REPORT NUMBER: CAL-92-N03

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

MITSUBISHI MOTORS CORPORATION
1992 MITSUBISHI DIAMANTE
4-DOOR SEDAN

NHTSA NUMBER: MN5600

CALSPAN TEST NUMBER: 7946-3

CALSPAN CORPORATION
ADVANCED TECHNOLOGY CENTER
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BUFFALO, NEW YORK 14225

SEPTEMBER 24, 1991

FINAL REPORT

PREPARED FOR:

U. S. Department of Transportation
National Highway Traffic Safety Administration
Office of Market Incentives
400 Seventh Street, S.W.
Room No. 5313 (NRM-20)
Washington, DC 20590

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15. Supplementary Notes

16. Abstract

A frontal load cell barrier test of a 1992 Mitsubishi Diamante 4-Door Sedan was performed at Calspan Advanced Technology Center crash test facility in Buffalo, New York on September 24, 1991.

The impact speed was 35.2 mph and the ambient temperature at the barrier face at the time of impact was 63°F. The maximum post-test vehicle crush was 22.6 inches. The test vehicle was equipped with a 3-point continuous belt restraint system at each of the front outboard seating positions. The test vehicle was also equipped with a driver side airbag as a supplemental restraint device.

With regard to FMVSS 208 "Occupant Crash Protection," injury criteria, both the driver and passenger dummies appear to comply with the maximum head, chest and femur requirement.

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Section 1

PURPOSE AND TEST PROCEDURE

This 35 mph frontal barrier impact test is part of the Composite FY 90 Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-90-D-02121. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 30 mph requirements.

The 35 mph frontal barrier impact test was conducted in accordance with the Office of Market Incentives (OMI) Laboratory Indicant Test procedure.

Section 2

SUMMARY OF TEST NUMBER MN5600

A load cell barrier consisting of 36 load cells was impacted by a 1992 Mitsubishi Diamante 4-Door Sedan at a velocity of 35.2 mph. The test was performed at the Calspan Corporation Advanced Technology Center on September 24, 1991. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

The frontal barrier impact event was documented by one real-time camera and 15 high-speed cameras. Camera locations and other pertinent camera information can be found in this report.

One Part 572E, 50th percentile male anthropomorphic test device (ATD) was placed in the driver seating position and one Part 572B, 50th percentile ATD was placed in the passenger seating position. Both ATDs were placed in their respective seating positions according to dummy placement instructions specified in the Laboratory Indicant Test Procedure.

Both ATDs were fully instrumented with head and chest triaxial accelerometers and right/left femur load cells. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver ATD (Serial No. 150) was used in a previous test (MN0100). Injury criteria values were not exceeded in that test. The right-front passenger ATD (Serial No. 348) was also used in a previous test (MN5100) and this ATD did not exceed the Injury criteria values in that test.

The 74 channels of data were recorded on six 14-channel FM tape recorders. Appendix B contains the vehicle, load cell barrier, and dummy response data traces. Accelerometer #3(x), located on the top of the engine block, experienced a pinched wire between approximately 51 and 84 milliseconds. Accelerometer #4(x), located on the bottom of the engine block, contained intermittent data after approximately 37 seconds. The velocity and displacement data traces have been removed from this report for both accelerometers. Barrier Load Cell A9 did not record accurately during test; therefore, the data trace has been removed from this report. Position 2 Left Femur contained intermittent data between approximately 24 and 98 milliseconds.

The driver's HIC was 679.0. The maximum chest deceleration over 3 milliseconds was 48.0 g's along with a maximum chest deflection of 1.5 inches. The maximum femur loads were 1526.1 pounds and 784.1 pounds for the left femur and right femur, respectively.

The right-front passenger's HIC was 765.4 and maximum chest deceleration over 3 milliseconds was 46.1 g's. The maximum right femur load was 586.6 pounds. The maximum left femur load will not be given due to the inaccuracy of the data trace.

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Vehicle Year/Make/Model/Body Style: 1992 Mitsubishi Diamante 4-Door Sedan

NHTSA Test No.: MN5600 VIN.: JA3XC47S6NY006719

Body Color: Red Date of Manufacture: 5/91

Engine: 6 Cylinders; __ C.I.D.; 3.0 Liters; __ CC

X Gas; __ Diesel; ___ Turbocharged

___ Longitudinal; X Transverse

Transmission: 3 Speed; __ Manual; X Automatic; X Overdrive

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

Date Received: 8-13-91 Odometer Reading: 183

X A/C; X P/S; X P/B; X P/wdo;

X Tilt Wheel ___ P/seats; X Cruise Control

Type of Occupant Restraint: Air bag (driver's side) 3 point continuous belts

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): Front 32 psi, Rear 26 psi

Recommended Tire Size: 205/65R15 94V

Recommended Cold Tire Pressure: Front 32 psi, Rear 26 psi

Tires on Vehicle: 205/65 R15 ; Manufacturer: Yokohama

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

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

Type of Front Seat Back: ___ Fixed; X Adj. With X Lever ___ Rot. Knob

Vehicle Capacity Weight (VCW) = 827 lbs. (A)

No. of Occupants x 150 lbs. = 750 lbs. (B)

Rated Cargo and Luggage
Weight (RCLW) A-B = 77 lbs.

GVWR 4629 lbs. GAWR: Front 2623 lbs. Rear 2006 lbs.

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (WITH MAXIMUM FLUIDS) = UDW:

Right Front = 1070 lbs. Right Rear = 640 lbs.

Left Front = 1070 lbs. Left Rear = 660 lbs.

TOTAL FRONT WEIGHT = 2140 lbs. (62.2 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1300 lbs. (37.8 % of Total Vehicle Weight)

TOTAL DELIVERED WEIGHT = 3440 lbs.

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight (3440 lbs.)

VCW = Vehicle Capacity Weight (827 lbs.)

DSC = Designated Seating Capacity (5)

RCLW = VCW - 150 (DSC) = 77 lbs.

Target Test Weight = UDW + RCLW + (2 dummies x 164 lbs./dummy)

Target Test Weight = 3848 lbs.

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 72 POUNDS CARGO:

Right Front = 1140 lbs. Right Rear = 790 lbs.

Left Front = 1130 lbs. Left Rear = 780 lbs.

TOTAL FRONT WEIGHT = 2270 lbs. (59.1 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1570 lbs. (40.9 % of Total Vehicle Weight)

TOTAL TEST WEIGHT = 3840 lbs.

Weight of ballast secured in vehicle trunk area = 0 lbs.

VEHICLE ATTITUDE (all dimensions in inches):

Delivered Attitude: RF 27.7" LF 27.7" RR 27.0" LR 26.9"

Test Attitude: RF 27.1" LF 27.4" RR 25.2" LR 25.7"

Wheel Base: 107.2 in.; C.G. = 43.8 in. rearward of front wheel C/L

Remarks: 17.7 gallons of stoddard solution was placed in the fuel tank.

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

POST-IMPACT DATA:

Type of Test: Frontal Barrier Impact Angle: 0 °

Date of Test: September 24, 1991 Time of Test: 12:15

Ambient Temperature: 63 °F at impact area

Temperature in Occupant Compartment: 71 °F

Windshield Molding Temperature: 72 °F

Required Impact Velocity Range: 34.5 to 35.5 mph

Impact Velocity: primary = 35.2 mph, secondary = 35.3 mph

Distance From Front Bumper to Barrier Face When

Entering Speed Trap: 52 inches

Exiting Speed Trap: 12 inches

VEHICLE REBOUND AND CRUSH (inches):

Vehicle Length:	Pre-test	= R 185.7	C_L	190.0	L	185.7
	Post-test	= R 165.8	C_L	167.4	L	166.4
	Crush	= R 19.9	C_L	22.6	L	19.3

Distance from front of test vehicle to point of impact:

R 13.6 C_L 12.9 L 14.1

VISIBLE DUMMY CONTACT POINTS:

	Driver	Passenger
Head	Air Bag	No Contact
Chest	Air Bag	No Contact
Abdomen	Air Bag	No Contact
Left Knee	Lower Dashpanel	Glove Compartment Door
Right Knee	Lower Dashpanel	Glove Compartment Door

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

	Front		Rear	
	Left	Right	Left	Right
Door Opening	Operable	Operable	Operable	Operable

	Front		Rear	
Seat Movement	Left	Right	Left	Right
Seat Back Failure	None	None	-	-
Seat Shift (in.)	None	None	-	-

Glazing Damage

Backlight/Windshield Windshield sustained stress fractures but remained intact.

Other Notable Impact Effects: None

Section 3

OMI FINAL DATA

Occupant and Vehicle Information

I. OMI DATA

1. Dummy Injury Criteria Data Summary
2. Dummy Positioning Data
3. Seat Belt Positioning Data
4. Seat Belt Performance Assessment Data
5. Driver Dummy to Steering Column Dimensions
6. Camera Locations
7. Vehicle Target Locations

II. OVR DATA

1. Load Cell Barrier Data
2. Vehicle Accelerometer Data
3. Test Vehicle Measurements

Table 2

DUMMY INJURY CRITERIA VALUES

NHTSA No.: MN5600 Vehicle: 1992 Mitsubishi Diamante 4-Door Sedan

	MAXIMUM HEAD ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-67.2	25.1	23.3	69.5
Position #2 - Passenger	39.3	-15.9	77.5	77.8

	MAXIMUM CHEST ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-48.7	30.1	-10.7	48.0
Position #2 - Passenger	-48.4	13.6	-14.9	46.1

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

	MAXIMUM FORCE - FEMUR LOAD (lbs.)	
	LEFT FEMUR	RIGHT FEMUR
Position #1 - Driver	1526.1	784.1
Position #2 - Passenger	*	586.6

	MAXIMUM FORCE - SEAT BELT LOADS (lbs.)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
Position #1 - Driver	1314.7	-	636.1
Position #2 - Passenger	1815.9	1138.1	-

	HEAD INJURY CRITERIA (HIC)			
	HIC	t_1 (SEC)	t_2 (SEC)	Average Acceleration t_1 TO t_2
Position #1 - Driver	679.0	.06096	.08964	56.2
Position #2 - Passenger	765.4	.06996	.10584	53.9

HIC is as defined in FMVSS 208. The maximum time interval from t_1 to t_2 is 36 milliseconds.

* The left femur transducer contained intermittent data, therefore a maximum femur load will not be given.

Table 3

HYBRID III NECK AND CHEST DATA SHEET

Vehicle Year/Make/Model/Body Style: 1992 Mitsubishi Diamante 4-Door Sedan

Vehicle NHTSA No.: MN5600 Test Date: September 24, 1991

MAXIMUM VALUES	DRIVER DUMMY ID # 150	PASSENGER DUMMY ID # *
Neck Load X	-153.1 lbs.	-
Neck Load Y	87.1 lbs.	-
Neck Load Z	368.8 lbs.	-
Neck Moment X	-373.8 in-lbs.	-
Neck Moment Y	521.2 in-lbs.	-
Neck Moment Z	142.4 in-lbs.	-
Chest Deflection X (in.)	1.5	-
Time of Max. Occurrence	65.2 msec.	-

NOTE: All values listed must be occurring during primary impact event.

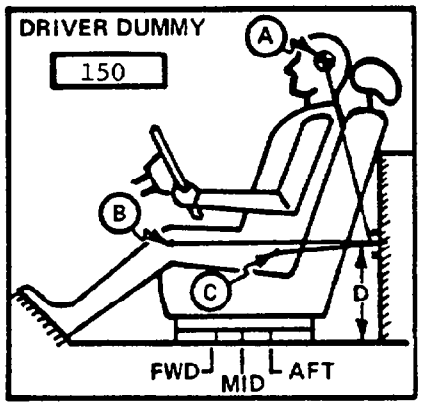
* The right front seating position contained a Hybrid II dummy.

Figure 1

PART 572 DUMMY IN-VEHICLE POSITION

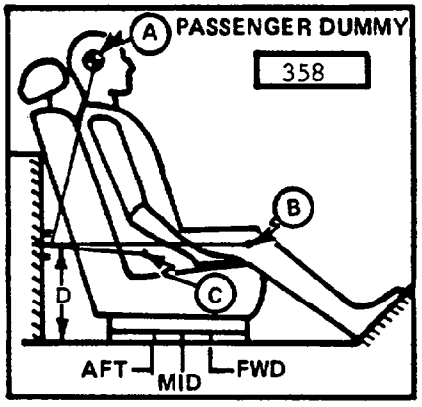
Test No.: MN5600 Vehicle: 1992 Mitsubishi Diamante 4-Door Sedan

SEAT TYPE:	ADJUSTER TYPE:	SEAT BACK TYPE:
_____ Bench	___X___ Manual	_____ Fixed
___X___ Bucket	_____ Power	___X___ Adjustable Reclining
_____ Split Bench		

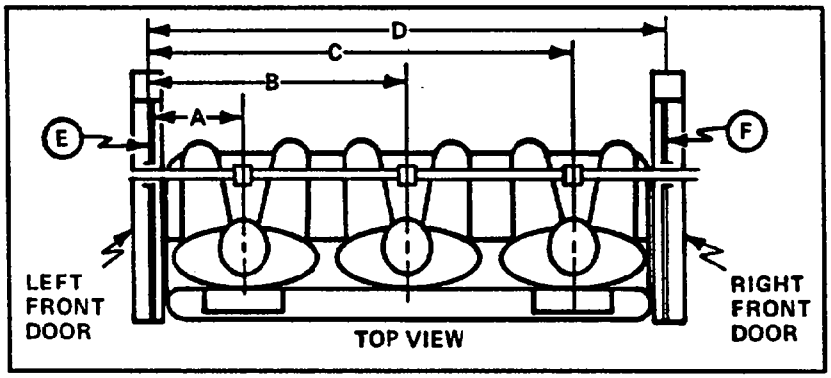


MEASUREMENT LOCATION

A – Head Target
B – Knee Joint
C – Approximate 'H' Point
D – Sill to Reference Point



A = 17.1 in. 10 Degrees	A = 18.7 in. -5 Degrees
B = 23.4 in. 100 Degrees	B = 21.6 in. 100 Degrees
C = 10.3 in. 140 Degrees	C = 8.7 in. 140 Degrees
D = 15.7 in.	D = 15.7 in.



DUMMY ID

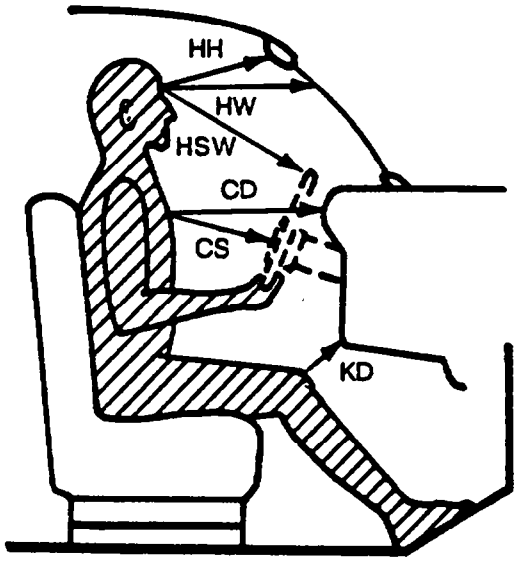
S/N 150 S/N 358

A	= Left Door to Driver Centerline	11.8 in.
B	= Left Door to Center Passenger Centerline	– in.
C	= Left Door to Right Passenger Centerline	41.0 in.
D	= Left Door to Right Door	53.1 in.
E,F	= Window Glass Height (Right and Left Must Be Equal)	9.8 in.

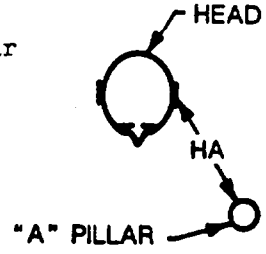
Figure 2

OCCUPANT CLEARANCE DIMENSIONS

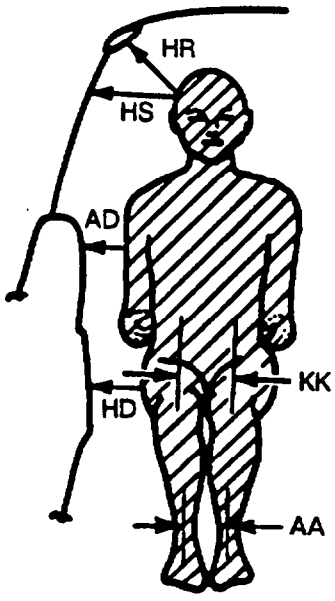
	DRIVER	PASSENGER
HH	12.8	17.0
HW	20.5	22.1
CD	21.3	23.3
CS	12.2	-
KDL	3.9	6.6
KDR	5.1	6.3
SA	See Note	See Note
TA	22°	25°
HSW	17.5	-



HH = Head to Windshield Header
HW = Head to Windshield
HSW = Head to Steering Wheel
CD = Chest to Dash
CS = Chest to Steering Wheel
KD(L/R) = Knee to Dash (Left/Right)
SA = Seat Back Angle
TA = Torso Angle



HA = Head Target to "A" Pillar
HR = Head to Side Roof
HS = Head to Side Window
AD = Arm to Door
HD = Hip to Door
KK = Knee to Knee
AA = Ankle to Ankle

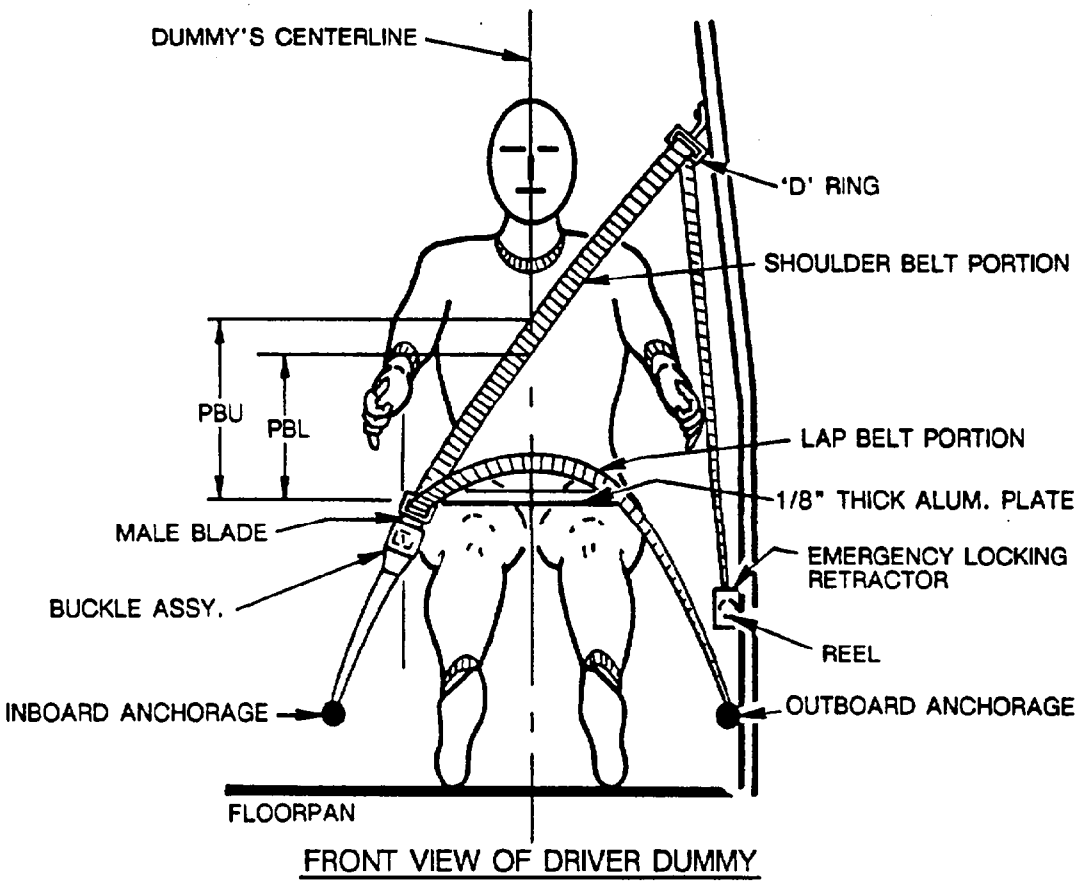


	DRIVER	PASSENGER
HR	5.5	5.2
HS	8.5	9.0
AD	3.7	3.6
HD	6.5	6.1
KK	10.5	8.0
HA	21.0	23.5
AA	12.2	8.5

Note: Seat back was set according to manufacturer's specifications

Figure 3

SEAT BELT POSITIONING DATA



	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
PBU -- Top surface of alum. plate to upper edge	13.7	12.6
PBL -- Top surface of alum. plate to belt lower edge	10.3	9.3
LAP BELT TENSION	-	-
SHOULDER BELT TENSION	-	-

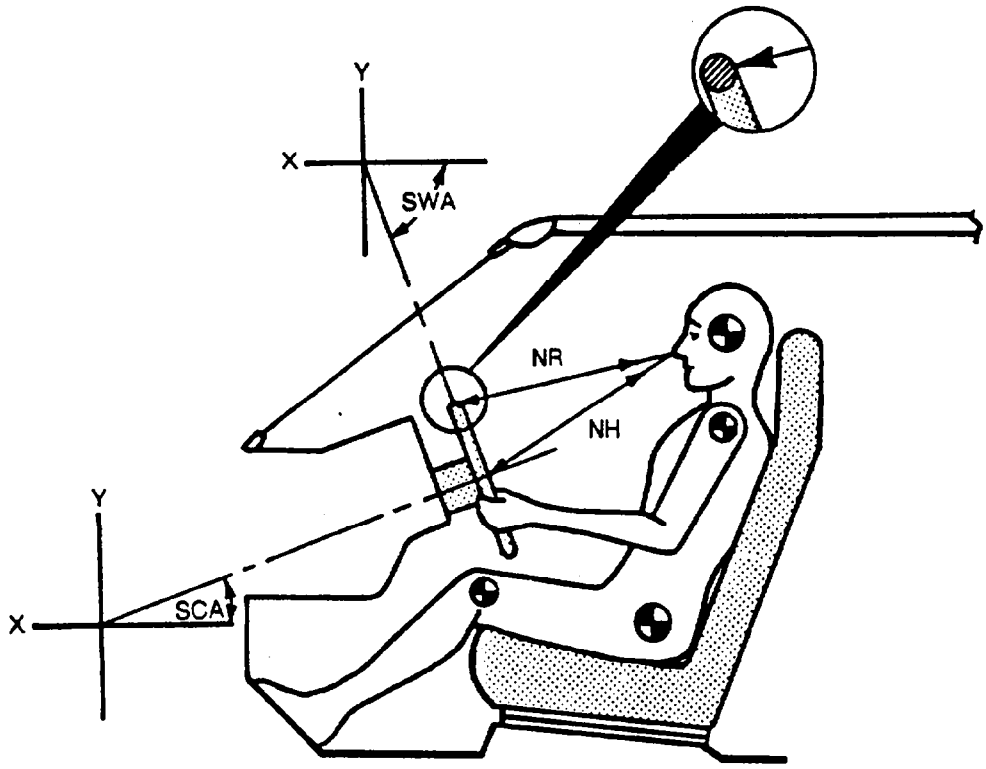
Table 4

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:	Driver	Passenger
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	71.0 in.	71.0 in.
Shoulder belt length as measured on Part 572 Dummy.	32.0 in.	32.0 in.
Lap belt length as measured on Part 572 Dummy.	31.0 in.	31.0 in.
SHOULDER BELT SPOOL-OFF DATA:		
As determined by film analysis.	N/A	N/A
As determined mechanically.	2.1 in.	2.6 in.
As determined electronically.	-	-
BELT STRETCH DATA:		
Measured electronically between shoulder belt load cell and the "D" ring.	1.30 in/ft	0.48 in/ft
Measured mechanically	0 in/ft	0 in/ft

Figure 4

DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSEMBLY REFERENCE DIMENSIONS



LEFT SIDE VIEW

	MEASUREMENTS	
NR -- Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	16.8	Inches
NH -- Distance from tip of dummy's nose to center of steering column hub	16.8	Inches
SCA -- Angle of steering column relative to the horizontal X axis	22.0	Degrees
SWA -- Angle of steering wheel relative to the horizontal X axis	-68.0	Degrees

Figure 5

CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 5

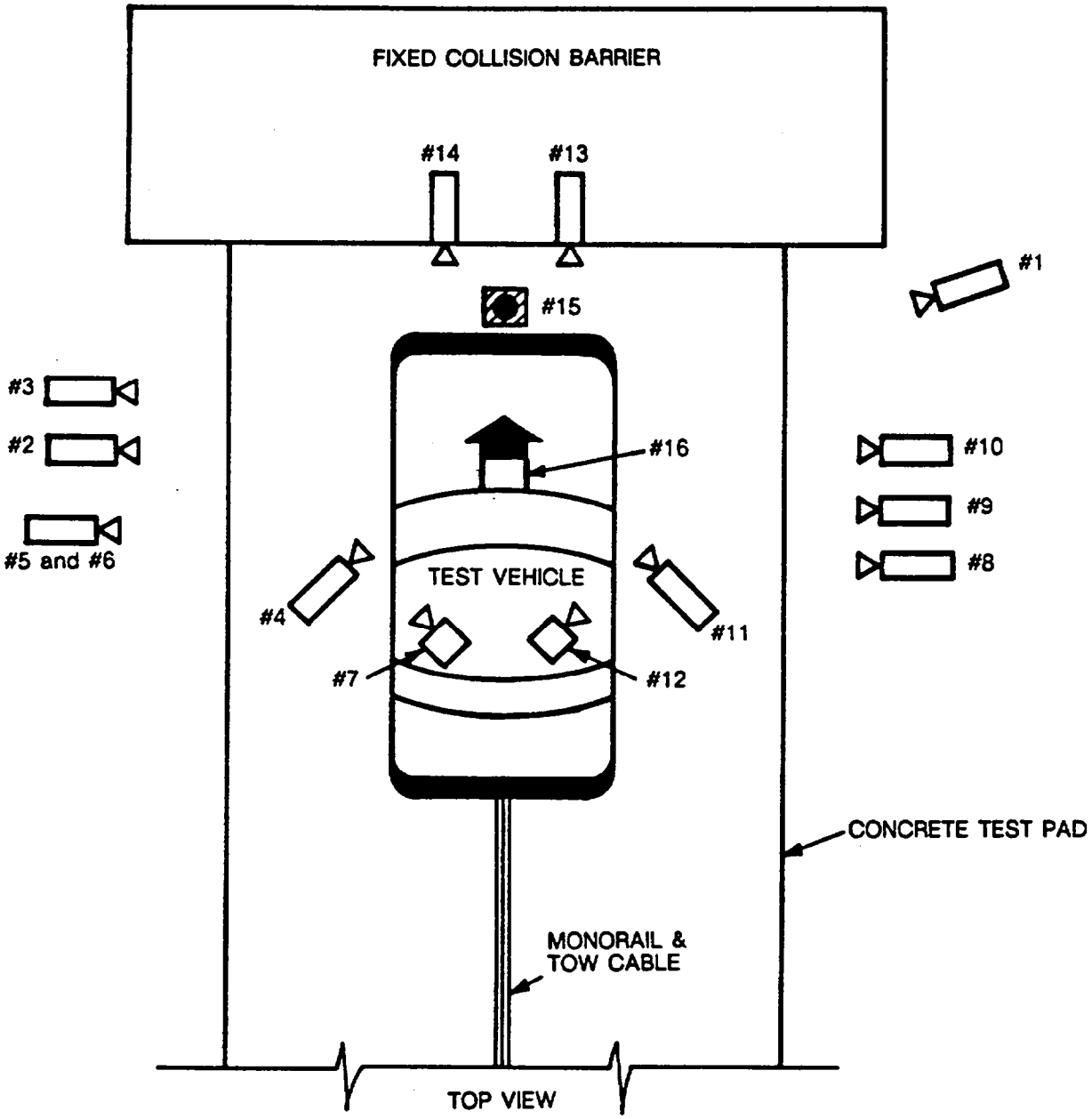


Table 5

HIGH-SPEED CAMERA LOCATIONS

Test No. MN5600 Vehicle: 1992 Mitsubishi Diamante 4-Door Sedan

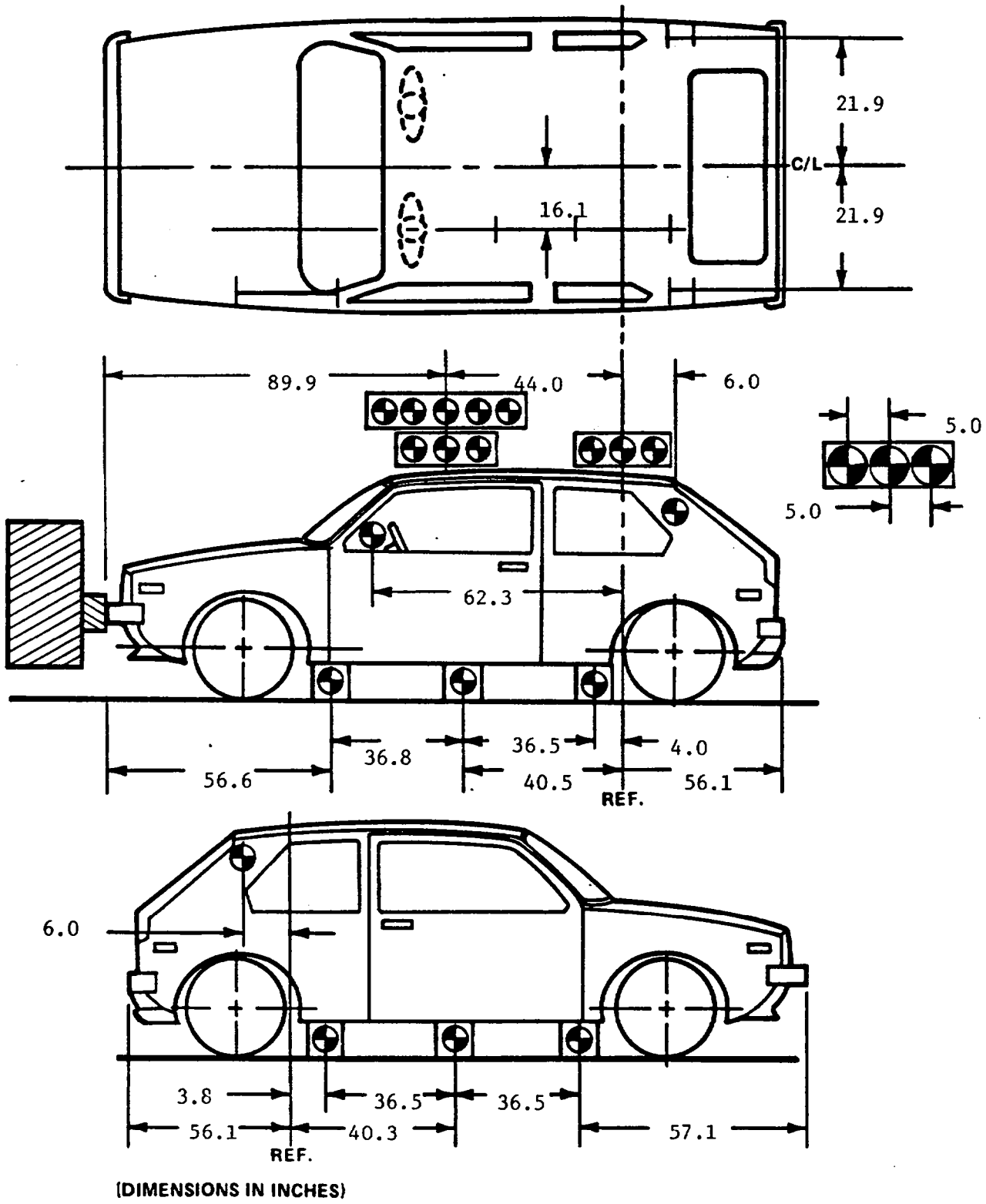
CAMERA NO.	VIEW	CAMERA POSITIONS (in)* X	Y	Z	ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	239	64	41	-3	220	13	540
3	Left Side View	313	35	41	-2	294	25	570
4	Driver and Interior View	116	100	68	-14	97	13	650
5	Steering Column (Bottom)	300	75	46	-5	281	25	540
6	Steering Column (Top)	300	75	70	-9	281	25	520
7	Left Belt	-	-	-	-	-	8	360
8	Overall Right Side	245	69	42	-2	226	13	580
9	Right Side View	305	36	41	-2	286	25	600
10	Right Passenger View	313	63	55	-5	294	35	550
11	Passenger and Interior View	116	100	65	-16	97	25	490
12	Right Belt	-	-	-	-	-	8	N.T.
13	Passenger Front View	24	-5	72	-39	-	13	550
14	Driver Front View	24	-5	72	-38	-	13	530
15	Windshield View	0	0	120	45	-	13	550
16	Pit View of Engine	0	34	-120	90	-	13	760

*X = film plane to monorail centerline
Y = film plane to impact location
Z = film plan to ground
** = referenced to horizontal plane

N.T. = No Timing.

Figure 6

VEHICLE TARGET LOCATIONS

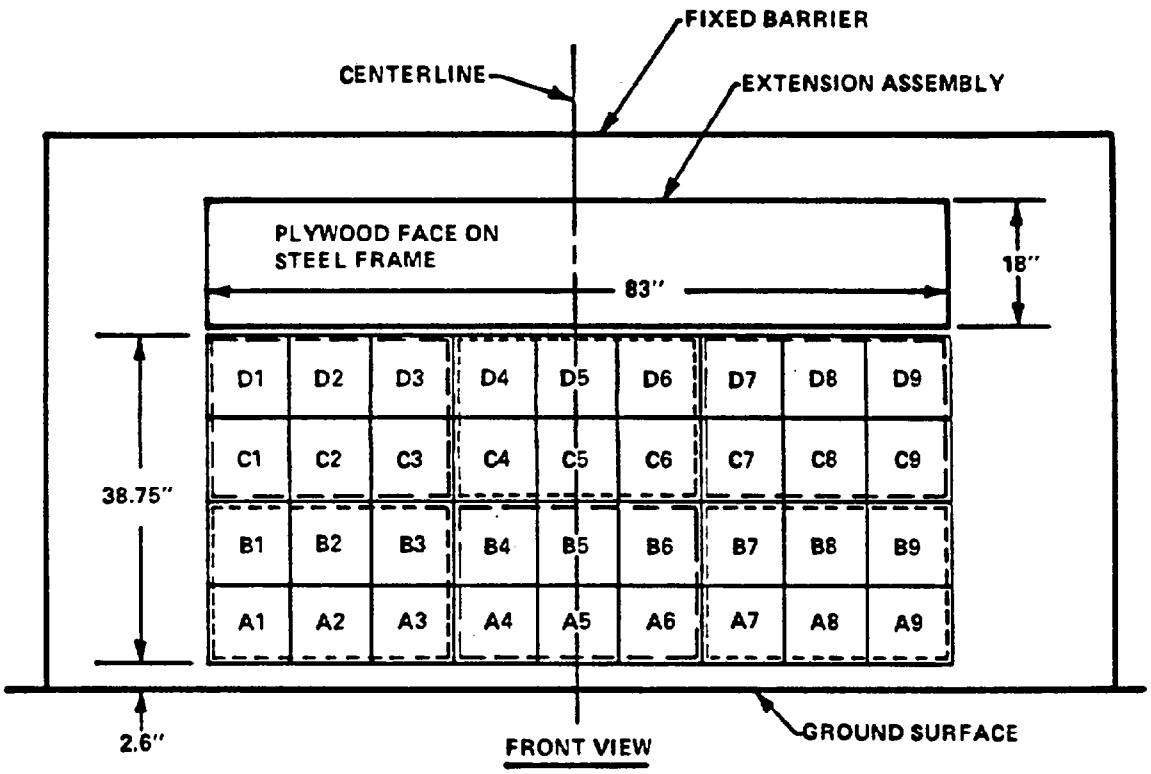


(DIMENSIONS IN INCHES)

Figure 7

LOAD CELL LOCATIONS ON FIXED BARRIER

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



6 GROUPS OF 6 LOAD CELLS EACH

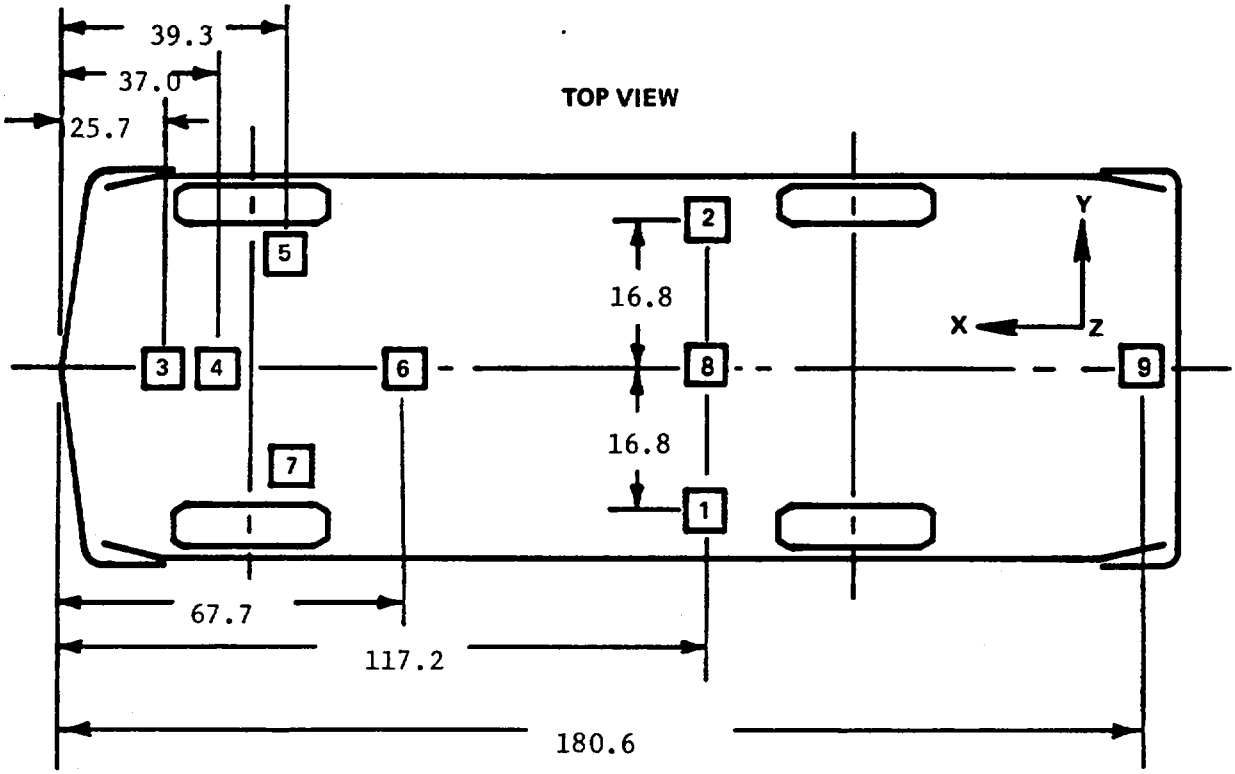
Group 4 C1 thru D3	Group 5 C4 thru D6	Group 6 C7 thru D9
Group 1 A1 thru B3	Group 2 A4 thru B6	Group 3 A7 thru B9

The following data is presented in Appendix B:

(1) Data from 36 individual load cells
(2) Total or Sum of 36 individual load cells
(3) Data from 6 Groupings shown above (6 cells/group)

Figure 8

VEHICLE ACCELEROMETER LOCATIONS



ACCELEROMETER NUMBER*	ACCELEROMETER LOCATION	DIRECTION		
		X	Y	Z
1	Left Rear Seat Crossmember	X		
2	Right Rear Seat Crossmember	X		
3	Top of Engine	X		
4	Bottom of Engine	X		
5	Right Disc Brake Caliper	X		
6	Left Disc Brake Caliper	X		
7	Instrument Panel	X		
8	Rear Seat Crossmember			X
9	Trunk Centerline			X

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

Figure 9

TEST VEHICLE MEASUREMENTS

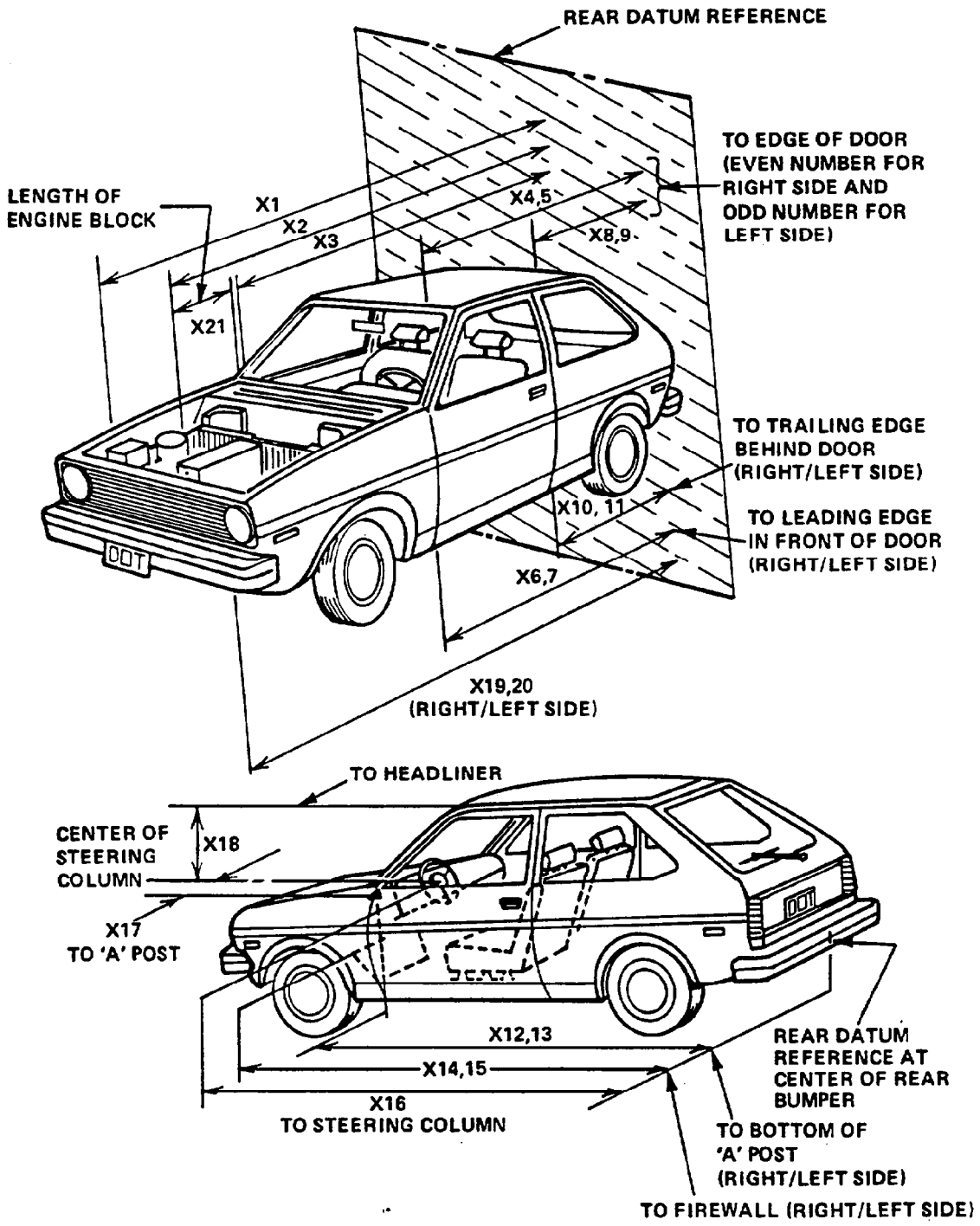


Table 6

VEHICLE MEASUREMENTS

No.		All Dimensions in Inches		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	190.0	167.4	22.6
X2	Rear Surface of Vehicle to Front of Engine	168.0	158.2	9.8
X3	Rear Surface of Vehicle to Firewall	139.1	137.0	2.1
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	127.6	127.2	0.4
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	127.6	127.4	0.2
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	129.8	129.2	0.6
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	129.5	129.1	0.4
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	89.3	88.5	0.8
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	88.8	88.6	0.2
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	89.4	88.5	0.9
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	89.3	88.8	0.5
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	131.6	130.8	0.8
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	131.4	131.4	0.0
X14	Rear Surface of Vehicle to Firewall, Right Side	140.2	137.8	2.4
X15	Rear Surface of Vehicle to Firewall, Left Side	139.2	137.4	1.8
X16	Rear Surface of Vehicle to Steering Column	111.5	112.3	-0.8
X17	Center of Steering Column to "A" Post	16.2	16.0	0.2
X18	Center of Steering Column to Headliner	17.0	17.2	-0.2
X19	Rear Surface of Vehicle to Right Side of Front Bumper	185.7	165.8	19.9
X20	Rear Surface of Vehicle to Left Side of Front Bumper	185.7	166.4	19.3
X21	Length of Engine Block	21.5	21.5	0.0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	119.0	118.4	0.6
CD	Rear Surface of Vehicle to Center of Dash Panel	117.9	116.6	1.3
LD	Rear Surface of Vehicle to Left Side of Dash Panel	119.0	119.0	0.0

