

REPORT NUMBER: CAL-95-N13

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

**CHRYSLER CORPORATION
1995 DODGE STRATUS ES
4-DOOR SEDAN**

NHTSA NUMBER: MS0303

CALSPAN TEST NUMBER: 8227-13

February 21, 1995

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FINAL REPORT

PREPARED FOR:

U. S. Department of Transportation
National Highway Traffic Safety Administration
Office of Market Incentives
400 Seventh Street, S. W.
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Washington, DC 20590

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MAY 31 1995

Date of Report Acceptance

Has Chan
Contracting Officer's Tech. Rep. (COTR)

MAY 31 1995

Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1. <i>Report No.</i> CAL-95-N13	2. <i>Government Accession No.</i>	3. <i>Recipient's Catalog No.</i>	
4. <i>Title and Subtitle</i> NHTSA New Car Assessment Program (NCAP) Frontal Barrier Impact Test of a 1995 Dodge Stratus ES 4-Door Sedan		5. <i>Report Date</i> February 21, 1995	
		6. <i>Performing Organization Code</i> CAL	
7. <i>Author(s)</i> Michael J. Kilgallon, Project Engineer David J. Travale, Program Manager Report prepared by: Cathryn A. Harrower		8. <i>Performing Organization Report No.</i> 8227-13	
9. <i>Performing Organization Name and Address</i> Calspan Advanced Technology Center 4455 Genesee Street Buffalo, New York 14225		10. <i>Work Unit No.</i> X069-13-1495	
		11. <i>Contract or Grant No.</i> DTNH22-90-D-02121	
12. <i>Sponsoring Agency Name and Address</i> U.S. Department of Transportation National Highway Traffic Safety Administration 400 Seventh , S.W. Washington, D.C. 20590		13. <i>Type of Report and Period Covered</i> Final Report February - March 1995	
		14. <i>Sponsoring Agency Code</i> DOT/NHTSA/RM/OMI	
15. <i>Supplementary Notes</i>			
16. <i>Abstract</i> A frontal load cell barrier test of a 1995 Dodge Stratus ES 4-Door Sedan was performed at Calspan Advanced Technology Center crash test facility in Buffalo, New York, on February 21, 1995. The impact velocity was 56.9 kph and the temperature at the barrier face was 21°C. The maximum post-test vehicle crash was 515 mm. The test vehicle was equipped with a 3-point continuous belt system at each of the front outboard seating positions. The test vehicle was also equipped with supplemental airbags at each of the front outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" the driver appears to exceed the maximum 3 millisecond chest resultant. Passenger head and chest data is not available.			
17. <i>Key Words</i>		18. <i>Distribution Statement</i> <u>Copies of this report are available from:</u> Technical Reference Division National Highway Traffic Safety Admin. Nassif Building, Room 5108 400 Seventh St., S.W., Washington, DC 20590	
19. <i>Security Classif. (of this report)</i> UNCLASSIFIED	20. <i>Security Classif. (of this page)</i> UNCLASSIFIED	21. <i>No. of Pages</i>	22. <i>Price</i>

Form DOT F1700.7 (8-69)

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Section 1

PURPOSE AND TEST PROCEDURE

This 56.9 kph frontal barrier impact test is part of the Composite FY 92 Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-90-D-02121. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 48.3 kph requirements.

The 56.9 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 MS0303

A load cell barrier consisting of 36 load cells was impacted by a 1995 Dodge Stratus ES 4-Door Sedan at a velocity of 56.9 kph. The test was performed at the Calspan Corporation Advanced Technology Center on February 21, 1995. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

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

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

Both ATDs were fully instrumented with head and chest triaxial accelerometers and right/left femur load cells. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver ATD (Serial No. 150) and the right-front passenger ATD (Serial No. 45) were used in one previous test (MS0107). Injury criteria were not exceeded in test MS0107. 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. Accelerometer #4 - Engine Bottom is not accurate after 50 msec. Accelerometer #6 - Left Disc Brake is not accurate after 50 msec.

The driver's HIC was 857.7. The maximum chest deceleration over 3 milliseconds was 61.0 g's and maximum chest deflection was 34.1 mm. Femur loads were -4234.7 newtons on the left femur and -5352.7 newtons on the right femur.

The right front passenger's head and chest data is not available. The maximum chest deflection was -31.8 mm. Femur loads were -5307.3 newtons on the left and 5993.4 newtons on the right.

Table 1

GENERAL TEST AND VEHICLE DATA

Vehicle Year/Make/Model/Body Style: 1995 Dodge Stratus ES 4-Door Sedan

NHTSA Test No.: MS0303 VIN.: 1B3EJ56H9SN528687

Body Color: Red Date of Manufacture: 12/94

Date Received: 1/25/95

Odometer Reading: 00329

Engine: 6 Cylinders; - C.I.D.; 2.5 Liters; - CC
X Gas; - Diesel; - Turbocharged
- Longitudinal; X Transverse

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

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

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

Type of Occupant Restraint: 3-point restraint system with supplemental driver and passenger airbags.

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): Front 300 kPa, Rear 300 kPa

Recommended Tire Size: P195/65 R15

Recommended Cold Tire Pressure: Front 210 kPa, Rear 210 kPa

Tires on Vehicle: P195/65 R15 Manufacturer: Michelin

Number of Occupants: 2 Front; 3 Rear; - 3rd Seat; 5 TOTAL

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

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

Vehicle Capacity Weight (VCW) = 392 kgs. (A)

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

Rated Cargo and Luggage Weight (RCLW) A-B = 52 kgs.

GVWR 1851 kgs. GAWR: Front 1039 kgs. Rear 847 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>443</u>	kgs.	Right Rear	=	<u>261</u>	kgs.
Left Front	=	<u>458</u>	kgs.	Left Rear	=	<u>264</u>	kgs.
TOTAL FRONT WEIGHT	=	<u>901</u>	kgs.	(<u>63</u> % of Total Vehicle Weight)			
TOTAL REAR WEIGHT	=	<u>525</u>	kgs.	(<u>37</u> % of Total Vehicle Weight)			
TOTAL DELIVERED WEIGHT	=	<u>1,426</u>	kgs.				

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight	<u>1426</u>	kgs.
VCW = Vehicle Capacity Weight	<u>392</u>	kgs.
DSC = Designated Seating Capacity	<u>5</u>	
RCLW = VCW - 68 (DSC) =	<u>52</u>	kgs.
Target Test Weight = UDW + RCLW + (2 dummies x 75.7 kgs./ dummy)		
Target Test Weight =	<u>1630</u>	

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

Right Front	=	<u>477</u>	kgs.	Right Rear	=	<u>328</u>	kgs.
Left Front	=	<u>493</u>	kgs.	Left Rear	=	<u>328</u>	kgs.
TOTAL FRONT WEIGHT				=	<u>970</u>	kgs.	(<u>60</u> % of Total Vehicle Weight)
TOTAL REAR WEIGHT				=	<u>656</u>	kgs.	(<u>40</u> % of Total Vehicle Weight)
TOTAL TEST WEIGHT				=	<u>1,626</u>	kgs.	
Weight of ballast secured in vehicle trunk area				=	0	kgs.	

VEHICLE ATTITUDE (all dimensions in mm):

Delivered Attitude:	RF	<u>709</u>	LF	<u>711</u>	RR	<u>714</u>	LR	<u>714</u>
Test Attitude:	RF	<u>690</u>	LF	<u>700</u>	RR	<u>670</u>	LR	<u>678</u>
Wheel Base:	<u>2743</u>	mm.;	C.G. =	<u>1097</u>	mm. rearward of front wheel C/L			

Remarks: 56.3 liters of Stoddard solution was placed in the fuel tank.

Table 1

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

Type of Test: Frontal Barrier Impact Angle: 0°
 Date of Test: February 21, 1995 Time of Test: 13:50
 Ambient Temperature: 21 ° C at impact area
 Temperature in Occupant Compartment: 21 ° C
 Windshield Molding Temperature: 21 ° C
 Required Impact Velocity Range: 55.5 to 57.1 kph
 Impact Velocity: primary = 56.9 kph, secondary = 56.9 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>4570</u>	C _L	<u>4740</u>	L	<u>4560</u>
	Post-test = R	<u>4270</u>	C _L	<u>4225</u>	L	<u>4265</u>
	Crush = R	<u>300</u>	C _L	<u>515</u>	L	<u>295</u>

Distance from front of test vehicle to point of impact:

R	<u>391 mm</u>	C _L	<u>399 mm</u>	L	<u>429 mm</u>
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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>Lower dashpanel</u>	<u>Glove box door</u>
Right Knee	<u>Lower dashpanel</u>	<u>Glove box door</u>

Table 1

GENERAL TEST AND VEHICLE DATA (cont'd)

	<u>Front</u>		<u>Rear</u>	
	<u>Left</u>	<u>Right</u>	<u>Left</u>	<u>Right</u>
Door Opening	<u>Operable</u>	<u>Operable</u>	<u>Operable</u>	<u>Operable</u>
	<u>Front</u>		<u>Rear</u>	
<u>Seat Movement</u>	<u>Left</u>	<u>Right</u>	<u>Left</u>	<u>Right</u>
Seat Back Failure	<u>None</u>	<u>None</u>	<u>-</u>	<u>-</u>
Seat Shift (mm.)	<u>0.0</u>	<u>10 mm</u>	<u>-</u>	<u>-</u>
<u>Glazing Damage</u>				
Backlight/Windshield:	<u>Windshield sustained stress fractures but remained intact.</u>			
Other Notable Impact Effects:	<u></u>			
<u></u>				

Section 3

OCCUPANT AND VEHICLE INFORMATION

I.

DATA

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

Table 2

DUMMY INJURY CRITERIA VALUESNHTSA No.: MS0303Vehicle: 1995 Dodge Stratus ES 4-Door Sedan

	MAXIMUM HEAD ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-81.2	-11.3	30.1	81.6
Position #2 - Passenger	N/A	N/A	N/A	N/A

	MAXIMUM CHEST ACCELERATION (g's)			
	X	Y	Z	R*
Position #1 - Driver	-61.3	-9.8	16.1	61.0
Position #2 - Passenger	N/A	N/A	N/A	N/A

* 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	-4234.7	-5352.7
Position #2 - Passenger	-5307.3	5993.4

	MAXIMUM FORCE - SEAT BELT LOADS (nwt)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
Position #1 - Driver	8171.2	-	4939.7
Position #2 - Passenger	8786.6	5508.5	-

	HEAD INJURY CRITERIA (HIC)			
	HIC**	t ₁ (mSec)	t ₂ (mSec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	857.7	48.84	71.52	67.78
Position #2 - Passenger	N/A	N/A	N/A	N/A

** 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 Dodge Stratus ES 4-Door Sedan
 Vehicle NHTSA No.: MS0303 Test Date: February 21, 1995

MAXIMUM VALUES	DRIVER DUMMY ID #150:	PASSENGER DUMMY ID #45:
Neck Load X (nwt)	511.6	-606.5
Neck Load Y (nwt)	511.6	596.8
Neck Load Z (nwt)	2021.7	6045.5
Neck Moment X (nwt-m)	16.5	16.3
Neck Moment Y (nwt-m)	-29.5	48.7
Neck Moment Z (nwt-m)	21.0	-9.2
Chest Deflection X (mm.)	-34.1	-31.8
Time of Max. Occurrence (msec)	61.3	66.0

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

Figure 1

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

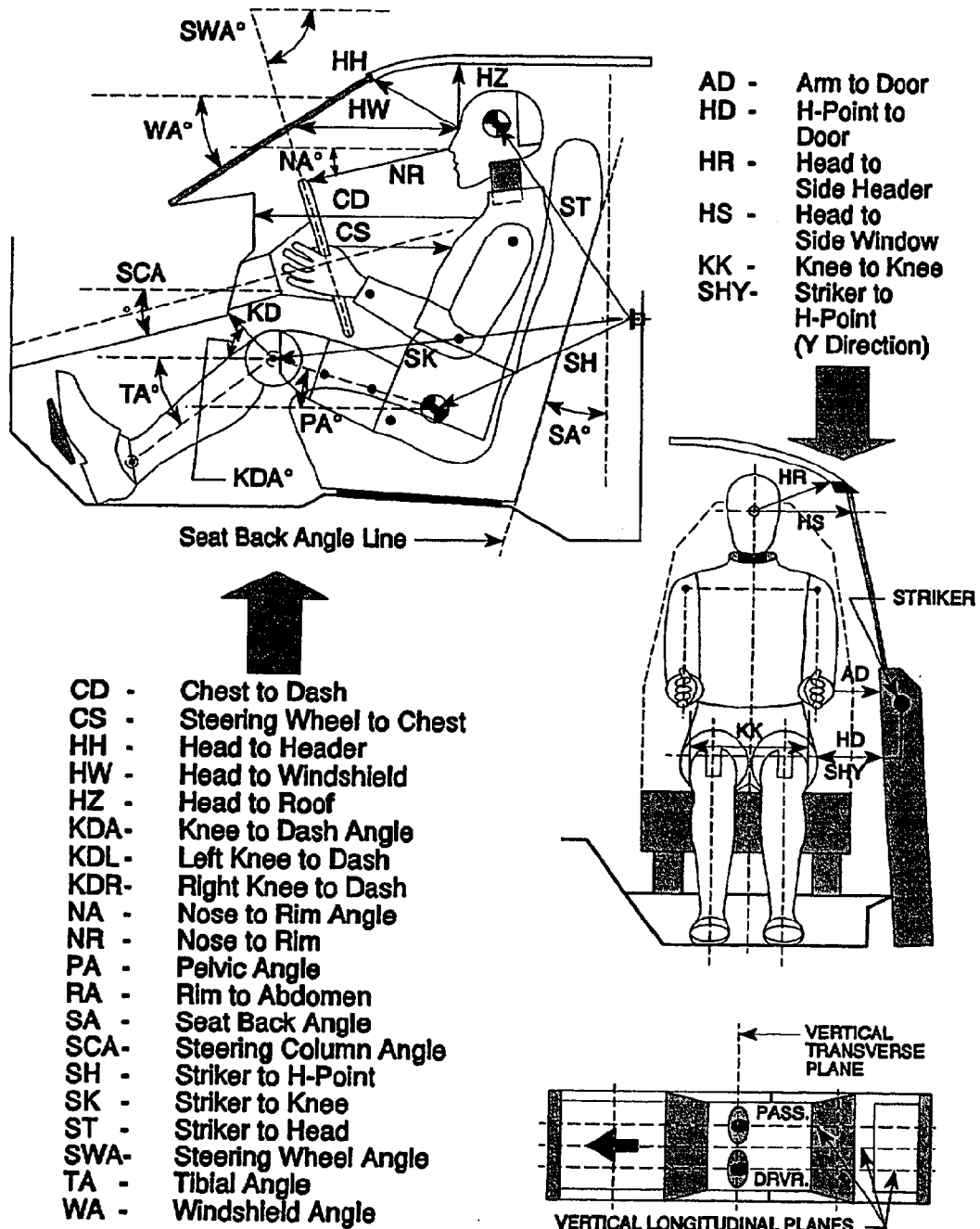


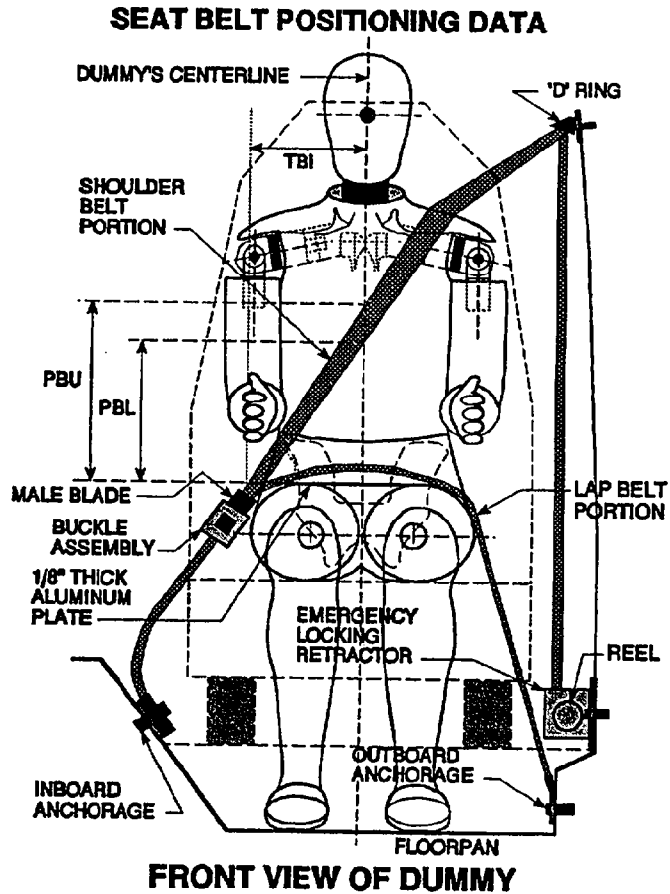
Table 4

FRONT SEAT OCCUPANT MEASUREMENTS

	DRIVER (Serial #150)			PASS. (Serial # 45)		
WA°	22 deg.			N/A		
SWA°	66 deg.			N/A		
SCA°	24 deg.			N/A		
SA°	18 deg. as specified by the manufacturer			18 deg. as specified by the manufacturer		
HZ	145			140		
HH	272			270		
HW	515			510		
HR	232			228		
NR	341	Angle	15 deg.	N/A		
CD	464			472		
CS	265			N/A		
RA	151			N/A		
KDL	116	Angle (KDA)	55 deg.	143		
KDR	120			128	Angle (KDA)	45 deg.
PA°	24 deg.			24 deg.		
TA°	45 deg.			45 deg.		
KK	330			250		
ST	549	Angle	14 deg.	568	Angle	16 deg.
SK	617	Angle	88 deg.	640	Angle	89 deg.
SH	269	Angle	116 deg.	256	Angle	111 deg.
SHY	260			250		
HS	330			320		
HD	135			172		
AD	115			96		

Figure 2

SEAT BELT POSITIONING DATA



	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	315	300
PBL-- Top surface of alum. plate to belt lower edge	230	220
<u>LAP BELT TENSION</u>	-	-
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

Table 5

SEAT BELT PERFORMANCE ASSESSMENT TEST DATABELT LENGTH DATA:

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

DriverPassenger

2390 mm

2380 mm

Shoulder belt length as measured
on Part 572 Dummy.

940 mm

920 mm

Lap belt length as measured
on Part 572 Dummy.

850 mm

860 mm

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.

64 mm

76 mm

As determined mechanically.

66 mm

70 mm

As determined electronically.

70 mm

85 mm

BELT STRETCH DATA:

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

101.3 mm/M

111.6 mm/M

Measured mechanically.

0.0 mm/M

0.0 mm/M

Figure 3

CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 6.

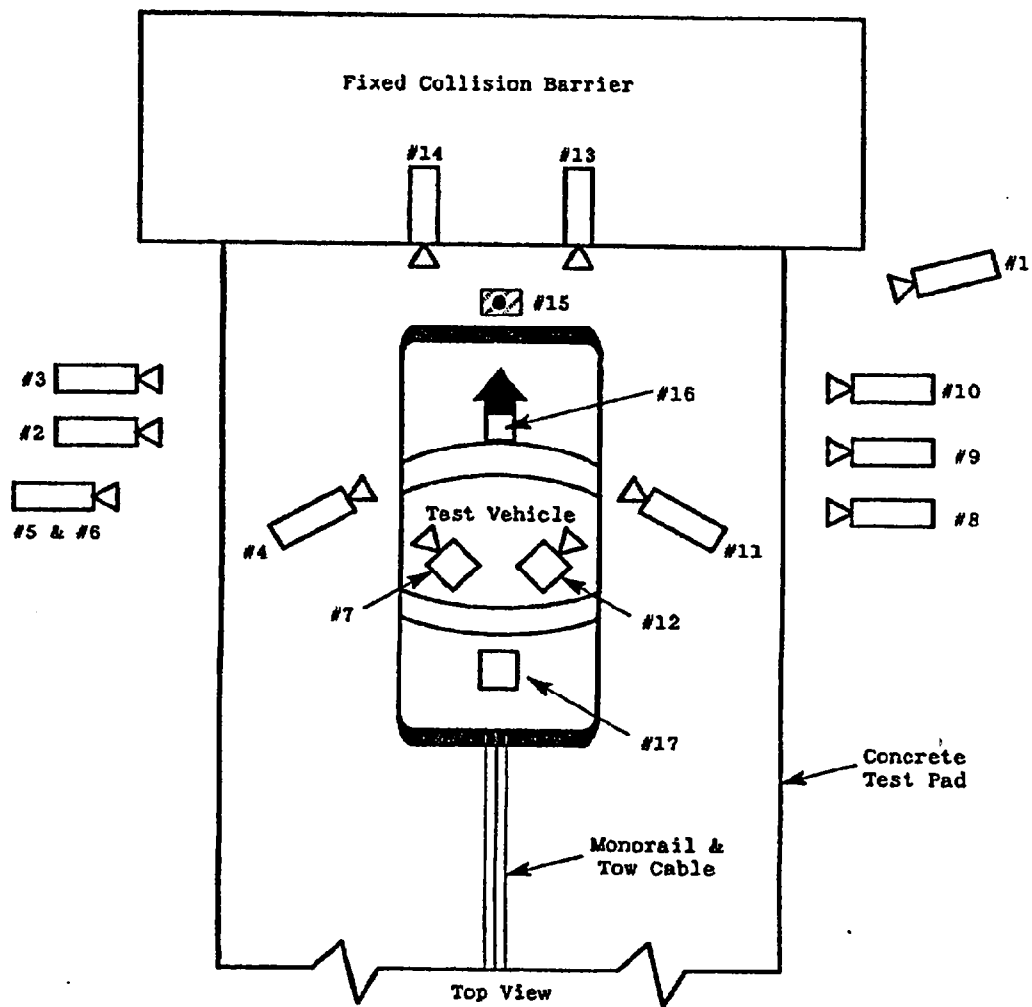


Table 6
HIGH-SPEED CAMERA LOCATIONS

Test No.		MS0303		Vehicle:		1995 Dodge Stratus ES 4-Door Sedan			
CAMERA NO.	VIEW	CAMERA POSITIONS (MM.)*			ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)	
		X	Y	Z					
1	Real-Time Camera	-	-	-	-	-	-	24	
2	Overall Left Side	6147	1600	1041	-2	5761	13	1010	
3	Left Side View	8280	1067	1041	-3	7894	25	1000	
4	Driver and Interior View	2642	2667	1778	-22	-	13	960	
5	Steering Column (Bottom)	7366	2007	1168	-5	6980	25	1050	
6	Steering Column (Top)	7366	2007	1778	-10	6980	25	1070	
7	Left Belt	-	-	-	-	-	8	790	
8	Overall Right Side	6401	1956	1092	-2	-	13	1060	
9	Right Side View	8255	1524	1041	-3	7869	25	1020	
10	Right Passenger View	8255	1956	1422	-4	7869	35	960	
11	Passenger and Interior View	2464	2743	1778	-22	2078	13	1070	
12	Right Belt	-	-	-	-	-	8	850	
13	Passenger Front View	560	127	1750	-38	-	13	1010	
14	Driver Front View	560	127	1750	-36	-	13	1010	
15	Windshield View	0	0	3040	-53	-	13	1060	
16	Pit View of Engine	0	505	-3040	90	-	13	900	
17	Pit View of Fuel Tank	0	3432	-3040	90	-	13	910	

*X = film plane to monorail centerline
 Y = film plane to impact location
 Z = film plane to ground
 ** = referenced to horizontal plane
 N.T. indicates No Timing

Figure 4

VEHICLE TARGET LOCATIONS

(Dimensions in millimeters)

A	310
B	570
C	894
D	2476
E	254
F	1660
G	922
H	925
I	122
J	1401
K	1047
L	1370
M	254
N	120
O	923
P	924
Q	1370
R	1043
S	1403

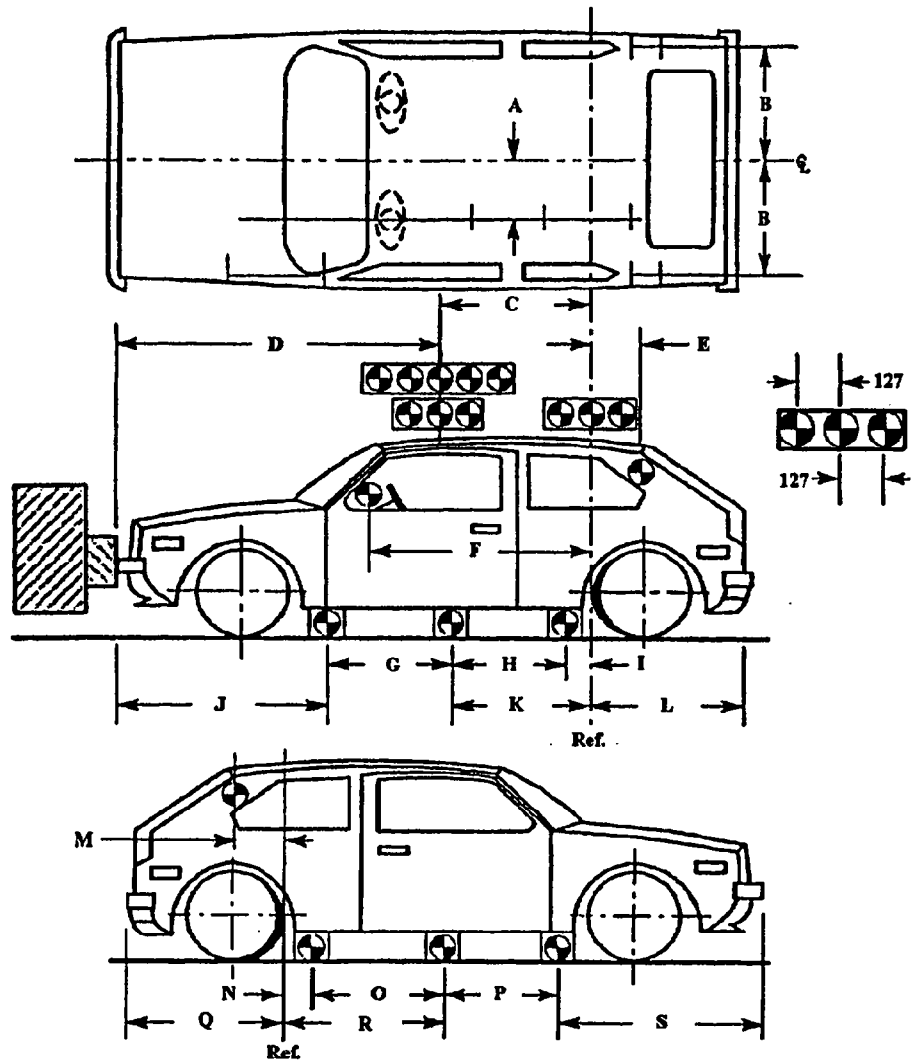
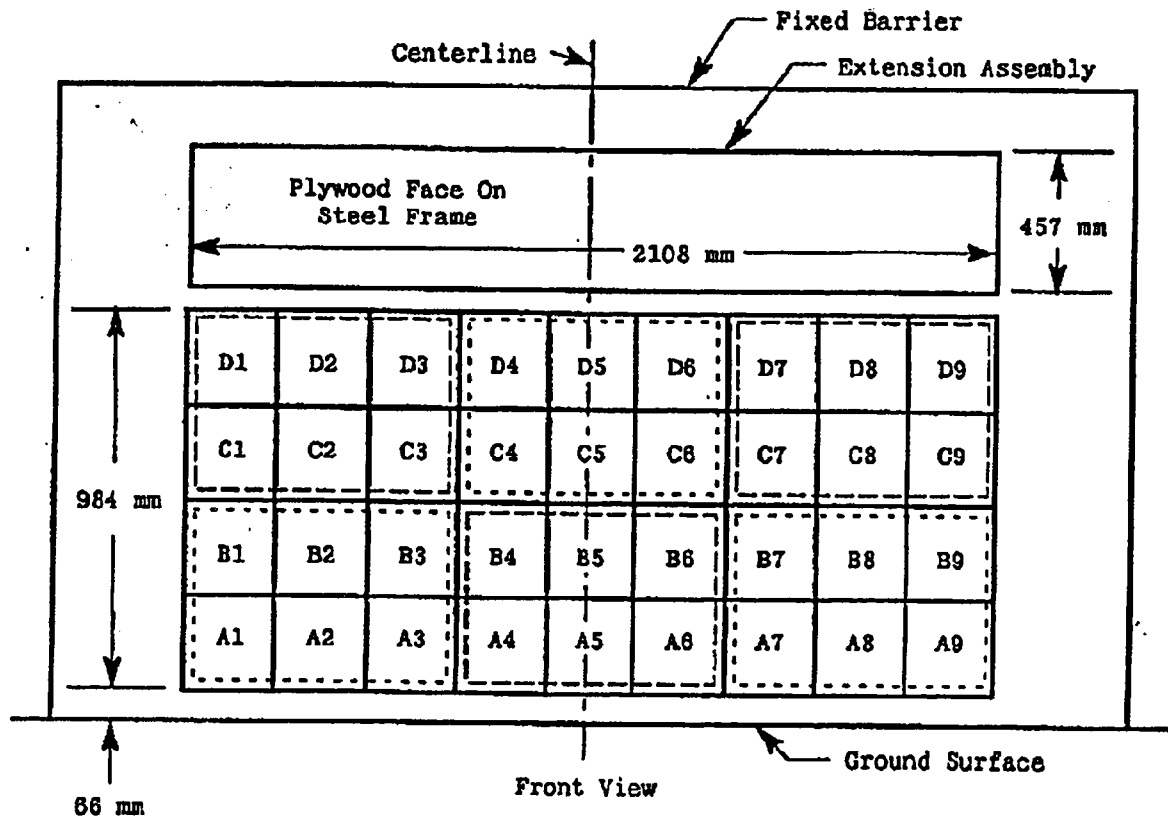


Figure 5

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

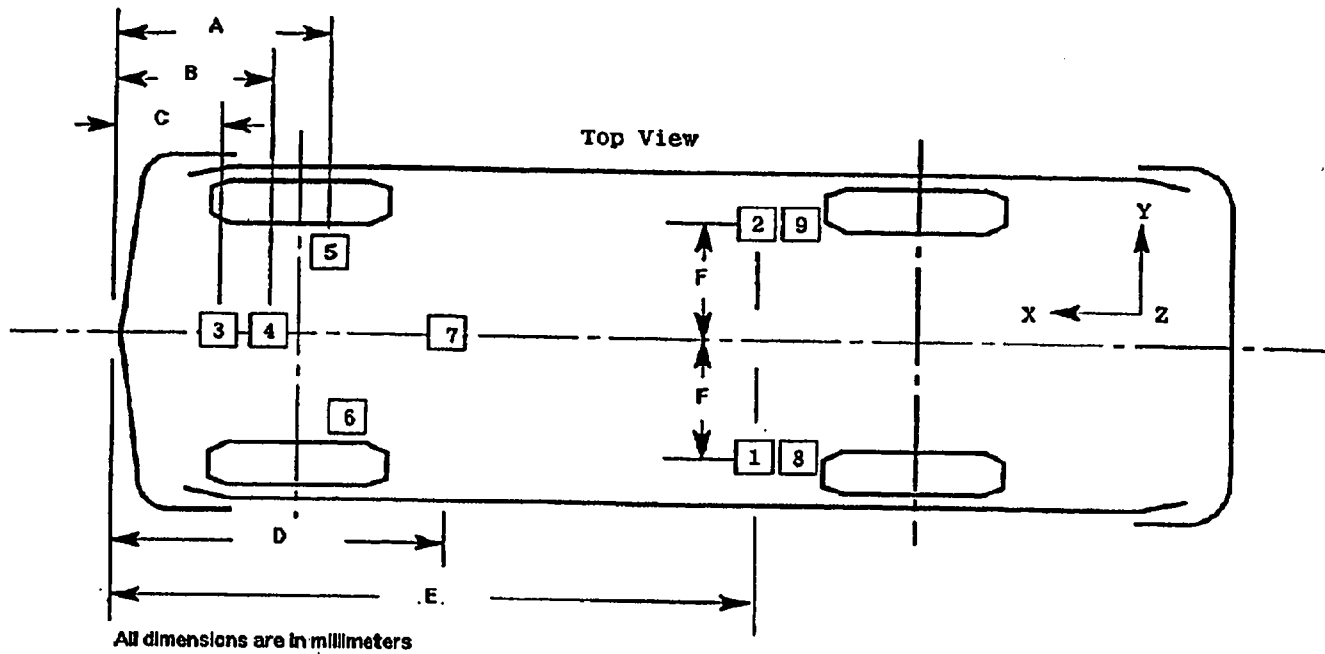
Group 4 C1 thru D3	Group 5 C4 thru D6	Group 6 C7 thru D9
Group 1 A1 thru B3	Group 2 A4 thru B6	Group 3 A7 thru B9

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 = 2920	Y = 680
2	Right Rear Seat Crossmember [E/F]	X = 2920	Y = 680
3	Top of engine [C]	580	
4	Bottom of engine [B]	850	
5	Right Disc Brake Caliper [A]	950	
6	Left Disc Brake Caliper [A]	942	
7	Instrument Panel [D]	1778	
8	Left Rear Seat Crossmember [E/F]	X = 2850	Y = 645
9	Right Rear Seat Crossmember [E/F]	X = 2850	Y = 645

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

Figure 7

TEST VEHICLE MEASUREMENTS

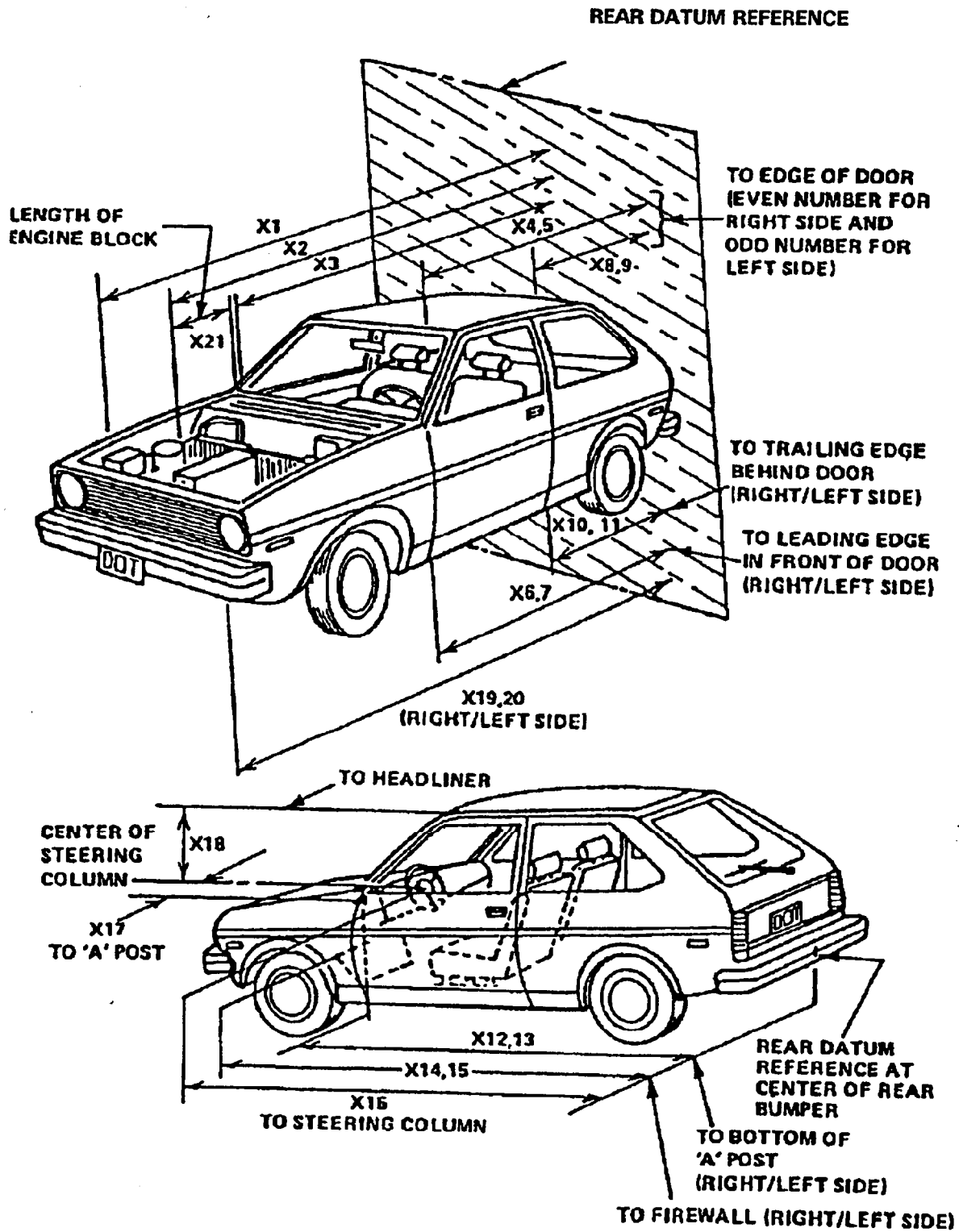


Table 7

VEHICLE MEASUREMENTS

No.		All Dimensions in mm		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4740	4225	515
X2	Rear Surface of Vehicle to Front of Engine	4175	3930	245
X3	Rear Surface of Vehicle to Firewall	3100	3705	-605
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3360	3347	13
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3354	3354	0
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3325	3309	16
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3315	3315	0
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2220	2200	20
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2217	2204	13
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2208	2196	12
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2205	2205	0
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3325	3320	5
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3325	3319	6
X14	Rear Surface of Vehicle to Firewall, Right Side	3740	3560	180
X15	Rear Surface of Vehicle to Firewall, Left Side	3730	3625	105
X16	Rear Surface of Vehicle to Steering Column	2815	2825	-10
X17	Center of Steering Column to "A" Post	360	375	-15
X18	Center of Steering Column to Headliner	400	335	65
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4570	4270	300
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4560	4265	295
X21	Length of Engine Block	445	445	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3010	2992	18
CD	Rear Surface of Vehicle to Center of Dash Panel	3010	2985	25
LD	Rear Surface of Vehicle to Left Side of Dash Panel	2975	2960	15

Table 8

ACCIDENT INVESTIGATION DIVISION DATA
FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Dodge Stratus ES 4-Door Sedan

Vehicle NHTSA No.: MS0303 VIN: 1B3EJ56H9SN528687

Model Year: 1995 Build Date: 12/94 Test Date: February 21, 1995

Vehicle Size Category: Mid-size Test Weight: 1626 Kgs

Vehicle Wheelbase: 2743 mm; Front Overhang: 1403 mm; Overall Width: 1640 mm

Collision Deformation Classification (CDC) Code: 12FDEW2

Crush Depth Dimensions:

C1 = 245 mm

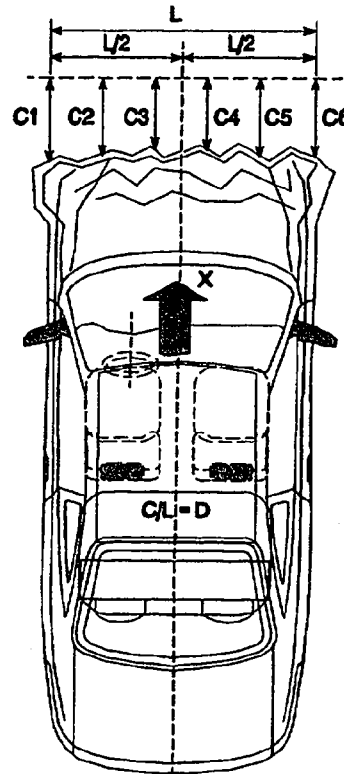
C2 = 348 mm

C3 = 433 mm

C4 = 440 mm

C5 = 340 mm

C6 = 250 mm



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

Longitude Length of Damaged Region: L = 1640 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 15 mm. molding.

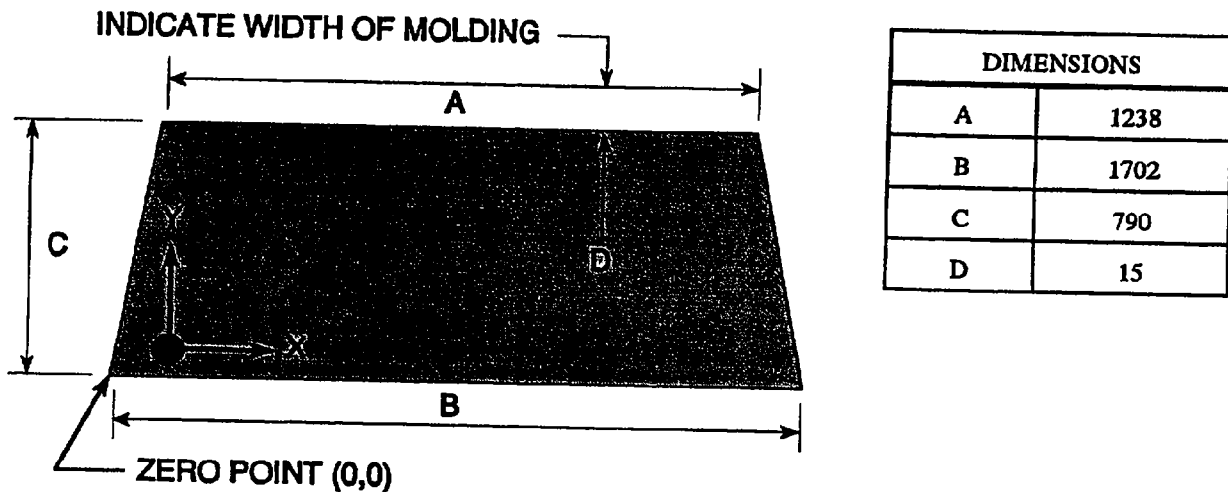
FMVSS 212 REQUIREMENTS:

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	2260	2260	100
LEFT SIDE	2260	2260	100
TOTAL	4,520	4,520	100

AREA OF RETENTION FAILURE:



FRONT VIEW OF WINDSHIELD

FAILURE DETAILS: None

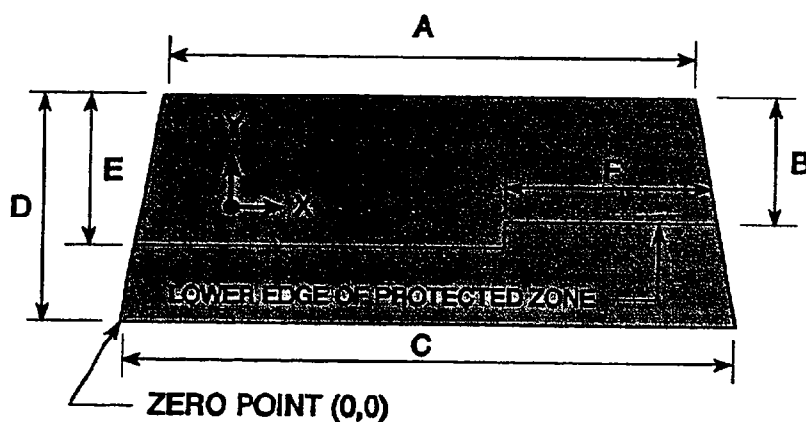
Figure 9

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	1238
B	435
C	1702
D	790
E	660
F	670

FRONT VIEW OF WINDSHIELD

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 1/4": None

(Show location of penetration on the above sketch)

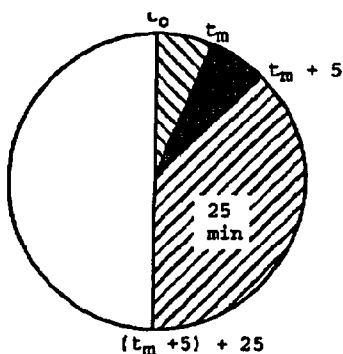
COORDINATES		
	X	Y
1.		
2.		
3.		
4.		

[illegible]

TEST VEHICLE NHTSA No.: MS0303 **TEST DATE:** February 21, 1995
VEHICLE MAKE/MODEL: 1995 Dodge Stratus ES

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 10

FUEL SPILLAGE MEASUREMENT:

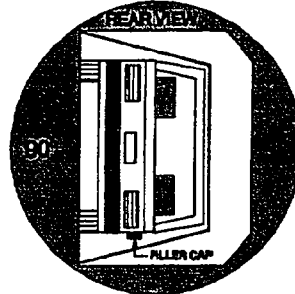
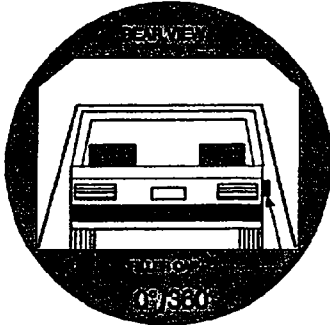


1. From impact until vehicle motion ceases
2. For 5 minute period after vehicle motion ceases
3. For next 25 minutes

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

Node

Table 10

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET**TEST PHASE:**Vehicle NHTSA ID No.
MS0303**I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:**Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)2 minutes30 seconds

FMVSS 301 Position Hold Time +

5 minutes00 seconds**TOTAL**7 minutes30 seconds

Next whole minute interval

8 minutes00 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:

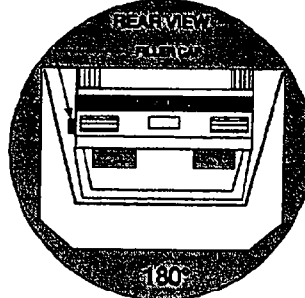
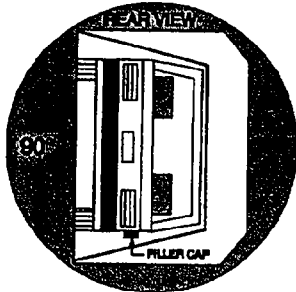
0 ounce	0 ounce	0 ounce	0 ounce
---------	---------	---------	---------

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:**Vehicle NHTSA ID No.
MS0303**I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:**Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)2 minutes40 seconds

FMVSS 301 Position Hold Time +

5 minutes00 seconds**TOTAL**7 minutes40 seconds

Next whole minute interval

8 minutes00 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:

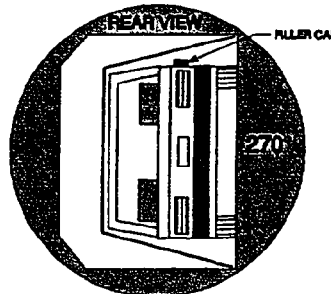
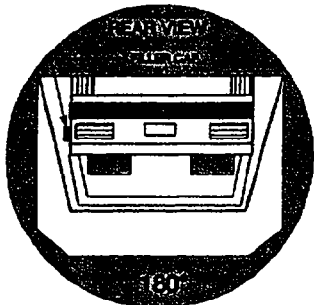
0 ounce	0 ounce	0 ounce	0 ounce
---------	---------	---------	---------

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:**Vehicle NHTSA ID No.
MS0303**I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:**Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)2 minutes 50 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds**TOTAL**7 minutes 50 seconds

Next whole minute interval

8 minutes 00 seconds**II. FMVSS 301 REQUIREMENTS:****(1) Time Period**

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

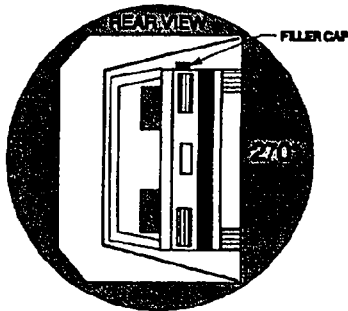
0 ounce	0 ounce	0 ounce	0 ounce
---------	---------	---------	---------

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:**Vehicle NHTSA ID No.
MS0303**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

TOTAL7

minutes

30

seconds

Next whole minute interval

8

minutes

00

seconds

II. FMVSS 301 REQUIREMENTS:**(1) Time Period**

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

(2) Maximum Allowable Solvent Spillage

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

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

0 ounce	0 ounce	0 ounce	0 ounce
---------	---------	---------	---------

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

IV. SOLVENT SPILLAGE LOCATION(S):

None

Appendix A
PHOTOGRAPHS

PHOTOGRAPHS

<u>Figure</u>	<u>Title</u>	<u>Page</u>
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A-23	POST TEST DRIVER POSITION VIEW	A-25
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A-25	POST TEST PASSENGER POSITION VIEW.	A-27
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A-32	IMPACT VIEW	A-34

