V1723

REPORT NUMBER: CAL-92-N14

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

CHRYSLER CORPORATION
1992 PLYMOUTH COLT VISTA WAGON
2-DOOR HATCHBACK

NHTSA NUMBER: MN0303

CALSPAN TEST NUMBER: 7978-4

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

MAY 20, 1992

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

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

Approved: Walter E. Levan
Walter E. Levan, Program Manager
Transportation Research/
Physical Sciences Department

FINAL REPORT ACCEPTED BY:
Stuart Jay Siegel

Manager, New Car Assessment Program (NCAP)

AUG 19 1992

Date of Report Acceptance

Han Su Chen

Contracting Officer's Tech. Rep. (COTR)

AUG 19 1992

Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. CAL-92-N14	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle NHTSA New Car Assessment Program (NCAP) Frontal Barrier Impact Test of a 1992 Plymouth Colt Vista 2-Door Hatchback		5. Report Date May 20, 1992 6. Performing Organization Code CAL
7. Author(s) Michael J. Kilgallon, Project Engineer Walter E. Levan, Program Manager		8. Performing Organization Report No. 7978-4
9. Performing Organization Name and Address Calspan Advanced Technology Center P.O. Box 400 Buffalo, New York 14225		10. Work Unit No. 203-040-1183 11. Contract or Grant No. DTNH22-90-D-02121
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Market Incentives (NRM-20) 400 Seventh Street, S.W., Washington, DC 20590		13. Type of Report and Period Covered Final Report May-June 1992 14. Sponsoring Agency Code DOT/NHTSA/RM/OMI
15. Supplementary Notes		

16. Abstract

A frontal load cell barrier test on a 1992 Plymouth Colt Vista 2-Door Hatchback was performed at Calspan Advanced Technology Center crash test facility in Buffalo, New York on May 20, 1992.

The impact speed was 35.1 mph and the ambient temperature at the barrier face at the time of impact was 82°F. The maximum post-test vehicle static crush was 20.7 inches. The test vehicle was equipped with a 2-point automatic torso belt and manual lap belt at each of the front outboard seating positions.

With regard to FMVSS 208 "Occupant Crash Protection", injury criteria, the driver dummy's right femur appeared to exceed the maximum femur requirement of 2250 lbs, but did satisfy the head and chest requirement while the passenger dummy appeared to comply with the maximum head, chest, and femur requirements.

17. Key Words 35 mph Frontal Barrier Impact Test New Car Assessment Program (NCAP)		18. Distribution Statement Copies of this report are available from: Technical Reference Division National Highway Traffic Safety Admin. Nassif Building, Room 5108 400 Seventh St., S.W., Washington, DC 20590	
19. Security Classif. (of this report) UNCLASSIFIED	20. Security Classif. (of this page) UNCLASSIFIED	21. No. of Pages	22. Price

Form DOT F1700.7 (8-69)

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Section 1

PURPOSE AND TEST PROCEDURE

This 35 mph frontal barrier impact test is part of the Composite FY 92 Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-90-D-02121. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for an impact speed in excess of the current 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 MN0303

A load cell barrier consisting of 36 load cells was impacted by a 1992 Plymouth Colt Vista 2-Door Hatchback at a velocity of 35.1 mph. The test was performed at the Calspan Corporation Advanced Technology Center on May 20, 1992. 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 14 high-speed cameras. Camera locations and other pertinent camera information can be found in this report.

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

Both ATDs were fully instrumented with head and chest triaxial accelerometers and right/left femur load cells. Seat belt load cells were also on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading. The driver ATD (Serial No. 320) was used in previous tests (MN0200 and MN5302). The right-front passenger ATD (Serial No. 358) was used in previous tests (MN0204 and MN0201). Injury criteria values were not exceeded for either ATD's on any of the previous tests. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 67 channels of data were recorded on a P.C. based data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces. Accelerometer #4(X), located on the bottom of engine block, sustained a cut wire at approximately 29 milliseconds. Velocity and displacement data traces for this accelerometer were removed from this report. Barrier load cell B9 did not record accurately therefore the data trace was removed from this report. Position 1 Left Femur contained intermittent data.

The driver's head struck the steering wheel rim and hub; the HIC was 920.2. The maximum chest deceleration over 3 milliseconds was 48.4 g's and femur loads were 1733.0 and 2714.5 pounds.

The right front passenger's HIC was 362.0 and maximum chest deceleration over 3 milliseconds was 36.0 g's. Femur loads were 1760.9 and 1381.2 pounds.

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Vehicle Year/Make/Model/Body Style: 1992 Plymouth Colt Vista Wagon 2-Door Hatchback

NHTSA Test No.: MN0303 VIN.: JP3CV20D4NZ016282

Body Color: Blue Date of Manufacture: August 1991

Engine: 4 Cylinders; - C.I.D.; 1.8 Liters; - CC

X Gas; - Diesel; - Turbocharged

- Longitudinal; X Transverse

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

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

Date Received: 1-29-92 Odometer Reading: 19 miles

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

- Tilt Wheel - P/seats; - Cruise Control

Type of Occupant Restraint: 2-point automatic torso belt and manual lap belt

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): Front 28 psi, Rear 26 psi

Recommended Tire Size: P185/75R14 89S

Recommended Cold Tire Pressure: Front 28 psi, Rear 26 psi

Tires on Vehicle: P185/75R14 89S ; 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 3924 lbs. GAWR: Front 2094 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 = 940 lbs. Right Rear = 590 lbs.

Left Front = 850 lbs. Left Rear = 560 lbs.

TOTAL FRONT WEIGHT = 1790 lbs. (60.9 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1150 lbs. (39.1 % of Total Vehicle Weight)

TOTAL DELIVERED WEIGHT = 2940 lbs.

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight (2940 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 = 3345 lbs.

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 62 POUNDS CARGO:

Right Front = 980 lbs. Right Rear = 750 lbs.

Left Front = 930 lbs. Left Rear = 670 lbs.

TOTAL FRONT WEIGHT = 1910 lbs. (57.4 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1420 lbs. (42.6 % of Total Vehicle Weight)

TOTAL TEST WEIGHT = 3330 lbs.

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

VEHICLE ATTITUDE (all dimensions in inches):

Delivered Attitude: RF 27.3 LF 27.4 RR 27.6 LR 27.5

Test Attitude: RF 26.2 LF 26.5 RR 26.2 LR 26.5

Wheel Base: 99.2 in.; C.G. = 38.8 in. rearward of front wheel C/L

Remarks: 13.0 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: May 20, 1992 Time of Test: 14:15

Ambient Temperature: 82 °F at impact area

Temperature in Occupant Compartment: 71 °F

Windshield Molding Temperature: 70 °F

Required Impact Velocity Range: 34.5 to 35.5 mph

Impact Velocity: primary = 35.1 mph, secondary = 35.0 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	165.5	C_L	168.7	L	165.8
	Post-test	= R	144.5	C_L	146.0	L	145.7
	Crush	= R	21.0	C_L	22.7	L	20.1

Distance from front of test vehicle to point of impact:

R 20.7 C_L 20.7 L 21.2

VISIBLE DUMMY CONTACT POINTS:

	Driver	Passenger
Head	*	No contact
Chest	No contact	No contact
Abdomen	Lower steering wheel rim	No contact
Left Knee	Lower dash panel	Glove box door
Right Knee	Lower dash panel	Glove box door

*Top of head with upper steering wheel rim
Top of face with steering wheel hub

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

	Front		Rear	
	Left	Right	Left	Right
Door Opening	Operable	Operable	N/A	Operable

	Front		Rear	
Seat Movement	Left	Right	Left	Right
Seat Back Failure	None	None	N/A	N/A
Seat Shift (in.)	0.0	0.0	N/A	N/A

Glazing Damage

Backlight/Windshield Windshield sustained minor stress fractures but remained intact

Other Notable Impact Effects: Spare tire became unlatched from vehicle during impact

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.: MN0303 Vehicle: 1992 Plymouth Colt Vista Wagon 2-Door Hatchback

	MAXIMUM HEAD ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-185.9	-41.1	95.2	190.2
Position #2 - Passenger	-15.3	23.7	42.2	47.3

	MAXIMUM CHEST ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-50.3	-13.2	-14.9	48.4
Position #2 - Passenger	-36.7	16.8	10.0	36.0

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	1733.0	2714.5
Position #2 - Passenger	1760.9	1381.2

	MAXIMUM FORCE - SEAT BELT LOADS (lbs.)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
Position #1 - Driver	2163.5	-	187.6
Position #2 - Passenger	1833.1	133.1	-

	HEAD INJURY CRITERIA (HIC)			
	HIC	t_1 (SEC)	t_2 (SEC)	Average Acceleration t_1 TO t_2
Position #1 - Driver	920.2	0.06780	0.10368	58.0
Position #2 - Passenger	362.0	0.06504	0.10092	40.0

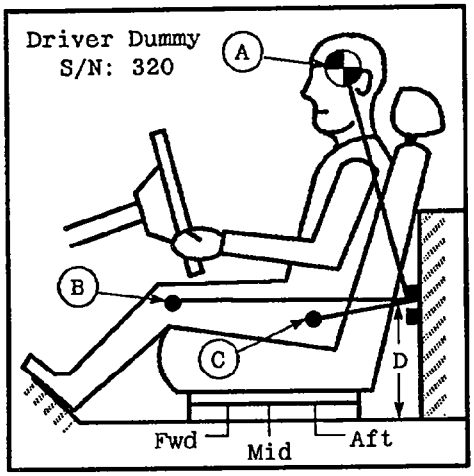
HIC is as defined in FMVSS 208. The maximum time interval from t_1 to t_2 is 36 milliseconds.

Figure 1

PART 572 DUMMY IN-VEHICLE POSITION

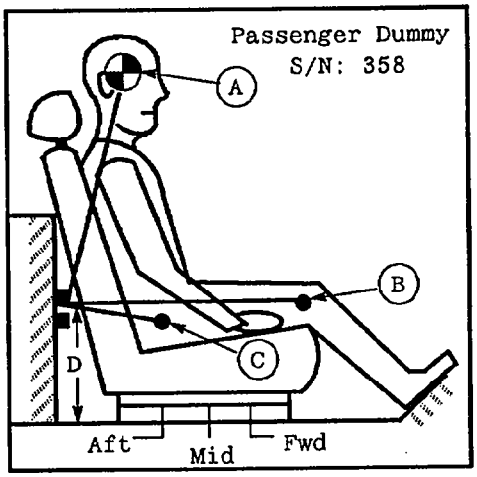
NHTSA No.: MN0303 Vehicle: 1992 Plymouth Colt Vista Wagon 2-Door Hatchback

SEAT TYPE:	ADJUSTER TYPE:	SEAT BACK TYPE:
– Bench	X Manual	– Fixed
X Bucket	– Power	X Adjustable Reclining
– Split Bench		



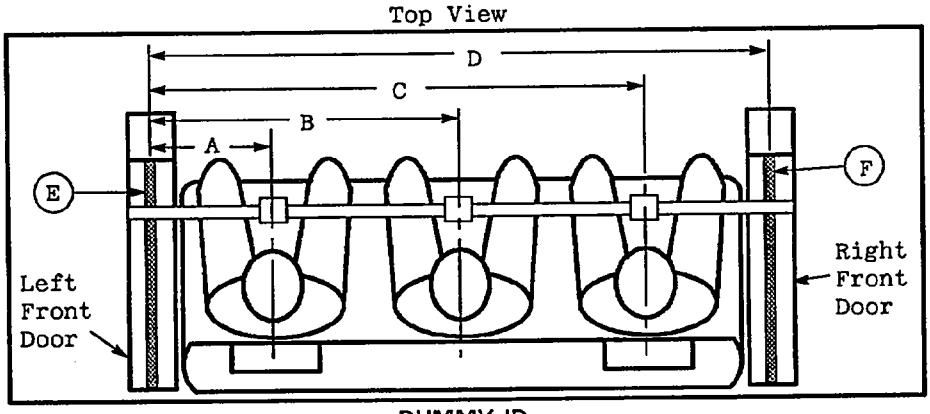
MEASUREMENT LOCATION

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



A =	21.2	in.	0	Degrees	A = 21.4	in.	0 Degrees
B =	21.6	in.	100	Degrees	B = 22.8	in.	100 Degrees
C =	7.6	in.	135	Degrees	C = 7.8	in.	128 Degrees
D =	18.4	in.			D = 18.4	in.	

Top View



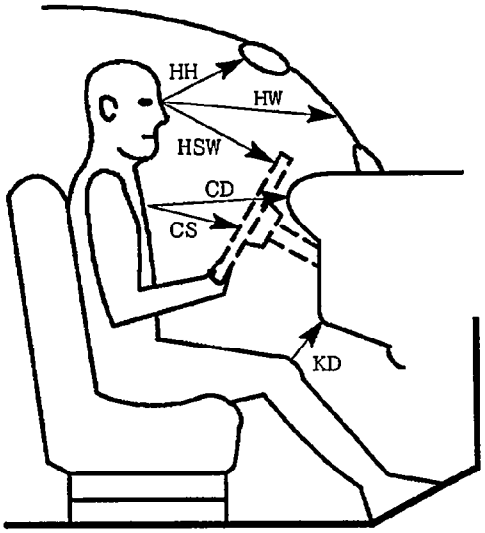
S/N 320 DUMMY ID S/N 358

A	= Left Door to Driver Centerline	12.3	in.
B	= Left Door to Center Passenger Centerline	–	in.
C	= Left Door to Right Passenger Centerline	40.5	in.
D	= Left Door to Right Door	53.3	in.
E,F	= Window Glass Height (Right and Left Must Be Equal)	13.0	in.

Figure 2

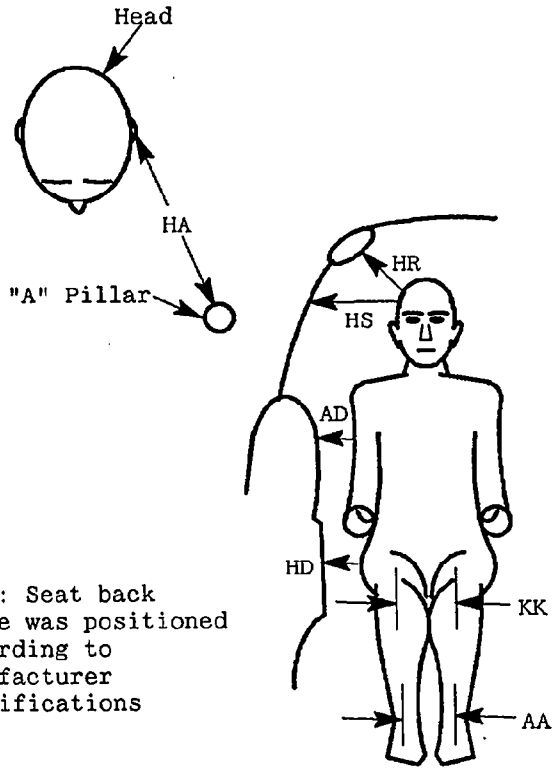
OCCUPANT CLEARANCE DIMENSIONS

	DRIVER	PASSENGER
HH	16.5	16.7
HW	23.8	23.2
CD	22.0	23.1
CS	14.3	-
KDL	3.9	3.3
KDR	3.6	3.5
SA	See Note	See Note
TA	25°	25°
HSW	22.0	-



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

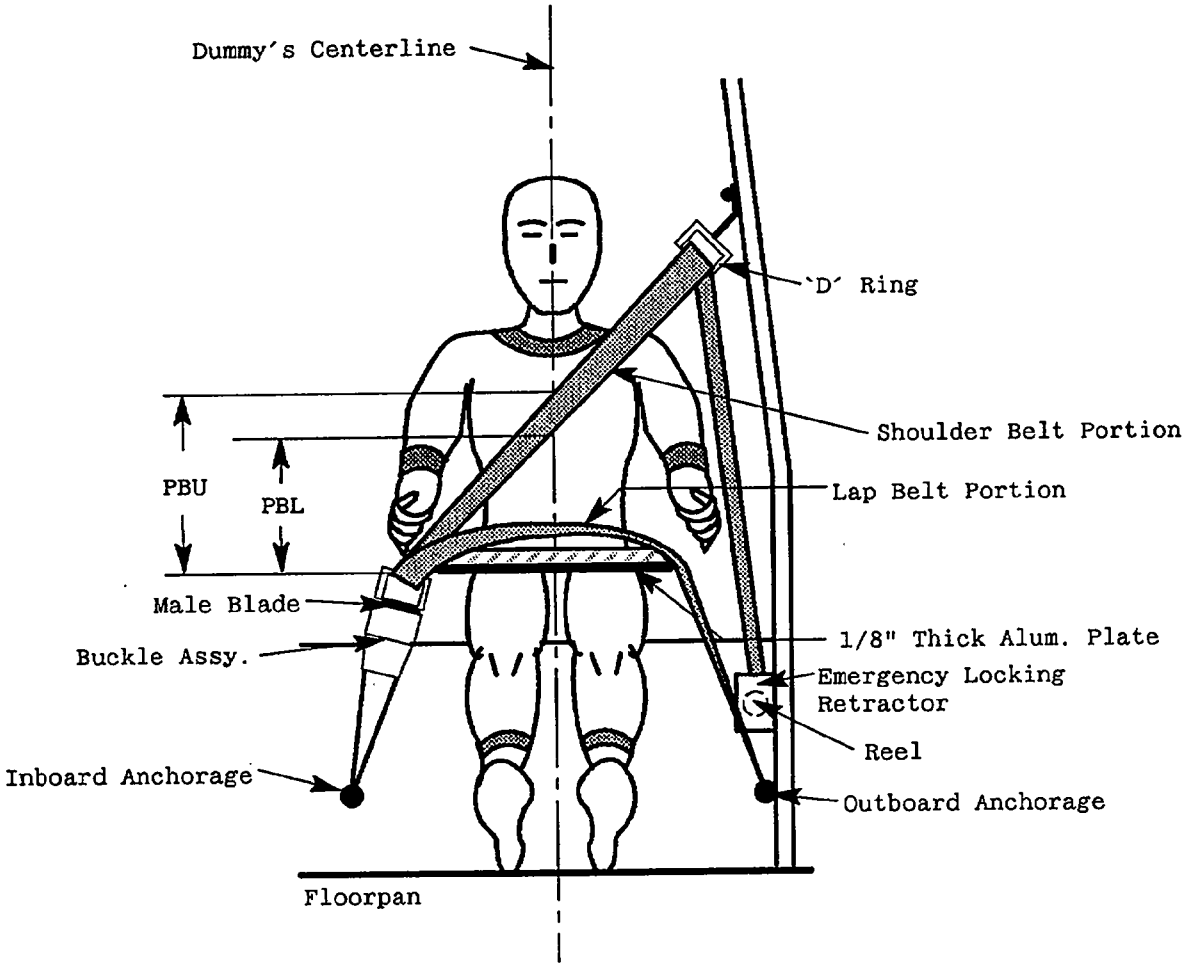


	DRIVER	PASSENGER
HR	6.6	6.6
HS	9.4	9.8
AD	3.7	4.1
HD	6.3	6.6
KK	10.5	8.0
HA	24.0	24.0
AA	11.5	8.0

* Note: Seat back angle was positioned according to manufacturer specifications

Figure 3

SEAT BELT POSITIONING DATA



Front View of Driver Dummy

	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
PBU -- Top surface of alum. plate to upper edge	13.5	13.2
PBL -- Top surface of alum. plate to belt lower edge	10.6	10.5
LAP BELT TENSION	2.0 lbs	2.0 lbs
SHOULDER BELT TENSION	-	-

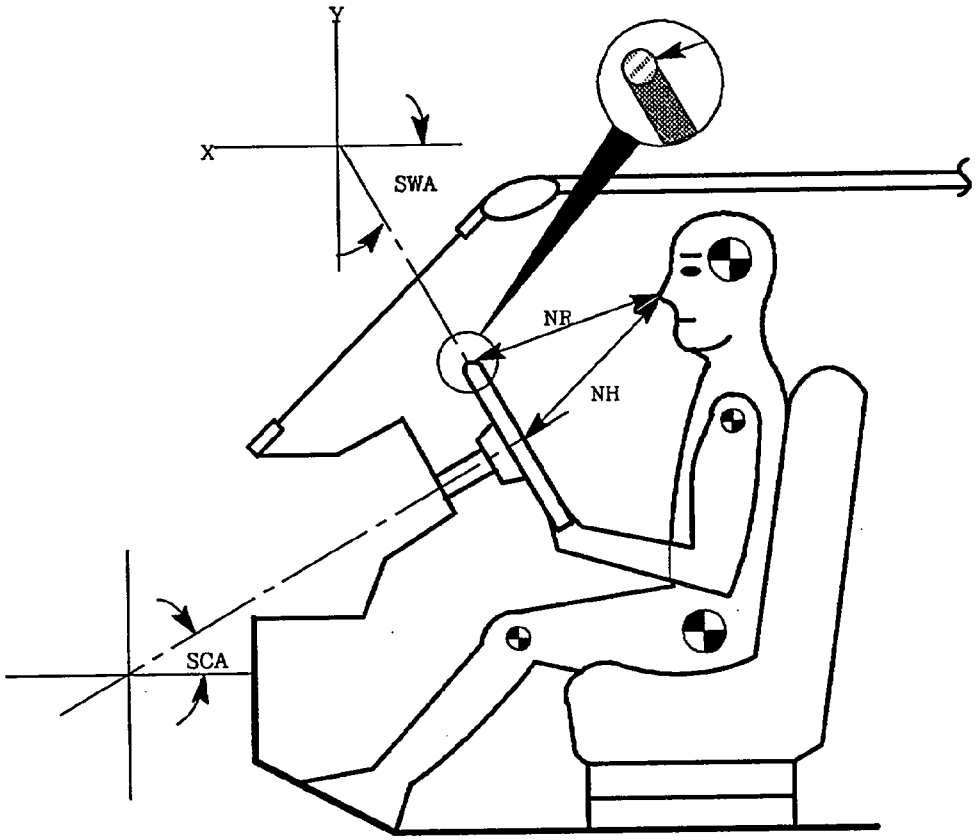
Table 3

SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

	Driver	Passenger
BELT LENGTH DATA:		
Shoulder belt length as measured on Part 572 Dummy	32.0	32.0
Lap belt length as measured on Part 572 Dummy	24.5	24.5
SHOULDER BELT SPOOL-OFF DATA:		
As determined by film analysis	N/A	N/A
As determined mechanically	2.3"	1.5"
LAP BELT SPOOL-OFF DATA:		
As determined mechanically	2.4"	2.8"
BELT STRETCH DATA:		
Measured electronically between shoulder belt load cell and the "D" ring	0.58 in/ft	1.15 in/ft
Measured mechanically	0 in/ft	0.6 in/ft

Figure 4

DRIVER DUMMY TO STEERING COLUMN/WHEEL ASSEMBLY REFERENCE DIMENSIONS



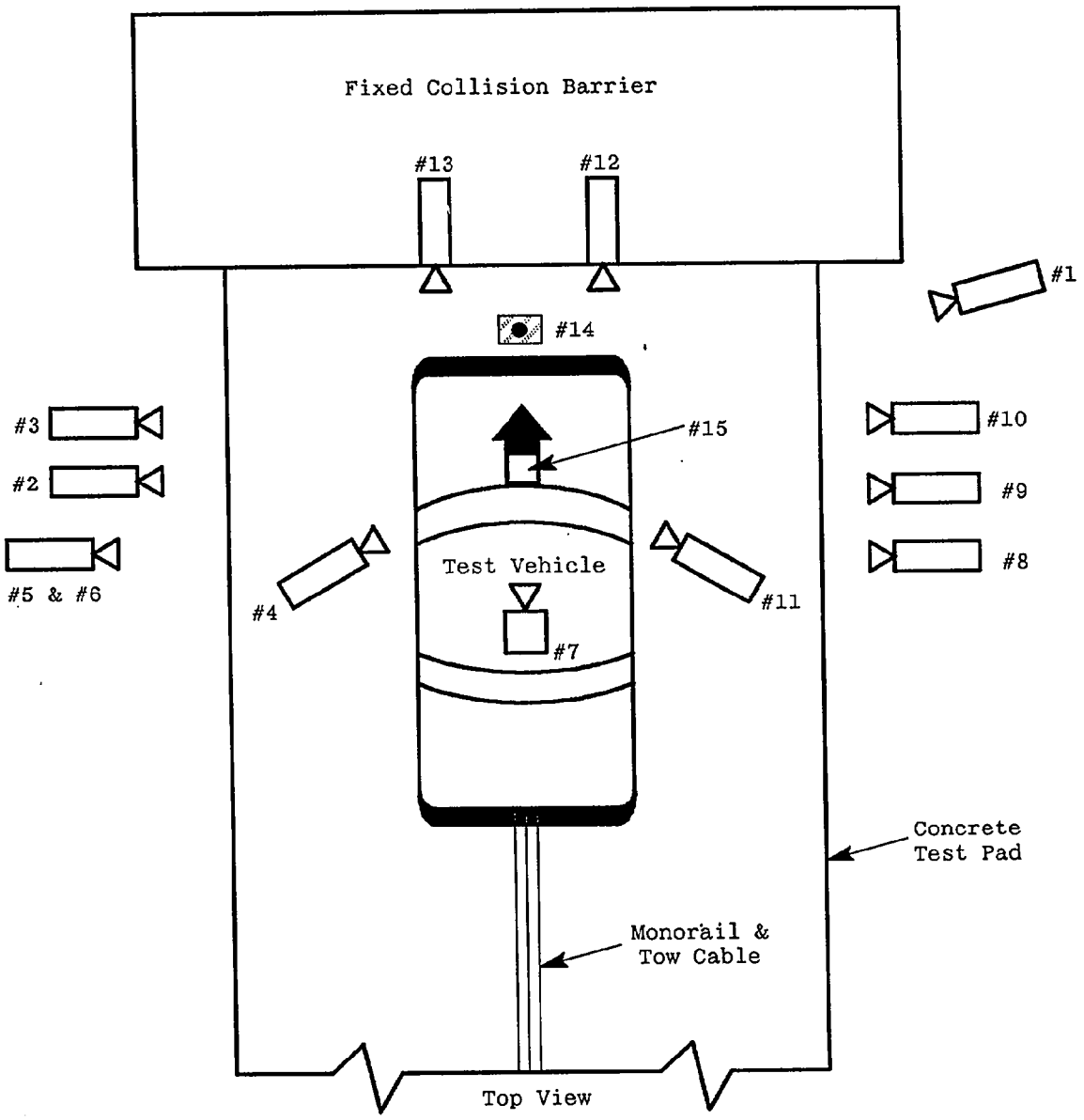
Left Side View

	MEASUREMENTS	
NR -- Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	20.1	Inches
NH -- Distance from tip of dummy's nose to center of steering column hub	19.8	Inches
SCA -- Angle of steering column relative to the horizontal X axis	33.0	Degrees
SWA -- Angle of steering wheel relative to the horizontal X axis	-57.0	Degrees

Figure 5

CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 4



7978-4

Table 4

HIGH-SPEED CAMERA LOCATIONS

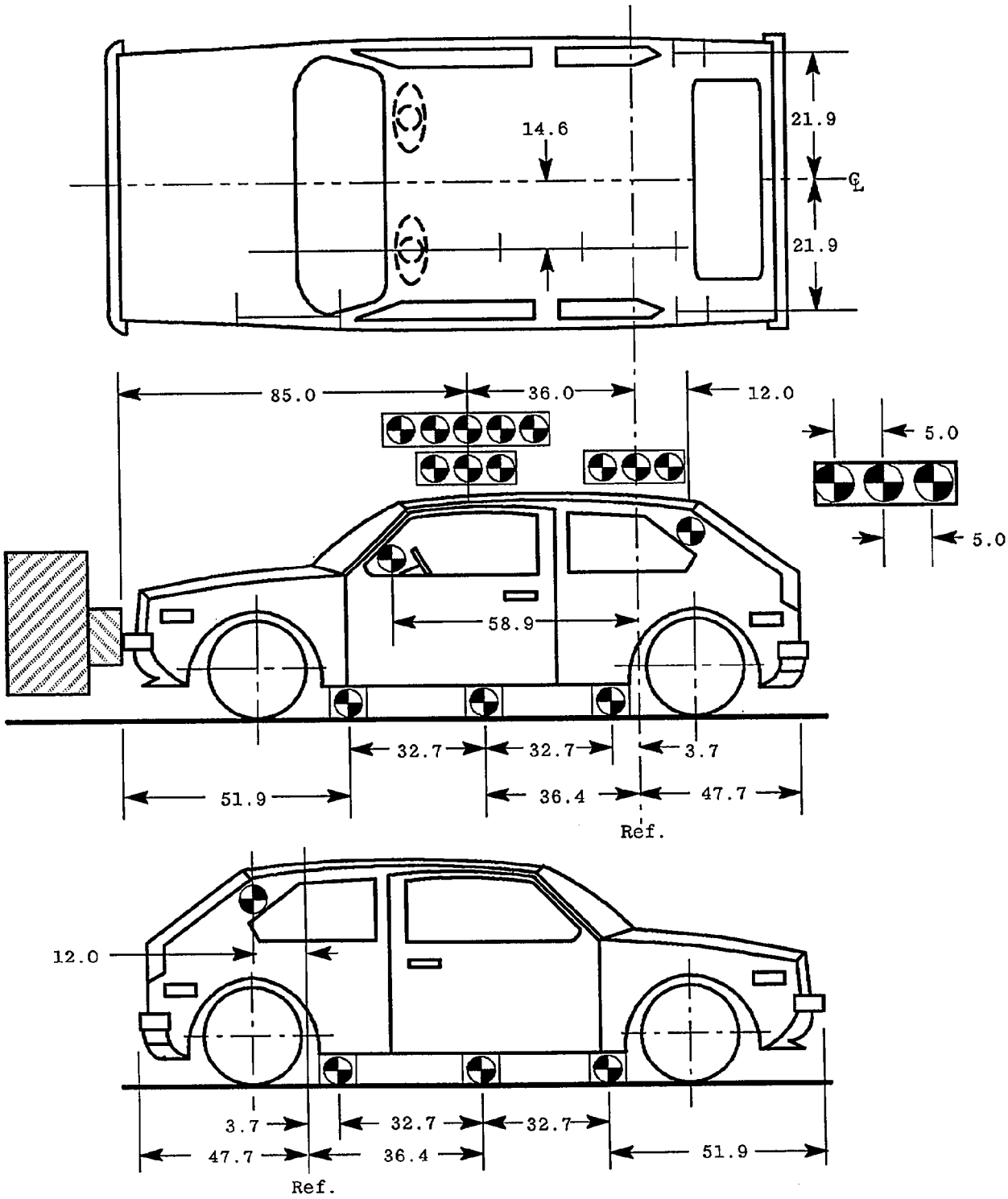
Test No. MN0303 Vehicle: 1992 Plymouth Colt Vista Wagon 2-Door Hatchback

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	212	46	44	-4	192	13	540
3	Left Side View	280	26	41	-3	262	25	560
4	Driver and Interior View	100	92	68	-18	82	13	520
5	Steering Column (Bottom)	271	58	47	-3	253	25	500
6	Steering Column (Top)	271	58	71	-7	253	25	480
7	Left Belt/Right Belt	–	–	–	–	–	8	545
8	Overall Right Side	225	72	42	-3	207	13	590
9	Right Side View	285	55	42	-2	267	25	580
10	Right Passenger View	288	69	56	-3	270	35	550
11	Passenger and Interior View	87	101	67	-20	69	13	540
12	Passenger Front View	21	0	75	-40	–	13	600
13	Driver Front View	21	0	76	-38	–	13	530
14	Windshield View	0	0	120	-48	–	13	545
15	Pit View of Engine	0	31	-120	90	–	13	660

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

Figure 6 .

VEHICLE TARGET LOCATIONS

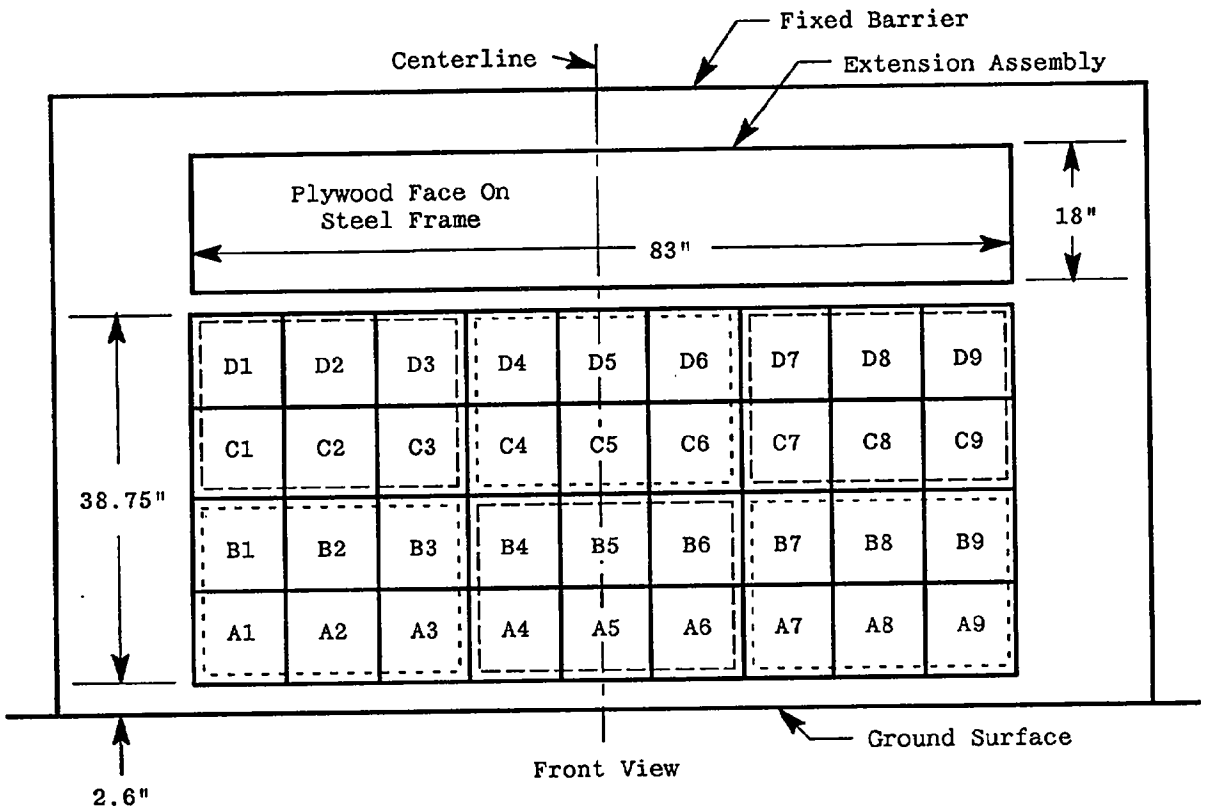


(Dimensions in inches)

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:

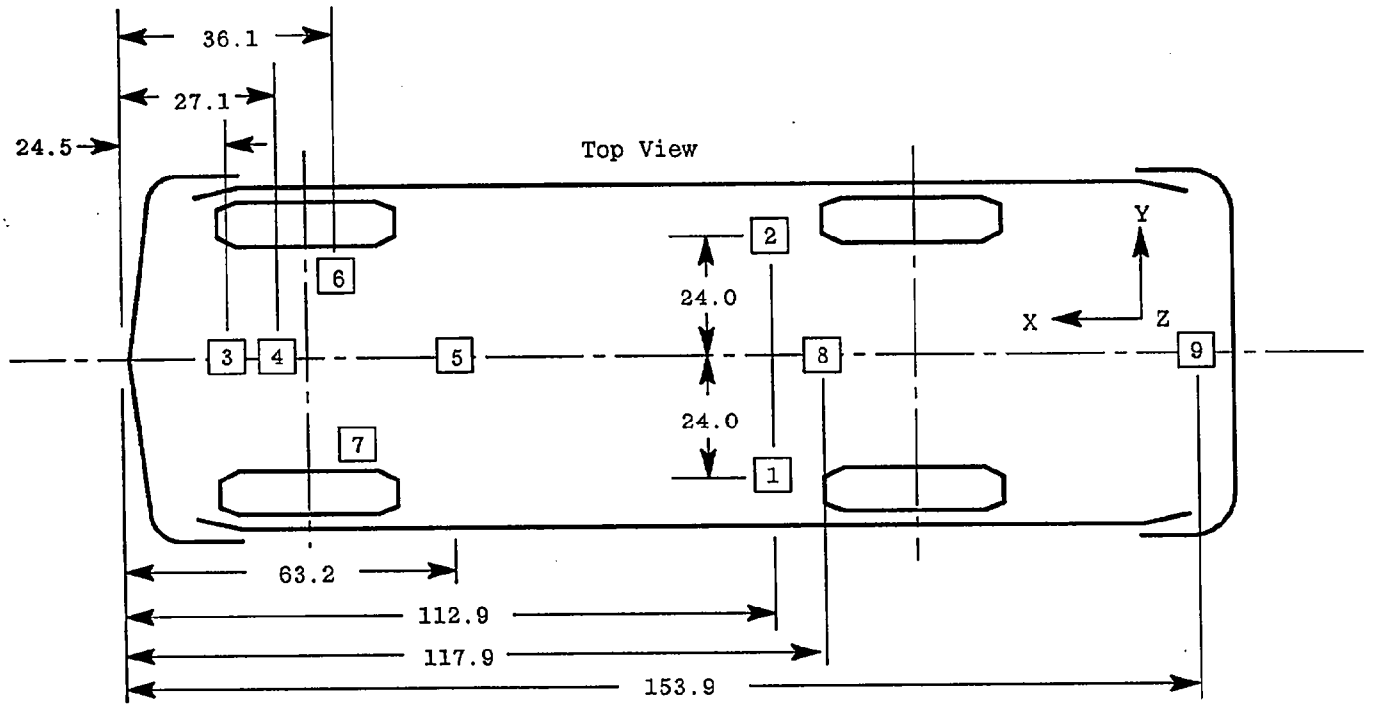
(1) Data from 36 individual load cells

(2) Total or Sum of 36 individual load cells

(3) Data from 6 Groupings shown above (6 cells/group)

Figure 8

VEHICLE ACCELEROMETER LOCATIONS

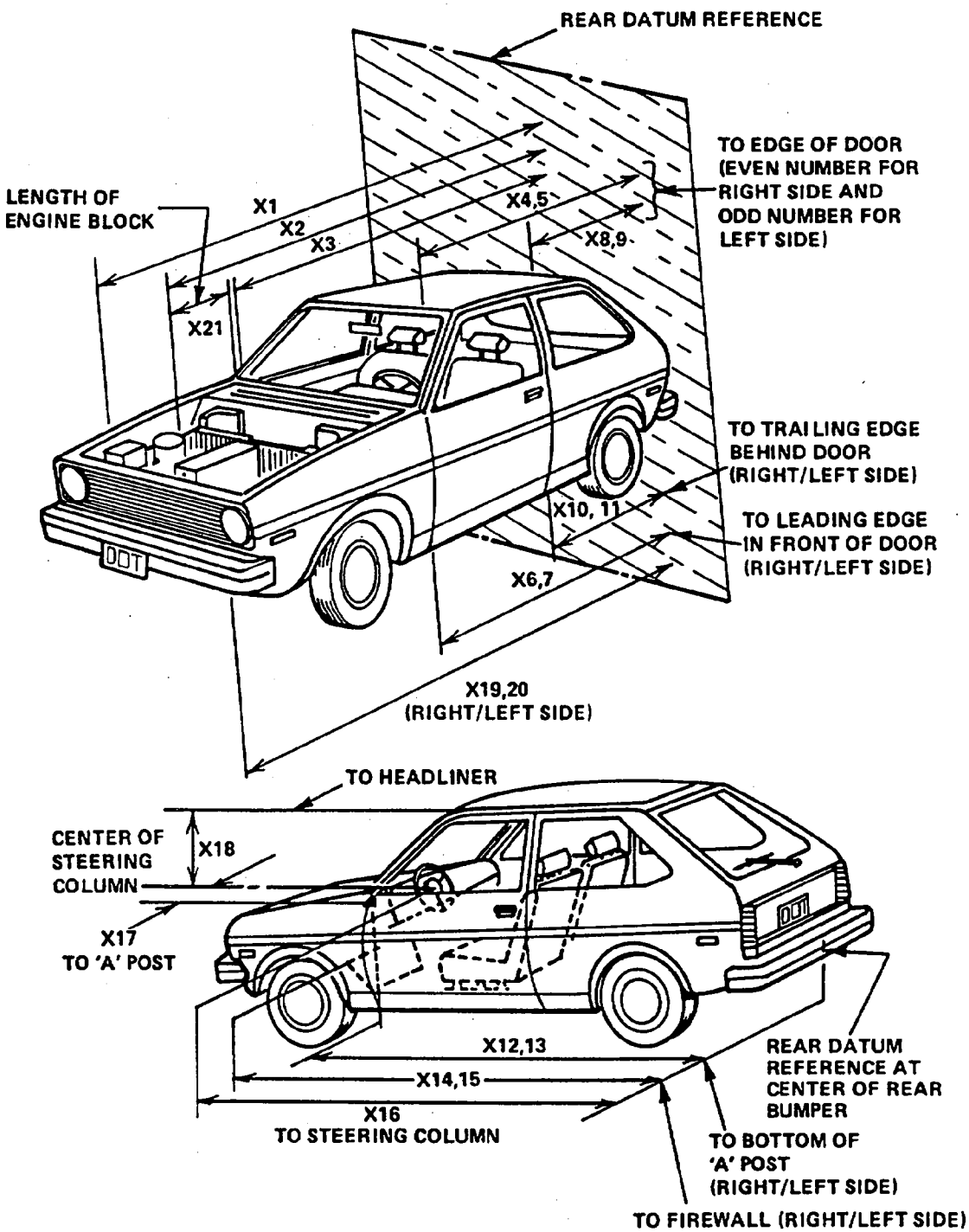


ACCELEROMETER NUMBER*	ACCELEROMETER LOCATION	DIRECTION		
		X	Y	Z
1	Left Rear Seat Crossmember	✓		
2	Right Rear Seat Crossmember	✓		
3	Top of Engine	✓		
4	Bottom of Engine	✓		
5	Right Disc Brake Caliper	✓		
6	Left Disc Brake Caliper	✓		
7	Instrument Panel	✓		
8	Rear Seat Crossmember			✓
9	Trunk Centerline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

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

Figure 9

TEST VEHICLE MEASUREMENTS



7978-4

Table 5

VEHICLE MEASUREMENTS

No.		All Dimensions in Inches		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	168.7	146.0	22.7
X2	Rear Surface of Vehicle to Front of Engine	147.2	139.1	8.1
X3	Rear Surface of Vehicle to Firewall	127.4	124.4	3.0
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	117.3	116.2	1.1
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	117.5	117.3	0.2
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	116.5	115.6	0.9
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	116.8	115.5	1.3
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	77.2	75.1	2.1
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	77.4	77.0	0.4
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	76.6	75.5	1.1
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	76.9	76.0	0.9
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	116.8	115.3	1.5
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	117.4	115.9	1.5
X14	Rear Surface of Vehicle to Firewall, Right Side	125.4	126.6	-1.2
X15	Rear Surface of Vehicle to Firewall, Left Side	125.4	126.1	-0.7
X16	Rear Surface of Vehicle to Steering Column	99.8	98.6	1.2
X17	Center of Steering Column to "A" Post	16.2	15.8	0.4
X18	Center of Steering Column to Headliner	18.0	17.4	0.6
X19	Rear Surface of Vehicle to Right Side of Front Bumper	165.5	144.5	21.0
X20	Rear Surface of Vehicle to Left Side of Front Bumper	165.8	145.7	20.1
X21	Length of Engine Block	16.8	16.8	0.0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	107.0	106.2	0.8
CD	Rear Surface of Vehicle to Center of Dash Panel	105.8	104.5	1.3
LD	Rear Surface of Vehicle to Left Side of Dash Panel	107.5	106.5	1.0