Appendix A

PHOTOGRAPHS

PHOTOGRAPHS

Figure A-1 LOAD CELL LOCATIONS

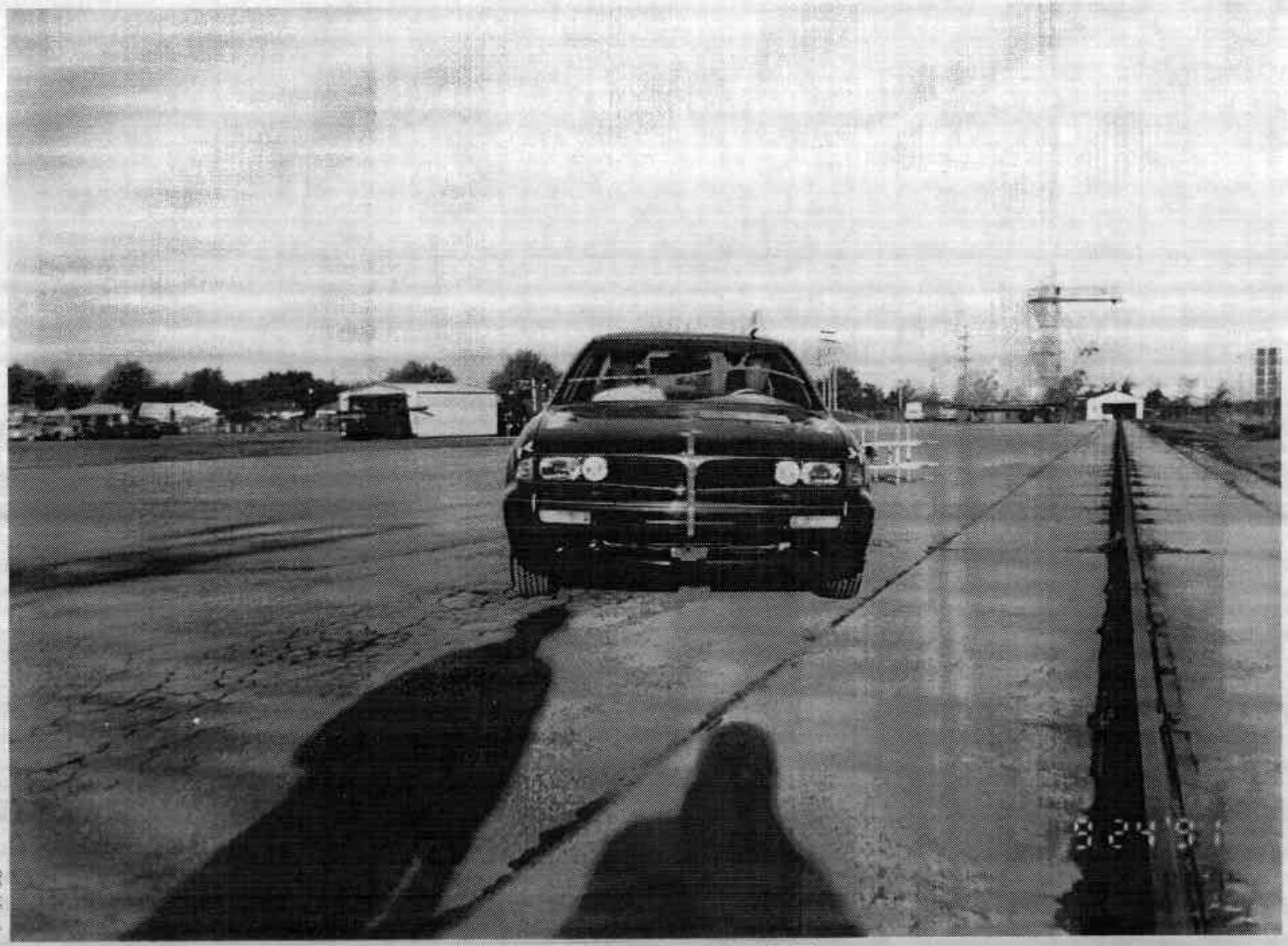


Figure A-2 PRE-TEST FRONT VIEW

Figure A-3 POST TEST FRONT VIEW

A-8

7016-3

Figure A-4 PRE-TEST LEFT SIDE VIEW

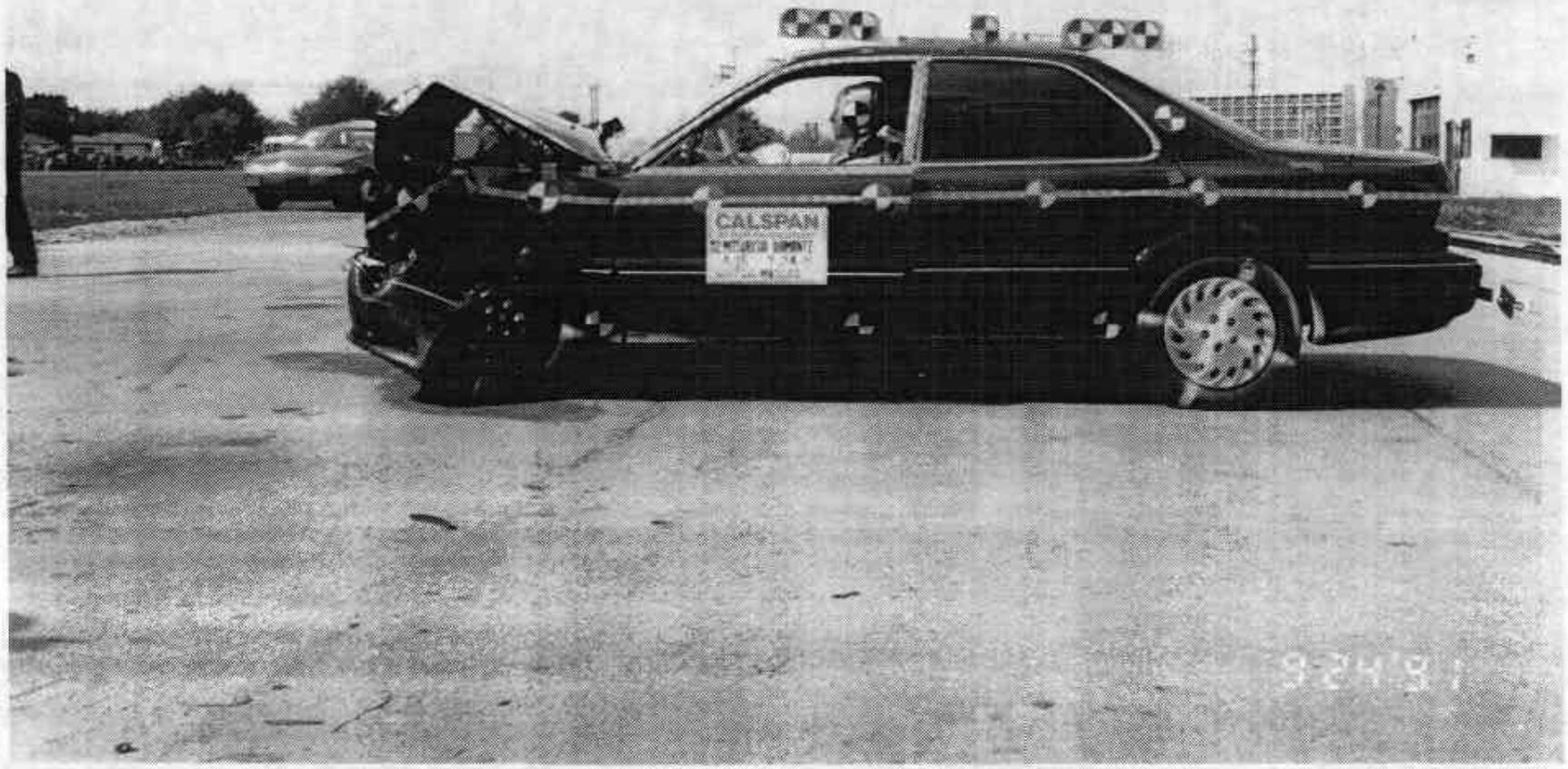


Figure A-5 POST TEST LEFT SIDE VIEW

7040-3

Figure A-6 PRE-TEST RIGHT SIDE VIEW

A-9

7948-3

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

7946-3

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

A-13

7946-3

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

Figure A-12 PRE-TEST WINDSHIELD VIEW

7944-3

Figure A-13 POST-TEST WINDSHIELD VIEW

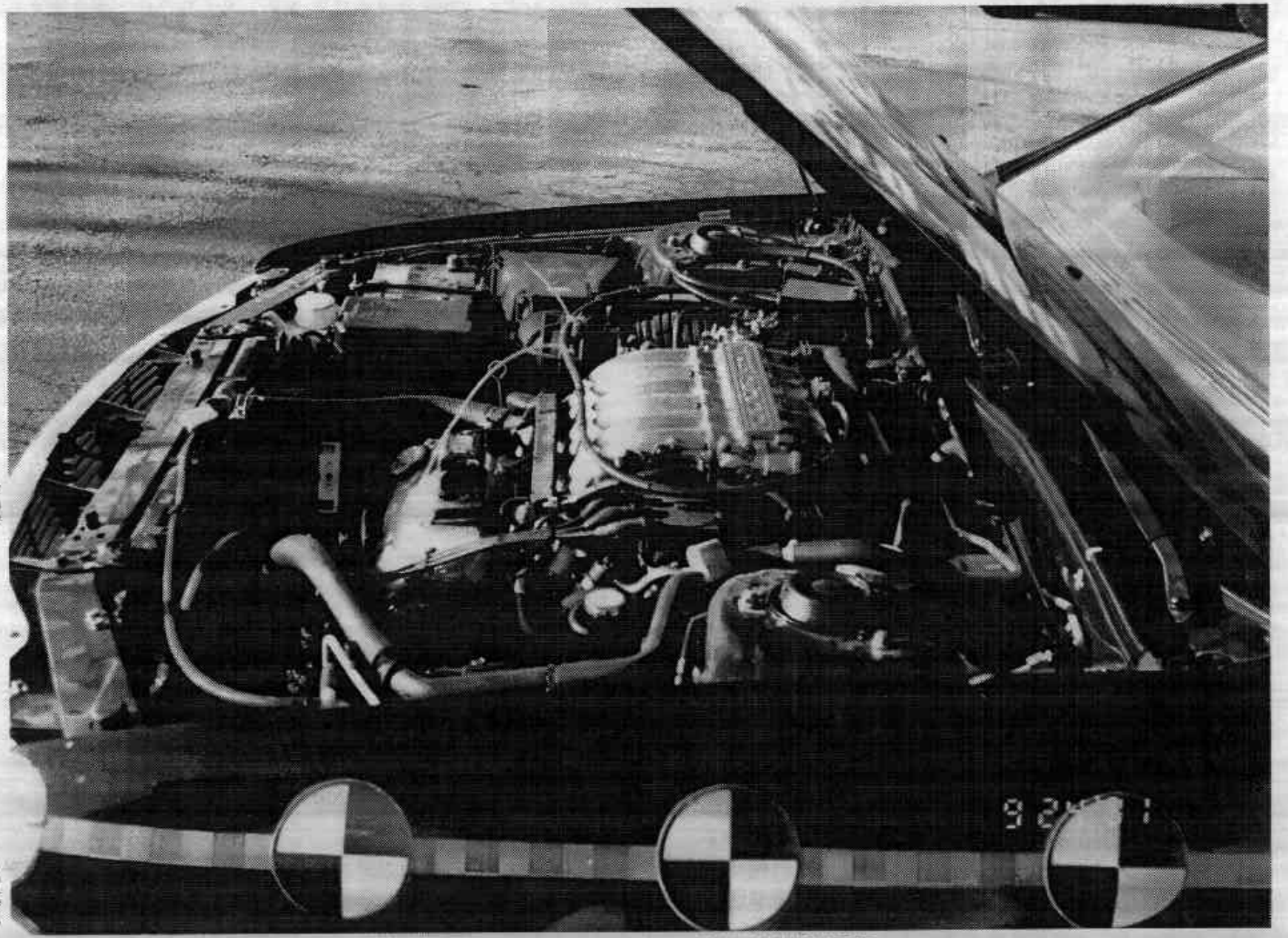


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

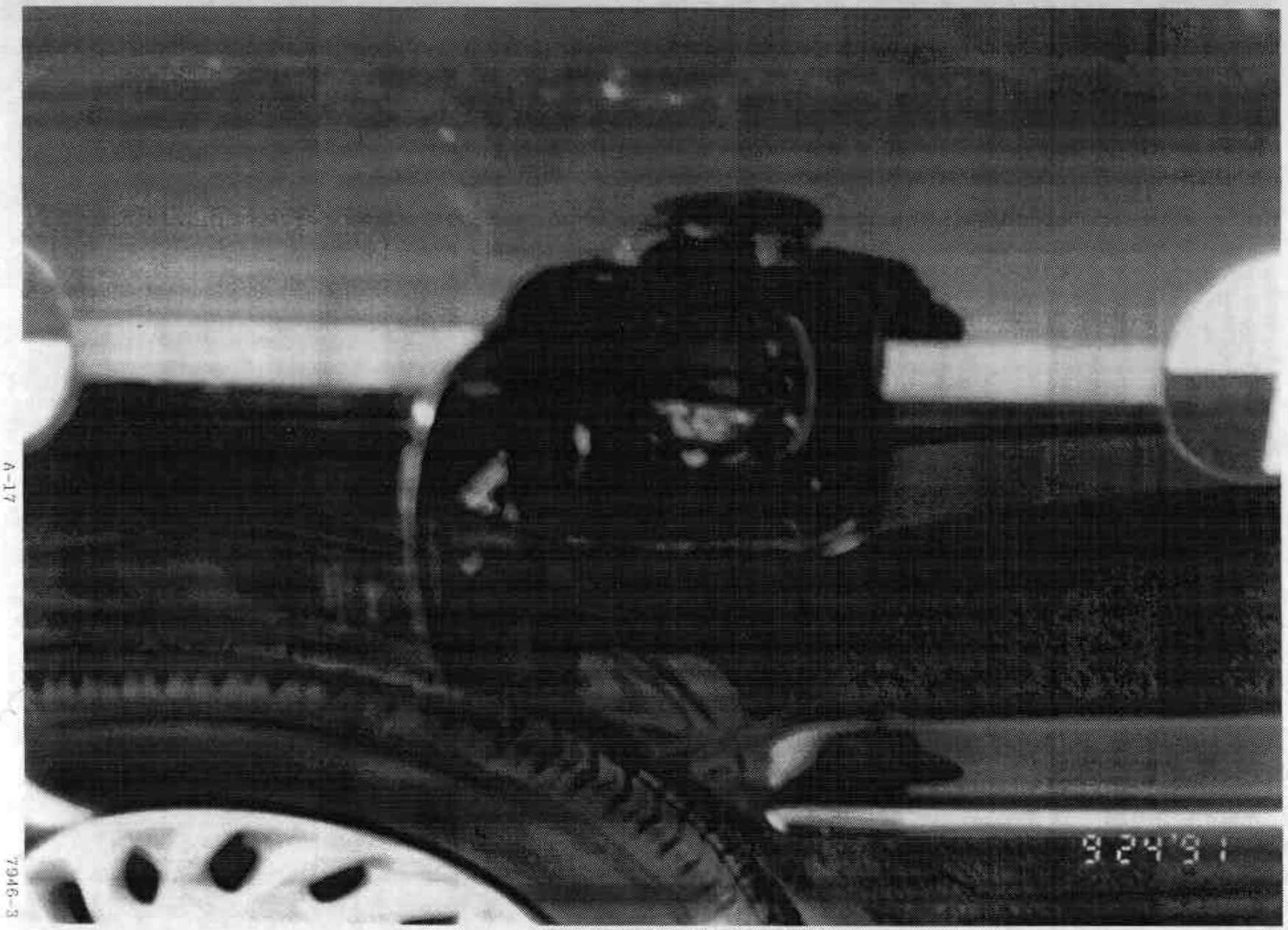


Figure A-15 FUEL CAP VIEW

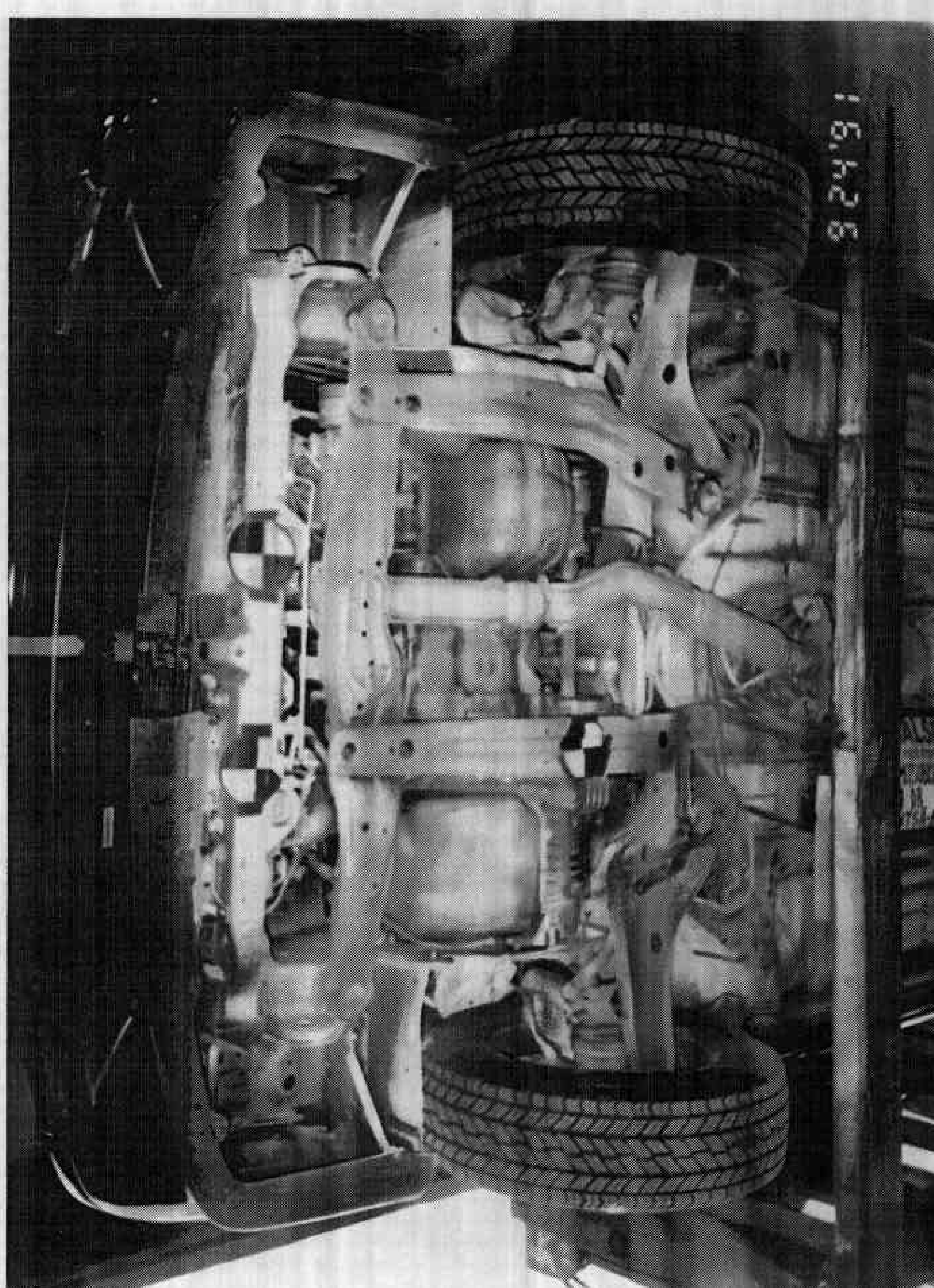


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

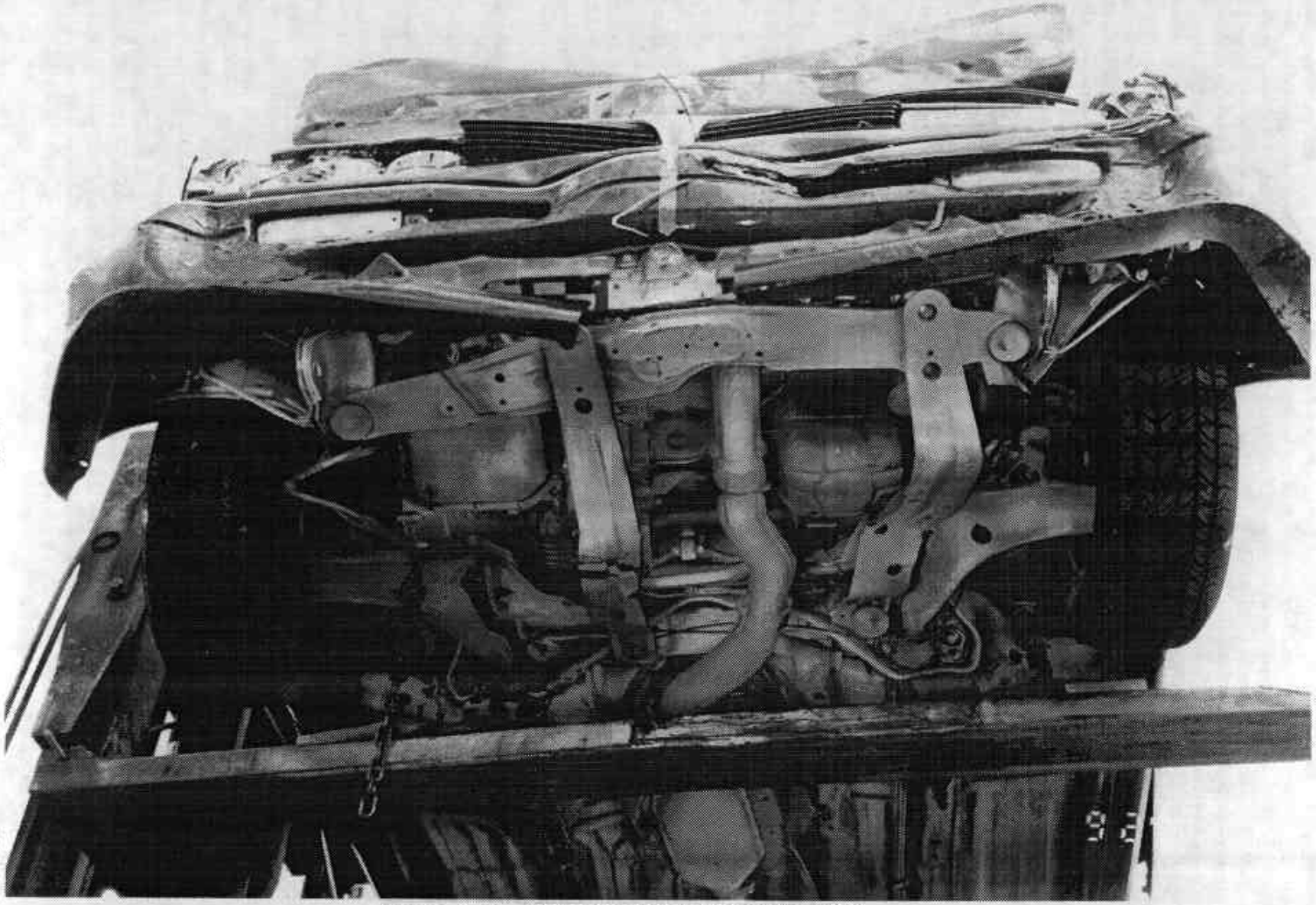


Figure A-17 POST-TEST FRONT UNDERBODY VIEW

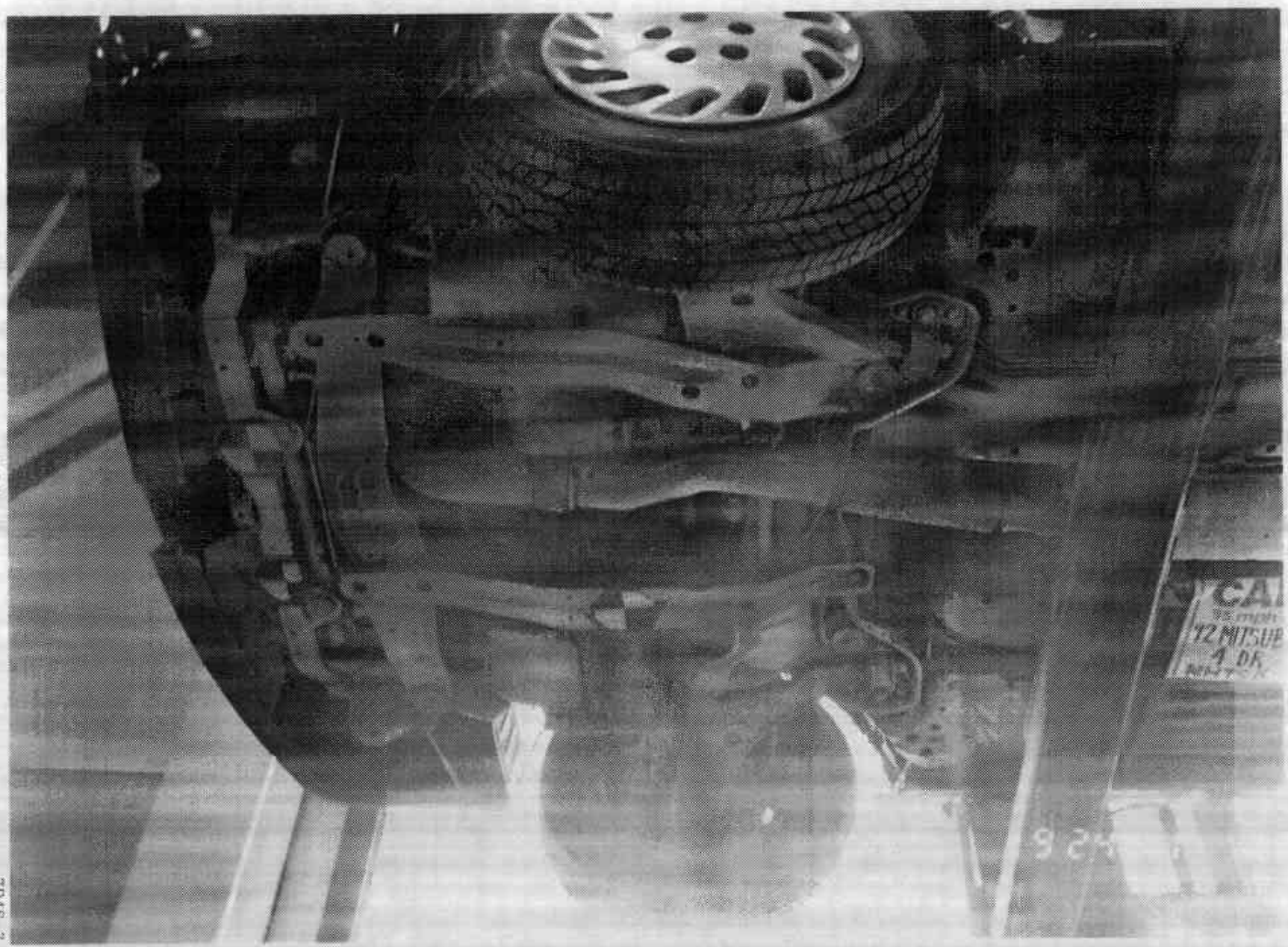


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW

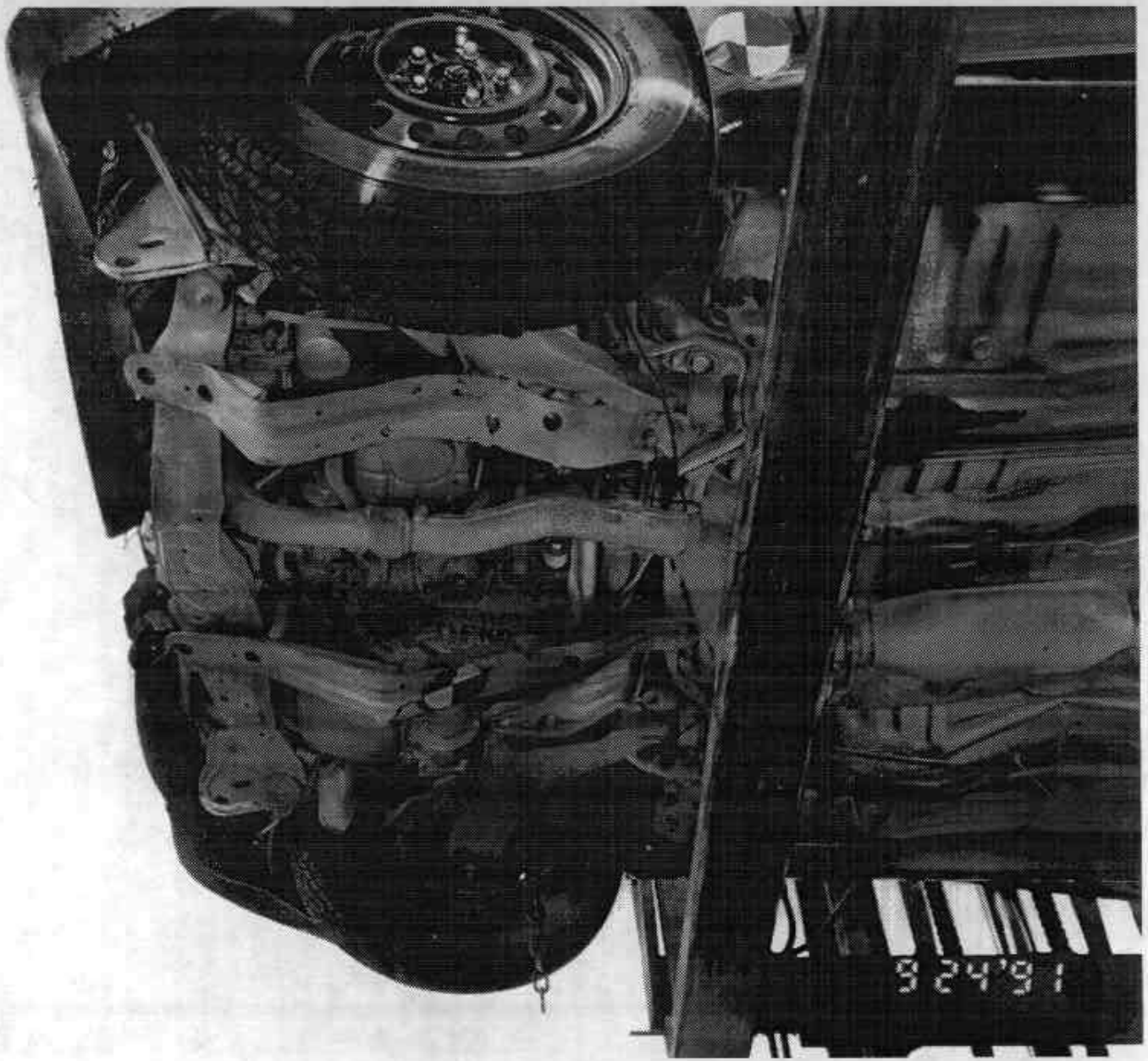


Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

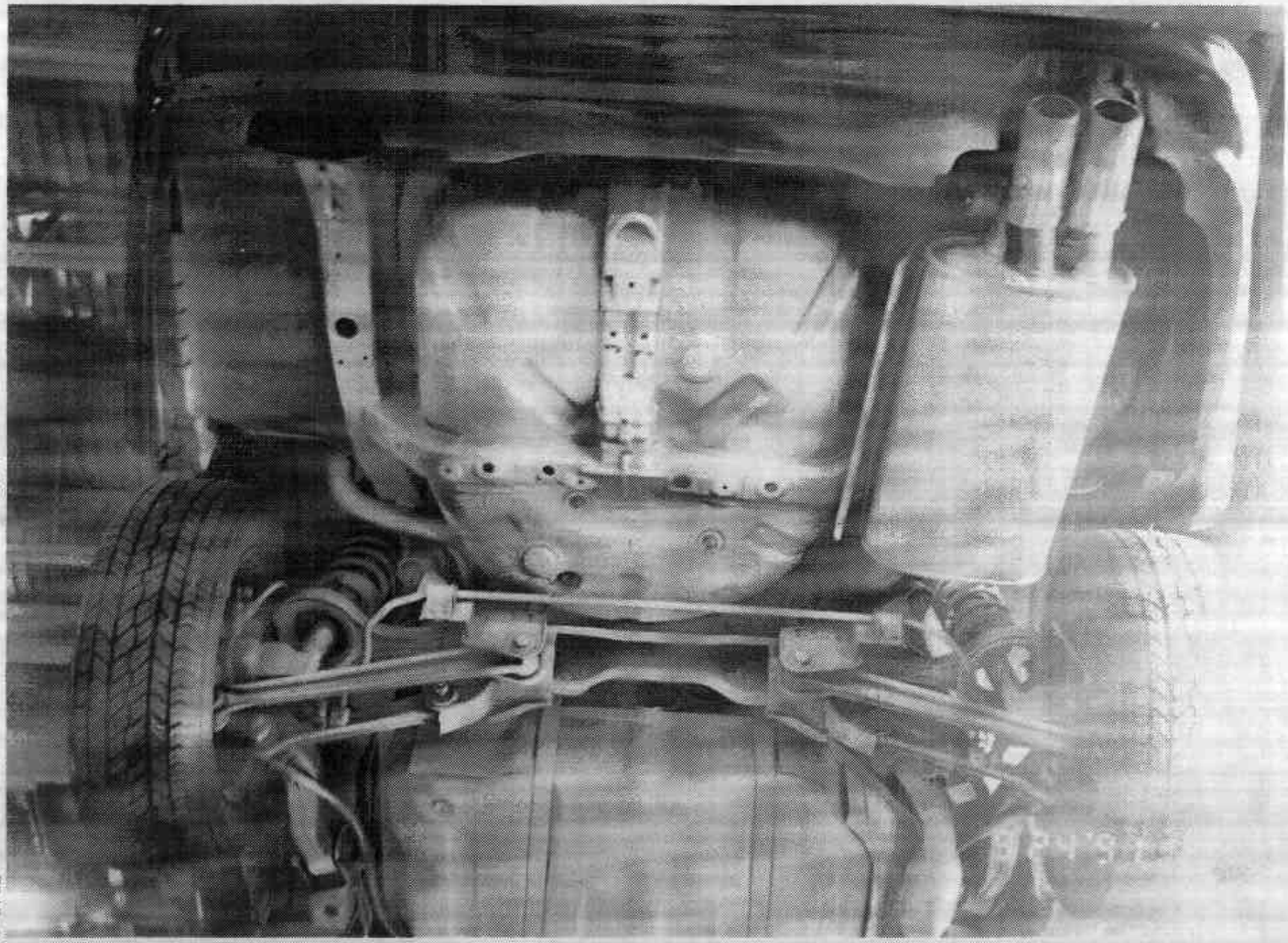


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

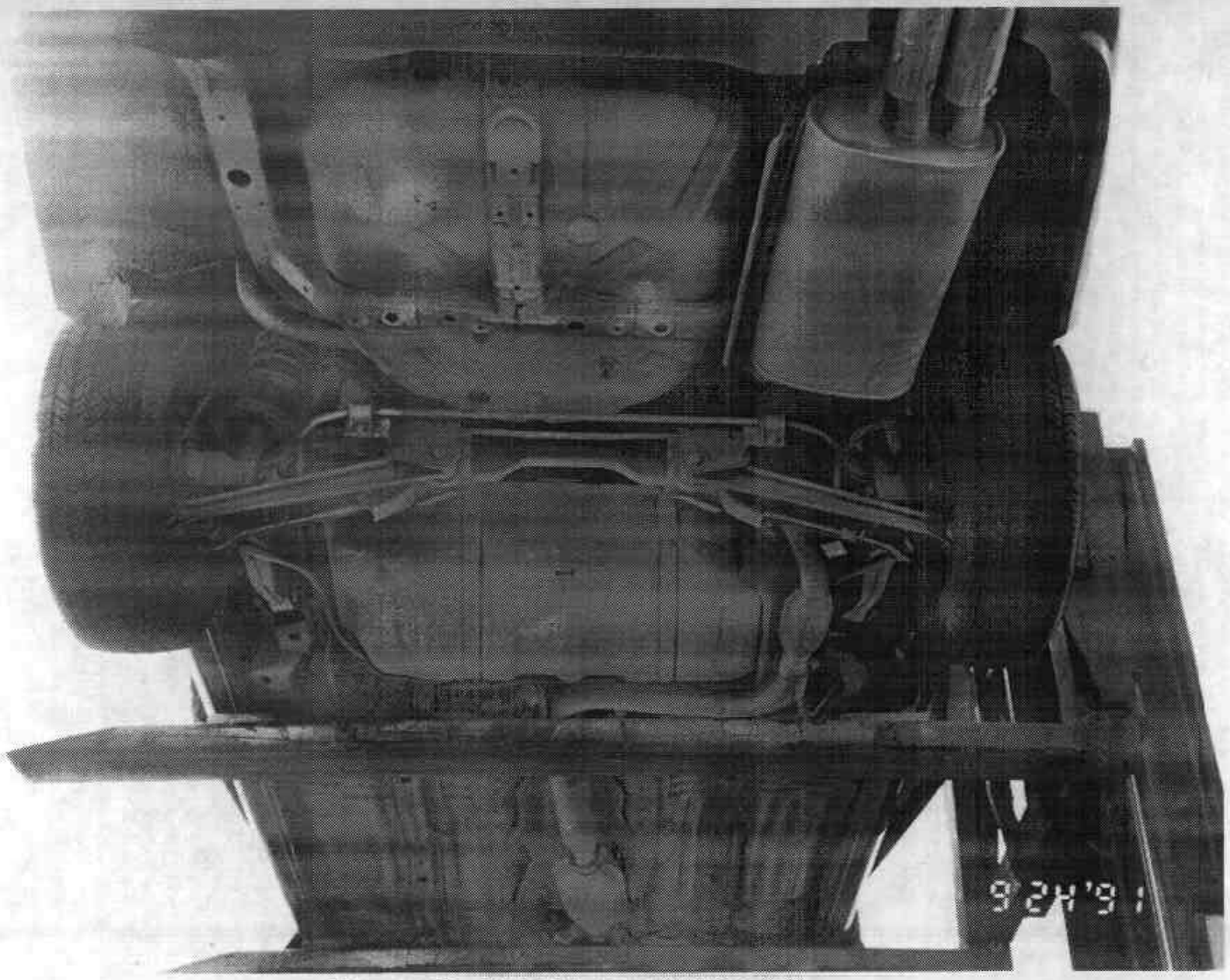


Figure A-21 POST-TEST REAR UNDERBODY VIEW

Figure A-22 PRE-TEST DRIVER POSITION VIEW

Figure A-23 POST-TEST DRIVER POSITION VIEW

Figure A-24 PRE-TEST PASSENGER POSITION VIEW

A-27

7946-3

Figure A-25 POST-TEST PASSENGER POSITION VIEW

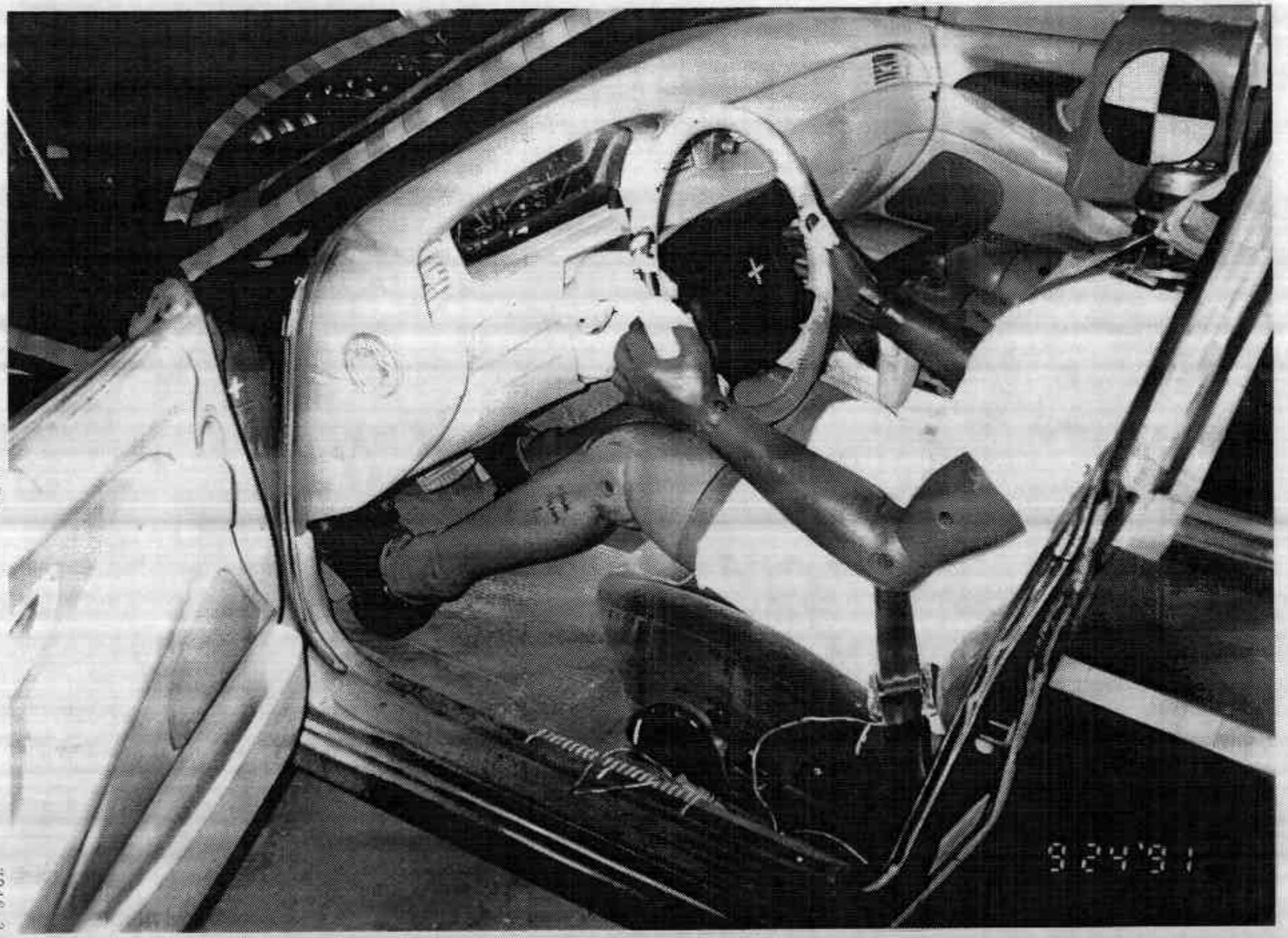


Figure A-28 PRE-TEST DRIVER AND INTERIOR VIEW

Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW

A-30

7946-3

Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW

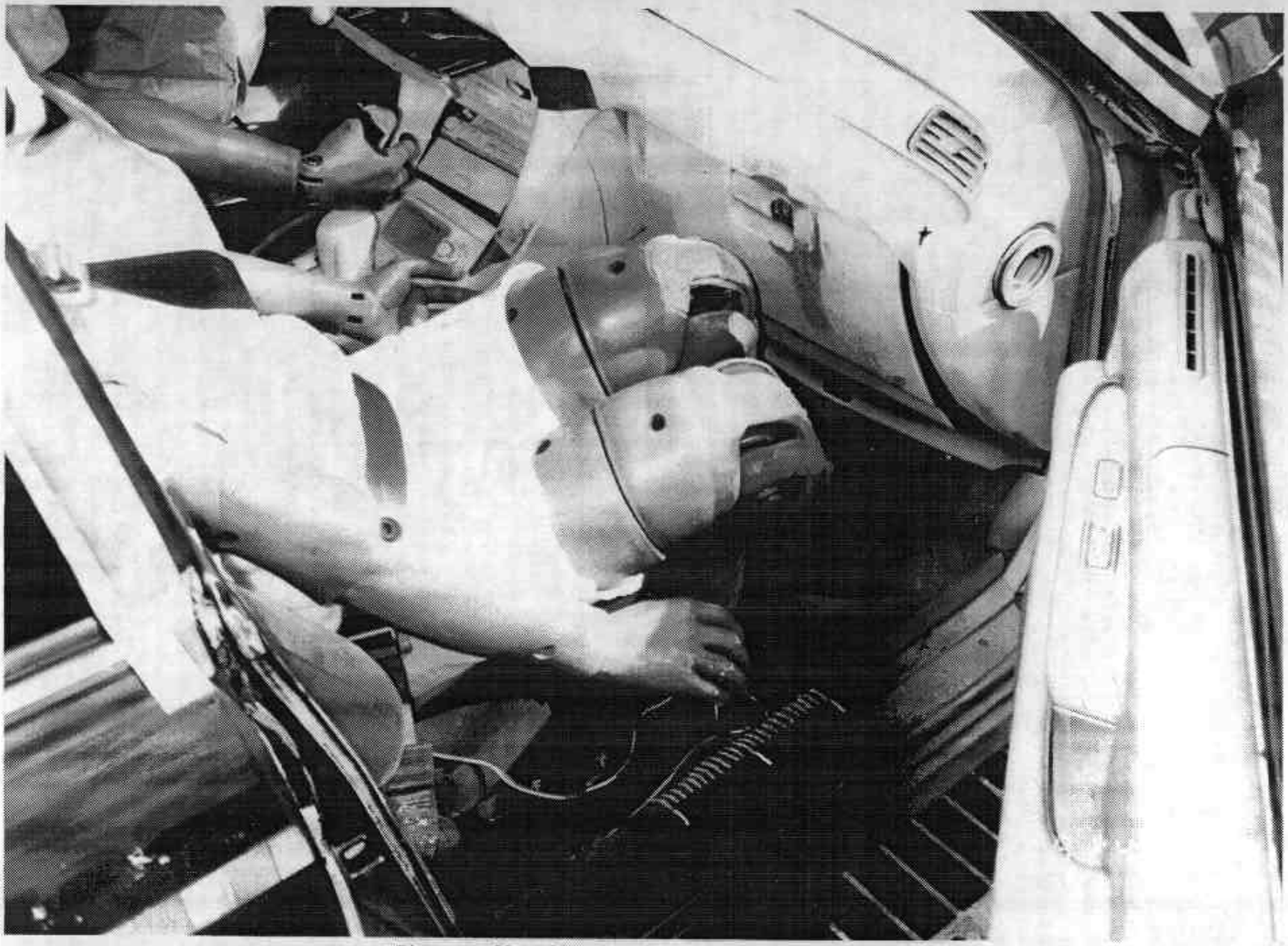
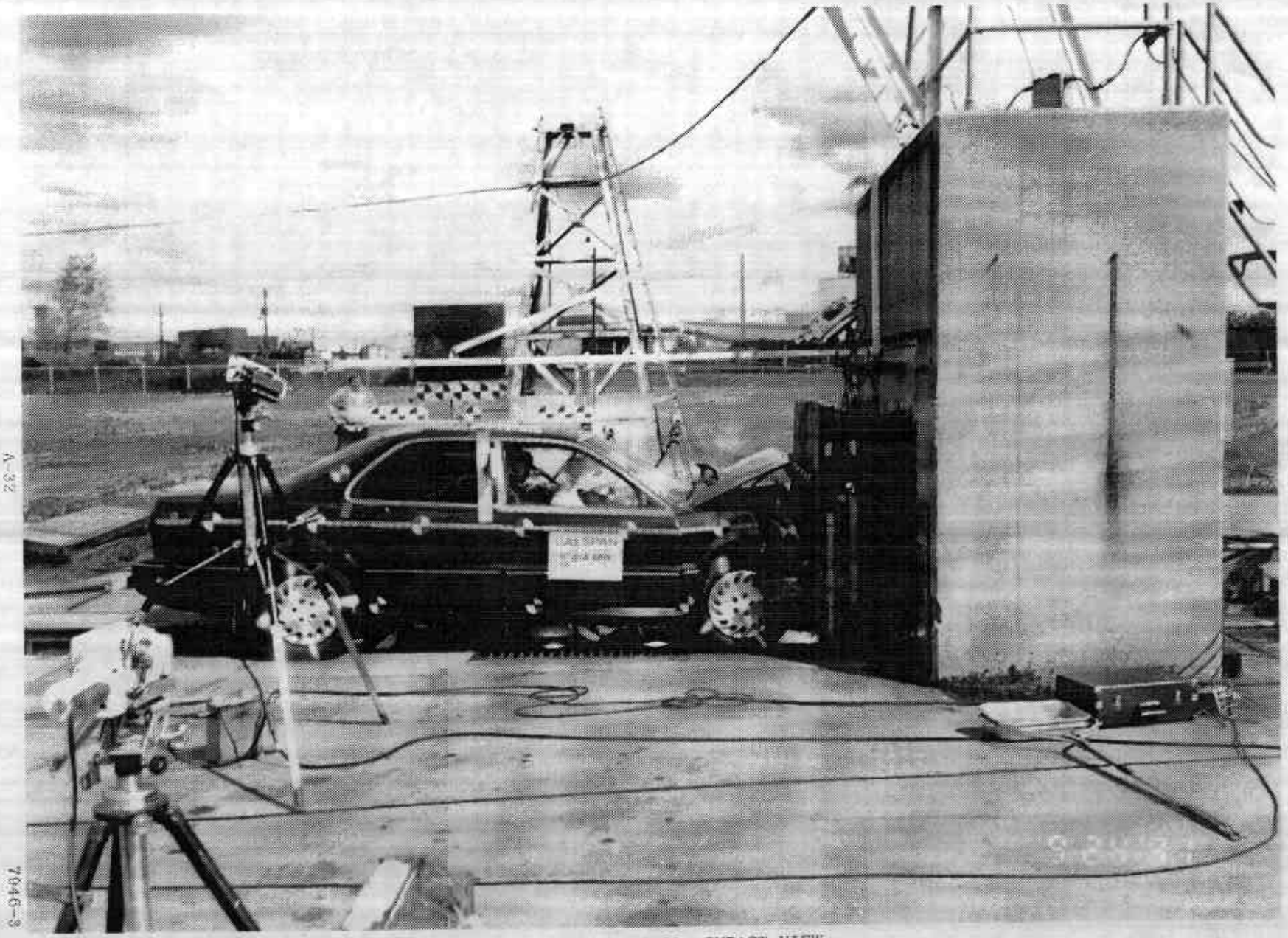


Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW



7046-3

Figure A-30 IMPACT VIEW

Appendix B

VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA

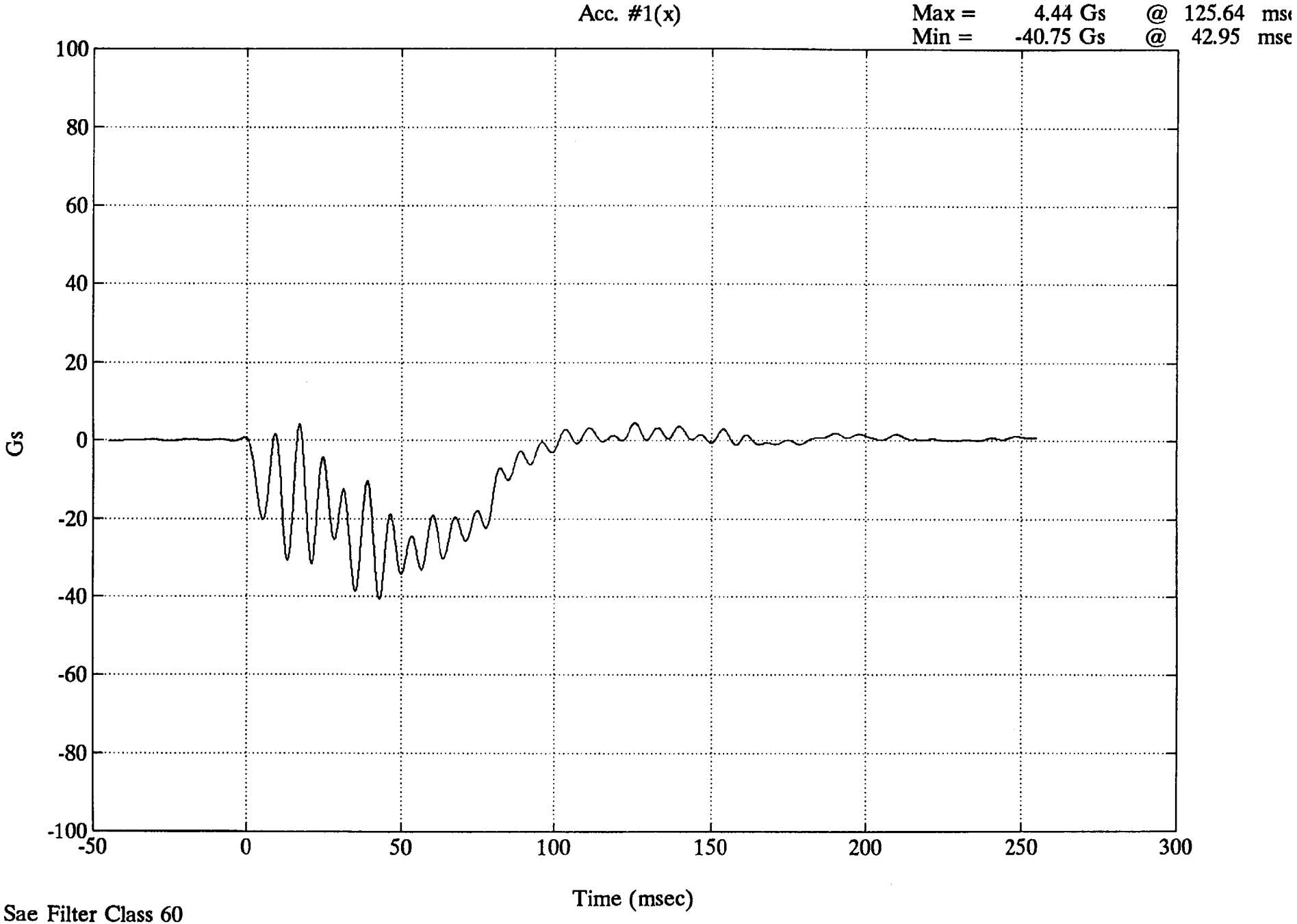
TEST NO. MN5600

VEHICLE DATA

SAE FILTER CHANNEL CLASS

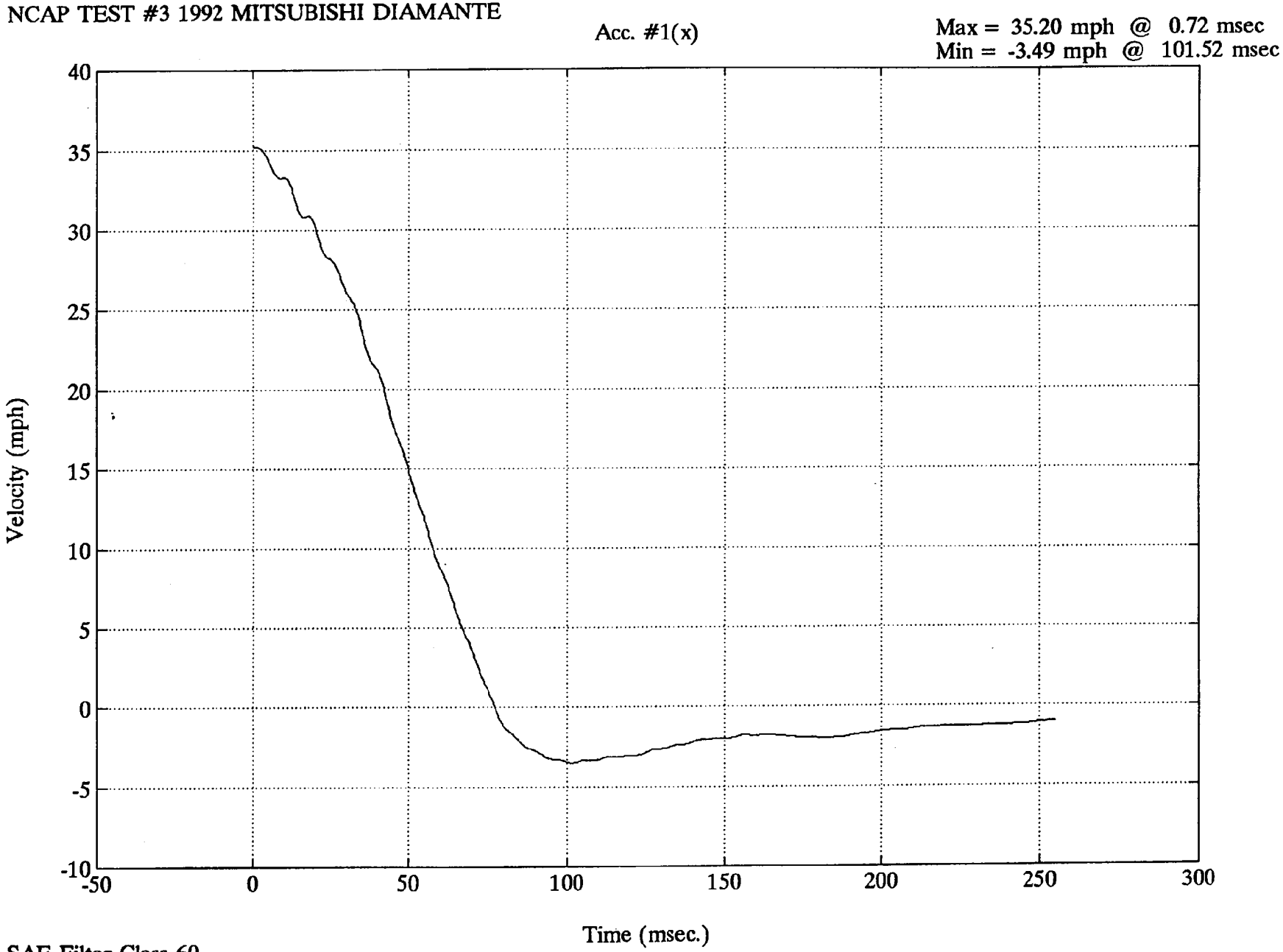
60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



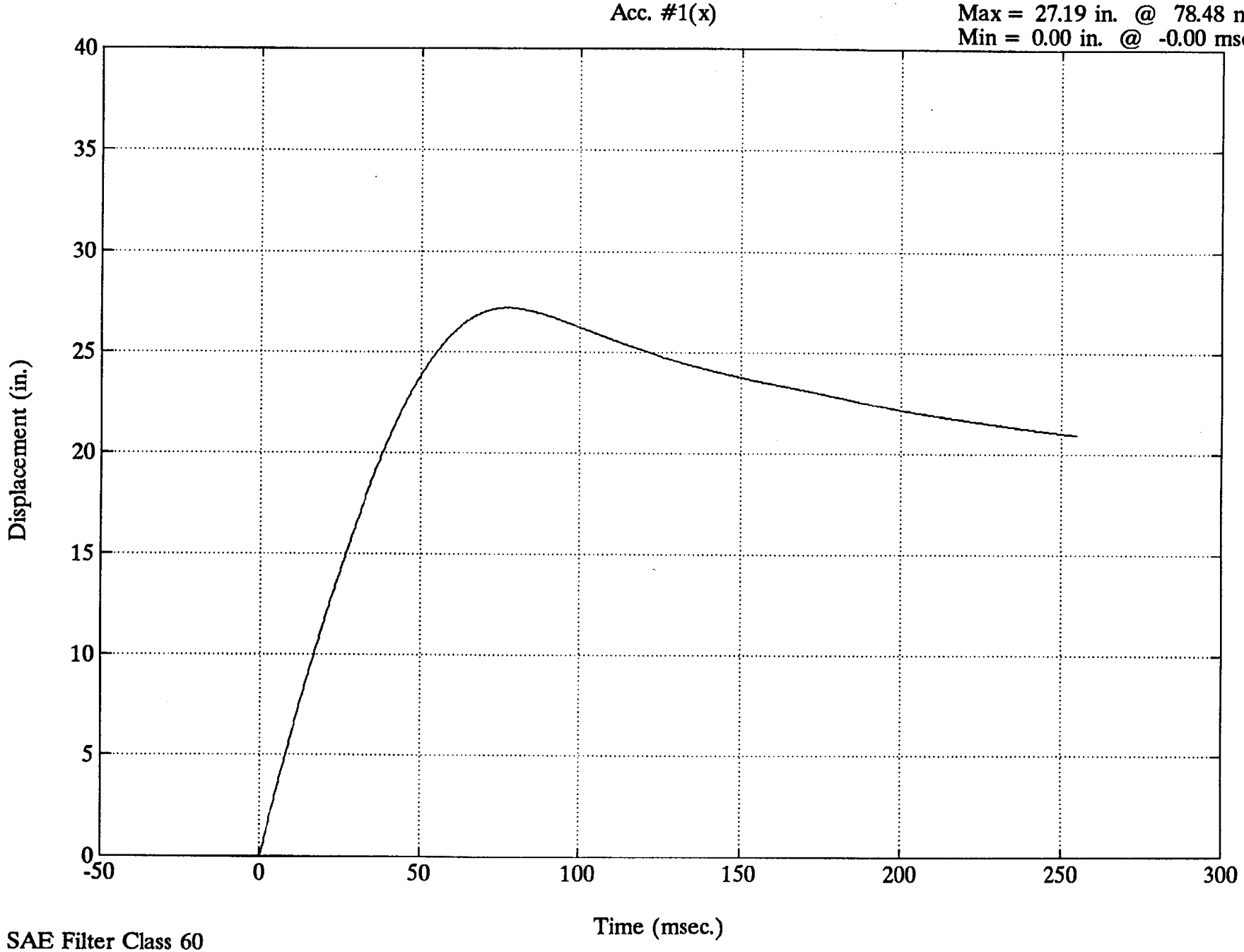
Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



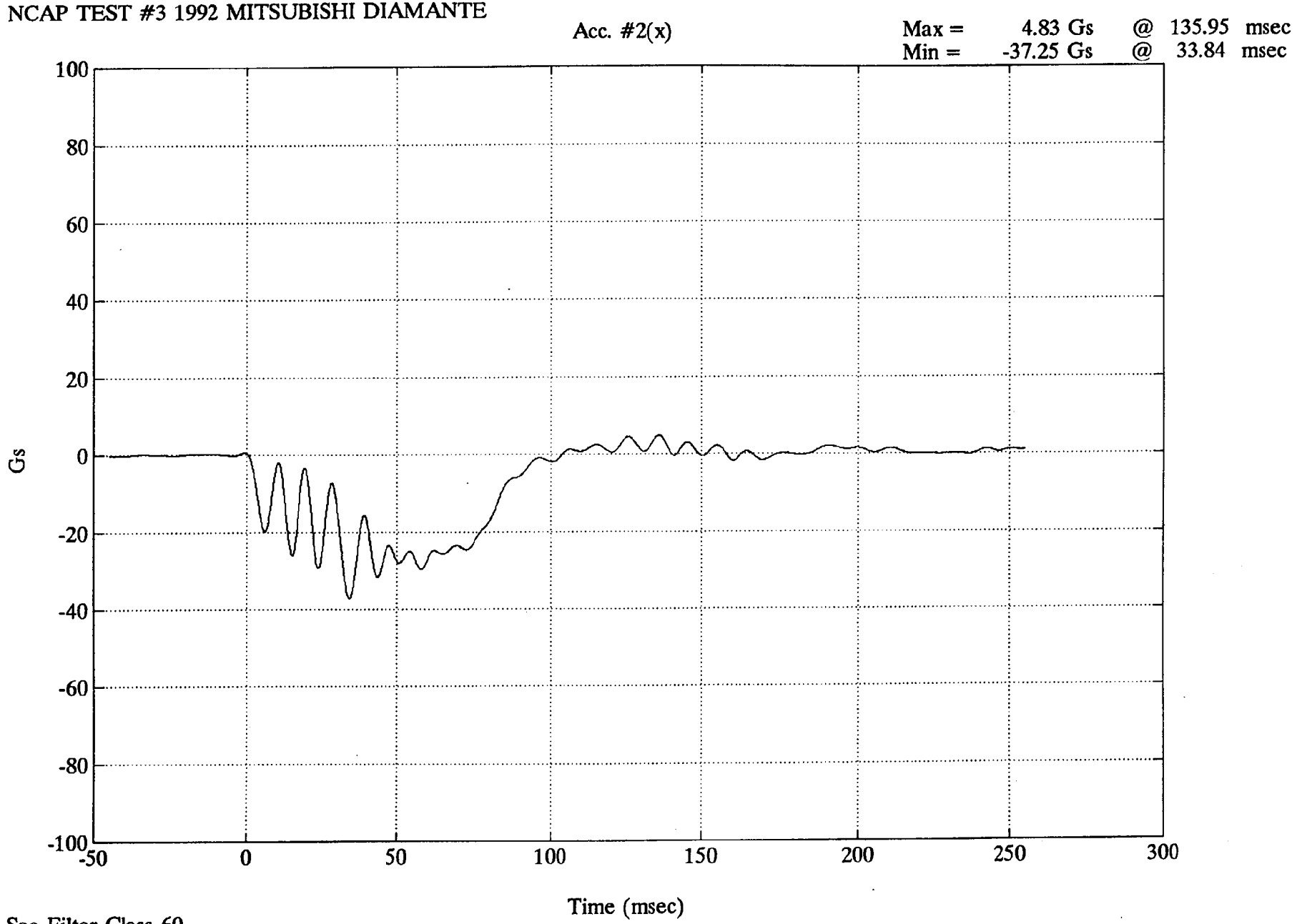
SAE Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



SAE Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



Sae Filter Class 60

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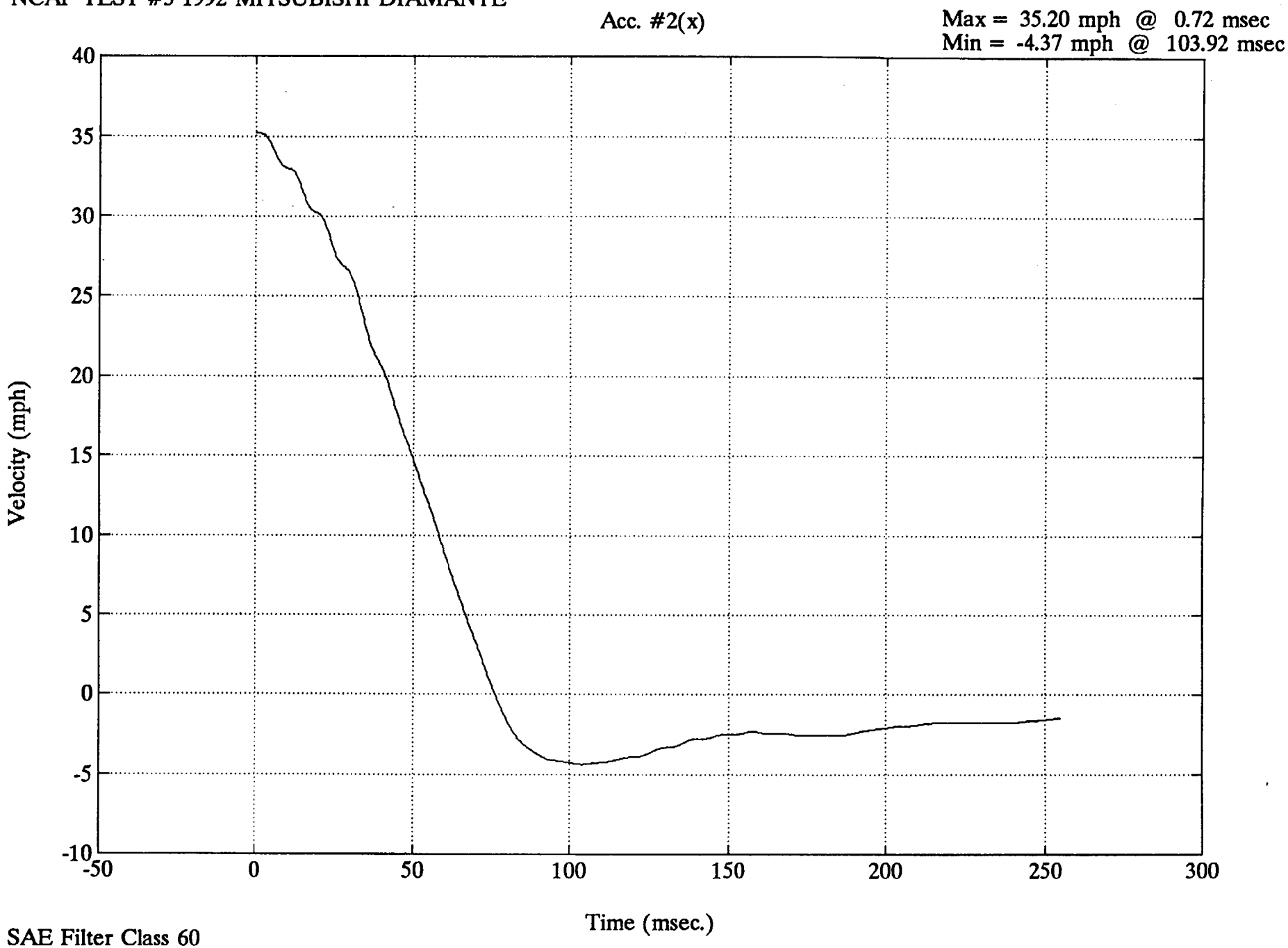
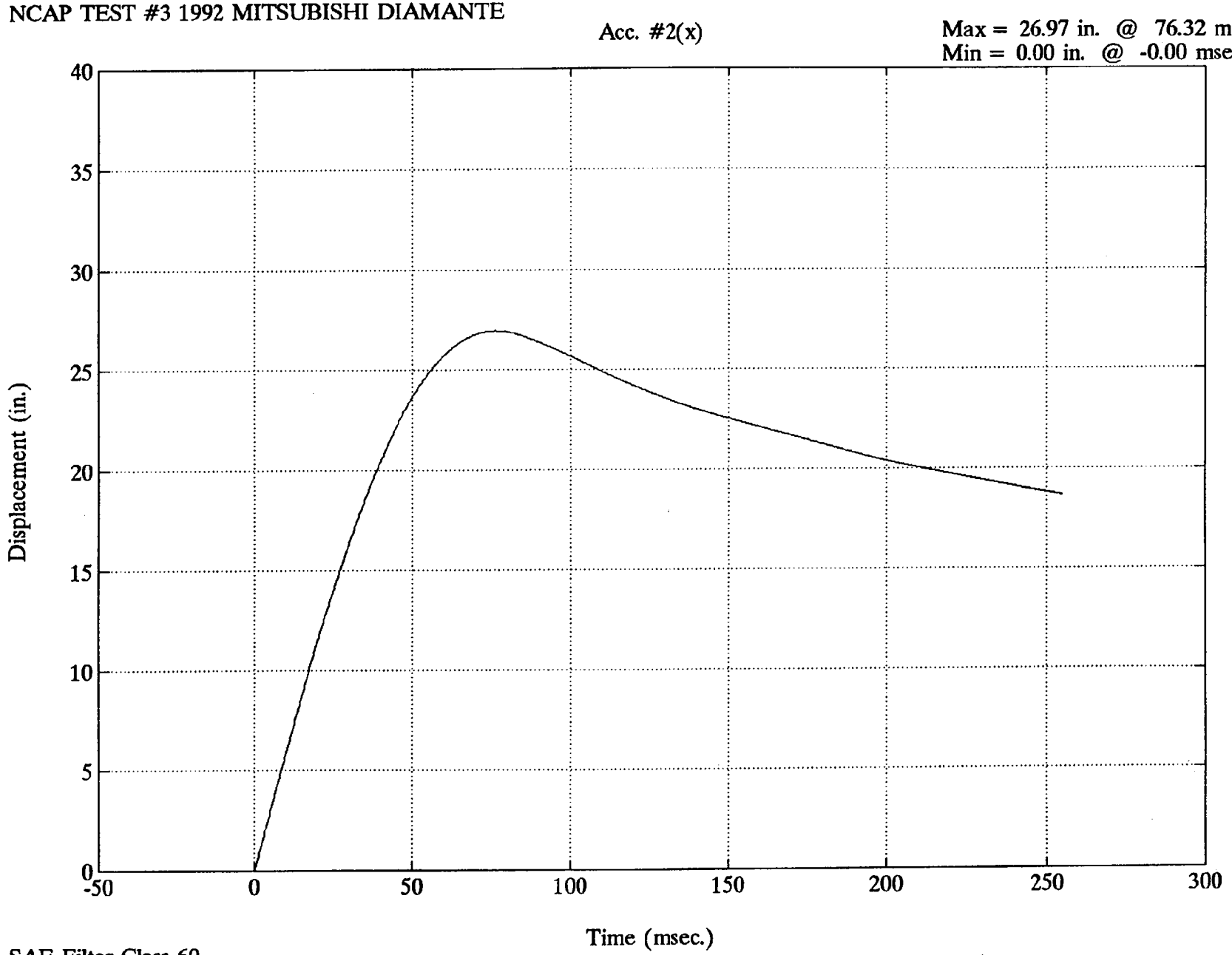


SAE Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



SAE Filter Class 60

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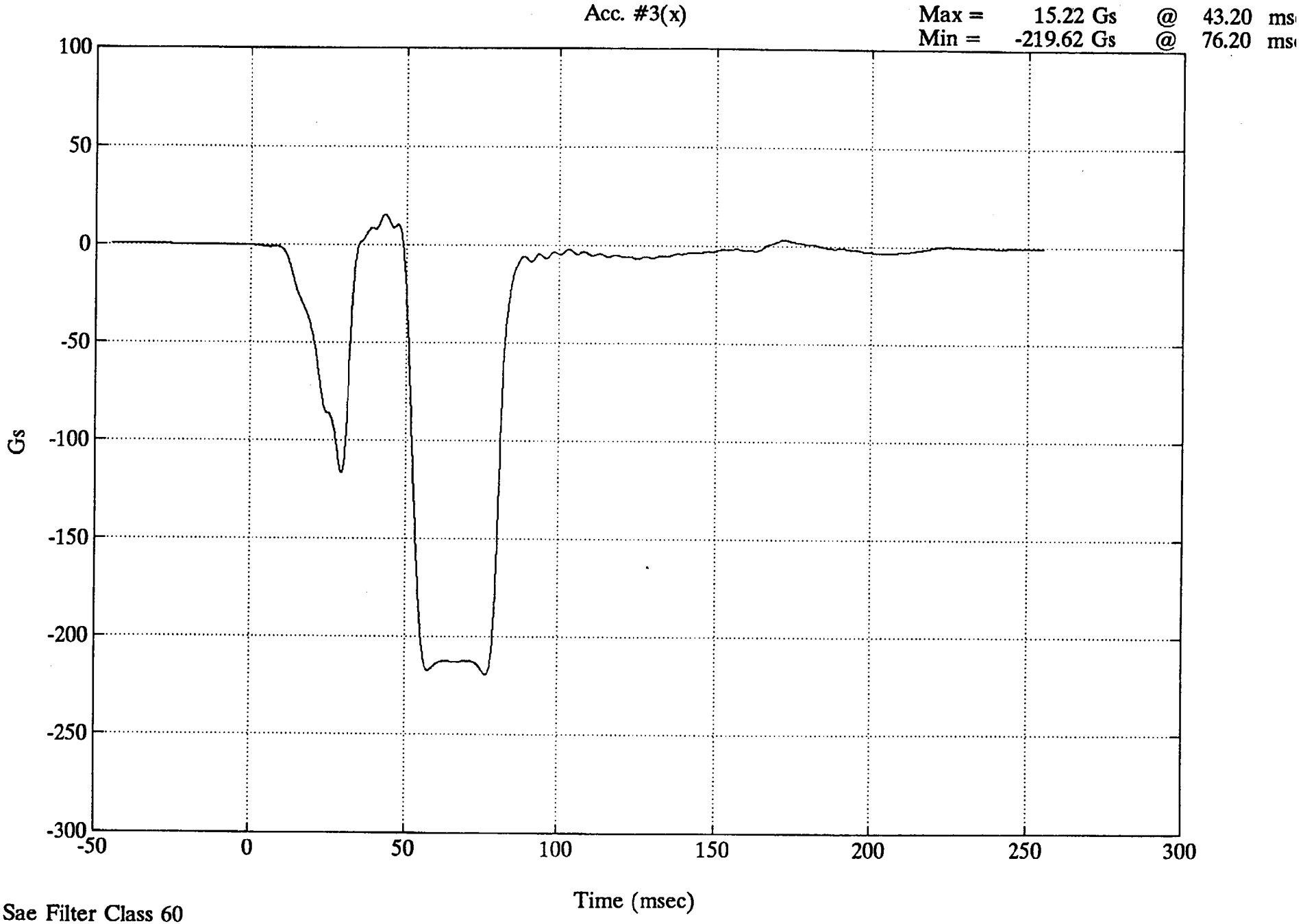
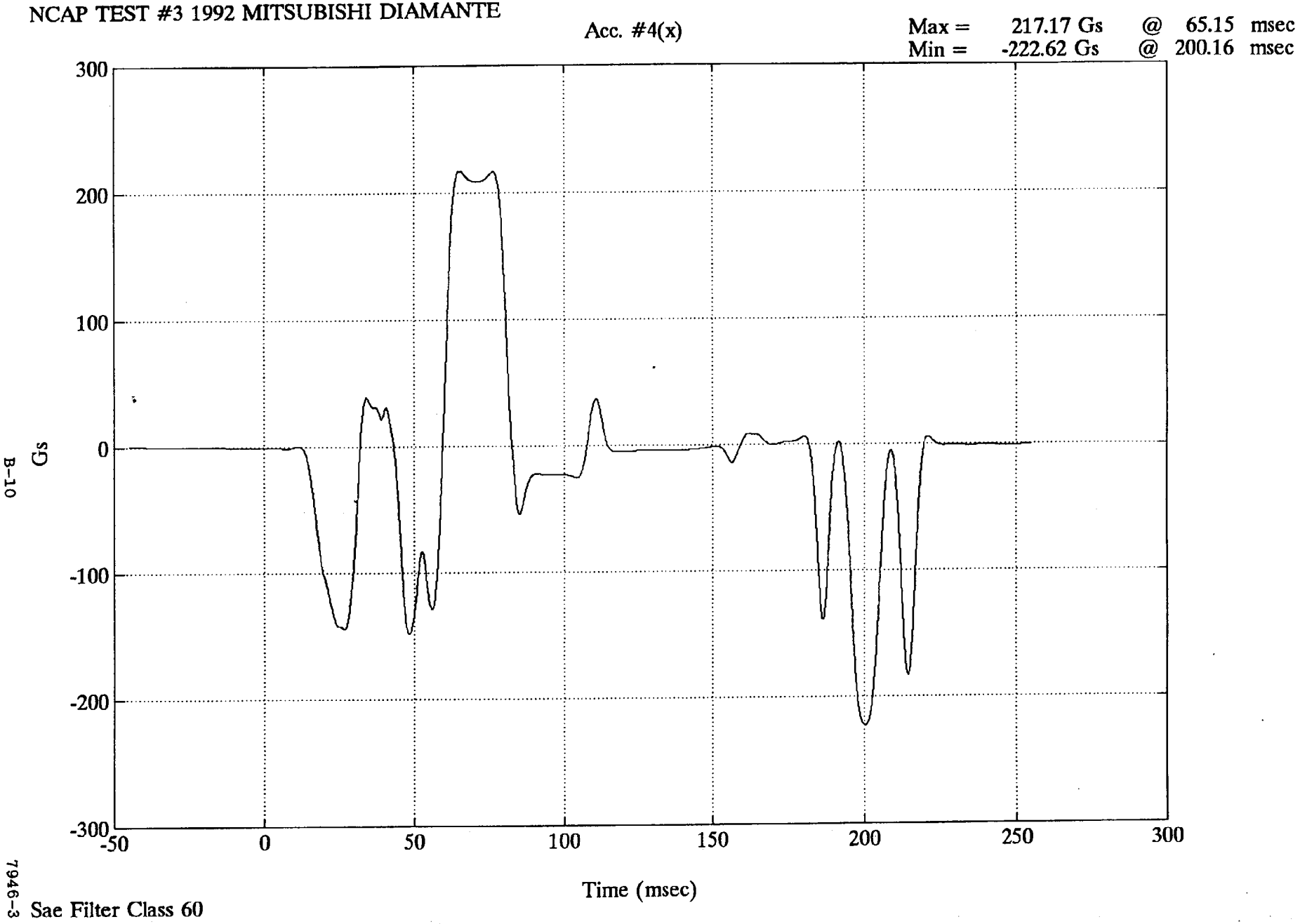


Sae Filter Class 60

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

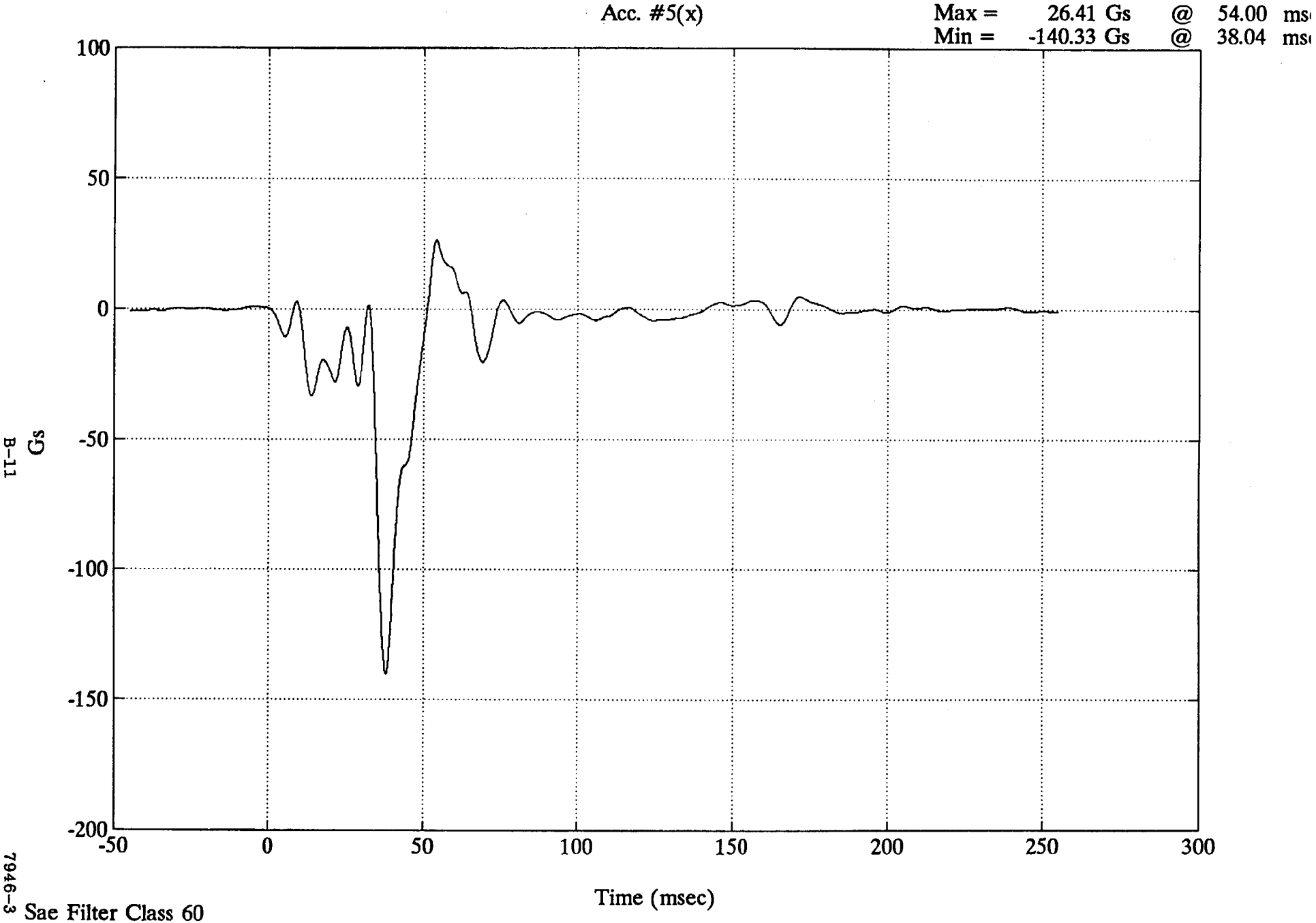


B-10

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



B-11

7946-3 Sae Filter Class 60

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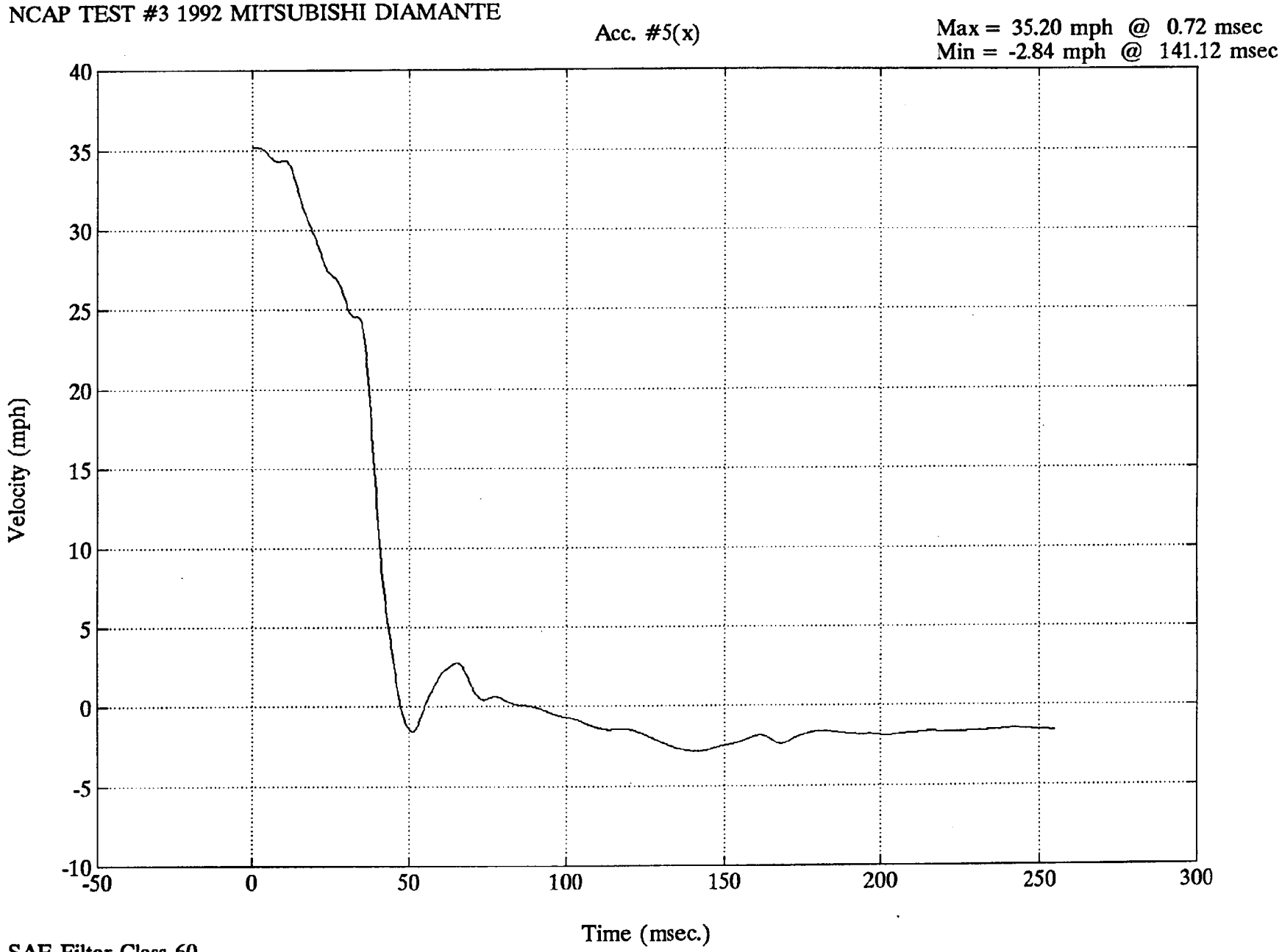

