V1730

REPORT NUMBER: CAL-92-N15

NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST

FORD MOTOR COMPANY
1992 FORD CROWN VICTORIA
4-DOOR SEDAN

NHTSA NUMBER: MN0208

CALSPAN TEST NUMBER: 7978-5

JUNE 10, 1992

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

FINAL REPORT

PREPARED FOR:

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

SEP 03 1992

Date of Report Acceptance

Ida Sue Clark

Contracting Officer's Tech. Rep. (COTR)

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15. Supplementary Notes

16. Abstract

A frontal load cell barrier test on a 1992 Ford Crown Victoria 4-Door Sedan was performed at the Calspan Advanced Technology Center crash test facility in Buffalo, New York, on June 10, 1992.

The impact velocity was 35.0 mph and the ambient temperature at the barrier face was 72°F at the time of impact. The maximum post-test vehicle crush was 26.3 inches. The test vehicle was equipped with a 3-point continuous belt system and a supplemental airbag at each of the front outboard seating positions.

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

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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 MN0208

A load cell barrier consisting of 36 load cells was impacted by a 1992 Ford Crown Victoria 4-Door Sedan at a velocity of 35.0 mph. The test was performed at the Calspan Corporation Advanced Technology Center on June 10, 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 15 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. The driver and passenger were restrained with a 3-point belt system. The driver and passenger also had airbags as supplemental restraint devices.

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. 357) and the right-front passenger ATD (Serial No. 749) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 69 channels of data were recorded on a P.C. based data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces. Position 1 Belt Elongation and Position 2 Belt Elongation did not record accurately. Data plots for these channels were excluded from this report.

The driver's head struck the airbag; the HIC was 907.3. The maximum chest deceleration over 3 milliseconds was 47.1 g's and femur loads were 1439.1 and 846.4 pounds.

The right front passenger's HIC was 331.3 and maximum chest deceleration over 3 milliseconds was 42.3 g's. Femur loads were 1364.2 and 844.6 pounds.

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Vehicle Year/Make/Model/Body Style: 1992 Ford Crown Victoria 4-Door Sedan

NHTSA Test No.: MN0208 VIN.: 2FALP74W8NX188474

Body Color: Silver

Engine: 8 Cylinders; - C.I.D.; 4.6 Liters; - CC

X Gas; - Diesel; - Turbocharged

X Longitudinal; - Transverse

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

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

Date Received: 3/27/92 Odometer Reading: 92.5 miles

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

X Tilt Wheel X P/seats; X Cruise Control

Type of Occupant Restraint: Driver - Airbag/3-point continous belt system
Passenger - Airbag/3-point continuous belt system

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): Front 30 psi, Rear 34 psi

Recommended Tire Size: P215/70R15

Recommended Cold Tire Pressure: Front 30 psi, Rear 34 psi

Tires on Vehicle: P215/70R15 ; Manufacturer: Michelin

Number of Occupants: 3 Front; 3 Rear; - 3rd Seat; 6 TOTAL

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

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

Vehicle Capacity Weight (VCW) = 1100 lbs. (A)

No. of Occupants x 150 lbs. = 900 lbs. (B)

Rated Cargo and Luggage
Weight (RCLW) A-B = 200 lbs.

GVWR 5189 lbs. GAWR: Front 2599 lbs. Rear 2640 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 = 1130 lbs. Right Rear = 860 lbs.

Left Front = 1090 lbs. Left Rear = 890 lbs.

TOTAL FRONT WEIGHT = 2220 lbs. (55.9 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 1750 lbs. (44.1 % of Total Vehicle Weight)

TOTAL DELIVERED WEIGHT = 3970 lbs.

CALCULATION FOR TARGET TEST WEIGHT:

UDW = Unloaded Delivered Weight (3970 lbs.)

VCW = Vehicle Capacity Weight (1100 lbs.)

DSC = Designated Seating Capacity (6)

RCLW = VCW - 150 (DSC) = 200 lbs.

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

Target Test Weight = 4498 lbs.

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 192 POUNDS CARGO:

Right Front = 1170 lbs. Right Rear = 1080 lbs.

Left Front = 1170 lbs. Left Rear = 1070 lbs.

TOTAL FRONT WEIGHT = 2340 lbs. (52.1 % of Total Vehicle Weight)

TOTAL REAR WEIGHT = 2150 lbs. (47.9 % of Total Vehicle Weight)

TOTAL TEST WEIGHT = 4490 lbs.

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

VEHICLE ATTITUDE (all dimensions in inches):

Delivered Attitude: RF 28.9 LF 28.8 RR 28.2 LR 28.3

Test Attitude: RF 28.4 LF 28.9 RR 28.6 LR 28.9

Wheel Base: 114.0 in.; C.G. = 54.6 in. rearward of front wheel C/L

Remarks: 18.6 gallons of stoddard solution were placed in 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: June 10, 1992 Time of Test: 12:55

Ambient Temperature: 72 °F at impact area

Temperature in Occupant Compartment: 69 °F

Windshield Molding Temperature: 70 °F

Required Impact Velocity Range: 34.9 to 35.9 mph

Impact Velocity: primary = 35.0 mph, secondary = 35.1 mph

Distance From Front Bumper to Barrier Face When

Entering Speed Trap: 52 inches

Exiting Speed Trap: 12 inches

VEHICLE REBOUND AND CRUSH (inches):

		R	C_L	L
Vehicle Length:	Pre-test	207.4	211.5	208.0
	Post-test	182.4	185.2	183.8
	Crush	25.0	26.3	24.2

Distance from front of test vehicle to point of impact:

R 16.5 C_L 14.8 L 16.9

VISIBLE DUMMY CONTACT POINTS:

	Driver	Passenger
Head	Air bag	Air bag
Chest	Air bag	Air bag
Abdomen	No contact	No contact
Left Knee	Dash panel	No contact
Right Knee	Dash panel	Dash panel

Table 1

GENERAL TEST AND VEHICLE PARAMETER DATA (cont'd)

	Front		Rear	
	Left	Right	Left	Right
Door Opening	operable	operable	operable	operable

	Front		Rear	
Seat Movement	Left	Right	Left	Right
Seat Back Failure	None	None	-	-
Seat Shift (in.)	0.0	0.0	-	-

Glazing Damage

Backlight/Windshield Sustained stress fractures but remained intact

Other Notable Impact Effects: Rear axle (at differential) broke 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.: MN0203 Vehicle: 1992 Ford Crown Victoria 4-Door Sedan

	MAXIMUM HEAD ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-62.8	-16.0	42.9	75.2
Position #2 - Passenger	-43.1	9.7	31.0	50.0

	MAXIMUM CHEST ACCELERATION (g's)			
	X	Y	Z	R
Position #1 - Driver	-47.3	-13.5	-14.2	47.1
Position #2 - Passenger	-43.6	15.5	-14.0	42.3

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	1439.1	846.4
Position #2 - Passenger	1364.2	844.6

	MAXIMUM FORCE - SEAT BELT LOADS (lbs.)		
	SHOULDER STRAP UPPER BELT LOAD	LAP STRAP RIGHT BELT LOAD	LAP STRAP LEFT BELT LOAD
Position #1 - Driver	1650.3	-	661.0
Position #2 - Passenger	1579.4	1264.1	-

	HEAD INJURY CRITERIA (HIC)			
	HIC	t_1 (SEC)	t_2 (SEC)	Average Acceleration t_1 TO t_2
Position #1 - Driver	907.3	0.07896	0.11472	57.8
Position #2 - Passenger	331.3	0.07188	0.10776	38.6

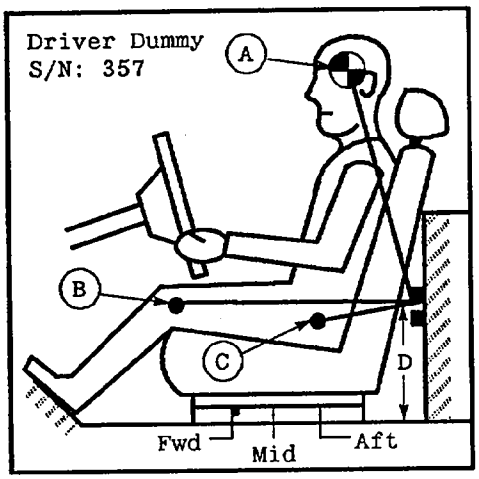
HIC is as defined in FMVSS 208. The maximum time interval from t_1 to t_2 is 36 milliseconds.

Figure 1

PART 572 DUMMY IN-VEHICLE POSITION

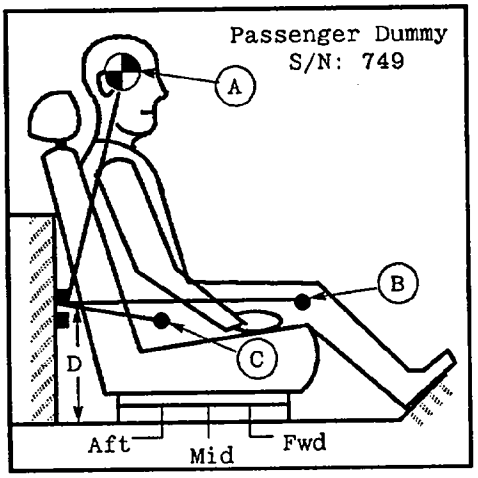
Test No.: MN0208 Vehicle: 1992 Ford Crown Victoria 4-Door Sedan

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



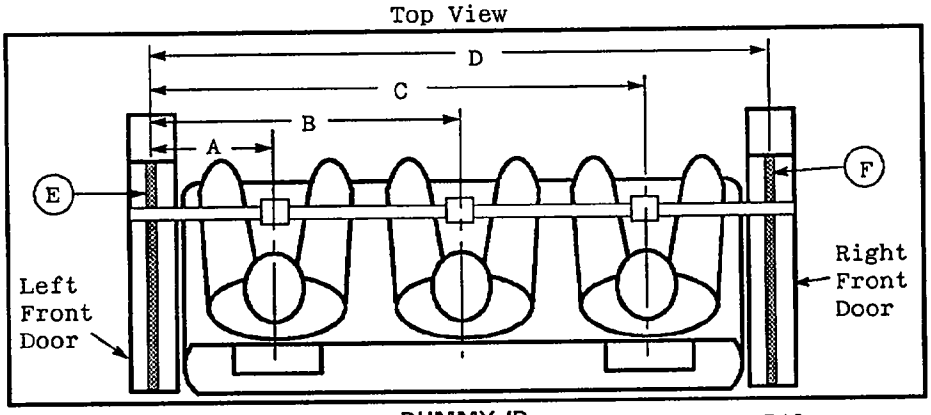
MEASUREMENT LOCATION

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



Driver Dummy			Passenger Dummy		
A = 22.0	in.	-5 Degrees	A = 21.7	in.	-3 Degrees
B = 22.2	in.	96 Degrees	B = 21.6	in.	95 Degrees
C = 6.4	in.	140 Degrees	C = 7.0	in.	135 Degrees
D = 15.3	in.		D = 15.3	in.	

Top View



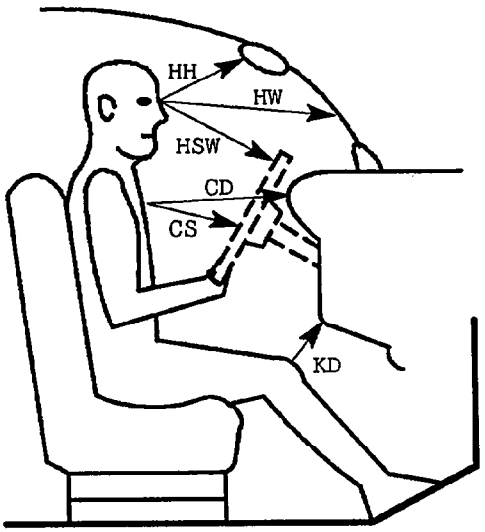
S/N 357 DUMMY ID S/N 749

A = Left Door to Driver Centerline	13.8	in.
B = Left Door to Center Passenger Centerline	-	in.
C = Left Door to Right Passenger Centerline	45.2	in.
D = Left Door to Right Door	59.5	in.
E,F = Window Glass Height (Right and Left Must Be Equal)	11.0	in.

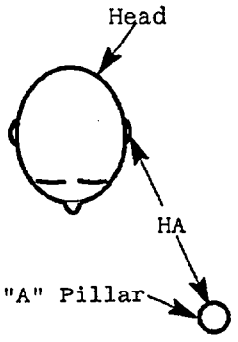
Figure 2

OCCUPANT CLEARANCE DIMENSIONS

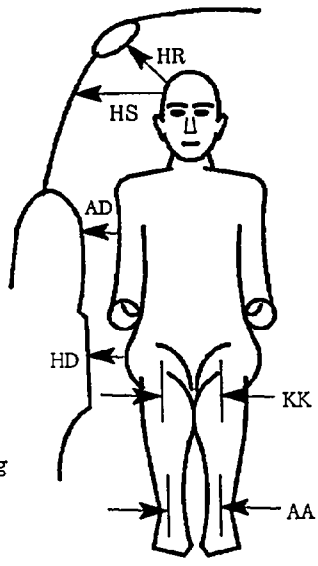
	DRIVER	PASSENGER
HH	17.3	17.3
HW	24.0	23.7
CD	23.9	21.6
CS	12.7	-
KDL	3.9	4.6
KDR	4.5	4.5
SA	See note	See note
TA	26°	26°
HSW	21.1	-



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

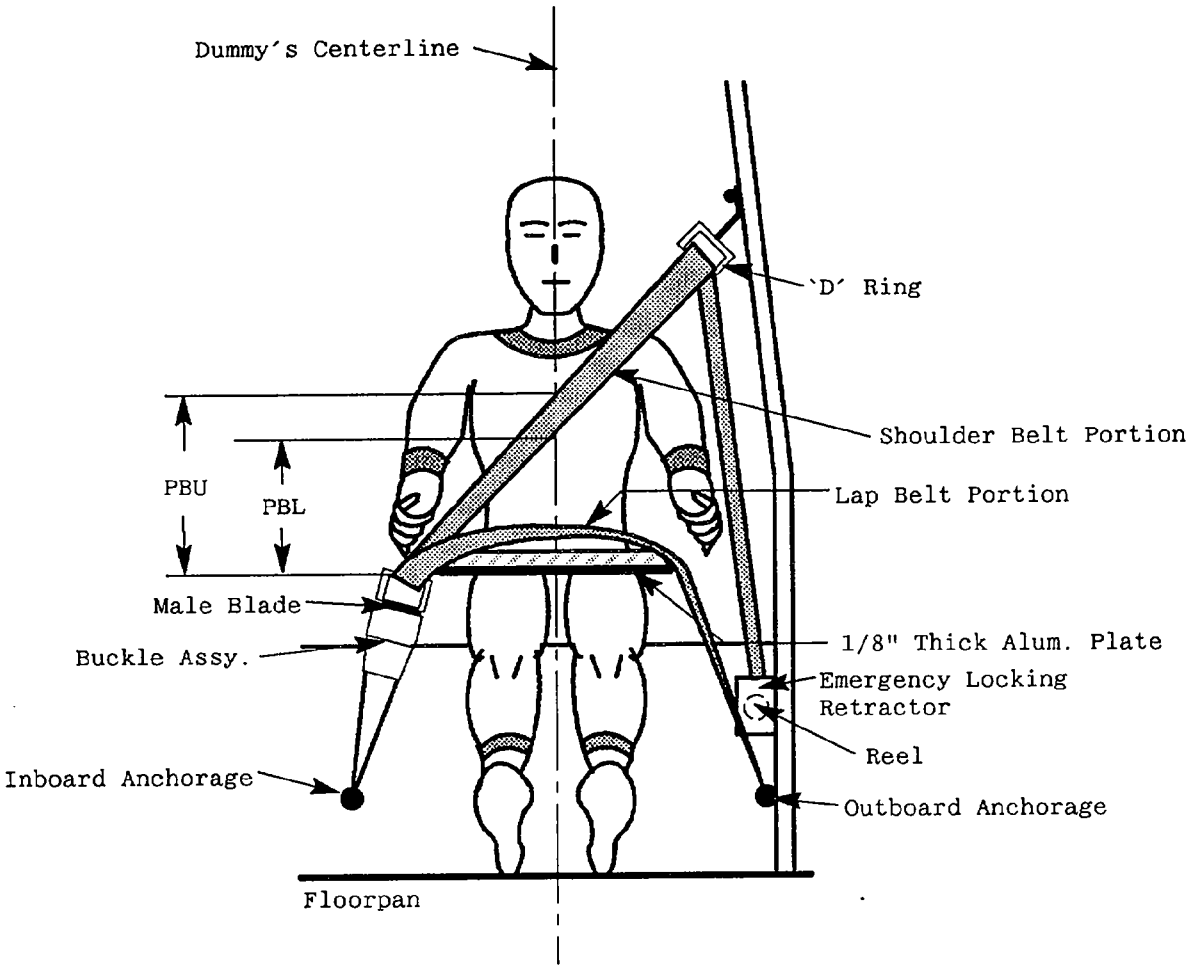


	DRIVER	PASSENGER
HR	6.1	6.0
HS	10.8	10.8
AD	4.9	5.3
HD	7.7	7.8
KK	9.5	8.5
HA	20.9	20.2
AA	11.3	8.3

Note: Seat back angle was set 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	14.6	14.6
PBL -- Top surface of alum. plate to belt lower edge	11.3	11.3
LAP BELT TENSION	2 lbs	2 lbs
SHOULDER BELT TENSION	N/A	N/A

Table 3

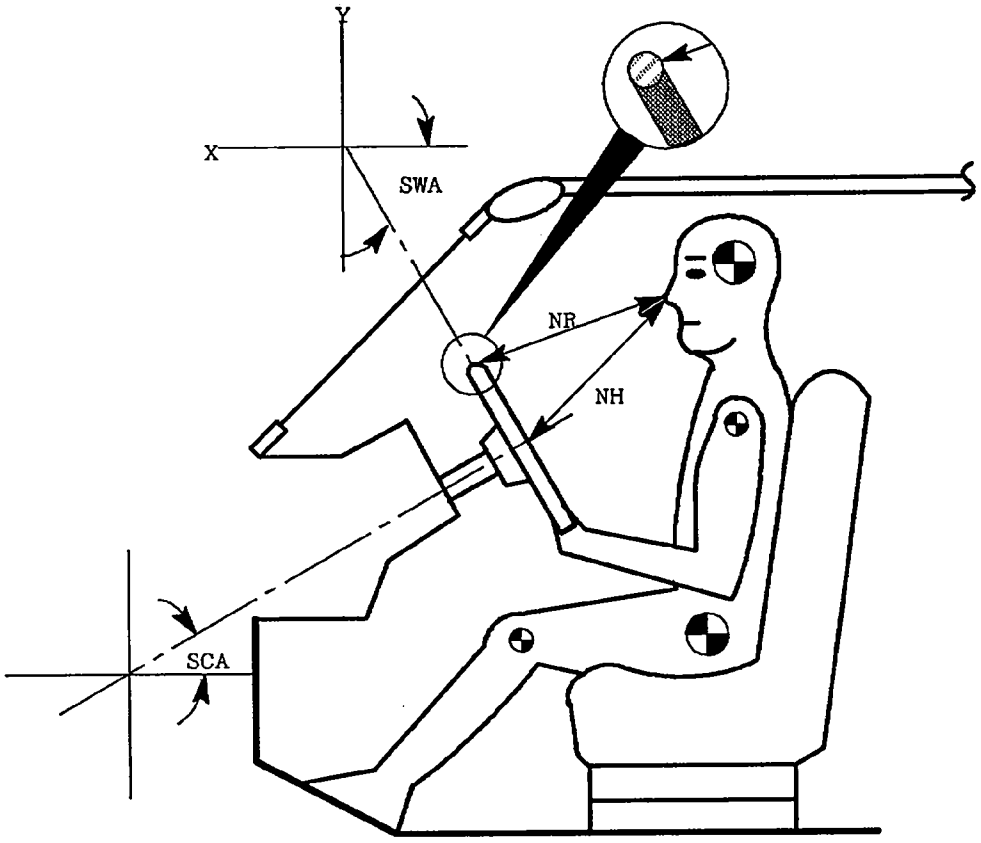
SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:	Driver	Passenger
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	78.5	78.5
Shoulder belt length as measured on Part 572 Dummy.	33.0	33.0
Lap belt length as measured on Part 572 Dummy.	34.5	34.5
SHOULDER BELT SPOOL-OFF DATA:		
As determined by film analysis.	2.5	2.0
As determined mechanically.	2.8	2.7
As determined electronically.	2.8	2.5
BELT STRETCH DATA:		
Measured electronically between shoulder belt load cell and the "D" ring.	N/A in/ft	N/A in/ft
Measured mechanically	0.6 in/ft	0.6 in/ft

Note: Torso belt adjuster was in "full up" position

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	19.5	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	23	Degrees
SWA -- Angle of steering wheel relative to the horizontal X axis	-67	Degrees

Figure 5

CAMERA POSITIONS FOR FRONTAL IMPACTS

NOTE: Camera Information Shown on Table 4

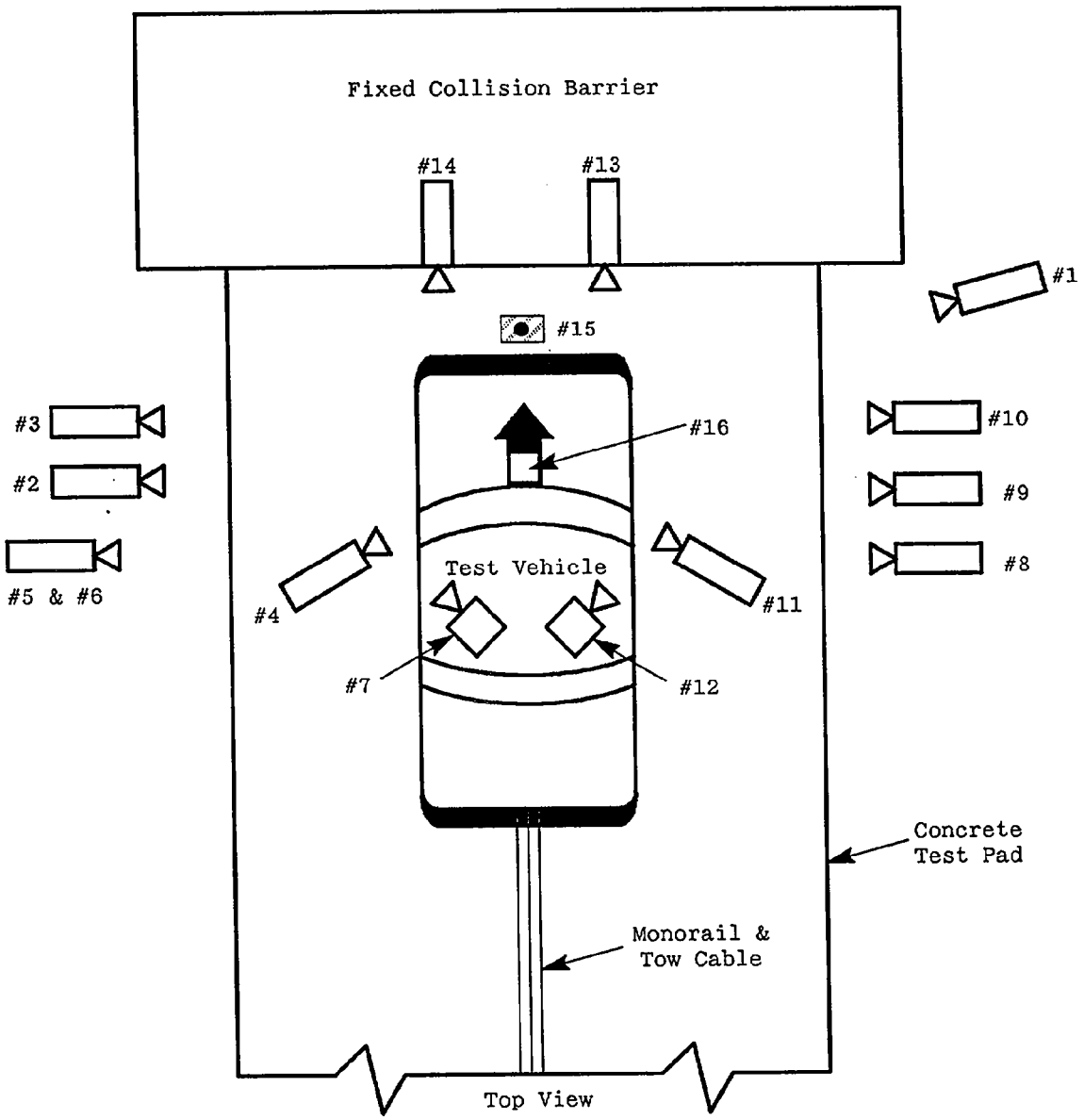


Table 4

HIGH-SPEED CAMERA LOCATIONS

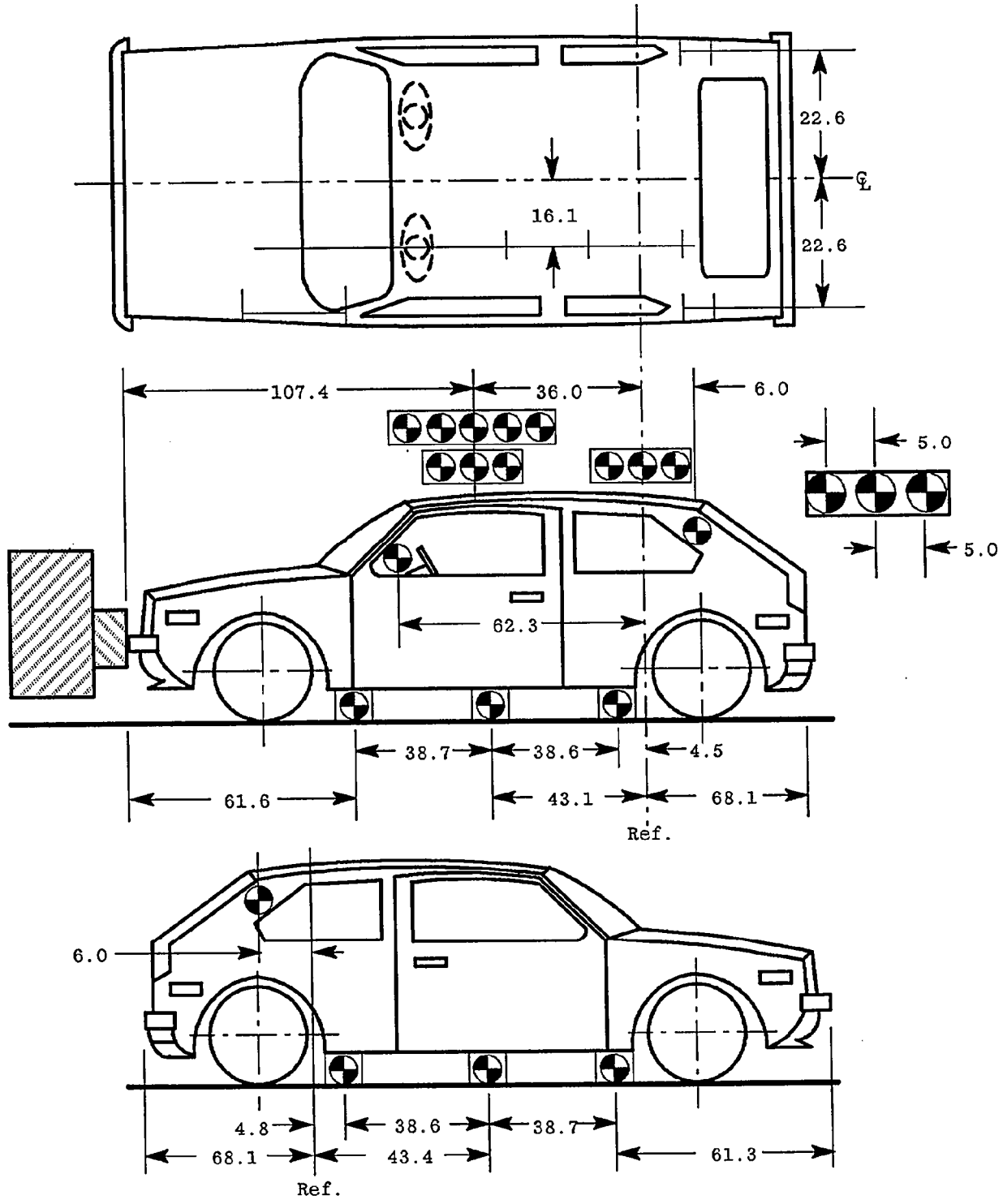
Test No. MN0208 Vehicle: 1992 Ford Crown Victoria 4-Door Sedan

CAMERA NO.	VIEW	CAMERA POSITIONS (in)* X	Y	Z	ANGLE** (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	246	68	42	-5	228	13	570
3	Left Side View	338	31	41	-5	320	25	610
4	Driver and Interior View	125	105	65	-11	107	13	590
5	Steering Column (Bottom)	295	78	45	-4	277	25	580
6	Steering Column (Top)	295	78	69	-9	277	25	570
7	Left Belt	-	-	-	-	-	8	540
8	Overall Right Side	262	76	42	-3	244	13	560
9	Right Side View	337	54	41	-3	319	25	580
10	Right Passenger View	325	76	56	-2	307	35	530
11	Passenger and Interior View	130	115	65	-14	112	25	550
12	Right Belt	-	-	-	-	-	8	540
13	Passenger Front View	24	-5	70	-30	-	13	590
14	Driver Front View	24	-5	70	-30	-	13	600
15	Windshield View	0	0	120	-45	-	13	610
16	Pit View of Engine	0	43	-120	90	-	13	630

*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

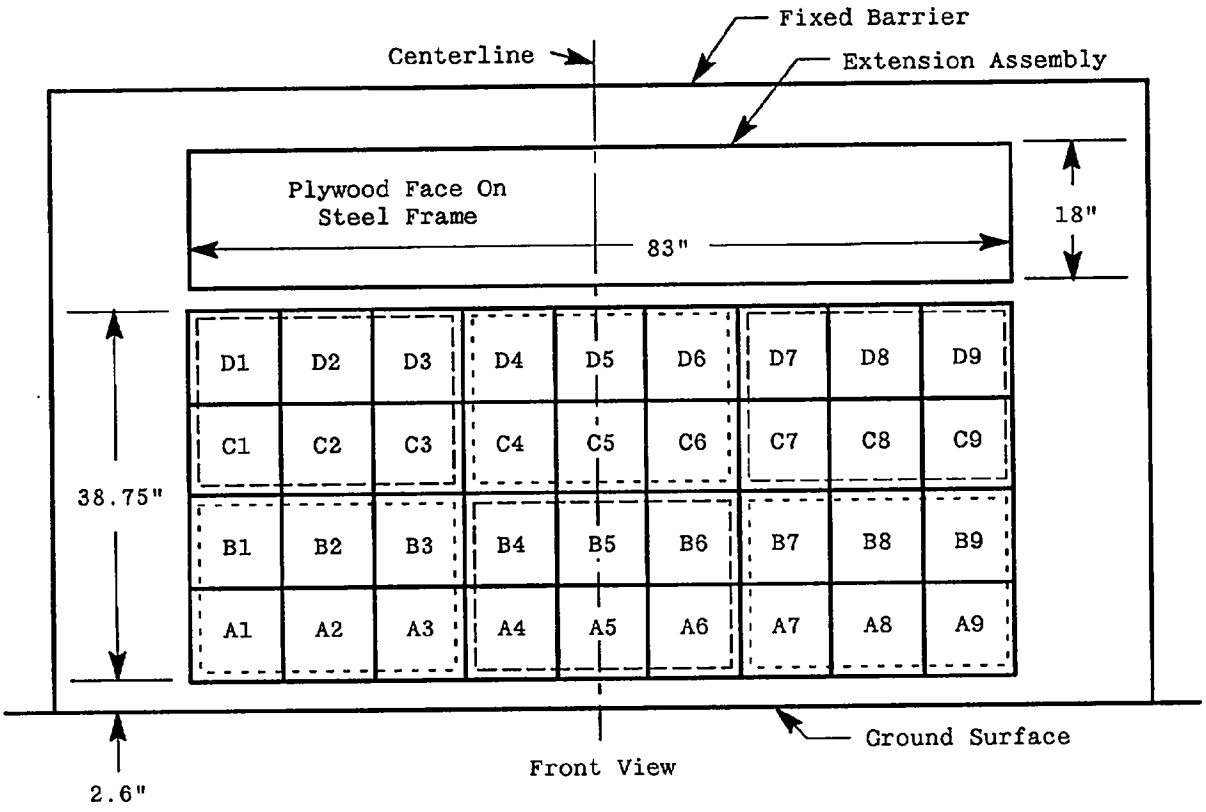


(Dimensions in inches)

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:

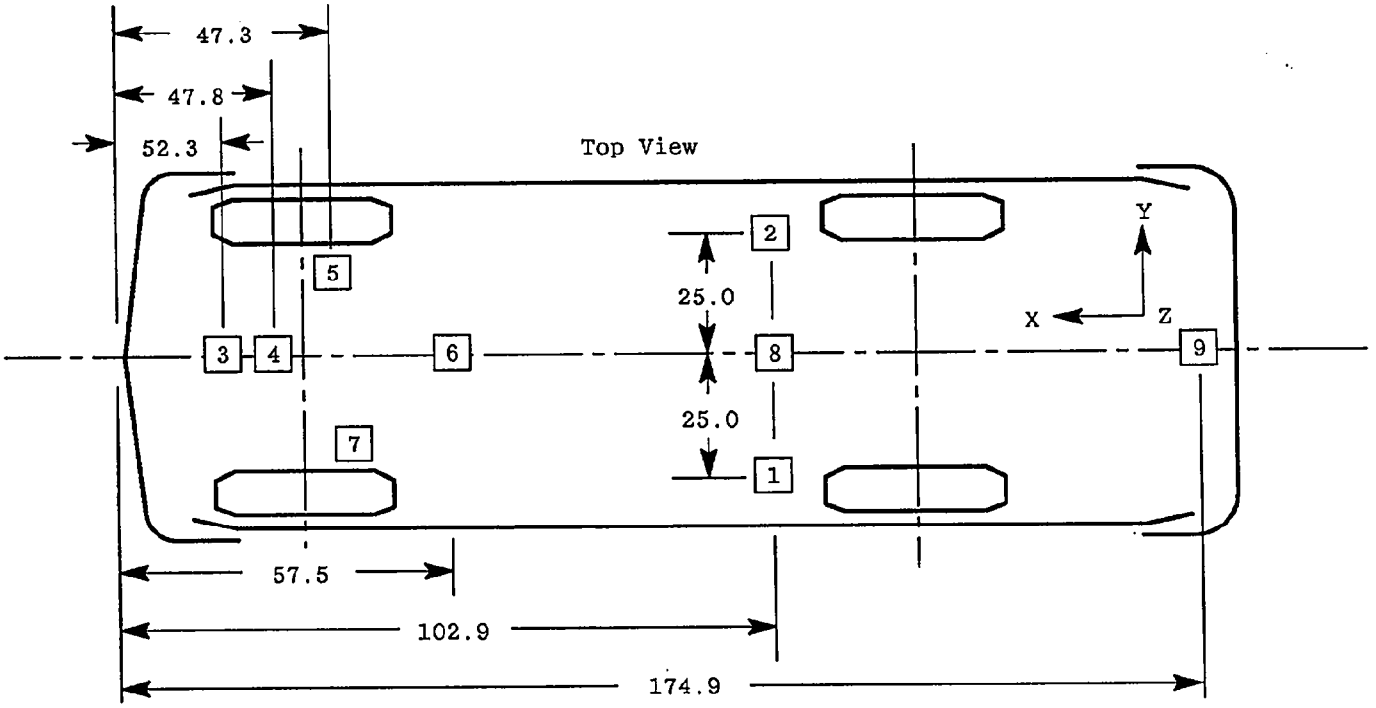
(1) Data from 36 individual load cells

(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

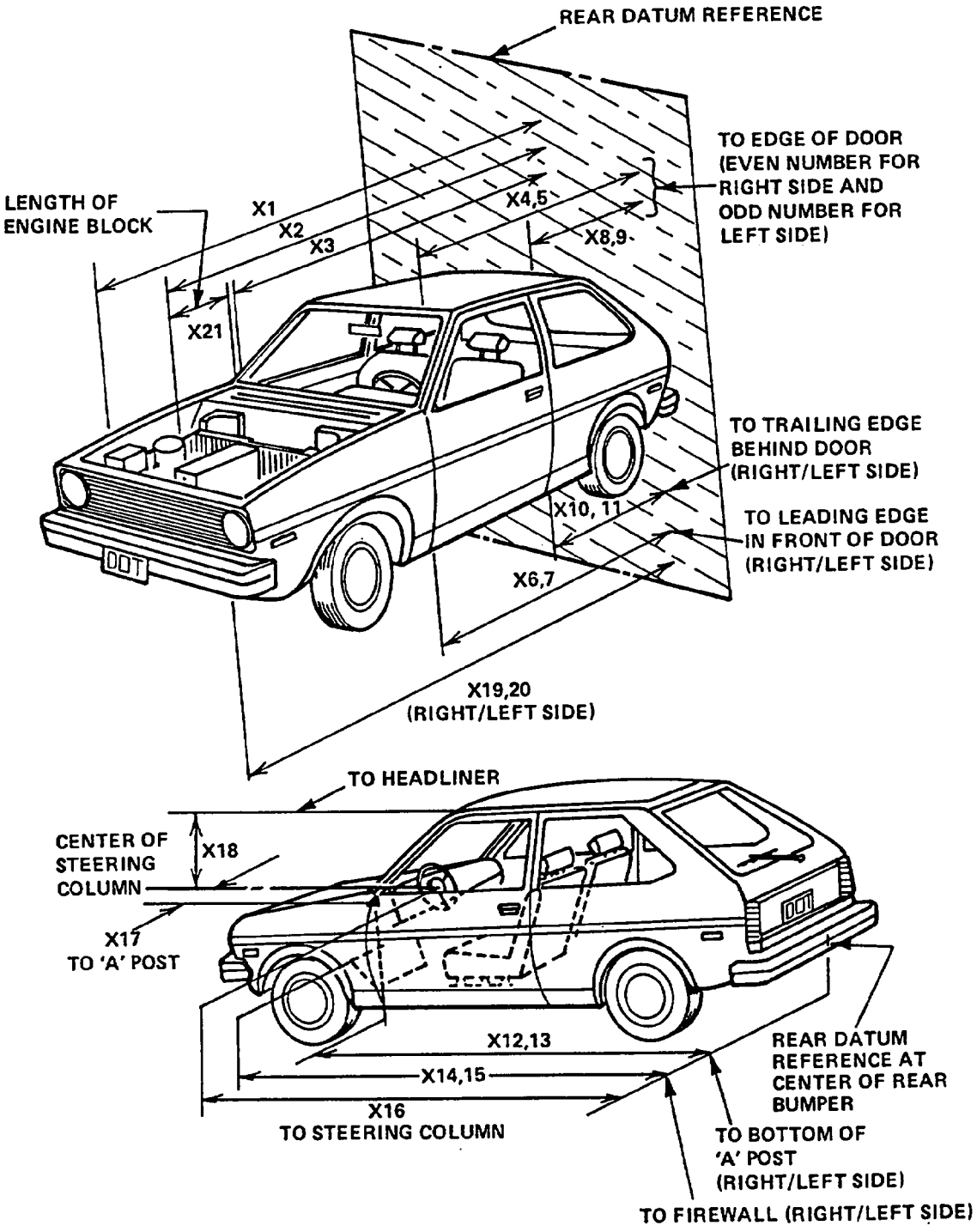


Table 5

VEHICLE MEASUREMENTS

No.		All Dimensions in Inches		
		Pre-Test	Post-Test	Differences
X1	Total Length of Vehicle at Centerline	211.5	185.2	26.3
X2	Rear Surface of Vehicle to Front of Engine	177.1	166.0	11.1
X3	Rear Surface of Vehicle to Firewall	150.5	147.6	2.9
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	143.6	143.4	0.2
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	144.3	143.8	0.5
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	143.3	142.6	0.7
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	143.9	142.6	1.3
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	100.4	99.8	0.6
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	100.8	101.0	-0.2
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	99.9	98.8	1.1
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	100.1	99.4	0.7
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	142.9	142.5	0.4
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	143.8	142.9	0.9
X14	Rear Surface of Vehicle to Firewall, Right Side	151.5	150.5	1.0
X15	Rear Surface of Vehicle to Firewall, Left Side	152.7	147.0	5.7
X16	Rear Surface of Vehicle to Steering Column	123.2	124.8	-1.6
X17	Center of Steering Column to "A" Post	17.2	17.8	-0.6
X18	Center of Steering Column to Headliner	17.0	14.8	2.2
X19	Rear Surface of Vehicle to Right Side of Front Bumper	207.4	182.4	25.0
X20	Rear Surface of Vehicle to Left Side of Front Bumper	208.0	183.8	24.2
X21	Length of Engine Block	22.5	22.5	0.0
RD	Rear Surface of Vehicle to Right Side of Dash Panel	129.3	129.4	-0.1
CD	Rear Surface of Vehicle to Center of Dash Panel	130.4	131.3	-0.9
LD	Rear Surface of Vehicle to Left Side of Dash Panel	129.3	129.5	-0.2

Appendix A

PHOTOGRAPHS

PHOTOGRAPHS

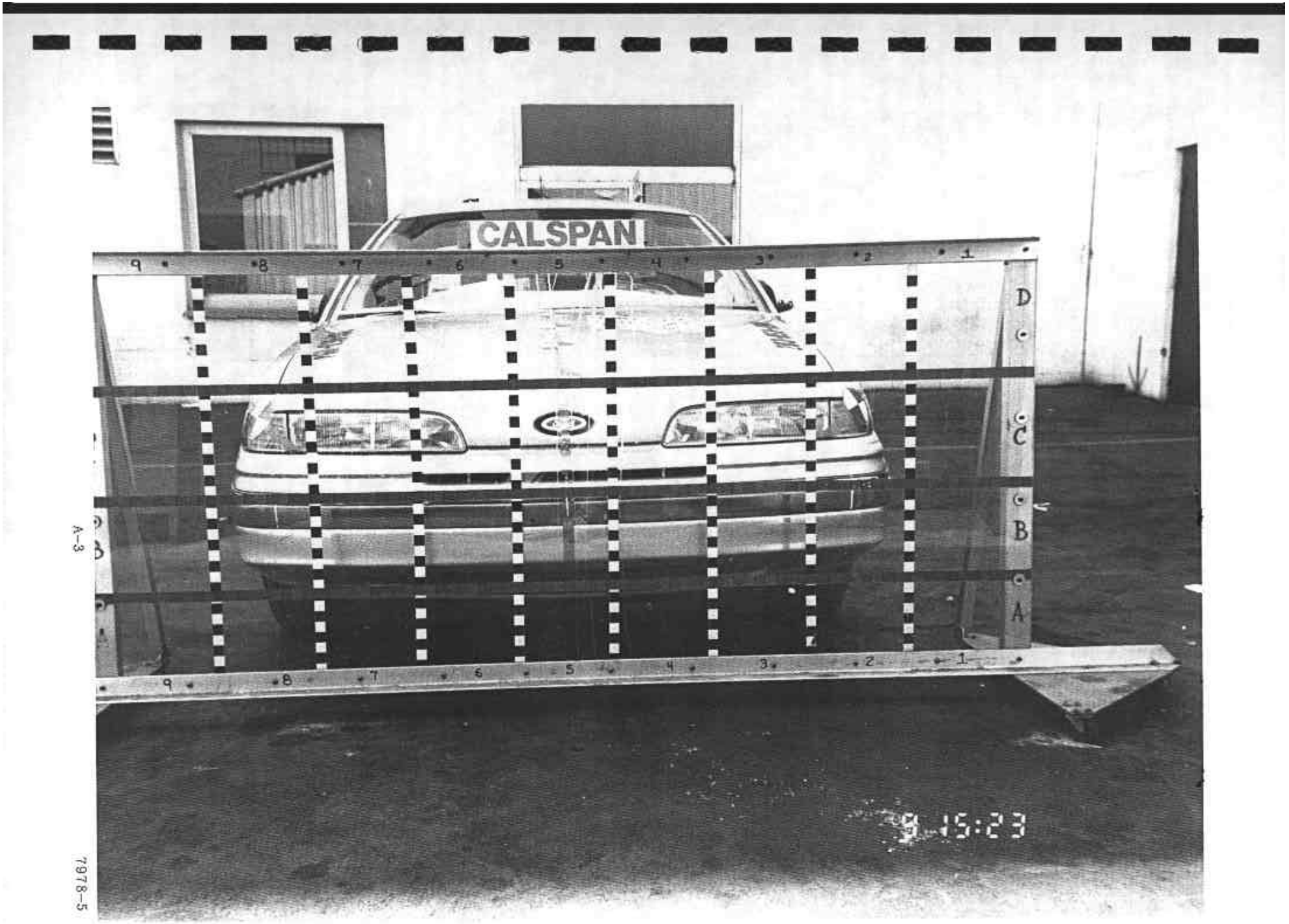


Figure A-1 LOAD CELL LOCATIONS

7978-5

Figure A-2 PRE-TEST FRONT VIEW

7978-5

Figure A-3 POST TEST FRONT VIEW

Figure A-4 PRE-TEST LEFT SIDE VIEW

7978-5

Figure A-5 POST TEST LEFT SIDE VIEW

7978-5

A-8

7978-5

Figure A-6 PRE-TEST RIGHT SIDE VIEW

A-8

7978-5

Figure A-7 POST-TEST RIGHT SIDE VIEW

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

7978-5

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

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

A-13

7978-5

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

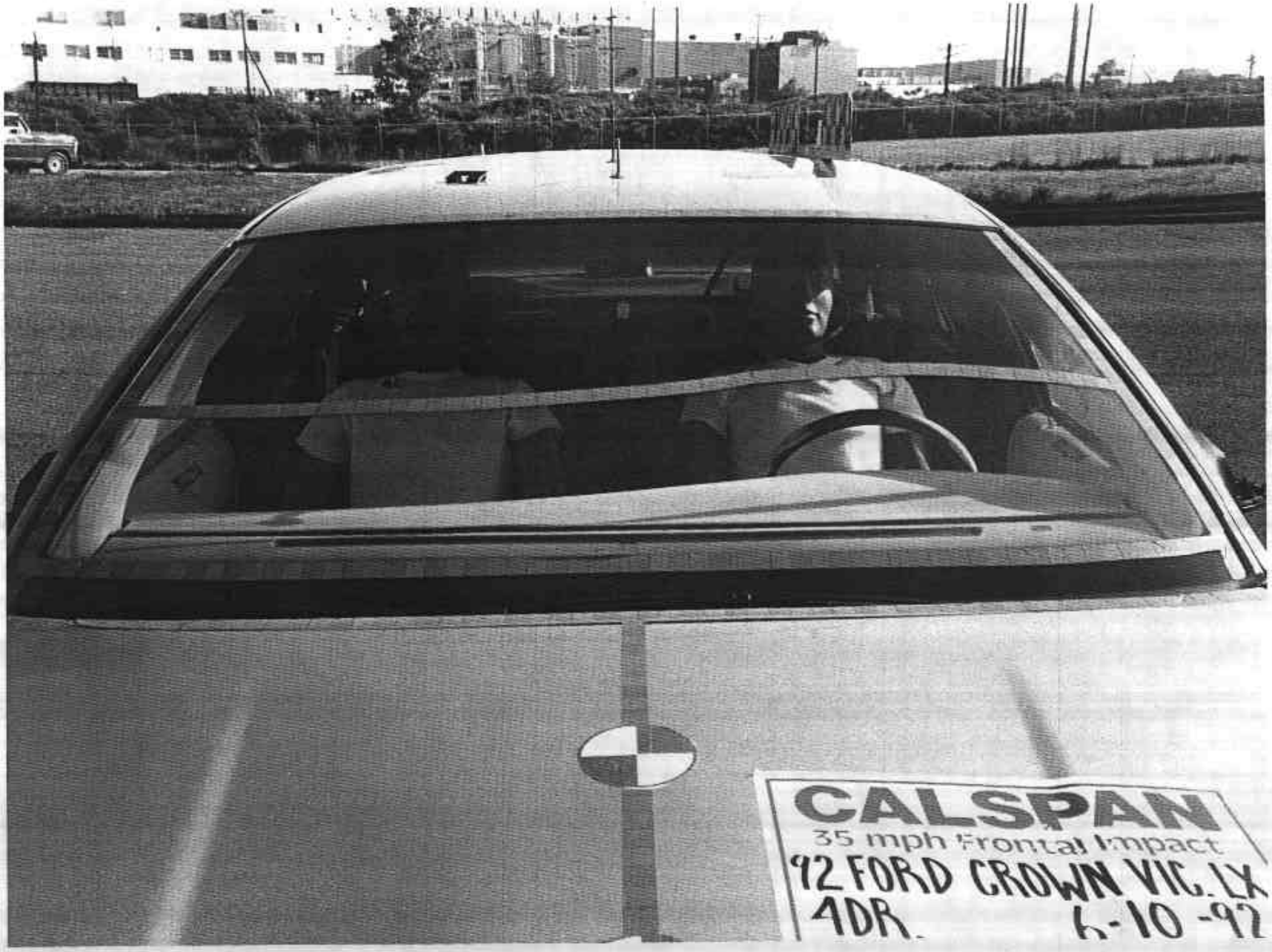


Figure A-12 PRE-TEST WINDSHIELD VIEW

7978-5

Figure A-13 POST-TEST WINDSHIELD VIEW

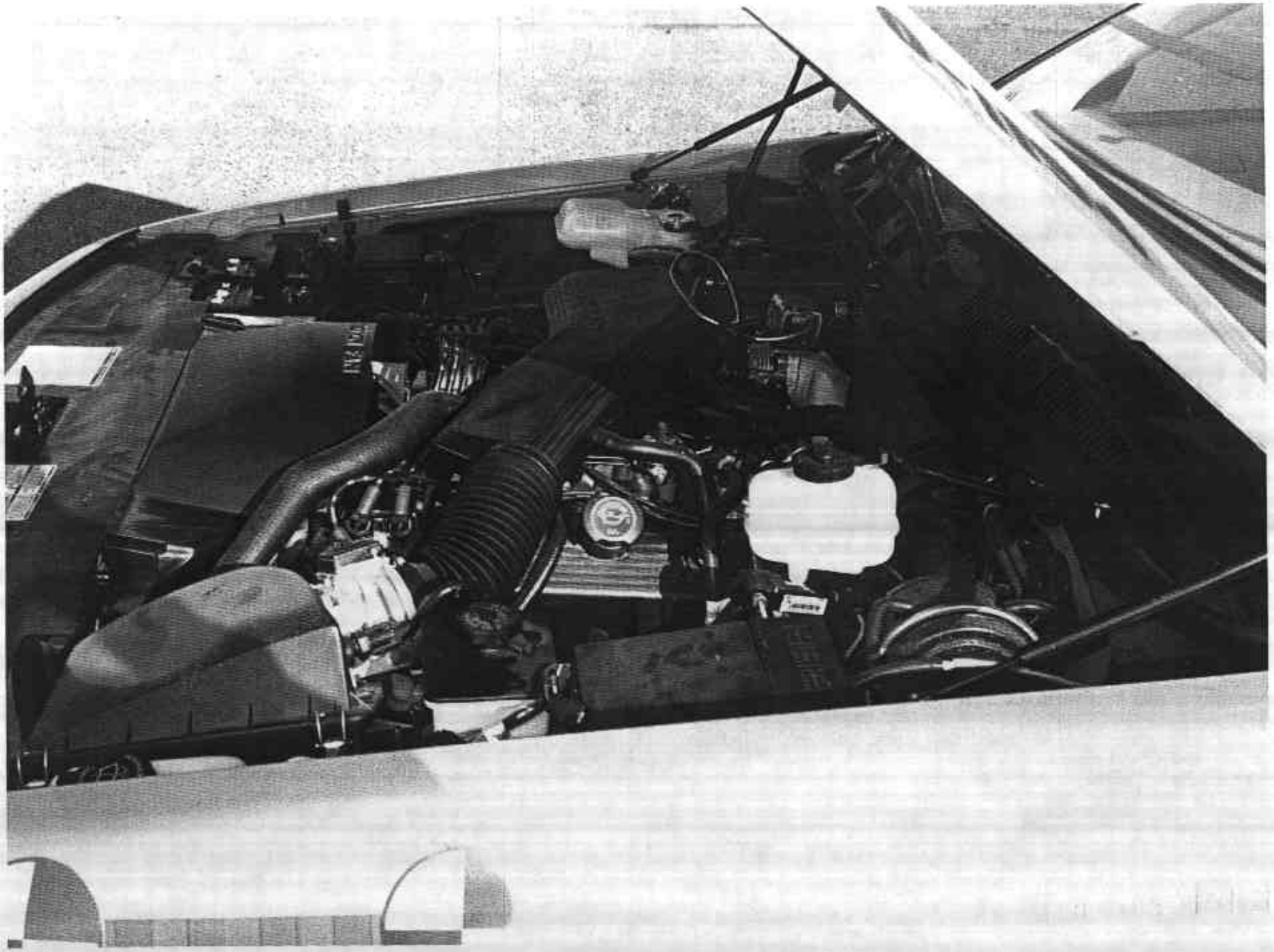


Figure A-14 PRE-TEST ENGINE COMPARTMENT VIEW

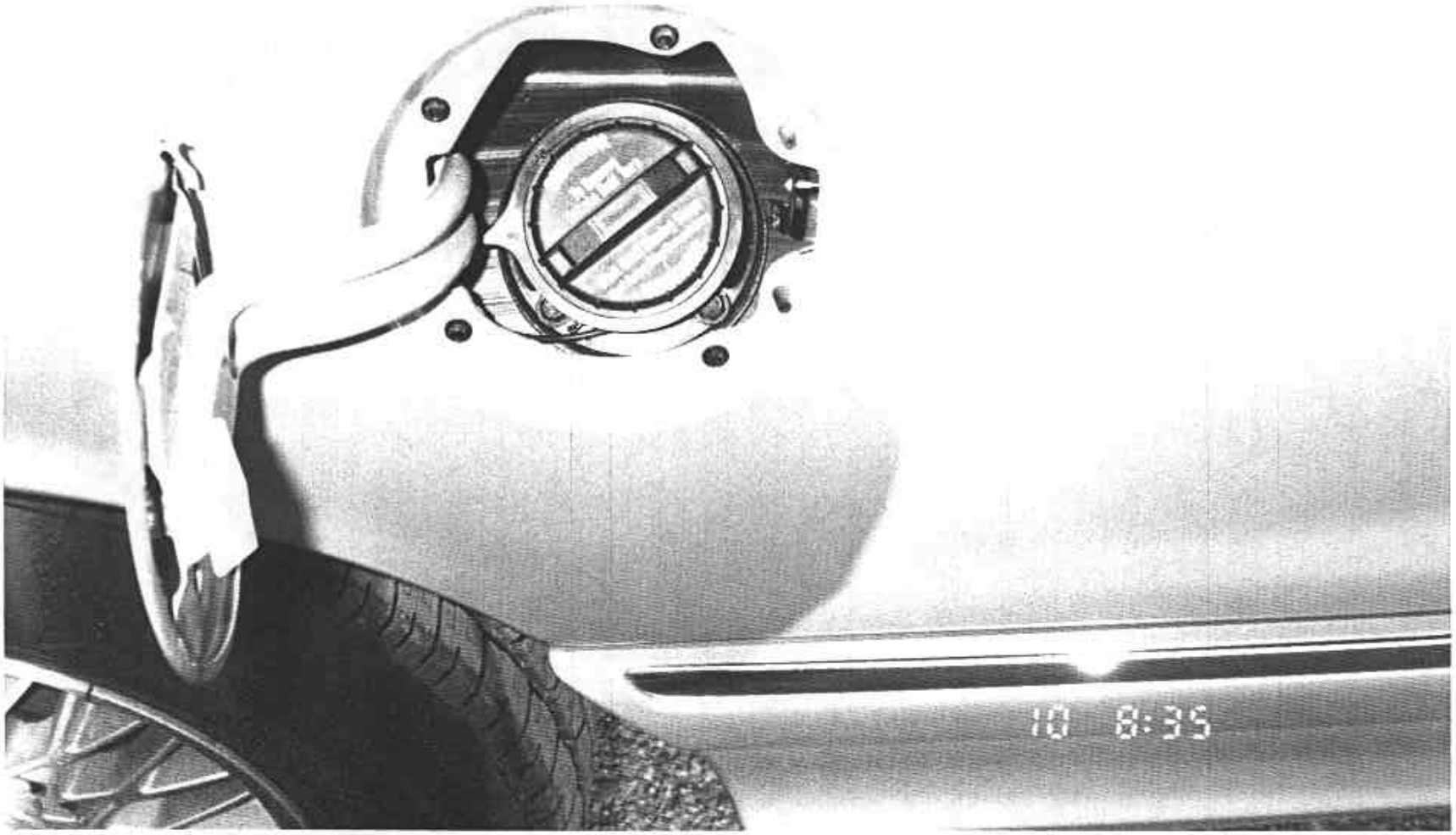


Figure A-15 FUEL CAP VIEW

7978-5

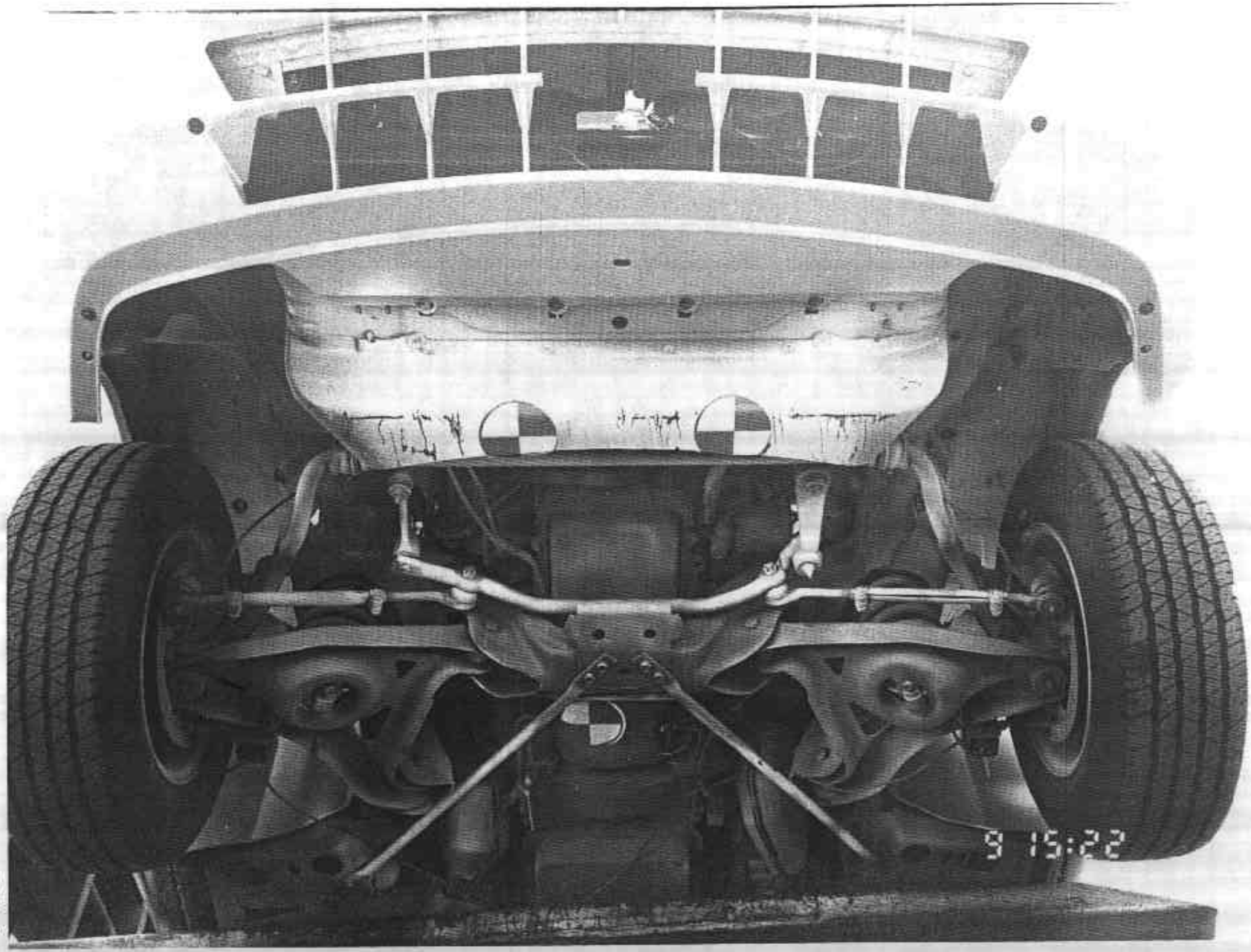
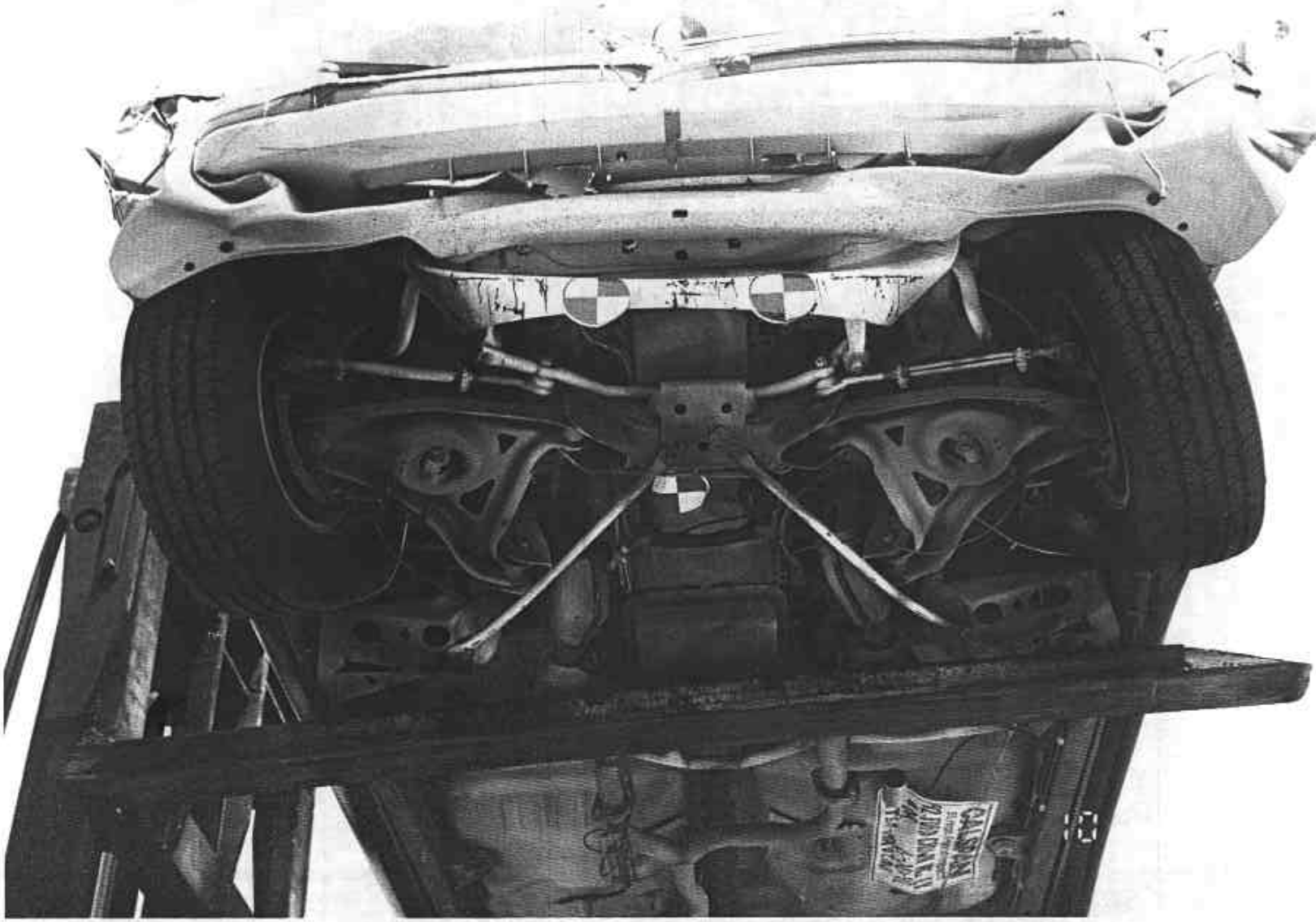


