

V2642

REPORT NUMBER: CAL-97-8

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

**MITSUBISHI MOTORS CORPORATION
1997 MITSUBISHI MONTERO LS
4-DOOR SPORT UTILITY**

NHTSA NUMBER: MV5601

CALSPAN TEST NUMBER: 8406-8

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May 14, 1997

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
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Office of Crashworthiness Standards
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16. <i>Abstract</i> A frontal load cell barrier test of a 1997 Mitsubishi Montero LS 4-Door Sport Utility was performed at Calspan SRL Corporation crash test facility in Buffalo, New York, on May 14, 1997. The impact velocity was 56.8 kph and the temperature at the barrier face was 16°C. The maximum post-test vehicle crush was 460 mm. The test vehicle was equipped with a 3-point belt system and supplemental airbags at both front outboard seating positions. With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appear to comply with the head, chest and femur requirements.			
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Section 1

PURPOSE AND TEST PROCEDURE

This 56.8 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. DTNH22-96-D-02010. 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 56.8 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 MV5601

A load cell barrier consisting of 36 load cells was impacted by a 1997 Mitsubishi Montero LS 4-Door Sport Utility at a velocity of 56.8 kph. The test was performed at the Calspan SRL Corporation on May 14, 1997. 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 (position 1) ATD (Serial No. 245) and the right-front passenger (position 2) ATD (Serial No. 064) were used for one test (MW0200) prior to being used for this test. The ATD's did not exceed FMVSS 208 requirements in the MW0200 test. The ATD's were calibrated prior to the MW0200 test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 131 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. Position 1 Belt Elongation data is not accurate and is being left out of report.

The driver's HIC was 641.11. The maximum chest deceleration over 3 milliseconds was 55.9 g's and maximum chest deflection was -25.8 mm. Femur loads were -4691.8 Newtons on the left and -4789.6 Newtons on the right.

The right front passenger's HIC was 679.75. Maximum chest deceleration over 3 milliseconds was 55.2 g's and maximum chest deflection was -24.4 mm. Femur loads were -5599.8 Newtons on the left and -4651.6 Newtons on the right.

Table 1

CRASH TEST SUMMARY

Vehicle NHTSA No. : MV5601 Test Mode : 56 kph Frontal Barrier
 Test Date : May 14, 1997 Time: 13:49 Temperature : 16 °C
 Vehicle Make/Model/Body Style : 1997 Mitsubishi Montero LS 4-Door Sport Utility
 Vehicle Test Weight : 2335 kg
 Vehicle/Barrier Impact Angle : 0 °
 Impact Velocity : 56.8 kph
 Maximum Static Crush : 460 mm
 Vehicle Rebound : 462.3 mm

DUMMIES:DRIVERPASSENGER

Type :

 572E 572E

Restraint System :

 Airbag with 3-point belt
 system Airbag with 3-point belt
 system Number of Data Channels : 131 Number of Cameras : 1 Real Time 16 High SpeedDOOR OPENING DATA : Closed/Operable - Left Front Closed/Operable - Right Front

Front Seat(s) Data :

DRIVERPASSENGER

Seat Track Failure :(mm of shift)

 0 0

Seat Back Failure :

 None None VISIBLE DUMMY CONTACT POINTS :DRIVERPASSENGER

Head :

 Center of Airbag /Back of
 head to headrest Top of head to interior
 roof /Airbag /Back of head
 to headrest

Abdomen :

 - -

Chest

 Airbag Airbag

Knees

 Knee Bolster Knee Bolster

Table 2

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION :

Year/Make/Model/Body Style : 1997 Mitsubishi Montero LS 4-Door Sport Utility
 NHTSA No. : MV5601 ; VIN: JA4MR41R1VJ003576 ; Color : Green
 Engine Data: 6 cylinders; - CID; 3.5 Liters; - cc
 Placement : x Longitudinal or In-Line; - Transverse of Lateral
 Transmission Data : 4 speeds; - Manual; x Automatic; x Overdrive
 Final Drive : - Rear Wheel Drive; - Front Wheel Drive; x Four Wheel Drive
 Major Options : x A/C; x Pwr.Strg.; x Pwr. Brakes
x Pwr. Windows; x Pwr. Door Locks; x Tilt Wheel
 Date Received : 4/16/97 ; Odometer Reading 66 km
 Selling Dealer : Dan Georger Mitsubishi
 & Address: 7420 Transit Rd. Williamsville, N.Y. 14221

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by : Mitsubishi Motors Corporation
 Date of Manufacture 7/96
 GVWR : 2600 kg; GAWR: 1200 kg FRONT; 1650 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load : 179 kpa FRONT
241 kpa REAR
 Recommended Tire Size : P235/75R15
 * Recommended Cold Tire Pressure : 179 kpa FRONT; 241 kpa REAR
 Size of Tires on Test Vehicle: P235/75R15 ; Manufacturer: Michelin
 Vehicle Capacity Data :
 Type of Front Seats: - Bench; x Bucket; - Split Bench
 Number of Occupants: 2 Front; 4 Rear; 6 Total
 Vehicle Capacity Weight (VCW) = 490 kg
 No. of Occupants x 68 kg = 408 kg
 Rated Cargo/Luggage Weight (RCLW) = 82 kg

*Tire pressure used for test

Table 2
GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

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

Right Front = <u>489</u> kg	Right Rear = <u>554</u> kg
Left Front = <u>494</u> kg	Left Rear = <u>573</u> kg
TOTAL FRONT = <u>983</u> kg	TOTAL REAR = <u>1,127</u> kg
TOTAL DELIVERED WEIGHT = <u>2,110.0</u> kg	
% of Total Front of Vehicle Weight = <u>46.6</u> %	% of Total Rear Weight = <u>53.4</u> %

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT :

Total Delivered Weight (UDW) =	<u>2,110</u> kg
Rated Cargo/Luggage Weight (RCLW) =	<u>82</u> kg
Weight of 2 p.572 Dummies @ 76 each =	<u>152</u> kg
TARGET TEST WEIGHT =	<u>2,344</u> kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND 73 KG OF CARGO WEIGHT:

Right Front = <u>507</u> kg	Right Rear = <u>647</u> kg
Left Front = <u>522</u> kg	Left Rear = <u>659</u> kg
TOTAL FRONT = <u>1,029</u> kg	TOTAL REAR = <u>1,306</u> kg
TOTAL TEST WEIGHT = <u>2,335.0</u> kg	
% of Total Front Weight = <u>44.1</u> %	% of Total Rear Weight = <u>55.9</u> %
Weight of Ballast Secured in Vehicle Trunk Area =	<u>58</u> kg
Vehicle Components Removed for Weight Reduction:	<u>None</u>

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED :	RF	<u>876</u>	LF	<u>882</u>	RR	<u>910</u>	LR	<u>913</u>
FULLY LOADED :	RF	<u>872</u>	LF	<u>875</u>	RR	<u>881</u>	LR	<u>884</u>
AS TESTED :	RF	<u>873</u>	LF	<u>879</u>	RR	<u>877</u>	LR	<u>879</u>
Vehicle's Wheel Base :	<u>2725</u> mm							
Location of Vehicle's C.G. :	<u>1,524.1</u> mm rearward of front wheel center.							

FUEL SYSTEM DATA :

Fuel System Capacity From Owner's Manual =	<u>92</u> liters
Usable Capacity Figure Furnished by COTR =	<u>92</u> liters
Test Volume Range (92 to 94% of Usable Capacity) =	<u>83.6</u> to <u>86.5</u> liters
ACTUAL TEST VOLUME=	<u>83.6</u> liters (with entire fuel system filled)
Test Fluid Type: <u>Stoddard Solution</u> ;	Spec. Grav. = <u>0.764</u>
Kinematic Viscosity = <u>0.96</u> centistokes;	Color = <u>Orange</u>
Type of Fuel Pump: Electric- <u>x</u> ;	Mechanical- <u>-</u>
Does Electric Pump operate with ignition switch "ON" & engine "OFF"	Yes- <u>x</u> No- <u>-</u>
Details of Fuel System <u>Fuel tank is centered aft of rear axle and fuel filler is aft of rear axle on left side.</u>	

Table 3

POST IMPACT DATA

TYPE OF TEST:

Type of Test : Frontal Barrier Impact Angle : 0°
 Test Date : May 14, 1997 Time: 13:49 Temperature: 16 °C
 Vehicle NHTSA No. : MV5601
 Required Impact Velocity Range : 55.7 to 57.1 kph

BARRIER IMPACT VELOCITY: (Speed traps within 5 feet of impact plane.)

Trap No. 1 = 56.8 kph; Trap No. 2 = 56.8 kph
 Distance from vehicle to barrier : (1) entering trap = 1321 mm
 (2) exiting trap = 305 mm

VEHICLE STATIC CRUSH: (mm) (For frontal and rear impacts only.)

Vehicle Length:

Pre-Test Right = 4550 ; C/L = 4560 ; Left = 4550
 Post-Test Right = 4100 ; C/L = 4100 ; Left = 4100
 Crush Right = 450.0 ; C/L = 460.0 ; Left = 450.0
 AVERAGE = 453.3 mm

VEHICLE REBOUND: (From rigid barrier only.)

Distance from front of test vehicle to impact point :

Right = 421 ; C/L = 479 ; Left = 487
 AVERAGE = 462.3 mm

Section 3

OCCUPANT AND VEHICLE INFORMATION

I. DATA

1. Test Vehicle Information
2. Dummy Positioning Data
3. Vehicle Accelerometer Data
4. Dummy Injury Criteria Data Summary
5. Seat Belt Performance Assessment Data
6. Test Vehicle Measurements
7. Vehicle Intrusion Measurements
8. Camera Locations
9. Vehicle Target Locations
10. Load Cell Barrier Data
11. Post Test Air Bag Data

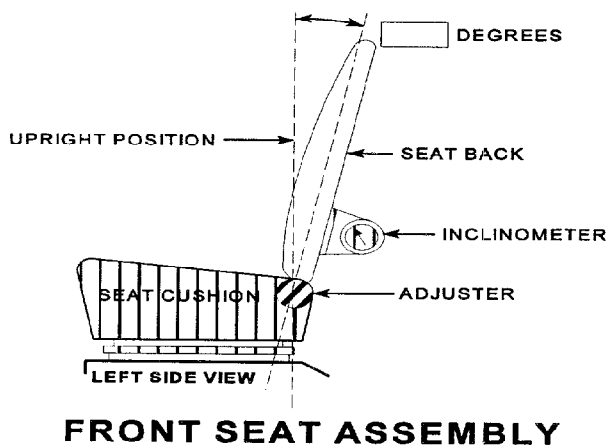
Figure 1

TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year : 1997 Vehicle Model: Mitsubishi Montero LS Body Style : 4-Door Sport Utility

1. Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



Seat back angle for driver's seat : 16

Measurement instructions : Placed seat back at 8th notch from the first locking position
(First notch being No. 1)

Seat back angle for passenger's seat : 16

Measurement instructions : Placed seat back at 8th notch from the first locking position
(First notch being No. 1)

2. Seat Fore and Aft Positioning

Positioning of the driver's seat : Placed on 10th notch from the 19 notches located, first notch being No.1

Positioning of the passenger's seat (if applicable) : Placed on the 10th notch from the 19 notches located,
first notch being No. 1.

3. Fuel Tank Capacity Data

3.1

A. "Usable Capacity" of the standard equipment fuel tank is 92 liters

B. "Usable Capacity" of the optional equipment fuel tank is - liters

C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 = 92 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 83.6 liters

3.3 Is vehicle equipped with electric fuel pump? Yes- x ; No-

If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.

Ignition turned on.

Figure 1

TEST VEHICLE INFORMATION (cont.)

4. STEERING COLUMN ADJUSTMENTS :

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

Operational Instructions: Found center by averaging top and bottom steering column angle.
steering column was placed at averaged angle.

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: 5 notches located, placed on 3rd (top notch being No. 1)

Figure 2

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

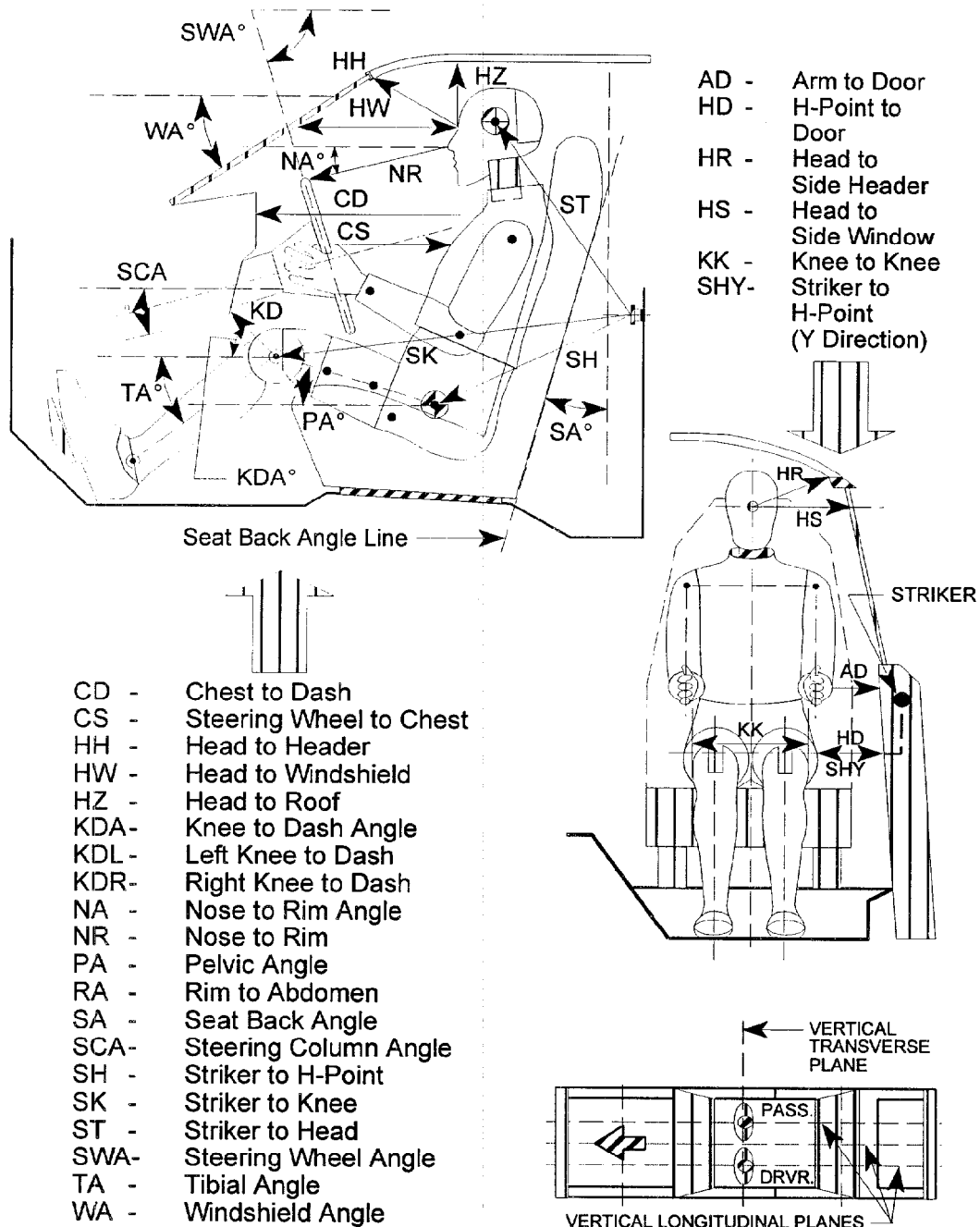


Table 4

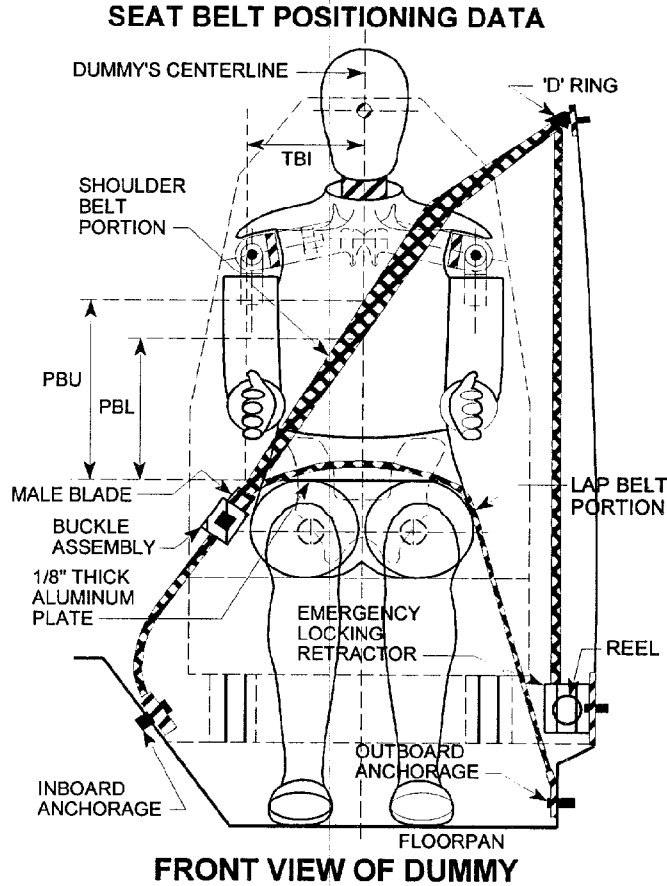
FRONT SEAT OCCUPANT MEASUREMENTS

	DRIVER (Serial #245)			PASS. (Serial # 064)		
WA ^o	44 deg.			N/A		
SWA ^o	59 deg.			N/A		
SCA ^o	31 deg.			N/A		
SA ^o	16 deg.			16 deg.		
HZ	227			222		
HH	474			462		
HW	616			606		
HR	251			255		
NR	451	Angle	-18 deg.	N/A		
CD	574			548		
CS	356			N/A		
RA	201			N/A		
KDL	141	Angle (KDA)	27 deg.	135		
KDR	137			128	Angle (KDA)	24 deg.
PA ^o	22 deg.			24 deg.		
TA ^o	53 deg.			56 deg.		
KK	320			324		
ST	631	Angle	25 deg.	624	Angle	13 deg.
SK	629	Angle	87 deg.	617	Angle	82 deg.
SH	171	Angle	91 deg.	183	Angle	93 deg.
SHY	186			189		
HS	287			289		
HD	121			107		
AD	68			81		

Dimensions in millimeters

Figure 3

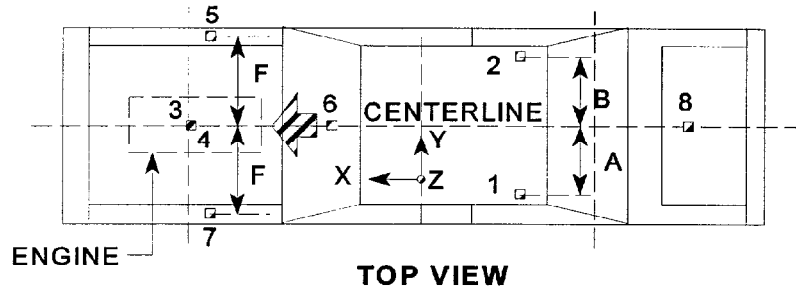
SEAT BELT POSITIONING DATA



	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	304	307
PBL-- Top surface of alum. plate to belt lower edge	220	229
<u>LAP BELT TENSION</u>	10 nwt	10 nwt
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

Figure 4

**VEHICLE ACCELEROMETER LOCATION
AND DATA SUMMARY**



REAR SEAT CUSHION
ASSY. FRONT ATTACHMENT
BRACKET SUPPORT

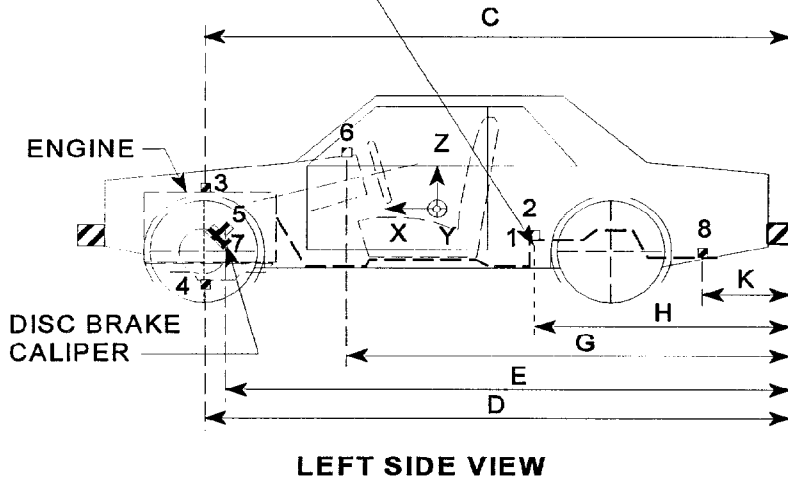


Table 5

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

DIMENSION	LENGTH (mm)
	PRE-TEST VALUES
A Left Rear Seat Crossmember Y	535 mm / 574 mm (redundant)
B Right Rear Seat Crossmember Y	529 mm / 579 mm (redundant)
C Top of Engine X	772 mm from front
D Bottom of Engine X	891 mm from front
E Disc Brake Calipers X	727 mm from front
F Disc Brake Calipers Y	456 mm / 459 mm
G Instrument Panel X	2965 mm from rear
H Rear Seat Crossmembers X	1812 mm from rear

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side	2.7	116.3	-36.5	16.4
2	Rear Seat X-Member @ Right Side	3.7	119.6	-43.9	42.9
3	Top of Engine Block	6.6	93.2	-73.7	33.8
4	Bottom of Engine	149.9	48.4	-70.6	29.8
5	Disc Brake Caliper @ Right Side	20.7	19.1	-78.0	31.1
6	Instrument Panel	35.9	55.2	-97.6	50.6
7	Disc Brake Caliper @ Left Side	28.7	38.0	-80.6	11.4
8	Rear Seat X-Member @ Left-Redundant	4.2	124.9	-37.9	16.4
9	Rear Seat X-Member @ Right-Redundant	3.0	112.8	-42.9	43.2

Table 6

DUMMY INJURY CRITERIA VALUESNHTSA Test No.: MV5601 Vehicle: 1997 Mitsubishi Montero LS 4-Door Sport Utility

	MAXIMUM HEAD ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	99.8	33.7	35.	107.4
Position #2 - Passenger	79.8	-14.8	50.3	88.1

	MAXIMUM CHEST ACCELERATION (g's)			
	X	Y	Z	R*
Position #1 - Driver	-57.0	-8.0	23.5	55.9
Position #2 - Passenger	-55.5	14.1	17.1	55.2

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

	MAXIMUM FORCE - FEMUR LOAD (N)	
	LEFT FEMUR	RIGHT FEMUR
Position #1 - Driver	-4691.8	-4789.6
Position #2 - Passenger	-5599.8	-4651.6

	MAXIMUM FORCE - SEAT BELT LOADS (N)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
Position #1 - Driver	7507.9	-	8520.8
Position #2 - Passenger	6814.0	5759.8	-

	HEAD INJURY CRITERIA (HIC)			
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	641.11	50.7	86.7	50.15
Position #2 - Passenger	679.75	53.6	87.8	52.40

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

Table 7
HYBRID III NECK AND CHEST DATA SHEET

Vehicle Year/Make/Model/Body Style: 1997 Mitsubishi Montero LS 4-Door Sport Utility

NHTSA Test No.: MV5601 Test Date: May 14, 1997

MAXIMUM VALUES	DRIVER DUMMY	PASSENGER DUMMY
Neck Load X (N)	531.6	-598.9
Neck Load Y (N)	399.7	501.9
Neck Load Z (N)	2623.8	2112.9
Neck Moment X (N-m)	-22.4	35.5
Neck Moment Y (N-m)	-59.2	55.4
Neck Moment Z (N-m)	16.0	20.9
Chest Deflection X (mm)	-25.8	-24.4
Time of Max. Occurrence (msec)	72.8	71.4

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

PELVIC DATA

MAXIMUM VALUES	DRIVER DUMMY	PASSENGER DUMMY
Pelvic X Acceleration (g's)	-69.3	-59.5
Pelvic Y Acceleration (g's)	-14.8	10.2
Pelvic Z Acceleration (g's)	16.0	15.9

LOWER LEG INSTRUMENTATION (ABBREVIATED)

MAXIMUM VALUES	DRIVER DUMMY		PASSENGER DUMMY	
	Left	Right	Left	Right
Tibia Z Forces (N)	-1689.7	-762.5	-2218.0	-1697.4
Tibia Y Moments (N-m)	67.1	-63.8	84.4	66.8

ANKLE ACCELERATIONS

MAXIMUM VALUES	DRIVER DUMMY		PASSENGER DUMMY	
	Left	Right	Left	Right
X Acceleration (g's)	-171.7	-169.9	-144.6	-111.2
Z Acceleration (g's)	158.4	-61.1	-60.2	-54.7

REDUNDANT DUMMY INJURY CRITERIA VALUES

NHTSA Test No.: MV5601 Vehicle: 1997 Mitsubishi Montero LS 4-Door Sport Utility

	MAXIMUM HEAD ACCELERATION (g's) REDUNDANT			
	X	Y	Z	R
Position #1 - Driver	97.8	28.2	50.2	112.6
Position #2 - Passenger	76.2	-13.9	62.1	92.7

	MAXIMUM CHEST ACCELERATION (g's) REDUNDANT			
	X	Y	Z	R*
Position #1 - Driver	-55.0	-10.6	24.7	52.9
Position #2 - Passenger	-55.1	-11.9	18.5	56.6

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

	HEAD INJURY CRITERIA (HIC) REDUNDANT			
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	672.8	50.6	86.6	51.13
Position #2 - Passenger	806.2	52.9	87.1	56.1

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

Table 9

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

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

Driver

Passenger

2089

2109

Shoulder belt length as measured
on Part 572 Dummy.

907

914

Lap belt length as measured
on Part 572 Dummy.

927

941

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.

64.5

64.3

As determined mechanically.

42

100

As determined electronically.

*

*

BELT STRETCH DATA:

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

0.9

1.4

Measured mechanically.

0

1

* Insufficient exposed belt length to attach string pot to belt

Dimensions in millimeters

Figure 5

TEST VEHICLE MEASUREMENTS

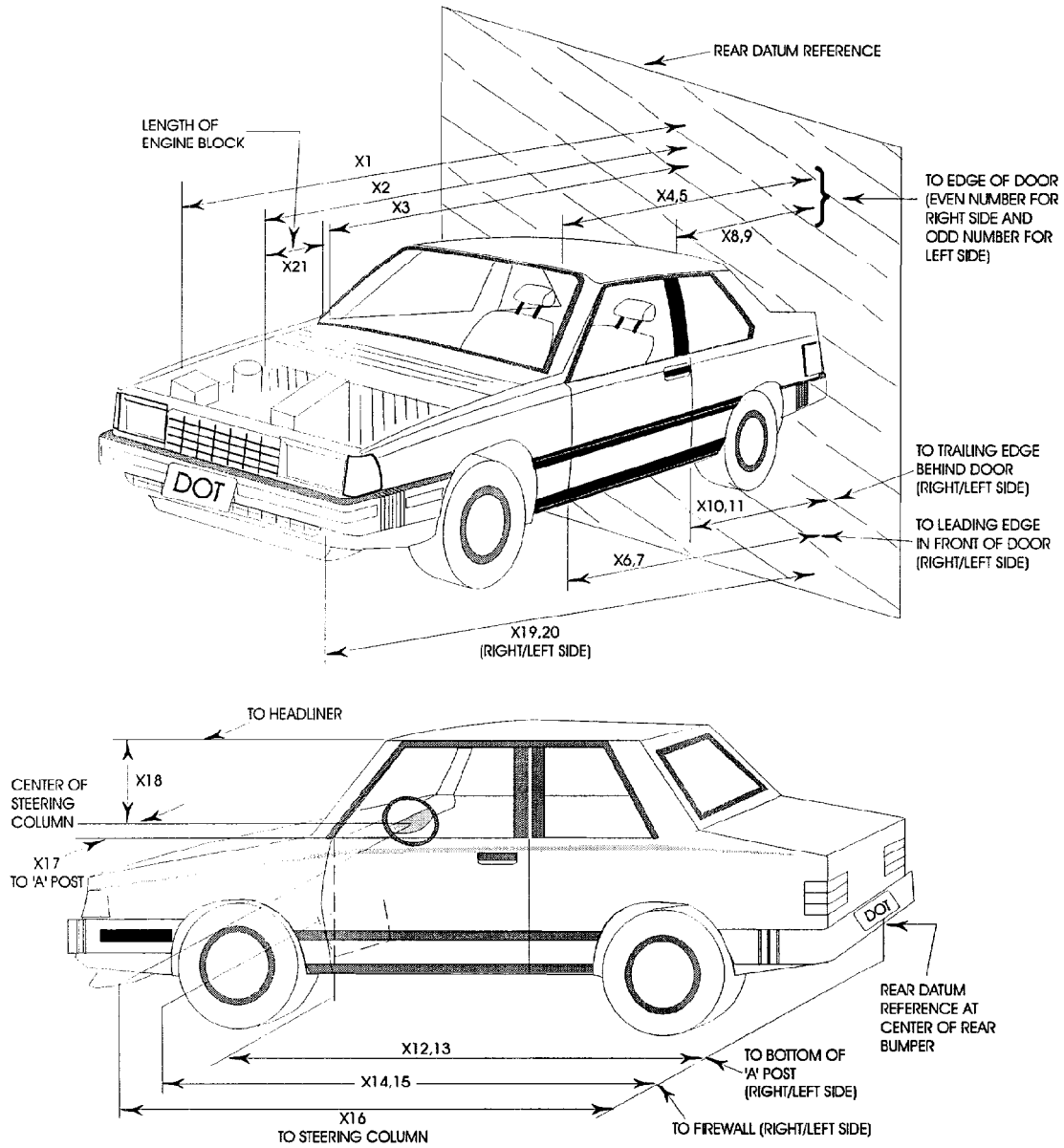


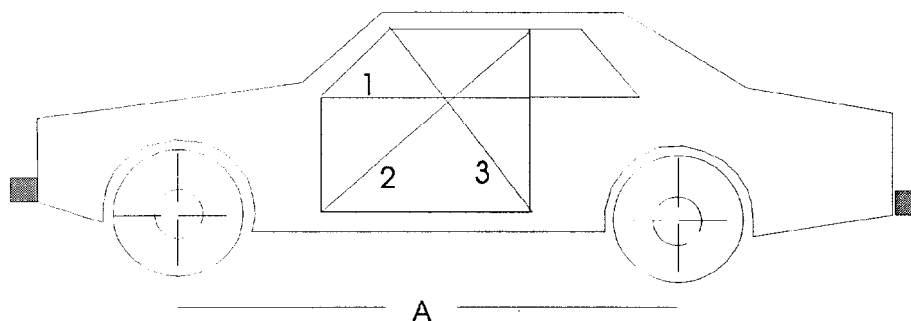
Table 10

VEHICLE MEASUREMENTS

No.		All Dimensions in mm		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	4560	4100	460
X2	Rear Surface of Vehicle to Front of Engine	3980	3830	150
X3	Rear Surface of Vehicle to Firewall	3490	3393	97
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3233	3266	-33
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3225	3228	-3
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3186	3202	-16
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3180	3168	12
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2150	2183	-33
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2145	2114	31
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2128	2146	-18
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2130	2110	20
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3165	3165	0
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3160	3135	25
X14	Rear Surface of Vehicle to Firewall, Right Side	3430	3380	50
X15	Rear Surface of Vehicle to Firewall, Left Side	3425	3425	0
X16	Rear Surface of Vehicle to Steering Column	2780	2805	-25
X17	Center of Steering Column to "A" Post	380	380	0
X18	Center of Steering Column to Headliner	465	435	30
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4550	4100	450
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4550	4100	450
X21	Length of Engine Block	410	410	0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	2990	2985	5
CD	Rear Surface of Vehicle to Center of Dash Panel	2940	2920	20
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3005	2990	15

Figure 6

VEHICLE INTRUSION MEASUREMENTS
DOOR OPENING WIDTH

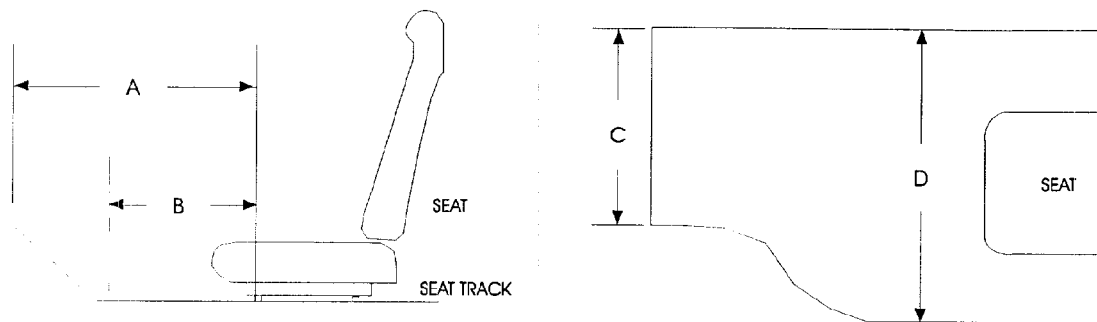


UNITS (mm)	LEFT			RIGHT		
MEASUREMENT	1	2	3	1	2	3
BEFORE TEST	1000	1620	1200	995	1620	1190
AFTER TEST	960	1520	1320	965	1540	1310
DIFFERENCE	40	100	-120	30	80	-120

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2725	2725
AFTER TEST	2655	2640
DIFFERENCE	70	85

Figure 7

VEHICLE INTRUSION MEASUREMENTS
STATIC FOOTWELL DEFORMATION



DRIVER

Measurement	Pre-Test	Post-Test	Difference
A	570	565	5
B	465	465	0
C	440	430	10
D	440	440	0

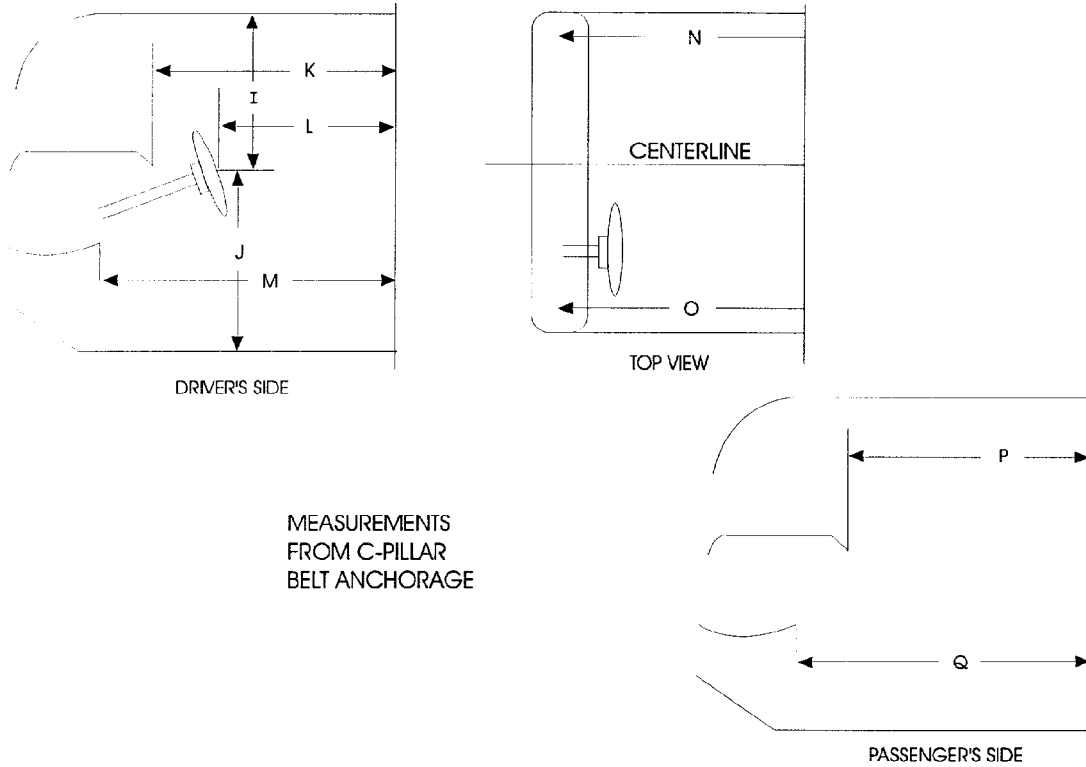
PASSENGER

Measurement	Pre-Test	Post-Test	Difference
A	610	620	-10
B	460	460	0
C	420	410	10
D	435	435	0

Units = mm

Figure 8

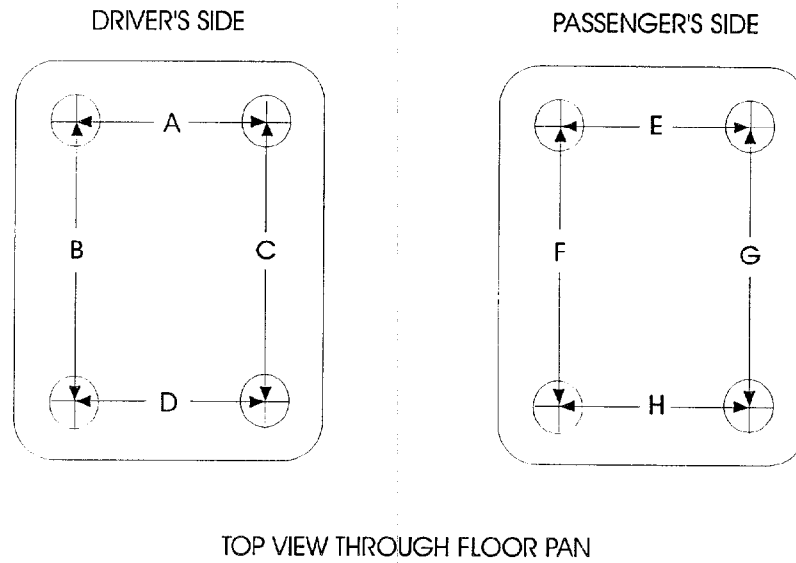
VEHICLE INTRUSION MEASUREMENTS
 STATIC PASSENGER COMPARTMENT INTRUSION



Measurement	Pre-Test	Post-Test	Difference
I	480	435	45
J	680	635	45
K	780	785	-5
L	570	595	-25
M	765	760	5
N	780	775	5
O	795	780	15
P = K (PASS.)	765	755	10
Q = M (PASS.)	855	860	-5

Units = mm

Figure 9
FLOORBOARD DEFORMATION



Measurement	Pre-Test	Post-Test	Difference
A	278	280	-2
B	584	585	-1
C	611	620	-9
D	291	315	-24
E	261	265	-4
F	609	610	-1
G	587	590	-3
H	284	280	4

Units = mm

Figure 10

CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera information shown in Table 11.

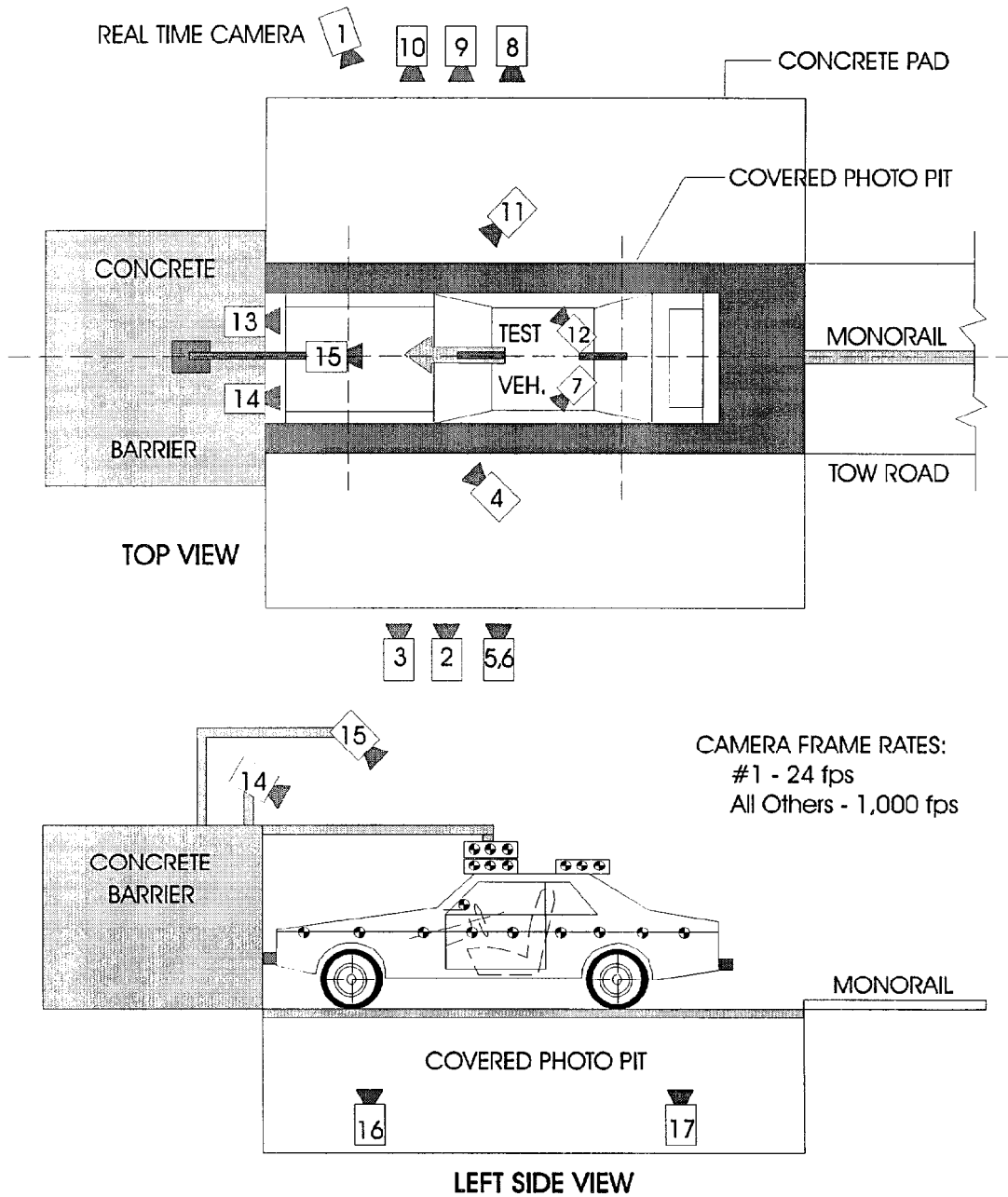


Table 11
HIGH-SPEED CAMERA LOCATIONS

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)*			ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	24	
2	Overall Left Side	6514	1383	1164	-3	6027	800	
3	Left Side View	7977	669	1133	-3	7490	950	
4	Driver and Interior View	5063	2537	1923	-10	-	960	
5	Steering Column (Bottom)	7173	1099	1179	-2	6686	990	
6	Steering Column (Top)	7173	1099	1785	-6	6686	950	
7	Left Belt	-	-	-	-	-	710	
8	Overall Right Side	6531	2123	1126	-3	6044	1090	
9	Right Side View	7900	1355	1127	-3	7413	1050	
10	Right Passenger View	8021	1782	1374	0	7534	950	
11	Passenger and Interior View	5091	2985	1934	-14	-	1080	
12	Right Belt	-	-	-	-	-	710	
13	Passenger Front View	580	0	2000	-40	-	1030	
14	Driver Front View	580	0	2000	-40	-	1050	
15	Windshield View	0	530	3048	-53	-	1000	
16	Pit View of Engine	0	505	-3048	90	-	940	
17	Pit View of Fuel Tank	0	3432	-3048	90	-	920	

NHTSA Test No.: MV5601 Vehicle: 1997 Mitsubishi Montero LS 4-Door Sport Utility

*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 11

VEHICLE TARGET LOCATIONS

(Dimensions in millimeters)

A	411
B	1306
C	1213
D	1966
E	365
F	1446
G	841
H	832
I	140
J	1266
K	972
L	1622
M	365
N	140
O	832
P	841
Q	1622
R	972
S	1266

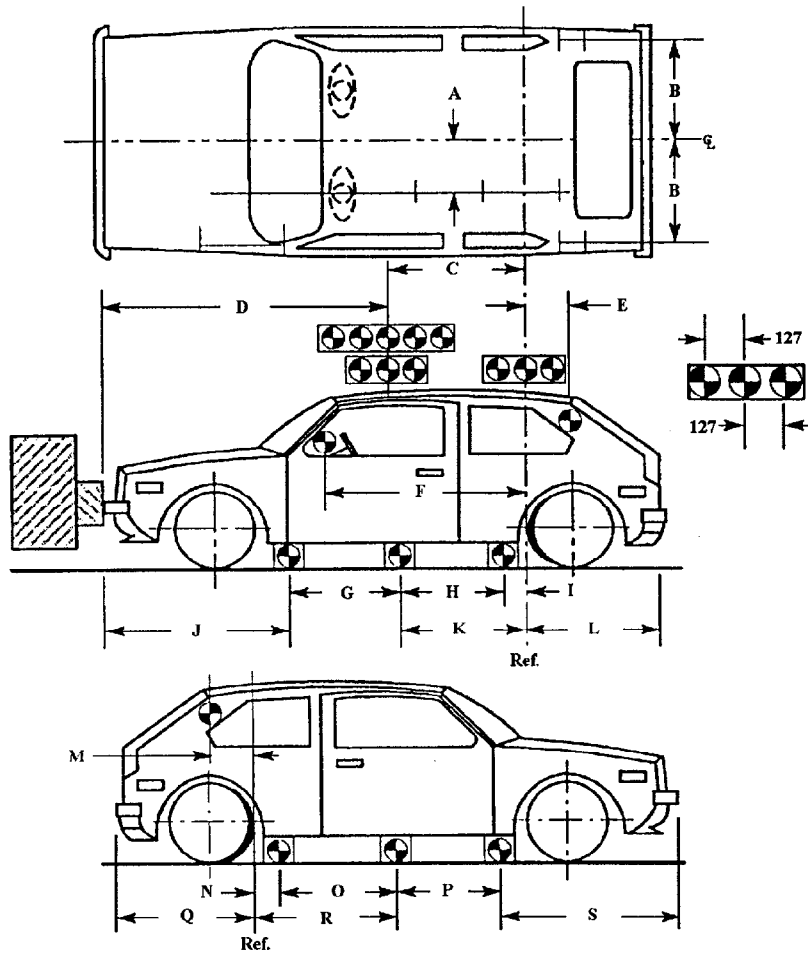
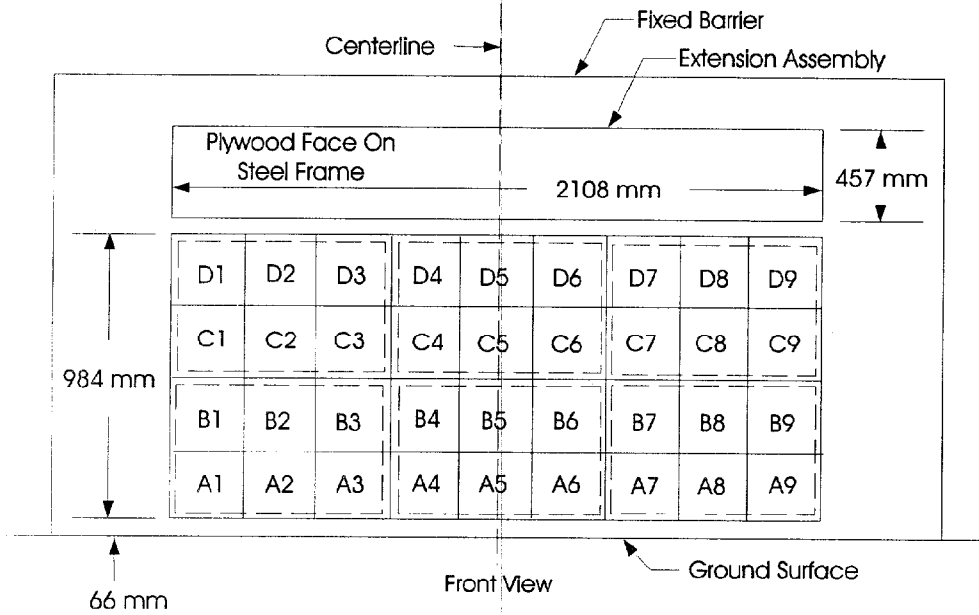


Figure 12

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)

Table 12

POST TEST AIR BAG DATA

NHTSA No. : MV5601; Test Date: May 14, 1997; Technician: J.C.

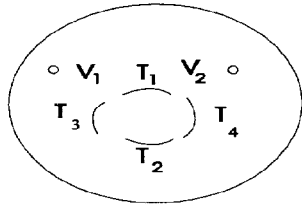
Vehicle Model Year/Make/Model: 1997 Mitsubishi Montero LS

- A. No. of vent holes: 2 -Driver 2 -Passenger
- B. Size of vent holes: (mm²) 40 -Driver 55 -Passenger
- C. Total vent area: (mm²) 80 -Driver 110 -Passenger
- D. Deflated air bag length and width dimensions or, if round, diameter. (mm)
- Driver: - -Length; - -Width; 720 -Diameter
- Passenger: 720 -Height; 460 -Width; 670 -Depth
- E. Is the air bag tethered?
- Driver: x -Yes; -No; If yes, record length of tether- 230
- Passenger: -Yes; x -No; If yes, record length of tether-

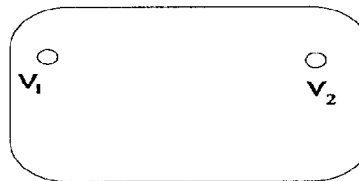
Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.

(Note: Not to scale; V_n = Vent hole_n, T_n = Tether_n).

DRIVER
vents underneath bag



PASSENGER
vents underneath bag



F. Record part numbers and manufacturer name of the air bag and gas generator.

Driver: Air bag: BBNN004455967862150796
 Generator: BBAGG73ZAJL

Passenger: Air bag: BBNN014455967874230796
 Generator: 146013670

Table 13

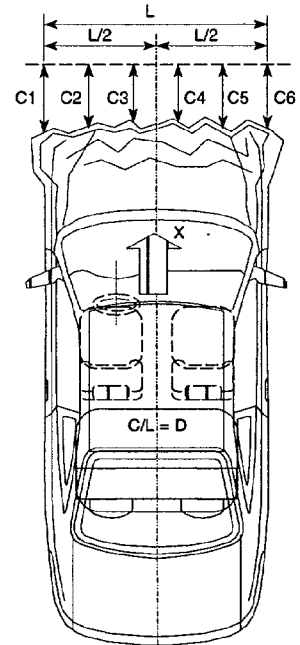
ACCIDENT INVESTIGATION DIVISION DATA

FOR 56.3 KPH FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Mitsubishi Montero LS 4-Door Sport Utility
 NHTSA Test No.: MV5601 VIN: JA4MR41R1VJ003576
 Model Year: 1997 Build Date: 7/96 Test Date: May 14, 1997
 Vehicle Size Category: SUV Test Weight: 2335 kg
 Vehicle Wheelbase: 2725 mm; Front Overhang: 1266 mm; Overall Width: 1890 mm
 Collision Deformation Classification (CDC) Code: 12FDEW2

Crush Depth Dimensions:

	PRE	POST	DIFF	
C1 =	4415	4010	-405	mm
C2 =	4555	4100	-455	mm
C3 =	4560	4100	-460	mm
C4 =	4560	4105	-455	mm
C5 =	4555	4095	-460	mm
C6 =	4430	4000	-430	mm



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

Longitude Length of Damaged Region:
 L1= 1680 mm
 L2= 840 mm
 L3= 336 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 13

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 20 mm molding.

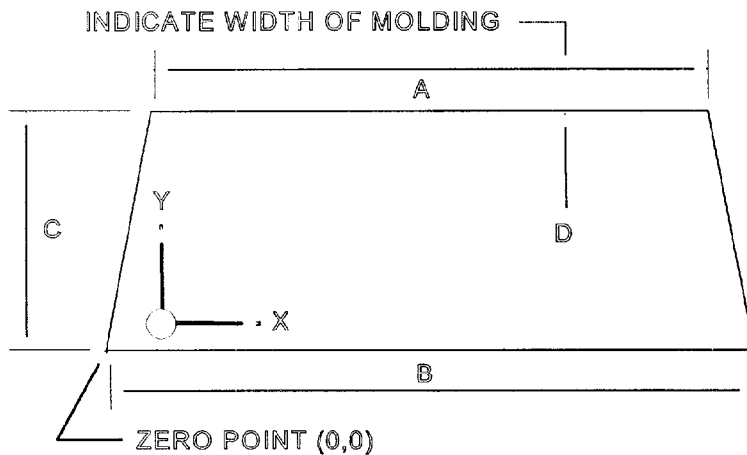
FMVSS 212 REQUIREMENTS:

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	1960.5	1757.3	90
LEFT SIDE	1960.5	1858.9	95
TOTAL	3,921	3,616	92

AREA OF RETENTION FAILURE:



DIMENSIONS (mm)	
A	1232
B	1463
C	613
D	20

FRONT VIEW OF WINDSHIELD

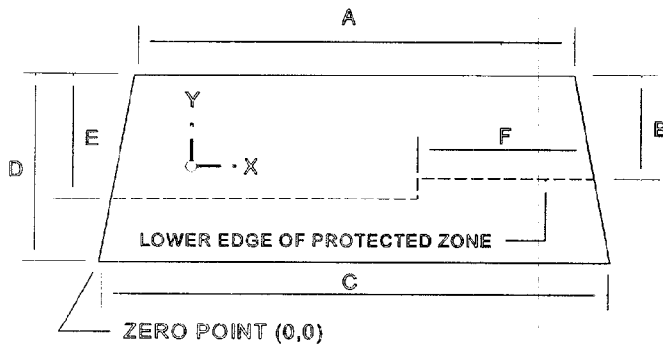
FAILURE DETAILS: None

Figure 14

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 165 mm diameter rigid sphere weighing 6.8 kg 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 13 mm 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.



FRONT VIEW OF WINDSHIELD

FMVSS 219 TEST DATA:
(Dimensions in mm)

DIMENSIONS	
A	1232
B	283
C	1463
D	613
E	433
F	535

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

(Show location of penetration on the above sketch)

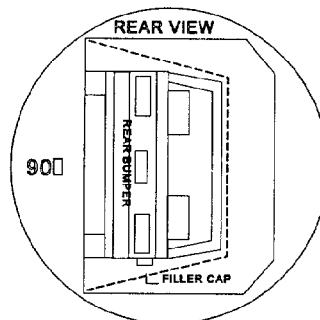
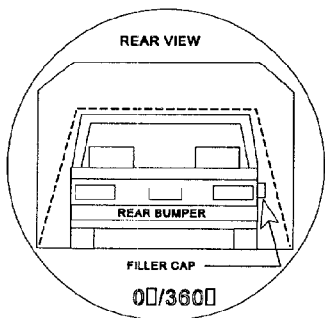
	COORDINATES	
	X	Y
1.		
2.		
3.		
4.		

Table 15

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

NHTSA Test No.:
MV5601



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u> minutes	<u>8</u> seconds
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>00</u> seconds
TOTAL	<u>6</u> minutes	<u>8</u> seconds
Next whole minute interval	<u>7</u> minutes	<u>00</u> 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

141 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

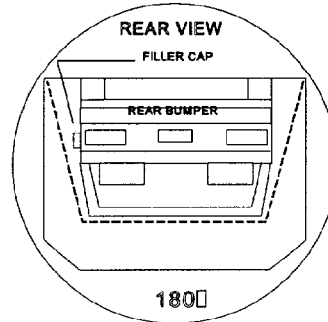
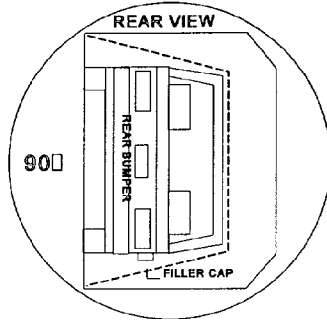
IV. SOLVENT SPILLAGE LOCATION(S): None

Table 15

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

NHTSA Test No.:
MV5601



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time (Spec. Range = 1 to 3 minutes)	<u>1</u>	minutes	<u>3</u>	seconds
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>00</u>	seconds
TOTAL	<u>6</u>	minutes	<u>3</u>	seconds
Next whole minute interval	<u>7</u>	minutes	<u>00</u>	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

141 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

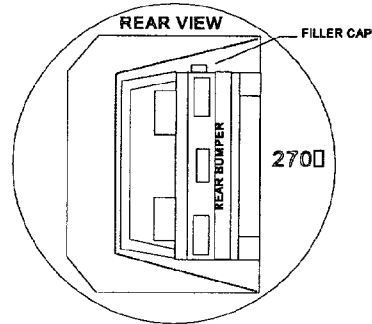
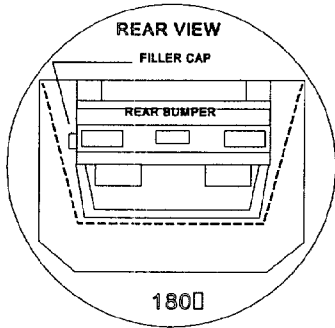
IV. SOLVENT SPILLAGE LOCATION(S): None

Table 15

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

NHTSA Test
No.: MV5601



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)

1 minutes 5 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 5 seconds

Next whole minute interval

7 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

141 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

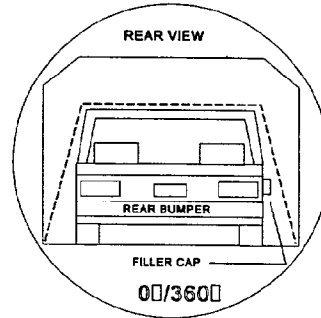
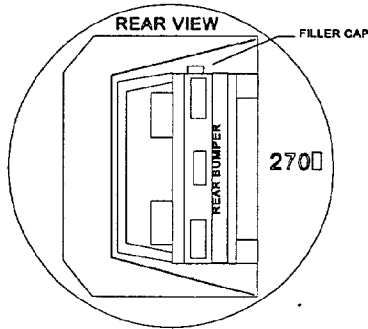
IV. SOLVENT SPILLAGE LOCATION(S): None

Table 15

FMVSS NO. 301 STATIC ROLLOVER DATA SHEET

TEST PHASE:

NHTSA Test No.:
MV5601



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90 deg. Rotation Time
(Spec. Range = 1 to 3 minutes)

1 minutes 4 seconds

FMVSS 301 Position Hold Time +

5 minutes 00 seconds

TOTAL

6 minutes 4 seconds

Next whole minute interval

7 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

141 g	28 g	28 g	28 g
-------	------	------	------

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

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

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

IV. SOLVENT SPILLAGE LOCATION(S): None

PHOTOGRAPHS

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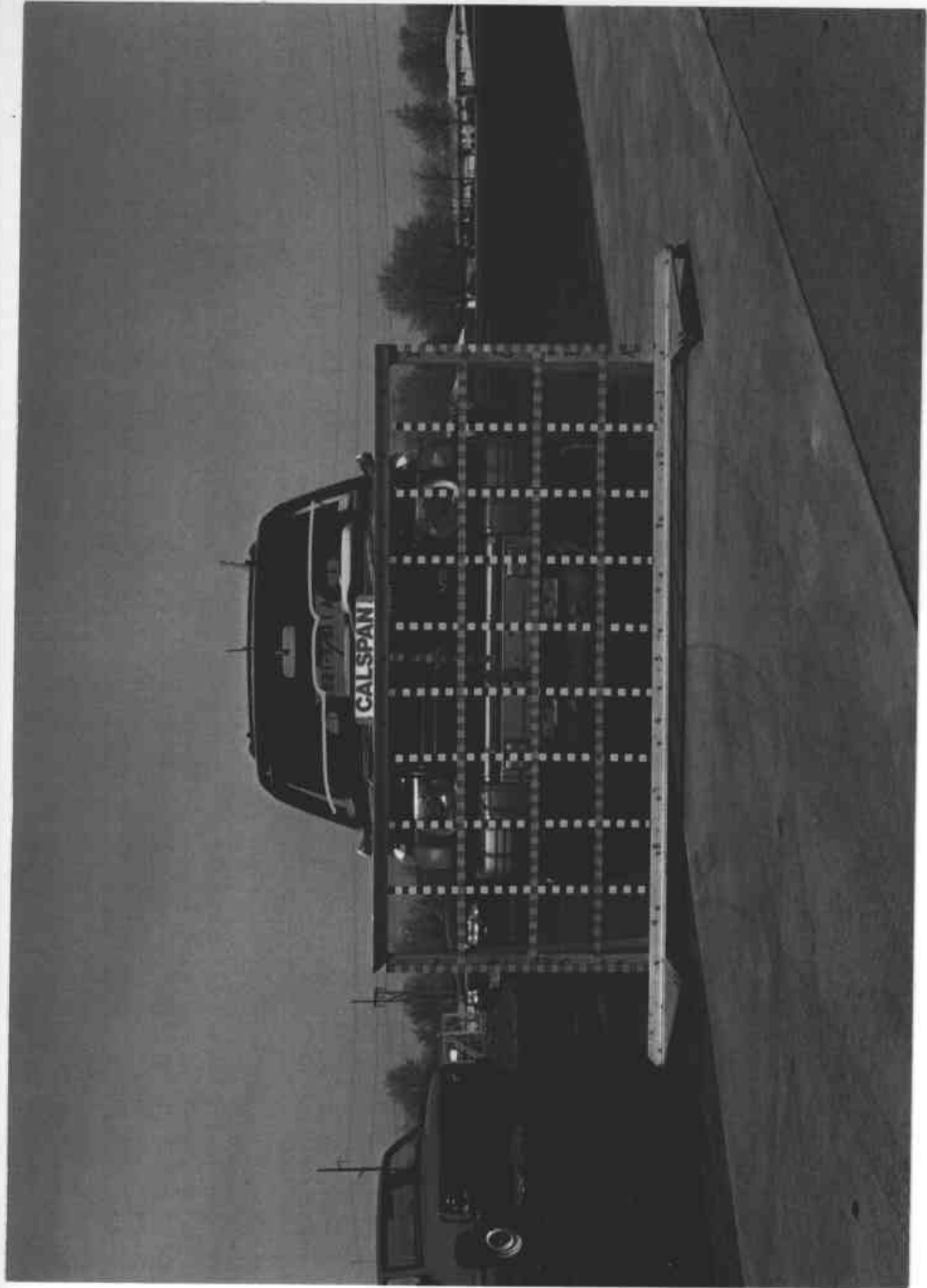


Figure A-1 LOAD CELL LOCATIONS

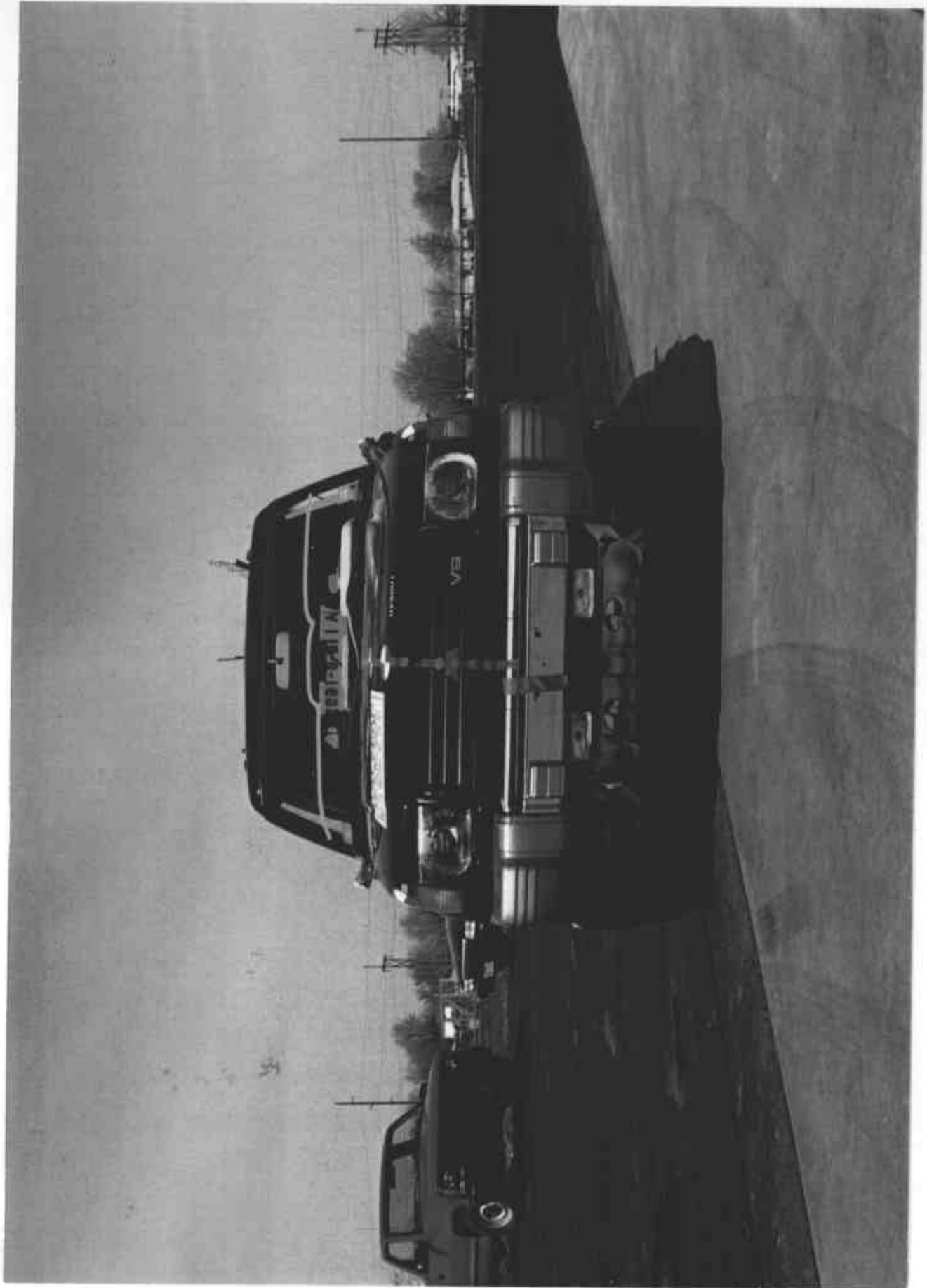


Figure A-2 PRE-TEST FRONT VIEW

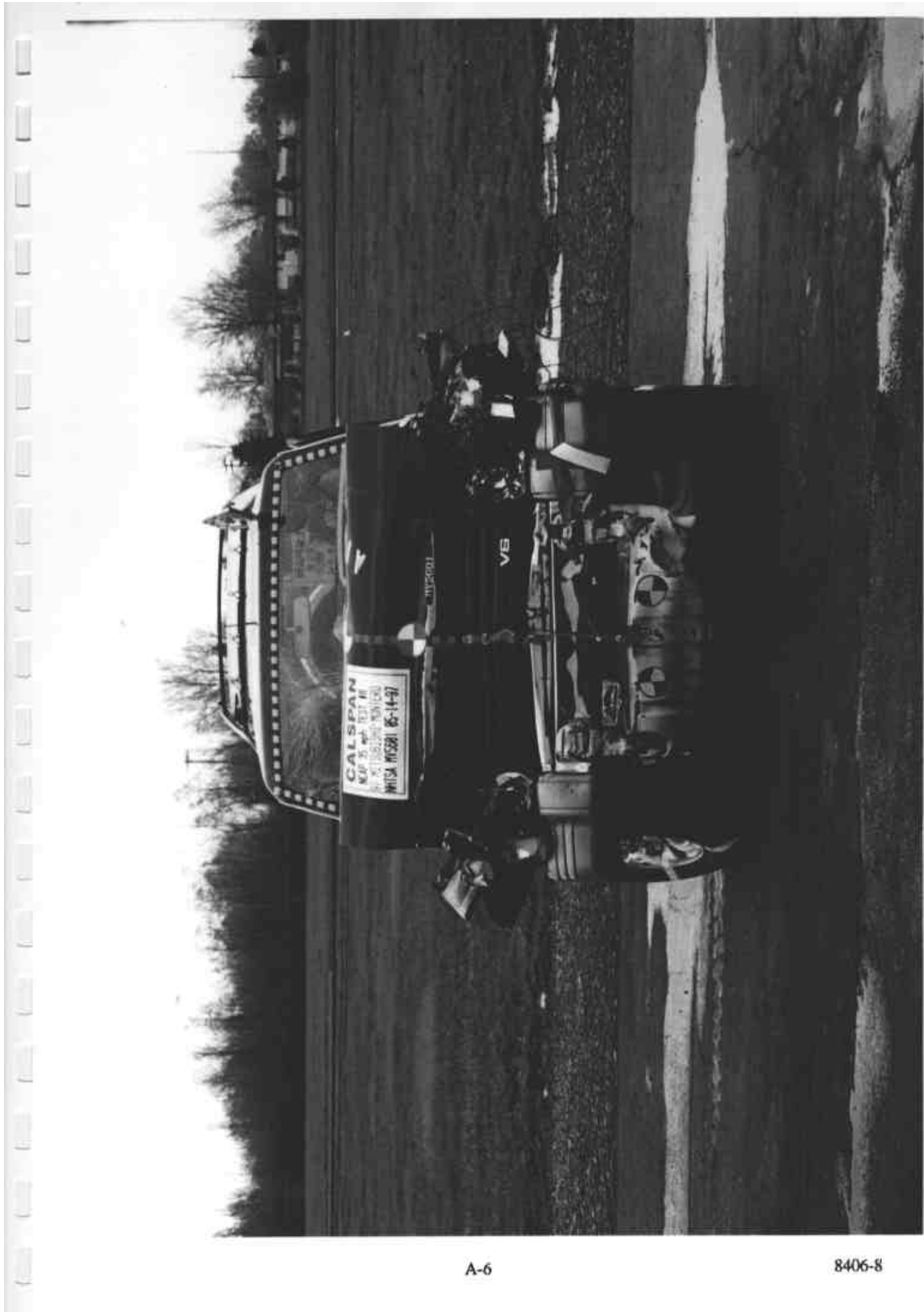


Figure A-3 POST-TEST FRONT VIEW

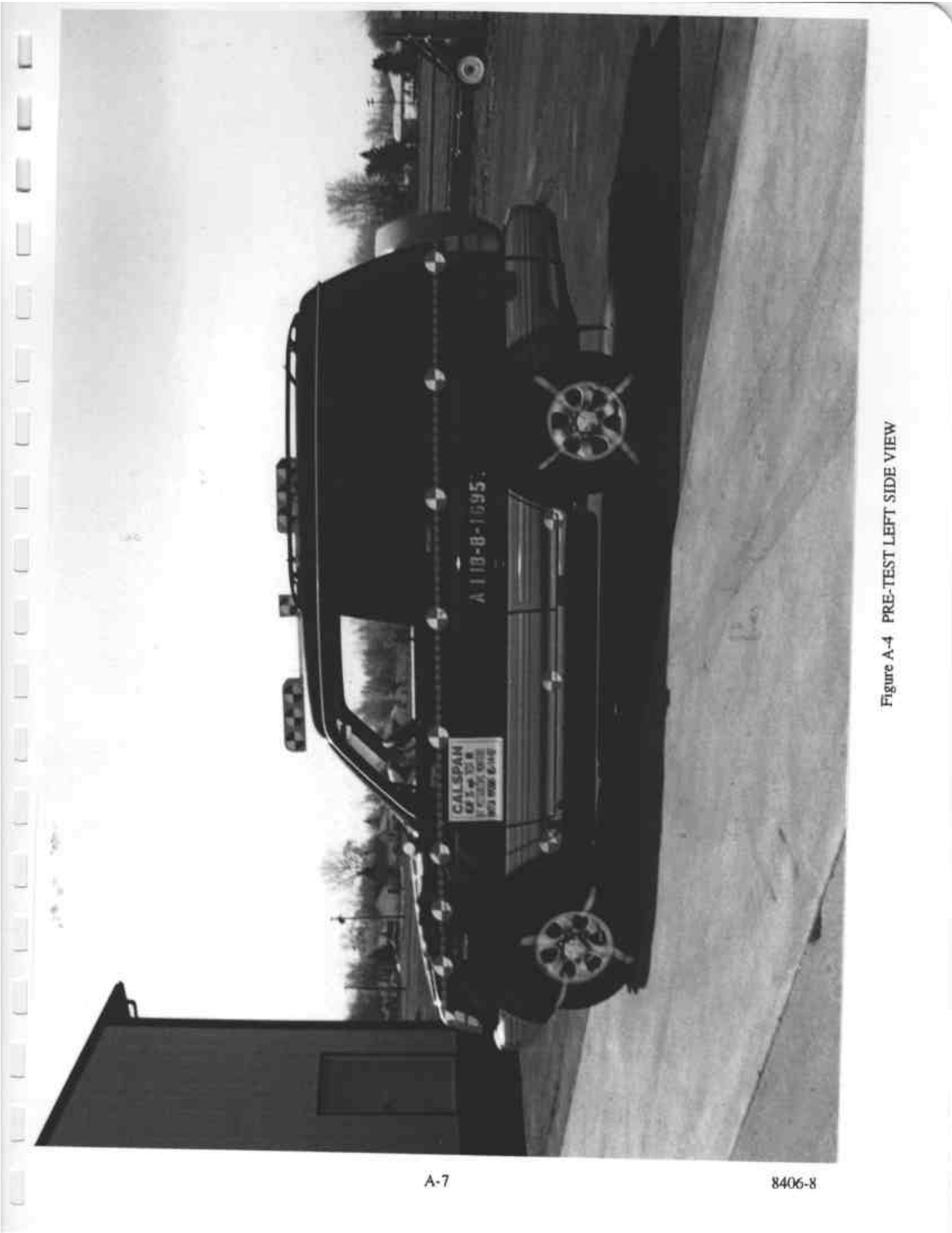


Figure A-4 PRE-TEST LEFT SIDE VIEW



Figure A-5 POST-TEST LEFT SIDE VIEW



Figure A-6 PRE-TEST RIGHT SIDE VIEW



Figure A-7 POST-TEST RIGHT SIDE VIEW

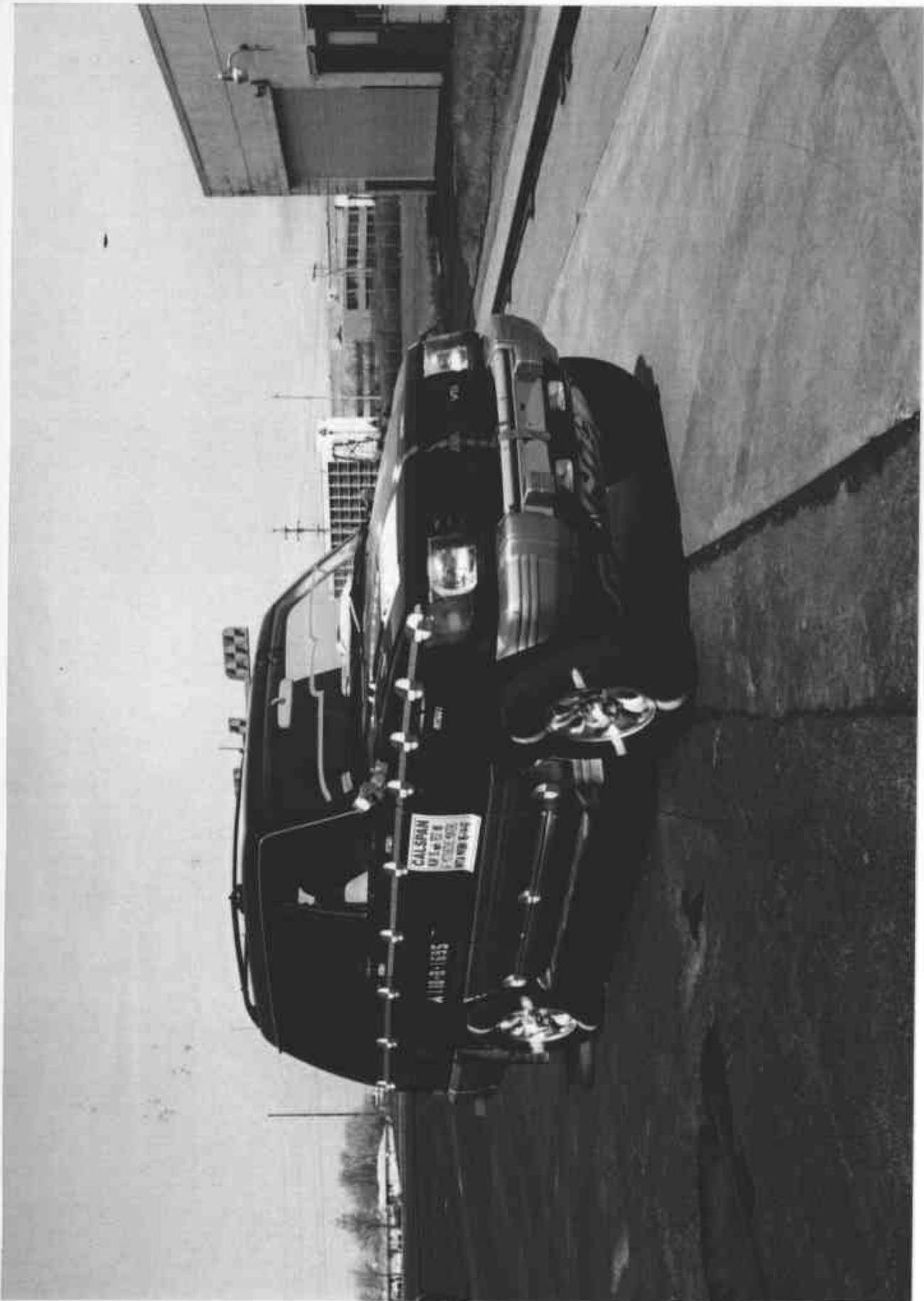


Figure A-8 PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



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

Photograph not available

Figure A-13 POST-TEST WINDSHIELD VIEW

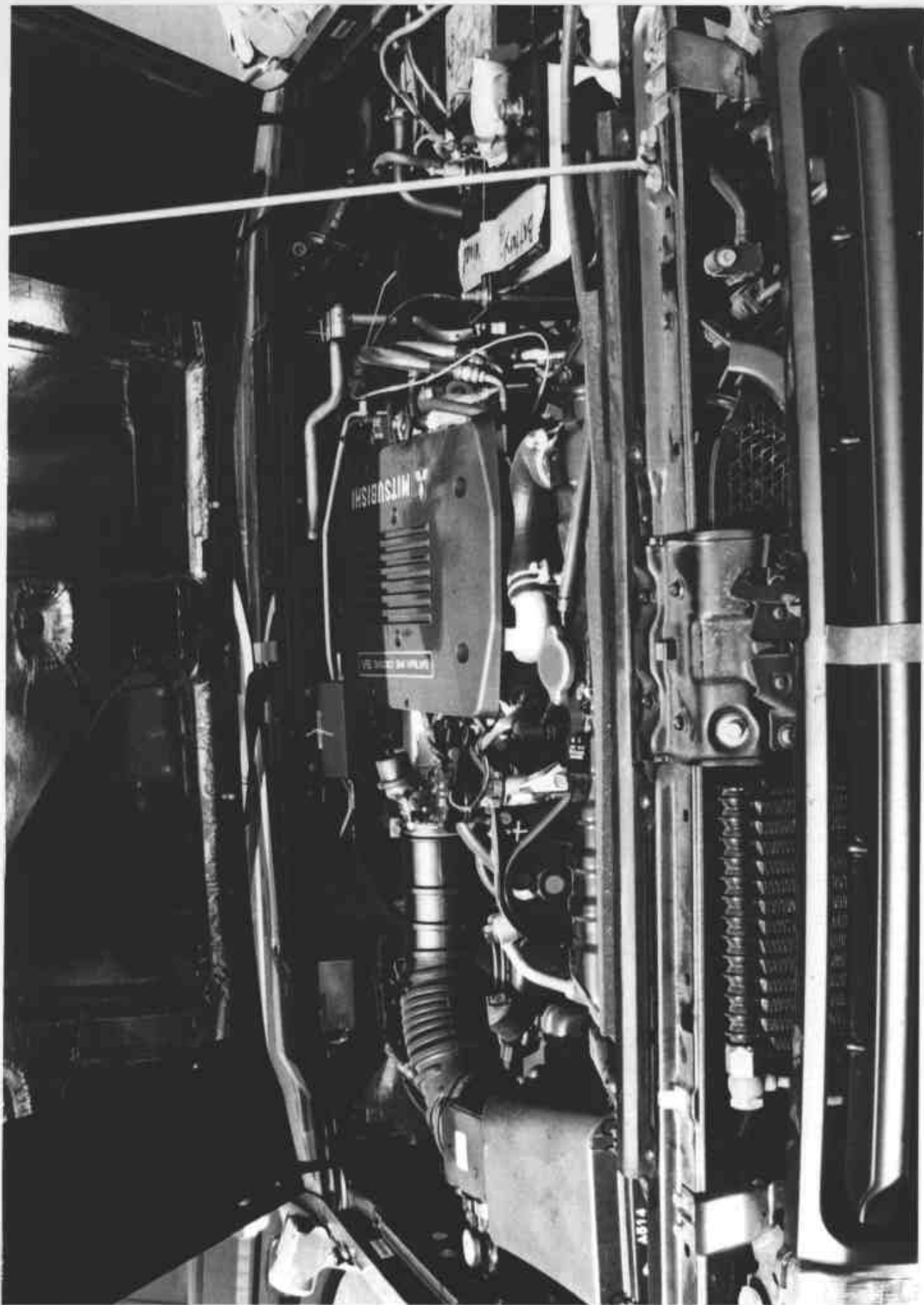


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

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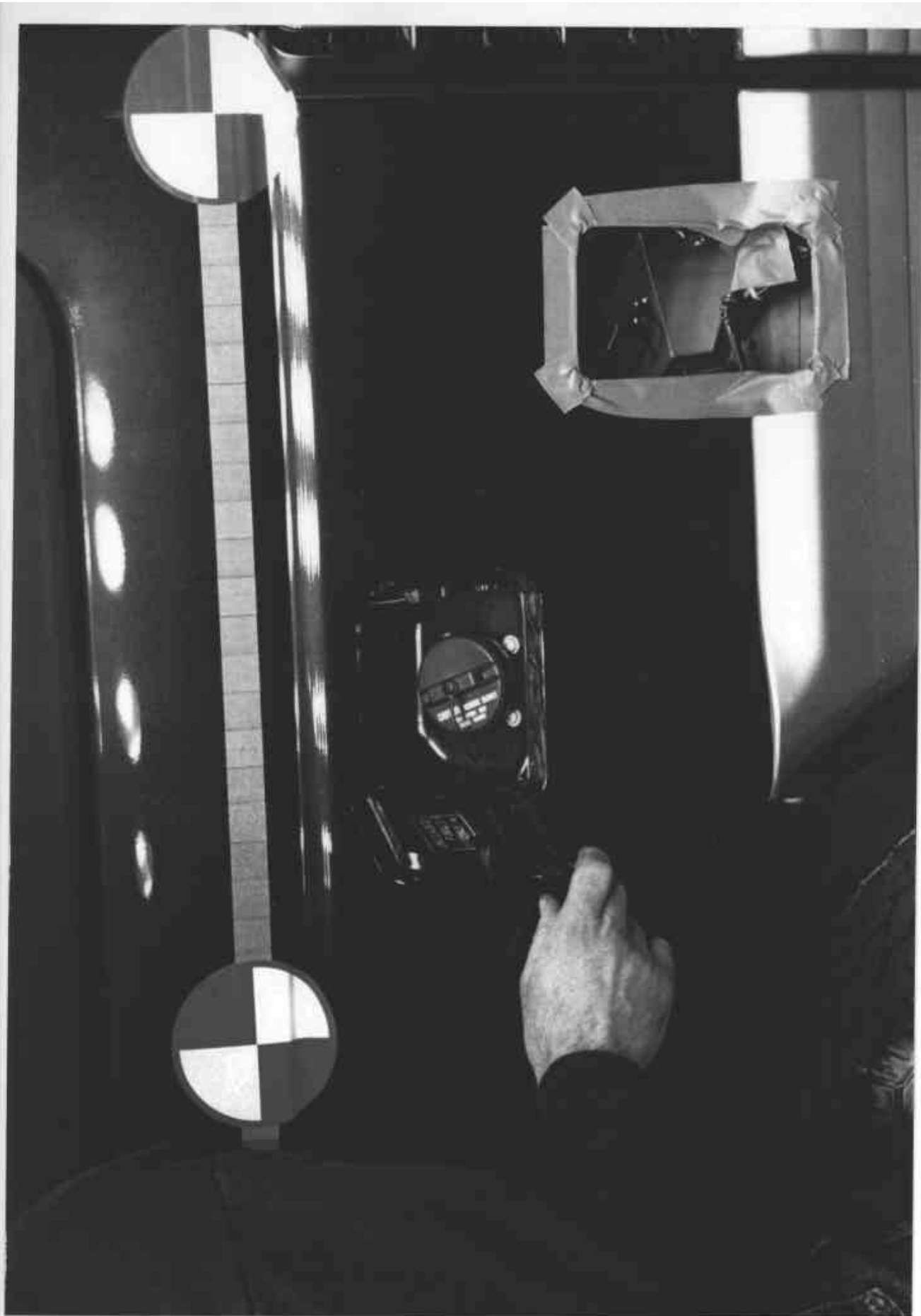


Figure A-15 FUEL CAP VIEW

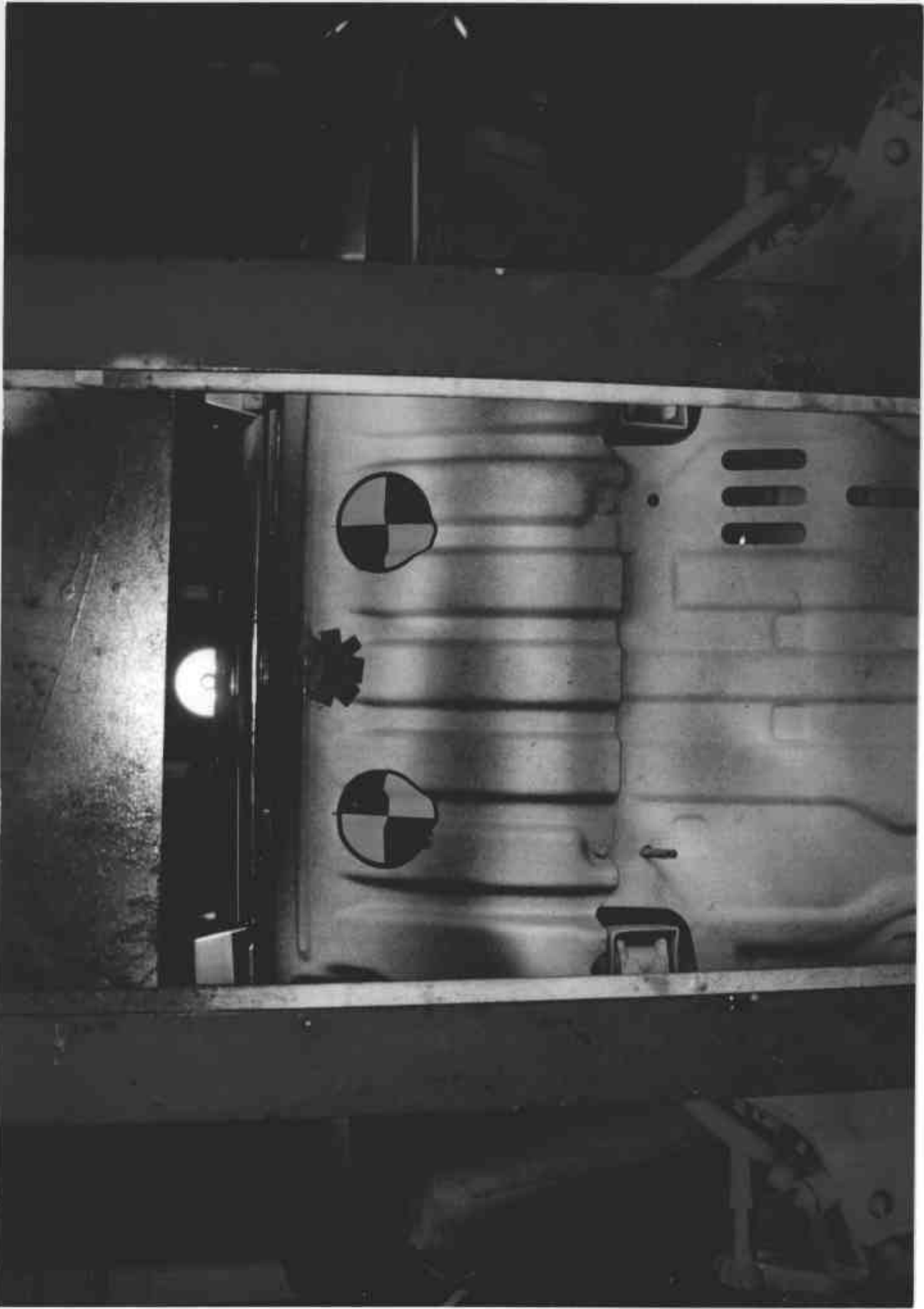


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

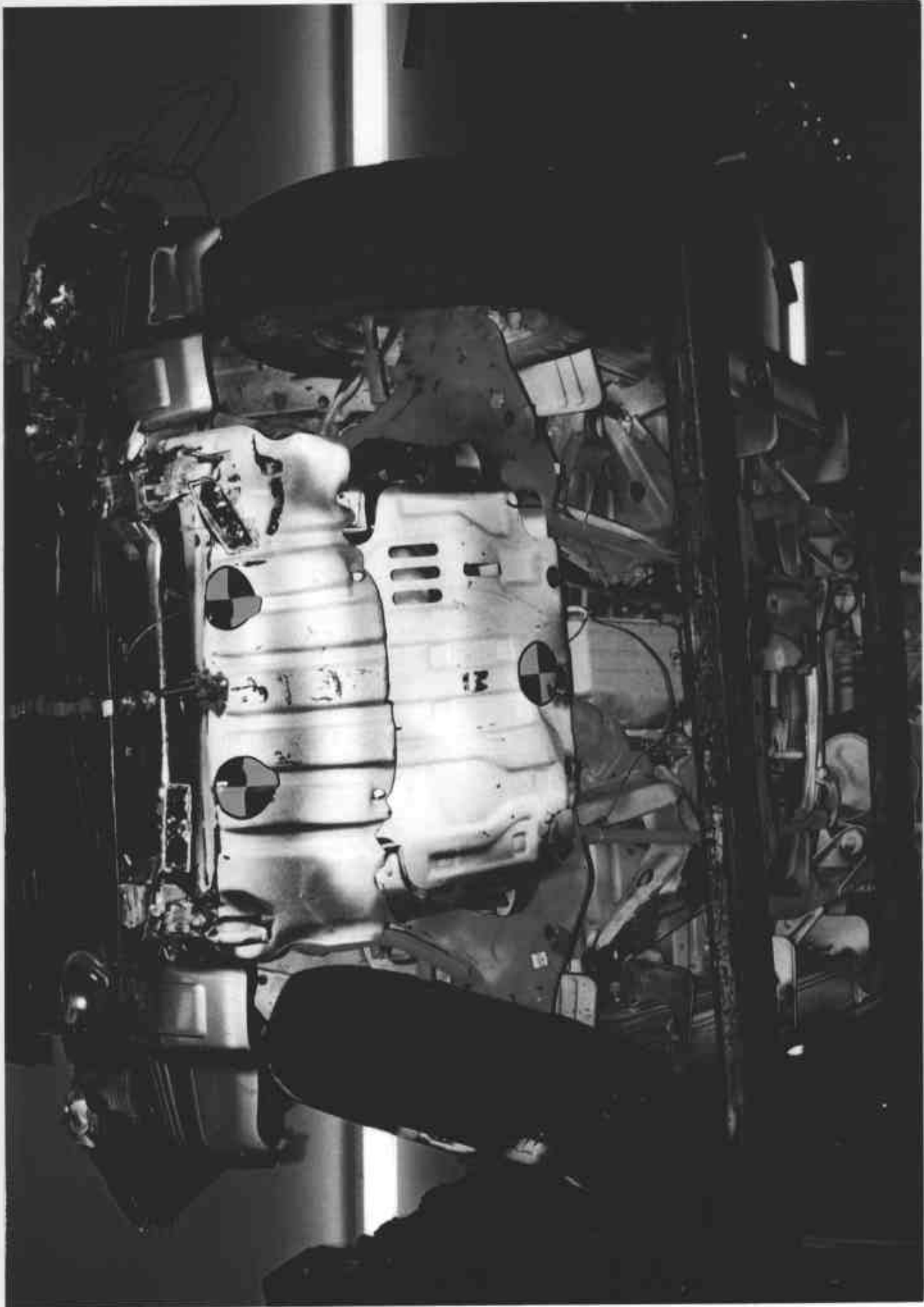


Figure A-17 POST-TEST FRONT UNDERBODY VIEW



Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW

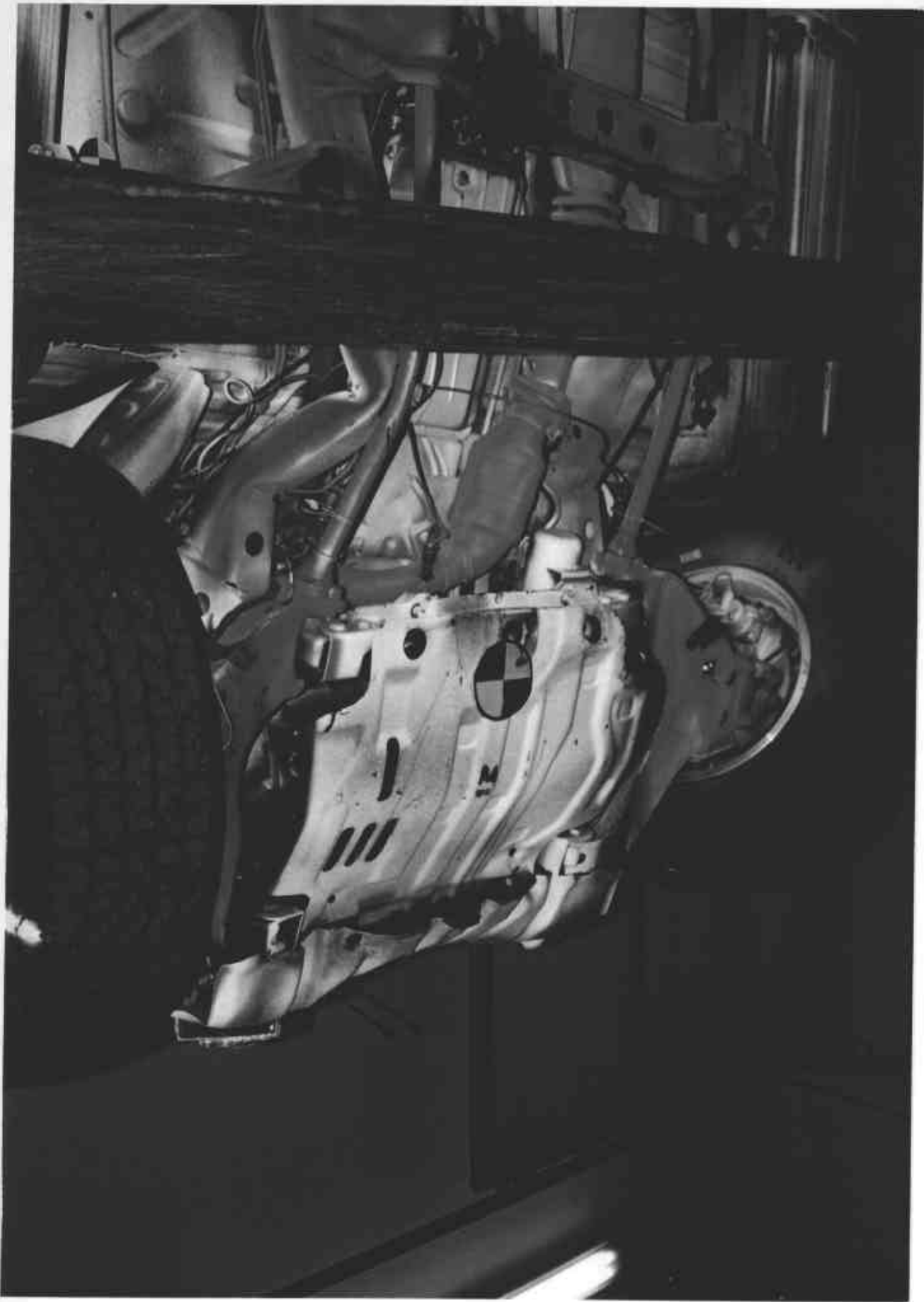


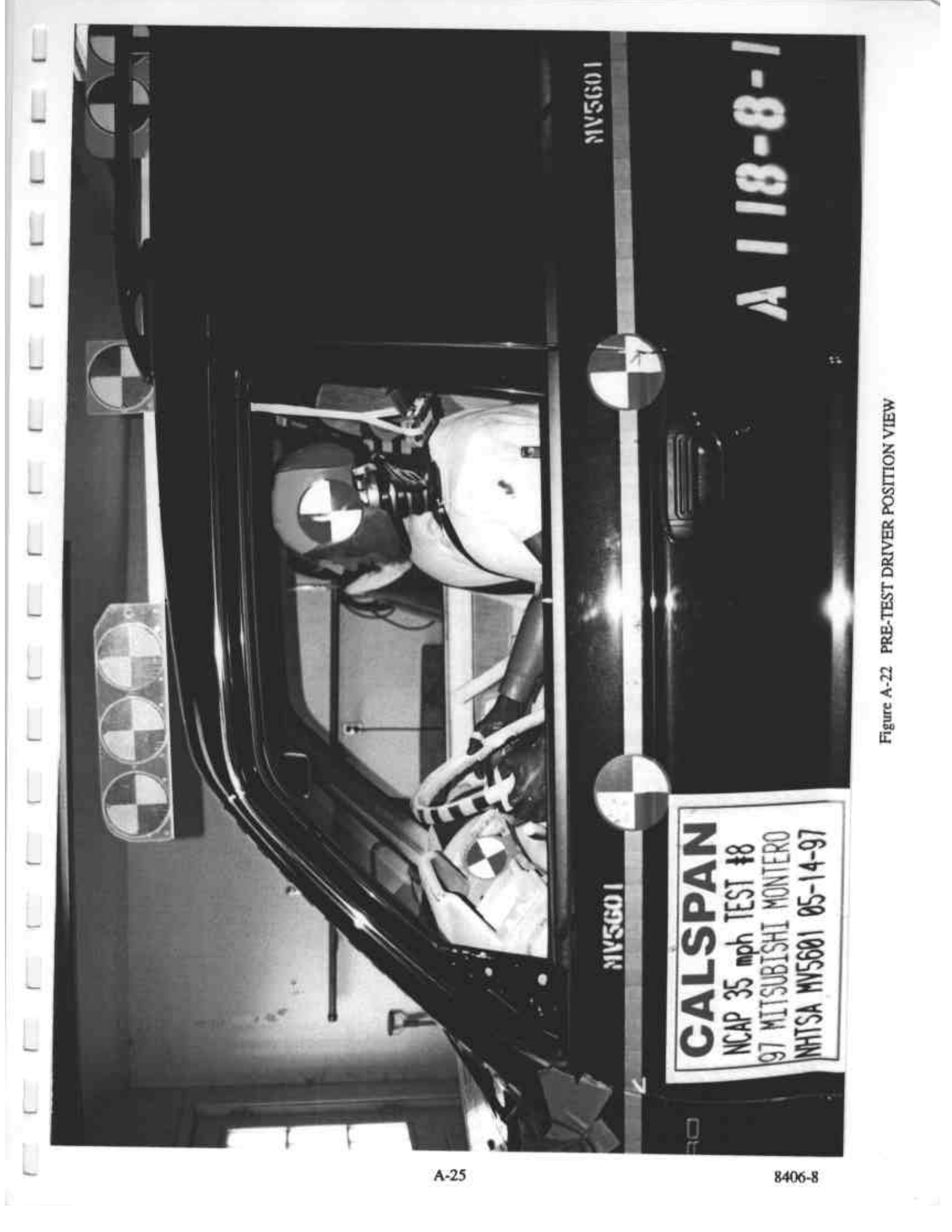
Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW



Figure A-20 PRE-TEST REAR UNDERBODY VIEW



Figure A-21 POST-TEST REAR UNDERBODY VIEW



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NCAP 35 mph TEST #8
97 MITSUBISHI MONTERO
NHTSA MV5601 05-14-97

A118-8-1

Figure A-22 PRE-TEST DRIVER POSITION VIEW

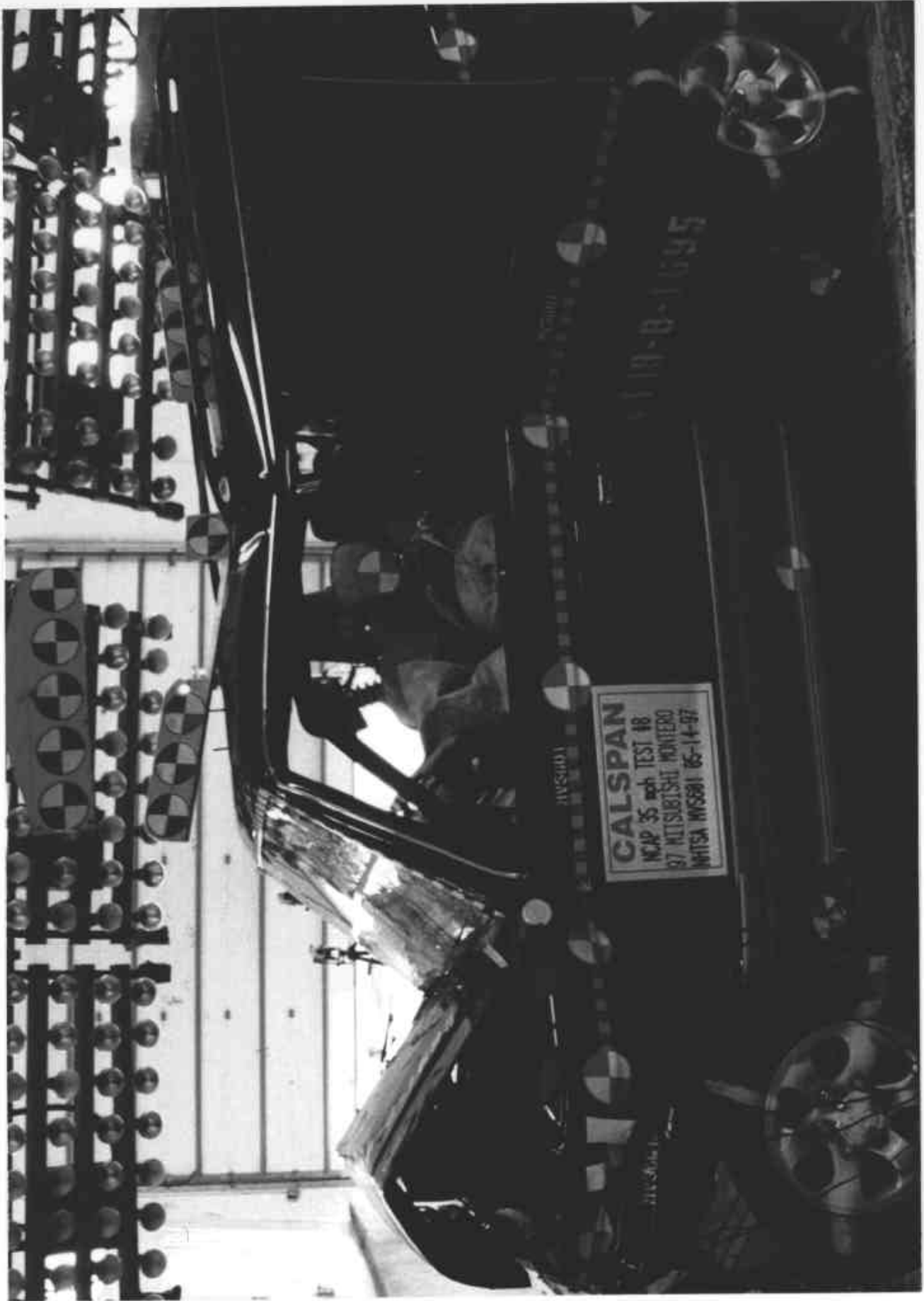


Figure A-23 POST-TEST DRIVER POSITION VIEW

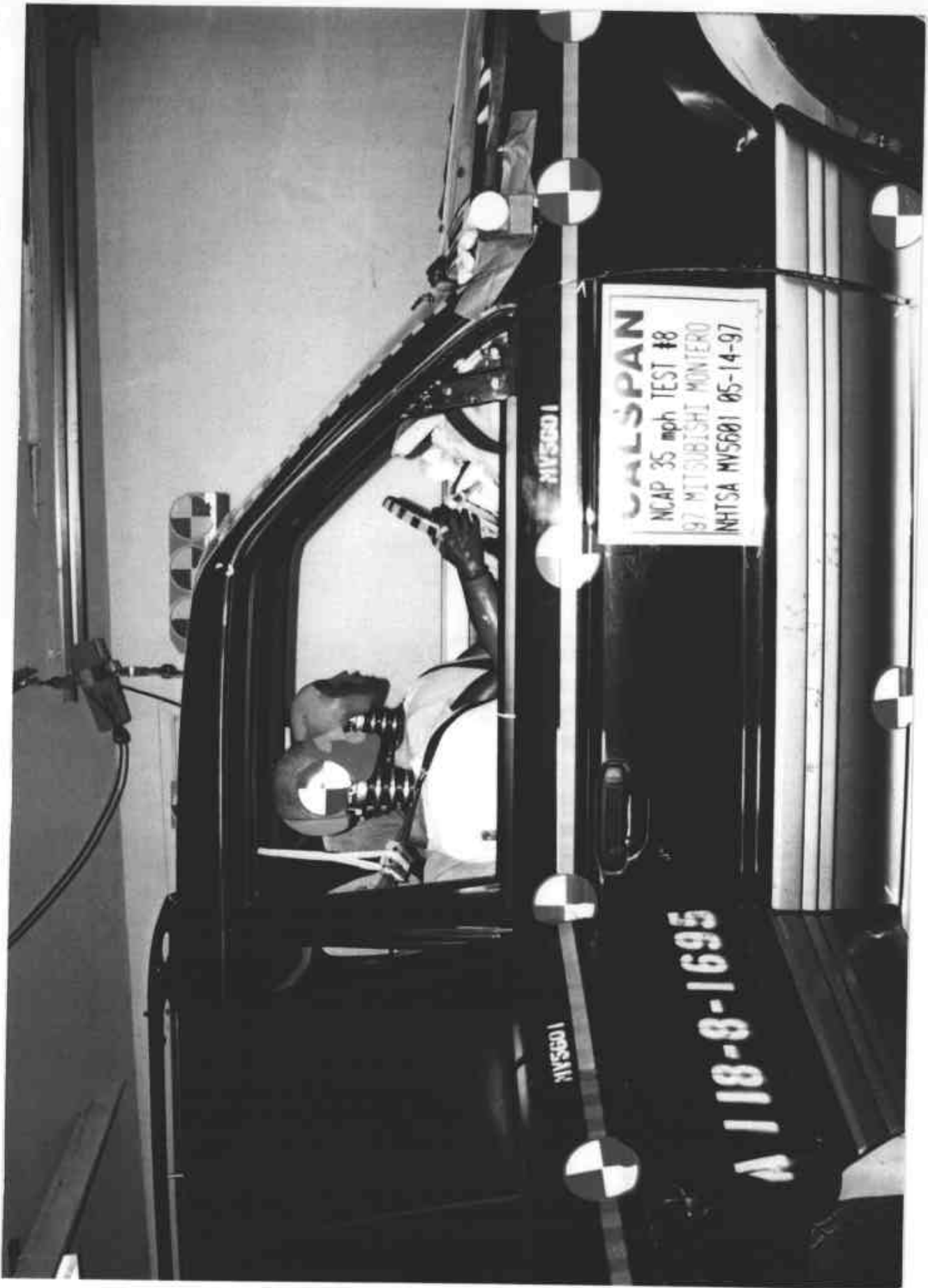


Figure A-24 PRE-TEST PASSENGER POSITION VIEW



Figure A-25 POST-TEST PASSENGER POSITION VIEW

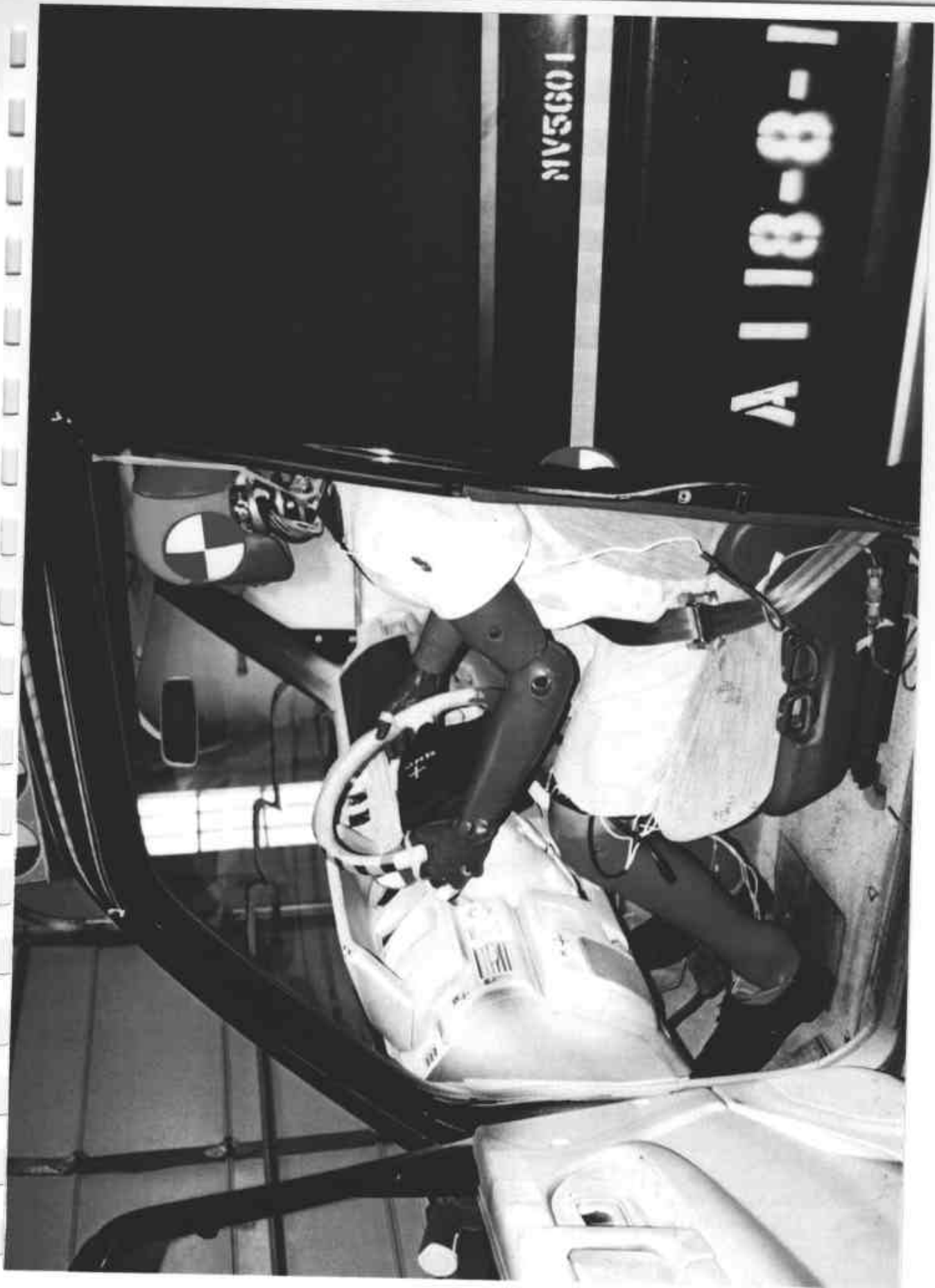


Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW



Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW



Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW

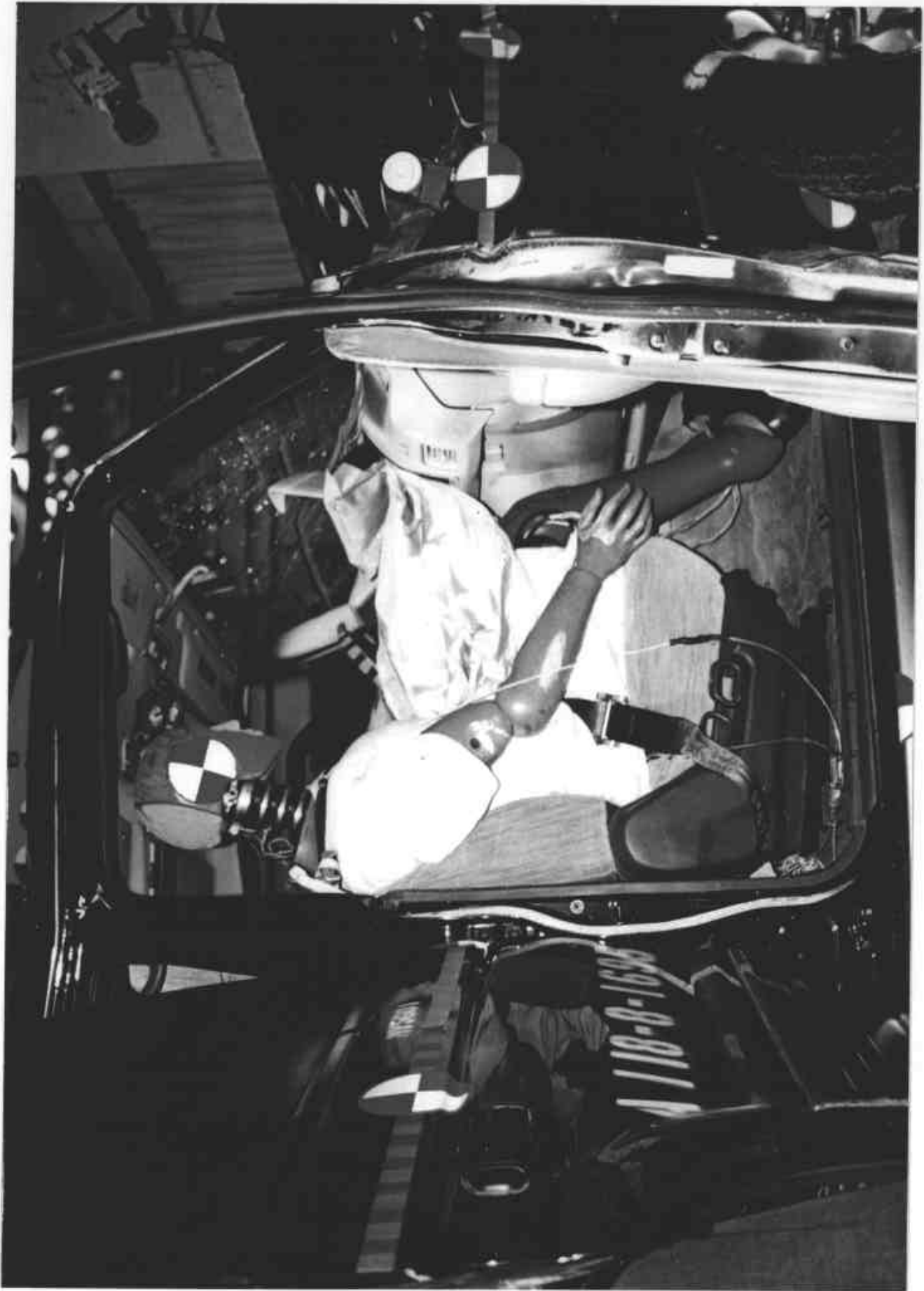


Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW



Figure A-30 PRE-TEST DRIVER HEAD LOCATION

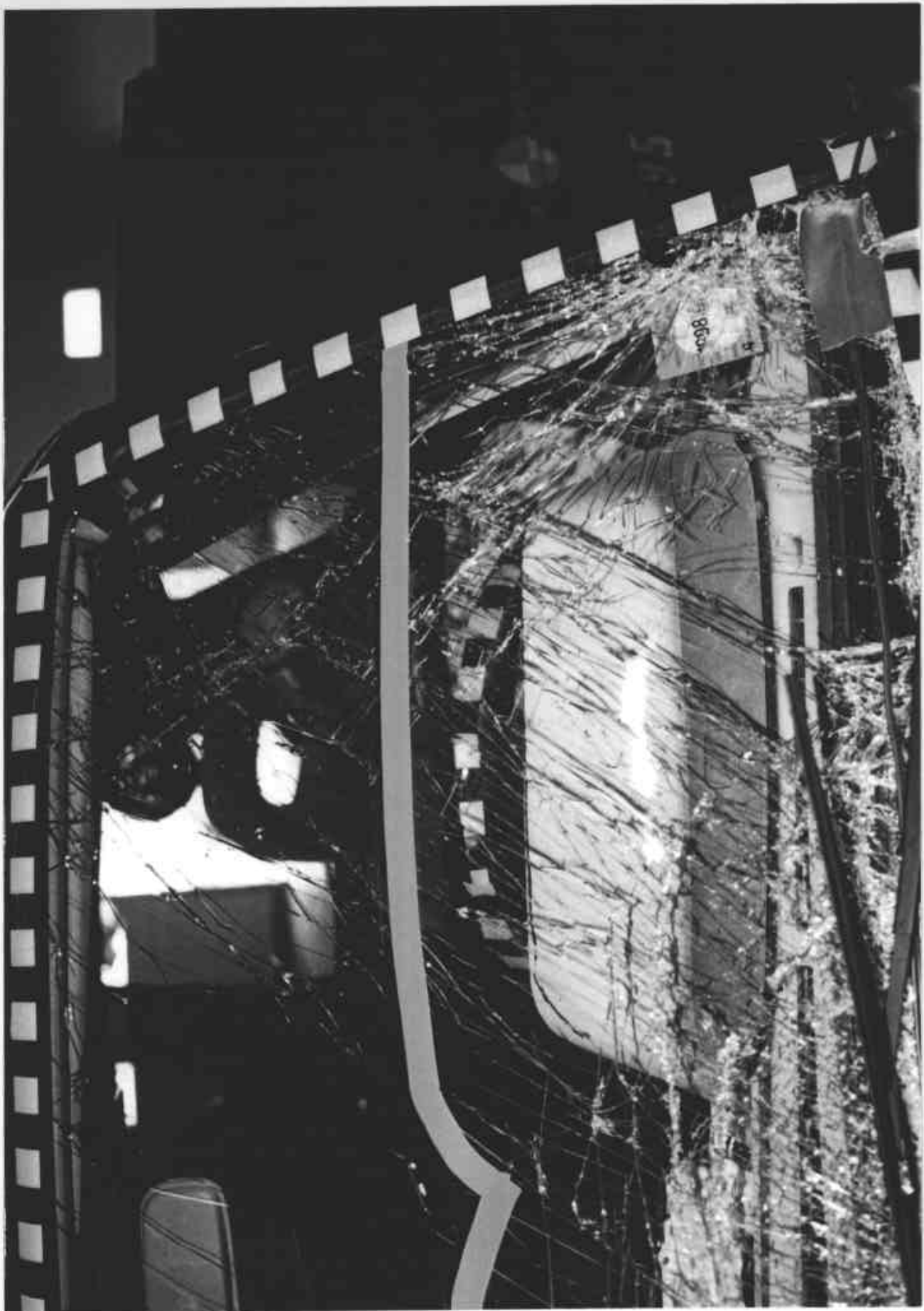


Figure A-31 POST-TEST DRIVER HEAD LOCATION

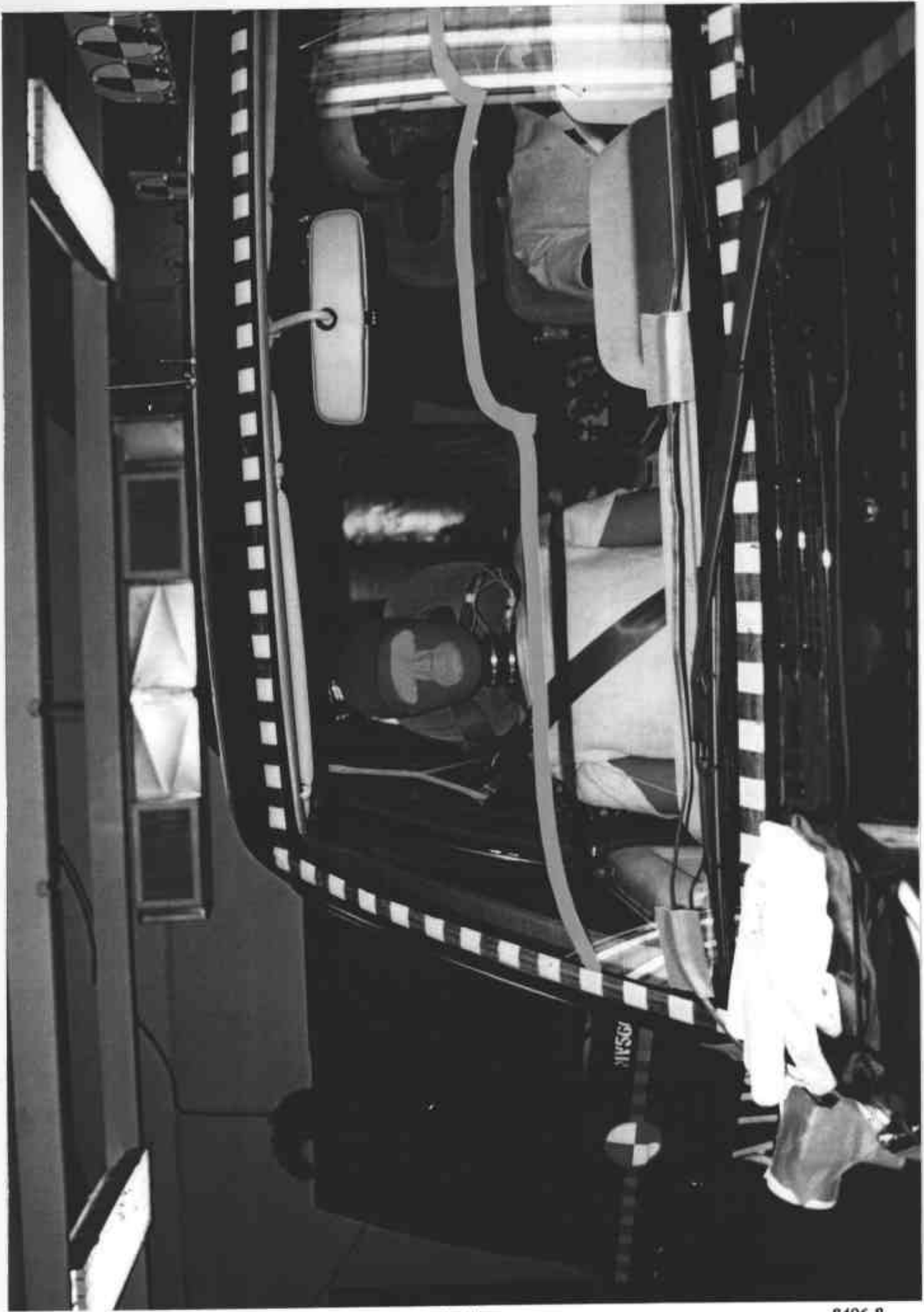


Figure A-32 PRE-TEST PASSENGER HEAD LOCATION



Figure A-33 POST-TEST PASSENGER HEAD LOCATION



Figure A-34 PRE-TEST DRIVER FLOOR PAN VIEW



Figure A-35 POST-TEST DRIVER FLOOR PAN VIEW



Figure A-36 PRE-TEST PASSENGER FLOOR PAN VIEW



Figure A-37 POST-TEST PASSENGER FLOOR PAN VIEW



Figure A-38 ROLLOVER VIEW

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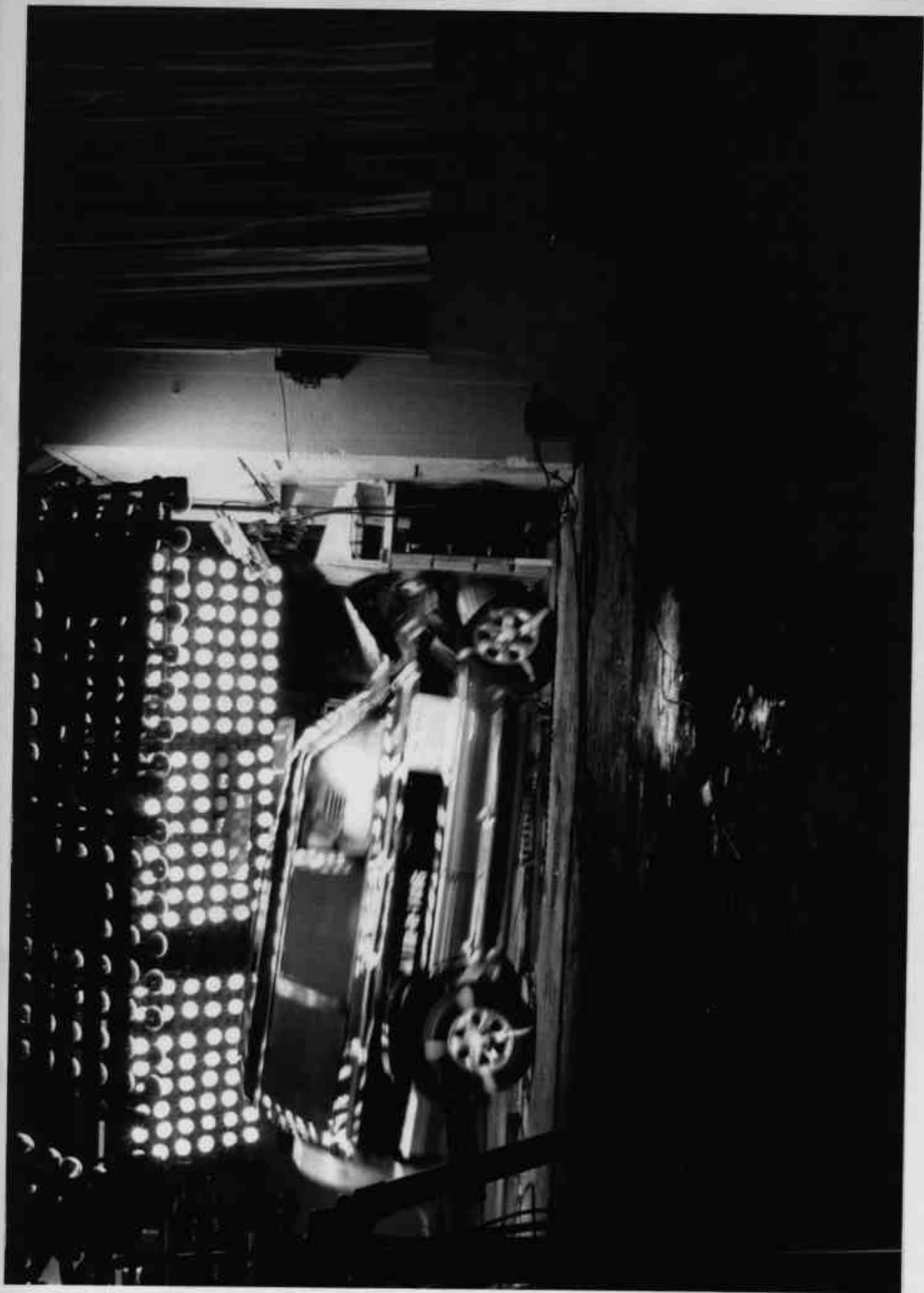


Figure A-39 IMPACT VIEW

Appendix B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

**Hybrid III Dummy Sign Conventions
Load Cells and Special Transducers**

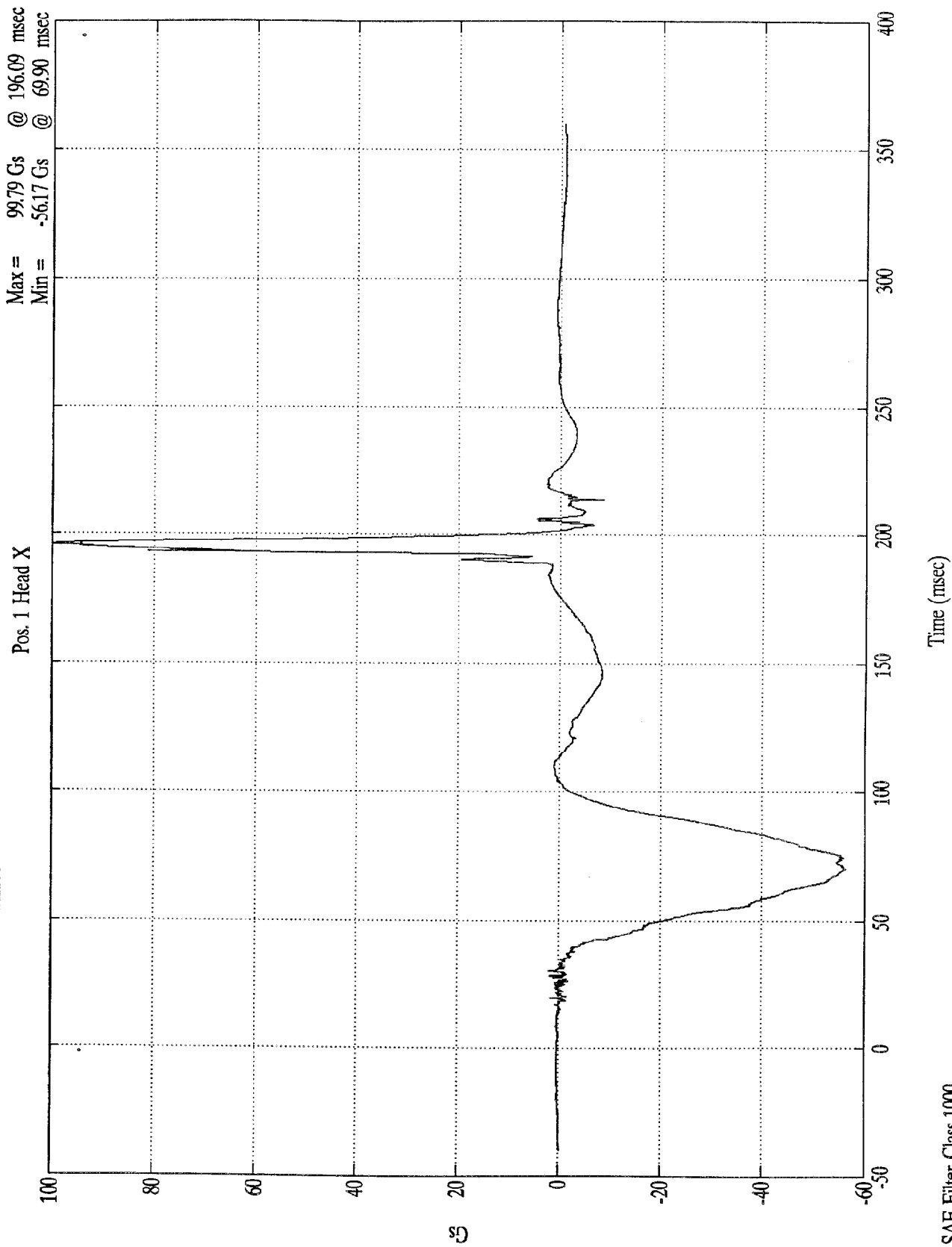
Transducer	DOT/NHTSA Sign Convention (positive unless noted)
Upper Neck Load Cell	Fx Head forward Fy Head left Fz Neck in tension Mx Right ear to right shoulder My Chin to chest (flexion) Mz Chin to left shoulder (look left)
Chest Displacement Potentiometer	Compression is negative
Pelvic Load Cell (Lower Lumbar)	Fx Chest forward Fy Chest left Fz Spine in tension
Femur Load Cell	Compression is negative
Upper Tibia Load Cell (right and left leg)	Mx Support tibia, load right side center My Support tibia, load front (shin) center
Lower Tibia Load Cell (right and left leg)	Fy Foot right w/r to left Fz Tibia in tension Mx Support tibia, press right side center

NHTSA TEST NO. MV5601

DUMMY DATA

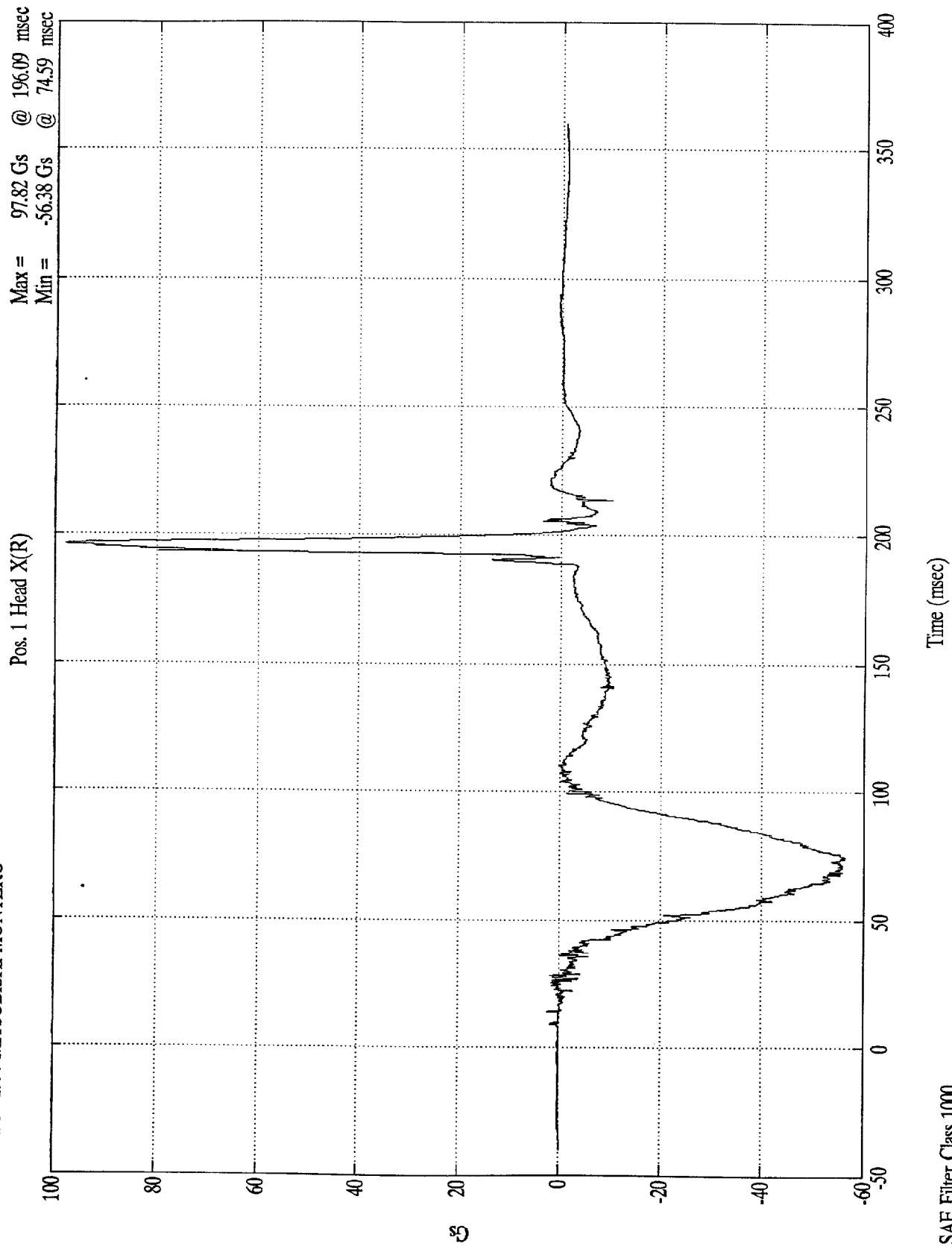
CLASS	FILTER CHANNEL
Head Accelerations	1000
Chest Accelerations	180
Chest Displacements	60
Femur Forces	600
Belt Loads	60
Belt Displacements	180
Neck Forces	1000
Neck Moments	600

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NCAP TEST #8 - 1997 MITSUBISHI MONTERO



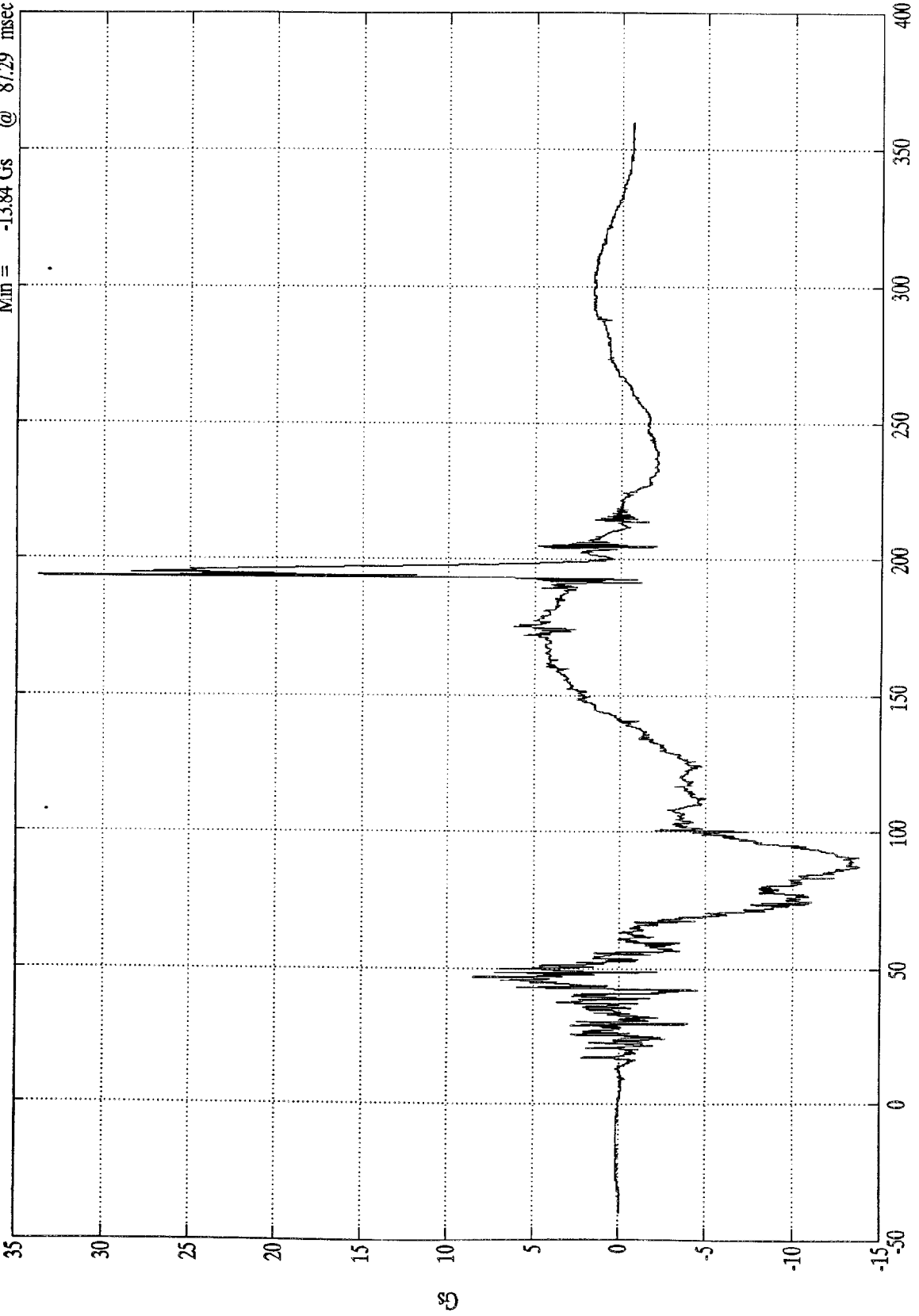
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 33.72 Gs @ 193.69 msec
Min = -13.84 Gs @ 87.29 msec

Pos. 1 Head Y



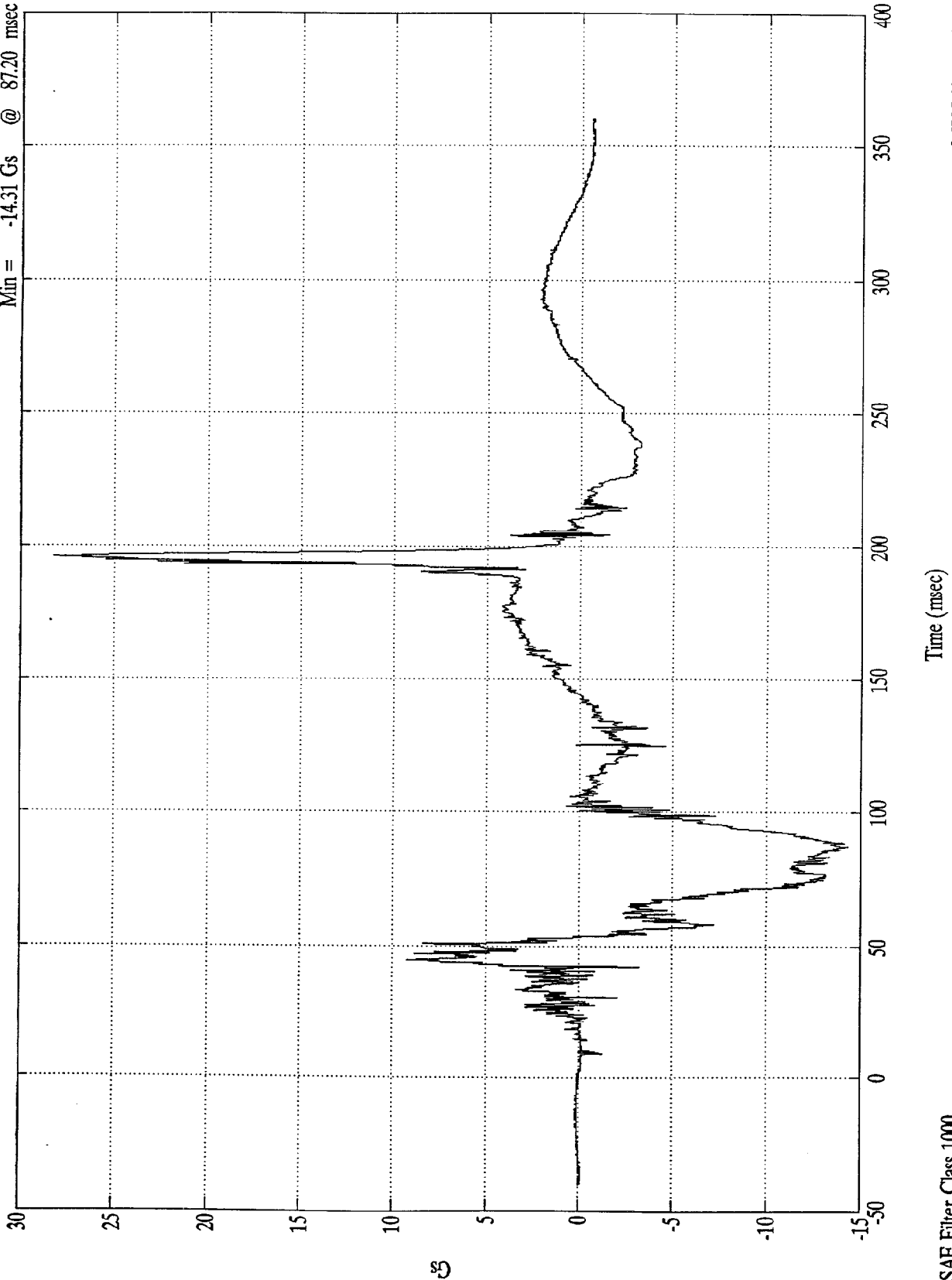
Time (msec)

SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

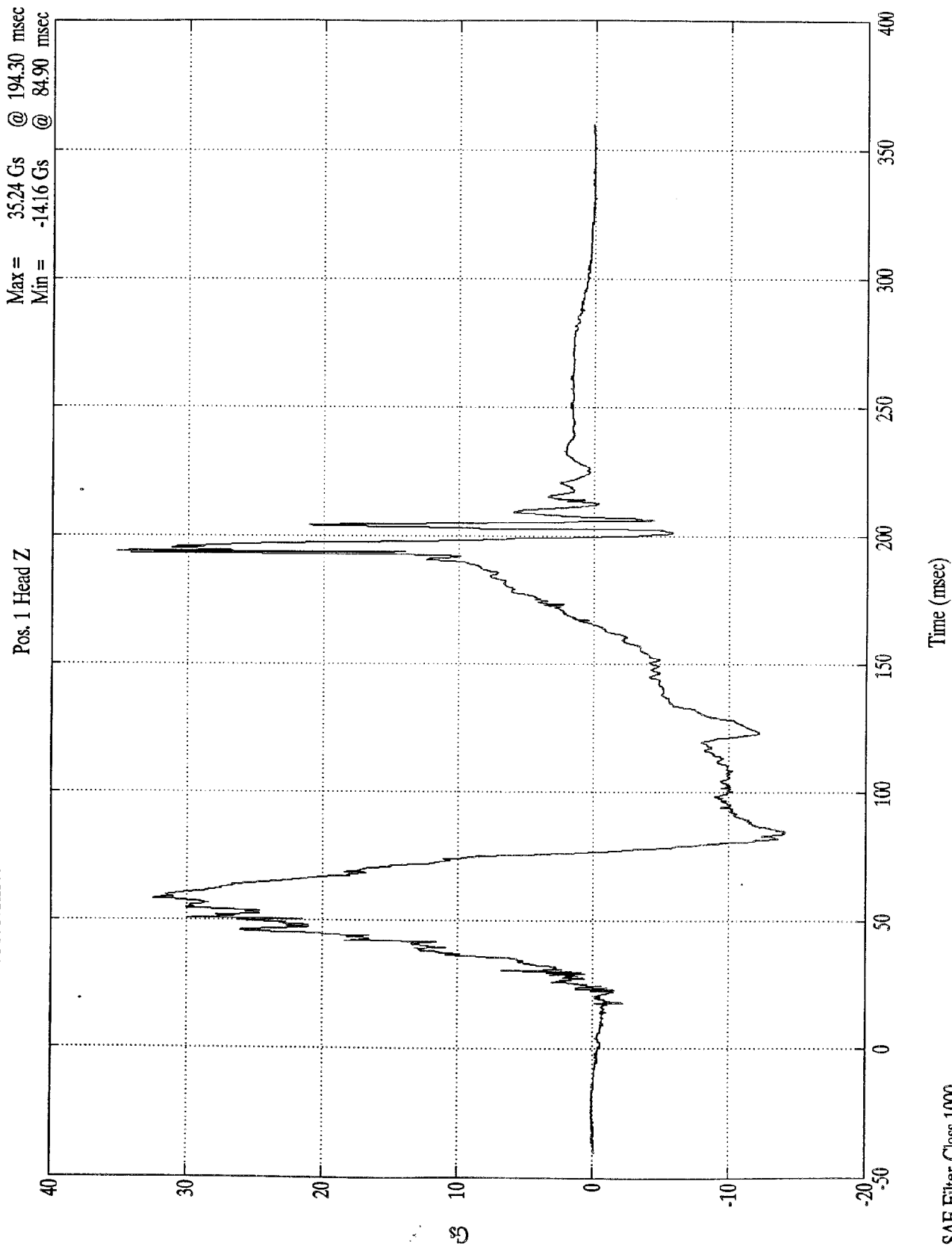
Pos. 1 Head Y(R)
Max = 28.22 Gs @ 196.09 msec
Min = -14.31 Gs @ 87.20 msec



SAE Filter Class 1000

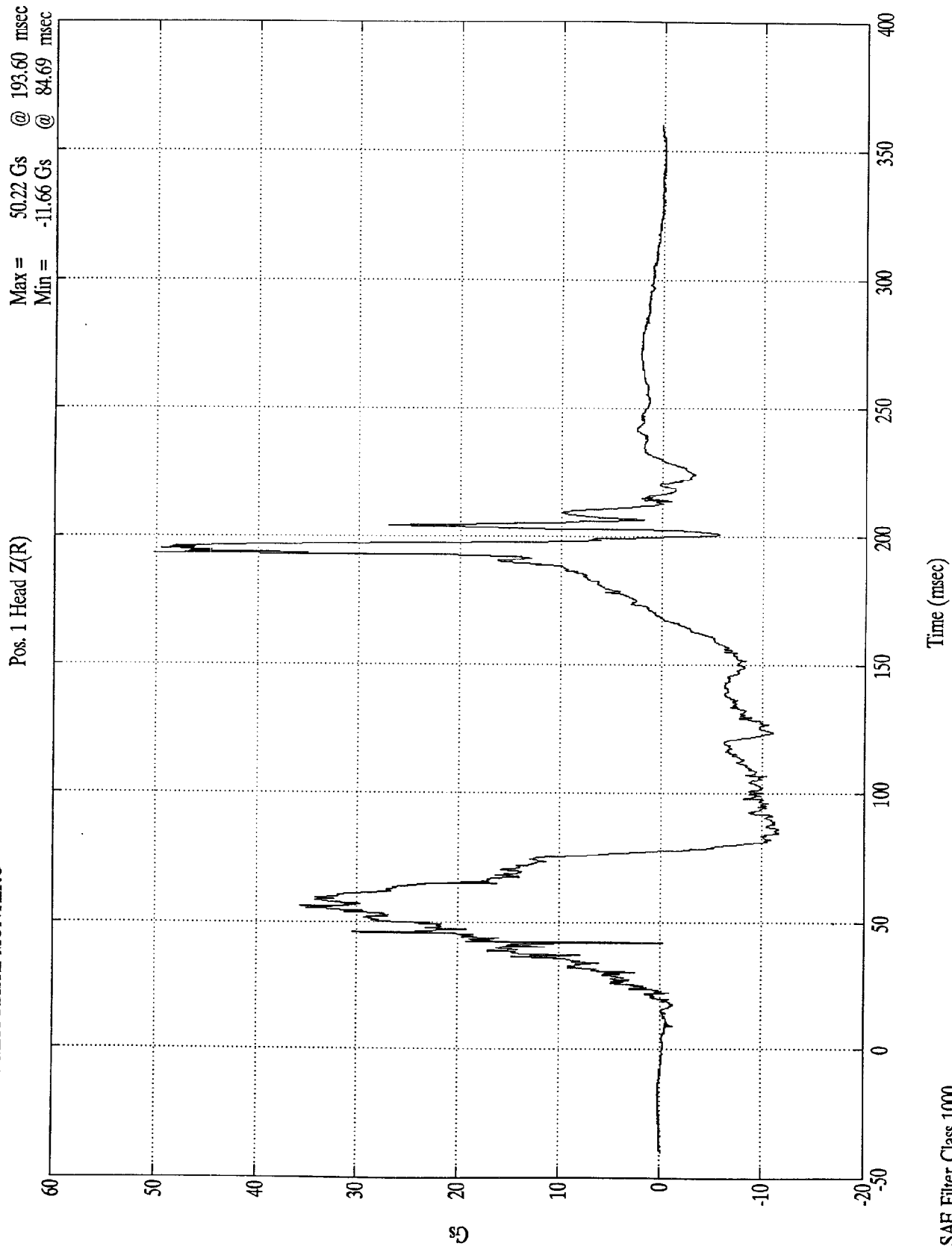
MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO



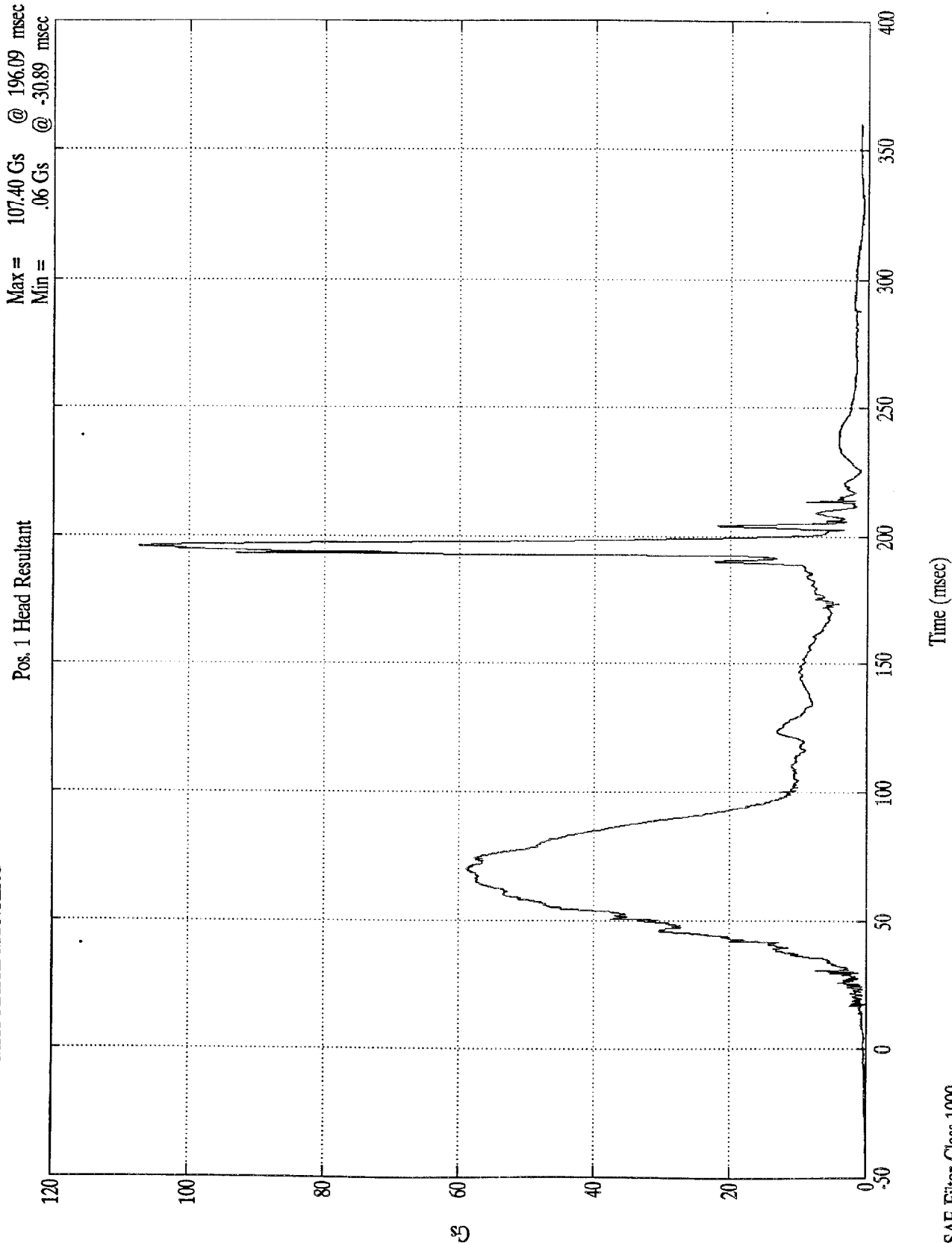
MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO



MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO



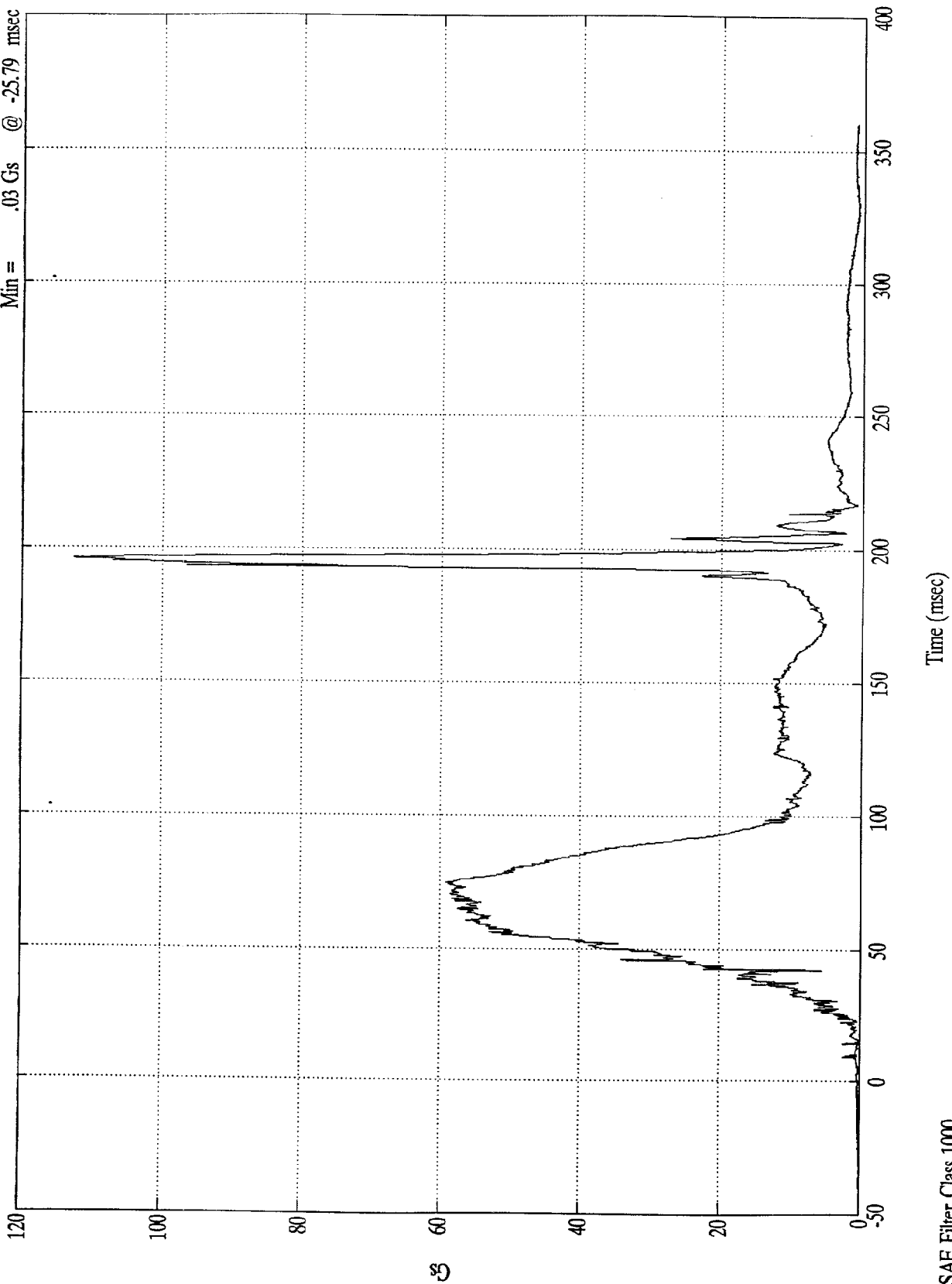
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 112.56 Gs @ 196.09 msec
Min = .03 Gs @ -25.79 msec

Pos. 1 Head Resultant(RR)

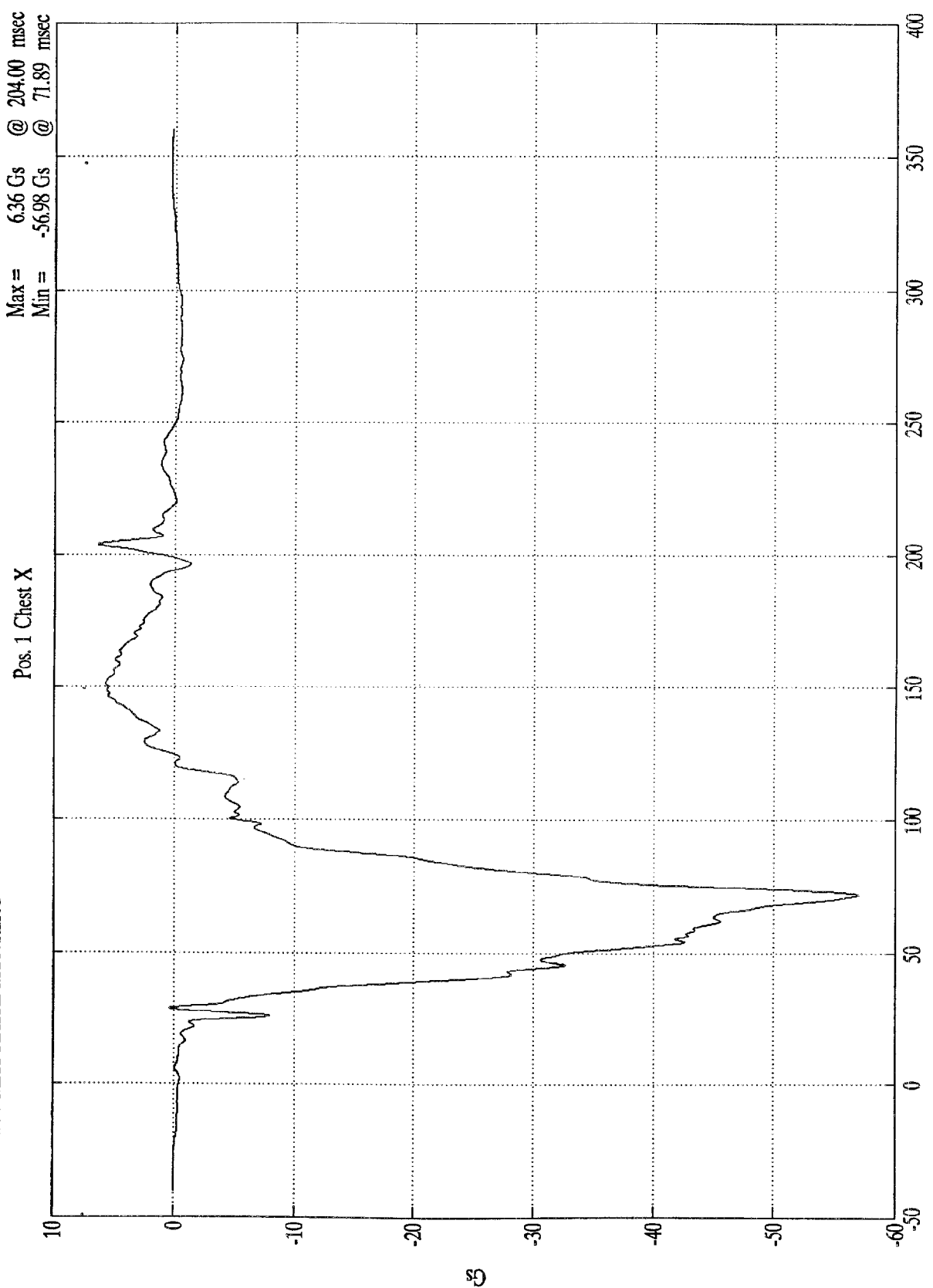


Time (msec)

SAE Filter Class 1000

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NCAP TEST #8 - 1997 MITSUBISHI MONTERO

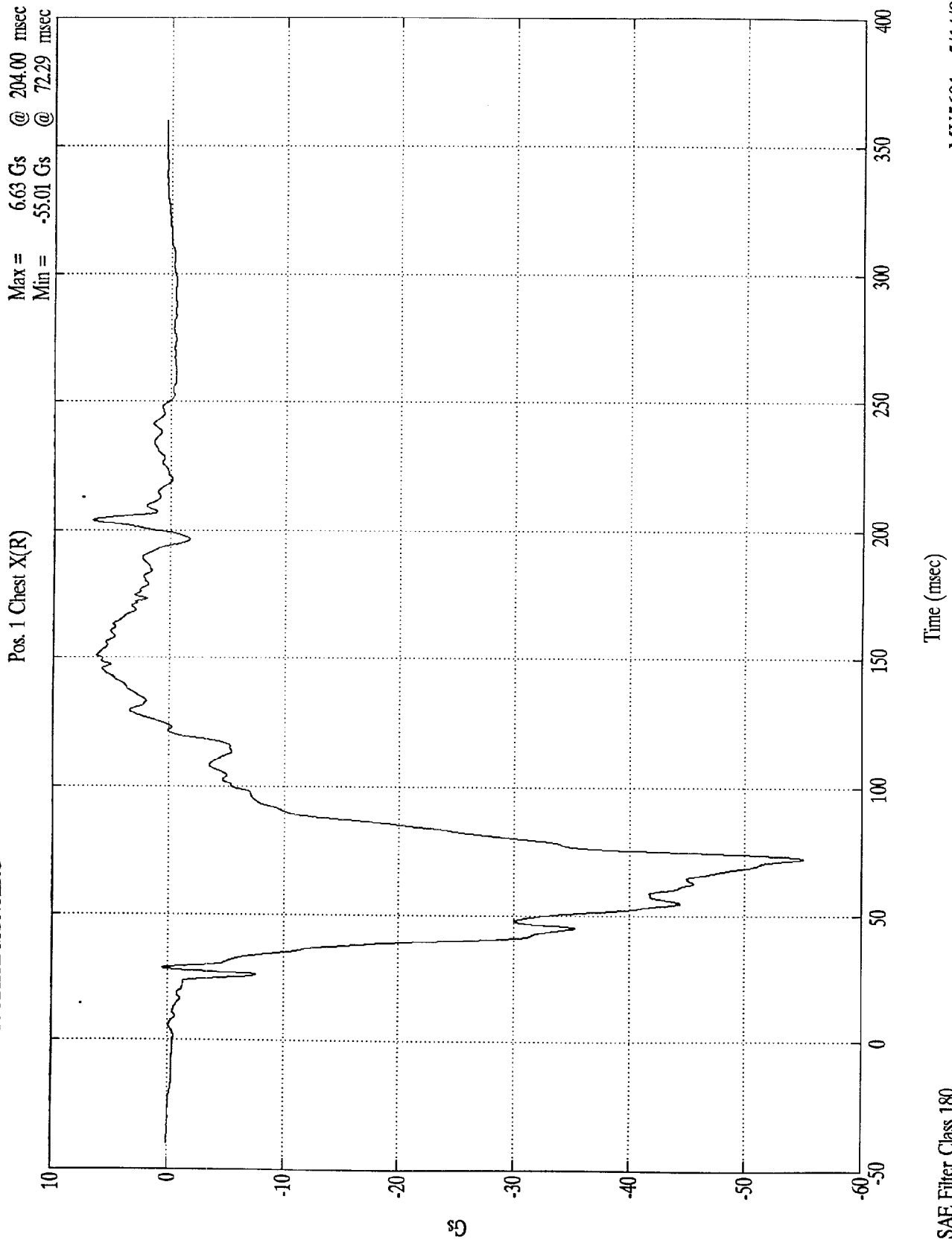


SAE Filter Class 180

Time (msec)

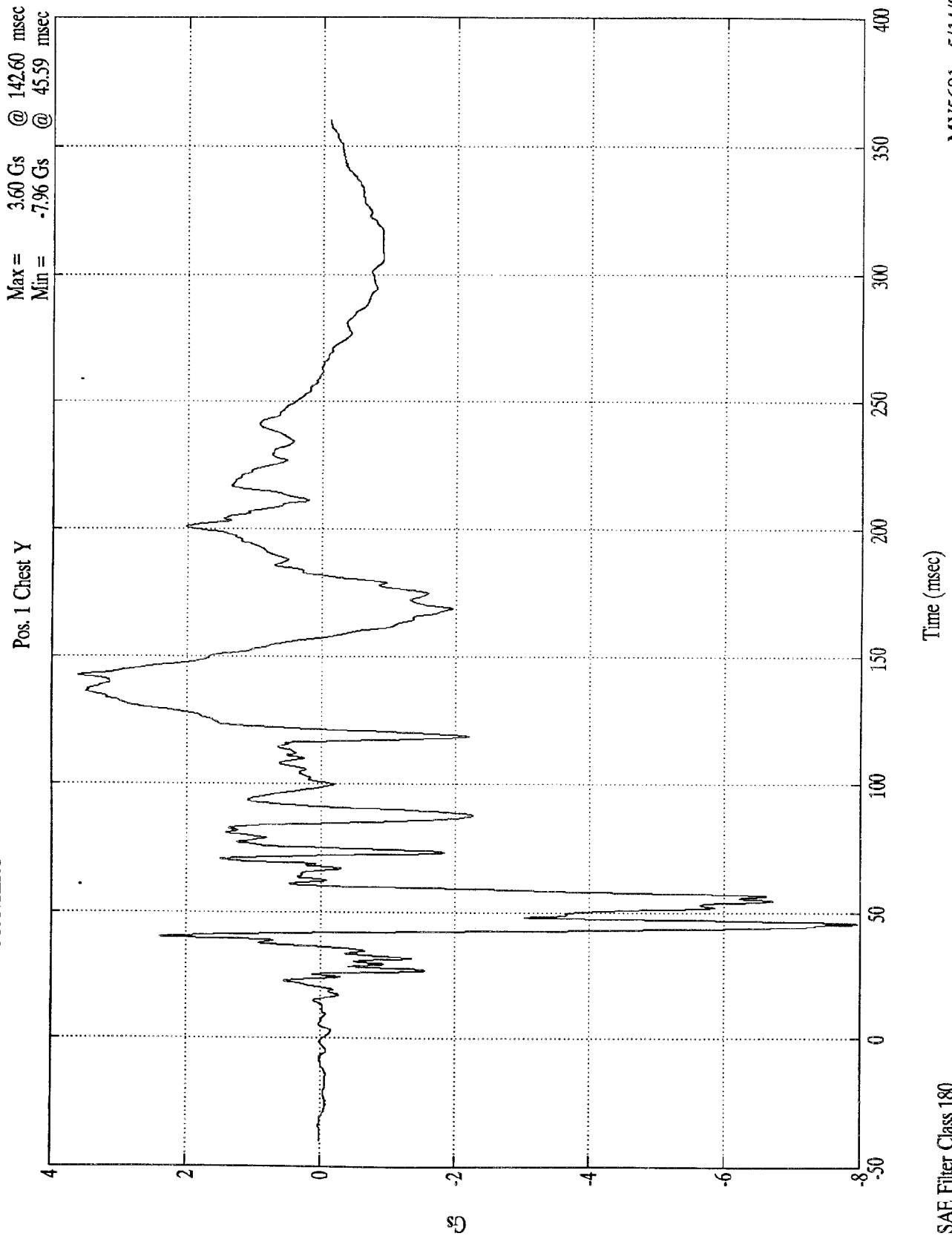
MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO



MV5601 - 5/14/97

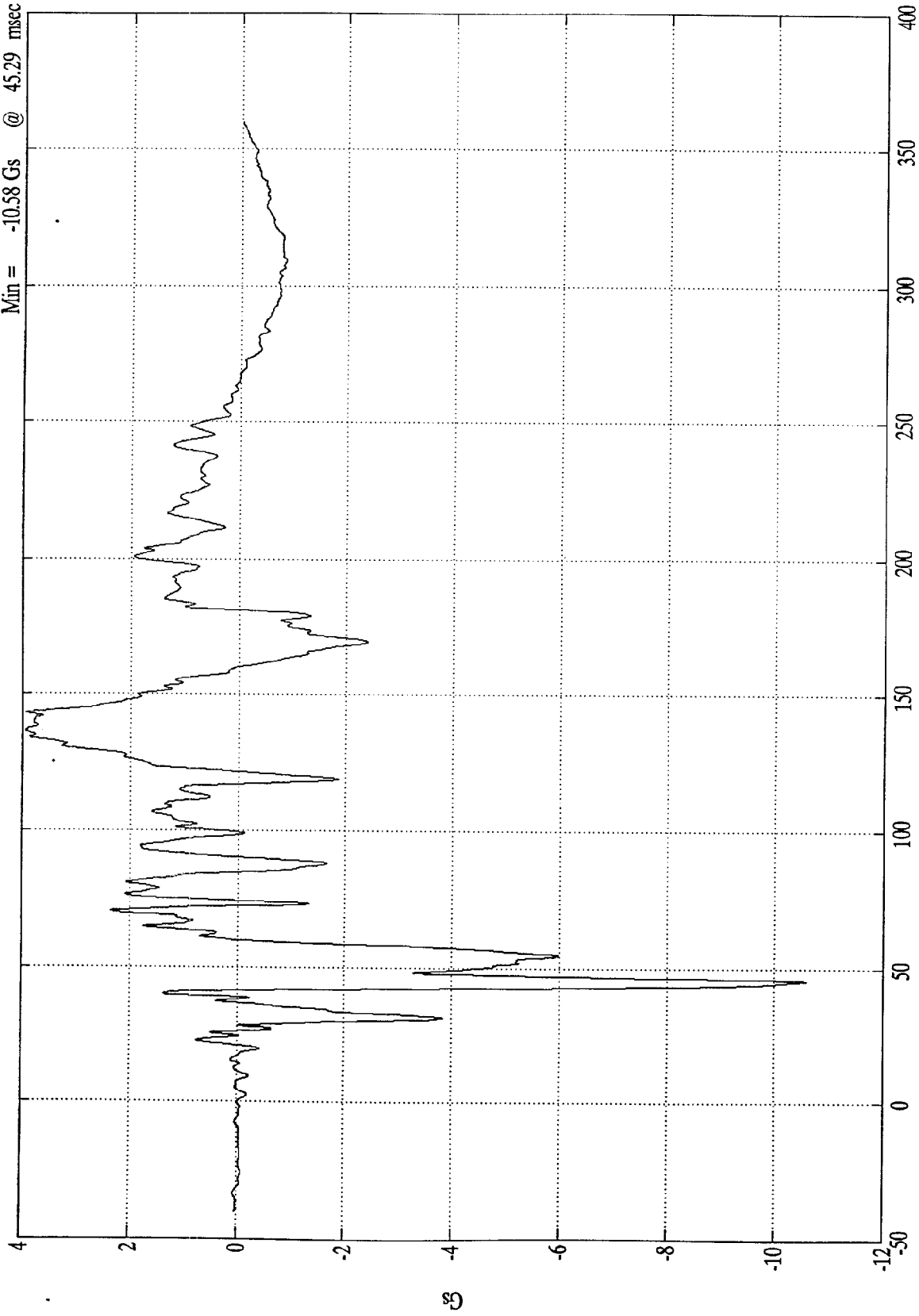
NCAP TEST #8 - 1997 MITSUBISHI MONTERO



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 3.94 Gs @ 136.19 msec
Min = -10.58 Gs @ 45.29 msec

Pos. 1 Chest Y(R)



Time (msec)

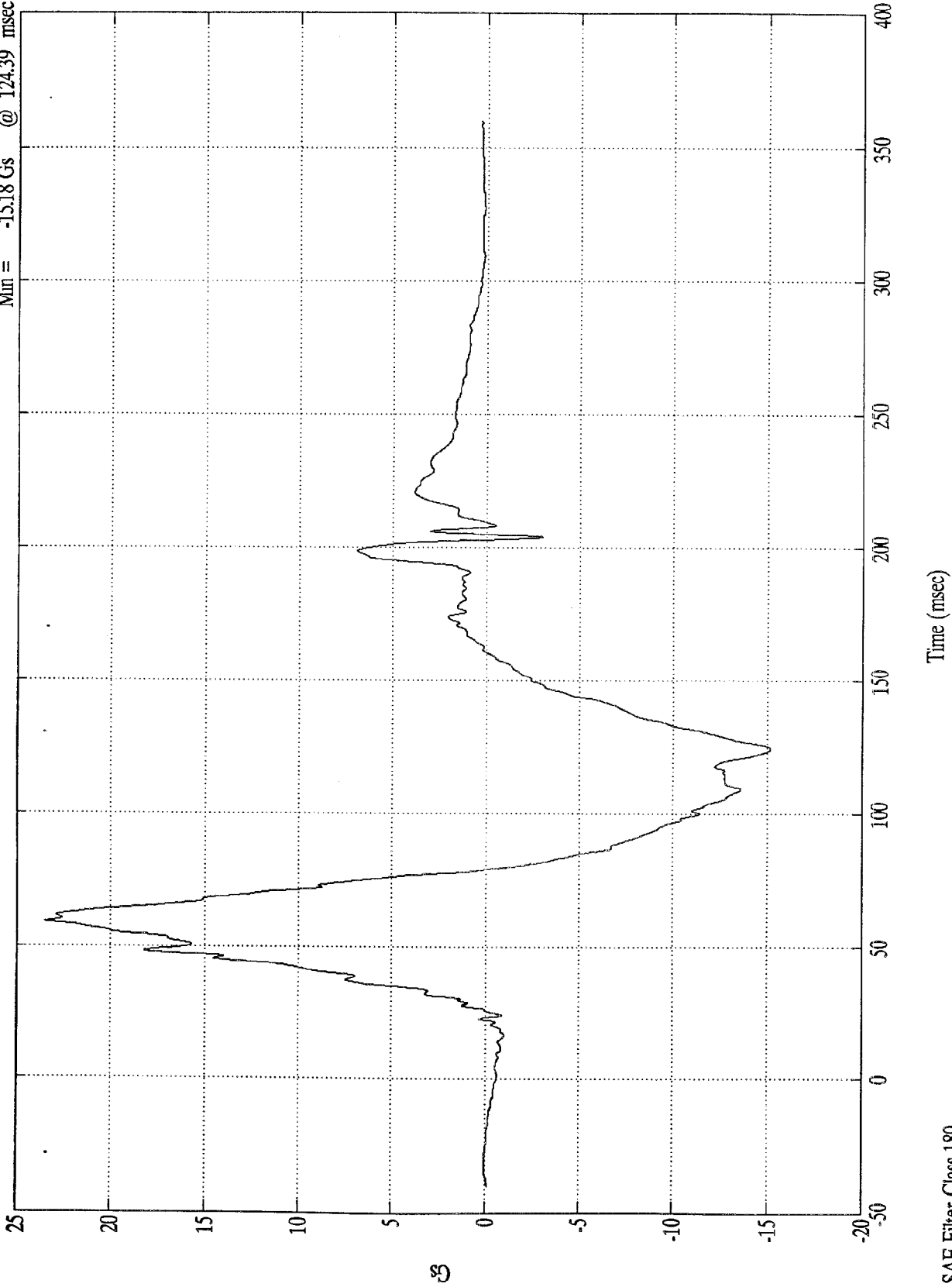
SAE Filter Class 180

MV5601 - 5/14/97

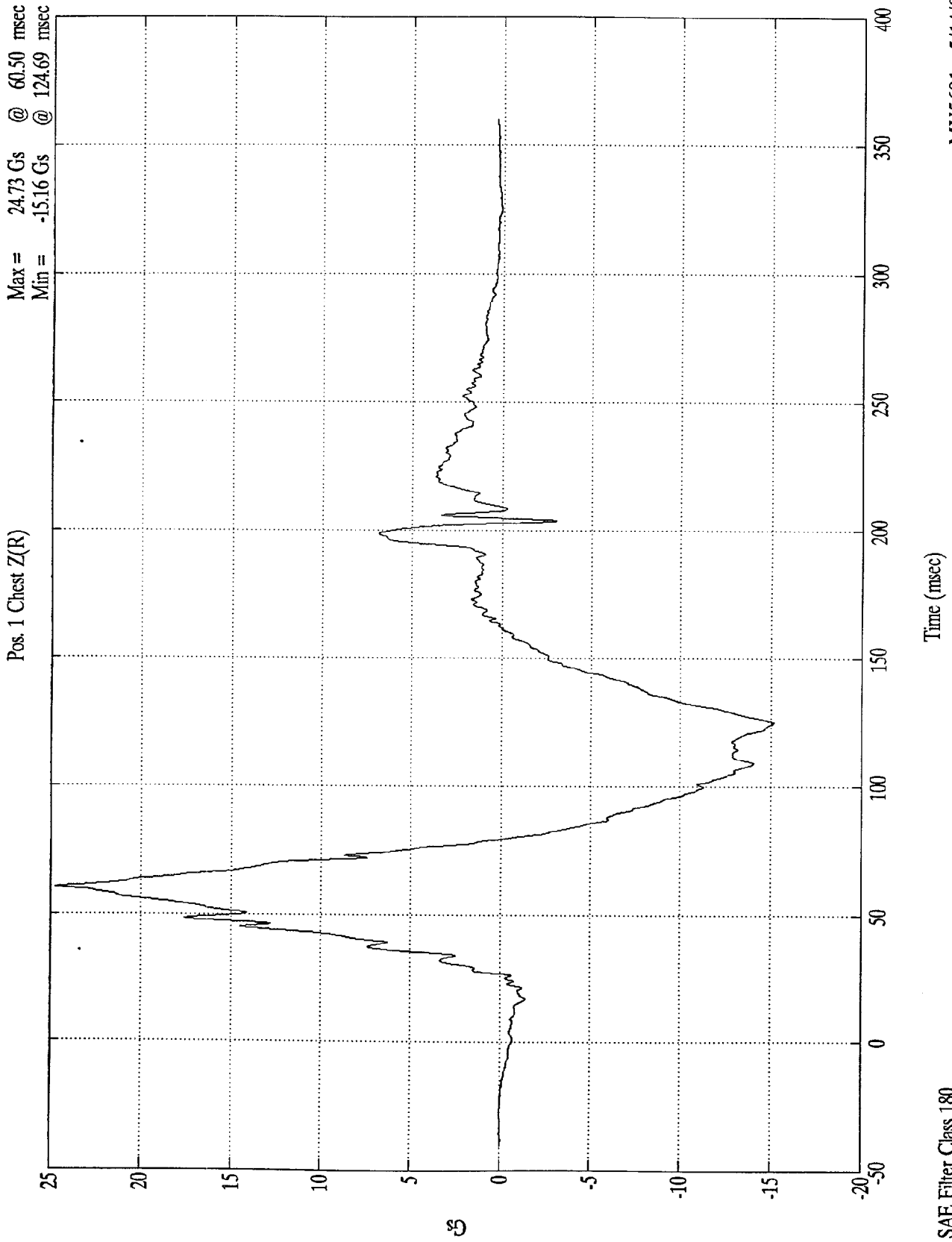
NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 23.49 Gs @ 58.99 msec
Min = -15.18 Gs @ 124.39 msec

Pos. 1 Chest Z



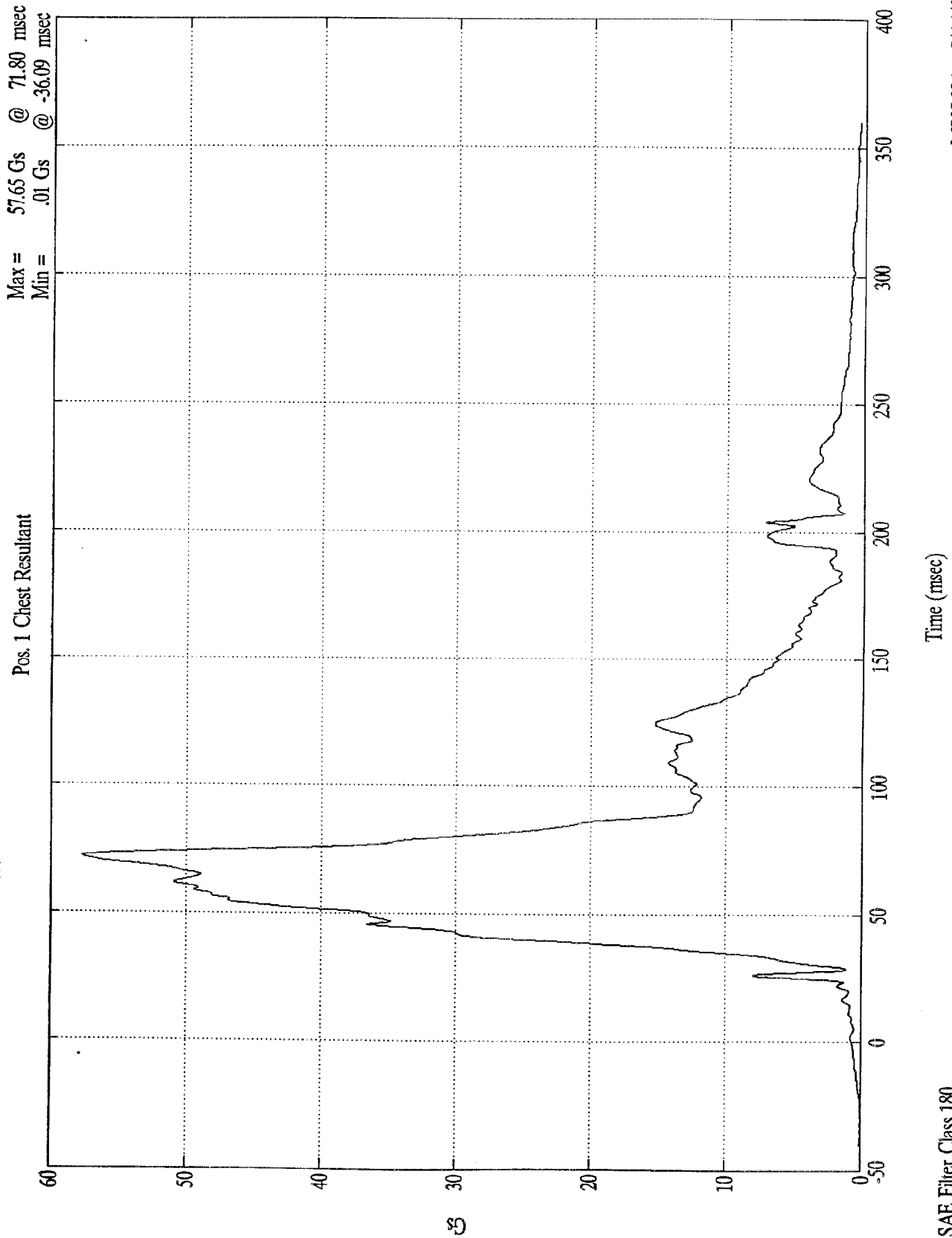
NCAP TEST #8 - 1997 MITSUBISHI MONTERO



SAE Filter Class 180

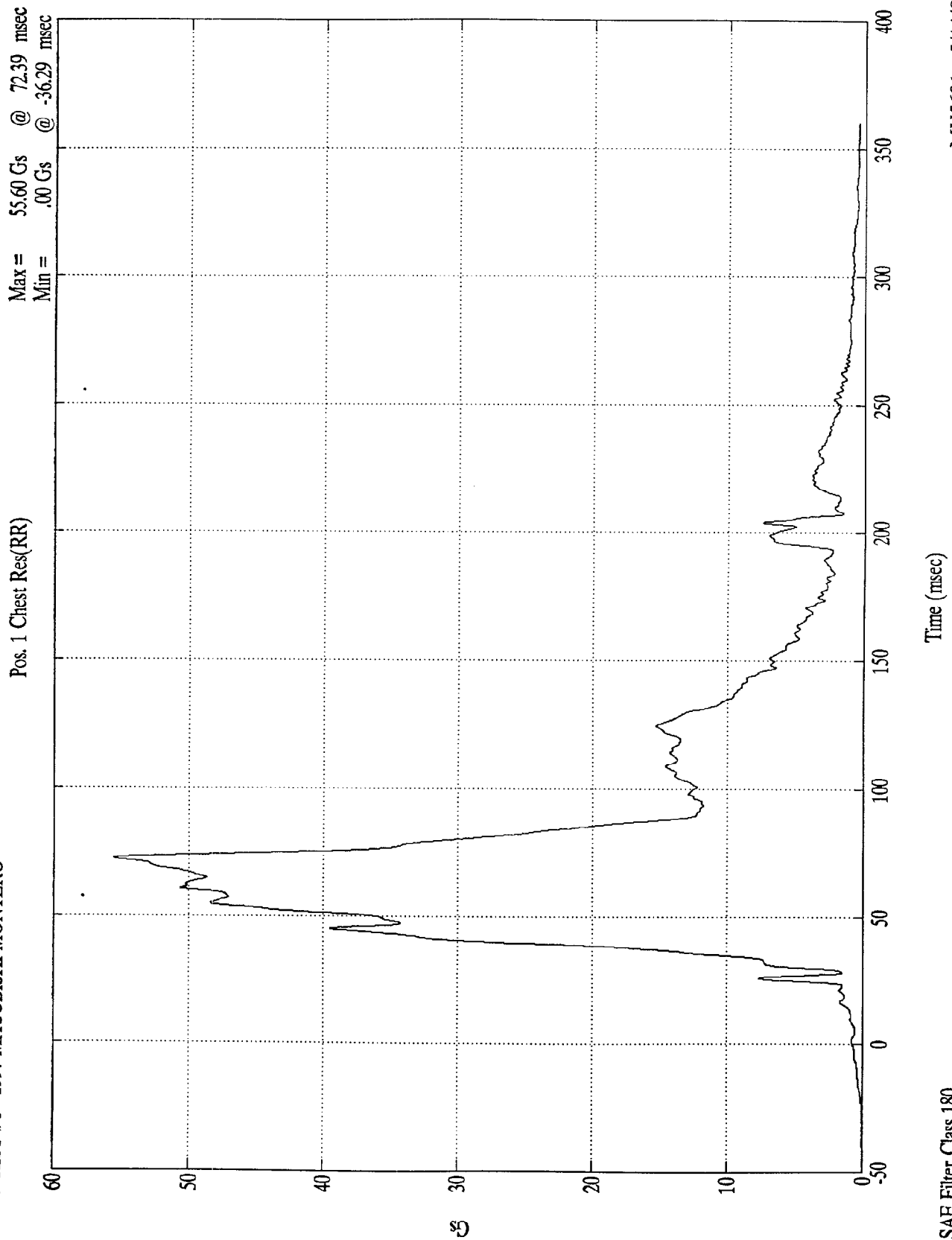
MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO



MV5601 - 5/14/97

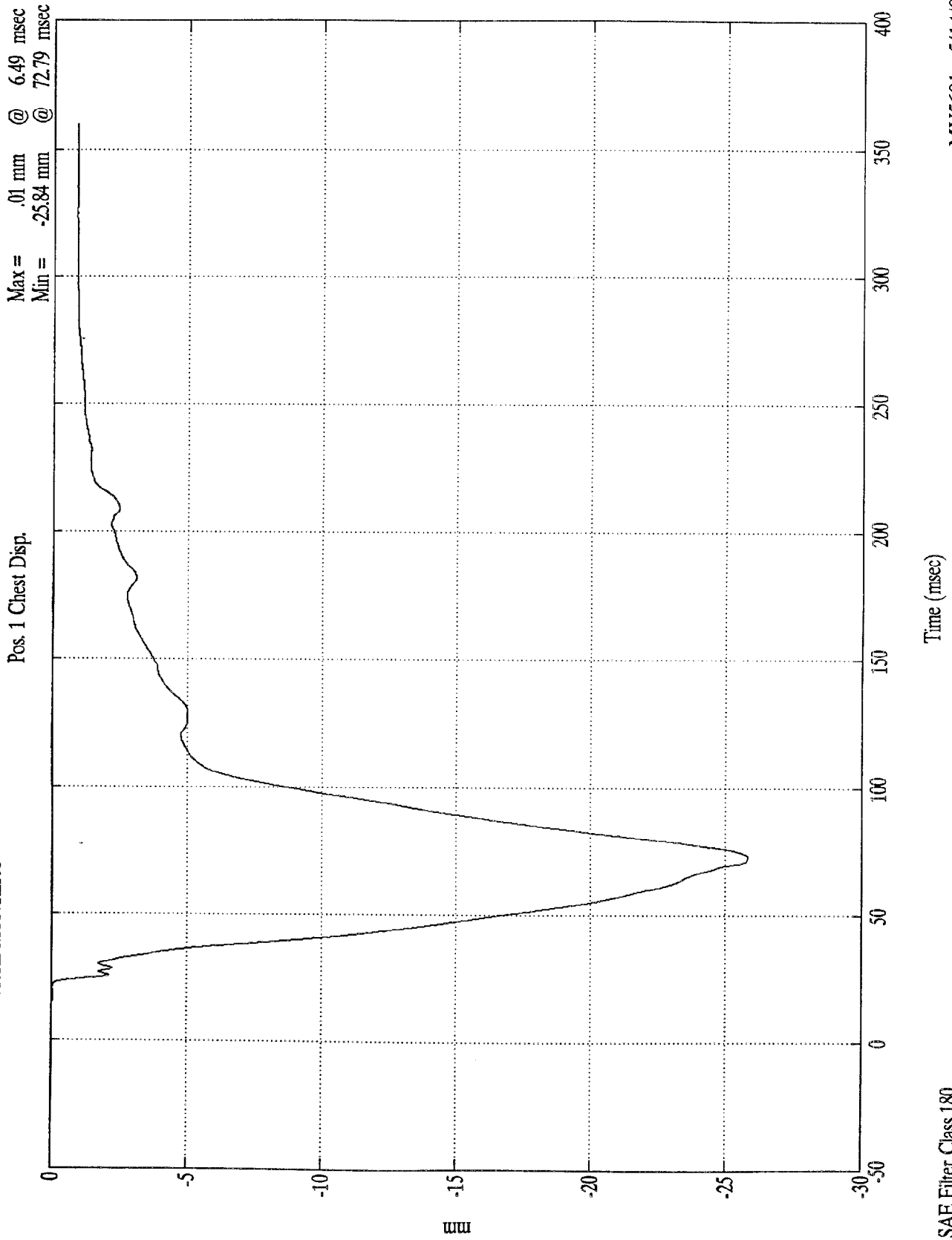
NCAP TEST #8 - 1997 MITSUBISHI MONTERO



SAE Filter Class 180

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

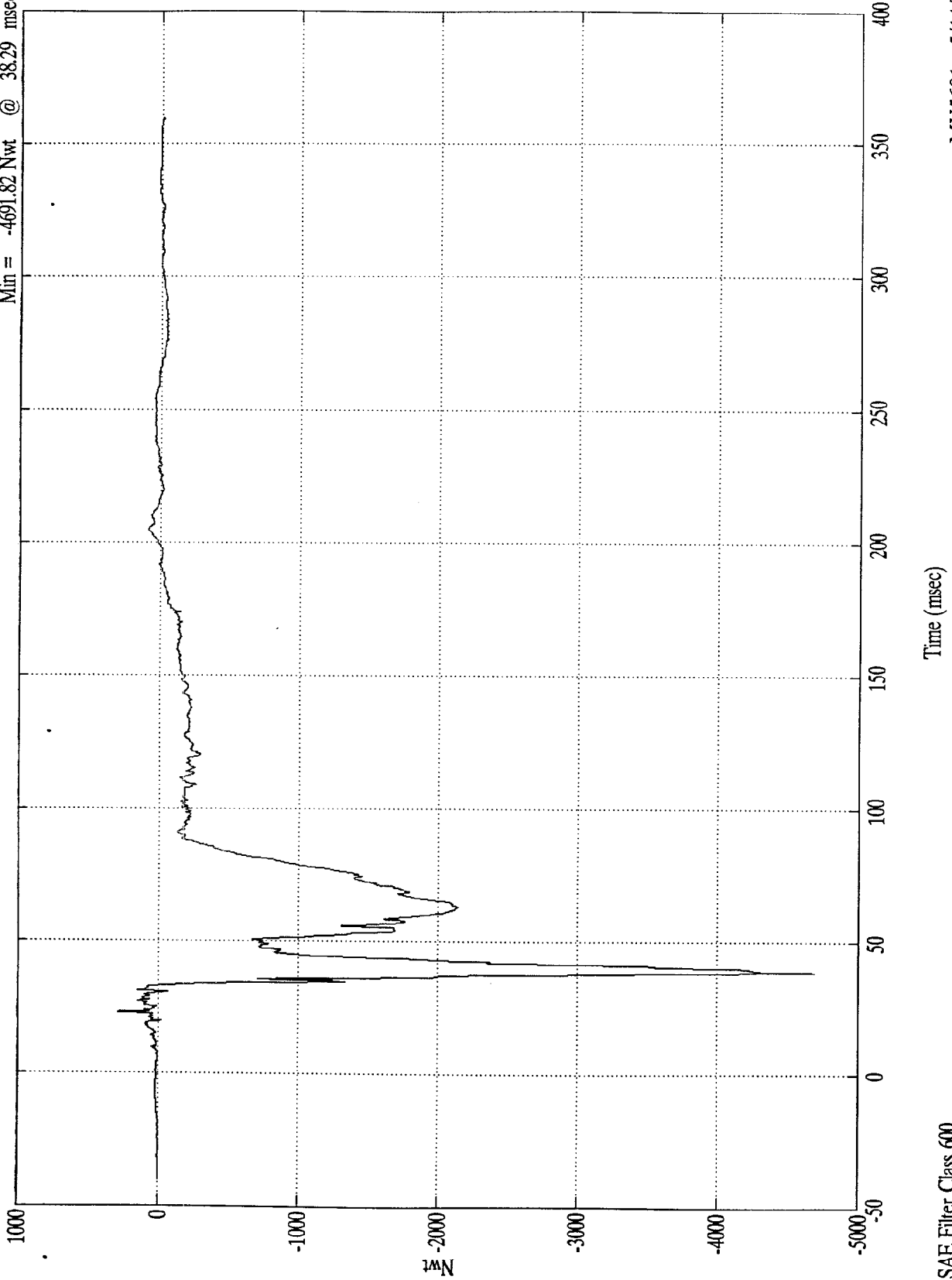


SAE Filter Class 180

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 1 Left Femur
Max = 288.81 Nwt @ 22.79 msec
Min = -4691.82 Nwt @ 38.29 msec