SAE Filter Class 60

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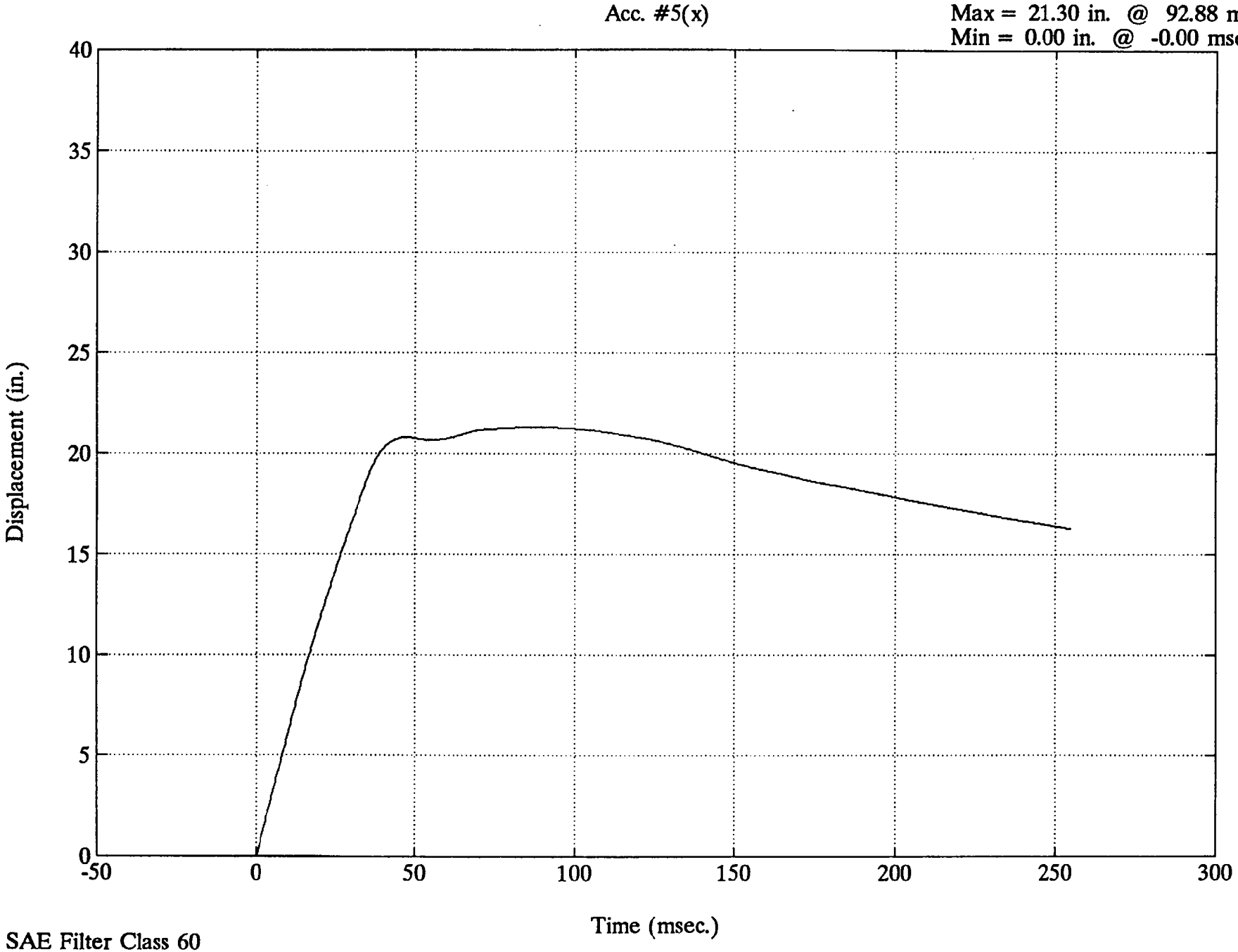

SAE Filter Class 60

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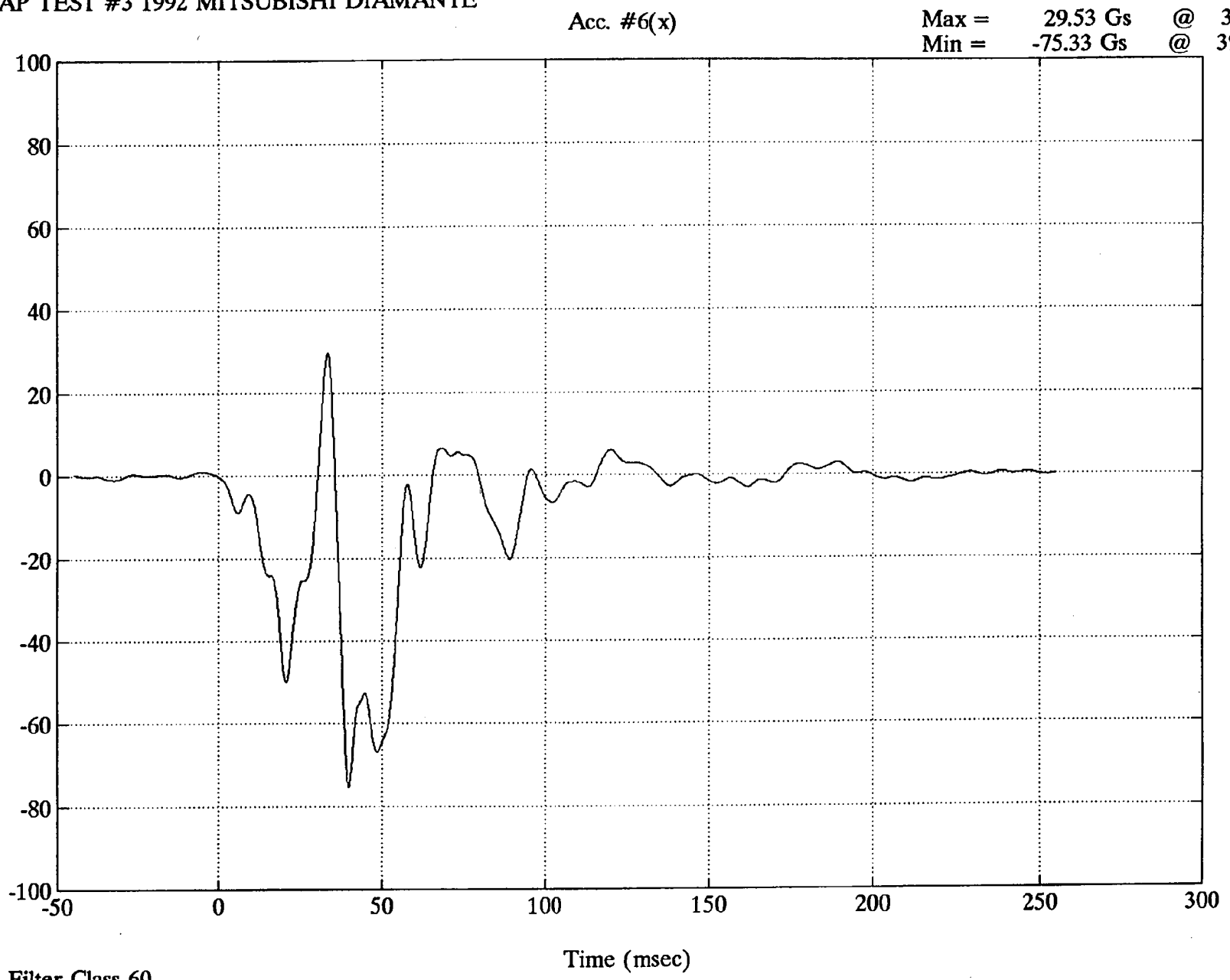

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7946-3

Sae Filter Class 60

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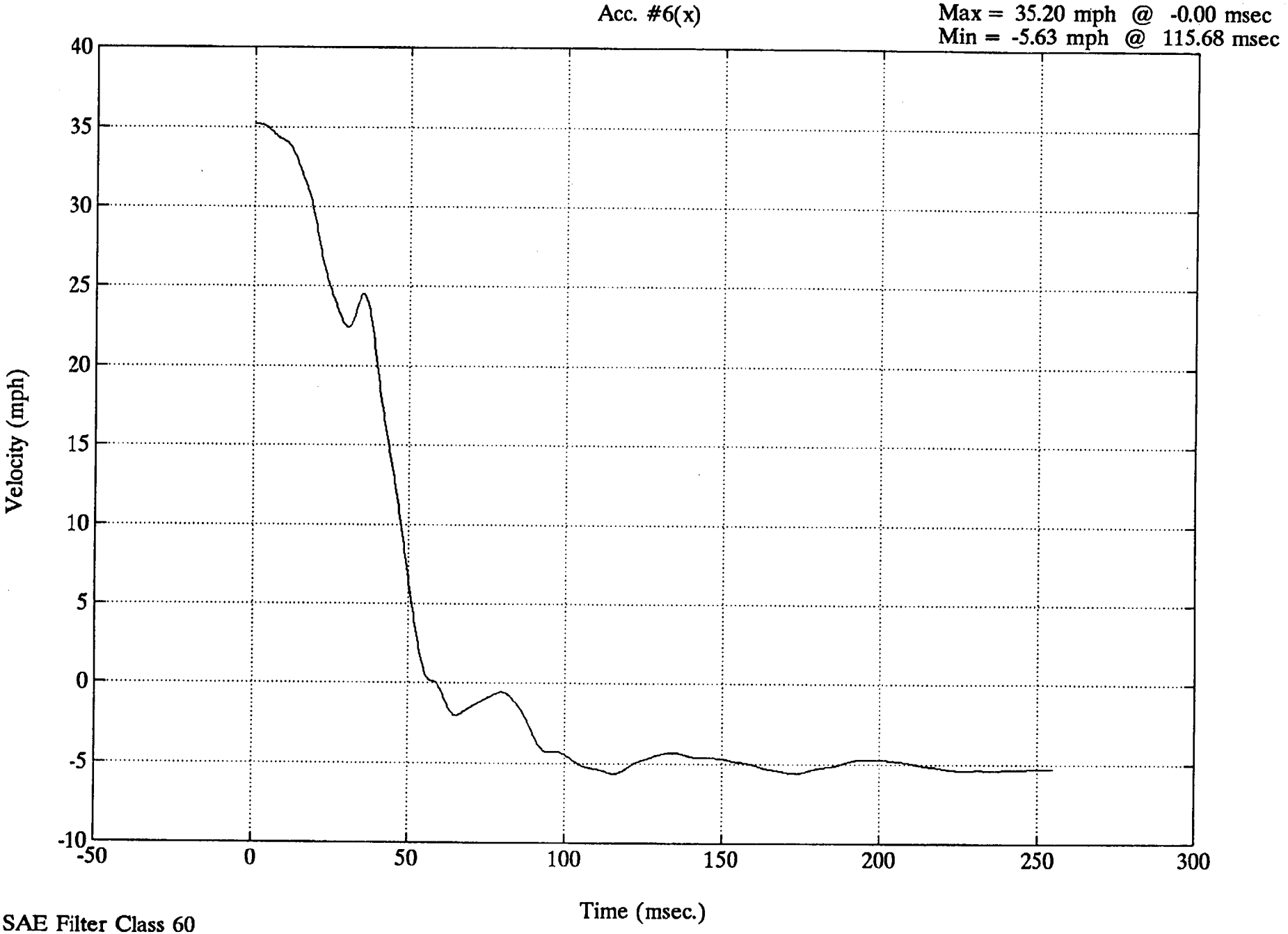

SAE Filter Class 60

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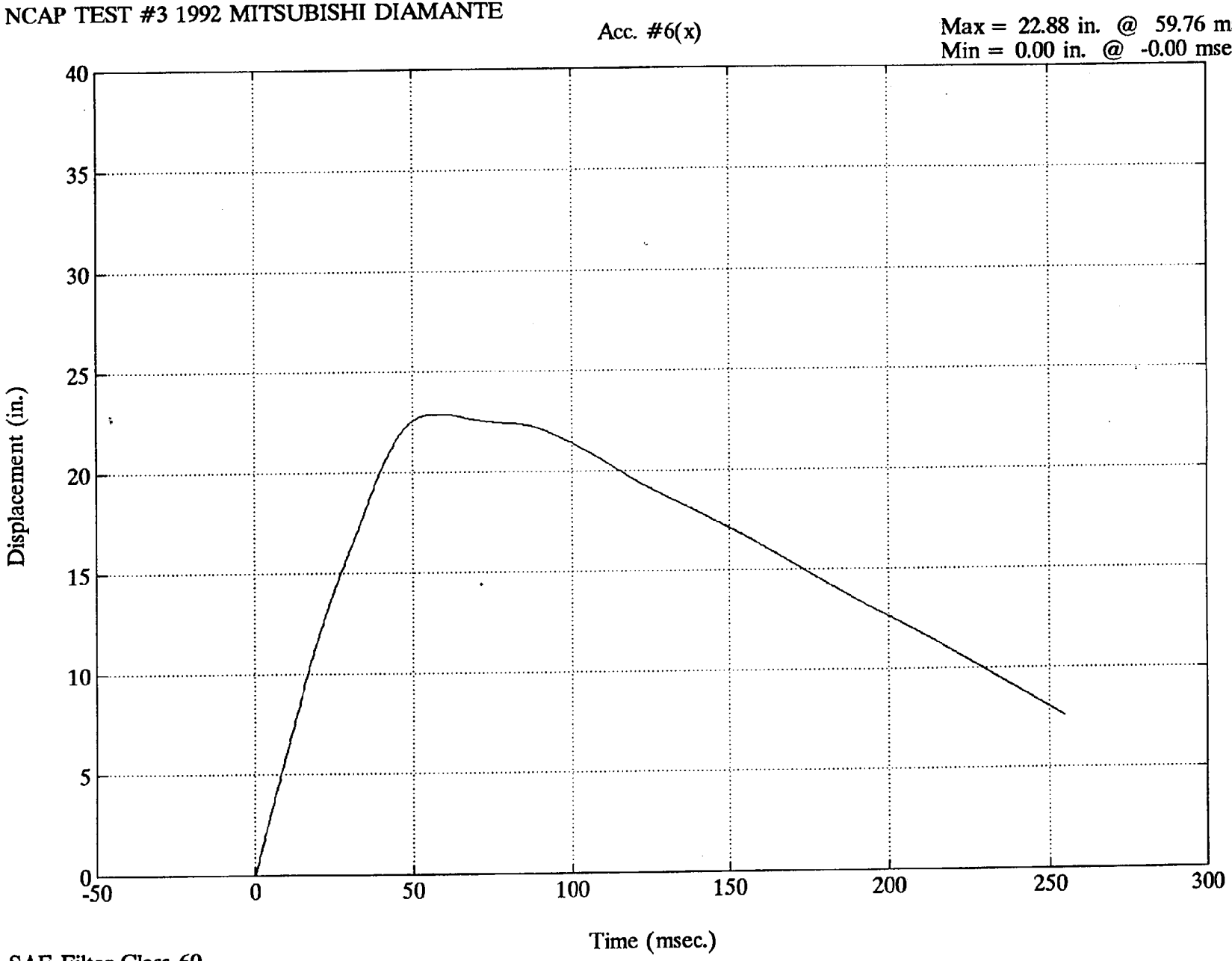

SAE Filter Class 60

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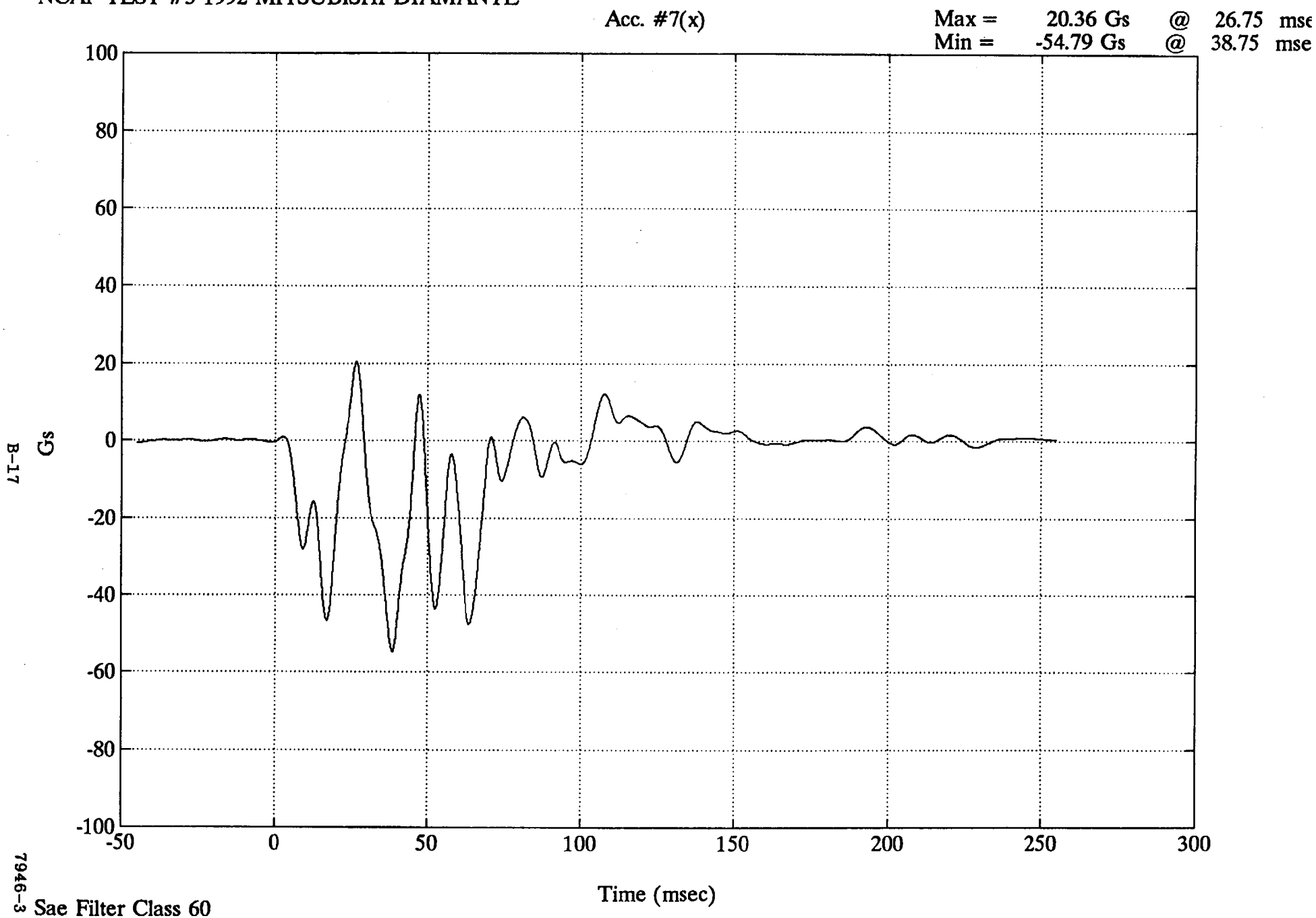

B-17

7946-3

Sae Filter Class 60

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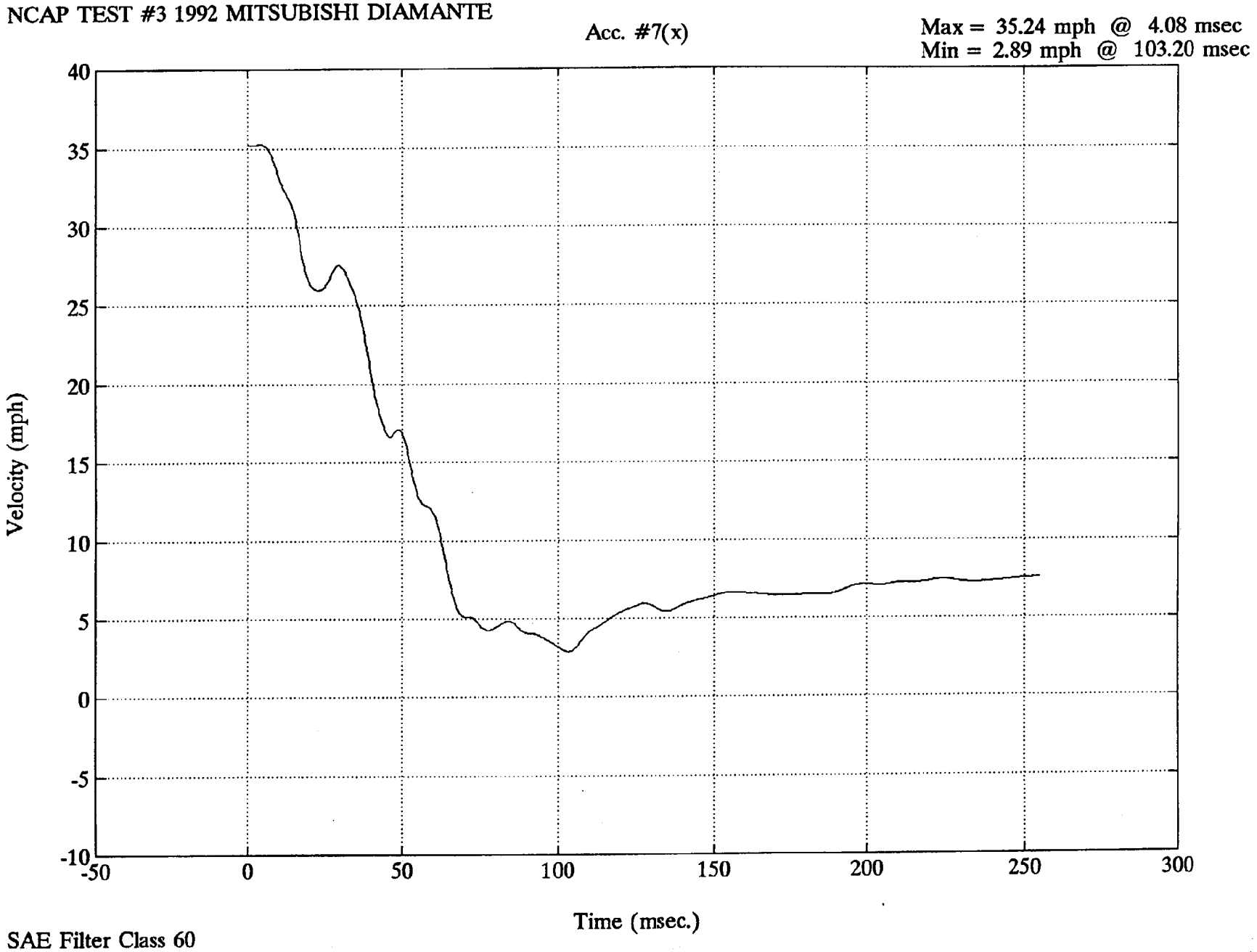
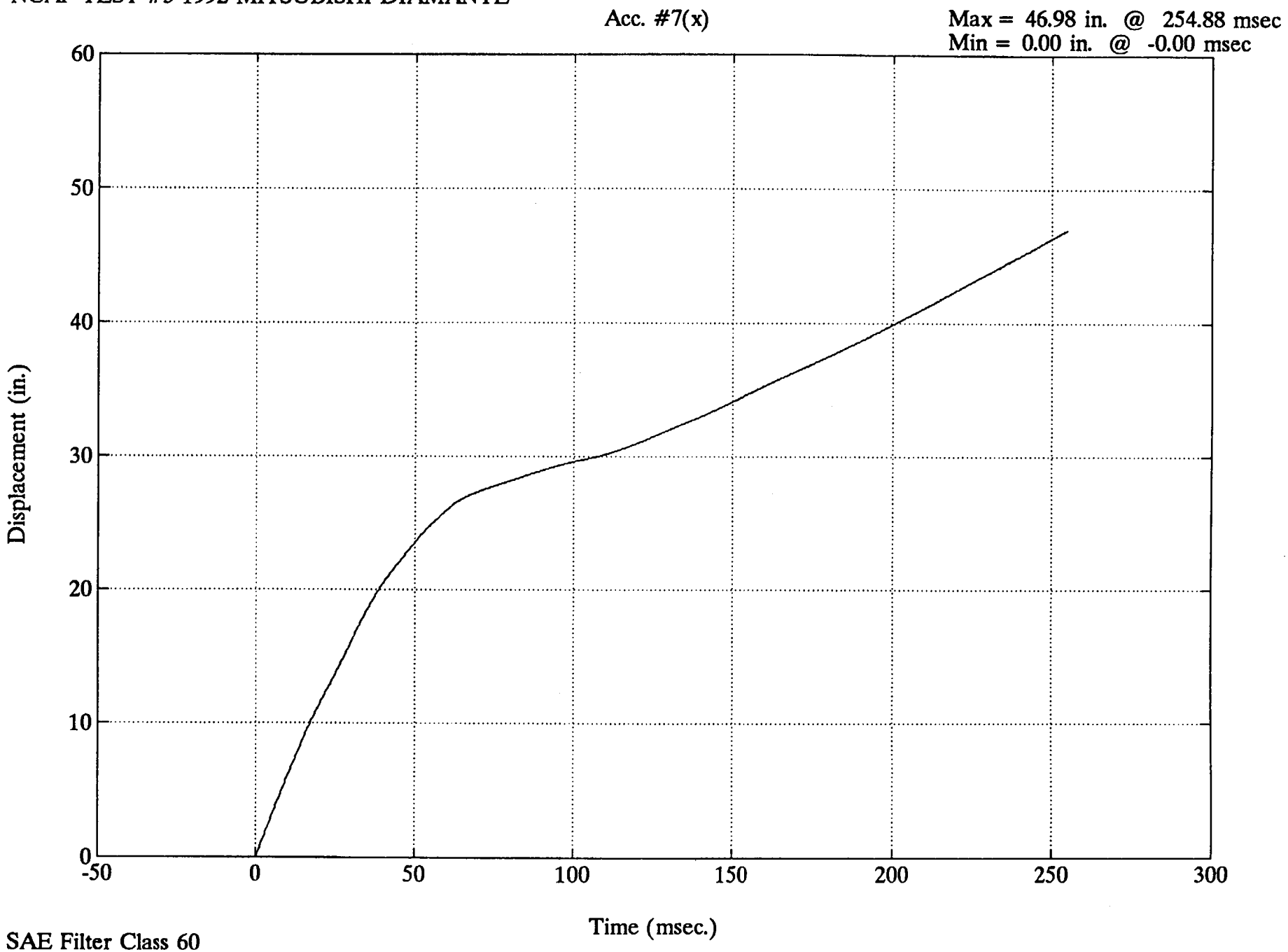


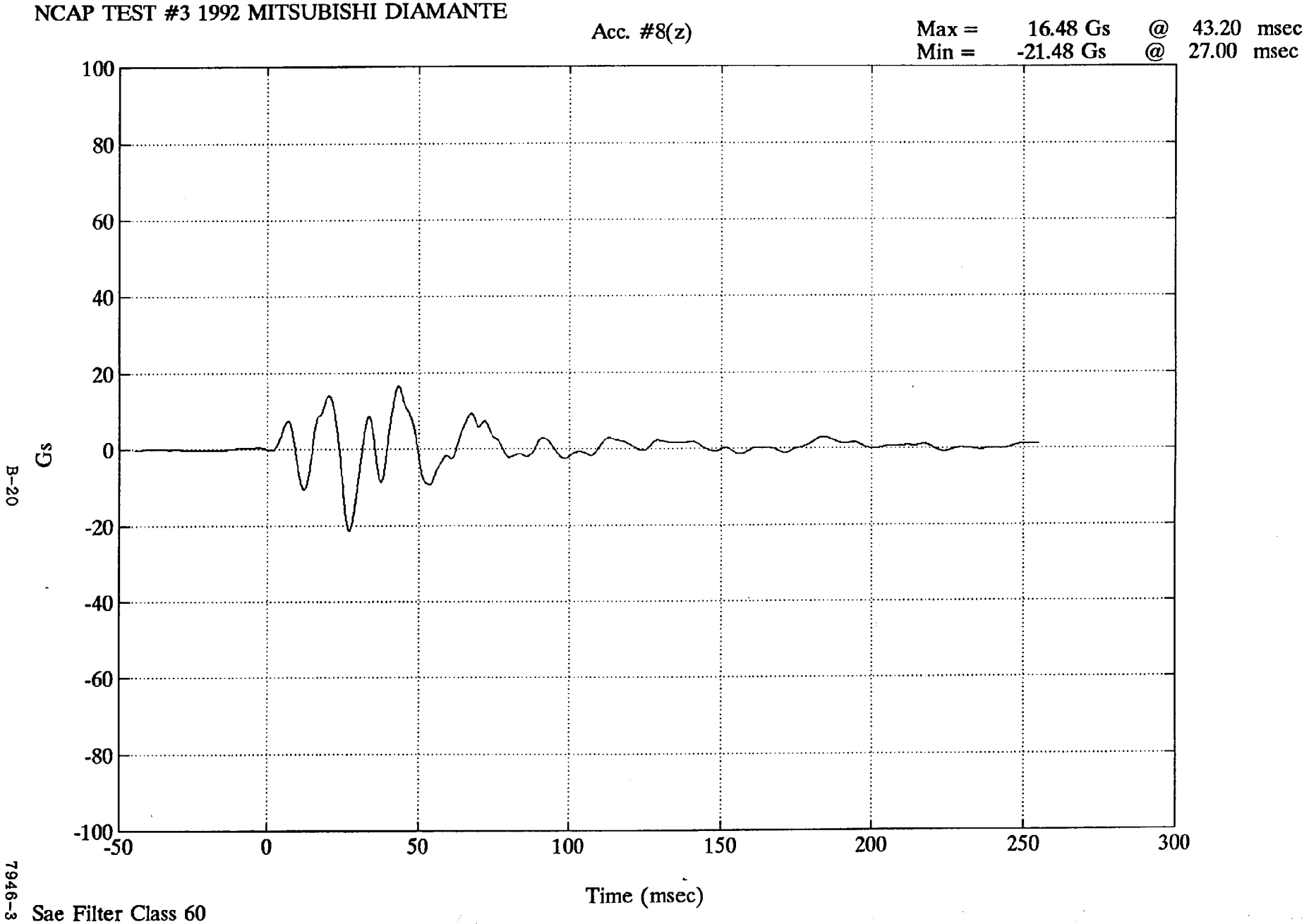
SAE Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



SAE Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



B-20

7946-3

Sae Filter Class 60

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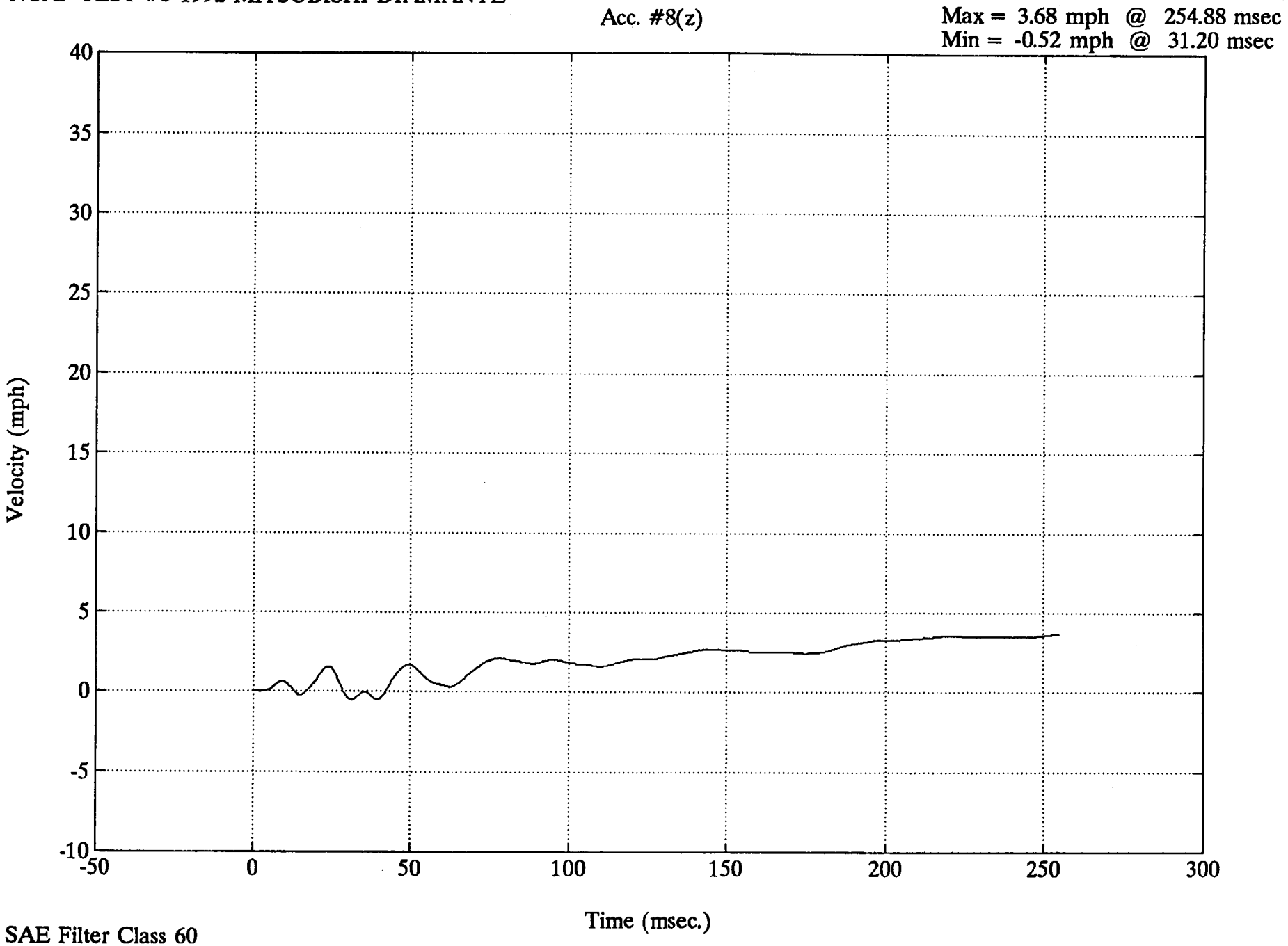

SAE Filter Class 60

7946-3

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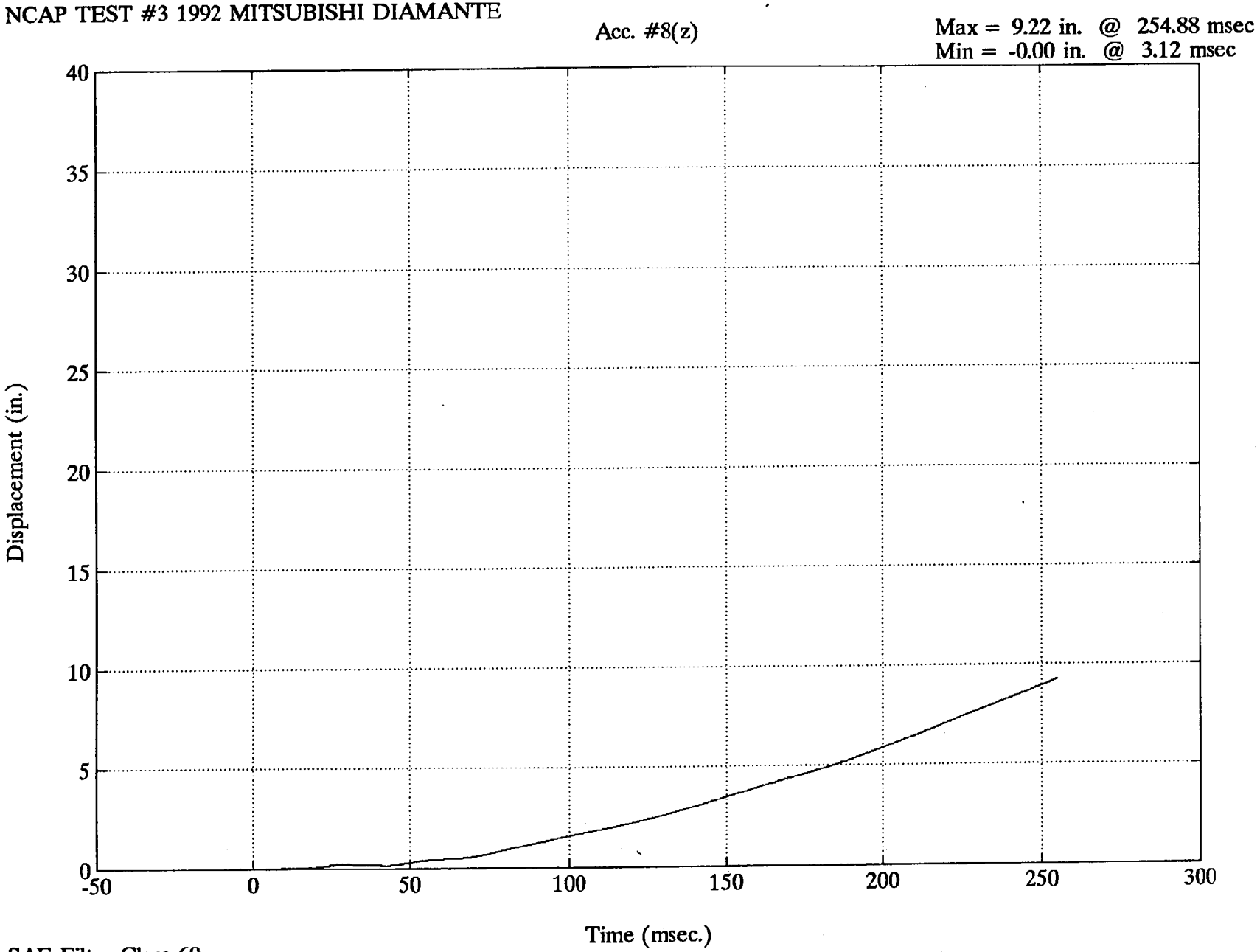

SAE Filter Class 60

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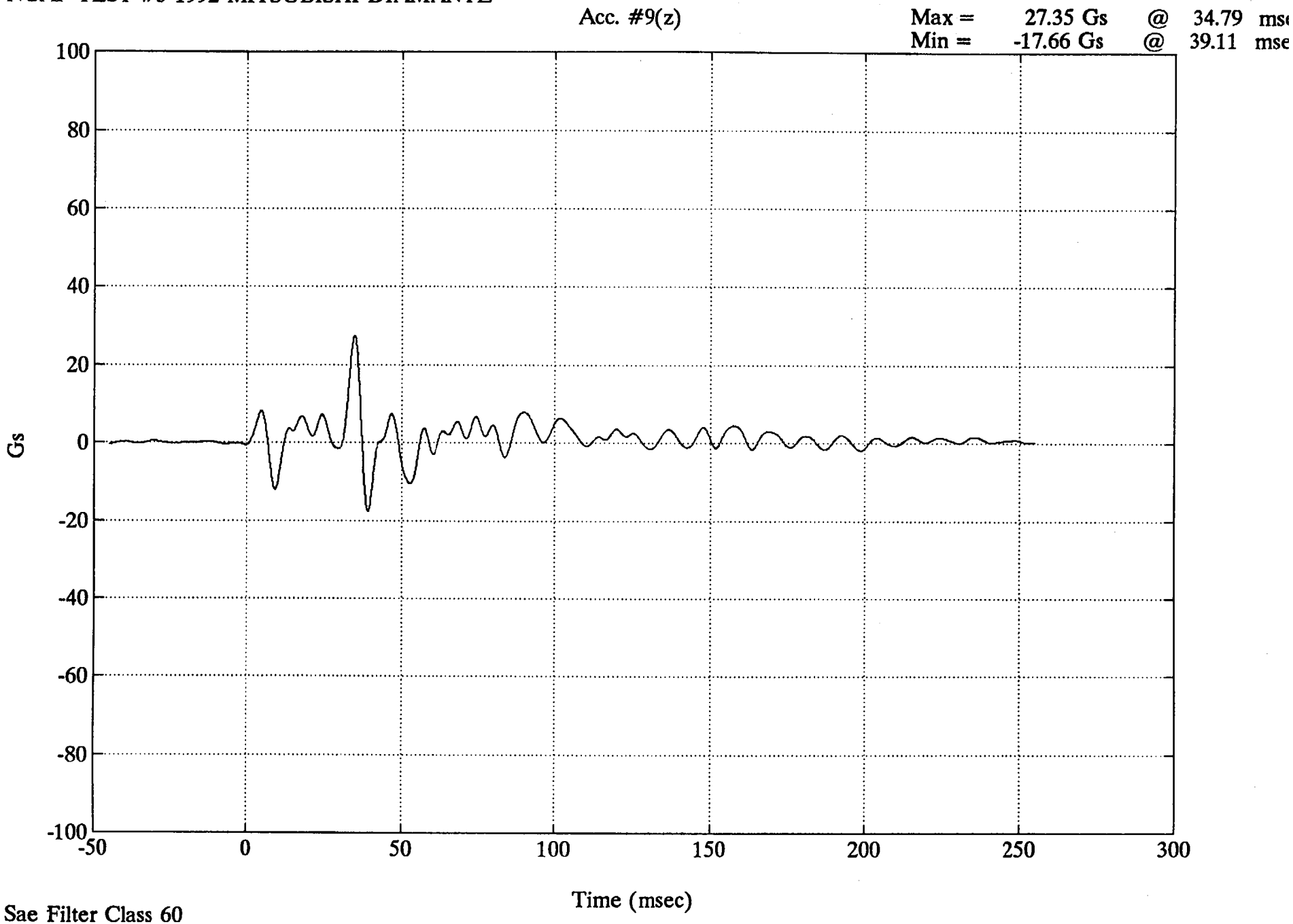

Sae Filter Class 60

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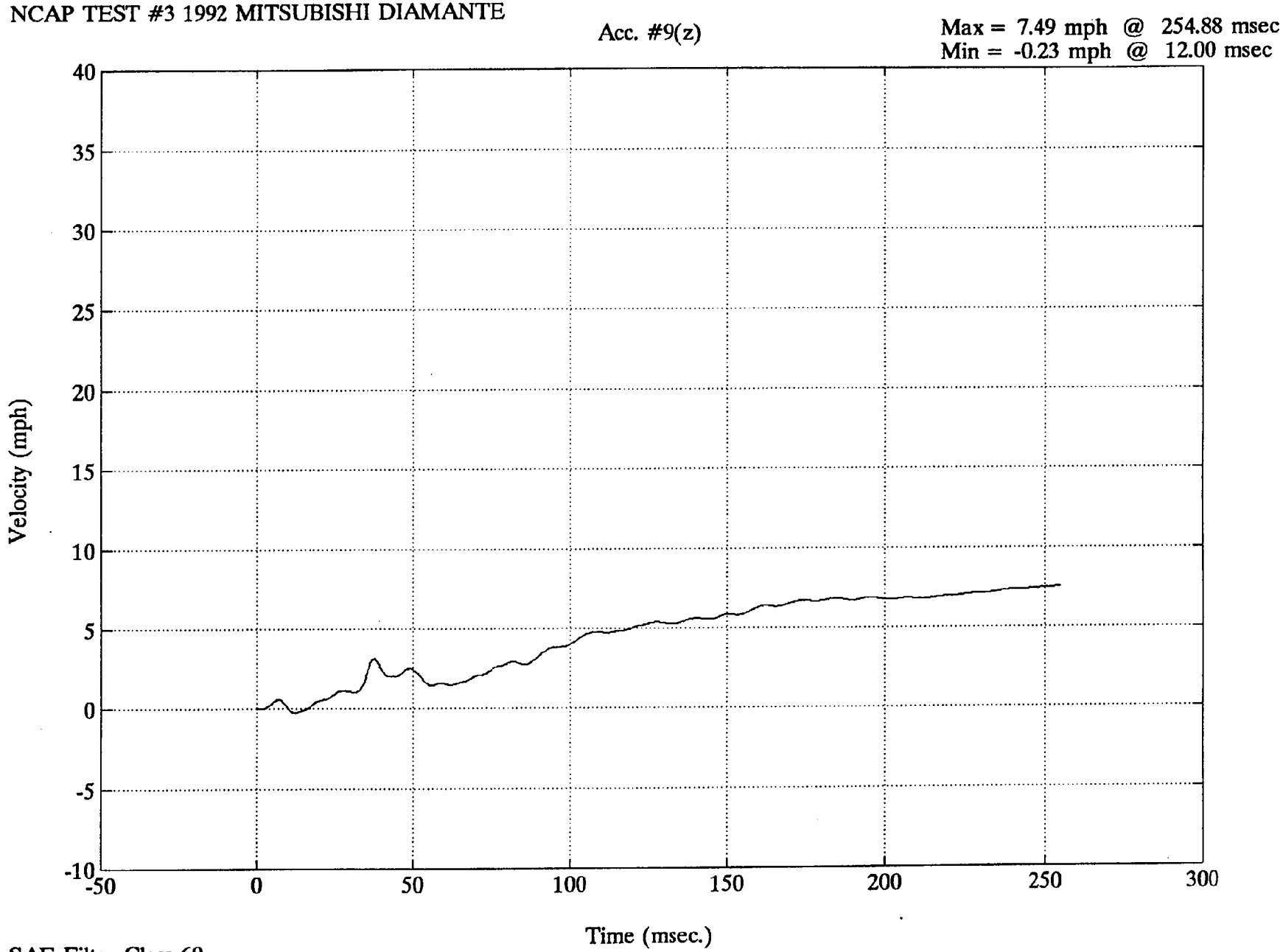
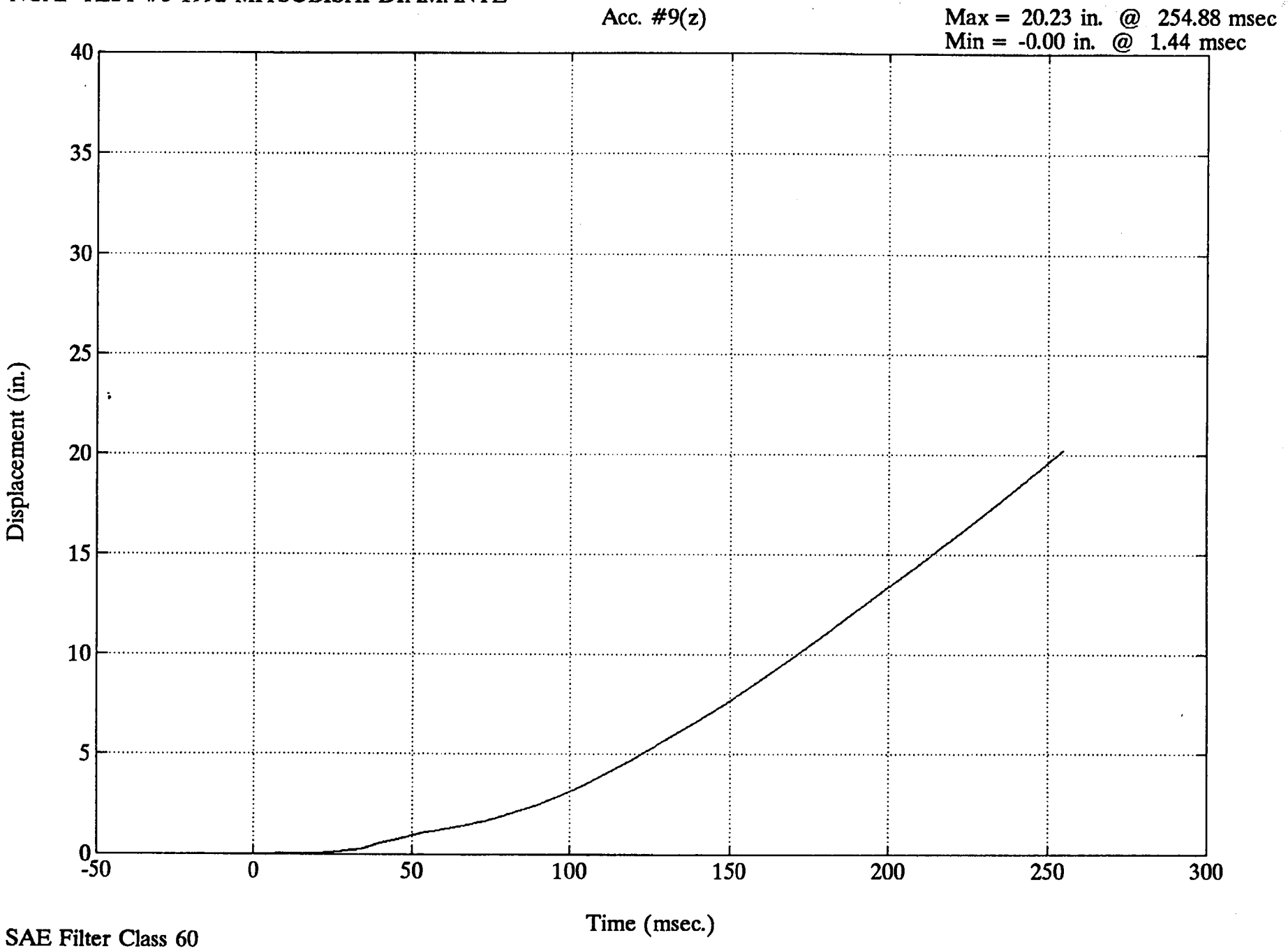


SAE Filter Class 60

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



SAE Filter Class 60

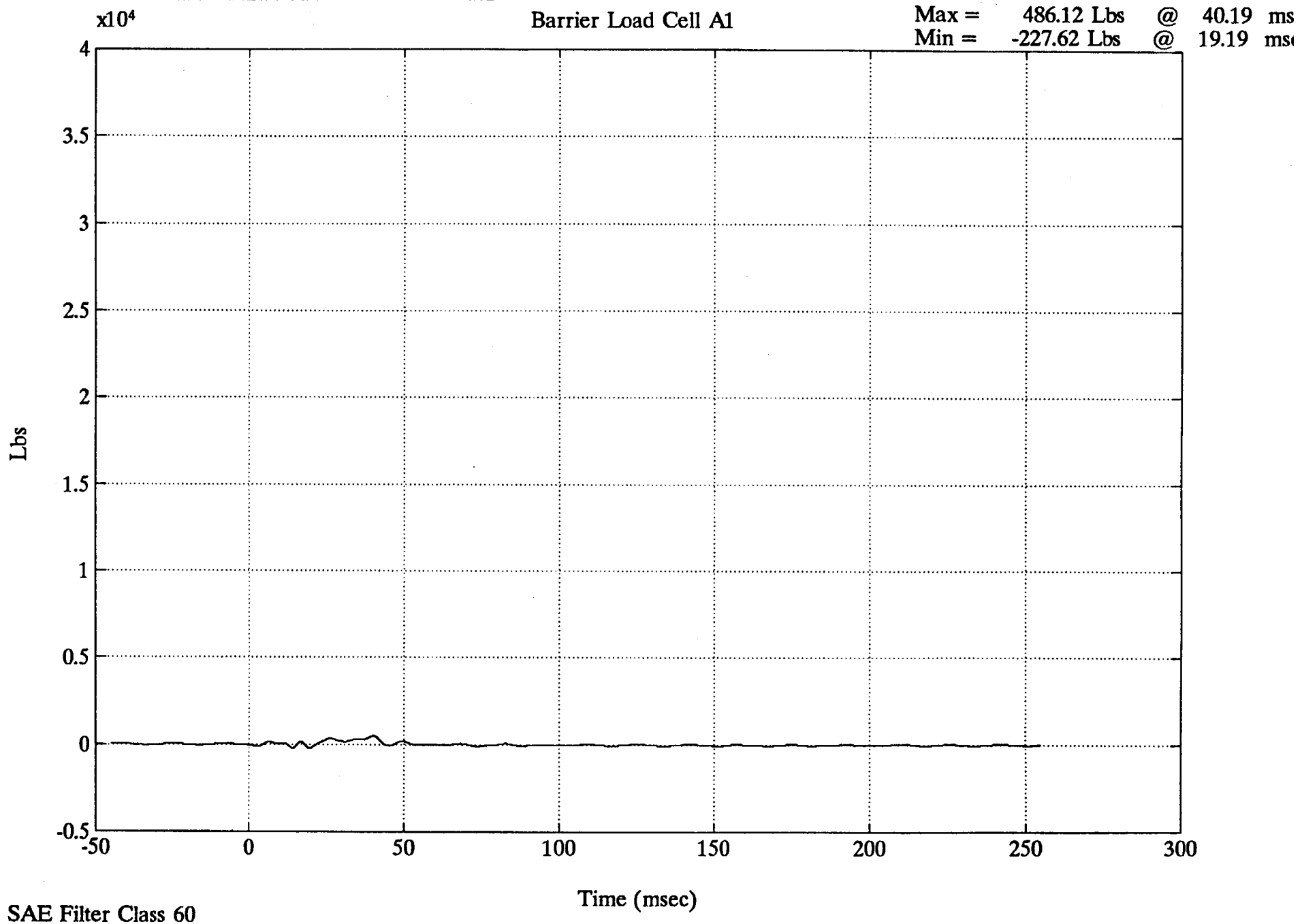
TEST NO. MN5600

LOAD CELL BARRIER DATA

FILTER CHANNEL CLASS

60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

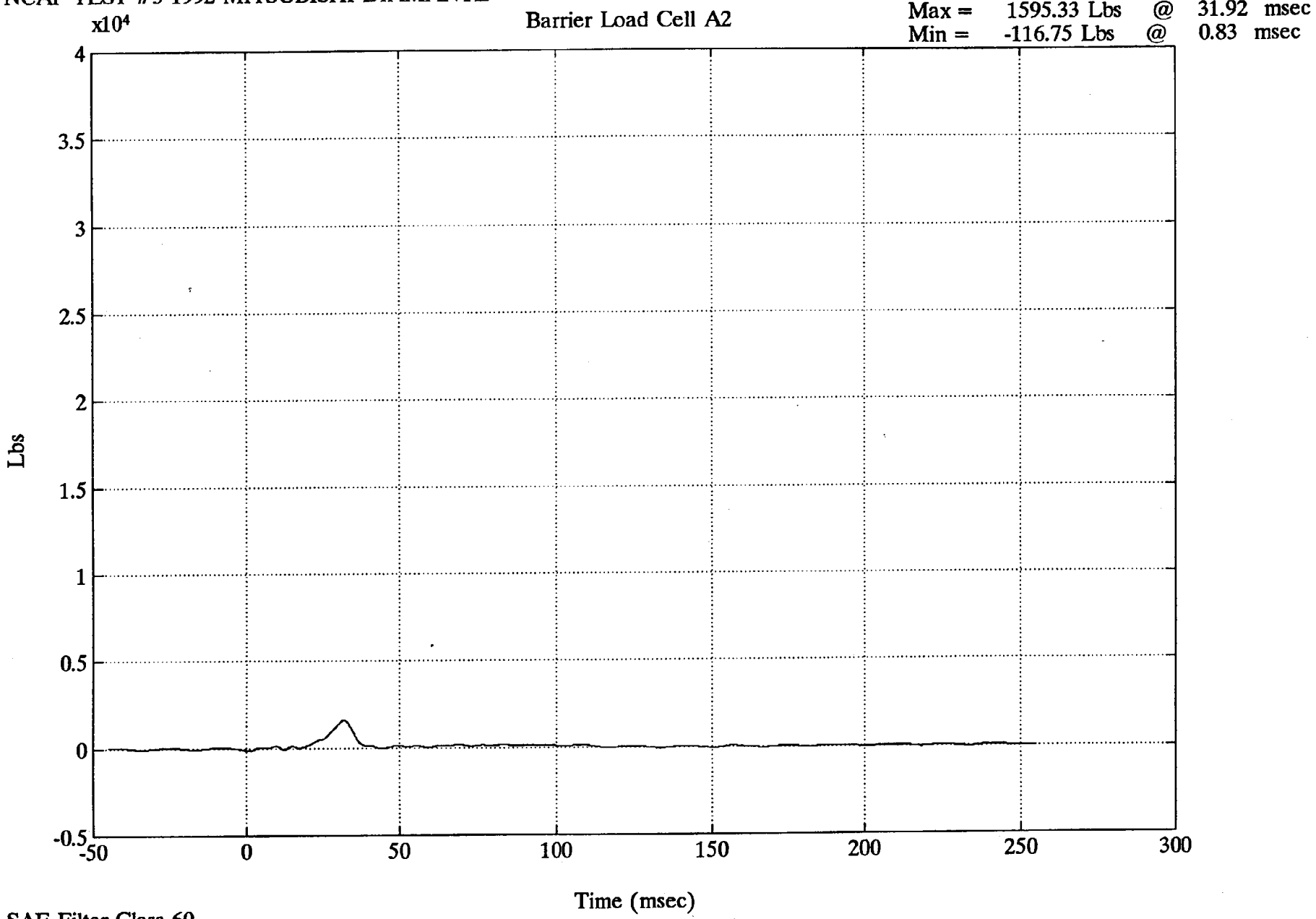


B-27

7946-3

SAE Filter Class 60

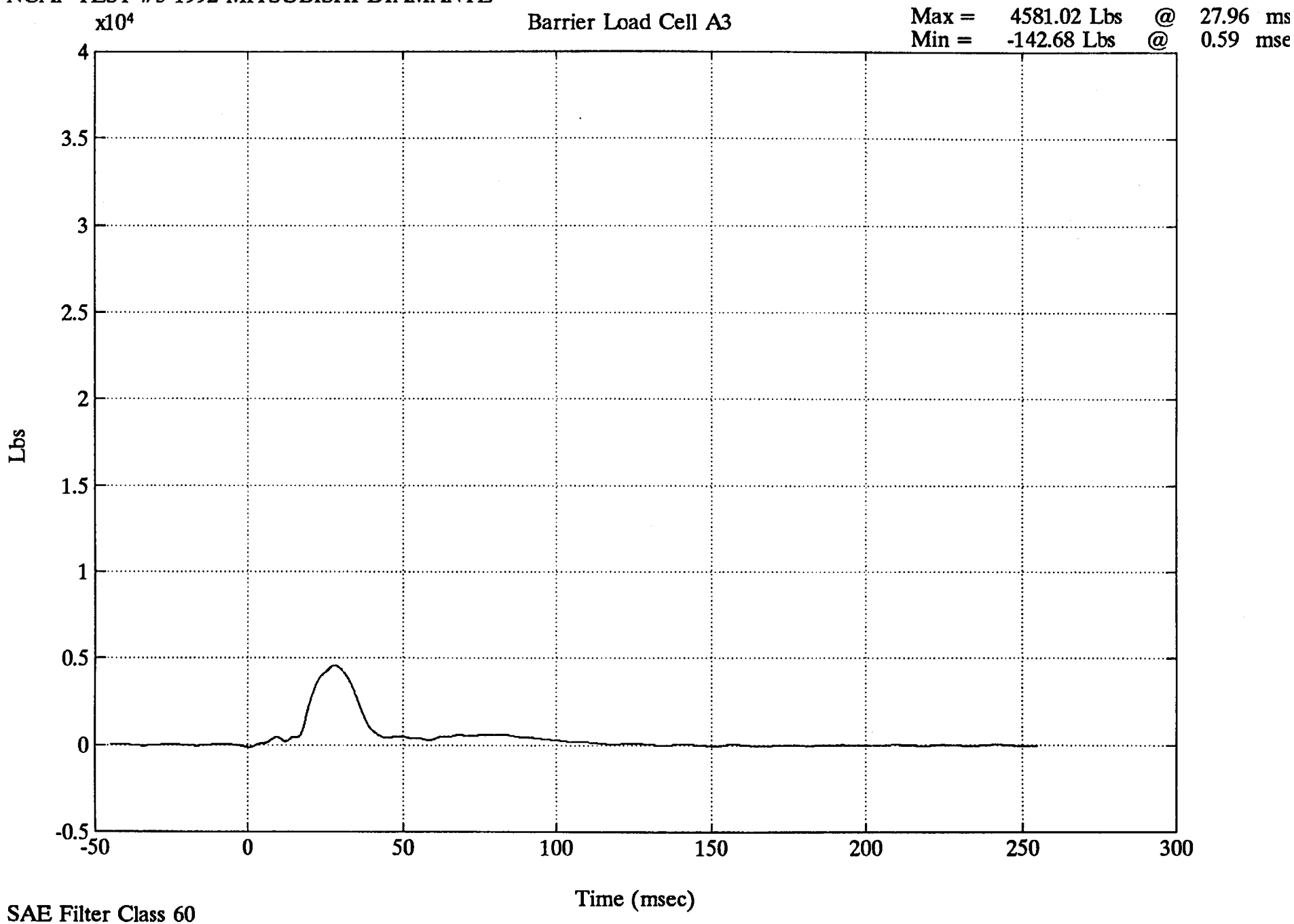
NCAP TEST #3 1992 MITSUBISHI DIAMANTE



SAE Filter Class 60

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

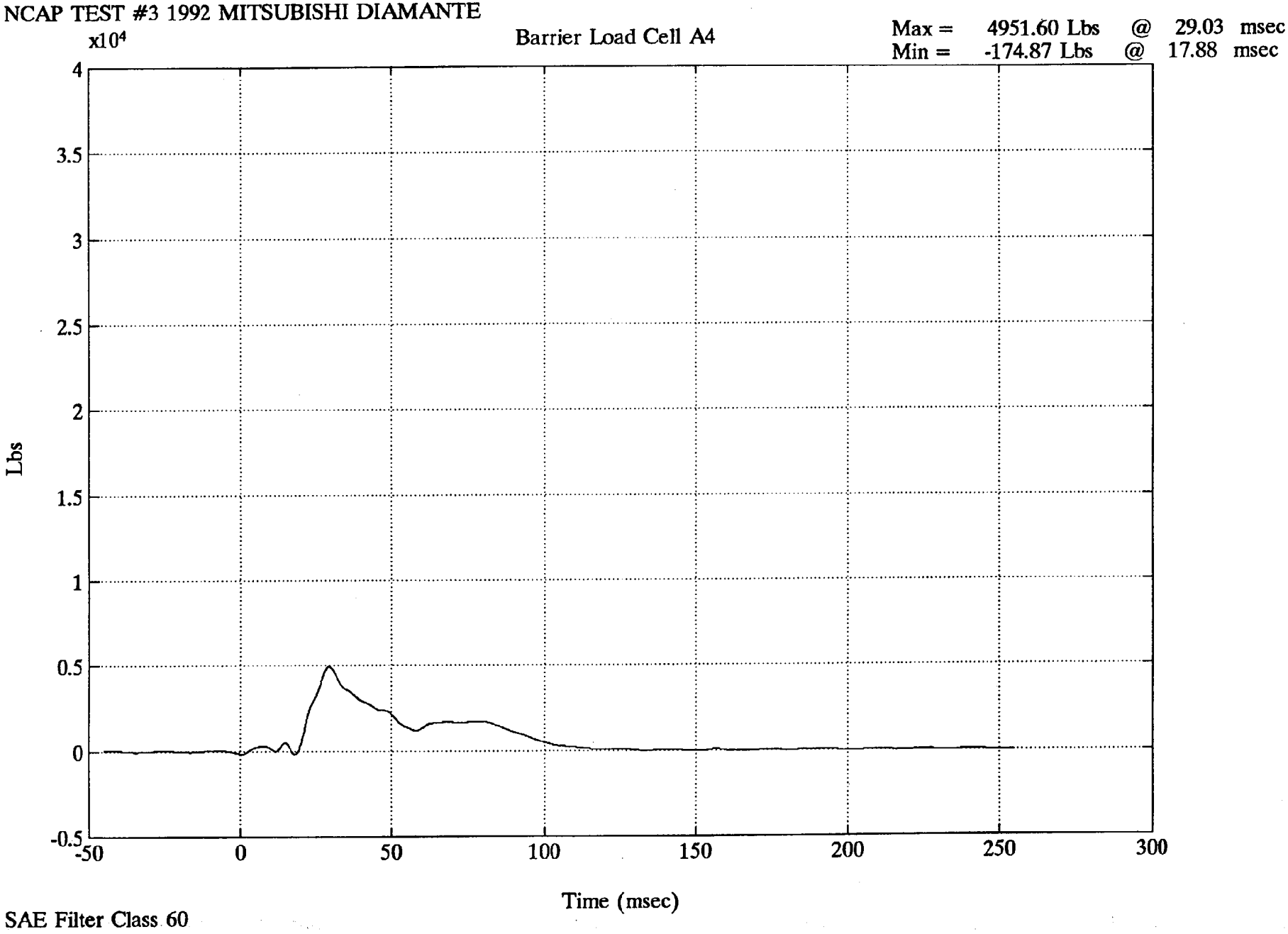


SAE Filter Class 60

B-29

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

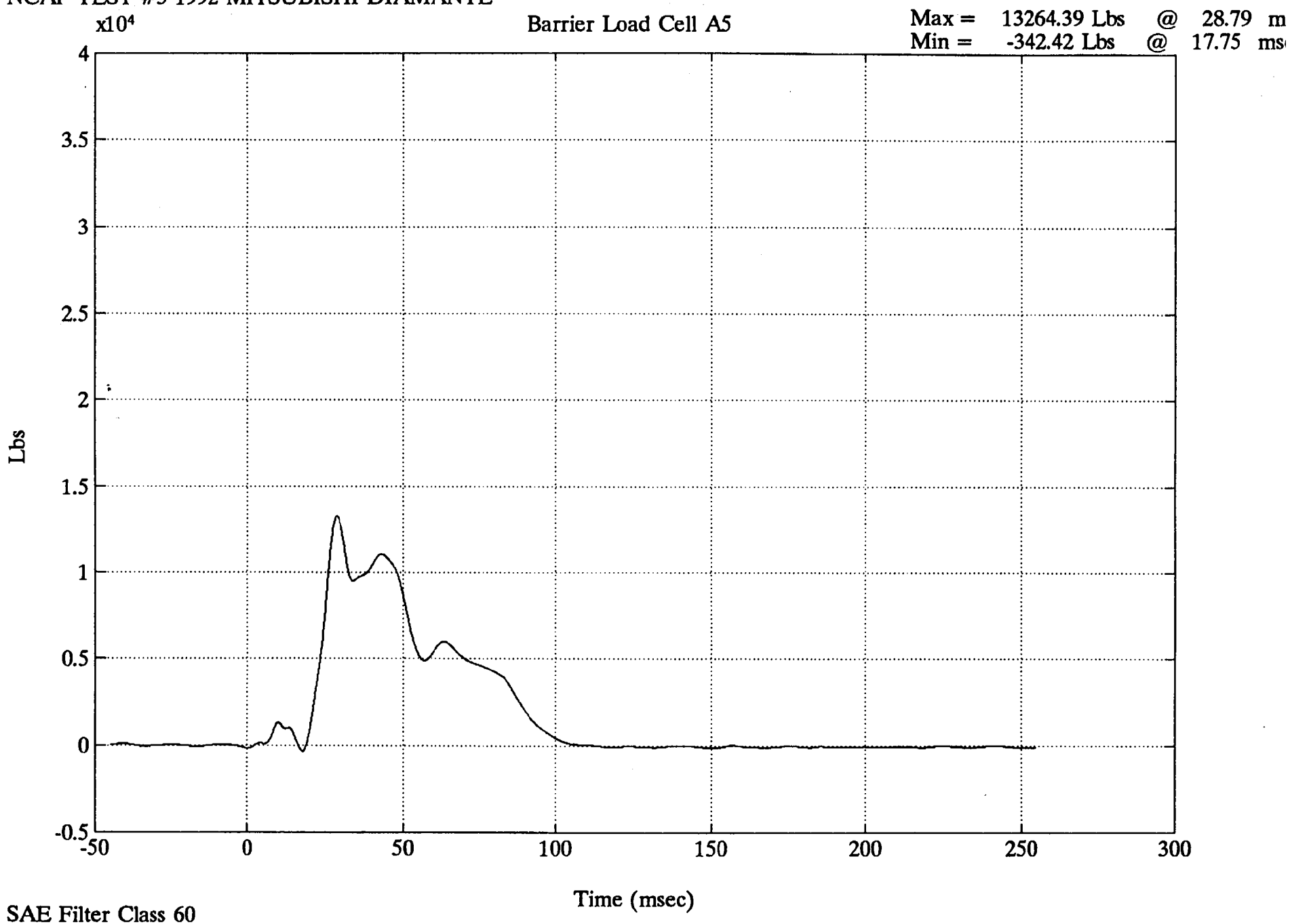


B-30

7946-3

SAE Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



B-31

7946-3

SAE Filter Class 60

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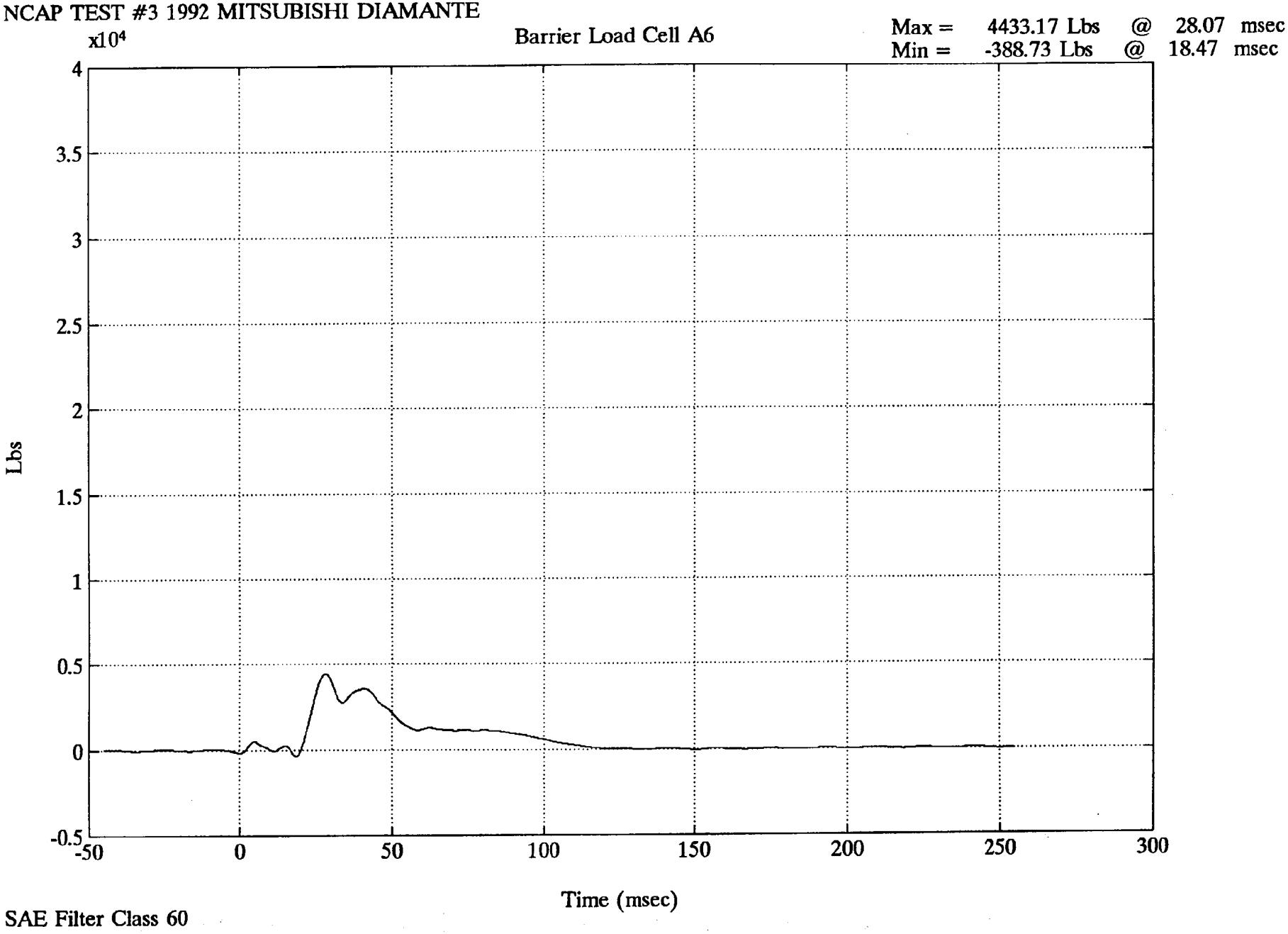