Figure A-16 PRE-TEST FRONT UNDERBODY VIEW

7978-5



7978-5

Figure A-17 POST-TEST FRONT UNDERBODY VIEW

Figure A-18 PRE-TEST FRONT SIDE UNDERBODY VIEW

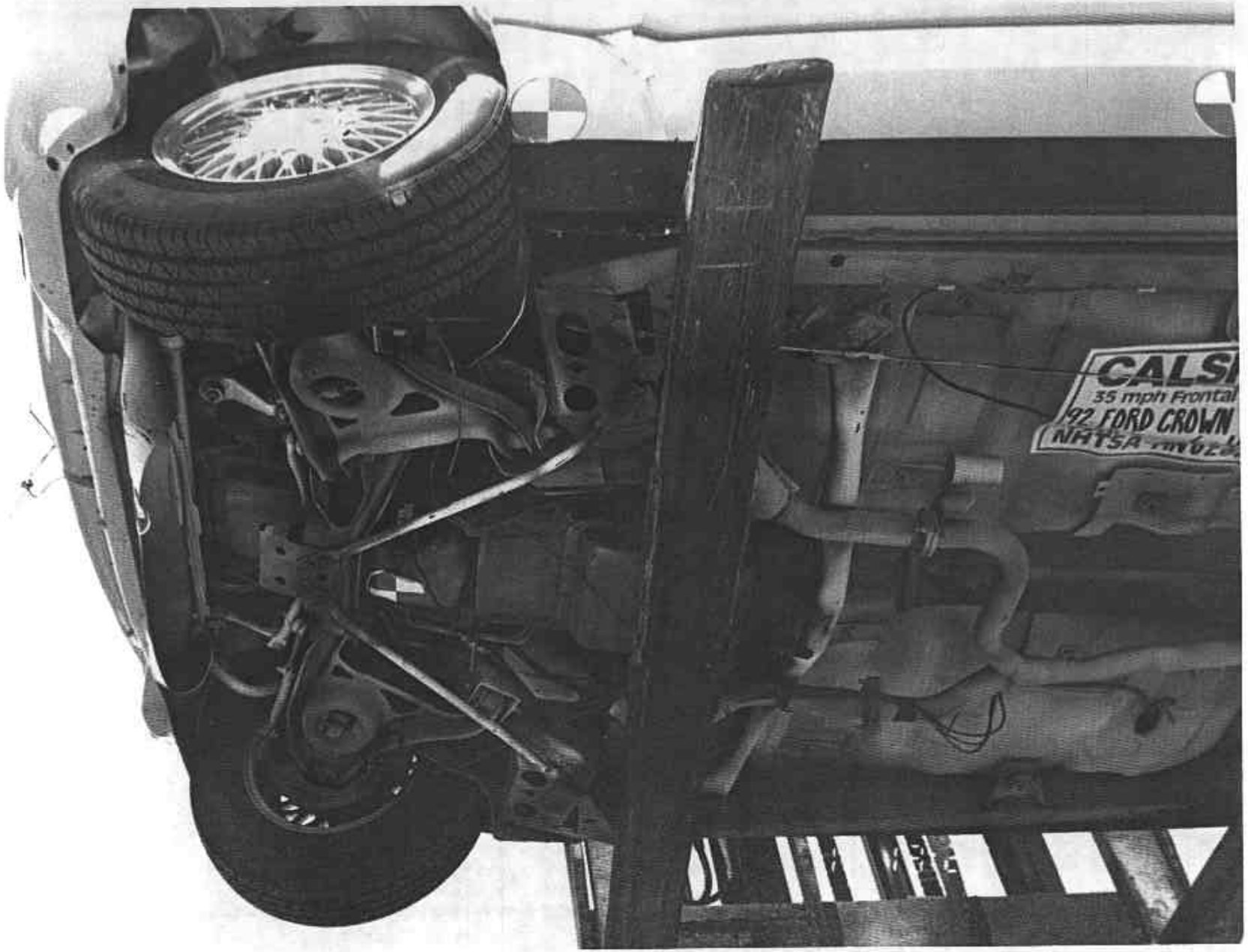


Figure A-19 POST-TEST FRONT SIDE UNDERBODY VIEW

Figure A-20 PRE-TEST REAR UNDERBODY VIEW

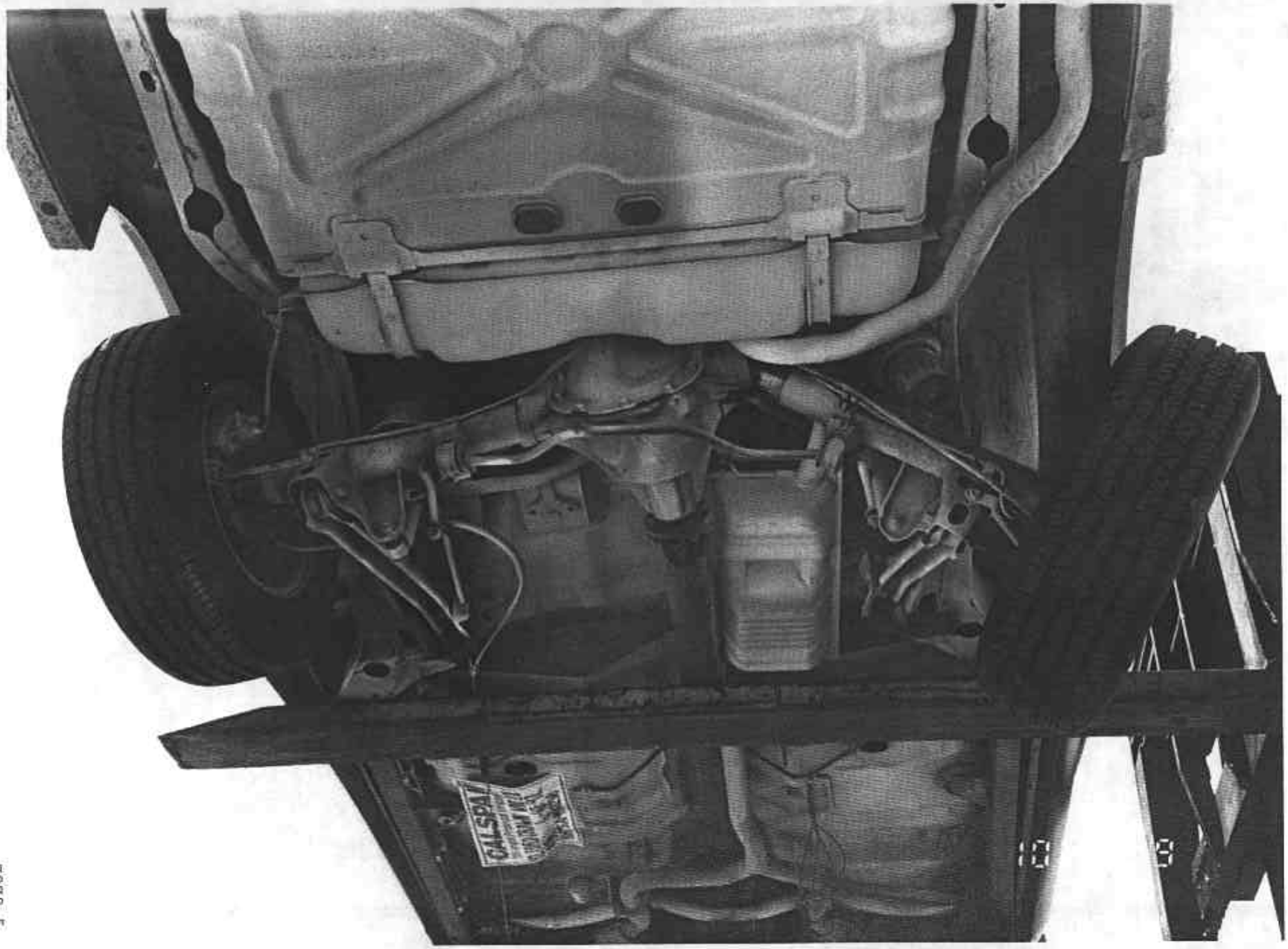


Figure A-21 POST-TEST REAR UNDERBODY VIEW

A-24

7978-5

Figure A-22 PRE-TEST DRIVER POSITION VIEW

7978-5

Figure A-23 POST-TEST DRIVER POSITION VIEW

Figure A-24 PRE-TEST PASSENGER POSITION VIEW

7978-5

A-27

7978-5

Figure A-25 POST-TEST PASSENGER POSITION VIEW

A-28

7978-5

Figure A-26 PRE-TEST DRIVER AND INTERIOR VIEW

A-29

7978-5

Figure A-27 POST-TEST DRIVER AND INTERIOR VIEW

A-30

7978-5

Figure A-28 PRE-TEST PASSENGER AND INTERIOR VIEW

Figure A-29 POST-TEST PASSENGER AND INTERIOR VIEW

Figure A-30 IMPACT VIEW

7978-5

Appendix B

VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA

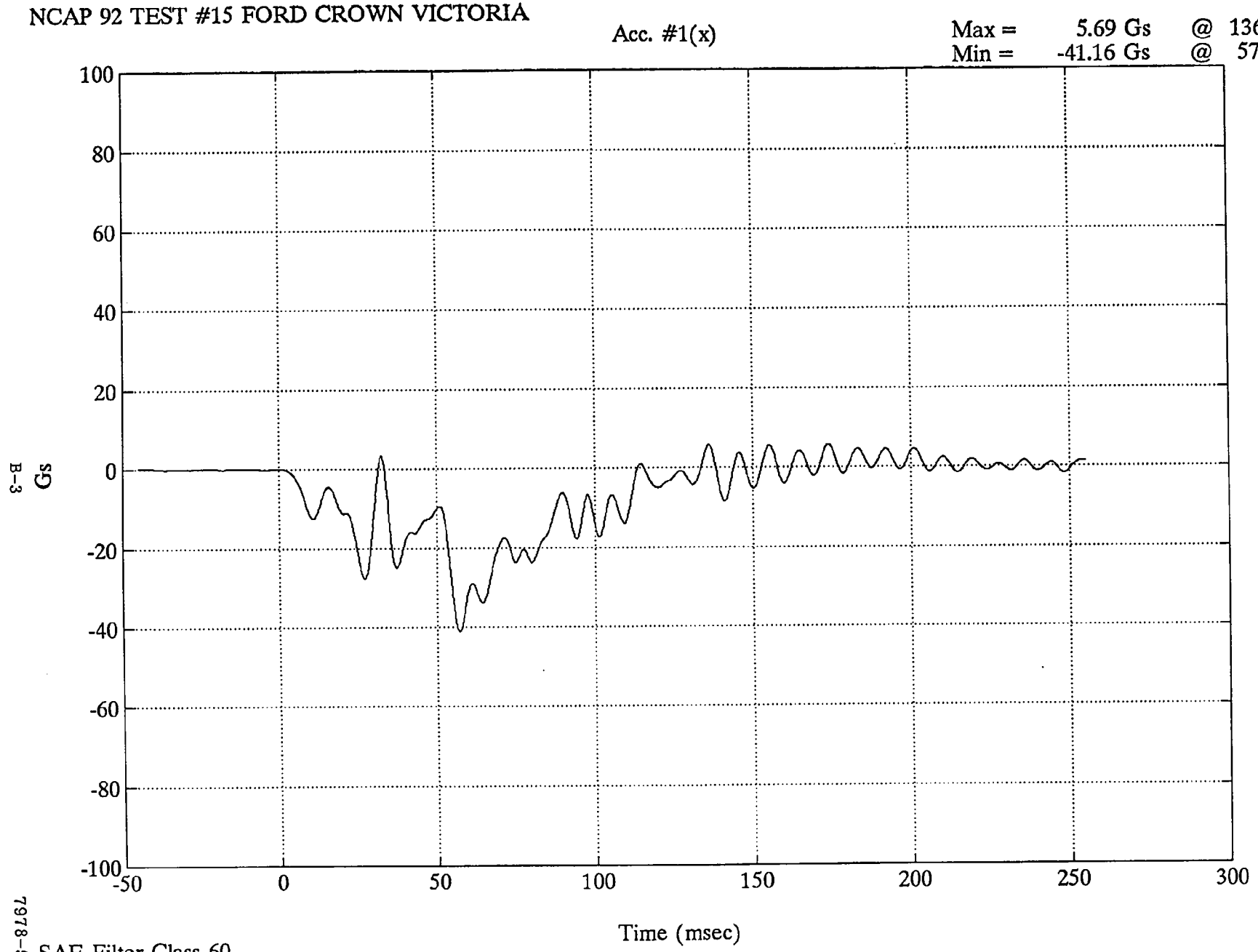
TEST NO. MN0208

VEHICLE DATA

FILTER CHANNEL CLASS

60

NCAP 92 TEST #15 FORD CROWN VICTORIA



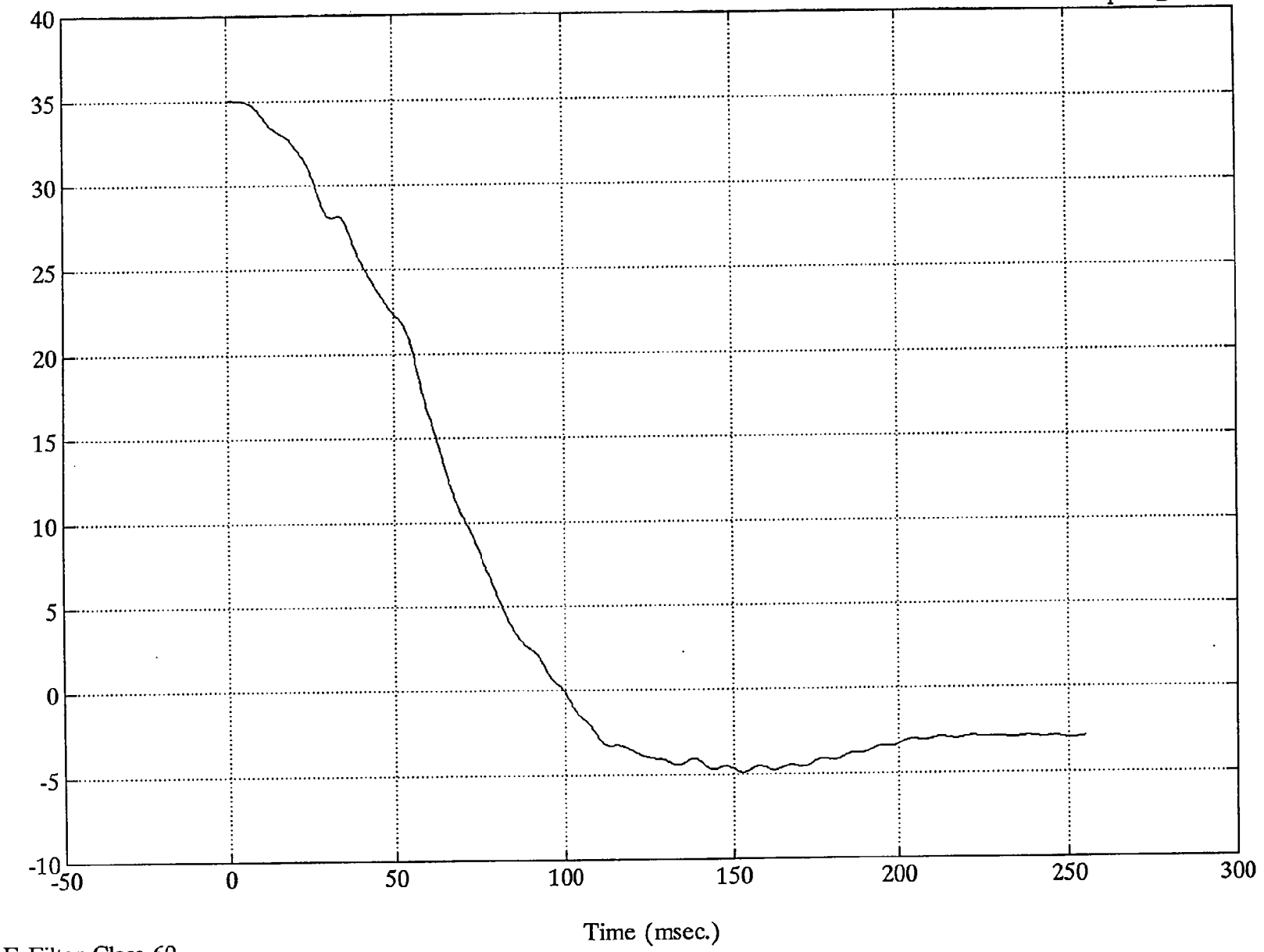
B-3

7978-5 SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #1(x)

Max = 35.00 mph @ 1.68 msec
Min = -4.89 mph @ 152.88 msec

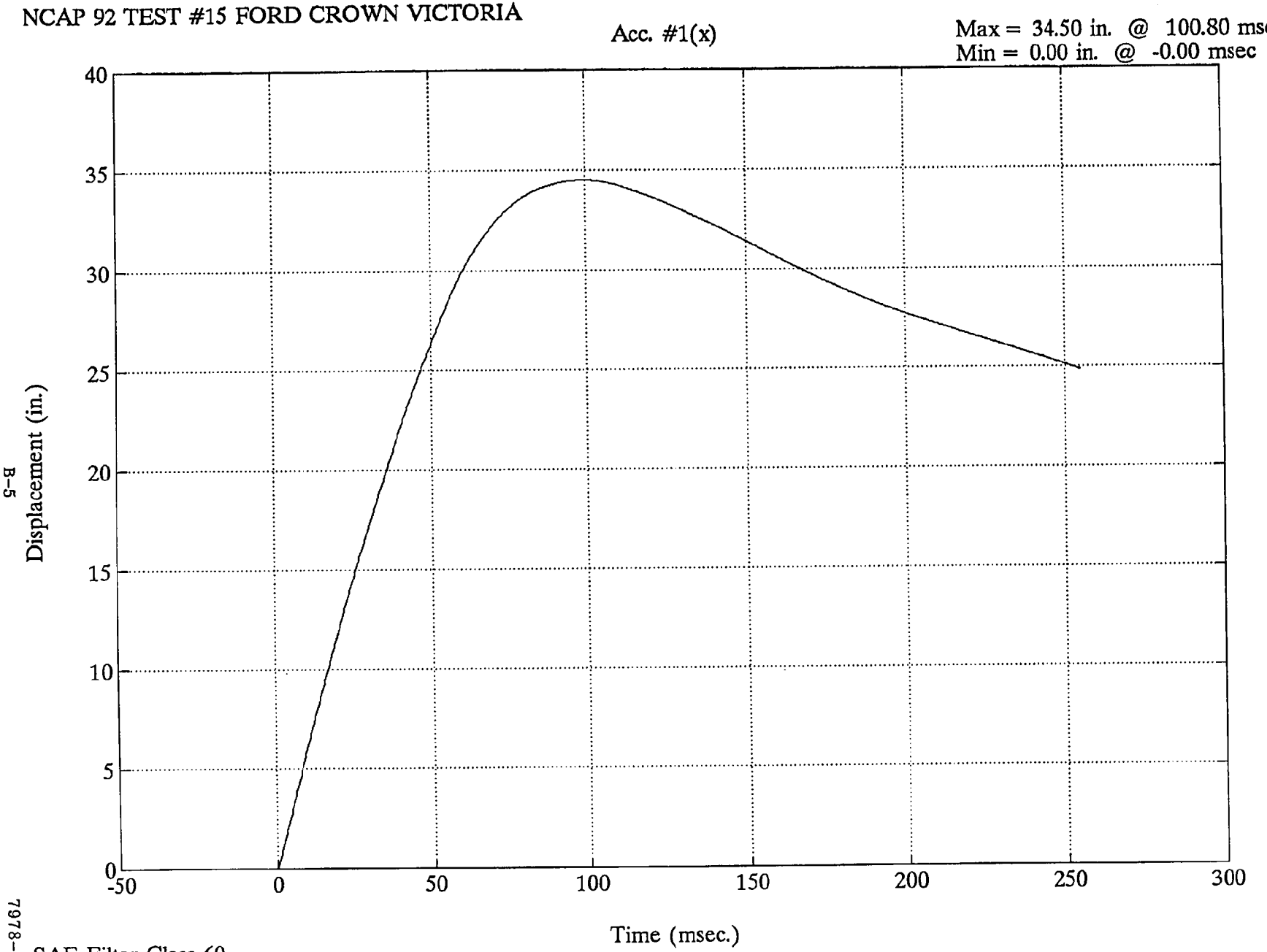


B-4

7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA



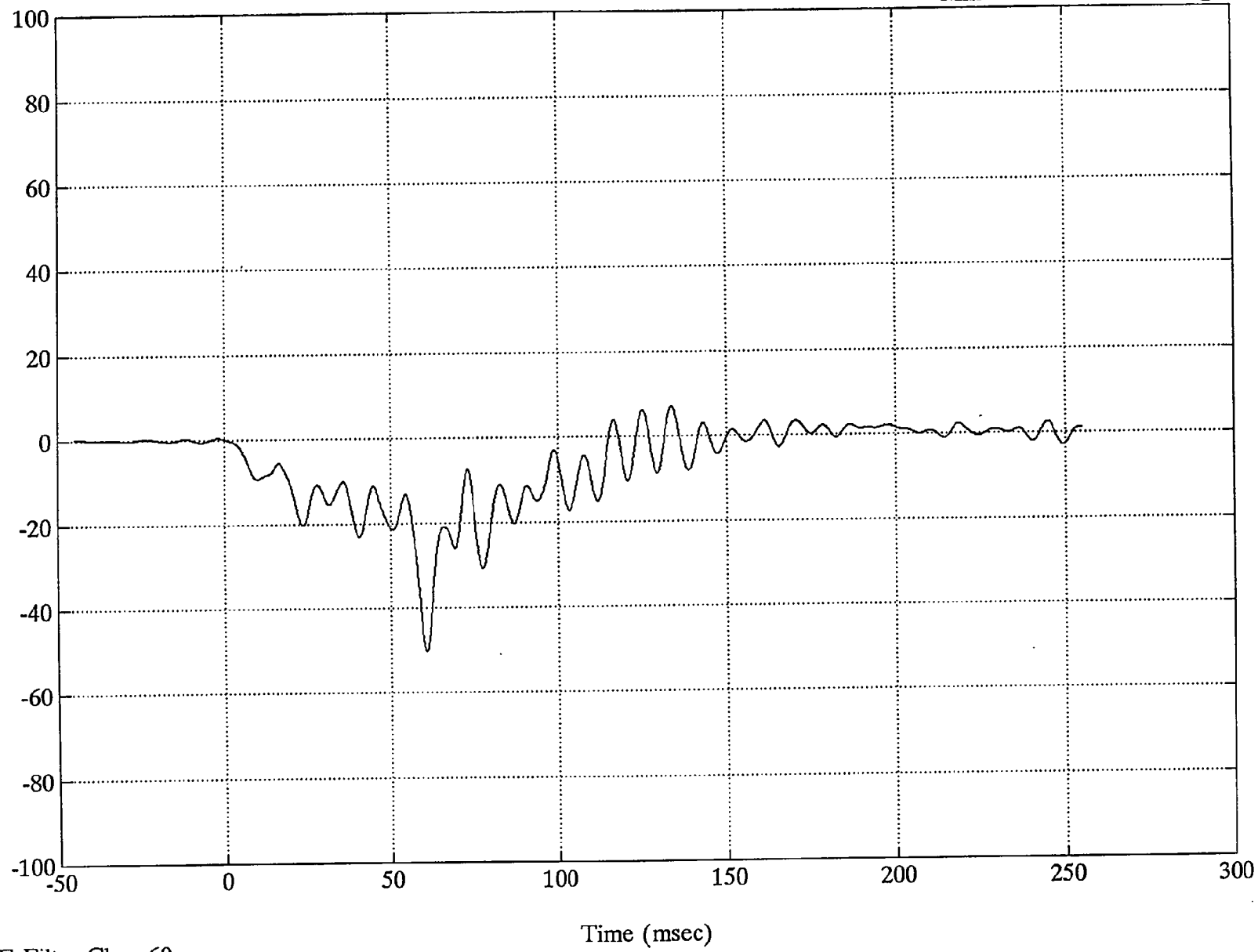
SAE Filter Class 60

7978-5

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #2(x)

Max = 7.07 Gs @ 133.80 msec
Min = -50.25 Gs @ 60.60 msec



B-6

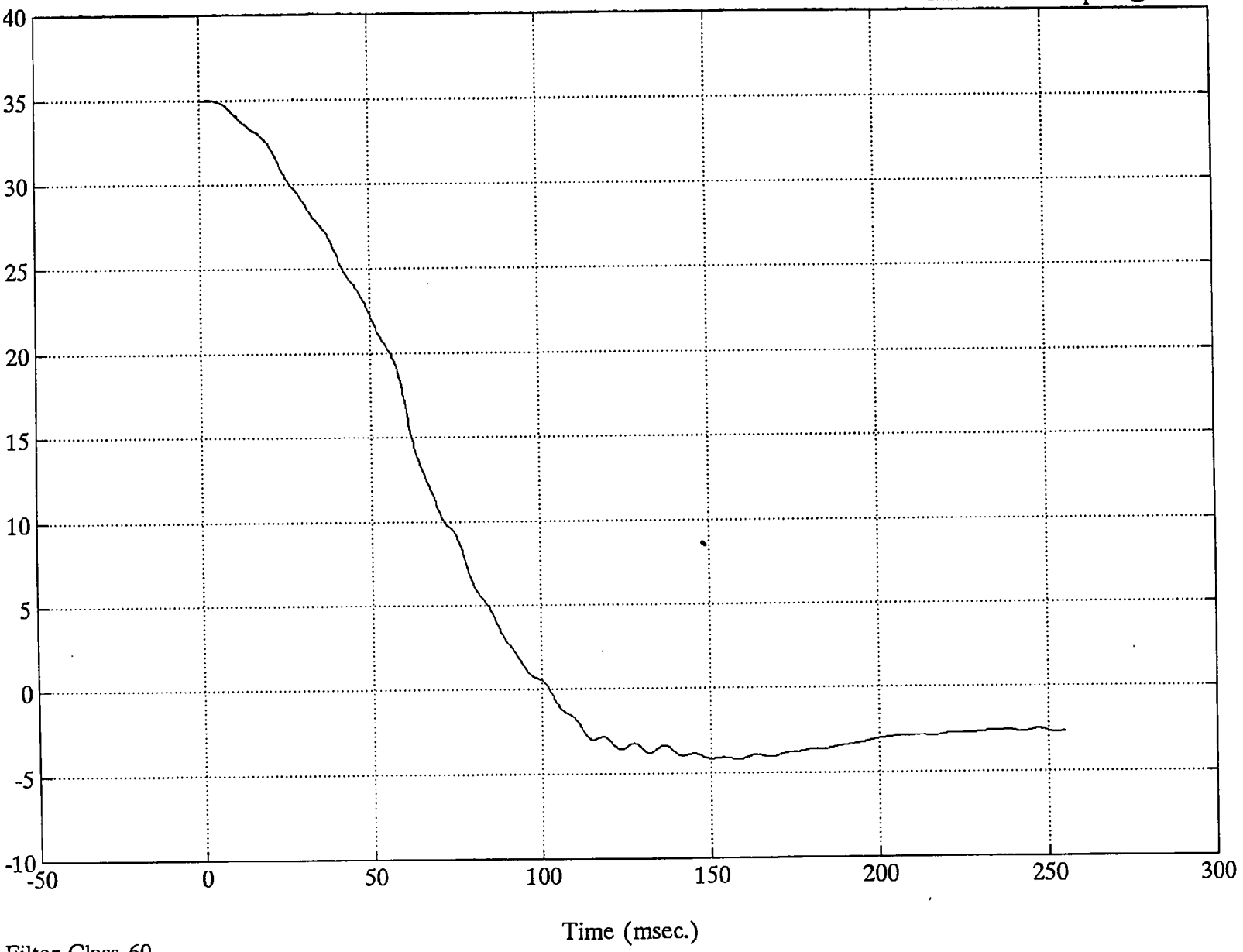
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #2(x)

Max = 35.00 mph @ 1.68 msec
Min = -4.18 mph @ 158.16 msec



B-7

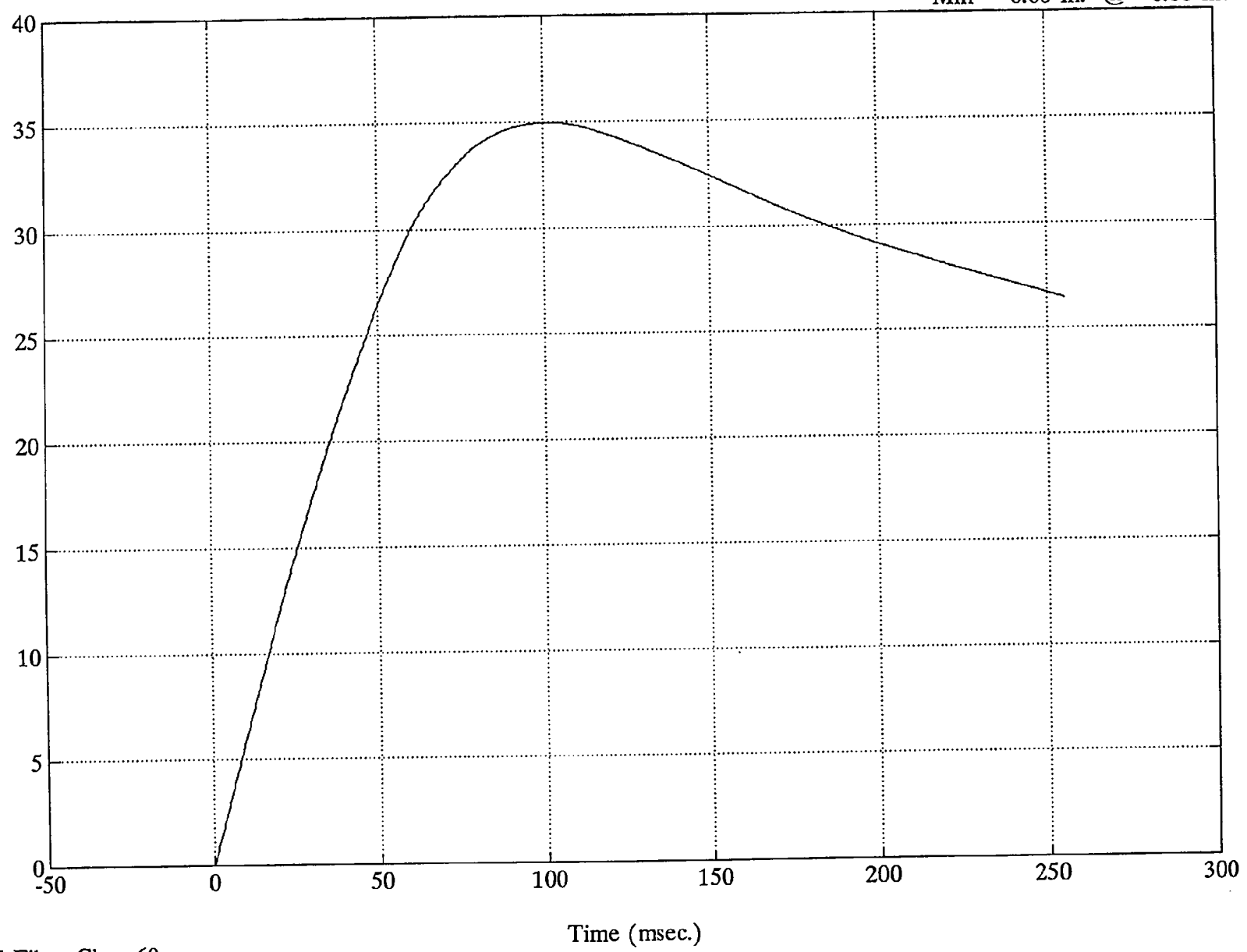
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #2(x)

Max = 34.97 in. @ 103.20 msec
Min = 0.00 in. @ -0.00 msec



B-8

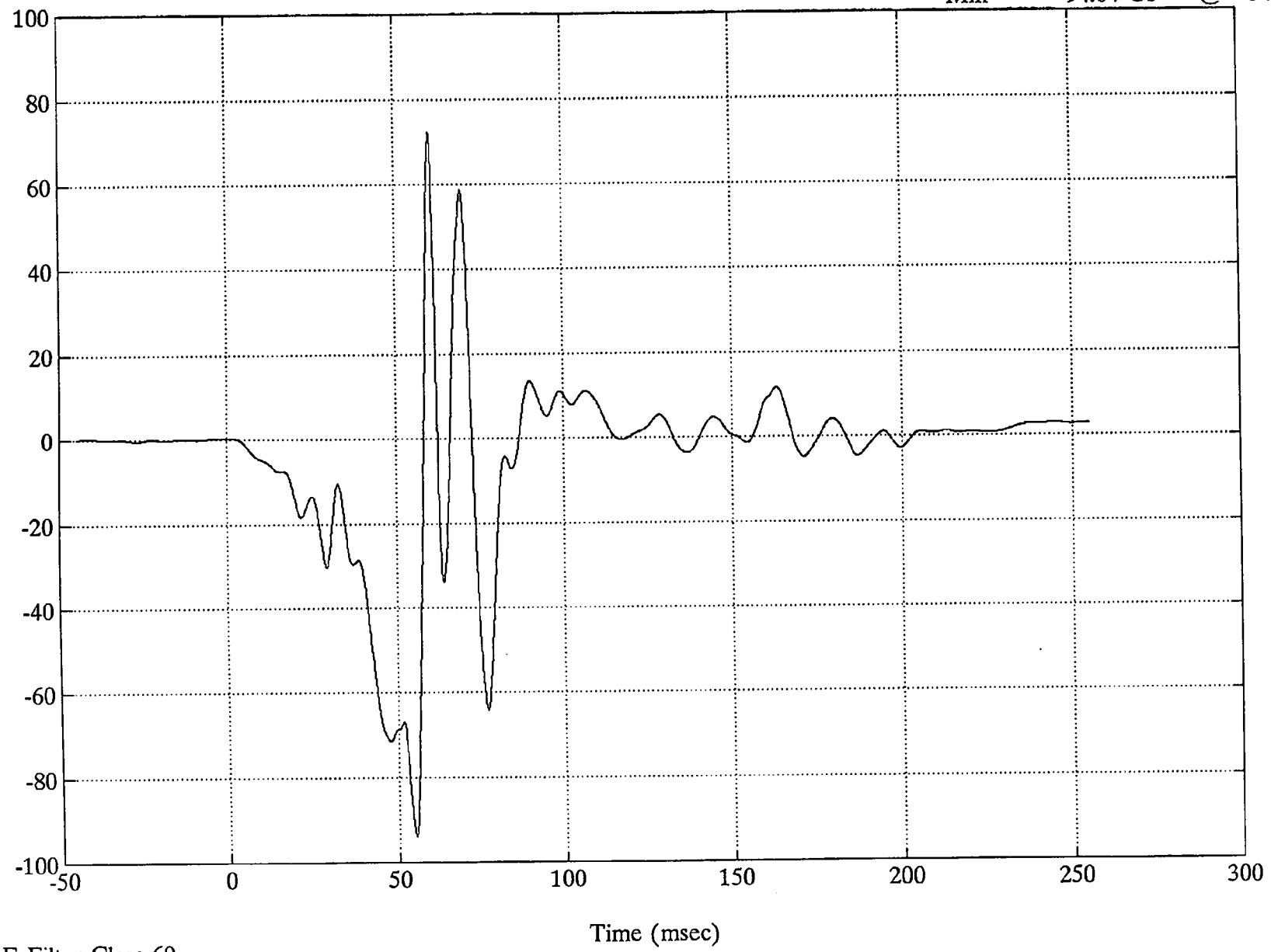
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #3(x)

Max = 72.33 Gs @ 60.36 msec
Min = -94.04 Gs @ 54.96 msec



B-9

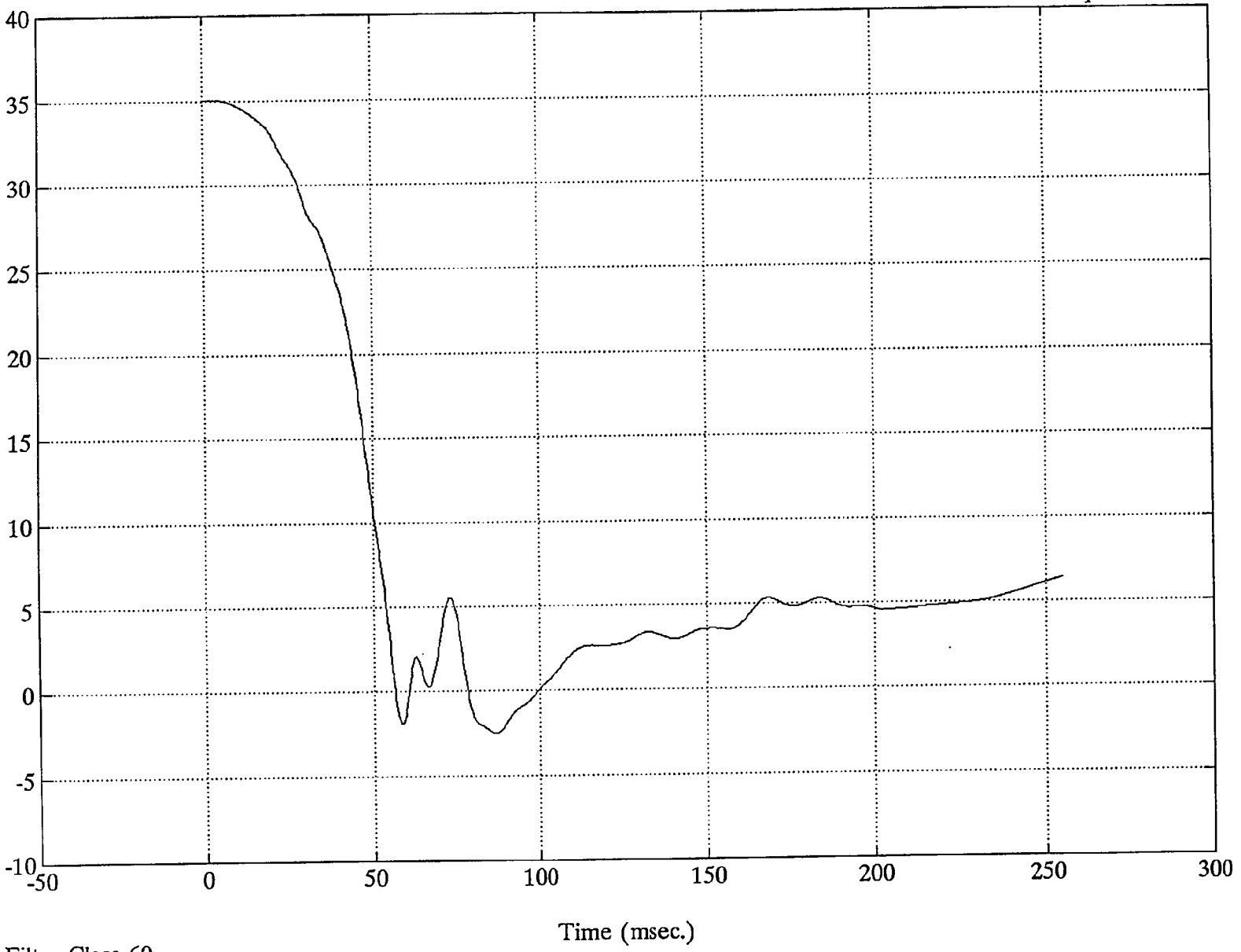
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #3(x)

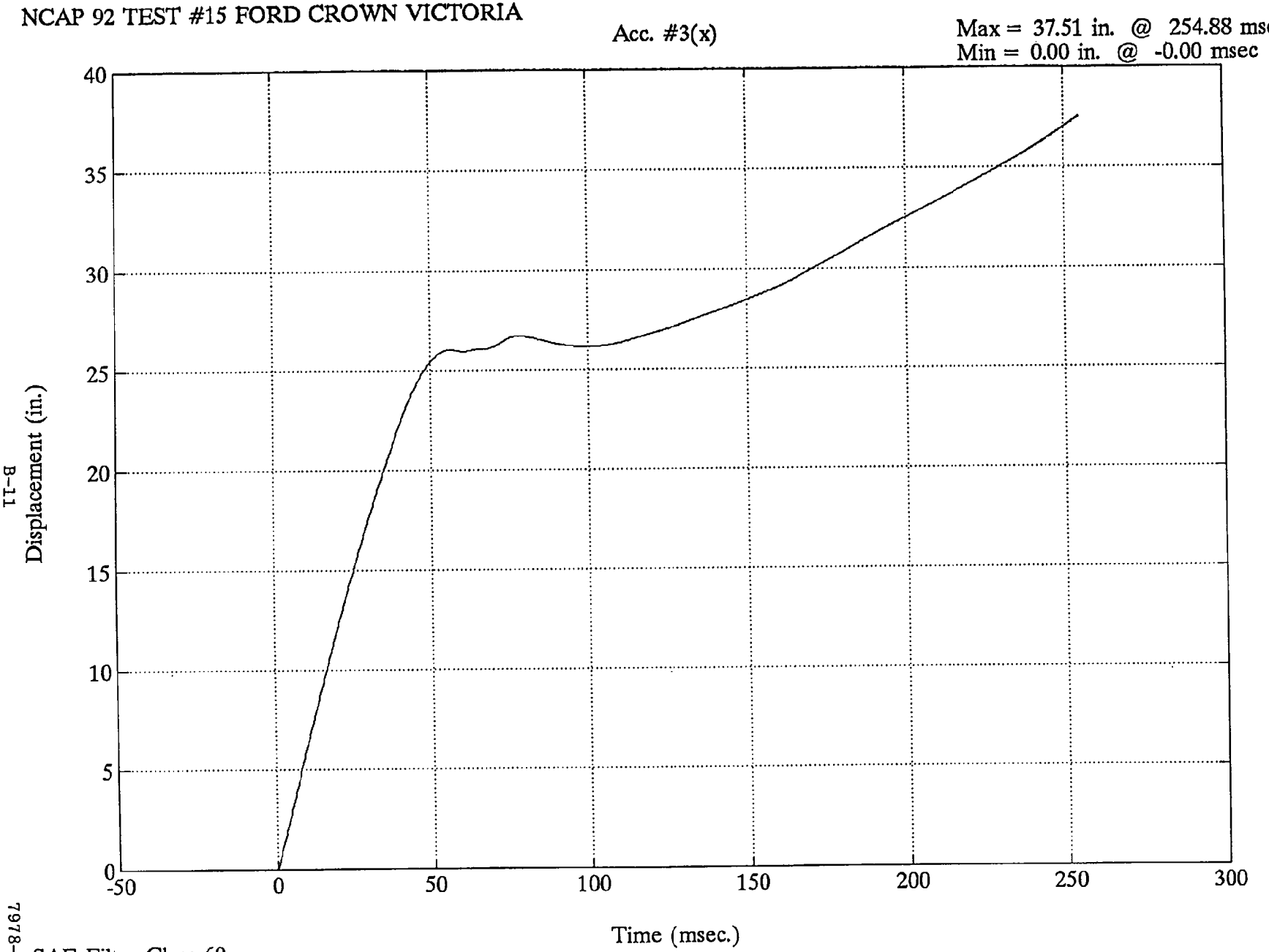
Max = 35.02 mph @ 4.08 msec
Min = -2.52 mph @ 86.64 msec



B-10

7878-5 SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

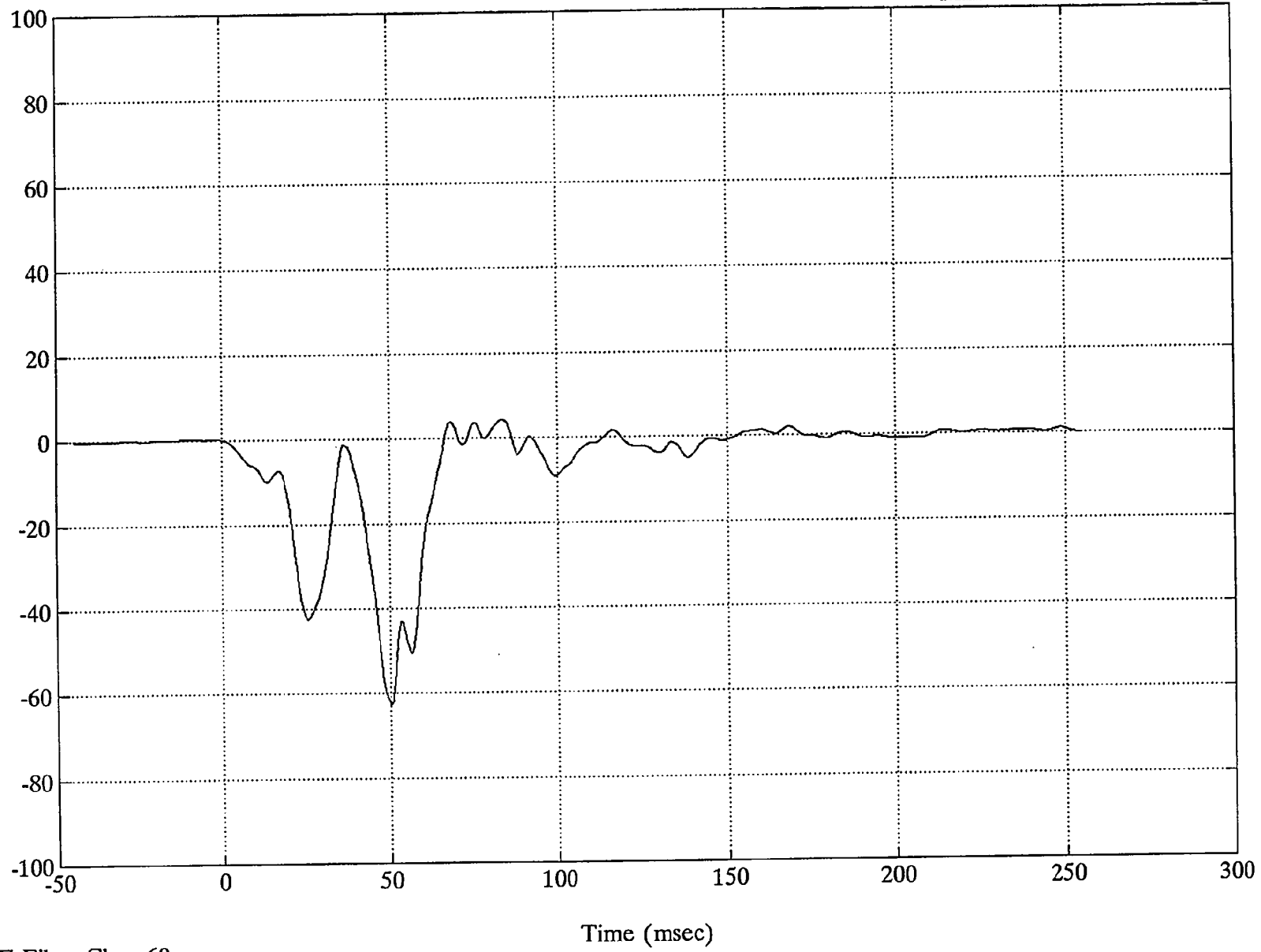


SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #4(x)

Max = 4.34 Gs @ 83.63 msec
Min = -62.57 Gs @ 50.28 msec



B-12

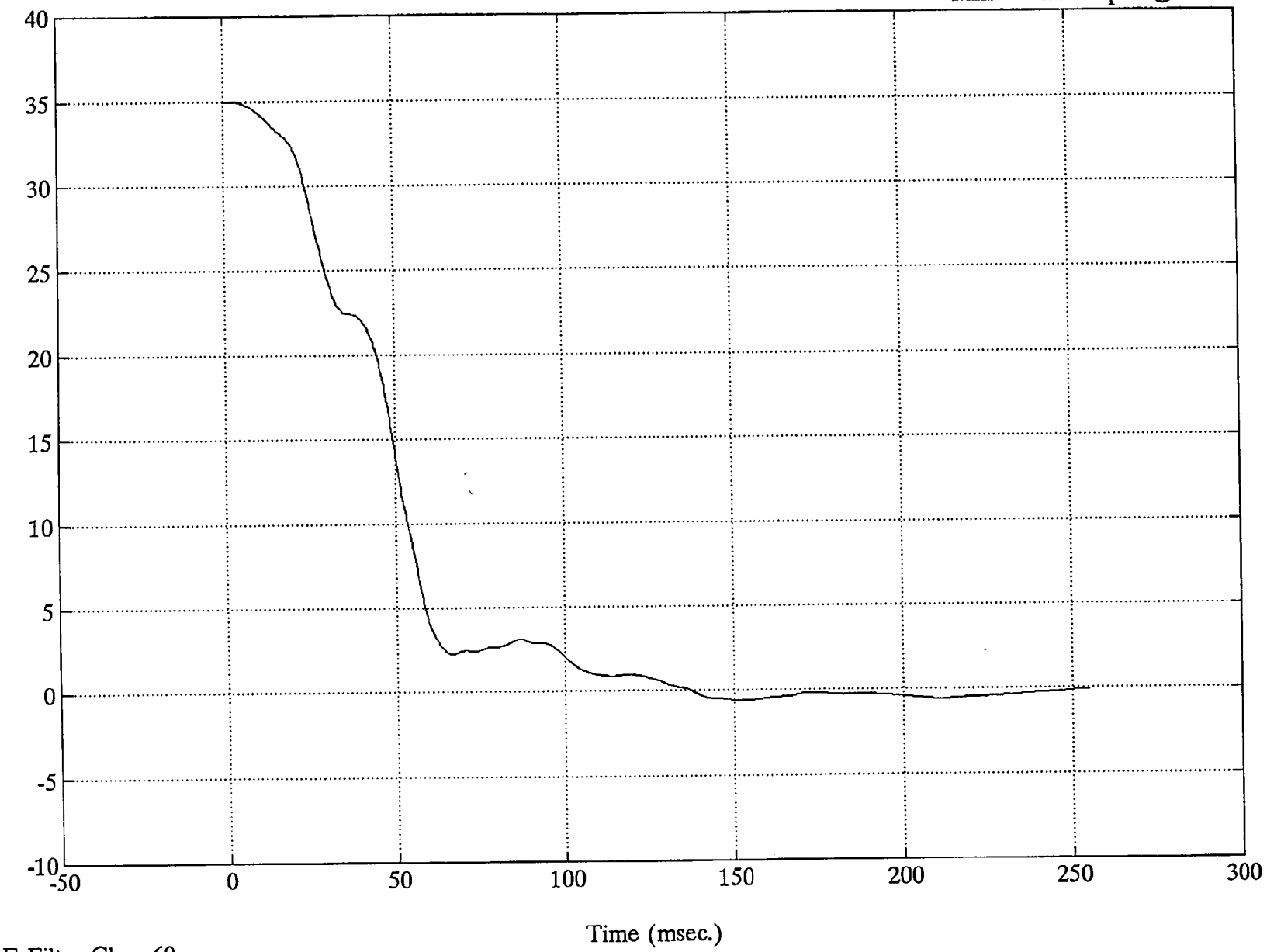
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #4(x)

Max = 35.00 mph @ 1.68 msec
Min = -0.62 mph @ 153.12 msec



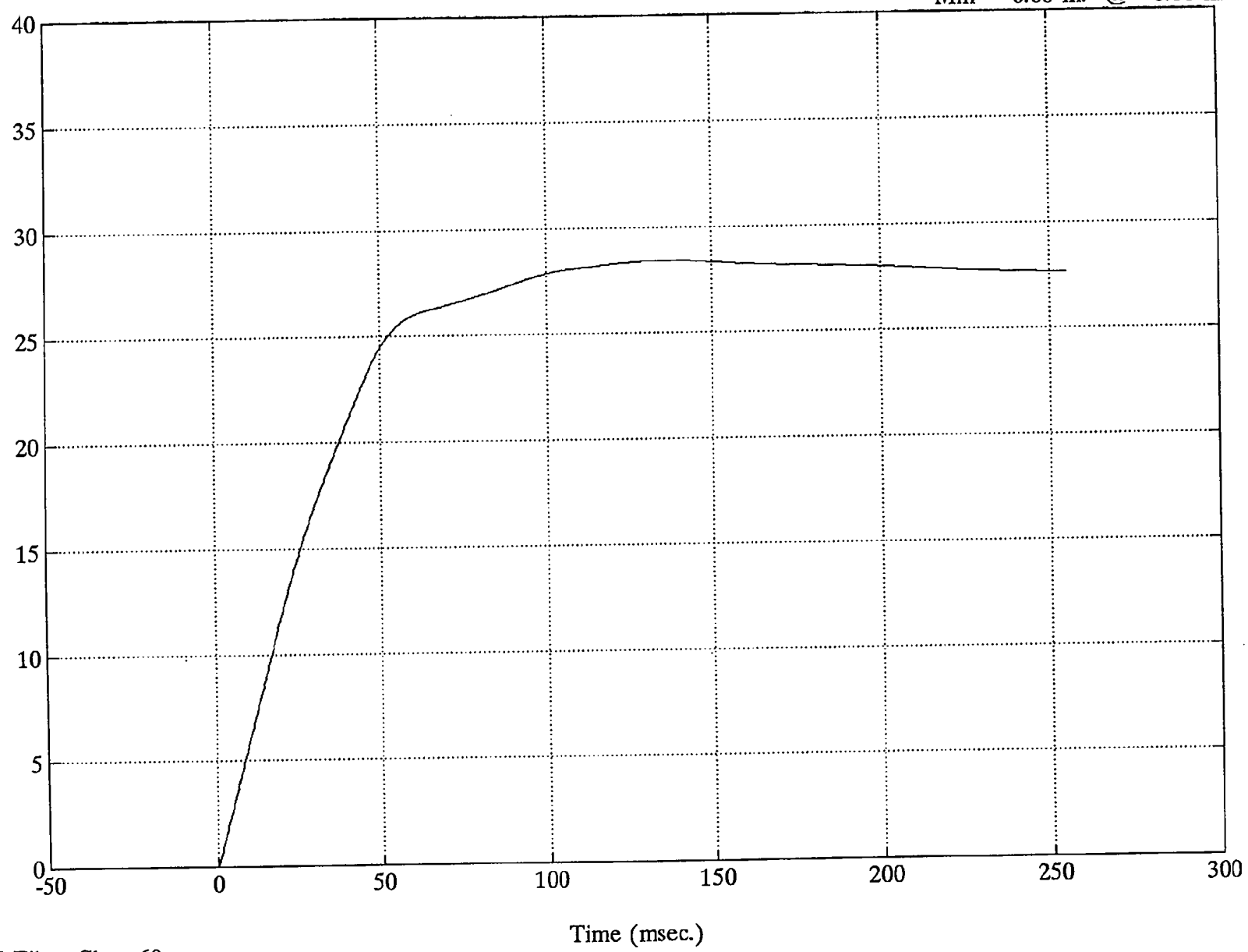
SAE Filter Class 60

7978-5

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #4(x)

