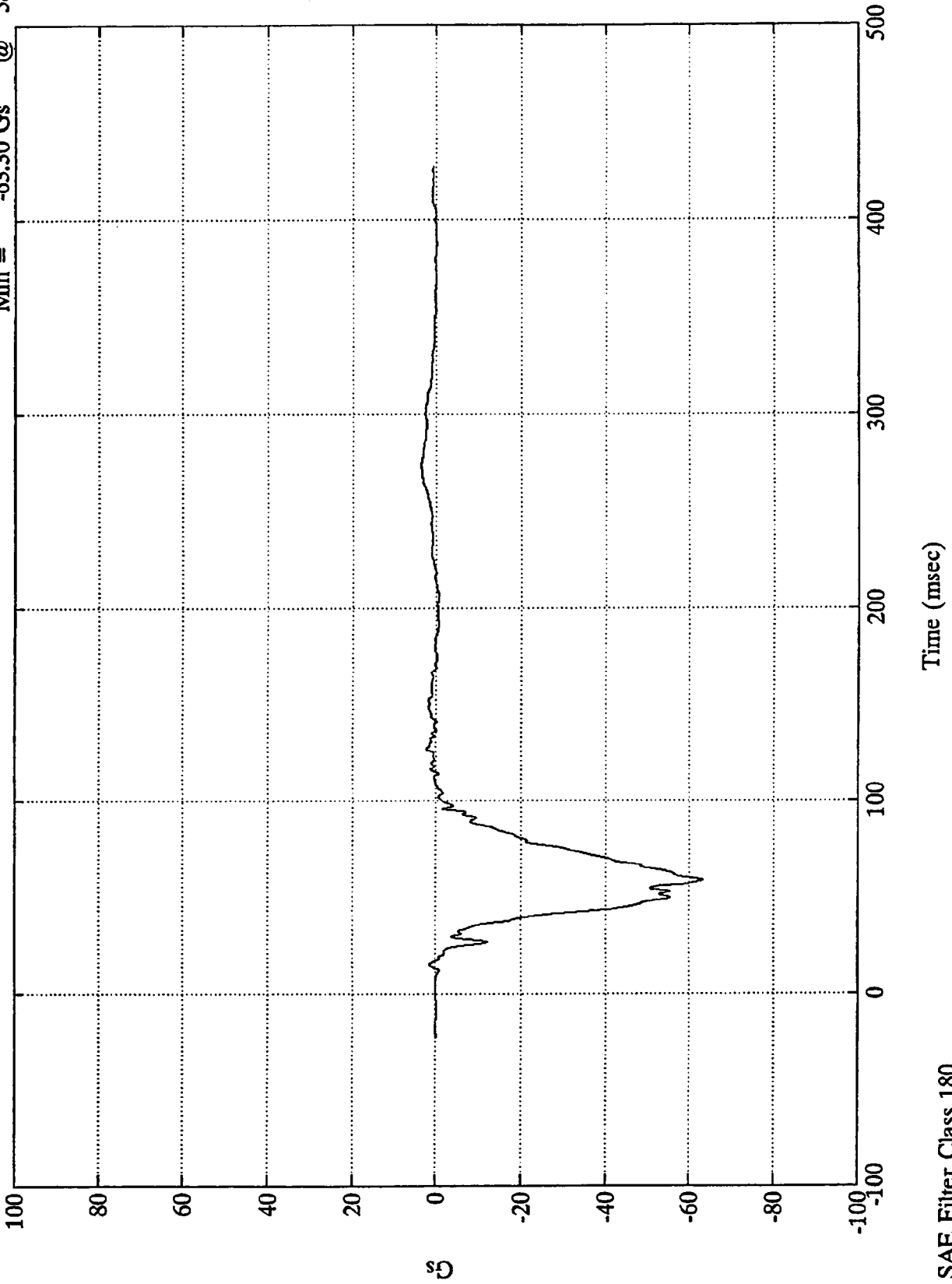


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Chest X(R)

Max = 3.61 Gs @ 274.32 msec
Min = -63.30 Gs @ 58.91 msec

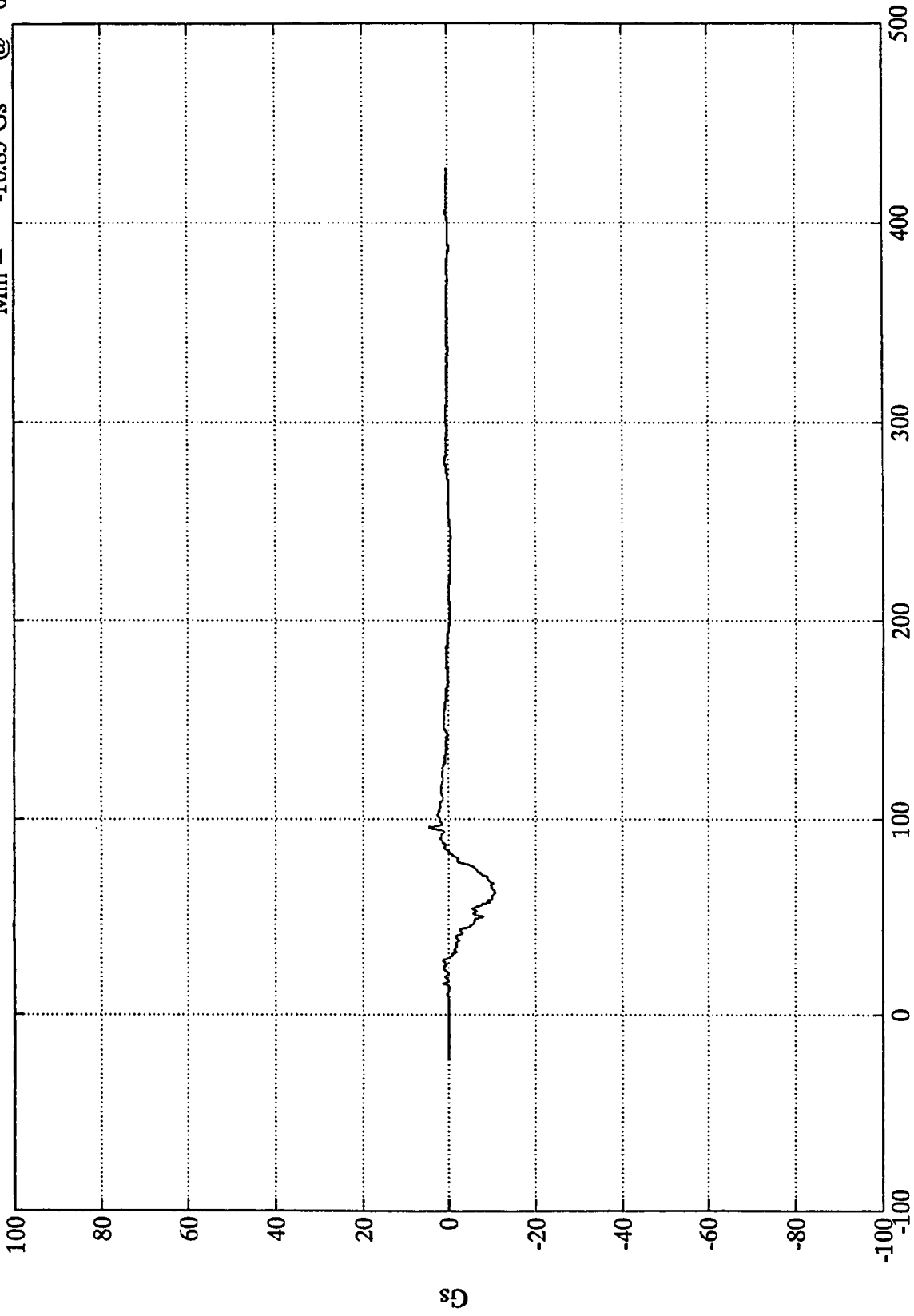


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Chest Y

Max = 4.52 Gs @ 95.88 msec
Min = -10.85 Gs @ 61.92 msec



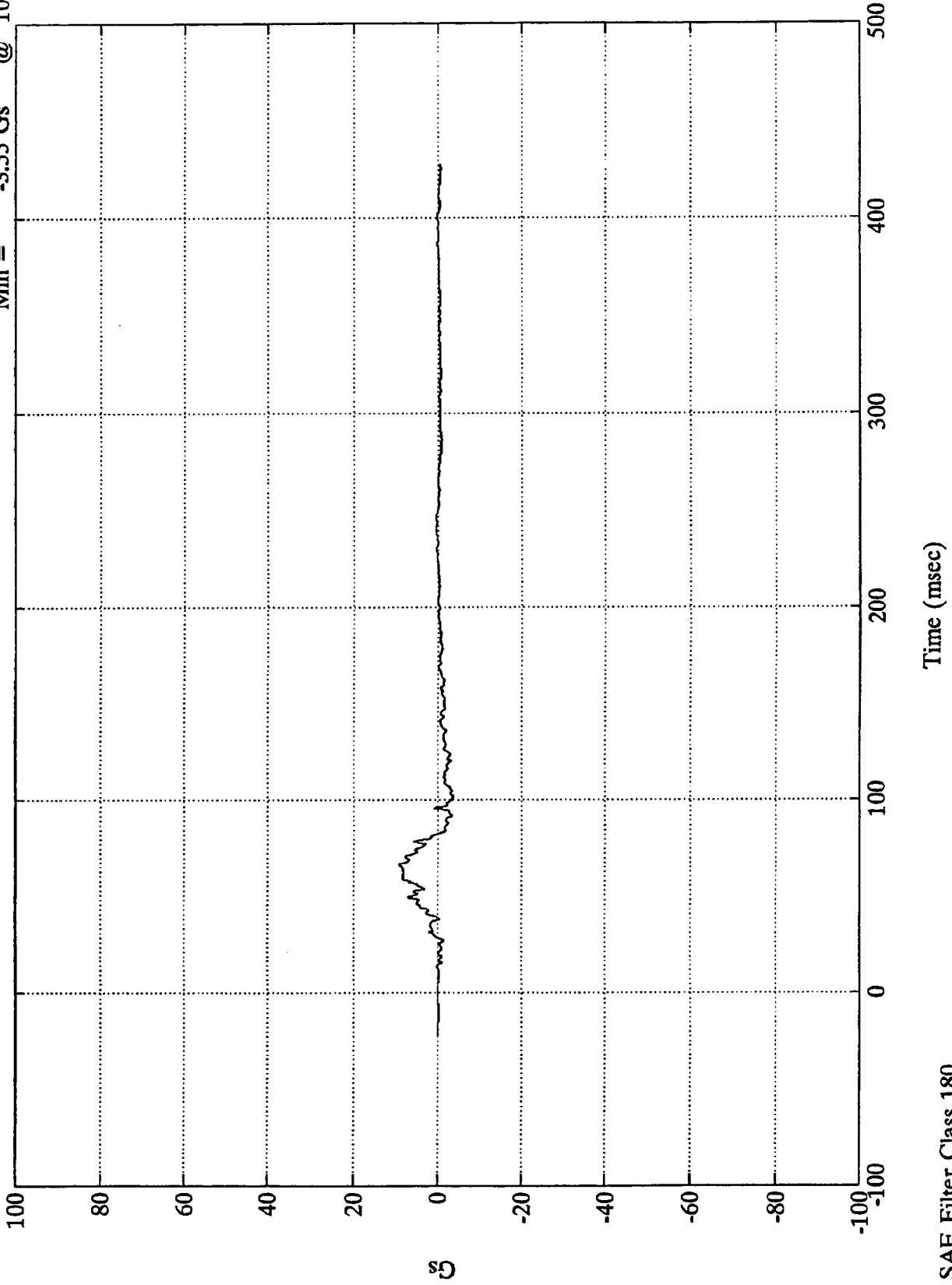
Time (msec)

SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Chest Y(R)

Max = 9.27 Gs @ 66.60 msec
Min = -3.55 Gs @ 101.76 msec

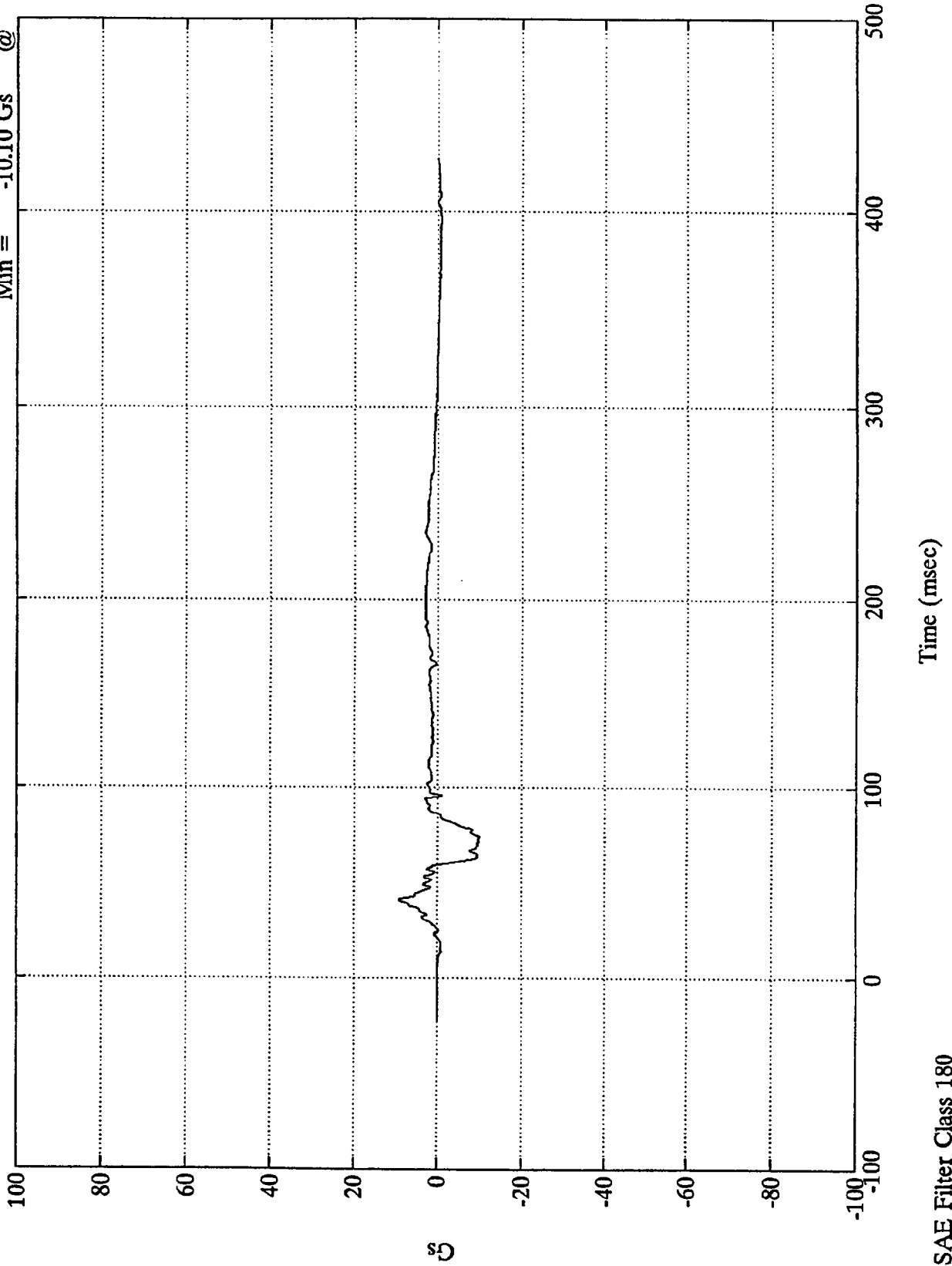


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Chest Z

Max = 9.16 Gs @ 41.28 msec
Min = -10.10 Gs @ 74.40 msec

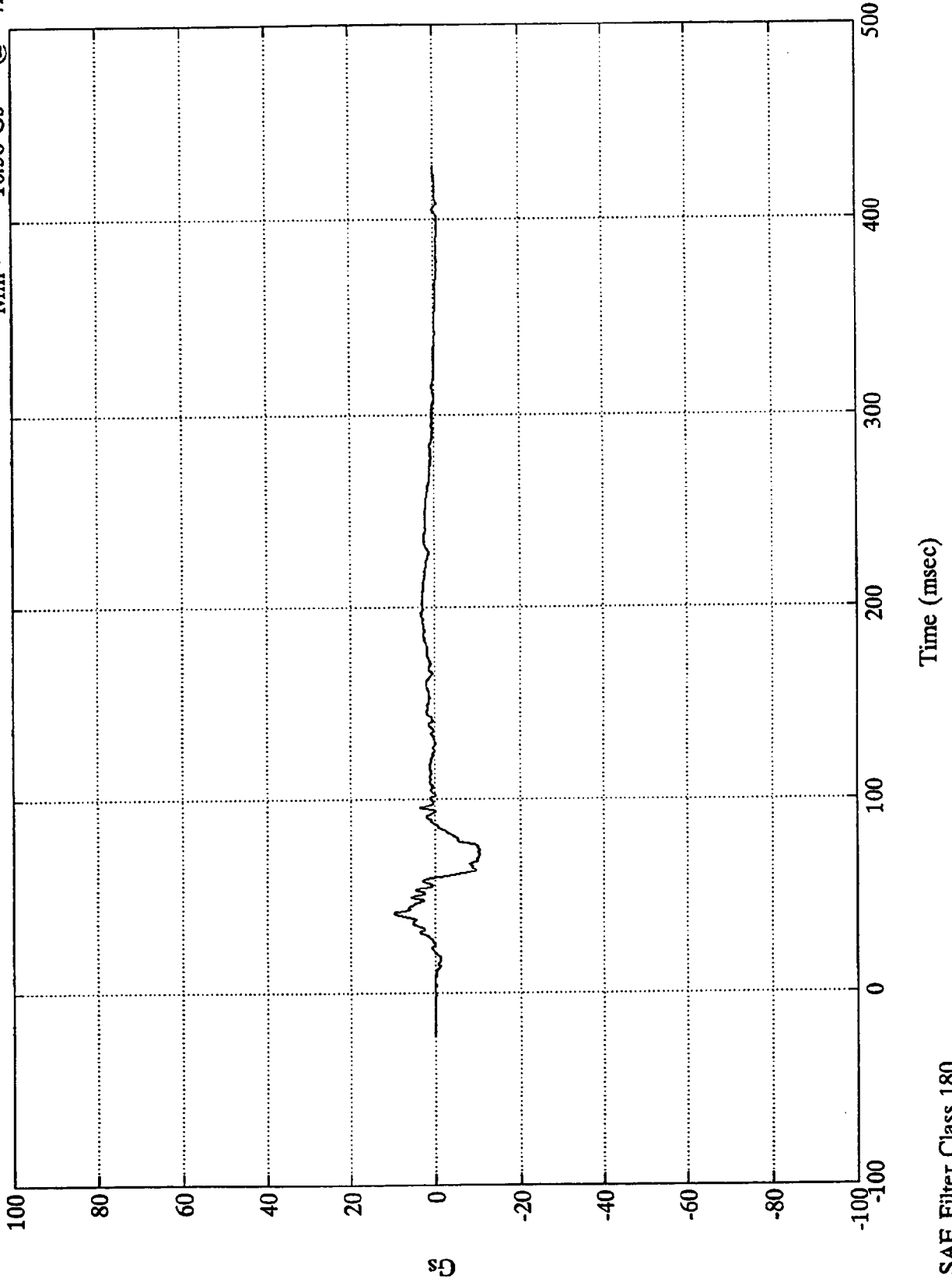


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Chest Z(R)

Max = 9.74 Gs @ 41.16 msec
Min = -10.56 Gs @ 72.00 msec

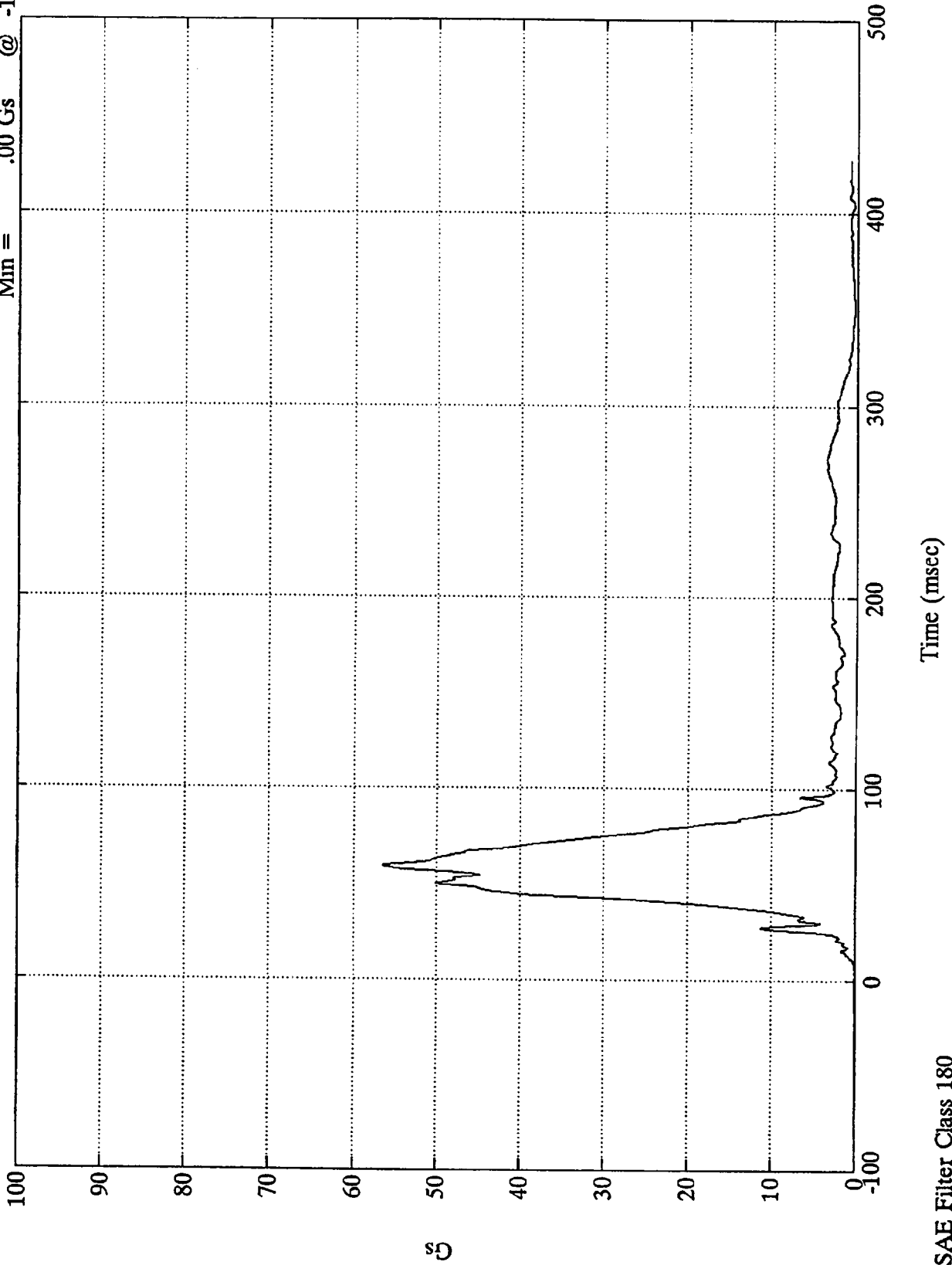


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Chest Resultant

Max = 56.51 Gs @ 58.91 msec
Min = .00 Gs @ -17.15 msec

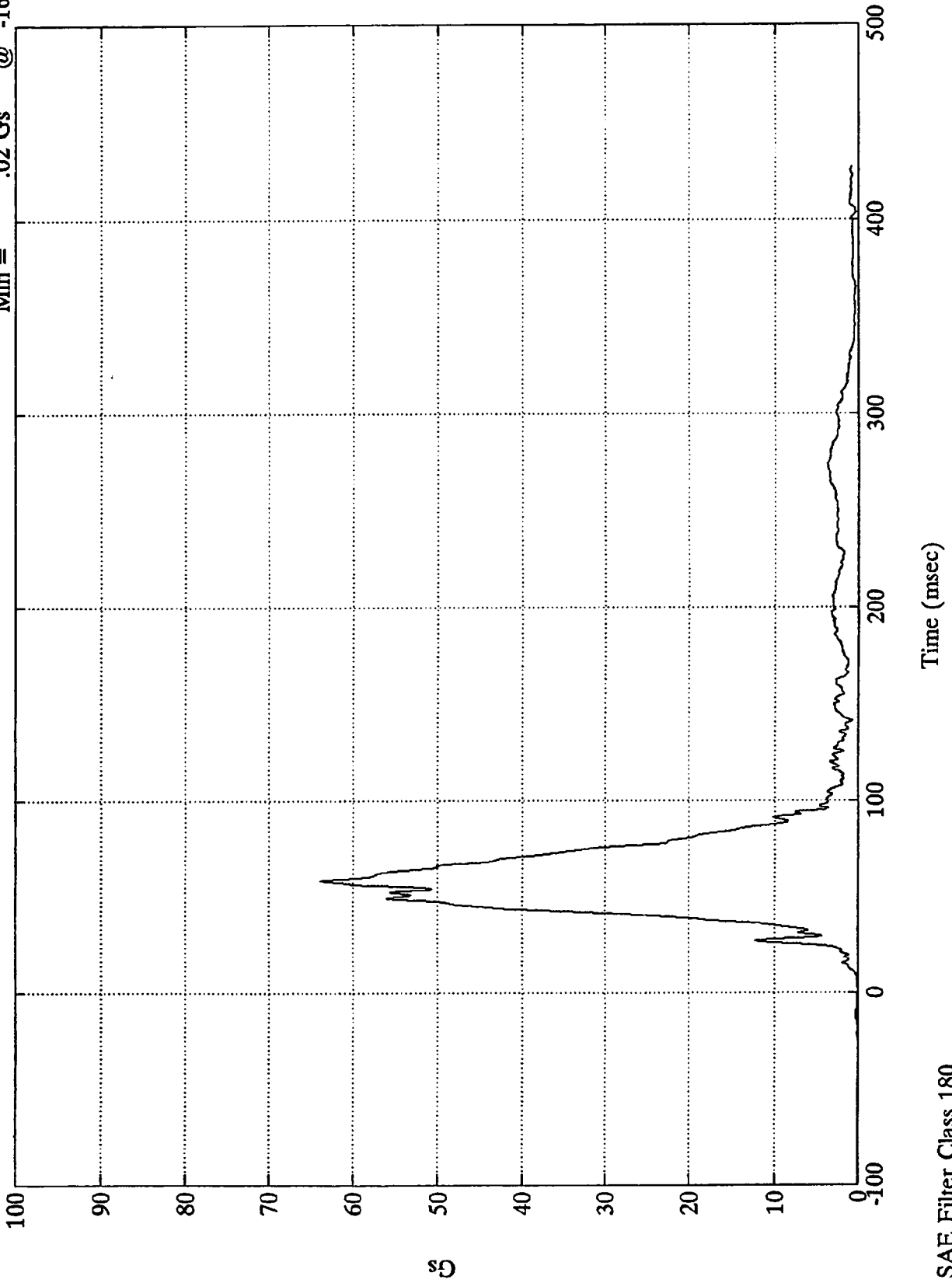


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Chest Res(R)

Max = 63.89 Gs @ 58.91 msec
Min = .02 Gs @ -16.92 msec

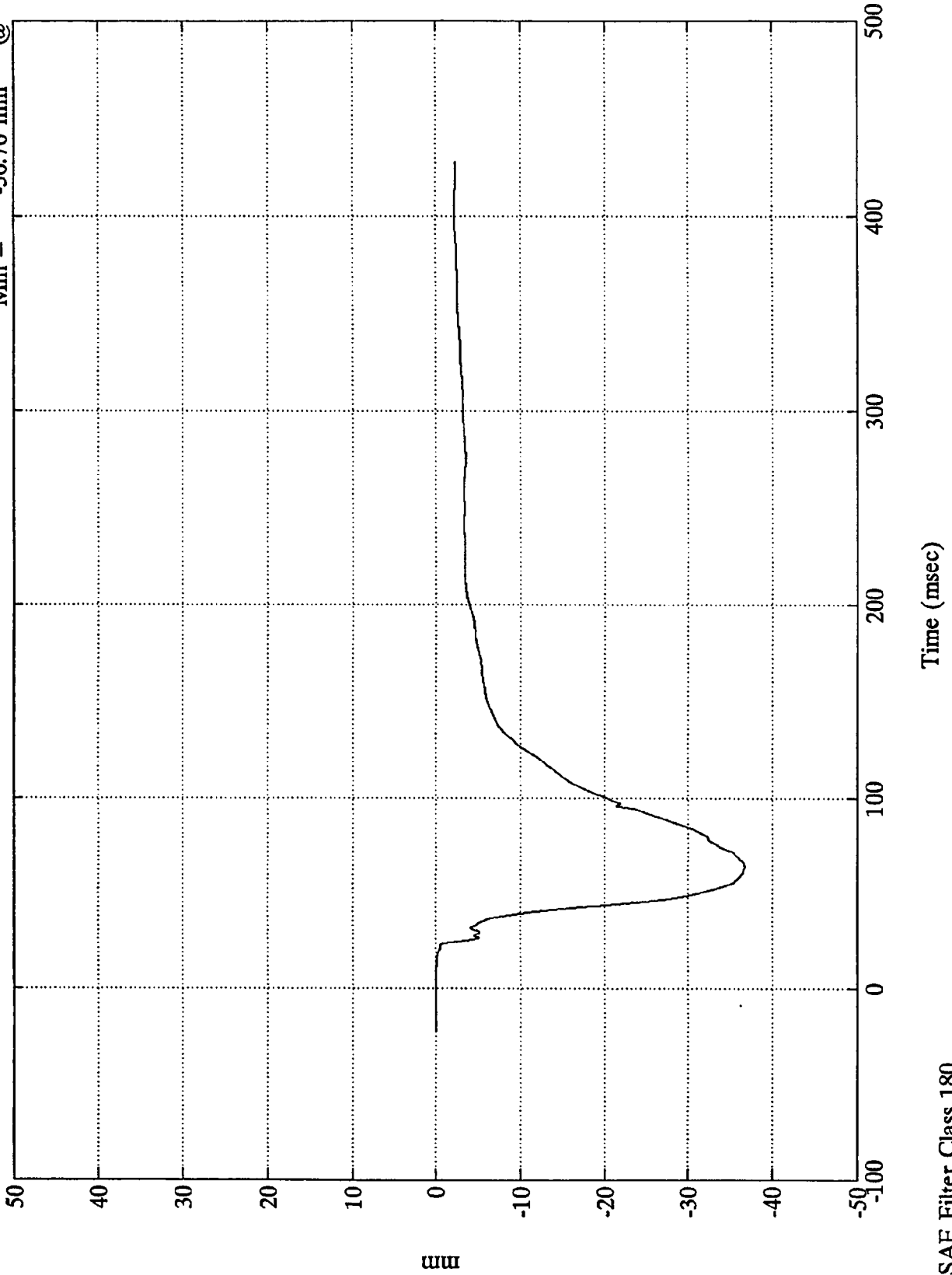


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Chest Disp.

Max = .00 mm @ -17.28 msec
Min = -36.76 mm @ 64.56 msec

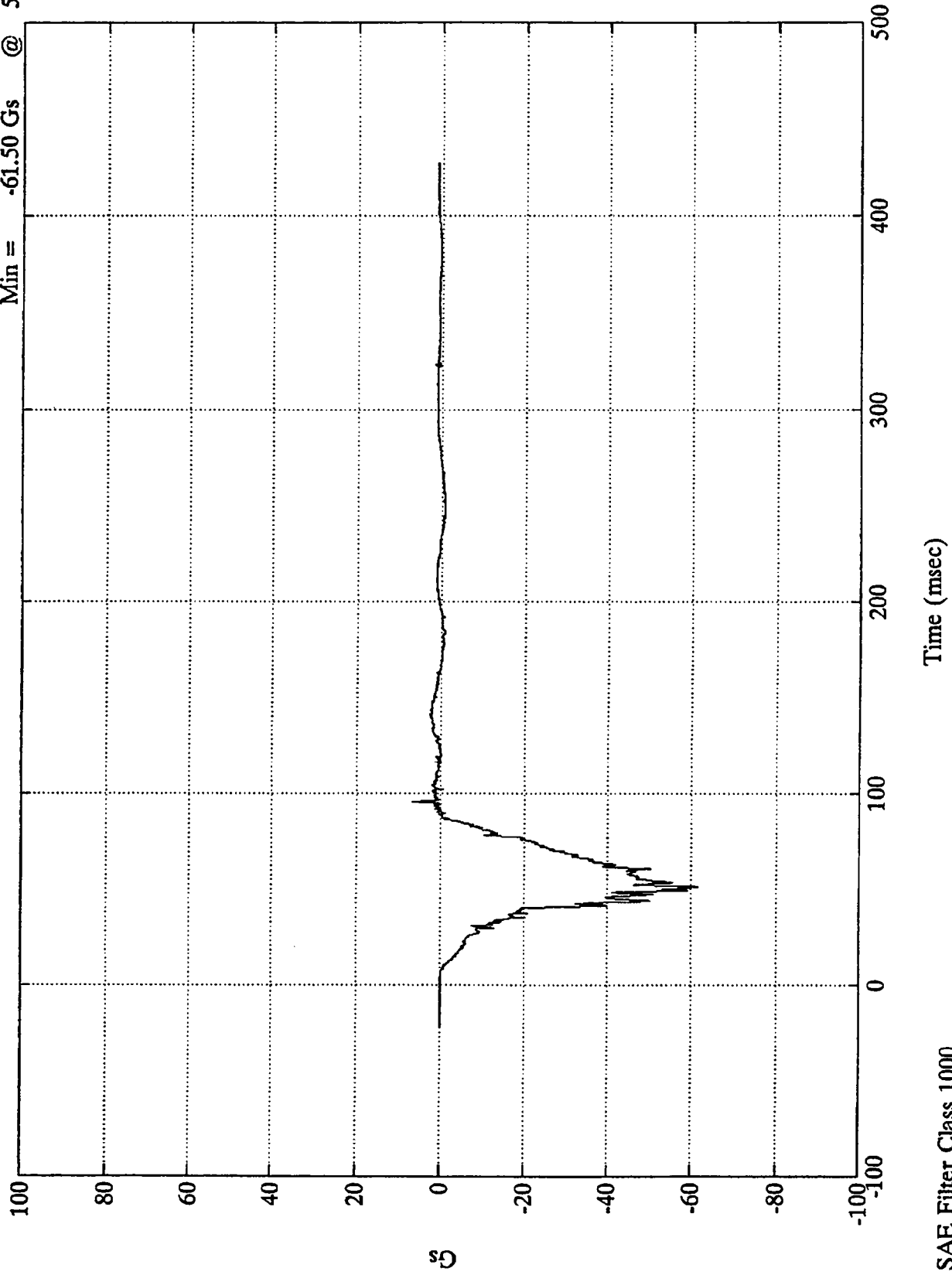


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Pelvic (X)

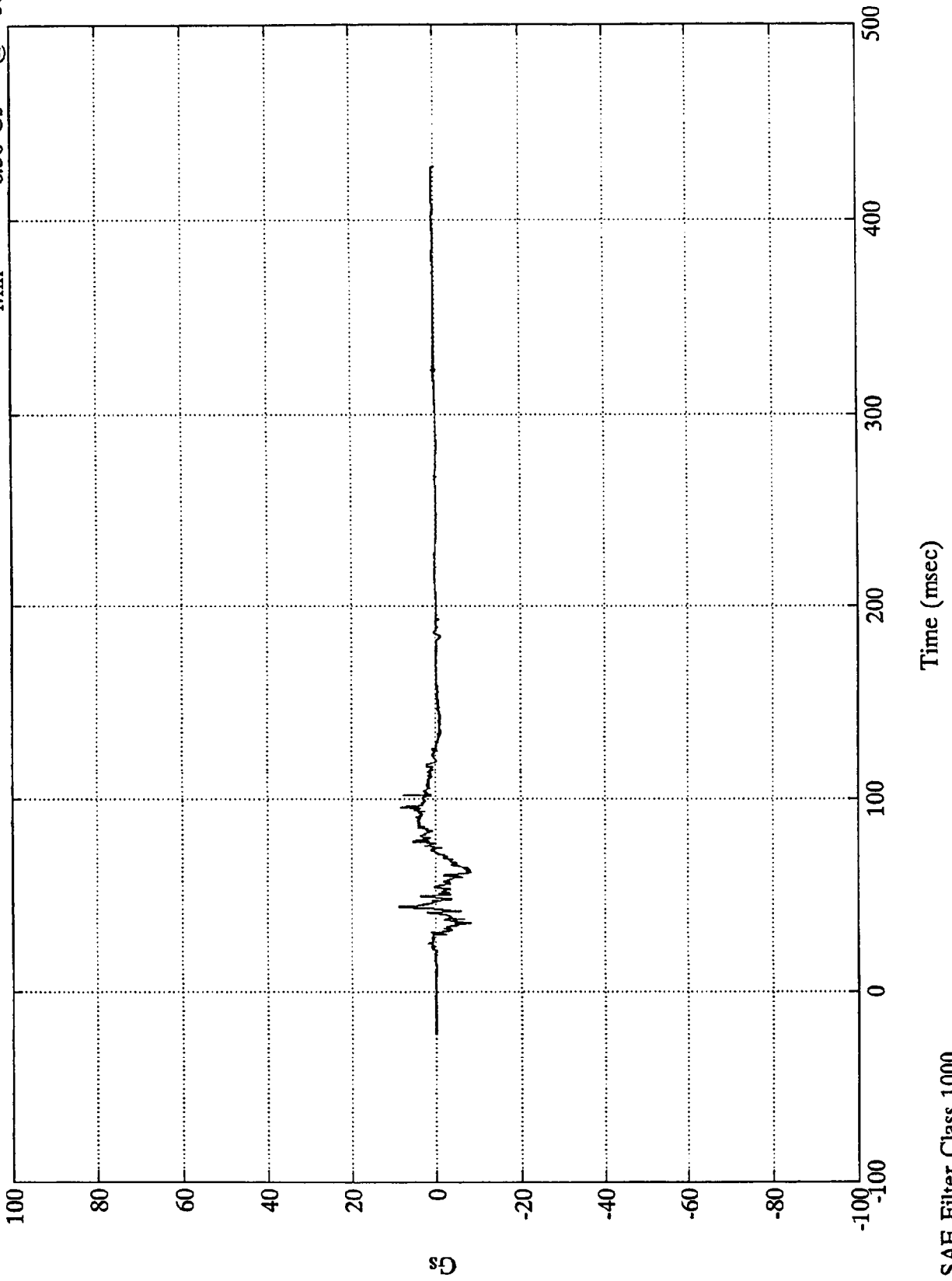
Max = 6.70 Gs @ 95.76 msec
Min = -61.50 Gs @ 51.72 msec



NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Pelvic (Y)

Max = 8.77 Gs @ 44.63 msec
Min = -8.30 Gs @ 36.00 msec

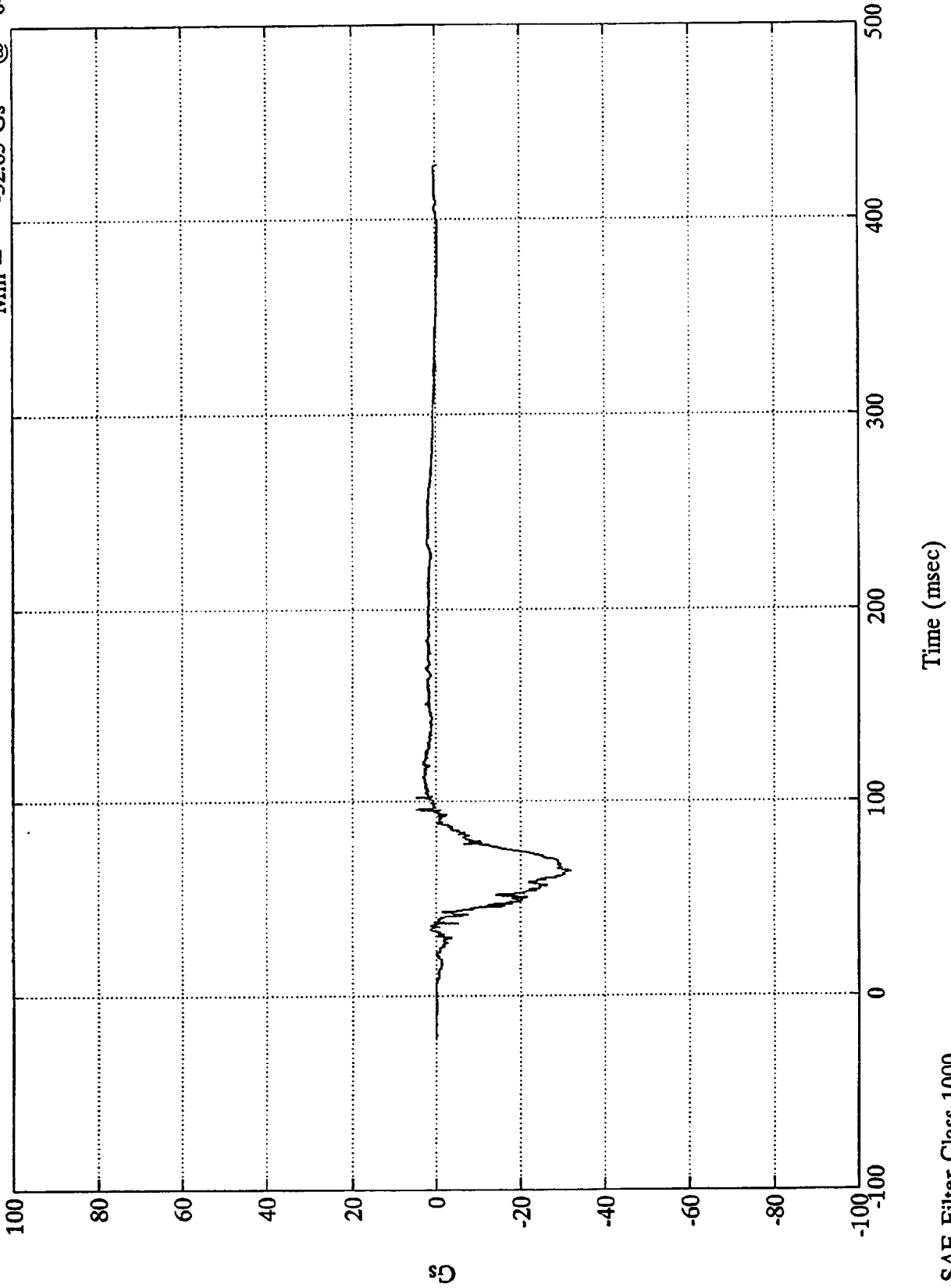


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Pelvic (Z)

Max = 4.76 Gs @ 102.00 msec
Min = -32.05 Gs @ 64.91 msec

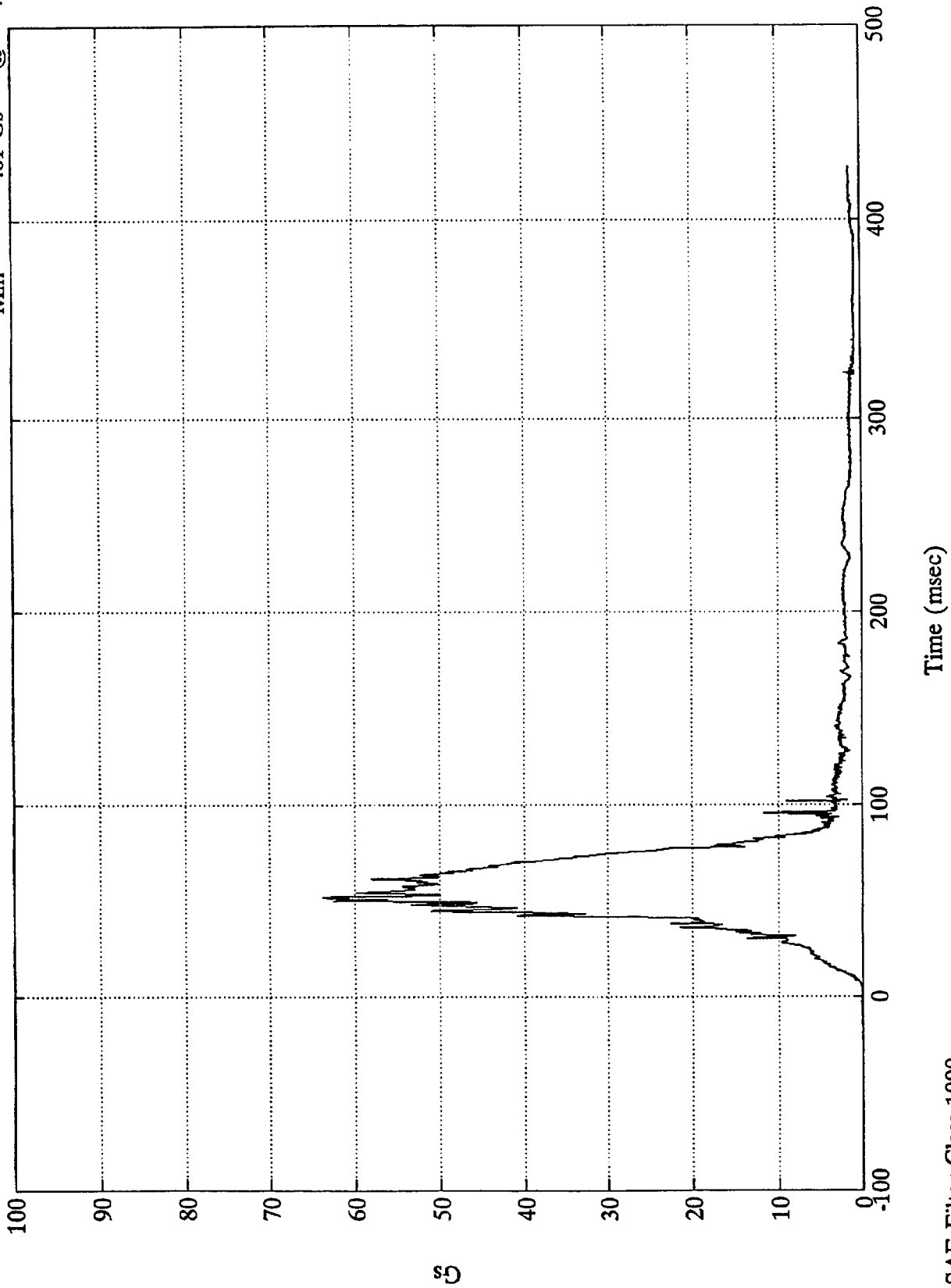


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Pelvic (R)

Max = 63.76 Gs @ 51.60 msec
Min = .01 Gs @ 4.07 msec

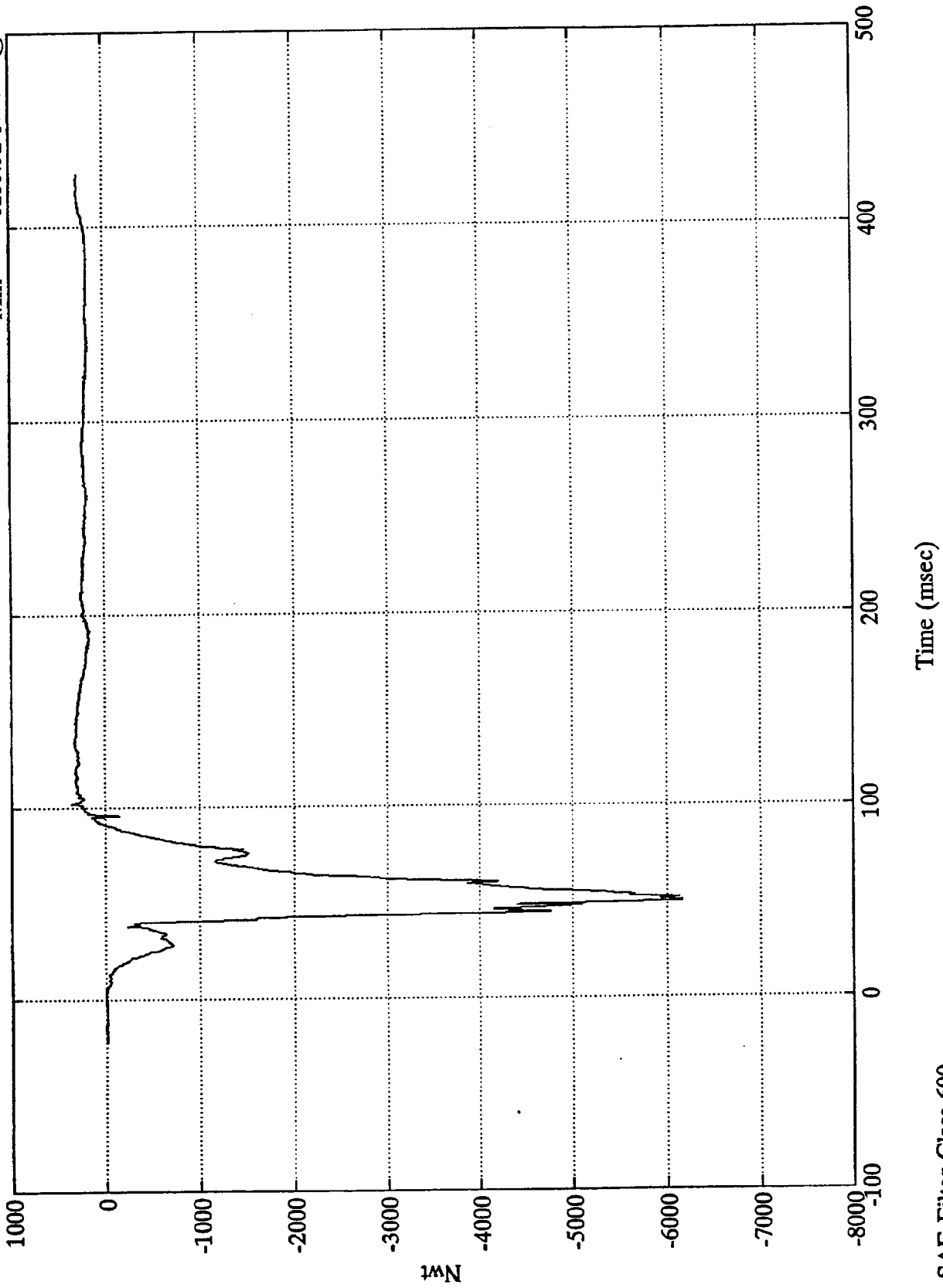


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Left Femur

Max = 370.61 Nwt @ 102.12 msec
Min = -6155.32 Nwt @ 49.79 msec

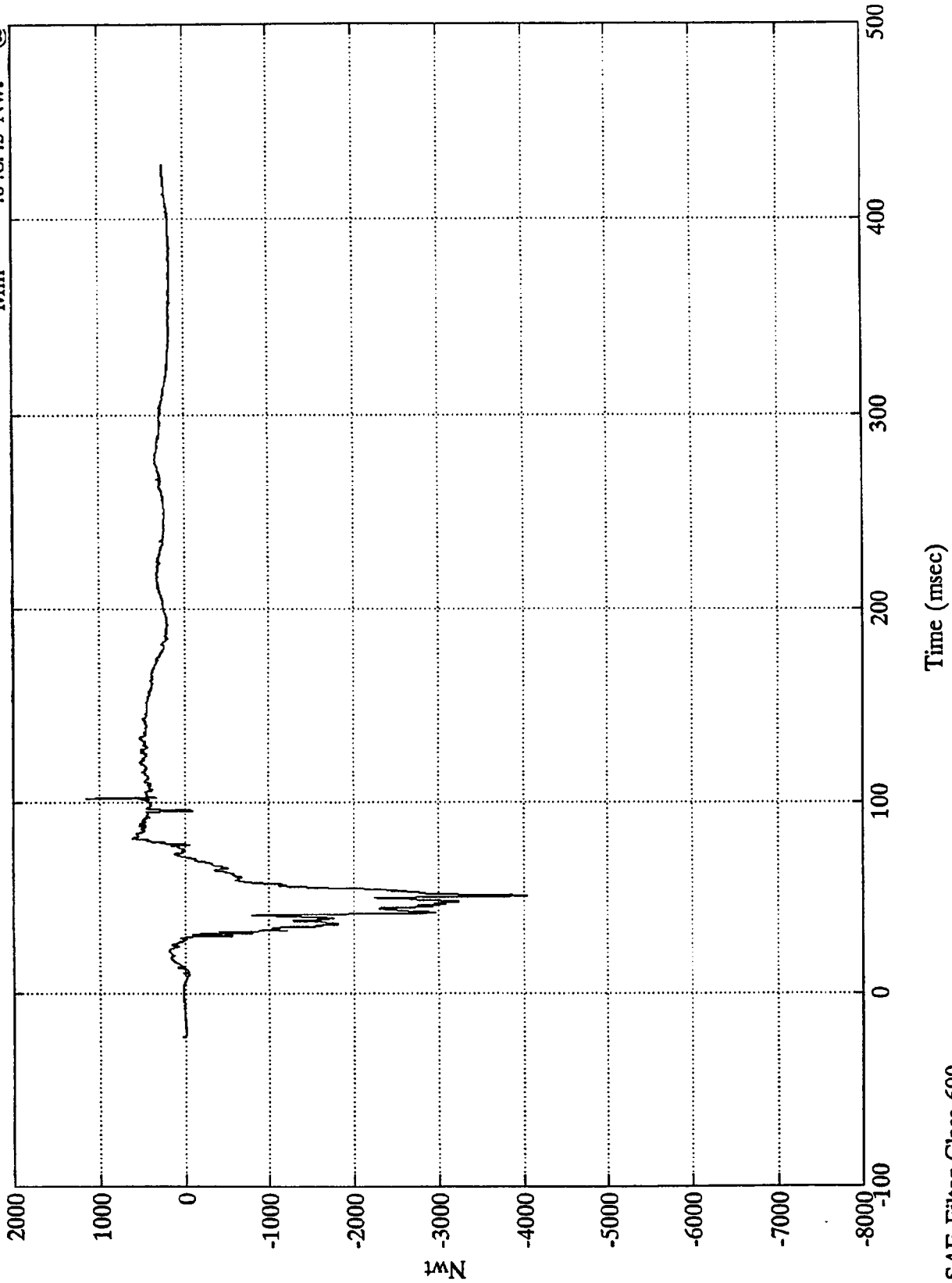


SAE Filter Class 600

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Right Femur

Max = 1151.97 Nwt @ 102.24 msec
Min = -4048.45 Nwt @ 51.00 msec

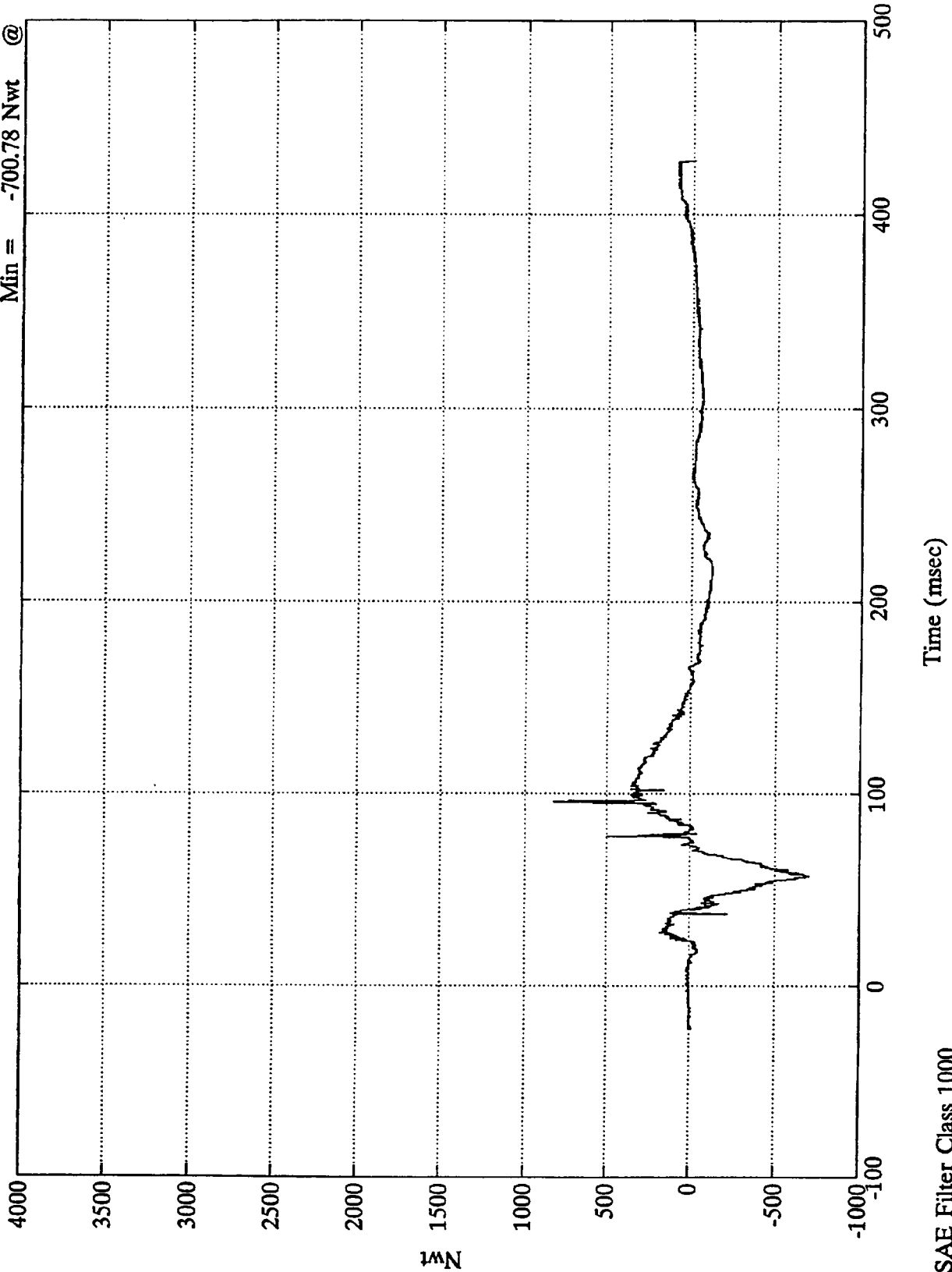


SAE Filter Class 600

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Upper Neck Fx

Max = 825.30 Nwt @ 95.88 msec
Min = -700.78 Nwt @ 57.47 msec

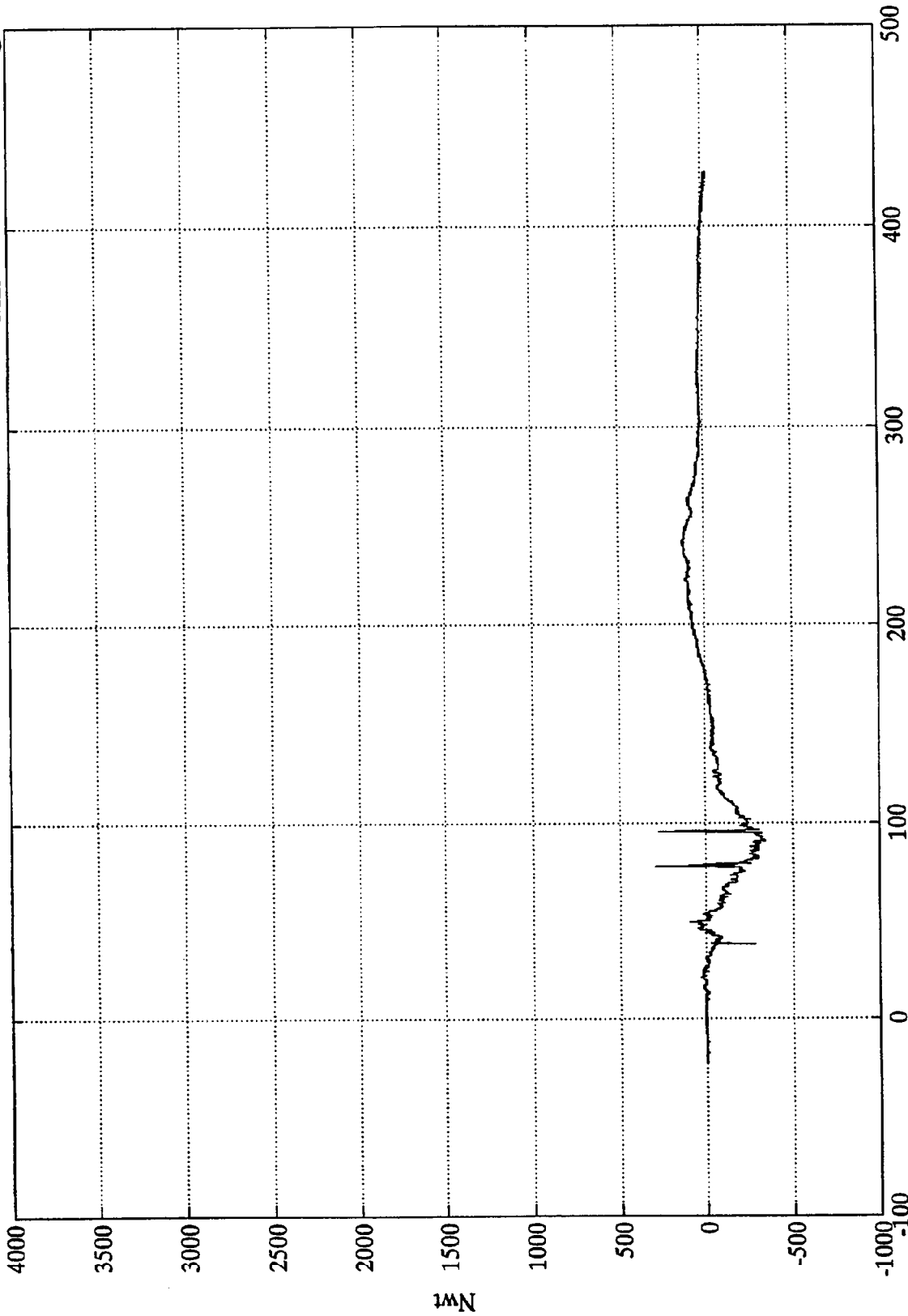


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Upper Neck Fy

Max = 290.59 Nwt @ 78.23 msec
Min = -341.87 Nwt @ 91.56 msec



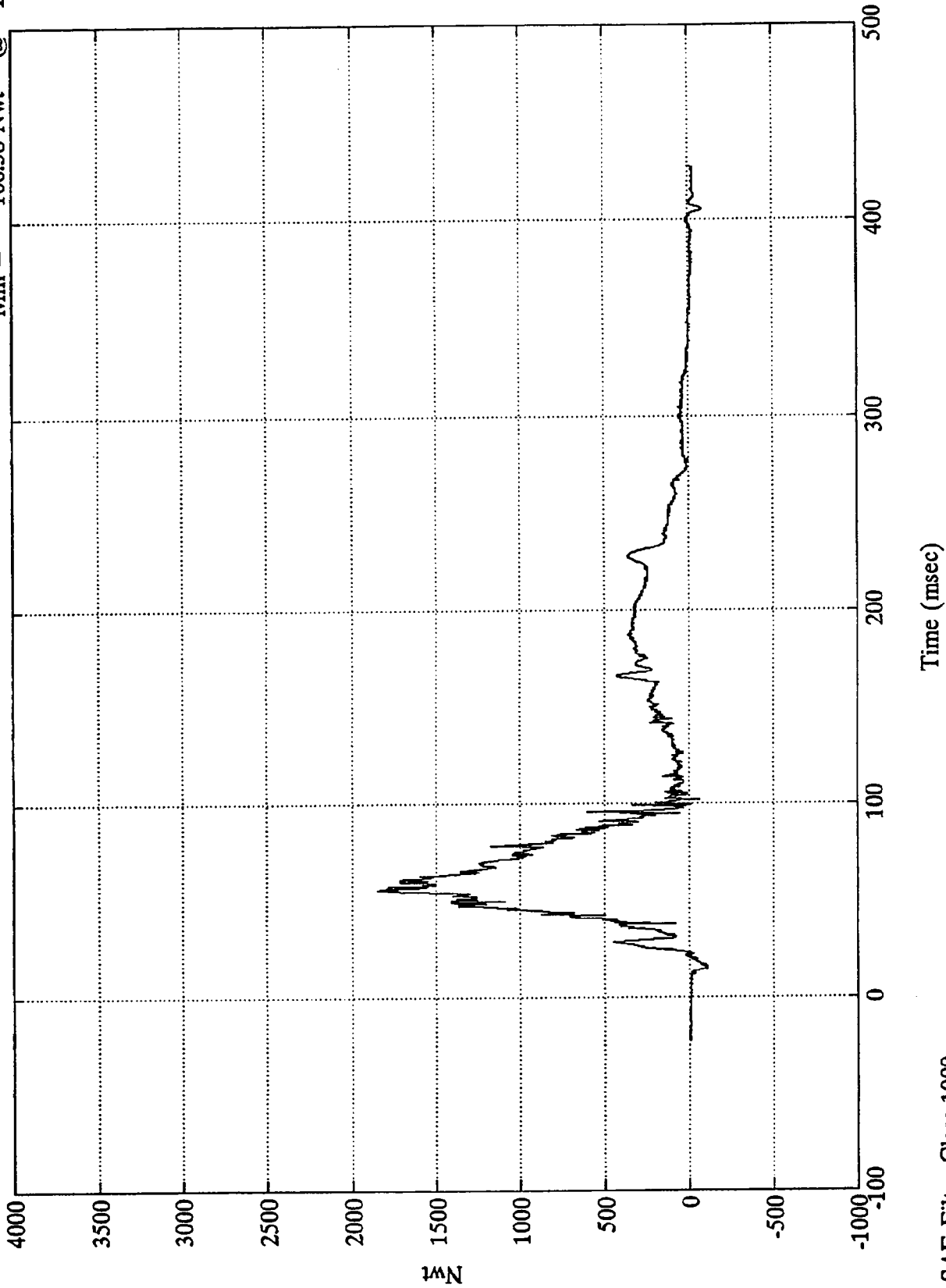
Time (msec)

SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Upper Neck Fz

Max = 1852.48 Nwt @ 55.68 msec
Min = -106.38 Nwt @ 15.96 msec

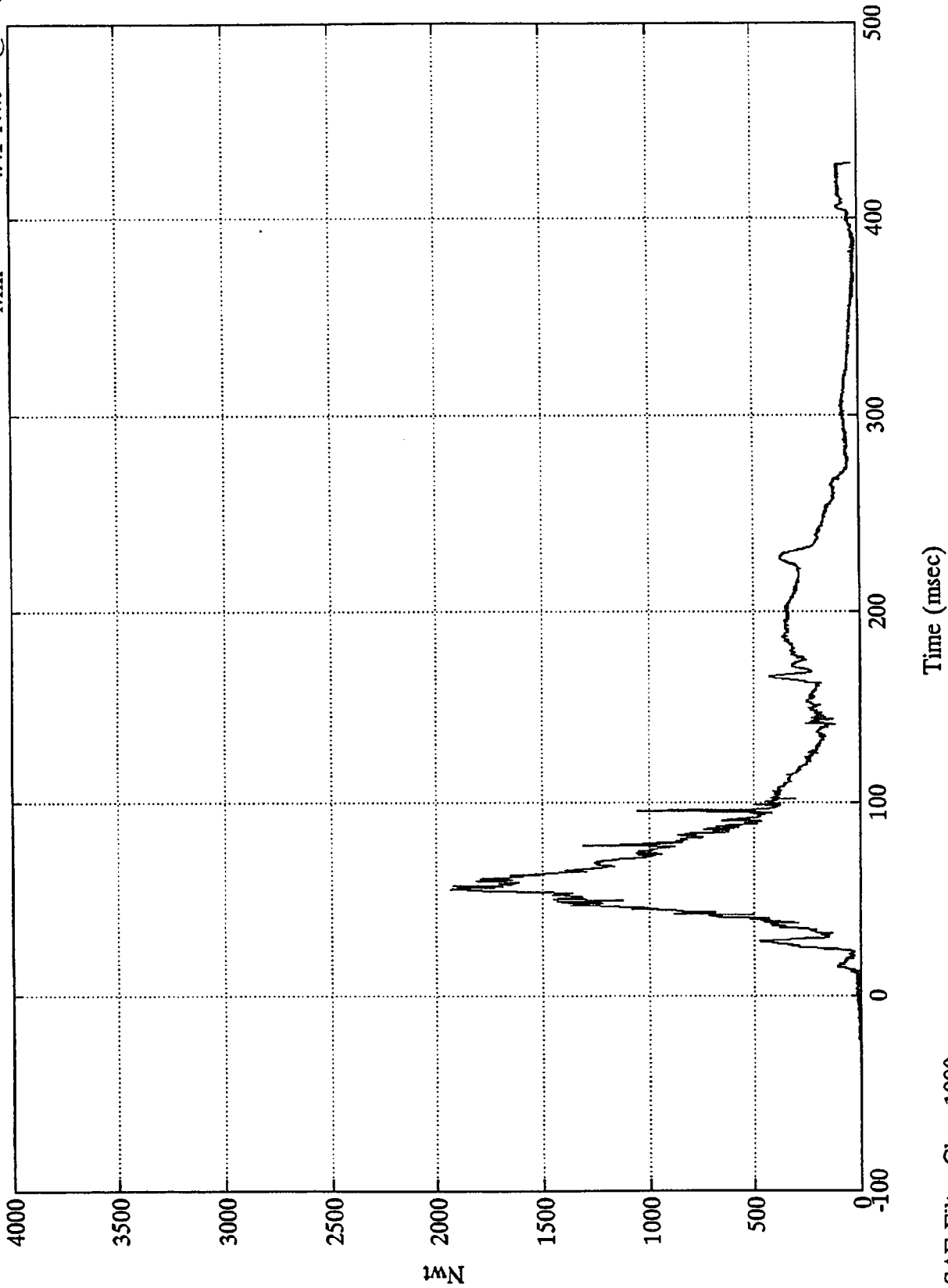


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Neck Force Res.