B-32

7946-3

SAE Filter Class 60

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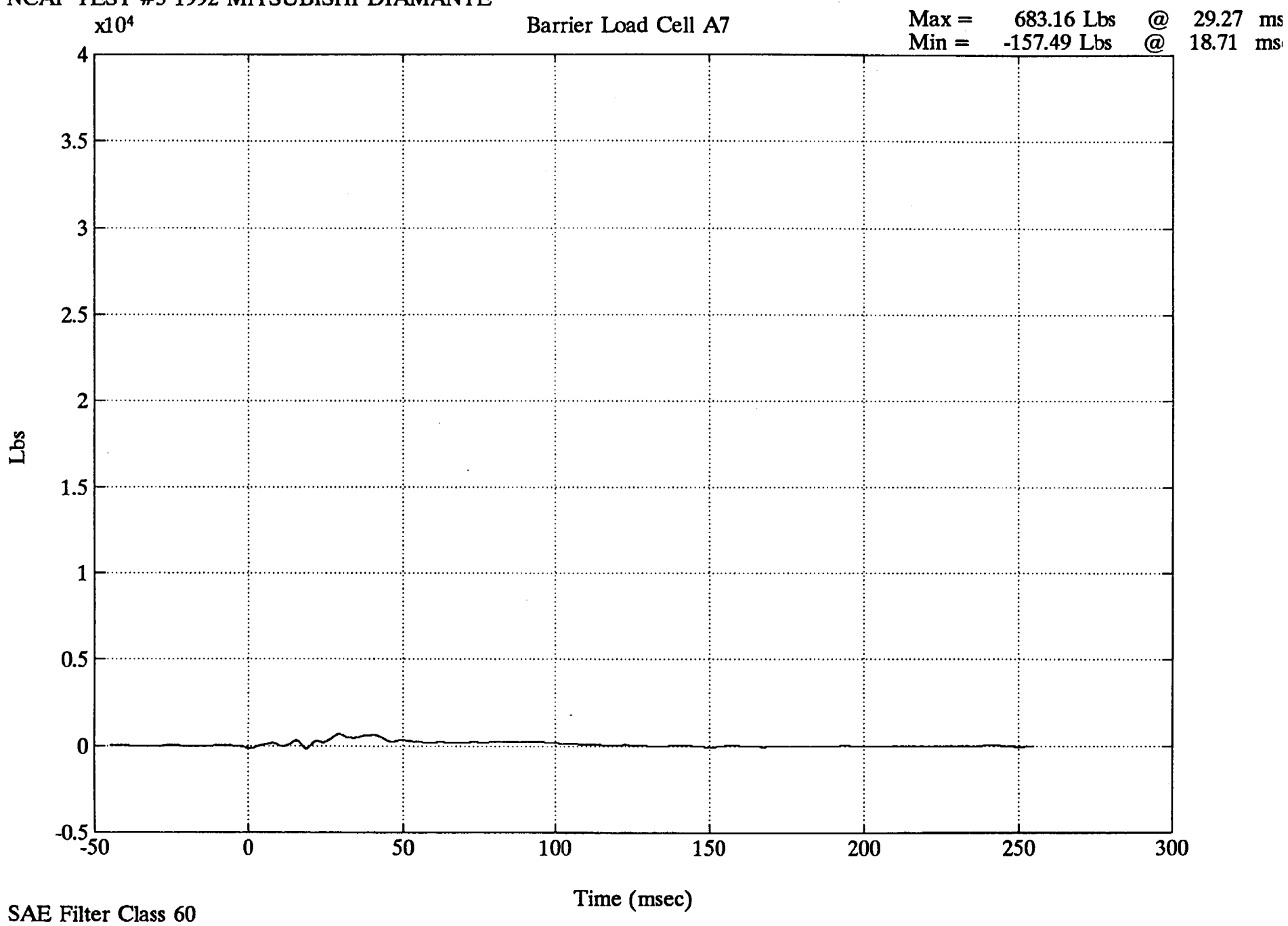
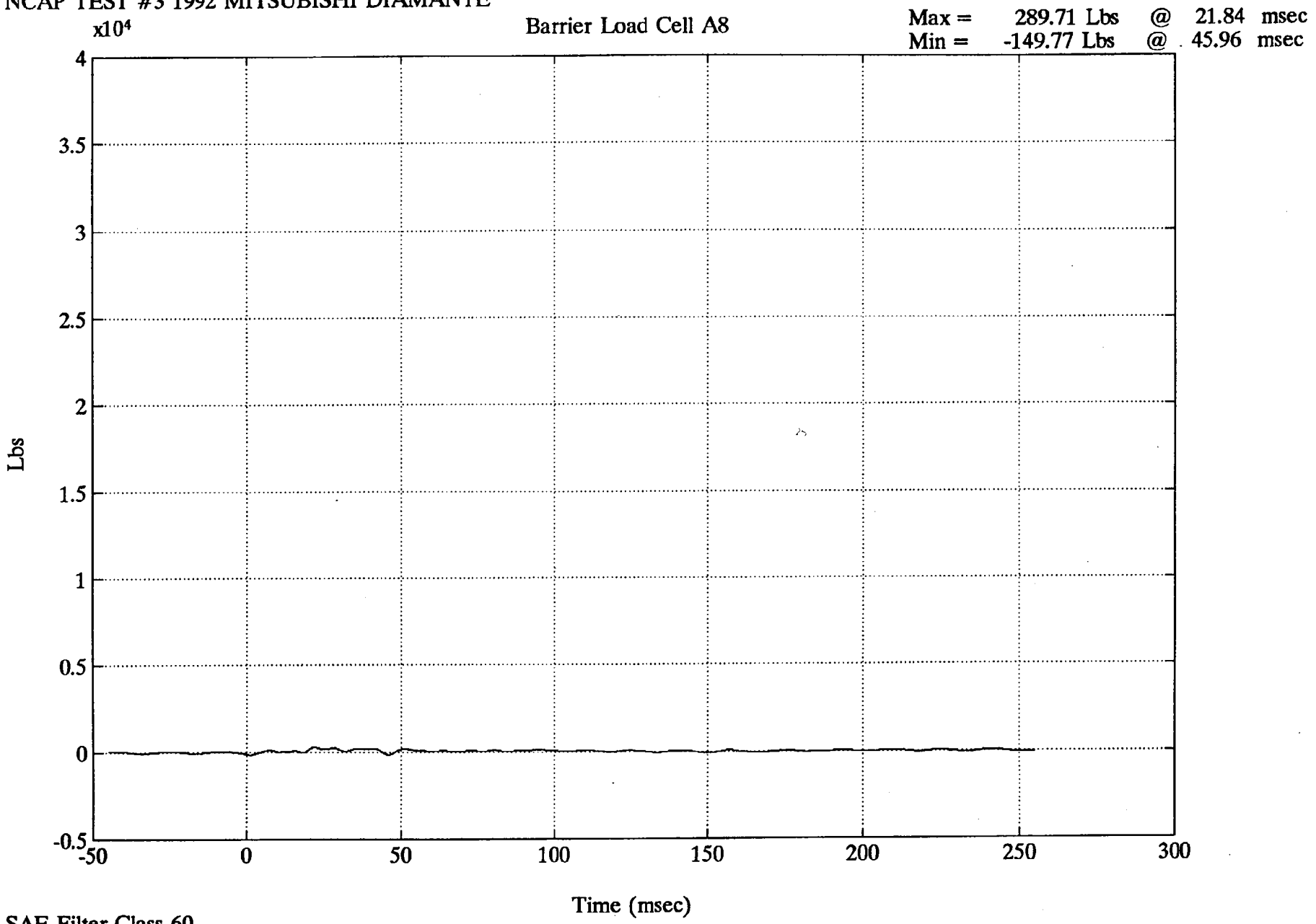


SAE Filter Class 60

7946-3

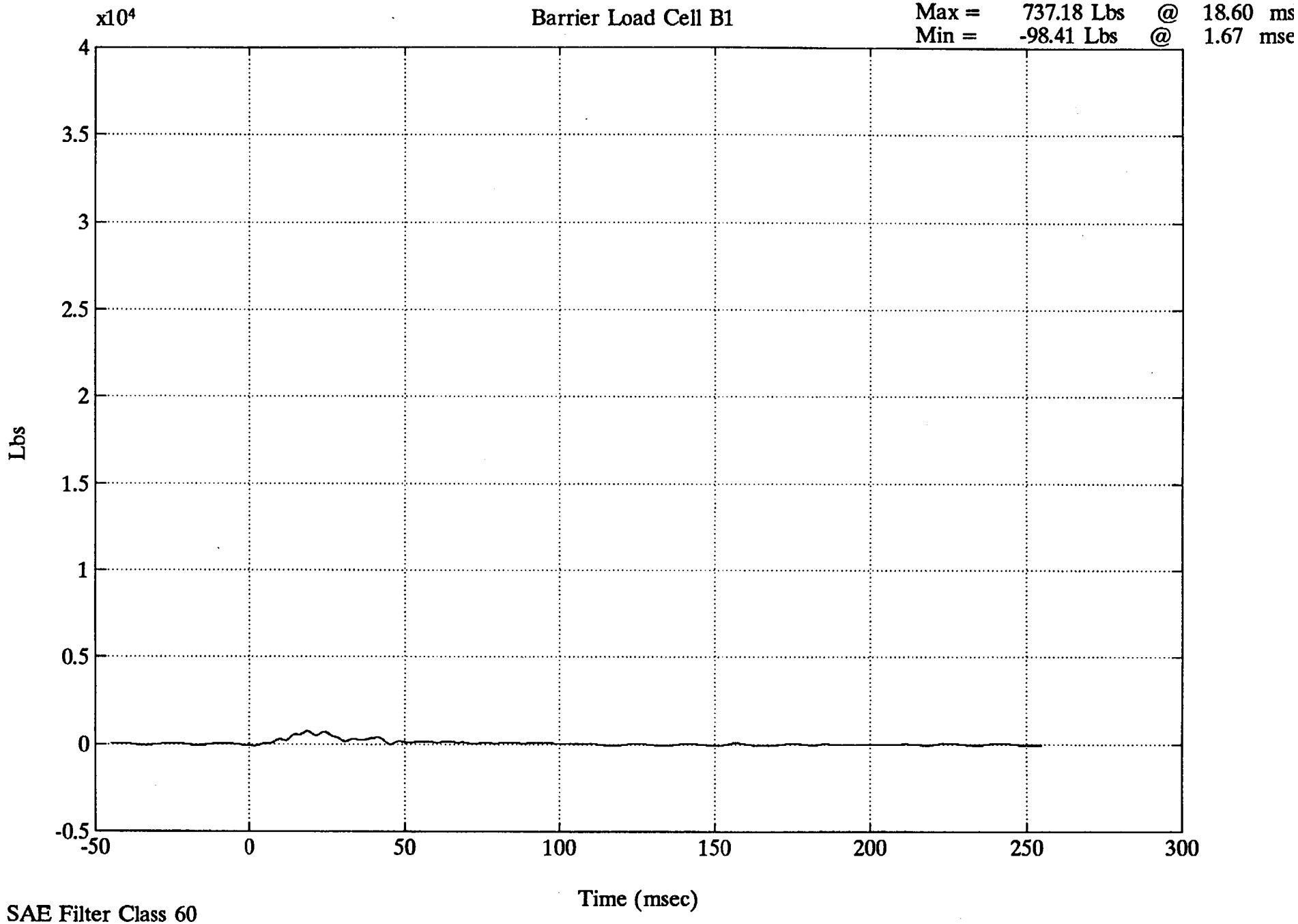
NCAP TEST #3 1992 MITSUBISHI DIAMANTE



SAE Filter Class 60

7946-3

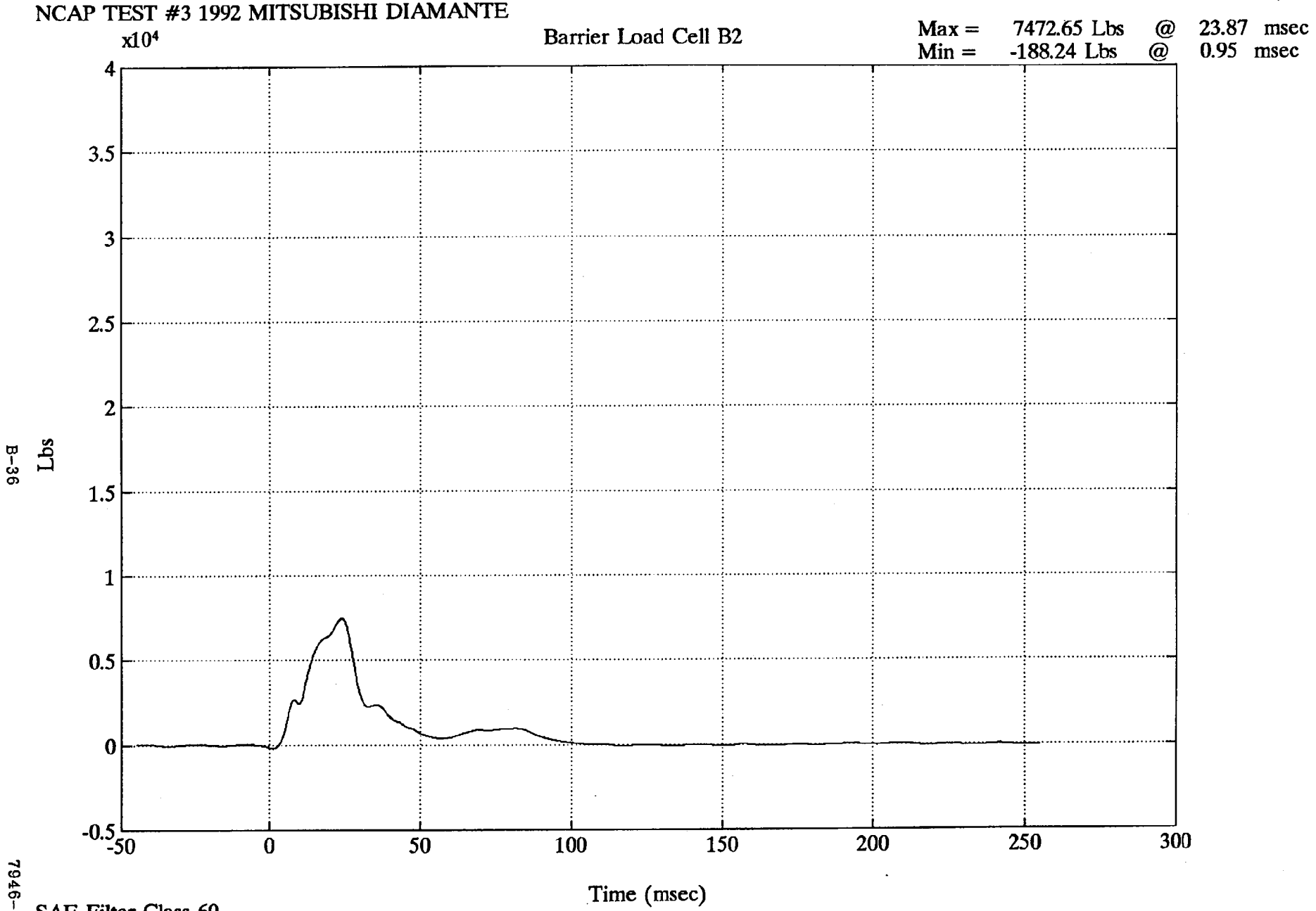
NCAP TEST #3 1992 MITSUBISHI DIAMANTE



SAE Filter Class 60

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



B-36

7946-3

SAE Filter Class 60

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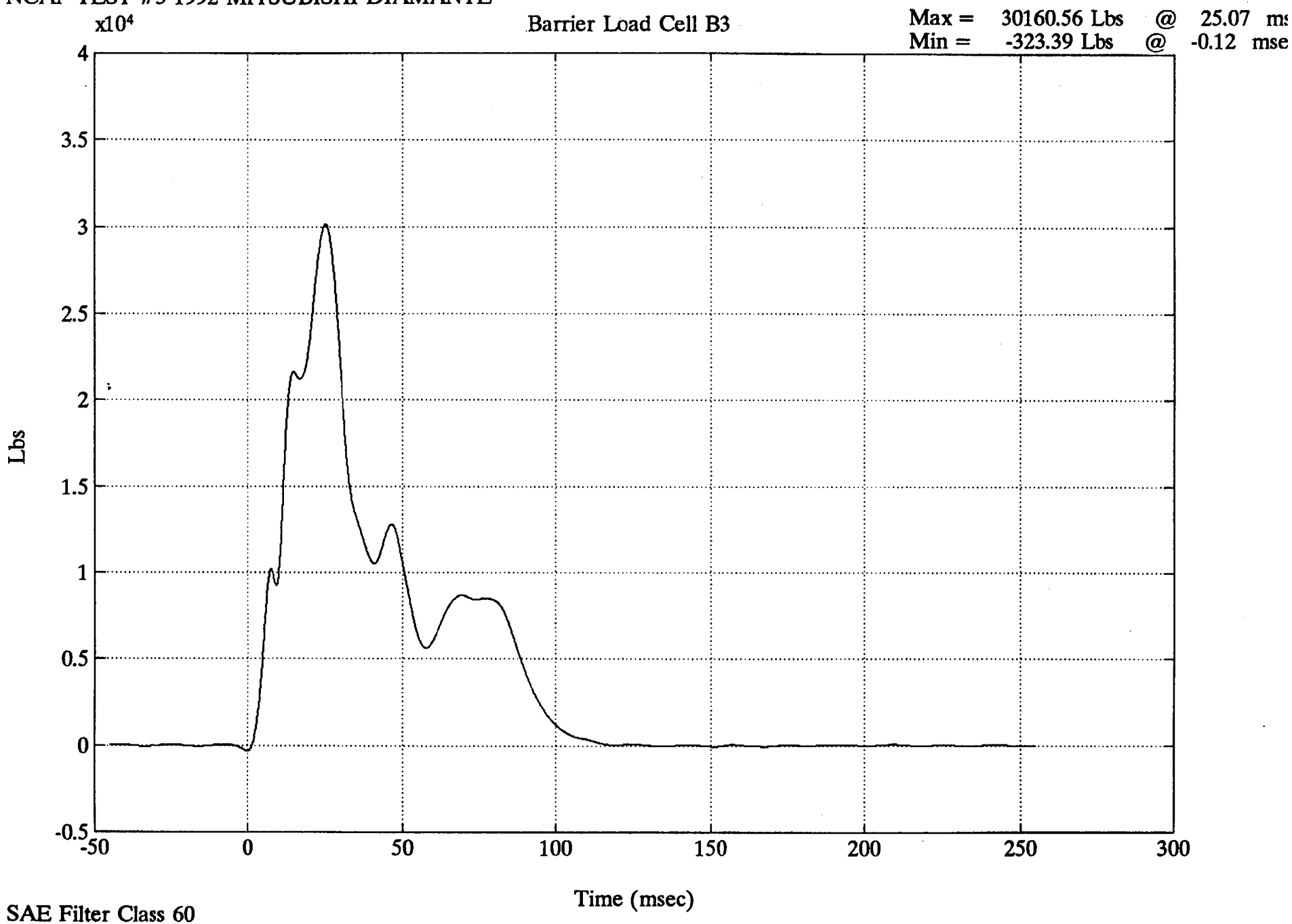
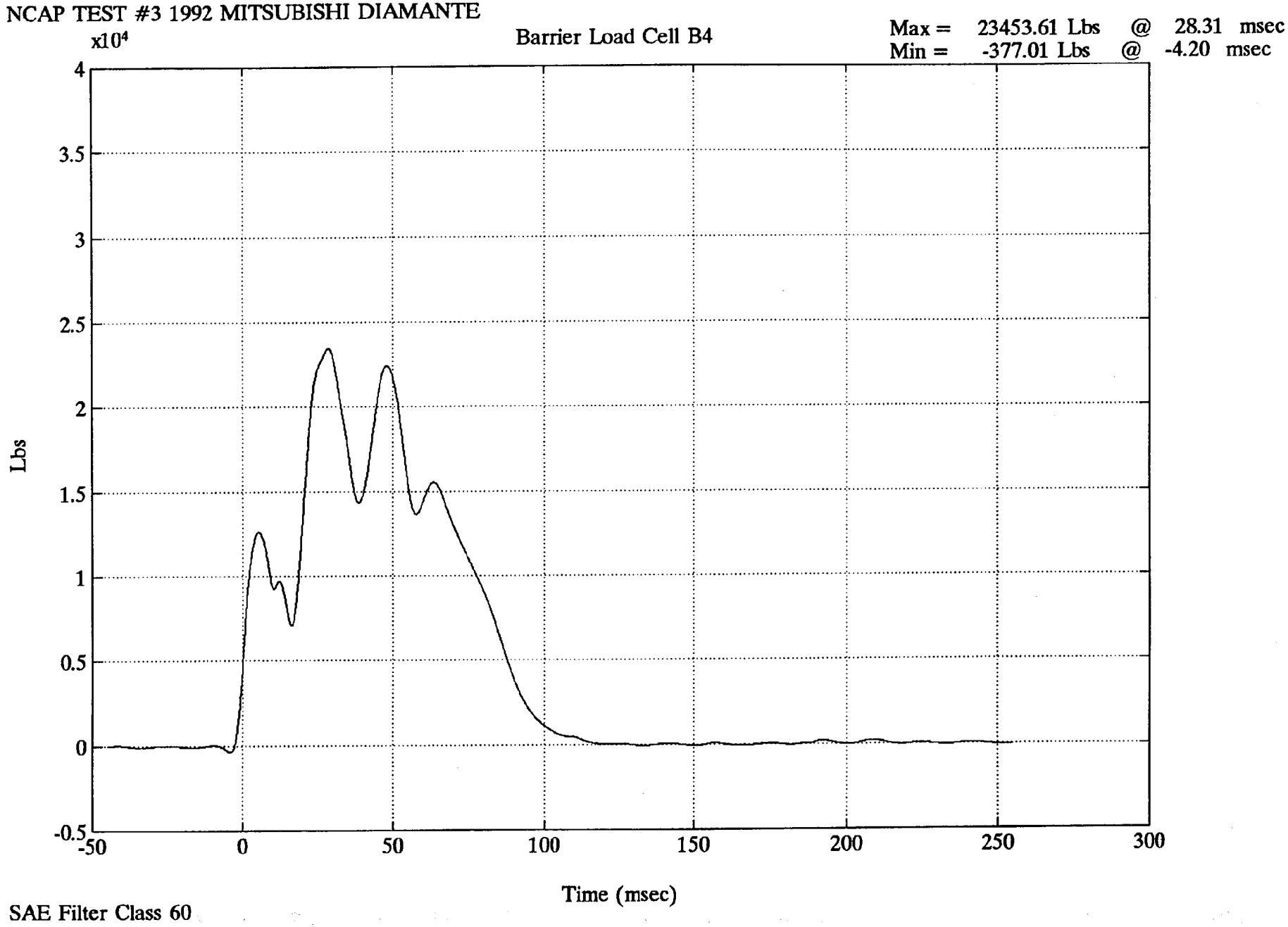


SAE Filter Class 60

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

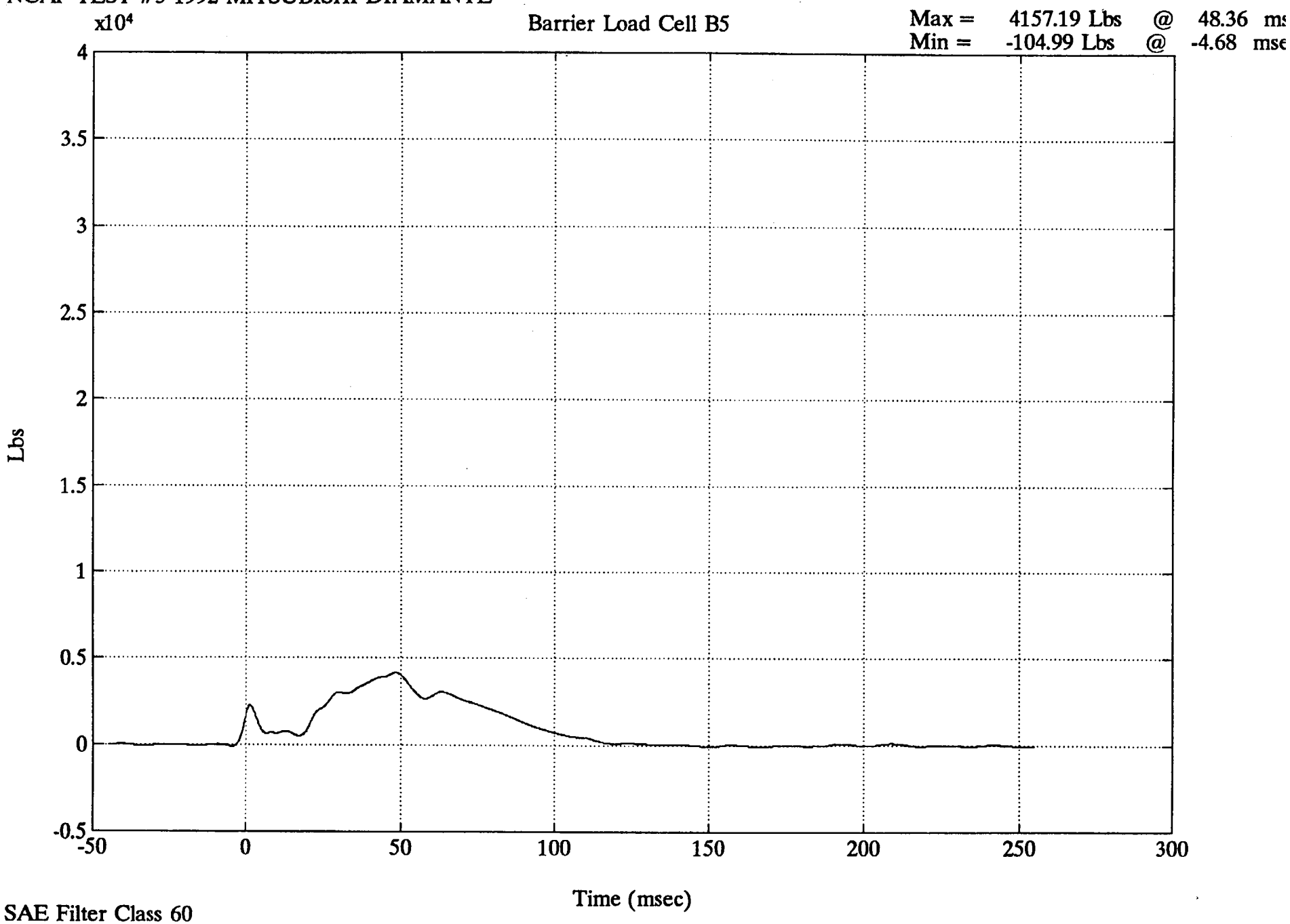


B-38

7946-3

SAE Filter Class 60

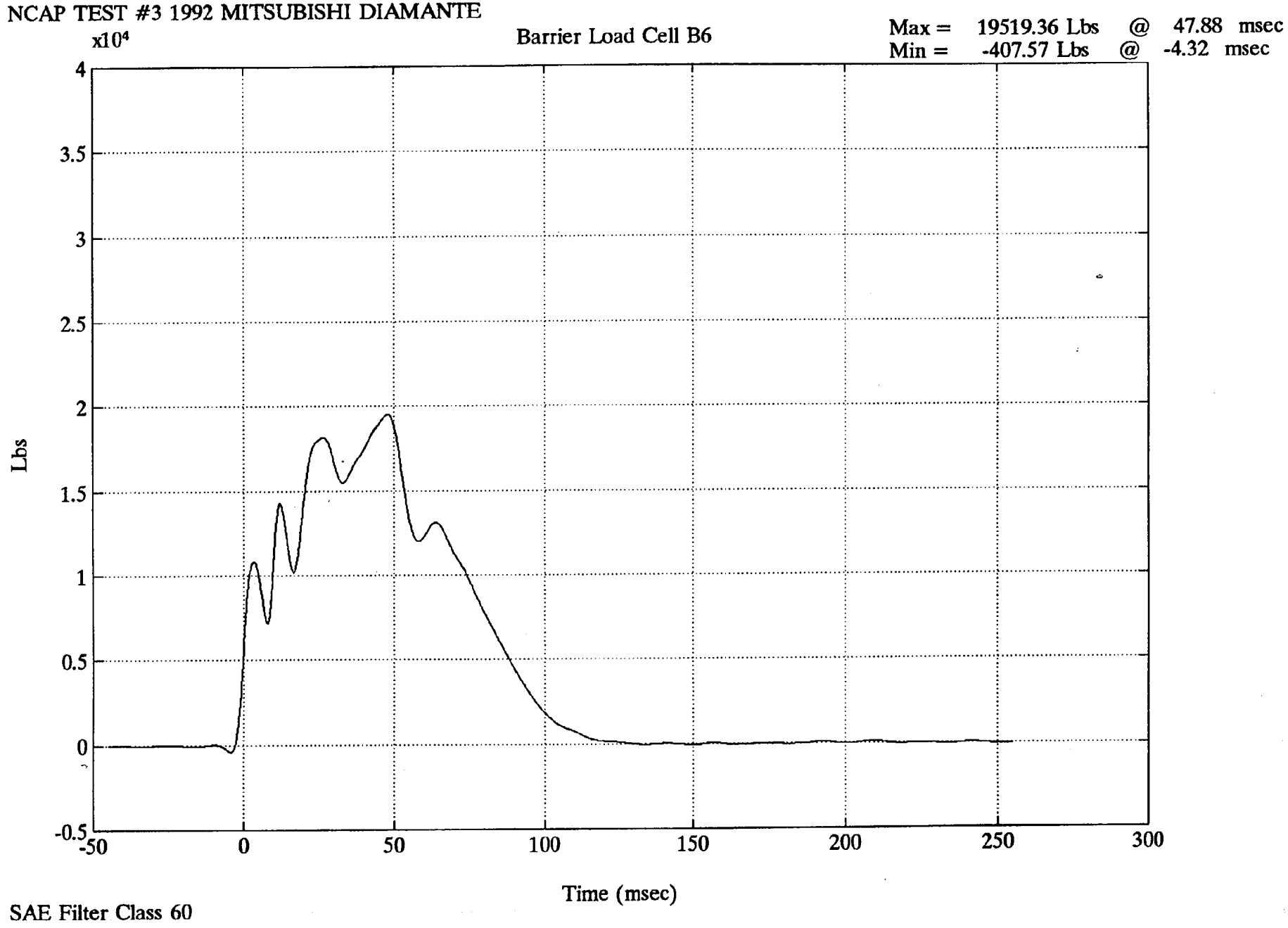
NCAP TEST #3 1992 MITSUBISHI DIAMANTE



SAE Filter Class 60

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

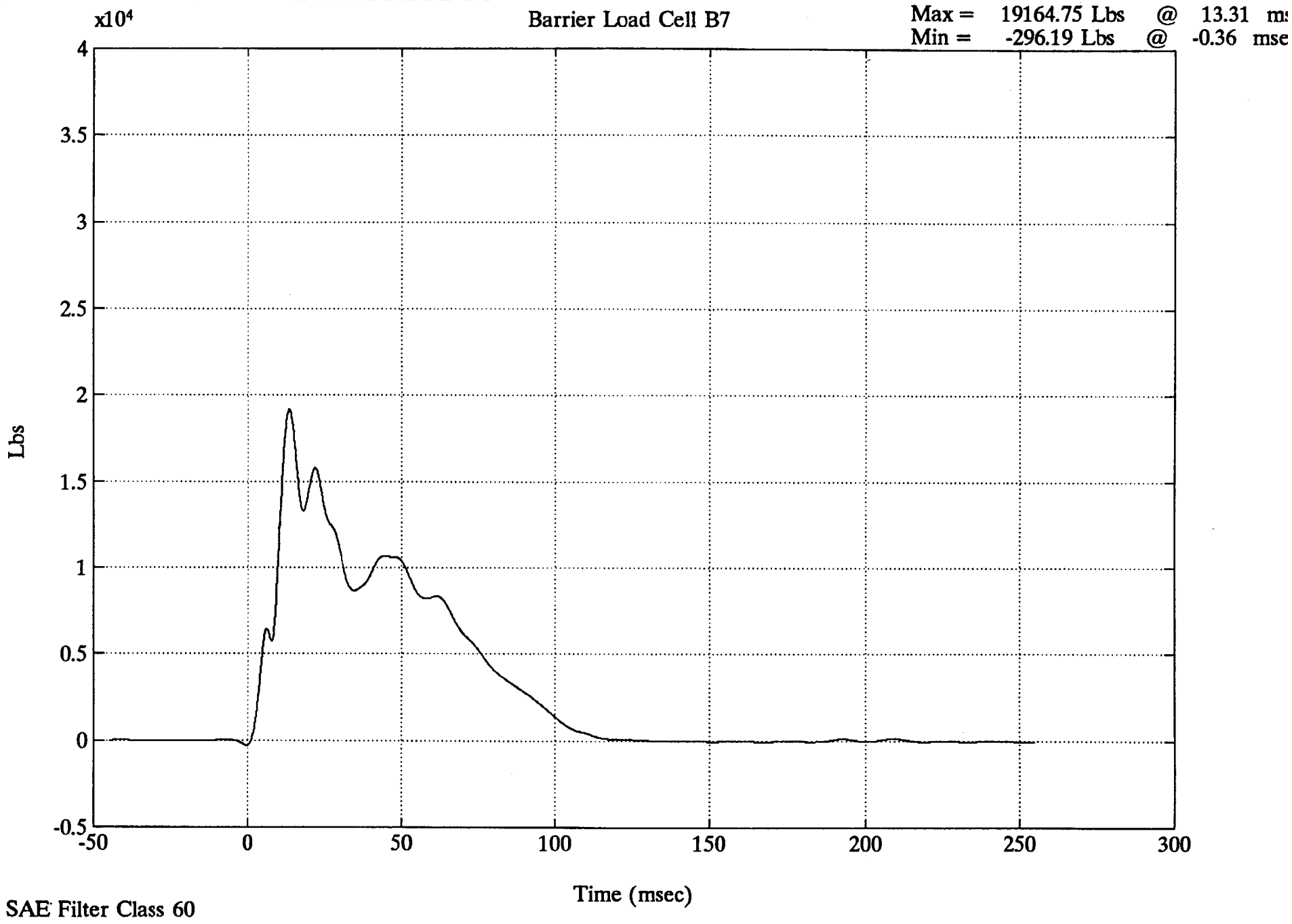


B-40

7946-3

SAE Filter Class 60

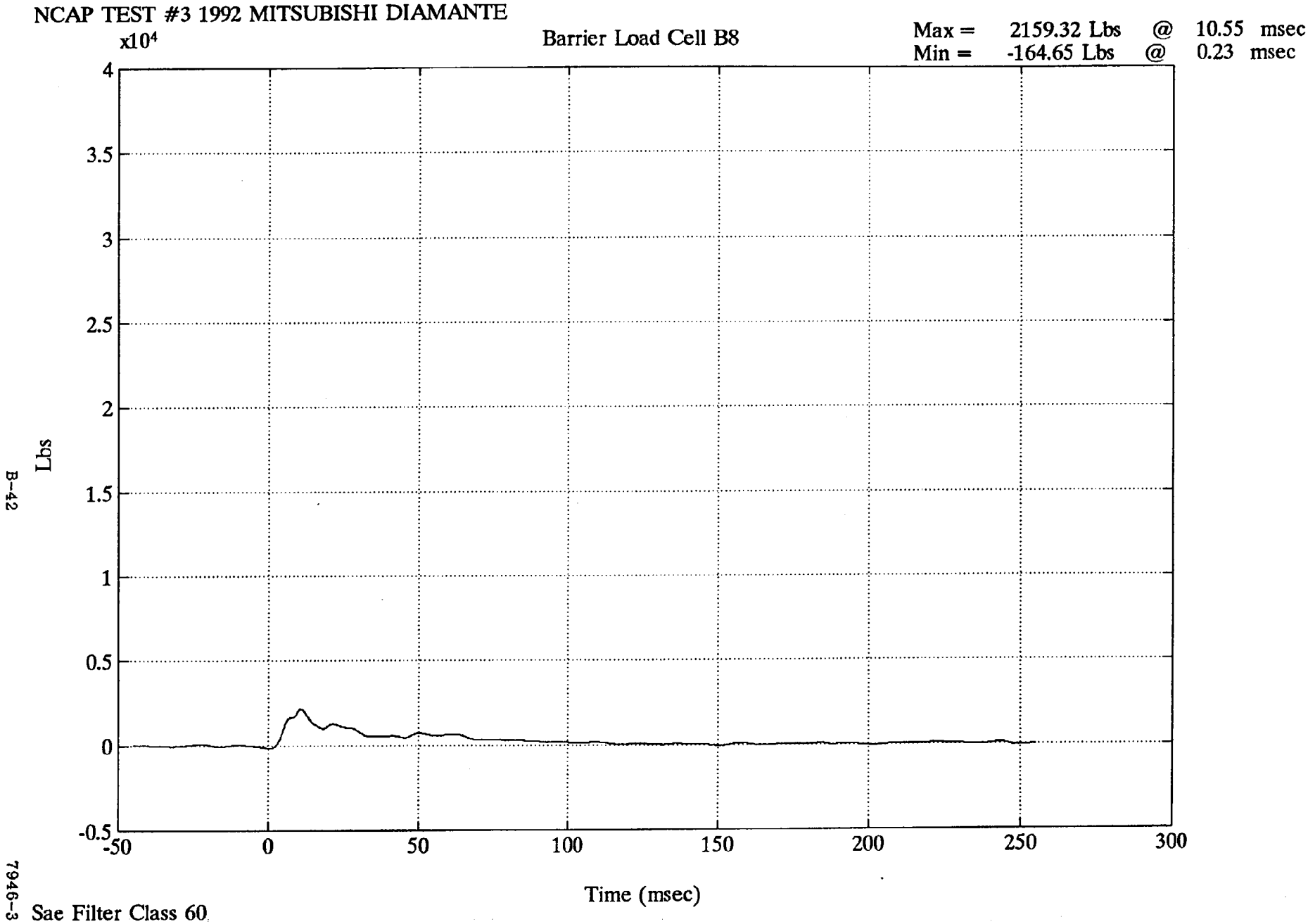
NCAP TEST #3 1992 MITSUBISHI DIAMANTE



SAE Filter Class 60

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

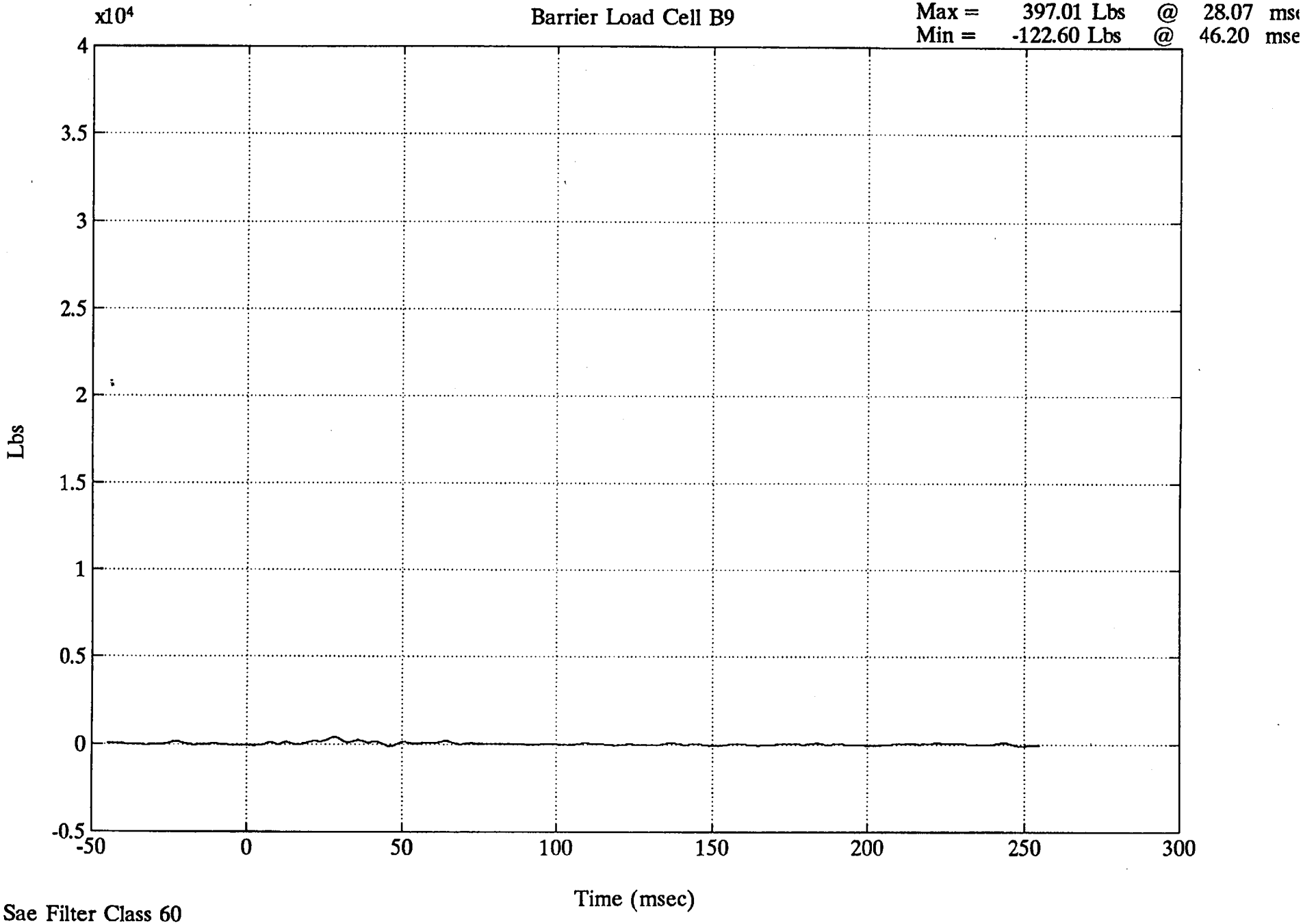


B-42

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

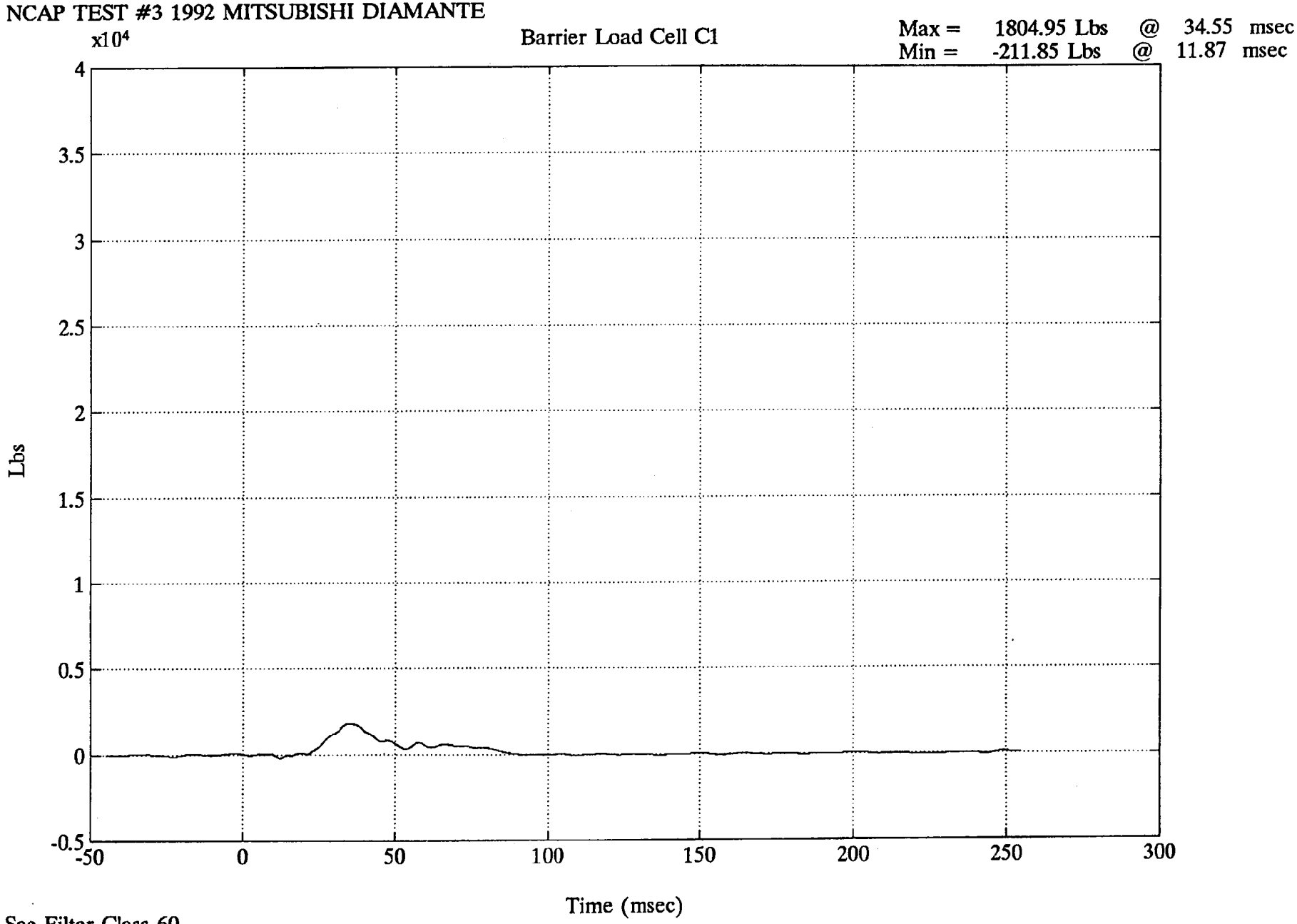


B-43

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

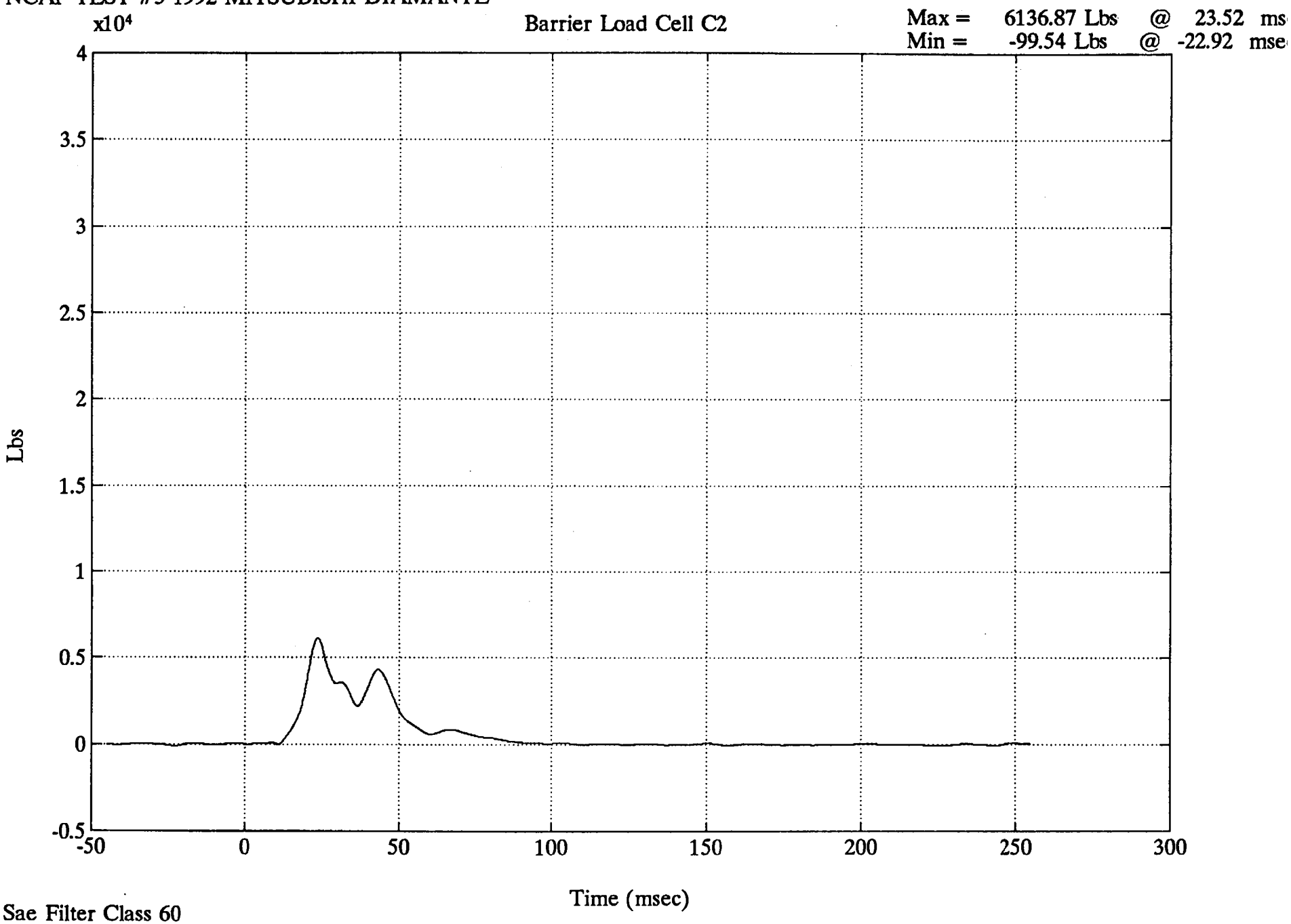


B-44

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

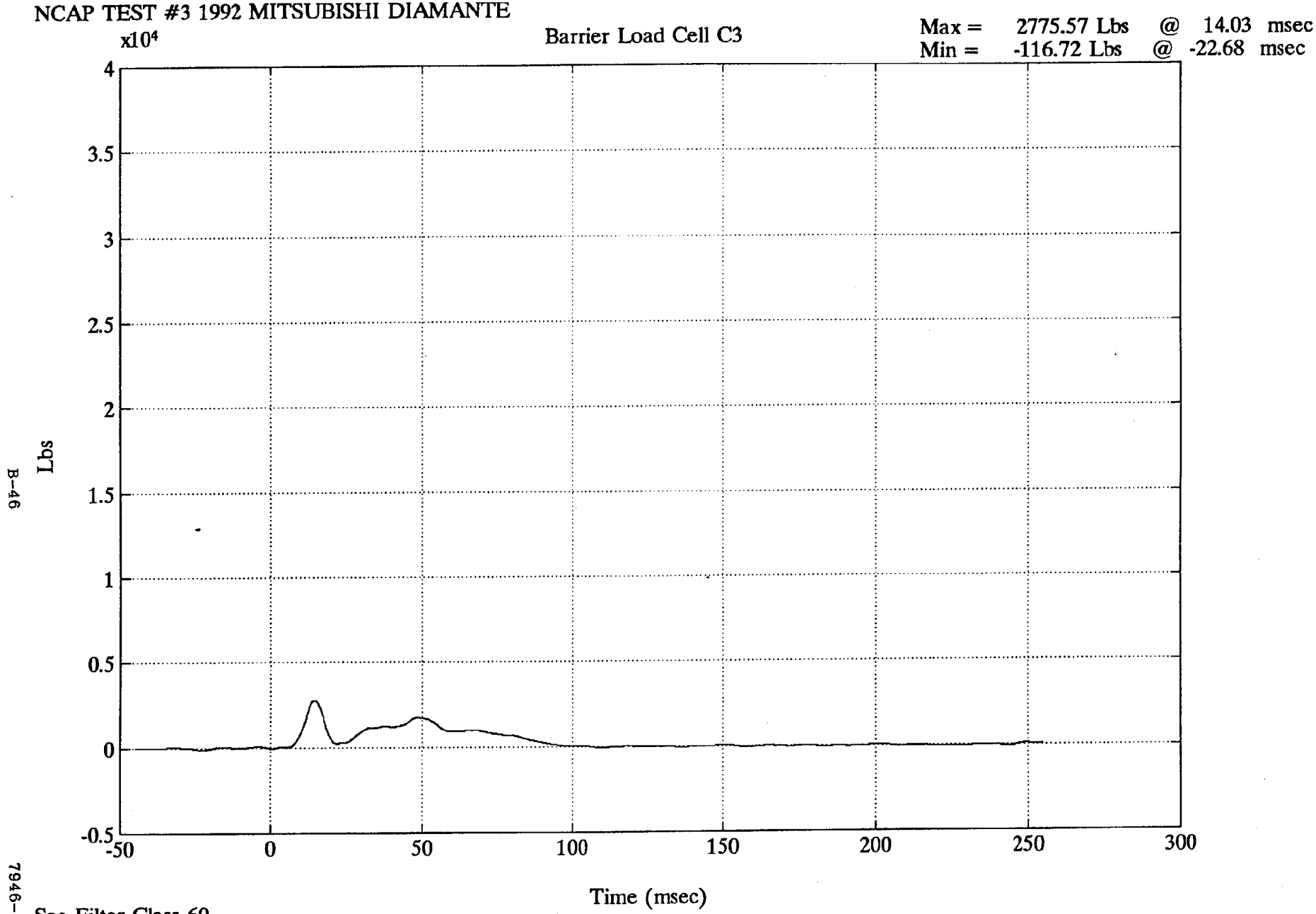


B-45

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

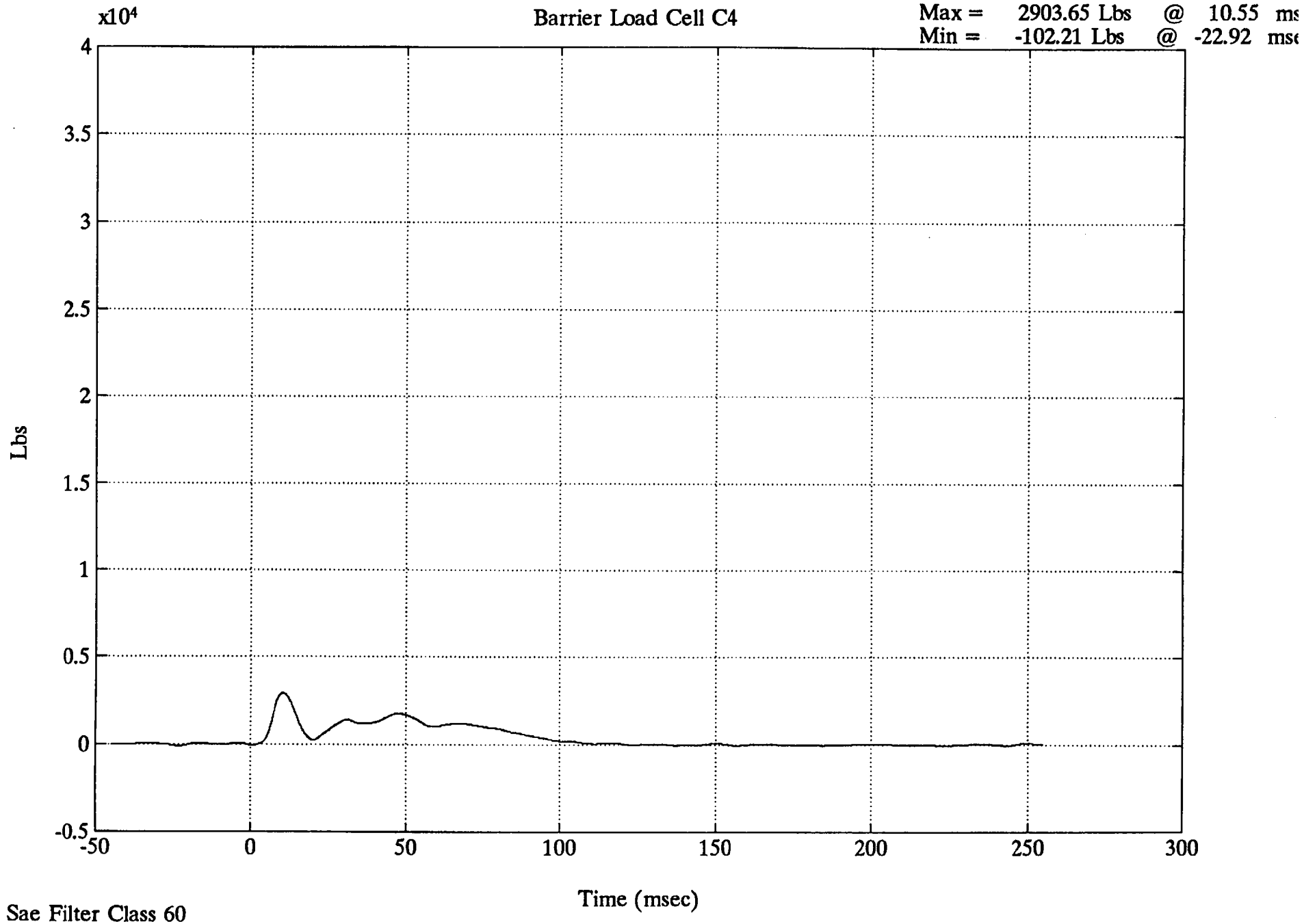


B-46

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

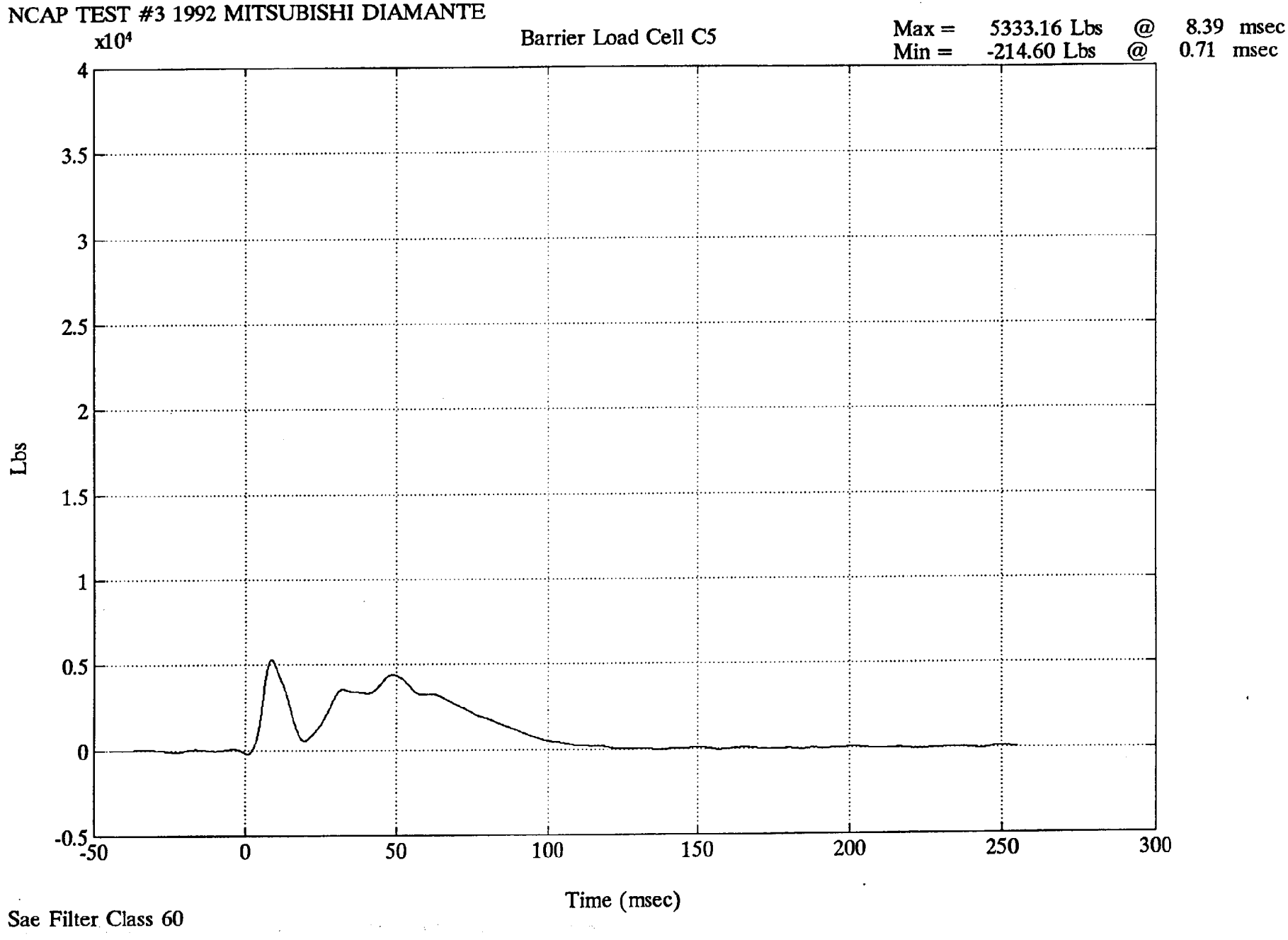


B-47

7946-3

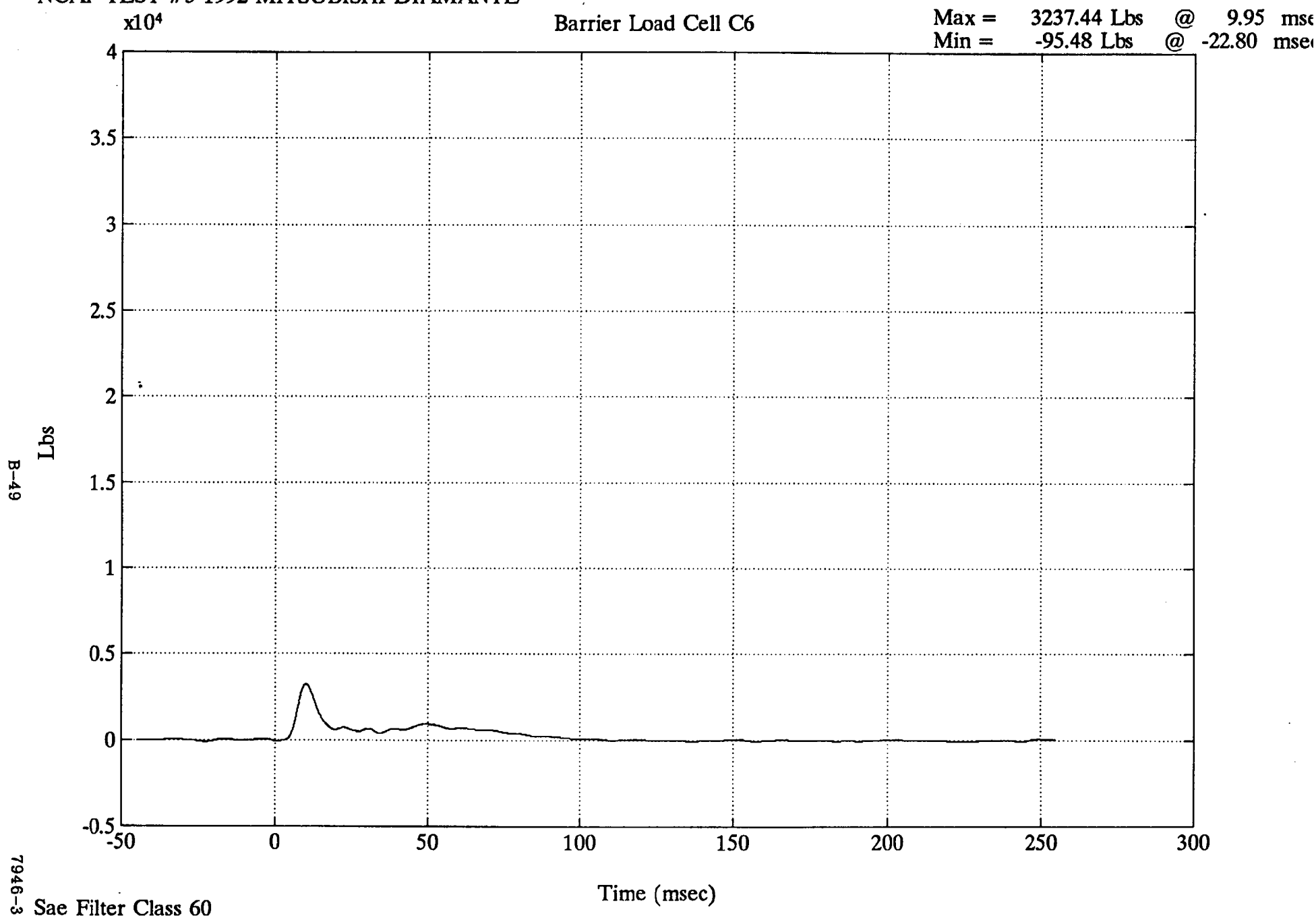
Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