Appendix A

PHOTOGRAPHS

PHOTOGRAPHS

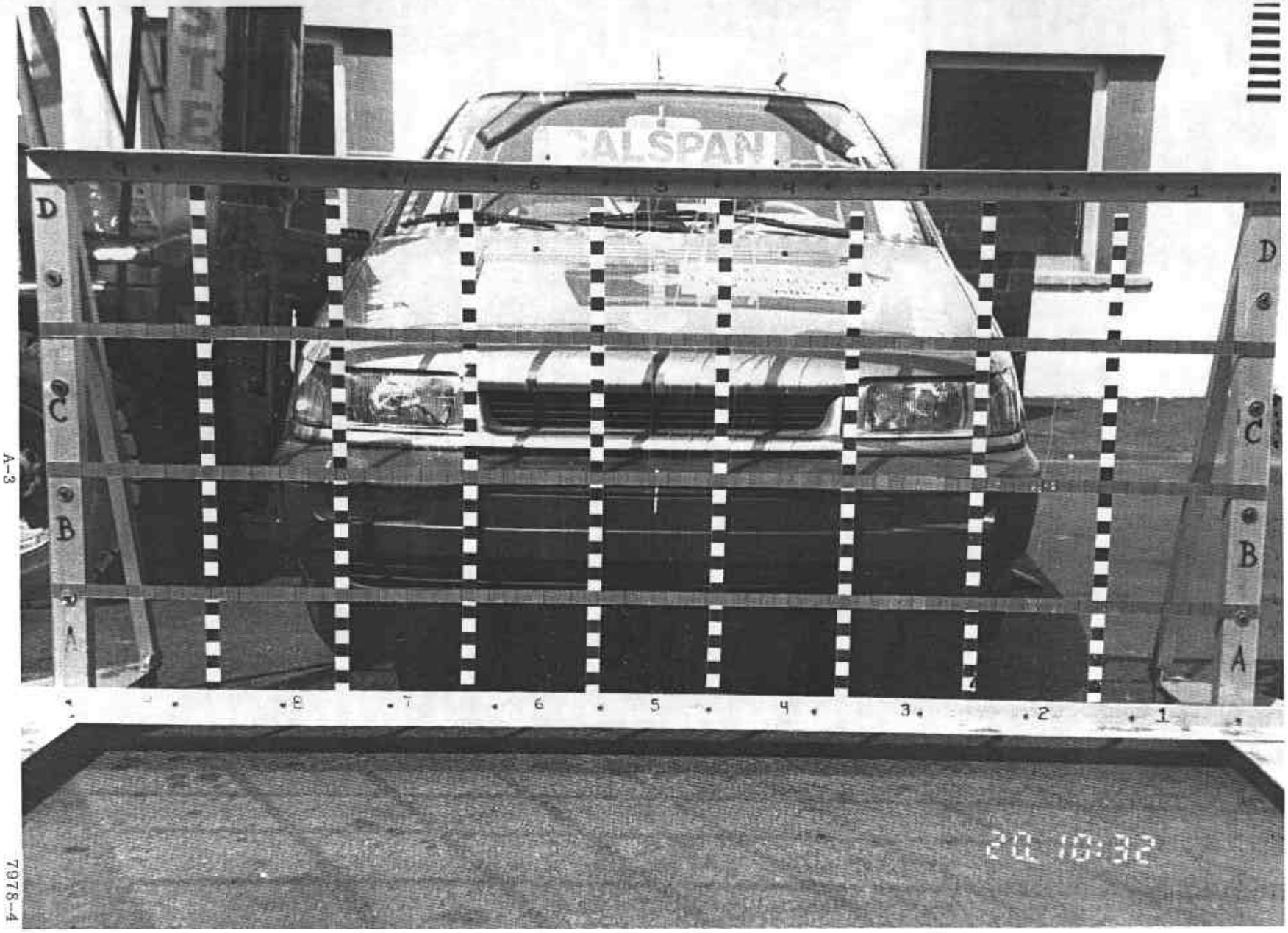


Figure A-1 LOAD CELL LOCATIONS

7978-4

Figure A-2 PRE-TEST FRONT VIEW

Figure A-3 POST TEST FRONT VIEW

Figure A-4 PRE-TEST LEFT SIDE VIEW

7978-4

Figure A-5 POST TEST LEFT SIDE VIEW

7978-4

Figure A-6 PRE-TEST RIGHT SIDE VIEW

7978-4

Figure A-7 POST-TEST RIGHT SIDE VIEW

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

7978-4

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

7978-4

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

7978-4

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

7978-4

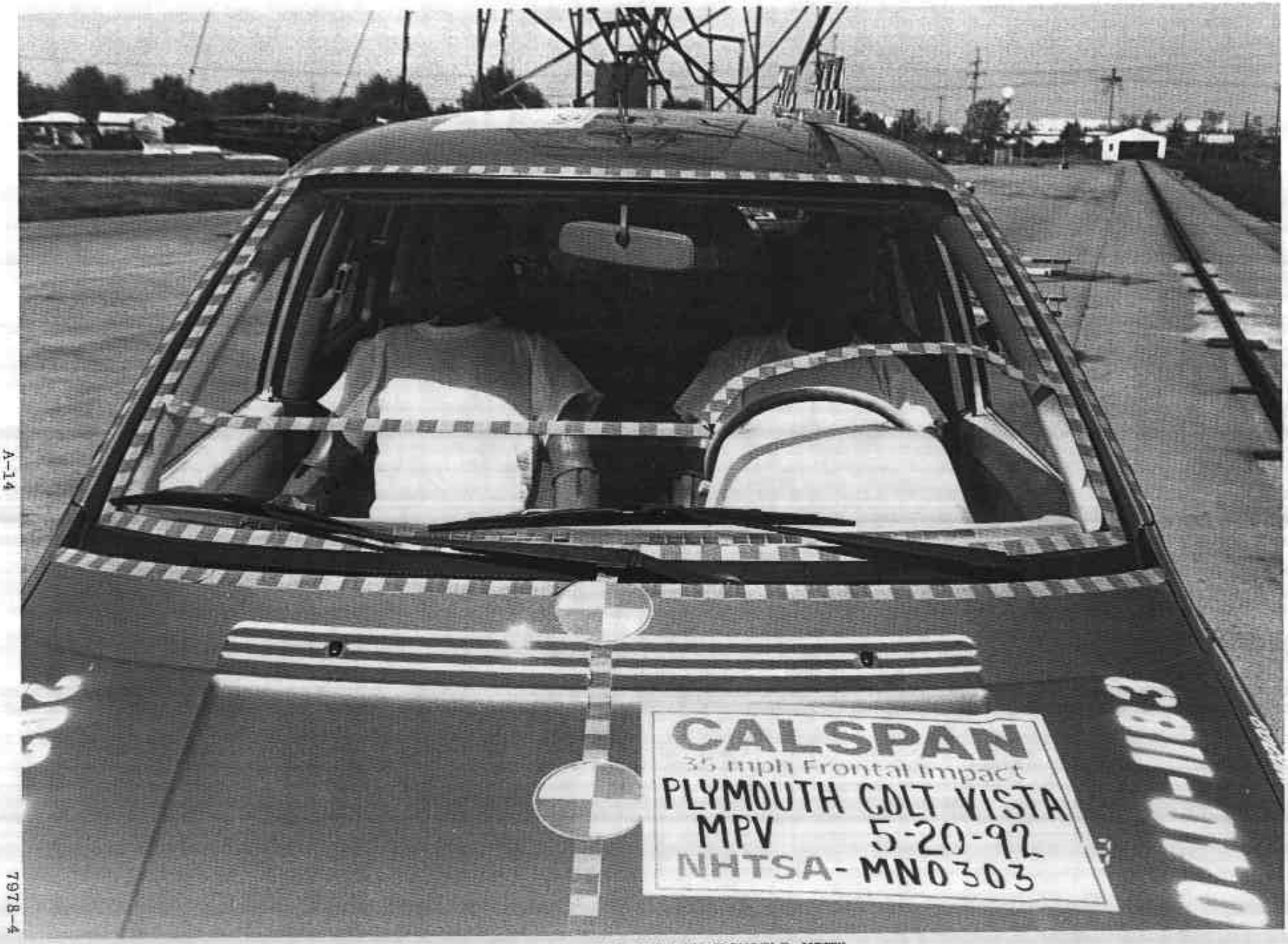


Figure A-12 PRE-TEST WINDSHIELD VIEW

7978-4

Figure A-13 POST-TEST WINDSHIELD VIEW

7978-4

Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

7978-4

Figure A-15 FUEL CAP VIEW

7978-4

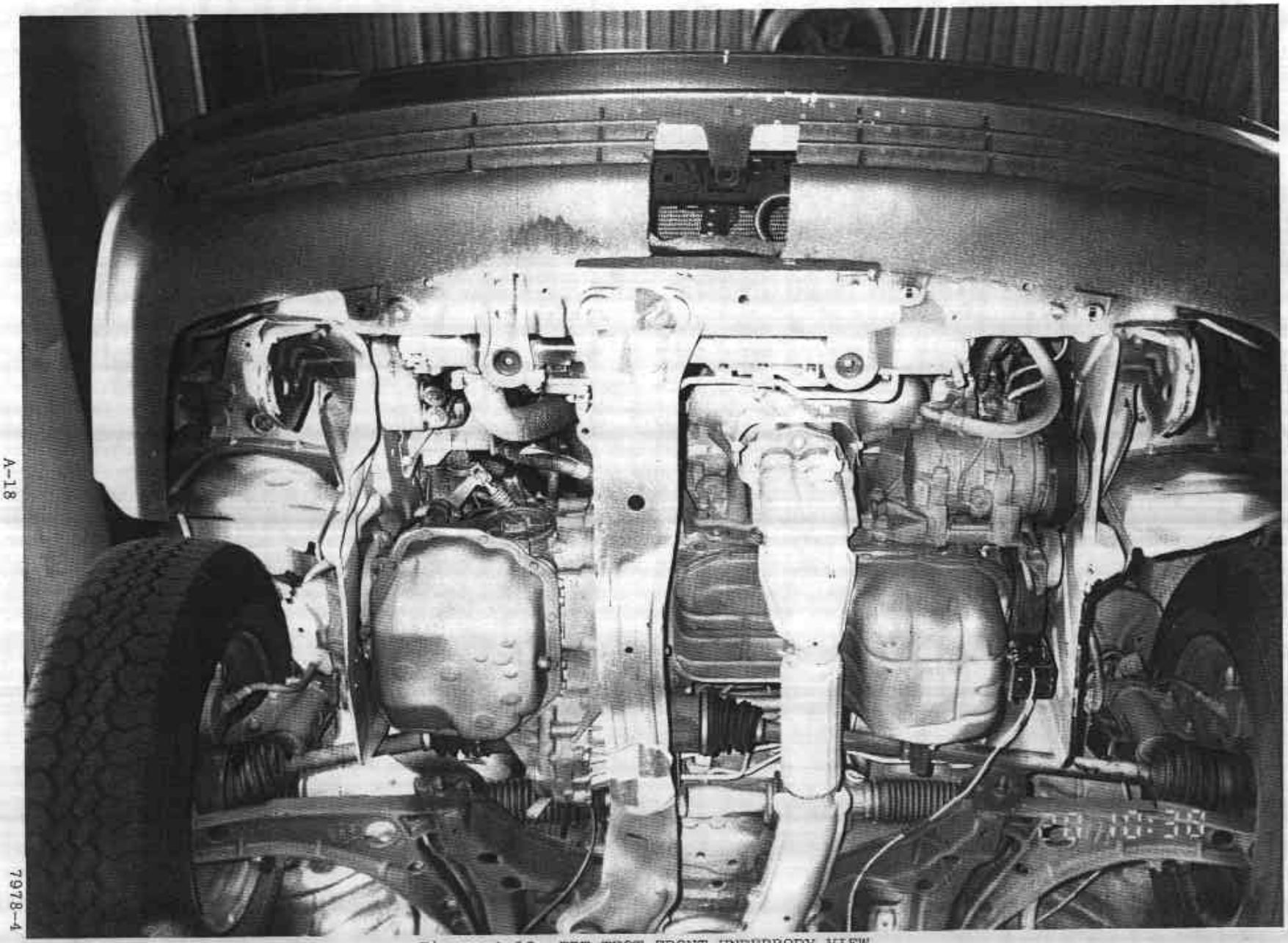


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

7978-4

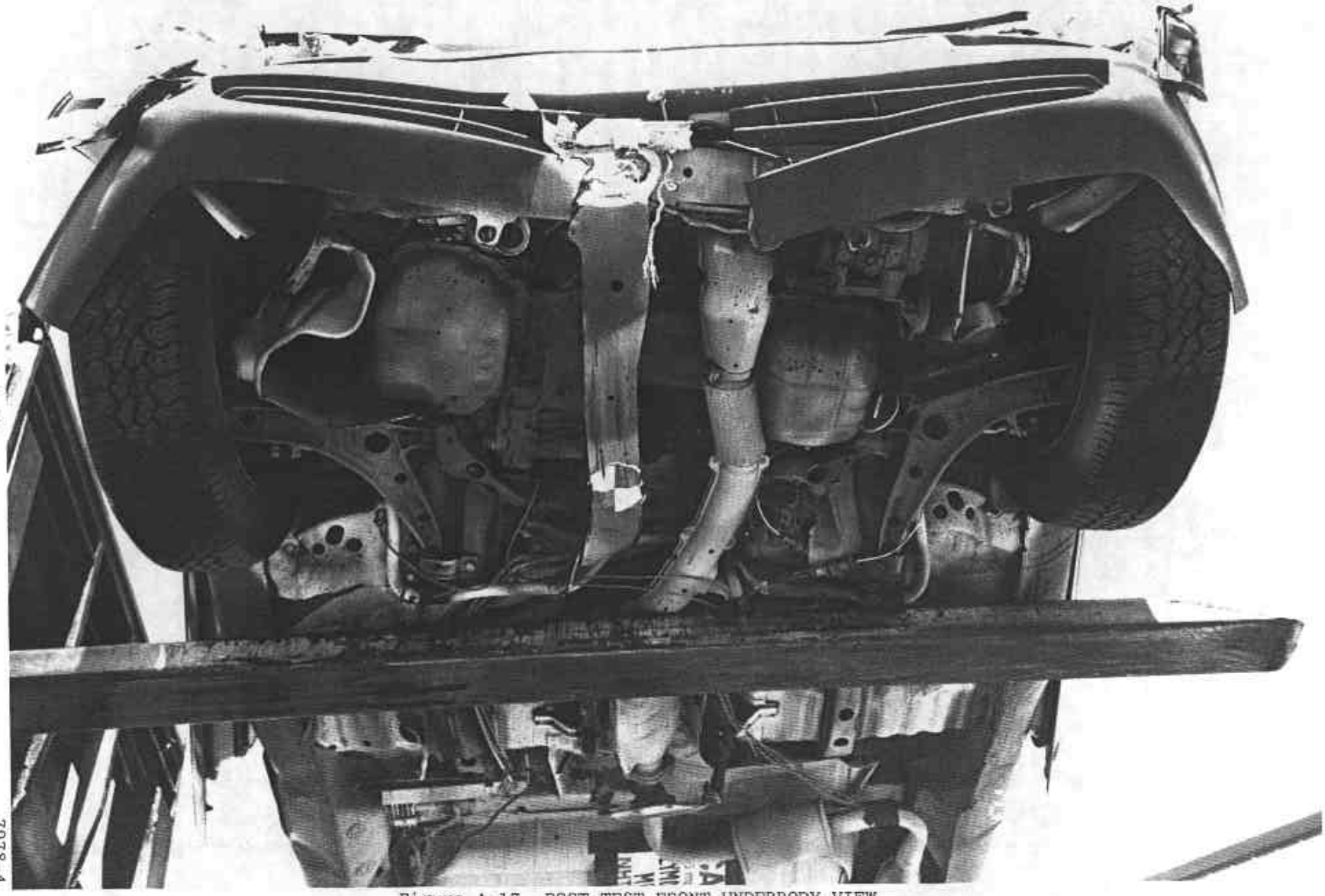


Figure A-17 POST-TEST FRONT UNDERBODY VIEW

7978-4

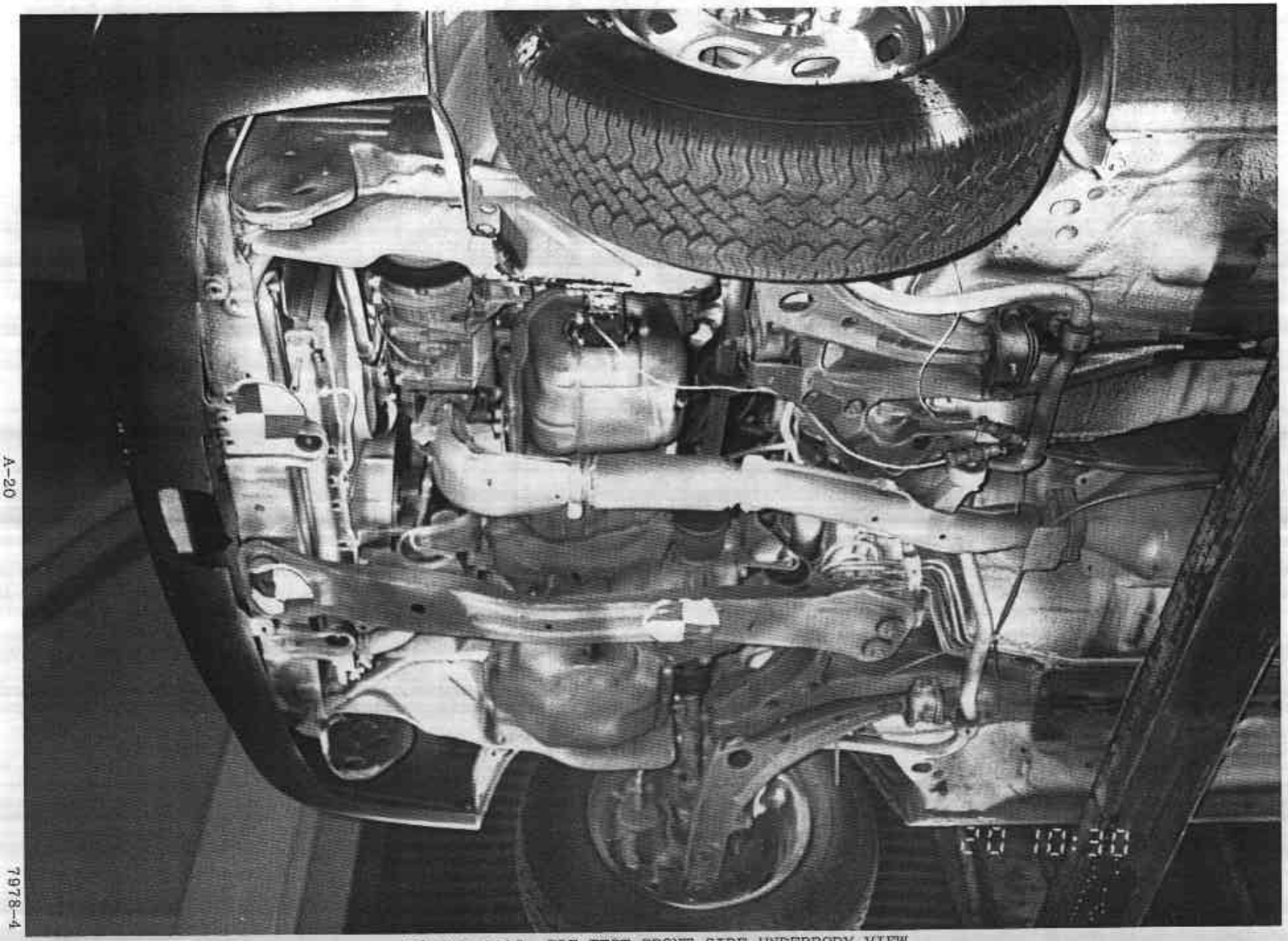


Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW

7978-4

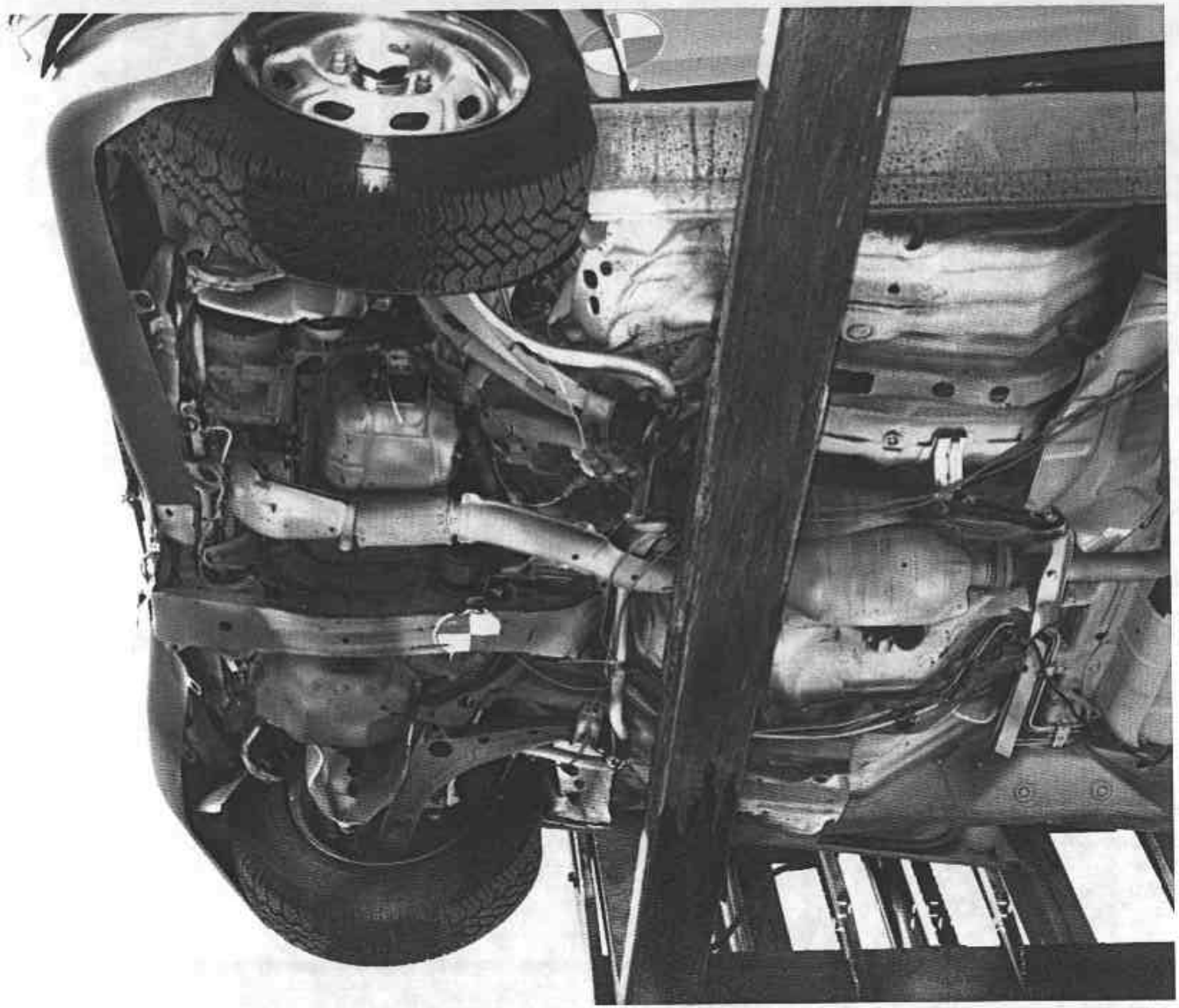


Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

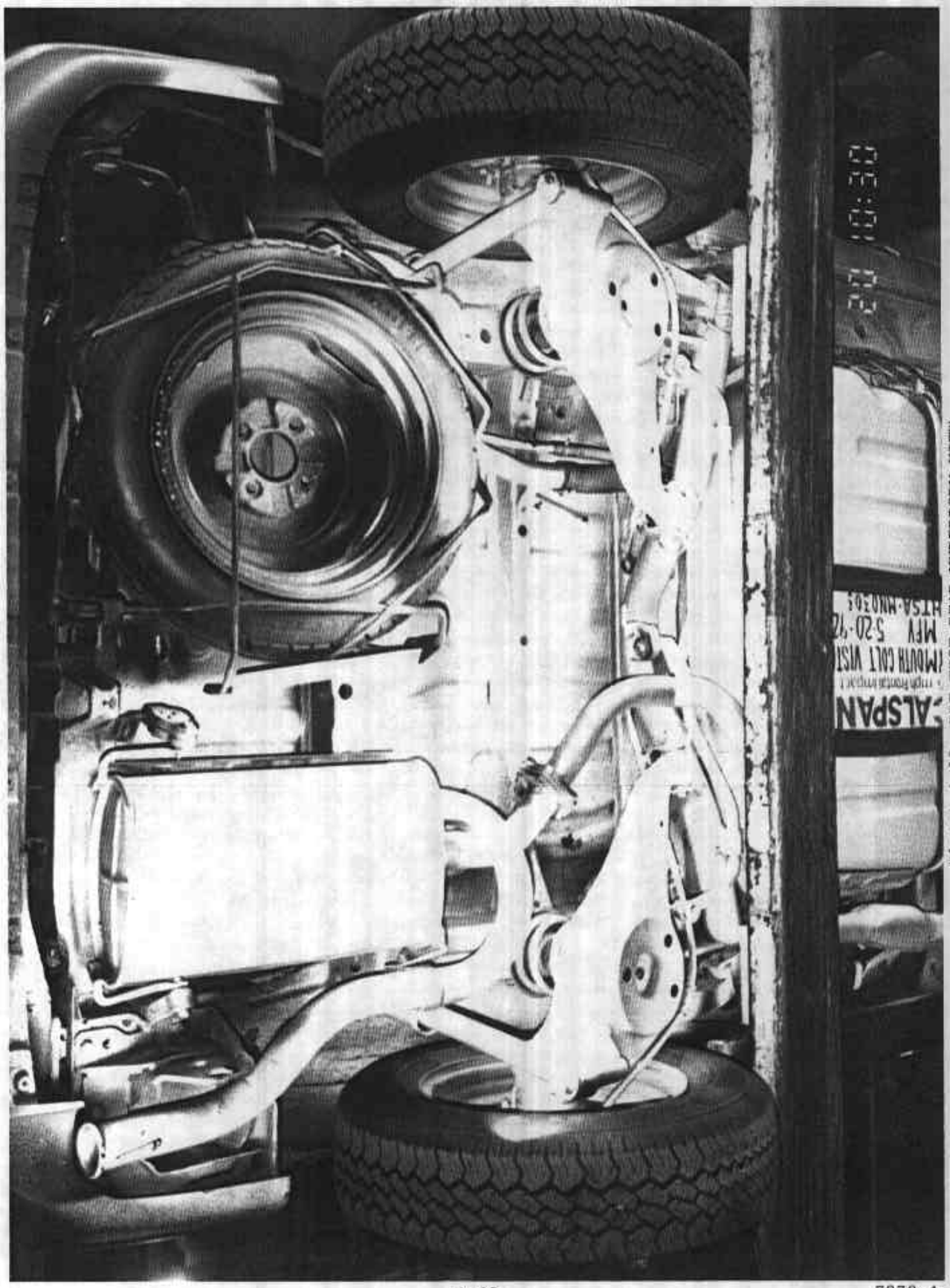


Figure A-20 PRE-TEST REAR UNDERBODY VIEW

7978-4

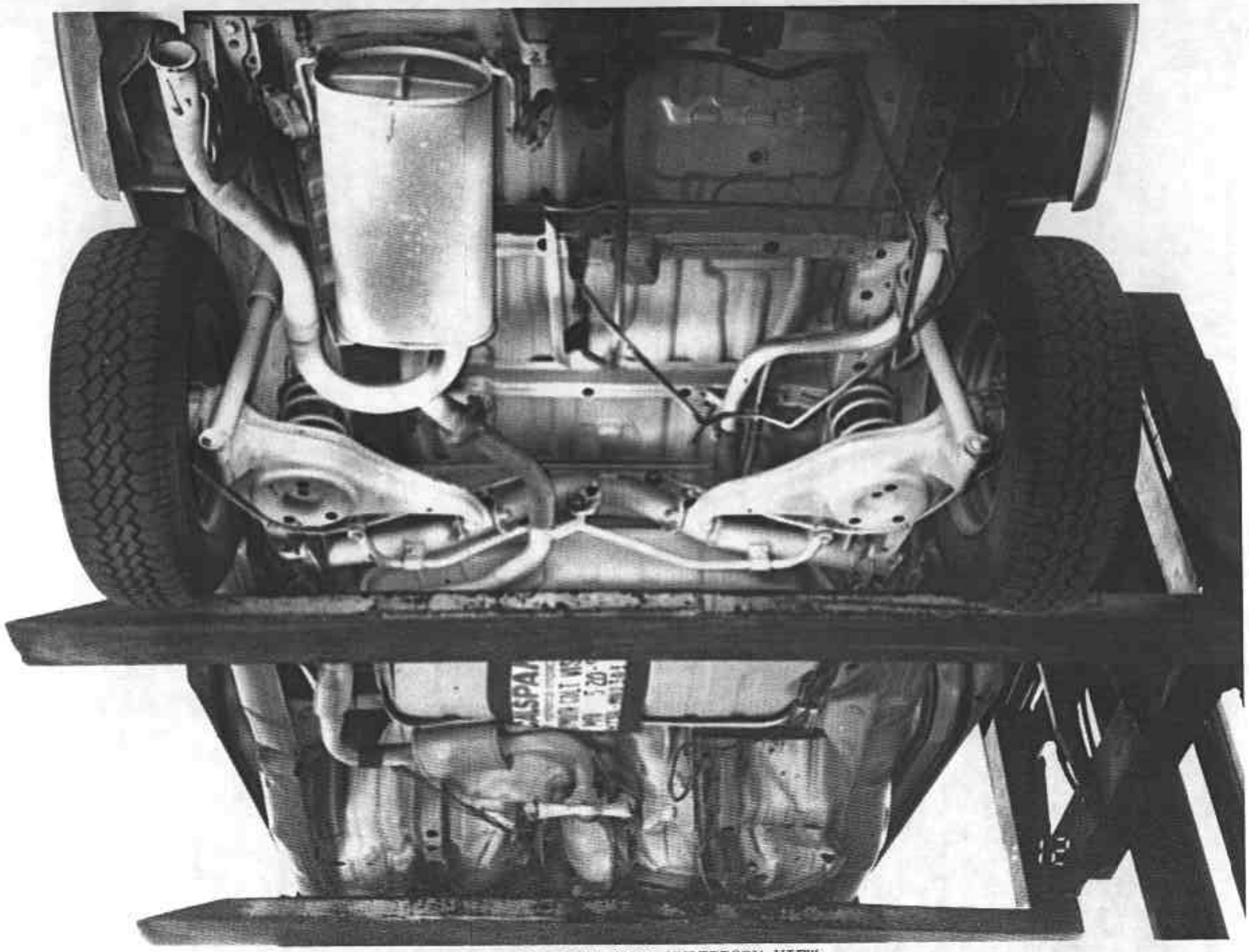


Figure A-21 POST-TEST REAR UNDERBODY VIEW

Figure A-22 PRE-TEST DRIVER POSITION VIEW

7978-4

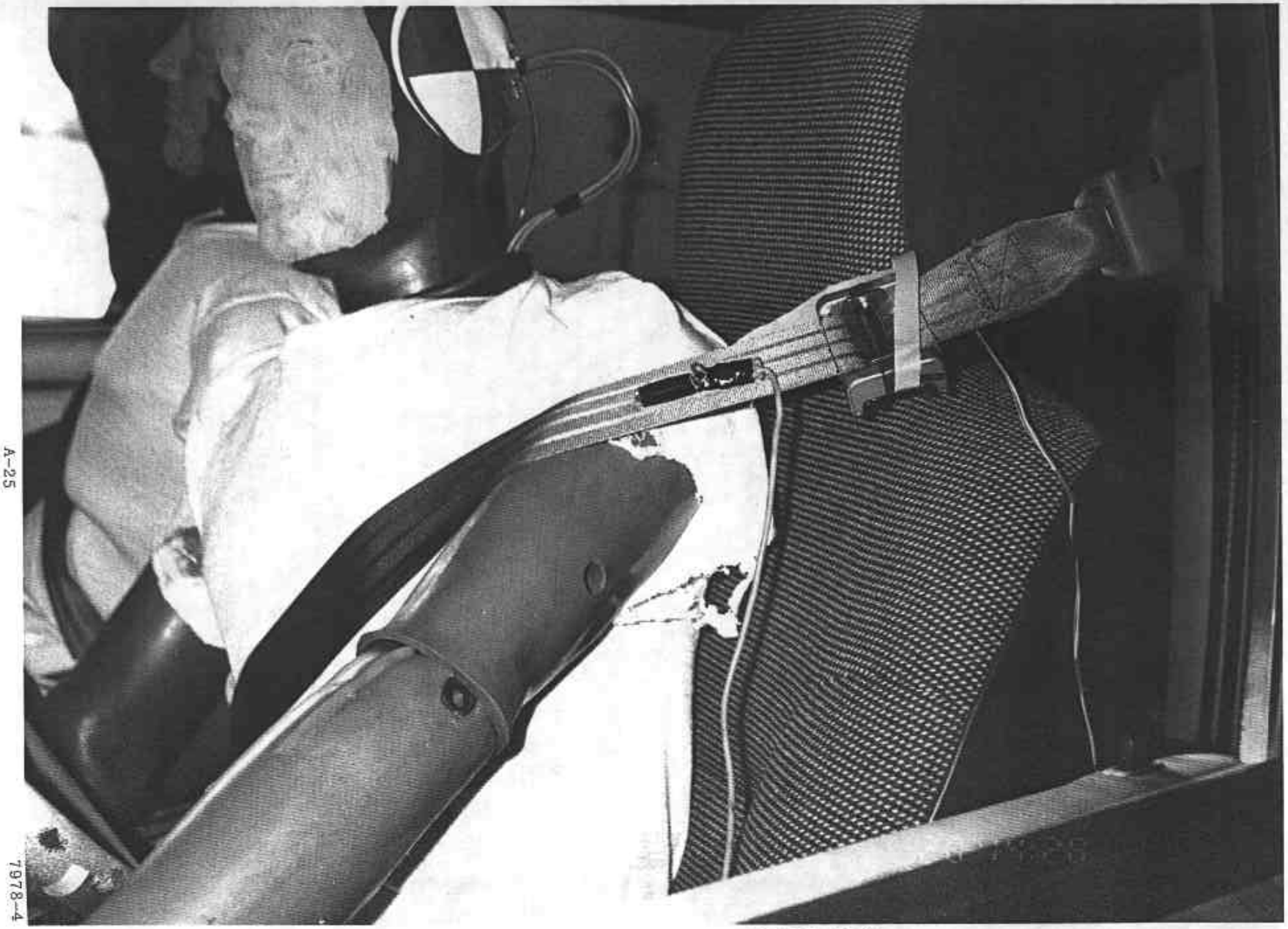


Figure A-23 POST-TEST DRIVER POSITION VIEW

7978-4

Figure A-24 PRE-TEST PASSENGER POSITION VIEW

7978-4

Figure A-25 POST-TEST PASSENGER POSITION VIEW

7978-4

Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

7978-4

Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW

7978-4

Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW

7978-4

Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

7978-4

Figure A-30 IMPACT VIEW

7978-4

Appendix B

VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA

TEST NO. MN0303

VEHICLE DATA

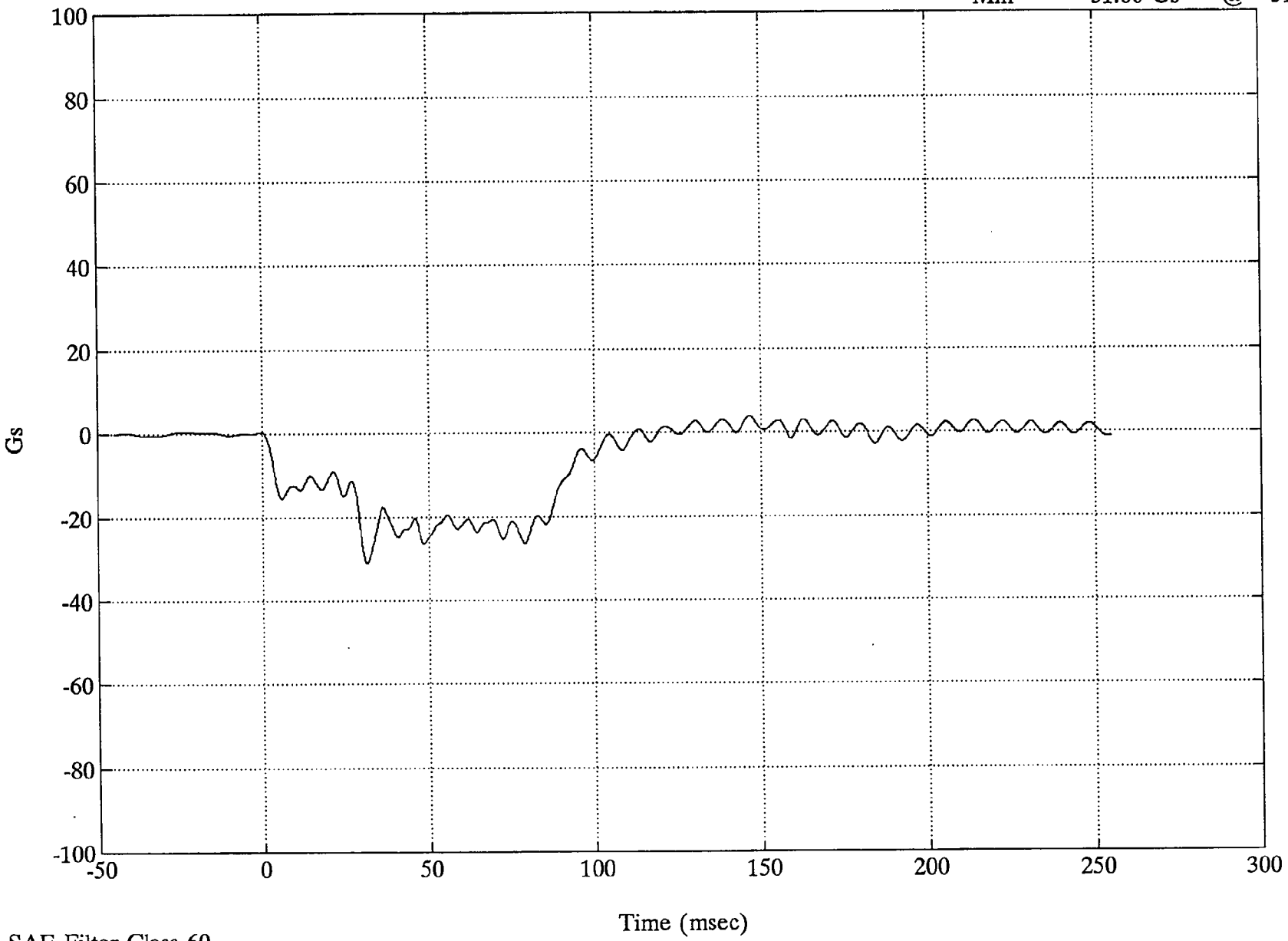
FILTER CHANNEL CLASS

60

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #1(x)

Max = 3.87 Gs @ 146.52 msec
Min = -31.00 Gs @ 31.07 msec



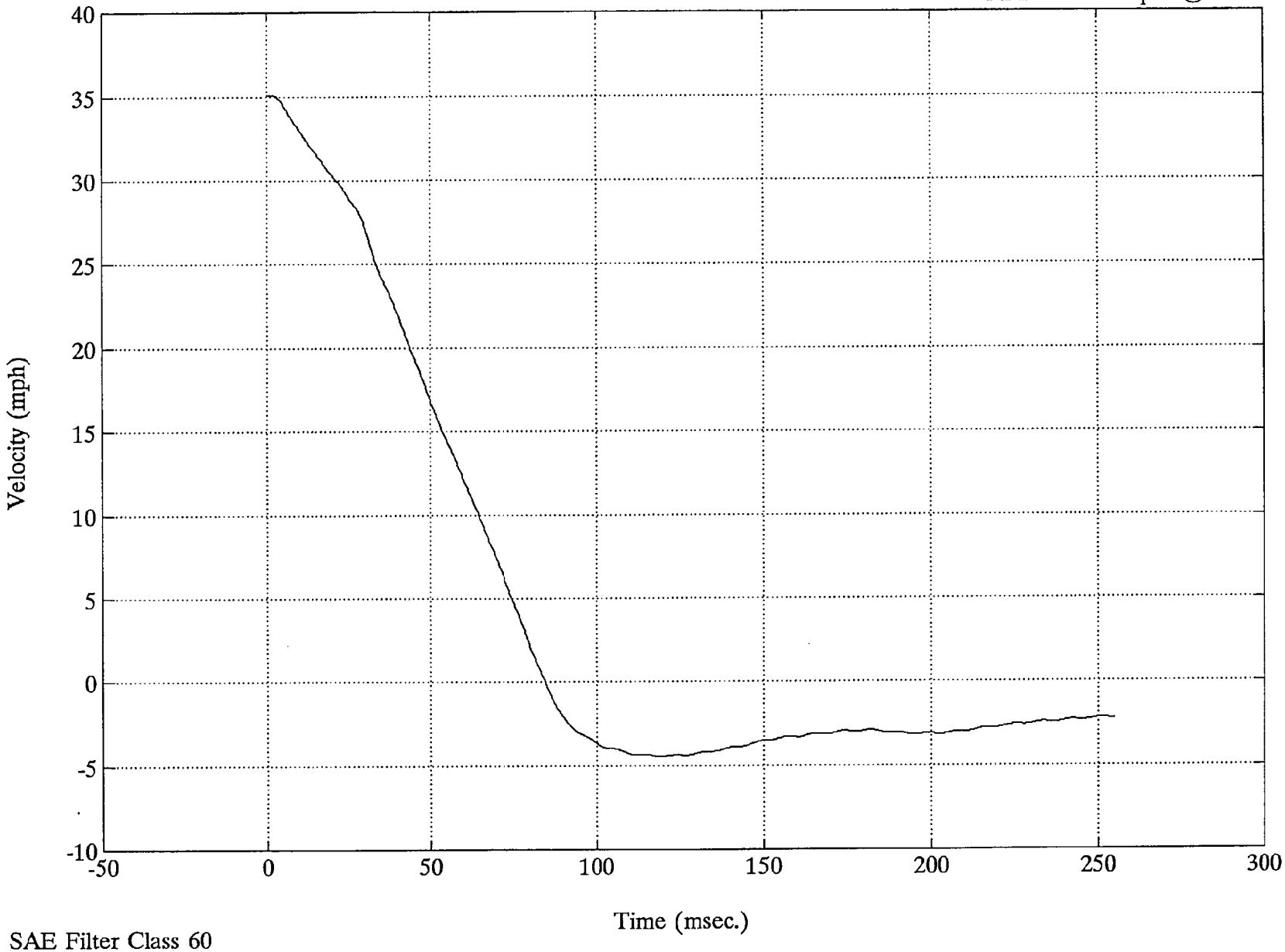
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #1(x)

Max = 35.10 mph @ 0.96 msec
Min = -4.46 mph @ 119.04 msec



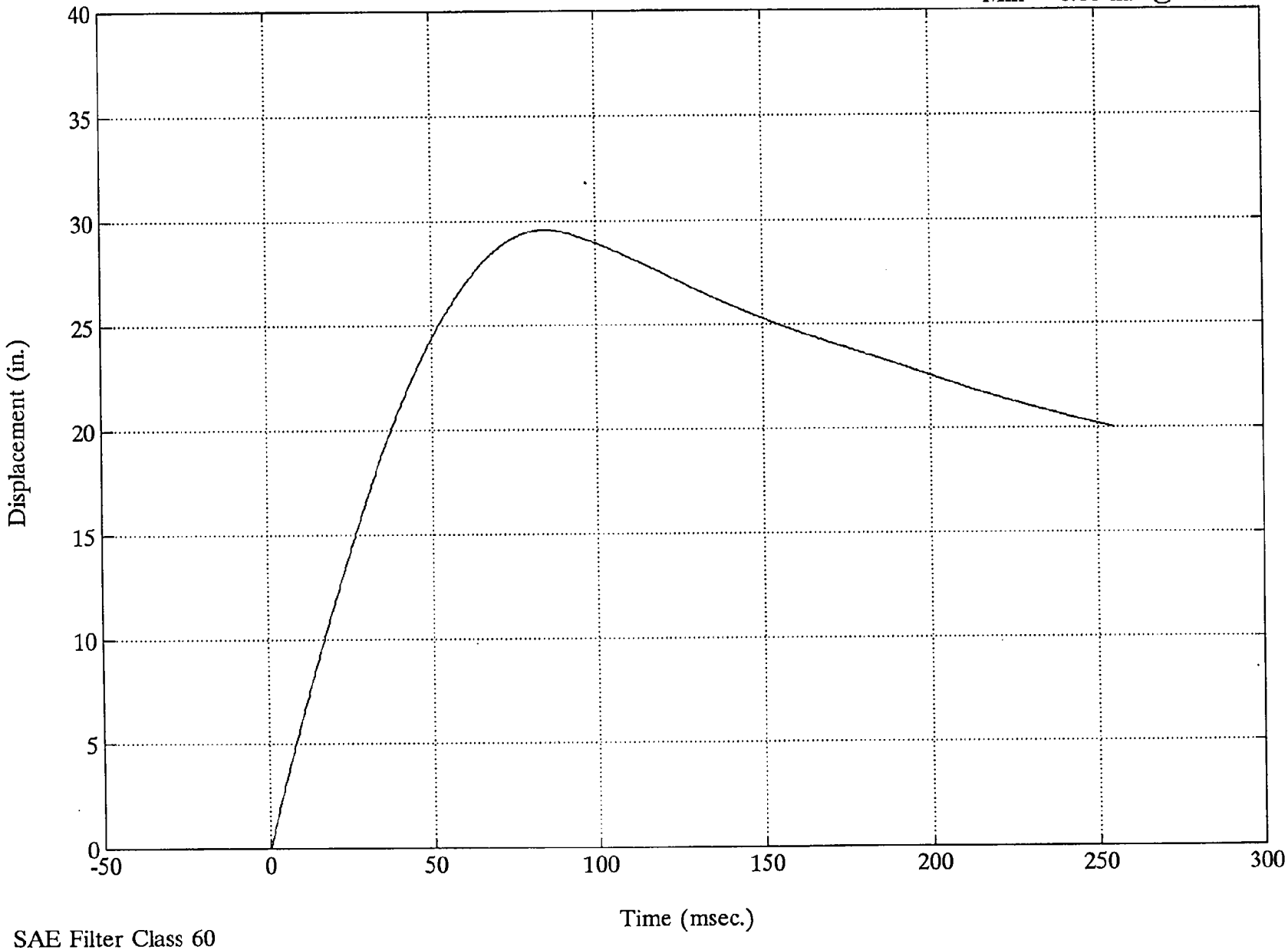
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #1(x)

Max = 29.57 in. @ 85.68 msec
Min = 0.00 in. @ -0.00 msec



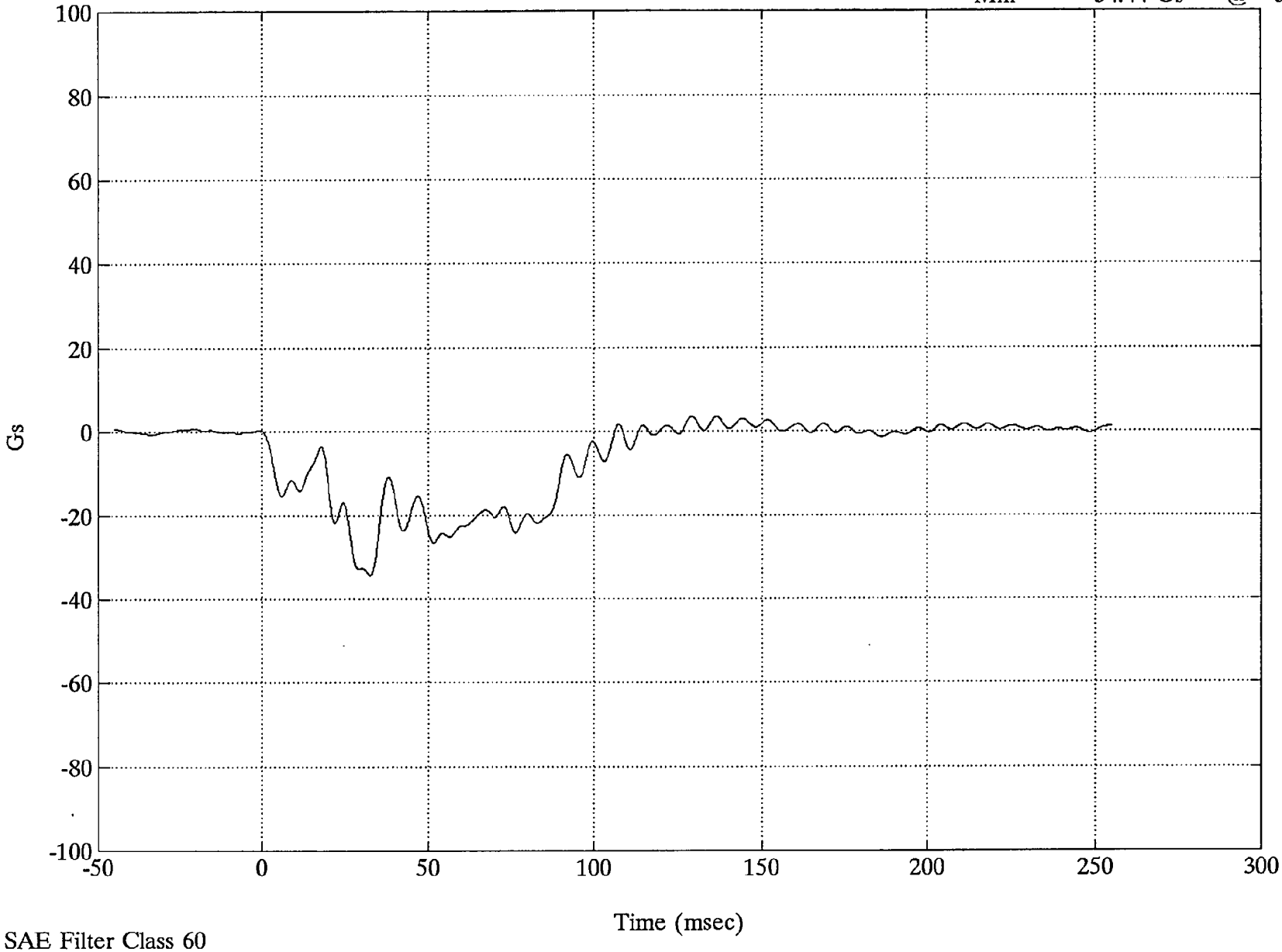
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #2(x)

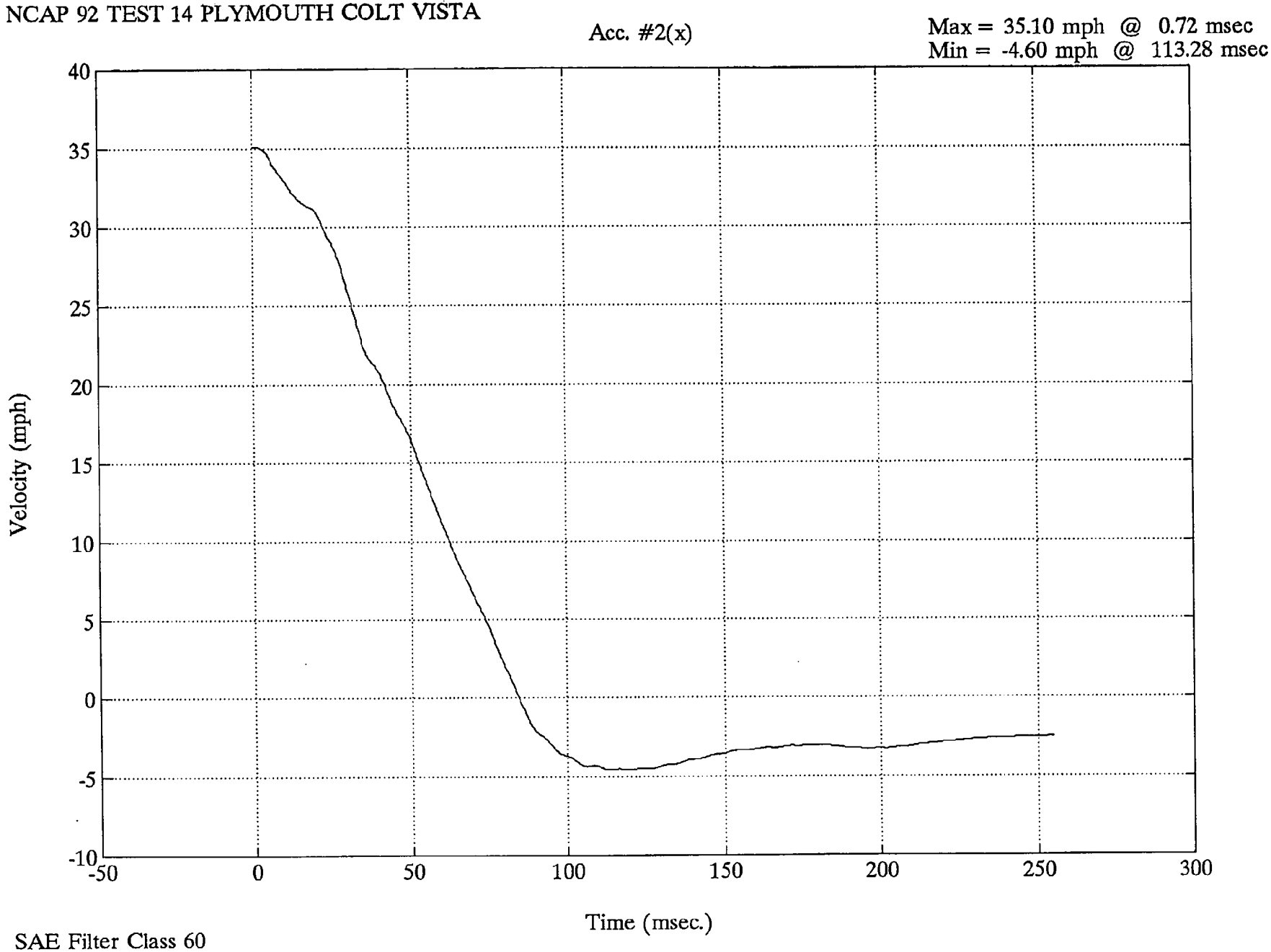
Max = 3.54 Gs @ 129.24 msec
Min = -34.44 Gs @ 32.63 msec



SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA



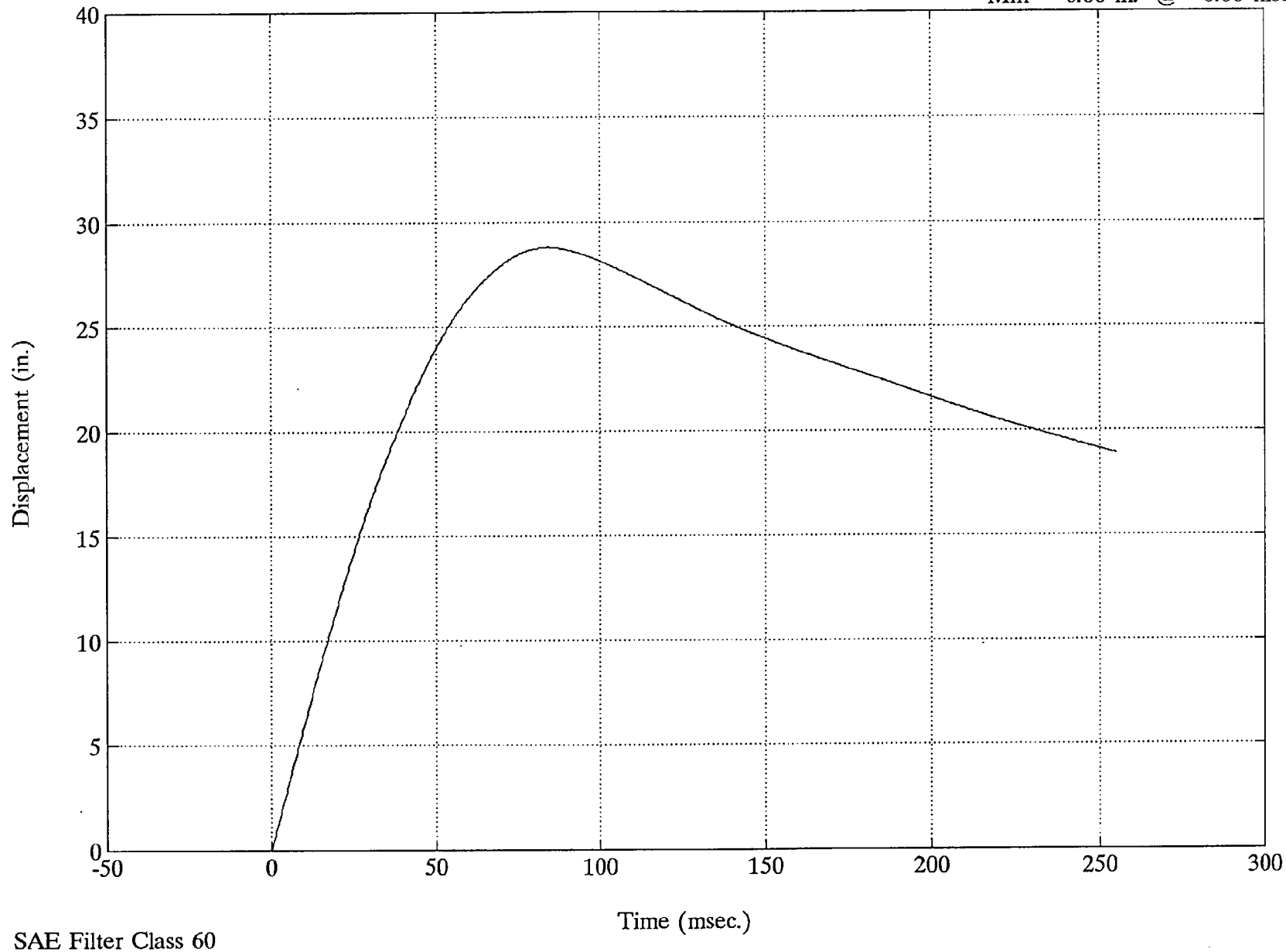
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #2(x)

Max = 28.80 in. @ 84.72 msec
Min = 0.00 in. @ -0.00 msec



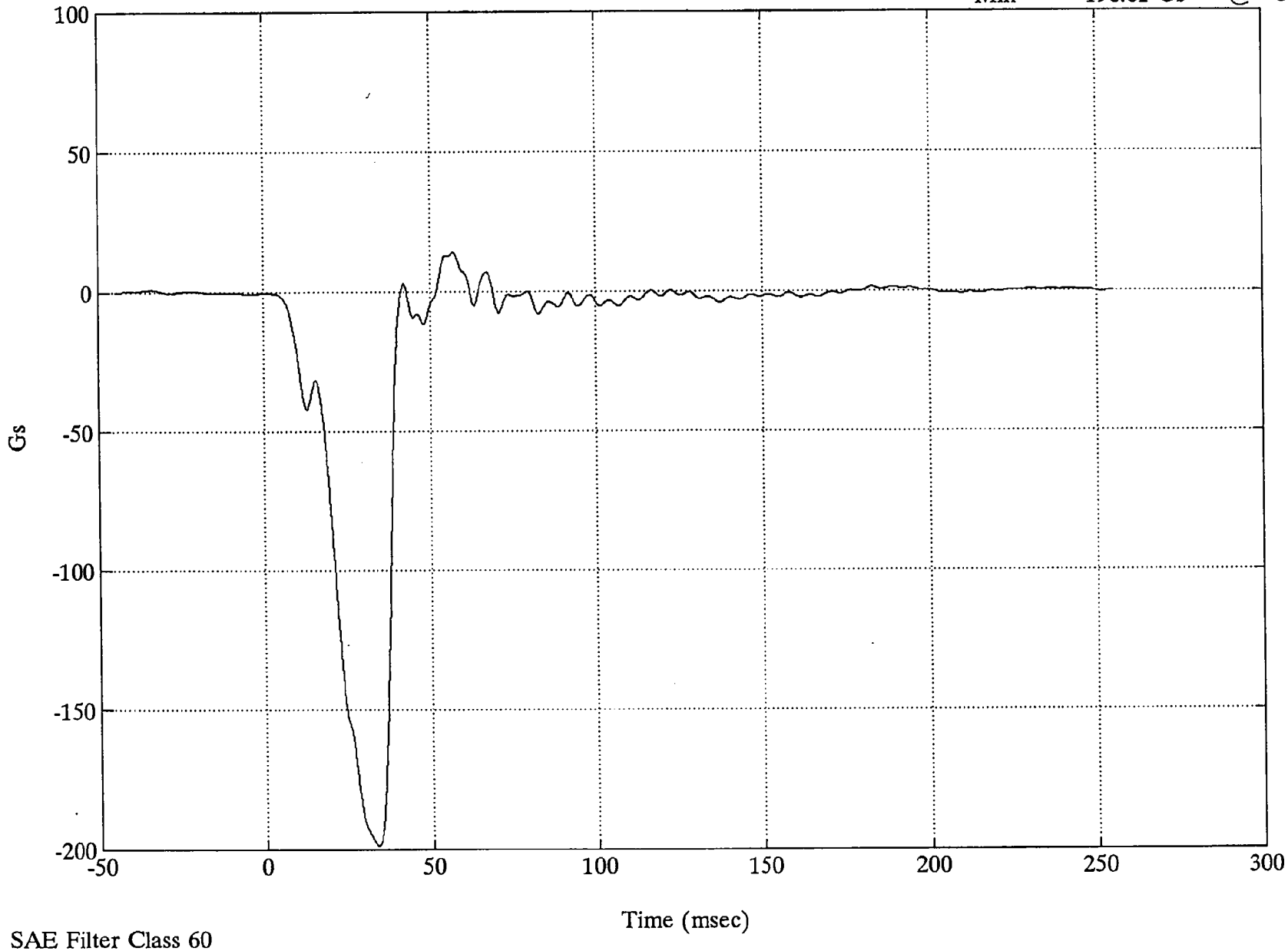
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #3(x)

Max = 14.13 Gs @ 57.00 msec
Min = -198.61 Gs @ 33.36 msec



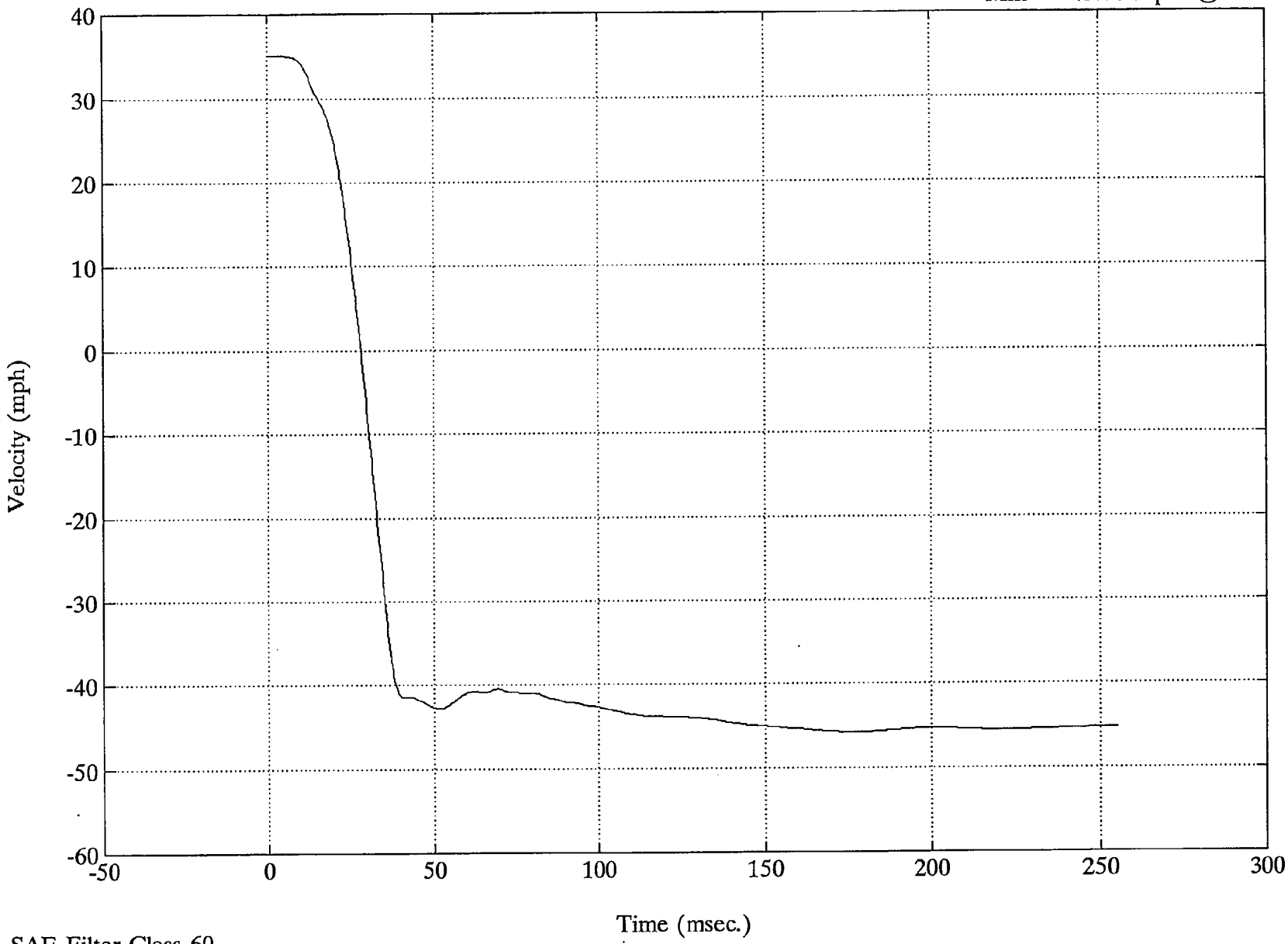
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #3(x)

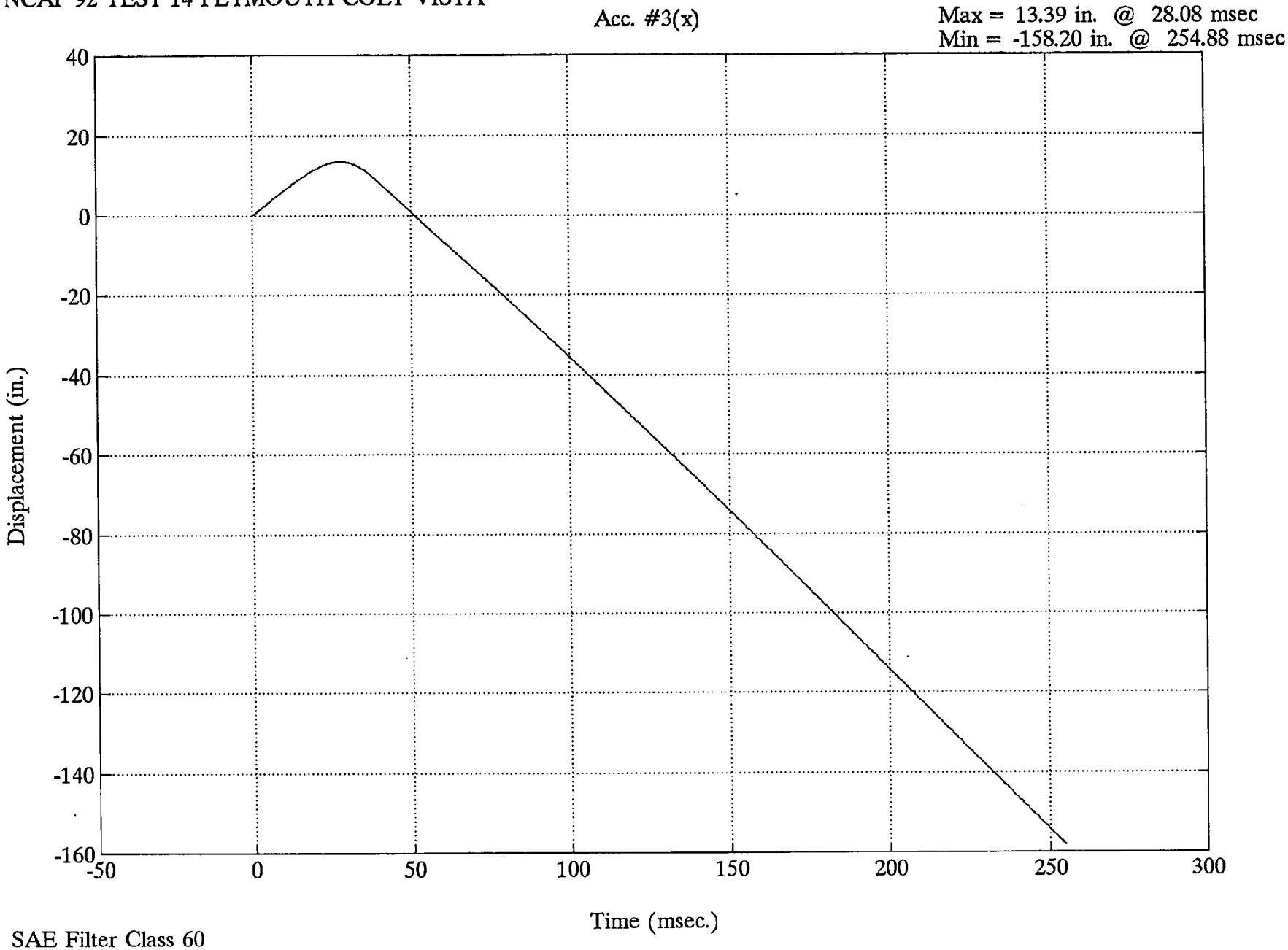
Max = 35.10 mph @ 0.48 msec
Min = -45.78 mph @ 175.92 msec



SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA



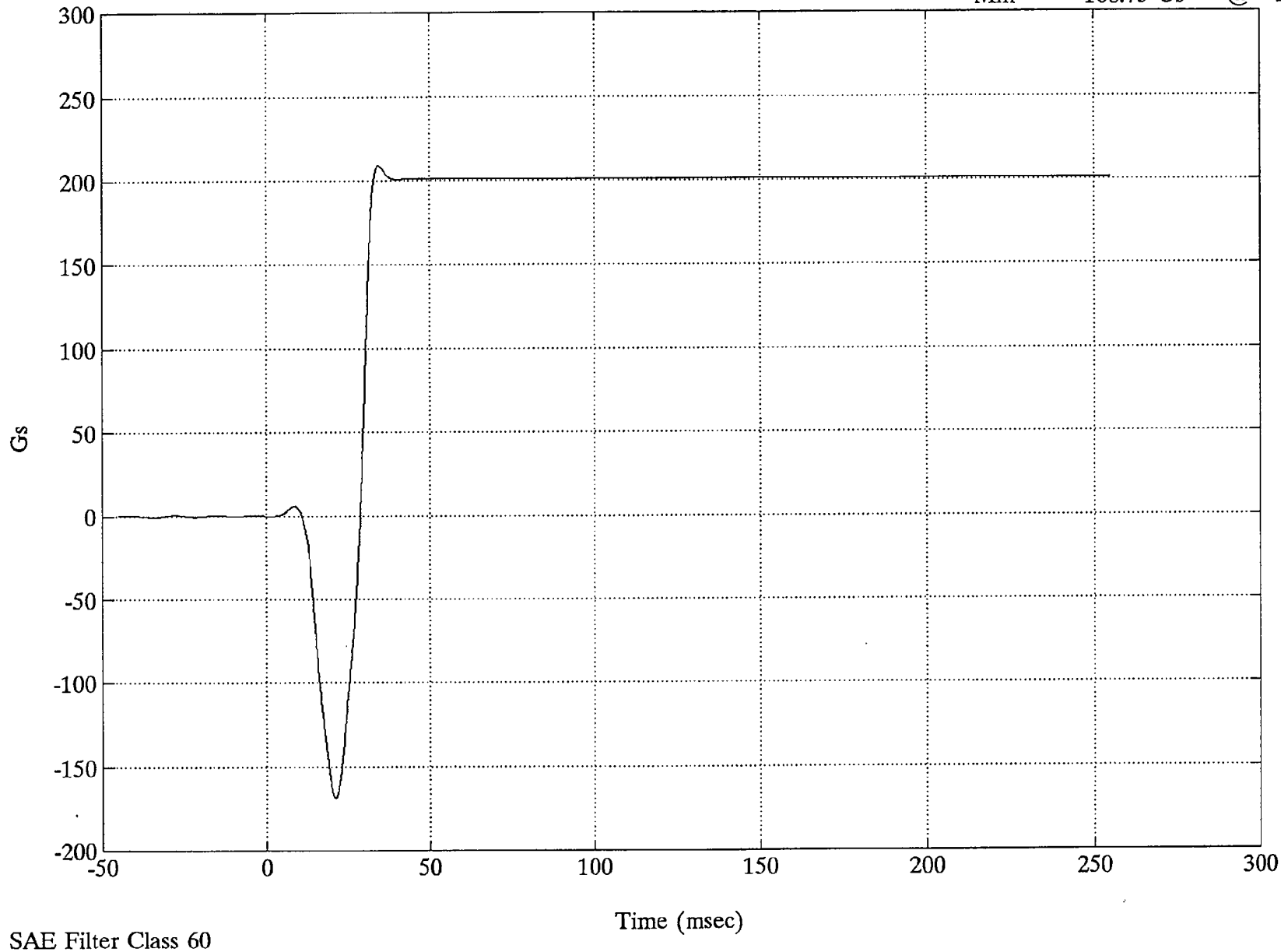
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #4(x)