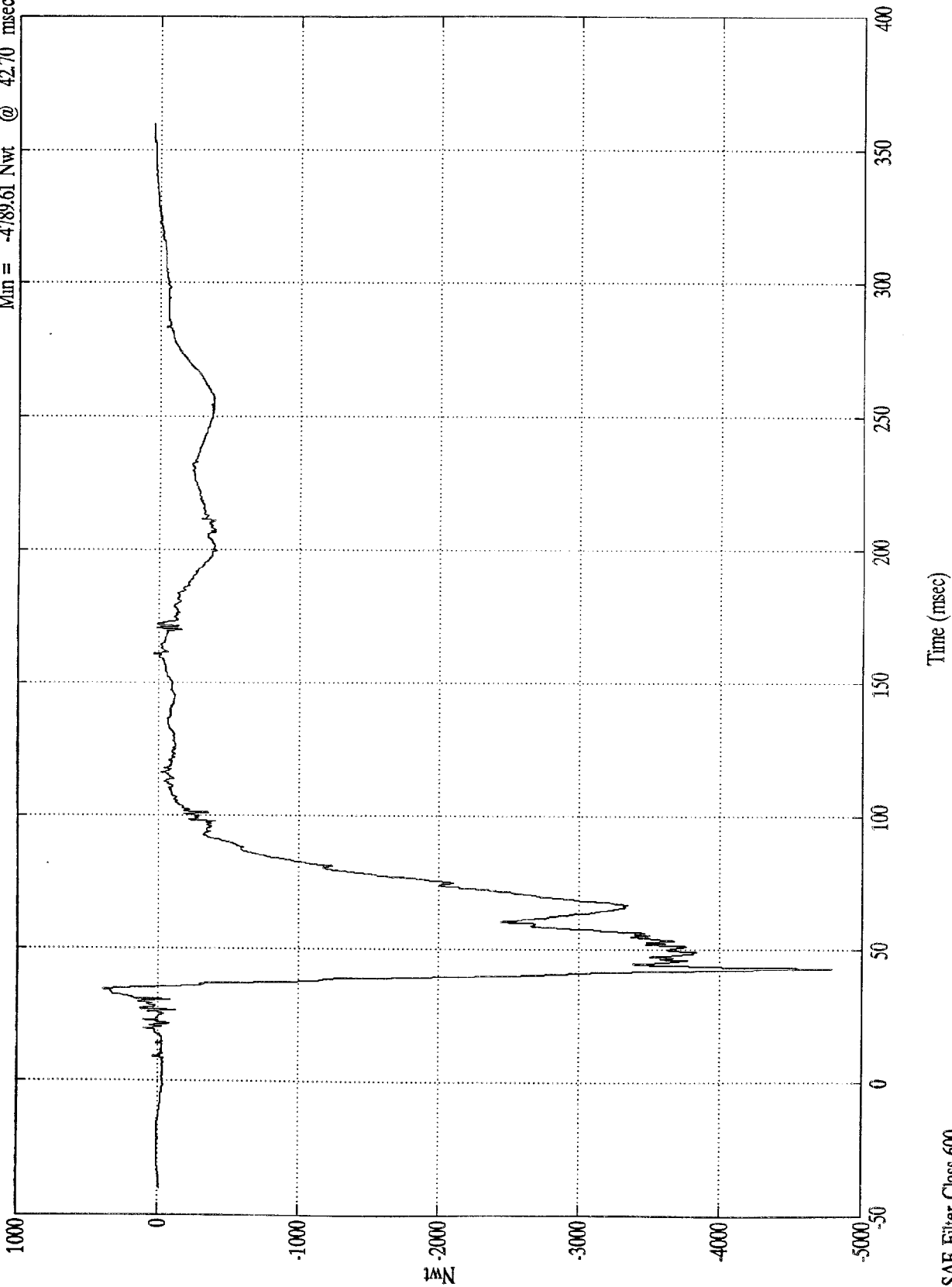
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 393.46 Nwt @ 34.19 msec
Min = -4789.61 Nwt @ 42.70 msec

Pos. 1 Right Femur



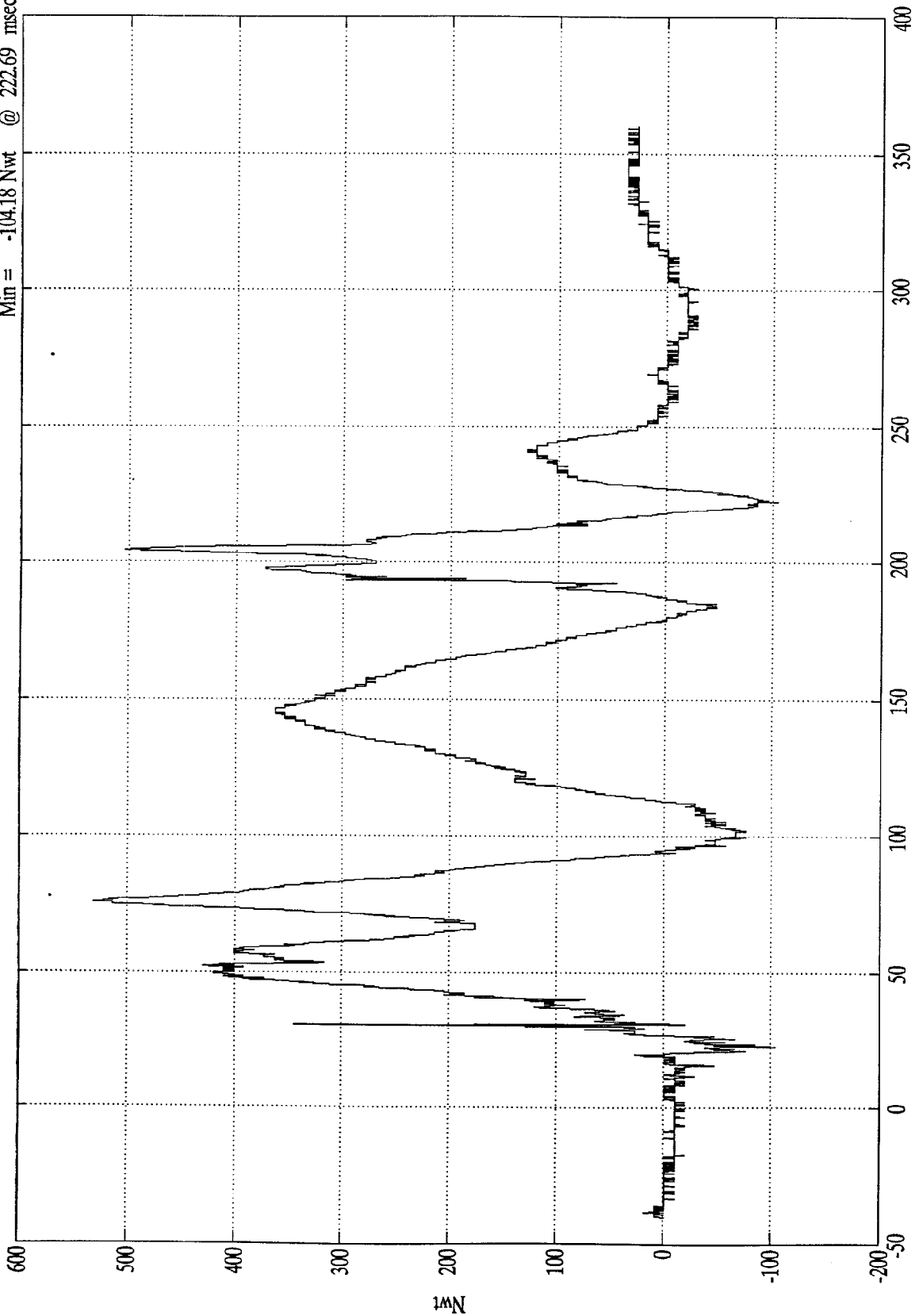
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 531.62 Nwt @ 75.59 msec
Min = -104.18 Nwt @ 222.69 msec

Pos. 1 Upper Neck Fx



Time (msec)

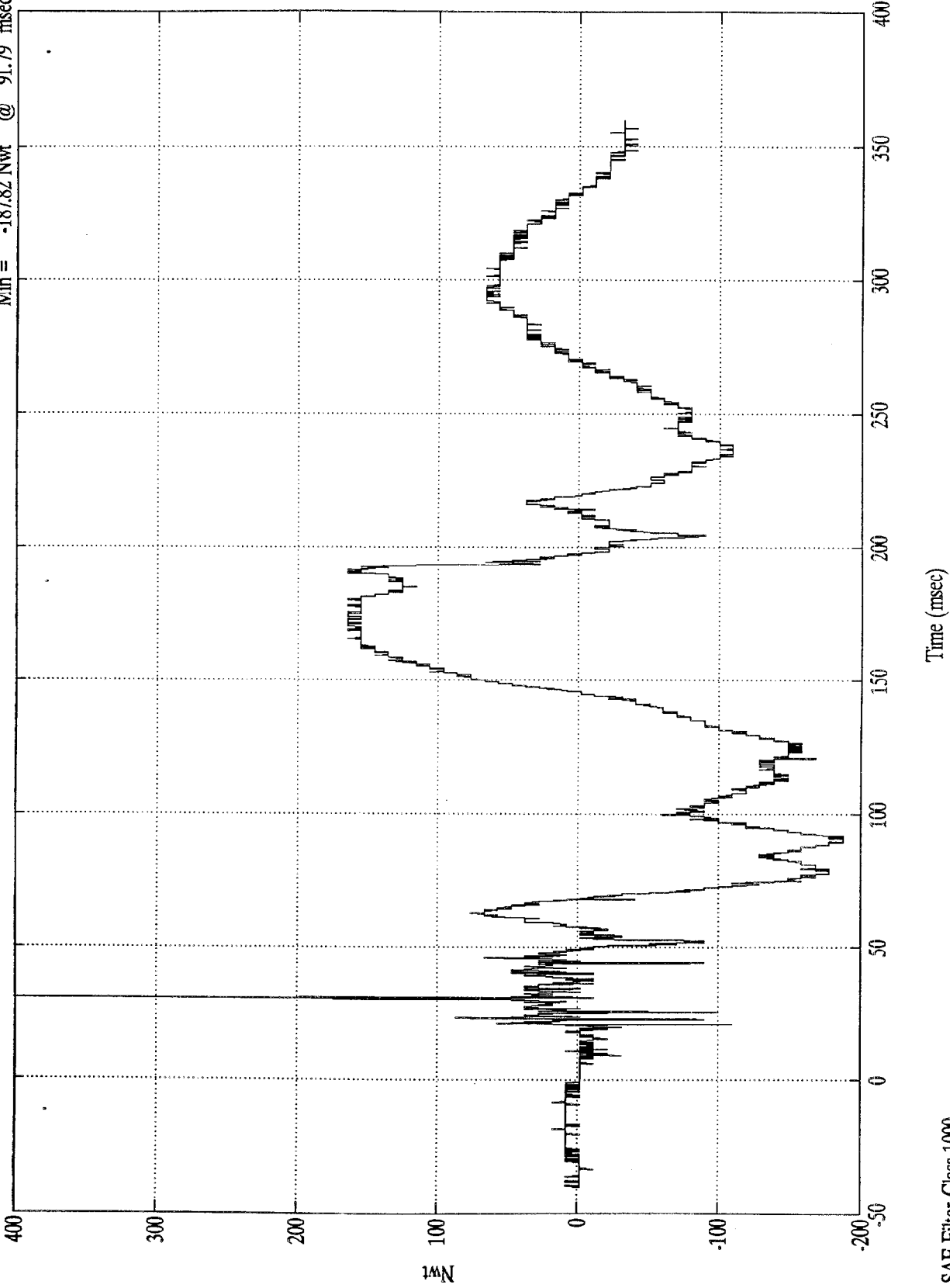
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 1 Upper Neck Fy

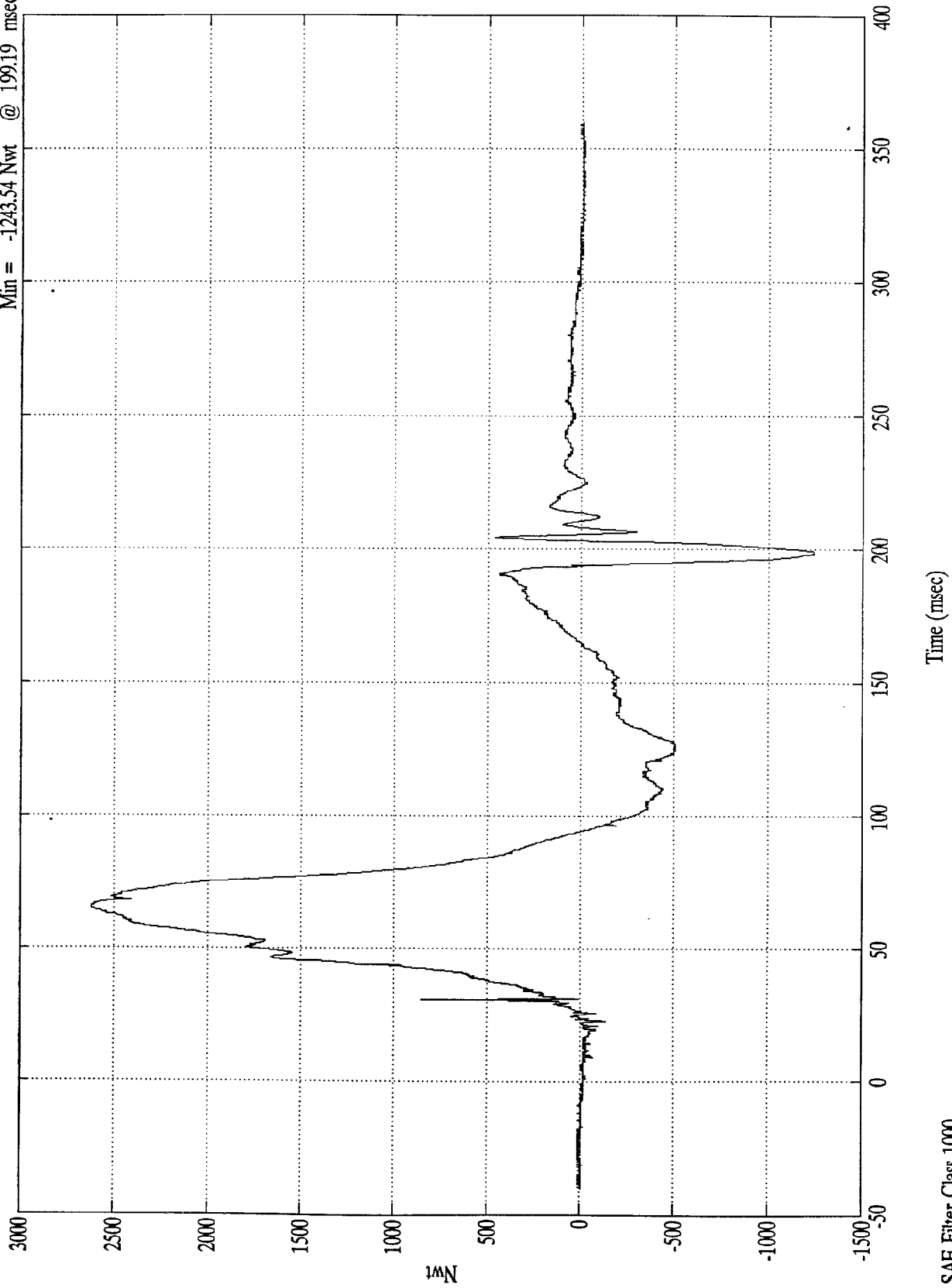
Max = 399.72 Nwt @ 30.49 msec
Min = -187.82 Nwt @ 91.79 msec



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 1 Upper Neck Fz

Max = 2623.84 Nwt @ 65.79 msec
Min = -1243.54 Nwt @ 199.19 msec

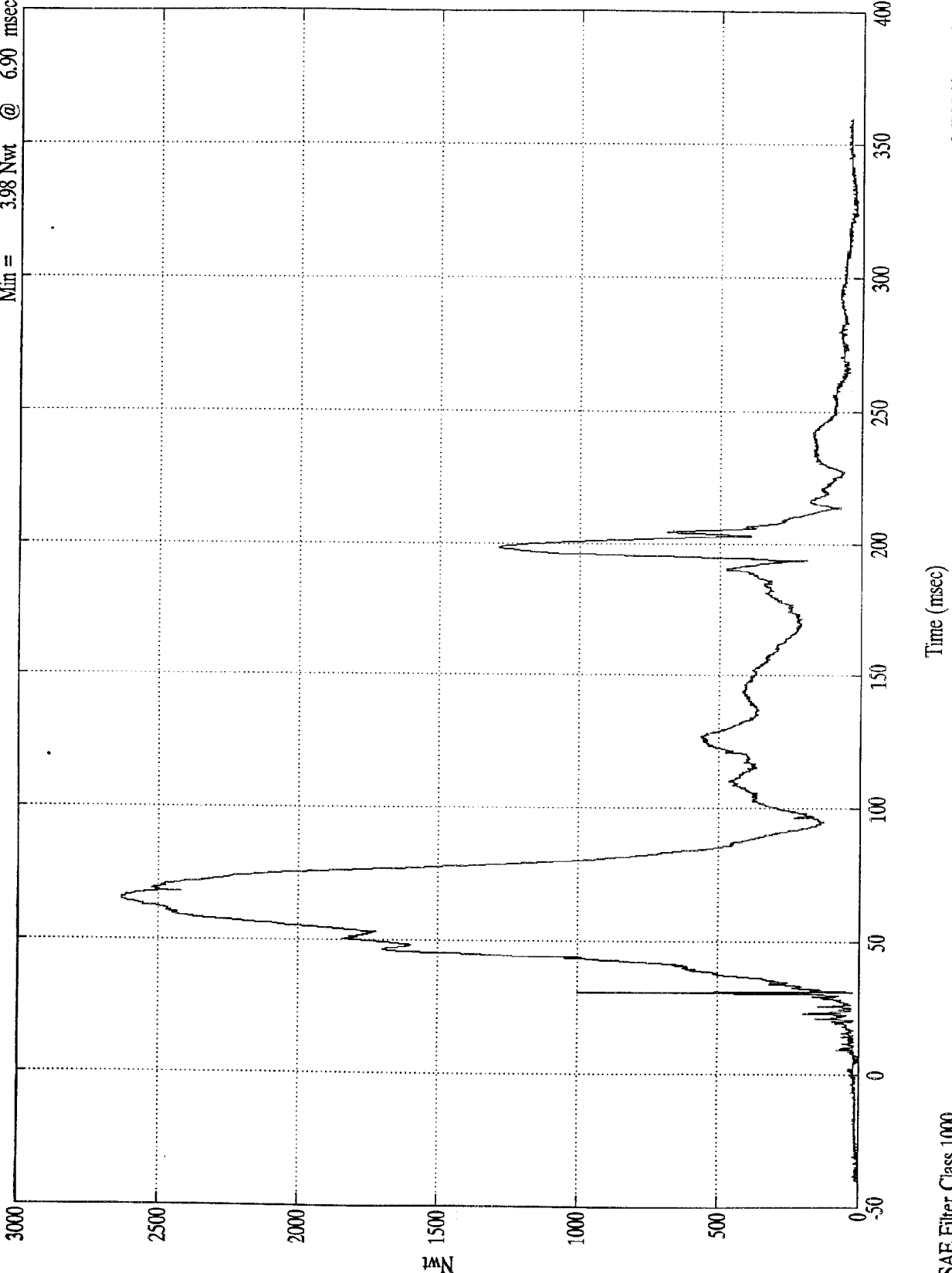


SAE Filter Class 1000

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 1 Neck Force Res.

Max = 2632.41 Nwt @ 64.80 msec
Min = 3.98 Nwt @ 6.90 msec



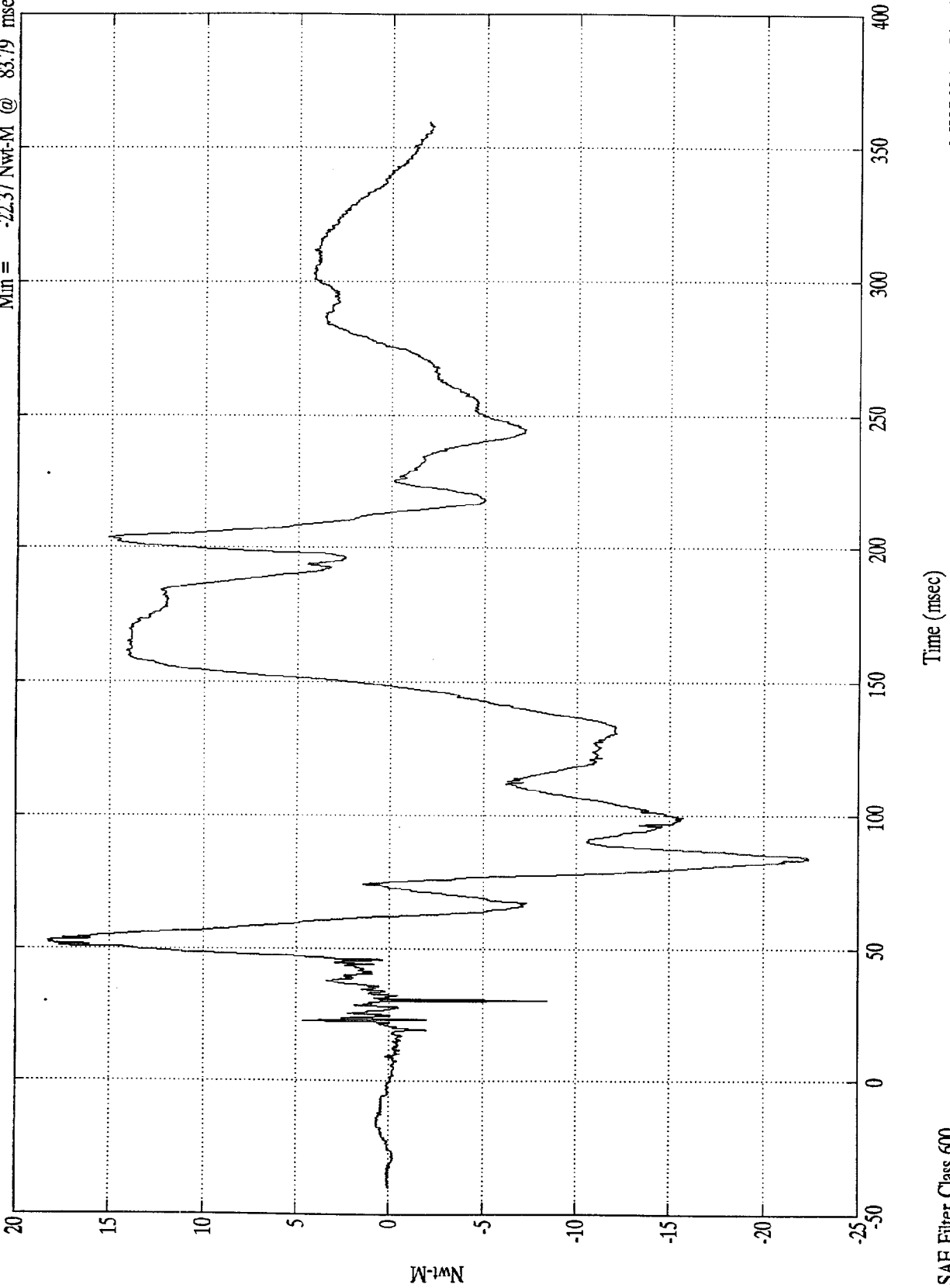
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 18.28 Nwt-M @ 52.79 msec
Min = -22.37 Nwt-M @ 83.79 msec

Pos. 1 Upper Neck Mx

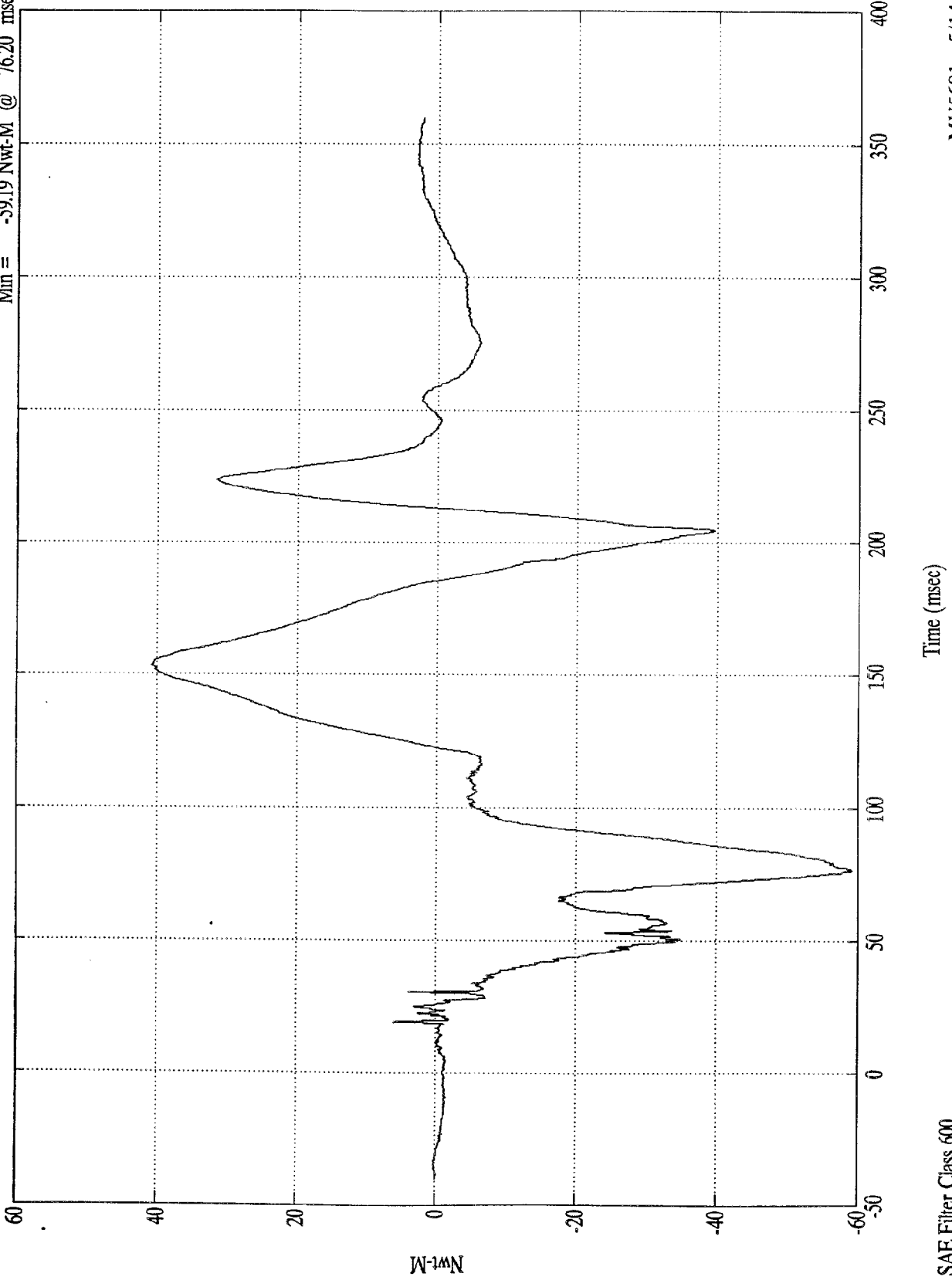


MV5601 - 5/14/97

SAE Filter Class 600

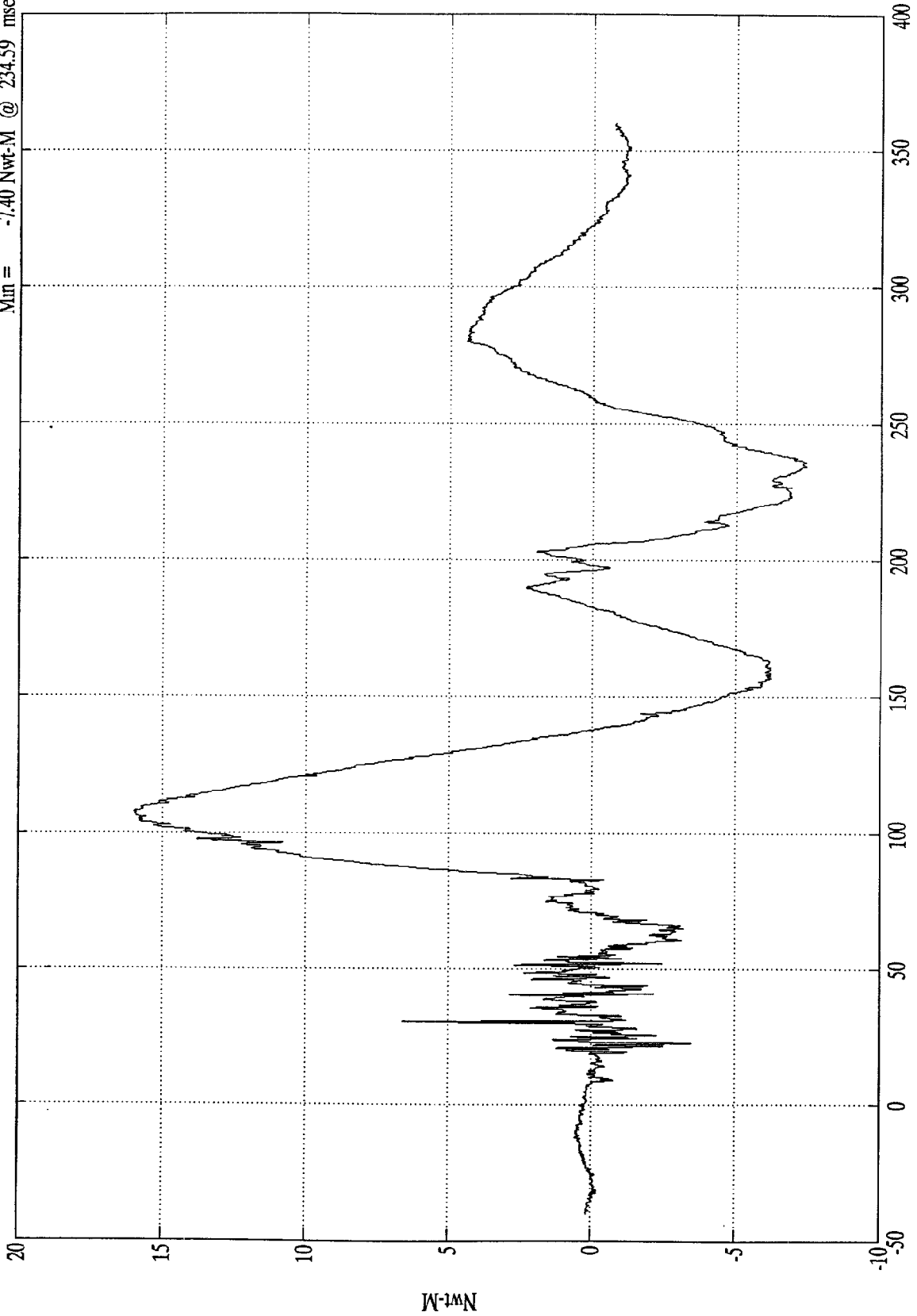
NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 1 Upper Neck My
Max = 40.78 Nwt-M @ 153.49 msec
Min = -59.19 Nwt-M @ 76.20 msec



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 1 Upper Neck Mz
Max = 15.96 Nwt-M @ 107.80 msec
Min = -7.40 Nwt-M @ 234.59 msec



Time (msec)

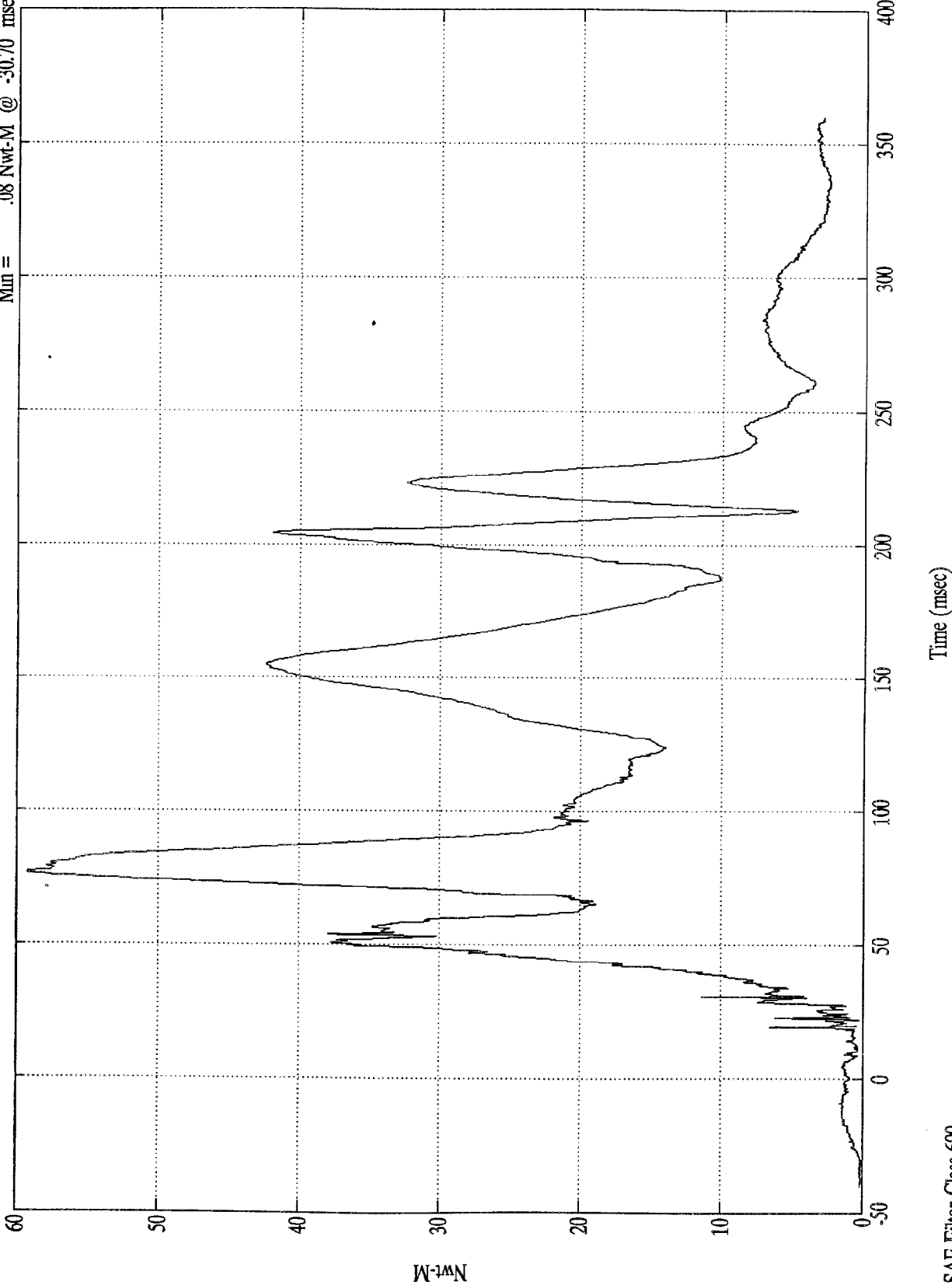
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 59.30 Nwt-M @ 76.20 msec
Min = .08 Nwt-M @ -30.70 msec

Pos. 1 Neck Moment Res.

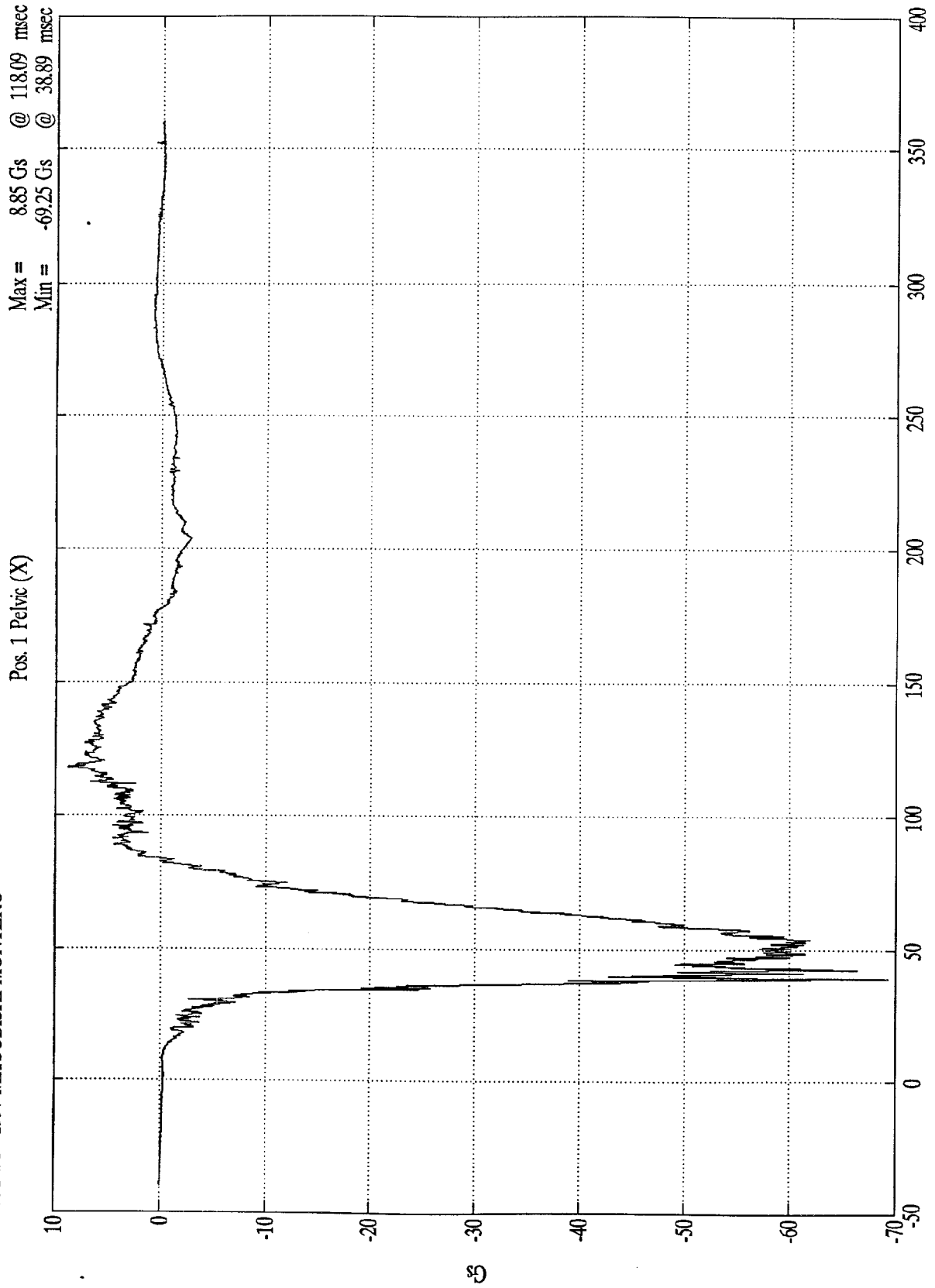


SAE Filter Class 600

Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

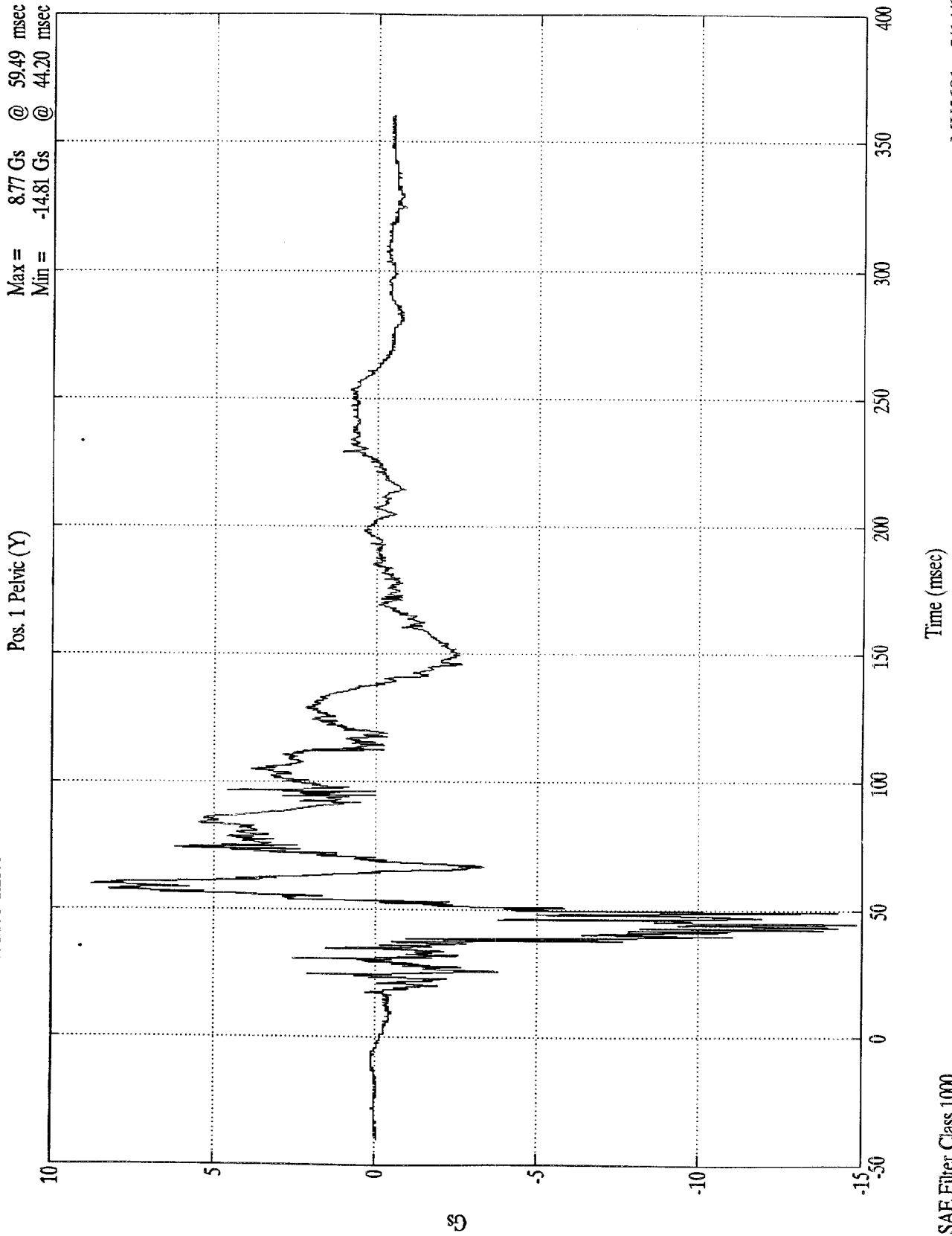


Time (msec)

SAE Filter Class 1000

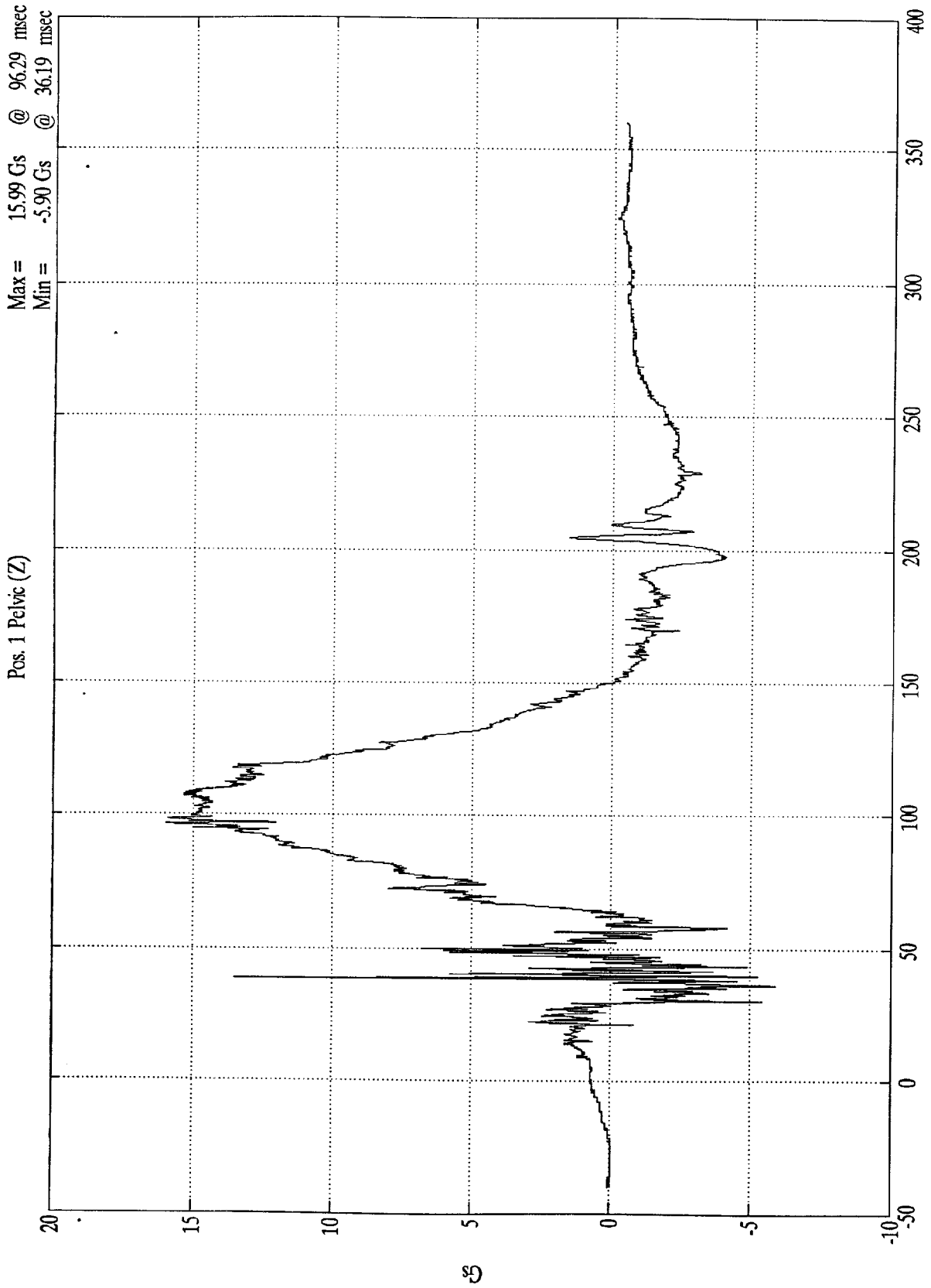
MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO



MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

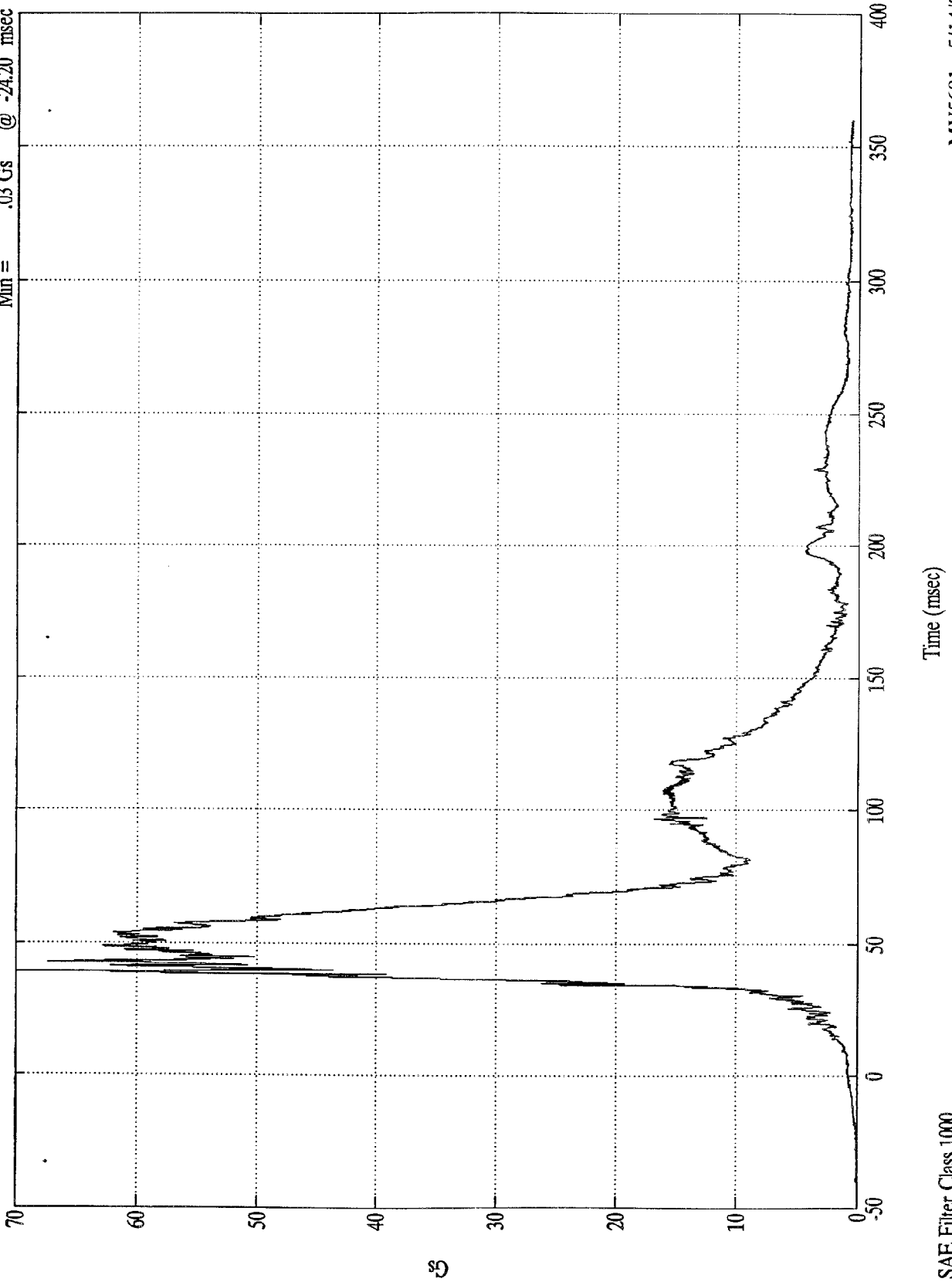


SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 1 Pelvic (R)
Max = 69.89 Gs @ 38.89 msec
Min = .03 Gs @ -24.20 msec



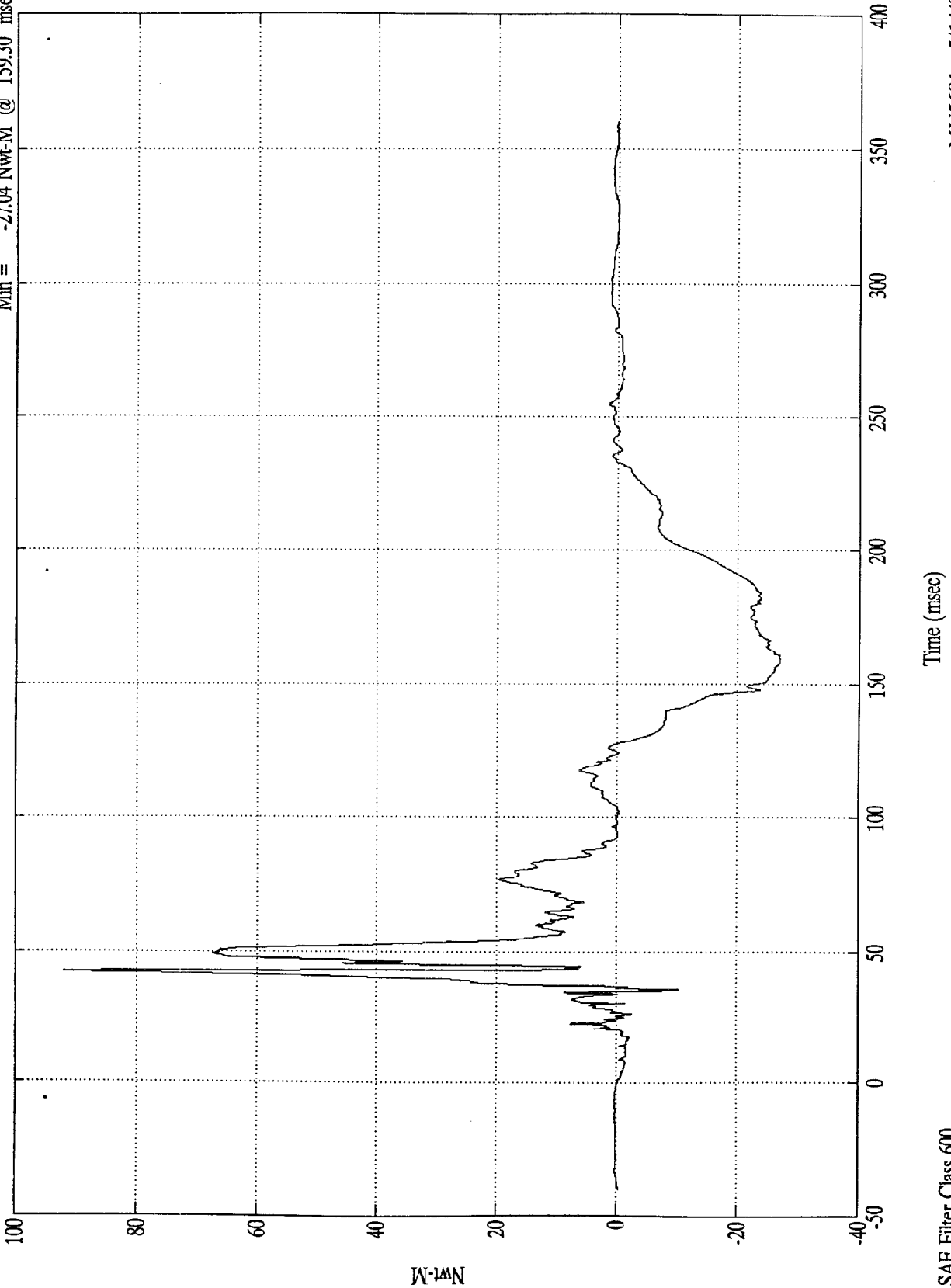
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 92.06 Nwt-M @ 42.50 msec
Min = -27.04 Nwt-M @ 159.30 msec

P1 Lt Upper Tibia Mx



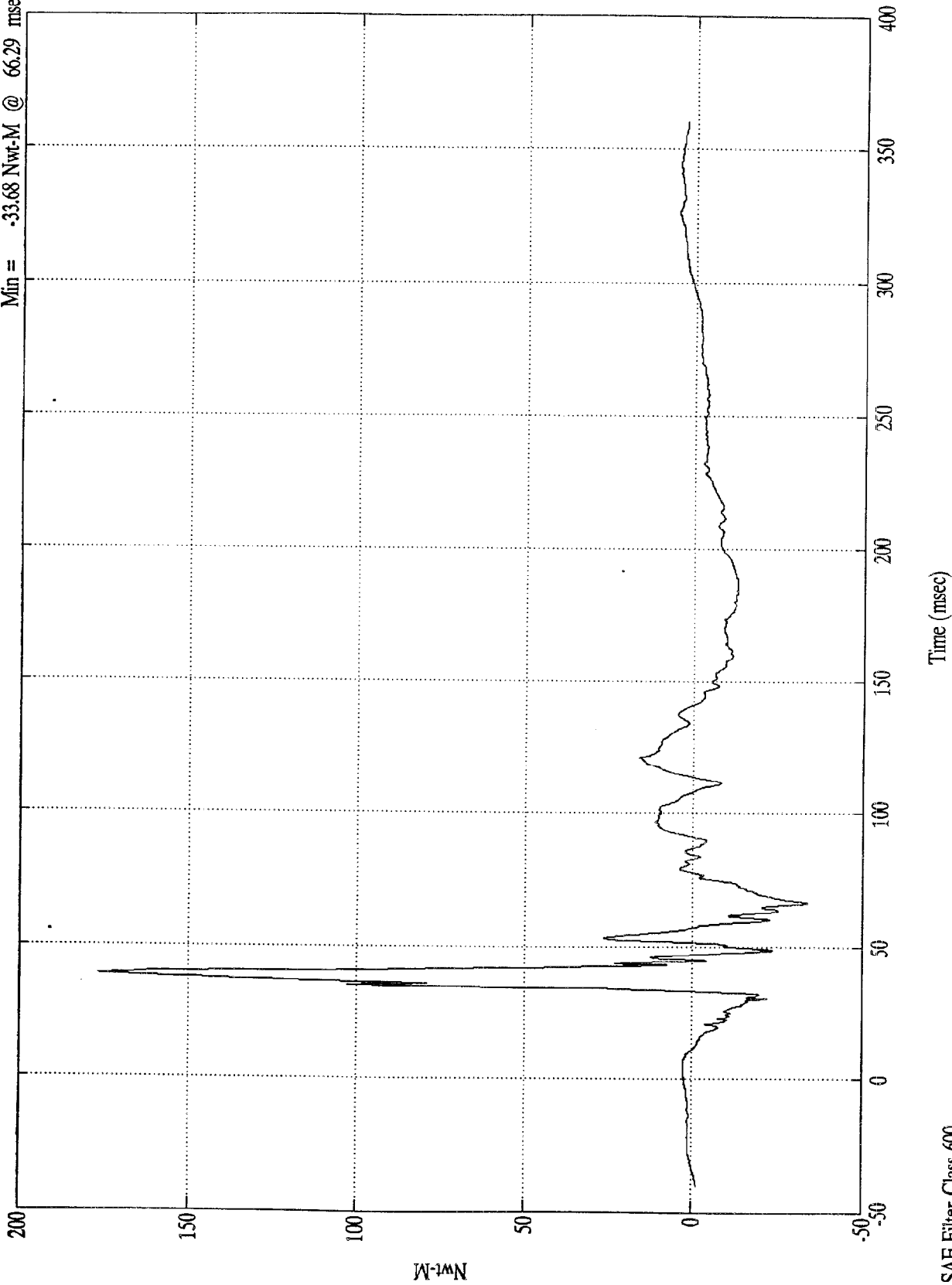
MV5601 - 5/14/97

SAE Filter Class 600

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

P1 Lt Upper Tibia My

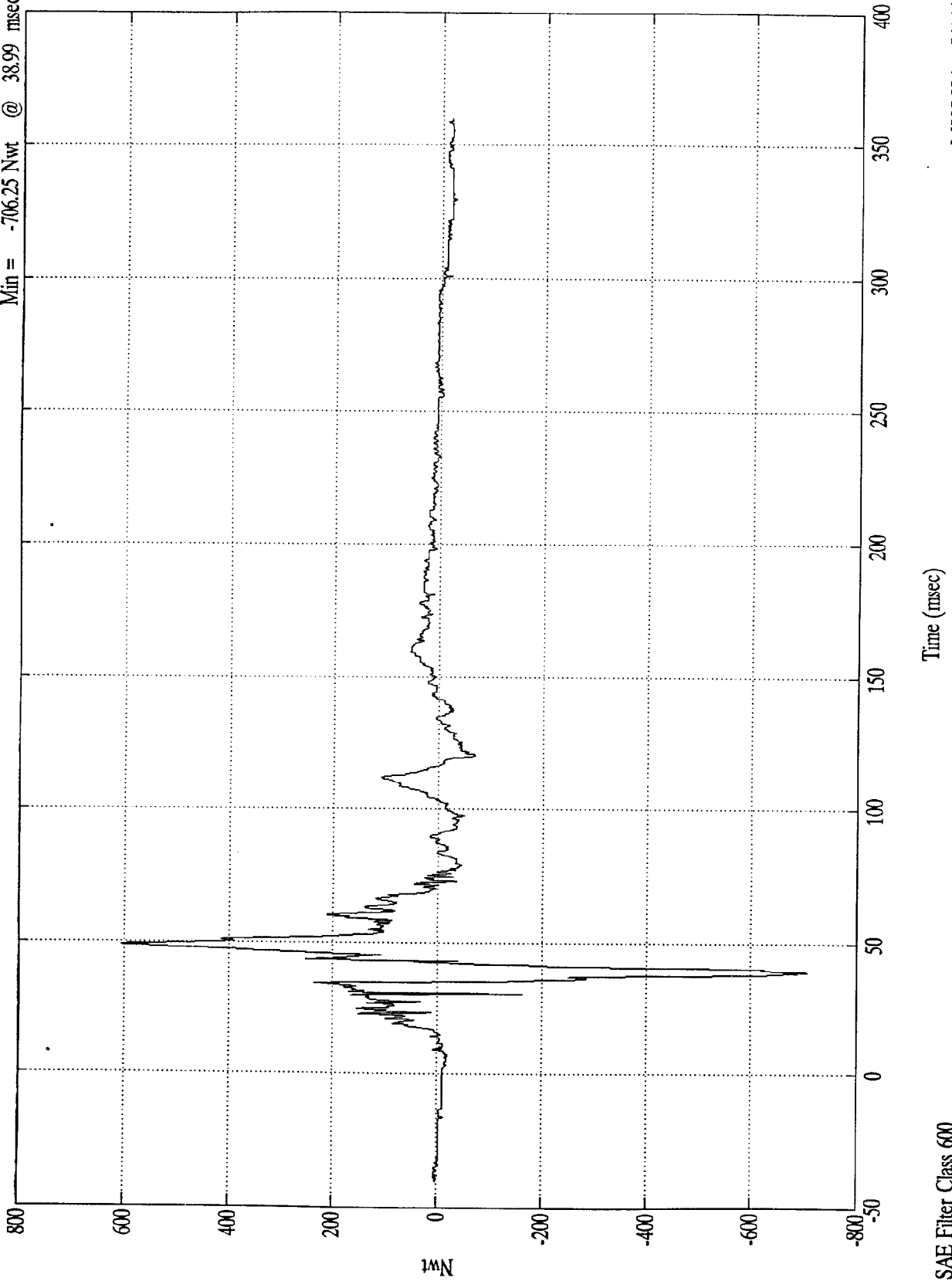
Max = 176.71 Nwt-M @ 38.79 msec
Min = -33.68 Nwt-M @ 66.29 msec



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 605.91 Nwt @ 48.79 msec
Min = -706.25 Nwt @ 38.99 msec

P1 Lt Lower Tibia Fx



Time (msec)

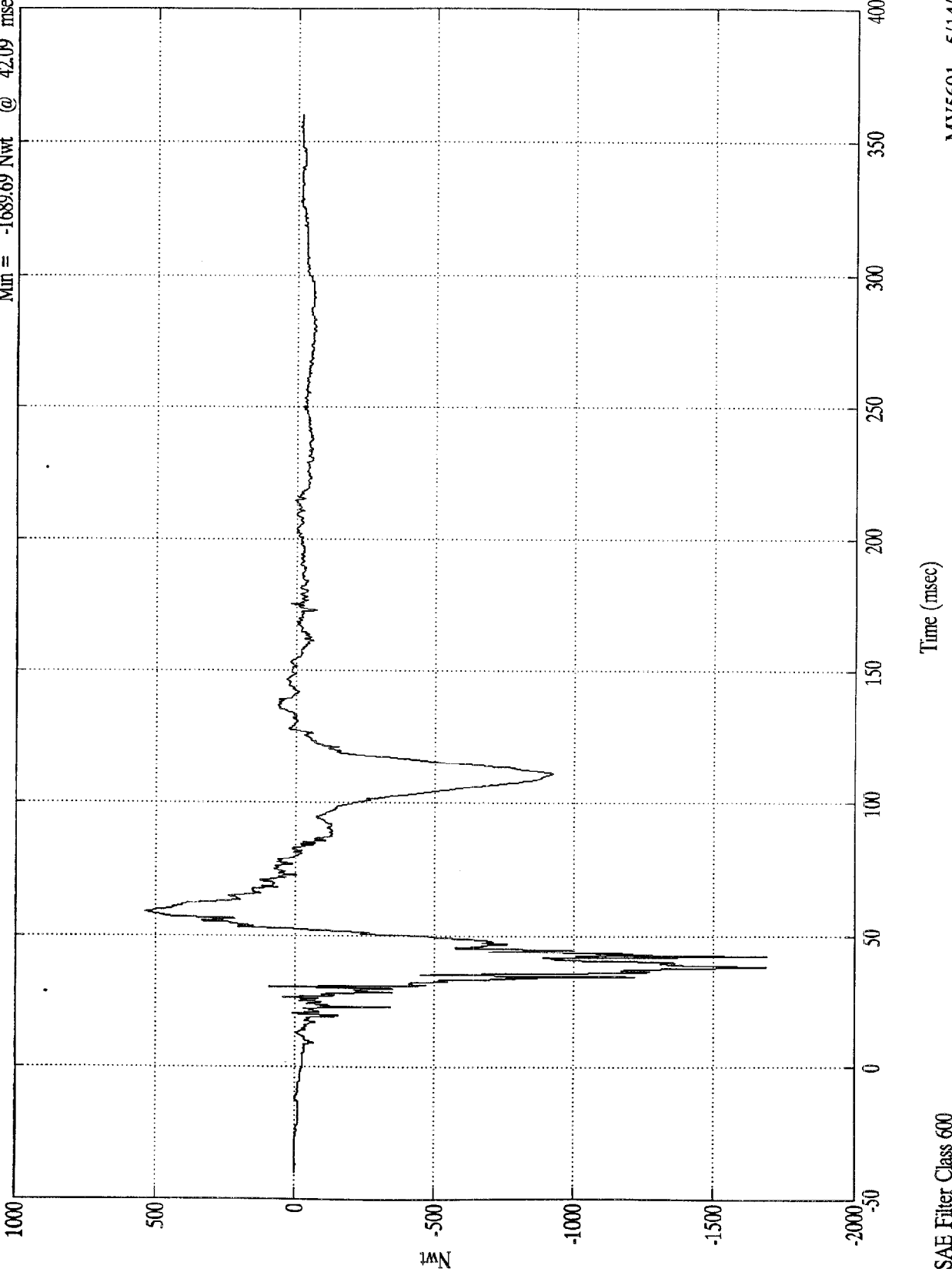
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

P1 Lt Lower Tibia Fz

Max = 539.13 Nwt @ 58.70 msec
Min = -1689.69 Nwt @ 42.09 msec



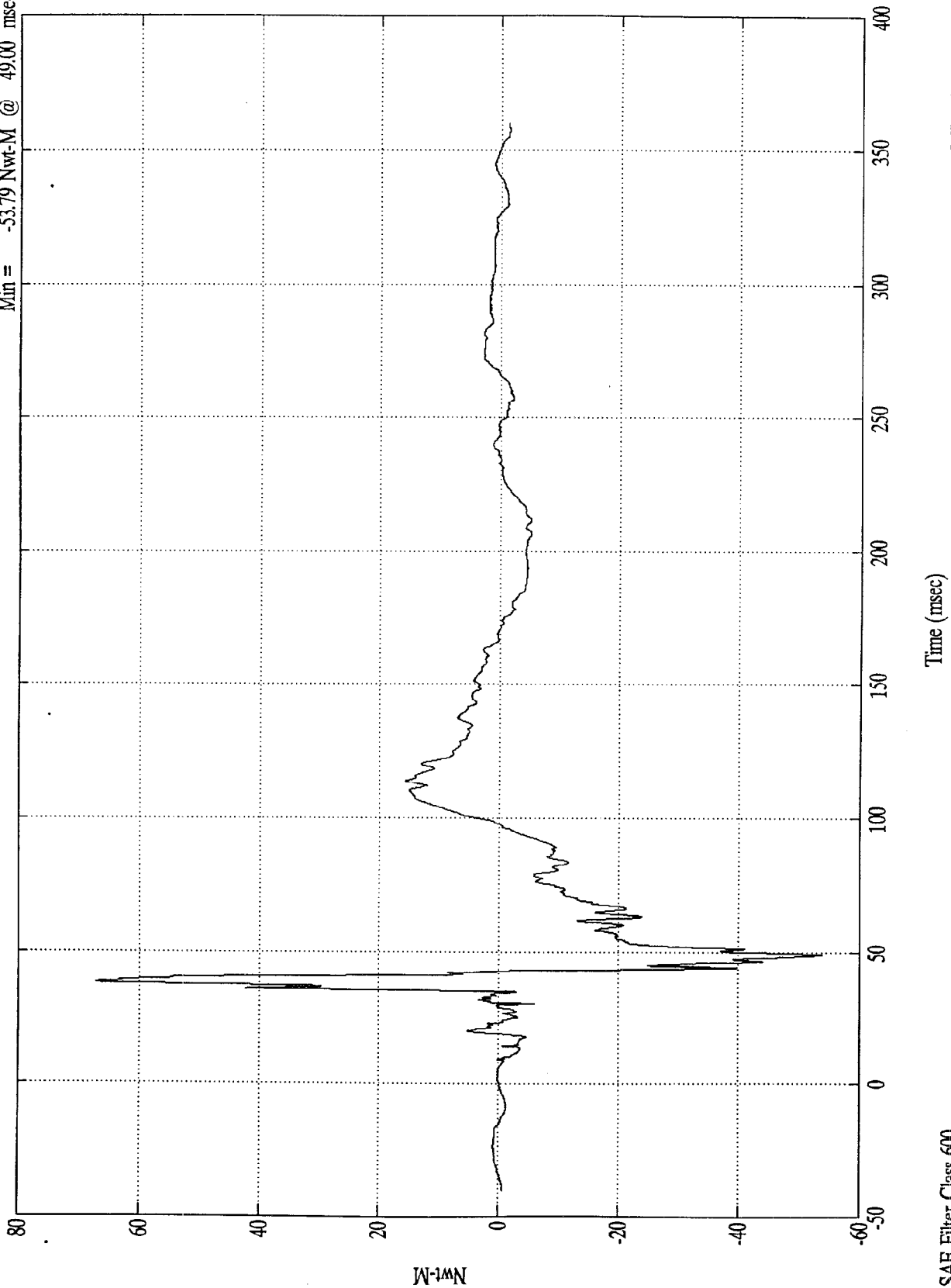
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

P1 Lt Lower Tibia My

Max = 67.12 Nwt-M @ 38.19 msec
Min = -53.79 Nwt-M @ 49.00 msec



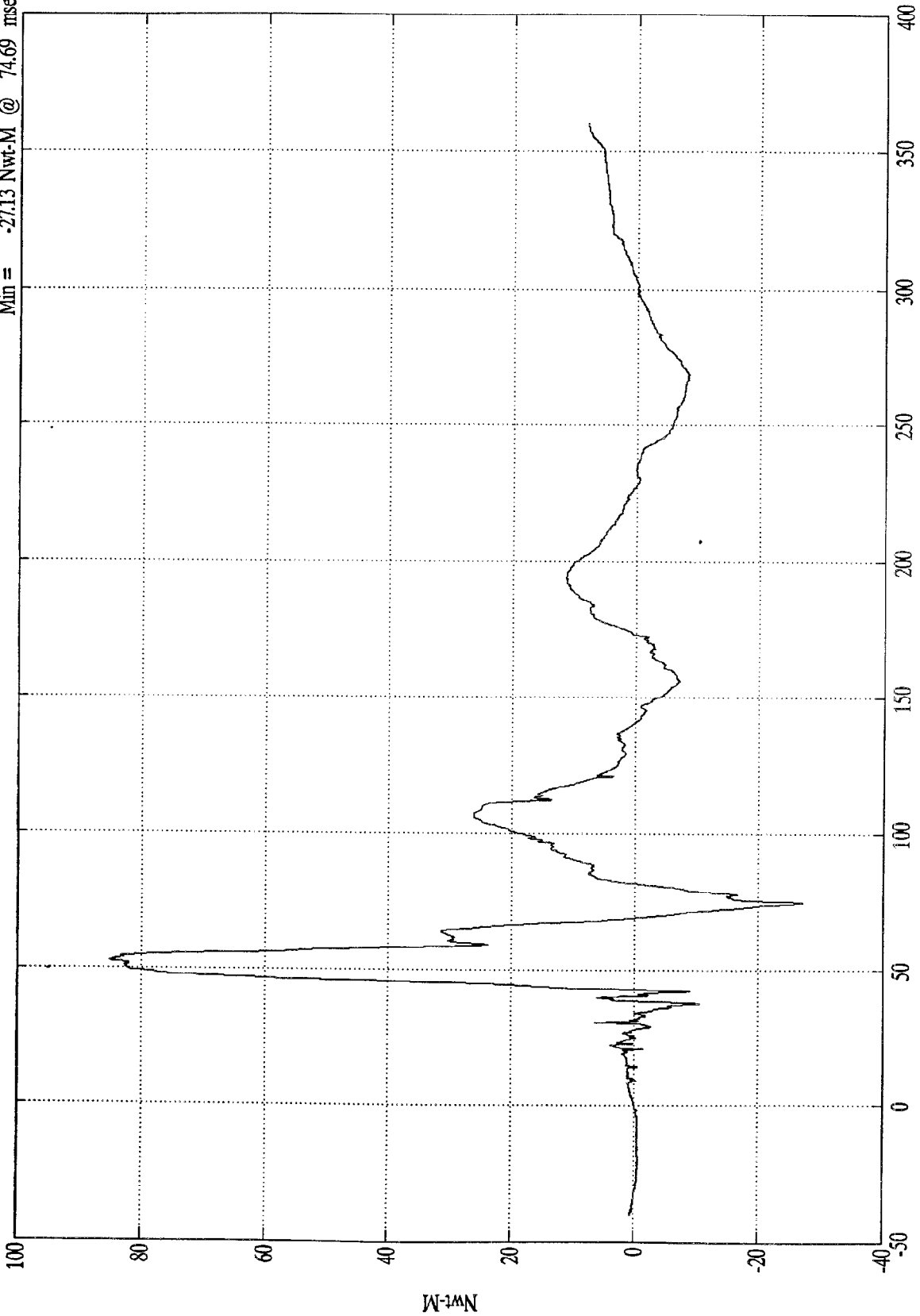
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

P1 Rt Upper Tibia Mx

Max = 85.07 Nwt-M @ 52.69 msec
Min = -27.13 Nwt-M @ 74.69 msec



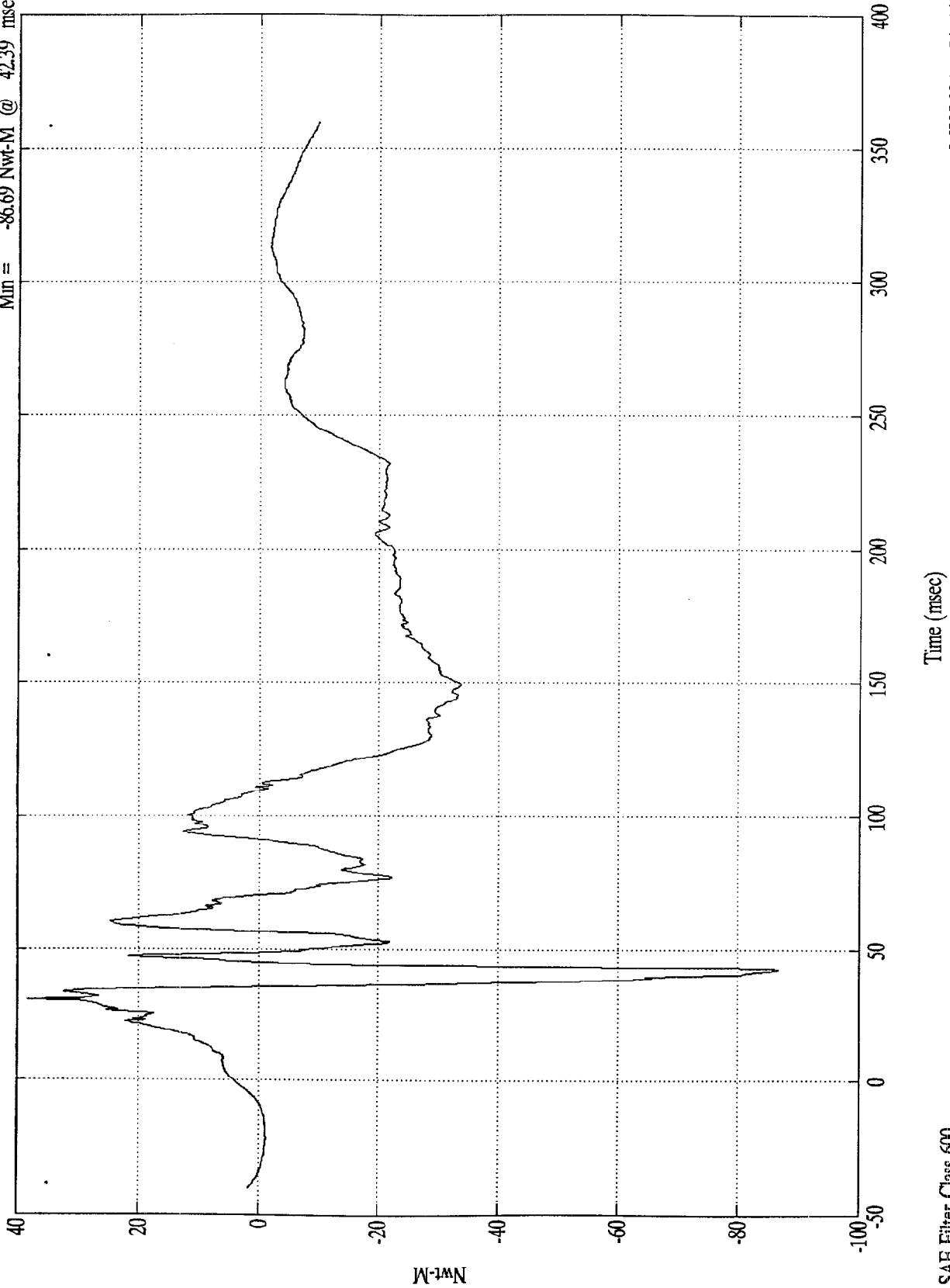
Time (msec)

SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

P1 Rt Upper Tibia My
Max = 38.33 Nwt-M @ 30.49 msec
Min = -86.69 Nwt-M @ 42.39 msec

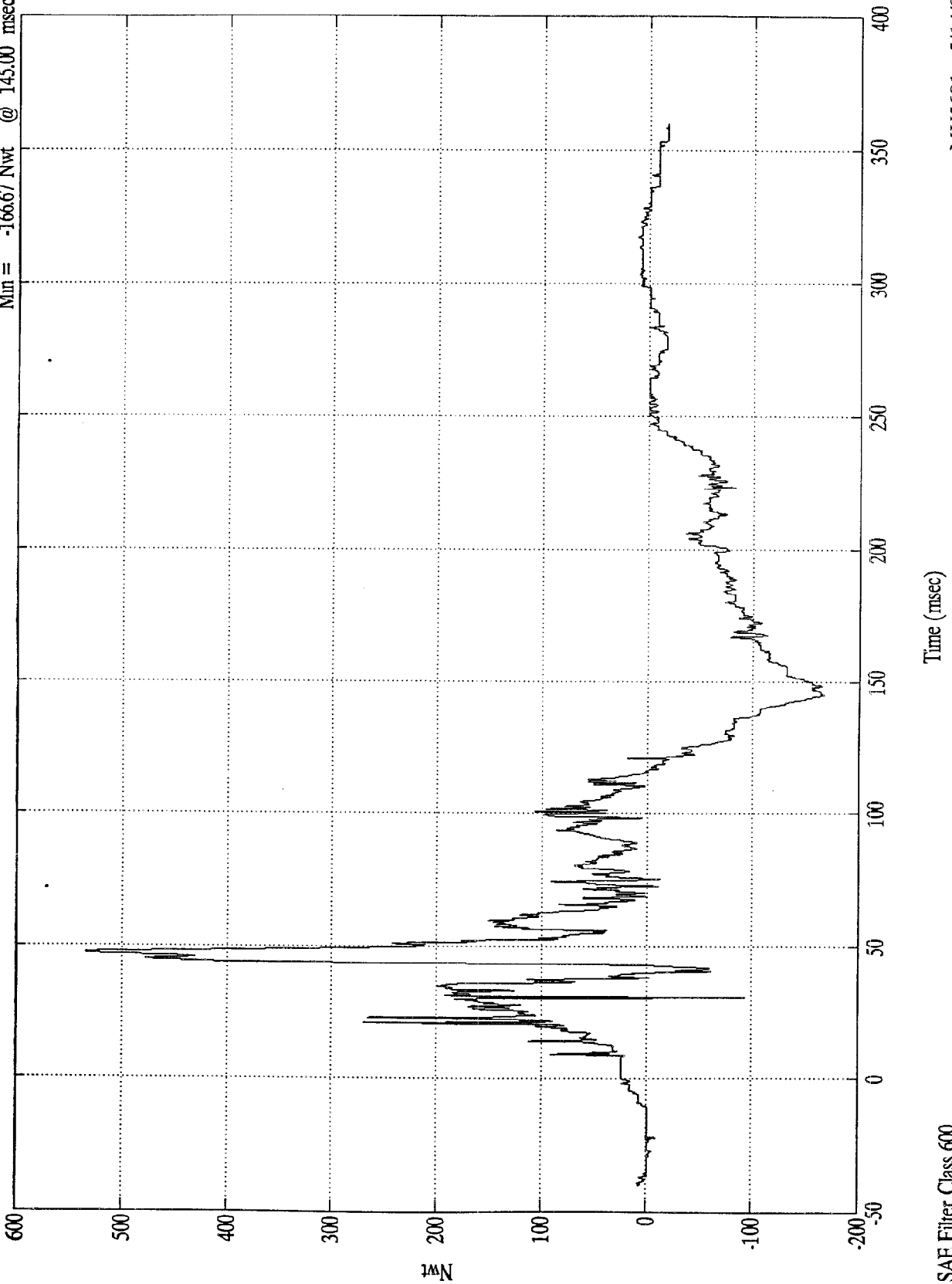


MV5601 - 5/14/97

SAE Filter Class 600

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

P1 Rt Lower Tibia Fx
Max = 534.22 Nwt @ 47.19 msec
Min = -166.67 Nwt @ 145.00 msec



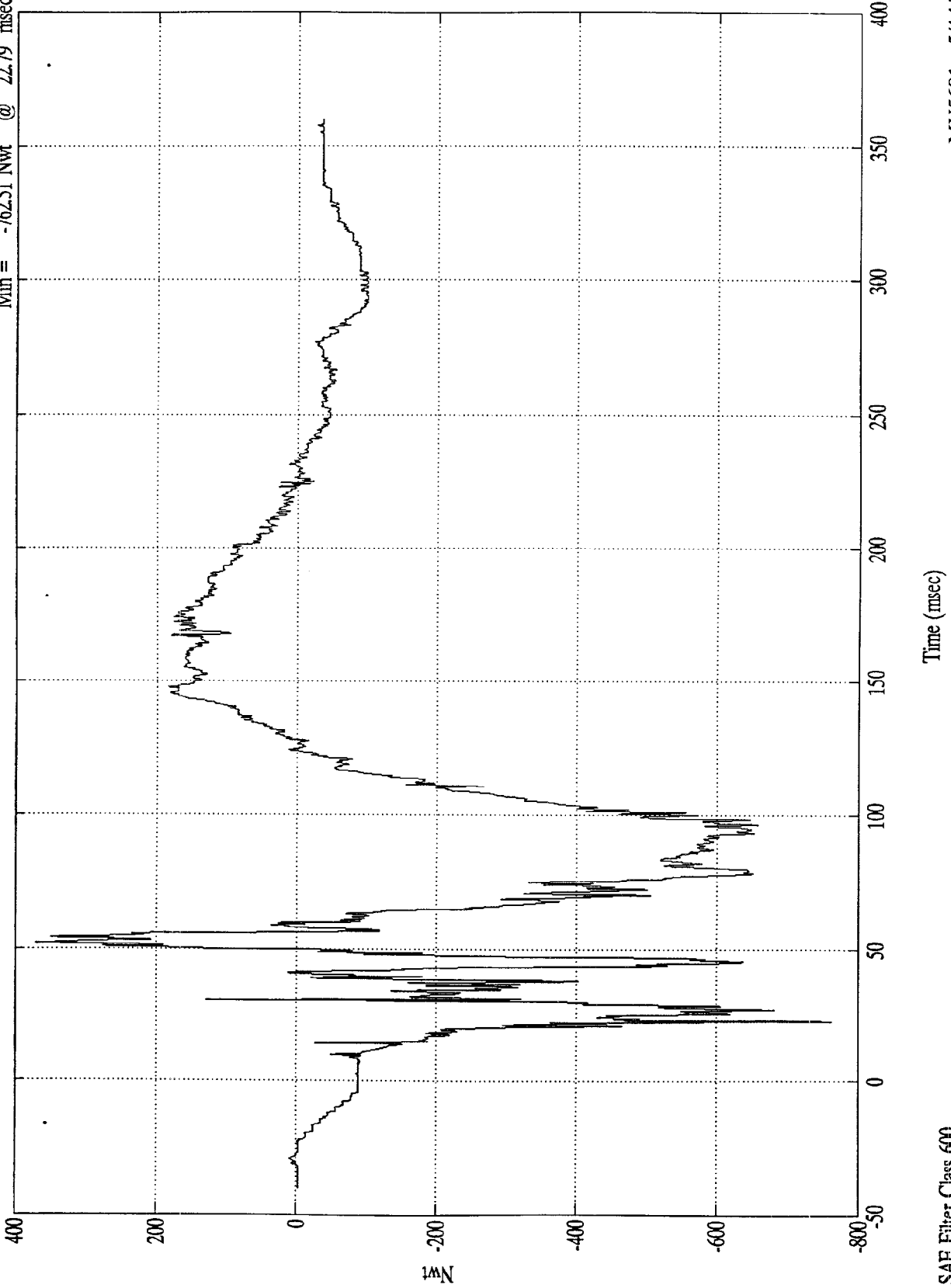
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 370.69 Nwt @ 51.89 msec
Min = -762.51 Nwt @ 22.79 msec

P1 Rt Lower Tibia Fz



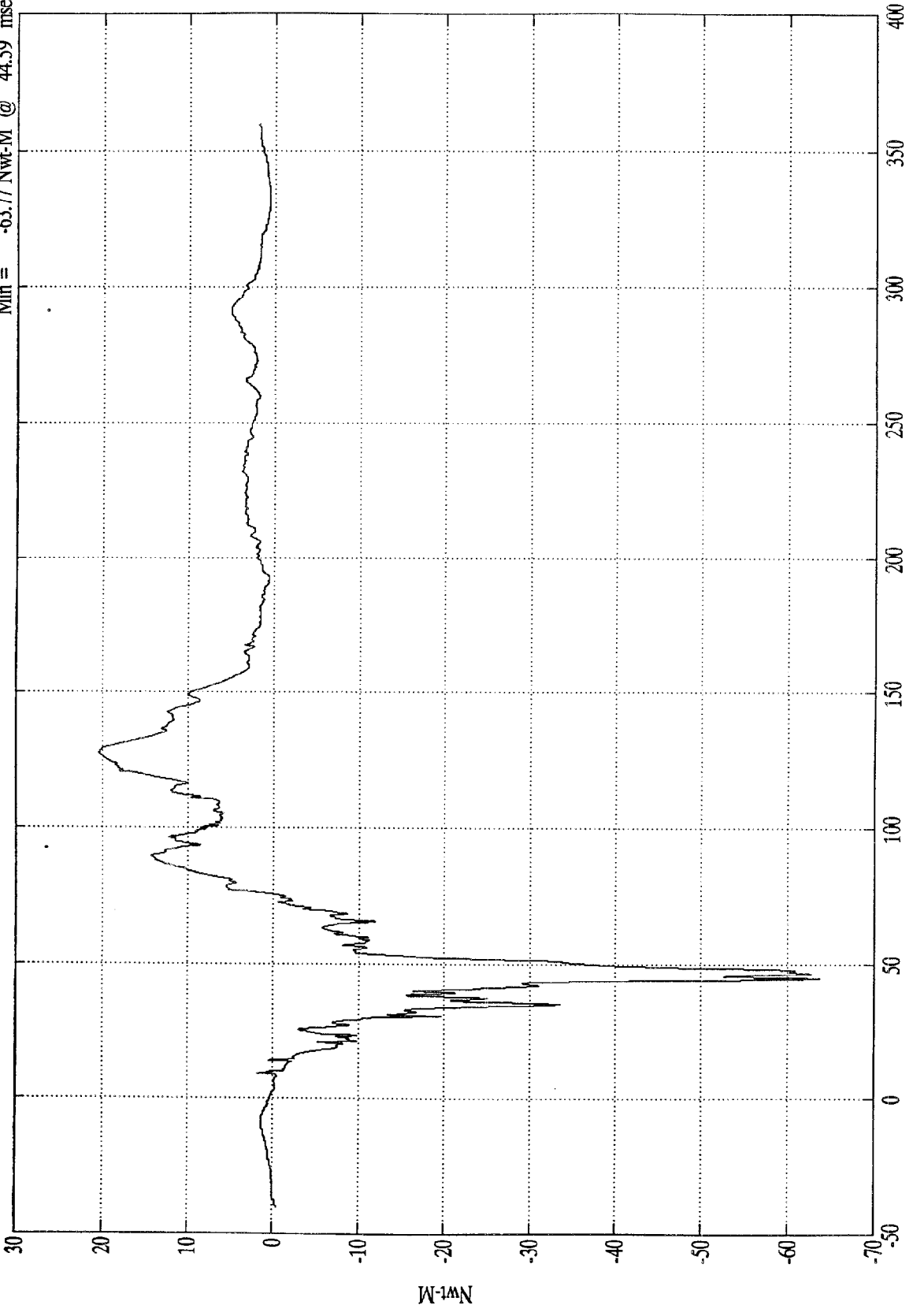
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 20.38 Nwt-M @ 127.59 msec
Min = -63.77 Nwt-M @ 44.59 msec

P1 Rt Lower Tibia My



Time (msec)

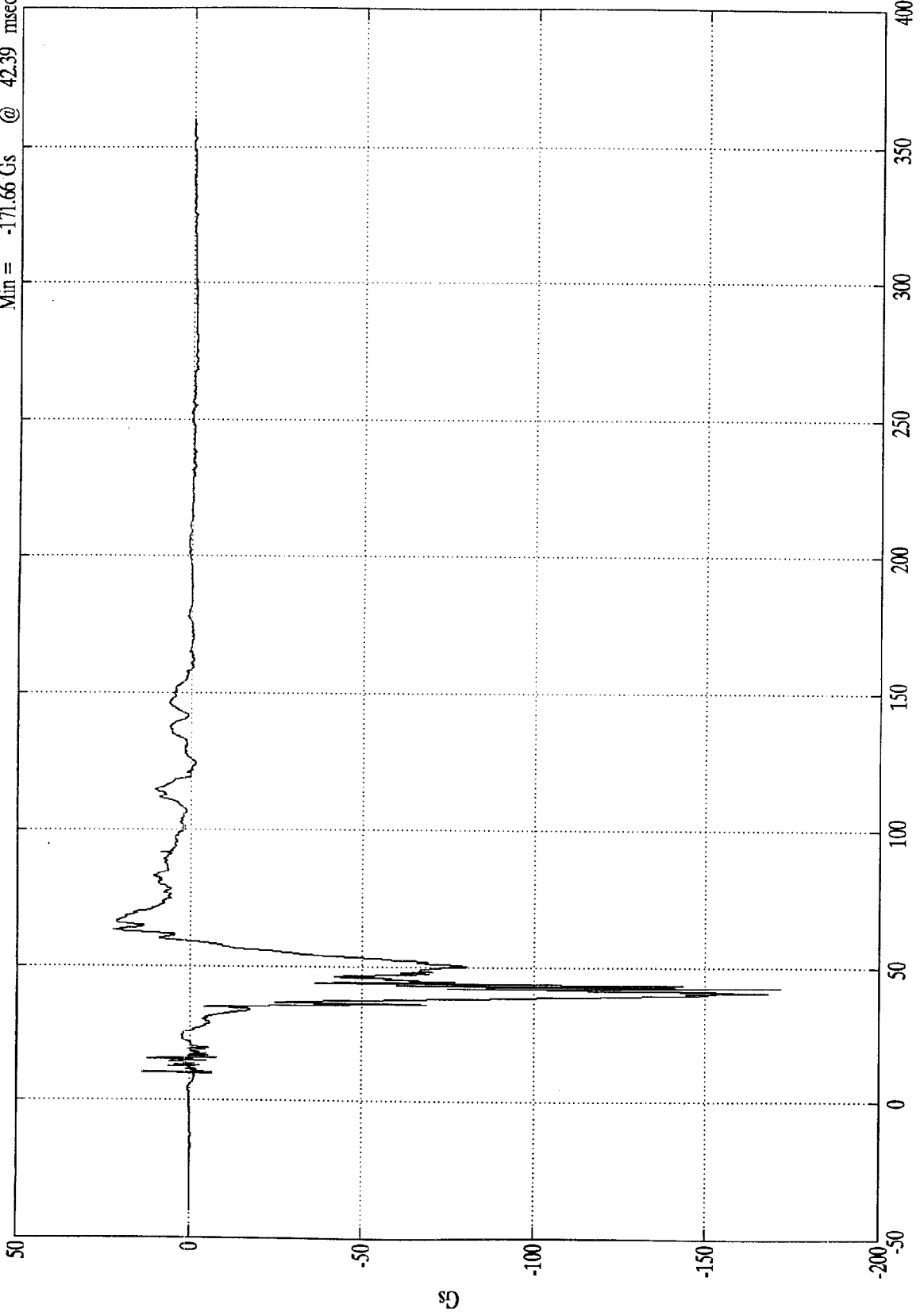
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 22.34 Gs @ 63.19 msec
Min = -171.66 Gs @ 42.39 msec

Pos. 1 Left Ankle X



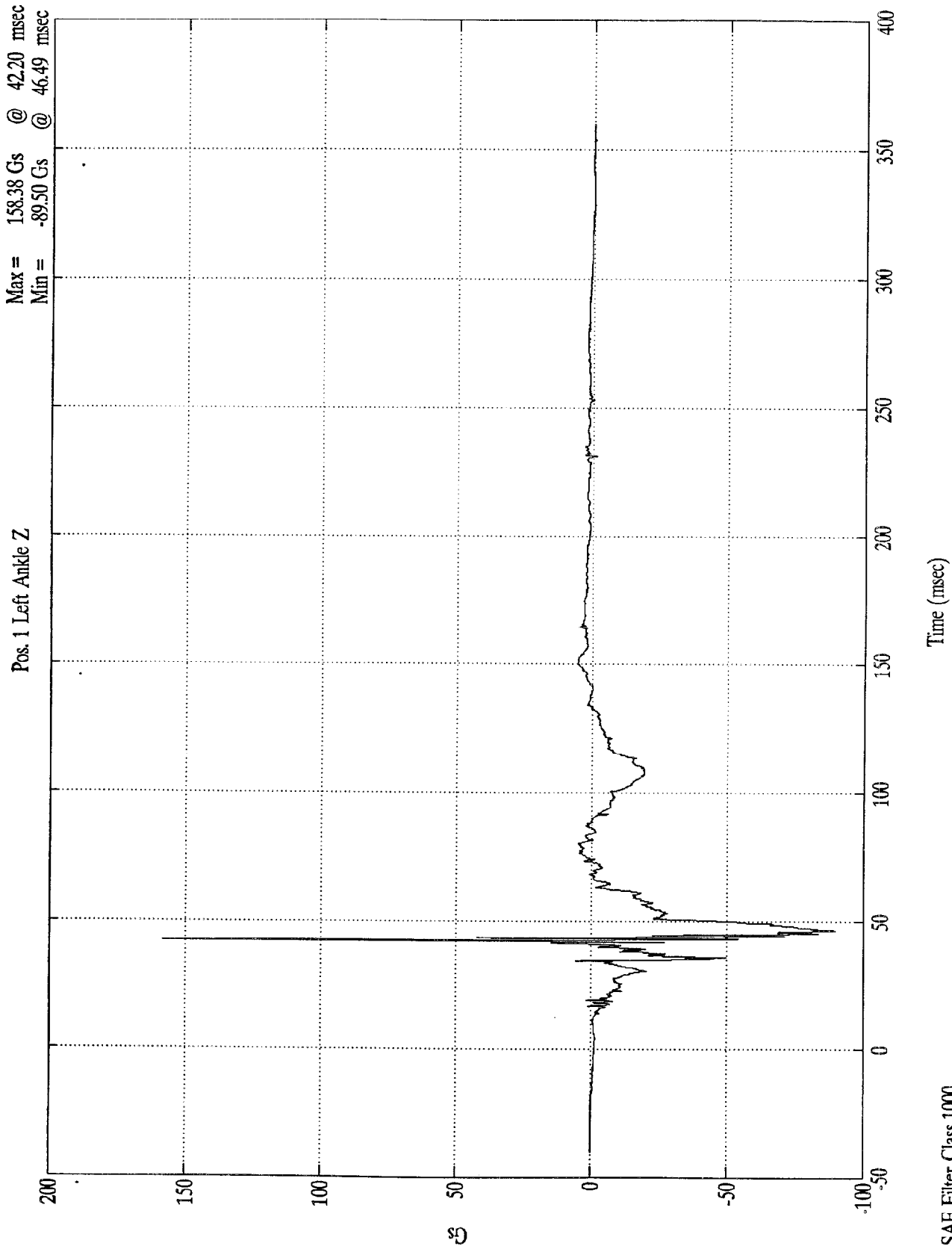
Time (msec)

SAE Filter Class 1000

MV5601 - 5/14/97

g

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

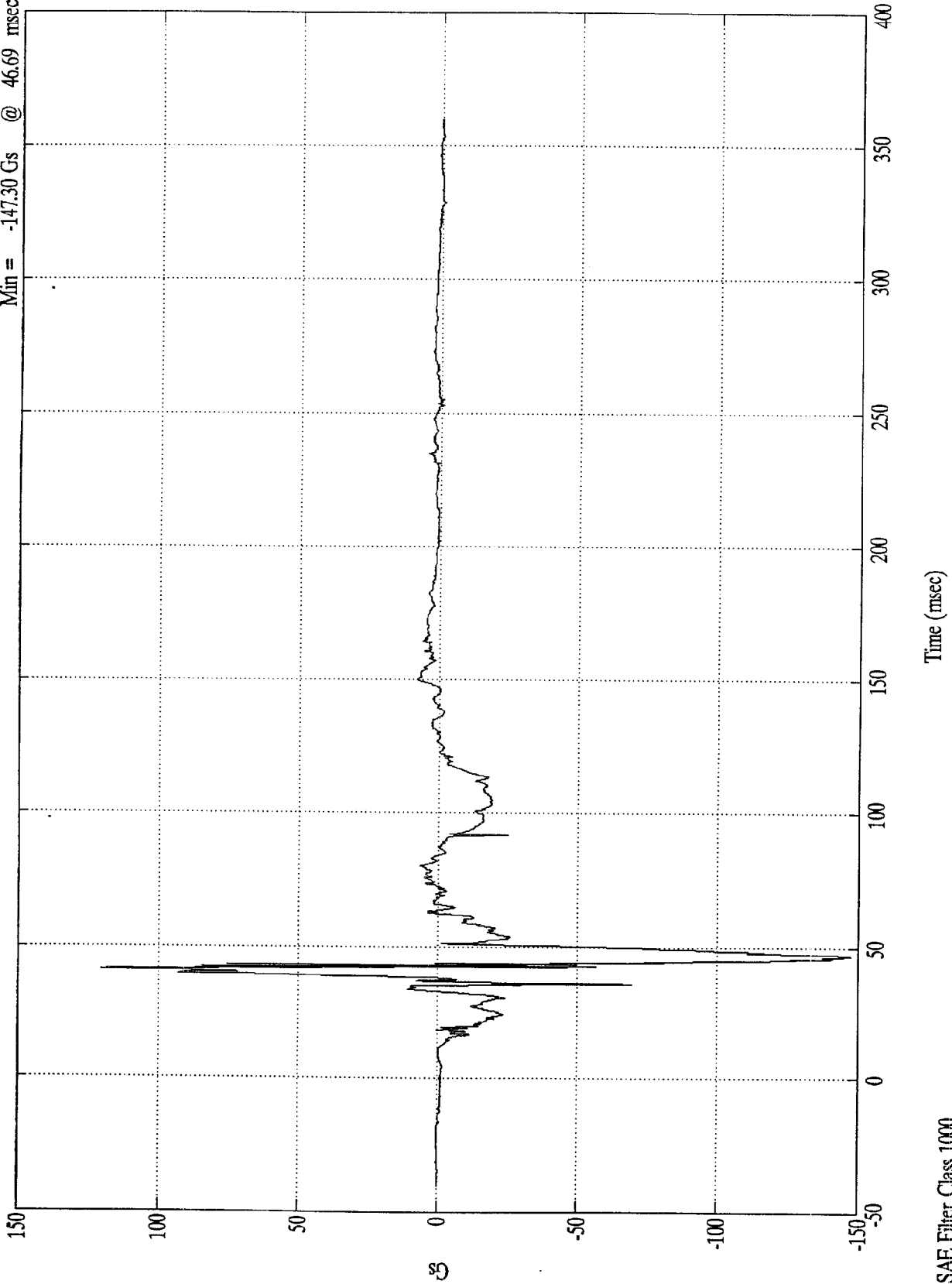


MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 120.62 Gs @ 41.19 msec
Min = -147.30 Gs @ 46.69 msec