Max = 28.43 in. @ 139.44 msec
Min = 0.00 in. @ -0.00 msec

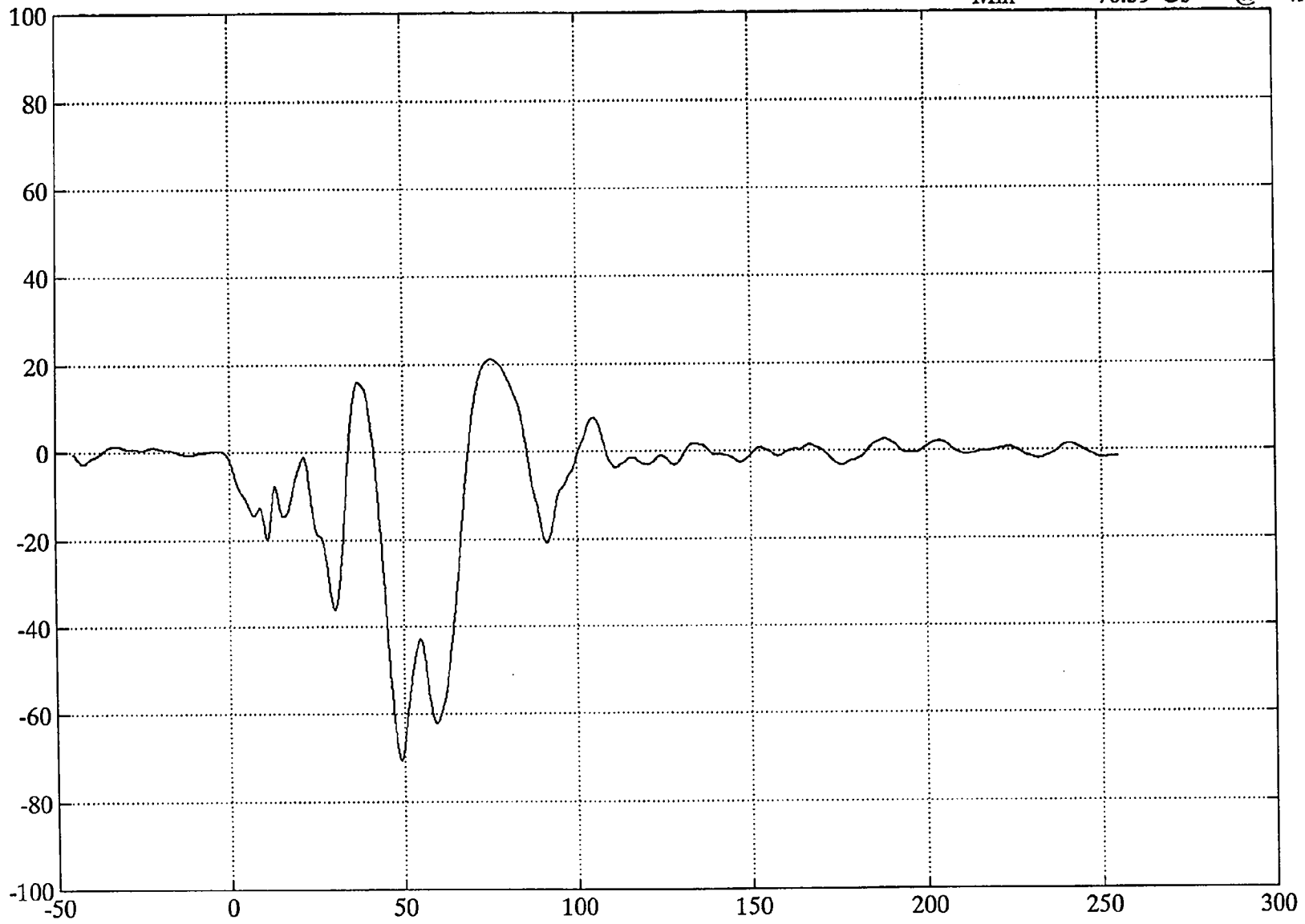


SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #5(x)

Max = 21.26 Gs @ 75.23 msec
Min = -70.59 Gs @ 49.07 msec



G's

B-15

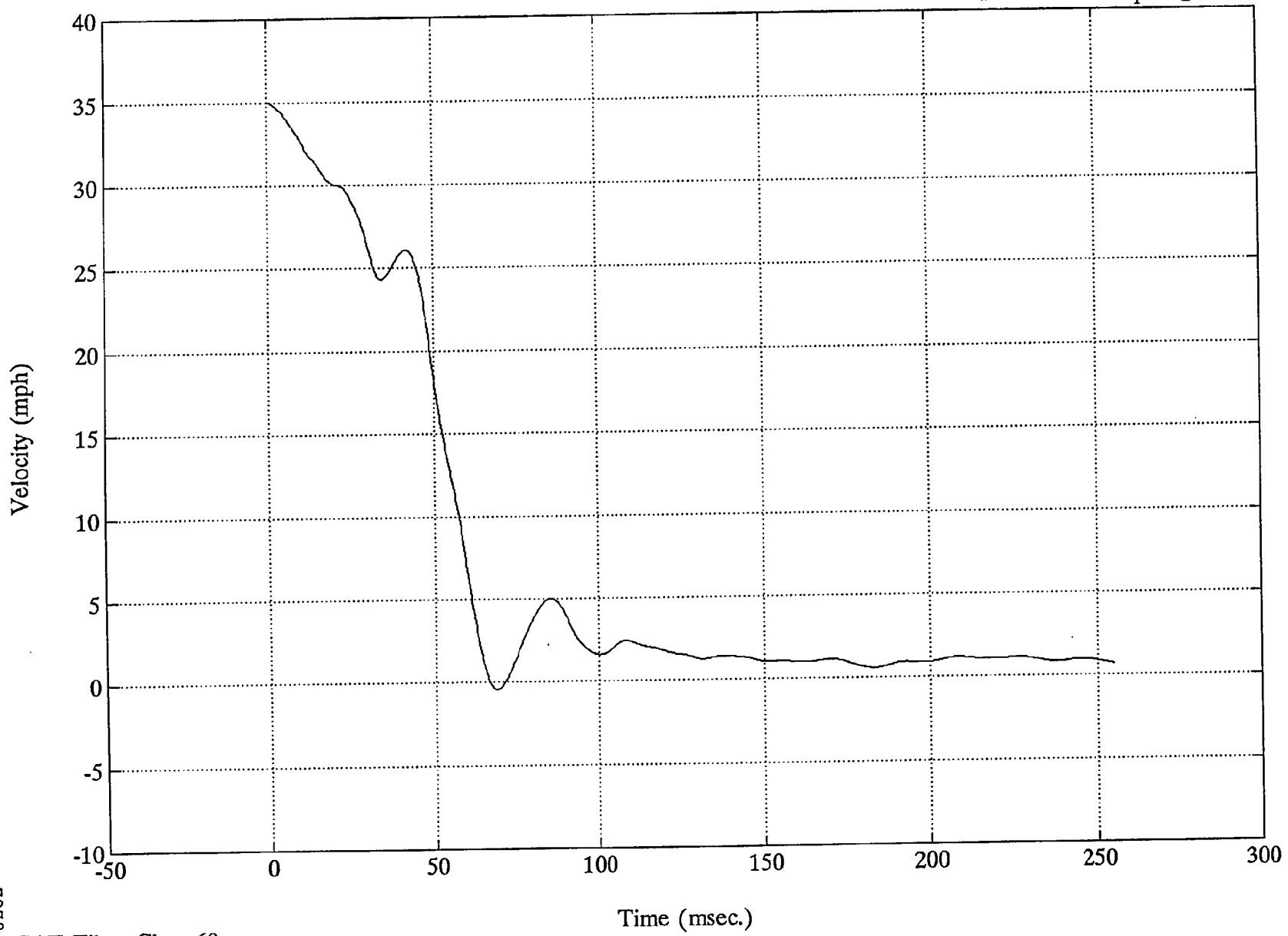
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #5(x)

Max = 35.00 mph @ -0.00 msec
Min = -0.44 mph @ 68.64 msec

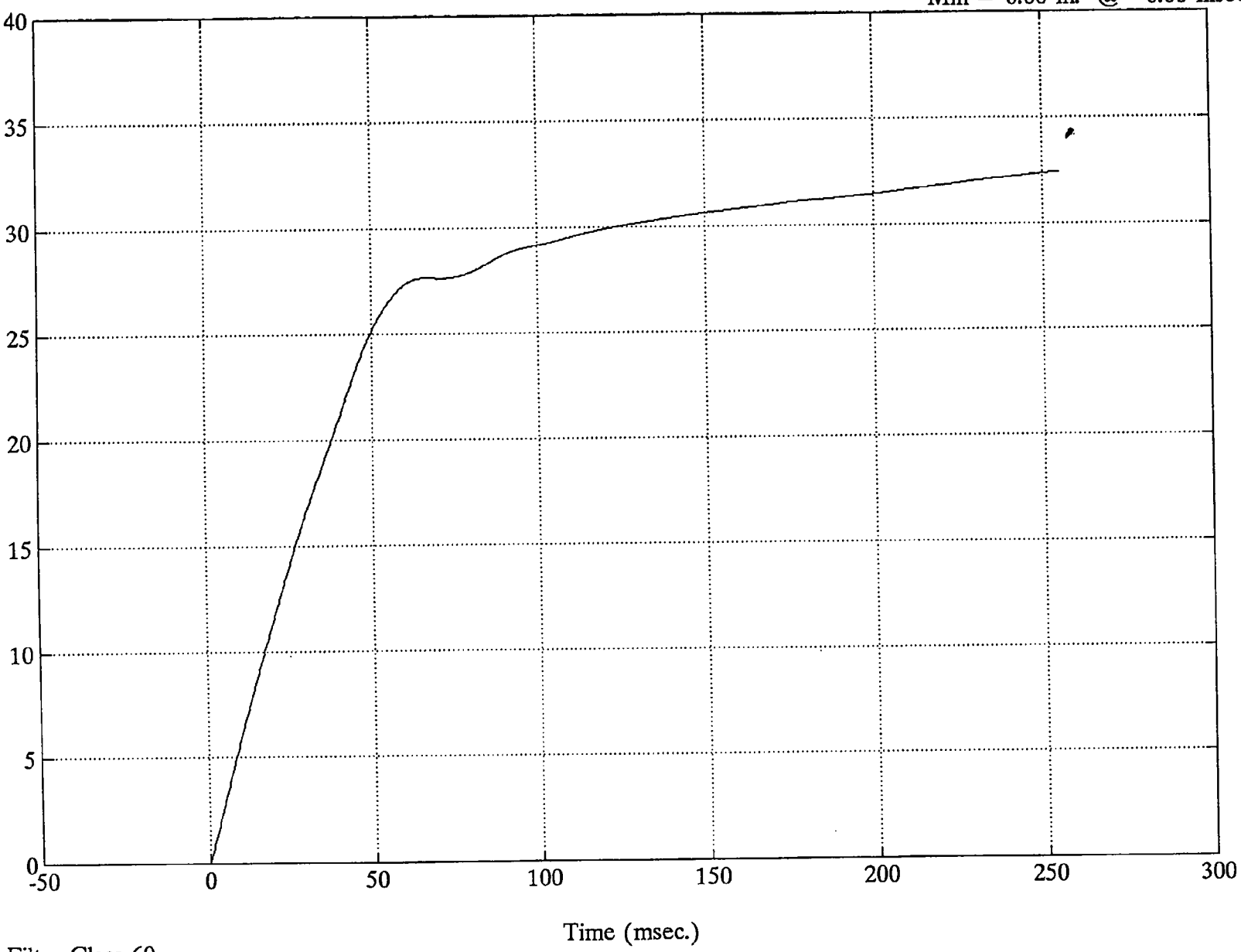


SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #5(x)

Max = 32.41 in. @ 254.88 msec
Min = 0.00 in. @ -0.00 msec



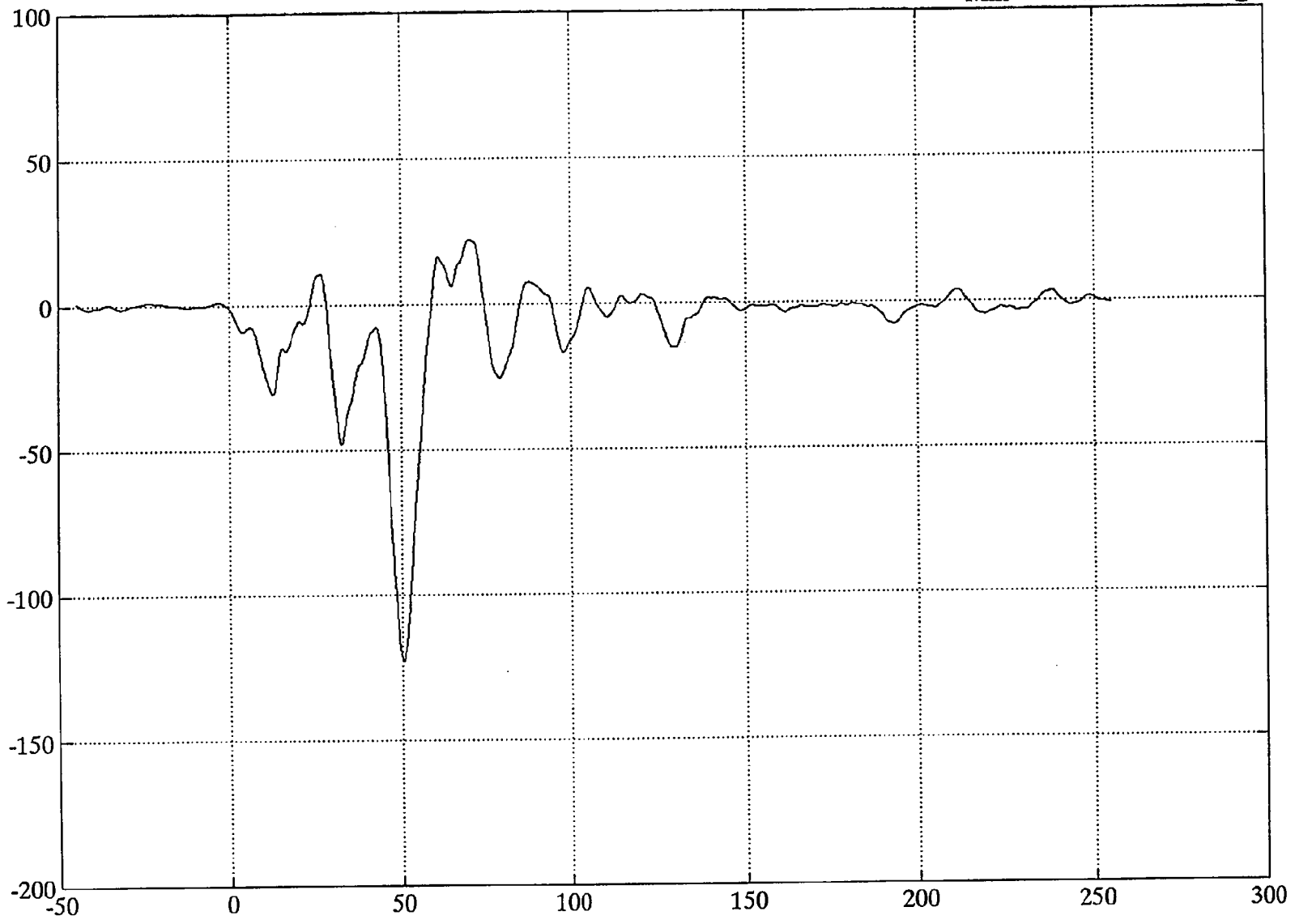
SAE Filter Class 60

7978-5

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #6(x)

Max = 22.27 Gs @ 69.72 msec
Min = -122.83 Gs @ 50.40 msec



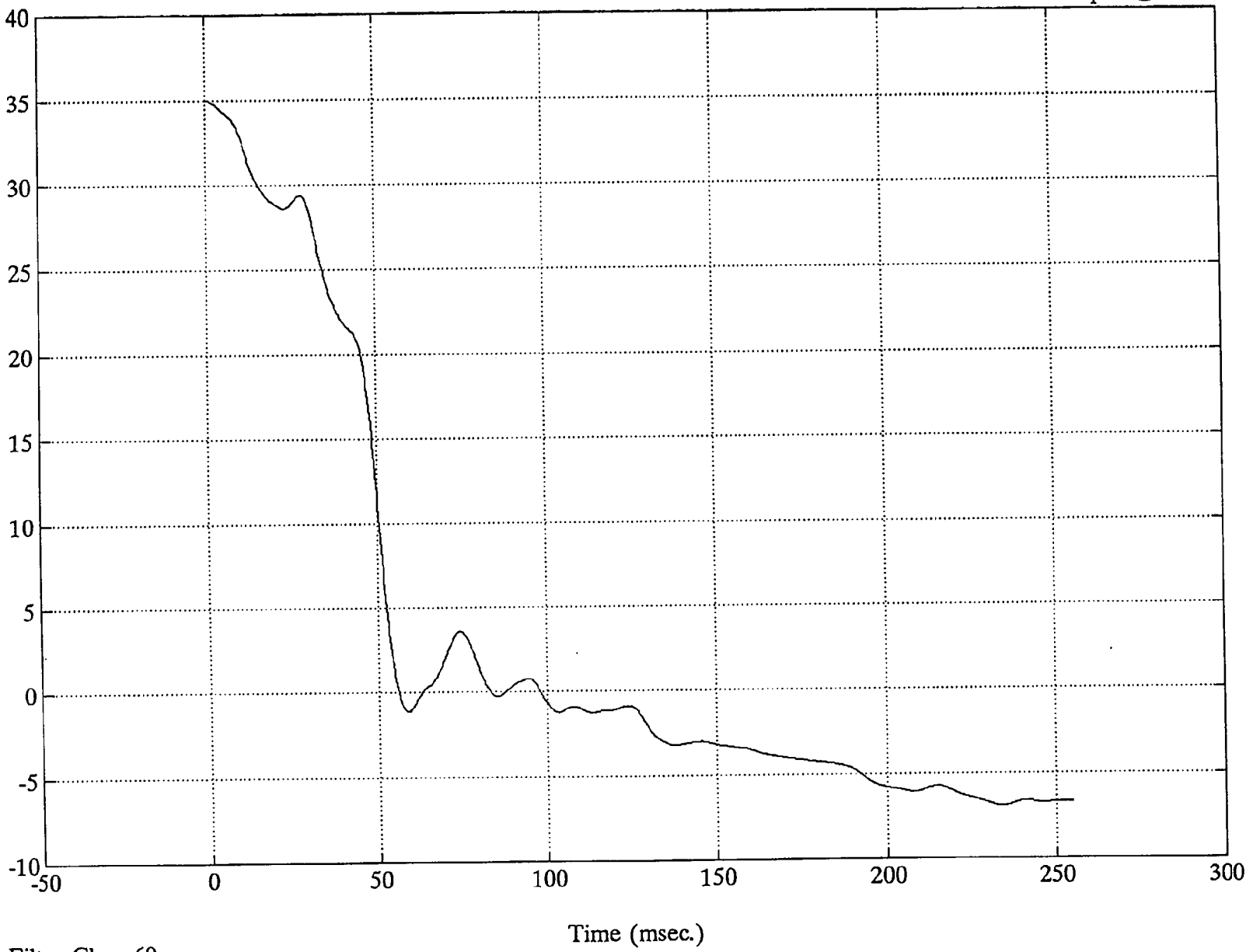
B-18

7978-5 SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #6(x)

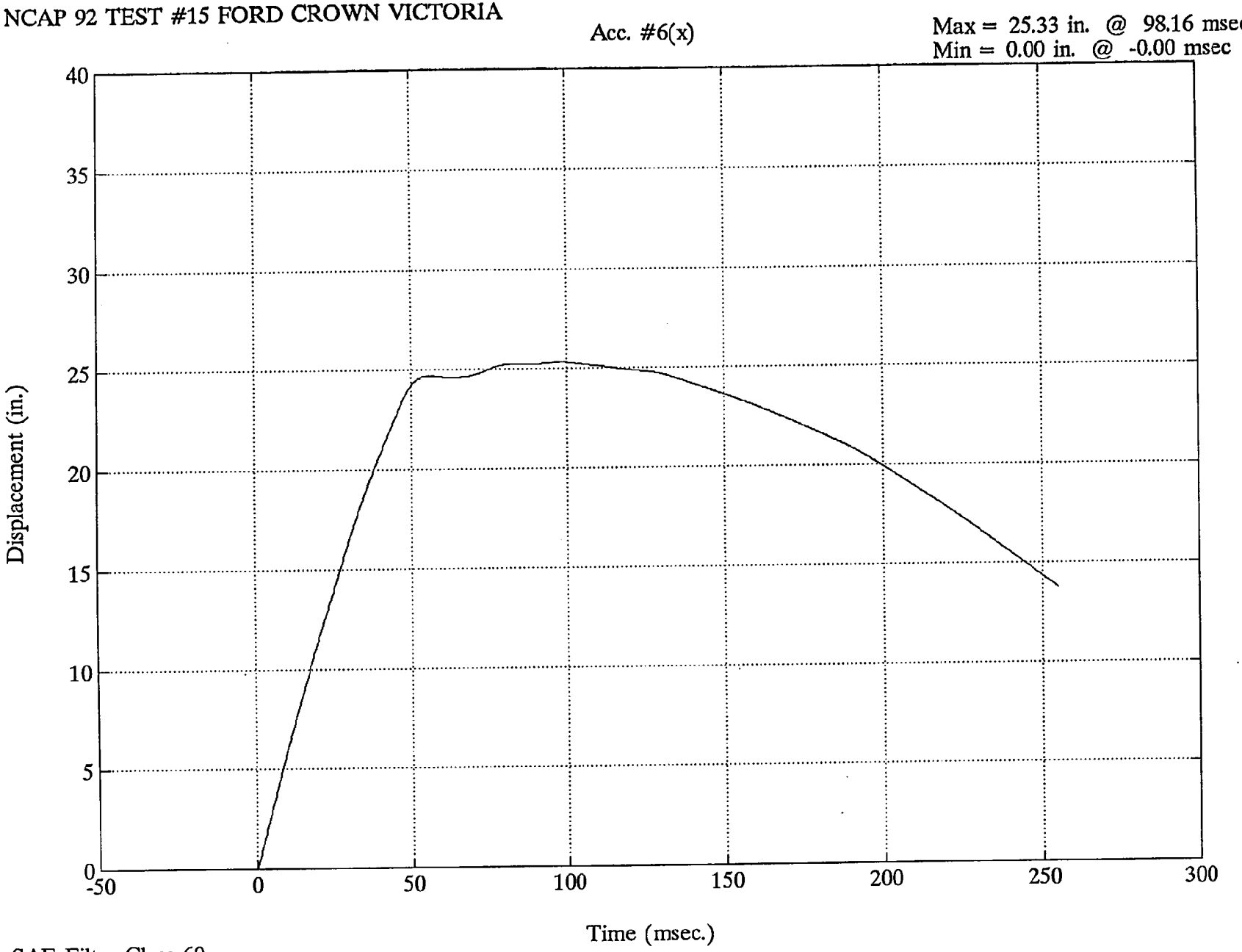
Max = 35.00 mph @ -0.00 msec
Min = -6.93 mph @ 234.72 msec



SAE Filter Class 60

7978-5

NCAP 92 TEST #15 FORD CROWN VICTORIA

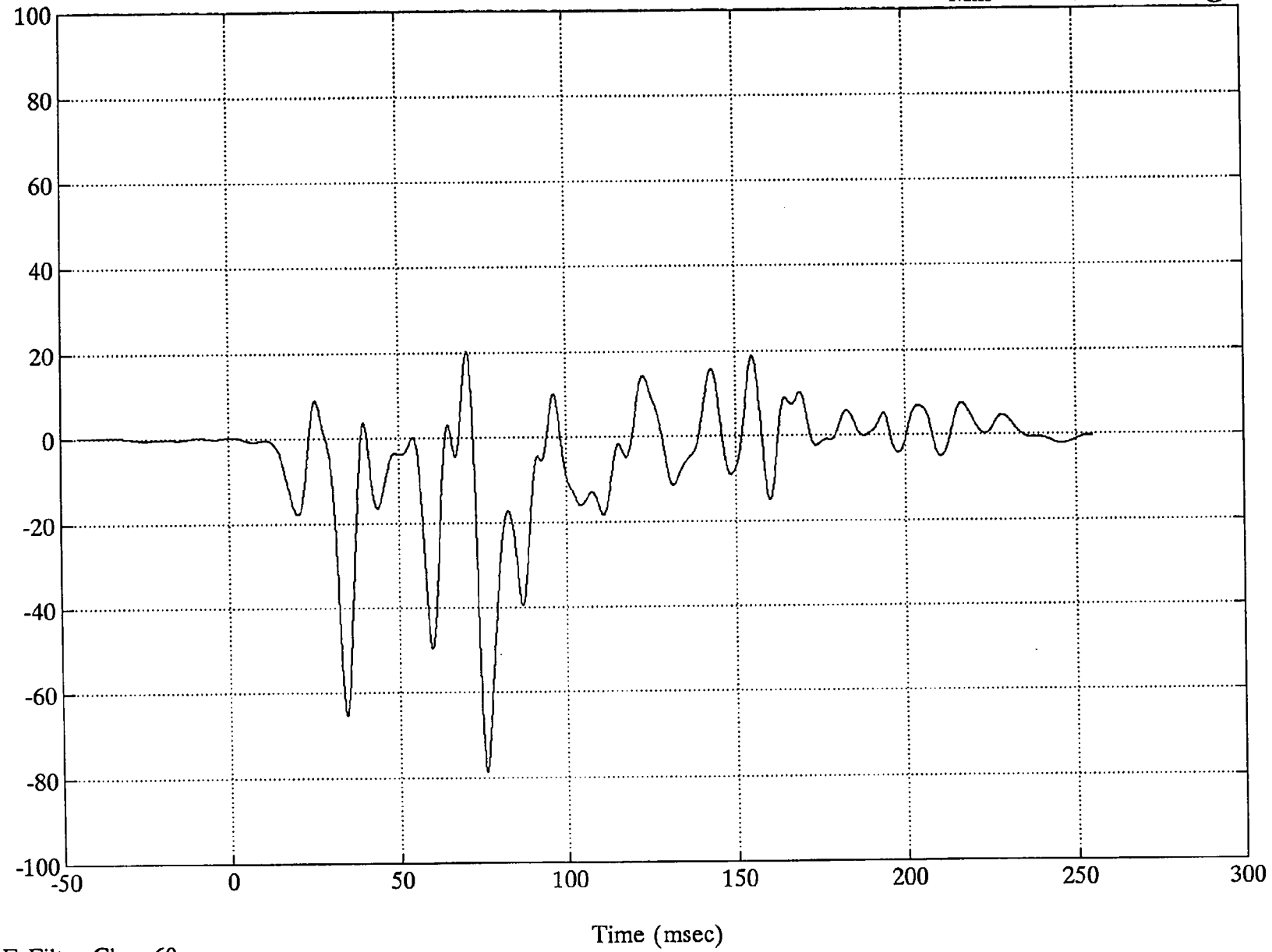


SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #7(x)

Max = 20.36 Gs @ 70.55 msec
Min = -78.75 Gs @ 75.84 msec



B-21

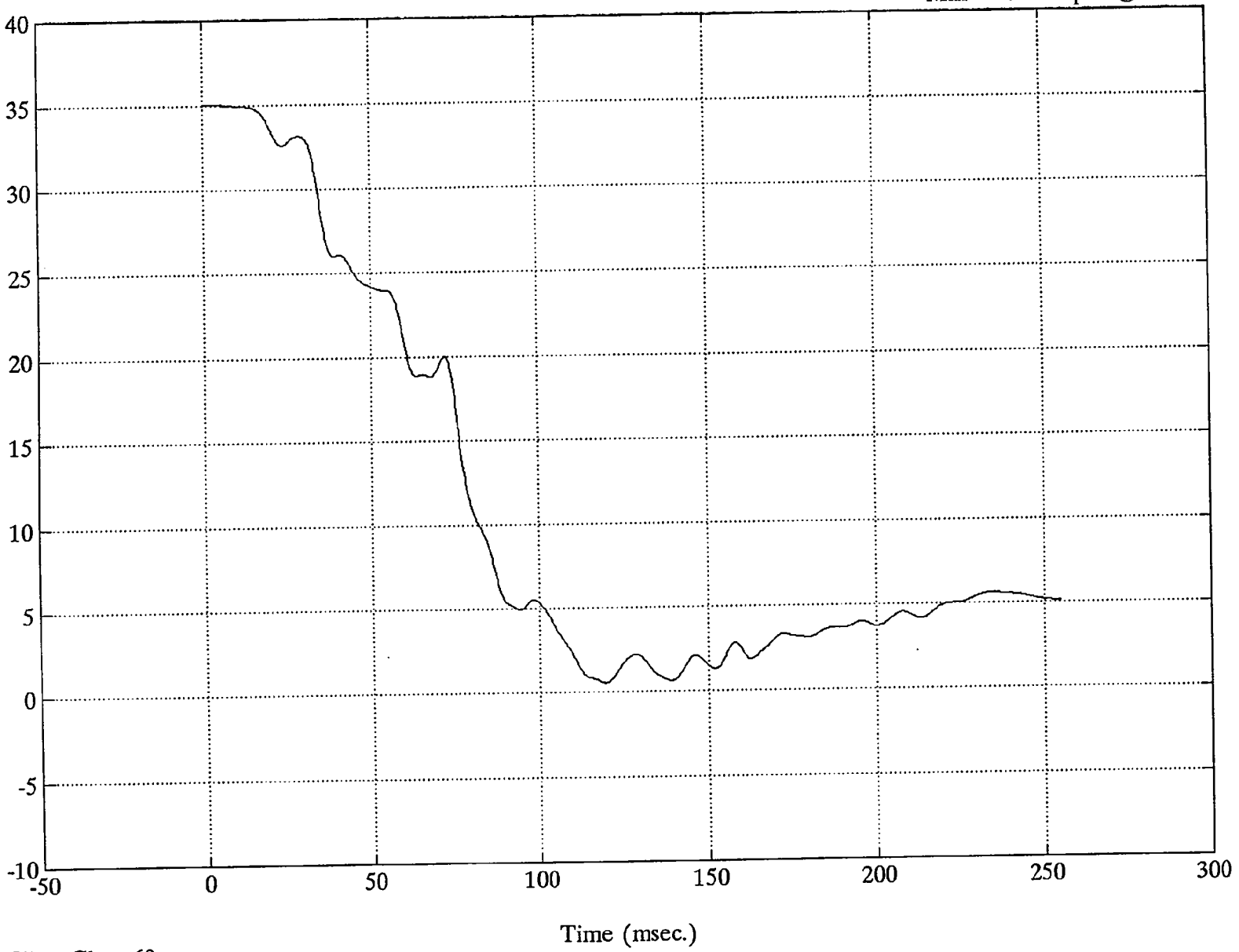
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #7(x)

Max = 35.02 mph @ 4.32 msec
Min = 0.55 mph @ 119.52 msec

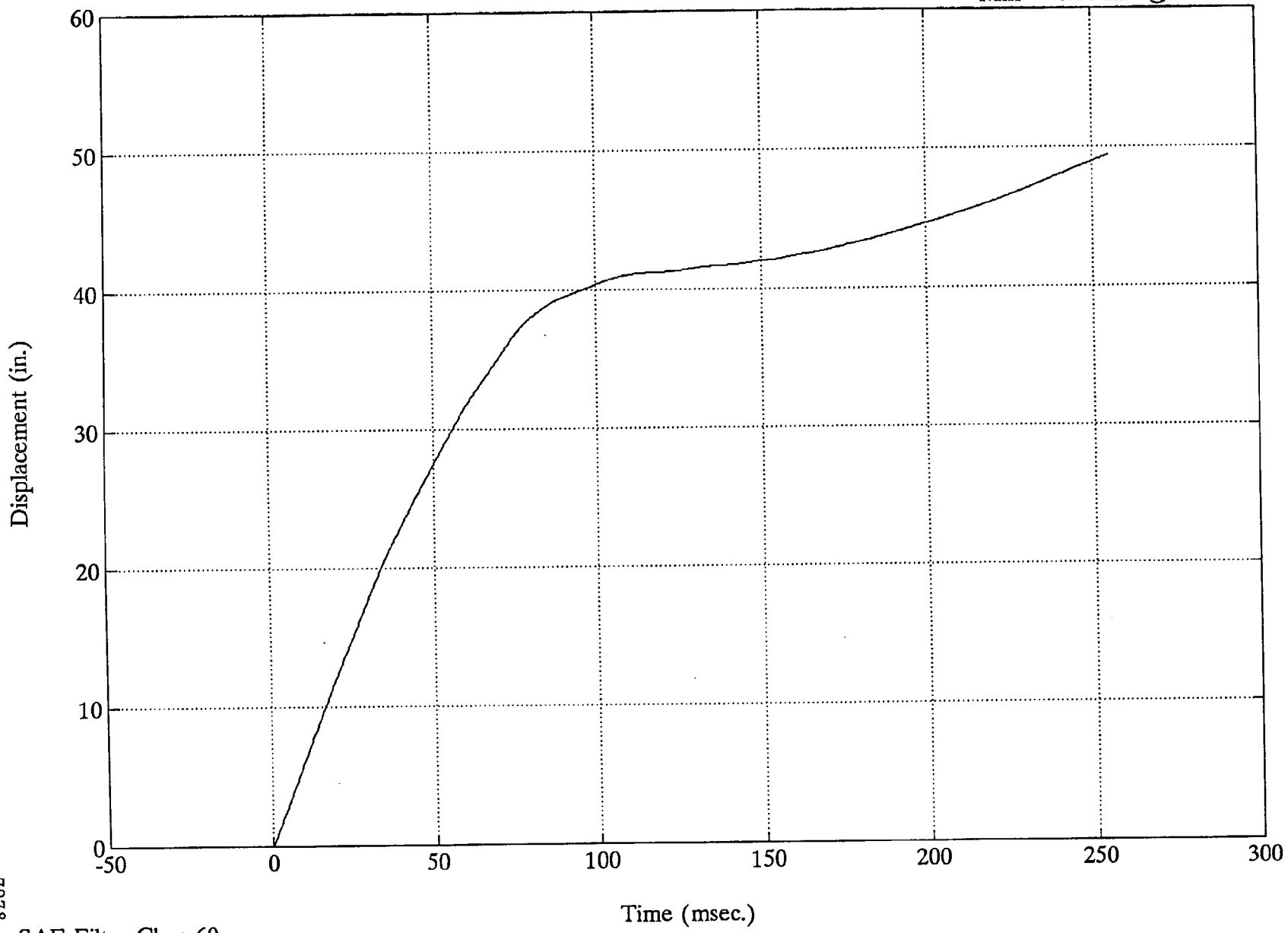


SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #7(x)

Max = 49.41 in. @ 254.88 msec
Min = 0.00 in. @ -0.00 msec

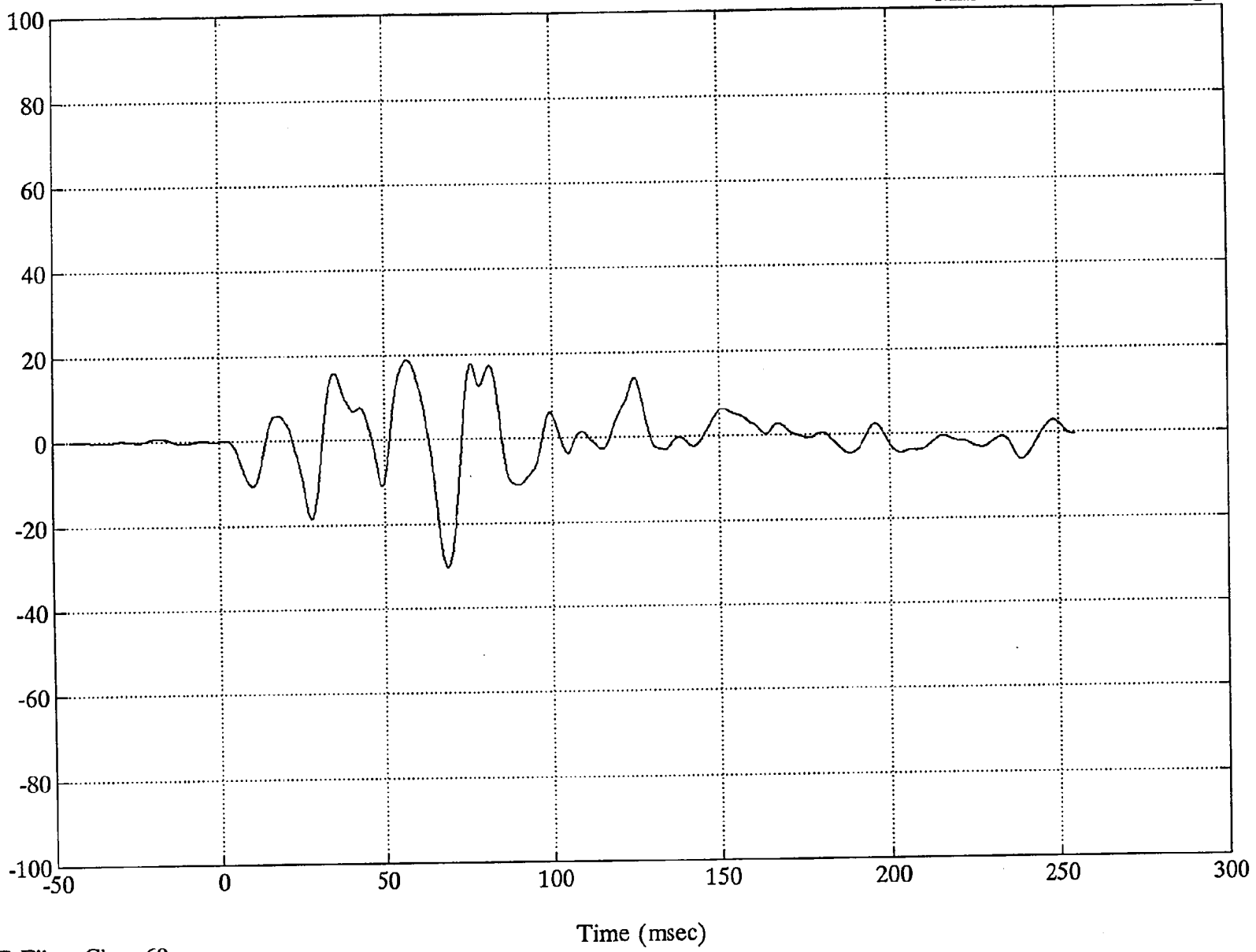


SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #8(z)

Max = 18.75 Gs @ 56.76 msec
Min = -30.40 Gs @ 68.76 msec

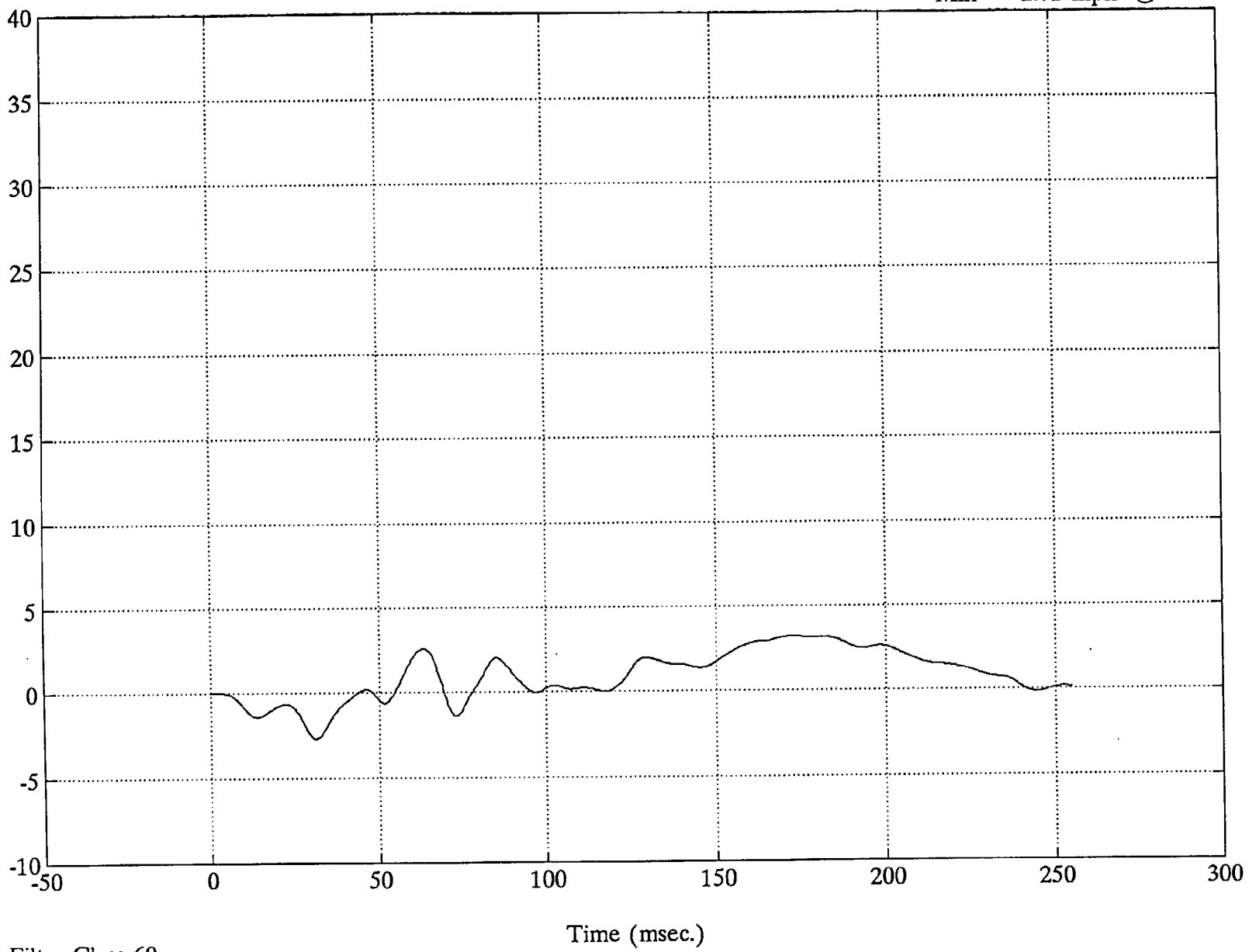


SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

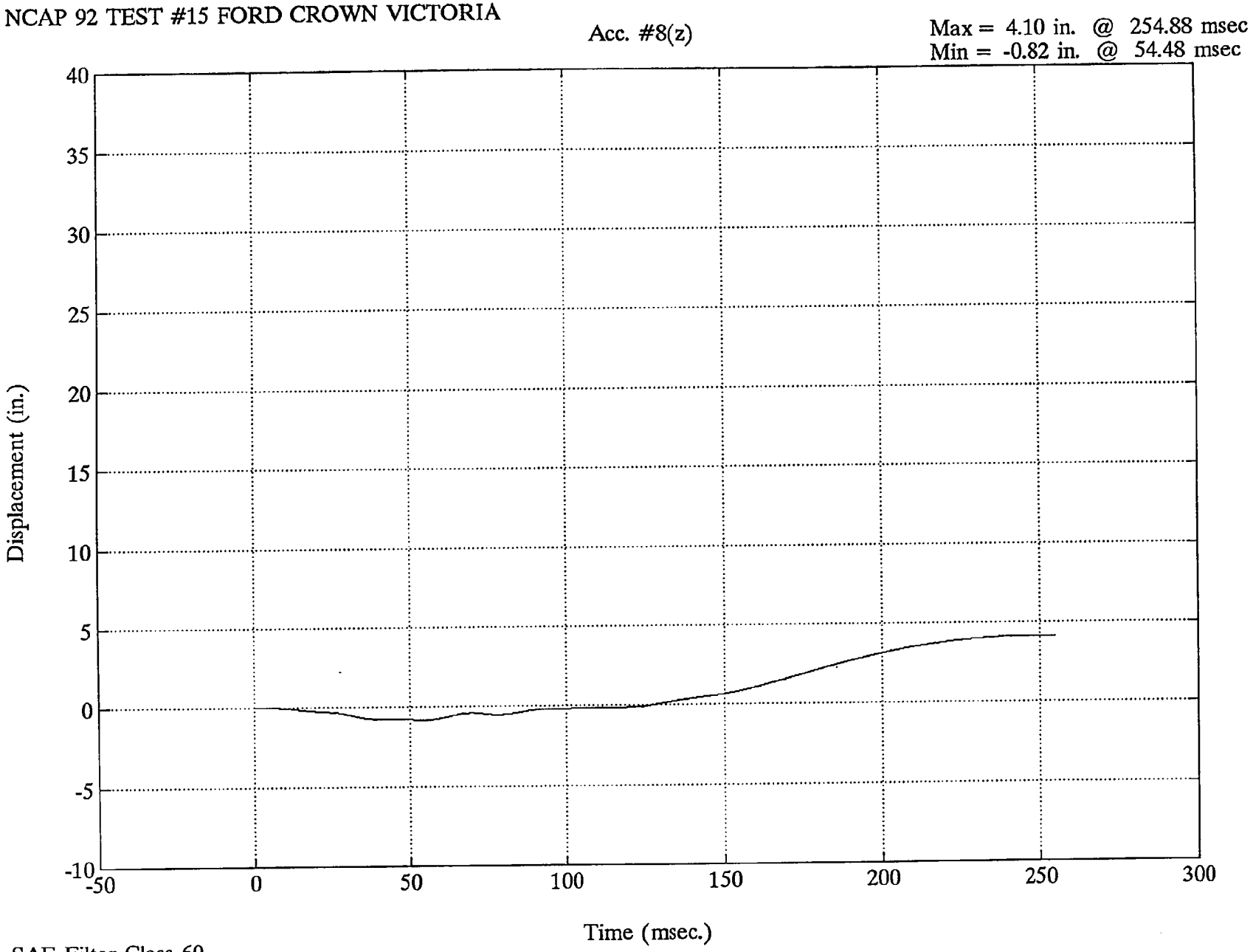
Acc. #8(z)

Max = 3.19 mph @ 173.28 msec
Min = -2.71 mph @ 30.96 msec



SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

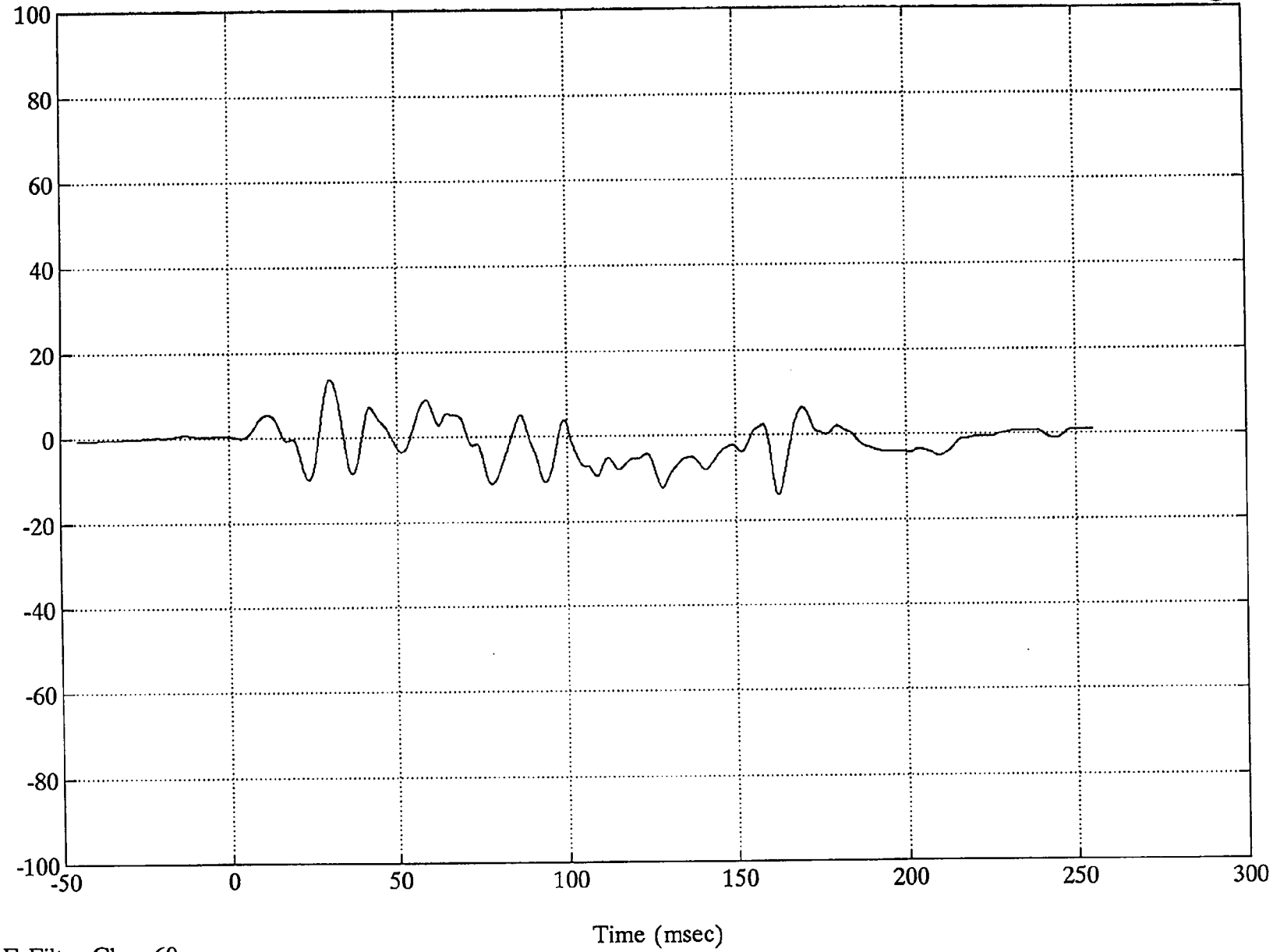


SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #9(z)

Max = 13.71 Gs @ 30.12 msec
Min = -14.08 Gs @ 162.48 msec



B-27

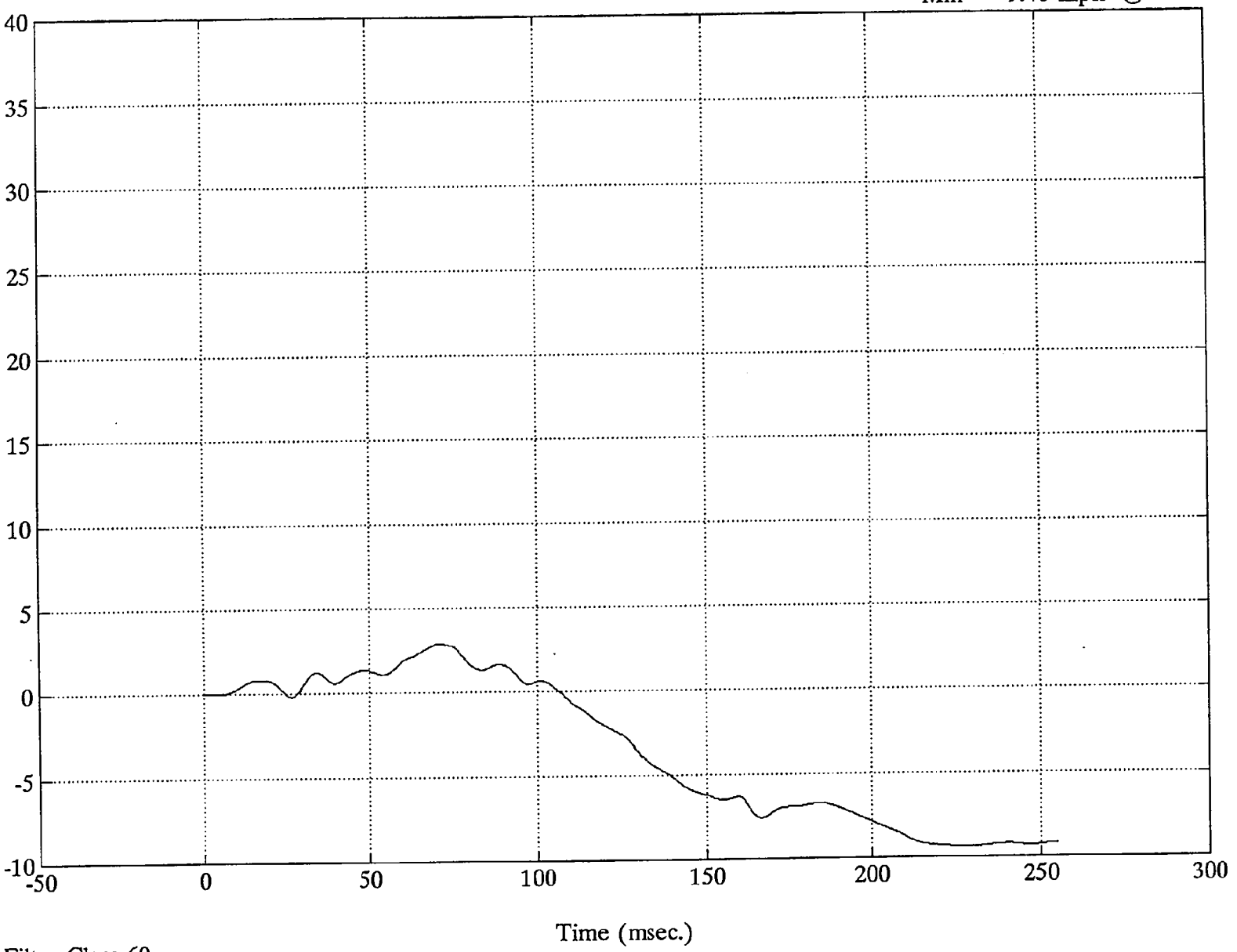
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #9(z)

Max = 2.88 mph @ 70.56 msec
Min = -9.40 mph @ 227.76 msec

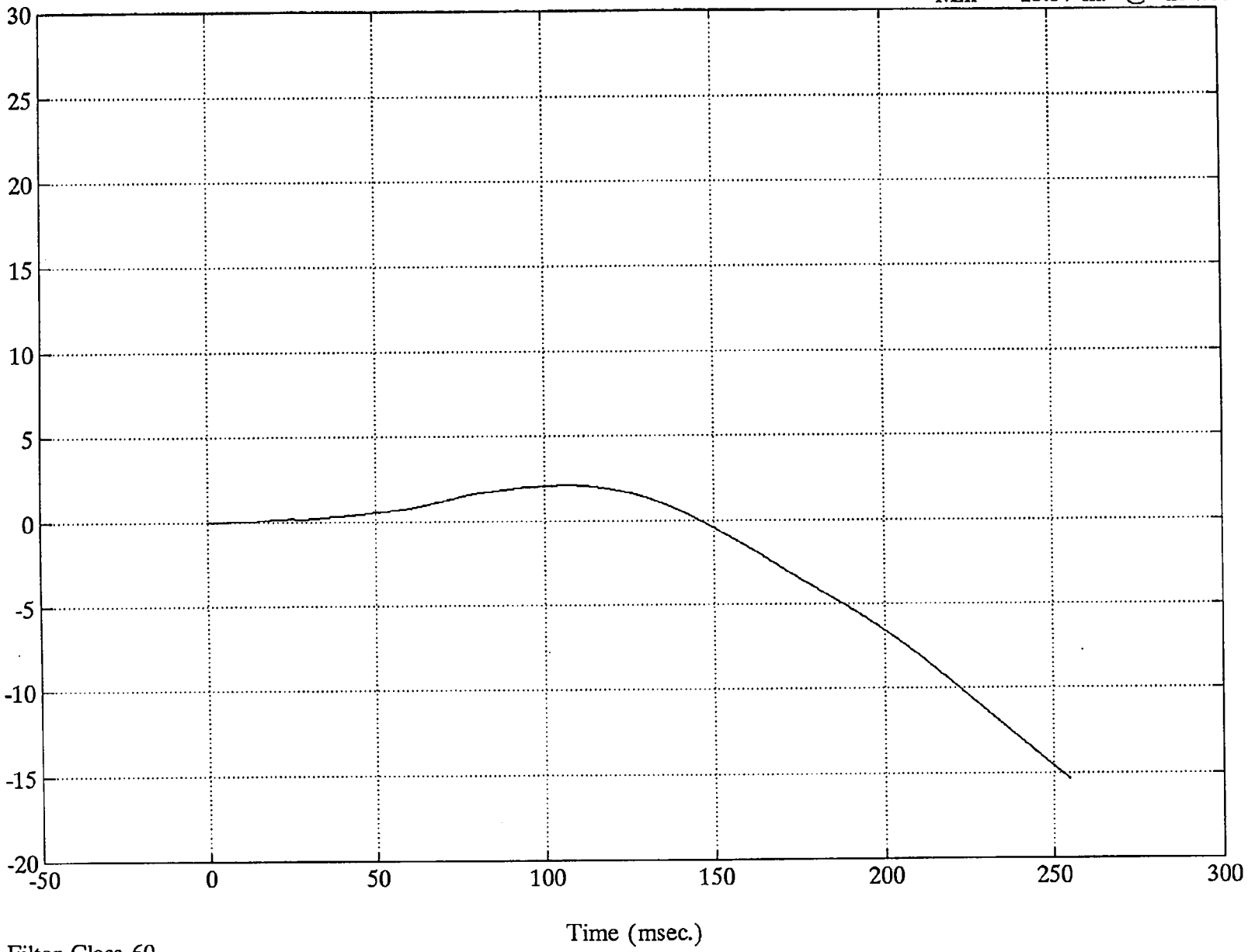


SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Acc. #9(z)

