REPORT NO. MSE-89-N05 R8107-05

NEW CAR ASSESSMENT PROGRAM (NCAP)

FRONTAL BARRIER IMPACT TEST

FORD MOTOR COMPANY

1989 FORD BRONCO II

2 DOOR 4 WHEEL DRIVE

NHTSA NO. MK0204

MOBILITY SYSTEMS AND EQUIPMENT COMPANY
9920 LA CIENEGA BOULEVARD SUITE 708
INGLEWOOD, CALIFORNIA 90301

MAY 01, 1989

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-22)

Washington, DC 20590

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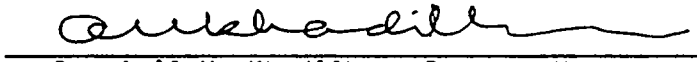
MOBILITY SYSTEMS AND EQUIPMENT COMPANY

APPROVED BY: 

Dr. Anil V. Khadilkar, Program Manager

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16. Abstract

A 35 mph frontal barrier impact test using a load cell barrier was conducted on a 1989 Ford Bronco II, 2 Door, 4 Wheel Drive Truck, at the Mobility Systems and Equipment Company (MSE) crash test facility in Mira Loma, CA, on 11 April 1989.

The barrier impact velocity was 35.2 mph, and the ambient temperature at the barrier face at the time of impact was 72°F. The posttest vehicle crush maximum was 19.2 in.

A summary of occupant injury measure data from the test appears below:

Injury Criteria Threshold Value	Driver Dummy	Passenger Dummy
Head Injury Criterion HIC = 1000	994	950
Chest Resultant Peak 60 Gs (3 ms clip)	58	51
Femur Load Left	267	428
2250 Pounds Right	2,110	289

TYPE OF RESTRAINT SYSTEM: 3-point continuous webbing system at each front outboard seating position.

17. Key Words
35 MPH FRONTAL BARRIER IMPACT TEST
NEW CAR ASSESSMENT PROGRAM (NCAP)
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SECTION 1

PURPOSE AND TEST PROCEDURE

This 35 mph frontal barrier impact test is a part of the FY'89 Vehicle Barrier Impact and Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-87-D-02009. 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 FMVSS 208/212/219/301-75 requirements.

This 35 mph frontal barrier impact test was conducted in accordance with the Office of Market Incentives (OMI) Laboratory Indicant Test Procedure, dated 01 September 1986.

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SECTION 2

SUMMARY OF FRONTAL BARRIER IMPACT TESTS

A load cell barrier consisting of 36 cell units was impacted by a 1989 Ford Bronco II, 2 Door, 4 Wheel Drive Truck, NHTSA No. MK0204, at a velocity of 35.2 mph. The frontal impact test was conducted by Mobility Systems and Equipment Company (MSE) on 11 April 1989. The general test and vehicle description information is presented in Tables 1 and 2. Pretest and posttest photographs of the test vehicle and dummies are shown in Appendix A.

Two (2) Part 572 50th percentile adult male Anthropomorphic Test Devices (ATD's) were placed in the driver and right front passenger designated seating positions (DSP's) according to the NHTSA test requirements.

The ATD's were instrumented with head and chest triaxial accelerometers and right/left femur load cells. In addition, load cells were placed on the driver's and passenger's lap and shoulder belts to measure dummy upper torso and pelvic section belt loading. A summary of dummy configuration and performance verification test data is presented in Appendix C.

The frontal impact event was documented by one (1) real time camera and fifteen (15) high-speed cameras. The camera location data are presented in Table 8.

Sixty- four (64) channels of crash parameters were recorded using five (5) FM tape recorders and associated data acquisition system. Time history plots of all recorded channels are presented in Appendix B.

2.1 GENERAL COMMENTS

The 1989 Ford Bronco II, 2 Door, 4 Wheel Drive Truck, was equipped with a 171 cubic inch 6 cylinder engine and automatic transmission. The test weight of the 1989 Ford Bronco II, 2 Door, 4 Wheel Drive Truck, with two (2) 50th percentile male dummies, instrumentation, and cameras was 4,008 pounds.

The 1989 Ford Bronco II was involved in a frontal load cell barrier crash at a velocity of 35.2 mph.

The maximum static crush for the vehicle of 19.2 inches occurred at the centerline of the front bumper. The windshield was cracked, but otherwise the vehicle glazing remained intact. Both the driver's and passenger's front doors were opened without the aid of tools.

The driver ATD's head hit the steering wheel and the center hub. The driver's left and right knees hit the dash panel. The driver ATD had a HIC value of 994, the maximum chest acceleration (resultant clipped) was 58 g's, and the maximum femur loads were 267 (left) and 2,110 (right) pounds.

The passenger ATD's head had no contact with the dash or knees. The HIC value for the passenger ATD was 950, the maximum chest acceleration (resultant clipped) was 51 g's, and the maximum femur loads were 428 (left) and 289 (right) pounds.

Seat belt spool out, measured by high-speed film analysis, was 3.0 inches for the driver and 2.5 inches for the passenger.

There were no apparent visual indications of any stoddard solvent leaks, windshield periphery separation or hood contact with the windshield.

Data Table No. 1 Test Vehicle Data

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1989/FORD/BRONCO II/2 DOOR 4 WHEEL DRIVE

VEHICLE NHTSA NO.: M K 0 2 0 4 VIN: 1 F M B U 1 4 T 6 K U A 2 6 4 7 2

VEHICLE BODY COLOR: SANDALWOOD ; MONTH & YEAR OF MANUFACTURE: 11/88

ENGINE: V6 cylinders; 177 C.I.D; 2.9 Liters; _____ CC

X Gas; _____ Diesel: _____ Turbocharged

PLACEMENT— X Longitudinal; _____ Transverse (Lateral)

TRANSMISSION: 5 speed; X Manual; _____ Automatic; _____ Overdrive

FINAL DRIVE: _____ Front Wheel Drive _____ Rear Wheel Drive; X Four Wheel Drive

DATE VEHICLE AVAILABLE FOR 35 MPH CRASH TESTING: 02/23/89

ODOMETER READING: 42 miles; OPTIONS: _____ A/C; X P/S; _____ P/Wdo.; _____

_____ Tilt Whl.; _____ Cruise Control

DATA RECORD FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): 35 psi Front; 35 psi Rear

Recommended Tire Size: P205/75RX15 M+S

Tires on Vehicle: P205/75RX15 ; Manufacturer: FIRESTONE

Number of Occupants: 2 Front; 2 Rear; _____ 3rd Seat; 4 TOTAL

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

Type of Front Seat Back: _____ Fixed; X Adjustable With X Lever/Rotating Knob

Vehicle Maximum Capacity Loading = 795* lbs. (A)

No. of Occupant x 150 lbs. - - - = 600 lbs. (B)

Cargo Capacity (A - B)- - - - - = 195 lbs.

*GVWR Delivered Weight

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Right Front = 905 lbs.

Left Front = 913 lbs.

Right Rear = 821 lbs.

Left Rear = 846 lbs

TOTAL WEIGHT = 3485 lbs.

TOTAL FRONT = 1818 lbs. (52.2 % of TOTAL)

TOTAL REAR = 1667 lbs. (47.8 % of TOTAL)

Data Table No. 1 (Cont'd) Test Vehicle Data

CALCULATION OF TEST VEHICLE TARGET WEIGHT:

Total Test Vehicle Delivered Weight With Maximum Fluids = 3485 lbs.

Maximum Cargo Carrying Capacity Of Test Vehicle - - - - - 195 lbs.

Weight Of Two P.572 Dummies (2 x 164 lbs.) - - - - - - - 328 lbs.

TEST VEHICLE TARGET WEIGHT - - - - - - 4008 lbs.

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front = 888 lbs.

Left Front = 957 lbs.

TOTAL FRONT = 1845 lbs. (46.0% of TOTAL)

Right Rear = 1069 lbs.

Left Rear = 1094 lbs.

TOTAL REAR = 2163 lbs. (54.0% of TOTAL)

TOTAL WEIGHT= 4008 LBS. (which includes 10 lbs. of cargo ballast weight placed in the cargo/luggage area)

VEHICLE COMPONENTS REMOVED TO MEET TARGET WEIGHT:

1. [X] Jack, Jack Stand

2. [ ] Rear Bumper Assembly

3. [X] Tail lamp hsg. [ ] Rt. Side [X] Left Side

4. _____

TEST VEHICLE ATTITUDE:

As Delivered—Right Front = 31.5 inches; Ready For Test—Right Front= 31.0 in.

Left Front = 31.5 inches; Left Front = 31.2 in.

Right Rear = 31.1 inches; Right Rear = 29.0 in.

Left Rear = 31.2 inches; Left Rear = 29.3 in.

Test Vehicle Wheelbase: 94.0 inches; C.g. = 53.8 inches rearward of front wheel centerline

Total Vehicle Length:

Right Side = 158.8 inches;

Left Side = 158.8 inches;

Centerline = 160.0 inches;

Total Vehicle Width:

Data Table No. 2 Post Crash Test Data

DATE OF 35 MPH FRONTAL BARRIER IMPACT RATINGS TEST: 04/11/89

TIME OF TEST: 2:34 PM : AMBIENT TEMPERATURE AT BARRIER FACE: 72 °F.

VEHICLE'S OCCUPANT COMPARTMENT TEMPERATURE: 72 °F. (Spec. Range + 66 to 78° F.)

VEHICLE'S WINDSHIELD MOLDING TEMPERATURE: 72 °F.

VEHICLE IMPACT VELOCITY: Primary Speed Trap = 35.16 mph

Secondary Speed Trap = 35.16 mph

(Specified Range = 34.5 to 35.5 mph)

Distance from vehicle's front bumper forwardmost surface to barrier face when—

(a) entering the speed trap = 5.0 ft

(b) exiting the speed trap = 1.0 ft

VEHICLE STATIC CRUSH: (All measurements in inches)

Vehicle Pre-test Length— Right Side= 158.8 ; C/Line= 160.0 ; Left Side= 158.8

Vehicle Post-test Length -Right Side= 140.8 ; C/Line= 140.8 ; Left Side= 140.8

VEHICLE STATIC CRUSH ---- Right Side= 18.0 ; C/Line= 19.2 ; Left Side= 18.0

VEHICLE REBOUND FROM BARRIER FACE:

Vehicle Right Side = 17.0 inches

Vehicle Centerline = 15.0 inches

Vehicle Left Side = 12.0 inches

VISIBLE DUMMY CONTACT POINTS:

	DRIVER (I.D. No. 465)			PASSENGER (I.D. No. 466)		
	Strg. Col. Hub	Strg. Wheel	Instru. Panel	Instru. Panel	Knee Assy.	Glove Box Door
HEAD	YES	YES	NO	NO	NO	NO
RIGHT KNEE			YES	YES		YES
LEFT KNEE			YES	YES		YES

VEHICLE DOOR OPENING INFORMATION

	RIGHT SIDE		LEFT SIDE	
	OPENED	JAMMED	OPENED	JAMMED
FRONT DOORS	YES	NO	YES	NO
REAR DOORS	N/A	N/A	N/A	N/A

VEHICLE'S FRONT SEAT MOVEMENT DURING CRASH EVENT:

	RIGHT SIDE	LEFT SIDE
Seat Cushion Shift - - -	1.4 " forward;	0.0 " forward
Seat Adjuster Failure- -	None ;	None

Details Of Any Failure:

Right front tire flat, no fuel tank leakage.

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SECTION 3

OCCUPANT AND VEHICLE INFORMATION

I. OMI DATA

Dummy Injury Criteria Data Summary

Dummy Positioning Data

Seat Belt Positioning Data

Seat Belt Performance Assessment Data

Driver Dummy to Steering Column Dimensions

Camera Locations

II. OVR DATA

Load Cell Barrier Data

Vehicle Accelerometer Data

Data Table No. 3 FMVSS No. 208 Occupant Crash Protection Data Sheet

VEH. YR./MAKE/MODEL/BODY STYLE: 1989/FORD/BRONCO II/2 DOOR 4 WHEEL DRIVE TRUCK

VEH. NHTSA NO.: MK0204 ; TEST DATE: 04/11/89

MAXIMUM ACCELERATION VALUES:		DRIVER DUMMY # 465	PASSENGER DUMMY # 466
Head Channel X	HEAD X	-282.170	-41.510
Head Channel Y	Y	-34.983	22.731
Head Channel Z	Z	-80.504	-71.039
HEAD RESULTANT	R	285.620	72.339
Chest Channel X	CHEST X	-60.851	-48.287
Chest Channel Y	Y	-10.749	29.528
Chest Channel Z	Z	-18.288	-19.071
CHEST RESULTANT	R	57.54	51.30
TIME INTERVAL (seconds)		0.06295 to 0.06595	0.06676 to 0.06976

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	HIC	994.00	949.55
t_1 (seconds)		0.0595	0.073
t_2 (seconds)		0.0955	0.109
Avg. Accel. t_1 to t_2		59.70	58.66

MAXIMUM FEMUR FORCES:

Right Side (lbs.)	FR	2110.1	288.77
Left Side (lbs.)	FL	266.63	428.16

MAXIMUM SEAT BELT FORCES:

Lap Belt	LAP	2239.0	2131.6
Shoulder Belt	SHLDR	1754.9	2091.3

MAXIMUM SEAT BELT WEBBING SPOOL-OUT:

Lap/Shoulder Belt Combination	3.5	4.5

Data Table No. 4 Test Dummy Positioning Data

PRE-IMPACT DATA:

Make/Model: FORD/BRONCO II/ 4 WHEEL DRIVE
Body Style: 2 DOOR TRUCK **Model Year:** 1989
NHTSA No.: MK0204 **Color:** SANDALWOOD

DATA FROM CERTIFICATION LABEL:

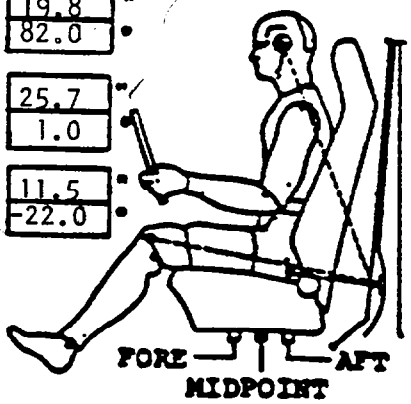
Vehicle Manufacturer: FORD MOTOR COMPANY
Date of Manufacture: 11/88 ; **VIN:** 1FMBU14T6KUA26472
GVWR: 4280 lb; **GAWR:** **Front =** 2120 lb; **Rear =** 2450 lb

POST-IMPACT DATA:

Date of Test: 04/11/89 **Time:** 2:34 PM **Temperature** 72 °F
Required Impact Velocity Range: 34.5 **to** 35.5 mph
Impact Velocity: **Primary =** 35.16 mph **Secondary =** 35.16 mph
Seat Type: BUCKET **Adjuster Type:** LEVER
Bucket Seat Back Type: HEADREST
Technicians: HENRY MARIN