Max = 208.84 Gs @ 33.95 msec
Min = -168.73 Gs @ 20.63 msec



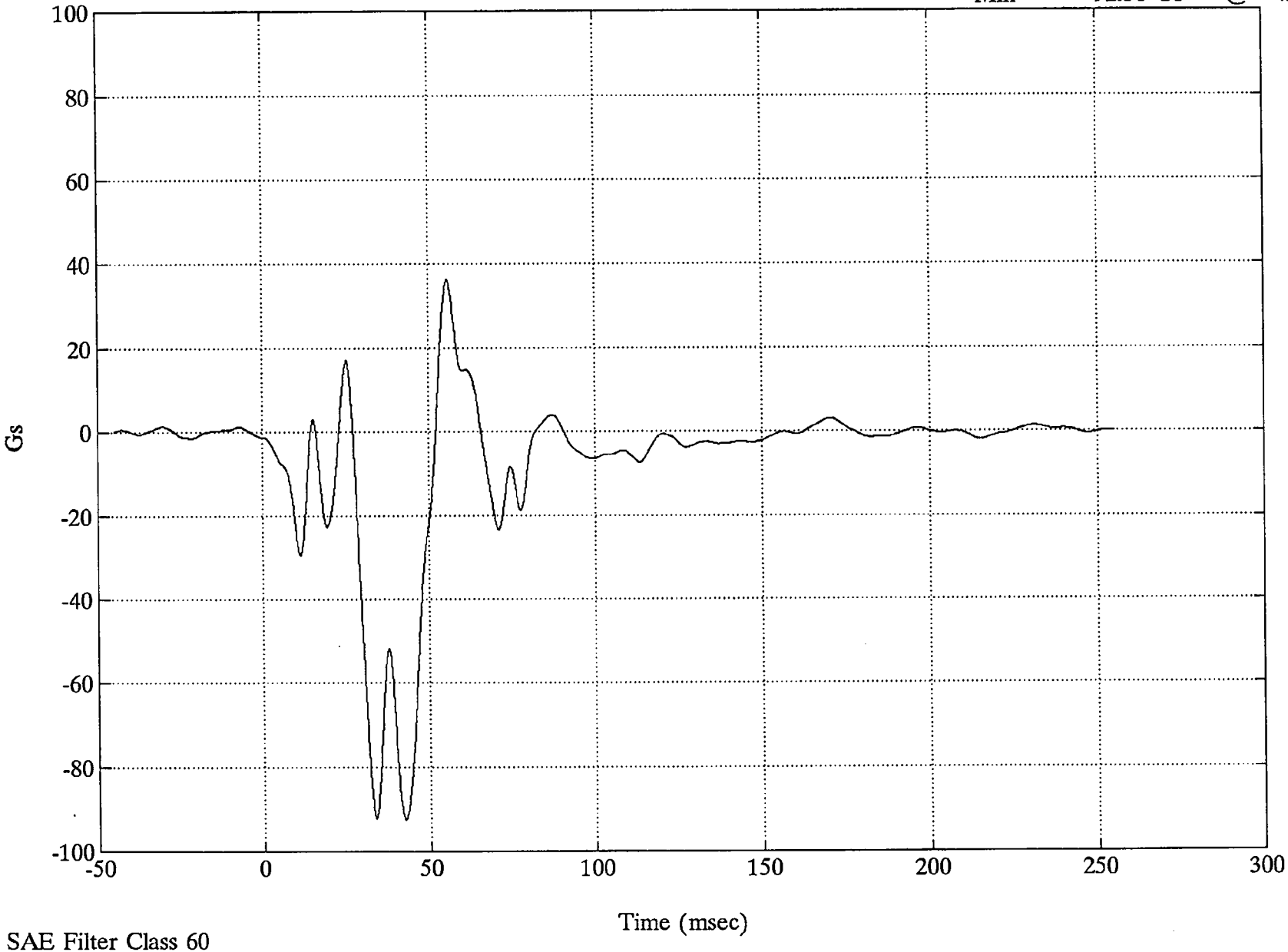
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #5(x)

Max = 36.28 Gs @ 55.68 msec
Min = -92.50 Gs @ 42.47 msec



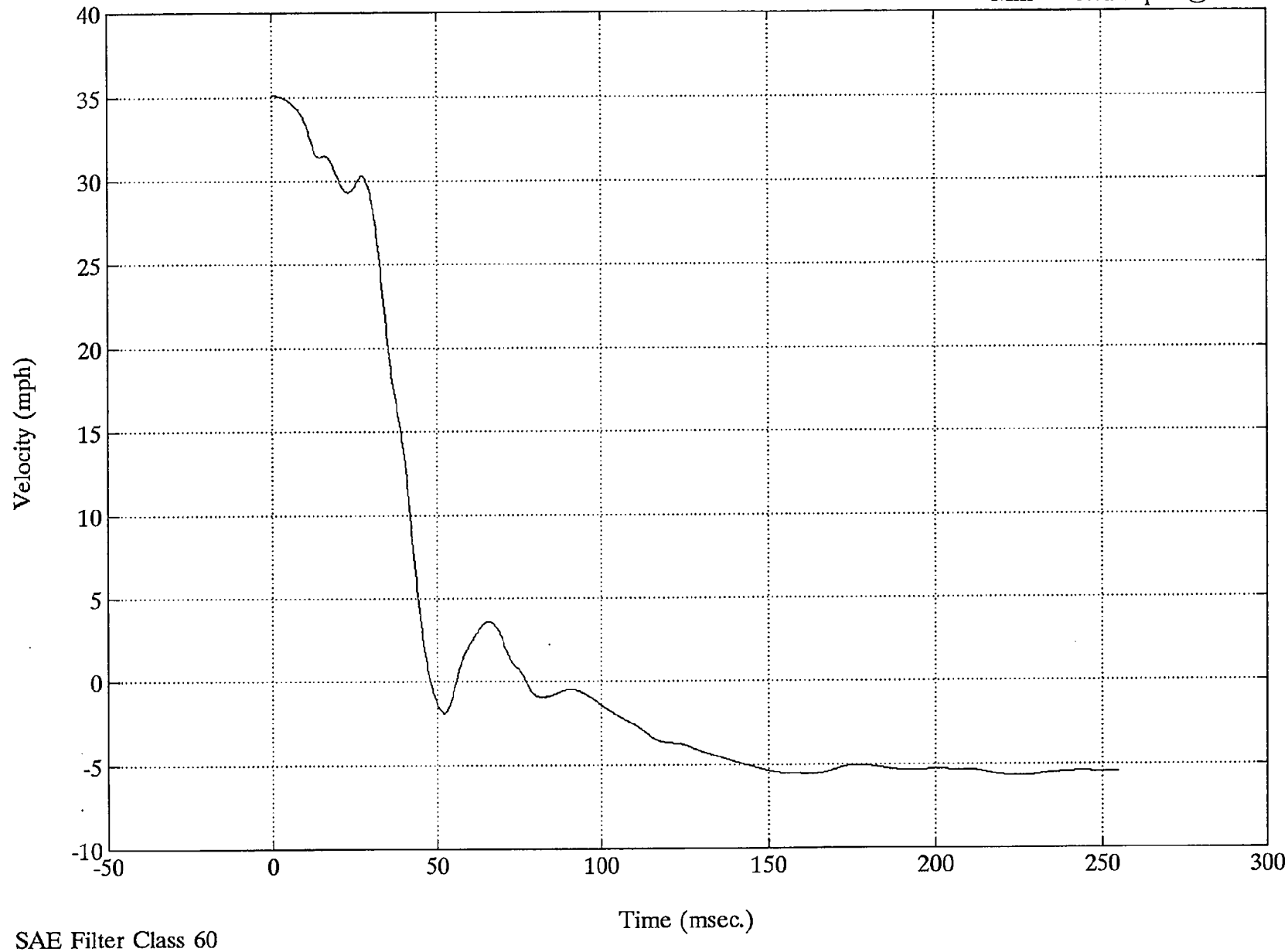
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #5(x)

Max = 35.10 mph @ -0.00 msec
Min = -5.71 mph @ 225.12 msec



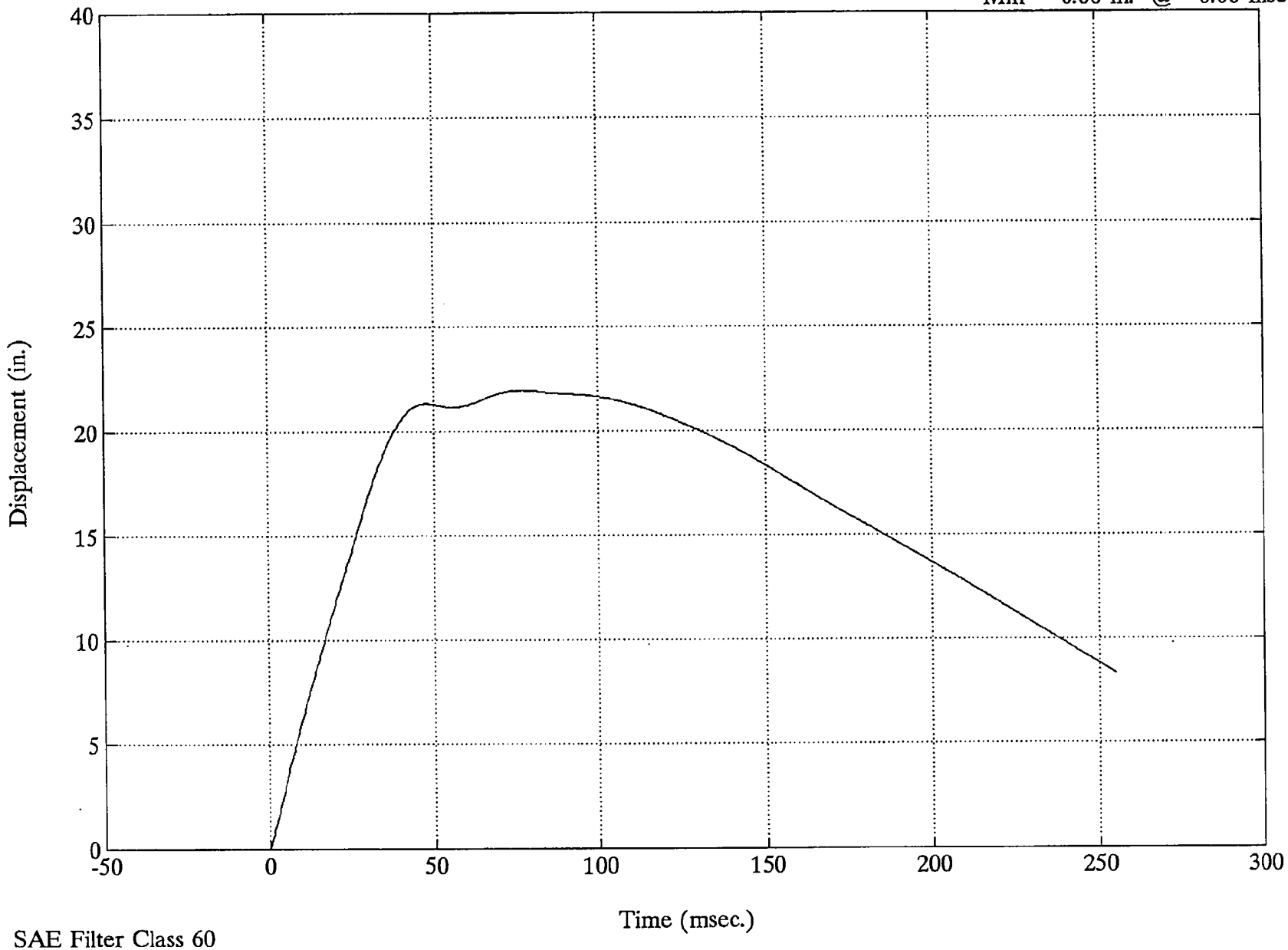
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #5(x)

Max = 21.96 in. @ 77.28 msec
Min = 0.00 in. @ -0.00 msec



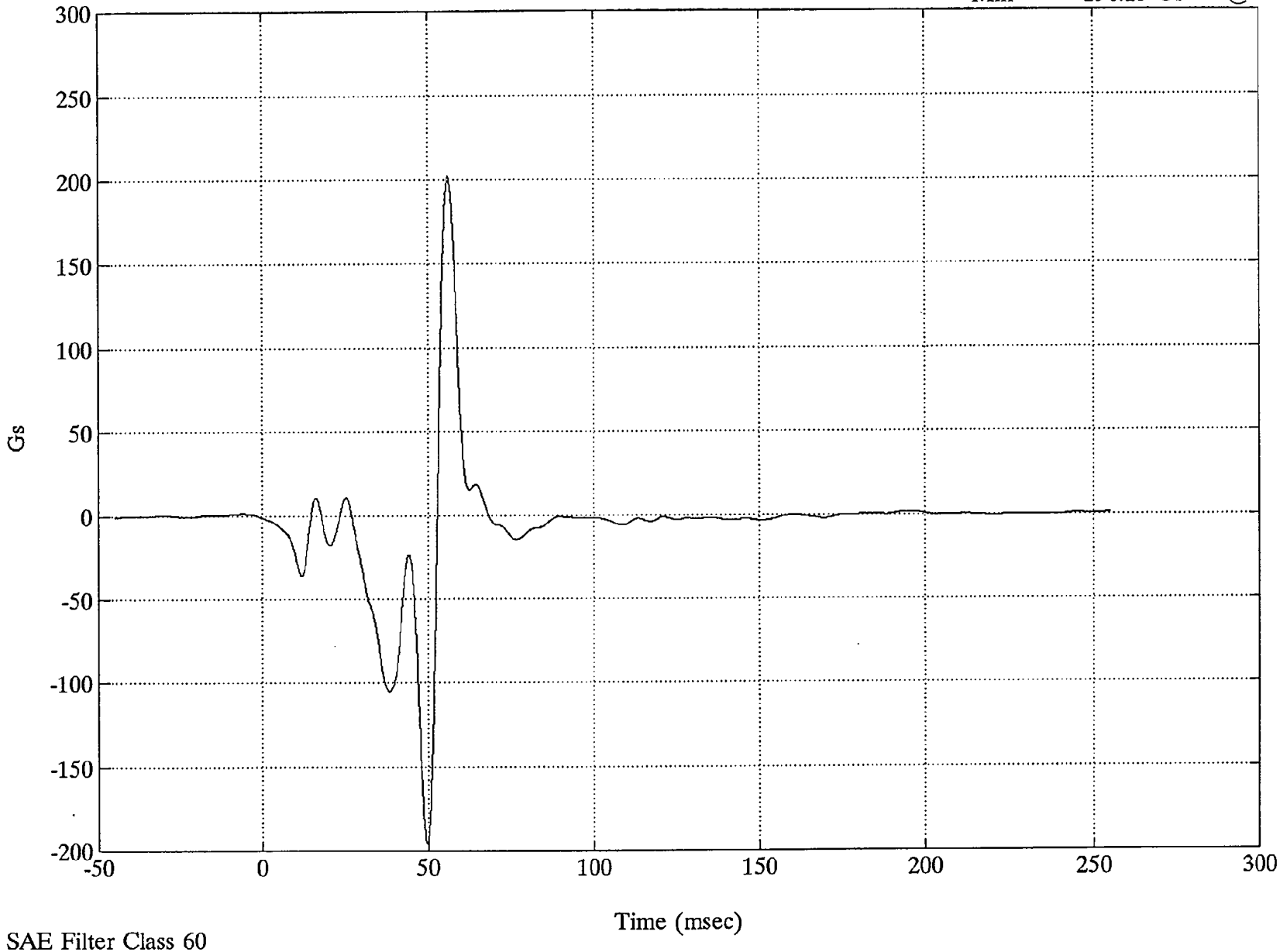
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #6(x)

Max = 201.93 Gs @ 55.92 msec
Min = -196.15 Gs @ 49.68 msec



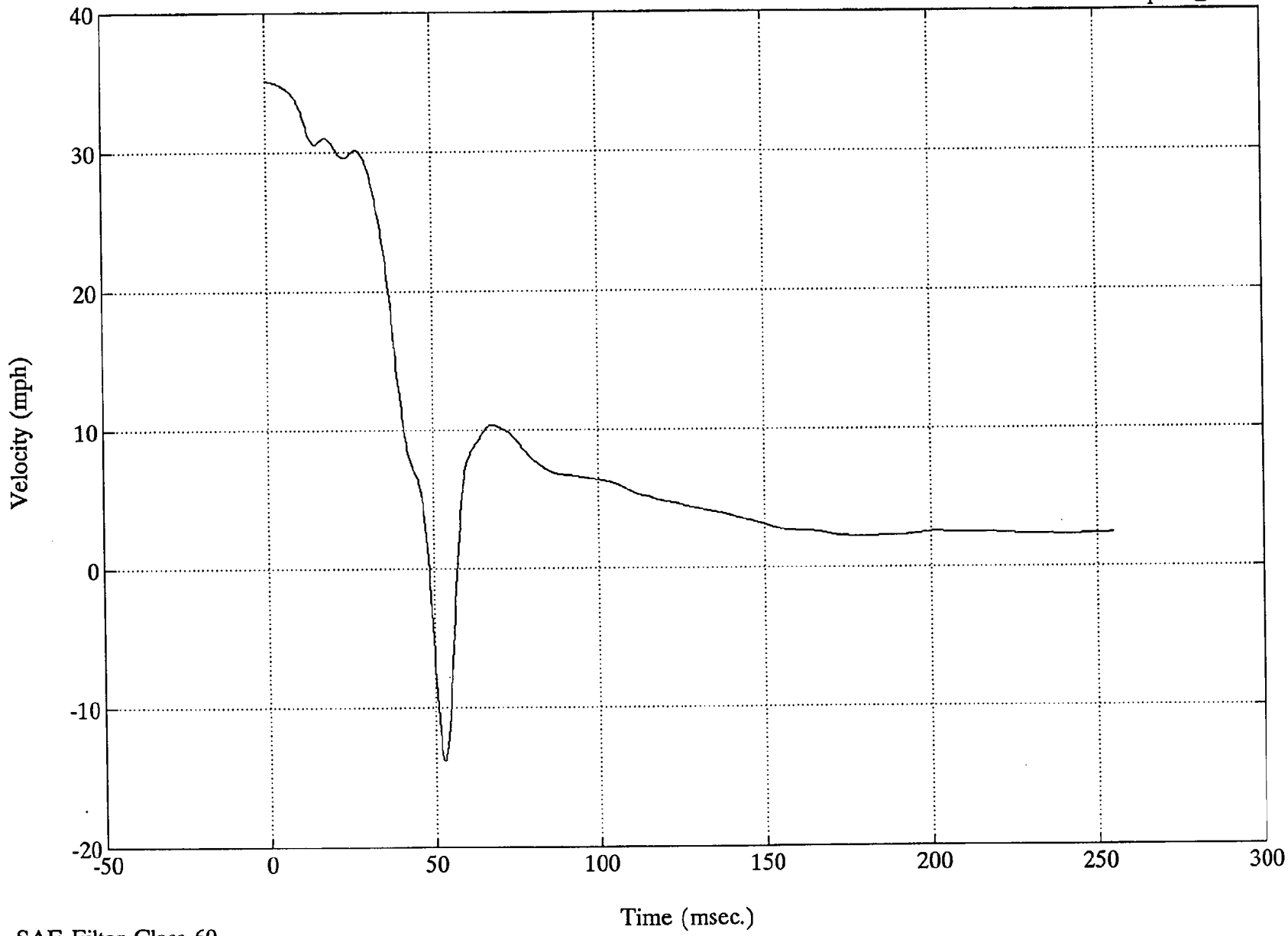
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #6(x)

Max = 35.10 mph @ -0.00 msec
Min = -13.85 mph @ 52.80 msec



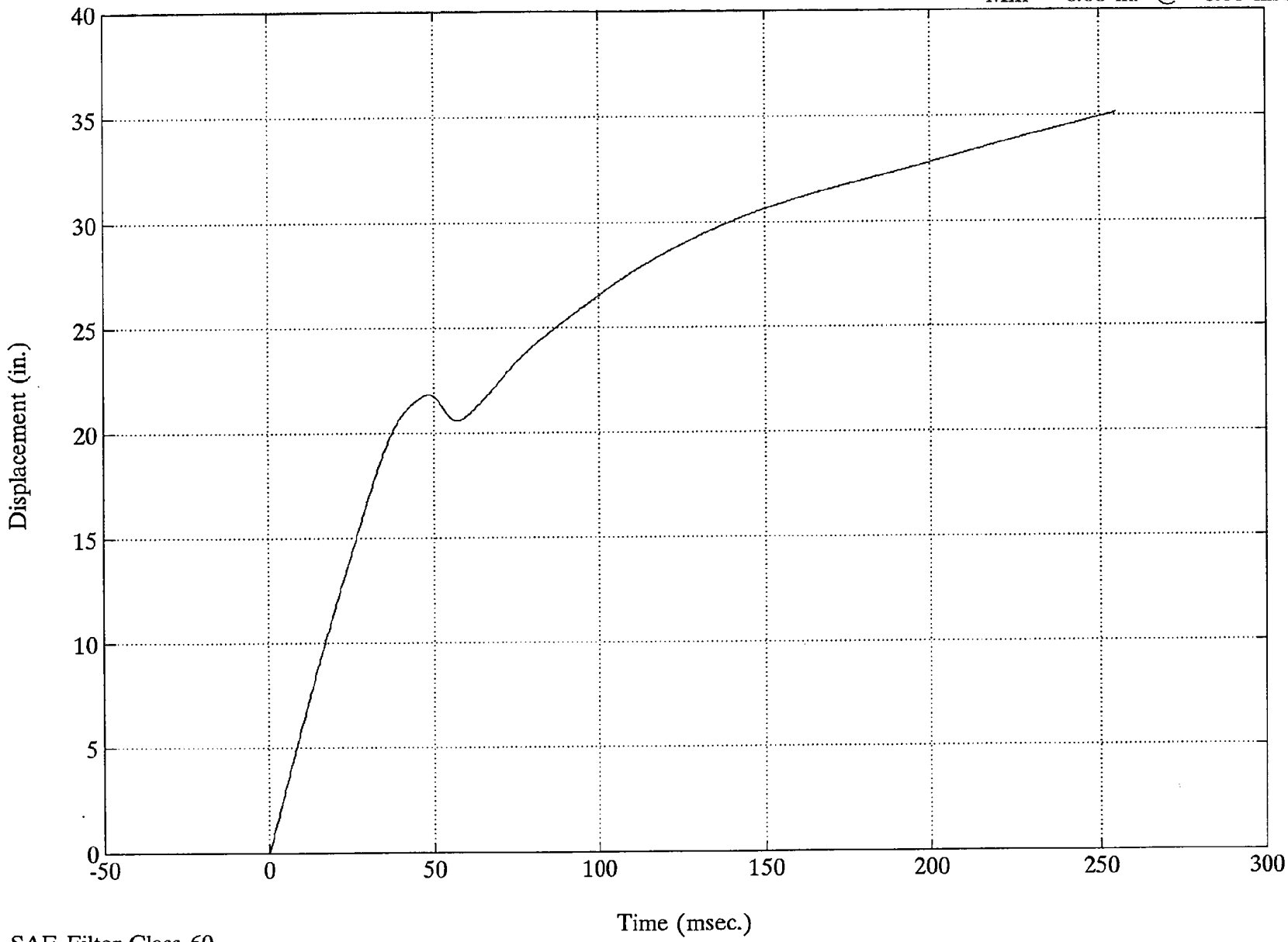
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #6(x)

Max = 35.11 in. @ 254.88 msec
Min = 0.00 in. @ -0.00 msec



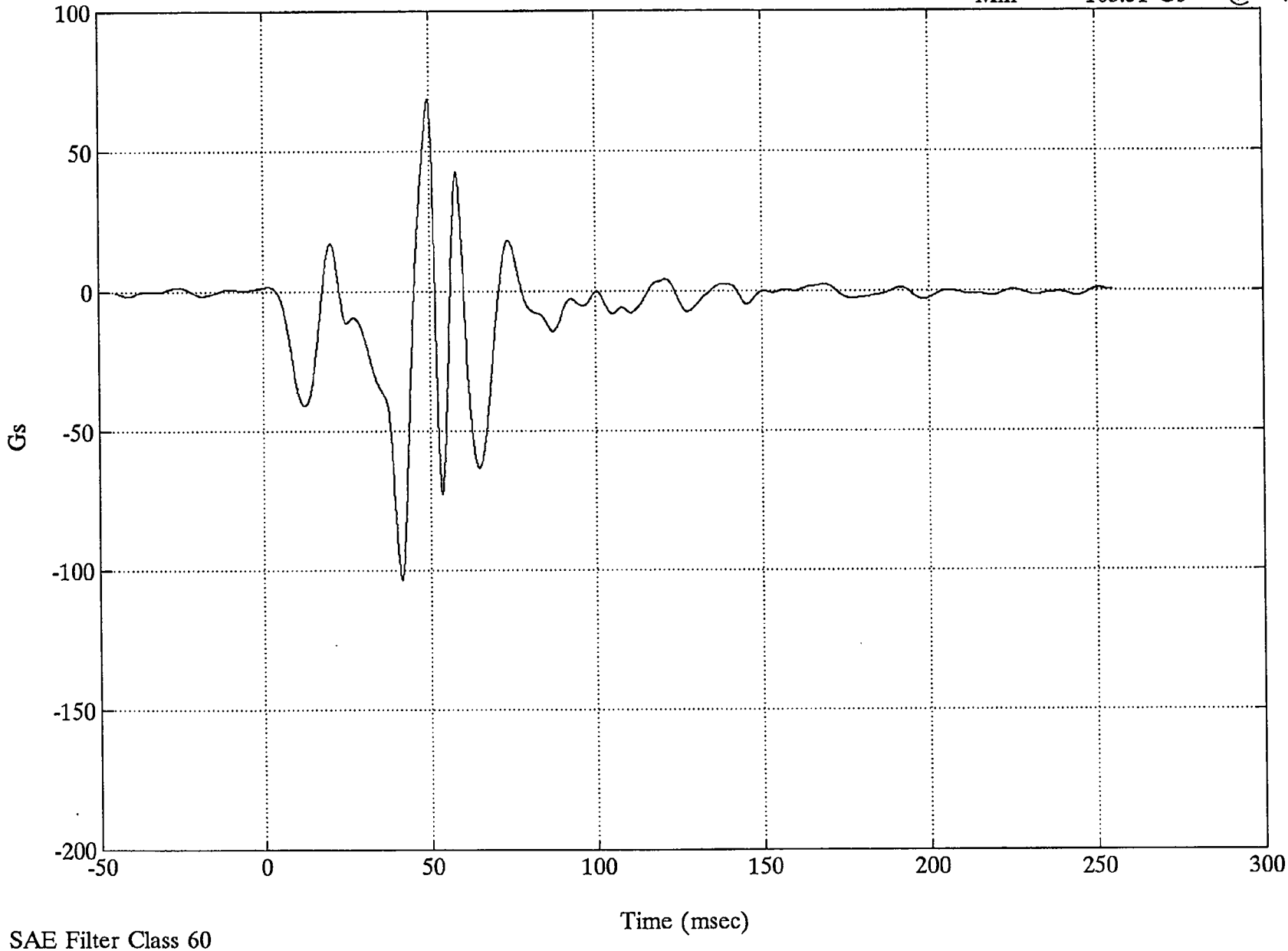
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #7(x)

Max = 68.54 Gs @ 49.55 msec
Min = -103.51 Gs @ 41.28 msec



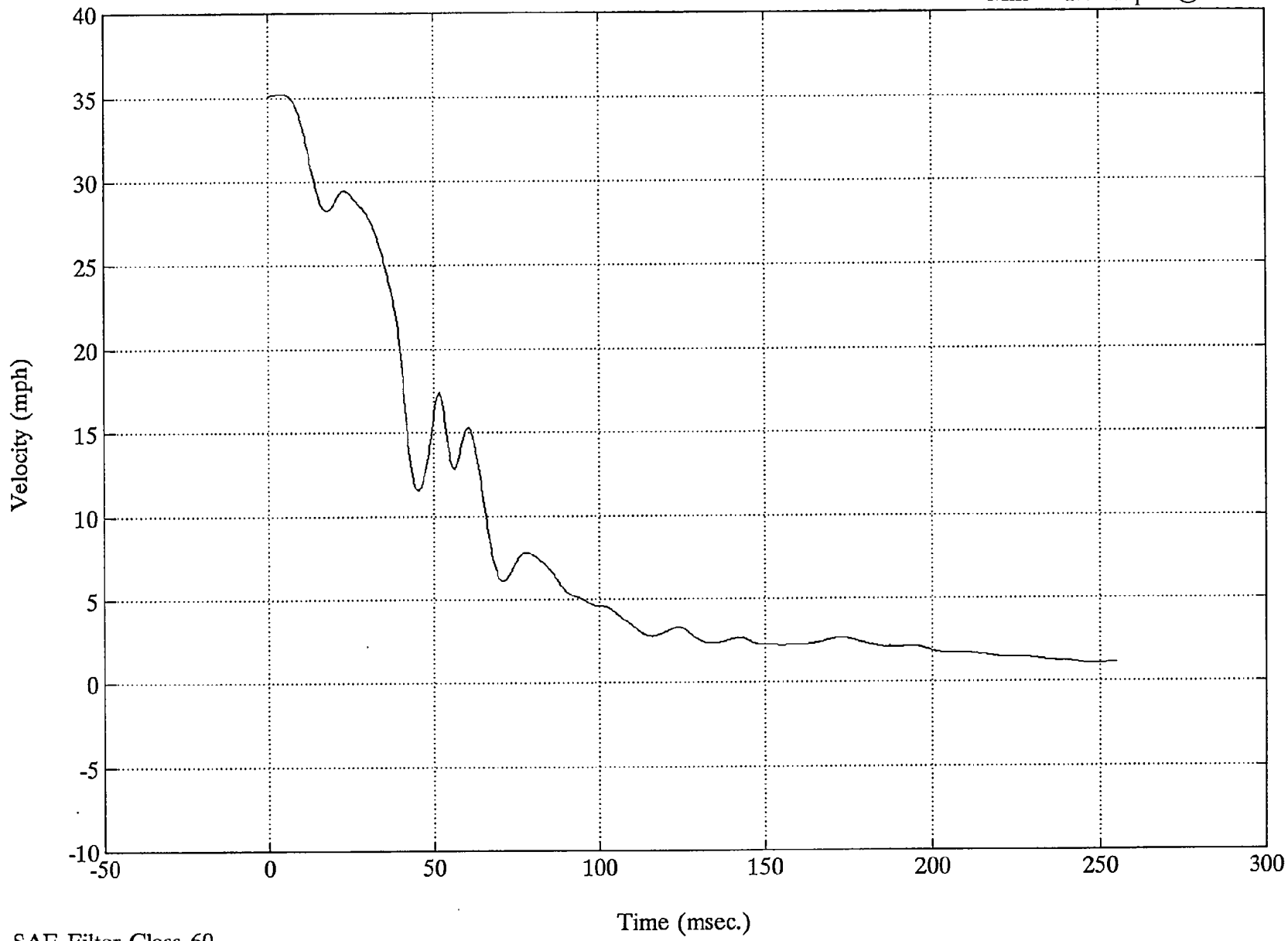
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #7(x)

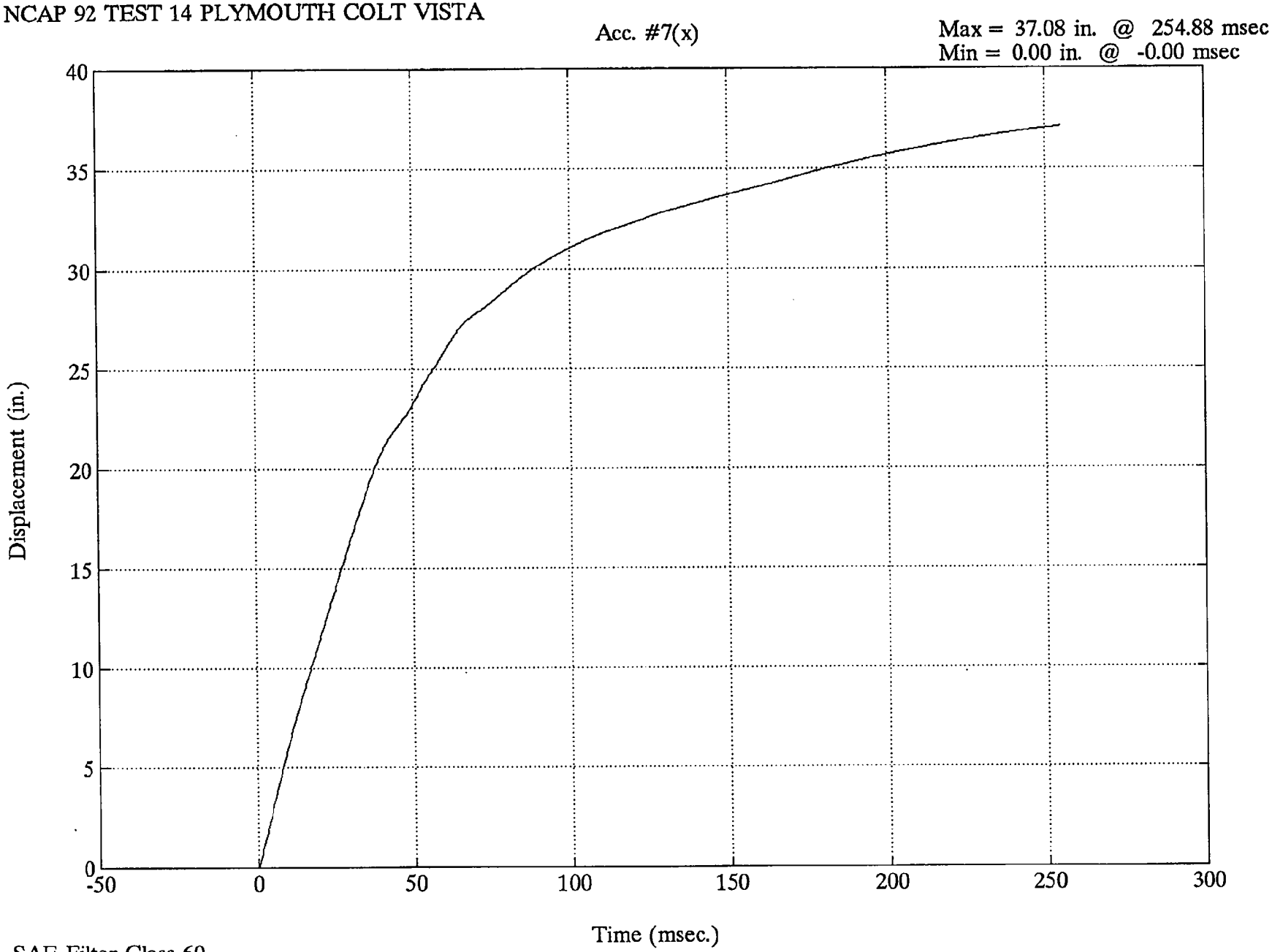
Max = 35.21 mph @ 4.08 msec
Min = 1.05 mph @ 248.16 msec



SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA



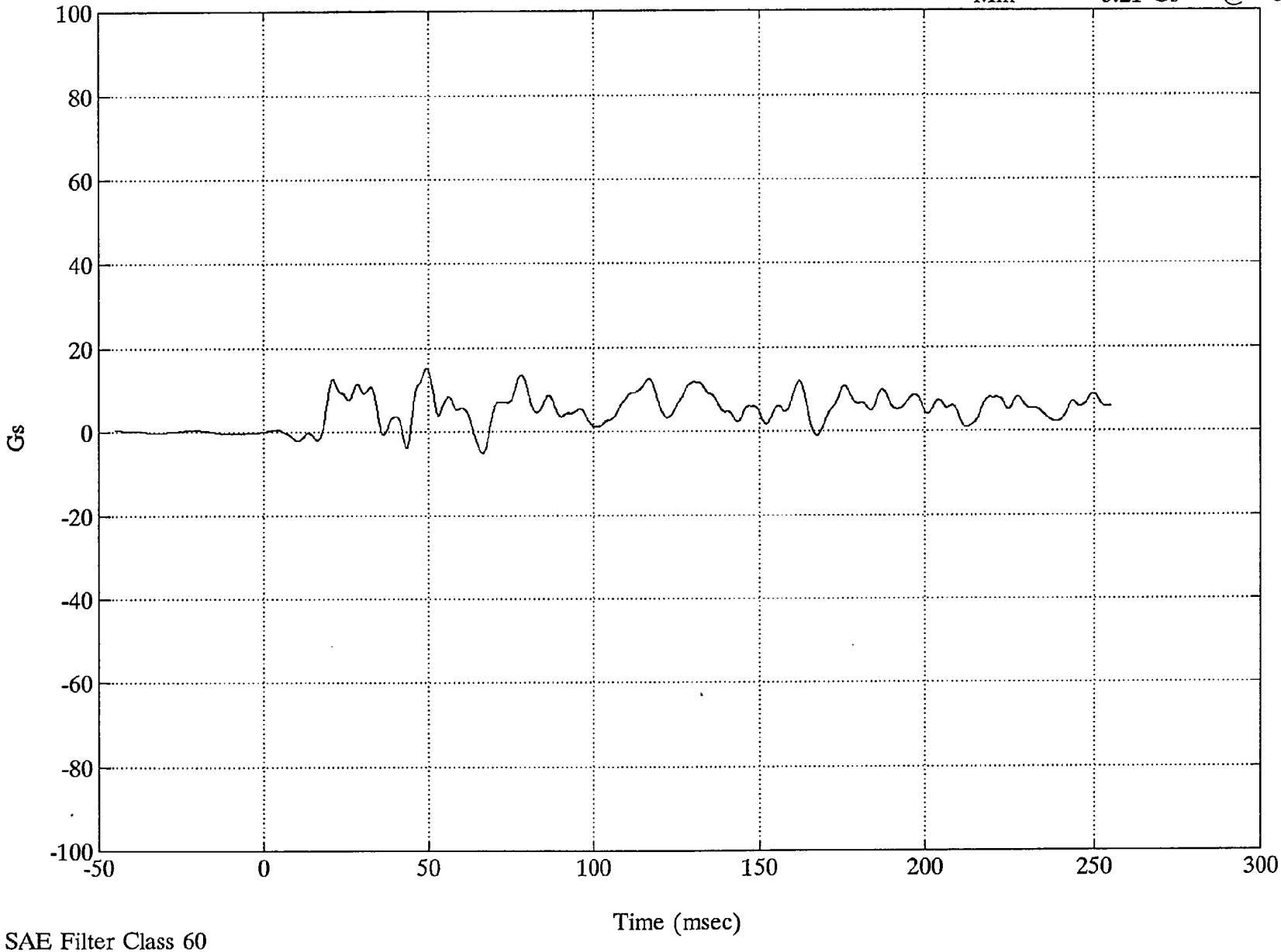
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #8(z)

Max = 15.15 Gs @ 49.43 msec
Min = -5.21 Gs @ 66.11 msec



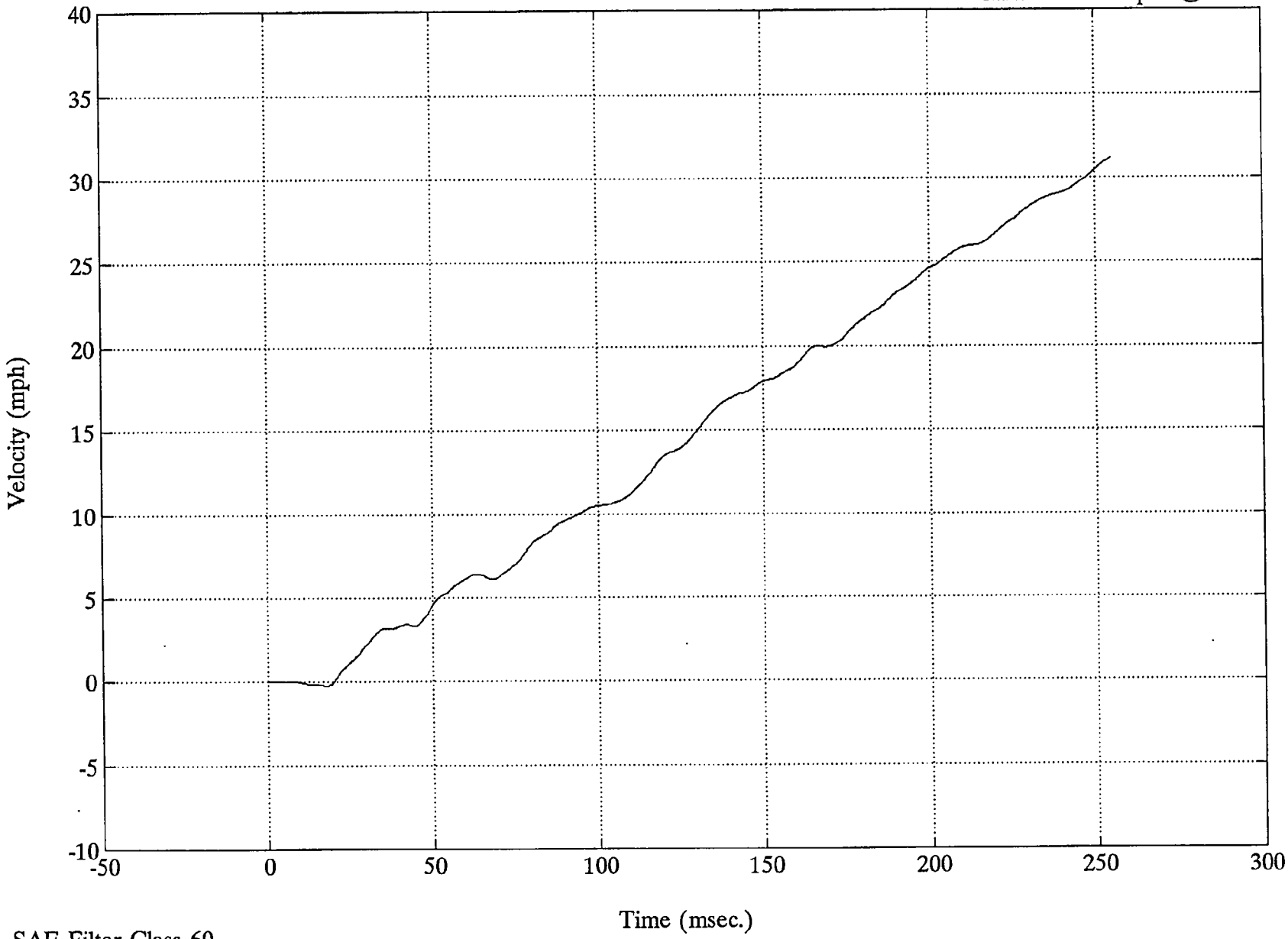
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #8(z)

Max = 31.17 mph @ 254.88 msec
Min = -0.25 mph @ 17.52 msec



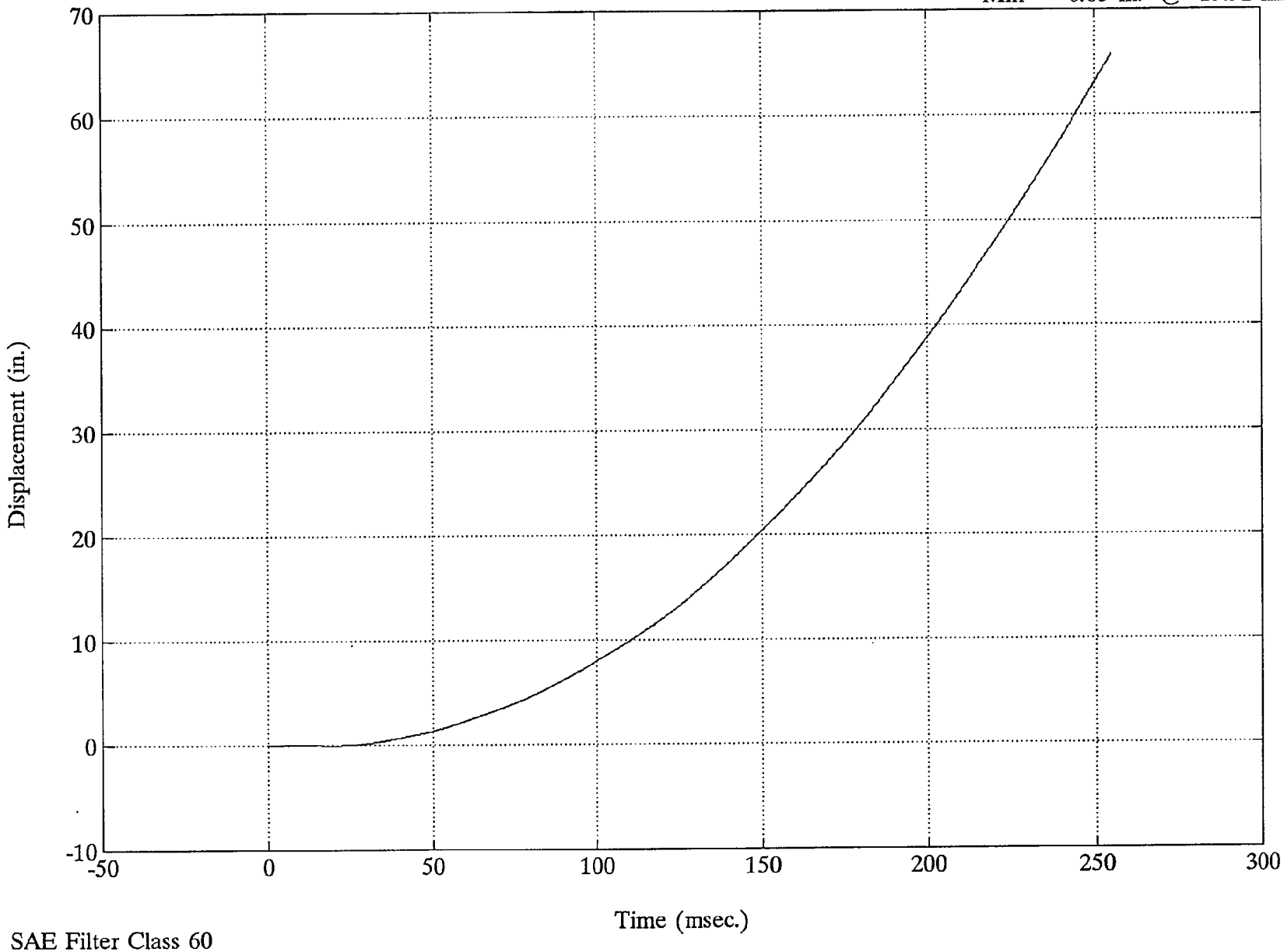
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #8(z)

Max = 65.69 in. @ 254.88 msec
Min = -0.03 in. @ 19.92 msec



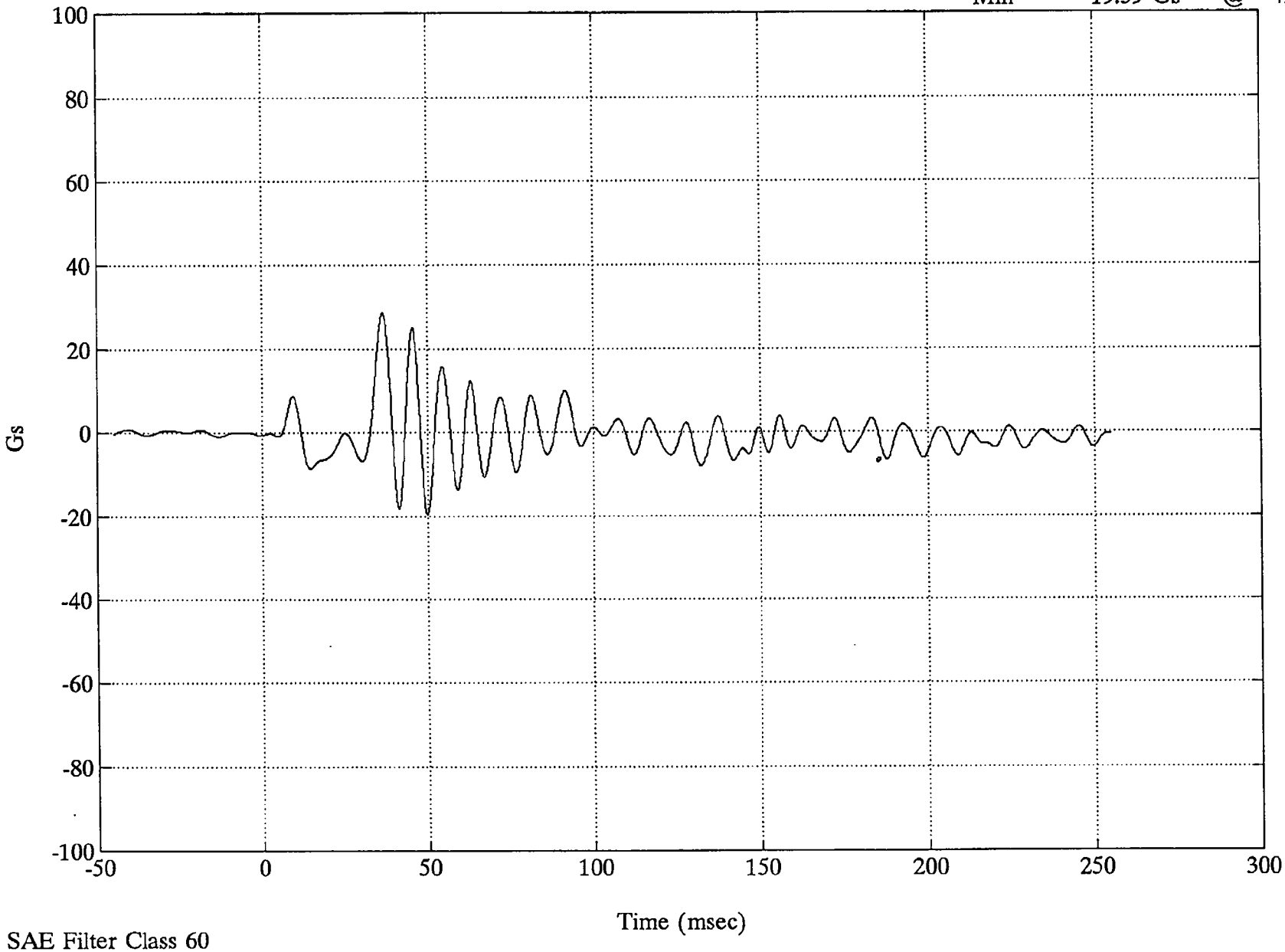
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #9(z)

Max = 28.72 Gs @ 36.60 msec
Min = -19.59 Gs @ 49.92 msec



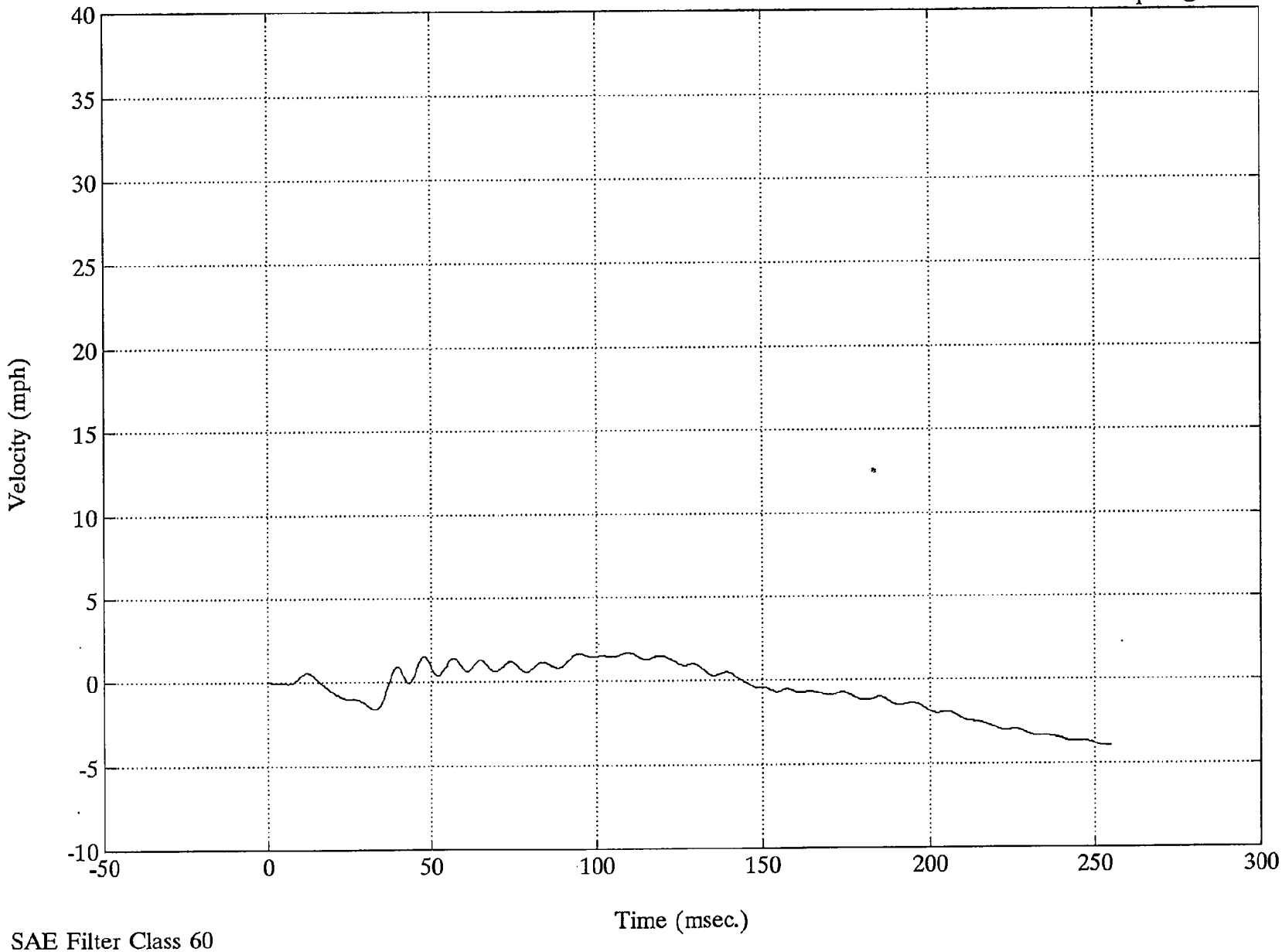
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #9(z)

Max = 1.68 mph @ 109.44 msec
Min = -3.98 mph @ 254.88 msec



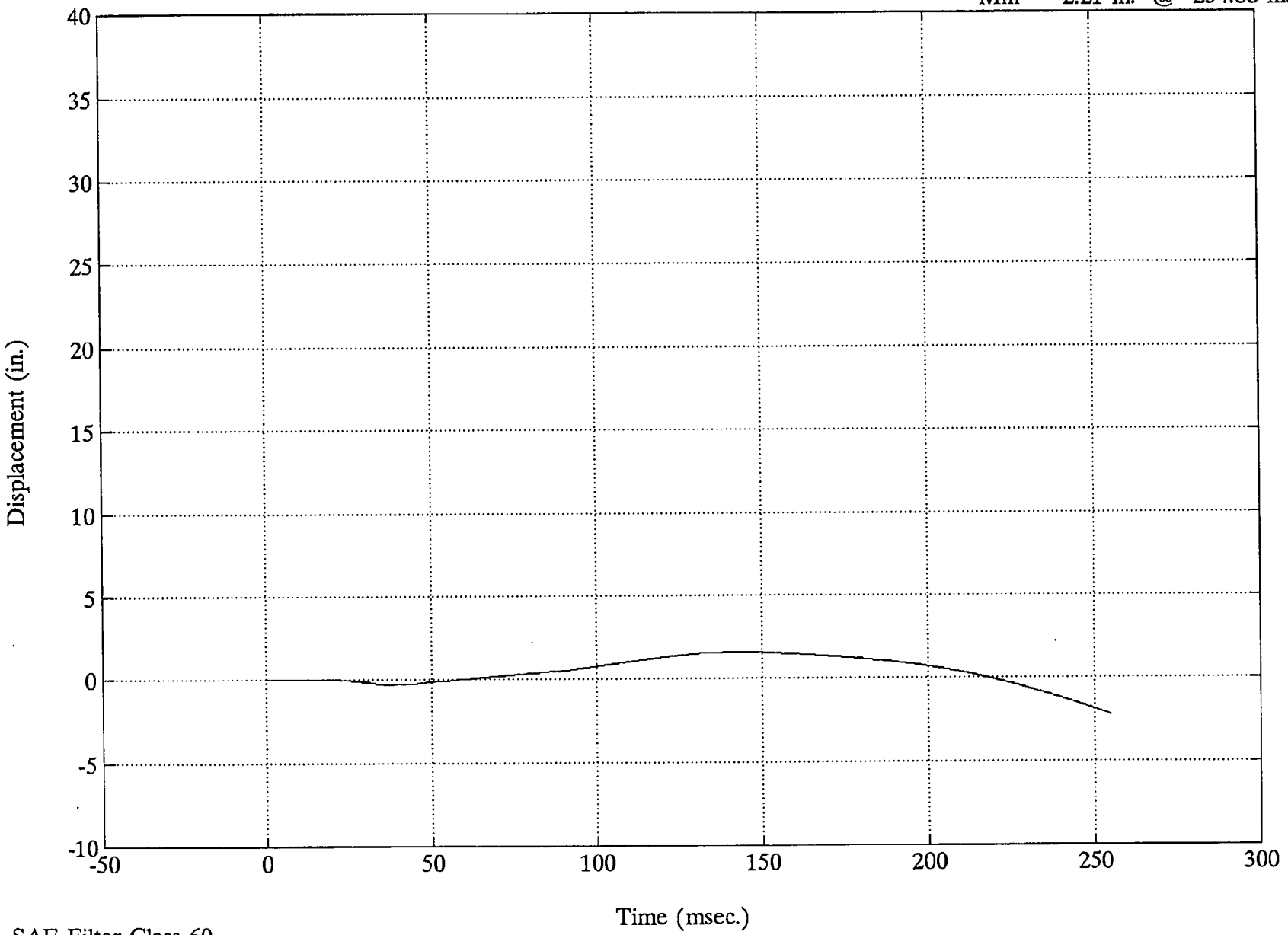
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Acc. #9(z)