Max = 2.08 in. @ 107.04 msec
Min = -15.37 in. @ 254.88 msec



SAE Filter Class 60

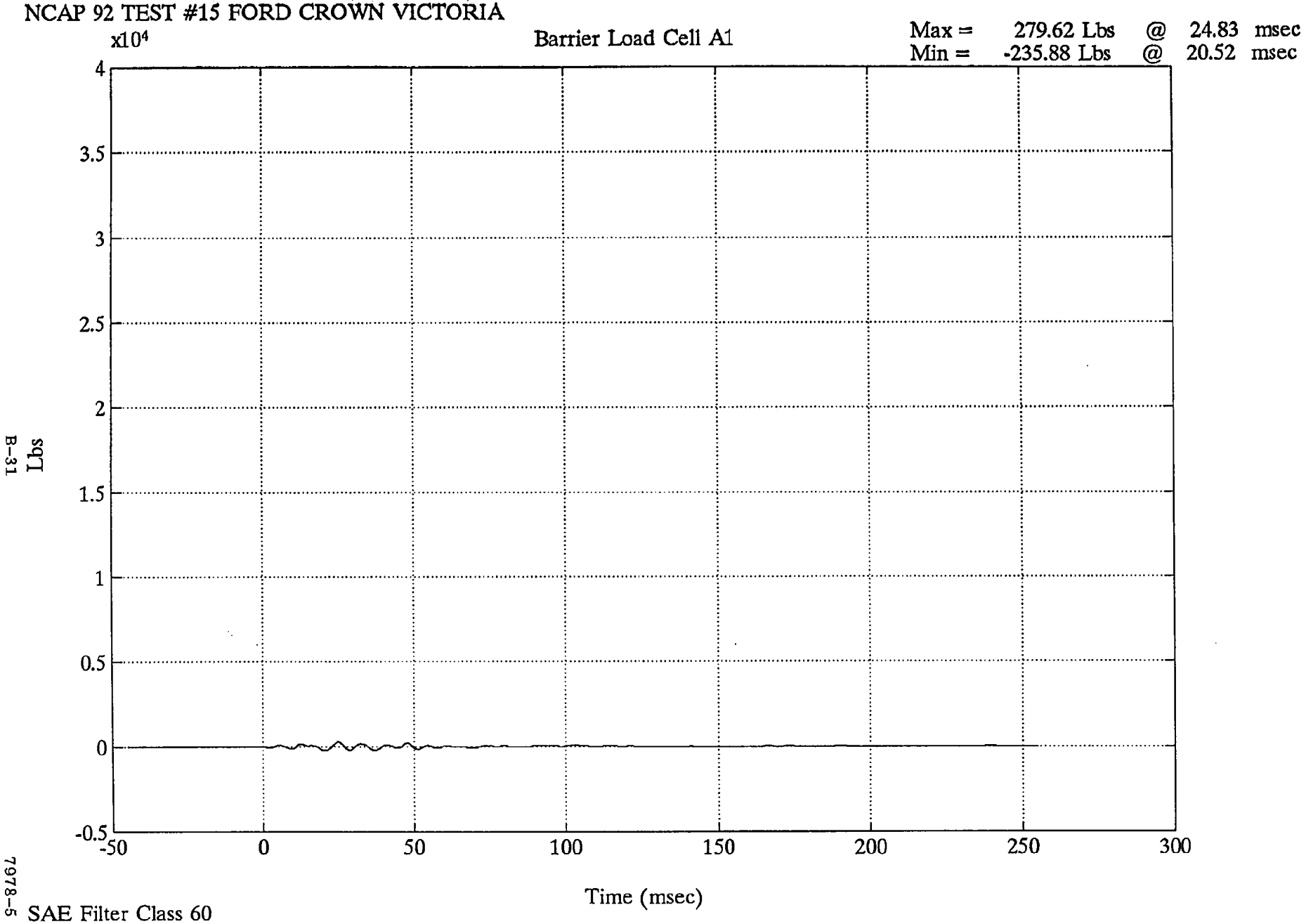
TEST NO. MN0208

LOAD CELL BARRIER DATA

FILTER CHANNEL CLASS

60

NCAP 92 TEST #15 FORD CROWN VICTORIA

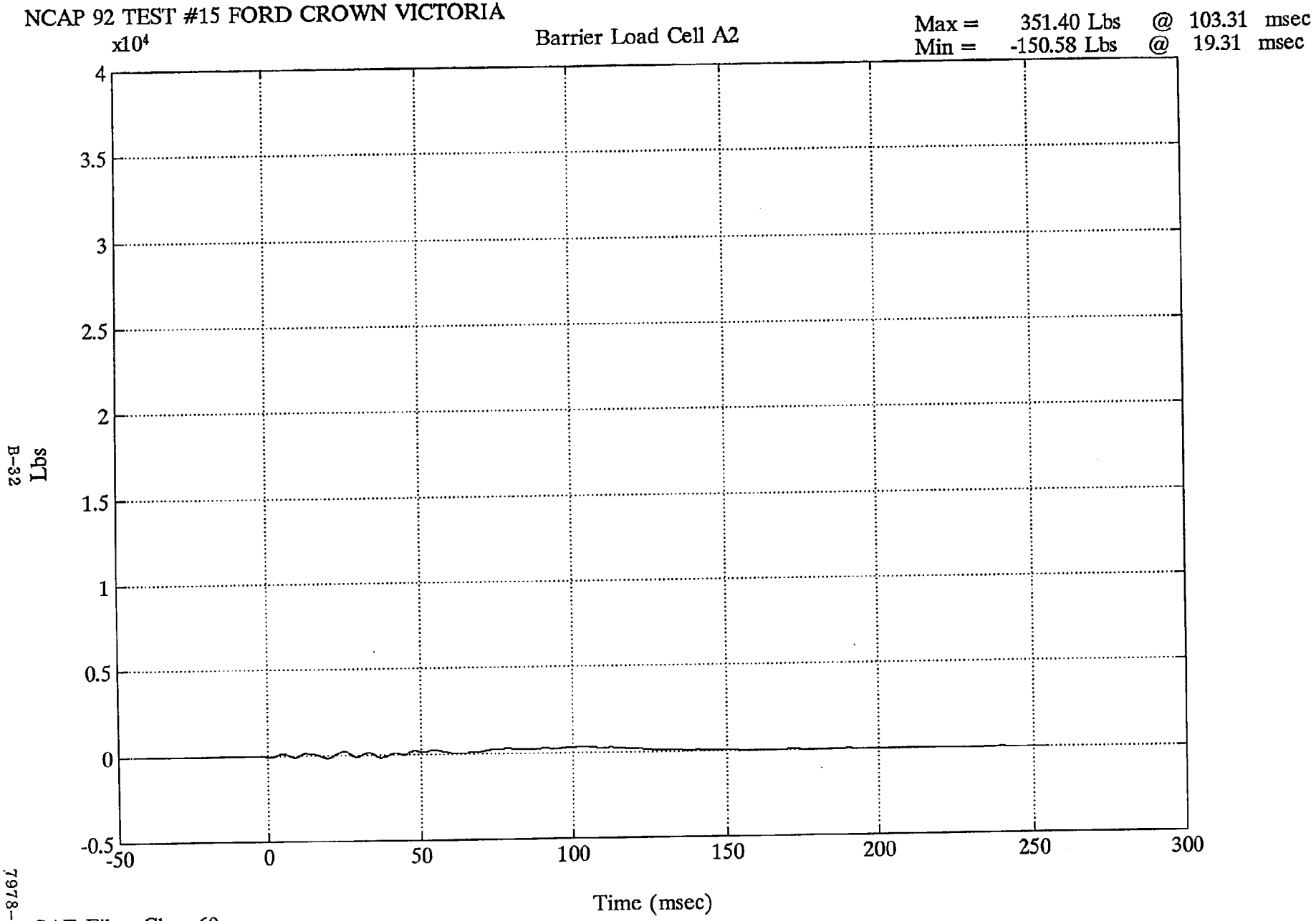


B-31

7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

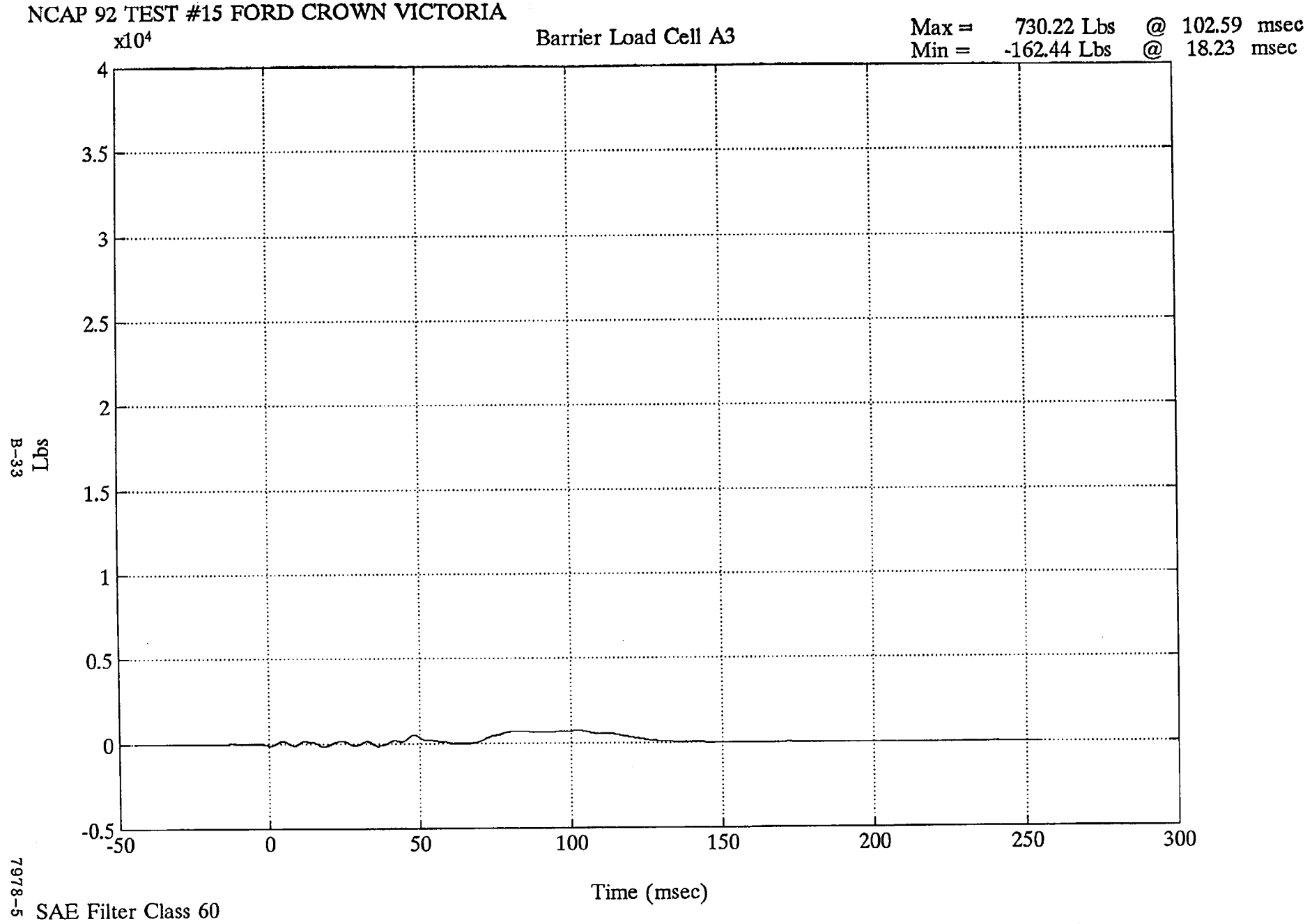


B-32

7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

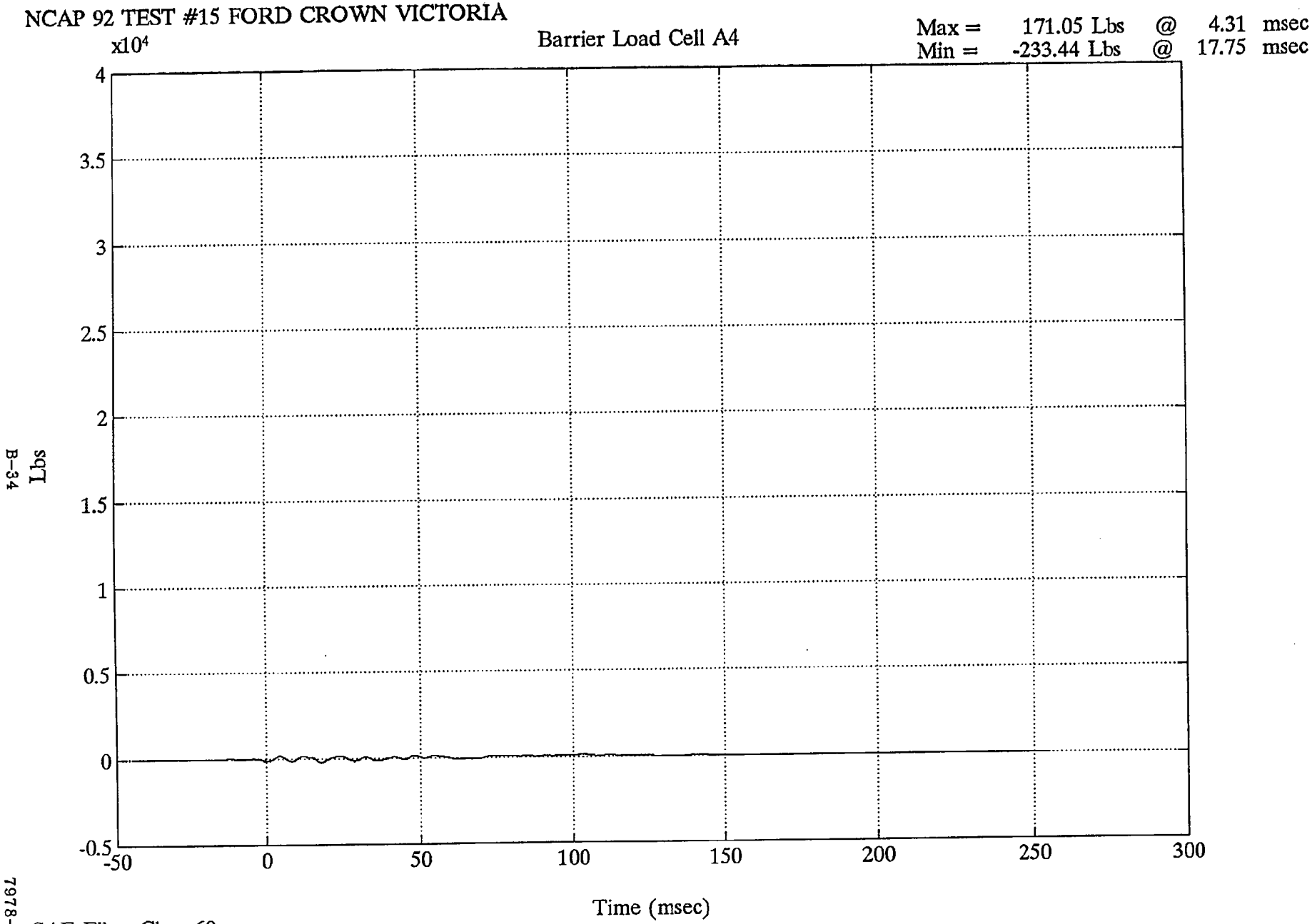


B-33

7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

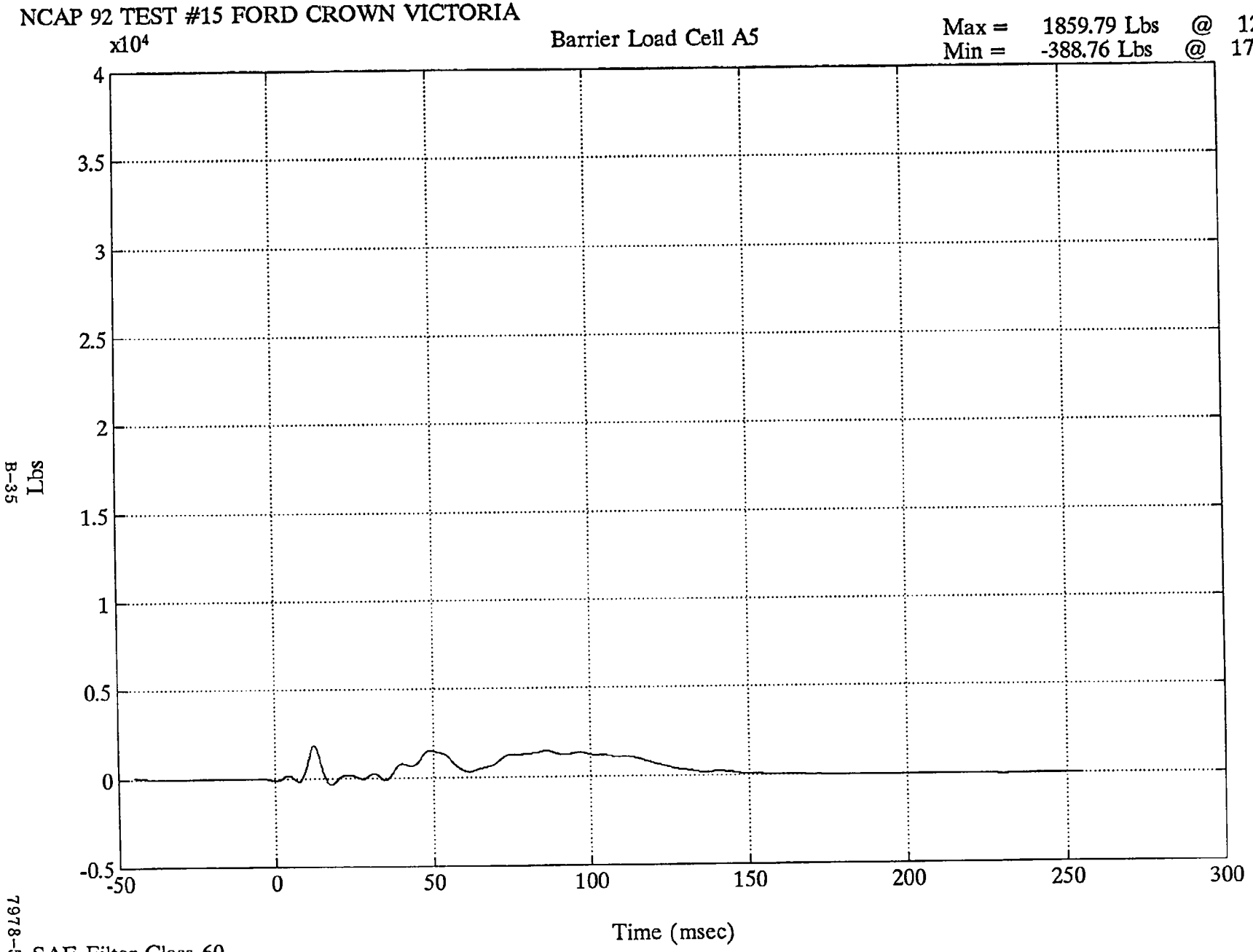


B-34

7978-5

SAE Filter Class 60

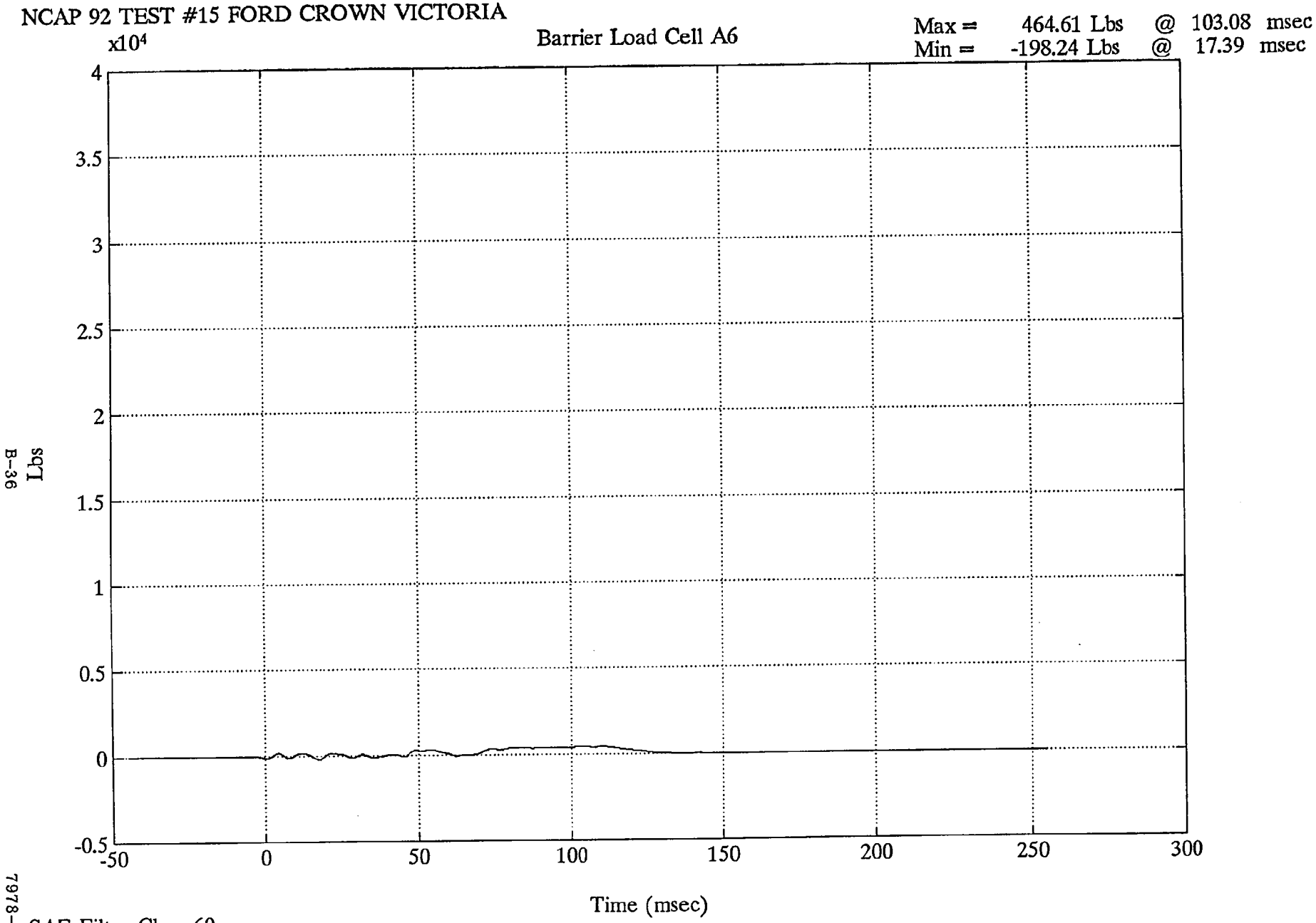
NCAP 92 TEST #15 FORD CROWN VICTORIA



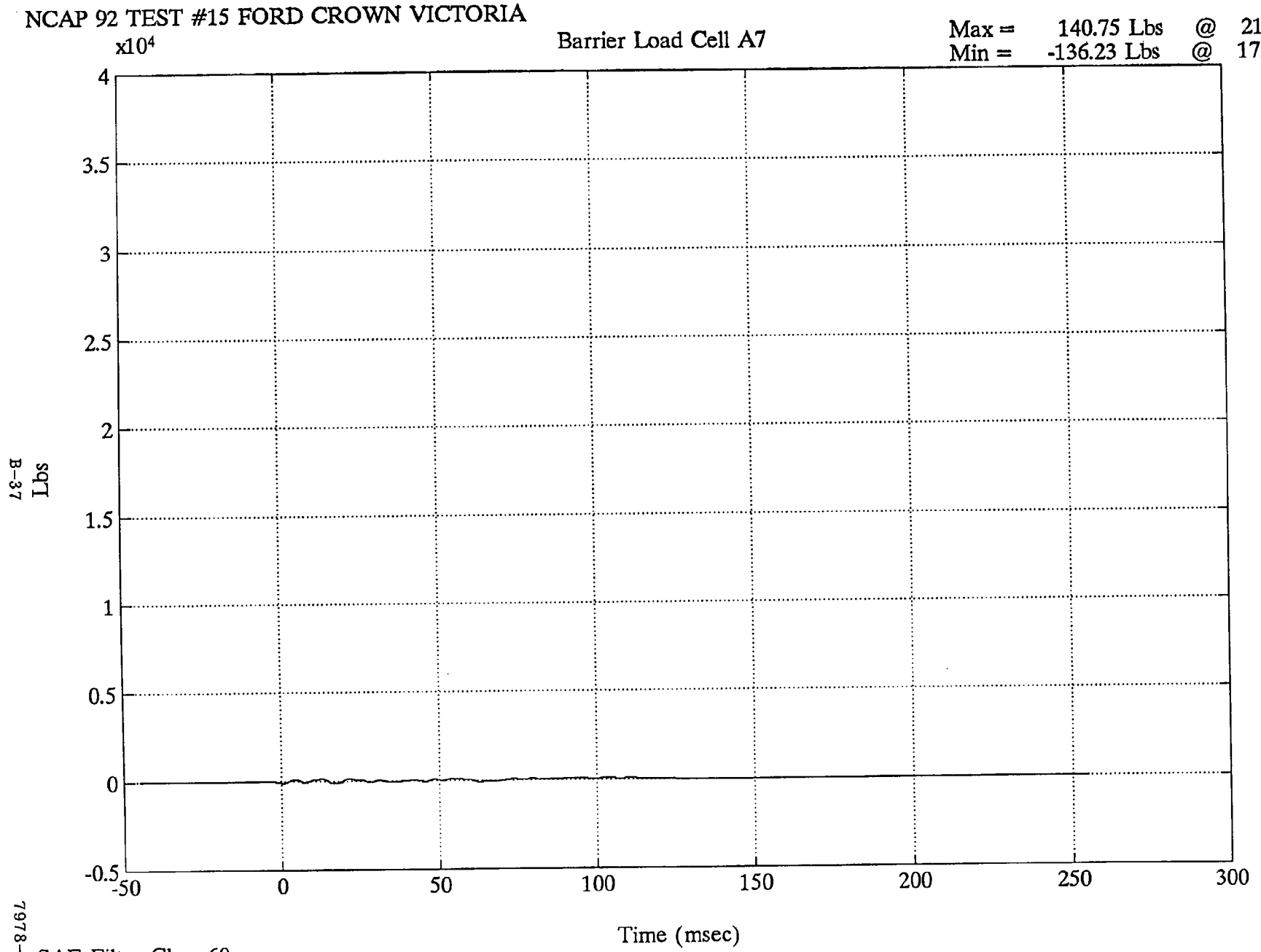
B-35

7978-5

SAE Filter Class 60


NCAP 92 TEST #15 FORD CROWN VICTORIA
Barrier Load Cell A6
Max = 464.61 Lbs @ 103.08 msec
Min = -198.24 Lbs @ 17.39 msec
x10^4
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
-50
0
50
100
150
200
250
300
Lbs
Time (msec)
B-36
7978-5
SAE Filter Class 60

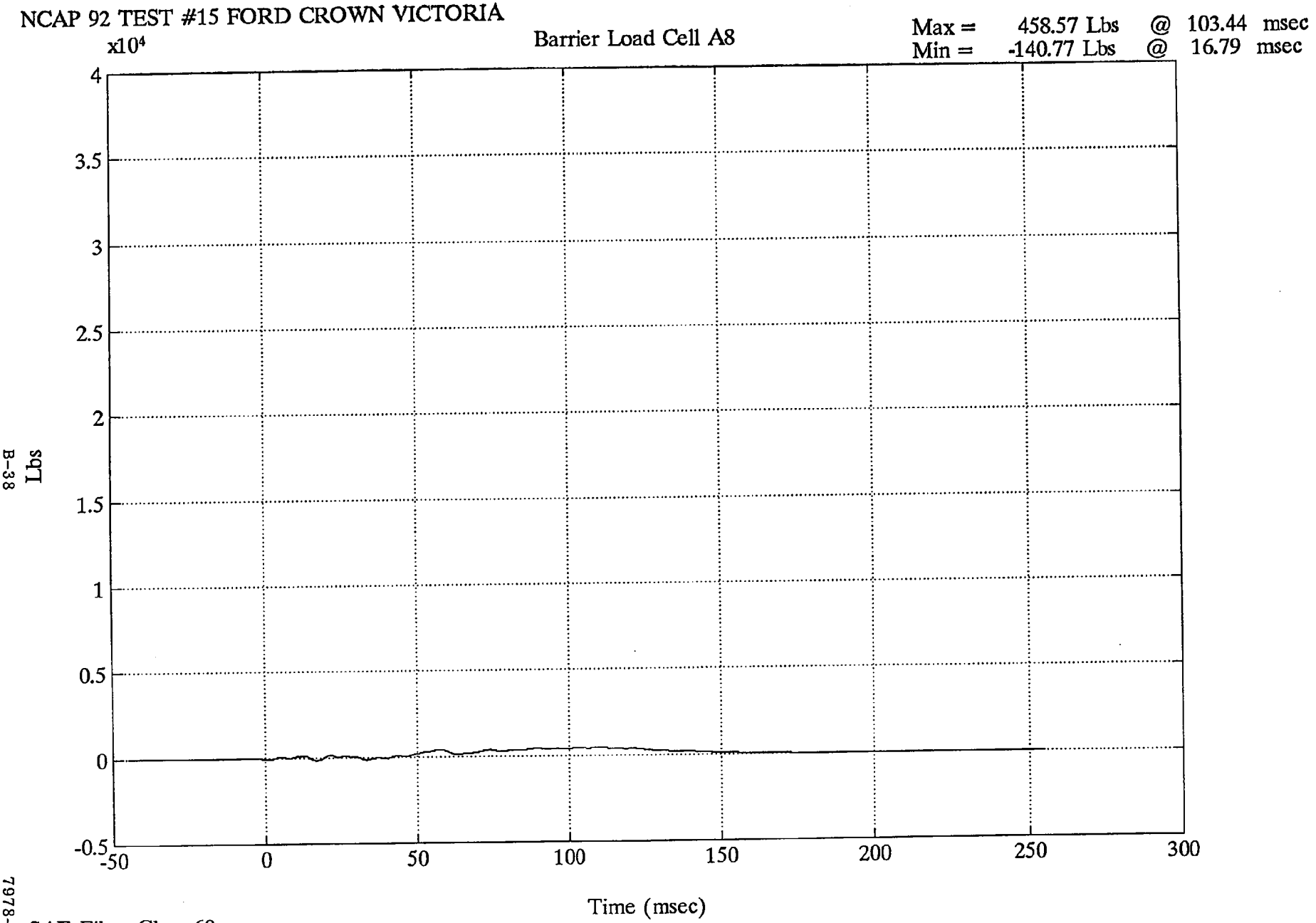
NCAP 92 TEST #15 FORD CROWN VICTORIA



SAE Filter Class 60

7978-5

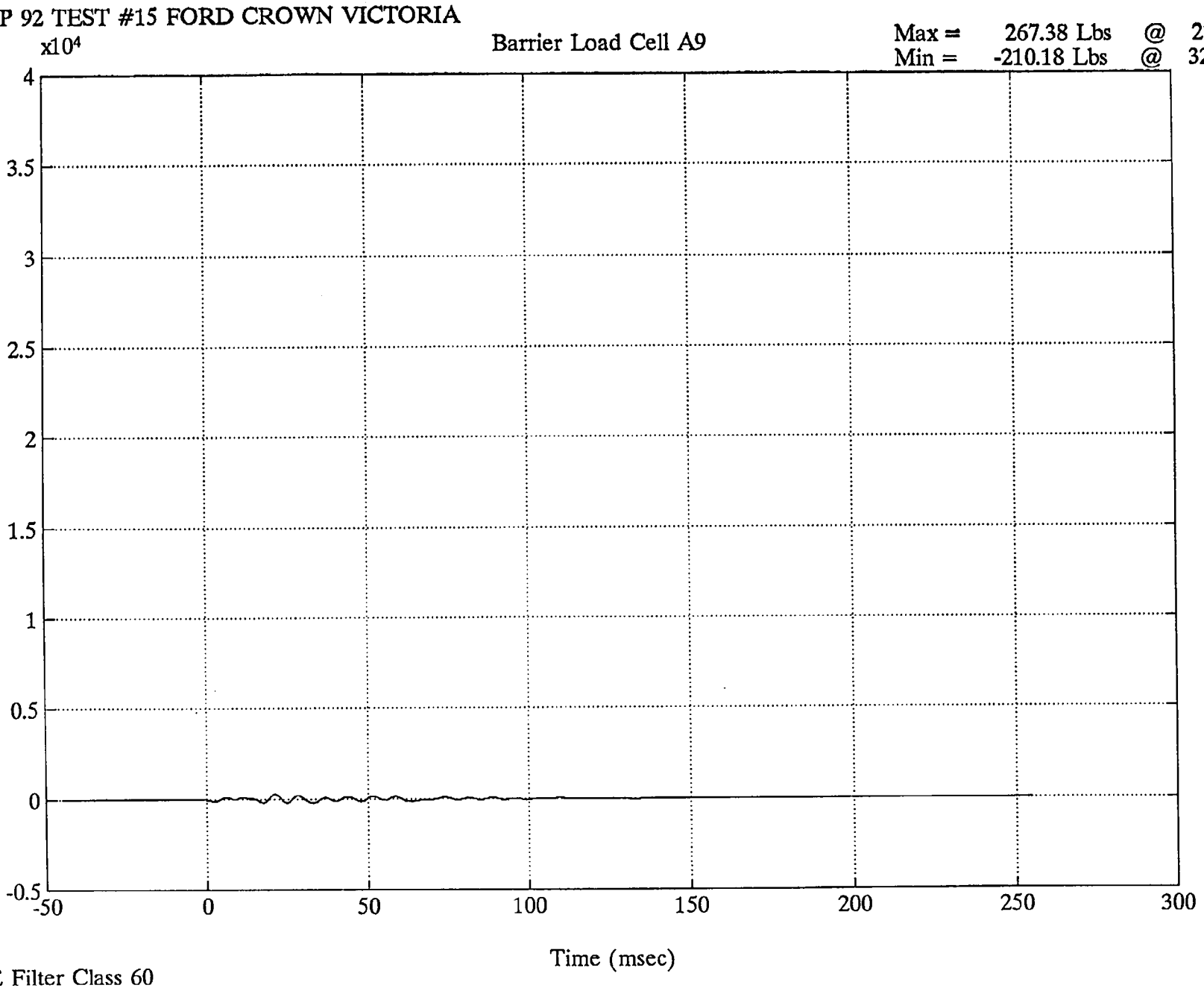
NCAP 92 TEST #15 FORD CROWN VICTORIA



SAE Filter Class 60

7978-5

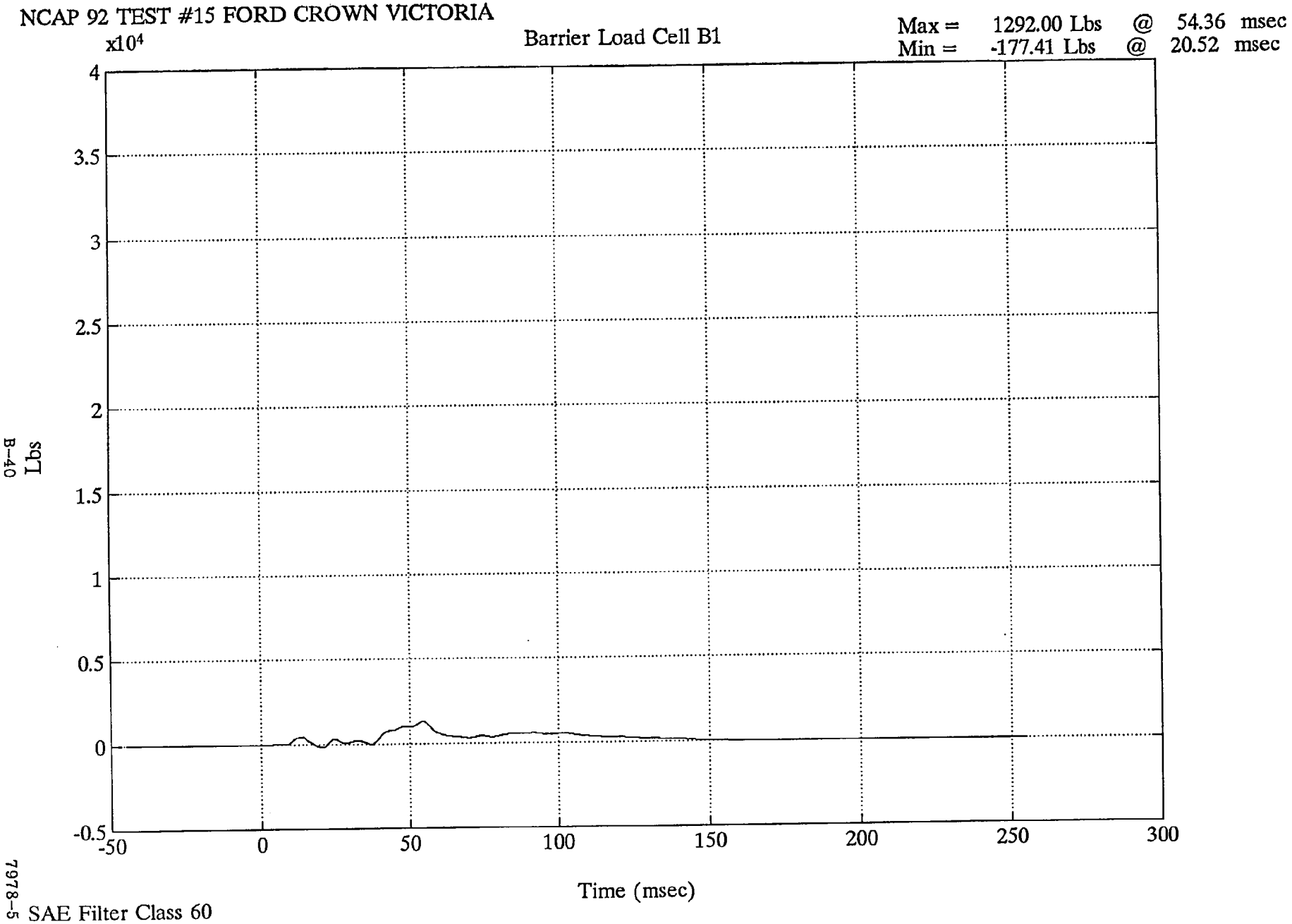
NCAP 92 TEST #15 FORD CROWN VICTORIA



B-39

7978-5 SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA



B-40

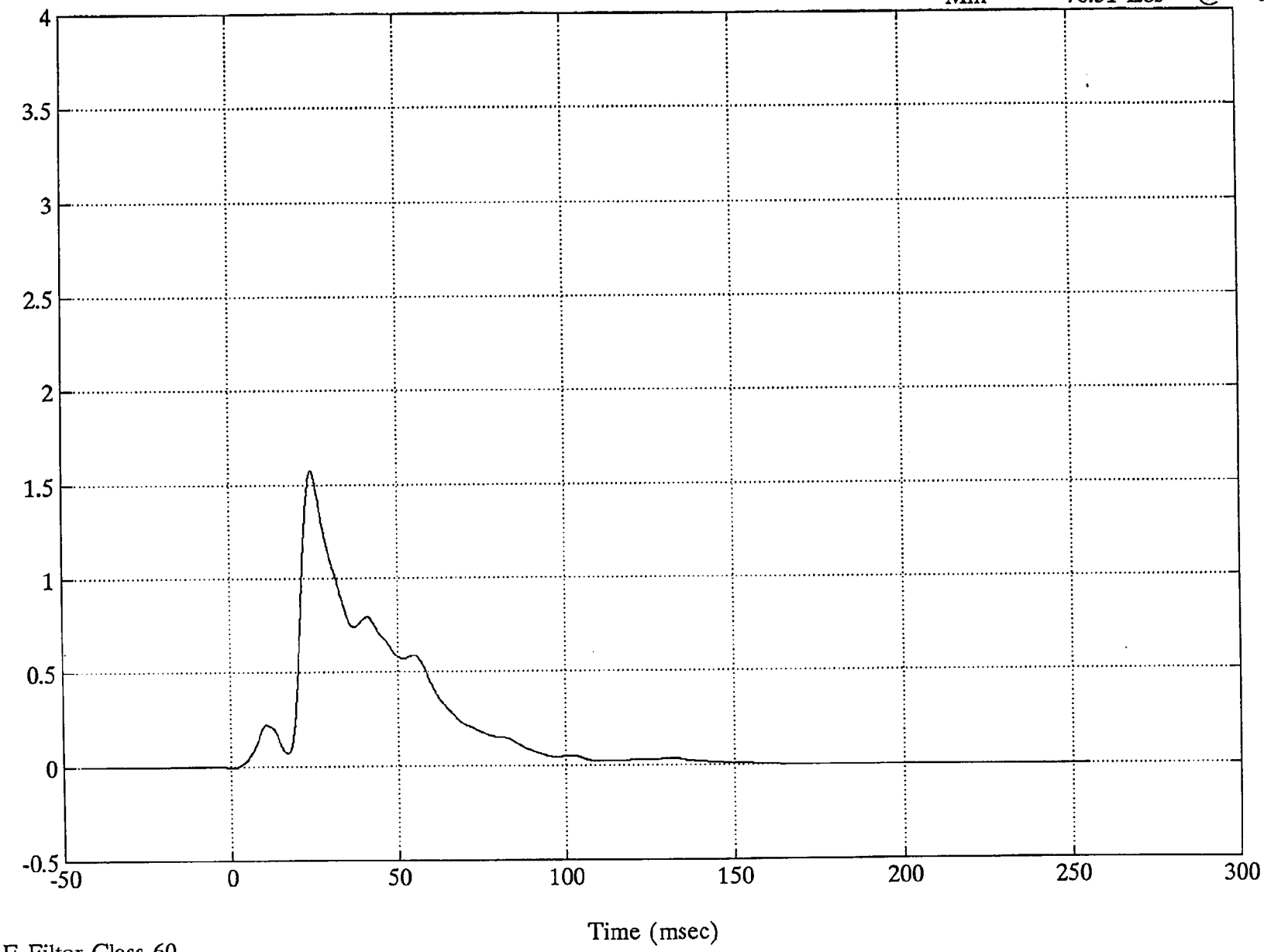
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Barrier Load Cell B2

Max = 15769.37 Lbs @ 24.35 msec
Min = -76.31 Lbs @ 0.47 msec

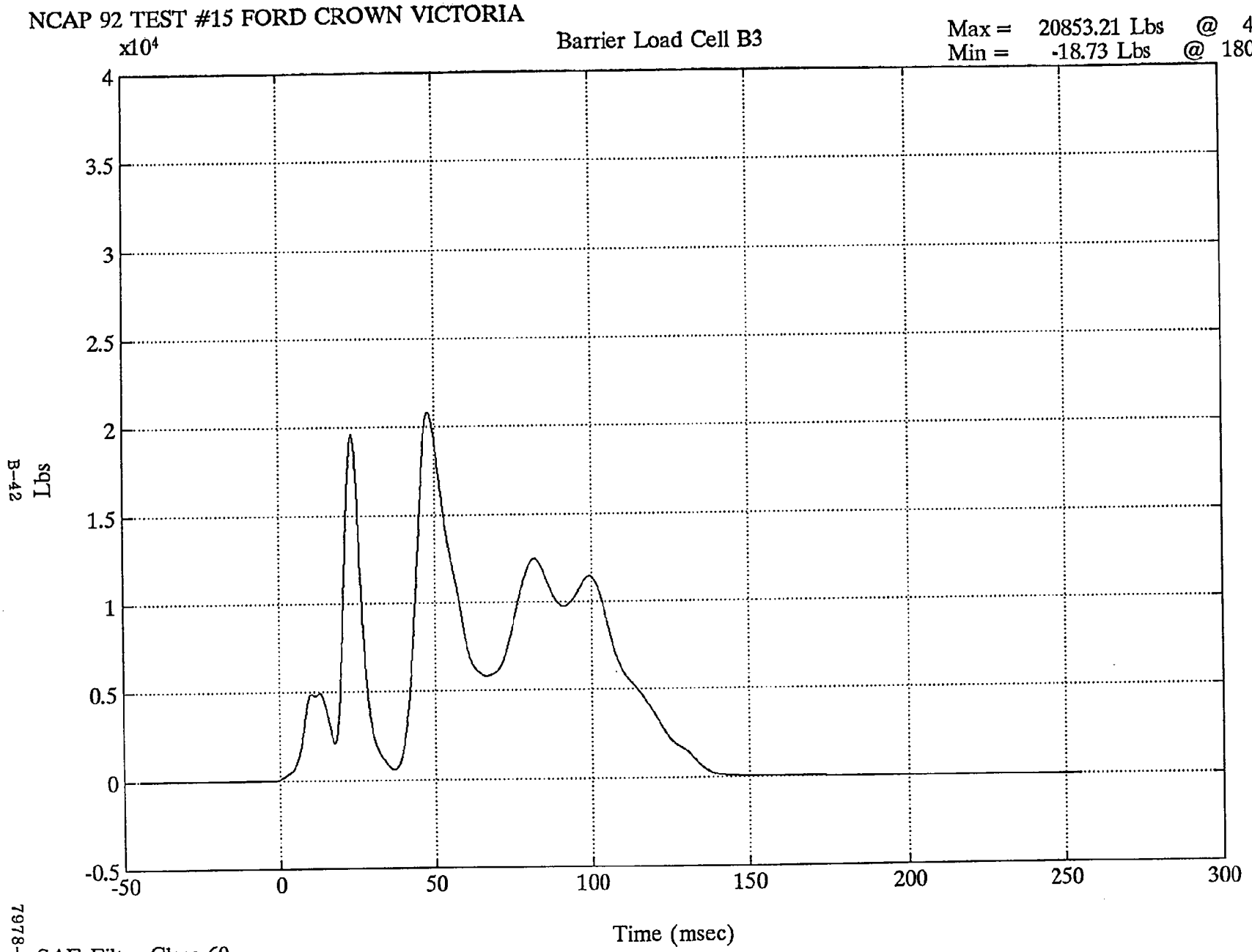


B-41

7978-5

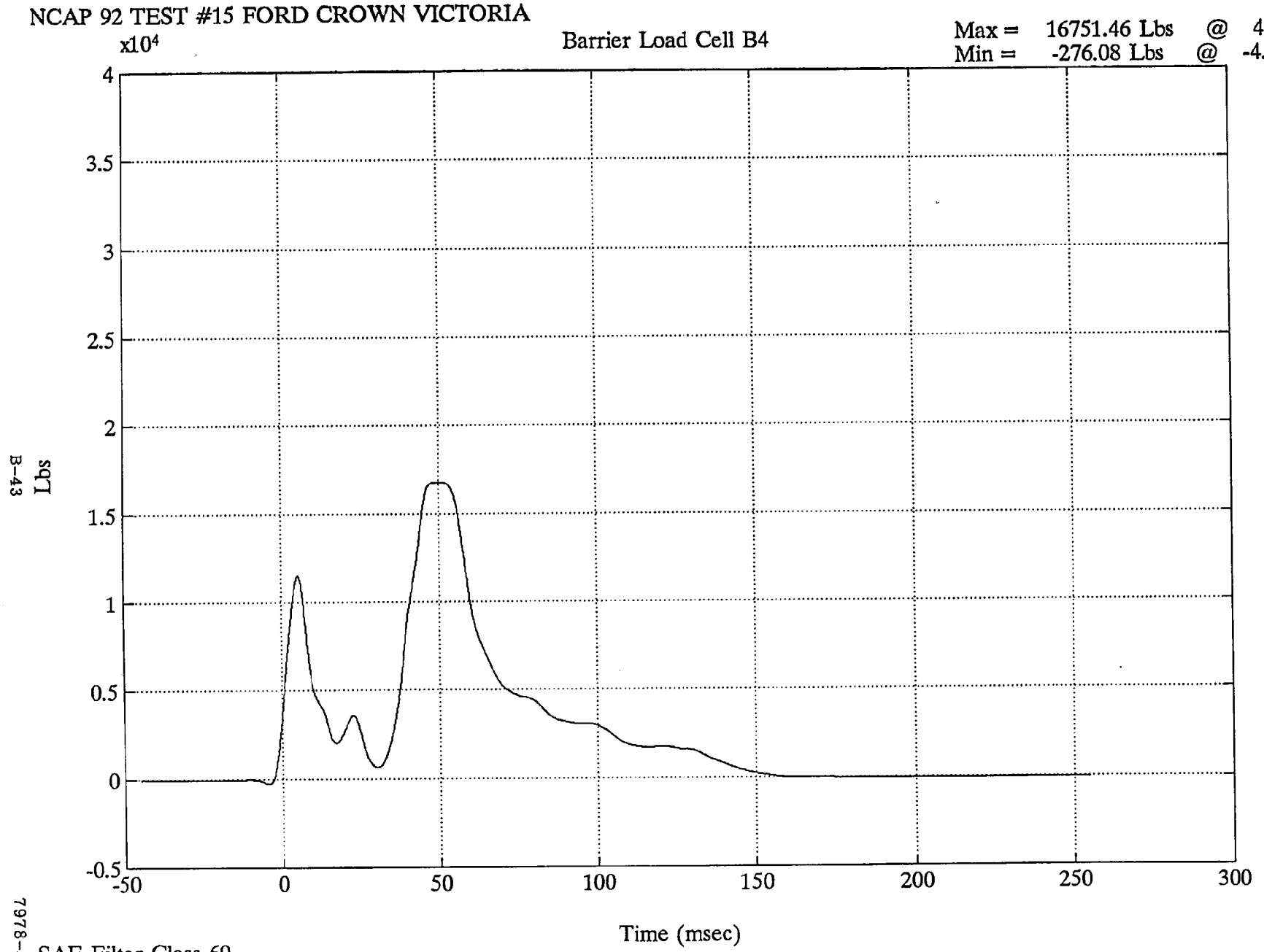
SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

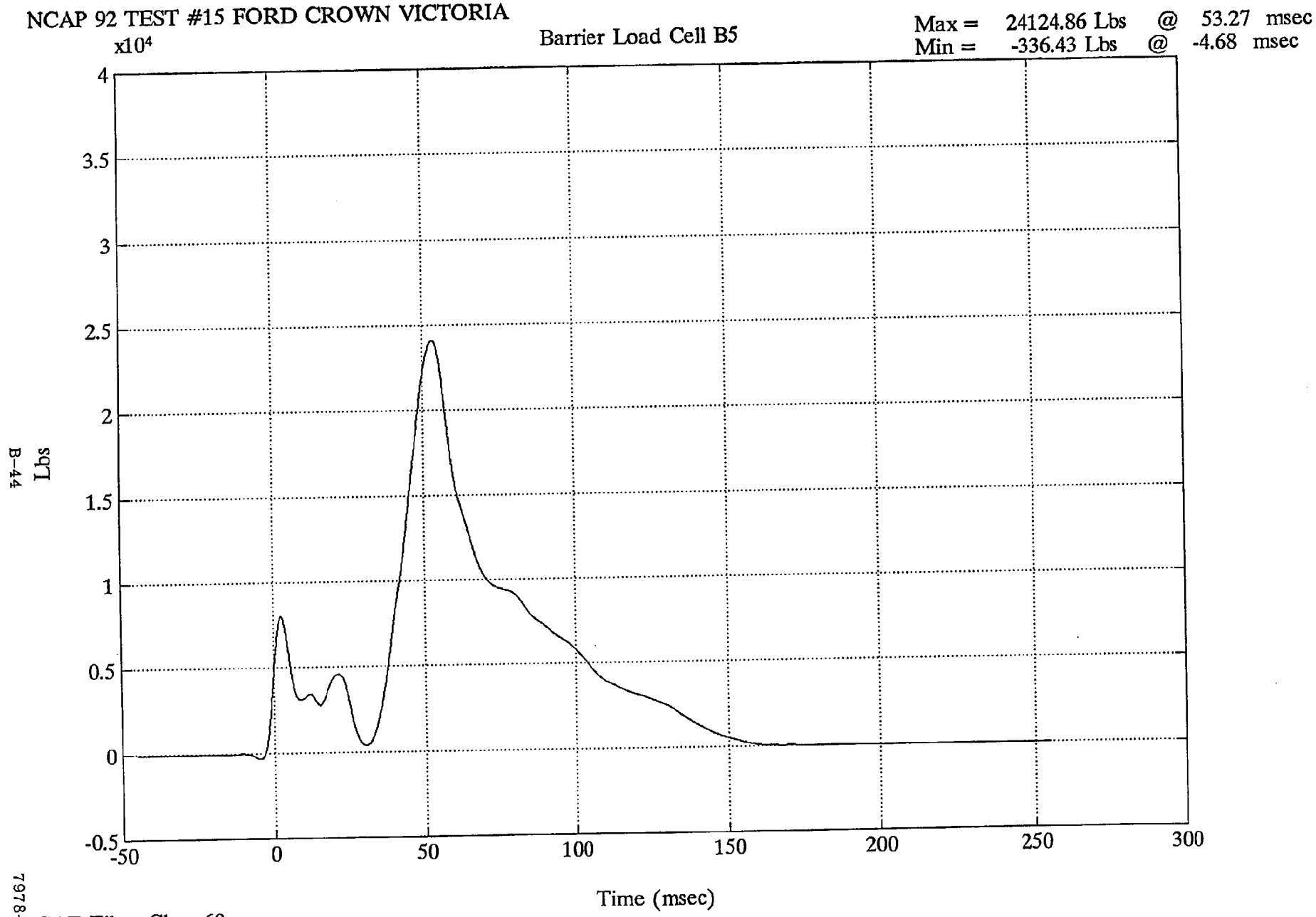


SAE Filter Class 60

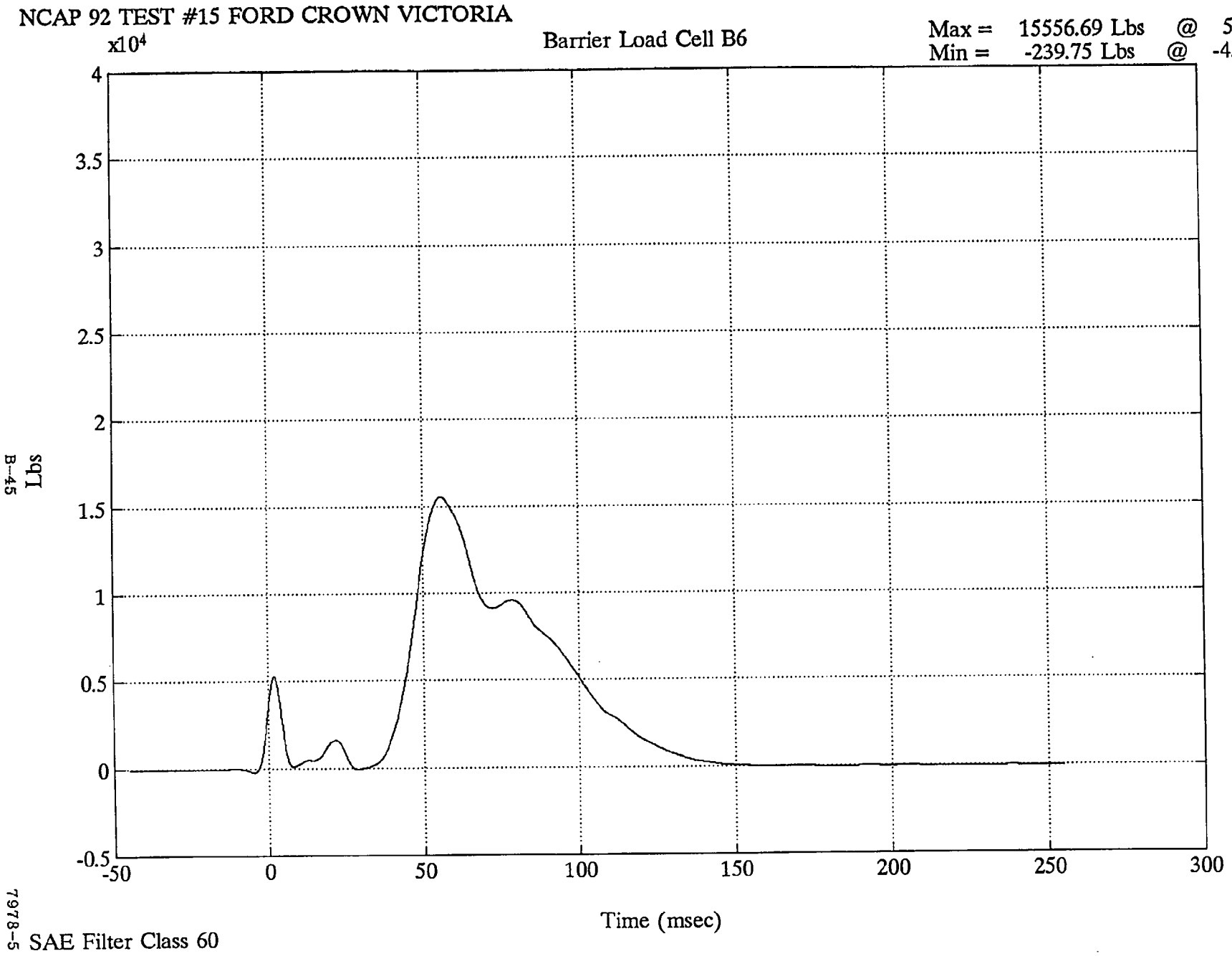
NCAP 92 TEST #15 FORD CROWN VICTORIA



SAE Filter Class 60


NCAP 92 TEST #15 FORD CROWN VICTORIA
Barrier Load Cell B5
Max = 24124.86 Lbs @ 53.27 msec
Min = -336.43 Lbs @ -4.68 msec
x10^4
4
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
-50
0
50
100
150
200
250
300
Lbs
Time (msec)
SAE Filter Class 60
7978-5

NCAP 92 TEST #15 FORD CROWN VICTORIA



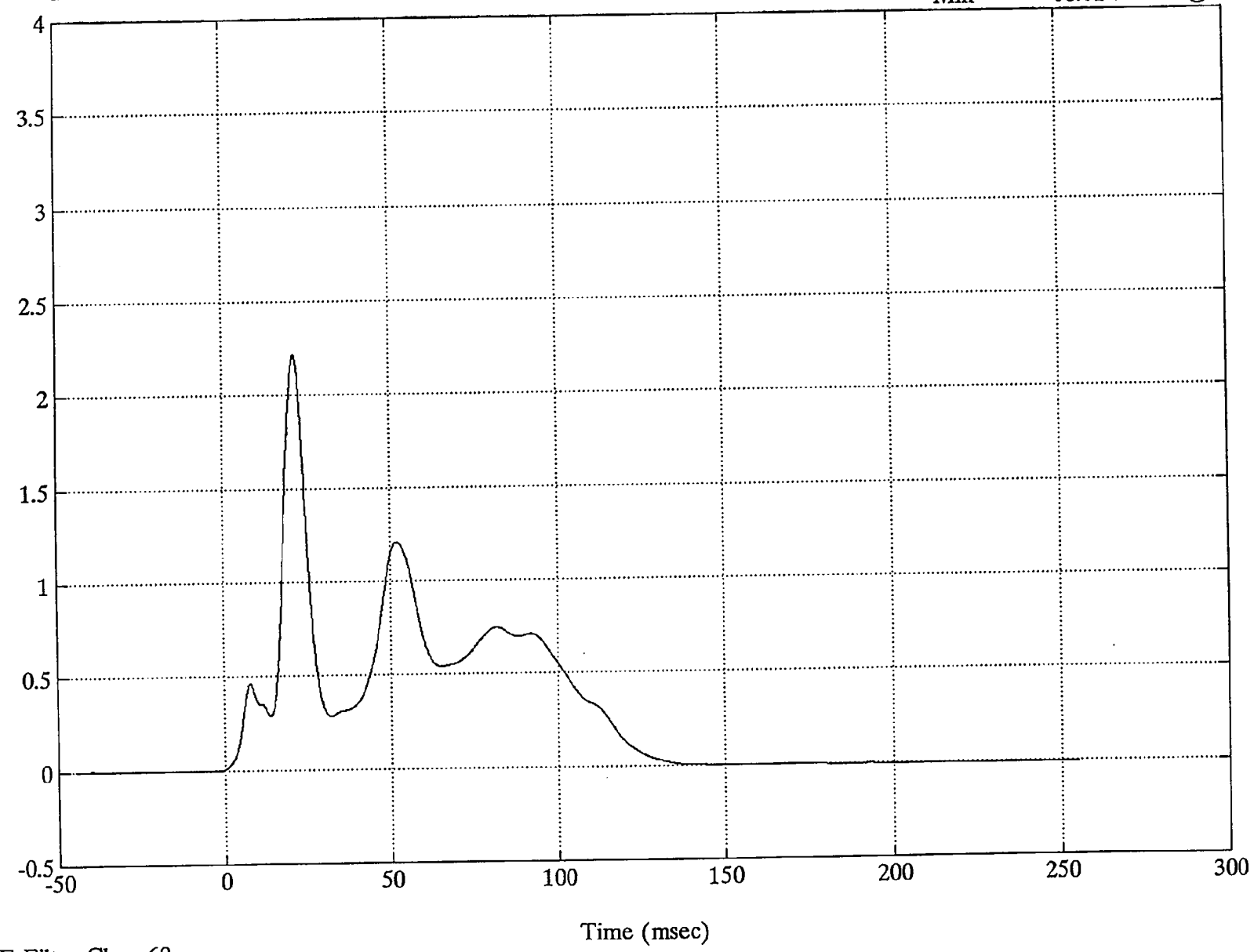
B-45

7978-5 SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Barrier Load Cell B7