Max = 1933.99 Nwt @ 55.68 msec
Min = 4.41 Nwt @ -9.96 msec

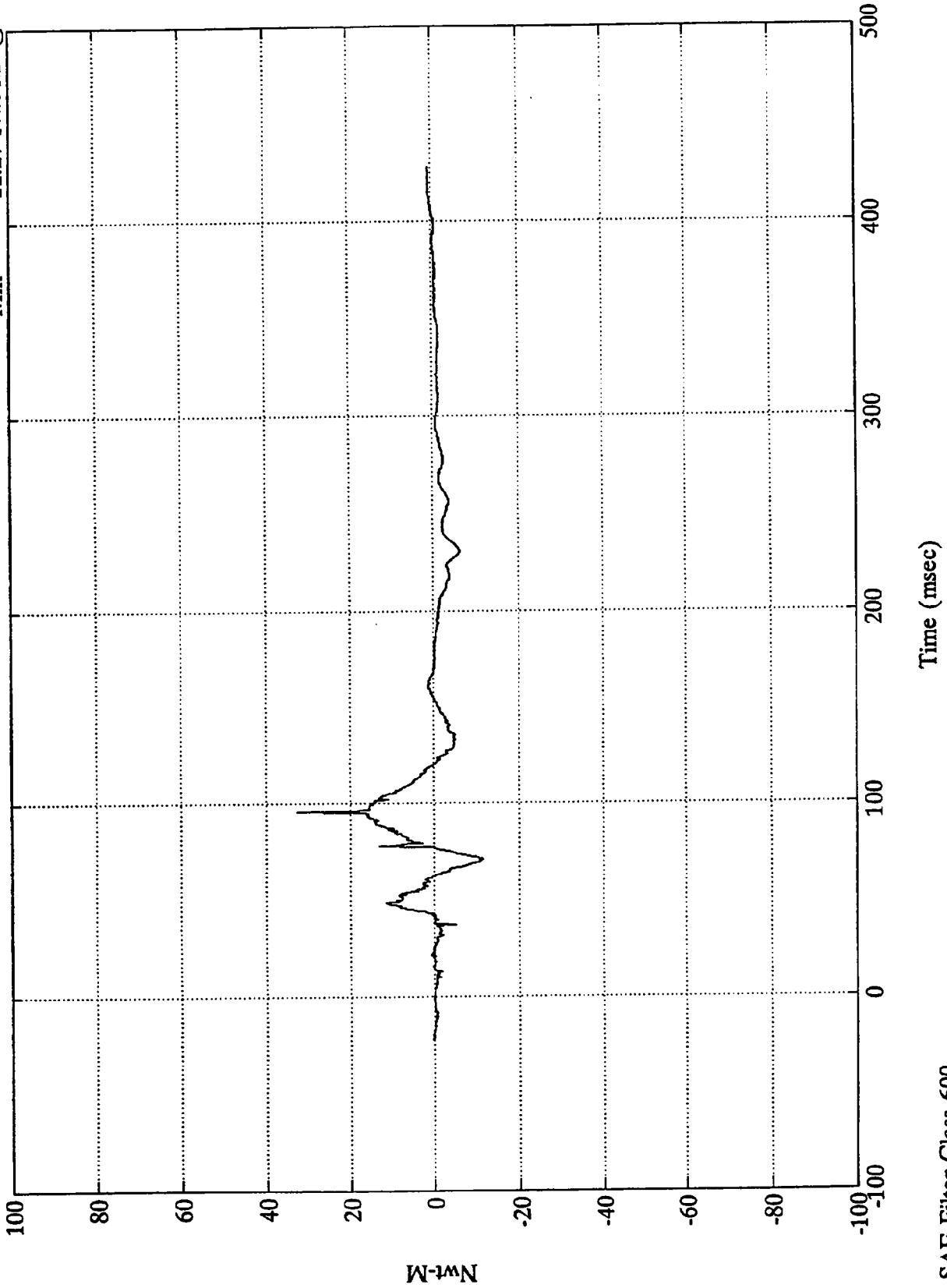


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Upper Neck Mx

Max = 32.63 Nwt-M @ 95.88 msec
Min = -11.27 Nwt-M @ 71.63 msec

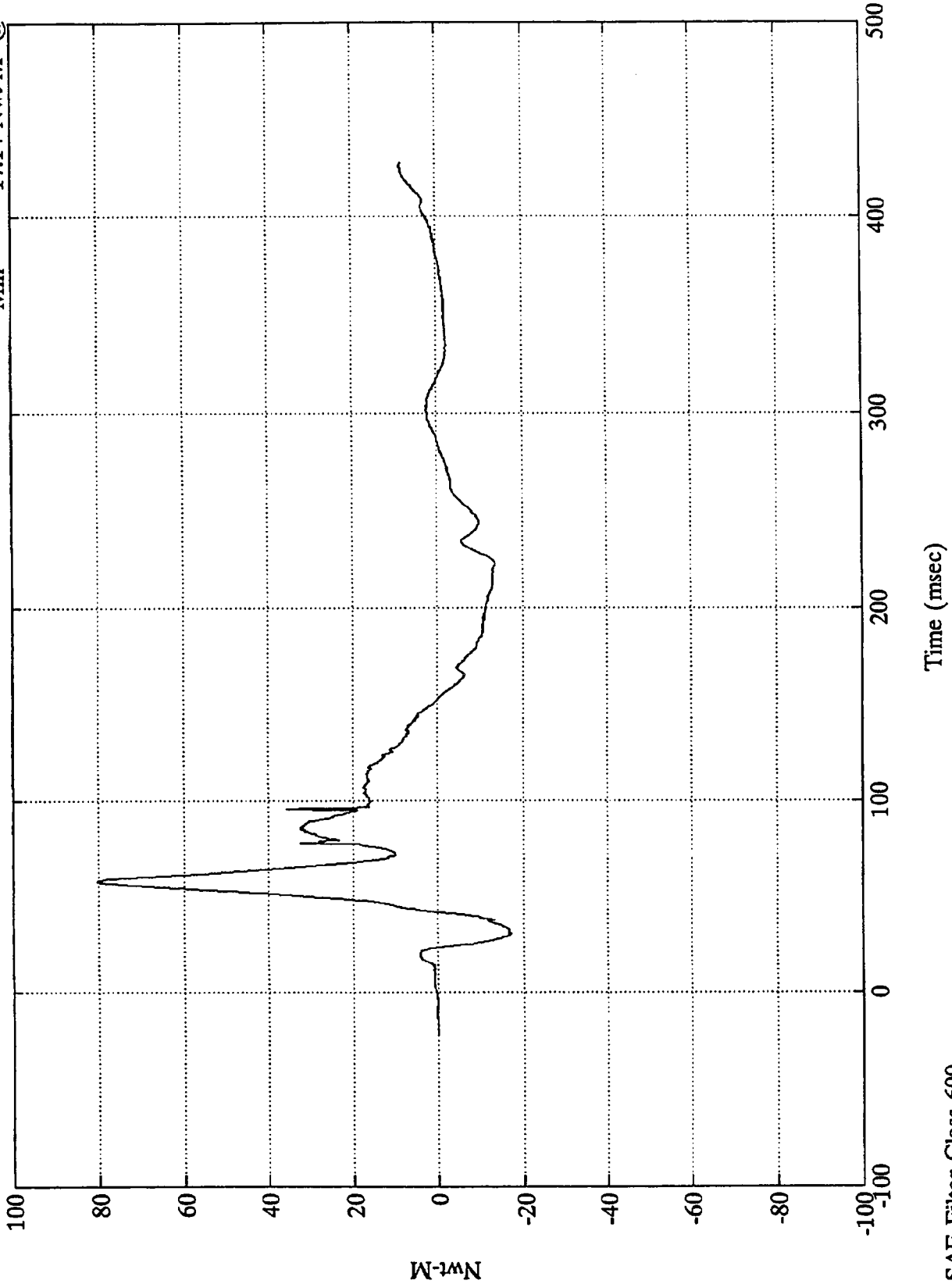


SAE Filter Class 600

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Upper Neck My

Max = 80.39 Nwt-M @ 57.95 msec
Min = -17.14 Nwt-M @ 30.84 msec

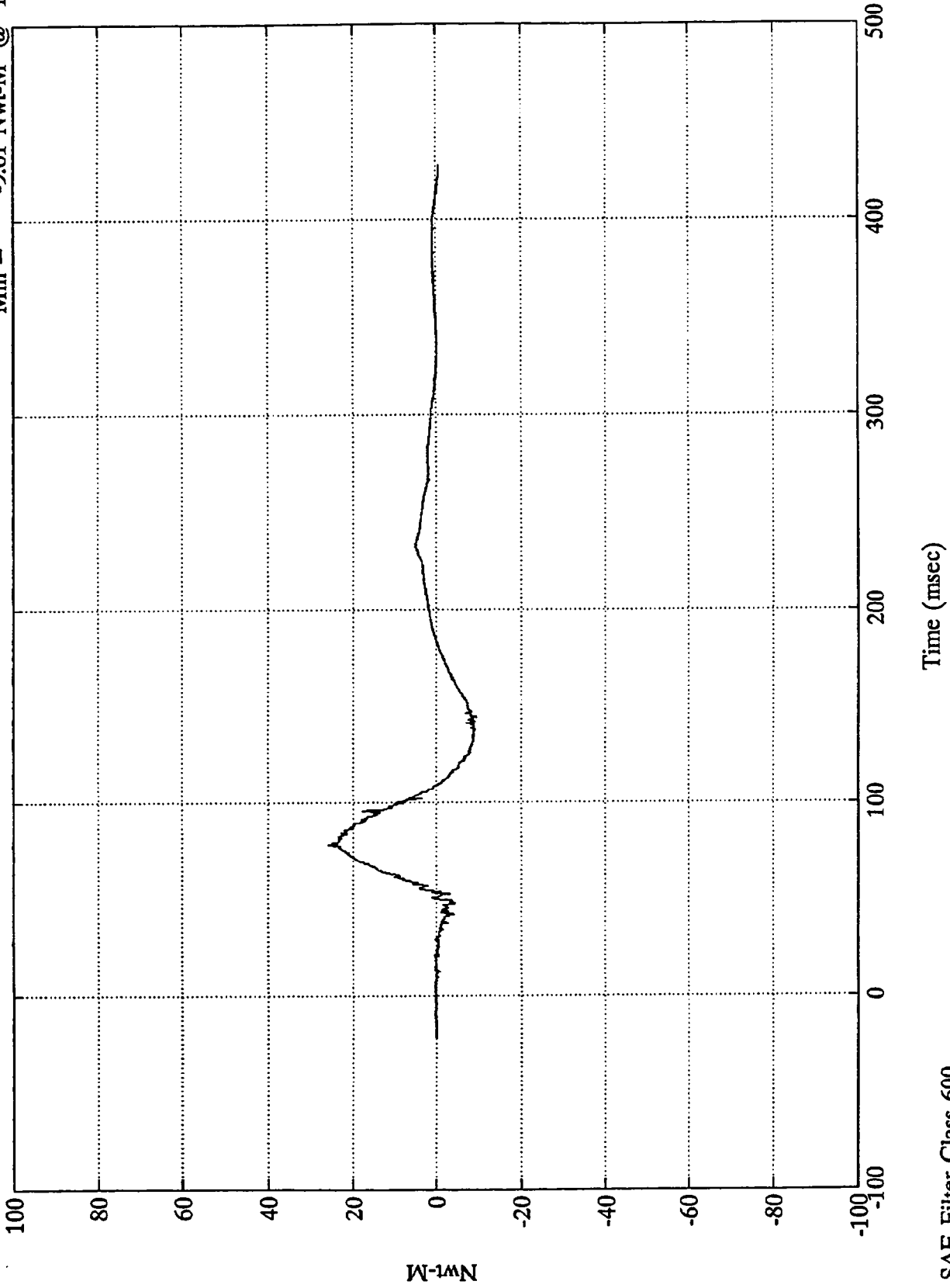


SAE Filter Class 600

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Upper Neck Mz

Max = 25.89 Nwt-M @ 78.23 msec
Min = -9.61 Nwt-M @ 143.88 msec

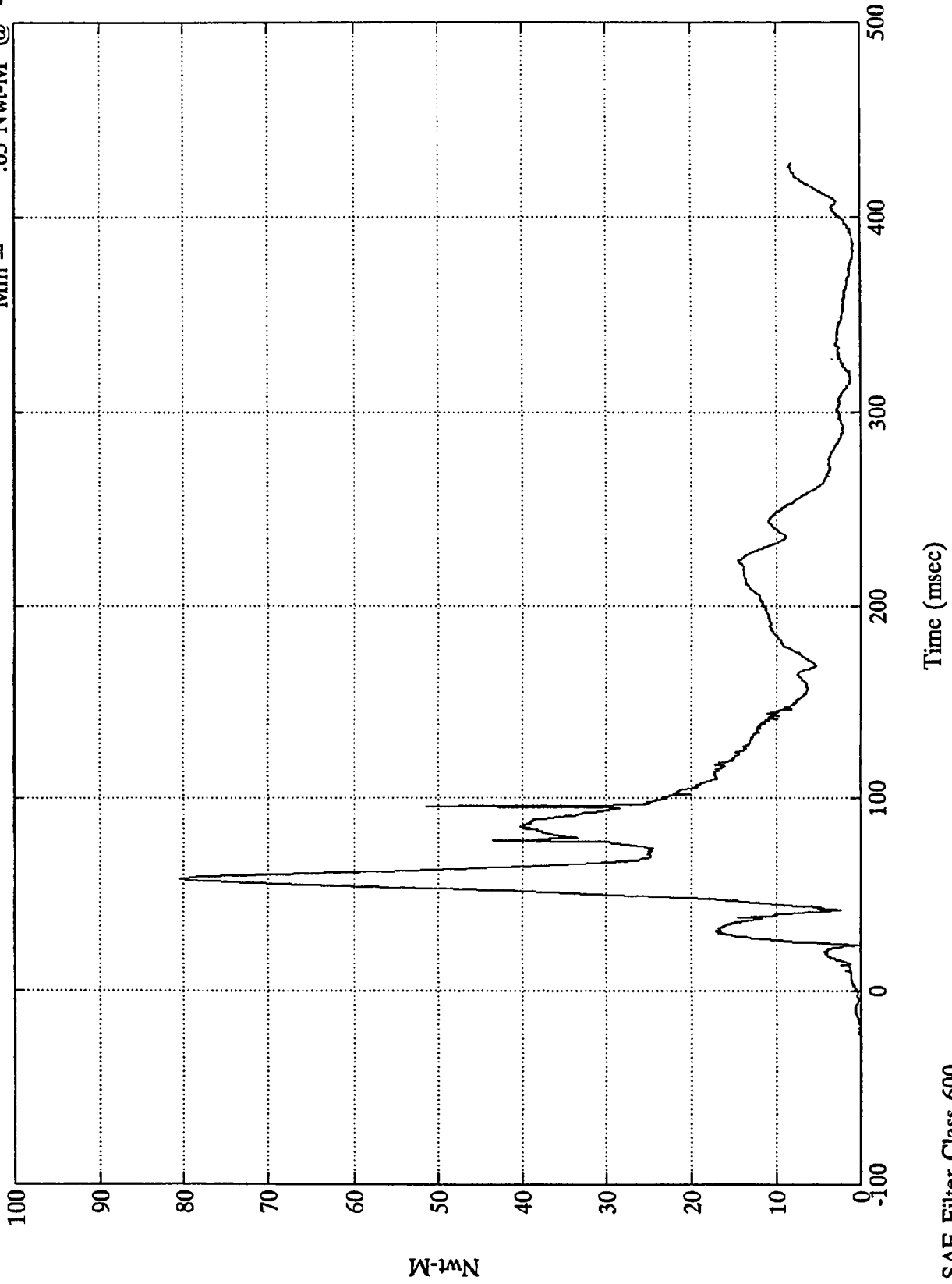


SAE Filter Class 600

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Neck Moment Res.

Max = 80.55 Nwt-M @ 57.95 msec
Min = .03 Nwt-M @ -17.52 msec

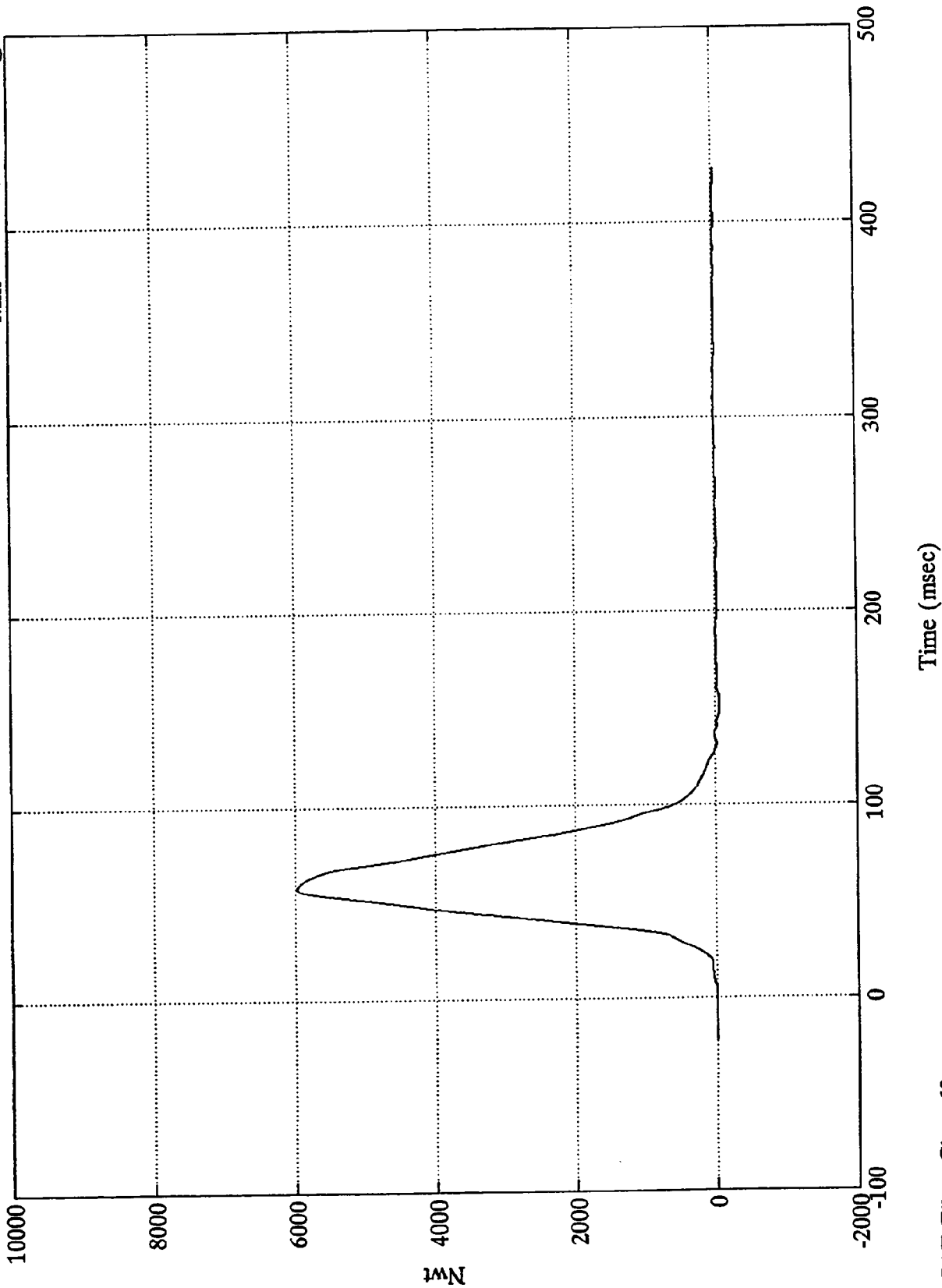


SAE Filter Class 600

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Torso Belt Load

Max = 5975.39 Nwt @ 58.20 msec
Min = -54.25 Nwt @ 154.55 msec

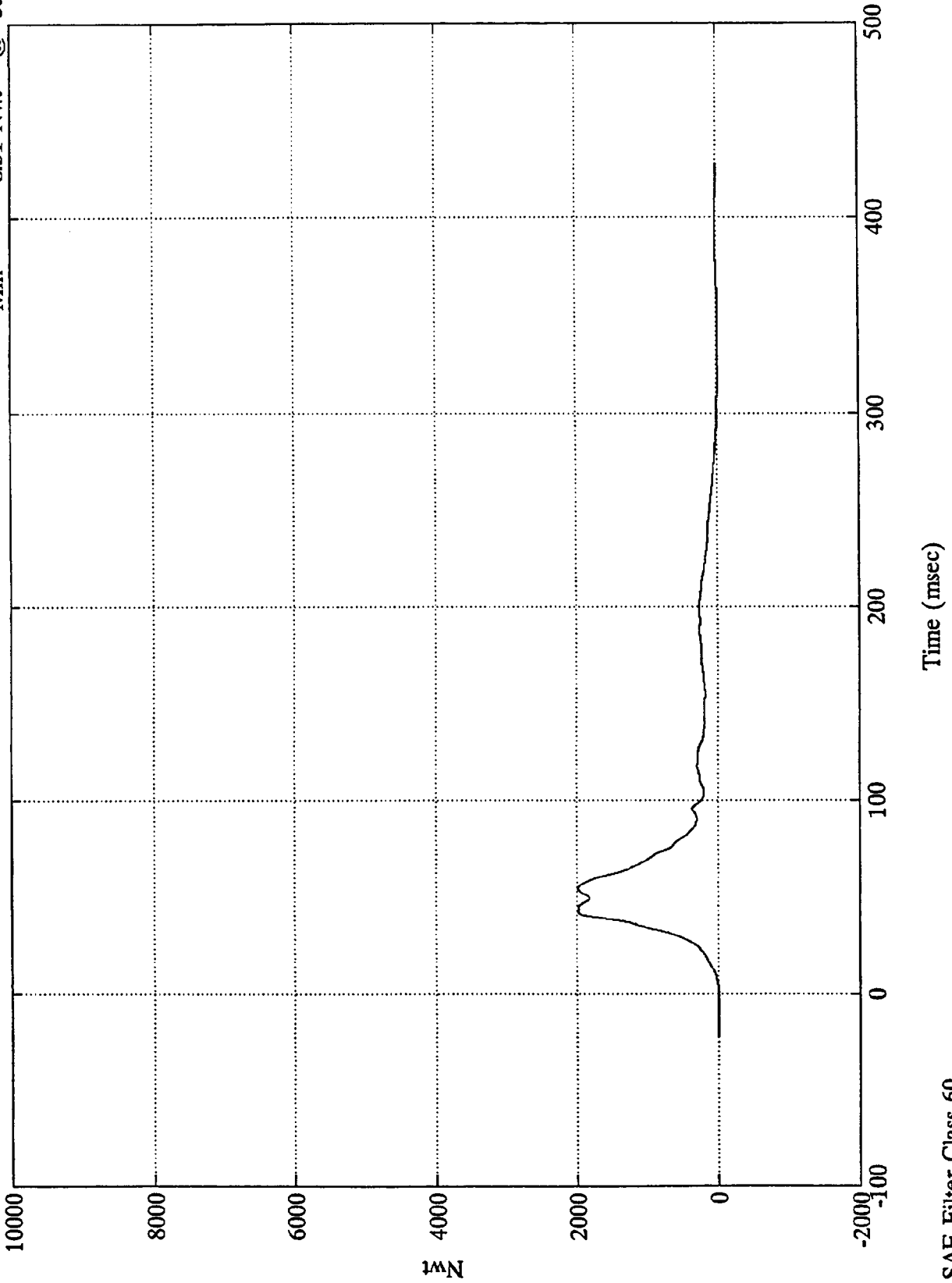


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Left Belt Load

Max = 1985.01 Nwt @ 54.72 msec
Min = -8.51 Nwt @ 353.27 msec

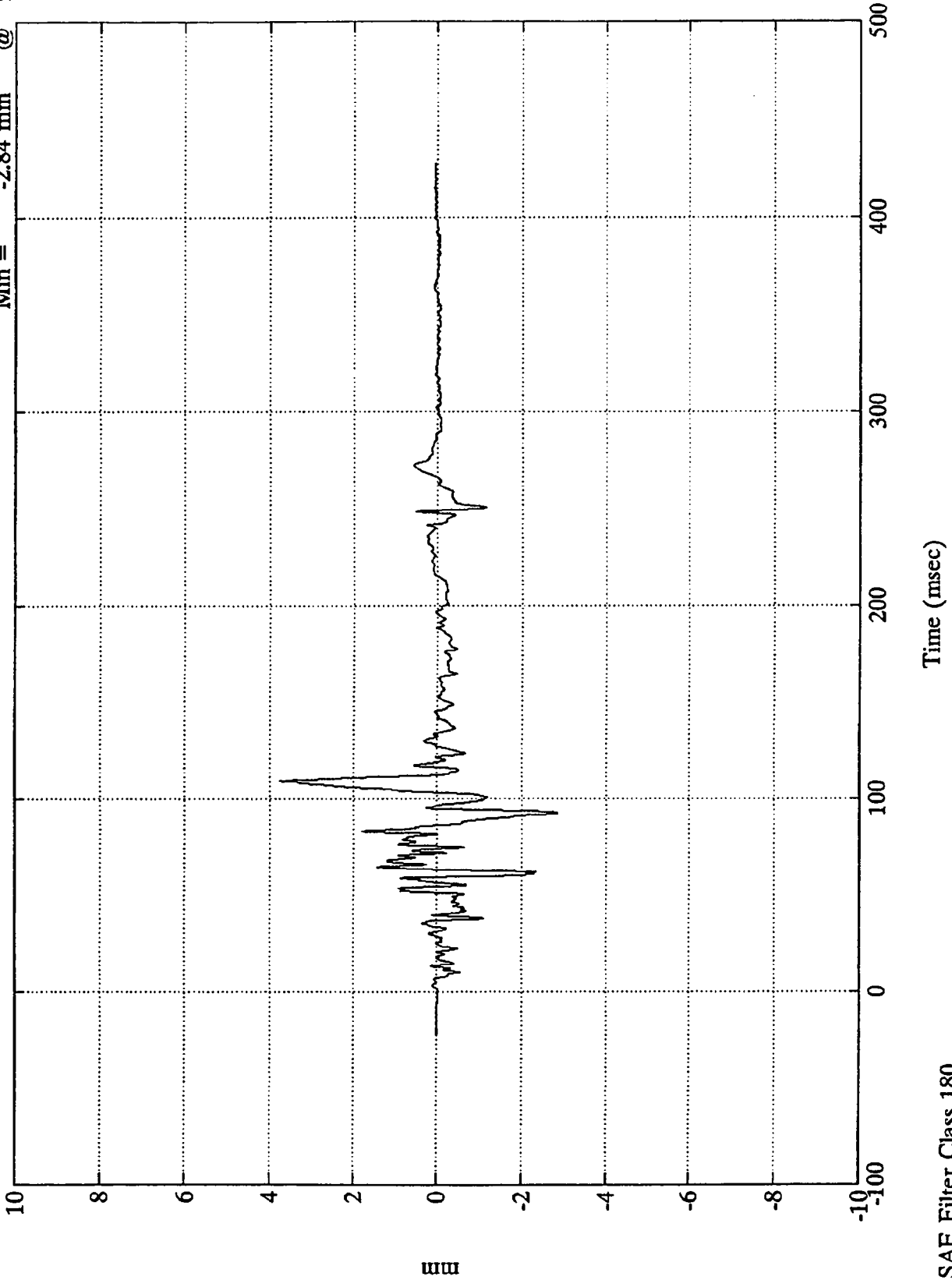


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 1 Belt Elongation

Max = 3.75 mm @ 109.19 msec
Min = -2.84 mm @ 92.64 msec

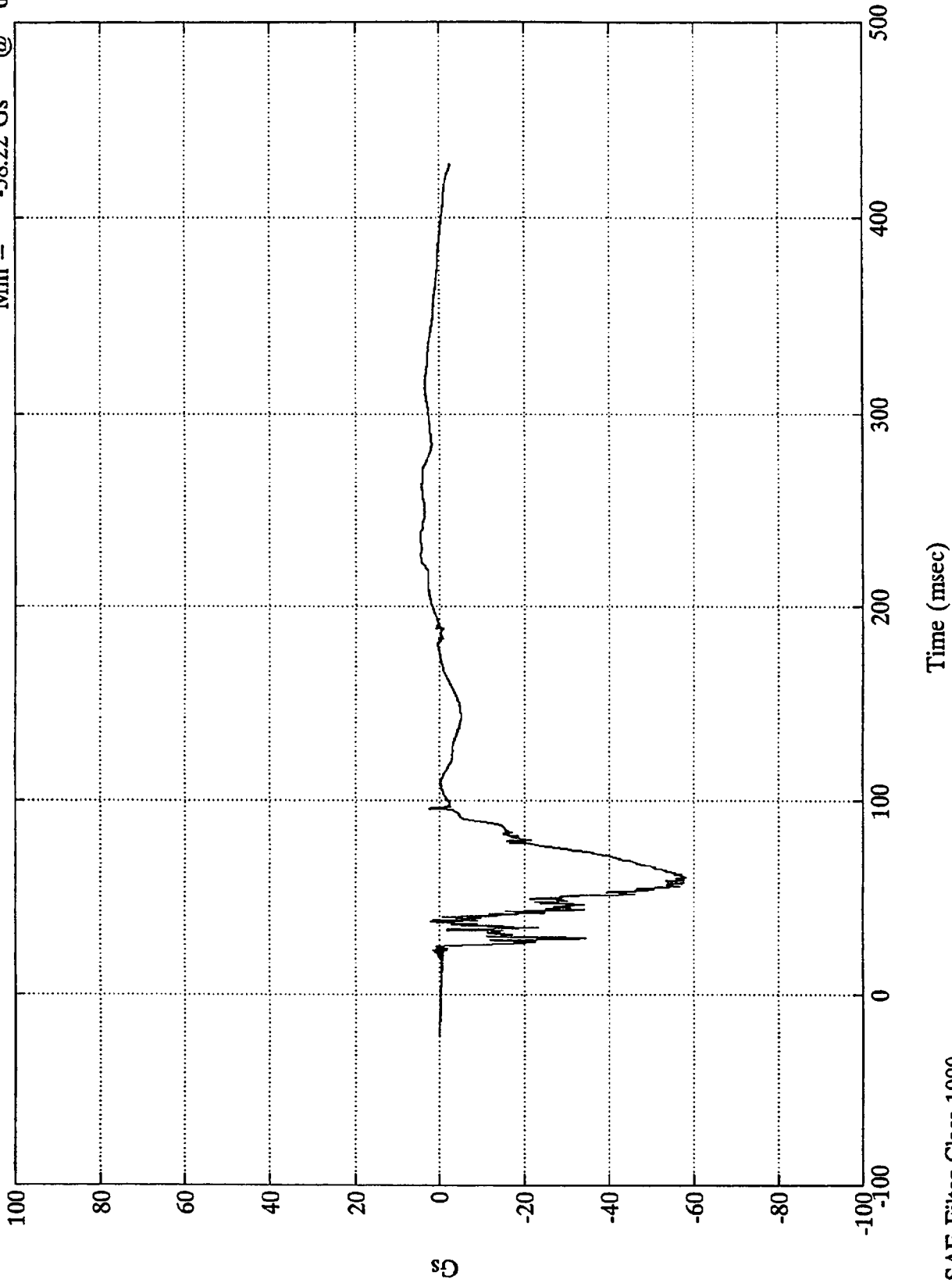


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Head X

Max = 4.57 Gs @ 237.60 msec
Min = -58.22 Gs @ 60.48 msec

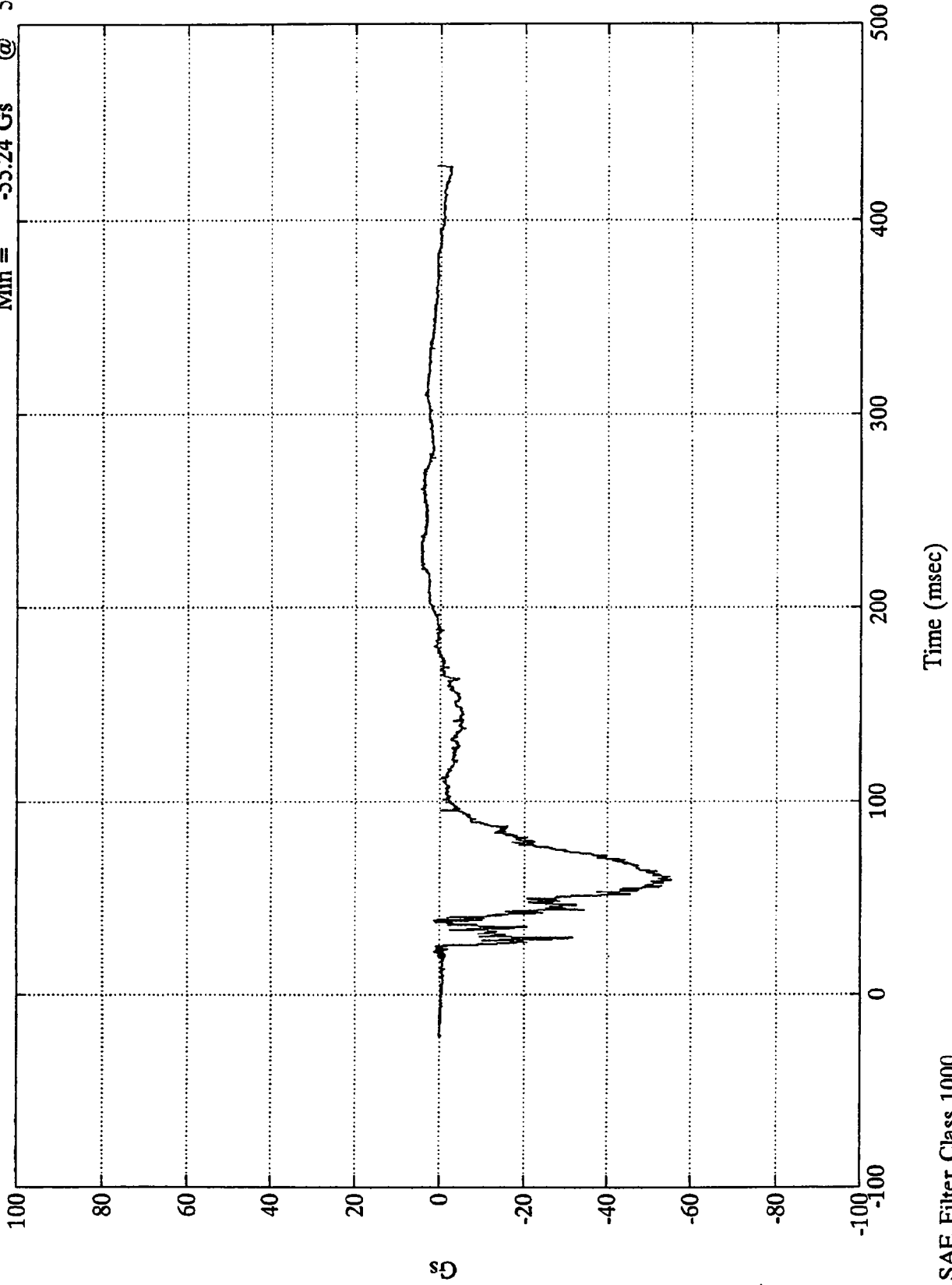


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Head X(R)

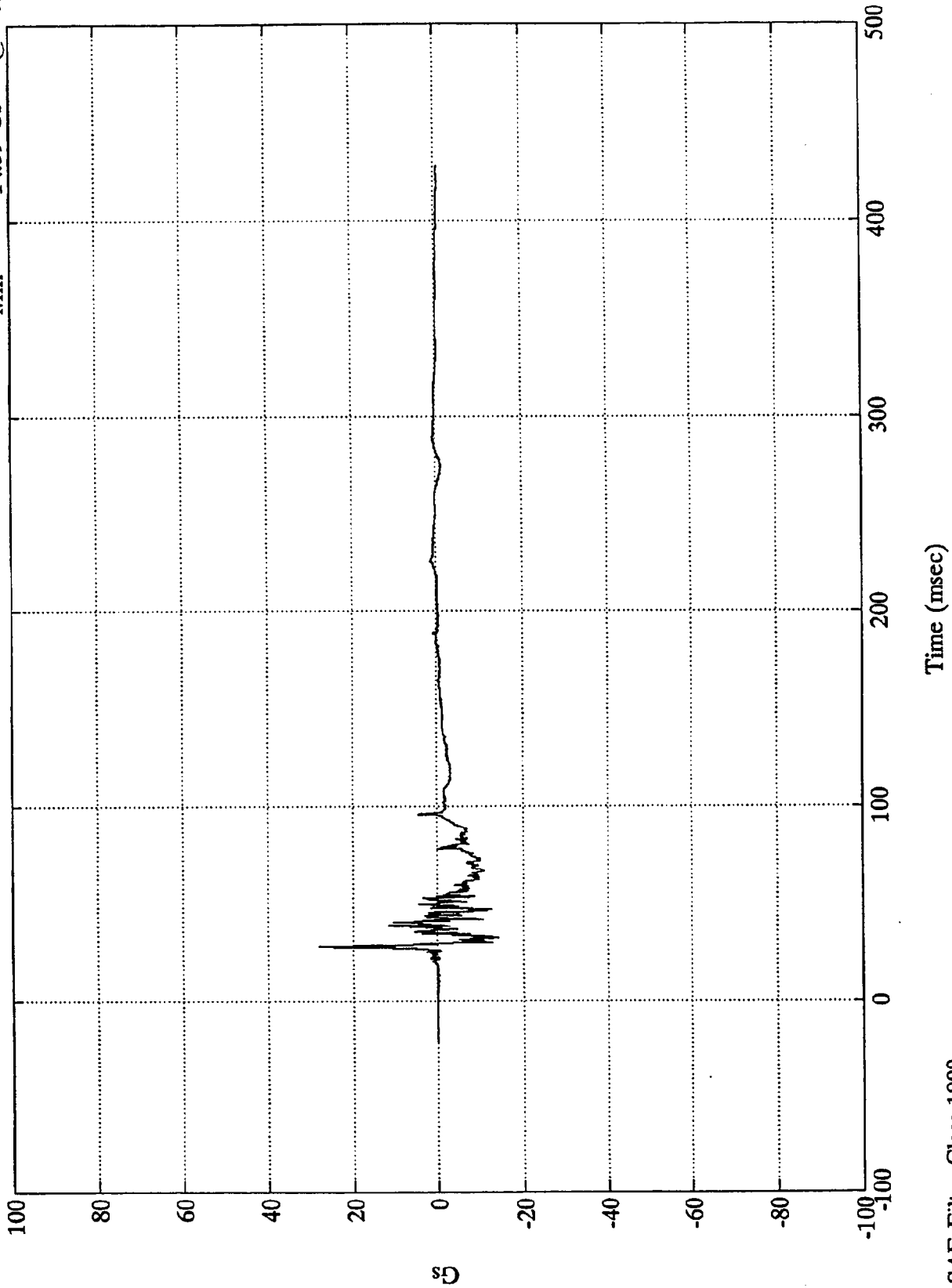
Max = 4.79 Gs @ 261.72 msec
Min = -55.24 Gs @ 59.04 msec



NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Head Y

Max = 28.06 Gs @ 28.20 msec
Min = -14.39 Gs @ 32.52 msec

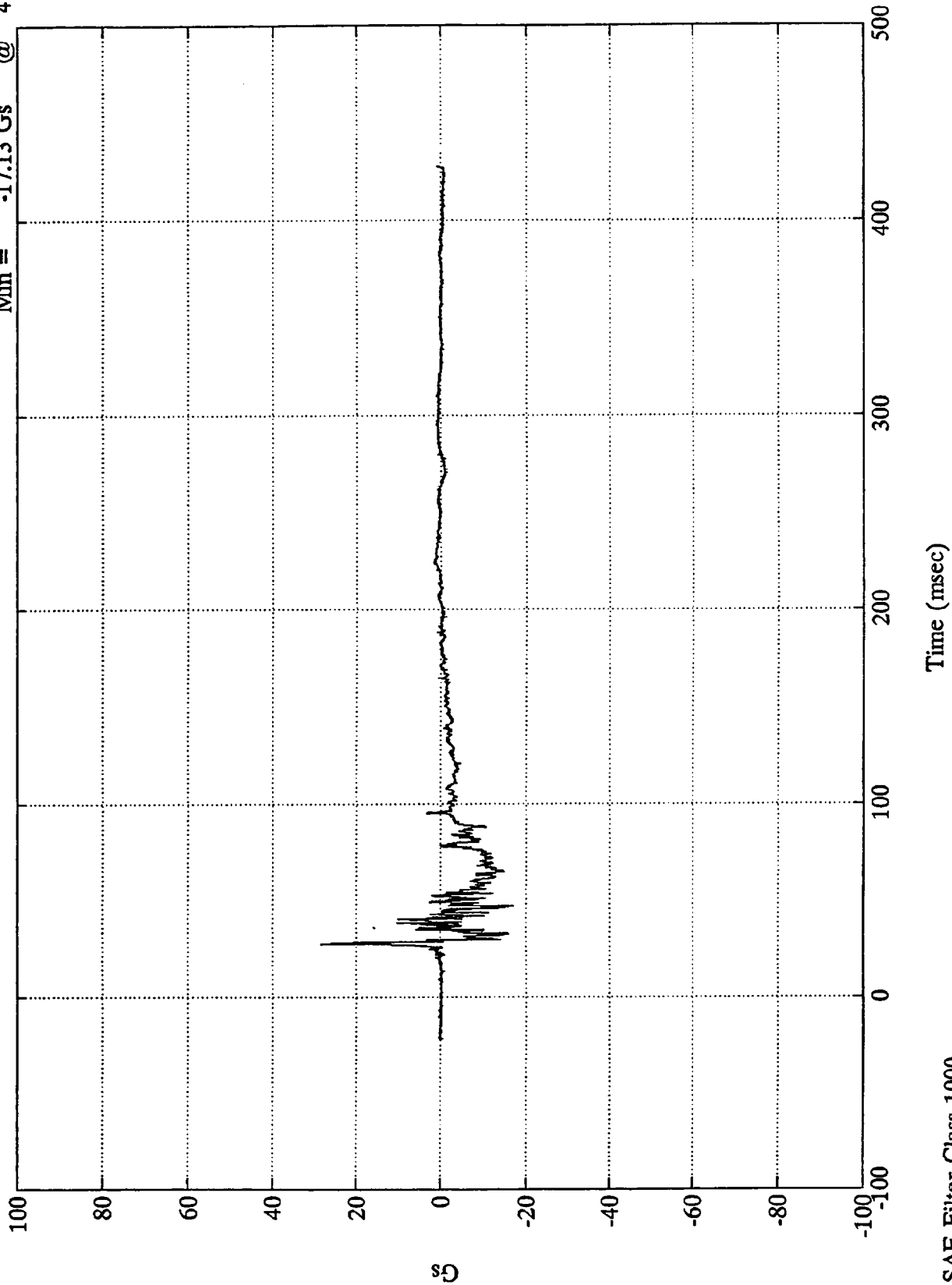


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Head Y(R)

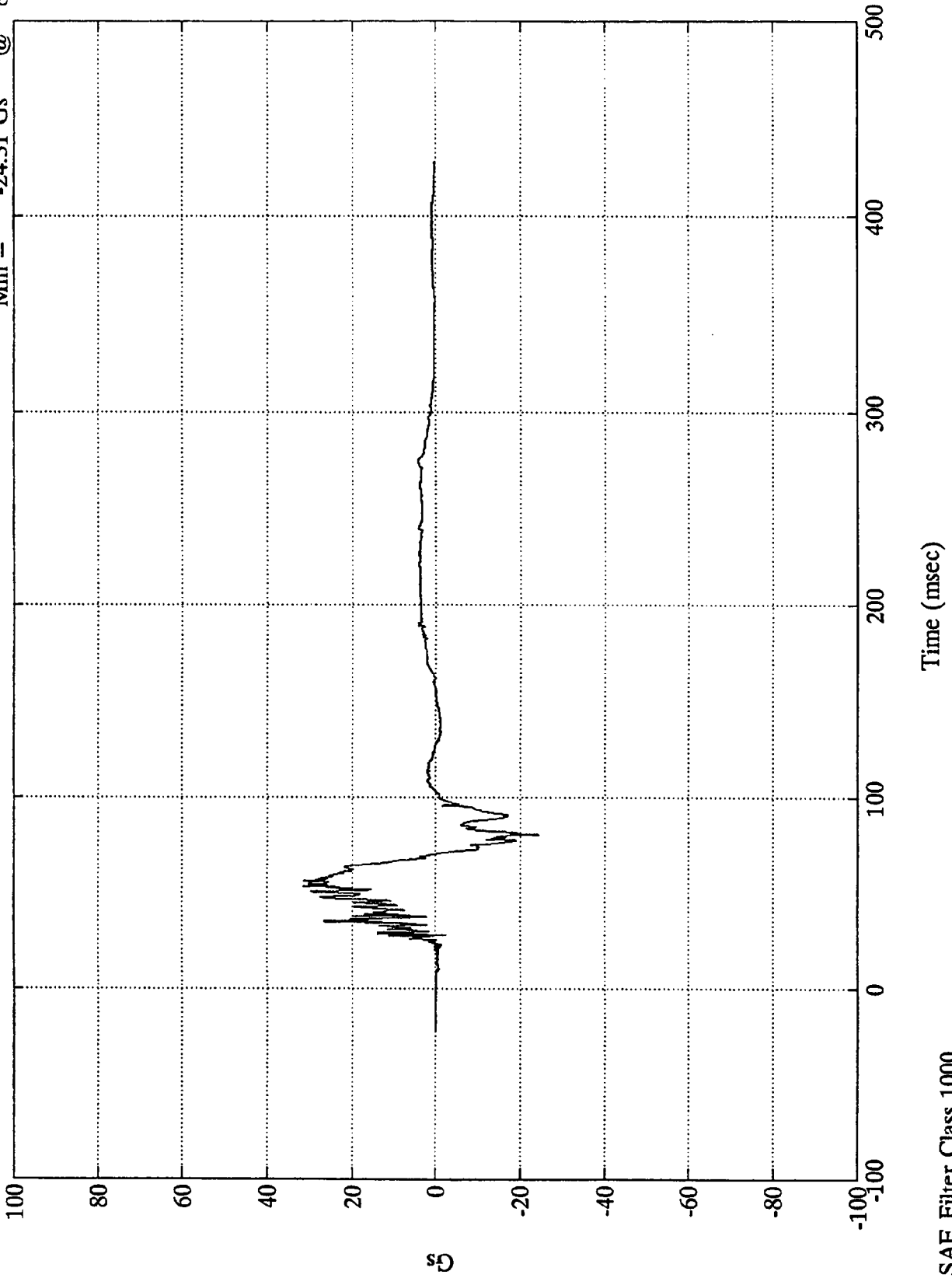
Max = 28.54 Gs @ 27.96 msec
Min = -17.13 Gs @ 47.04 msec



NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Head Z

Max = 31.49 Gs @ 53.52 msec
Min = -24.31 Gs @ 80.88 msec

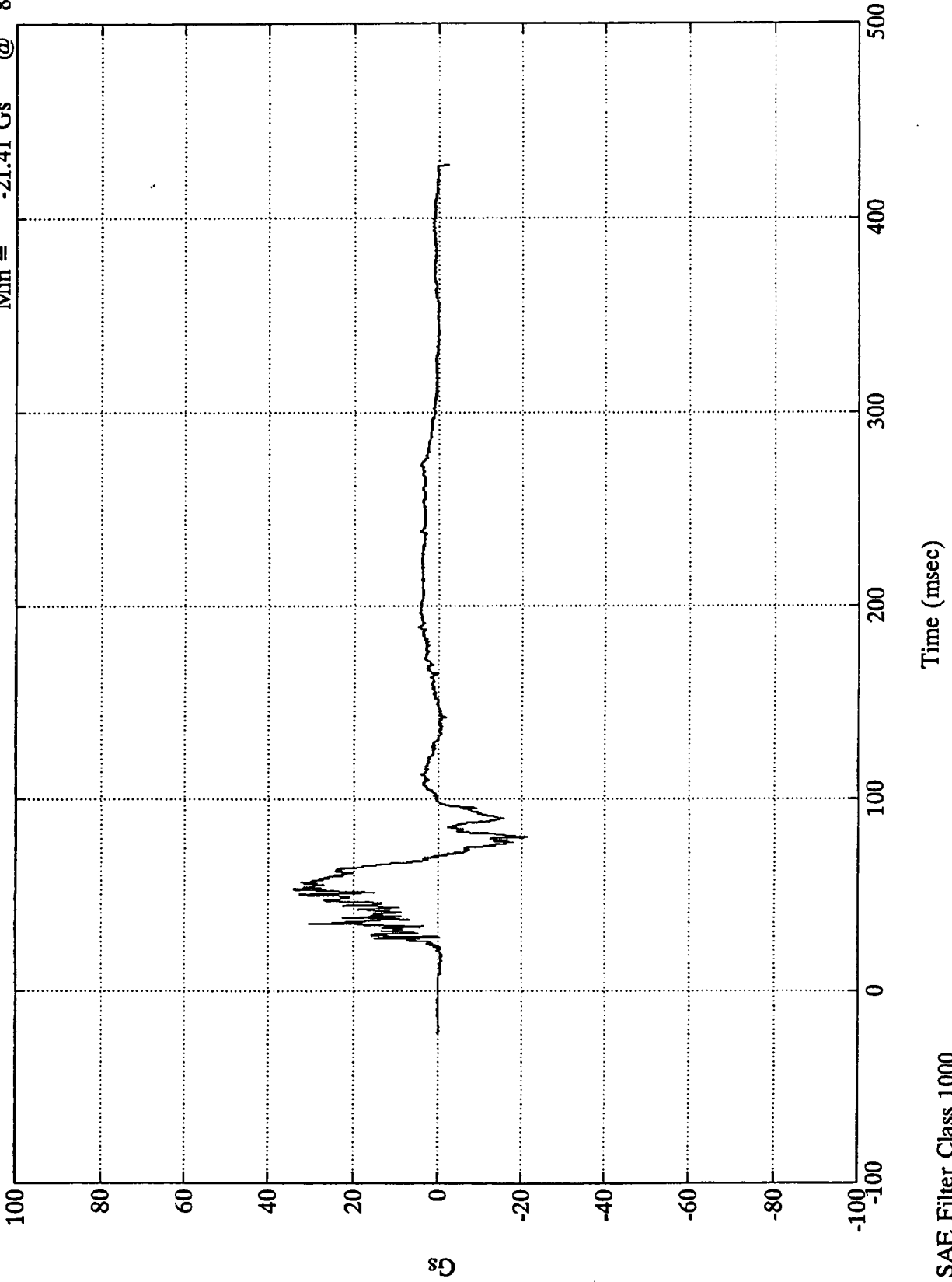


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Head Z(R)

Max = 34.13 Gs @ 53.27 msec
Min = -21.41 Gs @ 80.52 msec

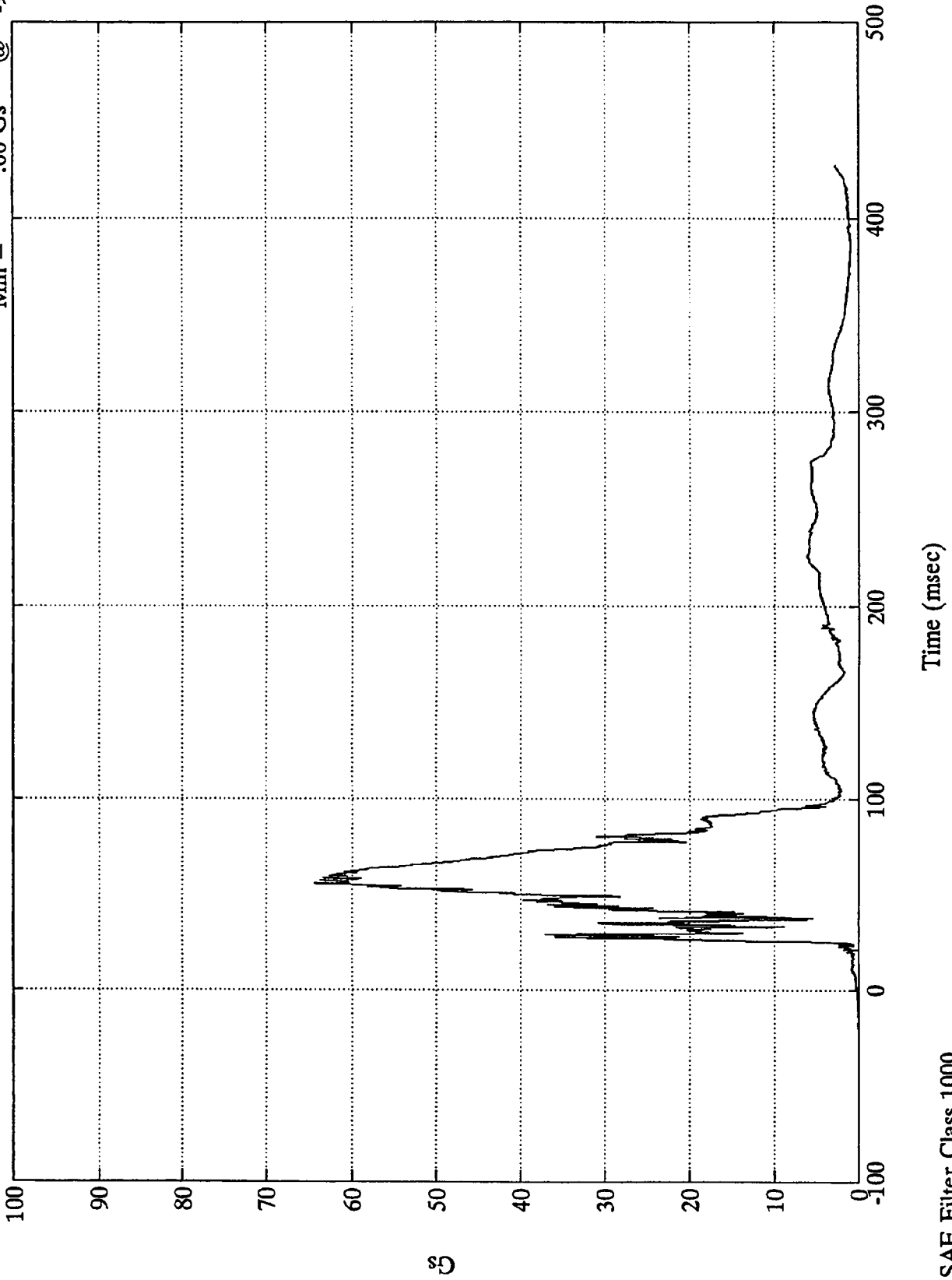


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Head Resultant

Max = 64.45 Gs @ 56.28 msec
Min = .00 Gs @ -9.72 msec

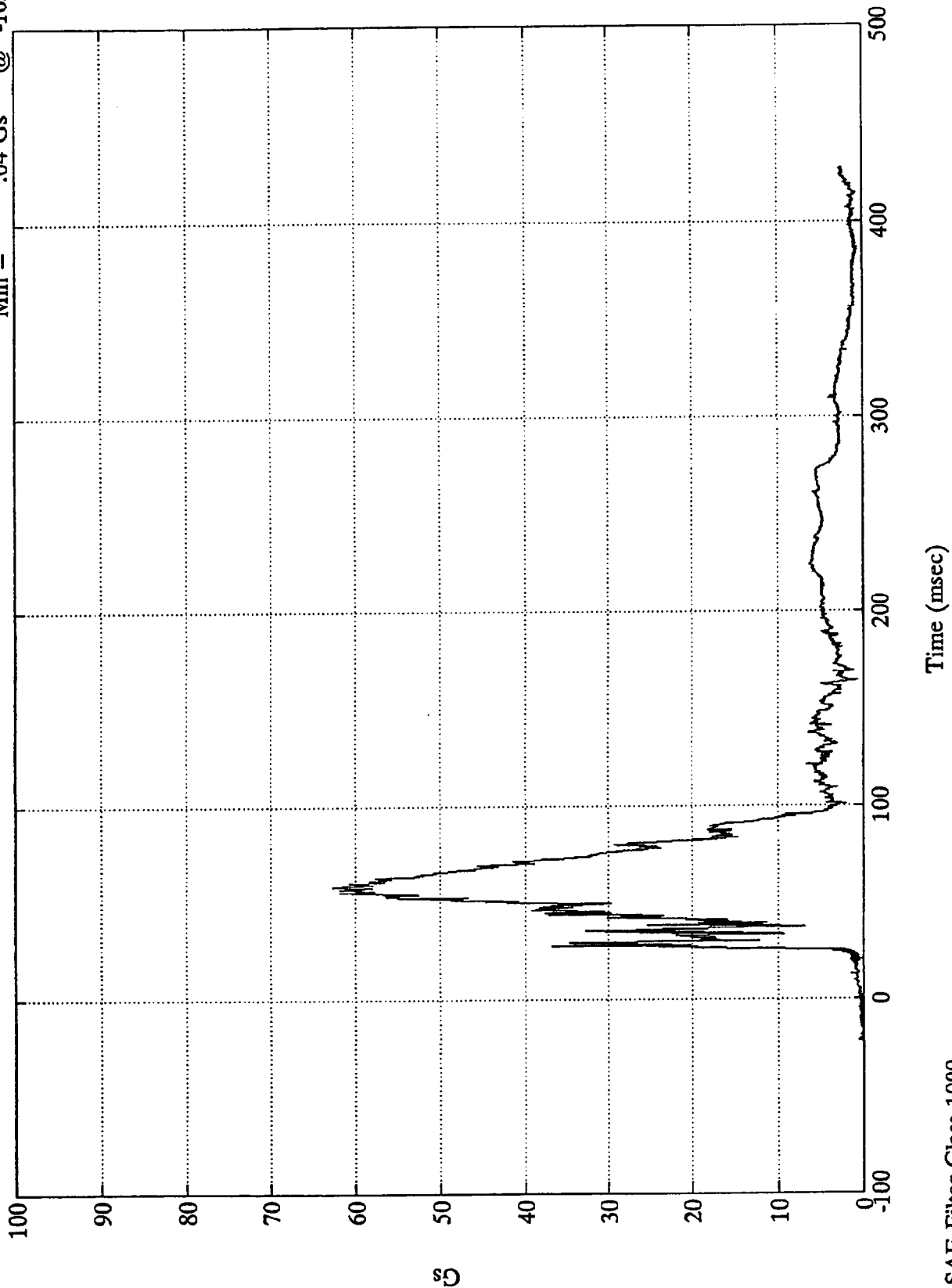


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Head Resultant(R)