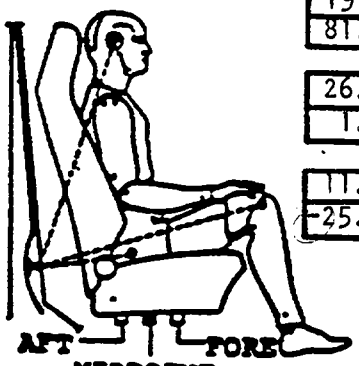
DRIVER DUMMY # 465

HEAD TARGET	19.8	"
	82.0	°
KNEE JOINT	25.7	"
	1.0	°
APPROX-IMATE "H" POINT	11.5	"
	-22.0	°

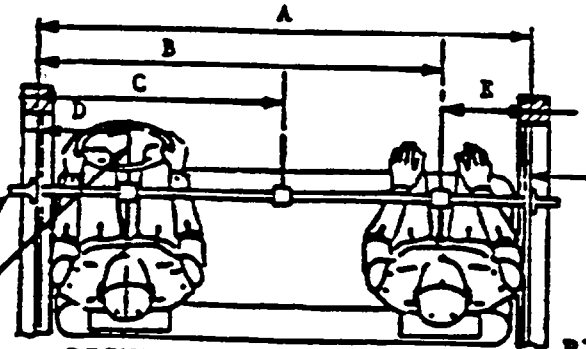


PASSENGER DUMMY # 466

19.8	"	HEAD TARGET
81.0	°	
26.0	"	KNEE JOINT
1.0	°	
11.0	"	APPROX-IMATE "H" POINT
-25.0	°	

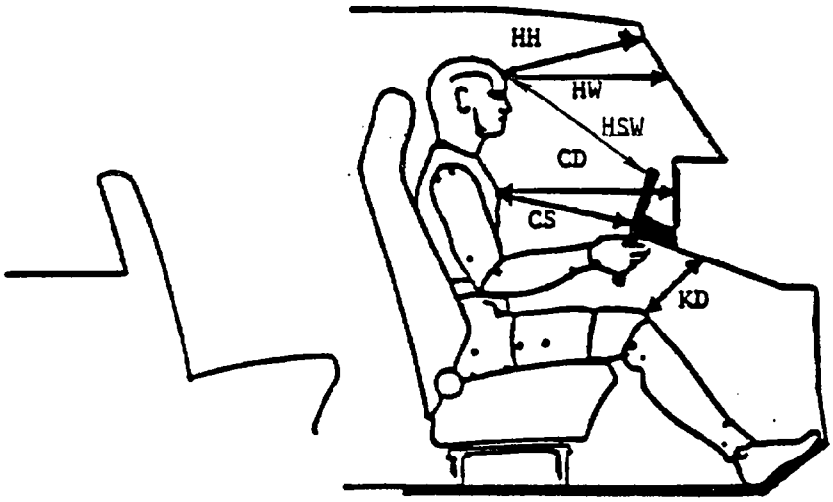


A = 58.0 "
B = 43.1 "
C = 29.0 "
D = 14.5 "
E = 14.5 "



465 466

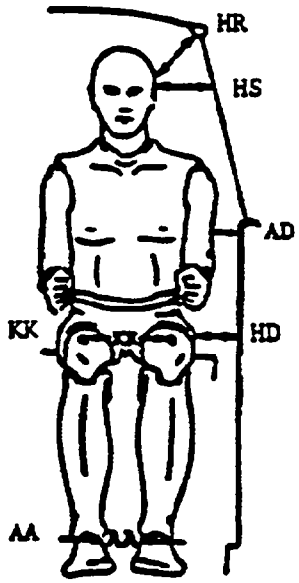
Data Table No. 4 (Cont'd) Test Dummy Positioning Data

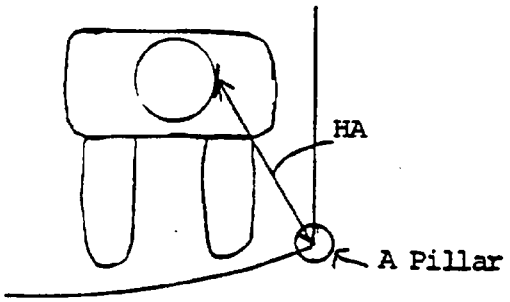


	Driver	Passenger
HH	19.7	20.0
HW	23.7	23.0
CD	23.7	24.2
CS	14.4	N/A
KD L-	8.2	L- 7.1
KD R-	8.2	R- 7.5
Torso Angle	23.0°	Torso Angle 20.0°
Seat Back Angle	19.0°	Seat Back Angle 19.0°
HSW	20.0	N/A

HSW = Head to Steering Wheel (in.)
HA = Head Target to A pillar (in.)
HH = Head to Windshield Header (in.)
HW = Head to Windshield (in.)
CD = Chest to Dash (in.)
CS = Chest to Steering Wheel (in.)
KD = Knees to Dash (in.)
HR = Head to Side Roof (in.)
HS = Head to Side Window (in.)
AD = Arm to Door (in.)
HD = Hip to Door (in.)
KK = Knee to Knee (in.)
Torso and seat back angles are relative to vertical. (deg.)

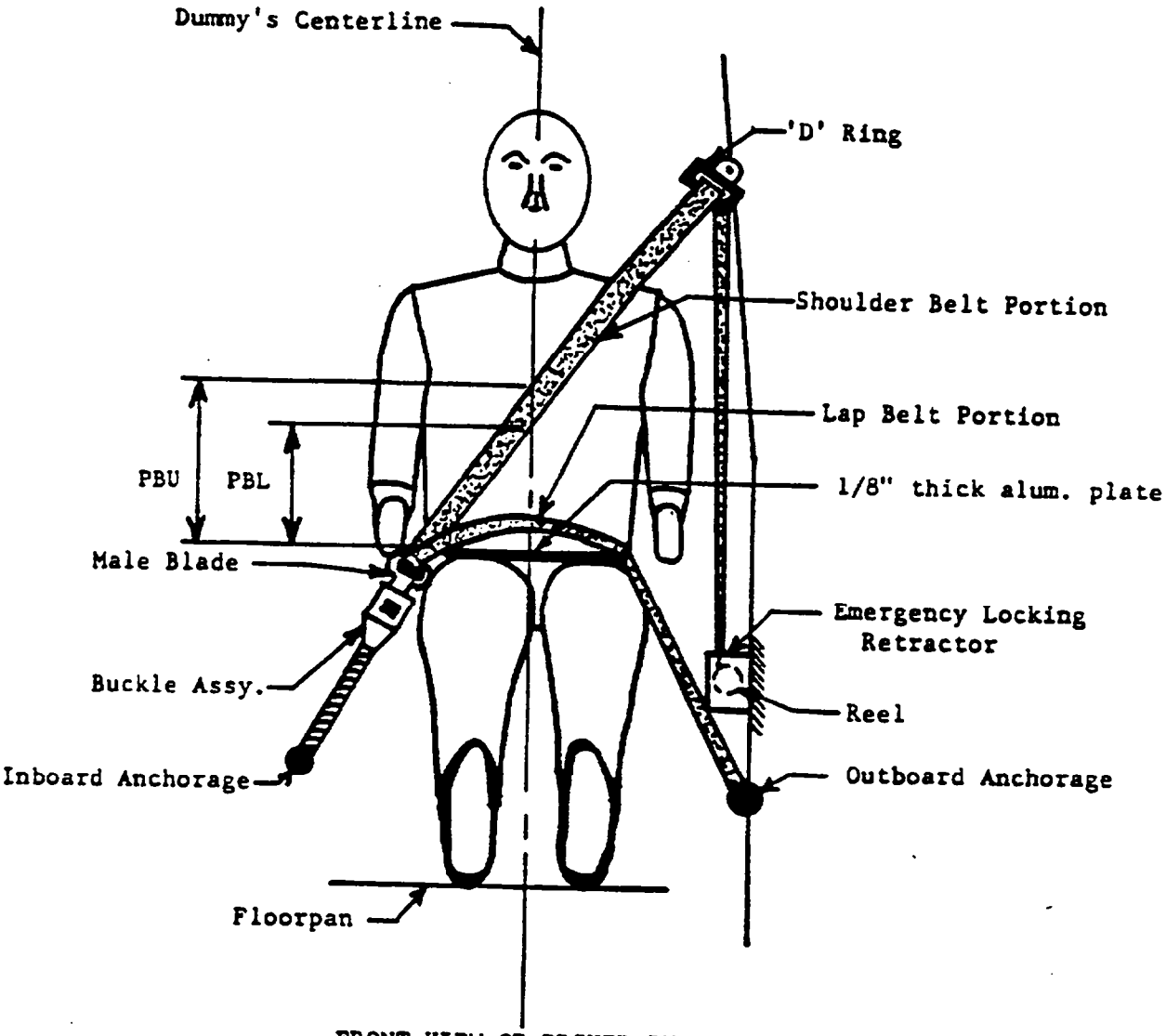
REMARKS:





	Driver	Passenger
HR	6.2	6.4
HS	8.7	9.0
AD	1.1	0.1
HD	6.0	5.2
KK	13.5	14.0
AA	14.0	13.0
HA	19.7	19.7

Data Table No. 5 Seat Belt Positioning Data



FRONT VIEW OF DRIVER DUMMY

	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
PBU--Top surface of alum. plate to belt upper edge	12.5	12.8
PBL--Top surface of alum. plate to belt lower edge	8.8	9.1
LAP BELT TENSION, POUNDS	3.0	3.0
SHOULDER BELT TENSION, POUNDS	3.0	3.0

Data Table No. 6 Seat Belt Performance Assessment Test Data

BELT LENGTH DATA:

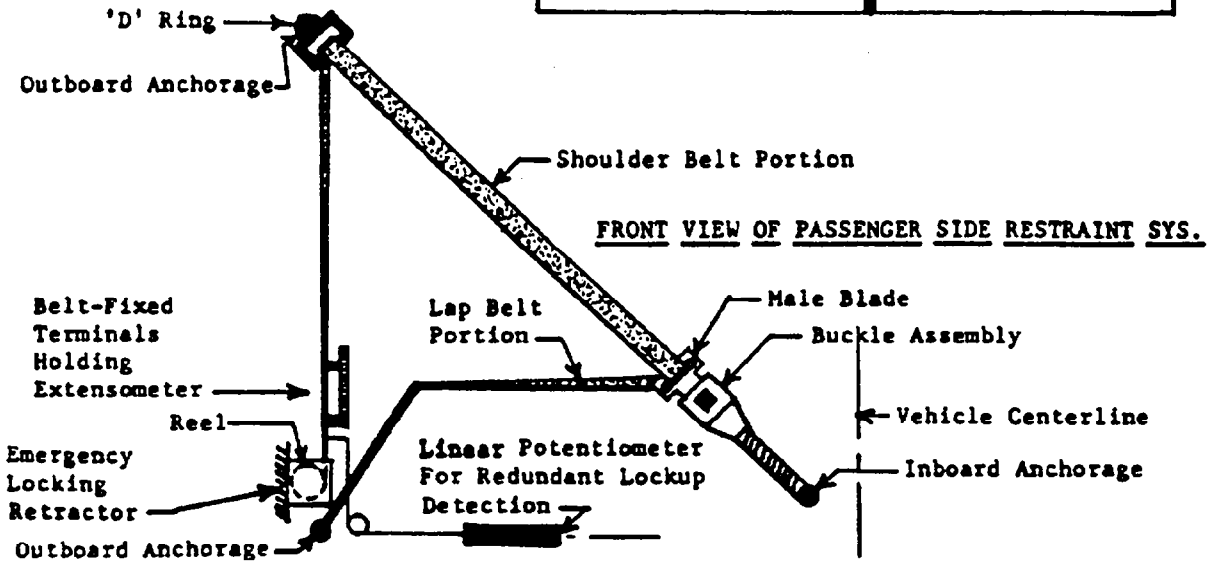
	DRIVER SIDE		PASSENGER SIDE	
	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
Total Belt Length from retractor reel to bolt hole anchor point for continuous webbing systems	88.0	86.9	88.0	89.0
Retractor reel to 'D' ring as measured on Part 572 dummy	26.0	26.0	26.0	26.0
Shoulder belt length as measured on Part 572 dummy	30.5	30.4	31.5	32.5
Lap belt length as measured on Part 572 dummy	31.5	30.5	30.5	30.5
Remainder of belt webbing left on retractor reel	26.5	27.6	25.5	24.5

BELT SPOOL-OFF DATA:

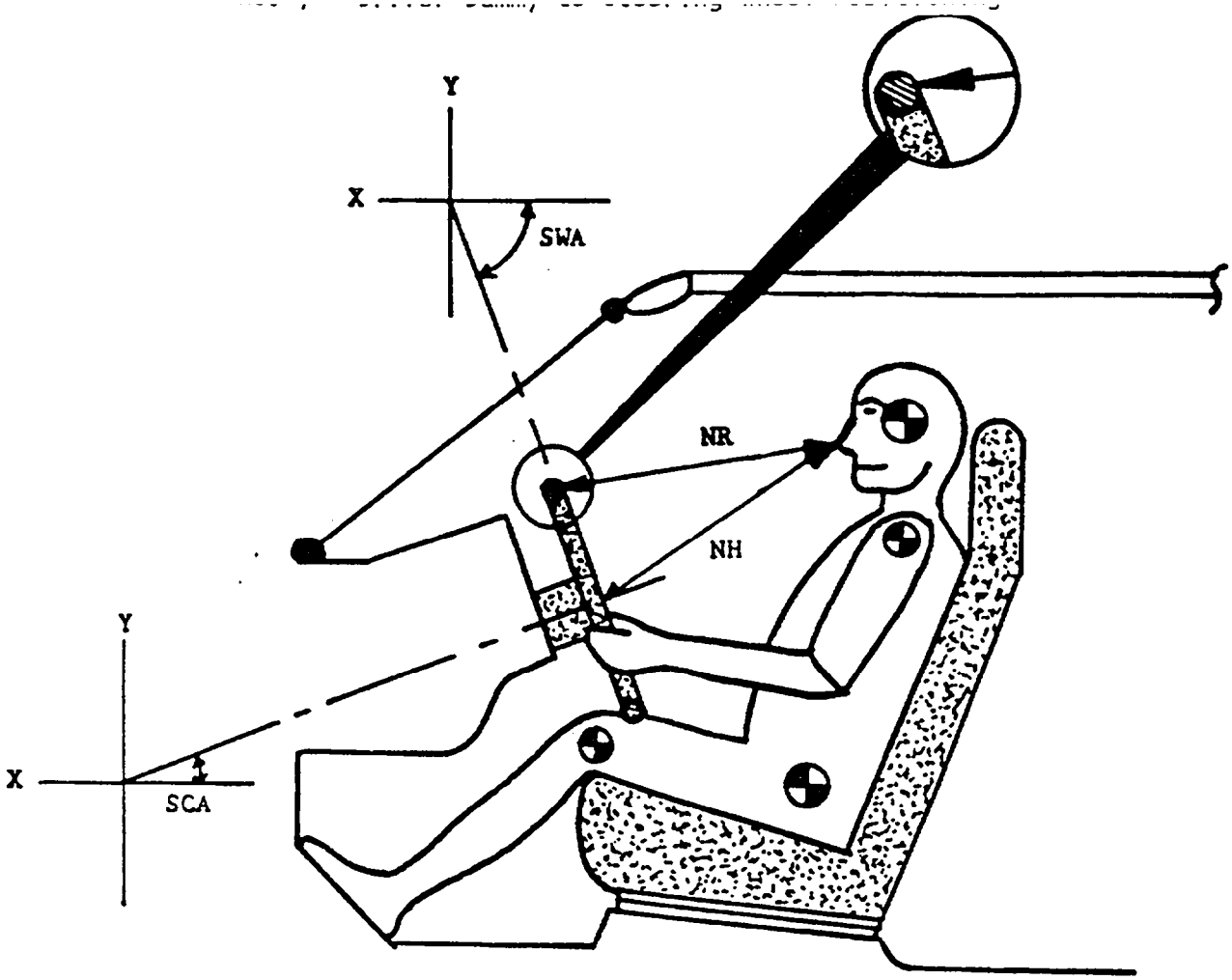
As determined by film analysis	3.0	2.5
As determined electronically	N/A	N/A
As determined mechanically	3.5	4.5

BELT STRAIN DATA:

Measured between retractor reel and 'D' ring	2.1 Percent	N.D. Percent



FRONT VIEW OF PASSENGER SIDE RESTRAINT SYS.