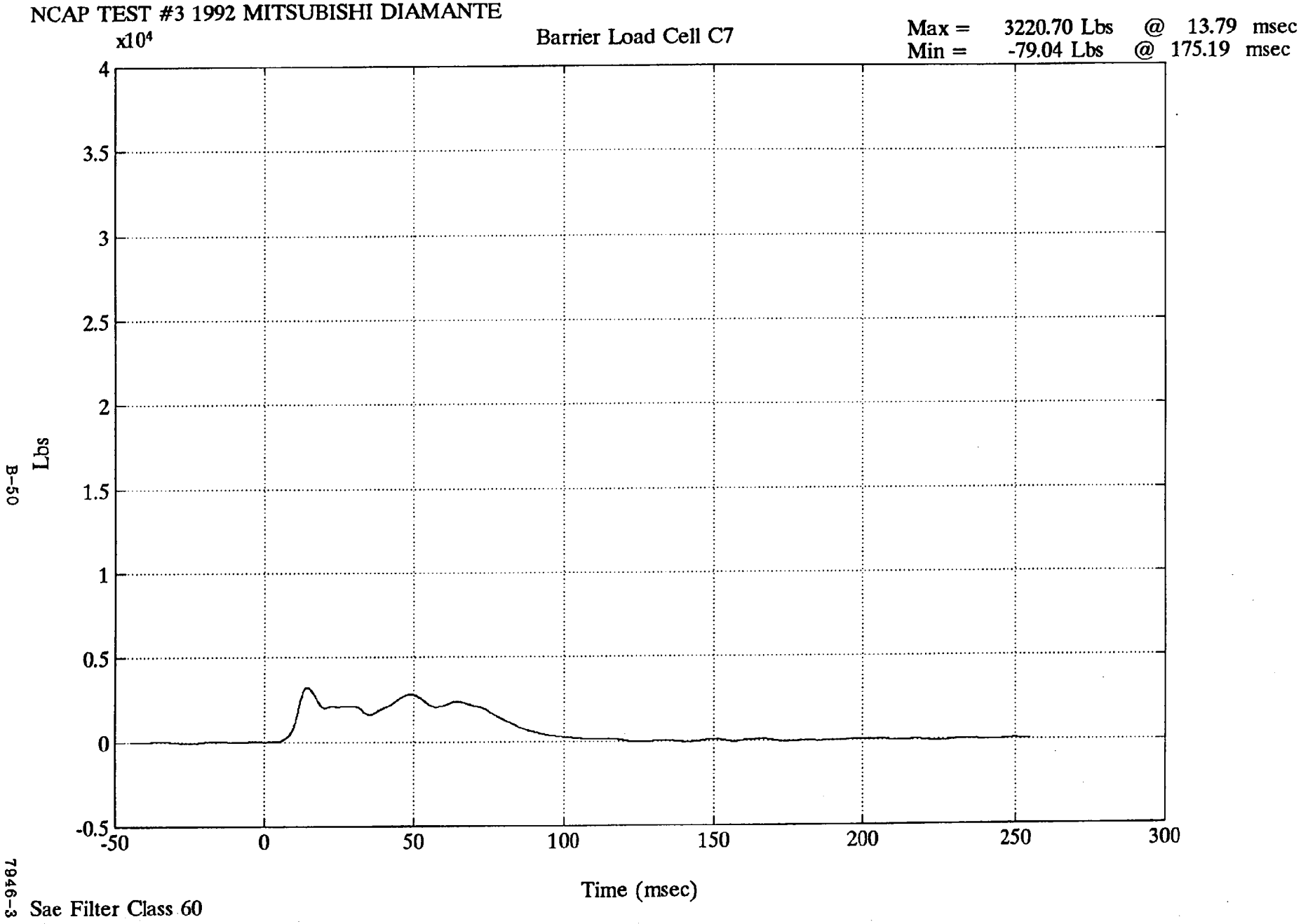


B-49

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

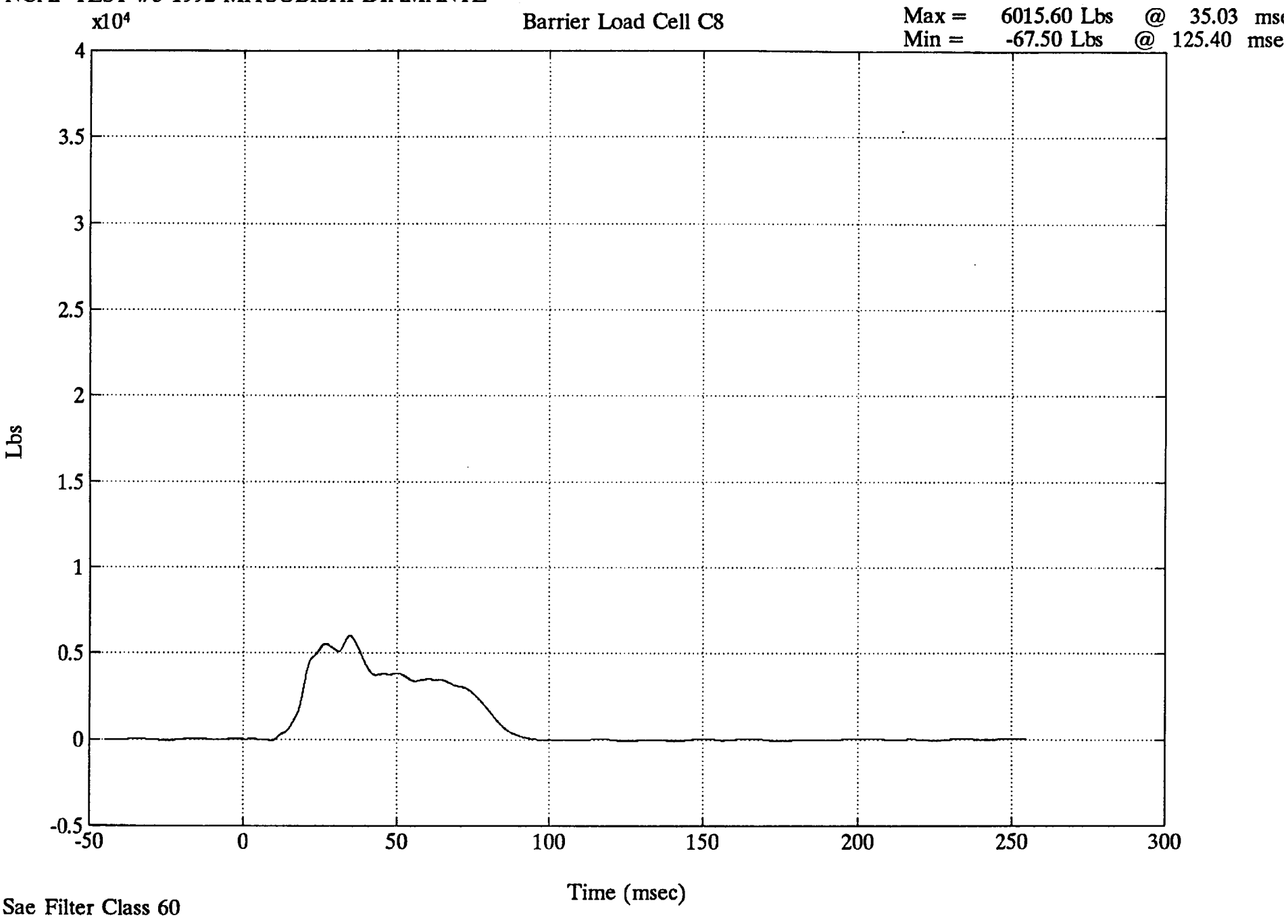


B-50

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

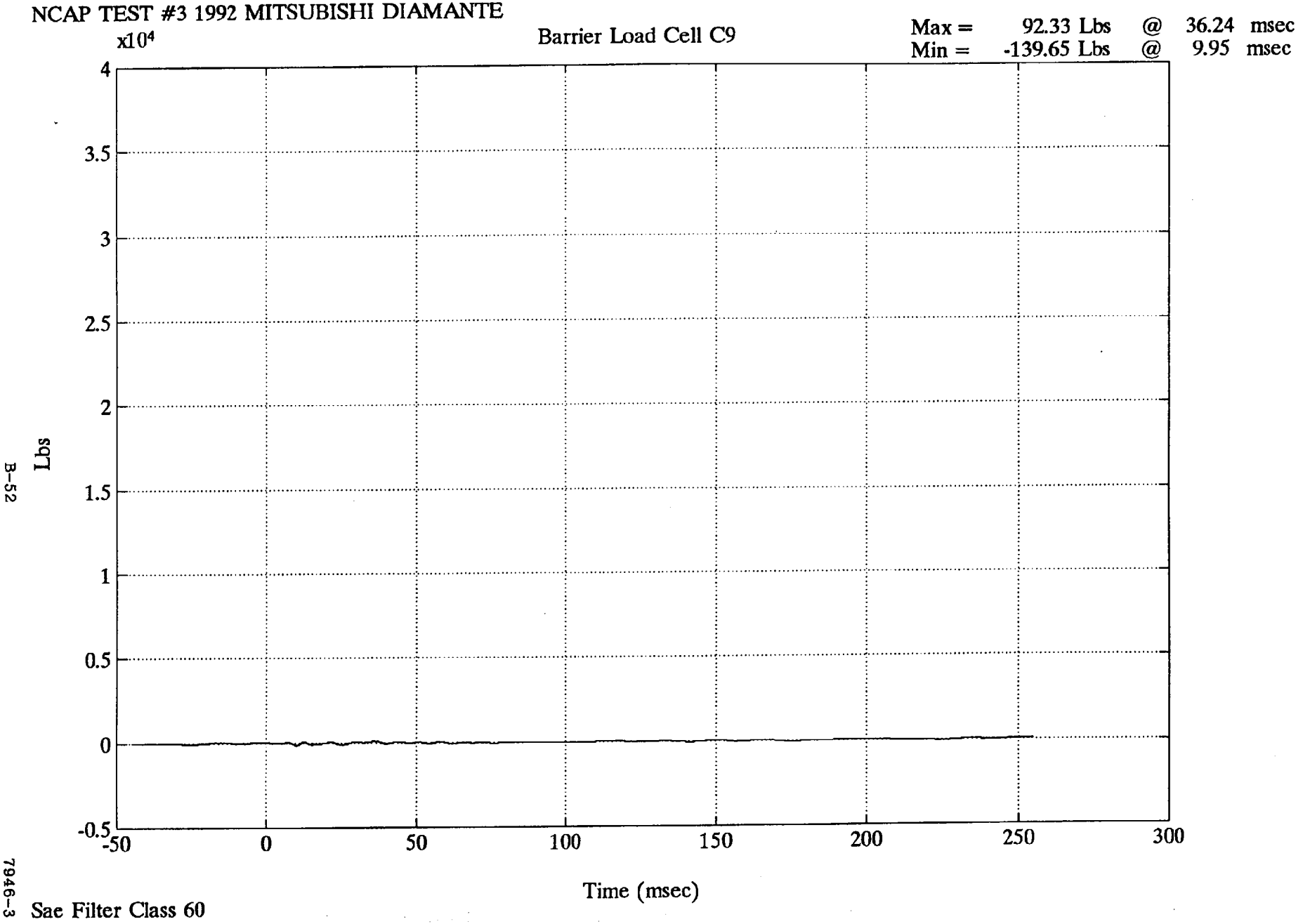


B-51

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

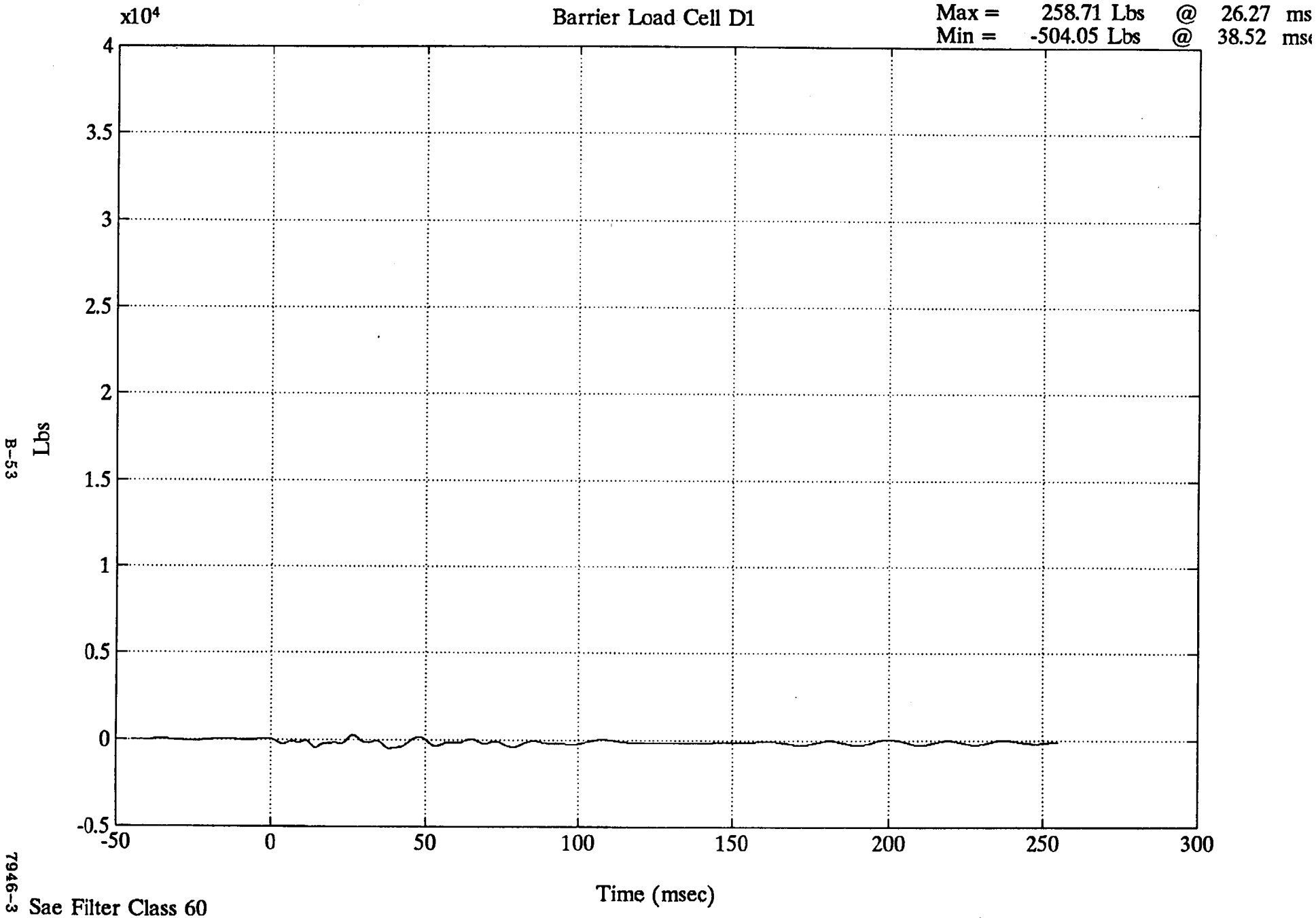


B-52

7946-3

Sae Filter Class 60

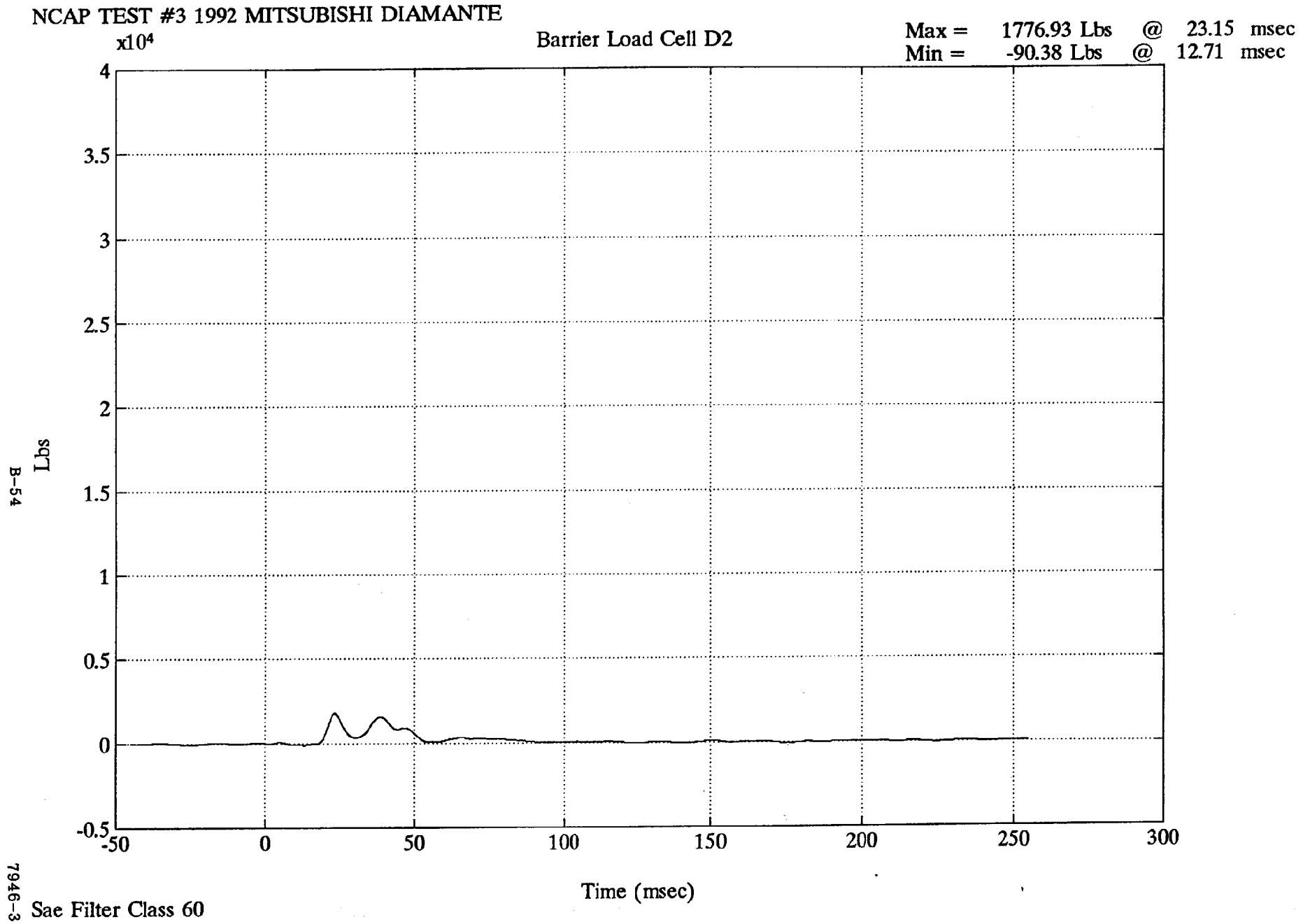
NCAP TEST #3 1992 MITSUBISHI DIAMANTE



B-53

7946-3 Sae Filter Class 60

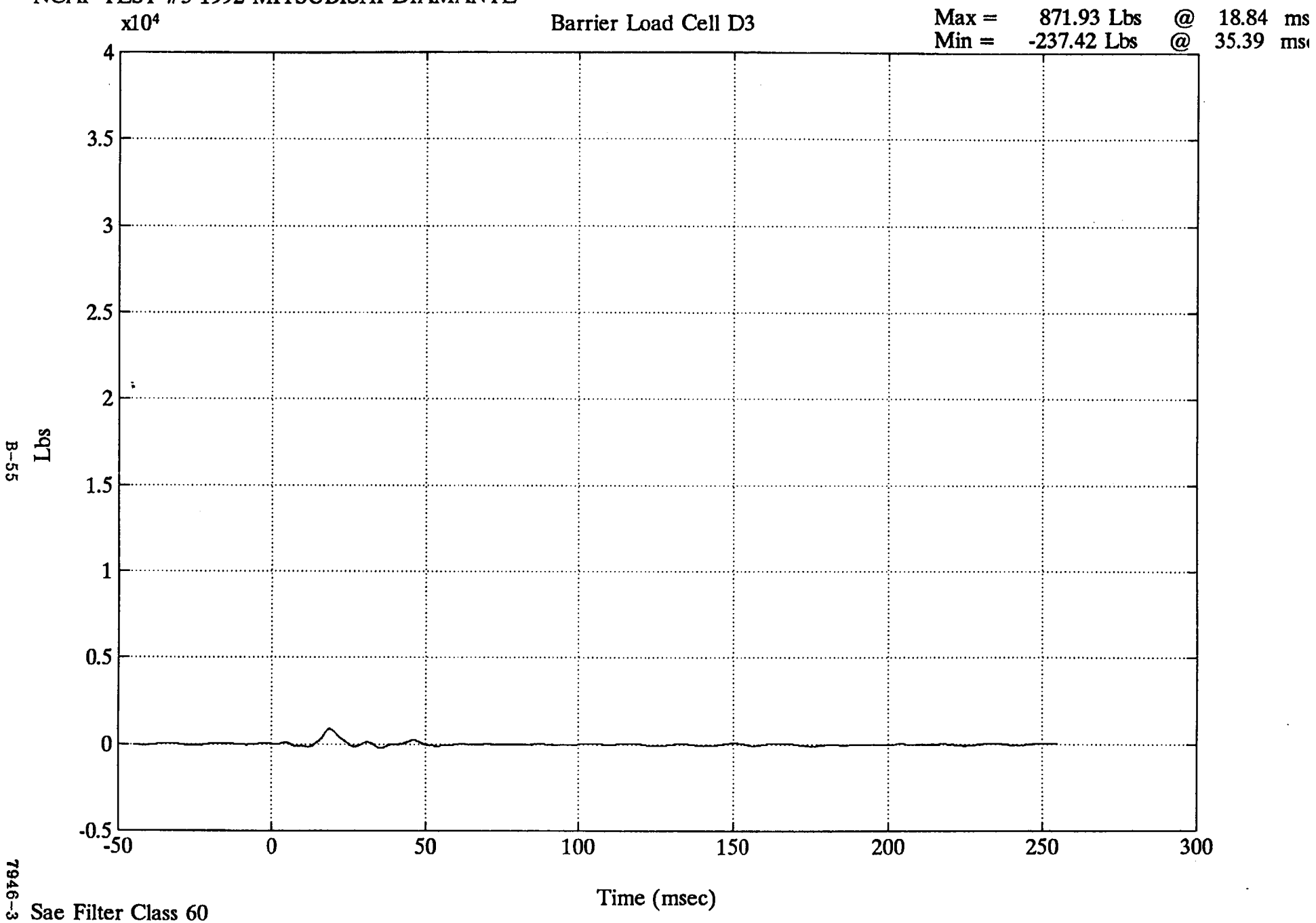
NCAP TEST #3 1992 MITSUBISHI DIAMANTE



Sae Filter Class 60

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

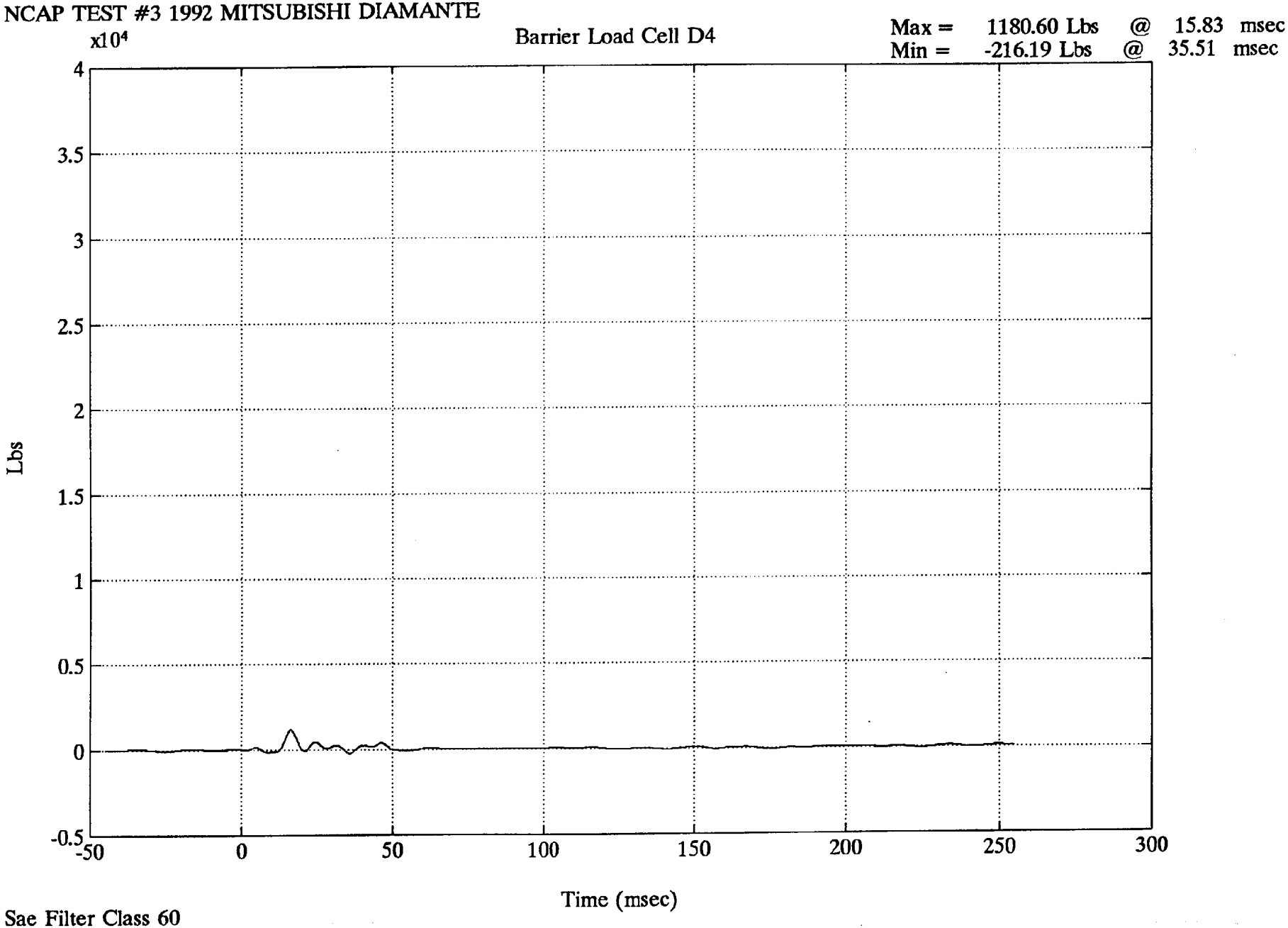


B-55

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

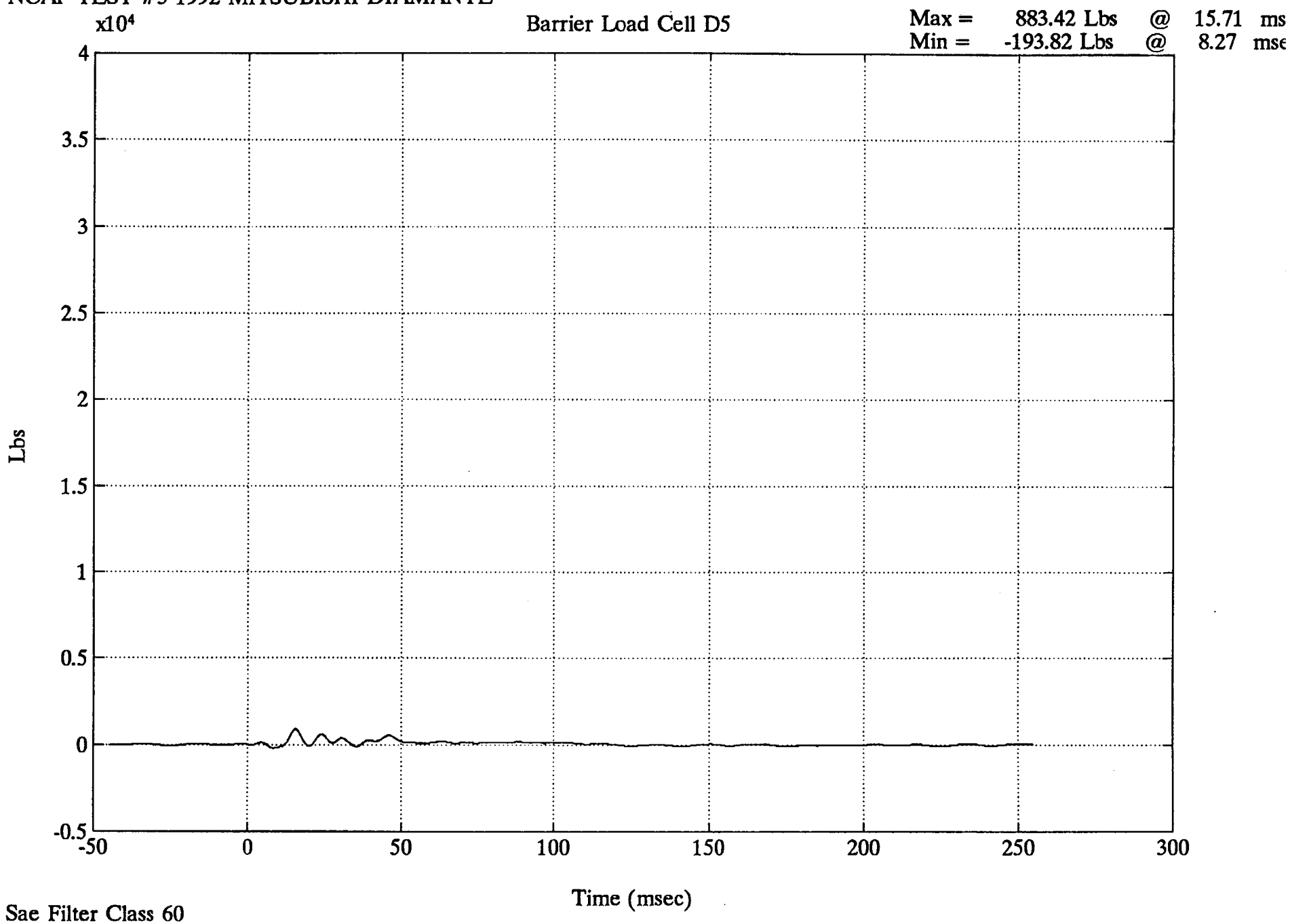


B-56

7946-3

Sae Filter Class 60

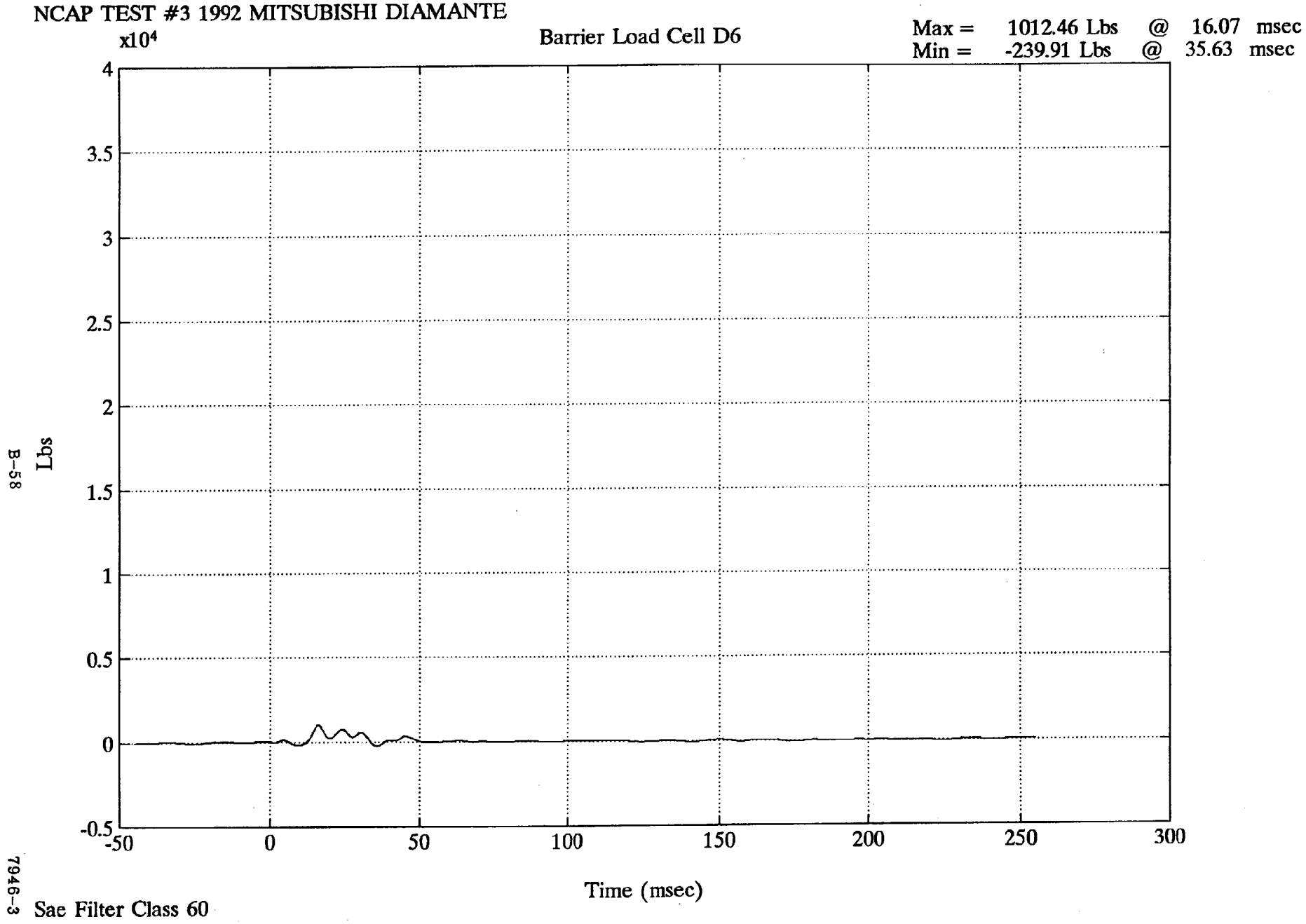
NCAP TEST #3 1992 MITSUBISHI DIAMANTE



Sae Filter Class 60

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

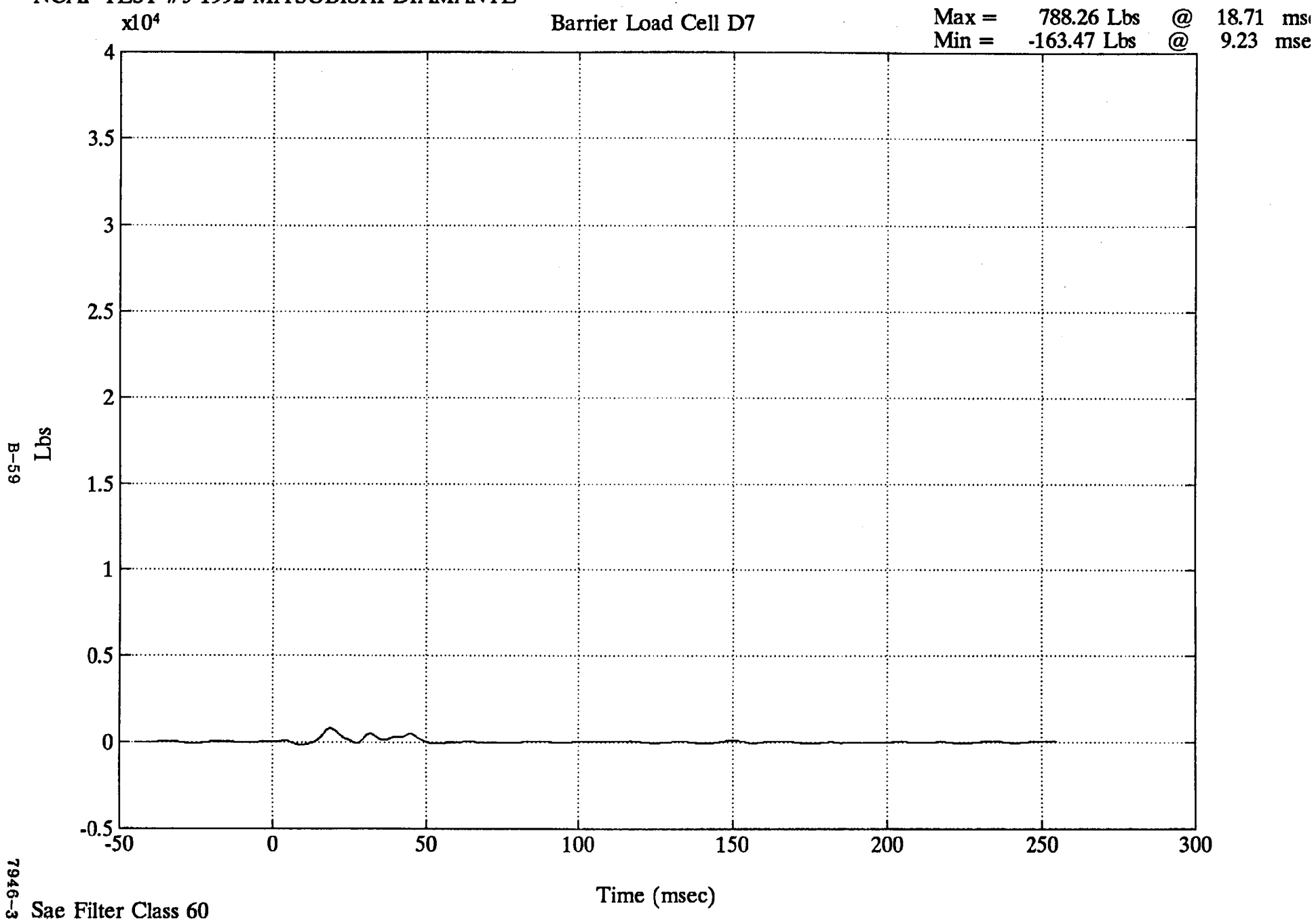


B-58

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

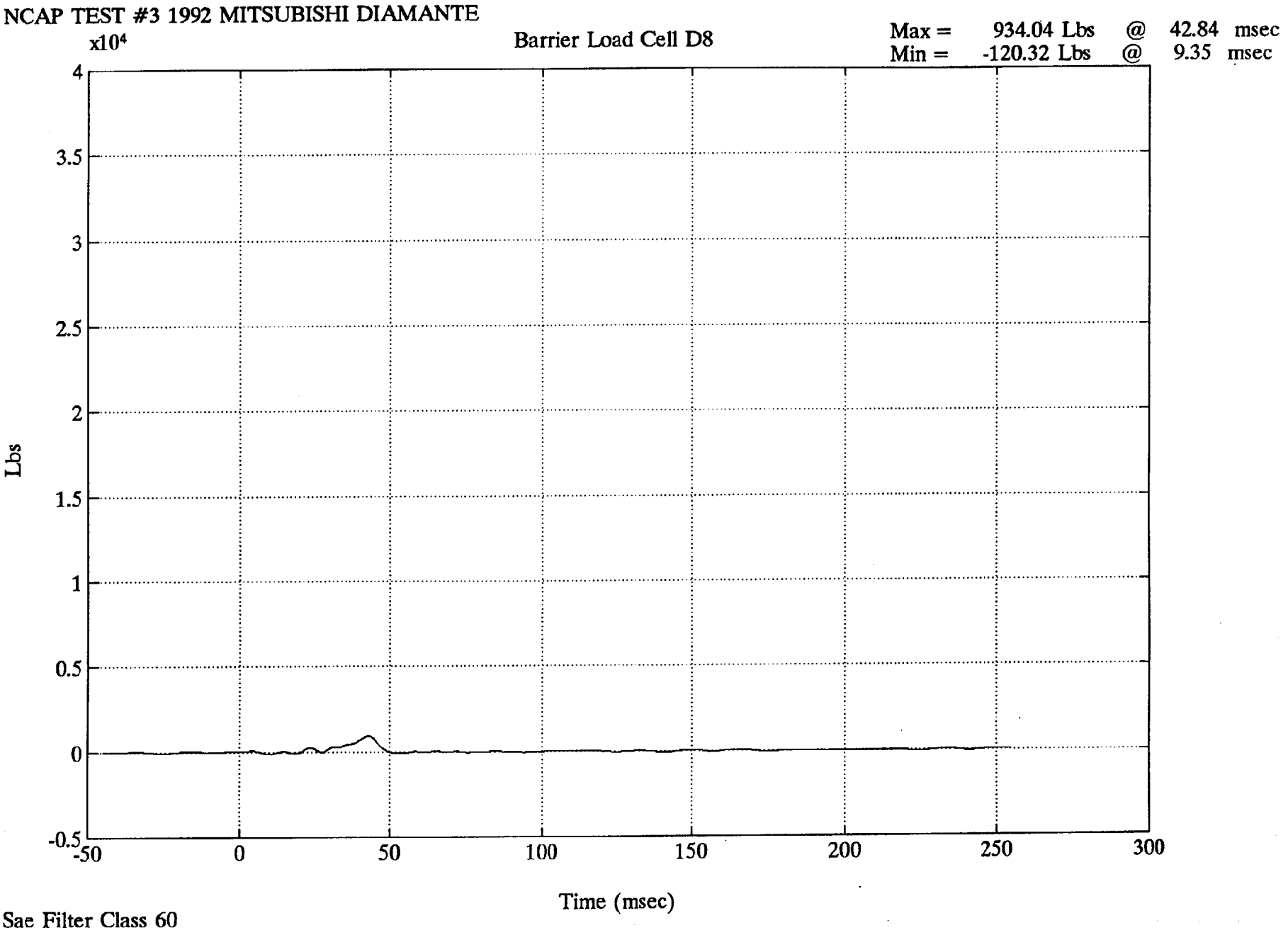


B-59

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

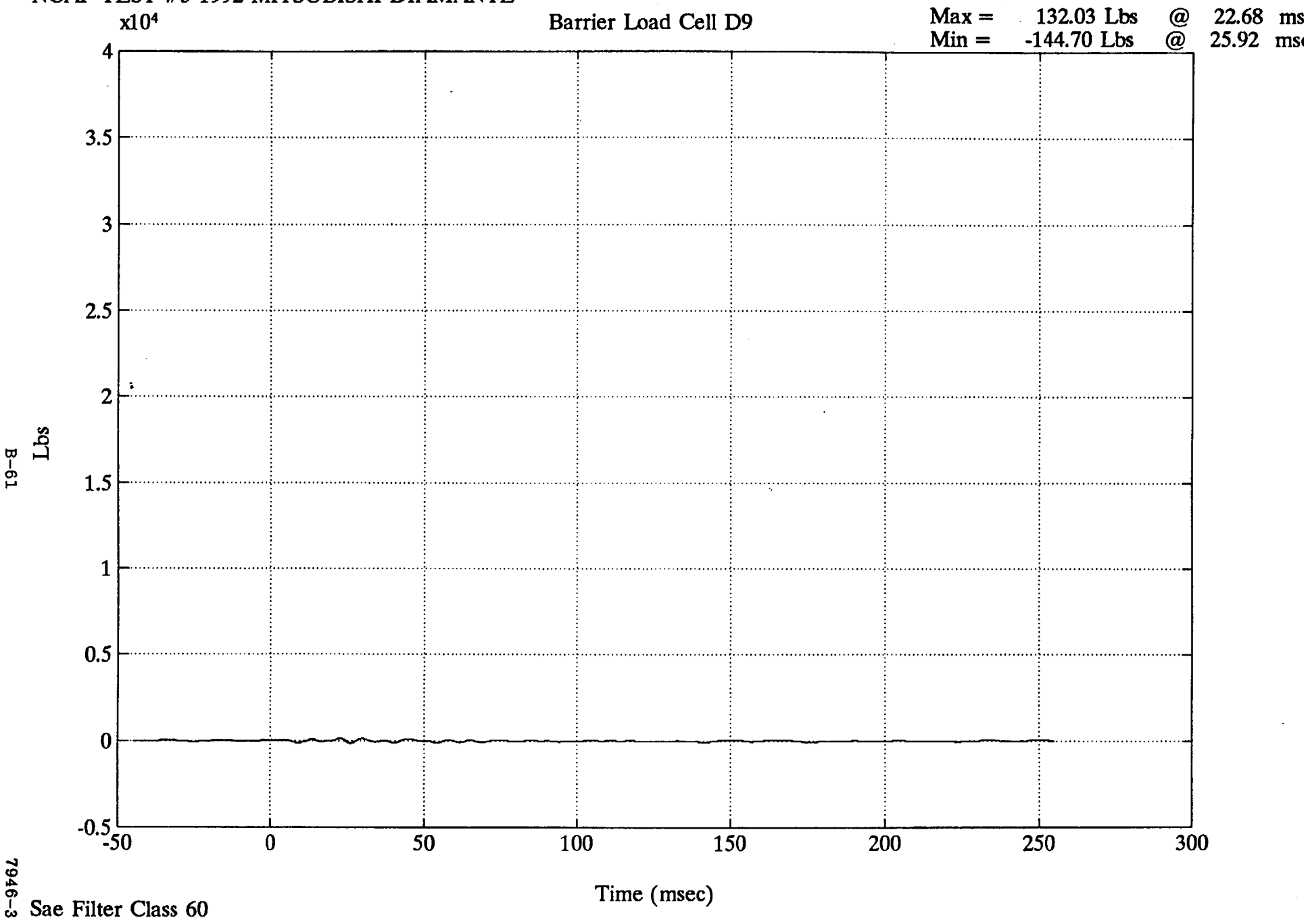


B-60

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

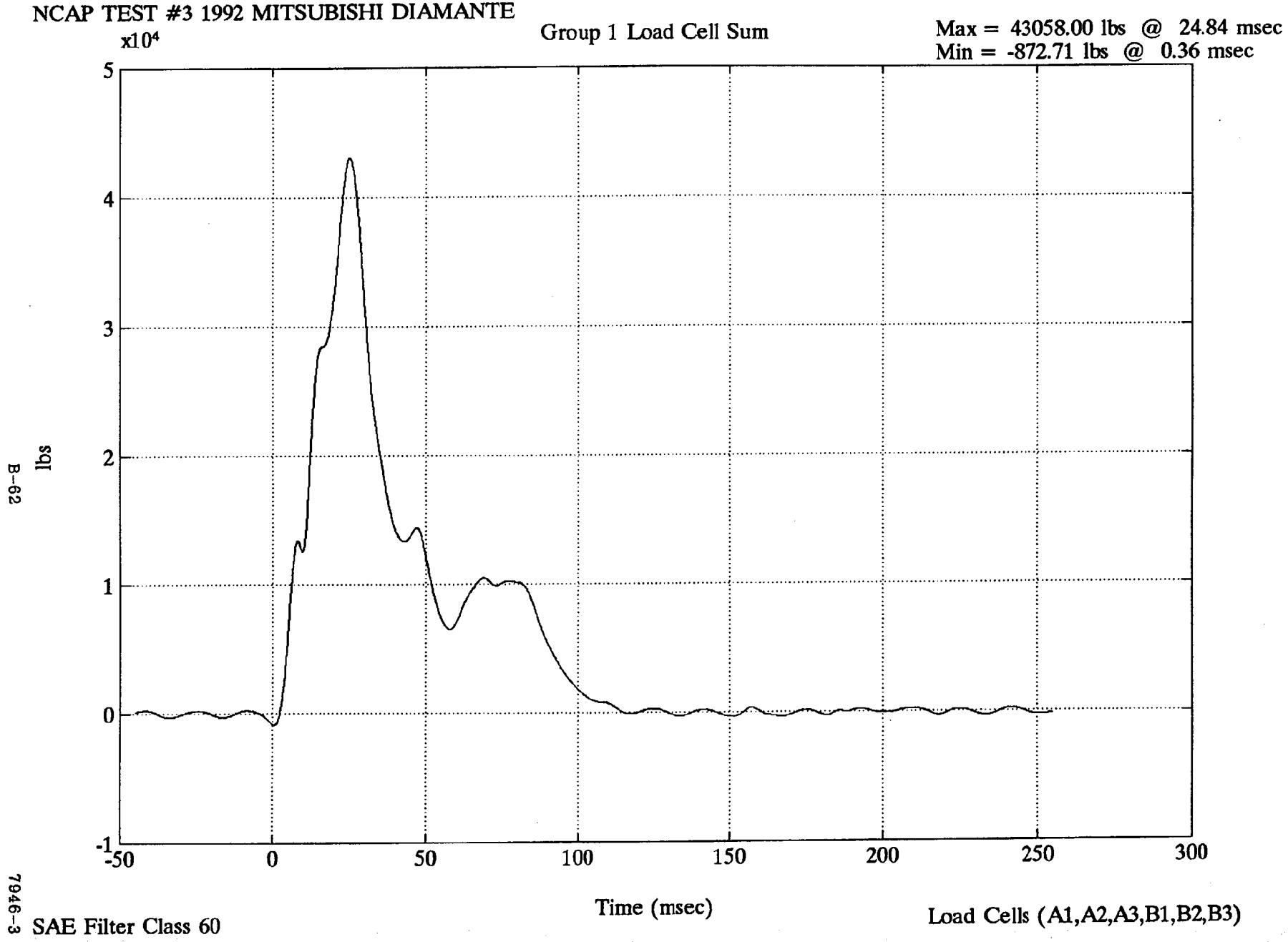


B-61

7946-3

Sae Filter Class 60

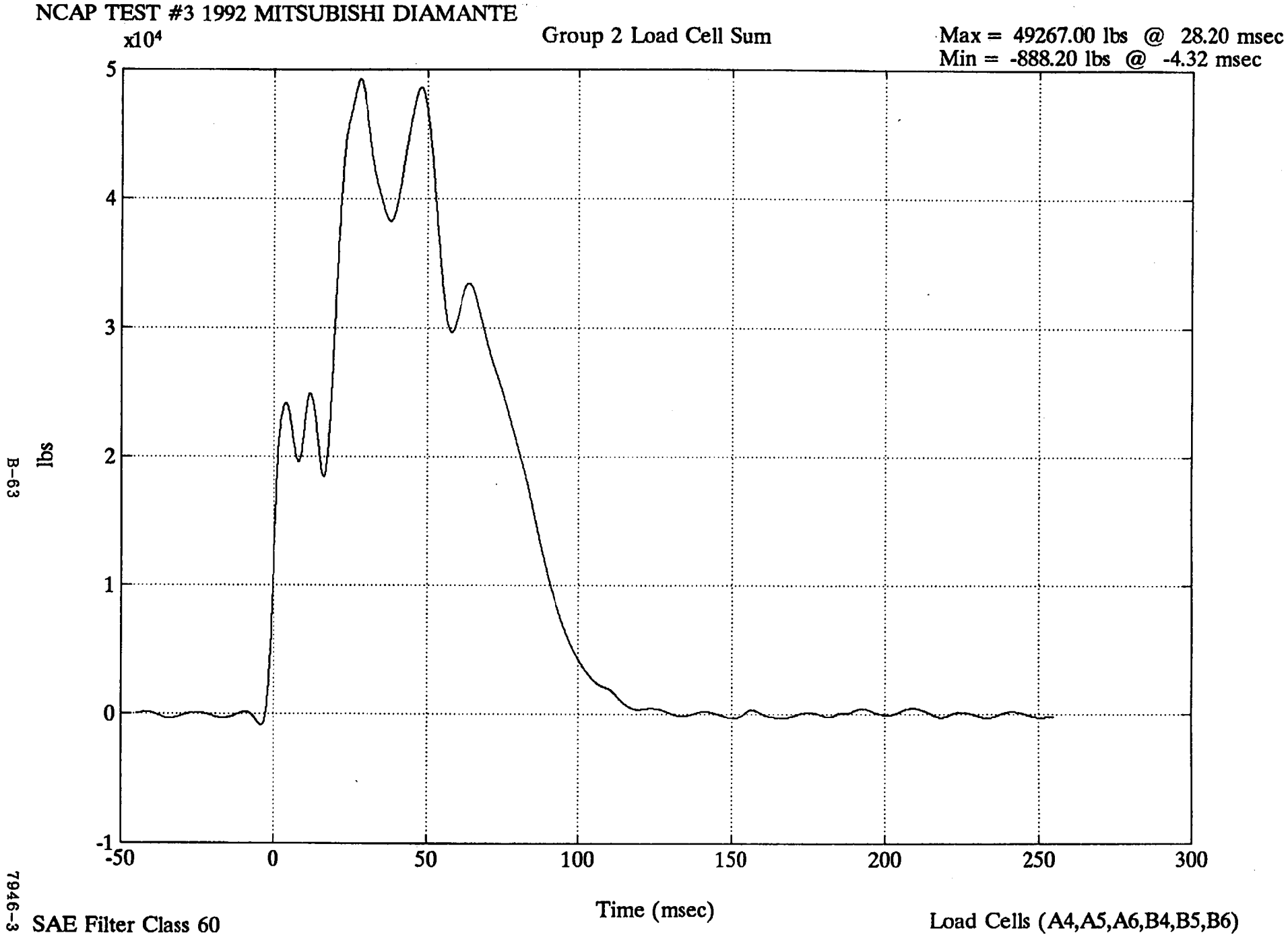
NCAP TEST #3 1992 MITSUBISHI DIAMANTE



B-62

7946-3

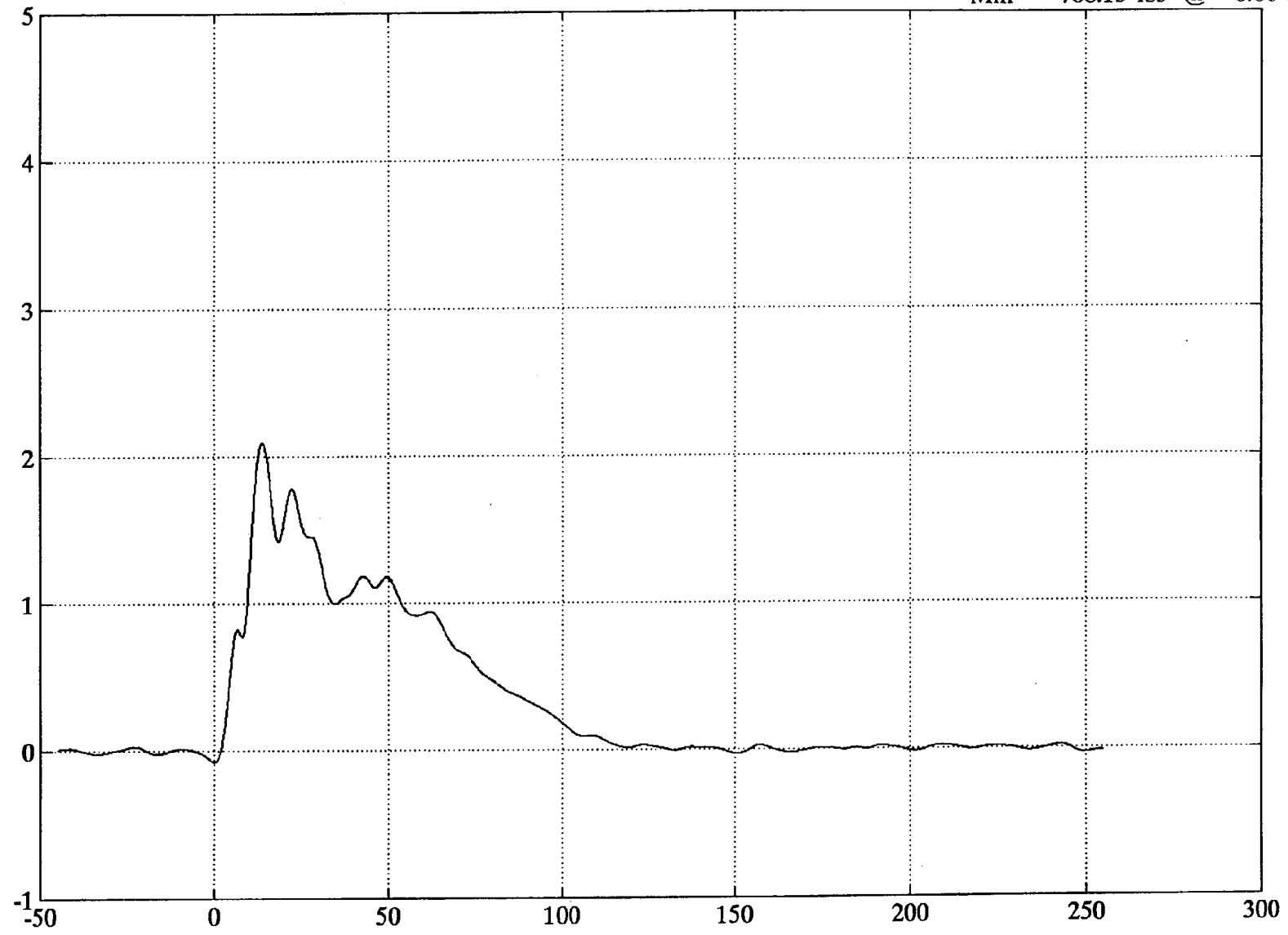
SAE Filter Class 60


NCAP TEST #3 1992 MITSUBISHI DIAMANTE
x10^4
Group 2 Load Cell Sum
Max = 49267.00 lbs @ 28.20 msec
Min = -888.20 lbs @ -4.32 msec
5
4
3
2
1
0
-1
lbs
-50
0
50
100
150
200
250
300
Time (msec)
SAE Filter Class 60
Load Cells (A4,A5,A6,B4,B5,B6)
B-63
7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