Max = 62.66 Gs @ 58.79 msec
Min = .04 Gs @ -16.92 msec

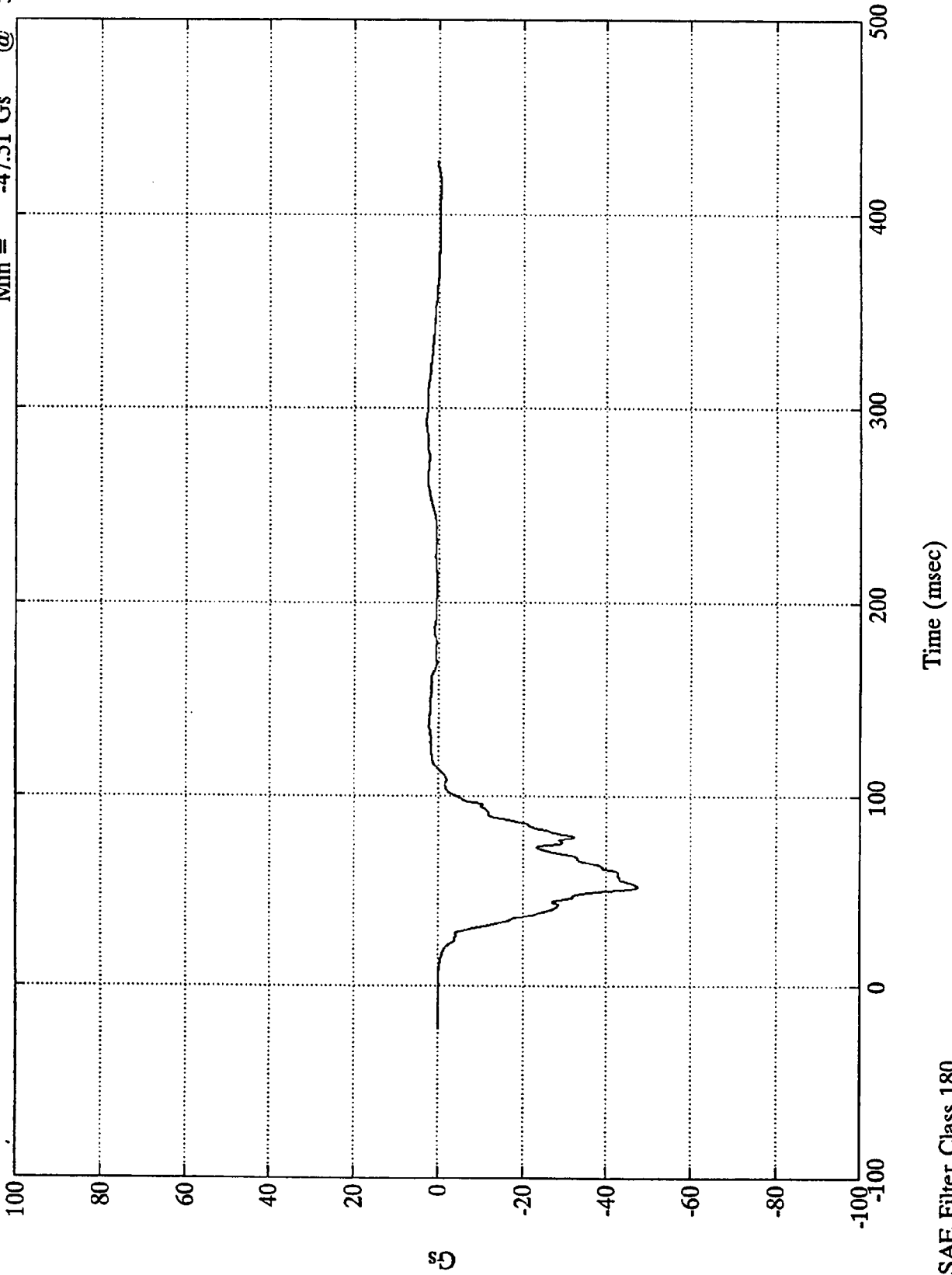


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Chest X

Max = 3.11 Gs @ 292.44 msec
Min = -47.51 Gs @ 52.31 msec

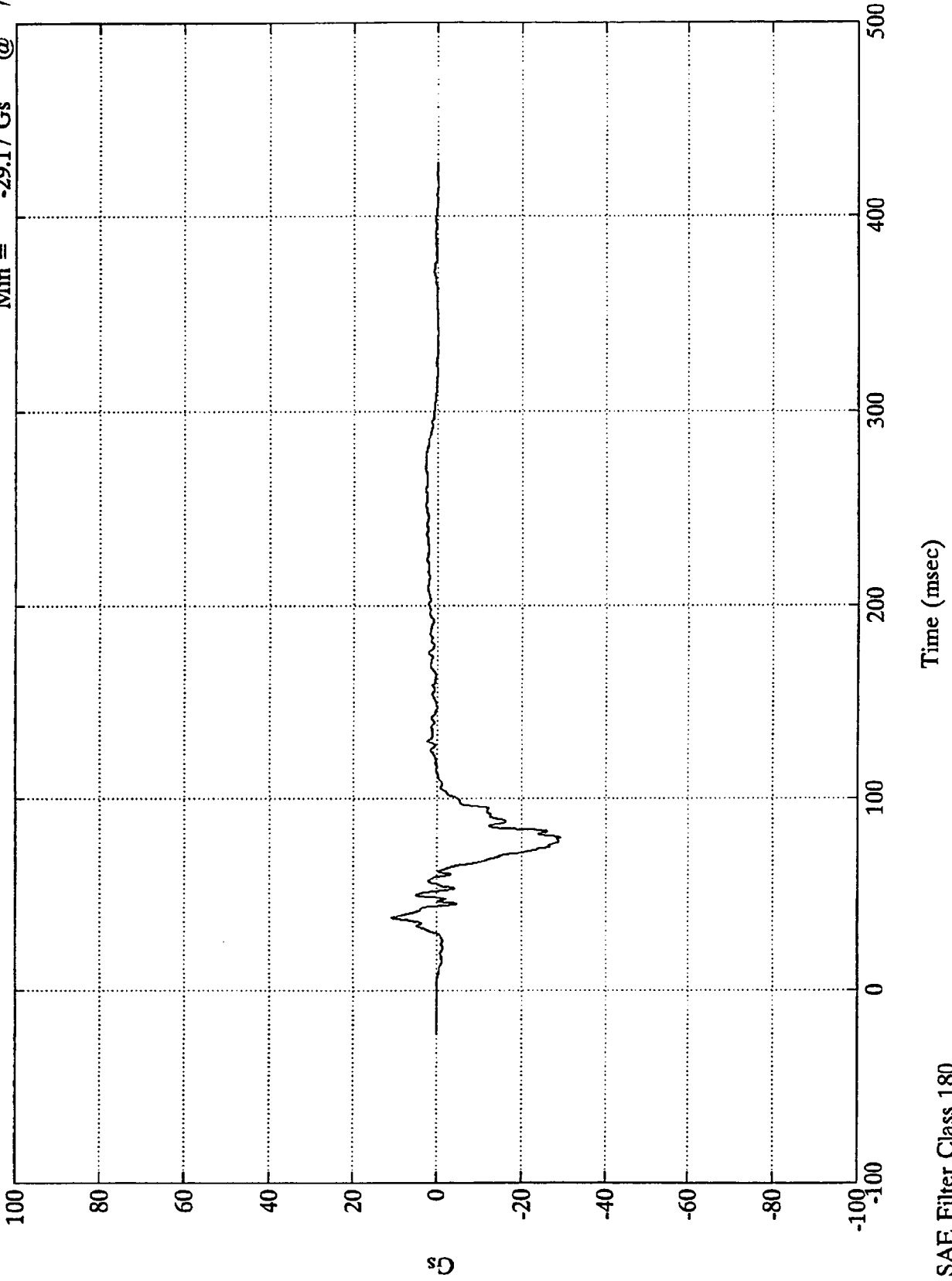


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Chest X(R)

Max = 10.76 Gs @ 37.92 msec
Min = -29.17 Gs @ 79.80 msec

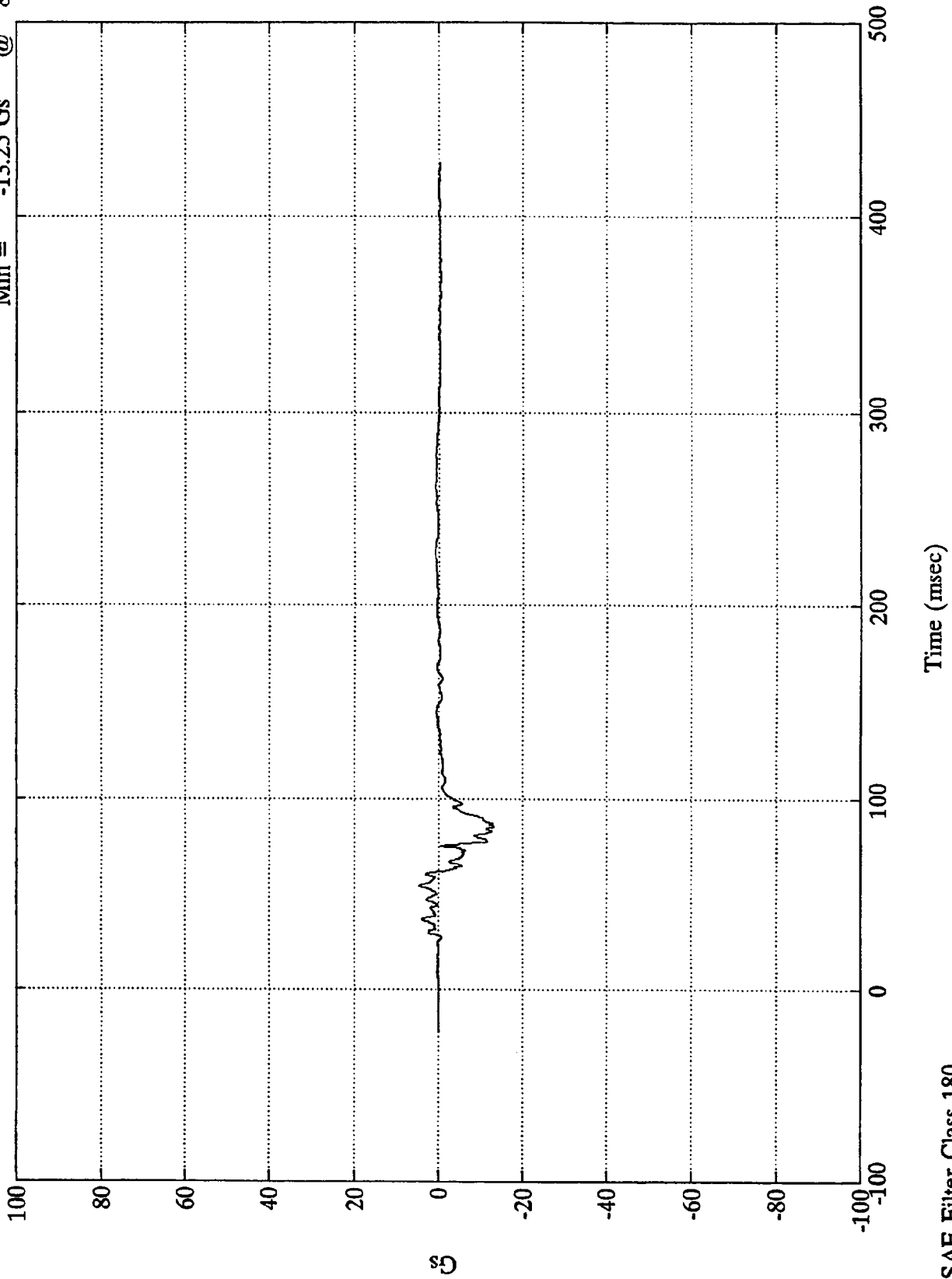


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Chest Y

Max = 4.70 Gs @ 54.11 msec
Min = -13.25 Gs @ 85.44 msec

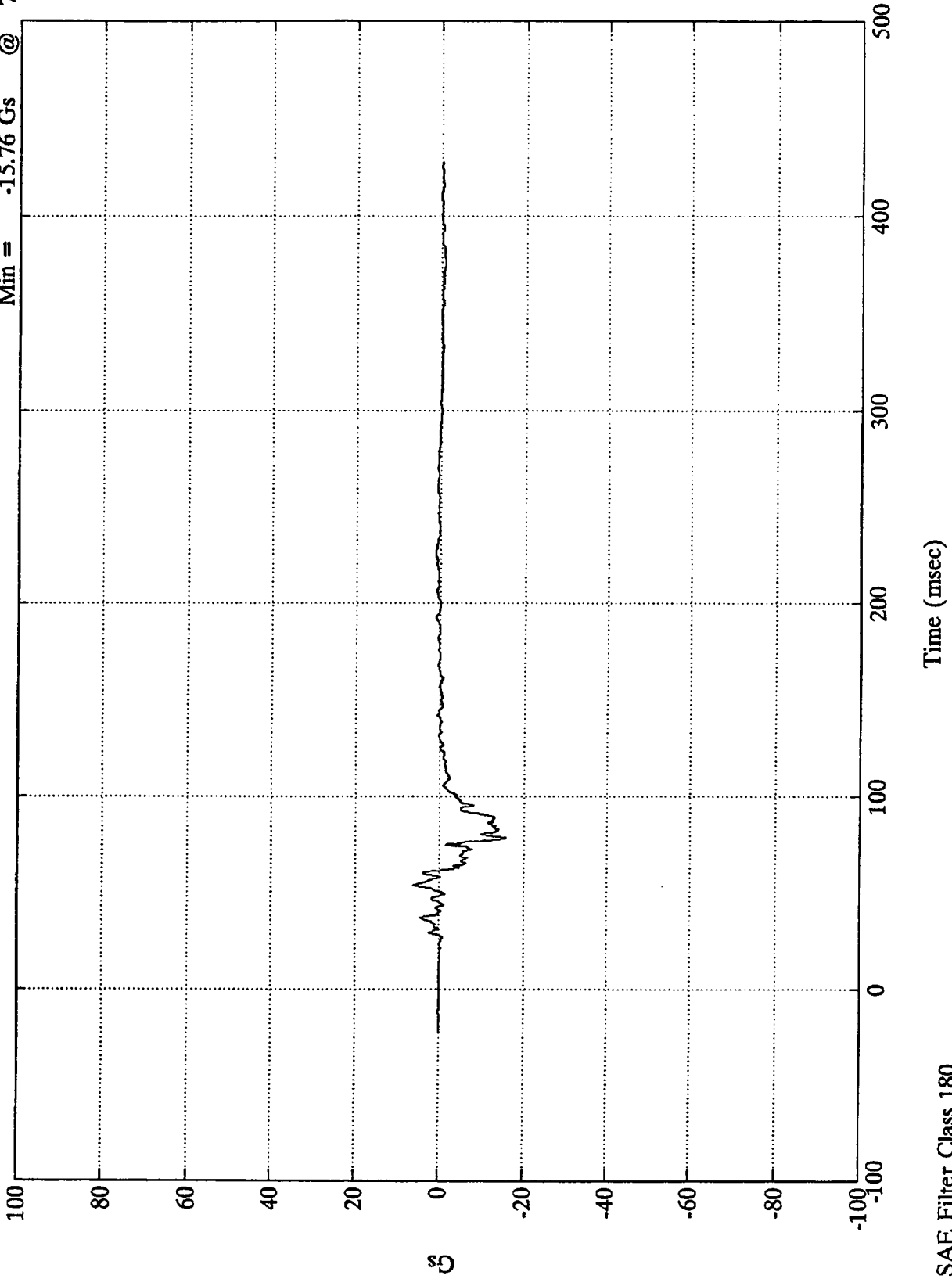


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Chest Y(R)

Max = 6.02 Gs @ 53.75 msec
Min = -15.76 Gs @ 78.60 msec

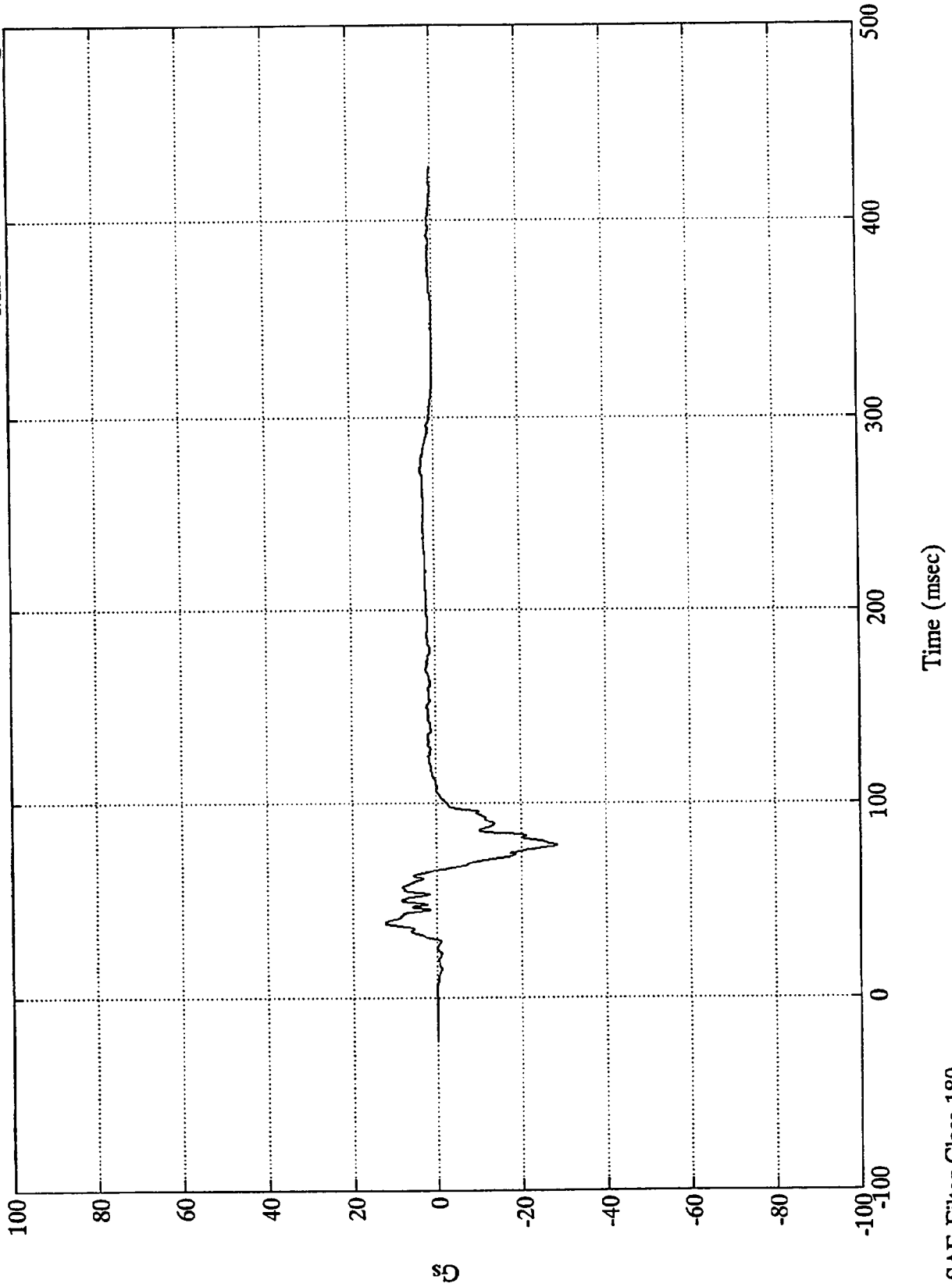


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Chest Z

Max = 12.21 Gs @ 38.40 msec
Min = -28.47 Gs @ 78.48 msec

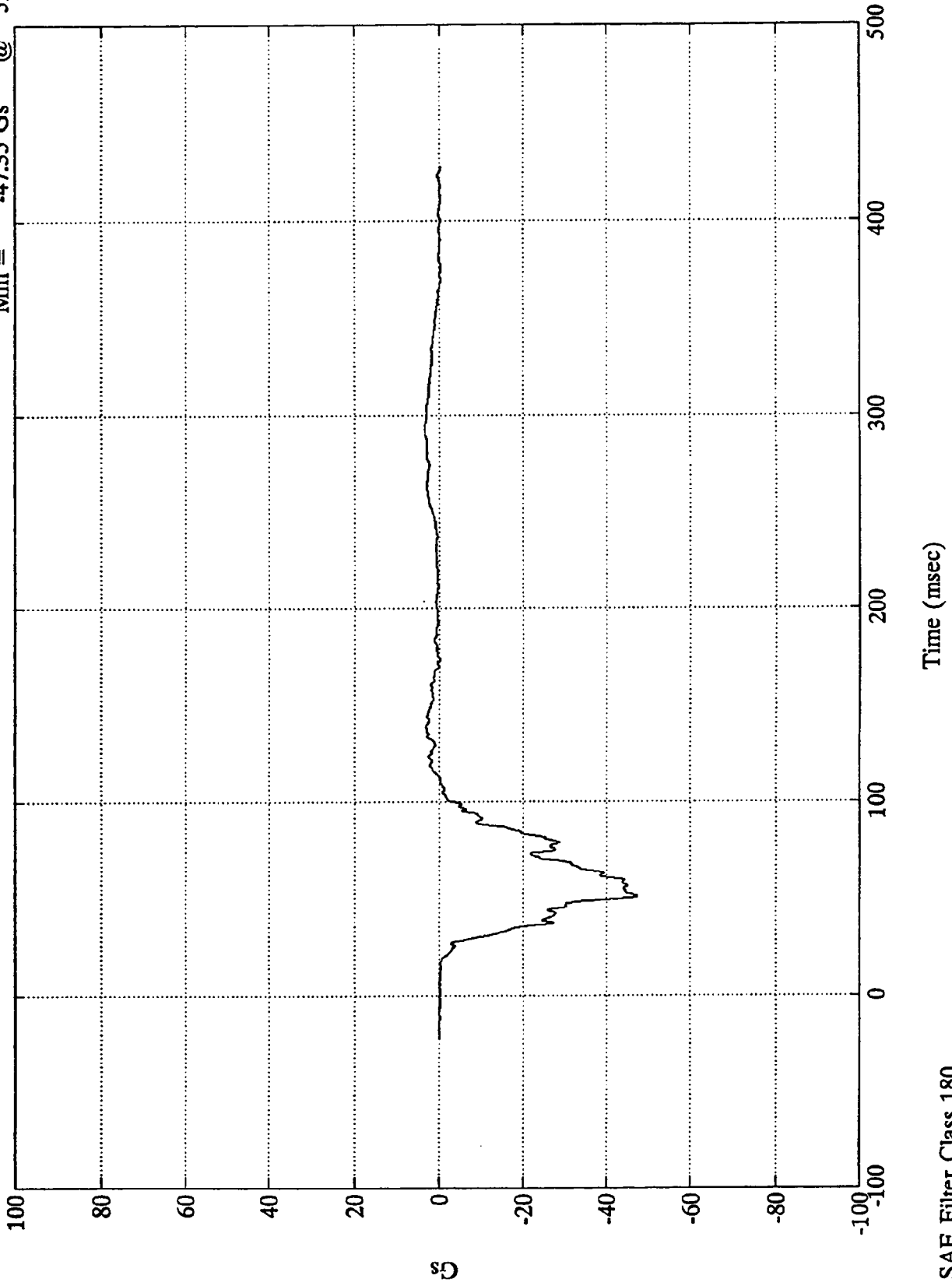


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Chest Z(R)

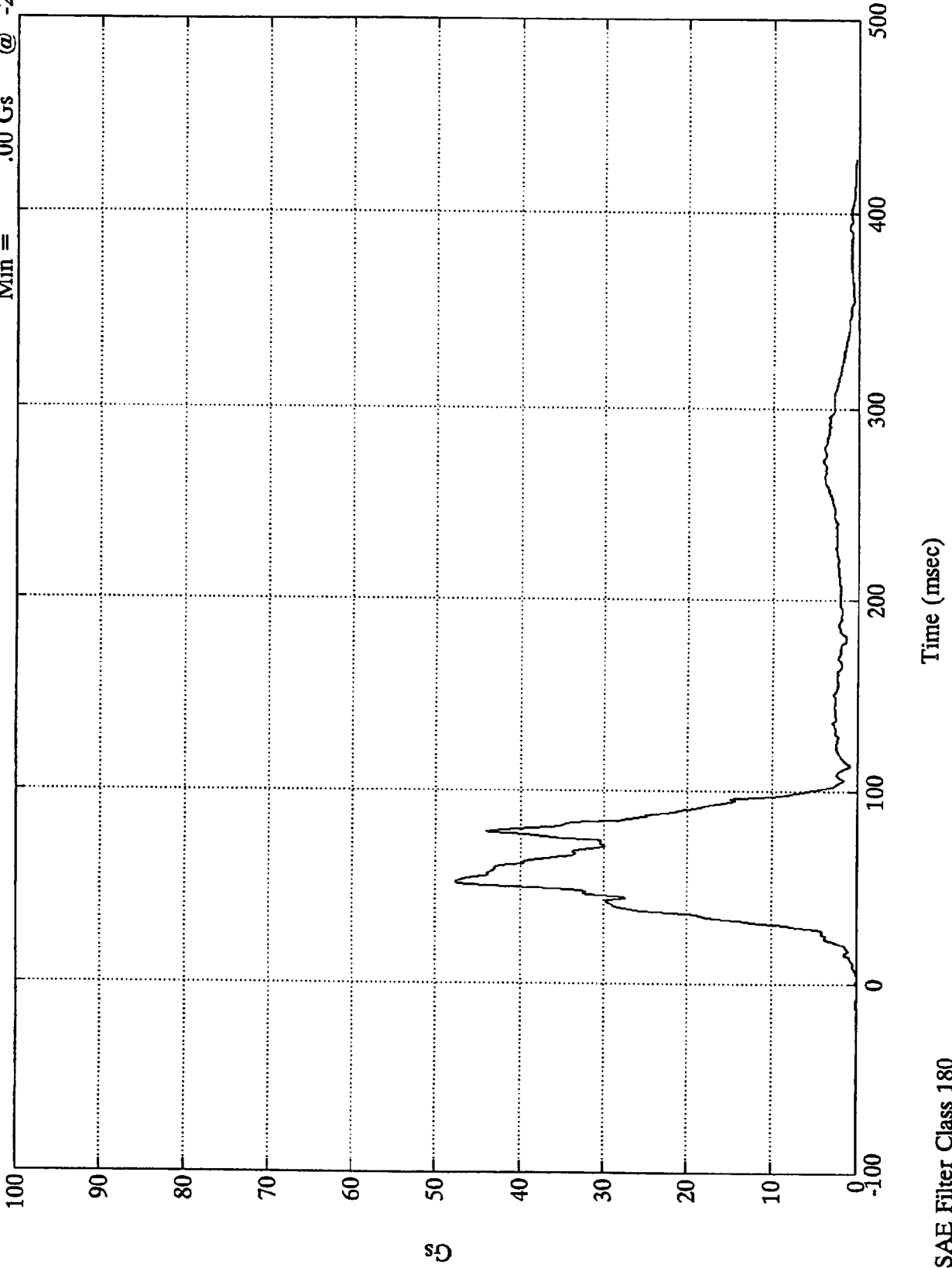
Max = 3.46 Gs @ 294.23 msec
Min = -47.35 Gs @ 51.48 msec



NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Chest Resultant

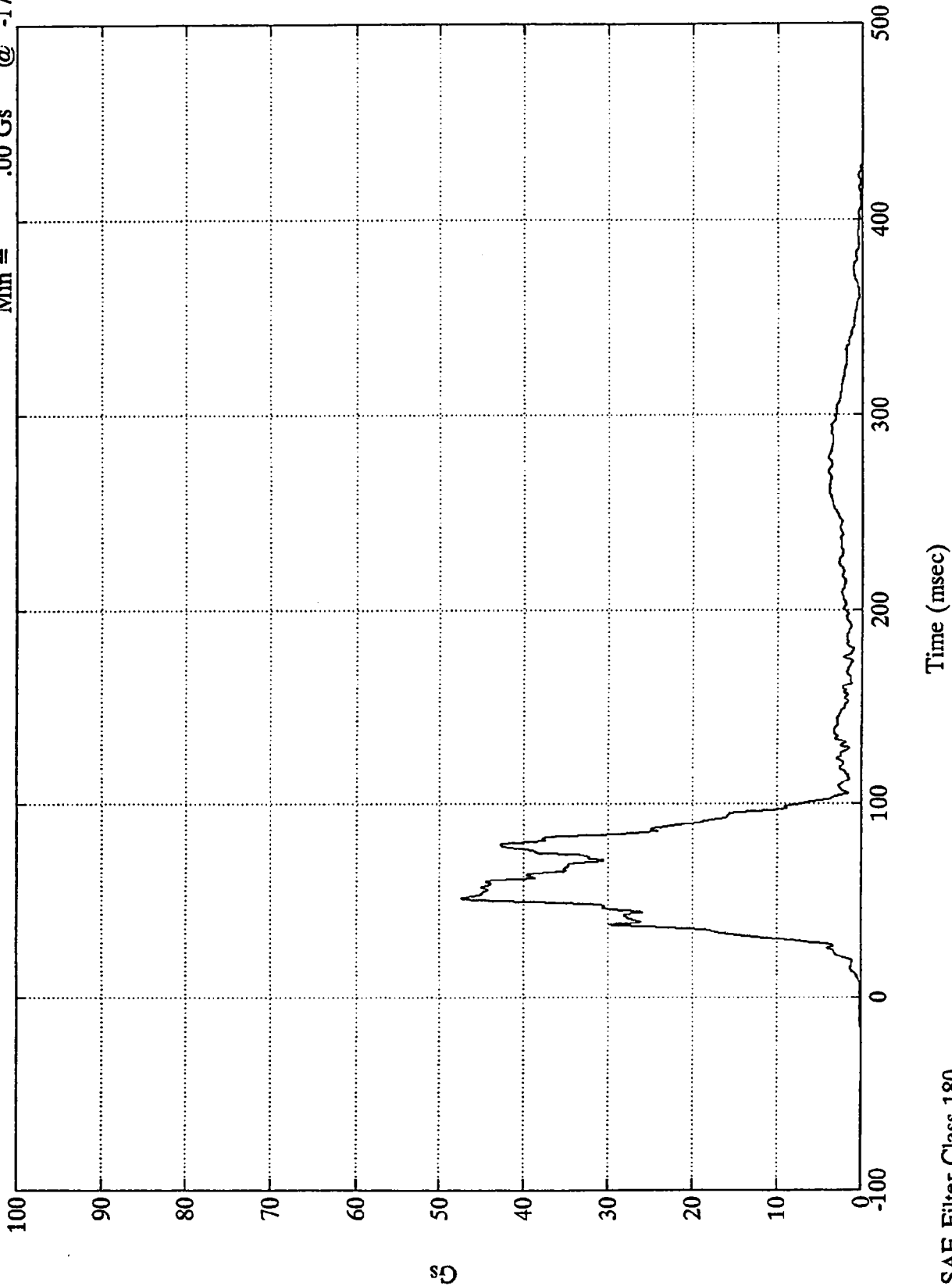
Max = 47.68 Gs @ 52.20 msec
Min = .00 Gs @ -20.40 msec



NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Chest Res(R)

Max = 47.38 Gs @ 51.48 msec
Min = .00 Gs @ -17.04 msec

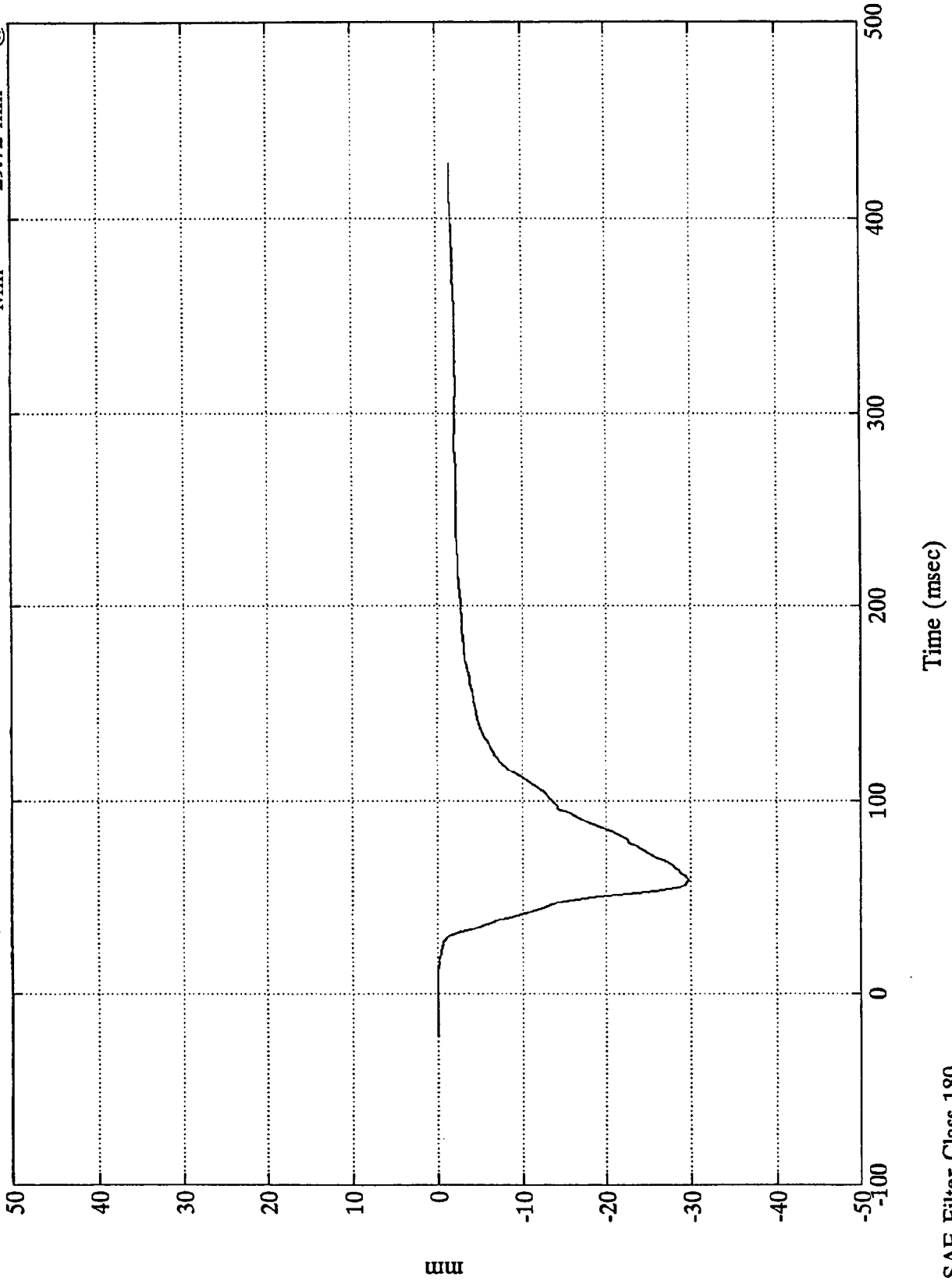


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Chest Disp.

Max = .00 mm @ 9.47 msec
Min = -29.72 mm @ 58.68 msec

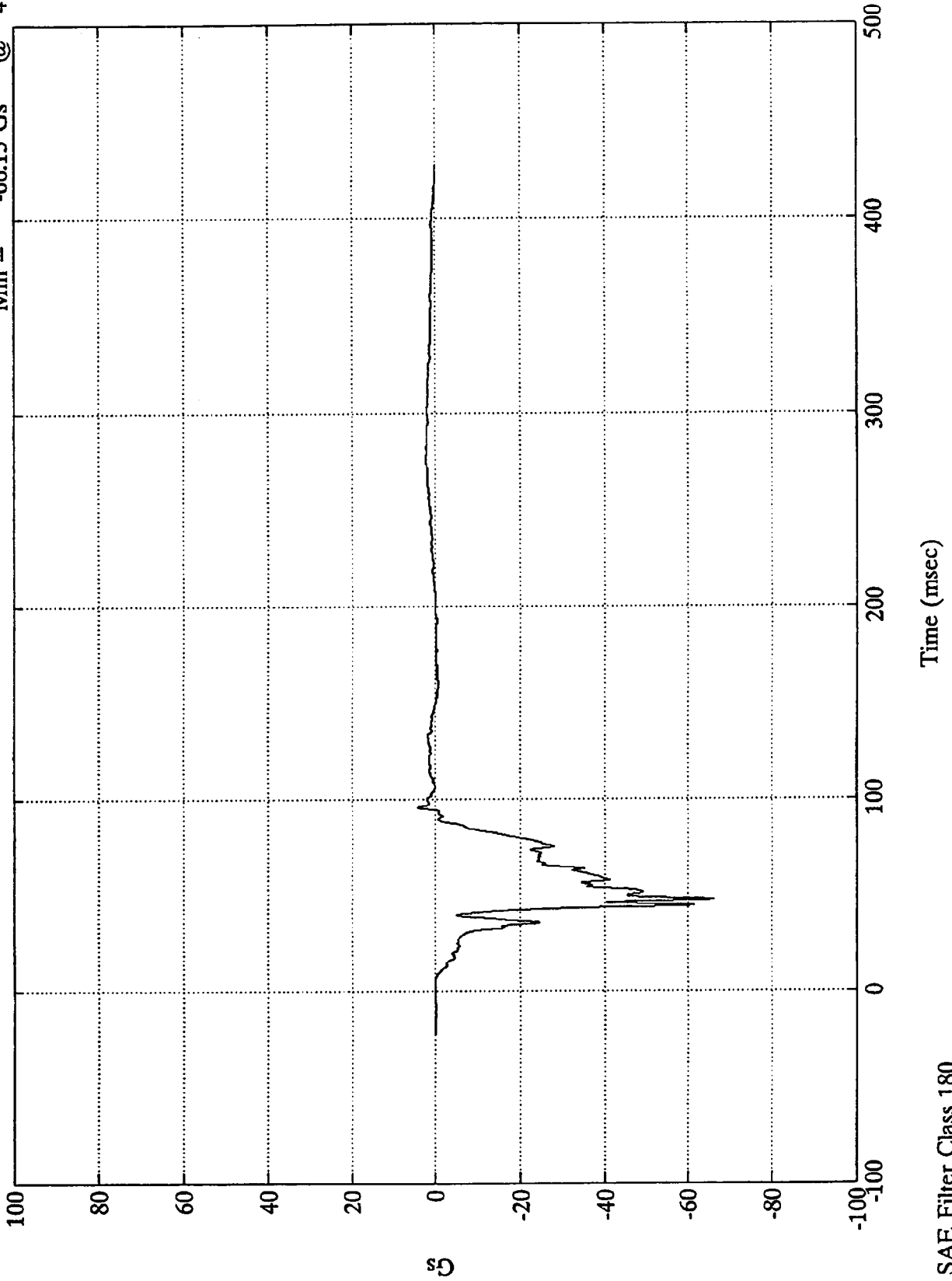


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Pelvic (X)

Max = 4.29 Gs @ 95.88 msec
Min = -66.15 Gs @ 47.63 msec

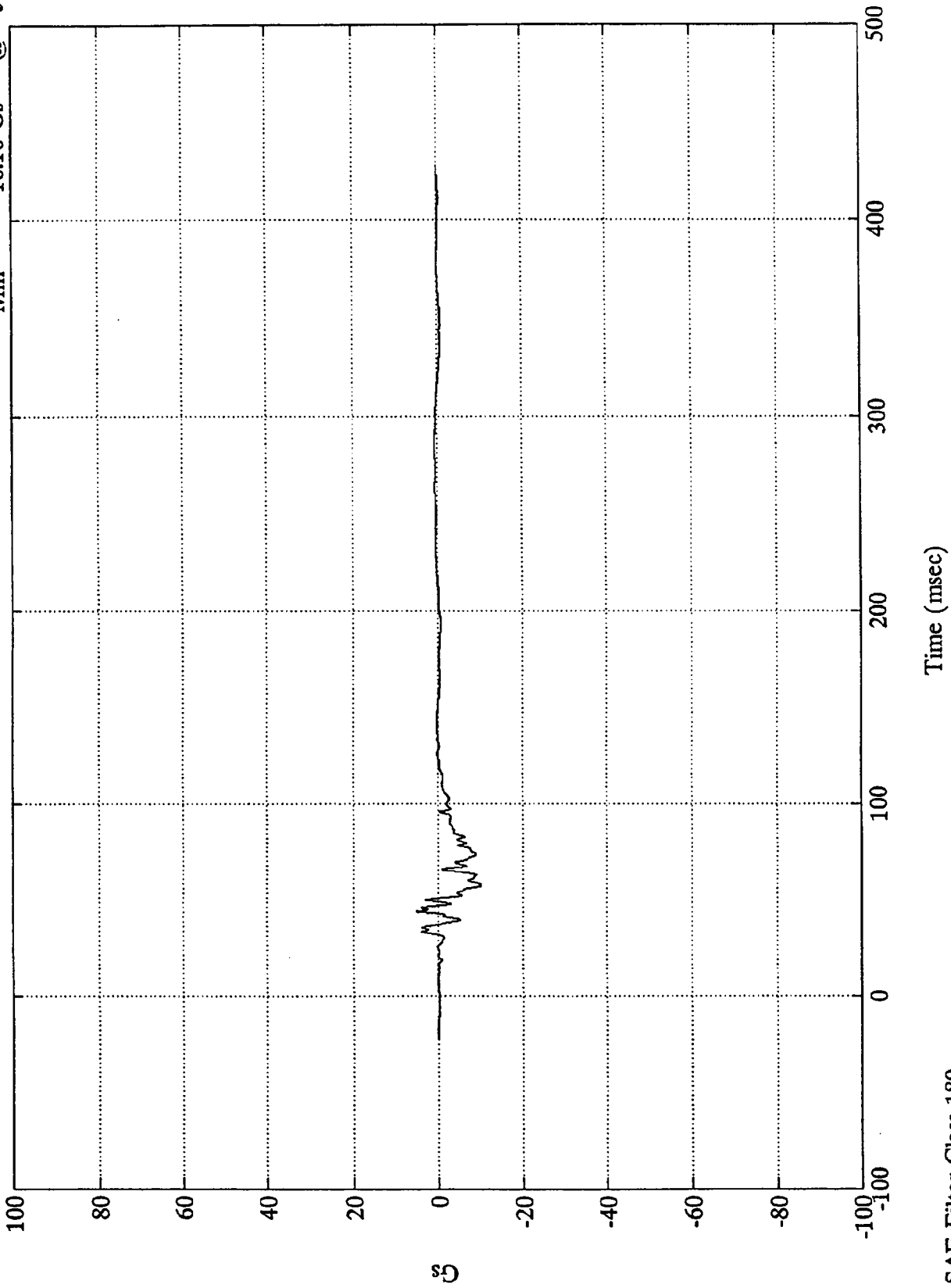


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Pelvic (Y)

Max = 5.19 Gs @ 43.68 msec
Min = -10.10 Gs @ 57.24 msec

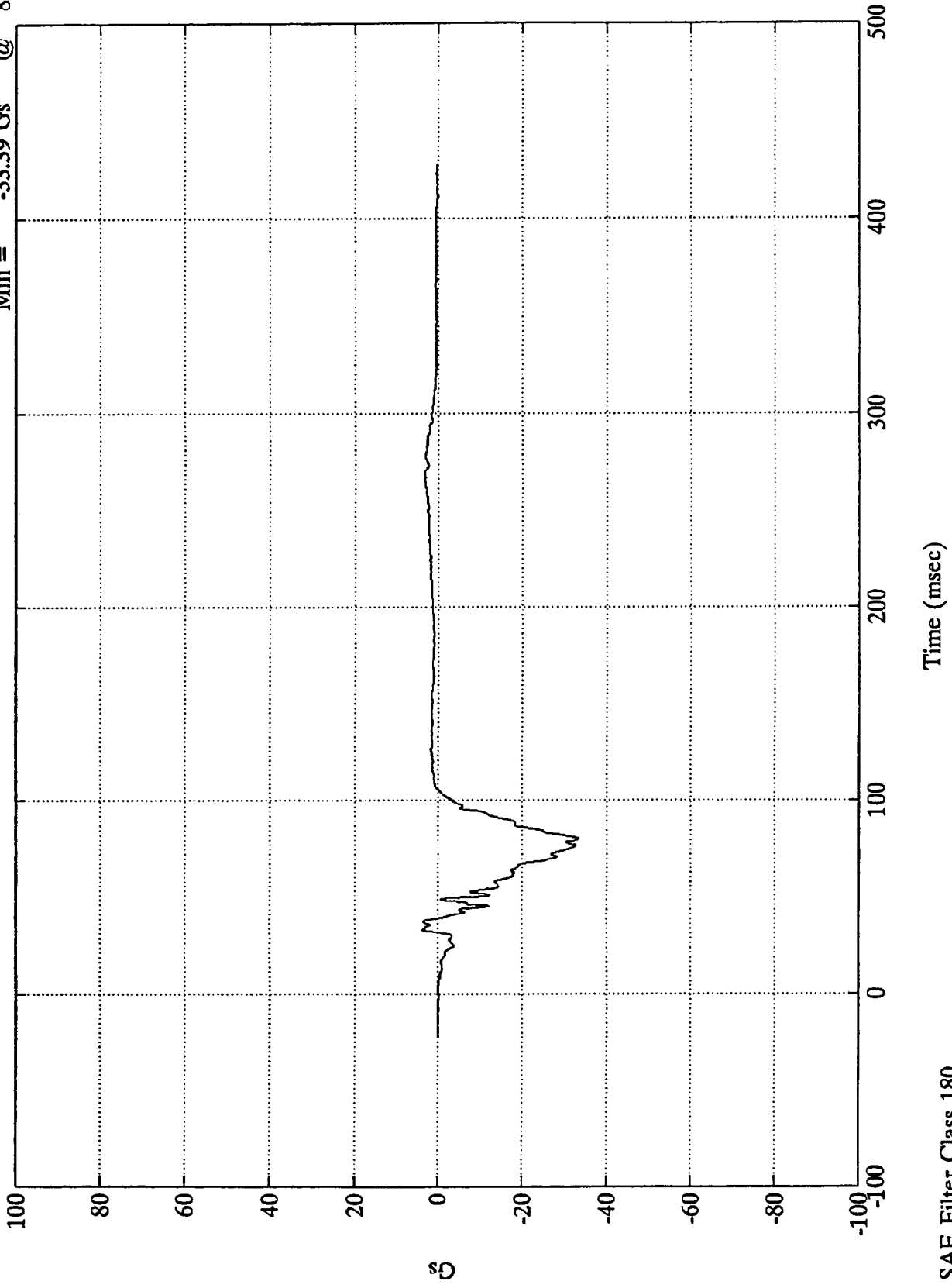


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Pelvic (Z)

Max = 3.58 Gs @ 32.88 msec
Min = -33.39 Gs @ 80.28 msec

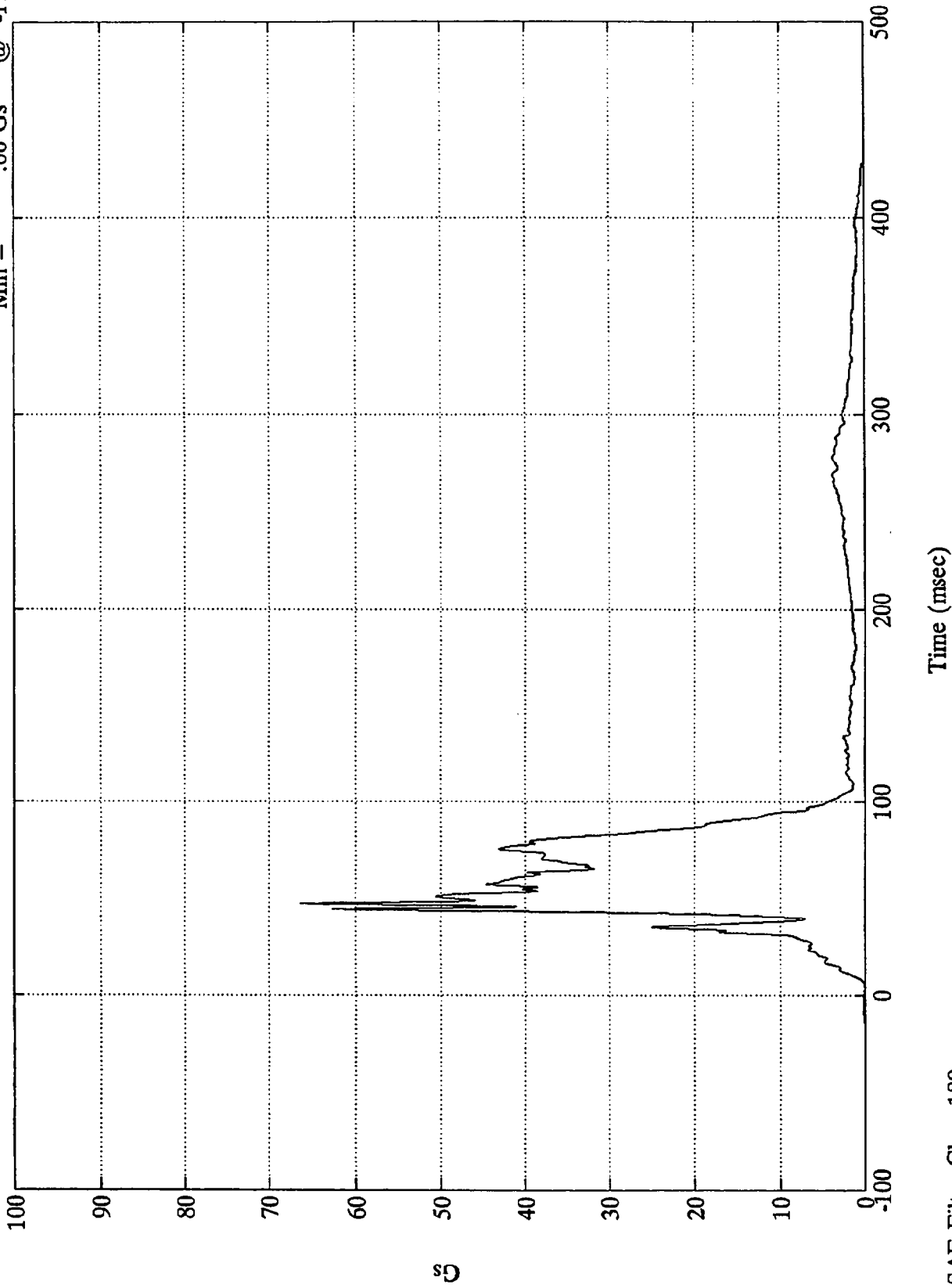


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Pelvic (R)

Max = 66.30 Gs @ 47.63 msec
Min = .00 Gs @ -17.52 msec

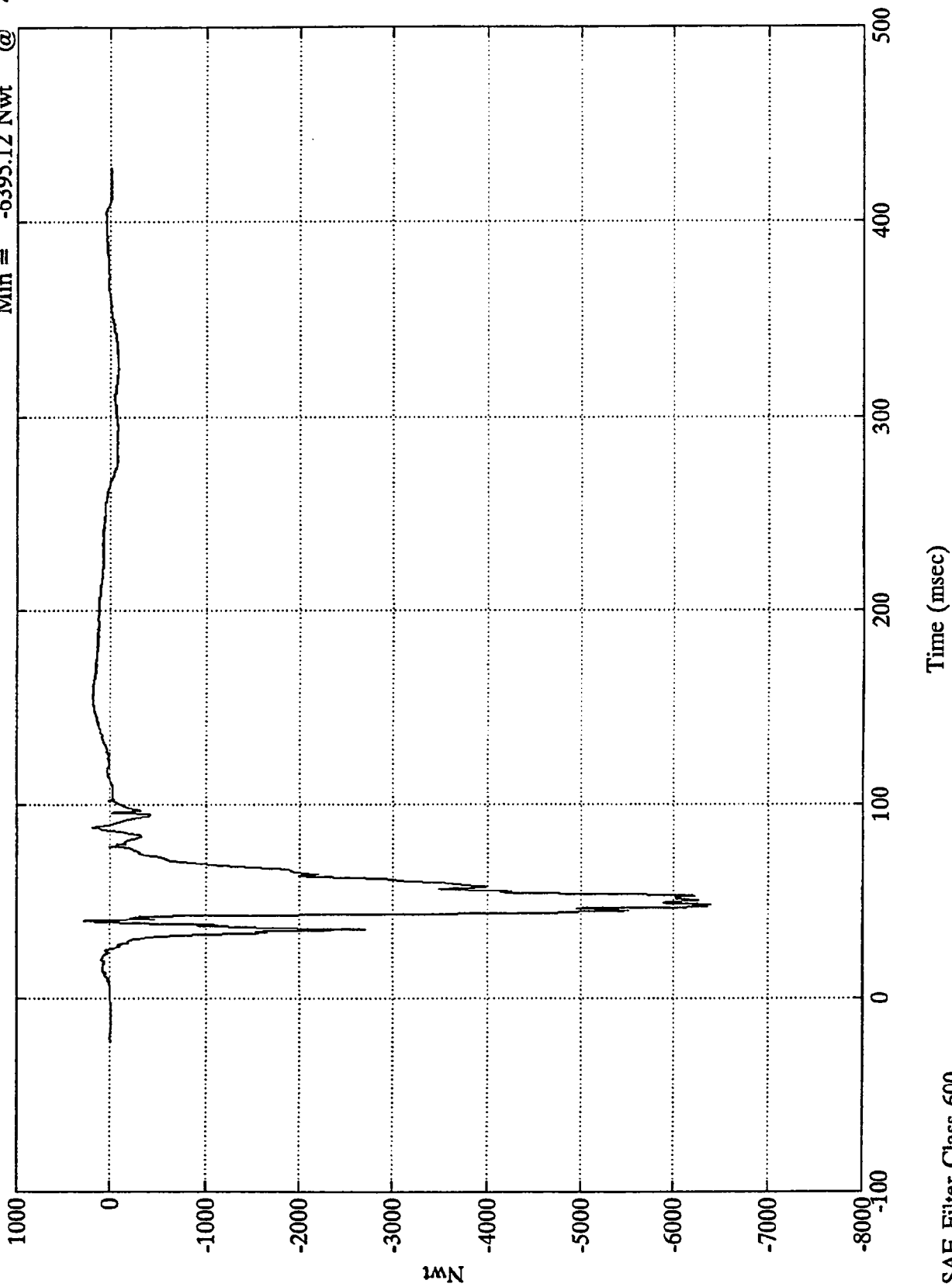


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Max = 281.39 Nwt @ 40.07 msec
Min = -6395.12 Nwt @ 48.11 msec