LEFT SIDE VIEW

	MEASUREMENTS	
NR--Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	17.7	Inches
NH--Distance from tip of dummy's nose to center of steering column hub	17.8	Inches
SCA--Angle of steering column relative to the horizontal X axis	24.0	Degrees
SWA--Angle of steering wheel relative to the horizontal X axis.	66.0	Degrees

Data Table No. 8 Camera Location Data

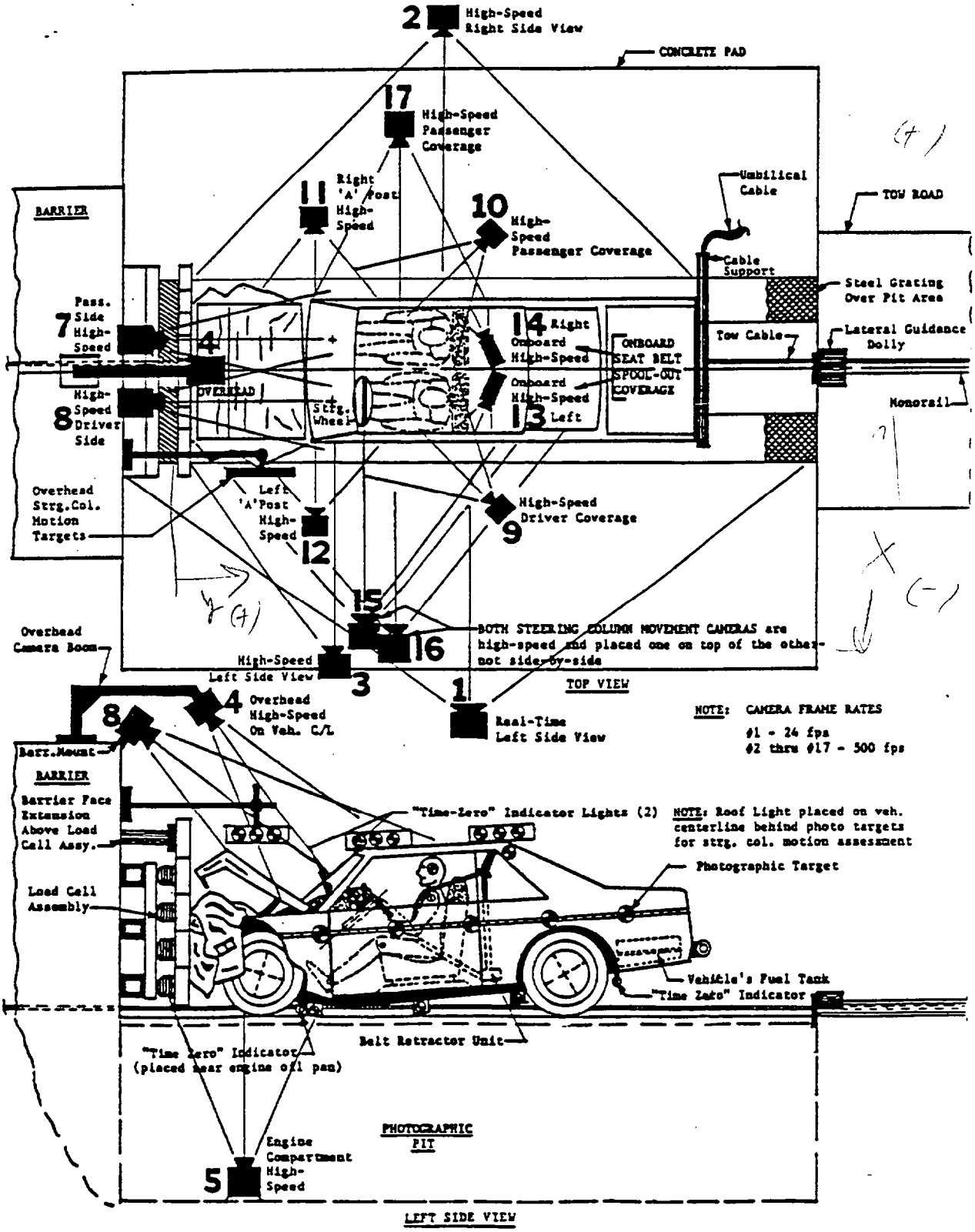
VEH. NHTSA NO.: MK0204 ; TEST DATE: 04/11/89 ; TIME: 2:34 PM

VEH. YEAR/MAKE/MODEL/BODY STYLE: 1989/FORD BRONCO II/2 DOOR 4 WHEEL DRIVE

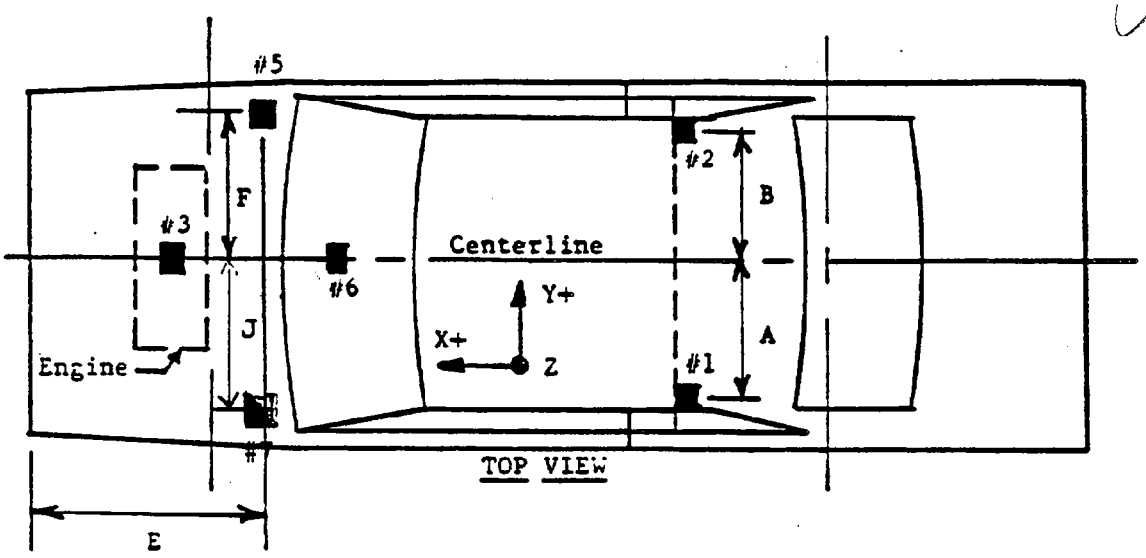
CAMERA NO.	VIEW	CAMERA POSITIONS (in.)*			ANGLE (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Left Side View	-676	268	57	3	68	15-70 zoom	24
2	Right Side View	250	40	55	4	239	13	575
3	Left Side View	-257	25	48	0	264	13	525
4	Overhead	-1	-4	124	60	112	13	625
5	Pit-Engine	2	42	-54	40	---	13	575
6	Pit-Fuel Tank	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.
7	Front-Passenger	13	-14	104	51	110	16	575
8	Front-Driver	-12	-14	104	48	109	16	575
9	Left Side-Driver	-86	112	80	21	75	16	625
10	Right Side-Passenger	86	106	80	17	75	16	725
11	Right Side-'A' Post	172	6	54	2	176	28	725
12	Left Side-'A' Post	-340	-50	41	0	324	50	625
13	Onboard-Left Side	-12	120	42	-17	38	13	475
14	Onboard-Right Side	11	119	42	-16	38	13	475
15	Left Side-Steering Col.	-373	88	128	14	363	28	625
16	Left Side-Steering Col.	-372	86	109	11	356	28	675
17	Right Side-Passenger	136	88	53	5	120	16	625

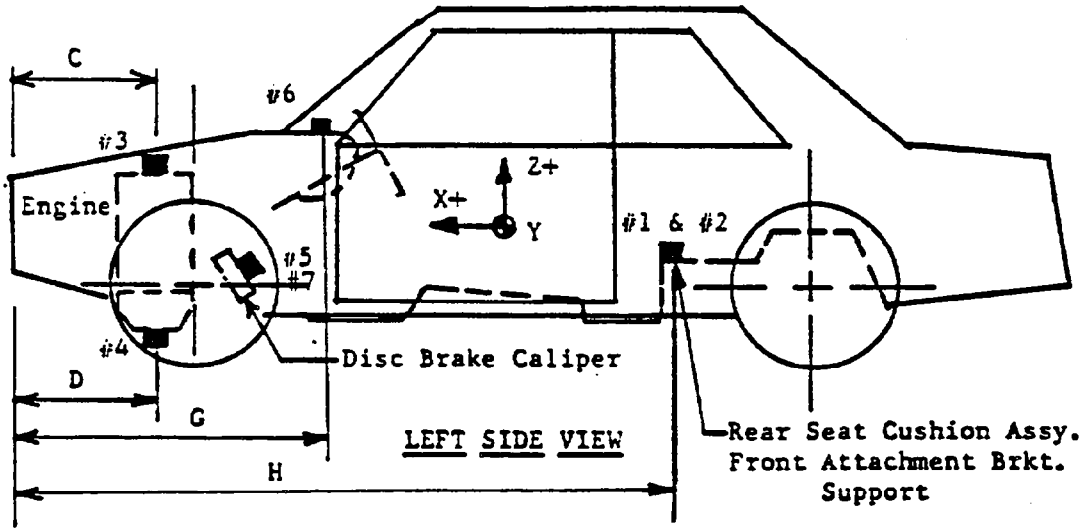
* X = film plane to monorail centerline
  Y = film plane to barrier face
  Z = film plane to ground

Data Table No. 8 (Cont'd) Camera Location Data



Data Table No. 9 Vehicle Accelerometer Location and Data Summary





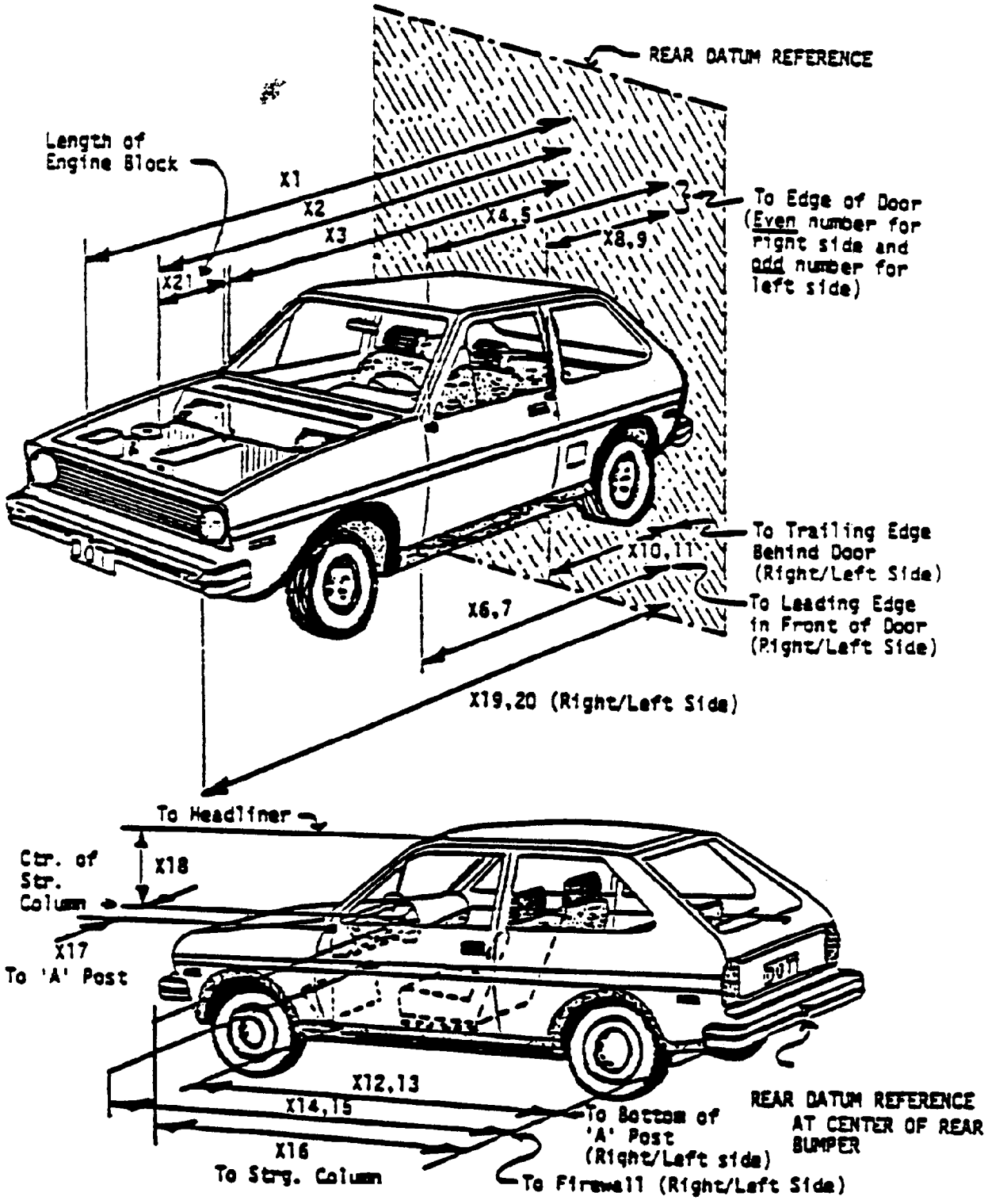
Dimension	Length (in.)
A	17.7
B	18.2
C	34.5
D	32.5
E	34.7
F	22.5
G	59.5
H	111.5
J	22.5

Loc. No.	Description	Maximum Value X-	msec.	X+	msec.
1	Rear seat X-member @ Left Side	-38.40	20.9	2.34	114.0
2	Rear seat X-member @ Right Side	-47.03	20.2	2.99	174.5
3	Top of Engine Block	-133.06	29.7	19.99	48.8
4	Bottom of Engine	-130.86	33.3	37.72	41.3
5	Disc Brake Caliper @ Right Side	-63.54	30.6	25.97	49.5
6	Instrument Panel	-96.62	59.2	62.38	66.9
7	Disc Brake Caliper @ Left Side	-71.02	34.2	19.28	52.4