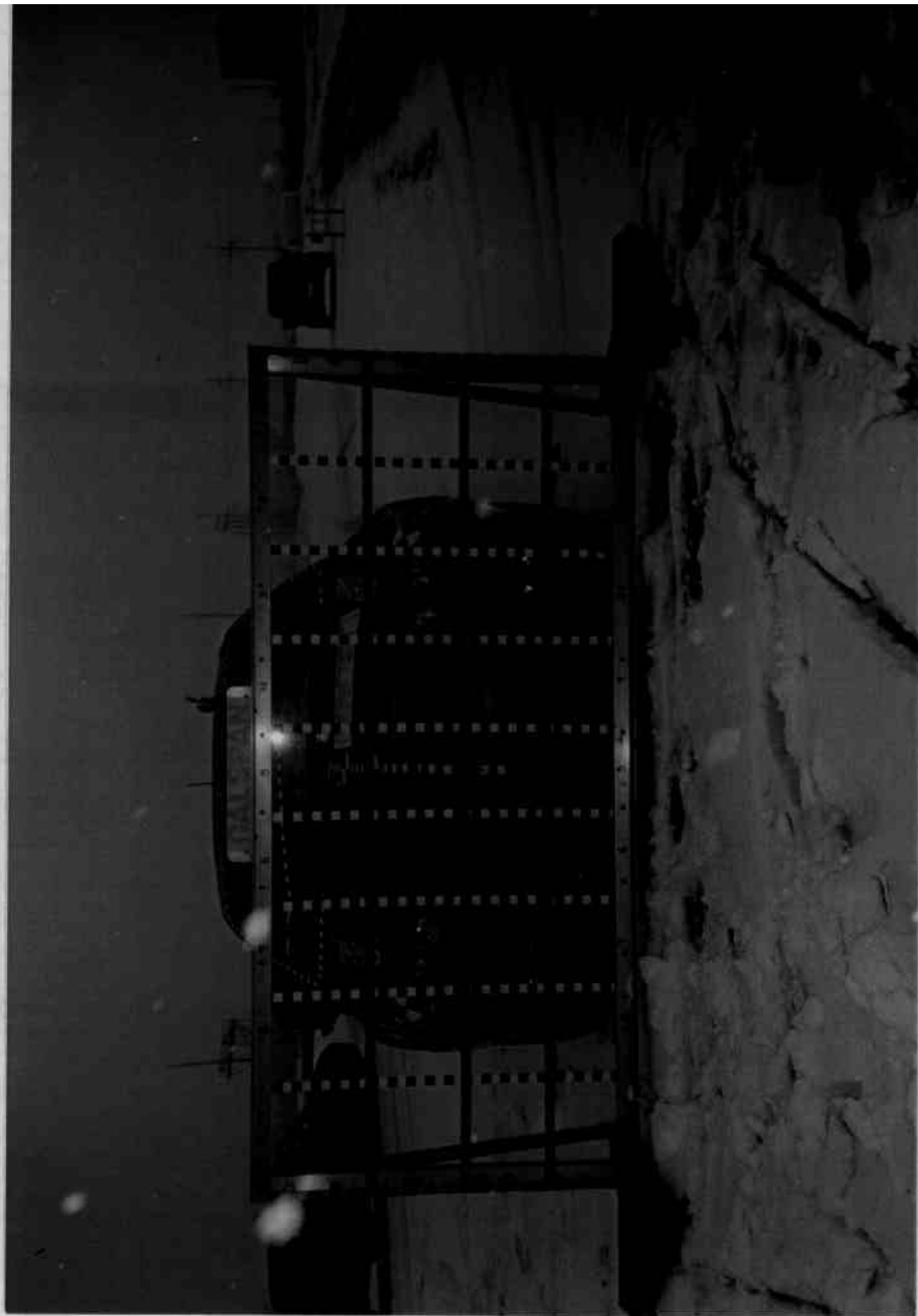


Figure A-1 LOAD CELL LOCATIONS



Figure A-2 PRE-TEST FRONT VIEW

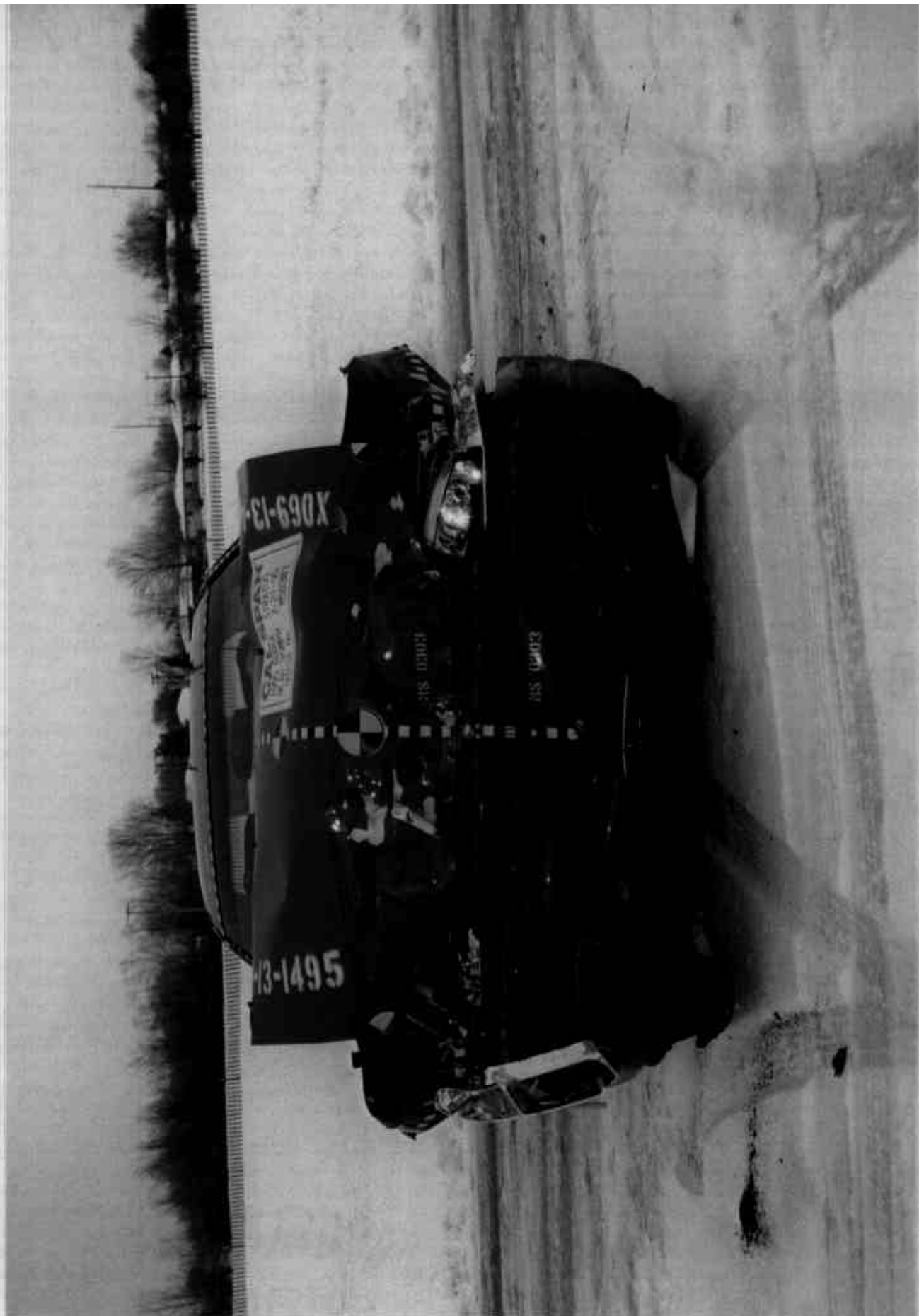


Figure A-3 POST-TEST FRONT VIEW

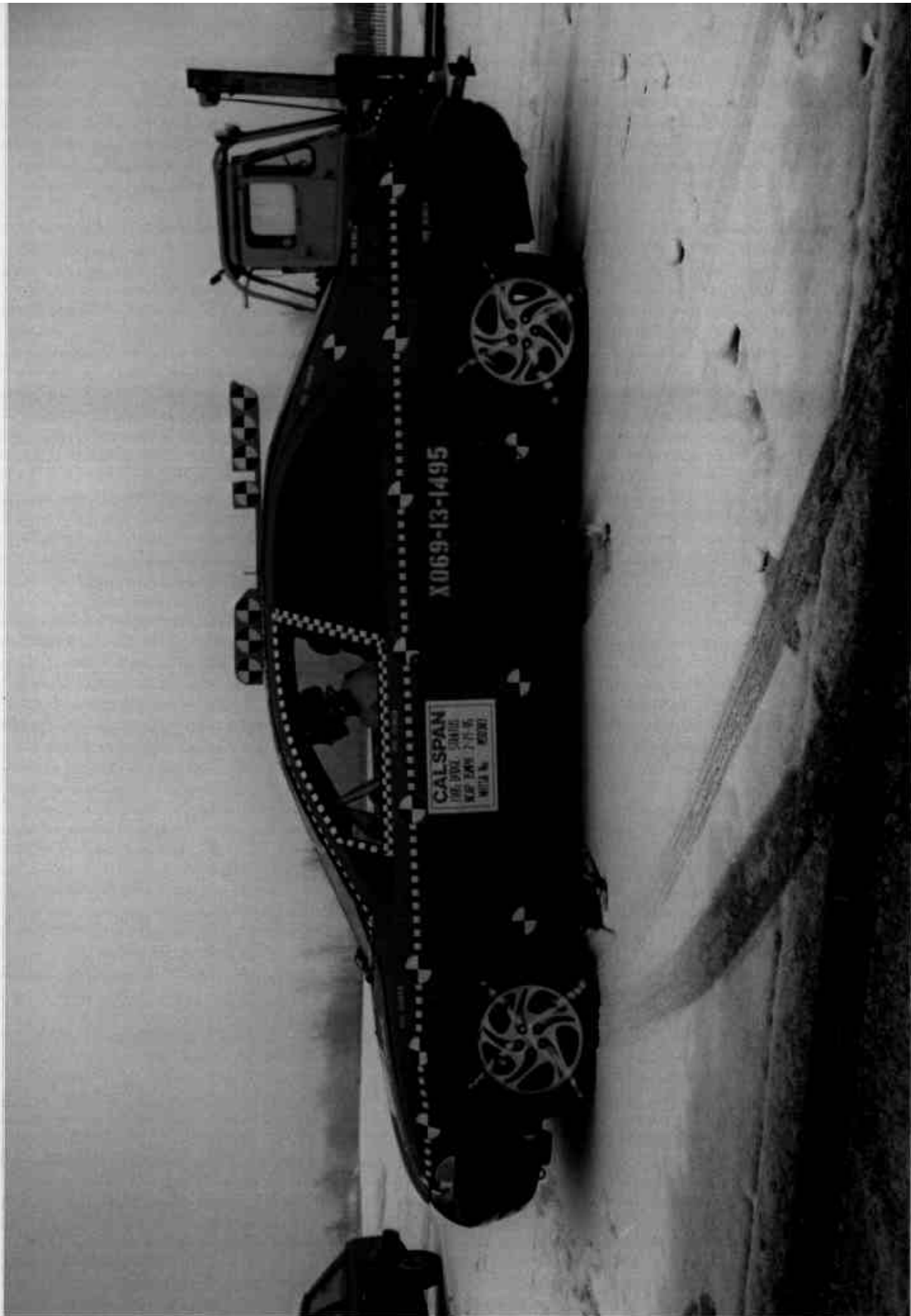


Figure A-4 PRE-TEST LEFT SIDE VIEW

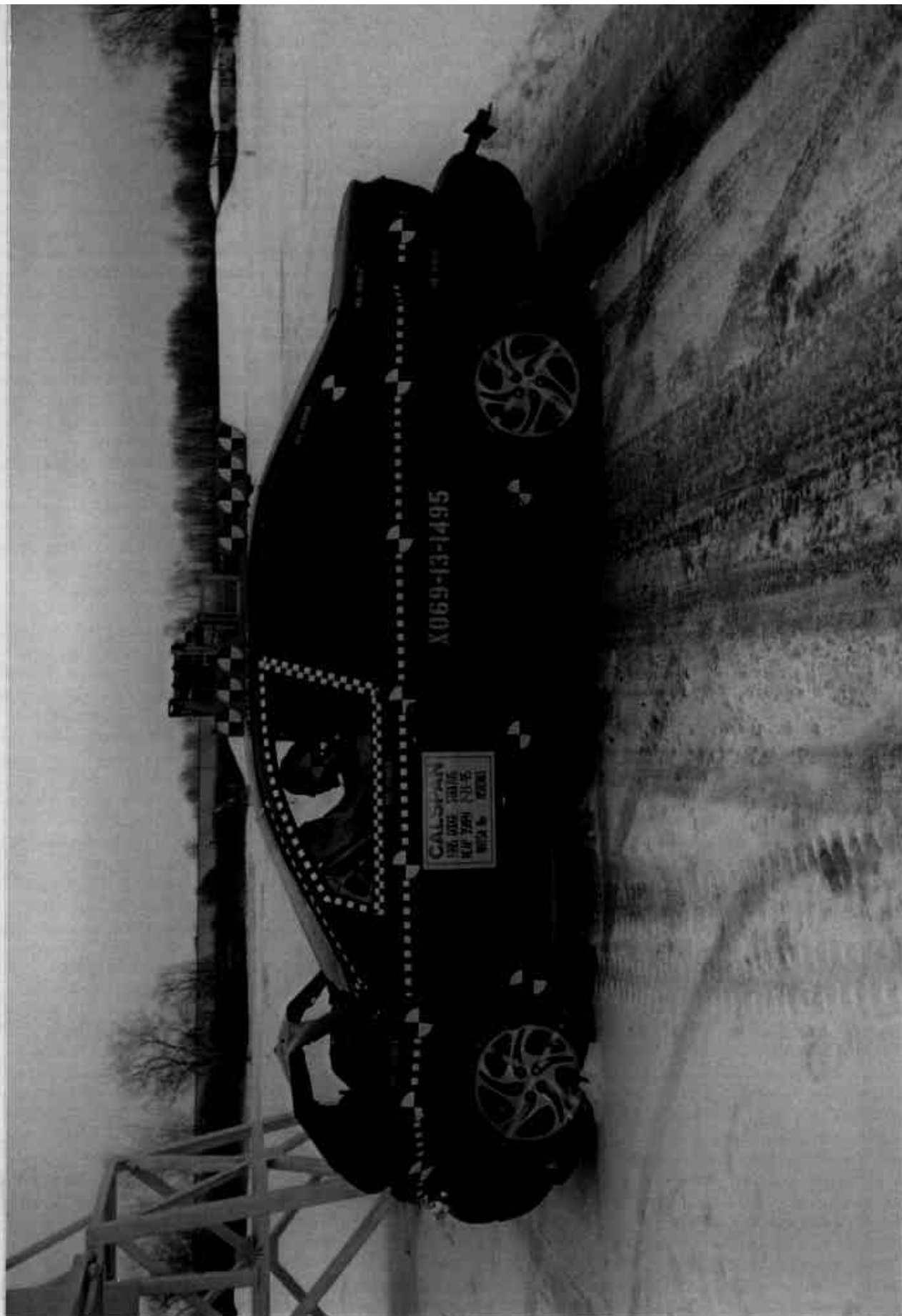


Figure A-5 POST-TEST LEFT SIDE VIEW

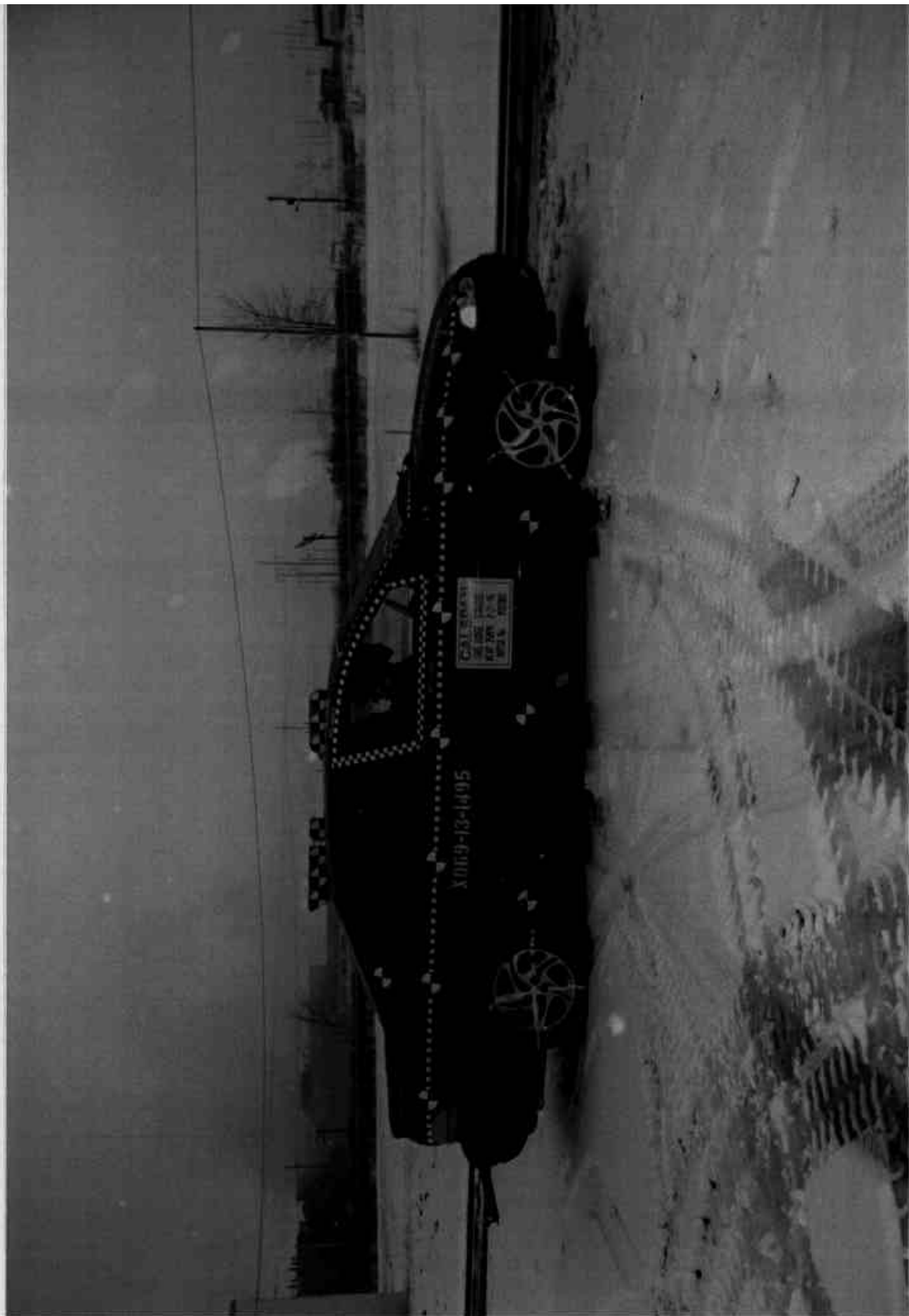


Figure A-6 PRE-TEST RIGHT SIDE VIEW

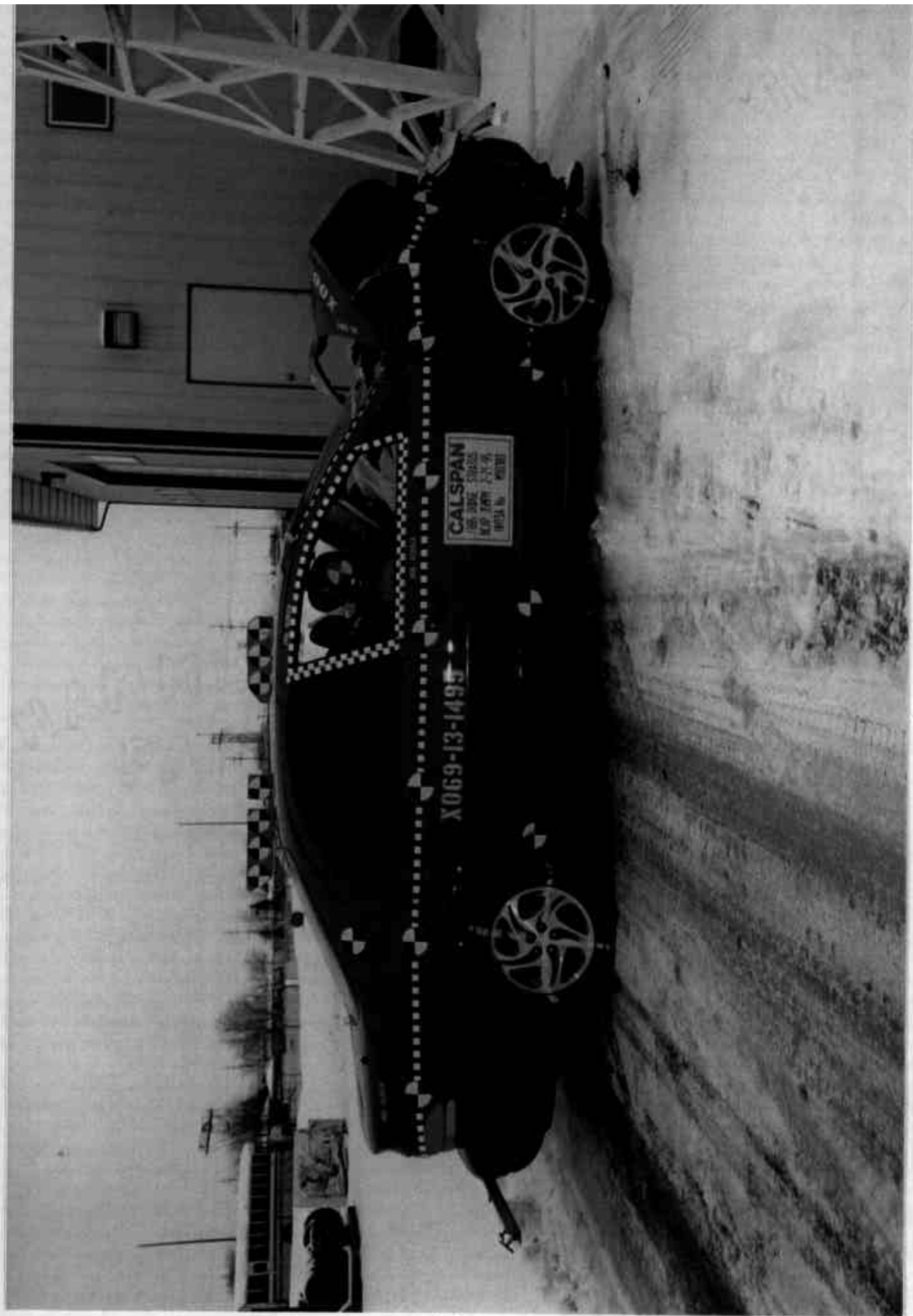


Figure A-7 POST-TEST RIGHT SIDE VIEW

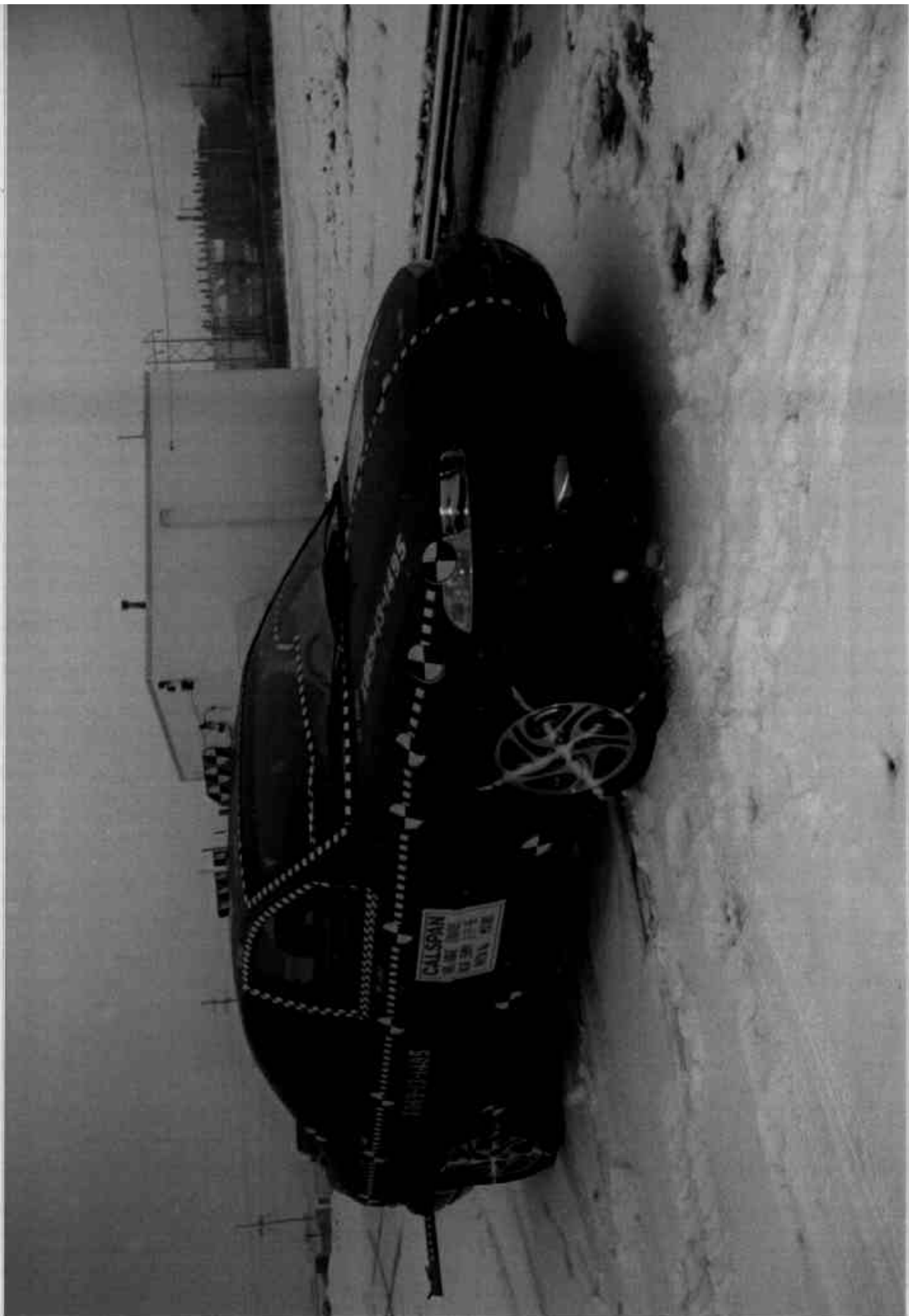


Figure A-8 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW

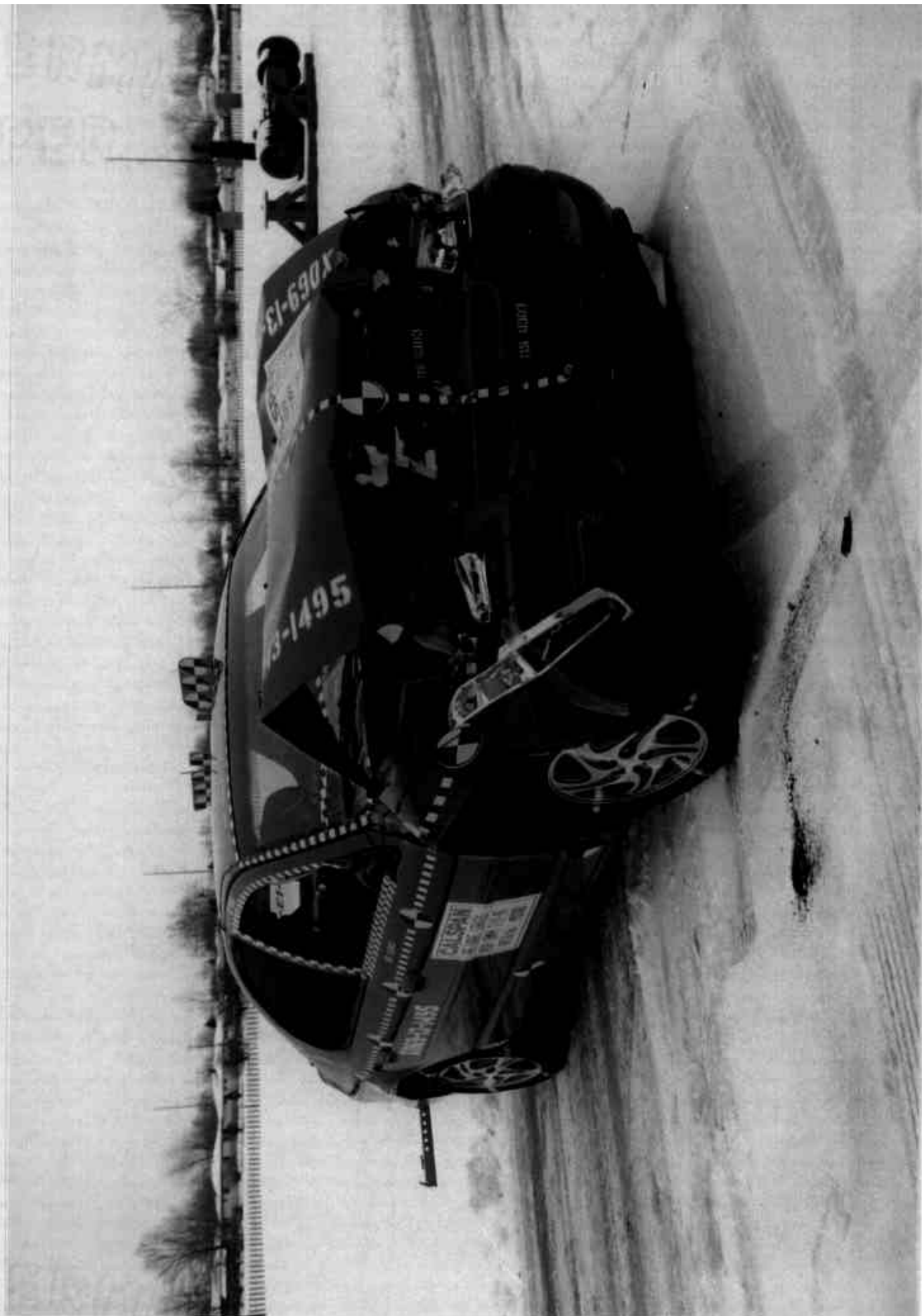


Figure A-9 POST-TEST RIGHT FRONT THREE-QUARTER VIEW



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



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

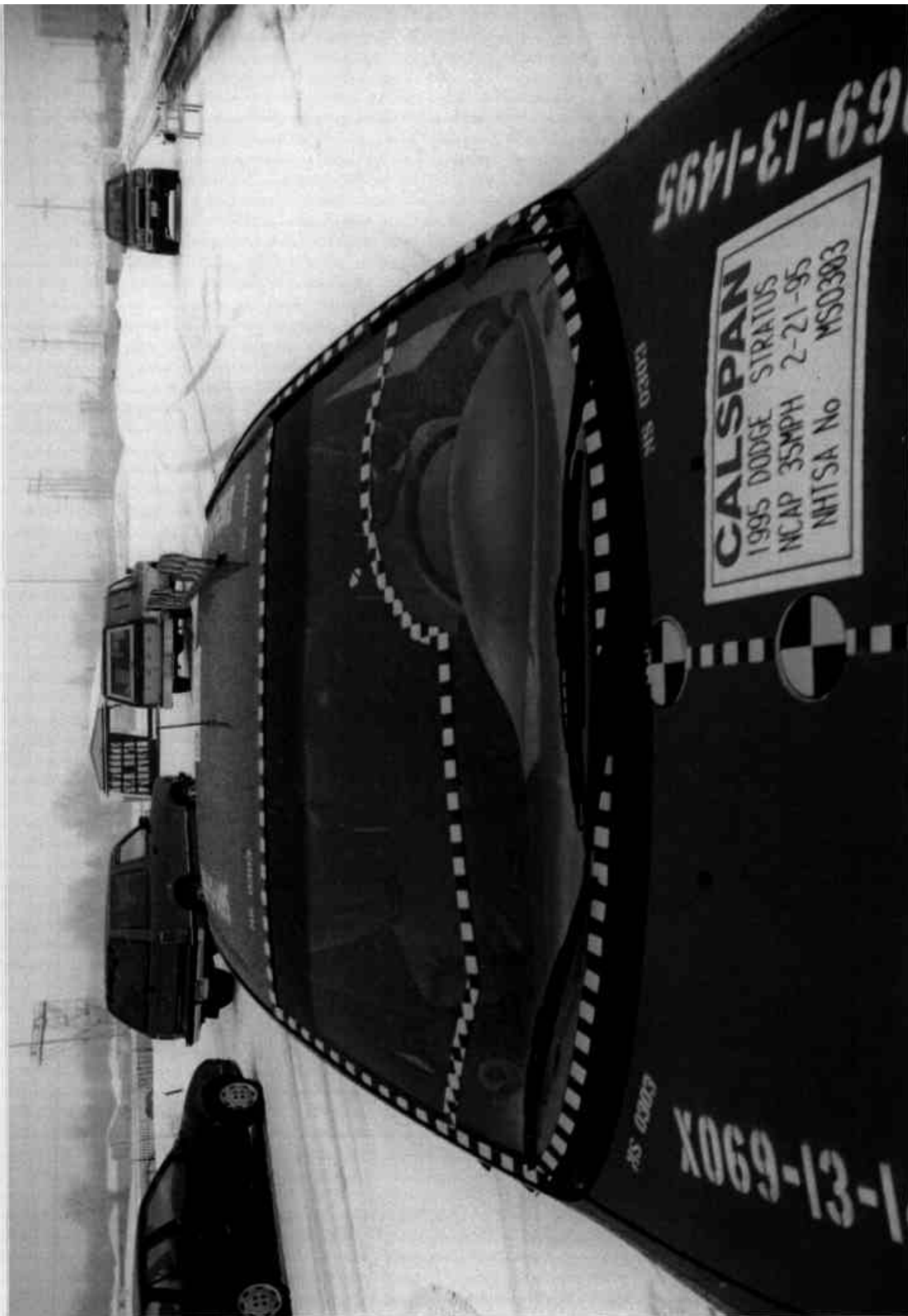


Figure A-12 PRE-TEST WINDSHIELD VIEW

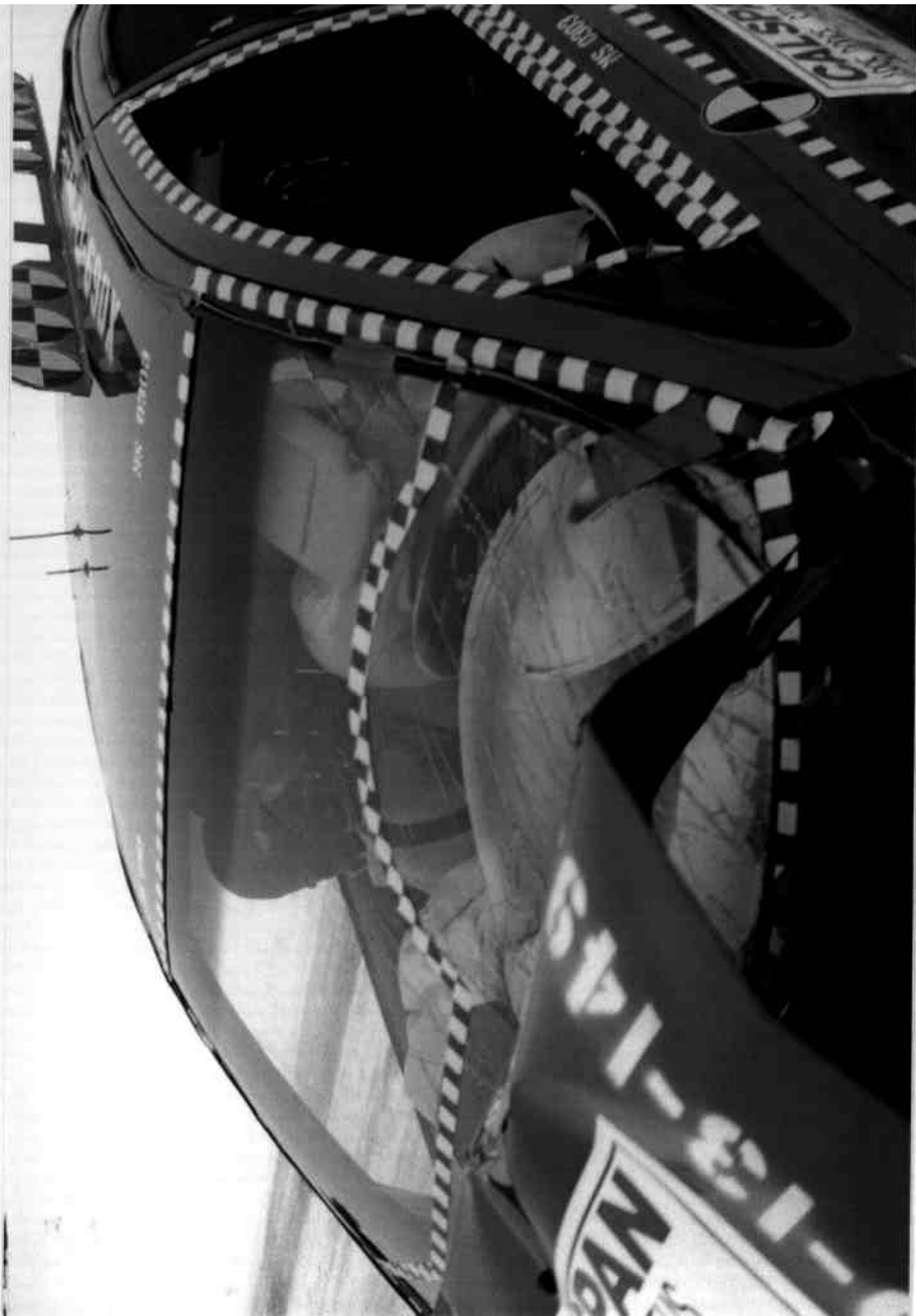


Figure A-13 POST-TEST WINDSHIELD VIEW

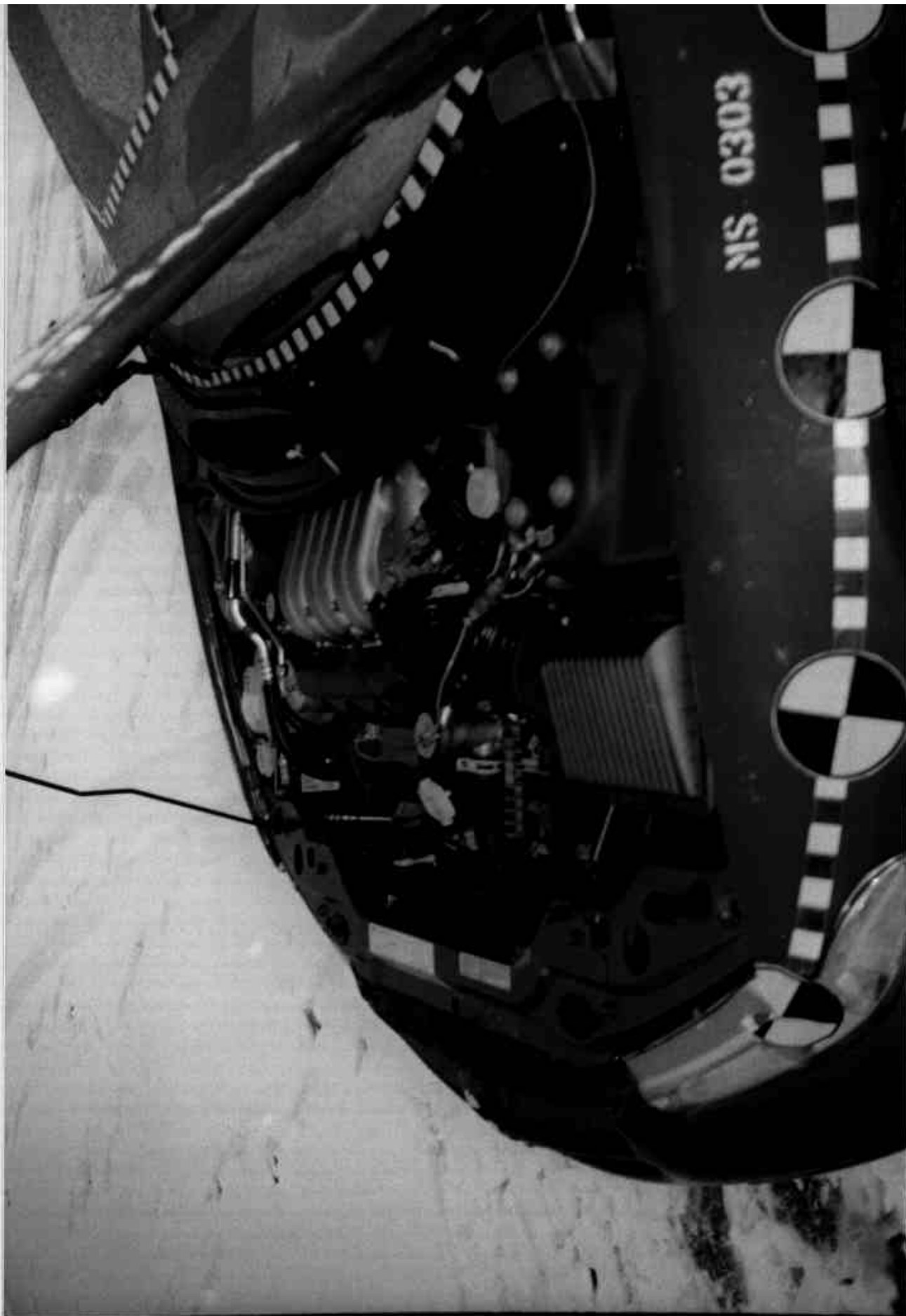


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW



Figure A-15 FUEL FILLER CAP

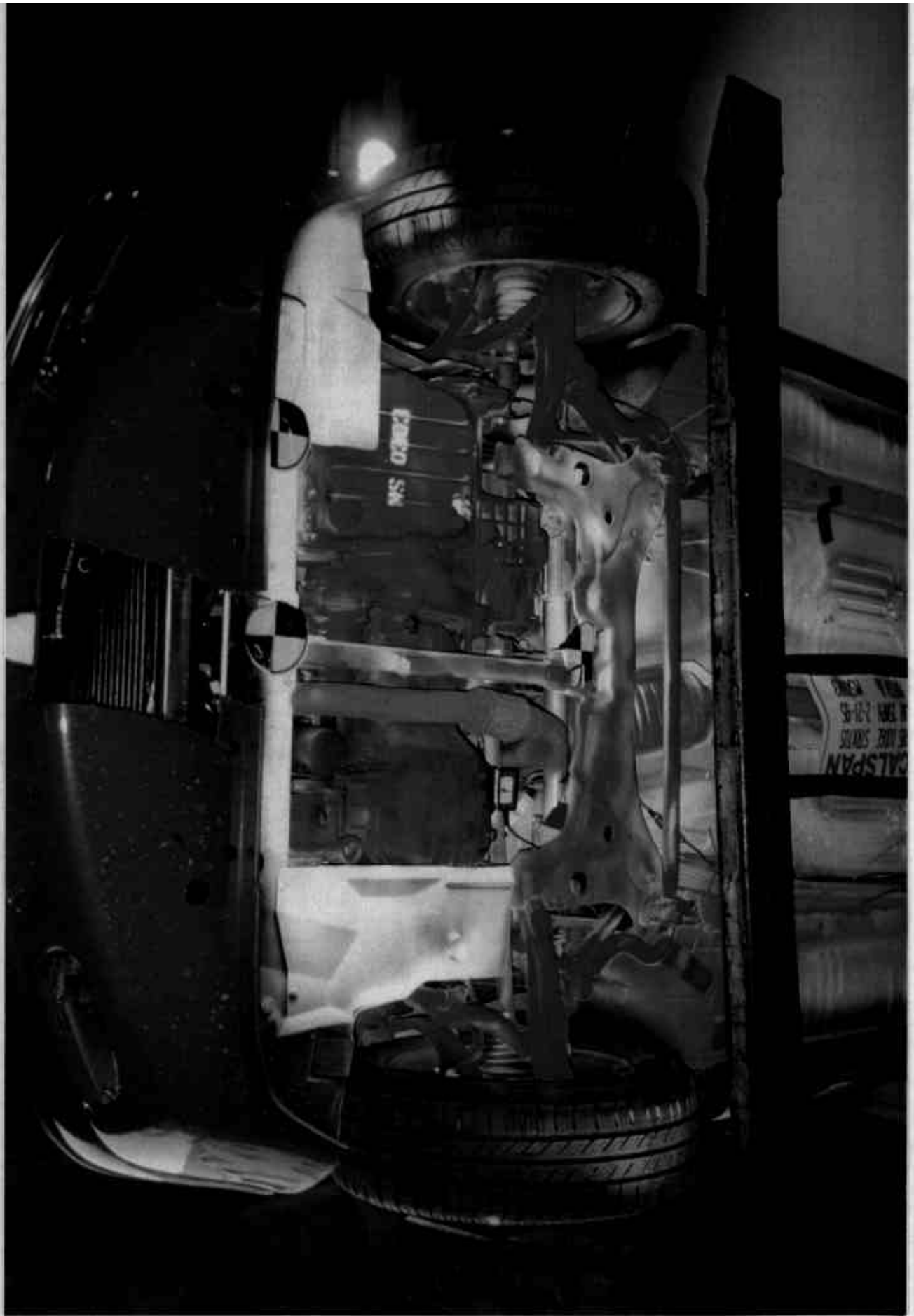


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW



Figure A-17 POST-TEST FRONT UNDERBODY VIEW

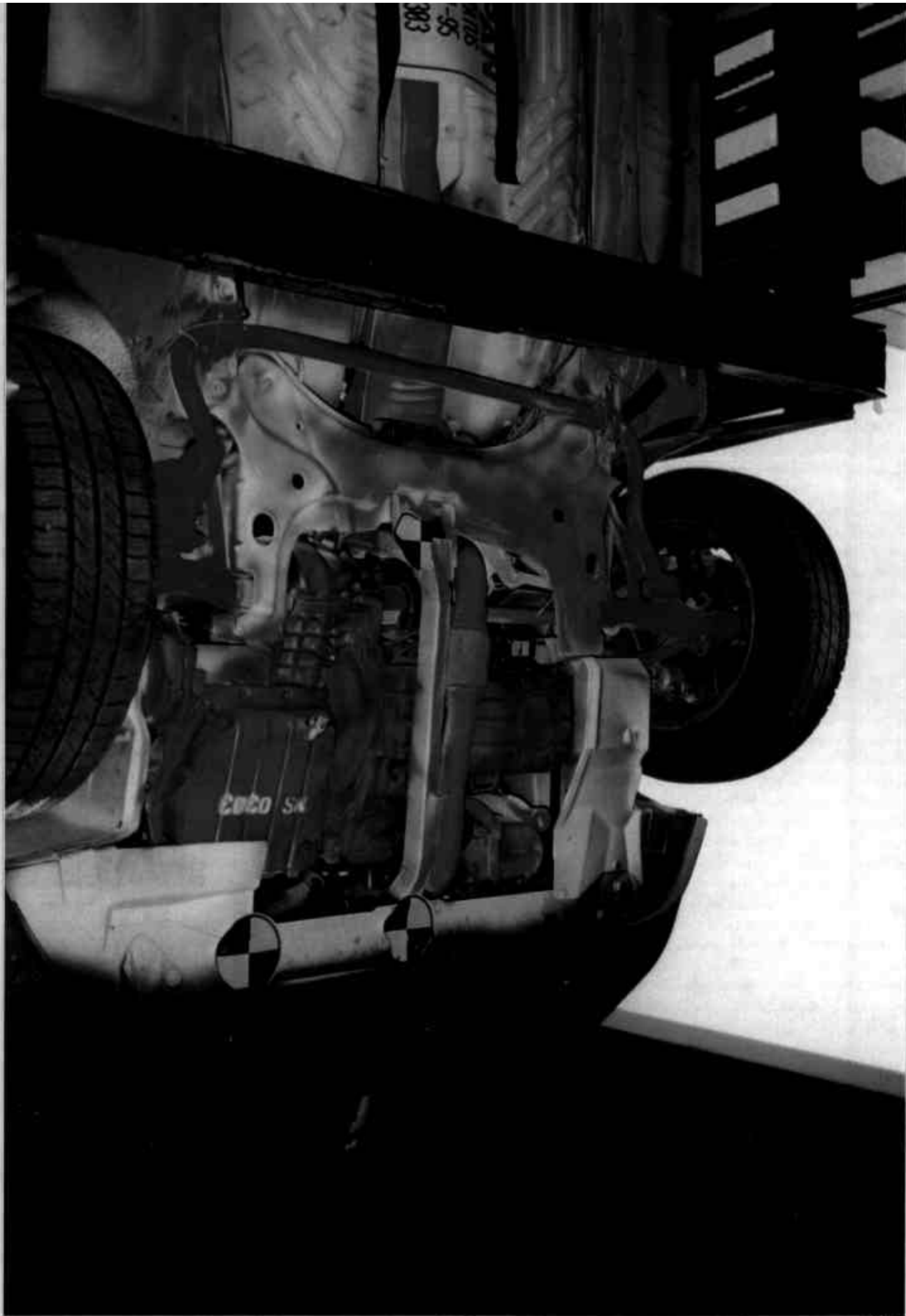


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW



Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

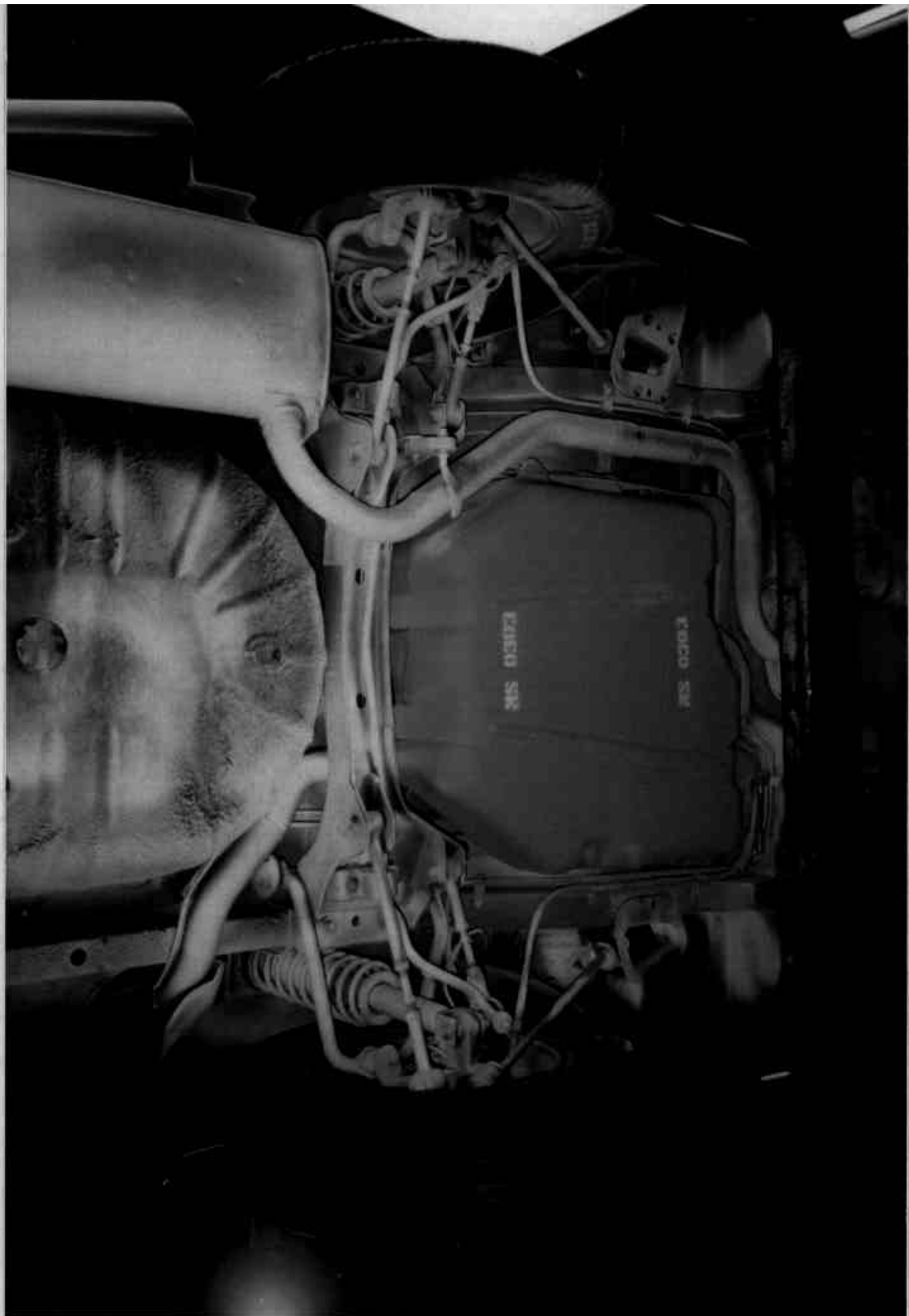


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

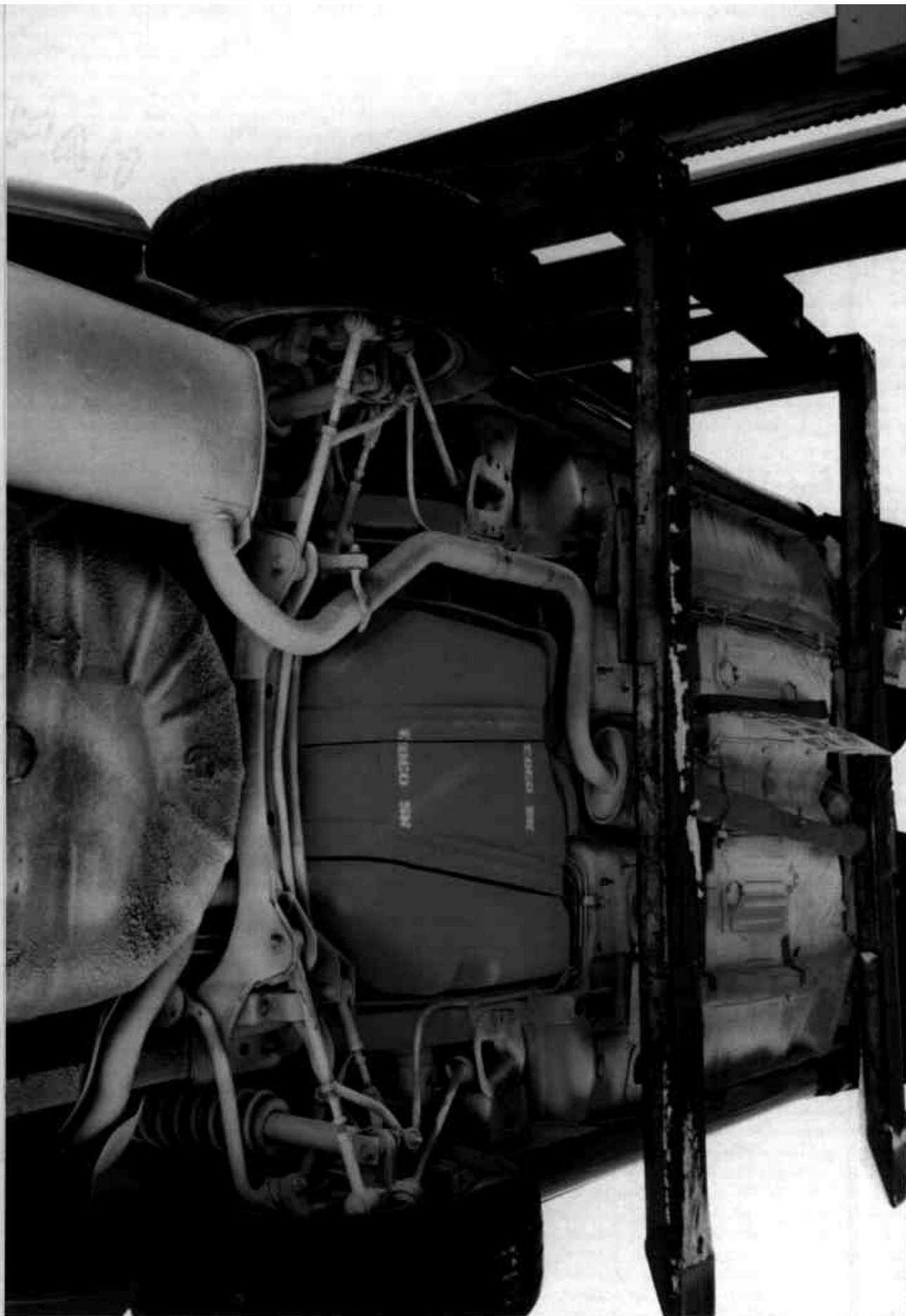


Figure A-21 POST-TEST REAR UNDERBODY VIEW



Figure A-22 PRE-TEST DRIVER POSITION VIEW



Figure A-23 POST-TEST DRIVER POSITION VIEW



Figure A-24 PRE-TEST PASSENGER POSITION VIEW



Figure A-25 POST-TEST PASSENGER POSITION VIEW



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



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



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

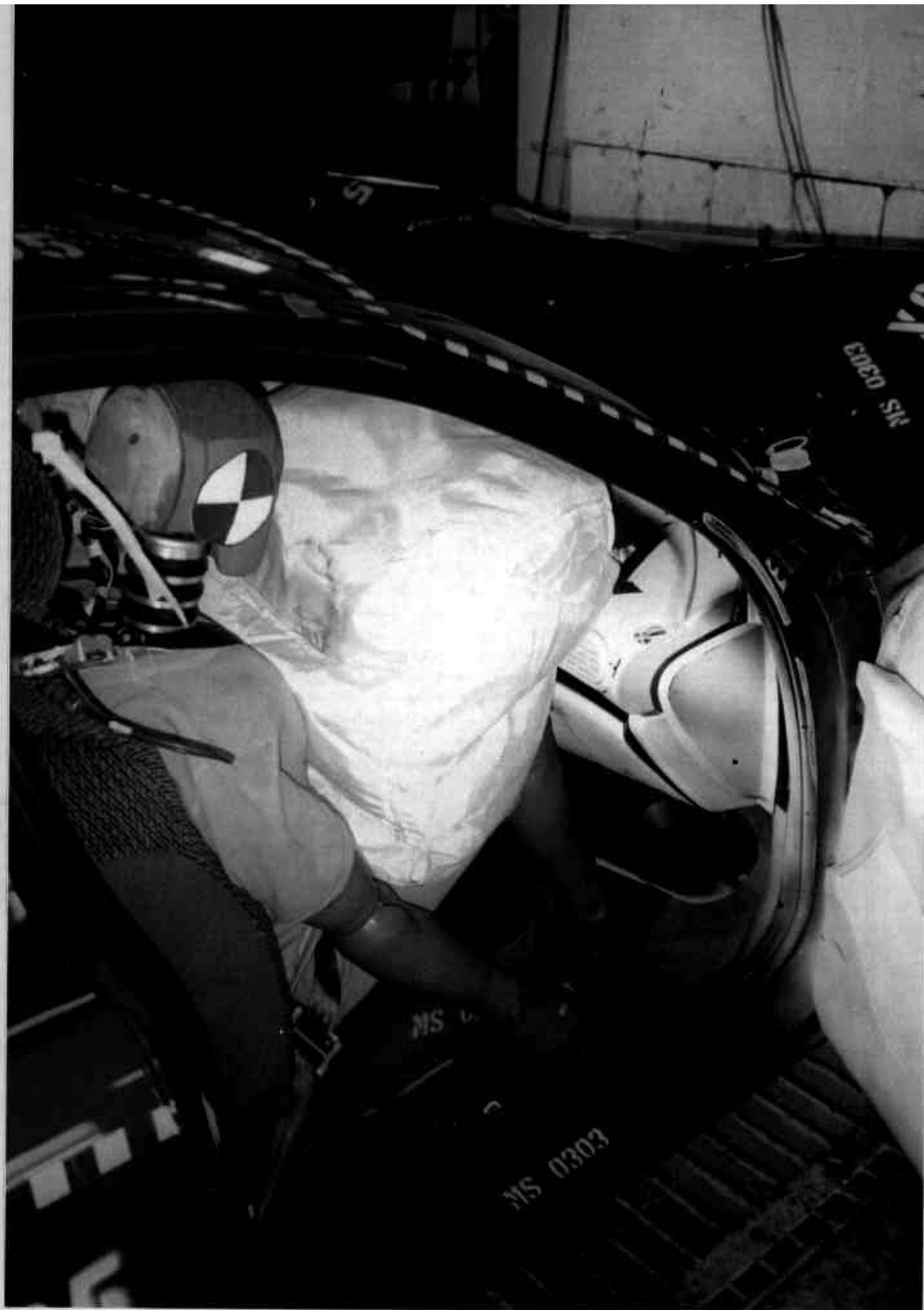


Figure A-29 POST-TEST PASSENGER DUMMY AND INTERIOR VIEW

A-31

8227-13



Figure A-30 PRE-TEST DRIVER HEAD LOCATION

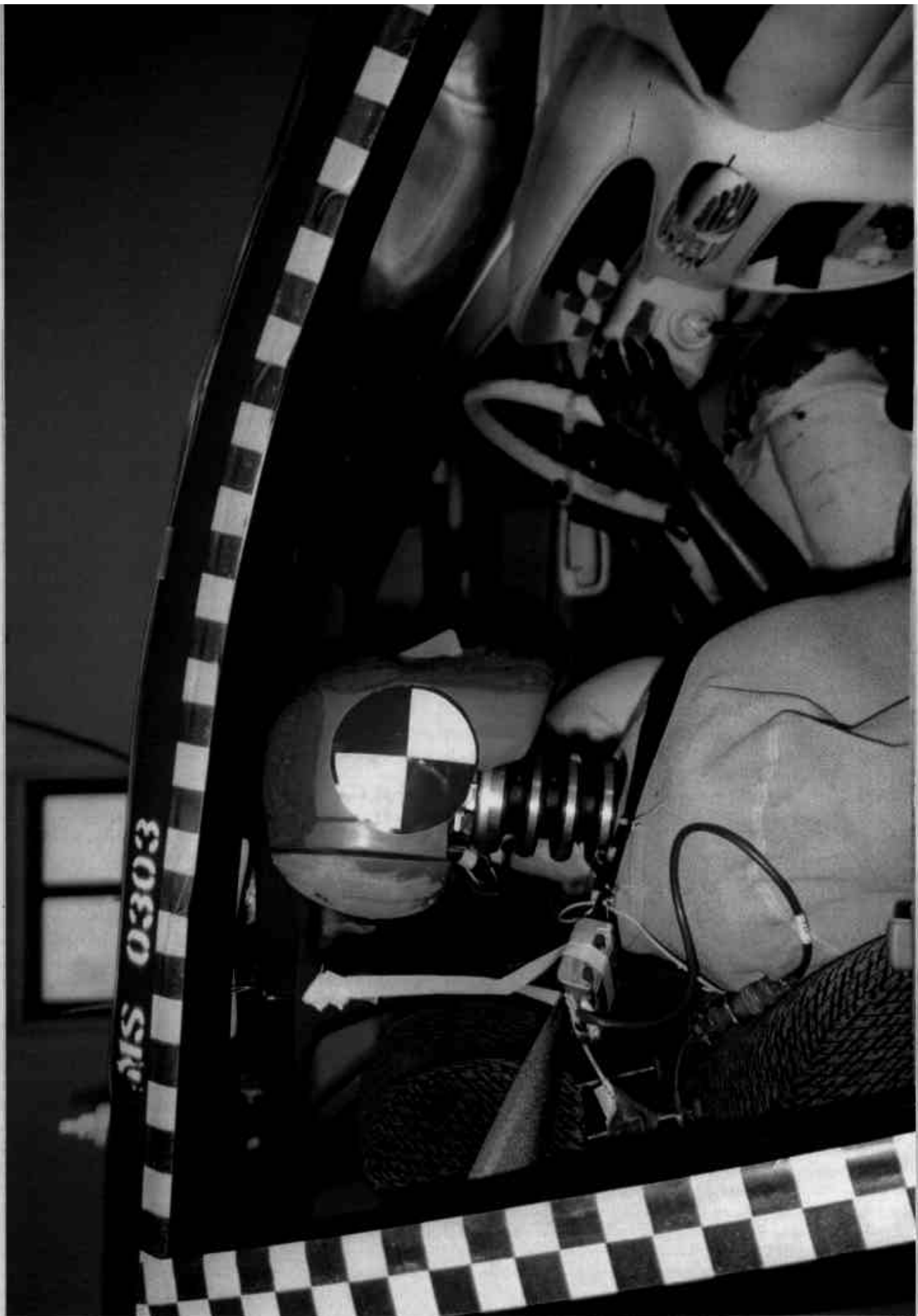


Figure A-31 PRE-TEST PASSENGER HEAD LOCATION



Figure A-32 VEHICLE IMPACT

Appendix B

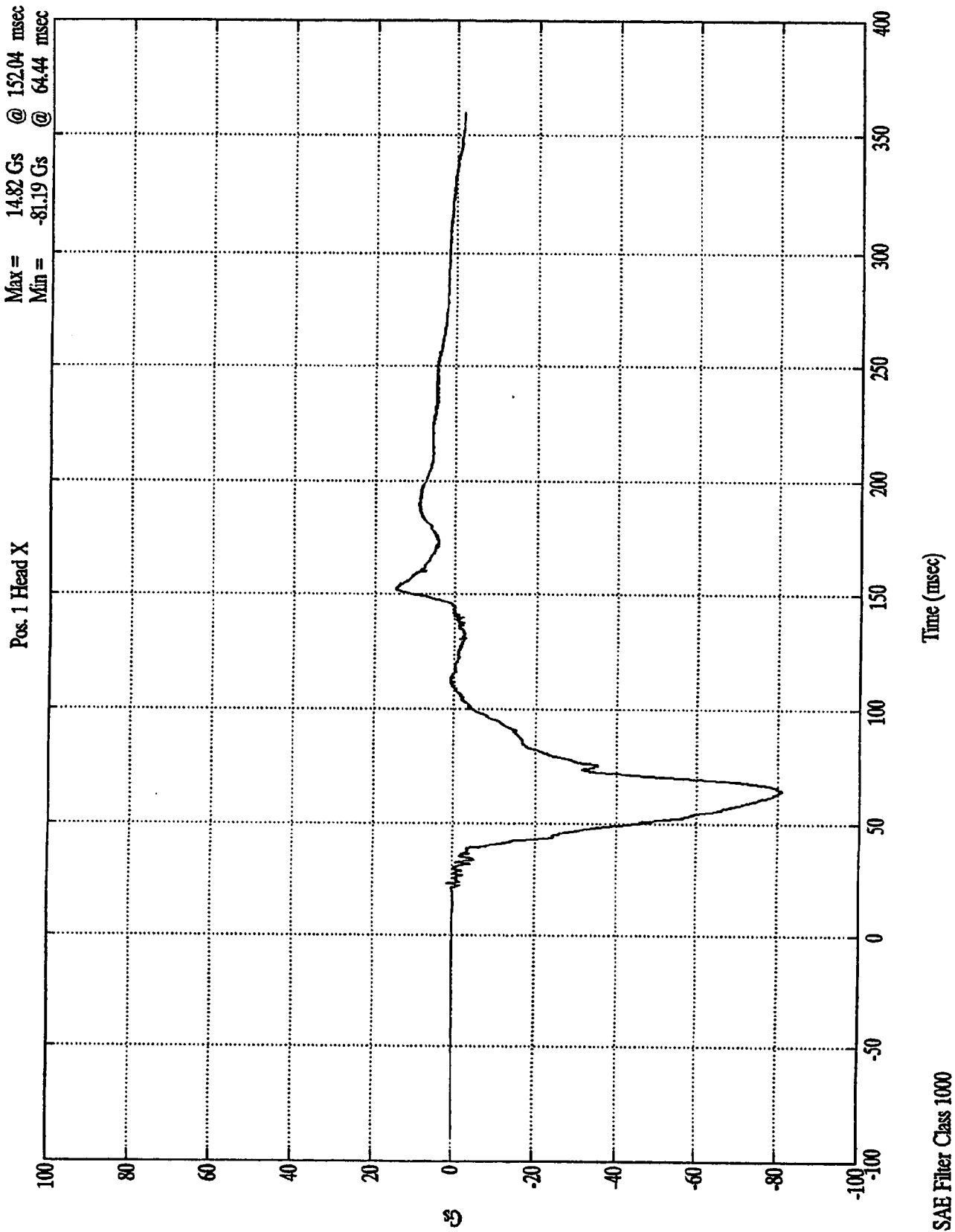
DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

TEST NO. MS0303

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

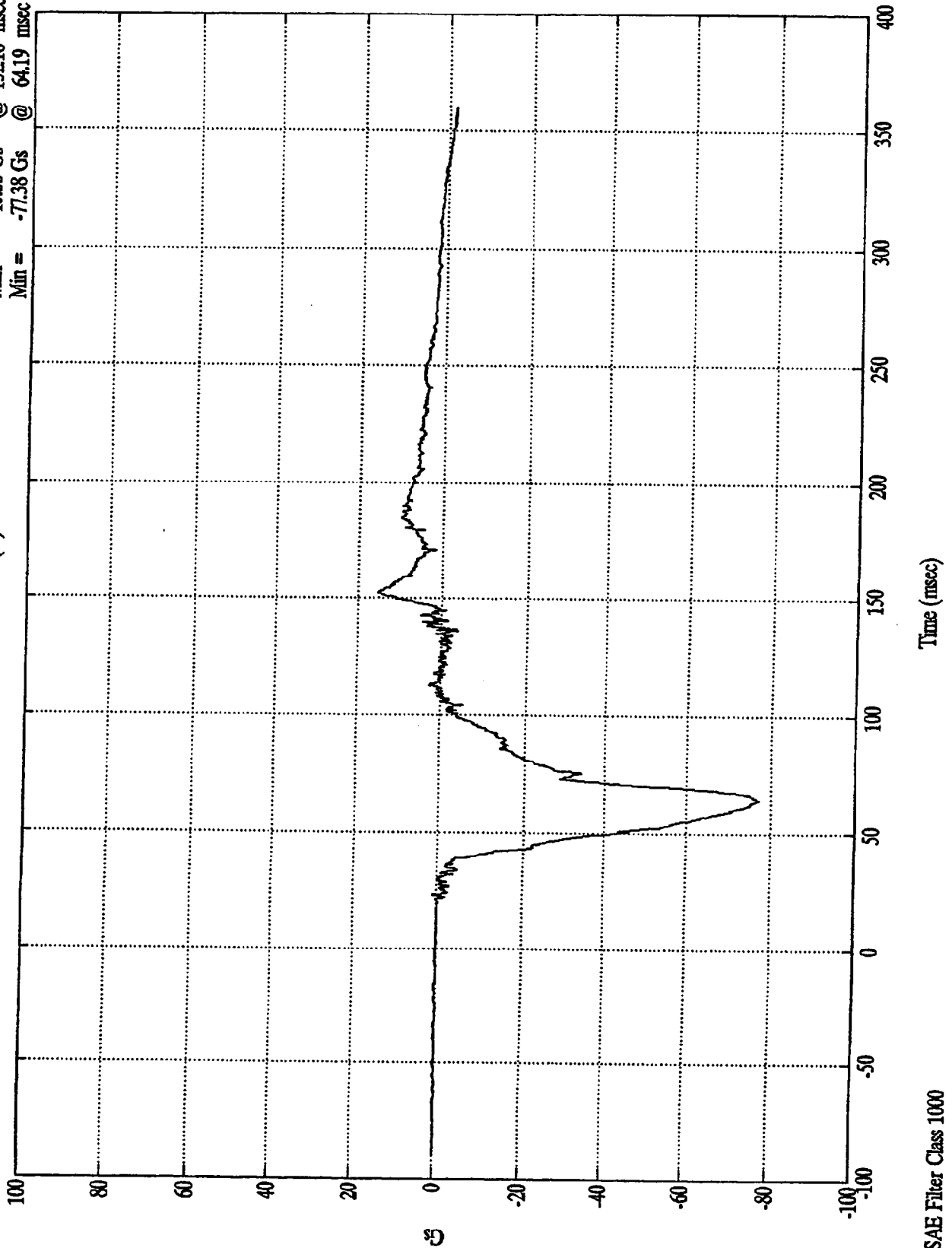
NCAP TEST #13 - 1995 DODGE STRATUS



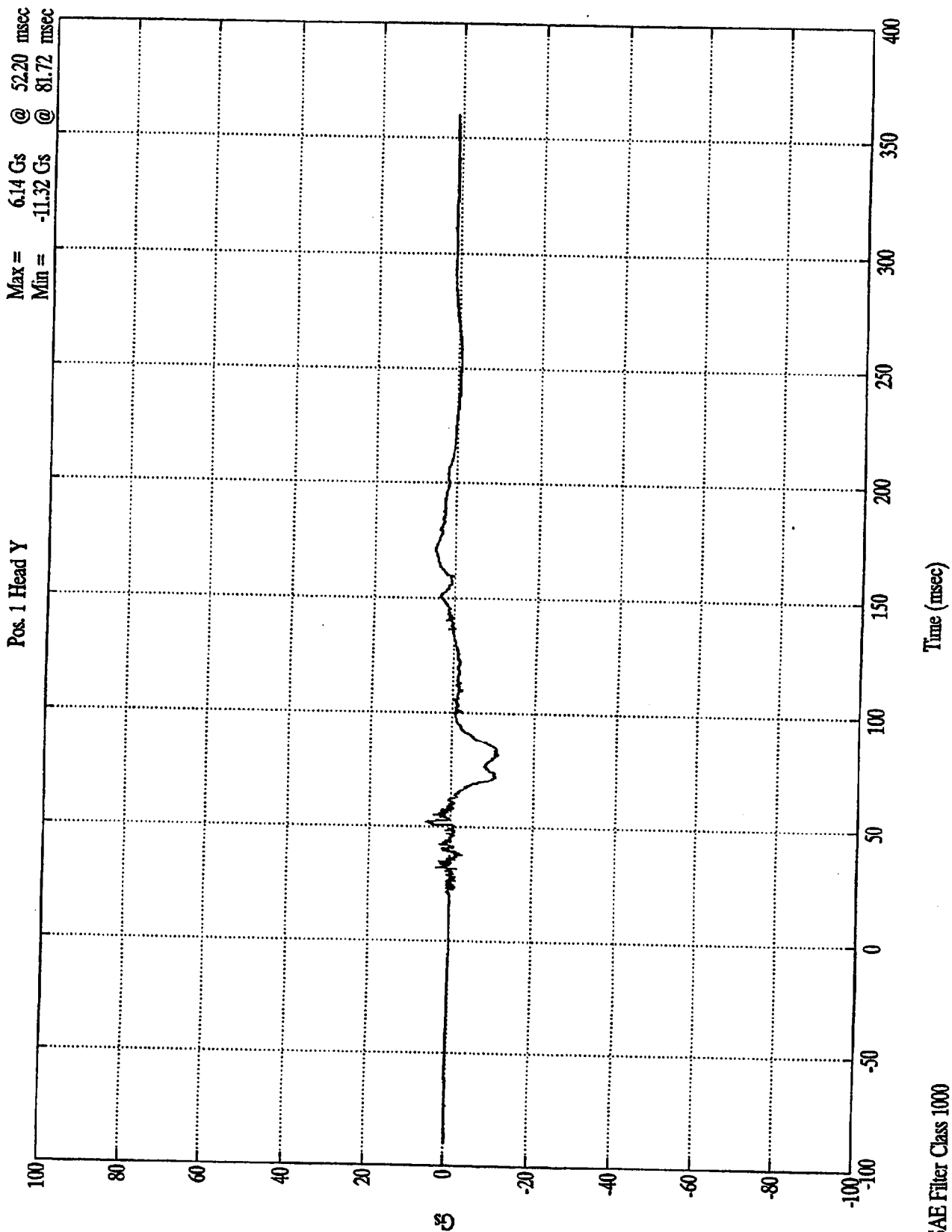
NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 1 Head X(R)

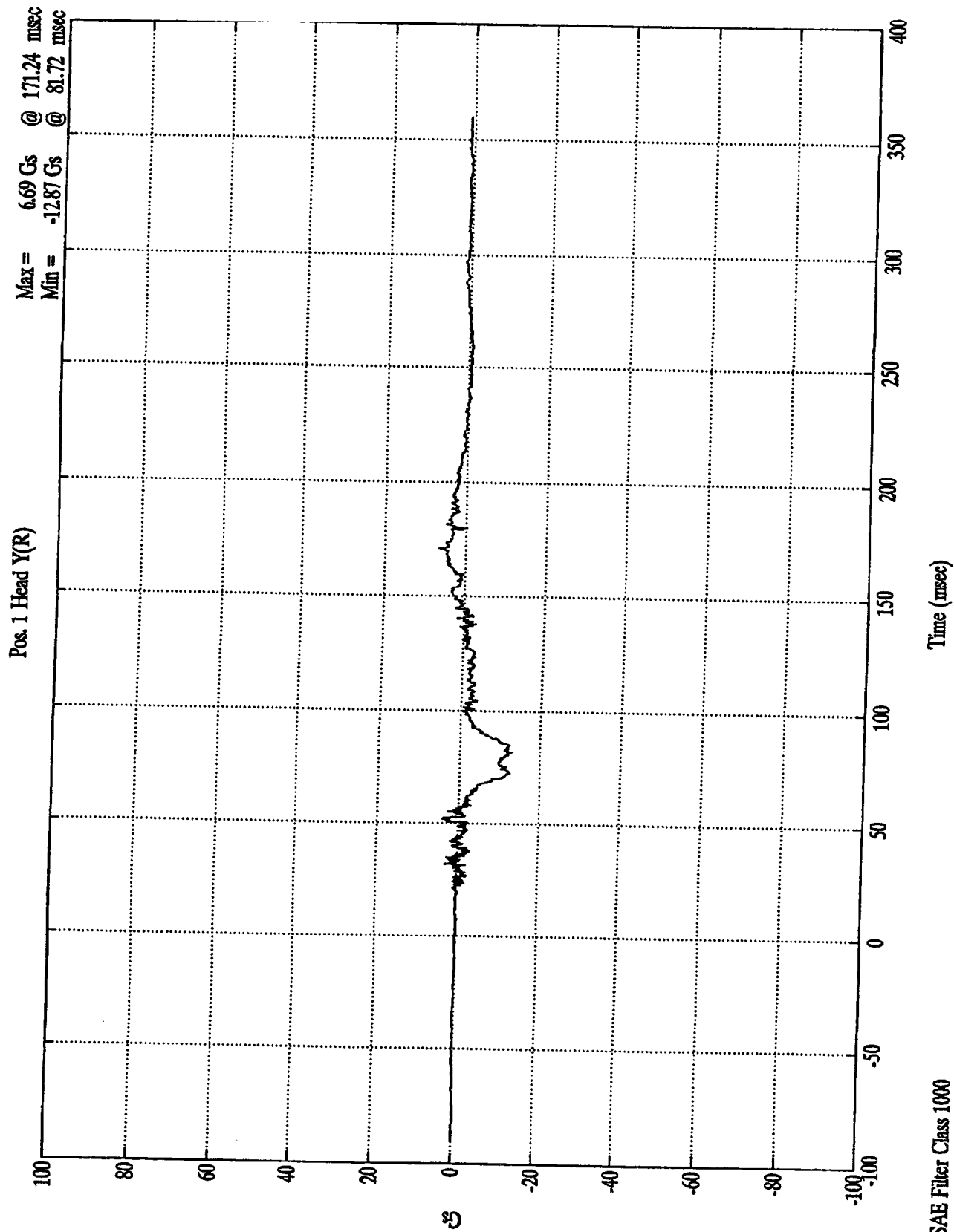
Max = 15.55 Gs @ 152.16 msec
Min = -77.38 Gs @ 64.19 msec



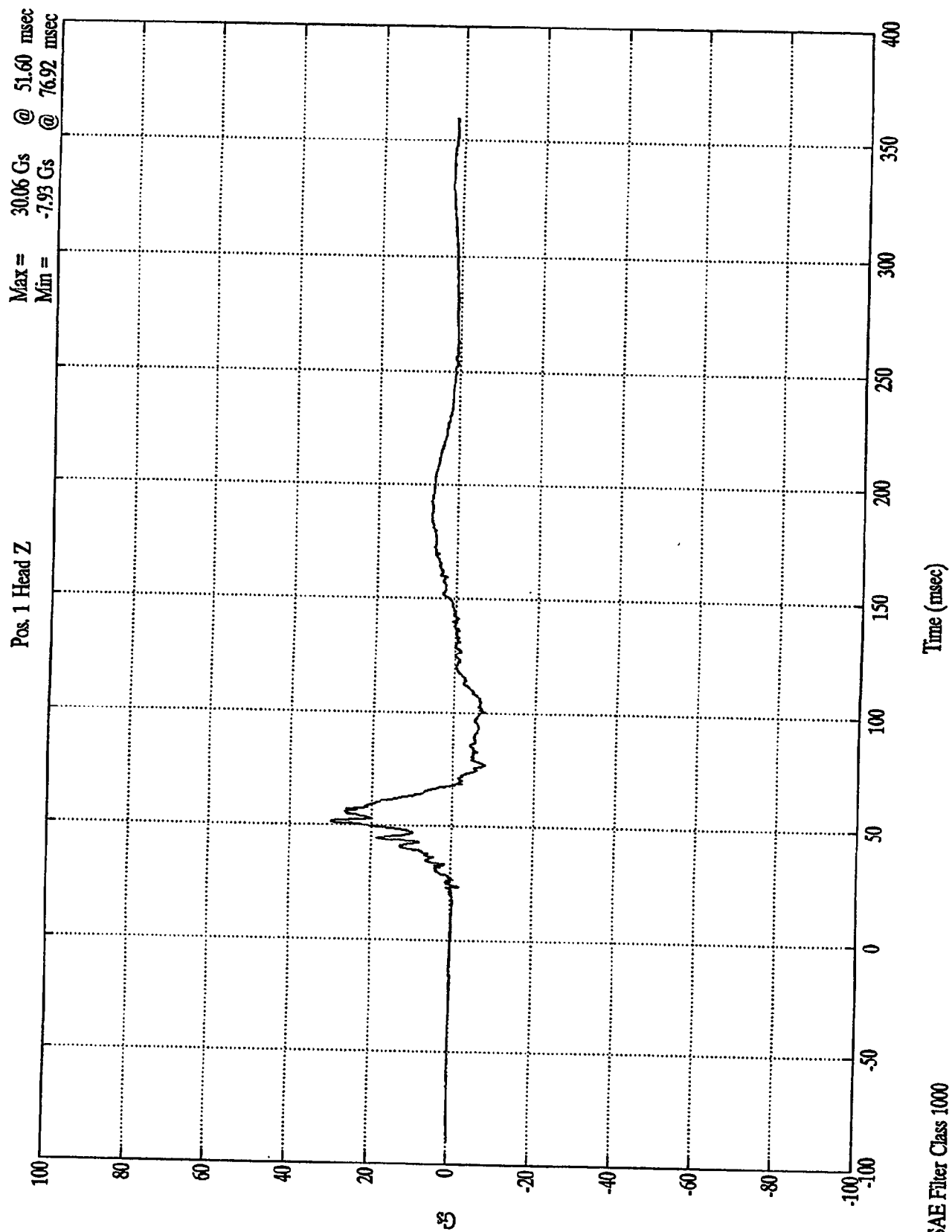
NCAP TEST #13 - 1995 DODGE STRATUS



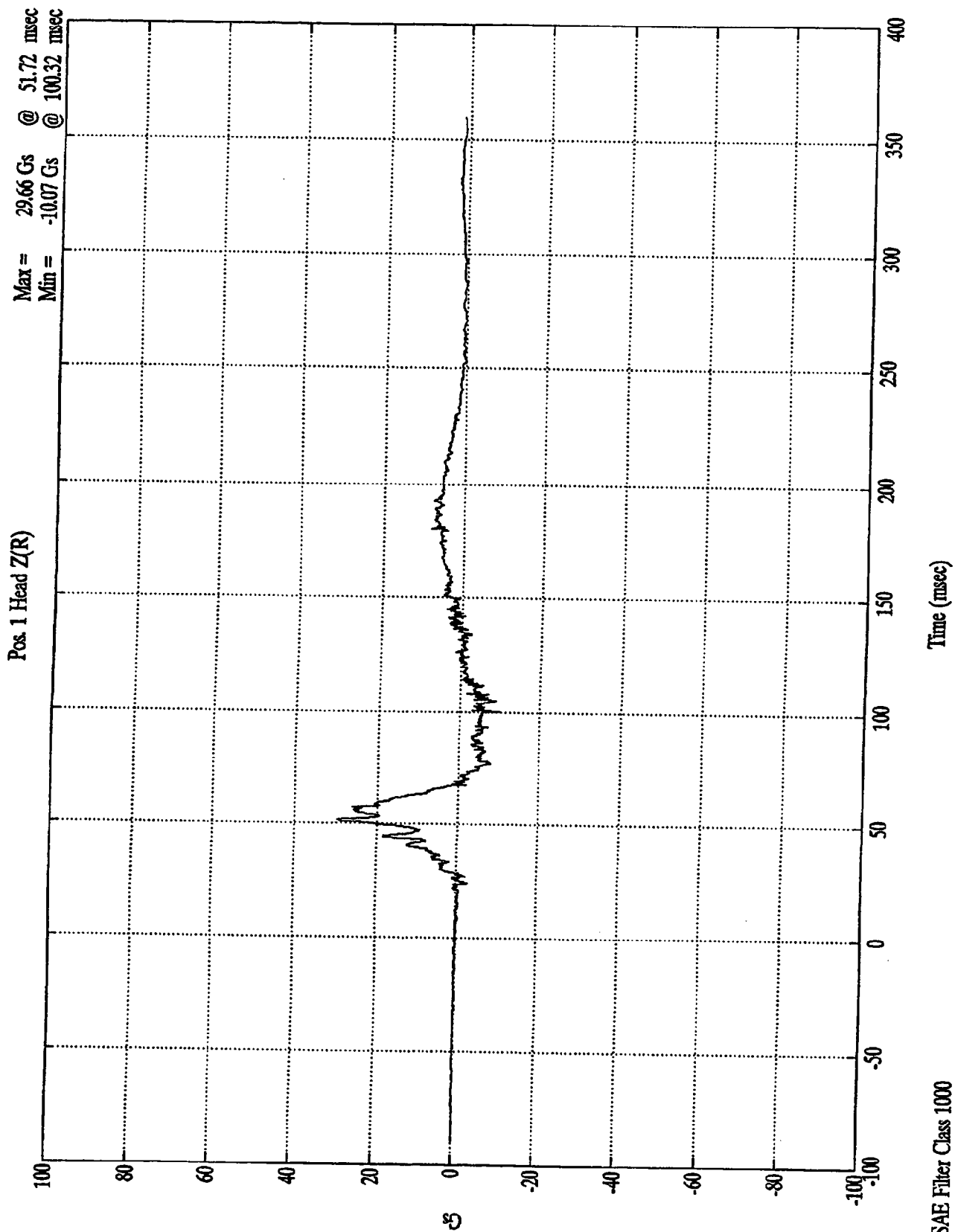
NCAP TEST #13 - 1995 DODGE STRATUS



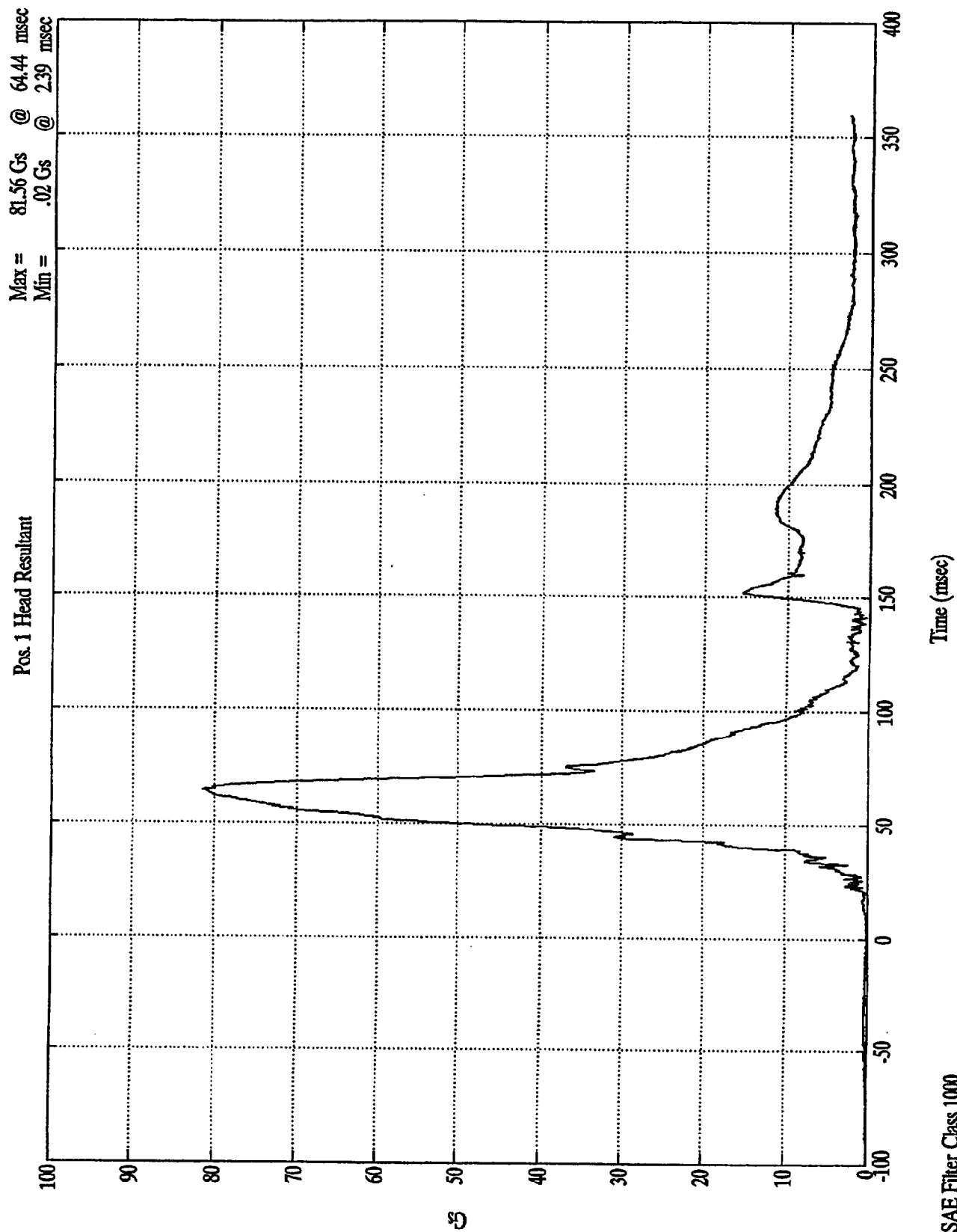
NCAP TEST #13 - 1995 DODGE STRATUS



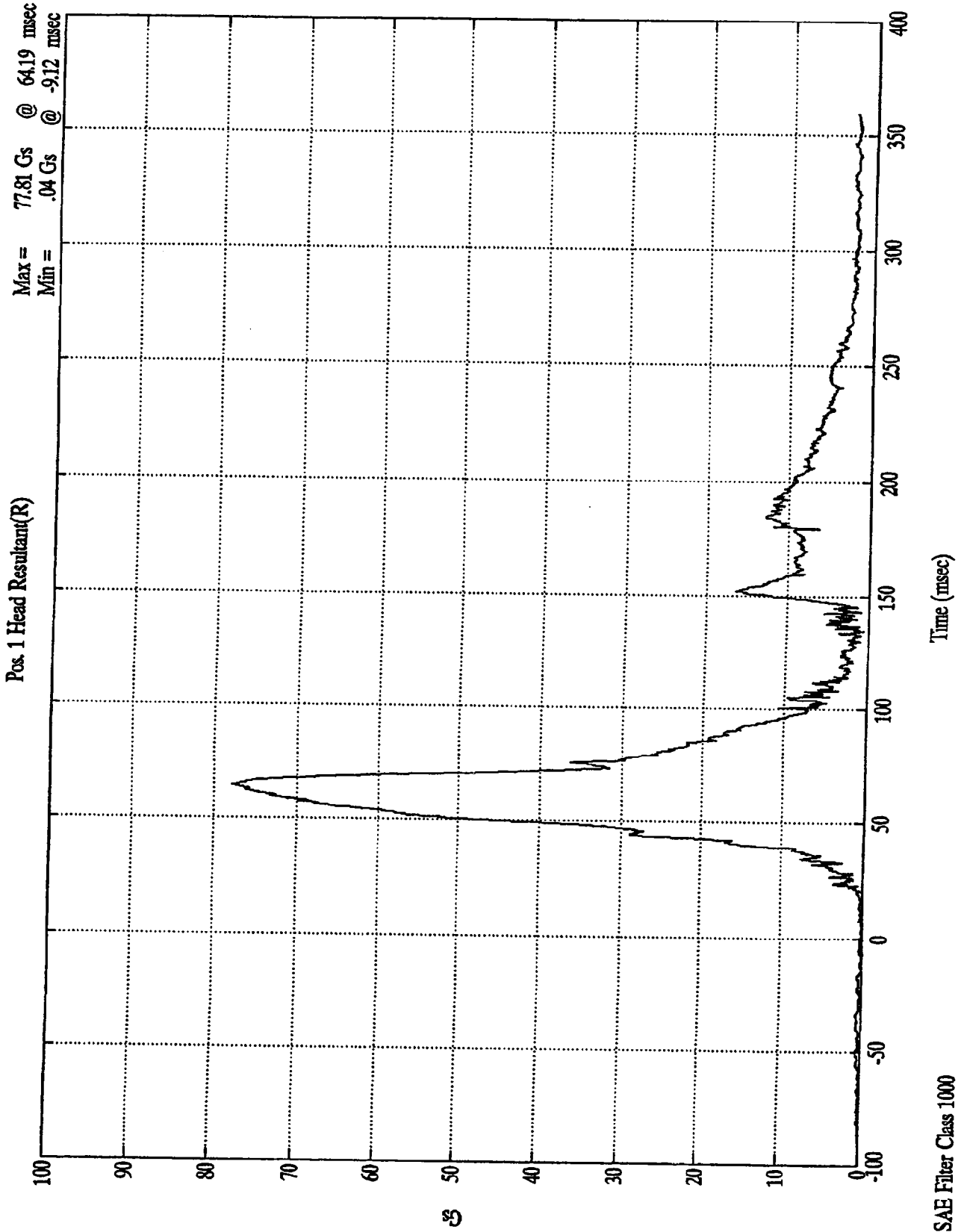
NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS



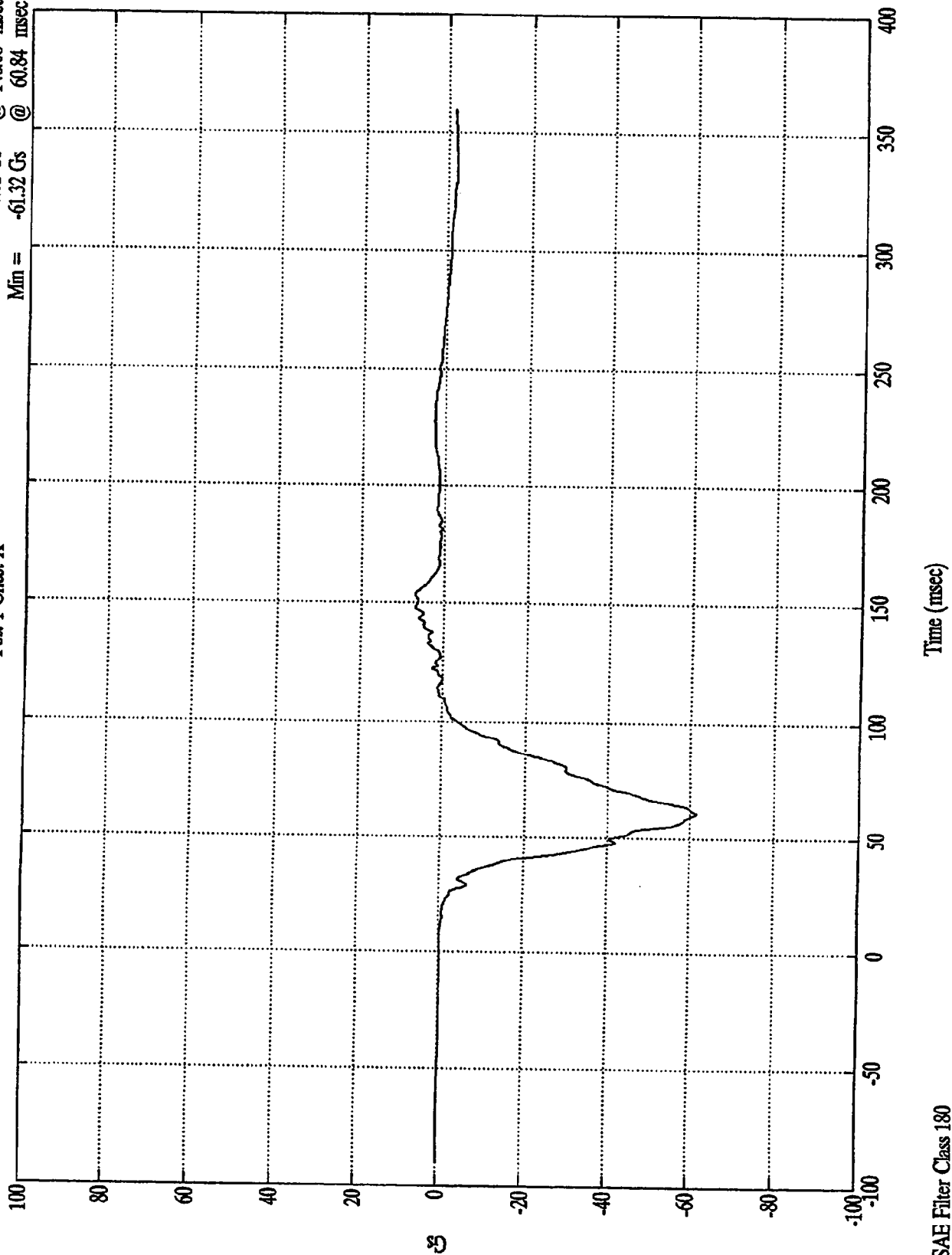
NCAP TEST #13 - 1995 DODGE STRATUS



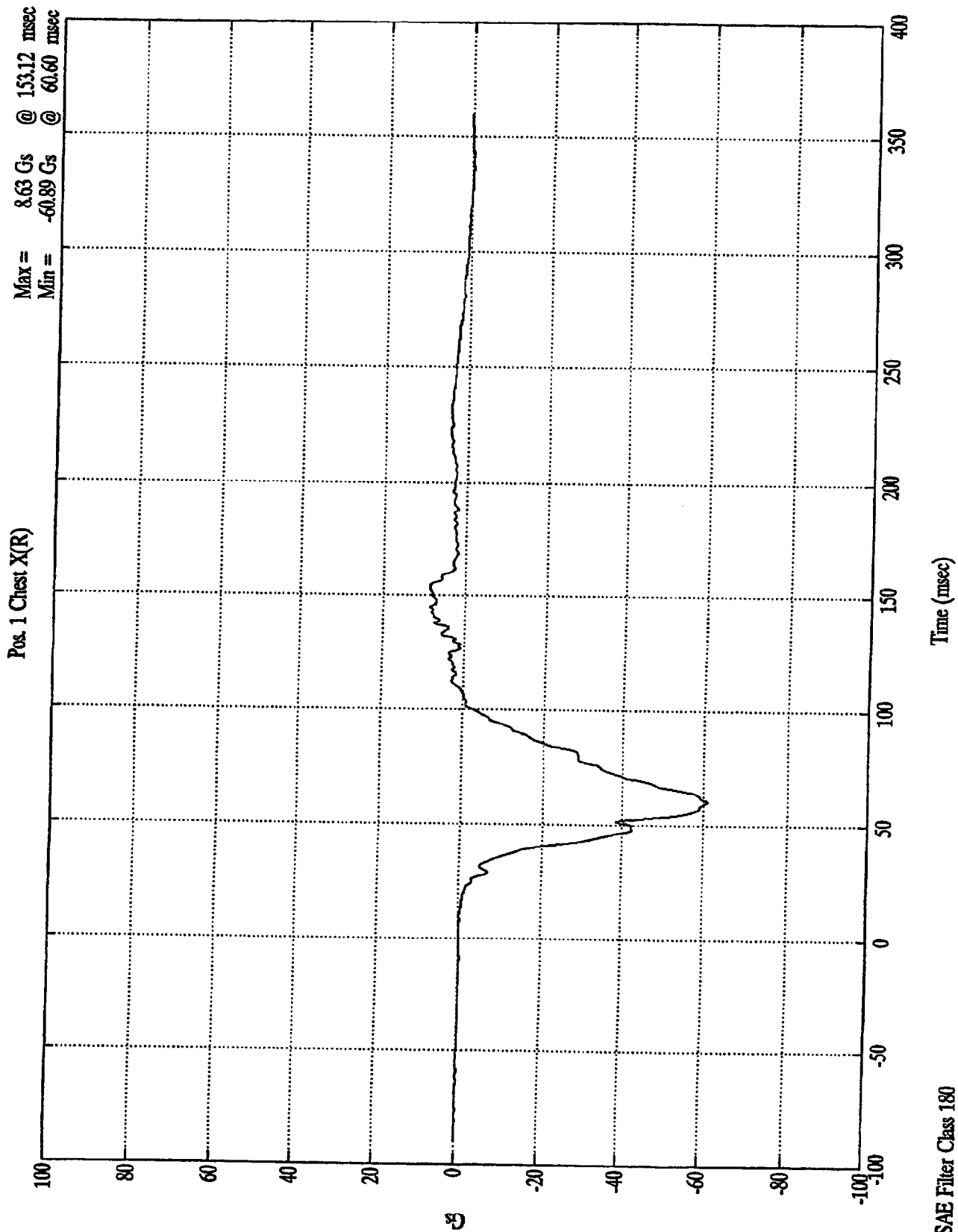
NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 1 Chest X

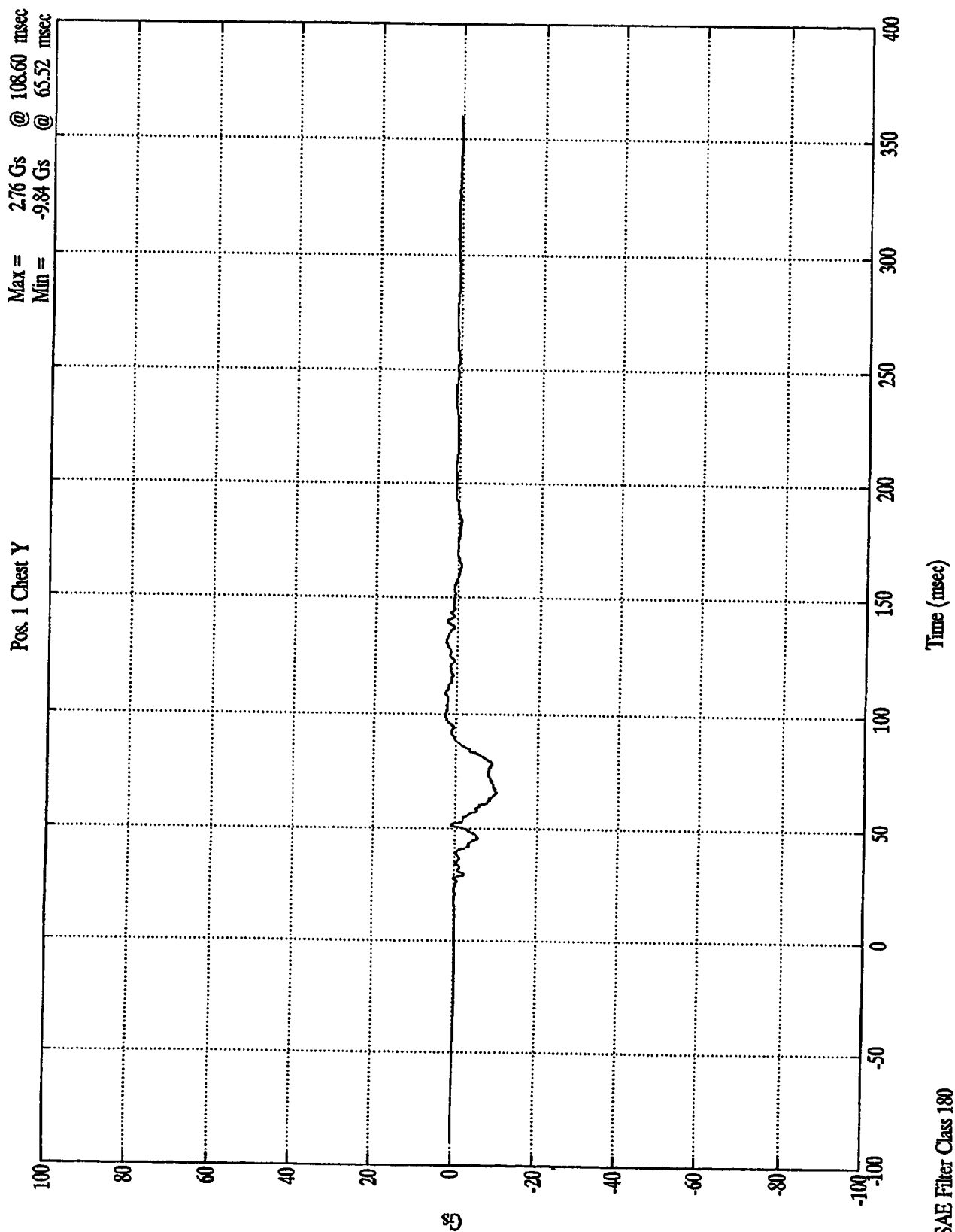
Max = 7.01 Gs @ 148.08 msec
Min = -61.32 Gs @ 60.84 msec