Group 3 Load Cell Sum

Max = 20941.00 lbs @ 13.20 msec
Min = -768.13 lbs @ -0.00 msec



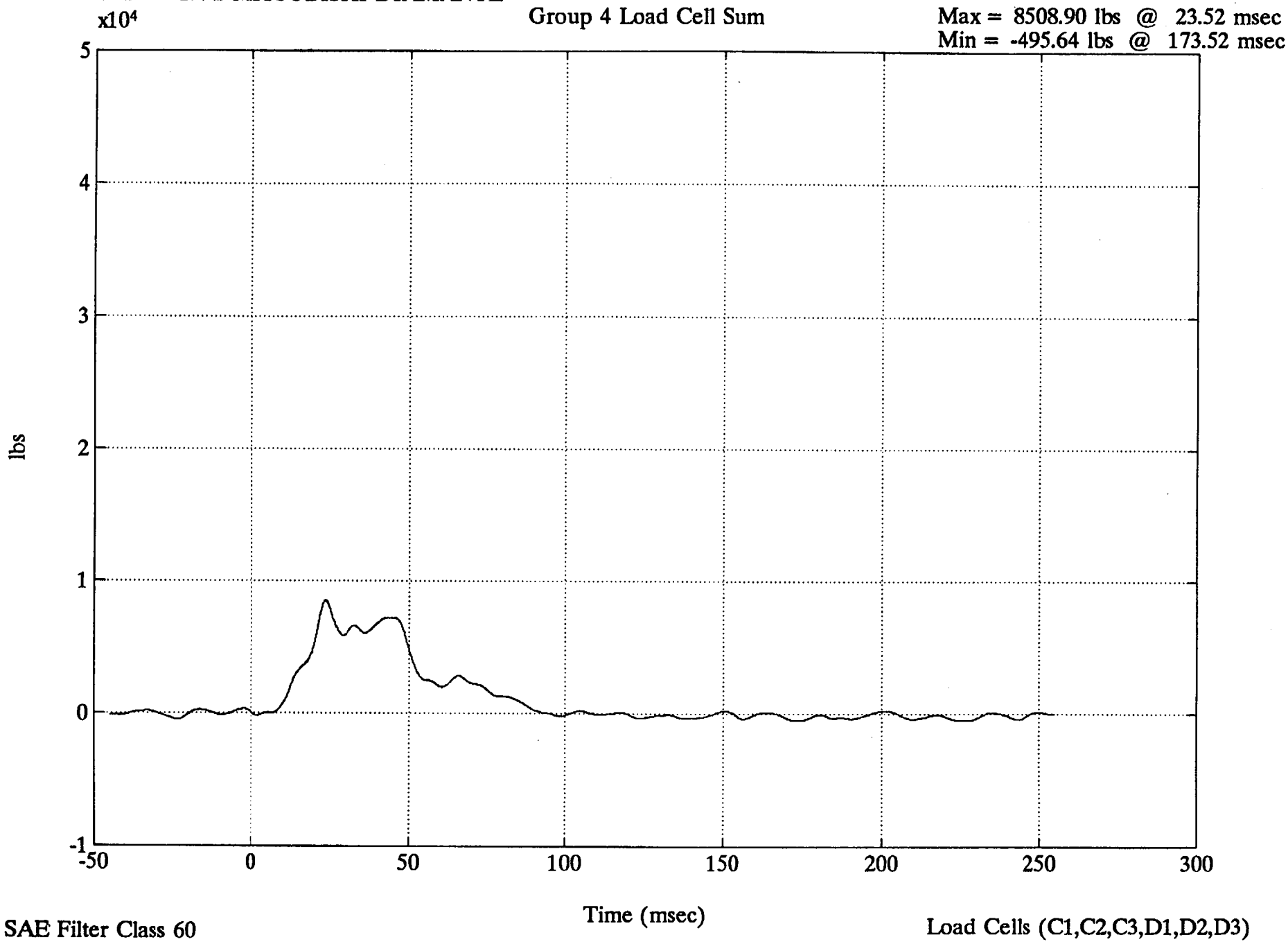
SAE Filter Class 60

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

Barrier Load Cell A9 was not included in this load cell sum

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

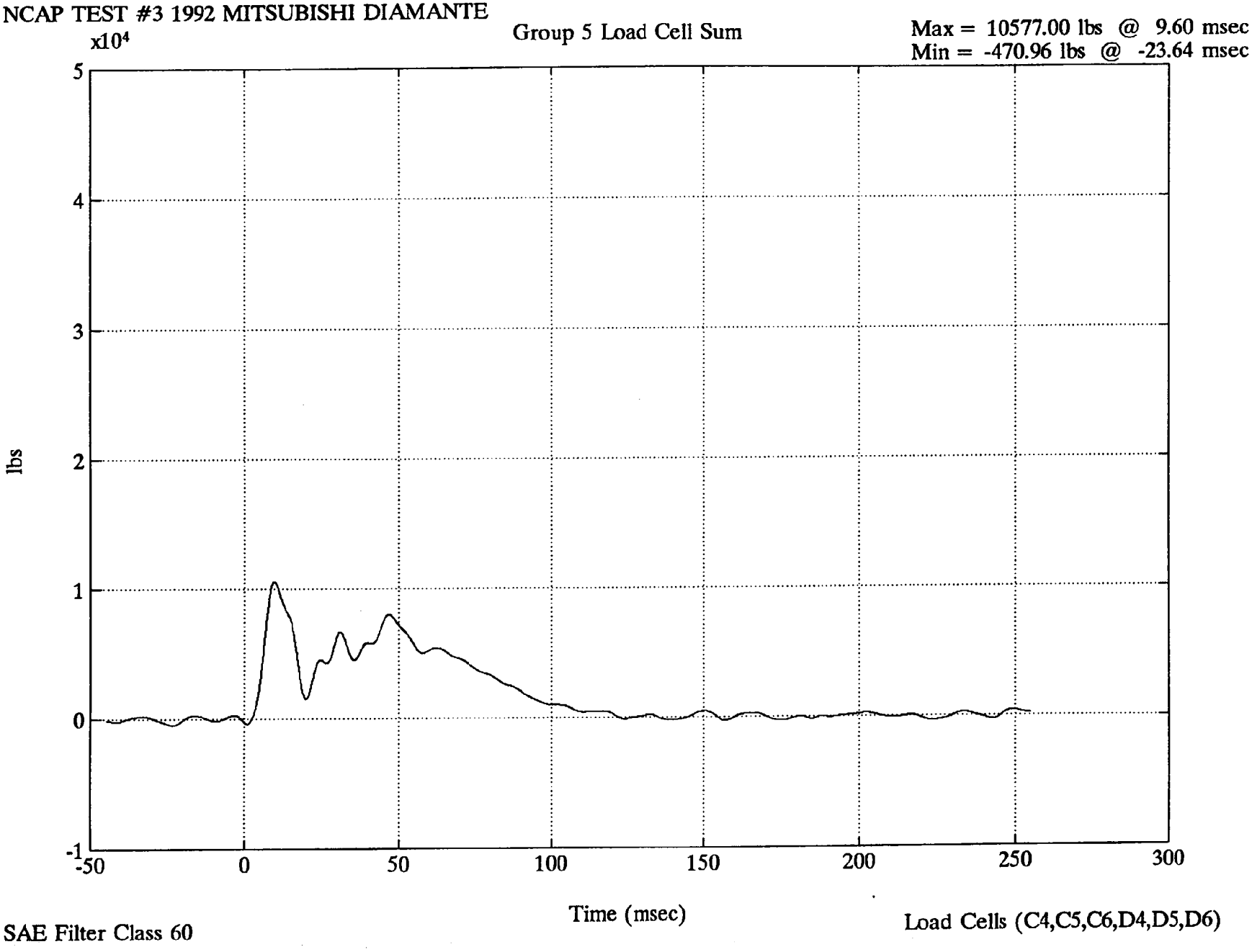


SAE Filter Class 60

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

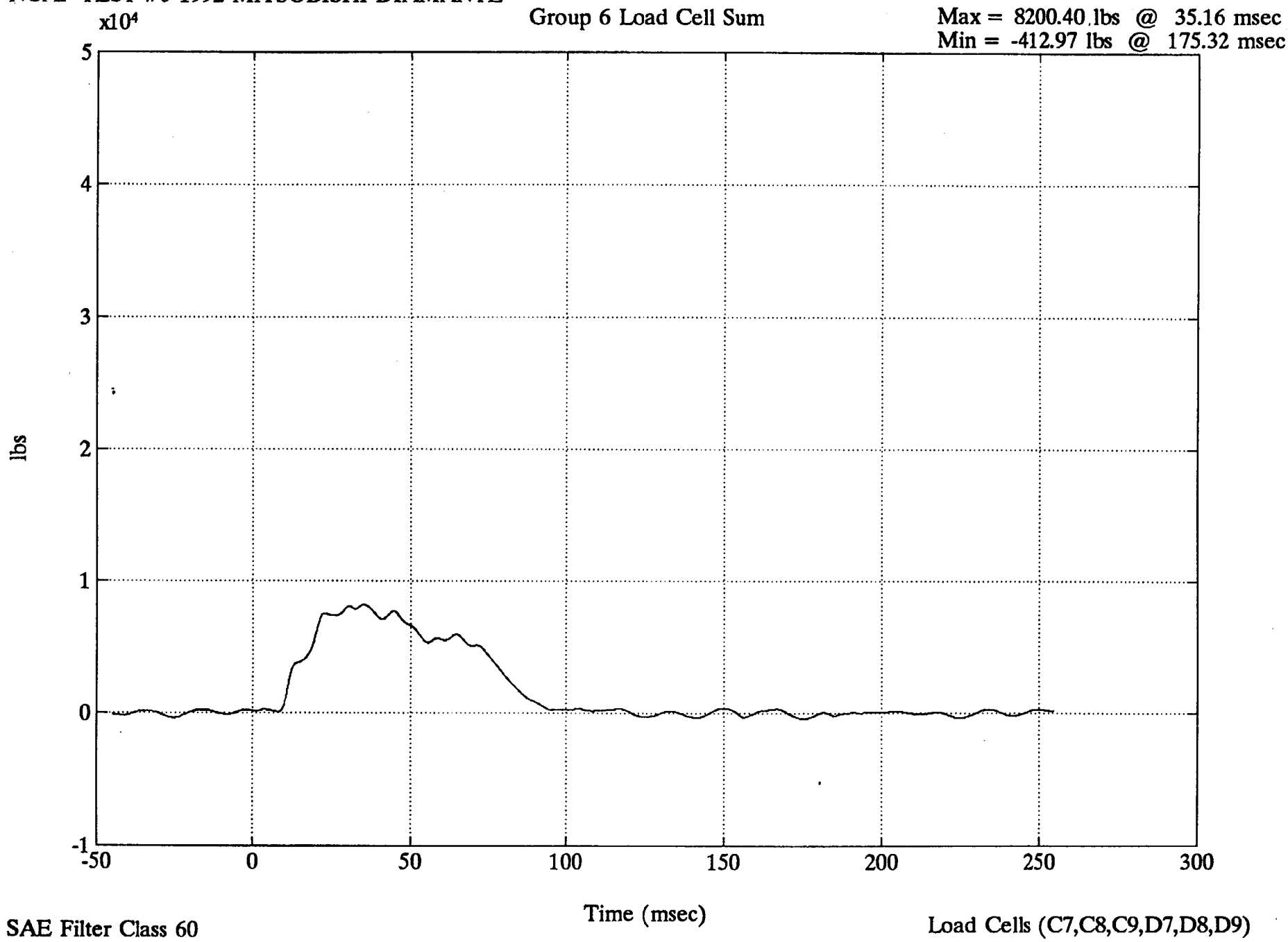
7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



SAE Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



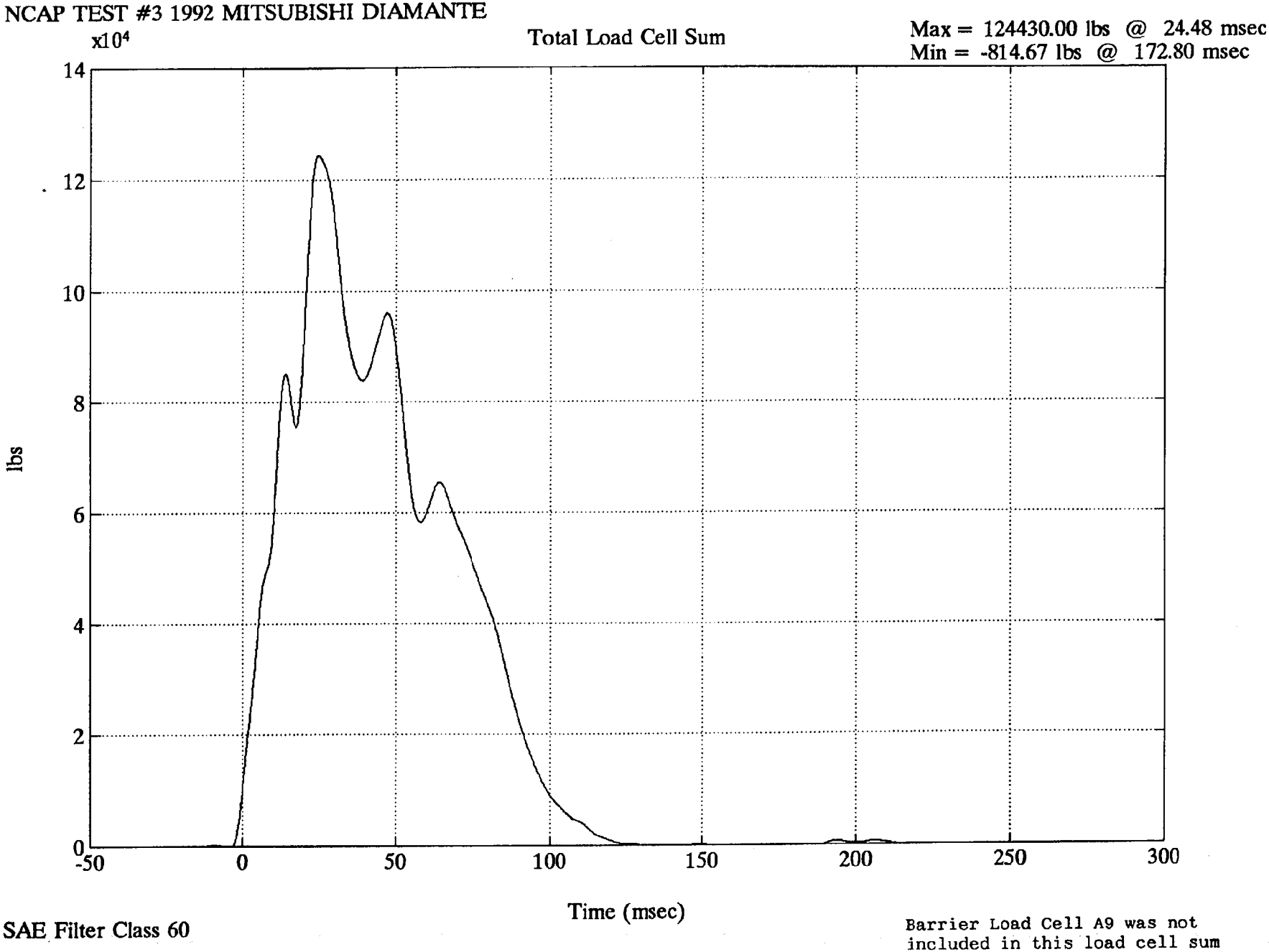
B-67

7946-3

SAE Filter Class 60

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

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



SAE Filter Class 60

Barrier Load Cell A9 was not included in this load cell sum

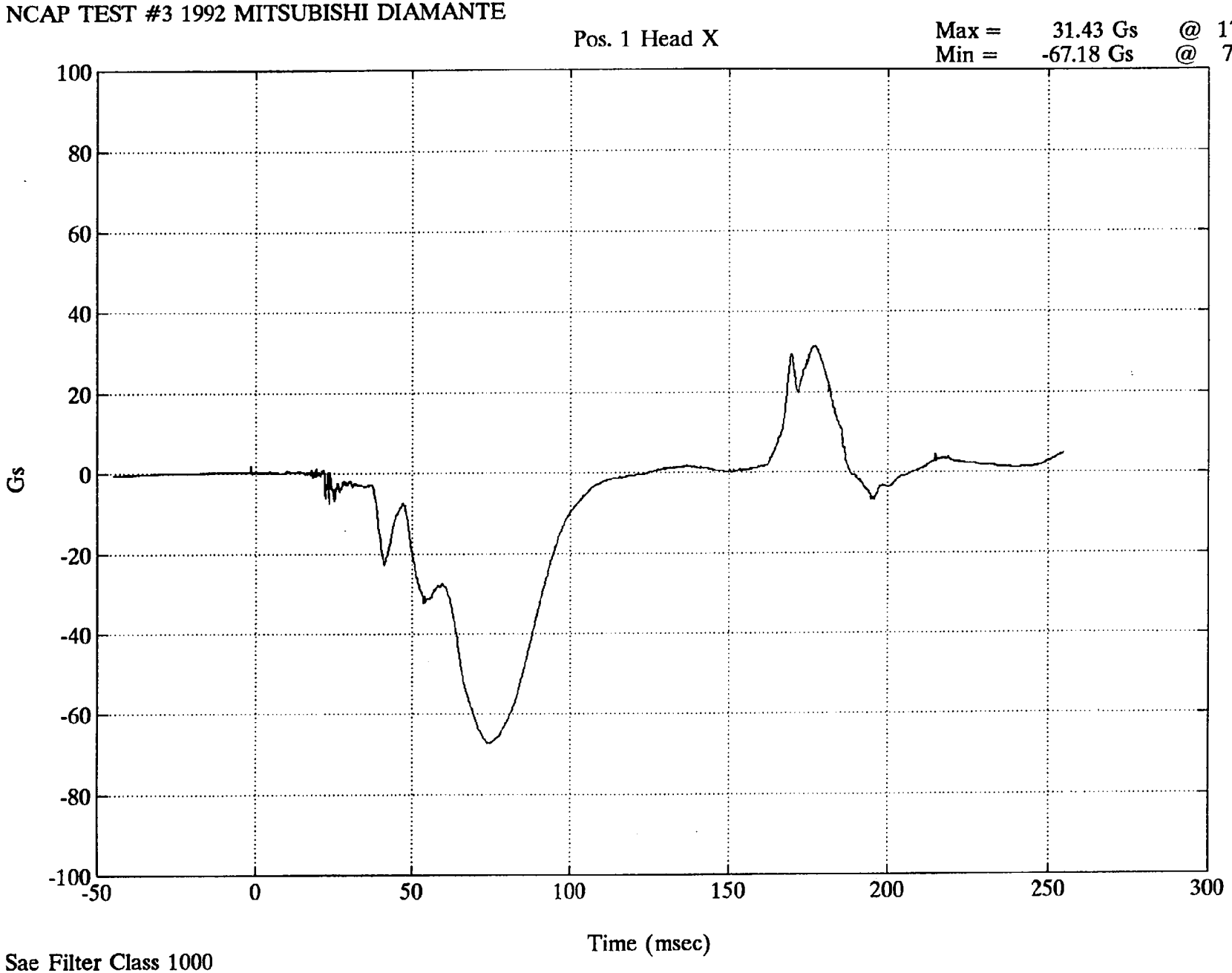
7946-3

TEST NO. MN5600

DUMMY DATA

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

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

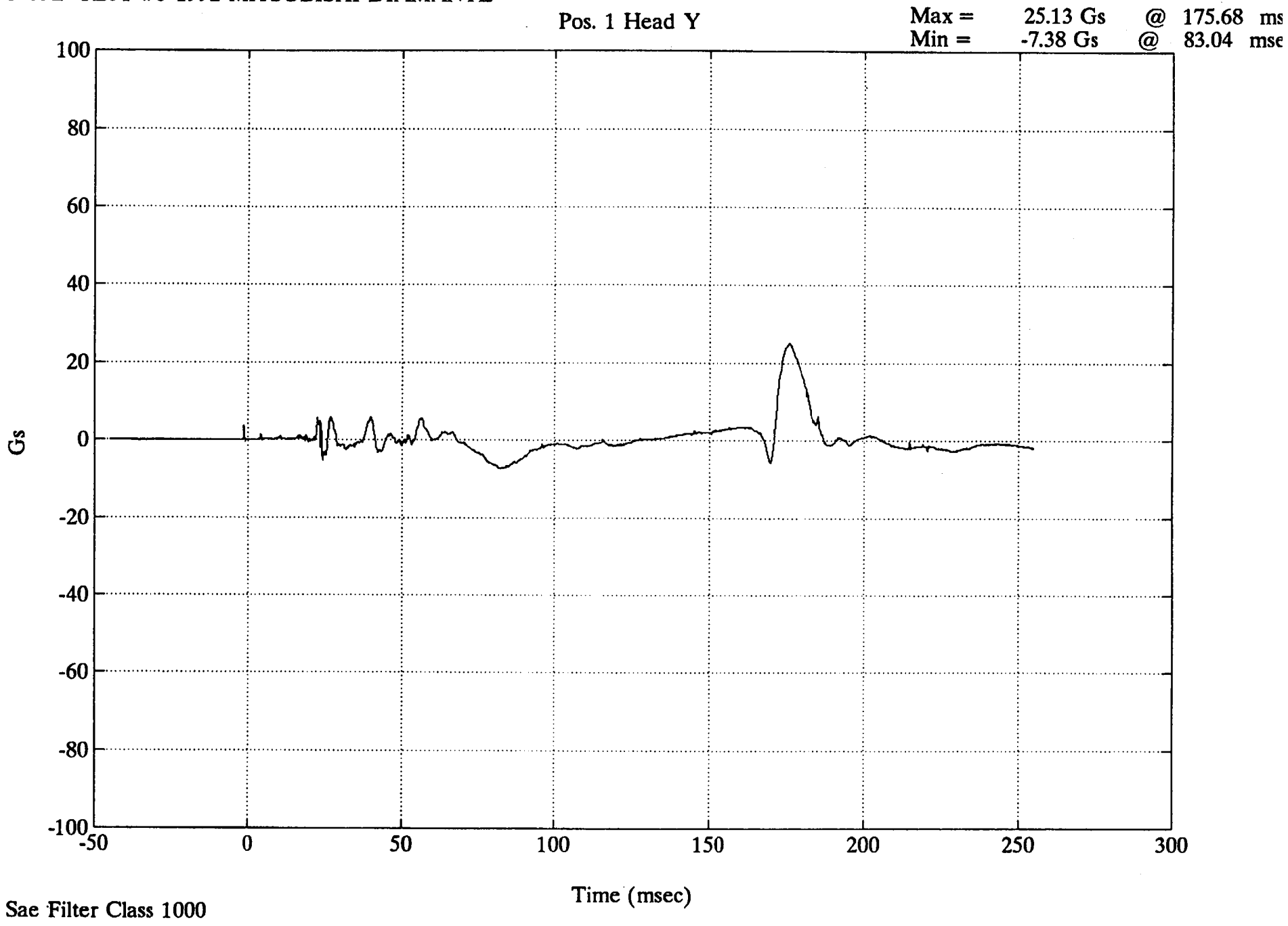


B-70

7946-3

Sae Filter Class 1000

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

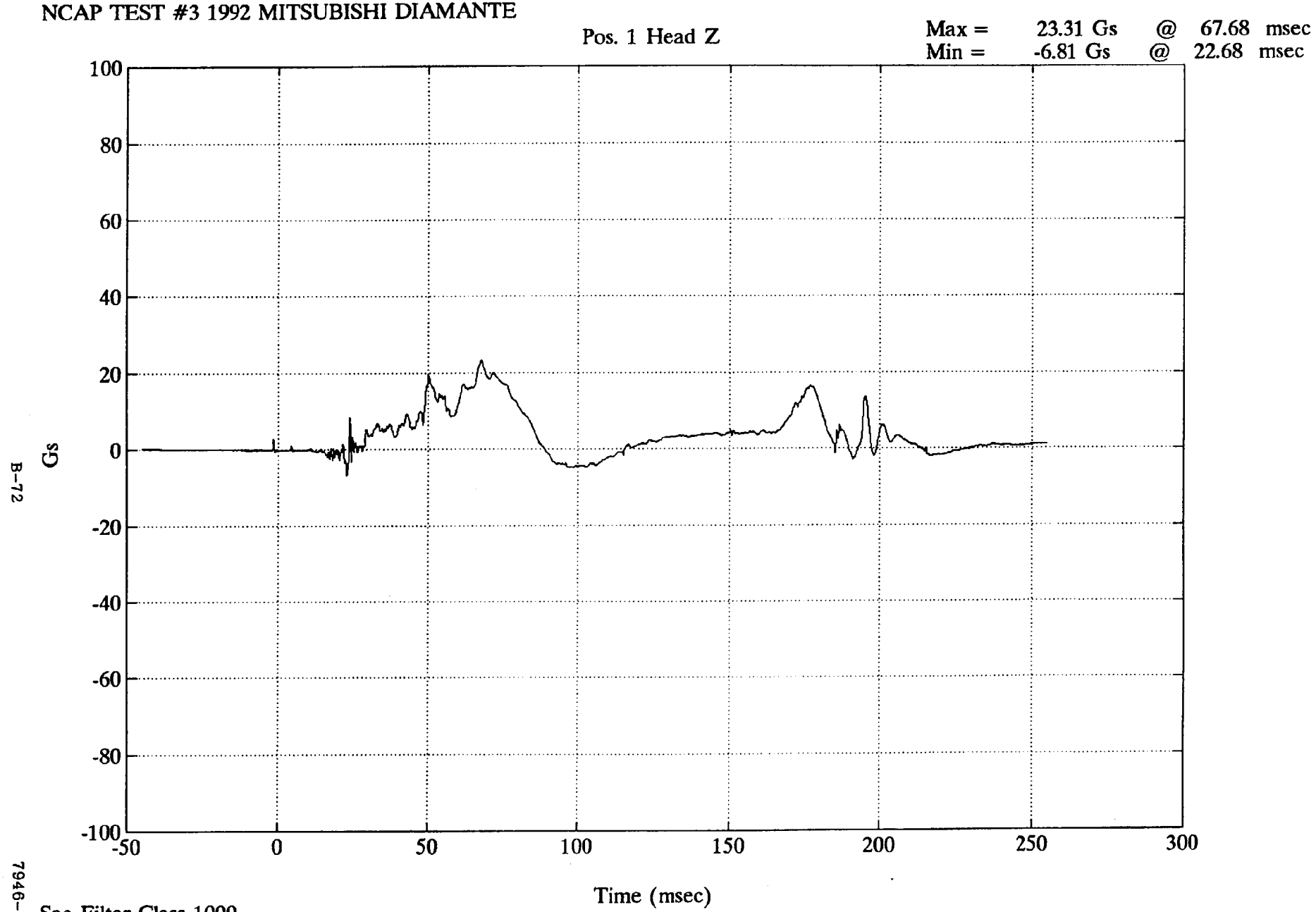


B-71

7946-3

Sae Filter Class 1000

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

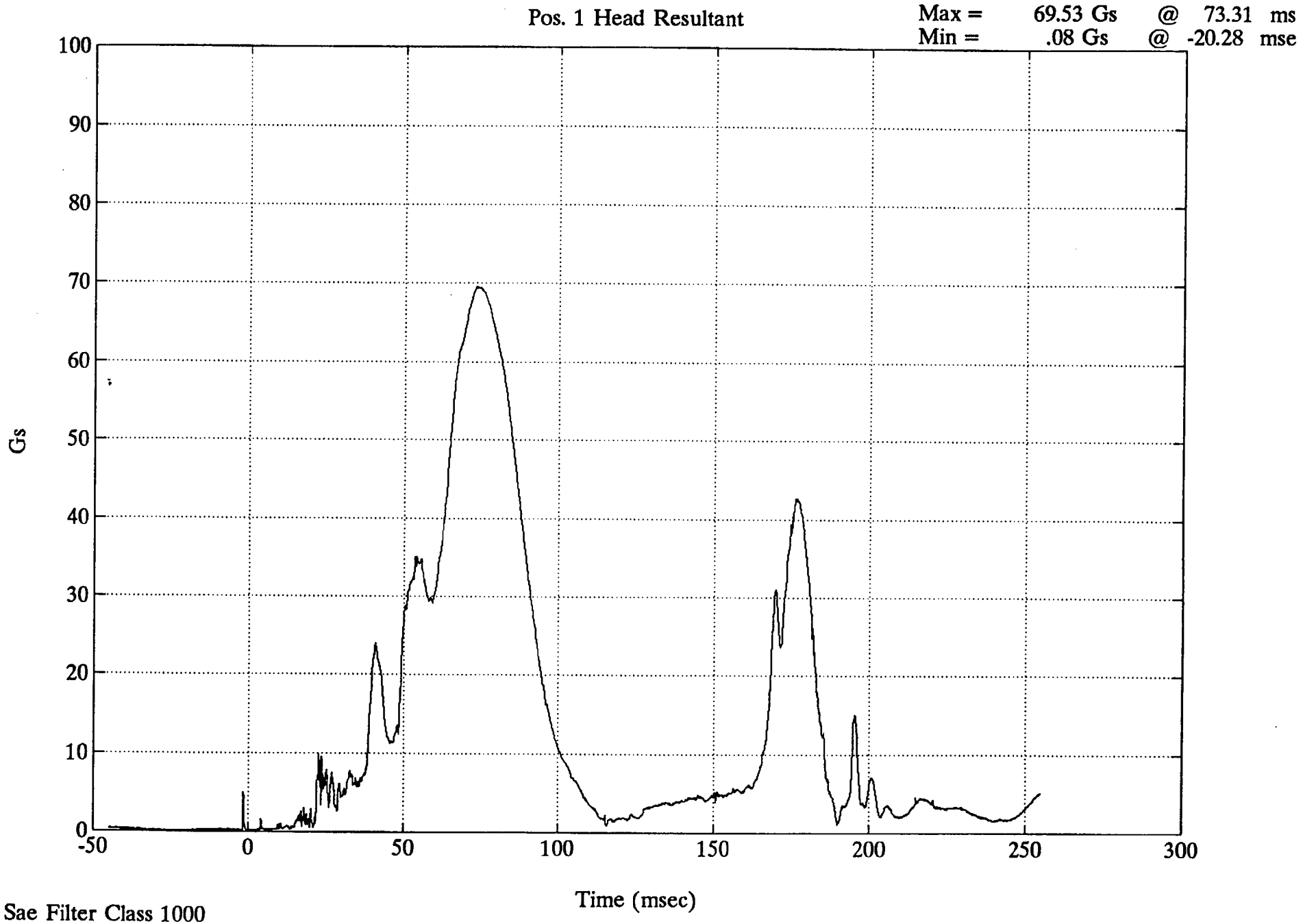


B-72

7946-3

Sae Filter Class 1000

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

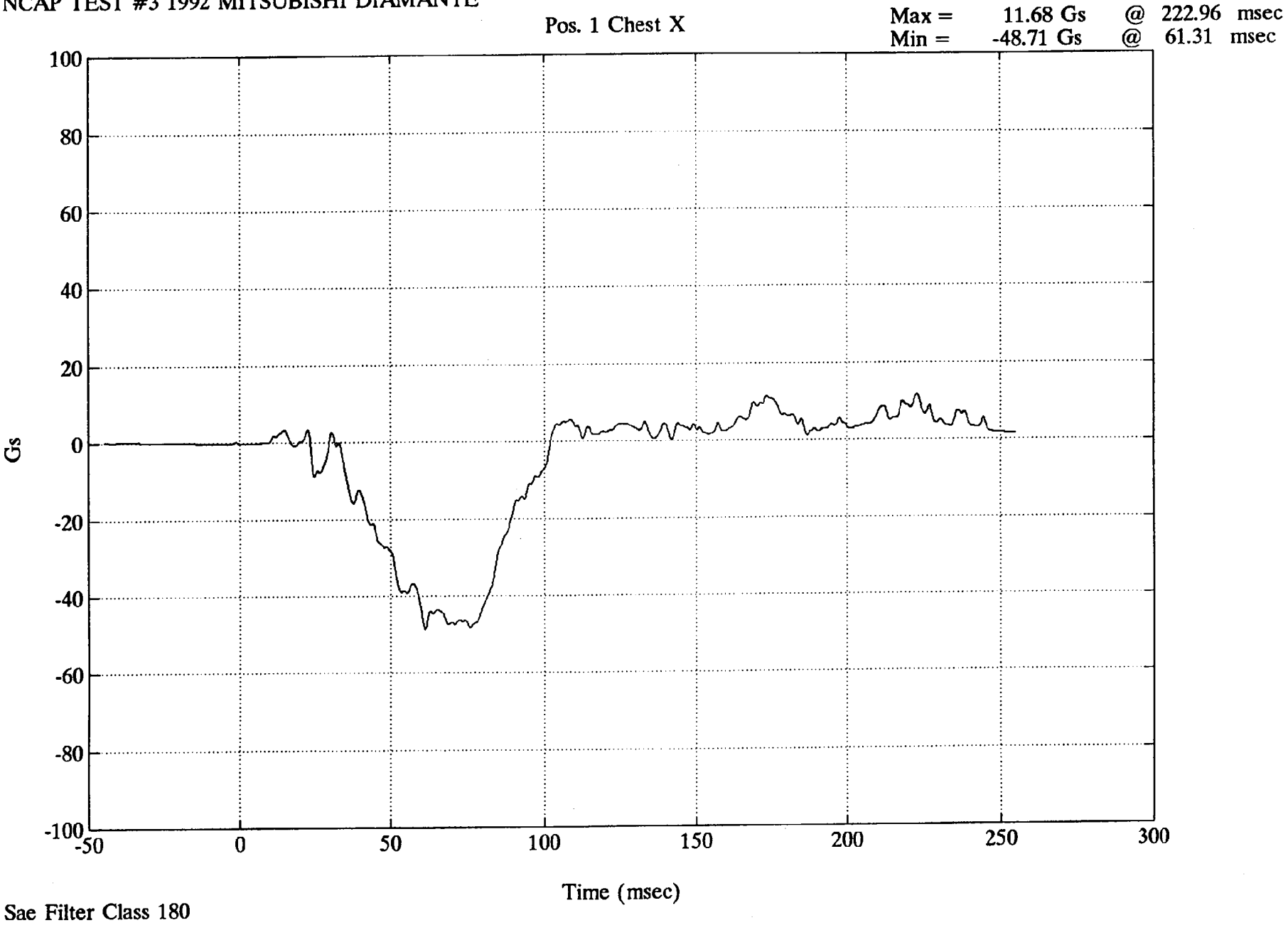


B-73

7946-3

Sae Filter Class 1000

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

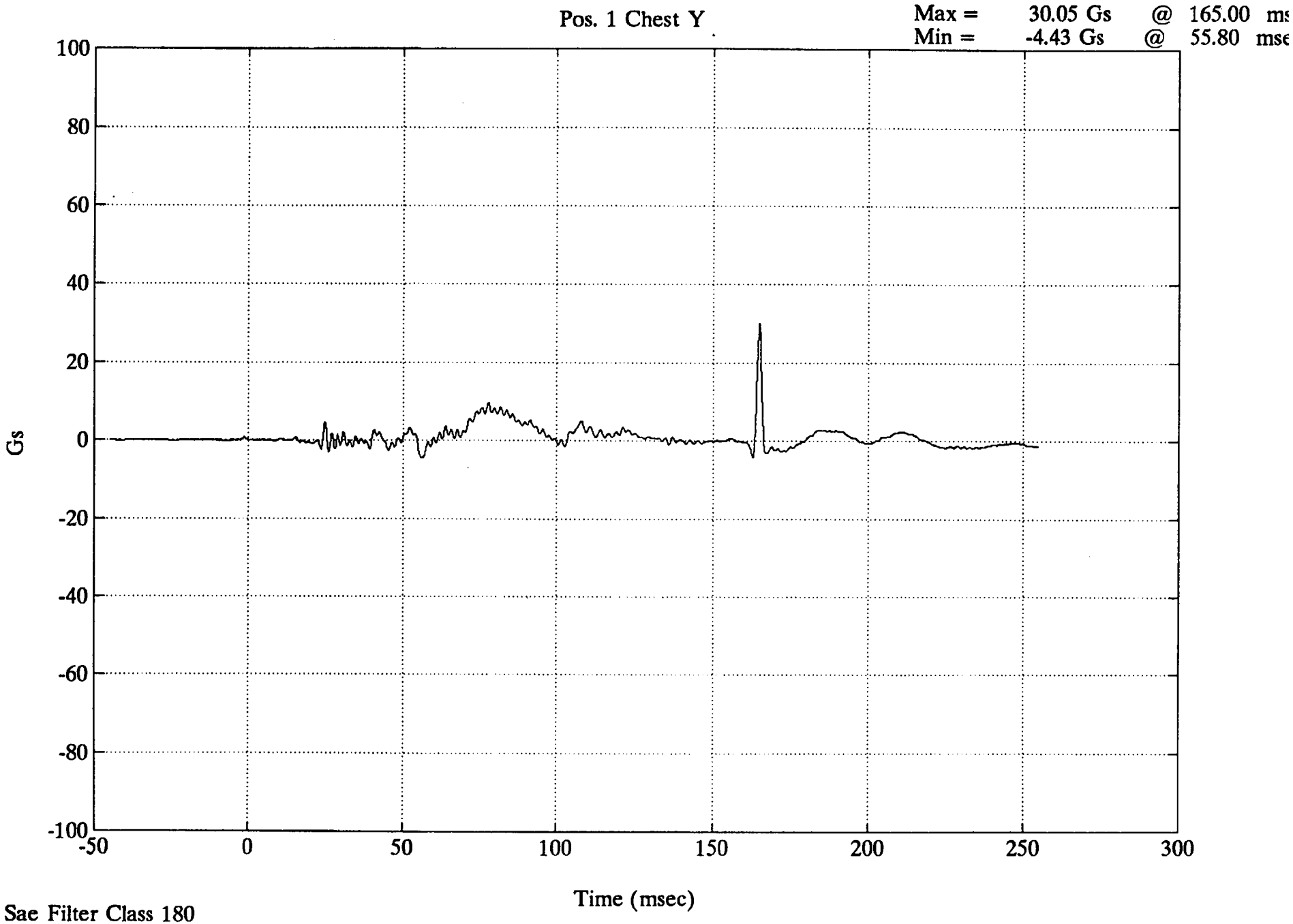


B-74

7946-3

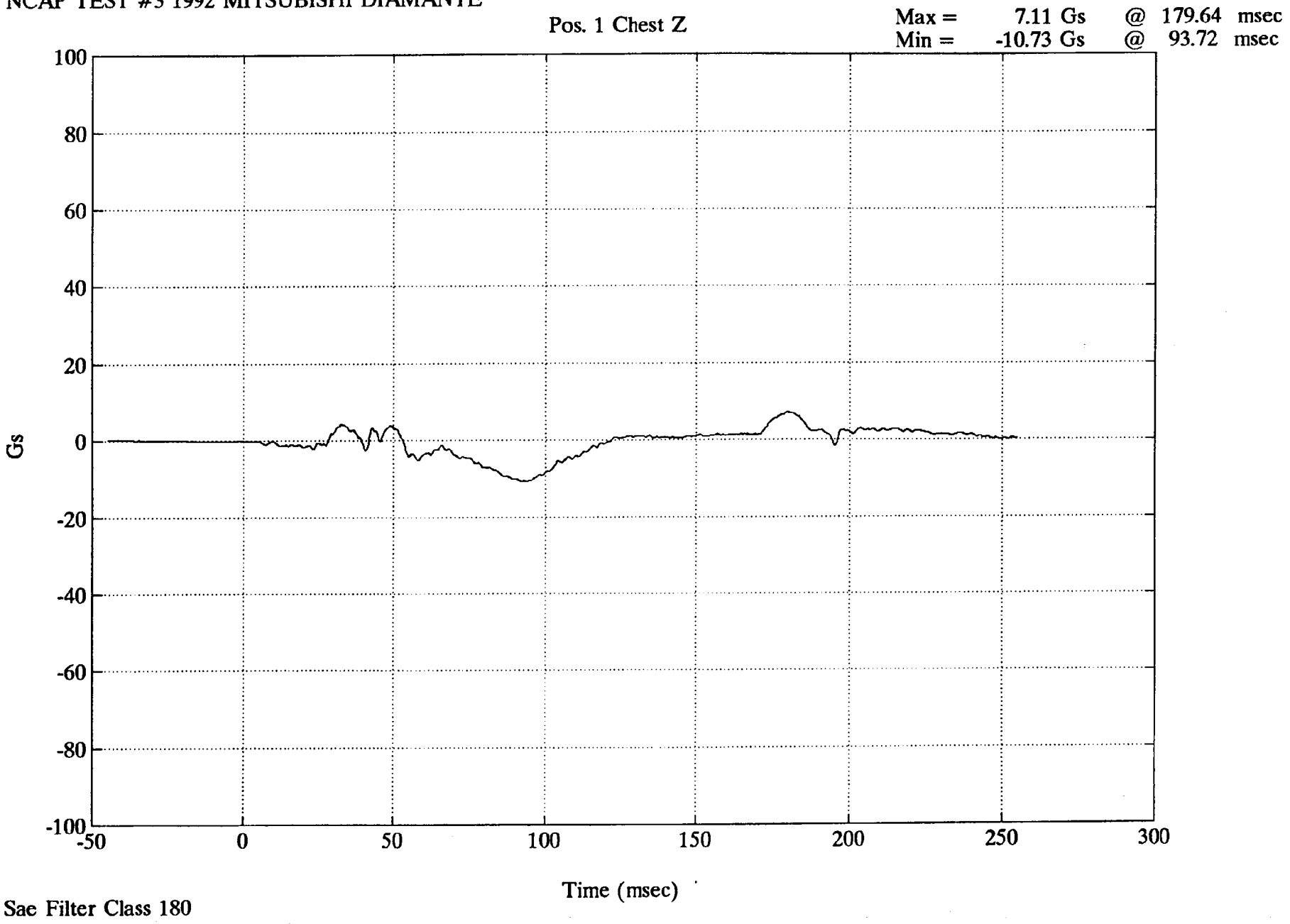
Sae Filter Class 180

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



Sae Filter Class 180

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

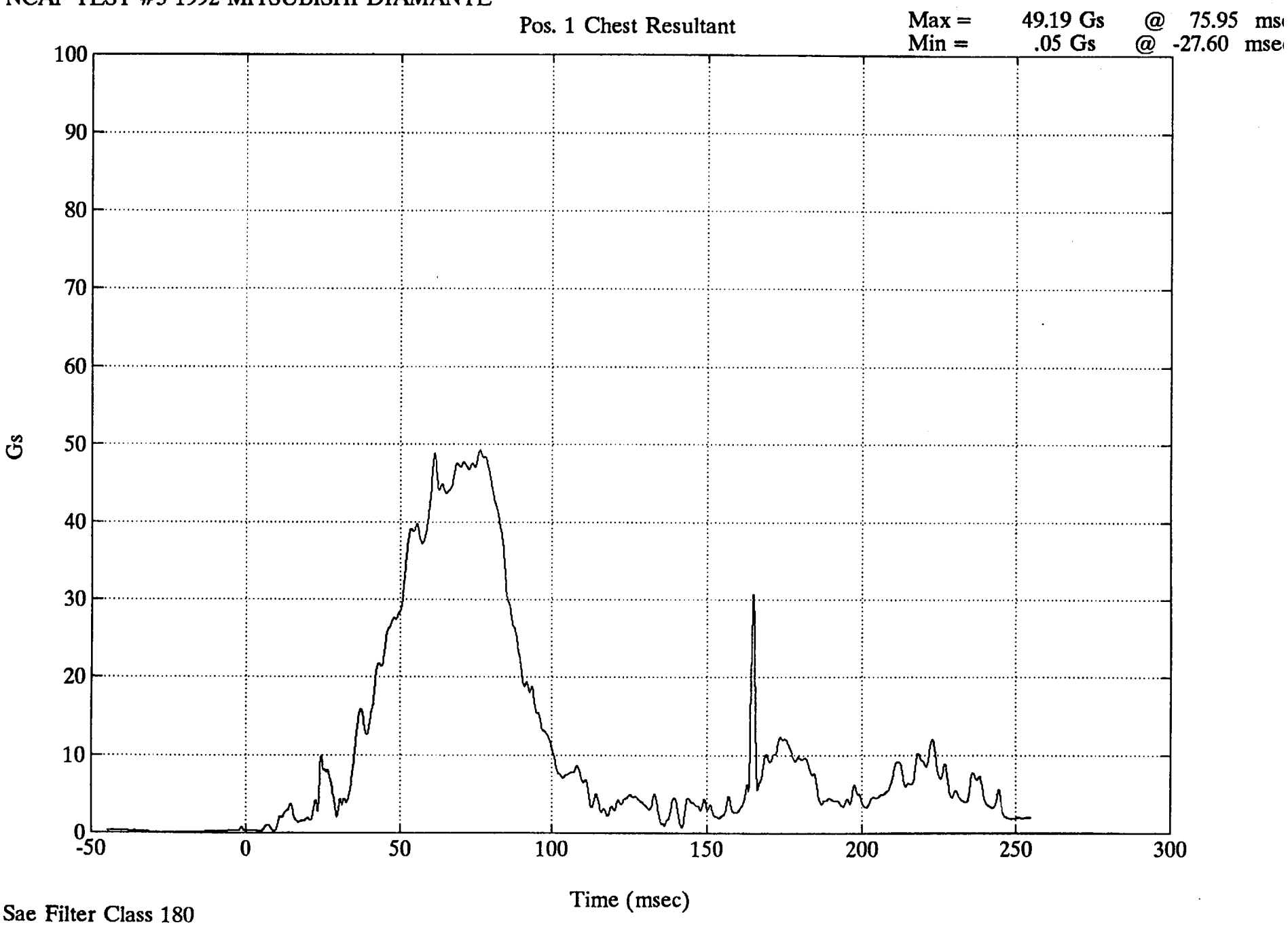


B-76

7946-3

Sae Filter Class 180

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

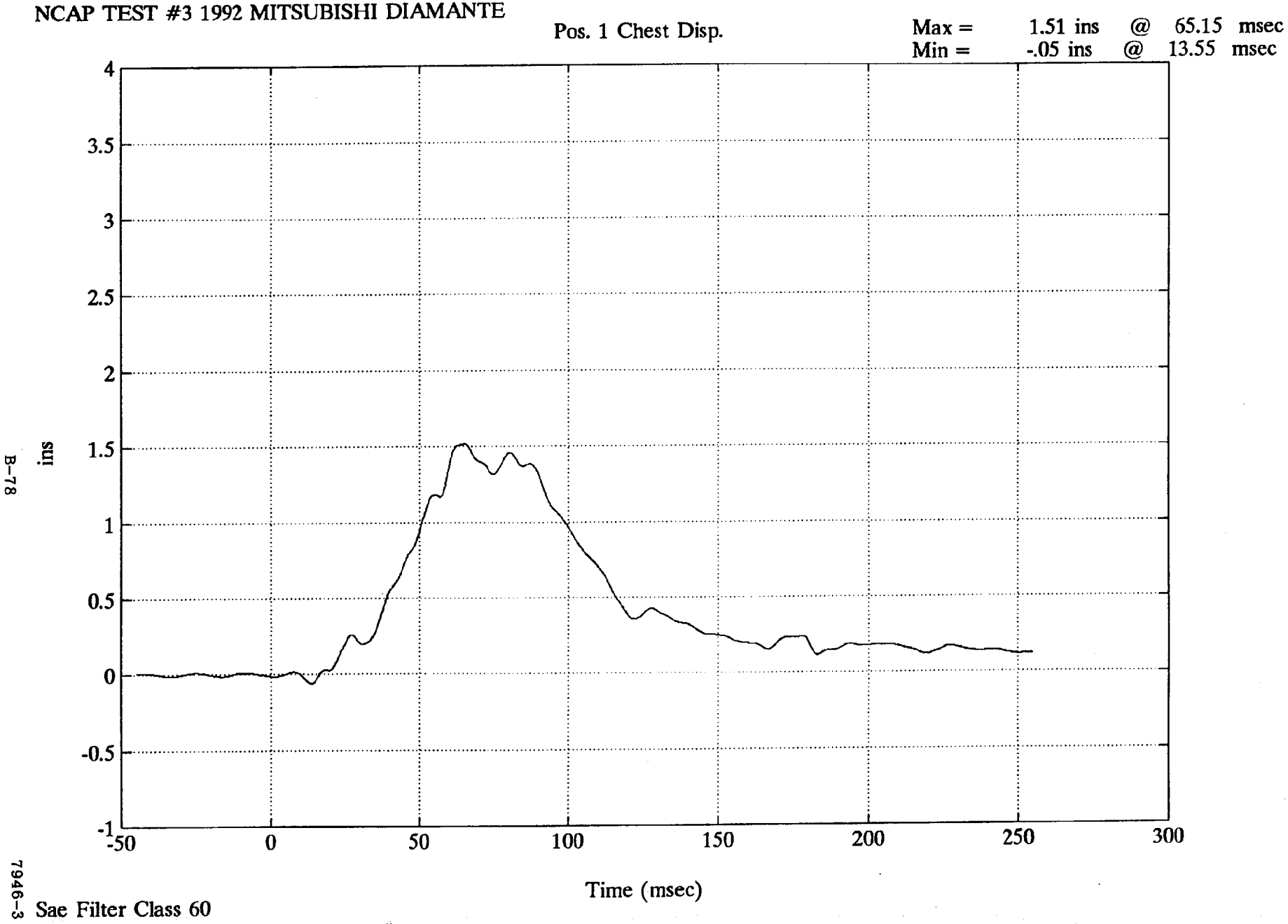


B-77

7946-3

Sae Filter Class 180

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

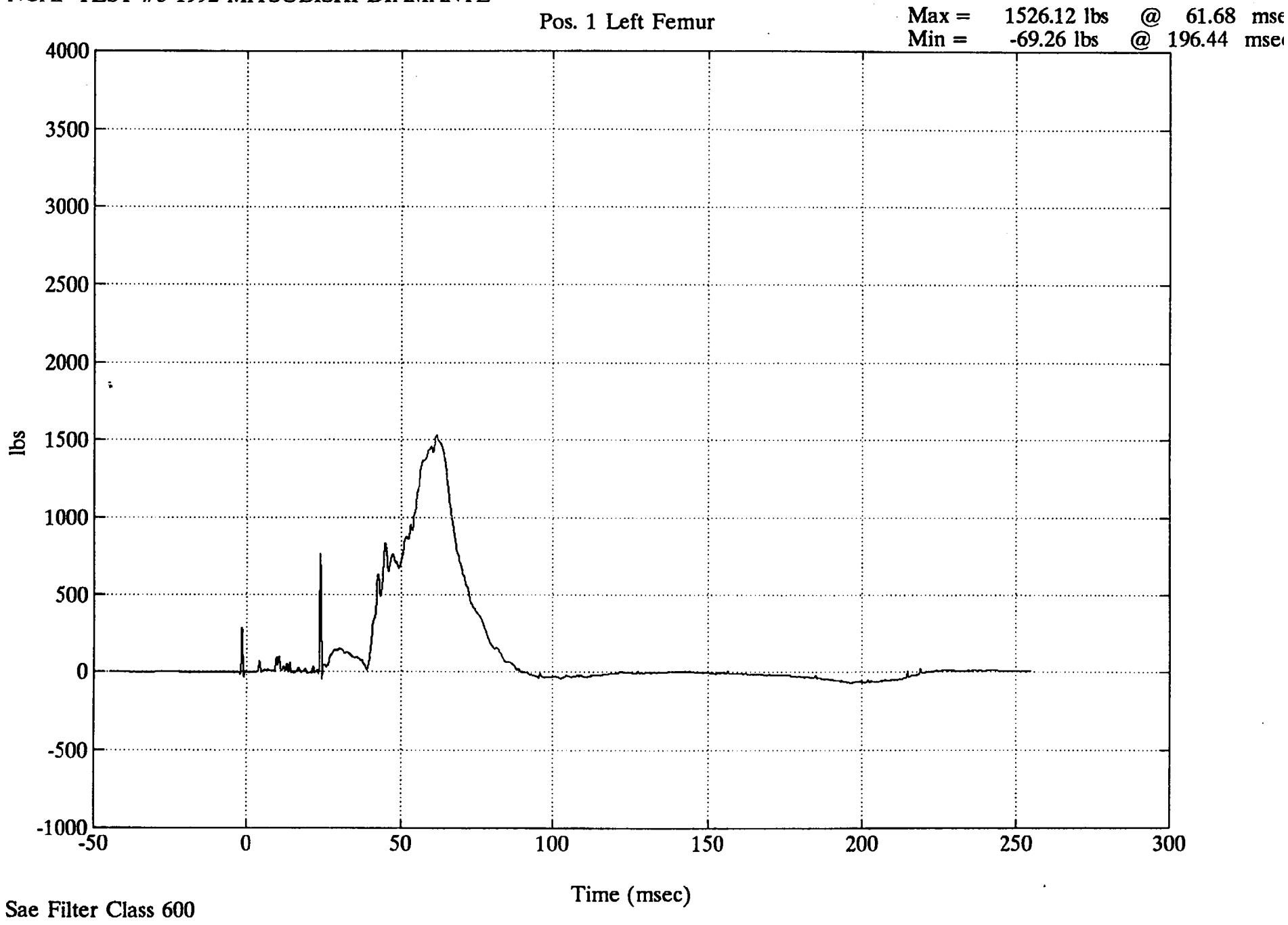


B-78

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

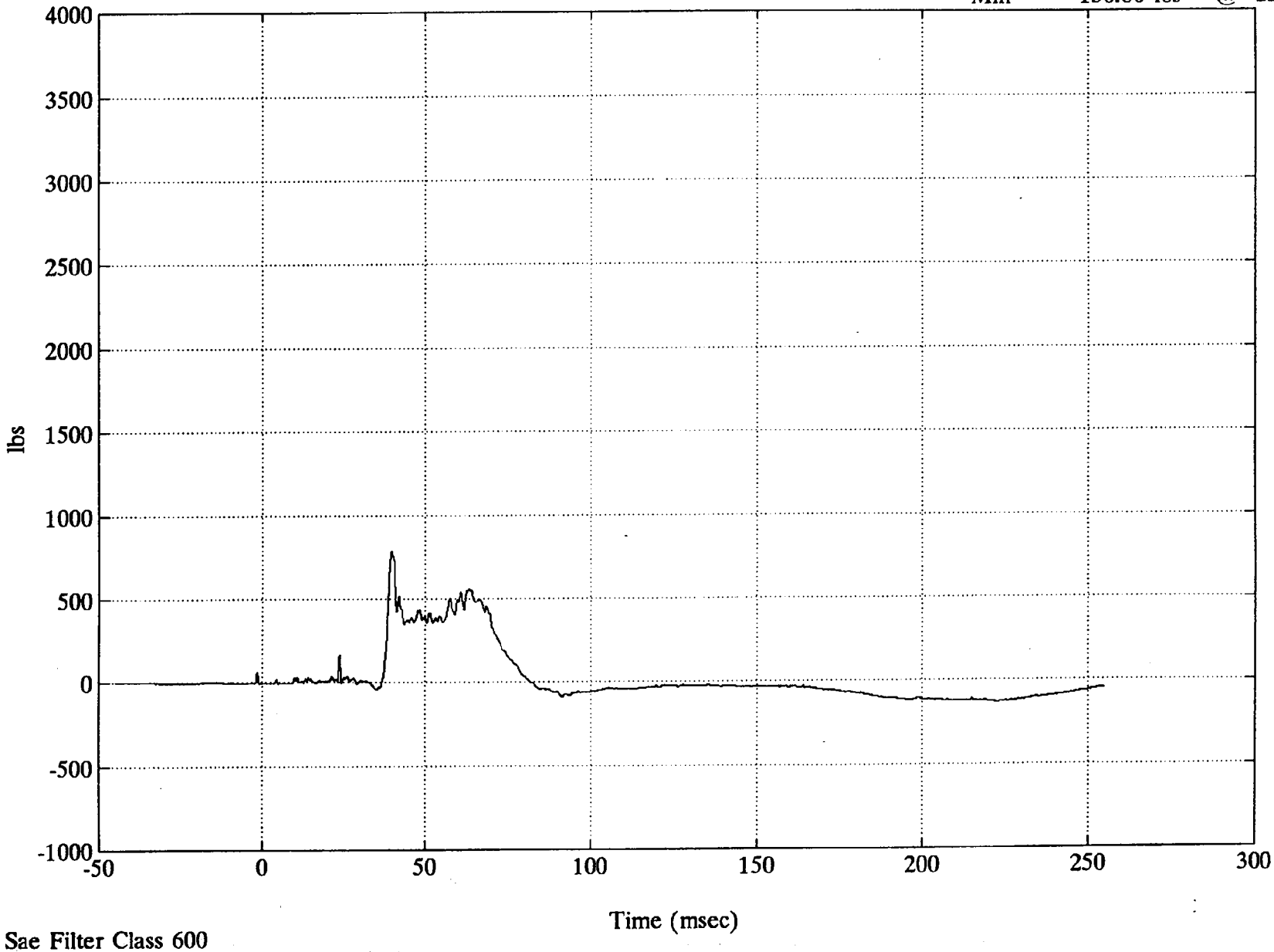


Sae Filter Class 600

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

Pos. 1 Right Femur

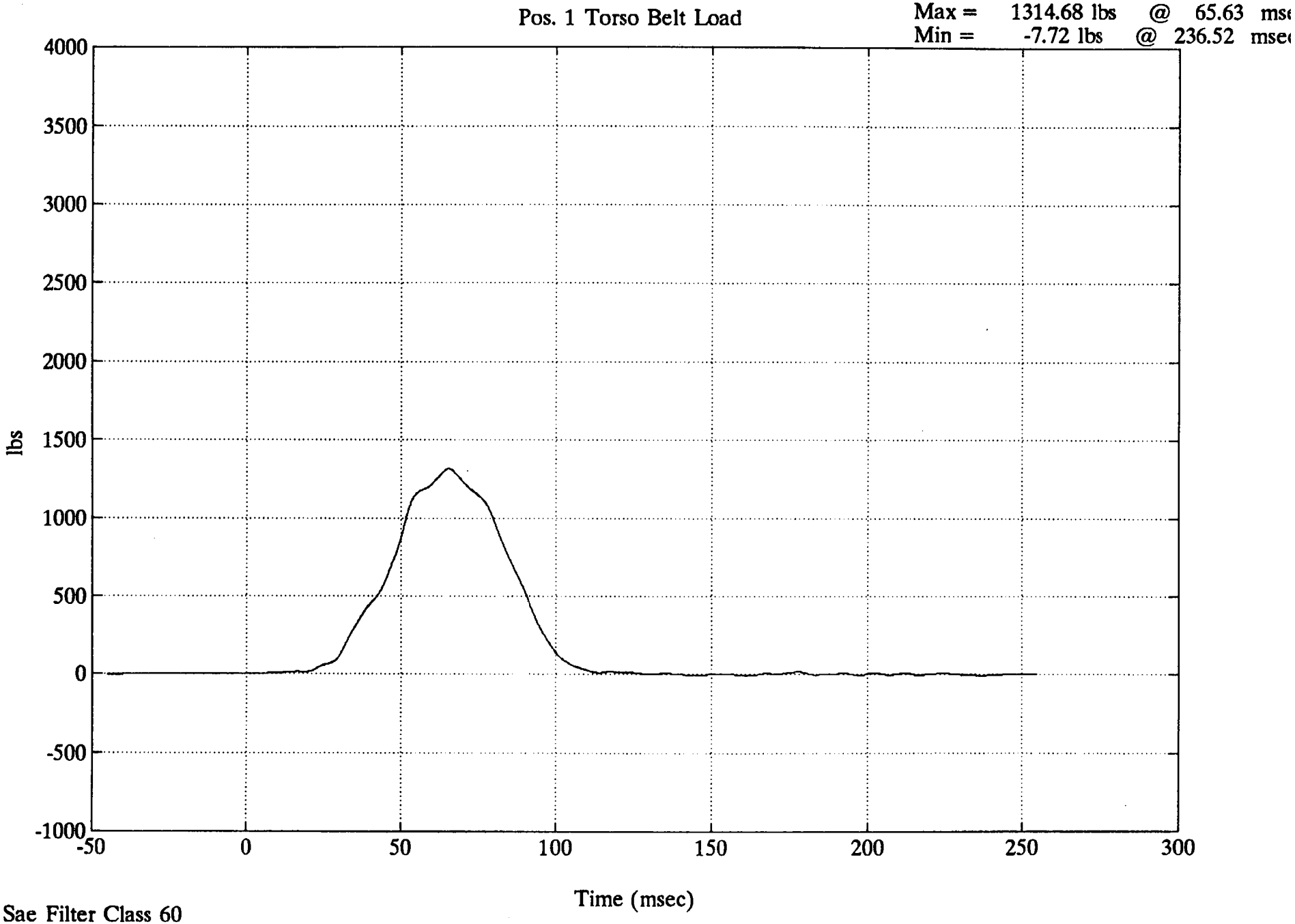
Max = 784.06 lbs @ 39.71 msec
Min = -130.60 lbs @ 222.96 msec