Max = 22170.37 Lbs @ 21.47 msec
Min = -68.01 Lbs @ 228.36 msec

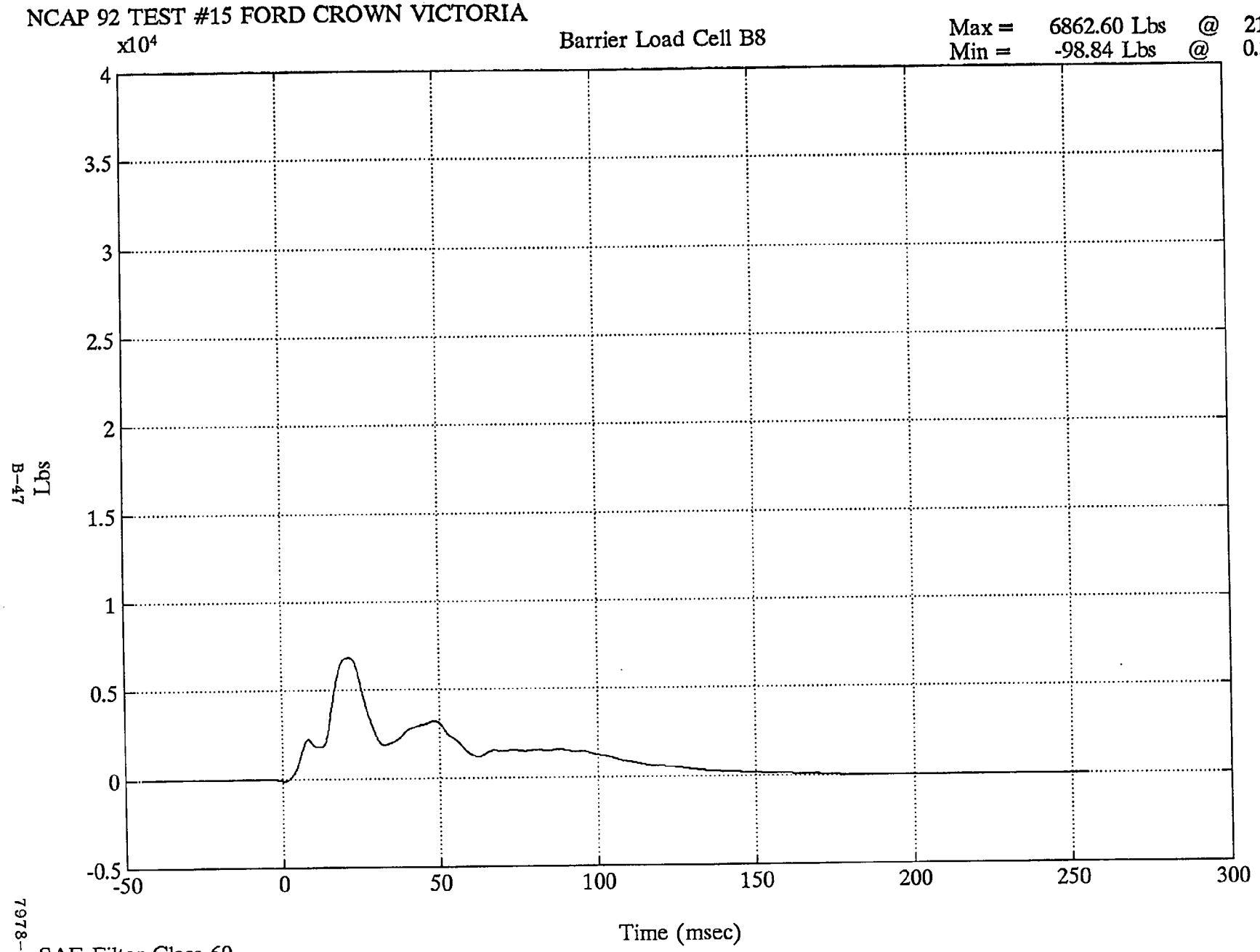


B-46

7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA



B-47

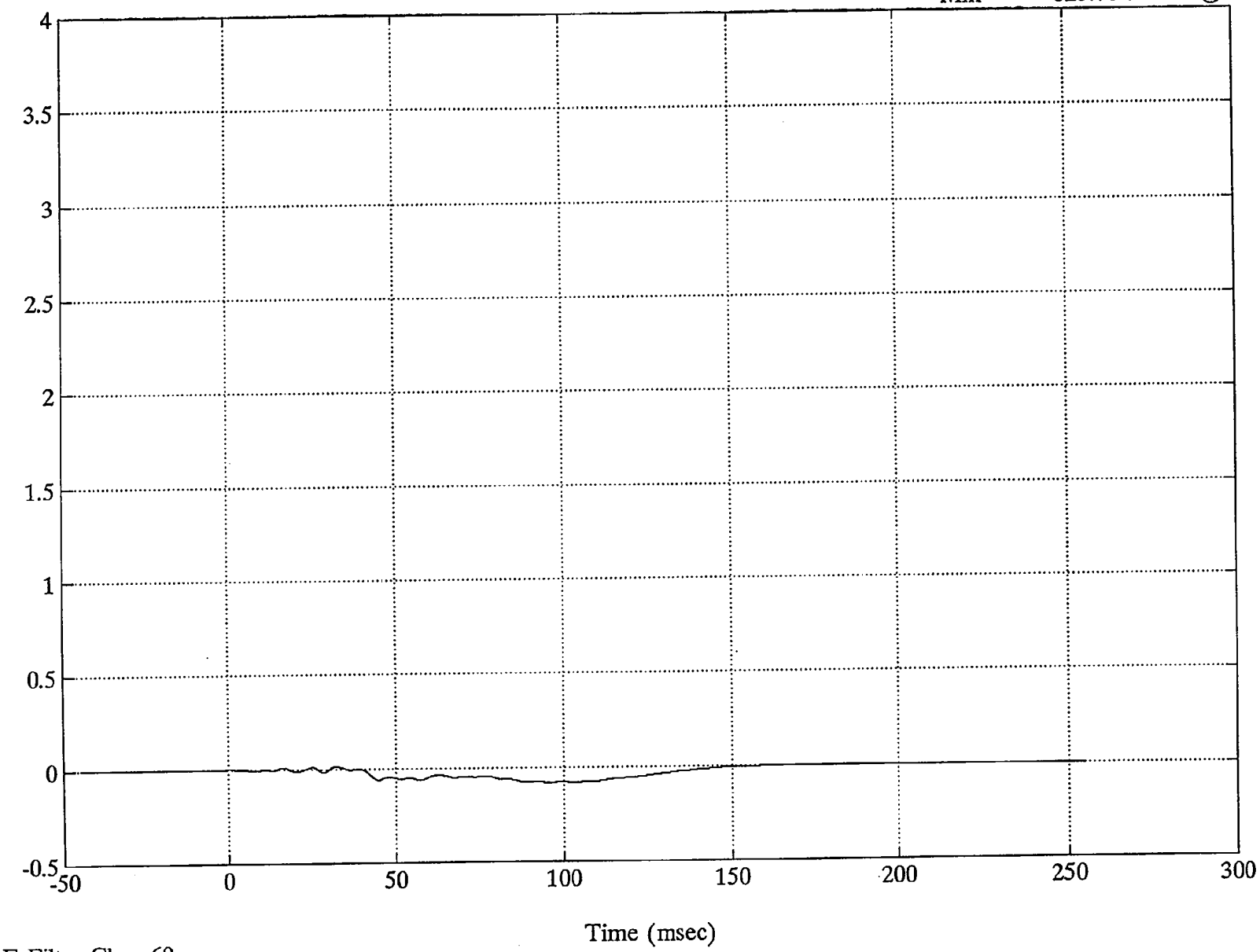
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Barrier Load Cell B9

Max = 141.81 Lbs @ 32.15 msec
Min = -825.78 Lbs @ 103.08 msec

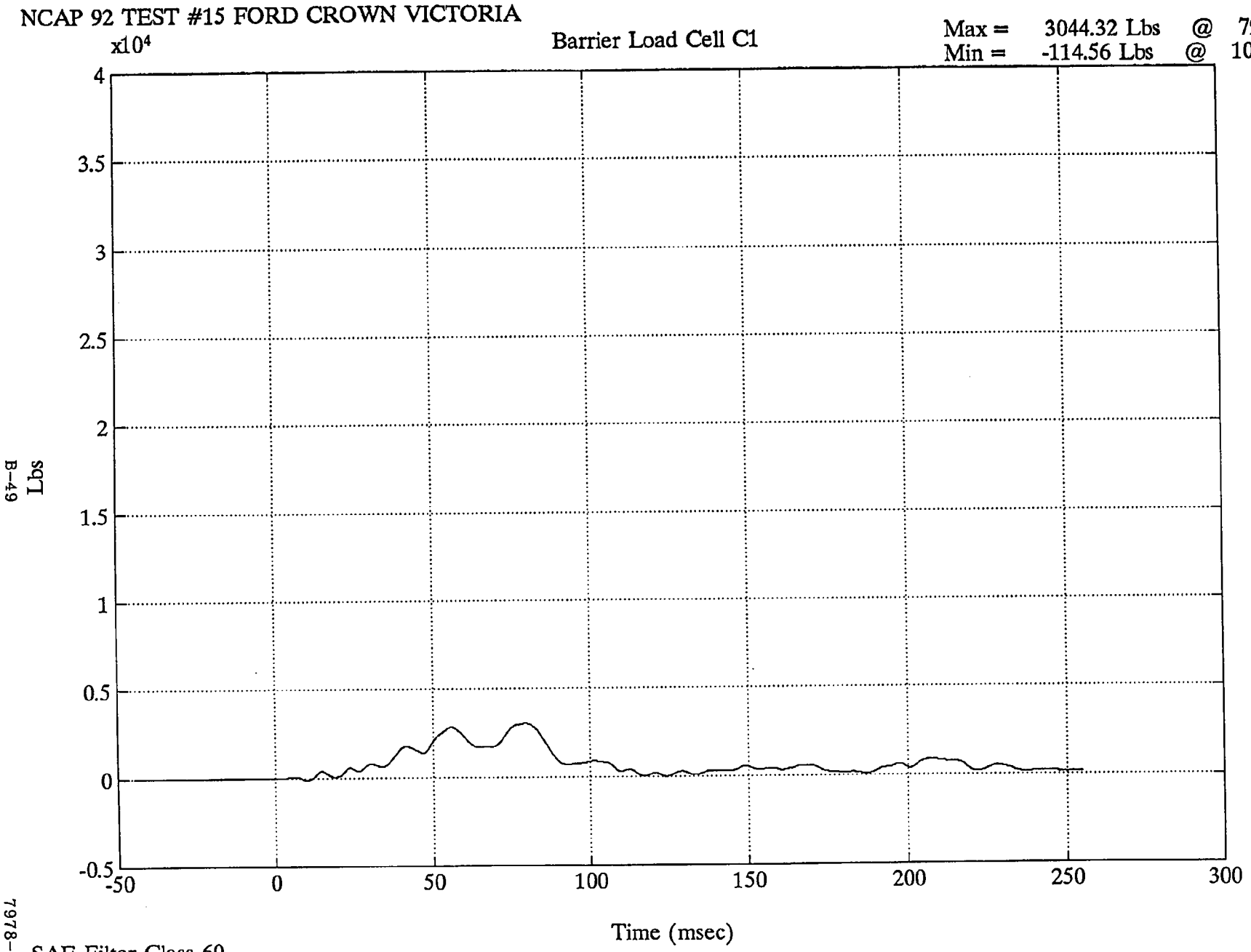


B-48

7978-5

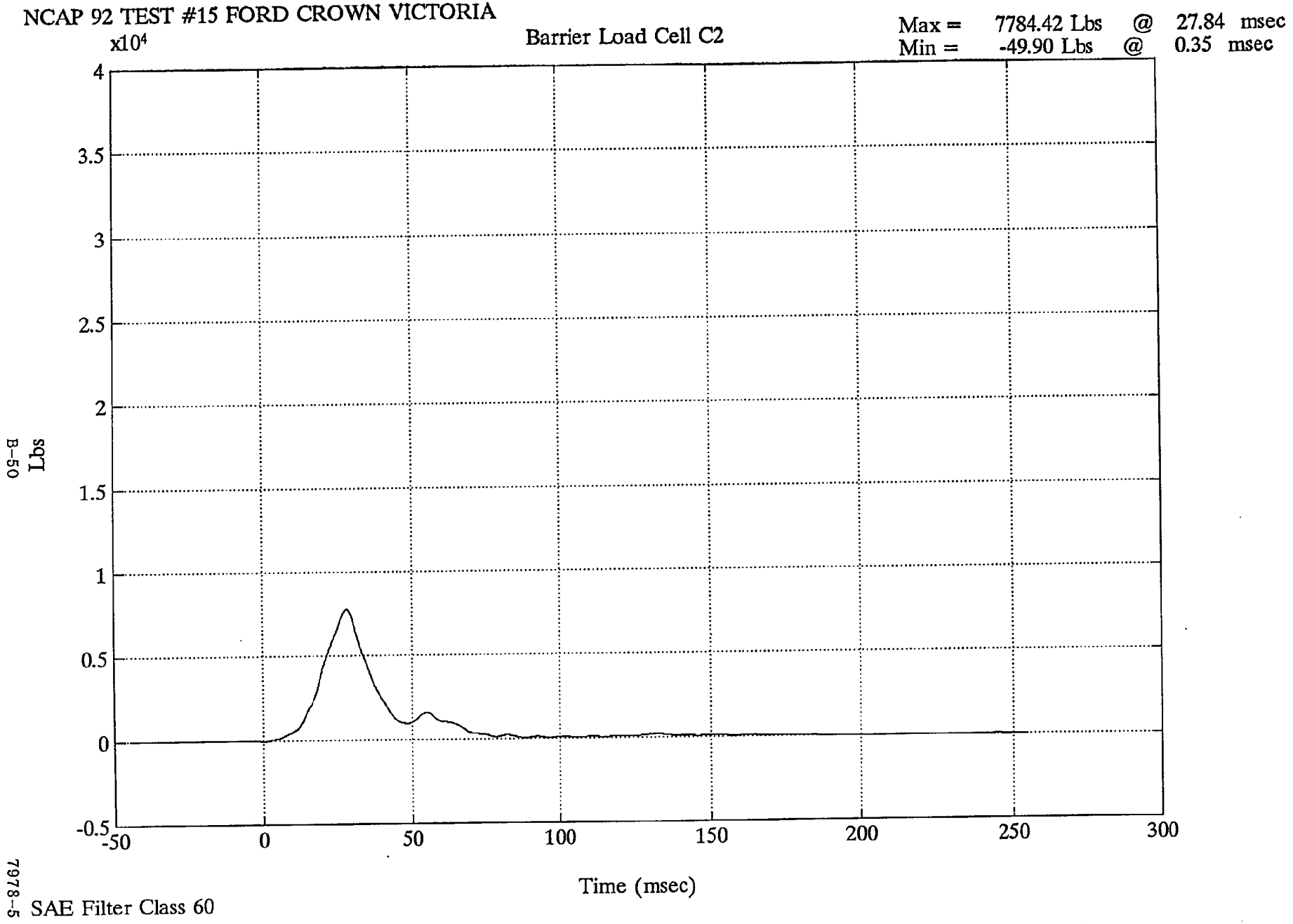
SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA



SAE Filter Class 60

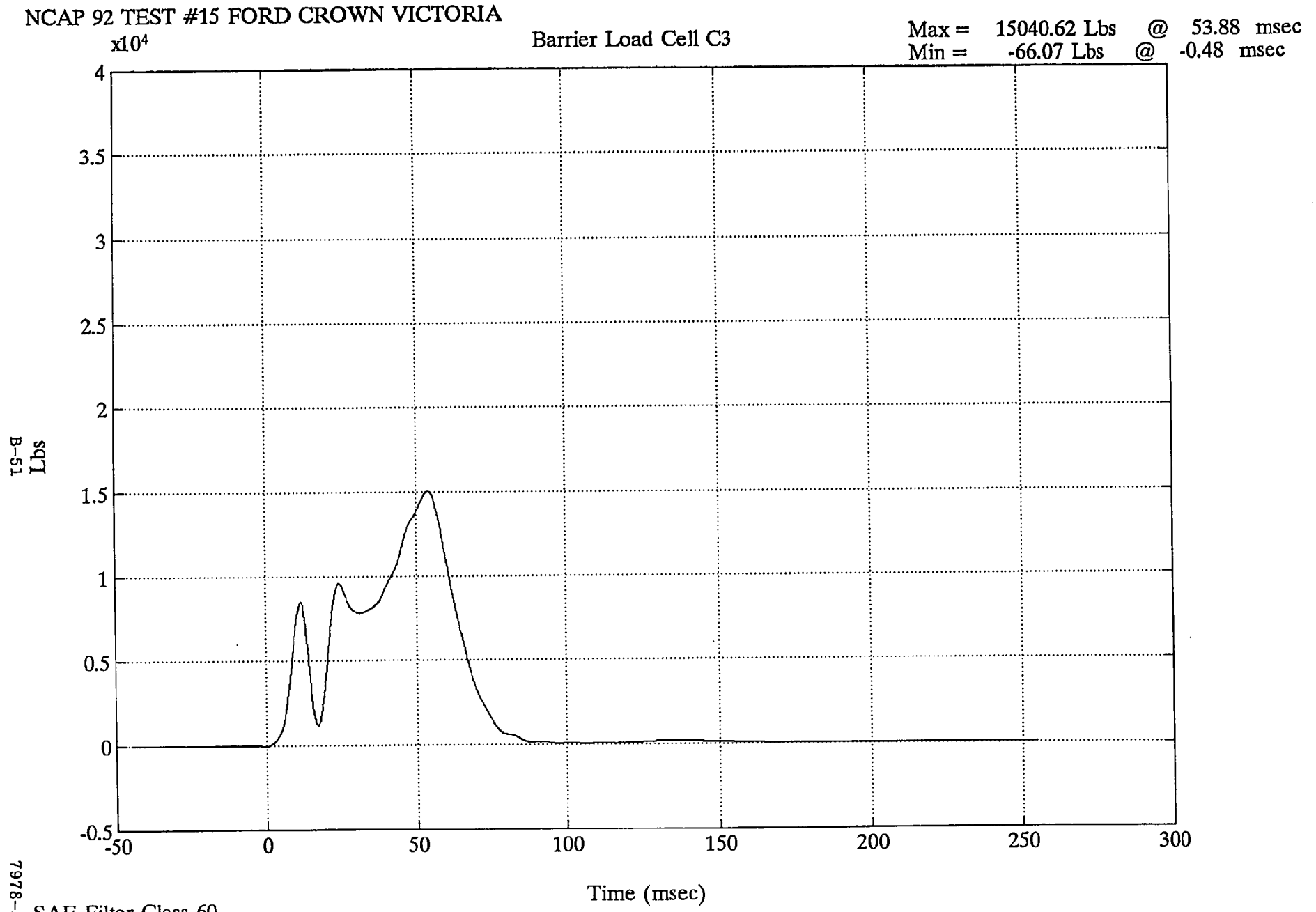
NCAP 92 TEST #15 FORD CROWN VICTORIA



B-50

7978-5 SAE Filter Class 60

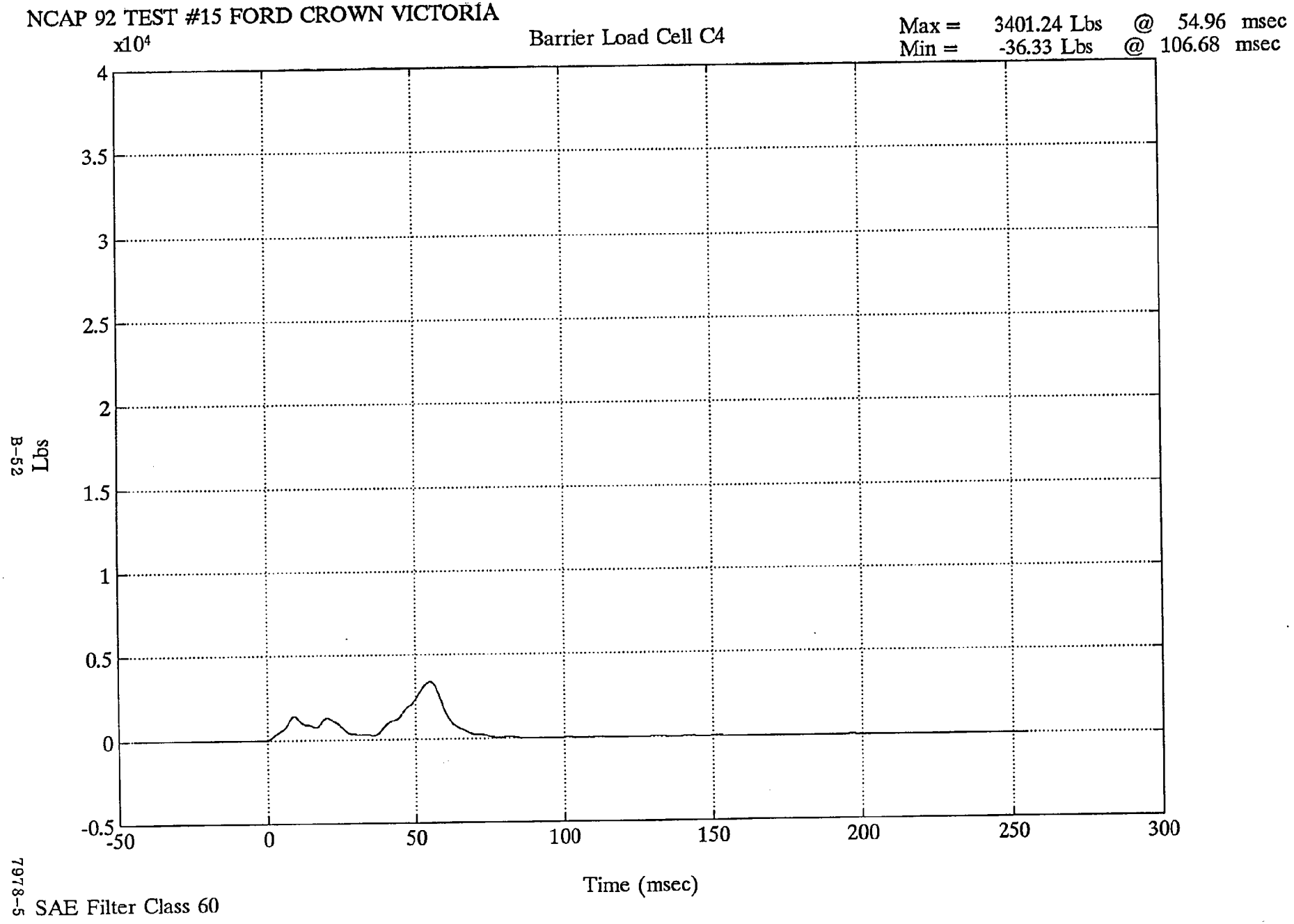
NCAP 92 TEST #15 FORD CROWN VICTORIA



B-51

7978-5 SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

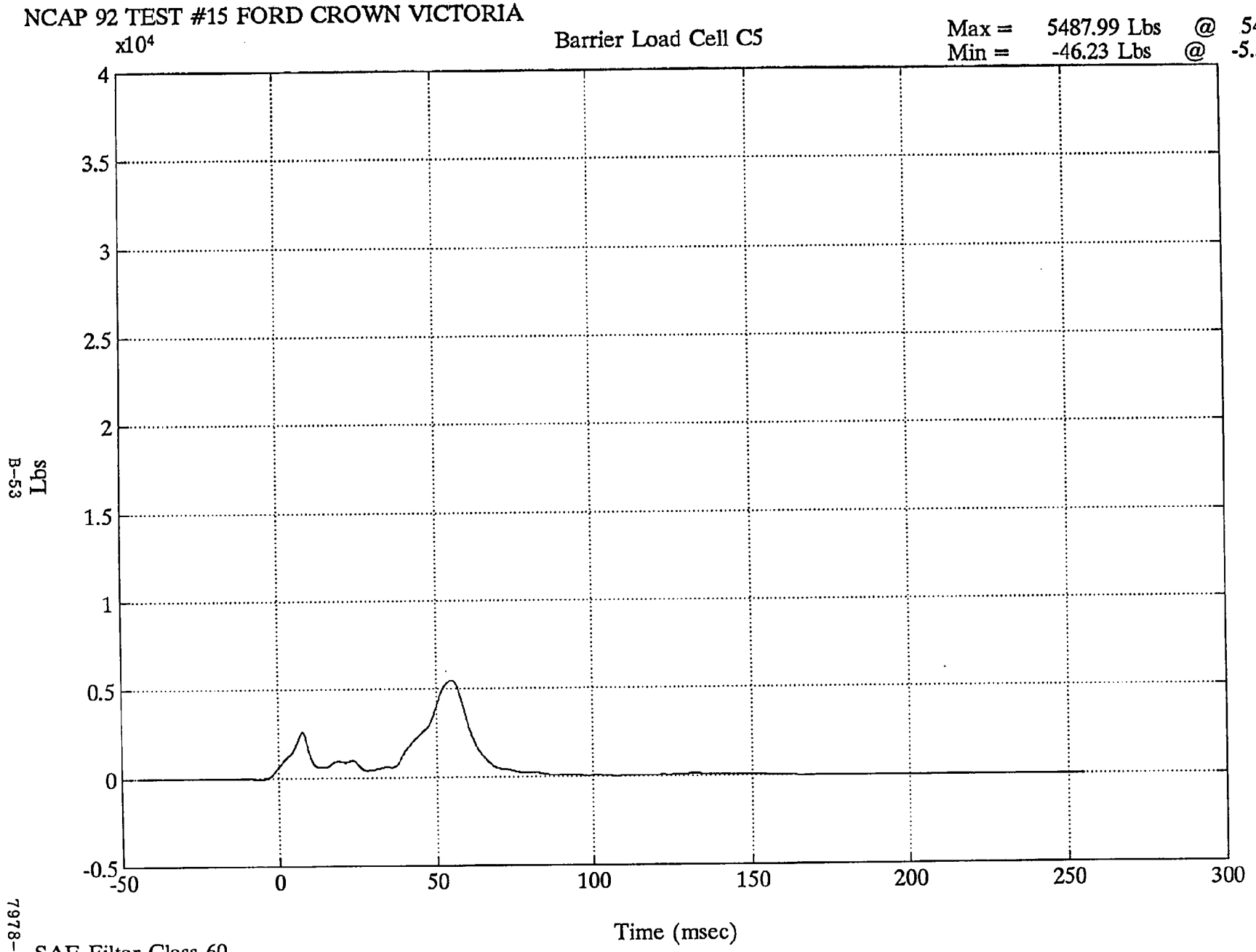


B-52

7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

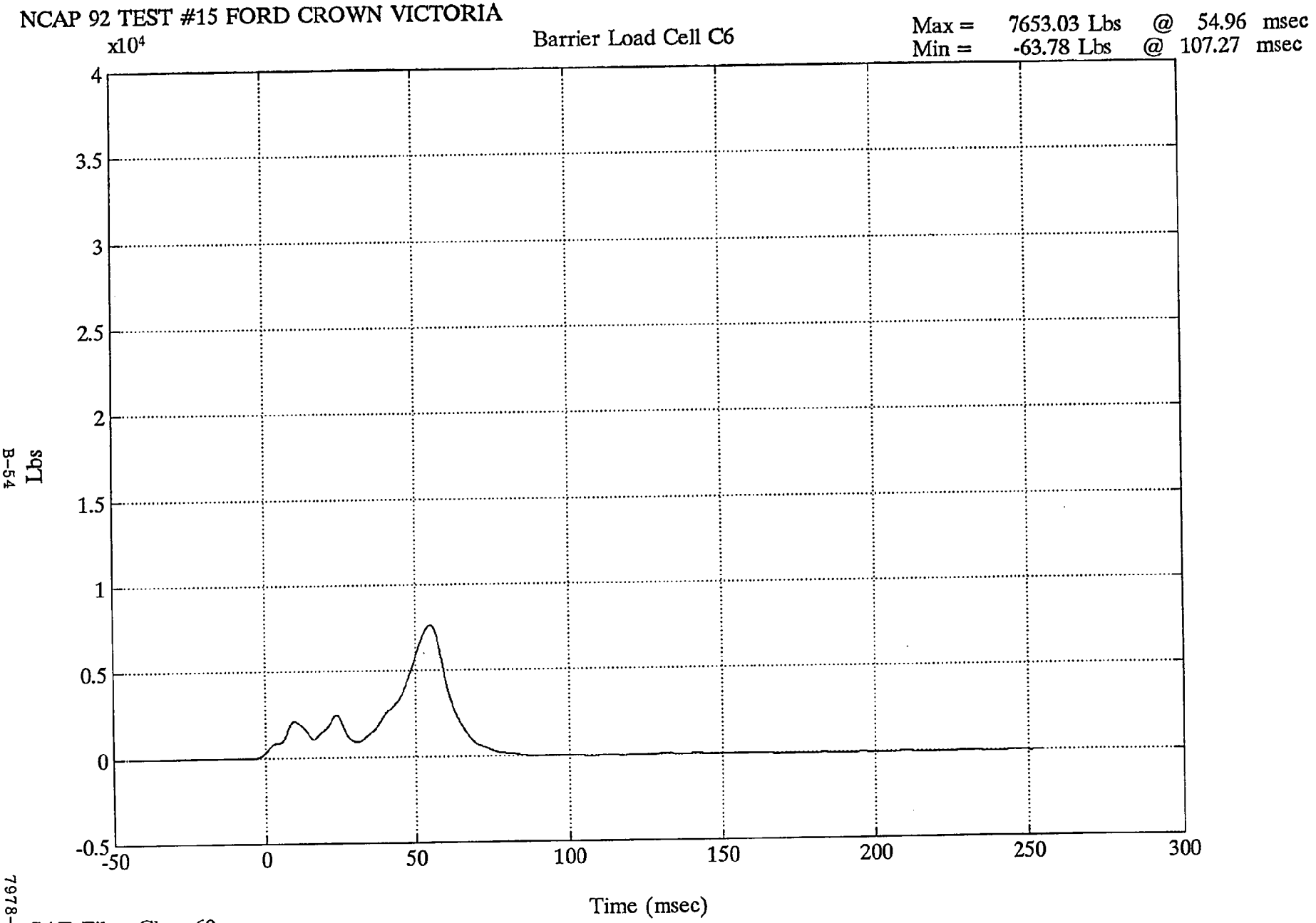


B-53

7978-5

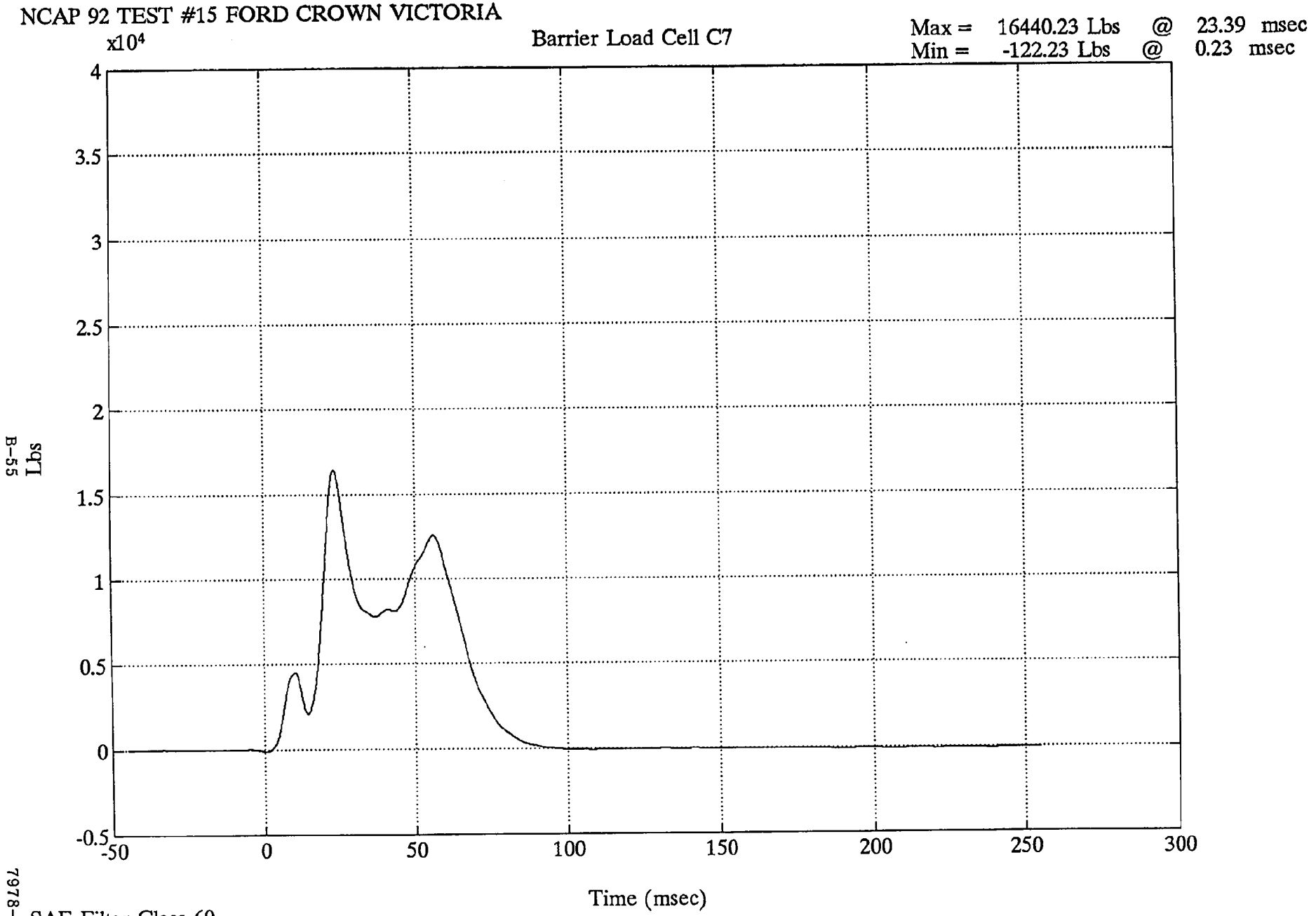
SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA



SAE Filter Class 60

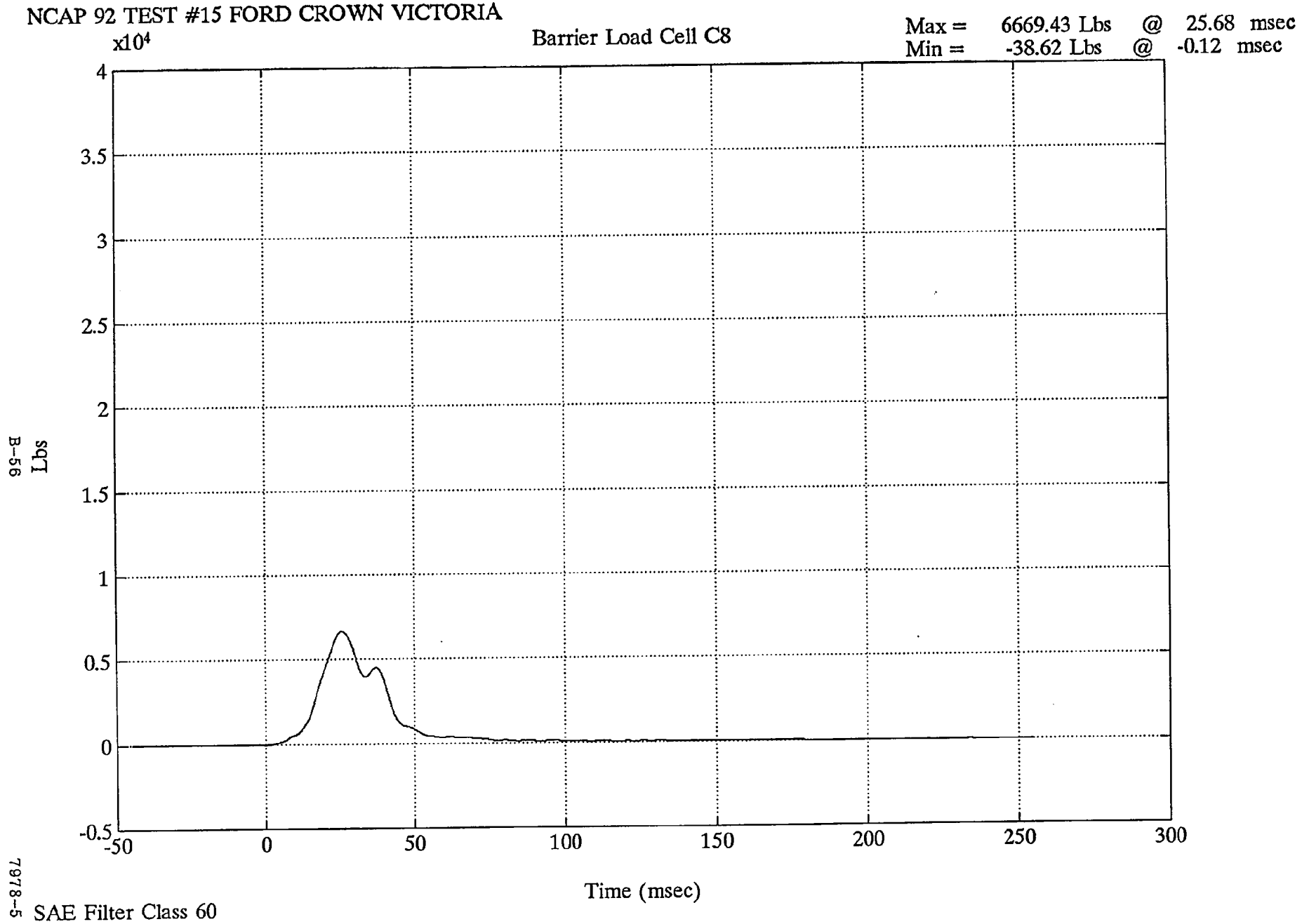
NCAP 92 TEST #15 FORD CROWN VICTORIA



B-55

7978-5 SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

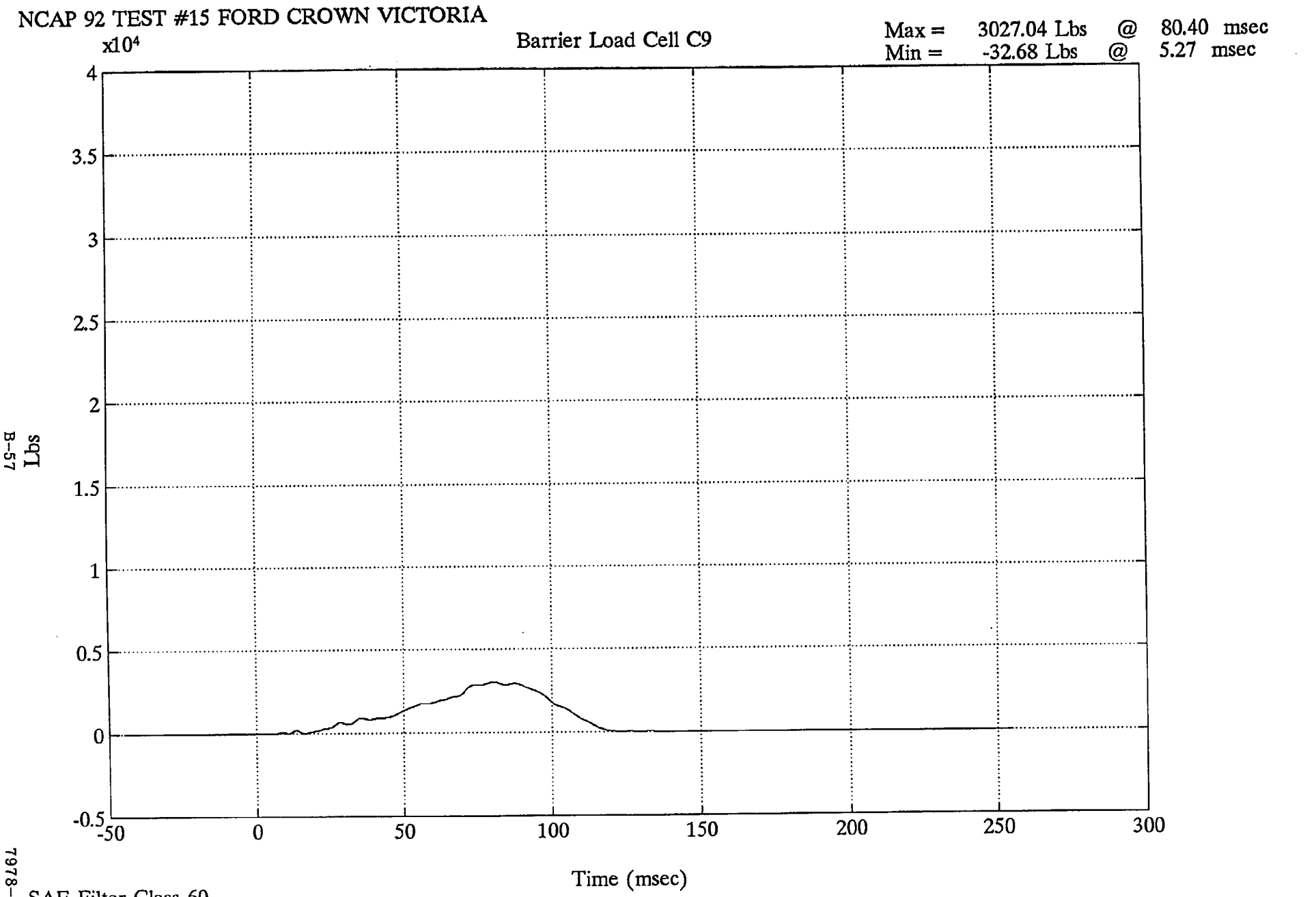


B-56

7178-5

SAE Filter Class 60

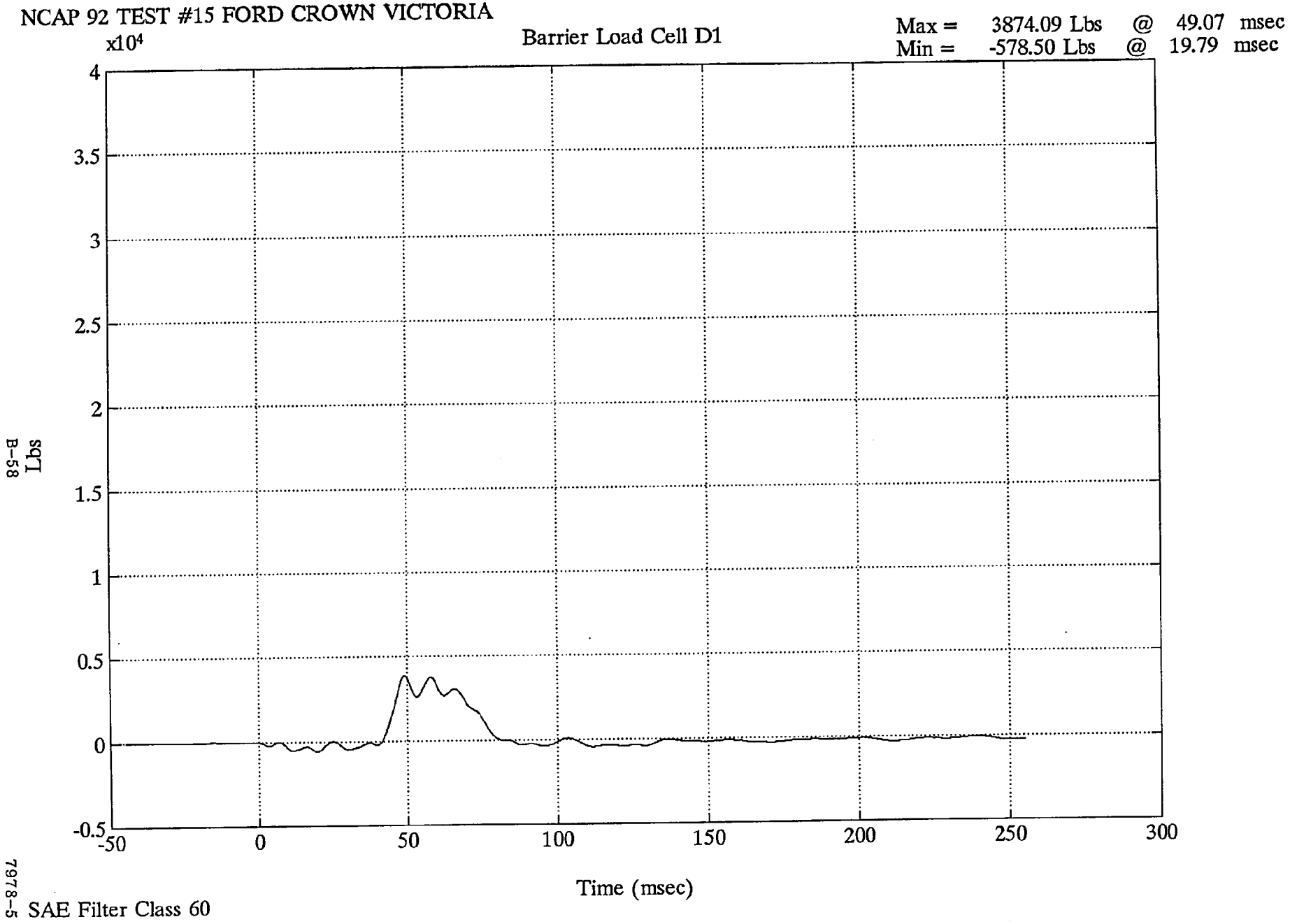
NCAP 92 TEST #15 FORD CROWN VICTORIA



B-57

7978-5 SAE Filter Class 60

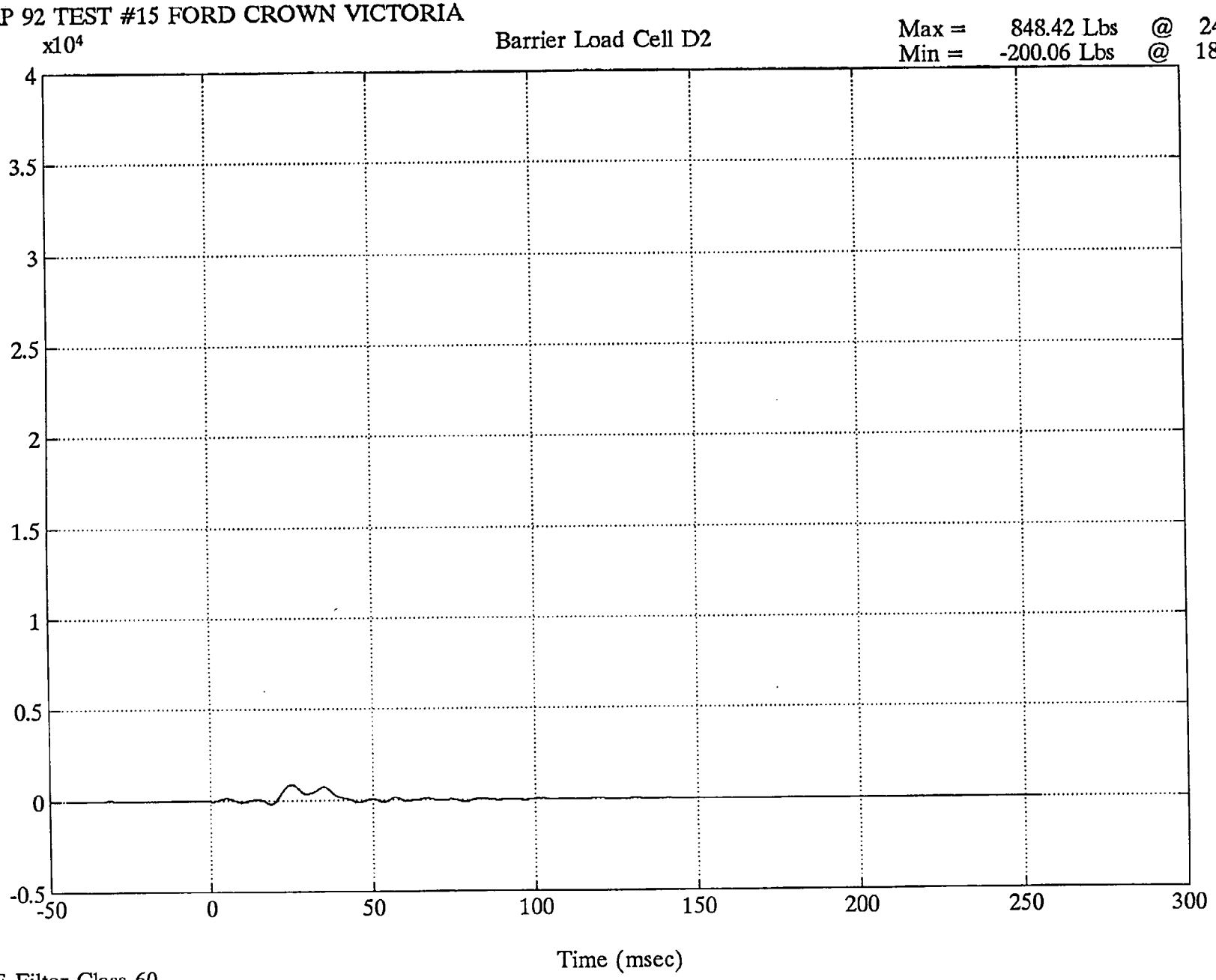
NCAP 92 TEST #15 FORD CROWN VICTORIA



B-58

7678-5 SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA



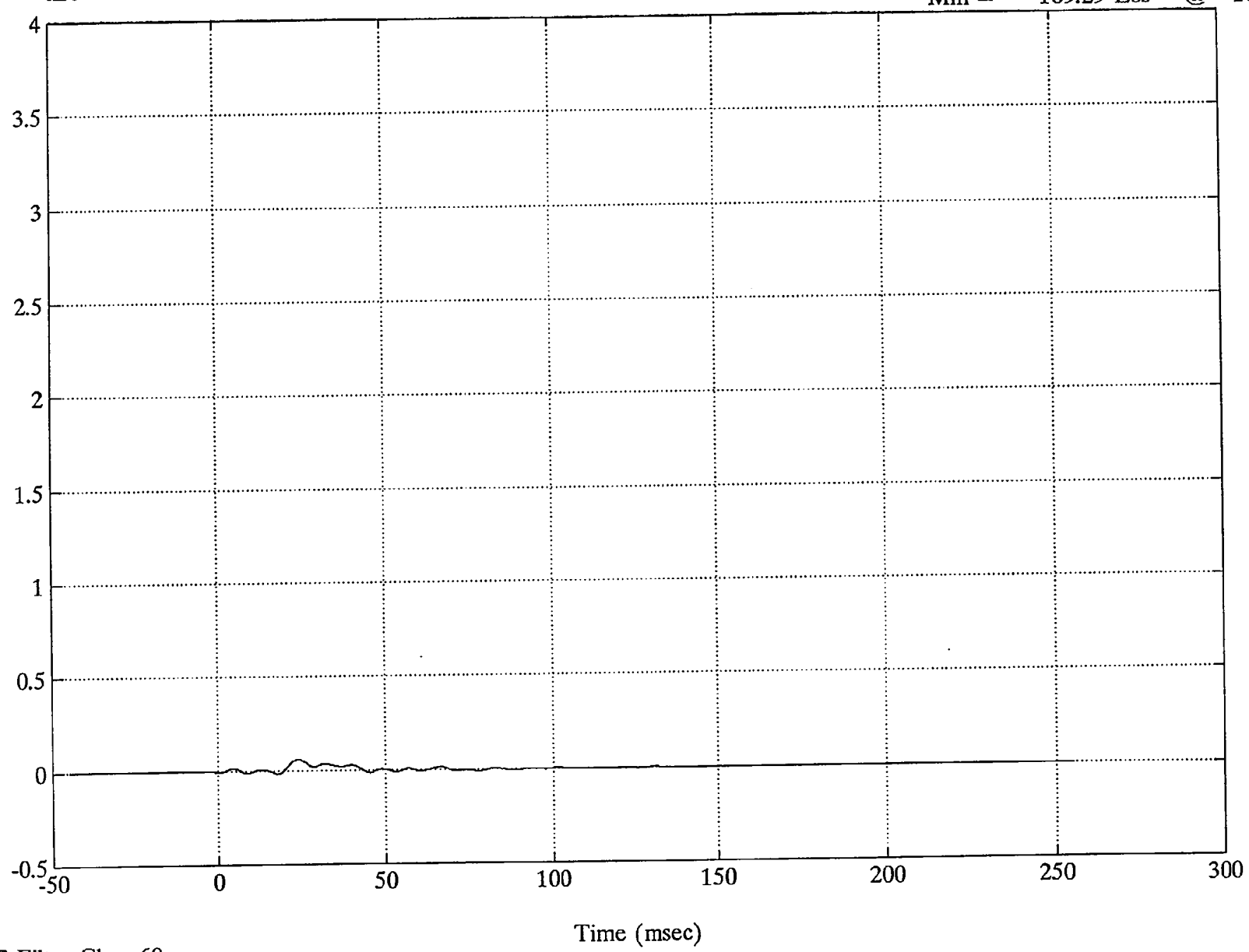
SAE Filter Class 60

7978-5

NCAP 92 TEST #15 FORD CROWN VICTORIA

Barrier Load Cell D3

Max = 587.24 Lbs @ 23.87 msec
Min = -169.29 Lbs @ 18.00 msec

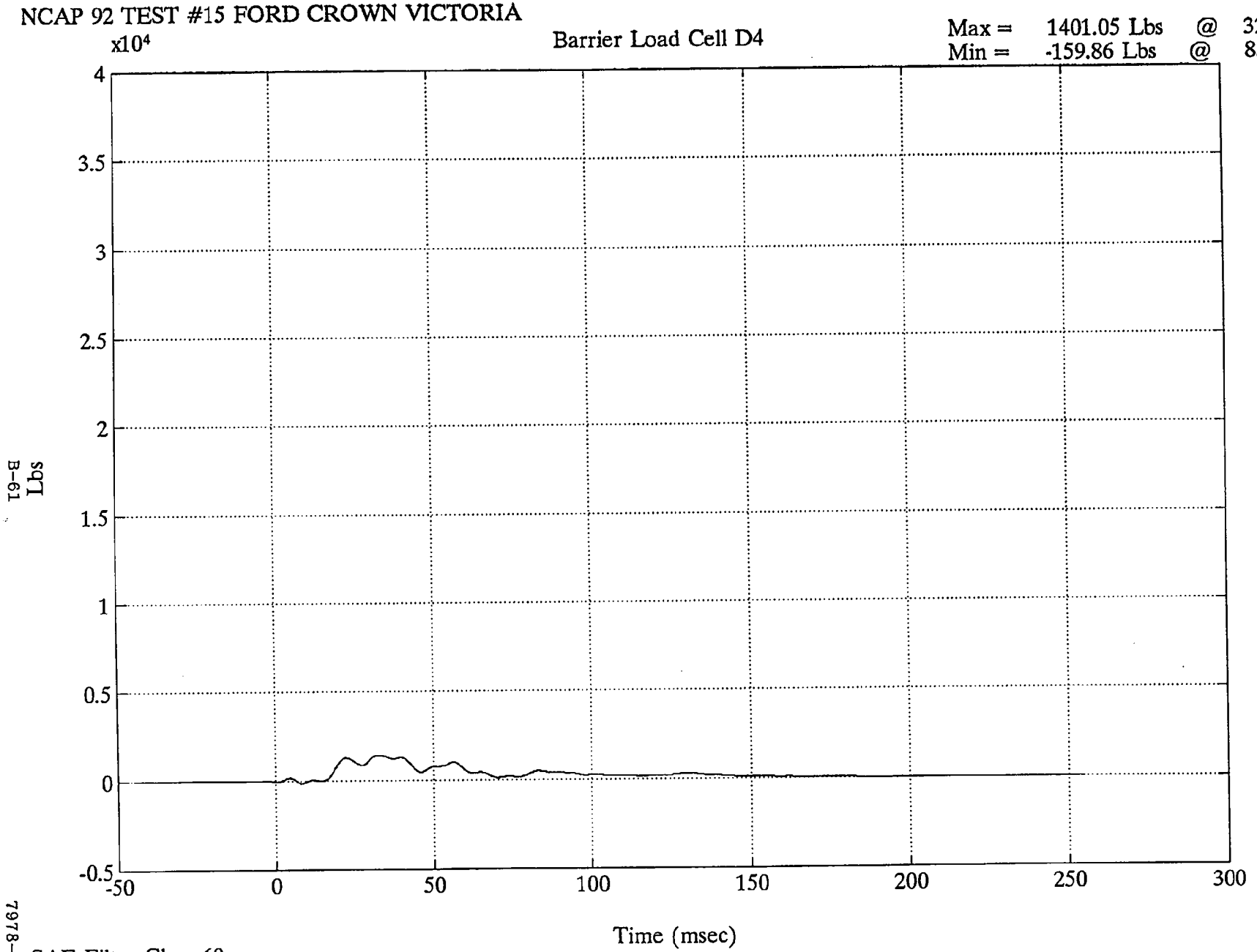


B-60

7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA



B-61

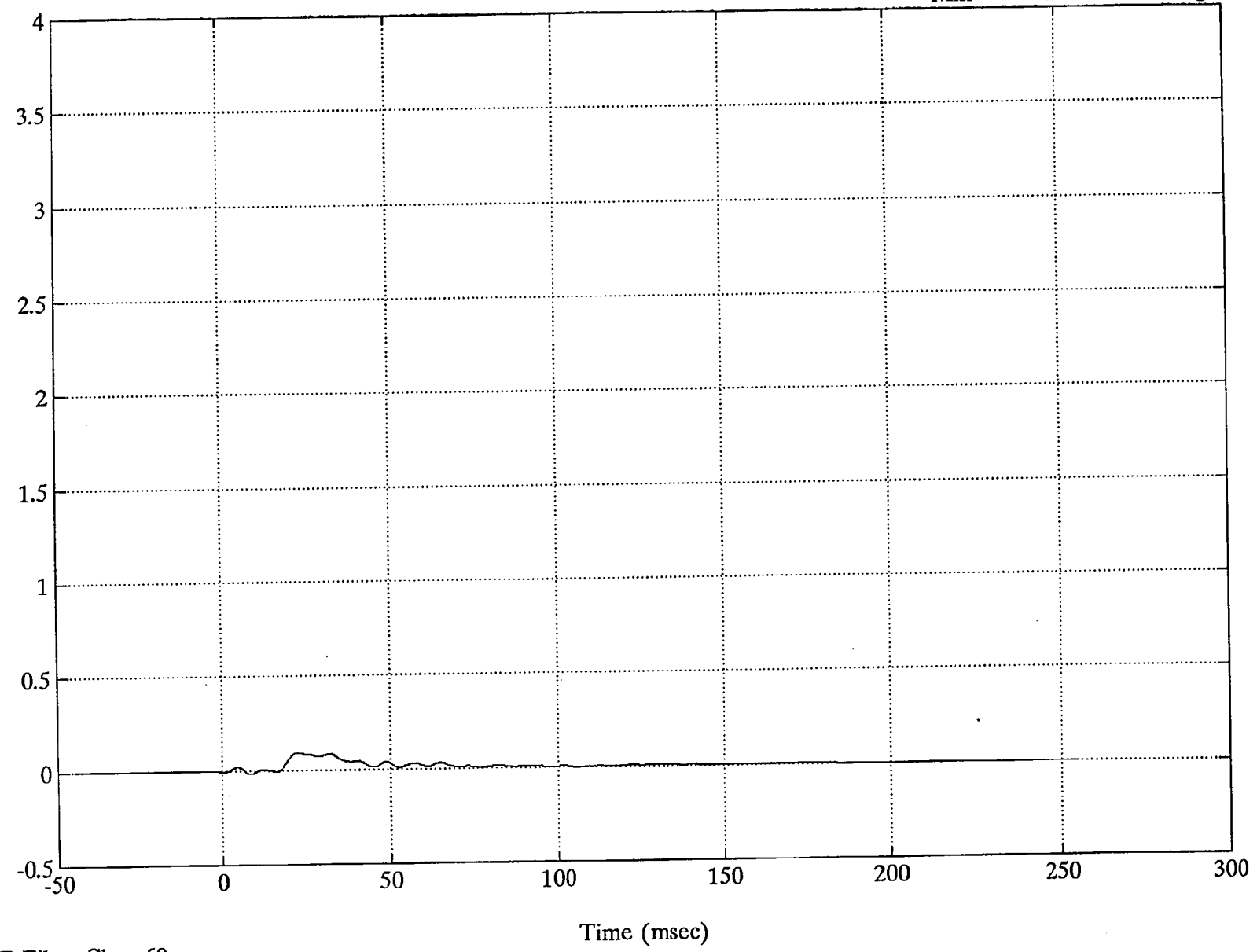
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Barrier Load Cell D5