Max = 1.59 in. @ 143.76 msec
Min = -2.21 in. @ 254.88 msec



SAE Filter Class 60

7978-4

TEST NO. MN0303

LOAD CELL BARRIER DATA

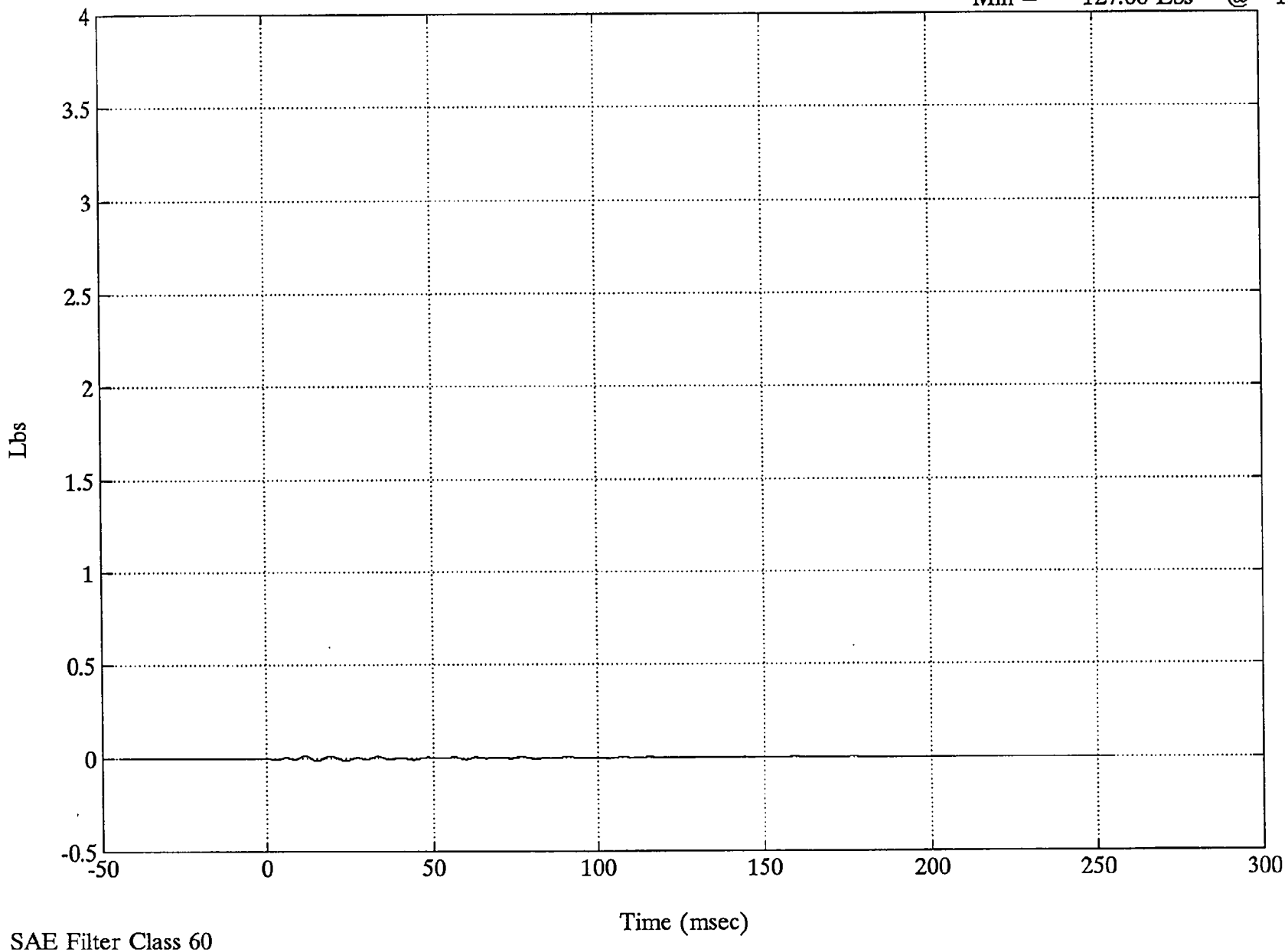
FILTER CHANNEL CLASS

60

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell A1

Max = 121.42 Lbs @ 11.63 msec
Min = -127.06 Lbs @ 15.23 msec



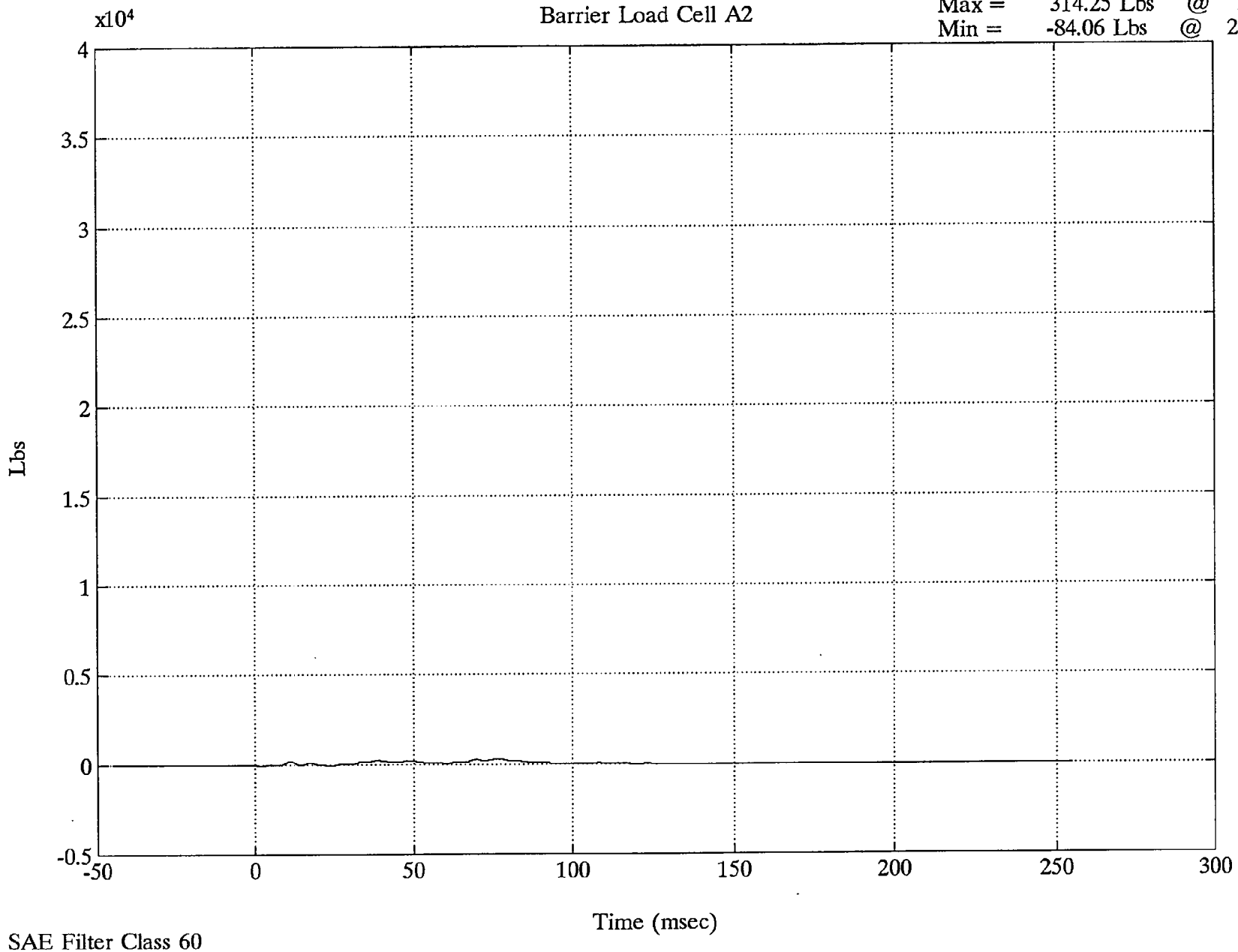
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell A2

Max = 314.25 Lbs @ 76.80 msec
Min = -84.06 Lbs @ 23.76 msec



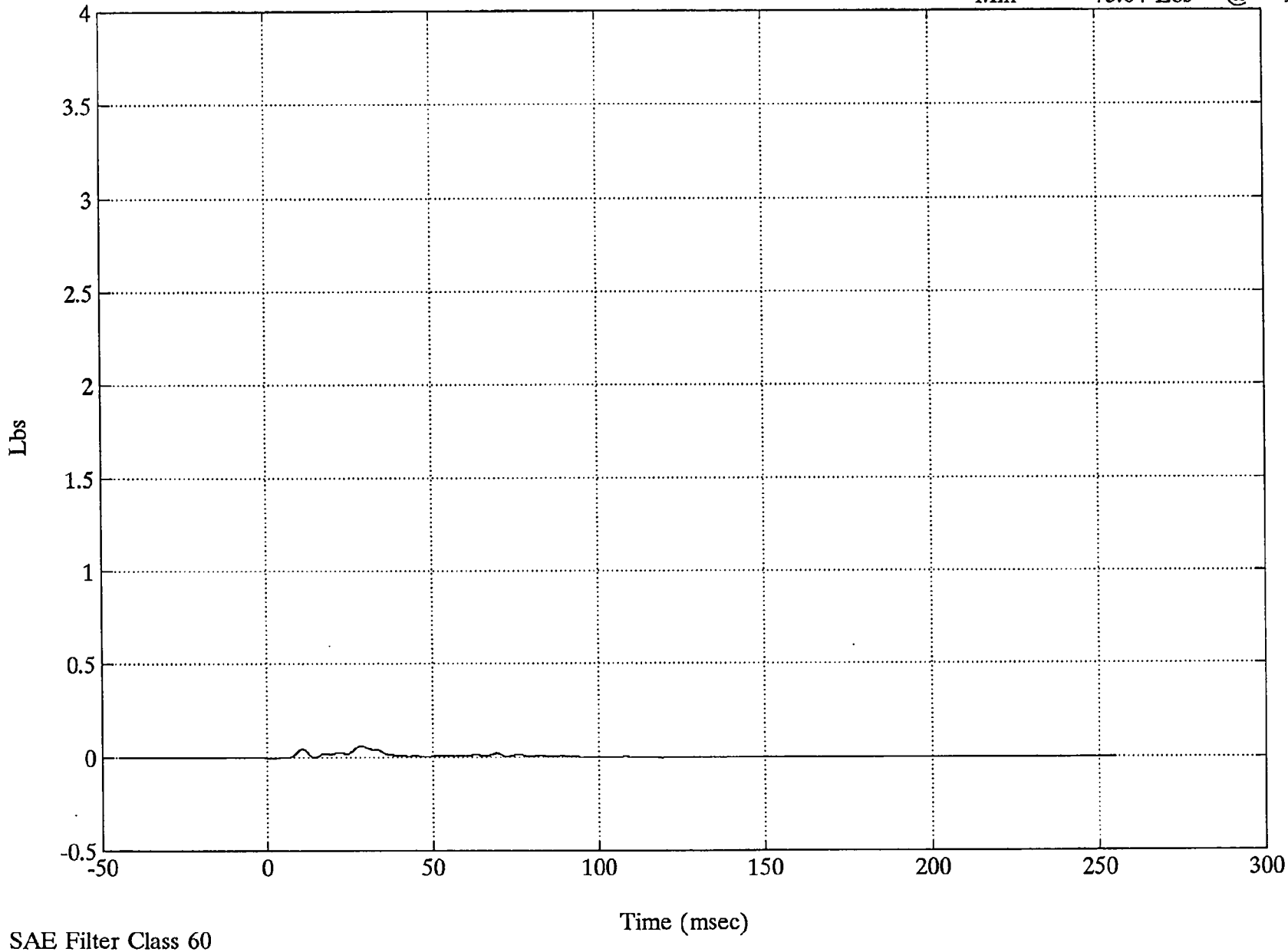
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell A3

Max = 614.73 Lbs @ 28.31 msec
Min = -73.64 Lbs @ 1.43 msec



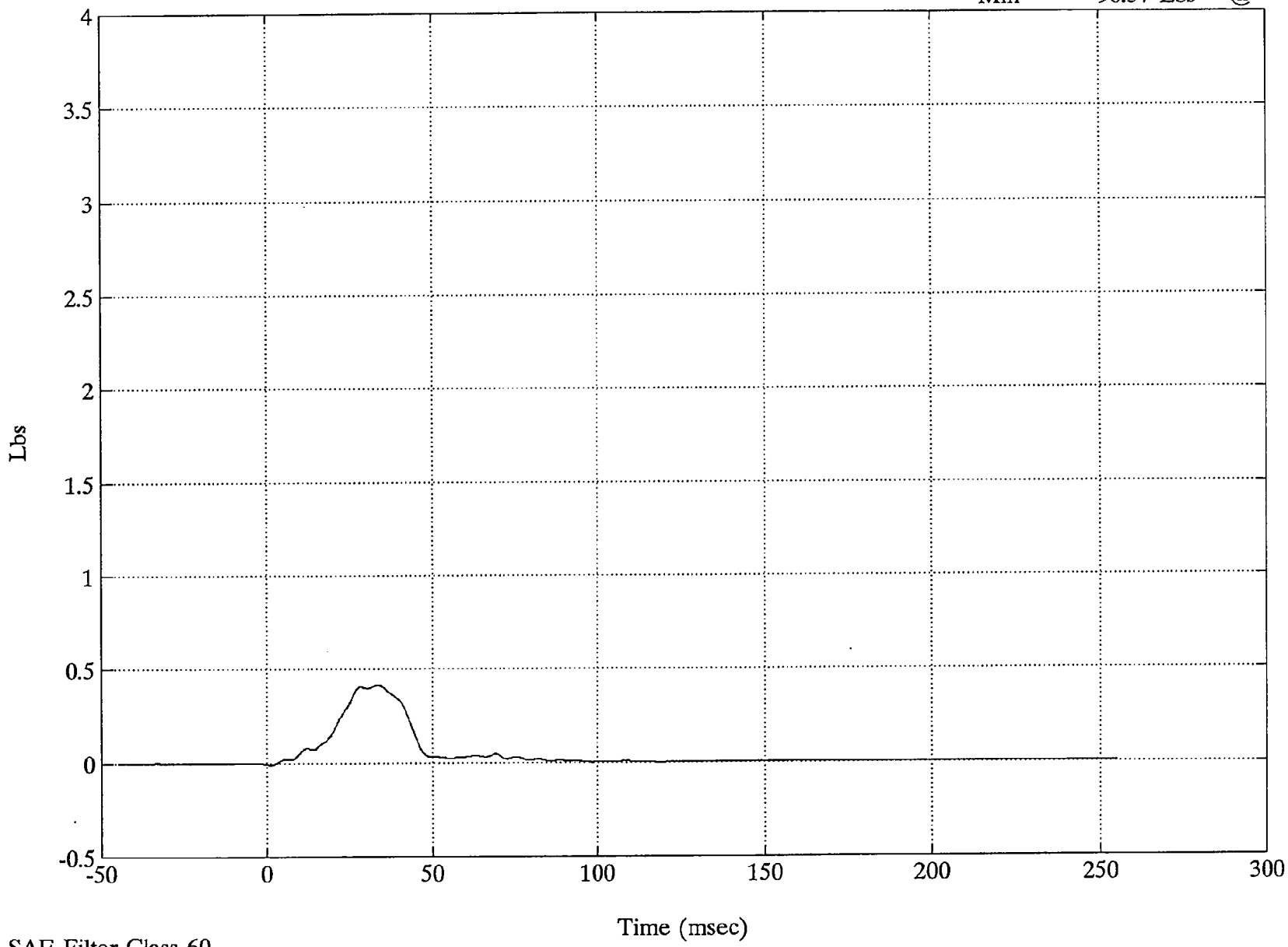
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell A4

Max = 4154.64 Lbs @ 33.36 msec
Min = -90.37 Lbs @ 0.83 msec



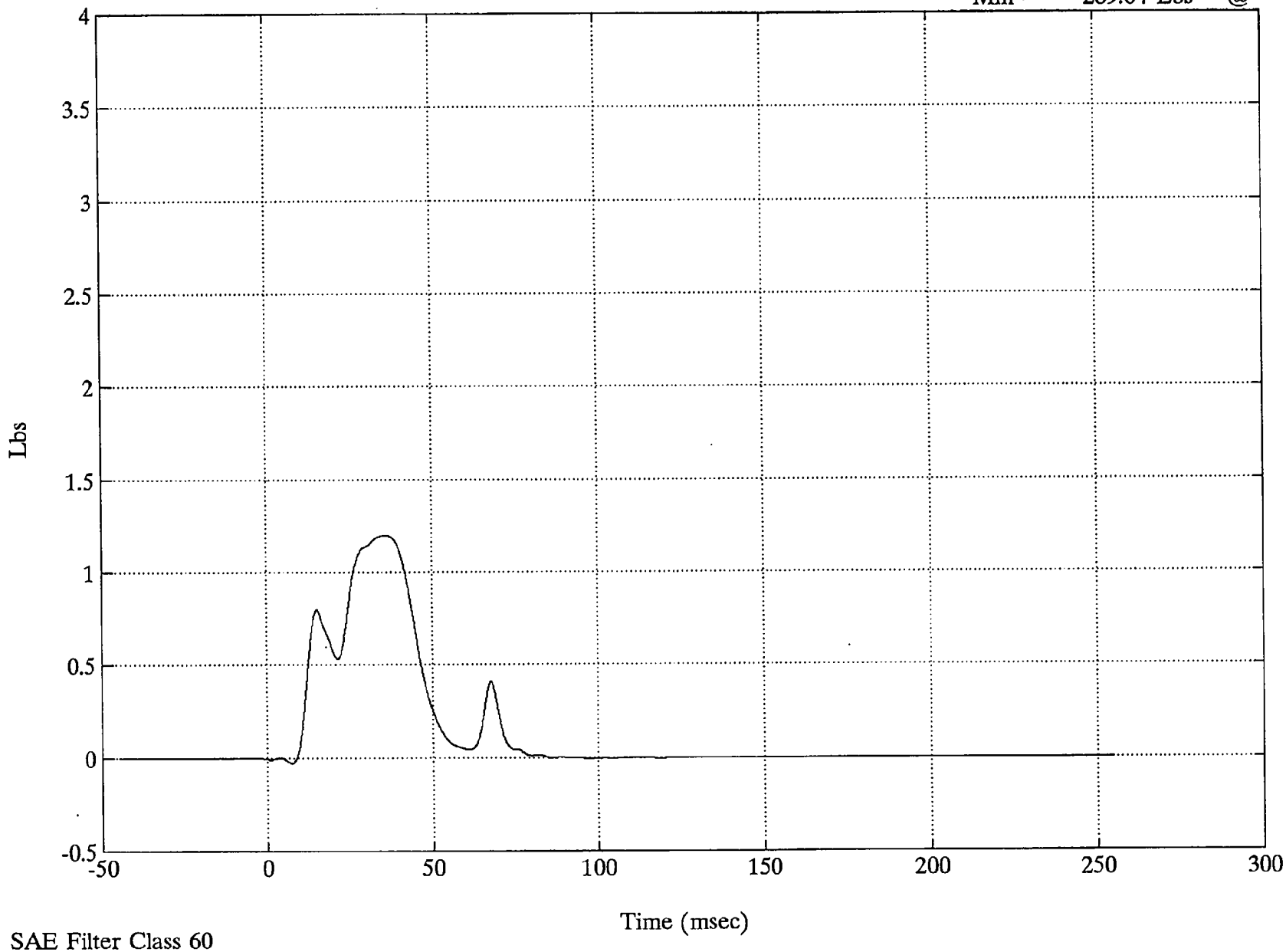
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell A5

Max = 11975.04 Lbs @ 36.12 msec
Min = -289.64 Lbs @ 7.55 msec



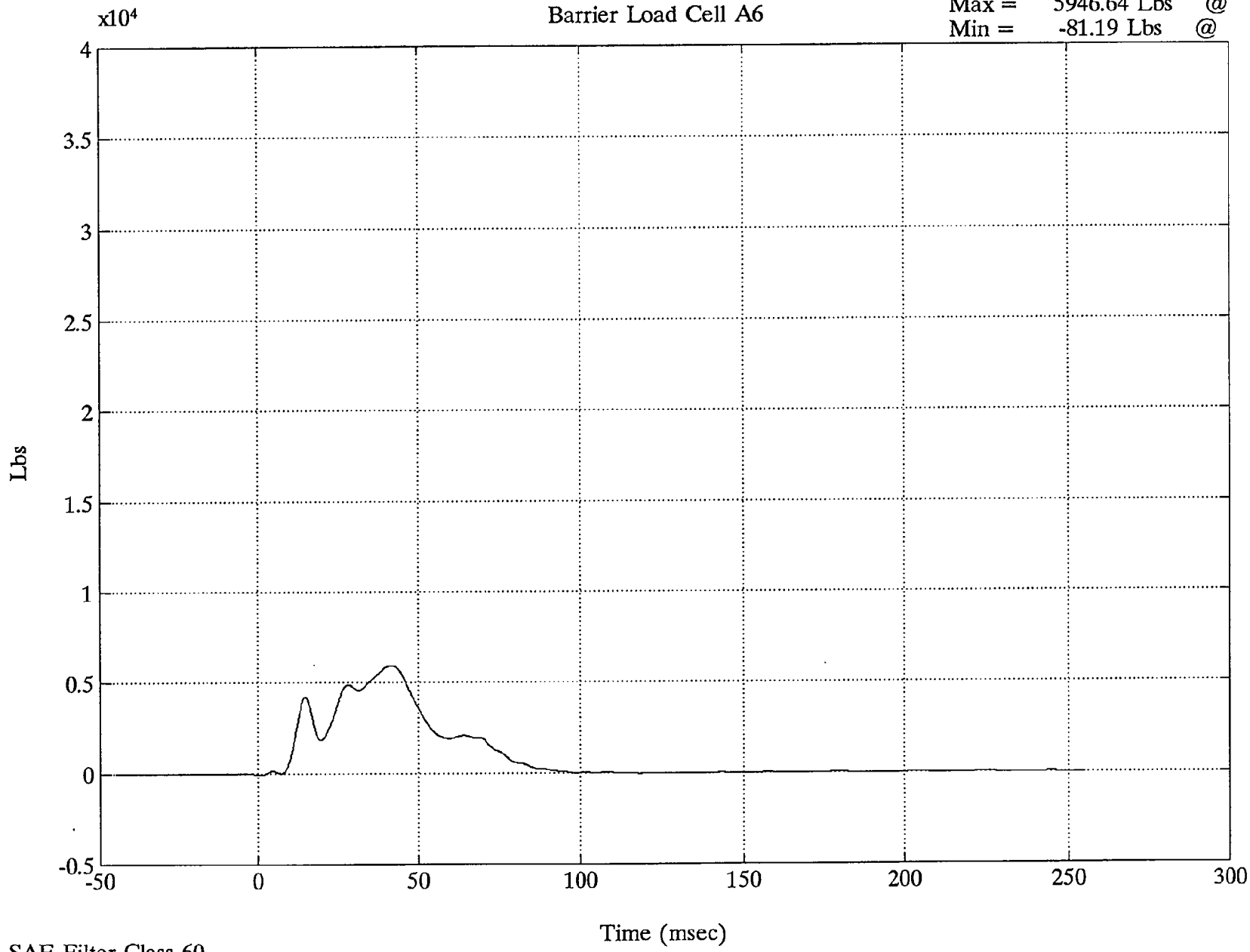
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell A6

Max = 5946.64 Lbs @ 41.52 msec
Min = -81.19 Lbs @ 0.59 msec



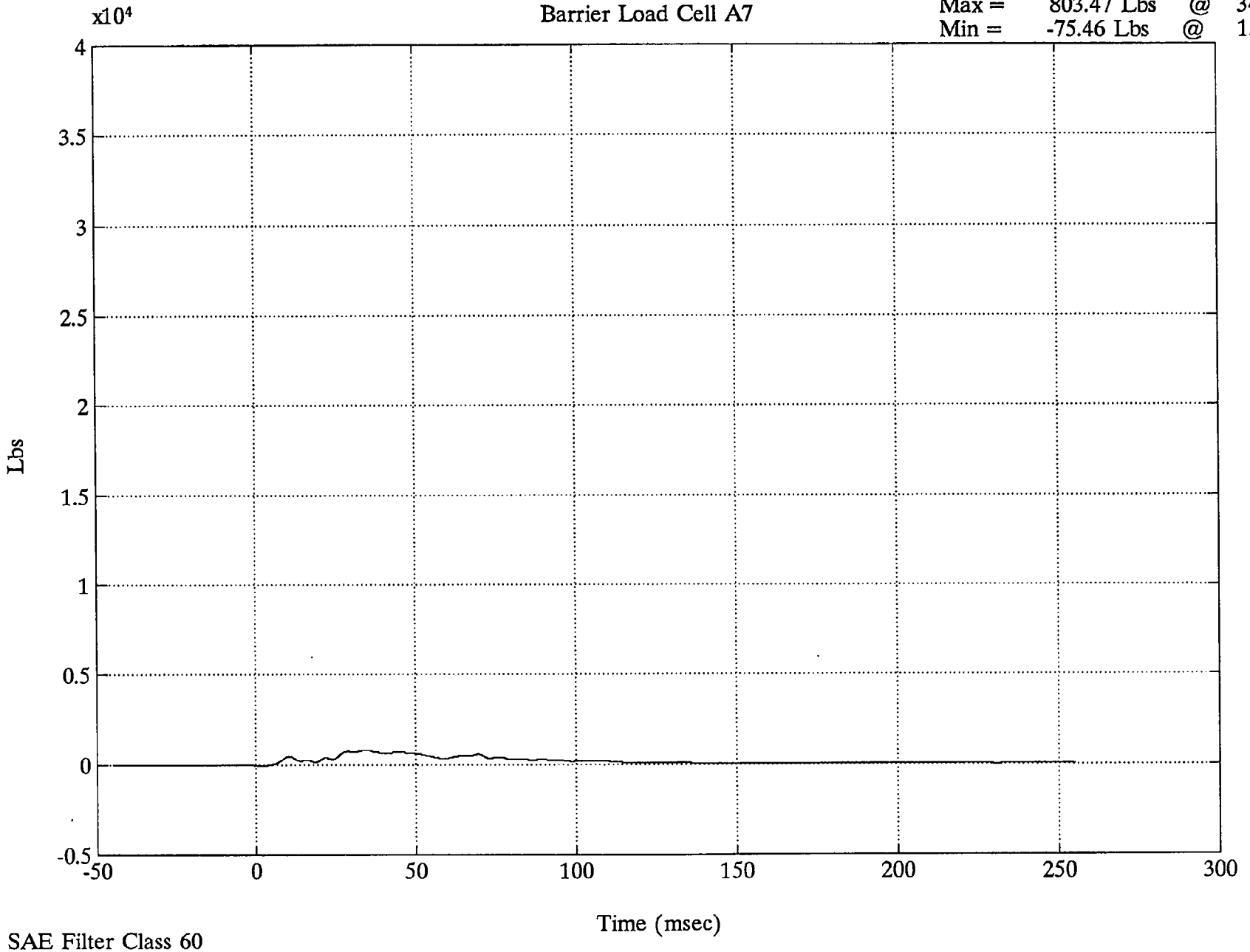
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell A7

Max = 803.47 Lbs @ 34.31 msec
Min = -75.46 Lbs @ 1.43 msec



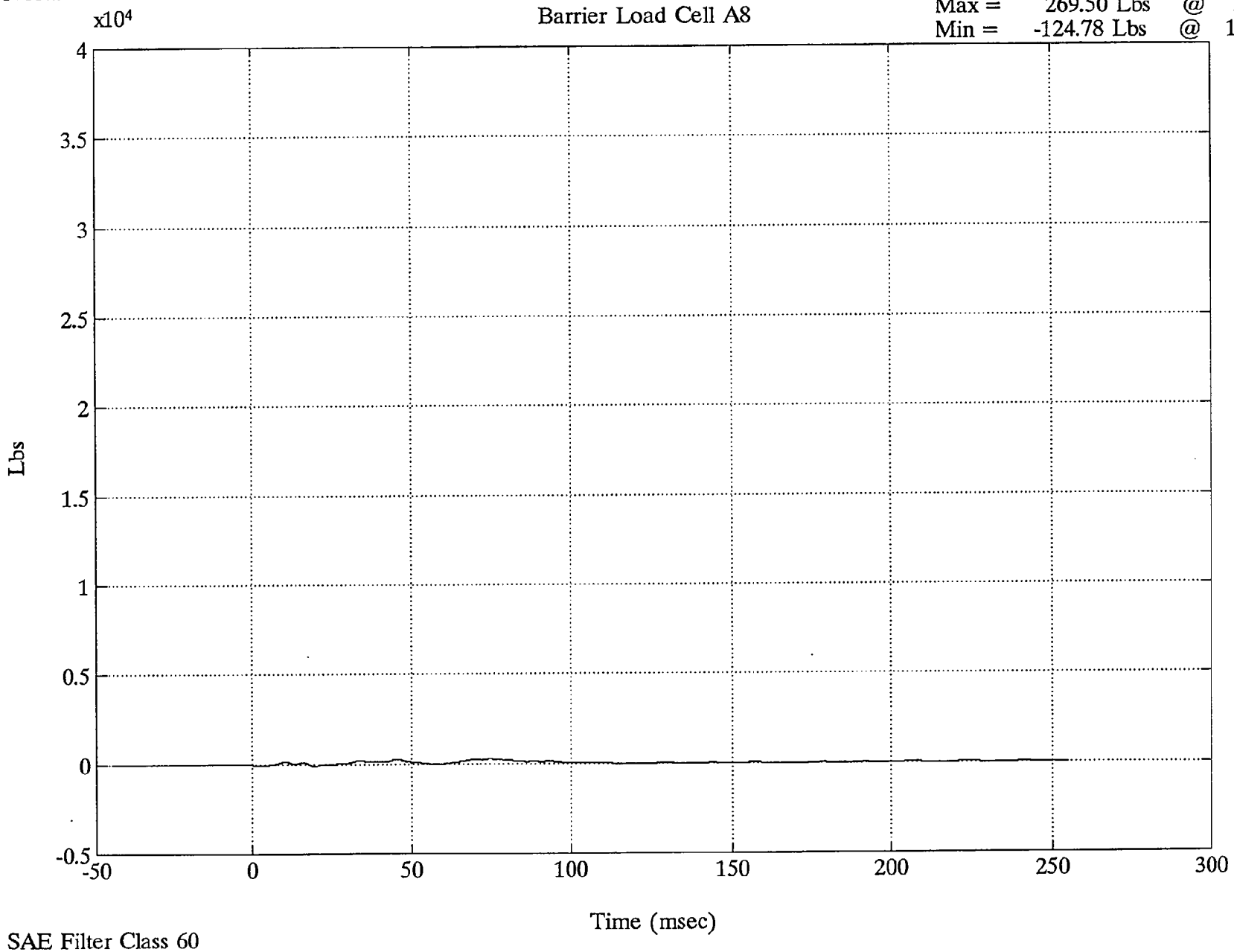
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell A8

Max = 269.50 Lbs @ 74.76 msec
Min = -124.78 Lbs @ 19.55 msec



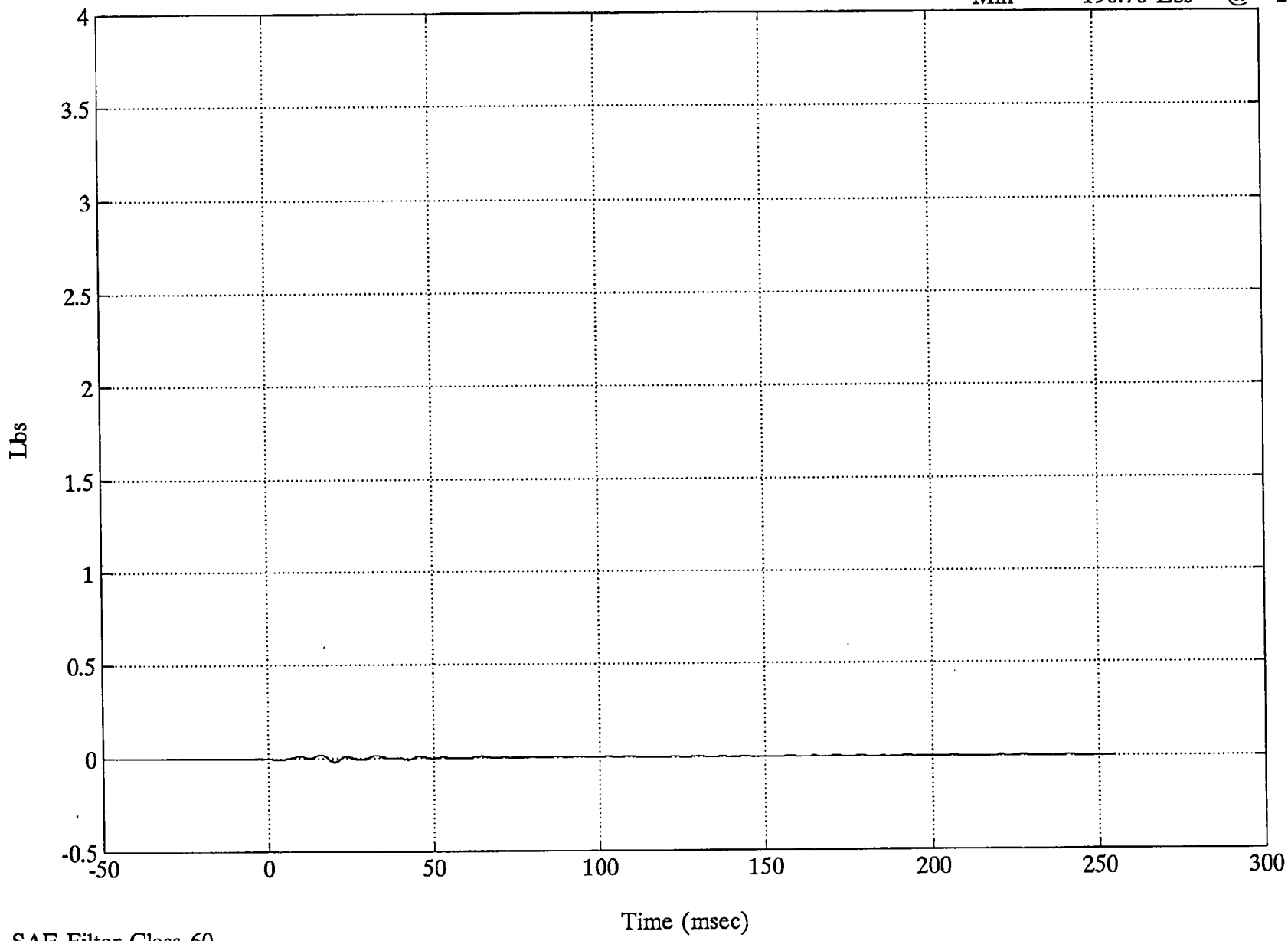
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell A9

Max = 201.76 Lbs @ 15.95 msec
Min = -190.70 Lbs @ 20.03 msec



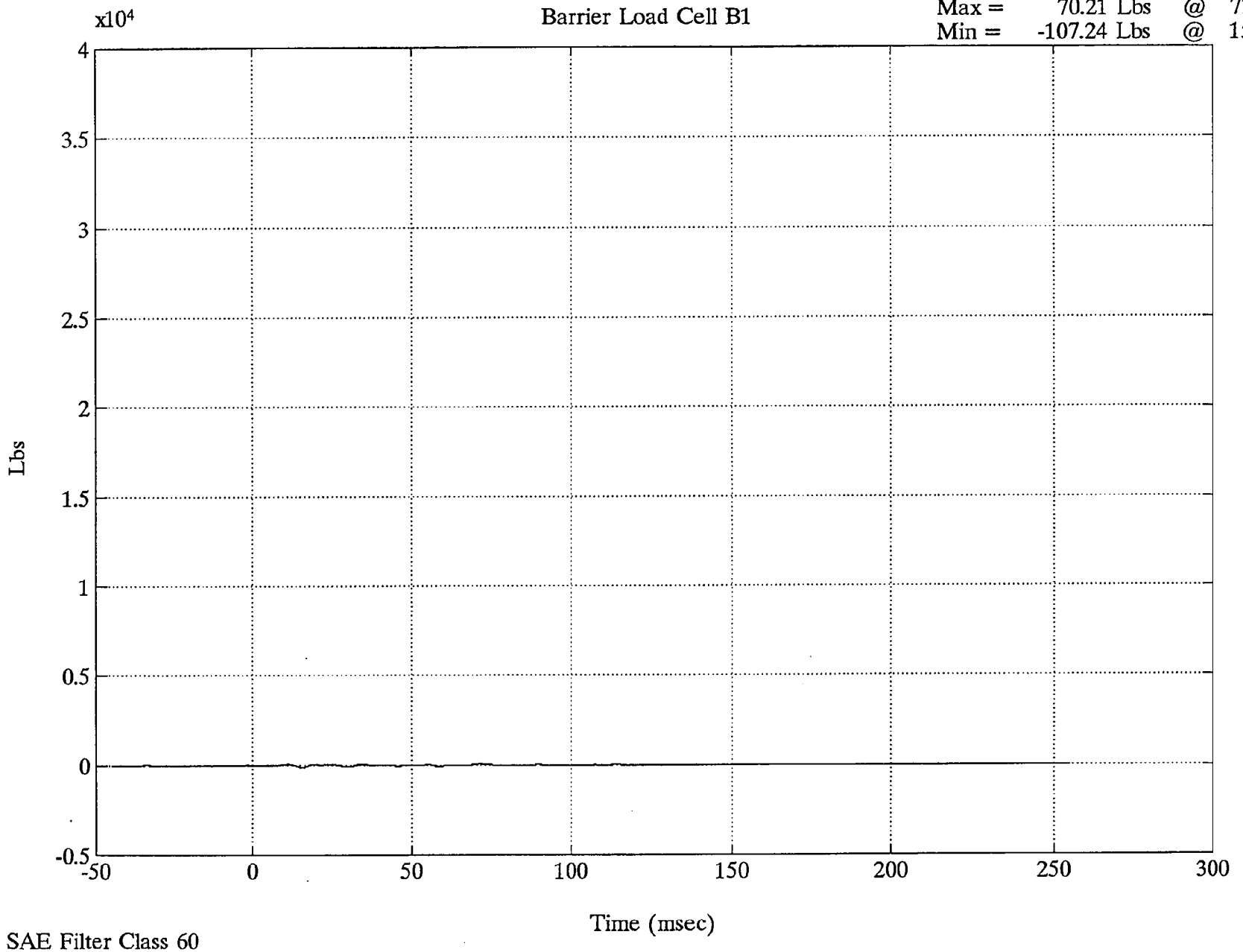
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell B1

Max = 70.21 Lbs @ 71.52 msec
Min = -107.24 Lbs @ 15.71 msec



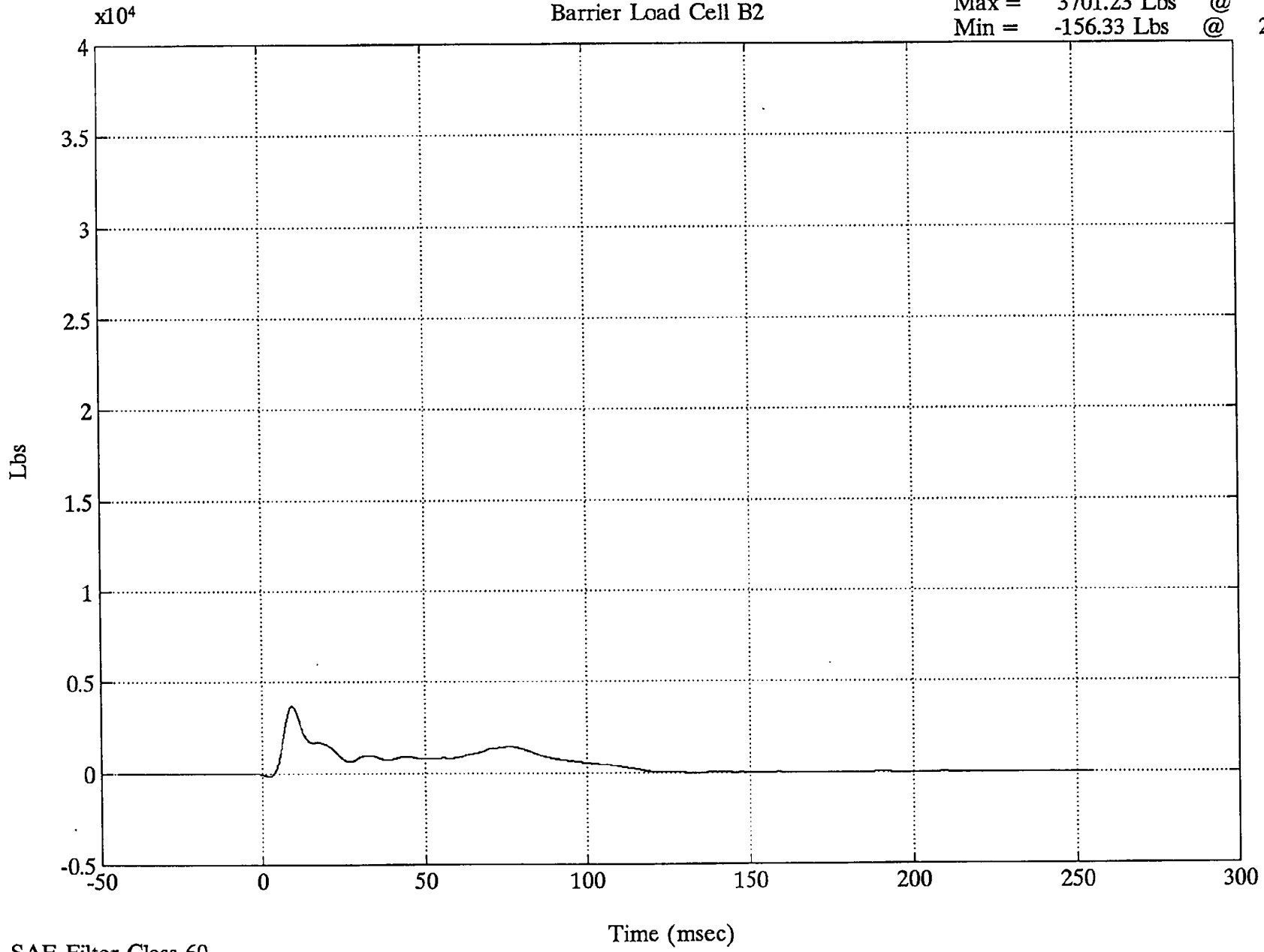
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell B2

Max = 3701.23 Lbs @ 9.11 msec
Min = -156.33 Lbs @ 2.15 msec



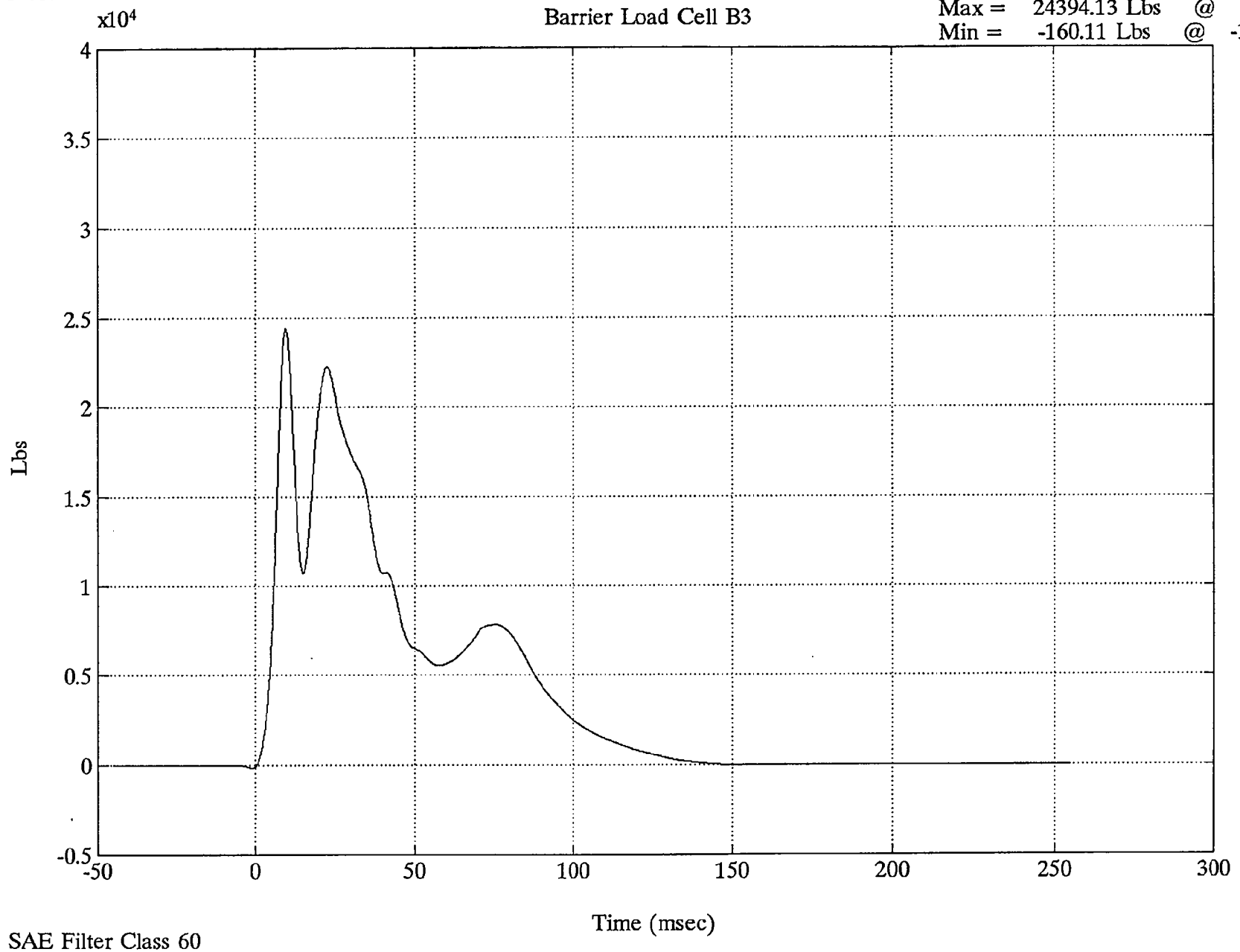
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell B3

Max = 24394.13 Lbs @ 9.35 msec
Min = -160.11 Lbs @ -1.08 msec



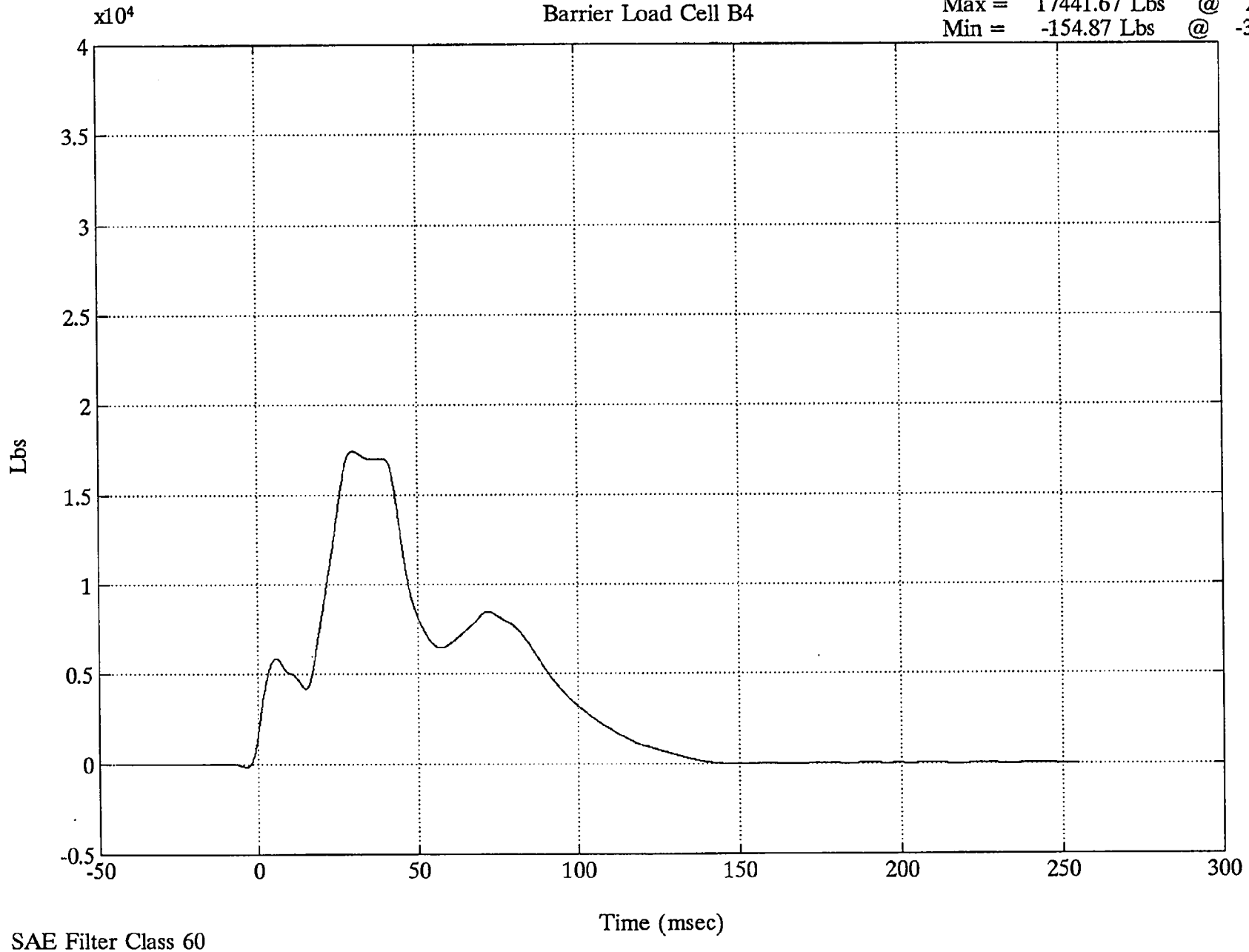
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell B4

Max = 17441.67 Lbs @ 29.76 msec
Min = -154.87 Lbs @ -3.84 msec



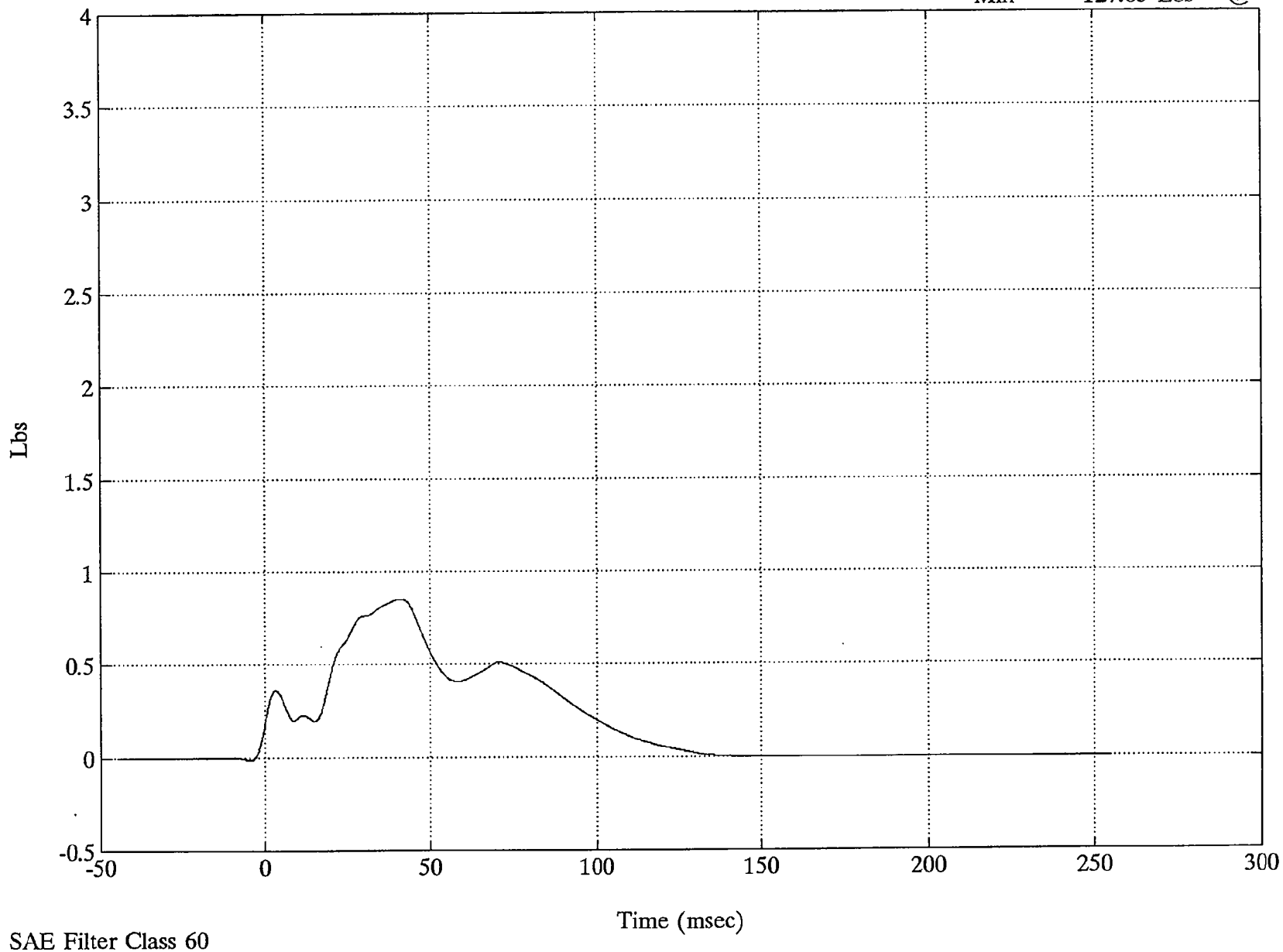
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell B5

Max = 8508.37 Lbs @ 40.80 msec
Min = -127.65 Lbs @ -4.44 msec



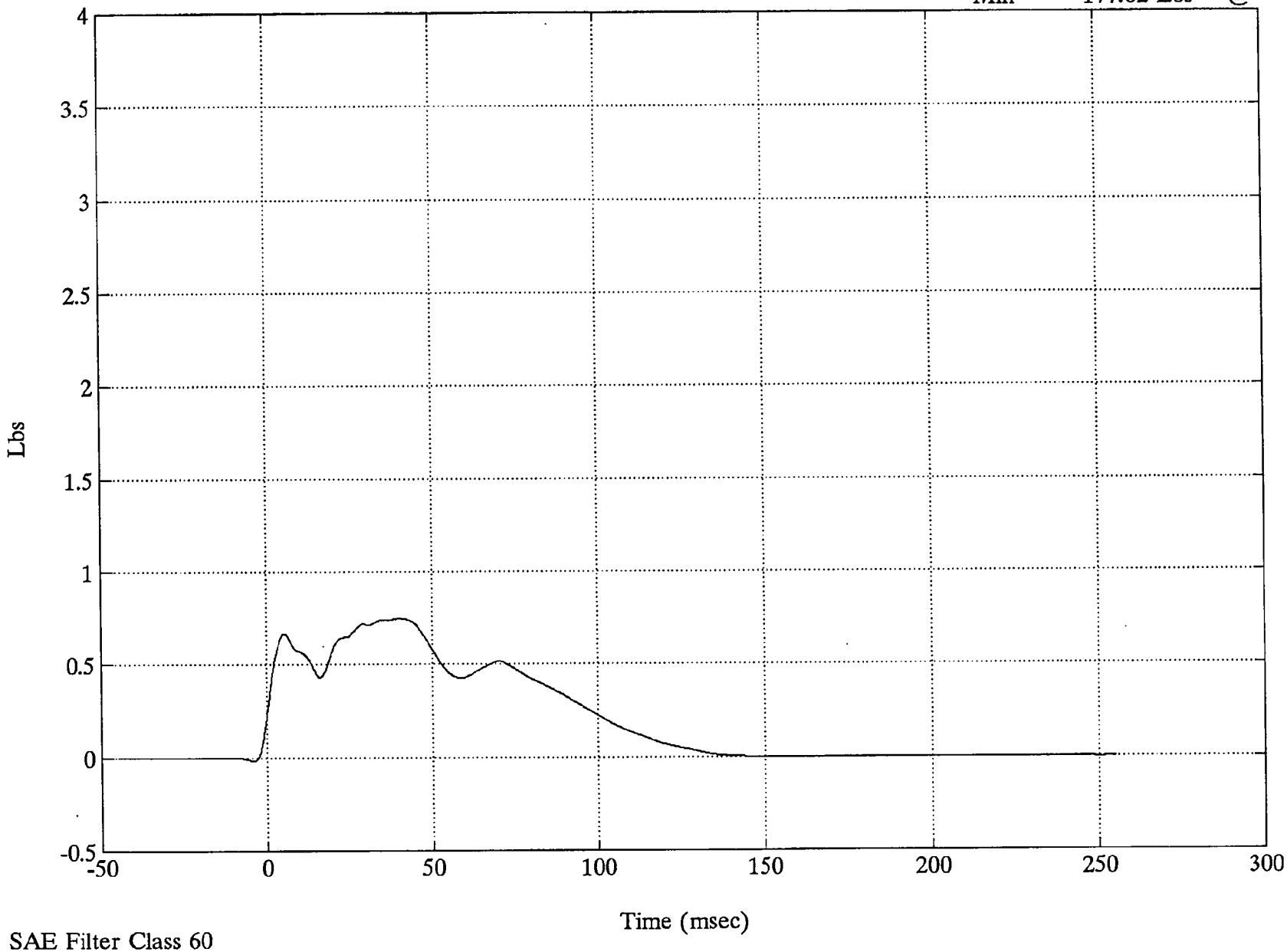
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell B6

Max = 7472.90 Lbs @ 40.07 msec
Min = -177.62 Lbs @ -4.20 msec



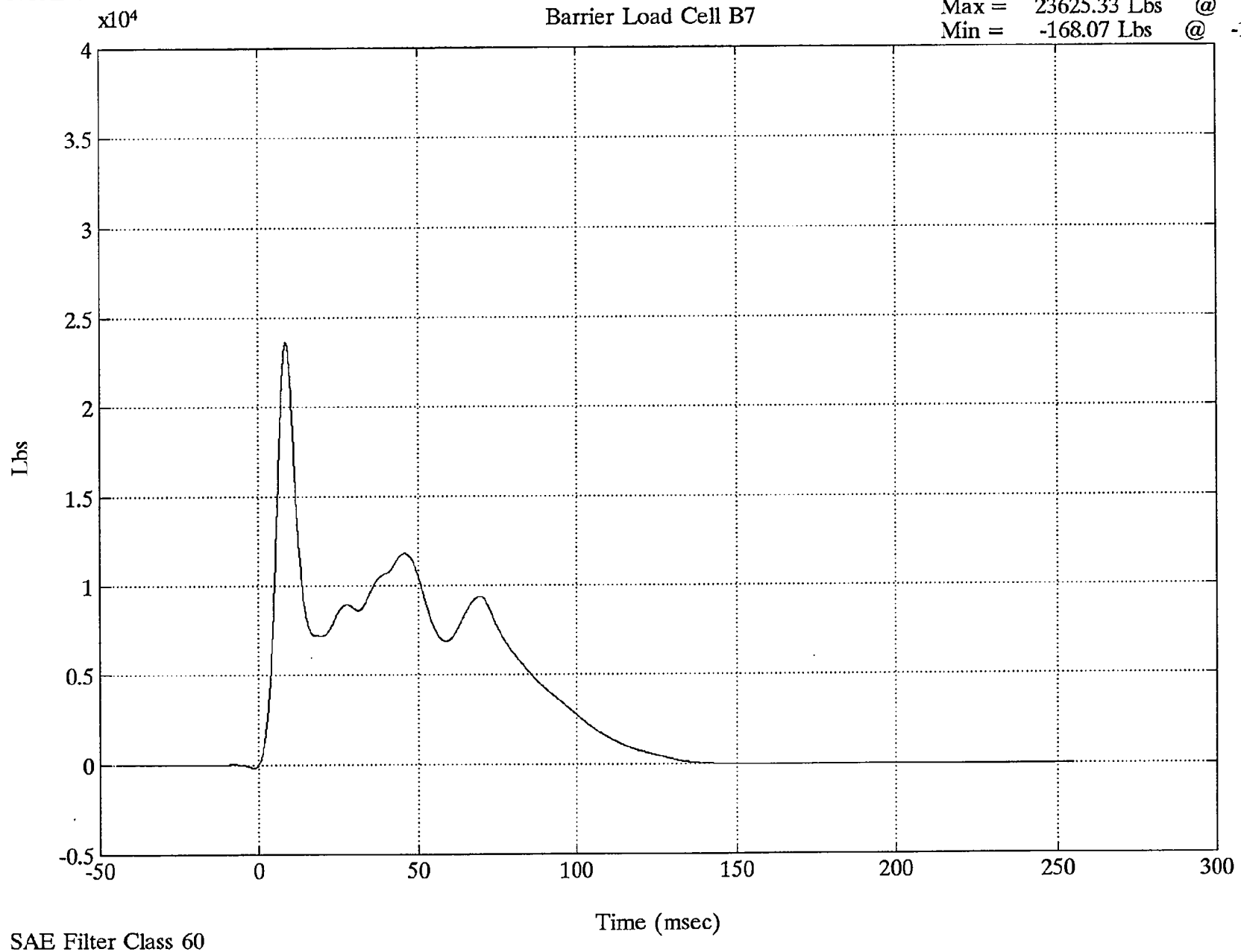
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell B7