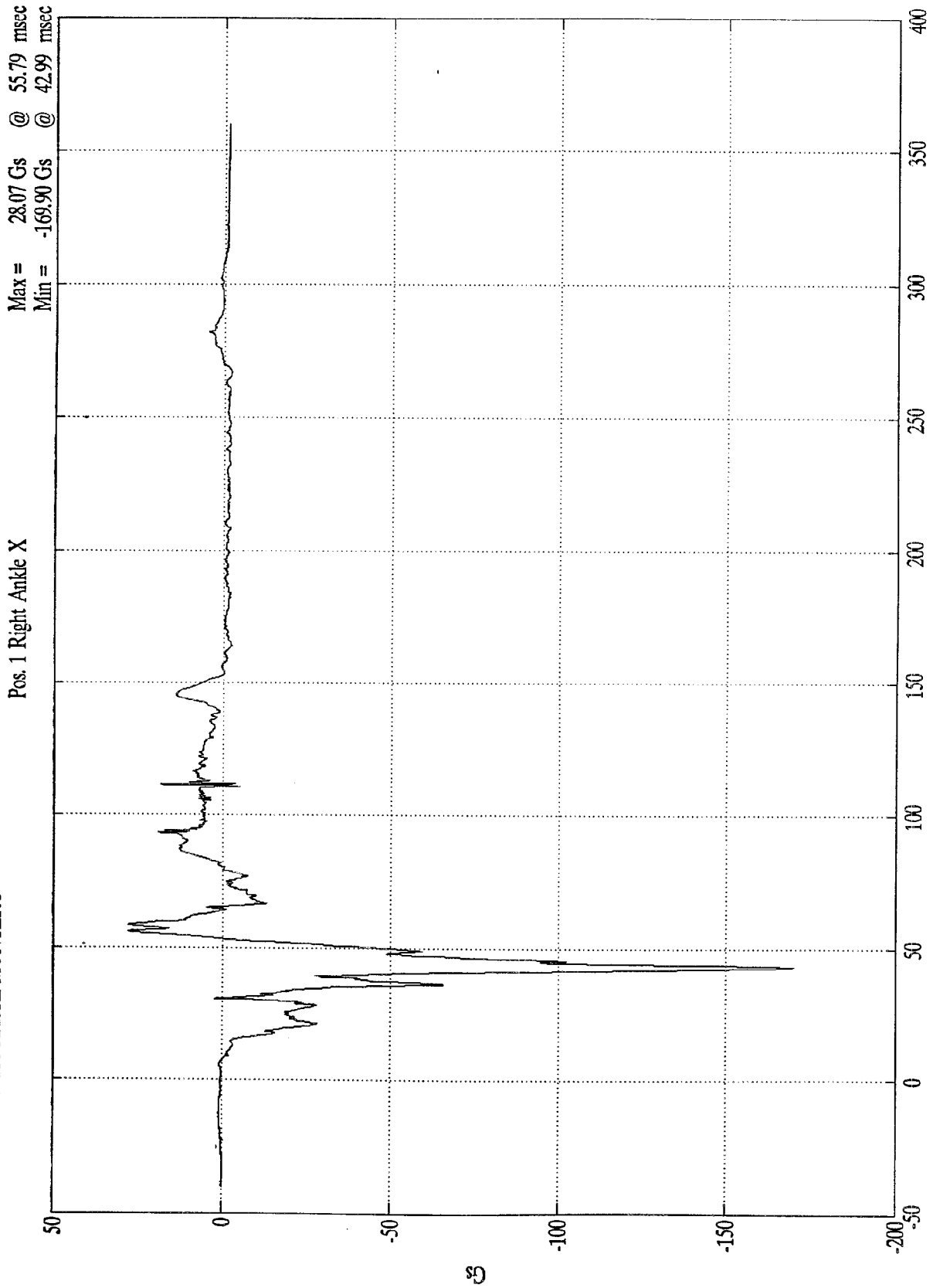
Pos. 1 Left Toe Z



SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO



SAE Filter Class 1000

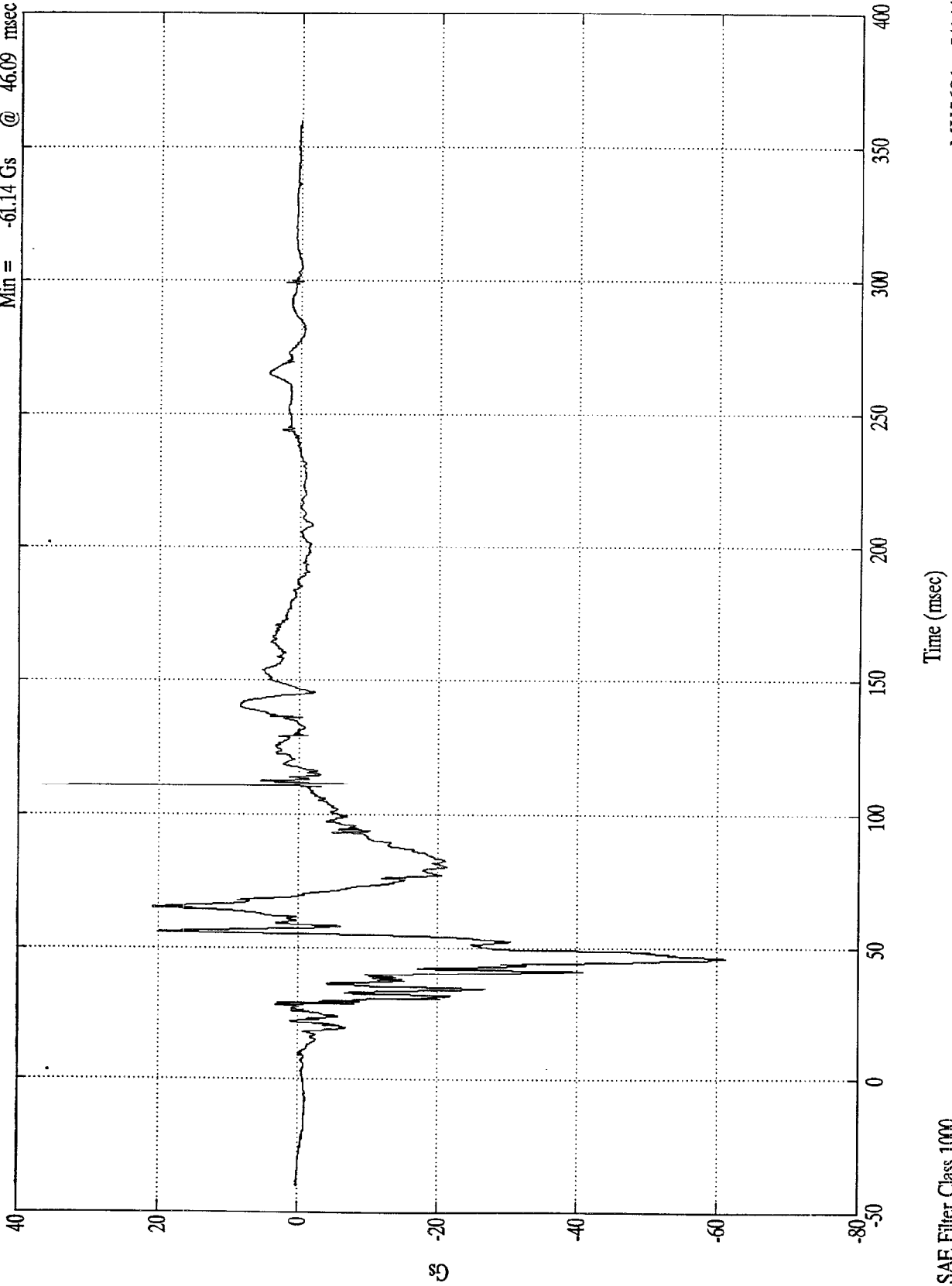
Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 36.54 Gs @ 110.69 msec
Min = -61.14 Gs @ 46.09 msec

Pos. 1 Right Ankle Z

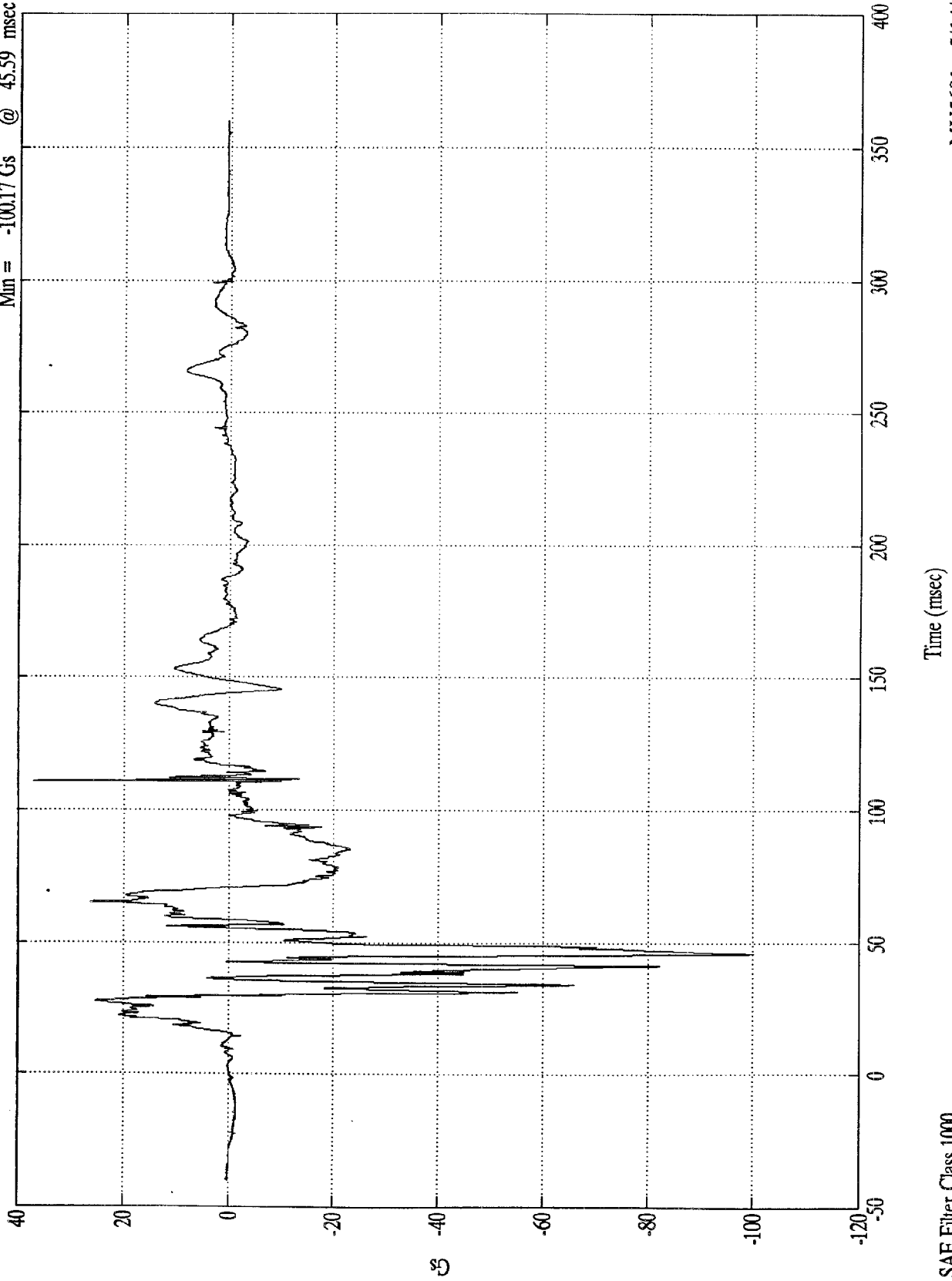


MV5601 - 5/14/97

SAE Filter Class 1000

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 1 Right Toe Z
Max = 36.92 Gs @ 110.69 msec
Min = -100.17 Gs @ 45.59 msec



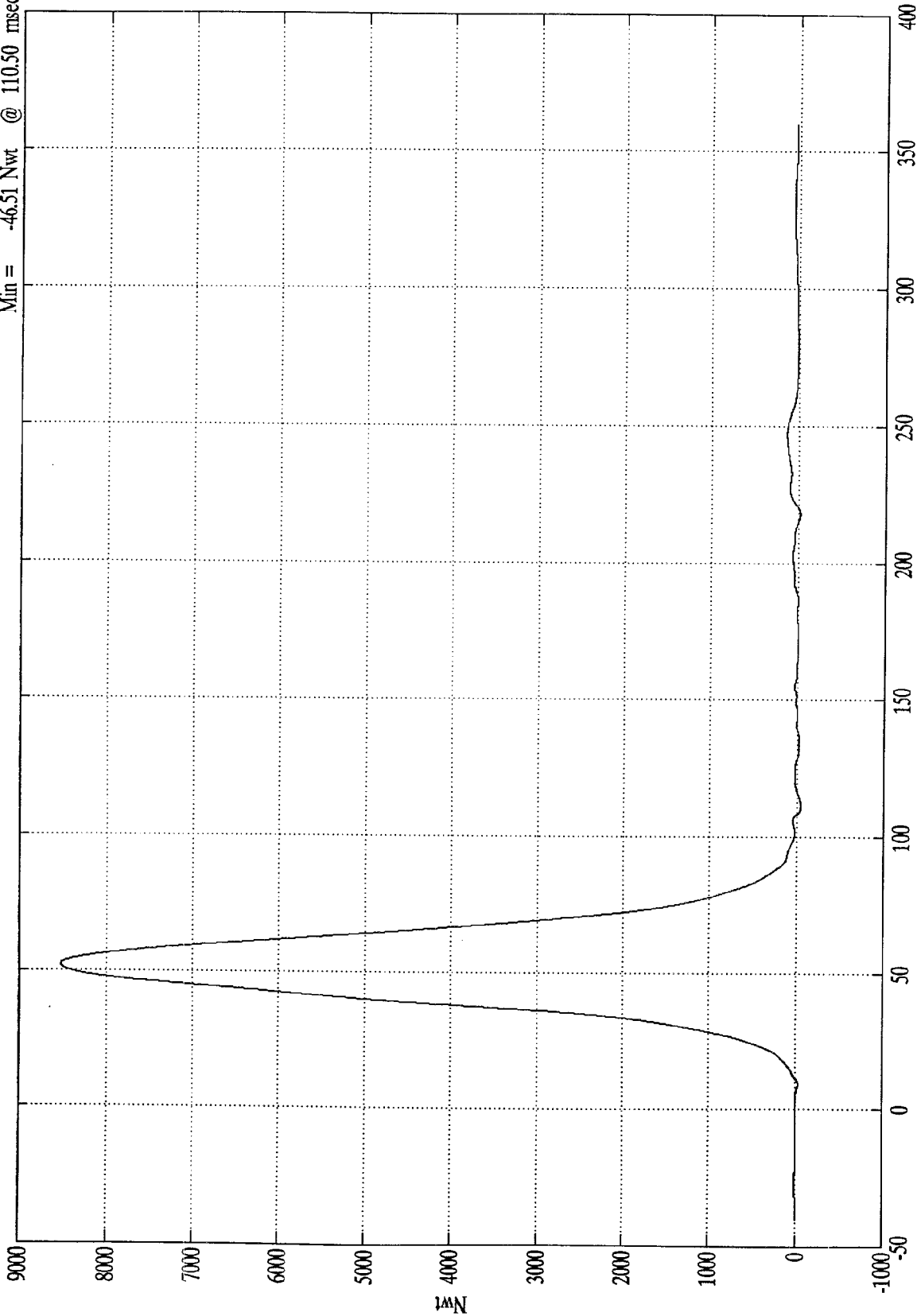
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 1 Left Belt Load

Max = 8520.77 Nwt @ 52.09 msec
Min = -46.51 Nwt @ 110.50 msec



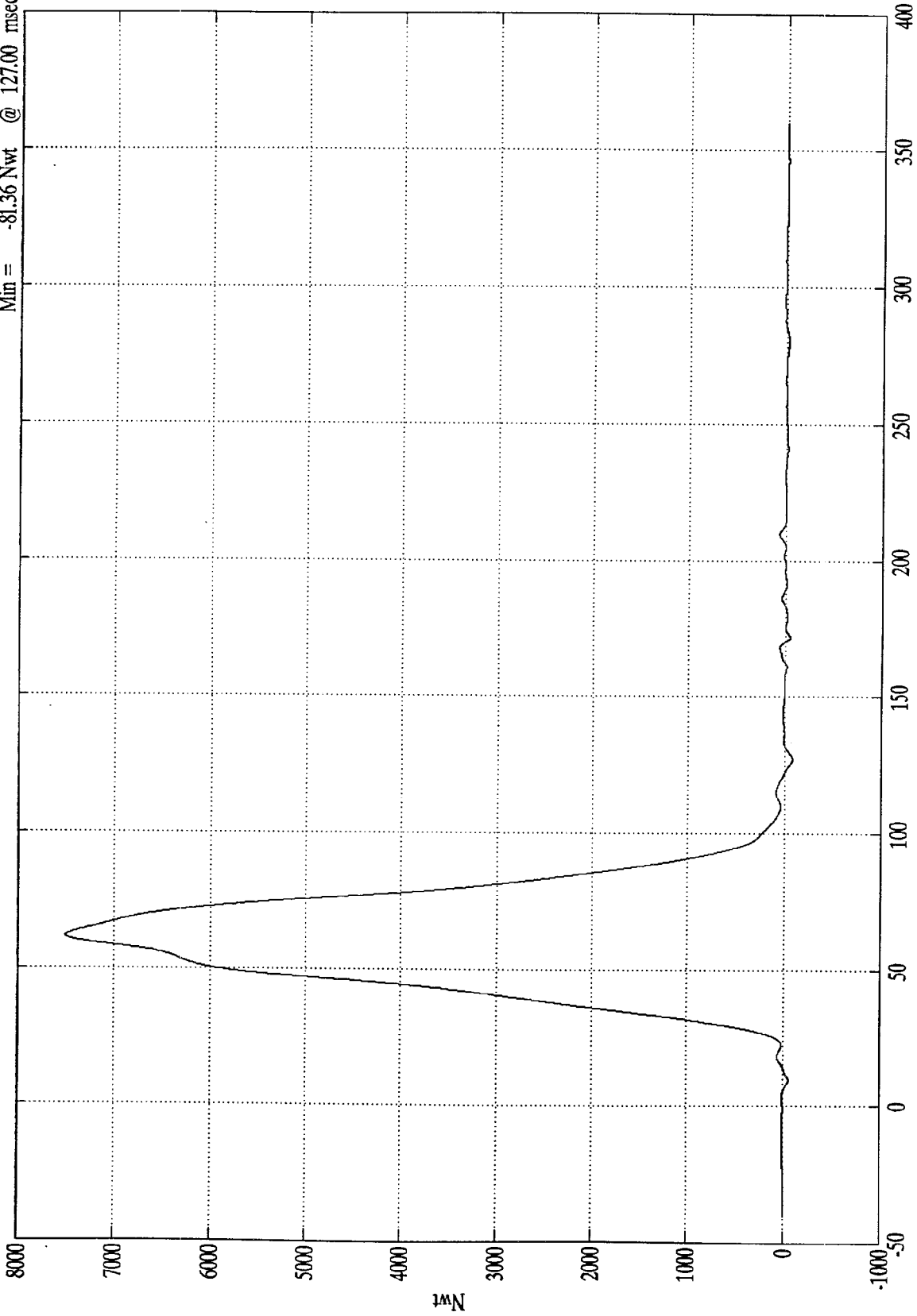
SAE Filter Class 60

Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 1 Torso Belt Load
Max = 7507.87 Nwt @ 61.49 msec
Min = -81.36 Nwt @ 127.00 msec

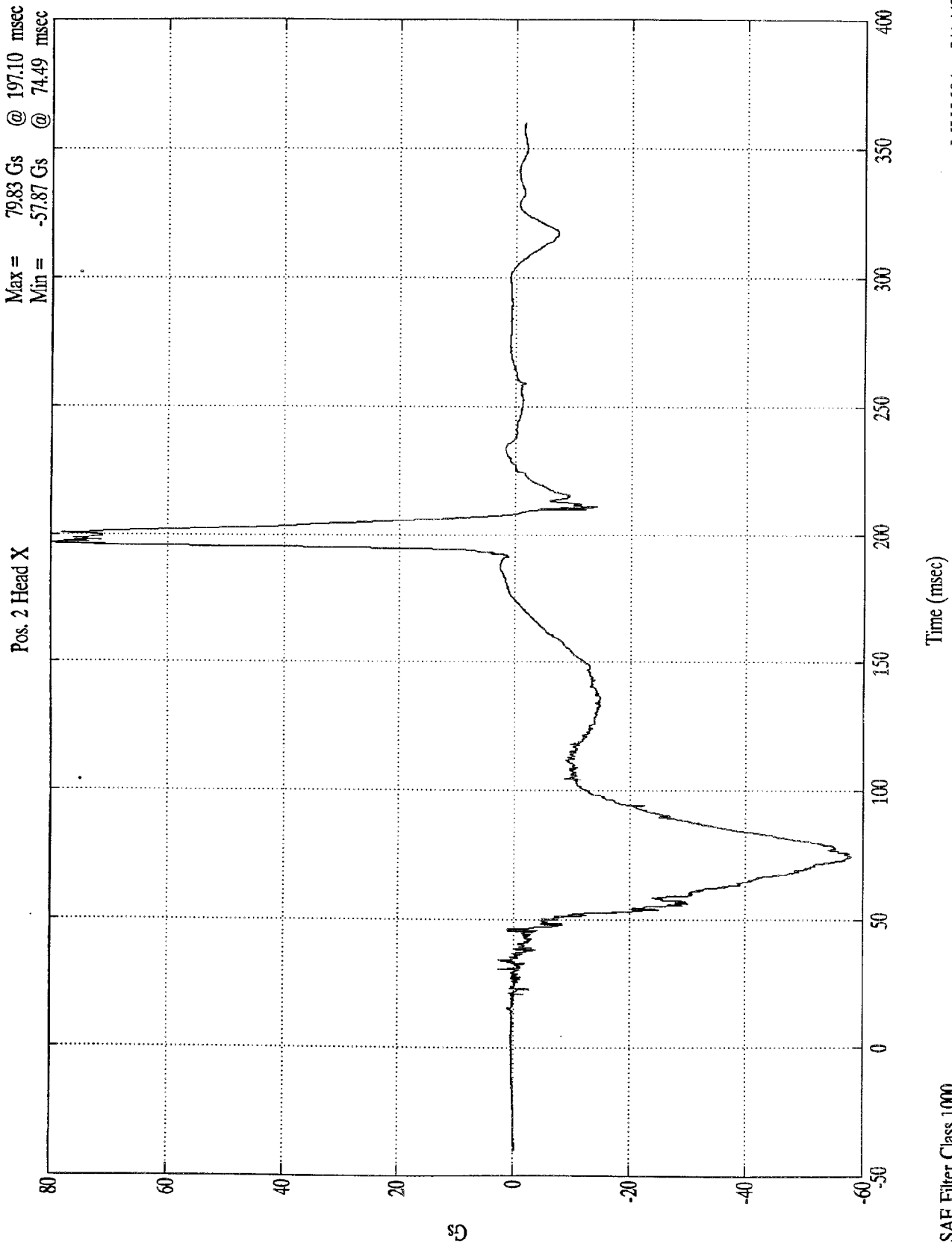


Time (msec)

SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

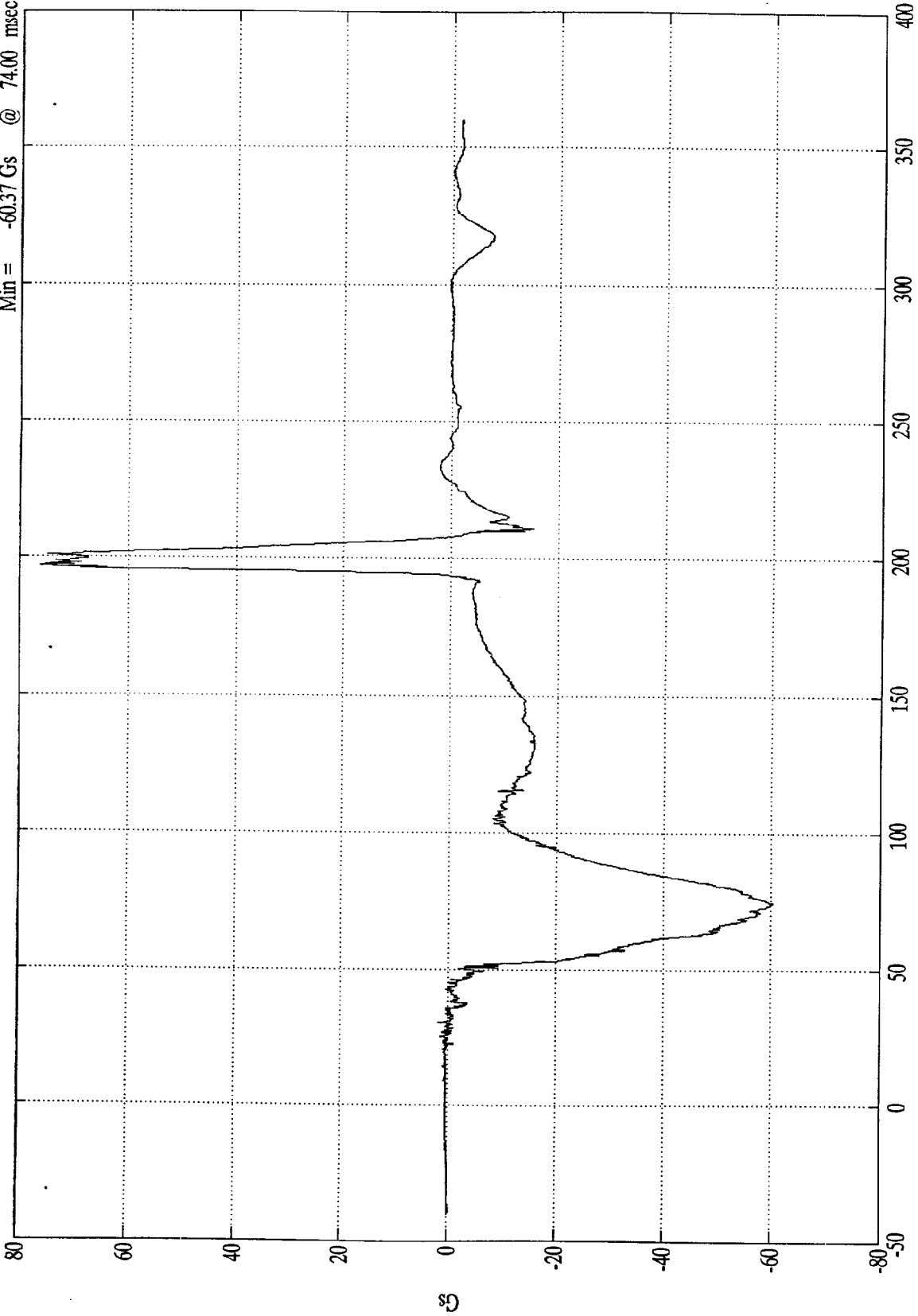


MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 76.15 Gs @ 197.10 msec
Min = -60.37 Gs @ 74.00 msec

Pos. 2 Head X(R)



Time (msec)

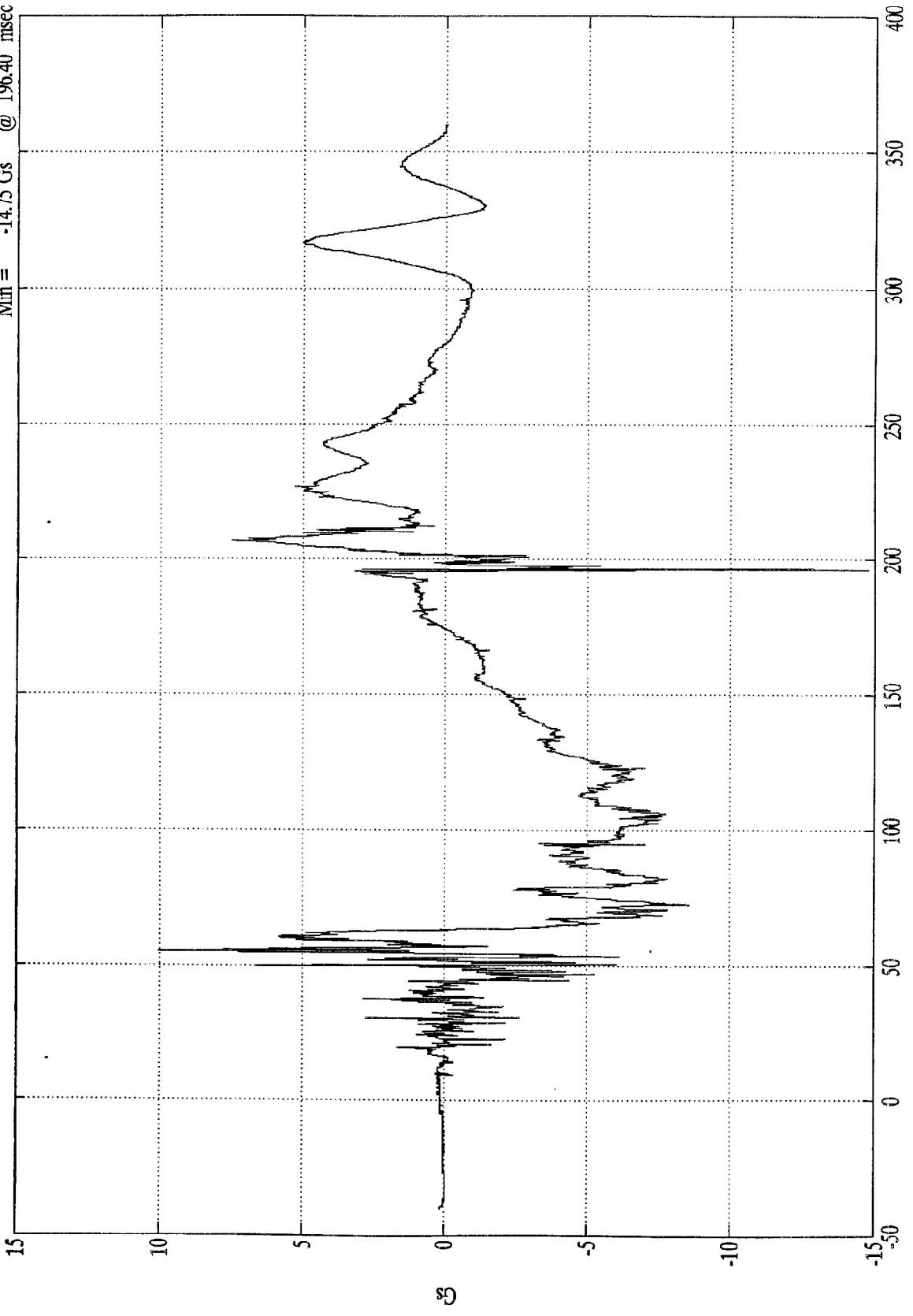
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 10.04 Gs @ 55.29 msec
Min = -14.75 Gs @ 196.40 msec

Pos. 2 Head Y



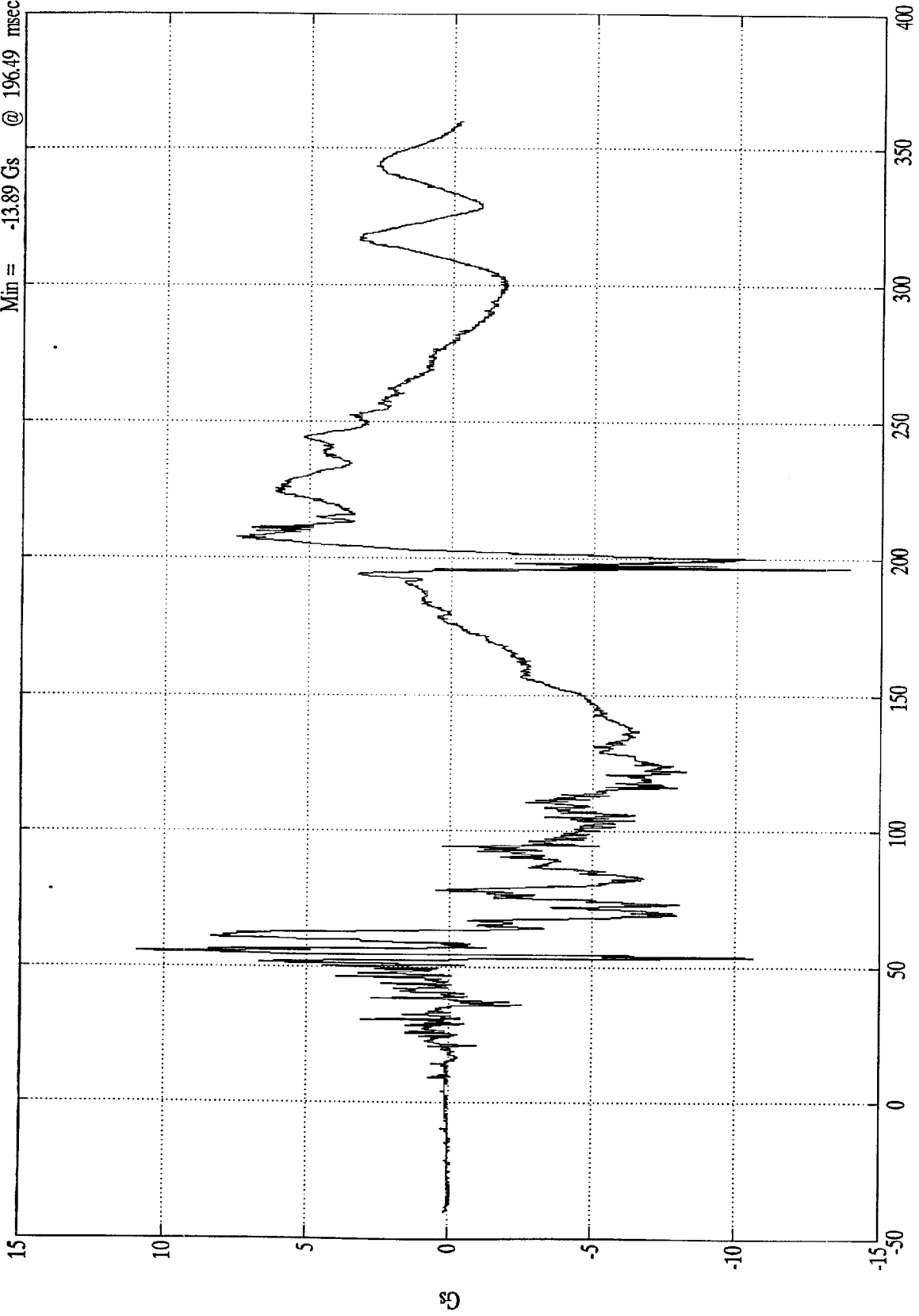
SAE Filter Class 1000

Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Head Y(R)
Max = 10.94 Gs @ 55.39 msec
Min = -13.89 Gs @ 196.49 msec



Time (msec)

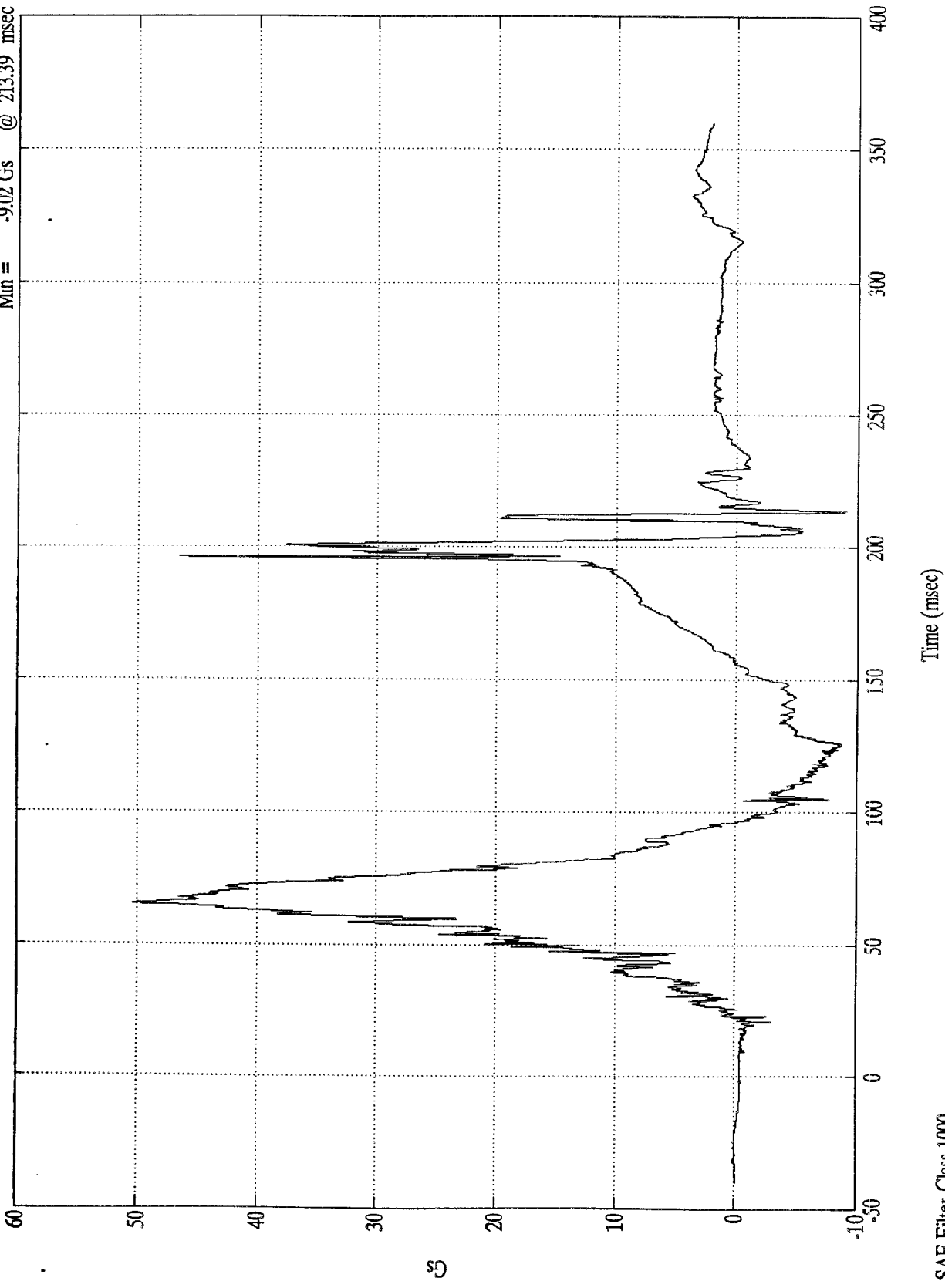
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 50.34 Gs @ 65.09 msec
Min = -9.02 Gs @ 213.39 msec

Pos. 2 Head Z



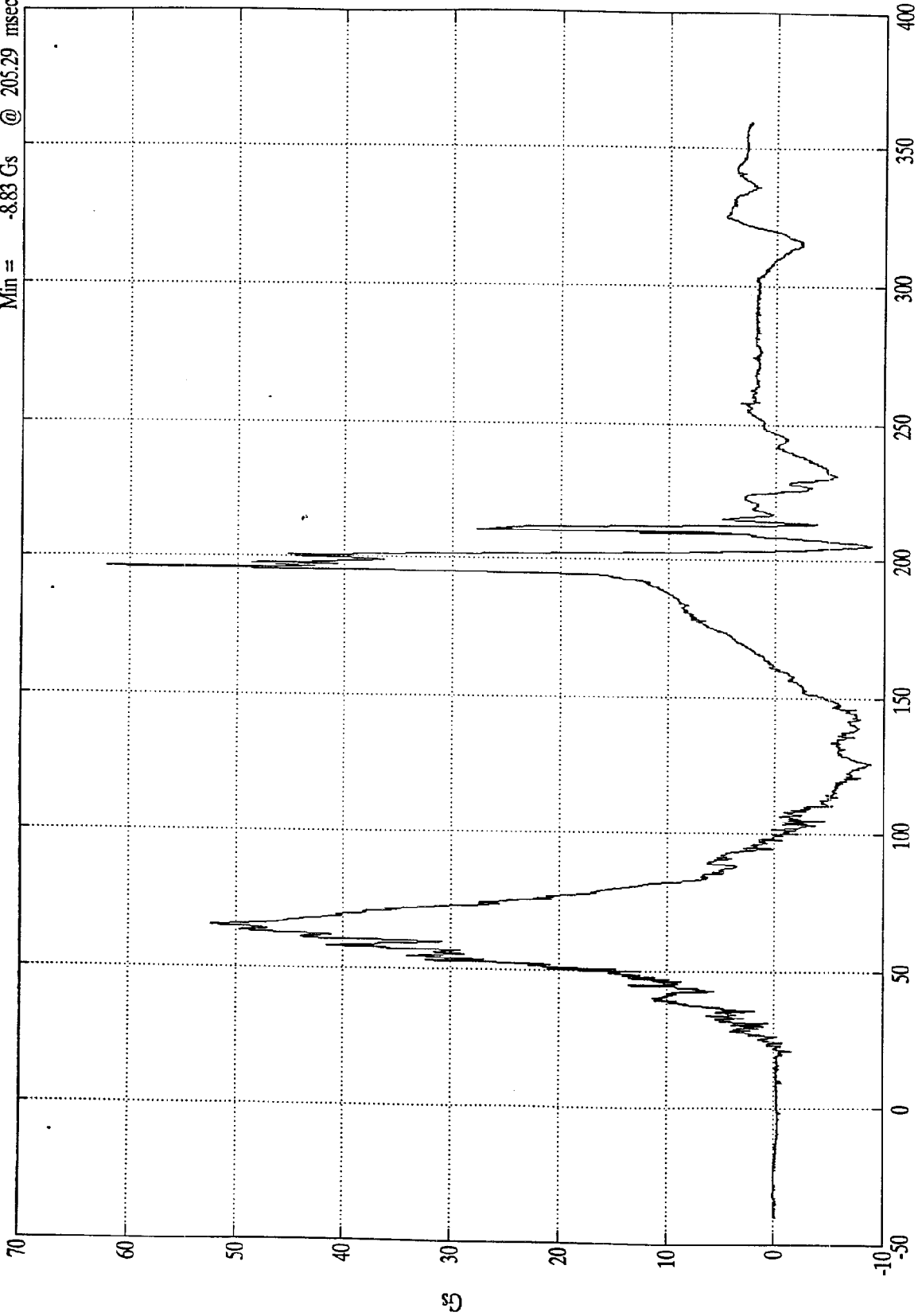
SAE Filter Class 1000

Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Head Z(R)
Max = 62.14 Gs @ 196.09 msec
Min = -8.83 Gs @ 205.29 msec



Time (msec)

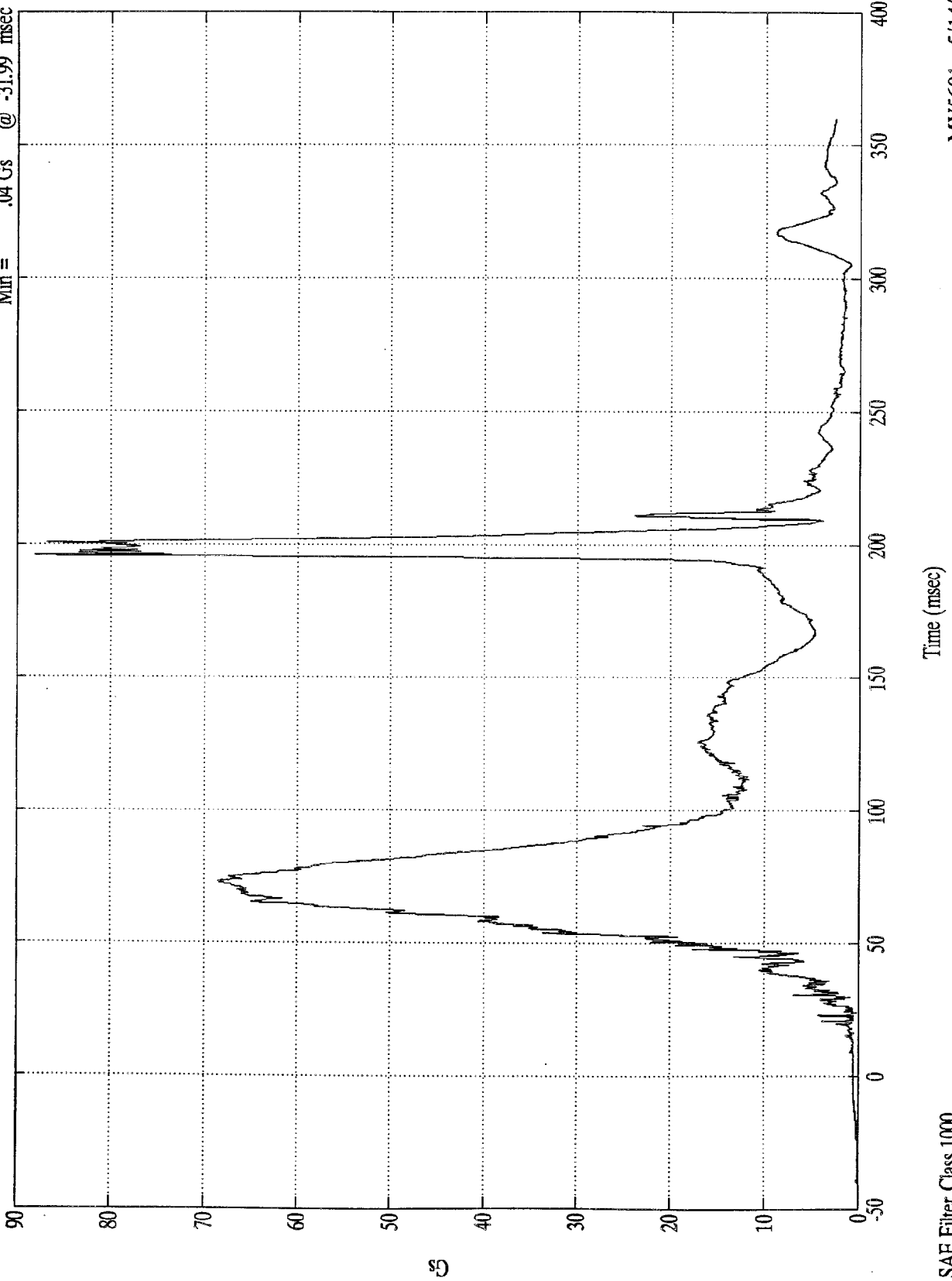
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 88.13 Gs @ 196.09 msec
Min = .04 Gs @ -31.99 msec

Pos. 2 Head Resultant



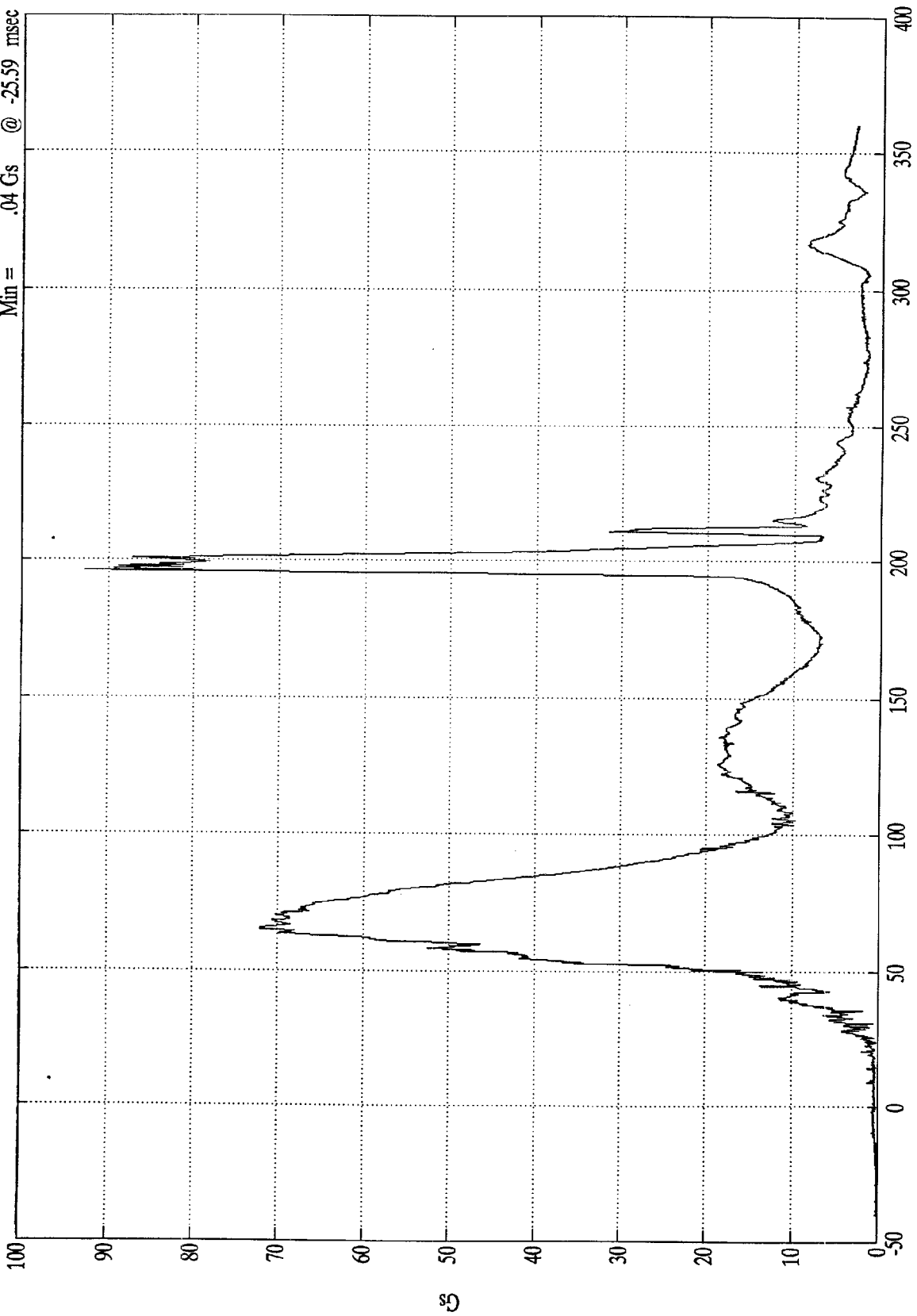
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Head Resultant(RR)

Max = 92.74 Gs @ 196.09 msec
Min = .04 Gs @ -25.59 msec

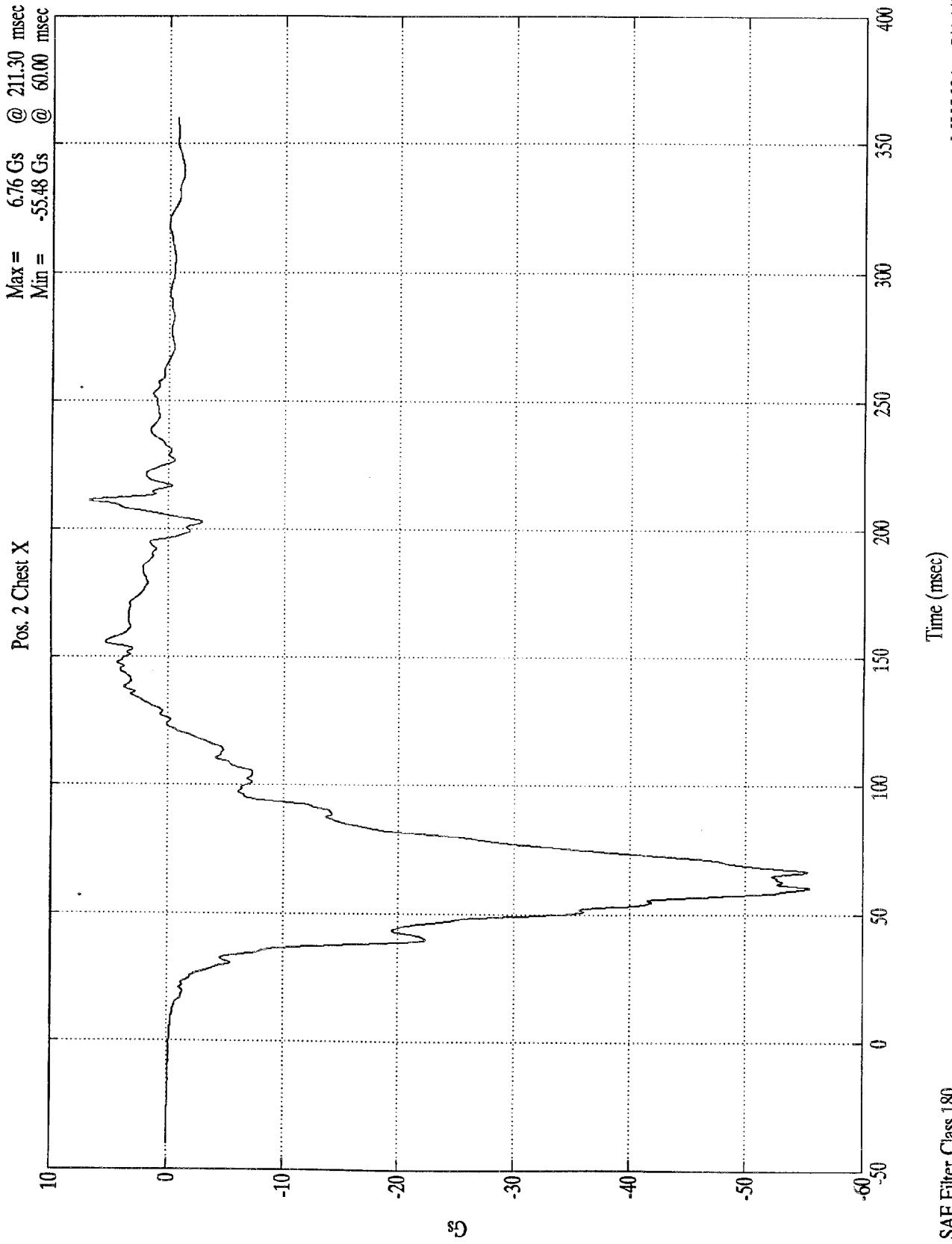


Time (msec)

SAE Filter Class 1000

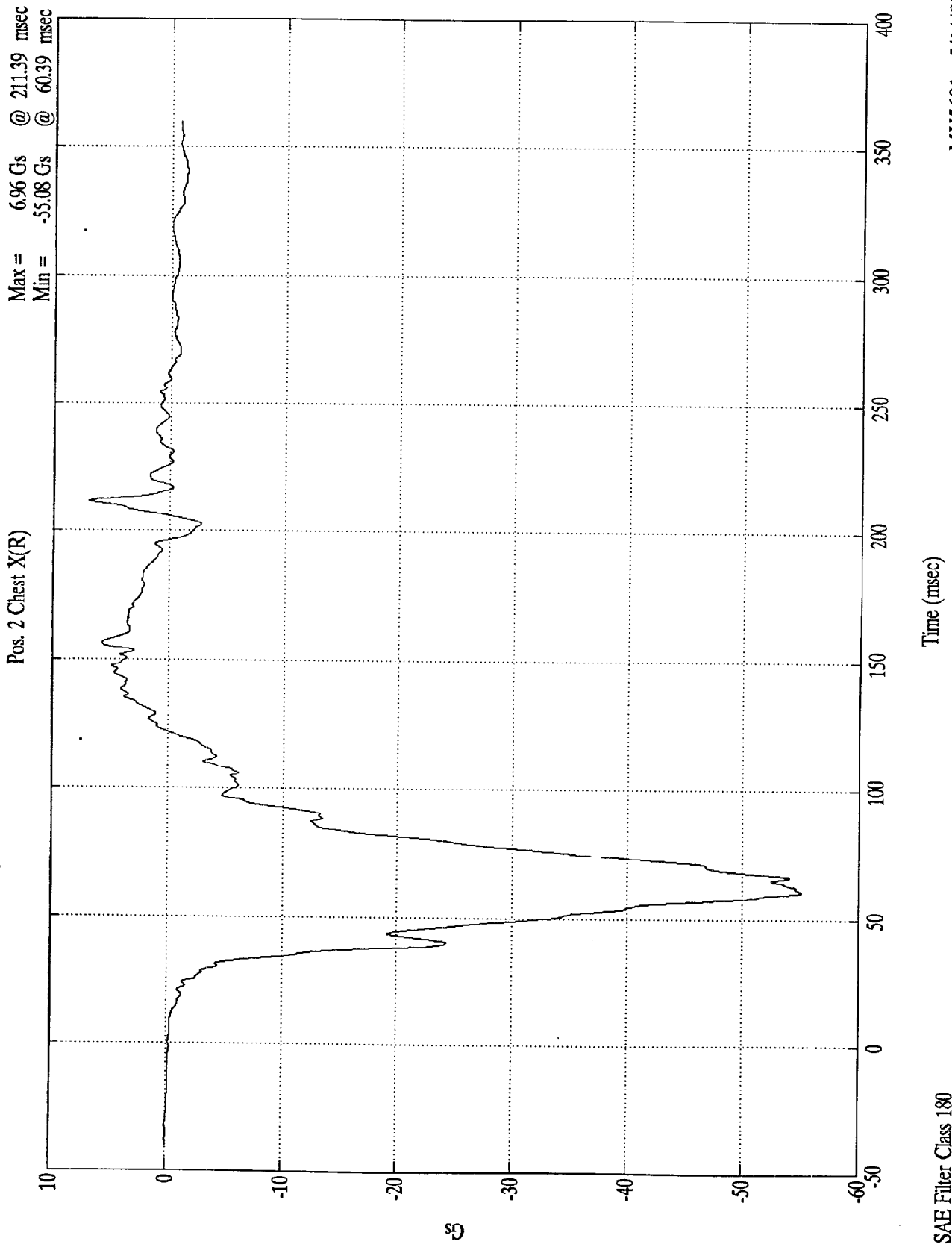
MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO



MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO



MV5601 - 5/14/97

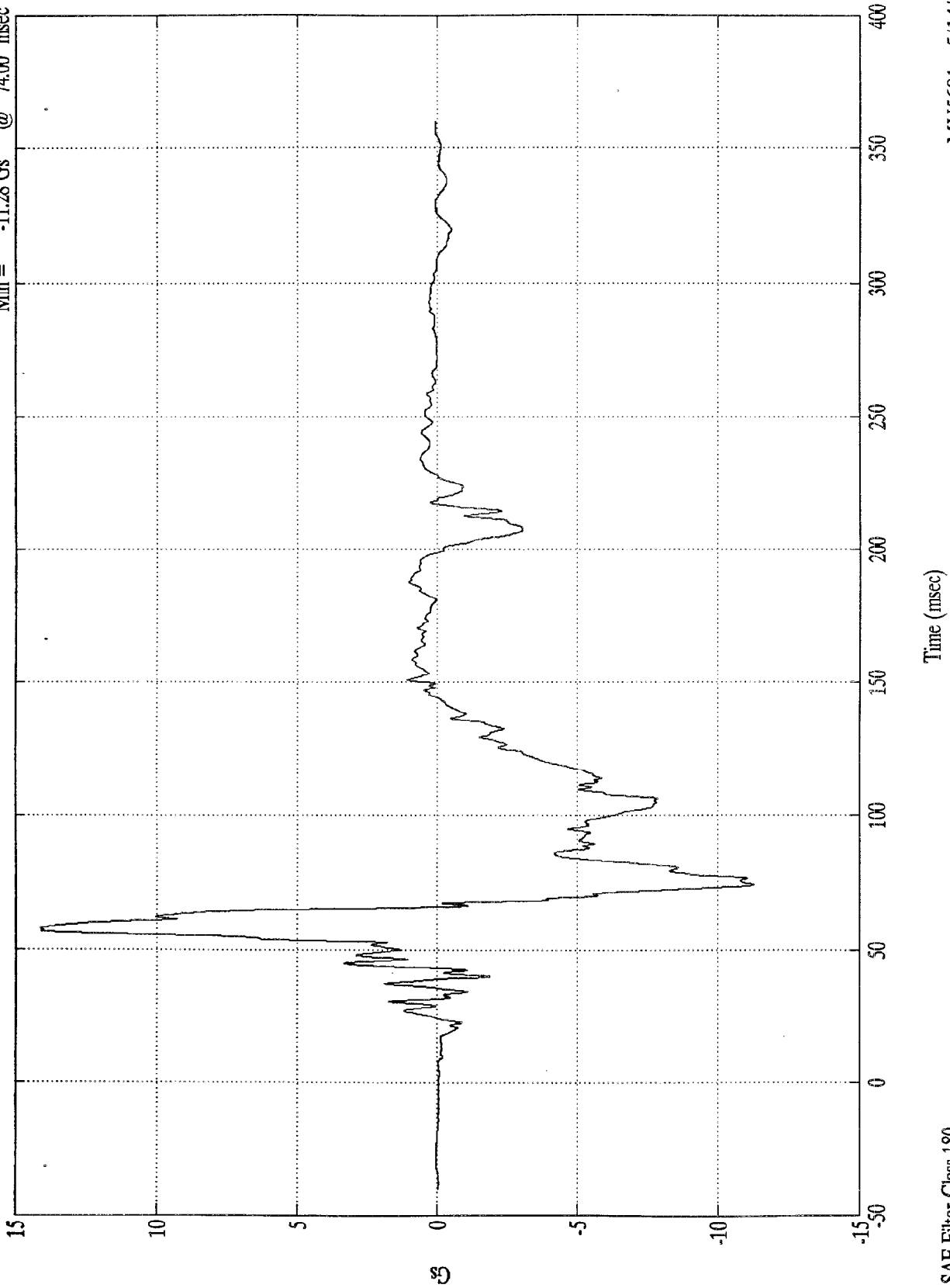
SAE Filter Class 180

g

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 14.13 Gs @ 57.69 msec
Min = -11.28 Gs @ 74.00 msec

Pos. 2 Chest Y

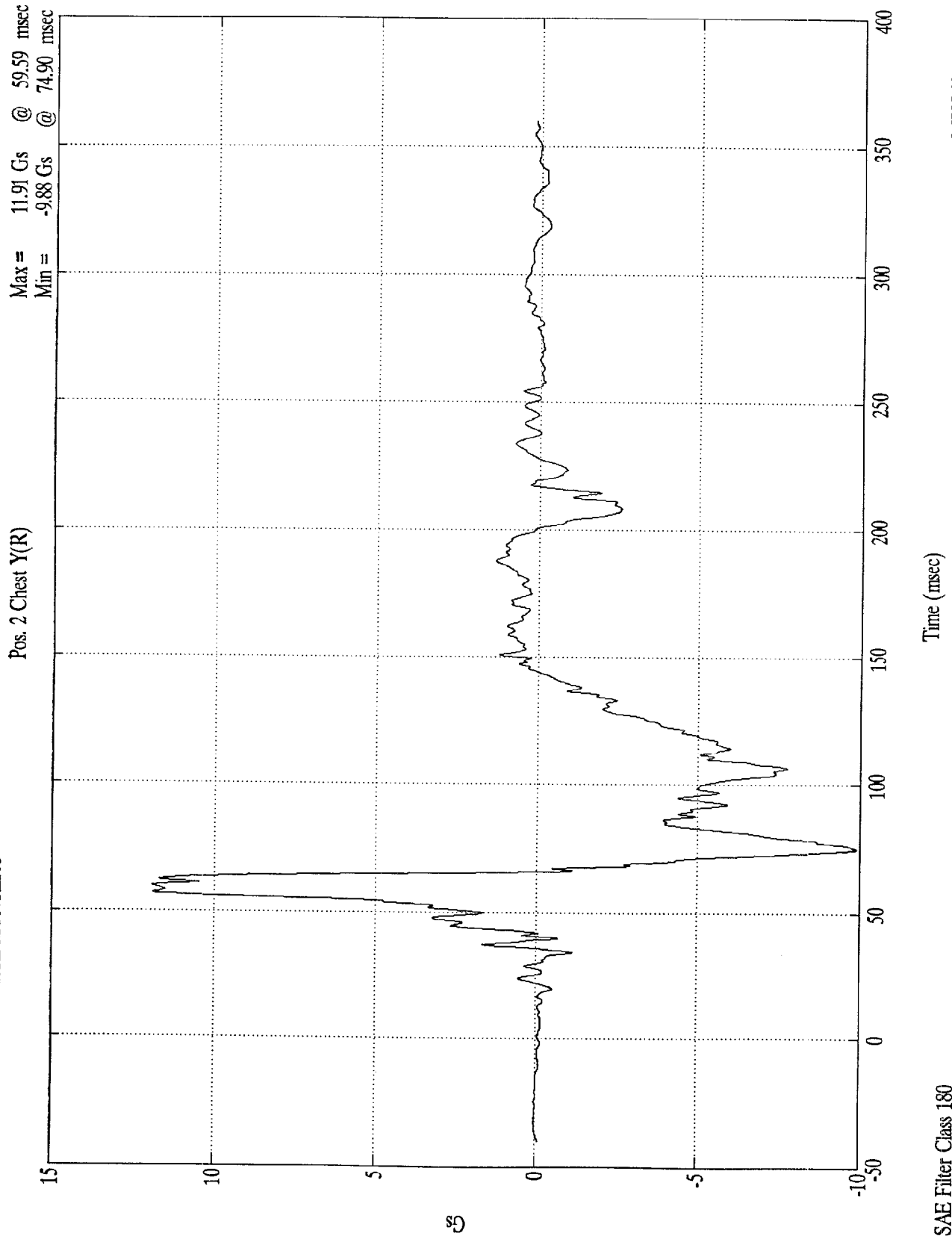


SAE Filter Class 180

Time (msec)

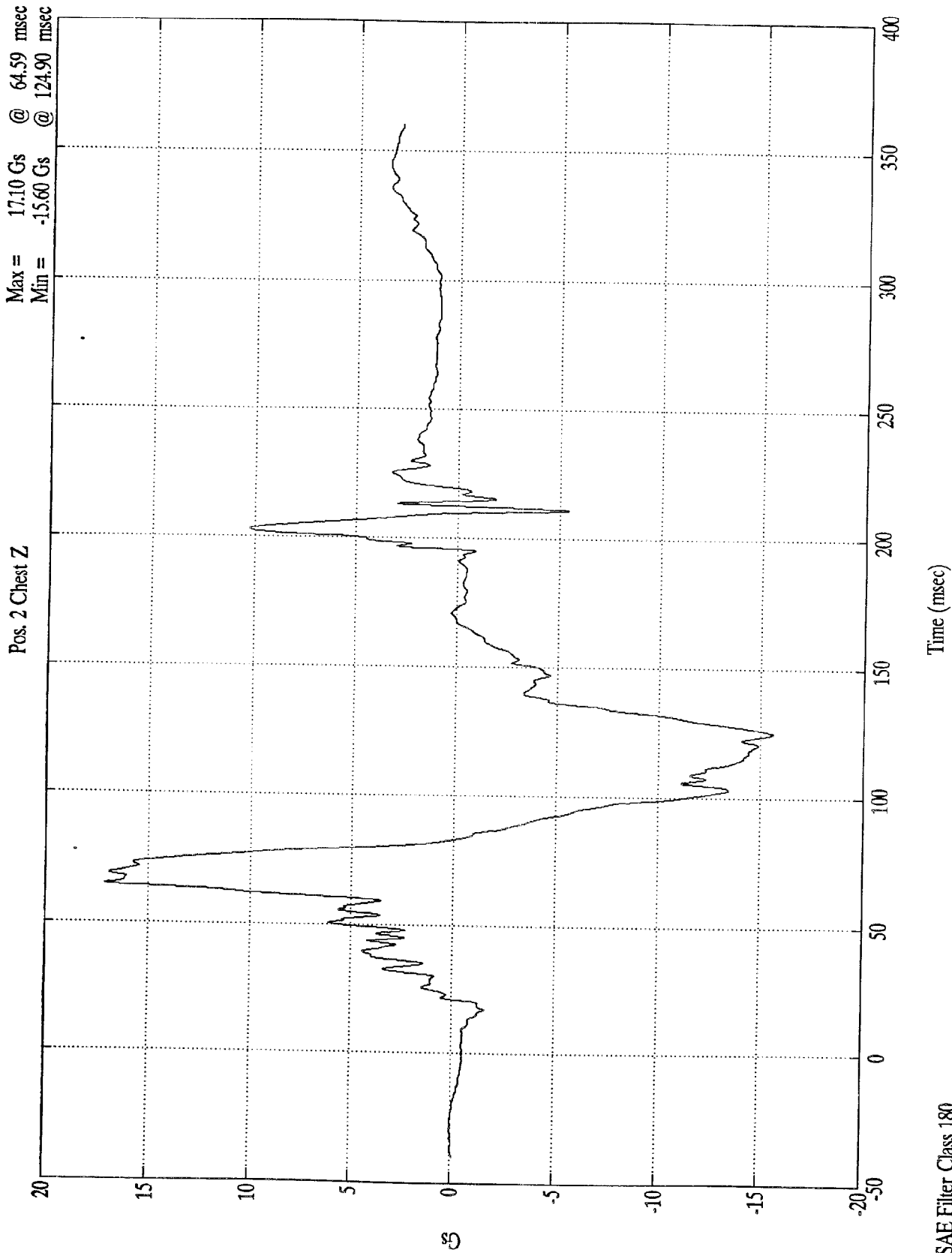
MV5601 - 5/14/97

NCAP TEST #8 • 1997 MITSUBISHI MONTERO



MV5601 - 5/14/97

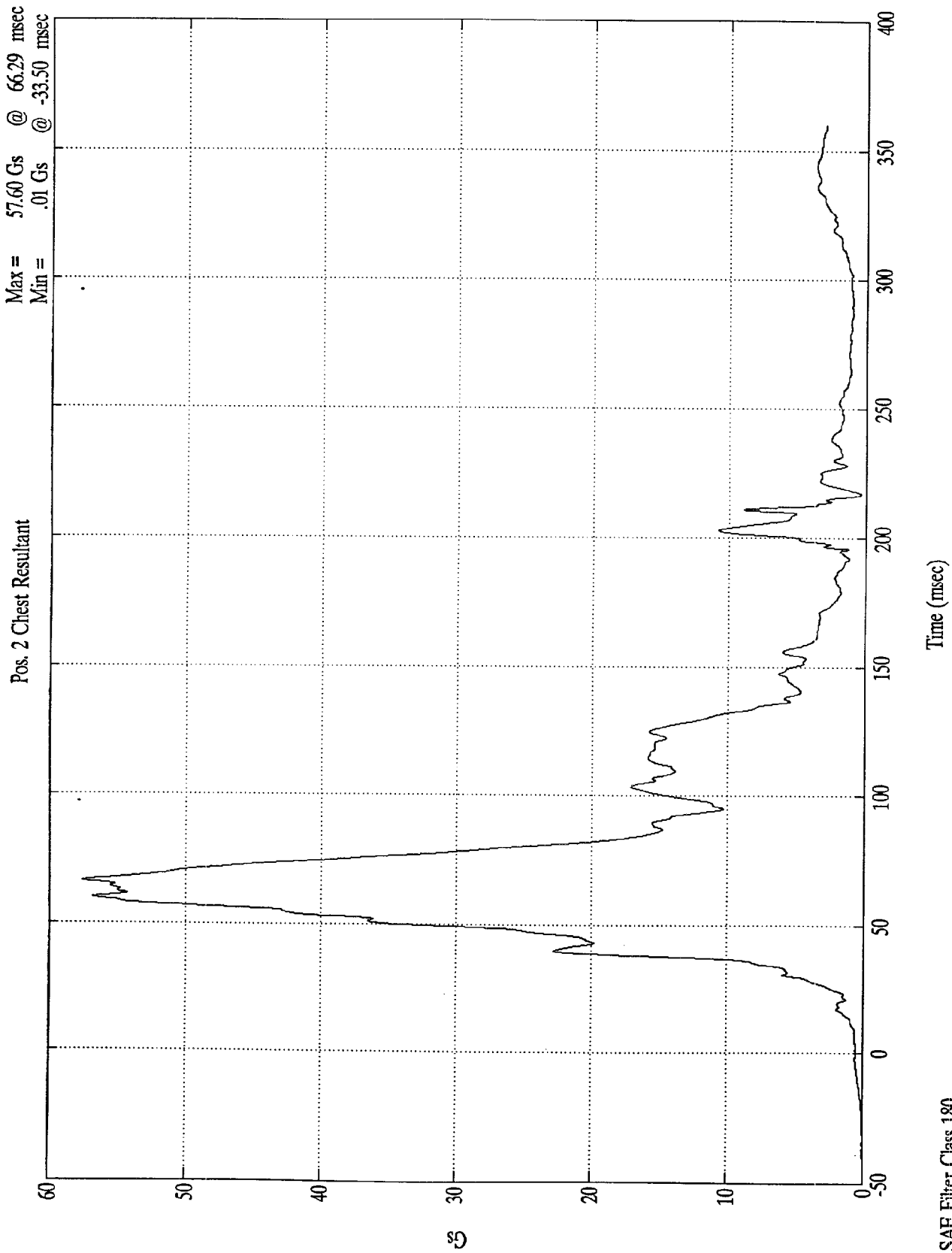
NCAP TEST #8 - 1997 MITSUBISHI MONTERO



SAE Filter Class 180

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

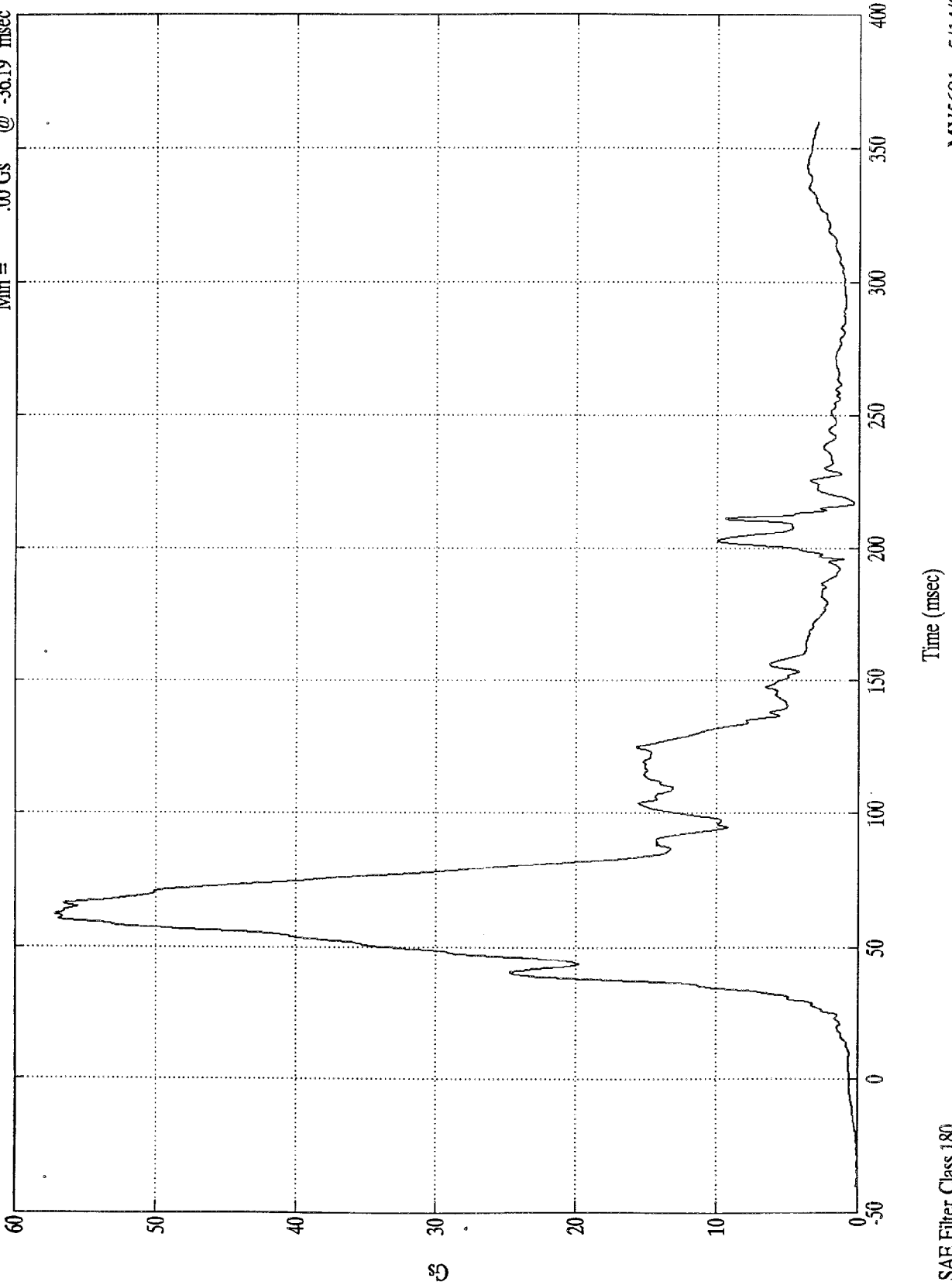


MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Chest Res(RR)

Max = 57.21 Gs @ 62.09 msec
Min = .00 Gs @ -36.19 msec



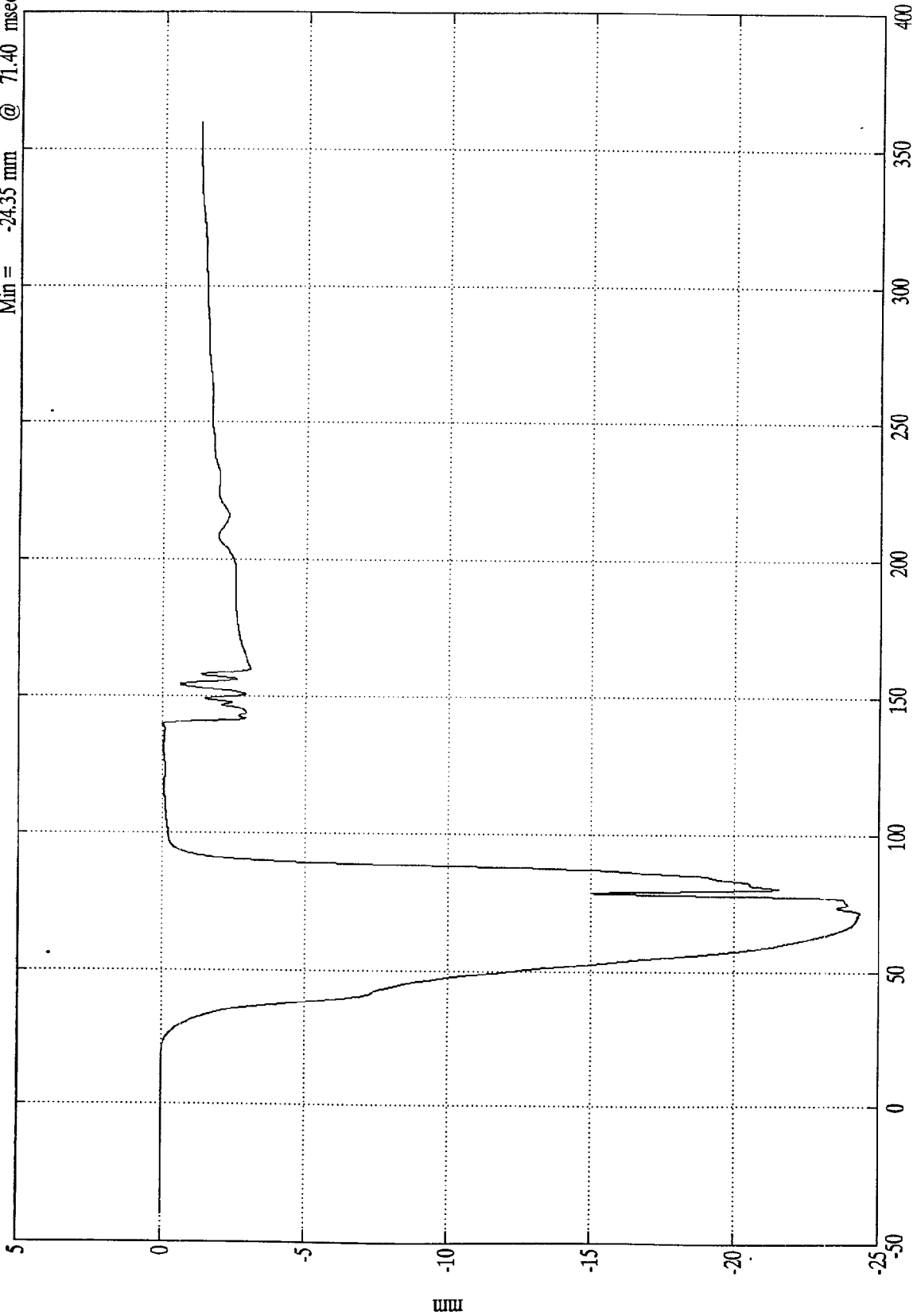
SAE Filter Class 180

Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Chest Disp. Max = .02 mm @ 139.49 msec
Min = -24.35 mm @ 71.40 msec



SAE Filter Class 180

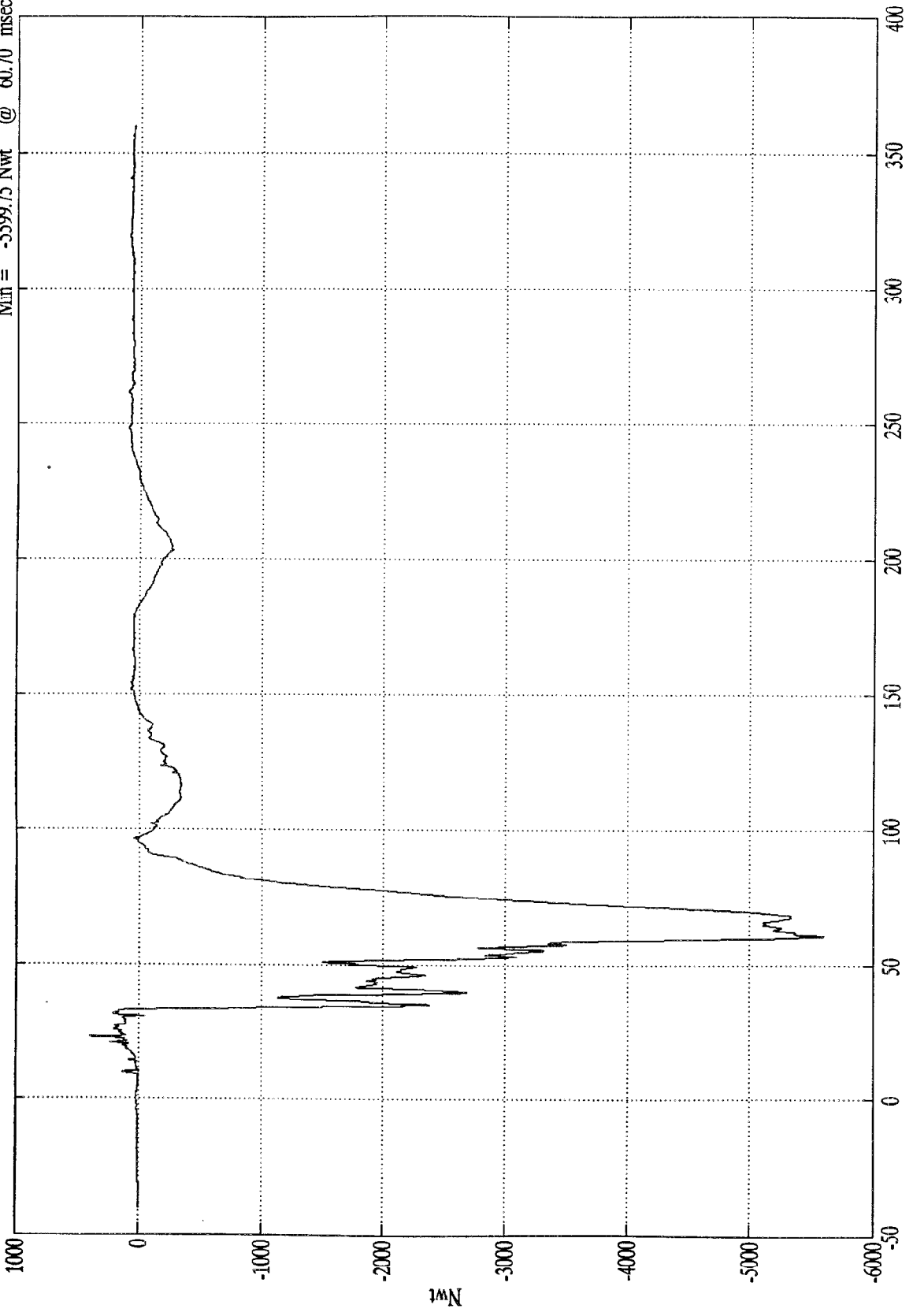
Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 401.49 Nwt @ 22.89 msec
Min = -5599.75 Nwt @ 60.70 msec

Pos. 2 Left Femur



Time (msec)

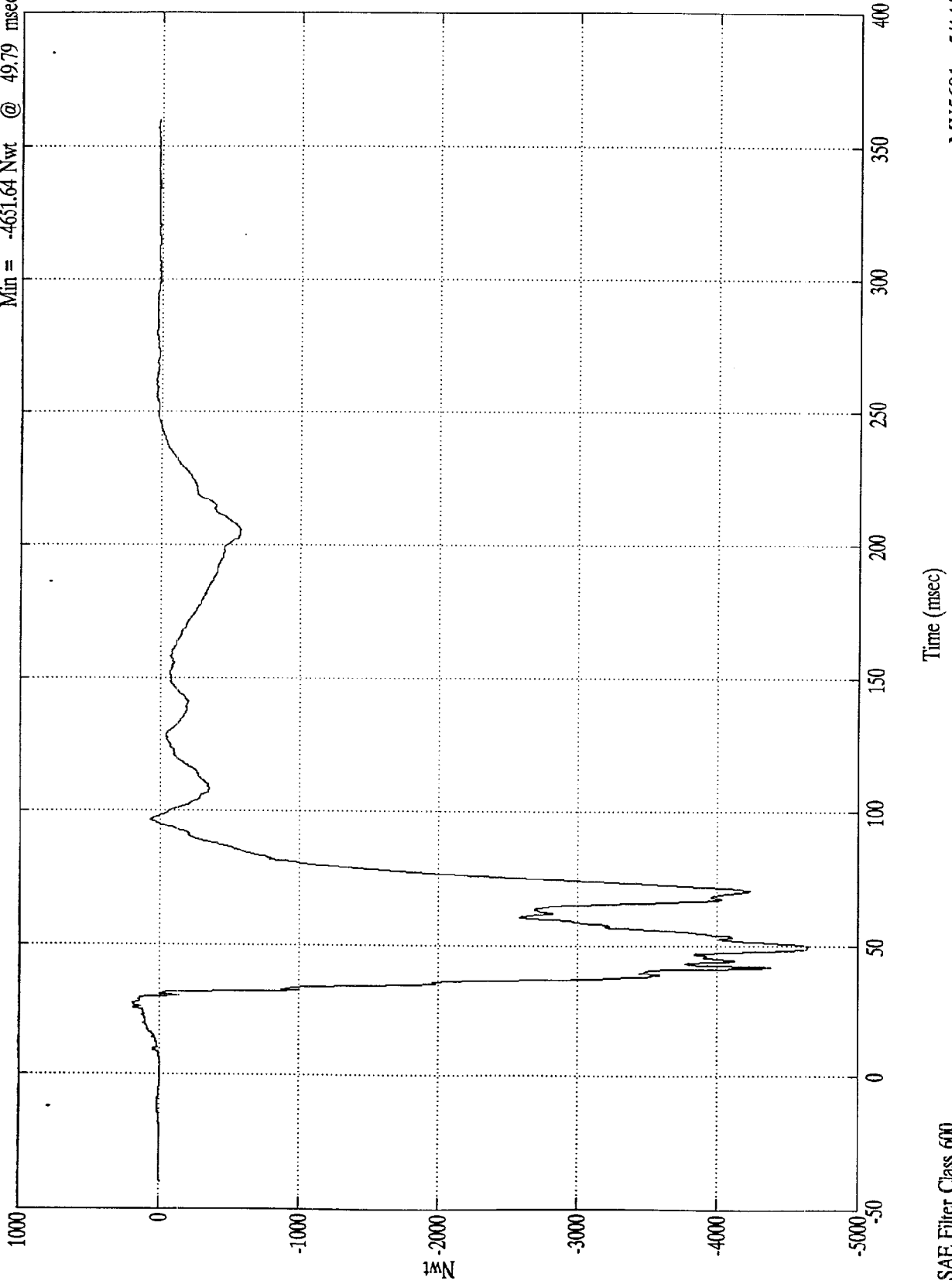
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 • 1997 MITSUBISHI MONTERO

Pos. 2 Right Femur

Max = 192.25 Nwt @ 27.50 msec
Min = -4651.64 Nwt @ 49.79 msec



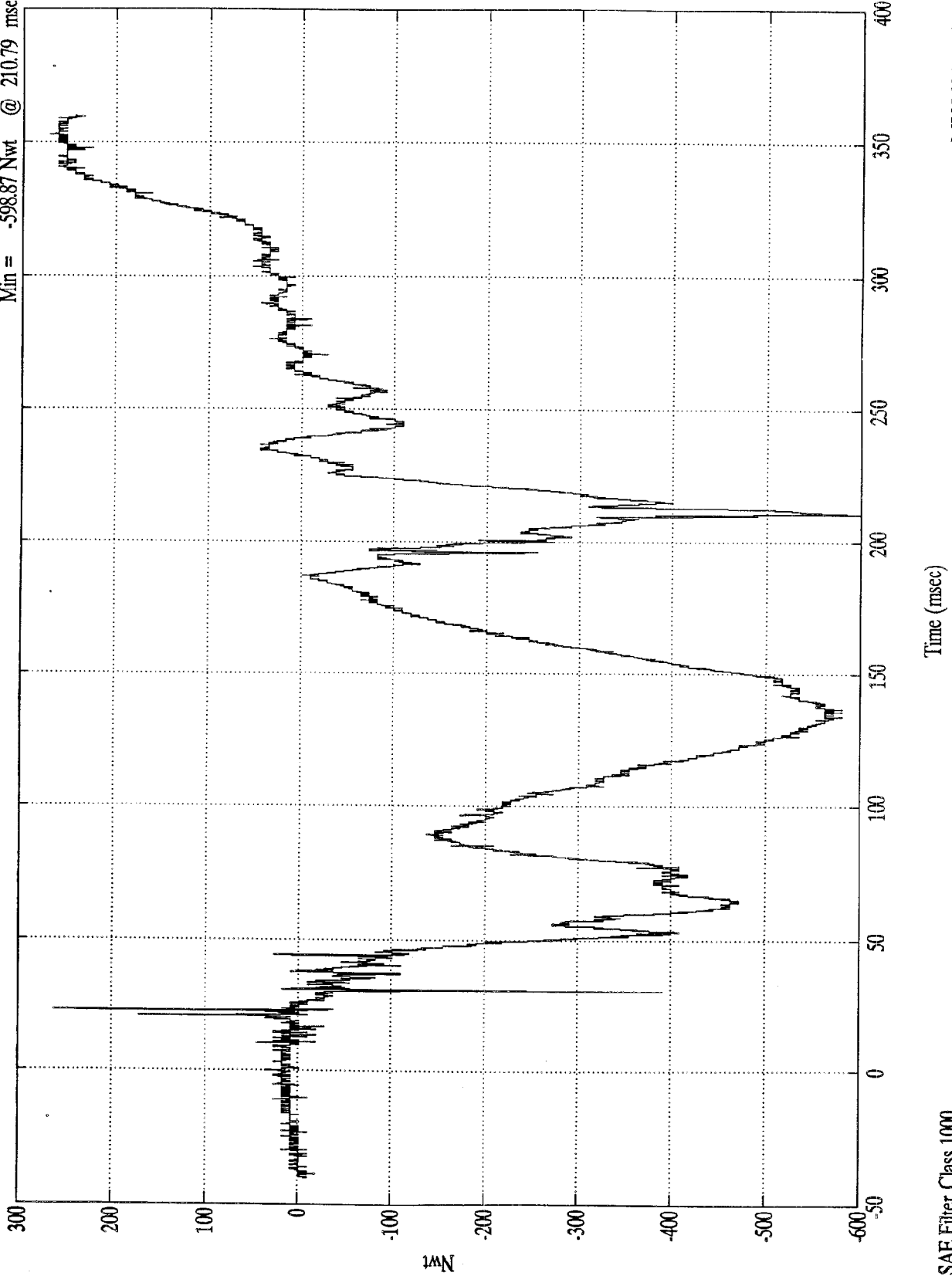
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Upper Neck Fx

Max = 270.72 Nwt @ 353.00 msec
Min = -598.87 Nwt @ 210.79 msec



SAE Filter Class 1000

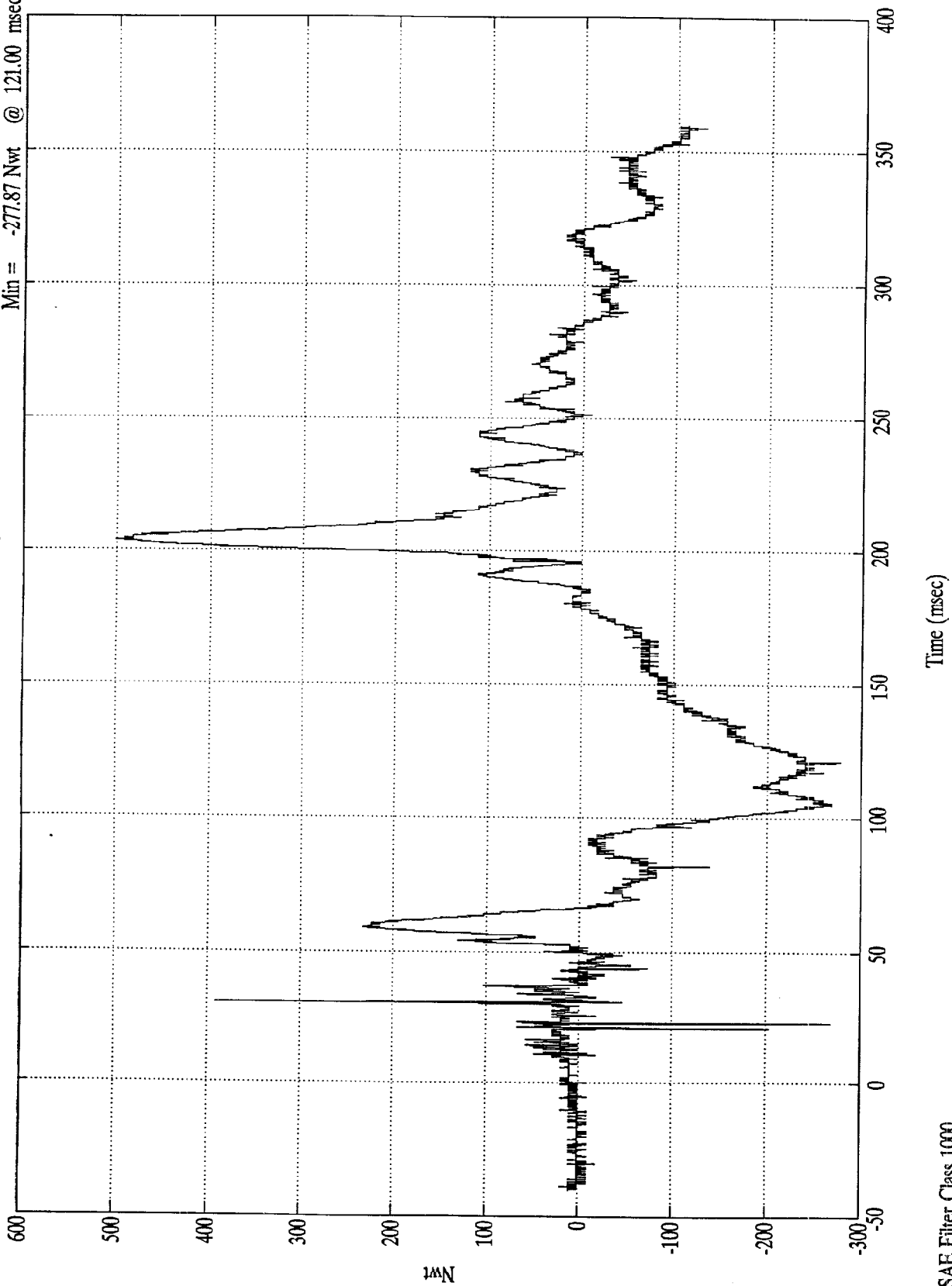
Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Upper Neck Fy

Max = 501.94 Nwt @ 203.59 msec
Min = -277.87 Nwt @ 121.00 msec



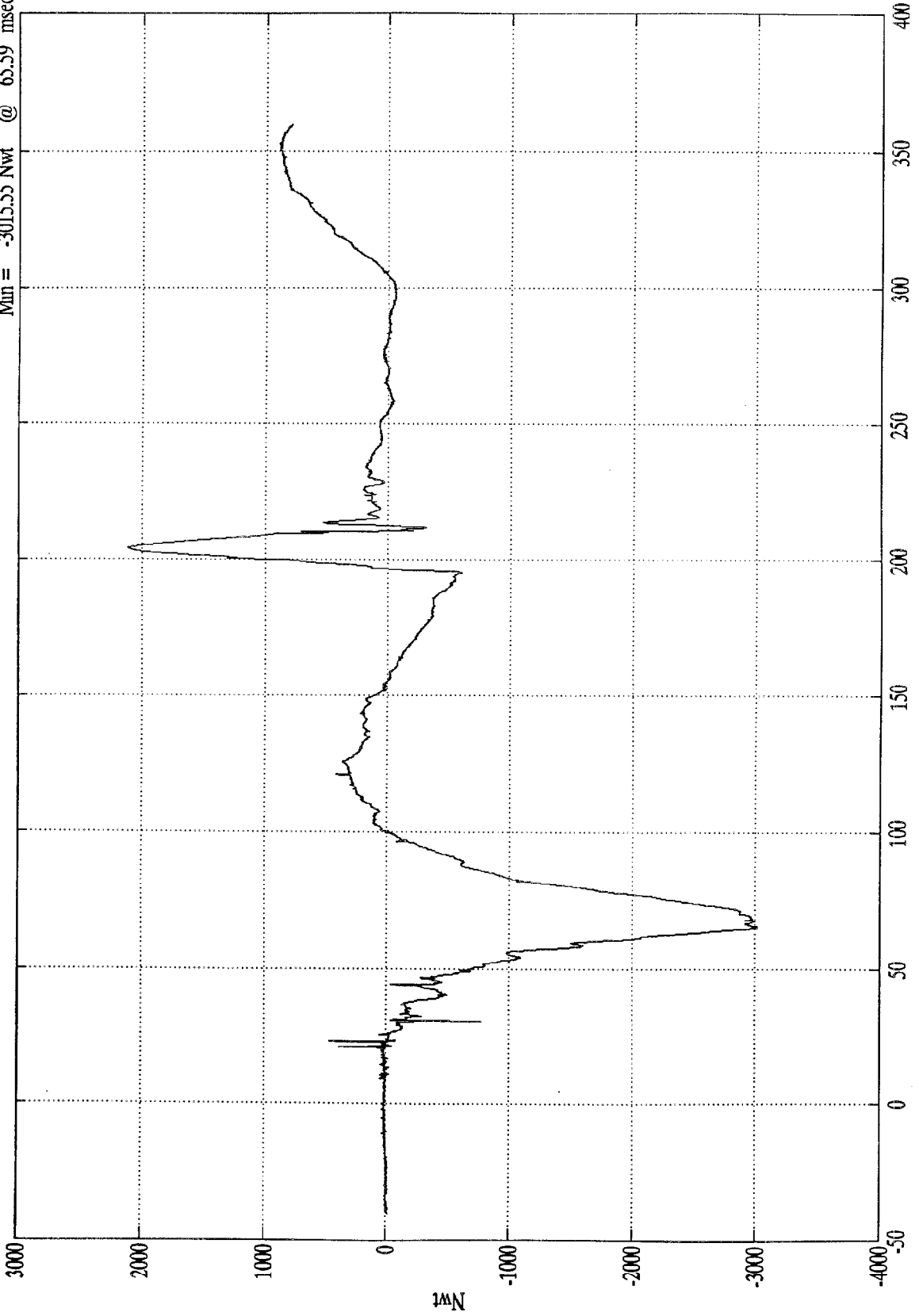
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 2112.94 Nwt @ 204.19 msec
Min = -3015.55 Nwt @ 65.59 msec

Pos 2 Upper Neck Fz



SAE Filter Class 1000

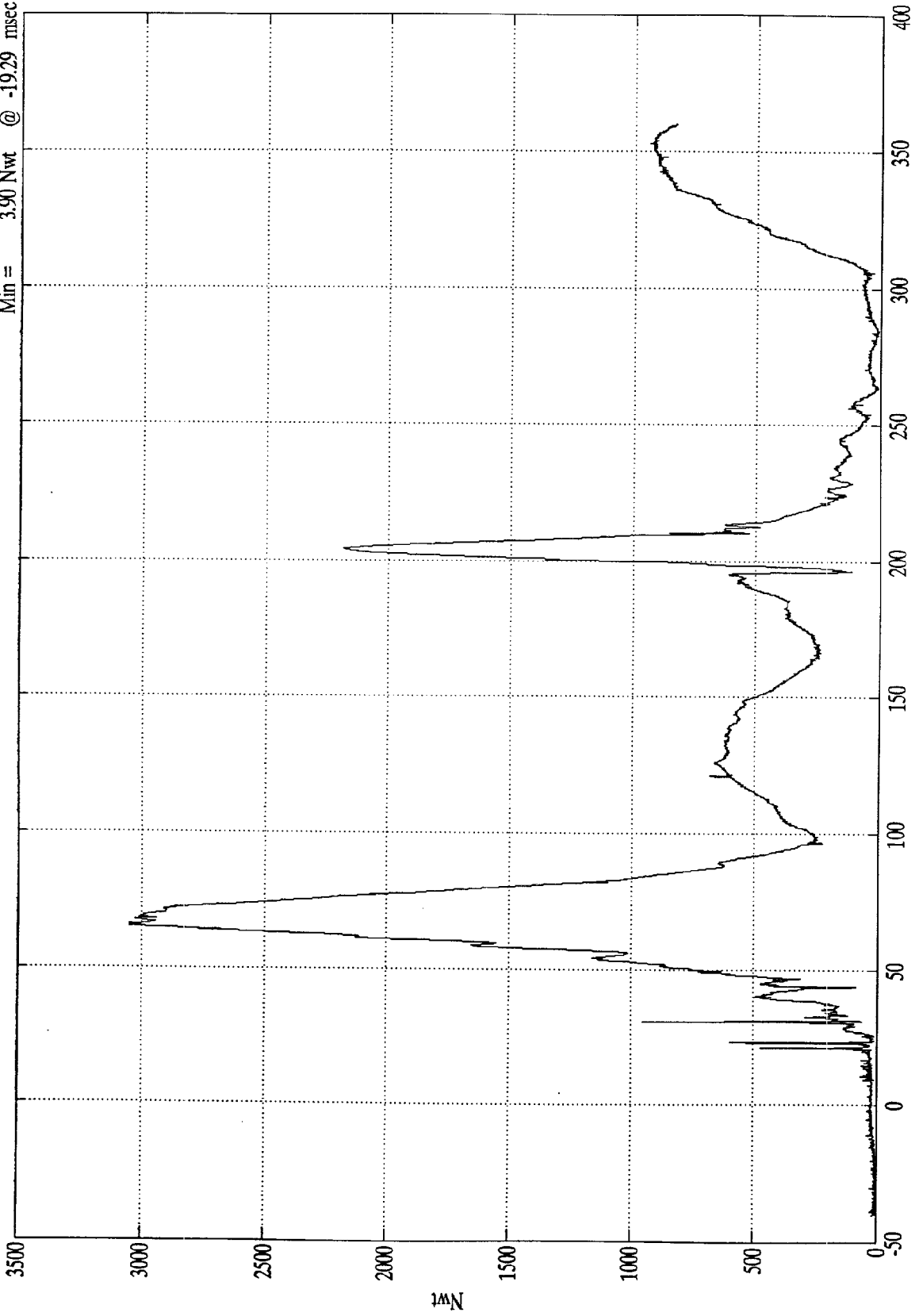
Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 3051.25 Nwt @ 65.39 msec
Min = 3.90 Nwt @ -19.29 msec

Pos. 2 Neck Force Res.