Max = 920.50 Lbs @ 22.31 msec
Min = -176.02 Lbs @ 8.27 msec

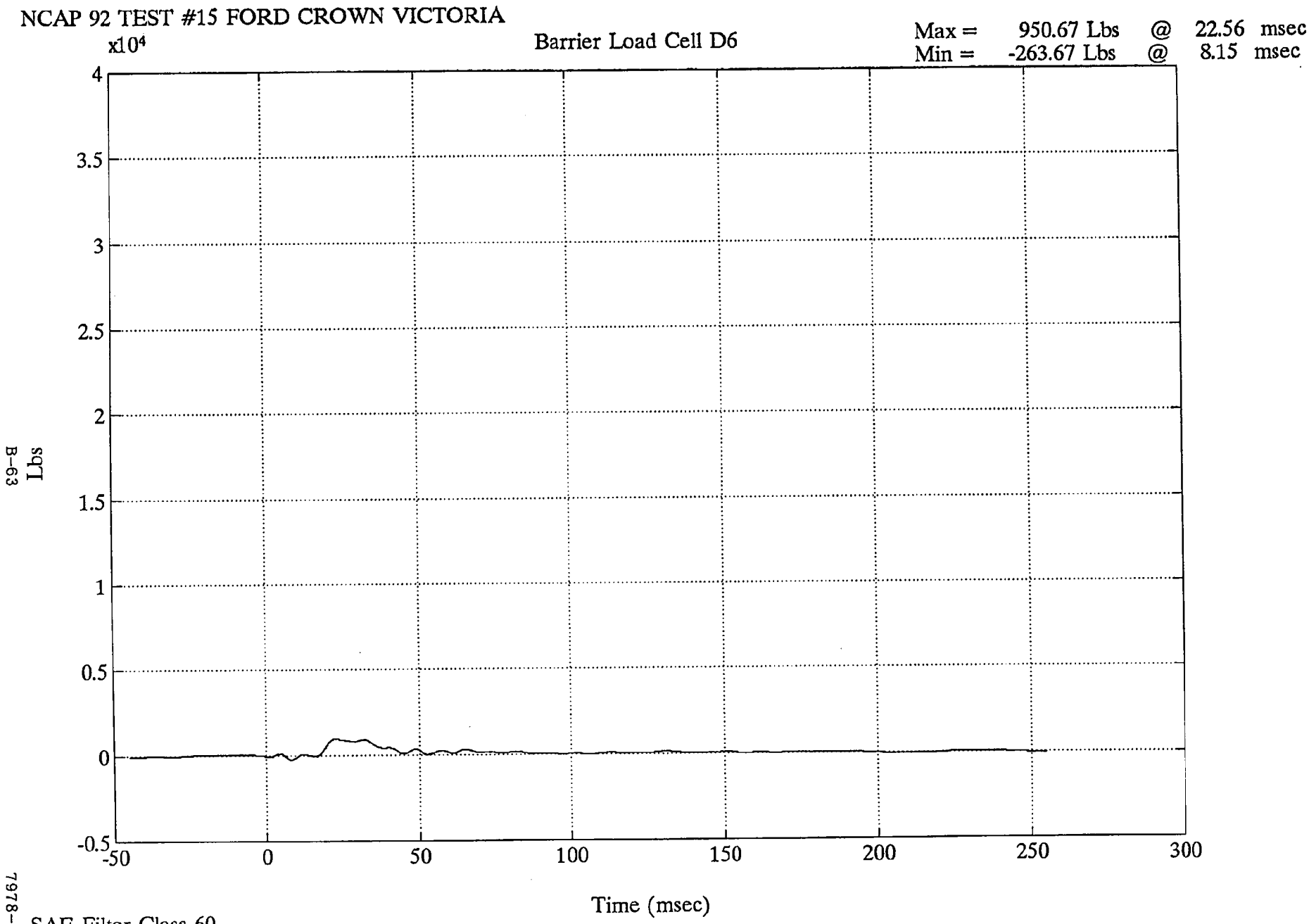


B-62

7978-5

SAE Filter Class 60

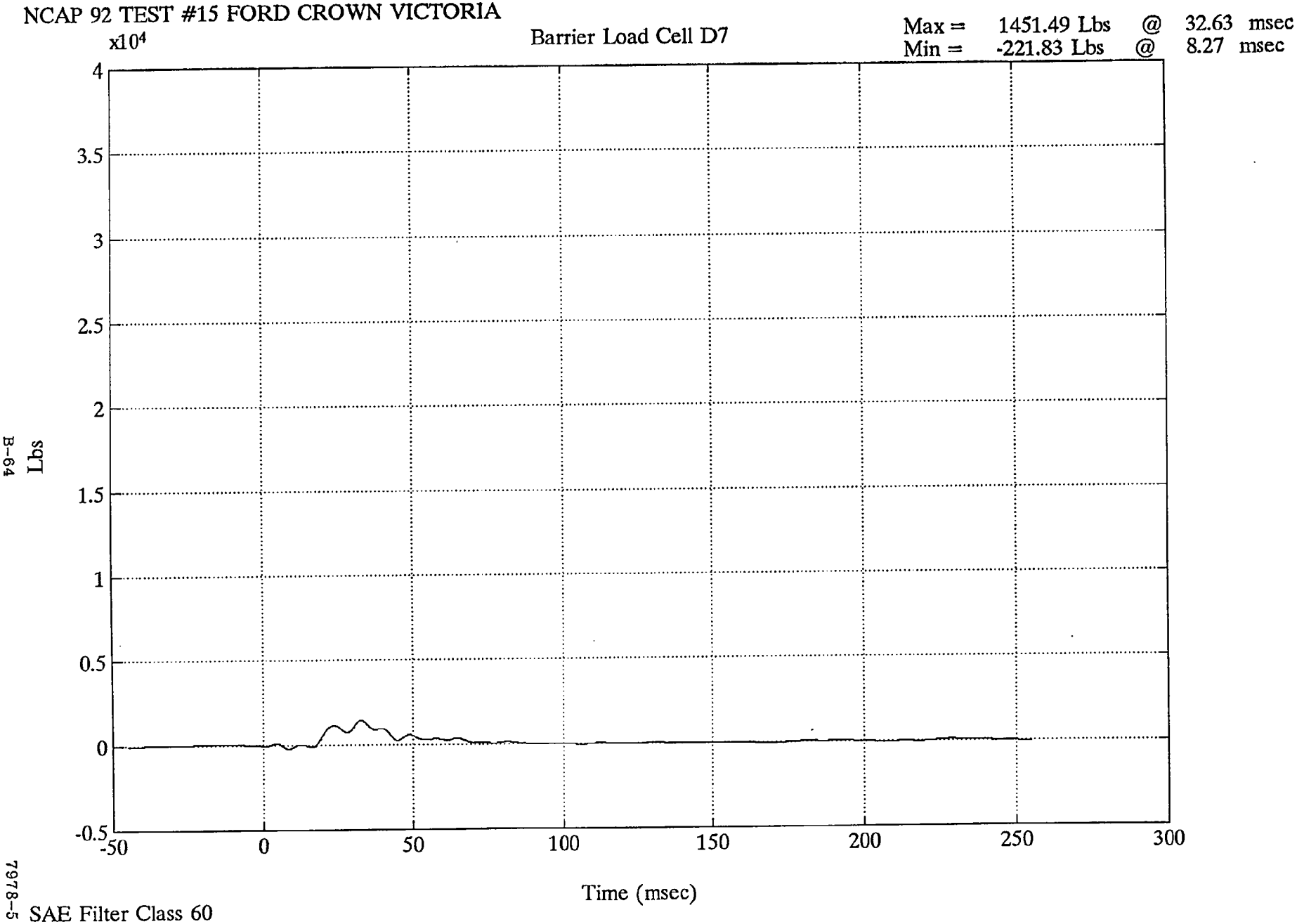
NCAP 92 TEST #15 FORD CROWN VICTORIA



B-63

7978-5 SAE Filter Class 60

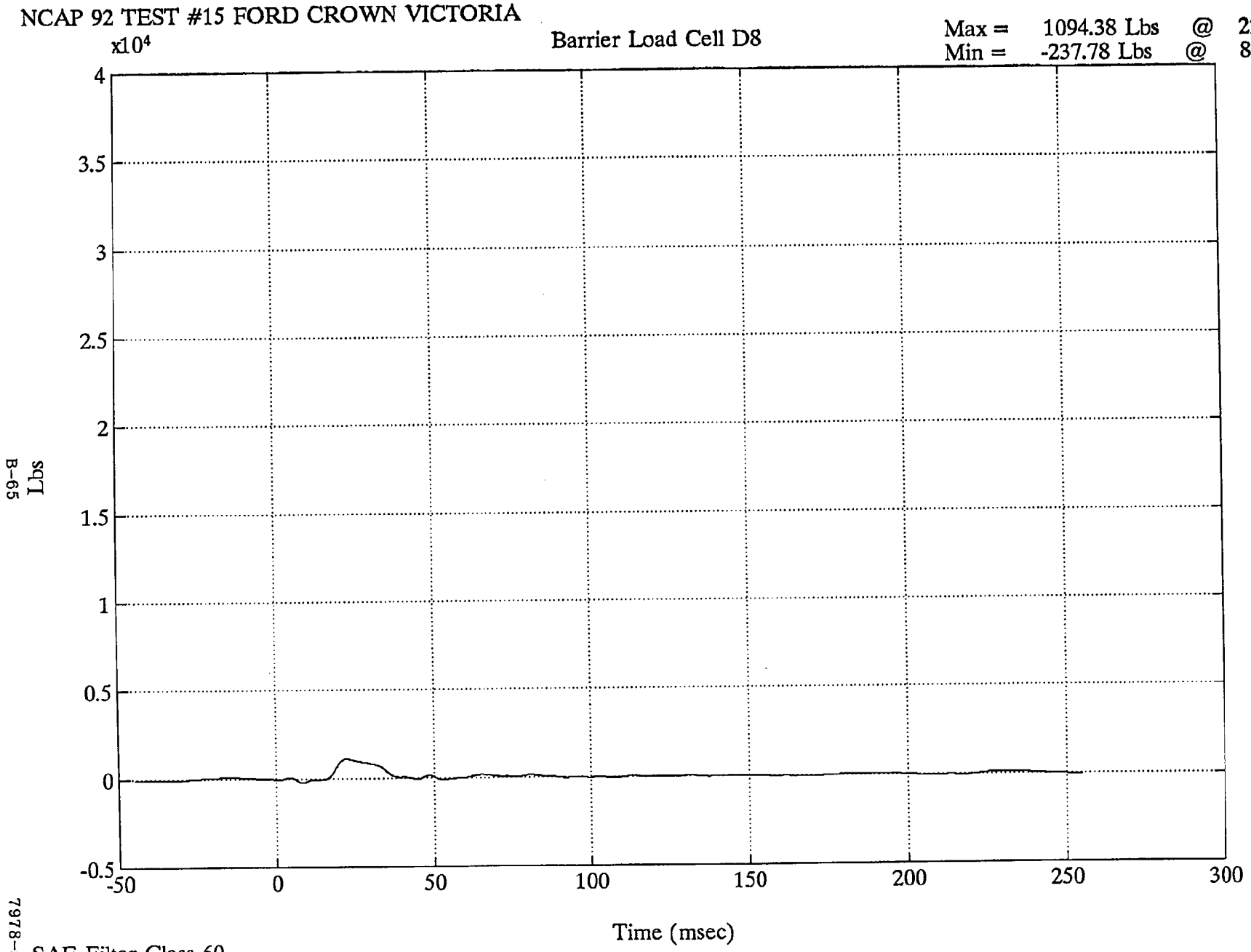
NCAP 92 TEST #15 FORD CROWN VICTORIA



SAE Filter Class 60

7978-5

NCAP 92 TEST #15 FORD CROWN VICTORIA



B-65

7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

B-66

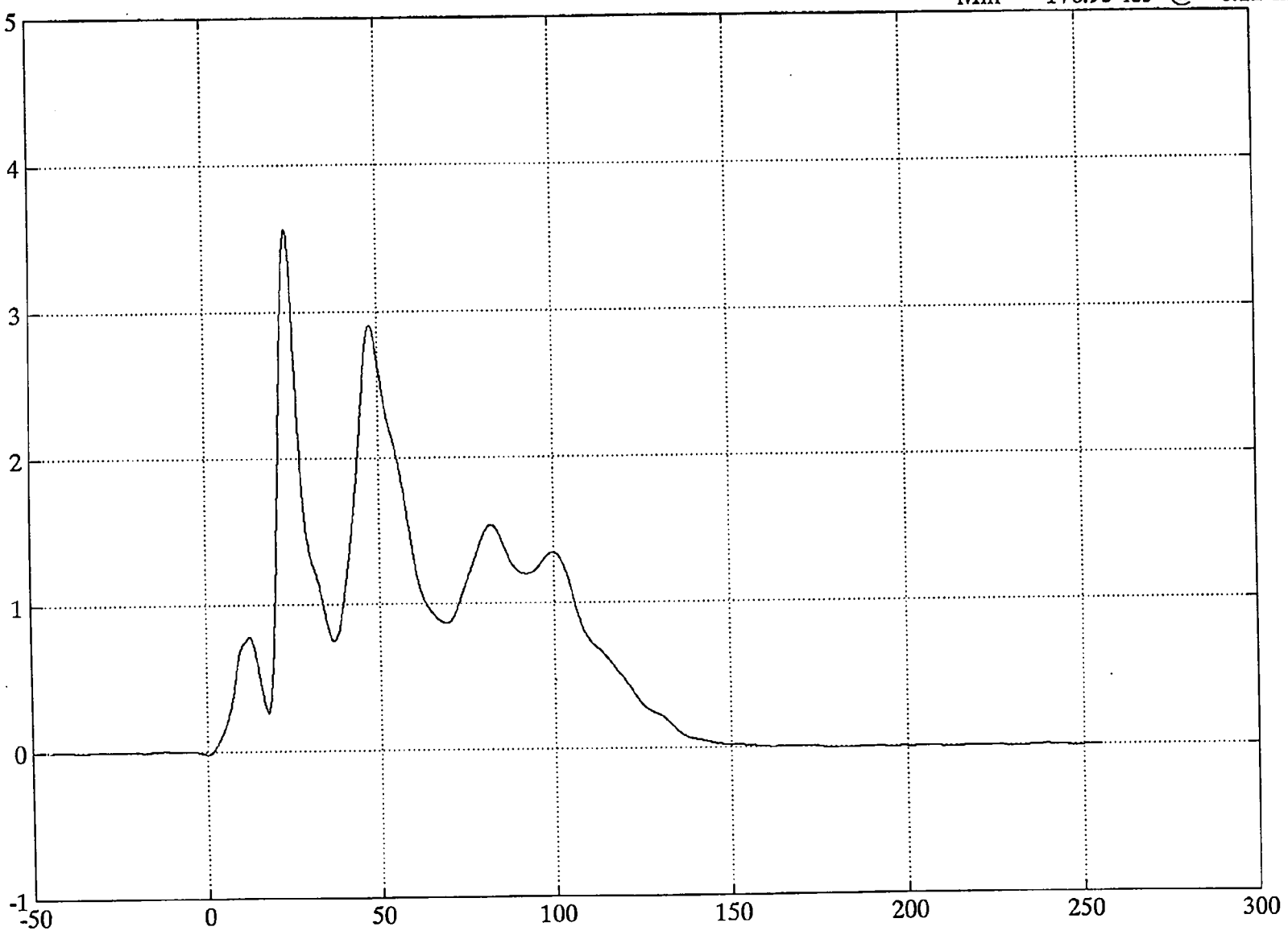
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Group 1 Load Cell Sum

Max = 35619.10 lbs @ 23.64 msec
Min = -176.95 lbs @ -0.12 msec



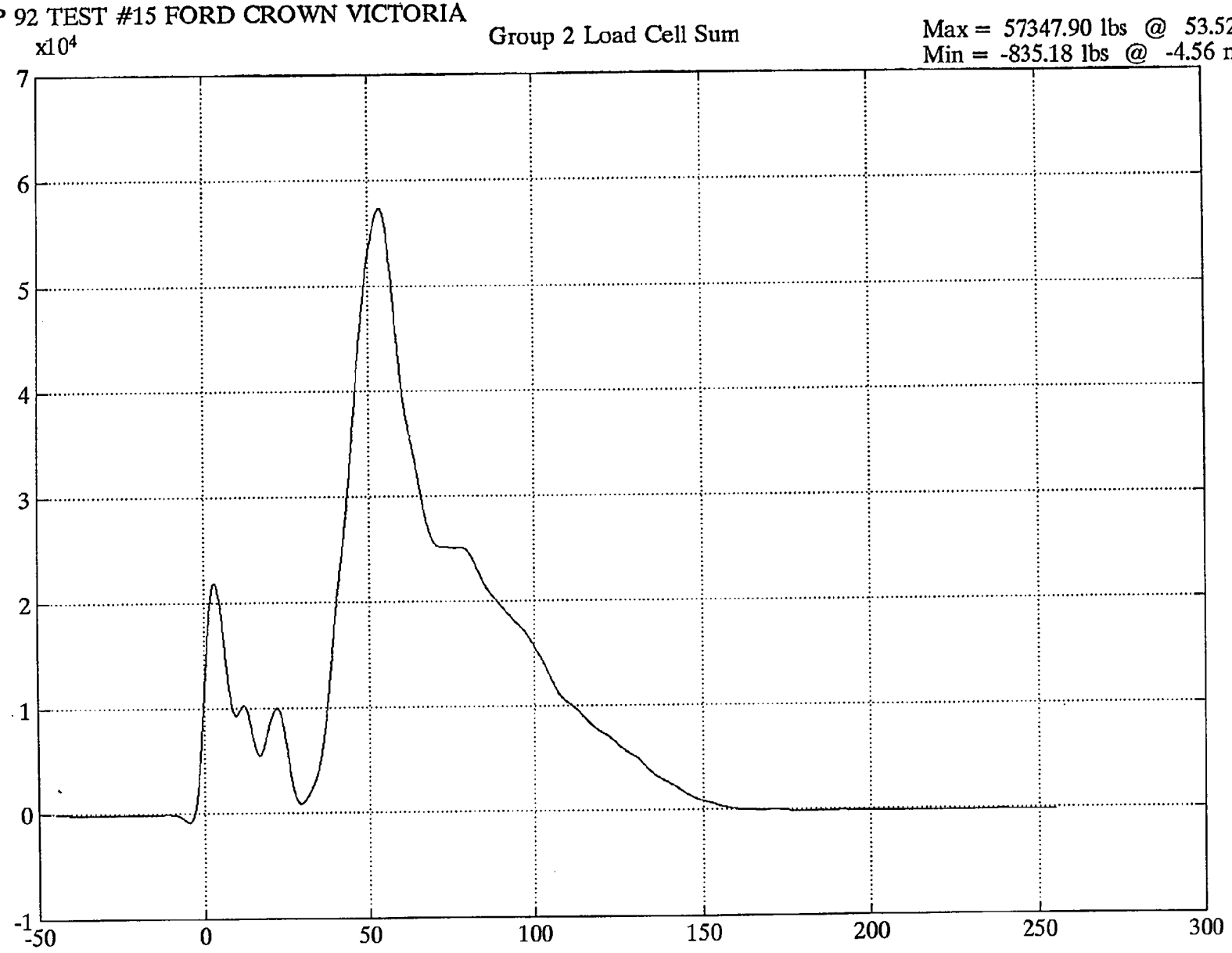
Load Cells (A1,A2,A3,B1,B2,B3)