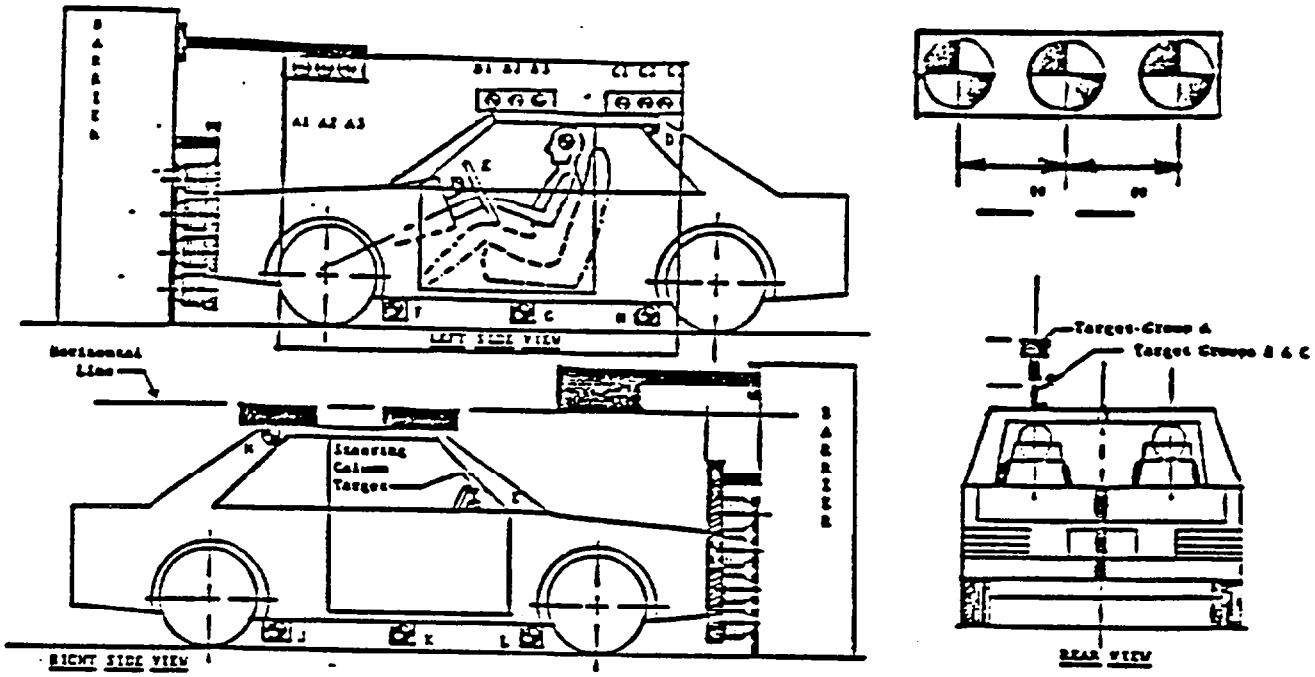
Data Table No. 10 Test Vehicle Measurements

NO.	MEASUREMENT DESCRIPTION:	Pre-Test (in.)	Post-Test (in.)	Diff. (in.)
X1	Total Length of Test Vehicle at Centerline	160.0	140.8	19.2
X2	Rear Surface of Vehicle to Front of Engine	141.3	133.7	7.6
X3	Rear Surface of Vehicle to Firewall	119.0	112.8	6.2
X4	Rear Surface to Upr. Leading Edge of Right Door	107.0	108.3	-1.3
X5	Rear Surface to Upr. Leading Edge of Left Door	107.0	108.8	-1.8
X6	Rear Surface to Lwr. Leading Edge of Right Door	106.3	106.5	-0.2
X7	Rear Surface to Lwr. Leading Edge of Left Door	106.3	107.0	-0.7
X8	Rear Surface to Upr. Trailing Edge of Right Door	64.1	65.5	-1.4
X9	Rear Surface to Upr. Trailing Edge of Left Door	64.1	66.0	-1.9
X10	Rear Surface to Lwr. Trailing Edge of Right Door	63.5	64.0	-0.5
X11	Rear Surface to Lwr. Trailing Edge of Left Door	63.5	64.5	-1.0
X12	Rear Surface to Bottom of 'A' Post on Right Side	104.0	104.3	-0.3
X13	Rear Surface to Bottom of 'A' Post on Left Side	104.0	104.5	-0.5
X14	Rear Surface to Firewall on Right Side	116.5	115.8	0.7
X15	Rear Surface to Firewall on Left Side	118.0	117.8	1.2
X16	Rear Surface to Steering Column	90.5	90.0	0.5
X17	Center of Steering Column to 'A' Post	15.0	14.0	1.0
X18	Center of Steering Column to Headlining	20.5	20.8	-0.3
X19	Rear Surface to Right Side of Front Bumper	158.8	140.8	18.0
X20	Rear Surface to Left Side of Front Bumper	158.8	140.8	18.0
X21	Length of Engine Block	18.0	18.0	0.0

Data Table No. 10 (Cont'd) Test Vehicle Measurements



Data Table No. 11 Pretest Vehicle Target Locations



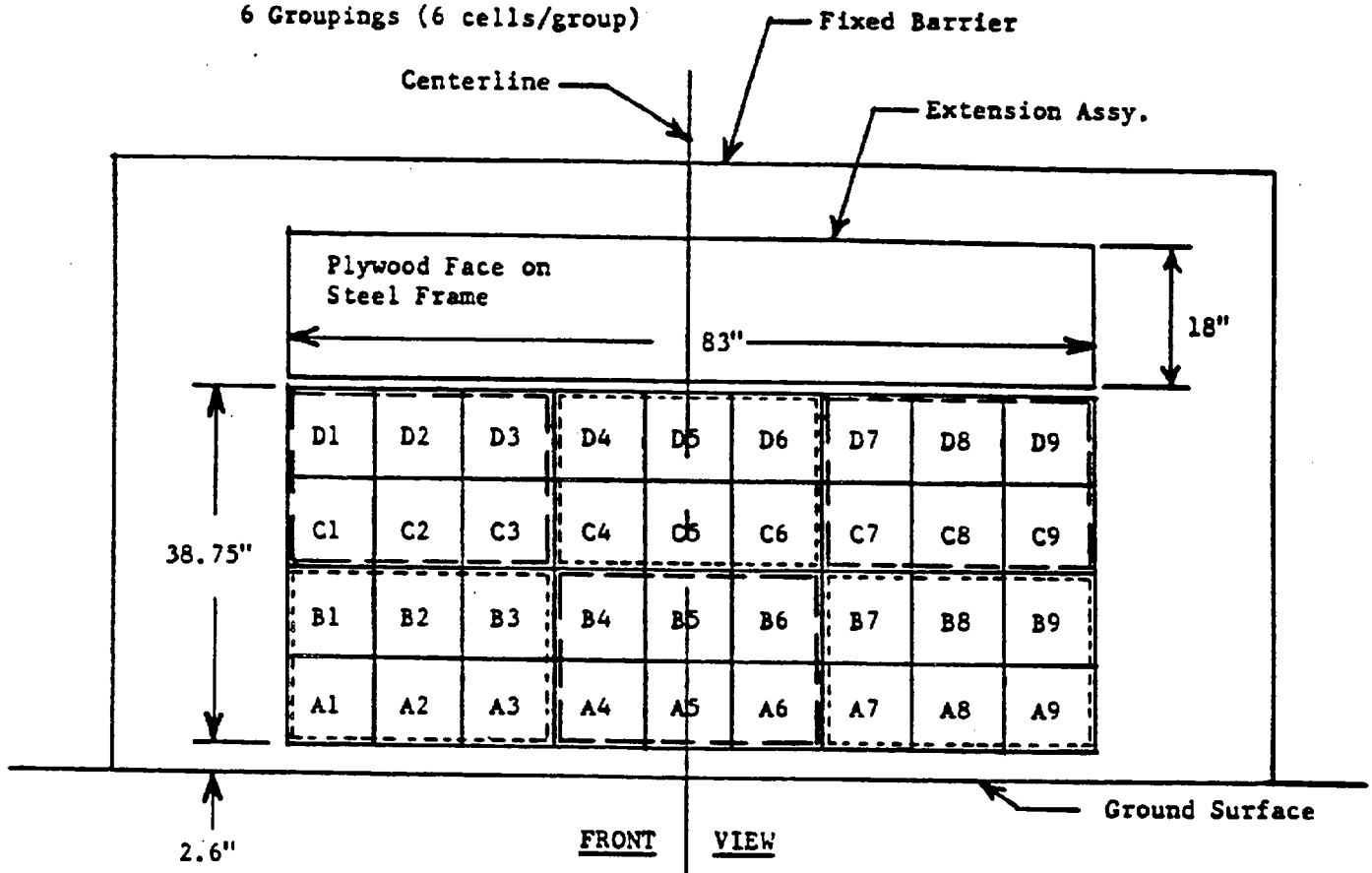
BARRIER TARGETS	'X' From Imag. Barrier Face Vertical Plane	'Y' From Monorail C/L	'Z' Above Ground
A1	56.0	21.5	87.50
A2	60.0	21.5	87.37
A3	64.0	21.5	87.25

VEHICLE TARGETS	'X' From Imag. Barrier Face Vertical Plane	'Y' From Vehicle C/L	'Z' Above Ground
B1	70.0	15.2	68.2
B2	74.0	15.2	68.2
B3	78.0	15.2	68.2
C1	142.1	15.2	68.2
C2	146.1	15.2	68.2
C3	150.1	15.2	68.2
D	12.0	30.0	54.5
E	64.0	13.0	46.7
F	48.5	30.6	14.7
G	76.5	30.5	14.6
H	104.5	31.0	14.5
J	103.5	31.0	13.9
K	75.5	30.5	14.1
L	48.0	30.6	14.3
M	12.0	32.0	55.0

NOTE: Diameter of all photo targets is 4".

Data Table No. 12 Load Cell Locations on Fixed Barrier

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



6 GROUPINGS OF 6 LOAD CELLS EACH

C1 thru D3	C4 thru D6	C7 thru D9
A1 thru B3	A4 thru B6	A7 thru B9

DATA REQUIREMENTS: (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)

APPENDIX A

PHOTOGRAPHS

PRETEST FRONT VIEW

POSTTEST FRONT VIEW

PRETEST LEFT SIDE VIEW

POSTTEST LEFT SIDE VIEW

PRETEST RIGHT SIDE VIEW

POSTTEST RIGHT SIDE VIEW

PRETEST RIGHT FRONT 3/4 VIEW

POSTTEST RIGHT FRONT 3/4 VIEW

PRETEST LEFT REAR 3/4 VIEW

POSTTEST LEFT REAR 3/4 VIEW

PRETEST WINDSHIELD VIEW

POSTTEST WINDSHIELD VIEW

PRETEST ENGINE COMPARTMENT VIEW

POSTTEST ENGINE COMPARTMENT VIEW

PRETEST FRONT UNDERBODY VIEW

POSTTEST FRONT UNDERBODY VIEW

PRETEST REAR UNDERBODY VIEW

POSTTEST REAR UNDERBODY VIEW

PRETEST DRIVER DUMMY (ATD) POSITION VIEW

POSTTEST DRIVER DUMMY (ATD) POSITION VIEW

PRETEST PASSENGER DUMMY (ATD) POSITION VIEW

POSTTEST PASSENGER DUMMY (ATD) POSITION VIEW

PRETEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

POSTTEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

PRETEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

POSTTEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

POSTTEST DRIVER DUMMY (ATD) STEERING COLUMN HUB/RIM CONTACT

POSTTEST DRIVER DUMMY (ATD) KNEE CONTACT AREA

POSTTEST PASSENGER DUMMY (ATD) HEAD AND KNEE CONTACT

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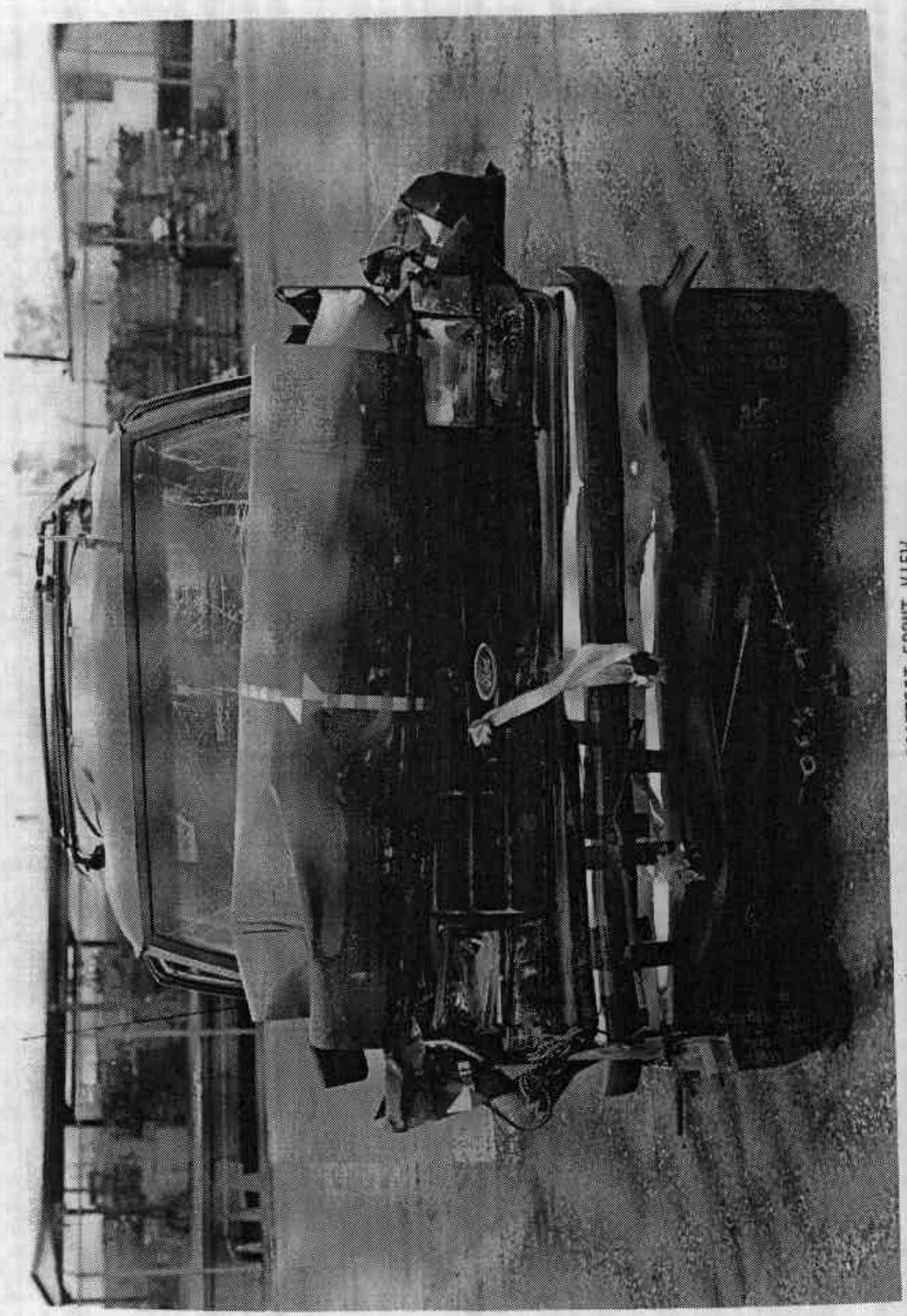
PRETEST FRONT VIEW