Time (msec)

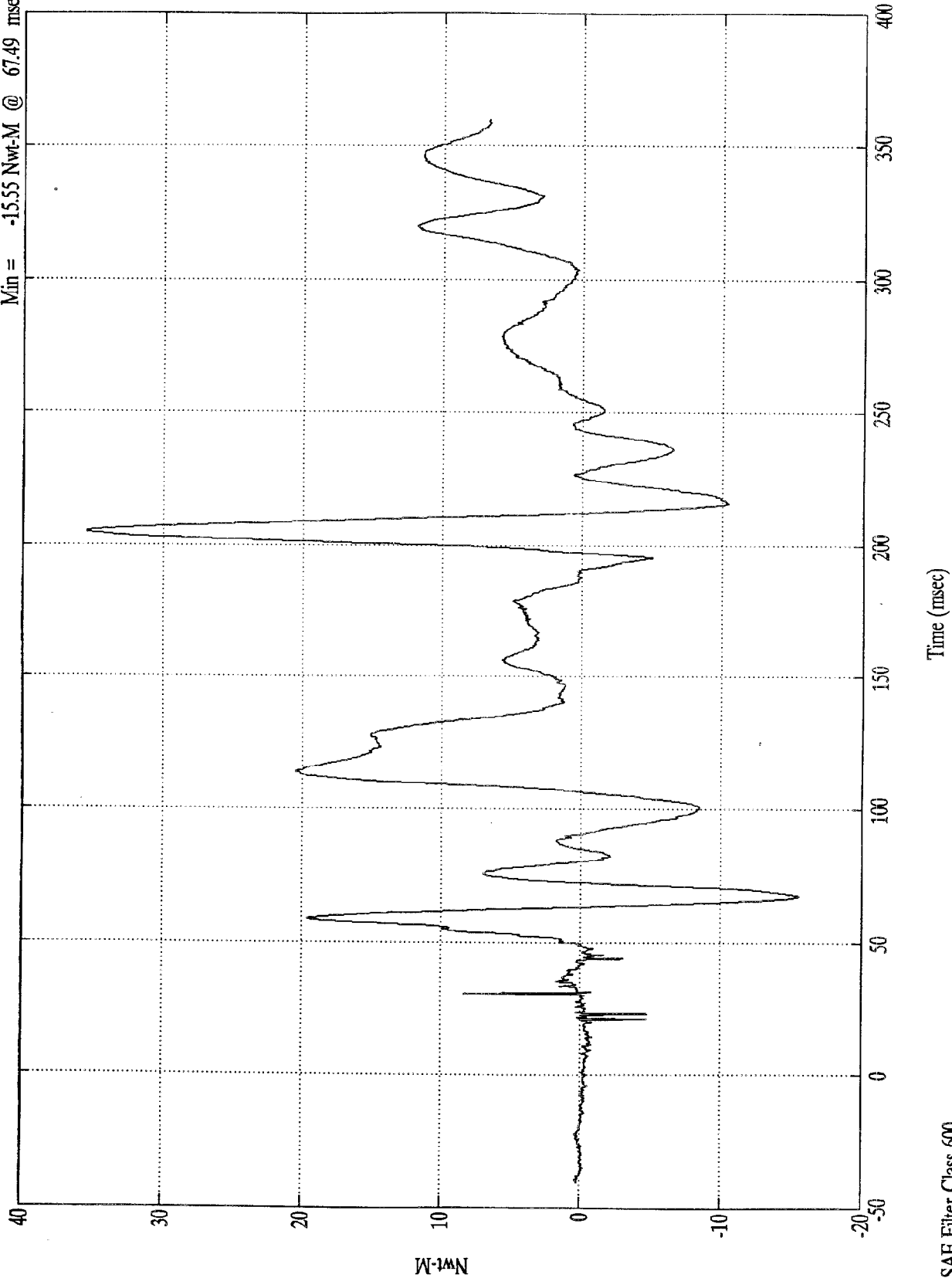
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

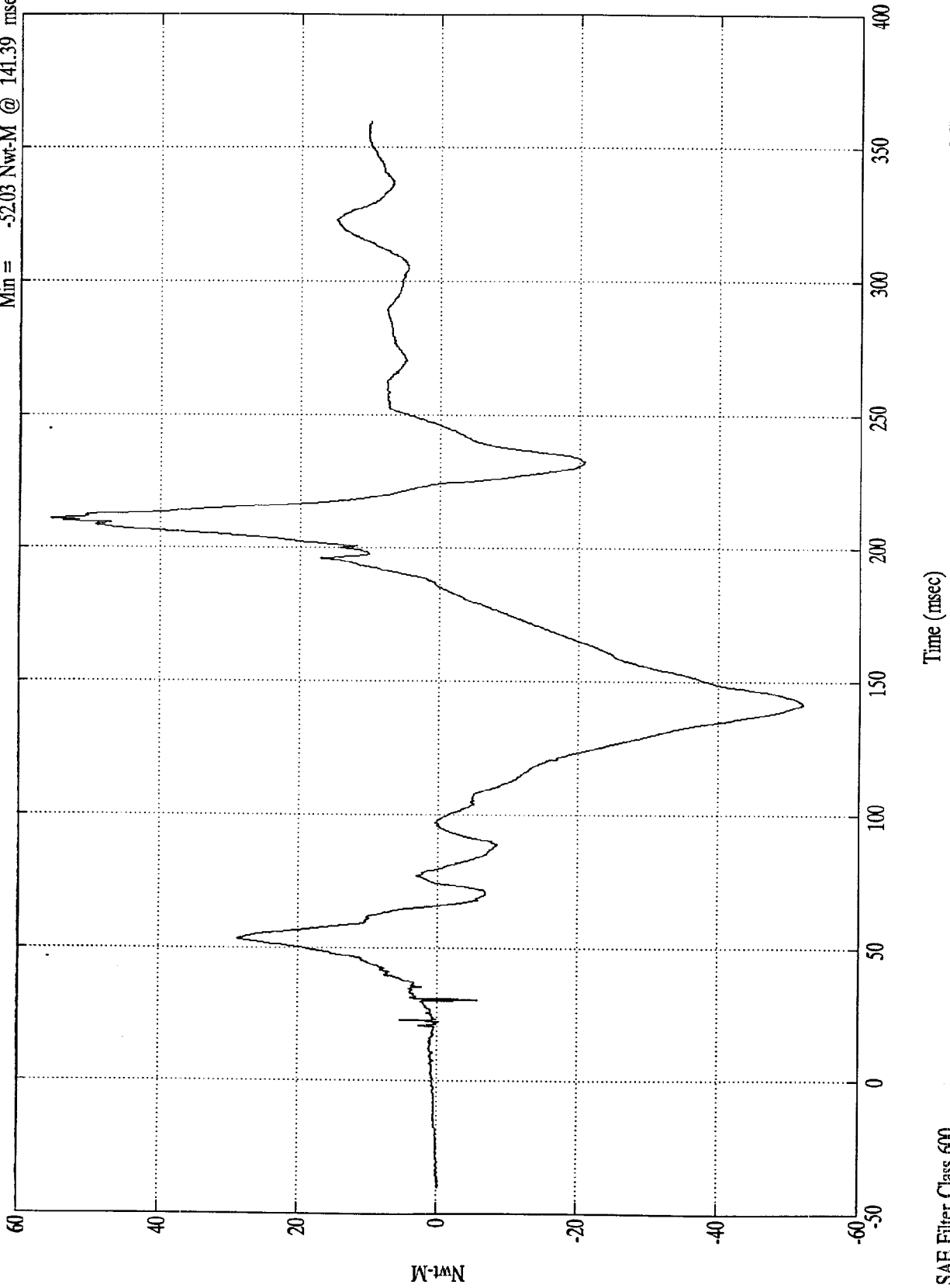
Pos 2 Upper Neck Mx

Max = 35.47 Nwt-M @ 205.29 msec
Min = -15.55 Nwt-M @ 67.49 msec



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Upper Neck My
Max = 55.40 Nwt-M @ 210.89 msec
Min = -52.03 Nwt-M @ 141.39 msec



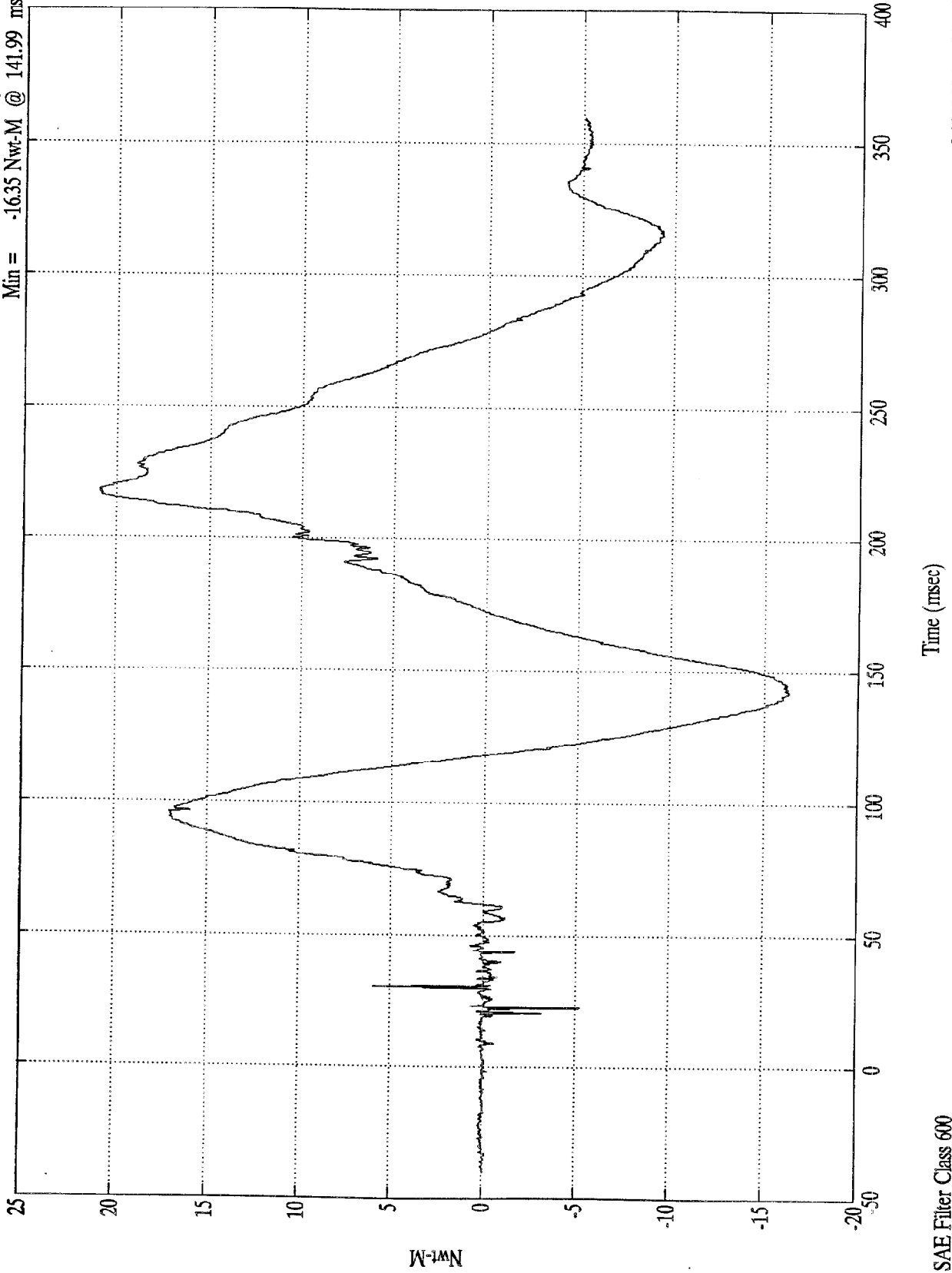
MV5601 - 5/14/97

SAE Filter Class 600

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 20.92 Nwt-M @ 217.30 msec
Min = -16.35 Nwt-M @ 141.99 msec

Pos. 2 Upper Neck Mz



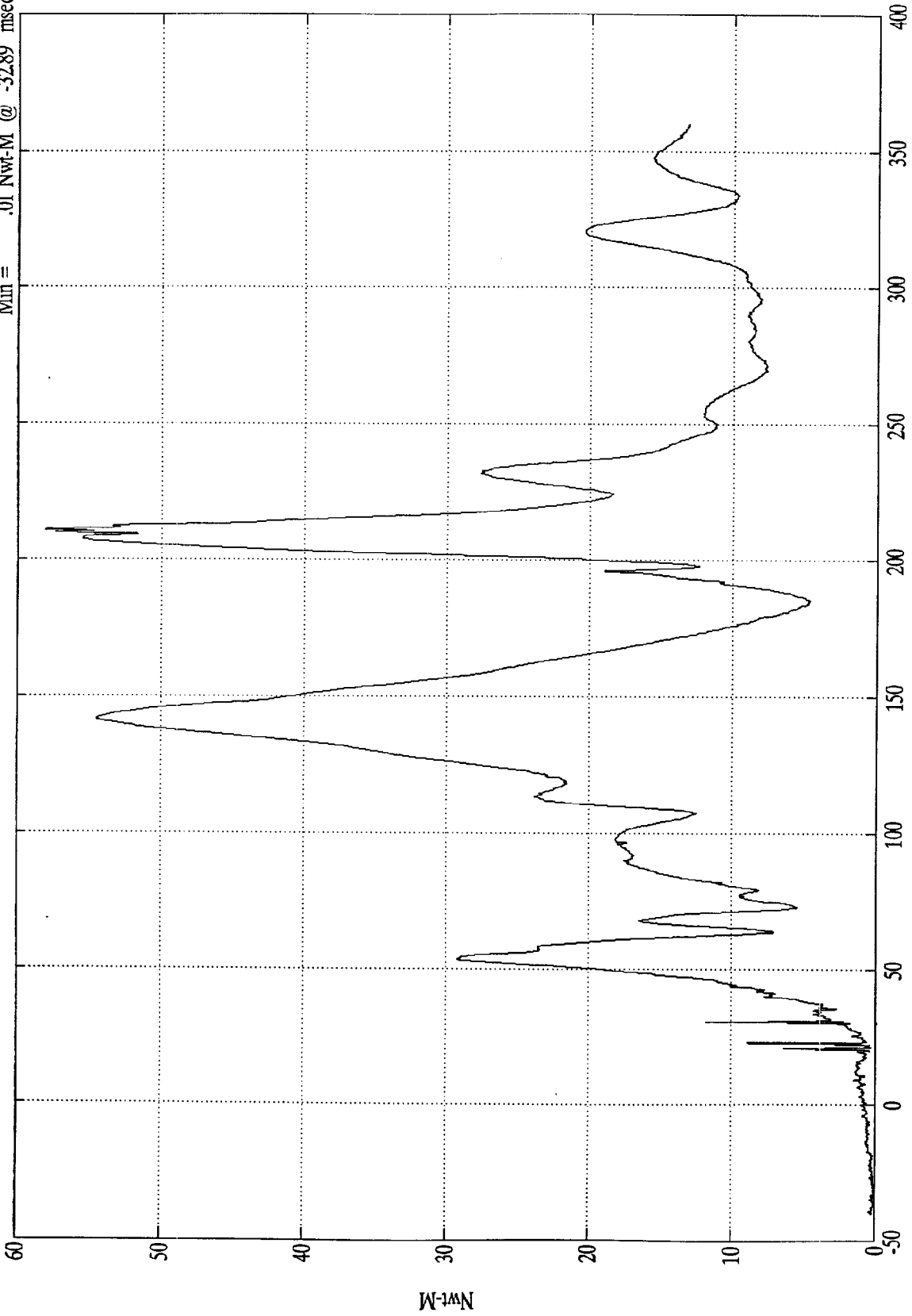
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 58.08 Nwt-M @ 210.89 msec
Min = .01 Nwt-M @ -32.89 msec

Pos. 2 Neck Moment Res.



Time (msec)

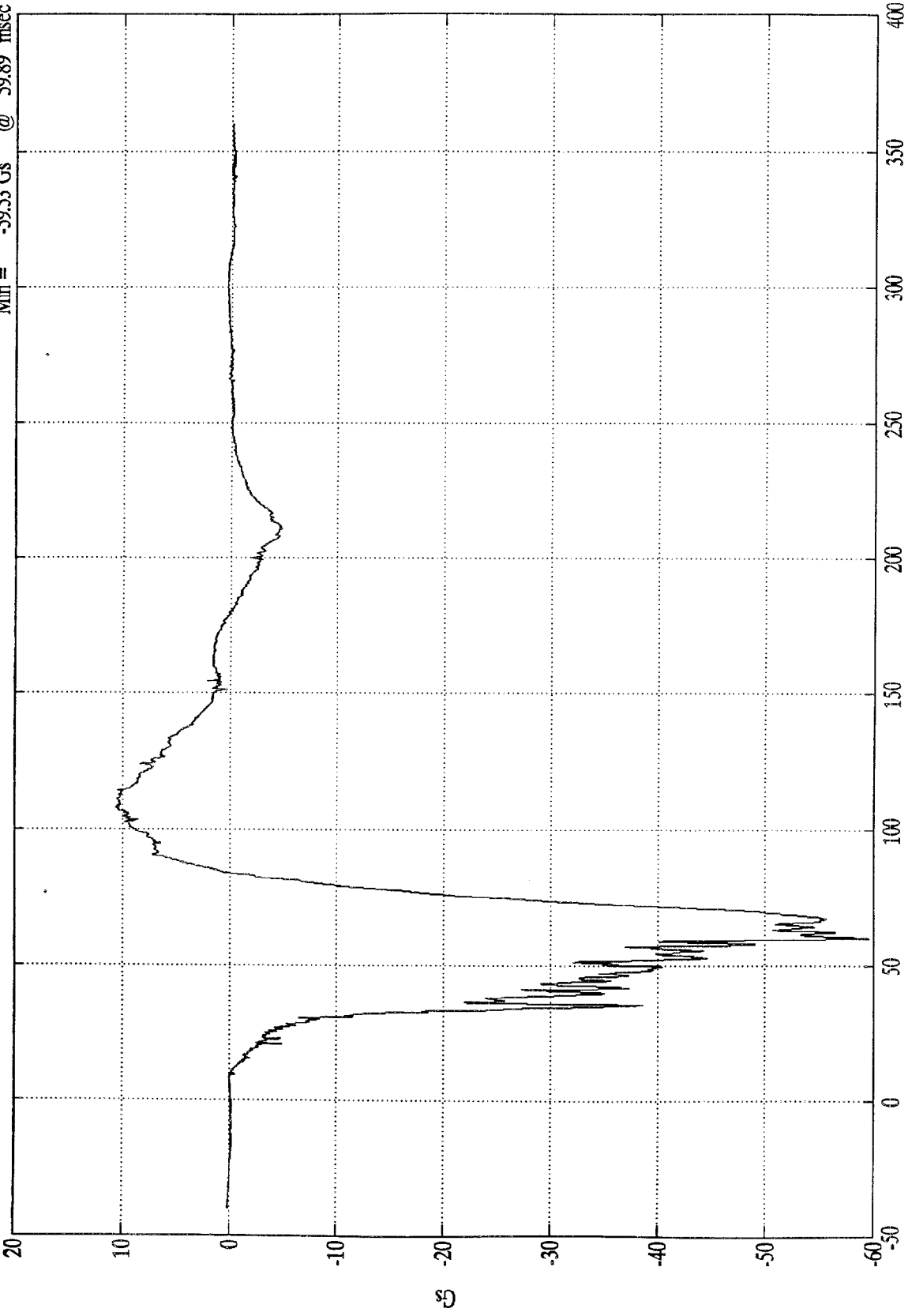
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 10.60 Gs @ 107.80 msec
Min = -59.53 Gs @ 59.89 msec

Pos. 2 Pelvic (X)



Time (msec)

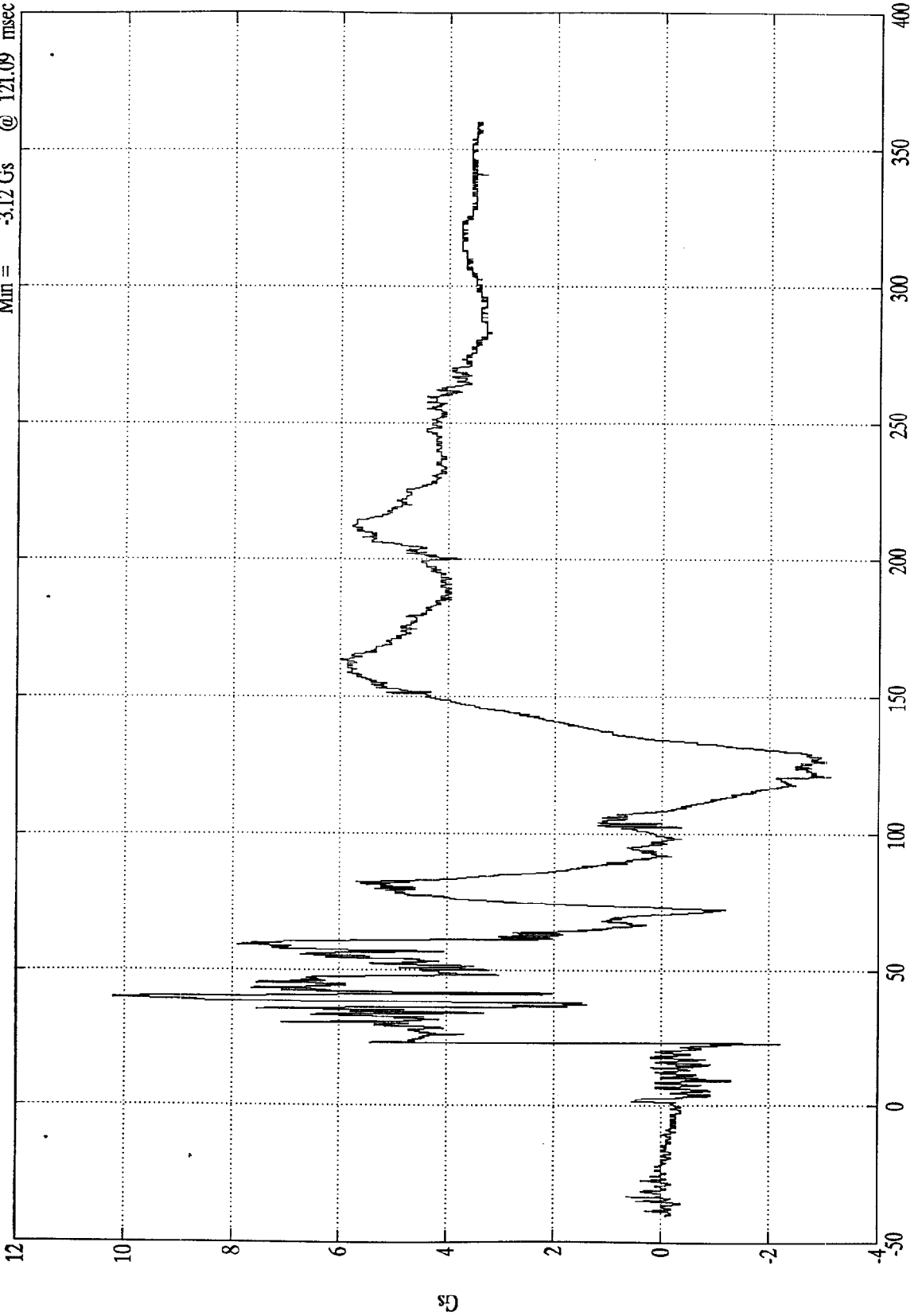
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 10.21 Gs @ 40.00 msec
Min = -3.12 Gs @ 121.09 msec

Pos. 2 Pelvic (Y)



Time (msec)

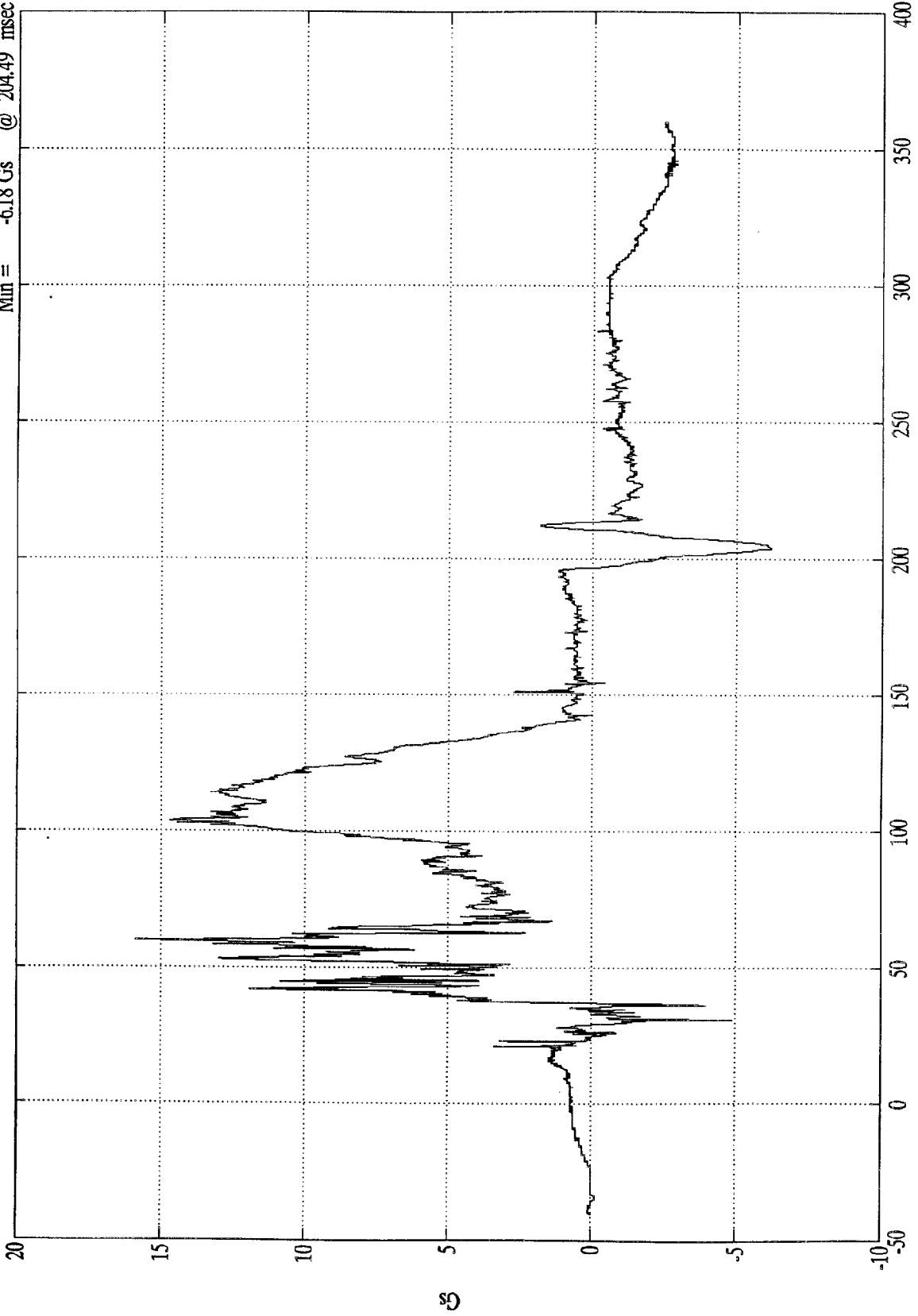
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 15.86 Gs @ 59.69 msec
Min = -6.18 Gs @ 204.49 msec

Pos. 2 Pelvic (Z)



Time (msec)

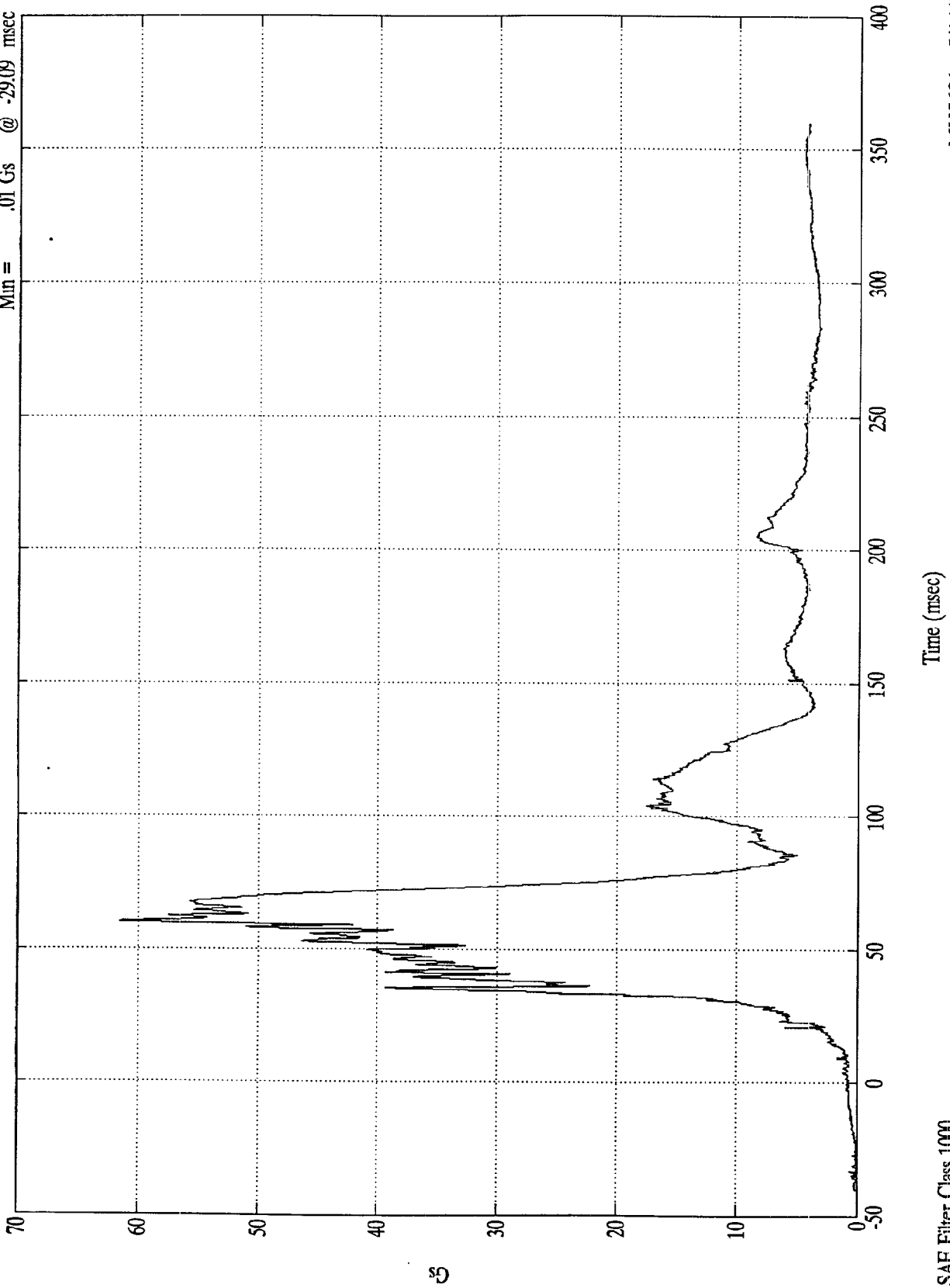
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 61.57 Gs @ 59.89 msec
Min = .01 Gs @ -29.09 msec

Pos. 2 Pelvic (R)



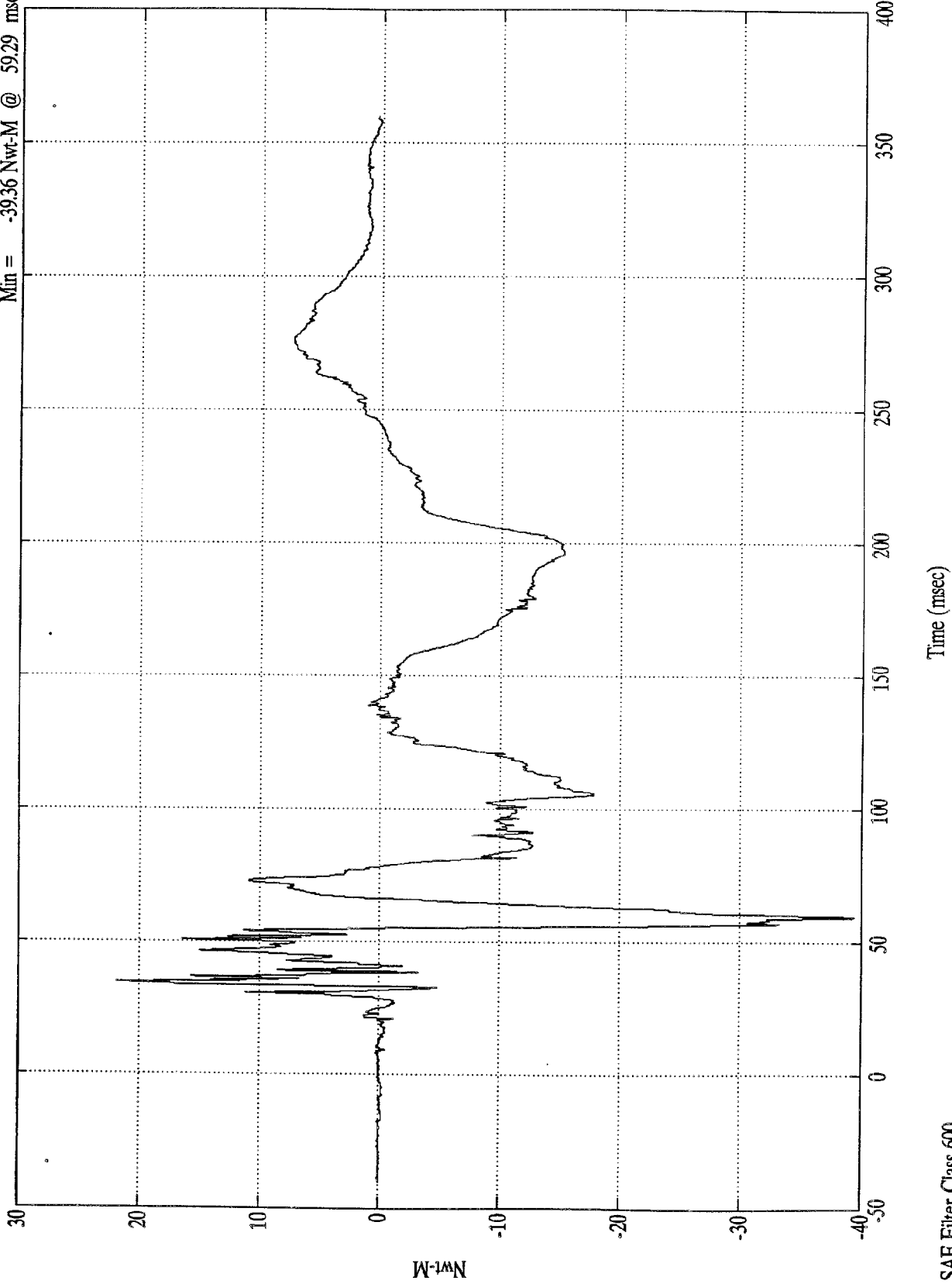
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Lt Upper Tibia Mx

Max = 21.84 Nwt-M @ 34.29 msec
Min = -39.36 Nwt-M @ 59.29 msec



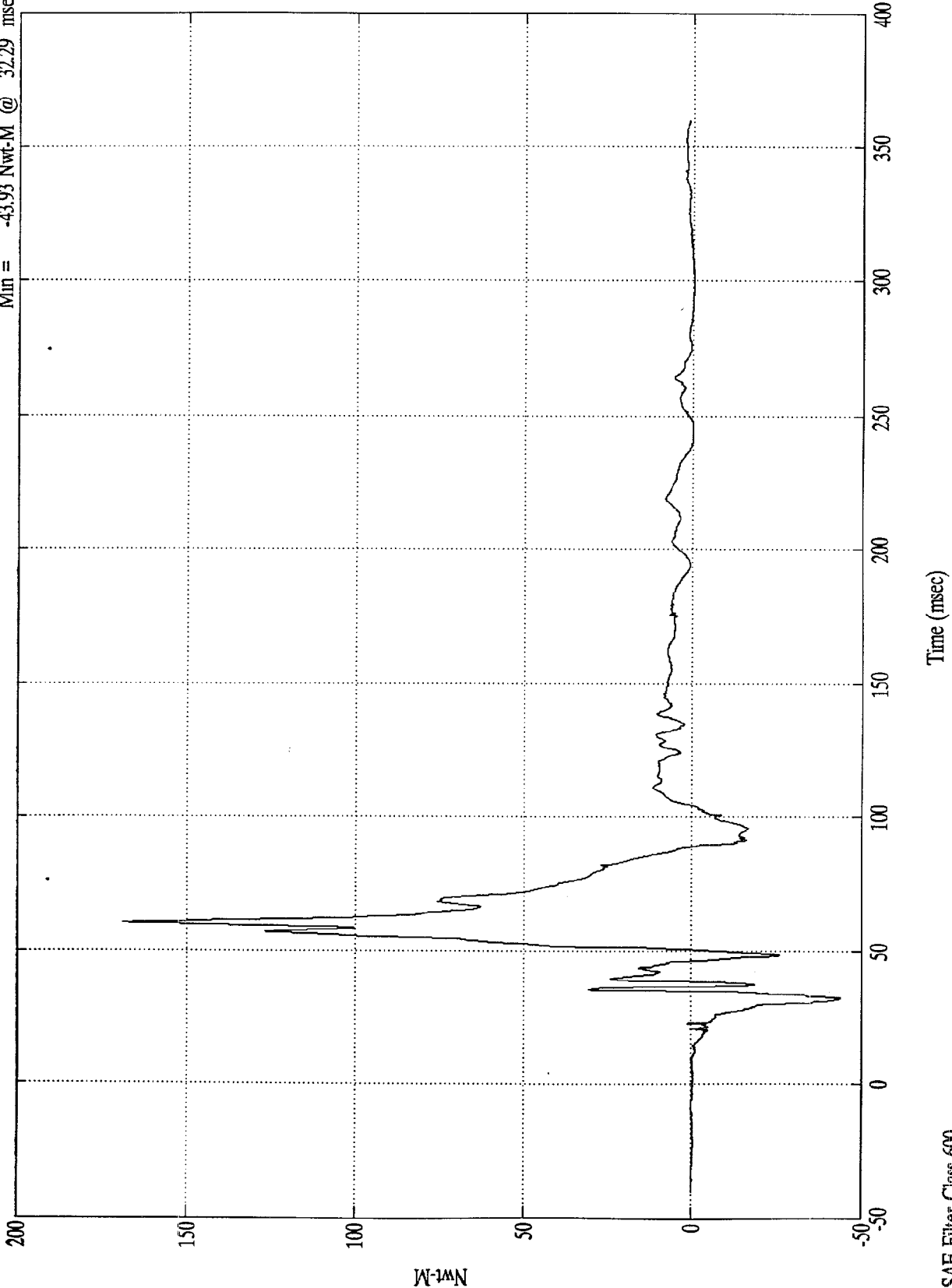
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Lt Upper Tibia My

Max = 168.97 Nwt-M @ 60.09 msec
Min = -43.93 Nwt-M @ 32.29 msec



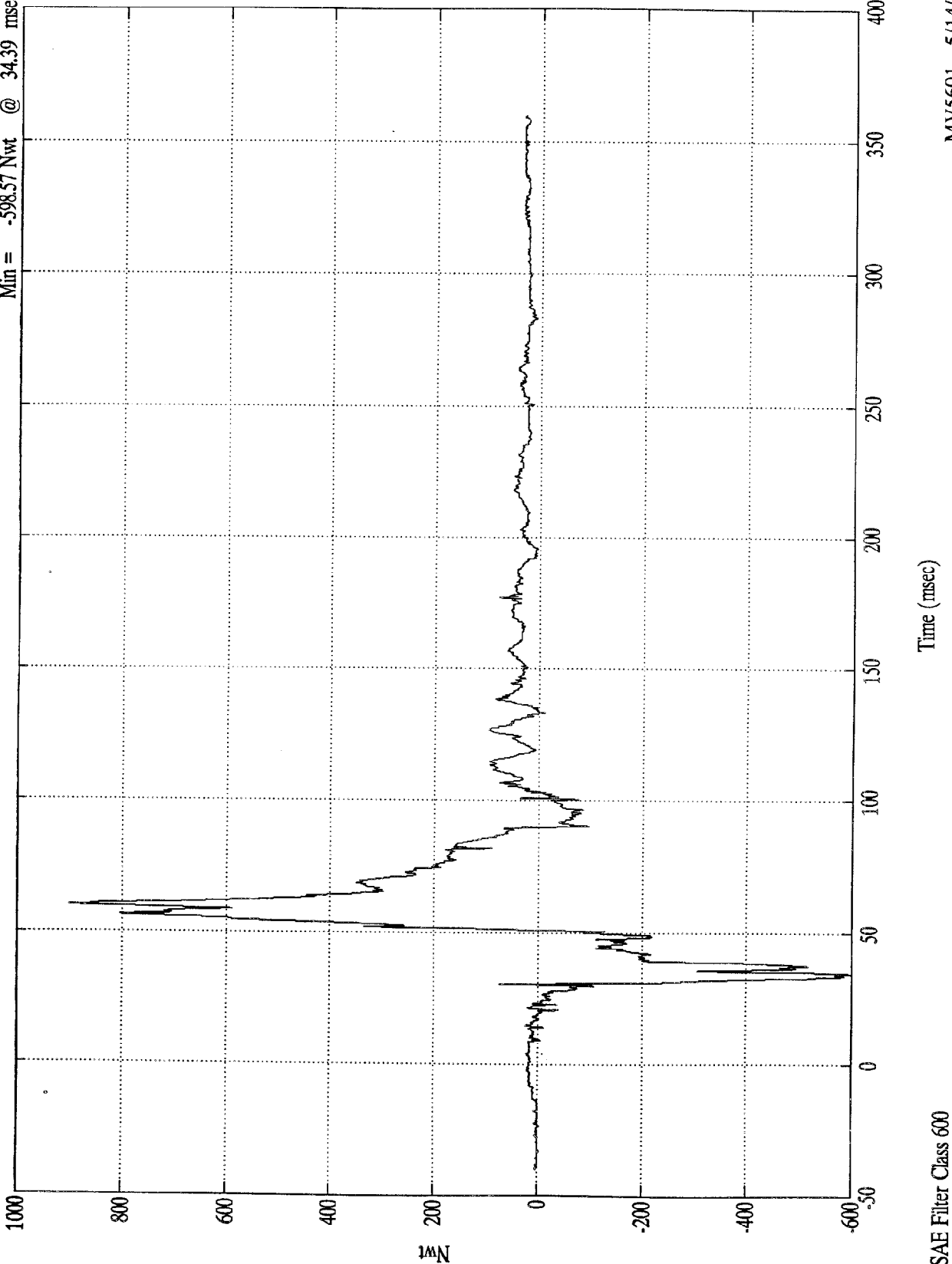
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 900.81 Nwt @ 59.69 msec
Min = -598.57 Nwt @ 34.39 msec

Pos. 2 Lt Lower Tibia Fx



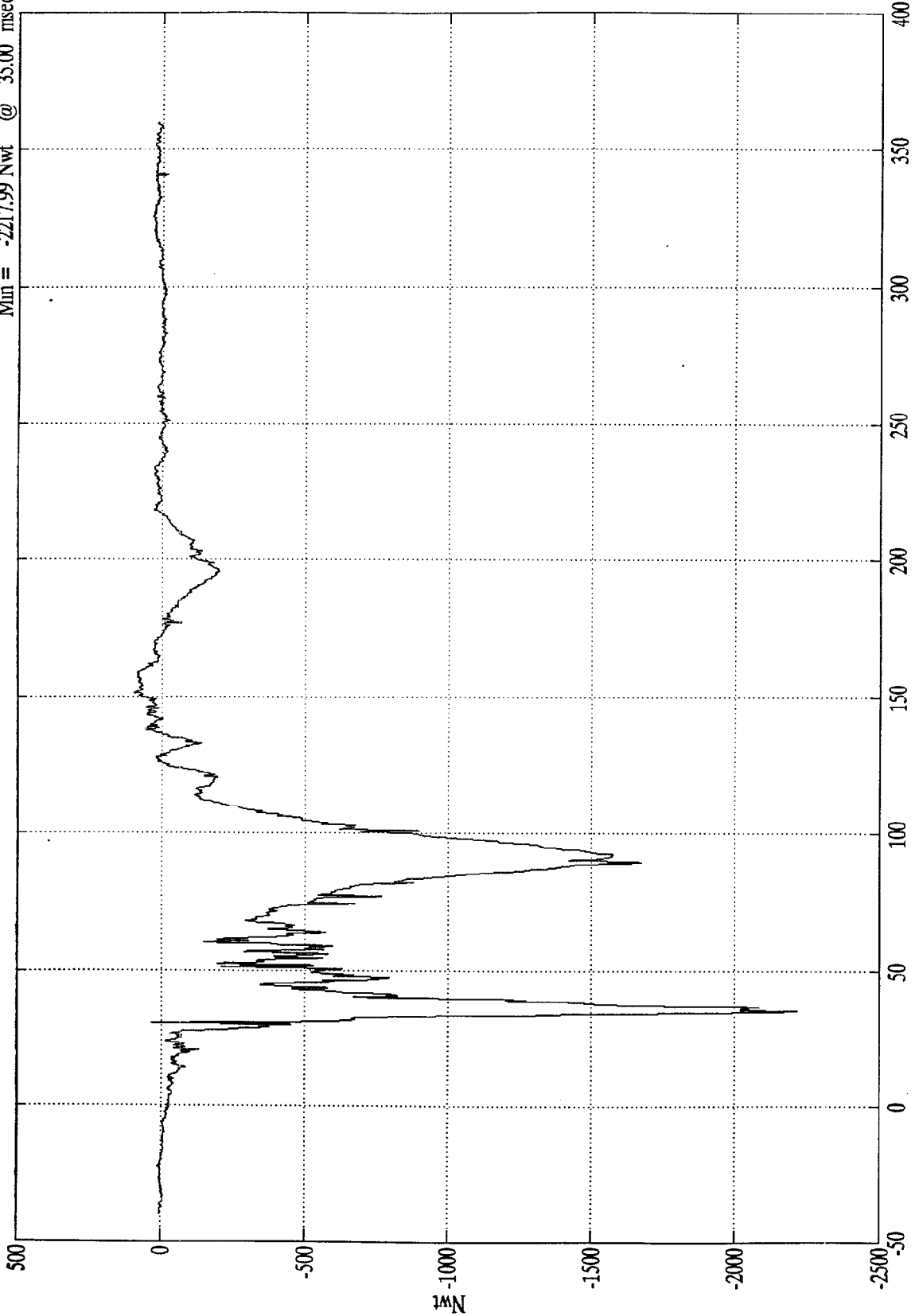
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Lt Lower Tibia Fz

Max = 96.26 Nwt @ 151.60 msec
Min = -2217.99 Nwt @ 35.00 msec



Time (msec)

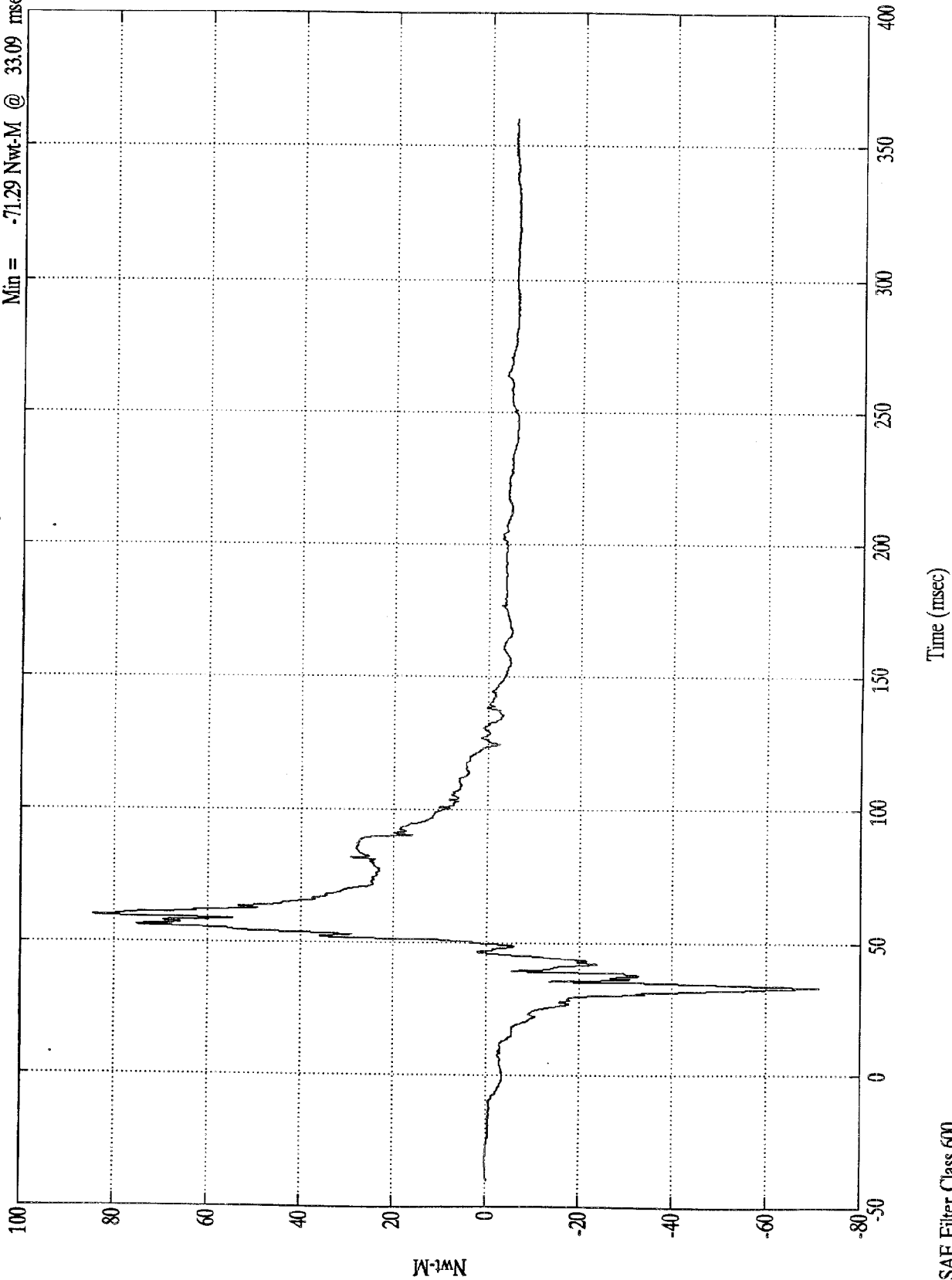
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Lt Lower Tibia My

Max = 84.44 Nwt-M @ 59.59 msec
Min = -71.29 Nwt-M @ 33.09 msec



Nwt-M

Time (msec)

B-87

8406-8

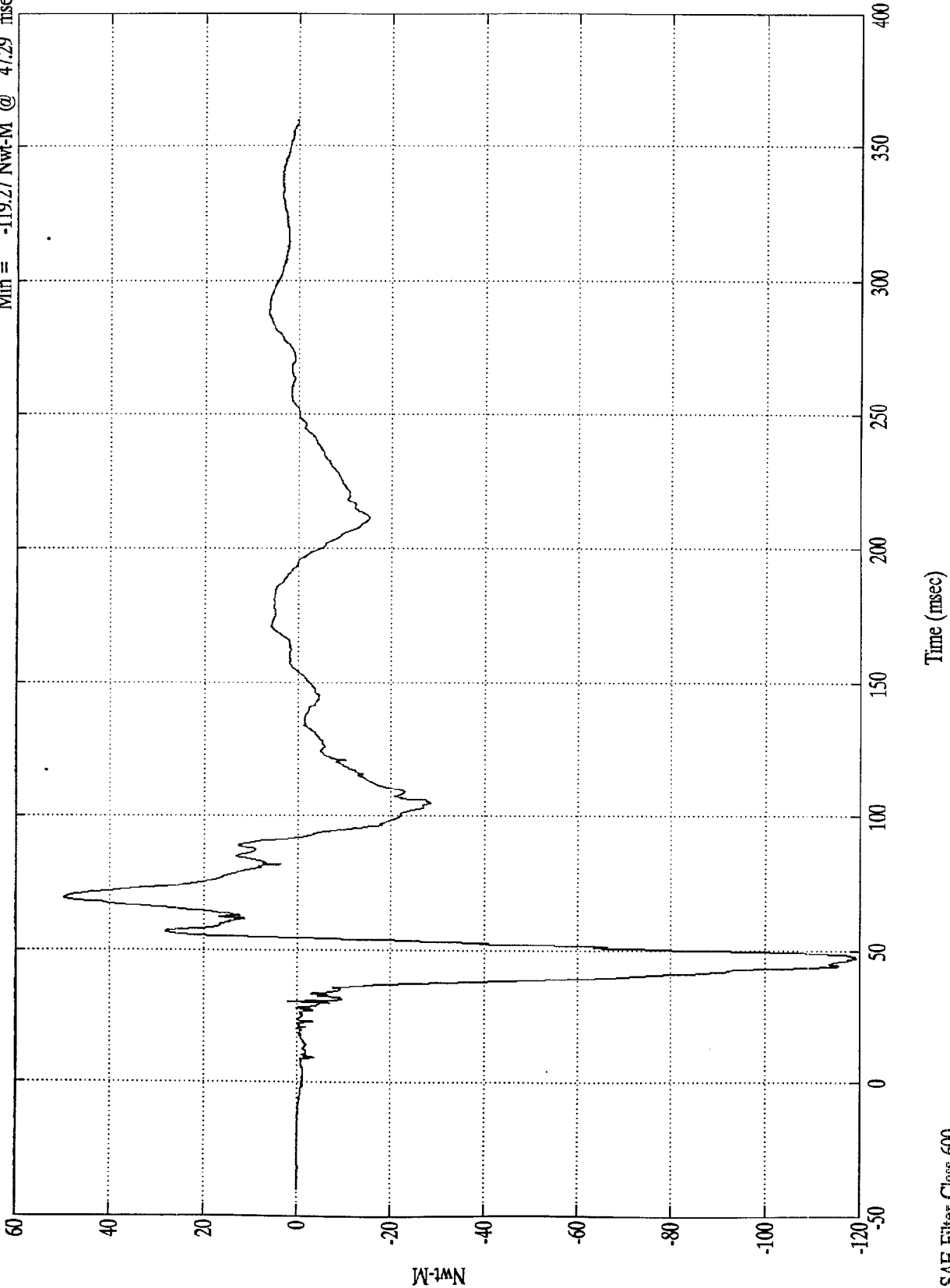
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Rt Upper Tibia Mx

Max = 49.86 Nwt-M @ 69.00 msec
Min = -119.27 Nwt-M @ 47.29 msec



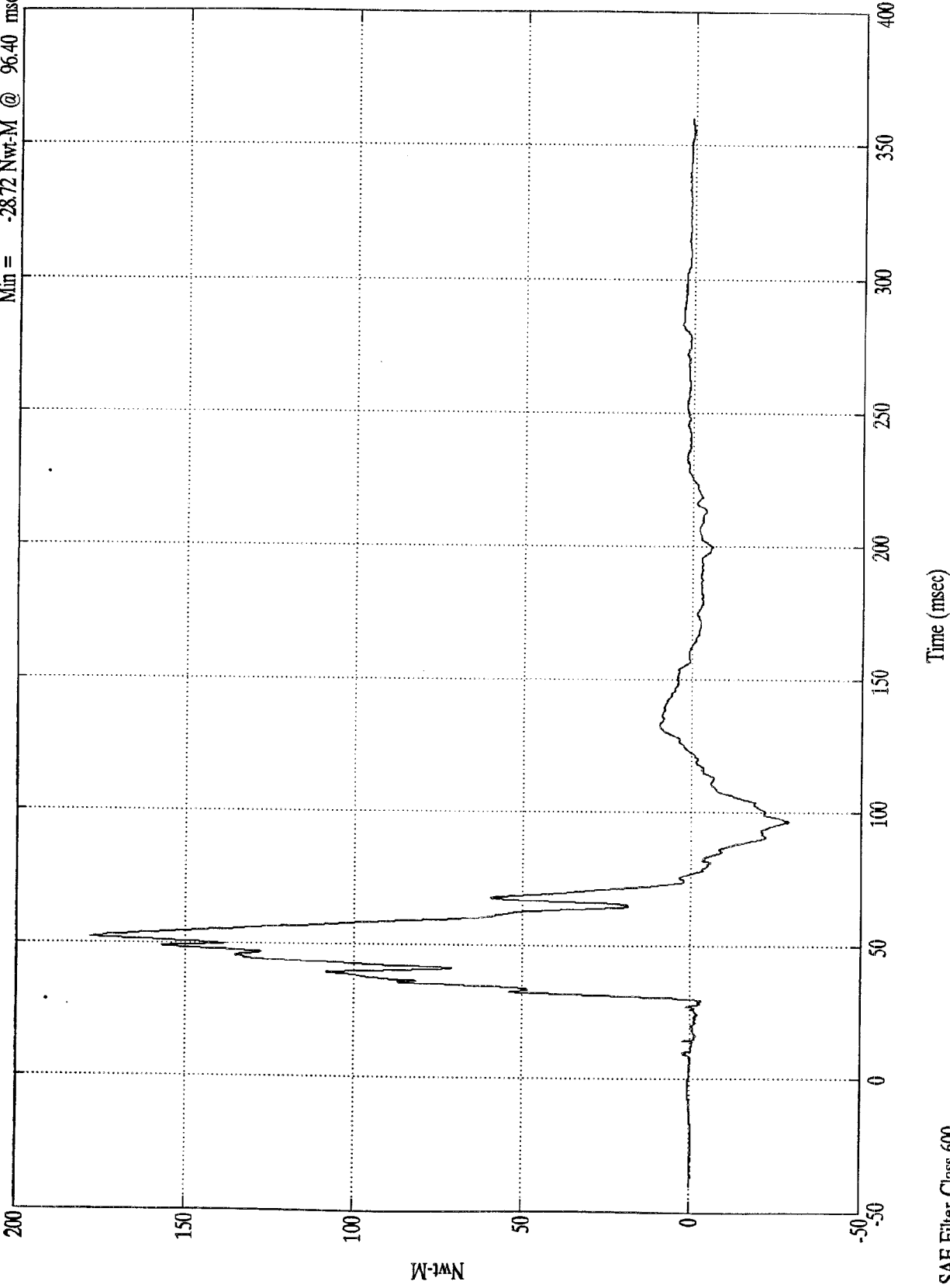
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Rt Upper Tibia My

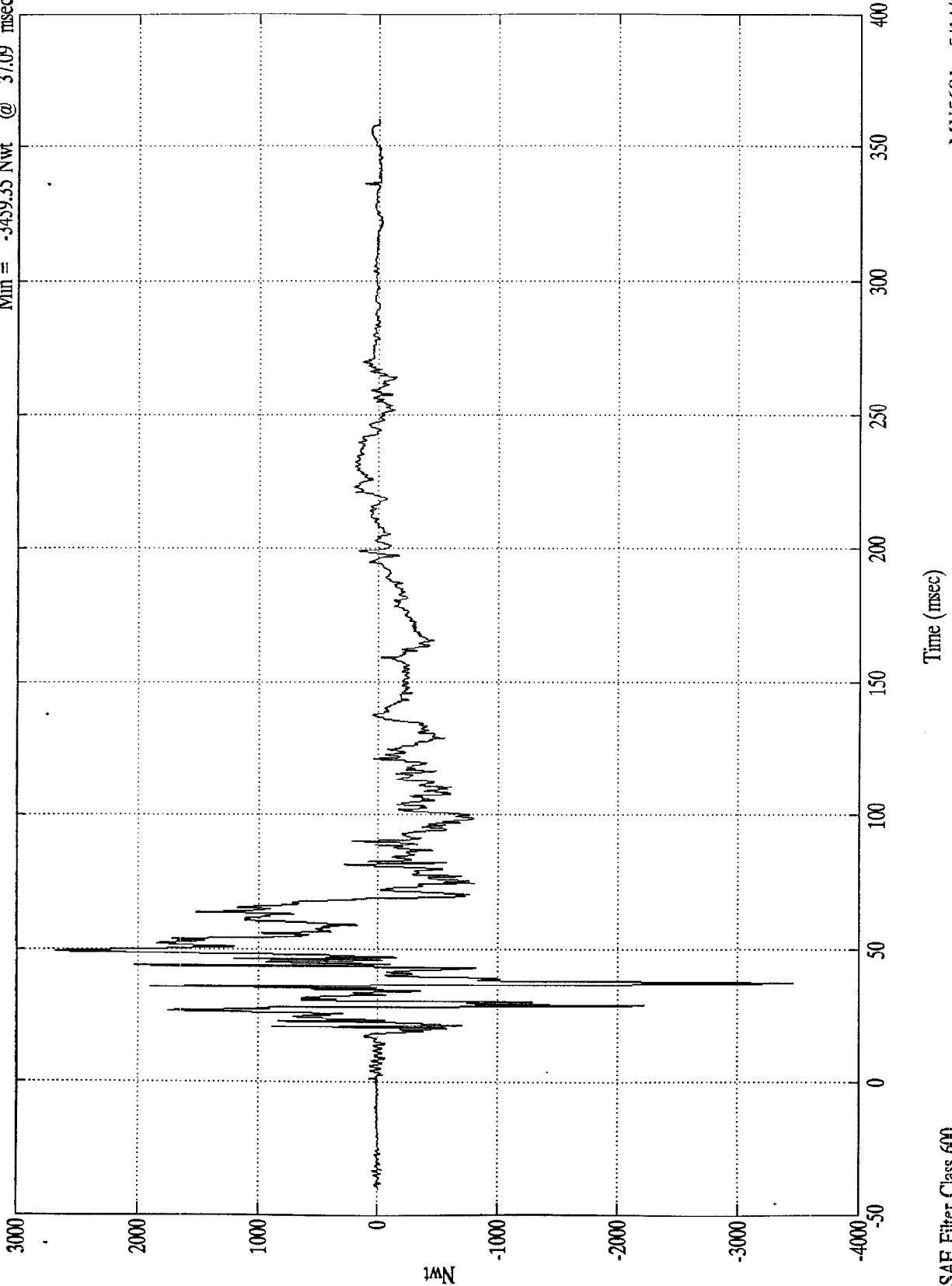
Max = 178.16 Nwt-M @ 51.99 msec
Min = -28.72 Nwt-M @ 96.40 msec



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Rt Lower Tibia Fx

Max = 2679.02 Nwt @ 49.10 msec
Min = -3459.35 Nwt @ 37.09 msec



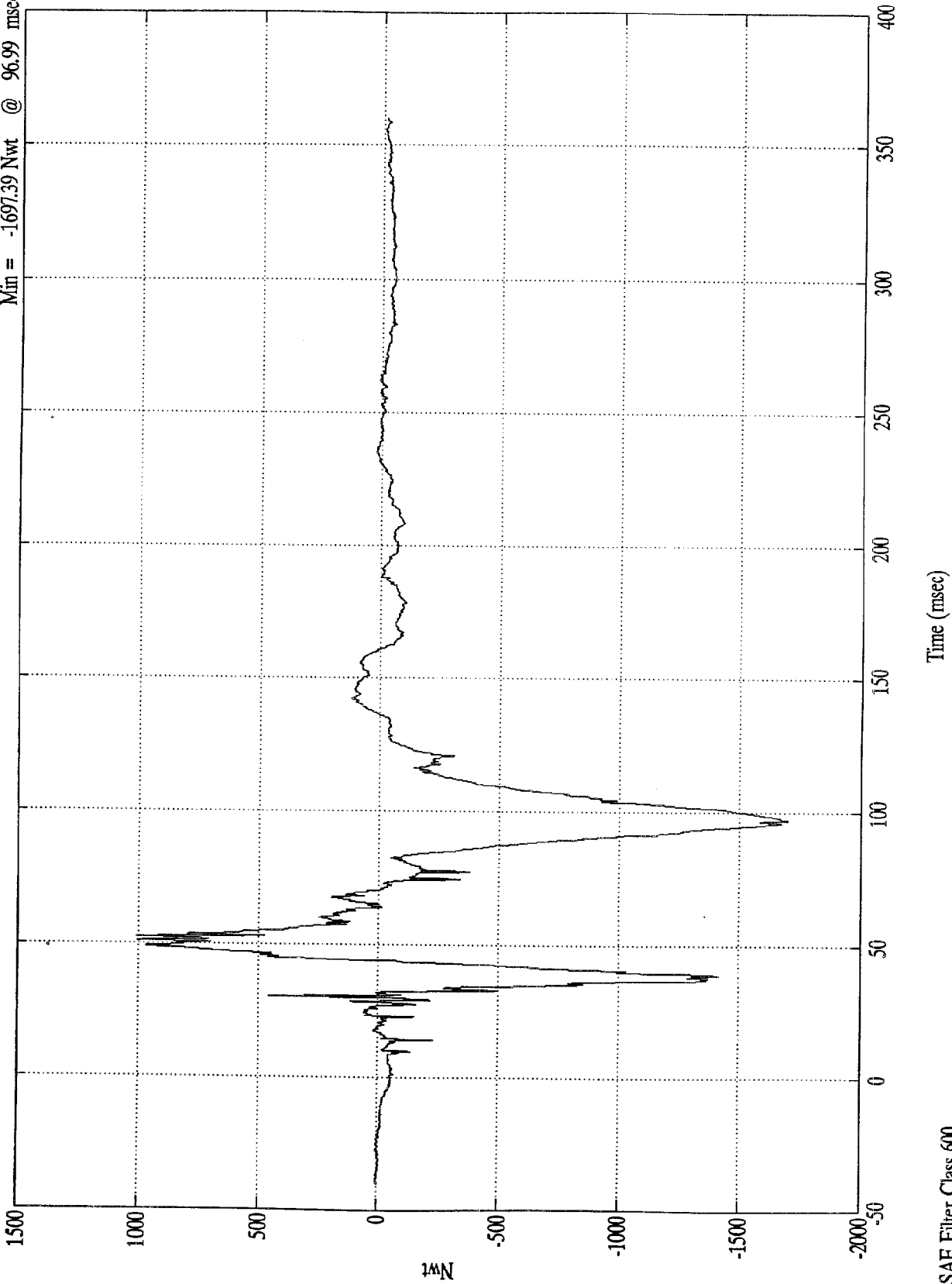
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Rt Lower Tibia Fz

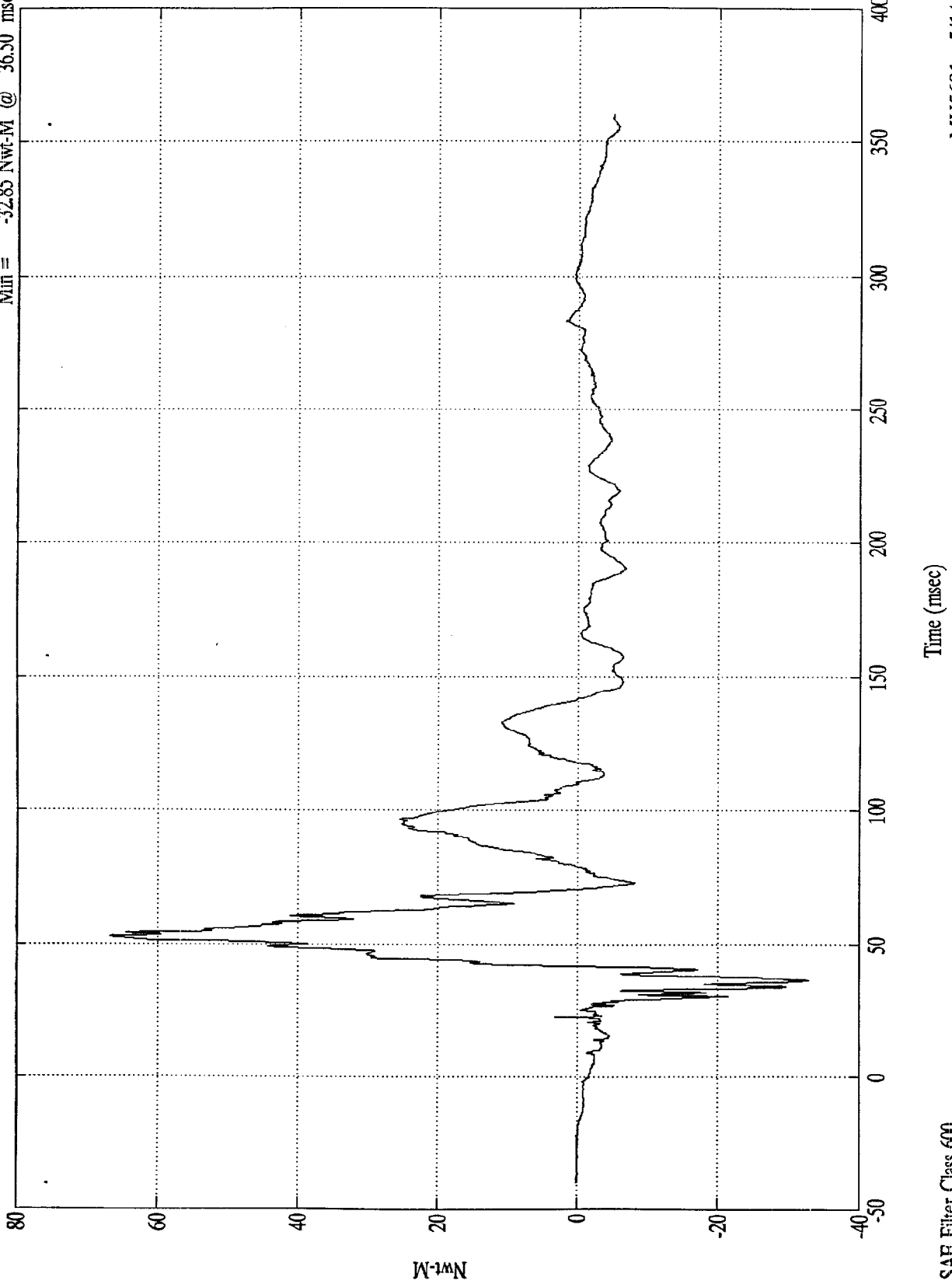
Max = 1006.68 Nwt @ 52.40 msec
Min = -1697.39 Nwt @ 96.99 msec



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Rt Lower Tibia My

Max = 66.84 Nwt-M @ 52.79 msec
Min = -32.85 Nwt-M @ 36.50 msec



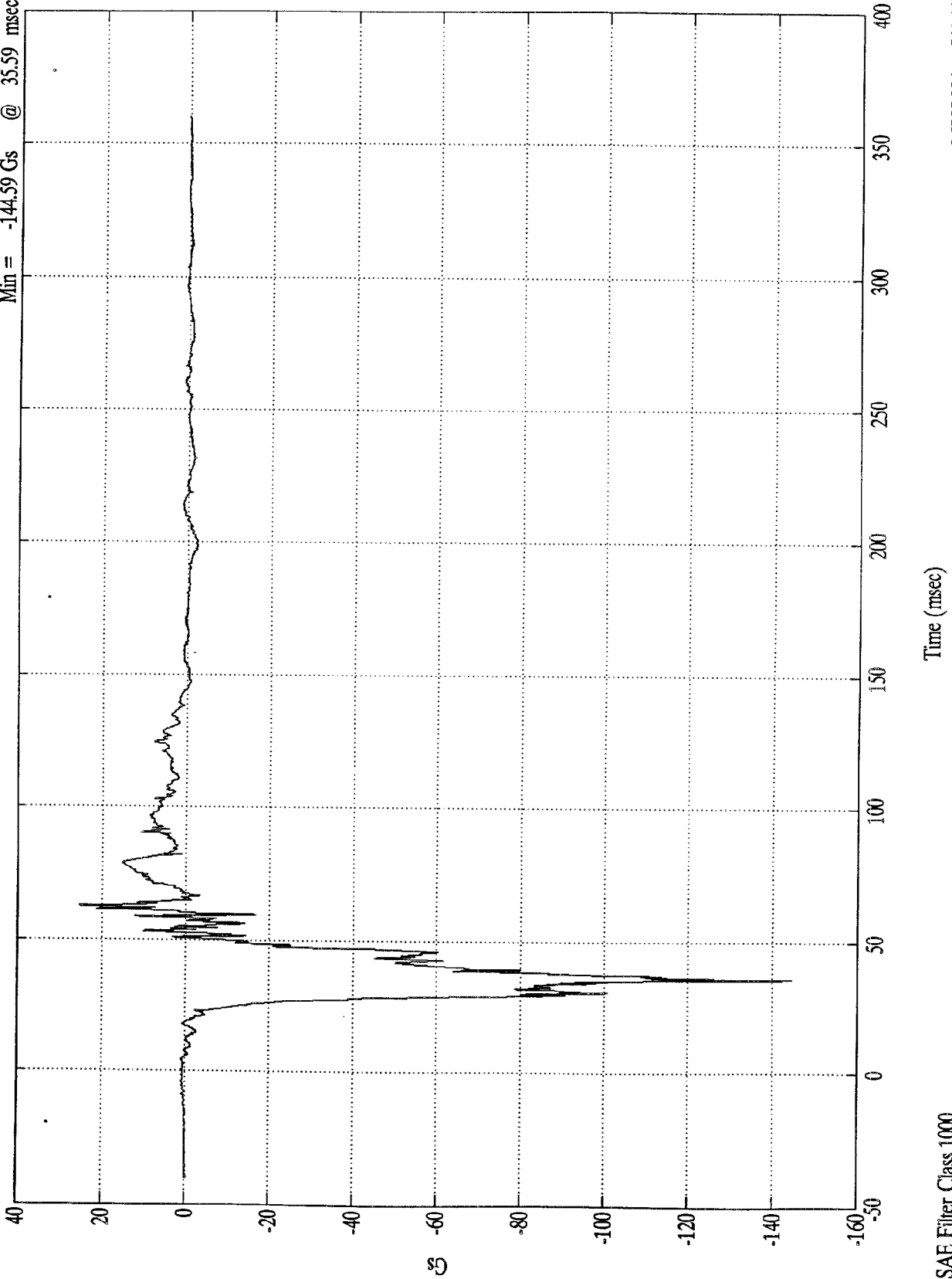
SAE Filter Class 600

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 25.23 Gs @ 62.39 msec
Min = -144.59 Gs @ 35.59 msec

Pos. 2 Left Ankle X



SAE Filter Class 1000

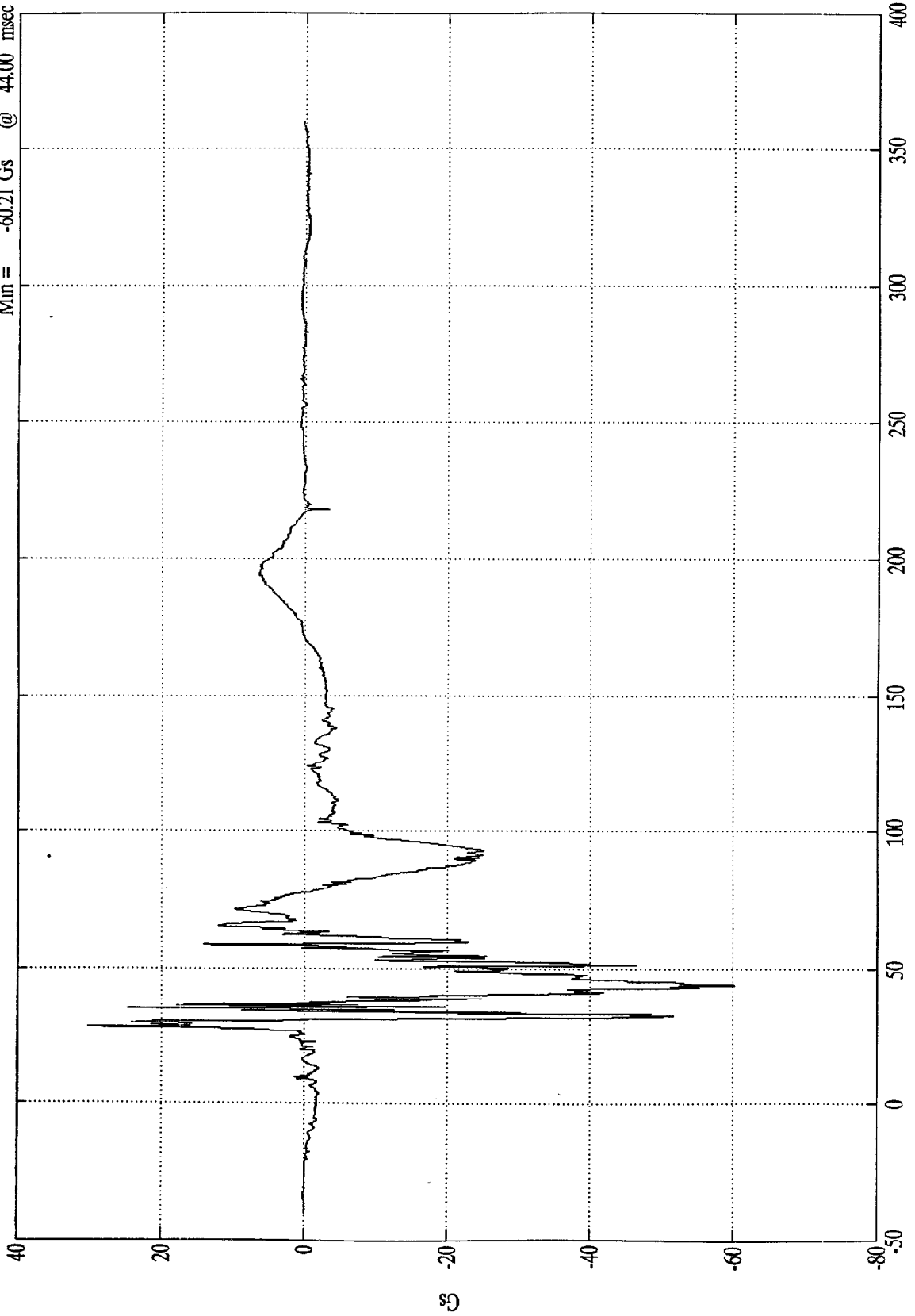
Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 30.26 Gs @ 28.19 msec
Min = -60.21 Gs @ 44.00 msec

Pos. 2 Left Ankle Z

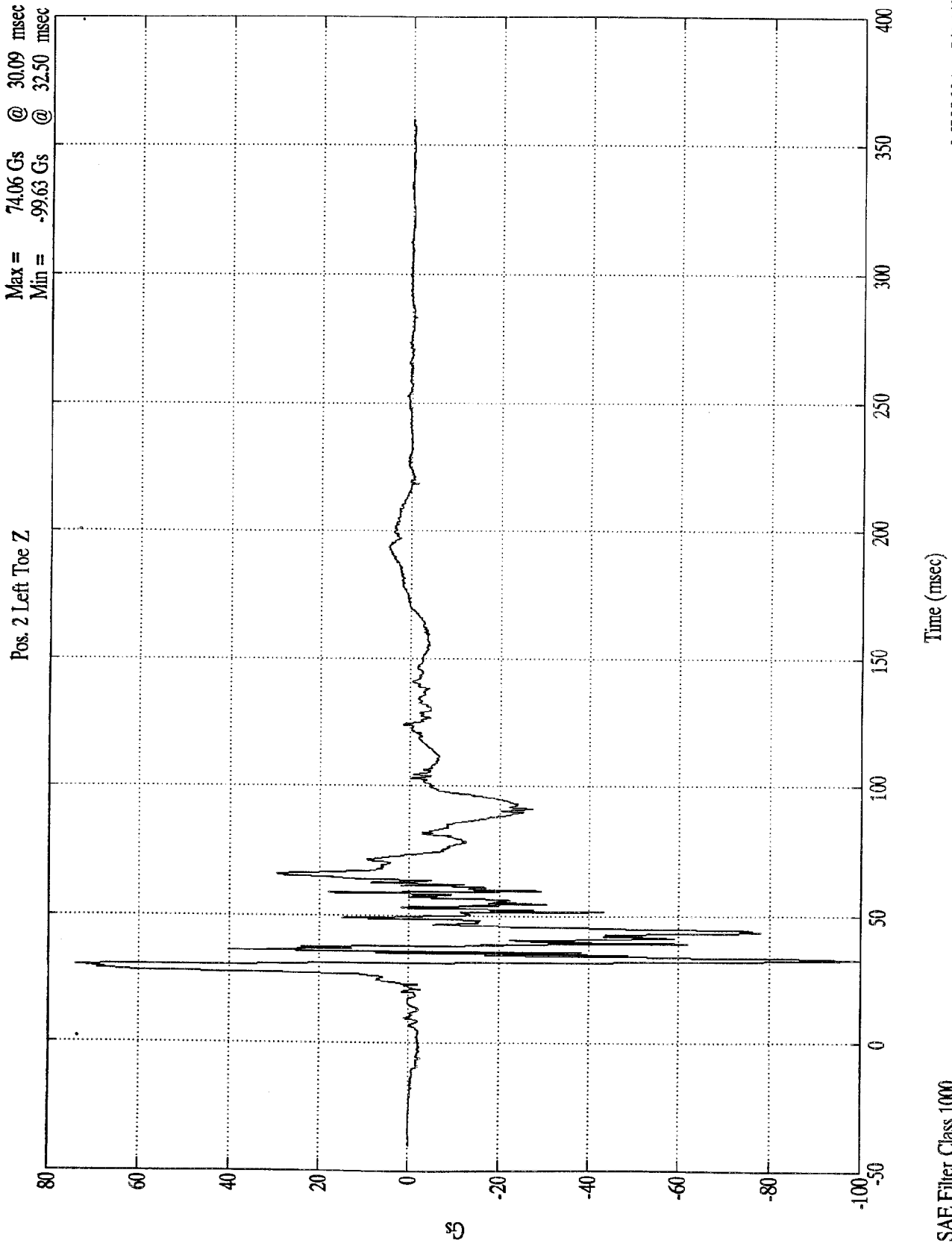


Time (msec)

SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

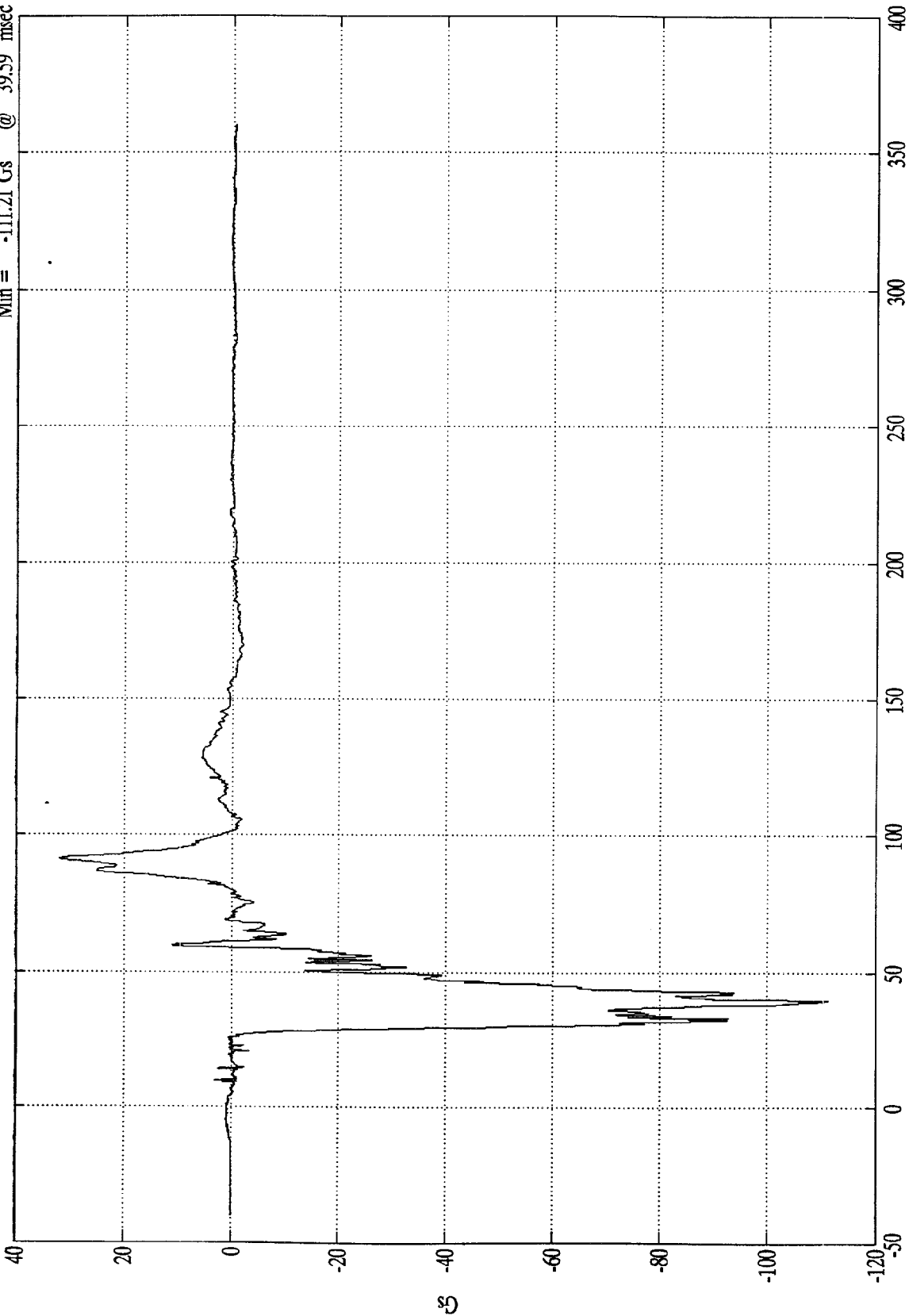


MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 31.97 Gs @ 91.09 msec
Min = -111.21 Gs @ 39.59 msec

Pos. 2 Right Ankle X



Time (msec)

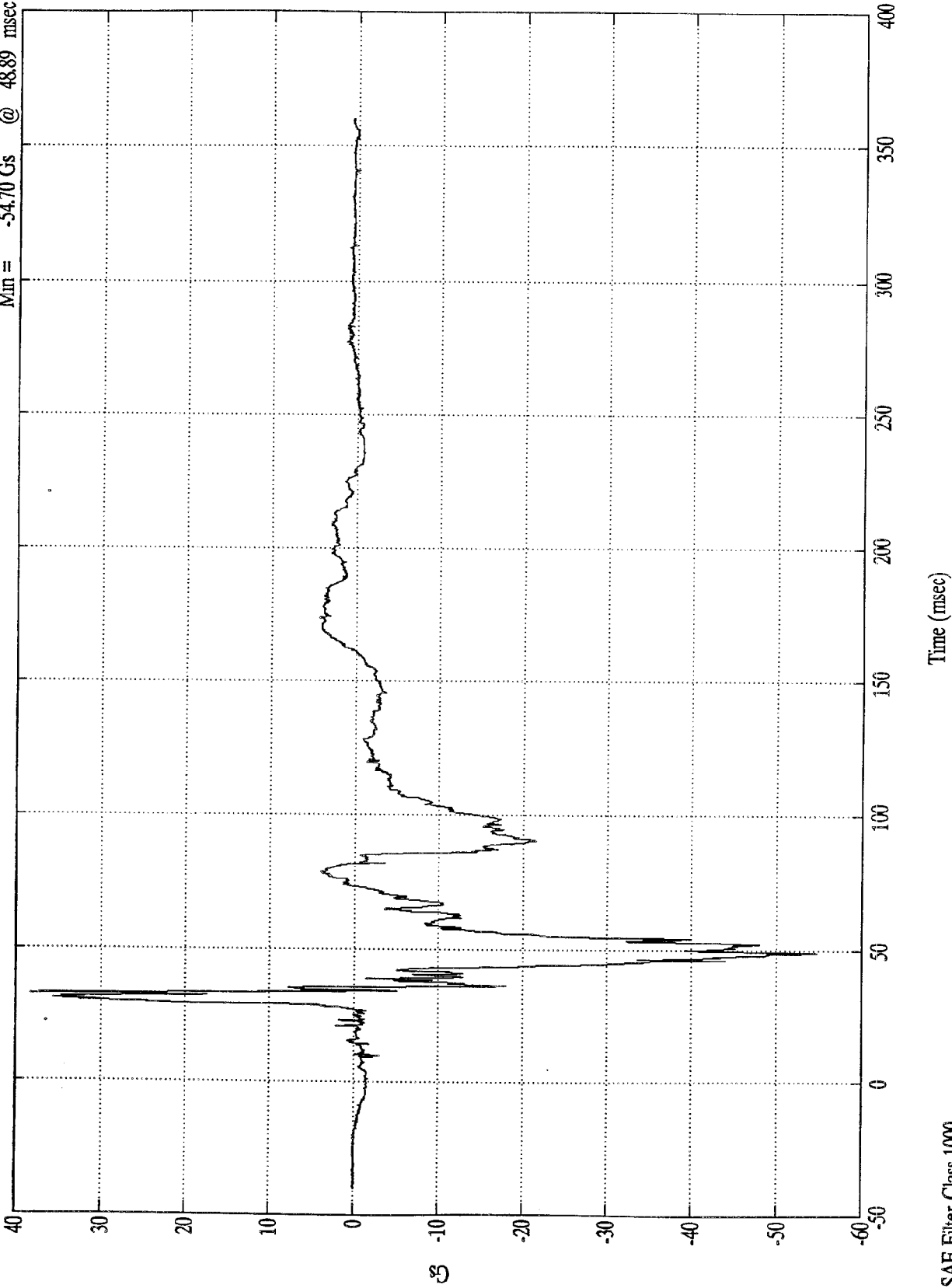
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Right Ankle Z

Max = 38.25 Gs @ 32.69 msec
Min = -54.70 Gs @ 48.89 msec



SAE Filter Class 1000

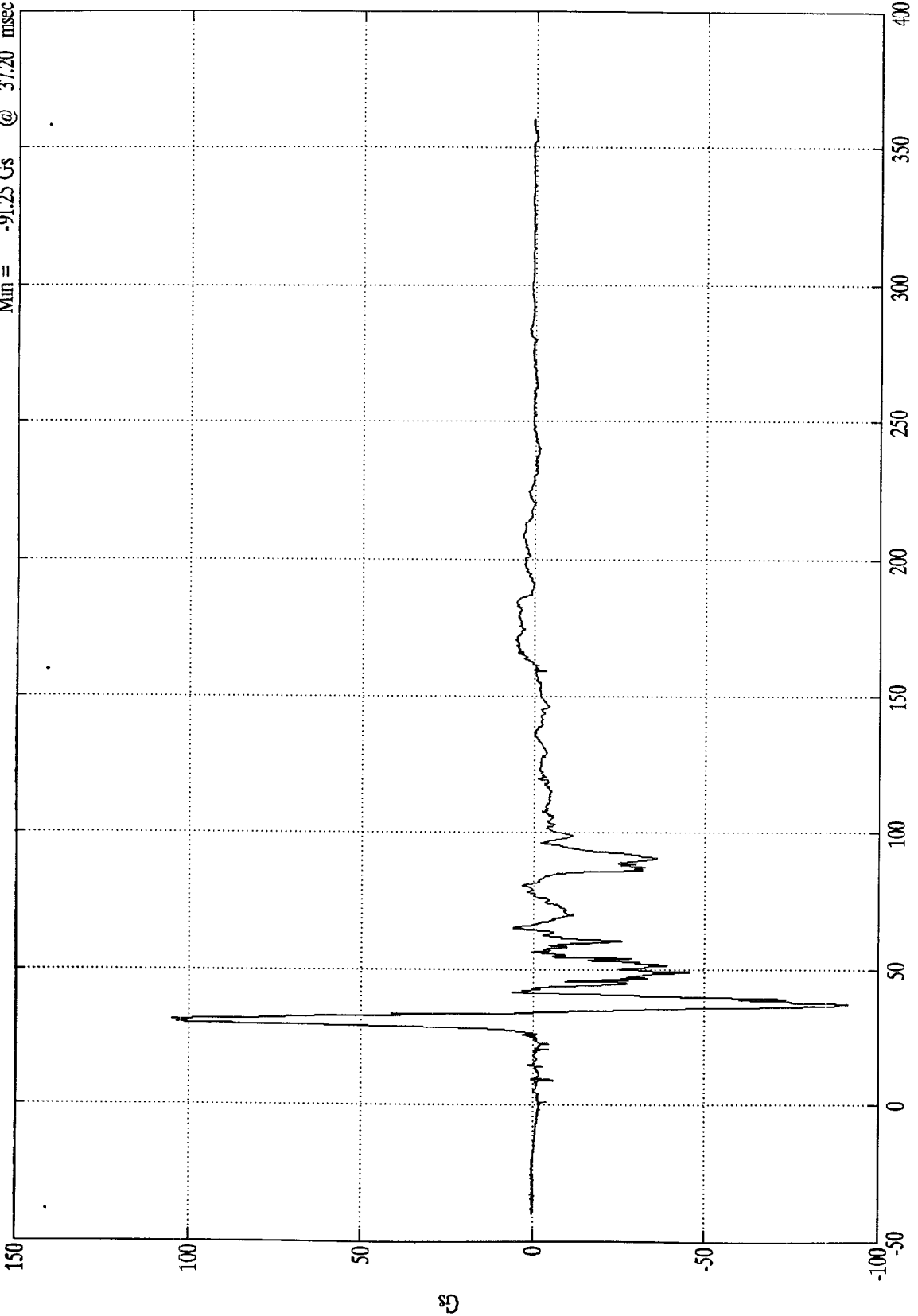
Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 105.03 Gs @ 31.50 msec
Min = -91.25 Gs @ 37.20 msec