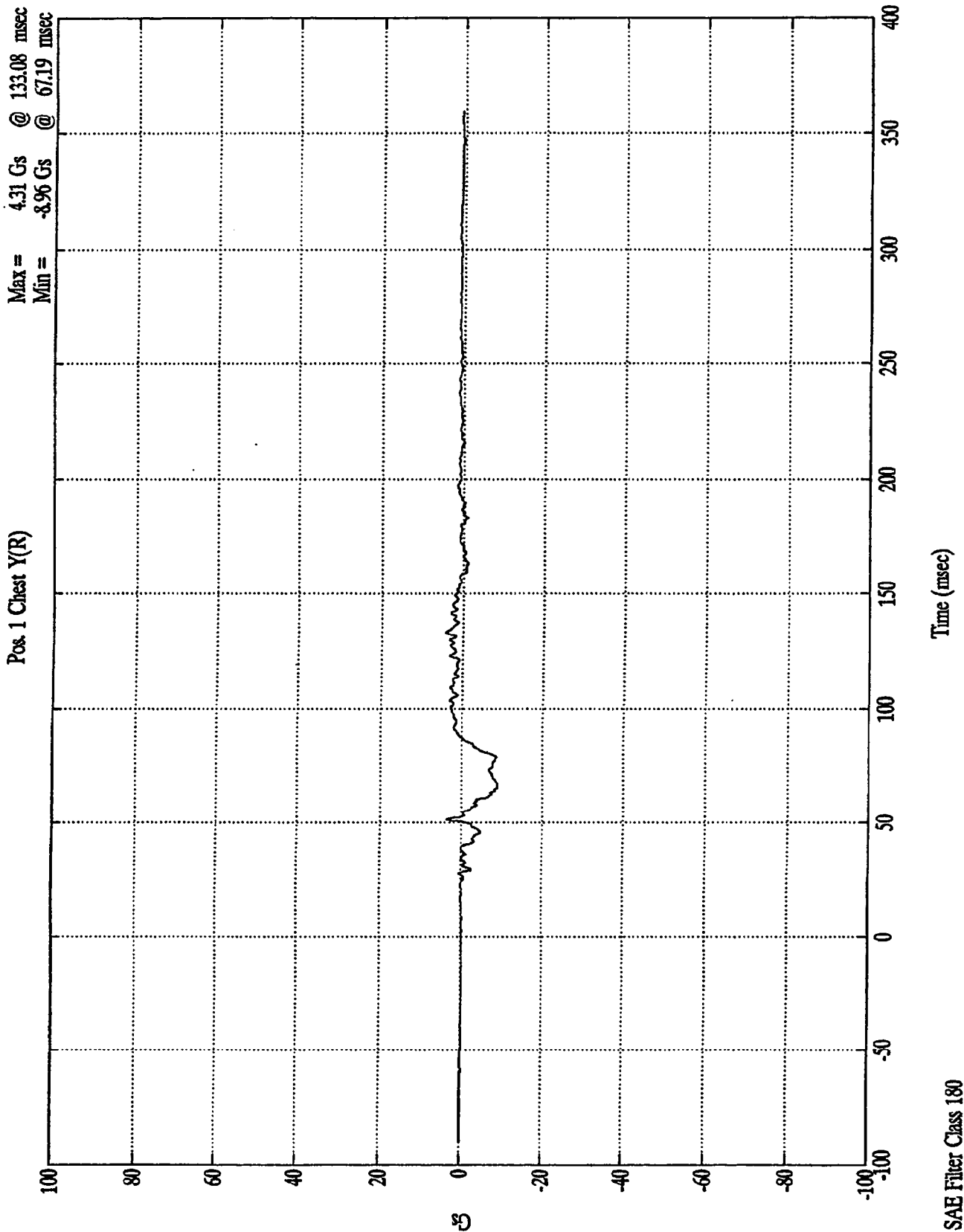
NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS



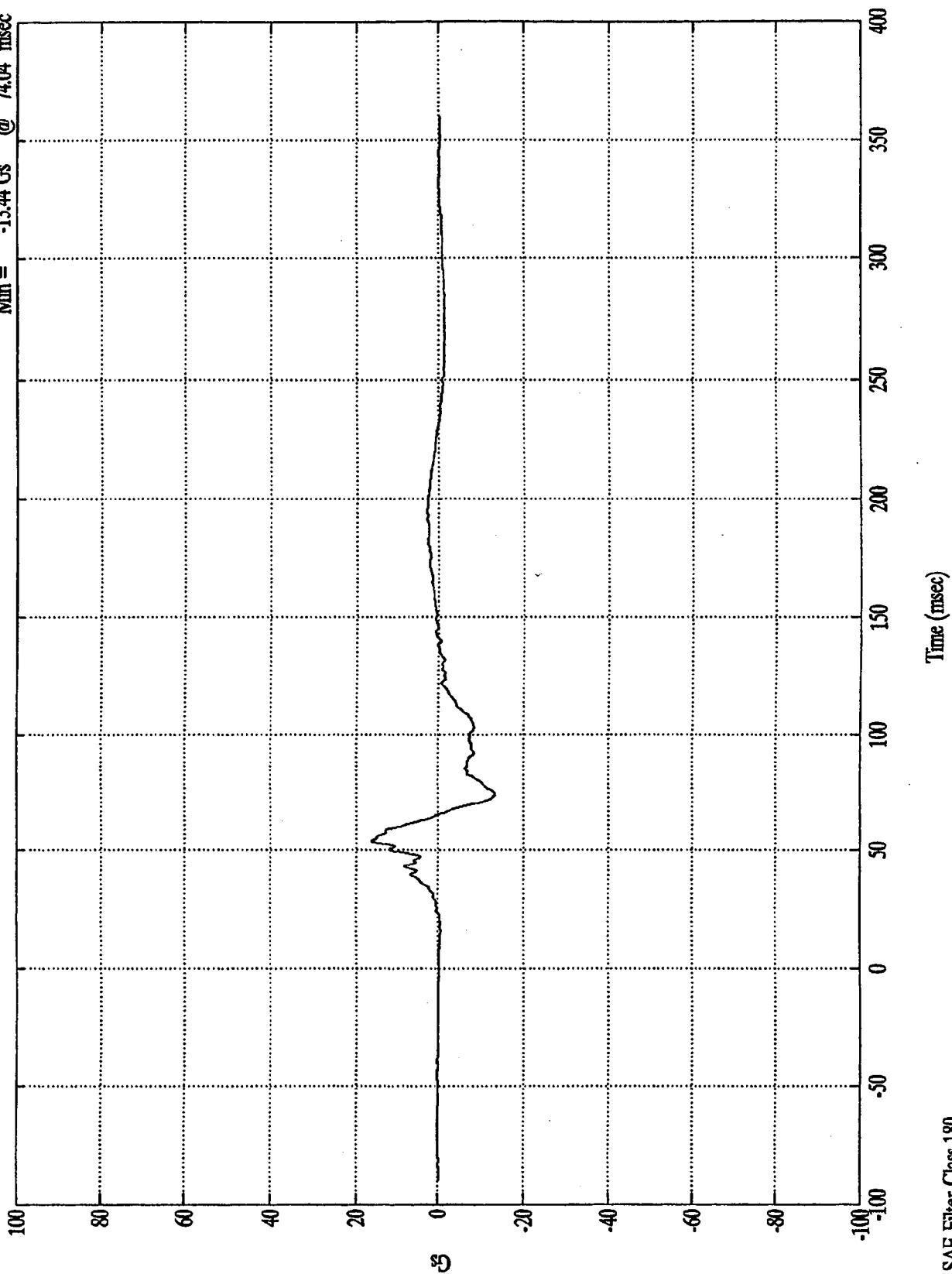
NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 16.09 Gs @ 53.75 msec
 Min = -13.44 Gs @ 74.04 msec

Pos 1 Chest Z

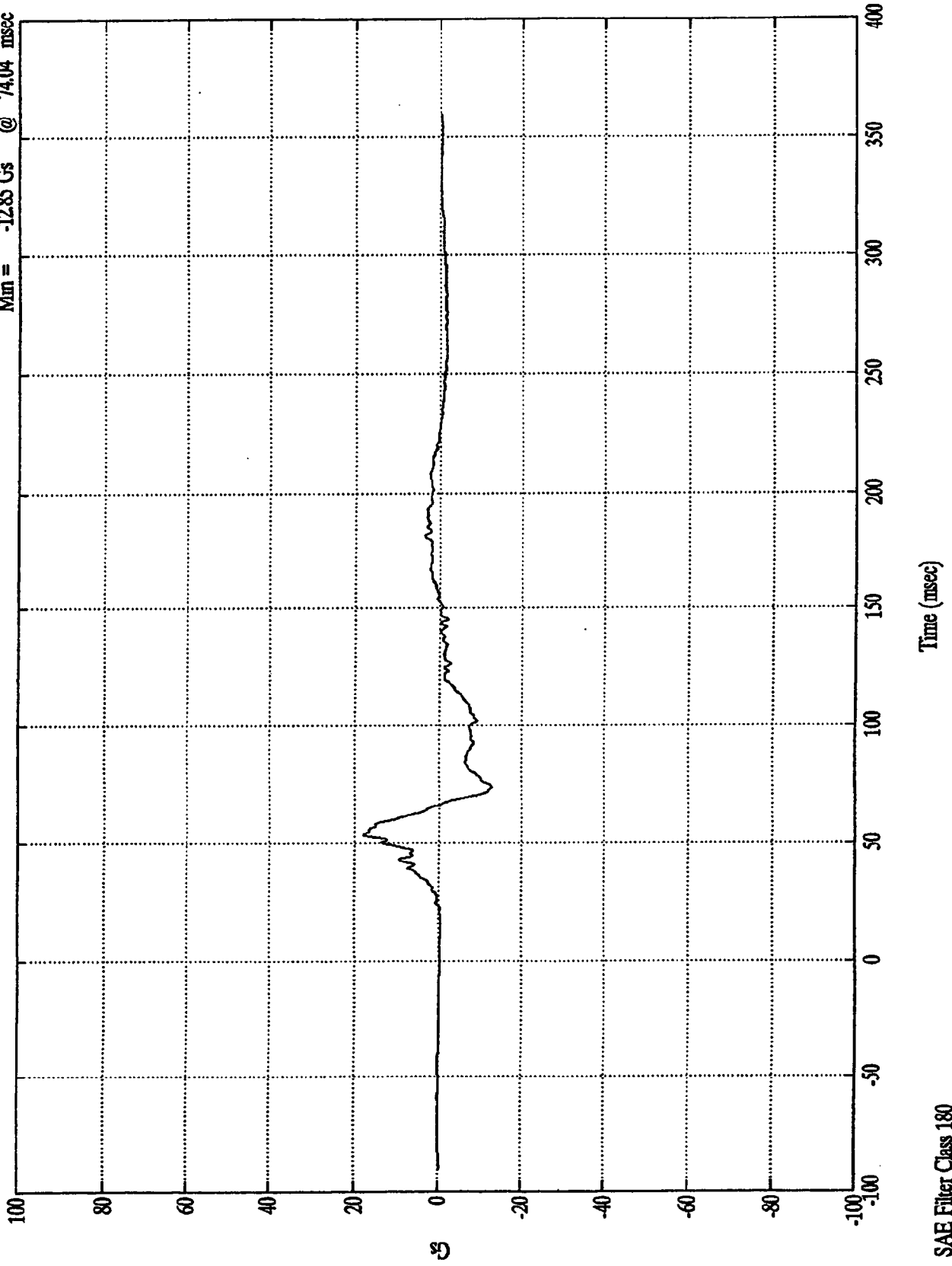


SAE Filter Class 180

NCAP TEST #13 - 1995 DODGE STRATUS

Max = 18.01 Gs @ 53.63 msec
Min = -12.85 Gs @ 74.04 msec

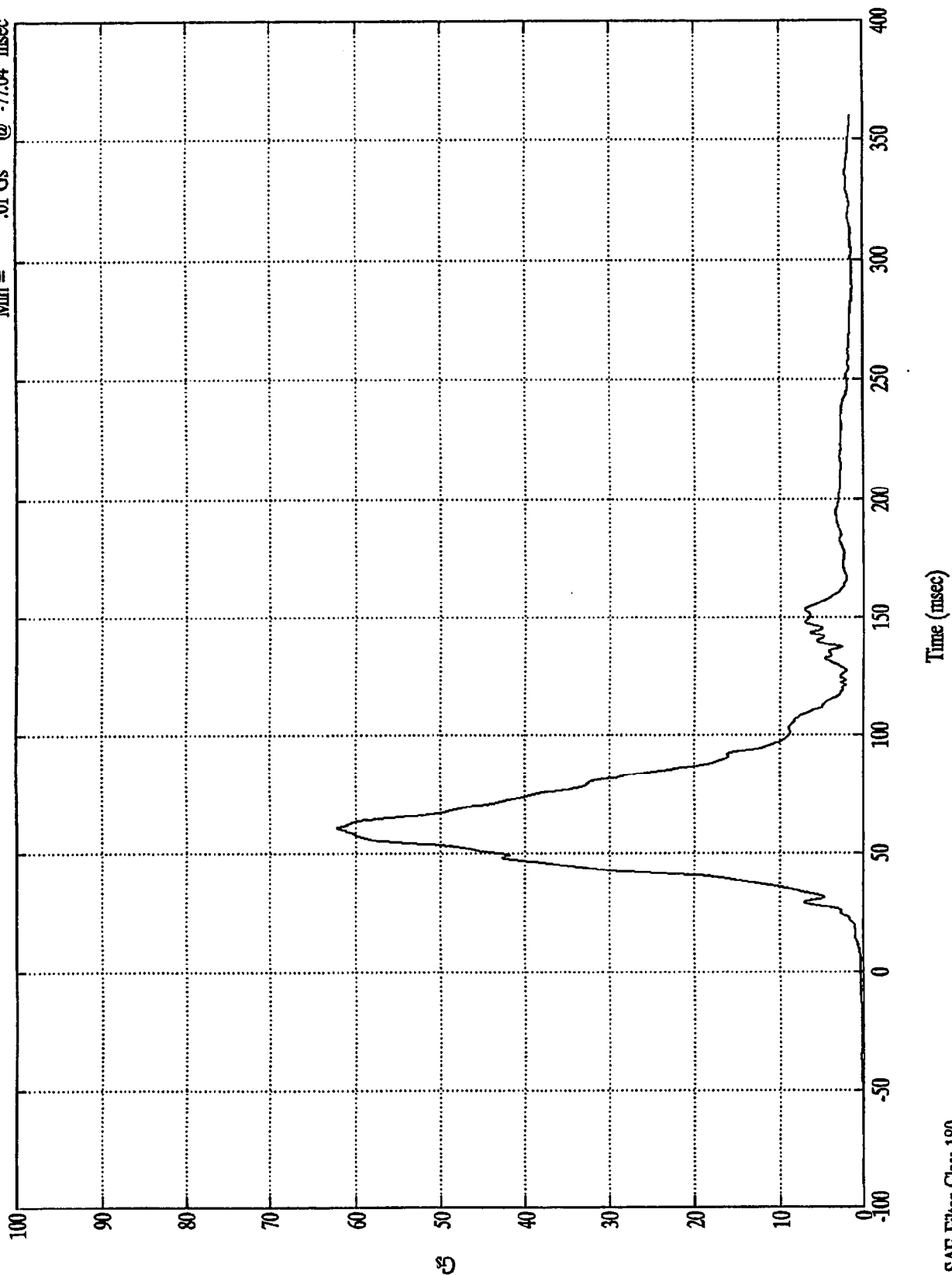
Pos. 1 Chest Z(R)



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 62.22 Gs @ 60.84 msec
Min = .01 Gs @ -77.04 msec

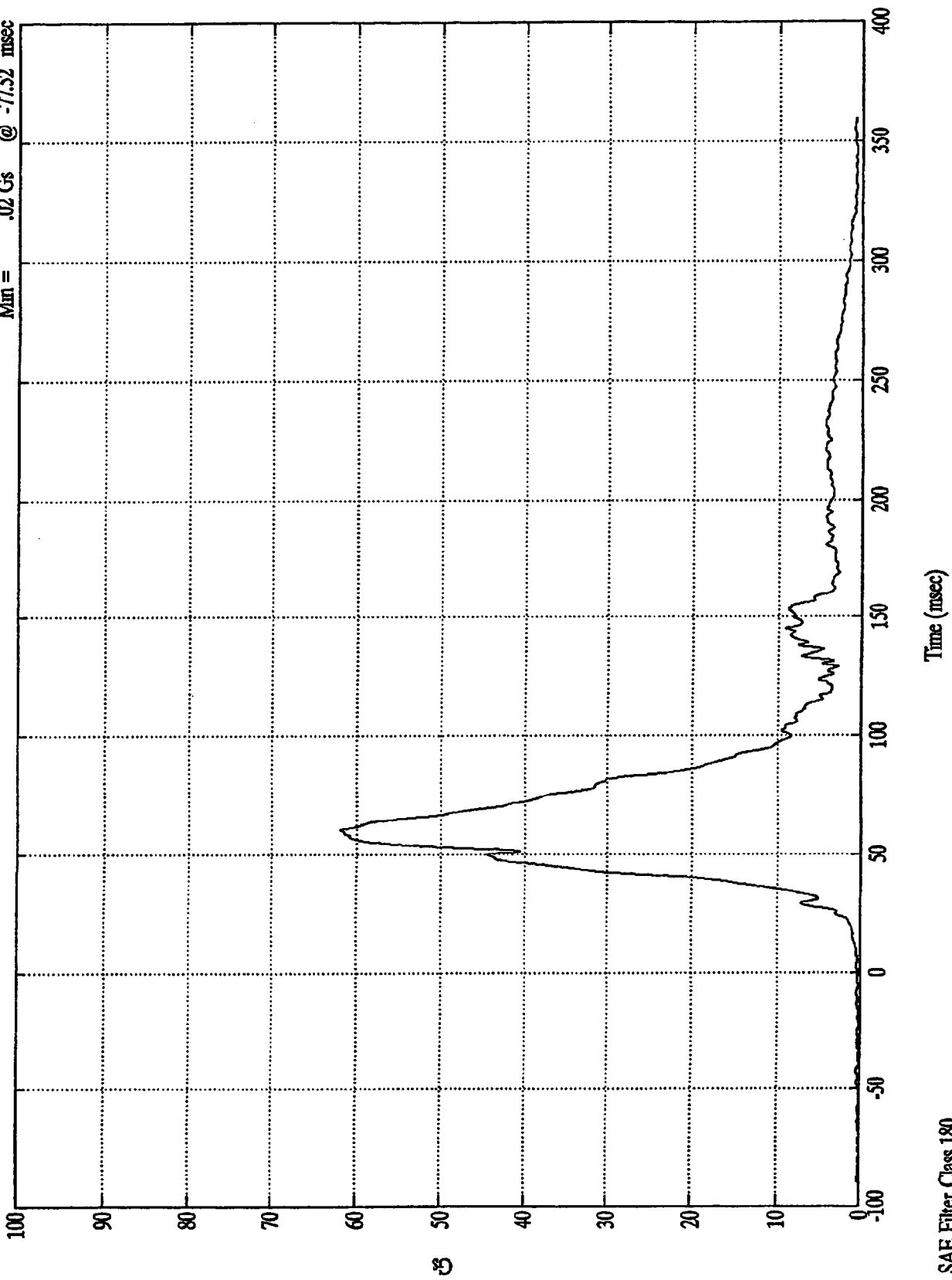
Pos. 1 Chest Resultant



SAE Filter Class 180

NCAP TEST #13 - 1995 DODGE STRATUS

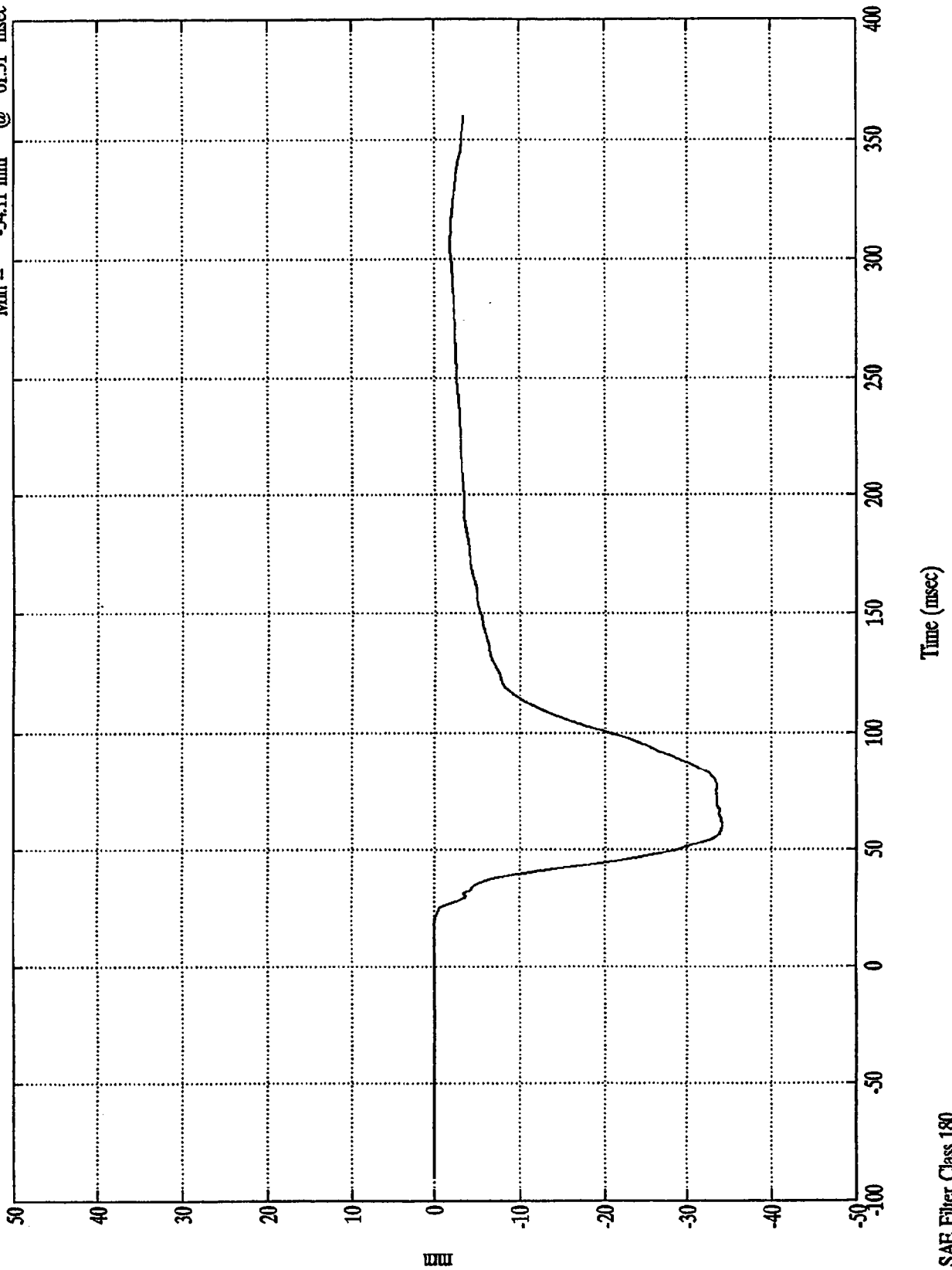
Pos. 1 Chest Res(R)
 Max = 61.85 Gs @ 60.60 msec
 Min = .02 Gs @ -77.52 msec



SAE Filter Class 180

NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 1 Chest Disp.
Max = .00 mm @ -85.20 msec
Min = -34.11 mm @ 61.31 msec

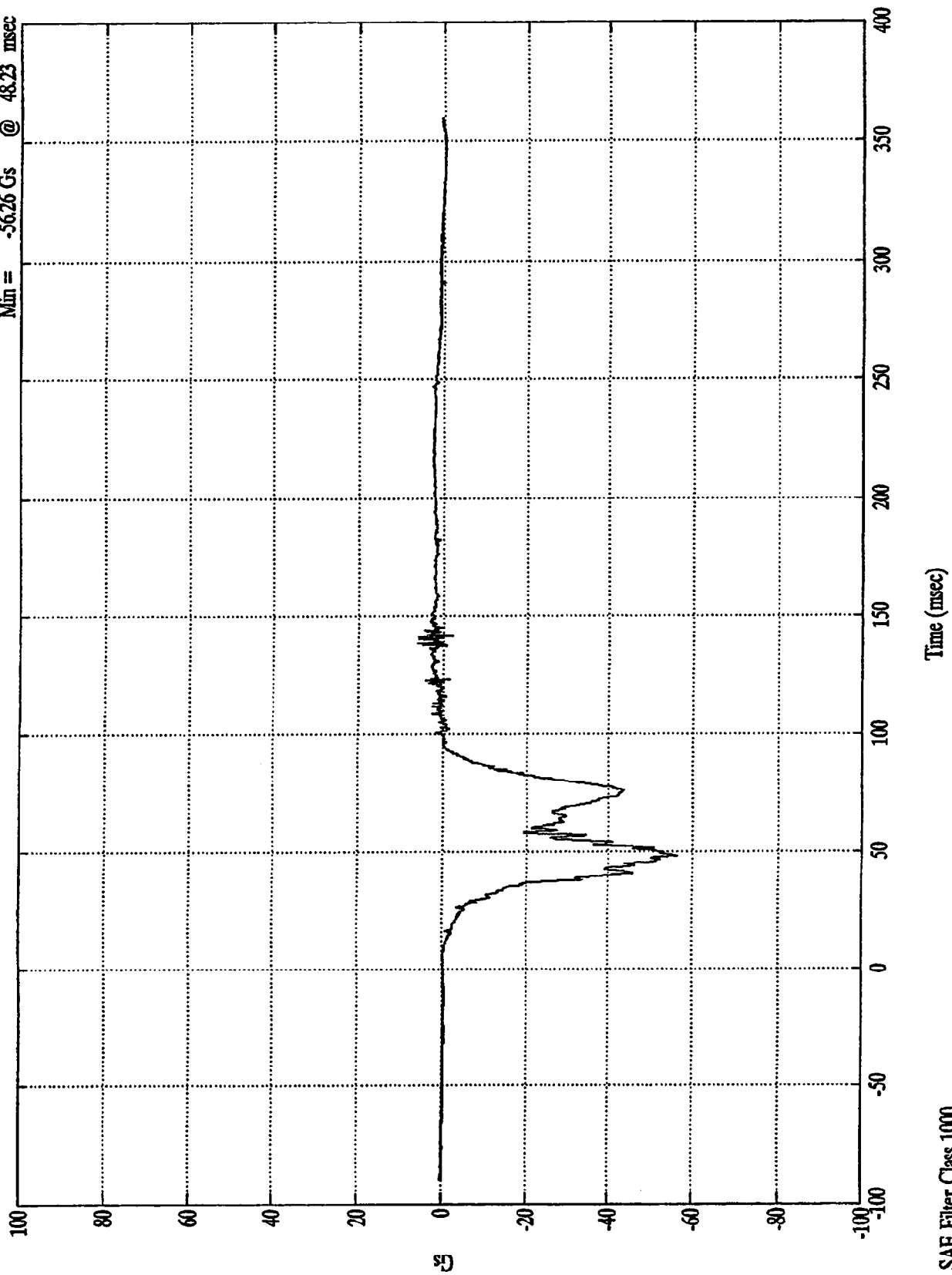


SAE Filter Class 180

NCAP TEST #13 - 1995 DODGE STRATUS

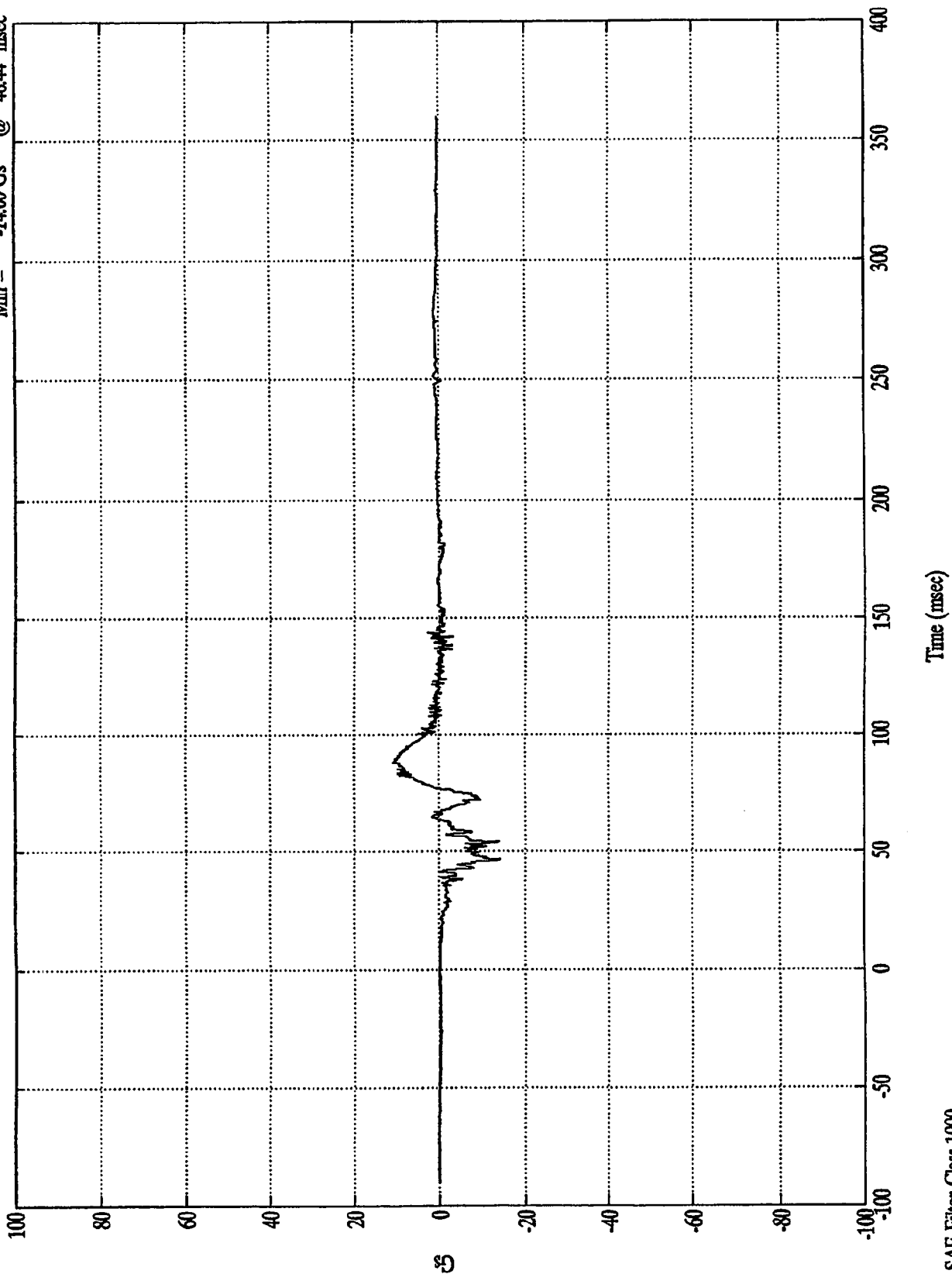
Pos. 1 Pelvic (X)

Max = 6.01 Gs @ 138.36 msec
Min = -56.26 Gs @ 48.23 msec



NCAP TEST #13 - 1995 DODGE STRATUS

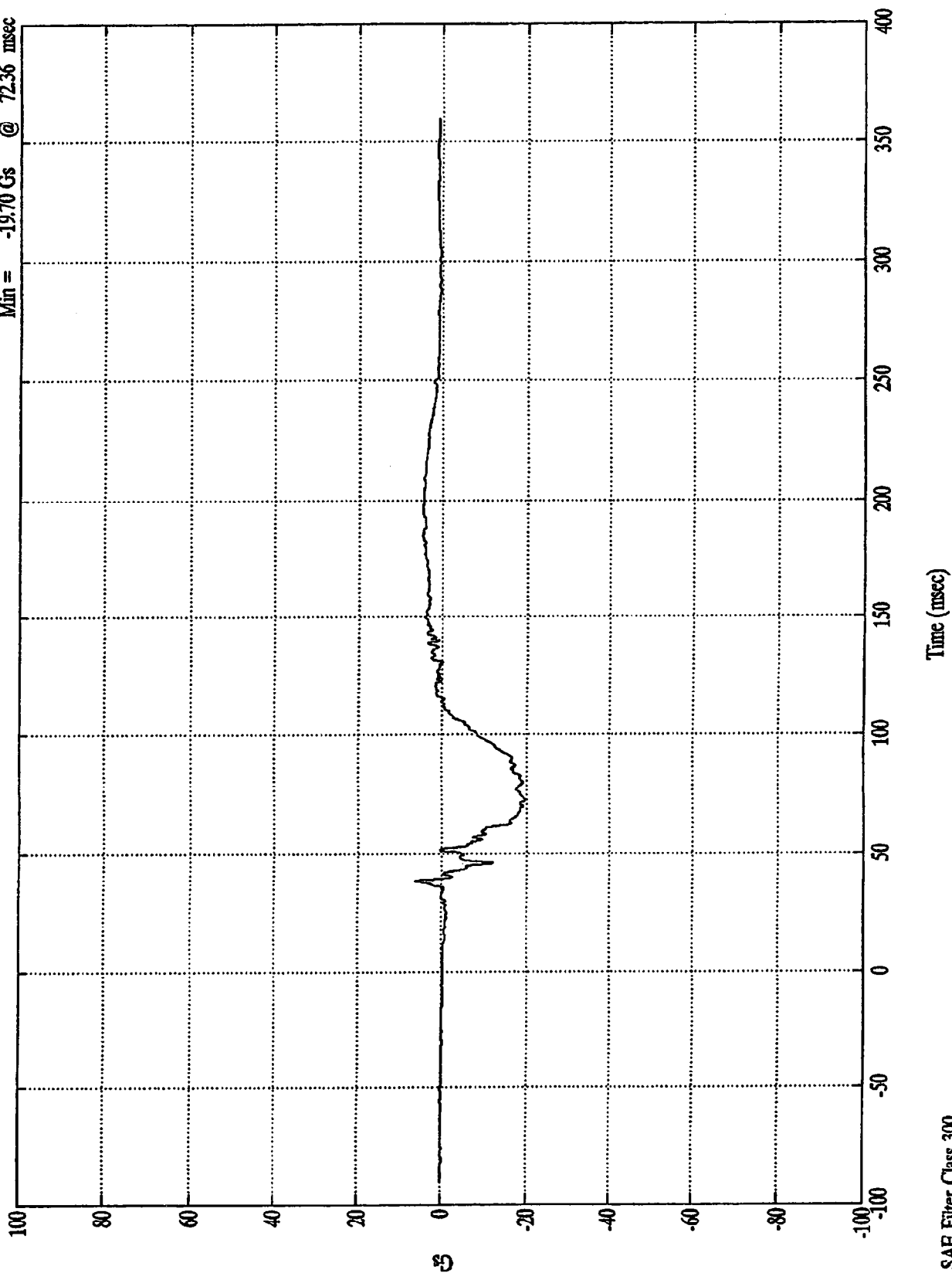
Pos. 1 Pelvic (Y)
 Max = 10.73 Gs @ 87.96 msec
 Min = -14.00 Gs @ 46.44 msec



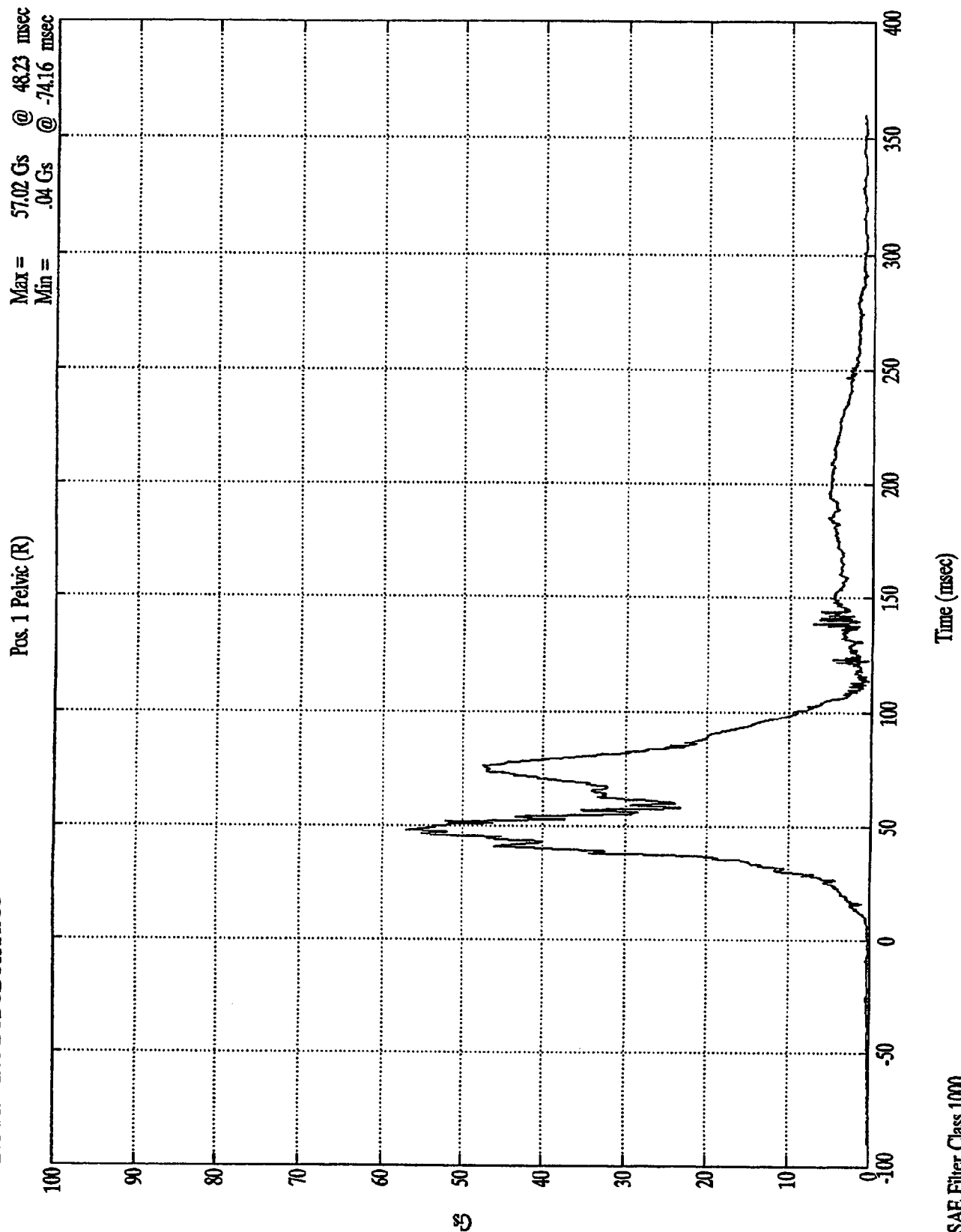
NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 1 Pelvic (Z)

Max = 6.03 Gs @ 38.63 msec
Min = -19.70 Gs @ 72.36 msec

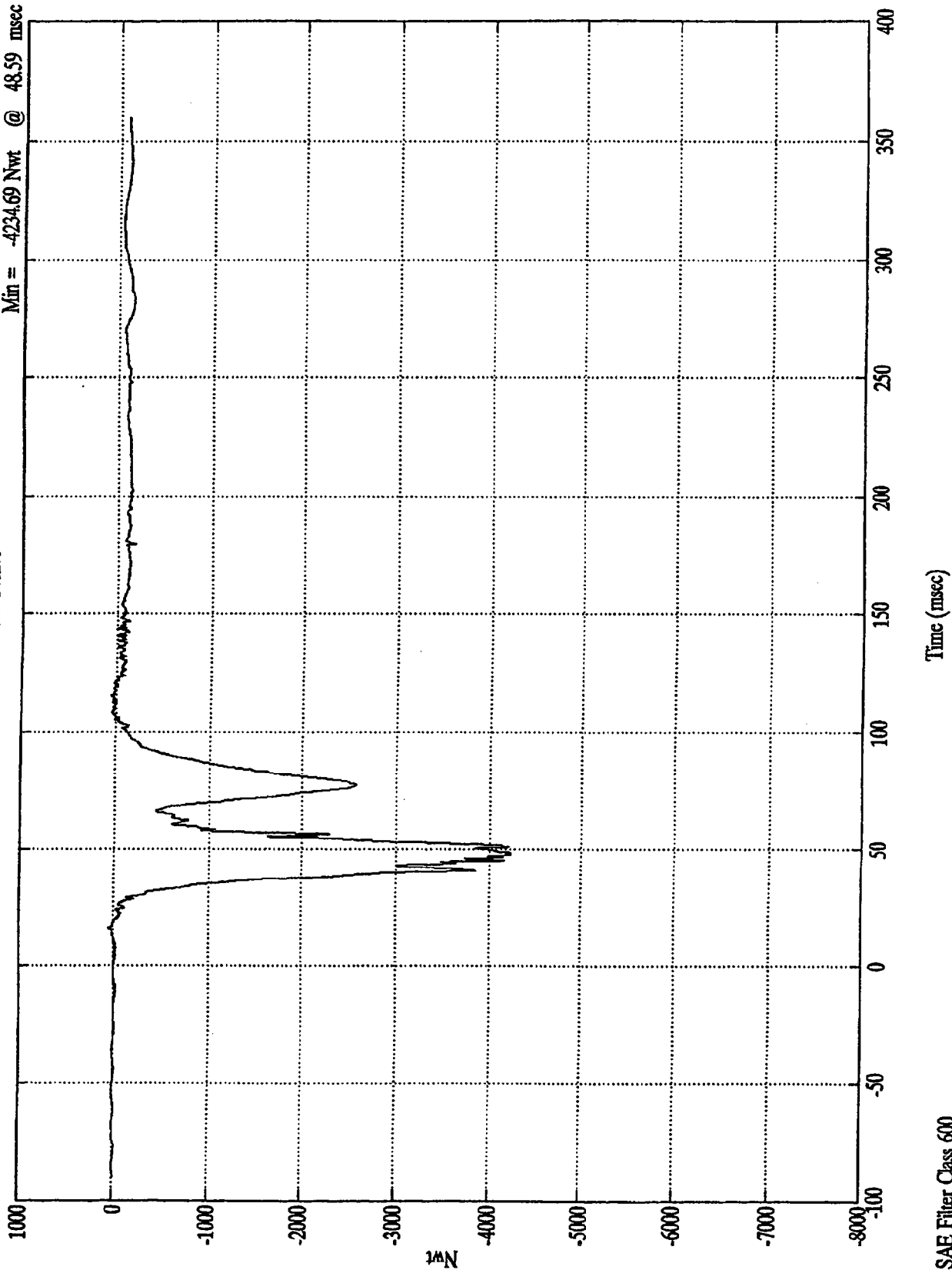


NCAP TEST #13 - 1995 DODGE STRATUS



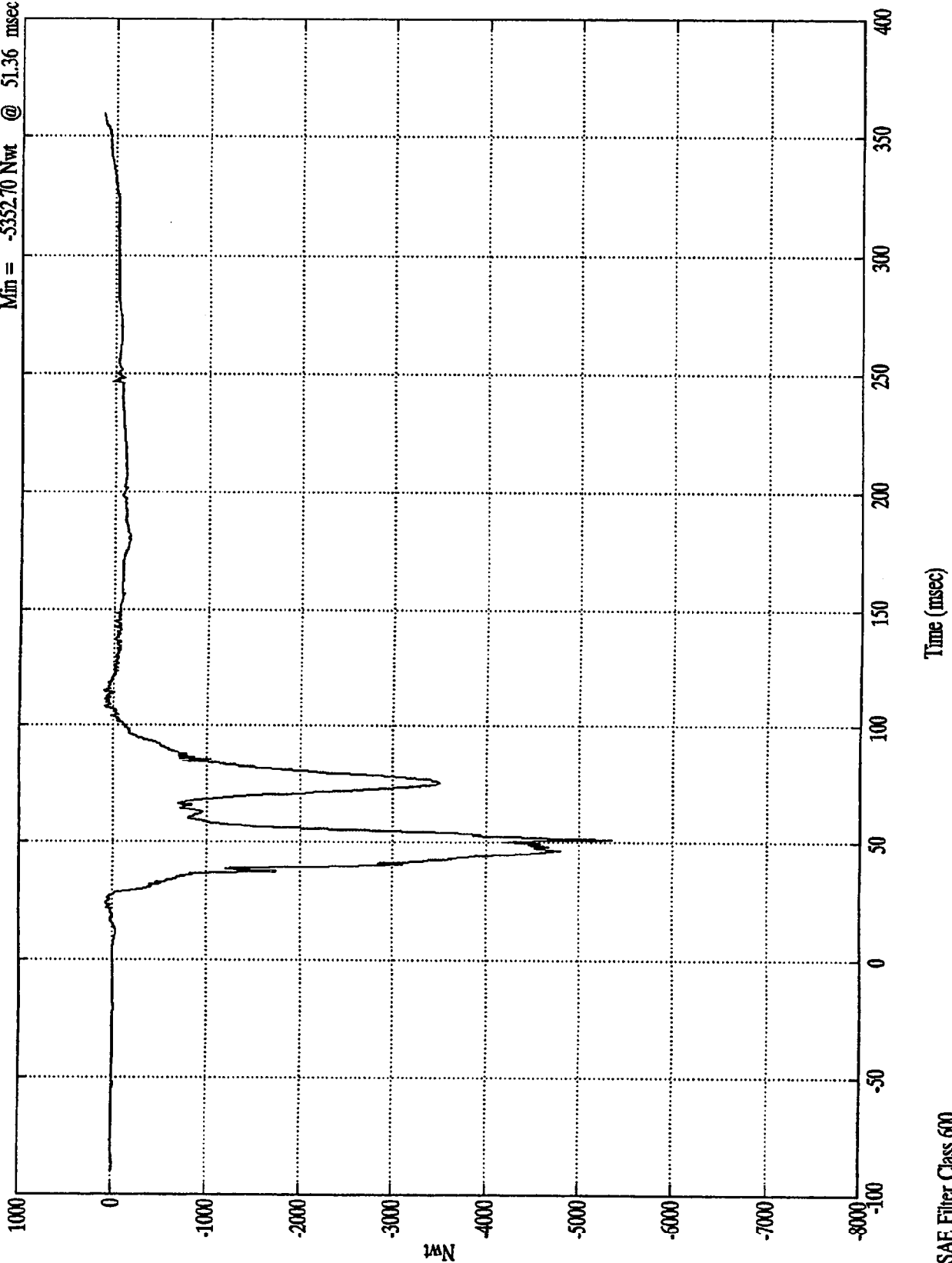
NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 1 Left Femur
Max = 68.64 Nwt @ 16.19 msec
Min = -4234.69 Nwt @ 48.59 msec



NCAP TEST #13 - 1995 DODGE STRATUS

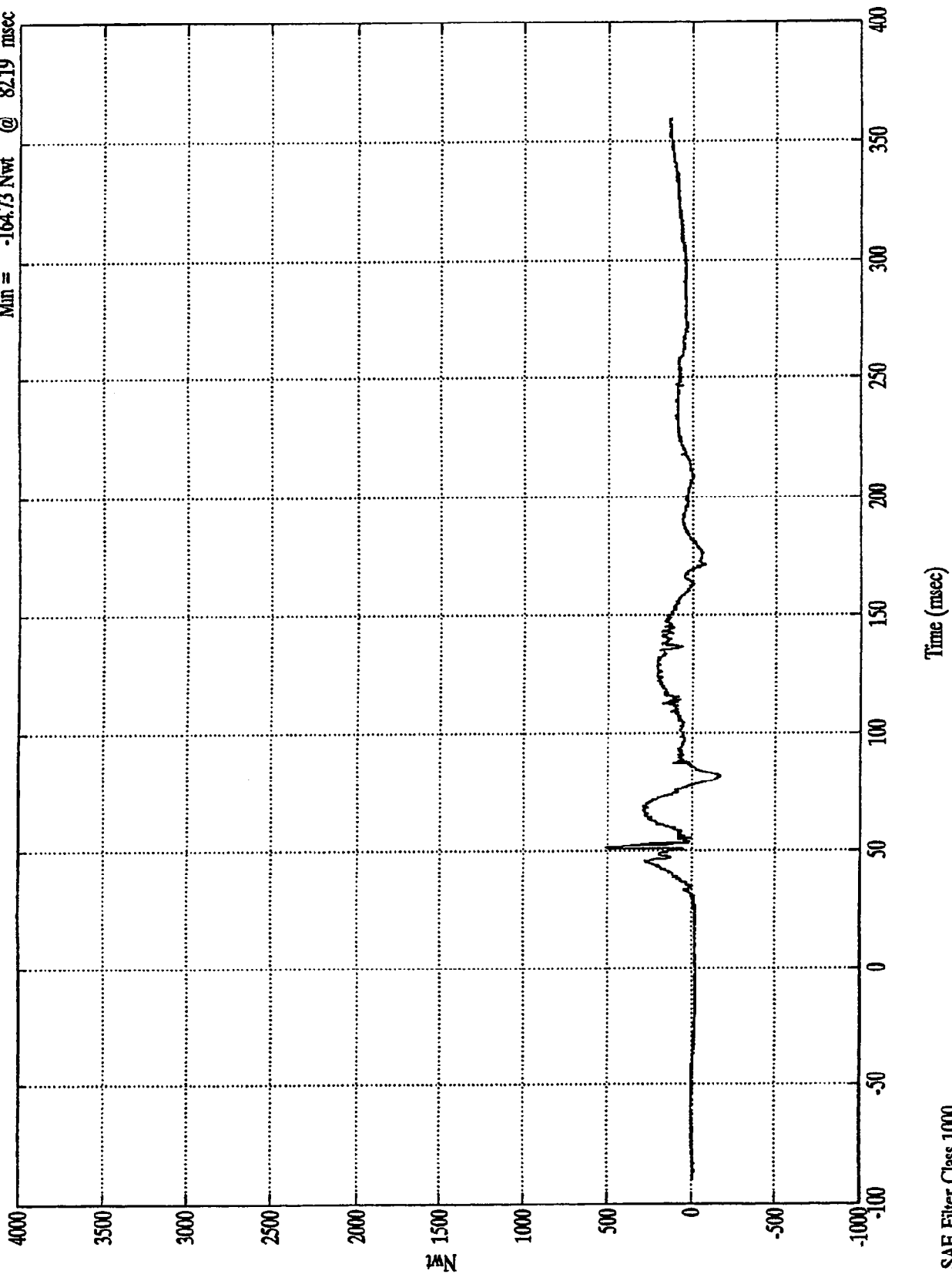
Pos. 1 Right Femur
Max = 136.81 Nwt @ 359.28 msec
Min = -5352.70 Nwt @ 51.36 msec



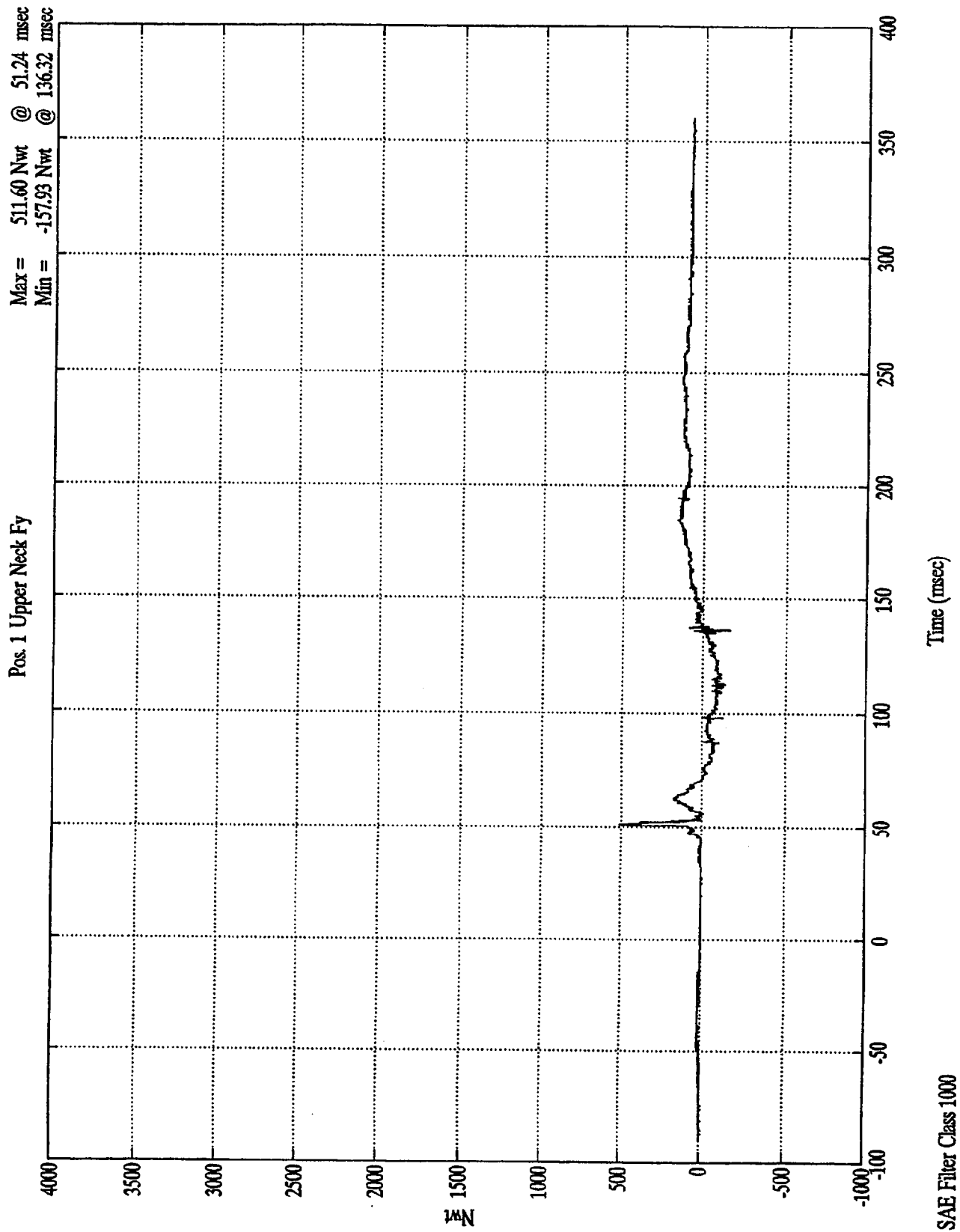
NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 1 Upper Neck Fx

Max = 511.62 Nwt @ 51.47 msec
Min = -164.73 Nwt @ 82.19 msec



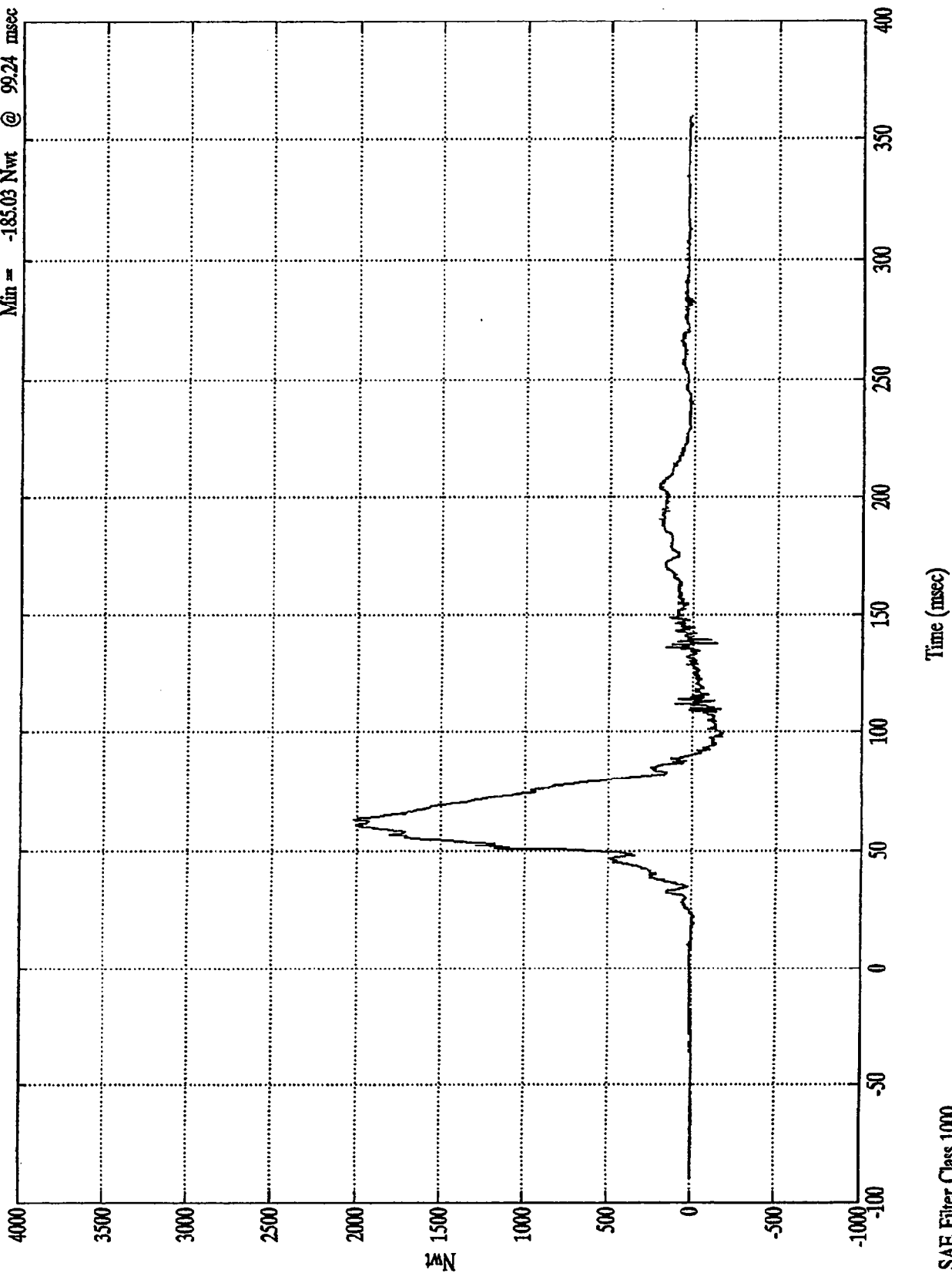
NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 1 Upper Neck Fz

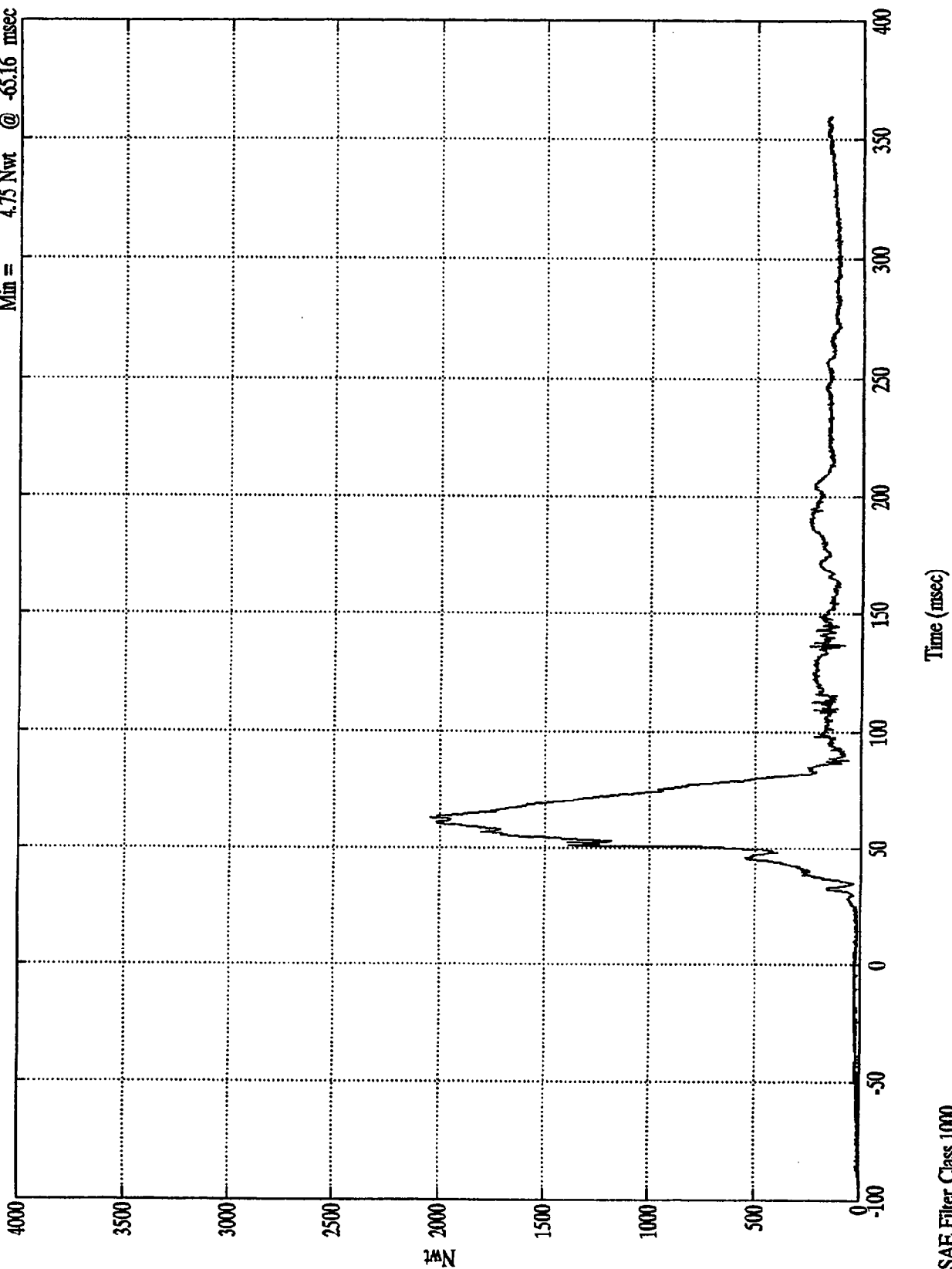
Max = 2021.71 Nwt @ 63.00 msec
Min = -185.03 Nwt @ 99.24 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 1 Neck Force Res.

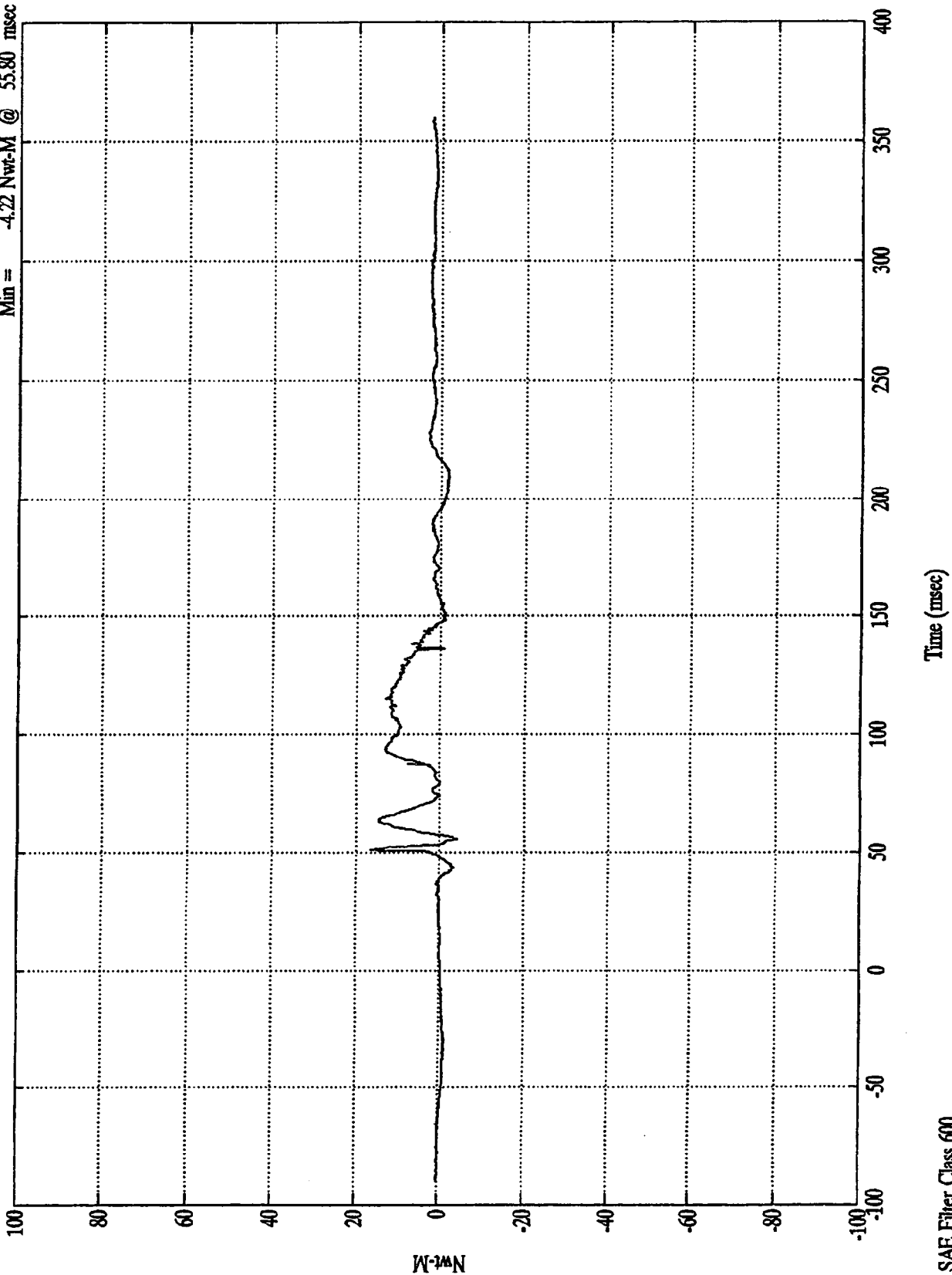
Max = 2043.32 Nwt @ 63.00 msec
Min = 4.75 Nwt @ -65.16 msec



SAE Filter Class 1000

NCAP TEST #13 - 1995 DODGE STRATUS

Pos 1 Upper Neck Mx
Max = 16.53 Nwt-M @ 51.36 msec
Min = -4.22 Nwt-M @ 55.80 msec



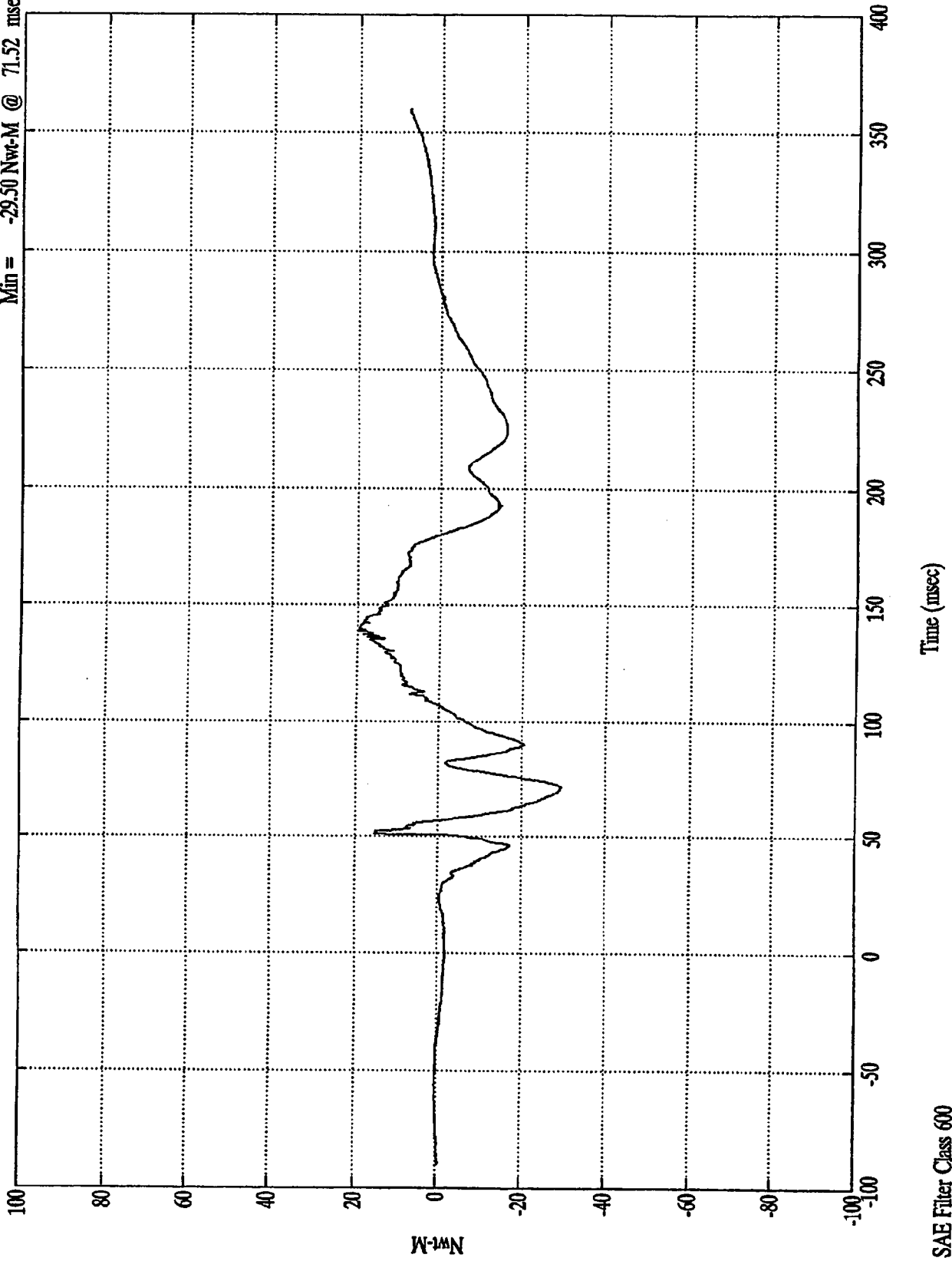
Nwt-M

Time (msec)

SAE Filter Class 600

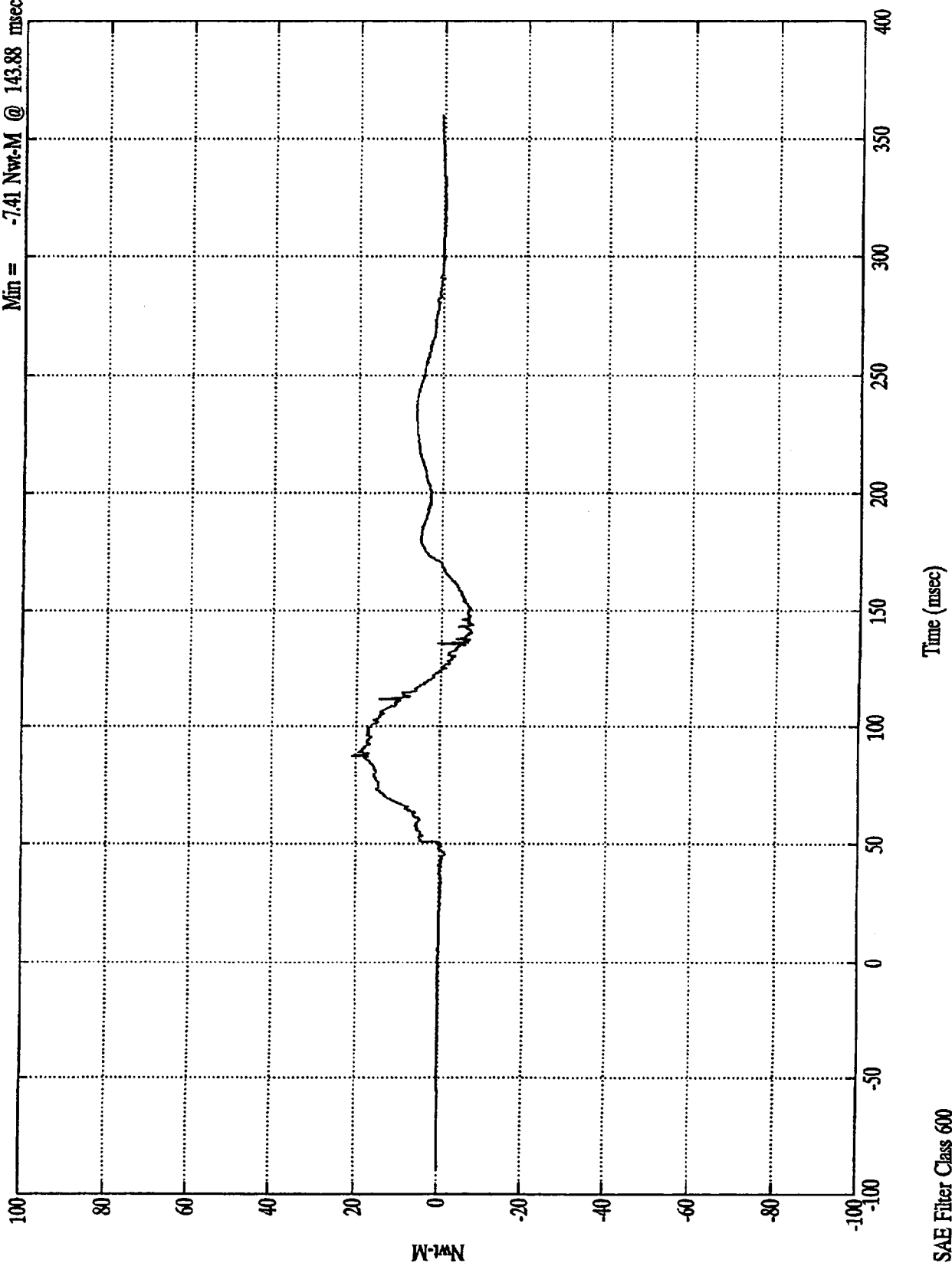
NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 1 Upper Neck My
 Max = 19.70 Nwt-M @ 138.96 msec
 Min = -29.50 Nwt-M @ 71.52 msec



NCAP TEST #13 - 1995 DODGE STRATUS

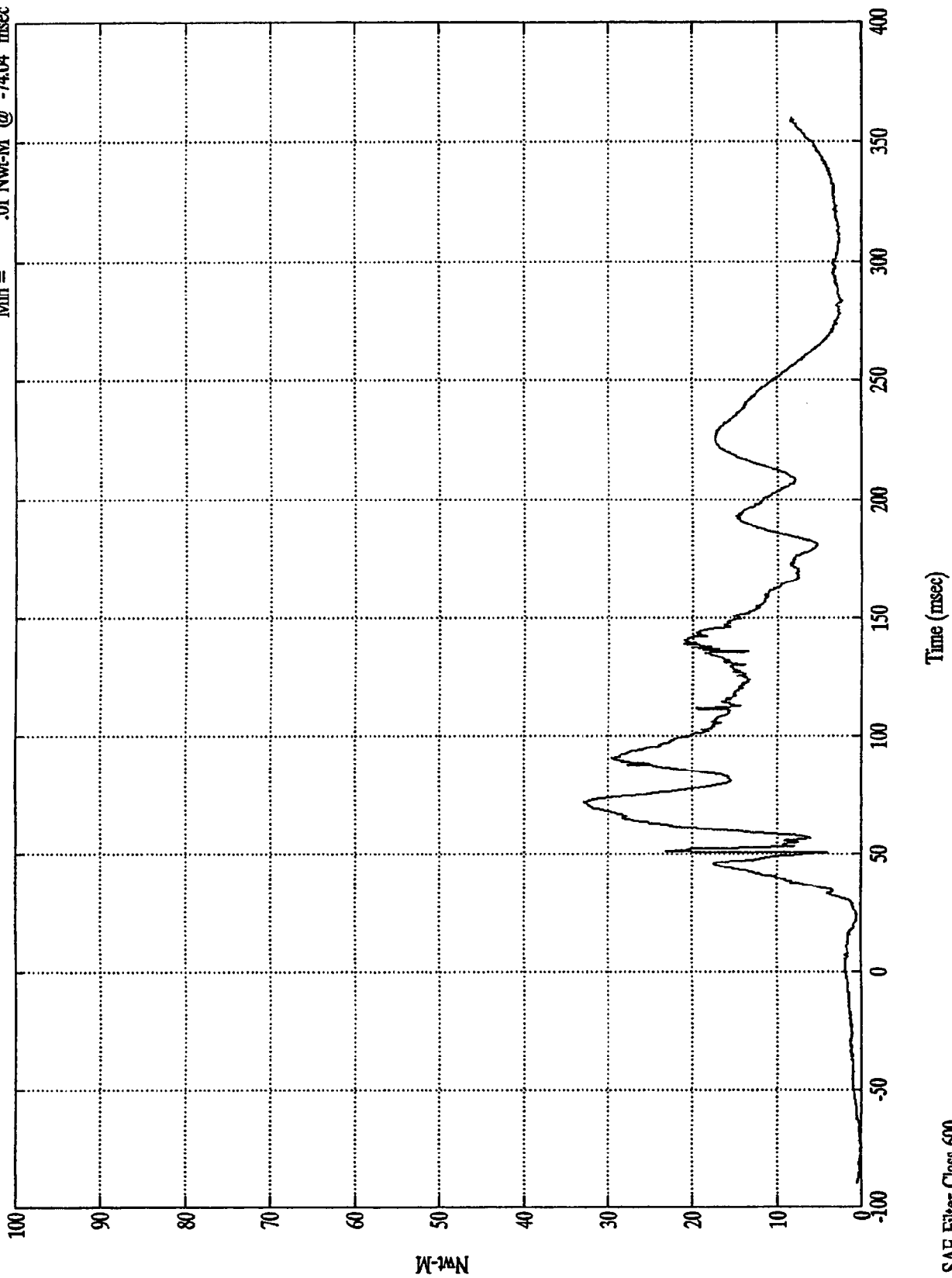
Pos. 1 Upper Neck Mz
 Max = 21.05 Nwt-M @ 87.48 msec
 Min = -7.41 Nwt-M @ 143.88 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 32.84 Nwt-M @ 71.63 msec
 Min = .01 Nwt-M @ -74.04 msec

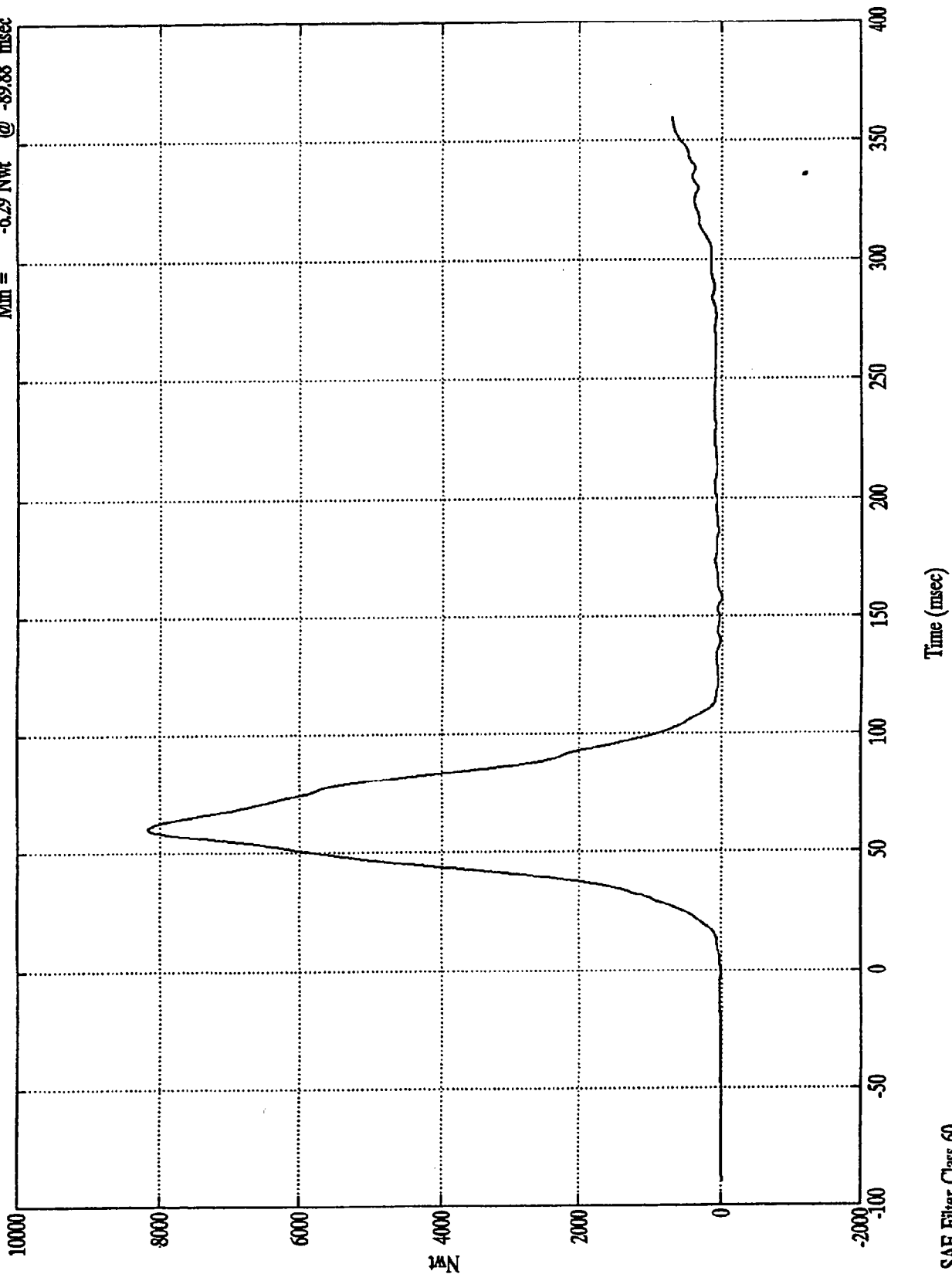
Pos. 1 Neck Moment Res.