POSTTEST FRONT VIEW

PRETEST LEFT SIDE VIEW

POSTTEST LEFT SIDE VIEW

PRETEST RIGHT SIDE VIEW

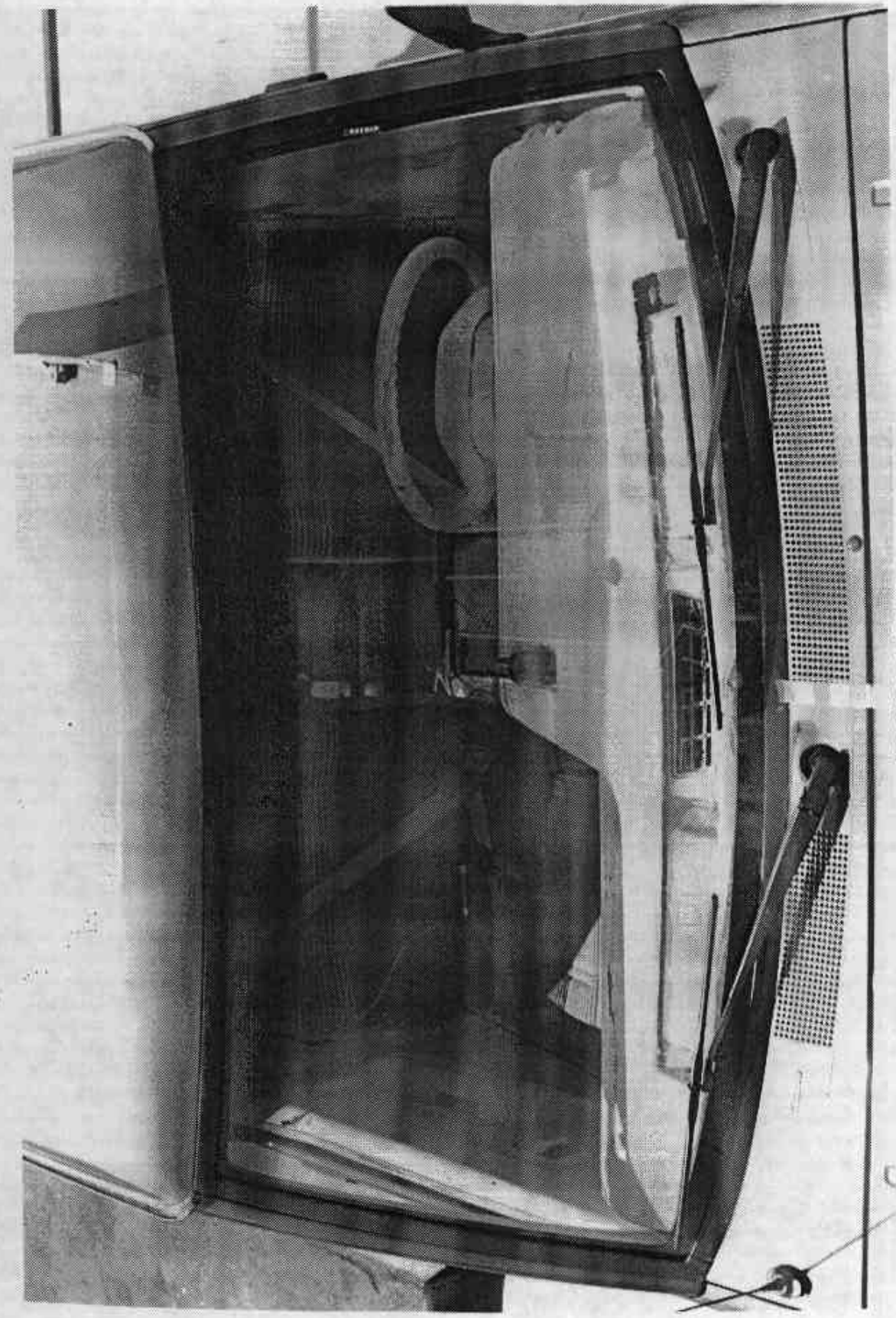
POSTTEST RIGHT SIDE VIEW

PRETEST RIGHT FRONT 3/4 VIEW

POSTTEST RIGHT FRONT 3/4 VIEW

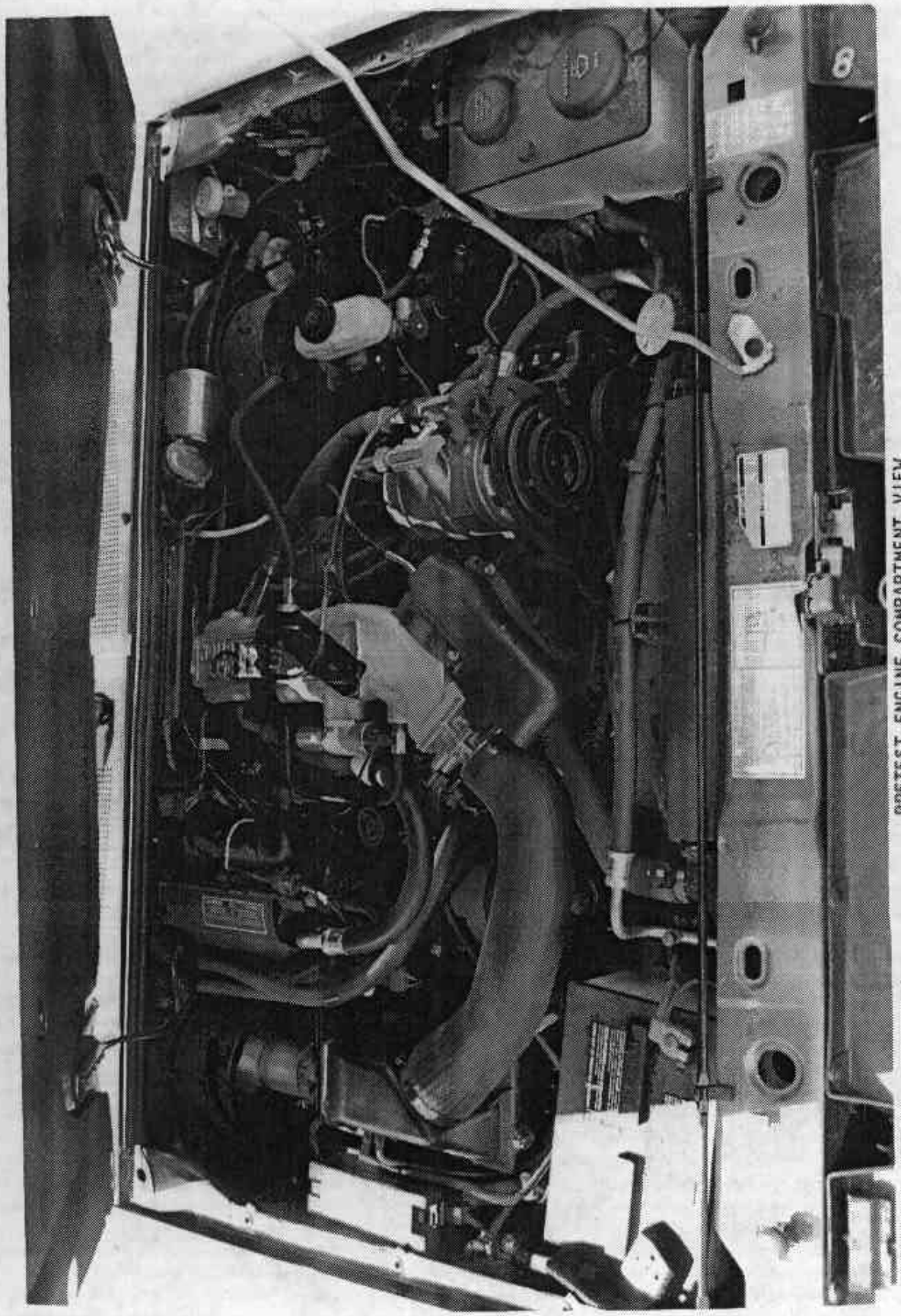
PRETEST LEFT REAR 3/4 VIEW

POSTTEST LEFT REAR 3/4 VIEW



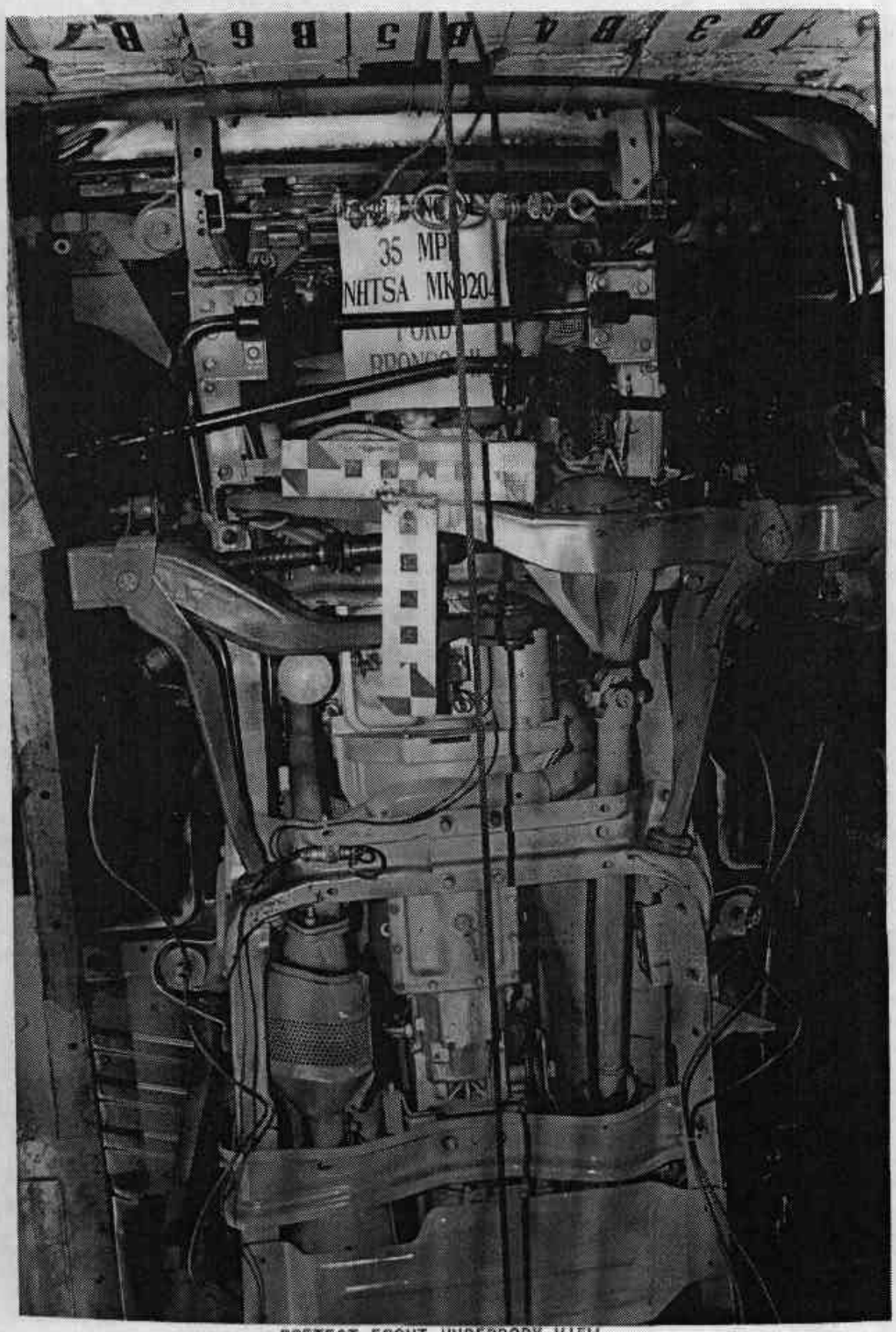
PRETEST WINDSHIELD VIEW

POSTTEST WINDSHIELD VIEW