Pos. 2 Right Toe Z



Time (msec)

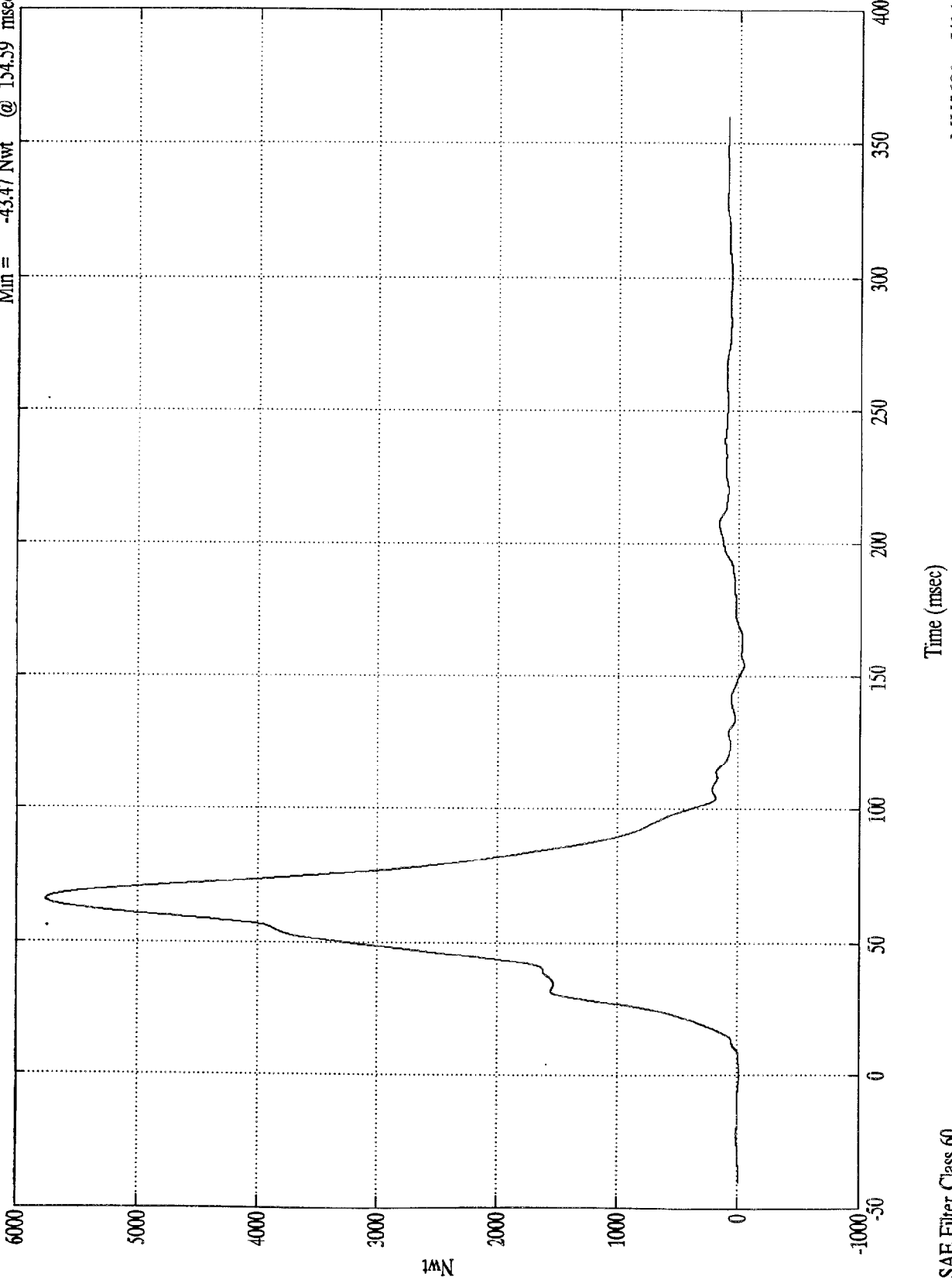
SAE Filter Class 1000

MV5601 - 5/14/97

NCAP TEST #8 • 1997 MITSUBISHI MONTERO

Pos. 2 Right Belt Load

Max = 5759.77 Nwt @ 65.59 msec
Min = -43.47 Nwt @ 154.59 msec



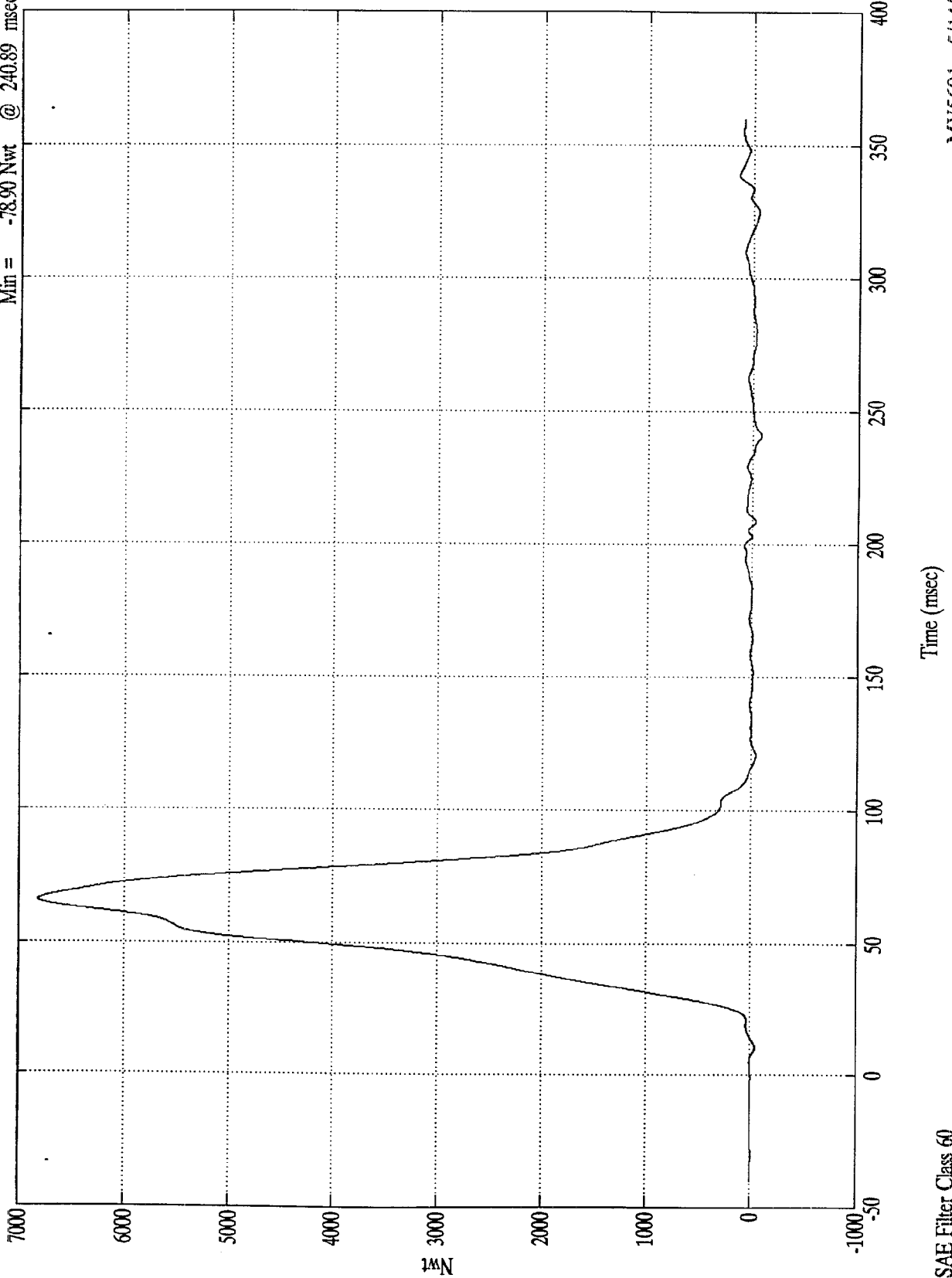
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 6814.00 Nwt @ 65.79 msec
Min = -78.90 Nwt @ 240.89 msec

Pos. 2 Torso Belt Load



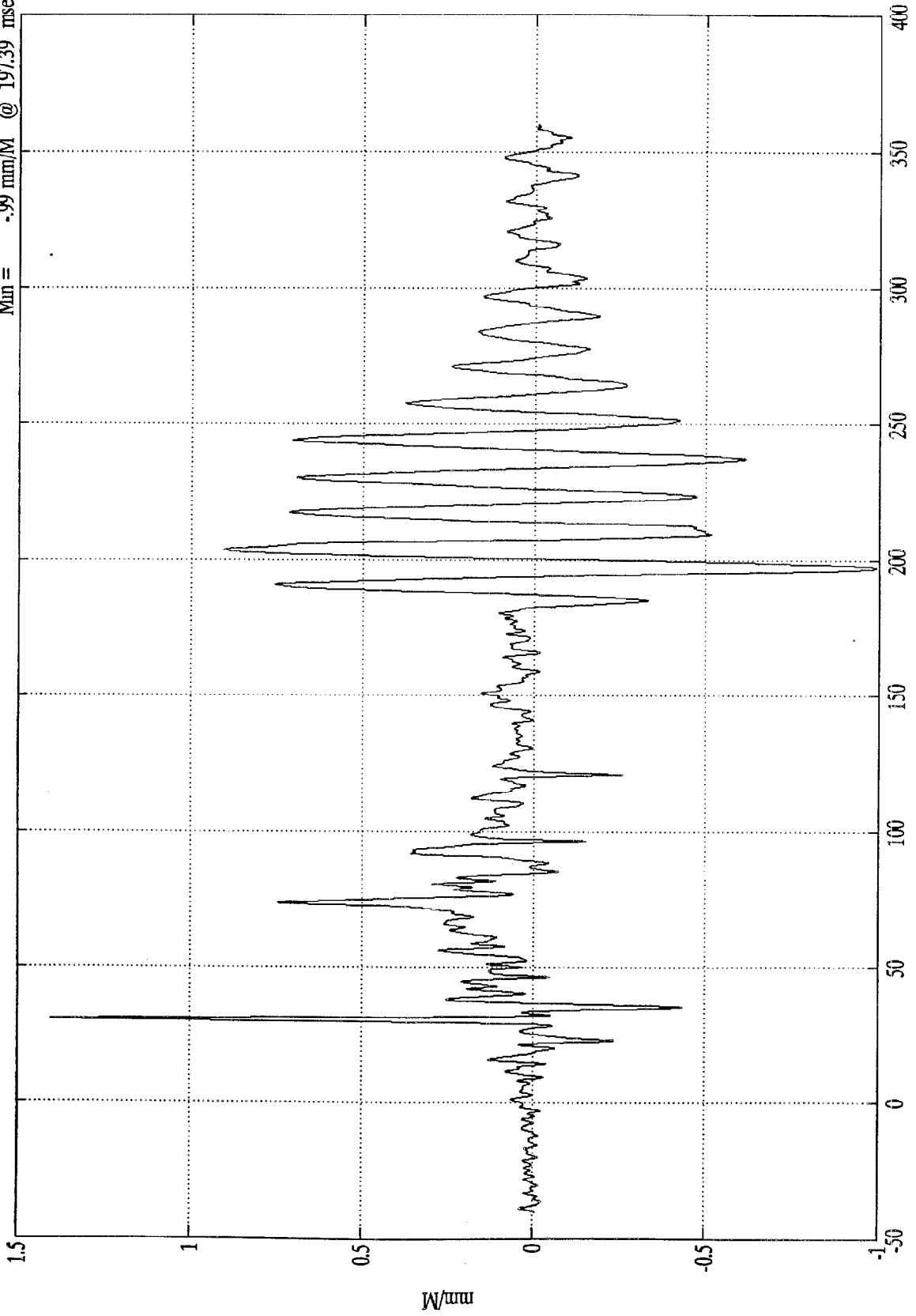
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Pos. 2 Belt Elongation

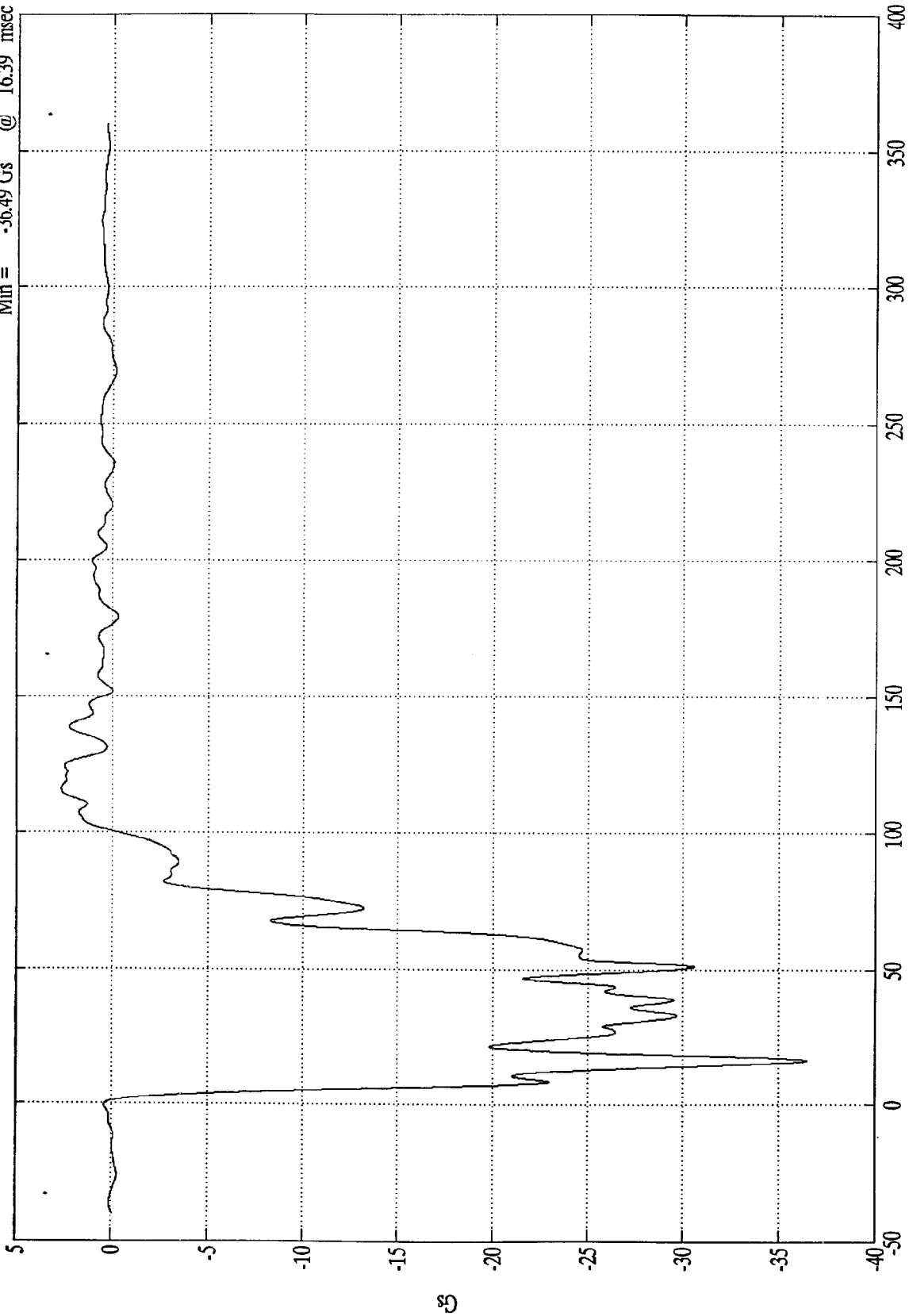
Max = 1.40 mm/M @ 30.39 msec
Min = -.99 mm/M @ 197.39 msec



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 2.67 Gs @ 116.29 msec
Min = -36.49 Gs @ 16.39 msec

Acc. #1(x)



Time (msec)

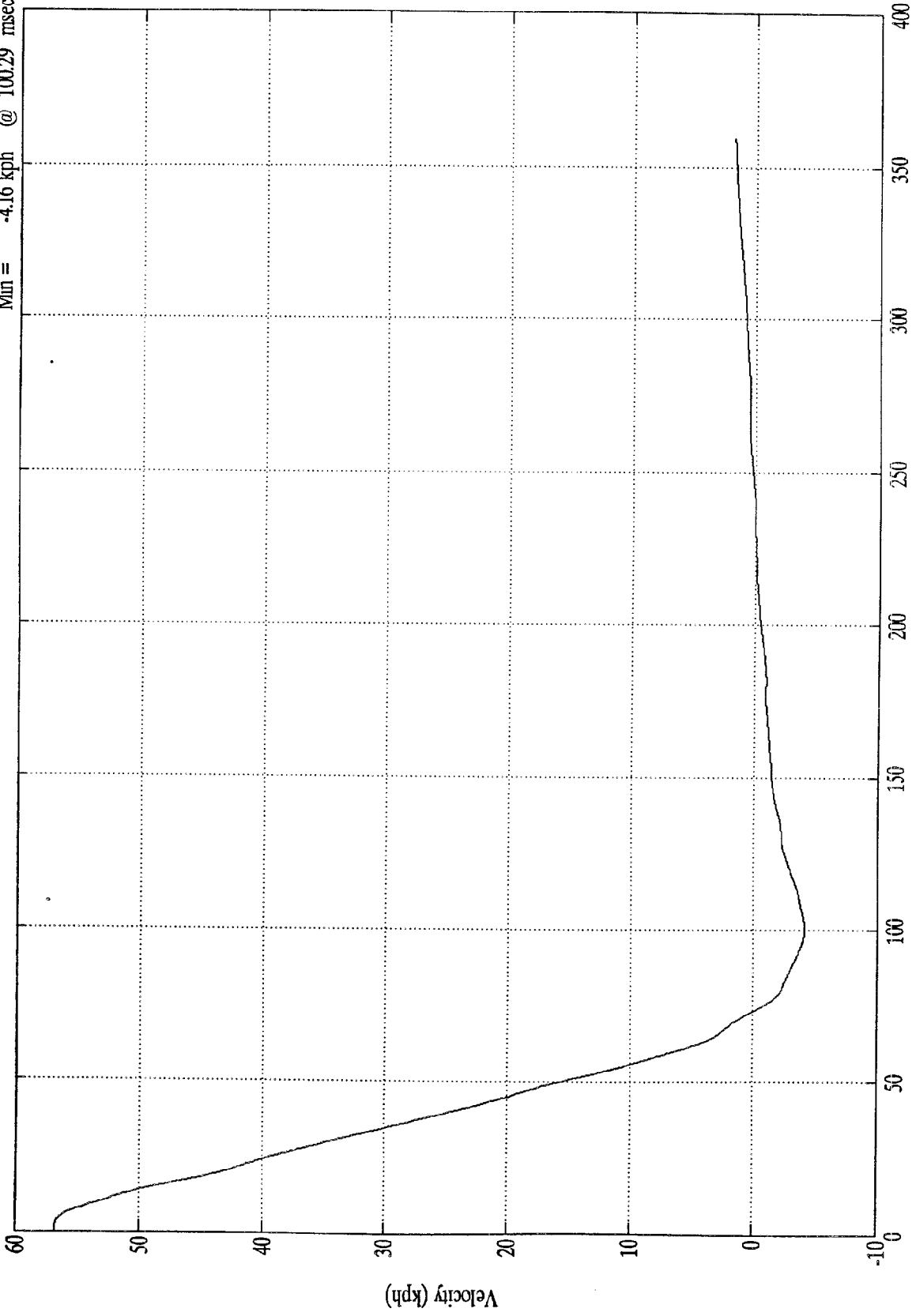
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 56.82 kph @ 1.10 msec
Min = -4.16 kph @ 100.29 msec

Acc. #1(x)



Time (msec)

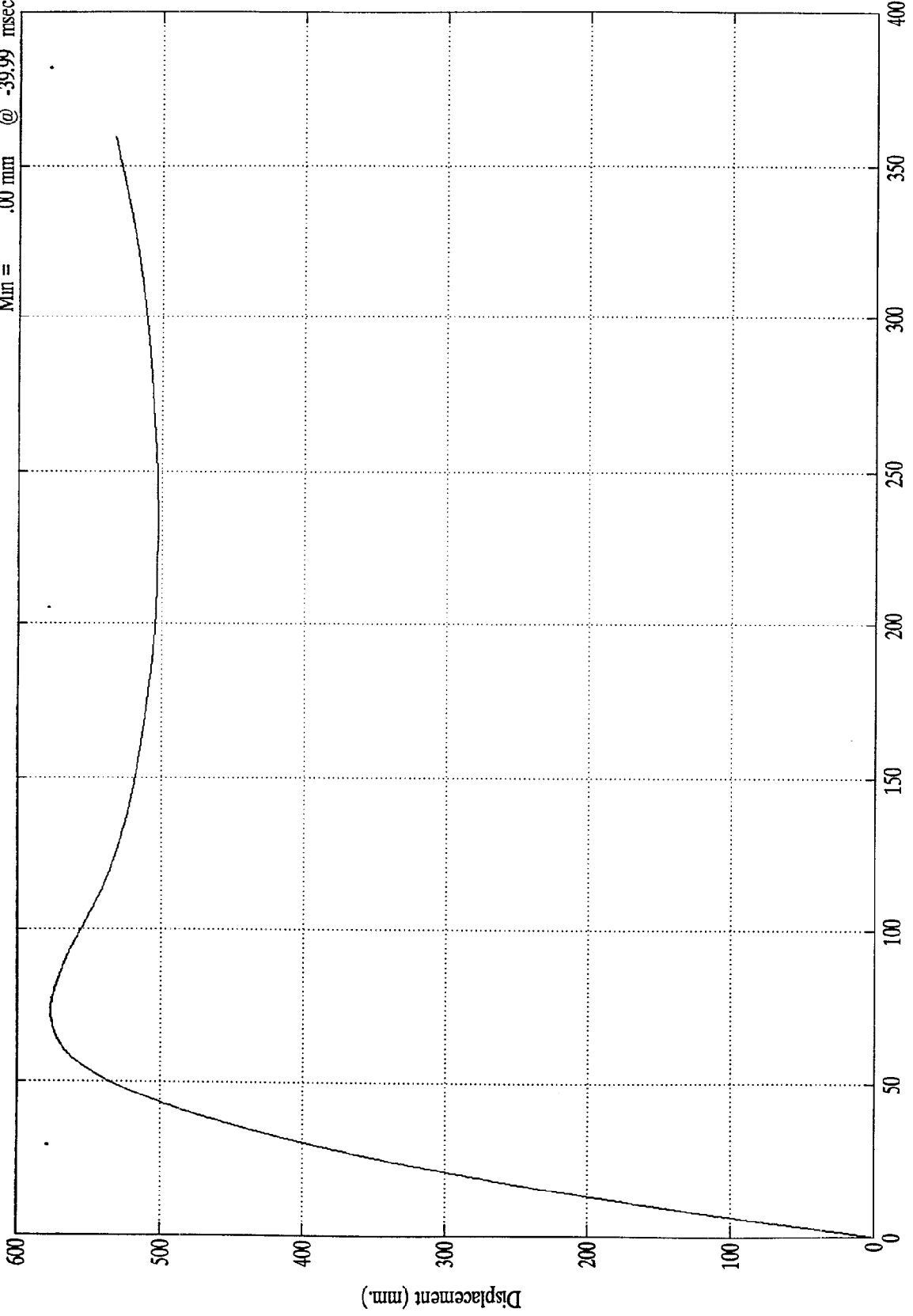
SAE Filter Class 180

MV5601 - 5/14/97

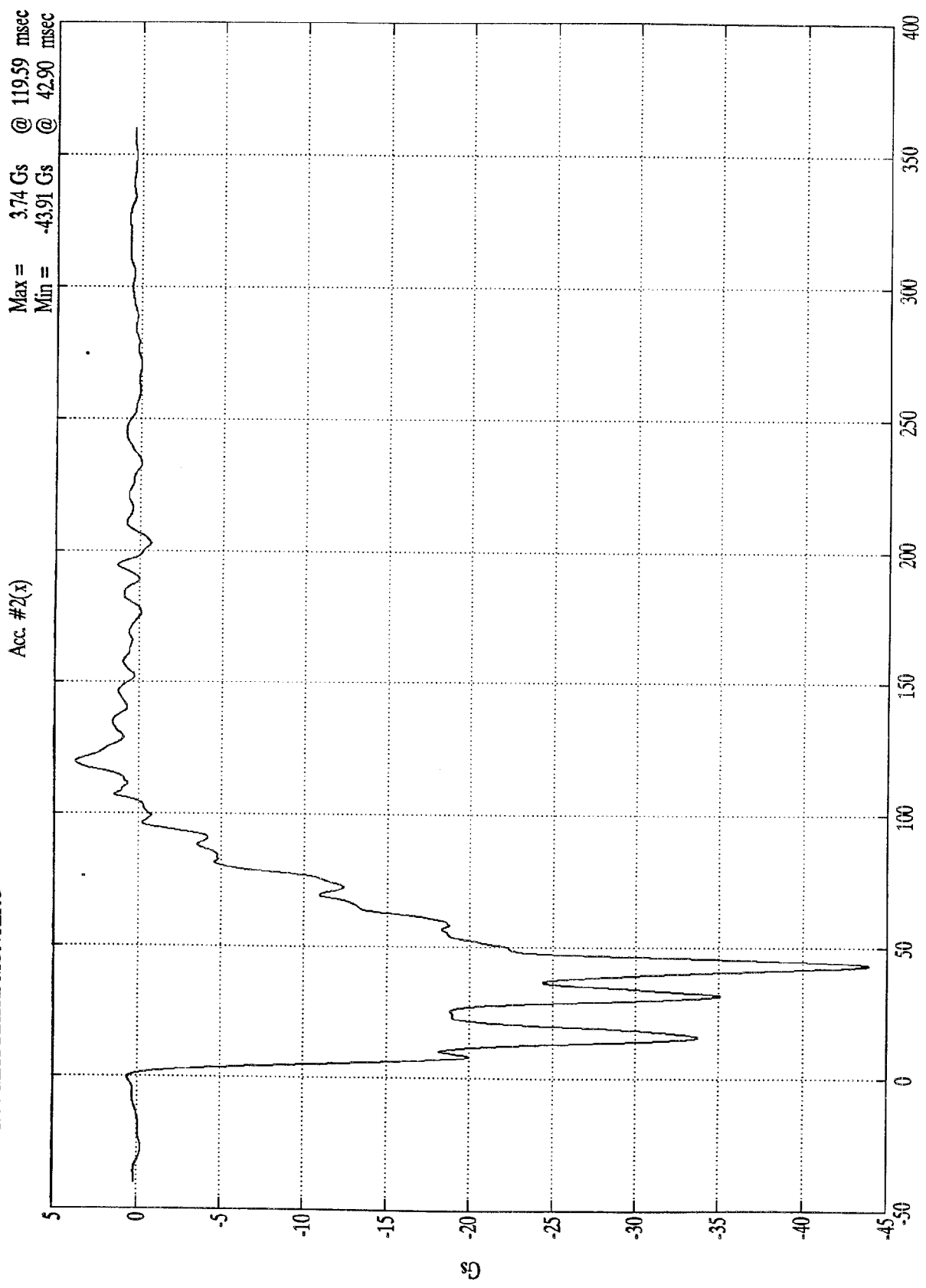
NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 576.65 mm @ 73.20 msec
Min = .00 mm @ -39.99 msec

Acc. #1(x)



NCAP TEST #8 - 1997 MITSUBISHI MONTERO



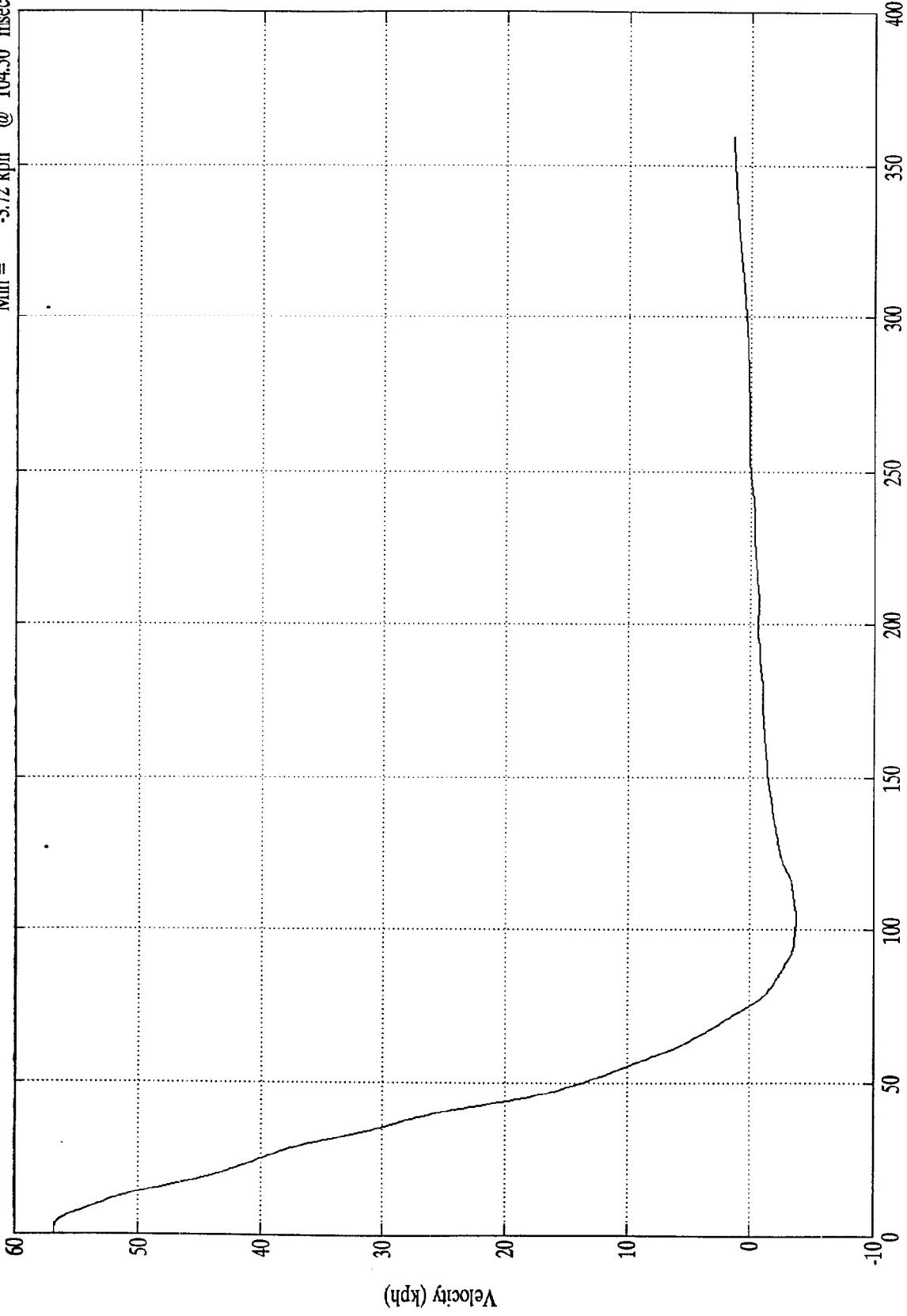
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 56.82 kph @ 1.20 msec
Min = -3.72 kph @ 104.50 msec

Acc. #2(x)



Time (msec)

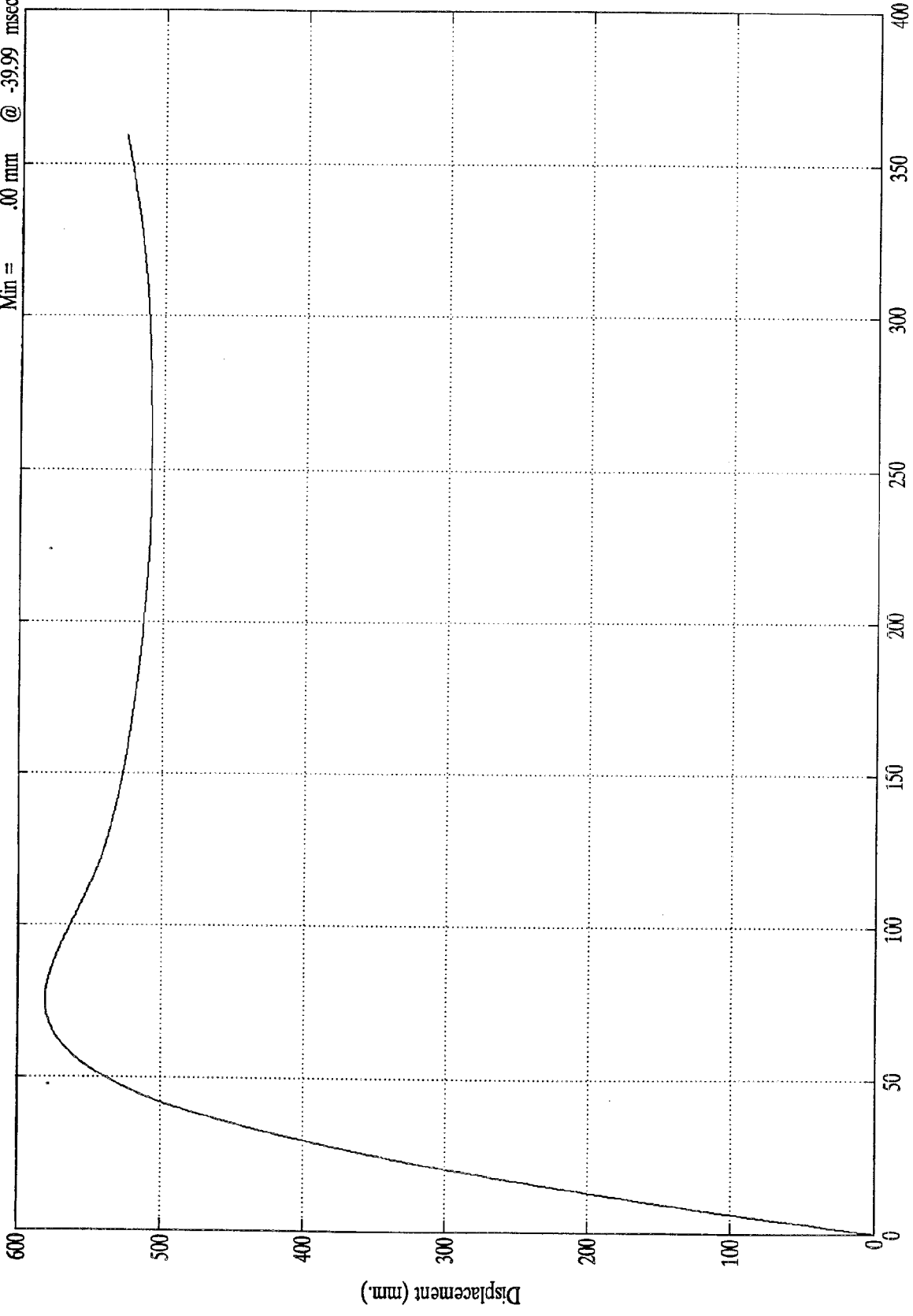
SAE Filter Class 180

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 580.93 mm @ 75.00 msec
Min = .00 mm @ -39.99 msec

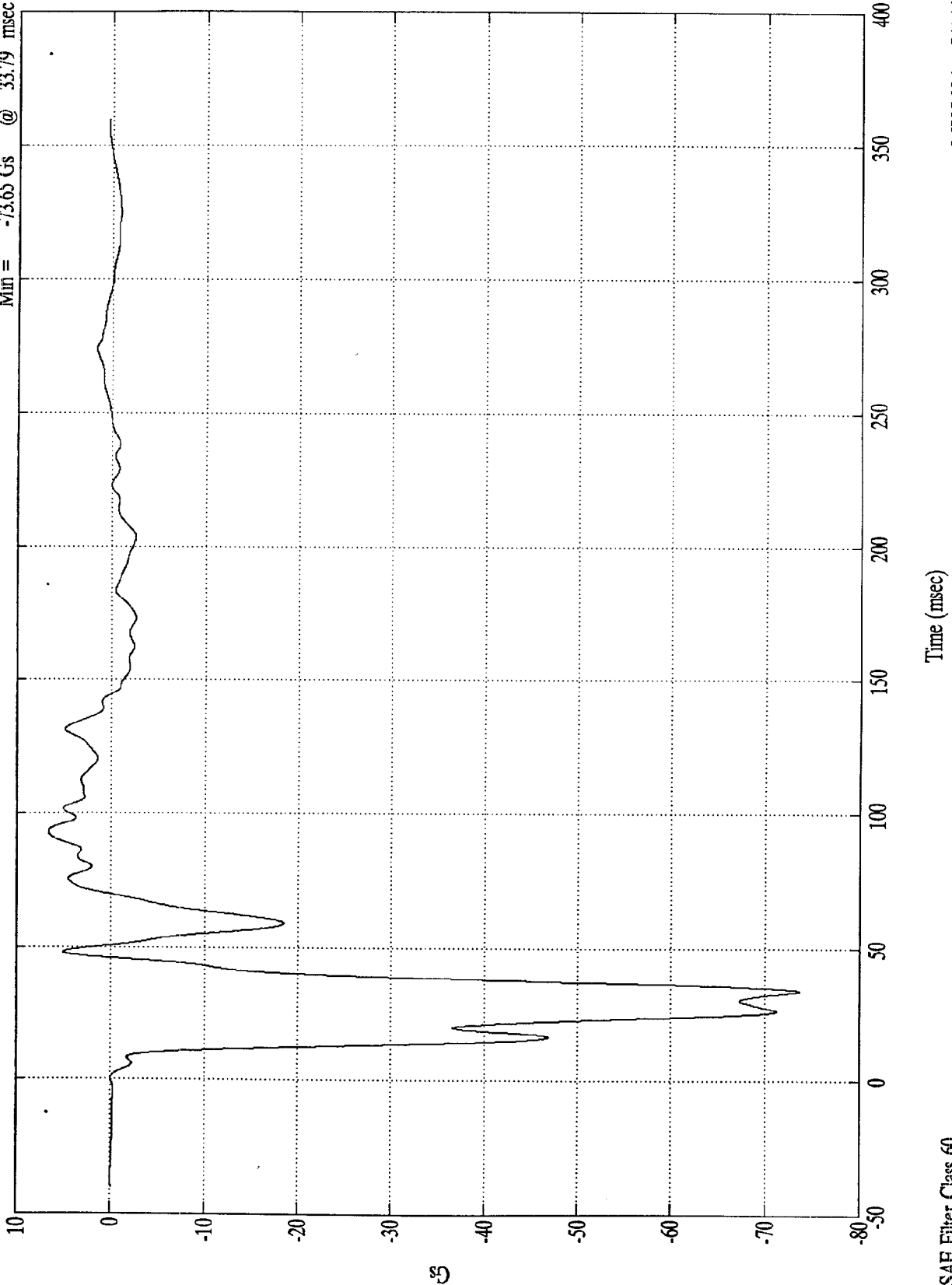
Acc. #2(x)



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 6.63 Gs @ 93.19 msec
Min = -73.65 Gs @ 33.79 msec

Acc. #3(x)



SAE Filter Class 60

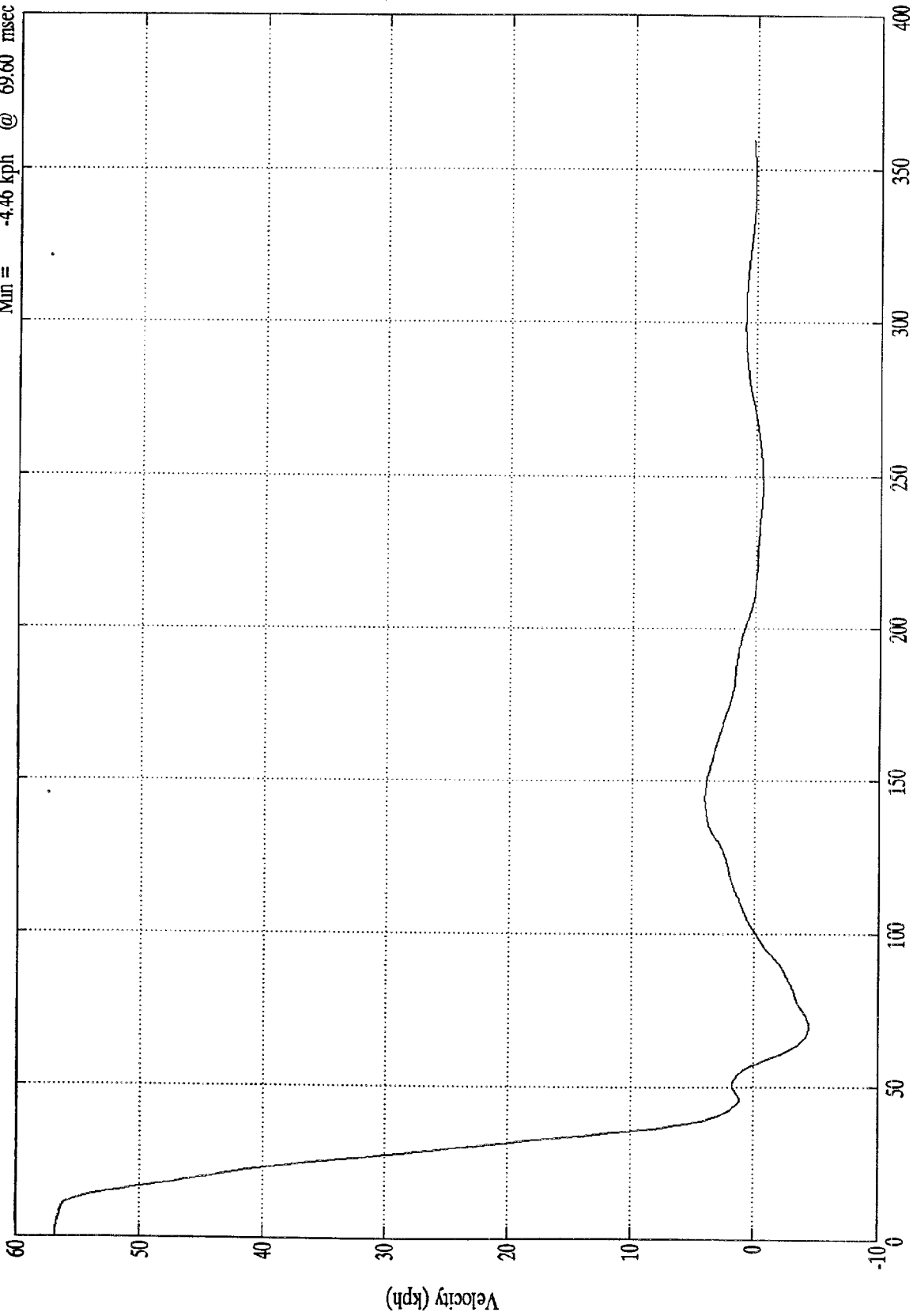
Time (msec)

MV5601 - 5/14/97

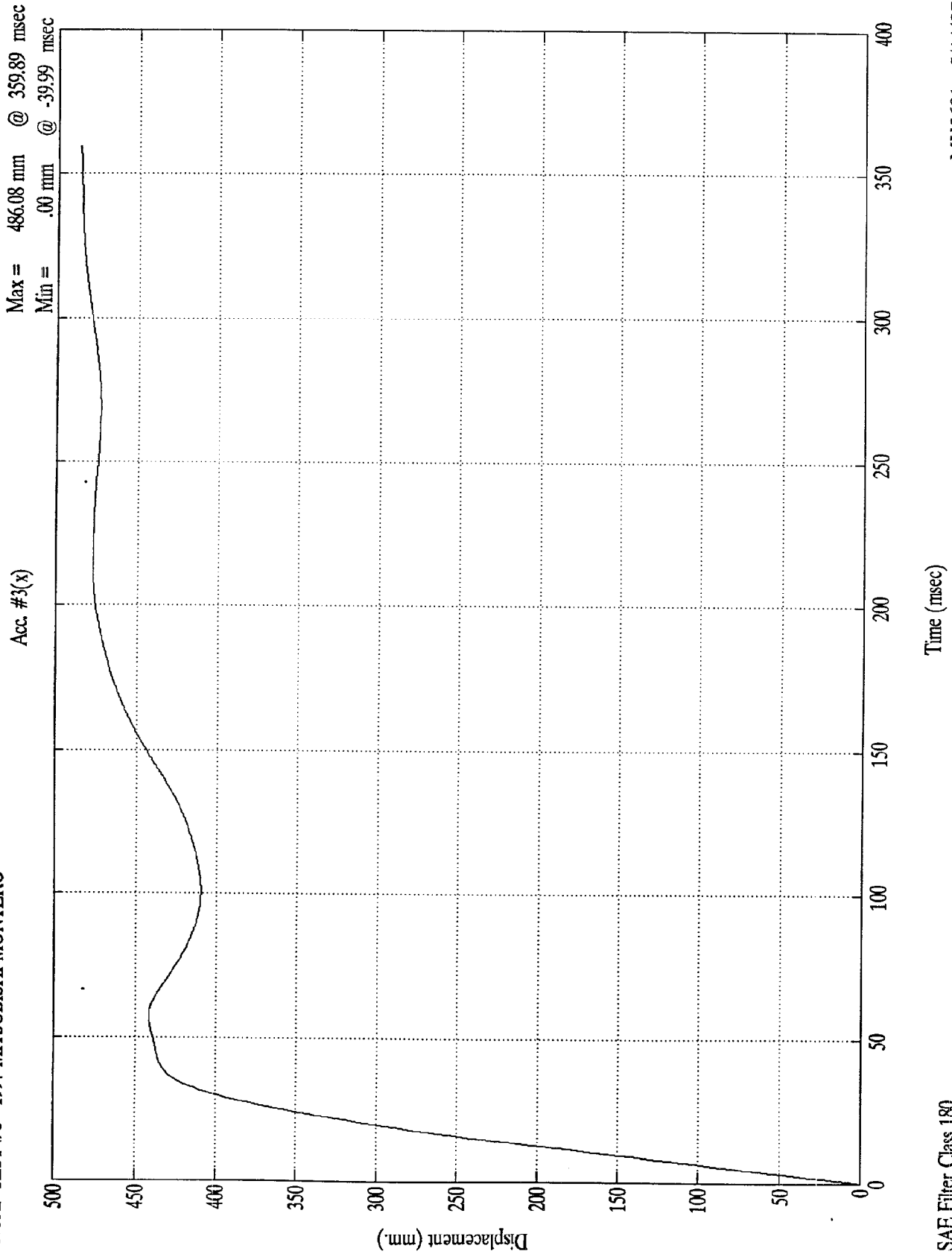
NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 56.81 kph @ 1.00 msec
Min = -4.46 kph @ 69.60 msec

Acc. #3(x)

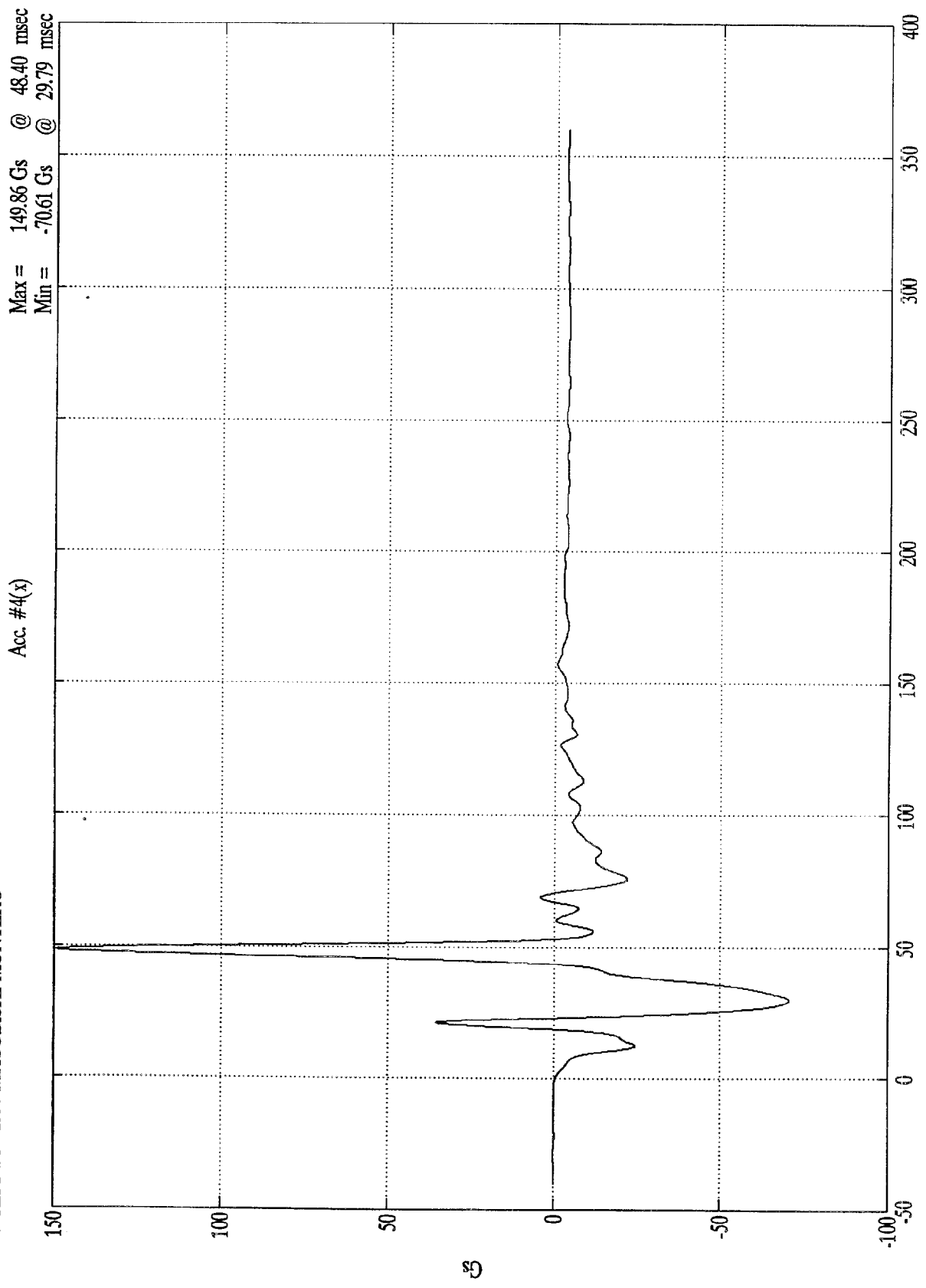


NCAP TEST #8 - 1997 MITSUBISHI MONTERO



MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO



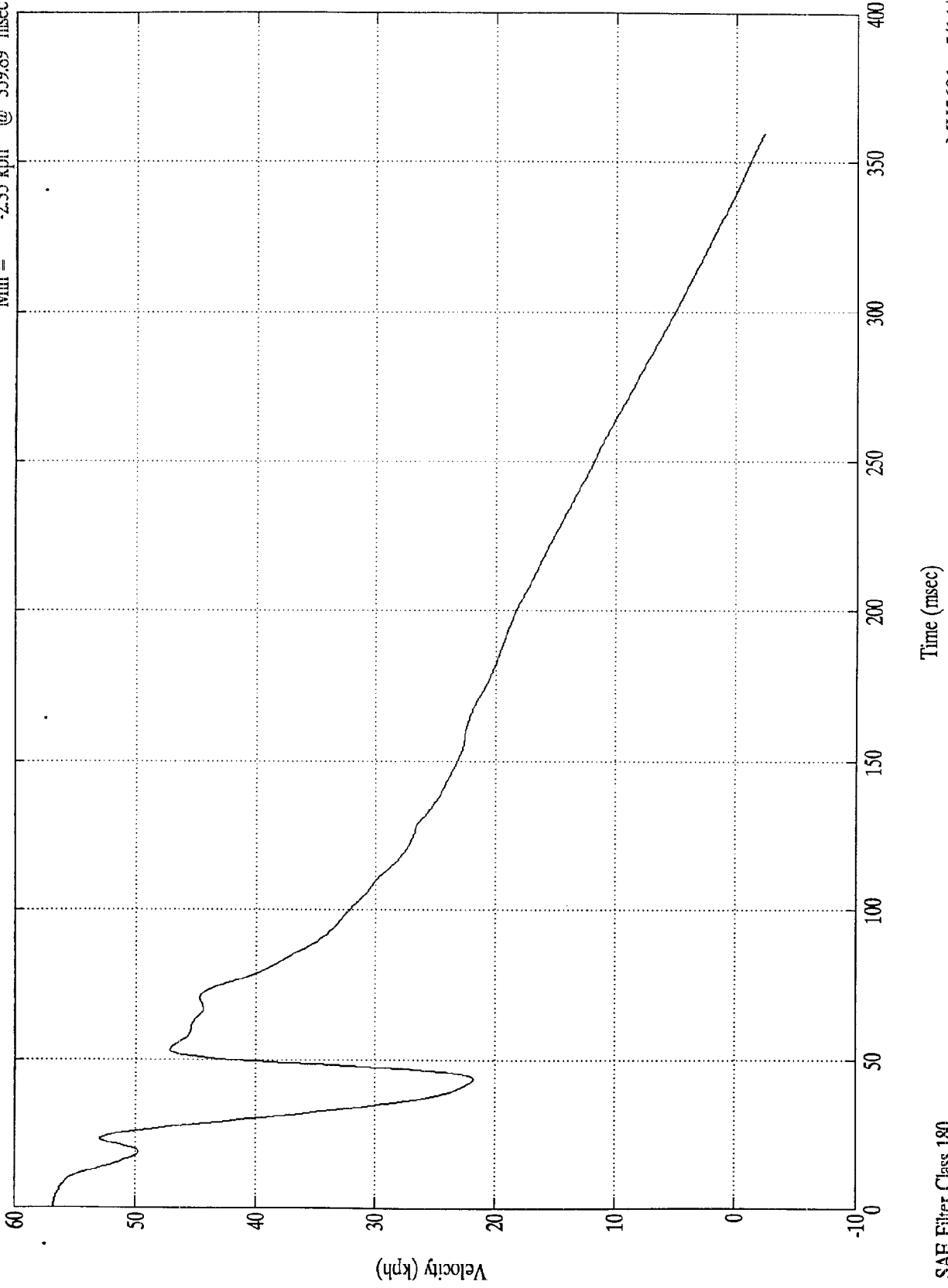
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 56.81 kph @ 0.00 msec
Min = -2.35 kph @ 359.89 msec

Acc. #4(x)



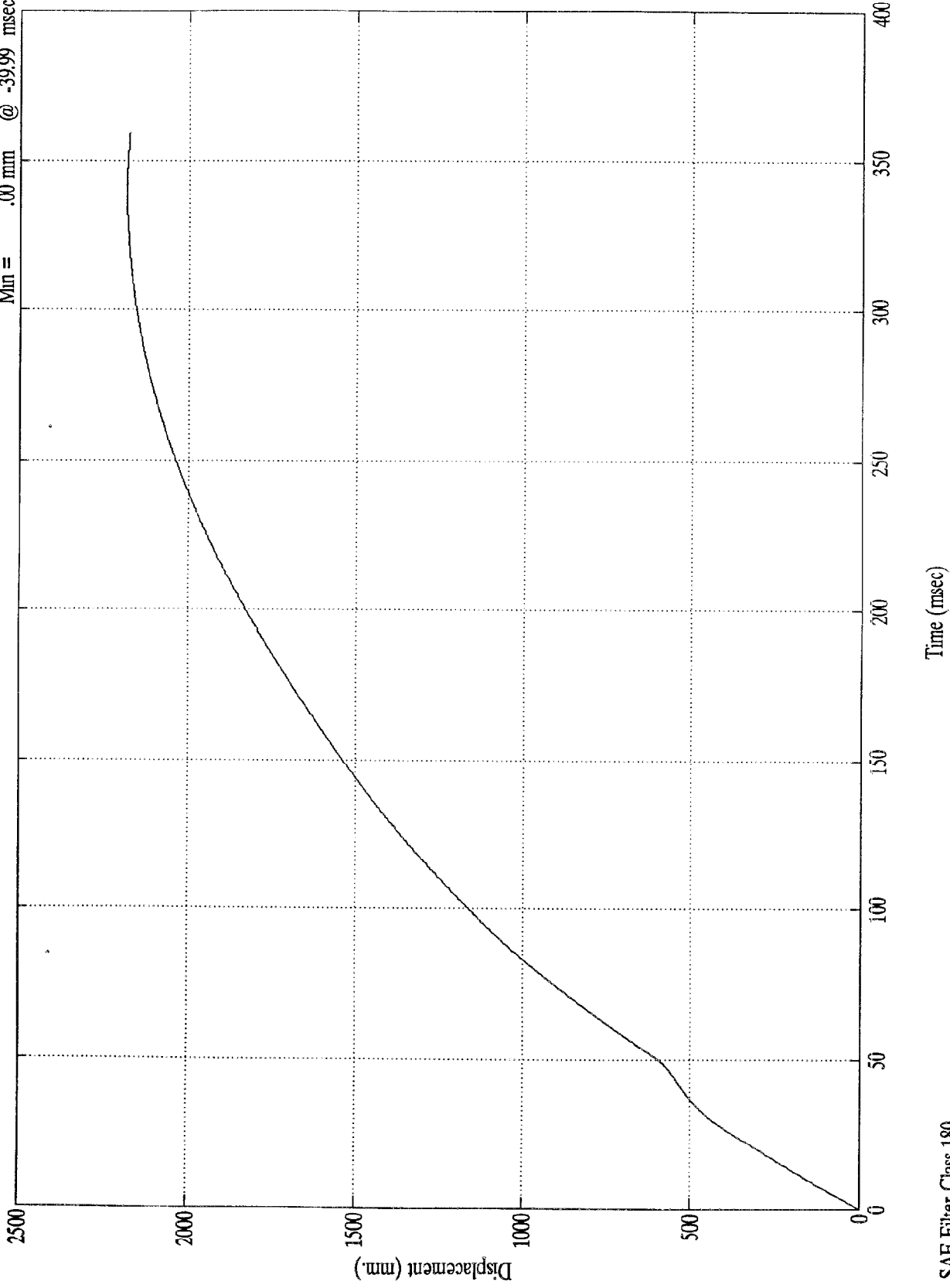
MV5601 - 5/14/97

SAE Filter Class 180

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 2183.59 mm @ 339.80 msec
Min = .00 mm @ -39.99 msec

Acc. #4(x)



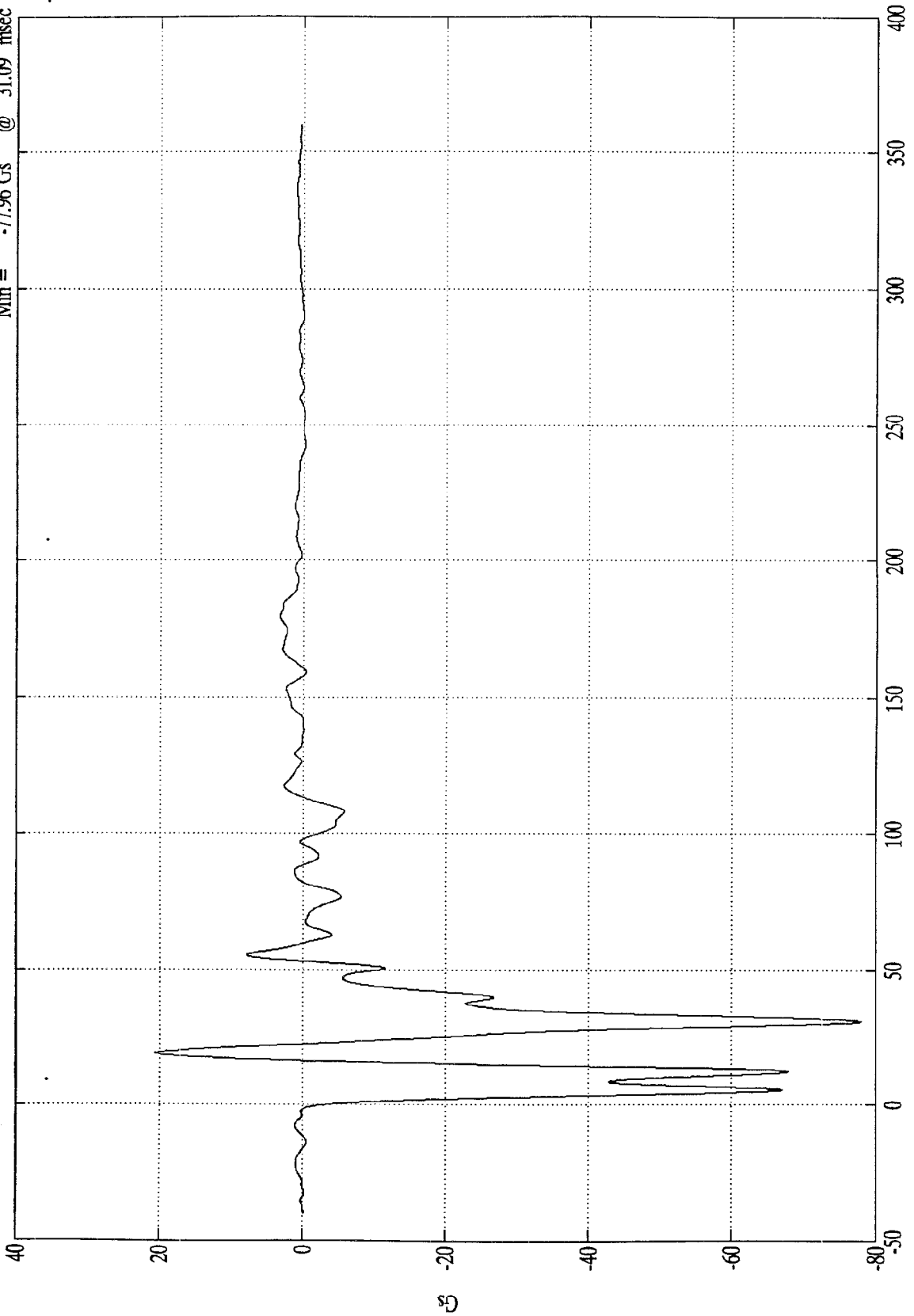
SAE Filter Class 180

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 20.67 Gs @ 19.09 msec
Min = -77.96 Gs @ 31.09 msec

Acc. #5(x)



Time (msec)

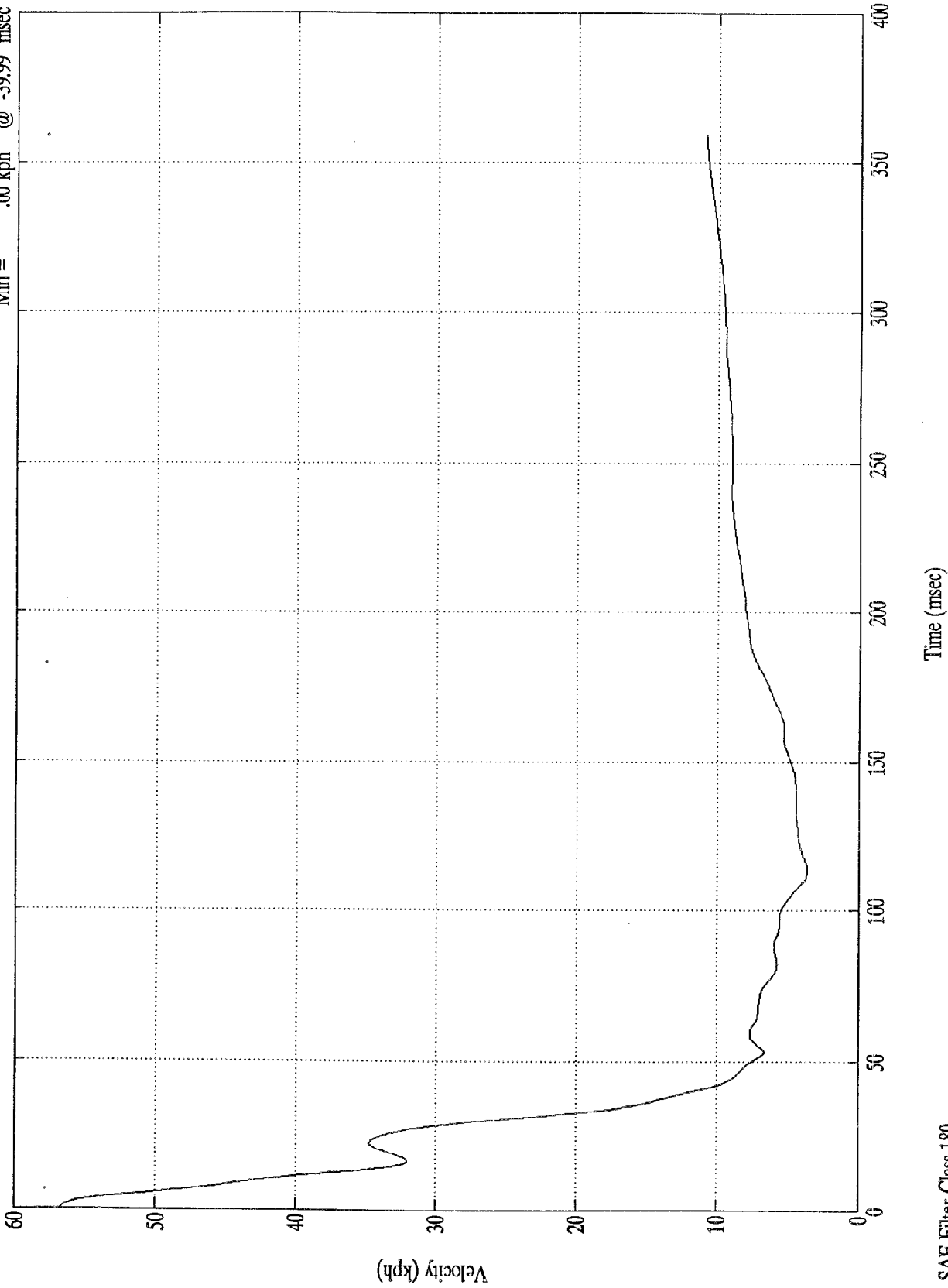
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 56.81 kph @ 0.00 msec
Min = .00 kph @ -39.99 msec

Acc. #5(x)



SAE Filter Class 180

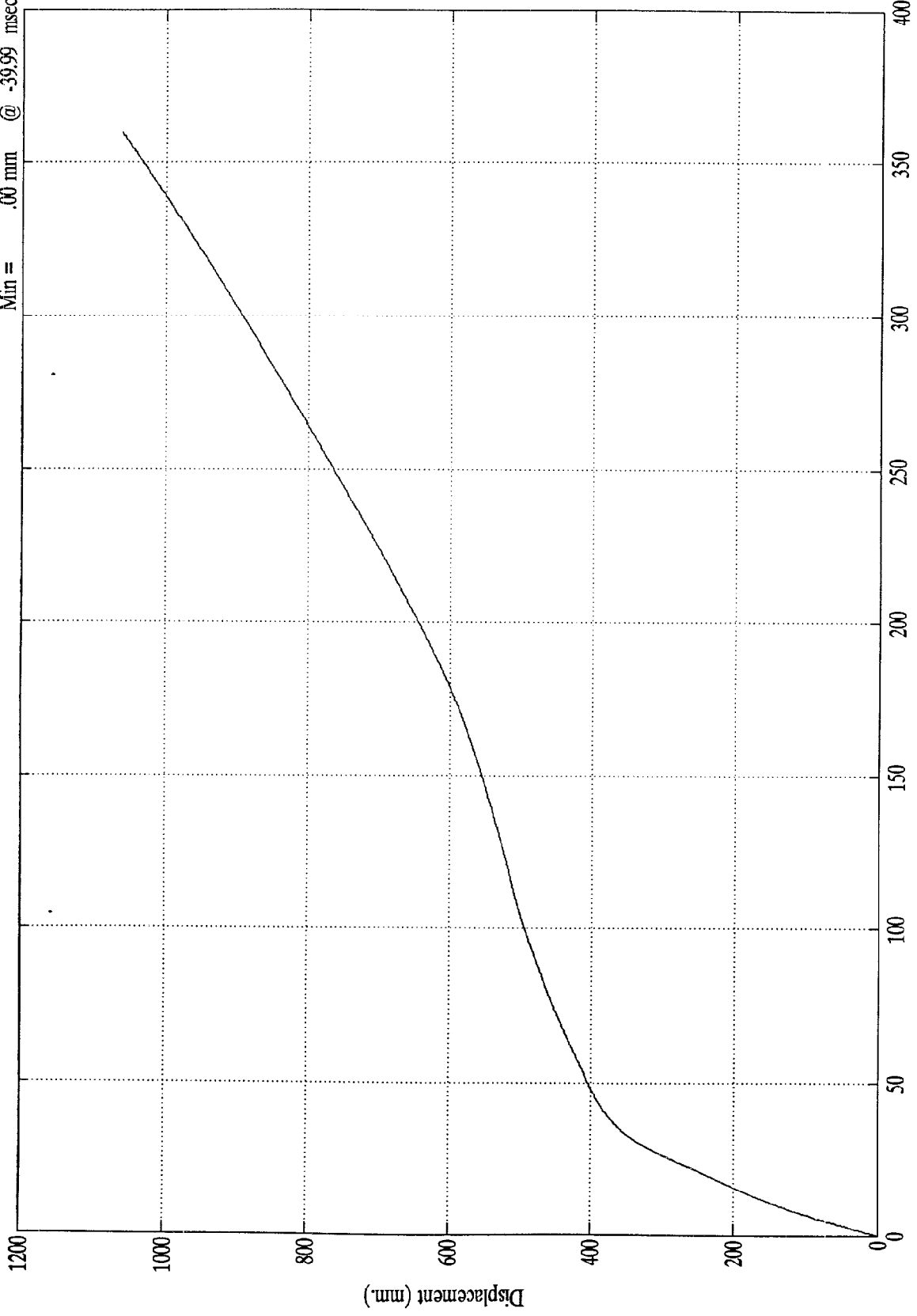
Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 1063.20 mm @ 359.89 msec
Min = .00 mm @ -39.99 msec

Acc. #5(x)



Time (msec)

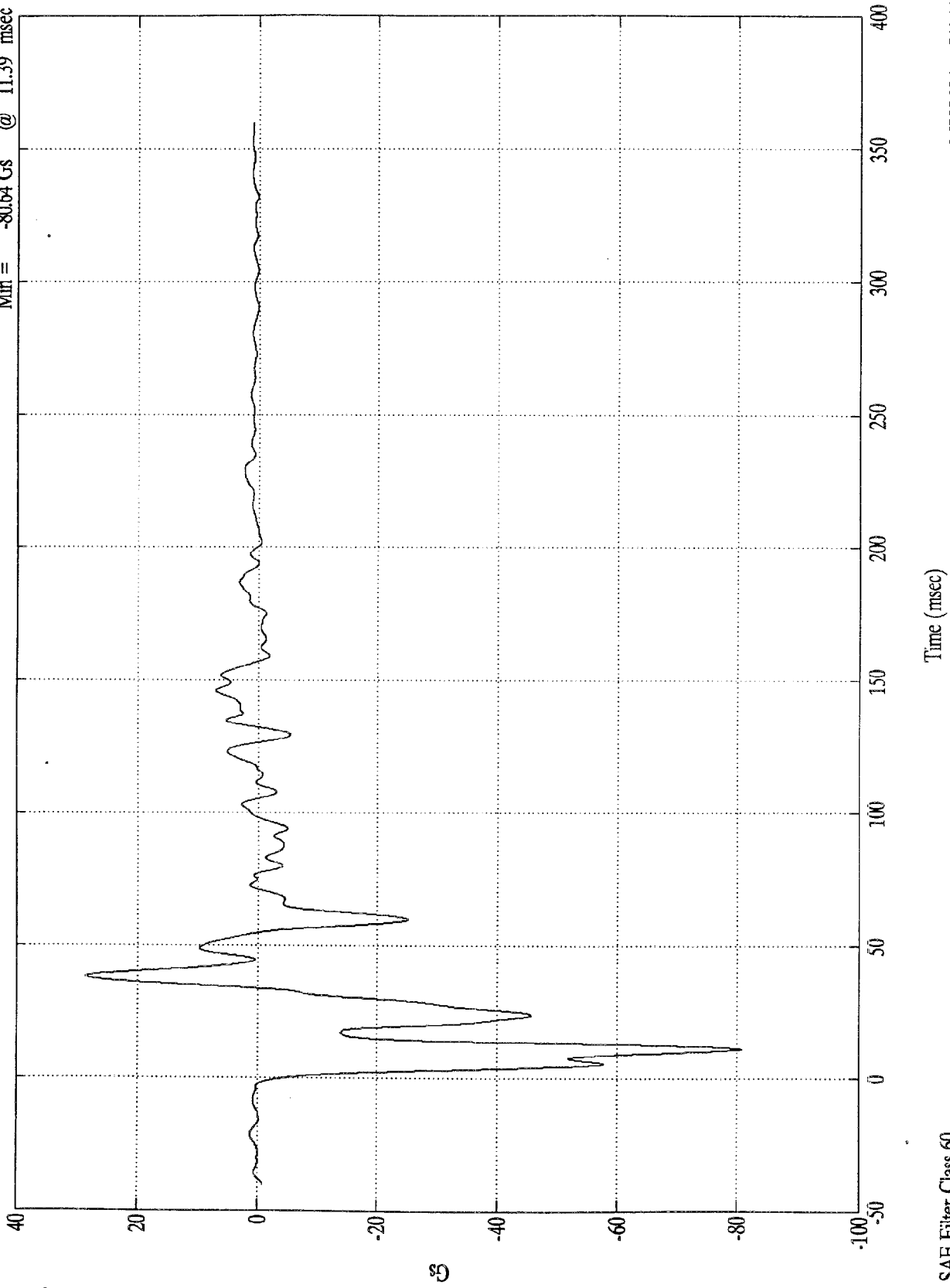
SAE Filter Class 180

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 28.65 Gs @ 38.00 msec
Min = -80.64 Gs @ 11.39 msec

Acc. #6(x)



Time (msec)

SAE Filter Class 60

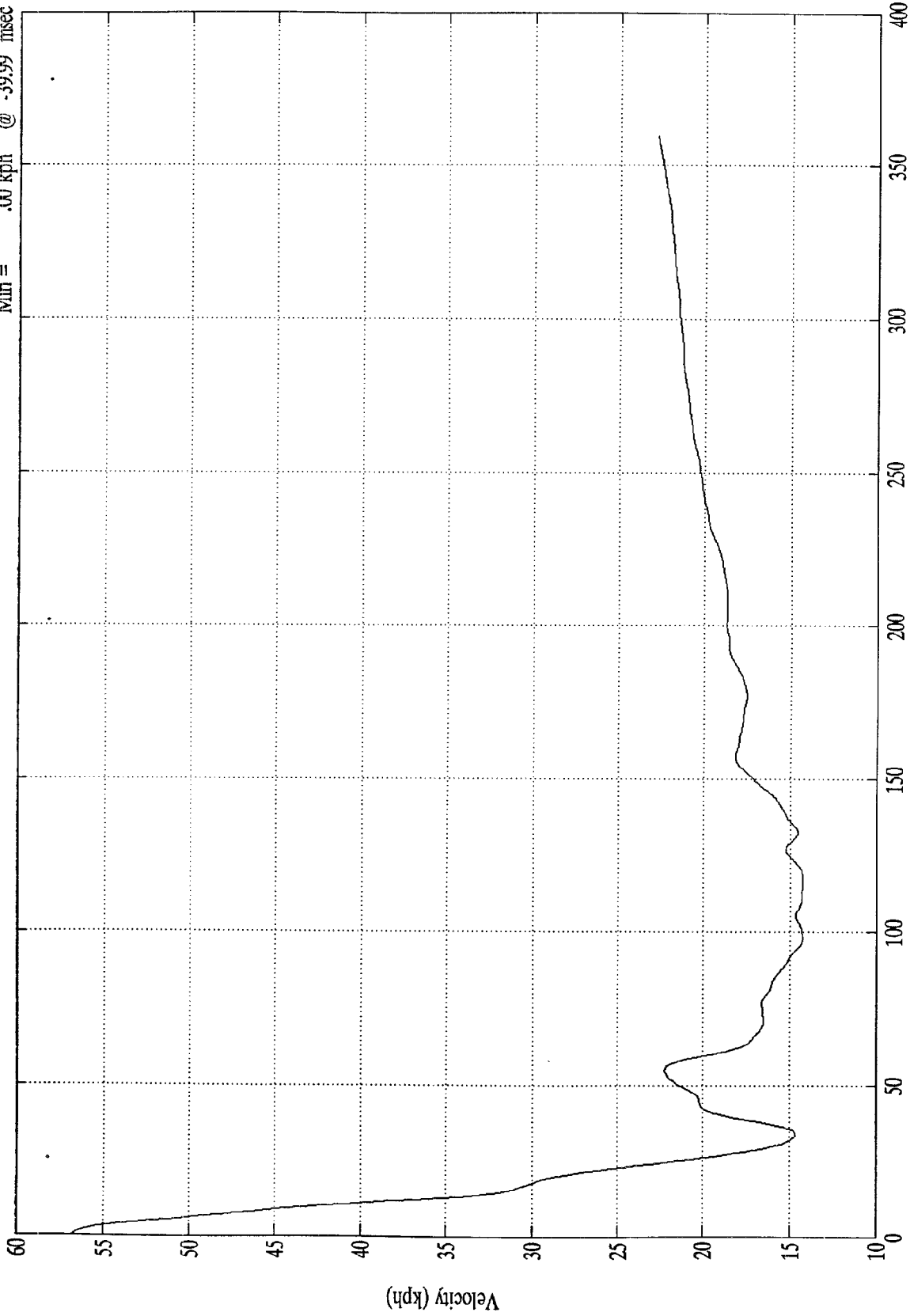
MV5601 - 5/14/97

5

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 56.81 kph @ 0.00 msec
Min = .00 kph @ -39.99 msec

Acc. #6(x)



Time (msec)

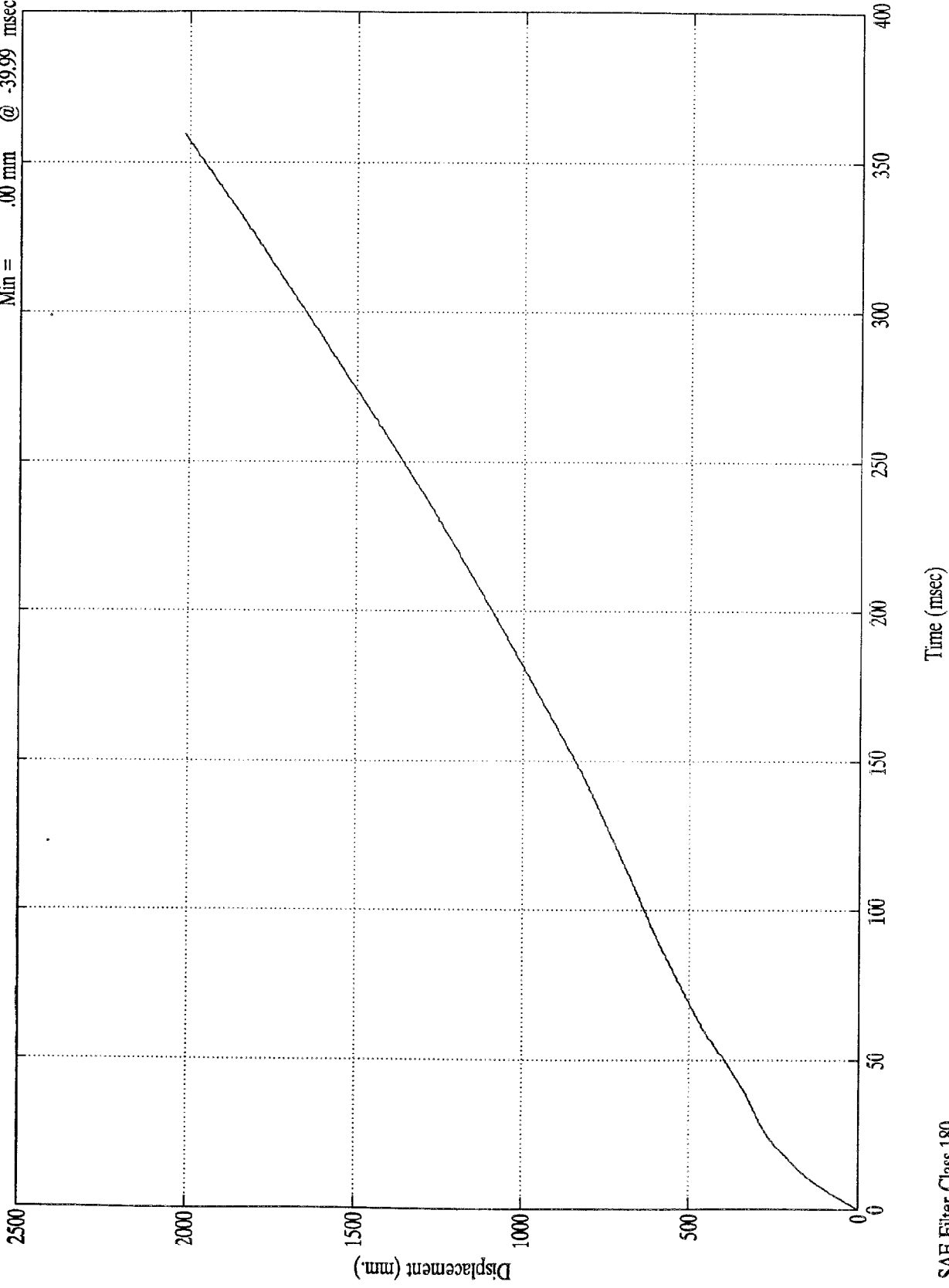
SAE Filter Class 180

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 2017.46 mm @ 359.89 msec
Min = .00 mm @ -39.99 msec

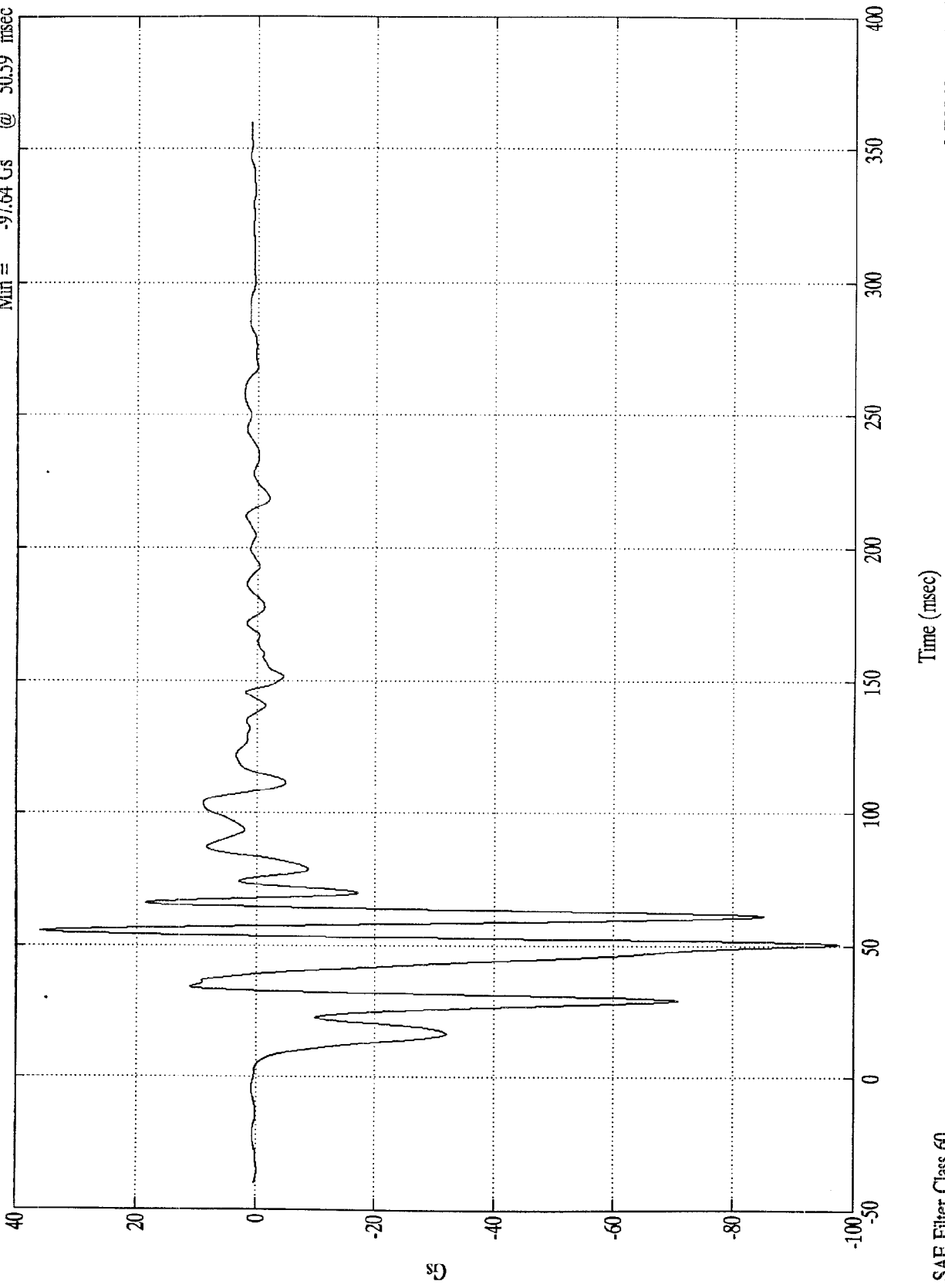
Acc. #6(x)



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 35.90 Gs @ 55.20 msec
Min = -97.64 Gs @ 50.59 msec

Acc. #7(x)



MV5601 - 5/14/97

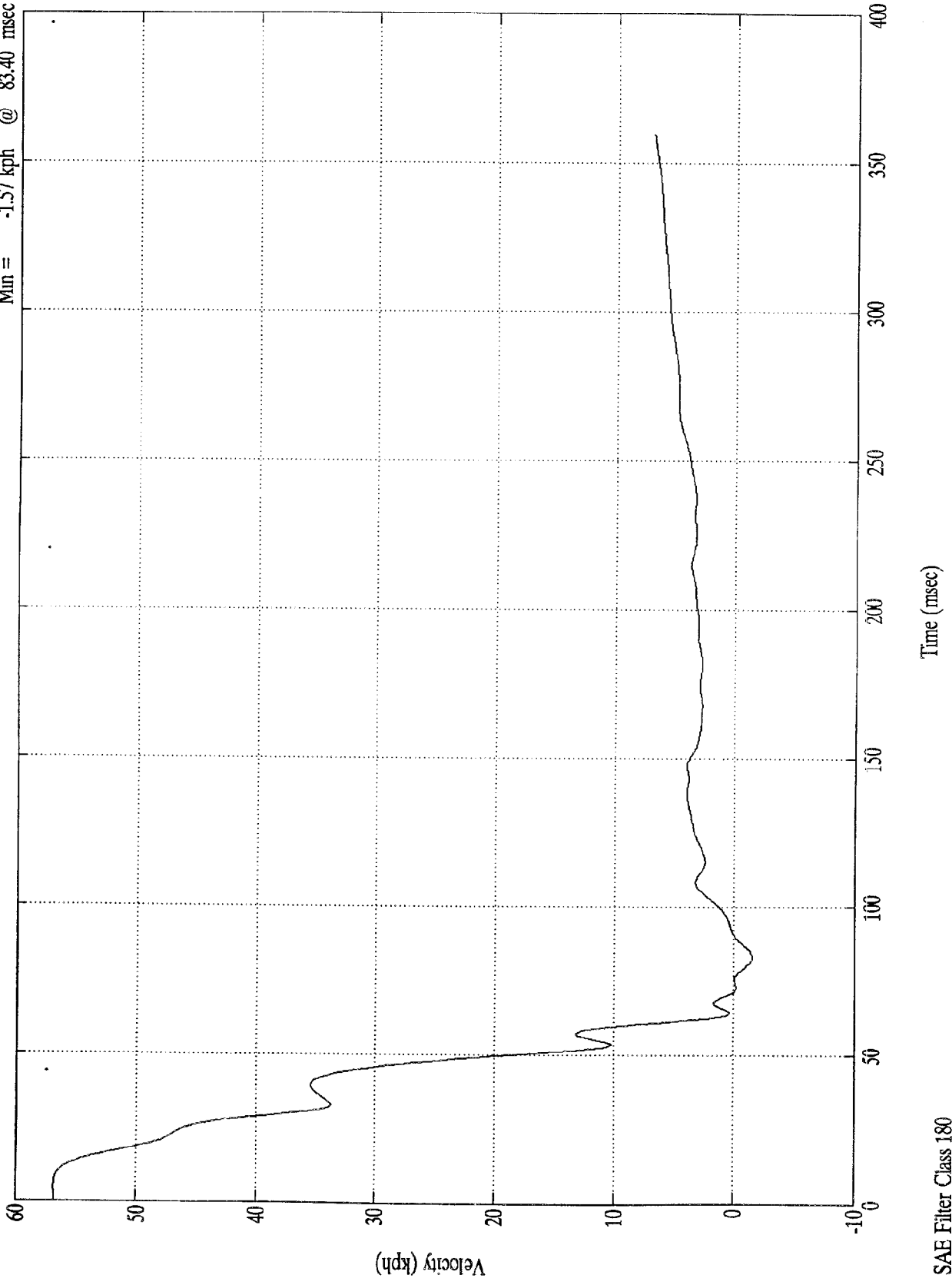
SAE Filter Class 60

Gs

Time (msec)

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Acc. #7(x)
Max = 56.85 kph @ 4.80 msec
Min = -1.57 kph @ 83.40 msec

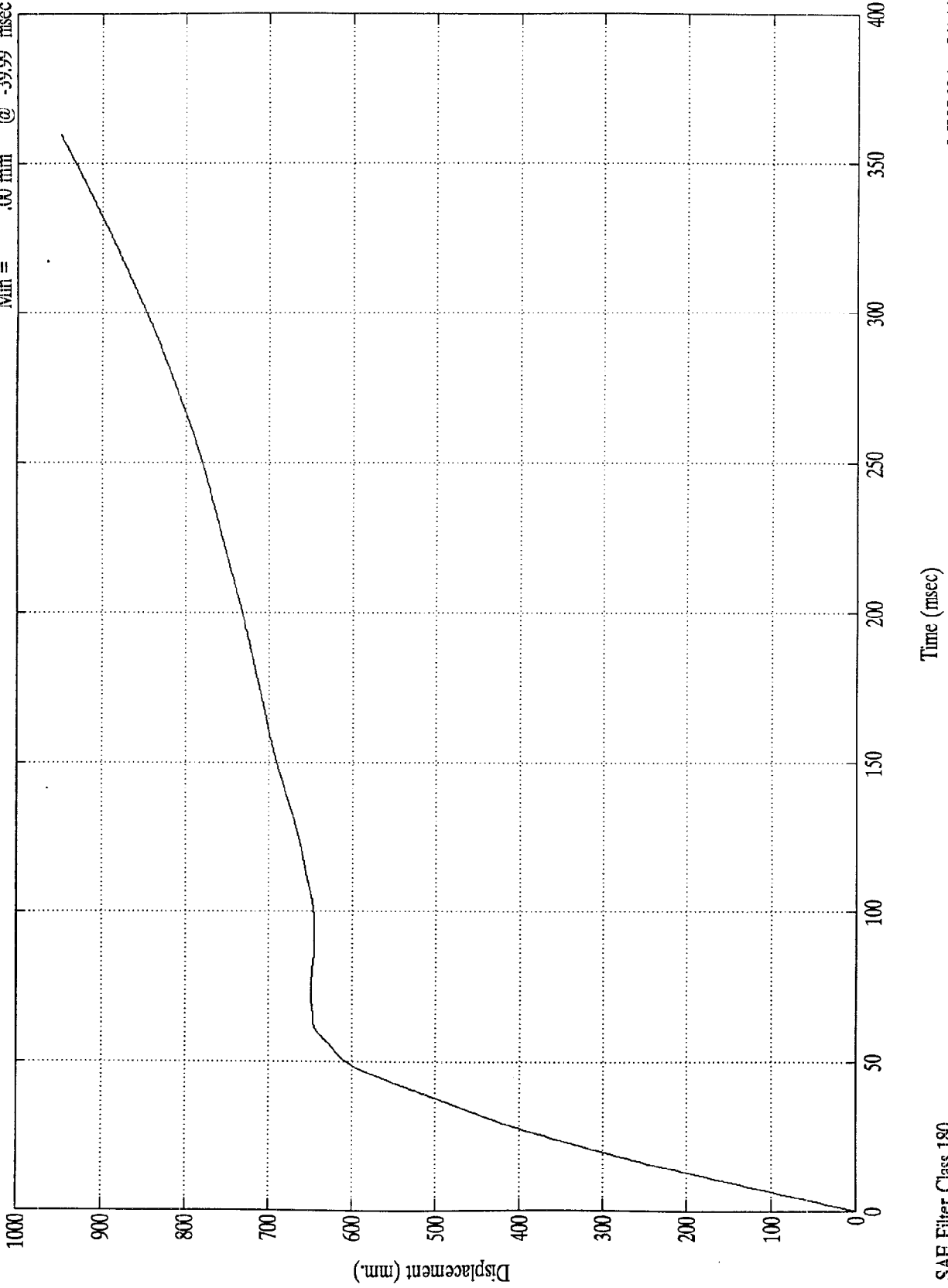


SAE Filter Class 180

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 949.68 mm @ 359.89 msec
Min = .00 mm @ -39.99 msec

Acc. #7(x)



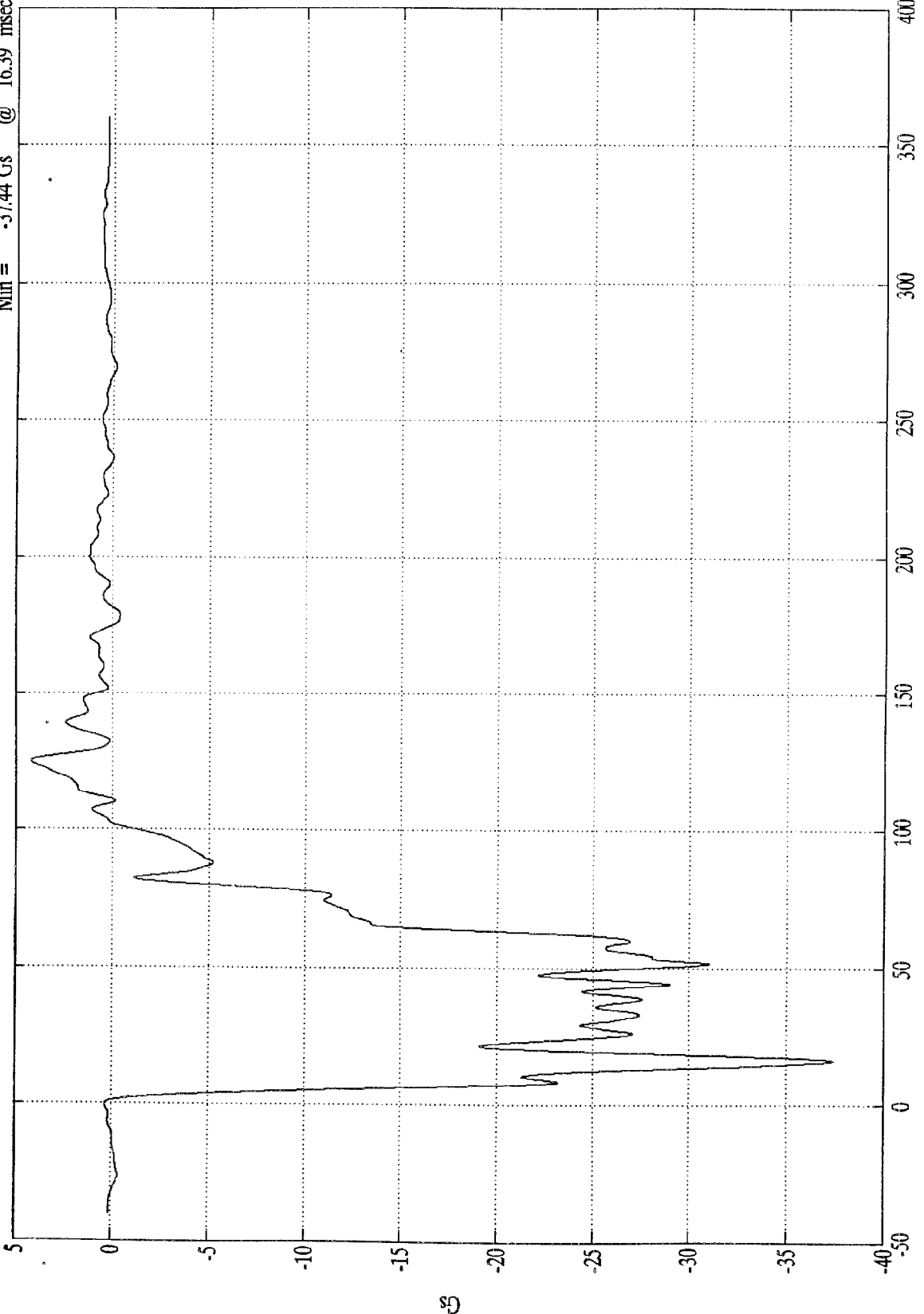
SAE Filter Class 180

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 4.22 Gs @ 124.90 msec
Min = -37.44 Gs @ 16.39 msec

Acc. #8(x)



Time (msec)

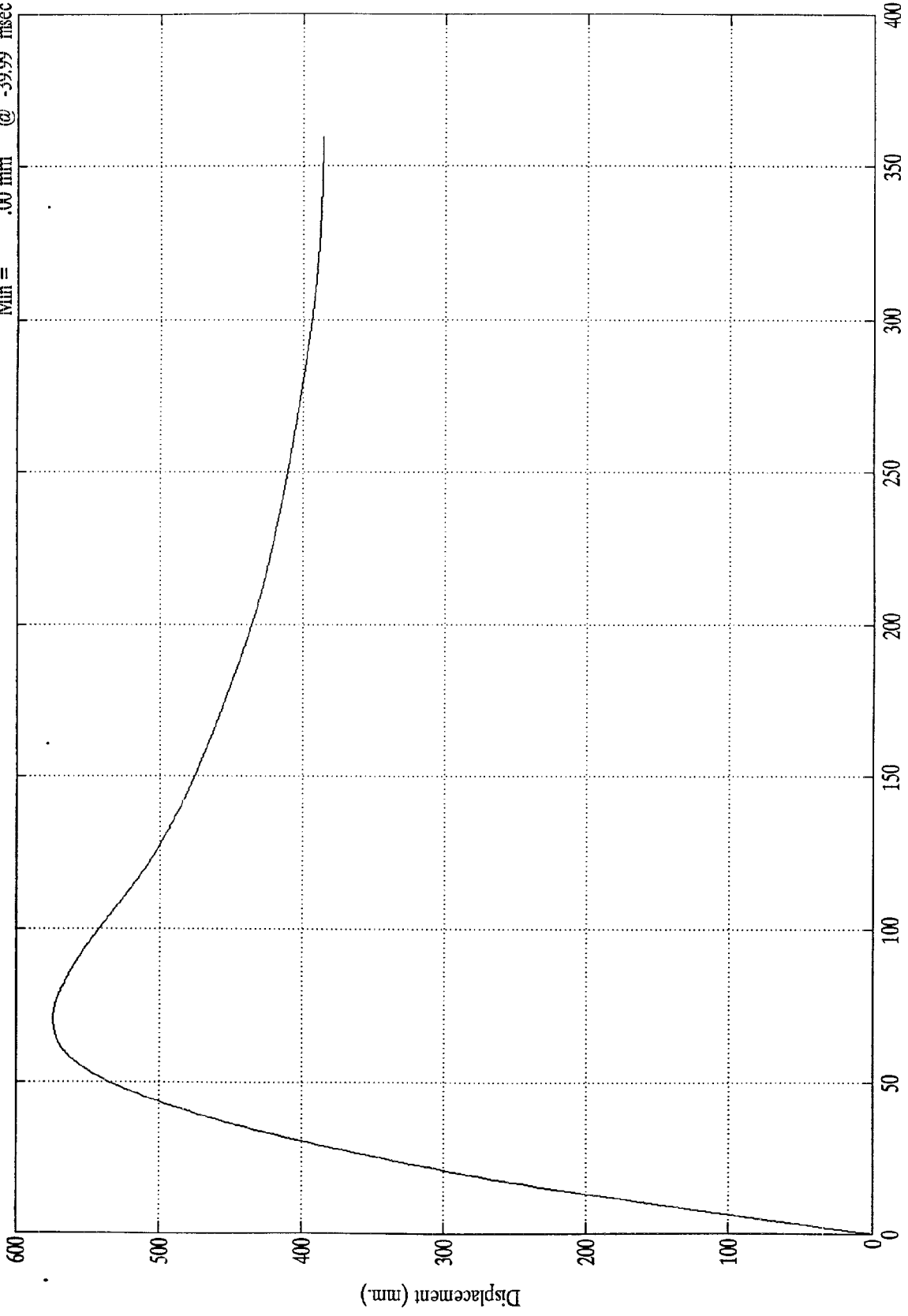
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 574.45 mm @ 70.39 msec
Min = .00 mm @ -39.99 msec

Acc. #8(x)



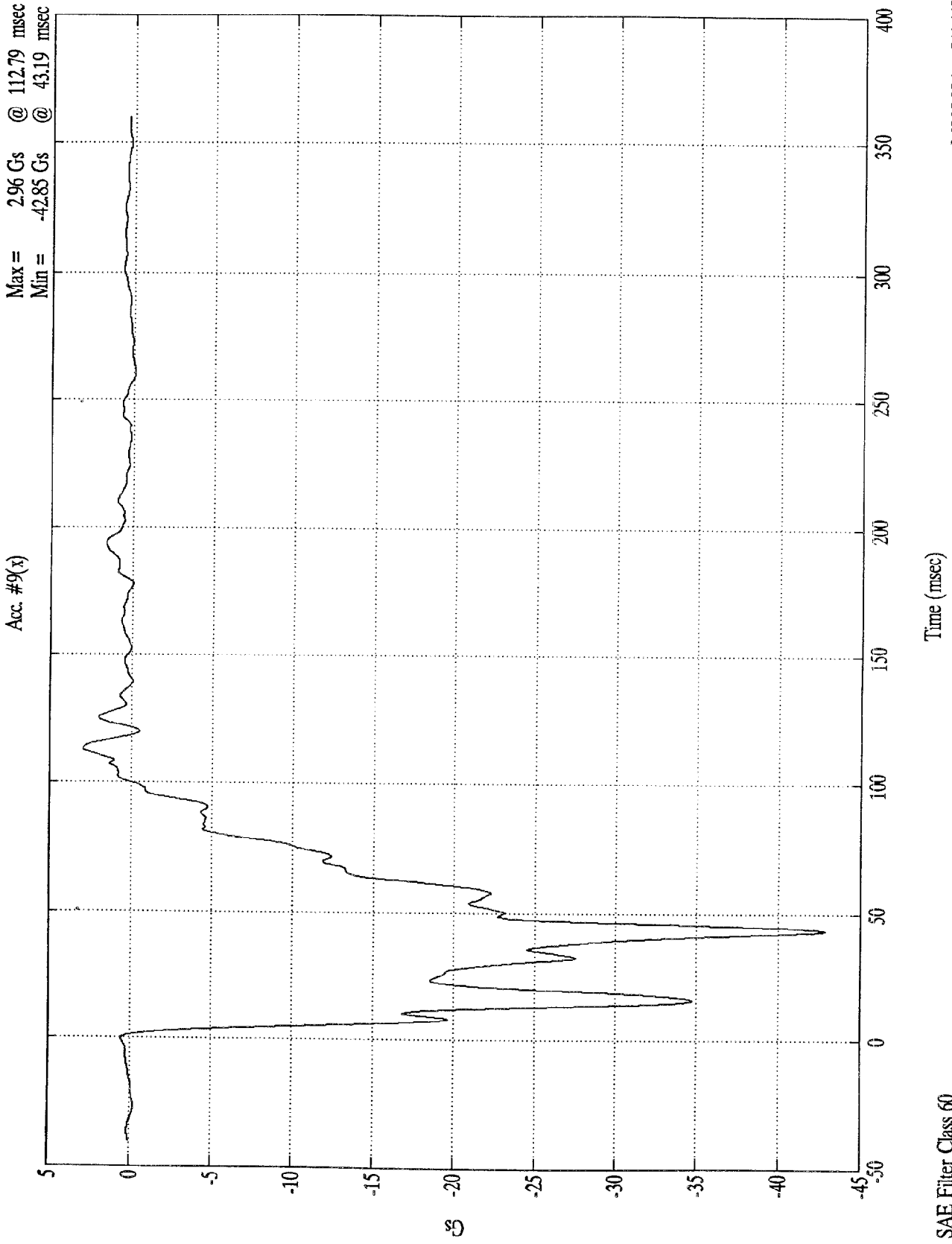
Displacement (mm.)