SAE Filter Class 600

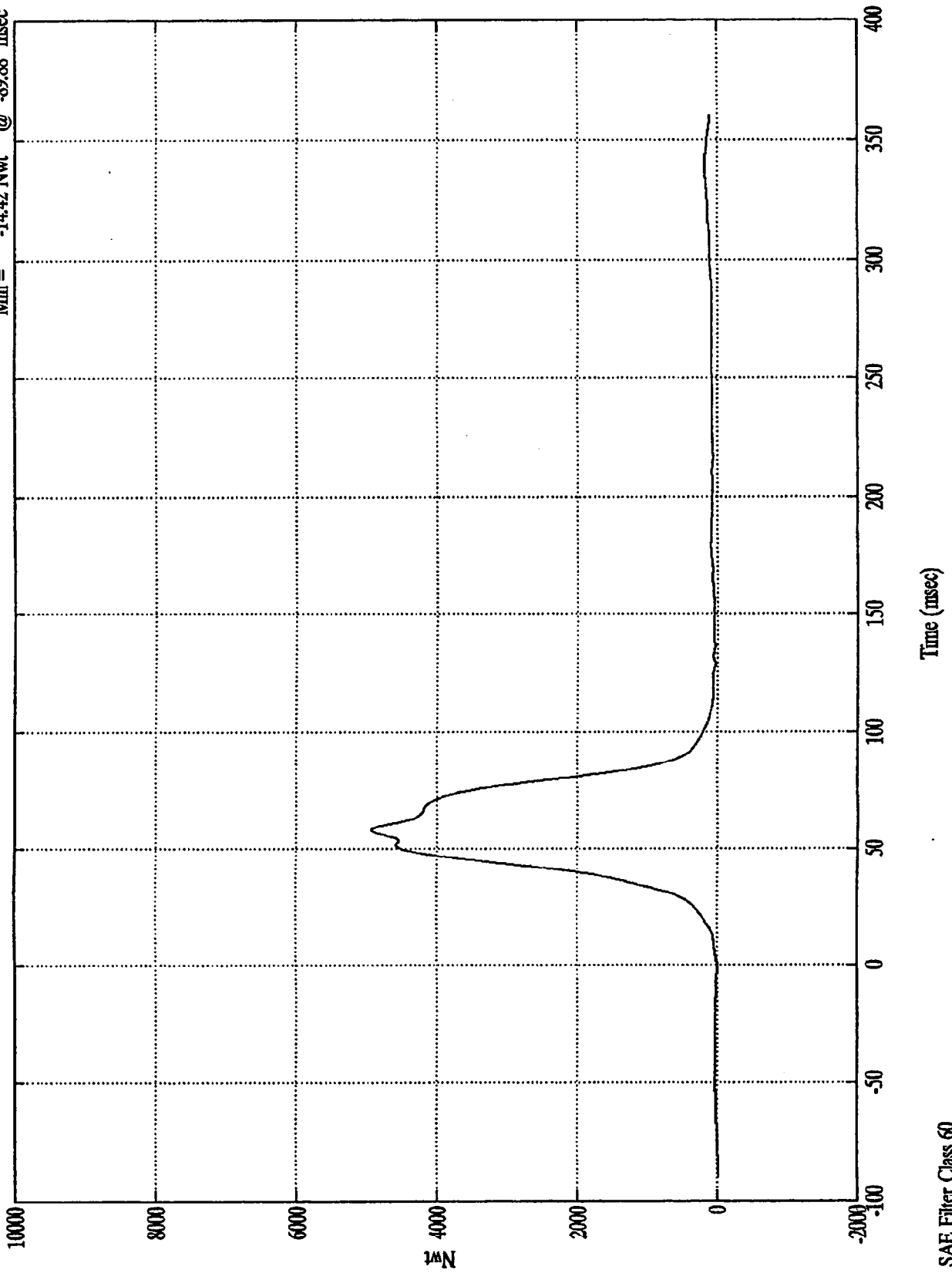
NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 1 Torso Belt Load
Max = 8171.19 Nwt @ 60.00 msec
Min = -6.29 Nwt @ -89.88 msec



NCAP TEST #13 - 1995 DODGE STRATUS

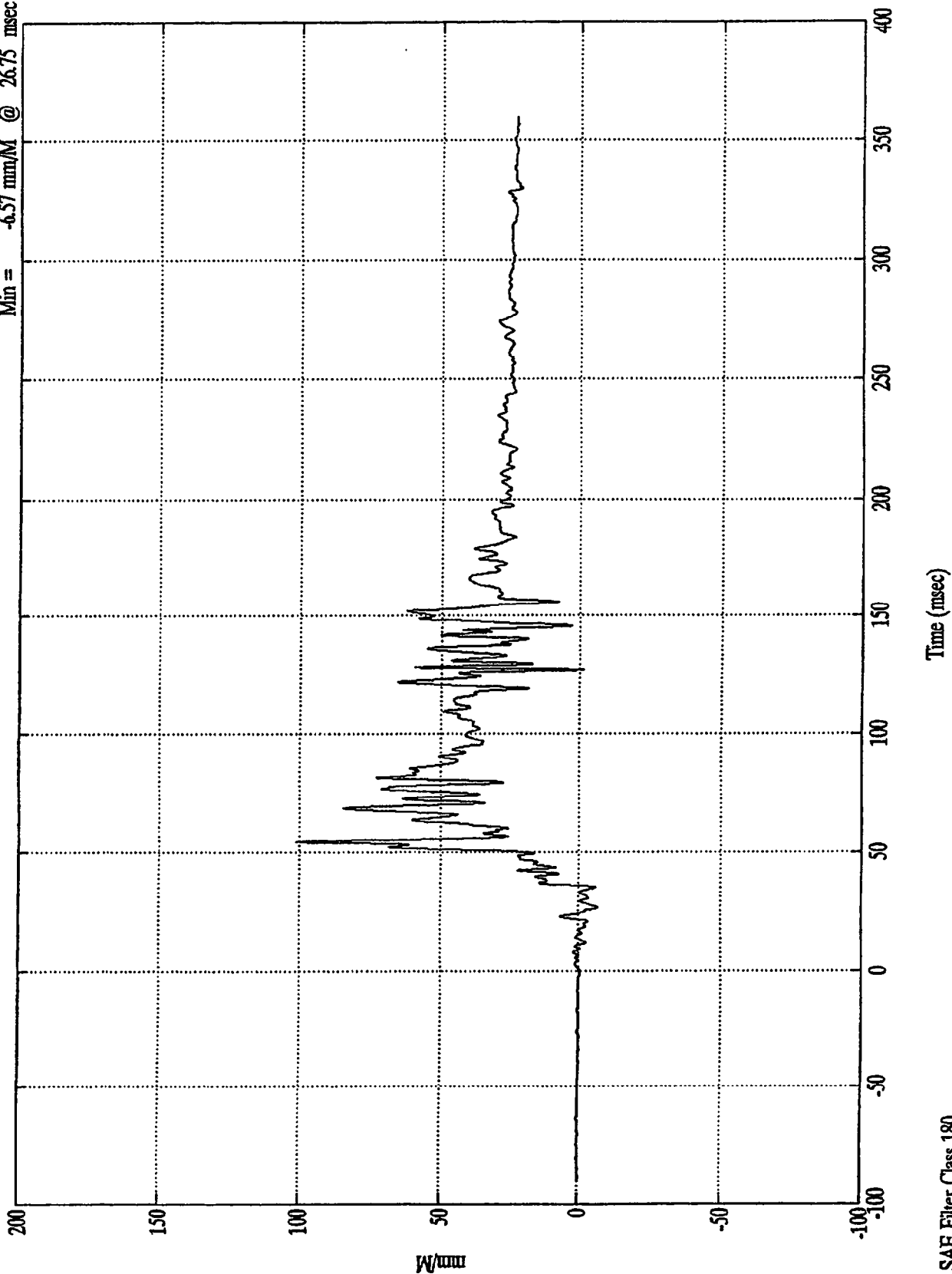
Pos. 1 Left Belt Load
Max = 4936.71 Nwt @ 58.31 msec
Min = -14.42 Nwt @ -89.88 msec



NCAP TEST #13 - 1995 DODGE STRATUS

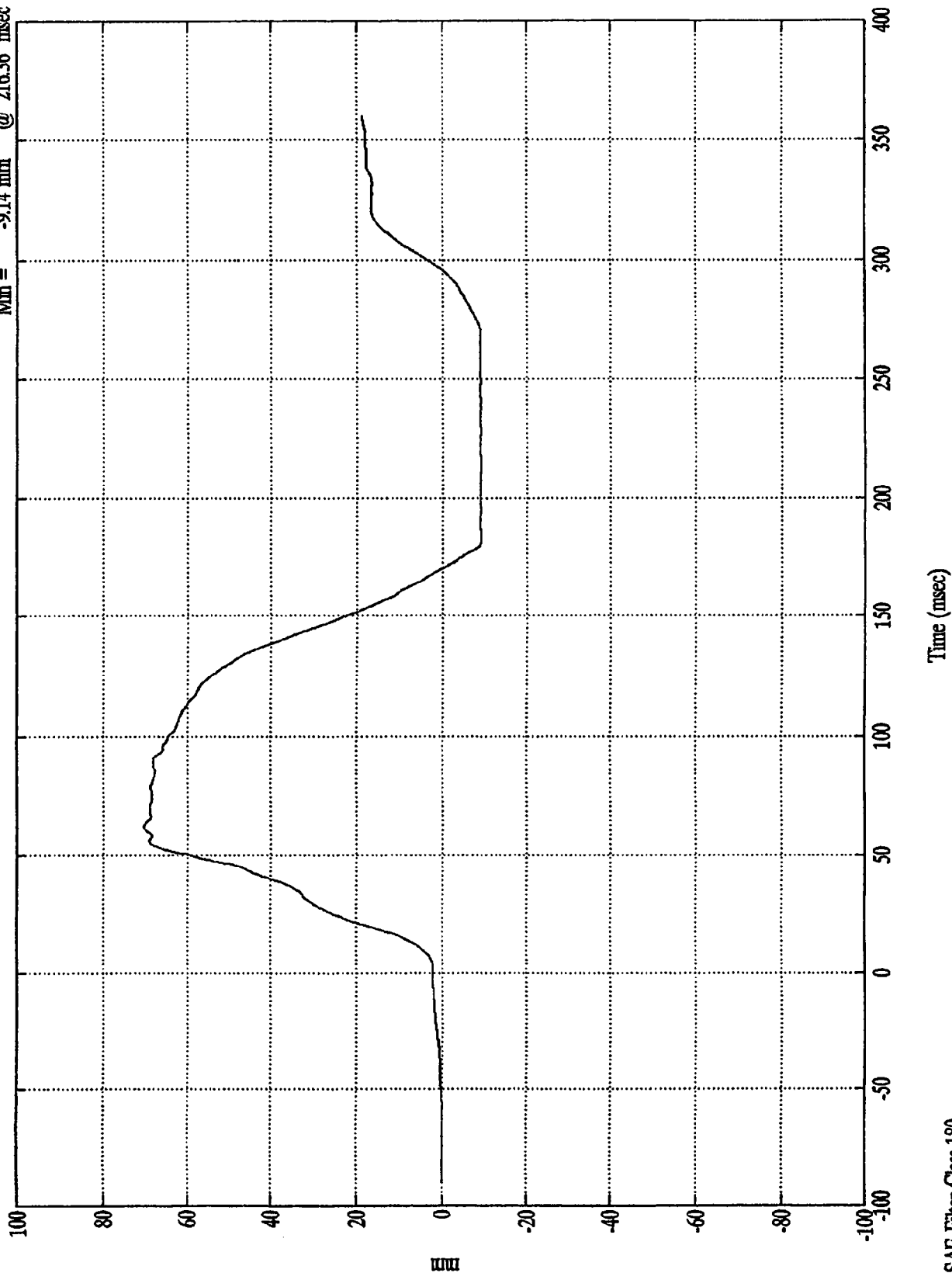
Pos. 1 Belt Elongation

Max = 101.33 mm/M @ 54.47 msec
Min = -6.57 mm/M @ 26.75 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Pos 1 Belt Spool Out
 Max = 70.21 mm @ 61.92 msec
 Min = -9.14 mm @ 216.36 msec



POSITION #2 - HEAD X
DATA NOT AVAILABLE

POSITION #2 - HEAD X (R)

DATA NOT AVAILABLE

POSITION #2 - HEAD Y
DATA NOT AVAILABLE

POSITION #2 - HEAD Y (R)

DATA NOT AVAILABLE

POSITION #2 - HEAD Z

DATA NOT AVAILABLE

POSITION #2 - HEAD Z (R)

DATA NOT AVAILABLE

POSITION #2 - HEAD RESULTANT

DATA NOT AVAILABLE

POSITION #2 - HEAD RESULTANT (R)

DATA NOT AVAILABLE

POSITION #2 - CHEST X

DATA NOT AVAILABLE

POSITION #2 - CHEST X (R)

DATA NOT AVAILABLE

POSITION #2 - CHEST Y

DATA NOT AVAILABLE

POSITION #2 - CHEST Y (R)

DATA NOT AVAILABLE

POSITION #2 - CHEST Z

DATA NOT AVAILABLE

POSITION #2 - CHEST Z (R)

DATA NOT AVAILABLE

POSITION #2 - CHEST RESULTANT

DATA NOT AVAILABLE

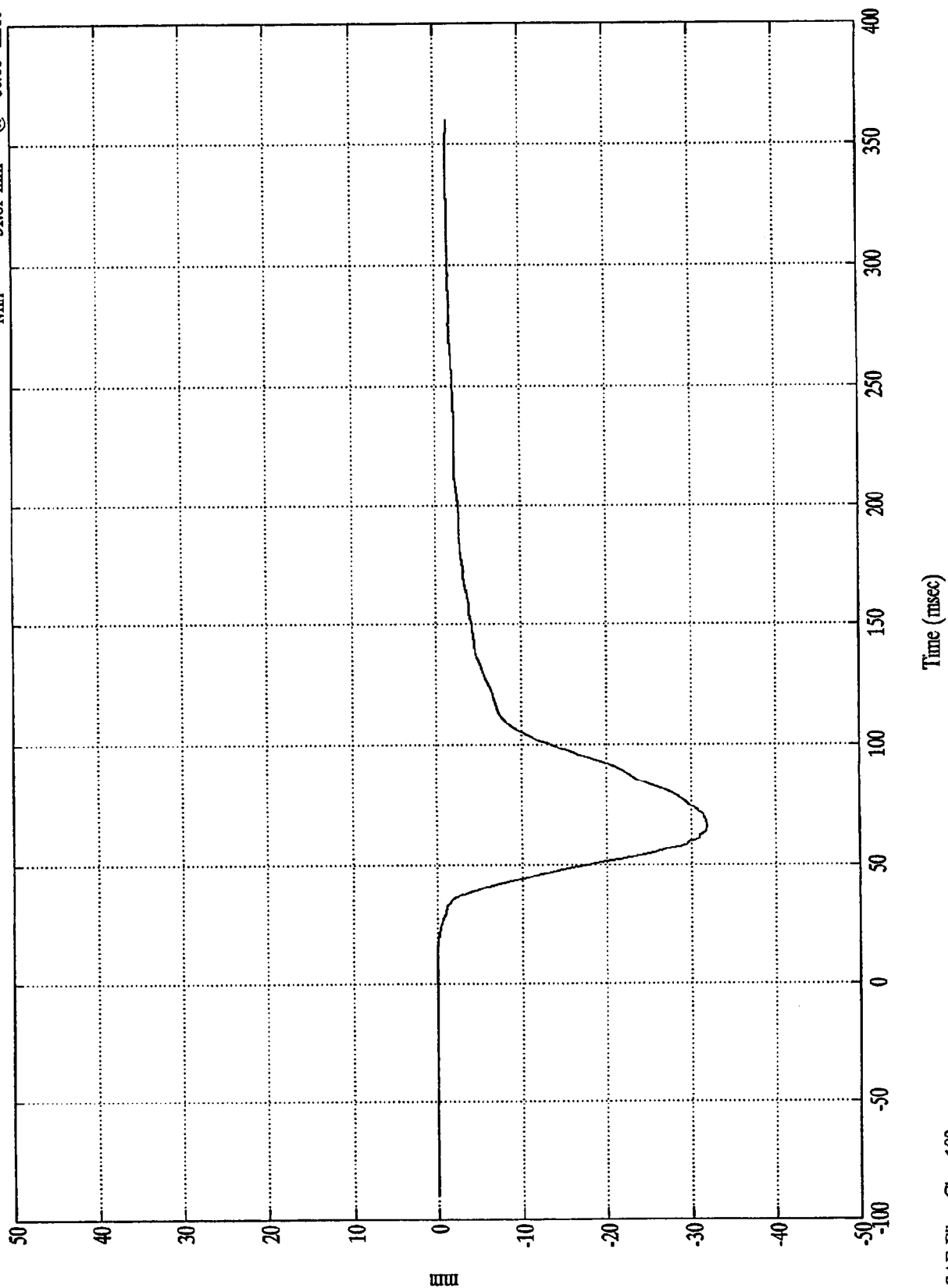
POSITION #2 - CHEST RESULTANT (R)

DATA NOT AVAILABLE

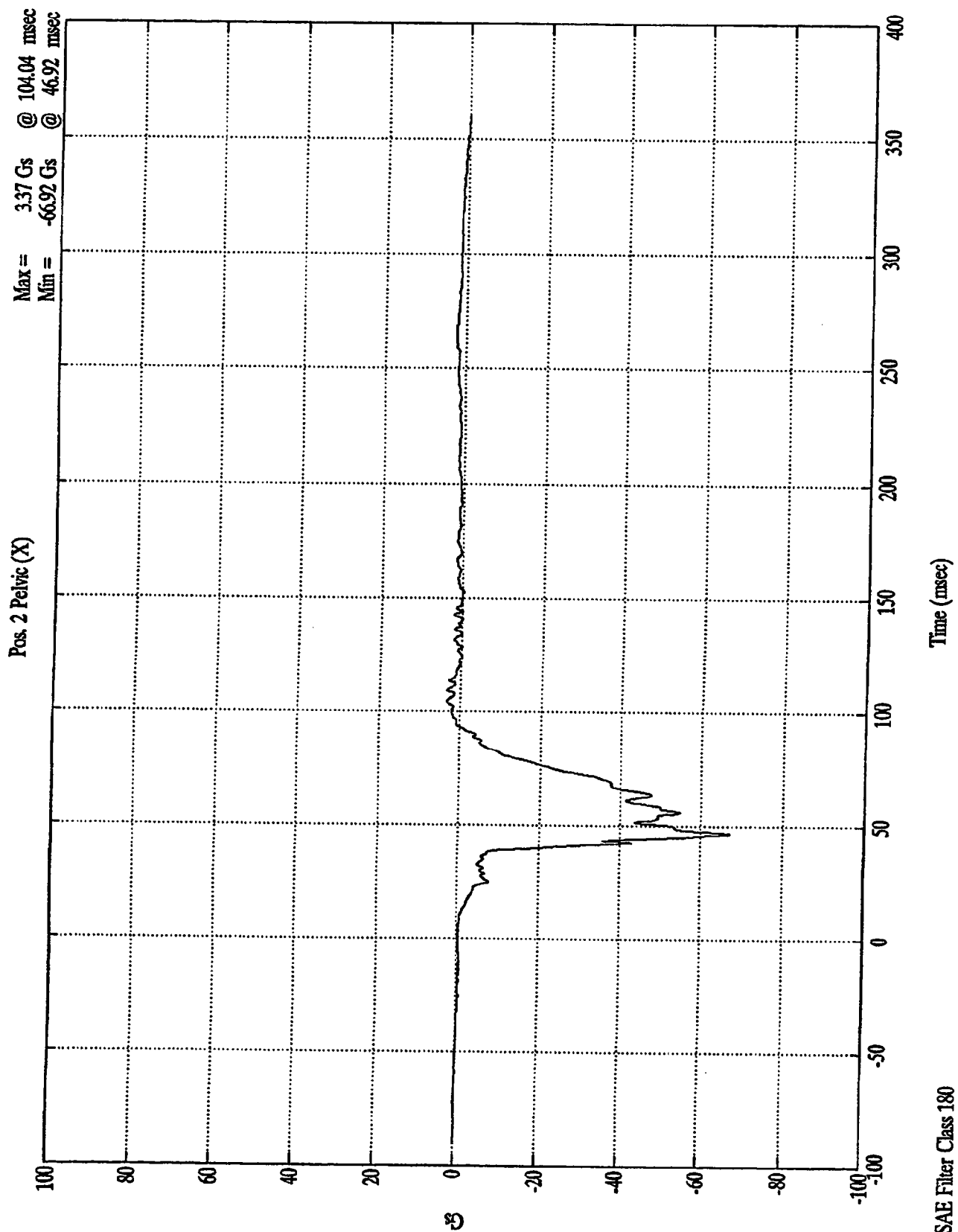
NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 2 Chest Disp.

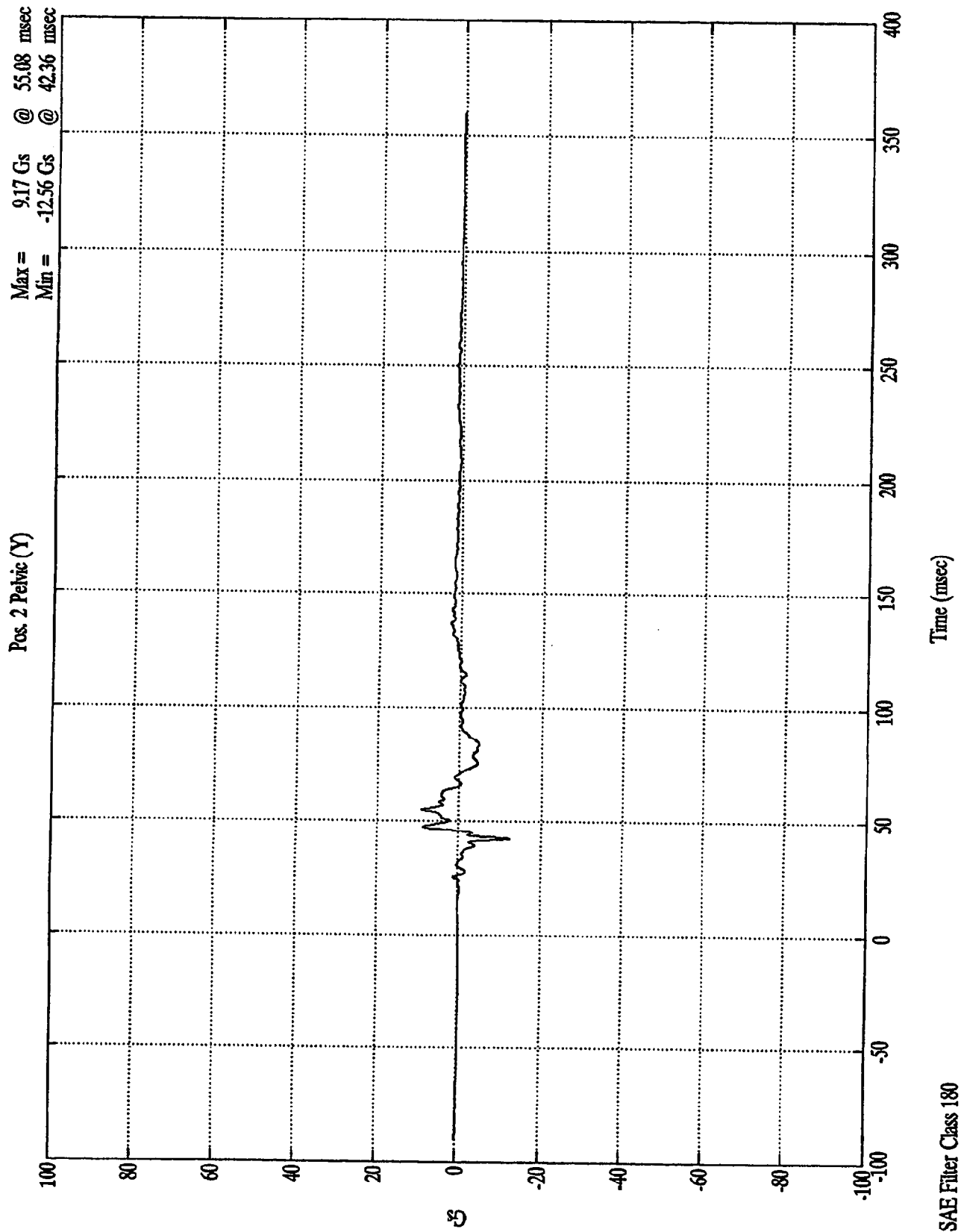
Max = .01 mm @ 8.27 msec
Min = -31.81 mm @ 66.00 msec



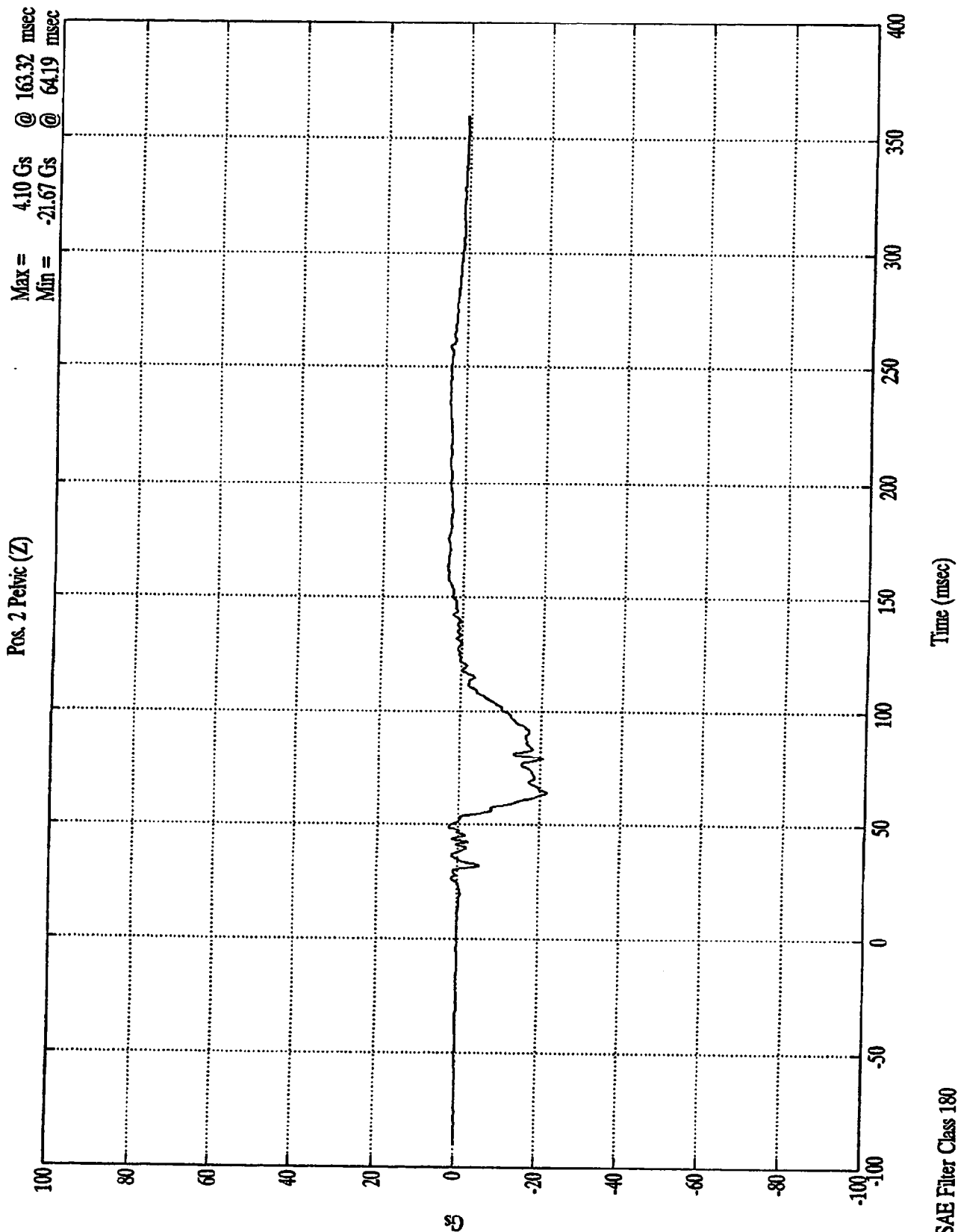
NCAP TEST #13 - 1995 DODGE STRATUS



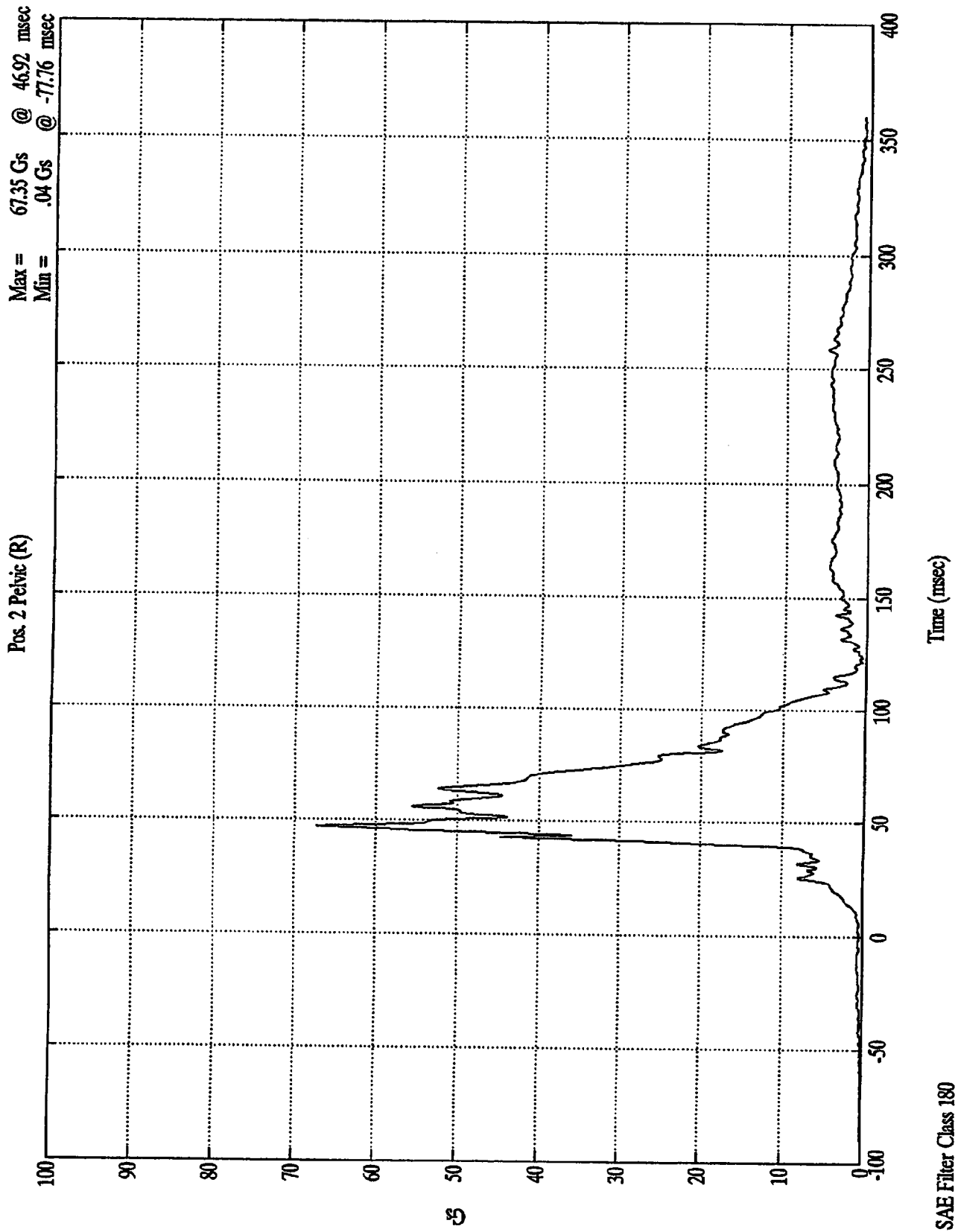
NCAP TEST #13 - 1995 DODGE STRATUS



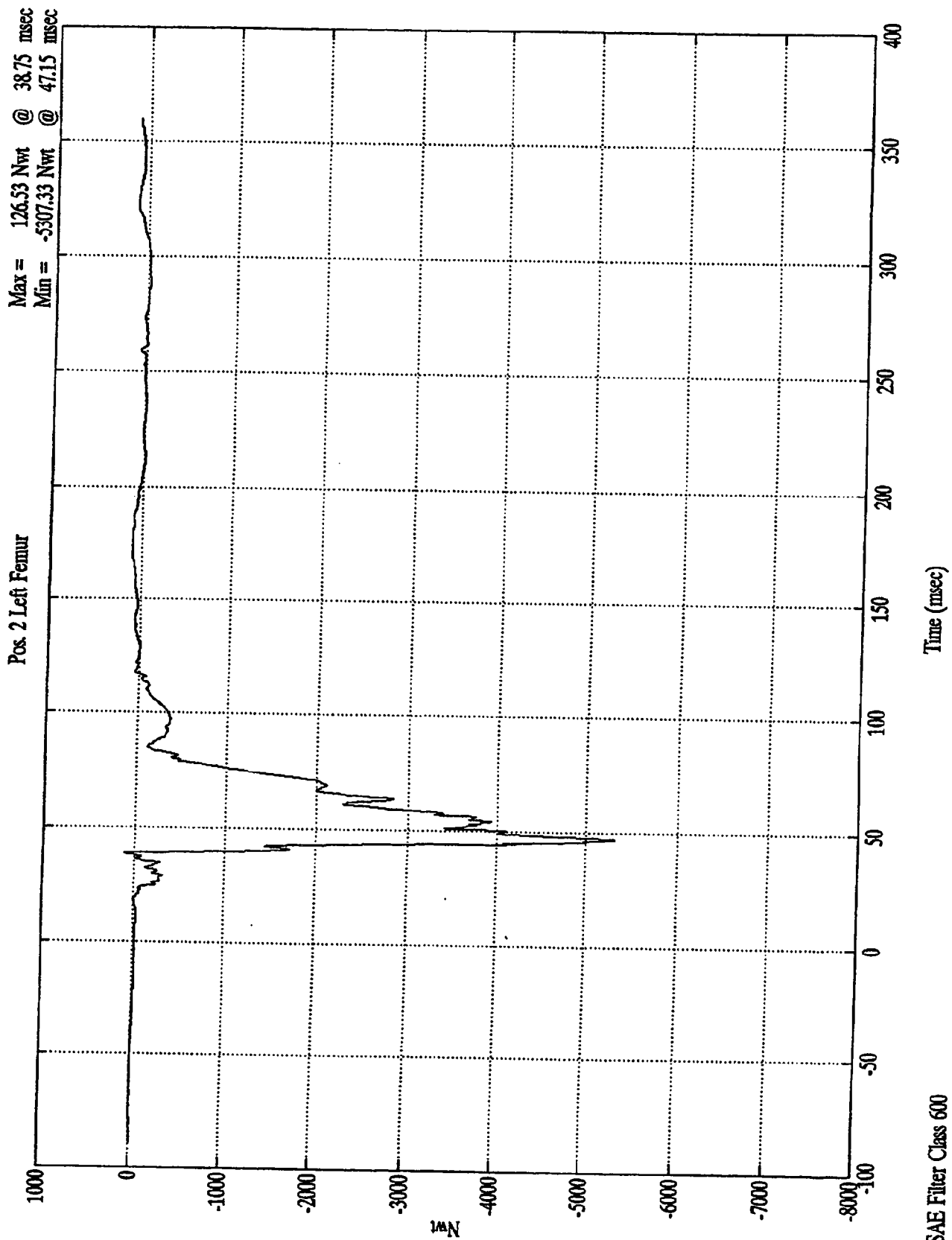
NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS



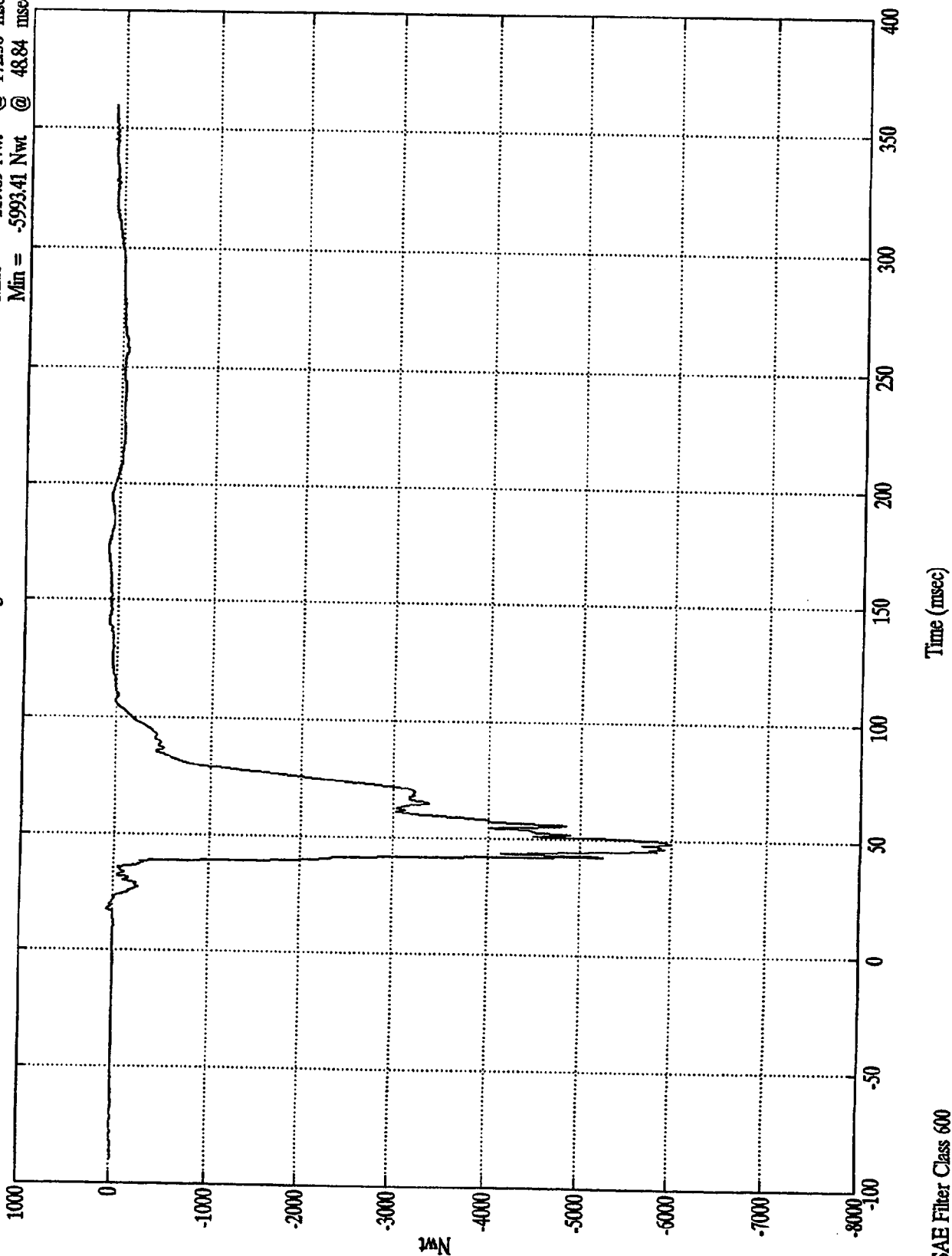
NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 2 Right Femur

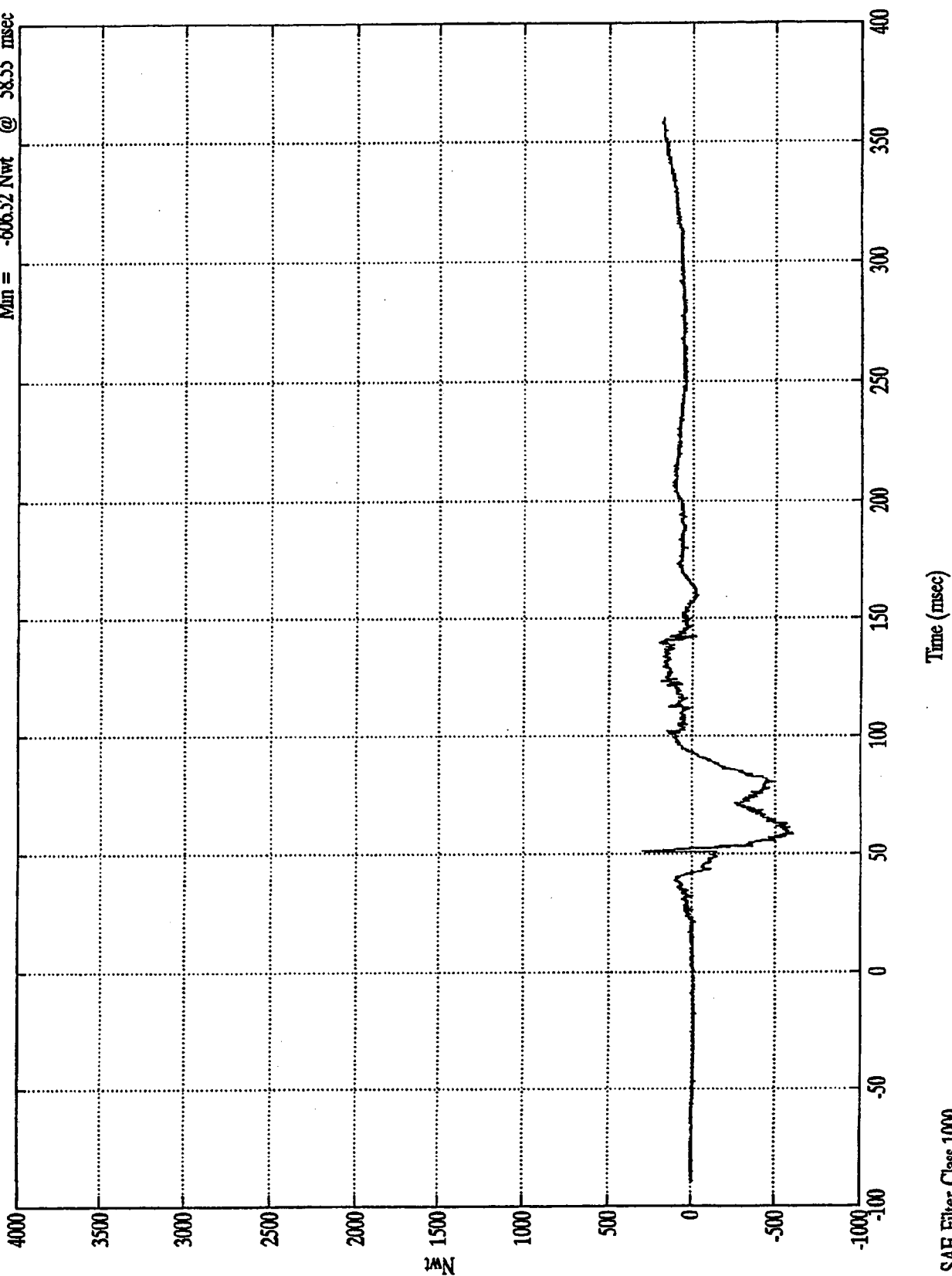
Max = 119.89 Nwt @ 172.56 msec
Min = -5993.41 Nwt @ 48.84 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Pos 2 Upper Neck Fx

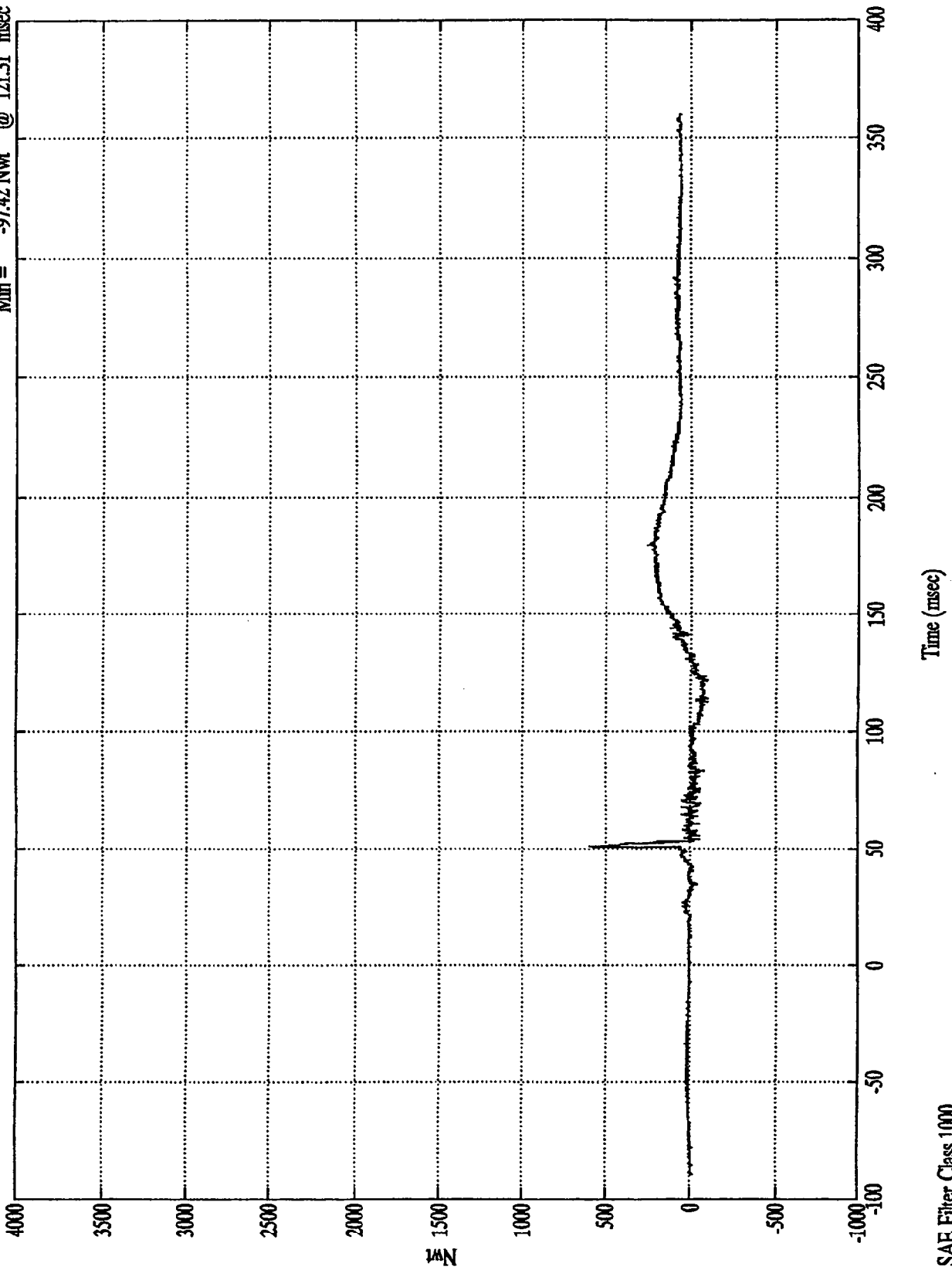
Max = 299.73 Nwt @ 51.24 msec
Min = -606.52 Nwt @ 58.55 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 2 Upper Neck Fy

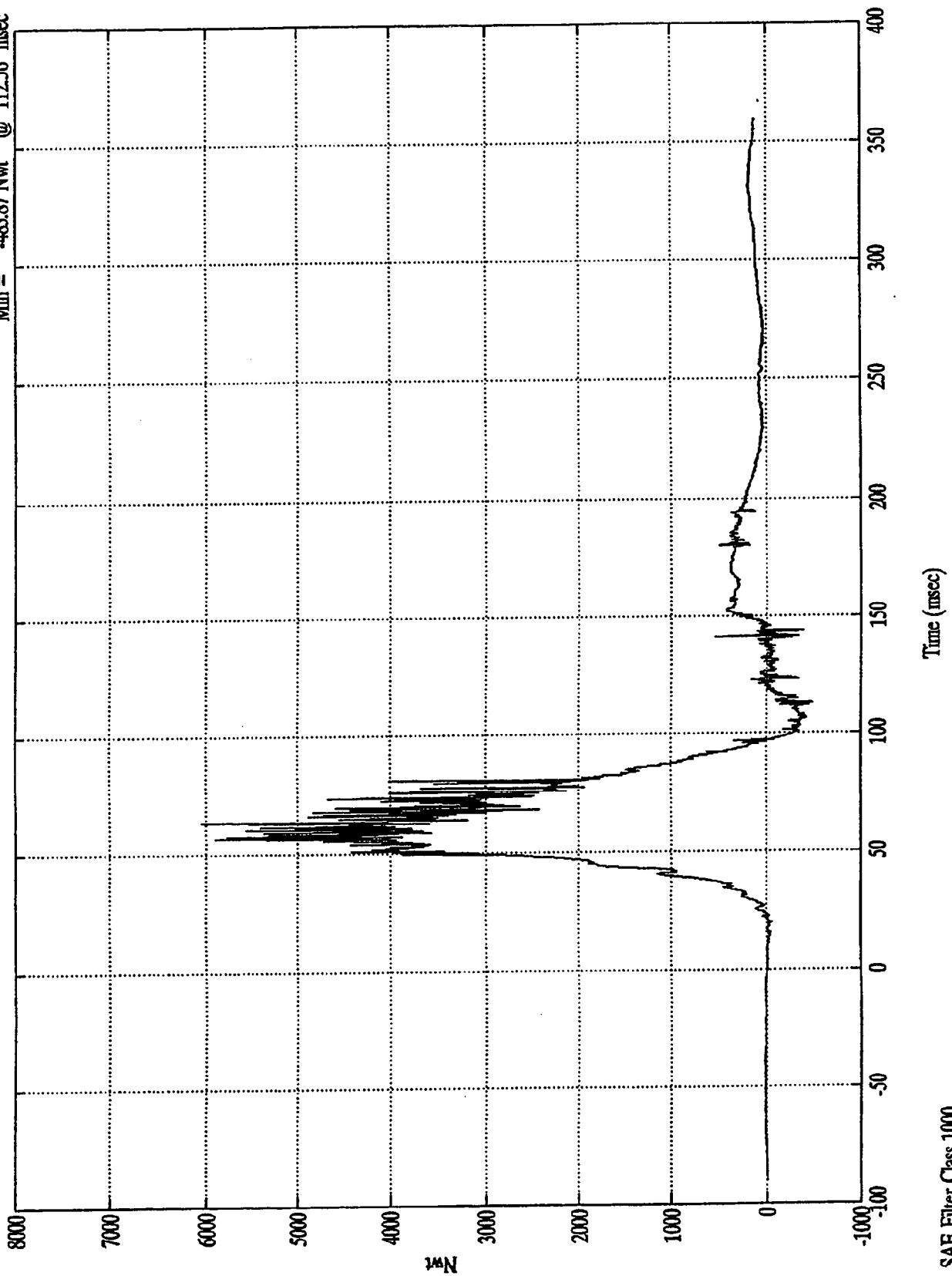
Max = 596.83 Nwt @ 51.24 msec
Min = -97.42 Nwt @ 121.31 msec



NCAP TEST #13 - 1995 DODGE STRATUS

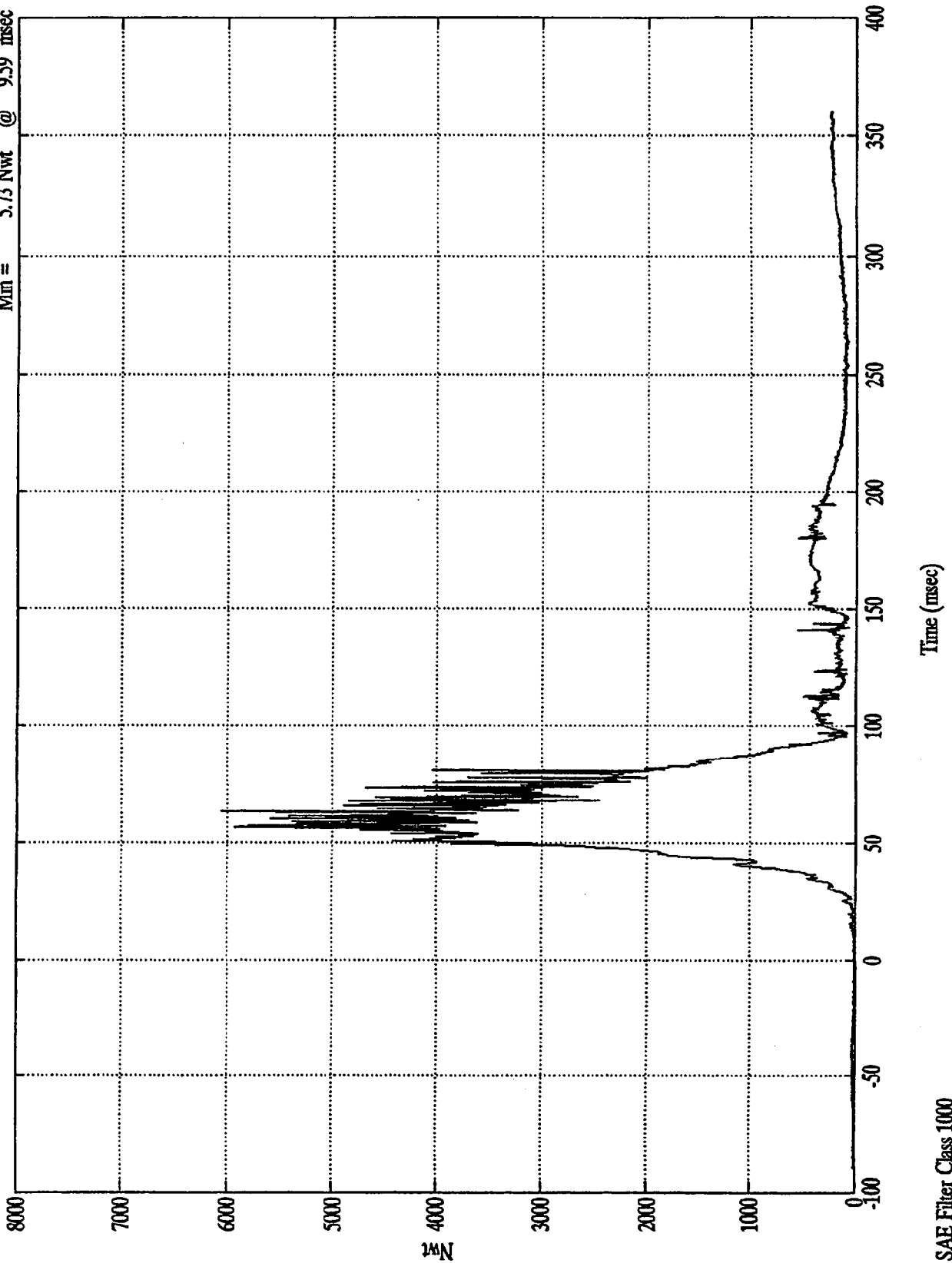
Pos. 2 Upper Neck Fz

Max = 6045.53 Nwt @ 63.35 msec
Min = -483.87 Nwt @ 112.56 msec



NCAP TEST #13 - 1995 DODGE STRATUS

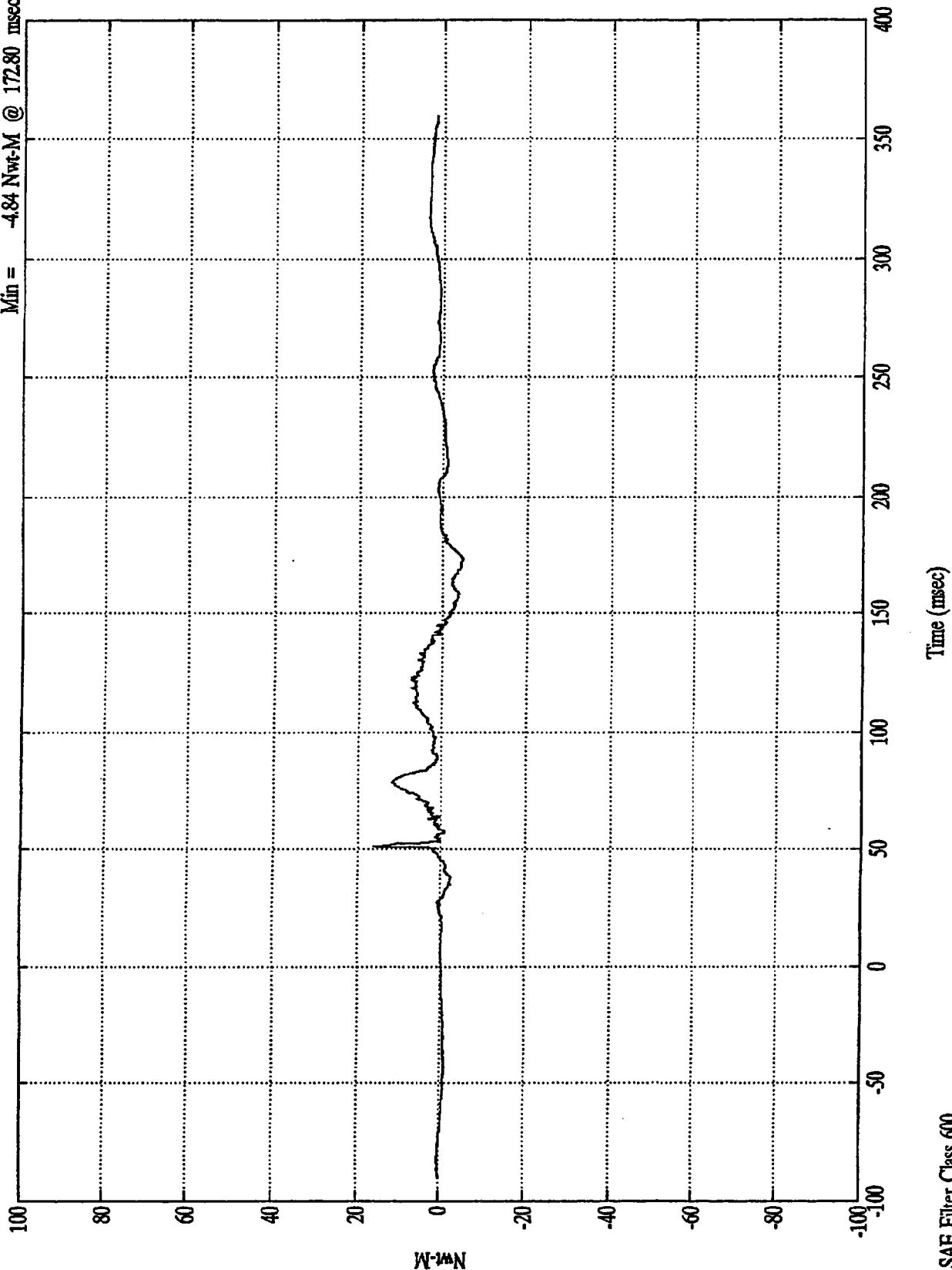
Pos. 2 Neck Force Res.
Max = 6063.78 Nwt @ 63.35 msec
Min = 5.73 Nwt @ 9.59 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 2 Upper Neck Mx

Max = 16.29 Nwt-M @ 51.24 msec
Min = -4.84 Nwt-M @ 172.80 msec



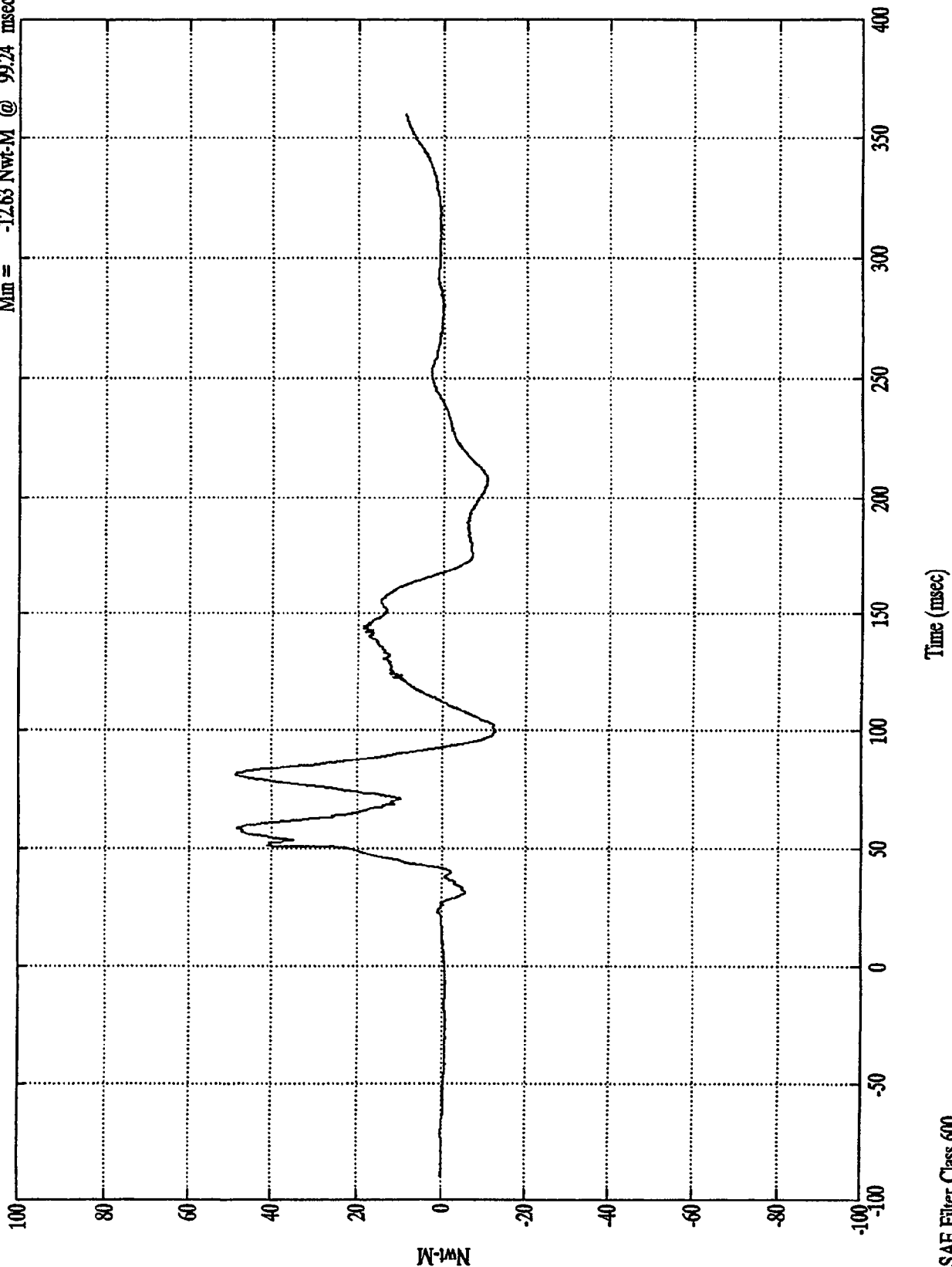
Nwt-M

Time (msec)

SAE Filter Class 600

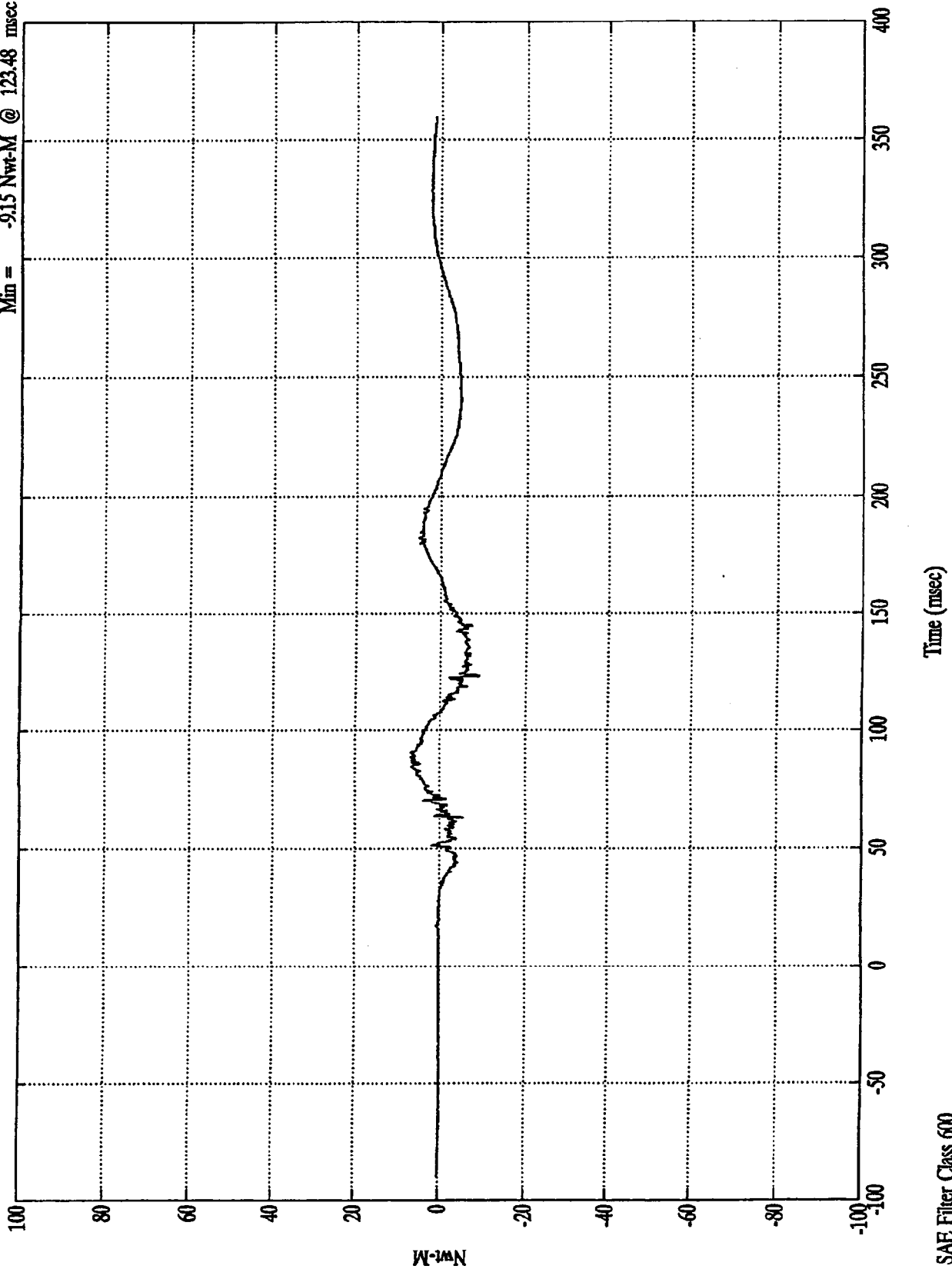
NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 2 Upper Neck My
Max = 48.72 Nwt-M @ 81.23 msec
Min = -12.63 Nwt-M @ 99.24 msec



NCAP TEST #13 - 1995 DODGE STRATUS

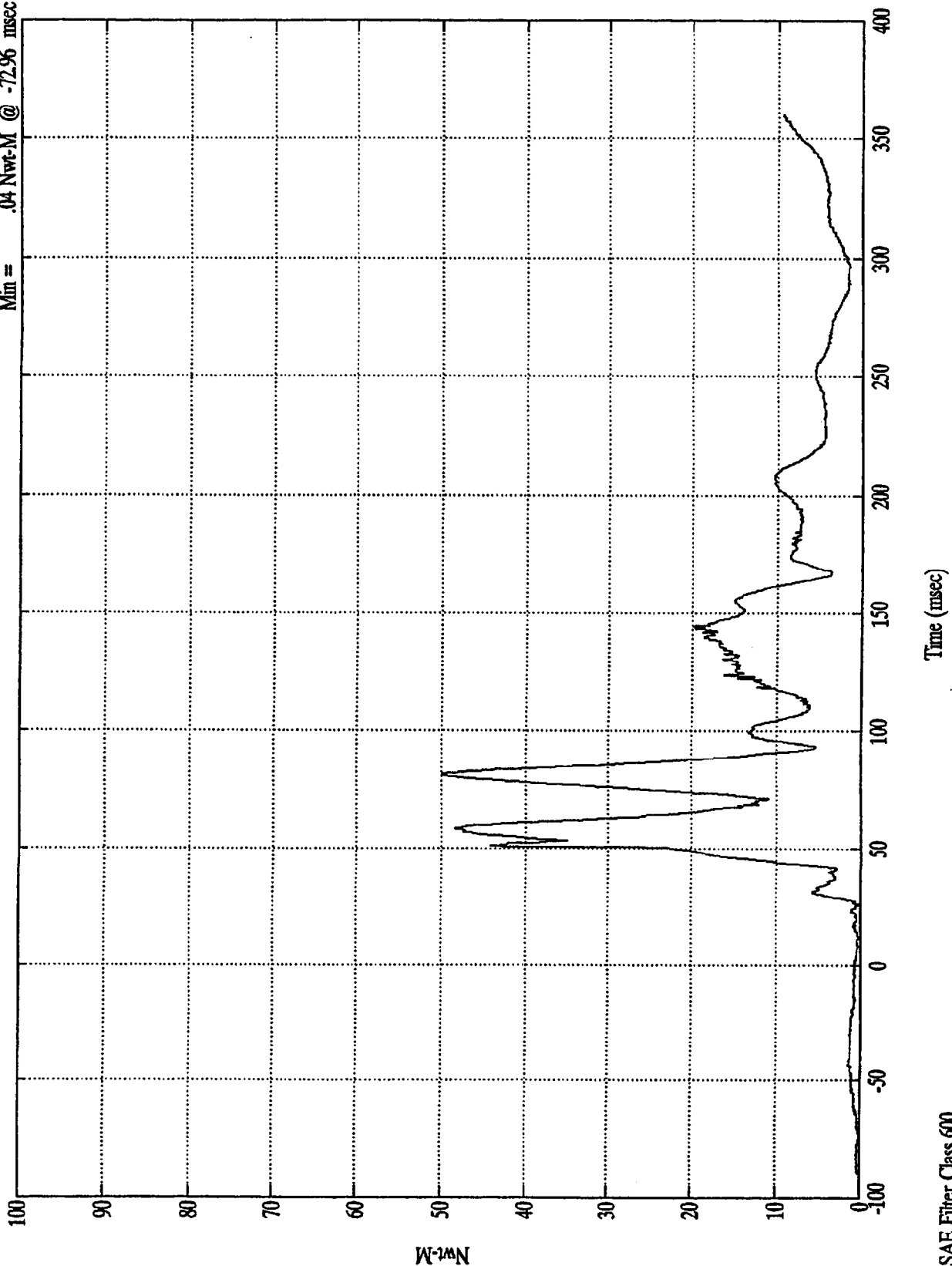
Pos. 2 Upper Neck Mz
Max = 6.65 Nwt-M @ 88.44 msec
Min = -9.15 Nwt-M @ 123.48 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 49.97 Nwt-M @ 81.23 msec
 Min = .04 Nwt-M @ -72.96 msec

Pcs. 2 Neck Moment Res.