Max = 23625.33 Lbs @ 8.51 msec
Min = -168.07 Lbs @ -1.56 msec



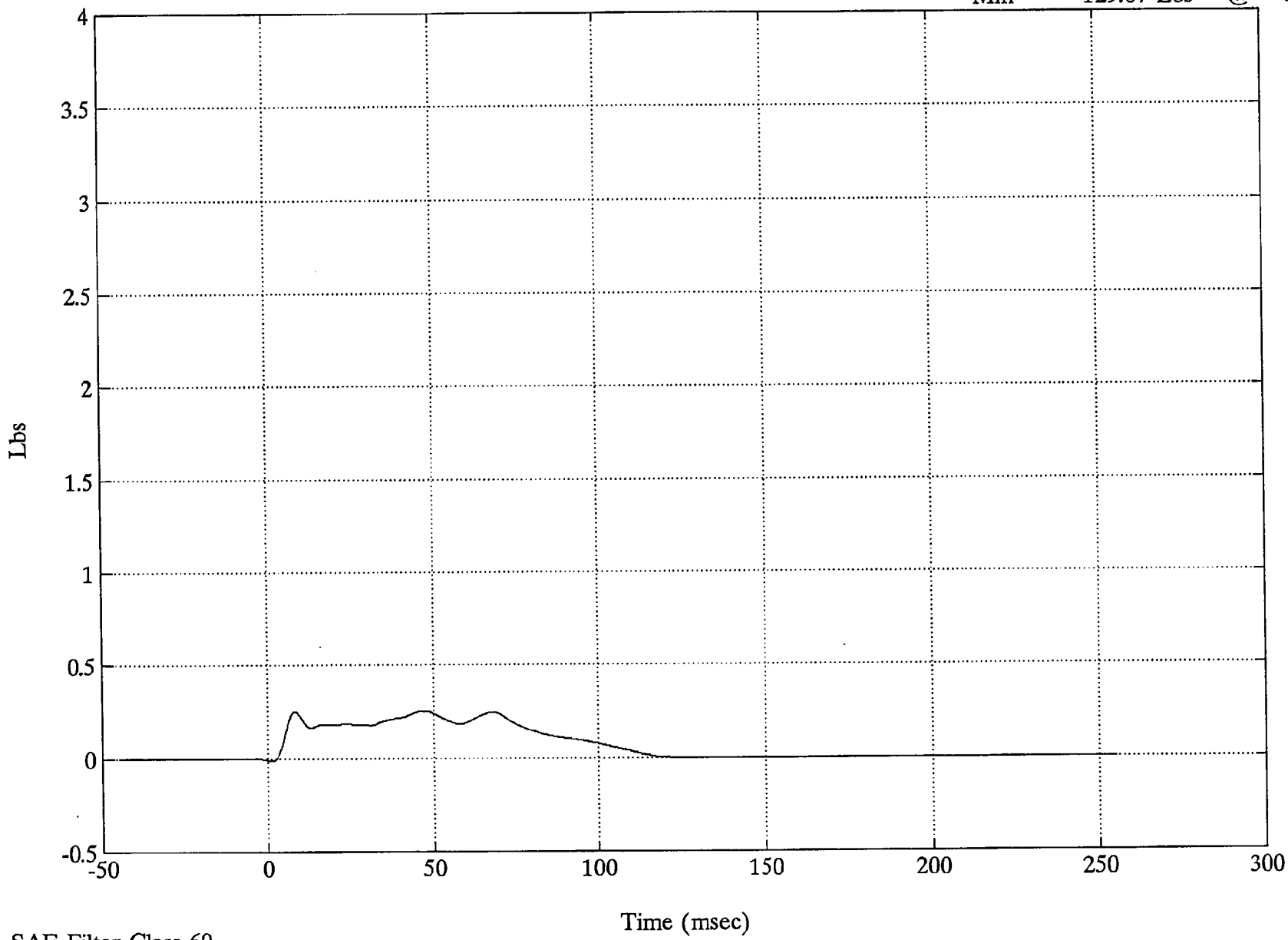
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell B8

Max = 2525.96 Lbs @ 47.04 msec
Min = -129.67 Lbs @ 1.07 msec



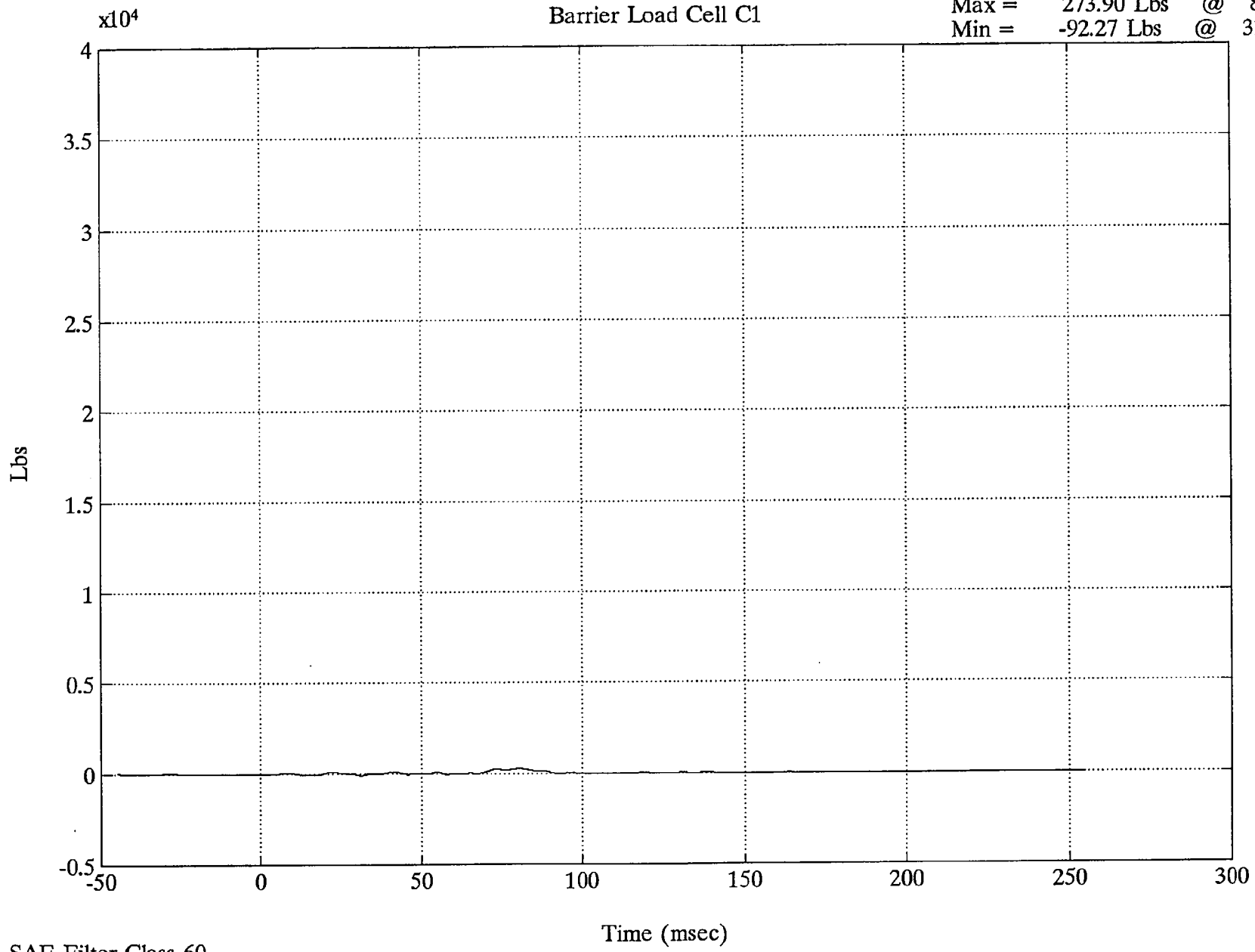
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell C1

Max = 273.90 Lbs @ 80.63 msec
Min = -92.27 Lbs @ 31.07 msec



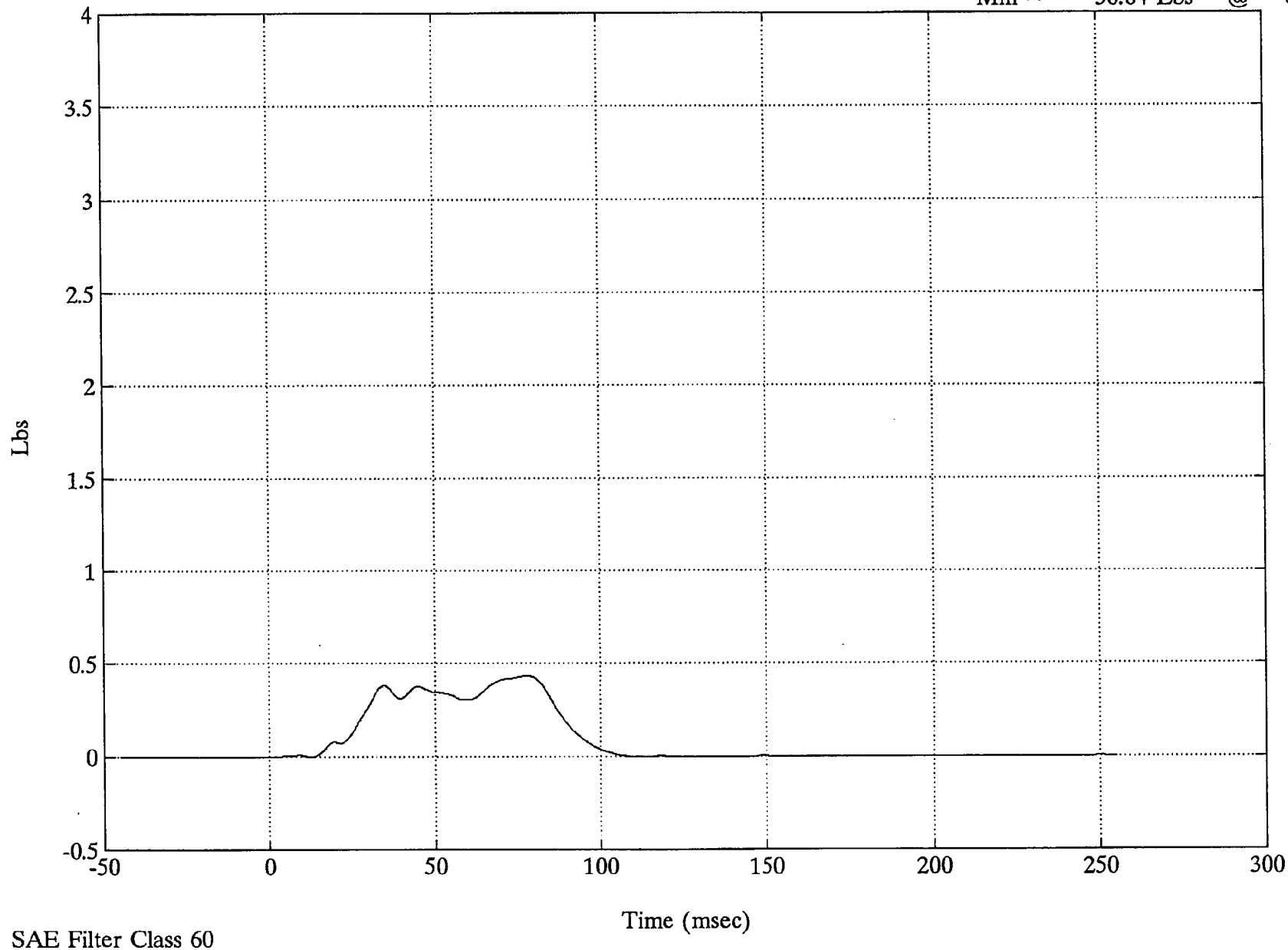
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell C2

Max = 4311.44 Lbs @ 77.76 msec
Min = -30.64 Lbs @ 0.95 msec



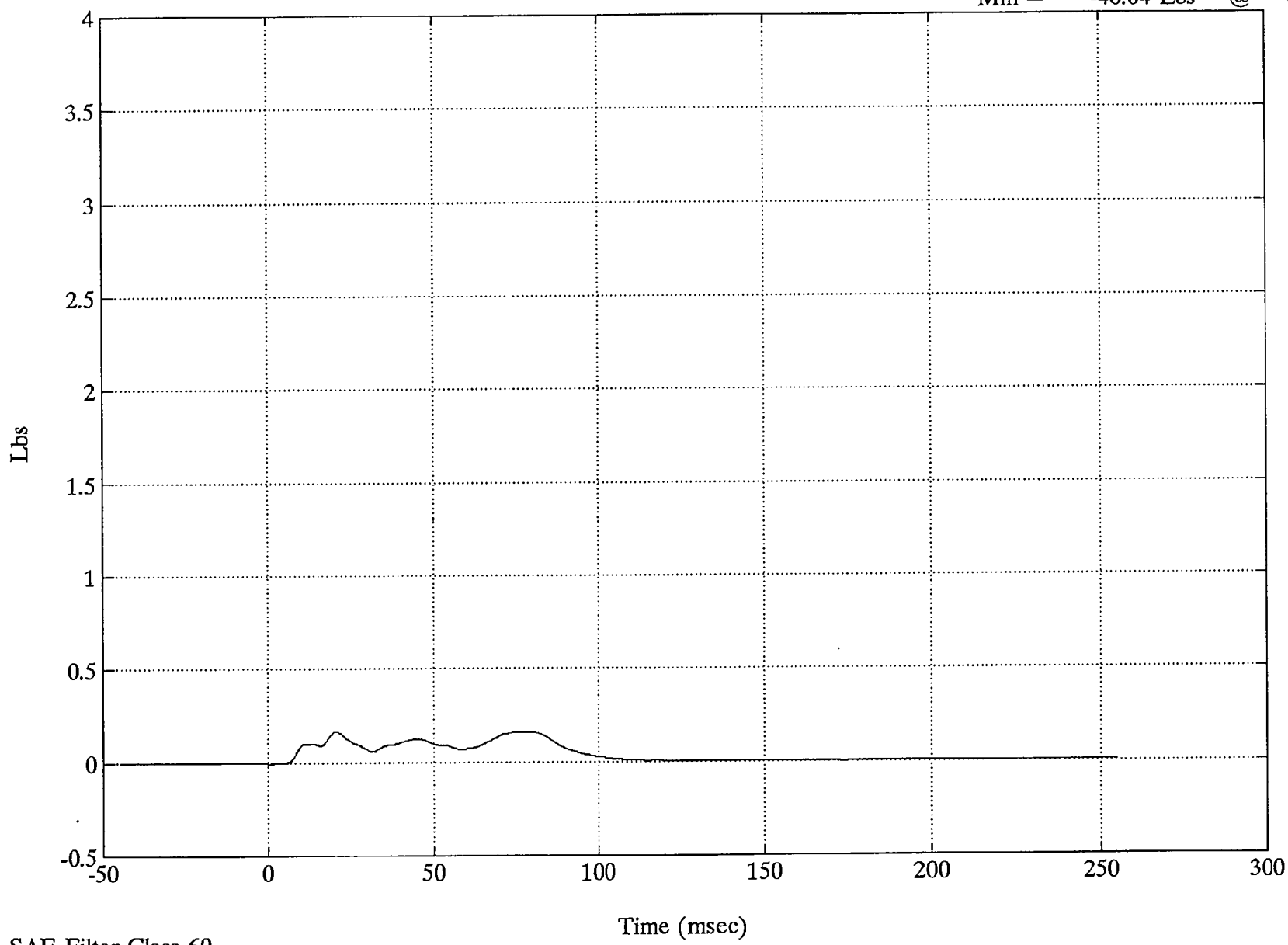
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell C3

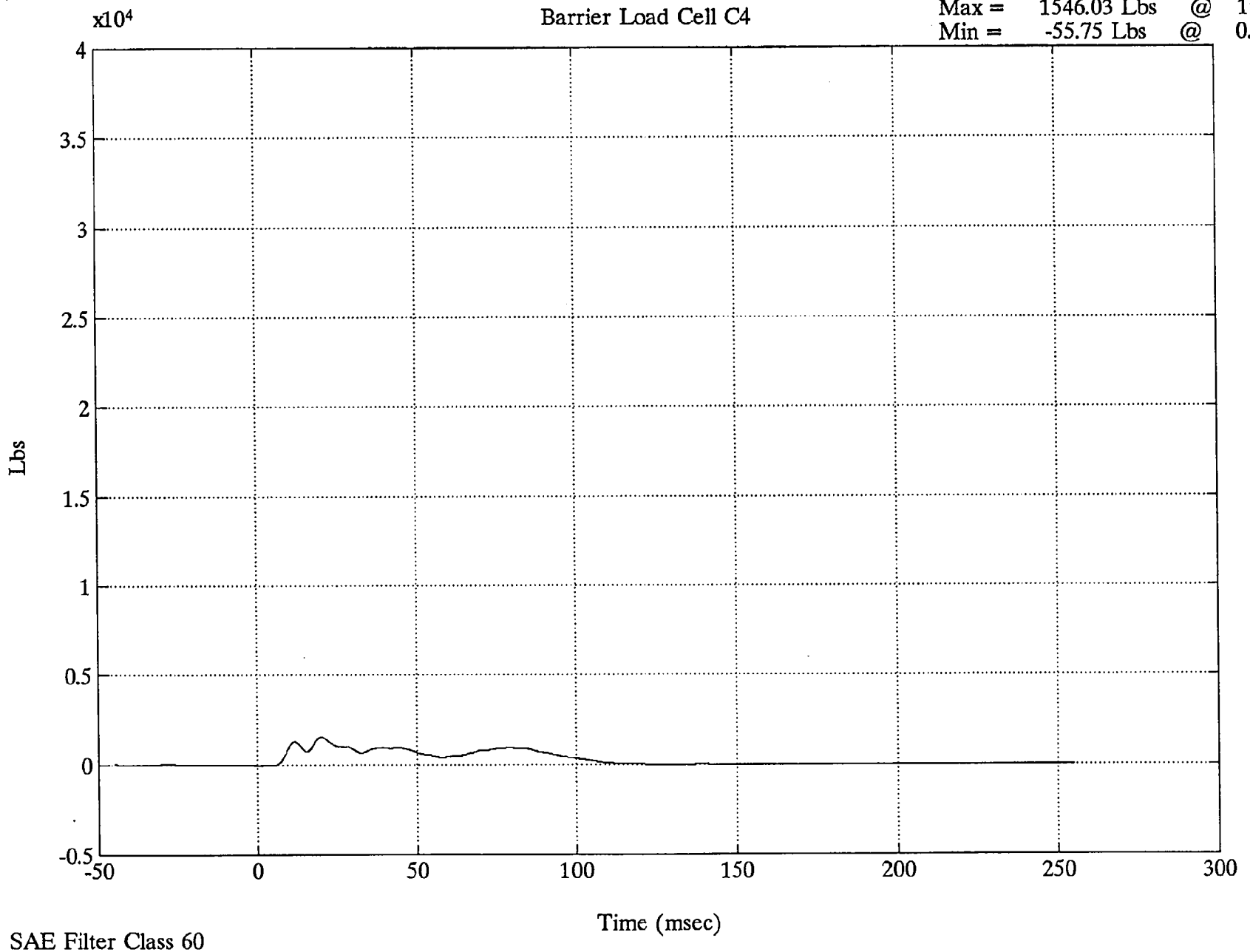
Max = 1662.20 Lbs @ 20.52 msec
Min = -46.04 Lbs @ 0.59 msec



SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA



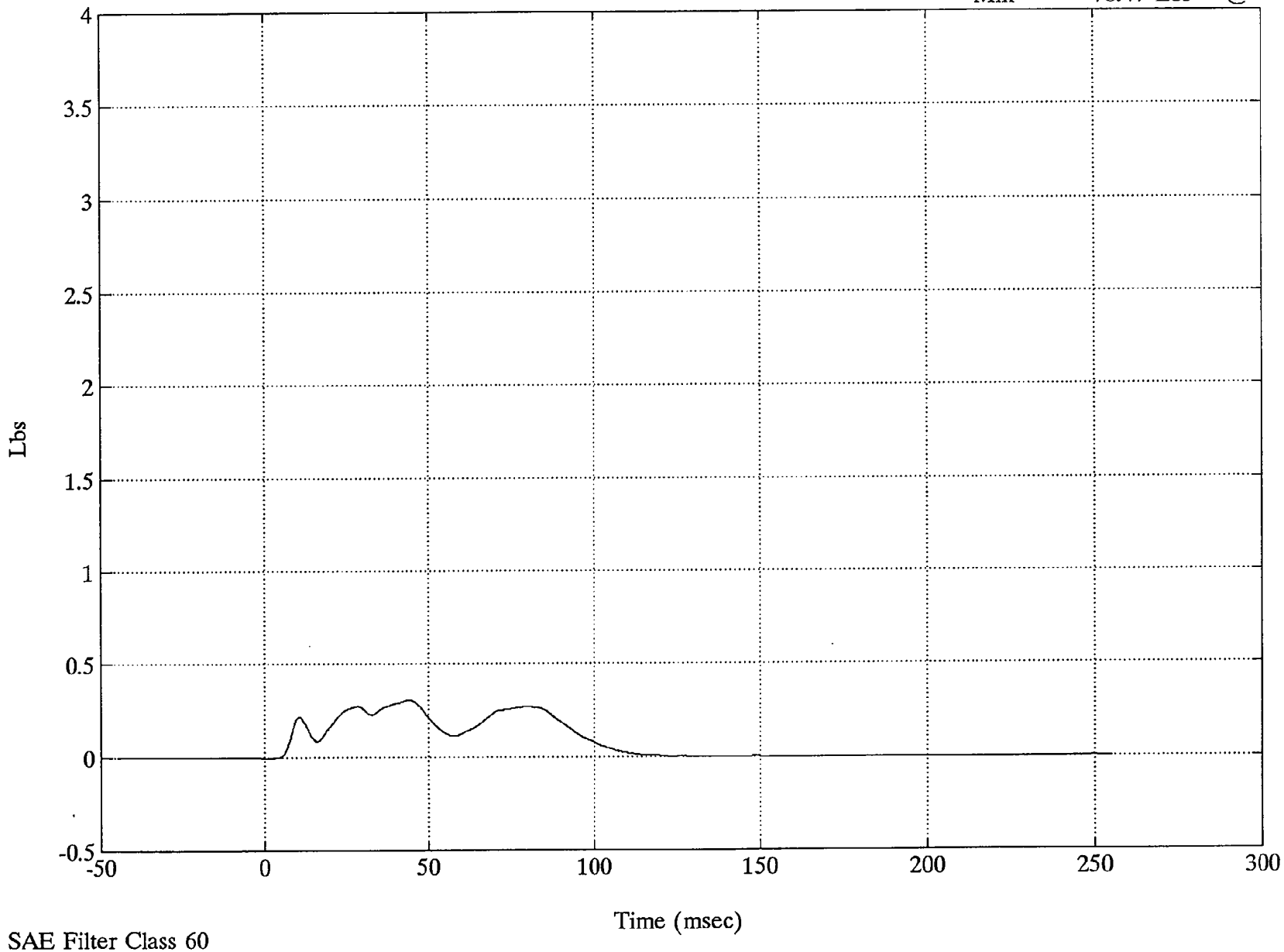
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell C5

Max = 3056.06 Lbs @ 44.15 msec
Min = -76.47 Lbs @ 0.71 msec



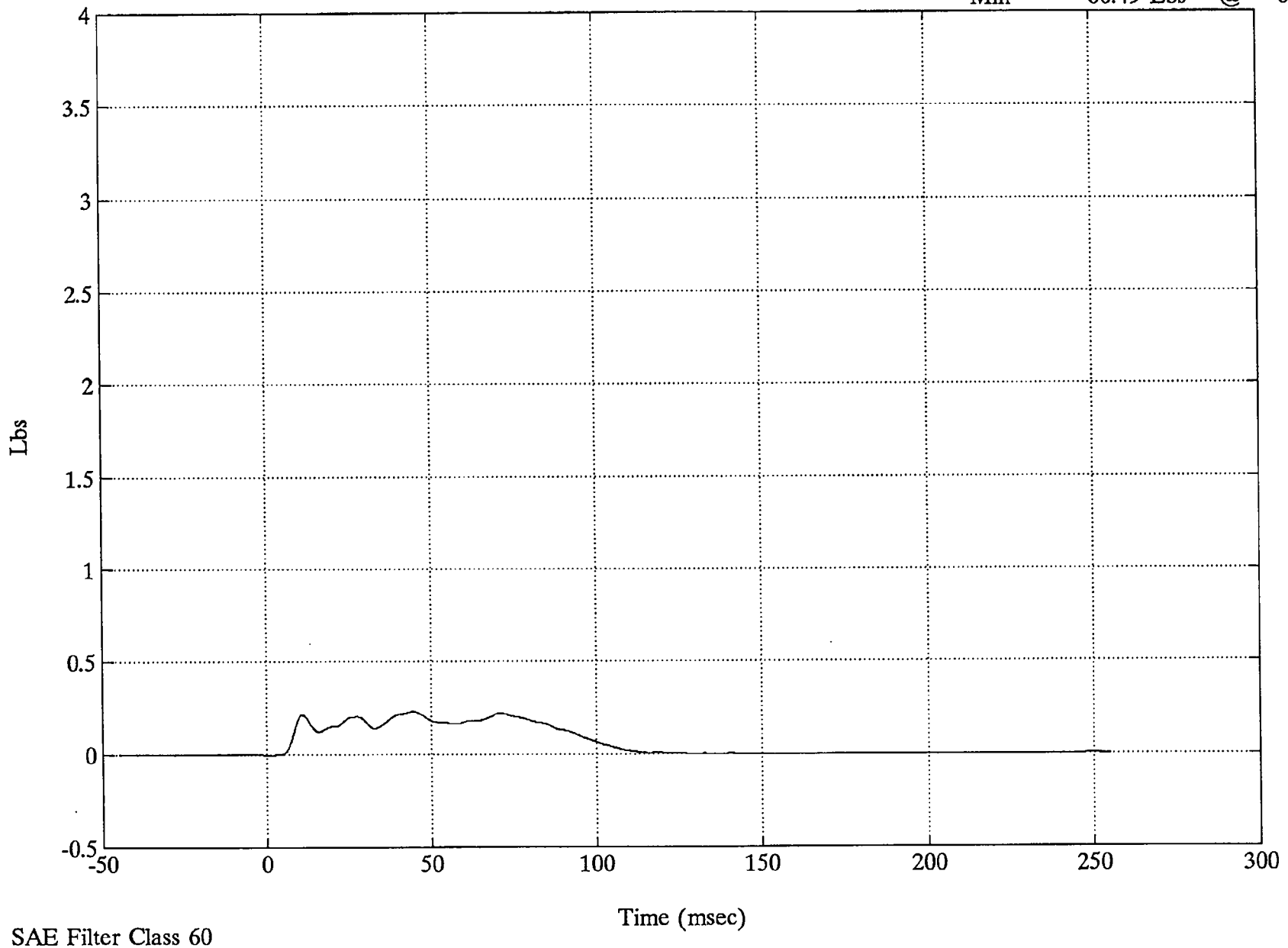
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell C6

Max = 2300.63 Lbs @ 44.39 msec
Min = -60.49 Lbs @ 0.47 msec



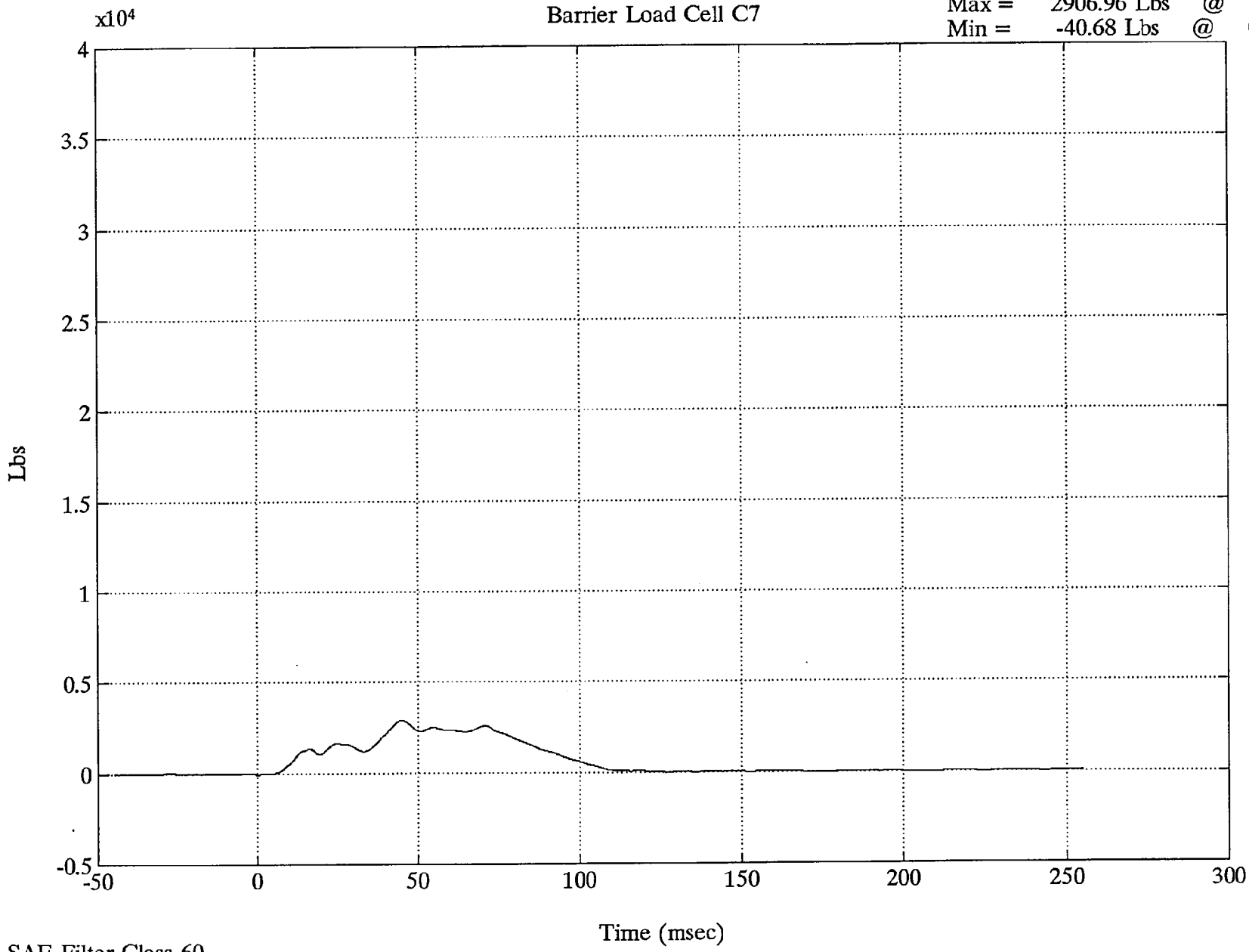
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell C7

Max = 2906.96 Lbs @ 45.00 msec
Min = -40.68 Lbs @ 0.23 msec



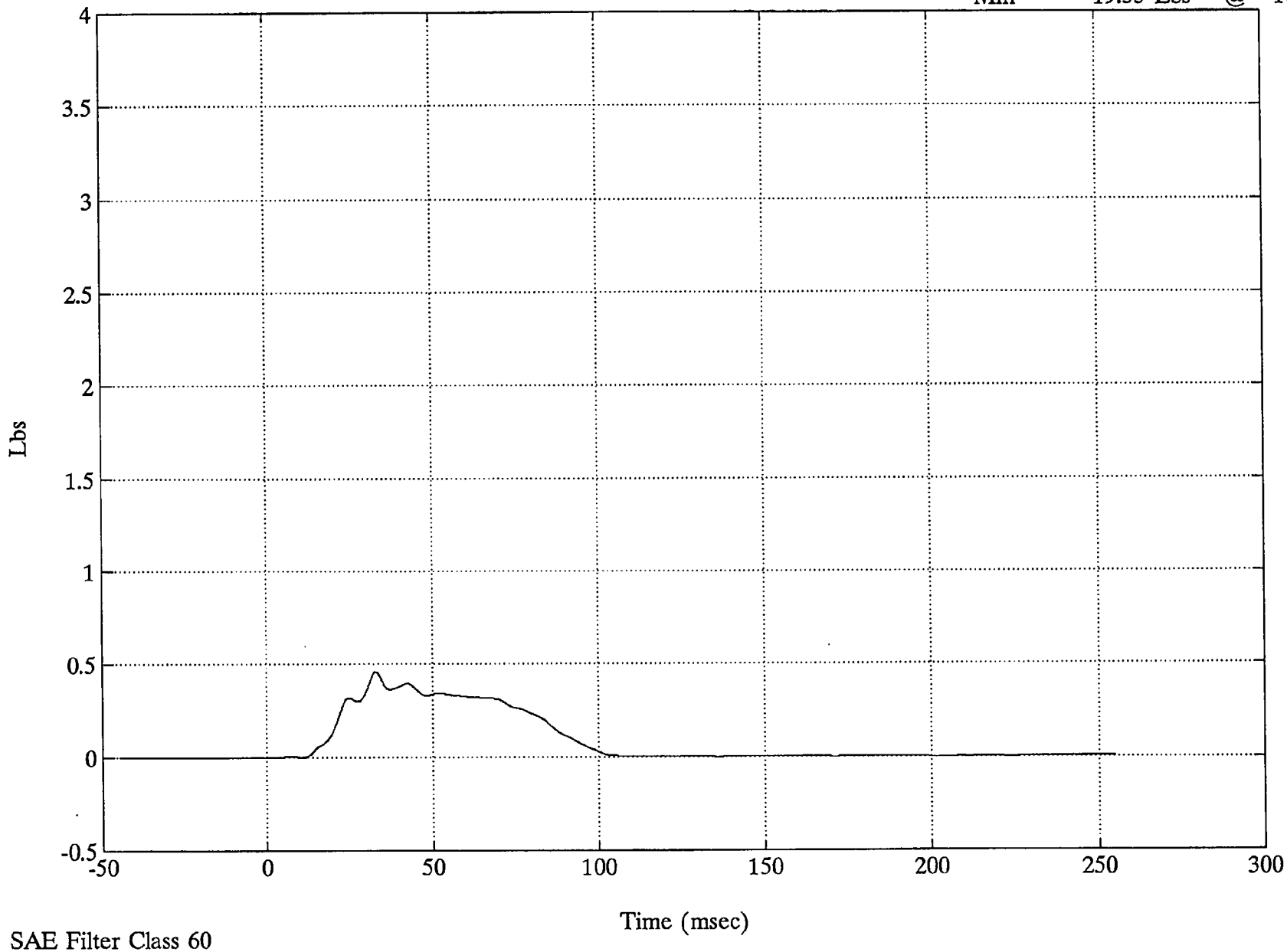
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell C8

Max = 4589.10 Lbs @ 32.76 msec
Min = -19.55 Lbs @ 10.67 msec



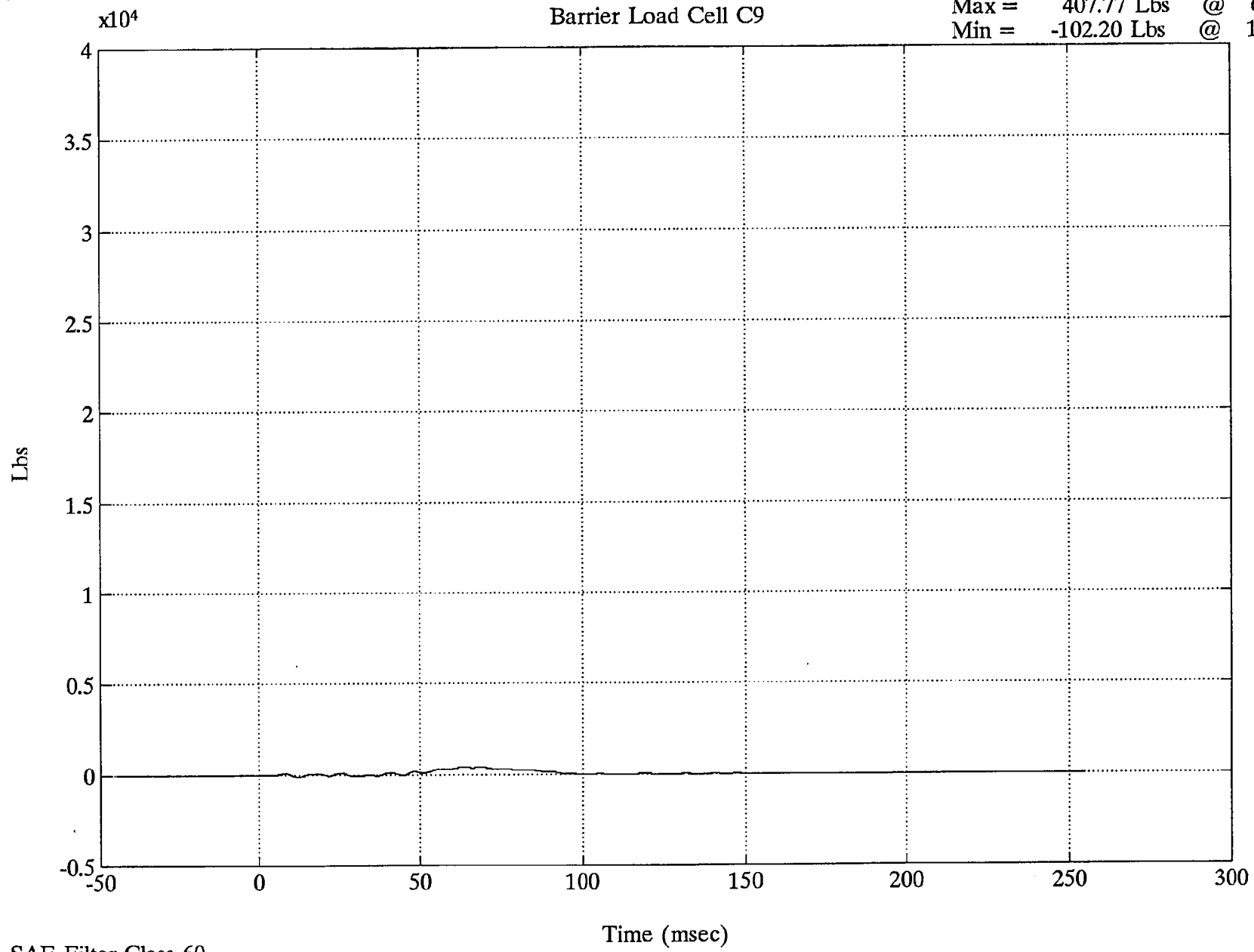
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell C9

Max = 407.77 Lbs @ 63.35 msec
Min = -102.20 Lbs @ 11.99 msec



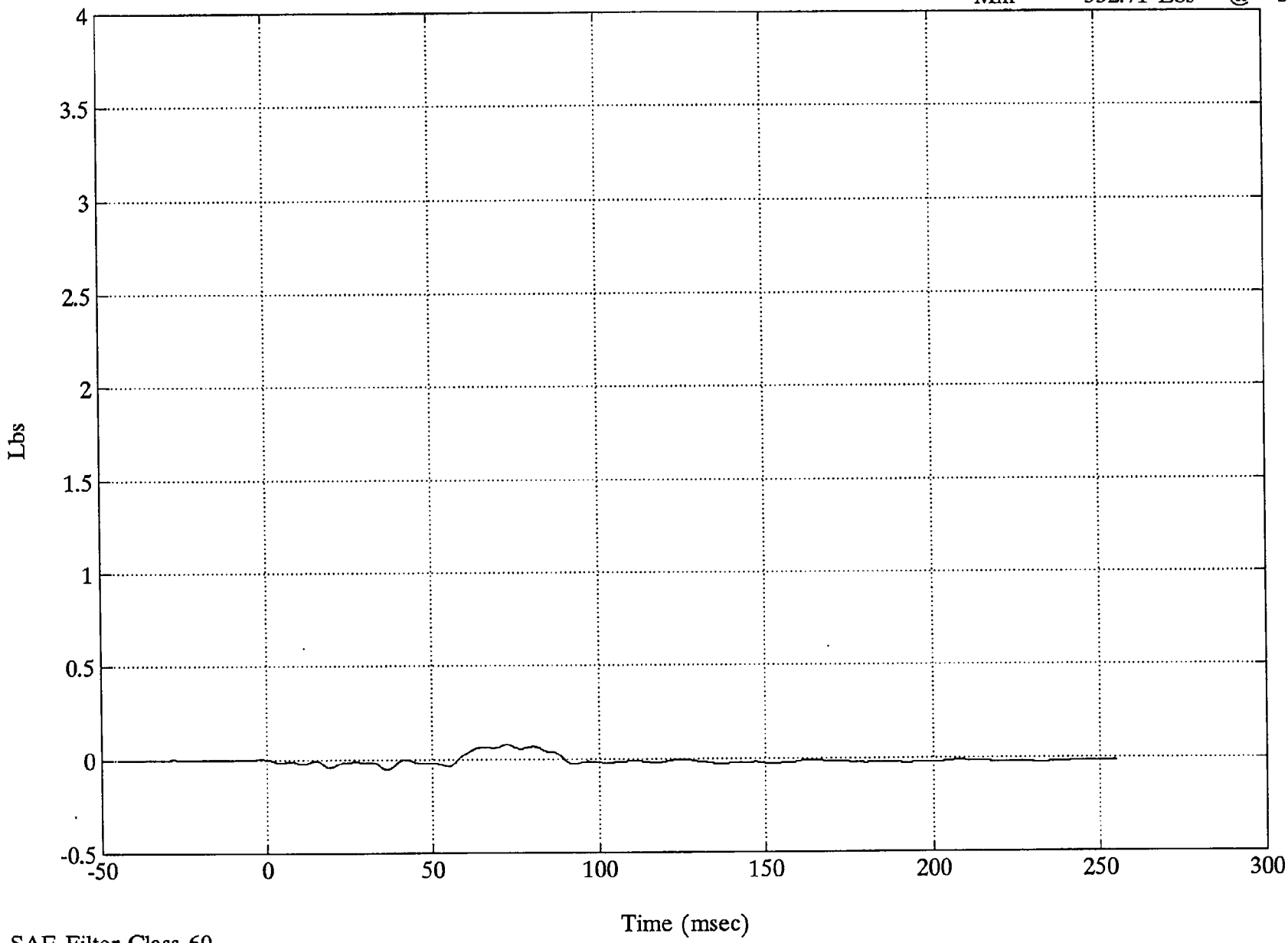
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell D1

Max = 781.07 Lbs @ 72.24 msec
Min = -532.71 Lbs @ 36.47 msec



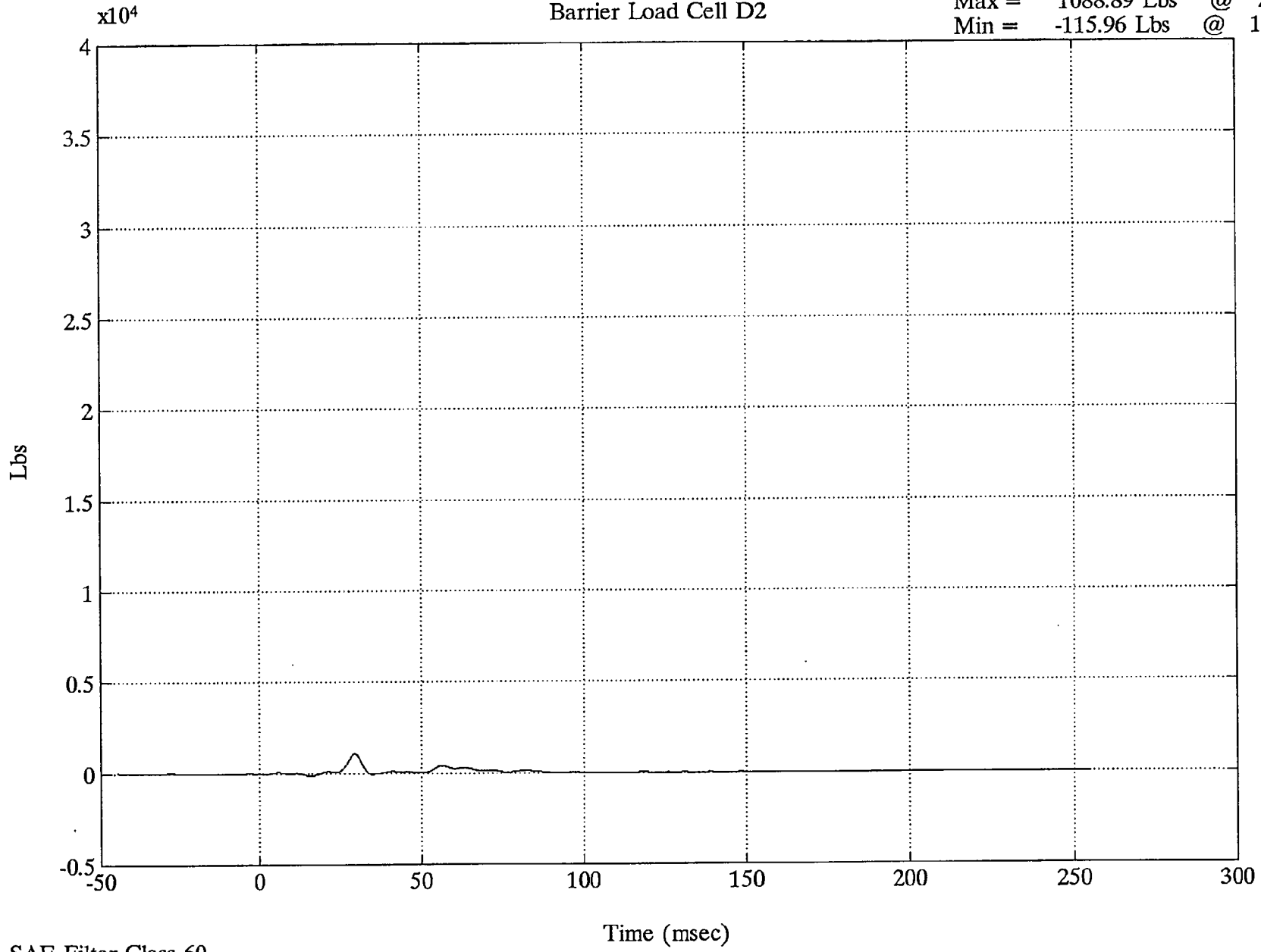
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell D2

Max = 1088.89 Lbs @ 29.51 msec
Min = -115.96 Lbs @ 16.07 msec



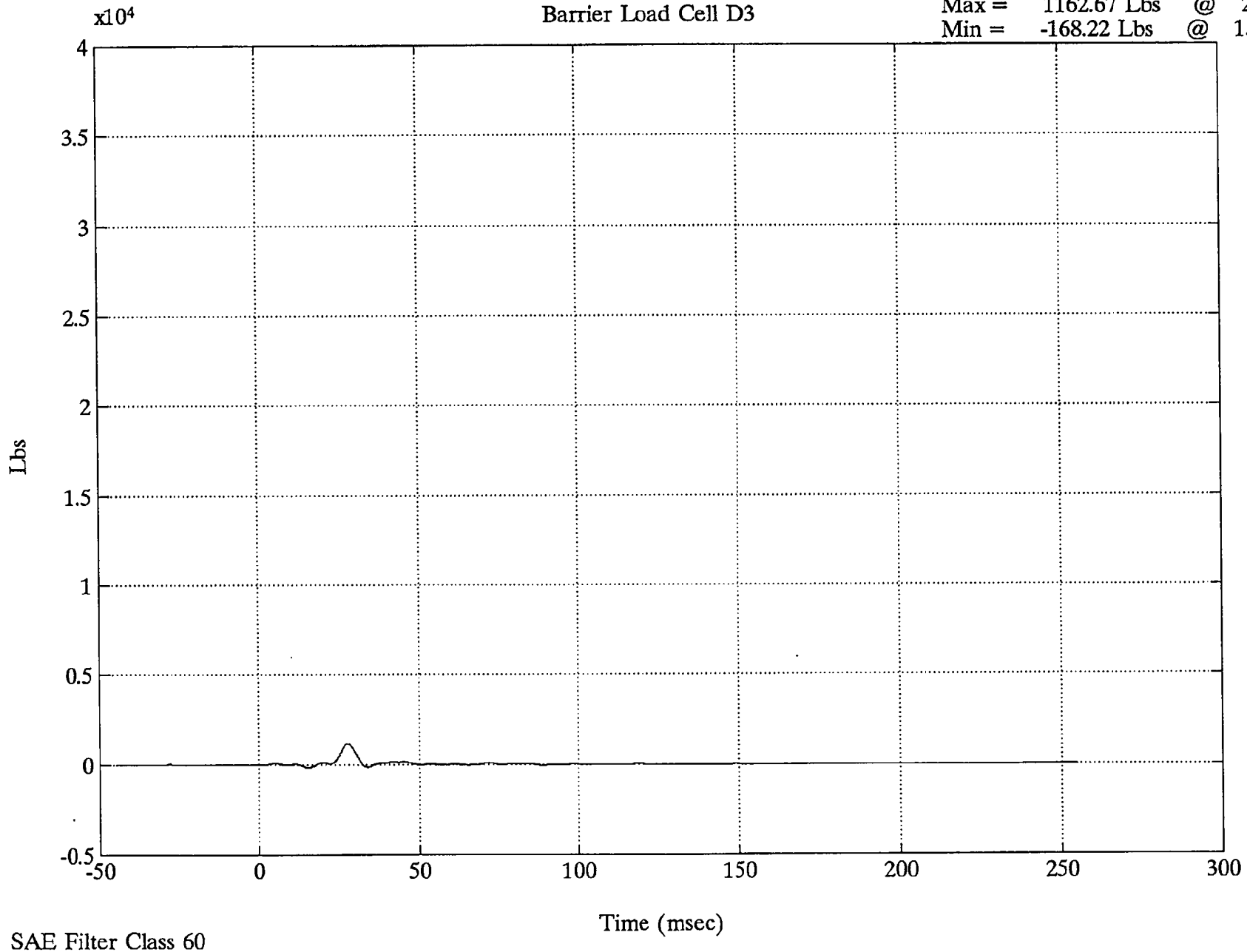
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell D3

Max = 1162.67 Lbs @ 27.48 msec
Min = -168.22 Lbs @ 15.35 msec



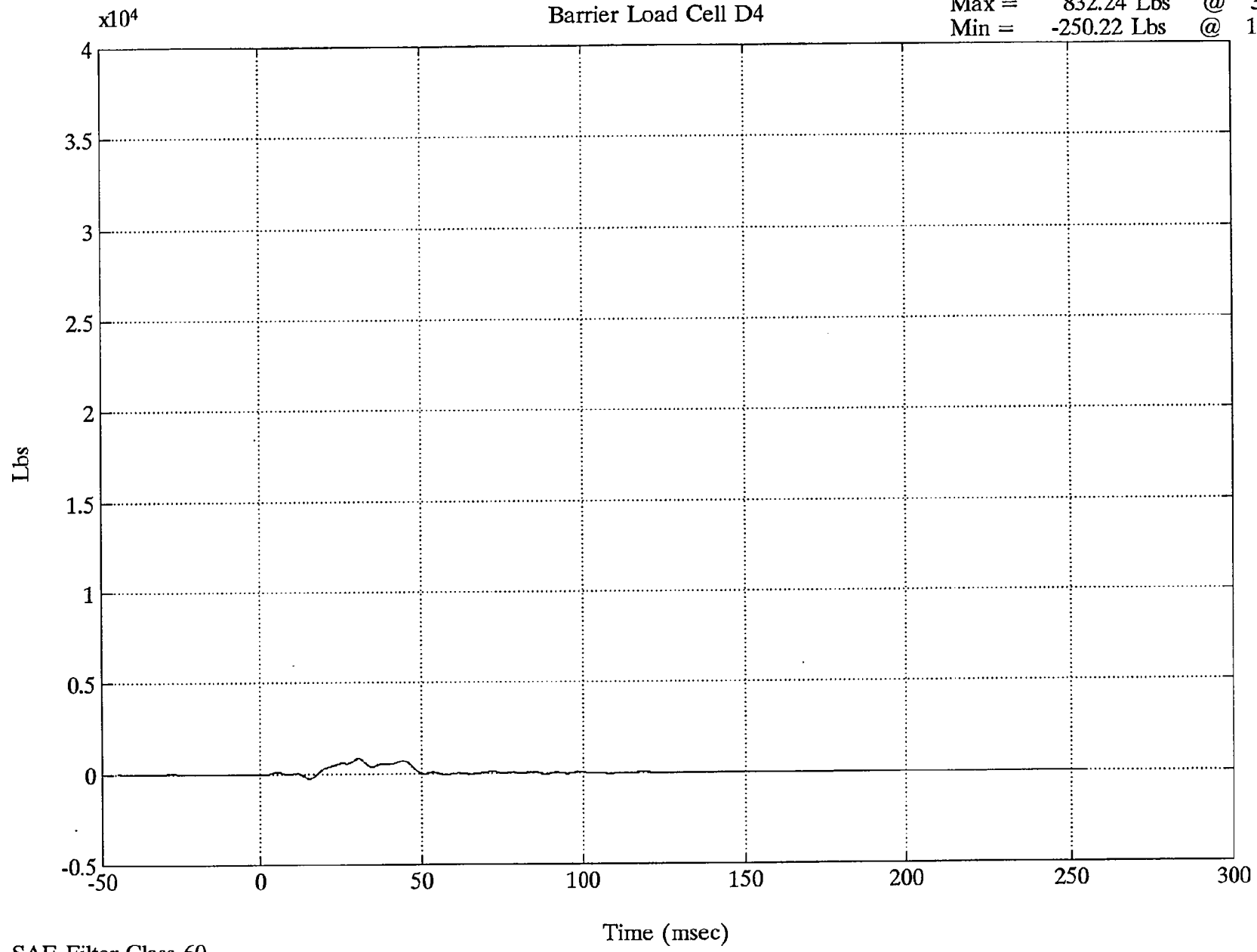
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell D4

Max = 832.24 Lbs @ 30.47 msec
Min = -250.22 Lbs @ 15.35 msec



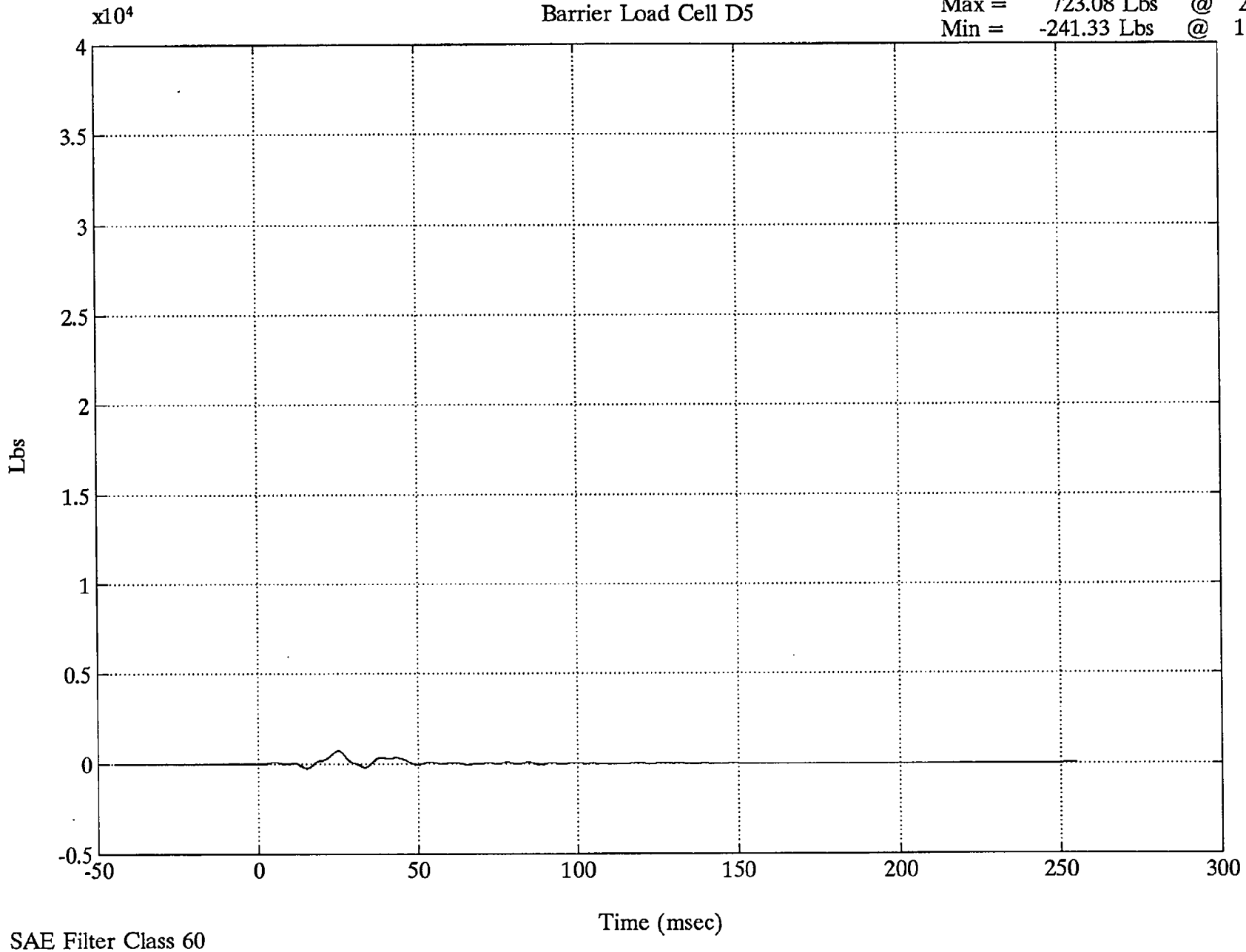
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell D5