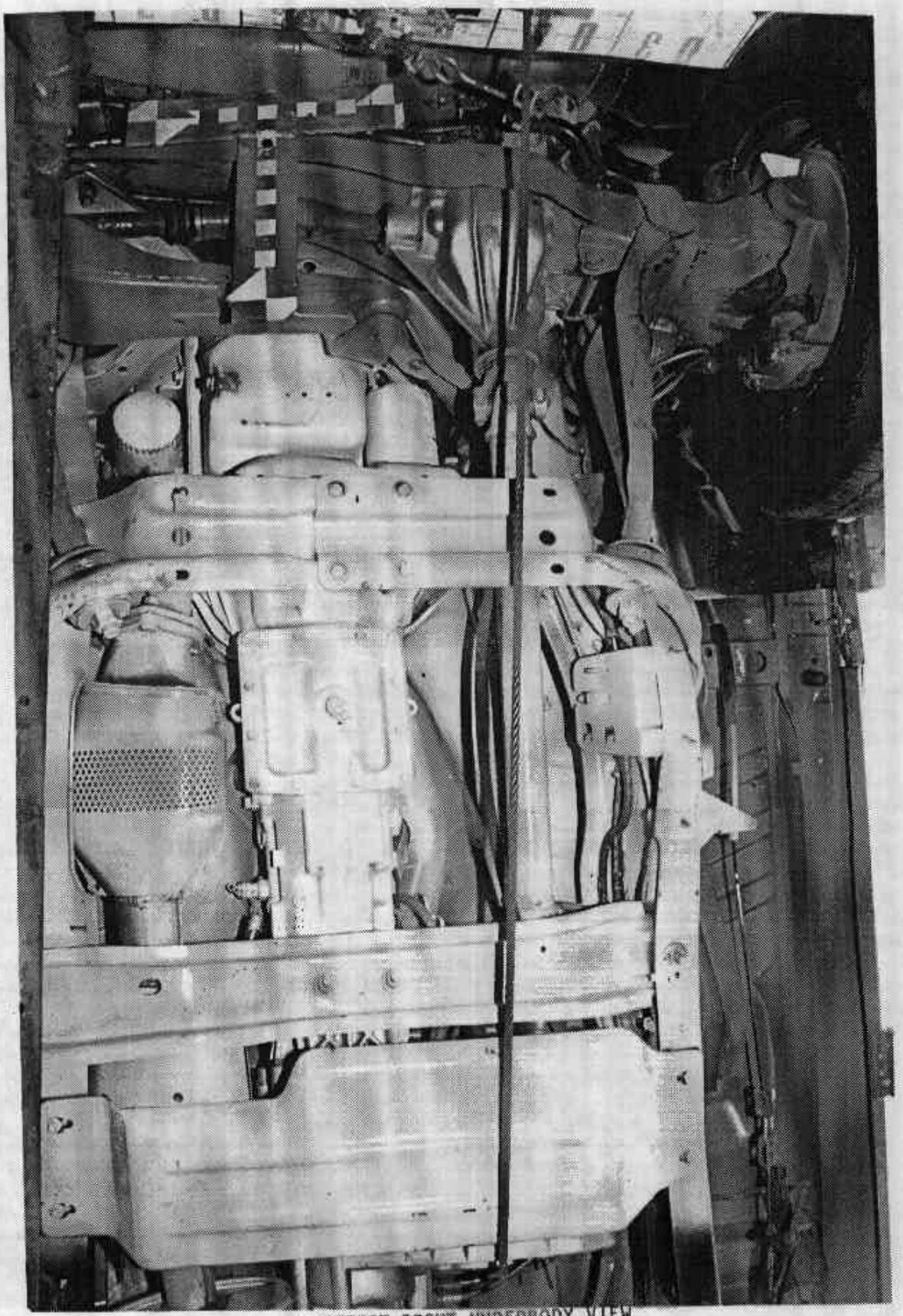


PRETEST ENGINE COMPARTMENT VIEW

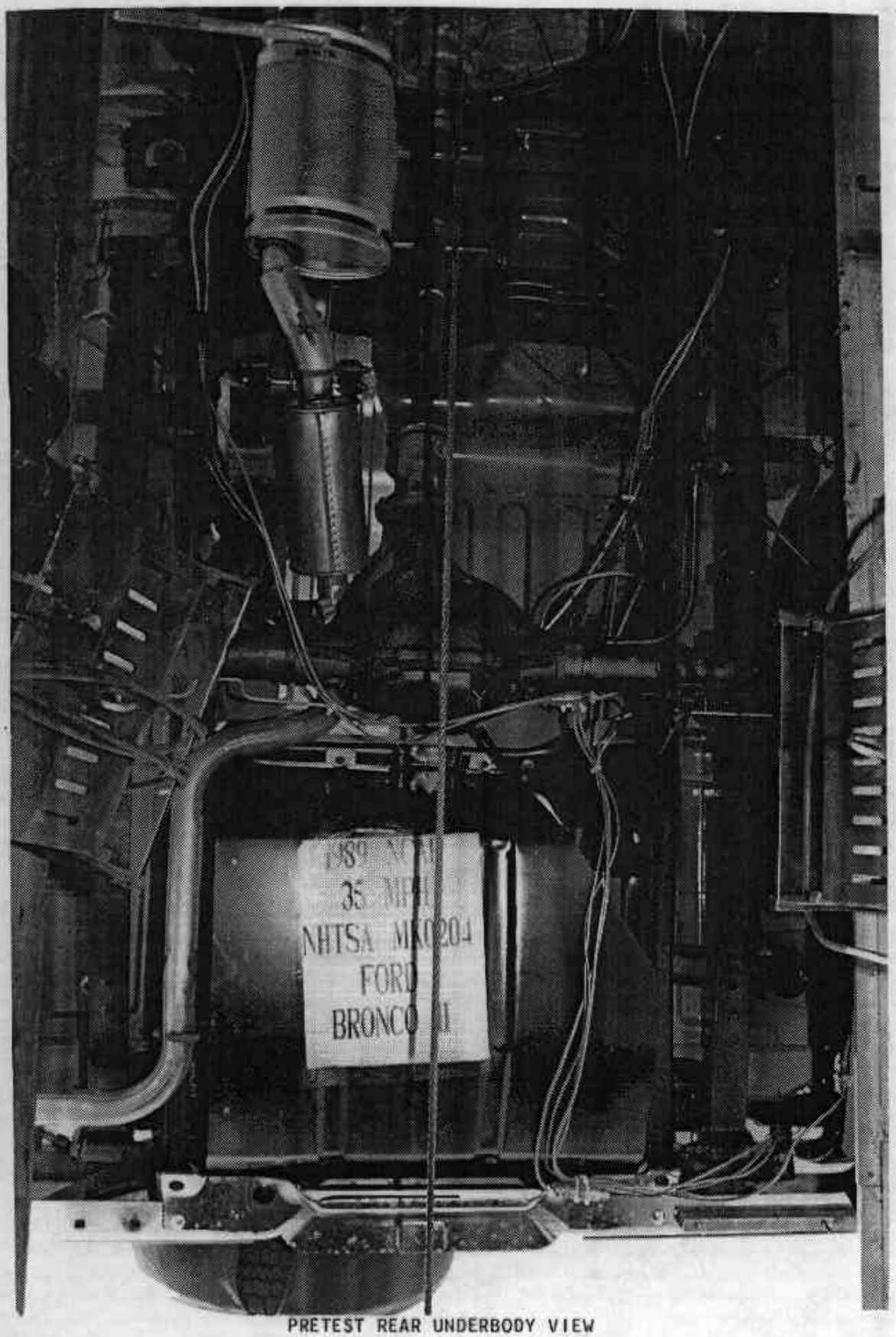
POSTTEST ENGINE COMPARTMENT VIEW



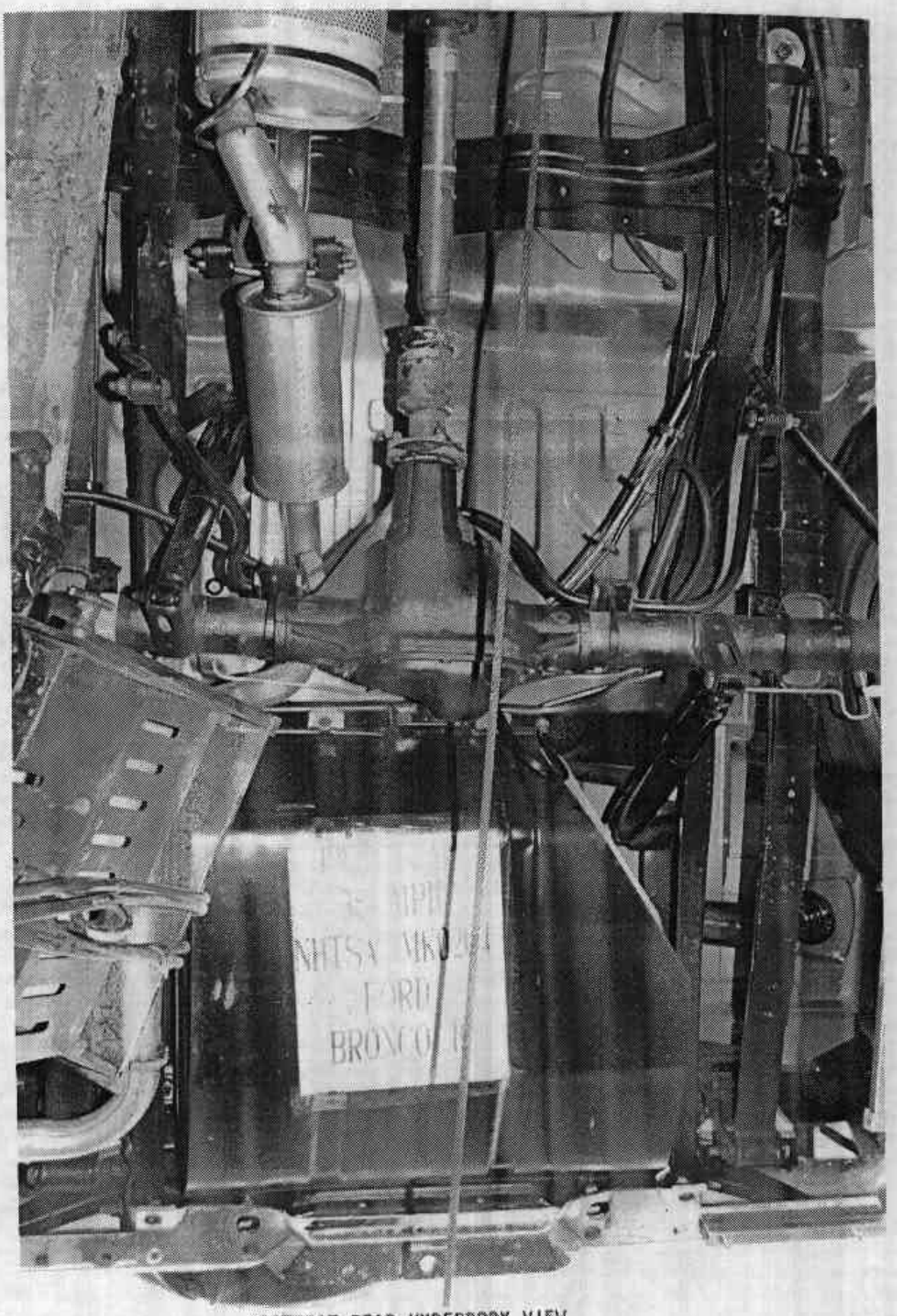
PRETEST FRONT UNDERBODY VIEW



POSTTEST FRONT UNDERBODY VIEW



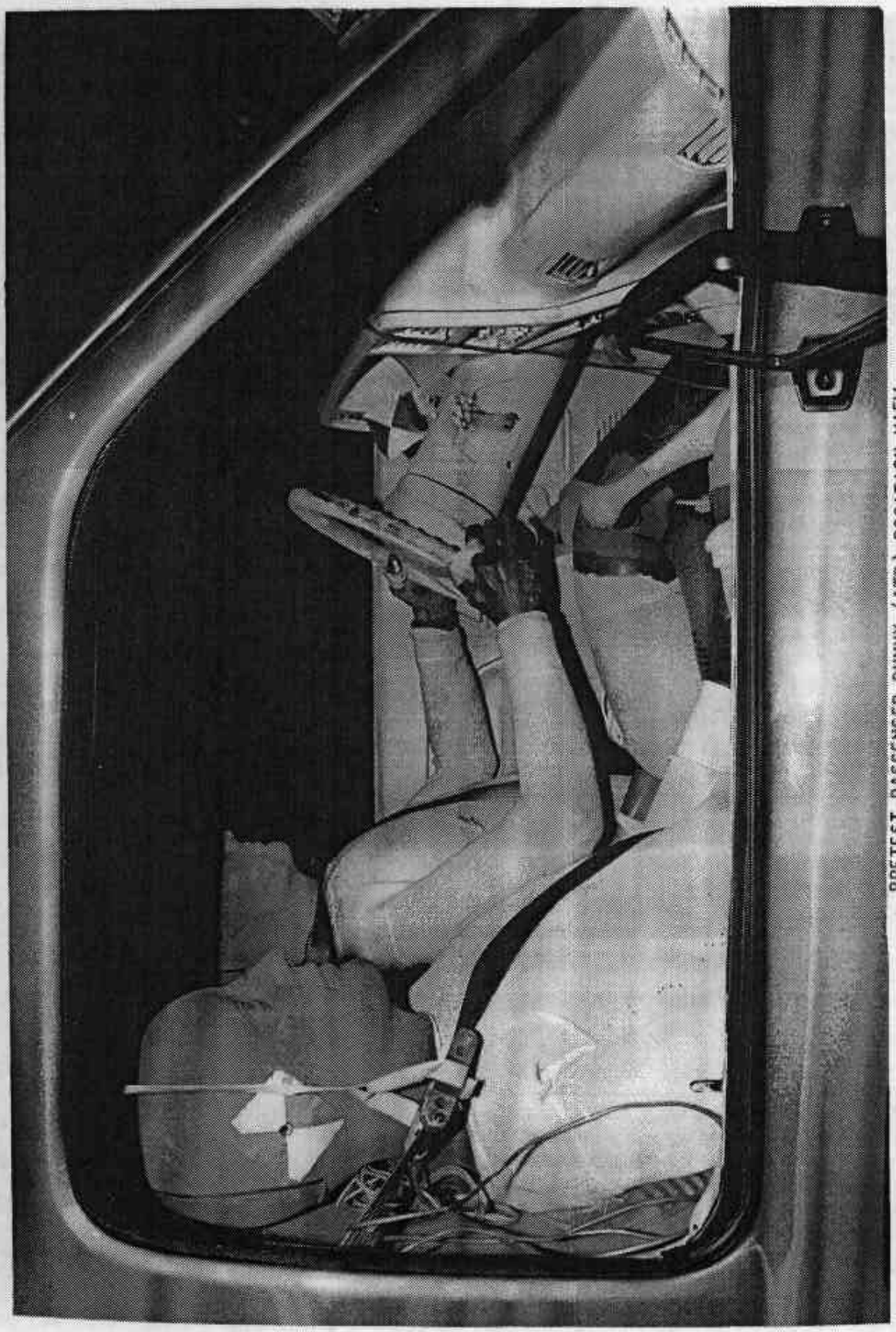
PRETEST REAR UNDERBODY VIEW



POSTTEST REAR UNDERBODY VIEW

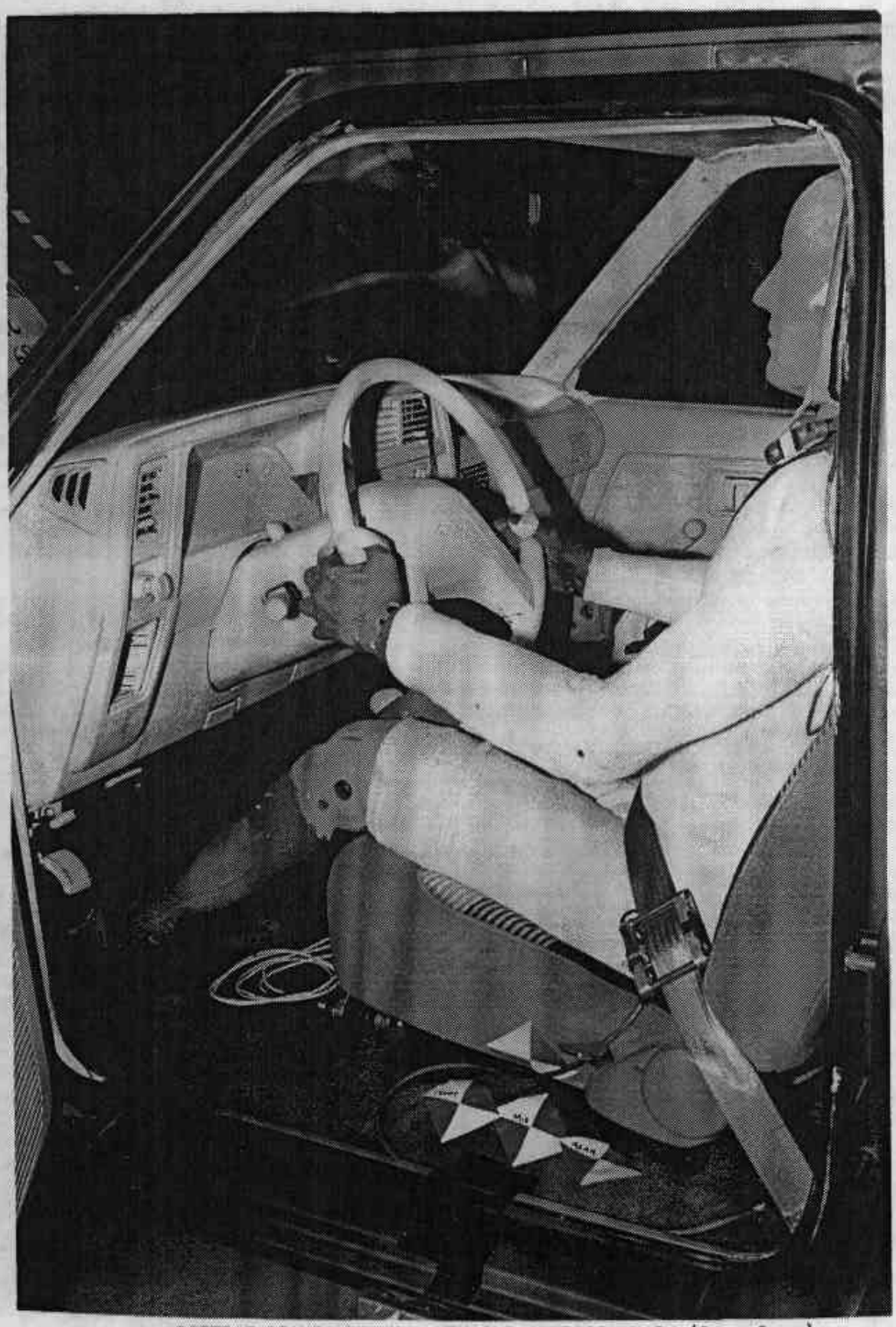
PRETEST DRIVER DUMMY (ATD) POSITION VIEW