M-N

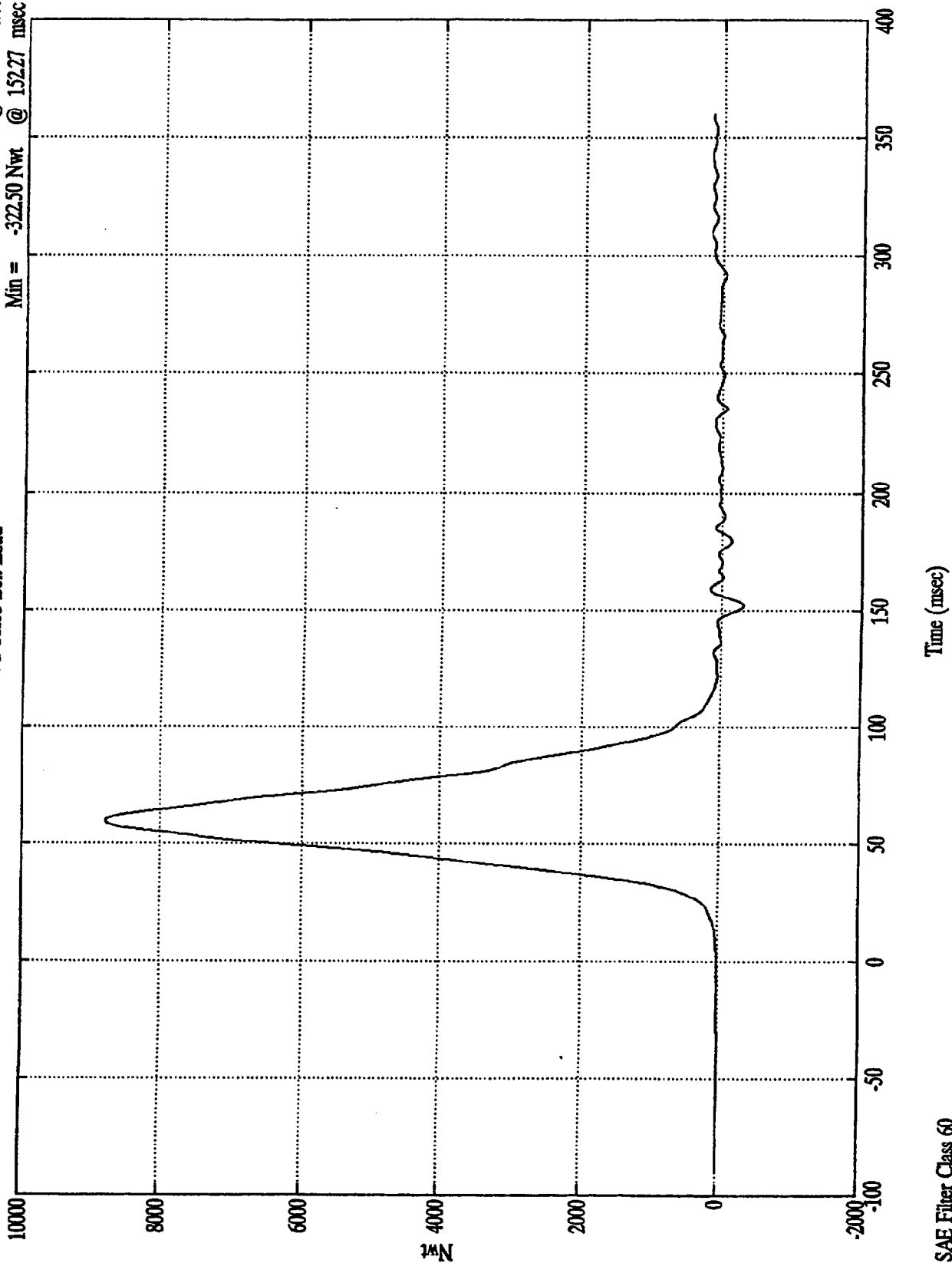
B-70

8227-13

SAE Filter Class 600

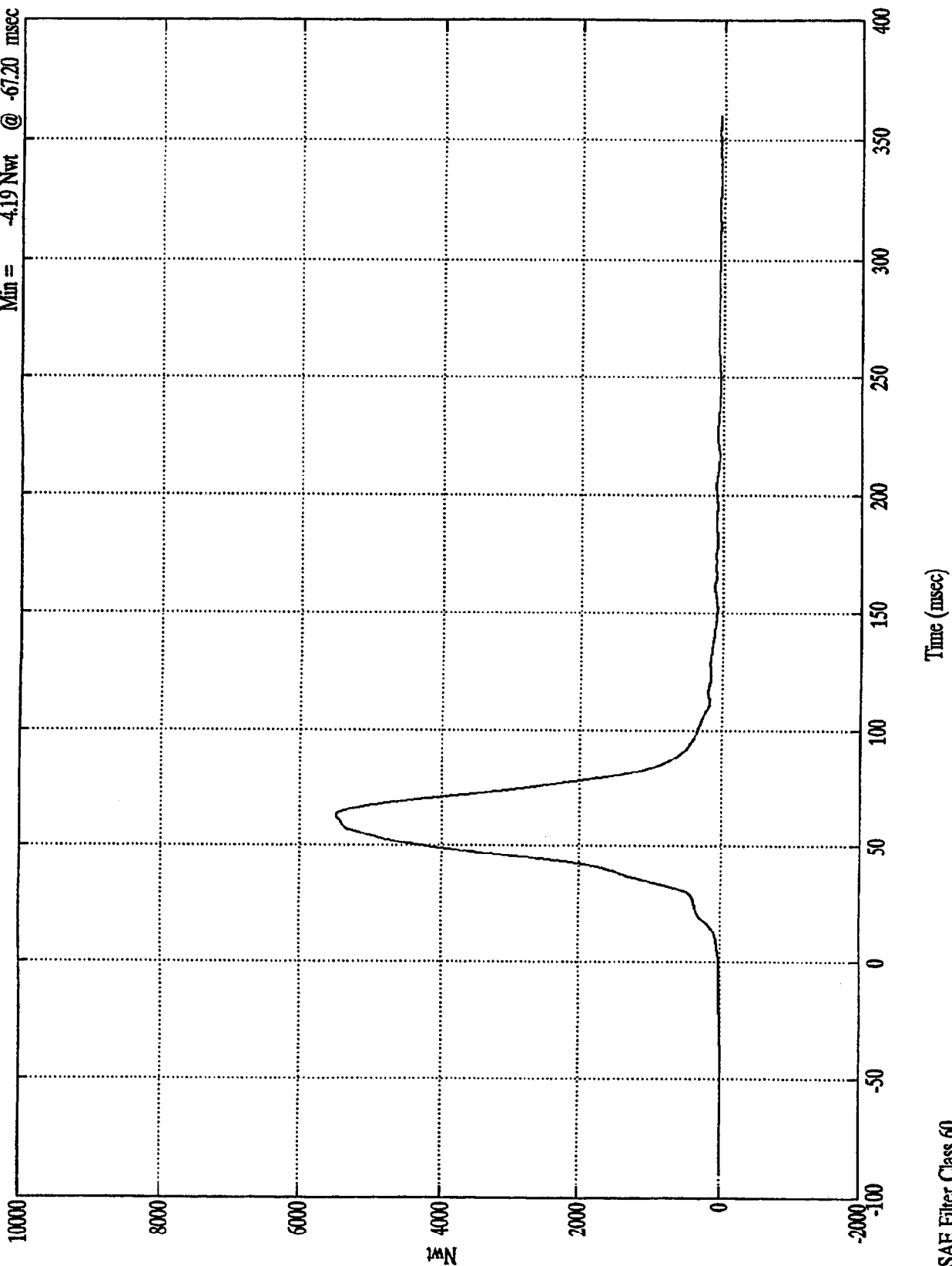
NCAP TEST #13 - 1995 DODGE STRATUS

Pos. 2 Torso Belt Load
 Max = 8786.64 Nwt @ 59.64 msec
 Min = -322.50 Nwt @ 152.27 msec



NCAP TEST #13 - 1995 DODGE STRATUS

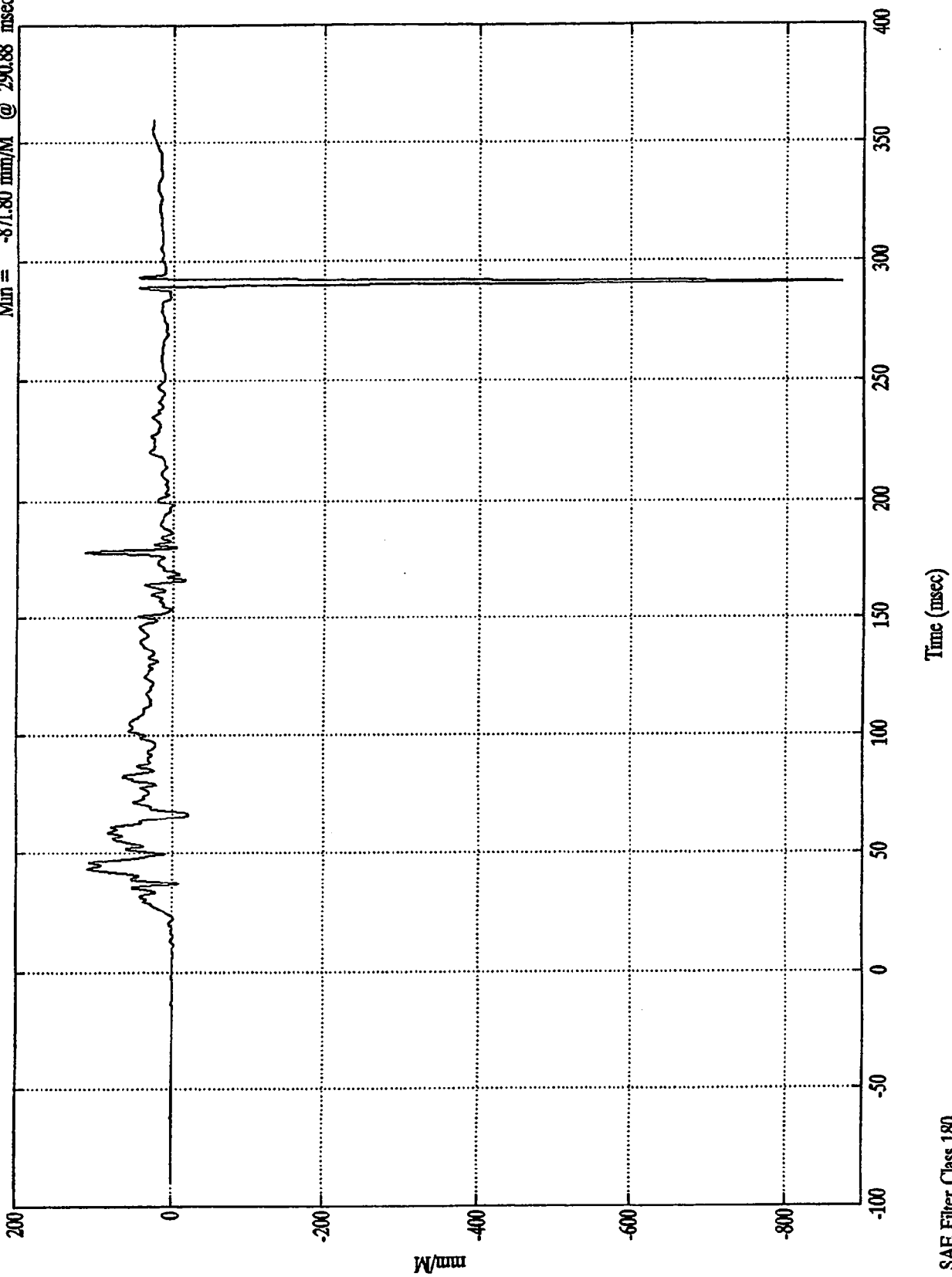
Pos. 2 Right Belt Load
Max = 5508.52 Nwt @ 62.76 msec
Min = -4.19 Nwt @ -67.20 msec



NCAP TEST #13 - 1995 DODGE STRATUS

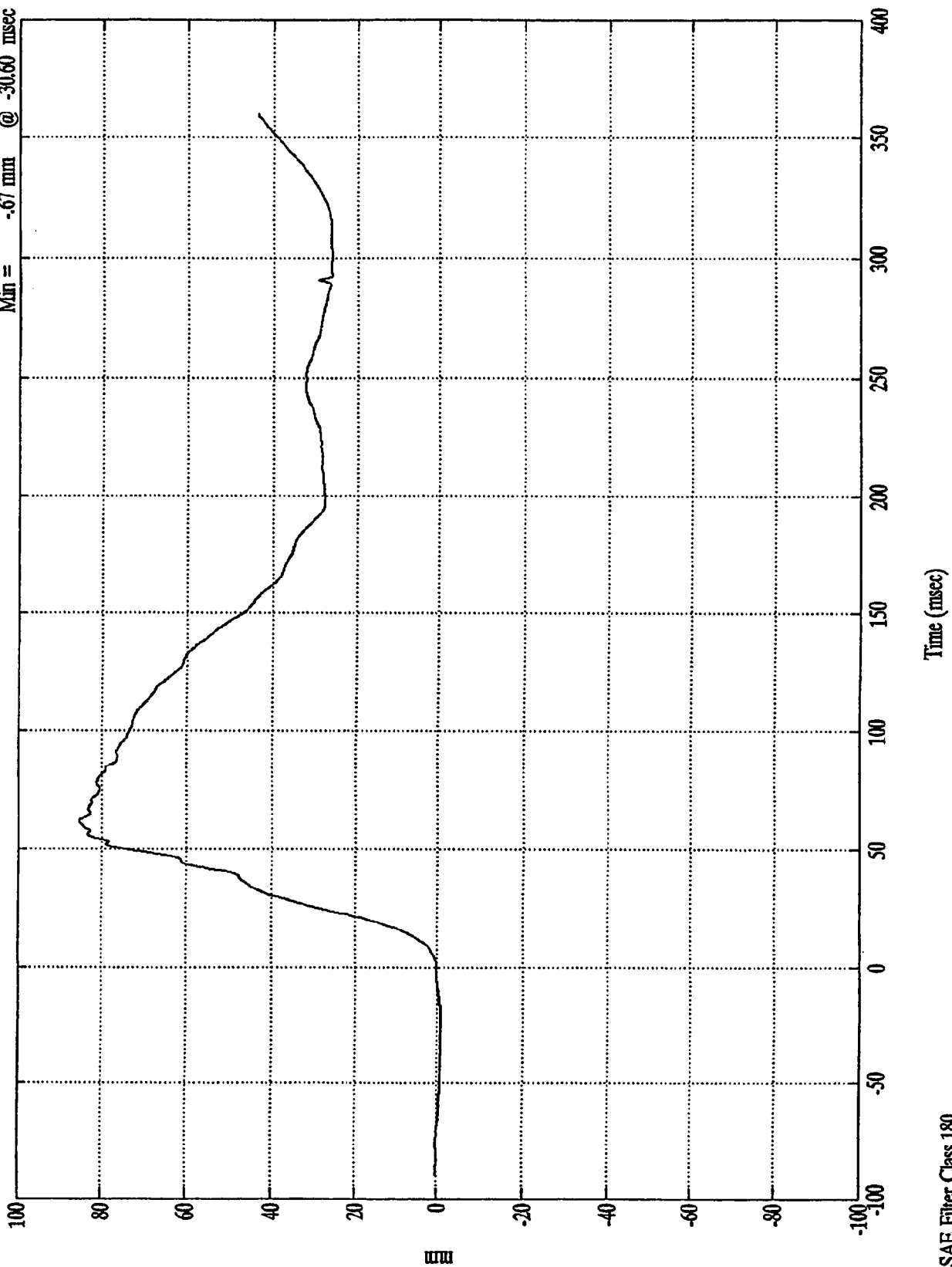
Pos. 2 Belt Elongation

Max = 111.62 mm/M @ 178.08 msec
Min = -871.80 mm/M @ 290.88 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Pos 2 Belt Spool Out
Max = 85.24 mm @ 61.68 msec
Min = -67 mm @ -30.60 msec



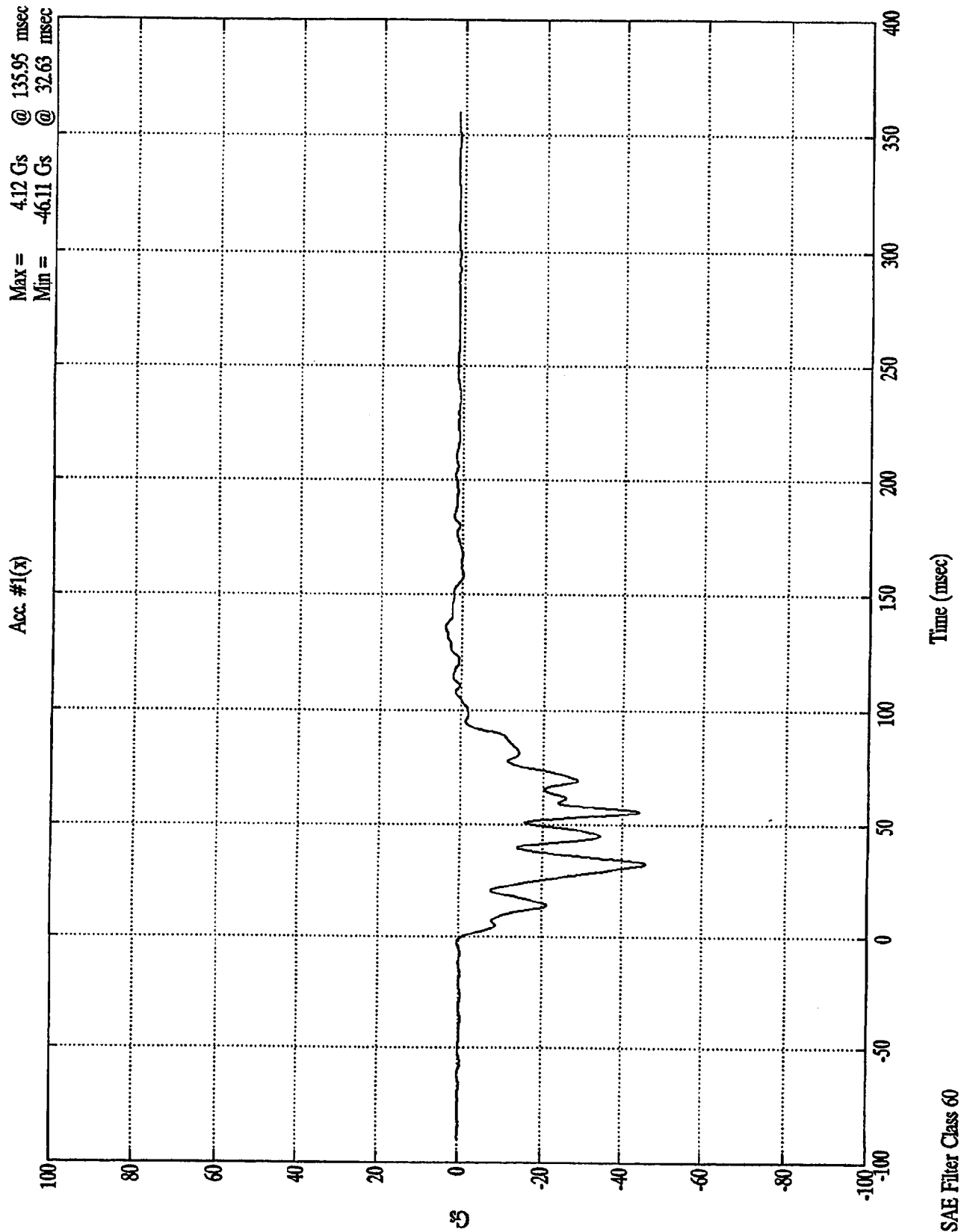
TEST NO. MS0303

VEHICLE DATA

FILTER CHANNEL CLASS

600

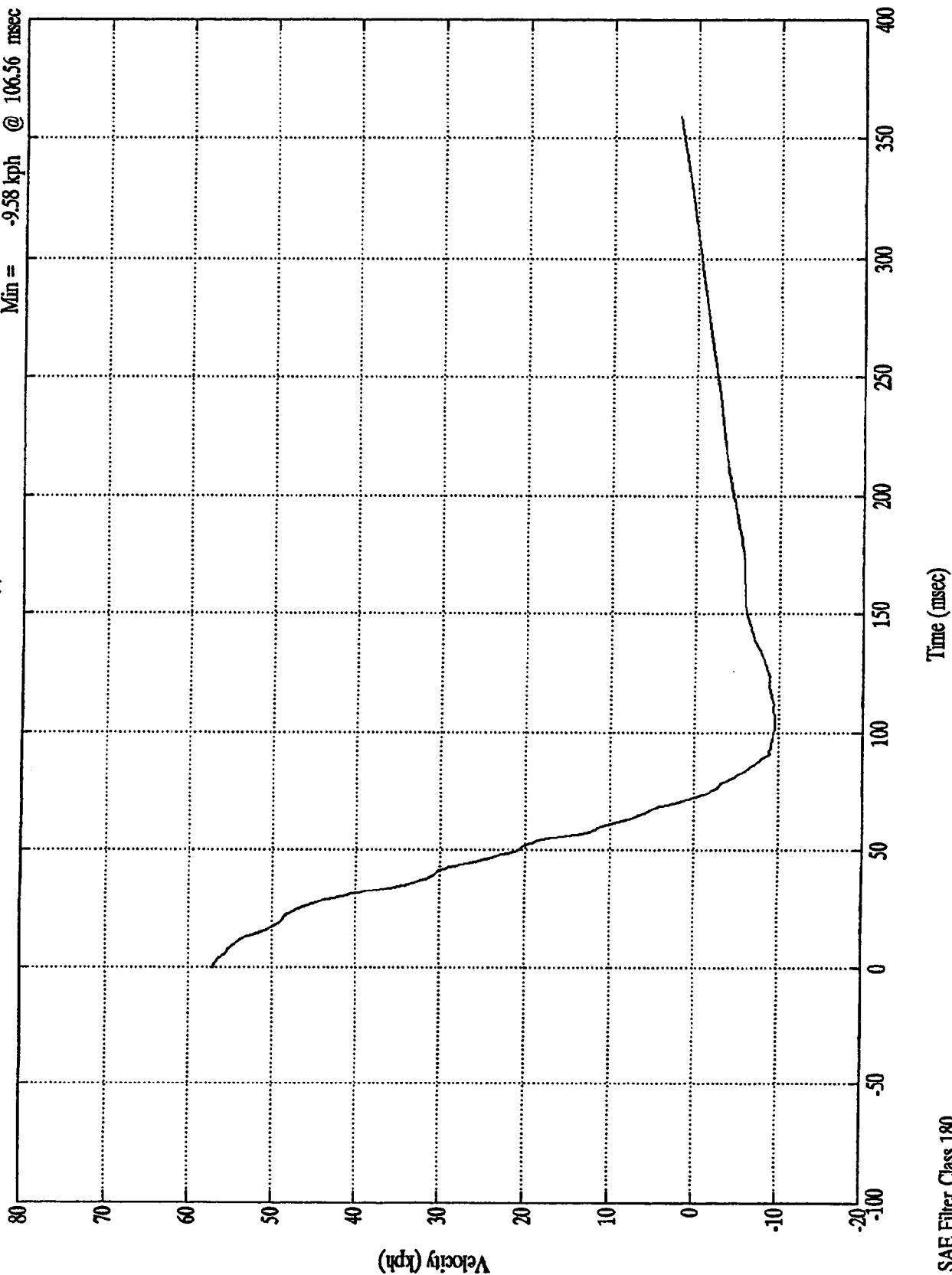
NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 56.97 kph @ 0.23 msec
Min = -9.58 kph @ 106.56 msec

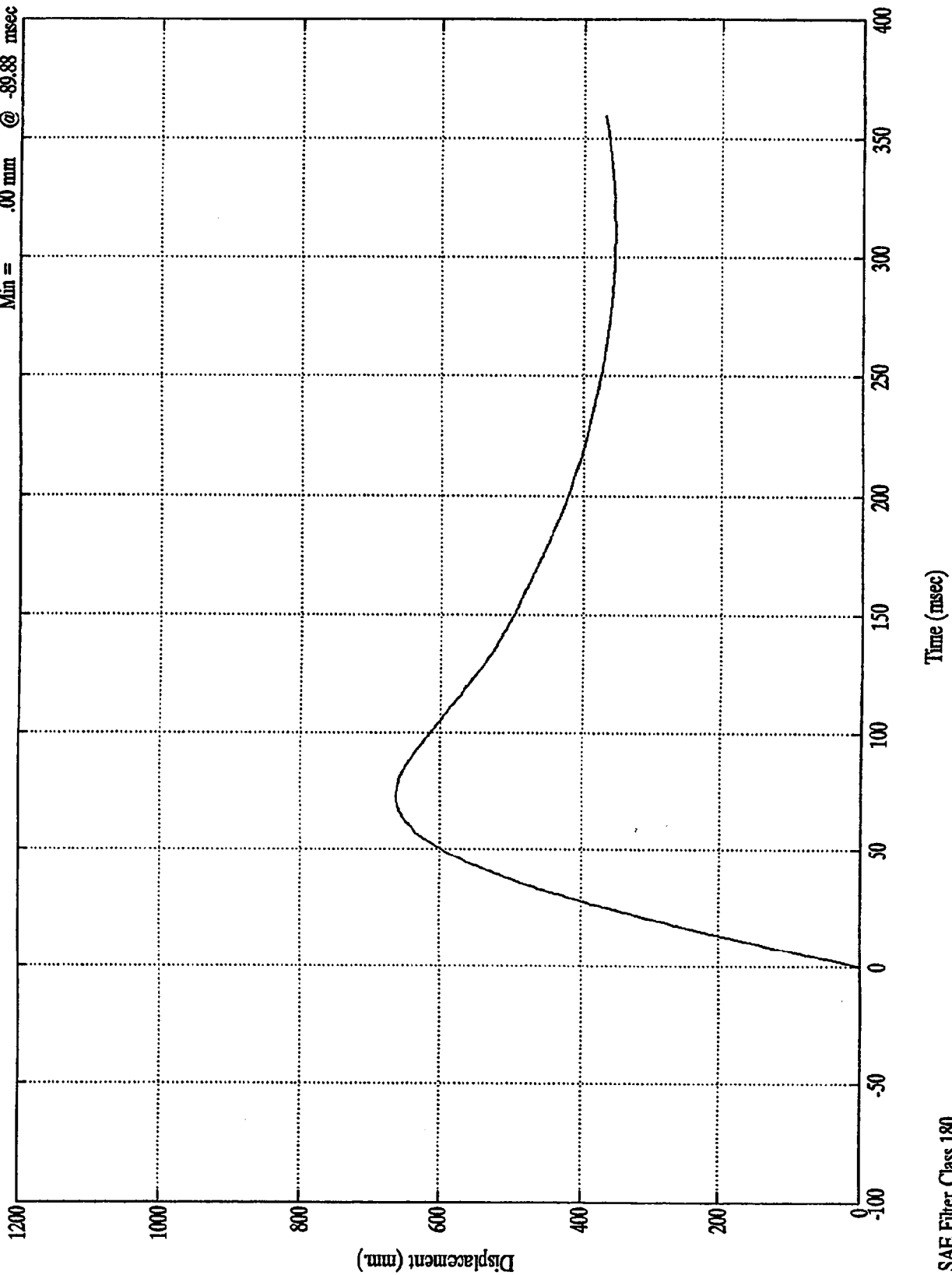
Acc. #1(x)



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 661.90 mm @ 72.48 msec
Min = .00 mm @ -89.88 msec

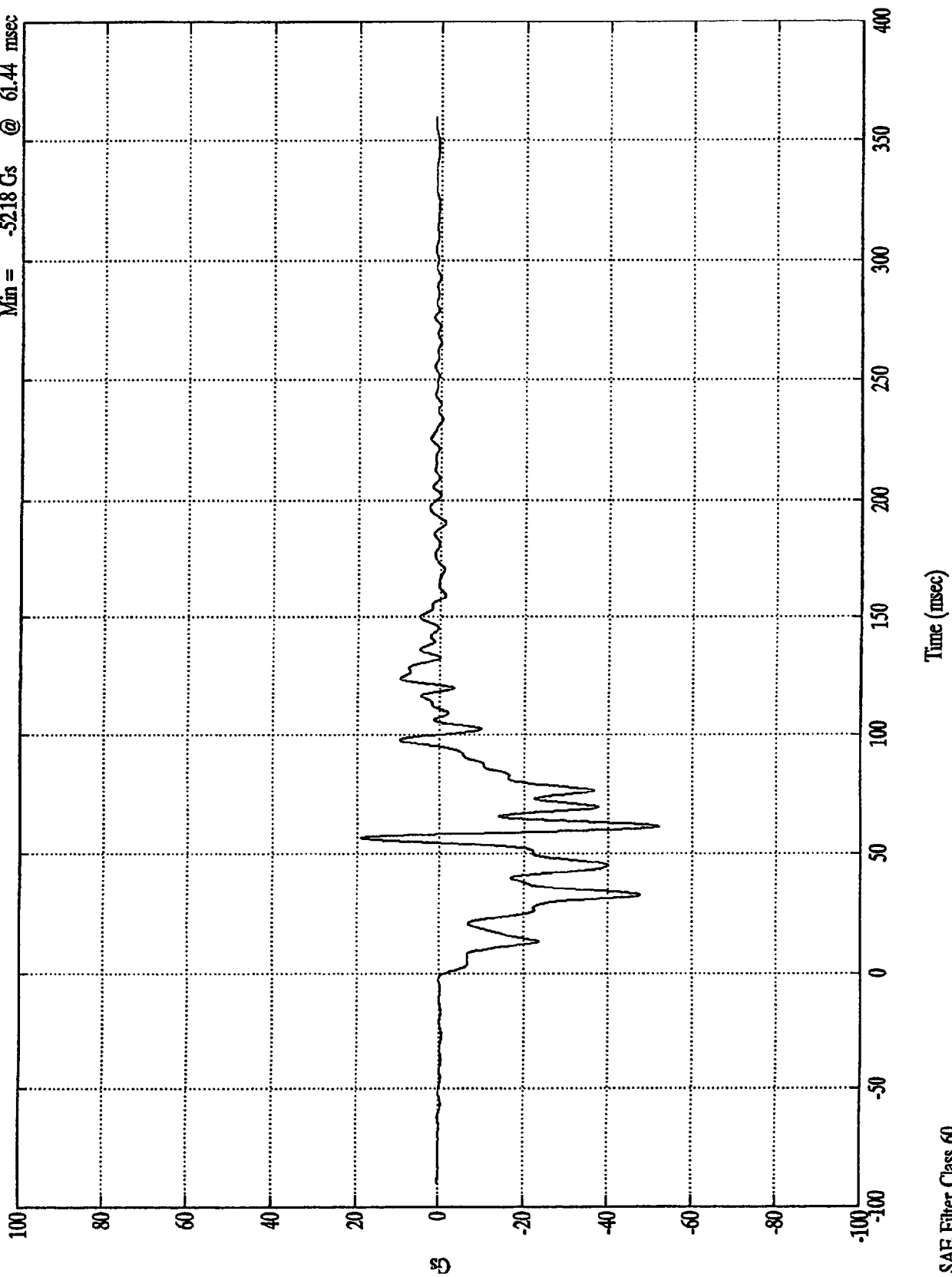
Acc. #1(x)



SAE Filter Class 180

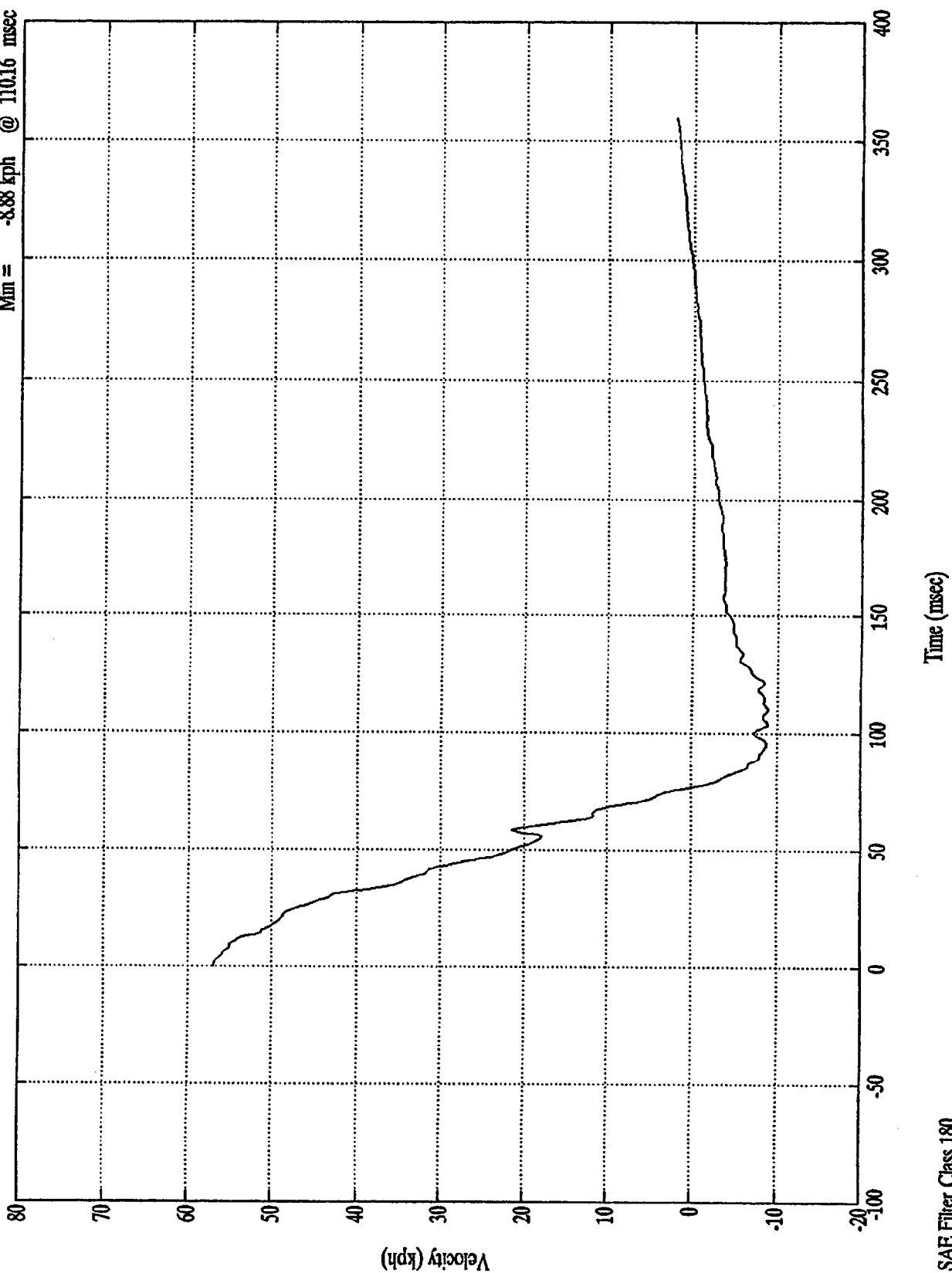
NCAP TEST #13 - 1995 DODGE STRATUS

Acc. #2(x)
Max = 19.01 Gs @ 56.76 msec
Min = -52.18 Gs @ 61.44 msec



NCAP TEST #13 - 1995 DODGE STRATUS

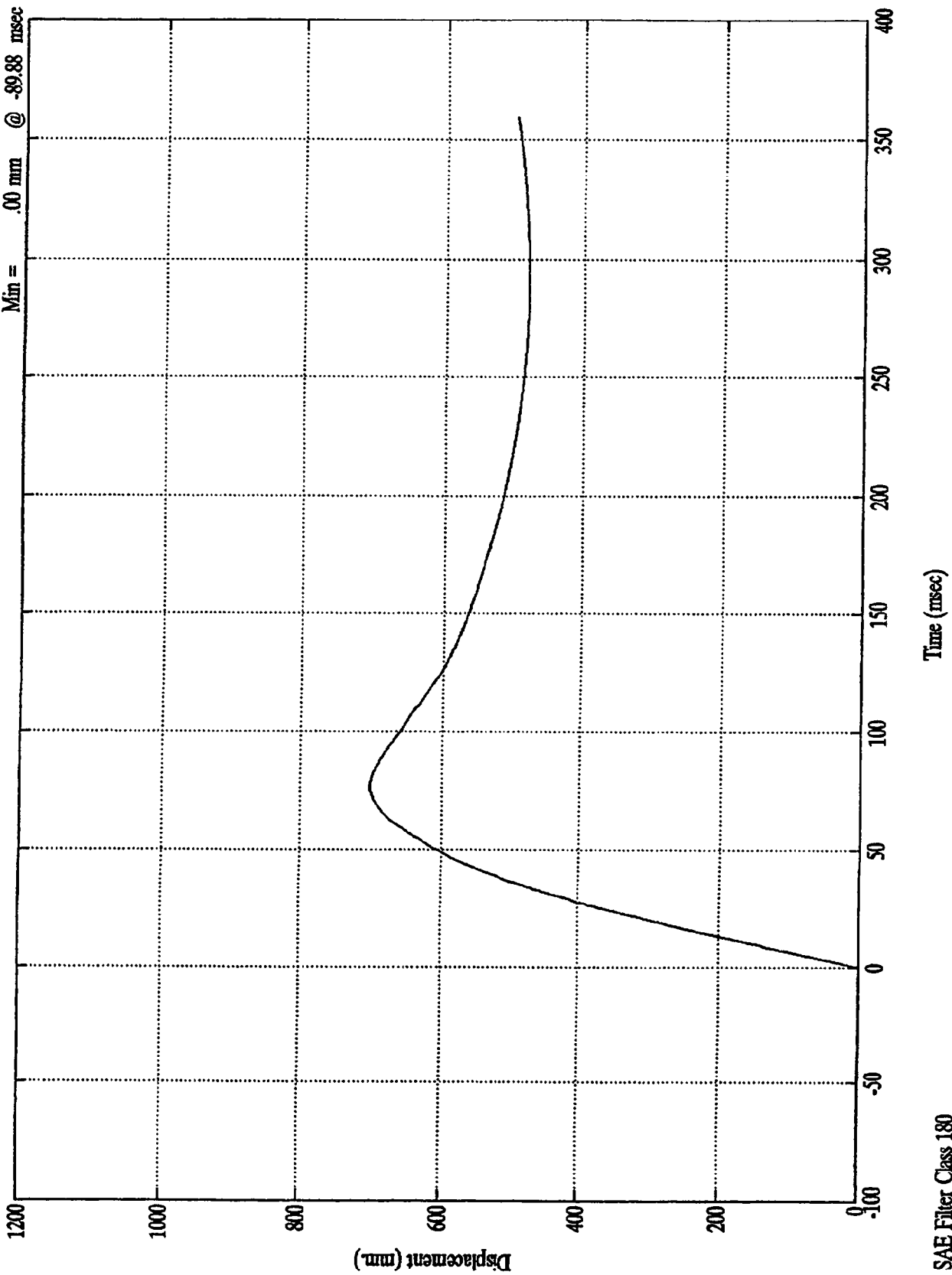
Acc. #2(x)
Max = 56.97 kph @ -0.00 msec
Min = -8.88 kph @ 110.16 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 701.14 mm @ 76.80 msec
Min = .00 mm @ -89.88 msec

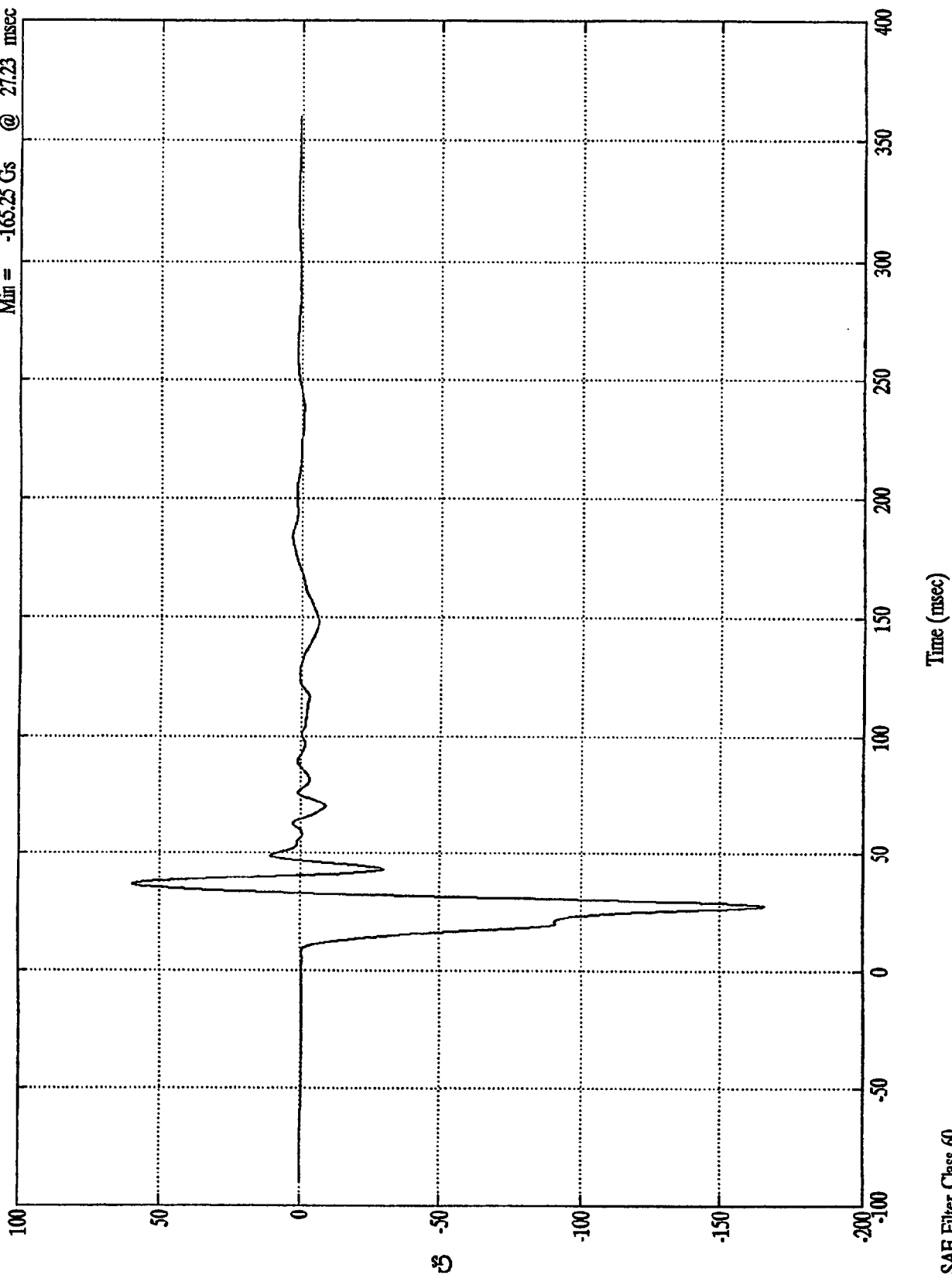
Acc. #2(x)



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 59.48 Gs @ 36.24 msec
 Min = -165.25 Gs @ 27.23 msec

Acc. #3(x)

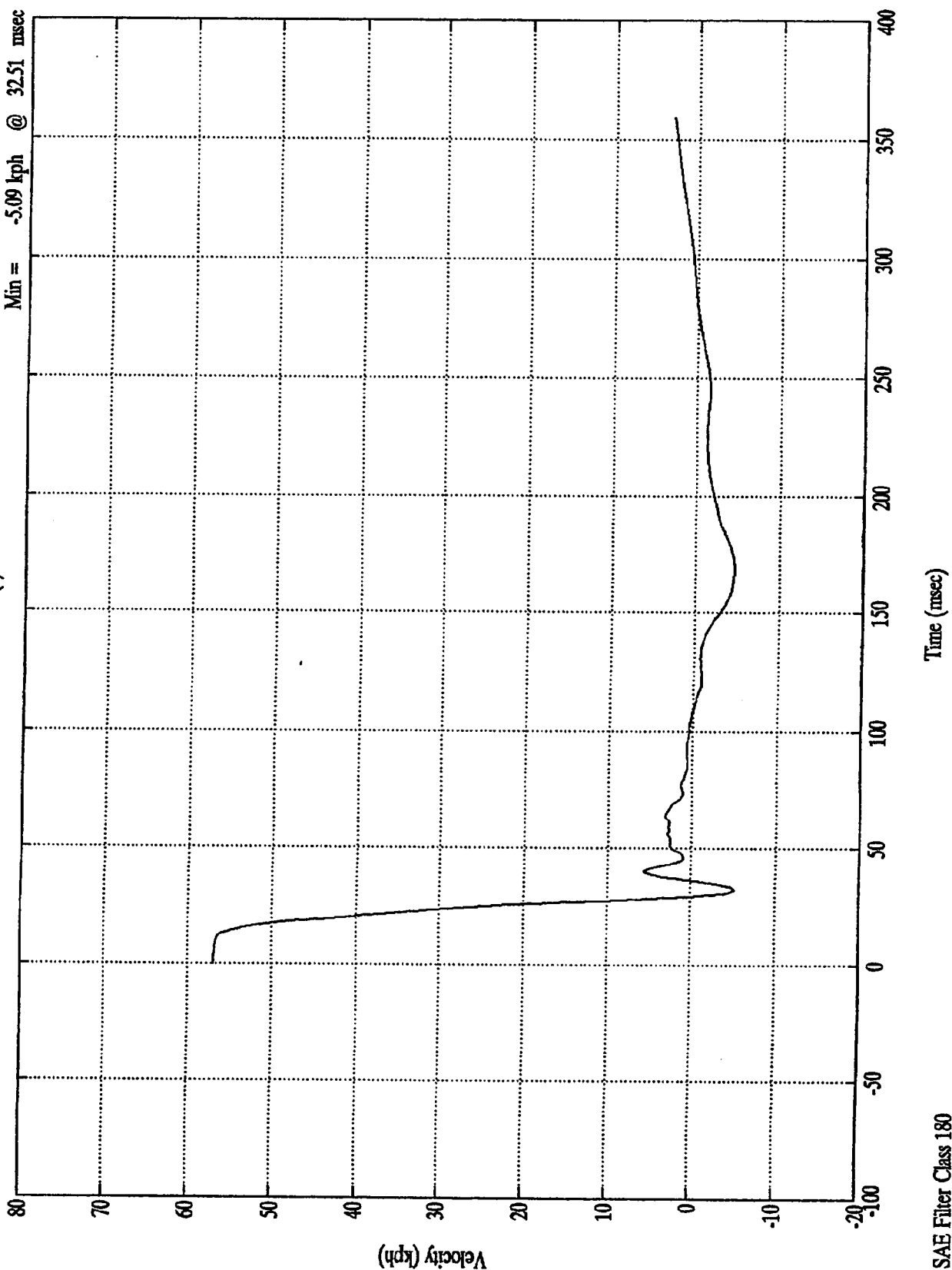


SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

Max = 56.97 kph @ -0.00 msec
Min = -5.09 kph @ 32.51 msec

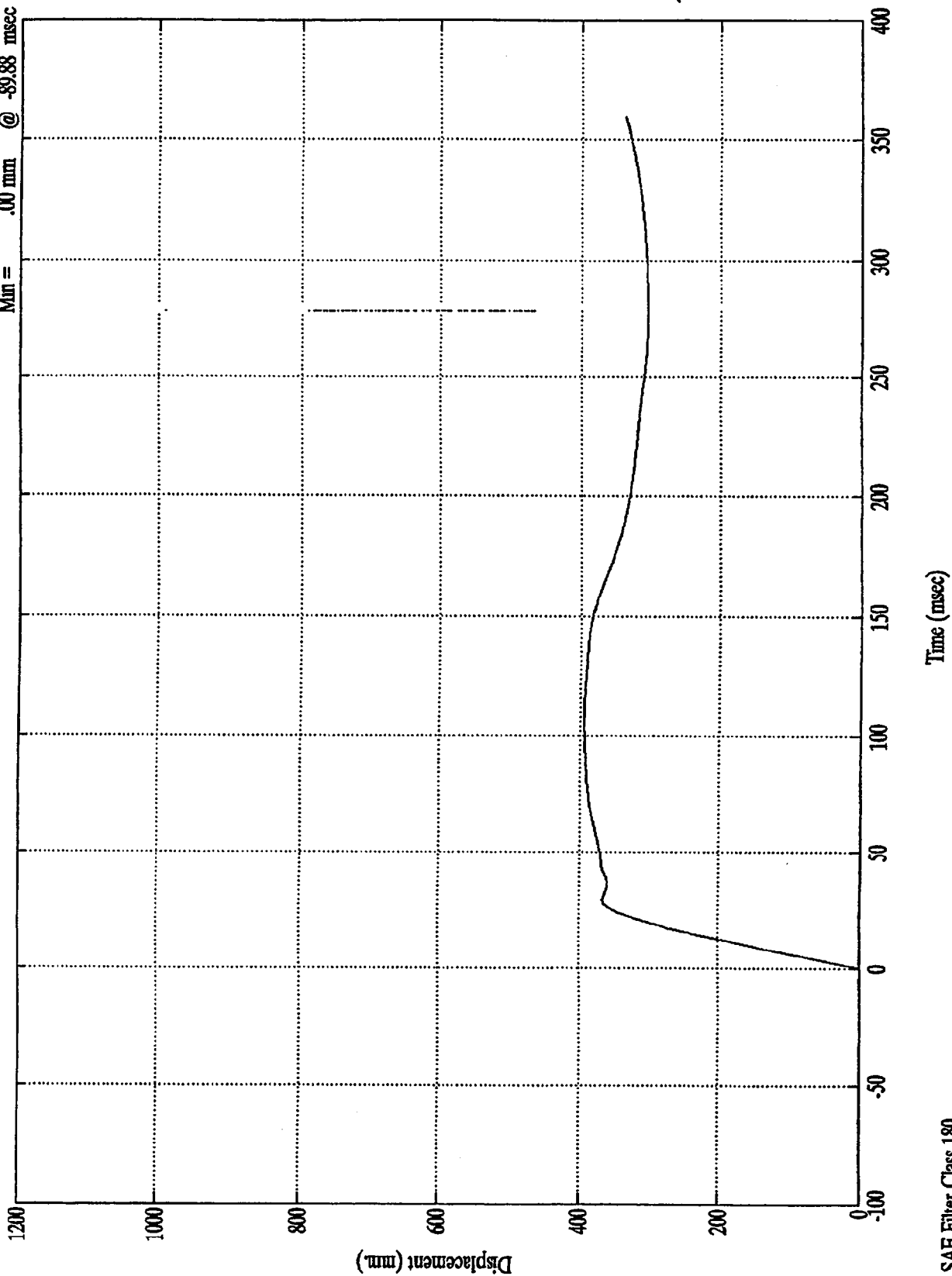
Acc. #3(x)



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 394.66 mm @ 109.31 msec
Min = .00 mm @ -89.88 msec

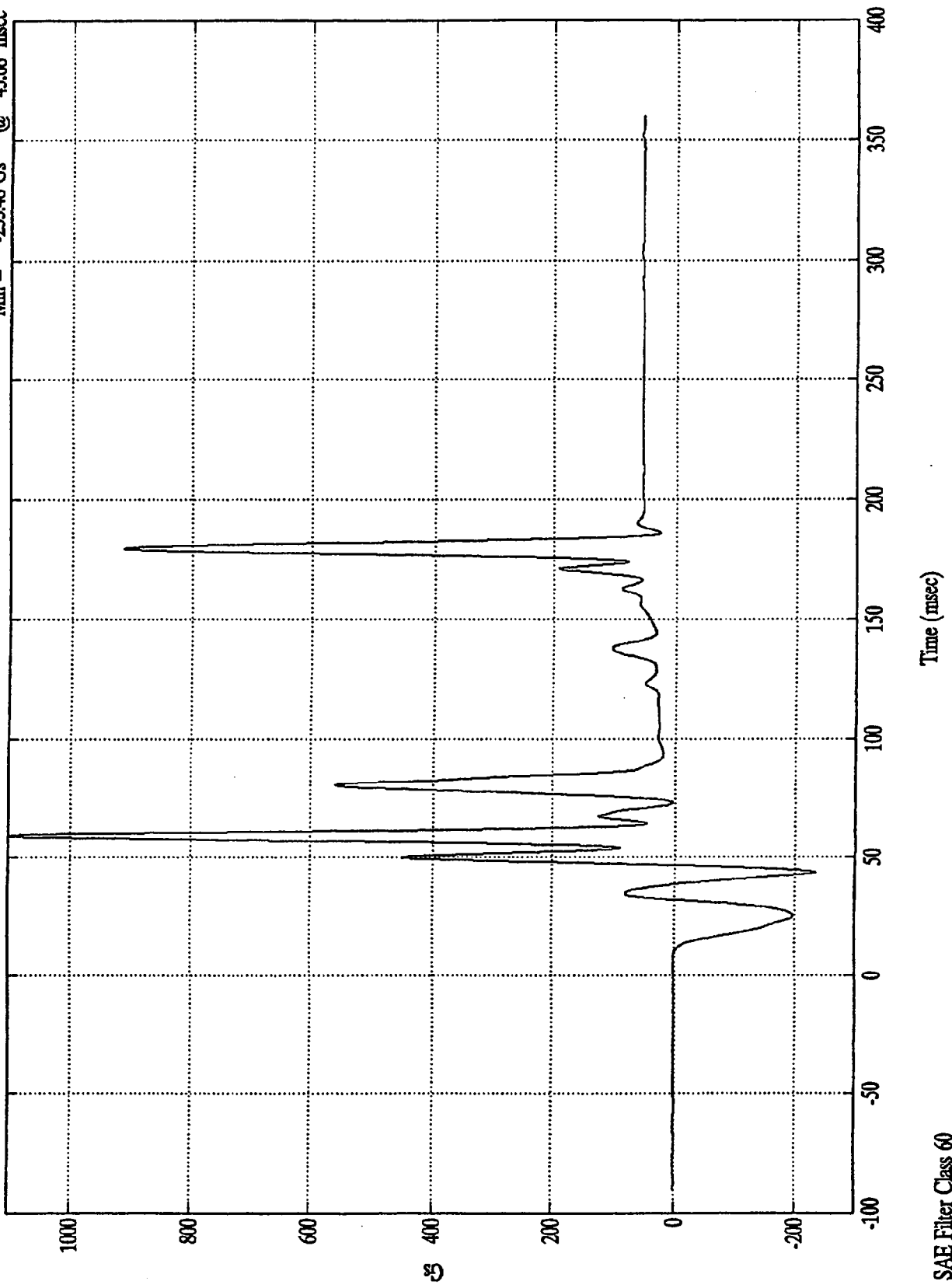
Acc. #3(x)



NCAP TEST #13 - 1995 DODGE STRATUS

Acc. #4(z)

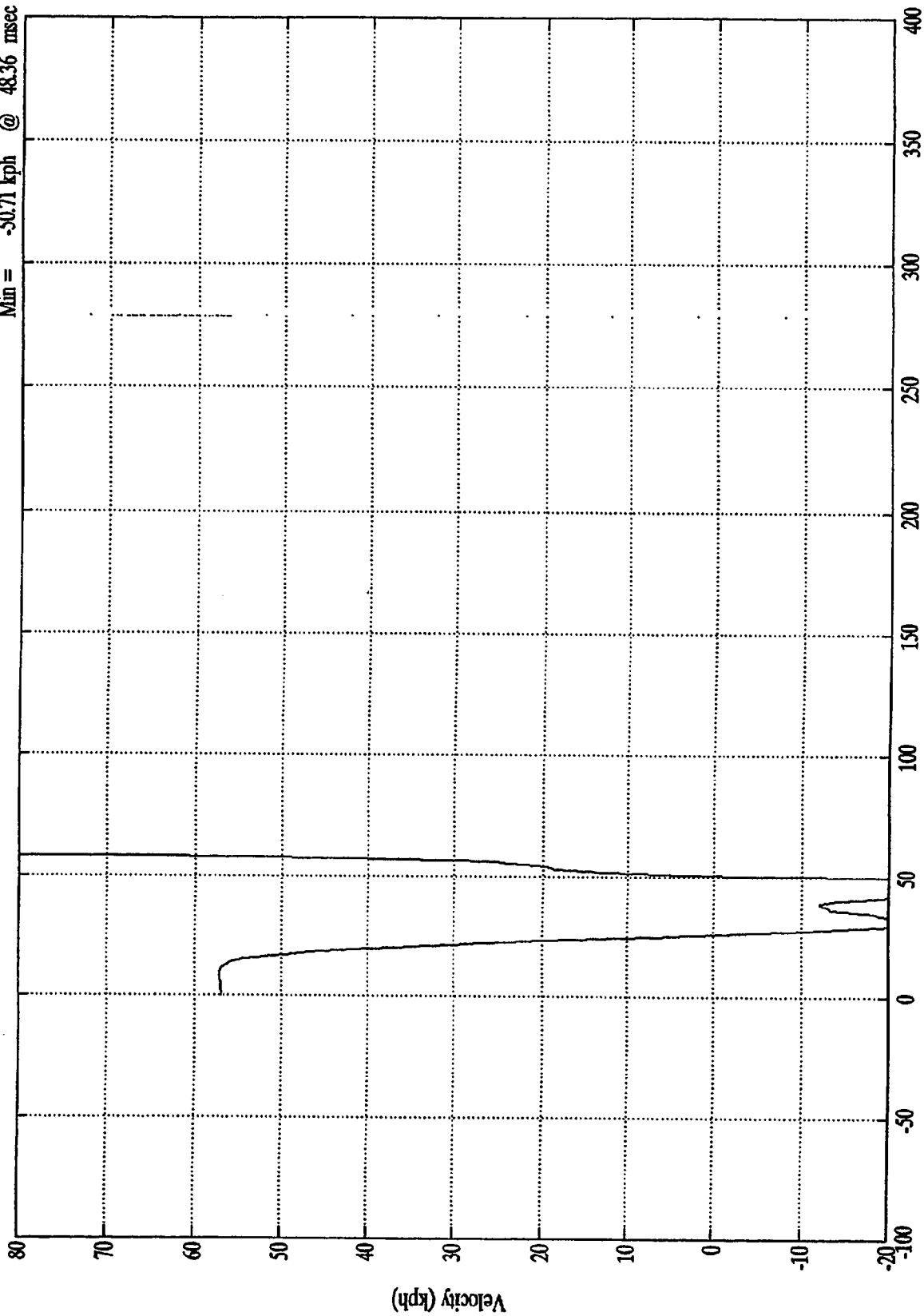
Max = 1099.16 Gs @ 59.04 msec
Min = -233.48 Gs @ 43.68 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 1023.38 kph @ 359.88 msec
Min = -50.71 kph @ 48.36 msec

Acc. #4(x)



Time (msec)

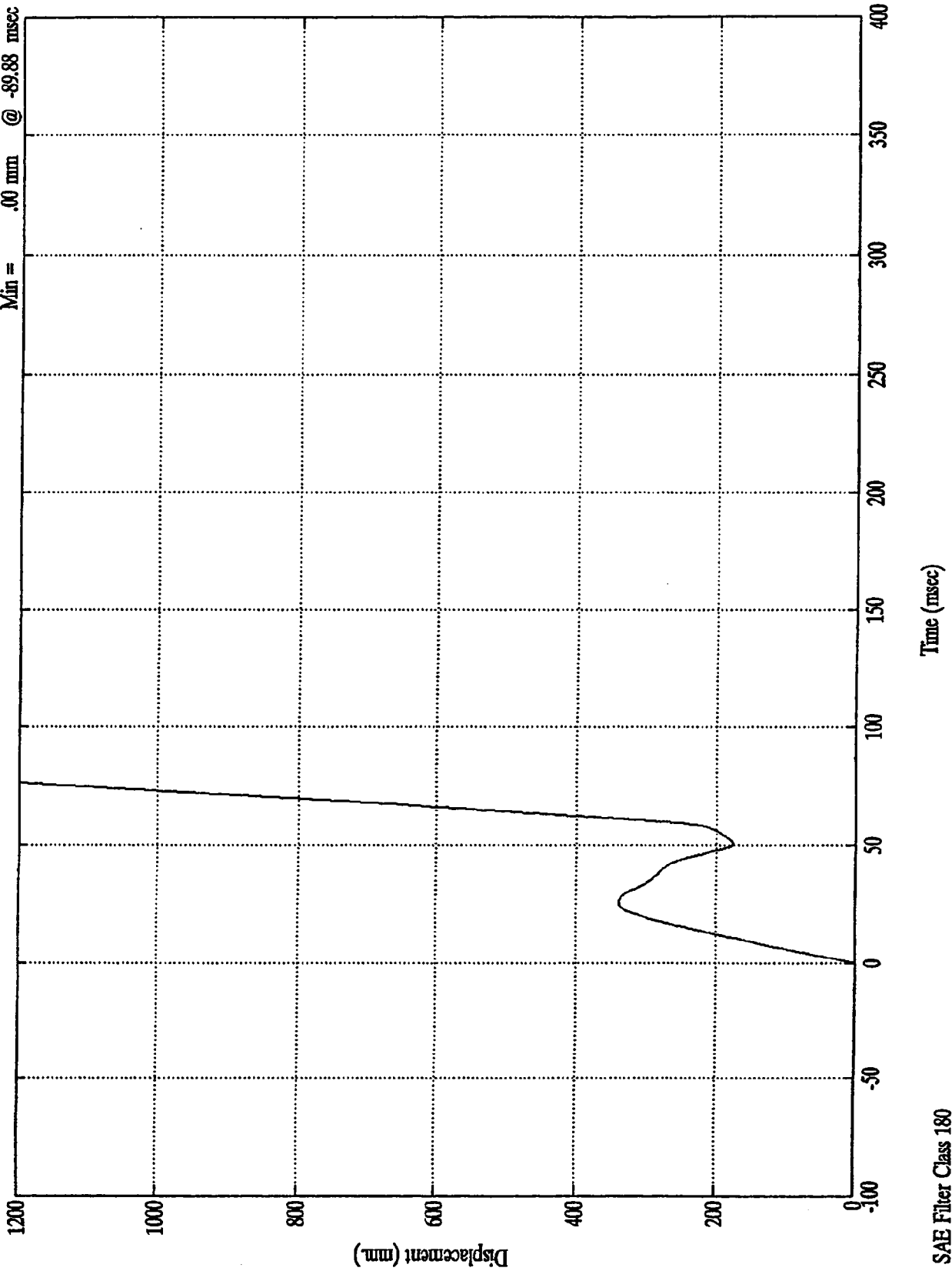
SAE Filter Class 180

NCAP TEST #13 - 1995 DODGE STRATUS

Acc. #4(x)

Max = 55544.35 mm @ 359.88 msec

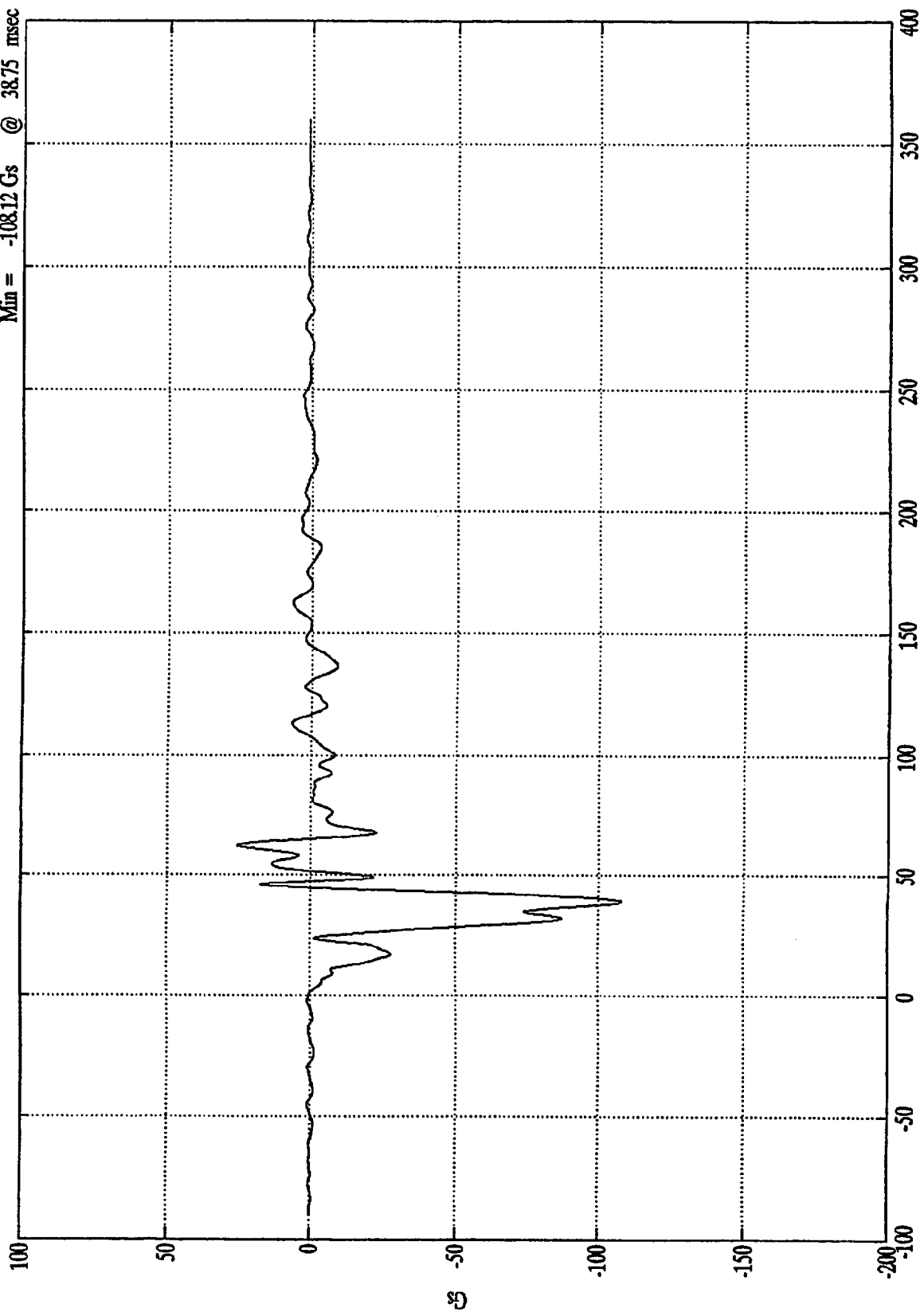
Min = .00 mm @ -89.88 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 25.64 Gs @ 62.27 msec
 Min = -108.12 Gs @ 38.75 msec

Acc. #5(x)



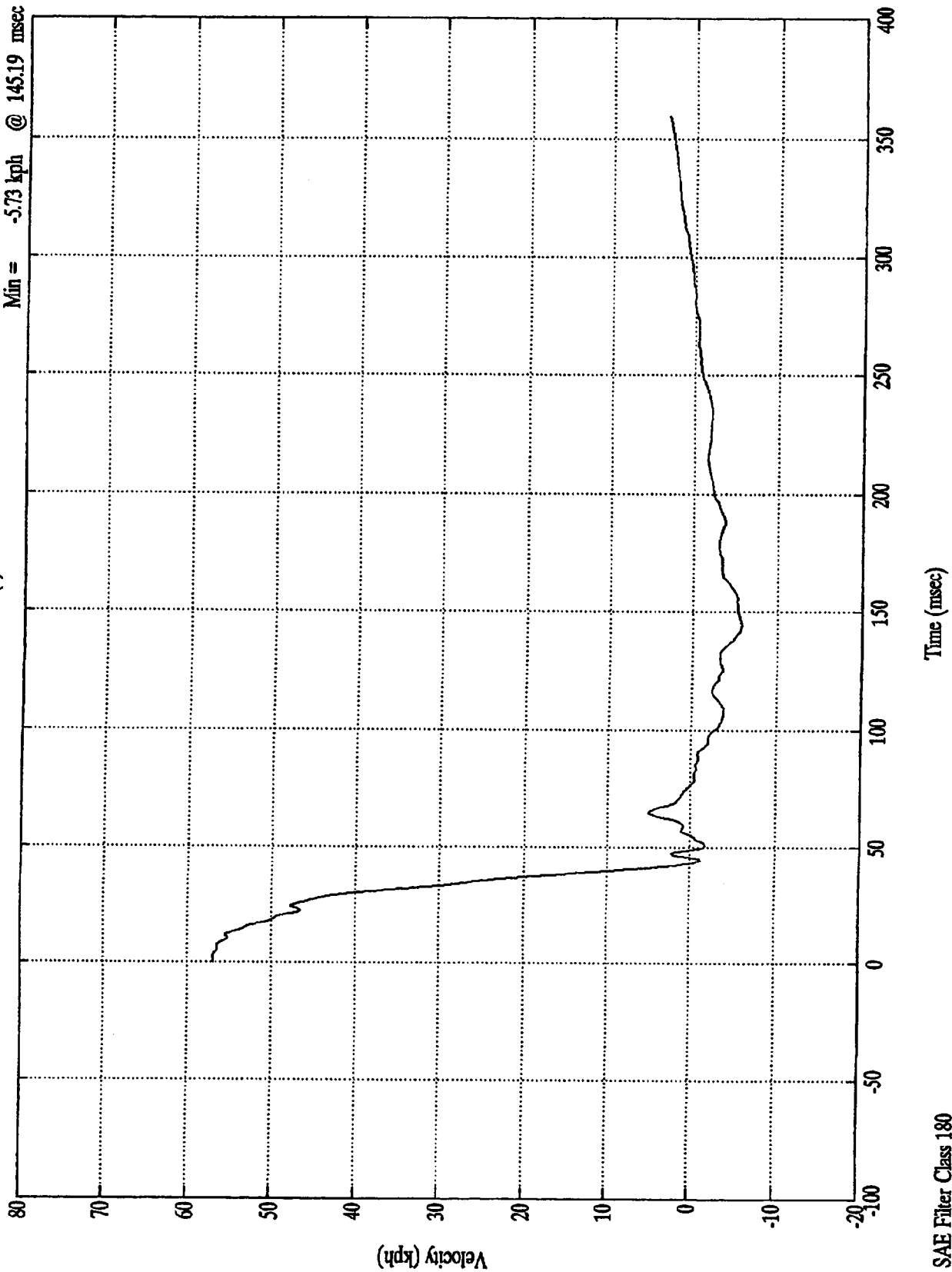
Time (msec)

SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

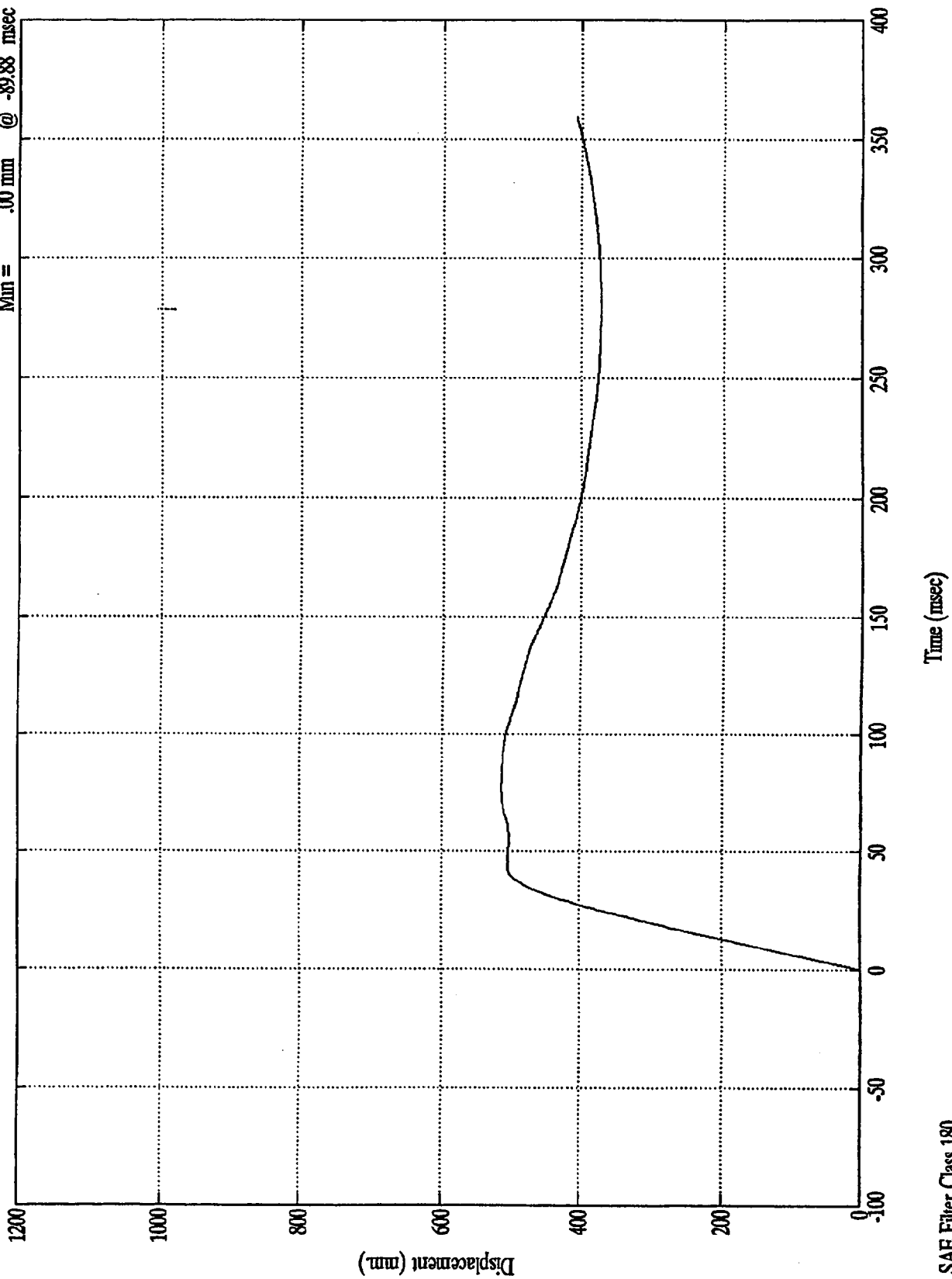
Max = 57.03 kph @ 2.39 msec
Min = -5.73 kph @ 145.19 msec

Acc. #5($\bar{x}$)



NCAP TEST #13 - 1995 DODGE STRATUS

Acc. #5(x)
Max = 513.68 mm @ 76.92 msec
Min = .00 mm @ -89.88 msec



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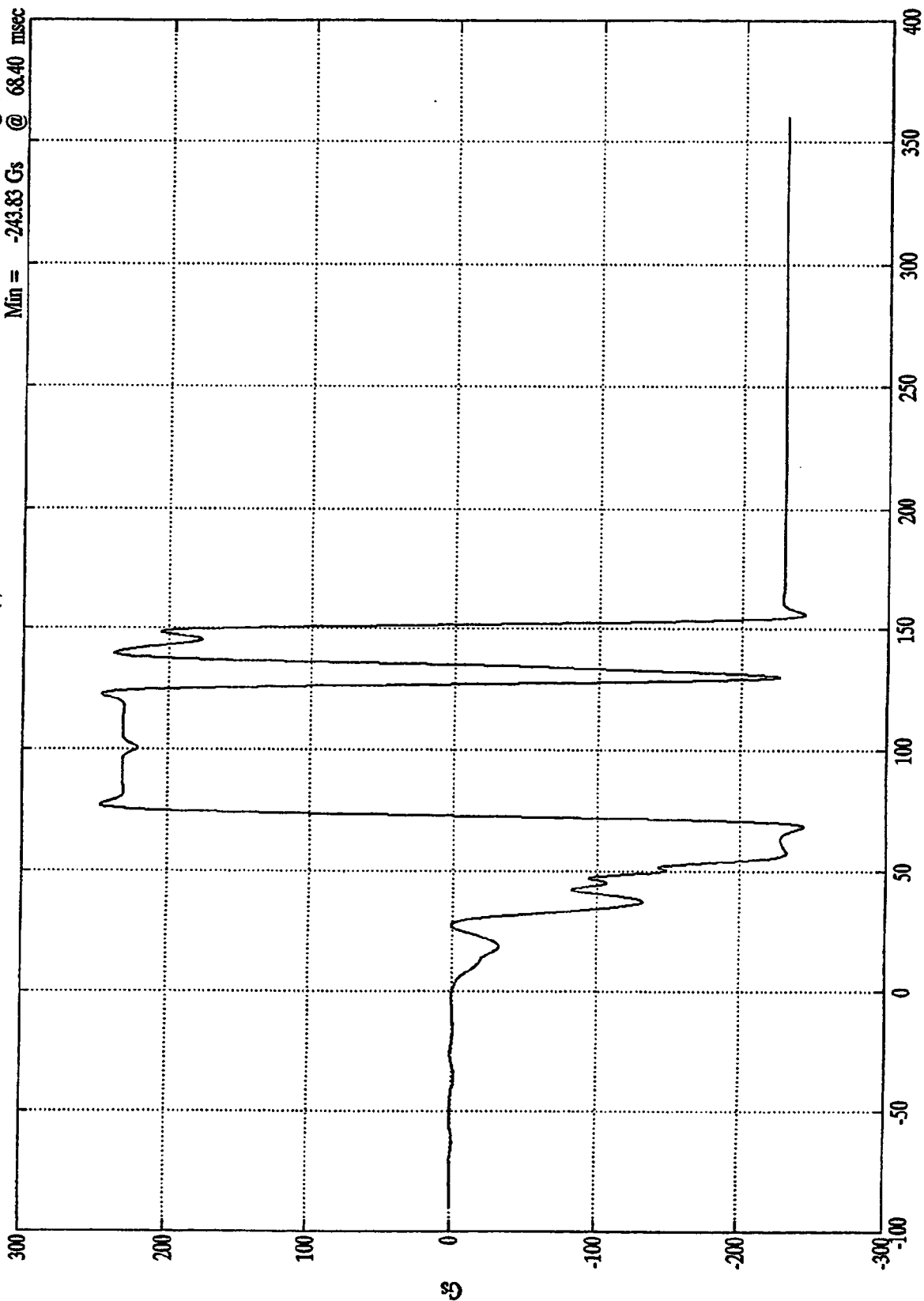
8227-13

SAE Filter Class 180

NCAP TEST #13 - 1995 DODGE STRATUS

Max = 245.43 Gs @ 76.92 msec
Min = -243.83 Gs @ 68.40 msec

Acc. #6(x)



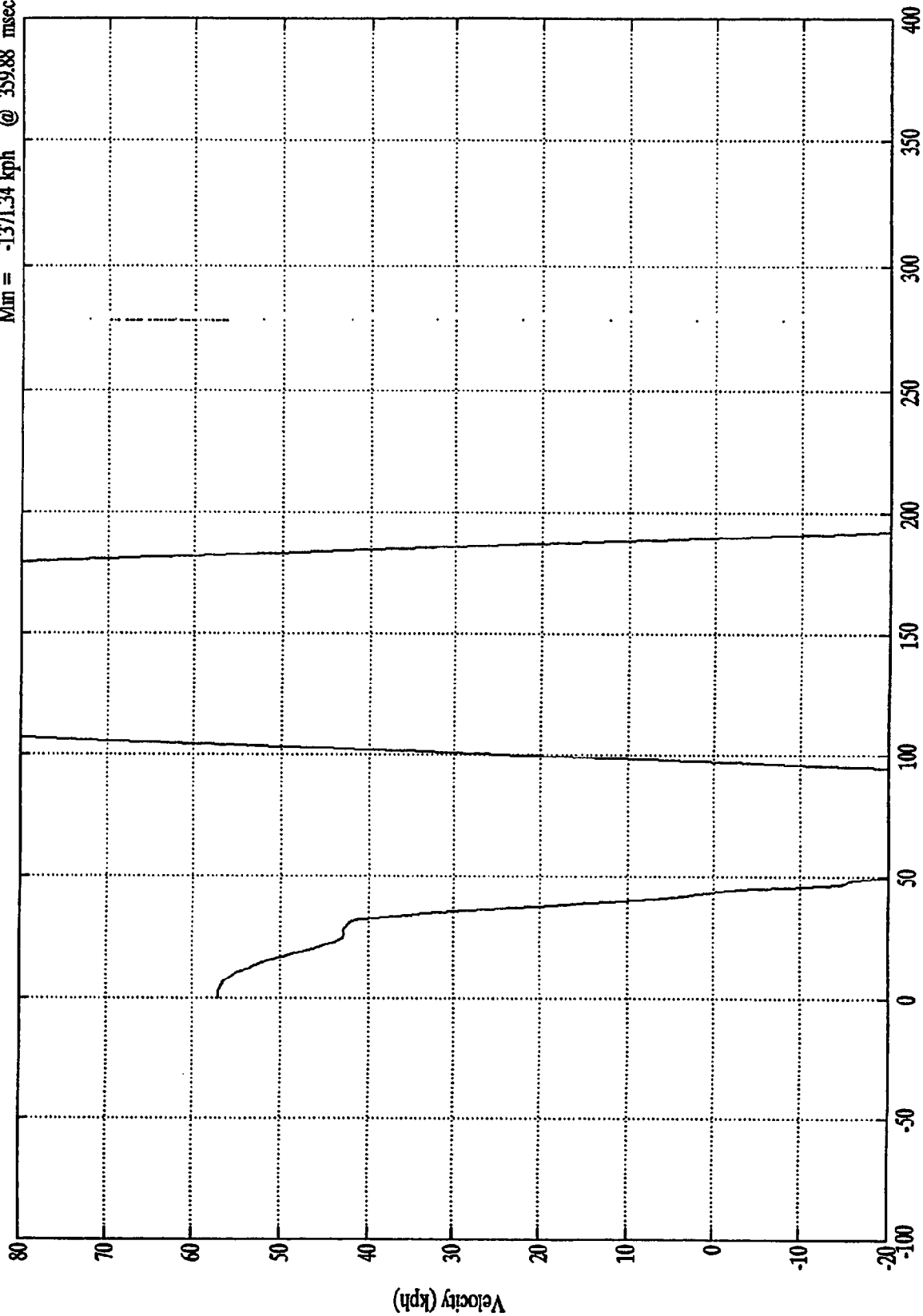
Time (msec)

SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

Max = 305.30 kph @ 151.56 msec
Min = -1371.34 kph @ 359.88 msec

Acc. #6(x)



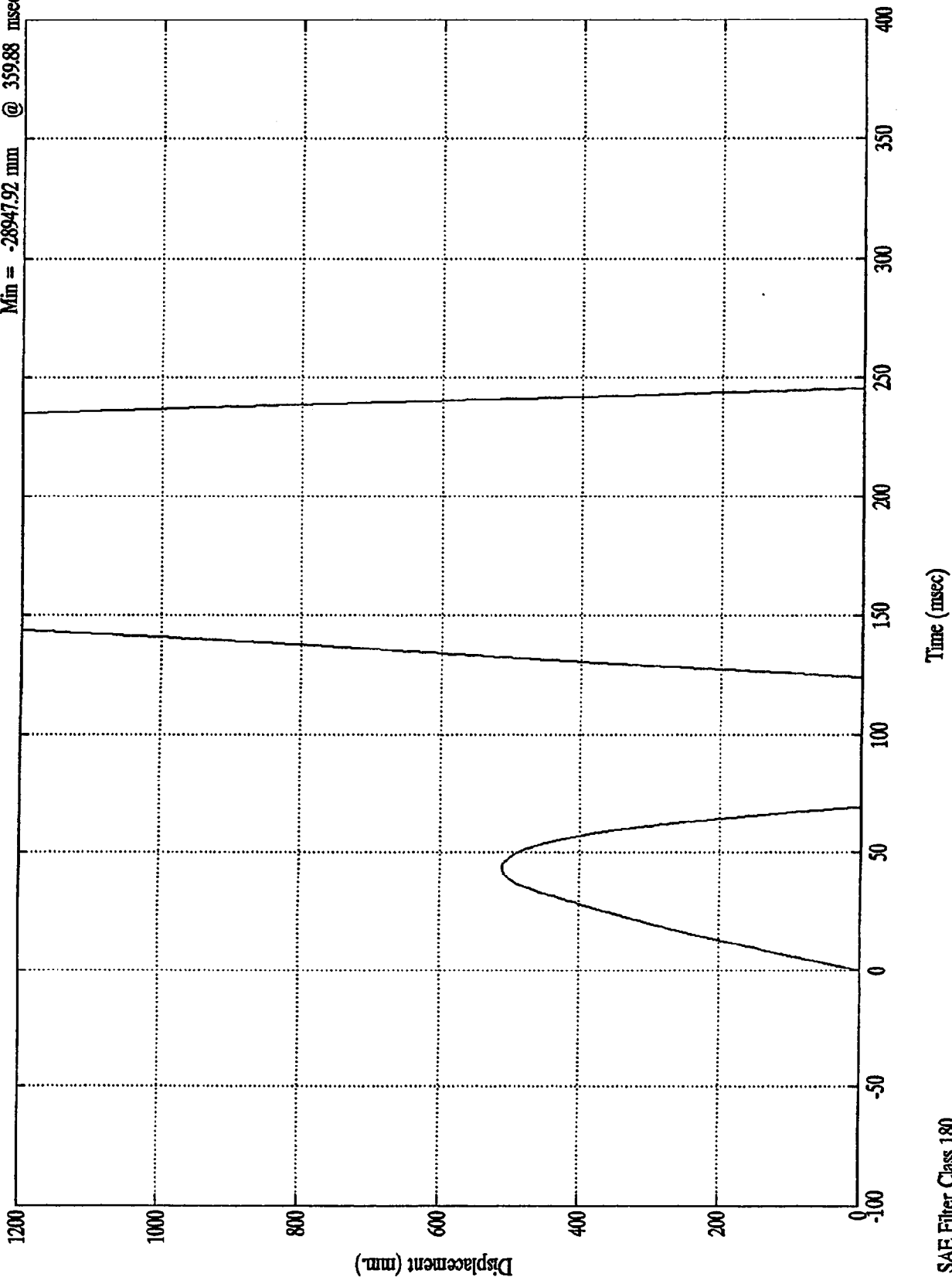
Time (msec)

SAE Filter Class 180

NCAP TEST #13 - 1995 DODGE STRATUS

Max = 3436.50 mm @ 189.84 msec
Min = -28947.92 mm @ 359.88 msec

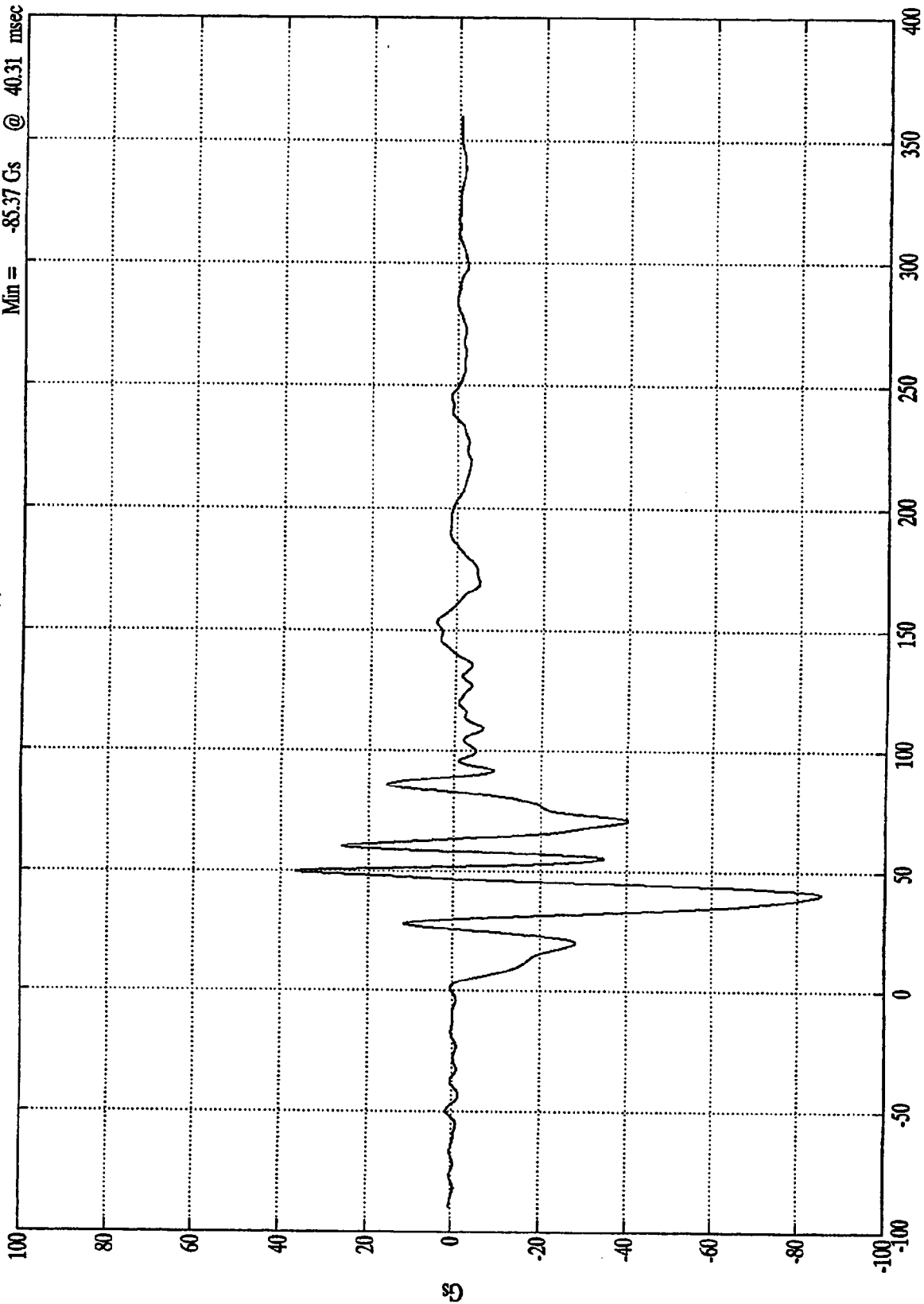
Acc. #6(x)



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 36.81 Gs @ 50.04 msec
Min = -85.37 Gs @ 40.31 msec

Acc. #7(x)



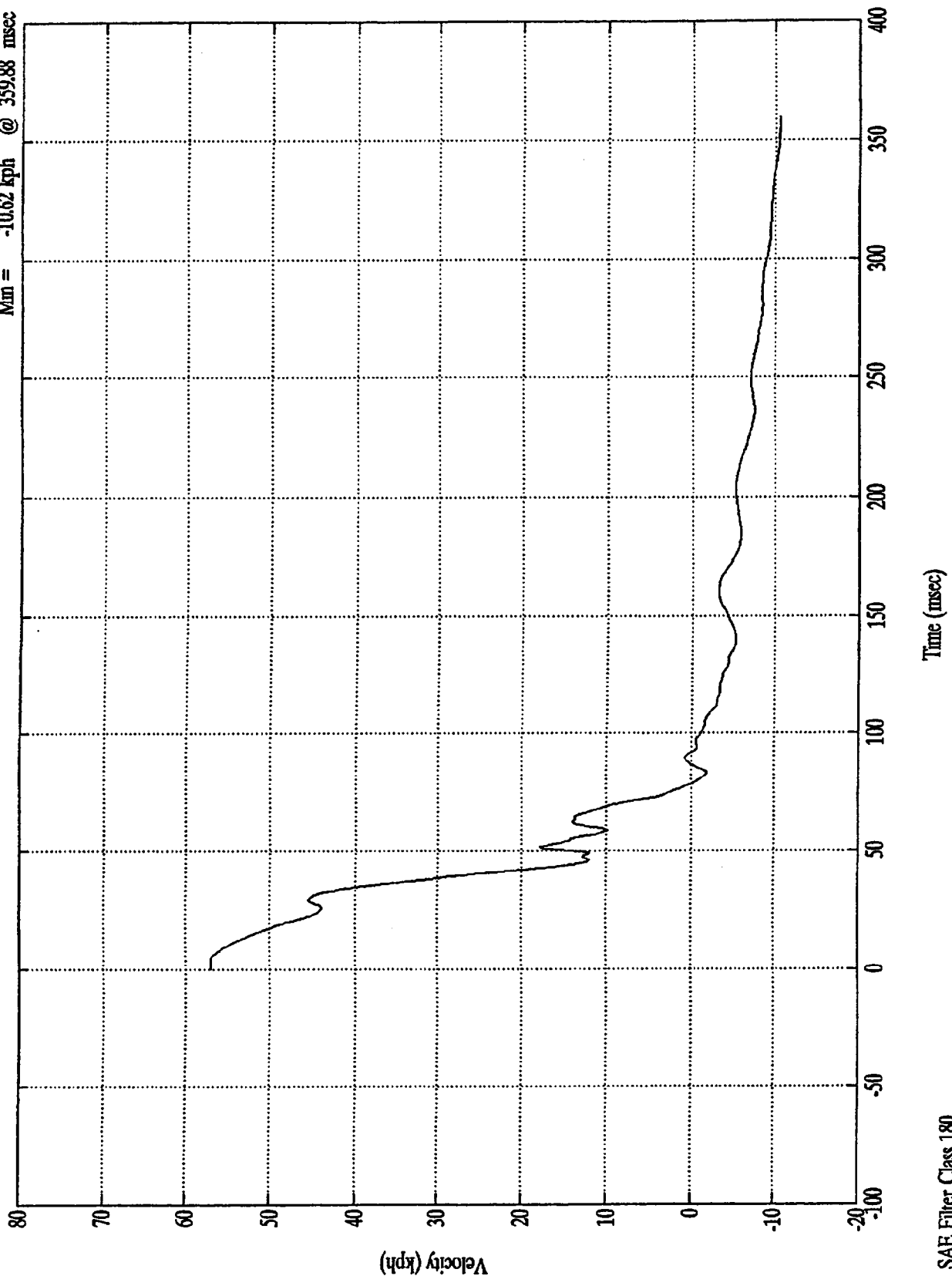
Time (msec)

SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

Max = 57.02 kph @ 3.11 msec
Min = -10.62 kph @ 359.88 msec

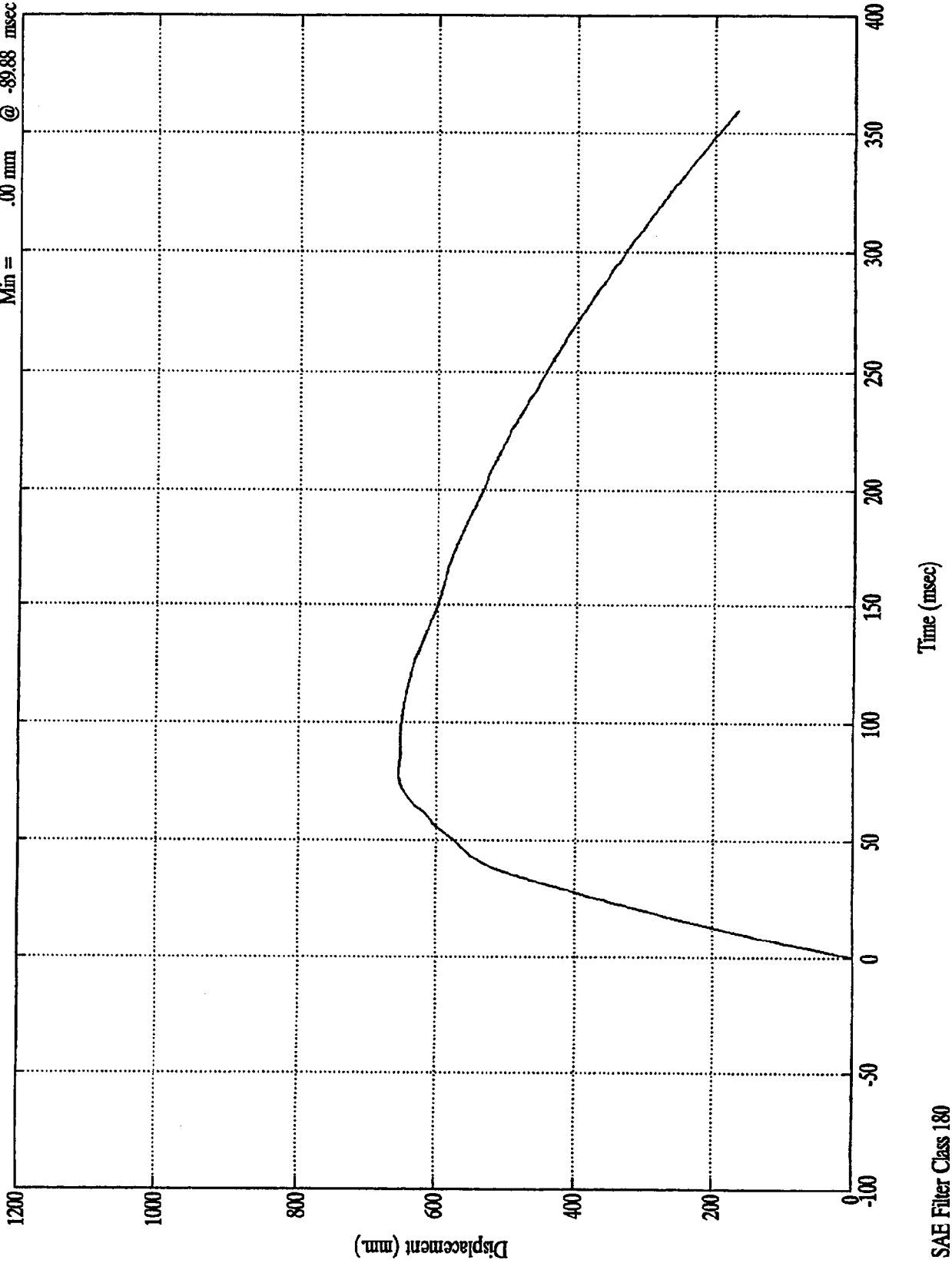
Acc. #7(x)



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 654.94 mm @ 78.35 msec
Min = .00 mm @ -89.88 msec

Acc. #7(x)

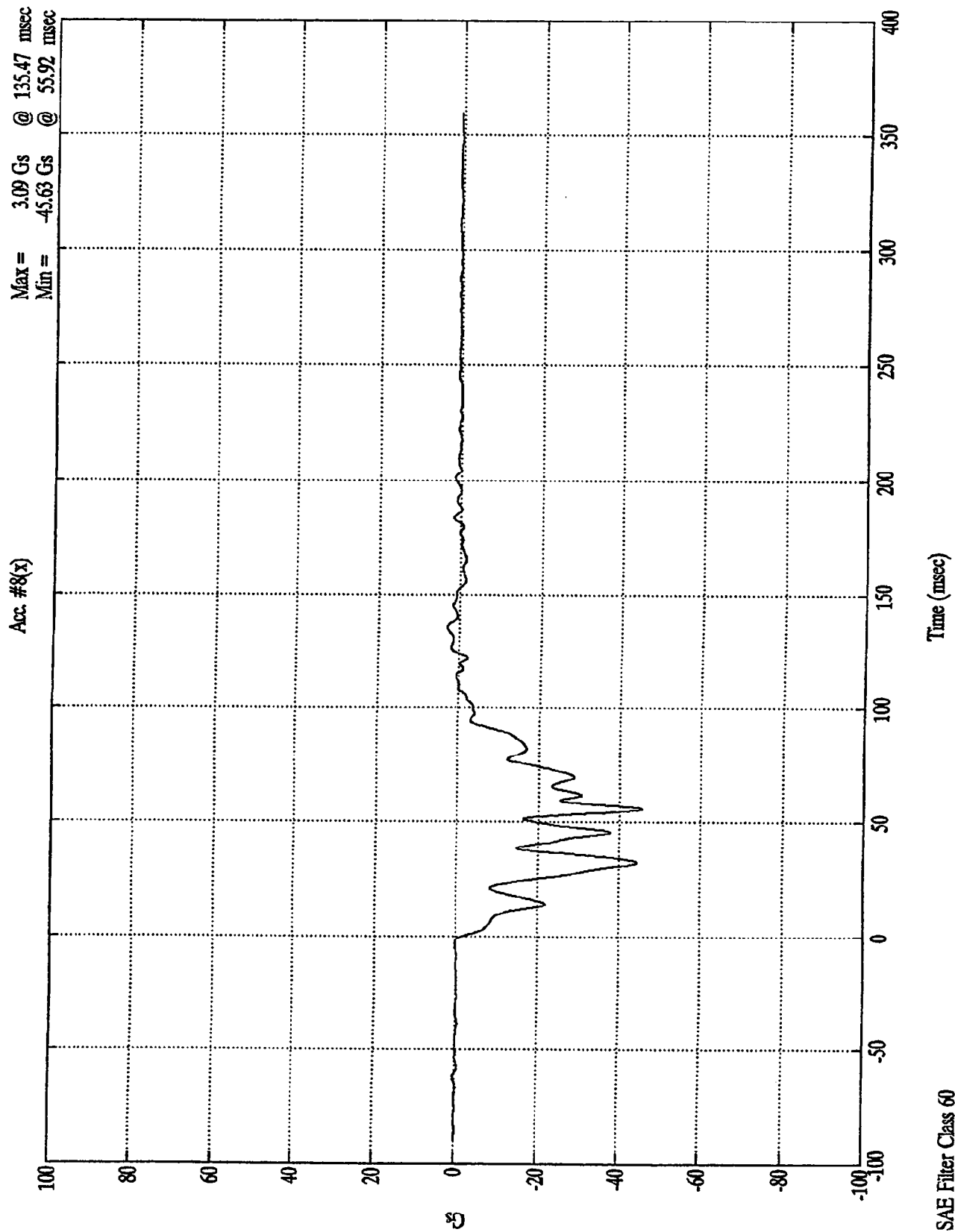


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SAE Filter Class 180

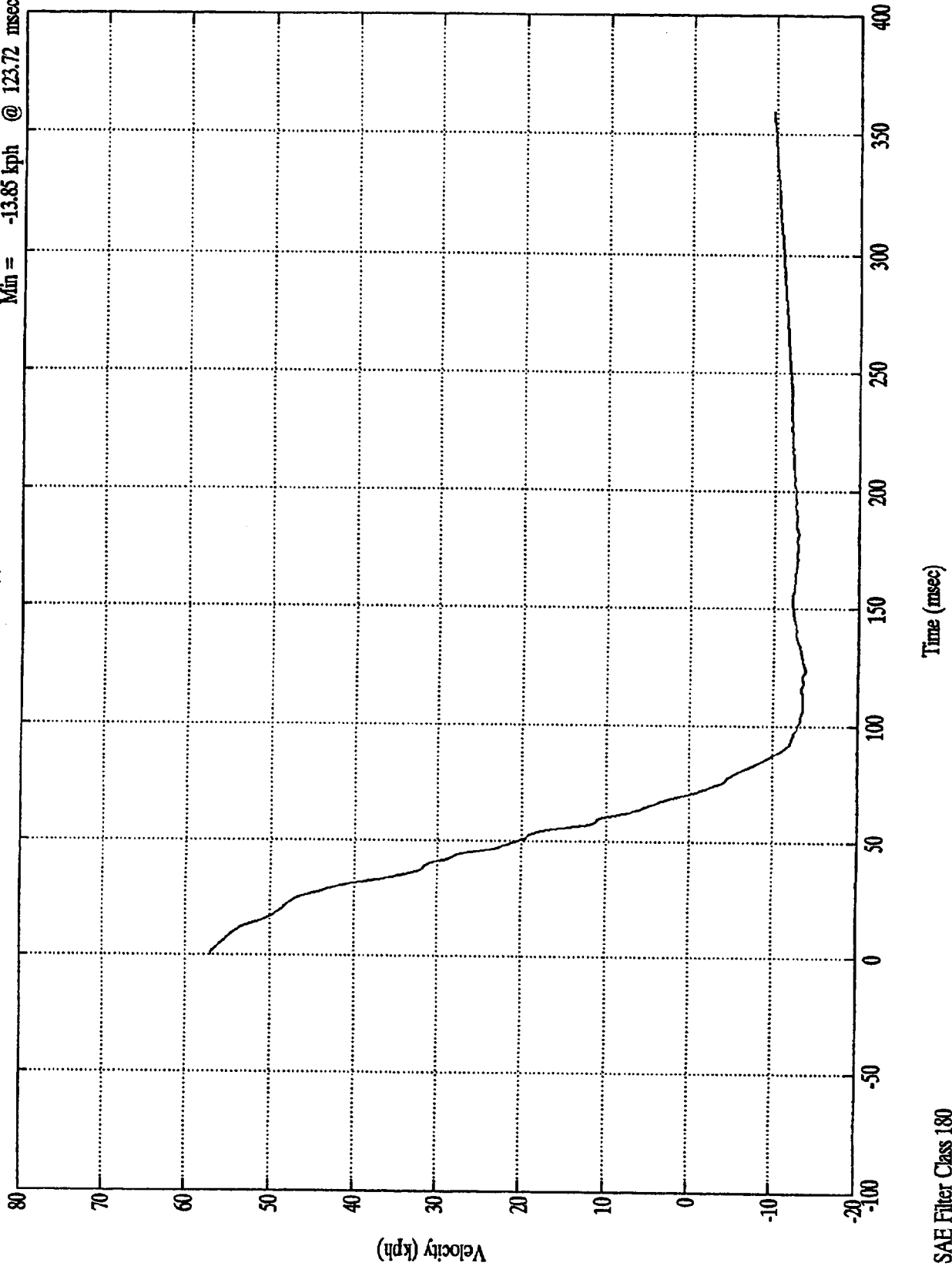
NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 56.97 kph @ 0.23 msec
Min = -13.85 kph @ 123.72 msec

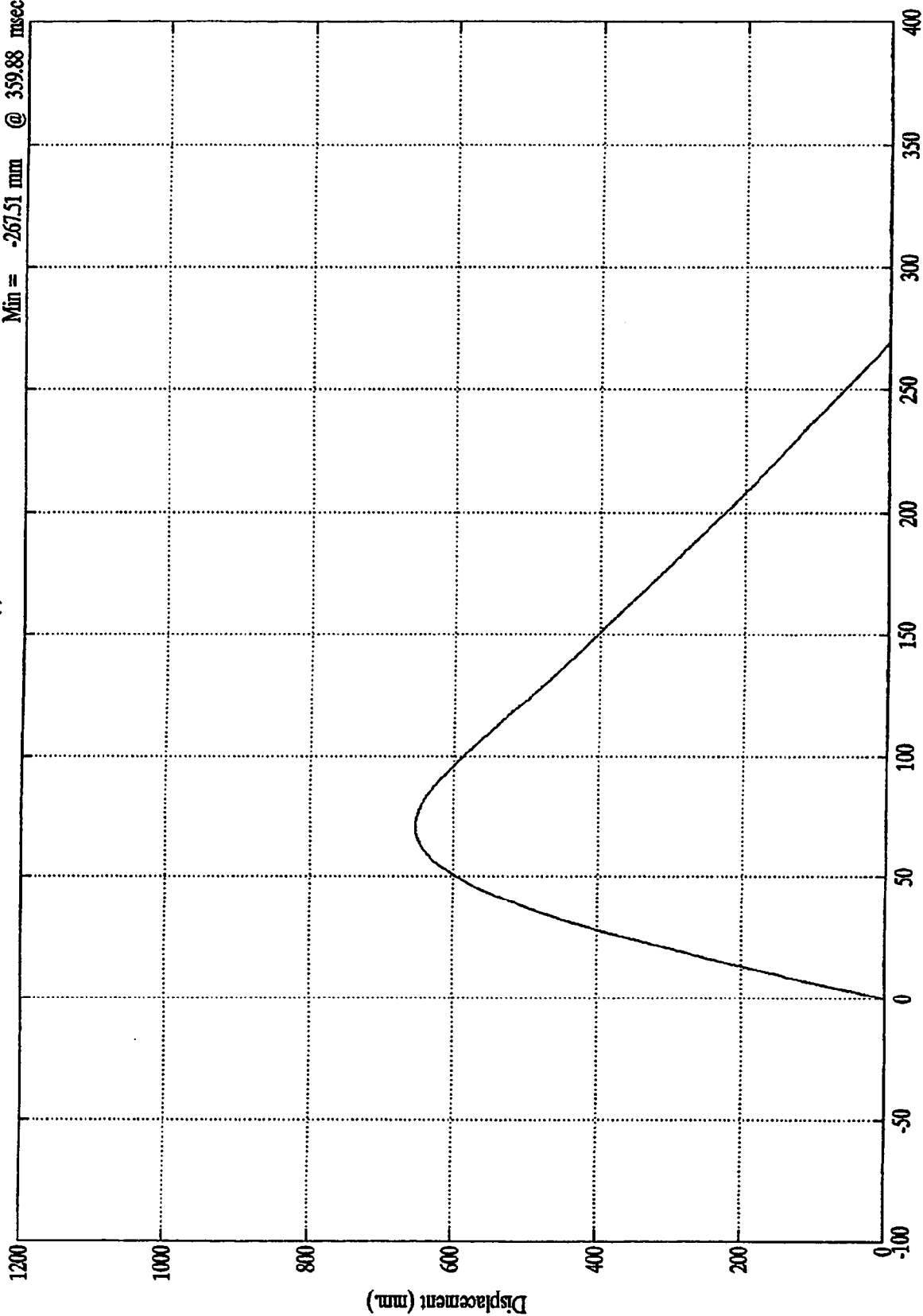
Acc. #8(x)



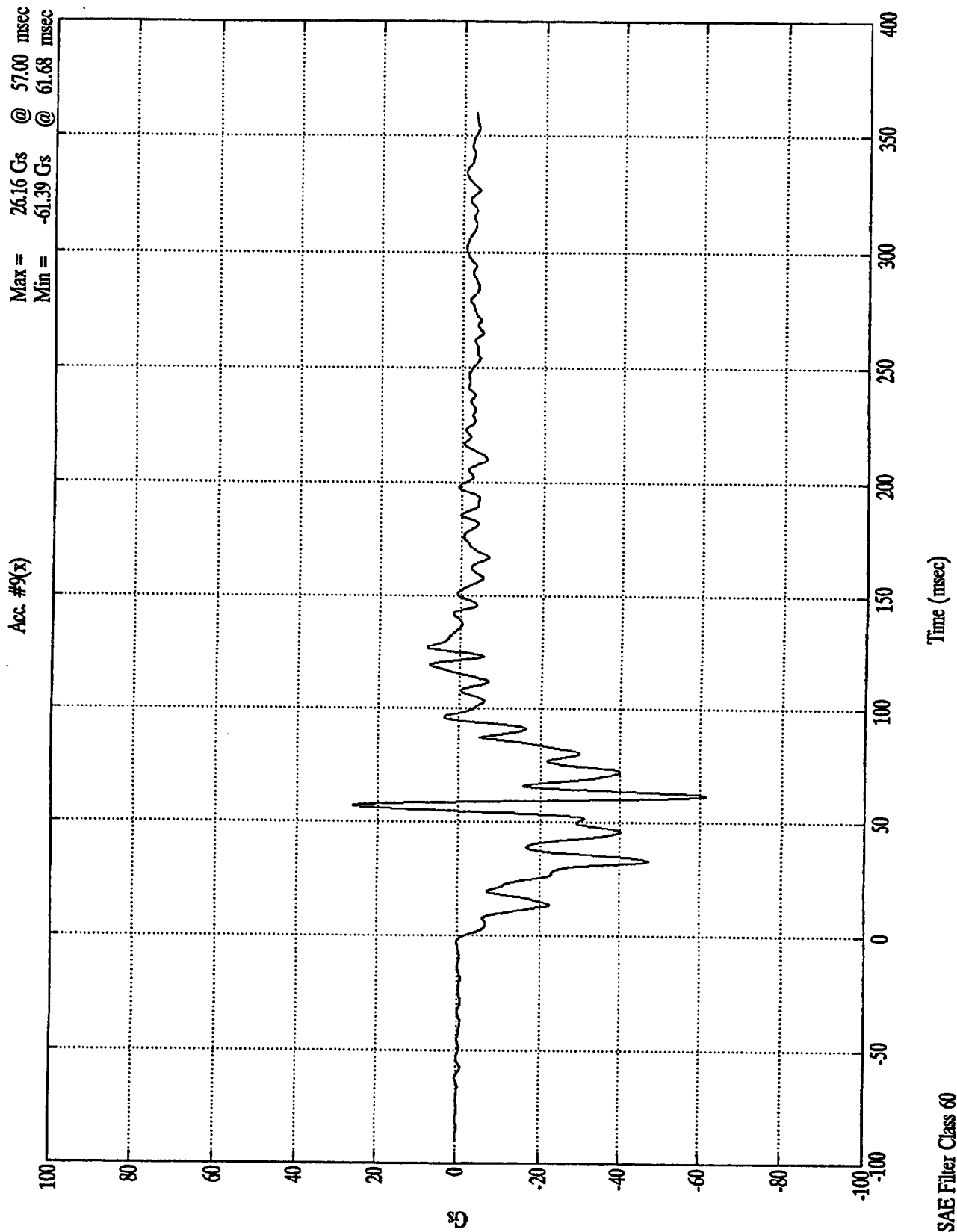
NCAP TEST #13 - 1995 DODGE STRATUS

Max = 654.37 mm @ 70.44 msec
Min = -267.51 mm @ 359.88 msec

Acc. #8(x)



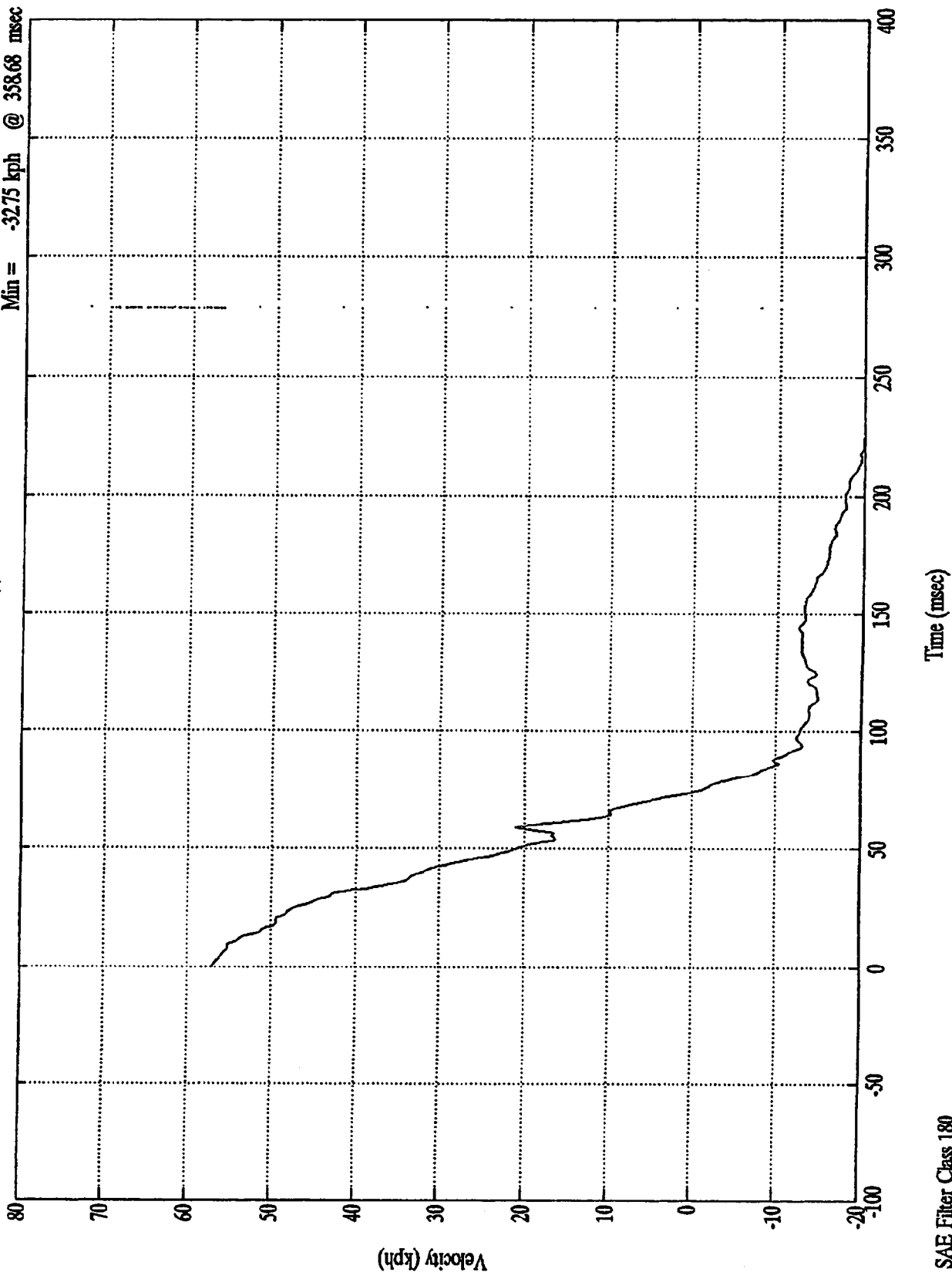
NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 56.97 kph @ -0.00 msec
Min = -32.75 kph @ 358.68 msec

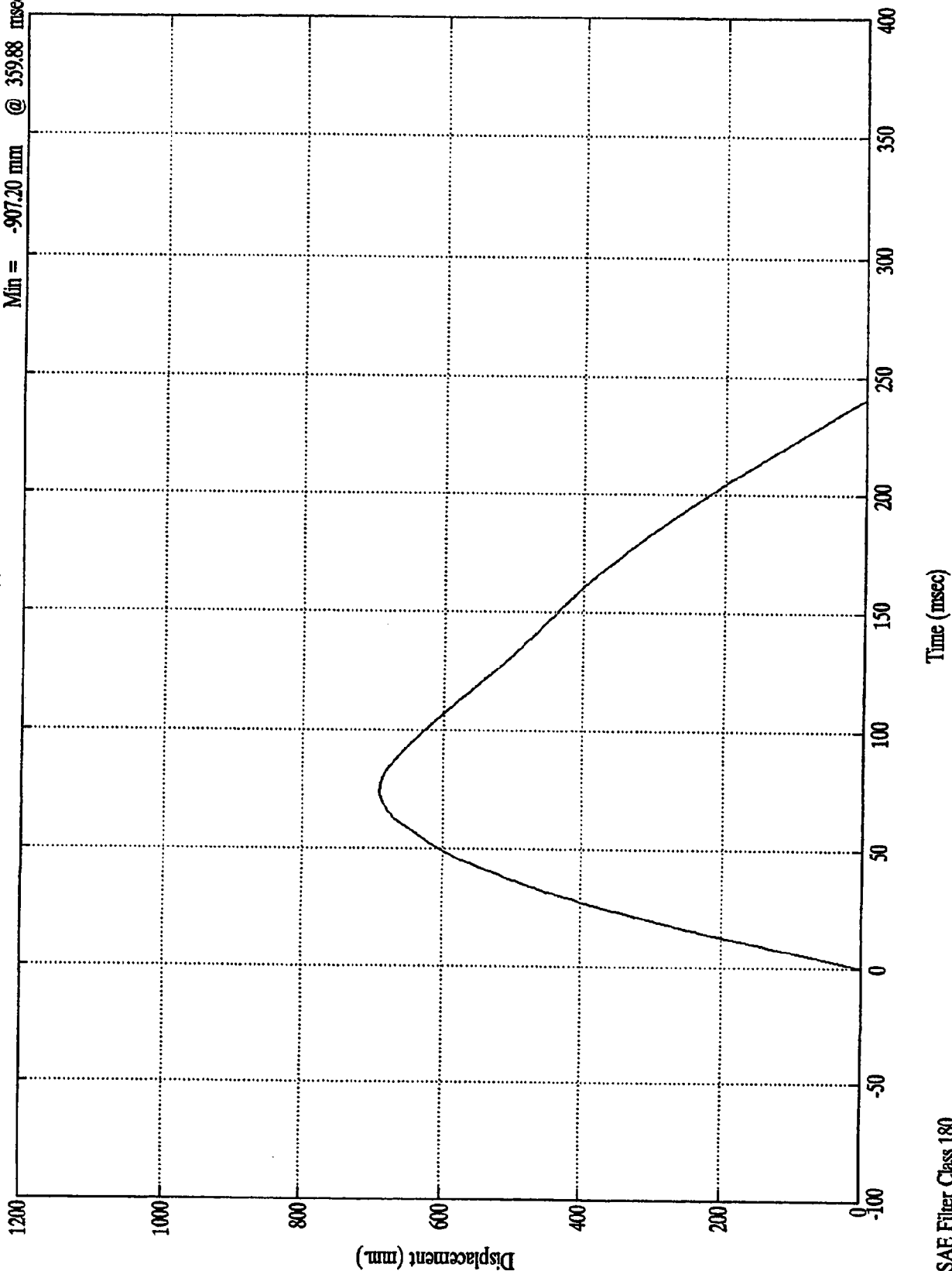
Acc. #9(x)



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 689.80 mm @ 73.92 msec
 Min = -907.20 mm @ 359.88 msec

Acc. #9(x)



TEST NO. MS0303

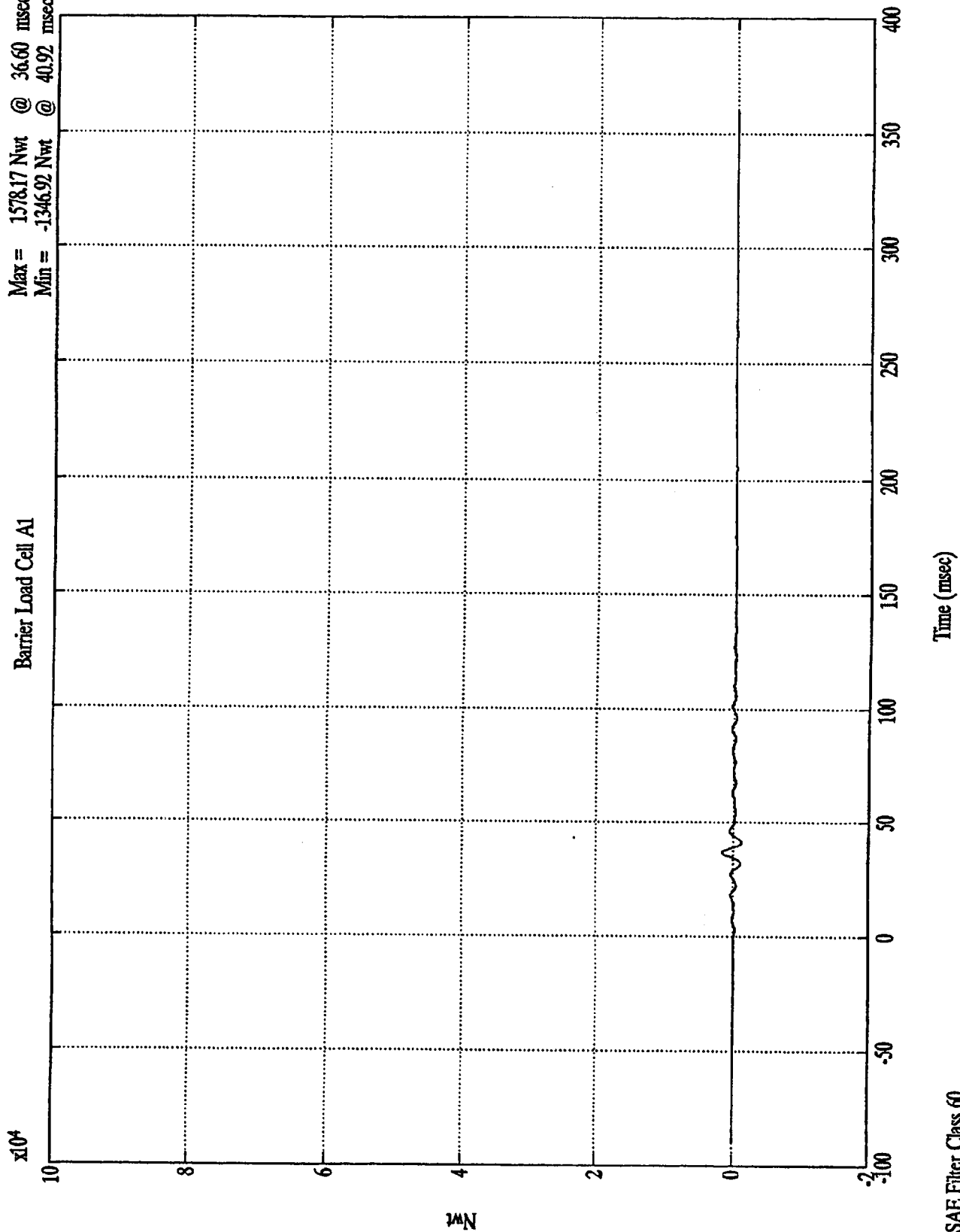
LOAD CELL BARRIER DATA

FILTER CHANNEL CLASS

600

NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell A1
 Max = 1578.17 Nwt @ 36.60 msec
 Min = -1346.92 Nwt @ 40.92 msec



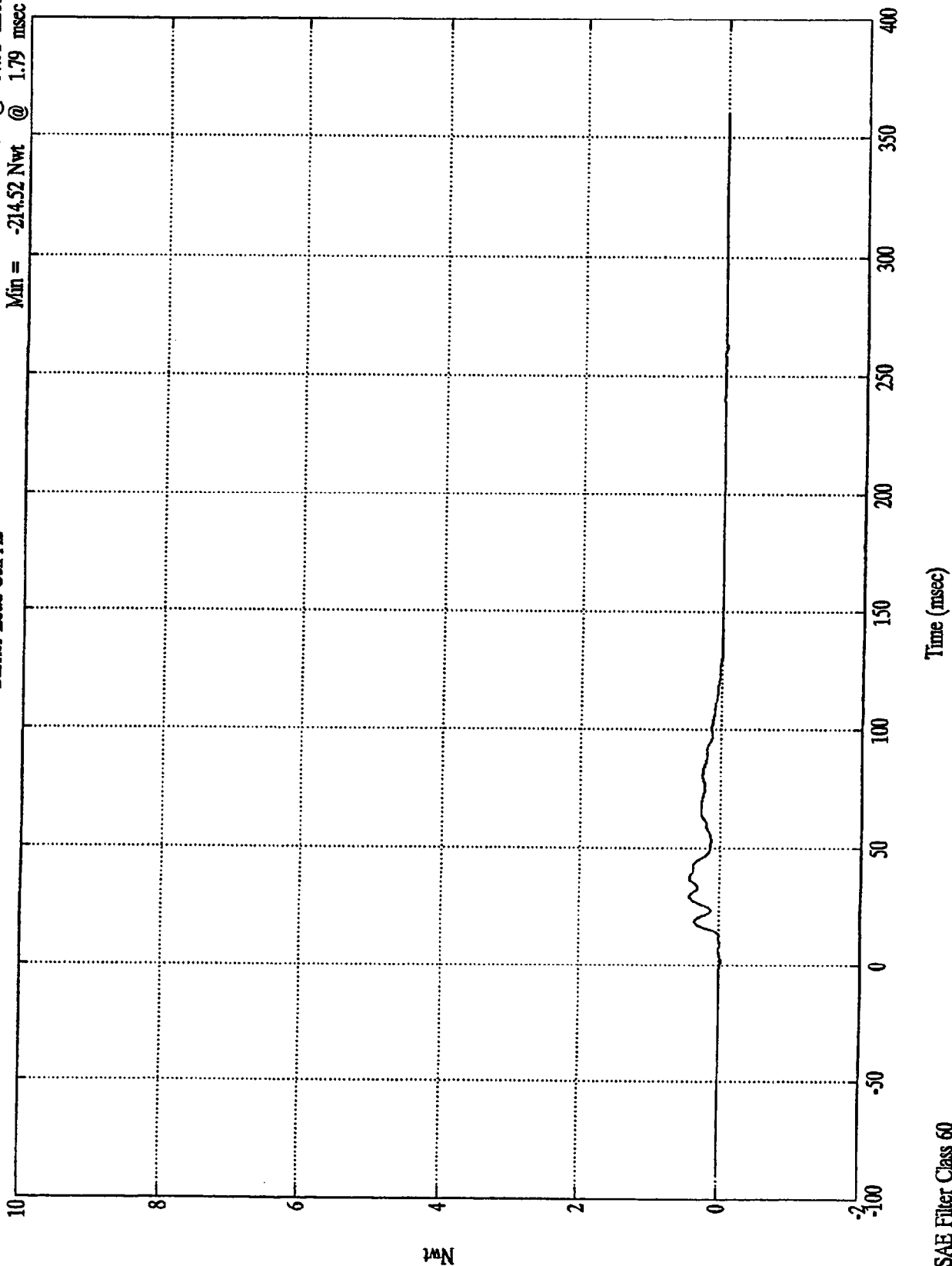
Nwt

Time (msec)

SAE Filter Class 60

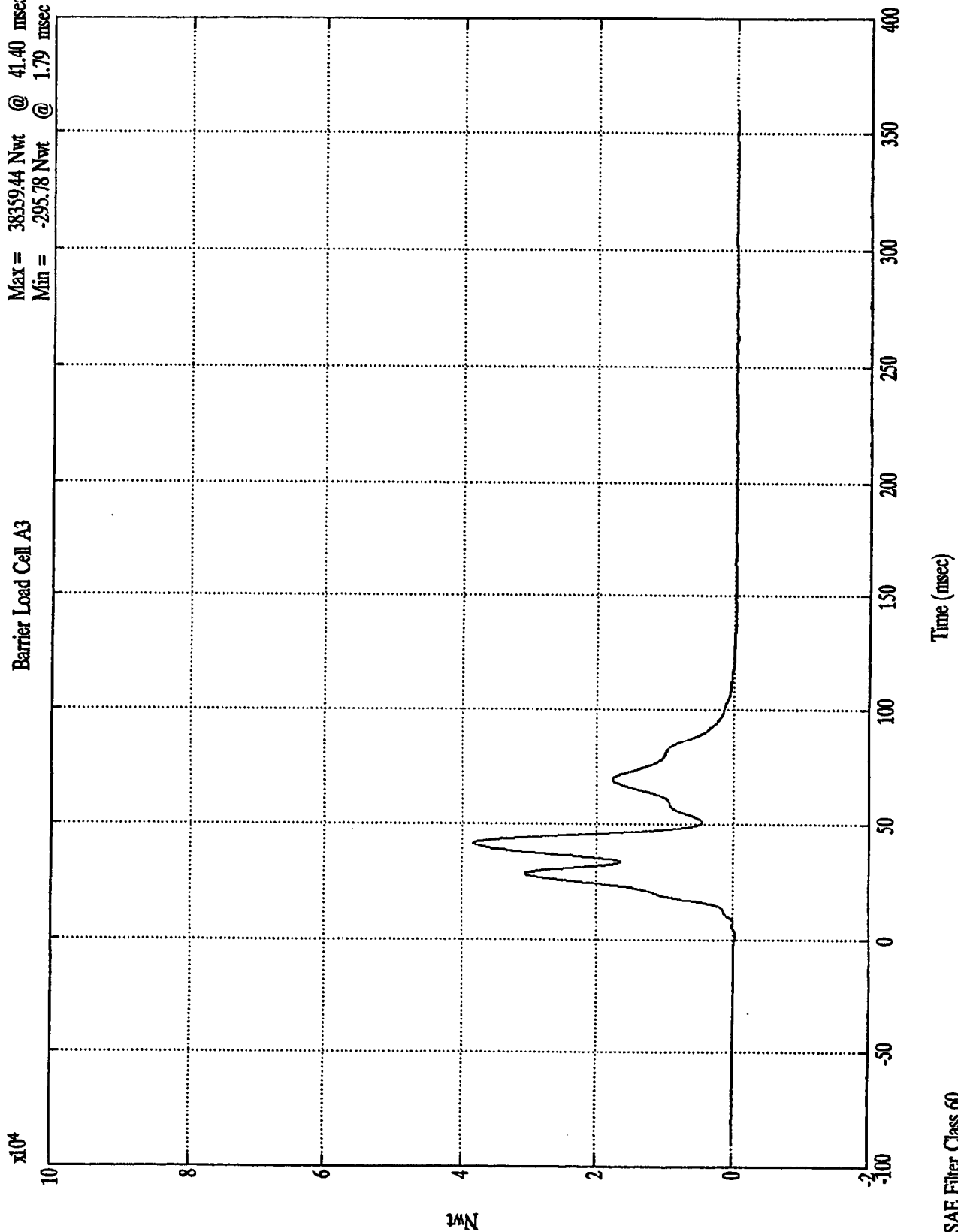
NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell A2
Max = 4370.25 Nwt @ 37.31 msec
Min = -214.52 Nwt @ 1.79 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell A3
Max = 38359.44 Nwt @ 41.40 msec
Min = -295.78 Nwt @ 1.79 msec



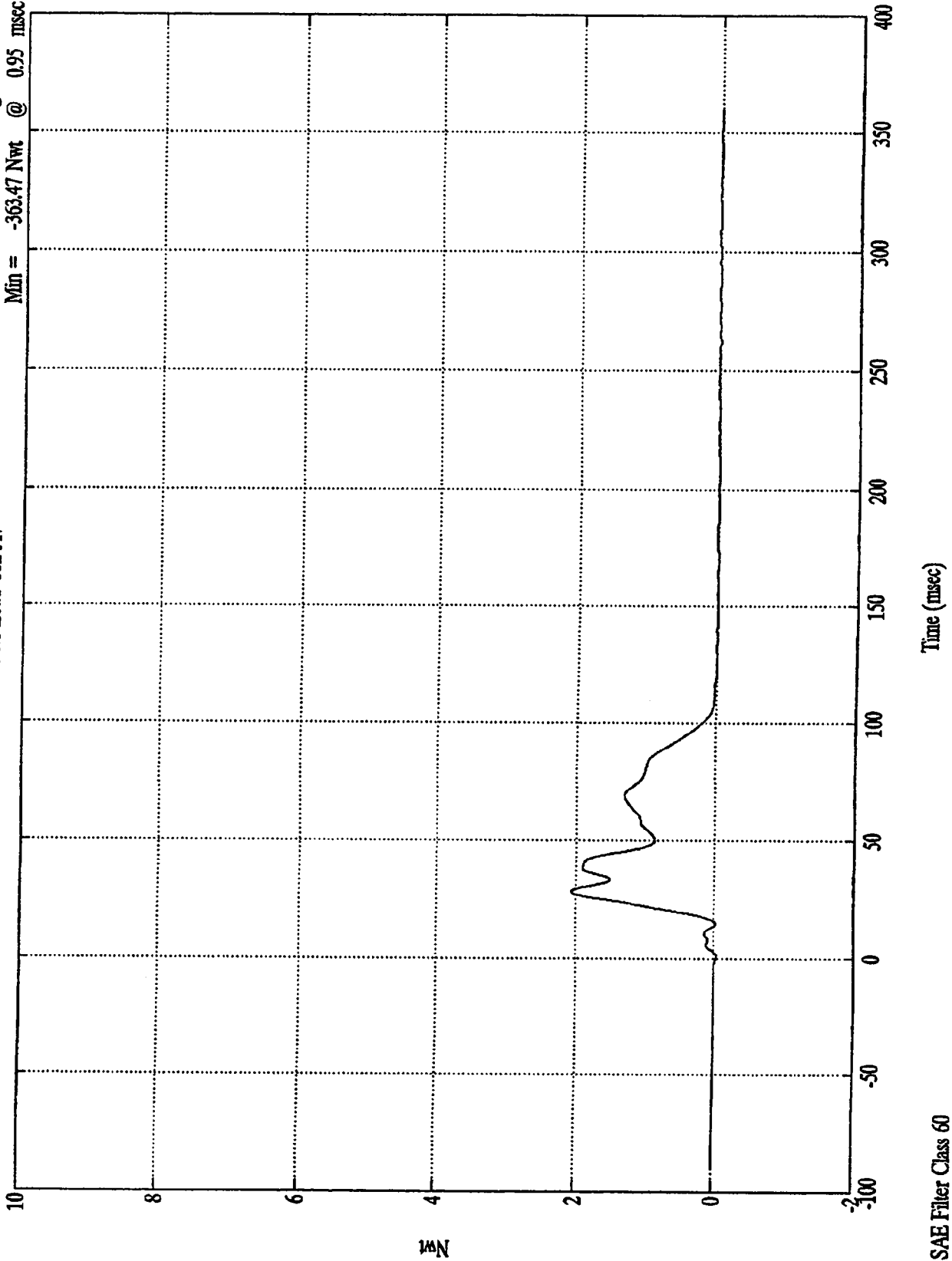
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SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

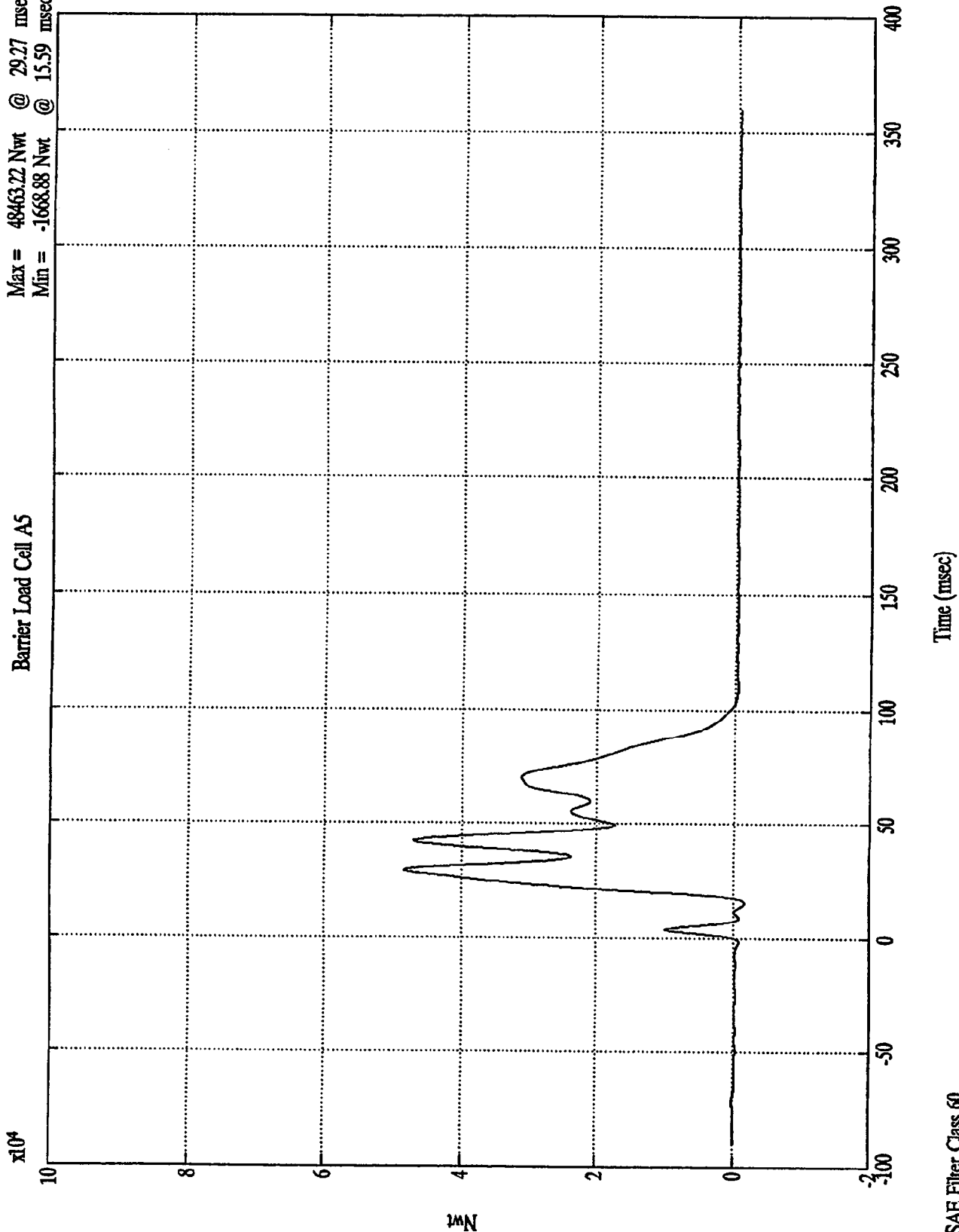
Barrier Load Cell A4
Max = 20698.29 Nwt @ 28.44 msec
Min = -363.47 Nwt @ 0.95 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Max = 48463.22 Nwt @ 29.27 msec
Min = -1668.88 Nwt @ 15.59 msec

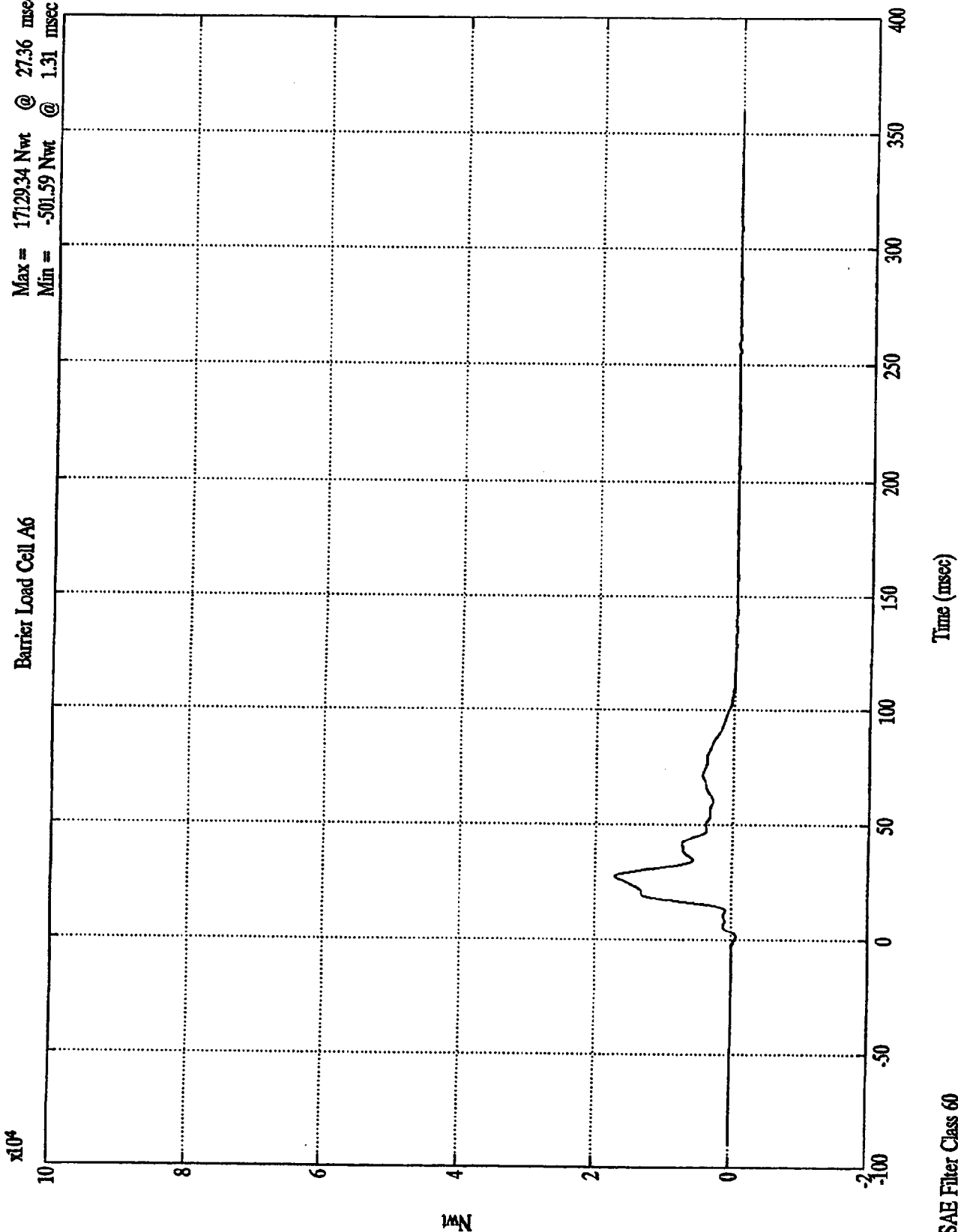
Barrier Load Cell A5



SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell A6
Max = 17129.34 Nwt @ 27.36 msec
Min = -501.59 Nwt @ 1.31 msec

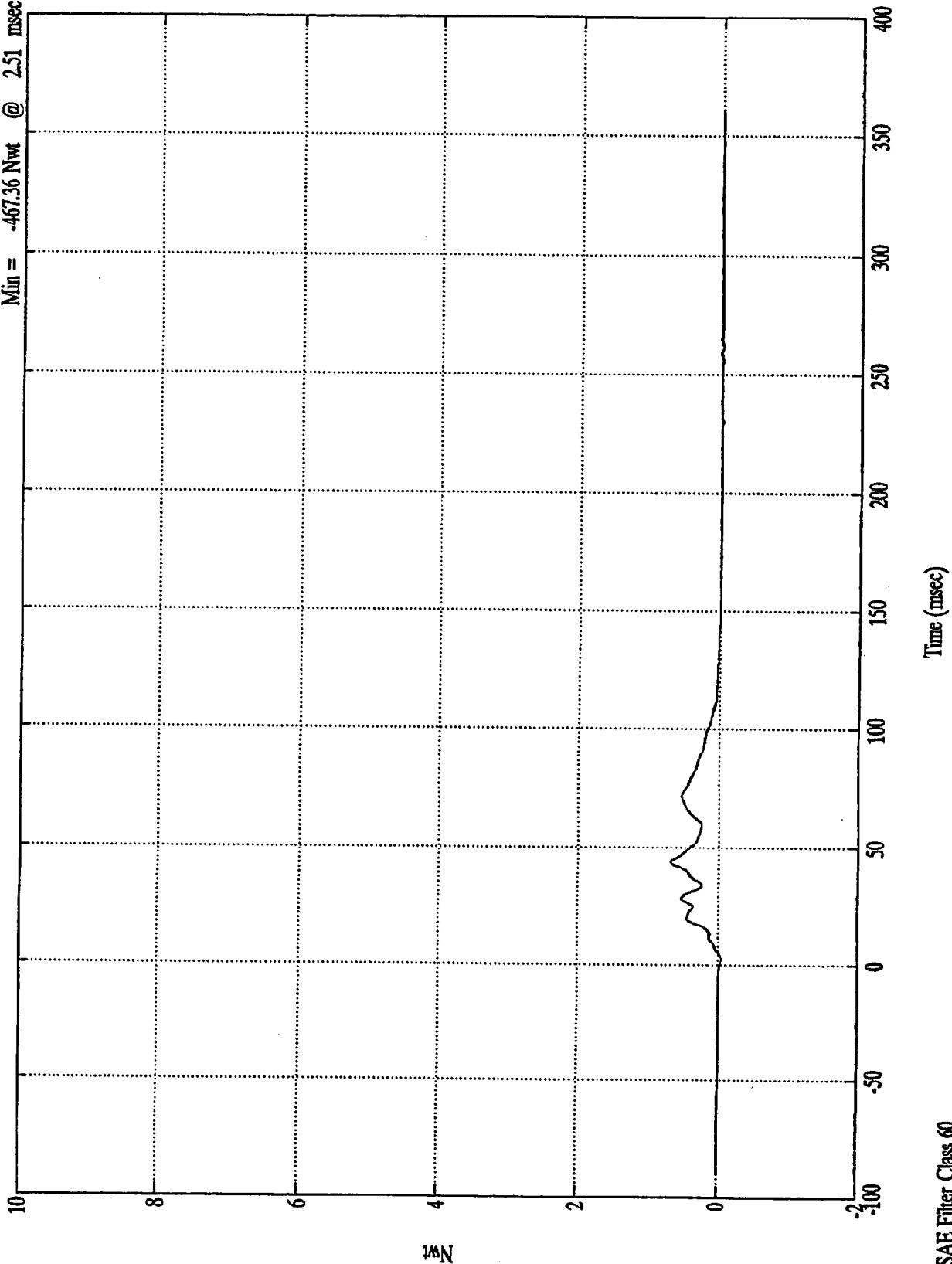


NCAP TEST #13 - 1995 DODGE STRATUS

Max = 6952.36 Nwt @ 44.04 msec
 Min = -467.36 Nwt @ 2.51 msec

Barrier Load Cell A7

$\times 10^4$



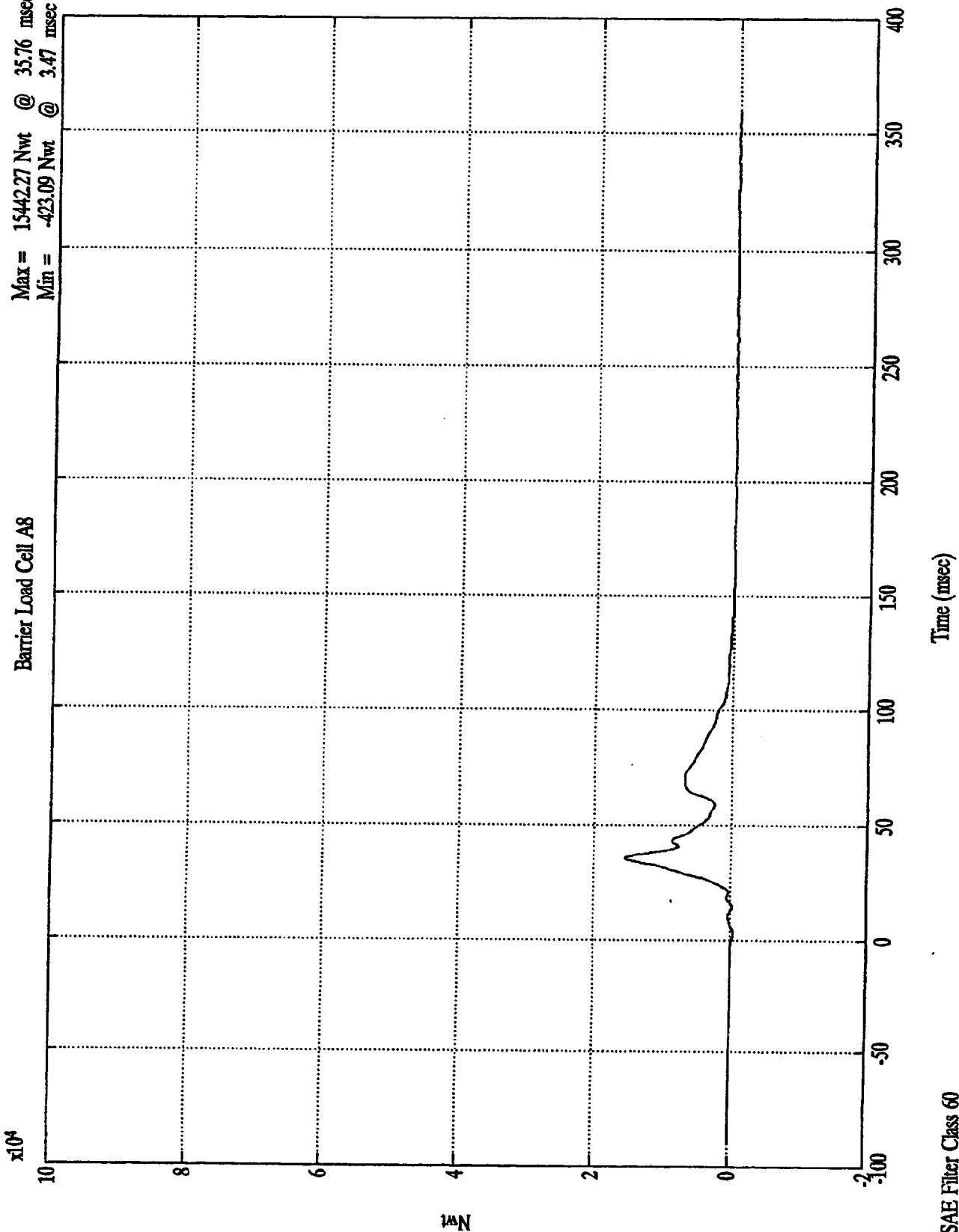
Nwt

Time (msec)

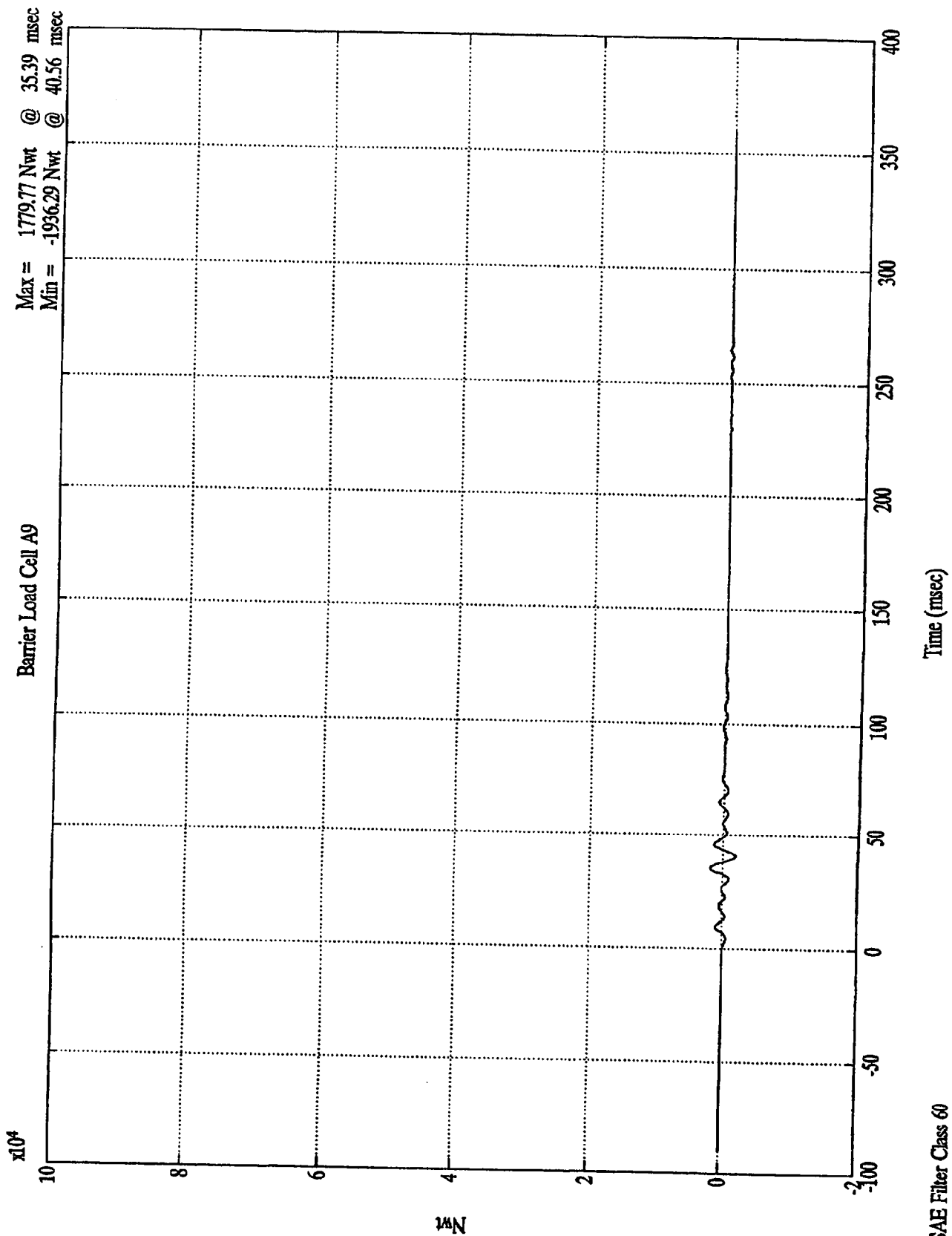
SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell A8
Max = 15442.27 Nwt @ 35.76 msec
Min = -423.09 Nwt @ 3.47 msec