SAE Filter Class 60

B-67

7978-5

NCAP 92 TEST #15 FORD CROWN VICTORIA

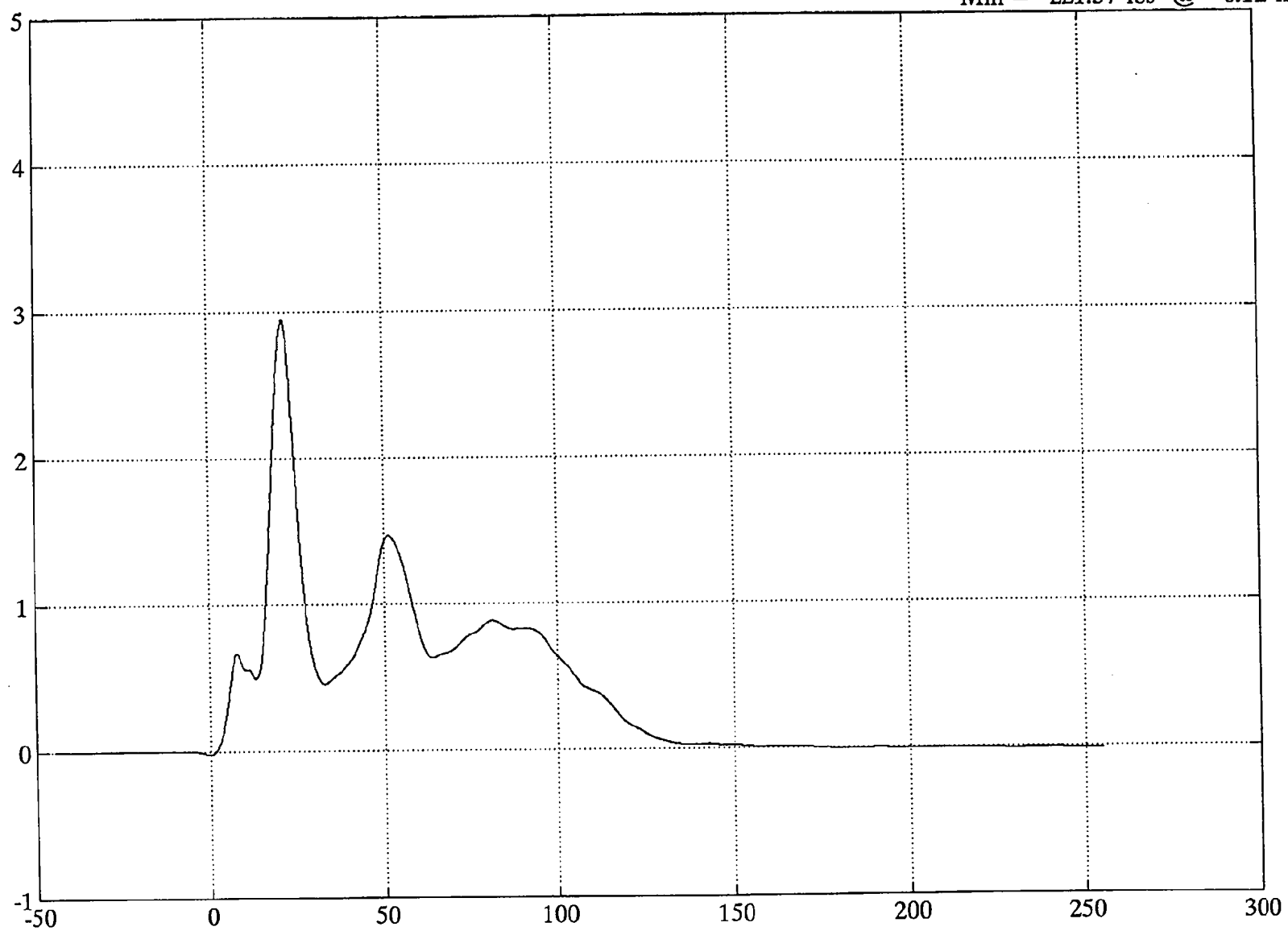


SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Group 3 Load Cell Sum

Max = 29486.90 lbs @ 21.36 msec
Min = -221.37 lbs @ -0.12 msec



B-69

7978-5

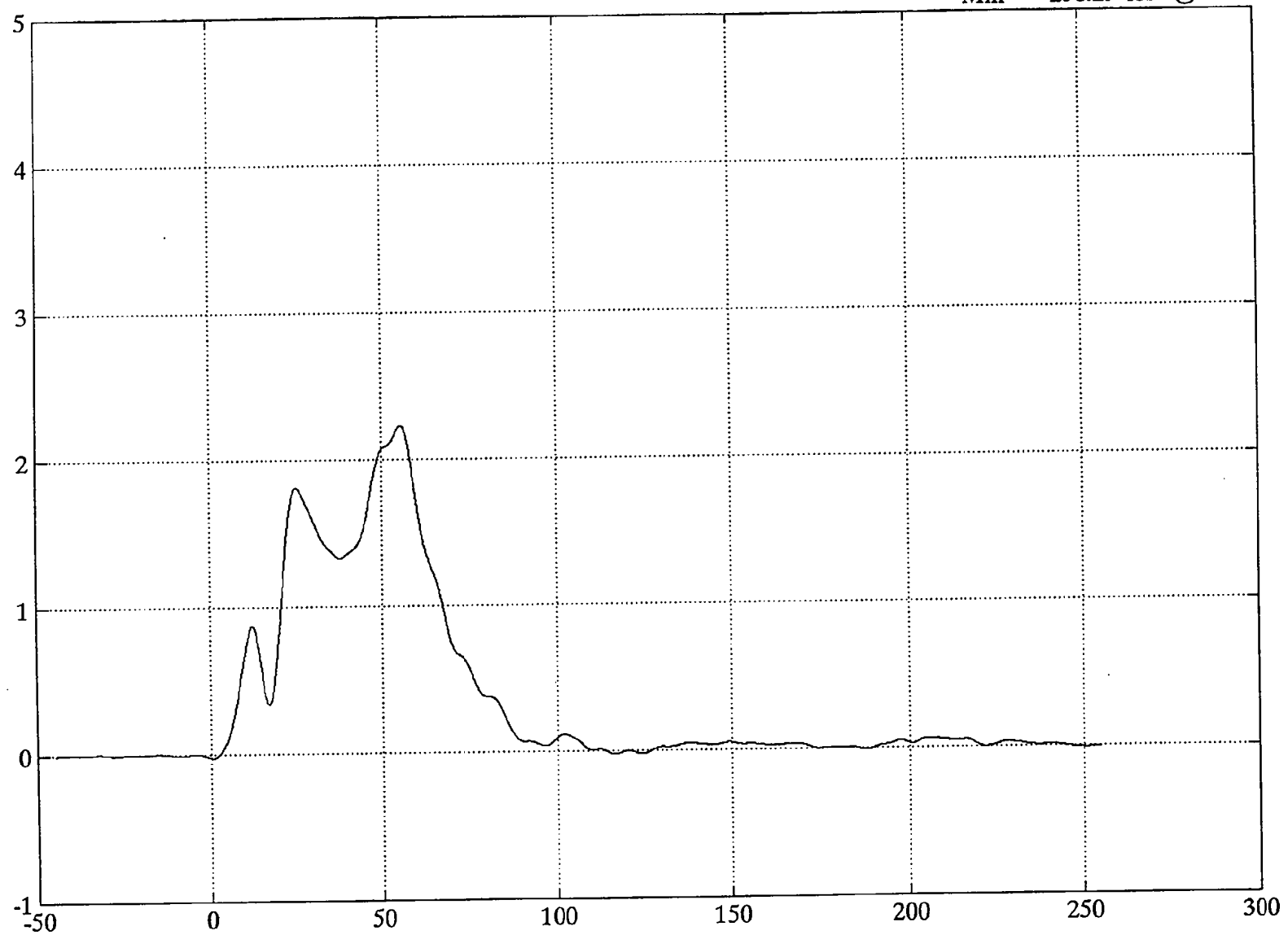
SAE Filter Class 60

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

NCAP 92 TEST #15 FORD CROWN VICTORIA

Group 4 Load Cell Sum

Max = 22319.80 lbs @ 55.56 msec
Min = -250.29 lbs @ 0.48 msec



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

SAE Filter Class 60

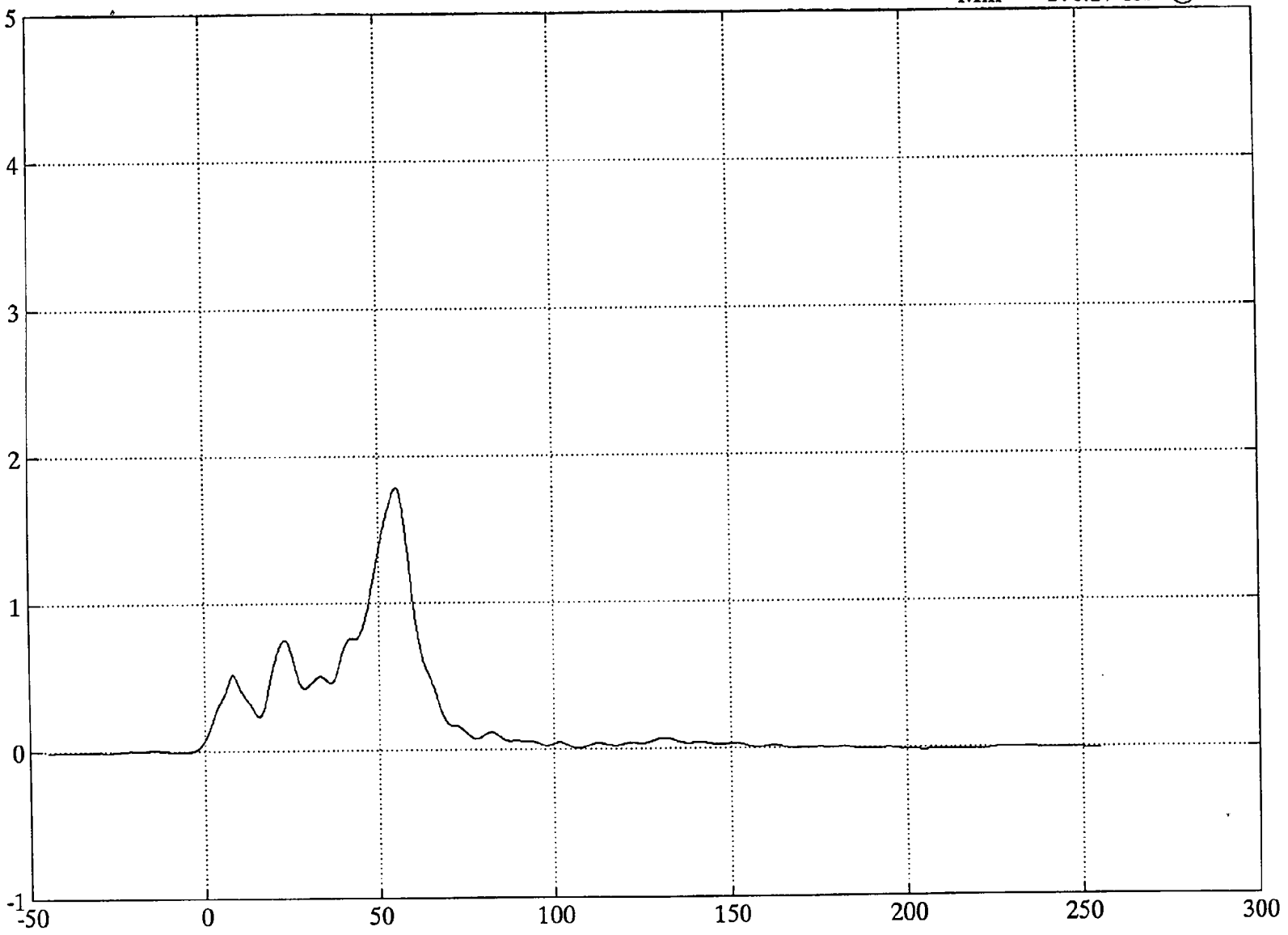
B-70

7978-5

NCAP 92 TEST #15 FORD CROWN VICTORIA

Group 5 Load Cell Sum

Max = 17842.60 lbs @ 55.20 msec
Min = -170.17 lbs @ 204.48 msec



B-71

7978-5

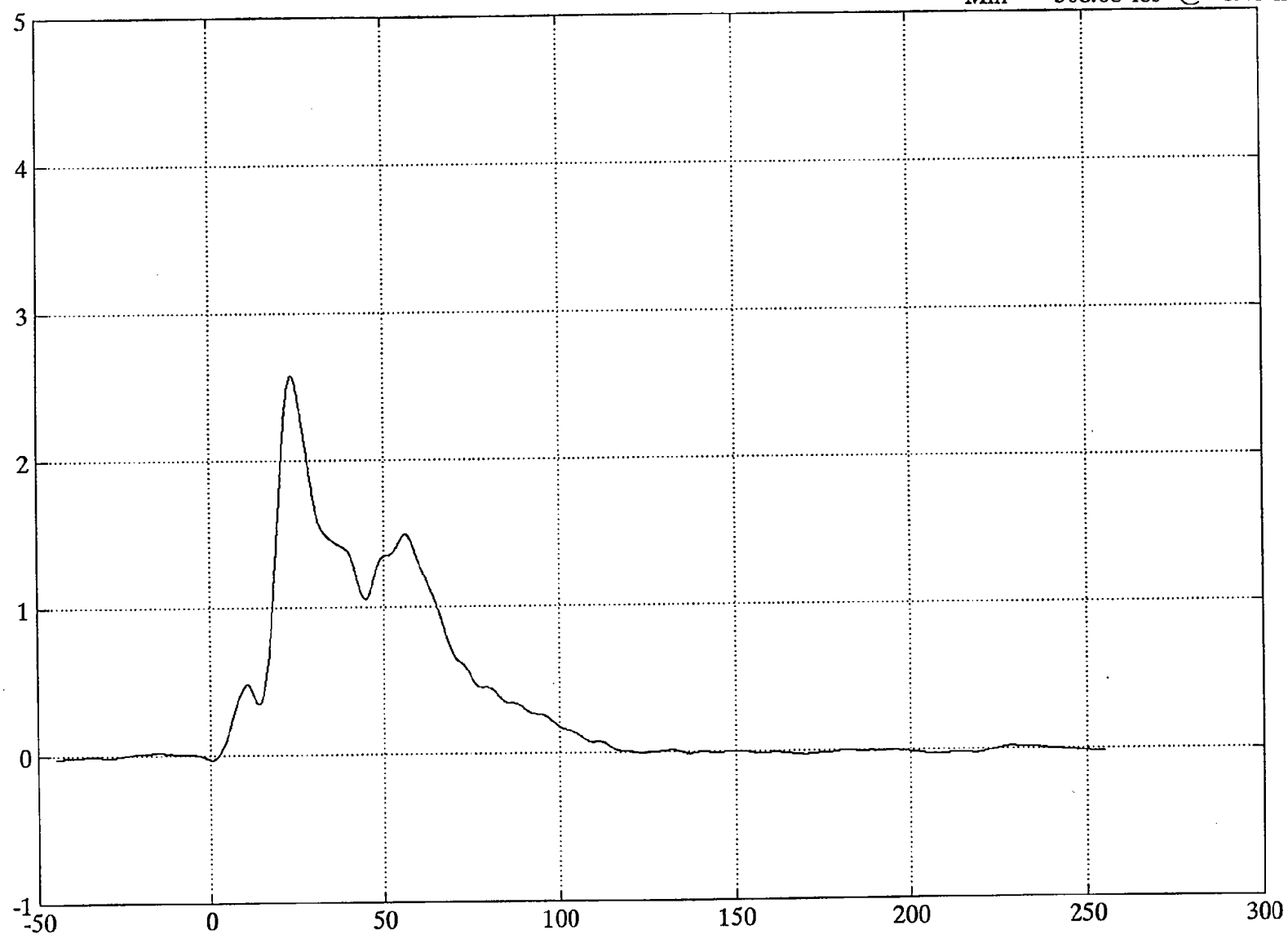
SAE Filter Class 60

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

NCAP 92 TEST #15 FORD CROWN VICTORIA

Group 6 Load Cell Sum

Max = 25783.70 lbs @ 23.88 msec
Min = -308.68 lbs @ 0.48 msec



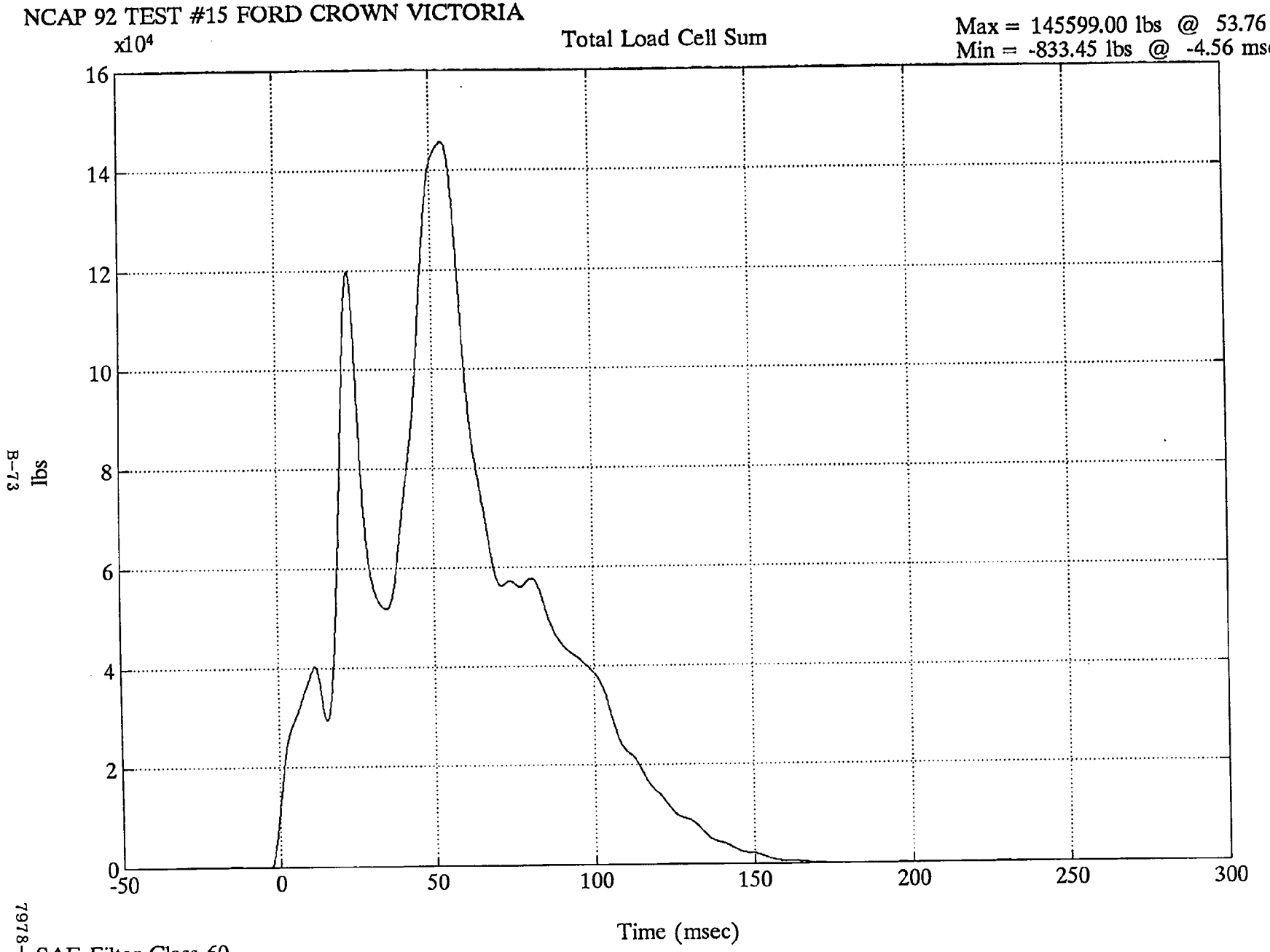
B-72

7978-5

SAE Filter Class 60

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

NCAP 92 TEST #15 FORD CROWN VICTORIA



B-73

7978-5 SAE Filter Class 60

TEST NO. MN0208

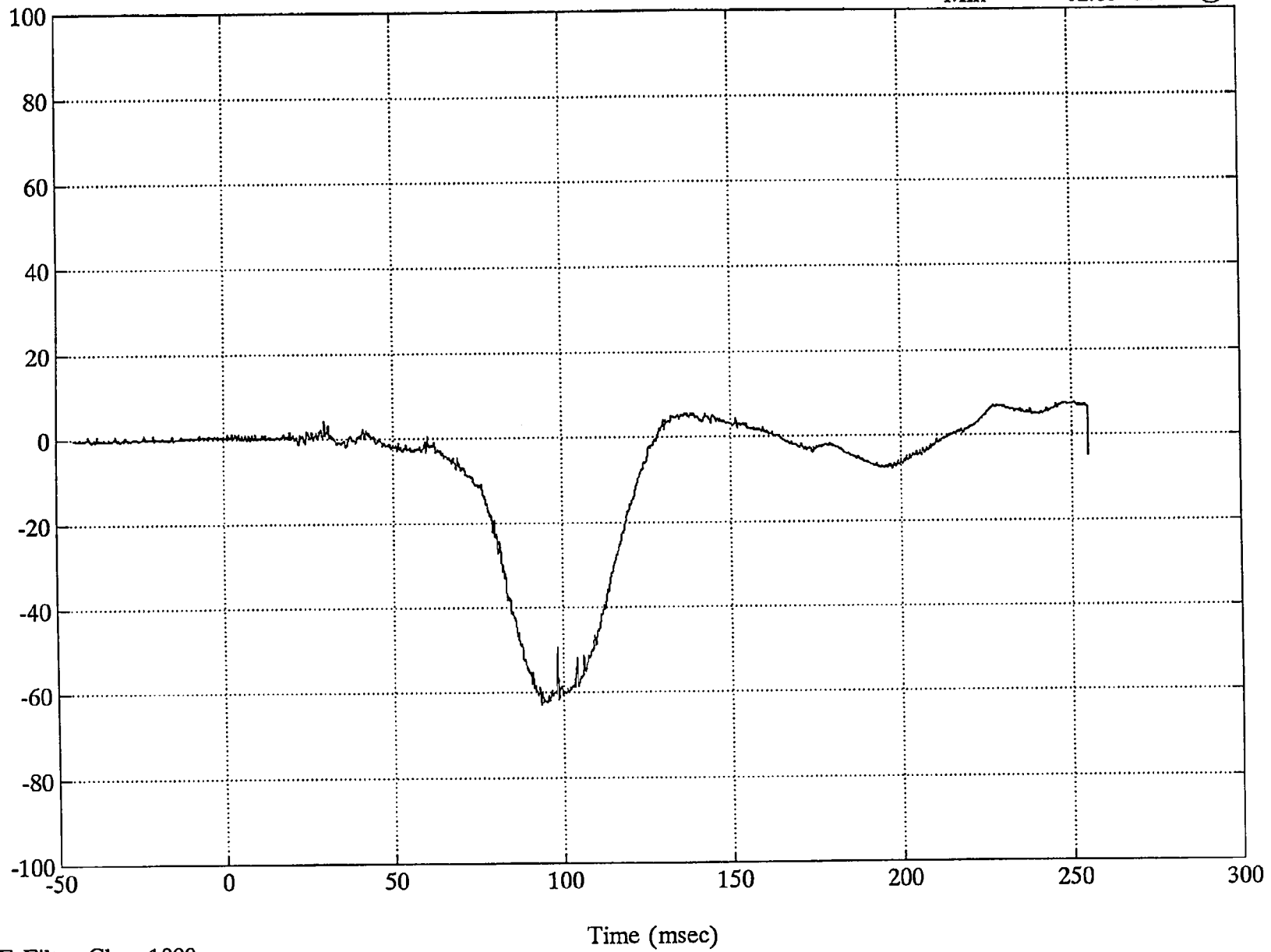
DUMMY DATA

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

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Head X

Max = 7.62 Gs @ 251.04 msec
Min = -62.85 Gs @ 93.23 msec



B-75

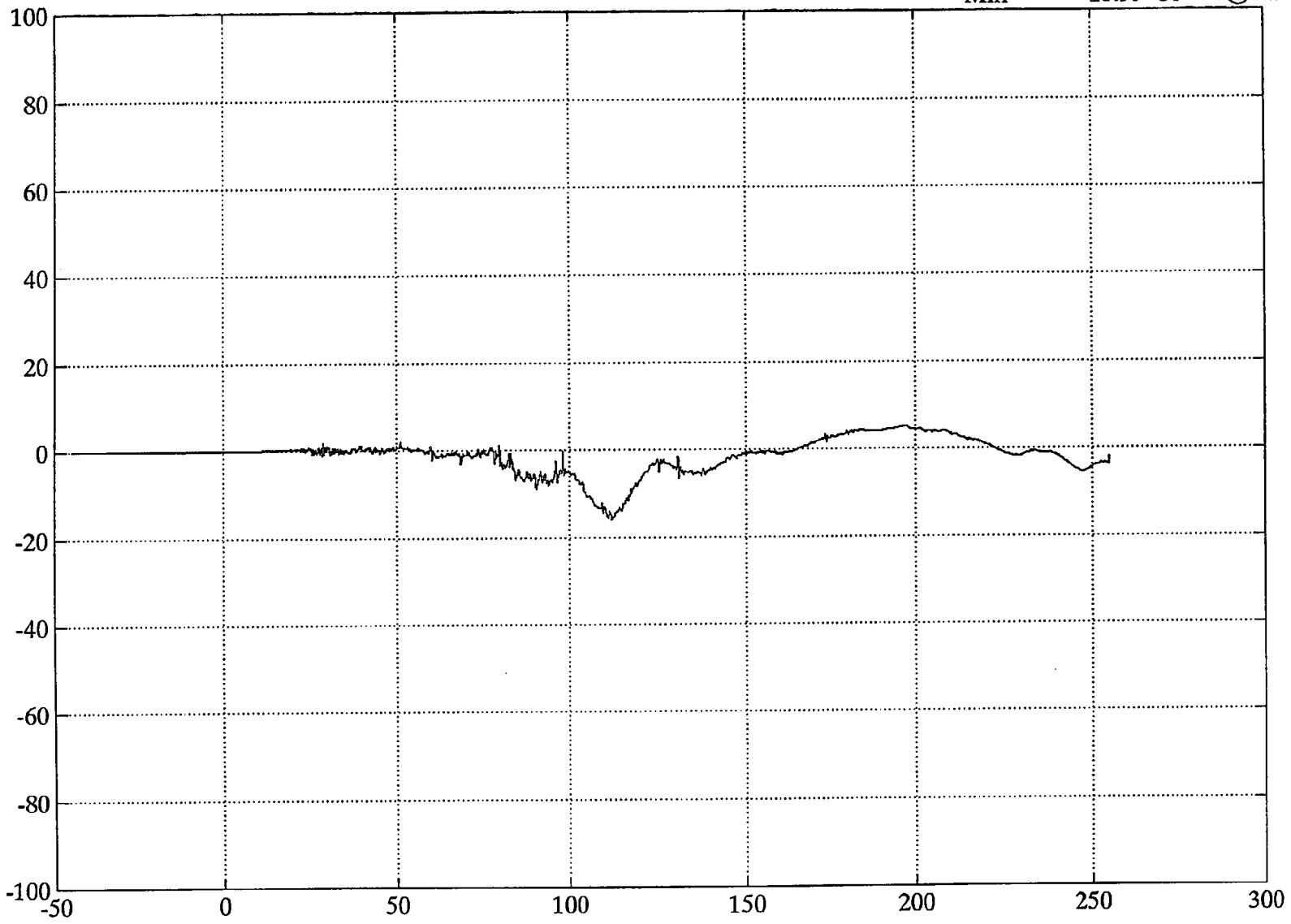
7978-5

SAE Filter Class 1000

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Head Y

Max = 5.13 Gs @ 197.52 msec
Min = -15.99 Gs @ 112.19 msec



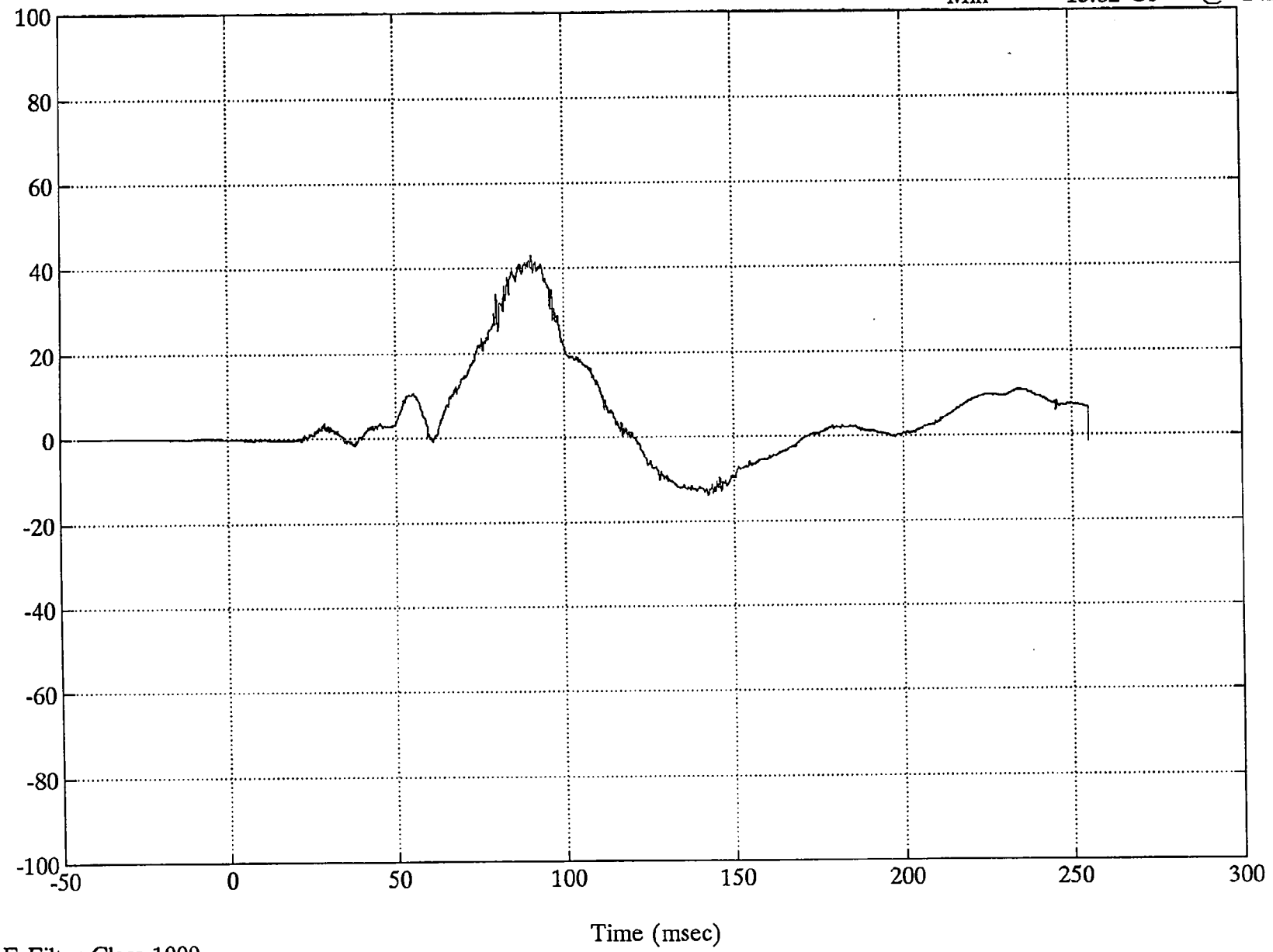
B-76

7978-5 SAE Filter Class 1000

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Head Z

Max = 42.90 Gs @ 90.36 msec
Min = -13.82 Gs @ 142.44 msec



B-77

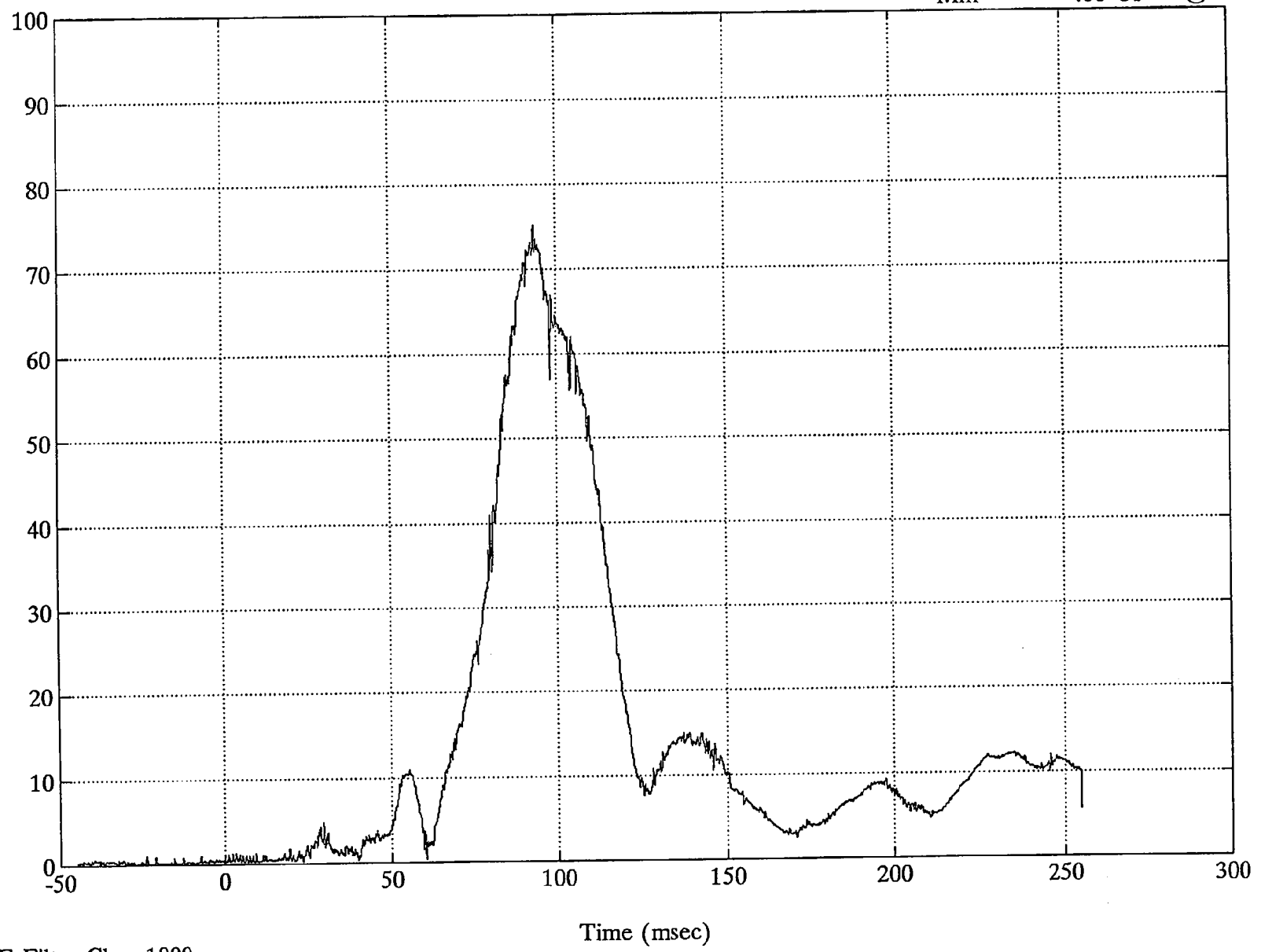
7978-5

SAE Filter Class 1000

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Head Resultant

Max = 75.19 Gs @ 93.23 msec
Min = .06 Gs @ -13.80 msec



B-78

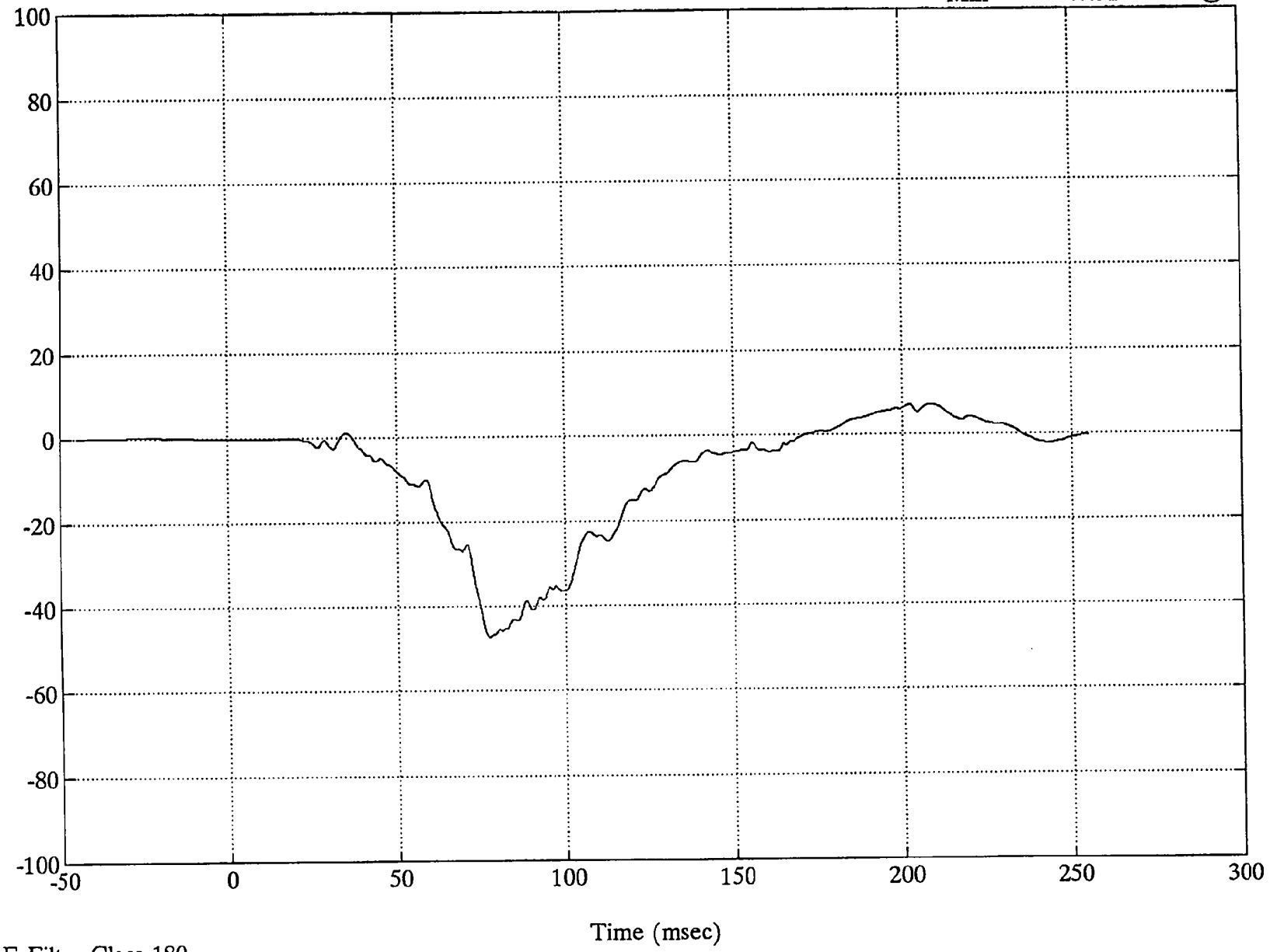
7978-5

SAE Filter Class 1000

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Chest X

Max = 7.07 Gs @ 208.32 msec
Min = -47.31 Gs @ 77.27 msec



B-79

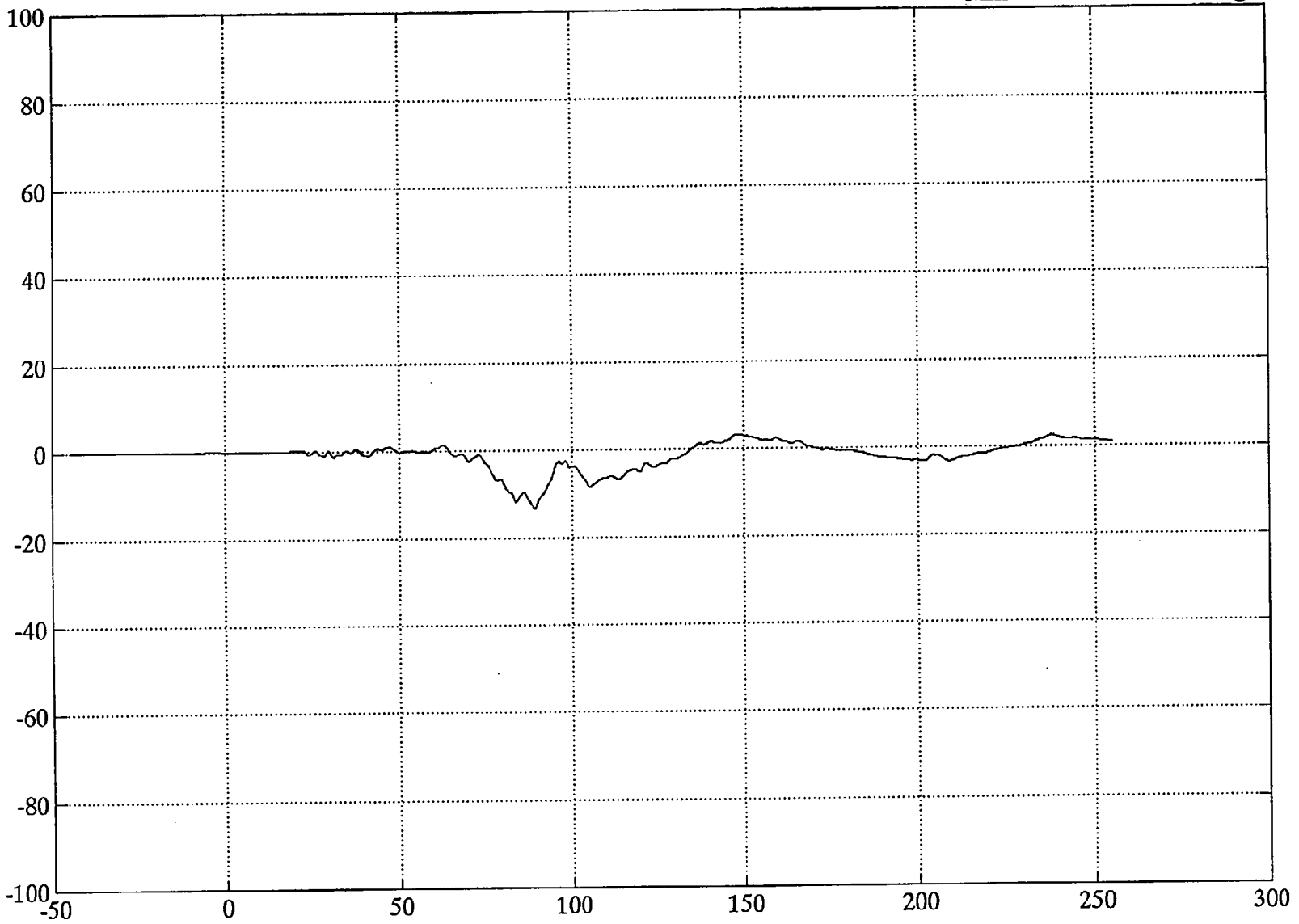
7978-5

SAE Filter Class 180

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Chest Y

Max = 3.27 Gs @ 148.08 msec
Min = -13.51 Gs @ 89.04 msec



B-80

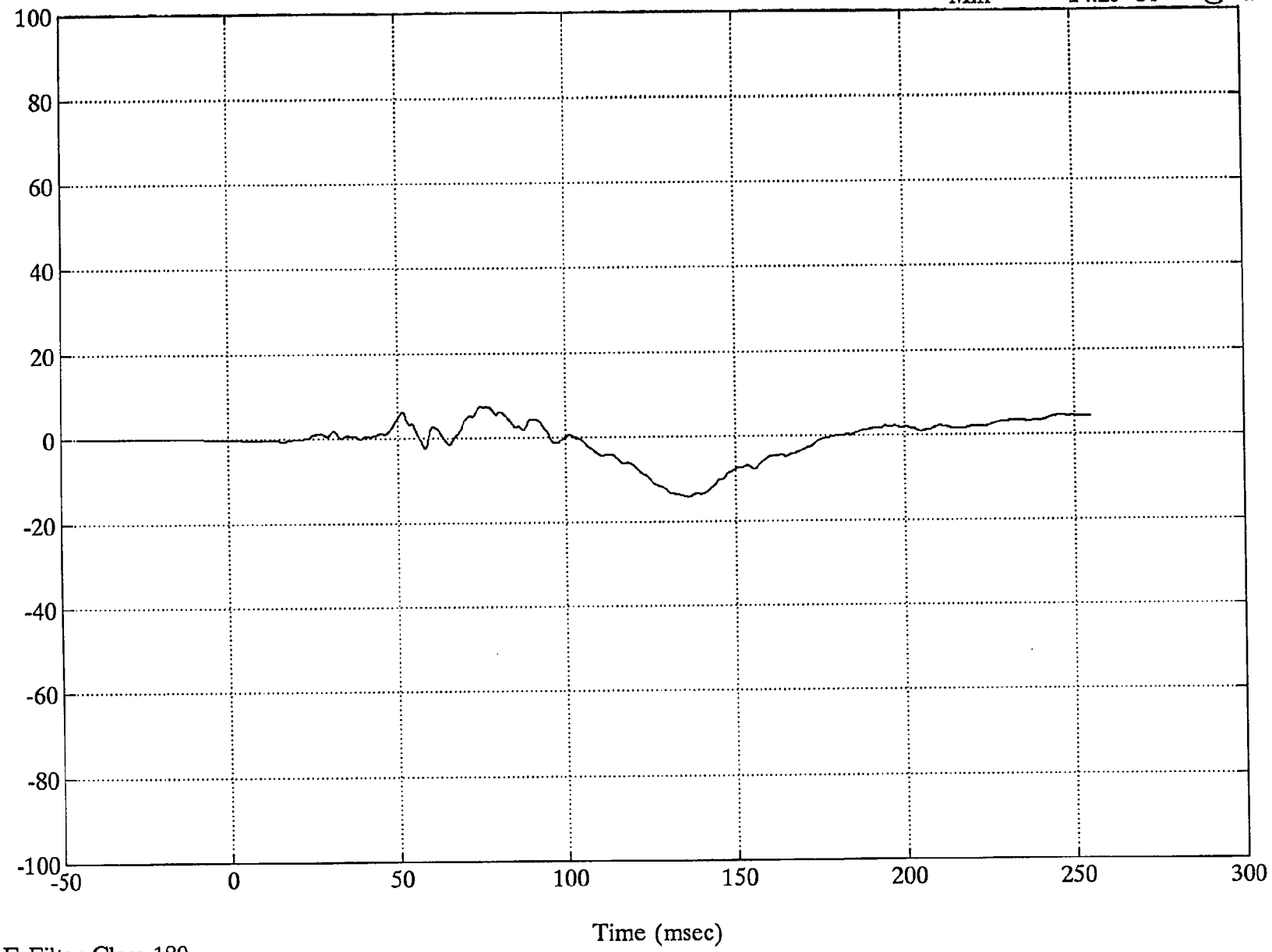
7978-5

SAE Filter Class 180

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Chest Z

Max = 7.37 Gs @ 74.63 msec
Min = -14.23 Gs @ 136.08 msec



B-81

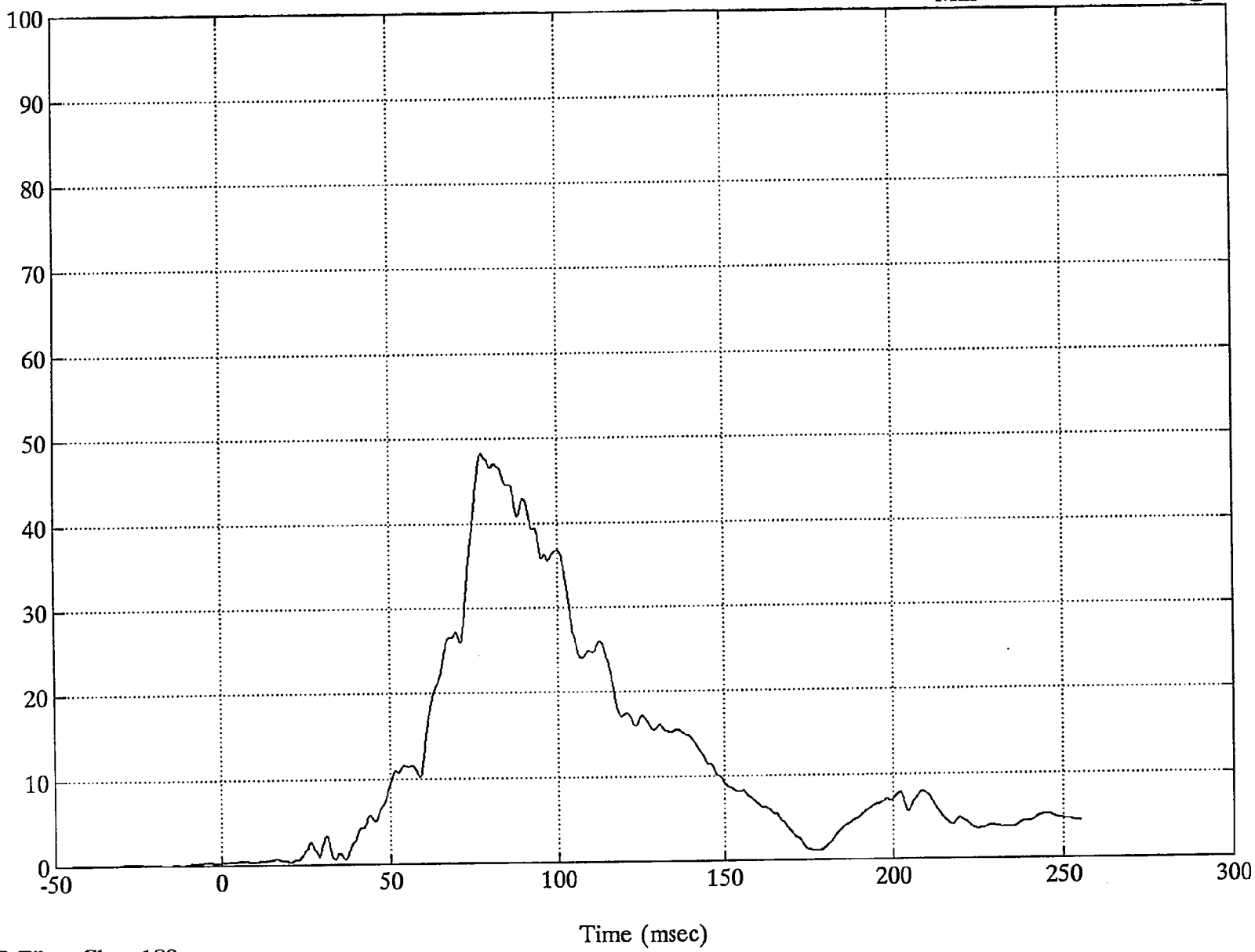
7978-5

SAE Filter Class 180

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Chest Resultant

Max = 48.22 Gs @ 77.40 msec
Min = .01 Gs @ -17.88 msec



B-82

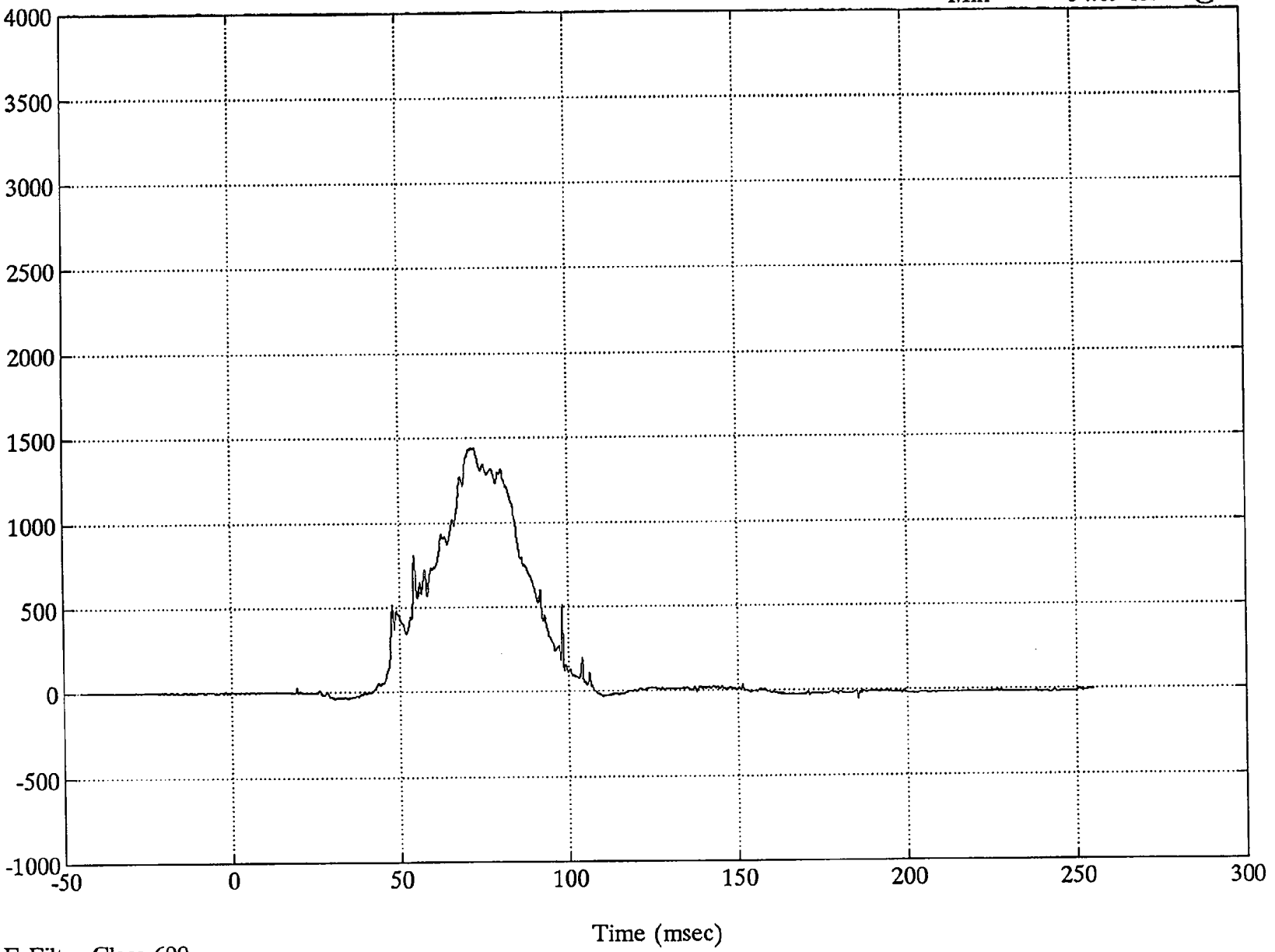
7978-5

SAE Filter Class 180

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Left Femur

Max = 1439.07 lbs @ 71.76 msec
Min = -54.69 lbs @ 185.64 msec



B-83

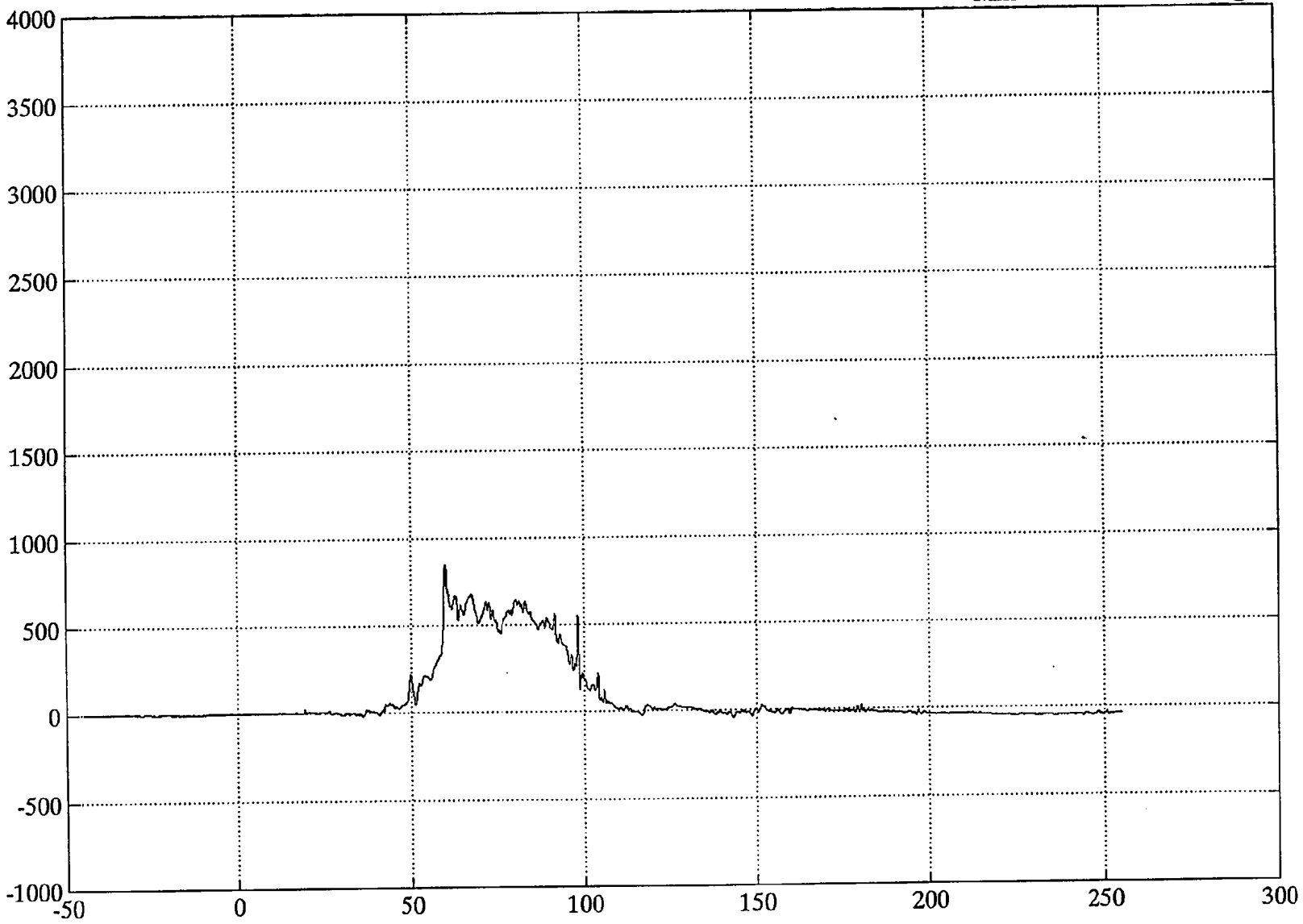
7978-5

SAE Filter Class 600

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Right Femur

Max = 846.35 lbs @ 59.88 msec
Min = -53.41 lbs @ 243.96 msec



B-84

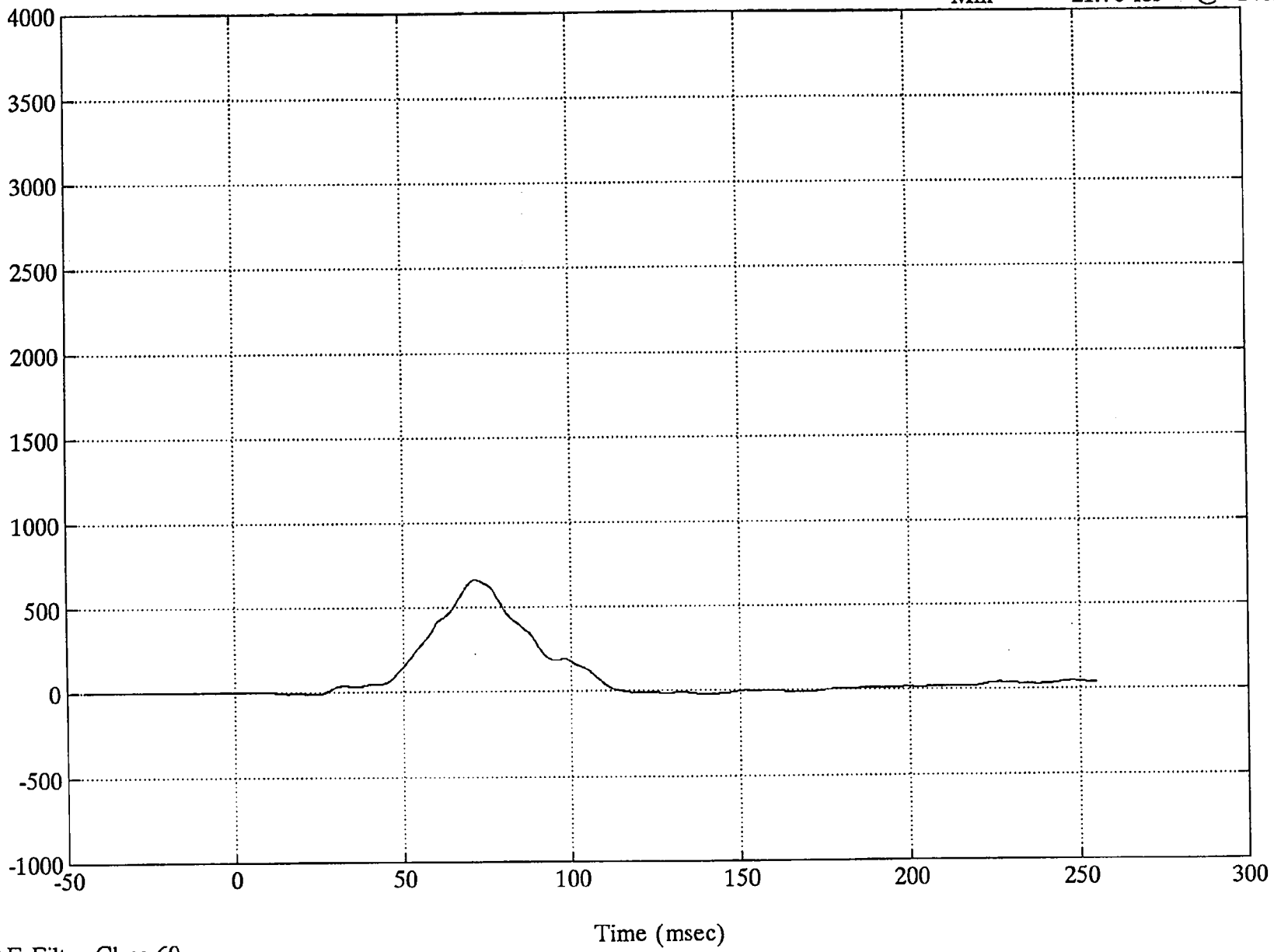
7978-5

SAE Filter Class 600

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Left Belt Load

Max = 661.00 lbs @ 71.40 msec
Min = -21.76 lbs @ 140.16 msec



B-85

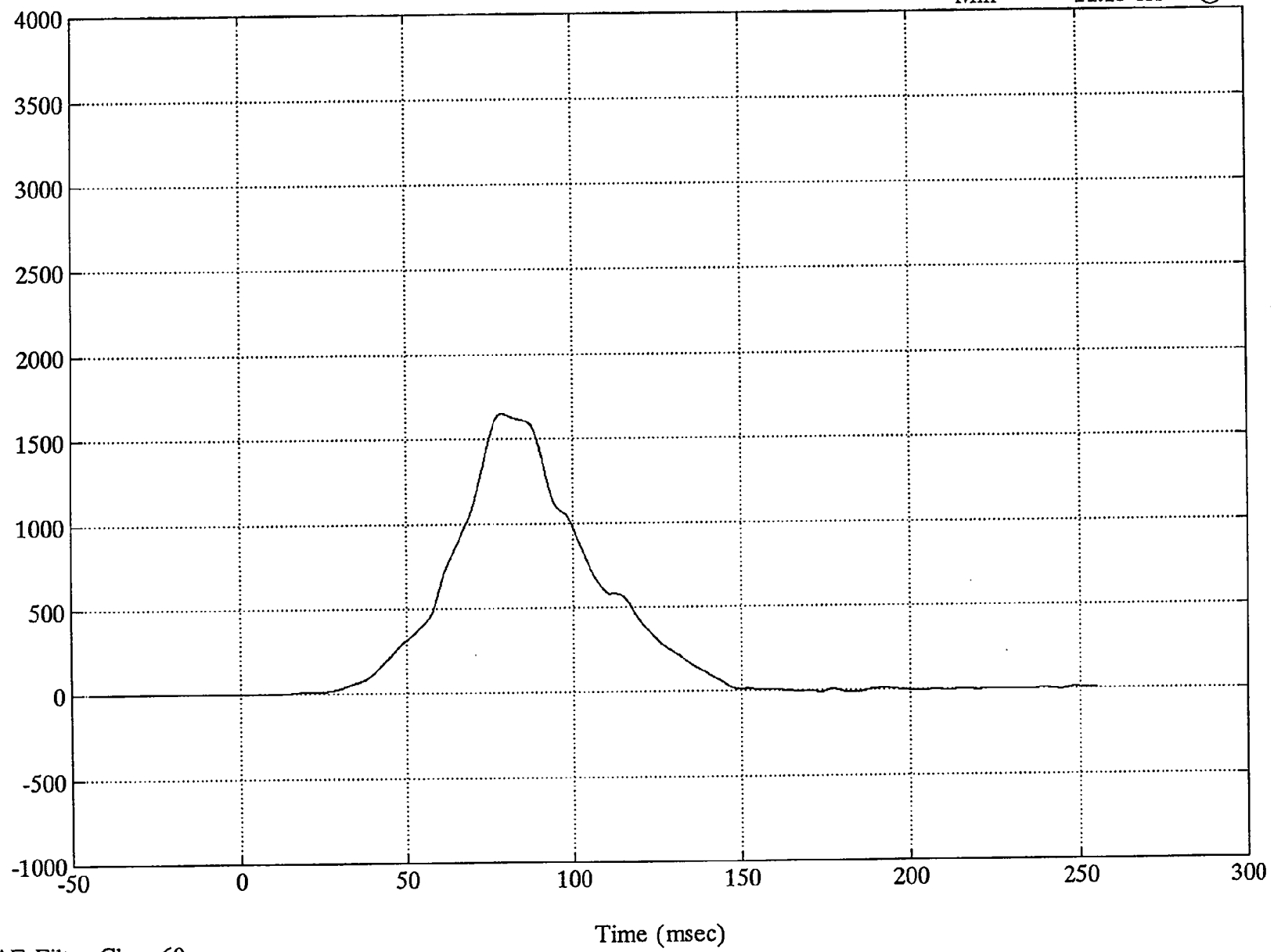
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Torso Belt Load

Max = 1650.32 lbs @ 78.84 msec
Min = -11.13 lbs @ 182.52 msec



B-86

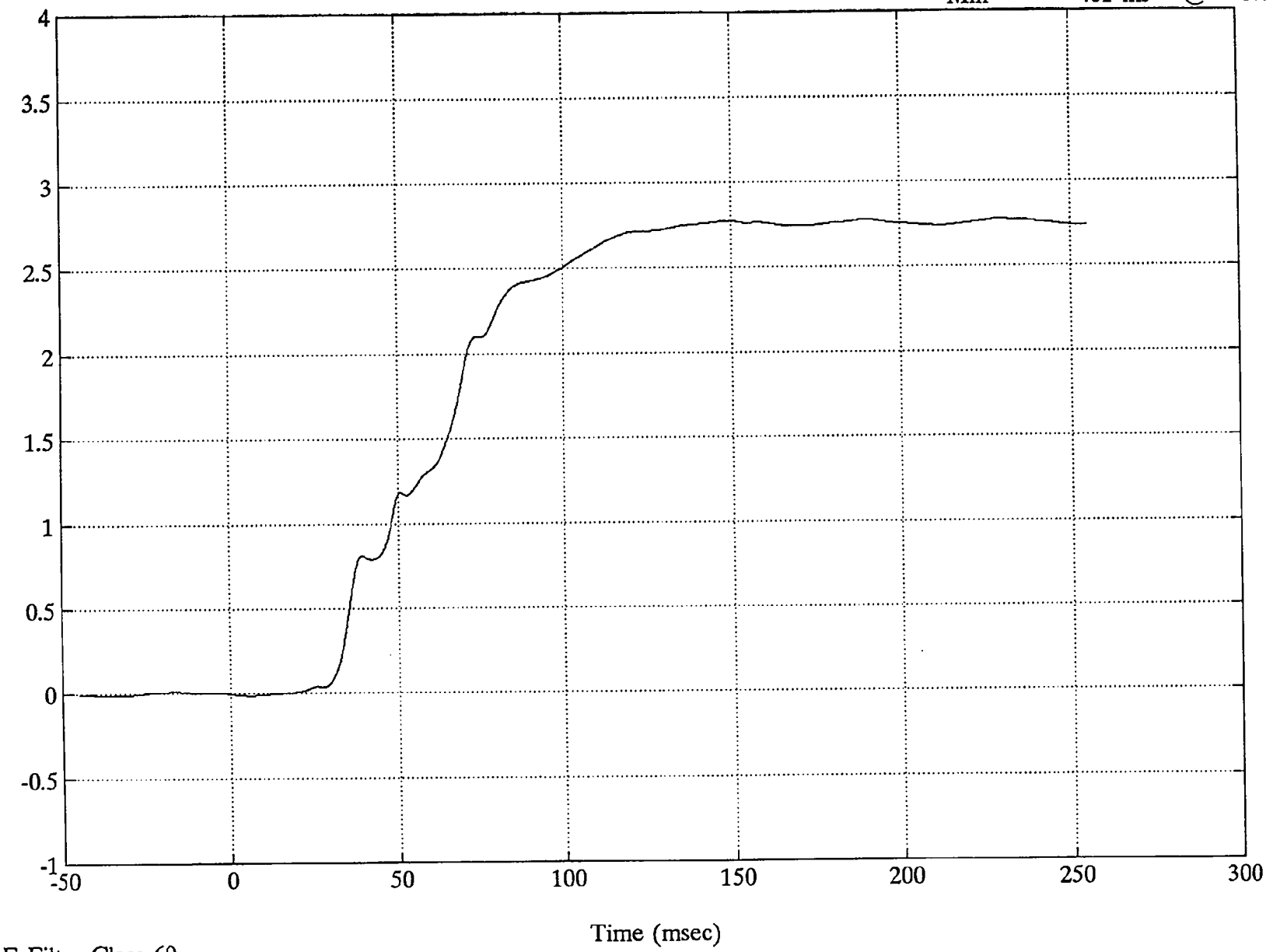
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 1 Belt Spool Out

Max = 2.78 ins @ 190.08 msec
Min = -.01 ins @ 5.75 msec



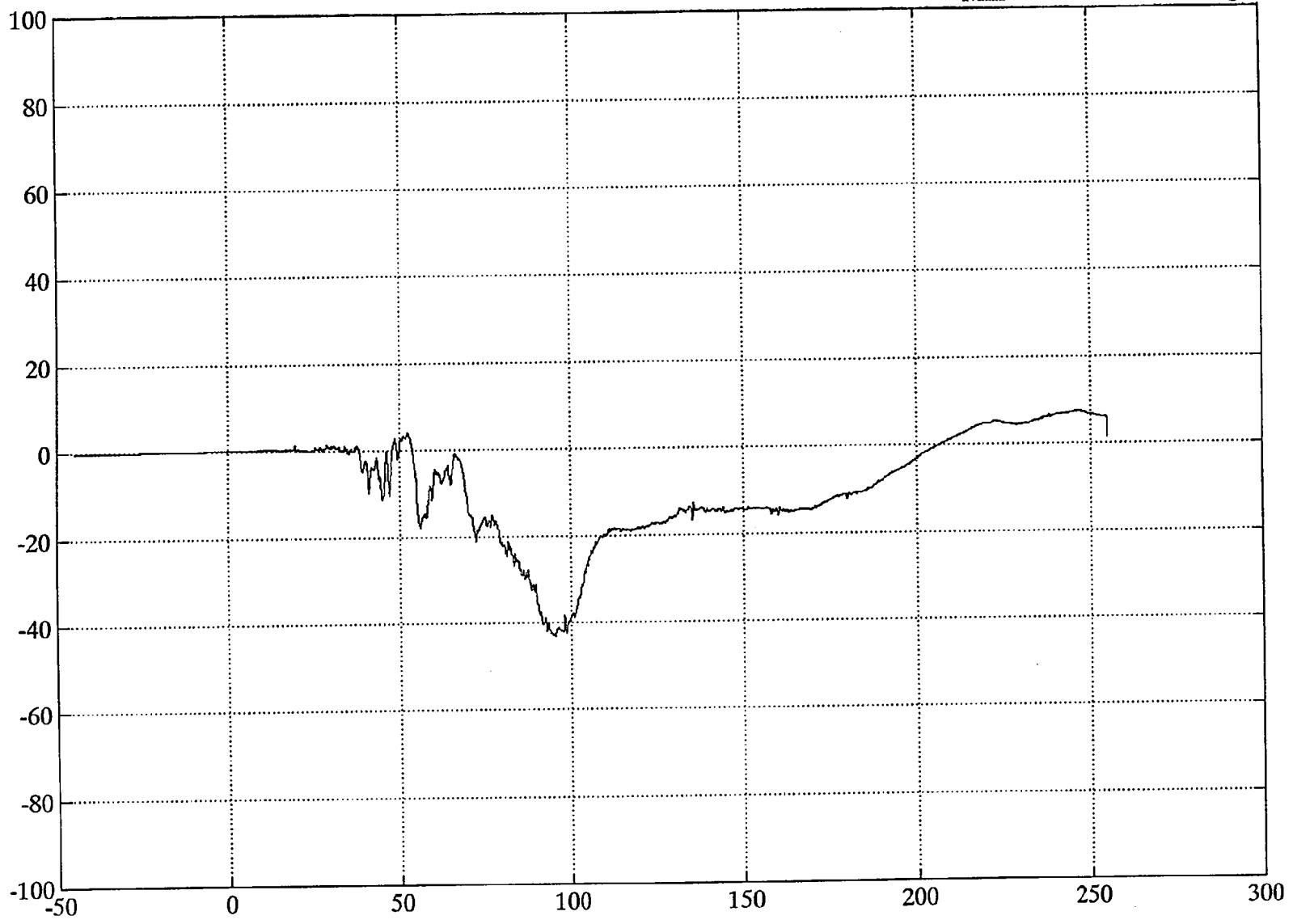
B-87

7978-5 SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 2 Head X

Max = 7.43 Gs @ 245.52 msec
Min = -43.06 Gs @ 95.27 msec



B-88

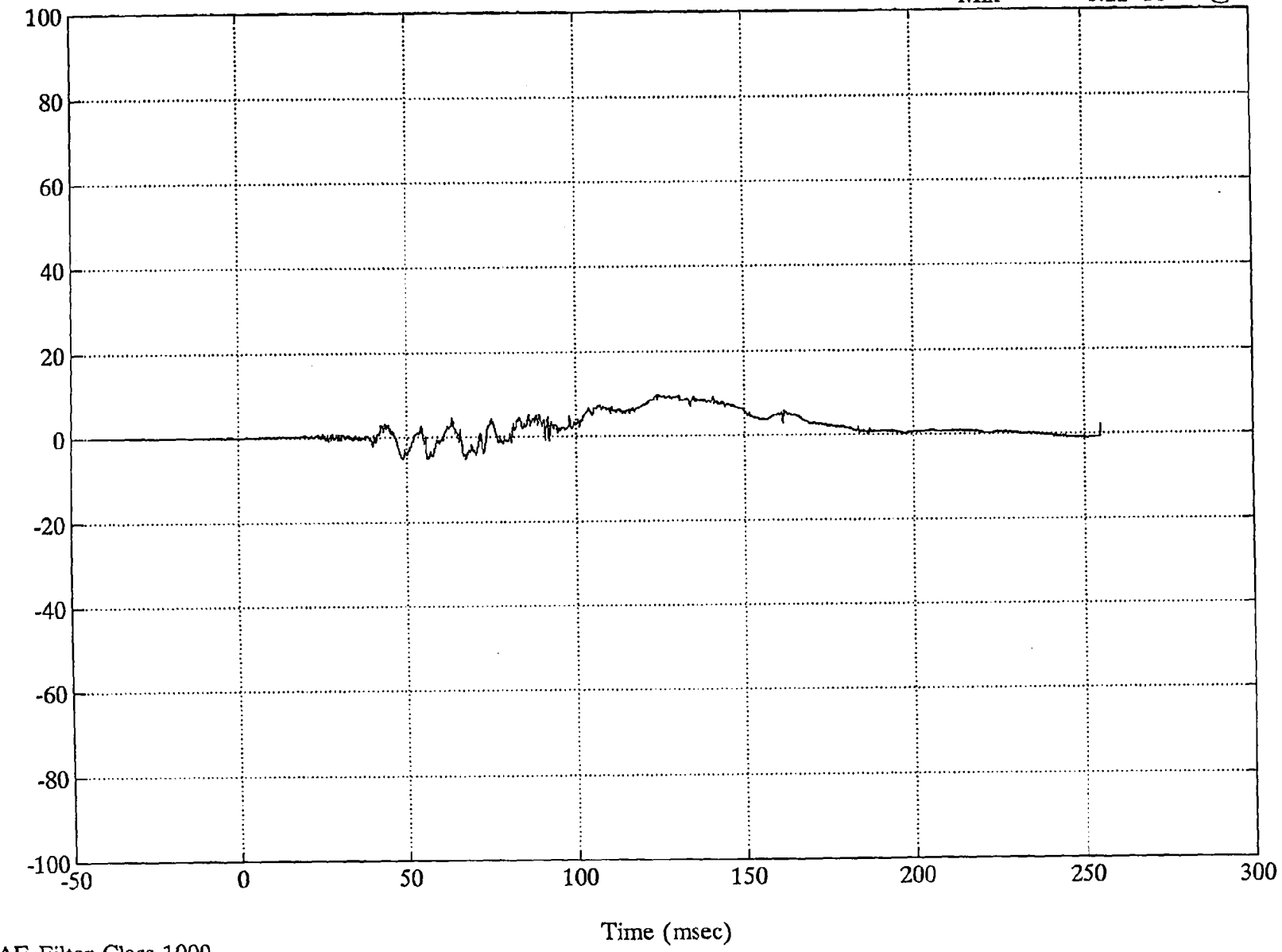
7678-5

SAE Filter Class 1000

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 2 Head Y

Max = 9.70 Gs @ 123.96 msec
Min = -5.11 Gs @ 48.59 msec



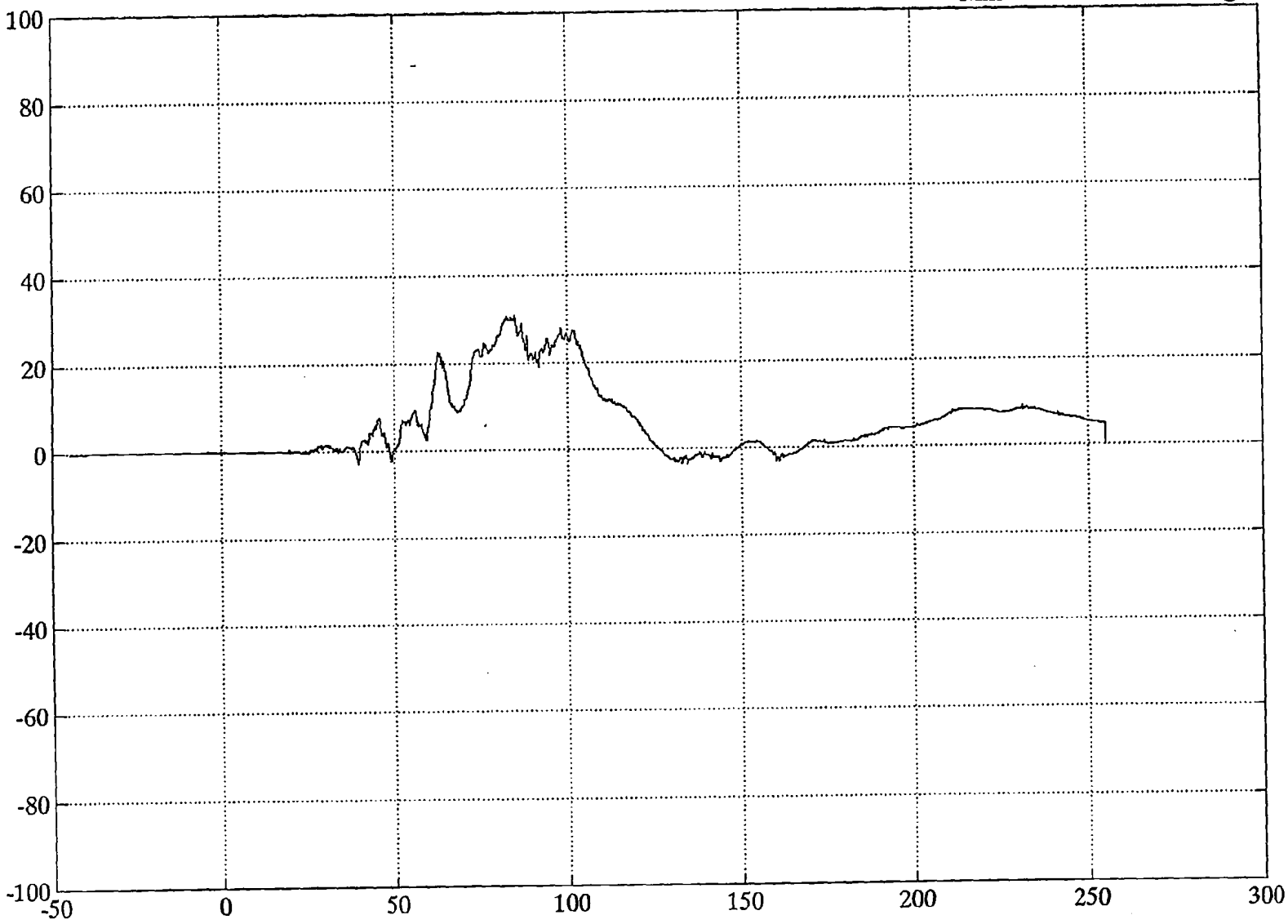
B-89

7978-5 SAE Filter Class 1000

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 2 Head Z

Max = 30.96 Gs @ 84.83 msec
Min = -3.51 Gs @ 134.27 msec



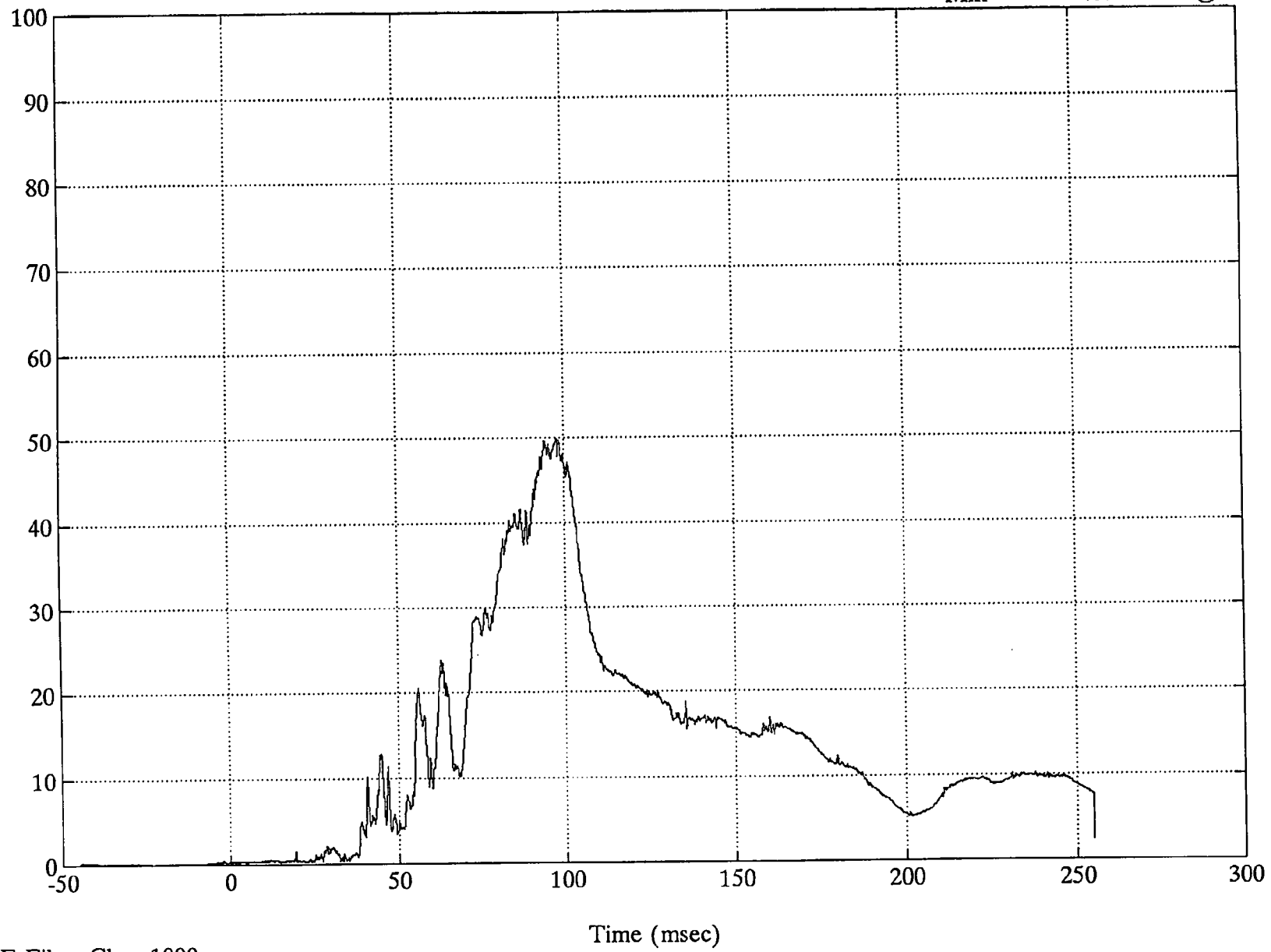
B-90

7978-5 SAE Filter Class 1000

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 2 Head Resultant

Max = 49.95 Gs @ 97.68 msec
Min = .05 Gs @ -12.84 msec



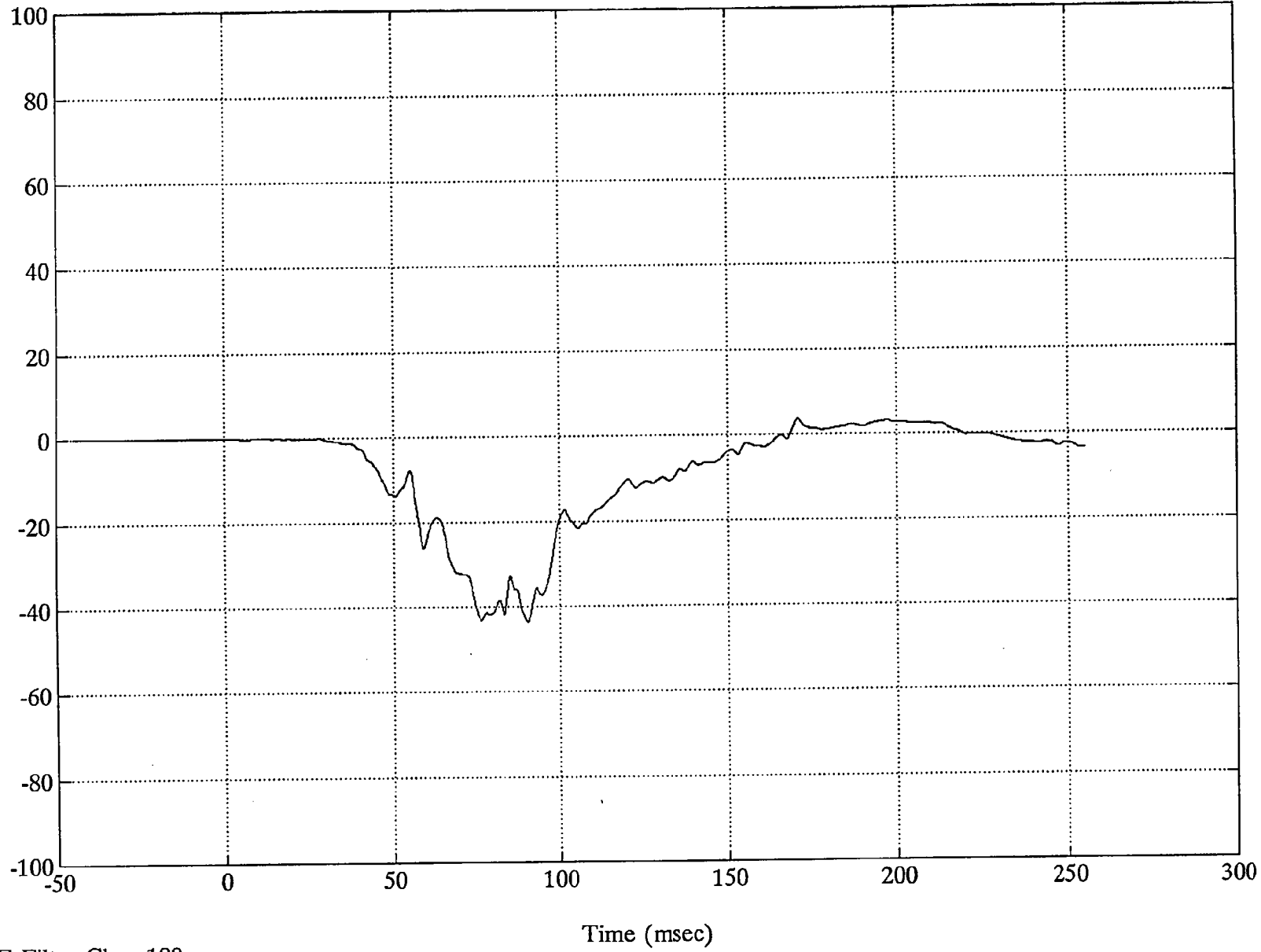
B-91

7978-5 SAE Filter Class 1000

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 2 Chest X

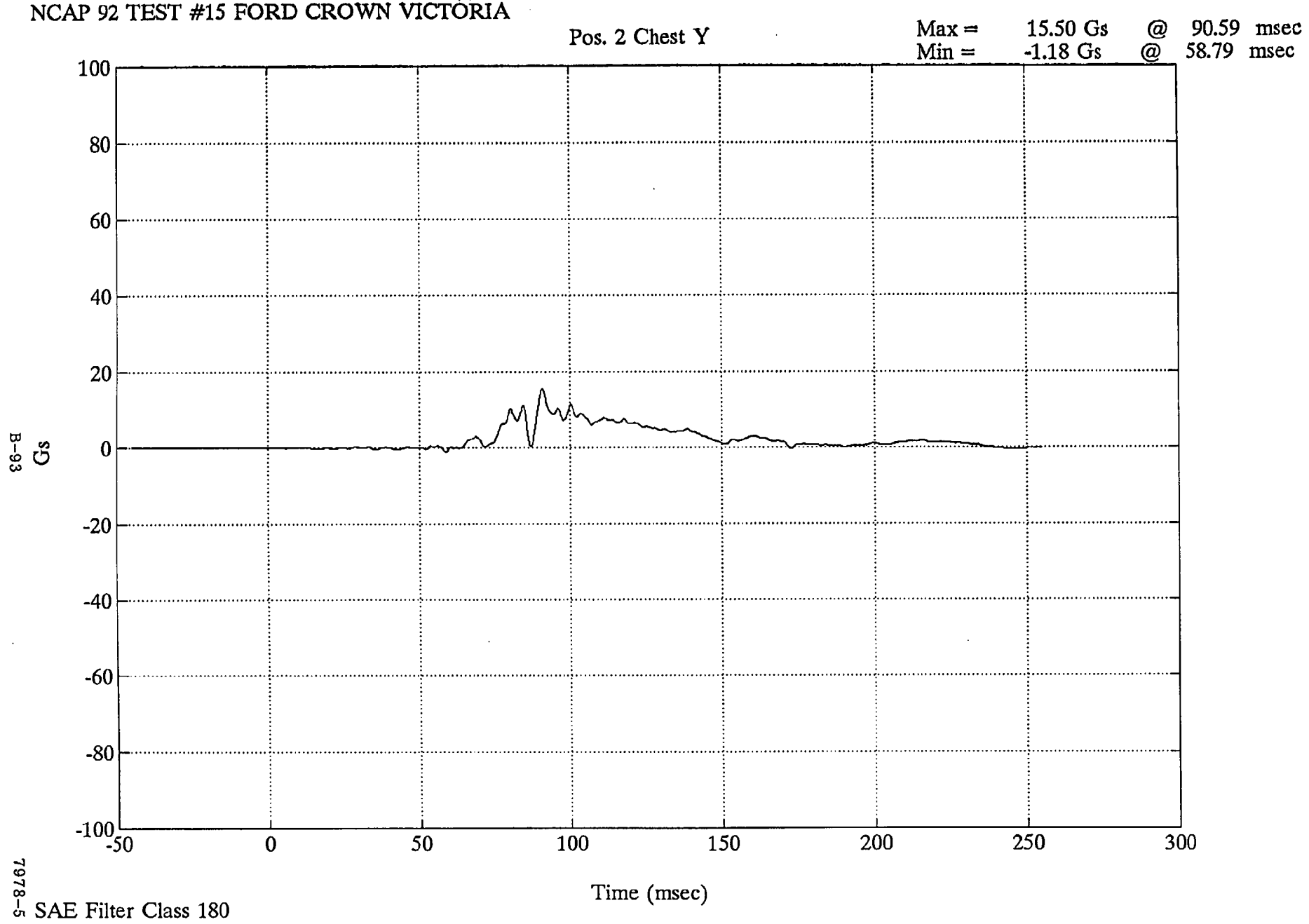
Max = 3.63 Gs @ 171.12 msec
Min = -43.58 Gs @ 90.36 msec