Sae Filter Class 600

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

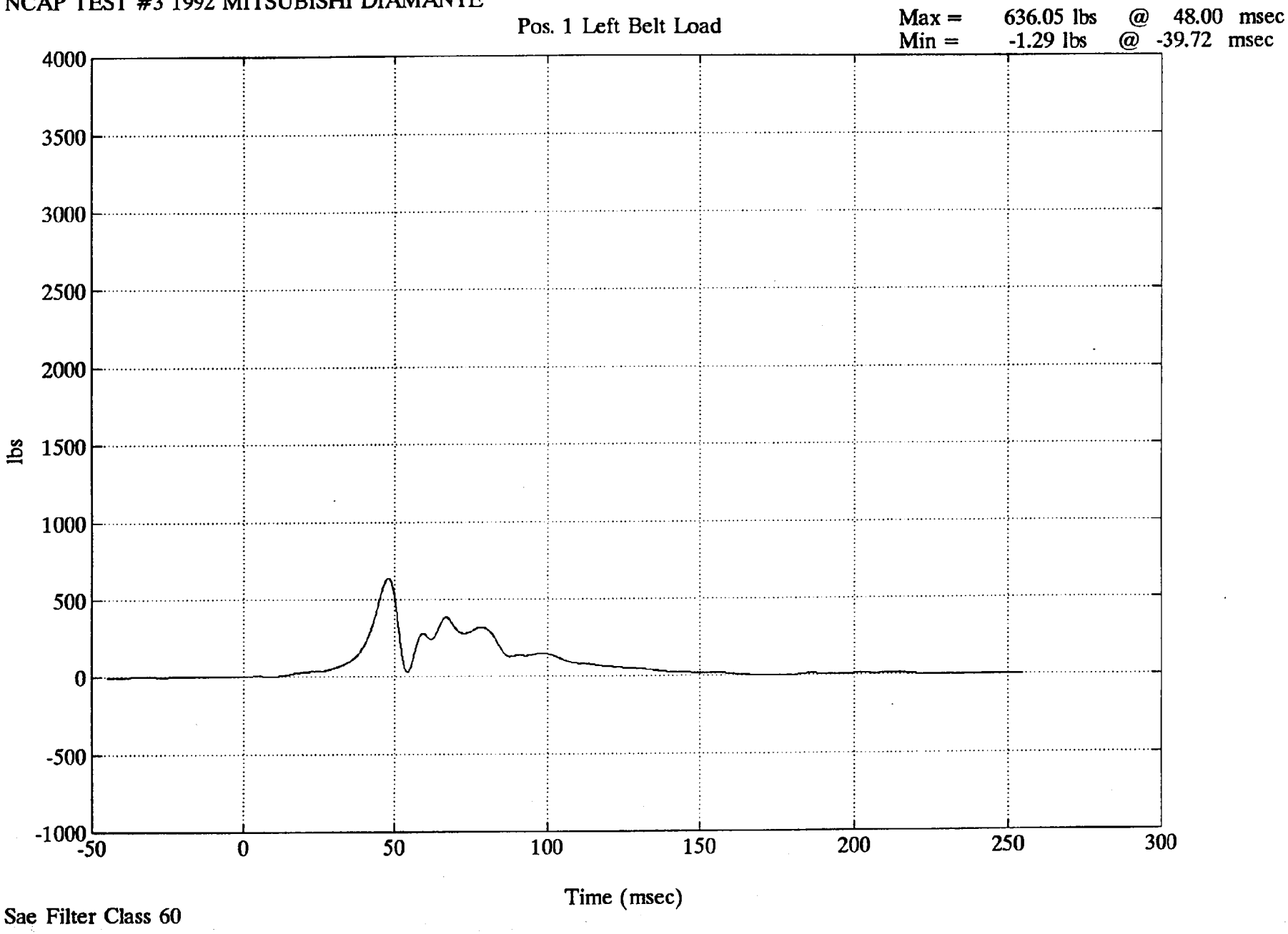


B-81

7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



B-82

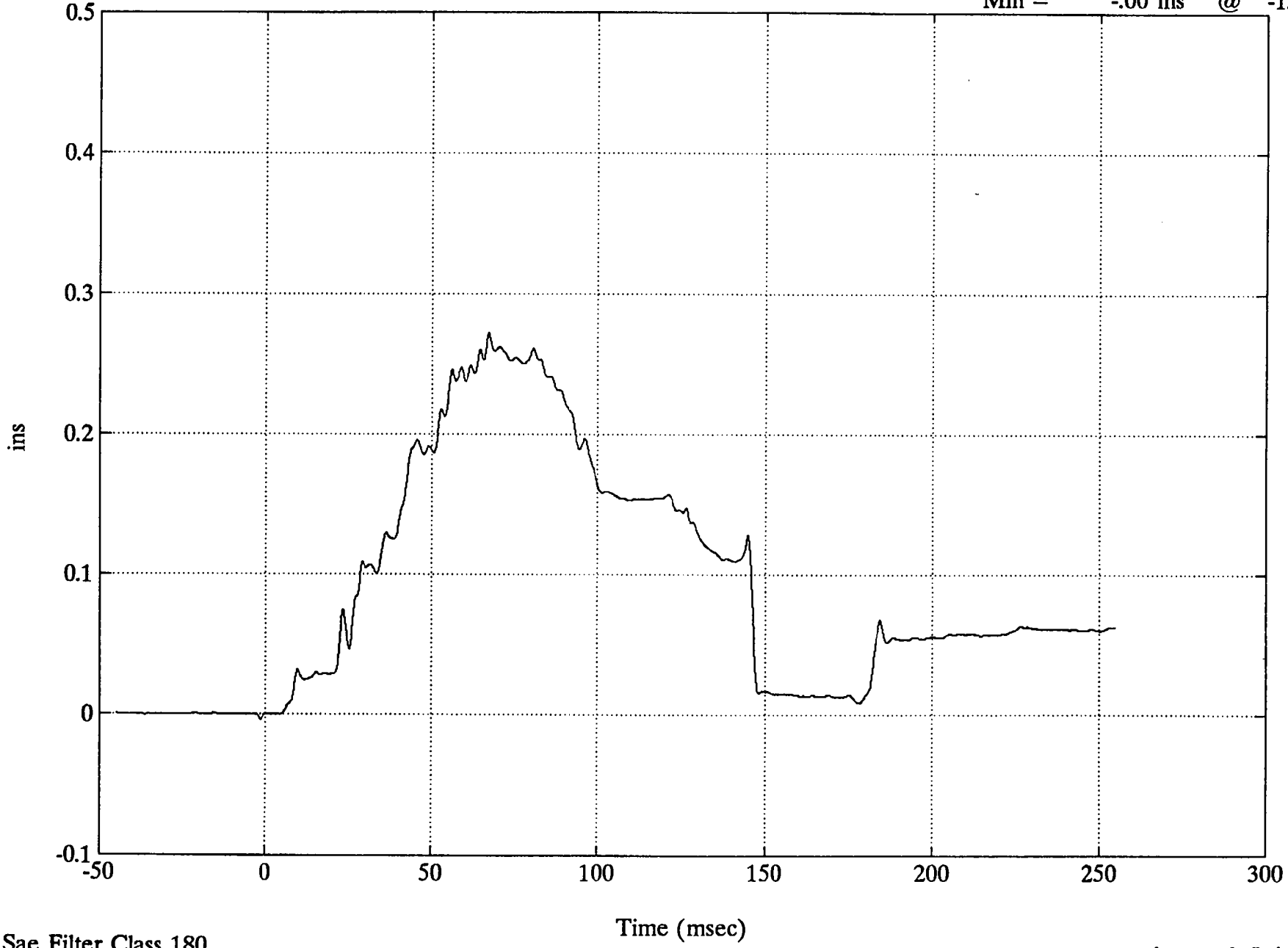
7946-3

Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

Pos. 1 Belt Elongation

Max = .27 ins @ 67.08 msec
Min = -.00 ins @ -1.68 msec



B-83

7946-3

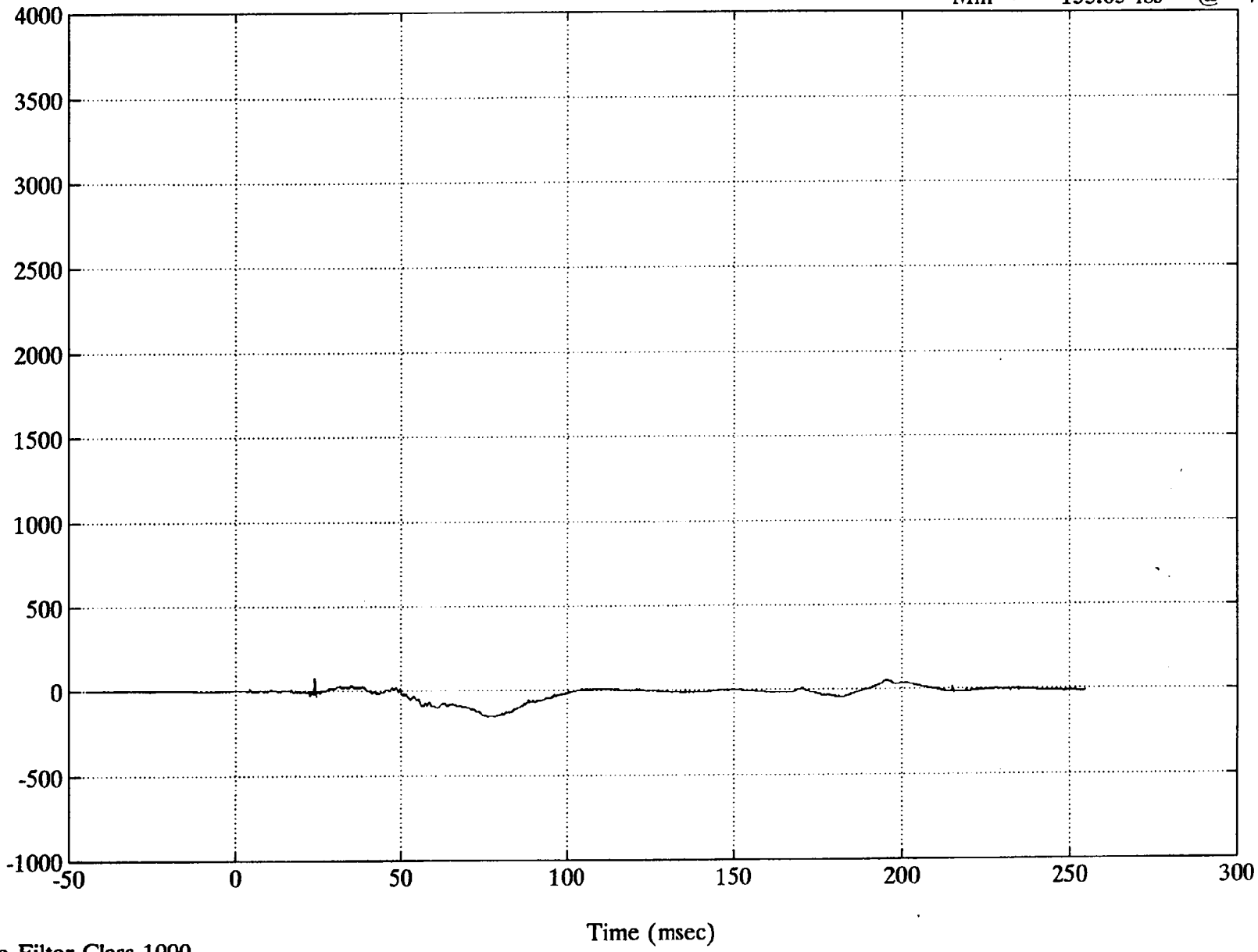
Sae Filter Class 180

Measured over 2.5 inches

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

Pos. 1 Upper Neck Fx

Max = 76.85 lbs @ 23.76 msec
Min = -153.05 lbs @ 78.23 msec



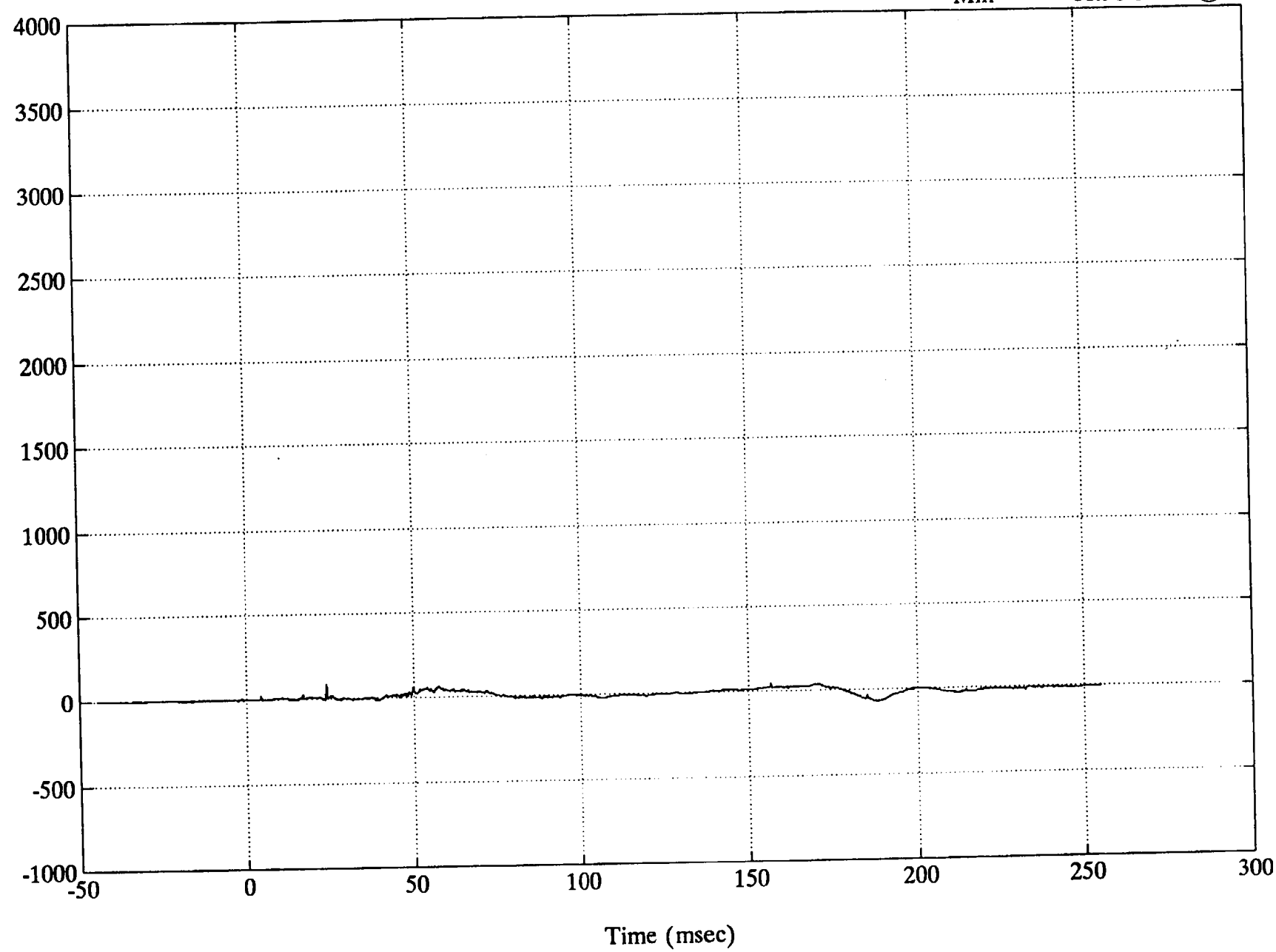
Sae Filter Class 1000

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

Pos. 1 Upper Neck Fy

Max = 87.06 lbs @ 23.76 msec
Min = -68.98 lbs @ 188.27 msec

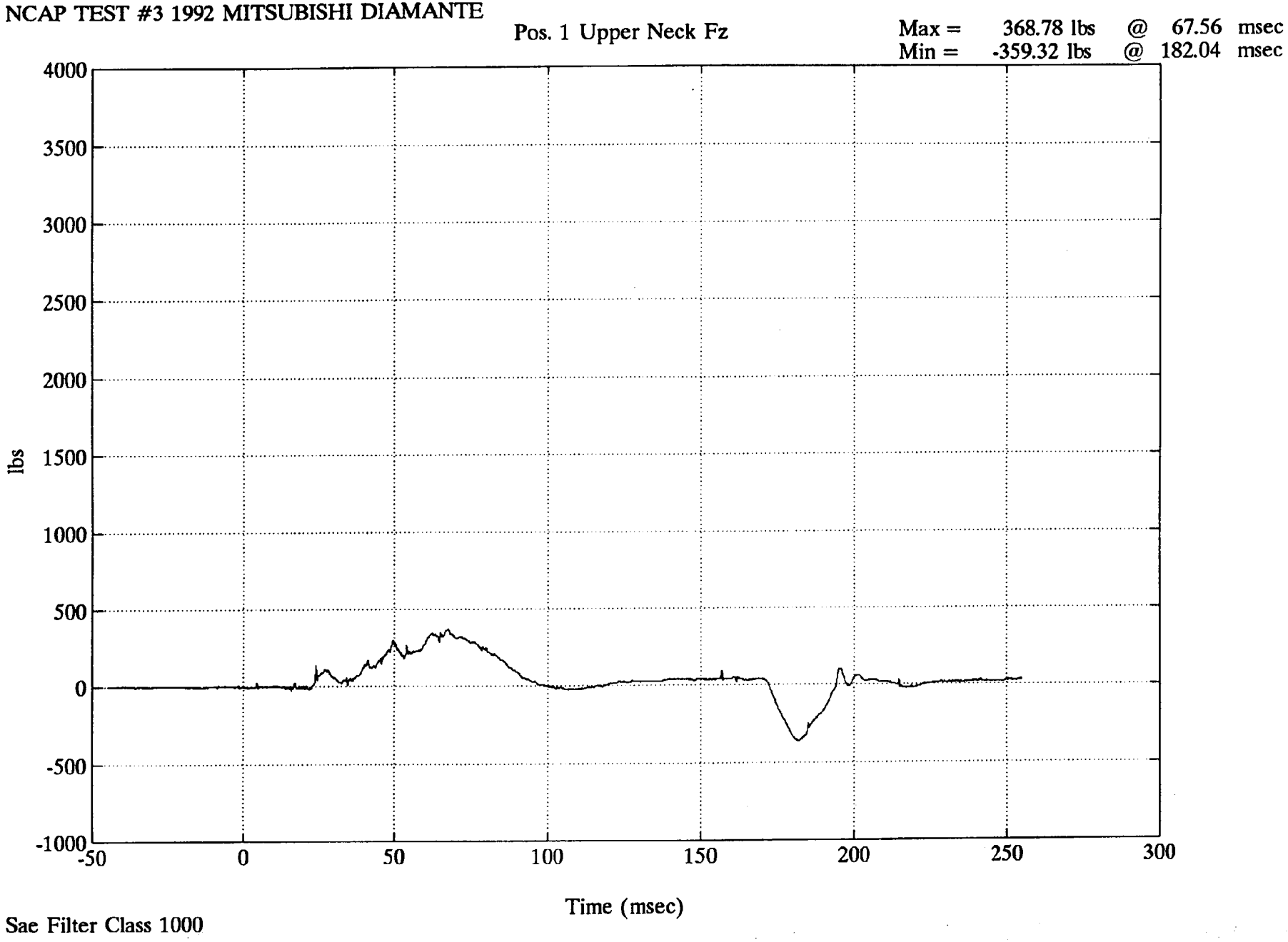


B-85

7946-3

Sae Filter Class 1000

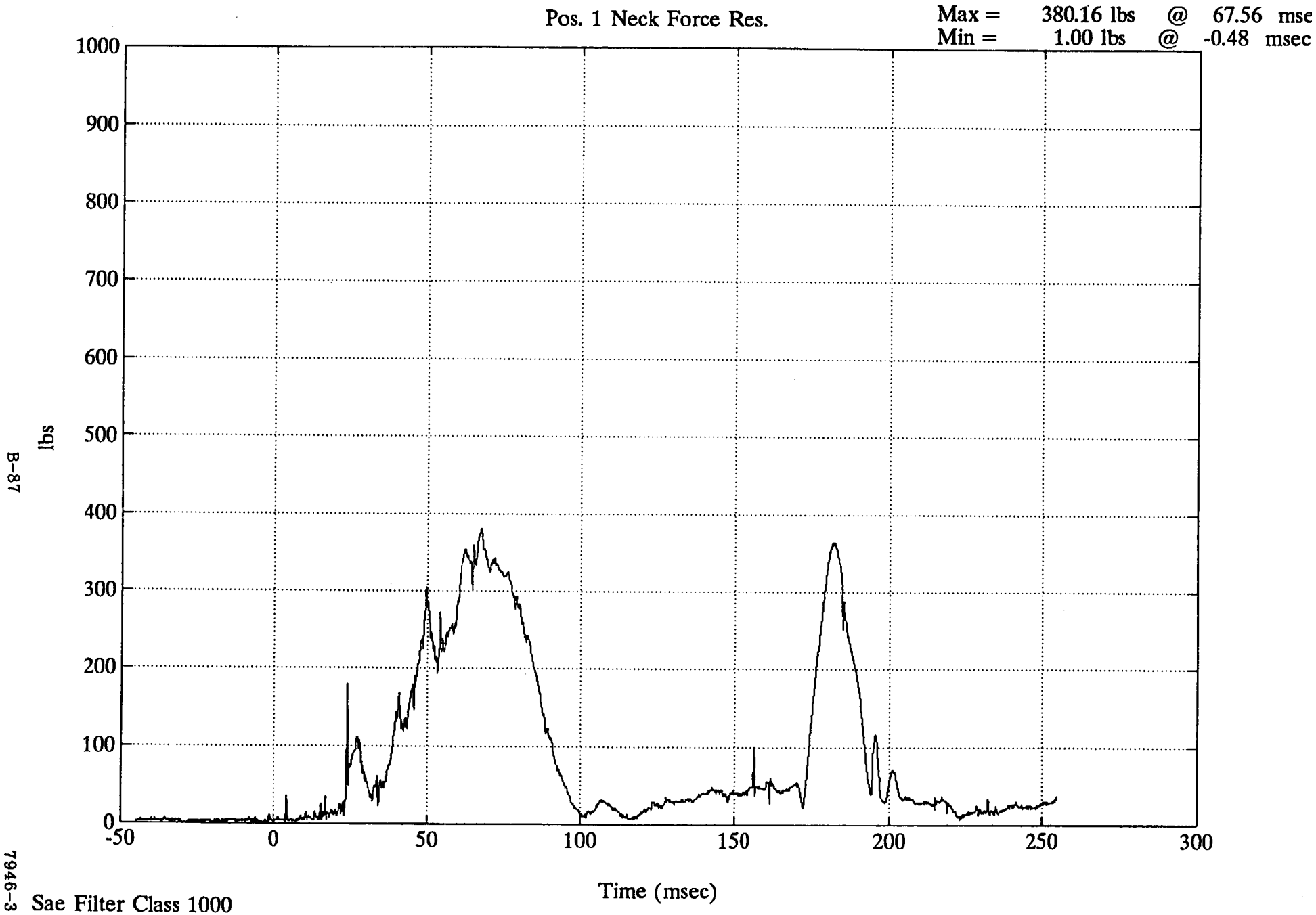
NCAP TEST #3 1992 MITSUBISHI DIAMANTE



Sae Filter Class 1000

7946-3

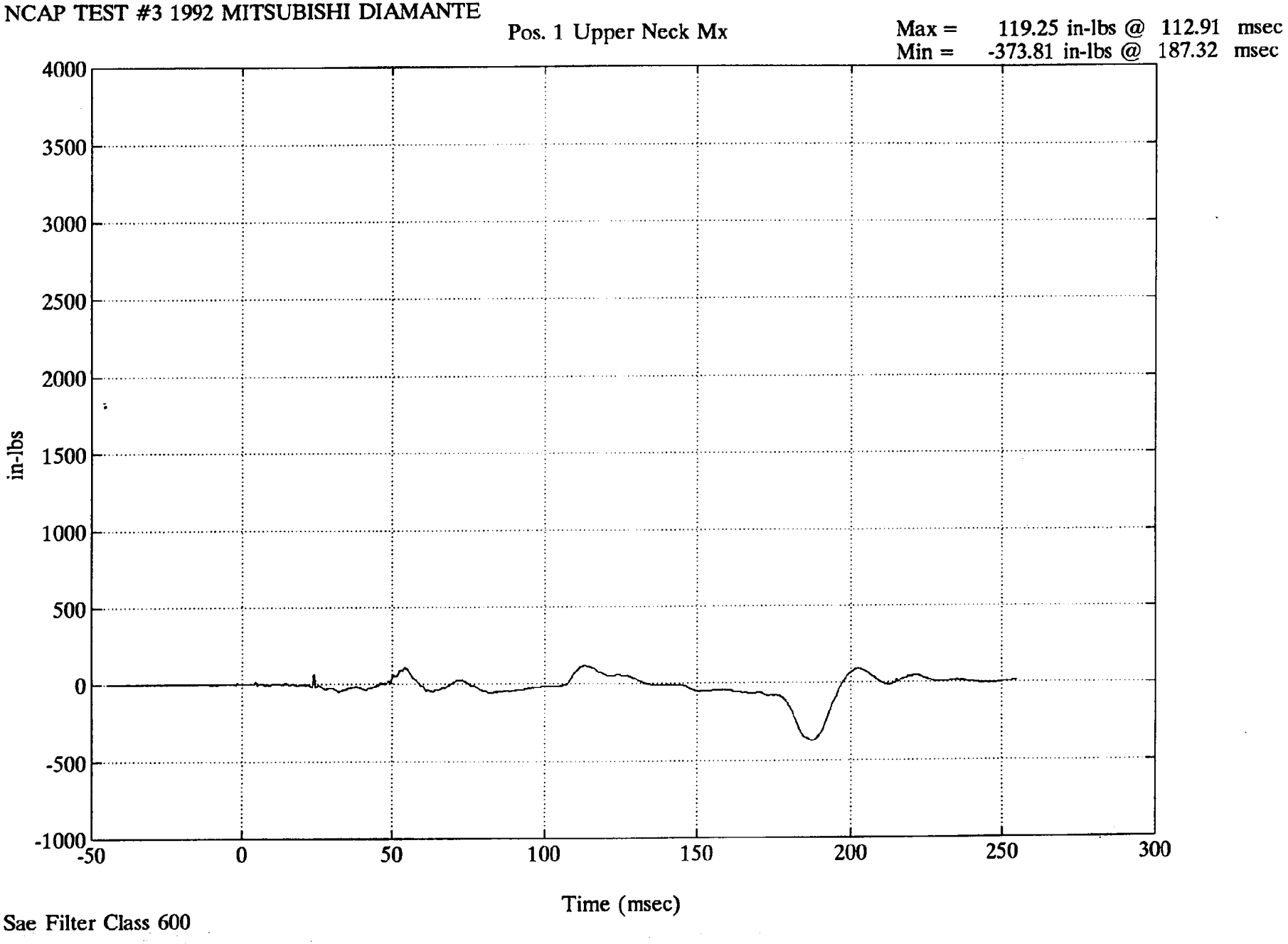
NCAP TEST #3 1992 MITSUBISHI DIAMANTE



Sae Filter Class 1000

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

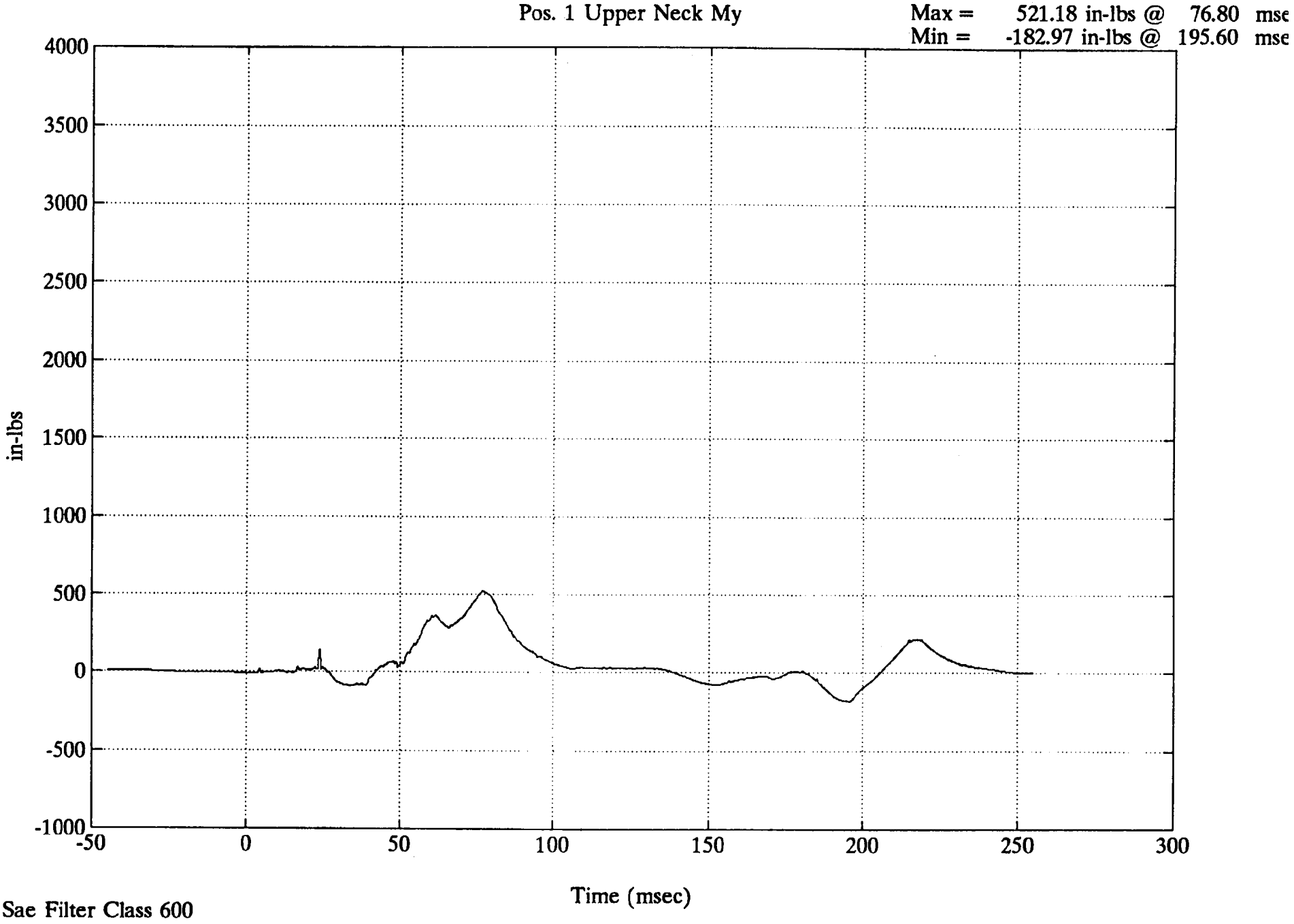


Sae Filter Class 600

B-88

7946-3

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



B-89

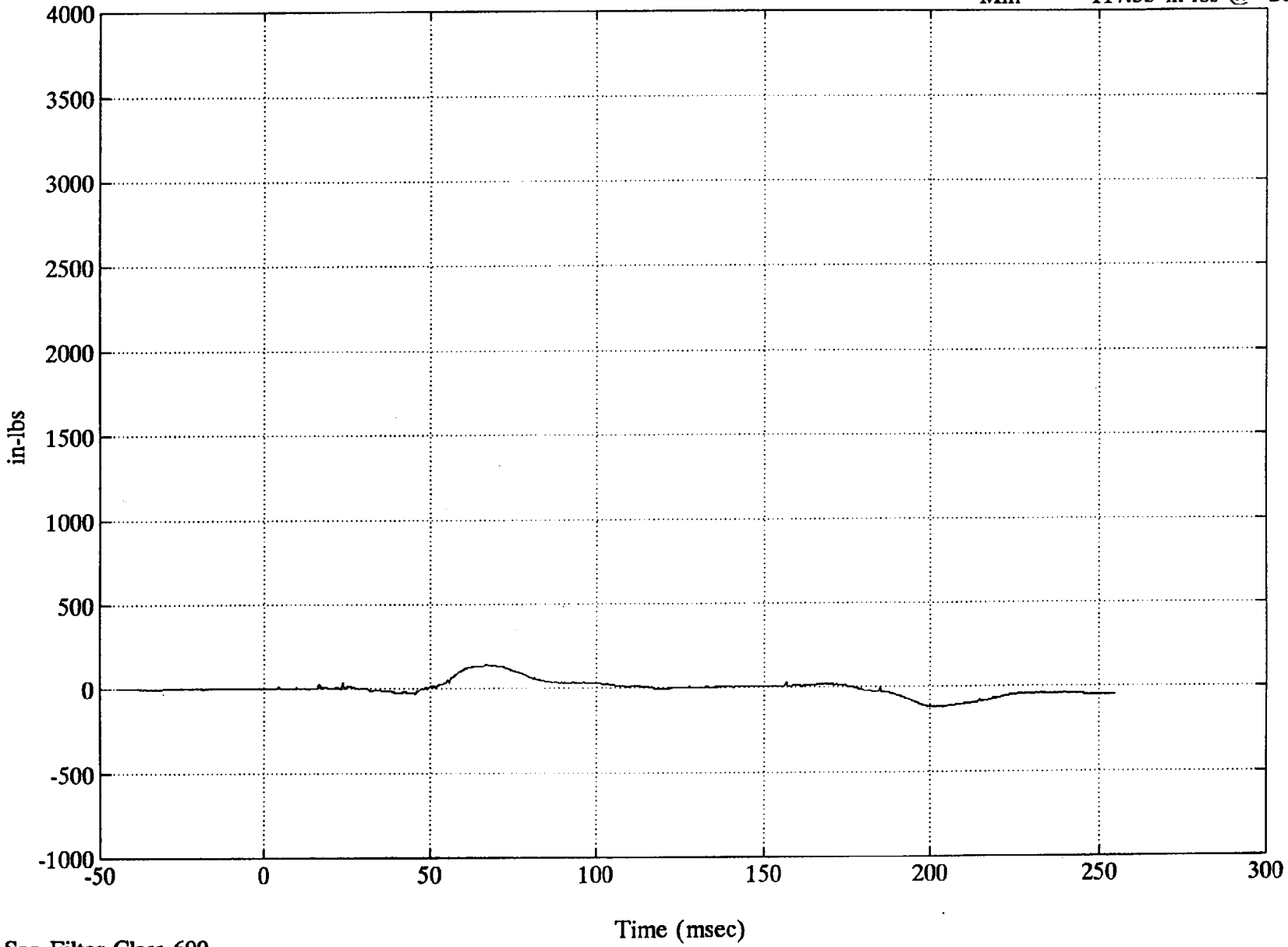
7946-3

Sae Filter Class 600

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

Pos. 1 Upper Neck Mz

Max = 142.36 in-lbs @ 66.84 msec
Min = -117.33 in-lbs @ 202.56 msec

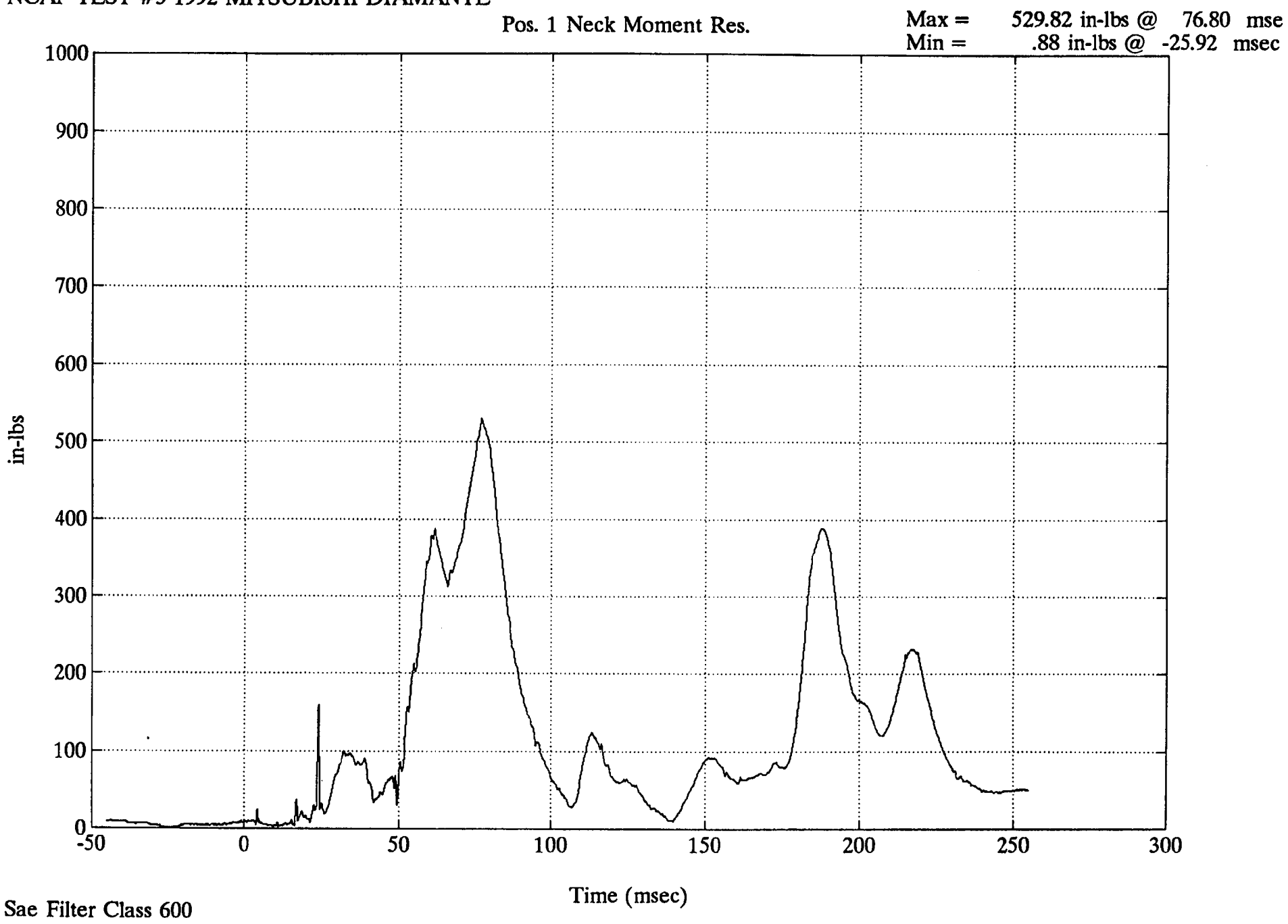


B-90

7946-3

Sae Filter Class 600

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

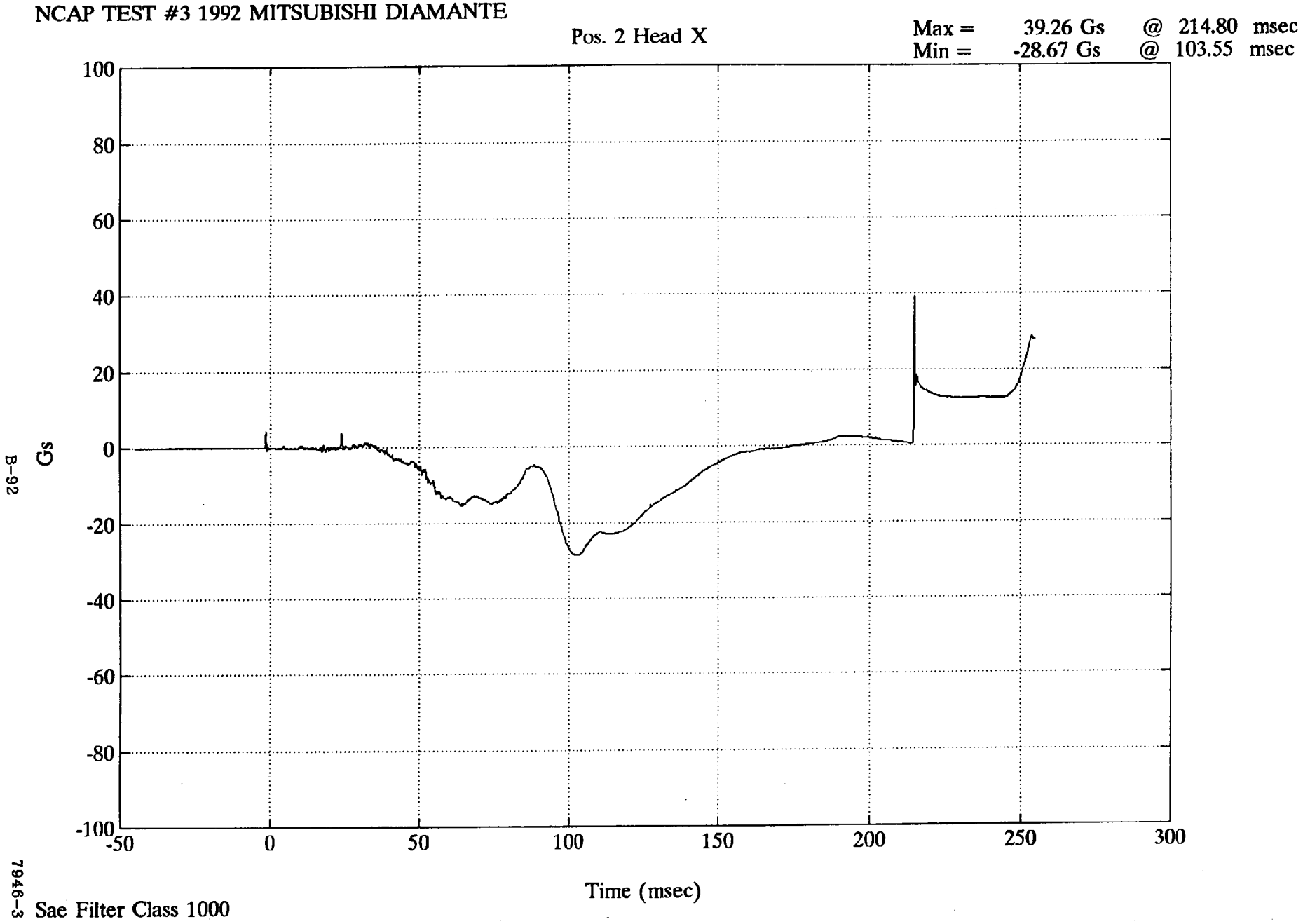


B-91

7946-3

Sae Filter Class 600

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

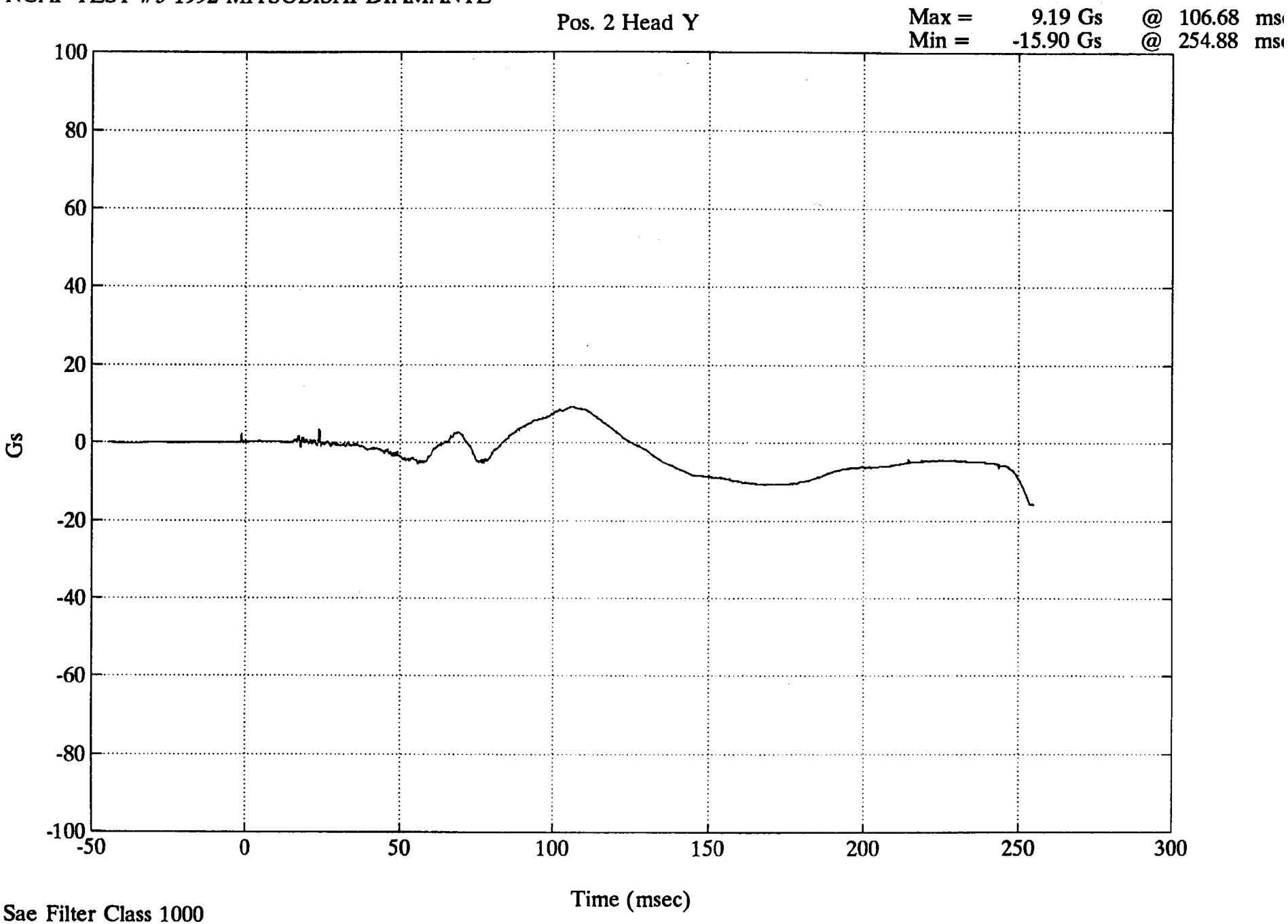


B-92

7946-3

Sae Filter Class 1000

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

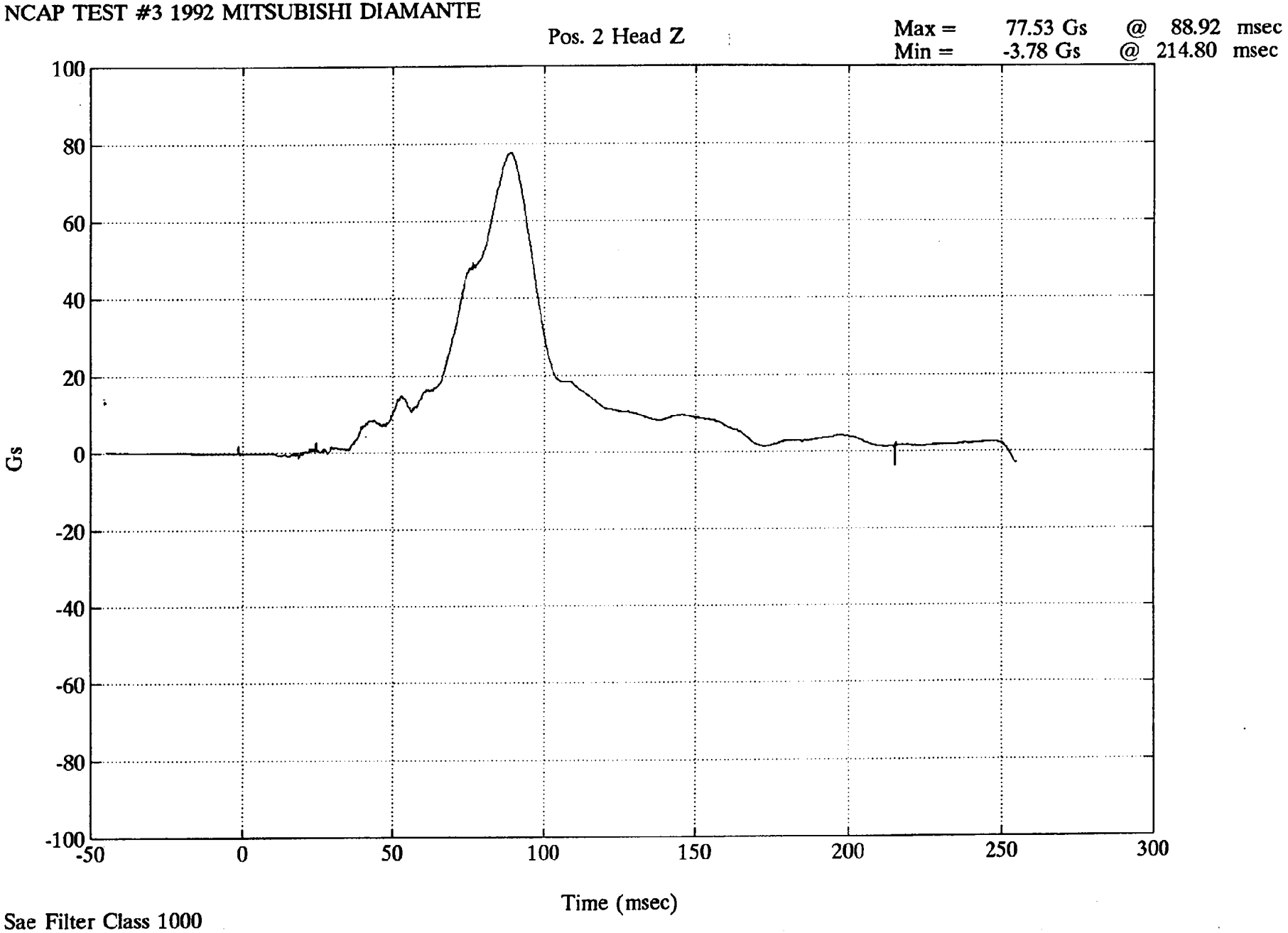


B-93

7946-3

Sae Filter Class 1000

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

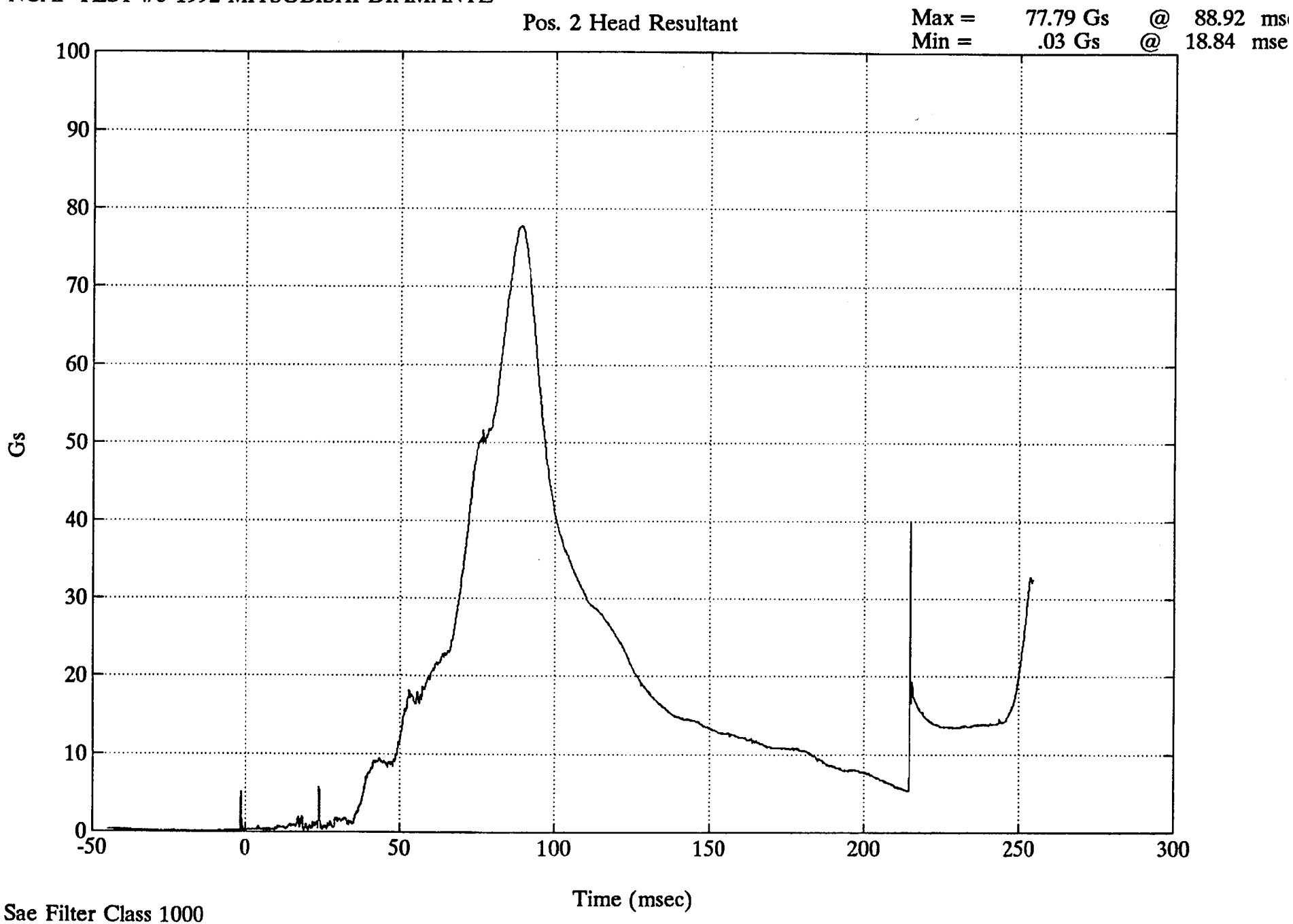


B-94

7946-3

Sae Filter Class 1000

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

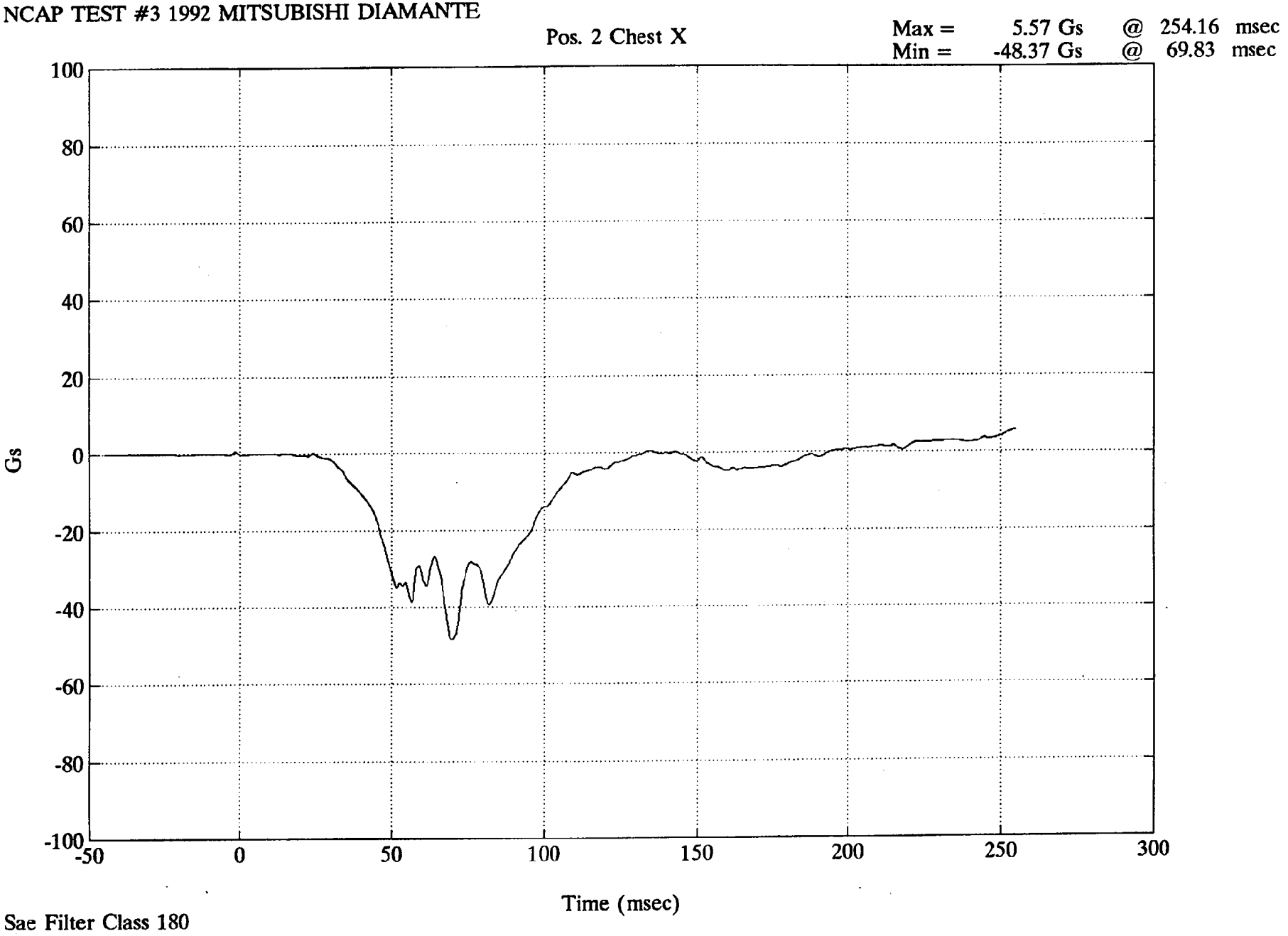


B-95

7946-3

Sae Filter Class 1000

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

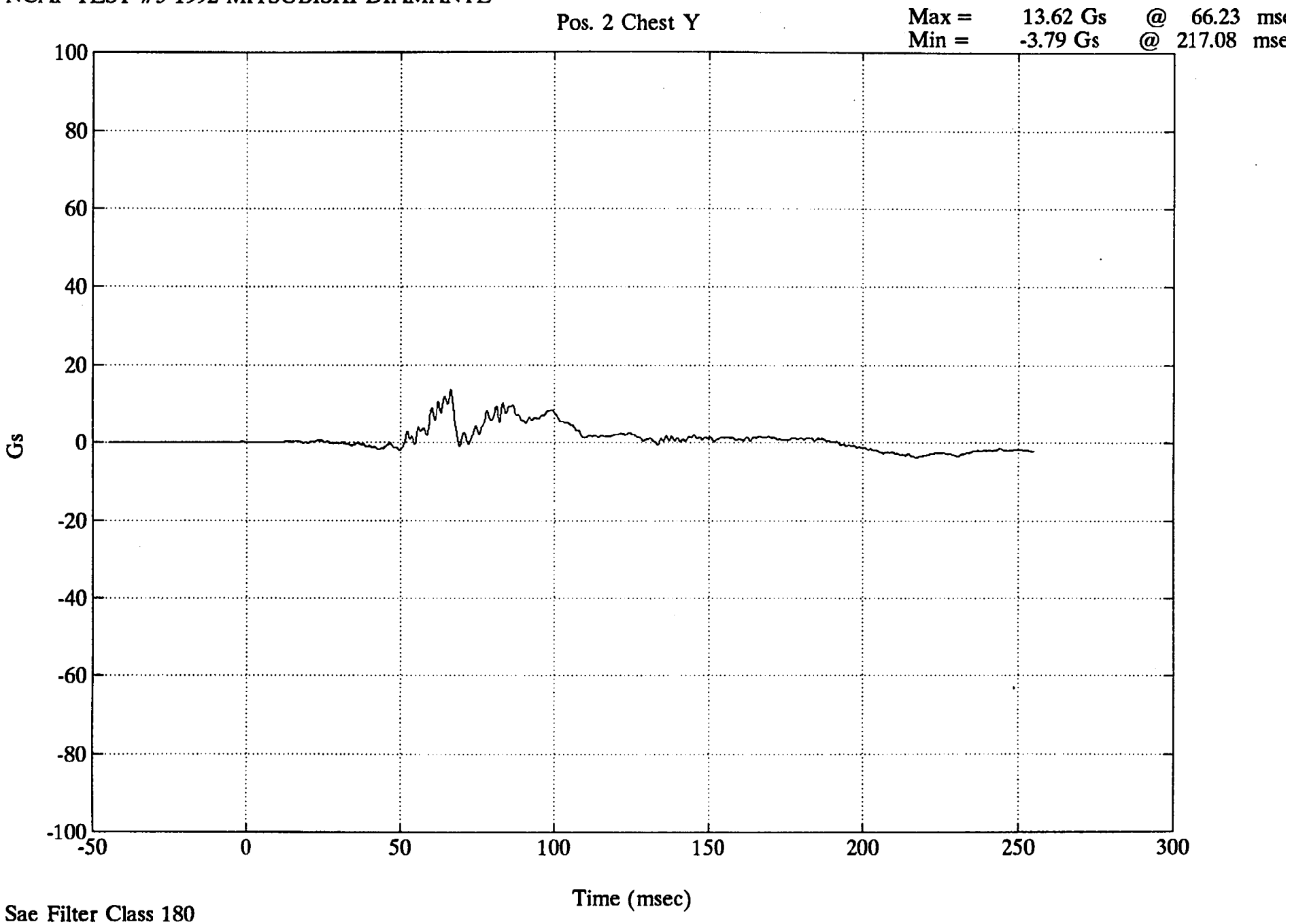


B-96

7946-3

Sae Filter Class 180

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

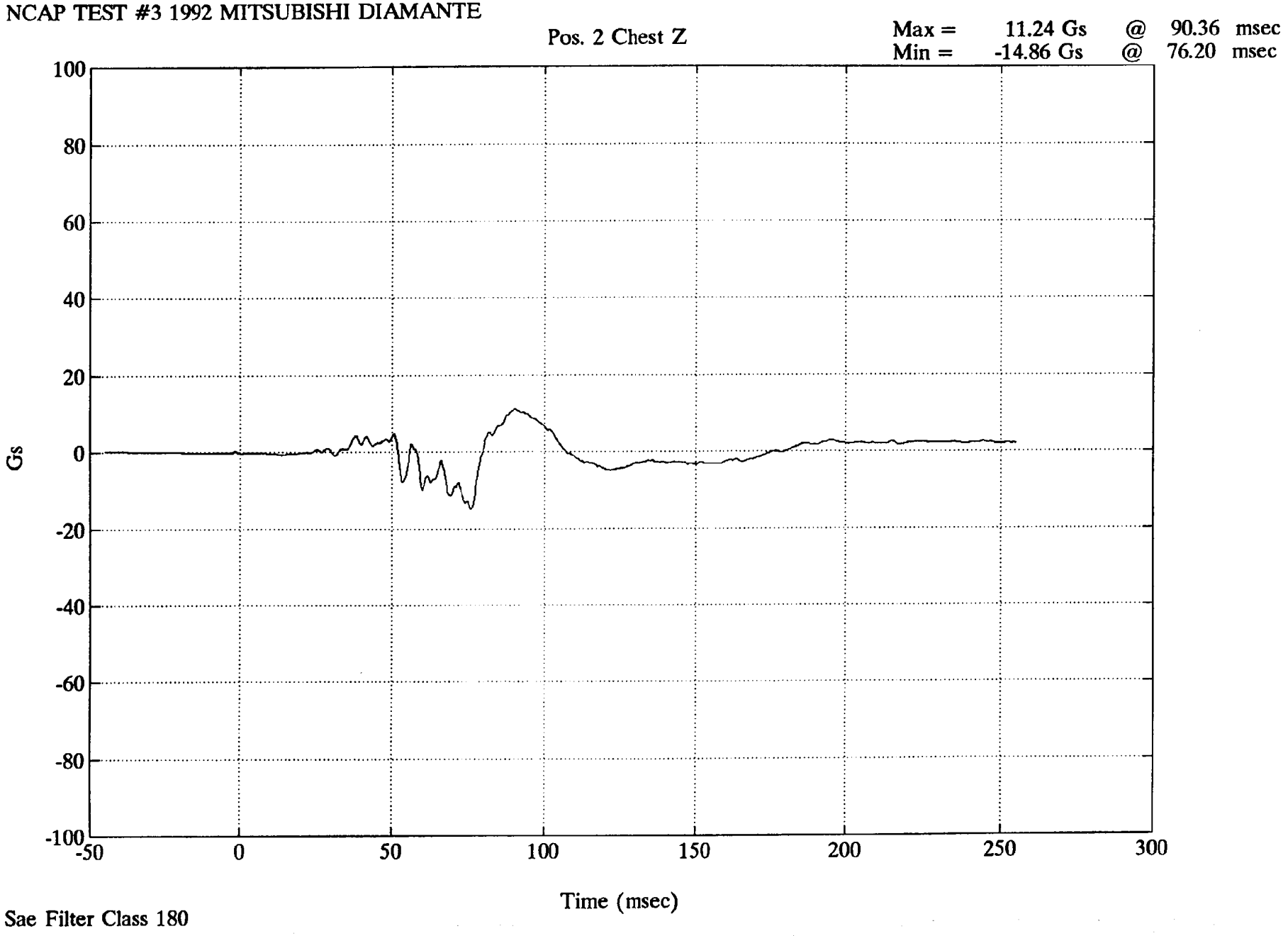


B-97

7946-3

Sae Filter Class 180

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

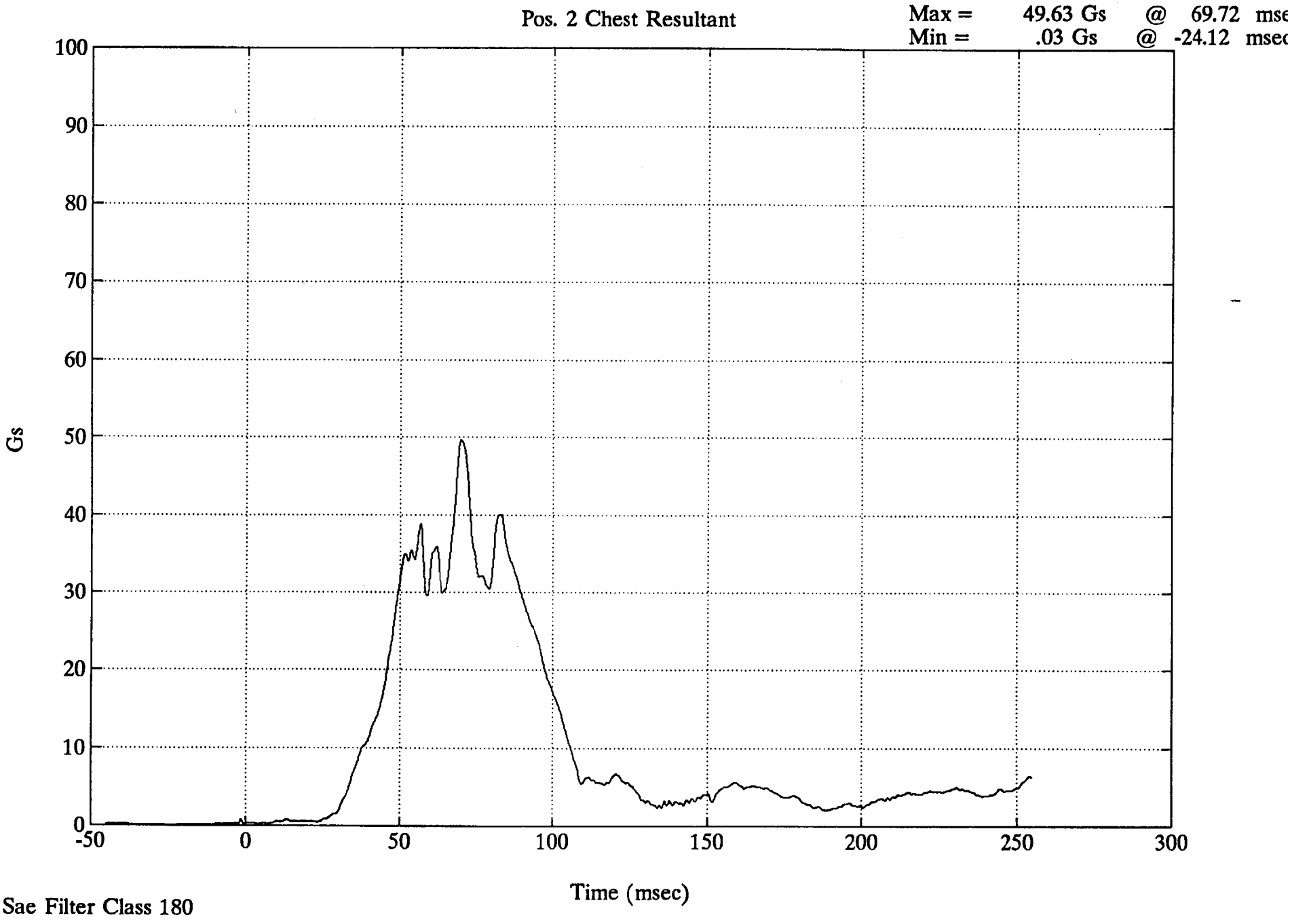


B-98

7946-3

Sae Filter Class 180

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

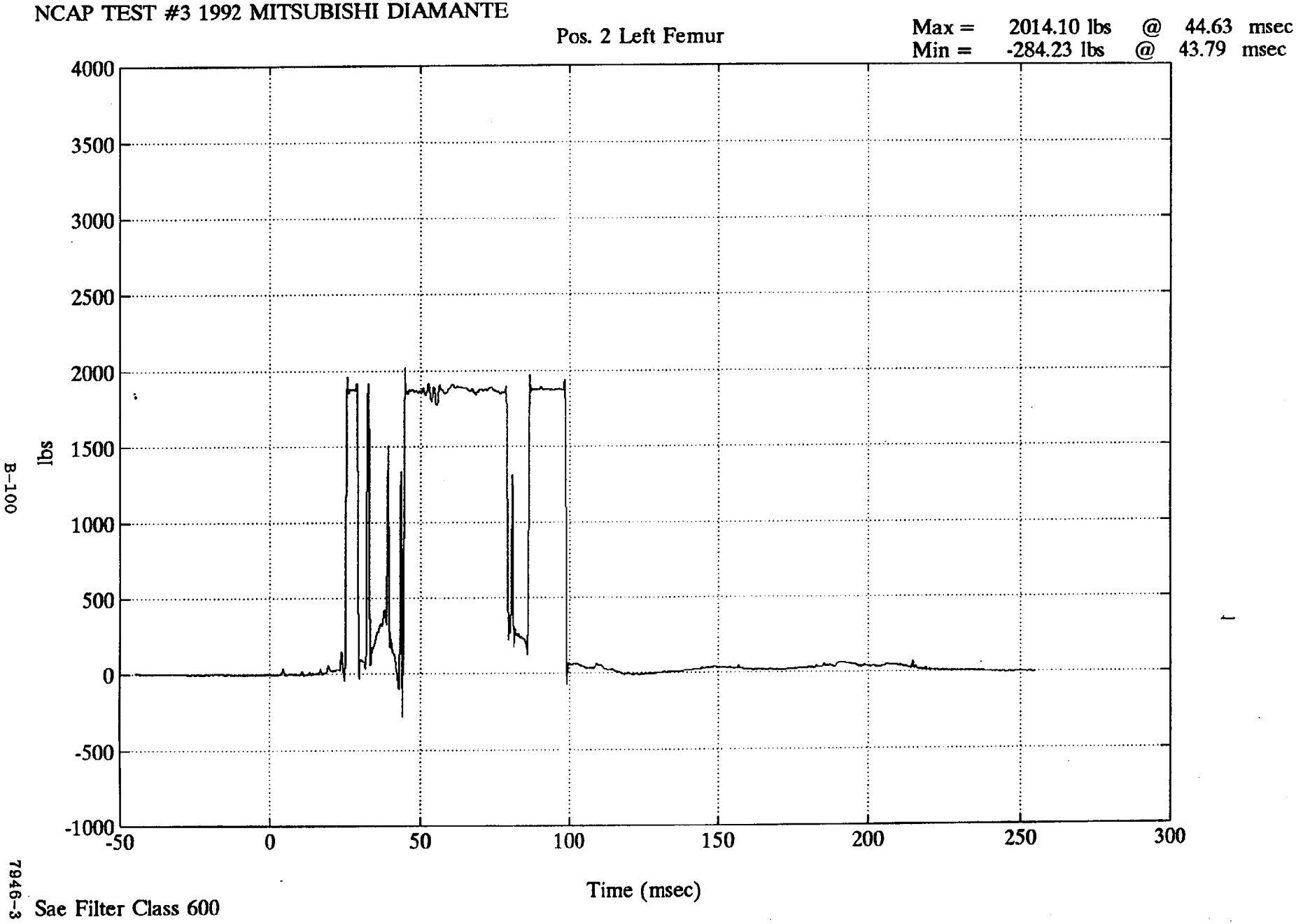


B-99

7946-3

Sae Filter Class 180

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

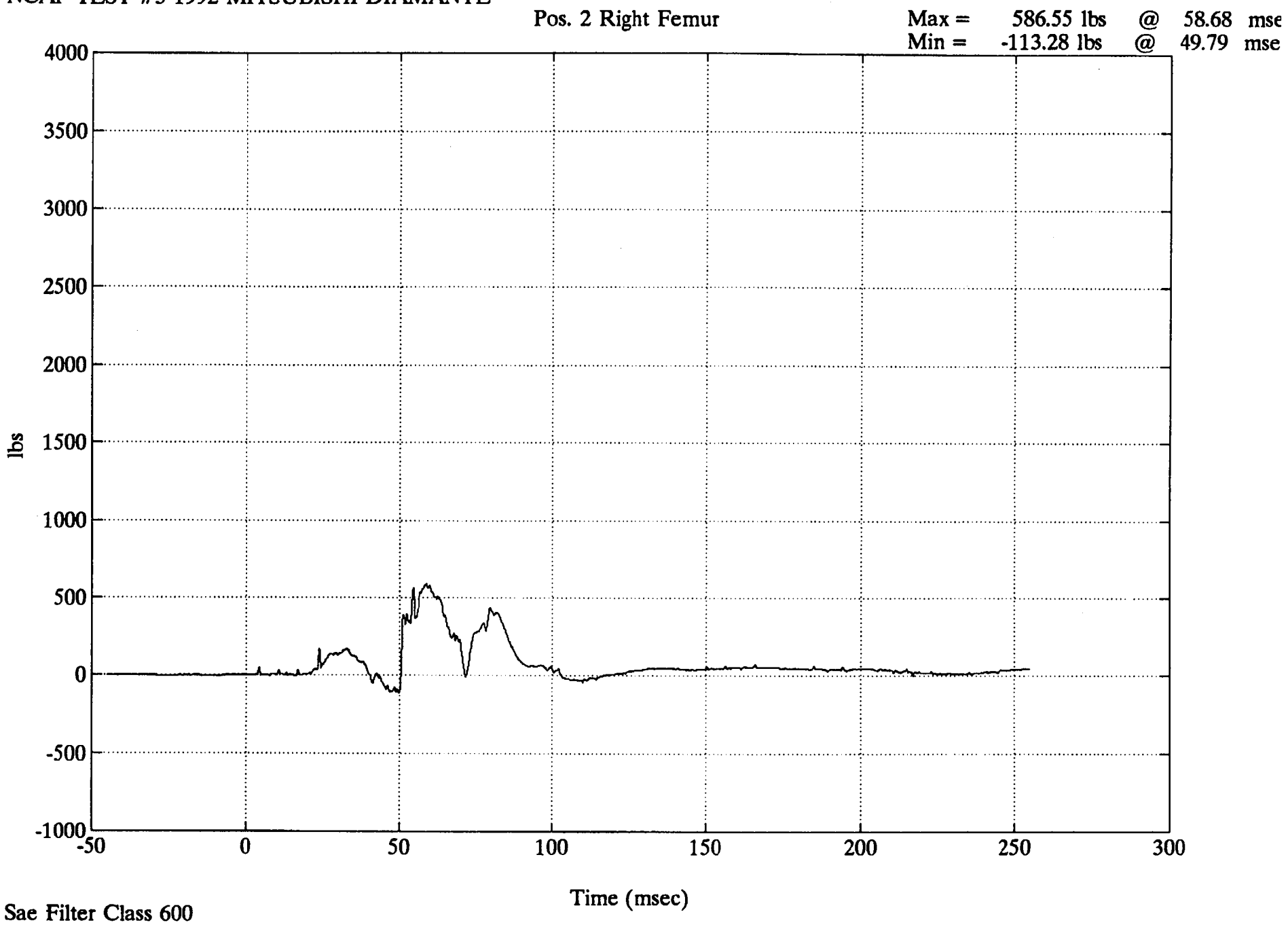


B-100

7946-3

Sae Filter Class 600

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

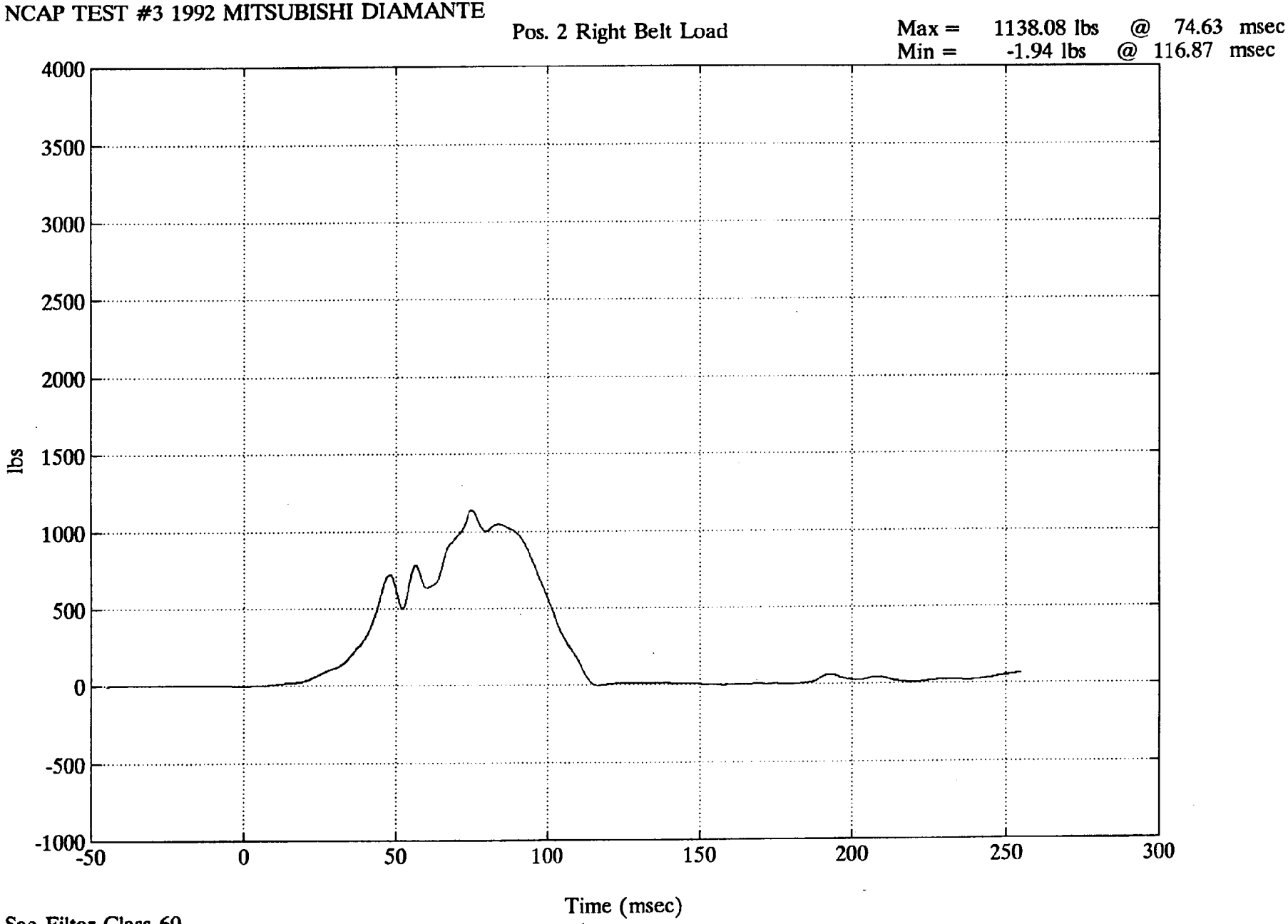


B-101

7946-3

Sae Filter Class 600

NCAP TEST #3 1992 MITSUBISHI DIAMANTE

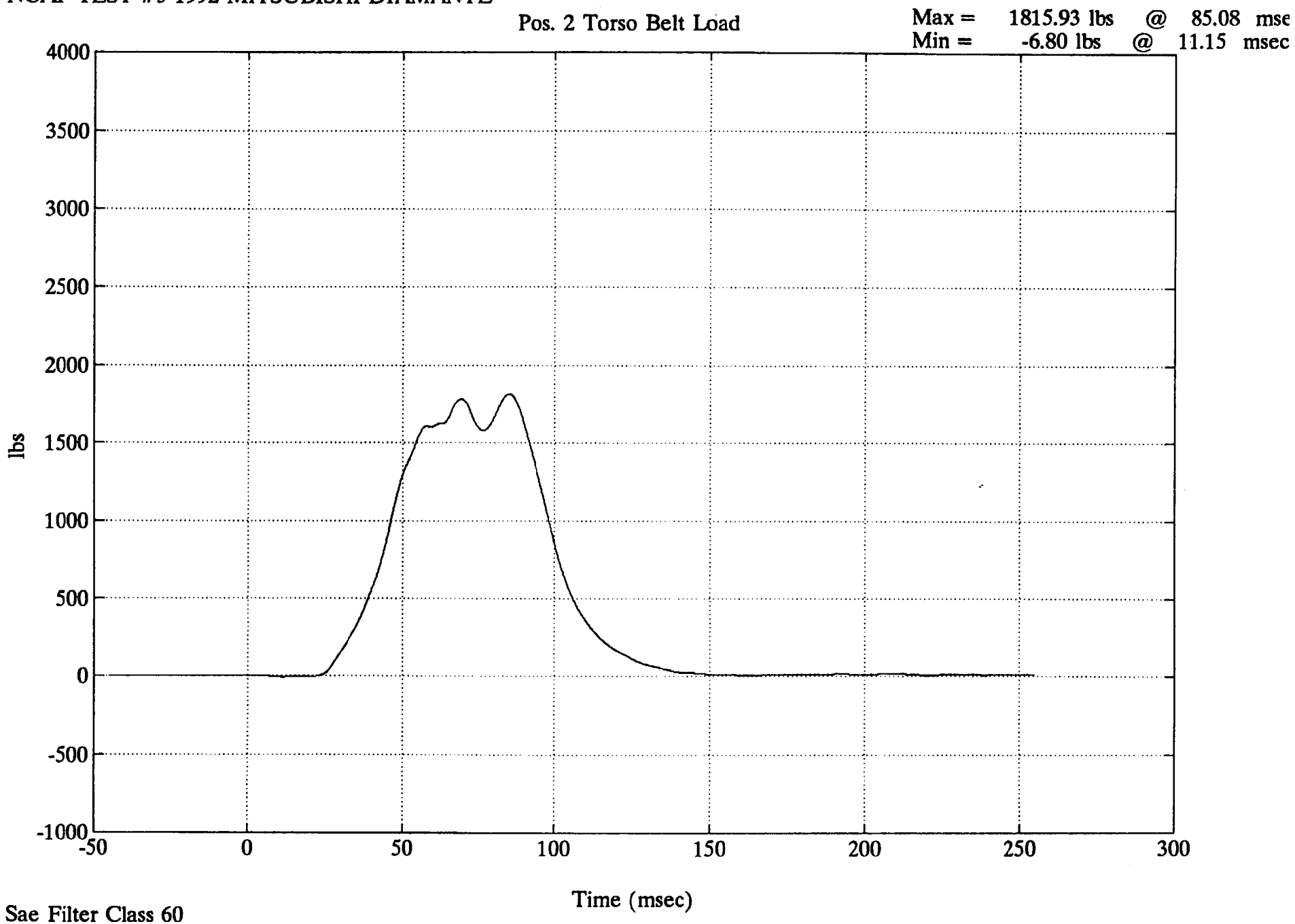


B-102

7946-3

Sae Filter Class 60

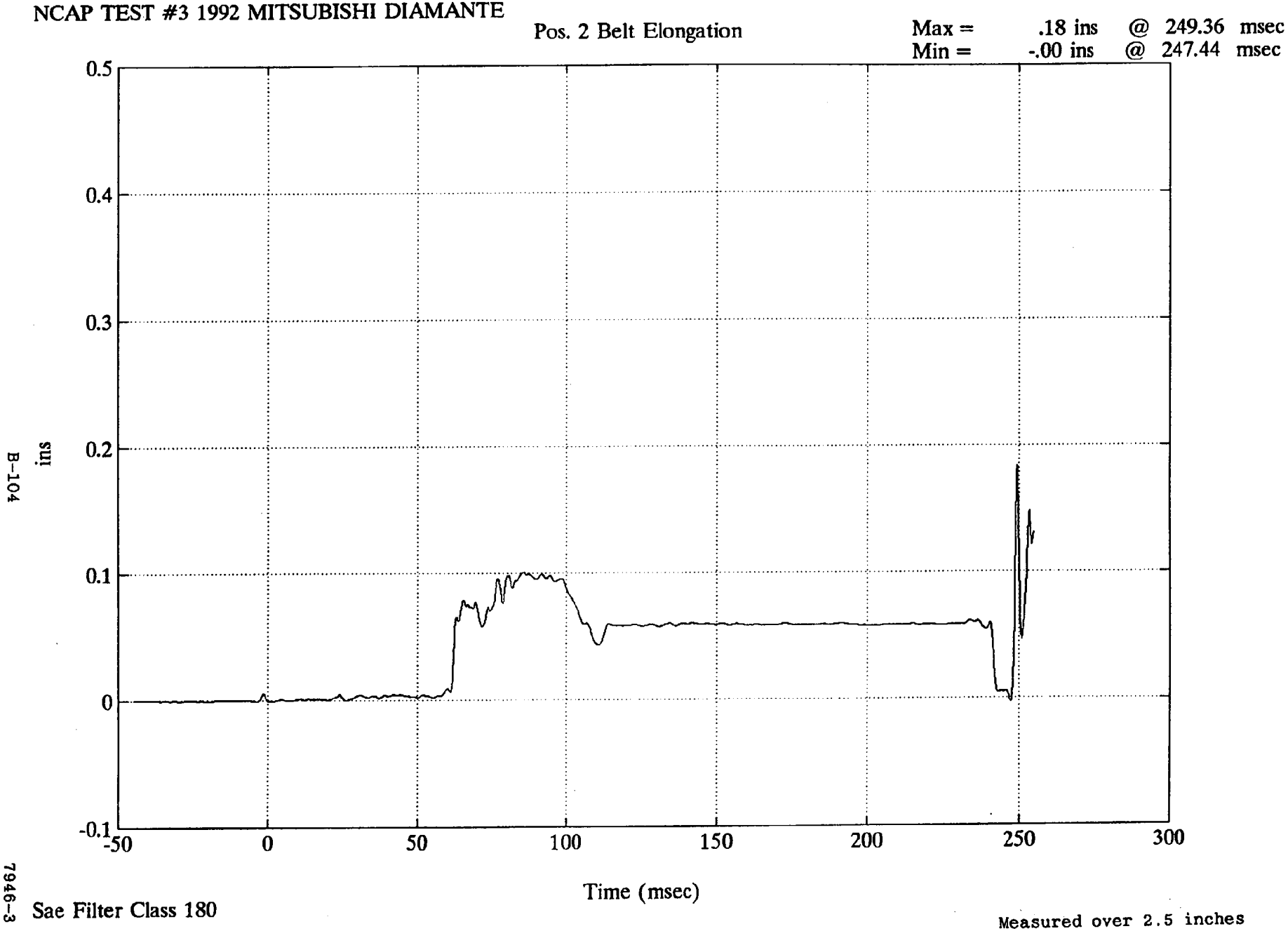
NCAP TEST #3 1992 MITSUBISHI DIAMANTE



B-103

7946-3 Sae Filter Class 60

NCAP TEST #3 1992 MITSUBISHI DIAMANTE



B-104

7946-3

Sae Filter Class 180

Measured over 2.5 inches

Appendix C

PART 572B/E DUMMY CONFIGURATION

AND PERFORMANCE VERIFICATION DATA SHEETS

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

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

Dummy serial numbers and certification dates are:

Serial No.	Completion Date
150	9/5/91
358	9/13/91

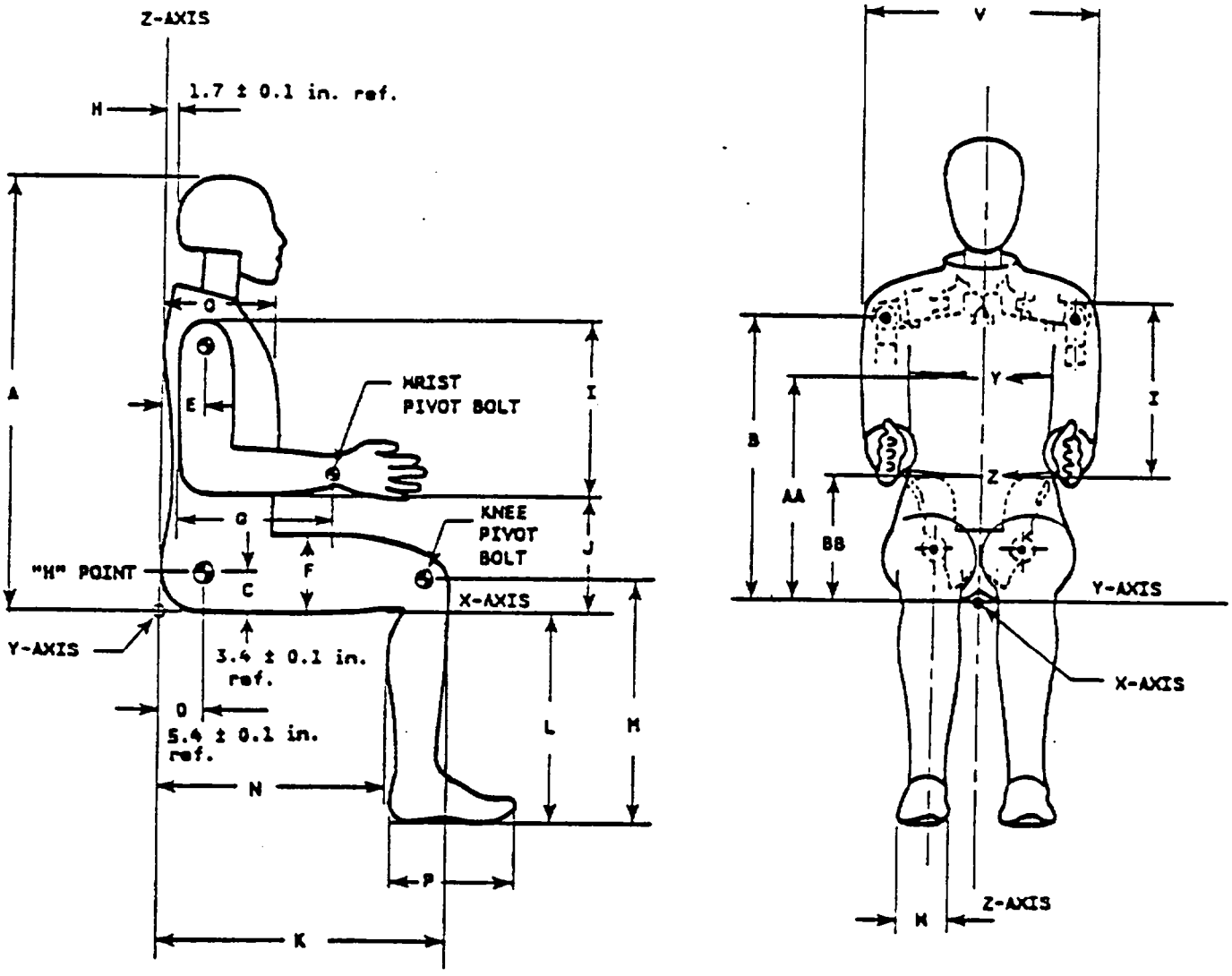
Electronic Test Equipment

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

Figure 10

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS
SETUP SPECIFICATIONS
(Part 572E - HYBRID III)



SIDE VIEW

FRONT VIEW

NOTE: FIGURE IS REFERENCED TO
THE ERECT SEATED POSITION.
THE CURVED LUMBAR DOES NOT ALLOW
THE BYBRID III TO BE POSITIONED
IN A PERFECT ERECT ATTITUDE.

HYBRID III EXTERNAL DIMENSIONS

S/N HUMANOID

DUMMY SERIAL NO. 150 DATE: 9-3-91

TEMPERATURE		70 DEG. F
RELATIVE HUMIDITY		50 %
LOCATION FOR CHEST CIRCUMFERENCE (AA)	16.9-17.1 IN	17.0 IN
LOCATION FOR WAIST CIRCUMFERENCE (BB)	8.9-9.1 IN	9.0 IN
CHEST CIRCUMFERENCE (Y)	38.2-39.4 IN	38.8 IN
WAIST CIRCUMFERENCE (Z)	32.1-34.1 IN	33.2 IN
CHEST DEPTH (O)	8.4-9.0 IN	8.7 IN
H-POINT HEIGHT (C)	3.3-3.5 IN	3.4 IN
H-POINT FROM SEAT BACK (D)	5.3-5.5 IN	5.5 IN
SKULL CAP TO BACKLINE (H)	1.6-1.8 IN	1.6 IN
TOTAL SITTING HEIGHT (A)	34.6-35.0 IN	34.8 IN
THIGH CLEARANCE (F)	5.5-6.1 IN	5.9 IN
BUTTOCK KNEE LENGTH (K)	22.8-23.8 IN	23.2 IN
BUTTOCK POPLITAL LENGTH (N)	17.8-18.8 IN	18.3 IN
POPLITEAL LENGTH (L)	16.9-17.9 IN	17.6 IN
KNEE PIVOT HEIGHT (M)	19.1-19.7 IN	19.4 IN
FOOT LENGTH (P)	9.9-10.5 IN	10.0 IN
FOOT BREADTH (W)	3.6-4.2 IN	4.1 IN
SHOULDER PIVOT FROM BACKLINE (E)	3.3-3.7 IN	3.5 IN
SHOULDER BREADTH (V)	16.6-17.2 IN	16.7 IN
SHOULDER PIVOT HEIGTH (B)	19.9-20.5 IN	20.0 IN
ELBOW REST HEIGHT (J)	7.5-8.3 IN	8.2 IN
SHOULDER-ELBOW LENGTH (I)	13.0-13.6 IN	13.4 IN
BACK OF ELBOW TO WRIST PIVOT (G)	11.4-12.0 IN	11.7 IN

DUMMY MEETS SPECIFICATIONS

TECHNICIAN: IVAN MINKEWICZ

CALSPAN CORPORATION

TRANSPORTATION RESEARCH DEPARTMENT

HEAD DROP TEST

HYBRID III

DATE : 9-3-91

CALSPAN SEQUENTIAL NUMBER 1 HY3 SN: 150 HEAD DROP CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	68 - 78 DEG. F	72 DEG. F
RELATIVE HUMIDITY	10% - 70%	44 %
PEAK RESULTANT ACCELERATION	225 - 275 G'S	248.6 G'S
PEAK LATERAL ACCELERATION	15 G'S MAX	10.8 G'S
IS ACCELERATION CURVE UNIMODAL?	YES	YES

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION

TRANSPORTATION RESEARCH DEPARTMENT

NECK FLEXION TEST

HYBRID III

DATE : 9-4-91 6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 1 HY3 SN:150 CAL NECK FLEXION

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		69 - 72 DEG. F	71 DEG. F
RELATIVE HUMIDITY		10% - 70%	47 %
IMPACT VELOCITY		22.60 - 23.40 FPS	23.1 FPS
PENDULUM DECELERATION	10 MS	22.50 - 27.50 G'S	23.86 G'S
	20 MS	17.60 - 22.60 G'S	22.34 G'S
	30 MS	12.50 - 18.50 G'S	18.49 G'S
MAX PENDULUM G'S ABOVE 30 MS		29 G'S MAX	18.49 G'S
DECELERATION -TIME CURVE DECAY TIME TO 5 G'S		34 - 42 MS	40.5 MS
D PLANE ROTATION	MAX	64 - 78 DEG.	77.86 DEG.
	TIME	57 - 64 MS	59.13 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	65 - 80 FT.-LBS.	78.16 FT.-LBS.
	TIME	47 - 58 MS	54.13 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		113 - 128 MS	115.5 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		97 - 107 MS	102.88 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION

TRANSPORTATION RESEARCH DEPARTMENT

NECK EXTENSION TEST

HYBRID III

DATE : 9-4-91 6 AXIS NECK TRANSDUCER

CALSPAN SEQUENTIAL NUMBER 1 HY3 SN:150 CAL NECK EXTENSION

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		69 - 72 DEG. F	71 DEG. F
RELATIVE HUMIDITY		10% - 70%	45 %
IMPACT VELOCITY		19.50 - 20.30 FPS	20.2 FPS
PENDULUM DECELERATION	10 MS	17.20 - 21.20 G'S	18.65 G'S
	20 MS	14.00 - 19.00 G'S	18.29 G'S
	30 MS	11.00 - 16.00 G'S	14.81 G'S
MAX PENDULUM G'S ABOVE 30 MS		22 G'S MAX	14.81 G'S
DECELERATION -TIME CURVE DECAY TIME TO 5 G'S		38 - 46 MS	45.63 MS
D PLANE ROTATION	MAX	81 - 106 DEG.	101.66 DEG.
	TIME	72 - 82 MS	75.75 MS
MOMENT ABOUT OCCIPITAL CONDYLE	MAX	-59.0/-39.0 FT.-LBS.	-54.15 FT.-LBS.
	TIME	65 - 79 MS	70.13 MS
ROTATION ANGLE-TIME CURVE DECAY TIME TO ZERO		147 - 174 MS	153.25 MS
POSITIVE MOMENT-TIME CURVE DECAY TIME TO ZERO		120 - 148 MS	131.63 MS

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION

TRANSPORTATION RESEARCH DEPARTMENT

THORAX IMPACT TEST

HYBRID III

DATE : 9-5-91

CALSPAN SEQUENTIAL NUMBER 1 HY3 SN 150 H.S. THORAX CAL

TEST PARAMETER	HIGH SPEED TEST SPECIFICATION	TEST RESULTS
TEMPERATURE	69 - 72 DEG. F	69 DEG. F
RELATIVE HUMIDITY	10% - 70%	46 %
PENDULUM VELOCITY	21.6 - 22.4 FT/SEC	21.6 FT/SEC
MAXIMUM DEFLECTION	2.50 - 2.86 INCHES	2.53 INCHES
MAXIMUM RESISTIVE FORCE	1080 - 1245 POUNDS	1240 POUNDS
INTERNAL HYSTERESIS	69% - 85%	75.8 %

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION

TRANSPORTATION RESEARCH DEPARTMENT

KNEE IMPACT TEST

HYBRID III

DATE : 9-5-91 KNEE: LEFT

CALSPAN SEQUENTIAL NUMBER 1 HY3 SN: 150 KNEE 11LB. CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	68 - 78 DEG. F	71 DEG. F
RELATIVE HUMIDITY	10% - 70%	42 %
PROBE VELOCITY	6.8 - 7.0 FT/SEC	7.0 FT/SEC
PEAK KNEE IMPACT FORCE	996 - 1566 LBS.	1105 LBS.
PROBE WEIGHT	11 LBS.	

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

CALSPAN CORPORATION

TRANSPORTATION RESEARCH DEPARTMENT

KNEE IMPACT TEST

HYBRID III

DATE : 9-5-91 KNEE: RIGHT

CALSPAN SEQUENTIAL NUMBER 1 HY3 SN: 150 KNEE 11LB. CAL

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	68 - 78 DEG. F	71 DEG. F
RELATIVE HUMIDITY	10% - 70%	42 %
PROBE VELOCITY	6.8 - 7.0 FT/SEC	7.0 FT/SEC
PEAK KNEE IMPACT FORCE	996 - 1566 LBS.	1110 LBS.
PROBE WEIGHT	11 LBS.	

DUMMY COMPONENT MEETS SPECIFICATIONS

TECHNICIAN IVAN MINKEWICZ

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY I.D. NUMBER: 150

A. DUMMY INSTRUMENTS

	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. HEAD ACCELEROMETER				
HX LONGITUDINAL	ENDEVCO	CP30	4/91	10/91
HY LATERAL	ENDEVCO	CX05	4/91	10/91
HZ VERTICAL	ENDEVCO	DB47	4/91	10/91
2. CHEST ACCELEROMETER				
CX LONGITUDINAL	CEC	A74	4/91	10/91
CY LATERAL	ENDEVCO	GK28	4/91	10/91
CZ VERTICAL	CEC	A128	4/91	10/91
3. FEMUR LOAD CELLS				
LEFT SIDE	GSE	077	3/91	9/91
RIGHT SIDE	GSE	1927	3/91	9/91

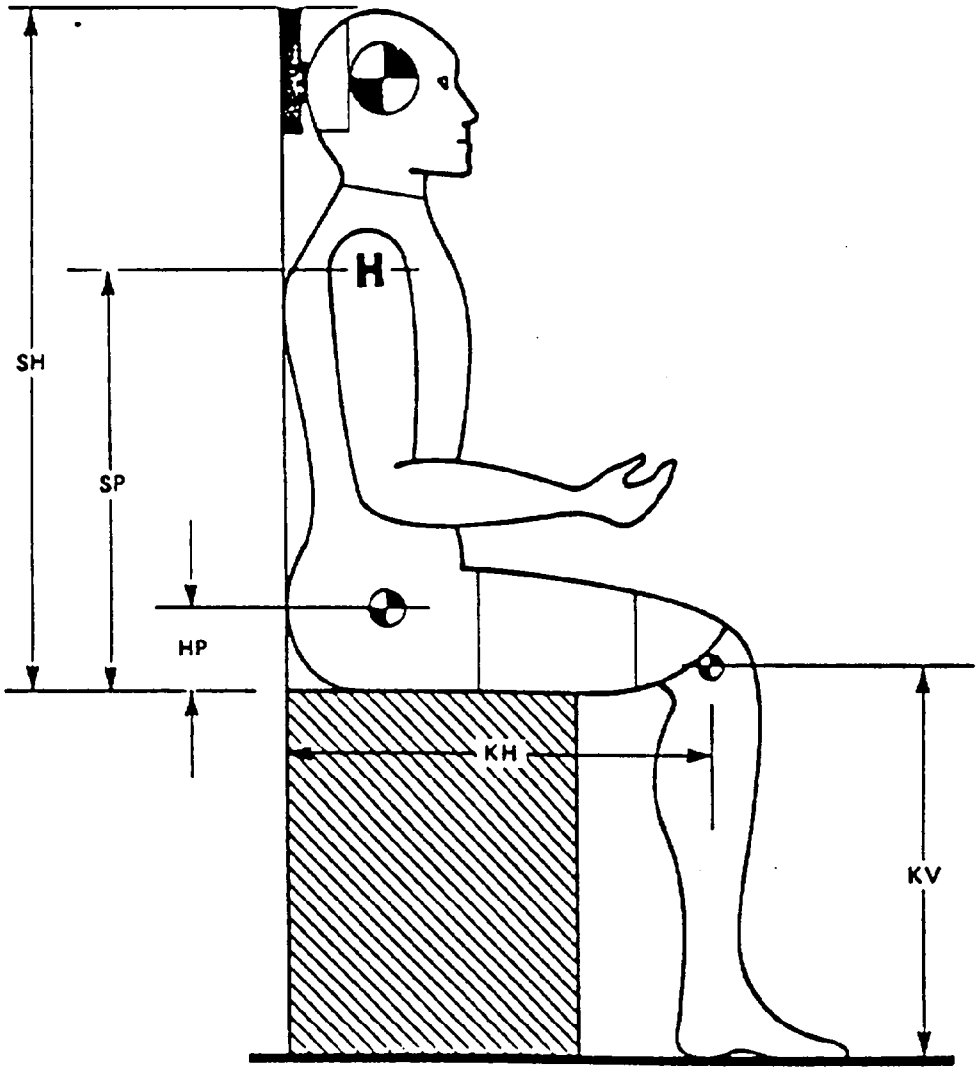
B. CALIBRATION LABORATORY INSTRUMENTS

	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. PENDULUM ACC.	CEC	A160	5/91	11/91
2. TEST PROBE ACCELEROMETER	CEC	A161	5/91	11/91
3. LUMBAR FLEXION TEST PUSH FORCE GAUGE	TRANS-DUCER INC	20051	7/91	1-92
4. ABDOMINAL COMPRESS. TEST FORCE GAUGE	BLH	72952	7/91	1-92
5. ABDOMINAL COMPRESS. TEST FORCE GAUGE	CIC	567-11	7/91	1-92

Figure 11

DUMMY CONFIGURATION DIMENSIONS

(Part 572B - HYBRID II)



PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NUMBER: 358

I. CONFIGURATION VERIFICATION DATA:

	P. 572 SPECIFICATION	PRE-TEST if required	POST-TEST if required
DATE OF CONFIGURATION VERIFICATION	XXXXXXXXXXXXX	9-13-91	
VERIFICATION NUMBER FOR DUMMY (*)	XXXXXXXXXXXXX	1	
SH - Seated Height	35.6 to 35.8"	35.6 "	"
SP - Shoulder Pivot Height	21.8 to 22.4"	22.1 "	"
HP - Hip Pivot Height	3.9" ref.	3.9 "	"
KH - Knee Pivot from Back Line	20.1 to 20.7"	20.5 "	"
KV - Knee Pivot from floor	19.3 to 19.9"	19.6 "	"
SW - Shoulder Width	17.8 to 18.4"	18.0 "	"
HW - Hip Width	14.0 to 15.4"	14.8 "	"

II. PERFORMANCE VERIFICATION DATA:

		PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION		9-13-91	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY (*)		1	
VERIFICATION LAB TEMPERATURE (66 to 78 deg.)		69-70 deg	deg
VERIFICATION LAB HUMIDITY (10 TO 70 %)		42-44 %	%
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST			
a. peak resultant accel.	210 to 260 G's	241.5 G's	G's
b. peak lateral accel.	<= 10 G's	4.5 G's	G's
c. Time above 100 G's	0.9 to 1.5 ms.	1.38 ms	ms

* Sequential number beginning with "1" at the start of each fiscal year crash test program.

TECHNICIAN'S NAME: Ivan Minkewicz

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA...continued

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 358

TEST PARAMETER		SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST				
a. Pendulum Speed		21.5 to 25.5 fps.	23.9 fps	fps
b. Pend. Avg. Decel. over t3 to t2		20 to 24 G's	23.0 G's	G's
c. Peak Resultant Head Acceleration		26 G's max.	25.98 G's	G's
d. Pendulum Decel. (t2-t1)		<= 3 ms.	2.85 ms	ms
e. Pendulum Decel. (t3-t2)		25 to 30 ms.	26.79 ms	ms
f. Pendulum Decel. (t4-t3)		<= 10 ms.	6.82 ms	ms
g. Max. Head Rotation		63 to 73 deg.	69.86 deg	deg
h. Chordal Displacement				
HEAD ROTATION ANGLE				
0 deg.	Time	-2 to 2 ms.	0.0 ms	ms
	Displ.	-.5 to .5"	0.0 "	"
30 deg.	Time	25.6 to 34.4 ms.	29.39 ms	ms
	Displ.	2.1 to 3.1"	2.61 "	"
60 deg.	Time	40.3 to 51.7 ms.	44.02 ms	ms
	Displ.	4.3 to 5.3"	4.88 "	"
Maximum	Time	53.2 to 66.8 ms.	56.67 ms	ms
	Displ.	5.0 to 6.0"	5.54 "	"
60 deg.	Time	67.0 to 83.0 ms.	72.42 ms	ms
	Displ.	4.3 to 5.3"	4.84 "	"
30 deg.	Time	85.4 to 104.6 ms.	89.29 ms	ms
	Displ.	2.1 to 3.1"	2.36 "	"
0 deg.	Time	101.0 - 123.0 ms.	103.3 ms	ms
	Displ.	-.5 to 0.5"	0.0 "	"

TECHNICIANS NAME: Ivan Minkewicz

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 358

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
3. ABDOMINAL COMPRESSION TEST: (preload = 50 lbs.)			
a. Force @ 0.5"	23 to 36 lbs.	23.5 lbs	lbs
b. Force @ 0.75"	36 to 50 lbs.	37 lbs	lbs
c. Force @ 1.0"	50 to 63 lbs.	54 lbs	lbs
d. Force @ 1.3"	73 to 88 lbs.	81 lbs	lbs
4. LUMBAR FLEXION TEST:			
a. Force @ 20 deg.	22 to 34 lbs.	25 lbs	lbs
b. Force @ 30 deg.	34 to 46 lbs.	39 lbs	lbs
c. Force @ 40 deg.	46 to 58 lbs.	49 lbs	lbs
d. Return Angle	12 deg. maximum	11 deg	deg
5. CHEST IMPACT TESTS:			
A. High Speed			
(1) Probe Speed	21.78-22.22 fps.	21.9 fps	fps
(2) Peak Deflection	1.7" maximum	1.53 "	"
(3) Peak Resistive Force	2250 lbs maximum	2110 lbs	lbs
(4) Internal Hysteresis	50 to 70%	59 %	%
B. Low Speed			
(1) Probe Speed	13.86-14.14 fps.	14.0 fps	fps
(2) Peak Deflection	1.1" maximum	1.04 "	"
(3) Peak Resistive Force	1450 lbs maximum	1287 lbs	lbs
(4) Internal Hysteresis	50 to 70%	51.7 %	%

TECHNICIAN'S NAME: Ivan Minkewicz

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 358

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
6. KNEE IMPACT TEST			
A. Left Knee			
(1) Probe Speed	6.76 to 7.04 fps	7.0 fps	fps
(2) Maximum Force	1850 to 2500 lbs	2015 lbs	lbs
(3) Time above 1000 lbs.	1.7 ms. minimum	1.875 ms	ms
B. Right Knee			
(1) Probe Speed	6.76 to 7.04 fps	7.0 fps	fps
(2) Maximum Force	1850 to 2500 lbs	1902 lbs	lbs
(3) Time Above 1000 lbs.	1.7 ms. minimum	1.875 ms	ms

REMARKS:

TECHNICIAN'S NAME: Ivan Minkewicz

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY I.D. NUMBER: 358

A. DUMMY INSTRUMENTS

	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. HEAD ACCELEROMETER				
HX LONGITUDINAL	ENDEVCO	CS75	4/91	10/91
HY LATERAL	ENDEVCO	CY89	4/91	10/91
HZ VERTICAL	ENDEVCO	CE76	4/91	10/91
2. CHEST ACCELEROMETER				
CX LONGITUDINAL	CEC	A147	4/91	10/91
CY LATERAL	ENDEVCO	CJ54	4/91	10/91
CZ VERTICAL	CEC	A148	4/91	10/91
3. FEMUR LOAD CELLS				
LEFT SIDE	GSE	951	3/91	9/91
RIGHT SIDE	GSE	952	3/91	9/91

B. CALIBRATION LABORATORY INSTRUMENTS

	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. PENDULUM ACC.	CEC	A160	5/91	11/91
2. TEST PROBE ACCELEROMETER	CEC	A161	5/91	11/91
3. LUMBAR FLEXION TEST PUSH FORCE GAUGE	TRANS-DUCER INC	20051	7/91	1/92
4. ABDOMINAL COMPRESS. TEST FORCE GAUGE	BLH	72952	7/91	1/92
5. ABDOMINAL COMPRESS. TEST FORCE GAUGE	CIC	567-11	7/91	1/92

Appendix D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR DRIVER DUMMY
(6 Month Calibration Minimum)

DRIVER DUMMY	Serial #	Manufacturer	Calibration Last	Calibration Next
Head X	CP30	ENDEVCO	4-91	10-91
Y	CX05	ENDEVCO	4-91	10-91
Z	DB47	ENDEVCO	4-91	10-91
Chest X	A74	CEC	4-91	10-91
Y	GK28	ENDEVCO	4-91	10-91
Z	A128	CEC	4-91	10-91
Right Femur Load Cell	1927	GSE	3-91	9-91
Left Femur Load Cell	77	GSE	3-91	9-91
Neck Load Cell X	269	DENTON	7-91	1-92
Y	269	DENTON	7-91	1-92
Z	269	DENTON	7-91	1-92
Neck Moment X	269	DENTON	7-91	1-92
Y	269	DENTON	7-91	1-92
Z	269	DENTON	7-91	1-92
Chest Deflection Gauge Hybrid III Use Only	150	HUMANOID	10-90	-
Lap Belt Load Cells	123	LEBOW	4-91	10-91
Shoulder Belt Load Cells	127	LEBOW	4-91	10-91
Spool-Out Potentiometer	-	SERVONIC INST.	-	-
Belt Stretch Transducer	E1	CALSPAN	4-91	10-91

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacturer	Calibration Last	Calibration Next
Head X	CS75	ENDEVCO	4-91	10-91
Y	CY89	ENDEVCO	4-91	10-91
Z	CE76	ENDEVCO	4-91	10-91
Chest X	A147	CEC	4-91	10-91
Y	CJ54	ENDEVCO	4-91	10-91
Z	A148	CEC	4-91	10-91
Right Femur Load Cell	952	GSE	3-91	9-91
Left Femur Load Cell	951	GSE	3-91	9-91
Neck Load Cell X		DENTON		
Y		DENTON		
Z		DENTON		
Neck Moment X		DENTON		
Y		DENTON		
Z		DENTON		
Chest Deflection Gauge		HUMANOID		
Hybrid III Use Only				
Lap Belt Load Cells	133	LEBOW	4-91	10-91
Shoulder Belt Load Cells	135	LEBOW	4-91	10-91
Spool-Out Potentiometer	-	SERVONIC INST.	-	-
Belt Stretch Transducer	E3	CALSPAN	4-91	10-91

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(6 Month Calibration Minimum)

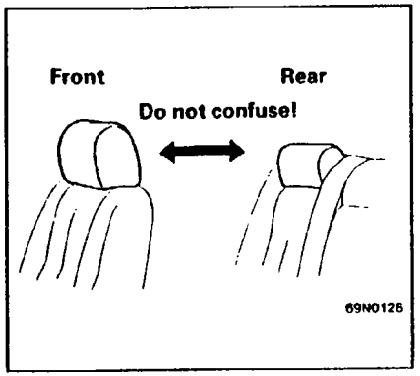
	Serial #	Manufacturer	Calibration	