POSTTEST DRIVER DUMMY (ATD) POSITION VIEW



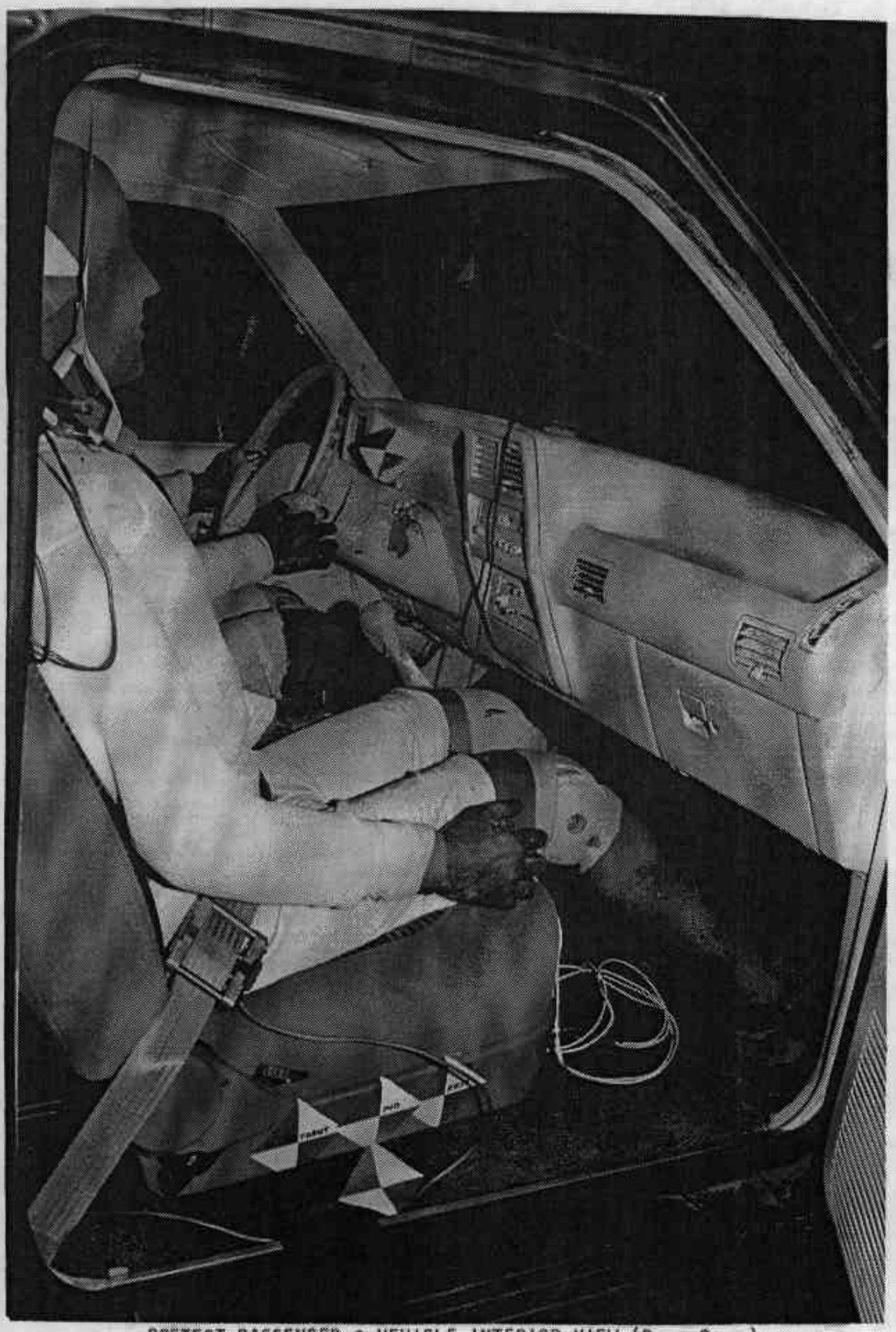
PRETEST PASSENGER DUMMY (ATD) POSITION VIEW

POSTTEST PASSENGER DUMMY (ATD) POSITION VIEW



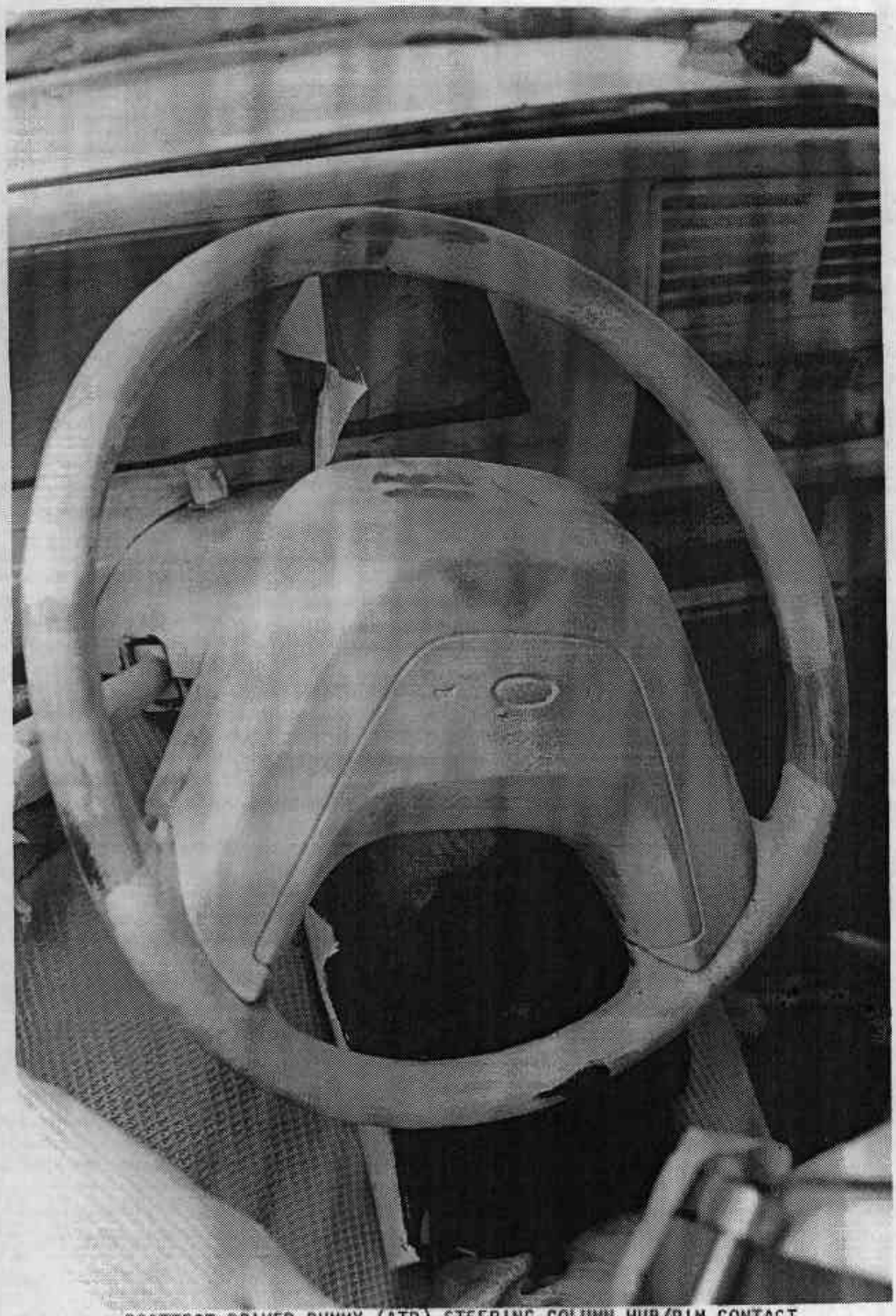
PRETEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

POSTTEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)



PRETEST PASSENGER & VEHICLE INTERIOR VIEW (Door Open)

POSTTEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)



POSTTEST DRIVER DUMMY (ATD) STEERING COLUMN HUB/RIM CONTACT

POSTTEST DRIVER DUMMY (ATD) KNEE CONTACT AREA

POSTTEST PASSENGER (ATD) KNEE CONTACT

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APPENDIX B-1

VEHICLE AND DUMMY (ATD) RESPONSE DATA

DATA FILTERING:

ATD Head Channels	- Class 1000
ATD Chest Channels	- Class 180
ATD Femur Channels	- Class 600
Vehicle Channels	- Class 60

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General Test Information

VERSNO: V2 TGID: 1
TITLE: 1989 35MPH NCAP FRONTAL BARRIER IMPACT
TSTOBJ: ACQUIRE NCAP DATA USING TWO INSTR. DUMMIES AND LOAD CELL BARRIER

TSTDAT: 11/APR/89	TSTPRF: MSE	CONNO: DTNH22-87-D-02009	
TSTREF: NCAP59	TSTTYP: NCA	TSTCFN: VTB	
TKSURF: ASH	TKCOND: DRY	TEMP: 72	RECTYP: FMT
LINK: UMB	CLSSPD: 35.2	IMPANG: 0	OFFSET: 0.0
IMPPNT: 9999.9	MEASUR: ENG	TOTCRV: 67	

TSTCOM: NO COMMENTS

Vehicle Information

VGID: 2 VEHNO: 1 MAKE: 02 MODEL: 21 YEAR: 89 BODY: TR
VIN: 1FMBU14T6KUA26472 ENGINE: V6IF ENGDSP: 177 CID TRANSM: M4
VEHTWT: 4008 WHLBAS: 94.0 VEHLEN: 160.0 VEHWID: 65.5
VEHCG: 53.8 STRSEP: NO COLMEC: EXA MODIND: P
MODDSC: UNMODIFIED
BX
1: 160.0
2: 141.3
3: 119.0
4: 107.0
5: 107.0
6: 106.3
7: 106.3
8: 64.1
9: 64.1
10: 63.5
11: 63.5
12: 104.0
13: 104.0
14: 116.5
15: 118.0
16: 90.5
17: 15.0
18: 20.5
19: 158.8
20: 158.8
21: 18.0
VEHSPD: 35.2 CRBANG: 0 PDOF: 0 BMPENG: NA
SILENG: NA APLENG: NA
DPD
1:999.9
2:999.9
3:999.9
4:999.9
5:999.9
6:999.9
VDI: 12FCAW9 LENCNT: 62.0 DAMDST: 0.0 CRHDST: 19.2
AX
1: 140.8
2: 133.8
3: 112.8
4: 108.3
5: 108.8
6: 106.5
7: 107.0
8: 65.5
9: 66.0
10: 64.0
11: 64.5
12: 104.3
13: 104.5
14: 115.8
15: 117.8
16: 90.0
17: 14.0
18: 20.8
19: 140.8
20: 140.8
21: 18.0
CARANG: 999 VEHOR: 999
VEHCOM: NO COMMENTS

Barrier Information

Barrier ID: 3
BARRIG: R
BARSHP: LCB
BARANG: 0
BARDIA: 999.9
BARCOM: 36 50KLB LOAD CELLS ARRANGED IN A 9 WIDE BY 4 HIGH MATRIX.

Occupant Information

Occupant Group ID: 4 VEHNO: 1
OCCLOC: 01 OCCTYP: P5 OCCAGE: 99 OCCSEX: M OCCHT: 999 OCCWT: 999
MTHCAL: P5 DUMSIZ: 50
DUMMAN: MFG: HUMANOID SYSTEMS. S/N 465
DUMMOD: UNMODIFIED
DUMDSC: NO COMMENTS
HH: 19.7 HW: 23.7 HR: 6.2 HS: 8.7 CD: 23.7 CS: 14.4 AD: 1.1 HD: 6.0
KD: 8.2 HB:999.9 NB:999.9 CB:999.9 KB:999.9
RESTR1: 3PT RESTR2: SWN
RESTXT: NO COMMENTS
SEPOSN: CN AIRDEP: NA
CNTRH1: SR CNTRH2: SH CNTRC1: SW CNTRC2: NO CNTRL1: DP CNTRL2: OT
HIC: 994. T1: 59.500 T2: 95.500
CLIP3M: 57.5 LFEM: 267. RFEM: 2110. CSI: 627. LBELT: 2239. SBELT: 1755.
OCCCOM: CNTRL2 IS STEERING COLUMN

Occupant Information

Occupant Group ID: 4 VEHNO: 1
OCCLOC: 02 OCCTYP: P5 OCCAGE: 99 OCCSEX: M OCCHT: 999 OCCWT: 999
MTHCAL: P5 DUMSIZ: 50
DUMMAN: MFG: HUMANOID SYSTEMS. S/N 466
DUMMOD: UNMODIFIED
DUMDSC: NO COMMENTS
HH: 20.0 HW: 23.0 HR: 6.4 HS: 9.0 CD: 24.7 CS:999.9 AD: 0.1 HD: 5.2
KD: 7.1 HB:999.9 NB:999.9 CB:999.9 KB:999.9
RESTR1: 3PT RESTR2: DPL
RESTXT: NO COMMENTS
SEPOSN: CN AIRDEP: NA
CNTRH1: HK CNTRH2: NO CNTRC1: NO CNTRC2: NO CNTRL1: DP CNTRL2: NO
HIC: 950. T1: 73.000 T2: 109.000
CLIP3M: 51.3 LFEM: 428. RFEM: 289. CSI: 478. LBELT: 2132. SBELT: 2091.
OCCCOM: NO COMMENTS