Pos. 2 Left Femur

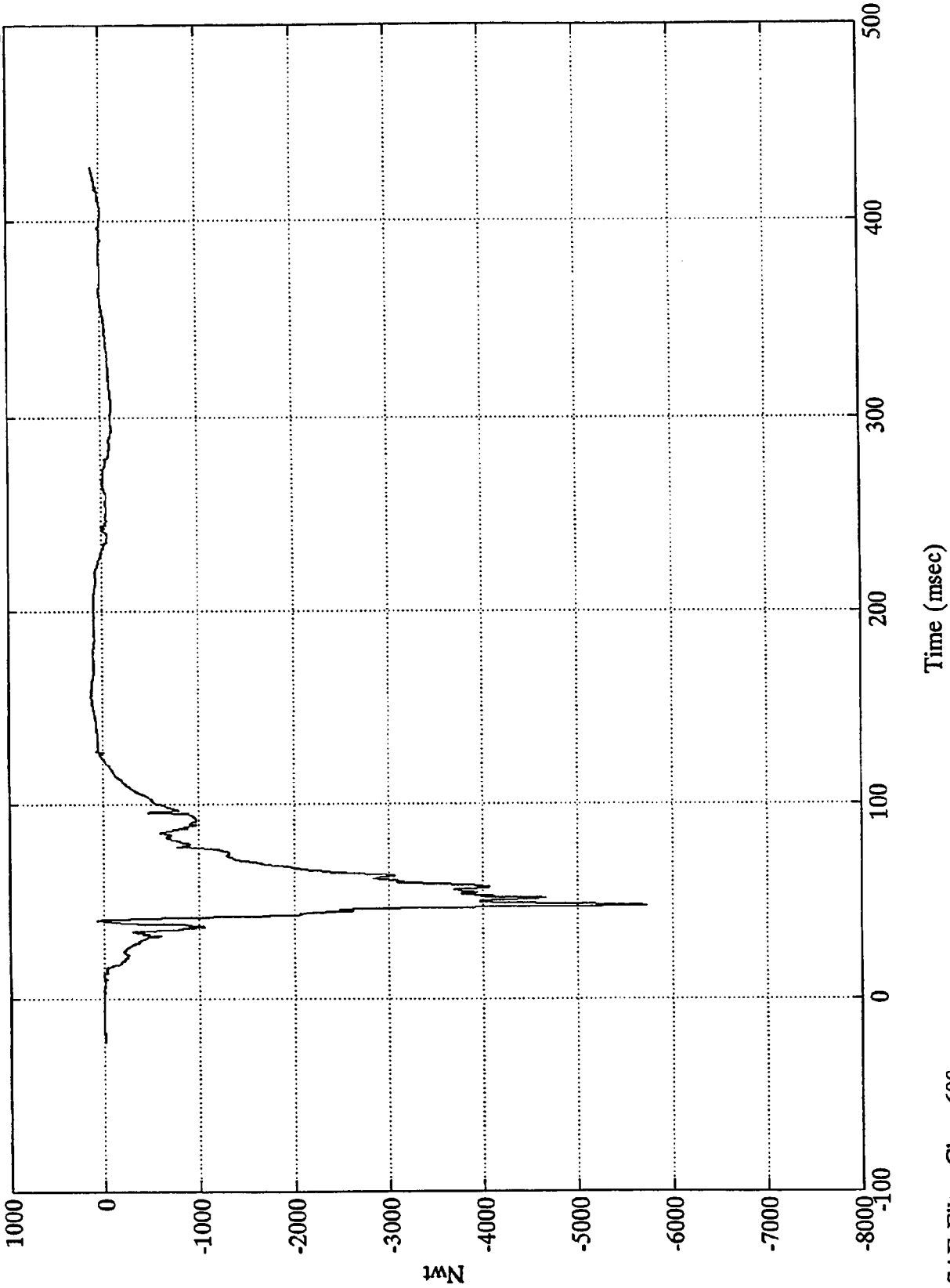


SAE Filter Class 600

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Right Femur

Max = 126.36 Nwt @ 157.32 msec
Min = -5722.37 Nwt @ 47.88 msec

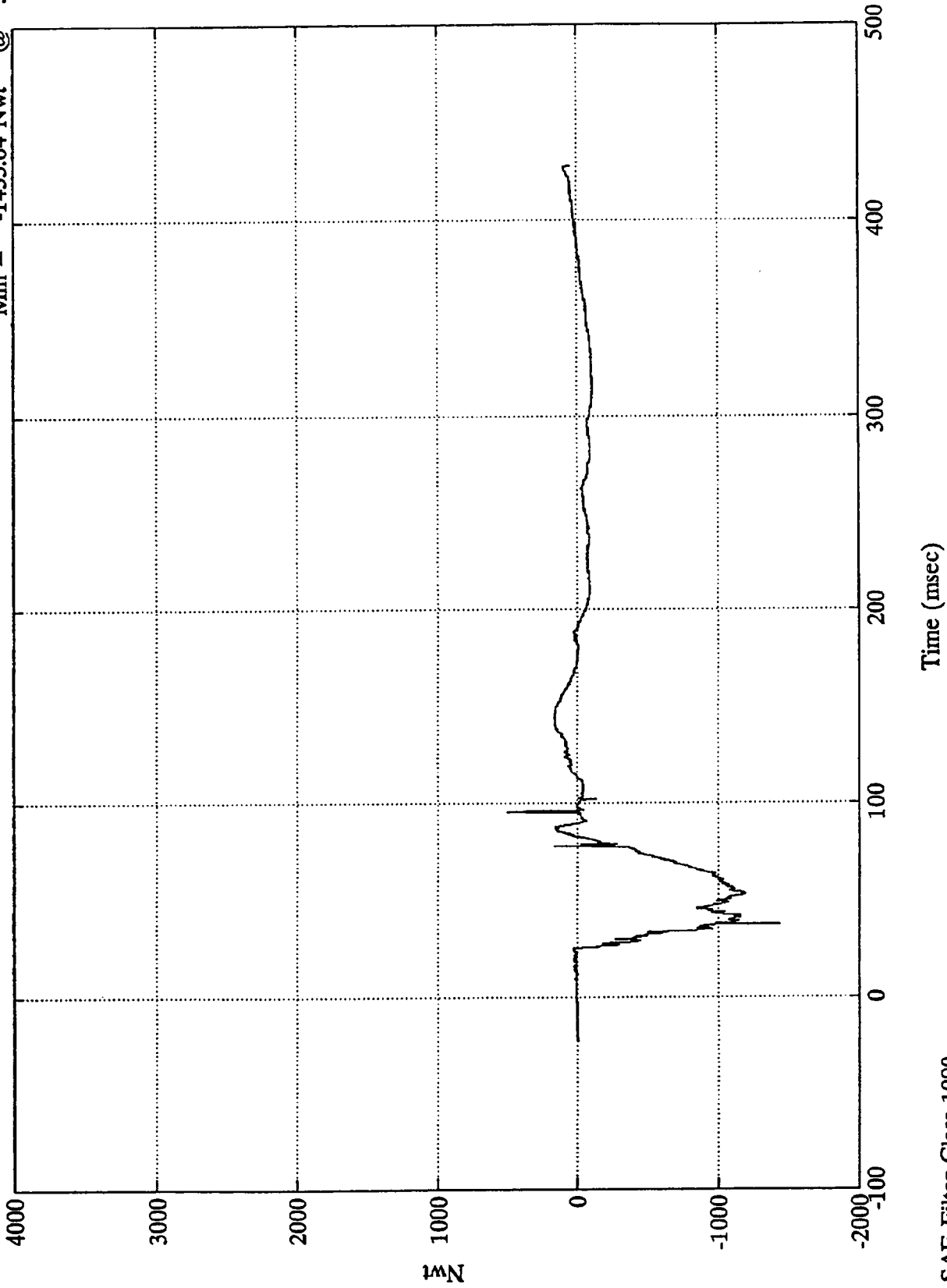


SAE Filter Class 600

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Upper Neck Fx

Max = 504.02 Nwt @ 95.76 msec
Min = -1433.64 Nwt @ 38.04 msec

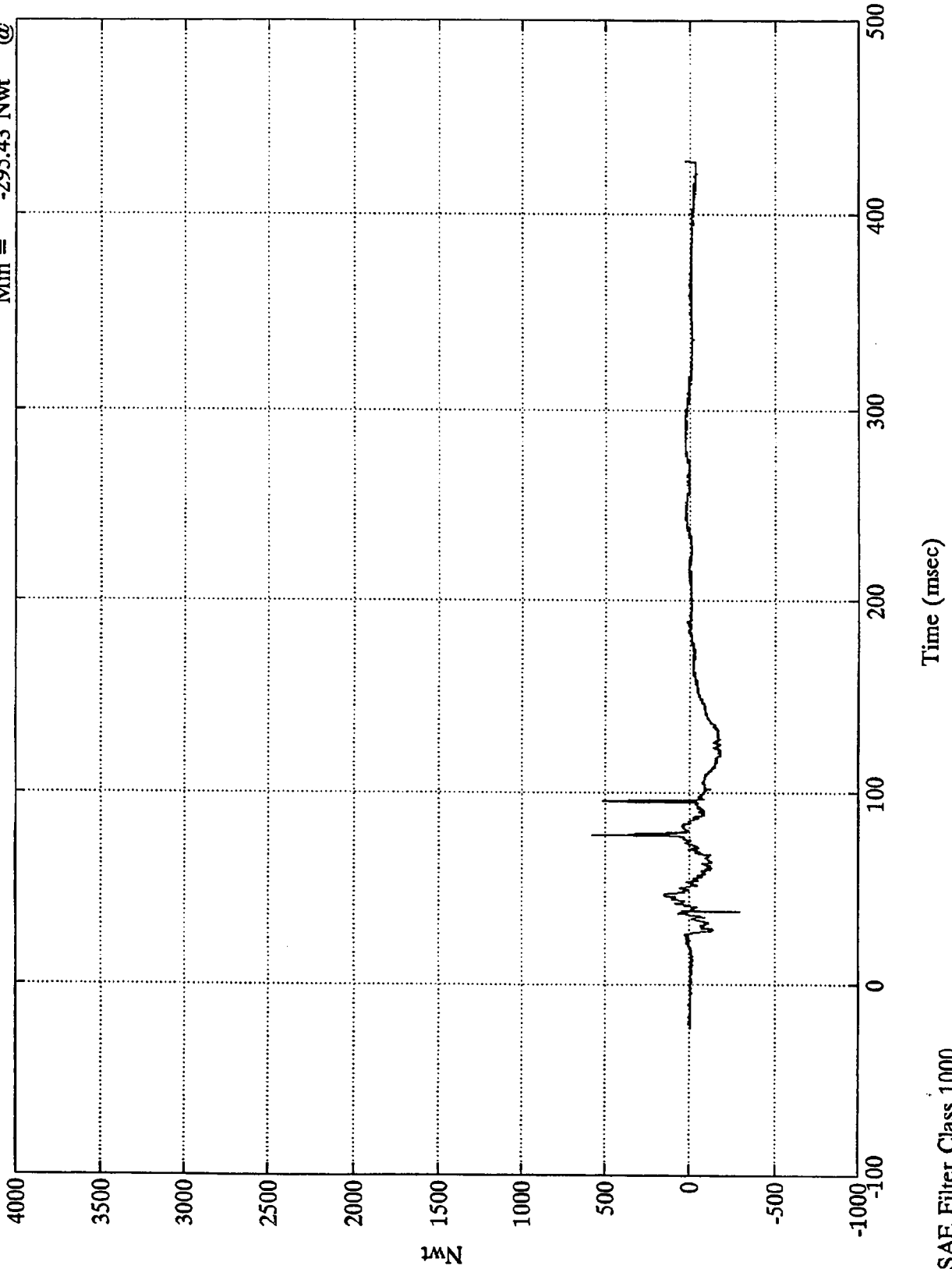


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Upper Neck Fy

Max = 577.72 Nwt @ 78.23 msec
Min = -295.43 Nwt @ 38.04 msec

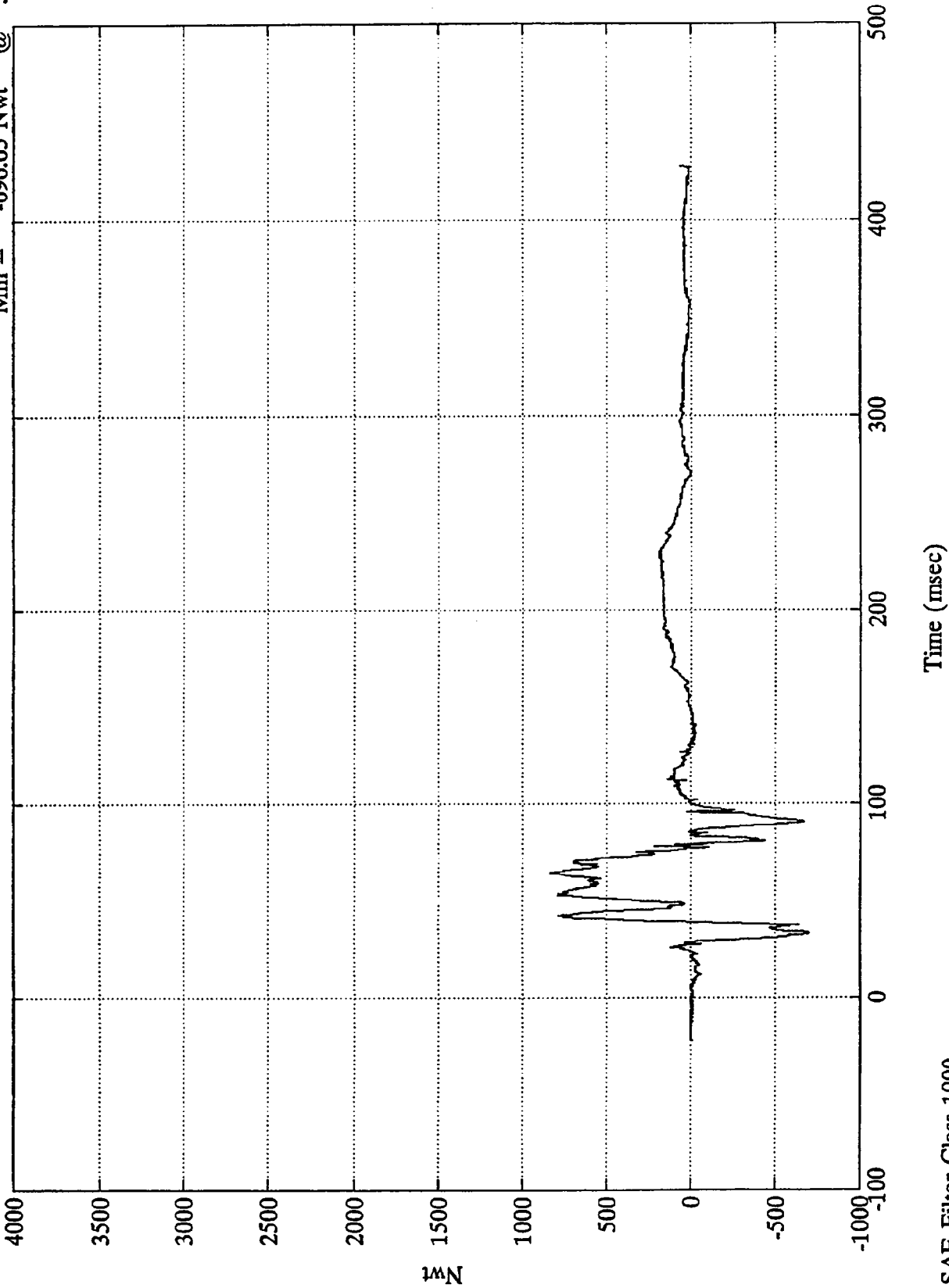


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Upper Neck Fz

Max = 830.59 Nwt @ 64.56 msec
Min = -696.65 Nwt @ 33.95 msec

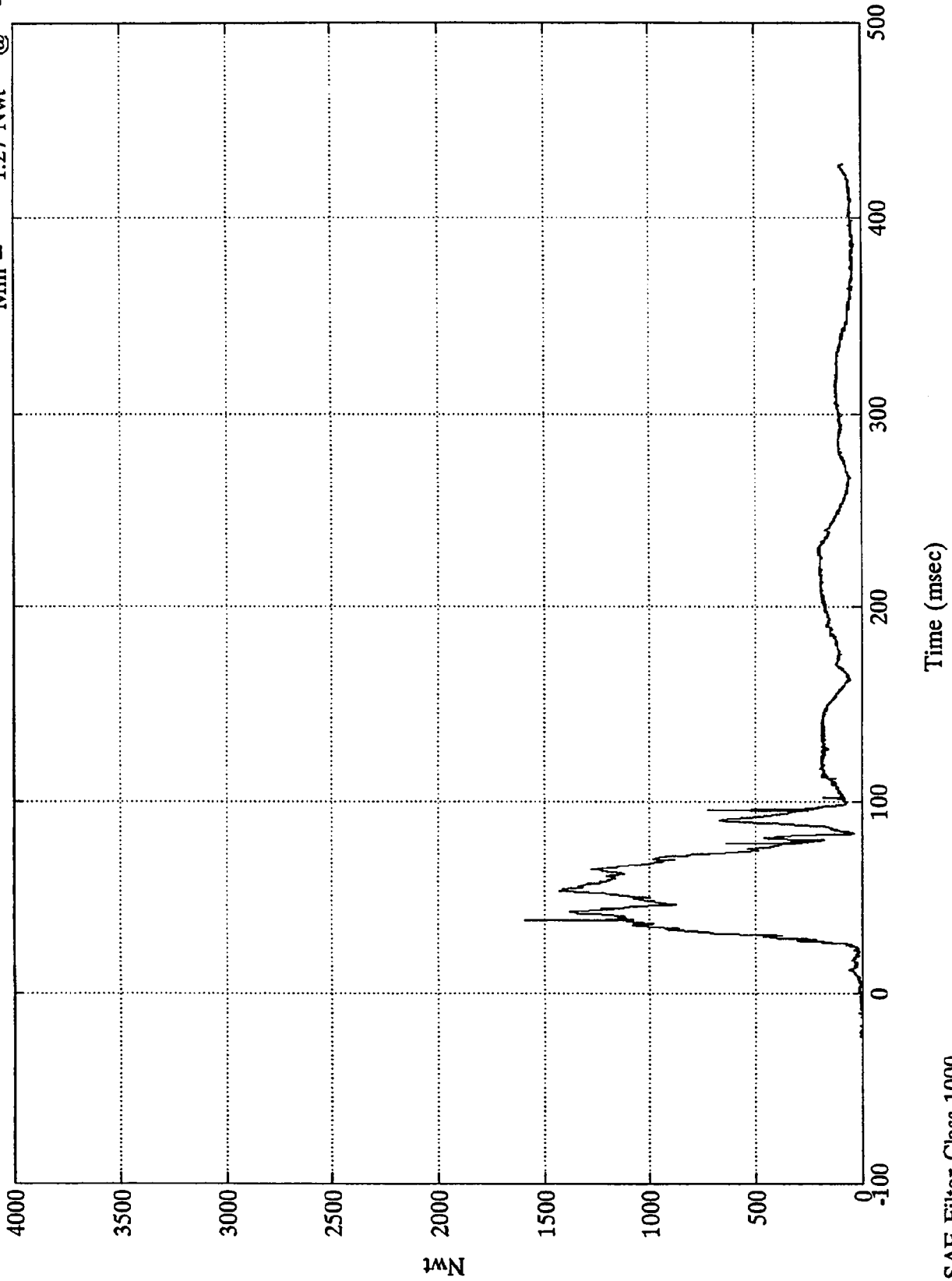


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Neck Force Res.

Max = 1593.52 Nwt @ 38.04 msec
Min = 1.27 Nwt @ -2.40 msec

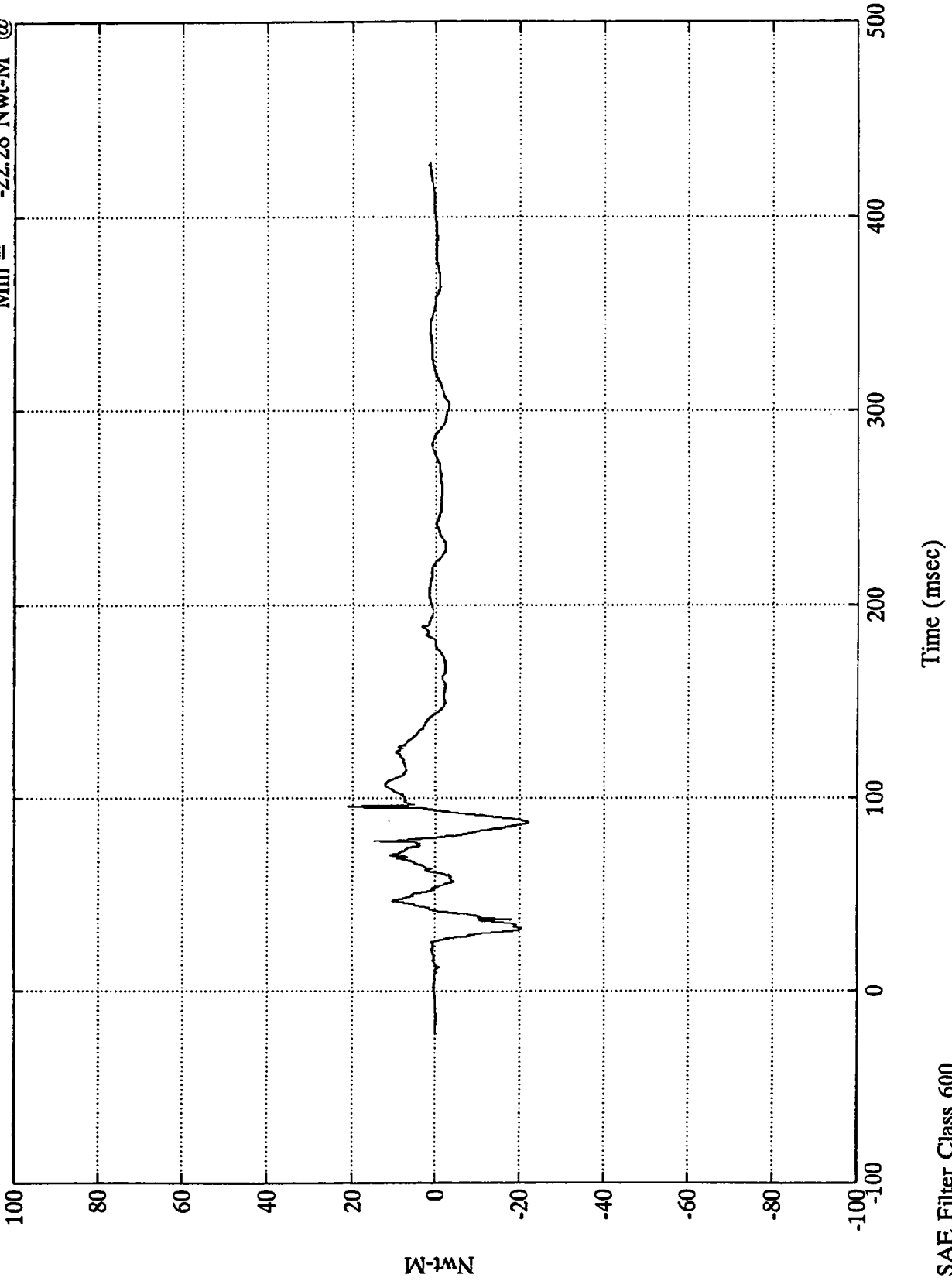


SAE Filter Class 1000

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Upper Neck Mx

Max = 21.38 Nwt-M @ 95.76 msec
Min = -22.28 Nwt-M @ 88.08 msec

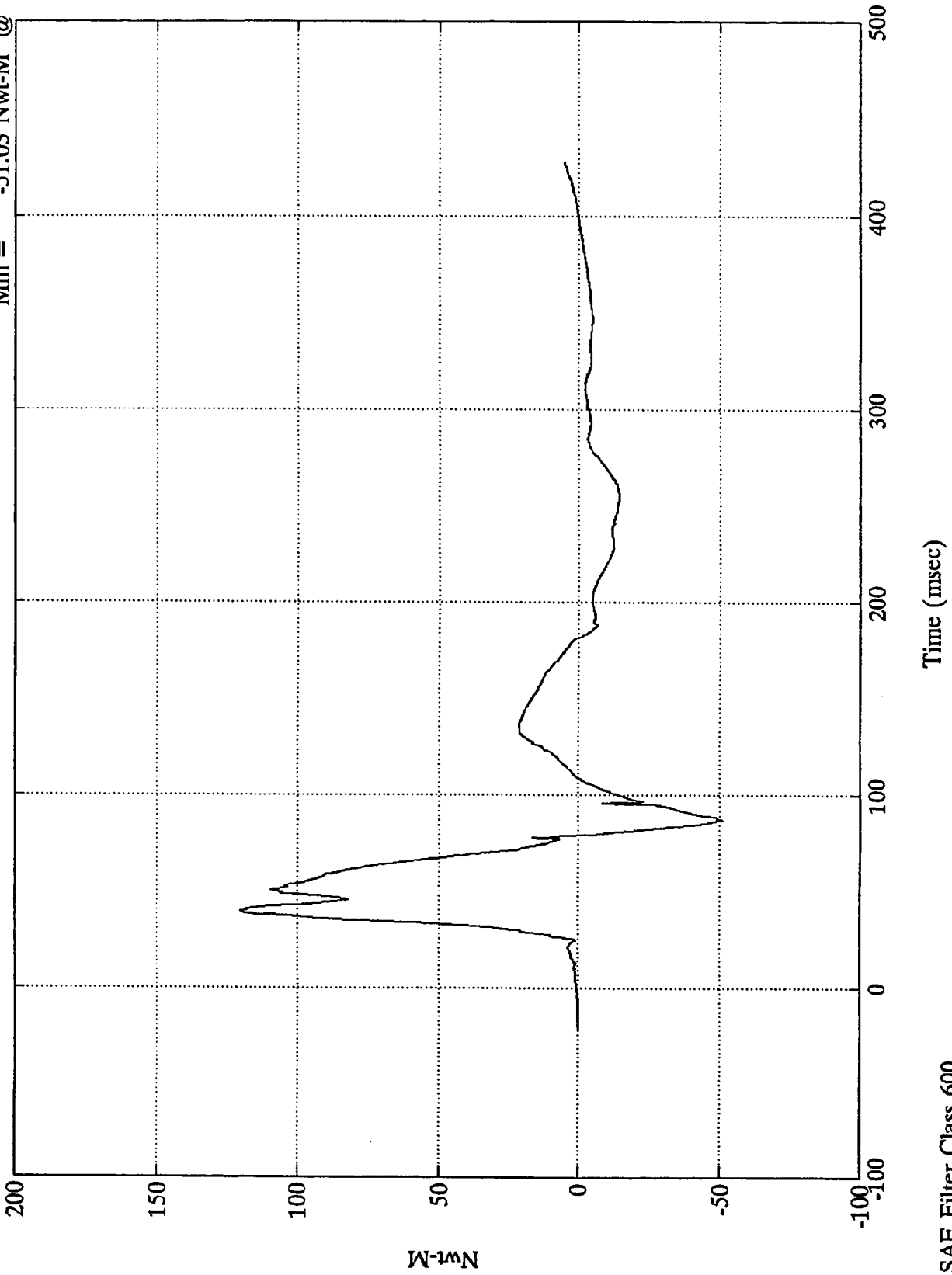


SAE Filter Class 600

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Upper Neck My

Max = 120.29 Nwt-M @ 39.84 msec
Min = -51.03 Nwt-M @ 87.24 msec

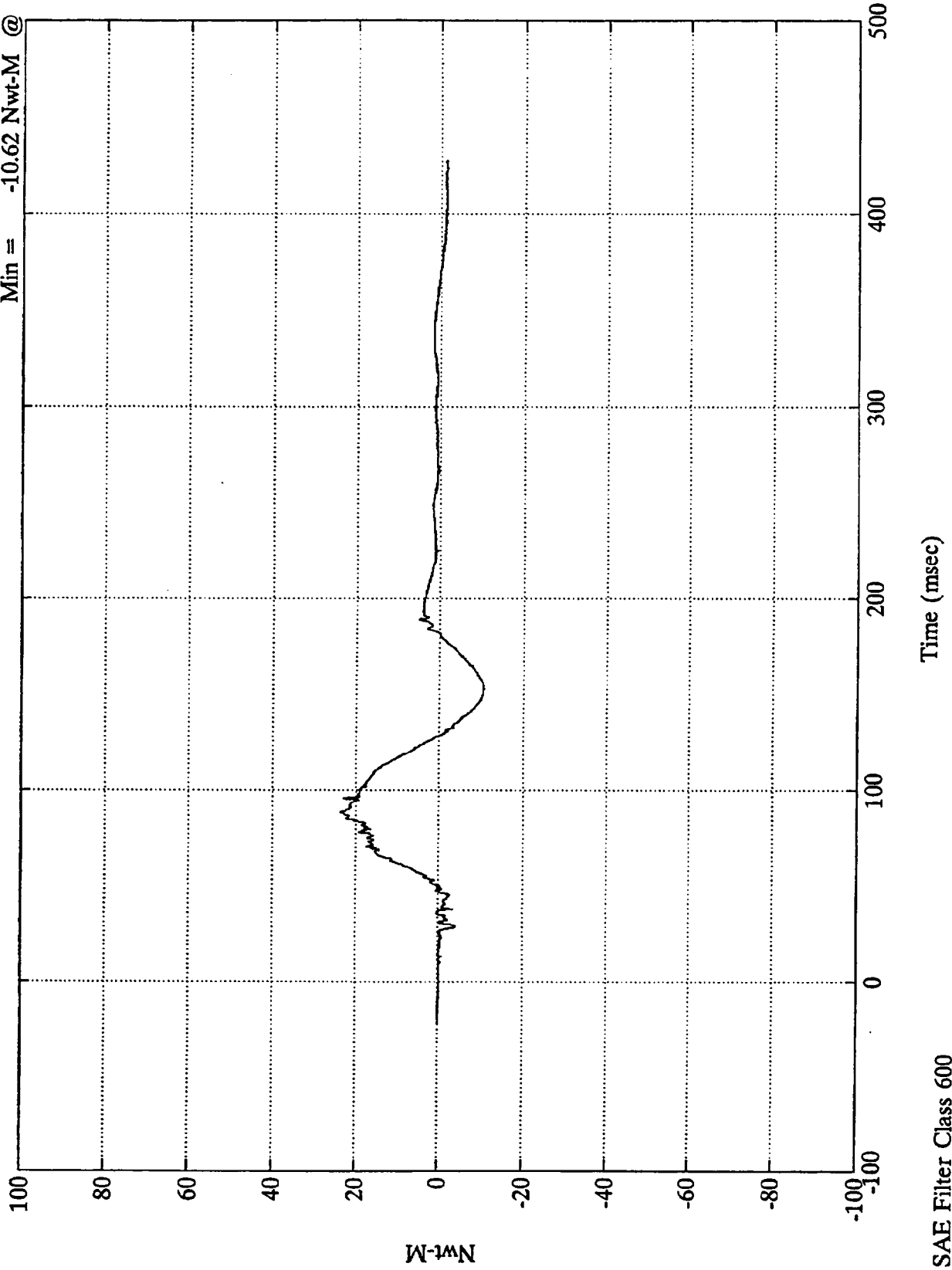


SAE Filter Class 600

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Upper Neck Mz

Max = 23.81 Nwt-M @ 88.68 msec
Min = -10.62 Nwt-M @ 152.63 msec

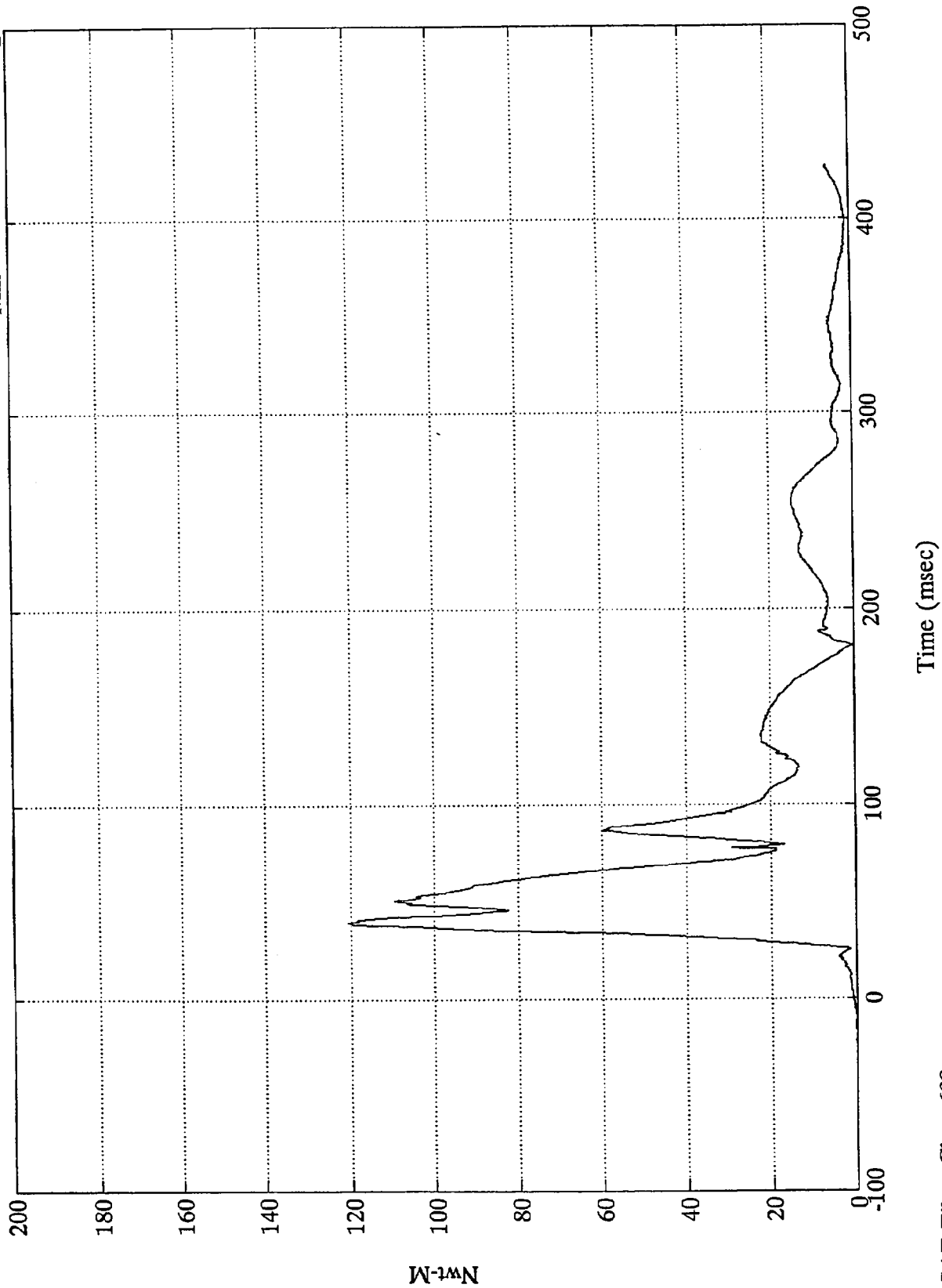


SAE Filter Class 600

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Neck Moment Res.

Max = 120.66 Nwt-M @ 39.84 msec
Min = .02 Nwt-M @ -11.16 msec

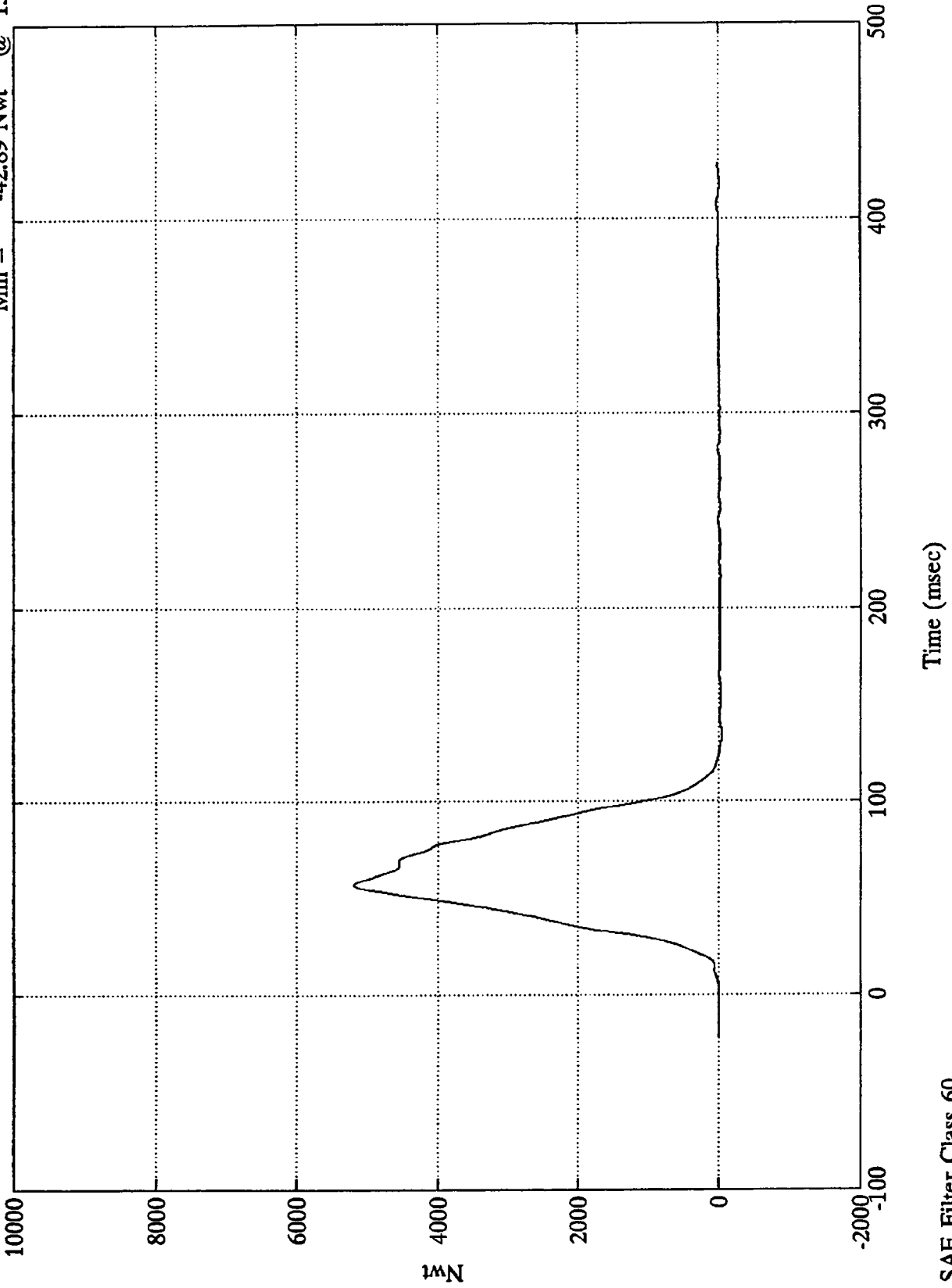


SAE Filter Class 600

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Torso Belt Load

Max = 5193.35 Nwt @ 57.36 msec
Min = -42.89 Nwt @ 135.47 msec

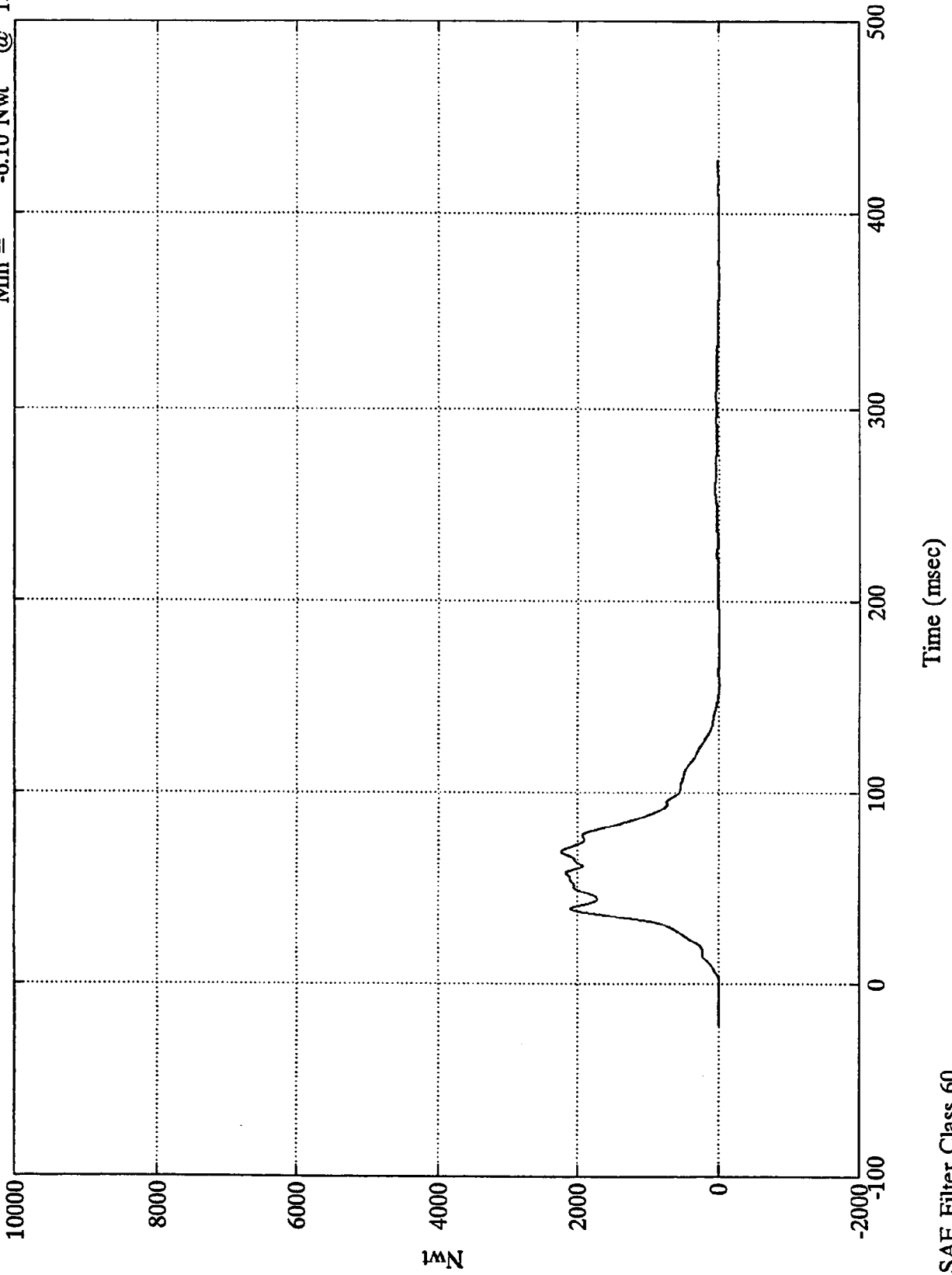


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Right Belt Load

Max = 2234.08 Nwt @ 69.24 msec
Min = -6.10 Nwt @ 156.84 msec

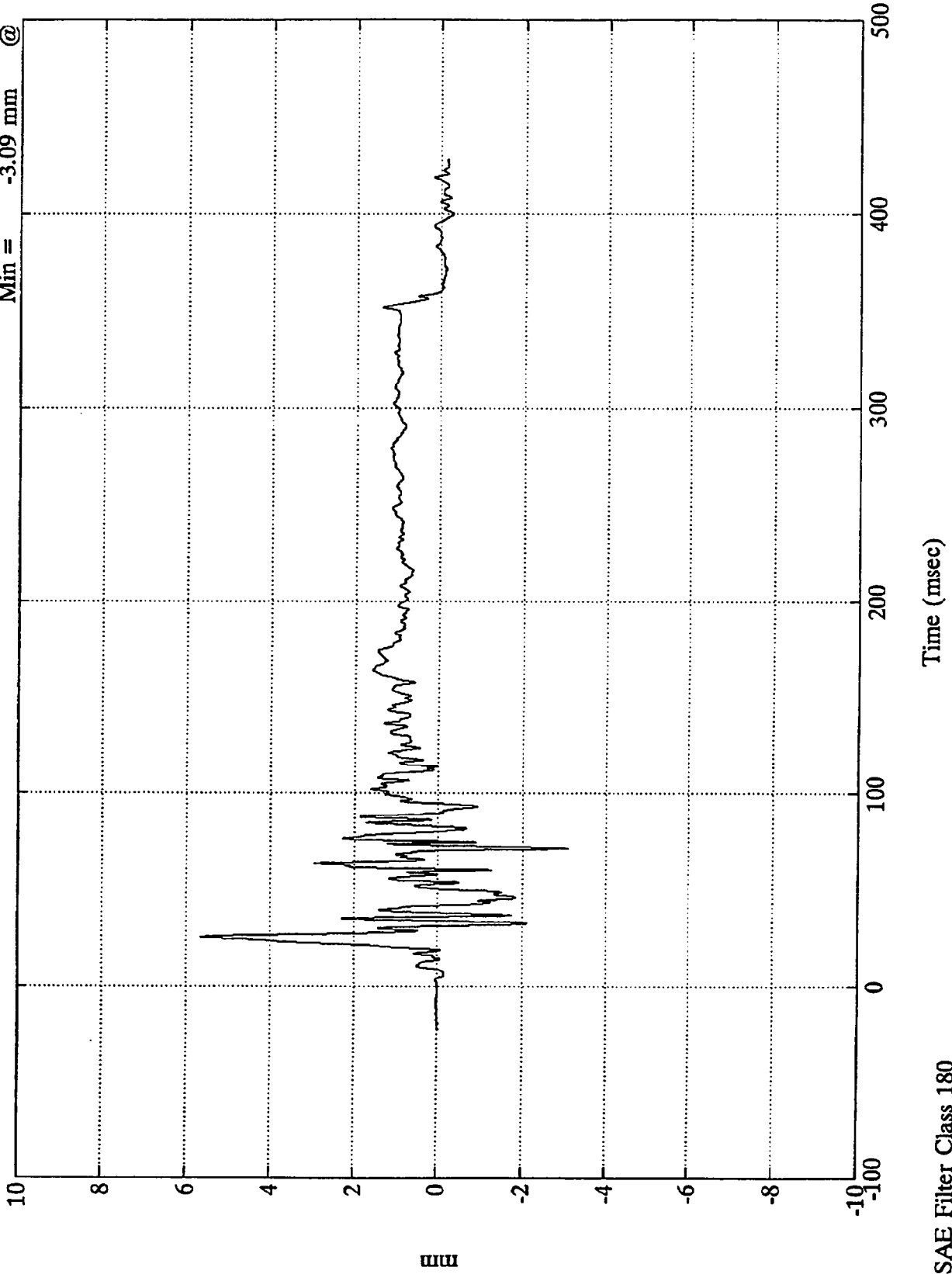


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Pos. 2 Belt Elongation

Max = 5.67 mm @ 25.80 msec
Min = -3.09 mm @ 71.63 msec



SAE Filter Class 180

TEST NO. MS5600

VEHICLE DATA

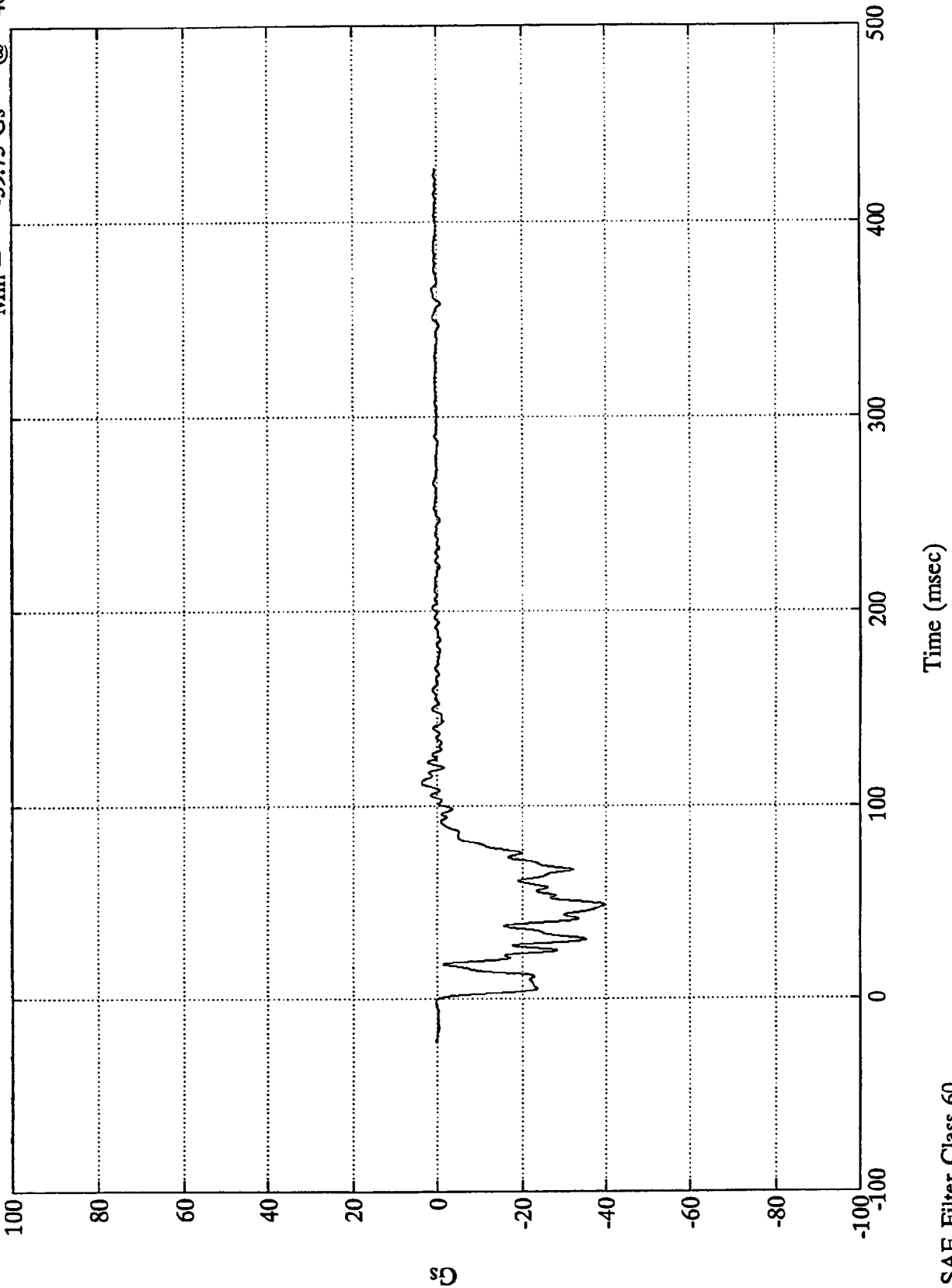
FILTER CHANNEL CLASS

60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #1(x)

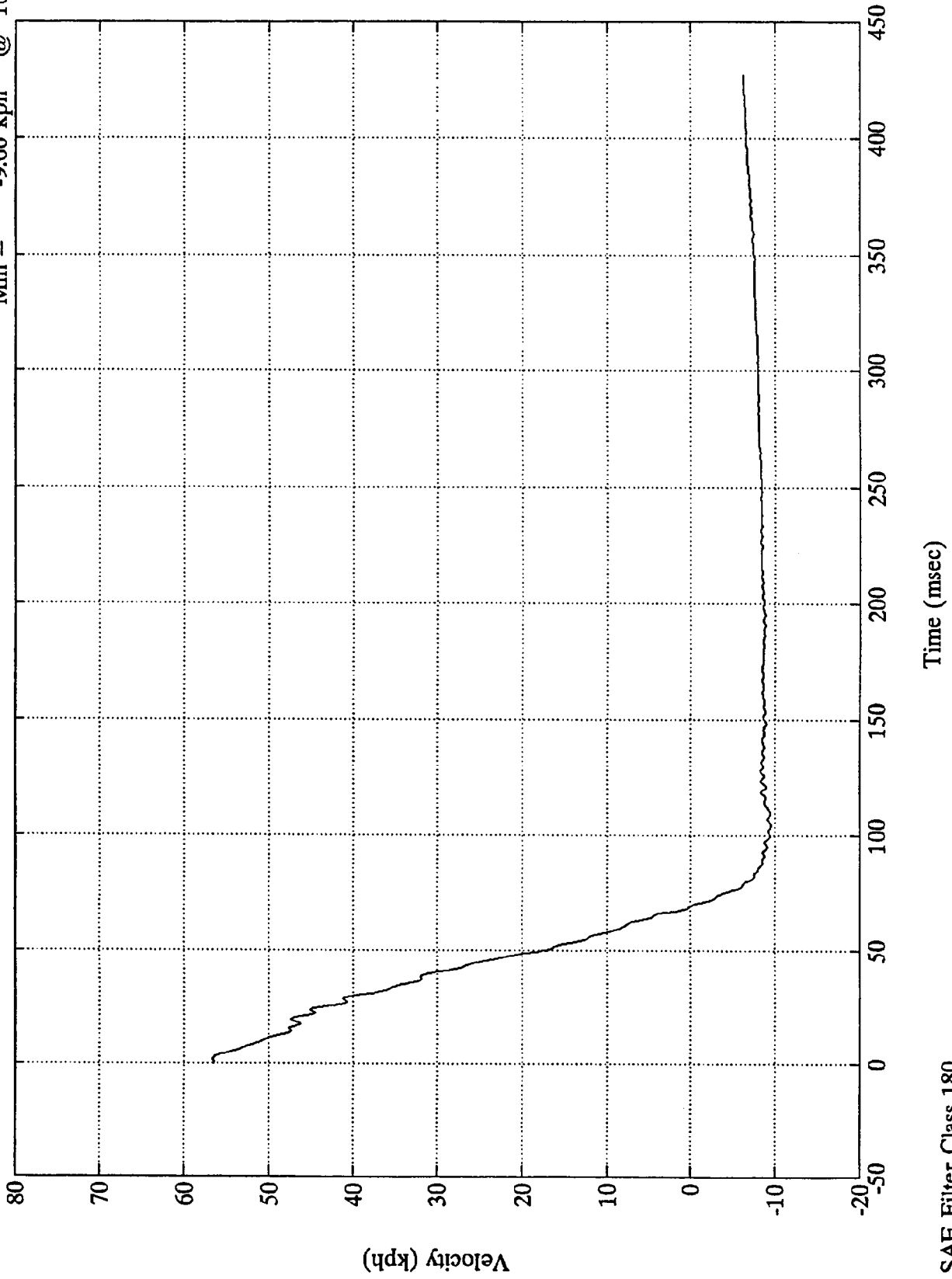
Max = 3.67 Gs @ 112.32 msec
Min = -39.73 Gs @ 48.24 msec



SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #1(x)
Max = 56.59 kph @ 1.91 msec
Min = -9.60 kph @ 104.76 msec

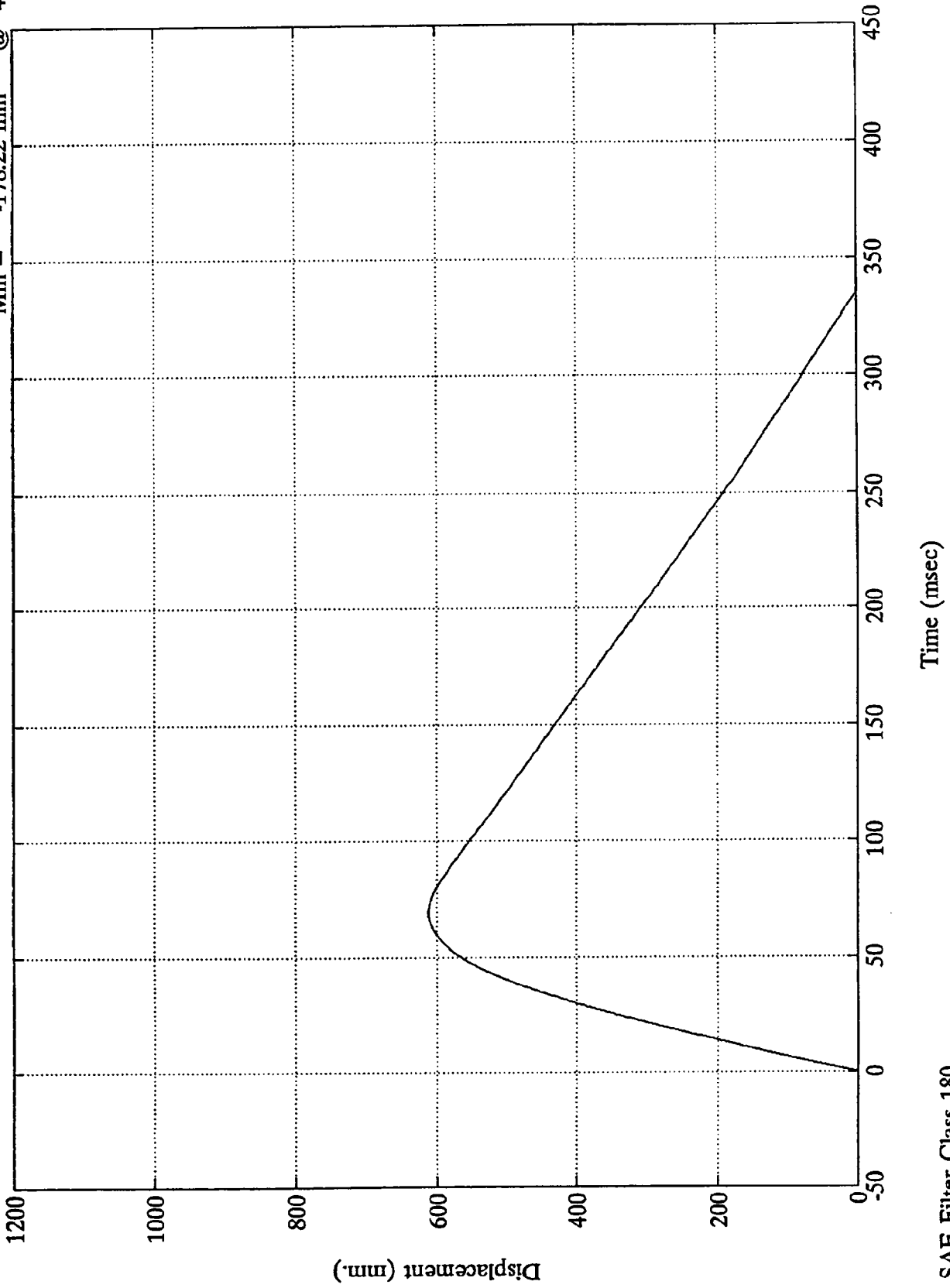


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Max = 611.84 mm @ 69.60 msec
Min = -178.22 mm @ 427.32 msec

Acc. #1(x)

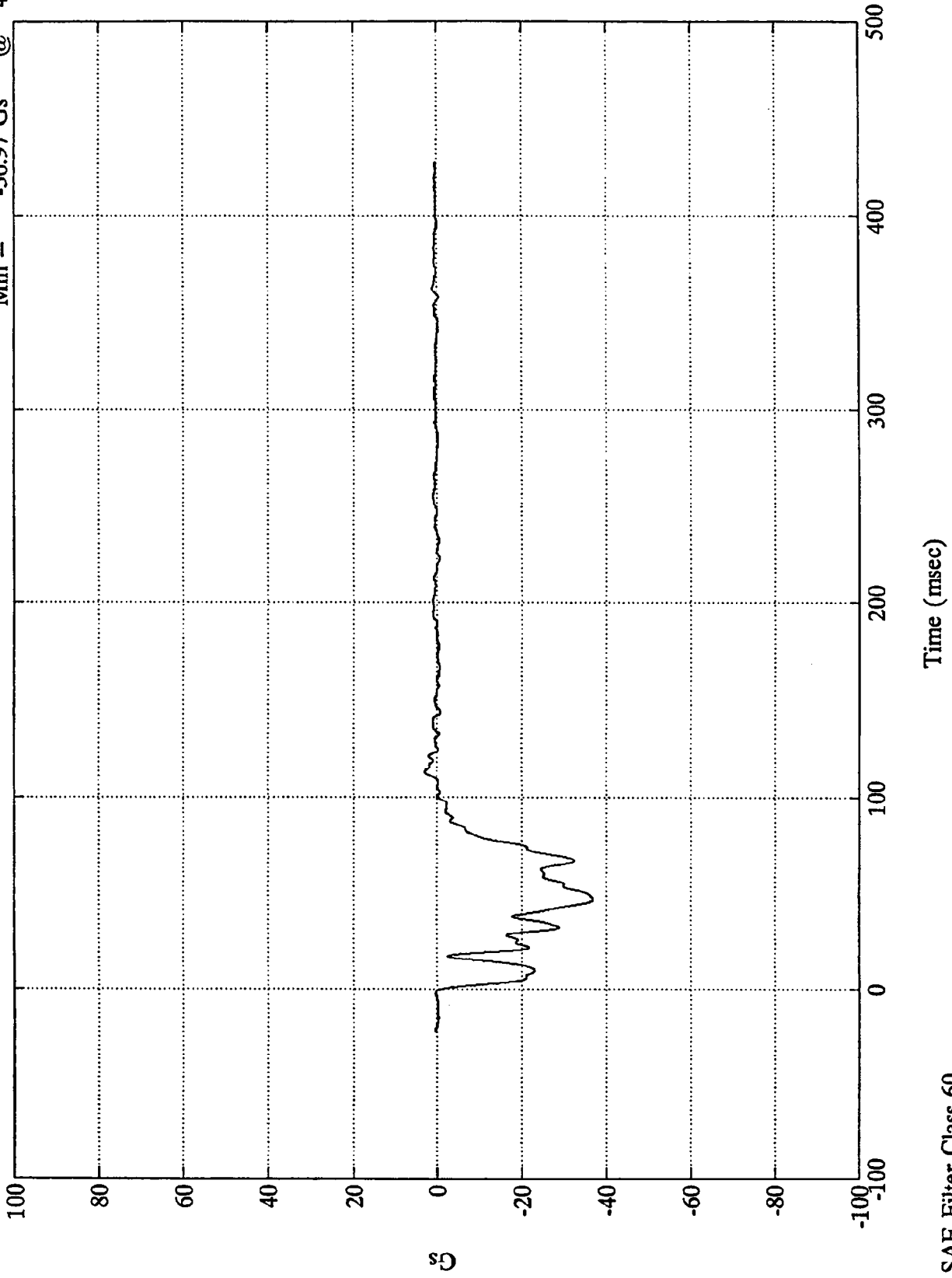


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #2(x)

Max = 3.01 Gs @ 113.16 msec
Min = -36.97 Gs @ 46.44 msec

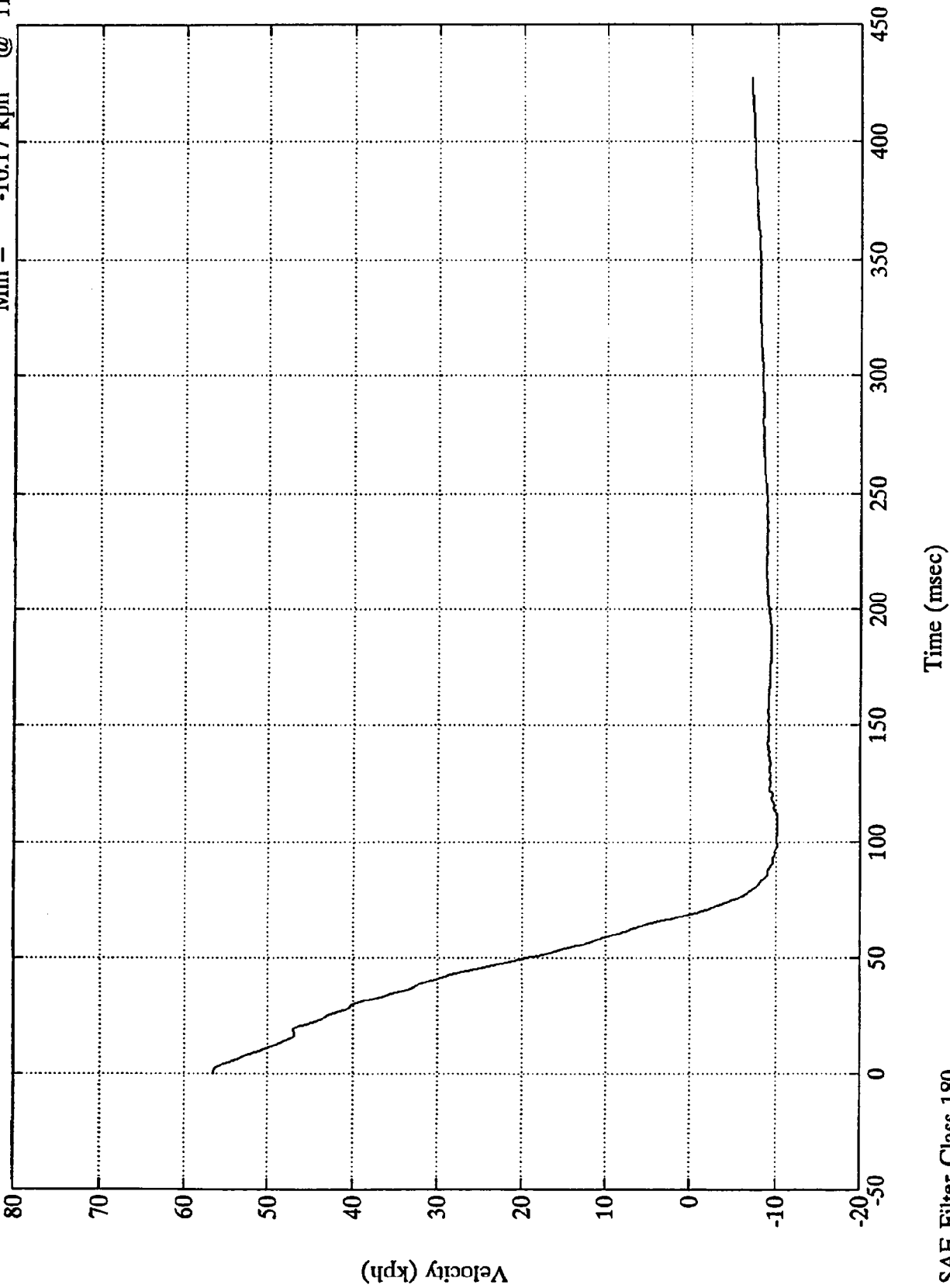


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #2(x)

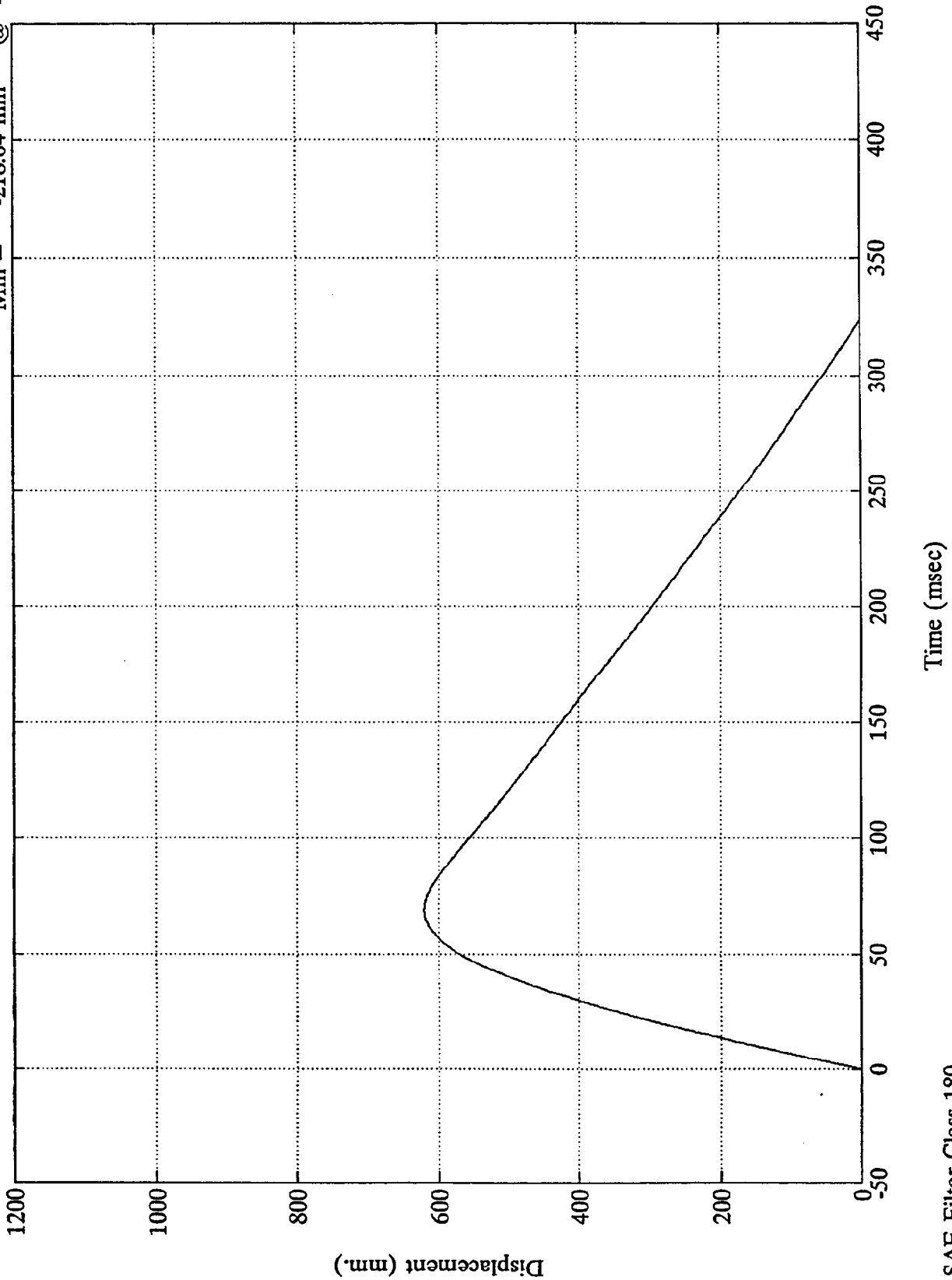
Max = 56.50 kph @ 0.95 msec
Min = -10.17 kph @ 111.24 msec



SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #2(x)
Max = 620.99 mm @ 68.87 msec
Min = -218.64 mm @ 427.32 msec

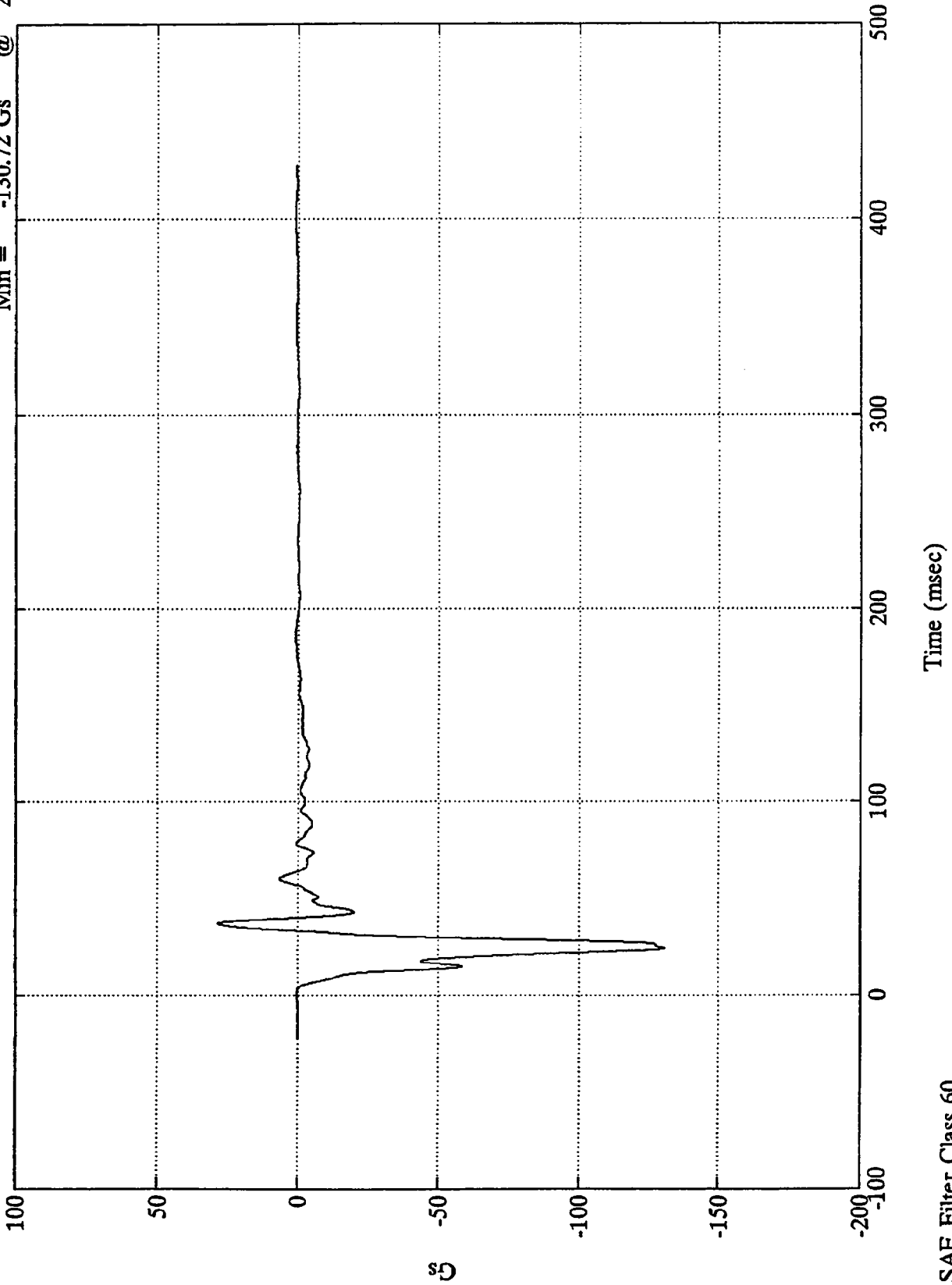


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #3(x)

Max = 28.77 Gs @ 37.68 msec
Min = -130.72 Gs @ 24.71 msec

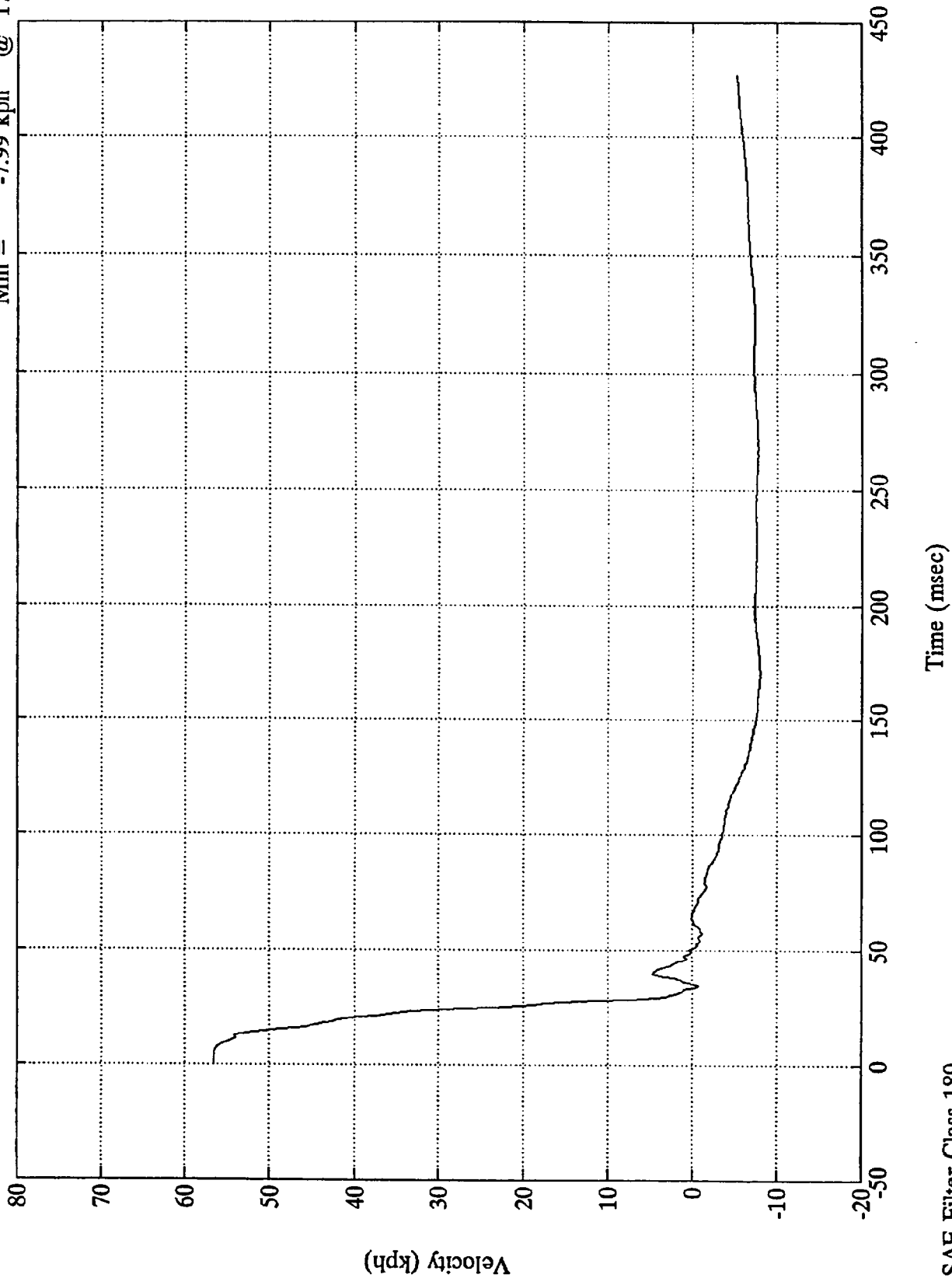


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Max = 56.52 kph @ 2.99 msec
Min = -7.99 kph @ 171.59 msec

Acc. #3(x)

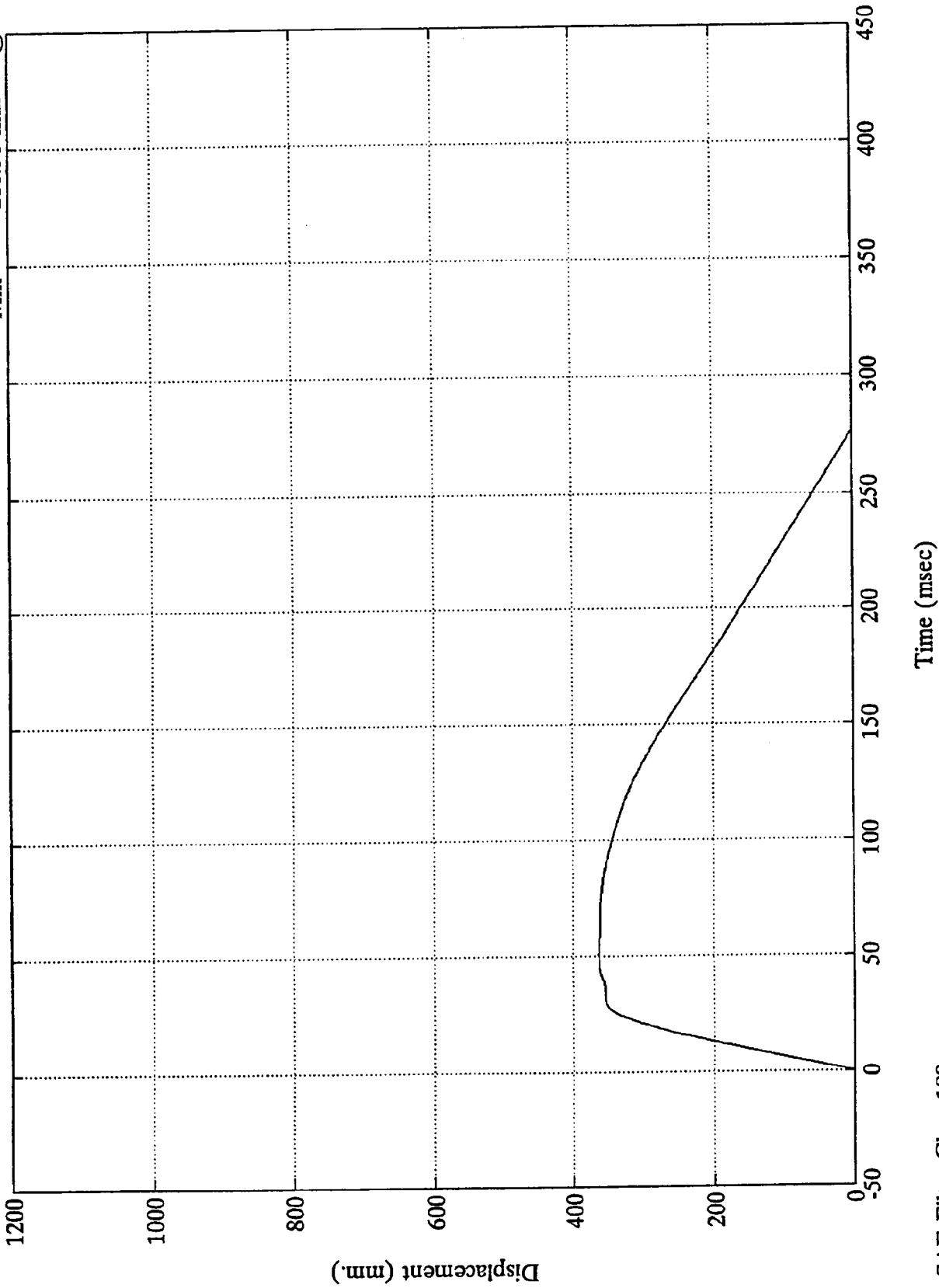


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Max = 363.29 mm @ 51.00 msec
Min = -280.56 mm @ 427.32 msec

Acc. #3(x)

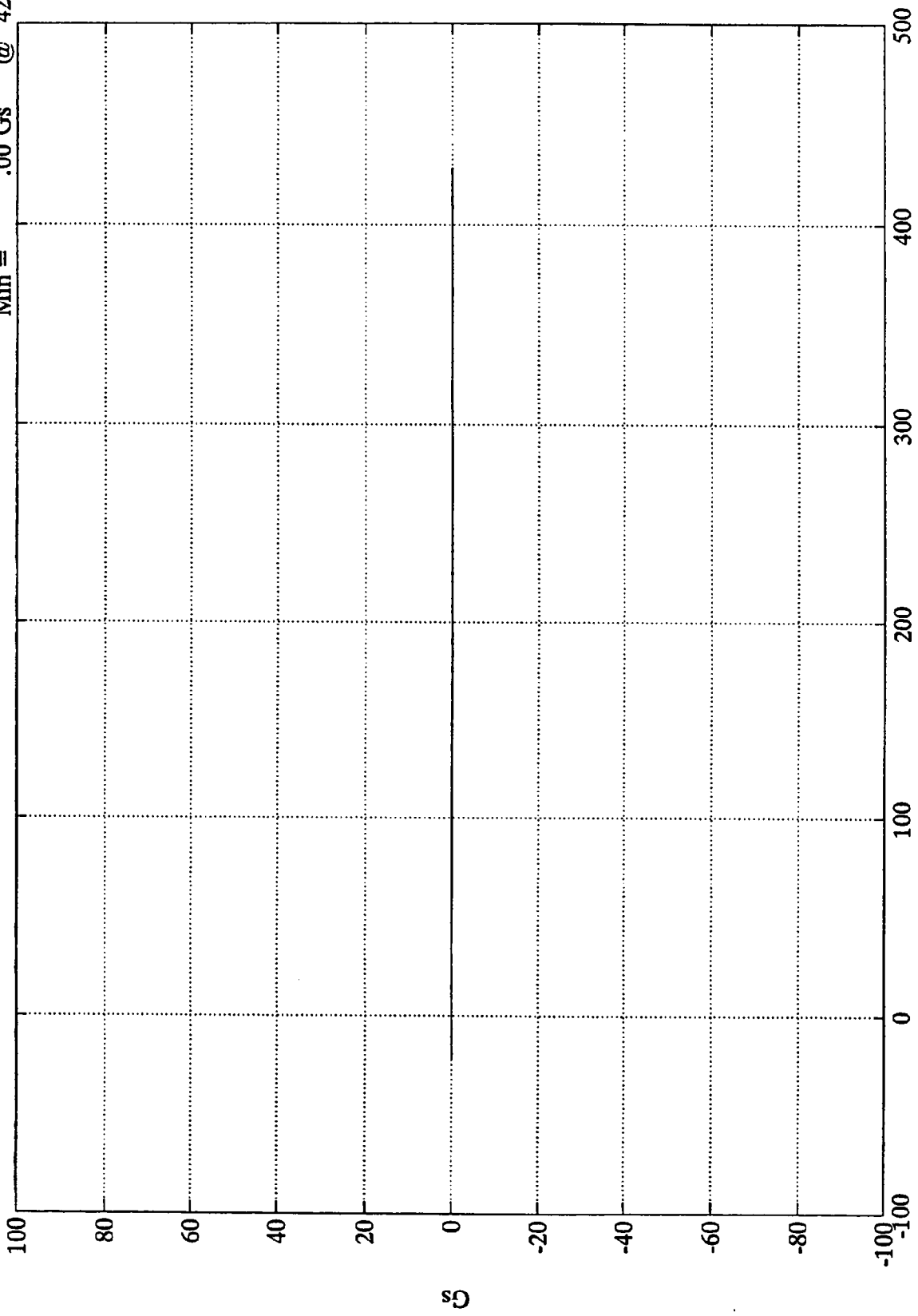


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #4(x)

Max = .00 Gs @ 427.32 msec
Min = .00 Gs @ 427.32 msec



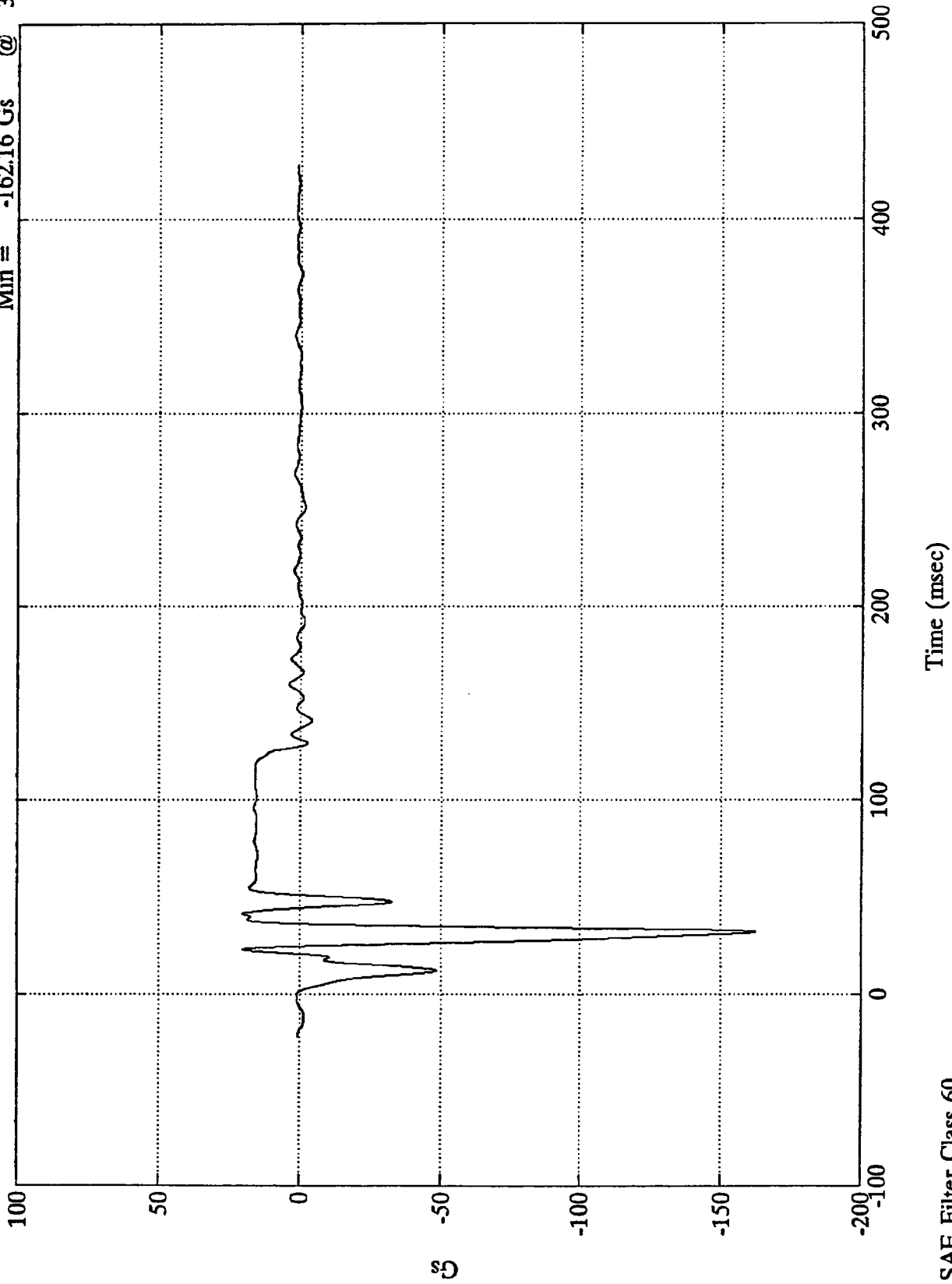
Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #5(x)

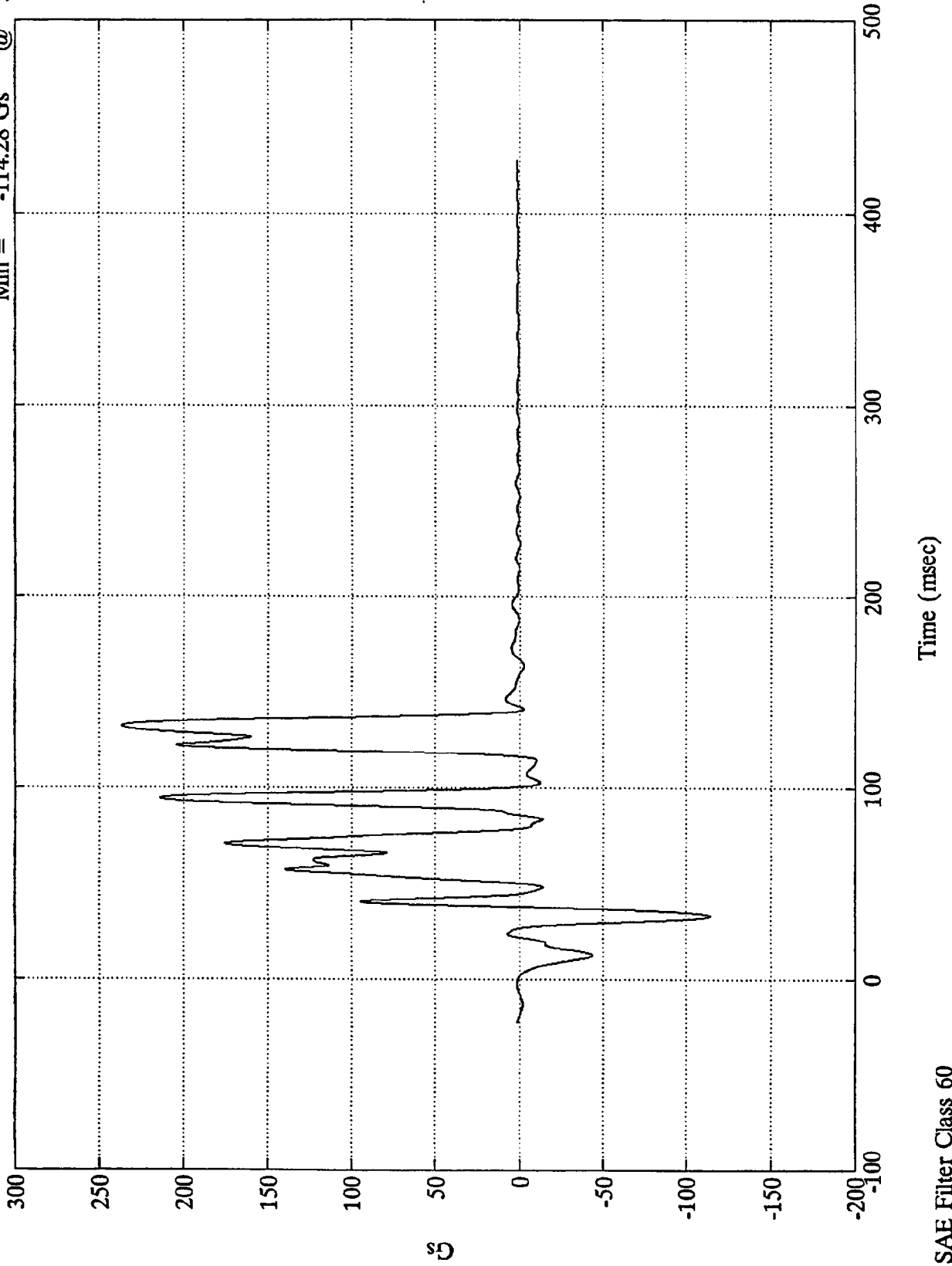
Max = 20.16 Gs @ 41.52 msec
Min = -162.16 Gs @ 32.28 msec



SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

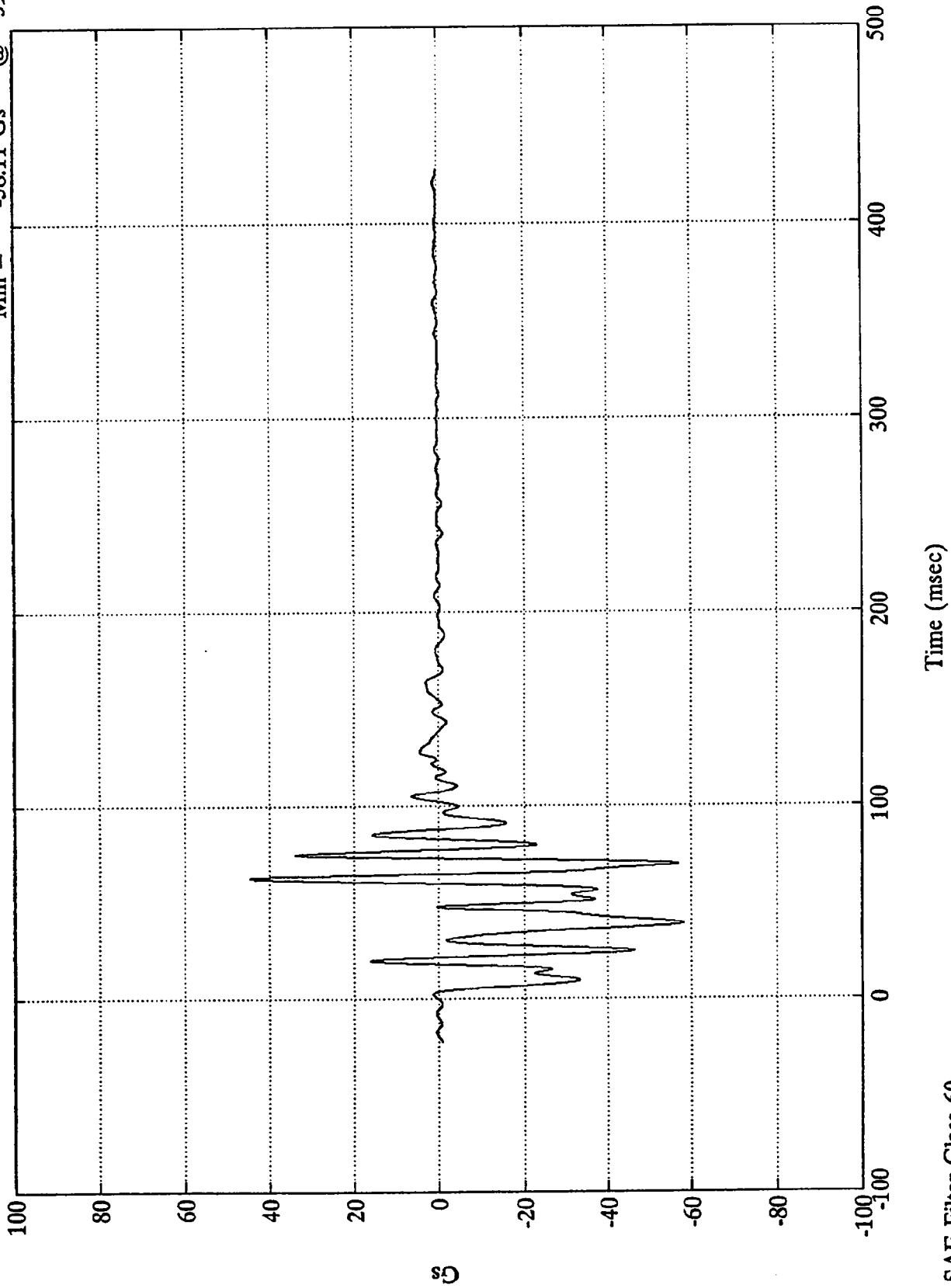
Acc. #6(x) Max = 236.30 Gs @ 132.11 msec
Min = -114.28 Gs @ 33.24 msec



NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #7(x)

Max = 44.86 Gs @ 63.23 msec
Min = -58.11 Gs @ 39.24 msec

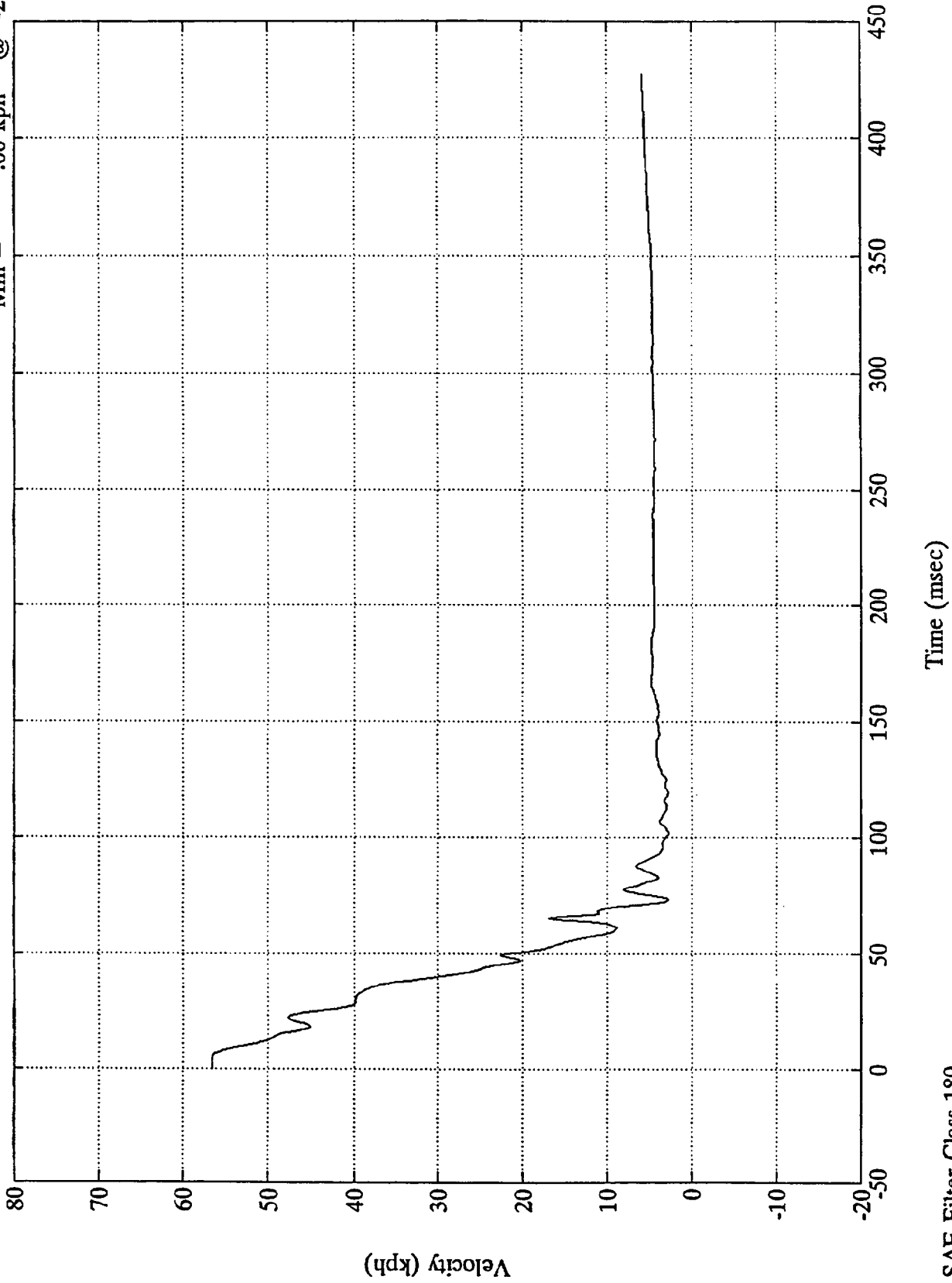


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Max = 56.58 kph @ 5.03 msec
Min = .00 kph @ -22.44 msec

Acc. #7(x)



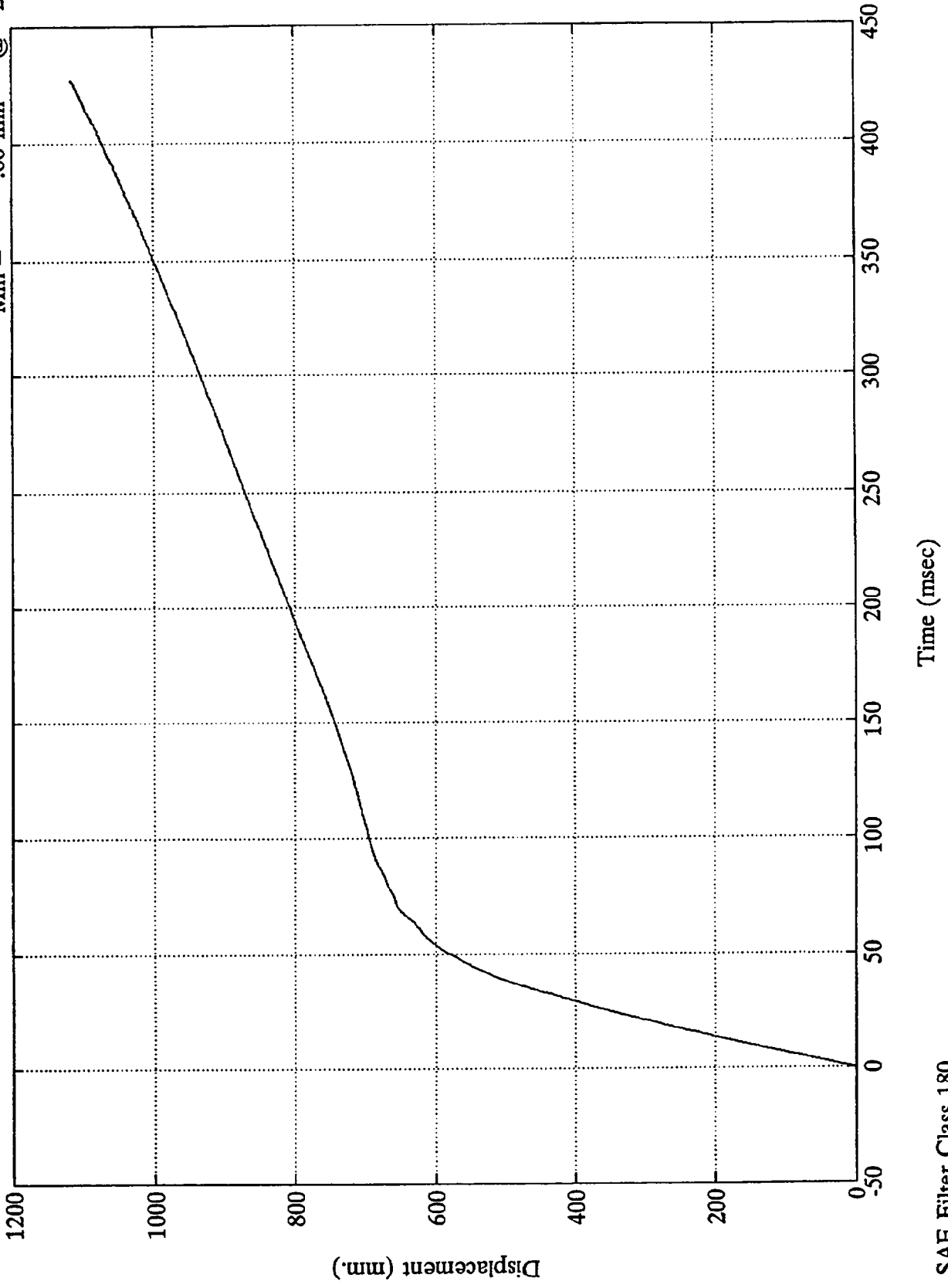
SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #7(x)

Max = 1115.21 mm @ 427.32 msec

Min = .00 mm @ -22.44 msec

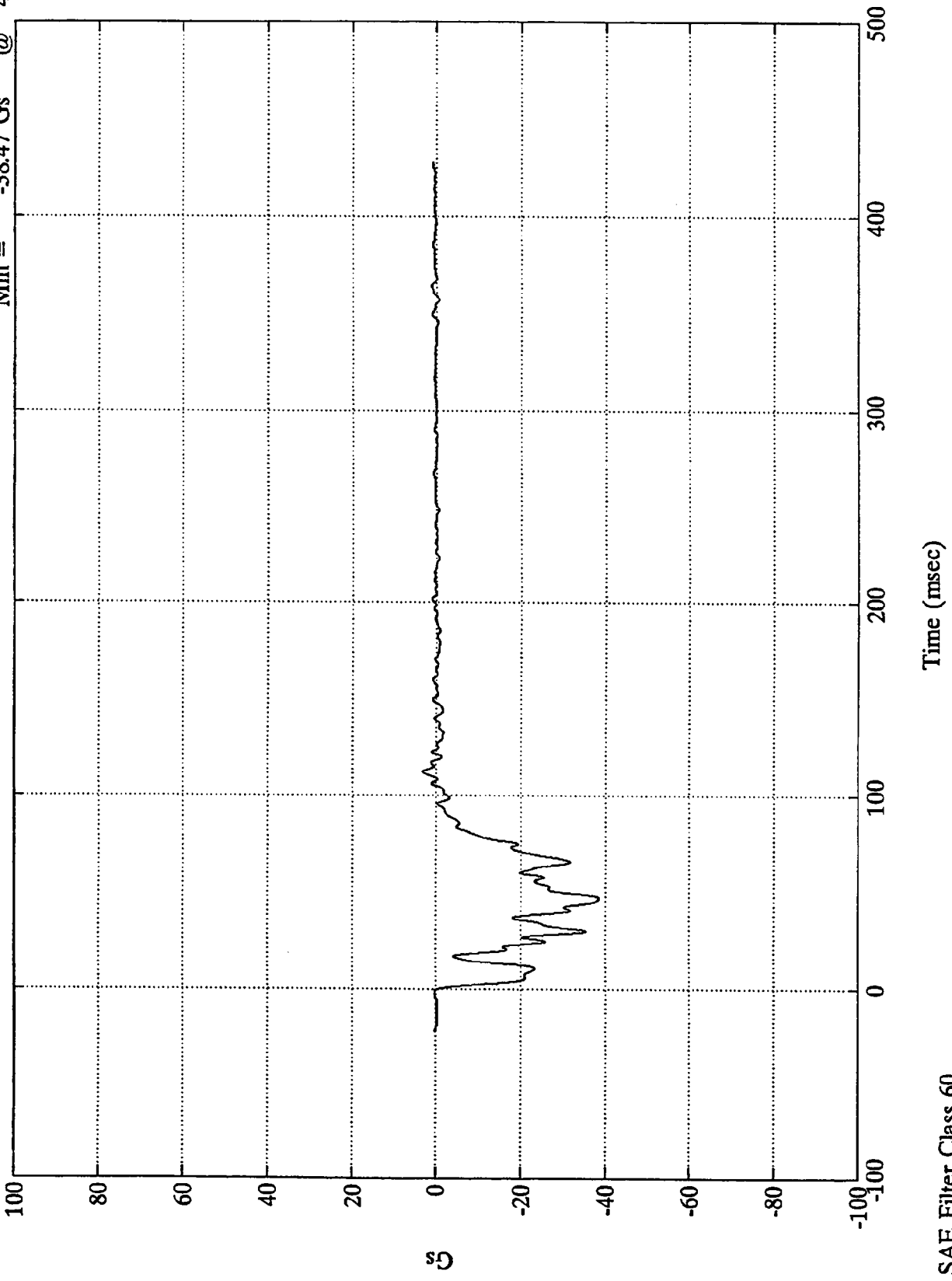


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #8(x)

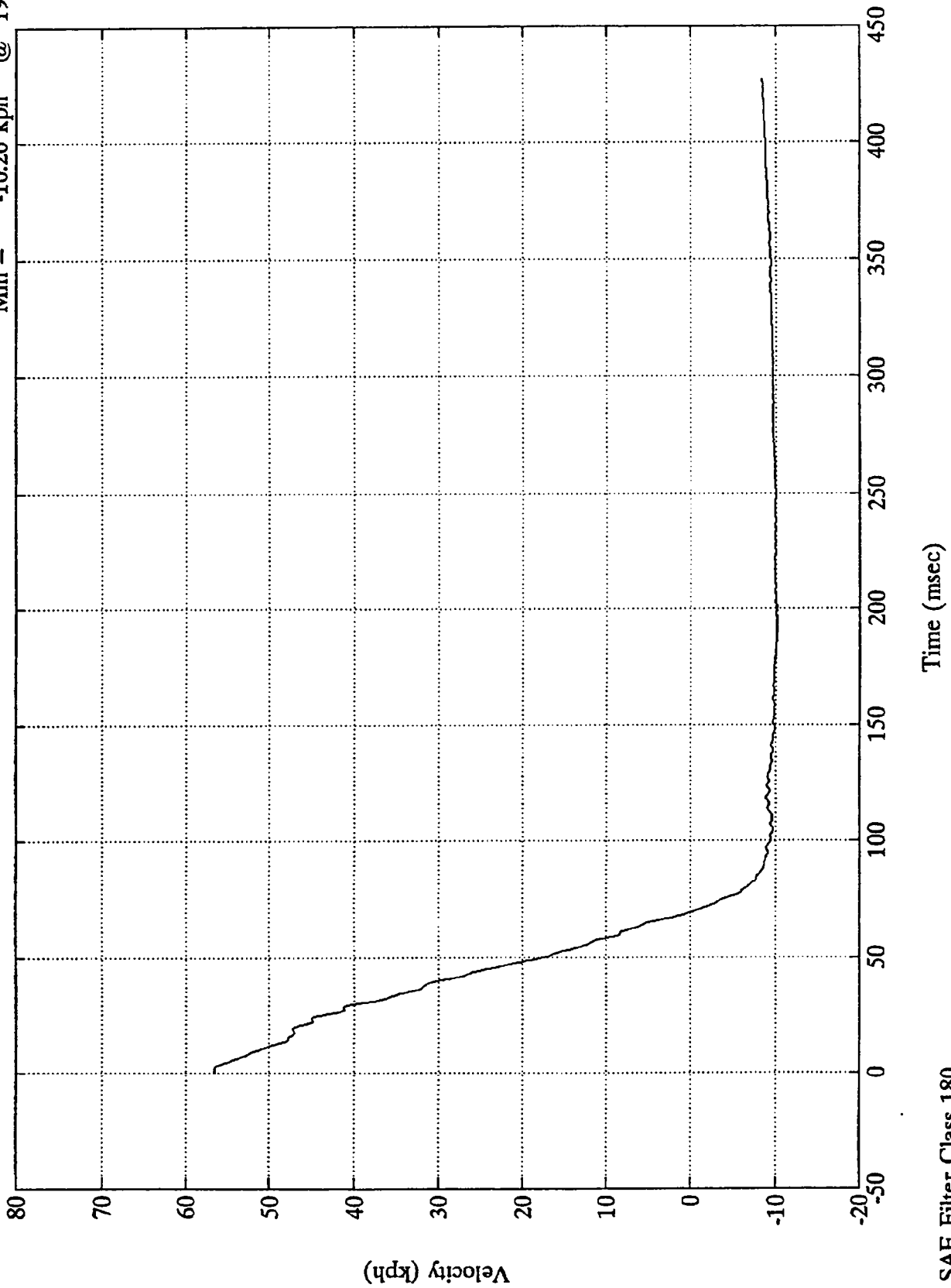
Max = 3.12 Gs @ 112.20 msec
Min = -38.47 Gs @ 47.28 msec



SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #8(x)
Max = 56.57 kph @ 1.67 msec
Min = -10.20 kph @ 195.84 msec

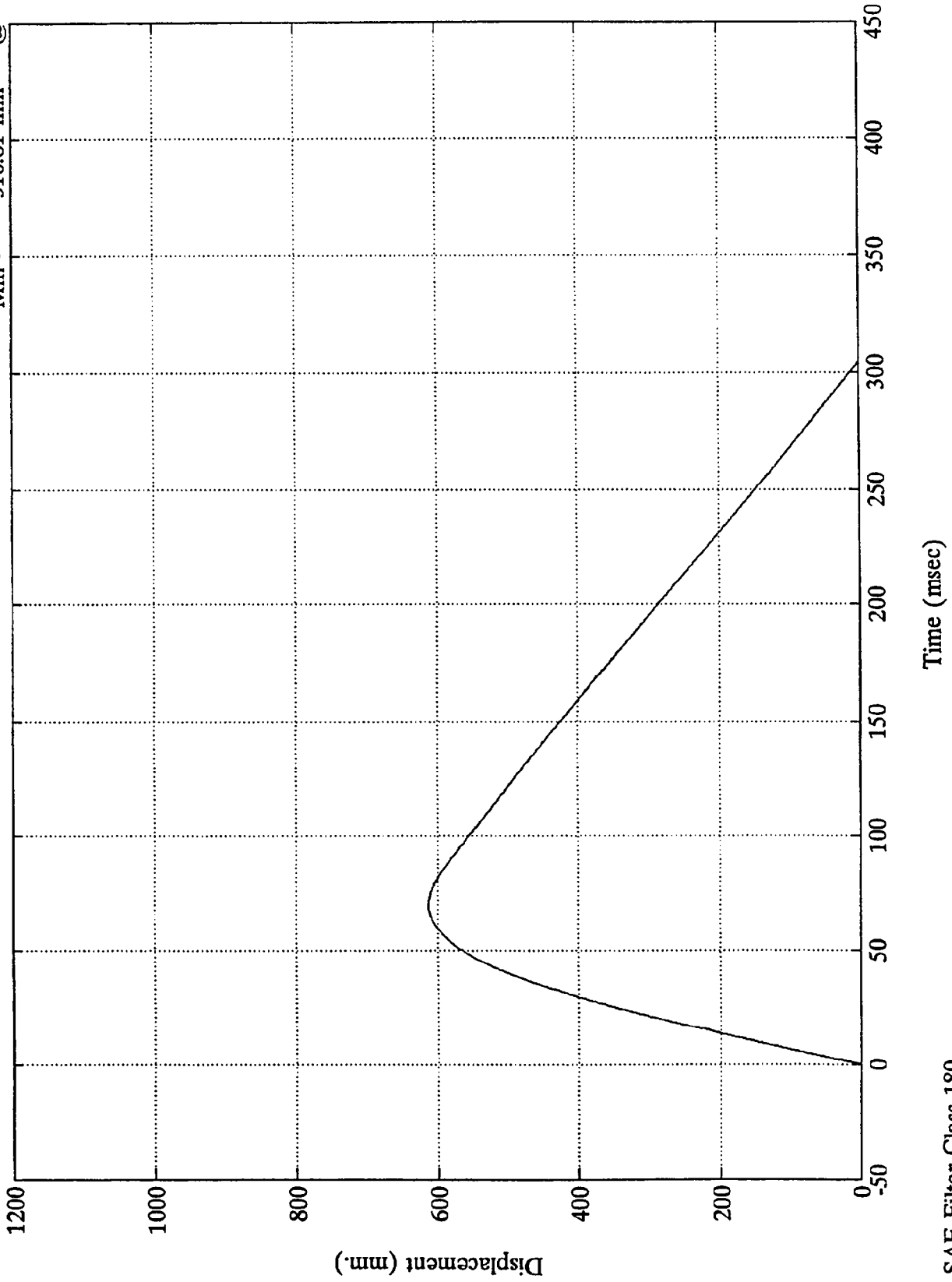


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #8(x)

Max = 613.54 mm @ 69.24 msec
Min = -310.81 mm @ 427.32 msec

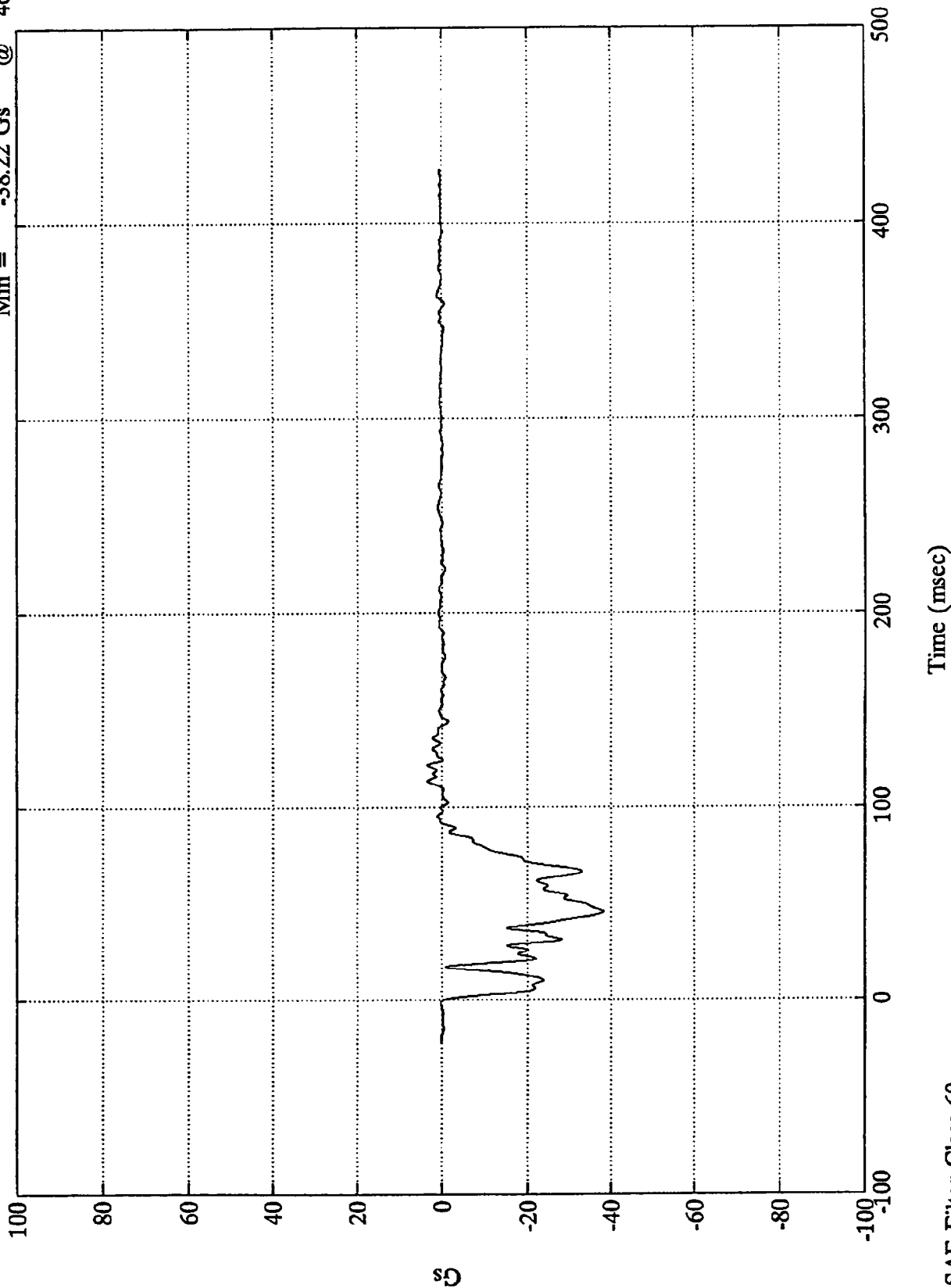


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Max = 3.36 Gs @ 121.56 msec
Min = -38.22 Gs @ 46.20 msec

Acc. #9(x)

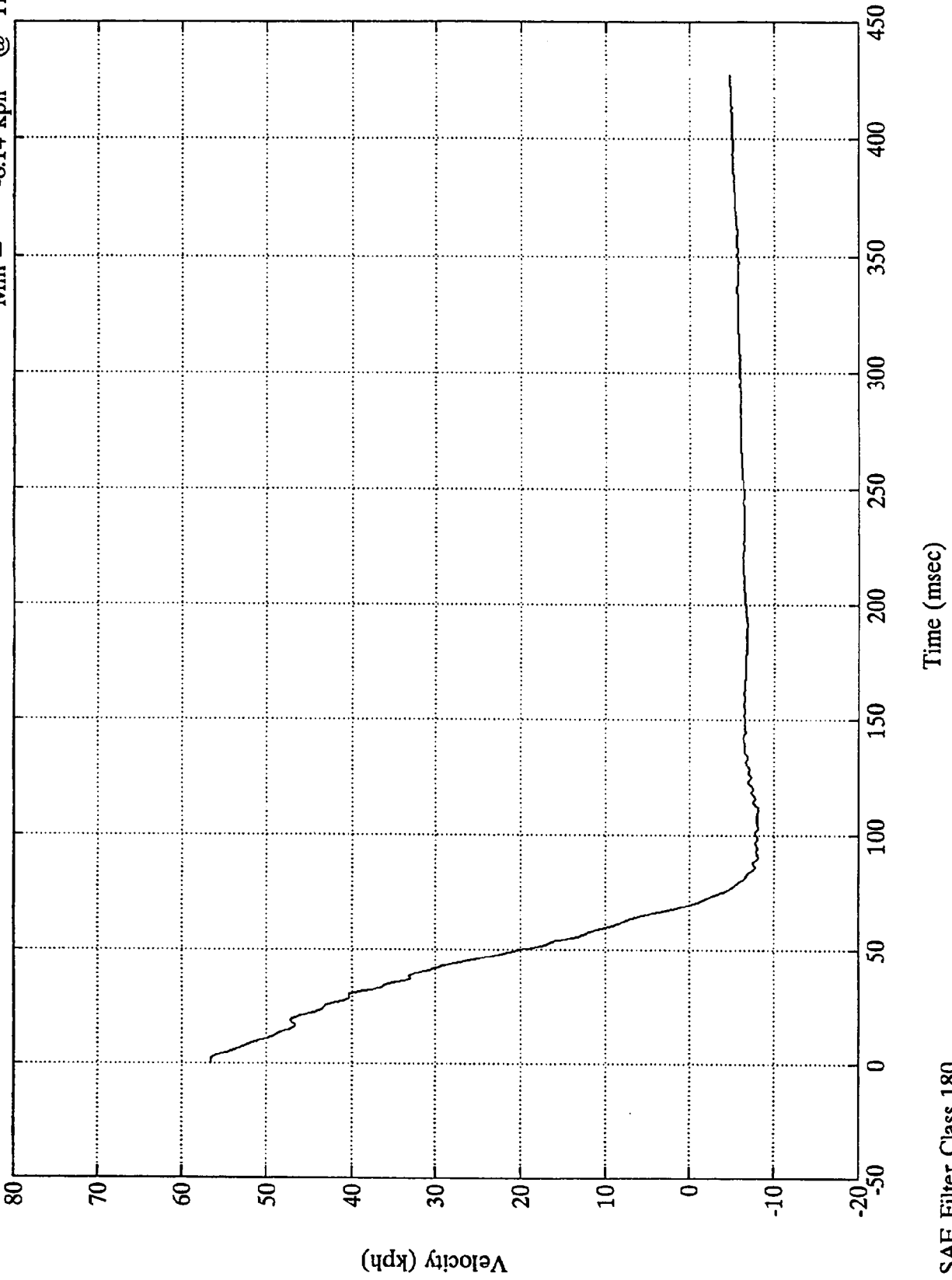


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #9(x)

Max = 56.50 kph @ 1.31 msec
Min = -8.14 kph @ 111.36 msec

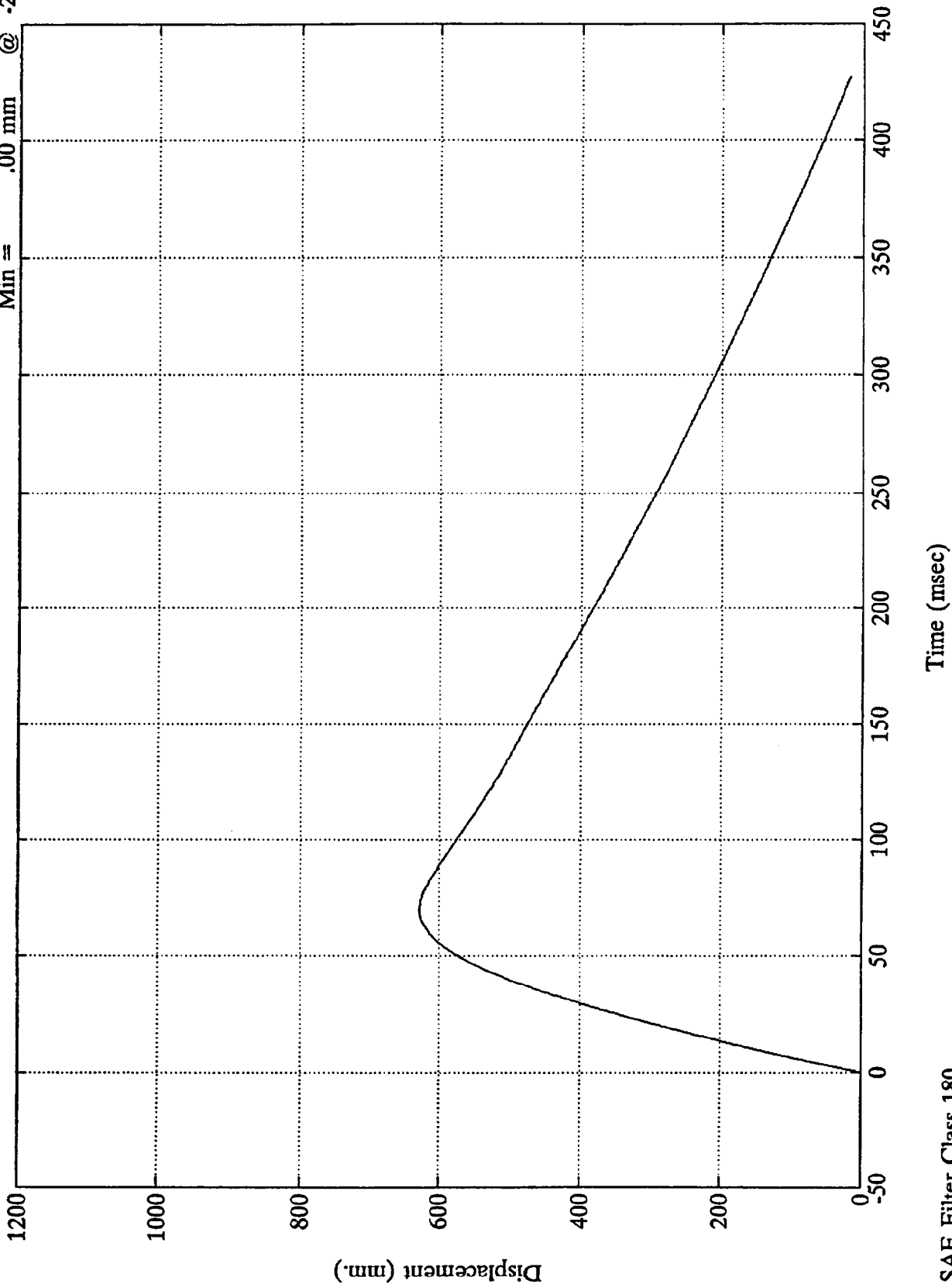


SAE Filter Class 180

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Acc. #9(x)