Max = 723.08 Lbs @ 25.07 msec
Min = -241.33 Lbs @ 15.23 msec



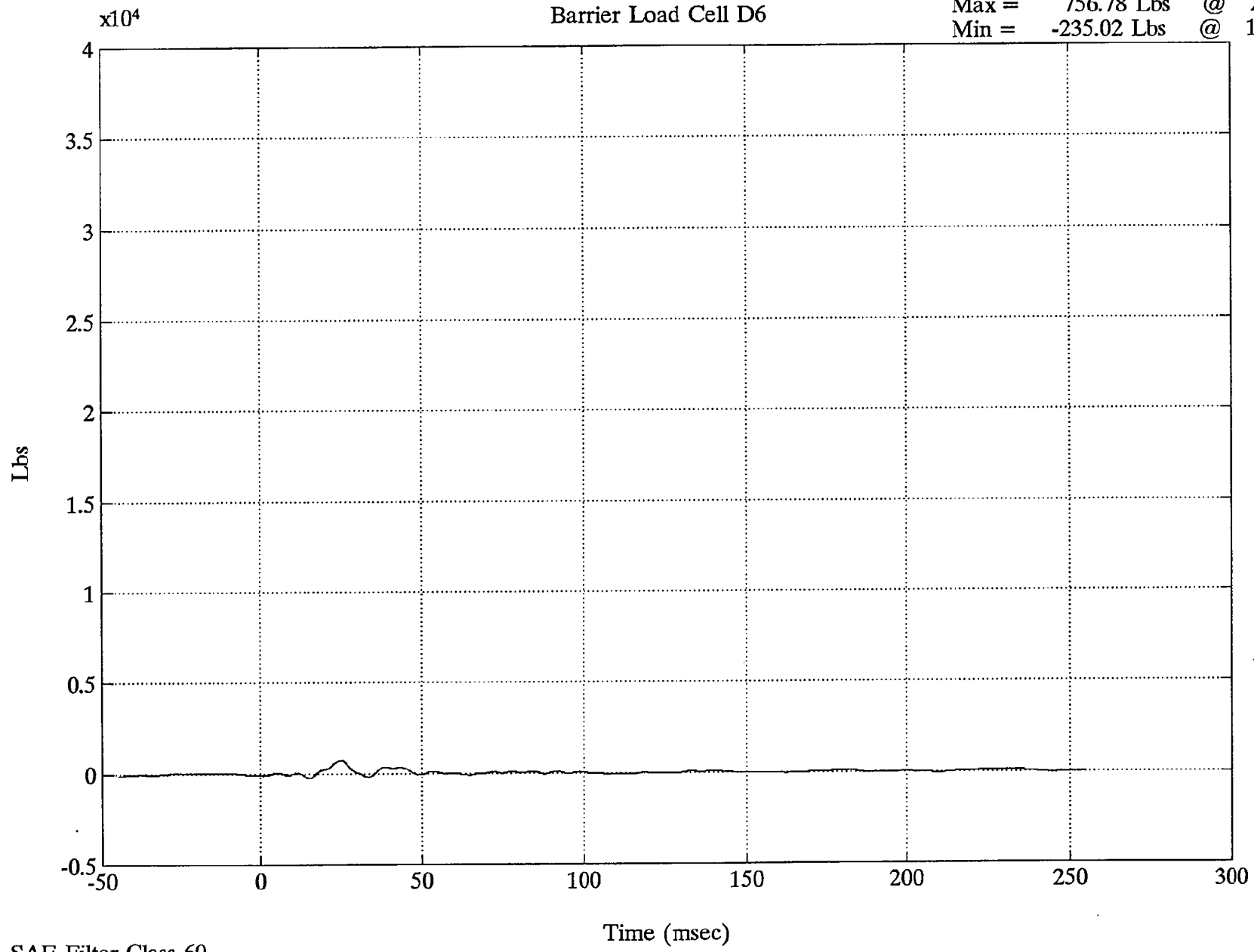
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell D6

Max = 756.78 Lbs @ 24.96 msec
Min = -235.02 Lbs @ 15.11 msec



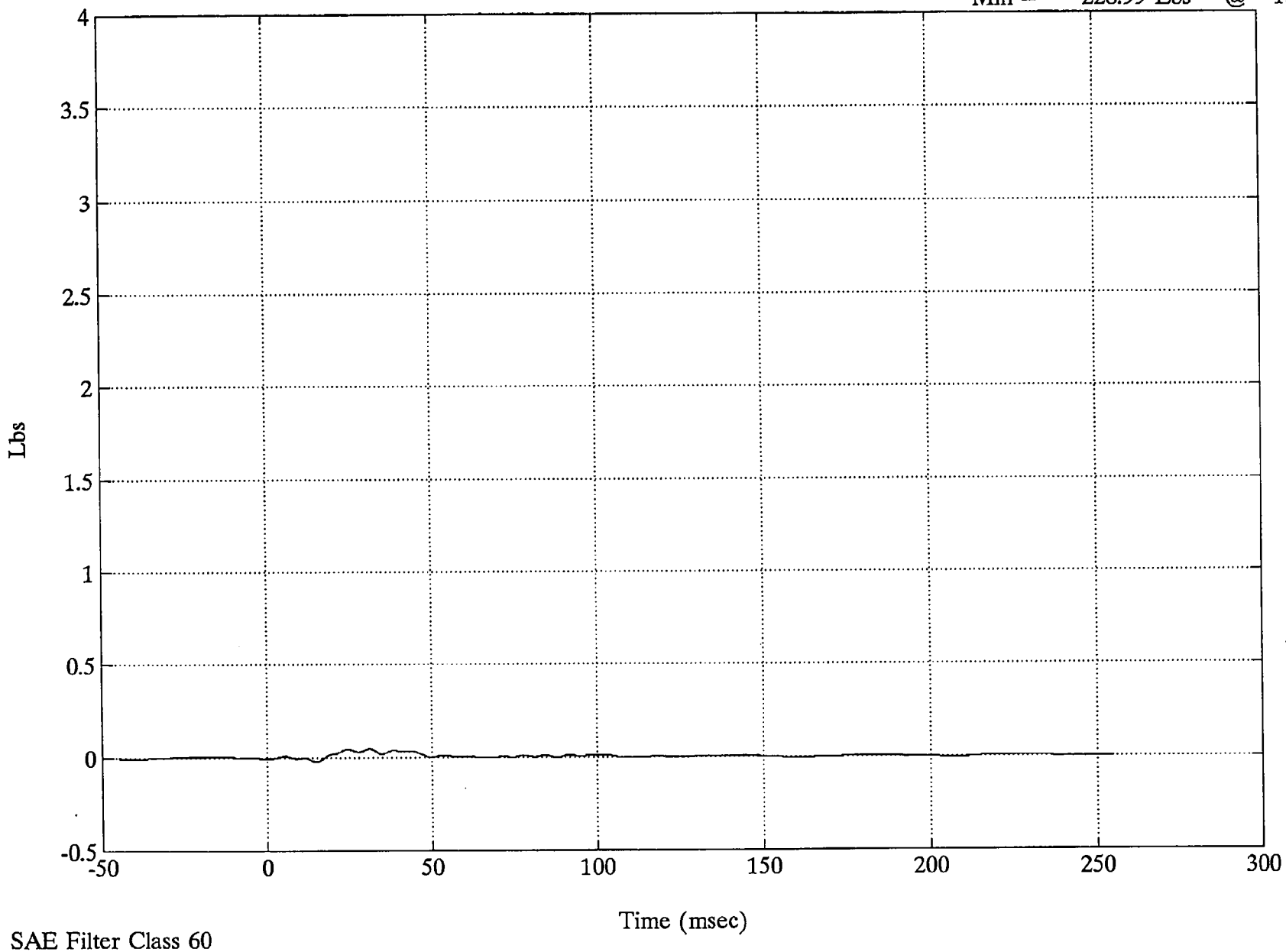
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell D7

Max = 472.46 Lbs @ 31.07 msec
Min = -228.99 Lbs @ 15.00 msec



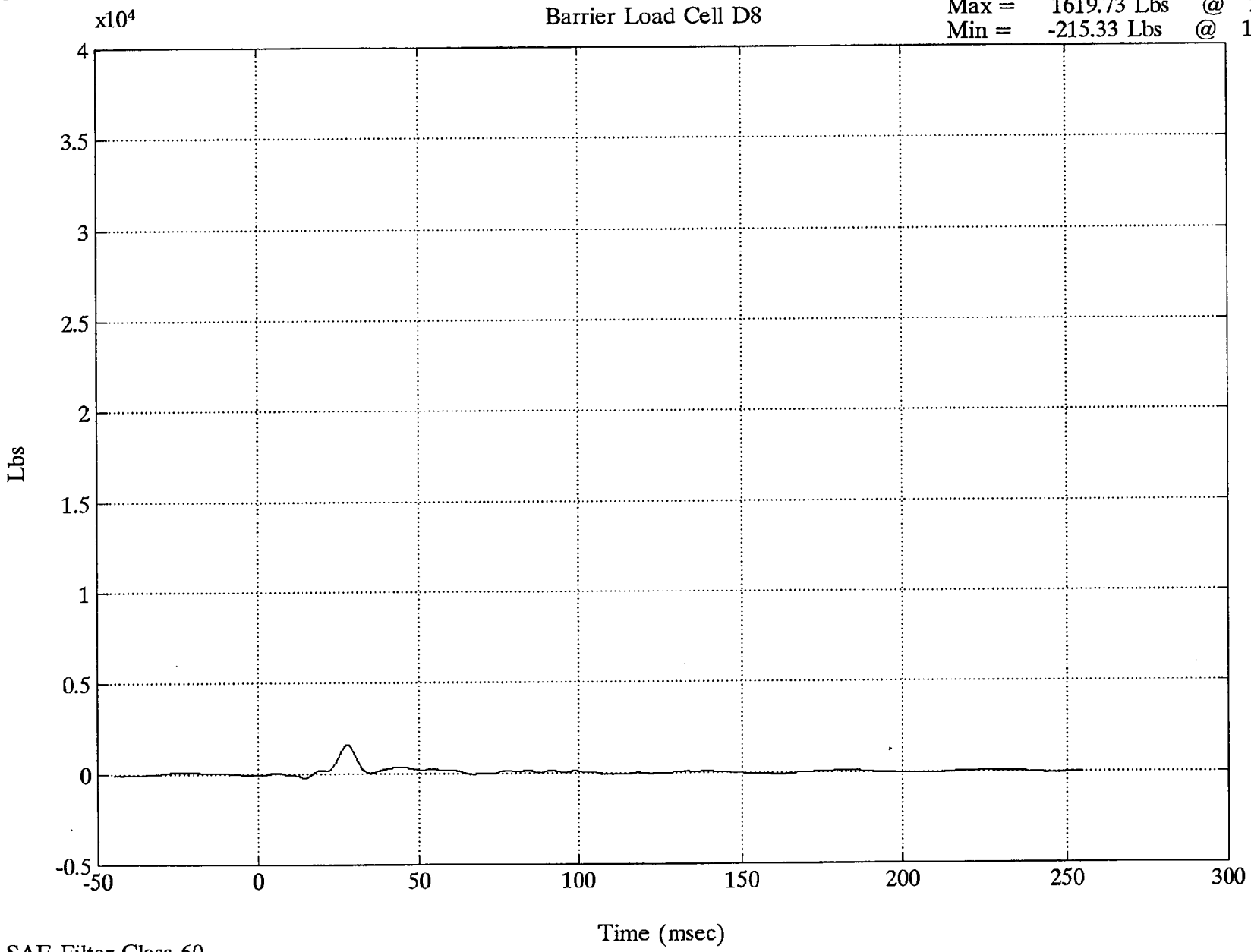
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Barrier Load Cell D8

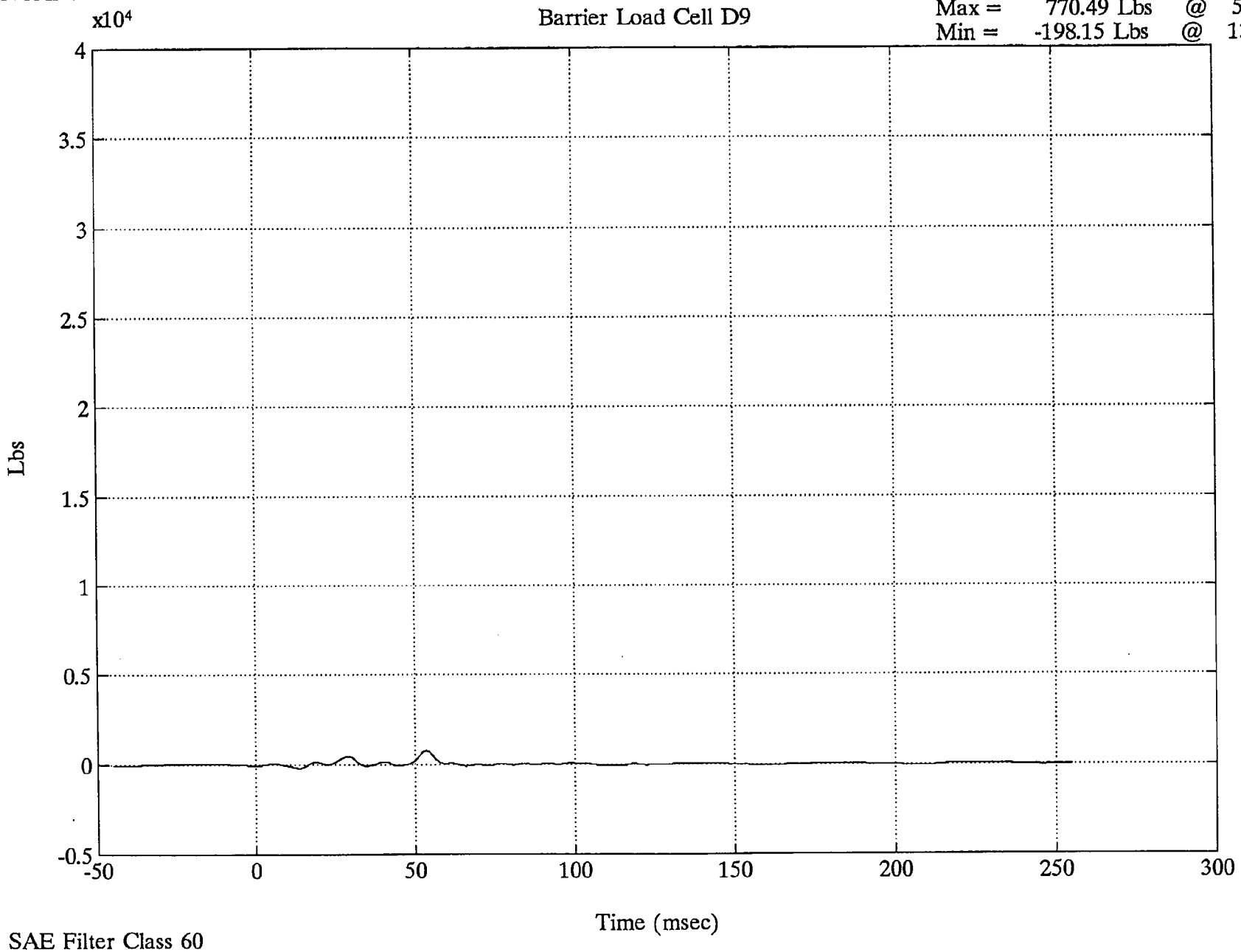
Max = 1619.73 Lbs @ 27.60 msec
Min = -215.33 Lbs @ 14.39 msec



SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA



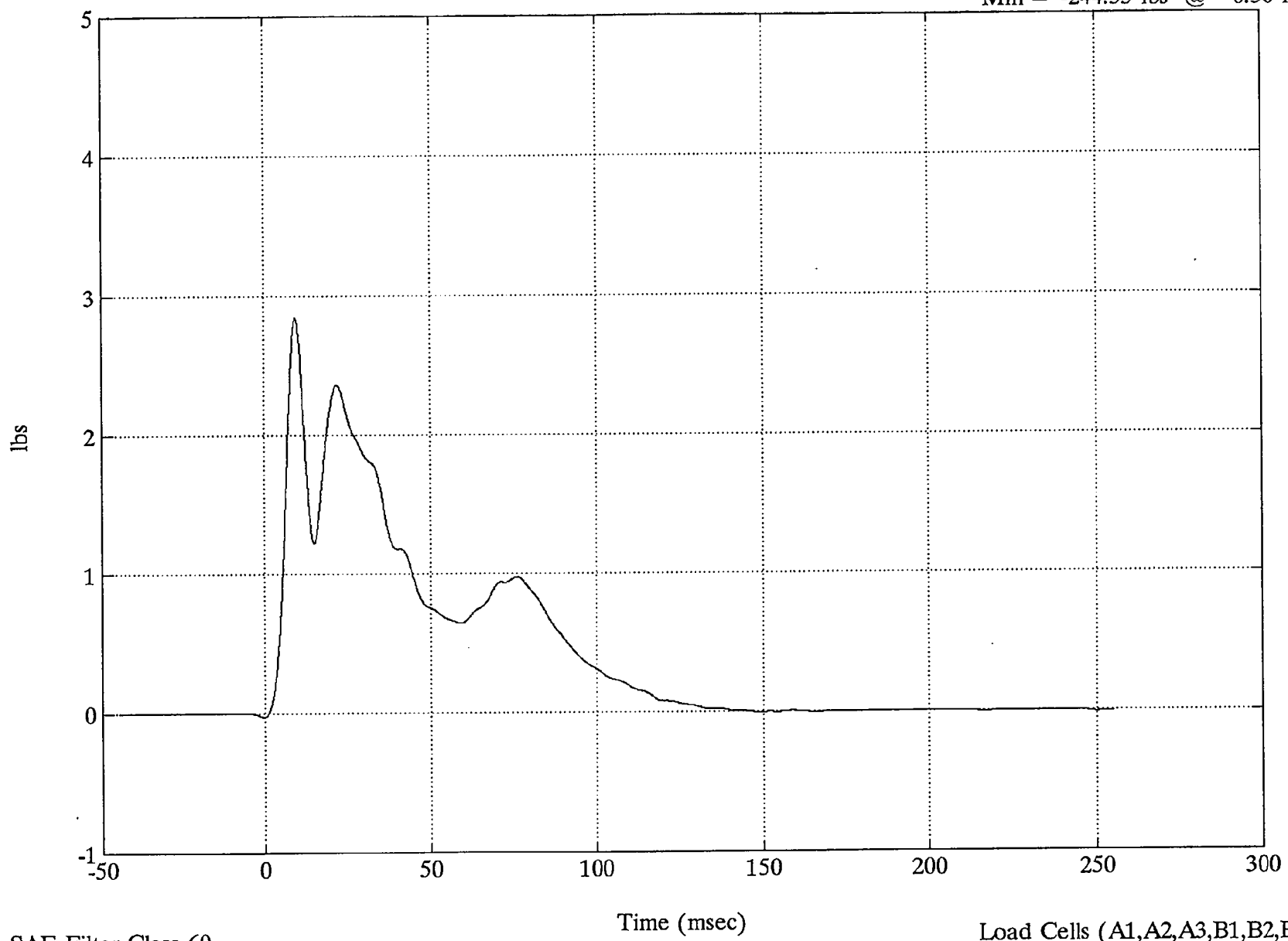
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Group 1 Load Cell Sum

Max = 28492.30 lbs @ 9.48 msec
Min = -244.33 lbs @ -0.36 msec



SAE Filter Class 60

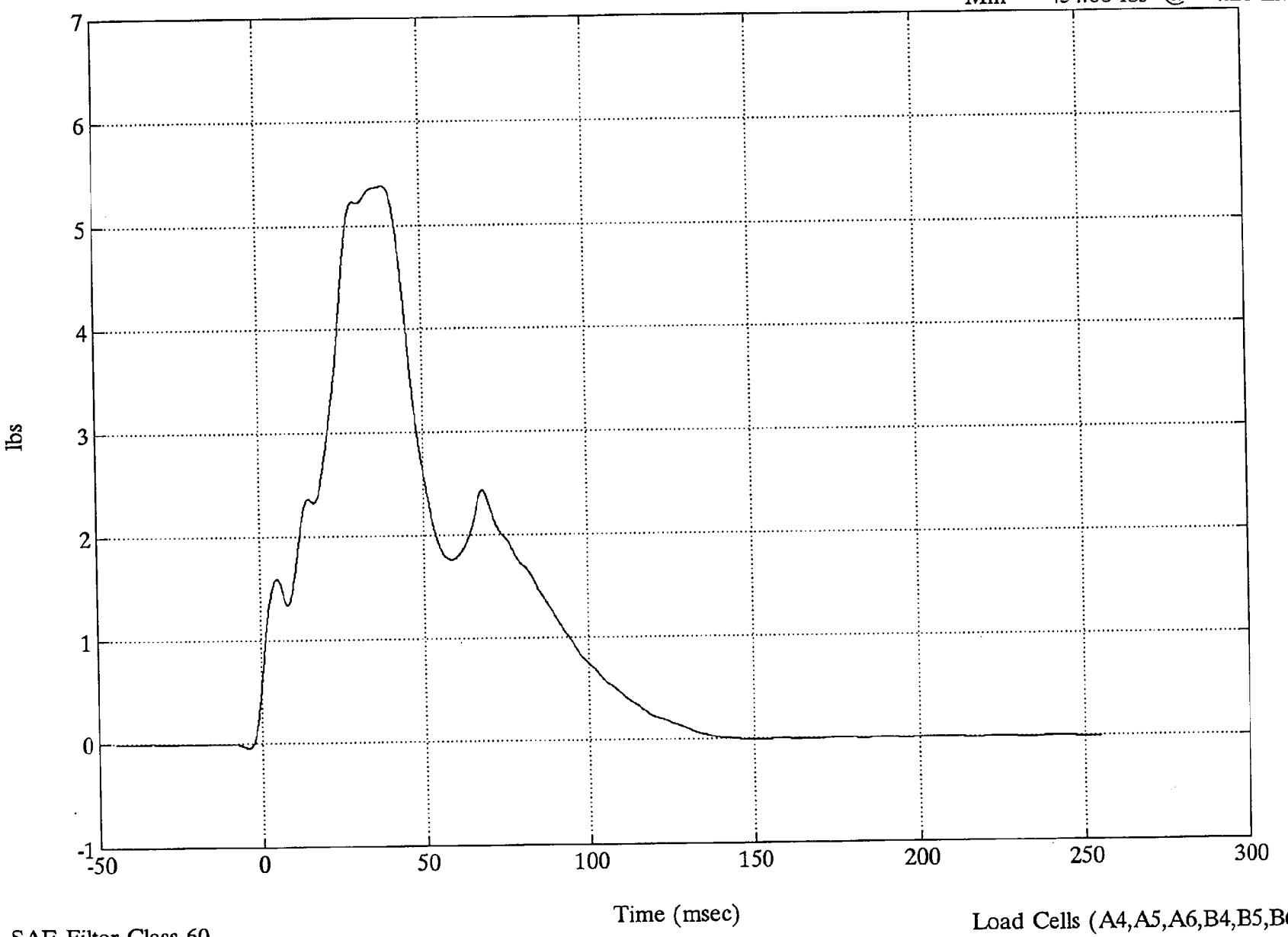
Load Cells (A1,A2,A3,B1,B2,B3)

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Group 2 Load Cell Sum

Max = 53847.20 lbs @ 38.52 msec
Min = -434.06 lbs @ -4.20 msec



SAE Filter Class 60

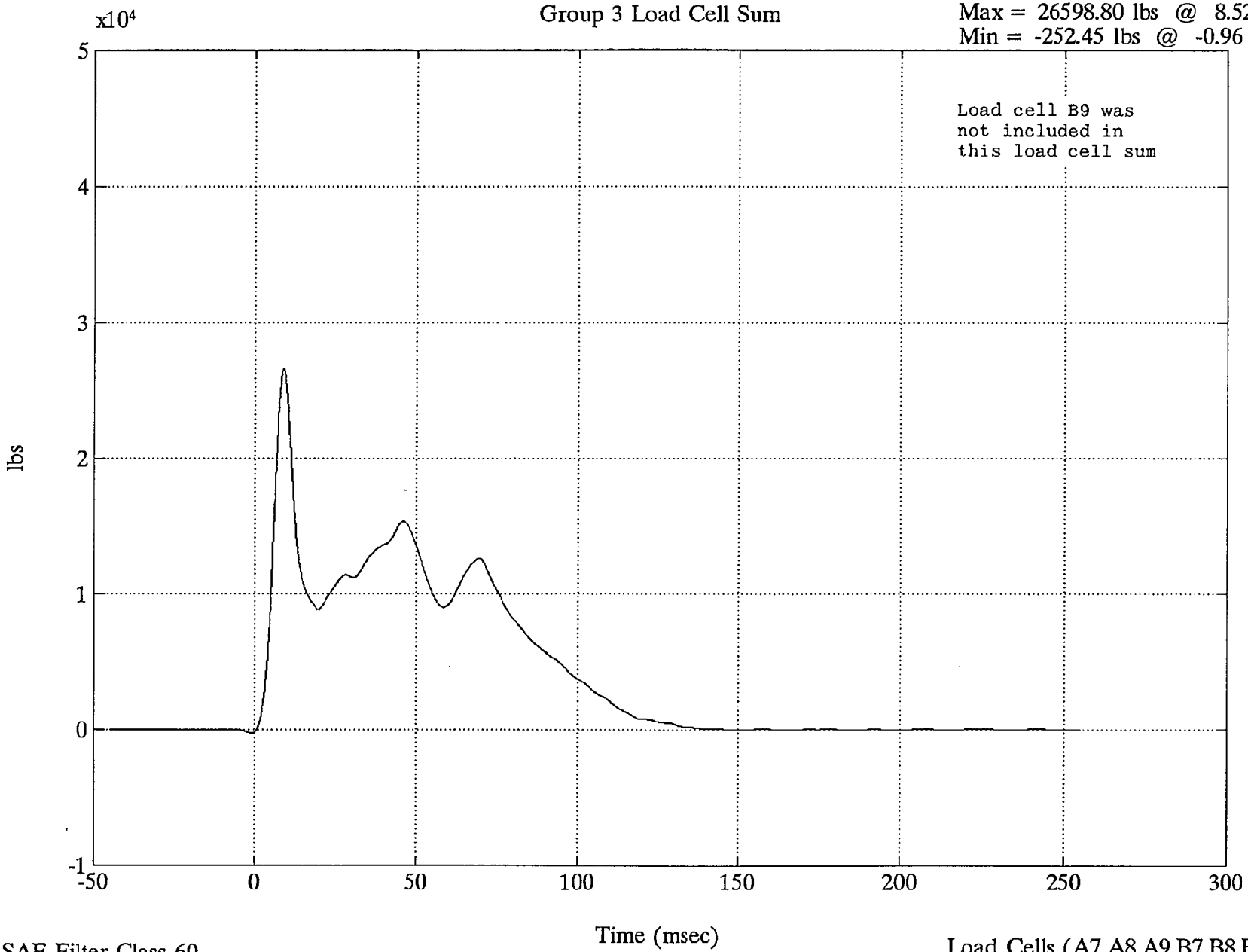
Load Cells (A4,A5,A6,B4,B5,B6)

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Group 3 Load Cell Sum

Max = 26598.80 lbs @ 8.52 msec
Min = -252.45 lbs @ -0.96 msec



SAE Filter Class 60

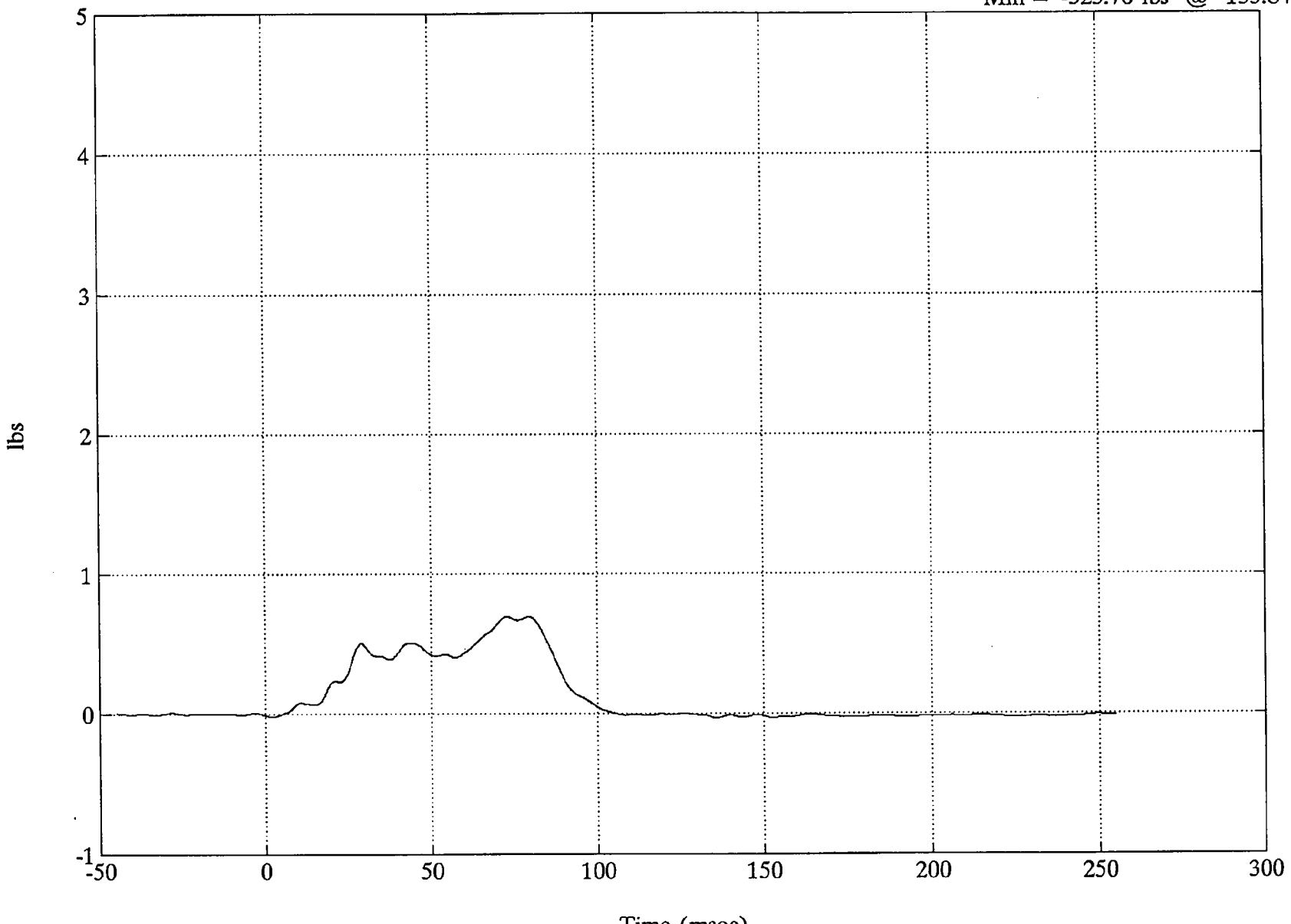
Load Cells (A7,A8,A9,B7,B8,B9)

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Group 4 Load Cell Sum

Max = 6934.31 lbs @ 72.72 msec
Min = -325.76 lbs @ 135.84 msec



SAE Filter Class 60

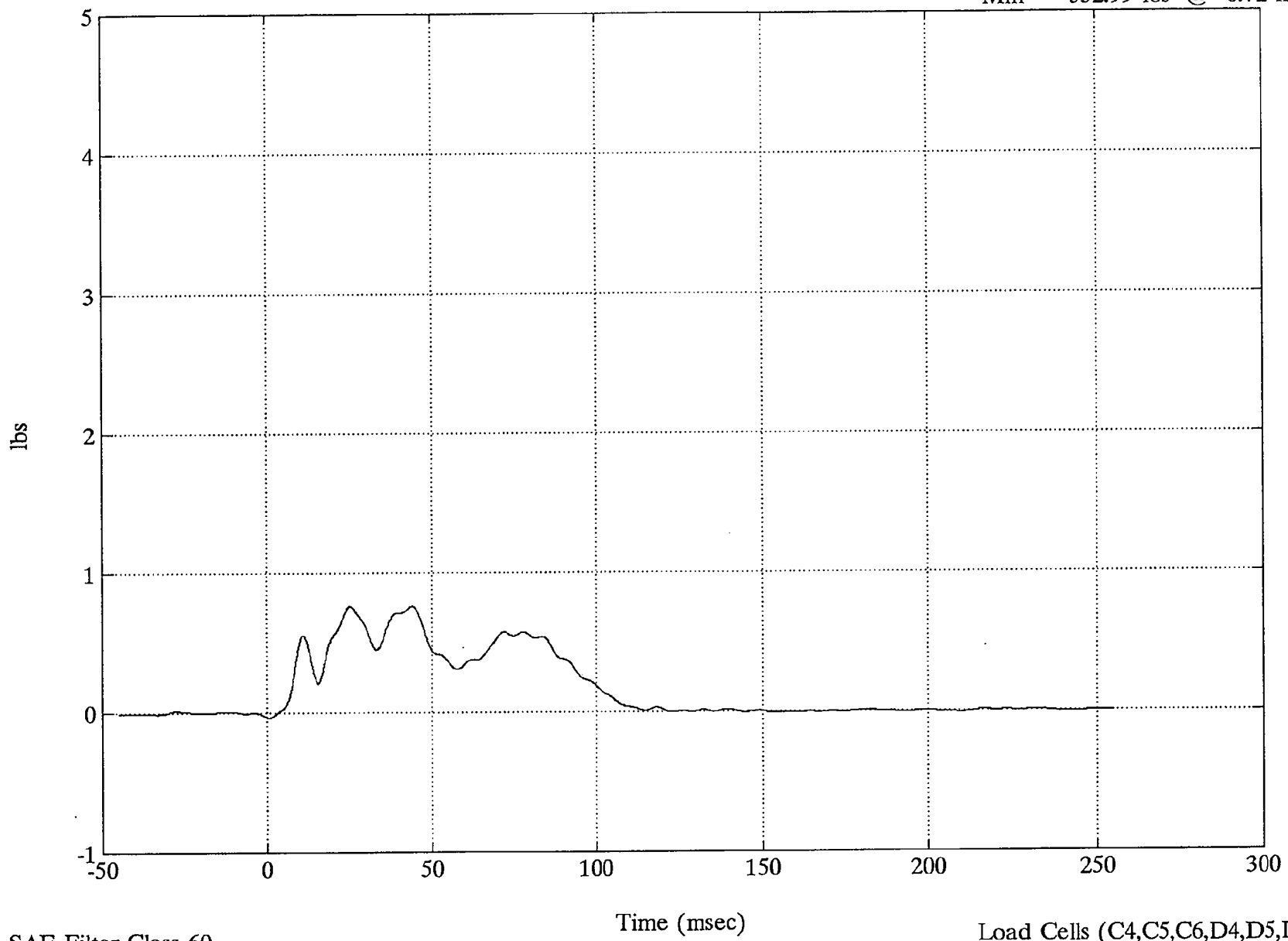
Load Cells (C1,C2,C3,D1,D2,D3)

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Group 5 Load Cell Sum

Max = 7625.05 lbs @ 25.20 msec
Min = -332.99 lbs @ 0.72 msec



SAE Filter Class 60

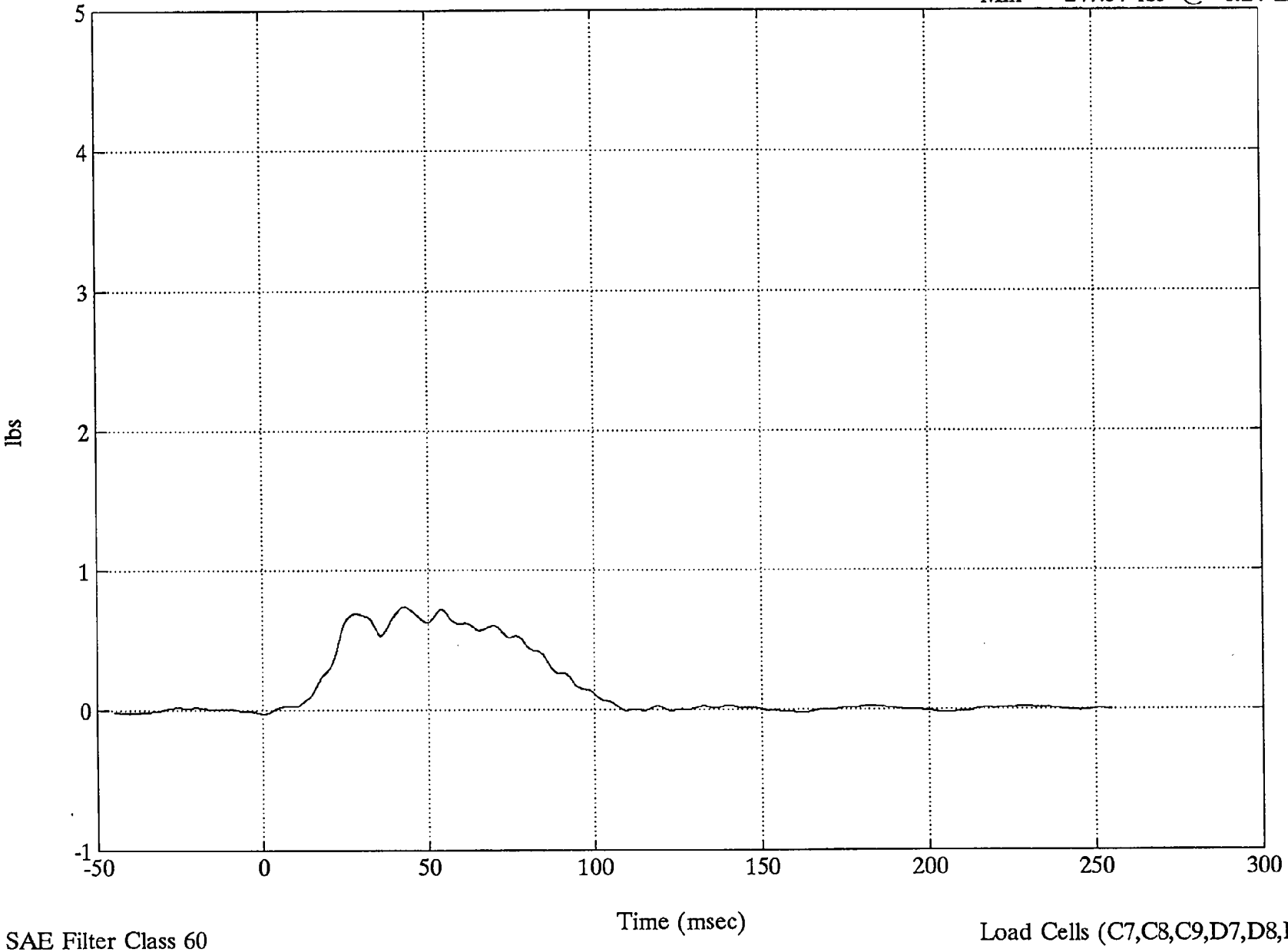
Load Cells (C4,C5,C6,D4,D5,D6)

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Group 6 Load Cell Sum

Max = 7394.72 lbs @ 42.72 msec
Min = -247.57 lbs @ 0.24 msec

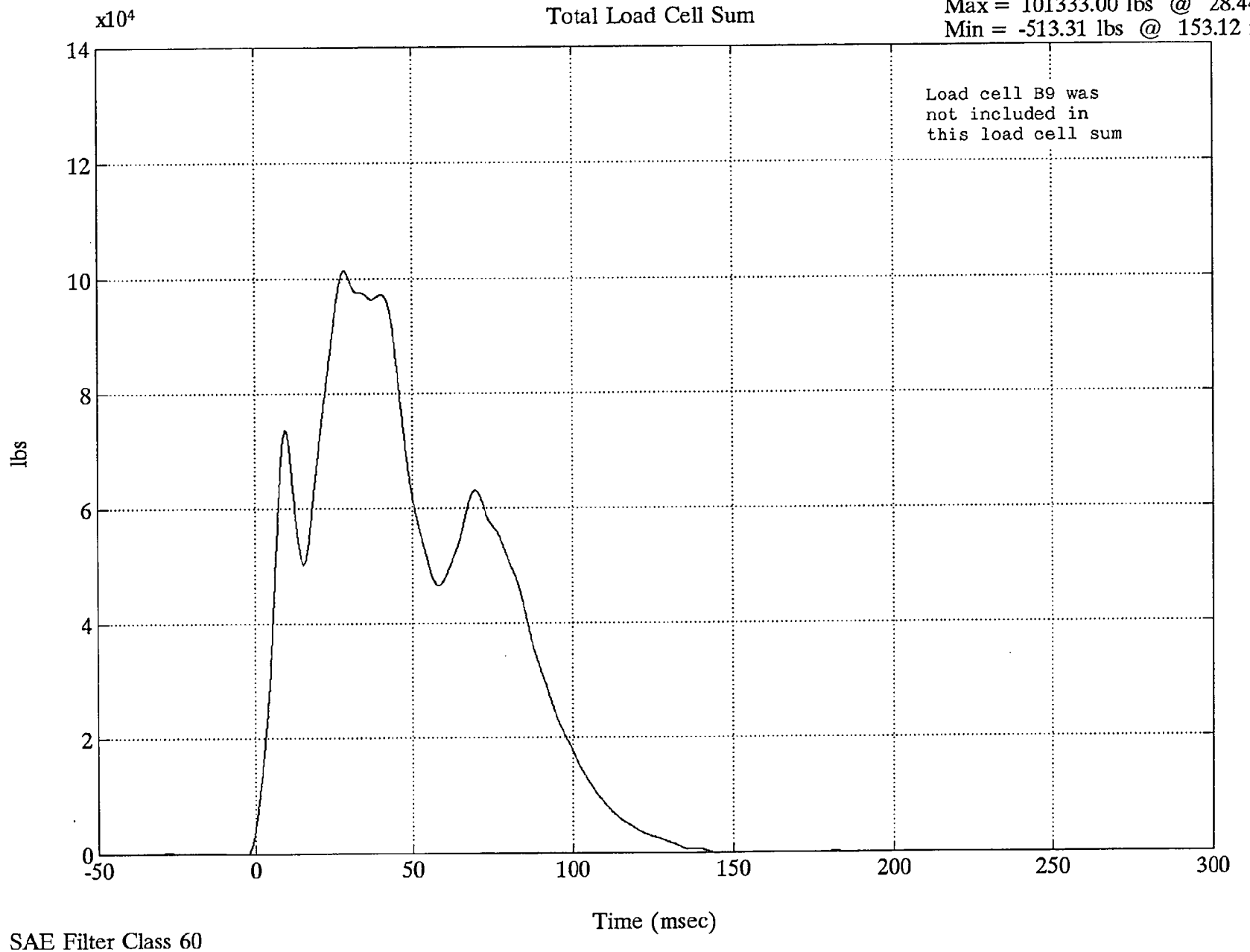


SAE Filter Class 60

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

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA



SAE Filter Class 60

7978-4

TEST NO. MN0303

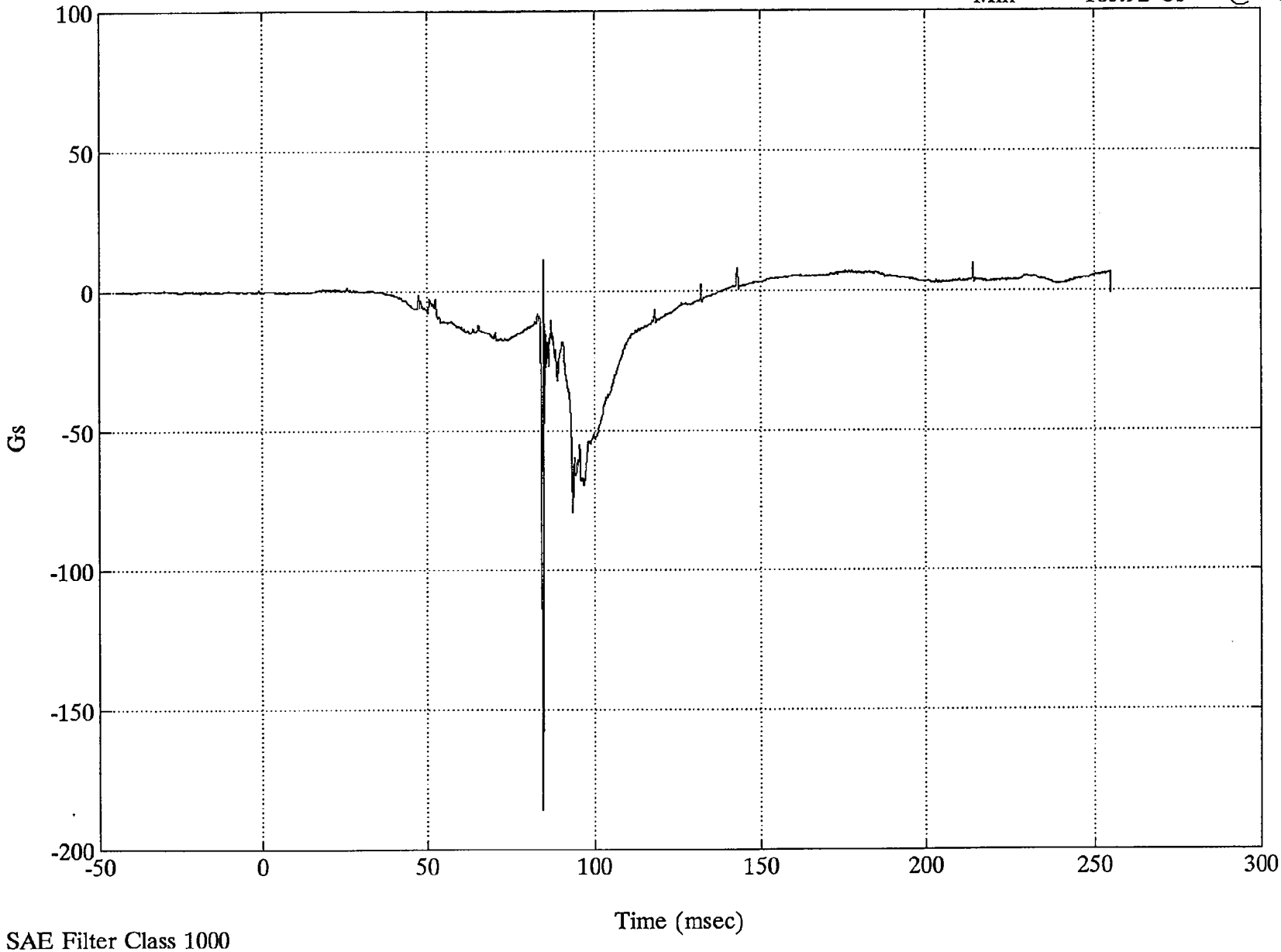
DUMMY DATA

DUMMY DATA	FILTER CHANNEL CLASS
Head Accelerations	1000
Chest Accelerations	180
Femur Forces	600
Belt Loads	60
Belt Displacements	60