			Last	Next
Left Seat Rear Crossmember	A181	CEC	4-91	10-91
Right Rear Seat Crossmember	A101	CEC	7-91	1-92
Top of Engine	A152	CEC	4-91	10-91
Bottom of Engine	A144	CEC	4-91	10-91
Left Disc Brake Caliper	A69	CEC	7-91	1-92
Right Disc Brake Caliper	A115	CEC	4-91	10-91
Instrument Panel	A142	CEC	6-91	12-91
Center Rear Crossmember Z	A29	CEC	6-91	12-91
Vehicle Rear Z	A52	CEC	7-91	1-92

INSTRUMENT CALIBRATION FOR LABORATORY INSTRUMENTS
(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	Next
Neck Bending Pendulum Accel.	A160	CEC	5-91	11-91
Neck Bending Rotary Potentiometer	None	BOURNS	7-91	1-92
Femur Probe Accelerometer	A161	CEC	5-91	11-91
Chest/Thorax Probe Accel.	A161	CEC	5-91	11-91
Lumbar Flexion Force Gauge	20051	TRANSDUCER INC.	7-91	1-92

Appendix E

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS



WARNING

(1) Driving with the head restraints removed is dangerous. Always have them mounted when operating the car. Failure to having them properly mounted may increase the chance of injury in the event of a collision.

(2) The head restraints for the front and rear seats differ in shape. When installing head restraints, be sure not to confuse the front and rear seat head restraints. The head restraints for the front seat are larger in both height and thickness.

Seat belts

ND06A Ab

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

WARNING

(1) Never use a seat belt for more than one occupant.

(2) Never wear the shoulder portion of the seat belt under the arm or other out of position location.

(3) Do not make any modifications that could change the effectiveness of the seat belts.

(4) Never attempt to repair the seat belt assemblies on your own. All repairs should be made by an authorized dealer.

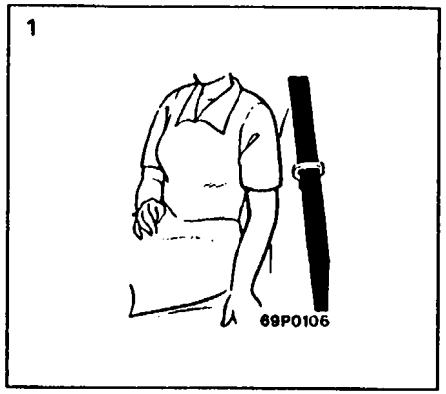
NOTE
Legislation in your state may require seat belt usage.

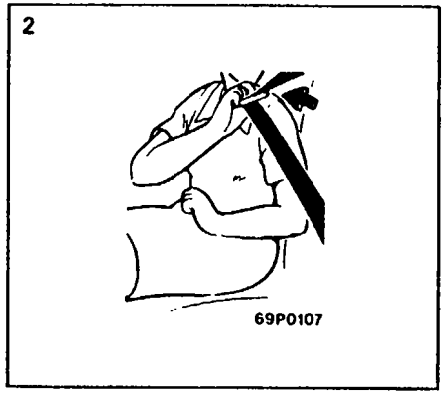
Seat unibelt restraint system

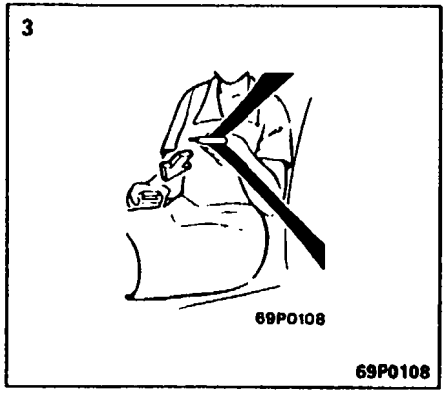
ND06B Ba

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

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







Unibelt instructions NB06D Au

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

WARNING

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

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

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

4

69P0109

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

WARNING

Be sure the lap belt portion is fitted snugly and as low as possible around the hips, not around the waist.
Failure to do so may increase the chance of injury in the event of a collision.

5

69P0110

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

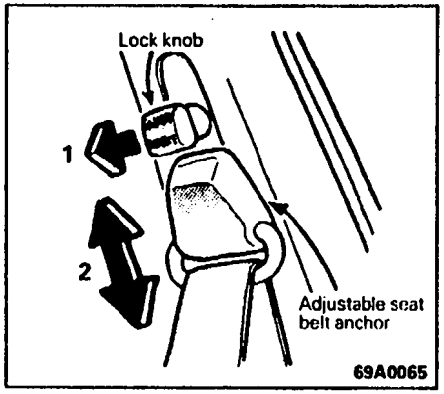
6

69P0111

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

WARNING

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



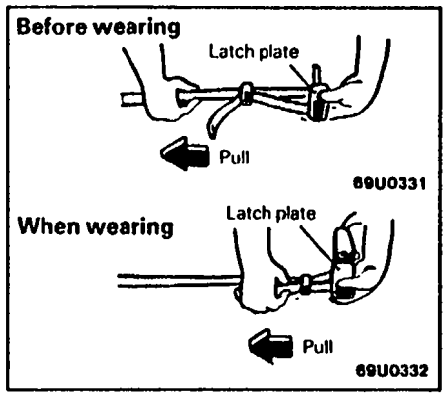
Adjustable seat belt anchor (front seats)

The seat belt anchor height can be adjusted.

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

WARNING

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



Rear seat lap belt

Center belt

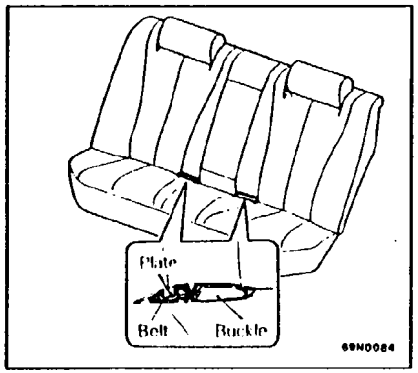
The center belt should be adjusted by holding the belt and latch plate at right angles to each other, and then pulling the belt as illustrated above to a snug fit around the occupant.

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

NOTE

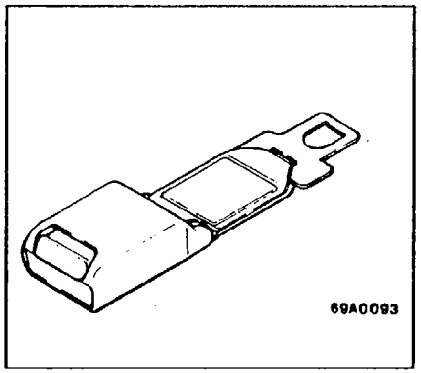
The buckle and plate of the center lap belt are marked with "CENTER". Be sure to check the marking before wearing the center lap belt.

The outboard restraint system buckle and center restraint system tongue are not compatible and will not engage with one another.



Rear seat belt pocket

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



Seat belt extender (for unibelt)

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

WARNING

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

Child restraint

ND06IGW

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

WARNING

(1) Accident statistics indicate that children are safer when properly restrained in the rear seat rather than in the front seat. Accordingly, Mitsubishi Motor Sales of America, Inc. recommends the child be restrained in the rear seat.

(2) Holding a child in your arms is no substitute for a restraint system. Failure to use a proper restraint system can result in severe or fatal injury to your child.

Infants and small children

For infants small enough for infants seats, an infant carrier should be used. For small children, a child seat should be used. Both types of seats are available from your authorized dealer.

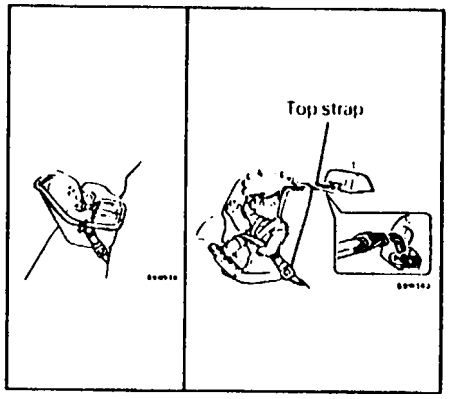
The child restraint system should be appropriate for your child's weight and height and properly fit the car seat. For a higher degree of safety, THE CHILD RESTRAINT SYSTEM SHOULD BE INSTALLED IN THE REAR SEAT.

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

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

NOTE

Before purchasing a child seat or infant carrier, try installing it in the rear seat to assure a good fit. Due to the location of the seat belt bucklesin the seat cushion, it may be difficult to securely install some child restraint systems. If the child restraint system can be pulled forward easily on the seat cushion after the belt has been tightened, choose another child restraint system.



Installing a child restraint system to the rear center seat

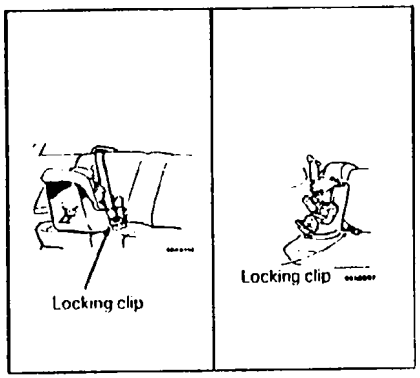
Installation:

1. Fasten the center lap belt to secure the child restraint system.

WARNING

For safety, an infant carrier should face backward; a child seat should face forward.

2. Pull the excess webbing through the belt's adjustment feature.
3. Push and pull the child restraint in all directions to be sure it is secure.

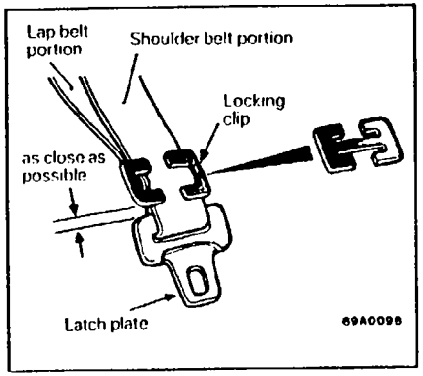


If your child restraint system requires the use of a top strap, refer to "Anchors for the child restraint system" on page 31.

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

USE A LOCKING CLIP WHEN INSTALLING A CHILD RESTRAINT SYSTEM TO A UNIBELT.

If a locking clip has not been supplied with your child restraint system, it may be purchased from your authorized dealer. To use the locking clip, install the child restraint system according to the instruction that comes with the child restraint system/locking clip.



Installation:

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

WARNING

For safety, an infant carrier should face backward; a child seat should face forward.

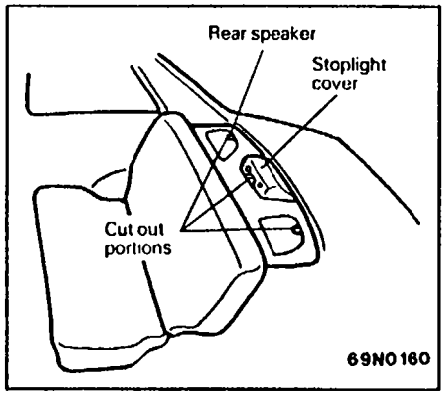
2. Fasten the seat belt around or through the child restraint system according to the restraint manufacturer's instructions.
3. Buckle the seat belt and keep all slack out of the lap portion of the belt.
4. Grasp the lap and shoulder portions of the seat belt as close to the latch plate as possible and unbuckle the seat belt.
5. Thread both the lap and shoulder belt portions through the locking clip.
6. Buckle the seat belt again and check that the seat belt is snug against the child restraint system.

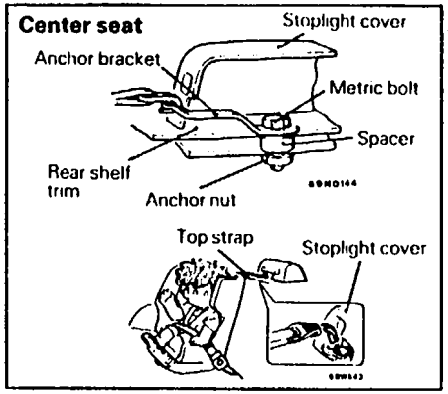
When your child restraint is not installed, remove the locking clip to permit normal use of the combination lap shoulder belt.

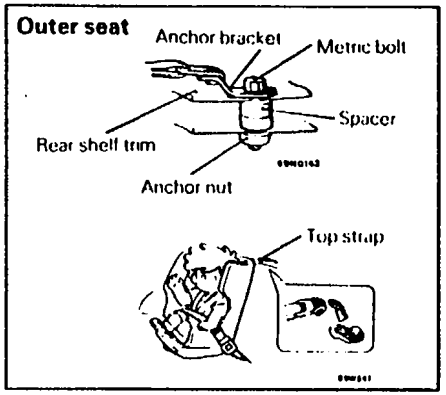
Keep the locking clip in the glove box to help prevent its loss.

WARNING

To help avoid personal injury during a collision or sudden maneuver, always thread both the lap and shoulder belt through the locking clip when securing a child restraint to a UNIBELT. If the locking clip is not used or not installed properly, the child restraint may move or tip over and may result in severe injury to your child in the event of an accident.







Anchors for the child restraint system

If you choose to use a top-strap-equipped child restraint in the rear seat, ask your dealer how to attach it.
Your car is provided with anchors to secure the top strap of a child restraint system.
The anchor nuts are welded to the back of the sheet metal of the rear shelf and concealed by the stoplight cover or the rear speaker on the rear shelf trim.
Before installing the anchor bracket, cut out the portions of the stoplight cover and rear speaker as illustrated.

A metric bolt is required to install the anchor bracket.

NOTE
(1) The bolt provided with the child restraint system may not be a metric type.
You can damage the anchor nuts on your car if you force bolts with different thread into the anchor nuts.
(2) Anchorage hardware (anchor bracket, metric bolt and spacer) and installation instructions are available from authorized dealer.

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

WARNING

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

Installing an infant carrier to the front passenger's seat – cars equipped with a UNIBELT

For instructions please refer to a previous section titled "Installing a Child Restraint System to a UNIBELT".
Mitsubishi Motor Sales of America, Inc. recommends the child be restrained in the rear seat. Mitsubishi Motor Sales of America, Inc. also recommends that at adult be seated adjacent to an infant who is in an infant carrier. Therefore, if the driver is the only adult in the car, the infant may be placed in the front seat and properly restrained.

Children who have outgrown child restraint

Children who have outgrown child restraint system should be seated in the rear seat and wear combination lap shoulder belt.
If the shoulder belt crosses the face or neck, place the child closer to the center of car or use the lap belt at the center of the rear seat. The lap belt should be snug and positioned low on the abdomen so that it is below the top of the hipbone. Otherwise, the belt could intrude into the child's abdomen during an accident and cause personal injury.

WARNING

A child should never be left unattended in your car.

Pregnant woman restraint

ND06G Ba

WARNING

Mitsubishi Motor Sales of America, Inc. recommends that pregnant women use the available seat belts. This will reduce the likelihood of injury to both the woman and the unborn child. The lap belt should be worn across the thighs and as snug against the hips as possible, but not across the waist.

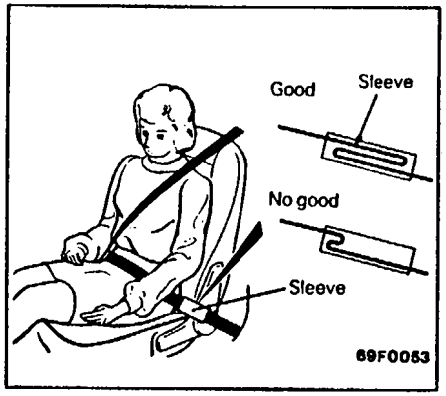
Maintenance and inspection of seat belts

ND06H Ab

The webbing used in belts may be cleaned with a hydrocarbon dry cleaner or with soap or detergent in water.
Do not attempt to bleach or re-dye belts. The resulting color may rub off and webbing strength could be affected.

Regularly check lap belt buckles and release mechanisms for positive action.

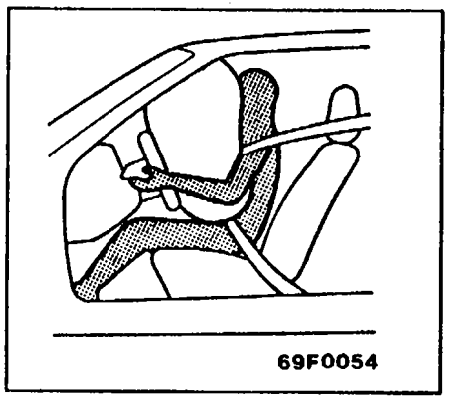
Check that the anchor mounting bolts are tight. If the seat belt webbing shows obvious cuts, protruding broken fibers causing a local increase in webbing thickness, or severe fading which indicates weakening by exposure to sunlight, the seat belt should be replaced.



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

WARNING

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



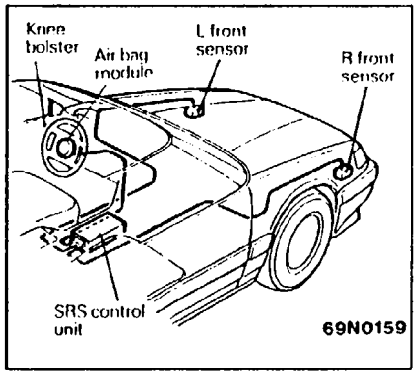
Supplemental restraint system (SRS) – Driver's air bag

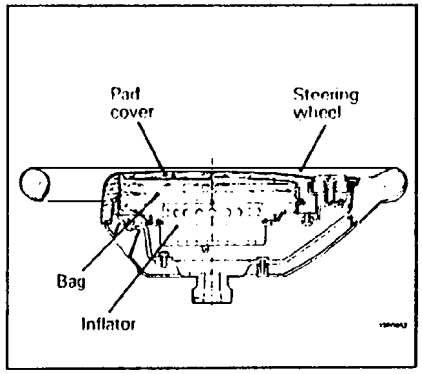
NOTICE

This car is equipped with a Supplemental Restraint System (SRS) which includes a driver's side air bag installed under the pad cover in the middle of the steering wheel, and a knee bolster located beneath the steering column.

WARNING

The SRS is designed to work with, and be a supplement to, the driver's three point seat belt system, not a substitute for it. The driver's seat belt helps position the driver properly for those situations when the air bag is designed to deploy.
The SRS is designed to deploy only in certain frontal and near-frontal moderate-to-severe impacts.
The SRS is not designed to deploy during rear or side impacts, or in rollovers, or during low speed frontal impacts.
SEAT BELTS SHOULD BE WORN BY THE DRIVER AND ALL PASSENGERS AT ALL TIMES, IN ORDER TO REDUCE RISK OF INJURY IN AN ACCIDENT.
For more important information about seat belts, see "Seat Belts" page 24 and "Child Restraints" page 29.



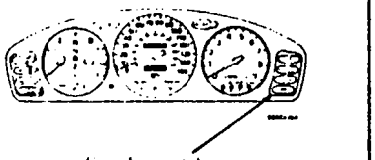


Components and function of the SRS

ND10B AI

The SRS includes the following components:
- Impact sensors
- Diagnostic unit
- "SRS" warning light
- Air bag module
- Interconnecting wiring
- Knee bolster

Impact sensors in the front of the car determine if a frontal or near-frontal impact is severe enough to require air bag deployment.
The air bag module is located in the center of the steering wheel. When the impact sensors detect an impact involving sufficient force, their switches close a circuit which ignites materials in the inflator to generate nitrogen gas and inflate the air bag.
The air bag begins to expand from its flat, stored position behind the pad cover. The pad cover separates and folds out of the way as the bag inflates to its full size.
The air bag deflates very rapidly after deployment, so there is little danger of obscured vision. Similarly, although air bag deployment produces a sudden, fairly loud noise, and releases some smoke and powder, these conditions are not injurious.



The diagnostic unit monitors the readiness of the electronic portions of the SRS that deploy the air bag.
The diagnostic unit continuously monitors the components whenever the ignition key is in the "ON" position. It should illuminate the "SRS" warning light on the instrument panel for about 7 seconds after the ignition key is turned to the "ON" position or after the engine is started, after which the "SRS" warning light should go out. Check the "SRS" warning light every time the car is started.

WARNING

(1) The SRS can function only when the ignition key is in the "ON" position. If the "SRS" warning light does not illuminate or stays on for more than about 7 seconds after the ignition key is turned to the "ON" position or after the engine is started, or comes on while you are driving, the SRS system is not working properly.
You should immediately have it inspected by an authorized dealer.

(2) Before you replace a fuse or disconnect a battery terminal, turn the ignition key to the "LOCK" position or remove the ignition key first. If a battery terminal is disconnected or a fuse (No. 5 or No. 6) is replaced with the ignition key in the "ON" position, the "SRS" warning light may remain on even after reinstalling the terminal or the fuse. And also, when the voltage supplied to the SRS system is low (including a discharged battery) with the ignition key in the "ON" position, the "SRS" warning light will illuminate.
In that case, repeatedly turning the ignition key on and off at least 10 times should cause the "SRS" warning light to go off.

SRS maintenance

The entire SRS system must be inspected by an authorized dealer 10 years after the car manufacture date shown on the certification label located on the door striker of the driver's door. Any maintenance performed on or near the components of the SRS must be performed only by an authorized dealer. Do not permit anyone else to do service, inspection, maintenance or repair on any SRS component or wiring. Similarly, no part of the SRS system should ever be handled or disposed of by anyone except an authorized dealer.

WARNING

(1) Modification to SRS components or wiring, including the addition of any kind of badges to the pad cover or modifications to the front bumper or body structure, can adversely affect SRS performance and lead to possible injury.

(2) If the air bag inflates, it must be replaced by an authorized dealer; the SRS system is designed to work only once.
(3) Do not tamper with or disconnect any SRS wiring, or other components of the SRS system. Doing so could result in injury, due to accidental firing of the air bag or by rendering the SRS system inoperative.
(4) If your car has received any front-end damage, you should have it inspected by an authorized dealer to see if the SRS system is in proper working order.

NOTE
(1) When you sell the car we urge you to give notice to the subsequent owner that it is equipped with the SRS system and alert him to the applicable section in this owner's manual.
(2) If you junk or scrap the car, we urge you to first take the car to an authorized dealer so that the SRS system can be rendered safe.