Time (msec)

SAE Filter Class 180

MV5601 - 5/14/97

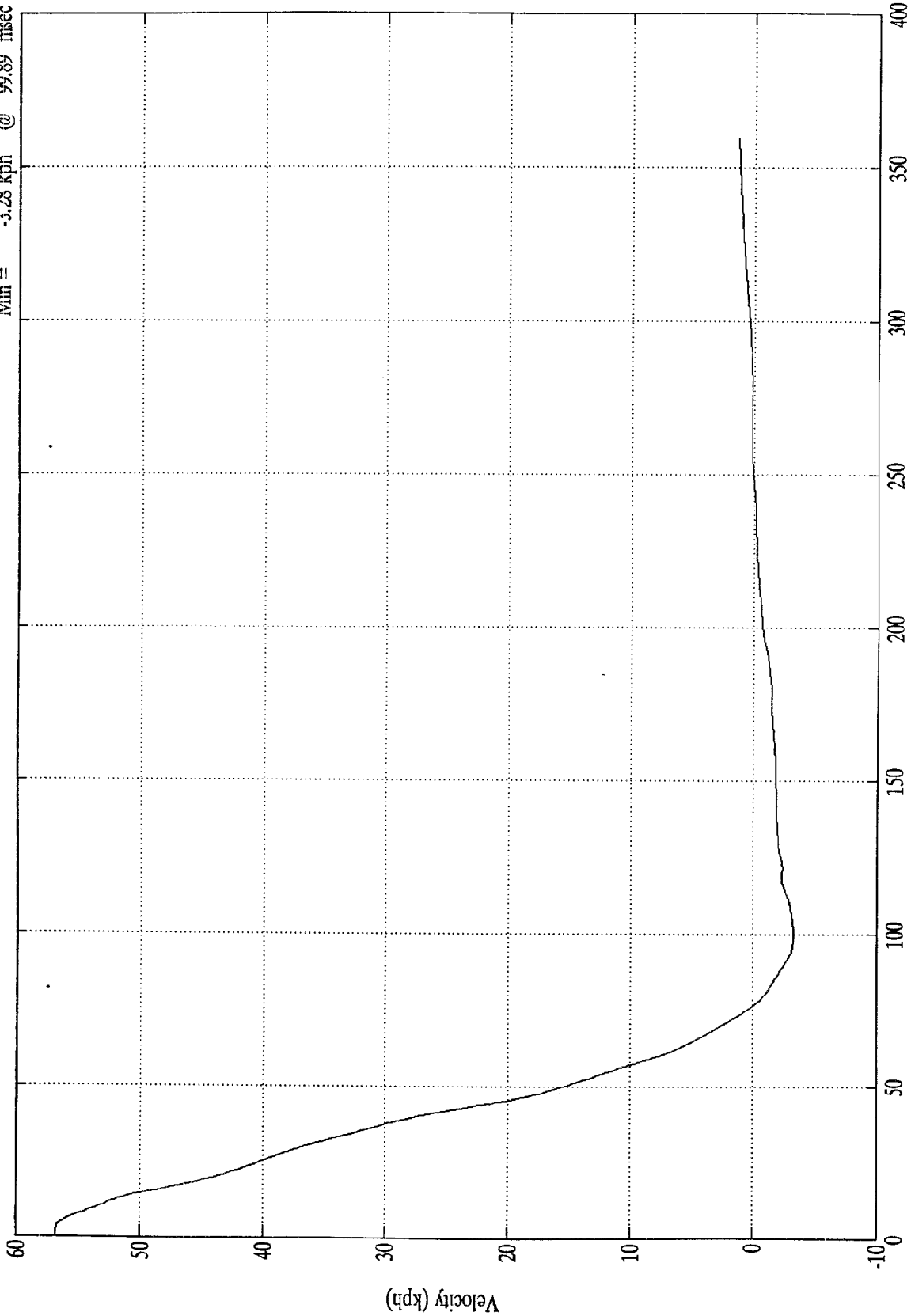
NCAP TEST #8 - 1997 MITSUBISHI MONTERO



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 56.82 kph @ 1.20 msec
Min = -3.28 kph @ 99.89 msec

Acc. #9(x)



Time (msec)

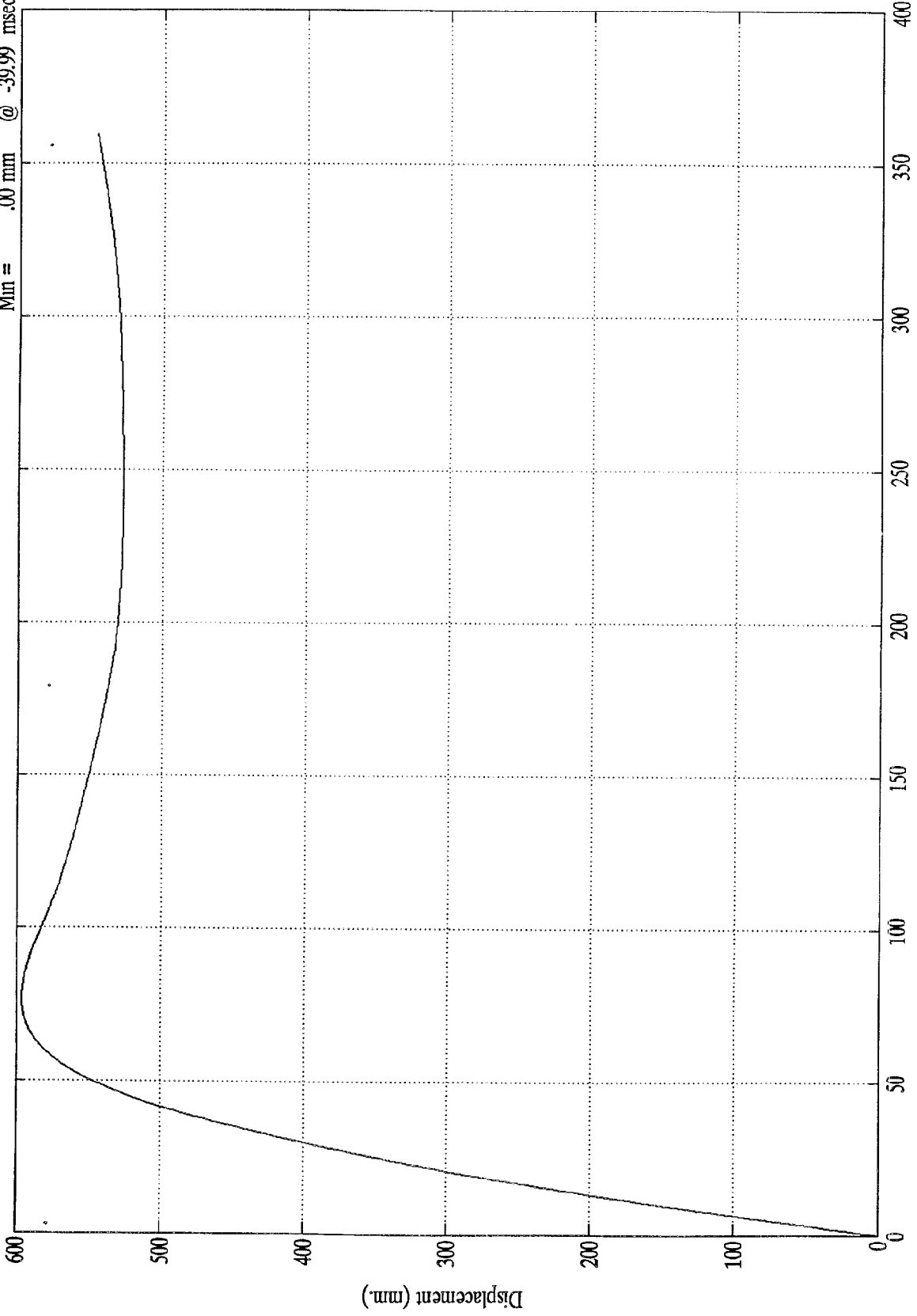
SAE Filter Class 180

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

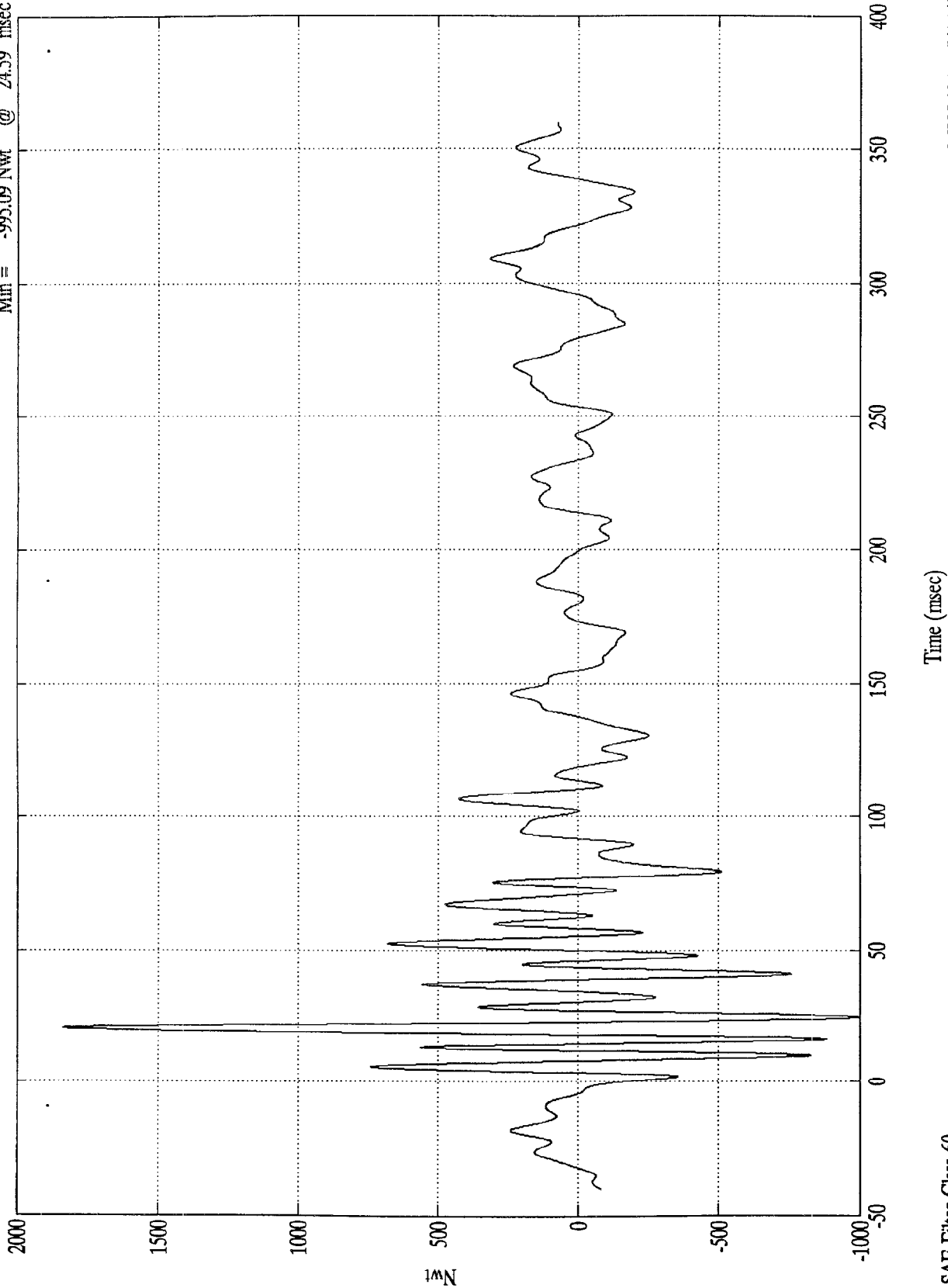
Max = 596.73 mm @ 76.60 msec
Min = .00 mm @ -39.99 msec

Acc. #9(x)



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

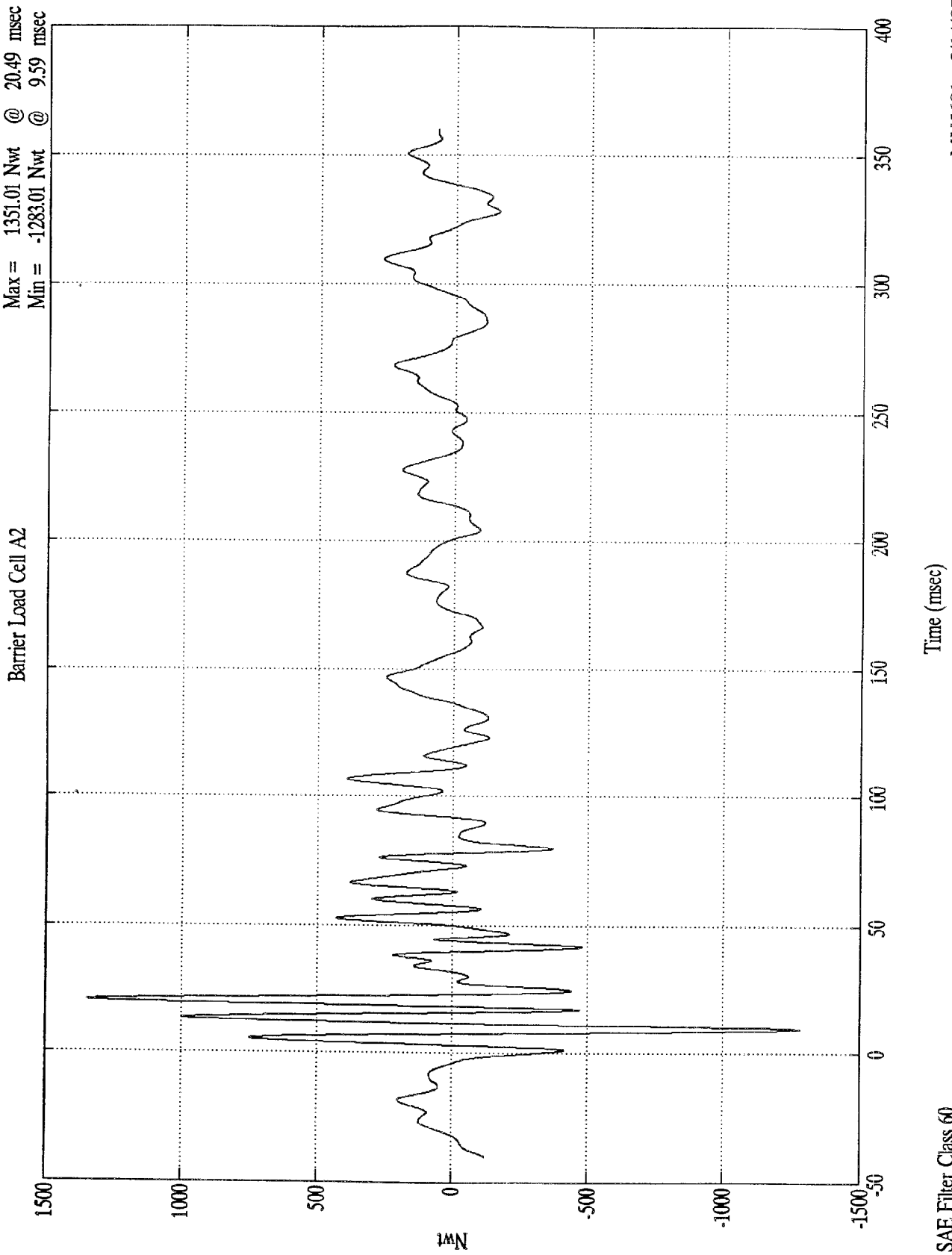
Barrier Load Cell A1
Max = 1840.64 Nwt @ 20.19 msec
Min = -995.09 Nwt @ 24.59 msec



SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

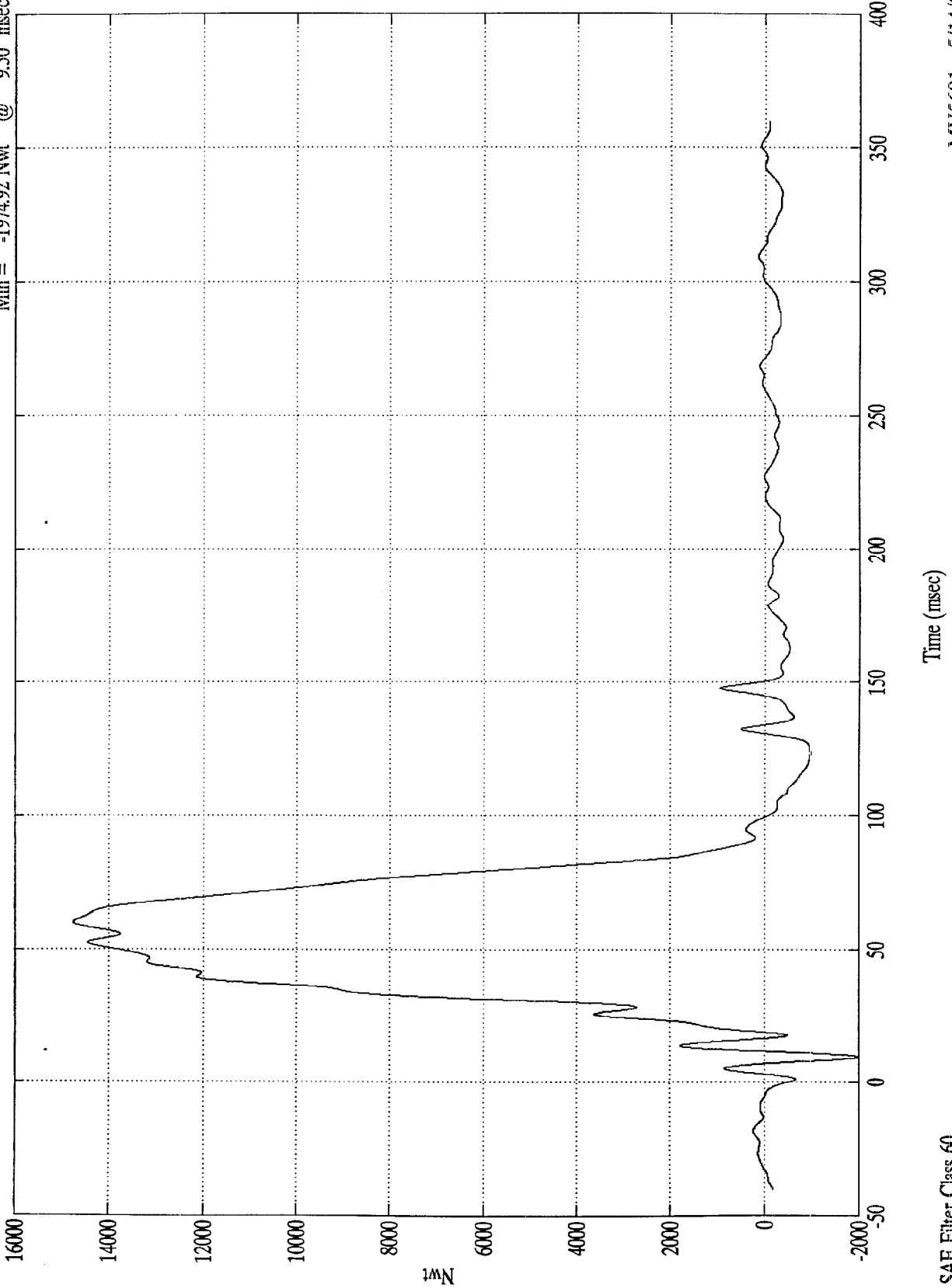


MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 14763.00 Nwt @ 59.89 msec
Min = -1974.92 Nwt @ 9.50 msec

Barrier Load Cell A3

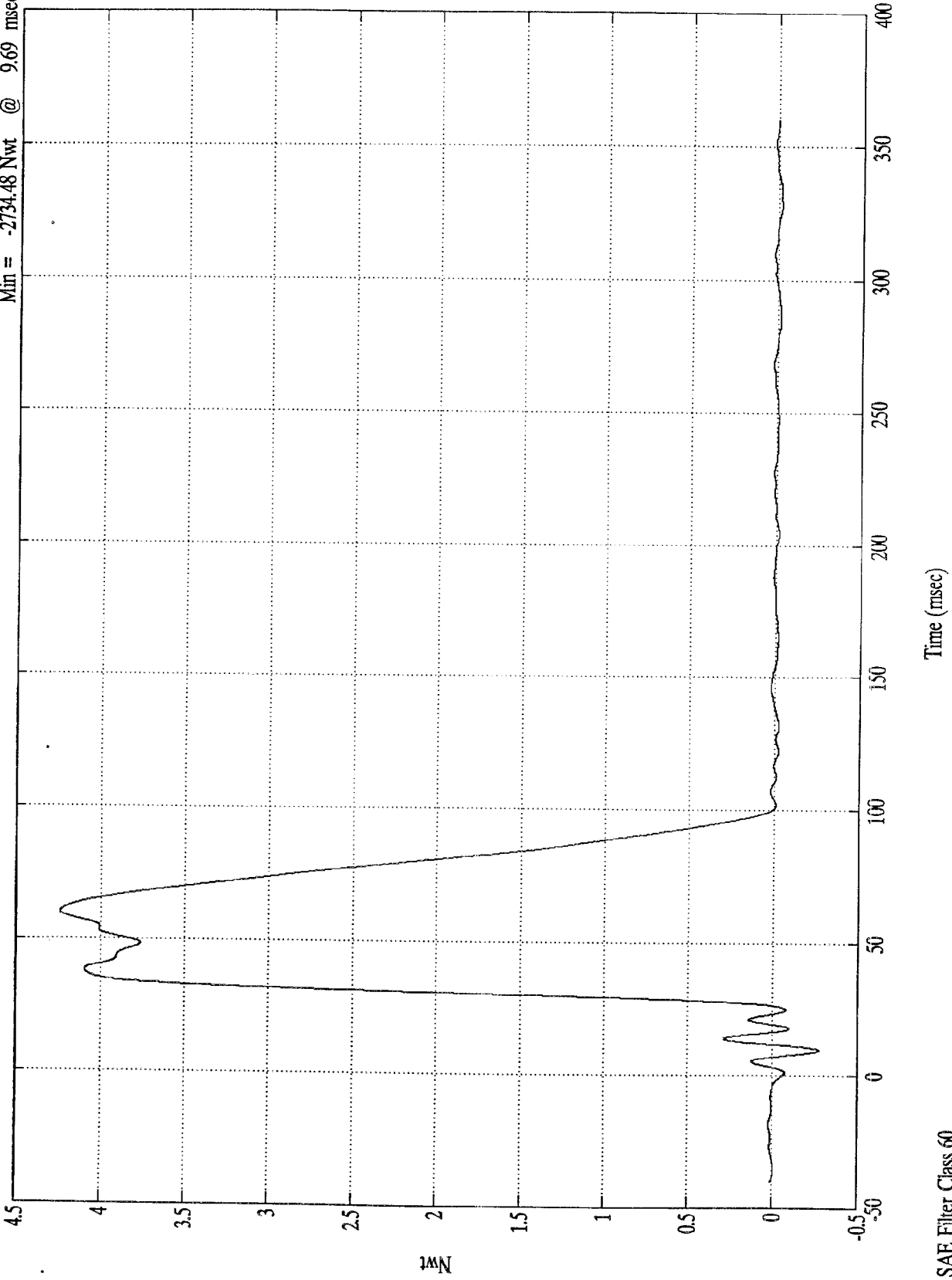


SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell A4
Max = 42391.74 Nwt @ 60.00 msec
Min = -2734.48 Nwt @ 9.69 msec



SAE Filter Class 60

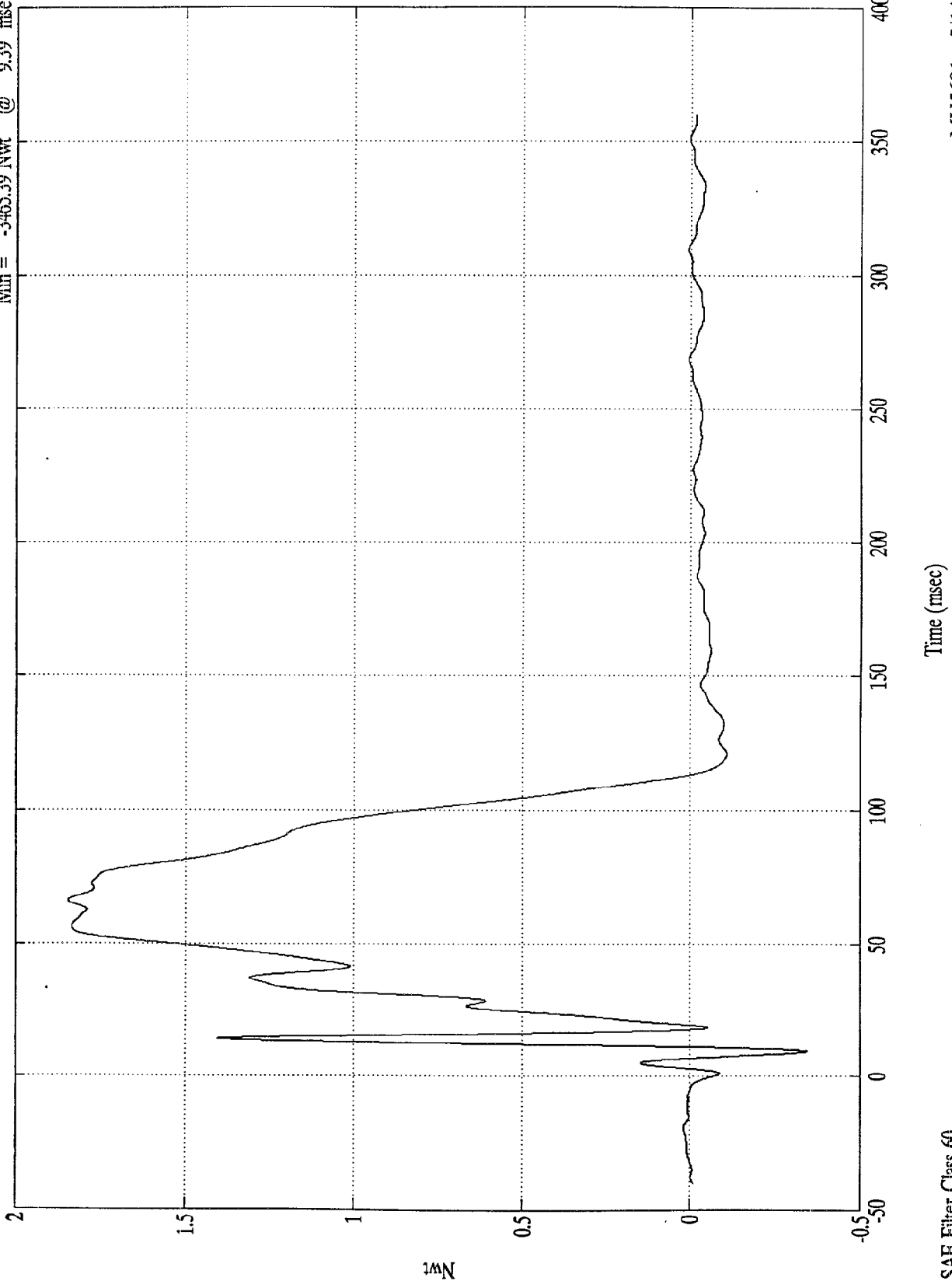
MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 18476.41 Nwt @ 66.00 msec
Min = -3465.39 Nwt @ 9.39 msec

Barrier Load Cell A5

x10⁴



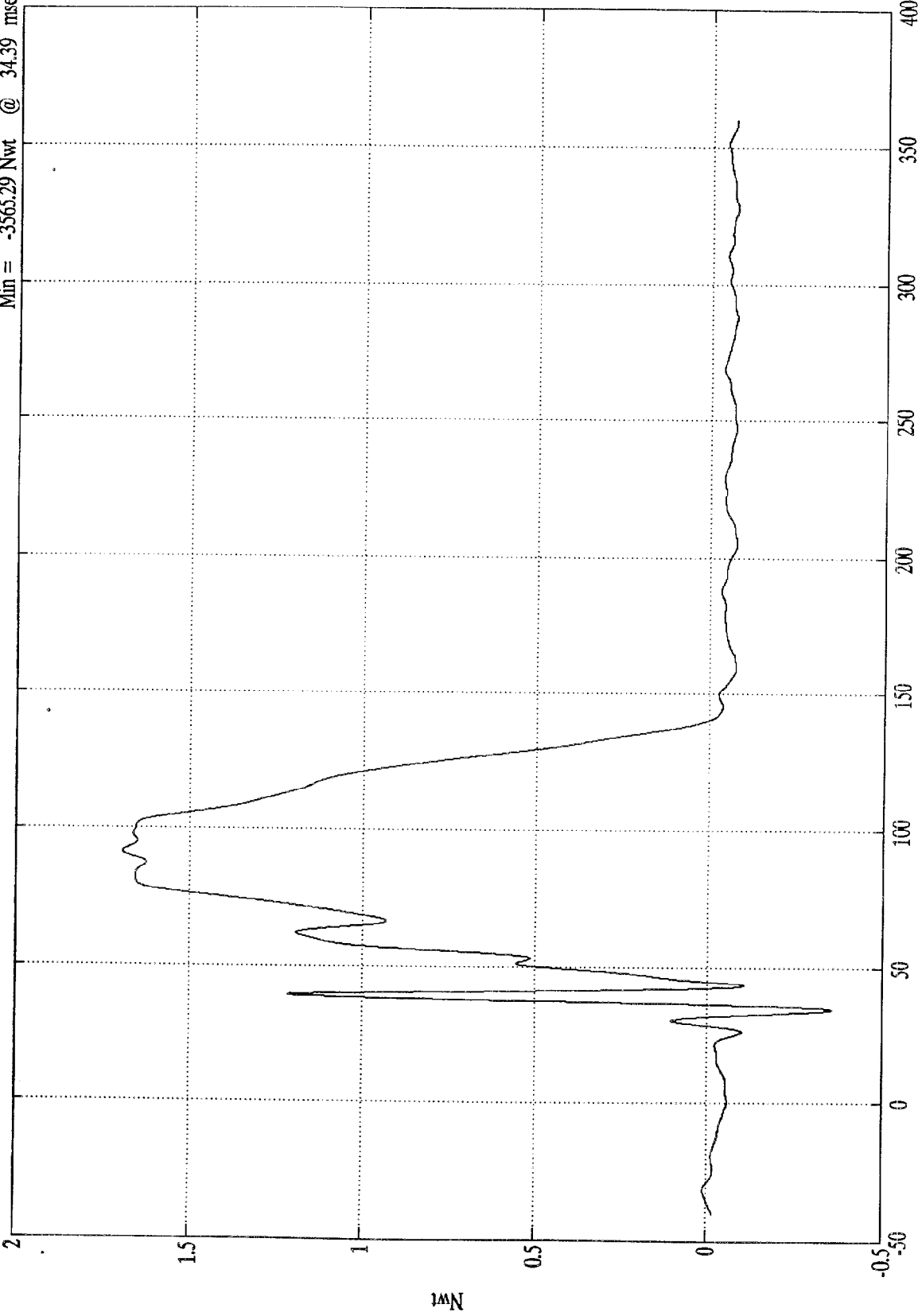
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 16940.10 Nwt @ 91.29 msec
Min = -3565.29 Nwt @ 34.39 msec

Barrier Load Cell A6

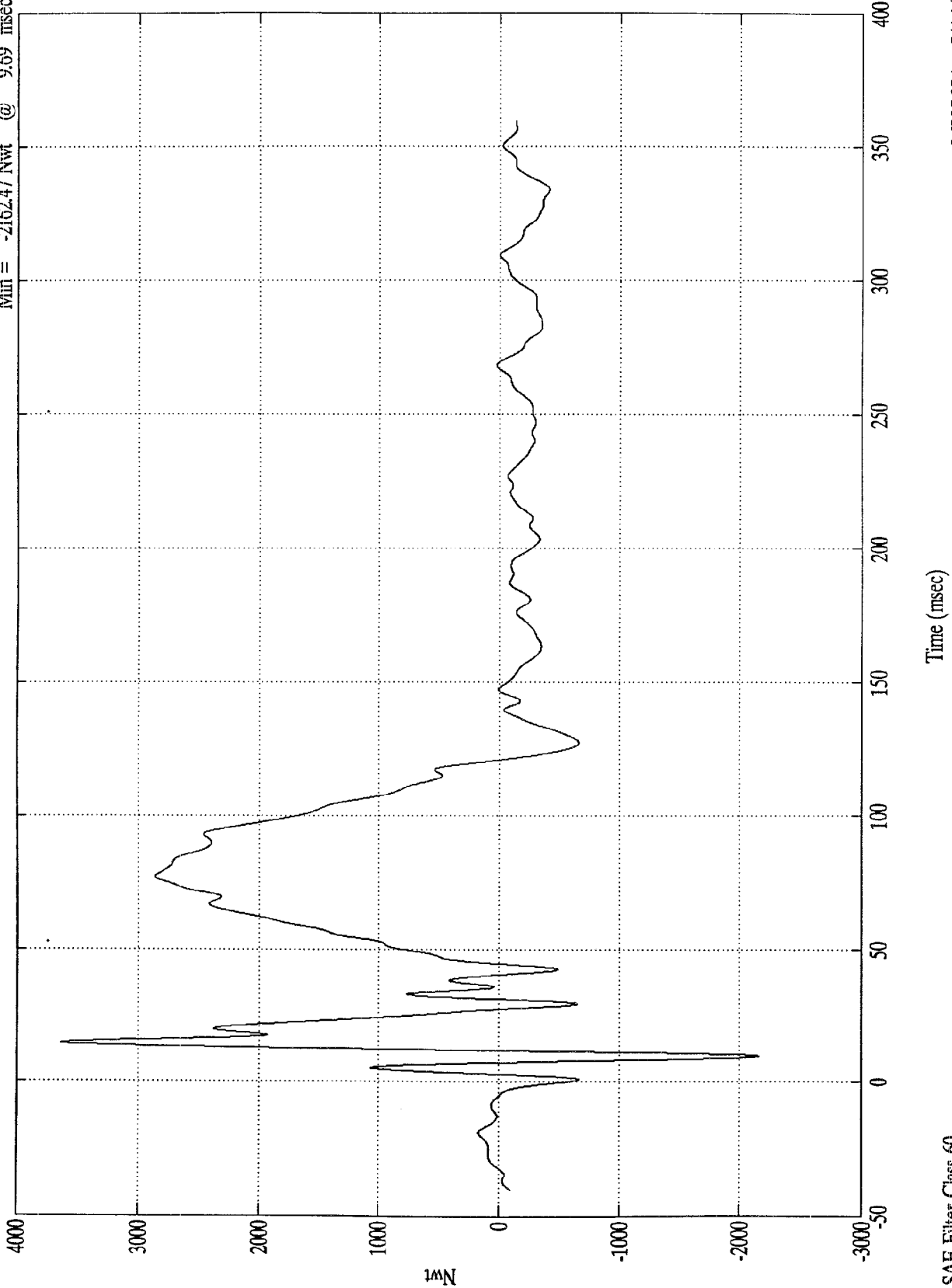


Time (msec)

SAE Filter Class 60

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell A7
Max = 3637.12 Nwt @ 14.39 msec
Min = -2162.47 Nwt @ 9.69 msec



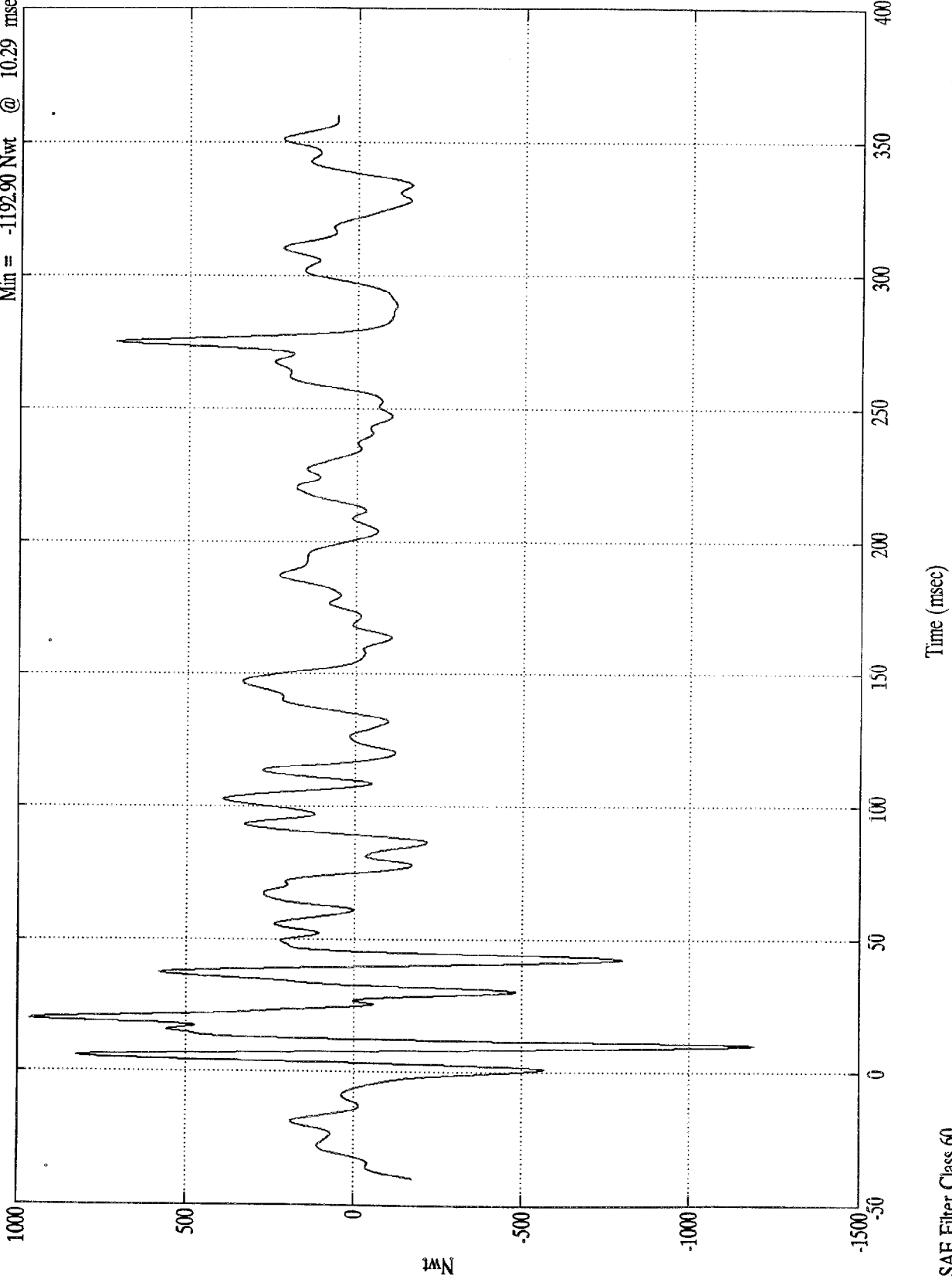
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

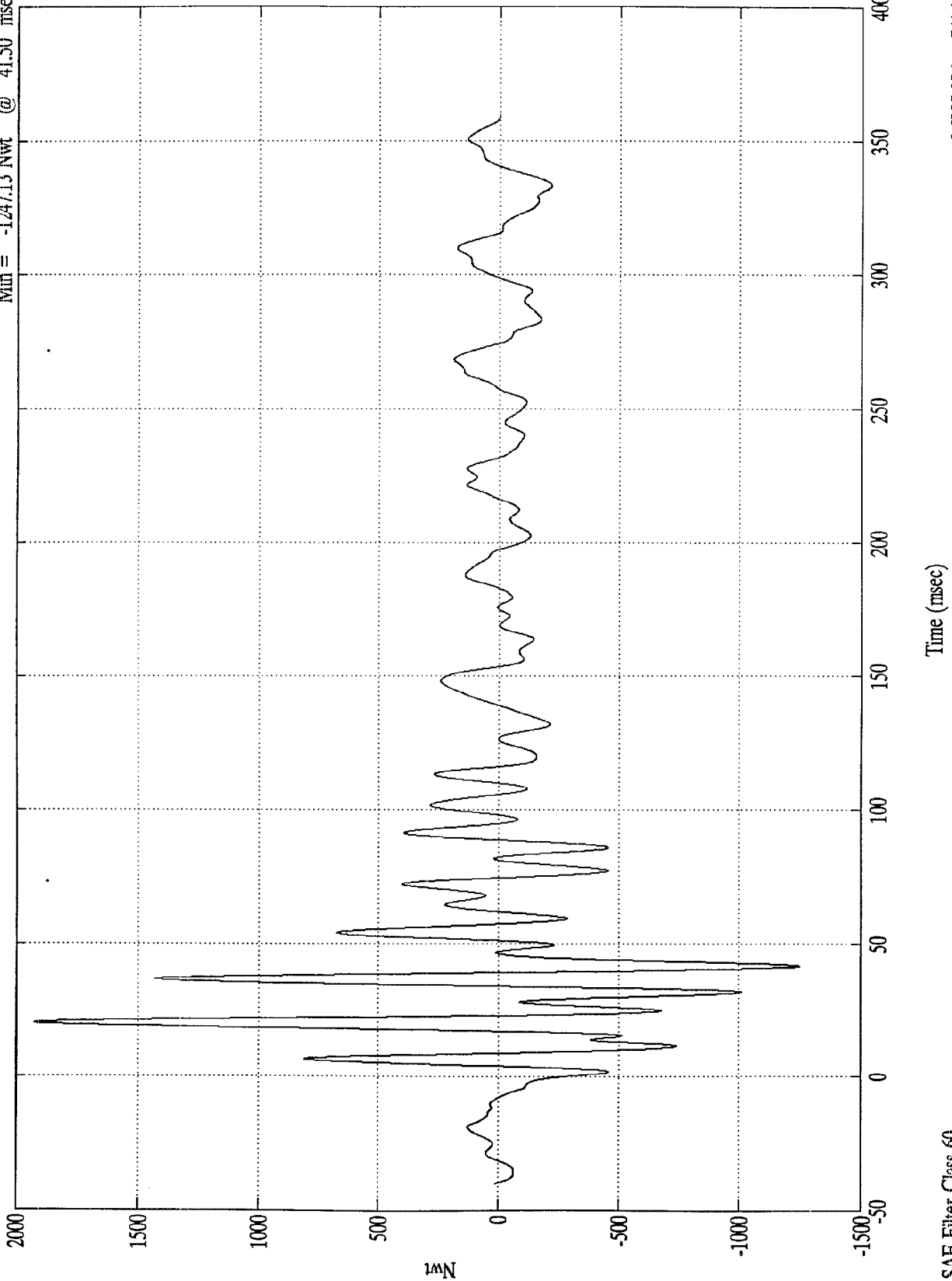
Barrier Load Cell A8

Max = 963.22 Nwt @ 19.89 msec
Min = -1192.90 Nwt @ 10.29 msec



NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell A9
Max = 1925.64 Nwt @ 20.19 msec
Min = -1247.13 Nwt @ 41.50 msec



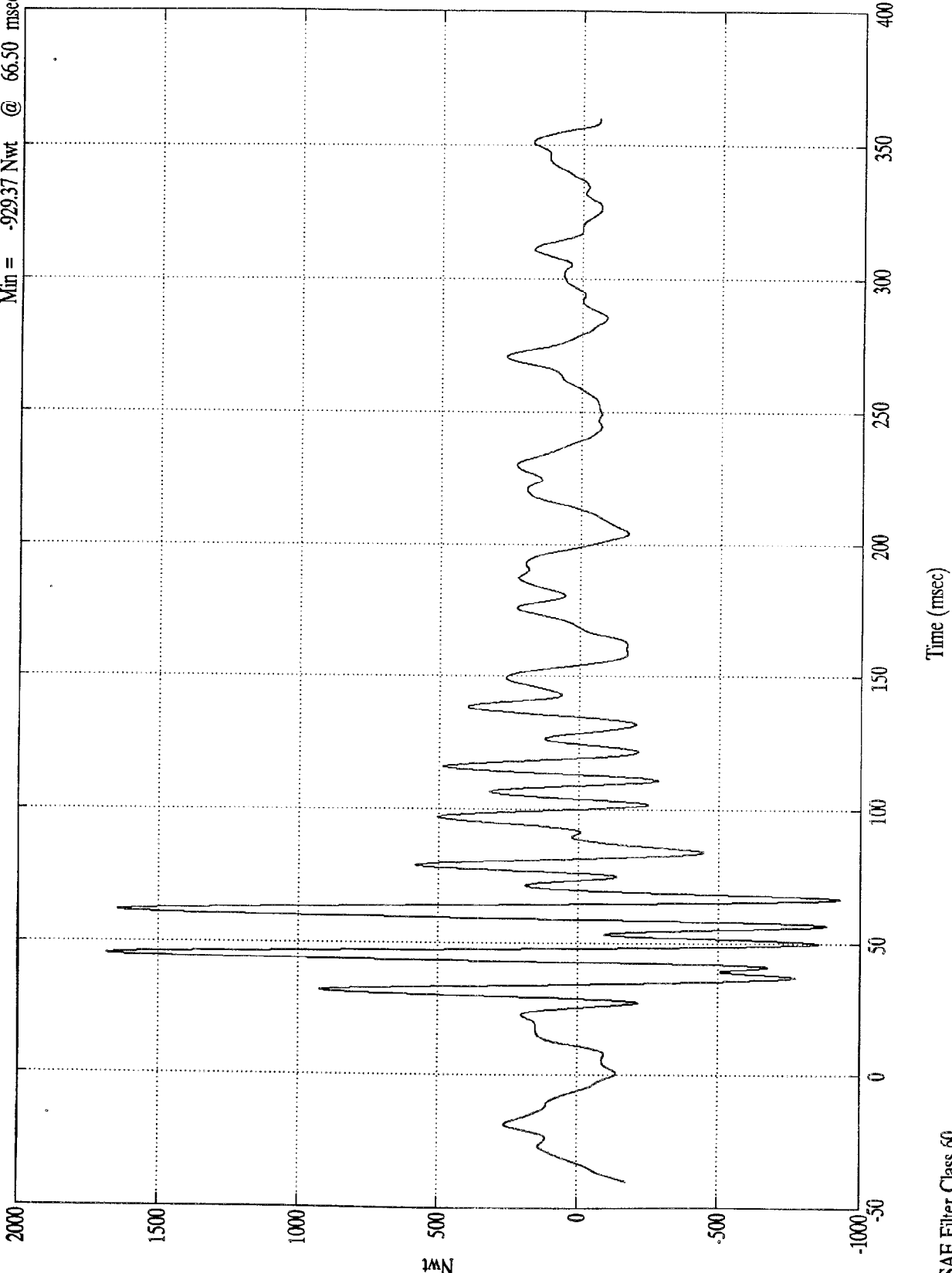
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell BI

Max = 1686.45 Nwt @ 45.19 msec
Min = -929.37 Nwt @ 66.50 msec



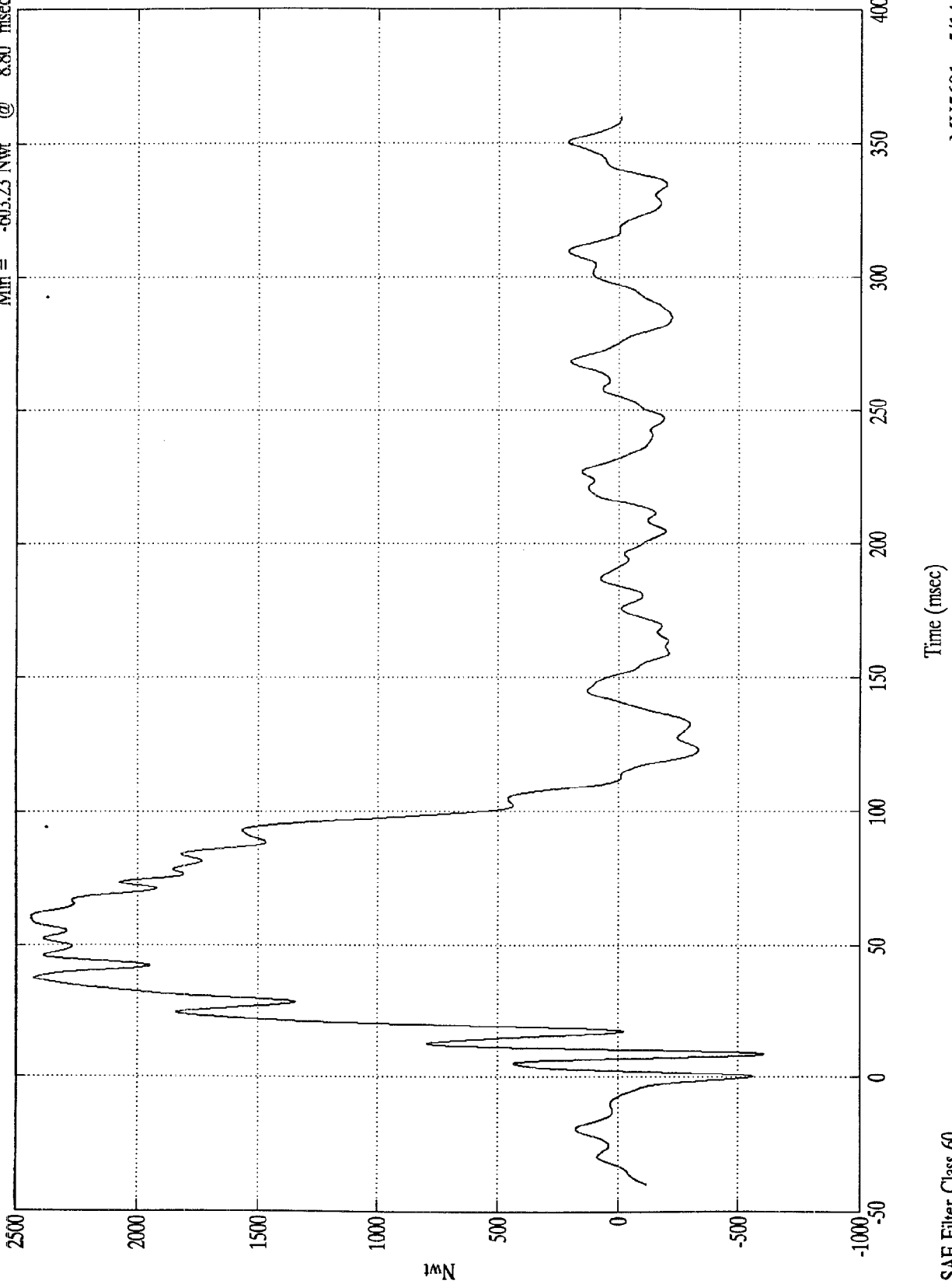
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 2438.84 Nwt @ 60.59 msec
Min = -603.23 Nwt @ 8.80 msec

Barrier Load Cell B2



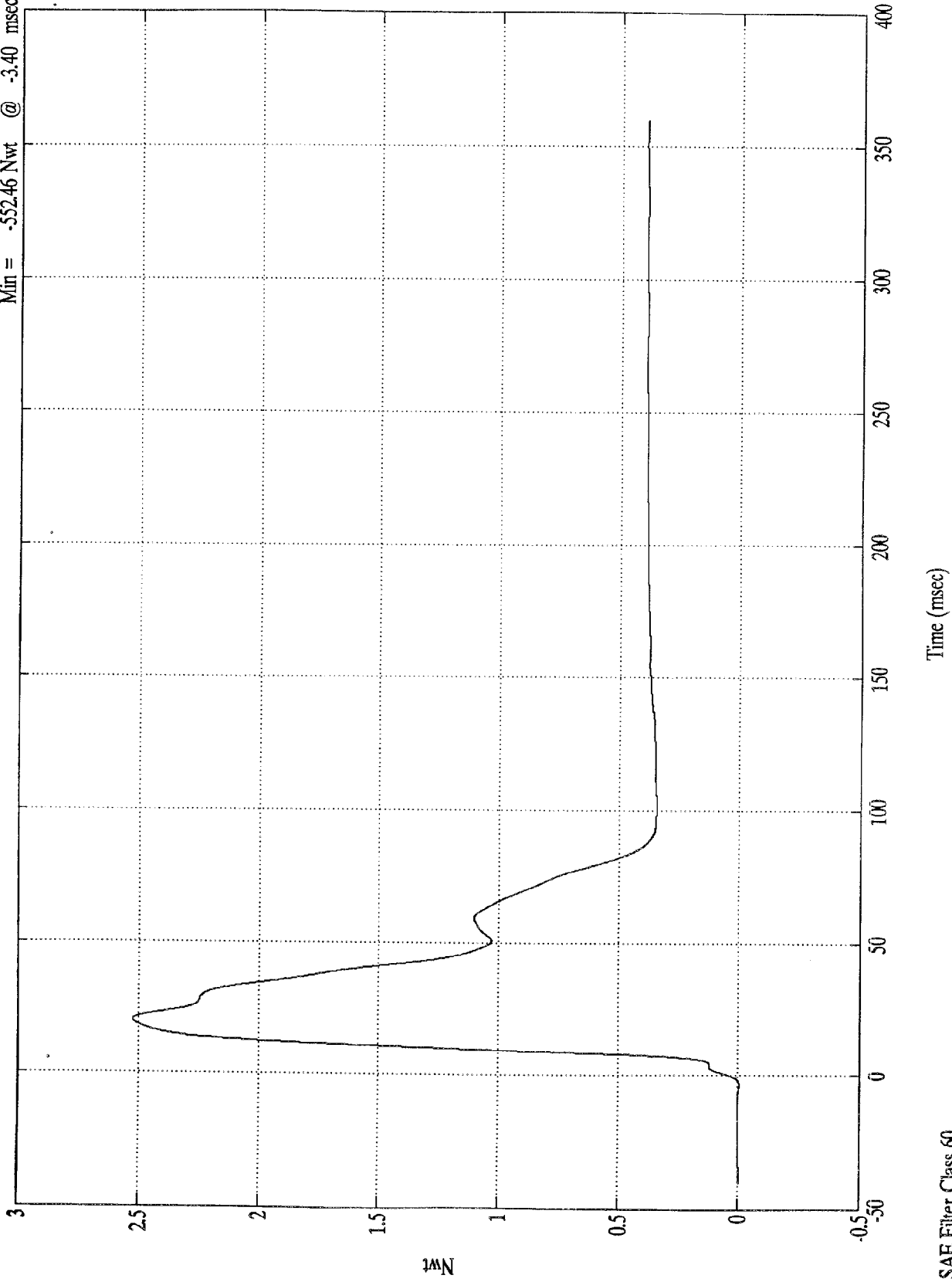
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 252400.28 Nwt @ 20.00 msec
Min = -552.46 Nwt @ -3.40 msec

Barrier Load Cell B3

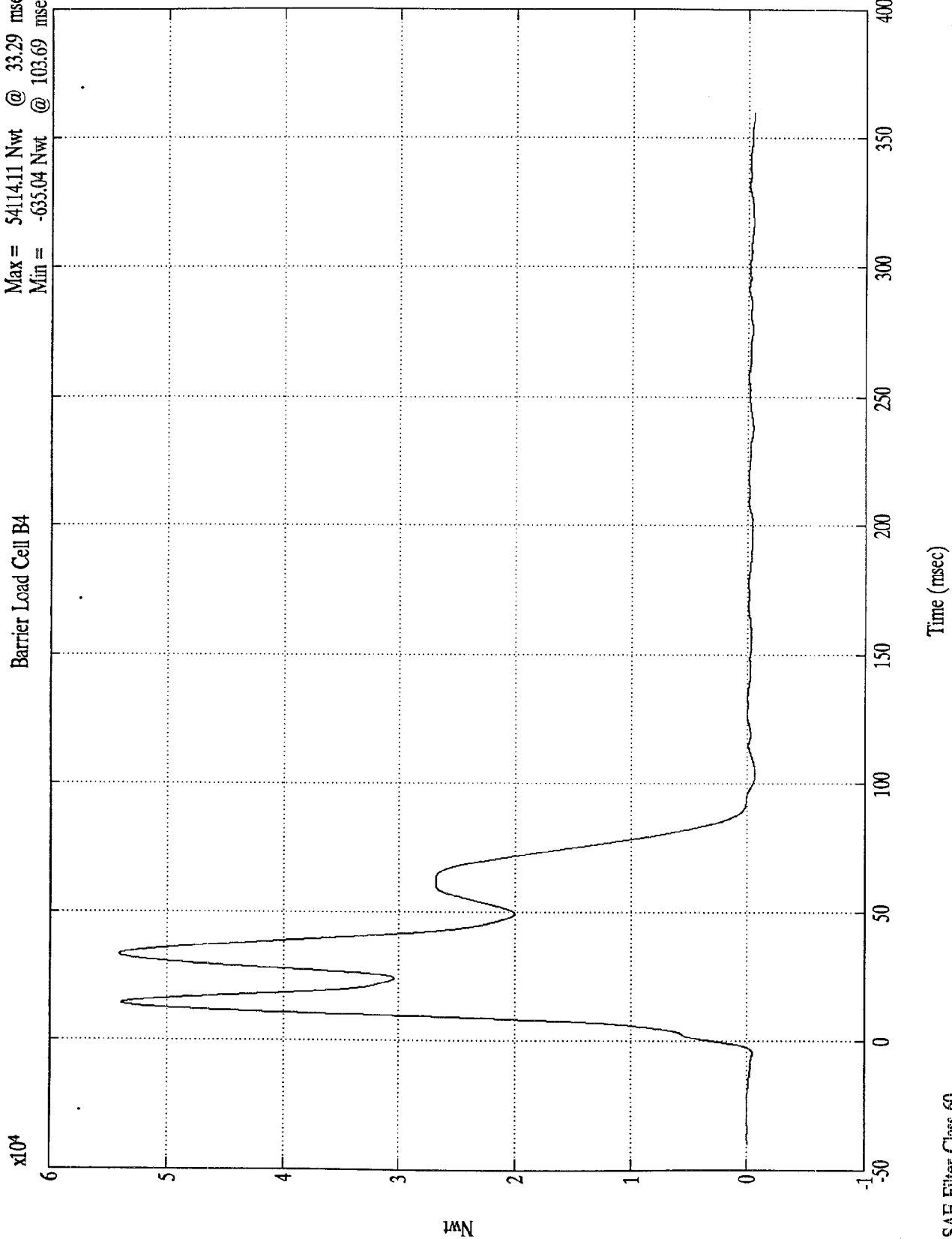


SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell B4
Max = 54114.11 Nwt @ 33.29 msec
Min = -635.04 Nwt @ 103.69 msec



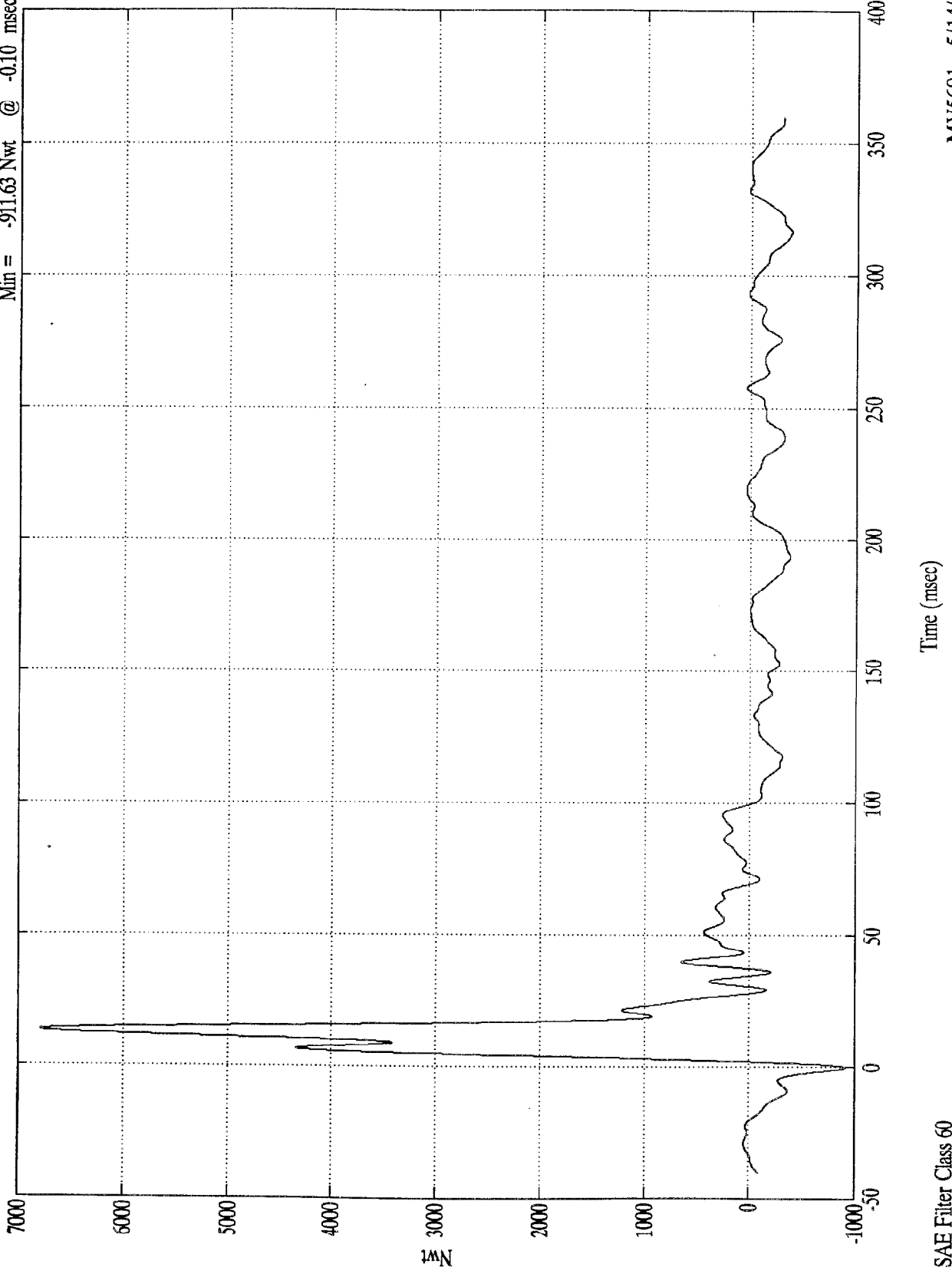
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 6789.82 Nwt @ 13.59 msec
Min = -911.63 Nwt @ -0.10 msec

Barrier Load Cell B5



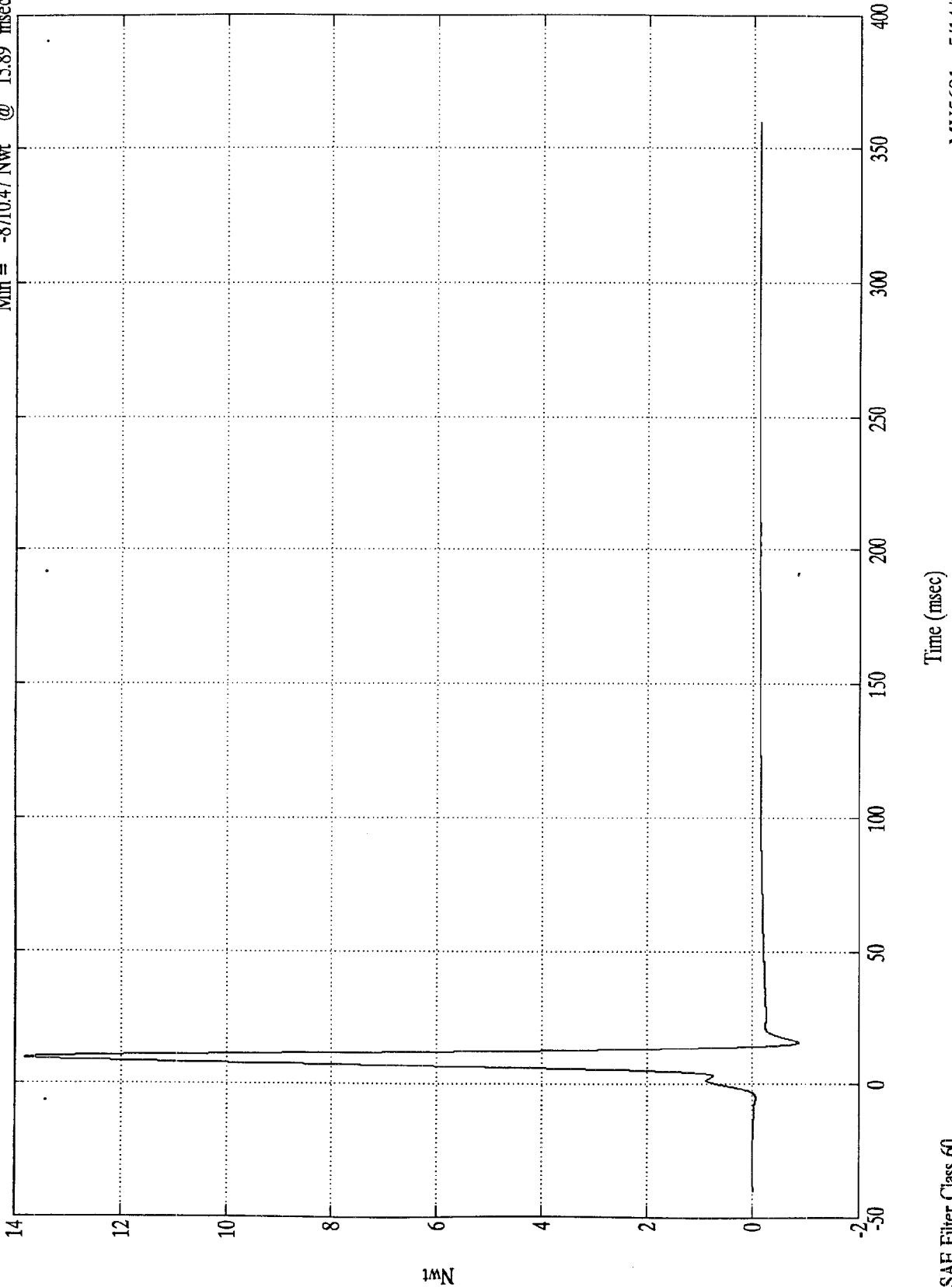
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell B6

Max = 138262.51 Nwt @ 9.79 msec
Min = -8710.47 Nwt @ 15.89 msec

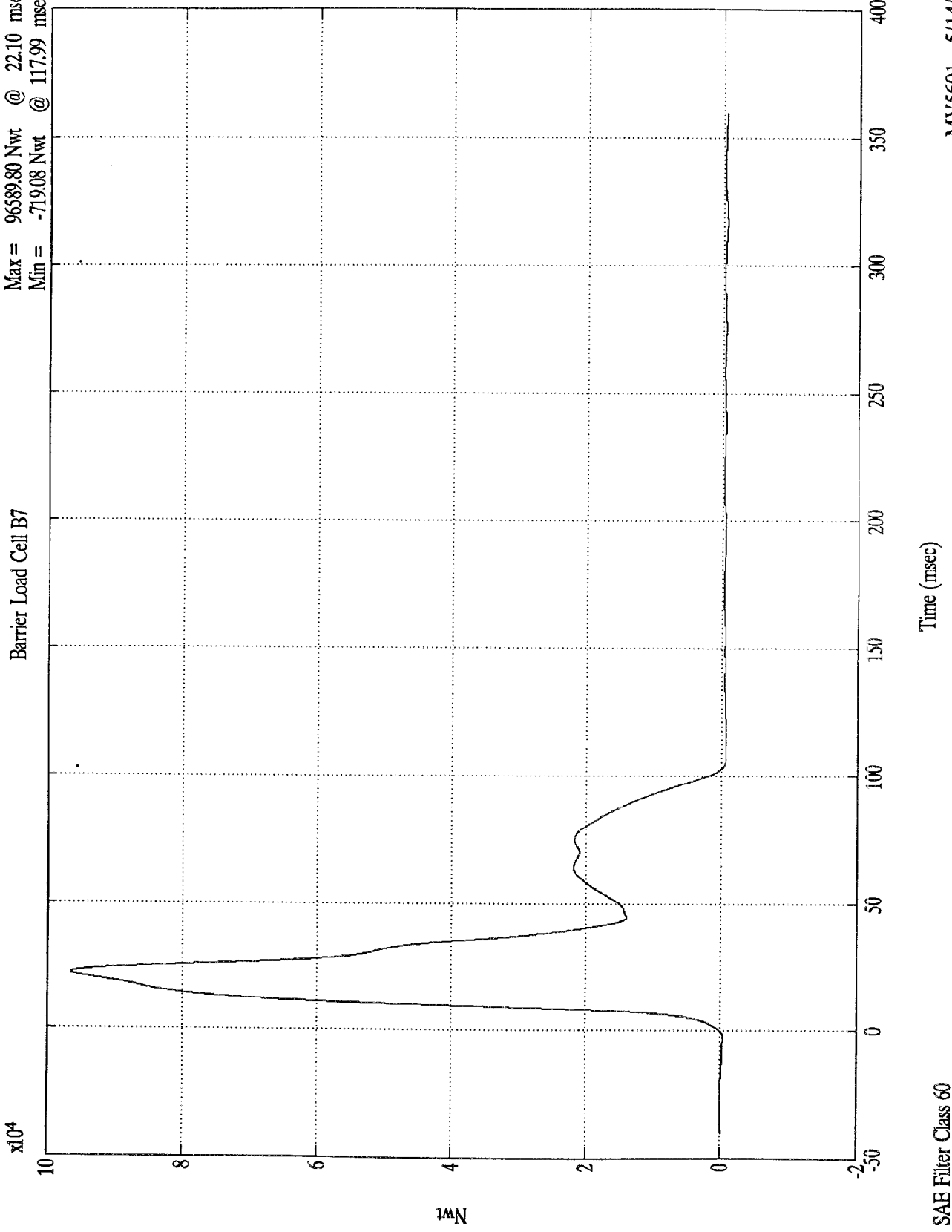


SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell B7
Max = 96589.80 Nwt @ 22.10 msec
Min = -71908 Nwt @ 117.99 msec



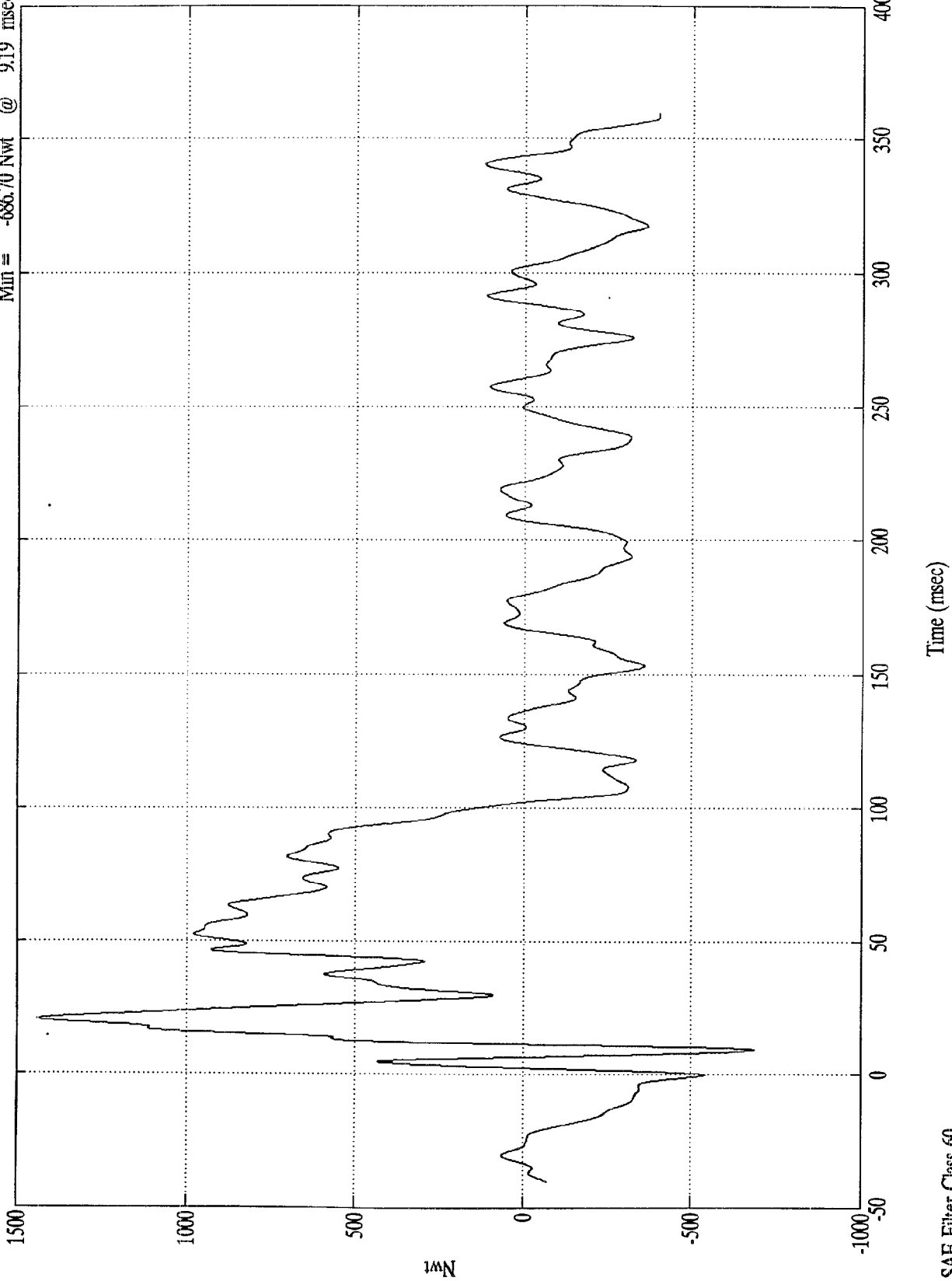
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 1440.67 Nwt @ 20.39 msec
Min = -686.70 Nwt @ 9.19 msec

Barrier Load Cell B8



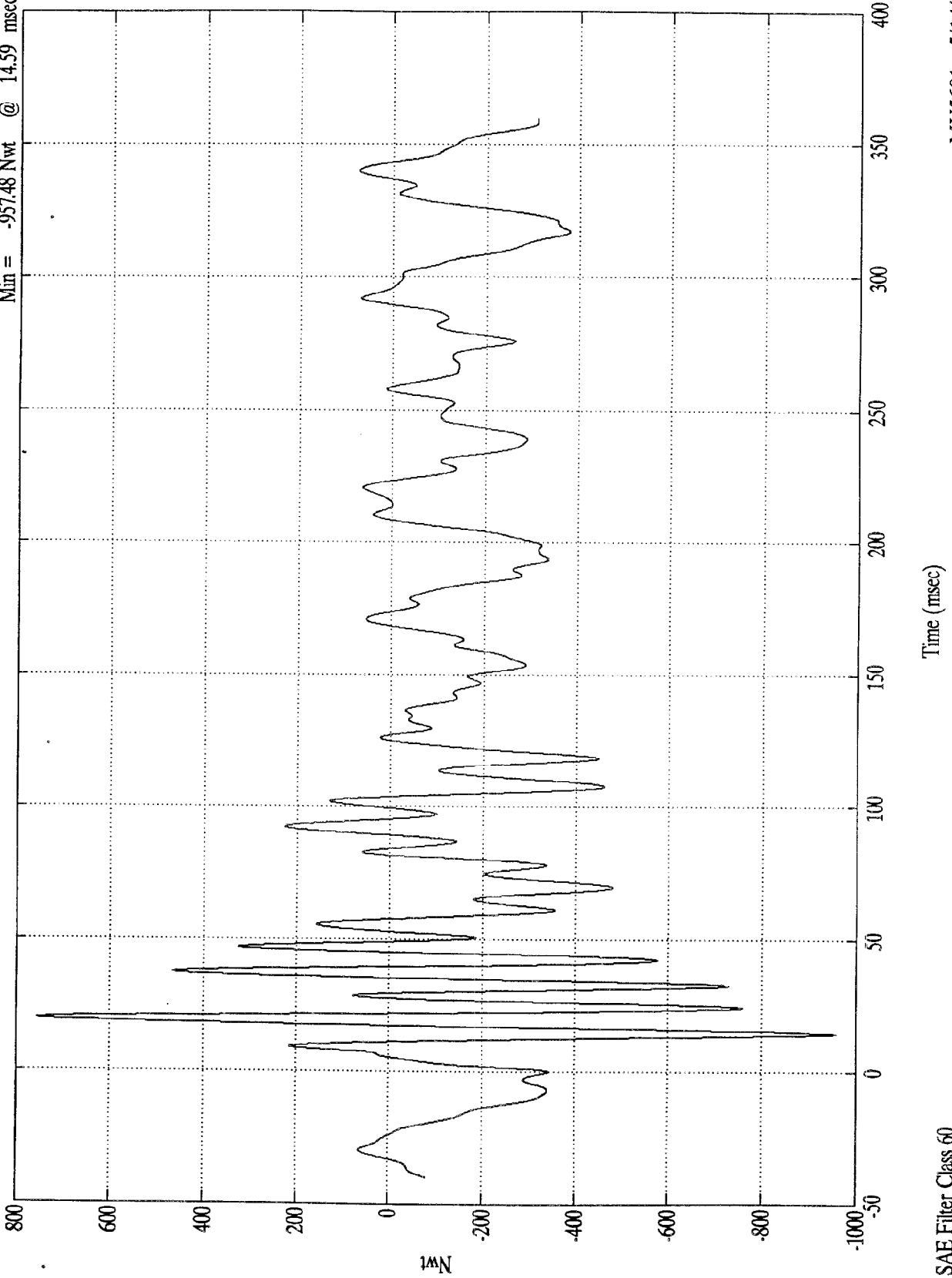
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell B9

Max = 756.54 Nwt @ 19.79 msec
Min = -957.48 Nwt @ 14.59 msec

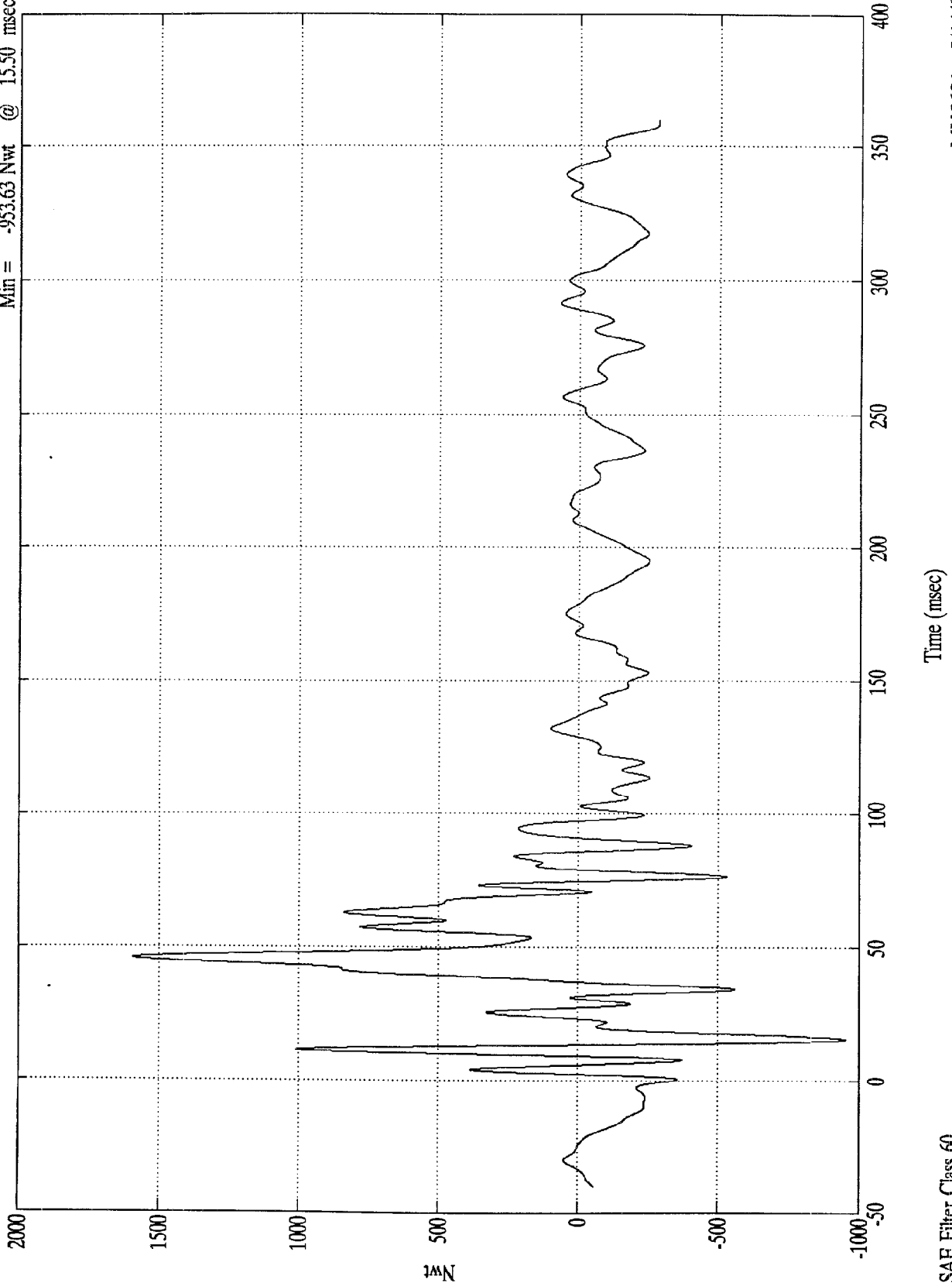


SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell C1
Max = 1596.03 Nwt @ 45.69 msec
Min = -953.63 Nwt @ 15.50 msec



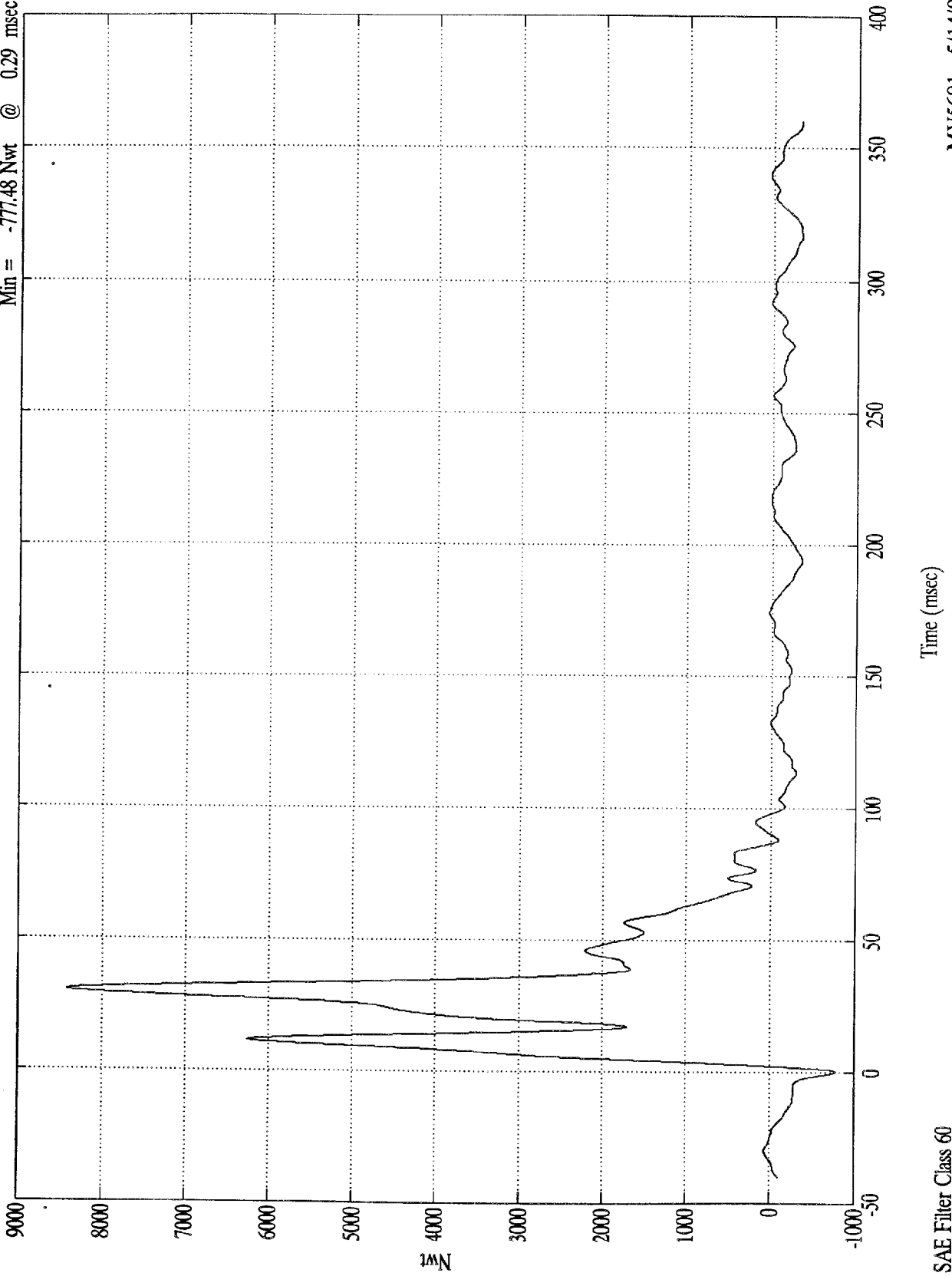
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 8422.82 Nwt @ 30.39 msec
Min = -777.48 Nwt @ 0.29 msec

Barrier Load Cell C2



SAE Filter Class 60

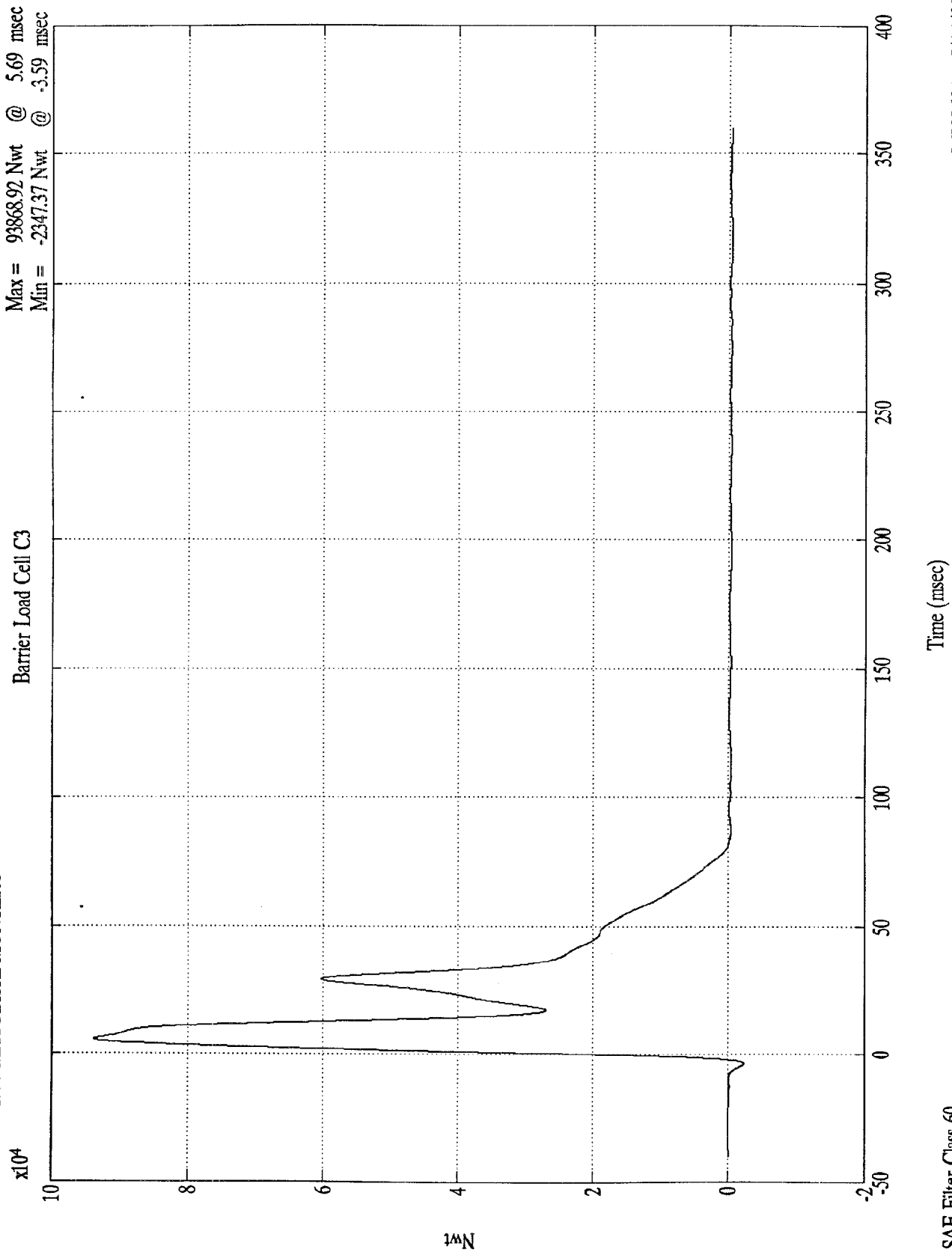
Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 93868.92 Nwt @ 5.69 msec
Min = -2347.37 Nwt @ -3.59 msec

Barrier Load Cell C3

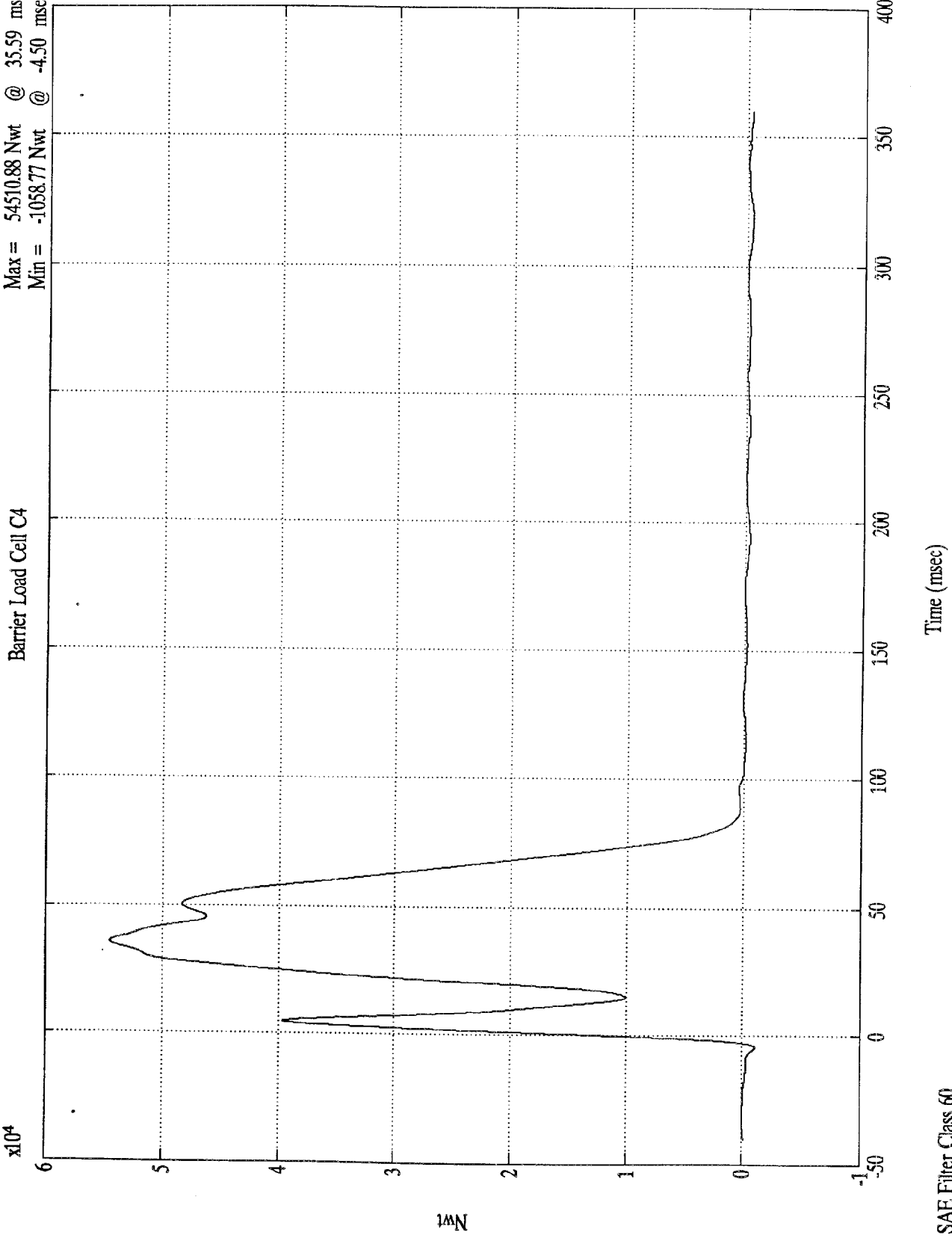


MV5601 - 5/14/97

SAE Filter Class 60

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell C4
Max = 54510.88 Nwt @ 35.59 msec
Min = -1058.77 Nwt @ -4.50 msec