Max = 628.11 mm @ 69.83 msec
Min = .00 mm @ -22.44 msec



SAE Filter Class 180

TEST NO. MS5600

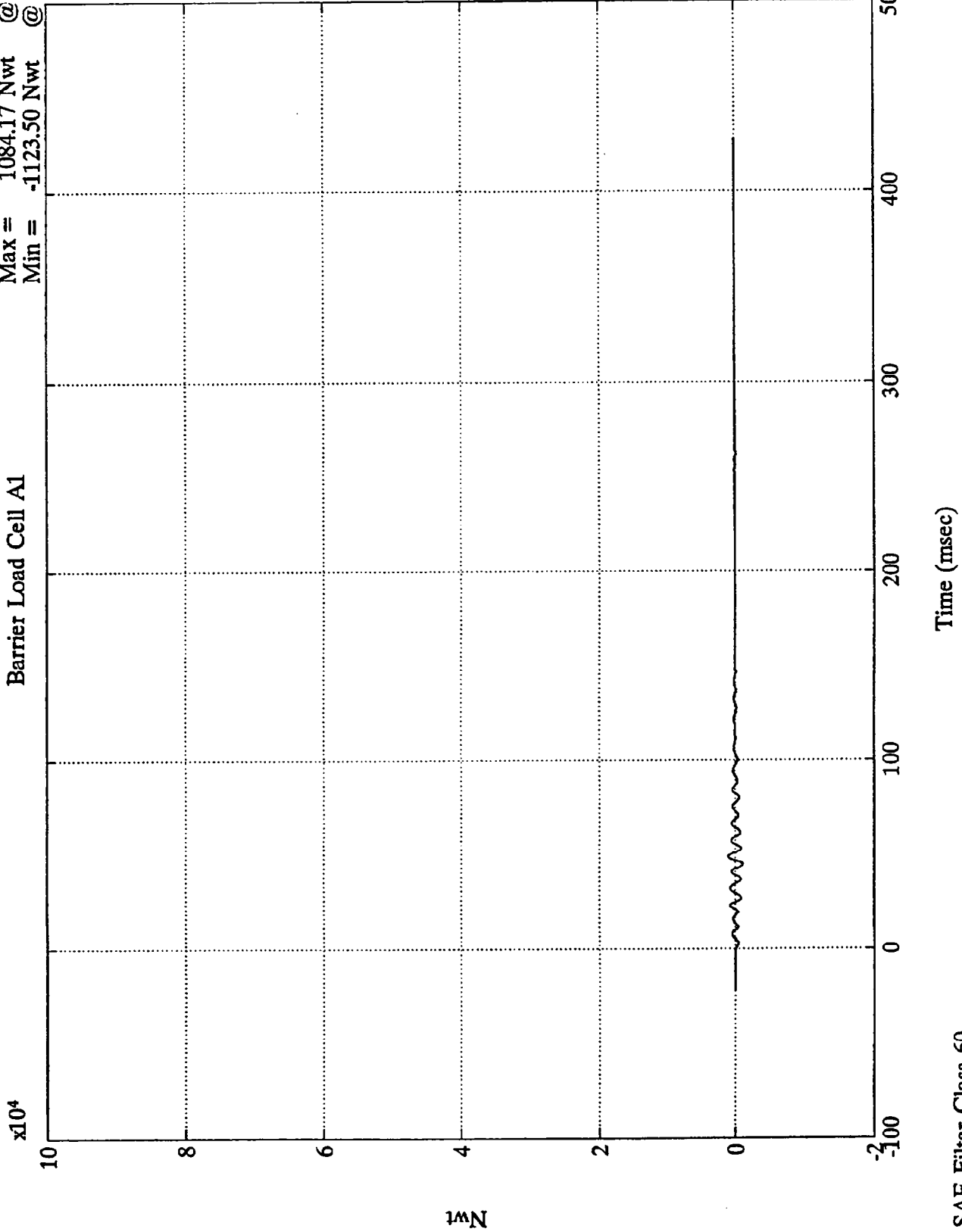
LOAD CELL BARRIER DATA

FILTER CHANNEL CLASS

60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

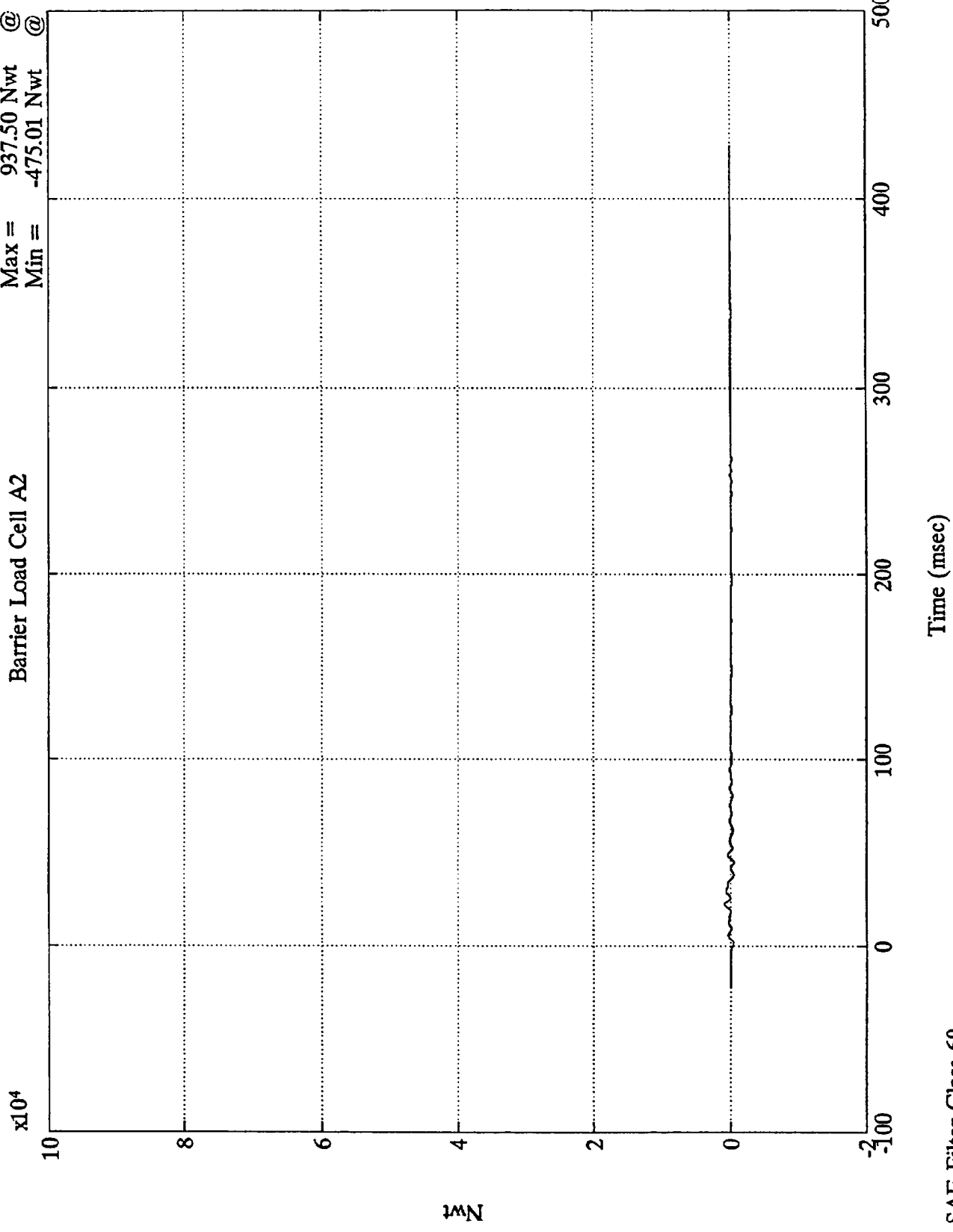
Barrier Load Cell A1
Max = 1084.17 Nwt @ 48.84 msec
Min = -1123.50 Nwt @ 44.75 msec



SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell A2
Max = 937.50 Nwt @ 22.80 msec
Min = -475.01 Nwt @ 44.88 msec

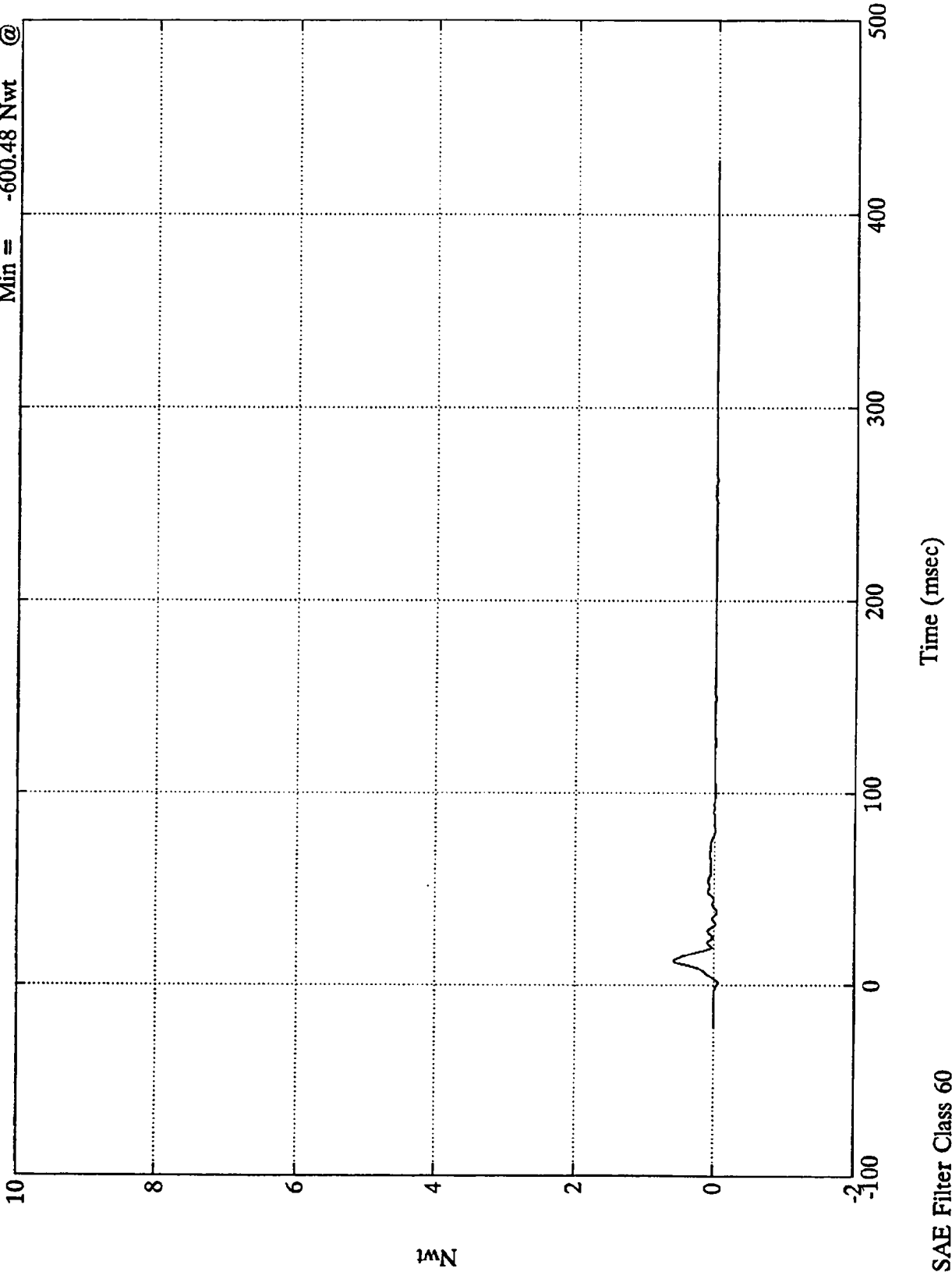


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell A3

Max = 5840.30 Nwt @ 12.60 msec
Min = -600.48 Nwt @ 1.19 msec



Nwt

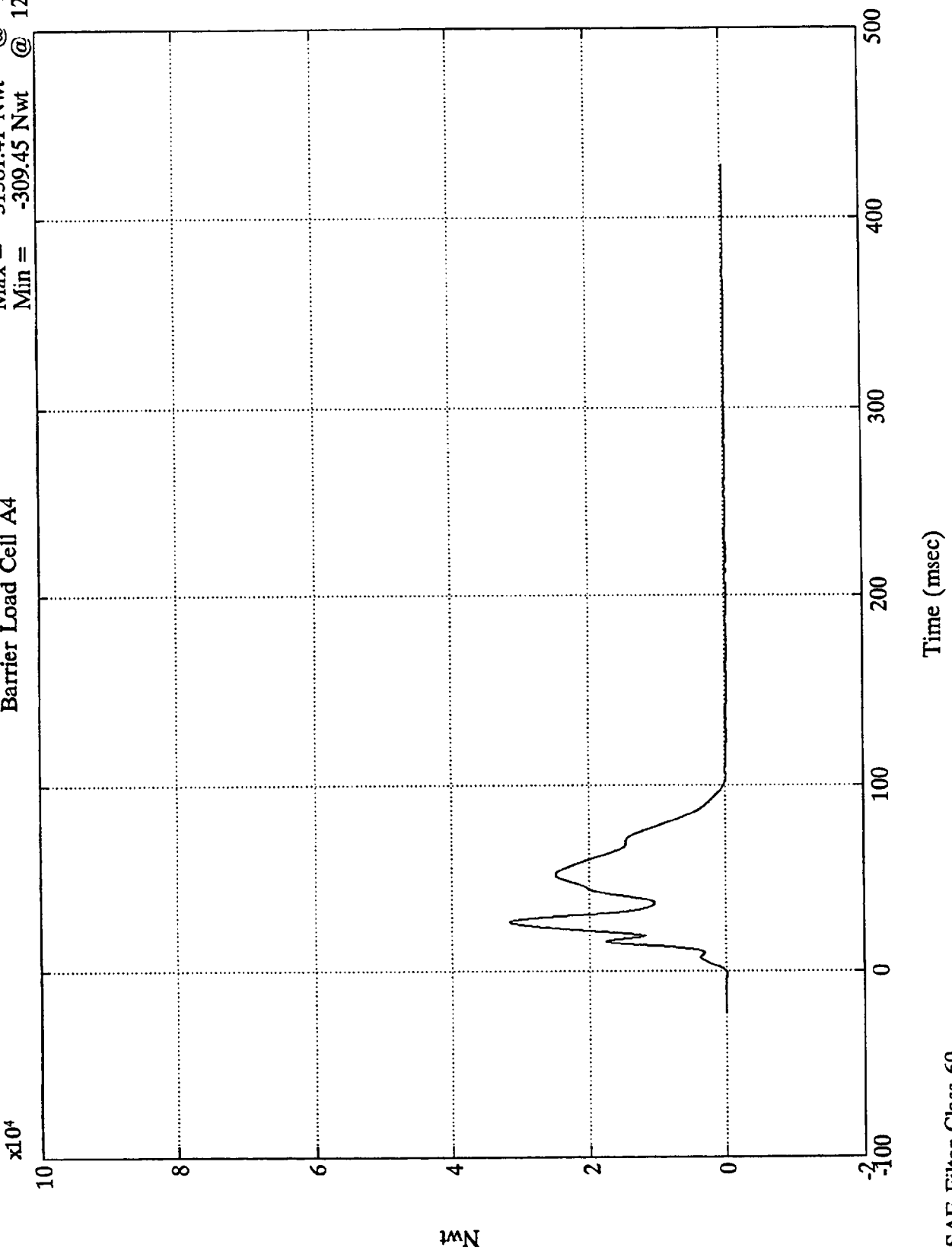
Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Max = 31581.41 Nwt @ 26.28 msec
Min = -309.45 Nwt @ 126.96 msec

Barrier Load Cell A4

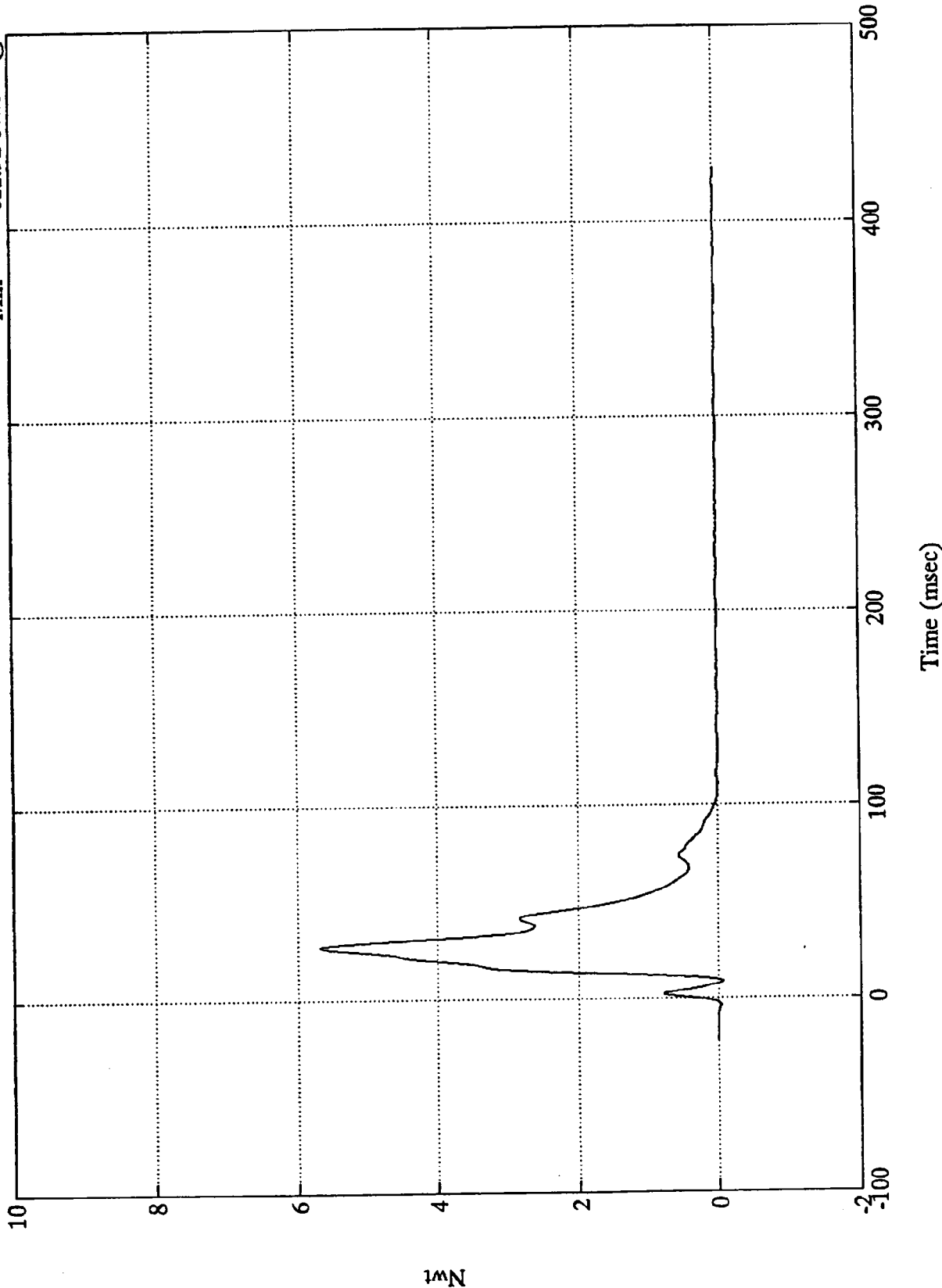


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell A5

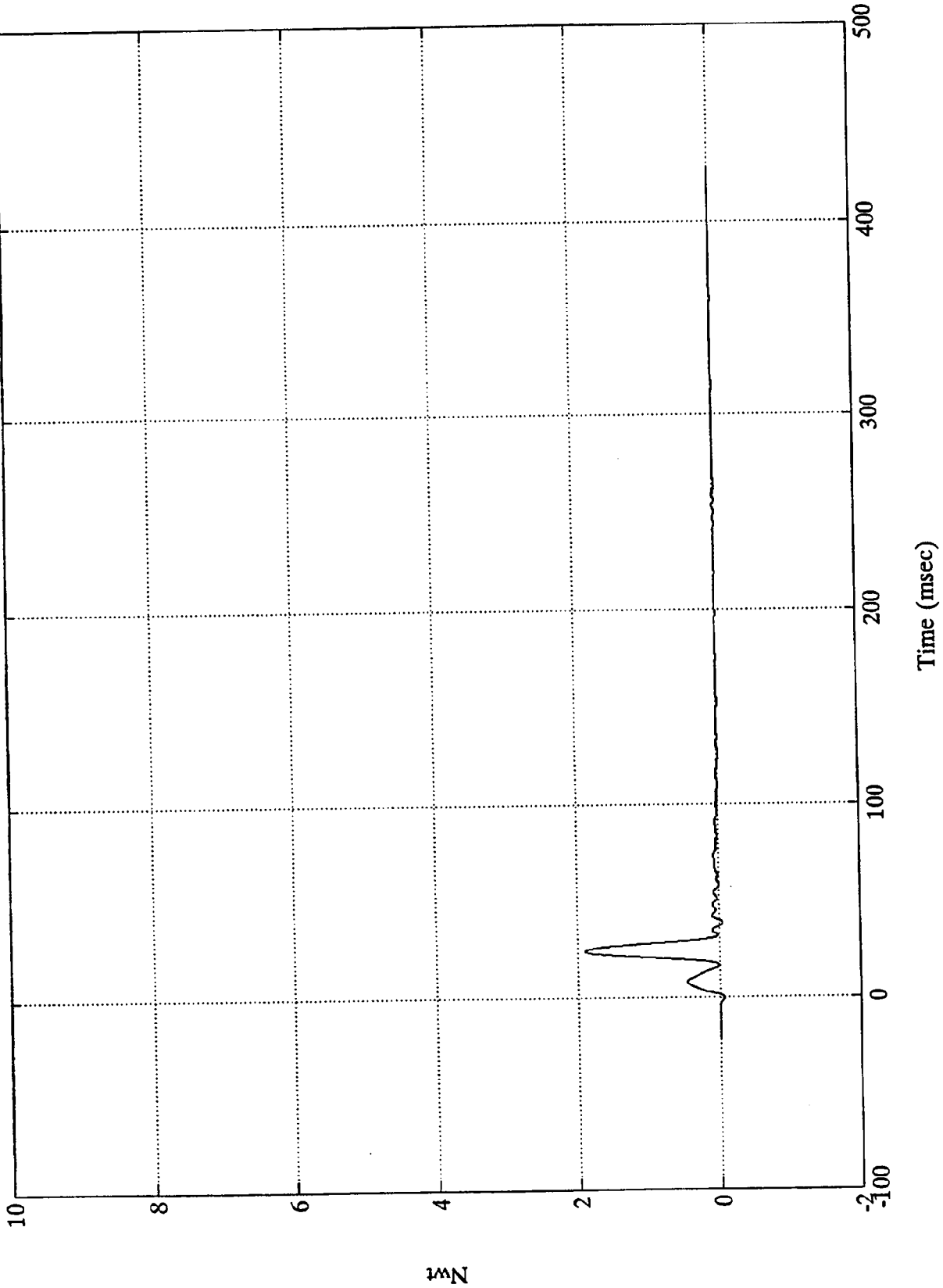
Max = 56864.74 Nwt @ 27.60 msec
Min = -611.92 Nwt @ 8.87 msec



NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE
x10⁴

Barrier Load Cell A6

Max = 18925.10 Nwt @ 24.84 msec
Min = -601.70 Nwt @ -0.12 msec



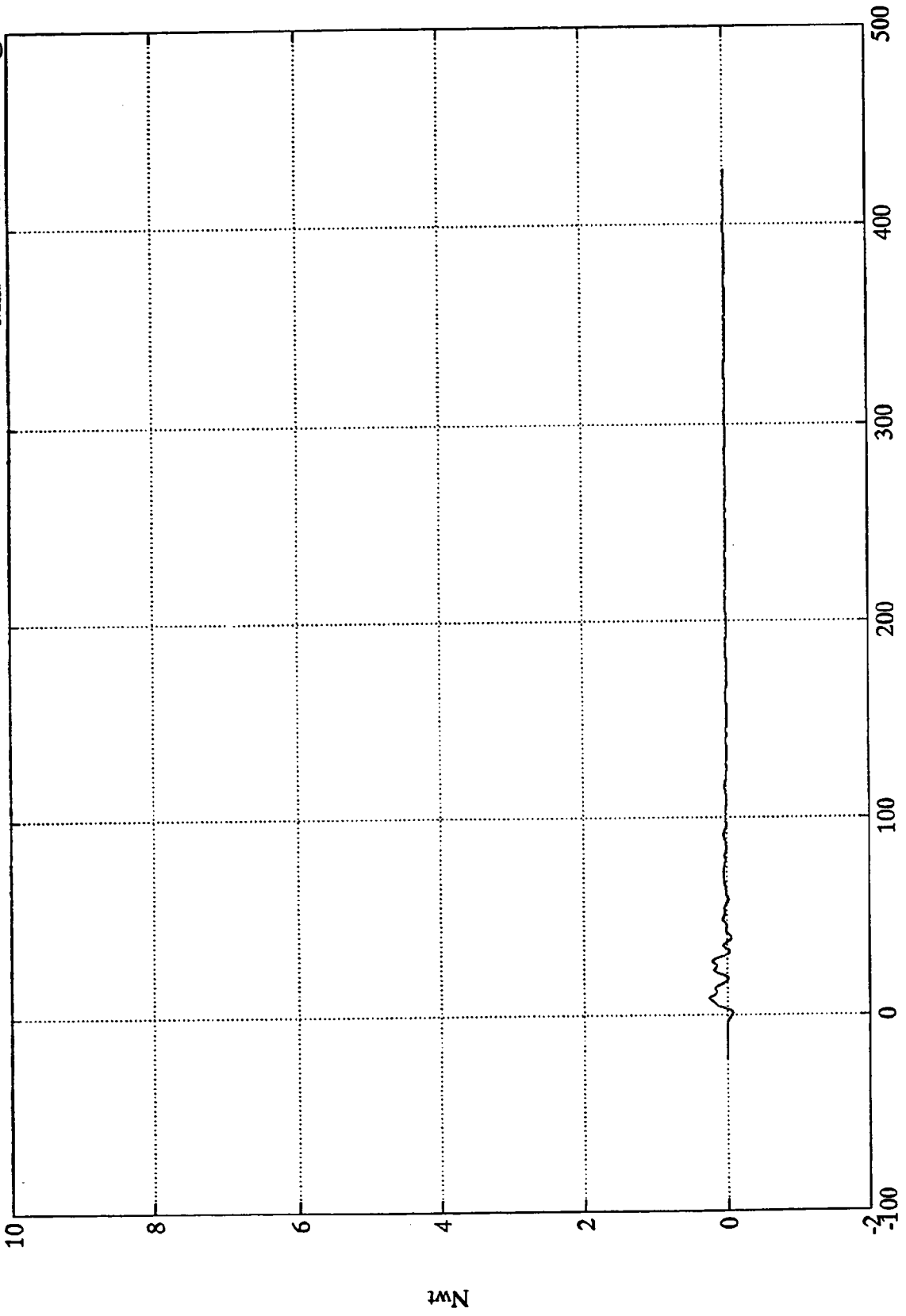
SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell A7

8.75 msec
0.95 msec

Max = 2614.45 Nwt @
Min = .724.85 Nwt @

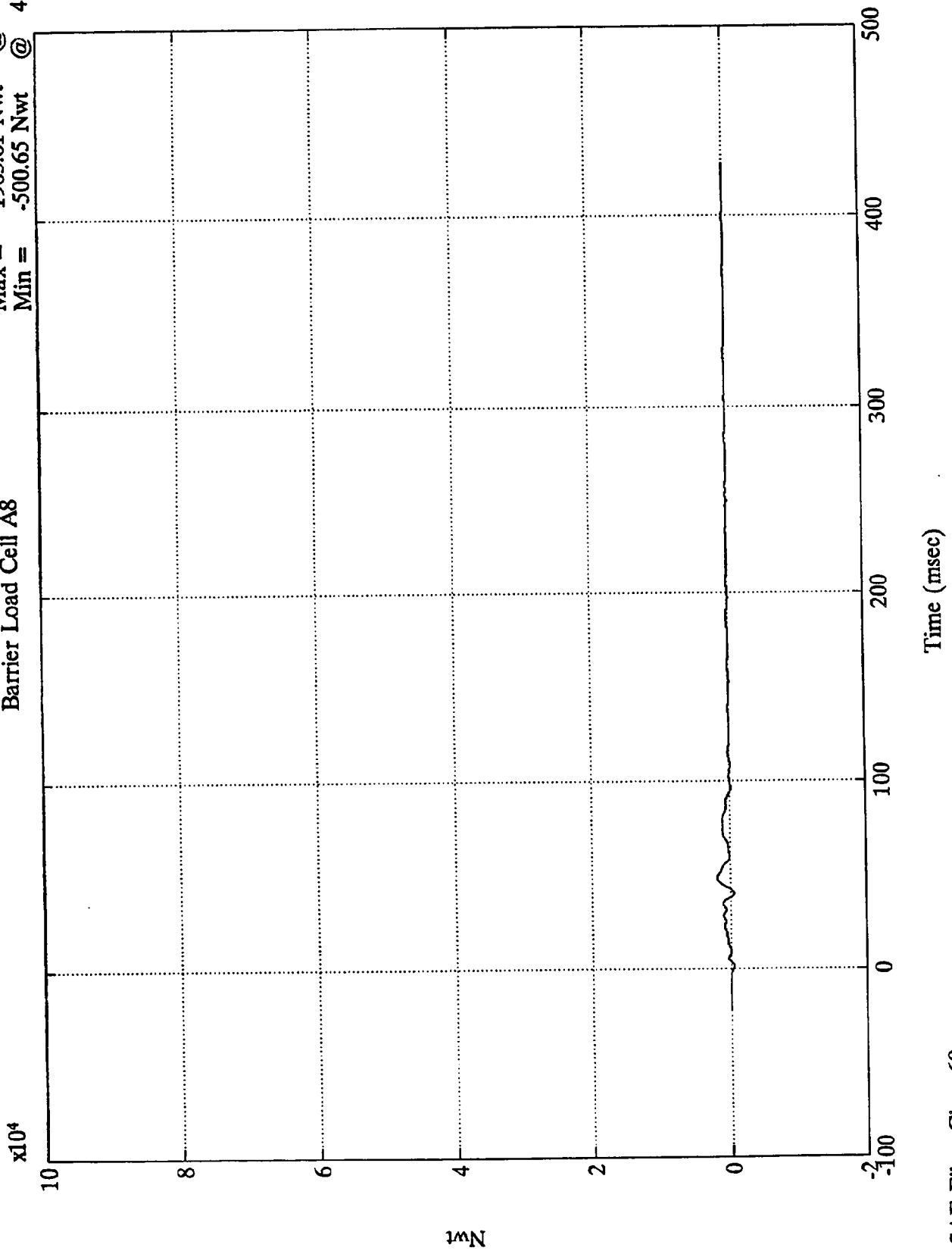


Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

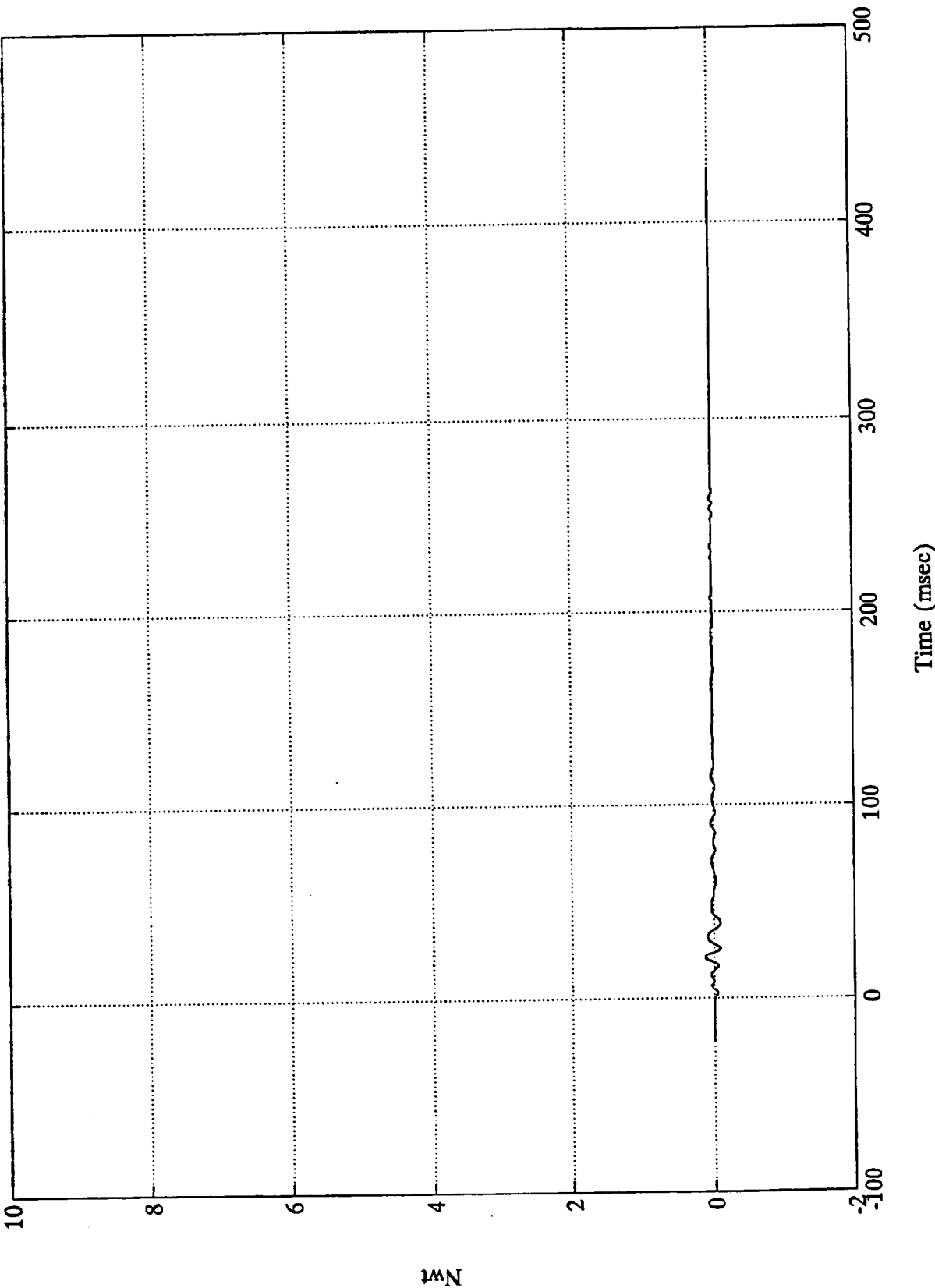
Barrier Load Cell A8
Max = 1963.61 Nwt @ 48.24 msec
Min = -500.65 Nwt @ 40.20 msec



SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell A9
Max = 1276.04 Nwt @ 21.47 msec
Min = -908.05 Nwt @ 39.24 msec

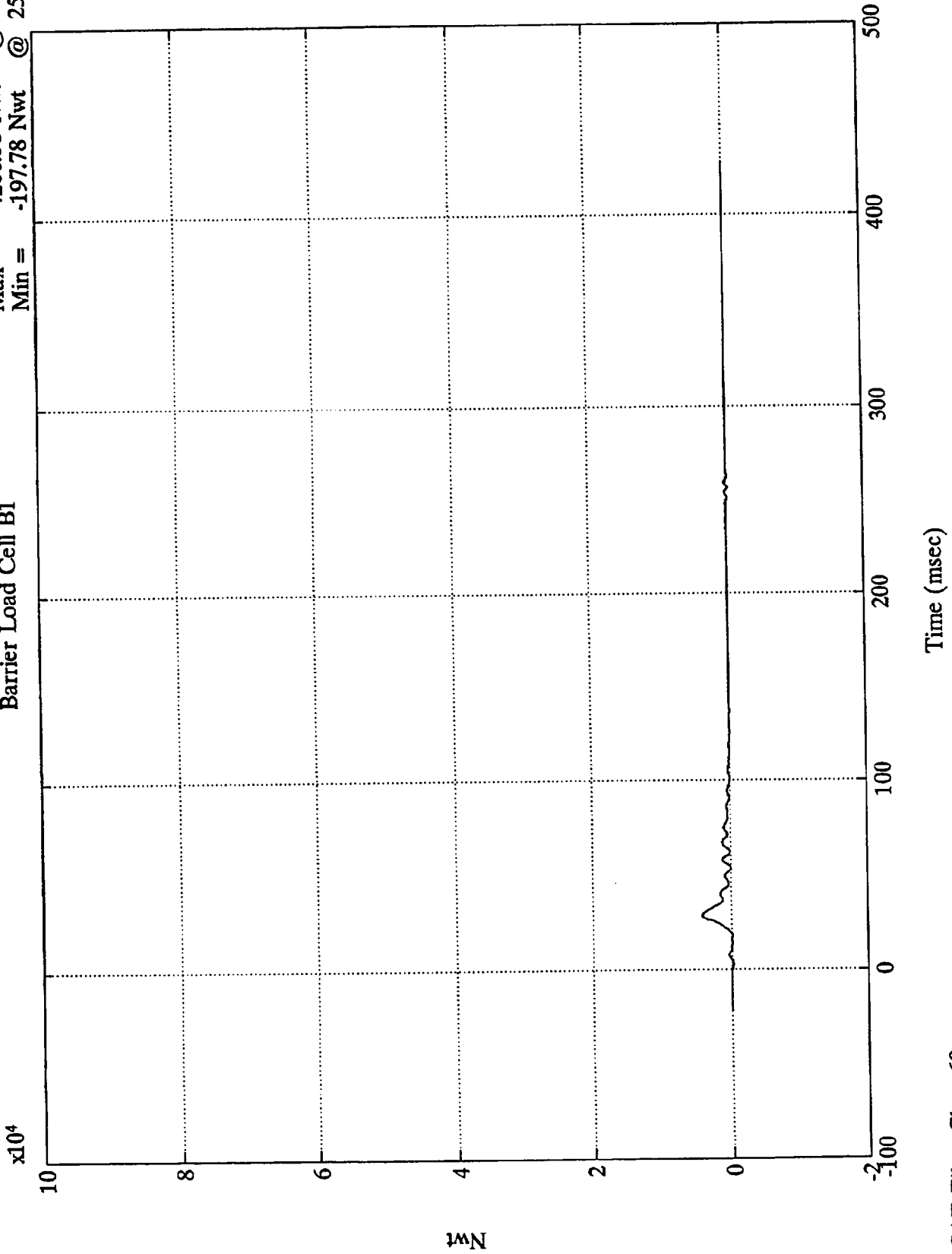


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell B1

Max = 4206.58 Nwt @ 28.31 msec
Min = -197.78 Nwt @ 256.32 msec

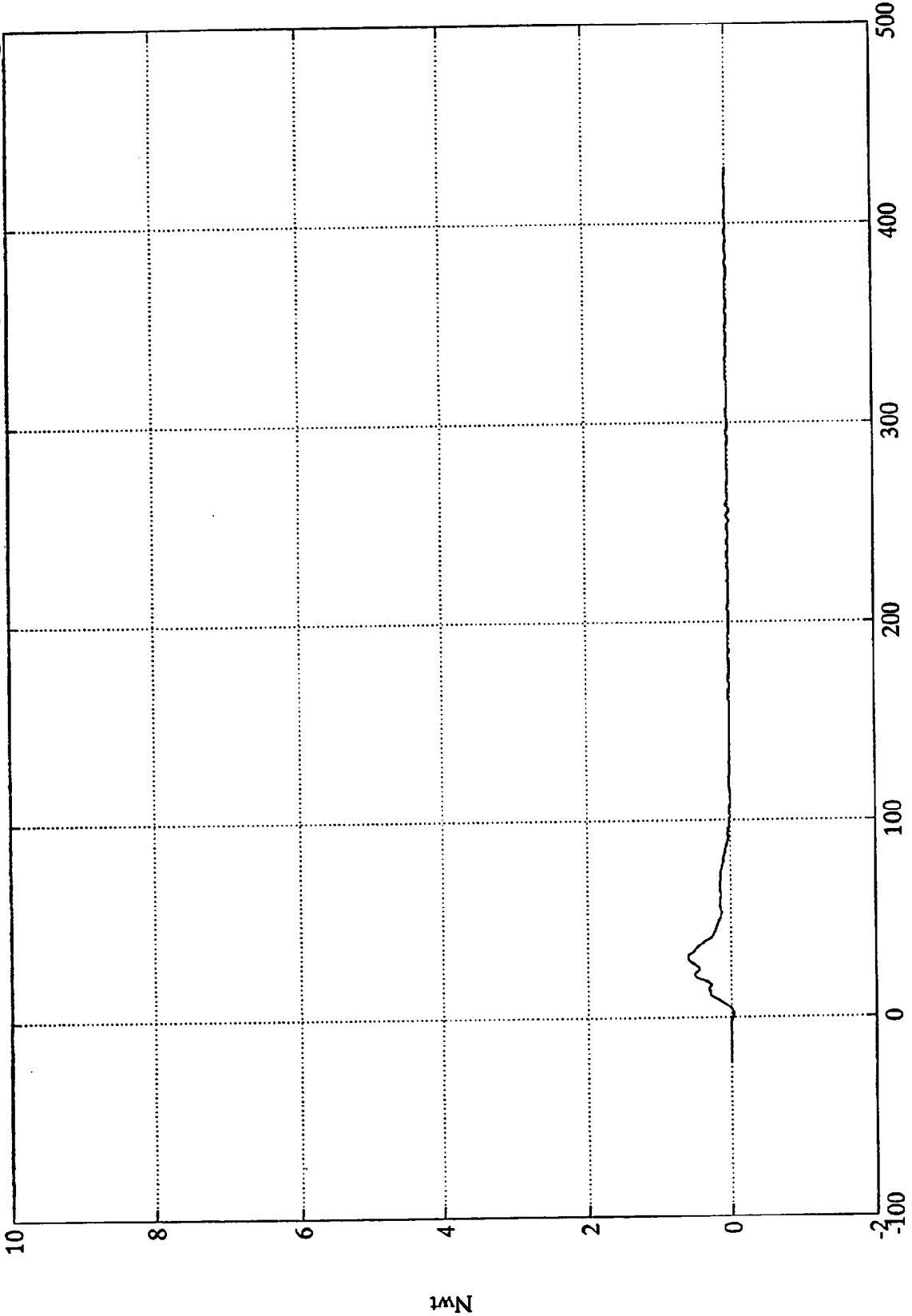


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell B2

Max = 6082.93 Nwt @ 30.60 msec
Min = -252.76 Nwt @ 1.67 msec

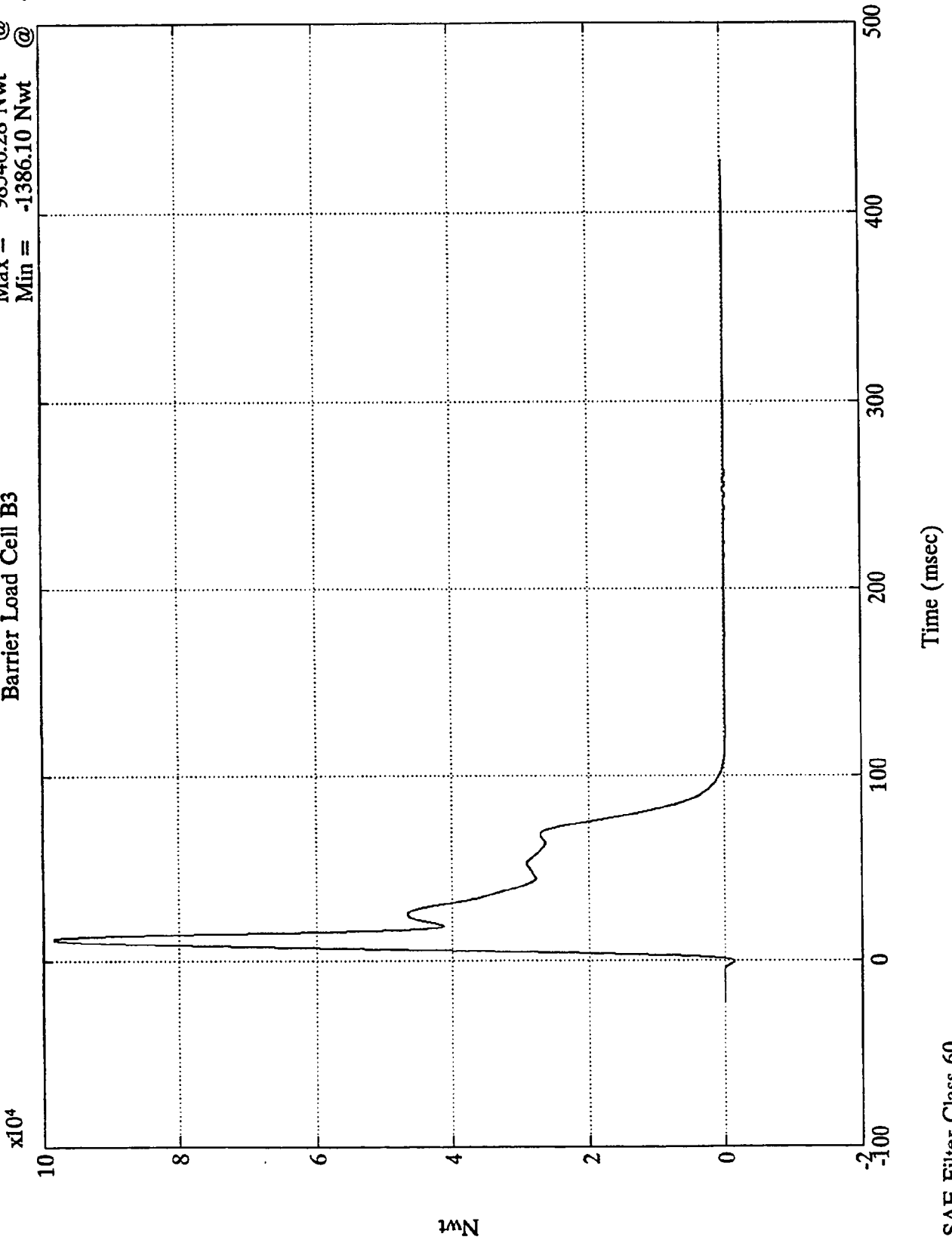


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell B3

Max = 98540.28 Nwt @ 12.11 msec
Min = -1386.10 Nwt @ -0.24 msec

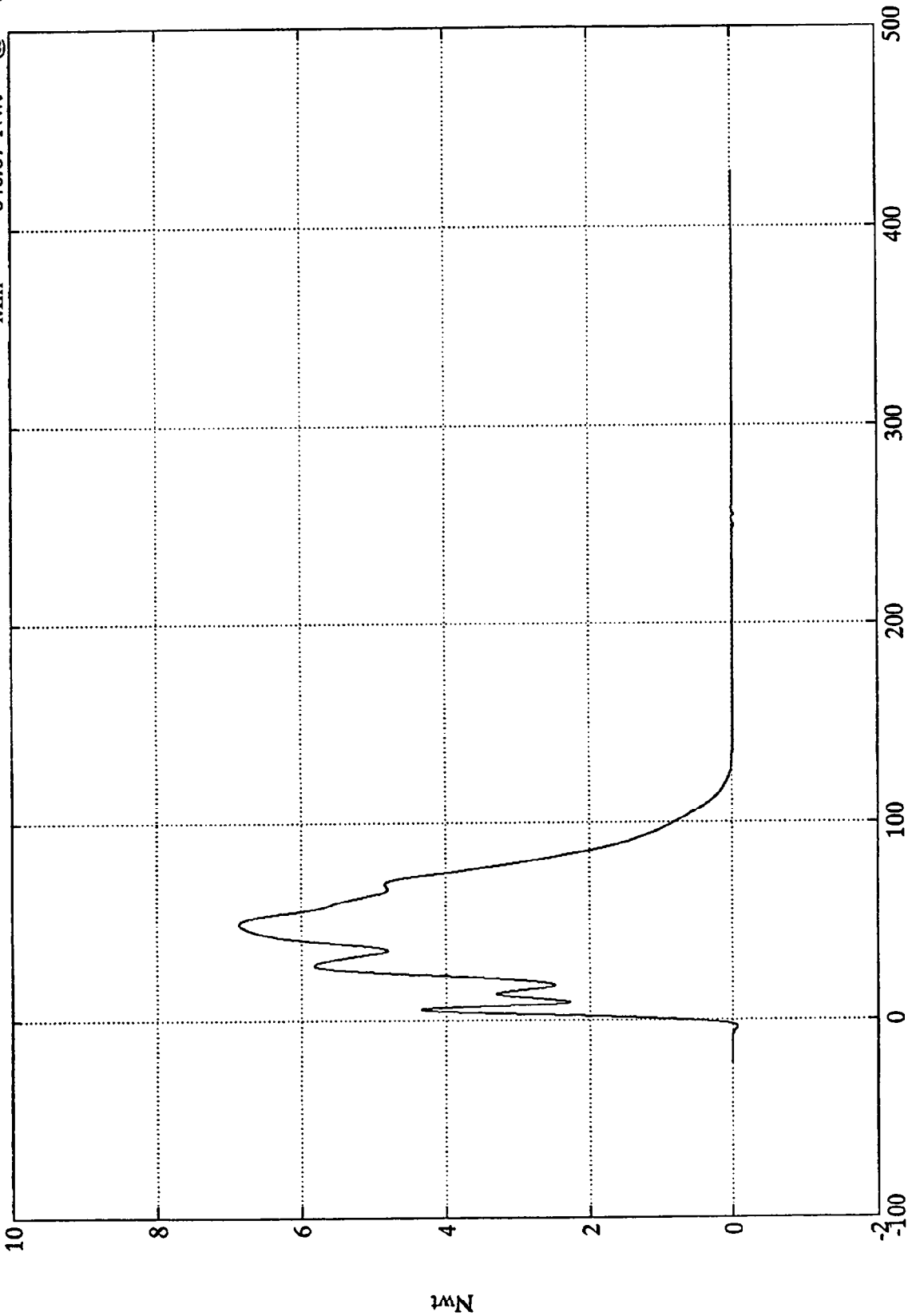


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell B4

Max = 68709.86 Nwt @ 48.84 msec
Min = -640.07 Nwt @ -3.60 msec



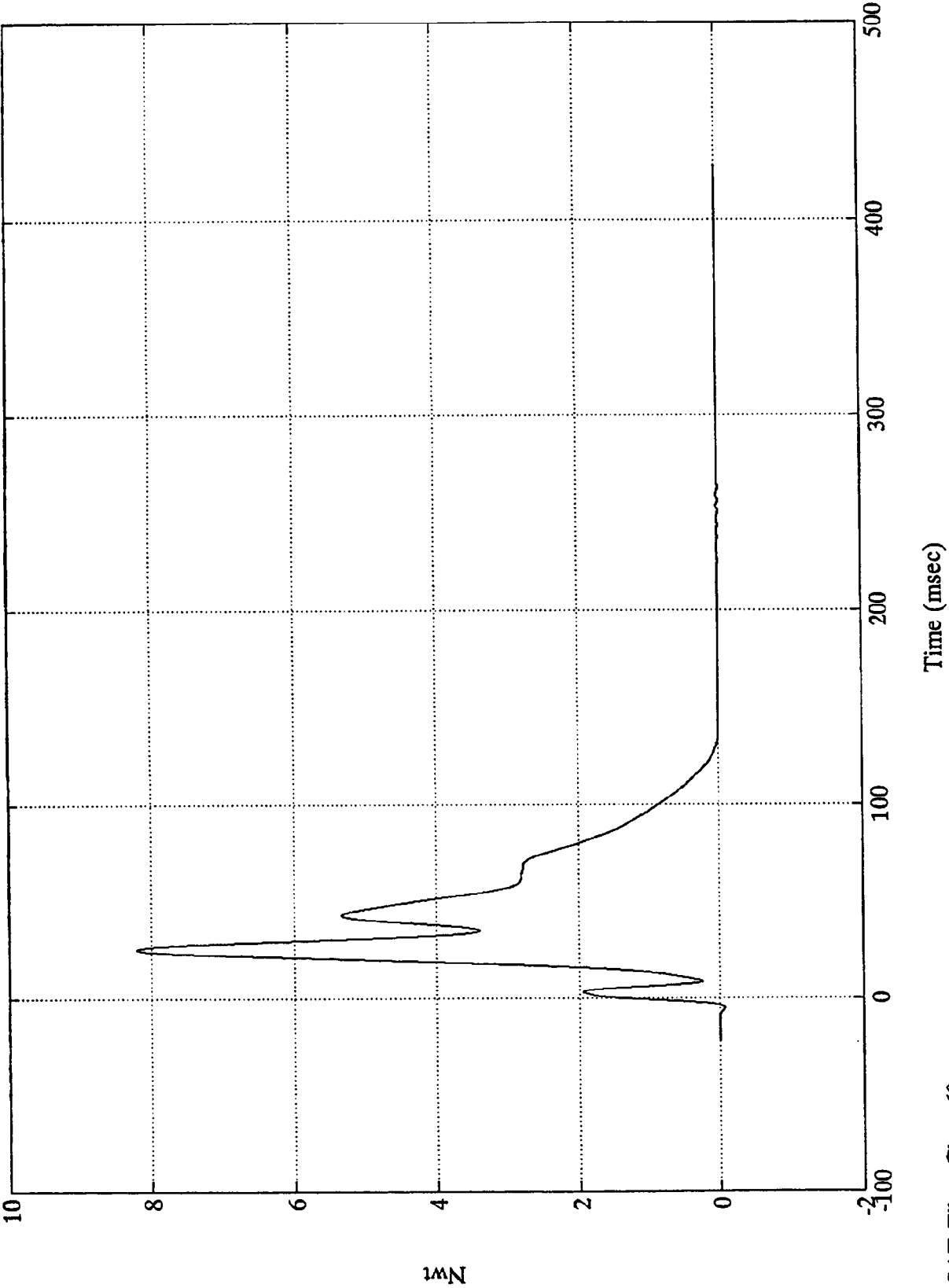
Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell B5

Max = 82018.42 Nwt @ 26.15 msec
Min = -610.77 Nwt @ -5.04 msec

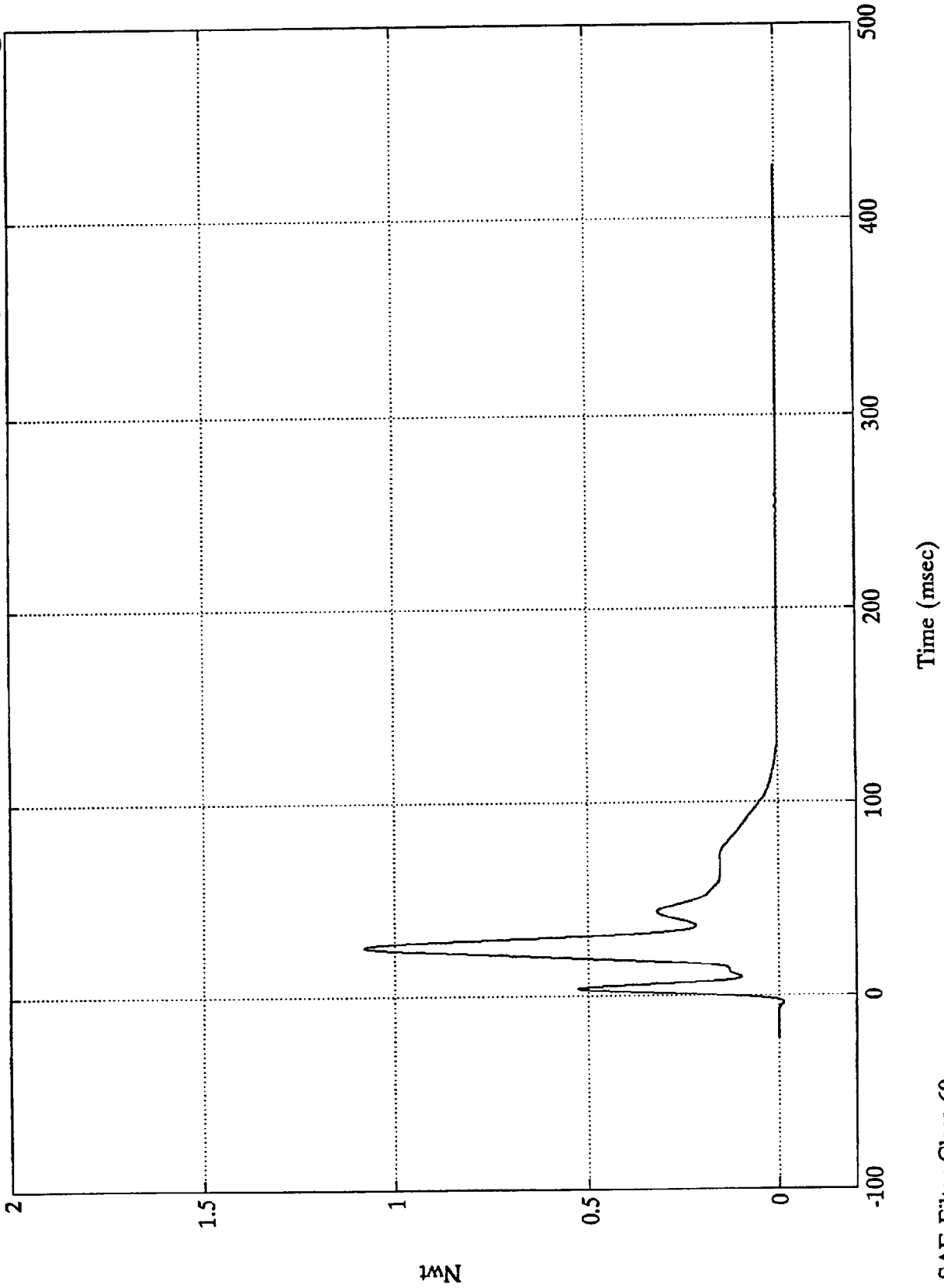


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell B6

Max = 108071.27 Nwt @ 25.56 msec
Min = -1202.86 Nwt @ -3.72 msec

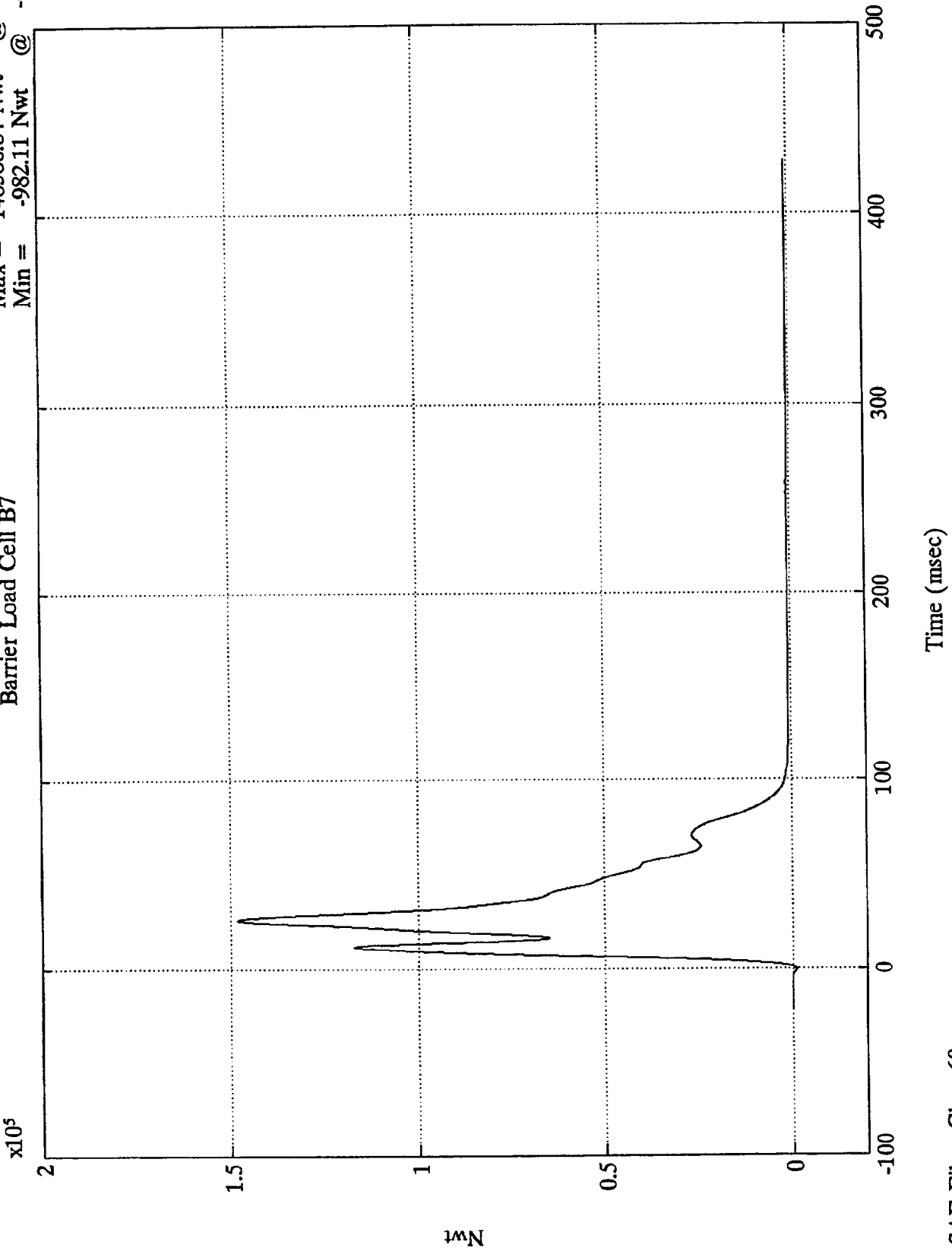


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell B7

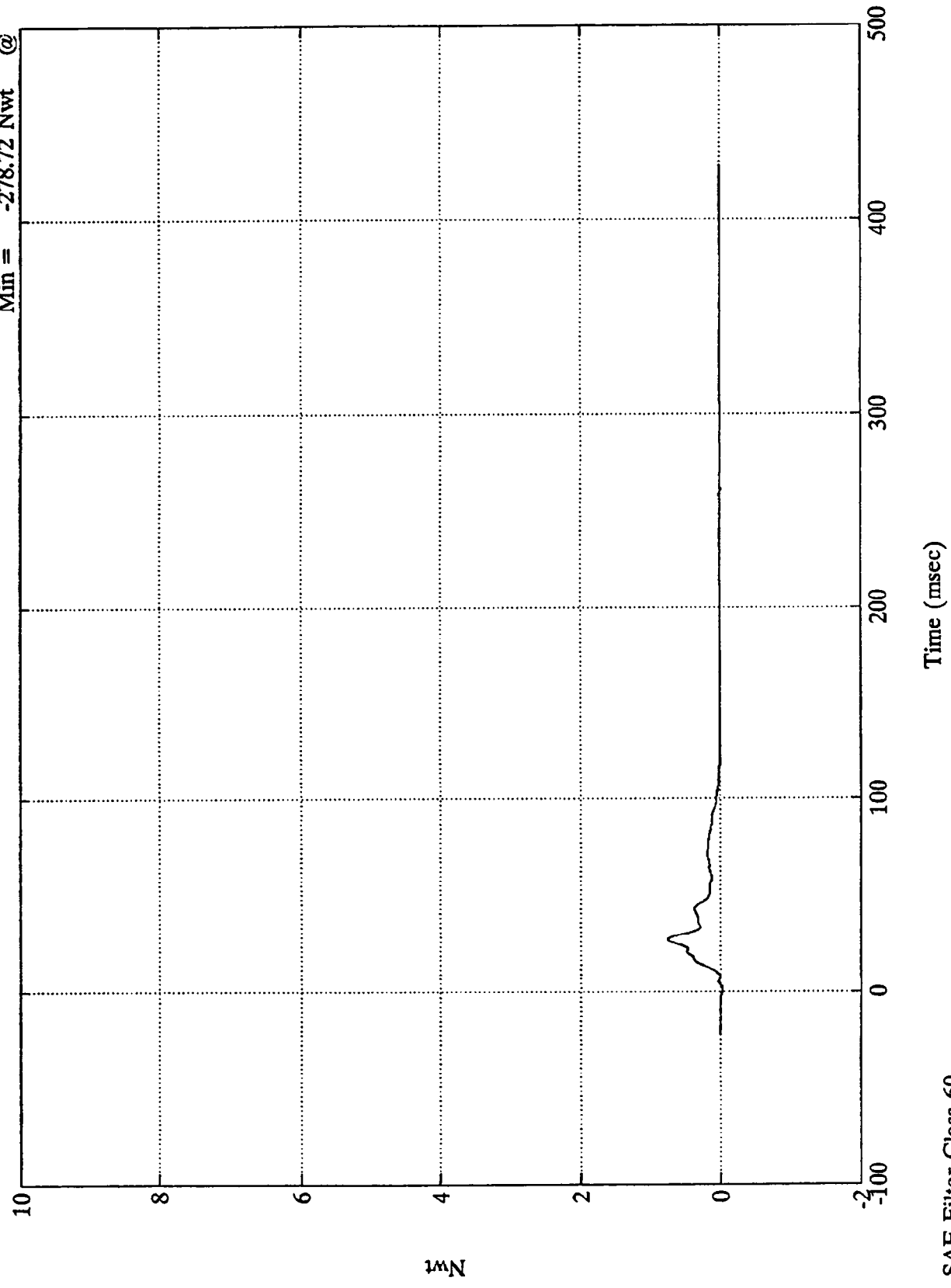
Max = 148386.84 Nwt @ 26.28 msec
Min = -982.11 Nwt @ -0.36 msec