NCAP TEST #13 - 1995 DODGE STRATUS

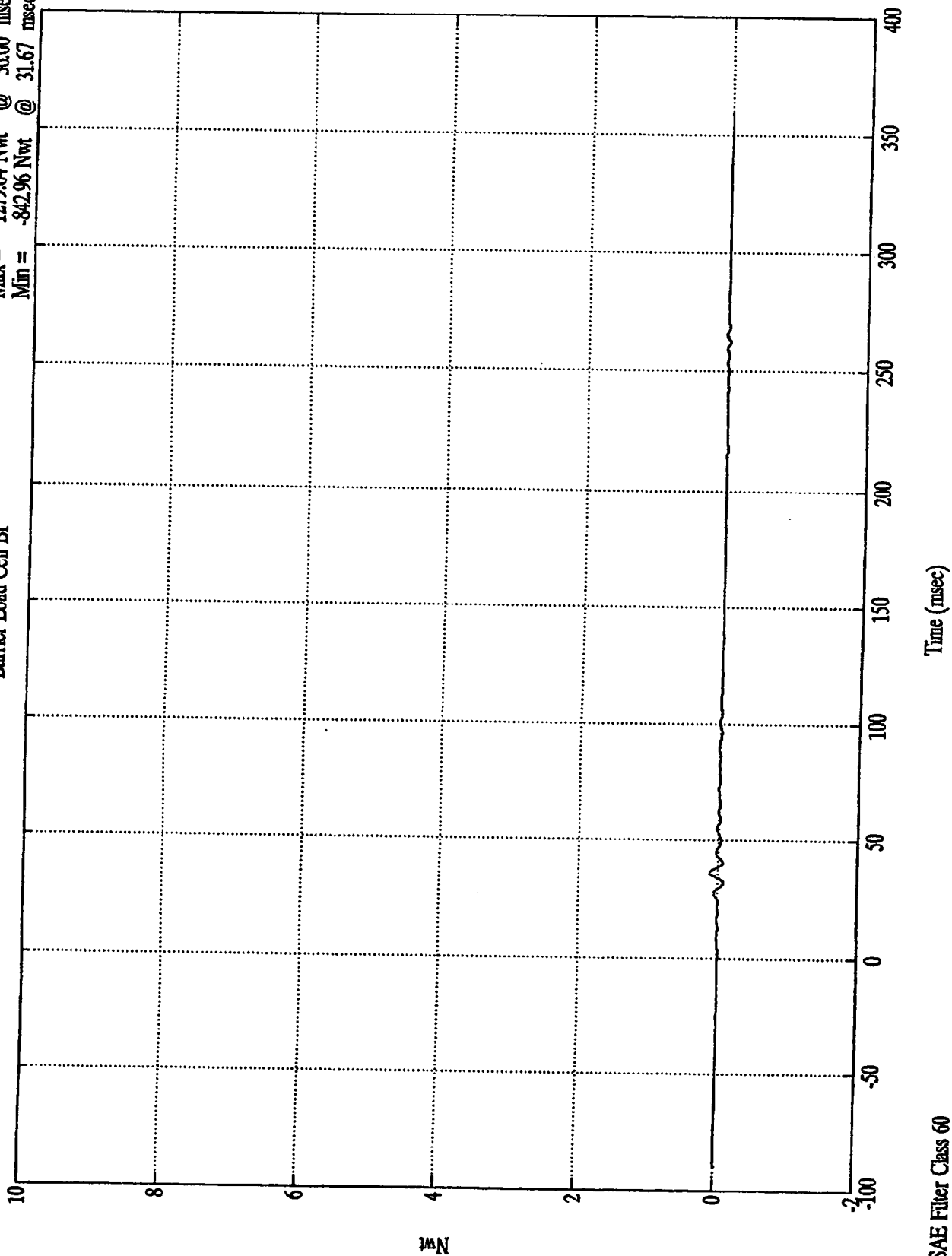


NCAP TEST #13 - 1995 DODGE STRATUS

$\times 10^4$

Barrier Load Cell BI

Max = 1279.64 Nwt @ 36.00 msec
Min = -842.96 Nwt @ 31.67 msec

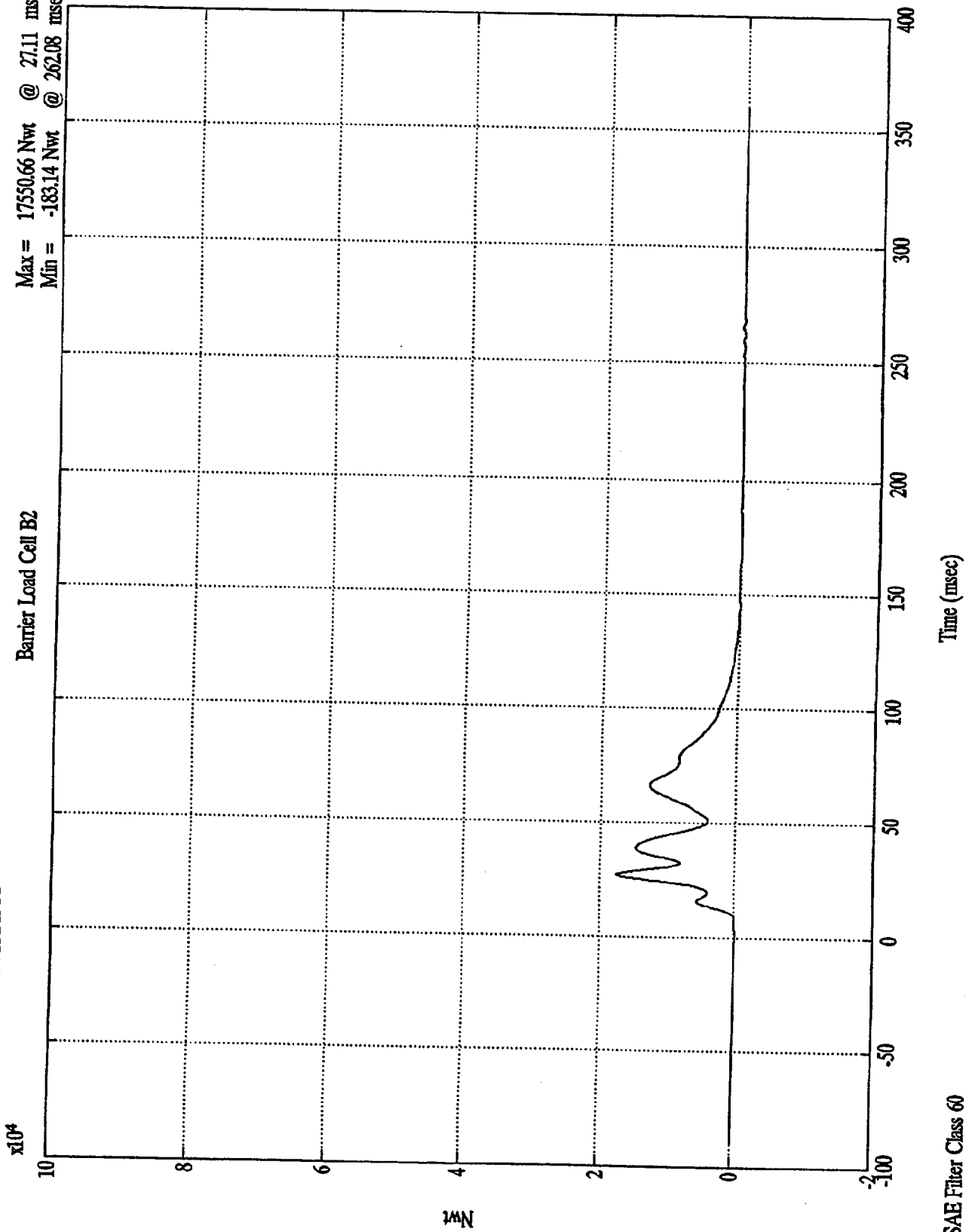


Nwt

SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell B2
Max = 17550.66 Nwt @ 27.11 msec
Min = -183.14 Nwt @ 262.08 msec



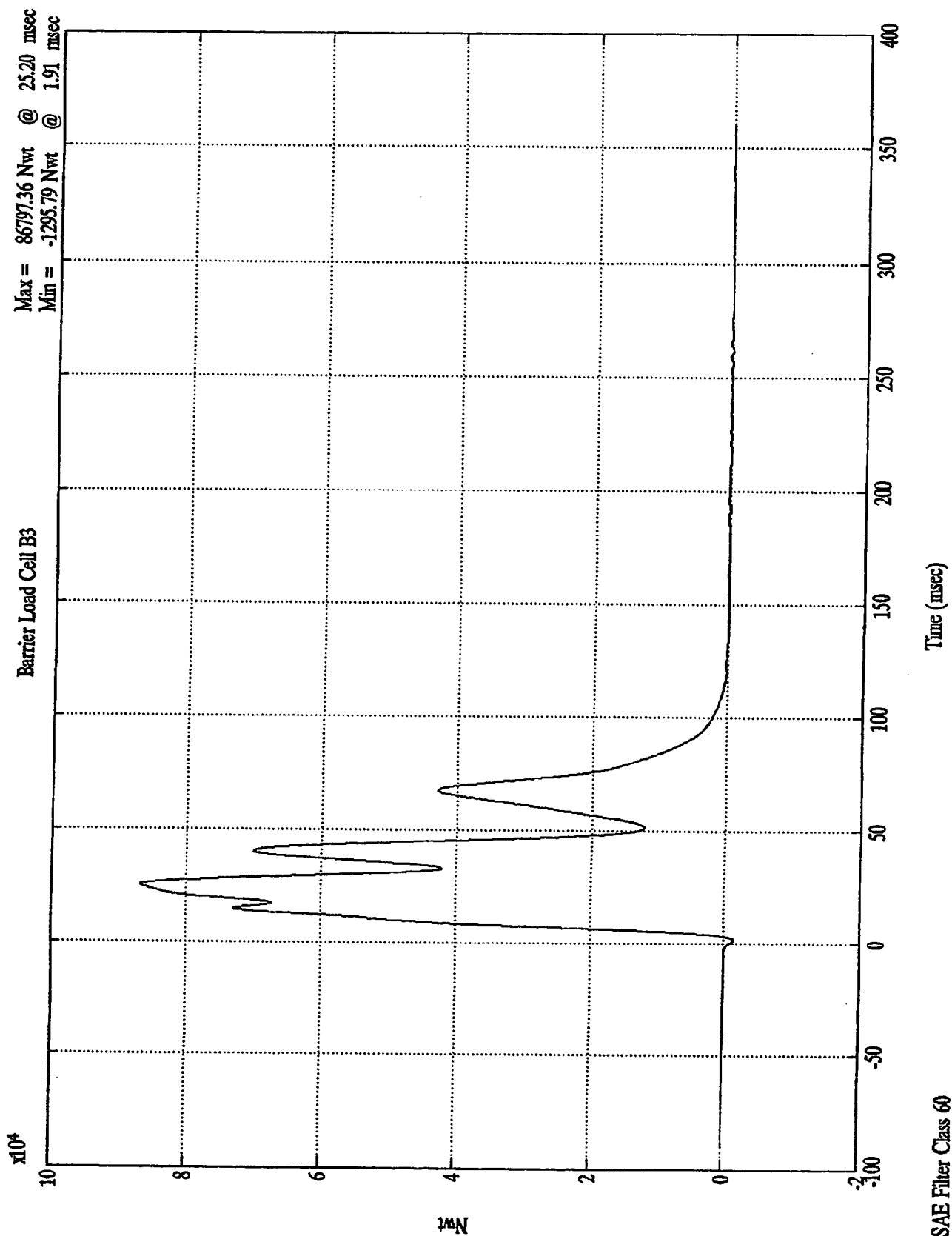
14N

B-114

8227-13

SAE Filter Class 60

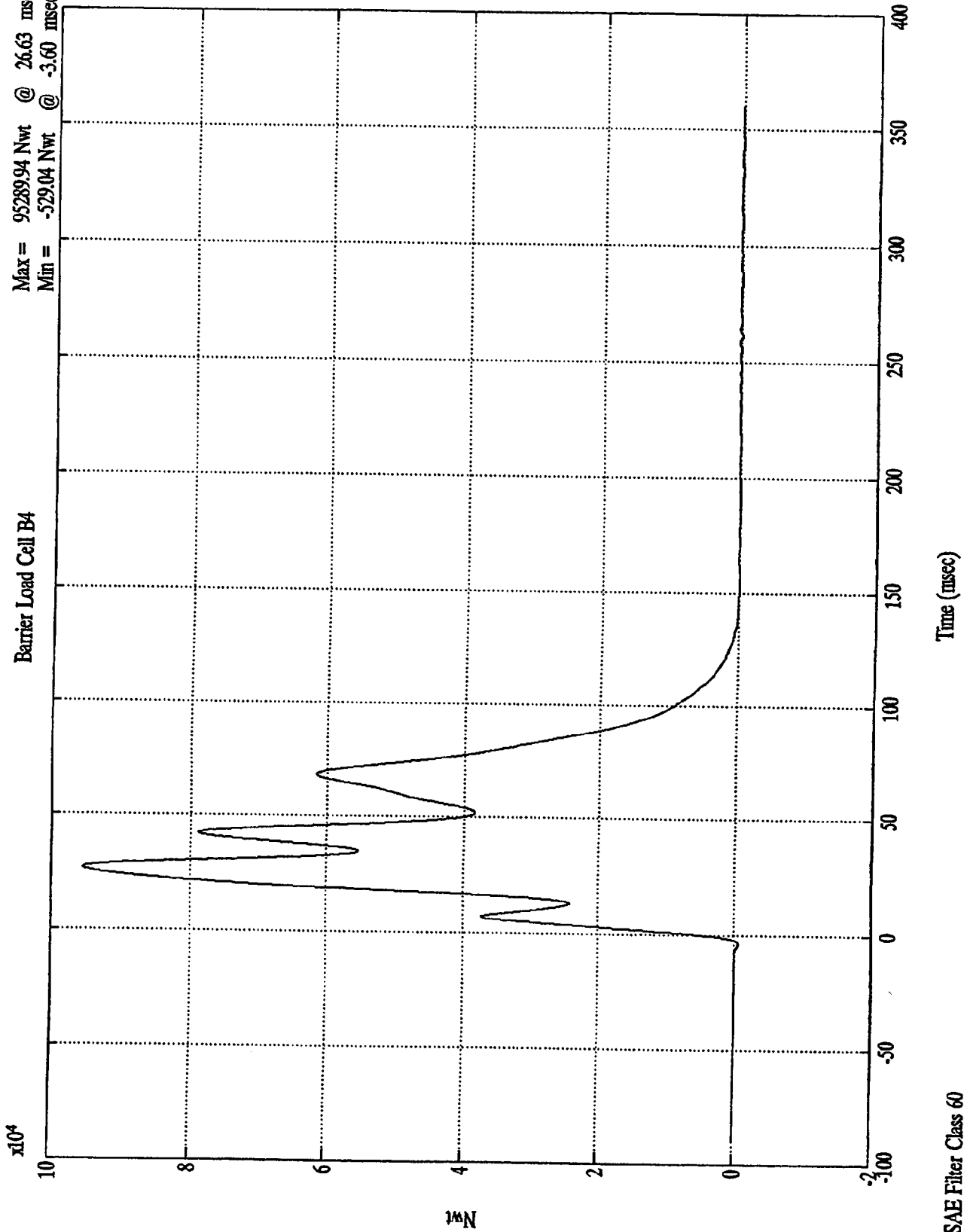
NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS

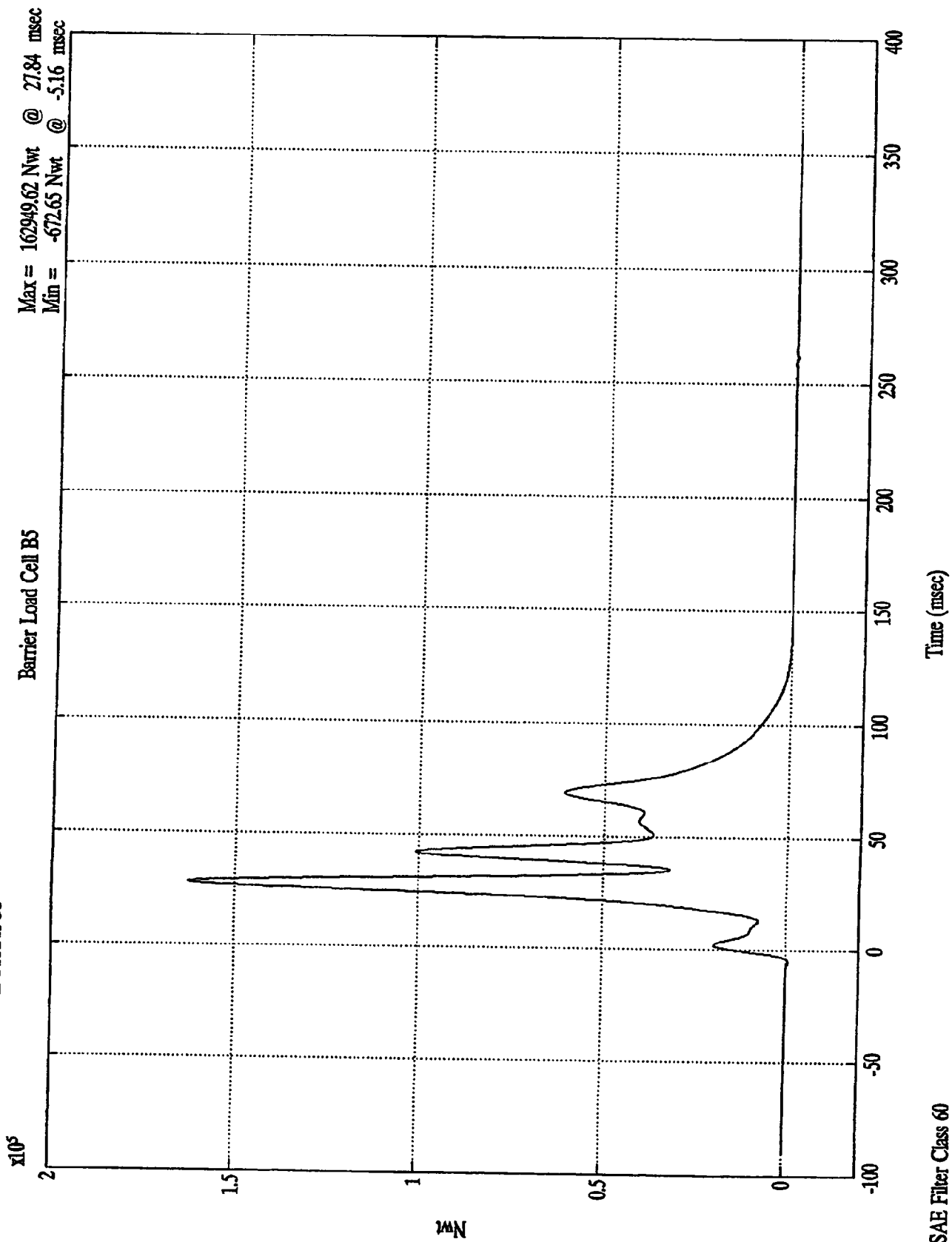
Max = 95289.94 Nwt @ 26.63 msec
 Min = -529.04 Nwt @ -3.60 msec

Barrier Load Cell B4

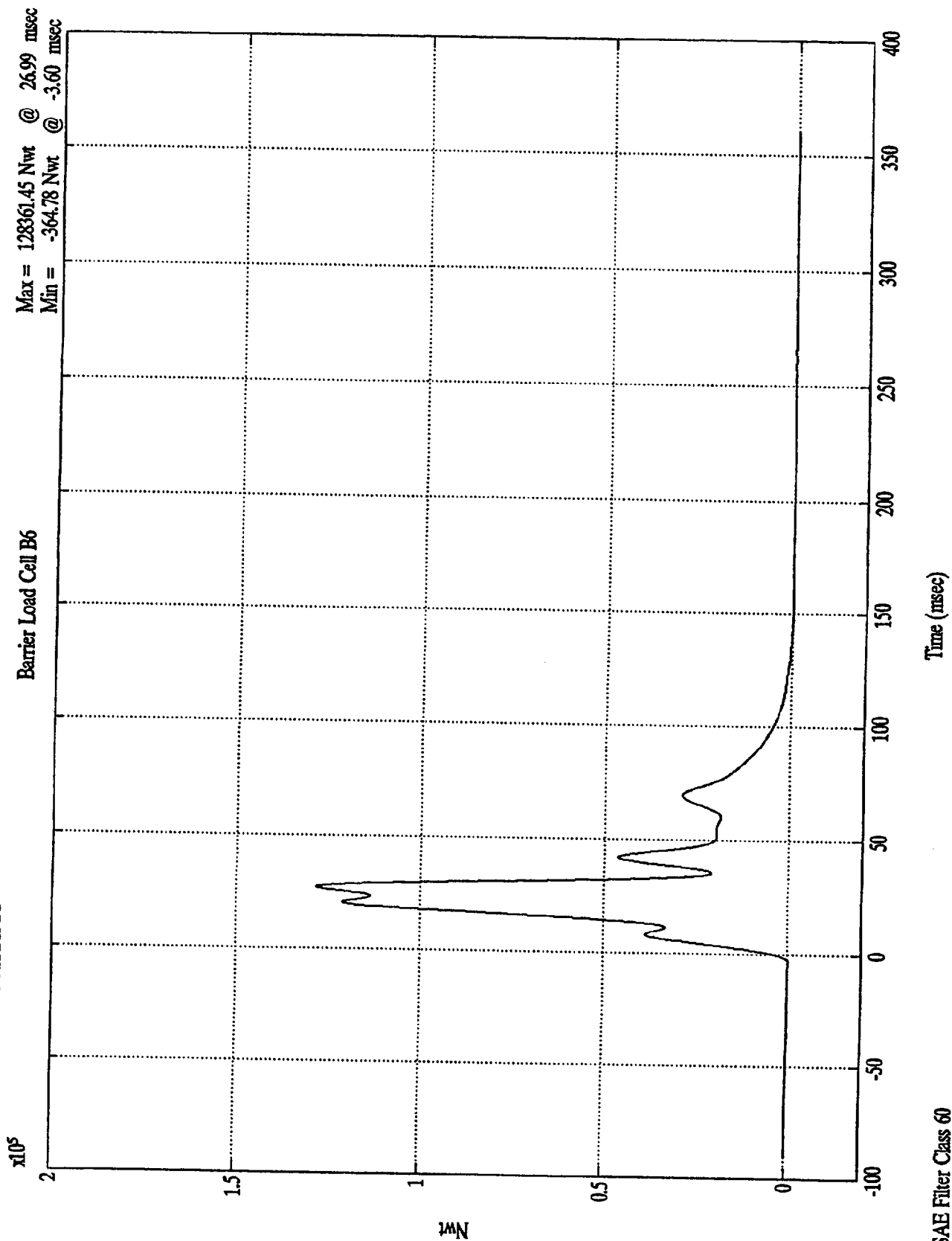


SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS

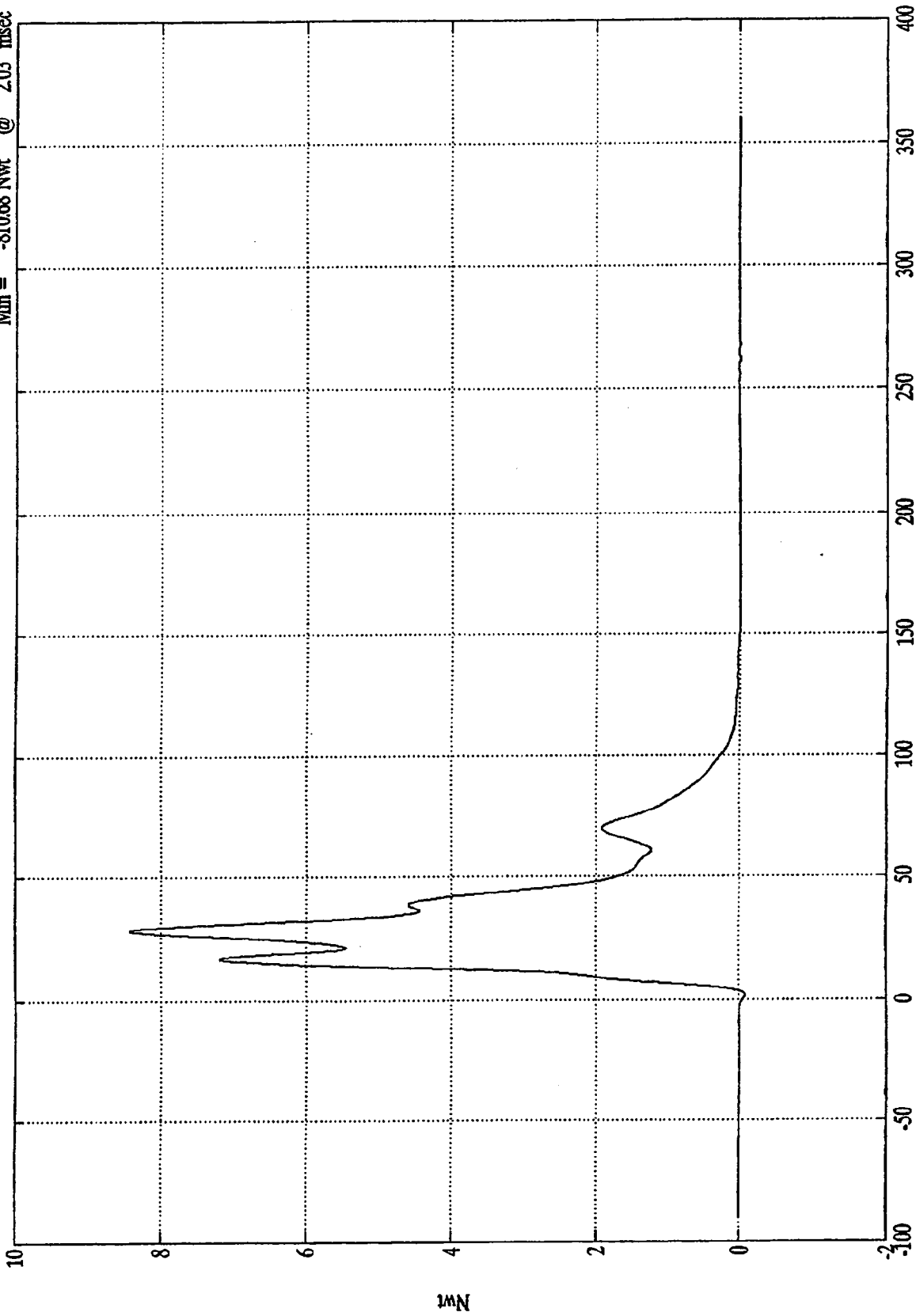


NCAP TEST #13 - 1995 DODGE STRATUS

Max = 84177.58 Nwt @ 27.96 msec
 Min = -810.68 Nwt @ 2.03 msec

Barrier Load Cell B7

x10⁴



Time (msec)

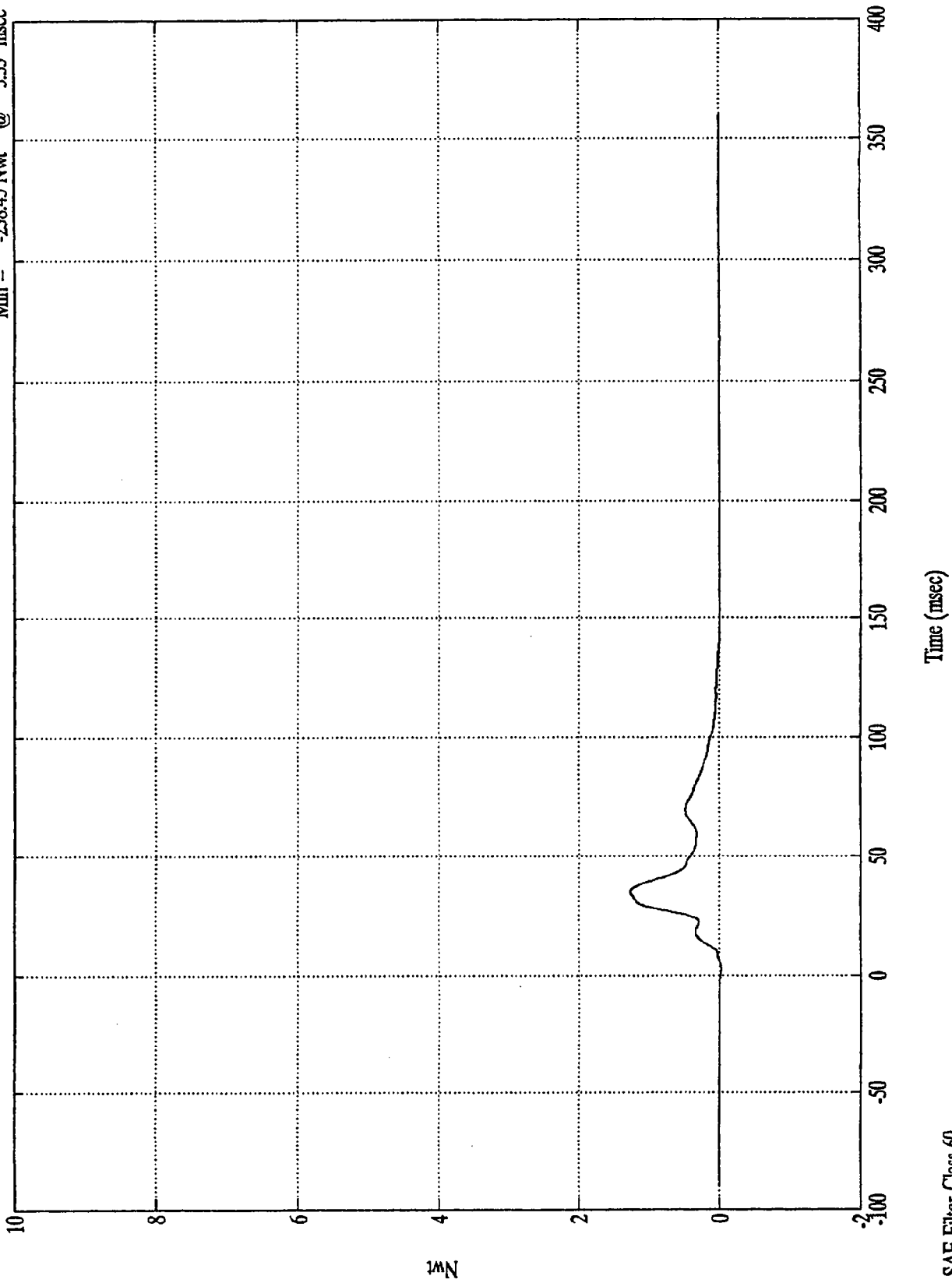
SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

Max = 12717.38 Nwt @ 35.15 msec
Min = -238.45 Nwt @ 3.35 msec

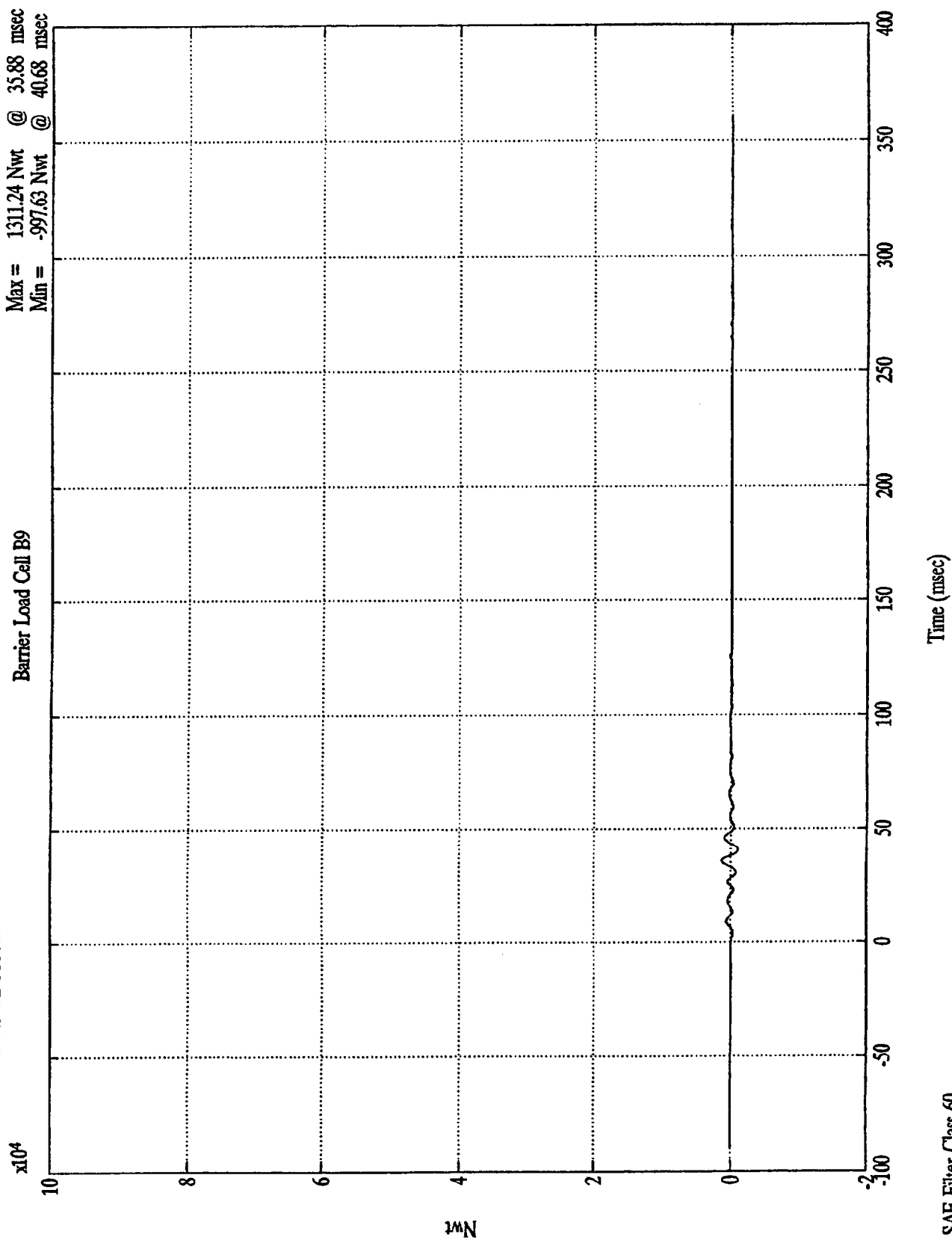
Barrier Load Cell B8

$\times 10^4$



NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell B9
Max = 1311.24 Nwt @ 35.88 msec
Min = -997.63 Nwt @ 40.68 msec

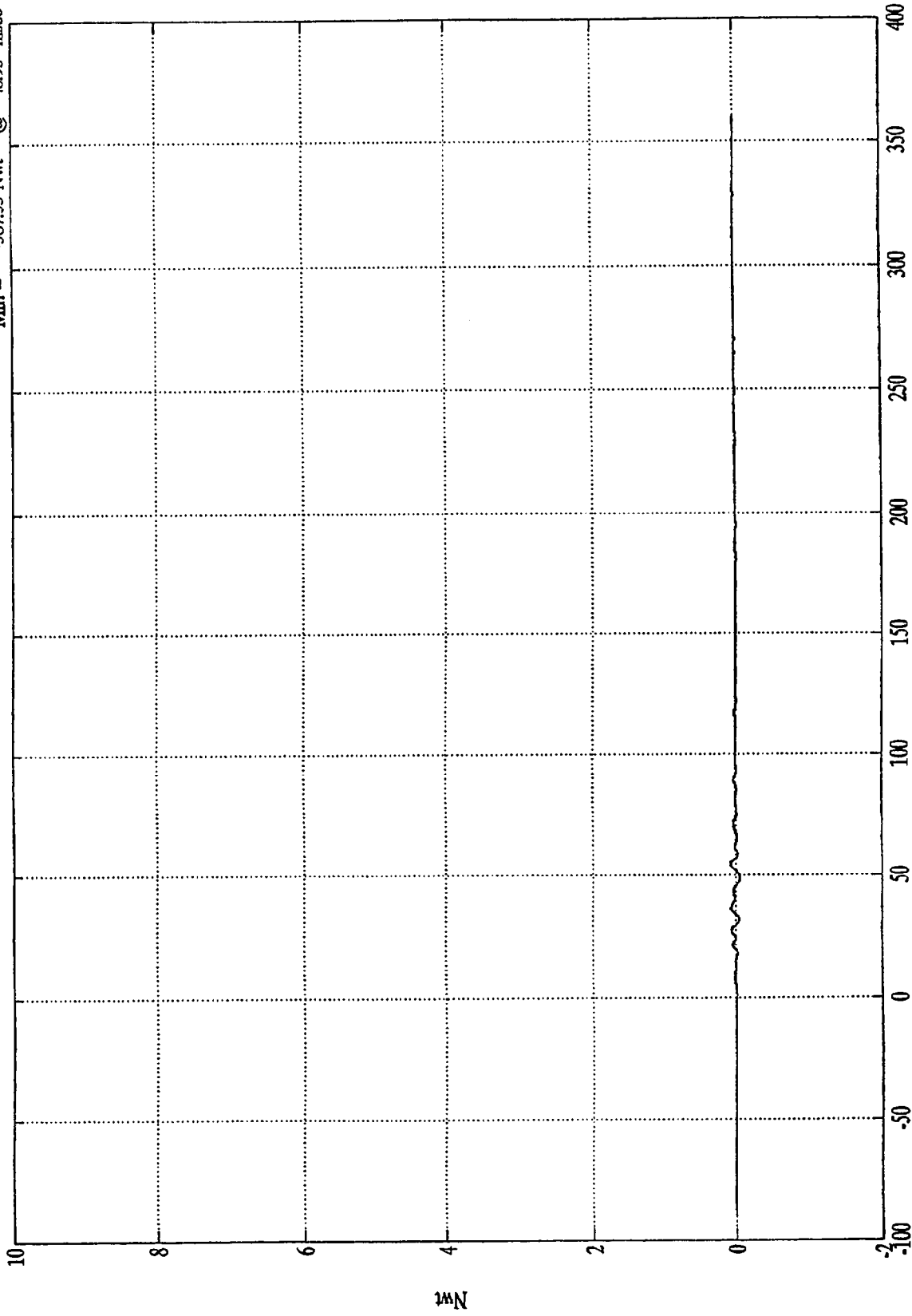


NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell C1

Max = 749.60 Nwt @ 54.72 msec
Min = -587.55 Nwt @ 48.95 msec

x10⁴



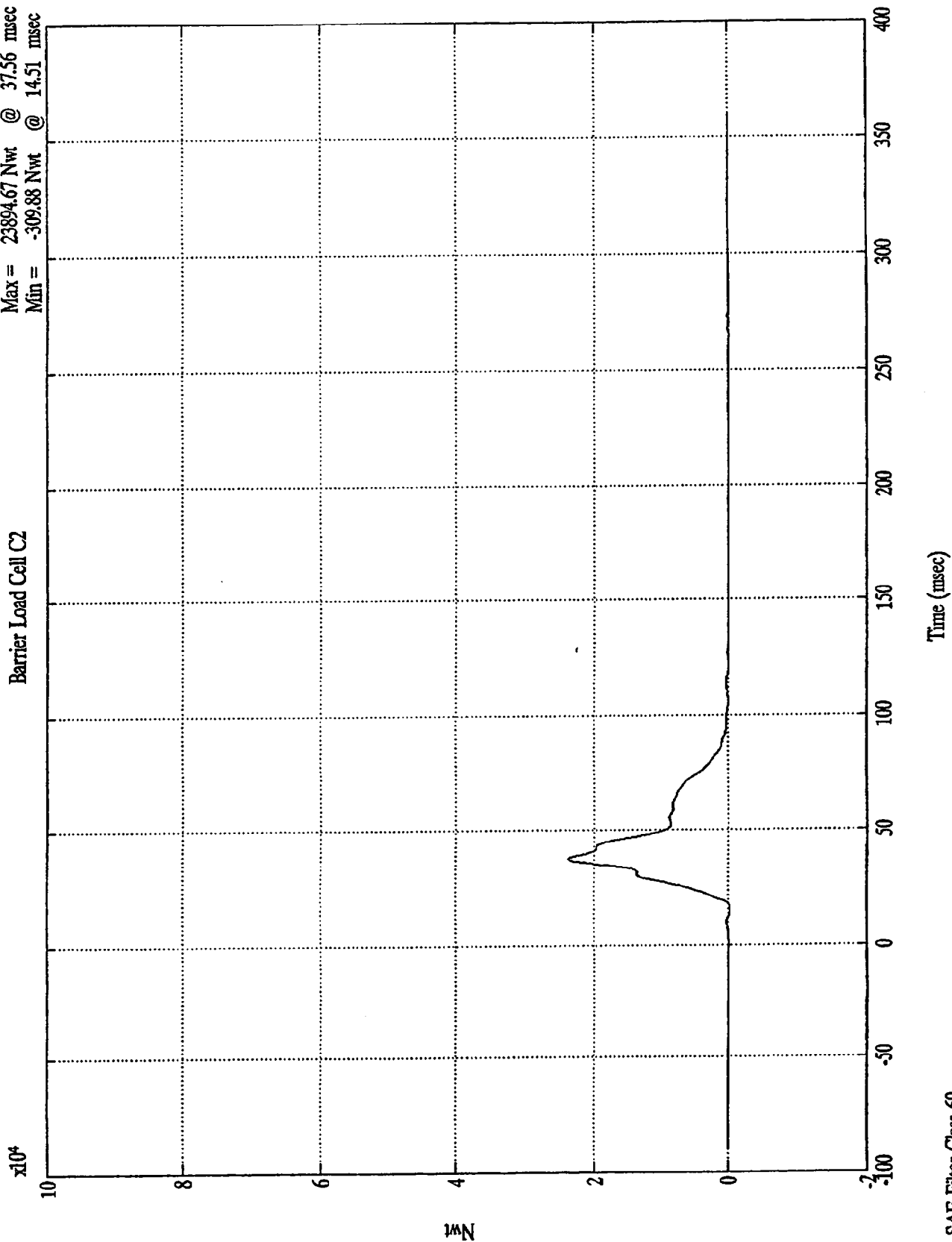
Time (msec)

SAE Filter Class 60

10N

NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell C2
 Max = 23894.67 Nwt @ 37.56 msec
 Min = -309.88 Nwt @ 14.51 msec



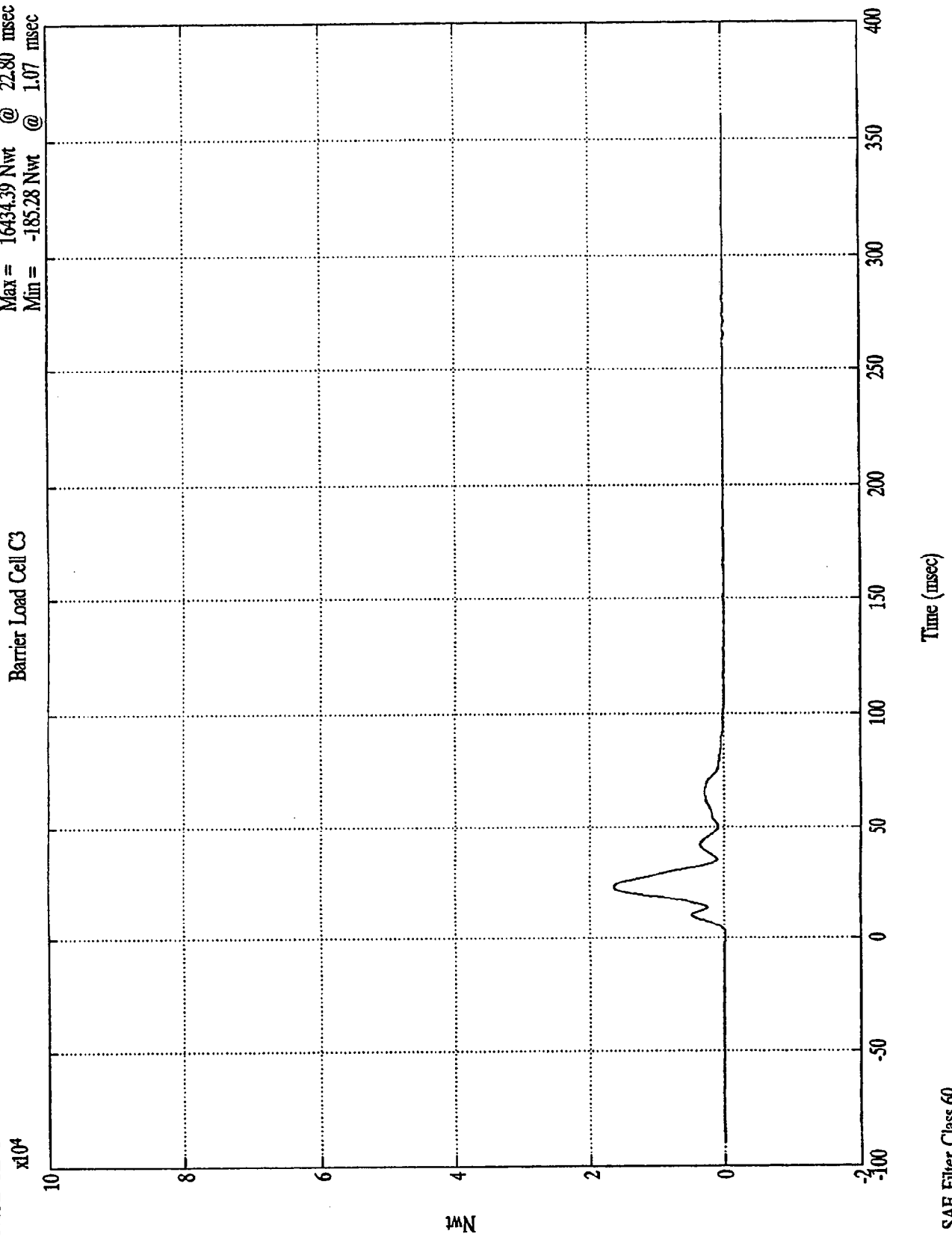
Nwt

SAE Filter Class 60

8227-13

NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell C3
Max = 16434.39 Nwt @ 22.80 msec
Min = -185.28 Nwt @ 1.07 msec



Nwt

Time (msec)

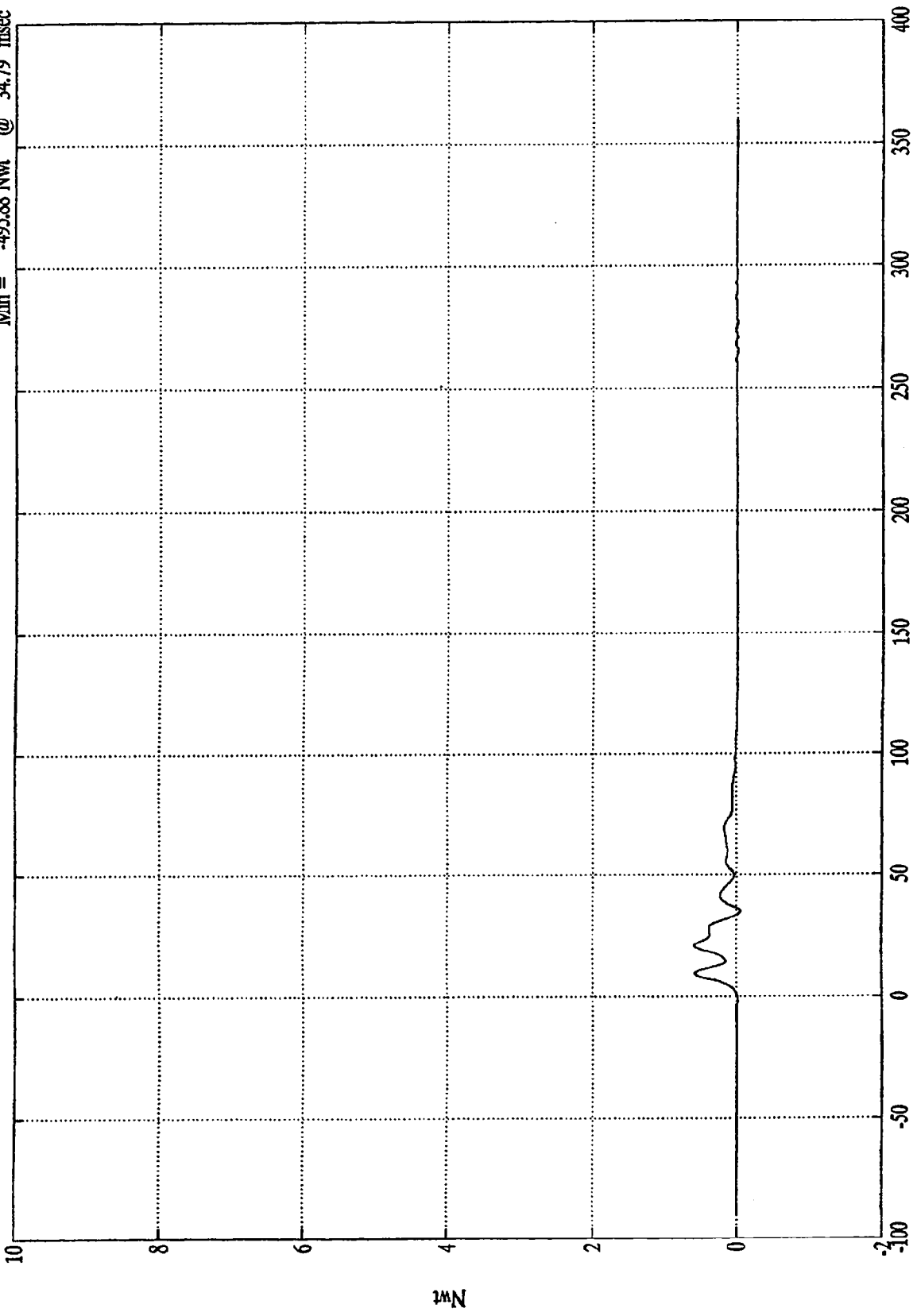
SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell C4
Max = 5853.80 Nwt @ 20.76 msec
Min = -495.88 Nwt @ 34.79 msec

Barrier Load Cell C4

$\times 10^4$



Time (msec)

SAE Filter Class 60

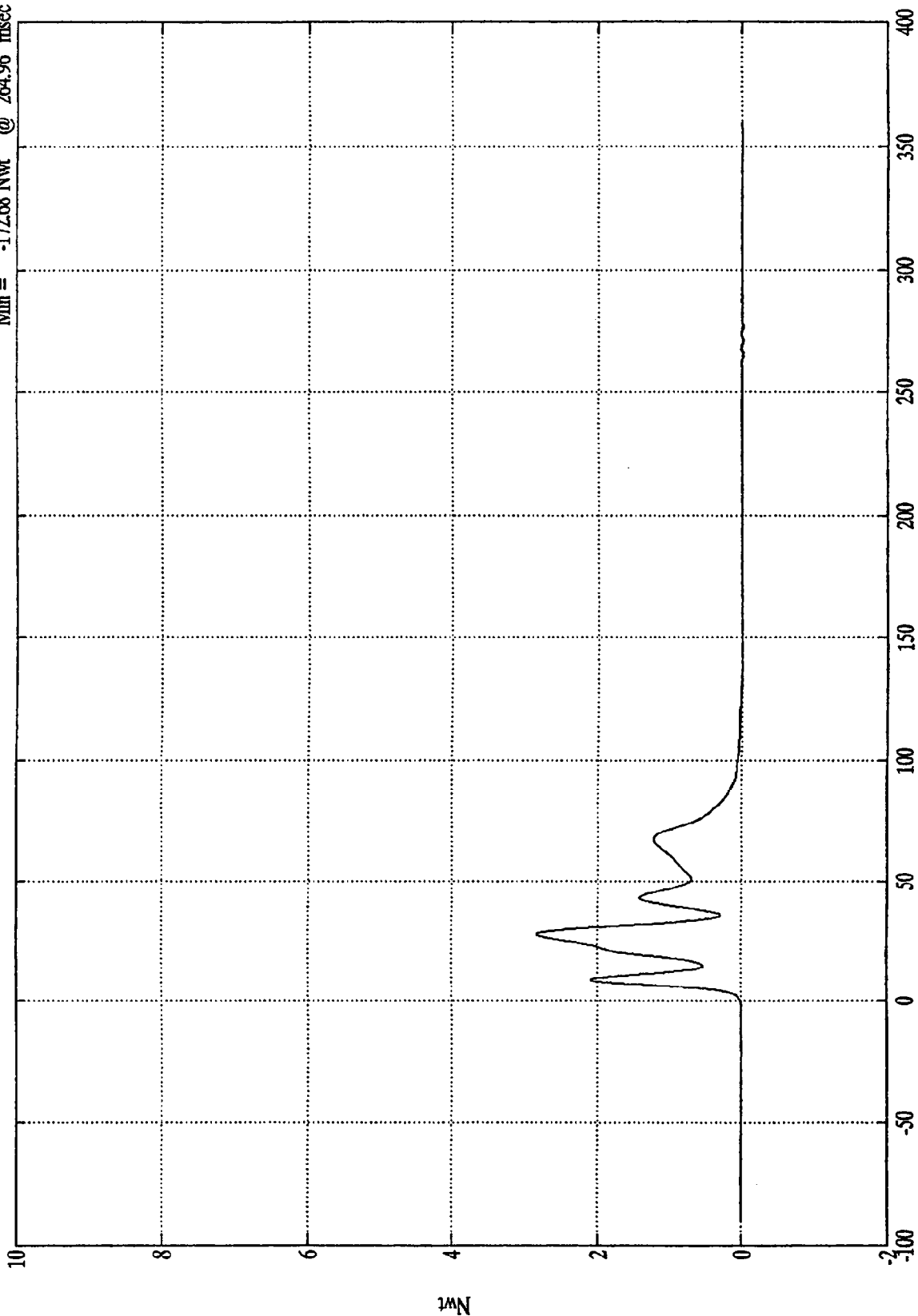
Nwt

NCAP TEST #13 - 1995 DODGE STRATUS

Max = 28389.97 Nwt @ 27.60 msec
Min = -172.68 Nwt @ 264.96 msec

Barrier Load Cell C5

$\times 10^4$

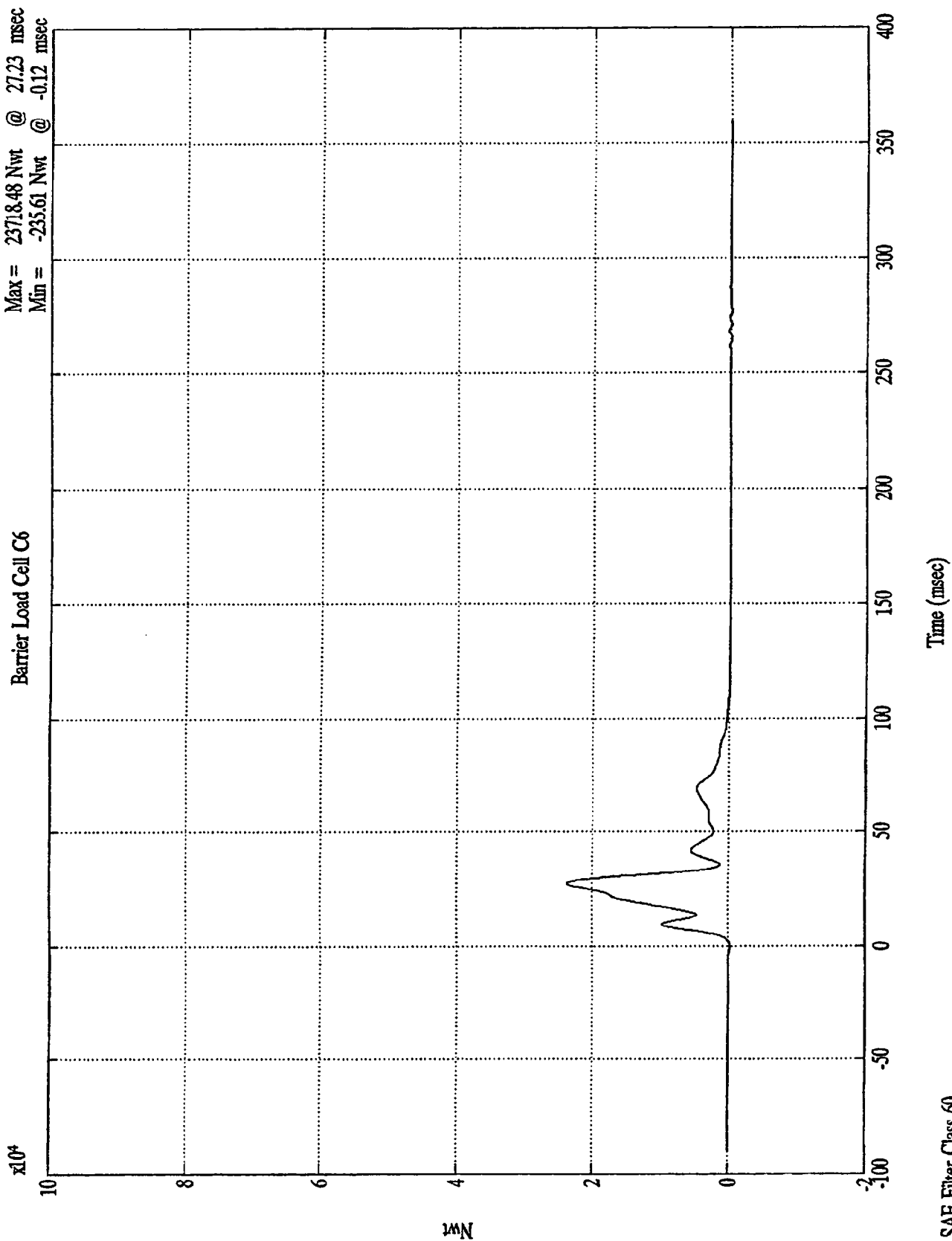


Time (msec)

SAE Filter Class 60

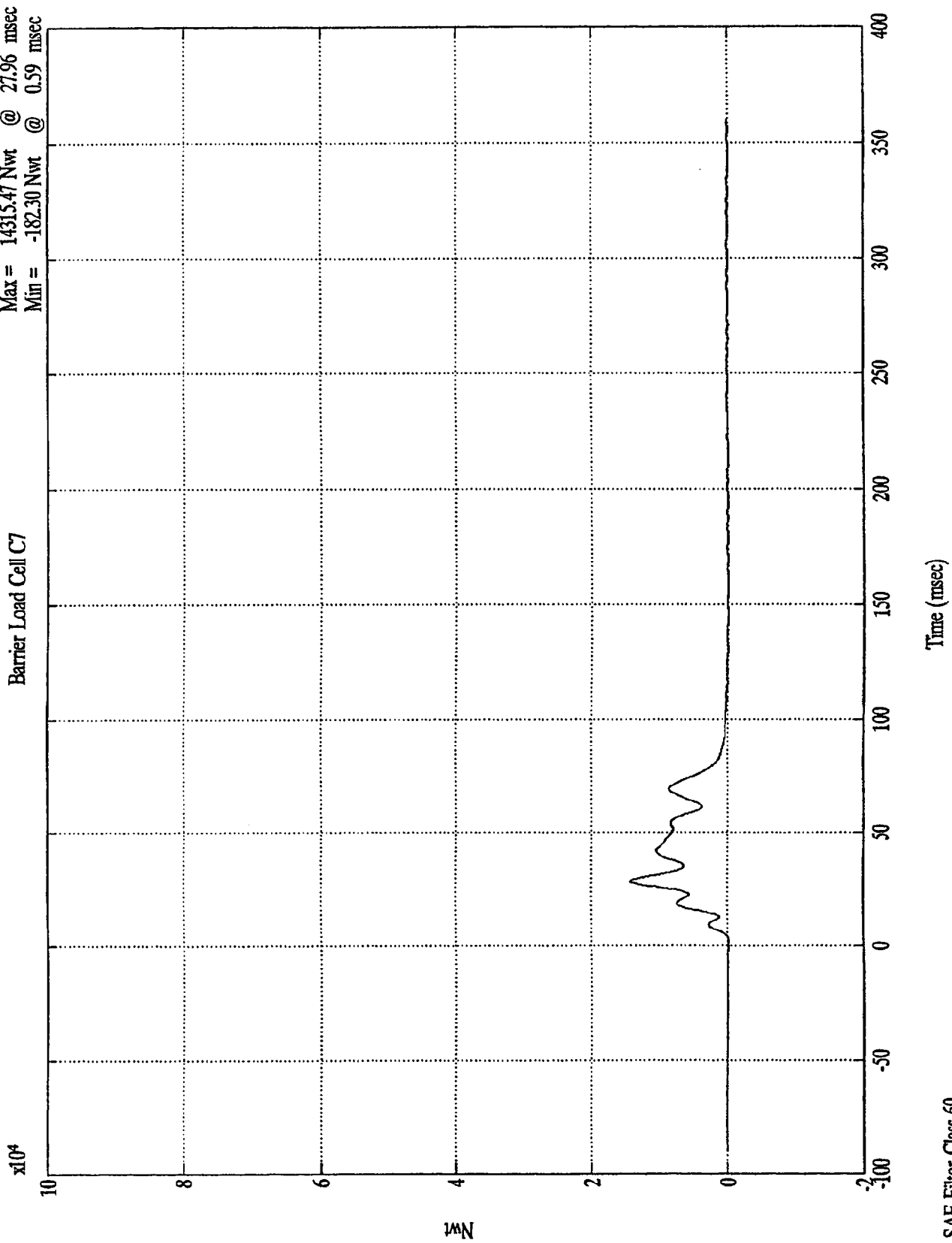
NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell C6
Max = 23718.48 Nwt @ 27.23 msec
Min = -235.61 Nwt @ -0.12 msec



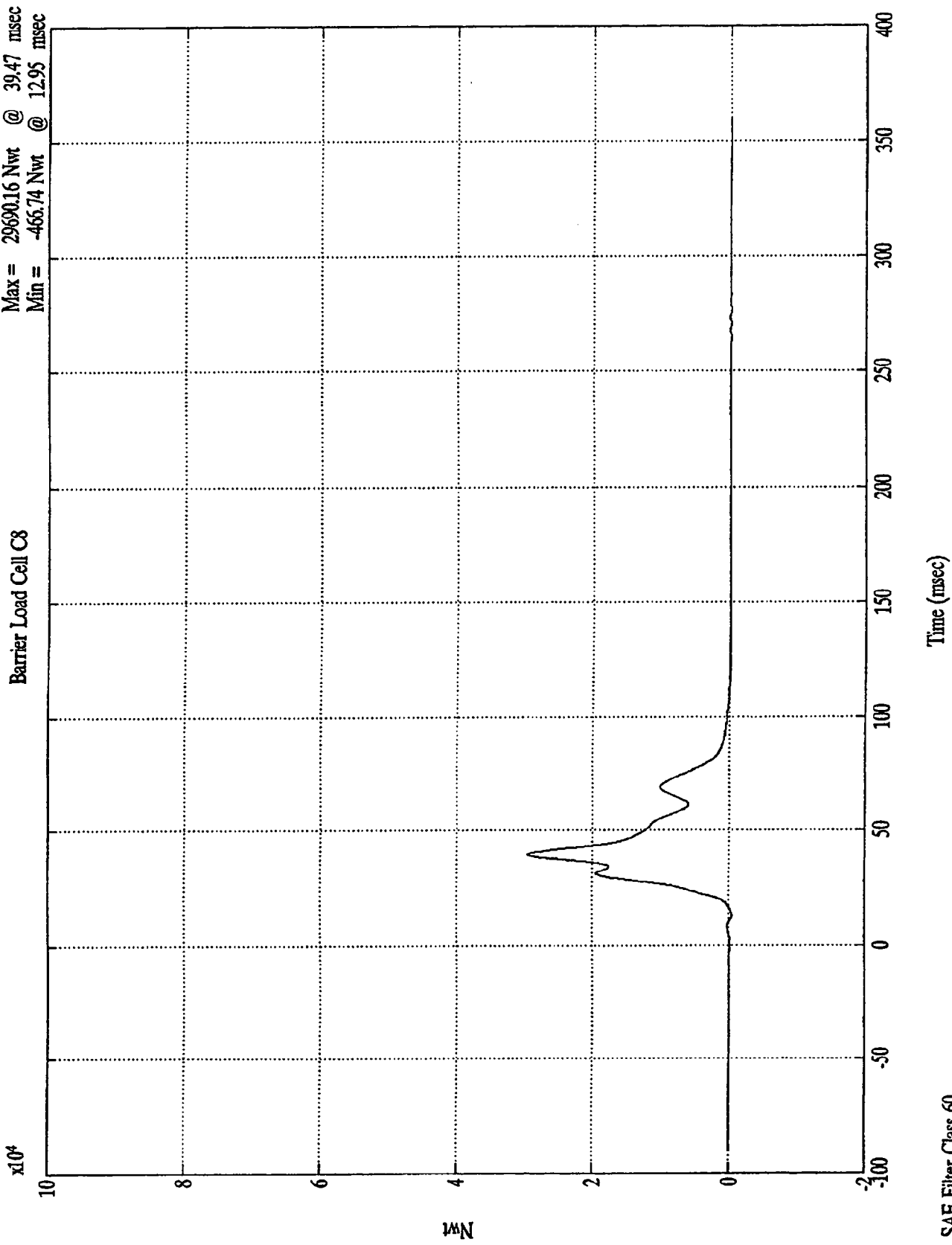
NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell C7
Max = 14315.47 Nwt @ 27.96 msec
Min = -182.30 Nwt @ 0.59 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell C8
Max = 29690.16 Nwt @ 39.47 msec
Min = -466.74 Nwt @ 12.95 msec



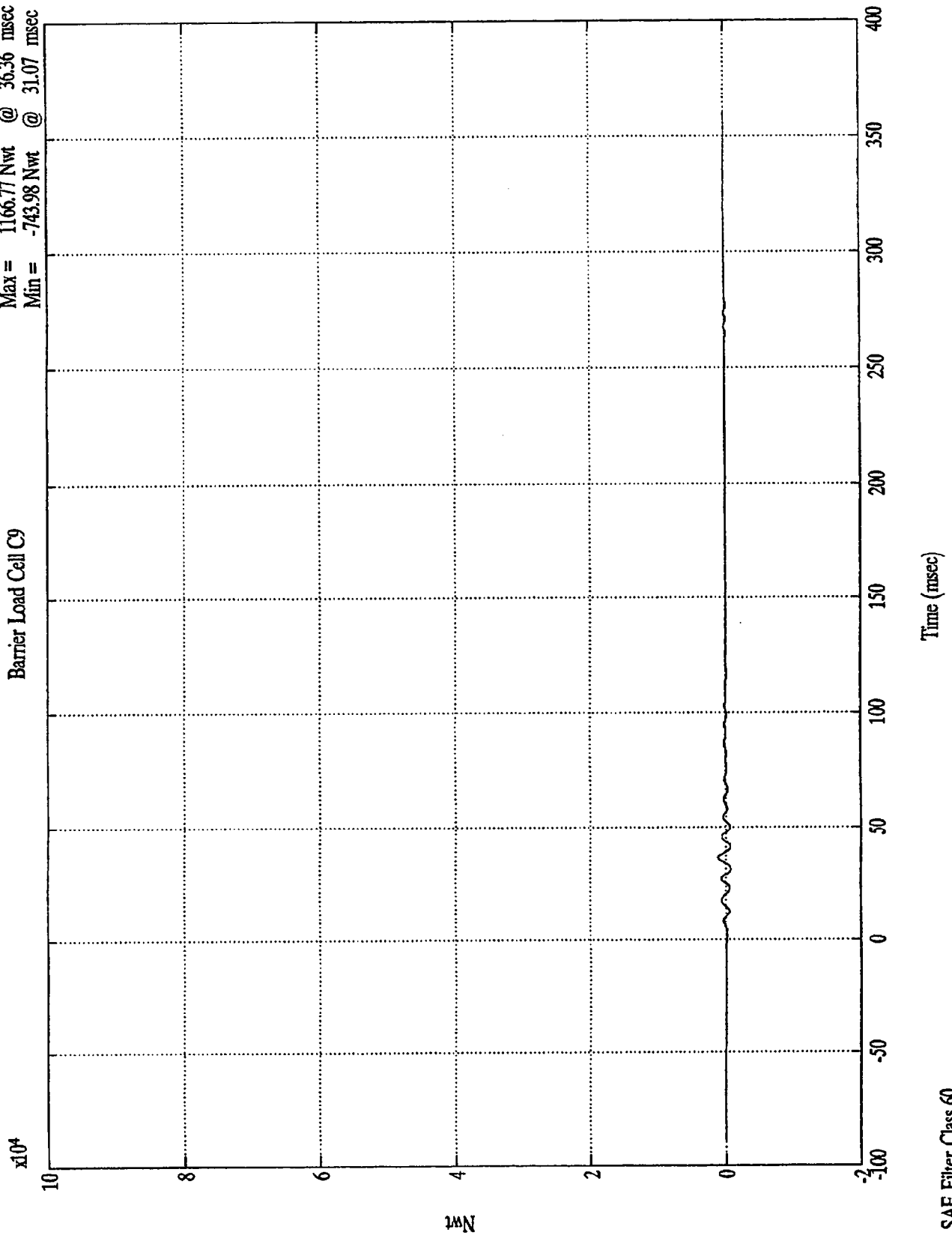
Nwt

SAE Filter Class 60

Time (msec)

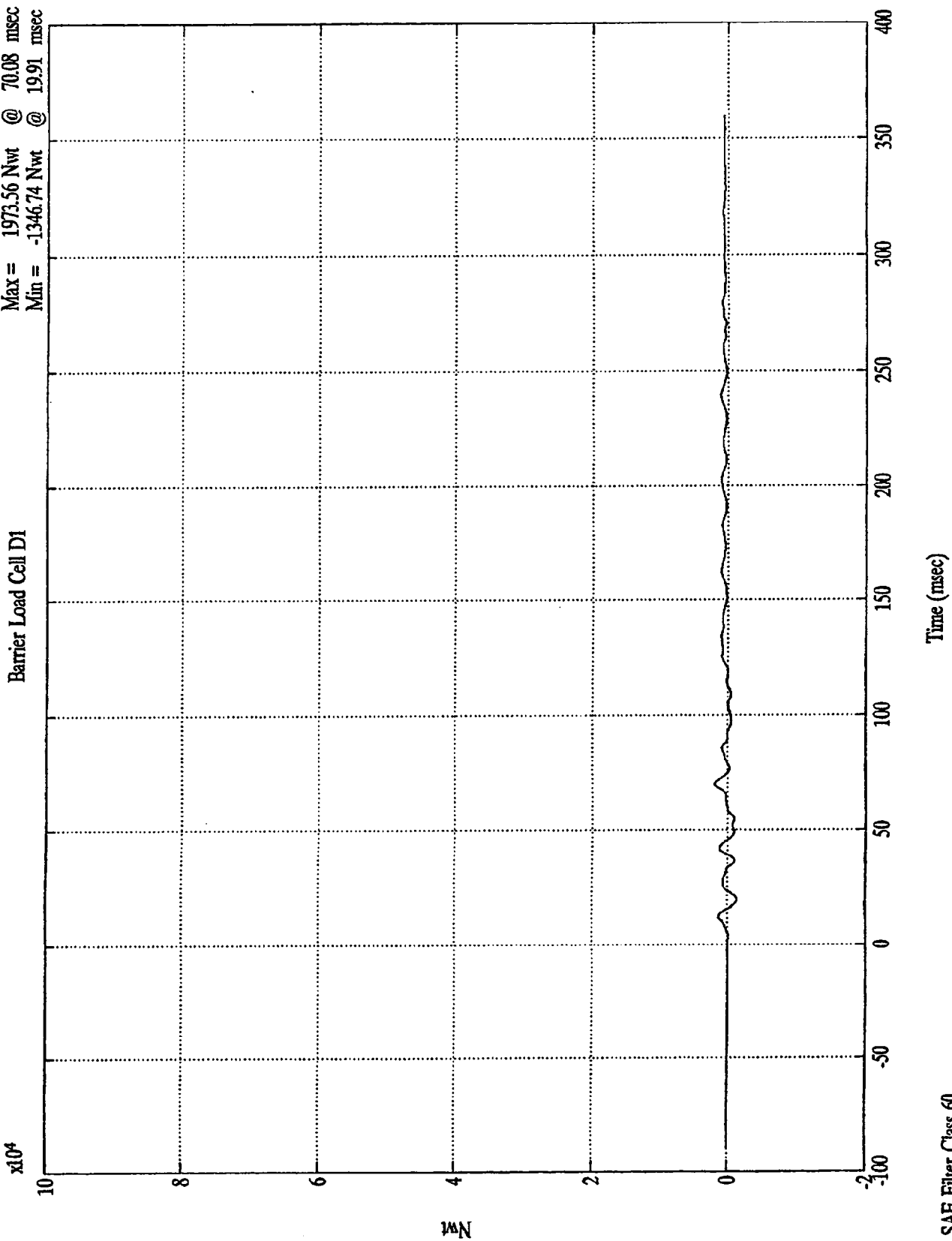
NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell C9
Max = 1166.77 Nwt @ 36.36 msec
Min = -743.98 Nwt @ 31.07 msec



NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell D1
Max = 1973.56 Nwt @ 70.08 msec
Min = -1346.74 Nwt @ 19.91 msec

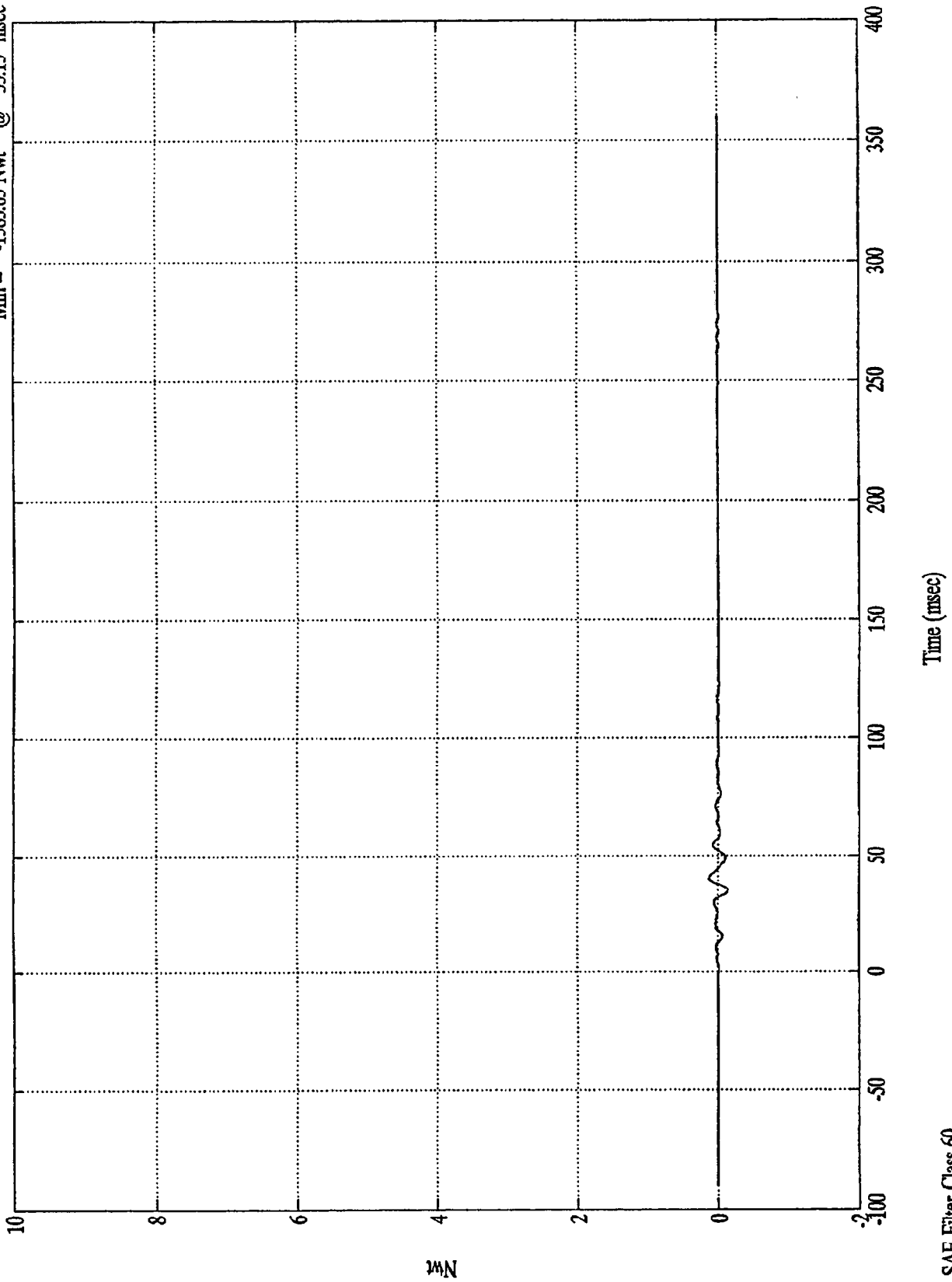


NCAP TEST #13 - 1995 DODGE STRATUS

Max = 1370.08 Nwt @ 40.19 msec
Min = -1383.03 Nwt @ 35.15 msec

Barrier Load Cell D2

x10⁴



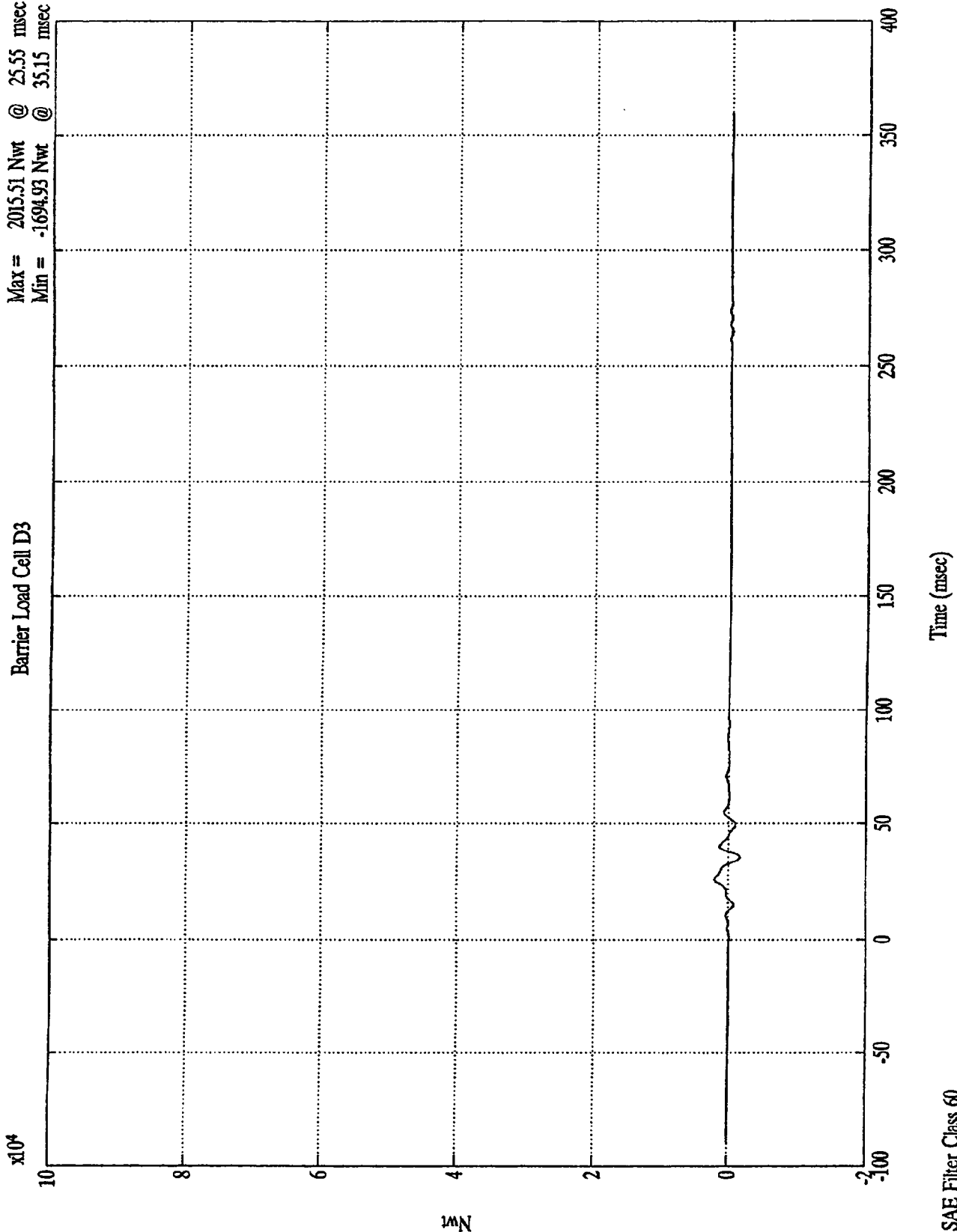
Nwt

Time (msec)

SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell D3
Max = 2015.51 Nwt @ 25.55 msec
Min = -1694.93 Nwt @ 35.15 msec

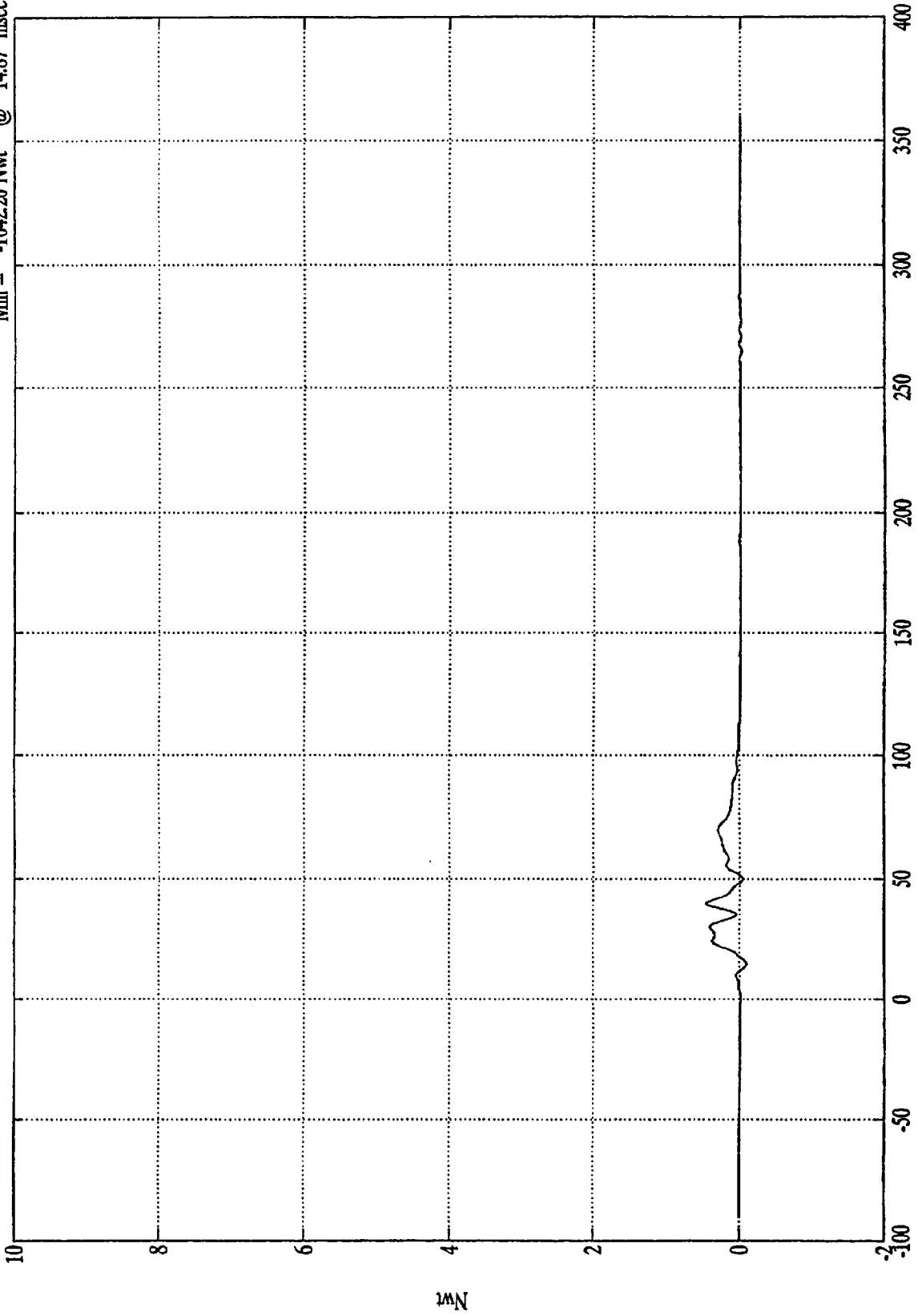


NCAP TEST #13 - 1995 DODGE STRATUS

Max = 4616.57 Nwt @ 39.84 msec
 Min = -1042.26 Nwt @ 14.87 msec

Barrier Load Cell D4

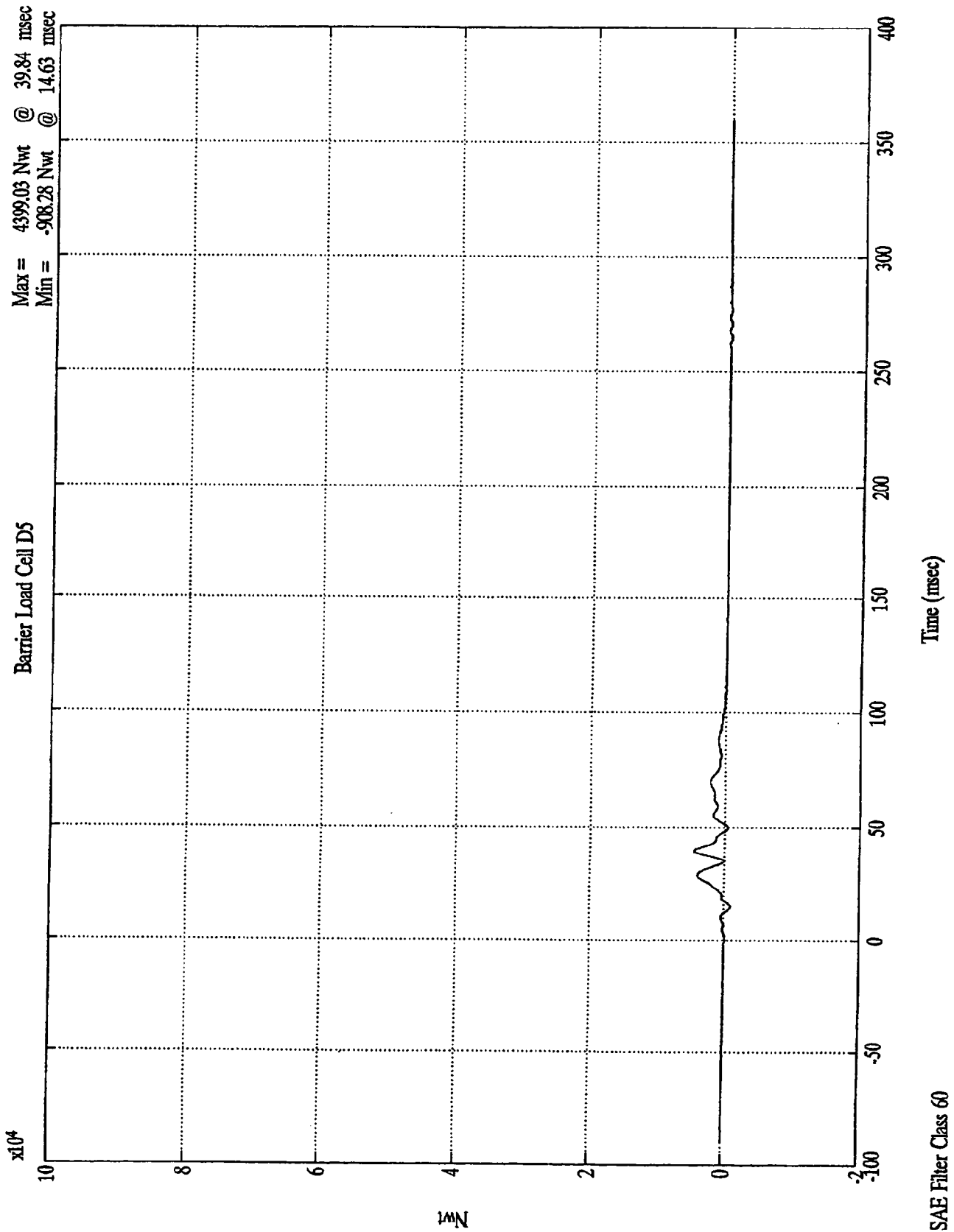
$\times 10^4$



Time (msec)

SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

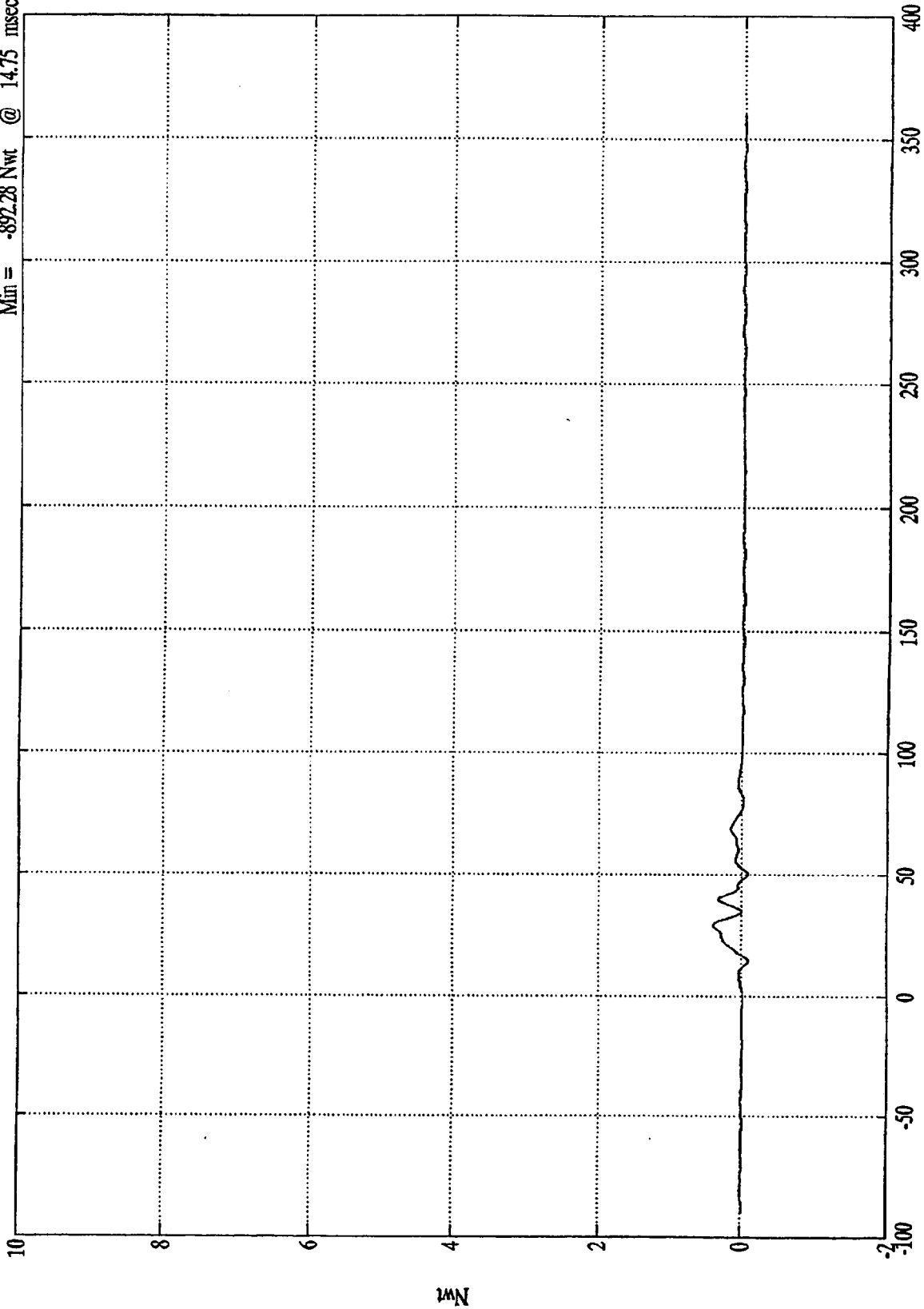


NCAP TEST #13 - 1995 DODGE STRATUS

Max = 3920.25 Nwt @ 29.39 msec
Min = -892.28 Nwt @ 14.75 msec

Barrier Load Cell D6

$\times 10^4$



Time (msec)

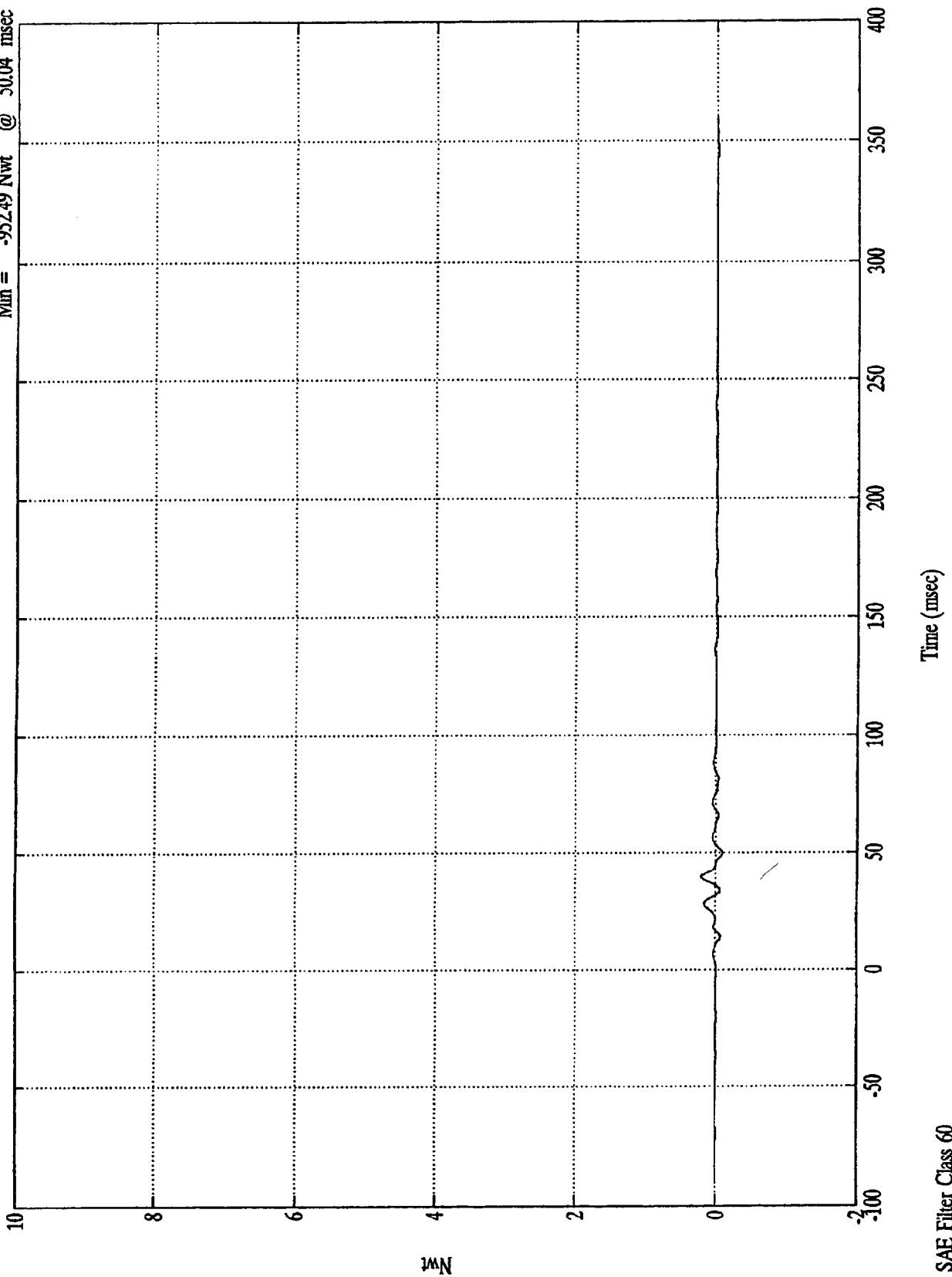
SAE Filter Class 60

Nwt

NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell D7
Max = 1992.14 Nwt @ 39.71 msec
Min = -952.49 Nwt @ 50.04 msec

$\times 10^4$



Nwt

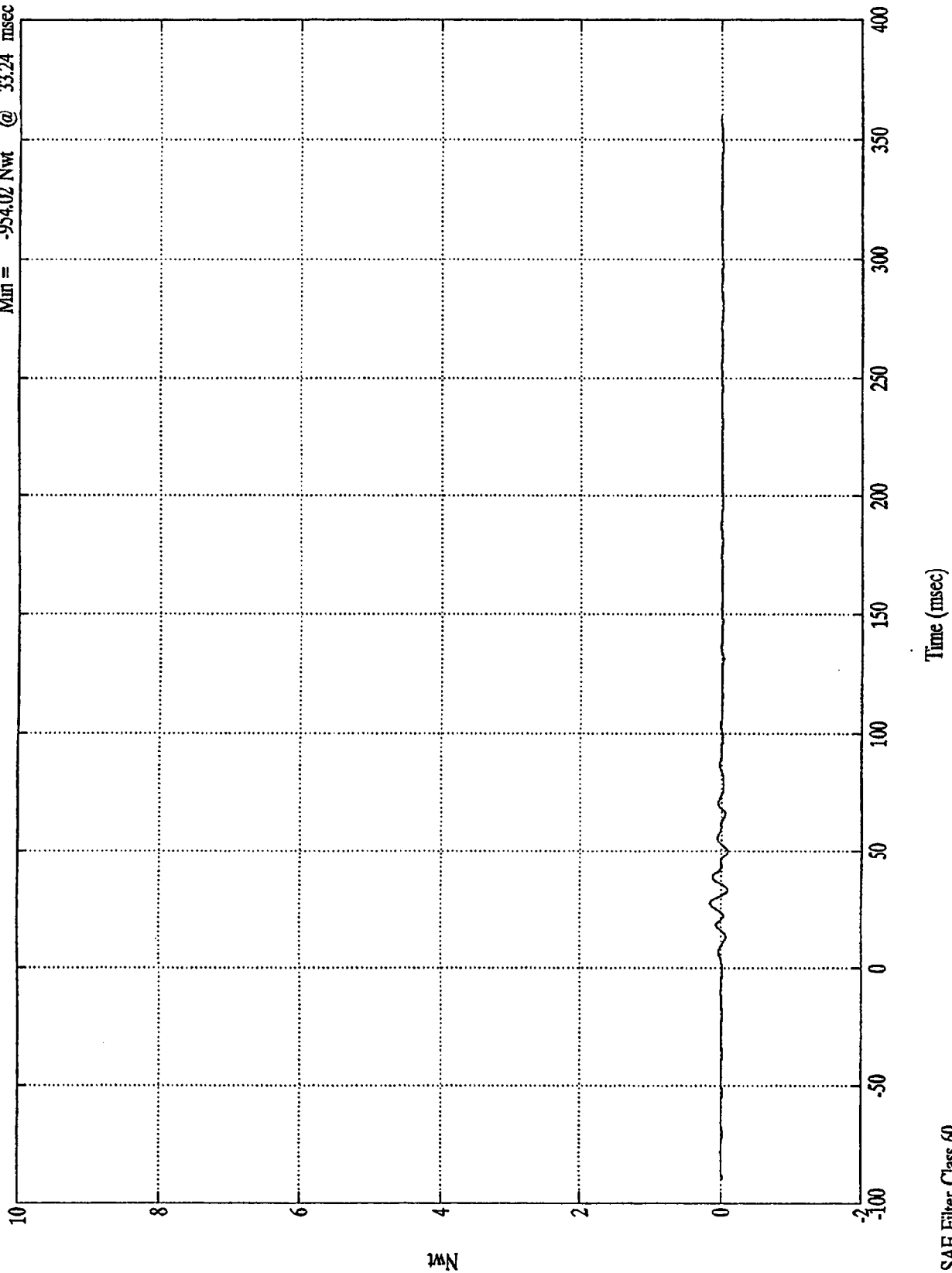
Time (msec)

SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

Max = 1584.48 Nwt @ 27.71 msec
Min = -954.02 Nwt @ 33.24 msec

Barrier Load Cell D8



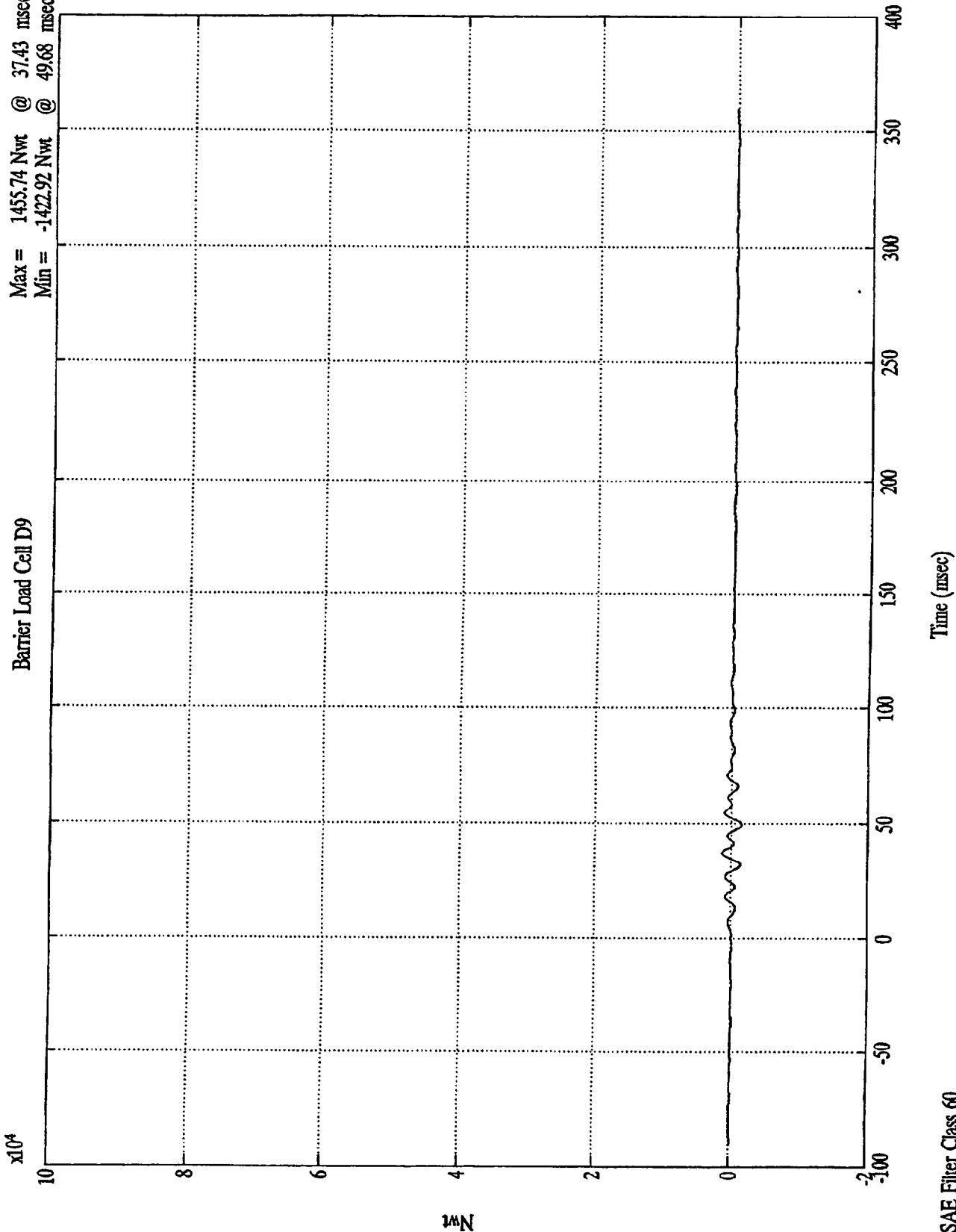
SAE Filter Class 60

Nwt

Time (msec)

NCAP TEST #13 - 1995 DODGE STRATUS

Barrier Load Cell D9
Max = 1455.74 Nwt @ 37.43 msec
Min = -1422.92 Nwt @ 49.68 msec



Nwt

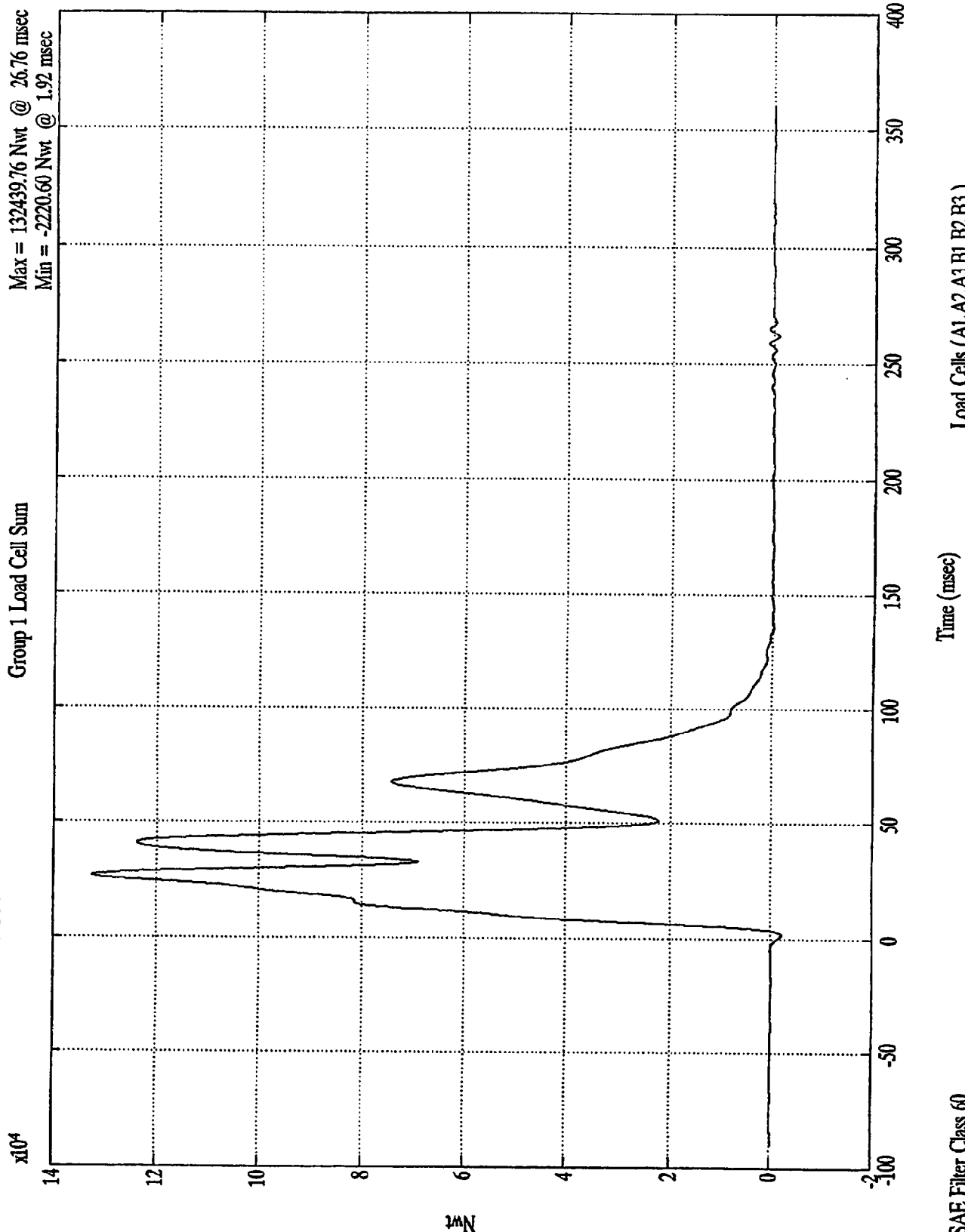
Time (msec)

SAE Filter Class 60

NCAP TEST #13 - 1995 DODGE STRATUS

Max = 132439.76 Nwt @ 26.76 msec
Min = -2220.60 Nwt @ 1.92 msec

Group 1 Load Cell Sum



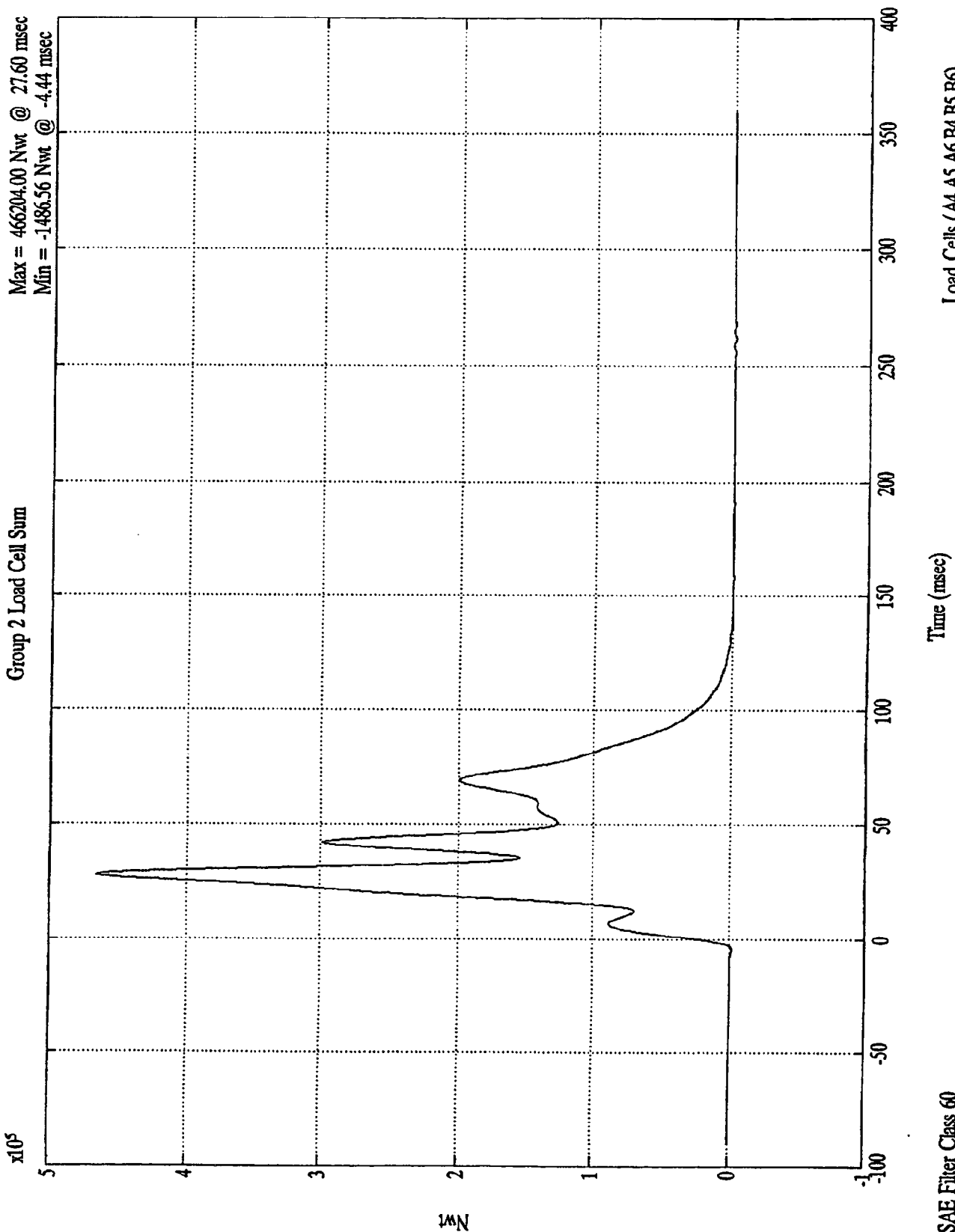
SAE Filter Class 60

Time (msec)

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

NCAP TEST #13 - 1995 DODGE STRATUS

Group 2 Load Cell Sum
 Max = 466204.00 Nwt @ 27.60 msec
 Min = -1486.56 Nwt @ -4.44 msec



SAE Filter Class 60

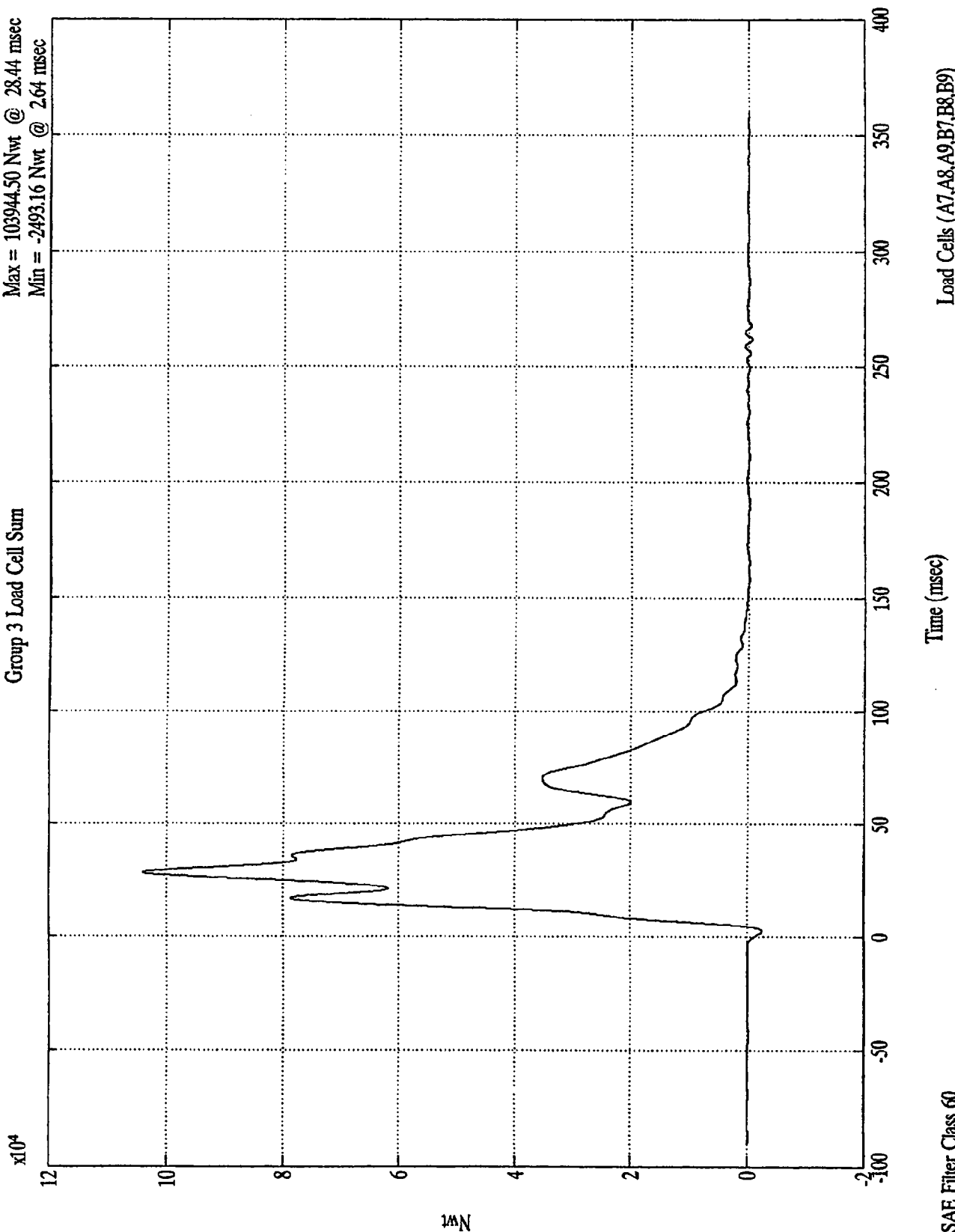
Time (msec)

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

NCAP TEST #13 - 1995 DODGE STRATUS

Max = 103944.50 Nwt @ 28.44 msec
Min = -2493.16 Nwt @ 2.64 msec

Group 3 Load Cell Sum

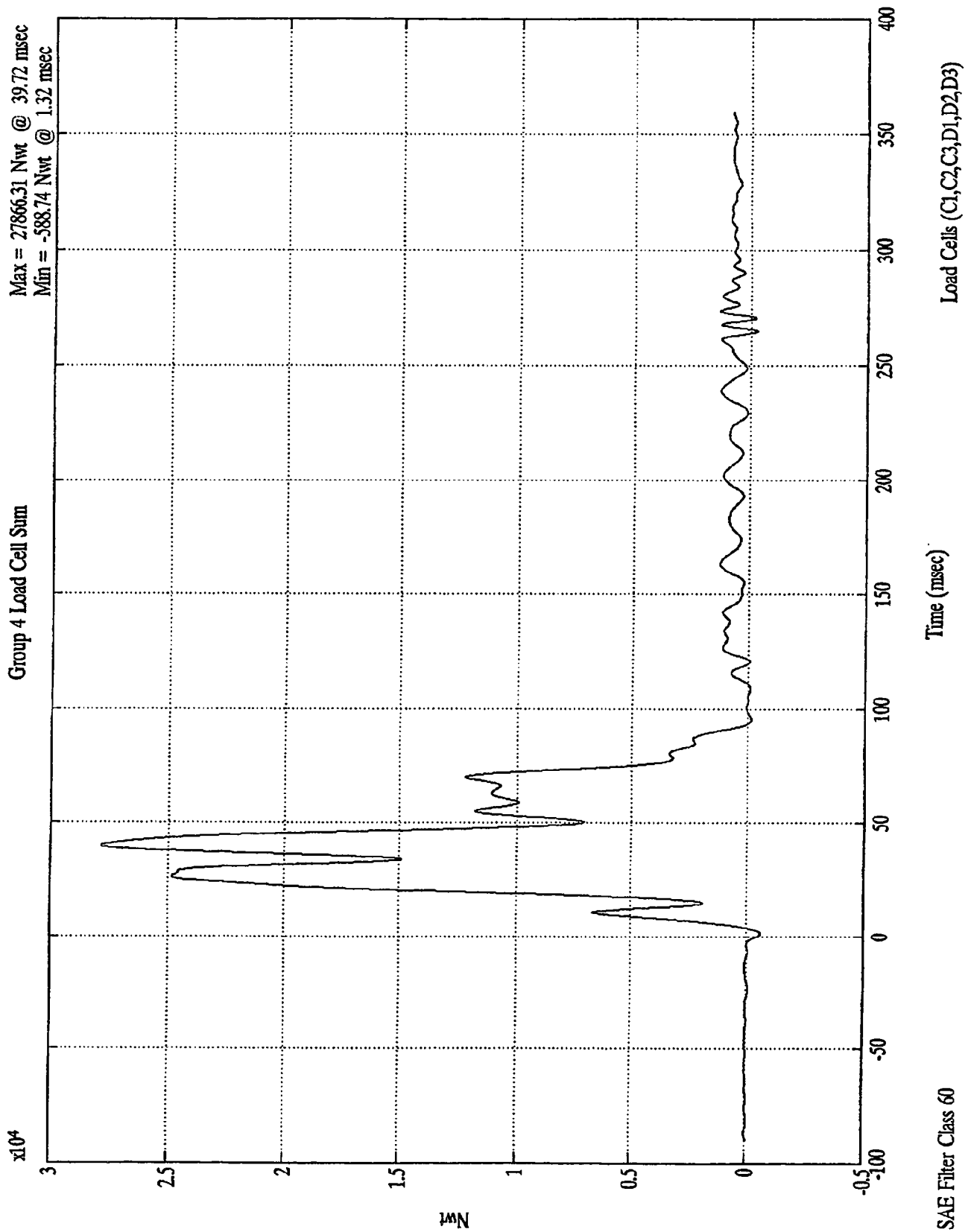


Load Cells (A7,A8,A9,B7,B8,B9)

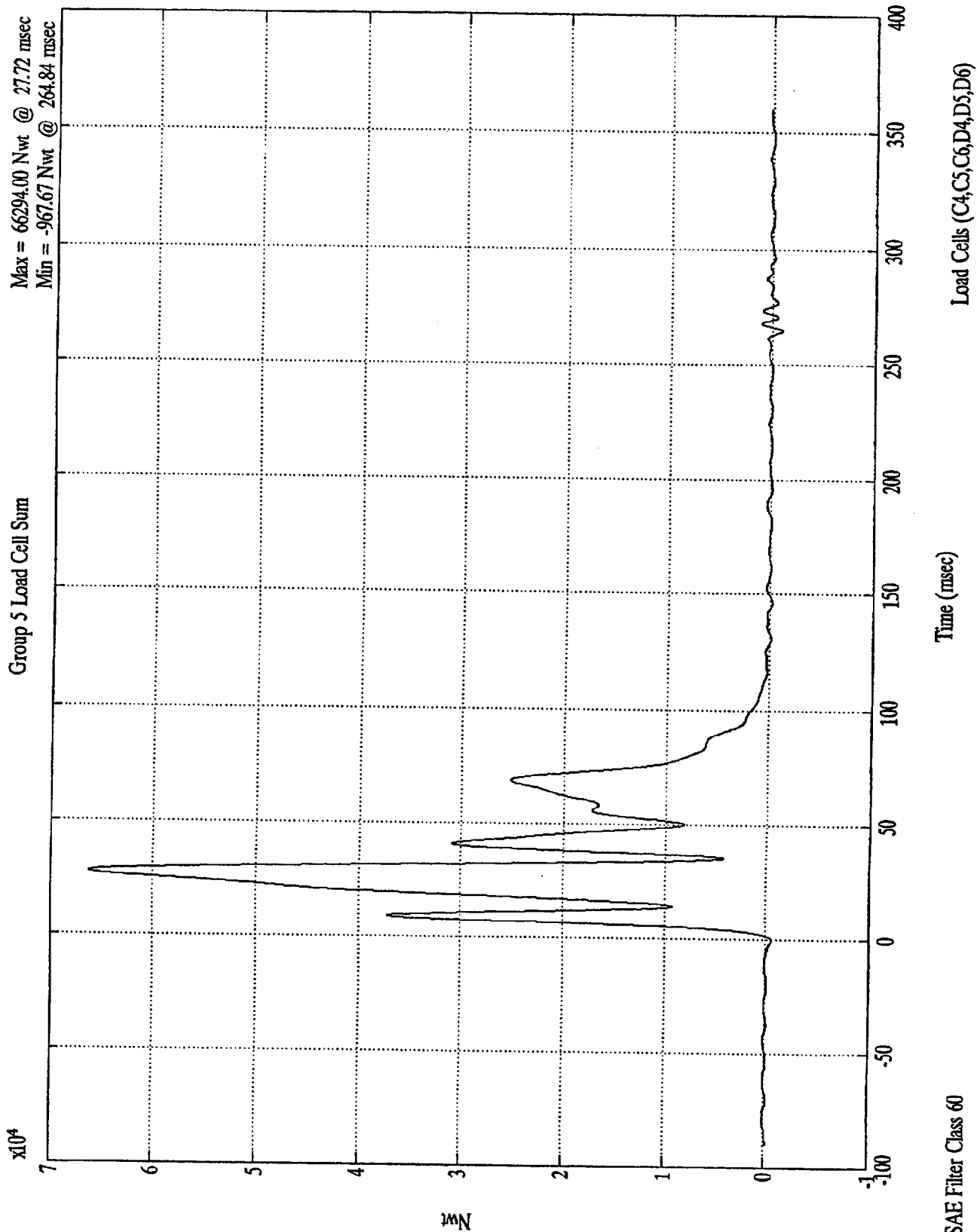
Time (msec)

SAE Filter Class 60

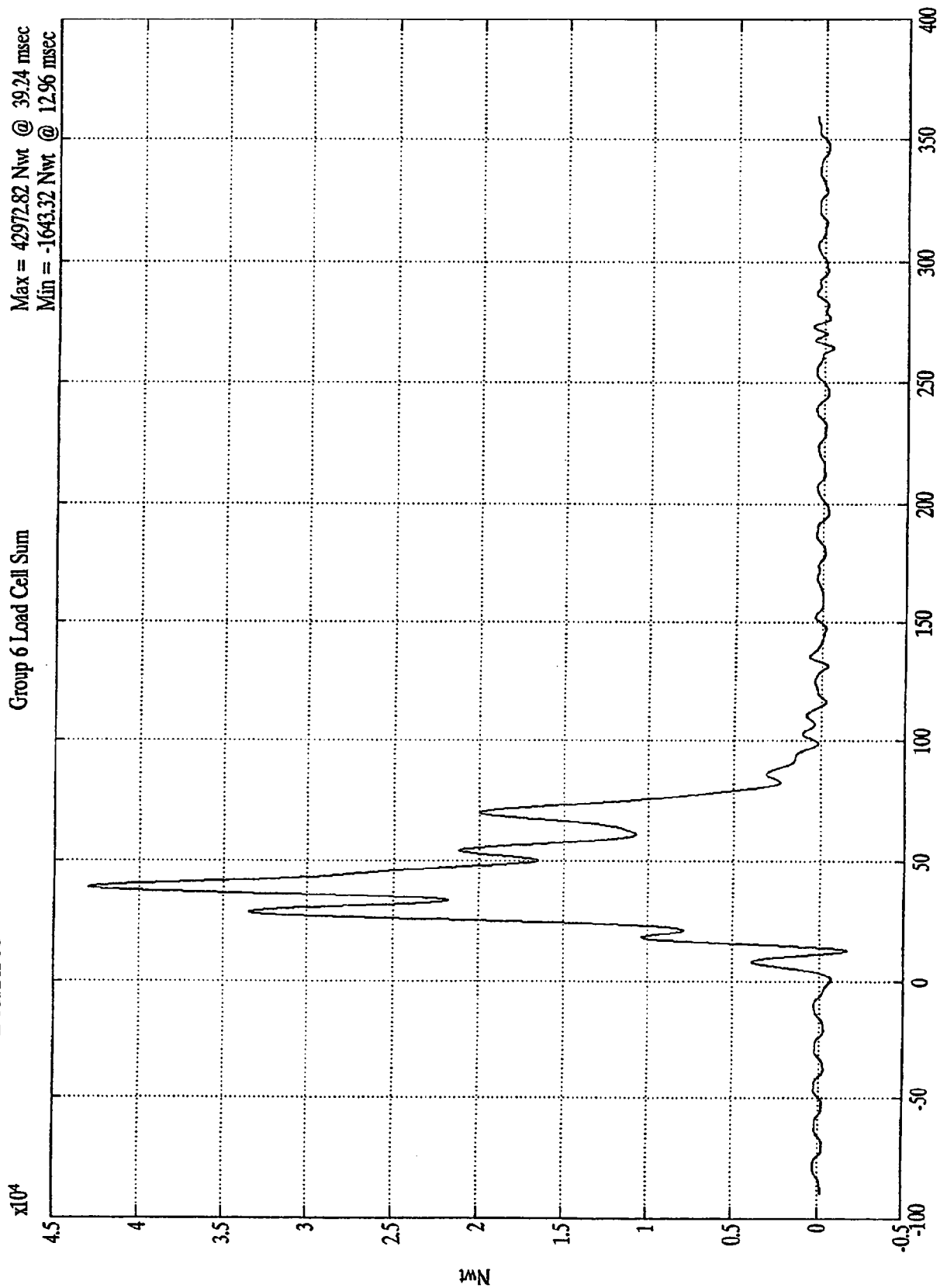
NCAP TEST #13 - 1995 DODGE STRATUS



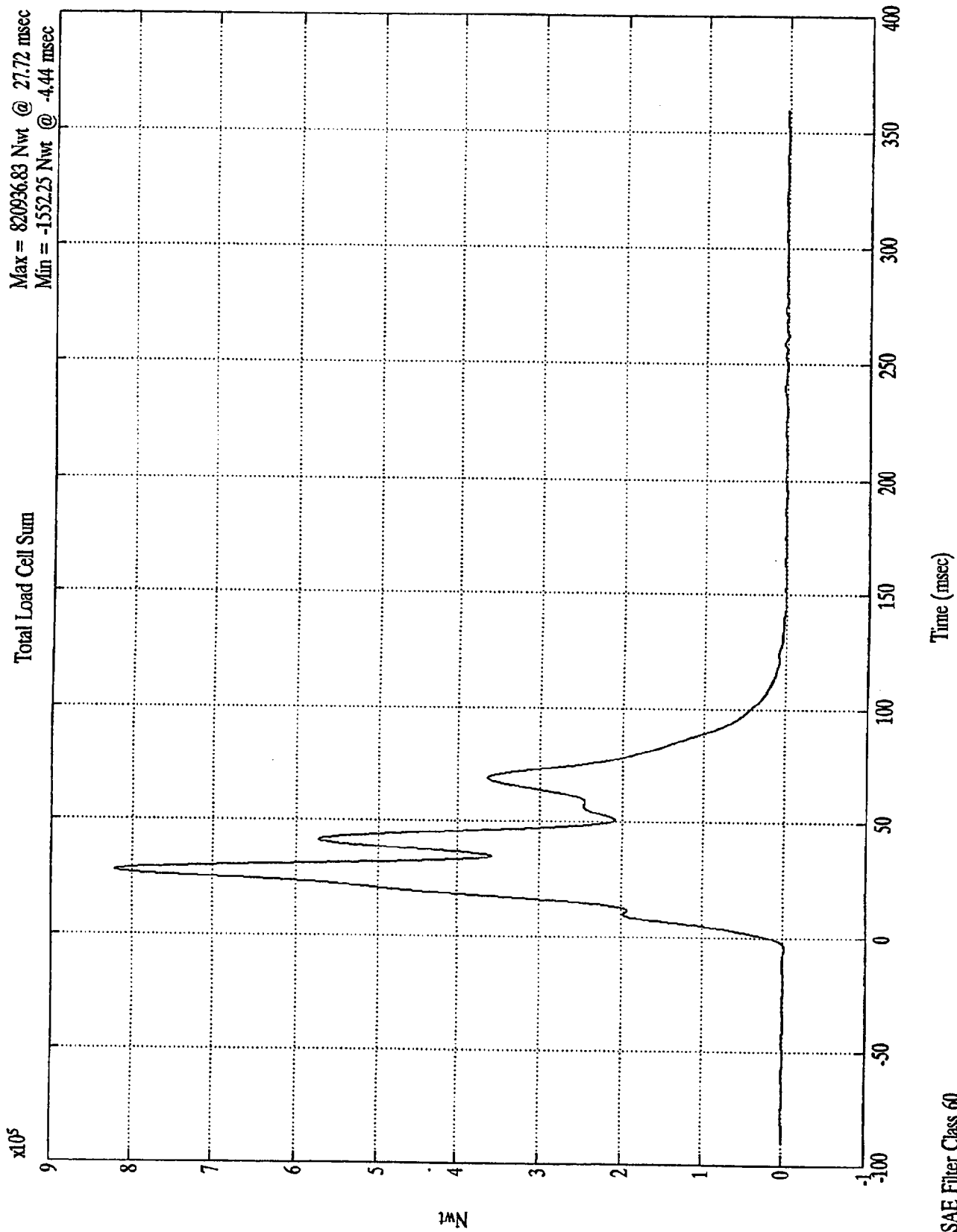
NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS



NCAP TEST #13 - 1995 DODGE STRATUS



Appendix C

PART 572B/E DUMMY CONFIGURATION
AND PERFORMANCE VERIFICATION DATA SHEETS

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

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

Dummy serial numbers and certification dates are:

<u>Serial No.</u>	<u>Completion Date</u>
150	1/25/95
45	1/26/95

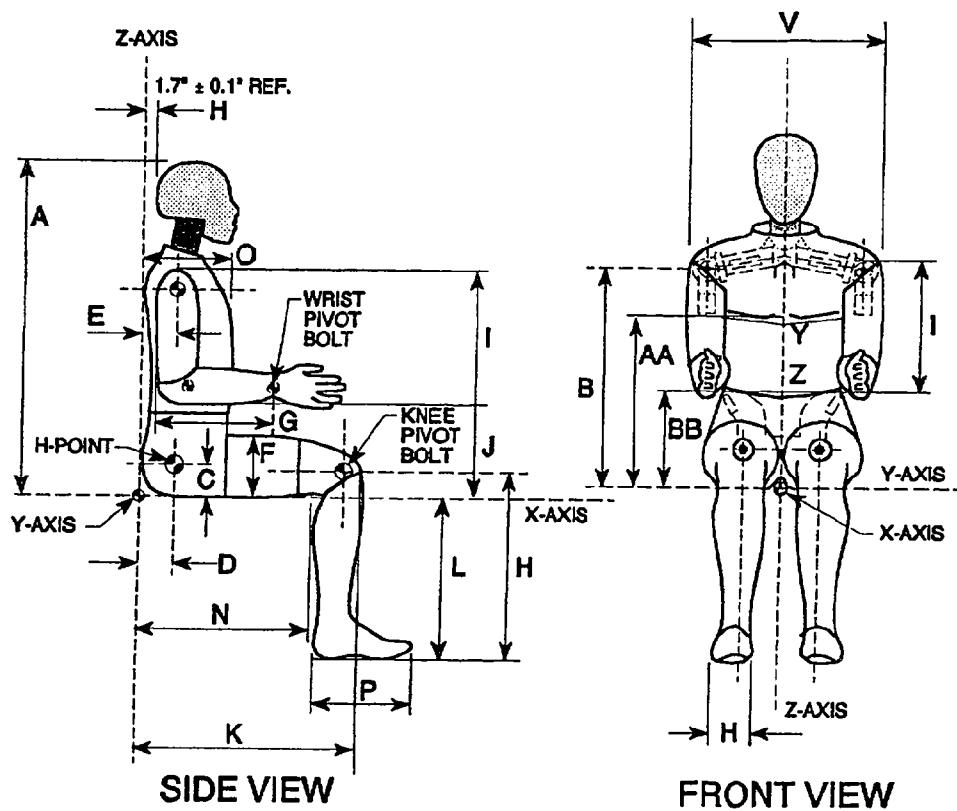
Electronic Test Equipment

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

Figure 7

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS SPECIFICATIONS



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

HYBRID III EXTERNAL DIMENSIONS

S/N 150 HUMANOID

DUMMY SERIAL NO. 150

DATE: 1/25/95

TEMPERATURE		21.6 DEG. C
RELATIVE HUMIDITY		30 %
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 : 1/19/95

CALSPAN SEQUENTIAL NUMBER 4

HY3 SN: 150 HEAD DROP CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19 - 25 DEG. C	21 DEG. C
RELATIVE HUMIDITY	10% - 70%	36 %
PEAK RESULTANT ACCELERATION	225 - 275 G'S	249.4 G'S
PEAK LATERAL ACCELERATION	15 G'S MAX	2.8 G'S
IS ACCELERATION CURVE UNIMODAL?	YES	YES

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

NECK FLEXION TEST

HYBRID III

DATE : 1/25/95

6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 4

HY3 SN: 150 CAL NECK FLEXION

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.5-22.2 DEG. C	21.6 DEG. C
RELATIVE HUMIDITY		10% - 70%	31 %
IMPACT VELOCITY		24.8 - 25.7 KPH	25.6 KPH
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G'S	25.61 G'S
	20 MS	17.60 - 22.60 G'S	21.43 G'S
	30 MS	12.50 - 18.50 G'S	18.28 G'S
MAX PENDULUM G'S ABOVE 30 MS		29 G'S MAX	18.28 G'S
DECELERATION -TIME CURVE DECAY TIME TO 5 G'S		34 - 42 MS	37.25 MS
D PLANE ROTATION	MAX	64 - 78 DEG.	73.27 DEG.
	TIME	57 - 64 MS	60.38 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88 - 108 N-M	99.4 N-M
	TIME	47 - 58 MS	51.13 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	120.5 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	98.13 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
NECK EXTENSION TEST

HYBRID III

DATE : 1/25/95

6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 4

HY3 SN: 150 CAL NECK EXTENSION

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.5 - 22.2 DEG. C	21.6 DEG. C
RELATIVE HUMIDITY		10% - 70%	31 %
IMPACT VELOCITY		21.4 - 22.3 KPH	22.16 KPH
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G'S	19.61 G'S
	20 MS	14.00 - 19.00 G'S	17.25 G'S
	30 MS	11.00 - 16.00 G'S	15.71 G'S
MAX PENDULUM G'S ABOVE 30 MS		22 G'S MAX	15.71 G'S
DECELERATION -TIME CURVE DECAY TIME TO 5 G'S		38 - 46 MS	39.75 MS
D PLANE ROTATION	MAX	81 - 106 DEG.	94.96 DEG.
	TIME	72 - 82 MS	75 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	-80.0/-52.9 N-M	-86.8 N-M
	TIME	65 - 79 MS	70.38 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	152.5 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	131.63 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
THORAX IMPACT TEST
HYBRID III

DATE : 1/18/95

CALSPAN SEQUENTIAL NUMBER 4

HY3 SN 150 H.S. THORAX CAL

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.5 - 22.2 DEG. C	21 DEG. C
RELATIVE HUMIDITY	10% - 70%	36 %
PENDULUM VELOCITY	23.7 - 24.6 KPH	23.7 KPH
MAXIMUM DEFLECTION	64 - 73 mm	64.3 mm
MAXIMUM RESISTIVE FORCE	5160 - 5894 NEWTONS	5773 NEWTONS
INTERNAL HYSTERESIS	69% - 85%	72.5 %

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

KNEE IMPACT TEST

HYBRID III

DATE : 1/18/95

KNEE: LEFT

CALSPAN SEQUENTIAL NUMBER 4

HY3 SN: 150 KNEE 4.9 KGS CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19 - 25 DEG. C	21.6 DEG. C
RELATIVE HUMIDITY	10% - 70%	36 %
PROBE VELOCITY	7.5 - 7.7 KPH	7.68 KPH
PEAK KNEE IMPACT FORCE	4715 - 5782 N	4746 N
PROBE WEIGHT	4.9 KGS	

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

KNEE IMPACT TEST

HYBRID III

DATE : 1/18/95

KNEE: RIGHT

CALSPAN SEQUENTIAL NUMBER 4

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%	36 %
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

HYBRID III EXTERNAL DIMENSIONS

S/N 45 HUMANOID

DUMMY SERIAL NO. 45

DATE: 1/26/95

TEMPERATURE		21 DEG. C
RELATIVE HUMIDITY		30 %
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 MINKIEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

HEAD DROP TEST

HYBRID III

DATE : 1/19/95

CALSPAN SEQUENTIAL NUMBER 6

HY3 SN: 045 HEAD DROP CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19 - 25 DEG. C	21 DEG. C
RELATIVE HUMIDITY	10% - 70%	36 %
PEAK RESULTANT ACCELERATION	225 - 275 G'S	243.9 G'S
PEAK LATERAL ACCELERATION	15 G'S MAX	5.5 G'S
IS ACCELERATION CURVE UNIMODAL?	YES	YES

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
NECK FLEXION TEST

HYBRID III

DATE : 1/25/94

6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 6

HY3 SN: 045 CAL NECK FLEXION

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.5-22.2 DEG. C	21.6 DEG. C
RELATIVE HUMIDITY		10% - 70%	31 %
IMPACT VELOCITY		24.8 - 25.7 KPH	25.6 KPH
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G'S	23.85 G'S
	20 MS	17.60 - 22.60 G'S	21.41 G'S
	30 MS	12.50 - 18.50 G'S	16.23 G'S
MAX PENDULUM G'S ABOVE 30 MS		29 G'S MAX	16.23 G'S
DECELERATION -TIME CURVE DECAY TIME TO 5 G'S		34 - 42 MS	40.38 MS
D PLANE ROTATION	MAX	64 - 78 DEG.	70.09 DEG.
	TIME	57 - 64 MS	63.75 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	88 - 108 N-M	93.3 N-M
	TIME	47 - 58 MS	53 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	123 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	103 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
NECK EXTENSION TEST

HYBRID III

DATE : 1/26/95

6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 6

HY3 SN: 045 CAL NECK EXTENSION

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		20.5 - 22.2 DEG. C	21 DEG. C
RELATIVE HUMIDITY		10% - 70%	29 %
IMPACT VELOCITY		21.4 - 22.3 KPH	22 KPH
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G'S	18.79 G'S
	20 MS	14.00 - 19.00 G'S	16.36 G'S
	30 MS	11.00 - 16.00 G'S	15.59 G'S
MAX PENDULUM G'S ABOVE 30 MS		22 G'S MAX	15.59 G'S
DECELERATION -TIME CURVE DECAY TIME TO 5 G'S		38 - 46 MS	40.75 MS
D PLANE ROTATION	MAX	81 - 106 DEG.	89.71 DEG.
	TIME	72 - 82 MS	74.63 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	-80.0/-52.9 N-M	-55.99 N-M
	TIME	65 - 79 MS	71.38 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	156.25 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	133.13 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
THORAX IMPACT TEST
HYBRID III

DATE : 1/18/95

CALSPAN SEQUENTIAL NUMBER 6

HY3 SN 045 H.S. THORAX CAL

TEST PARAMETER	HIGH SPEED TEST	TEST RESULTS
	SPECIFICATION	
TEMPERATURE	20.5 - 22.2 DEG. C	21 DEG. C
RELATIVE HUMIDITY	10% - 70%	34 %
PENDULUM VELOCITY	23.7 - 24.6 KPH	23.7 KPH
MAXIMUM DEFLECTION	64 - 73 mm	65.5 mm
MAXIMUM RESISTIVE FORCE	5160 - 5894 NEWTONS	5871 NEWTONS
INTERNAL HYSTERESIS	69% - 85%	69.1 %

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT

KNEE IMPACT TEST

HYBRID III

DATE : 1/18/95

KNEE: LEFT

CALSPAN SEQUENTIAL NUMBER 6

HY3 SN: 045 KNEE 4.9 KGS CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19 - 25 DEG. C	21.6 DEG. C
RELATIVE HUMIDITY	10% - 70%	36 %
PROBE VELOCITY	7.5 - 7.7 KPH	7.68 KPH
PEAK KNEE IMPACT FORCE	4715 - 5782 N	4968 N
PROBE WEIGHT	4.9 KGS	

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION
TRANSPORTATION RESEARCH DEPARTMENT
KNEE IMPACT TEST
HYBRID III

DATE : 1/18/95

KNEE: RIGHT

CALSPAN SEQUENTIAL NUMBER 6

HY3 SN: 045 KNEE 4.9 KGS CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19 - 25 DEG. C	21.6 DEG. C
RELATIVE HUMIDITY	10% - 70%	36 %
PROBE VELOCITY	7.5 - 7.7 KPH	7.68 KPH
PEAK KNEE IMPACT FORCE	4715 - 5782 N	4830 N
PROBE WEIGHT	4.9 KGS	

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				
	F255	GSE	12/94	6/95
Left Femur Load Cell				
	F77	GSE	12/94	6/95
Neck Load Cell				
X	076	DENTON	8/94	2/95
Y	076	DENTON	8/94	2/95
Z	076	DENTON	8/94	2/95
Neck Moment				
X	076	DENTON	8/94	2/95
Y	076	DENTON	8/94	2/95
Z	076	DENTON	8/94	2/95
Chest Deflection Gauge				
Hybrid III Use Only	CP150	HUMANOID	8/94	2/95
Lap Belt Load Cells				
	706	LEBOW	1/95	7/95
Shoulder Belt Load Cells				
	707	LEBOW	1/95	7/95
Spool-Out Potentiometer				
	7	MAGNETEK	10/94	4/95
Belt Stretch Transducer				
	E6	CALSPAN	8/94	2/95

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X (R)	AER75	ENDEVCO	11/94	5/95
Y (R)	AKEB3	ENDEVCO	11/94	5/95
Z (R)	AEW71	ENDEVCO	11/94	5/95
Chest				
X (R)	AA5G8	ENDEVCO	11/94	5/95
Y (R)	AEWJ5	ENDEVCO	11/94	5/95
Z (R)	AEWK1	ENDEVCO	11/94	5/95
Pelvic				
X	AH5F3	ENDEVCO	12/94	6/95
Y	AL6H7	ENDEVCO	12/94	6/95
Z	AL6C8	ENDEVCO	12/94	6/95

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	269	DENTON	8/94	2/95
X	269	DENTON	8/94	2/95
Y	269	DENTON	8/94	2/95
Z	269	DENTON	8/94	2/95
Neck Moment	269	DENTON	8/94	2/95
X	269	DENTON	8/94	2/95
Y	269	DENTON	8/94	2/95
Z	269	DENTON	8/94	2/95
Chest Deflection Gauge	CP45	HUMANOID	8/94	2/95
Hybrid III Use Only				
Lap Belt Load Cells	710	LEBOW	1/95	7/95
Shoulder Belt Load Cells	711	LEBOW	1/95	7/95
Spool-Out Potentiometer	7	MAGNETEK	10/94	4/95
Belt Stretch Transducer	E7	CALSPAN	8/94	2/95

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY		Serial #	Manufacturer	Calibration	
				Last	Next
Head	X (R)	AEW70	ENDEVCO	11/94	5/95
	Y (R)	AET34	ENDEVCO	11/94	5/95
	Z (R)	AKD93	ENDEVCO	11/94	5/95
Chest	X (R)	AKD92	ENDEVCO	11/94	5/95
	Y (R)	AFPI7	ENDEVCO	11/94	5/95
	Z (R)	AJP62	ENDEVCO	11/94	5/95
Pelvic	X	AGHM9	ENDEVCO	11/94	5/95
	Y	AE8R7	ENDEVCO	11/94	5/95
	Z	AH5L8	ENDEVCO	12/94	6/95

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

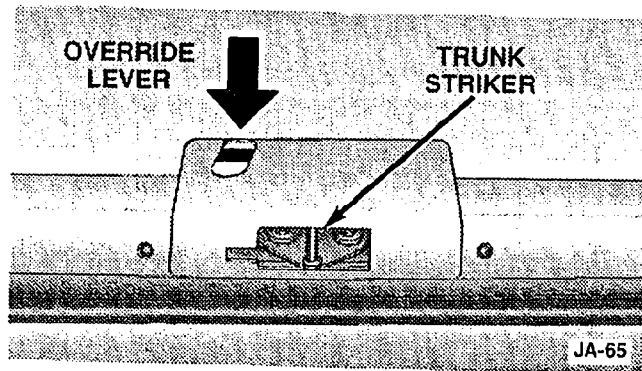
(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	A44	CEC	8/94	2/95
Right Rear Seat Crossmember	A69	CEC	11/94	5/95
Top of Engine	X43	CEC	1/95	7/95
Bottom of Engine	A73	CEC	11/94	5/95
Left Disc Brake Caliper	A149	CEC	9/94	3/95
Right Disc Brake Caliper	A183	CEC	11/94	5/95
Instrument Panel	A56	CEC	11/94	5/95
Left Seat Rear Crossmember (R)	A115	CEC	11/94	5/95
Right Seat Rear Crossmember (R)	A129	CEC	11/94	5/95

Appendix E

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

NOTE: As a security measure, a remote release override lever is built into the trunk latching mechanism. Before you close the trunk, push down the lever located near the trunk striker. This will prevent the remote release from opening the trunk. Pull up the lever to engage the remote release feature.



OCCUPANT RESTRAINTS

One of the most important safety features in your vehicle is the restraint system. This system includes the front and rear seat belts, and airbags for the driver and right front passenger. Your seat belts also can be used to hold infant and child restraint systems if you will be carrying children too small for adult-size belts.

Please pay careful attention to the information in this section. It tells you how to use your restraint system properly to keep you and your passengers as safe as possible.

WARNING!

In a collision, you and your passengers can suffer much greater injuries if you are not properly buckled up. You can strike the interior of your vehicle or other passengers, or you can be thrown out of the vehicle. Always be sure you and others in your vehicle are buckled up properly.

Buckle up even though you are an excellent driver. Even on short trips. Someone on the road may be a poor driver and cause a collision which includes you. And this can happen far away from home or on your own street.

Research has shown that seat belts save lives. And they can reduce the seriousness of injuries in a collision. Some of the worst injuries happen when people are thrown from the vehicle. Seat belts provide protection from that, and they reduce the risk of injury caused by striking the inside of the vehicle. **Everyone** in a motor vehicle needs to be buckled up **all the time**.

Unibelts

The seats next to the front and rear doors of your vehicle are equipped with Unibelts.

Each unibelt is a combined lap/shoulder belt system. The belt webbing retractor will lock only during very sudden stops or impacts. This feature allows the shoulder part of the belt to move freely with you under normal conditions. But in a collision, the belt will lock and

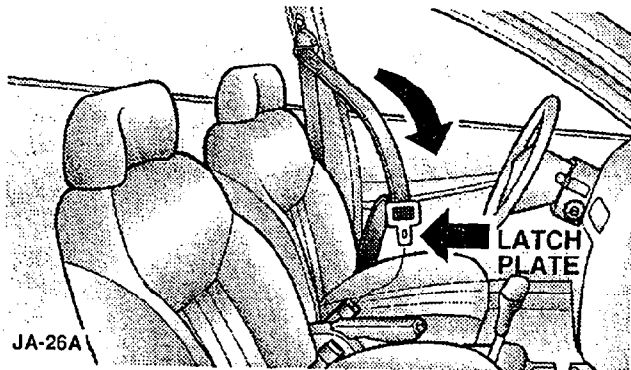
reduce the risk of your striking the inside of the vehicle or being thrown out.

WARNING!

- Wearing a seat belt incorrectly is dangerous. Seat belts are designed to go around the large bones of your body. These are the strongest parts of your body and can take the forces of a collision the best.
- Wearing your belt in the wrong place could make your injuries in a collision much worse. You might suffer internal injuries, or you could even slide out of part of the belt. Follow these instructions to wear your seat belt safely and to keep your passengers safe, too.
- Belting two people into one seat belt can lead to greater injury. People belted together can crash into one another in an accident, hurting one another badly. Never use a unibelt or a lap belt for more than one person, no matter what their size.

Unibelt Operating Instructions

1. Enter the vehicle and close the door. Sit back and adjust the seat.
2. The seat belt latch plate is above the back of your seat. Grasp the latch plate and pull out the belt. Slide the latch plate up the webbing as far as necessary to make the belt go around your lap.

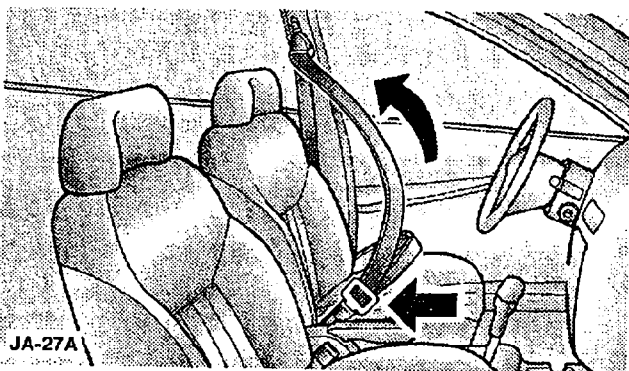


3. When the belt is long enough to fit, insert the latch plate into the buckle until you hear a "click."

WARNING!

- A belt that is buckled into the wrong buckle will not protect you properly. The lap portion could ride too high on your body, possibly causing internal injuries. Always buckle your belt into the buckle nearest you.
- A belt that is too loose will not protect you as well. In a sudden stop you could move too far forward, increasing the possibility of injury. Wear your seat belt snugly.
- A belt that is worn under your arm is very dangerous. Your body could fall into the inside surfaces of the vehicle in a collision, increasing head and neck injury. And a belt worn under the arm can cause internal injuries. Ribs aren't as strong as shoulder bones. Wear the belt over your shoulder so that your strongest bones will take the force in a collision.

4. Position the lap belt across your thighs, below your abdomen. To remove slack in the lap belt portion, pull up a bit on the shoulder belt, as shown. To loosen the lap belt if it is too tight, tilt the latch plate and pull on the lap belt. A snug belt reduces the risk of sliding under the belt in a collision.

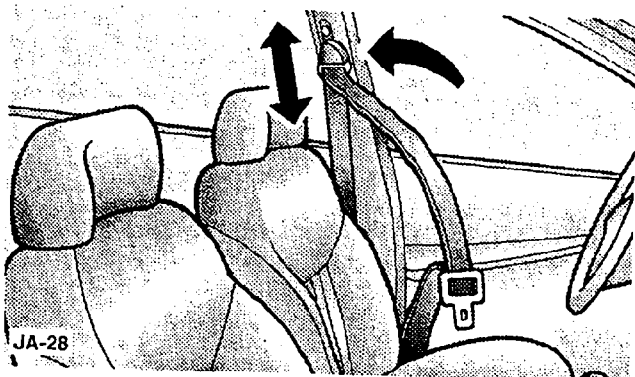
**WARNING!**

- A lap belt worn too high can increase the risk of internal injury in a collision. The belt forces won't be at the strong hip and pelvic bones, but across your abdomen. Always wear the lap belt as low as possible and keep it snug.
- A twisted belt can't do its job as well. In a collision it could even cut into you. Be sure the belt is straight. If you can't straighten a belt in your vehicle, take it to your dealer and have it fixed.

5. Position the shoulder belt on your chest so that it is comfortable and not resting on your neck. The retractor will withdraw any slack in the belt.
6. Adjustable Upper Shoulder Belt Anchorage

In the front seat, the shoulder belt can be adjusted upward or downward to position the belt away from your neck. Push up or down on the anchorage control to

release the anchorage, and move it up or down to the position that serves you best.



As a guide, if you are shorter than average, you will prefer a lower position, and if you are taller than average, you'll prefer a higher position. When you release the anchorage, try to move it up or down to make sure that it is locked in position.

In the rear seat, move toward the center of the seat to position the belt away from your neck.

7. To release the belt, push the red button marked PRESS on the buckle. The belt will automatically retract to its stowed position. If necessary, slide the latch plate down the webbing to allow it to retract fully.

Seat Belts and Pregnant Women

We recommend that pregnant women use the seat belts throughout their pregnancy. Keeping the mother safe is the best way to keep the baby safe.

Pregnant women should wear the lap part of the belt across the thighs and as snug across the hips as possible. Keep the belt low so that it does not come across the abdomen. That way the strong bones of the hips will take the force if there is a collision.

Rear Center Lap Belts

The center rear seating position has a lap belt only. To fasten a lap belt, slip the latch plate into the buckle.

To lengthen a lap belt, tilt the latch plate and pull. To remove slack, pull the loose end of the webbing. Wear the belt snug against the hips. Sit back and erect in the seat, then adjust the belt as tightly as is comfortable.

WARNING!

- A lap belt worn too loose or too high is dangerous.
- A belt worn too loose can allow you to slip down and under the belt in a collision.
- A belt that is too high will apply crash forces to the abdomen, not to the stronger hip bones.
- In either case, the risk of internal injuries is greater. Wear the lap belt low and snug.

WARNING!

A frayed or torn belt could rip apart in a collision and leave you with no protection. Inspect the belt system periodically, checking for cuts, frays, or loose parts. Damaged parts must be replaced immediately. Do not disassemble or modify the system. Seat belt assemblies must be replaced after an accident if they have been damaged (bent retractor, torn webbing, etc).

Seat Belt Extender

If a seat belt is too short, even when fully extended, your dealer can provide you with a seat belt extender. This extender should be used only if the existing belt is not long enough. When it is not required, it must be removed and stored in a secure place.

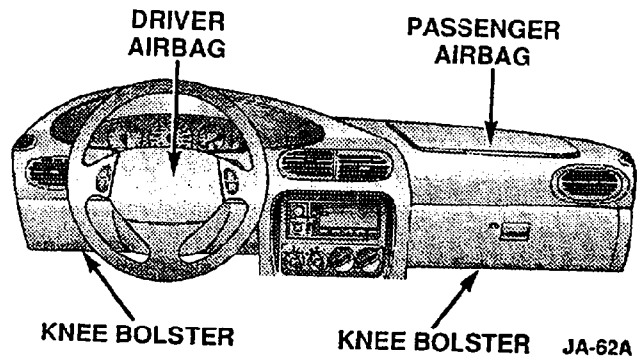
Child Restraint

Everyone in your vehicle needs to be buckled up all the time, babies and children, too.

Driver and Right Front Passenger Supplemental Restraint System (SRS) - Airbag

This vehicle has airbags for the driver and right front passenger as a supplement to the seat belt restraint systems. The driver's airbag is mounted in the steering wheel. The passenger side airbag is mounted in the instrument panel, above the glove compartment, under a cover marked SRS/AIRBAG. These airbags inflate in higher speed impacts. They work with the instrument panel knee bolsters and the seat belts to provide im-

proved protection for the driver and right front passenger.



2

WARNING!

- Relying on the airbags alone could lead to more severe injuries in a collision. The airbags work with your seat belt to restrain you properly. In some collisions the airbags won't deploy at all. Wear your seat belts even though you have airbags.
- Being too close to the steering wheel or instrument panel during airbag deployment could cause serious injury. Airbags need room to inflate. Sit back, comfortably extending your arms to reach the steering wheel or instrument panel.

The seat belts are designed to protect you in many types of collisions. The airbags deploy only in frontal collisions and will not deploy in collisions at slow speed. But even in collisions where the airbags work, you need the seat belts to keep you in the right position for the airbags to protect you properly.

The airbag system consists of the following:

- Airbag Electronic Control Module (AECM)
- AIRBAG Readiness Light
- Driver and Passenger Airbag/Inflator Units
- Unique Steering Wheel and Column
- Unique Instrument Panel
- Interconnecting Wiring
- Knee Impact Bolster

How The Airbag System Works

- The Airbag Electronic Control Module (AECM) in the occupant compartment determines if a frontal impact is severe enough to require the airbag. The AECM will not detect side, rollover, or rear impacts. The AECM is connected to the Airbag/Inflator unit.
- The AECM monitors the readiness of the electronic parts of the system whenever the ignition switch is in the START or RUN positions. These include all of the items listed previously except the knee bolster, instru-