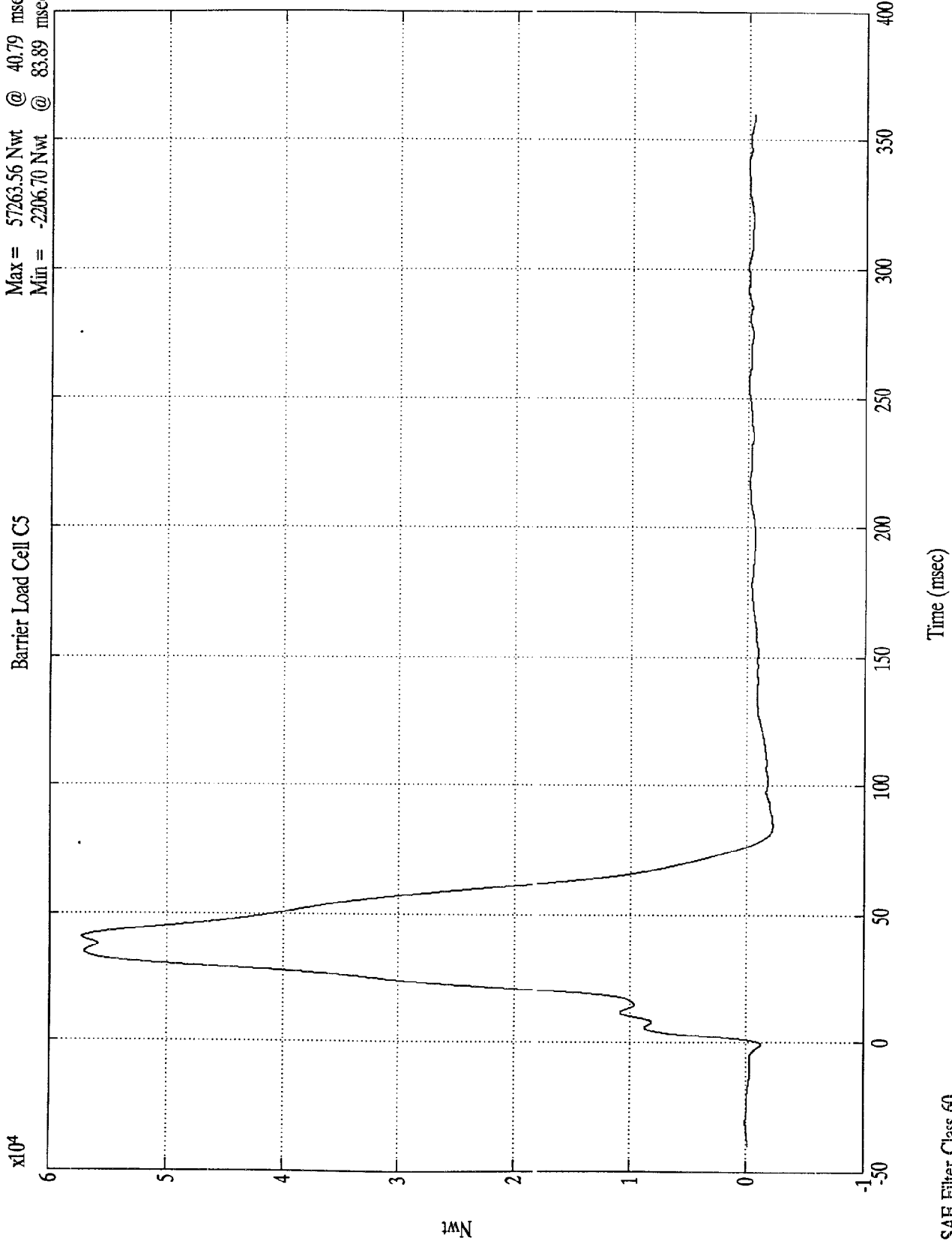


SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell C5
Max = 57263.56 Nwt @ 40.79 msec
Min = -2206.70 Nwt @ 83.89 msec



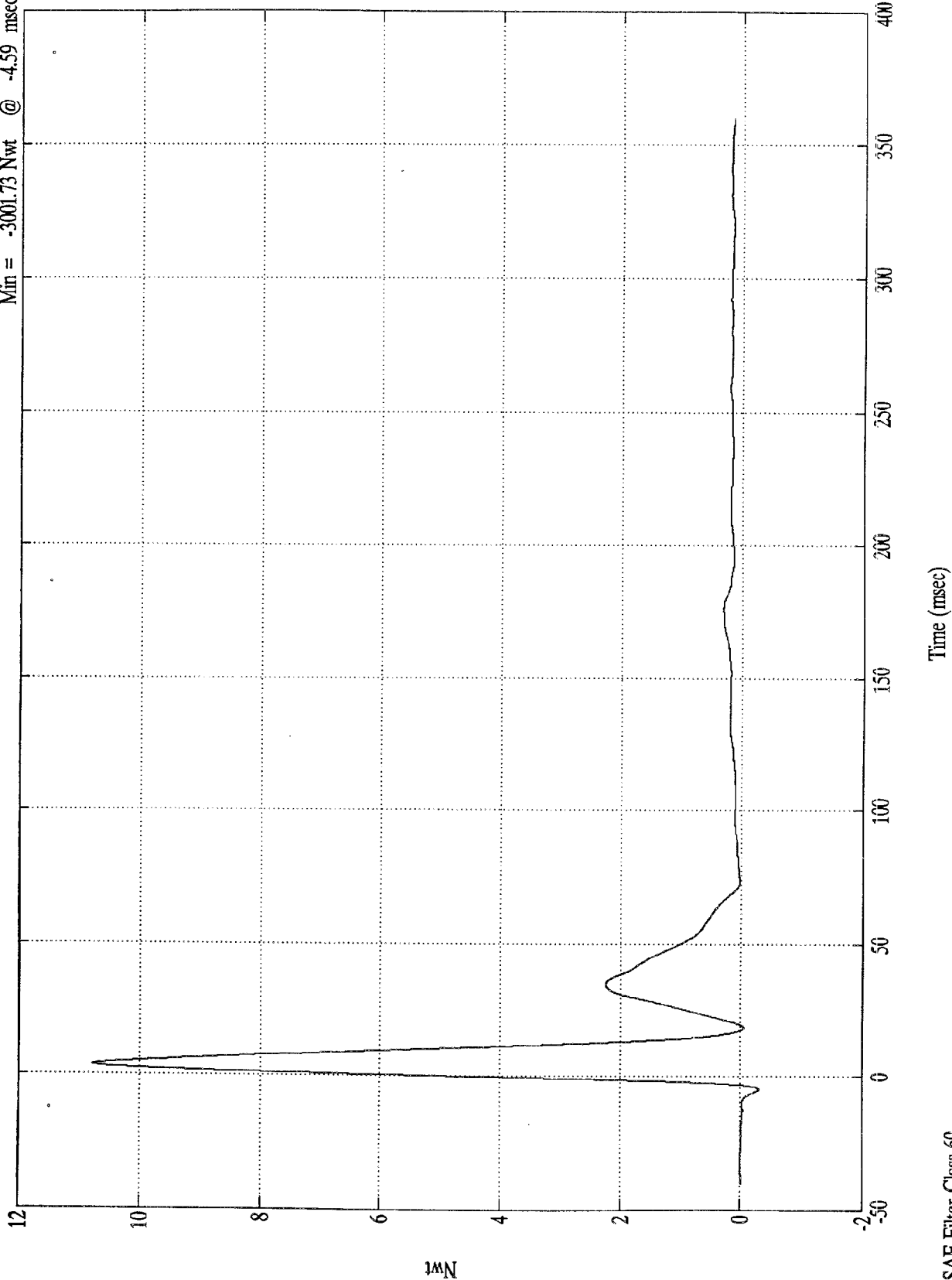
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 107792.25 Nwt @ 3.79 msec
Min = -3001.73 Nwt @ -4.59 msec

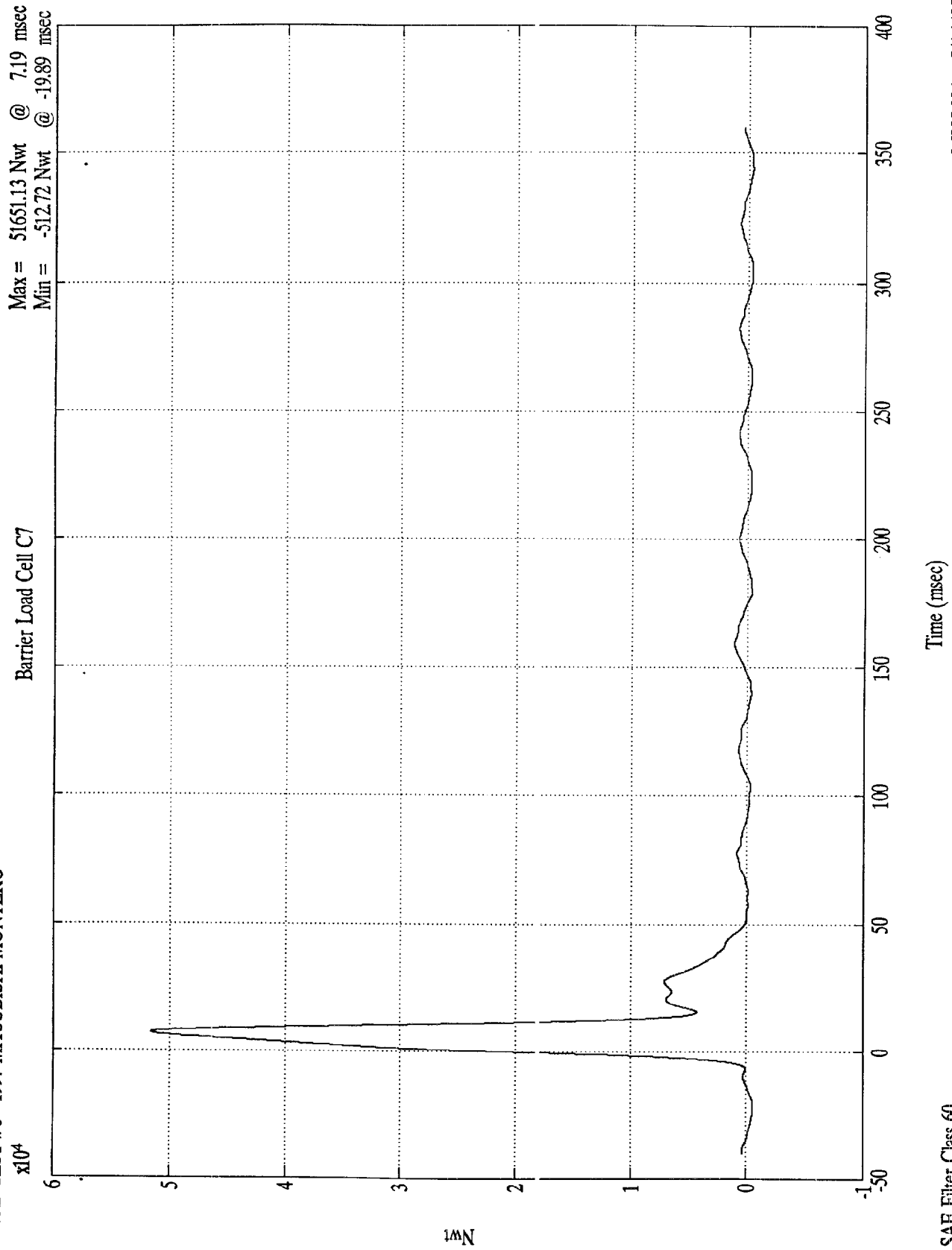
Barrier Load Cell C6



SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO



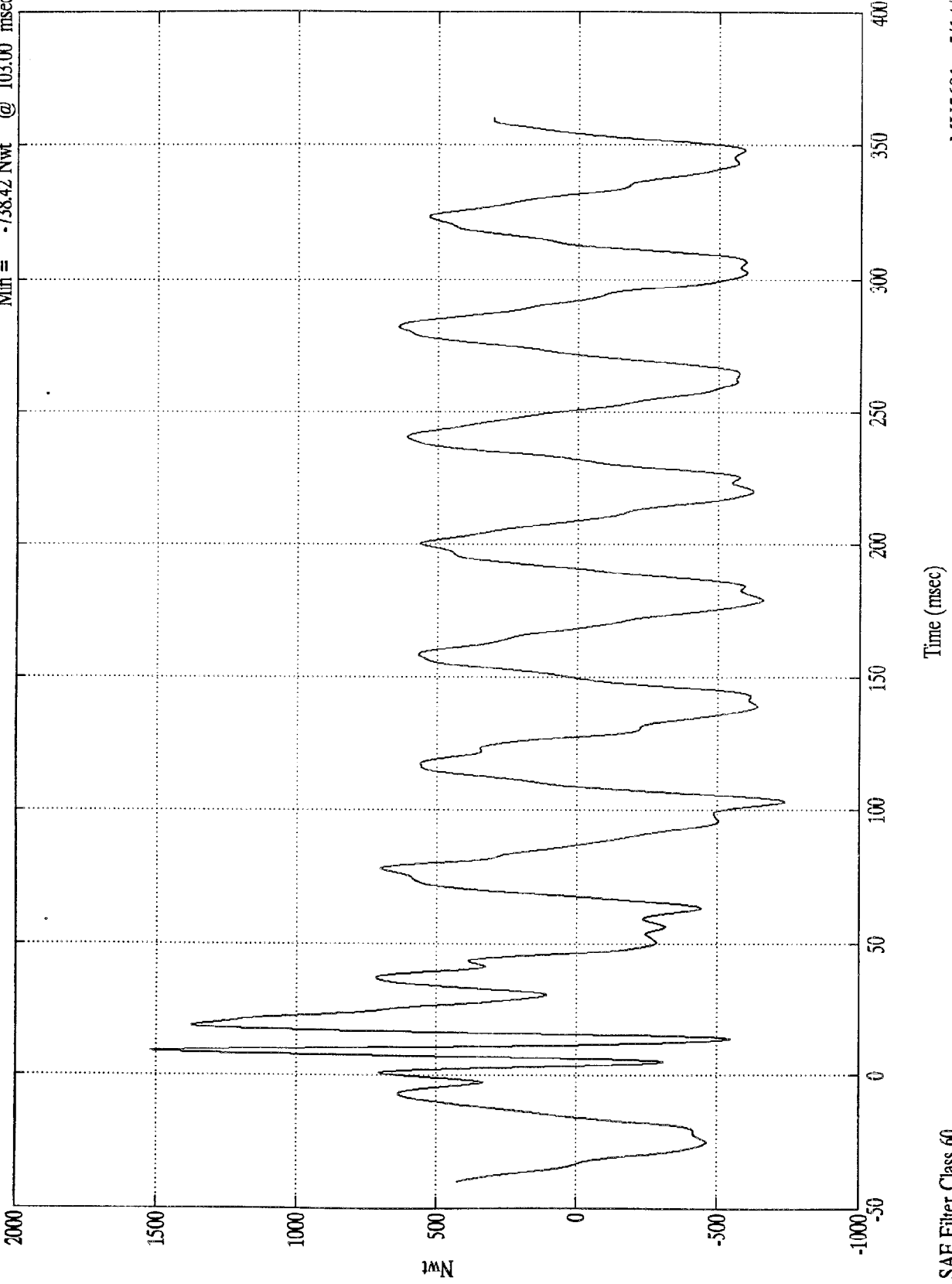
MV5601 - 5/14/97

Nwt

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 1519.68 Nwt @ 9.30 msec
Min = -738.42 Nwt @ 103.00 msec

Barrier Load Cell C8



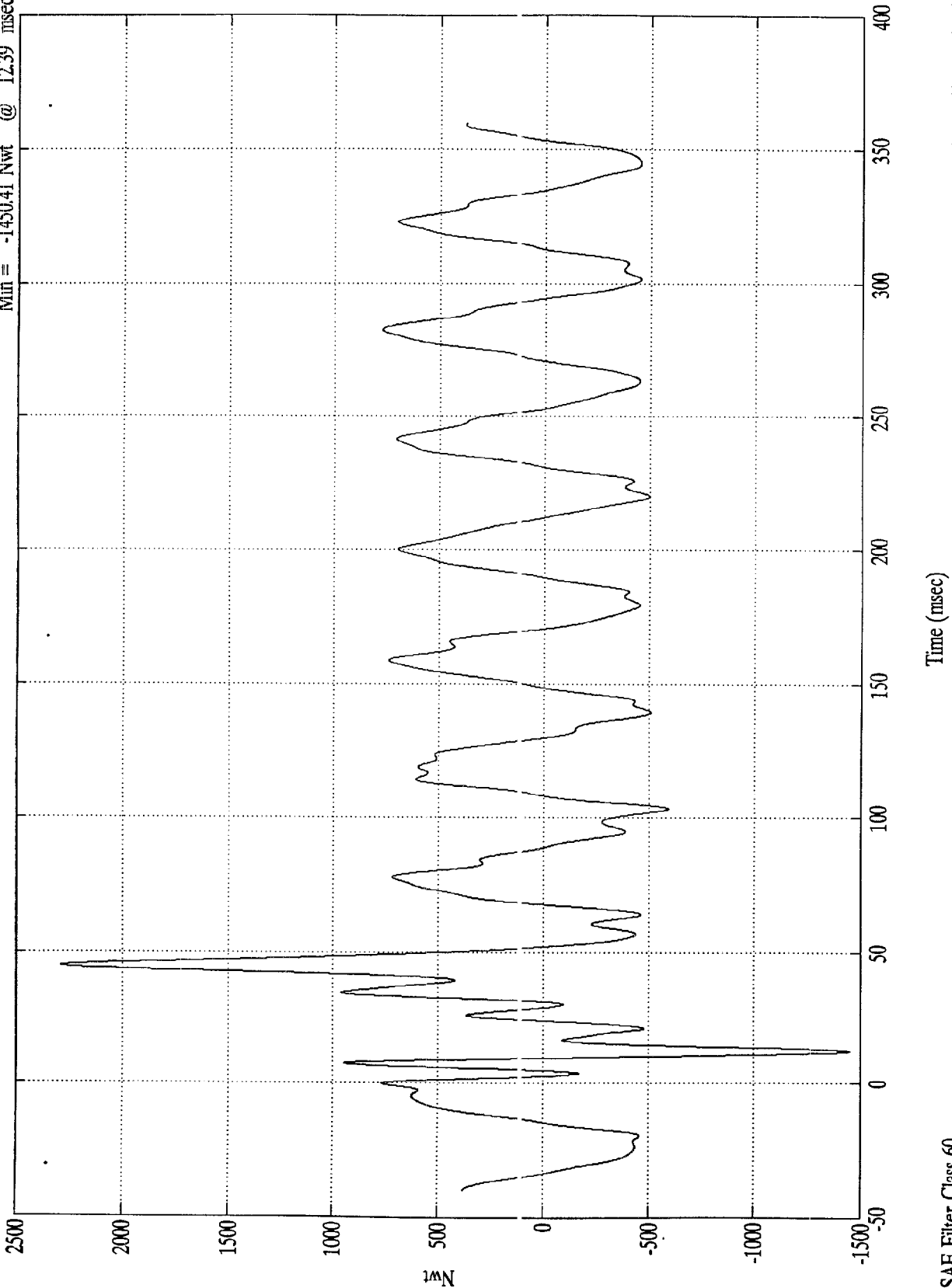
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 2291.62 Nwt @ 44.70 msec
Min = -1450.41 Nwt @ 12.39 msec

Barrier Load Cell C9



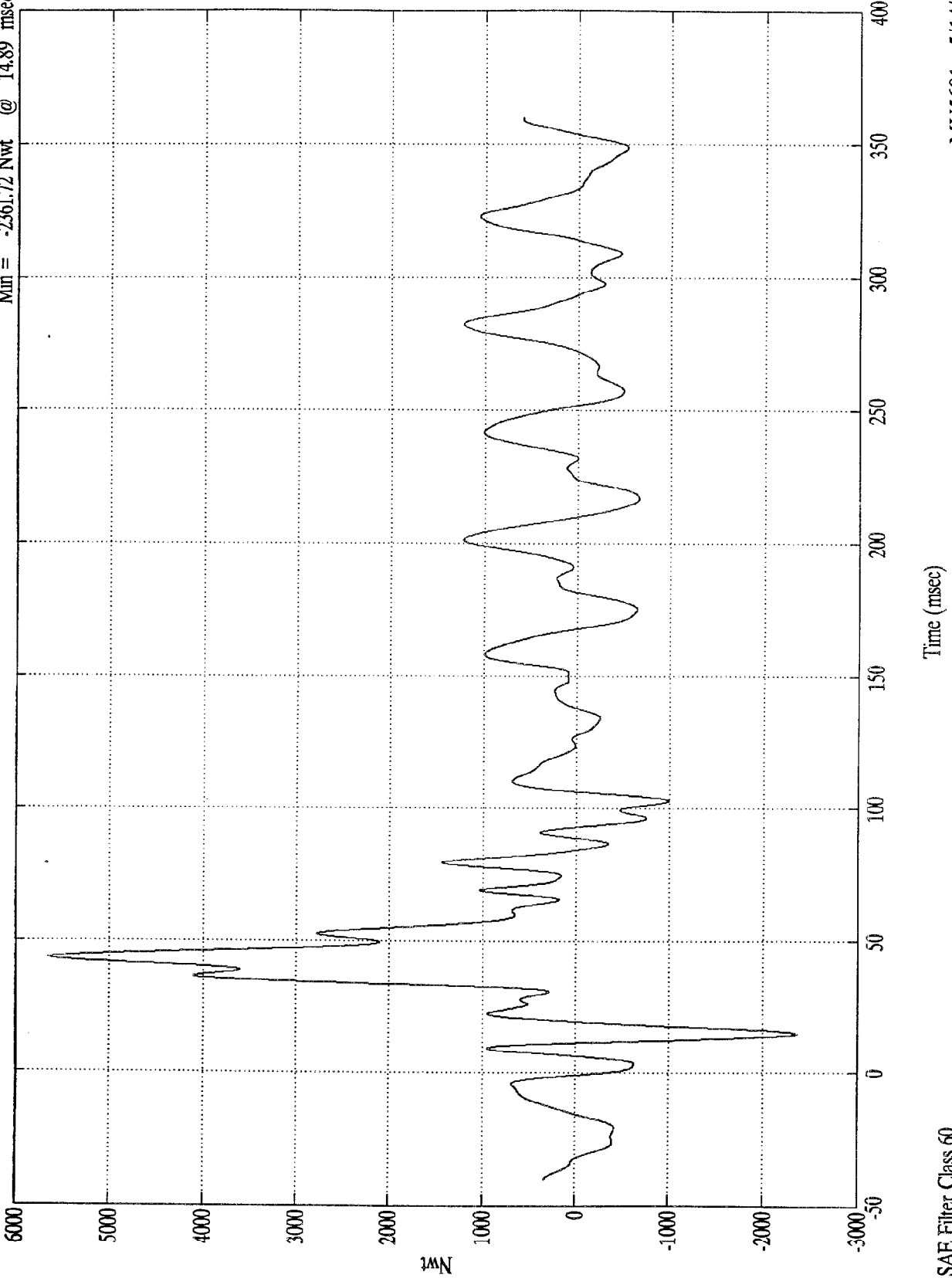
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 5654.24 Nwt @ 43.19 msec
Min = -2361.72 Nwt @ 14.89 msec

Barrier Load Cell D1



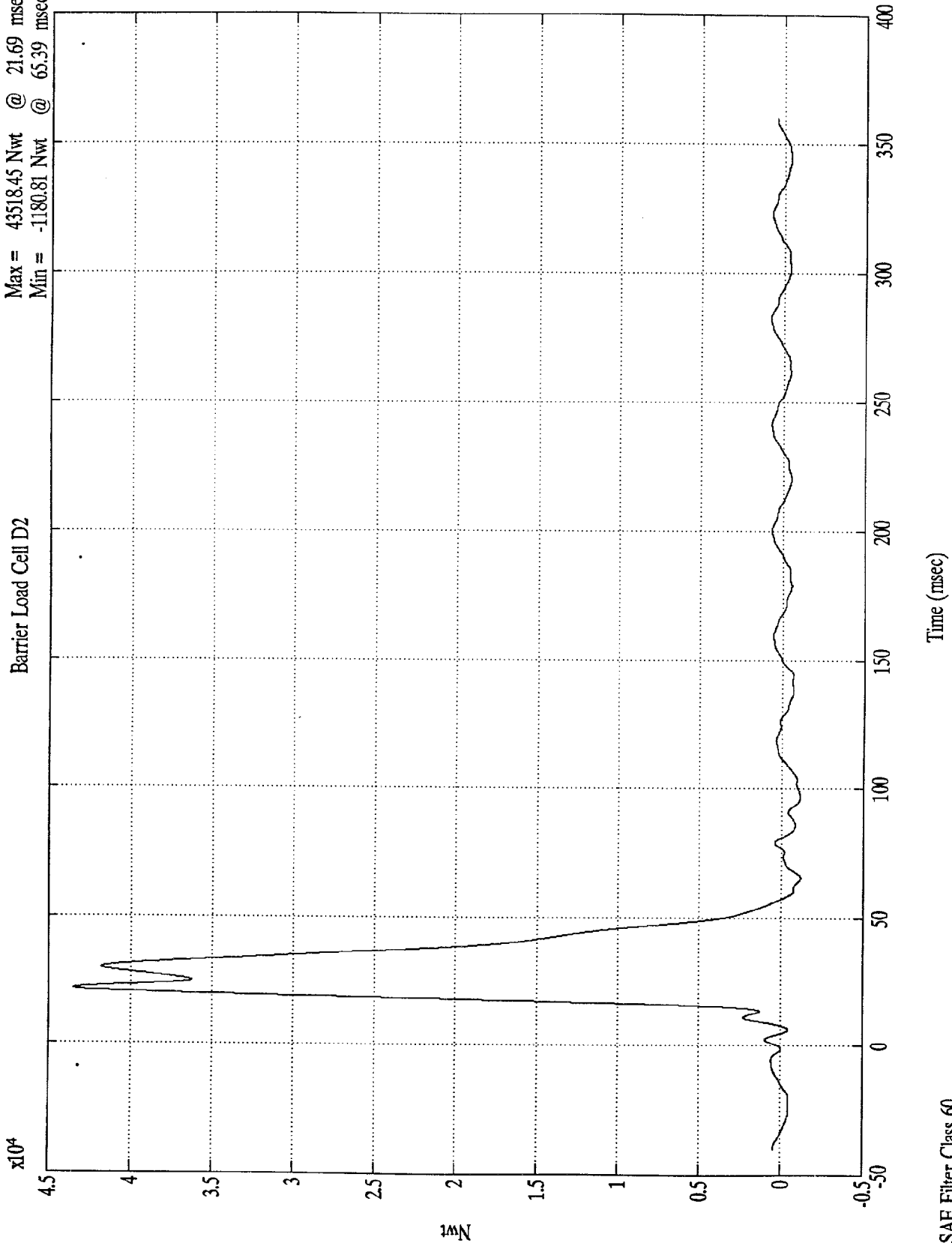
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 43518.45 Nwt @ 21.69 msec
Min = -1180.81 Nwt @ 65.39 msec

Barrier Load Cell D2



SAE Filter Class 60

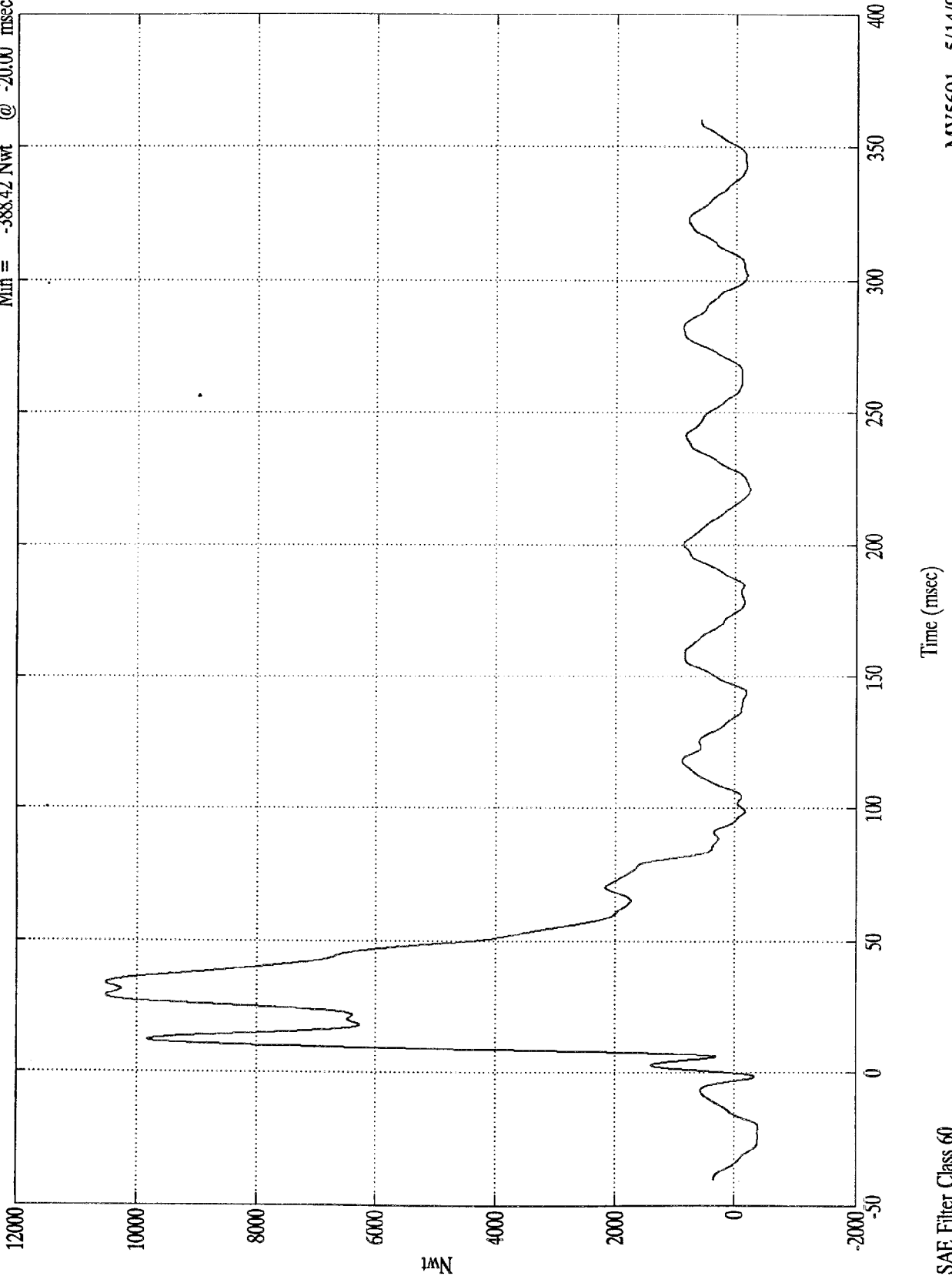
Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell D3

Max = 10522.34 Nwt @ 33.70 msec
Min = -388.42 Nwt @ -20.00 msec



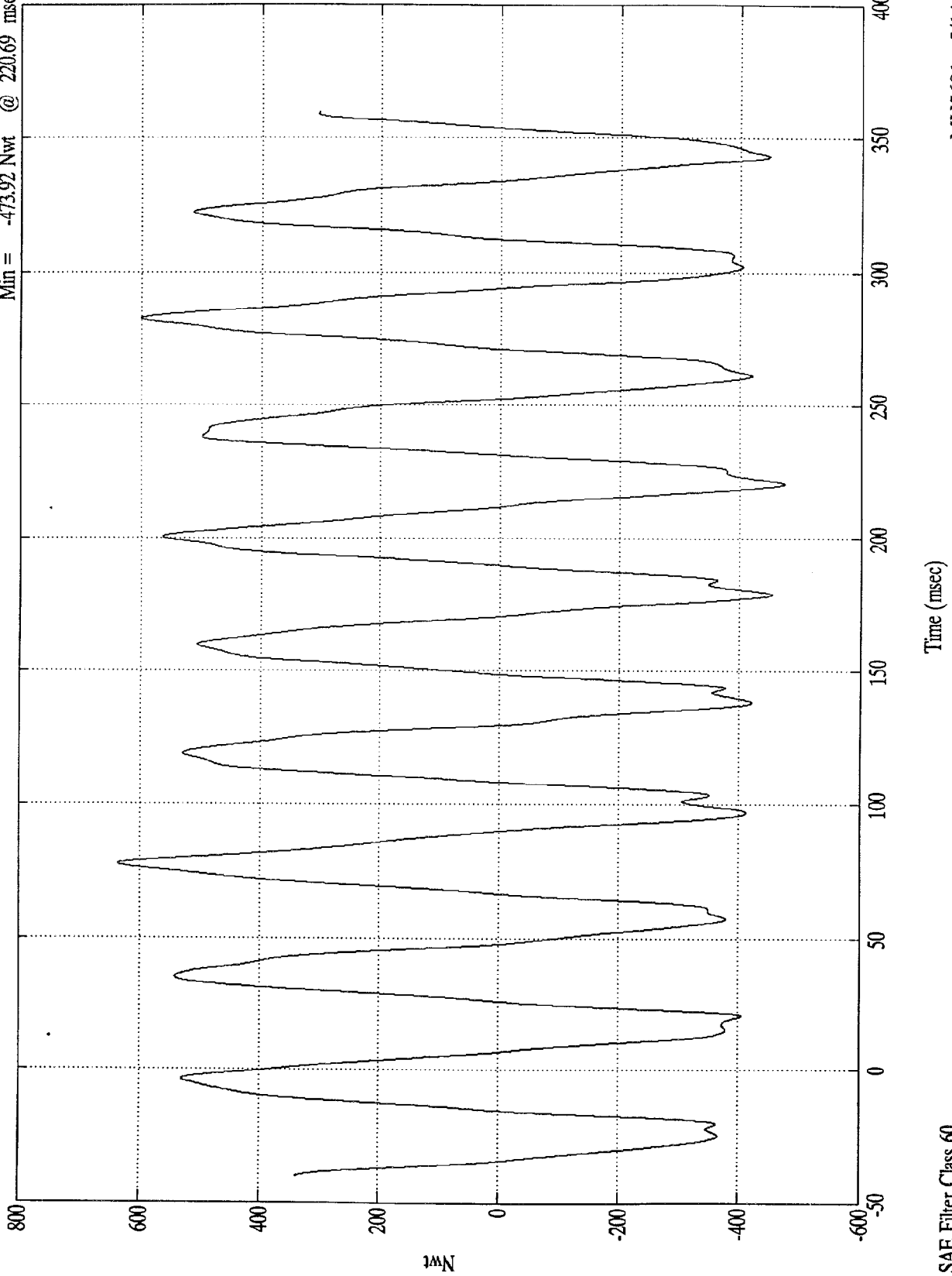
SAE Filter Class 60

Time (msec)

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell D4
Max = 636.11 Nwt @ 77.90 msec
Min = -473.92 Nwt @ 220.69 msec



SAE Filter Class 60

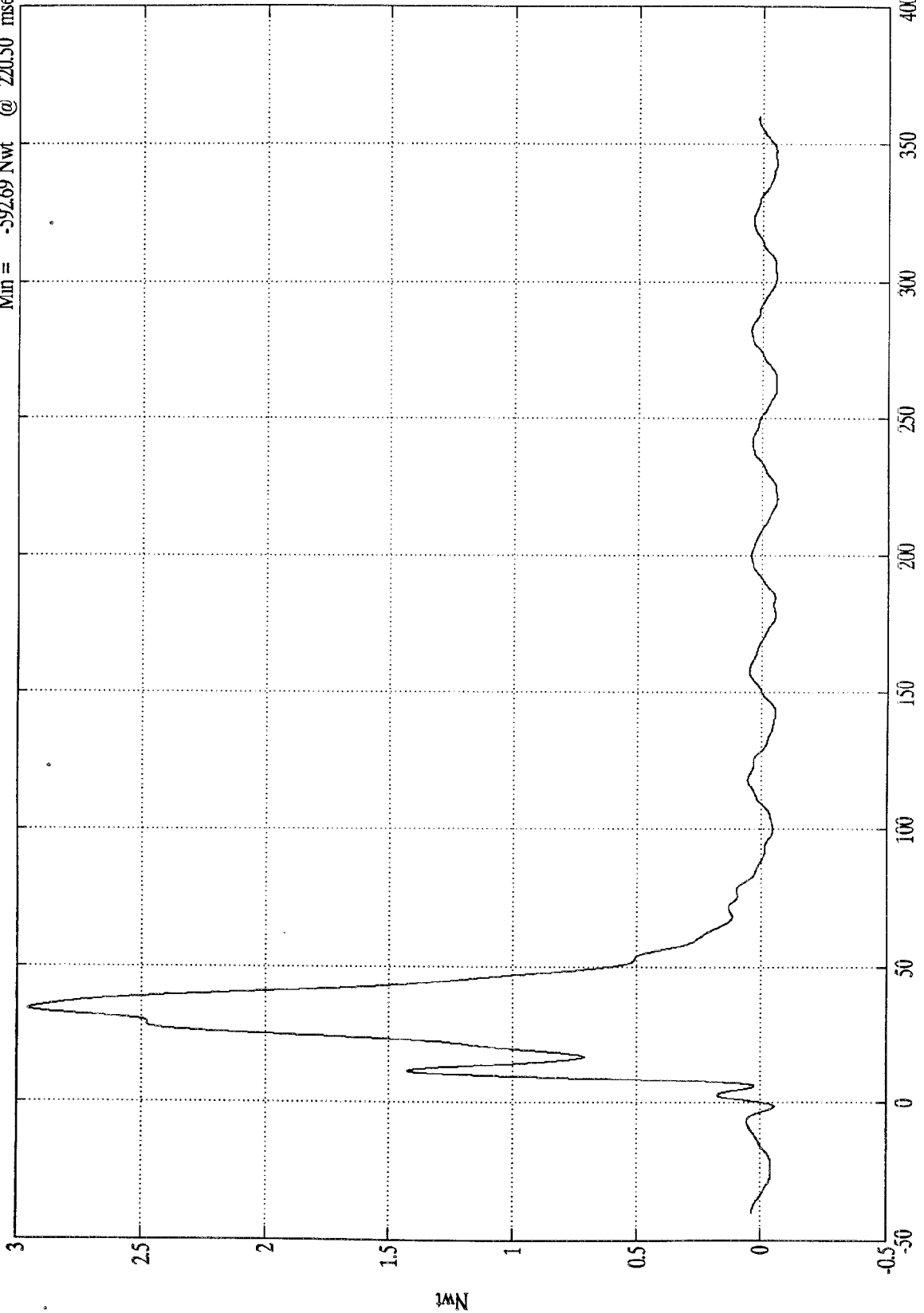
MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 29558.20 Nwt @ 34.00 msec
Min = -592.69 Nwt @ 220.50 msec

Barrier Load Cell D5

x10⁴



Time (msec)

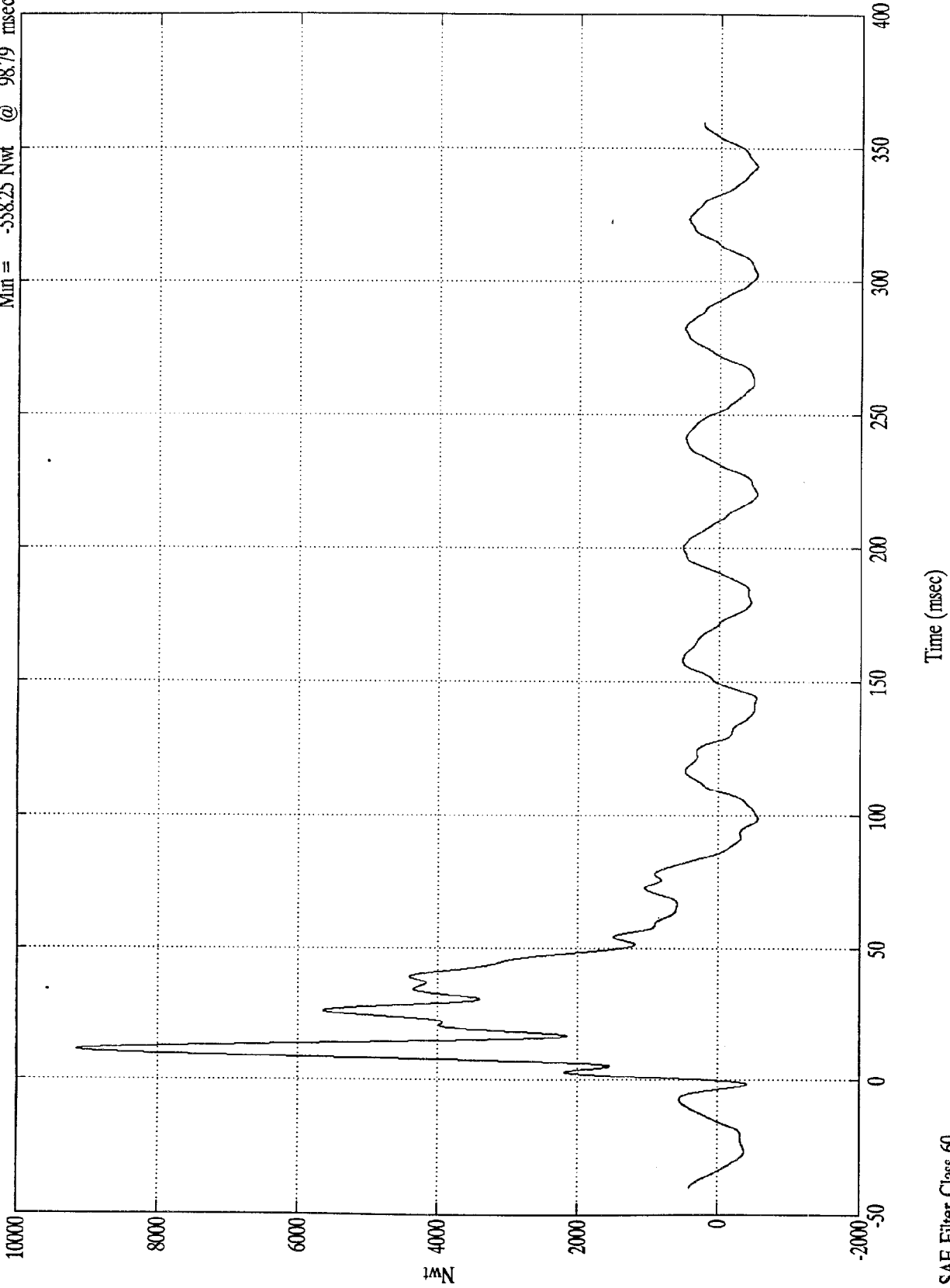
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 9151.34 Nwt @ 11.19 msec
Min = -558.25 Nwt @ 98.79 msec

Barrier Load Cell D6

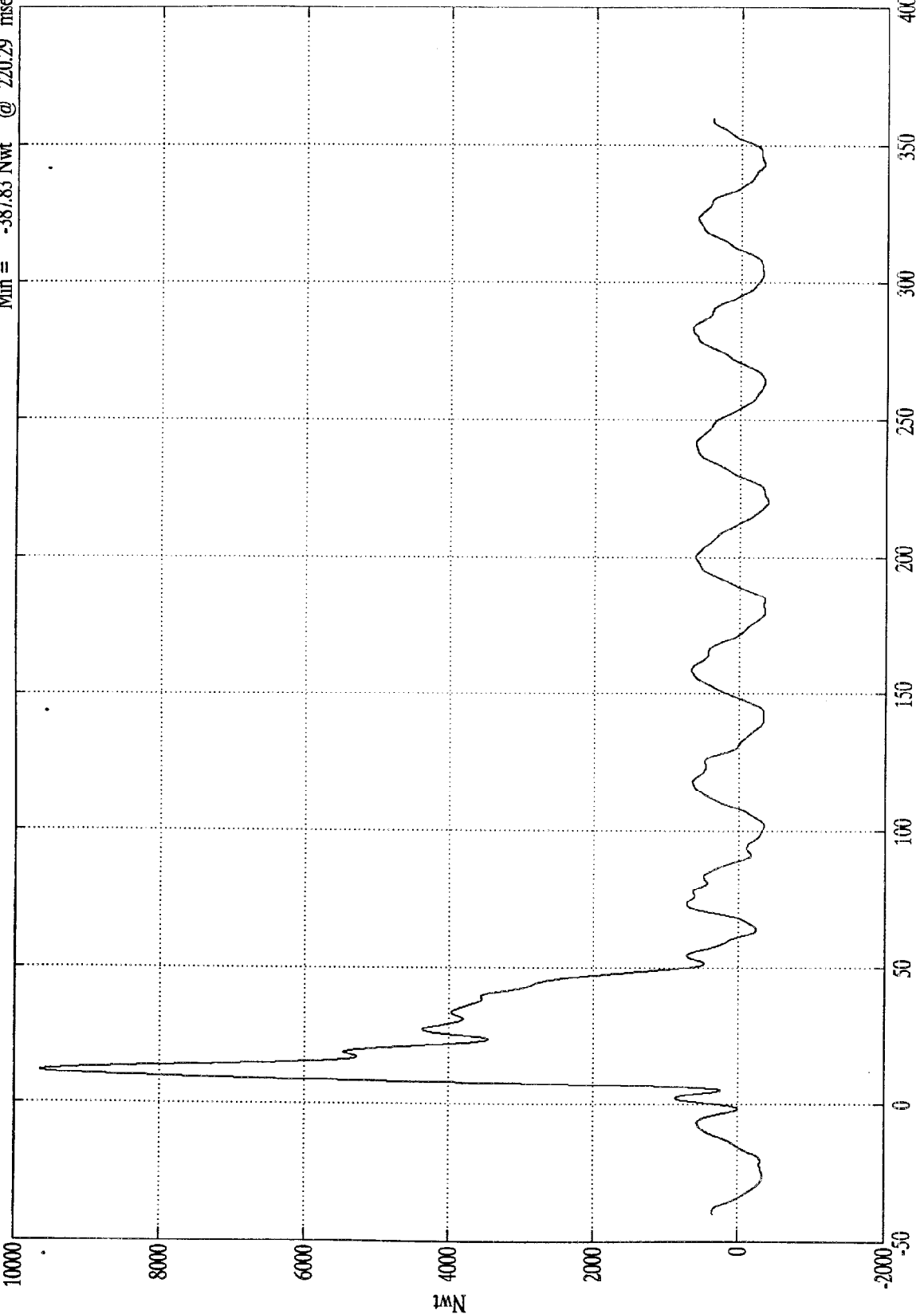


SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell D7
Max = 9639.41 Nwt @ 11.89 msec
Min = -387.83 Nwt @ 220.29 msec



Time (msec)

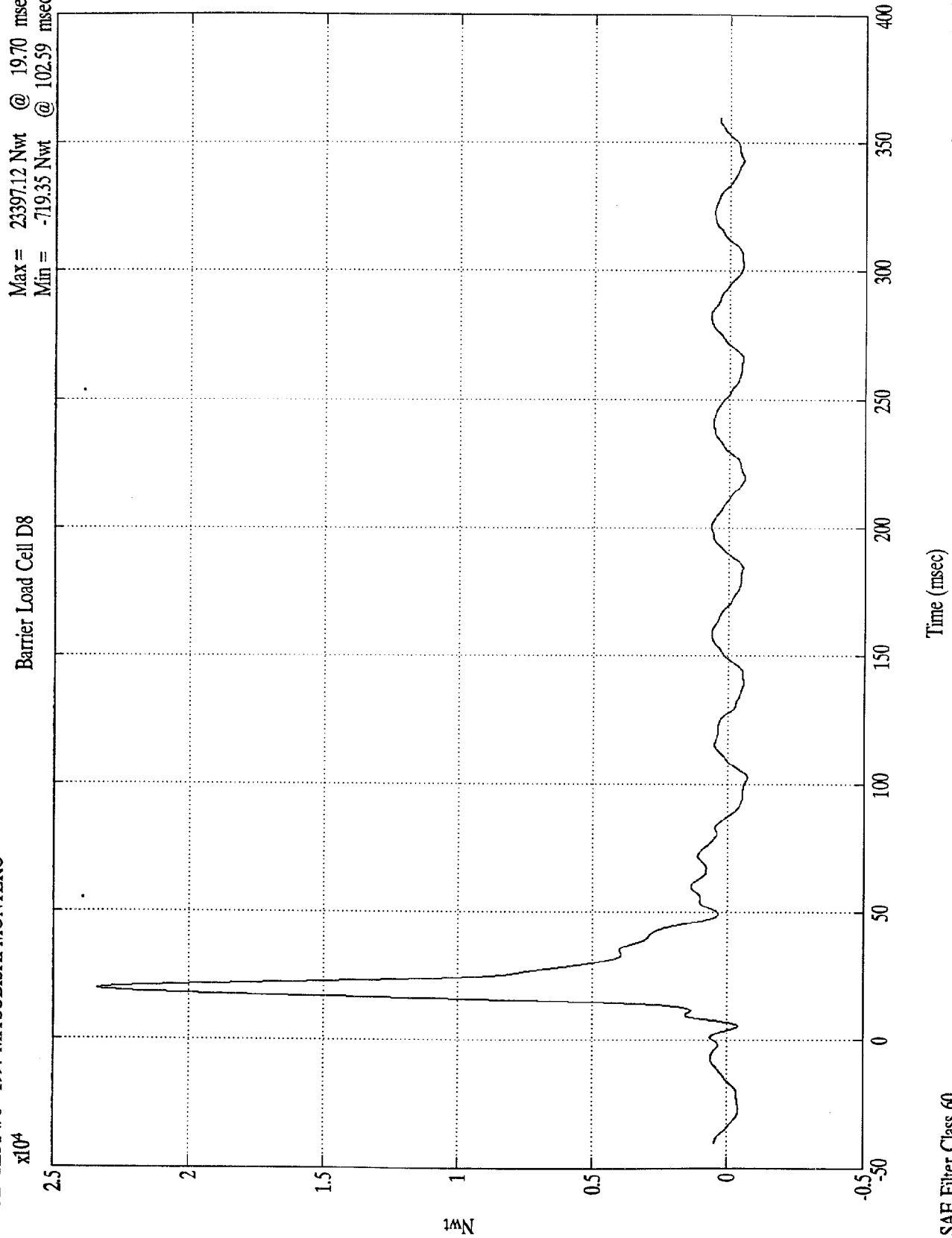
SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 23397.12 Nwt @ 19.70 msec
Min = -719.35 Nwt @ 102.59 msec

Barrier Load Cell D8

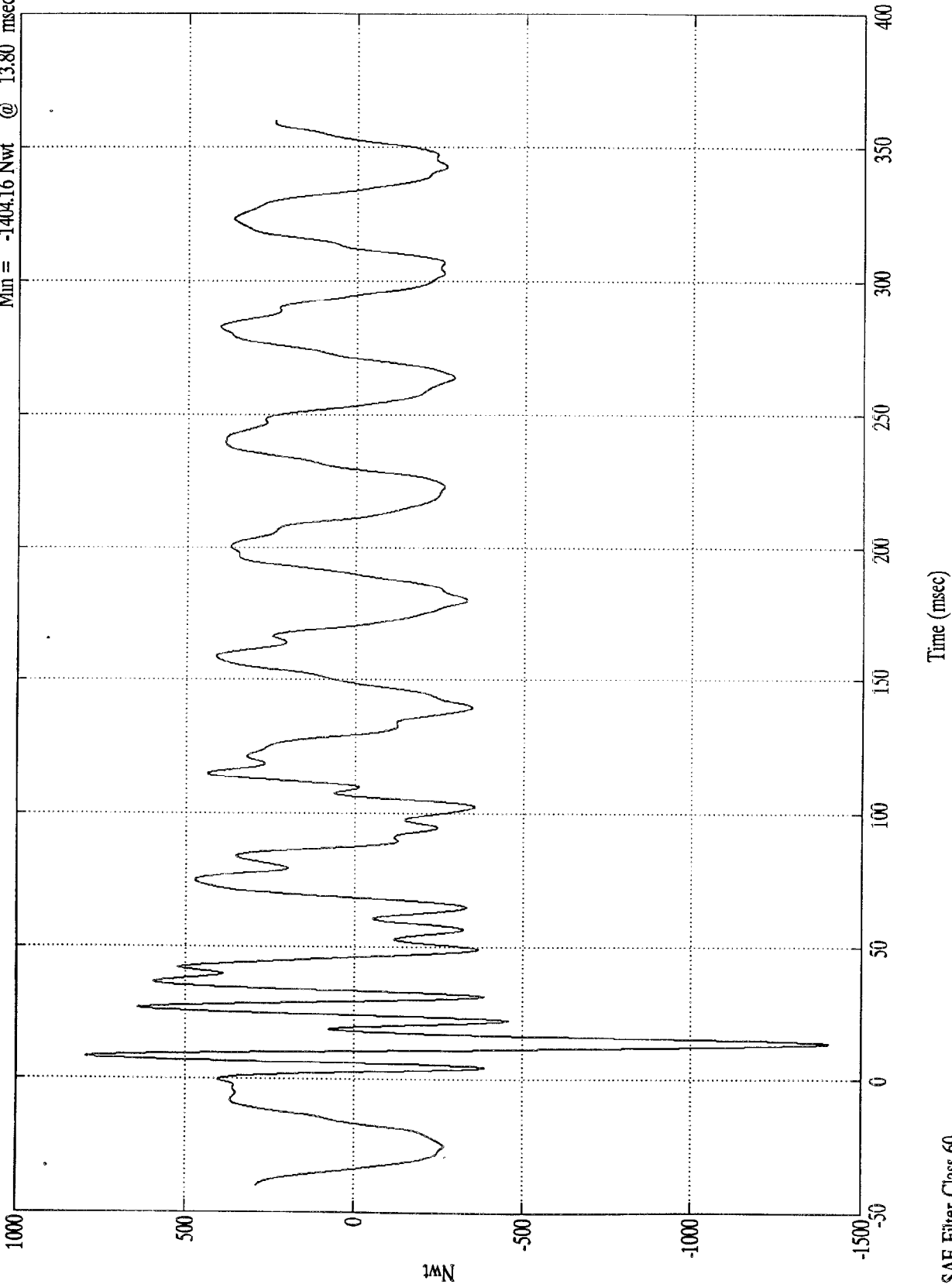


SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Barrier Load Cell D9
Max = 793.17 Nwt @ 8.39 msec
Min = -1404.16 Nwt @ 13.80 msec

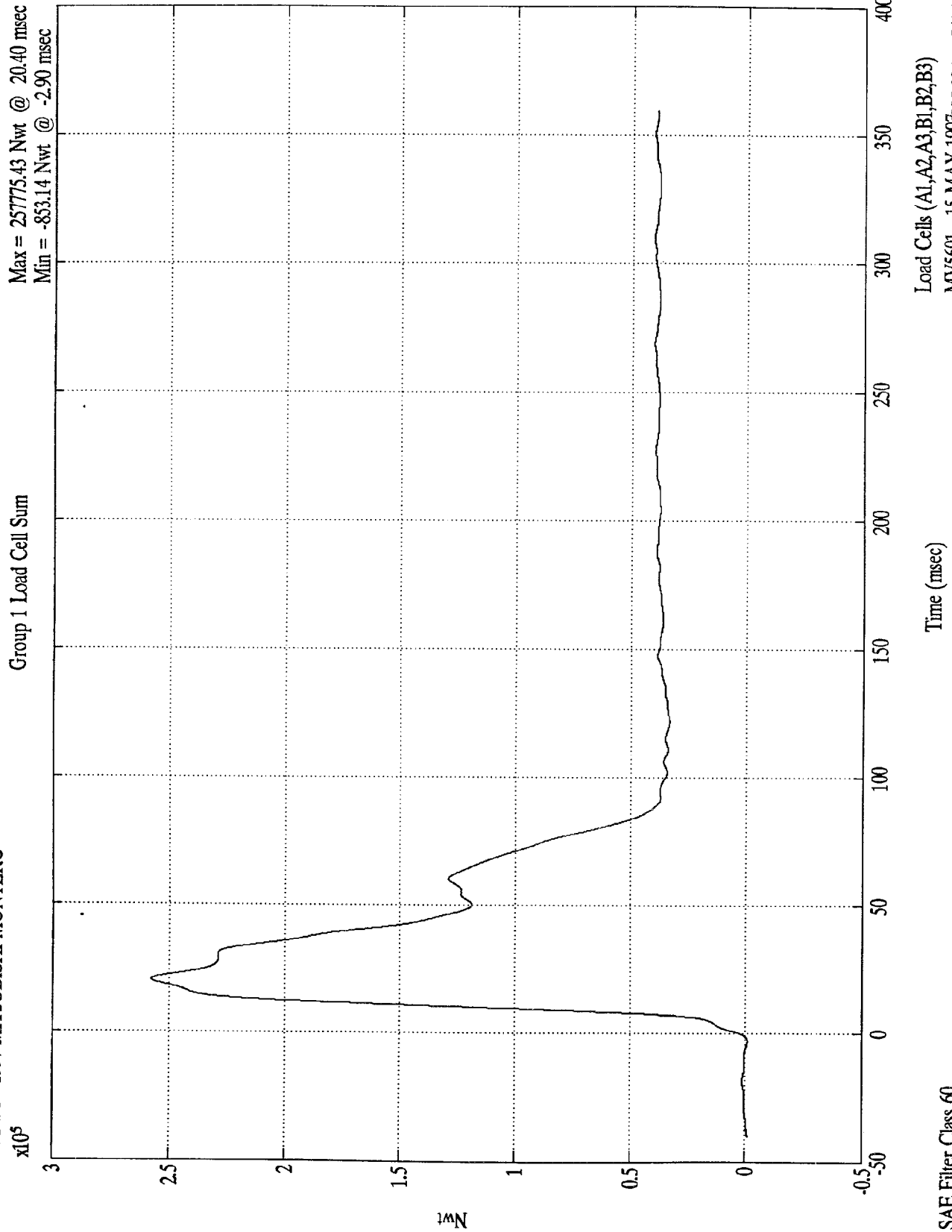


SAE Filter Class 60

MV5601 - 5/14/97

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Group 1 Load Cell Sum
Max = 25775.43 Nwt @ 20.40 msec
Min = -853.14 Nwt @ -2.90 msec



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

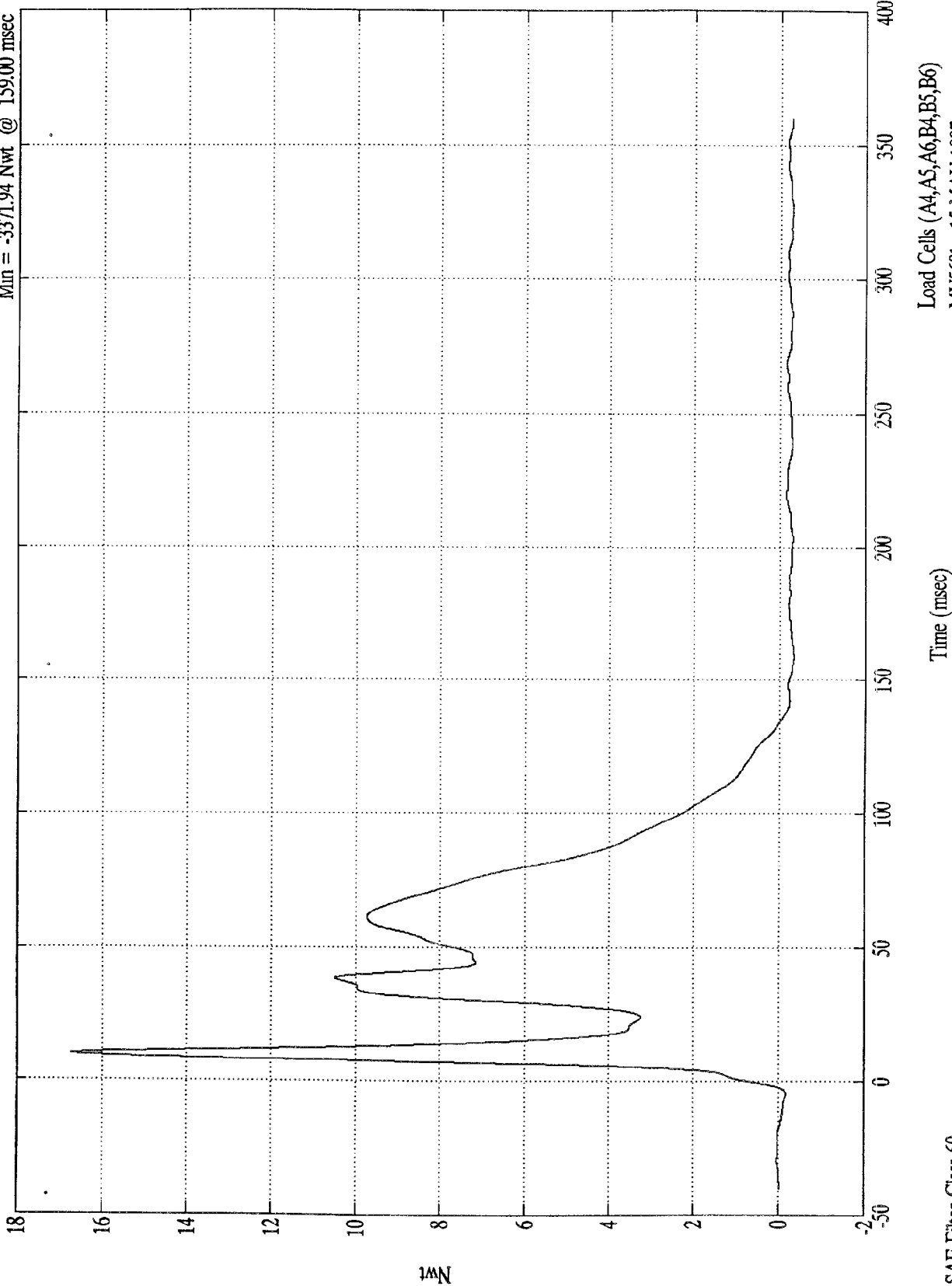
MV5601 - 15 MAY 1997 MV5601 - 5/14/97

SAE Filter Class 60

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Group 2 Load Cell Sum

Max = 167298.57 Nwt @ 10.20 msec
Min = -3371.94 Nwt @ 159.00 msec



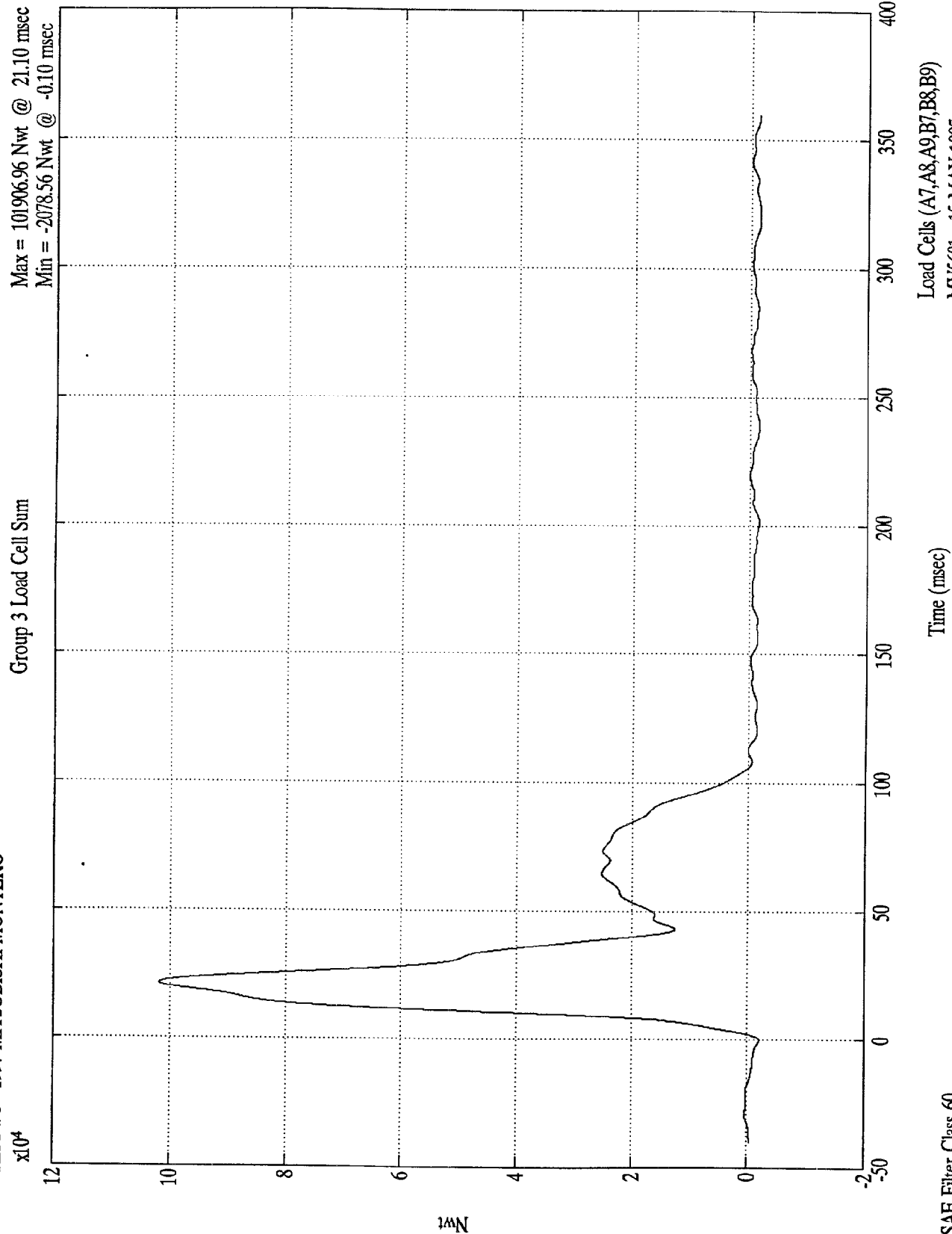
Load Cells (A4,A5,A6,B4,B5,B6)
MV5601 - 15 MAY 1997 MV5601 - 5/14/97

SAE Filter Class 60

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 101906.96 Nwt @ 21.10 msec
Min = -2078.56 Nwt @ -0.10 msec

Group 3 Load Cell Sum



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

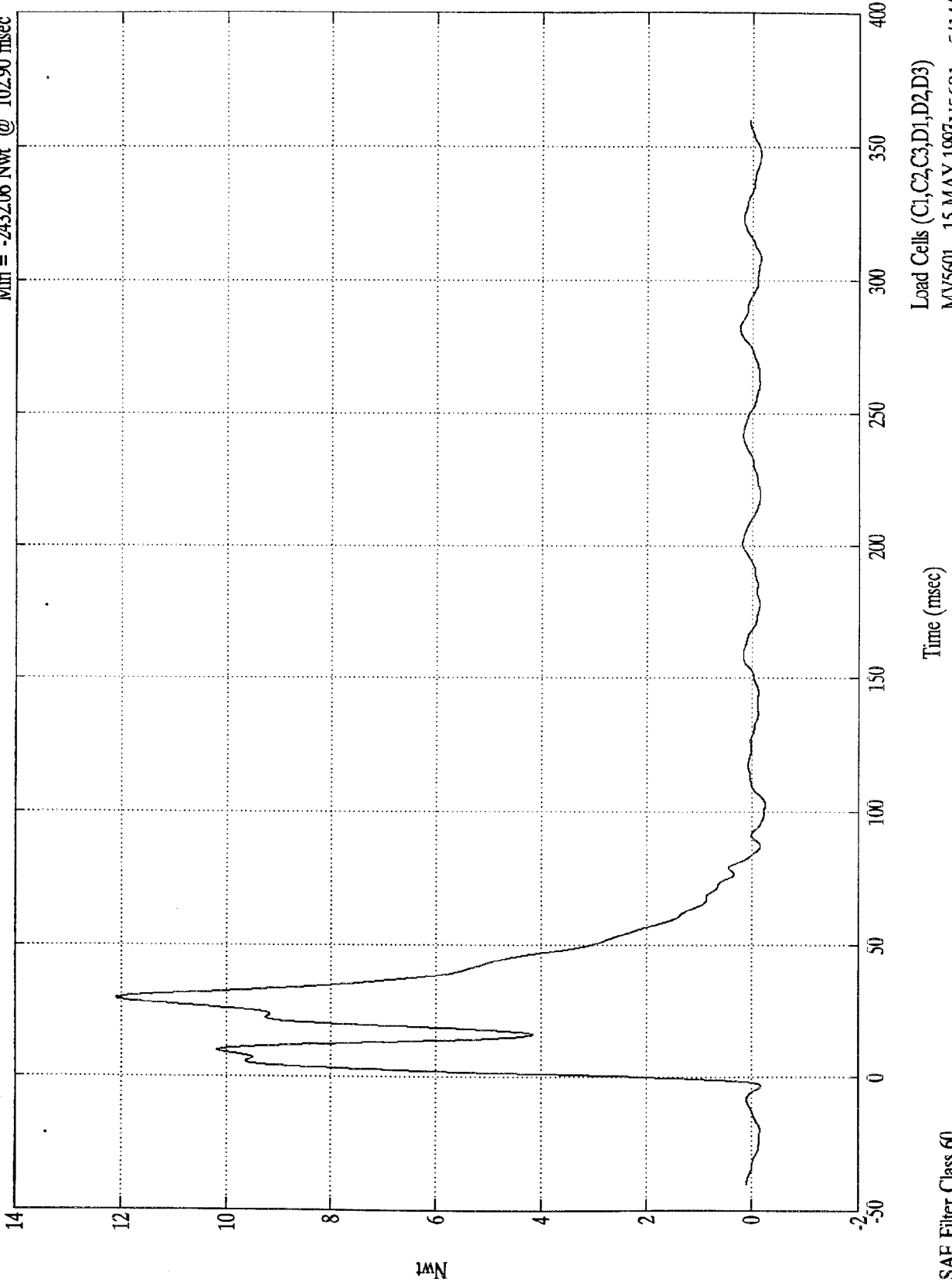
MV5601 - 15 MAY 1997

SAE Filter Class 60

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Group 4 Load Cell Sum

Max = 120844.59 Nwt @ 29.50 msec
Min = -2432.06 Nwt @ 102.90 msec



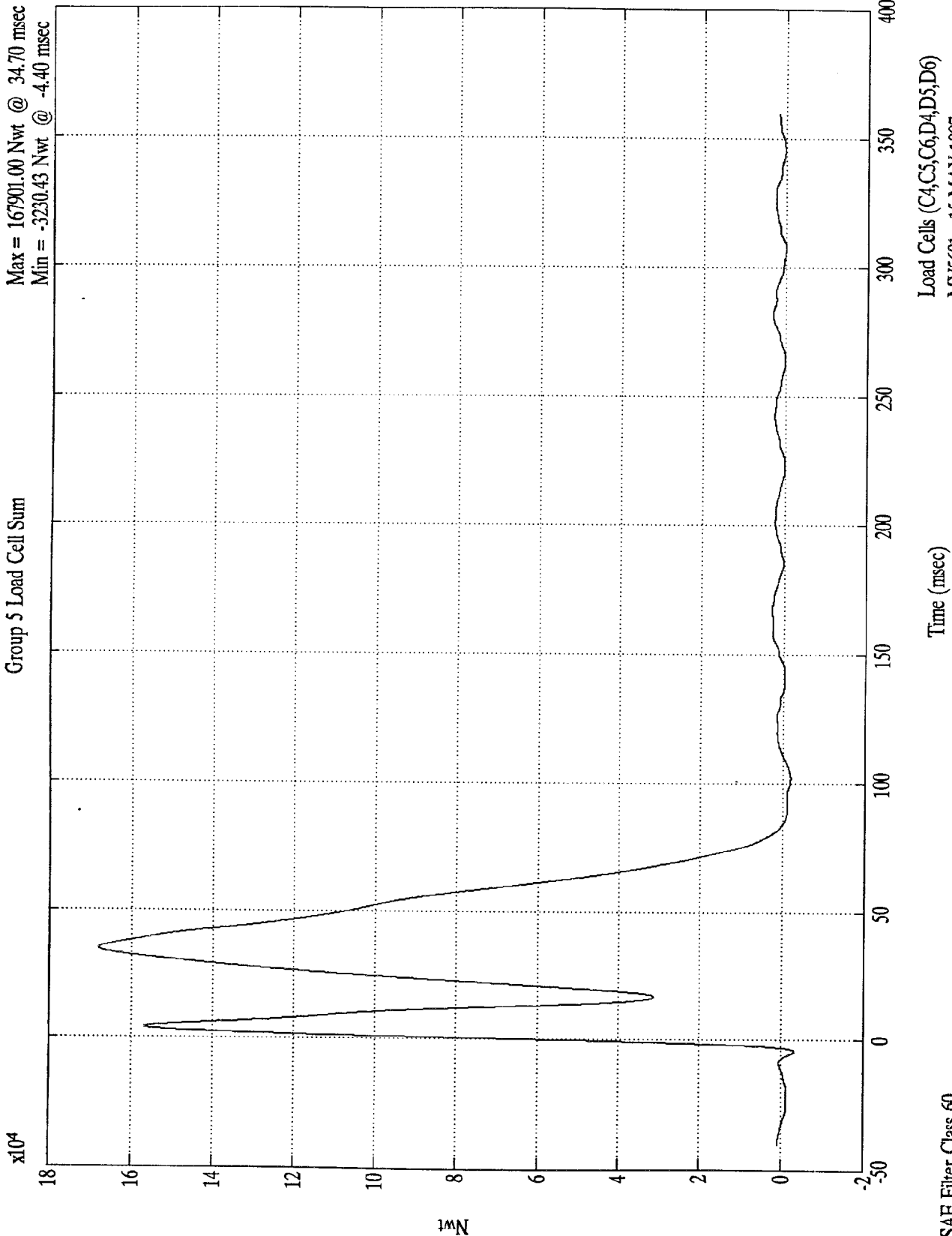
Load Cells (C1,C2,C3,D1,D2,D3)
MV5601 - 15 MAY 1997

SAE Filter Class 60

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 167901.00 Nwt @ 34.70 msec
Min = -3230.43 Nwt @ -4.40 msec

Group 5 Load Cell Sum



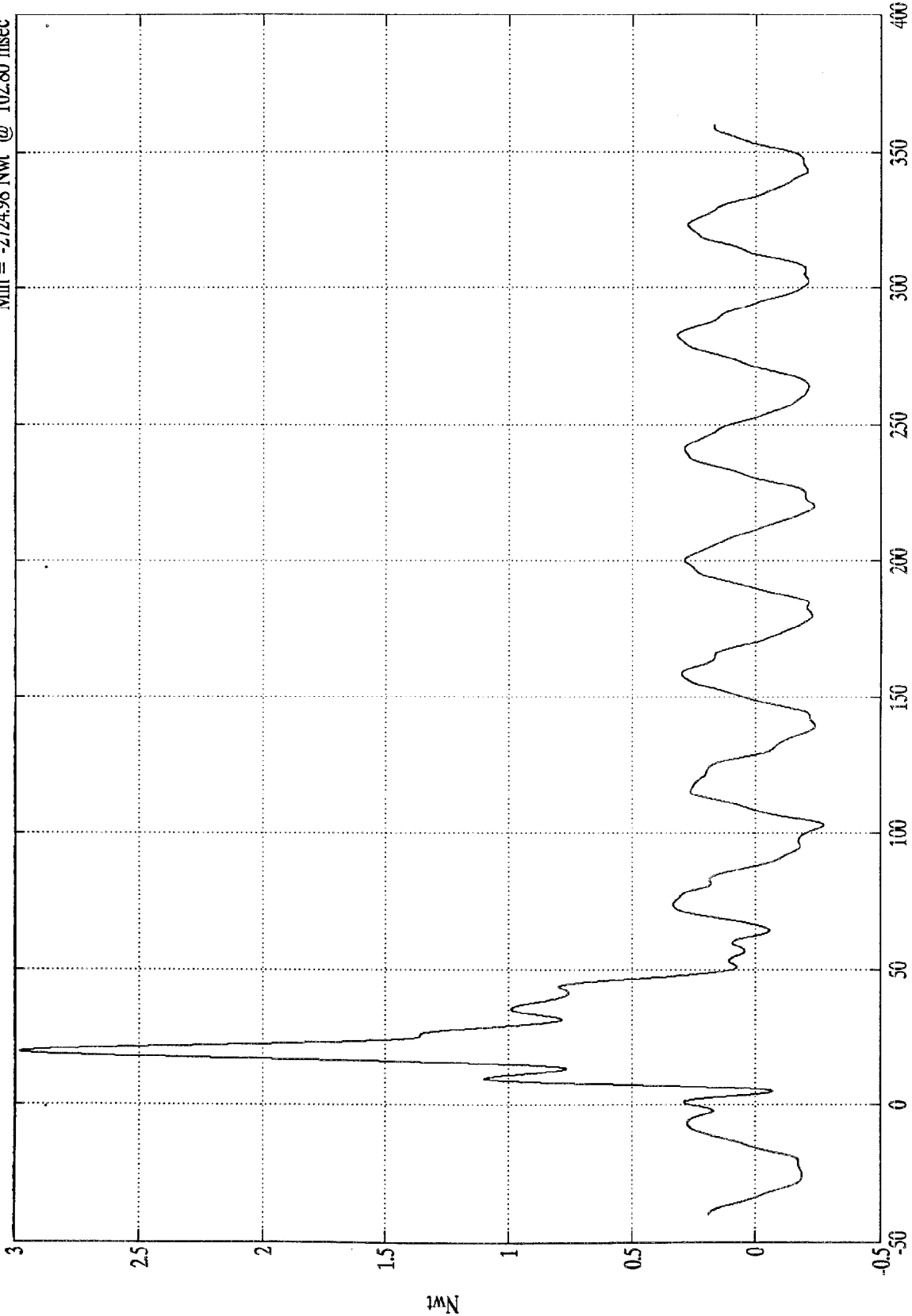
Load Cells (C4,C5,C6,D4,D5,D6)
MV5601 - 15 MAY 1997

SAE Filter Class 60

NCAP TEST #8 - 1997 MITSUBISHI MONTERO

Max = 29793.39 Nwt @ 19.50 msec
Min = -2724.98 Nwt @ 102.80 msec

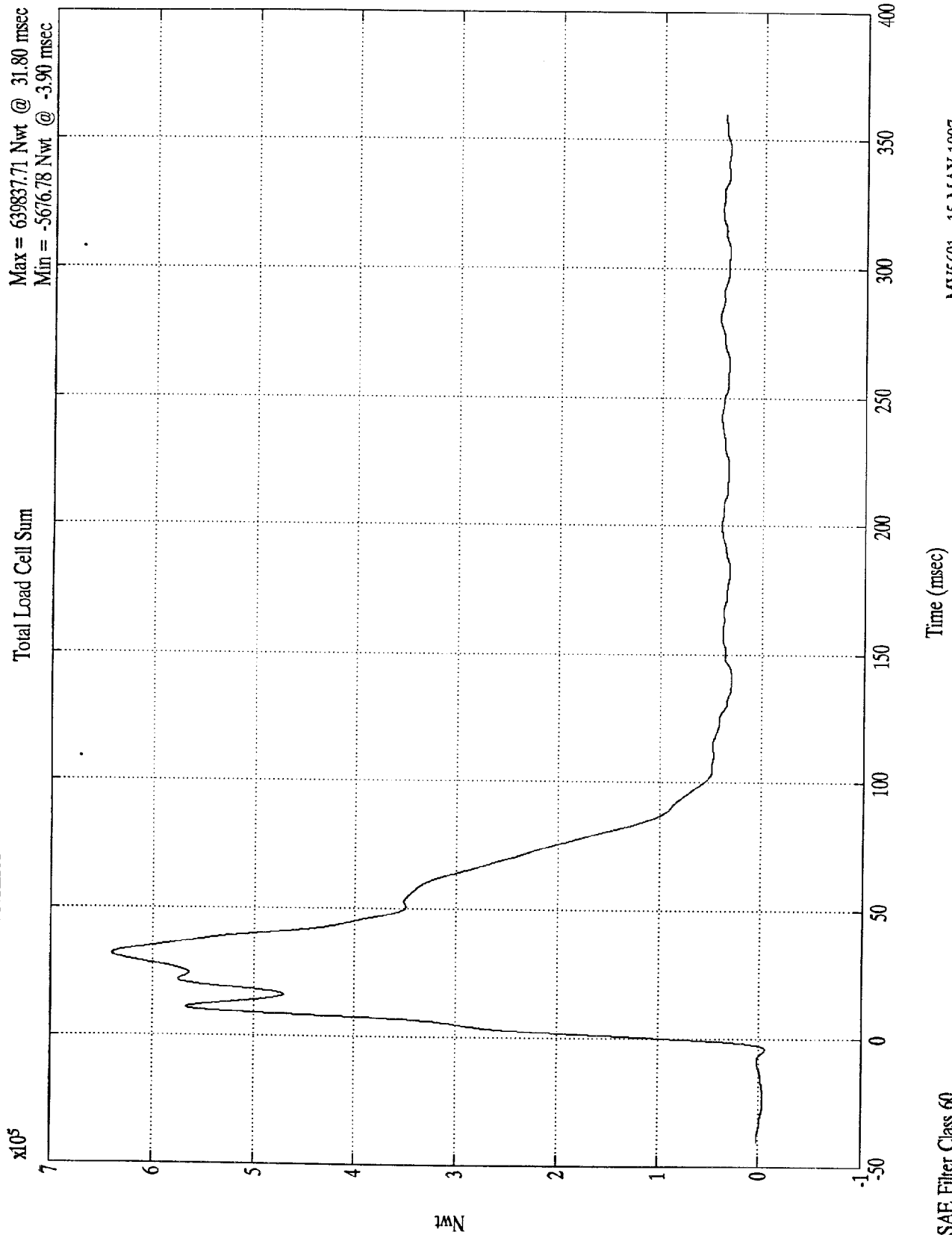
Group 6 Load Cell Sum



Load Cells (C7,C8,C9,D7,D8,D9)
MV5601 - 15 MAY 1997

SAE Filter Class 60

NCAP TEST #8 - 1997 MISTUBISHI MONTERO



SAE Filter Class 60

MV5601 - 15 MAY 1997 MV5601 - 5/14/97

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 SRL Corporation. A summary of the test results, and Part 572 specifications are included in this Appendix.

Dummy serial numbers and certification dates are:

<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	245	4/10/97
#2/Right Front Passenger	064	4/10/97

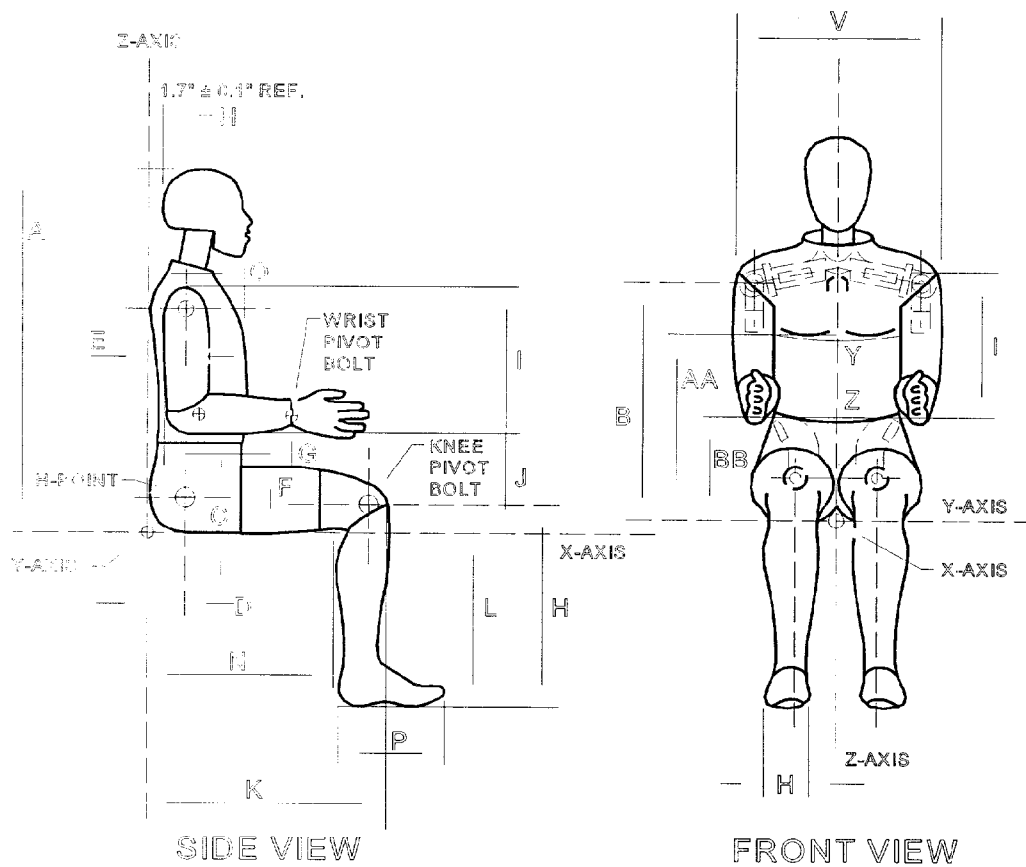
Electronic Test Equipment

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 15

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: S572.91(A)(6))

CALSPAN CORPORATION
Transportation Sciences Center

PART 572E
HEAD DROP TEST

Dummy Serial Number 245
Calspan Sequential Test Number 2
Date April 10,1997
Workfile 245297.HDP

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Peak Resultant Acceleration	225-275 G's	226.1
Peak Lateral Acceleration	15 G's Max	3.2
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION
 Transportation Sciences Center

PART 572E
 NECK FLEXION TEST

Dummy Serial Number	245	
Calspan Sequential Test Number	2	
Date	April 01, 1997	6 Axis Neck Transducer
Workfile	245297.NFL	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	29
Impact Velocity		22.60 - 23.40 Ft/s	23.20
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	24.10
	20 ms	17.60 - 22.60 G's	20.12
	30 ms	12.50 - 18.50 G's	14.90
Max Pendulum G's Above 30 ms		29 G's Max	14.90
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	36.38
D Plane Rotation	Max	64 - 78 Deg	66.45
	Time	57 - 64 ms	60.75
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	73.71
	Time	47 - 58 ms	52.00
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	119.00
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	97.25

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION
Transportation Sciences Center

PART 572E
NECK EXTENSION TEST

Dummy Serial Number 245
 Calspan Sequential Test Number 2
 Date April 1, 1997
 Workfile 245297.NXT 6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	27
Impact Velocity		19.50 - 20.30 Ft/s	19.70
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	17.97
	20 ms	14.00 - 19.00 G's	15.70
	30 ms	11.00 - 16.00 G's	12.92
Max Pendulum G's Above 30 ms		22 G's Max	12.92
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	40.00
D Plane Rotation	Max	81 - 106 Deg	89.82
	Time	72 - 82 ms	77.50
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-45.32
	Time	65 - 79 ms	69.88
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	150.13
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	136.75

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION
Transportation Sciences Center

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 70
Calspan Sequential Test Number 30
Date April 10, 1997
Workfile 245297.TH3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	30
Pendulum Velocity	21.6 - 22.4 Ft/s	21.90
Maximum Deflection	2.50 - 2.86 in	2.52
Maximum Resistive Force	1160 - 1325 Lbs	1264.44
Internal Hysteresis	69 - 85 %	75.3

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION
Transportation Sciences Center

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 245
Calspan Sequential Test Number 2
Date April 10, 1997
Workfile 245297

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 -1300 Lbs	1226.0
RIGHT KNEE		
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 -1300 Lbs	1214.0

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION

Transportation Sciences Center

PART 572E EXTERNAL DIMENSIONS

Dummy Serial Number 245
Calspan Sequential Test Number 2
Date April 10,1997

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			30
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	39.0
Waist Circumference	Z	32.9 - 34.1 in	33.7
Chest Depth	O	8.4 - 9.0 in	8.4
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.9
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.3
Popliteal Height	L	16.9 - 17.9 in	17.5
Knee Pivot Height	M	19.1 - 19.7 in	19.2
Foot Length	P	9.9 - 10.5 in	10.2
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.3
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION

Transportation Sciences Center

PART 572E HEAD DROP TEST

Dummy Serial Number 064
Calspan Sequential Test Number 2
Date March 30,1997
Workfile 064297.HDP

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Peak Resultant Acceleration	225-275 G's	270.4
Peak Lateral Acceleration	15 G's Max	14.4
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician: B. Swiccicki

CALSPAN CORPORATION

Transportation Sciences Center

PART 572E NECK FLEXION TEST

Dummy Serial Number 064
Calspan Sequential Test Number 2
Date March 31,1997
Workfile 064297.NFL

6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	30
Impact Velocity		22.60 - 23.40 Ft/s	23.20
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.66
	20 ms	17.60 - 22.60 G's	19.81
	30 ms	12.50 - 18.50 G's	15.13
Max Pendulum G's Above 30 ms		29 G's Max	15.13
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.25
D Plane Rotation	Max	64 - 78 Deg	64.34
	Time	57 - 64 ms	59.63
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	65.49
	Time	47 - 58 ms	52.00
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	115.38
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	100.75

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION
Transportation Sciences Center

PART 572E
NECK EXTENSION TEST

Dummy Serial Number 064
 Calspan Sequential Test Number 2
 Date March 31, 1997
 Workfile 064297.NXT 6 Axis Neck Transducer

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	30
Impact Velocity		19.50 - 20.30 Ft/s	19.70
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	19.37
	20 ms	14.00 - 19.00 G's	15.60
	30 ms	11.00 - 16.00 G's	11.54
Max Pendulum G's Above 30 ms		22 G's Max	11.54
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	41.88
D Plane Rotation	Max	81 - 106 Deg	88.9
	Time	72 - 82 ms	76.13
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-42.38
	Time	65 - 79 ms	72.13
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	150.00
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	142.63

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION
Transportation Sciences Center

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 064
Calspan Sequential Test Number 2
Date April 10, 1997
Workfile 064297.TH3

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	30
Pendulum Velocity	21.6 - 22.4 Ft/s	22.0
Maximum Deflection	2.50 - 2.86 in	2.53
Maximum Resistive Force	1160 - 1325 Lbs	1313.53
Internal Hysteresis	69 - 85 %	76.03

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION
Transportation Sciences Center

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 064
Calspan Sequential Test Number 2
Date April 18, 1997
Workfile 064297

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 -1300 Lbs	1213.0
RIGHT KNEE		
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	30
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 -1300 Lbs	1228.0

Remarks:

Laboratory Technician: B. Swiecicki

CALSPAN CORPORATION
Transportation Sciences Center

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 064
Calspan Sequential Test Number 2
Date April 10, 1997

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			30
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.8
Waist Circumference	Z	32.9 - 34.1 in	33.3
Chest Depth	O	8.4 - 9.0 in	8.6
H-Point Height	C	3.3 - 3.5 in	3.4
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.8
Thigh Clearance	F	5.5 - 6.1 in	6.0
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.3
Knee Pivot Height	M	19.1 - 19.7 in	19.4
Foot Length	P	9.9 - 10.5 in	10.1
Foot Breadth	W	3.6 - 4.2 in	3.8
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.6
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.4
Elbow Rest Height	J	7.5 - 8.3 in	8.0
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.3
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.6

Remarks:

Laboratory Technician: B. Swiecicki

Appendix D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 245)	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X	ADL98	ENDEVCO	1/97	7/97
Y	AE8K0	ENDEVCO	1/97	7/97
Z	ADMB6	ENDEVCO	1/97	7/97
Chest				
X	A26A	ENDEVCO	1/97	7/97
Y	A27A	ENDEVCO	1/97	7/97
Z	A51A	ENDEVCO	1/97	7/97
Right Femur Load Cell				
	952	GSE	1/97	7/97
Left Femur Load Cell				
	951	GSE	1/97	7/97
Neck Load Cell				
X	440	DENTON	1/97	7/97
Y	440	DENTON	1/97	7/97
Z	440	DENTON	1/97	7/97
Neck Moment				
X	440	DENTON	1/97	7/97
Y	440	DENTON	1/97	7/97
Z	440	DENTON	1/97	7/97
Chest Deflection Gauge				
Hybrid III Use Only				
	245	HUMANOID	2/97	8/97
Lap Belt Load Cells				
	706	LEBOW	12/96	6/97
Shoulder Belt Load Cells				
	707	LEBOW	12/96	6/97
Spool-Out Potentiometer				
	M9	MAGNETEK	1/97	7/97
Belt Stretch Transducer				
	E1	CALSPAN	2/97	8/97

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X (R)	AP1A0	ENDEVCO	1/97	7/97
Y (R)	AC8F6	ENDEVCO	1/97	7/97
Z (R)	ACCW0	ENDEVCO	1/97	7/97
Chest				
X (R)	AHRC9	ENDEVCO	1/97	7/97
Y (R)	AC7W8	ENDEVCO	1/97	7/97
Z (R)	ACC06	ENDEVCO	1/97	7/97
Pelvic				
X	AF480	ENDEVCO	1/97	7/97
Y	AL508	ENDEVCO	1/97	7/97
Z	AF5C1	ENDEVCO	1/97	7/97
Left Upper Tibia				
Mx	038	DENTON	4/97	10/97
Left Upper Tibia				
My	038	DENTON	4/97	10/97
Left Lower Tibia				
Fy	032	DENTON	4/97	10/97
Left Lower Tibia				
Fz	032	DENTON	4/97	10/97
Left Lower Tibia				
Mx	032	DENTON	4/97	10/97
Right Upper Tibia				
Mx	045	DENTON	4/97	10/97
Right Upper Tibia				
My	045	DENTON	4/97	10/97
Right Lower Tibia				
Fy	041	DENTON	4/97	10/97
Right Lower Tibia				
Fz	041	DENTON	4/97	10/97
Right Lower Tibia				
Mx	041	DENTON	4/97	10/97

INSTRUMENT CALIBRATION FOR DRIVER DUMMY

(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacture	Calibration	
			Last	Next
Left Foot Front Z	J18439	ENDEVCO	12/96	6/97
Left Foot Rear X	J18624	ENDEVCO	1/97	7/97
Left Foot Rear Z	J18408	ENDEVCO	1/97	7/97
Right Foot Front Z	J18418	ENDEVCO	12/96	6/97
Right Foot Rear X	AEWK1	ENDEVCO	1/97	7/97
Right Foot Rear Z	AKD92	ENDEVCO	1/97	7/97

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 064)	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X	AH5M9	ENDEVCO	1/97	7/97
Y	AGHF5	ENDEVCO	1/97	7/97
Z	AL6K2	ENDEVCO	1/97	7/97
Chest				
X	A33A	ENDEVCO	1/97	7/97
Y	FB32L	ENDEVCO	1/97	7/97
Z	AD395	ENDEVCO	1/97	7/97
Right Femur Load Cell	232	GSE	1/97	7/97
Left Femur Load Cell	231	GSE	1/97	7/97
Neck Load Cell				
X	076	DENTON	1/97	7/97
Y	076	DENTON	4/97	10/97
Z	076	DENTON	4/97	10/97
Neck Moment				
X	076	DENTON	4/97	10/97
Y	076	DENTON	4/97	10/97
Z	076	DENTON	4/97	10/97
Chest Deflection Gauge				
Hybrid III Use Only	064	HUMANOID	4/97	10/97
Lap Belt Load Cells	635	LEBOW	4/97	10/97
Shoulder Belt Load Cells	711	LEBOW	4/97	10/97
Spool-Out Potentiometer	M12	MAGNETEK	4/97	10/97
Belt Stretch Transducer	E2	CALSPAN	2/97	7/97

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacturer	Calibration	
			Last	Next
Head				
X (R)	APBF4	ENDEVCO	1/97	7/97
Y (R)	APBD7	ENDEVCO	1/97	7/97
Z (R)	AN967	ENDEVCO	1/97	7/97
Chest				
X (R)	APA30	ENDEVCO	1/97	7/97
Y (R)	APIB5	ENDEVCO	1/97	7/97
Z (R)	AP057	ENDEVCO	1/97	7/97
Pelvic				
X	AF480	ENDEVCO	1/97	7/97
Y	AL508	ENDEVCO	1/97	7/97
Z	AF5C1	ENDEVCO	1/97	7/97
Left Upper Tibia				
Mx	015	DENTON	4/97	10/97
Left Upper Tibia				
My	015	DENTON	4/97	10/97
Left Lower Tibia				
Fy	011	DENTON	4/97	10/97
Left Lower Tibia				
Fz	011	DENTON	4/97	10/97
Left Lower Tibia				
Mx	011	DENTON	4/97	10/97
Right Upper Tibia				
Mx	016	DENTON	4/97	10/97
Right Upper Tibia				
My	016	DENTON	4/97	10/97
Right Lower Tibia				
Fy	012	DENTON	4/97	10/97
Right Lower Tibia				
Fz	012	DENTON	4/97	10/97
Right Lower Tibia				
Mx	012	DENTON	4/97	10/97

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY

(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacture	Calibration	
			Last	Next
Left Foot Front Z	J18400	ENDEVCO	12/96	6/97
Left Foot Rear X	J18649	ENDEVCO	1/97	7/97
Left Foot Rear Z	J17965	ENDEVCO	1/97	7/97
Right Foot Front Z	J18406	ENDEVCO	12/96	6/97
Right Foot Rear X	J18465	ENDEVCO	12/96	6/97
Right Foot Rear Z	J18623	ENDEVCO	12/96	6/97

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	Y151	ICS	2/97	8/97
Right Rear Seat Crossmember	Y11	ICS	4/97	10/97
Top of Engine	D32	ICS	4/97	10/97
Bottom of Engine	X92	ICS	1/97	7/97
Left Disc Brake Caliper	X22	CEC	4/97	10/97
Right Disc Brake Caliper	X91	CEC	2/97	8/97
Instrument Panel	F53	CEC	2/97	8/97
Left Seat Rear Crossmember (R)	Y17	ICS	4/97	10/97
Right Seat Rear Crossmember (R)	X80	ICS	1/97	7/97

Appendix A
PHOTOGRAPHS