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Head X

Max = 11.57 Gs @ 84.72 msec
Min = -185.92 Gs @ 84.36 msec



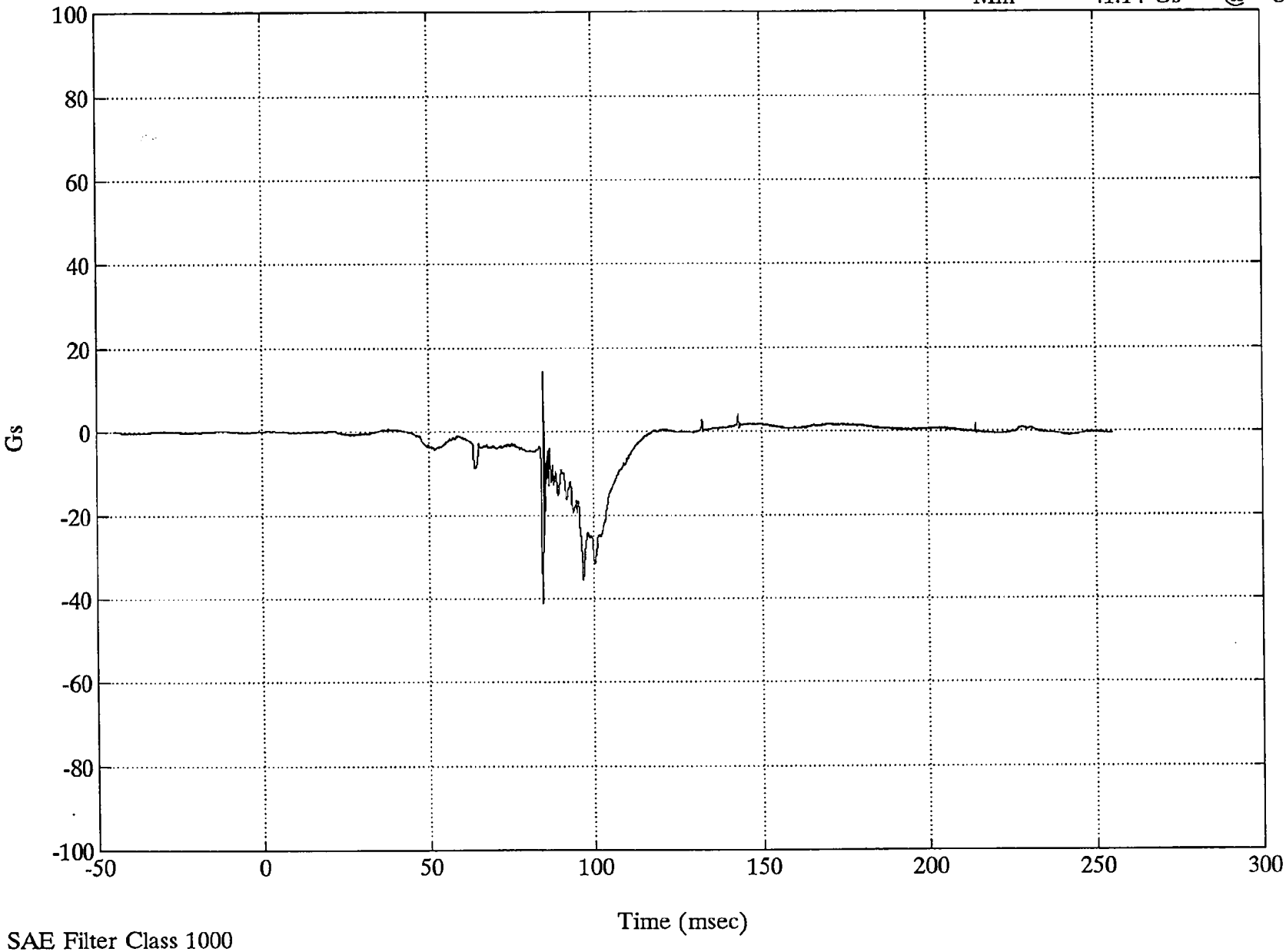
SAE Filter Class 1000

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Head Y

Max = 14.36 Gs @ 84.72 msec
Min = -41.14 Gs @ 84.24 msec



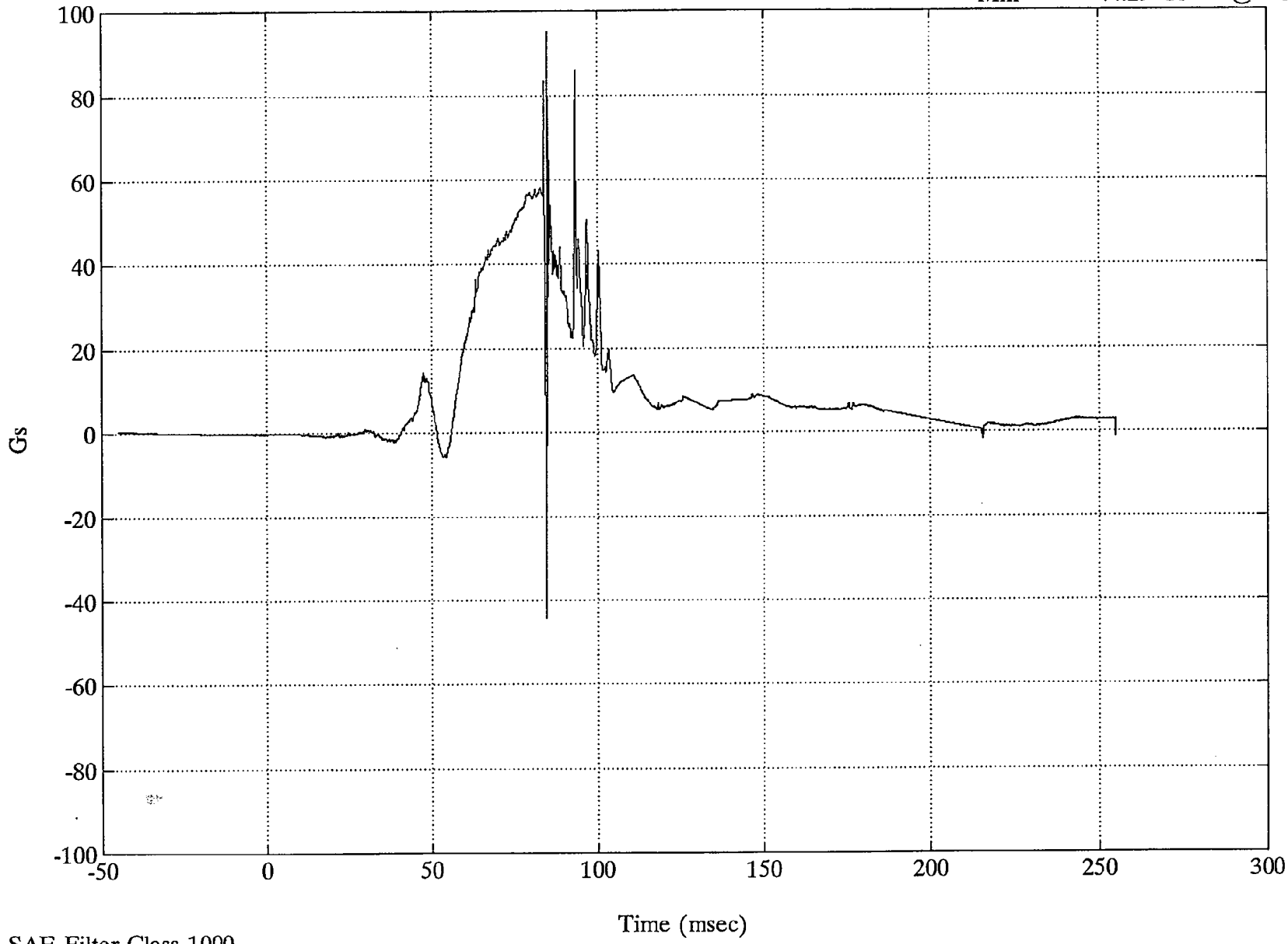
SAE Filter Class 1000

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Head Z

Max = 95.16 Gs @ 84.95 msec
Min = -44.29 Gs @ 84.72 msec



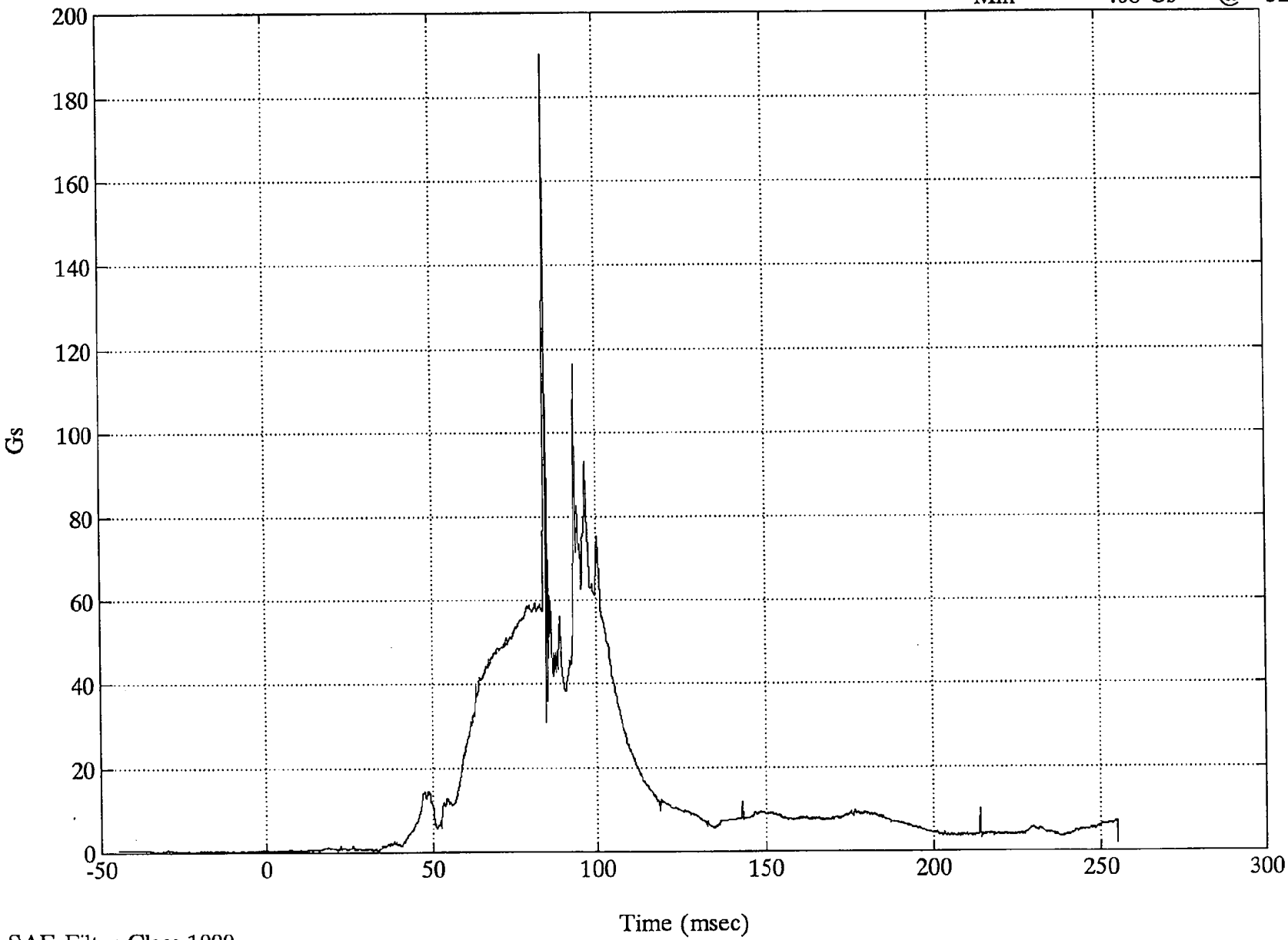
SAE Filter Class 1000

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Head Resultant

Max = 190.23 Gs @ 84.36 msec
Min = .08 Gs @ -32.64 msec



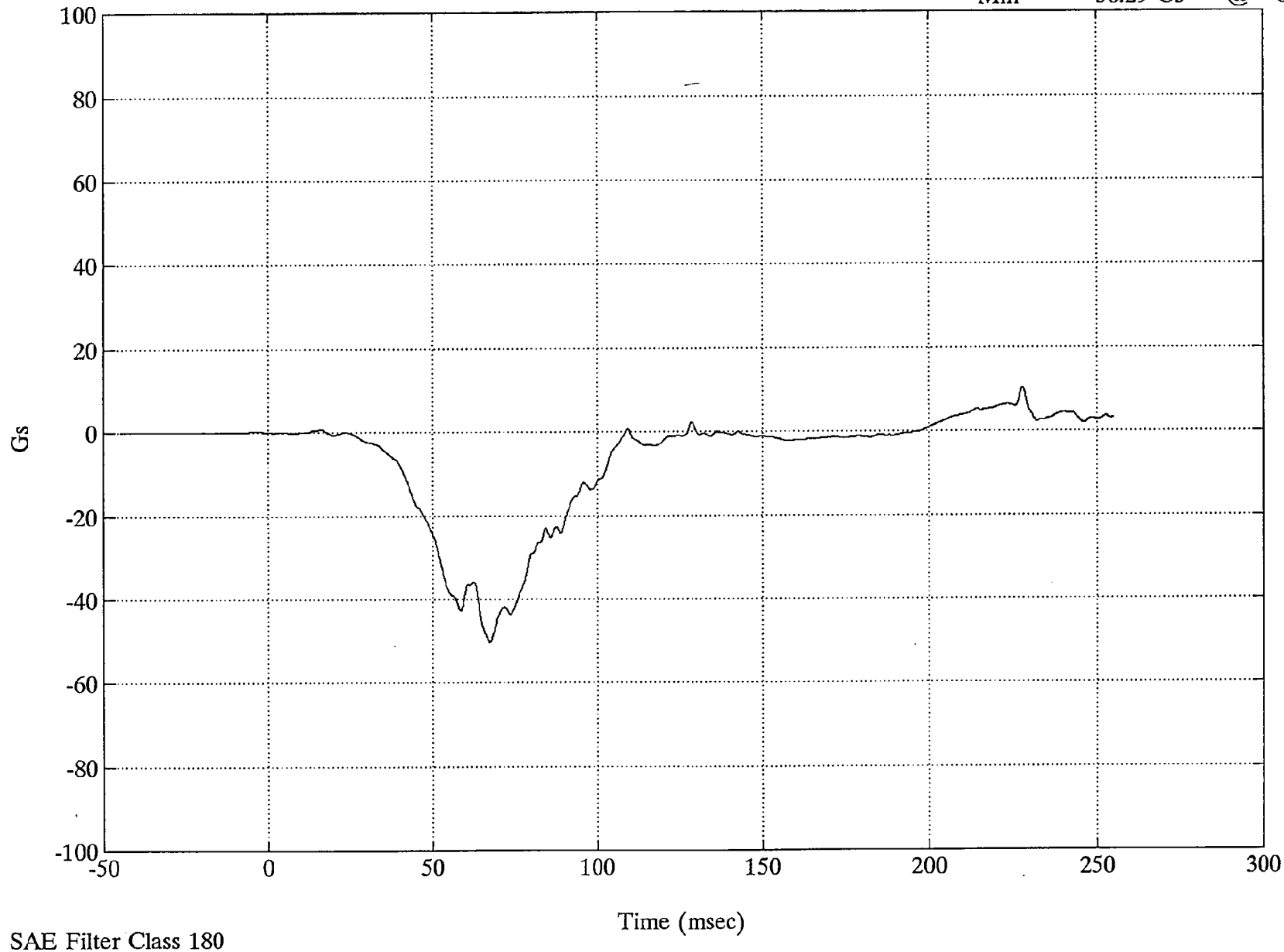
SAE Filter Class 1000

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Chest X

Max = 10.35 Gs @ 227.40 msec
Min = -50.29 Gs @ 67.56 msec



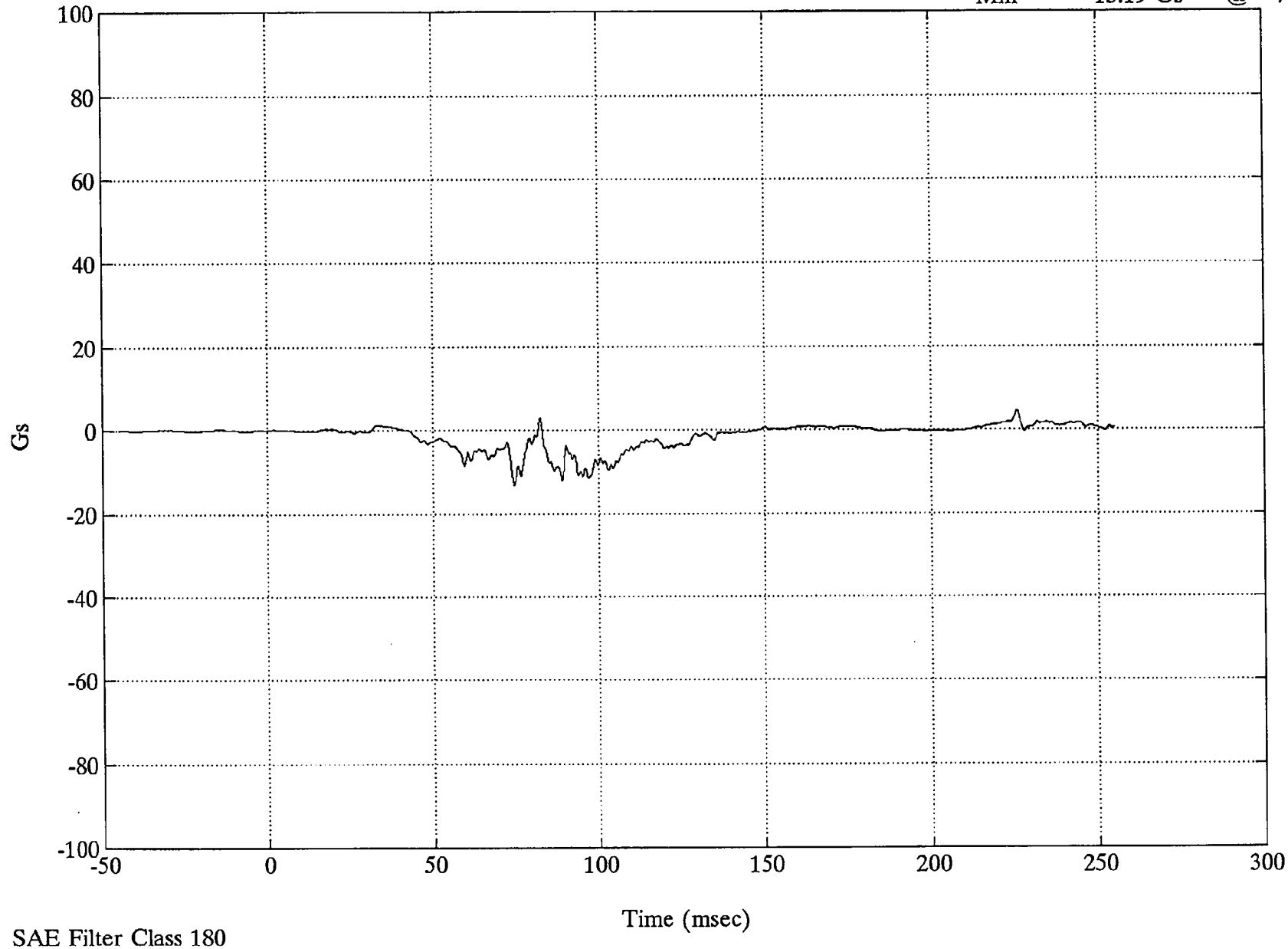
SAE Filter Class 180

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Chest Y

Max = 4.49 Gs @ 225.60 msec
Min = -13.19 Gs @ 74.51 msec



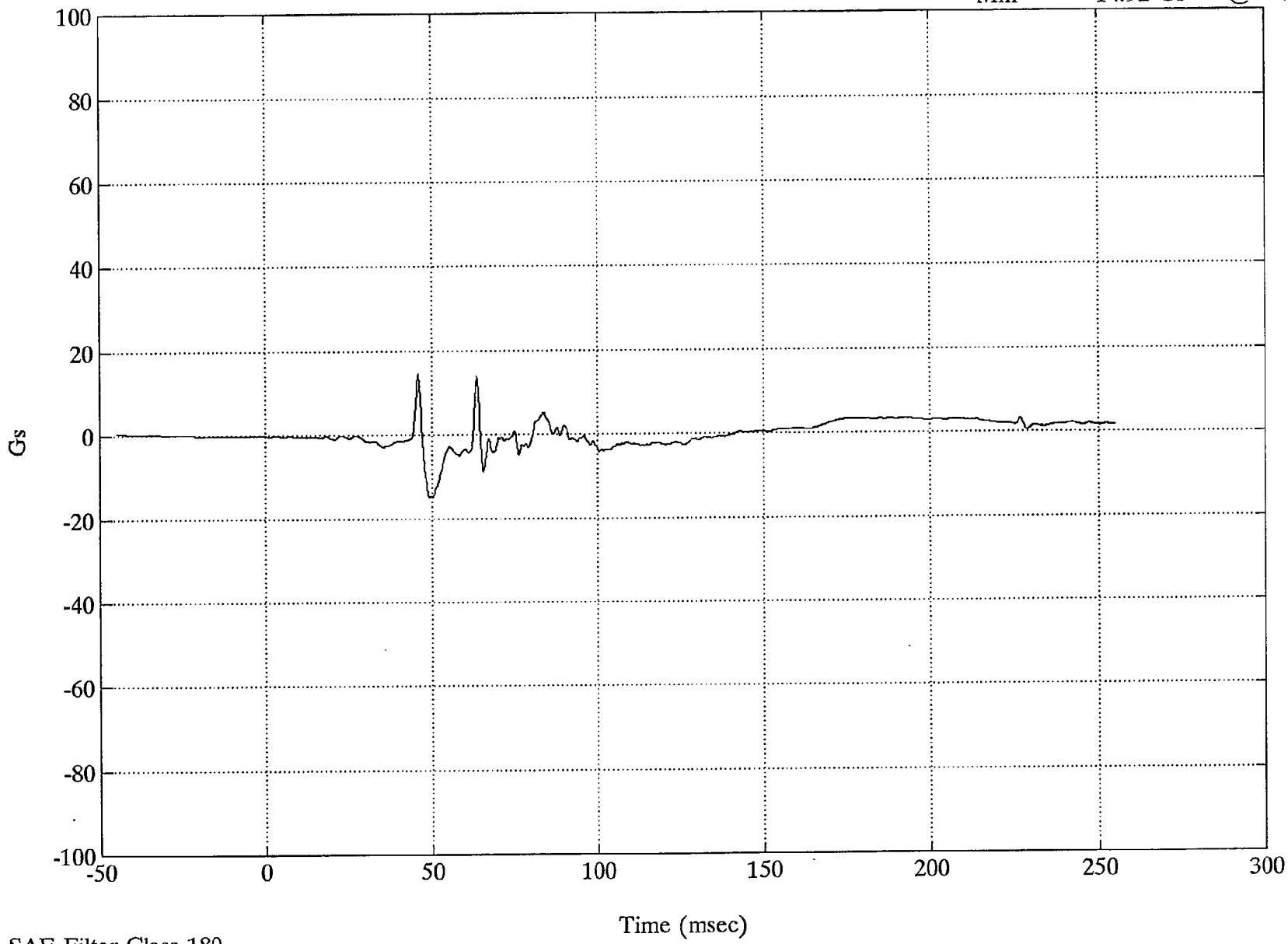
SAE Filter Class 180

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Chest Z

Max = 14.53 Gs @ 45.96 msec
Min = -14.92 Gs @ 49.31 msec



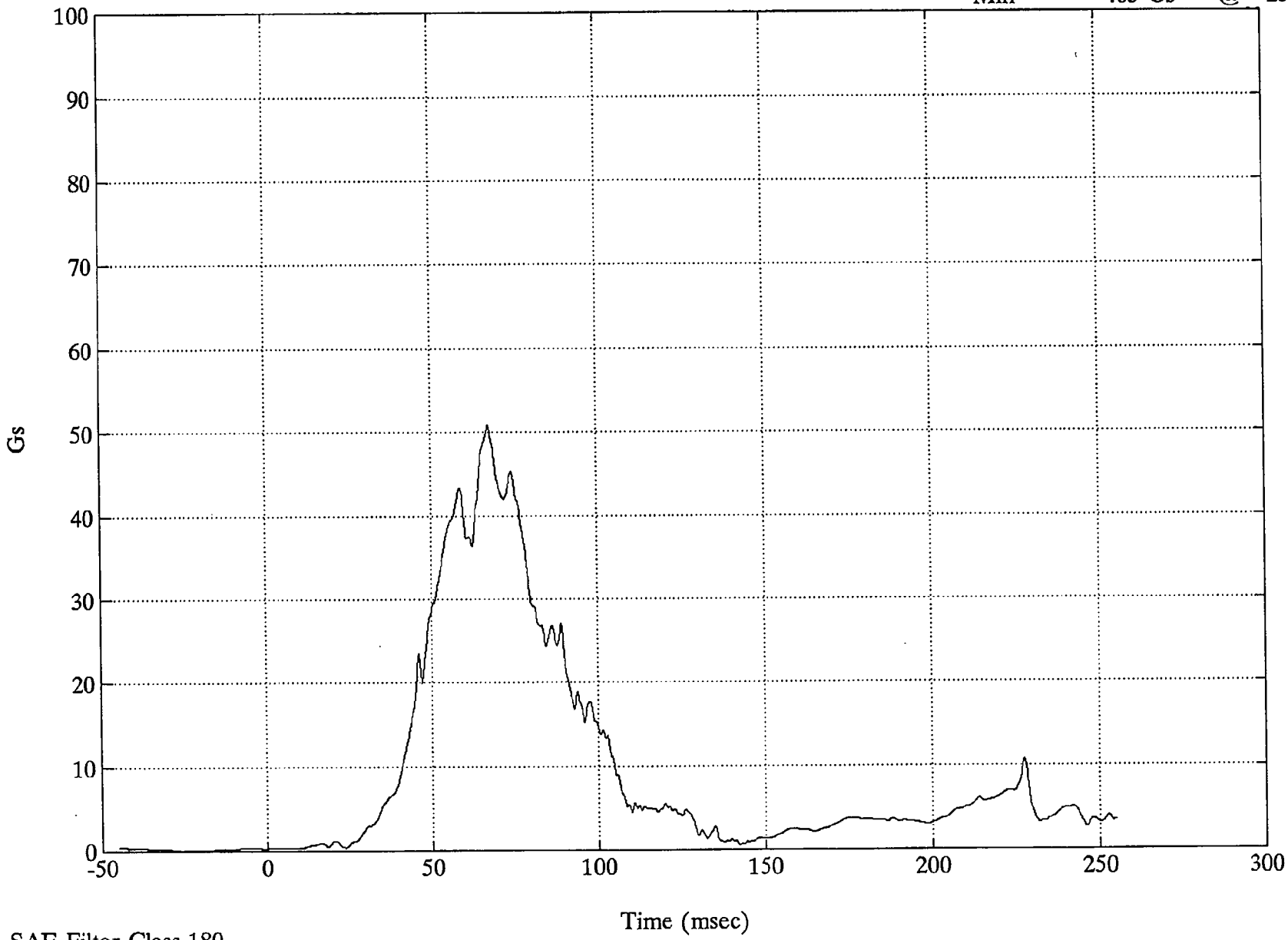
SAE Filter Class 180

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Chest Resultant

Max = 50.78 Gs @ 67.56 msec
Min = .05 Gs @ -25.92 msec



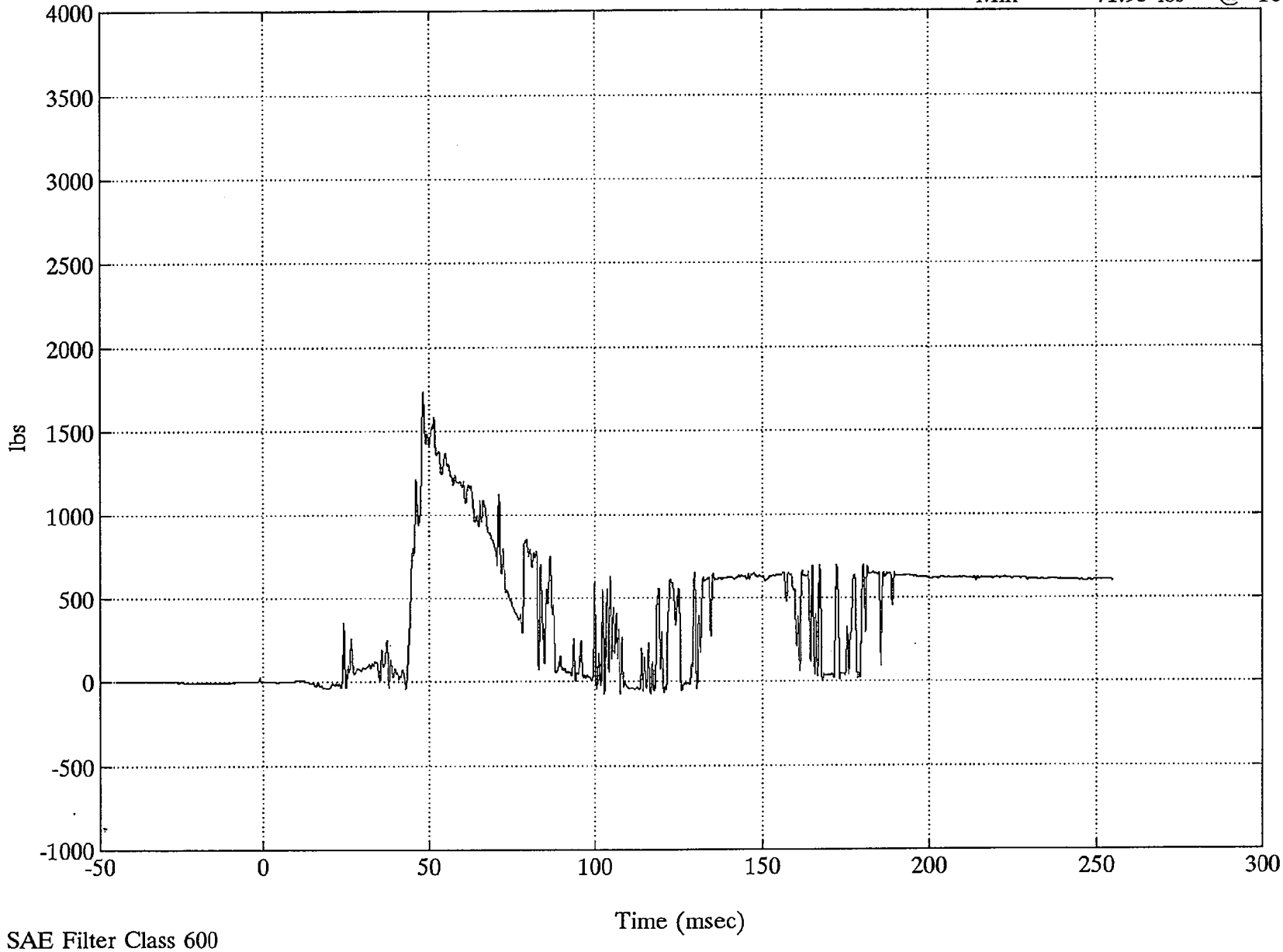
SAE Filter Class 180

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Left Femur

Max = 1732.98 lbs @ 48.24 msec
Min = -71.93 lbs @ 107.51 msec



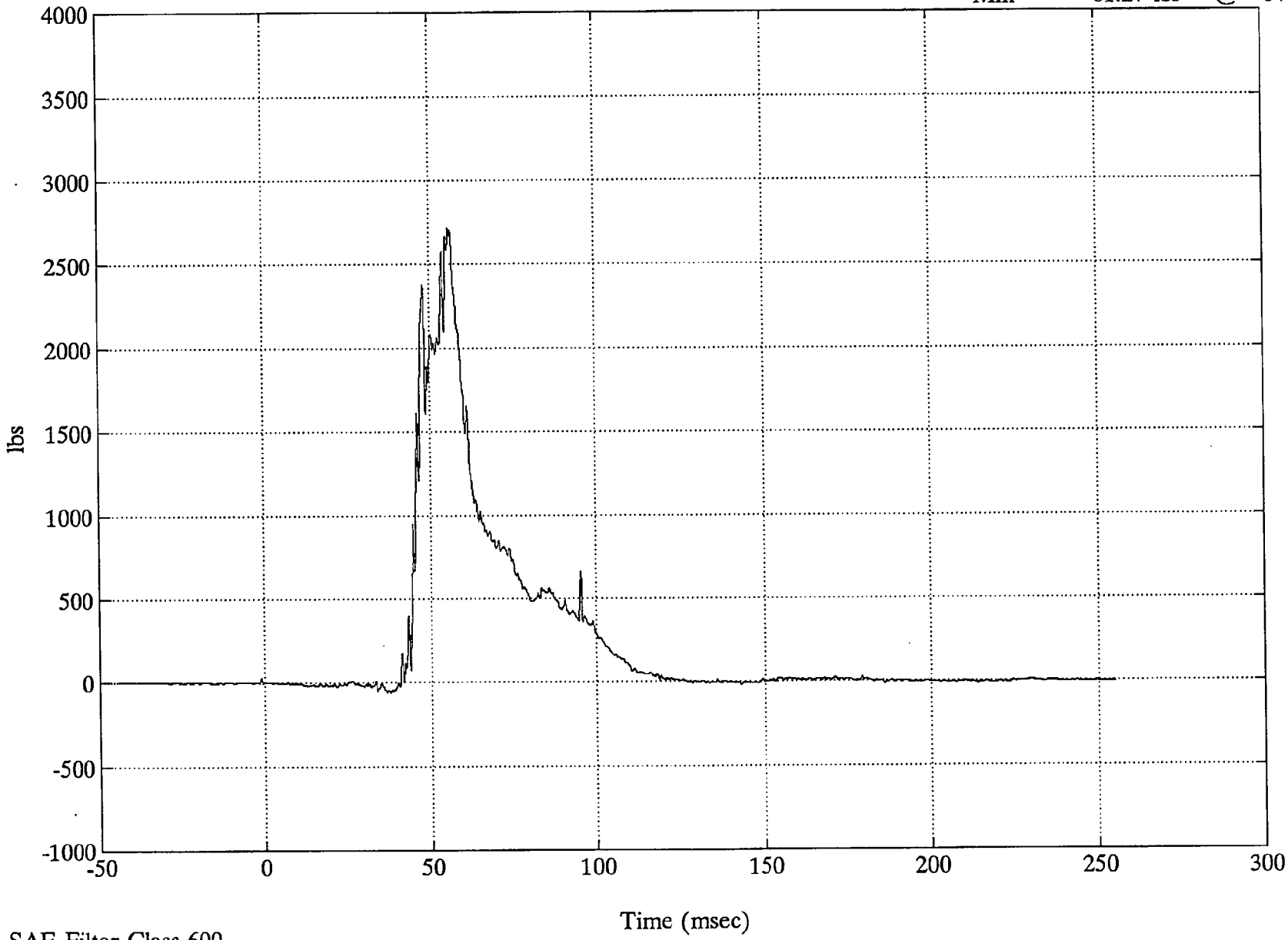
SAE Filter Class 600

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Right Femur

Max = 2714.52 lbs @ 55.80 msec
Min = -61.27 lbs @ 37.68 msec



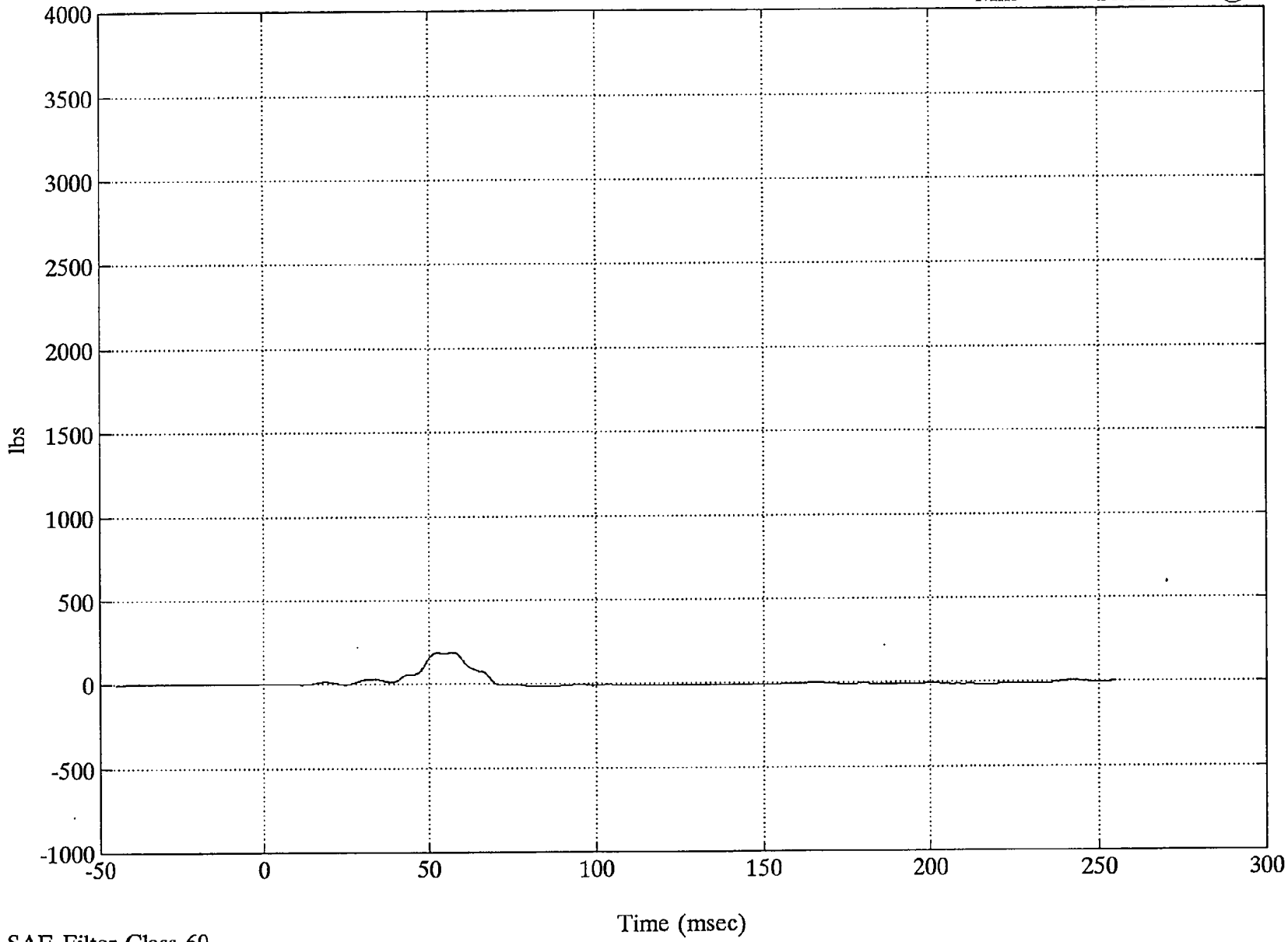
SAE Filter Class 600

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Left Belt Load

Max = 187.59 lbs @ 57.00 msec
Min = -16.05 lbs @ 82.08 msec



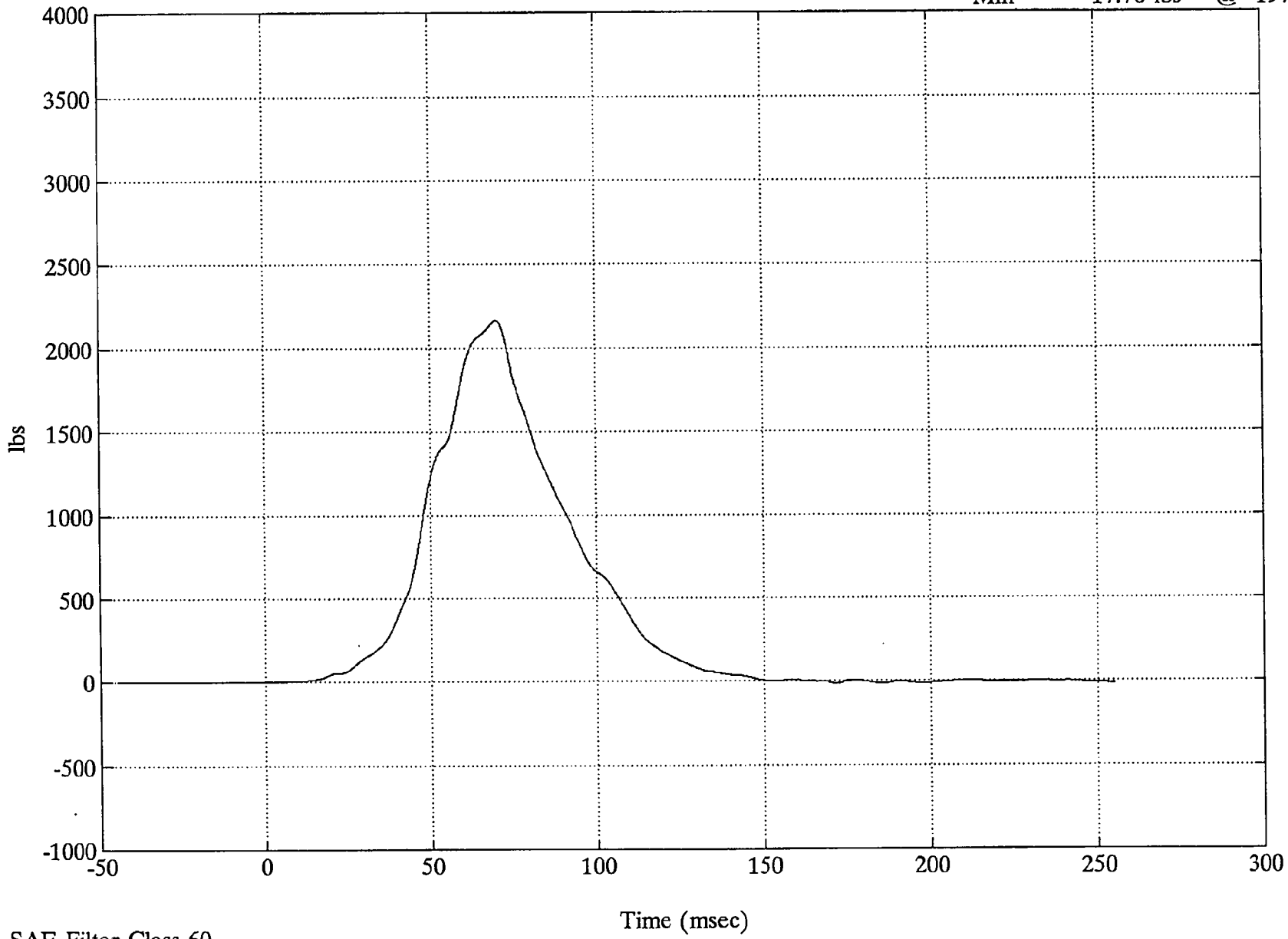
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Torso Belt Load

Max = 2163.51 lbs @ 69.95 msec
Min = -17.76 lbs @ 197.52 msec



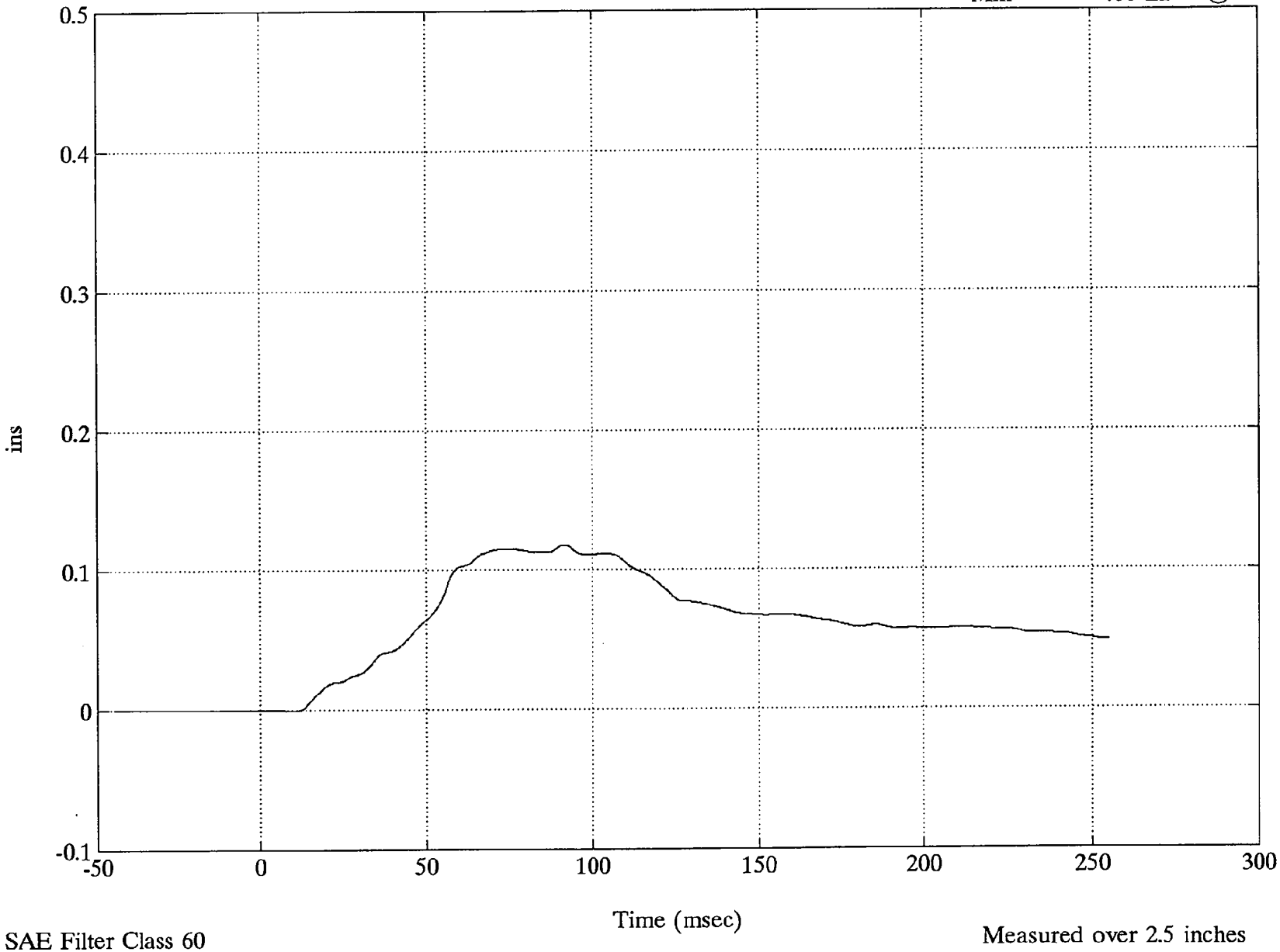
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 1 Belt Elongation