SAE Filter Class 60

Max = 7552.86 Nwt @ 27.36 msec
Min = -278.72 Nwt @ 0.95 msec

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE
Barrier Load Cell B8

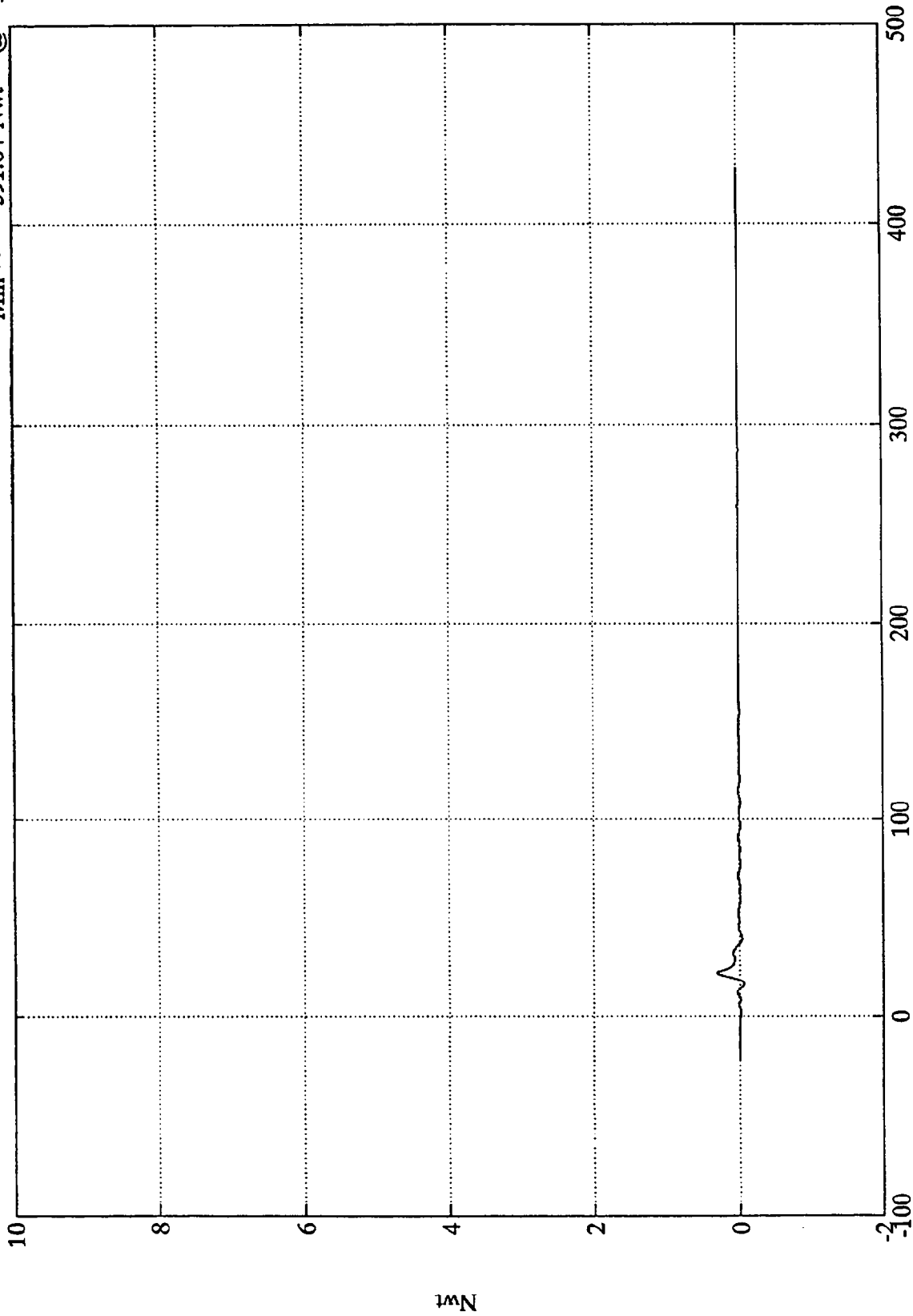


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell B9

Max = 3143.24 Nwt @ 22.43 msec
Min = -591.04 Nwt @ 17.15 msec



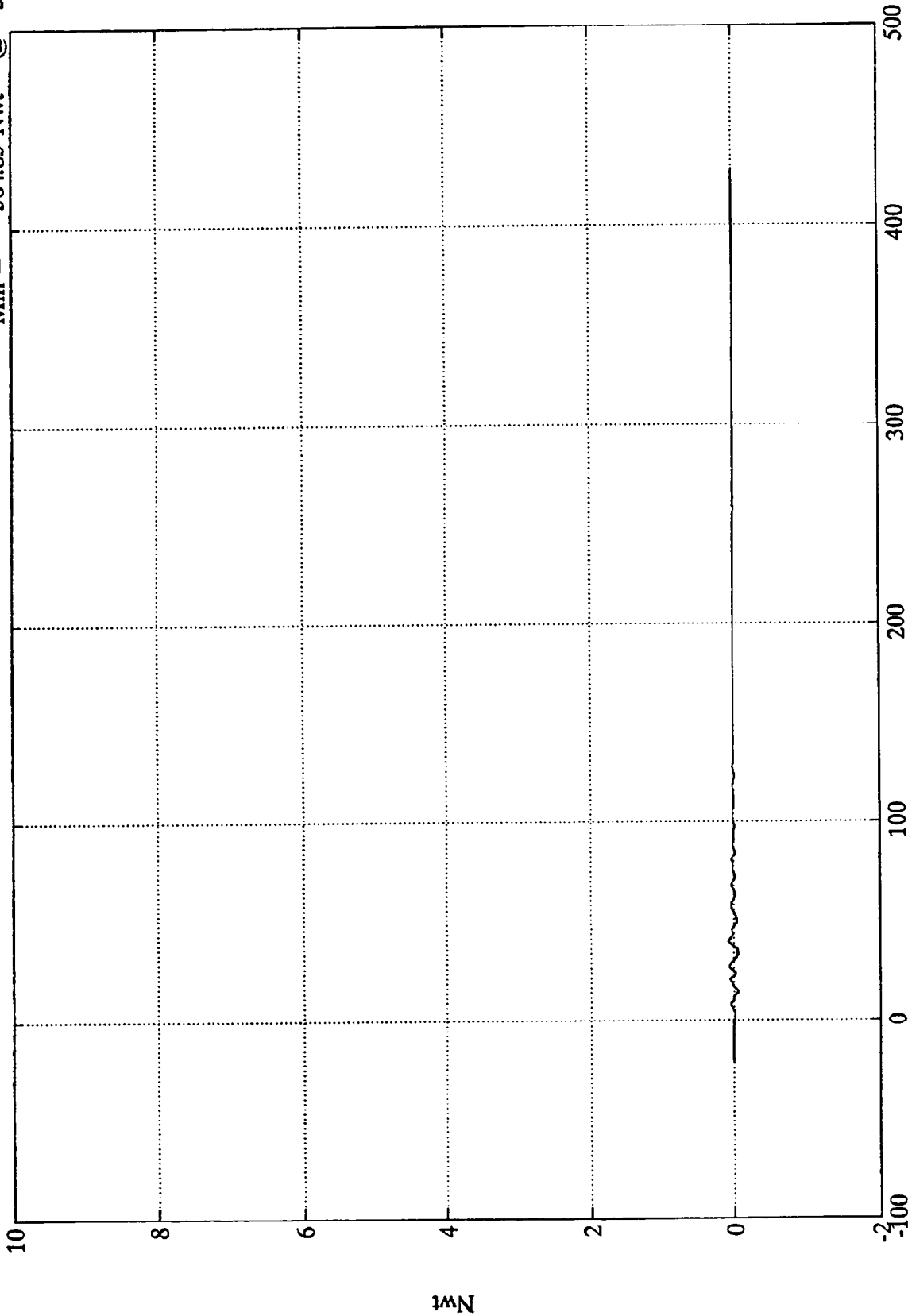
Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Max = 39.36 msec
Min = 34.56 msec

Barrier Load Cell C1
Max = 768.05 Nwt @
Min = -564.85 Nwt @



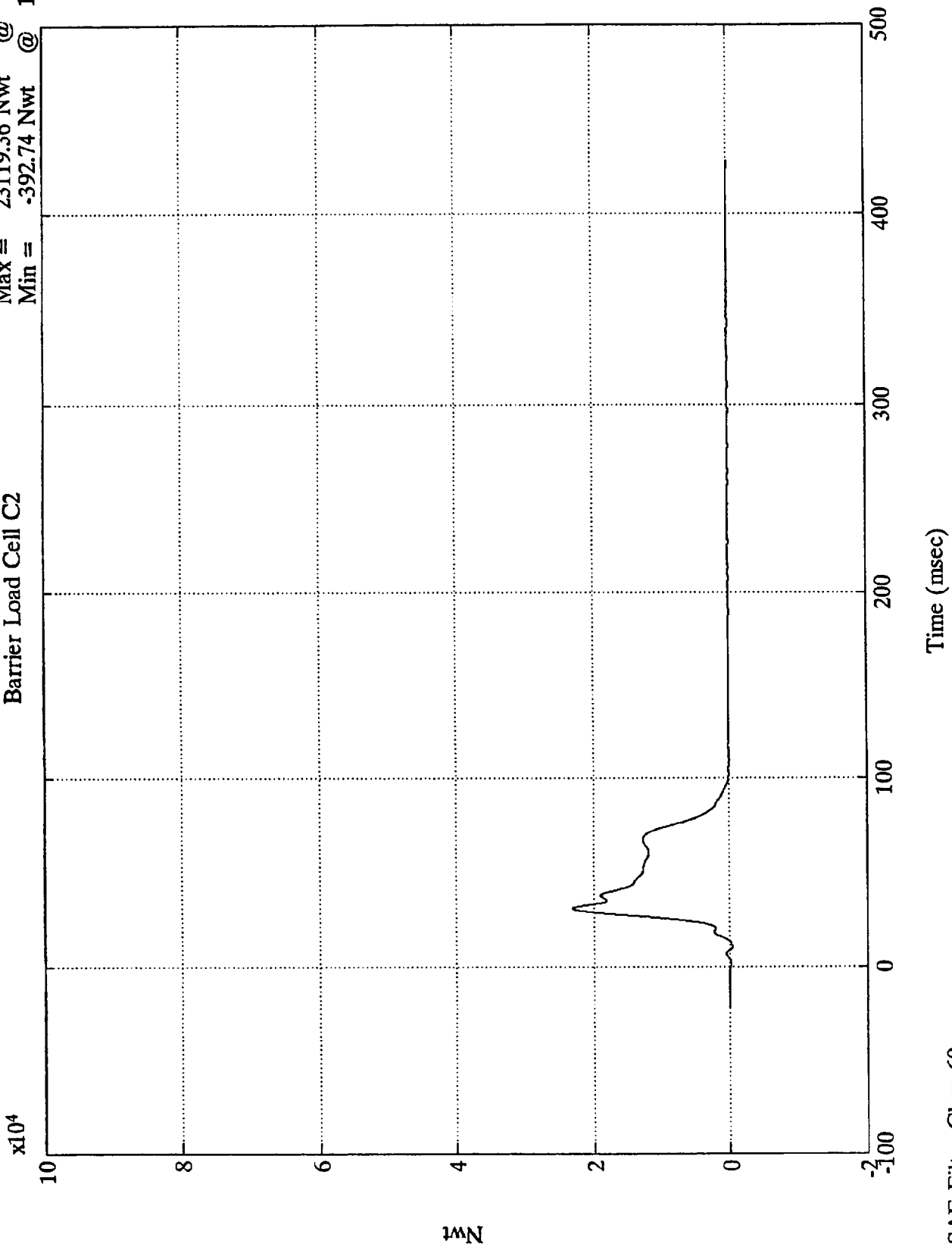
Time (msec)

SAE Filter Class 60

Nwt

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell C2
Max = 23119.36 Nwt @ 30.96 msec
Min = -392.74 Nwt @ 10.67 msec

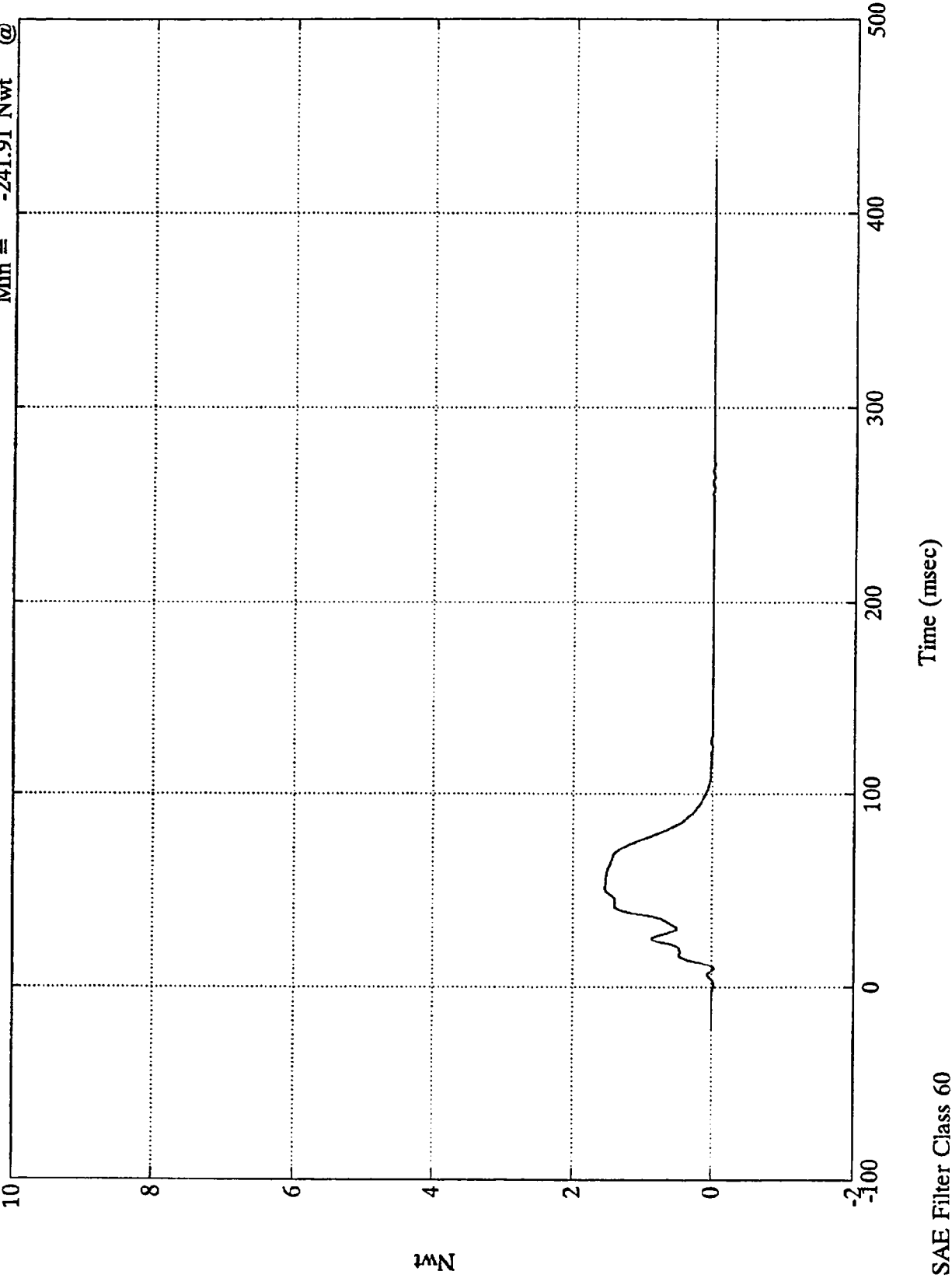


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell C3

Max = 15417.67 Nwt @ 51.12 msec
Min = -241.91 Nwt @ 0.95 msec

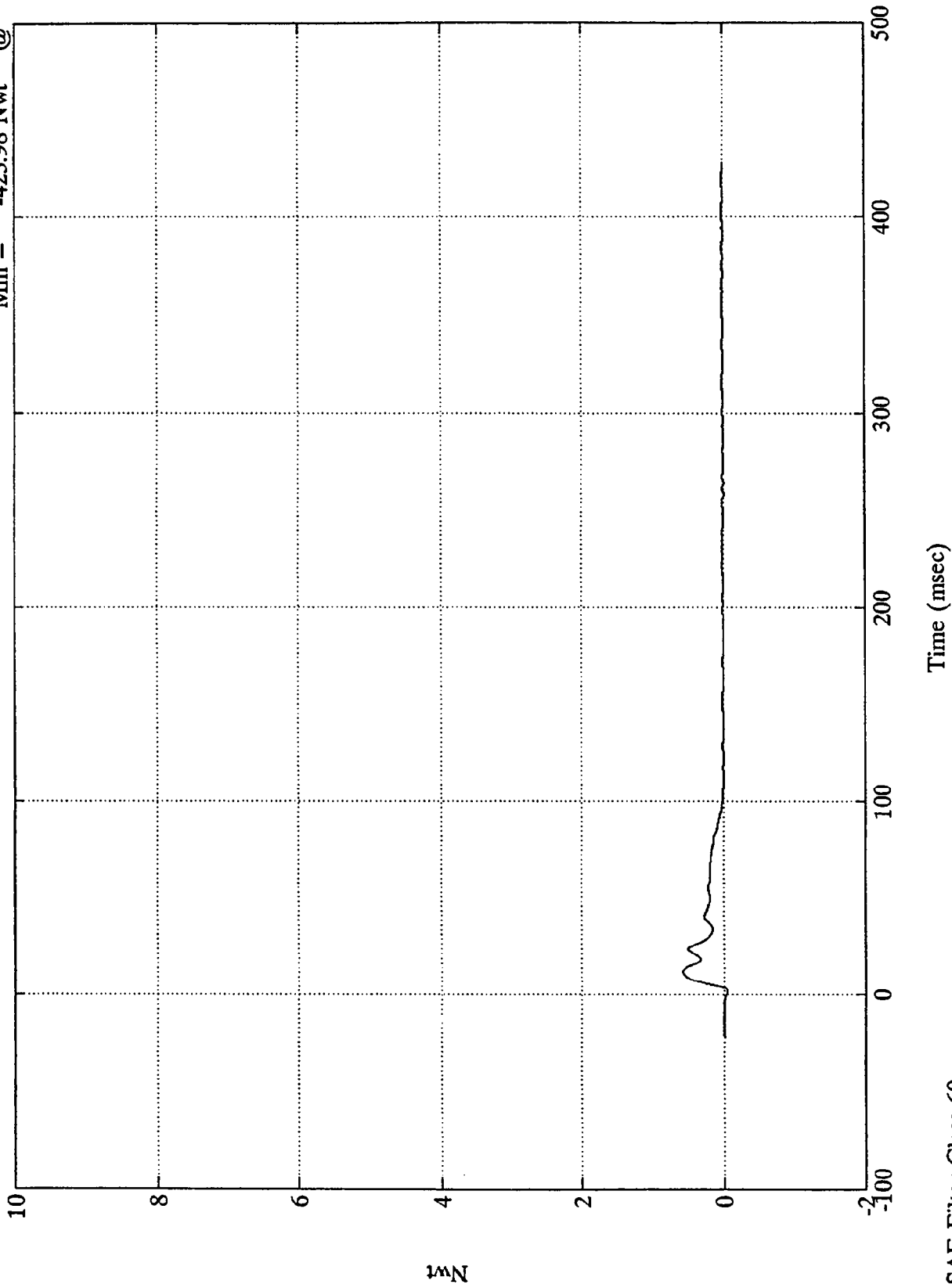


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell C4

Max = 5728.41 Nwt @ 12.11 msec
Min = -423.98 Nwt @ 1.91 msec



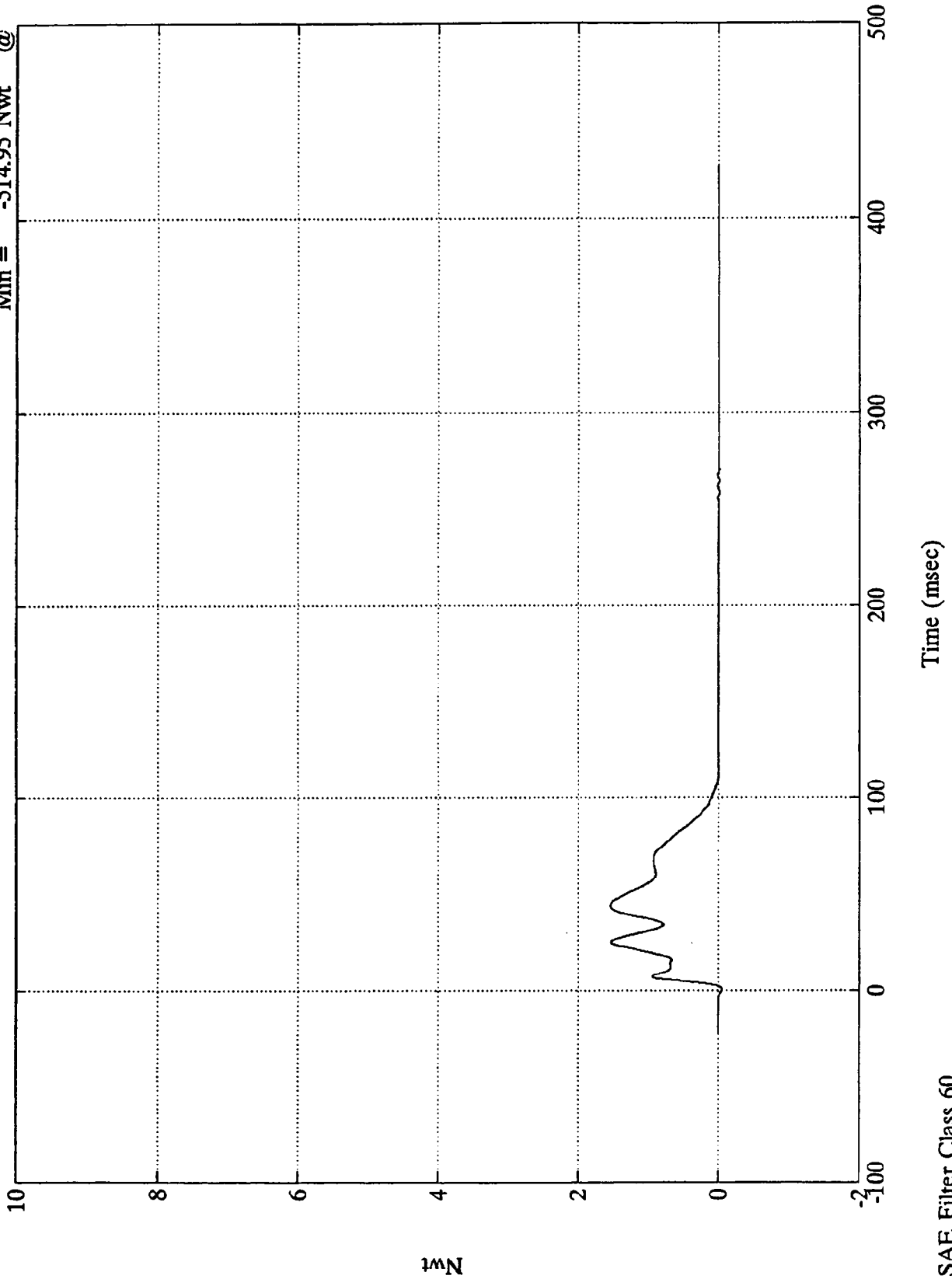
SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell C5

Max = 15259.80 Nwt @ 44.04 msec
Min = -514.95 Nwt @ 0.59 msec

x10⁴

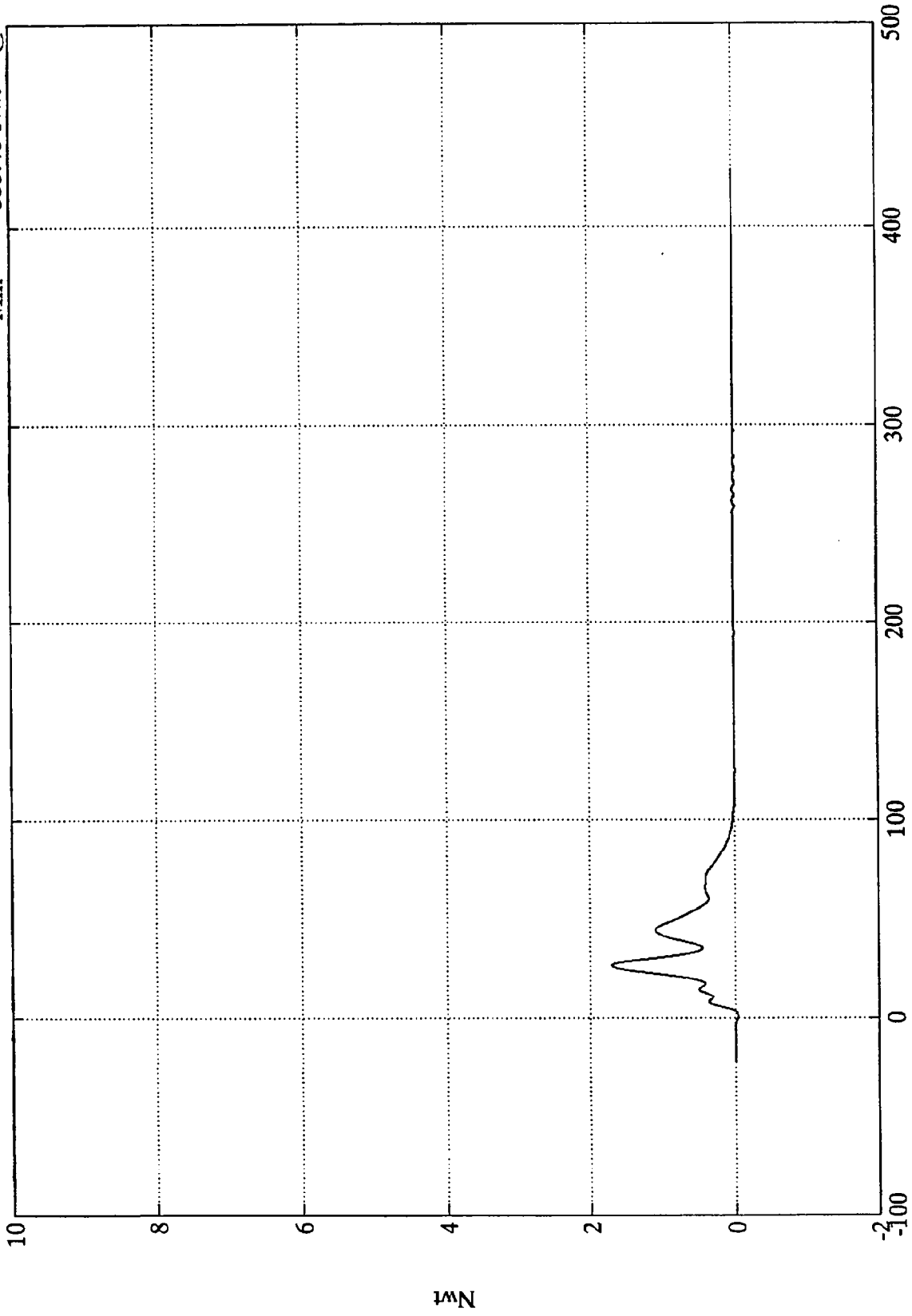


NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell C6

Max = 17065.63 Nwt @ 26.87 msec
Min = -335.46 Nwt @ 1.07 msec

x10⁴



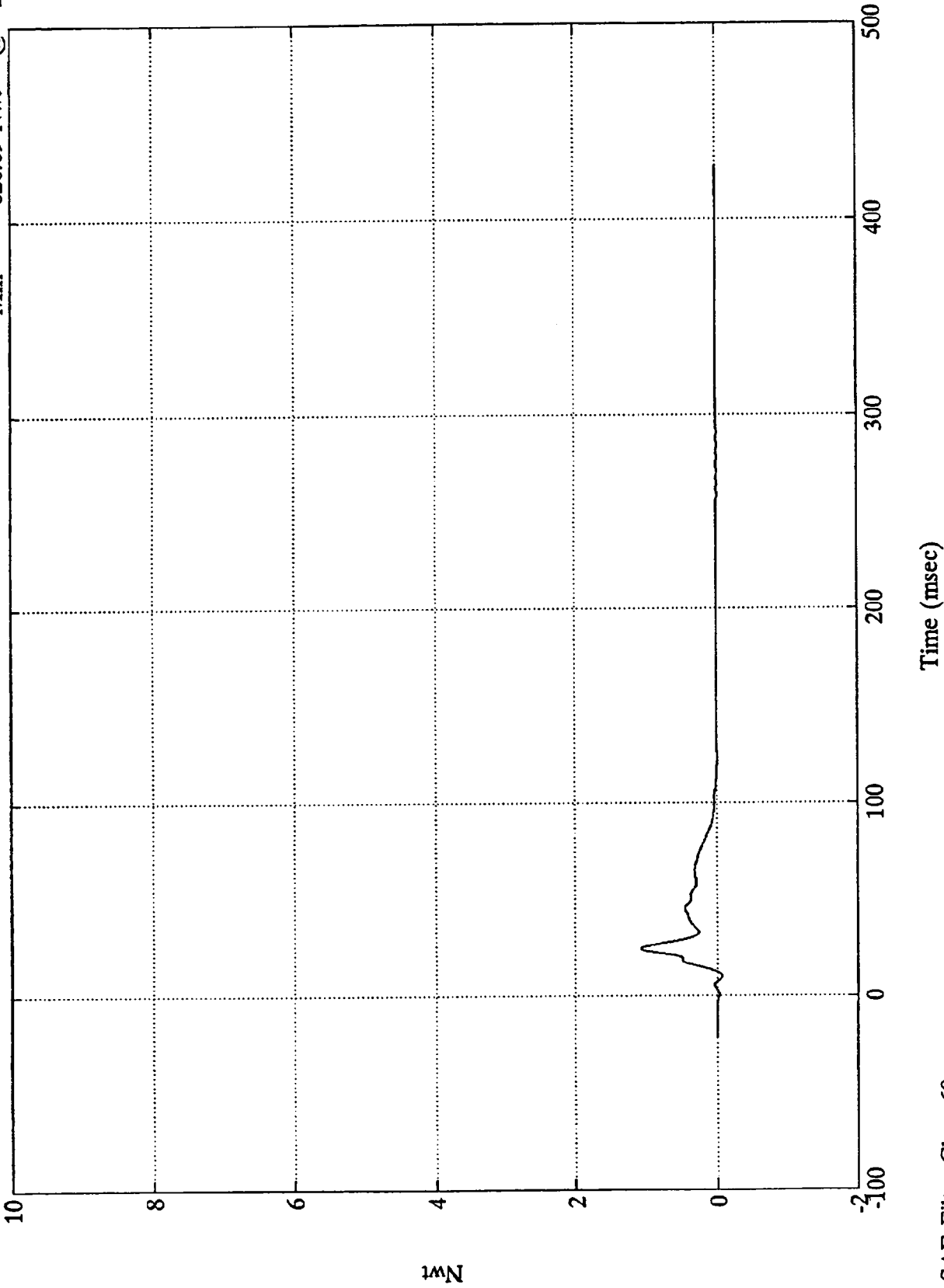
Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell C7

Max = 10815.43 Nwt @ 24.84 msec
Min = -626.09 Nwt @ 10.31 msec



Nwt

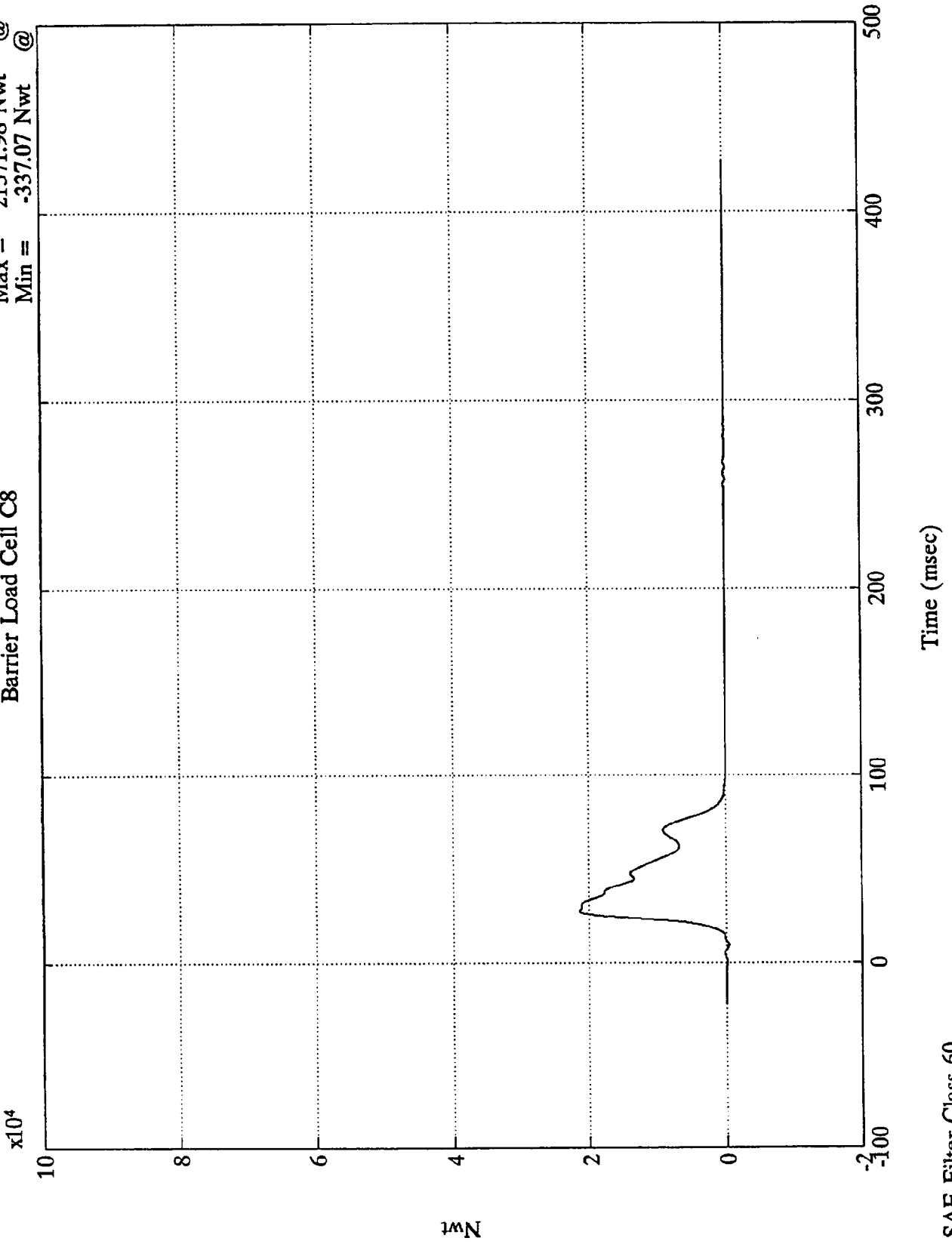
Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell C8

Max = 21371.98 Nwt @ 28.07 msec
Min = -337.07 Nwt @ 9.95 msec



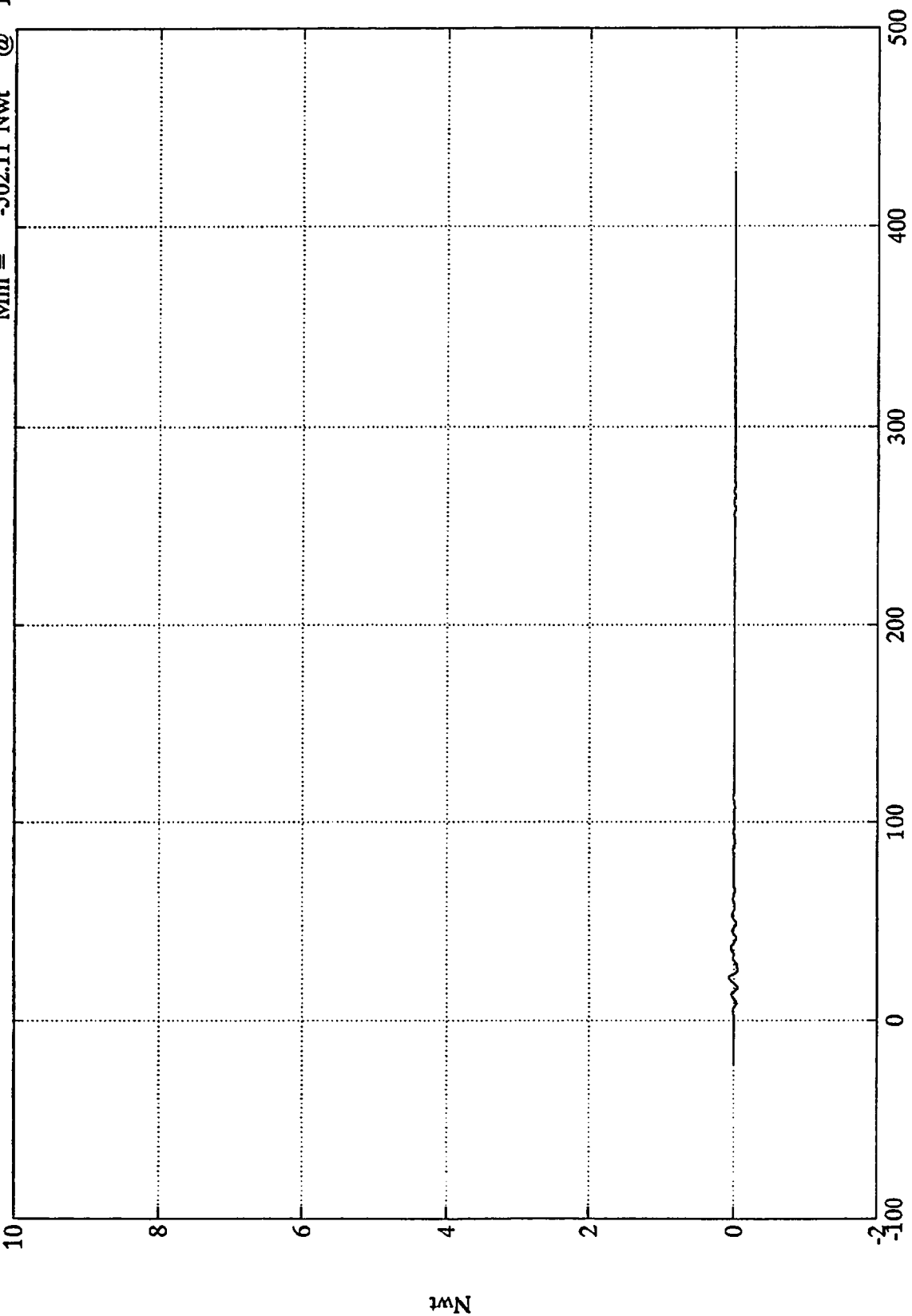
SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell C9

Max = 814.39 Nwt @
Min = -502.11 Nwt @

21.84 msec
17.03 msec



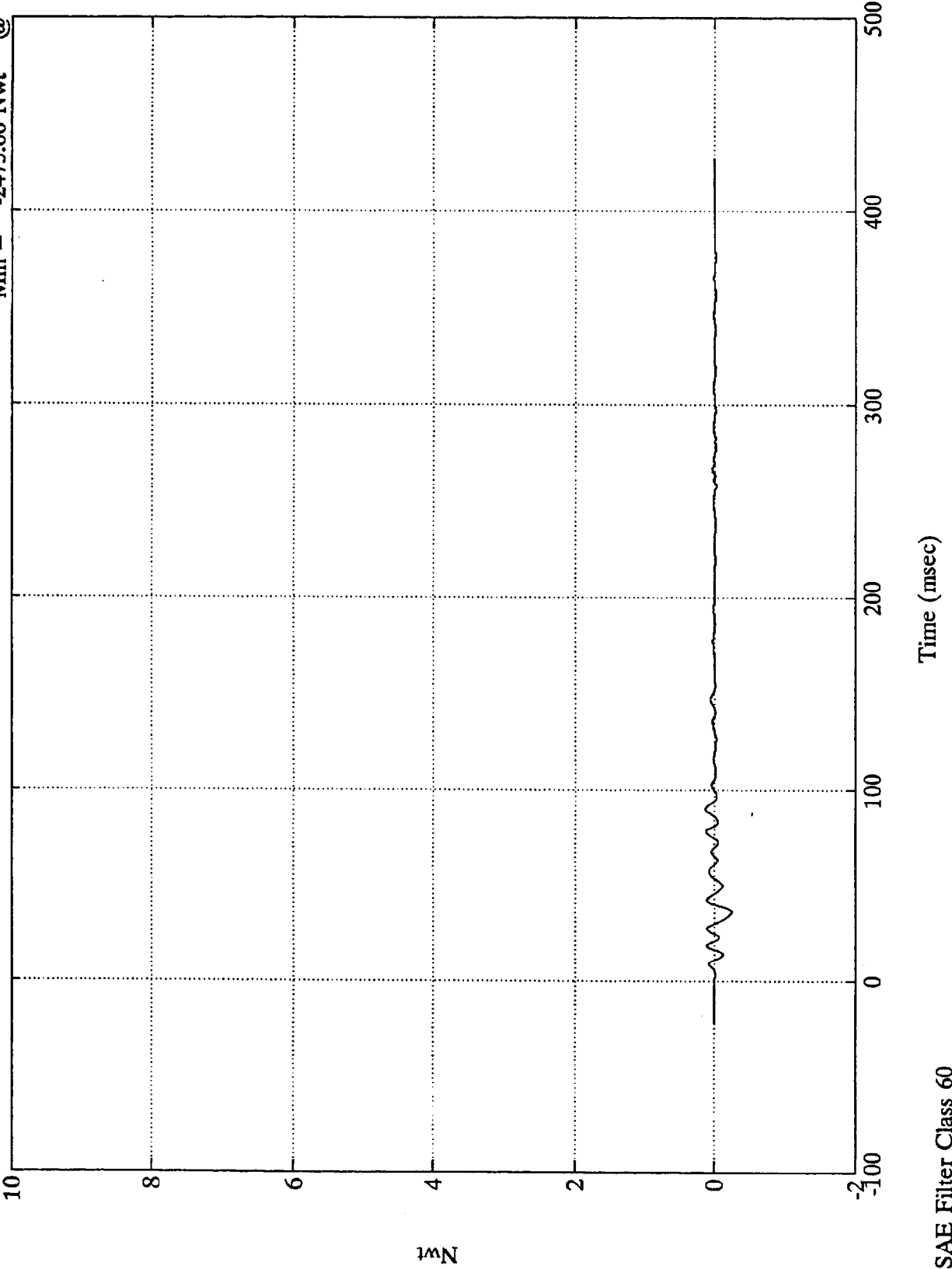
Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell D1

Max = 1291.55 Nwt @ 90.48 msec
Min = -2475.66 Nwt @ 36.60 msec

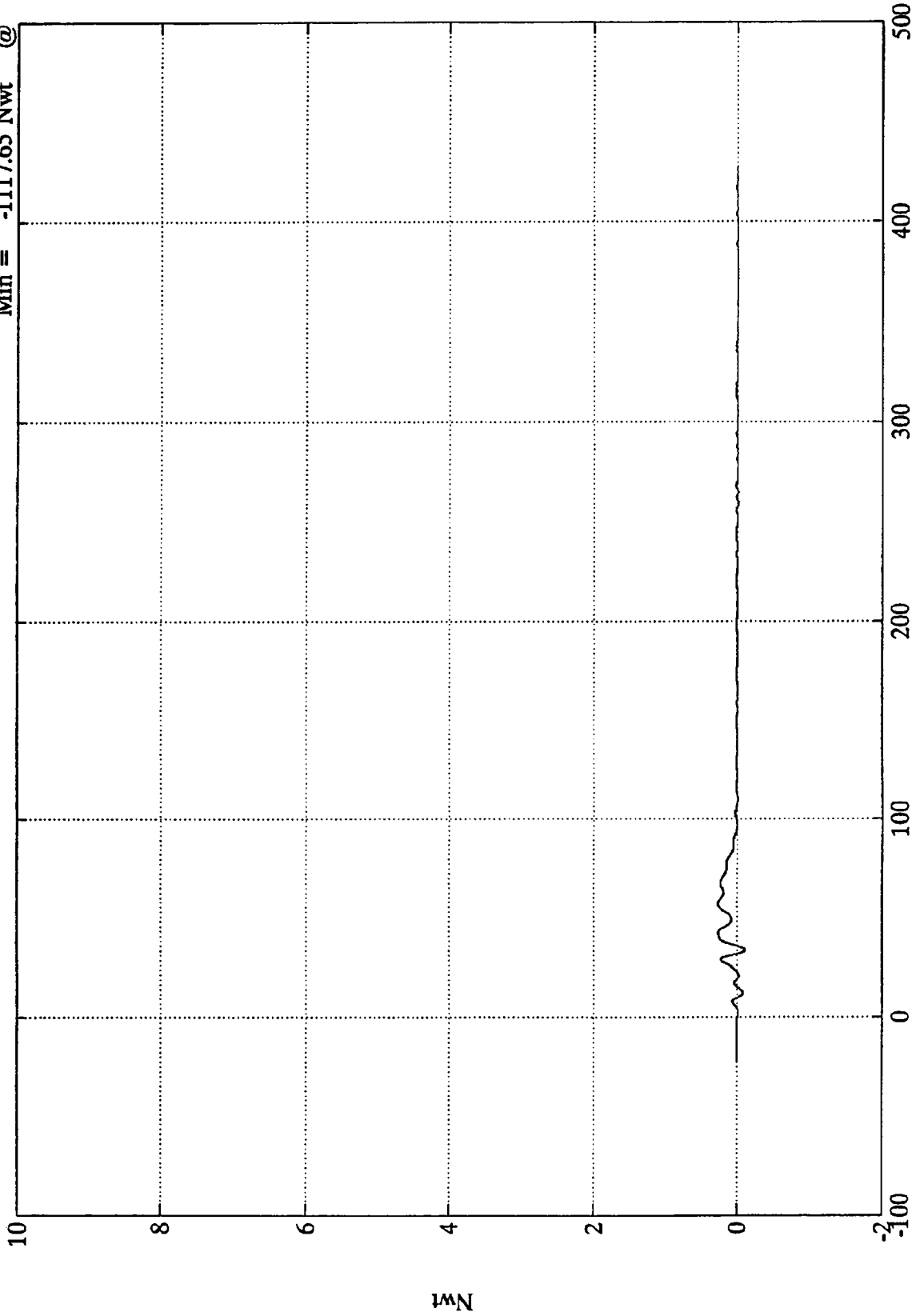


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell D2

Max = 2693.19 Nwt @ 57.00 msec
Min = -1117.65 Nwt @ 33.84 msec



Time (msec)

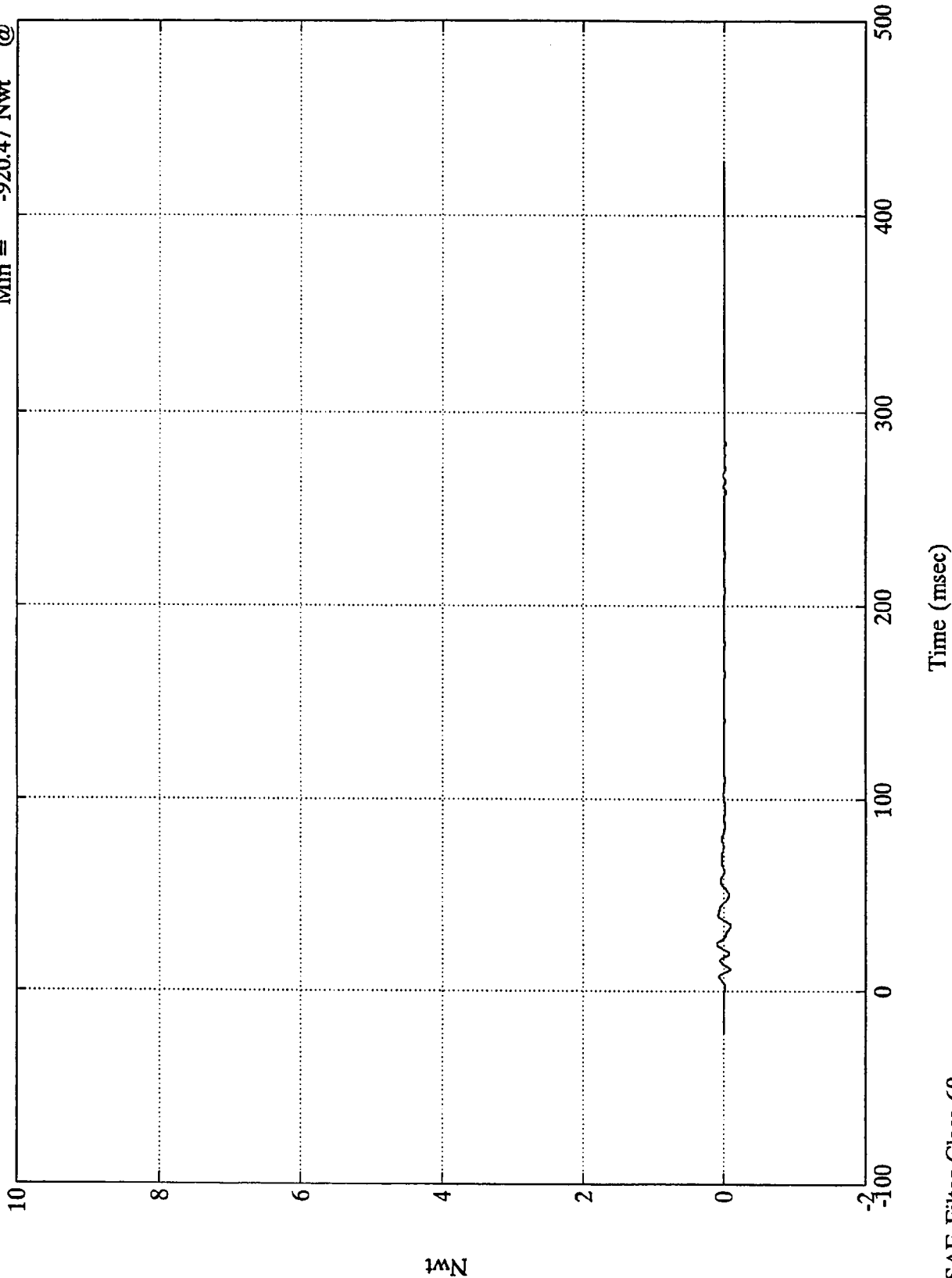
SAE Filter Class 60

Nwt

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell D3

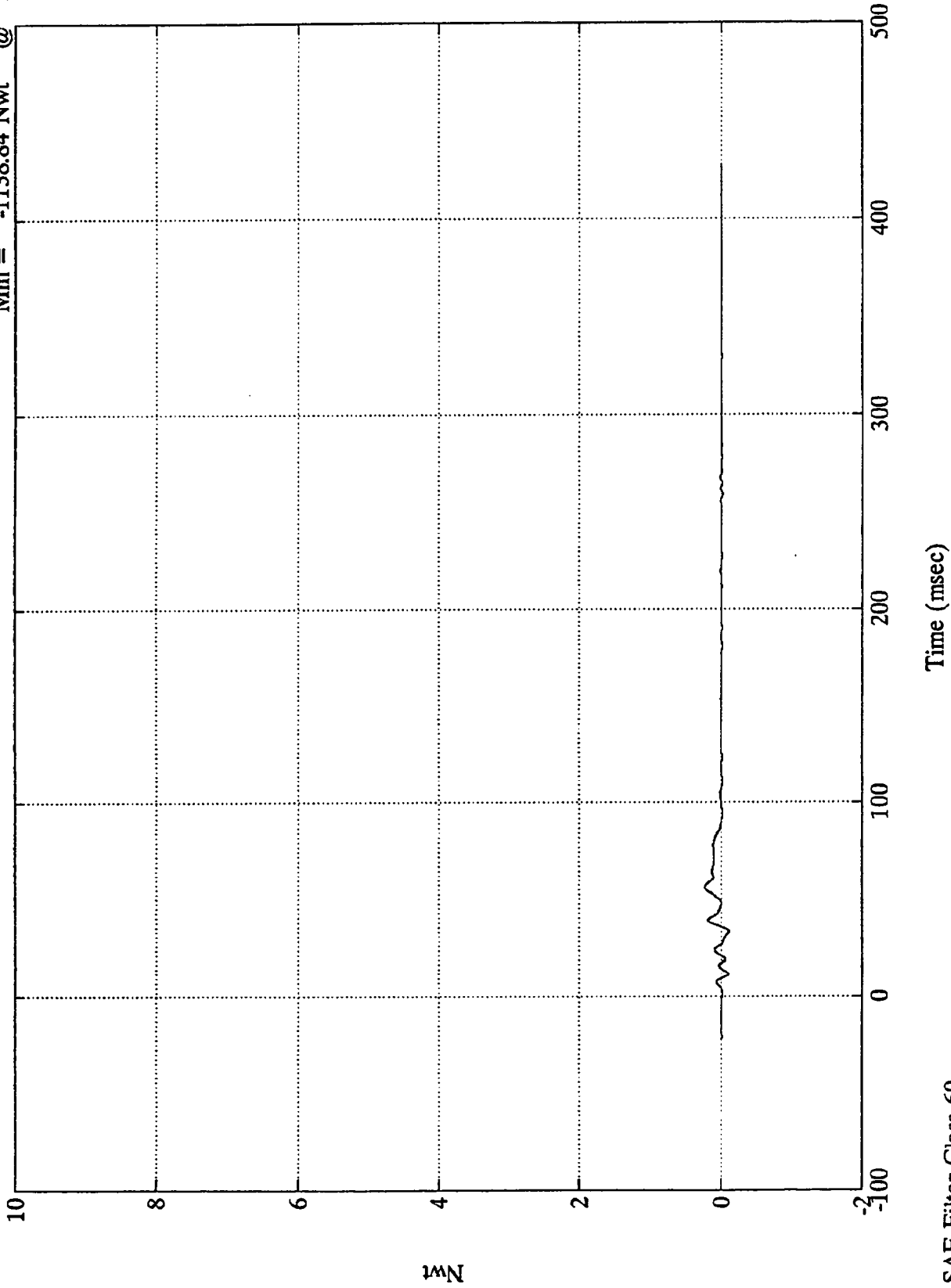
Max = 1000.64 Nwt @ 24.47 msec
Min = -920.47 Nwt @ 33.84 msec



SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell D4
Max = 2318.30 Nwt @ 56.76 msec
Min = -1138.84 Nwt @ 33.95 msec

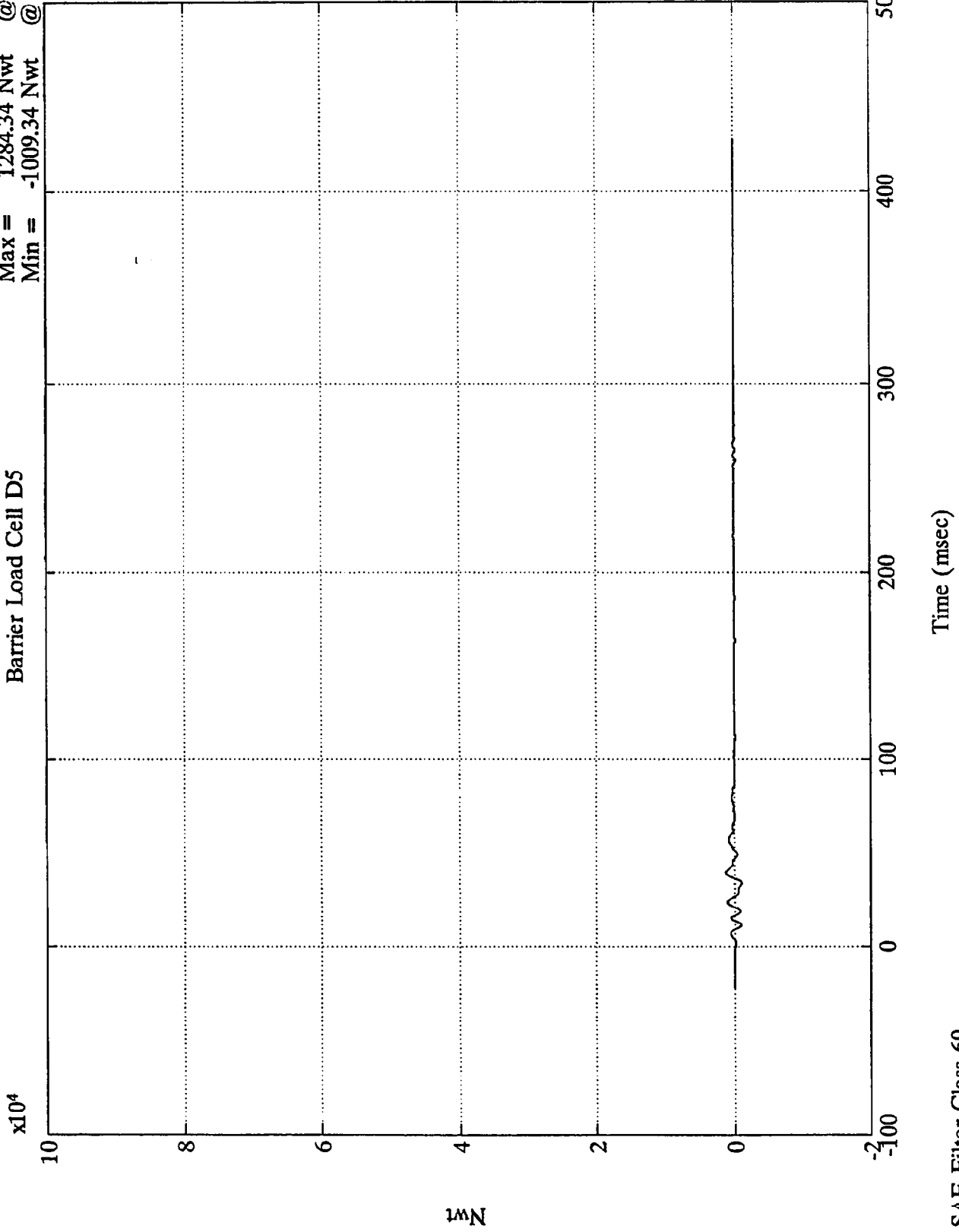


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell D5

Max = 1284.34 Nwt @ 39.59 msec
Min = -1009.34 Nwt @ 34.08 msec

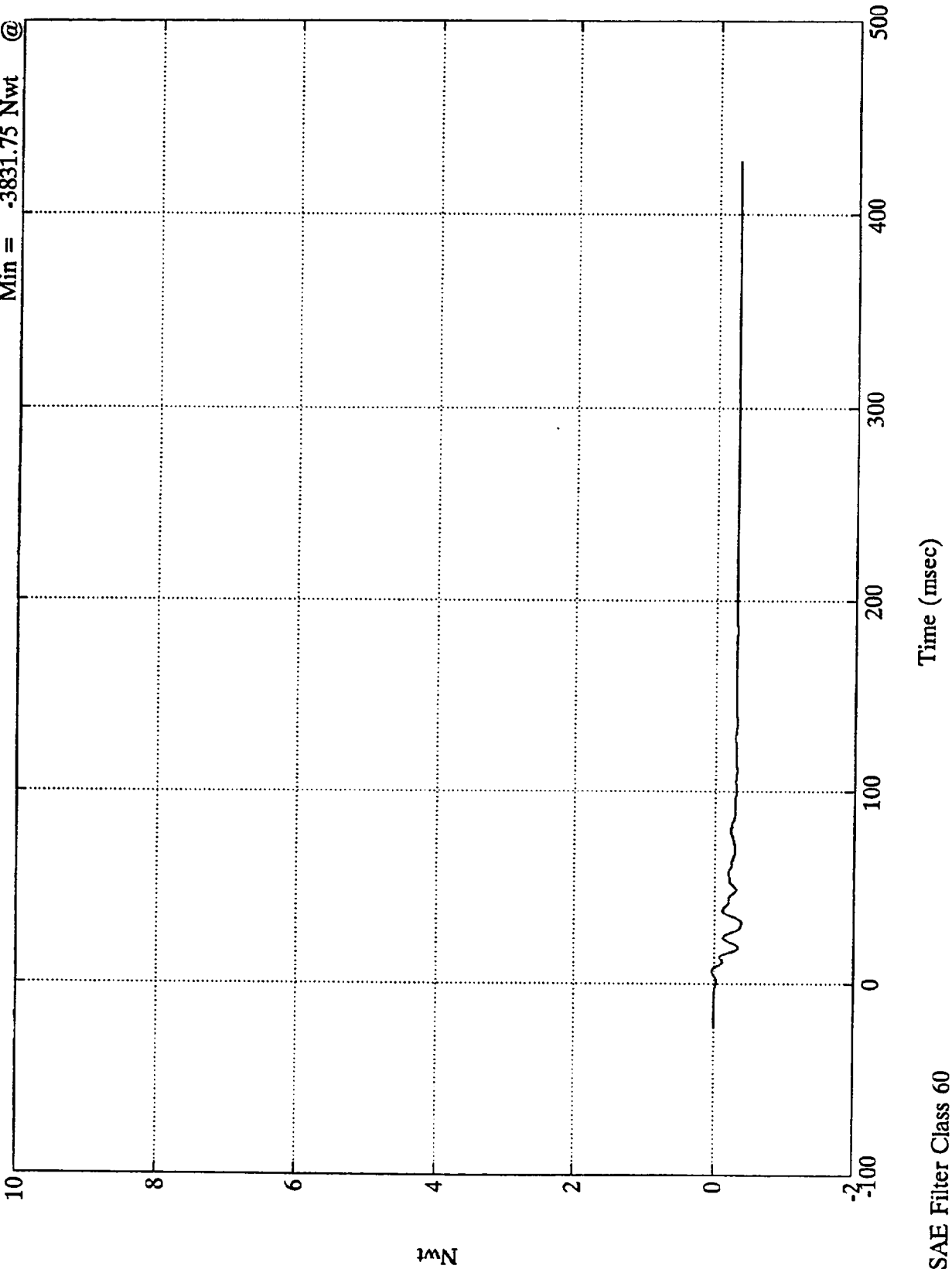


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell D6

Max = 395.70 Nwt @ 6.83 msec
Min = -3831.75 Nwt @ 32.15 msec

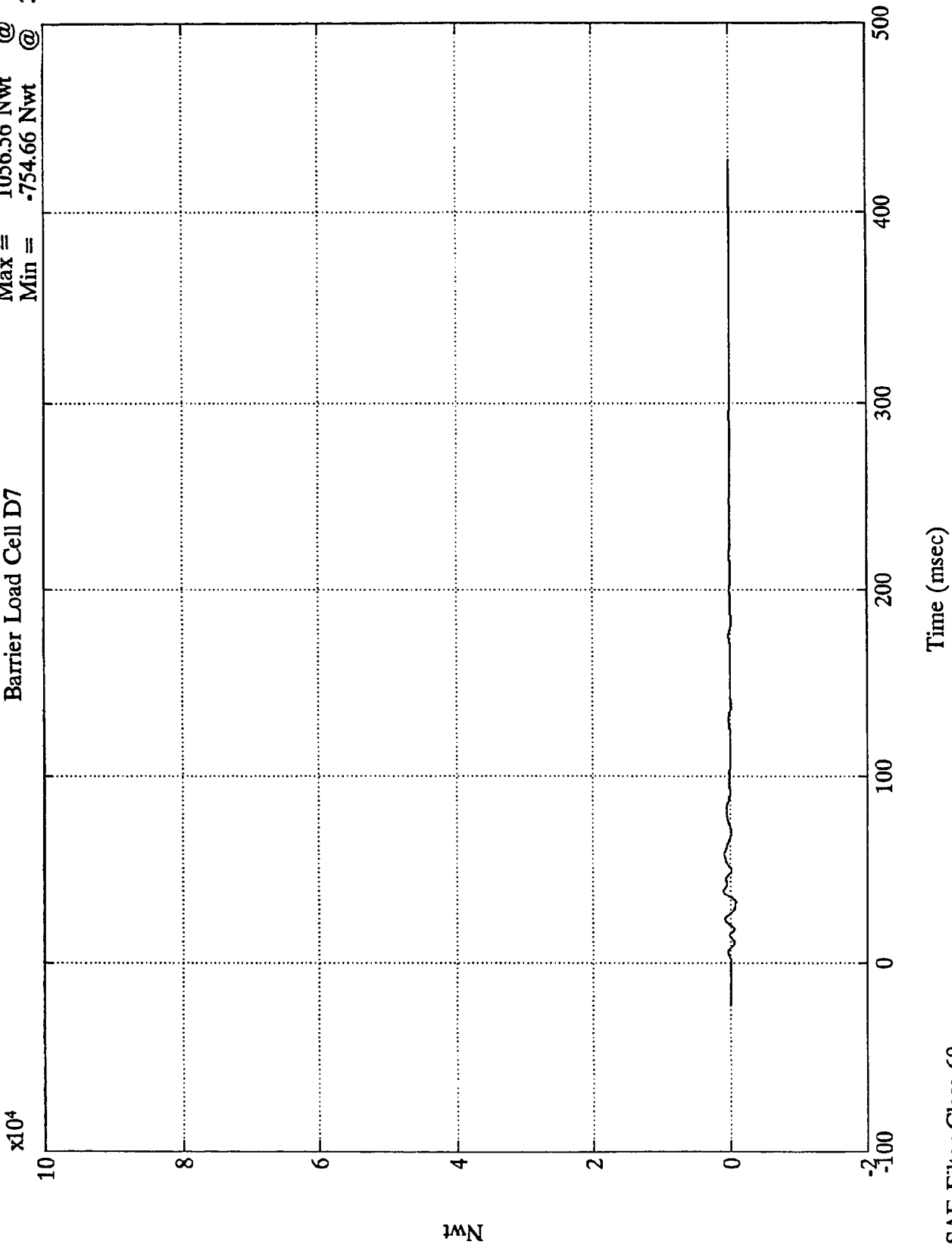


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell D7

Max = 1056.56 Nwt @ 38.27 msec
Min = -754.66 Nwt @ 32.63 msec



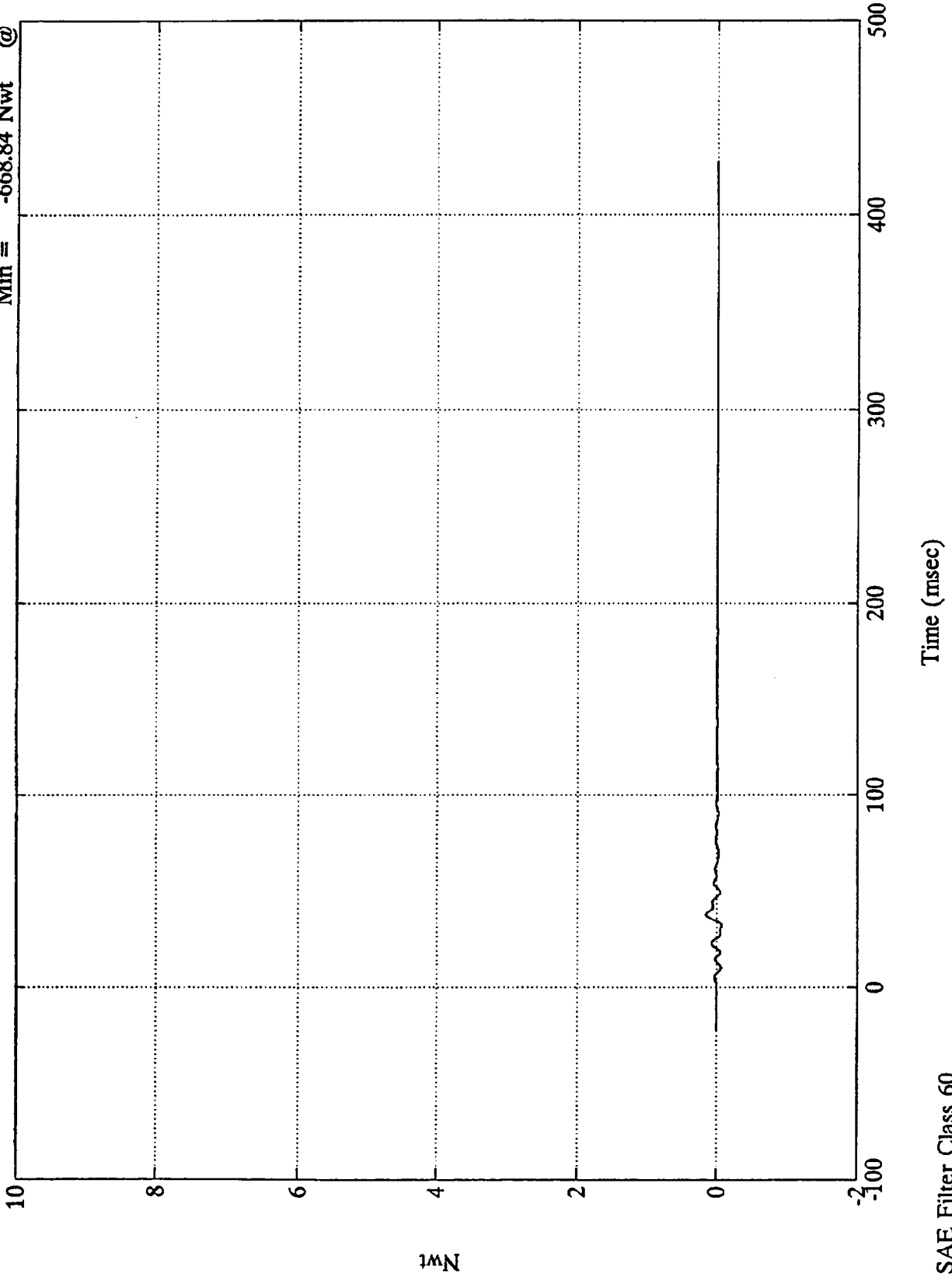
SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell D8