B-92

7978-5 SAE Filter Class 180

NCAP 92 TEST #15 FORD CROWN VICTORIA



B-93

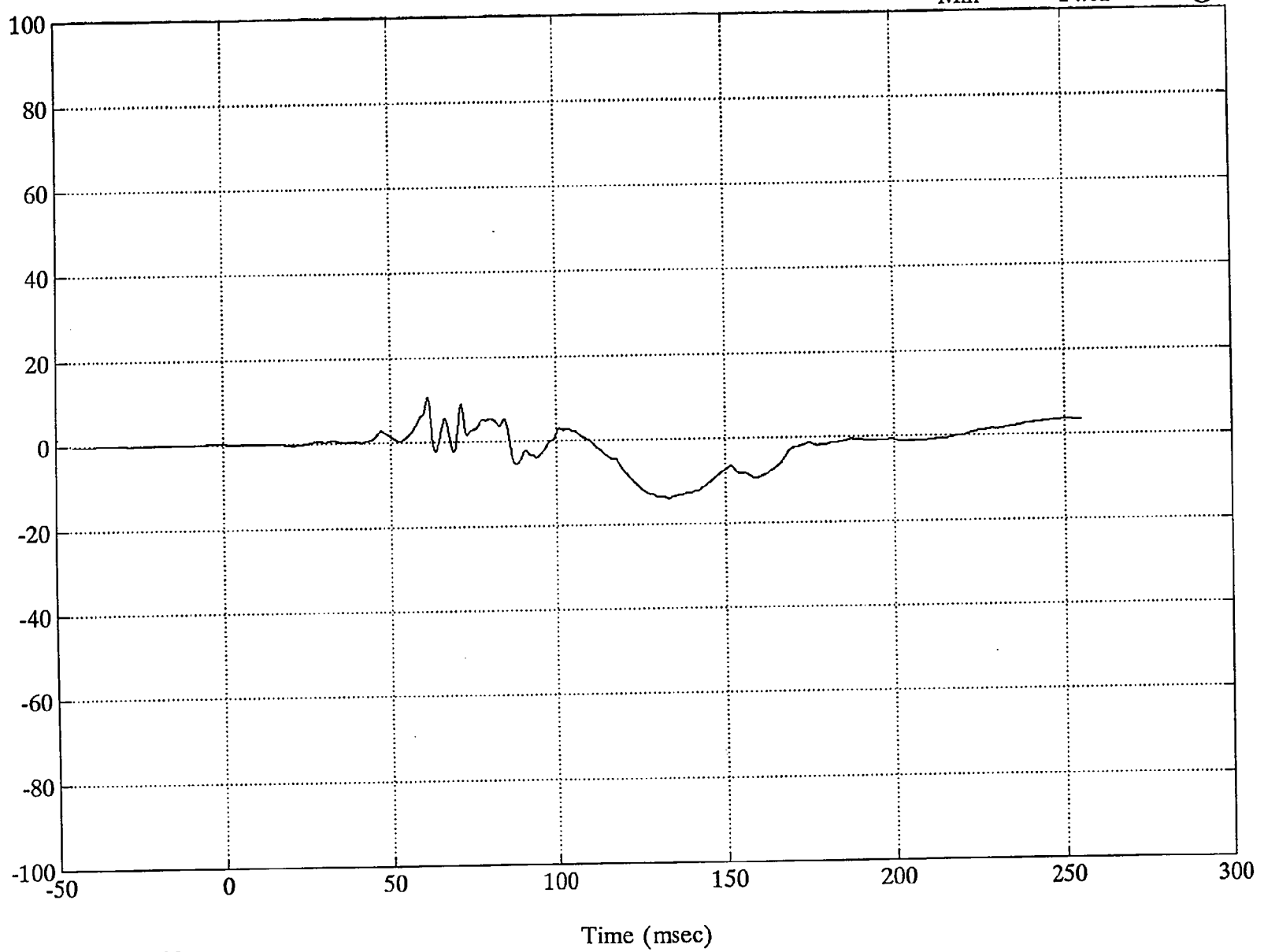
7978-5

SAE Filter Class 180

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 2 Chest Z

Max = 10.56 Gs @ 61.20 msec
Min = -14.01 Gs @ 133.32 msec



B-94

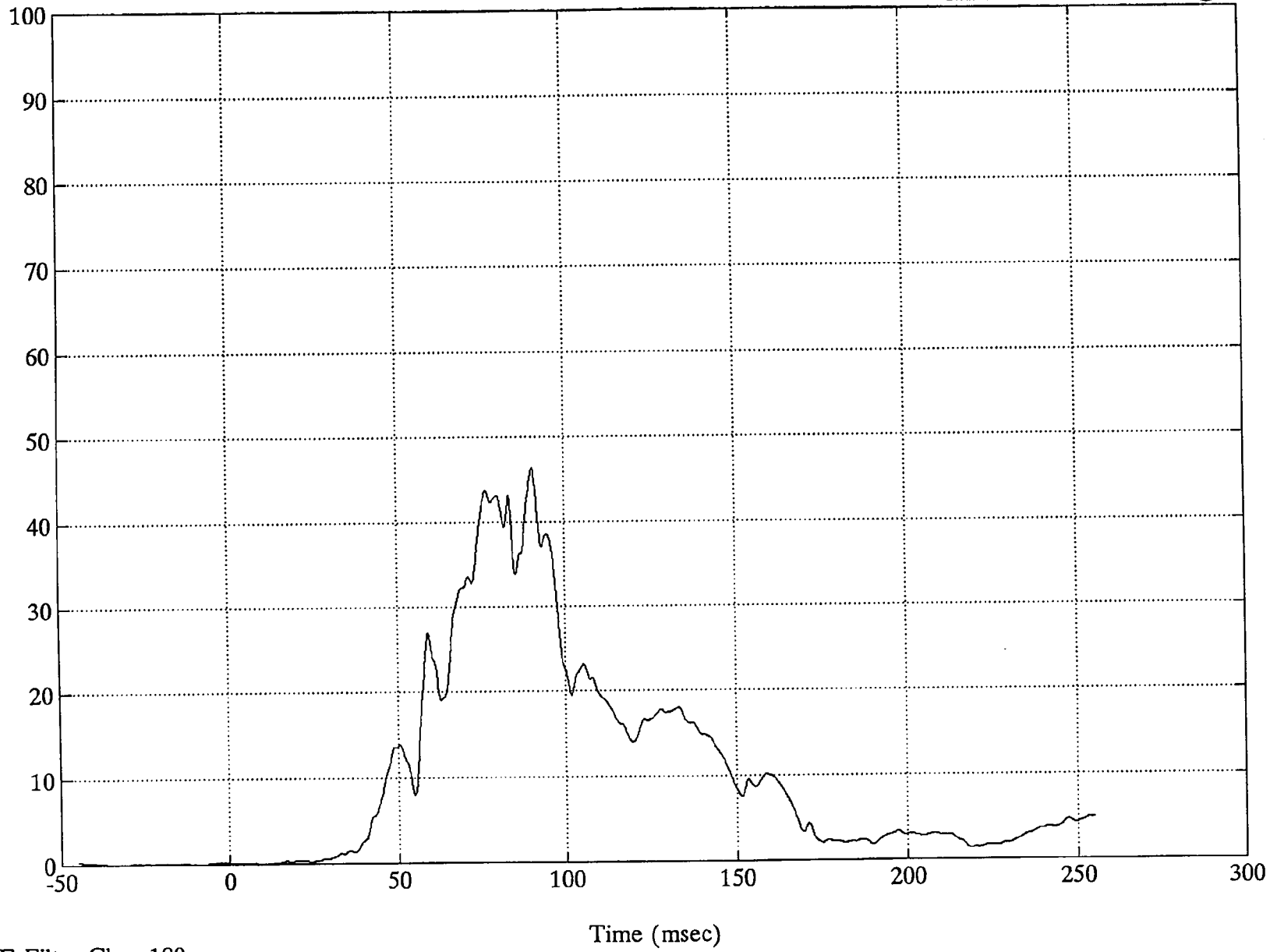
7978-5

SAE Filter Class 180

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 2 Chest Resultant

Max = 46.27 Gs @ 90.48 msec
Min = .02 Gs @ -7.44 msec



B-95

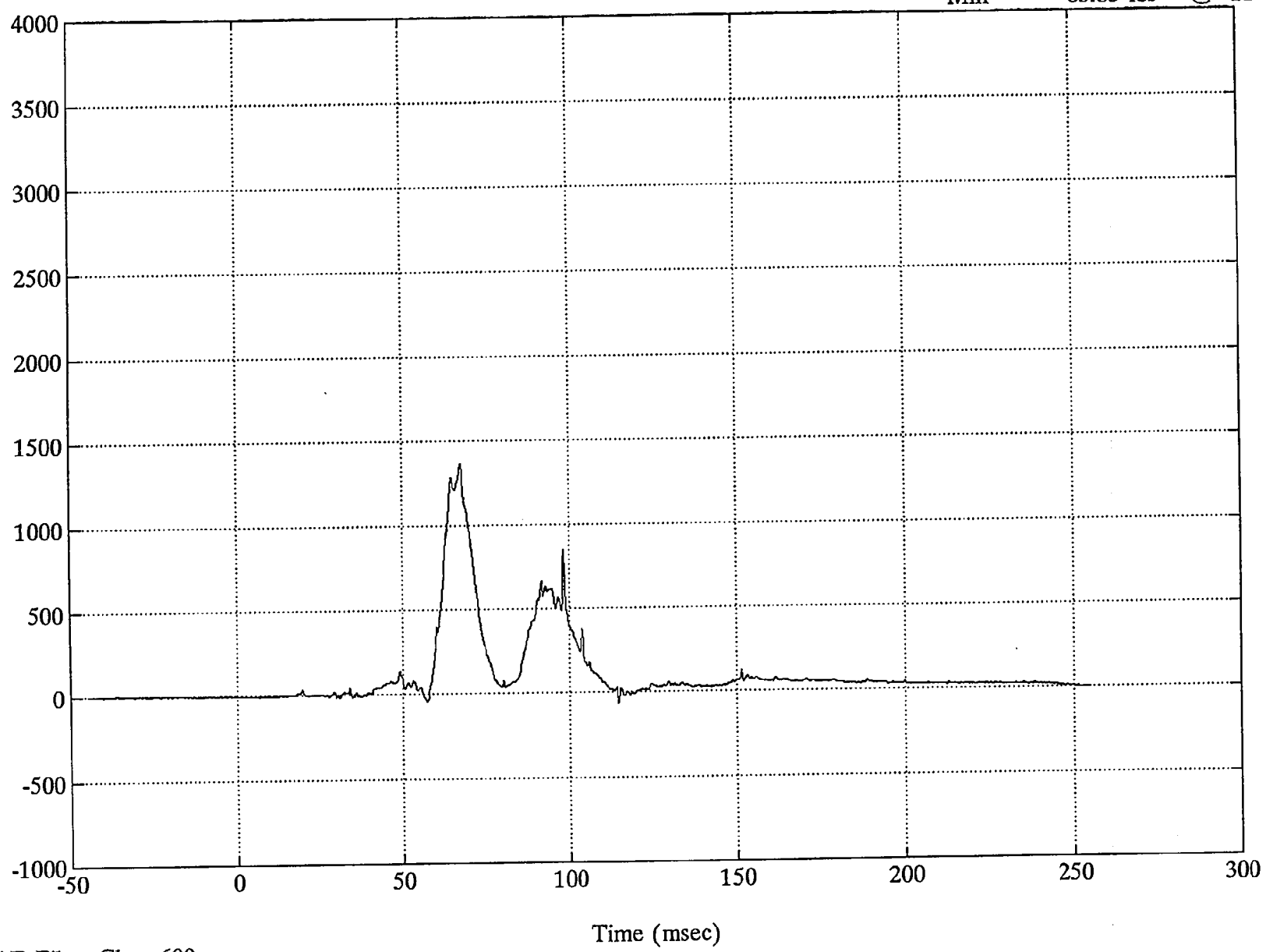
7978-5

SAE Filter Class 180

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 2 Left Femur

Max = 1364.16 lbs @ 67.80 msec
Min = -65.83 lbs @ 114.72 msec



B-96

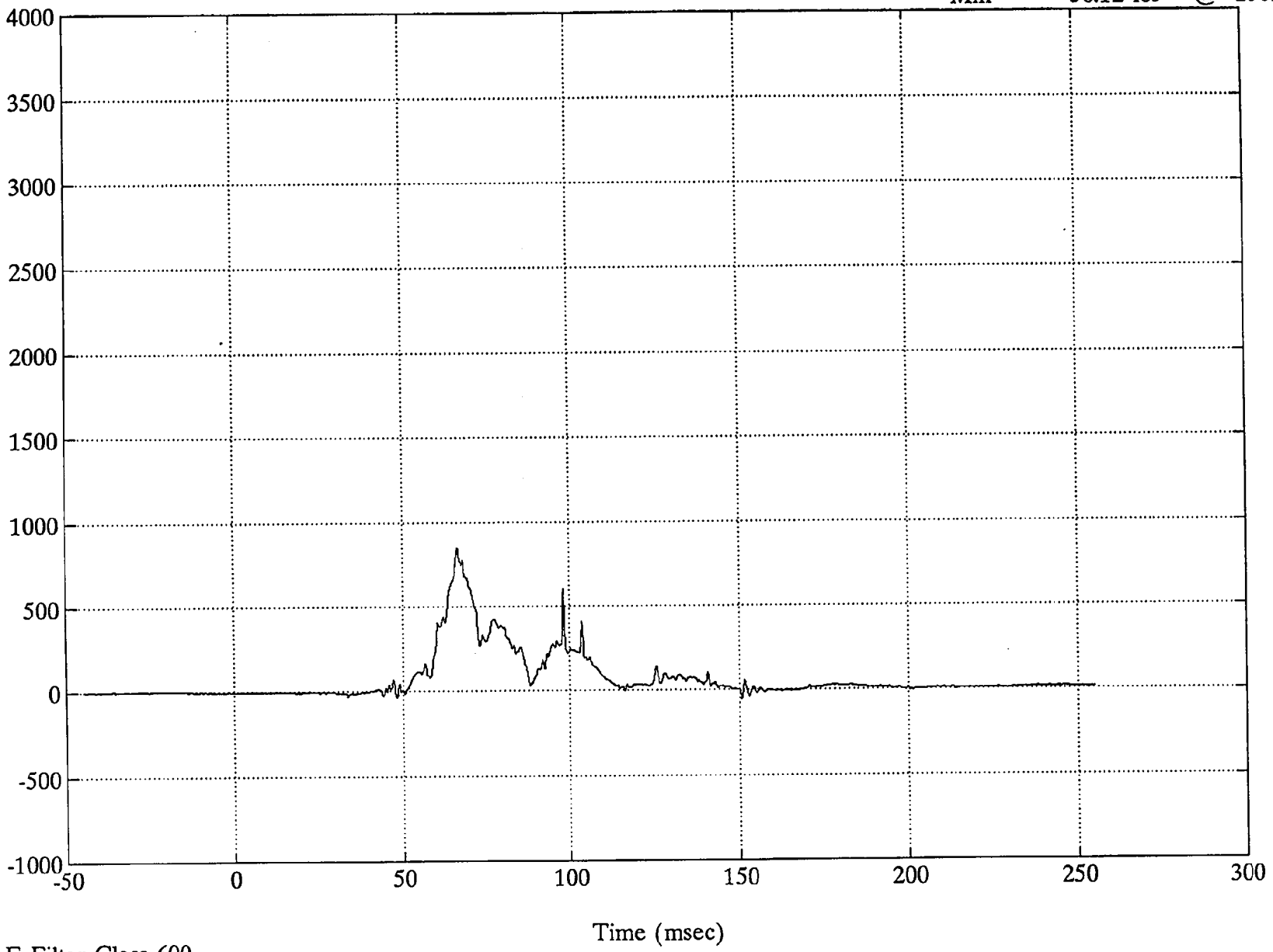
7978-5

SAE Filter Class 600

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 2 Right Femur

Max = 844.62 lbs @ 66.23 msec
Min = -56.12 lbs @ 150.72 msec



B-97

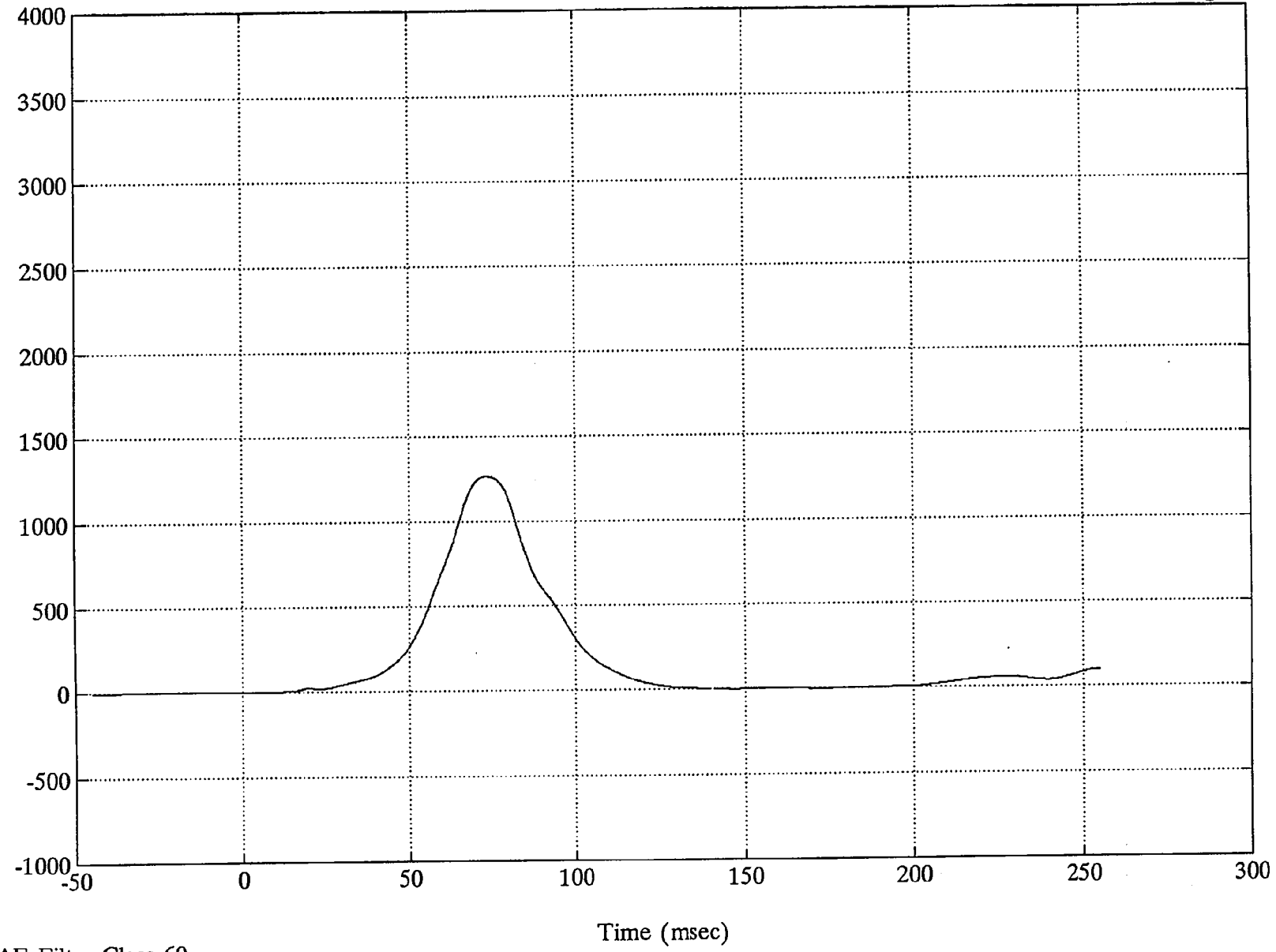
7978-5

SAE Filter Class 600

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 2 Right Belt Load

Max = 1264.07 lbs @ 73.20 msec
Min = -3.87 lbs @ 172.91 msec



B-98

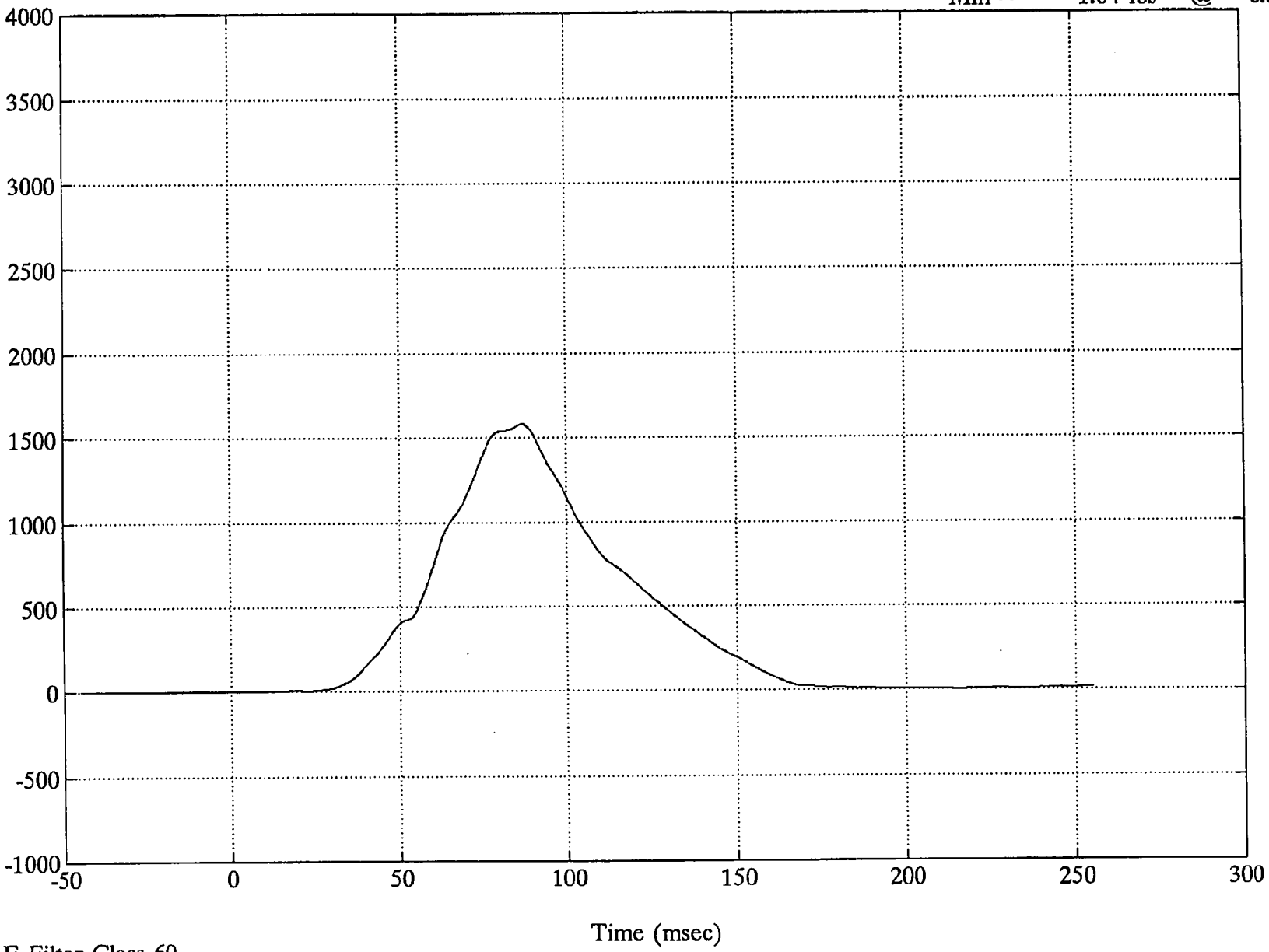
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 2 Torso Belt Load

Max = 1579.43 lbs @ 86.63 msec
Min = -1.04 lbs @ 6.35 msec



B-99

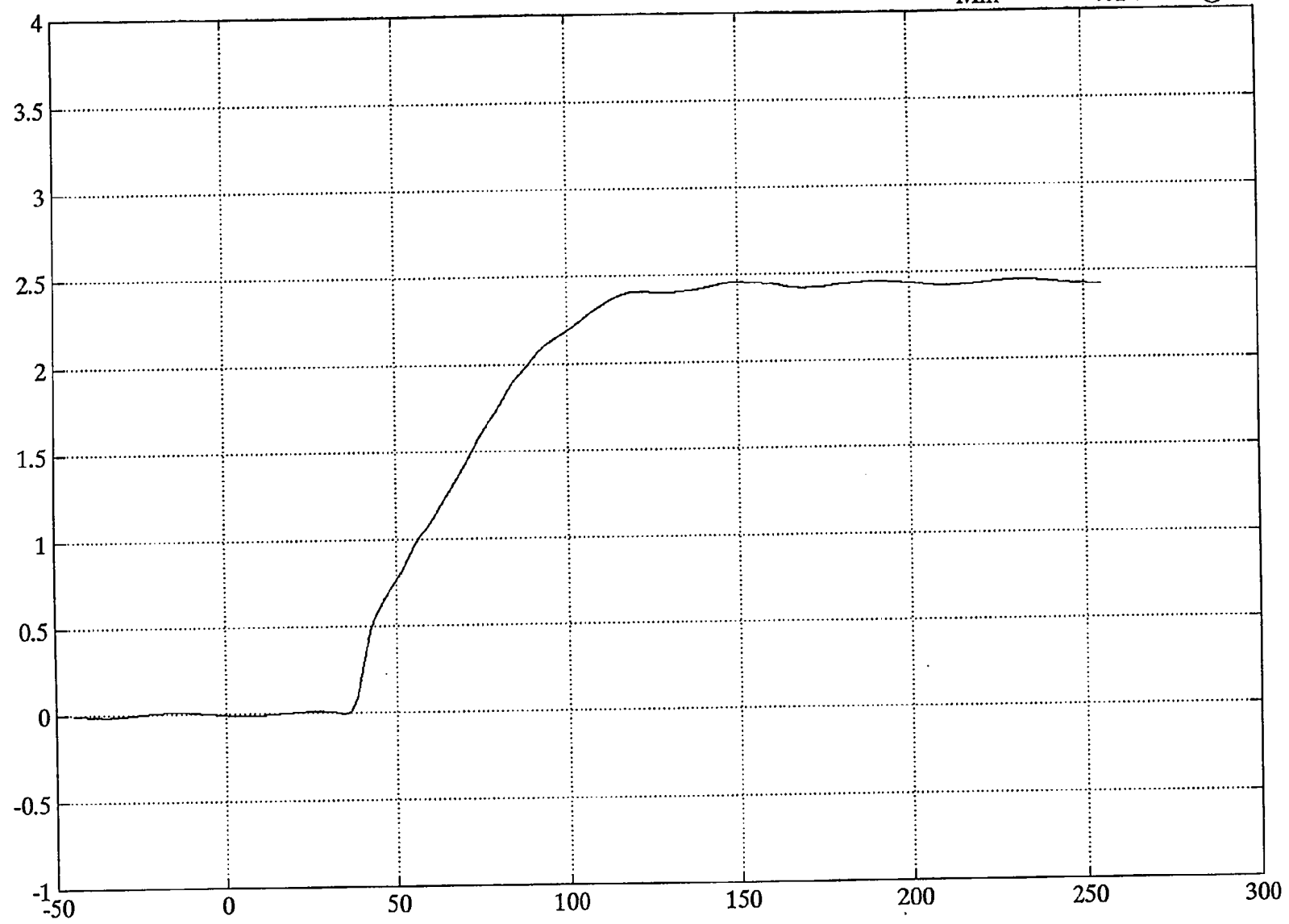
7978-5

SAE Filter Class 60

NCAP 92 TEST #15 FORD CROWN VICTORIA

Pos. 2 Belt Spool Out

Max = 2.46 ins @ 149.27 msec
Min = -.01 ins @ -35.04 msec



B-100

7978-5

SAE Filter Class 60

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:

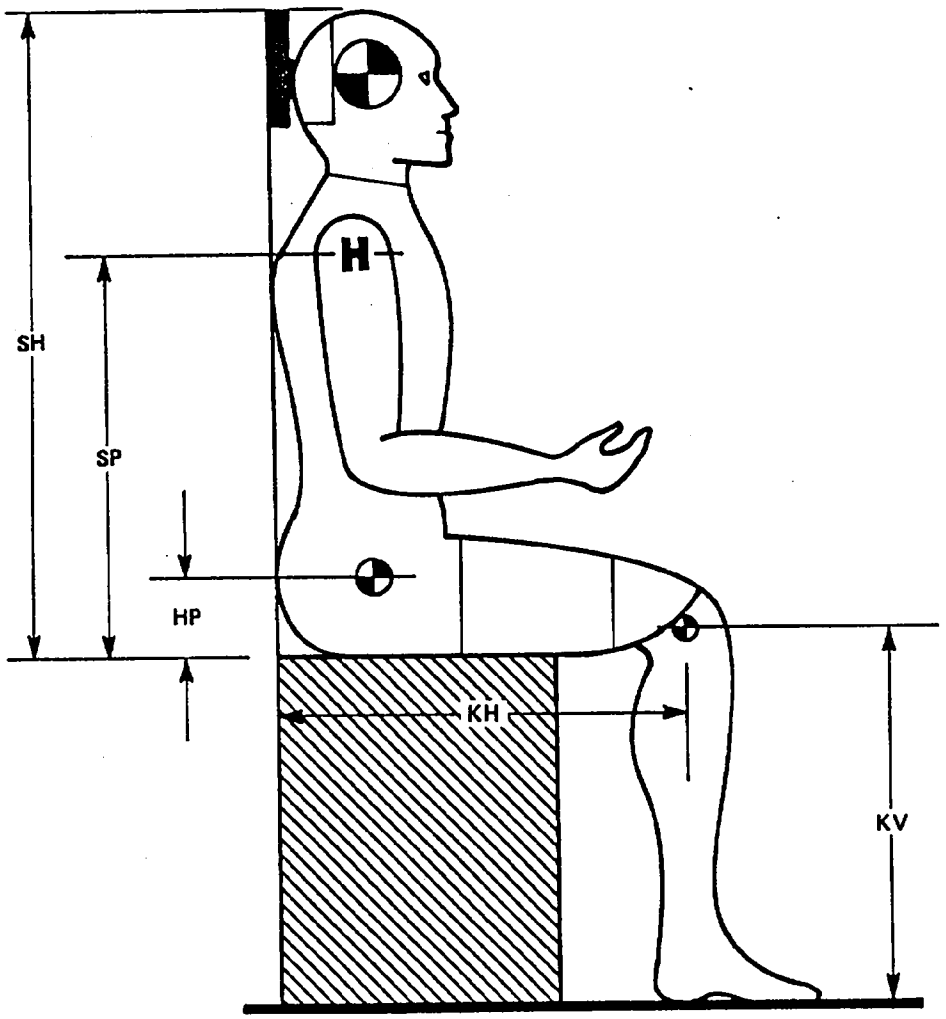
Serial No.	Completion Date
357	4-14-92
749	4-15-92

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: 357

I. CONFIGURATION VERIFICATION DATA:

	P. 572 SPECIFICATION	PRE-TEST if required	POST-TEST if required
DATE OF CONFIGURATION VERIFICATION	XXXXXXXXXXXXX	4/14/92	
VERIFICATION NUMBER FOR DUMMY (*)	XXXXXXXXXXXXX	4	
SH - Seated Height	35.6 to 35.8"	35.6 "	"
SP - Shoulder Pivot Height	21.8 to 22.4"	21.9 "	"
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"	19.5 "	"
SW - Shoulder Width	17.8 to 18.4"	18.0 "	"
HW - Hip Width	14.0 to 15.4"	14.3 "	"

II. PERFORMANCE VERIFICATION DATA:

		PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION		4/14/92	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY (*)		4	
VERIFICATION LAB TEMPERATURE (66 to 78 deg.)		69-70 deg	deg
VERIFICATION LAB HUMIDITY (10 TO 70 %)		28-35 %	%
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST a. peak resultant accel.	210 to 260 G's	227.6 G's	G's
b. peak lateral accel.	<= 10 G's	1.6 G's	G's
c. Time above 100 G's	0.9 to 1.5 ms.	1.38 ms	ms

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

TECHNICIAN'S NAME: Ivan Minkewicz

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

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 357

TEST PARAMETER		SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST				
a. Pendulum Speed		21.5 to 25.5 fps.	23.4 fps	fps
b. Pend. Avg. Decel. over t3 to t2		20 to 24 G's	22.4 G's	G's
c. Peak Resultant Head Acceleration		26 G's max.	25.94 G's	G's
d. Pendulum Decel. (t2-t1)		<= 3 ms.	2.73 ms	ms
e. Pendulum Decel. (t3-t2)		25 to 30 ms.	25.92 ms	ms
f. Pendulum Decel. (t4-t3)		<= 10 ms.	7.07 ms	ms
g. Max. Head Rotation		63 to 73 deg.	70.84 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.	30.01 ms	ms
	Displ.	2.1 to 3.1"	2.48 "	"
60 deg.	Time	40.3 to 51.7 ms.	44.89 ms	ms
	Displ.	4.3 to 5.3"	4.96 "	"
Maximum	Time	53.2 to 66.8 ms.	54.07 ms	ms
	Displ.	5.0 to 6.0"	5.34 "	"
60 deg.	Time	67.0 to 83.0 ms.	69.57 ms	ms
	Displ.	4.3 to 5.3"	5.03 "	"
30 deg.	Time	85.4 to 104.6 ms.	88.91 ms	ms
	Displ.	2.1 to 3.1"	2.11 "	"
0 deg.	Time	101.0 - 123.0 ms.	102.68 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: 357

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 lbs	lbs
b. Force @ 0.75"	36 to 50 lbs.	40.5 lbs	lbs
c. Force @ 1.0"	50 to 63 lbs.	59 lbs	lbs
d. Force @ 1.3"	73 to 88 lbs.	86 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.	38 lbs	lbs
c. Force @ 40 deg.	46 to 58 lbs.	50.5 lbs	lbs
d. Return Angle	12 deg. maximum	9 deg	deg
5. CHEST IMPACT TESTS:			
A. High Speed			
(1) Probe Speed	21.78-22.22 fps.	21.9 fps	fps
(2) Peak Deflection	1.7" maximum	1.66 "	"
(3) Peak Resistive Force	2250 lbs maximum	2064 lbs	lbs
(4) Internal Hysteresis	50 to 70%	57.7 %	%
B. Low Speed			
(1) Probe Speed	13.86-14.14 fps.	13.9 fps	fps
(2) Peak Deflection	1.1" maximum	1.06 "	"
(3) Peak Resistive Force	1450 lbs maximum	1286 lbs	lbs
(4) Internal Hysteresis	50 to 70%	56.4 %	%

TECHNICIAN'S NAME: Ivan Minkewicz

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA (continued)

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 357

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	2100 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	2164 lbs	lbs
(3) Time Above 1000 lbs.	1.7 ms. minimum	1.75 ms	ms

REMARKS:

TECHNICIAN'S NAME: Ivan Minkewicz

INSTRUMENT CALIBRATION INFORMATION

NHTSA DUMMY I.D. NUMBER: 357

A. DUMMY INSTRUMENTS

	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. HEAD ACCELEROMETER				
HX LONGITUDINAL	ENDEVCO	A12C	3/92	9/92
HY LATERAL	ENDEVCO	A60C	3/92	9/92
HZ VERTICAL	ENDEVCO	A84G	3/92	9/92
2. CHEST ACCELEROMETER				
CX LONGITUDINAL	CEC	A48A	3/92	9/92
CY LATERAL	ENDEVCO	A73A	3/92	9/92
CZ VERTICAL	CEC	A19A	3/92	9/92
3. FEMUR LOAD CELLS				
LEFT SIDE	GSE	954	5/92	11/92
RIGHT SIDE	GSE	955	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: 749

I. CONFIGURATION VERIFICATION DATA:

	P. 572 SPECIFICATION	PRE-TEST if required	POST-TEST if required
DATE OF CONFIGURATION VERIFICATION	XXXXXXXXXXXXX	4-15-92	
VERIFICATION NUMBER FOR DUMMY (*)	XXXXXXXXXXXXX	3	
SH - Seated Height	35.6 to 35.8"	35.6 "	"
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"	20.5 "	"
KV - Knee Pivot from floor	19.3 to 19.9"	19.5 "	"
SW - Shoulder Width	17.8 to 18.4"	18.1 "	"
HW - Hip Width	14.0 to 15.4"	14.7 "	"

II. PERFORMANCE VERIFICATION DATA:

		PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION		4-15-92	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY (*)		3	
VERIFICATION LAB TEMPERATURE (66 to 78 deg.)		69-71 deg	deg
VERIFICATION LAB HUMIDITY (10 TO 70 %)		27-35 %	%
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST			
a. peak resultant accel.	210 to 260 G's	228.5 G's	G's
b. peak lateral accel.	<= 10 G's	4.0 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: 749

TEST PARAMETER		SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST				
a. Pendulum Speed		21.5 to 25.5 fps.	22.4 fps	fps
b. Pend. Avg. Decel. over t3 to t2		20 to 24 G's	22.8 G's	G's
c. Peak Resultant Head Acceleration		26 G's max.	24.22 G's	G's
d. Pendulum Decel. (t2-t1)		<= 3 ms.	2.36 ms	ms
e. Pendulum Decel. (t3-t2)		25 to 30 ms.	26.17 ms	ms
f. Pendulum Decel. (t4-t3)		<= 10 ms.	5.95 ms	ms
g. Max. Head Rotation		63 to 73 deg.	72.11 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.	30.26 ms	ms
	Displ.	2.1 to 3.1"	2.92 "	"
60 deg.	Time	40.3 to 51.7 ms.	44.15 ms	ms
	Displ.	4.3 to 5.3"	4.8 "	"
Maximum	Time	53.2 to 66.8 ms.	54.07 ms	ms
	Displ.	5.0 to 6.0"	5.1 "	"
60 deg.	Time	67.0 to 83.0 ms.	71.68 ms	ms
	Displ.	4.3 to 5.3"	4.78 "	"
30 deg.	Time	85.4 to 104.6 ms.	90.28 ms	ms
	Displ.	2.1 to 3.1"	2.15 "	"
0 deg.	Time	101.0 - 123.0 ms.	104.04 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: 749

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.	27.5 lbs	lbs
b. Force @ 0.75"	36 to 50 lbs.	41.5 lbs	lbs
c. Force @ 1.0"	50 to 63 lbs.	58 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.	27.5 lbs	lbs
b. Force @ 30 deg.	34 to 46 lbs.	39 lbs	lbs
c. Force @ 40 deg.	46 to 58 lbs.	49 lbs	lbs
d. Return Angle	12 deg. maximum	9.5 deg	deg
5. CHEST IMPACT TESTS:			
A. High Speed			
(1) Probe Speed	21.78-22.22 fps.	22.0 fps	fps
(2) Peak Deflection	1.7" maximum	1.47 "	"
(3) Peak Resistive Force	2250 lbs maximum	2174 lbs	lbs
(4) Internal Hysteresis	50 to 70%	58.4 %	%
B. Low Speed			
(1) Probe Speed	13.86-14.14 fps.	13.9 fps	fps
(2) Peak Deflection	1.1" maximum	1.05 "	"
(3) Peak Resistive Force	1450 lbs maximum	1318 lbs	lbs
(4) Internal Hysteresis	50 to 70%	58.9 %	%

TECHNICIAN'S NAME: Ivan Minkewicz

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA (continued)

II. PERFORMANCE VERIFICATION DATA (continued)

NHTSA DUMMY I.D. NUMBER: 749

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	2058 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	1945 lbs	lbs
(3) Time Above 1000 lbs.	1.7 ms. minimum	1.75 ms	ms

REMARKS:

TECHNICIAN'S NAME: Ivan Minkewicz

INSTRUMENT CALIBRATION INFORMATION

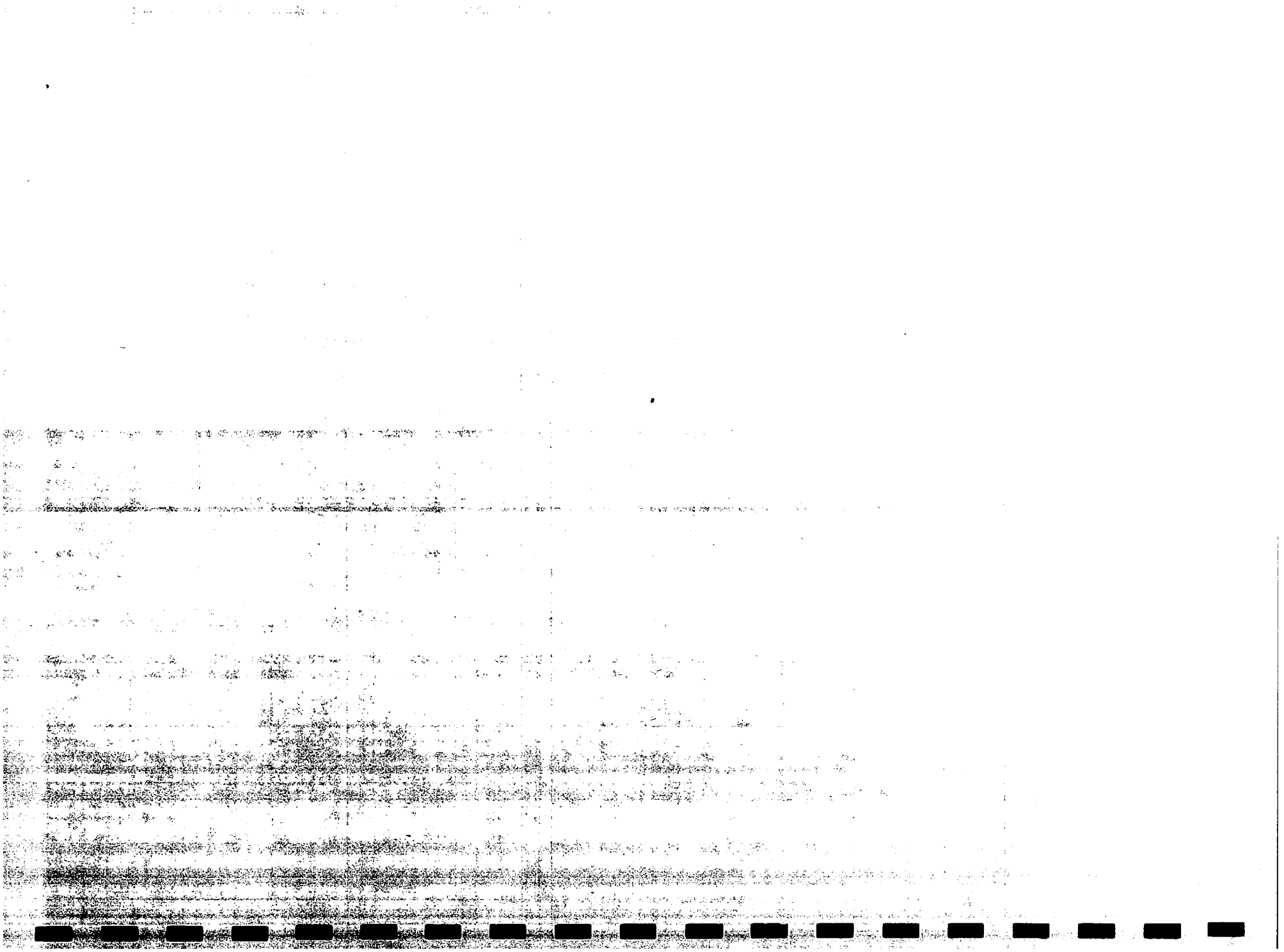
NHTSA DUMMY I.D. NUMBER: 749

A. DUMMY INSTRUMENTS

	MFG	SERIAL NUMBER	DATE LAST CALIBRATED	DATE OF NEXT CALIBRATION
1. HEAD ACCELEROMETER				
HX LONGITUDINAL	ENDEVCO	ER74	3/92	9/92
HY LATERAL	ENDEVCO	A57G	3/92	9/92
HZ VERTICAL	ENDEVCO	A84J	3/92	9/92
2. CHEST ACCELEROMETER				
CX LONGITUDINAL	CEC	EM94	3/92	9/92
CY LATERAL	ENDEVCO	A83G	3/92	9/92
CZ VERTICAL	CEC	A30G	3/92	9/92
3. FEMUR LOAD CELLS				
LEFT SIDE	GSE	951	5/92	11/92
RIGHT SIDE	GSE	952	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	A12C	ENDEVCO	3/92	9/92
Y	A60C	ENDEVCO	3/92	9/92
Z	A84G	ENDEVCO	3/92	9/92
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	955	GSE	5/92	11/92
Left Femur Load Cell	954	GSE	5/92	11/92
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	Next
Head X	ER74	ENDEVCO	3/92	9/92
Y	A57G	ENDEVCO	3/92	9/92
Z	A84J	ENDEVCO	3/92	9/92
Chest X	EM94	CEC	3/92	9/92
Y	A83G	ENDEVCO	3/92	9/92
Z	A30G	CEC	3/92	9/92
Right Femur Load Cell	952	GSE	5/92	11/92
Left Femur Load Cell	951	GSE	5/92	11/92
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	A115	CEC	6/92	12/92
Right Rear Seat Crossmember	A52	CEC	6/92	12/92
Top of Engine	A181	CEC	5/92	11/92
Bottom of Engine	A101	CEC	5/92	11/92
Left Disc Brake Caliper	A188	CEC	4/92	10/92
Right Disc Brake Caliper	A163	CEC	4/92	10/92
Instrument Panel	A164	CEC	5/92	11/92
Center Rear Crossmember Z	A176	CEC	6/92	12/92
Vehicle Rear Z	A69	CEC	6/92	12/92

INSTRUMENT CALIBRATION FOR LABORATORY INSTRUMENTS
(6 Month Calibration Minimum)

	Serial #	Manufacturer	Calibration	
			Last	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

Safety Restraints

Using Safety Restraints Properly

Safety Belts

The use of safety belts help to restrain you and your passengers in case of a collision. In most states, the law requires their use. We strongly recommend that you use them every time you travel in your vehicle.

Warning: Always drive and ride with your seatback upright and the lap belt snug across the hips to reduce the risk of serious injury to the abdomen or neck that could be caused by sliding under the safety belts in a collision.

Safety belts provide best restraint when:

- ❑ the seat back is upright
- ❑ the occupant is sitting upright (not slouched)
- ❑ the lap belt is snug and low on the hips
- ❑ the shoulder belt is snug against the chest
- ❑ the knees are straight forward

For your safety, your vehicle has different types of safety belts:

- ❑ Lap and shoulder belts – for people who sit next to the windows in either the front or rear seats
- ❑ Lap belts – for people who use the middle seat in either the front or the rear seats.

See the following sections for directions on how to properly use these safety belts. Also see *Safety Restraints for Children* in this chapter for special instructions about using safety belts for children.

Warning: Make sure that you and your passengers, including pregnant women, wear safety belts. Be sure that lap belts fit snugly and as low as possible around the hips. If safety belts are not used properly, the risk of you or your passengers being injured in a collision greatly increases.

Warning: Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. Never swing it around the neck over the inside shoulder. Failure to follow these precautions could increase the risk and/or severity of injury in an accident.

Do not allow any people to ride in the cargo area of your vehicle. People who are not riding in seats with their safety belts fastened are much more likely to be injured in a collision.

Never let a passenger hold a child on his or her lap while the vehicle is moving. The passenger cannot protect the child from injury in a collision.

Children should always ride with the seatback in the fully upright position. When the seatback is not fully upright, there is a greater risk that the child will slide under the safety belt and be seriously injured in a collision.

Never use a single belt for more than one person or across more than one seating position. This greatly increases the risk that one or both of the people will be injured in a collision. Each seating position in your vehicle has a specific safety belt assembly which is made up of one buckle and one tongue that are designed to be used as a pair.

Warning: Be sure to lock all doors before you drive away. This will lessen your risk of being thrown from the vehicle in a collision.

Safety Belt Maintenance

Check the safety belt systems periodically to make sure that they work properly and are not damaged.

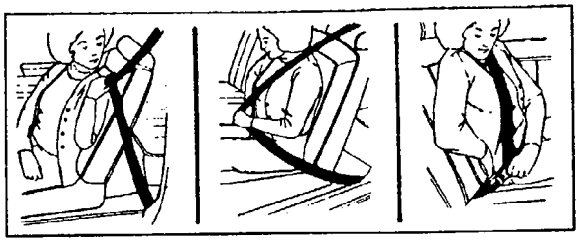
Warning: All safety belt assemblies including retractors and attaching hardware should be inspected after any collision. Ford recommends that all safety belt assemblies used during a collision be replaced unless the collision was minor and a qualified technician finds that the belts do not show damage and continue to operate properly. Safety belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

Combination Lap and Shoulder Belts

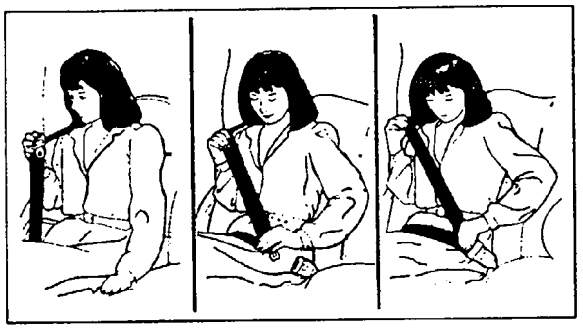
While your vehicle is in motion, the front and rear combination lap and shoulder belts will allow the occupant freedom of movement. However, if you brake hard, corner hard or if your vehicle receives an impact of 5 mph (8 km/h) or more, the lap and shoulder belt locks and helps prevent you from moving.

After you get into your vehicle, close the door and lock it. Then adjust the seat to the position that suits you best.

To fasten the belt, find the long strap of the belt near your shoulder on the window side, pull it across your shoulder and chest, and insert the tongue into the proper buckle on your seat until you hear a snap and feel it lock. Be sure to use the correct buckle and check to make sure the buckle is securely fastened.



Fastening the front seat lap and shoulder belt (Canadian vehicles only)



Fastening the rear seat lap and shoulder belt

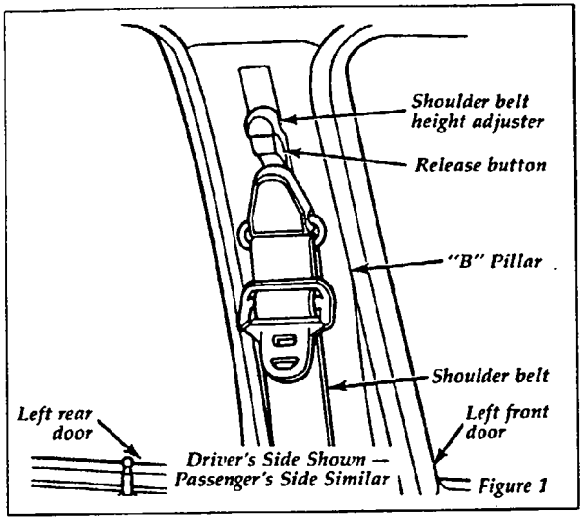
Shoulder Belt Adjustment

Driver and Right Front Passenger

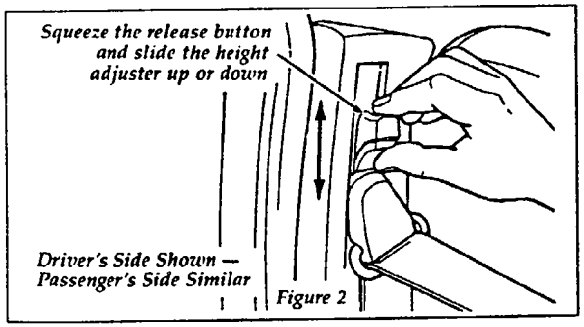
You can adjust the shoulder belt height to one of five (5) positions. To adjust, pinch the release button (see Figures 1 and 2) and slide it up or down until the belt rests on your shoulder near your neck. Release the button and make sure the adjuster is firmly in one of the five (5) positions.

Warning: If the shoulder belt is off your shoulder or on your upper arm, there is a greater risk of severe injury in an accident.

BE SURE THE BELT IS PROPERLY POSITIONED ON YOUR SHOULDER EACH TIME YOU USE THE BELT.



The shoulder belt height adjuster



The shoulder belt height adjuster

Warning: Make sure that the lap belt is as low around your hips as possible. Do not wear the lap belt around your waist. If you do not use the lap belts properly, the risk of being injured in a collision greatly increases.

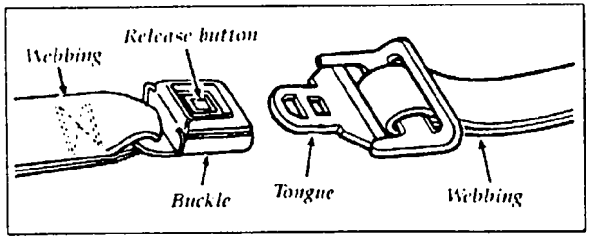
Warning: Front and rear seat outboard occupants (including pregnant women) should wear both lap and shoulder belts, for optimum protection in an accident.

Warning: Use the shoulder belt on the outside shoulder only. Never wear the shoulder belt under the arm. Never swing it around your neck over the inside shoulder. Never use a single belt for more than one person. Failure to follow these precautions could increase the risk and/or severity of injury in an accident.

To adjust the lap part of the belt, pull up on the shoulder belt until the lap belt fits snugly low on your hips.

To unfasten the belt:

1. Push the release button in the center of the buckle. This allows the tongue to unlatch from the buckle.



Unfastening the outboard lap/shoulder belts

2. While the belt retracts, guide the tongue to its original position. If you do not guide the tongue, it may strike you or part of the vehicle.

To Untwist or Unjam a Safety Belt

If you should jam the belt retractor by allowing the belt to retract when it is twisted, you can free the webbing with this procedure:

1. Pull on the belt with both hands to tighten it on the retractor spool.
2. Feed the belt back into the retractor until it is completely retracted. Repeat previous step if necessary.
3. Pull the belt out of its holder as far as it will go and untwist the belt or remove the object that is jamming the belt. Let the belt retract.
4. Then, pull the belt out and let it retract several times to be sure that the belt works properly.

Lap Belts — Center Seating Positions

The lap belts in the center of the front and rear seats do not adjust automatically. You must adjust them to fit snugly around your hips. Do not wear them around your waist.

Before you fasten your center position lap belts in the front or rear seats, you may need to lengthen them.

To lengthen the belt, tip the belt tongue at a right angle to the belt. Pull the belt tongue over your lap until it reaches the buckle.

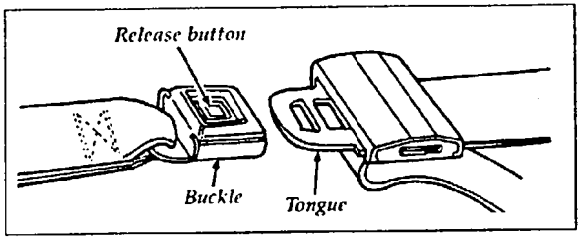
To fasten the belt, pull the belt across your hips and **insert the tongue into the correct buckle** on your seat until you hear a snap and feel it lock. Make sure the buckle is securely fastened.

Adjust the belt so that it fits snugly around your hips:

If you need to shorten the belt, pull on the loose end of the webbing.

To unfasten the belt, push the release button on the buckle. This allows the tongue to unlatch from the buckle.

Because the center lap belts do not have retractors, they should be shortened and fastened when not in use.



Unfastening center lap safety belts

Safety Belt Extension Assembly

A safety belt that is too short even when fully extended can be lengthened. Available from your dealer is a safety belt extension assembly (611C22). This assembly will add approximately eight inches (20 cm) to the length of the belt.

Warning: To ensure that the safety belt extension assembly will hold in the event of a collision, only safety belt extensions manufactured by the same supplier as the safety belt should be used. Manufacturer identification is located at the end of the webbing on a label.

Air Bag Supplemental Restraint System (SRS)

Driver and Optional Right Front Passenger Air Bag

This vehicle has a standard driver side air bag. If the letters "SRS" are above the glove box it also has a right front passenger air bag.

The air bag is a Supplemental Restraint System (SRS). It is designed to be used in addition to the safety belt to help protect against head and chest injuries in certain moderate to severe frontal collisions.

Warning: Safety belts must be worn by all vehicle occupants to help reduce the risk of injury in an accident.

The Importance of Wearing Safety Belts

There are four very important reasons to use safety belts even with an air bag system. Use your safety belts to:

- ❑ help keep you in the proper position when the air bag inflates
- ❑ reduce the risk of harm in rollover, side or rear impact accidents, since an air bag is not designed to inflate in such situations
- ❑ reduce the risk of harm in frontal collisions that are not severe enough to activate the air bag
- ❑ reduce the risk of being thrown from your vehicle

Warning: The optional right front passenger air bag is not designed to protect occupants in the center front seating position.

The Importance of Proper Seated Position

In an accident, the air bag must inflate extremely fast to help provide additional protection for you. In order to do this, the air bag must inflate with considerable force. If you are not seated in a normal riding position with your back against the seat back, the air bag may not protect you properly and could possibly hurt you as it inflates.

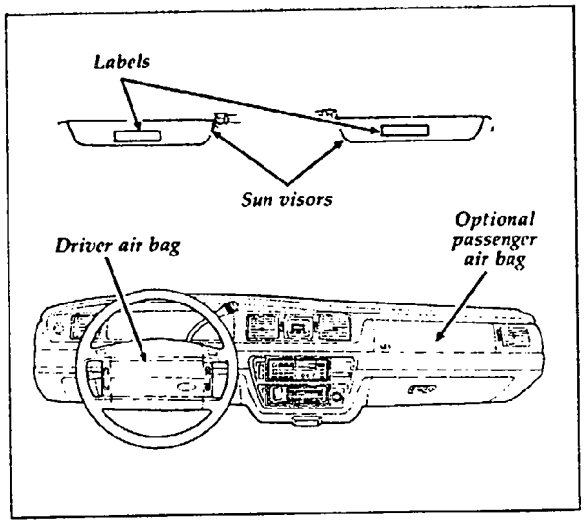
Warning: If your vehicle is equipped with a right front passenger air bag, front passengers, especially children and small adults, should never sit on the edge of the seat, stand near the glove compartment of the instrument panel, or lean over with their faces near the glove compartment when the vehicle is moving. All occupants should sit with their backs against the seat back and use the safety belts. Children below 40 lbs. (18 Kgs.) should use child or infant seats. Forward facing child seats must have the passenger seat moved as far back from the instrument panel as possible. REAR FACING INFANT SEATS SHOULD NEVER BE USED IN THE FRONT SEAT, BECAUSE THE FORCE OF THE RAPIDLY INFLATING PASSENGER AIR BAG WOULD PUSH THE TOP OF THE REAR FACING SEAT AGAINST THE VEHICLE SEAT BACK OR CENTER ARM RESTS. REAR FACING INFANT SEATS MUST ALWAYS BE PLACED IN THE REAR SEAT.

Warning: Do not put objects in front of the air bag system storage area that might restrict inflation or that might increase personal injury.

How the Air Bag Supplemental Restraint System Operates

The air bag supplemental restraint system has two main parts. One part is the air bag system with driver and, if so equipped, passenger-side air bags and inflators. The second part is the electrical system, which has impact sensors and a diagnostic module. The diagnostic module monitors its own internal circuits and the supplemental air bag electrical system readiness, including the crash sensors, the system wiring, the air bag system readiness light, air bag back up power, and the air bag igniters.

The driver air bag is in the center of the steering wheel. The front passenger seat air bag is in the center of the instrument panel ledge above the glove compartment, if the letters "SRS" appear there.



The location of the air bag and warning labels

The air bag system uses a readiness light and a tone to indicate the condition of the system. The readiness light is in the instrument cluster. When you turn the ignition key to ON, this light will illuminate for approximately six (6) seconds and then turn off. This indicates that the system is operating normally. **NOTE:** Regularly scheduled maintenance of the air bag system is not required.

If there is a problem with the system, two things may happen: the readiness light will either flash or stay lit, or you will hear a beeping sound. If either of these things happens, have the air bag system serviced at your Ford or Lincoln-Mercury dealer immediately.

Tone Generator

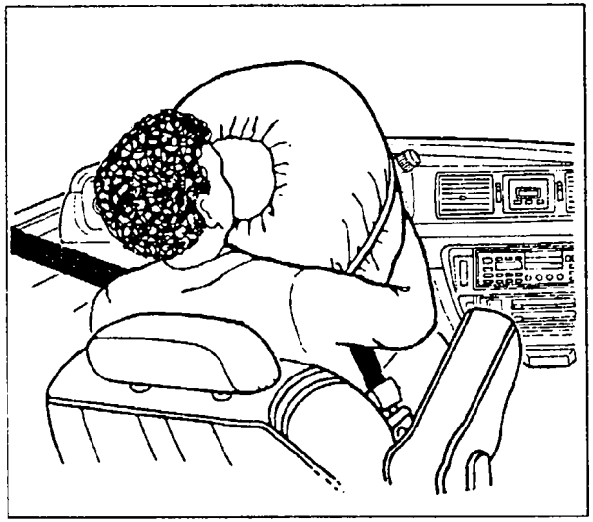
The air bag readiness light indicates the air bag system condition. However, a series of five sets of five beeps will be heard only if the readiness light doesn't work and there is a problem with the air bag system. This also means that the Air Bag Supplemental Restraint System (SRS) is in need of service. The tone pattern will repeat (five sets of five beeps) periodically until the problem and light are repaired. Unless serviced, the Air Bag Supplemental Restraint System may not function properly in the event of an accident.

Warning: Do not attempt to service, repair, or modify the Air Bag Supplemental Restraint System; tampering could cause activation of the system and increase the risk of personal injury. For servicing of the Air Bag Supplemental Restraint System, see your Ford or Lincoln-Mercury dealer.

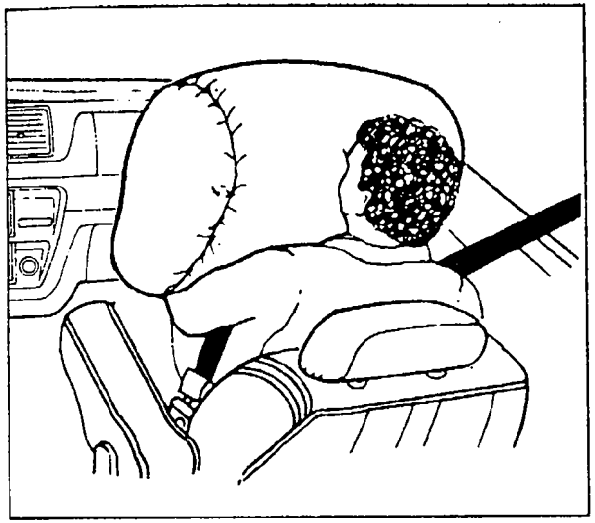
The air bag system is designed to stay out of sight until it is activated. The air bag system only operates in frontal and front-angled collisions more severe than hitting a parked car of similar size and weight head-on at about 28 mph (45 km/h). After receiving a signal from the crash sensors, the air bag system inflates in about 45 milliseconds.

If you are in such an accident, your forward motion will be restrained by both the air bag and your safety belt. The air bag then deflates. When used together, the air bag and your safety belt can help reduce the risk of injury to your head and chest. **NOTE:** Several air bag system components get hot after inflation. Do not try to touch them after inflation.

The air bag may not inflate in minor frontal collisions, even though the vehicle may be damaged. The fact that your air bag did not inflate in such a collision does not mean that something is wrong with the air bag system.



The driver side supplemental air bag inflated



The optional passenger side supplemental air bag inflated

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