Max = .12 ins @ 91.20 msec
Min = -.00 ins @ 10.19 msec



SAE Filter Class 60

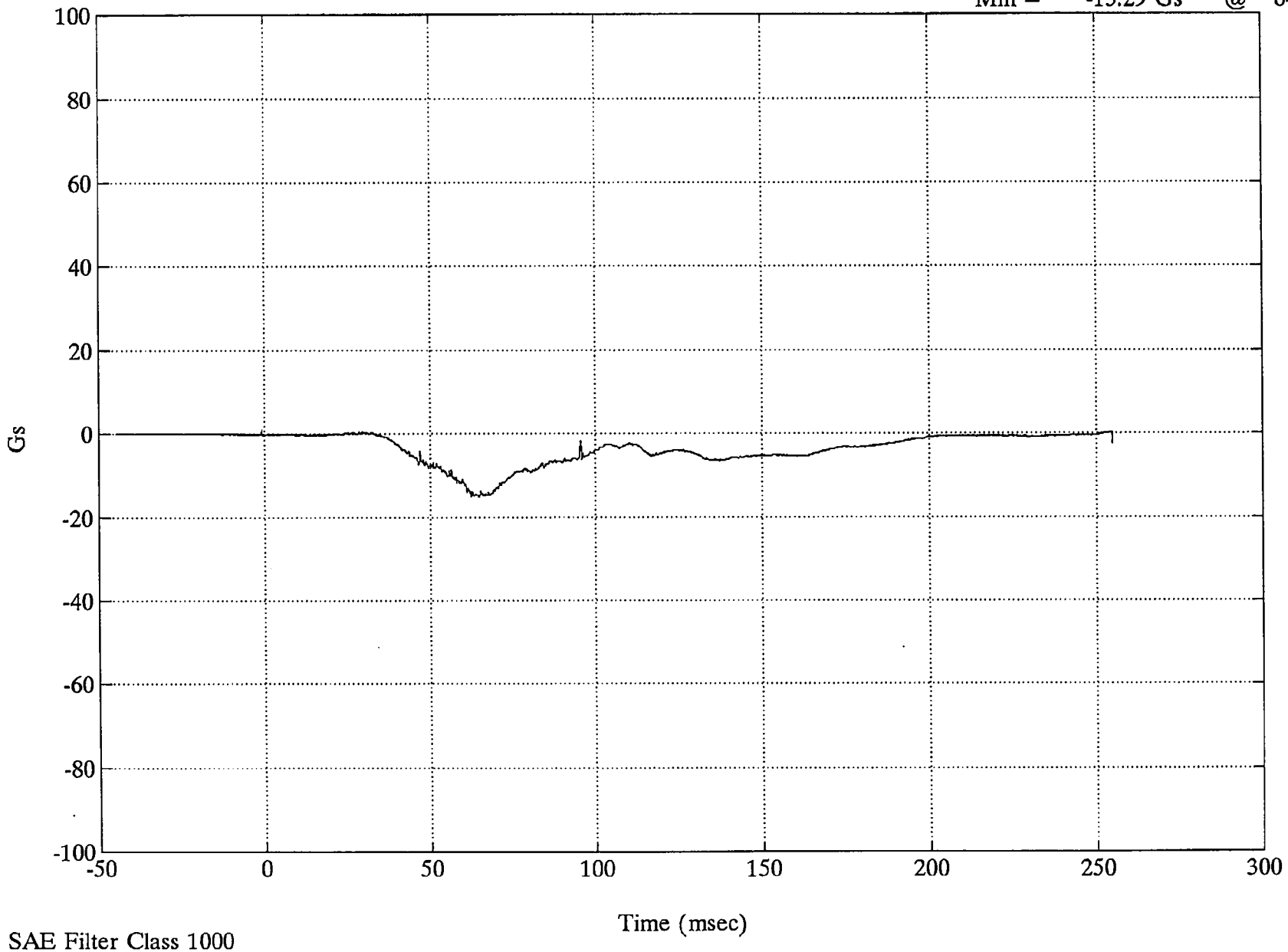
Measured over 2.5 inches

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Head X

Max = .96 Gs @ -1.08 msec
Min = -15.29 Gs @ 64.68 msec



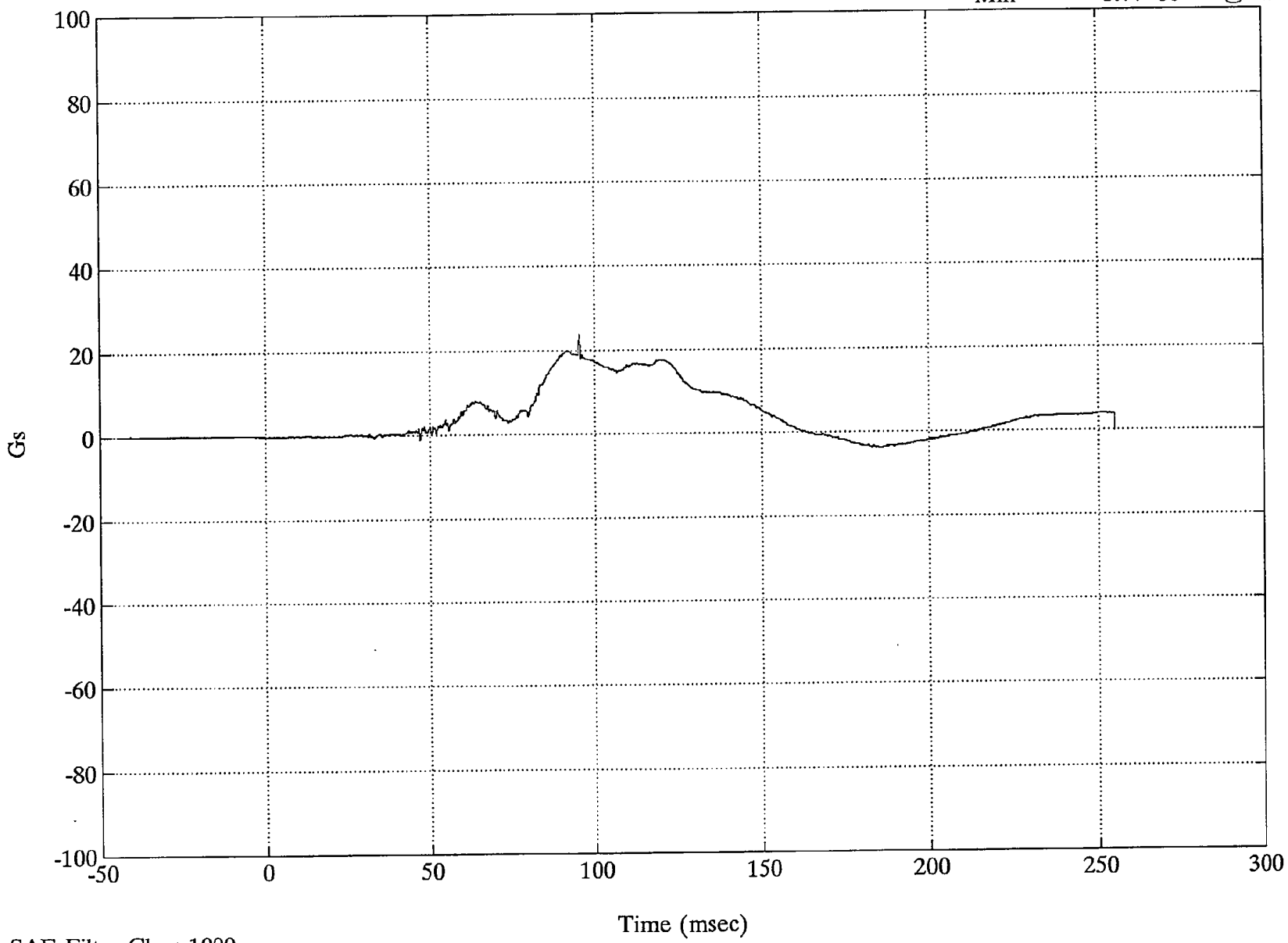
SAE Filter Class 1000

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Head Y

Max = 23.69 Gs @ 95.27 msec
Min = -3.77 Gs @ 186.47 msec



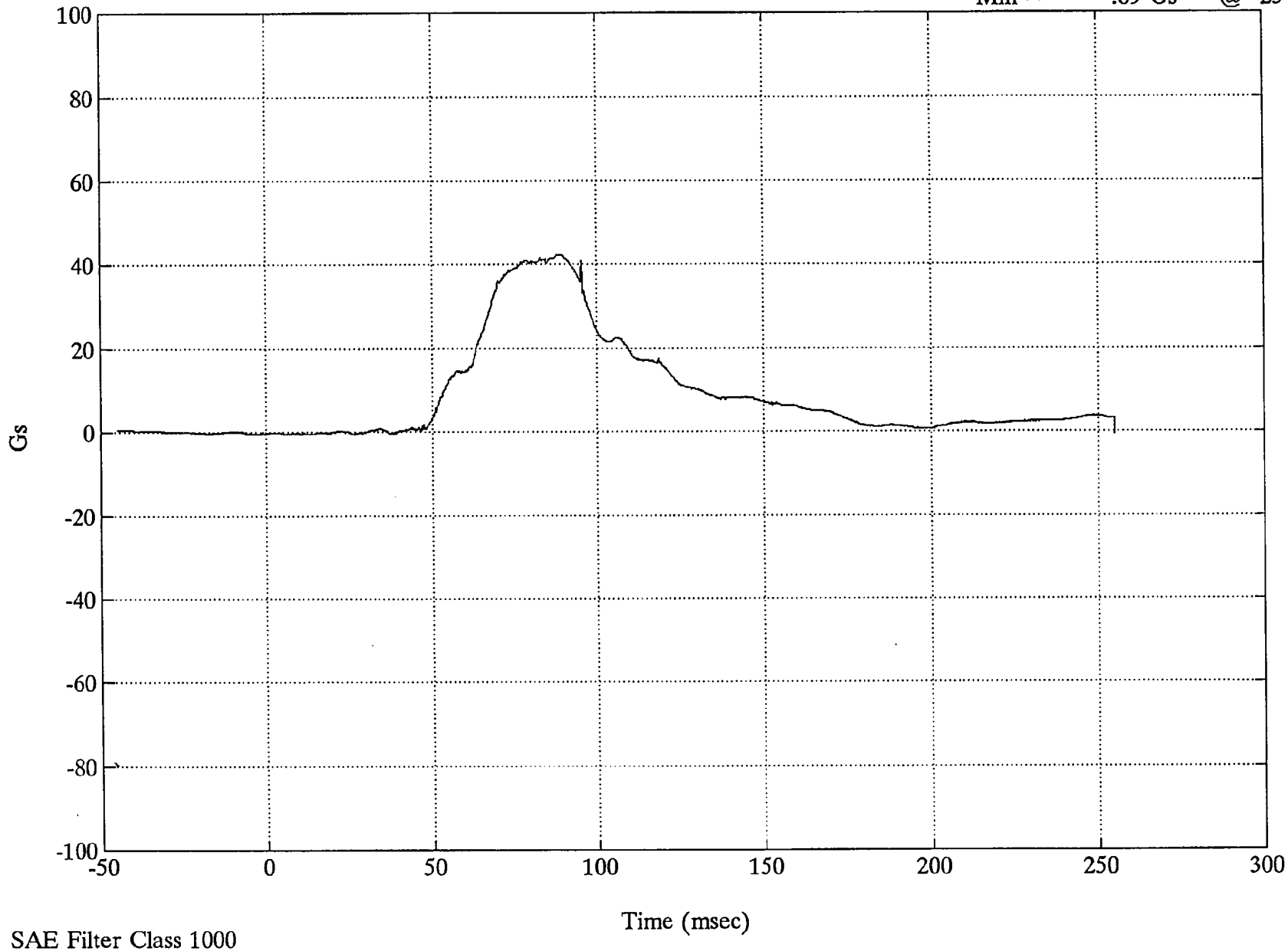
SAE Filter Class 1000

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Head Z

Max = 42.37 Gs @ 89.16 msec
Min = -.69 Gs @ 254.88 msec



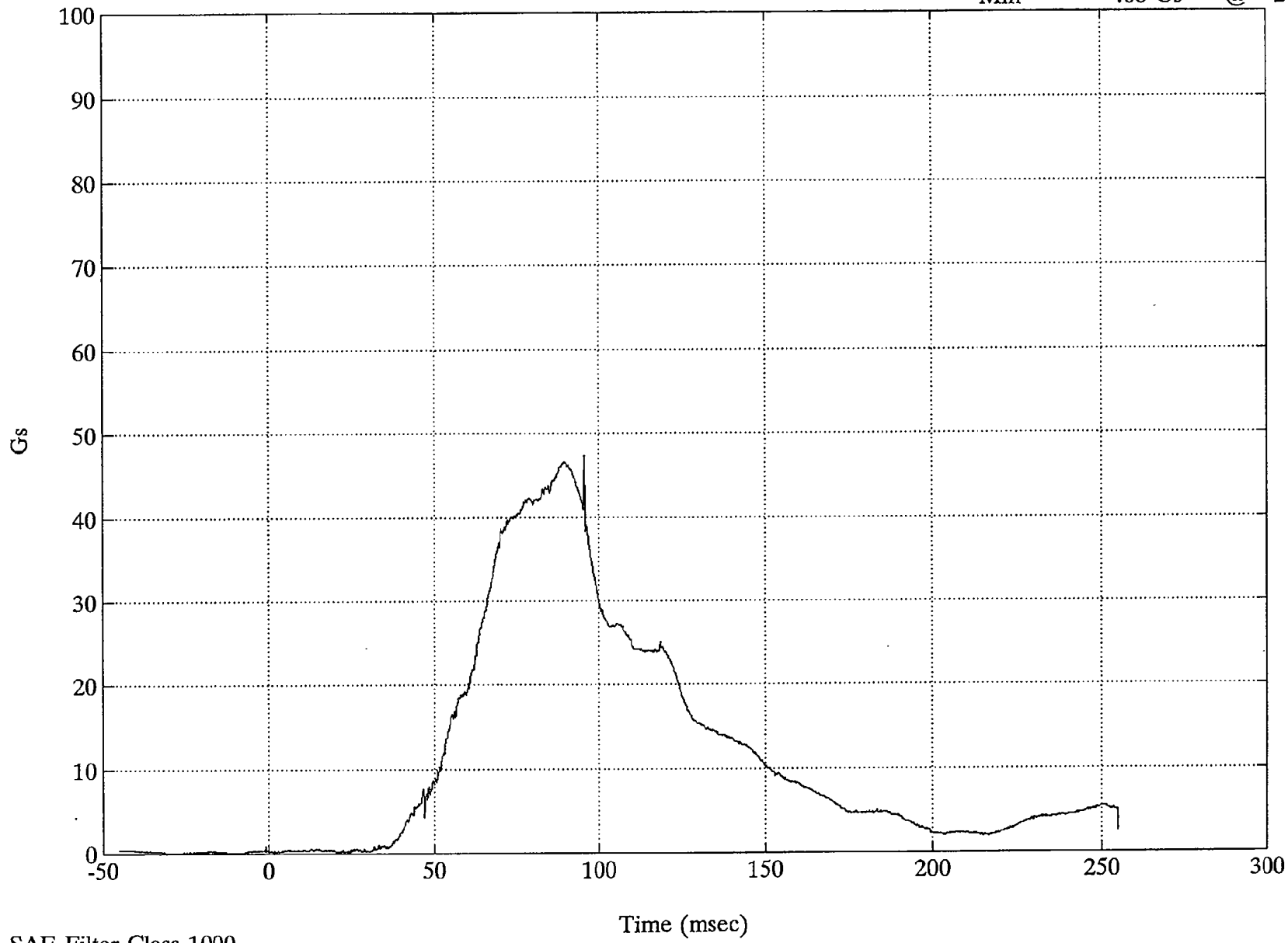
SAE Filter Class 1000

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Head Resultant

Max = 47.28 Gs @ 95.27 msec
Min = .08 Gs @ 24.00 msec



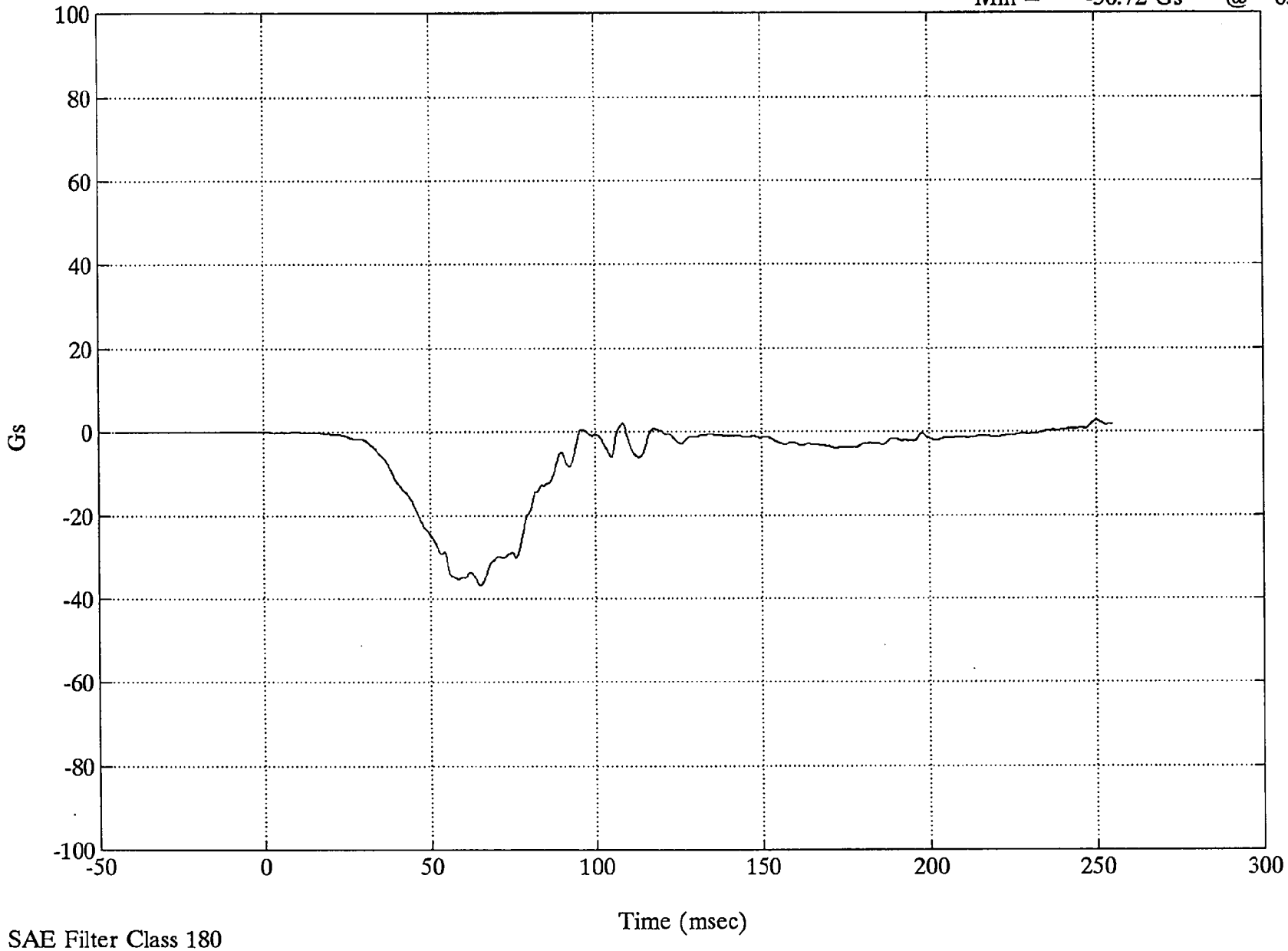
SAE Filter Class 1000

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Chest X

Max = 2.65 Gs @ 250.08 msec
Min = -36.72 Gs @ 65.15 msec



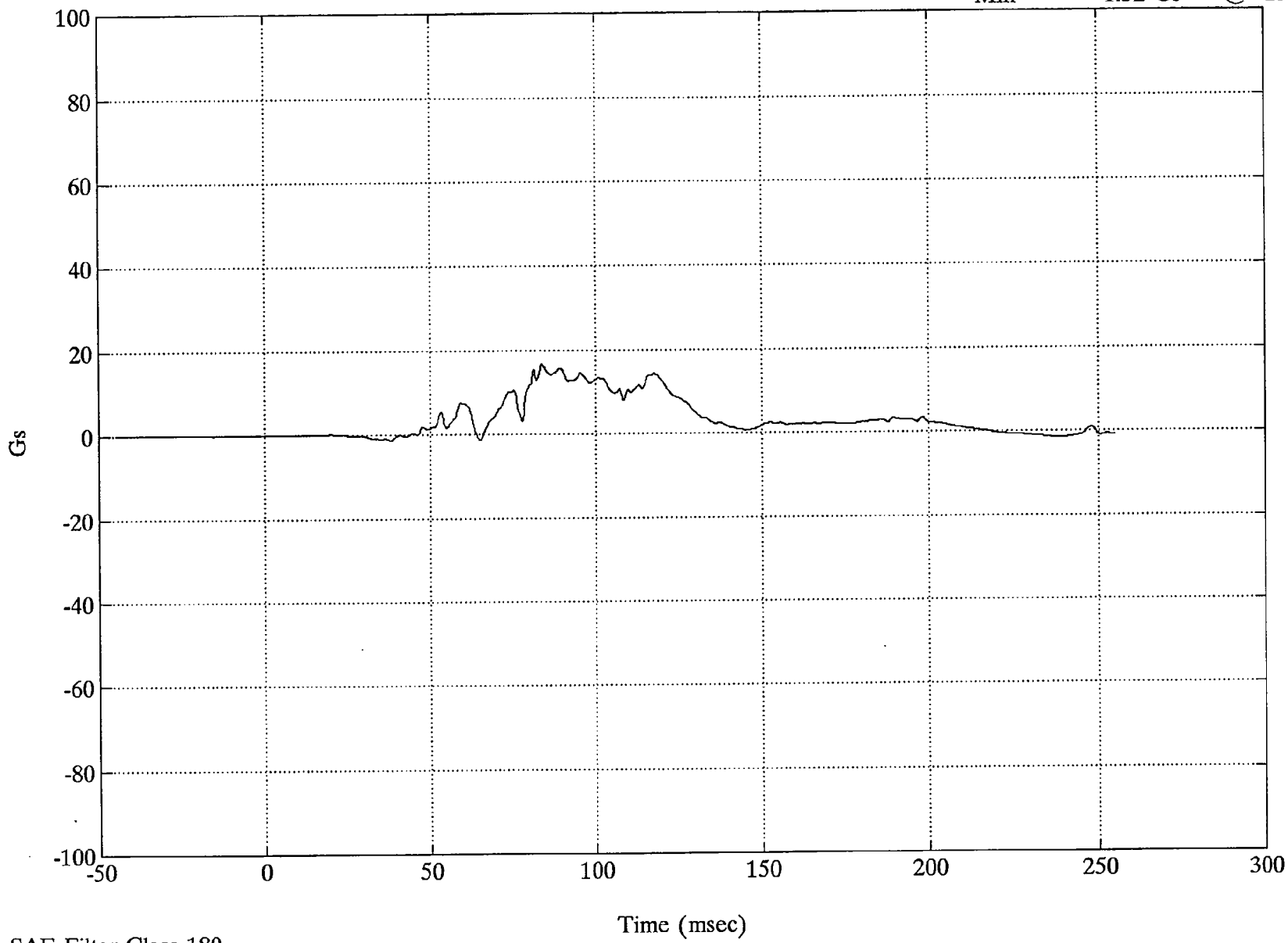
SAE Filter Class 180

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Chest Y

Max = 16.84 Gs @ 83.63 msec
Min = -1.52 Gs @ 238.32 msec



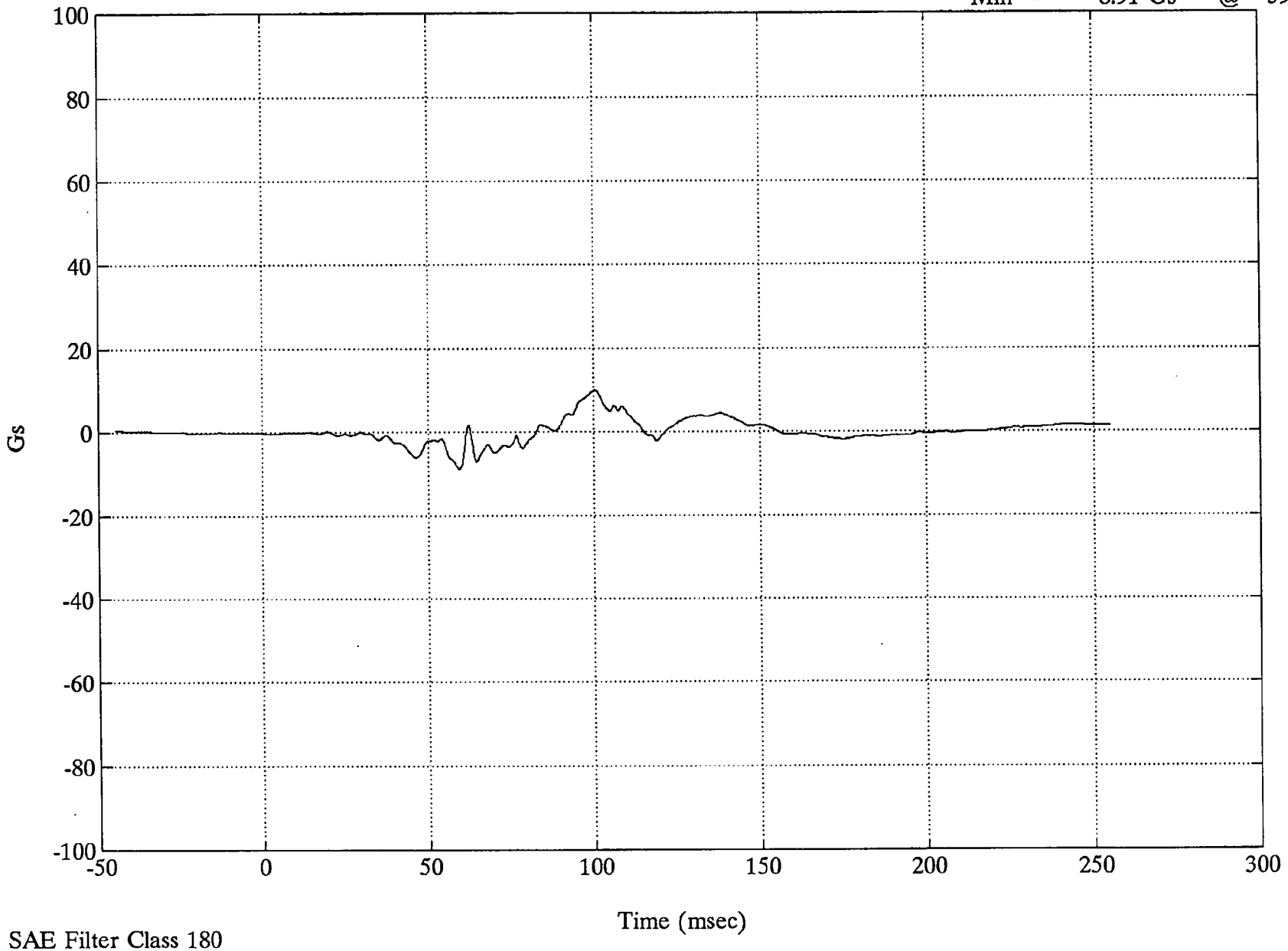
SAE Filter Class 180

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Chest Z

Max = 9.99 Gs @ 100.32 msec
Min = -8.91 Gs @ 59.27 msec



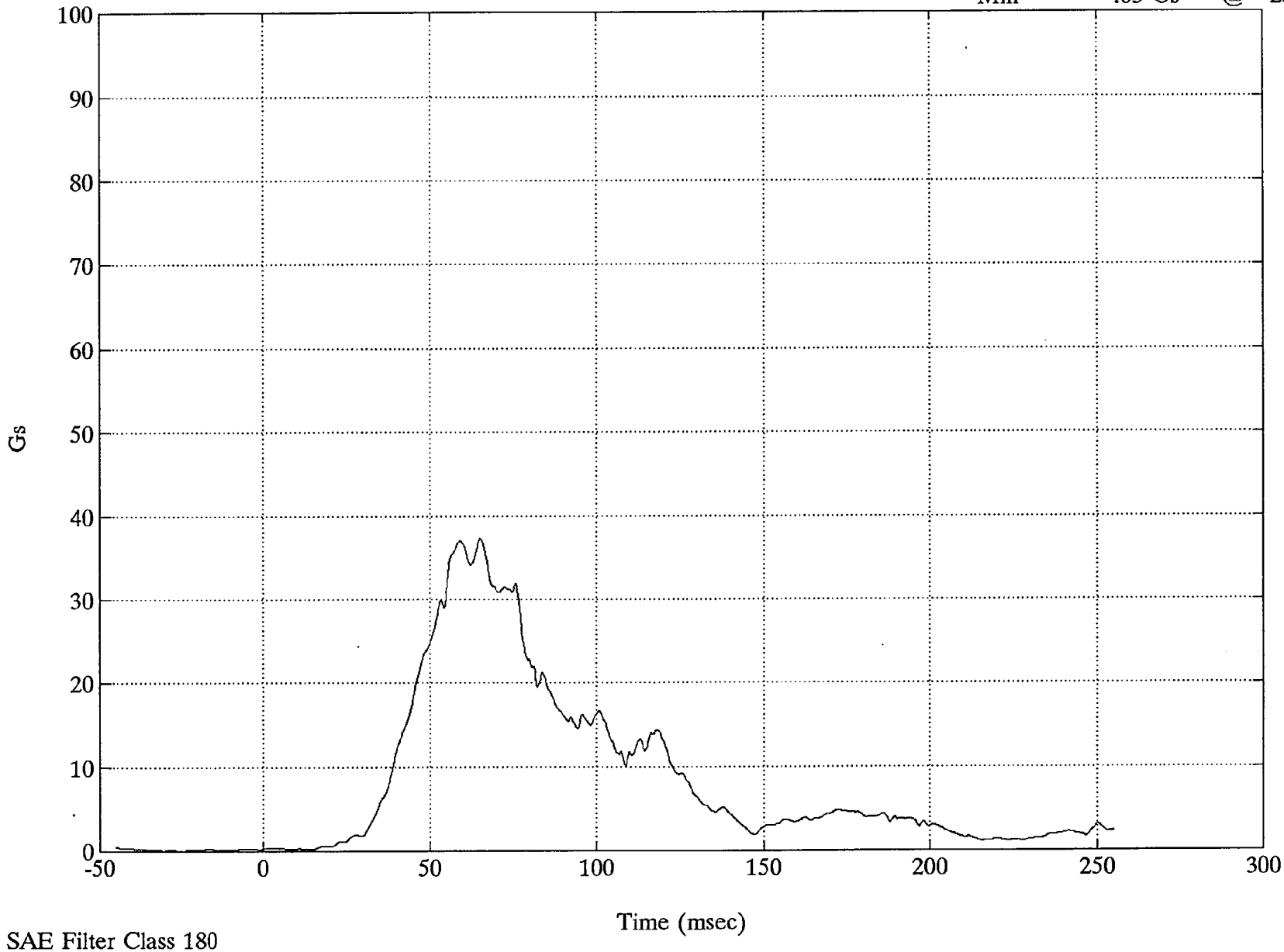
SAE Filter Class 180

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Chest Resultant

Max = 37.30 Gs @ 65.04 msec
Min = .03 Gs @ -25.56 msec



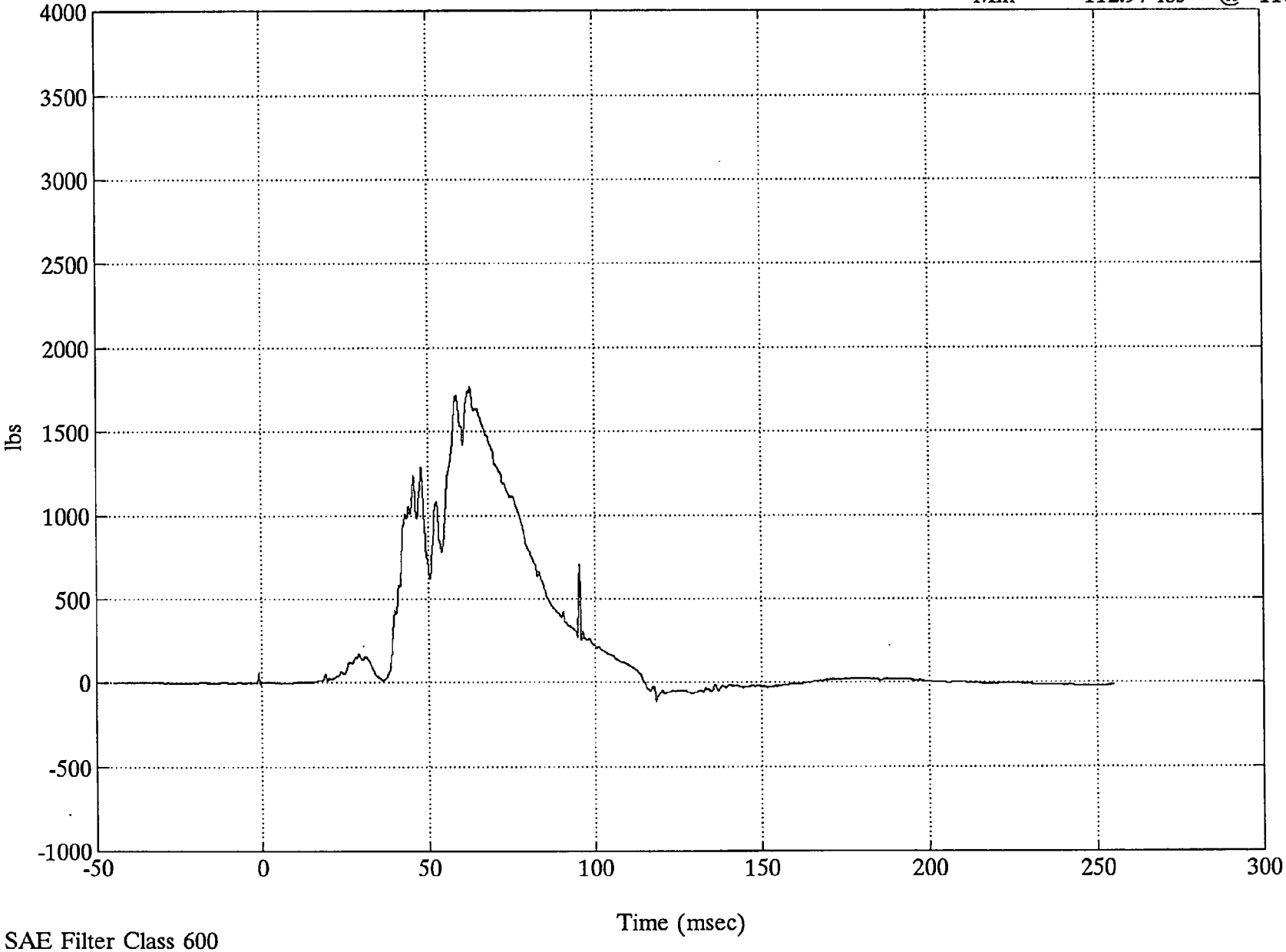
SAE Filter Class 180

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Left Femur

Max = 1760.93 lbs @ 62.88 msec
Min = -112.97 lbs @ 118.31 msec



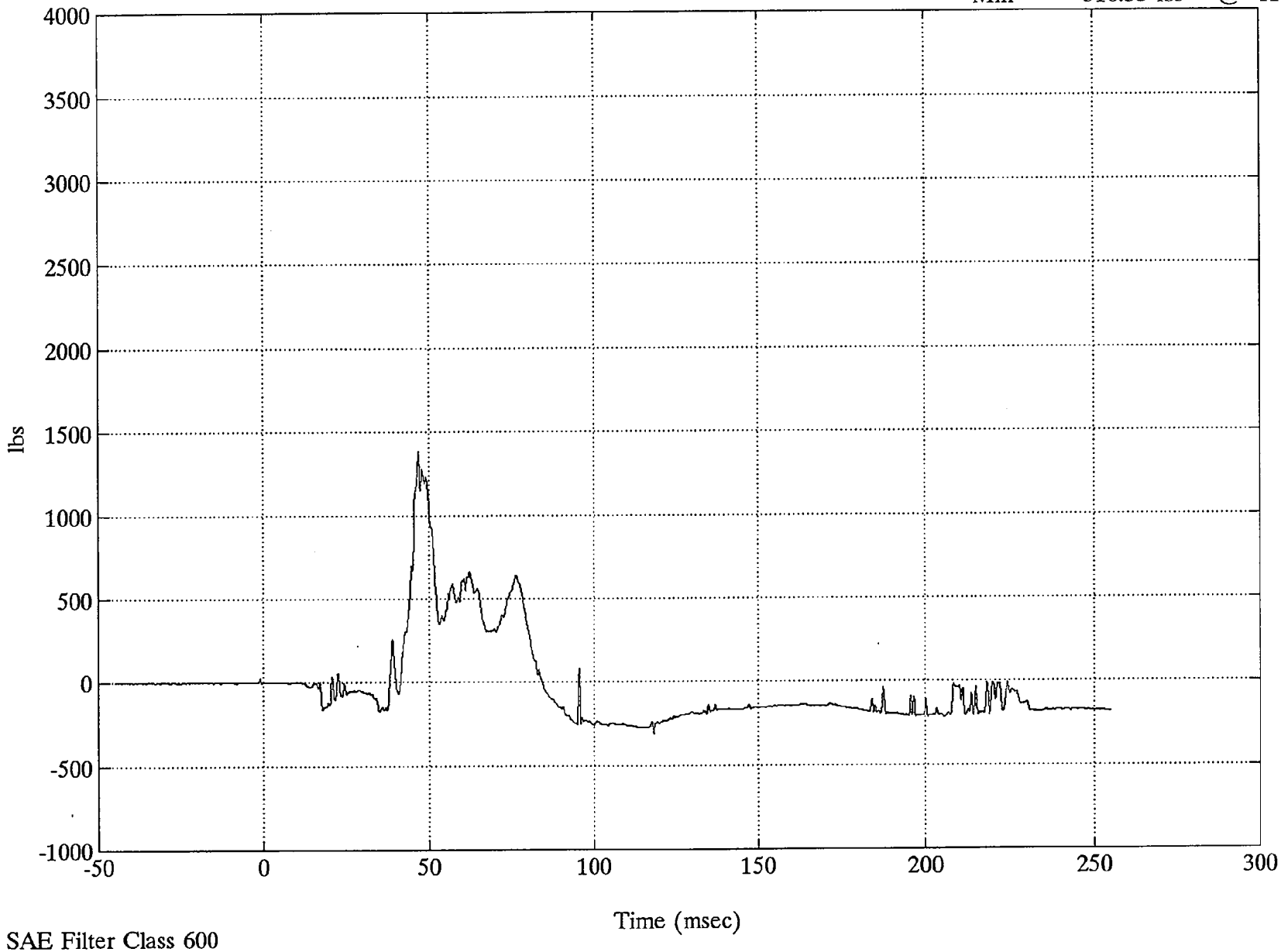
SAE Filter Class 600

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Right Femur

Max = 1381.25 lbs @ 46.92 msec
Min = -310.53 lbs @ 118.20 msec



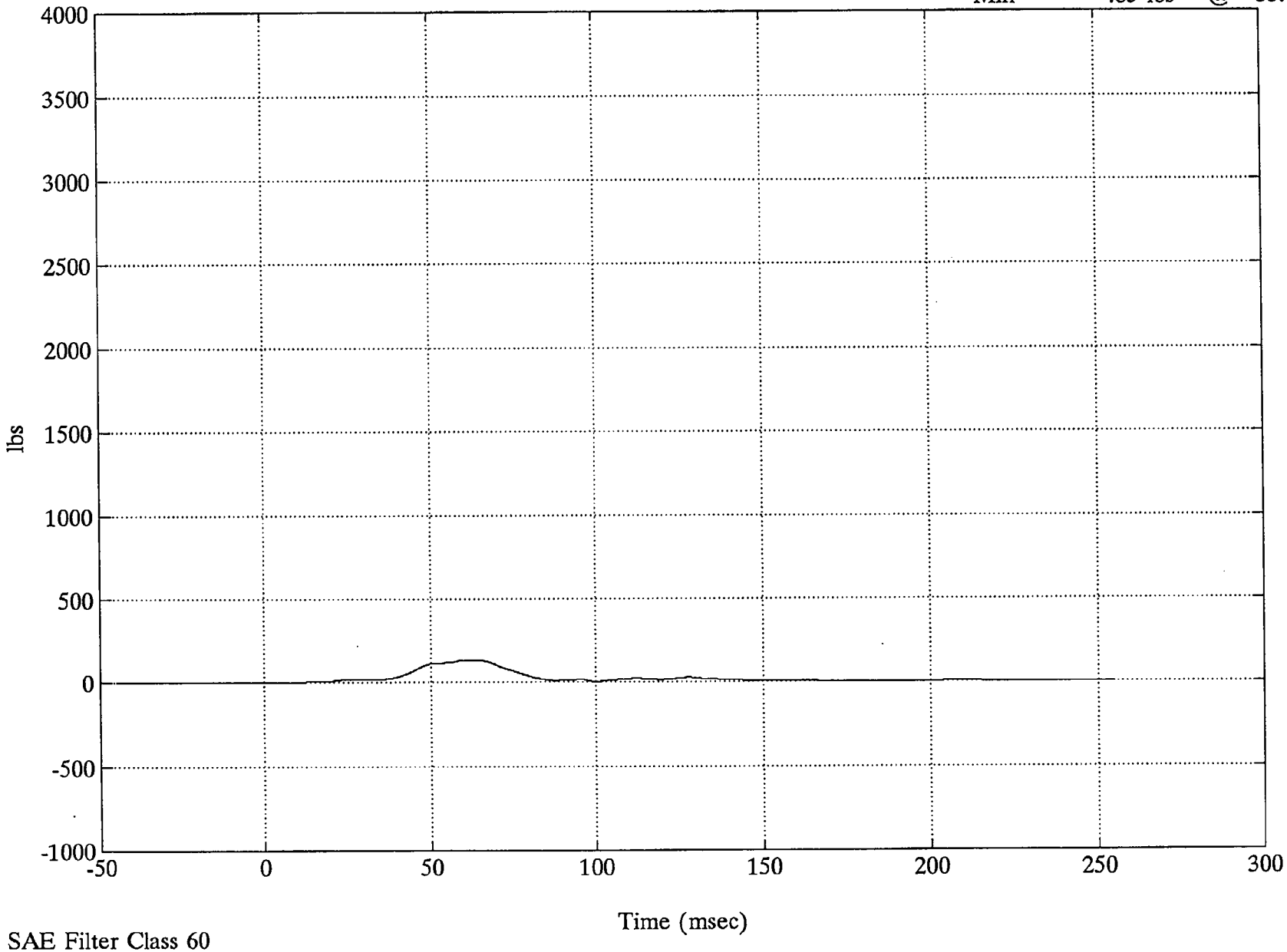
SAE Filter Class 600

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Right Belt Load

Max = 133.11 lbs @ 60.60 msec
Min = -.85 lbs @ -33.48 msec



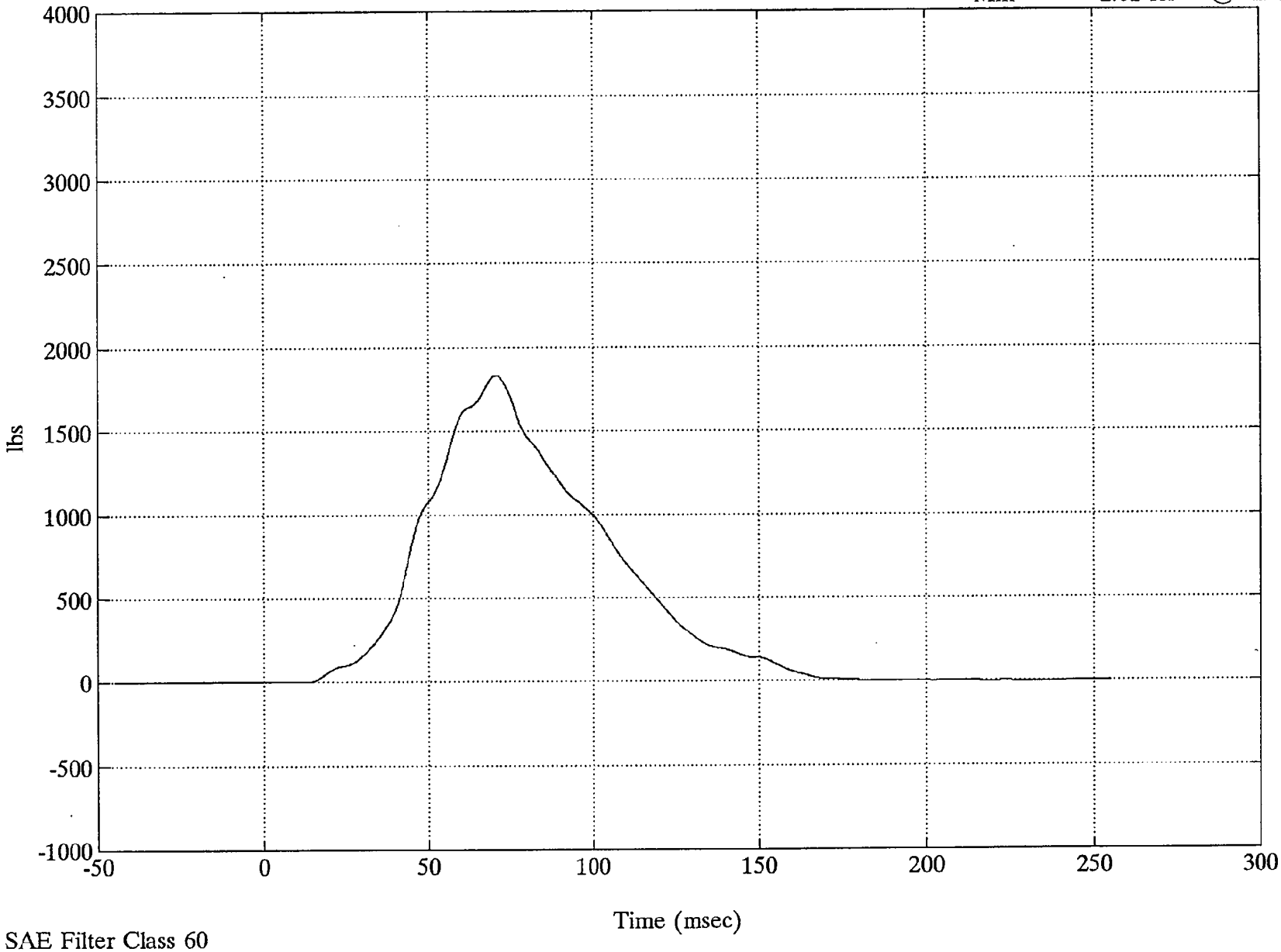
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Torso Belt Load

Max = 1833.14 lbs @ 70.44 msec
Min = -2.01 lbs @ 228.60 msec



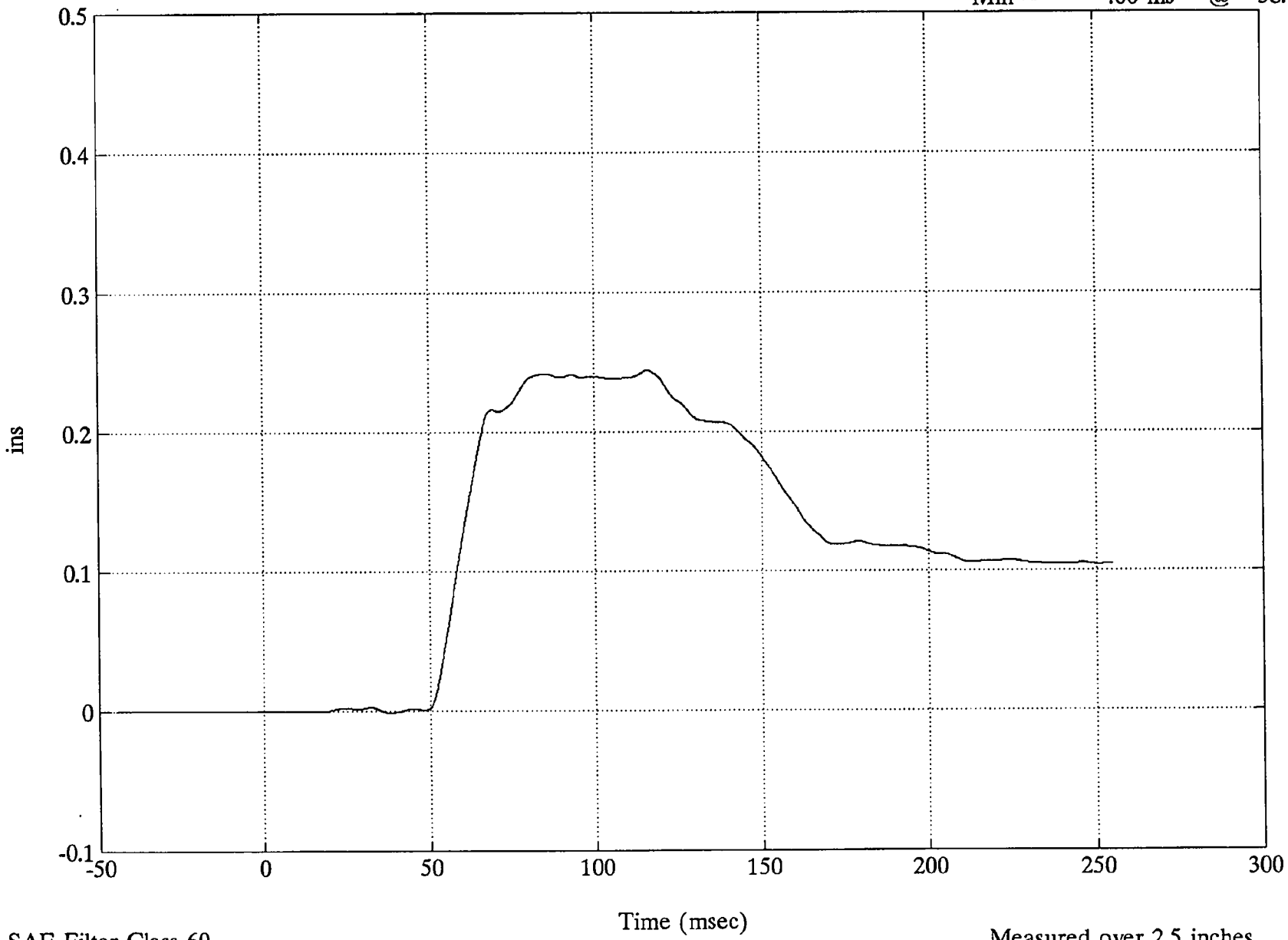
SAE Filter Class 60

7978-4

NCAP 92 TEST 14 PLYMOUTH COLT VISTA

Pos. 2 Belt Elongation

Max = .24 ins @ 115.91 msec
Min = -.00 ins @ 38.04 msec



SAE Filter Class 60

Measured over 2.5 inches

7978-4

Appendix C

PART 572B 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:

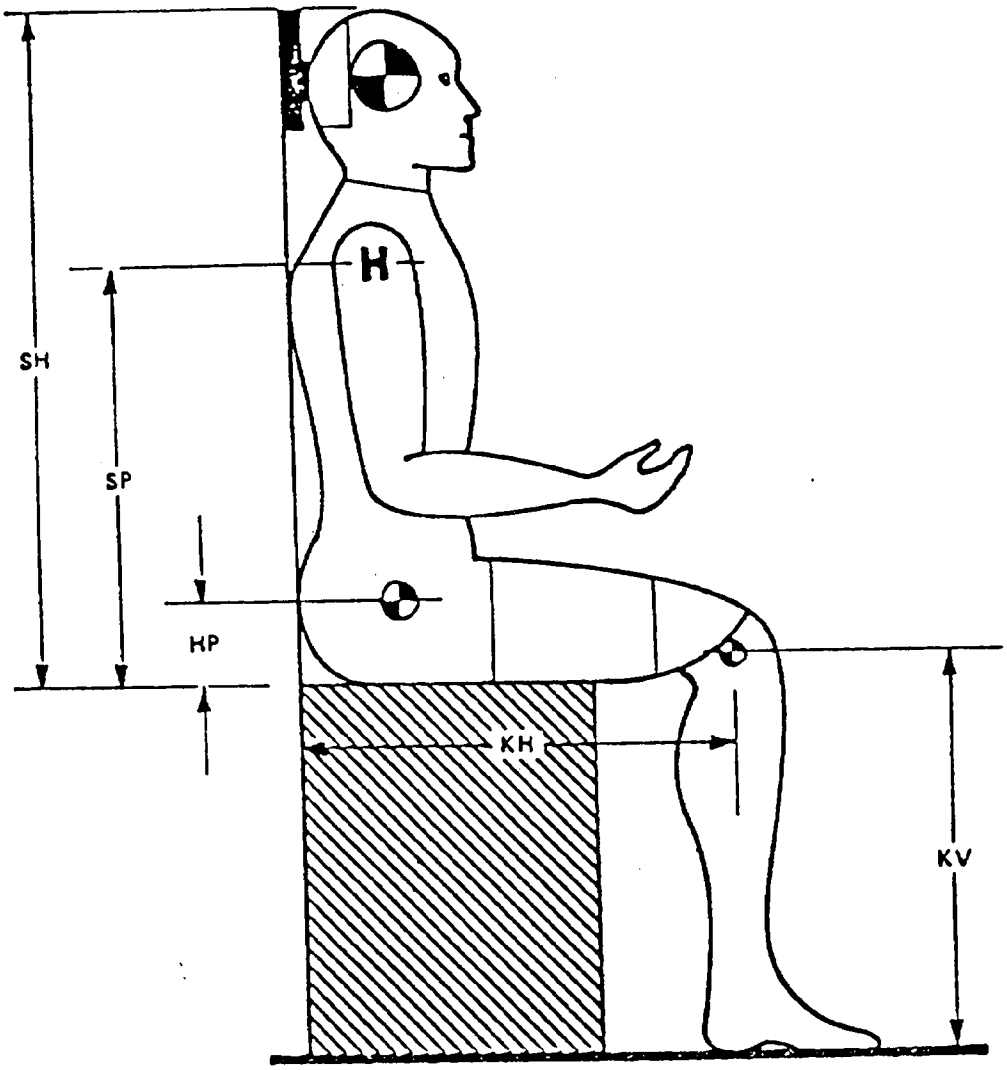
Serial No.	Completion Date
320	1/20/92
358	11/25/91

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



PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NUMBER: 320

I. CONFIGURATION VERIFICATION DATA:

	P. 572 SPECIFICATION	PRE-TEST if required	POST-TEST if required
DATE OF CONFIGURATION VERIFICATION	XXXXXXXXXXXXX	1-20-92	
VERIFICATION NUMBER FOR DUMMY (*)	XXXXXXXXXXXXX	2	
SH - Seated Height	35.6 to 35.8"	35.7 "	"
SP - Shoulder Pivot Height	21.8 to 22.4"	22.0 "	"
HP - Hip Pivot Height	3.9" ref.	3.9 "	"
KH - Knee Pivot from Back Line	20.1 to 20.7"	20.4 "	"
KV - Knee Pivot from floor	19.3 to 19.9"	19.6 "	"
SW - Shoulder Width	17.8 to 18.4"	18.1 "	"
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		1-20-92	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY (*)		2	
VERIFICATION LAB TEMPERATURE (66 to 78 deg.)		69 deg	deg
VERIFICATION LAB HUMIDITY (10 TO 70 %)		24-29 %	%
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST			
a. peak resultant accel.	210 to 260 G's	239.8 G's	G's
b. peak lateral accel.	<= 10 G's	3.7 G's	G's
c. Time above 100 G's	0.9 to 1.5 ms.	1.13 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: 320

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST			
a. Pendulum Speed	21.5 to 25.5 fps.	23.3 fps	fps
b. Pend. Avg. Decel. over t3 to t2	20 to 24 G's	23.5 G's	G's
c. Peak Resultant Head Acceleration	26 G's max.	23.69 G's	G's
d. Pendulum Decel. (t2-t1)	<= 3 ms.	2.85 ms	ms
e. Pendulum Decel. (t3-t2)	25 to 30 ms.	25.05 ms	ms
f. Pendulum Decel. (t4-t3)	<= 10 ms.	9.18 ms	ms
g. Max. Head Rotation	63 to 73 deg.	67.45 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.	31.37 ms	ms
	Displ.	2.1 to 3.1"	2.69 "	"
60 deg.	Time	40.3 to 51.7 ms.	47.0 ms	ms
	Displ.	4.3 to 5.3"	4.89 "	"
Maximum	Time	53.2 to 66.8 ms.	55.06 ms	ms
	Displ.	5.0 to 6.0"	5.18 "	"
60 deg.	Time	67.0 to 83.0 ms.	67.83 ms	ms
	Displ.	4.3 to 5.3"	4.99 "	"
30 deg.	Time	85.4 to 104.6 ms.	89.16 ms	ms
	Displ.	2.1 to 3.1"	2.26 "	"
0 deg.	Time	101.0 - 123.0 ms.	103.55 ms	ms
	Displ.	-.5 to 0.5"	0.0 "	"

TECHNICIANS NAME: Ivan Minkewicz

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA (continued)

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 320

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.	26.5 lbs	lbs
b. Force @ 0.75"	36 to 50 lbs.	42 lbs	lbs
c. Force @ 1.0"	50 to 63 lbs.	59 lbs	lbs
d. Force @ 1.3"	73 to 88 lbs.	85 lbs	lbs
4. LUMBAR FLEXION TEST:			
a. Force @ 20 deg.	22 to 34 lbs.	27 lbs	lbs
b. Force @ 30 deg.	34 to 46 lbs.	39.5 lbs	lbs
c. Force @ 40 deg.	46 to 58 lbs.	51.5 lbs	lbs
d. Return Angle	12 deg. maximum	10 deg	deg
5. CHEST IMPACT TESTS:			
A. High Speed			
(1) Probe Speed	21.78-22.22 fps.	21.8 fps	fps
(2) Peak Deflection	1.7" maximum	1.47 "	"
(3) Peak Resistive Force	2250 lbs maximum	2161 lbs	lbs
(4) Internal Hysteresis	50 to 70%	59.7 %	%
B. Low Speed			
(1) Probe Speed	13.86-14.14 fps.	13.9 fps	fps
(2) Peak Deflection	1.1" maximum	.95 "	"
(3) Peak Resistive Force	1450 lbs maximum	1372 lbs	lbs
(4) Internal Hysteresis	50 to 70%	58.5 %	%

TECHNICIAN'S NAME: Ivan Minkewicz

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA (continued)

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 320

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	2211 lbs	lbs
(3) Time above 1000 lbs.	1.7 ms. minimum	1.75 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	1982 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: 320

A. DUMMY INSTRUMENTS

	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. HEAD ACCELEROMETER				
HX LONGITUDINAL	ENDEVCO	EL86	1/92	7/92
HY LATERAL	ENDEVCO	FR42	1/92	7/92
HZ VERTICAL	ENDEVCO	GK20	1/92	7/92
2. CHEST ACCELEROMETER				
CX LONGITUDINAL	CEC	A150	1/92	7/92
CY LATERAL	ENDEVCO	EL79	1/92	7/92
CZ VERTICAL	CEC	A151	1/92	7/92
3. FEMUR LOAD CELLS				
LEFT SIDE	GSE	311	5/92	11/92
RIGHT SIDE	GSE	312	5/92	11/92

B. CALIBRATION LABORATORY INSTRUMENTS

	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. PENDULUM ACC.	CEC	A160	1/92	7/92
2. TEST PROBE ACCELEROMETER	CEC	A161	12/91	6/92
3. LUMBAR FLEXION TEST PUSH FORCE GAUGE	TRANS-DUCER INC	20051	1/92	7/92
4. ABDOMINAL COMPRESS. TEST FORCE GAUGE	BLH	72952	1/92	7/92
5. ABDOMINAL COMPRESS. TEST FORCE GAUGE	CIC	567-11	1/92	7/92

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	11-25-91	
VERIFICATION NUMBER FOR DUMMY (*)	XXXXXXXXXXXXX	2	
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		11-25-91	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY (*)		2	
VERIFICATION LAB TEMPERATURE (66 to 78 deg.)		69-71 deg	deg
VERIFICATION LAB HUMIDITY (10 TO 70 %)		33-41 %	%
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST			
a. peak resultant accel.	210 to 260 G's	245 G's	G's
b. peak lateral accel.	<= 10 G's	2.7 G's	G's
c. Time above 100 G's	0.9 to 1.5 ms.	1.25 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	23.6 G's	G's
c. Peak Resultant Head Acceleration	26 G's max.	25.24 G's	G's
d. Pendulum Decel. (t2-t1)	<= 3 ms.	2.48 ms	ms
e. Pendulum Decel. (t3-t2)	25 to 30 ms.	25.42 ms	ms
f. Pendulum Decel. (t4-t3)	<= 10 ms.	9.42 ms	ms
g. Max. Head Rotation	63 to 73 deg.	69.05 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.	30.13 ms	ms
	Displ.	2.1 to 3.1"	2.37 "	"
60 deg.	Time	40.3 to 51.7 ms.	44.52 ms	ms
	Displ.	4.3 to 5.3"	4.62 "	"
Maximum	Time	53.2 to 66.8 ms.	57.04 ms	ms
	Displ.	5.0 to 6.0"	5.26 "	"
60 deg.	Time	67.0 to 83.0 ms.	71.92 ms	ms
	Displ.	4.3 to 5.3"	4.62 "	"
30 deg.	Time	85.4 to 104.6 ms.	89.16 ms	ms
	Displ.	2.1 to 3.1"	2.11 "	"
0 deg.	Time	101.0 - 123.0 ms.	103.3 ms	ms
	Displ.	-.5 to 0.5"	0.0 "	"

TECHNICIANS NAME: Ivan Minkewicz

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)
3. ABDOMINAL COMPRESSION TEST: (preload = 50 lbs.)			
a. Force @ 0.5"	23 to 36 lbs.	25 lbs	lbs
b. Force @ 0.75"	36 to 50 lbs.	38.5 lbs	lbs
c. Force @ 1.0"	50 to 63 lbs.	56 lbs	lbs
d. Force @ 1.3"	73 to 88 lbs.	81.5 lbs	lbs
4. LUMBAR FLEXION TEST:			
a. Force @ 20 deg.	22 to 34 lbs.	31 lbs	lbs
b. Force @ 30 deg.	34 to 46 lbs.	41.5 lbs	lbs
c. Force @ 40 deg.	46 to 58 lbs.	55 lbs	lbs
d. Return Angle	12 deg. maximum	7 deg	deg
5. CHEST IMPACT TESTS:			
A. High Speed			
(1) Probe Speed	21.78-22.22 fps.	21.8 fps	fps
(2) Peak Deflection	1.7" maximum	1.5 "	"
(3) Peak Resistive Force	2250 lbs maximum	2098 lbs	lbs
(4) Internal Hysteresis	50 to 70%	64.3 %	%
B. Low Speed			
(1) Probe Speed	13.86-14.14 fps.	14.1 fps	fps
(2) Peak Deflection	1.1" maximum	1.02 "	"
(3) Peak Resistive Force	1450 lbs maximum	1361 lbs	lbs
(4) Internal Hysteresis	50 to 70%	58.6 %	%

TECHNICIAN'S NAME: Ivan Minkewicz

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)
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	2083 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	1951 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	A27A	1/92	7/92
HY LATERAL	ENDEVCO	A26A	1/92	7/92
HZ VERTICAL	ENDEVCO	A51A	1/92	7/92
2. CHEST ACCELEROMETER				
CX LONGITUDINAL	CEC	A48A	1/92	7/92
CY LATERAL	ENDEVCO	A73A	1/92	7/92
CZ VERTICAL	CEC	A19A	1/92	7/92
3. FEMUR LOAD CELLS				
LEFT SIDE	GSE	551	5/92	11/92
RIGHT SIDE	GSE	552	5/92	11/92

B. CALIBRATION LABORATORY INSTRUMENTS

	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. PENDULUM ACC.	CEC	A160	1/92	7/92
2. TEST PROBE ACCELEROMETER	CEC	A161	12/91	6/92
3. LUMBAR FLEXION TEST PUSH FORCE GAUGE	TRANS-DUCER INC	20051	1/92	7/92
4. ABDOMINAL COMPRESS. TEST FORCE GAUGE	BLH	72952	1/92	7/92
5. ABDOMINAL COMPRESS. TEST FORCE GAUGE	CIC	567-11	1/92	7/92

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	EL86	ENDEVCO	1/92	7/92
Y	FR42	ENDEVCO	1/92	7/92
Z	GK20	ENDEVCO	1/92	7/92
Chest X	A150	CEC	1/92	7/92
Y	EL79	ENDEVCO	1/92	7/92
Z	A151	CEC	1/92	7/92
Right Femur Load Cell	549	GSE	5/92	11/92
Left Femur Load Cell	548	GSE	5/92	11/92
Neck Load Cell X		DENTON		
Y		DENTON		
Z		DENTON		
Neck Moment X		DENTON		
Y		DENTON		
Z		DENTON		
Chest Deflection Gauge Hybrid III Use Only		HUMANOID		
Lap Belt Load Cells	123	LEBOW	5/92	11/92
Shoulder Belt Load Cells	127	LEBOW	5/92	11/92
Spool-Out Potentiometer		SERVONIC INST.		
Belt Stretch Transducer	E1	CALSPAN	4/92	10/92

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY	Serial #	Manufacturer	Calibration Last	Calibration Next
Head X	A27A	ENDEVCO	1/92	7/92
Y	A26A	ENDEVCO	1/92	7/92
Z	A51A	ENDEVCO	1/92	7/92
Chest X	A48A	CEC	1/92	7/92
Y	A73A	ENDEVCO	1/92	7/92
Z	A19A	CEC	1/92	7/92
Right Femur Load Cell	552	GSE	5/92	11/92
Left Femur Load Cell	551	GSE	5/92	11/92
Neck Load Cell X		DENTON		
Y		DENTON		
Z		DENTON		
Neck Moment X		DENTON		
Y		DENTON		
Z		DENTON		
Chest Deflection Gauge Hybrid III Use Only		HUMANOID		
Lap Belt Load Cells	133	LEBOW	5/92	11/92
Shoulder Belt Load Cells	135	LEBOW	5/92	11/92
Spool-Out Potentiometer		SERVONIC INST.		
Belt Stretch Transducer	E3	CALSPAN	4/92	10/92

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS
(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration Last	Calibration Next
Left Seat Rear Crossmember	A70	CEC	1/92	7/92
Right Rear Seat Crossmember	A152	CEC	4/92	10/92
Top of Engine	A178	CEC	4/92	10/92
Bottom of Engine	A186	CEC	3/92	9/92
Left Disc Brake Caliper	A29	CEC	4/92	10/92
Right Disc Brake Caliper	A177	CEC	4/92	10/92
Instrument Panel	A142	CEC	4/92	10/92
Center Rear Crossmember Z	A52	CEC	4/92	10/92
Vehicle Rear Z	A115	CEC	4/92	10/92

INSTRUMENT CALIBRATION FOR LABORATORY INSTRUMENTS
(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration Last	Calibration Next
Neck Bending Pendulum Accel.	A160	CEC	1/92	7/92
Neck Bending Rotary Potentiometer	None	BOURNS	1/92	7/92
Femur Probe Accelerometer	A161	CEC	12/91	6/92
Chest/Thorax Probe Accel.	A161	CEC	12/91	6/92
Lumbar Flexion Force Gauge	20051	TRANSDUCER INC.	1/92	7/92

Appendix E

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

Seat belts

ND06A-Ac

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

WARNING

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 and severity of injury in the event of a collision.

WARNING

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

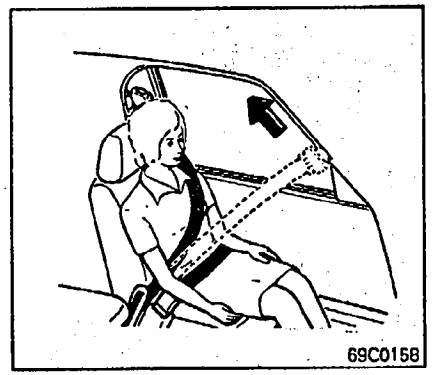
NOTE
Legislation in your state may require seat belt usage, but even if not required, they should always be used.

Front seat belt restraint system

ND06B-Fb

For models destined for the United States, the front seat belt restraint system consists of the automatic shoulder belt and the manual seat belt. This system is designed to provide comfort and safety by automatic fastening and unfastening of the shoulder belt as well as automatic retraction of the belts during normal car operation.
Sensing devices inside the belt retractors (for shoulder and seat belts) are designed to lock the retractors in the event of an abrupt change in car motion.

WARNING
For the most effective restraint, both the shoulder belt and the seat belt should be worn. The seat belt should be worn so that it is across the thighs and snug against the hips, not across the waist or abdomen. The shoulder belt should never be worn behind the body, under the arm or otherwise out of position.



Automatic shoulder belt

ND06D-Lc

The shoulder belt moves automatically to the set position (fasten) when a door is closed and the ignition key is turned to the "ON" position. When the door is opened, the shoulder belt automatically moves to the set-off (unfastened)position. For the driver's seat, the shoulder belt automatically moves to the set-off position when the ignition key is removed from the ignition.

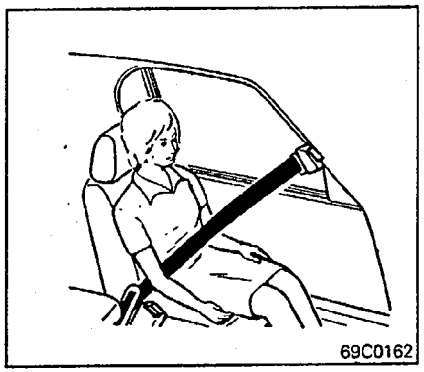
Seat belt reminder light/warning light and buzzer
The seat belt reminder light/warning light will illuminate or blink on and off and/or the buzzer will sound in the following instances.

(1) LAP BELT REMINDER LIGHT AND BUZZER
When the ignition key is turned to the "ON" position, the reminder light in the instrument cluster will illuminate for about 6 seconds. If the driver does not fasten his/her lap belt, the buzzer will also sound for about 6 seconds intermittently. The buzzer will immediately stop sounding, however, when the lap belt is fastened.

(2) SHOULDER BELT INSTALLATION REMINDER LIGHT
While the shoulder belt moves automatically to the set position (fasten), when the door is closed and the ignition key is turned to the "ON" position, the shoulder belt reminder light will blink on and off during that time.

(3) SHOULDER BELT RELEASE BUCKLE WARNING LIGHT AND BUZZER
If the release button for the shoulder belt at the driver's seat side is accidentally pressed, the buzzer will sound for about 6 seconds and the warning light will also blink on and off continuously for about 1 minute; for the belt at the passenger seat side, the warning light will illuminate for about 1 minute.
If this happens, again buckle the shoulder belt. The buzzer will stop when the belt is buckled, and the warning light will go off.

(4) SHOULDER BELT RELEASE REMINDER BUZZER
When the door is opened and the sliding anchor begins to move to release the shoulder belt, the buzzer sounds for about 1 second.

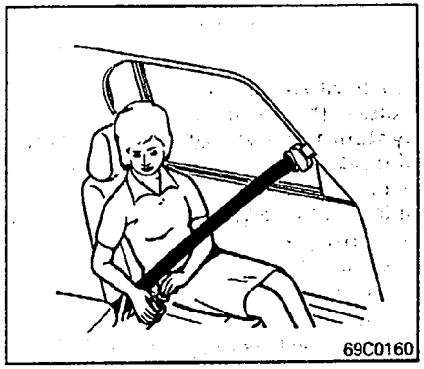

69C0162

Front seat belt instructions

1. Get in the car, close the door and adjust the seat position.

WARNING

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

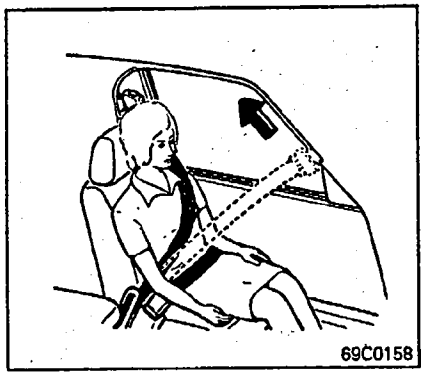

69C0160

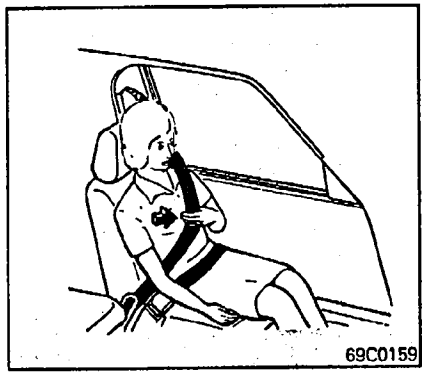
2. Grasp the seat belt latch plate and pull the webbing, then push the latch plate into the buckle until a "click" is heard.

WARNING

(1) Always position the lap portion of belt as low on the hips as possible.
(2) The seat belts must not be twisted when worn.

NOTE
For instruction on how to install a child restraint system to the front passenger's seat, see "Installing an infant carrier to the front passenger's seat" on page 35.





3. Turn the ignition key to the "ON" position; the shoulder belt will move automatically to the set position (fasten).

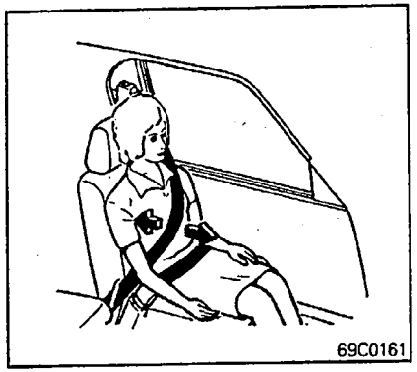
WARNING

Keep hands and fingers away from the shoulder belt anchor while it is moving.
Be careful that the shoulder and seat belts do not cross.If they do, the seat belt could injure the abdomen in the event of sudden braking or a collision.

4. Pull up the shoulder belt and seat belt slightly to be sure that there is no excess slack or tightness in the belts.
The belts will retain a small amount of looseness necessary for comfort during driving. If a belt is too tight, pull it up slightly and let it return. The belts will not tighten during normal use; therefore you can set them once for safe, comfortable snugness.

WARNING

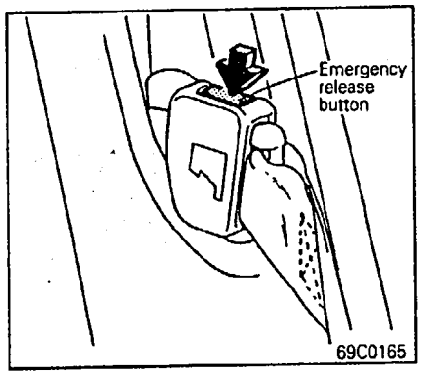
Be sure the seat belt position is fitted snugly and as low as possible around the hips, not around the waist. Failure to do so may increase the chance or severity of injury in the event of a collision.



5. The belts will allow unrestricted movement under normal conditions.
   The belts will lock in the event of an abrupt change in car motion.

WARNING

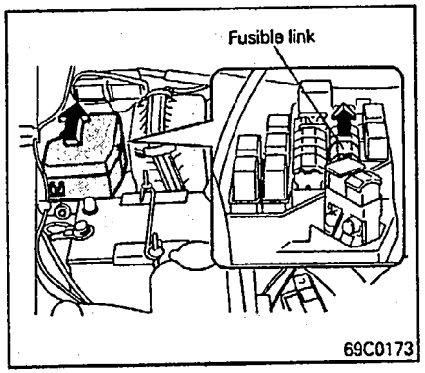
Be sure to lock all doors before driving. Locking the doors, and properly using the seat belts provided, will minimize the risk of injury or ejection in an accident.



Emergency release button
If the shoulder belt sliding anchor is locked in an emergency, push the emergency release button to release the shoulder belt. Use this button only when the shoulder belt prevents you from leaving the car in an accident.

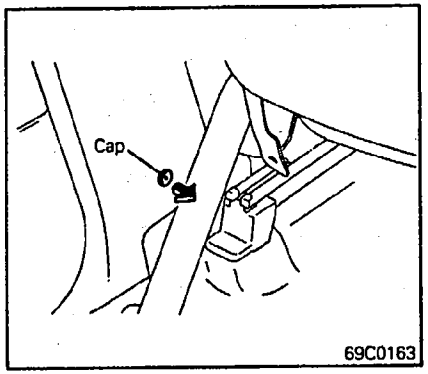
⚠ *CAUTION*

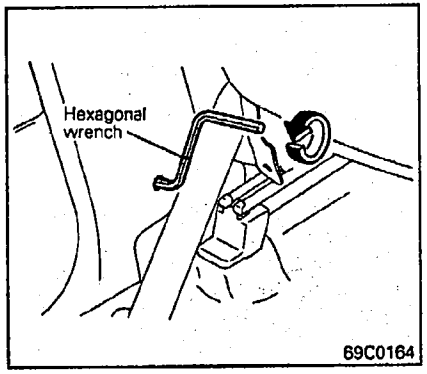
To maintain the normal shoulder belt restraint, do not press the emergency release button except in an emergency.



Manual operation of automatic shoulder belts
If the automatic shoulder belt sliding anchor stops before its movement is complete and does not move farther, follow the steps below to turn the motor manually, move the sliding anchor to the installation position, and then attach the shoulder belt to the buckle.
Before driving, be sure your belt is properly fastened.

Before the motor is turned manually, remove the fusible link in the fusible link box.





WARNING

If the fusible link is not removed, an injury might be caused if the motor starts.

1. Remove the cap on the center pillar.
2. Insert the wrench (included with the car's tools) into the trim hole; turn the wrench counterclockwise so as to move the sliding anchor to the fastened position.

NOTE

(1) If the movement of the sliding anchor of the shoulder belt is not smooth (if, for example, dirt or other foreign material increases the sliding resistance of the sliding anchor, etc.), or if it stops before its movement is complete,request an authorized dealer to check the belt; if the problem cannot be resolved, the shoulder belt must be replaced as a complete assembly.

(2) If the outside air temperature is low, the time required for the operation of the sliding anchor will become longer; this is not a malfunction. If the temperature increases, this time will become shorter.

(3) In order to maintain smooth operation of the seat belt, be sure that the latch plate is at the stowed position.
If the belt does not fully retract, pull it out and check for kinks or twists.
Then make sure that it remains untwisted as it retracts.

(4) If the shoulder belt and/or seat belt becomes frayed or otherwise damaged, have the belts replaced by an authorized dealer as a complete assembly.

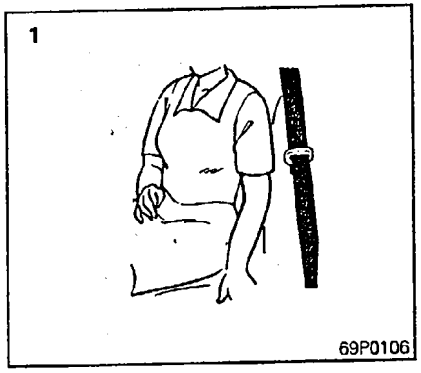
Seat unibelt restraint system

ND06B-Hb

Both sides of the rear seat for models destined for the United States, and front seats and both sides of the rear seat for models destined for Canada, are equipped with a UNIBELT system which uses a single belt and an emergency locking retractor.
This system is designed to provide comfort and safety by permitting full extension and automatic retraction of the belts during normal car operation. A sensing device inside the belt retractor is designed to lock the retractor in the event of an abrupt change in car motion.

NOTE
For instruction on how to install a child restraint system to the rear seat, see "Installing a child restraint system to a UNIBELT" on page 33.

1



69P0106

Unibelt instructions

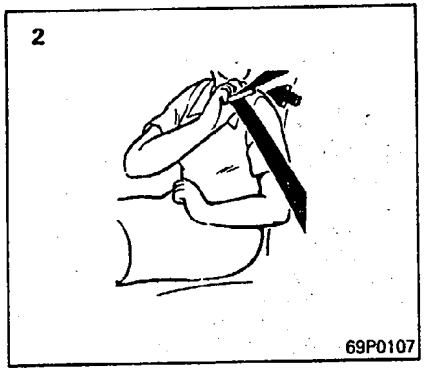
ND06D-Ae

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

WARNING

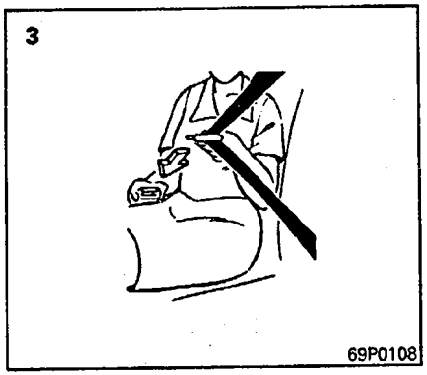
To minimize risk of personal injury in event of collision or sudden stop, both the driver and passenger seatbacks should always be in a nearly upright position while the car is in motion. The protection provided by the seat belts may be reduced significantly when the seatback is reclined. There is greater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

2

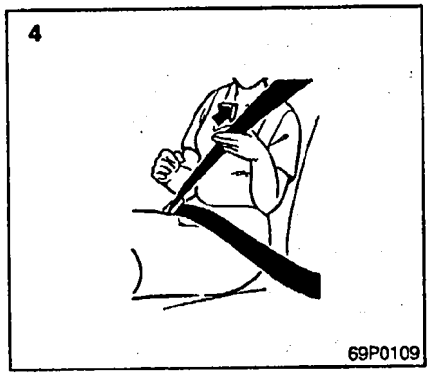


69P0107

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.



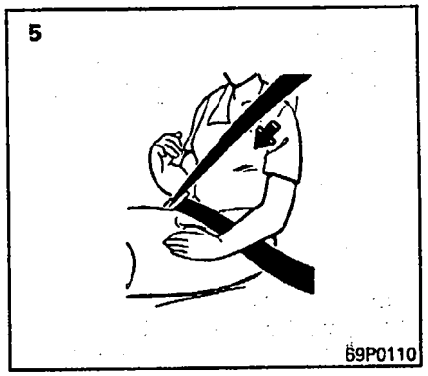
3. Pull the webbing, and move the movable latch plate toward the buckle. This system will not lock up if you stop or hesitate, so relax and continue to "buckle-up."
Push the latch plate into the buckle until a "click" is heard.



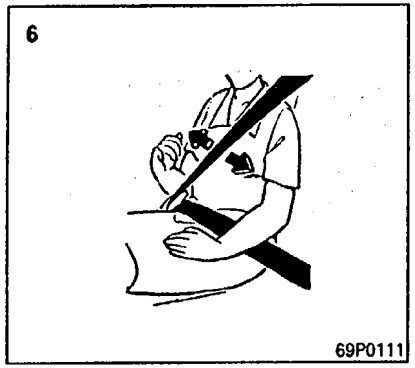
4. Pull up on the shoulder belt to ensure that there is no slack in the seat belt. The seat belt will not tighten during use; therefore, you can set it once for safe, comfortable snugness.

WARNING

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

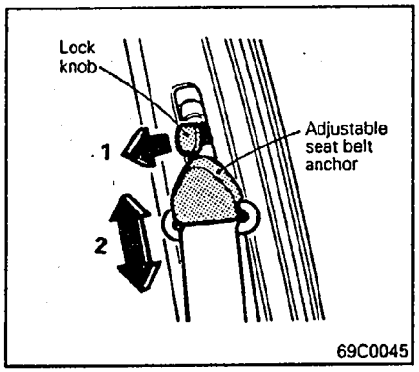


5. Check the belt slackness. The belt will retain the small amount of slack necessary for comfort when you return to your normal seating position. If the belt is still too tight, pull out 6" or 8" of webbing, let it return to your chest, and repeat the above motion.



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

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



Adjustable seat belt anchor (front seats destined for Canada) ND06E-B

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 relase 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.