Max = 1584.80 Nwt @ 37.92 msec
Min = -668.84 Nwt @ 32.15 msec

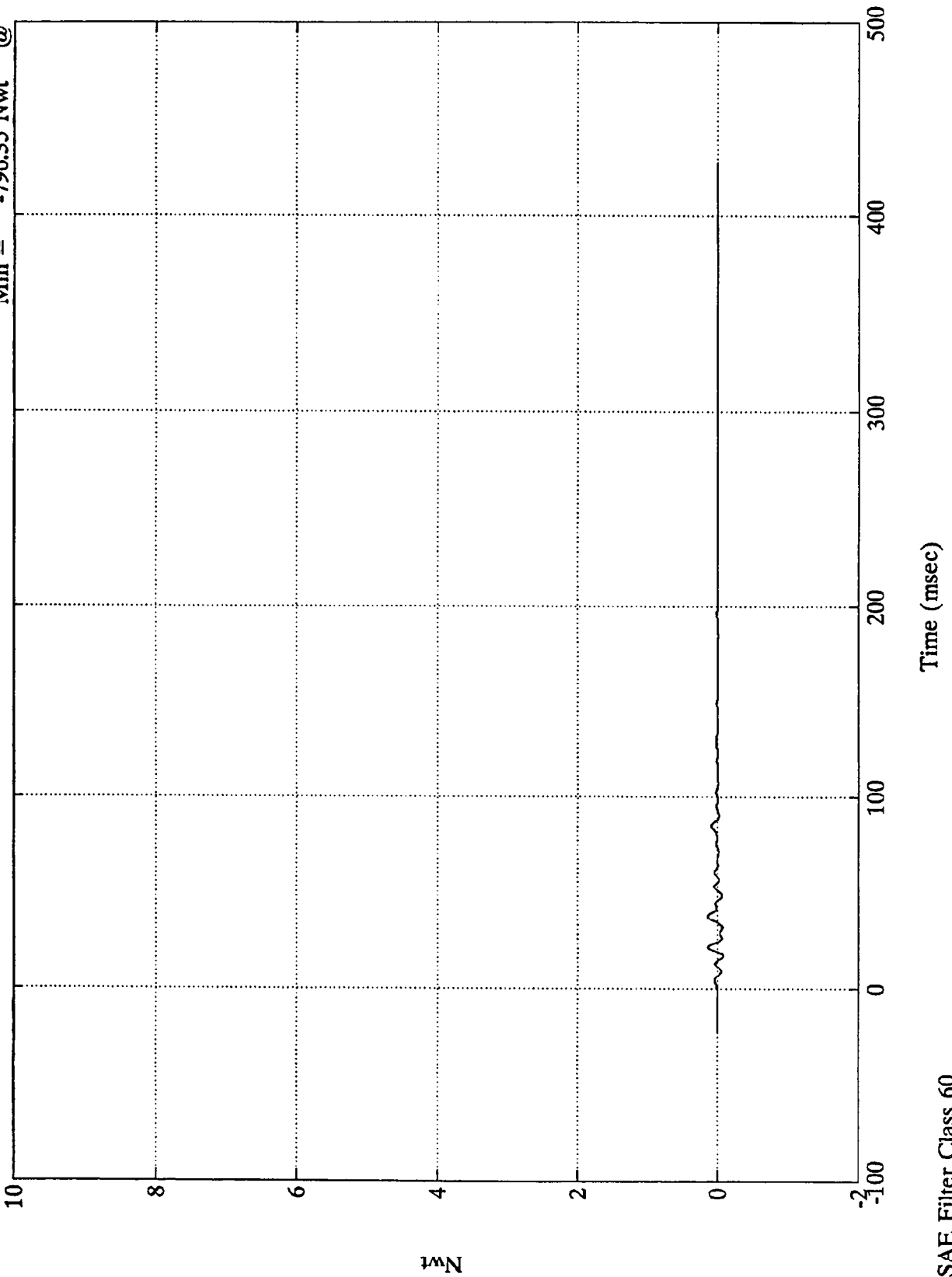
x10⁴



NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Barrier Load Cell D9

Max = 1423.33 Nwt @ 37.92 msec
Min = -796.35 Nwt @ 17.75 msec

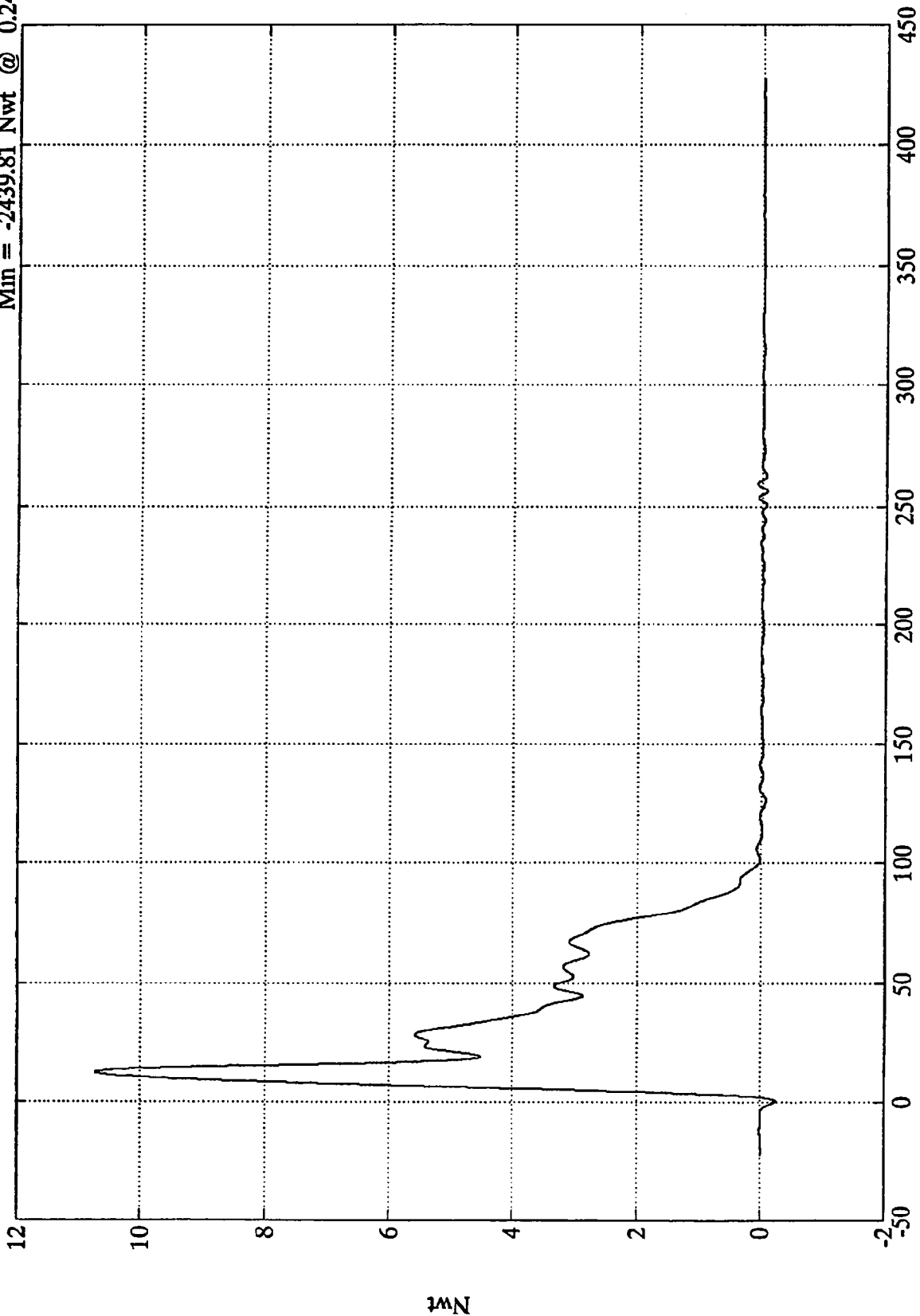


SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Group 1 Load Cell Sum

Max = 107226.07 Nwt @ 12.36 msec
Min = -2439.81 Nwt @ 0.24 msec



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

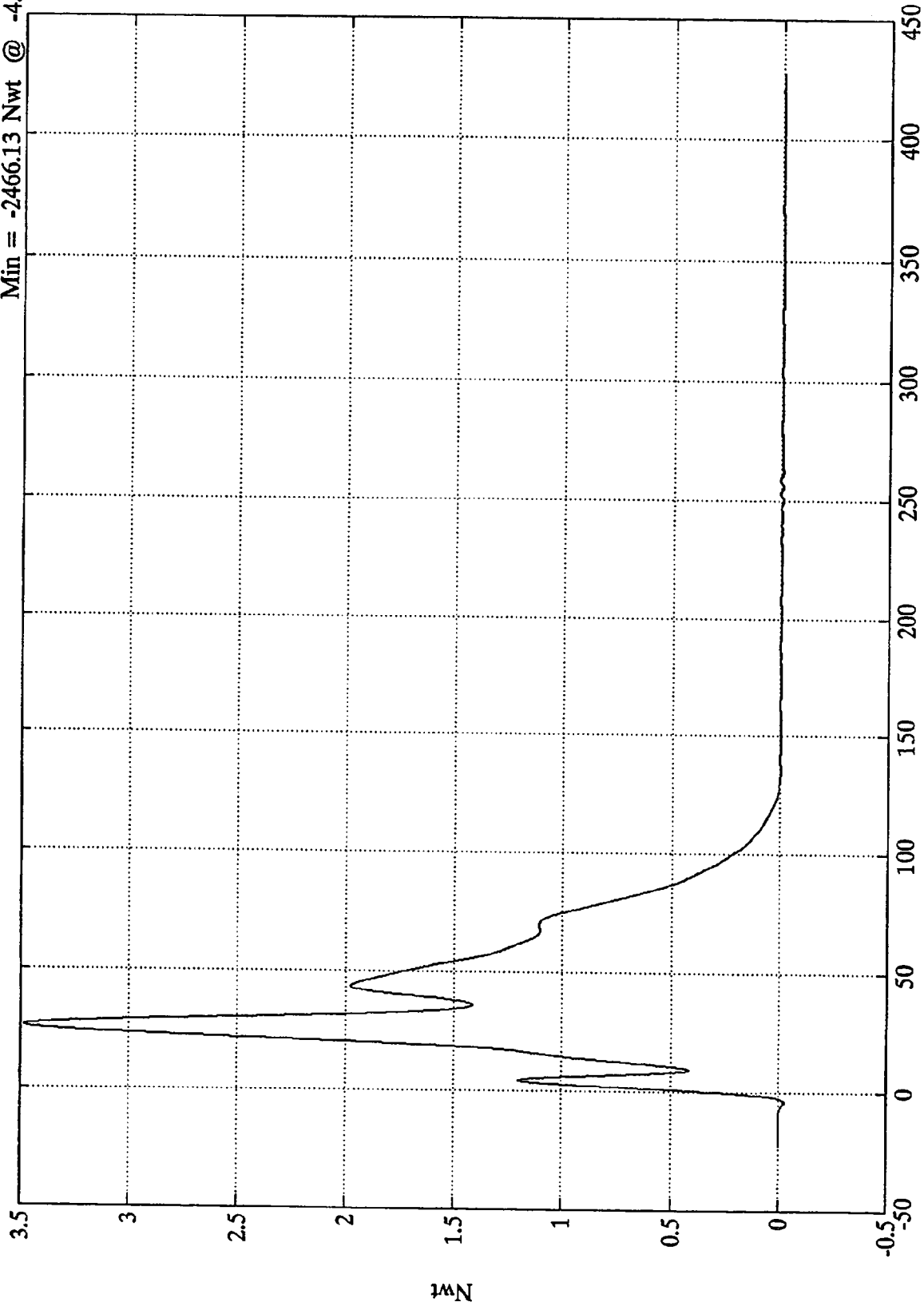
Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Group 2 Load Cell Sum

Max = 348701.00 Nwt @ 26.16 msec
Min = -2466.13 Nwt @ -4.08 msec



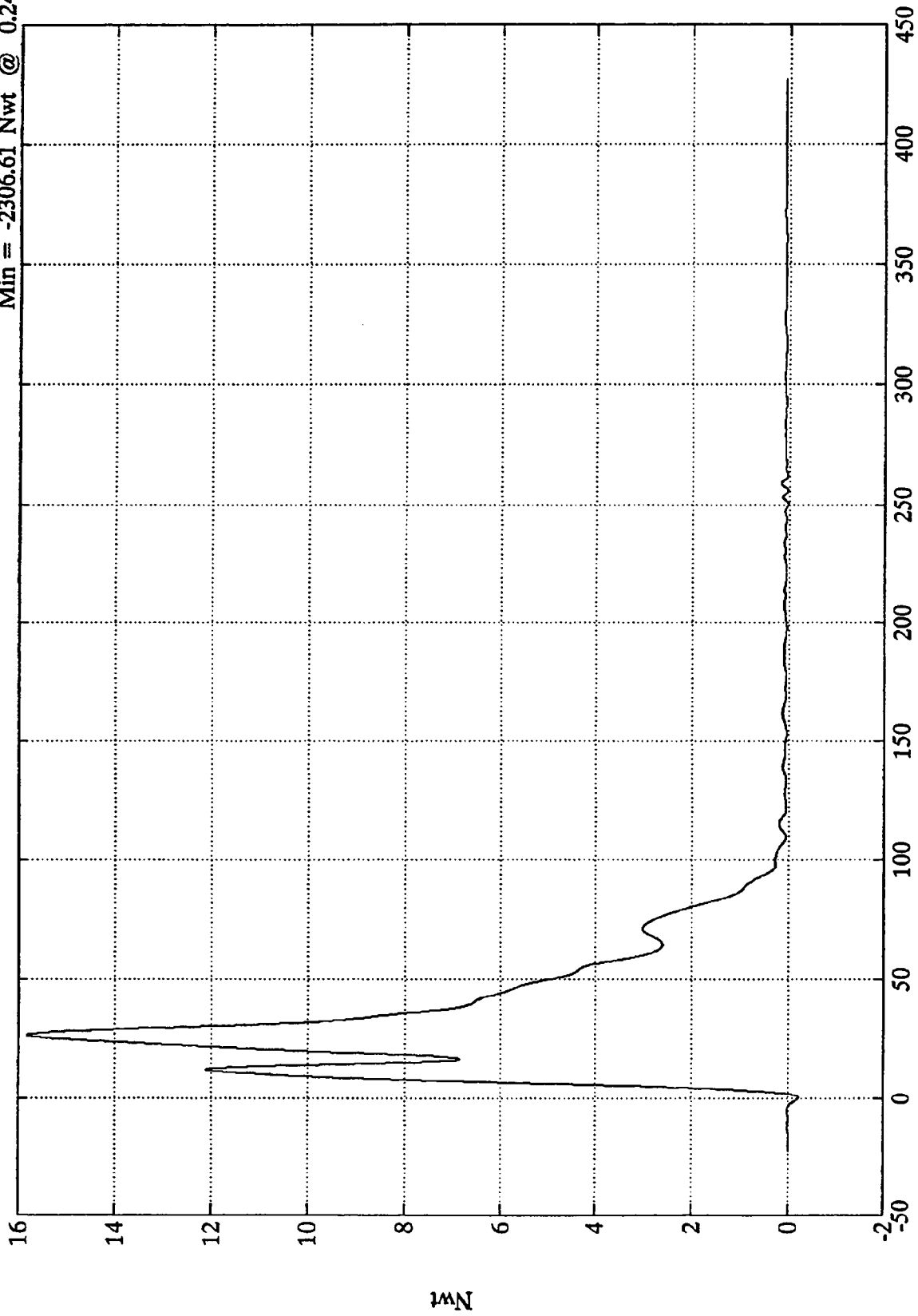
SAE Filter Class 60

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

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Group 3 Load Cell Sum

Max = 158188.58 Nwt @ 26.40 msec
Min = -2306.61 Nwt @ 0.24 msec



Time (msec)

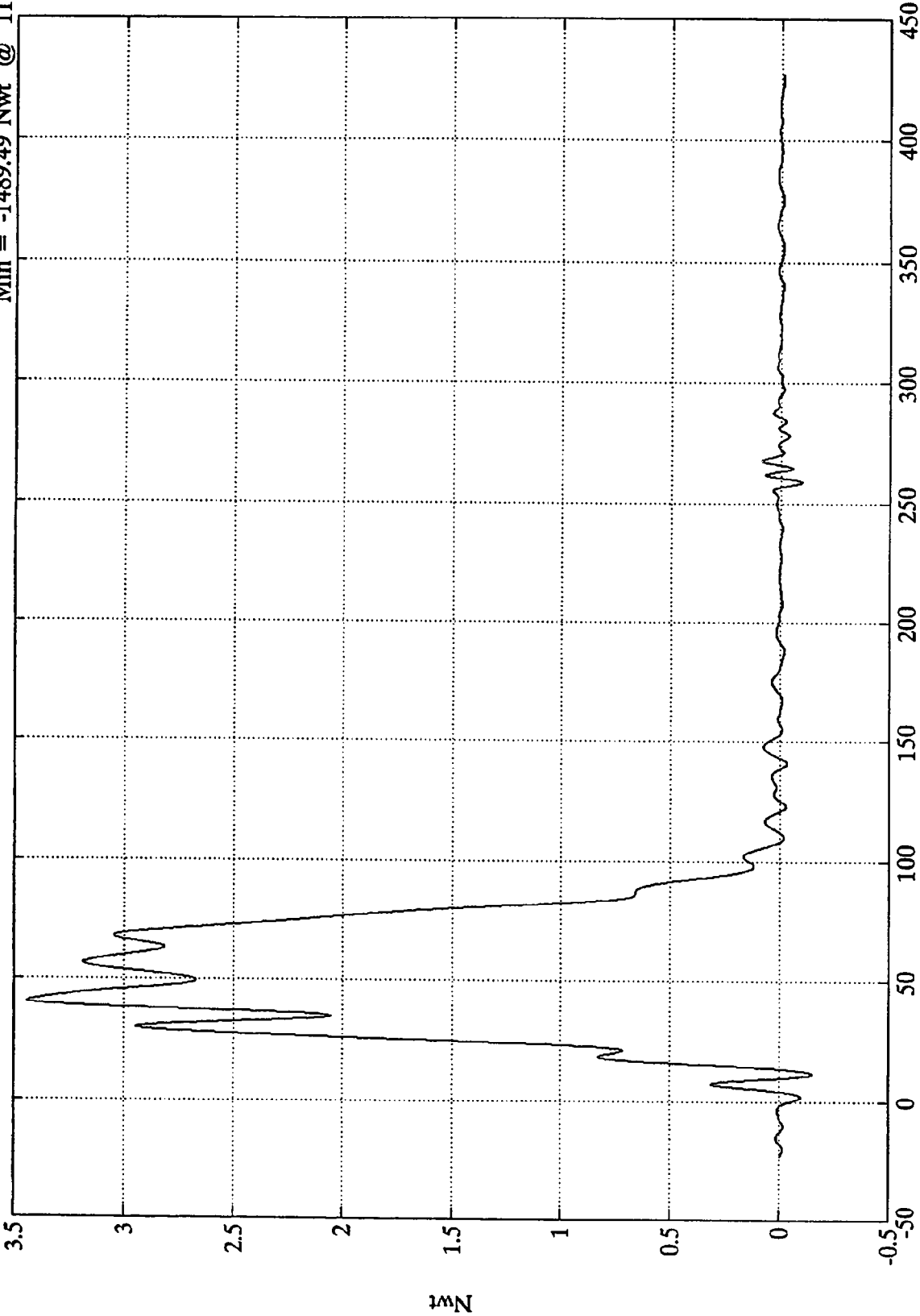
SAE Filter Class 60

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

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Group 4 Load Cell Sum

Max = 34411.60 Nwt @ 40.44 msec
Min = -1489.49 Nwt @ 11.52 msec



Time (msec)

SAE Filter Class 60

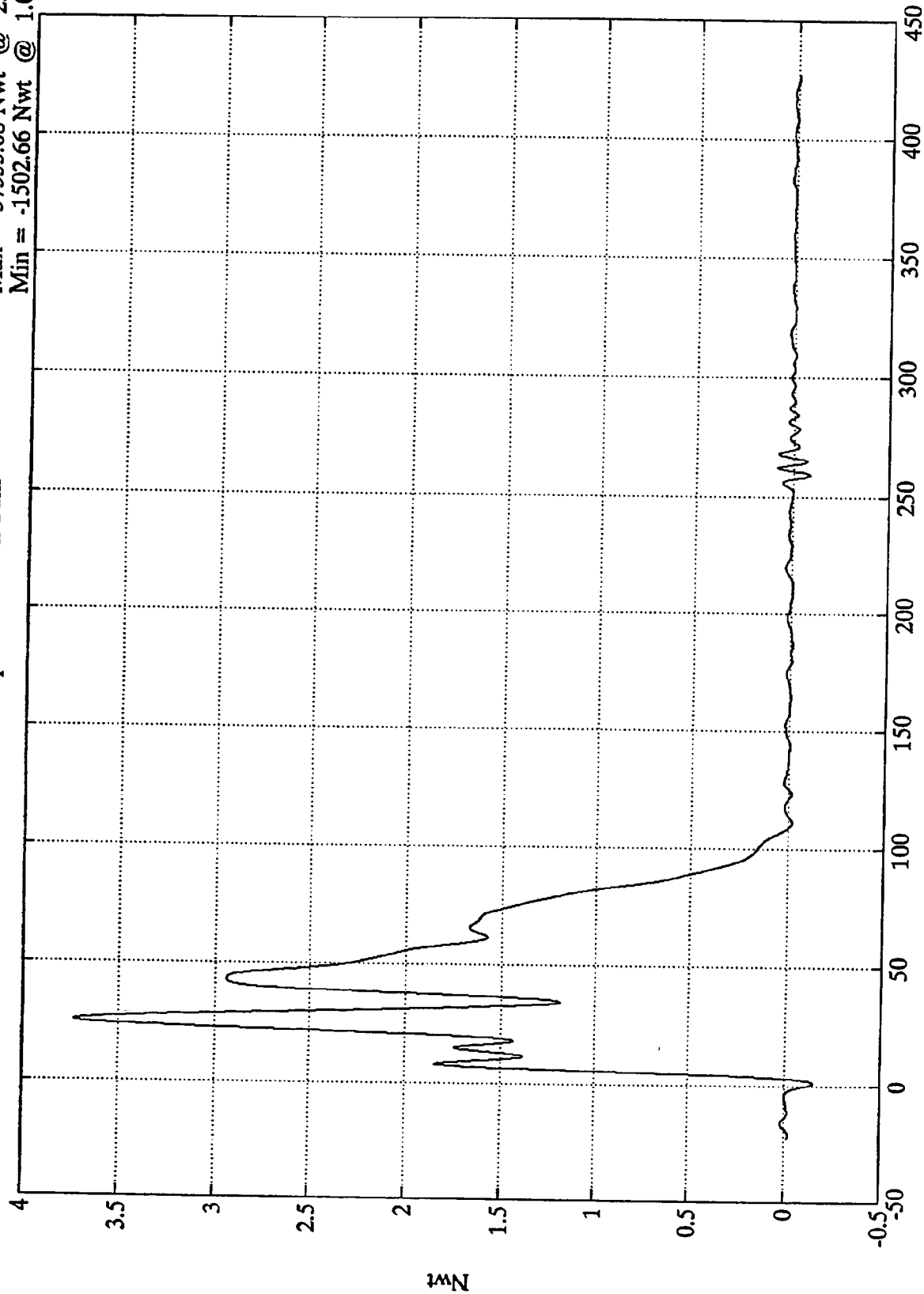
Load Cells (C1,C2,D1,D2,D3)not(C3)

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

x10⁴

Group 5 Load Cell Sum

Max = 37355.08 Nwt @ 25.20 msec
Min = -1502.66 Nwt @ 1.08 msec



SAE Filter Class 60

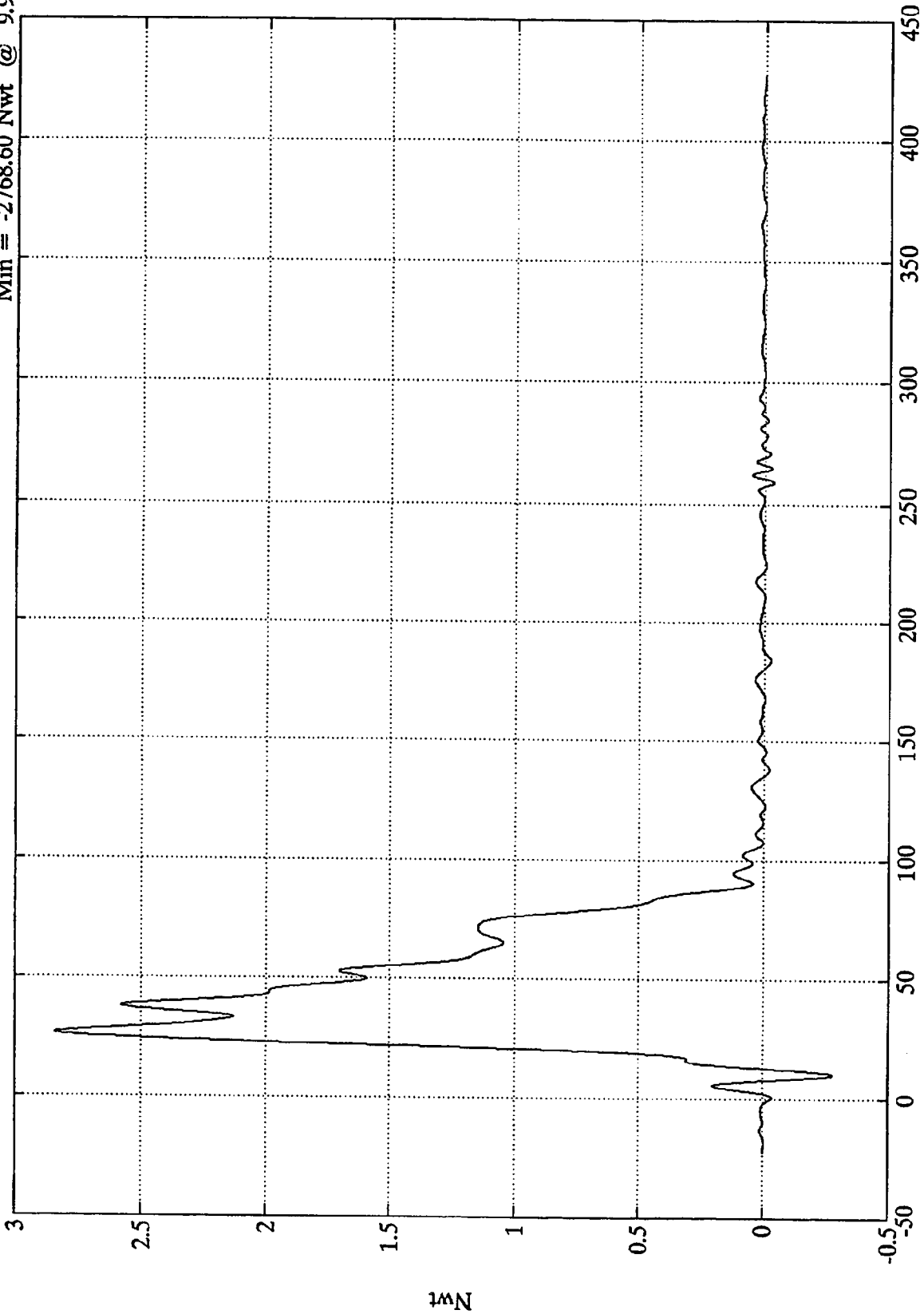
Time (msec)

Load Cells (C4,C5,C6,D4,D5)not D6

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

Group 6 Load Cell Sum

Max = 28398.74 Nwt @ 26.40 msec
Min = -2768.60 Nwt @ 9.96 msec



Time (msec)

SAE Filter Class 60

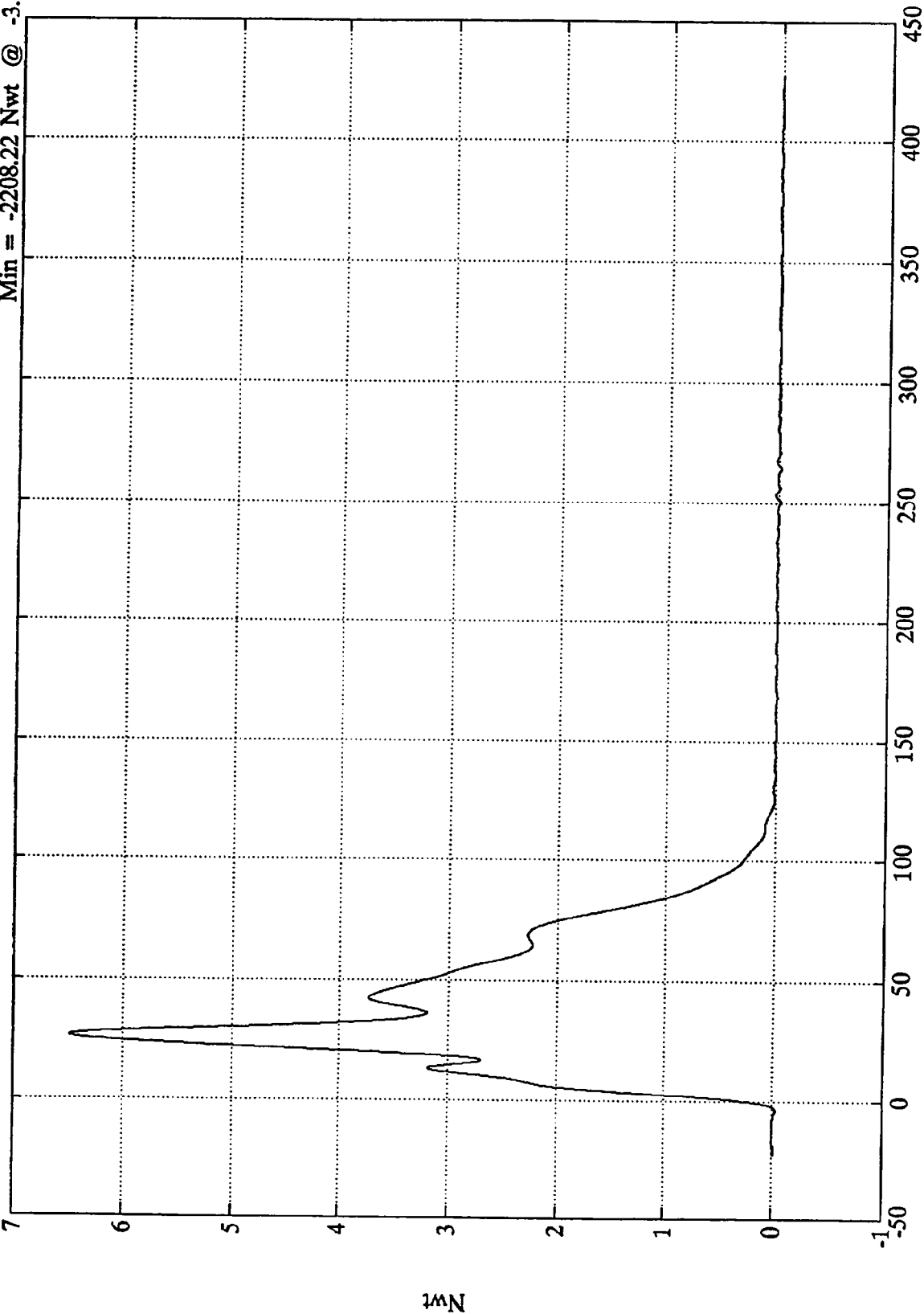
Load Cells (C7,C8,C9,D7,D8,D9)

NCAP TEST #8 - 1995 MITSUBISHI ECLIPSE

x10⁵

Total Load Cell Sum

Max = 648081.24 Nwt @ 26.40 msec
Min = -2208.22 Nwt @ -3.84 msec



SAE Filter Class 60

Time (msec)

Load Cell D6 Did Not Record



Appendix C
PART 572E 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:

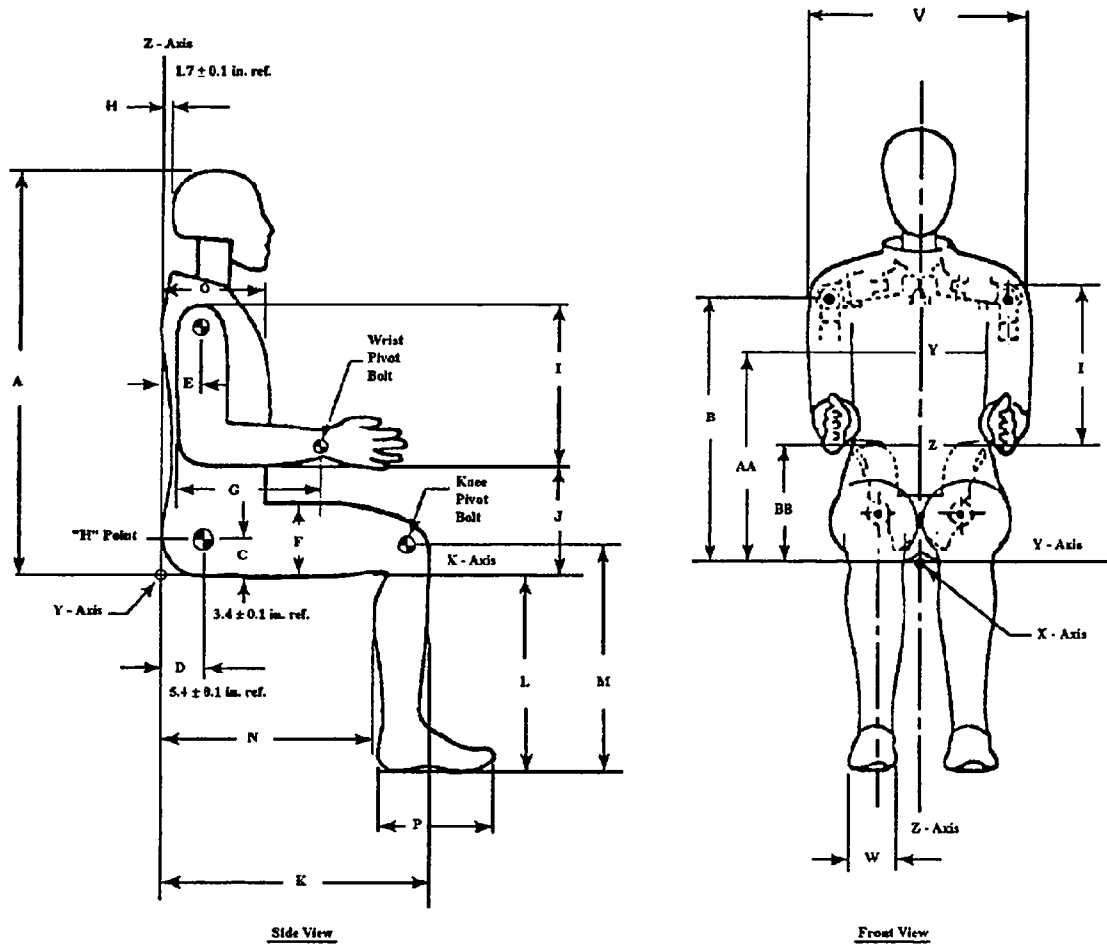
<u>Serial No.</u>	<u>Completion Date</u>
150	12-5-94
45	12-1-94

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



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.

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
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

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

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

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

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
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

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	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	F77	GSE	12/94	6/95
Left Femur Load Cell	F255	GSE	12/94	6/95
Neck Load Cell				
X	269	DENTON	8/94	2/95
Y	269	DENTON	8/94	2/95
Z	269	DENTON	8/94	2/95
Neck Moment				
X	269	DENTON	8/94	2/95
Y	269	DENTON	8/94	2/95
Z	269	DENTON	8/94	2/95
Chest Deflection Gauge	CPI150	HUMANOID	8/94	2/95
Hybrid III Use Only				
Lap Belt Load Cells	706	LEBOW	7/94	1/95
Shoulder Belt Load Cells	707	LEBOW	7/94	1/95
Spool-Out Potentiometer	--	SERVONIC INST.		
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)	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	11/94	5/95

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER 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	CP45	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
Spool-Out Potentiometer		SERVONIC INST.		
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	11/94	5/95
	Y	ENDEVCO	11/94	5/95
	Z	ENDEVCO	11/94	5/95

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	A70	CEC	8/94	2/95
Right Rear Seat Crossmember	A93	CEC	8/94	2/95
Top of Engine	A73	CEC	11/94	5/95
Bottom of Engine	A44	CEC	8/94	2/95
Left Disc Brake Caliper	A89	CEC	7/94	1/95
Right Disc Brake Caliper	A69	CEC	11/94	5/95
Instrument Panel	A143	CEC	11/94	5/95
Left Rear Crossmember	A189	CEC	11/94	5/95
Right Rear Crossmember	A157	CEC	8/94	5/95

Appendix E

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

Seat and seatbelt

Seat belts

ND06A-AF

Seat belts are installed in your car 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.

NOTE

Legislation in your state may require seat belt usage, but even if not required, they should always be 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 belt under the arm or otherwise 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 unbelt restraint system

ND06B-PA

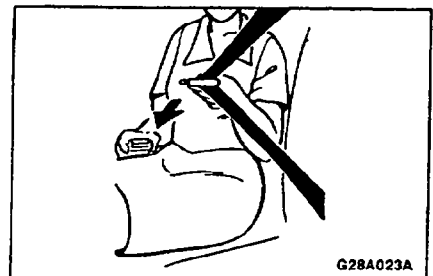
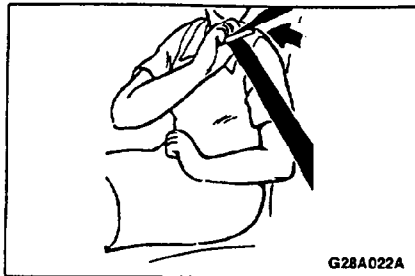
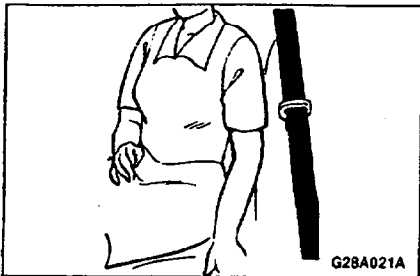
All seats are equipped with a UNIBELT system which uses a single belt and an emergency locking retractor.

This system is designed to provide comfort and safety by permitting full extension and automatic retraction of the belts during normal car operation. A sensing device inside the belt retractor is designed to lock the retractor in the event of an abrupt change in car motion.

NOTE

For instruction on how to install a child restraint system, see "Install a child restraint system with a UNIBELT" on page 32.

Seat and seatbelt



Unibelt instructions

ND06D-AF

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

WARNING!

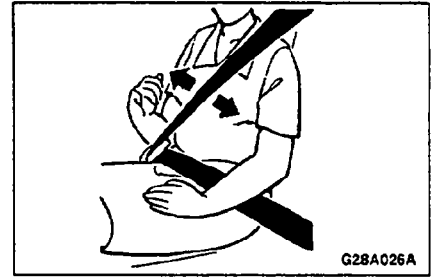
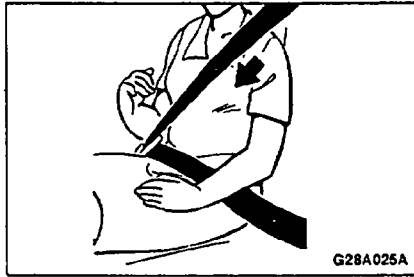
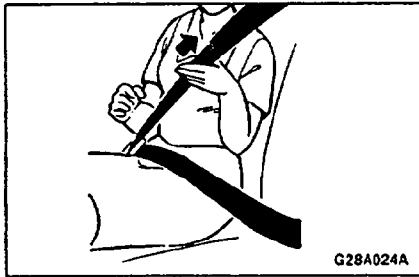
To minimize the risk of personal injury in the event of a collision or sudden stop, both the driver and passenger seatbacks should always be in a nearly upright position while the car is in motion.

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.

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.

Seat and seatbelt



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 safety and comfort.

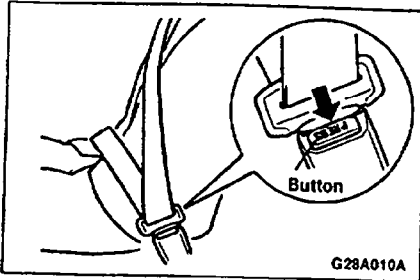
WARNING!

- (1) Be sure the seat belt portion fits snugly and as low as possible around the hips, not around the waist. Failure to do so may increase the chance or severity of injury in the event of a collision.
- (2) Wear the seat belt without twisting it.

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 inches or 8 inches webbing, let it return to your chest, and repeat the above motion.

6. The shoulder belt will allow unrestricted movement under normal conditions. The belt will lock in the event of an abrupt change in car motion.

Seat and seatbelt



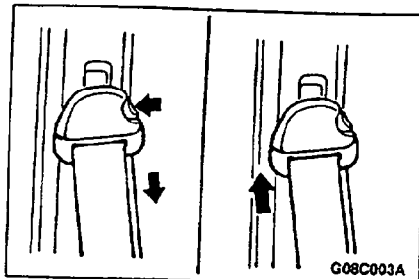
7. To release the belt, push the button on the buckle. To return the belt to its stowed position, pull the shoulder belt down slightly and release immediately.

NOTE

As the belt retracts automatically, keep the plate held while retracting so that the belt stows slowly.

WARNING!

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



Adjustable seat belt anchor (front seats)

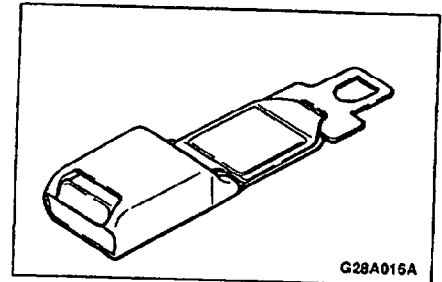
ND06E-C

The seat belt anchor height can be adjusted.

Move the seat belt anchor down with the lock knob depressed. To move the anchor up, slide it without depressing the lock knob.

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.



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 an accident.

Seat and seatbelt

Child restraint

ND06FWV

When transporting children in your car, 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 rear seat rather than in the front seat. Accordingly, Mitsubishi Motor Sales of America, Inc. recommends the child be restrained in the rear 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.**
- (3) **This car is also equipped with a passenger airbag. REAR-FACING INFANT SEATS SHOULD ONLY BE USED IN THE REAR SEAT. In rear-facing infant seats, the infant's head is closer to the passenger airbag. The force of the rapidly inflating airbag could push the top of the rear facing seat against the car seat back.**

Forward facing child seats used in the front seat must have the passenger seat moved as far back from the instrument panel as possible.

Infants and small children

For infants small enough for infant seats, an infant carrier should be used. For small children, a child seat should be used. Both types of seats are 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 car seat. For a higher degree of safety, **THE CHILD RESTRAINT SYSTEM SHOULD BE INSTALLED IN THE REAR SEAT.**

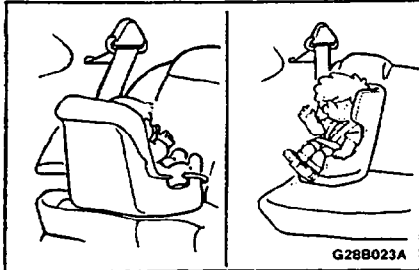
When installing a child restraint system, refer to the instructions provided by the manufacturer of the restraint system and follow the directions listed under the following illustrations. Failure to do so can result in severe or fatal injury to your child. When not in use keep your child or infant seat secured with the seat belt or remove it from the car in order to prevent injury to your child.

NOTE

Before purchasing a child seat or infant carrier, try installing it in the rear seat to ensure a good fit. Due to the location of the seat belt buckles in the seat cushion, it may be difficult to securely install some child restraint systems.

If the child restraint system can be pulled forward easily on the seat cushion after the belt has been tightened, choose another child restraint system.

Seat and seatbelt



Installing a child restraint system with a UNIBELT (Combination lap/shoulder belt)

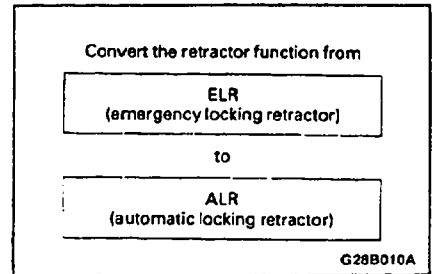
Accident statistics indicate that children are safer when properly restrained in the rear seat of a car rather than in the front seat. For this reason Mitsubishi Motor Sales of America Inc. recommends the child be restrained in the rear seat.

Installation

1. Place the child restraint system in the seating position as shown in the illustration.

WARNING!

- (1) **For safety, an infant carrier should face backward; a child seat should face forward.**
- (2) **Rear-facing infant seats must always be secured in the rear seat.**
- (3) **Forward facing child seats used in the front seat must have the passenger seat moved as far back from the instrument panel as possible.**



2. Pull the seat belt to its fully extended position. Hold the belt taut (extended) then, fasten the seat belt around or through the child restraint system according to the restraint manufacturer's instructions and insert the latch plate into the buckle. Check that the webbing is rolled up steadily to securely fix the restraint system.

When the belt is released, it will be in the proper ALR position. When the child restraint system is removed and the belt released to its retracted position, it will automatically revert to the ELR position.

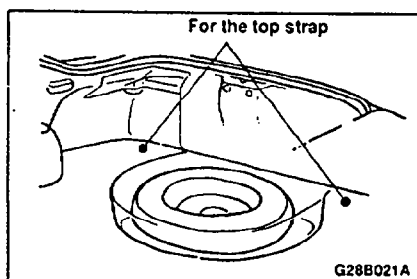
NOTE

After pulling the seat belt to its fully extended position, always release the belt to its fully retracted position. Otherwise, the seat belt will be locked, making it impossible to pull out the belt.

Seat and seatbelt

WARNING!

- (1) Be absolutely sure to make the conversion of the retractor from the ELR function to the ALR function. By doing so, the child restraints system is always tightly secured to the seat by the automatic lock. If the conversion to ALR is not made, the infant carrier or child seat will move forward in the event of sudden braking or an accident.
- (2) Follow the infant carrier manufacturer's installation instructions for attaching the child restraint system to the seat belt. Be sure the seat belt is not twisted.



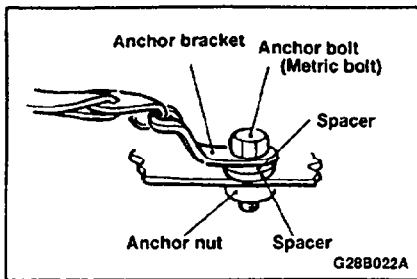
Anchors for the child restraint system

If you choose to use a top-strap-equipped child restraint in the rear seat, ask your dealer how to attach it. Your car is provided with the anchors to secure the top strap of a child restraint system. If your child seat has a top strap, observe the following.

⚠ CAUTION

- (1) Be sure to attach the top strap in the installation position for the anchor bracket as shown in the figure.
- (2) Be particularly careful not to use the anchor bracket for the parcel strap.
- (3) Use the top strap anchor bolt (metric) that is attached to the vehicle.
Do not use the anchor bolt provided with the child-restraint system.

Seat and seatbelt



Hook the top strap to the anchor bracket and tighten the top strap.

WARNING!

After installation, shake the child seat back and forth, and side to side to see that it is positively secured. If the child restraint system is not restrained securely, it may cause injury to the child in case of car accident and sudden stops.

Children who have outgrown child restraint

Children who have outgrown a child restraint system should be seated in the rear seat and wear the combination UNI-BELT.

If the shoulder belt crosses the face or neck, a child restraint system should be used according to the size of the child.

WARNING!

- (1) Children who are not buckled up can strike other people who are, or be thrown out of the vehicle in the event of an accident.
- (2) A child should never be left unattended in your car. When you leave the car, take the child out as well.

Pregnant woman restraint

ND06G-E

WARNING!

Mitsubishi Motor Sales of America, Inc. recommends that pregnant women use the available shoulder and seat belts. This will reduce the likelihood of injury to both the woman and the unborn child. The seat belt should be worn across the thighs and as snug against the hips as possible, but not across the waist. The woman's doctor should be consulted if there are any questions.

Seat and seatbelt

Maintenance and inspection of seat belts

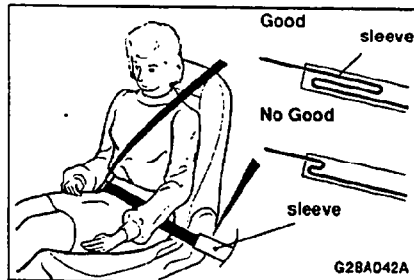
ND06H-GB

The webbing used in belts may be cleaned with a hydrocarbon dry cleaner or with soap or detergent in water.

Do not attempt to bleach or re-dye belts. The resulting color may rub off and webbing strength could be affected.

Regularly check seat belt buckles and release mechanisms for positive action and automatic locking retractors for positive engagement.

Check that the anchor mounting bolts are tight. If the seat belt webbing shows obvious cuts, protruding broken fibers causing a local increase in webbing thickness, or severe fading which indicates weakening by exposure to sunlight, the seat belt should be replaced.



The lap belt portions of the front seat belts has on it a sleeve inside which the seat belt webbing is folded back over itself in a loop. This allows it to absorb the energy of a shock by pulling loose, and releasing slack. In the event that the loop inside the sleeve has come loose, replace the seat belt.

WARNING!

All seat belt assemblies including retractors and attaching hardware should be inspected by an authorized dealer after any collision. We recommend that all seat belt assemblies in use during a collision be replaced unless the collision was minor and the belts show no damage and continue to operate properly.

Do not attempt to repair or replace any part of the seat belt assemblies; that work should be done by an authorized dealer. Failure to have an authorized dealer perform the work could reduce the effectiveness of the belts and could result in serious injury in the event of a collision.

Seat and seatbelt

Supplemental restraint system (SRS)

ND10A-BA

This car is equipped with a Supplemental Restraint System (SRS) which includes driver and front passenger air bags.

The SRS is designed to supplement the seat belts to provide those occupants with protection against head and chest injuries in certain moderate to severe frontal collisions.

The SRS is NOT a substitute for the seat belts; seat belt should ALWAYS be worn.

WARNING!

IT IS VERY IMPORTANT TO ALWAYS WEAR YOUR SEAT BELT, EVEN WITH AN AIR BAG:

- (1) Seat belts help keep the driver and front passenger properly positioned when the air bag inflates.
- (2) Seat belts reduce the risk of injury in rollovers, side or rear impact collisions, and in lower-speed frontal collisions, because the air bag is not designed to inflate in those situations.
- (3) Seat belts reduce the risk of being thrown from your vehicle in a collision.

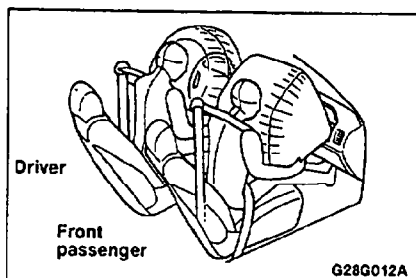
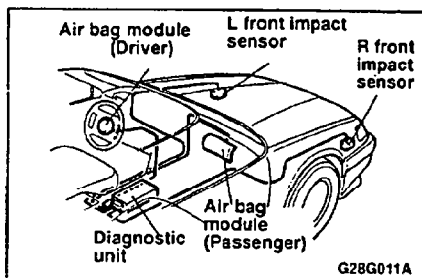
WARNING!

IT IS VERY IMPORTANT TO BE PROPERLY SEATED, EVEN WITH AN AIR BAG:

- (1) Air bags inflate very fast, and with great force.
If you are not properly seated, the air bag may not protect you properly, and could cause injury when deployed.
- (2) Before driving, adjust the driver's seat as far back as possible while still maintaining complete control of the car.
- (3) Before driving, adjust the passenger seat as far back as possible.
- (4) With your seat belt properly fastened, sit in an upright position, with your back against the seat back.
- (5) Do not lean with your head or chest close to the steering wheel or instrument panel.
- (6) Infants and small children should be properly seated in a child restraint system. See the "Child Restraints" section of this owner's manual.

- **REAR- FACING CHILD RESTRAINTS** must NOT be used in the front seat of this car, because the force of an inflating passenger air bag could push that restraint into the seat back, causing serious injury. Rear-facing child restraints should only be used in the rear seat.
- **FRONT- FACING CHILD RESTRAINTS** should be used in the rear seat whenever possible; if used in the front seat, adjust the seat as far back as possible.

Seat and seatbelt



How the supplement a restraint system works

ND10B-CA

The SRS includes the following components:

- Impact sensors
- Diagnostic unit
- SRS warning light
- Air bag modules
- Interconnecting wiring

Air bag system

The driver's air bag is located under the padded cover in the middle of the steering wheel. The front passenger air bag is contained in the instrument panel above the glove compartment.

The air bags are designed to inflate only in severe frontal collision.

The air bags are not designed to inflate in certain lower-speed frontal collisions, in roll-overs, or in side or rear impact collisions. When the impact sensors detect an impact of sufficient frontal force, their switches close a circuit which ignites materials in the inflator to generate nitrogen gas and inflate the air bags.

The air bags deflate very rapidly after deployment, so there is little danger of obscured vision.

The air bag deployment produces a sudden, fairly loud noise, and releases some smoke and powder, but these conditions are not injurious, and do not indicate a fire in the car. Mild discomfort may result from the deployment of the air bag due to the sudden inflation of the device.

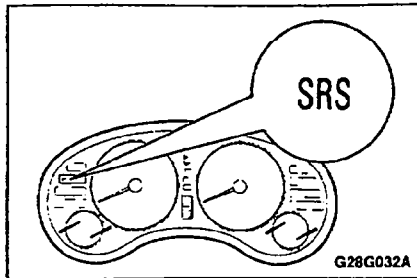
The driver air bag and the front passenger air bag are designed to inflate at the same time. Air bags may not inflate in certain frontal collisions, even though the car may be severely damaged.

Such non-inflation does not mean that something is wrong with the SRS system, but rather that the collision forces were not severe enough to activate it.

Seat and seatbelt

WARNING!

- (1) Do not attach anything to the steering wheel padded cover, such as trim material, badges, etc.. It might injure the driver if the air bag inflates.
- (2) Do not set anything on, or attach anything to the instrument panel above the glove compartment. It might injure the passenger if the air bag inflates.
- (3) Do not attach accessories to or put them in front of the windshield.
These objects could restrict air bag inflation or be hurled against an occupant and cause serious injury.
- (4) Following the air bag inflation, several air bag system components will be hot. Do not touch them after inflation.
- (5) The SRS system is designed to work only once. After the air bags deploy, they will not work again.
They must promptly be replaced, and the entire SRS system inspected, by an authorized dealer.



SRS warning light

There is a supplemental restraint system ("SRS") warning light on the instrument panel. The system checks itself and the light tells you if there is a problem. When the ignition key is turned to the "ON" or "START" position, the warning light should illuminate for about 7 seconds and then should go out. This means the system is ready.

WARNING!

If any of following conditions occur, the SRS is not working properly, and you should immediately have it inspected by an authorized dealer:

- The SRS warning light does not illuminate when you start the car.
- The SRS warning light does not go off after about 7 seconds.
- The SRS warning light illuminates while driving.

Seat and seatbelt

SRS servicing

ND10C-C

The entire SRS system must be inspected by an authorized dealer 10 years after the car manufacture date shown on the certification label located on the center pillar on the driver's side.

WARNING!

(1) Any maintenance performed on or near the components of the SRS must be performed only by an authorized dealer.

Do not permit anyone else to do service, inspection, maintenance or repair on any SRS components or wiring, similarly, no part of the SRS system should ever be handled or disposed of by anyone except an authorized dealer.

Improper work on the SRS components or wiring could result in inadvertent deployment of the air bags, or could render the SRS system inoperative; either situation could result in serious injury.

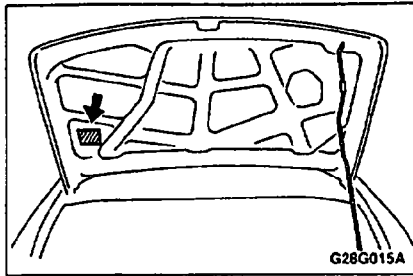
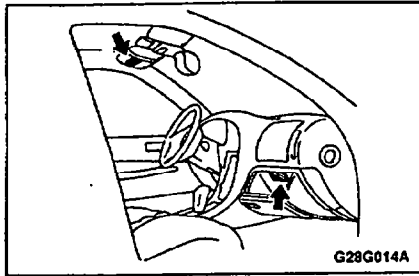
(2) Do not modify your steering wheel or any other SRS components. For example, replacement of the steering wheel, or modifications to the front bumper or body structure can adversely affect SRS performance and lead to possible injury.

(3) If your car has received any front-end damage, you should have the SRS system inspected by an authorized dealer to ensure it is in proper working order.

NOTE

- (1) When you transfer ownership of the car to some other person, we urge you to alert the new owner that it is equipped with the SRS system and refer that owner to the applicable section in this owner's manual.
- (2) If you junk or scrap the car, we urge you to first take the car to an authorized dealer so that the SRS system can be rendered safe.

Seat and seatbelt



Service and information label

Service and information labels are attached as shown in the illustration.