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 001
SENTYP: AC SENLOC: 01 SENATT: HDCG
AXIS: XL UNITS: G'S PREFIL: 1650
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: BF83H
CALDAT: 20/DEC/88 INSRAT: 200 CHLMAX: 141 INIVEL: 35.2
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 002
SENTYP: AC SENLOC: 01 SENATT: HDCG
AXIS: YL UNITS: G'S PREFIL: 1650
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: BJ15H
CALDAT: 20/DEC/88 INSRAT: 200 CHLMAX: 18 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 003
SENTYP: AC SENLOC: 01 SENATT: HDCG
AXIS: ZL UNITS: G'S PREFIL: 1650
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: BG29H
CALDAT: 20/DEC/88 INSRAT: 200 CHLMAX: 40 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 004
SENTYP: AC SENLOC: 01 SENATT: CHST
AXIS: XL UNITS: G'S PREFIL: 1650
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: AD76
CALDAT: 20/DEC/88 INSRAT: 200 CHLMAX: 33 INIVEL: 35.2
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 005
SENTYP: AC SENLOC: 01 SENATT: CHST
AXIS: YL UNITS: G'S PREFIL: 1650
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: AD99
CALDAT: 20/DEC/88 INSRAT: 200 CHLMAX: 14 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 006
SENTYP: AC SENLOC: 01 SENATT: CHST
AXIS: ZL UNITS: G'S PREFIL: 1650
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: BI60H
CALDAT: 20/DEC/88 INSRAT: 200 CHLMAX: 10 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 007
SENTYP: LC SENLOC: 01 SENATT: FMRL
AXIS: XL UNITS: LBS PREFIL: 1650
INSMAN: MFG: GSE INC, MODEL: 2430, S/N: 701
CALDAT: 10/FEB/89 INSRAT: 3000 CHLMAX: 20 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 008
SENTYP: LC SENLOC: 01 SENATT: FMRR
AXIS: XL UNITS: LBS PREFIL: 1650
INSMAN: MFG: GSE INC, MODEL: 2430, S/N: 707
CALDAT: 10/FEB/89 INSRAT: 3000 CHLMAX: 72 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 009
SENTYP: AC SENLOC: 02 SENATT: HDCG
AXIS: XL UNITS: G'S PREFIL: 1650
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: AD61
CALDAT: 20/DEC/88 INSRAT: 200 CHLMAX: 21 INIVEL: 35.2
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 010
SENTYP: AC SENLOC: 02 SENATT: HDCG
AXIS: YL UNITS: G'S PREFIL: 1650
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: AE09
CALDAT: 20/DEC/88 INSRAT: 200 CHLMAX: 11 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 011
SENTYP: AC SENLOC: 02 SENATT: HDCG
AXIS: ZL UNITS: G'S PREFIL: 1650
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: AD98
CALDAT: 20/DEC/88 INSRAT: 200 CHLMAX: 36 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 012
SENTYP: AC SENLOC: 02 SENATT: CHST
AXIS: XL UNITS: G'S PREFIL: 1650
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: BI19H
CALDAT: 20/DEC/88 INSRAT: 200 CHLMAX: 28 INIVEL: 35.2
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 013
SENTYP: AC SENLOC: 01 SENATT: CHST
AXIS: YL UNITS: G'S PREFIL: 1650
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: BI14H
CALDAT: 20/DEC/88 INSRAT: 200 CHLMAX: 32 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 014
SENTYP: AC SENLOC: 02 SENATT: CHST
AXIS: ZL UNITS: G'S PREFIL: 1650
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: BI92H
CALDAT: 20/DEC/88 INSRAT: 200 CHLMAX: 13 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 015
SENTYP: LC SENLOC: 02 SENATT: FMRL
AXIS: XL UNITS: LBS PREFIL: 1650
INSMAN: MFG: GSE INC, MODEL: 2430, S/N: 709
CALDAT: 10/FEB/89 INSRAT: 3000 CHLMAX: 23 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 016
SENTYP: LC SENLOC: 02 SENATT: FMRR
AXIS: XL UNITS: LBS PREFIL: 1650
INSMAN: MFG: GSE INC, MODEL: 2430, S/N: 710
CALDAT: 10/FEB/89 INSRAT: 3000 CHLMAX: 12 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 017
SENTYP: LC SENLOC: 01 SENATT: LPBO
AXIS: OT UNITS: LBS PREFIL: 1650
INSMAN: MFG: LEBOW, MODEL: 3371, S/N: 333
CALDAT: 13/FEB/89 INSRAT: 3500 CHLMAX: 65 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 018
SENTYP: LC SENLOC: 01 SENATT: SHBT
AXIS: OT UNITS: LBS PREFIL: 1650
INSMAN: MFG: LEBOW, MODEL: 3371, S/N: 327
CALDAT: 13/FEB/89 INSRAT: 3500 CHLMAX: 51 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 019
SENTYP: LC SENLOC: 02 SENATT: LPBO
AXIS: OT UNITS: LBS PREFIL: 1650
INSMAN: MFG: LEBOW, MODEL: 3371, S/N: 330
CALDAT: 13/FEB/89 INSRAT: 3500 CHLMAX: 65 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 020
SENTYP: LC SENLOC: 02 SENATT: SHBT
AXIS: OT UNITS: LBS PREFIL: 1650
INSMAN: MFG: LEBOW, MODEL: 3371, S/N: 308
CALDAT: 13/FEB/89 INSRAT: 3500 CHLMAX: 61 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 021
SENTYP: DS SENLOC: 01 SENATT: SHBE
AXIS: OT UNITS: INS PREFIL: 1650
INSMAN: MFG: MSE, MODEL: 24 IN. LIN, S/N: 112
CALDAT: 13/FEB/89 INSRAT: 24 CHLMAX: 0 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: MN
INSCOM: PULLOUTS NOT USED IN THIS TEST

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 022
SENTYP: DS SENLOC: 01 SENATT: SHBT
AXIS: OT UNITS: INS PREFIL: 1650
INSMAN: MFG: BOURNS, MODEL: 2051414101/0.5 IN LIN, S/N: NAV
CALDAT: 13/FEB/89 INSRAT: 30 CHLMAX: 0 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM: SEAT BELT ELONGATION, UNITS ARE INCHES/IN. (PERCENTAGE BELT STRETCH)

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 023
SENTYP: DS SENLOC: 02 SENATT: SHBE
AXIS: OT UNITS: OTH PREFIL: 1650
INSMAN: MFG: MSE, MODEL: 24 IN. LIN, S/N: 113
CALDAT: 13/FEB/89 INSRAT: 24 CHLMAX: 0 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: MN
INSCOM: PULLOUTS NOT USED IN THIS TEST

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 024
SENTYP: DS SENLOC: 02 SENATT: SHBT
AXIS: OT UNITS: OTH PREFIL: 1650
INSMAN: MFG: BOURNS, MODEL: 2051414101/0.5 IN LIN, S/N: NAV
CALDAT: 13/FEB/89 INSRAT: 30 CHLMAX: 0 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: CF
INSCOM: BELT ELONGATION, DATA LOST DUE TO BAD POTENTIOMETER IN CRASH BOX

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 025
SENTYP: AC SENLOC: NA SENATT: SULF
AXIS: XG UNITS: G'S PREFIL: 1650
INSMAN: MFG: SETRA, MODEL: 111, S/N: 1108
CALDAT: 20/DEC/88 INSRAT: 250 CHLMAX: 38 INIVEL: 35.2
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 026
SENTYP: AC SENLOC: NA SENATT: SURF
AXIS: XG UNITS: G'S PREFIL: 1650
INSMAN: MFG: SETRA, MODEL: 111, S/N: 1109
CALDAT: 20/DEC/88 INSRAT: 250 CHLMAX: 49 INIVEL: 35.2
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 027
SENTYP: AC SENLOC: NA SENATT: ENGN
AXIS: XG UNITS: G'S PREFIL: 1650
INSMAN: MFG: SETRA, MODEL: 111, S/N: 1121
CALDAT: 20/DEC/88 INSRAT: 250 CHLMAX: 82 INIVEL: 35.2
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 028
SENTYP: AC SENLOC: NA SENATT: ENGN
AXIS: XG UNITS: G'S PREFIL: 1650
INSMAN: MFG: SETRA, MODEL: 113A, S/N: 1870
CALDAT: 20/DEC/88 INSRAT: 250 CHLMAX: 125 INIVEL: 35.2
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 029
SENTYP: AC SENLOC: NA SENATT: DPLC
AXIS: XG UNITS: G'S PREFIL: 1650
INSMAN: MFG: SETRA, MODEL: 111, S/N: 1102
CALDAT: 20/DEC/88 INSRAT: 250 CHLMAX: 54 INIVEL: 35.2
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 030
SENTYP: AC SENLOC: NA SENATT: FLLR
AXIS: XG UNITS: G'S PREFIL: 1650
INSMAN: MFG: SETRA, MODEL: 1138, S/N: 1876
CALDAT: 20/DEC/88 INSRAT: 250 CHLMAX: 37 INIVEL: 35.2
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 031
SENTYP: AC SENLOC: NA SENATT: FLRR
AXIS: XG UNITS: G'S PREFIL: 1650
INSMAN: MFG: SETRA, MODEL: 113B, S/N: 1878
CALDAT: 20/DEC/88 INSRAT: 250 CHLMAX: 60 INIVEL: 35.2
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 032
SENTYP: LC SENLOC: NA SENATT: LCA1
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19349
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 6 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 033
SENTYP: LC SENLOC: NA SENATT: LCA2
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19324
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 6 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 034
SENTYP: LC SENLOC: NA SENATT: LCA3
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19283
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 6 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 035
SENTYP: LC SENLOC: NA SENATT: LCA4
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19263
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 5 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 036
SENTYP: LC SENLOC: NA SENATT: LCA5
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19265
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 7 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 037
SENTYP: LC SENLOC: NA SENATT: LCA6
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19266
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 5 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 038
SENTYP: LC SENLOC: NA SENATT: LCA7
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19317
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 0 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: MN
INSCOM: TAPE CHANNEL FAILURE AT IMPACT

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 039
SENTYP: LC SENLOC: NA SENATT: LCA8
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19270
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 4 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 040
SENTYP: LC SENLOC: NA SENATT: LCA9
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19428
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 6 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 041
SENTYP: LC SENLOC: NA SENATT: LCB1
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19273
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 6 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 042
SENTYP: LC SENLOC: NA SENATT: LCB2
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19276
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 9 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 043
SENTYP: LC SENLOC: NA SENATT: LCB3
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19258
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 33 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 044
SENTYP: LC SENLOC: NA SENATT: LCB4
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19278
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 38 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 045
SENTYP: LC SENLOC: NA SENATT: LCB5
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19279
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 6 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 046
SENTYP: LC SENLOC: NA SENATT: LCB6
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19282
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 10 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 047
SENTYP: LC SENLOC: NA SENATT: LCB7
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19262
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 43 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 048
SENTYP: LC SENLOC: NA SENATT: LCB8
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19285
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 12 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 049
SENTYP: LC SENLOC: NA SENATT: LCB9
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19286
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 6 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 050
SENTYP: LC SENLOC: NA SENATT: LCC1
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19287
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 5 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 051
SENTYP: LC SENLOC: NA SENATT: LCC2
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19288
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 61 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 052
SENTYP: LC SENLOC: NA SENATT: LCC3
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19289
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 22 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 053
SENTYP: LC SENLOC: NA SENATT: LCC4
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19291
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 51 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 054
SENTYP: LC SENLOC: NA SENATT: LCC5
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19324
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 50 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 055
SENTYP: LC SENLOC: NA SENATT: LCC6
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19313
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 25 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 056
SENTYP: LC SENLOC: NA SENATT: LCC7
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19314
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 57 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 057
SENTYP: LC SENLOC: NA SENATT: LCC8
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19315
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 15 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 058
SENTYP: LC SENLOC: NA SENATT: LCC9
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19316
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 6 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 059
SENTYP: LC SENLOC: NA SENATT: LCD1
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19460
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 4 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 060
SENTYP: LC SENLOC: NA SENATT: LCD2
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19318
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 17 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 061
SENTYP: LC SENLOC: NA SENATT: LCD3
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19322
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 14 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 062
SENTYP: LC SENLOC: NA SENATT: LCD4
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19323
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 21 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 063
SENTYP: LC SENLOC: NA SENATT: LCD5
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19260
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 62 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 0 CURNO: 064
SENTYP: LC SENLOC: NA SENATT: LCD6
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19325
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 11 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

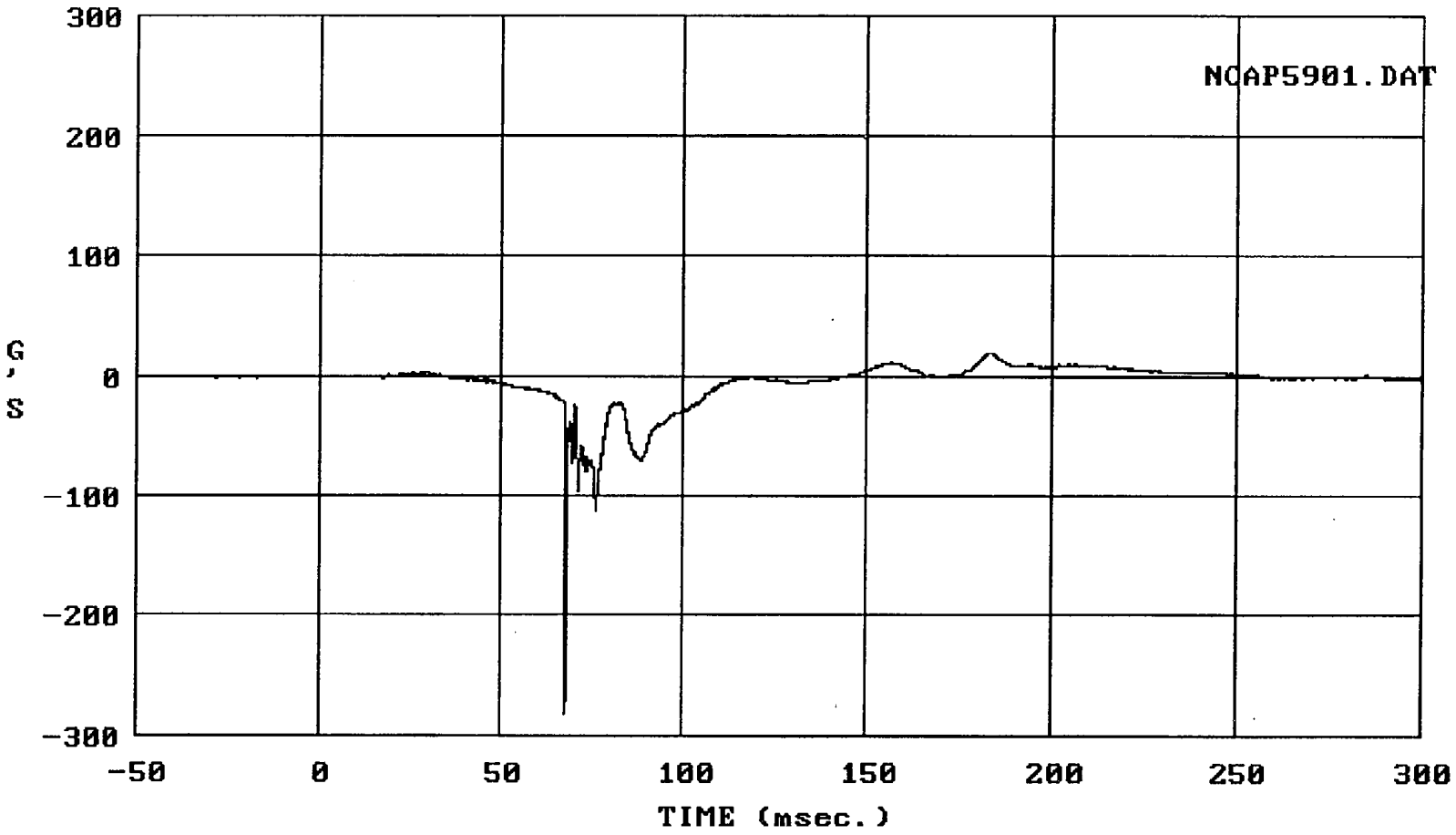
Inst. Group ID: 5 VEHNO: 0 CURNO: 065
SENTYP: LC SENLOC: NA SENATT: LCD7
AXIS: XG UNITS: LBS PREFIL: 1650
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19332
CALDAT: 14/MAY/85 INSRAT: 50000 CHLMAX: 20 INIVEL: 0.0
NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
INSCOM:

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 066	
SENTYP: LC	SENLOC: NA	SENATT: LCD8	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE,	MODEL: 1220-FS,	S/N: 19333	
CALDAT: 14/MAY/85	INSRAT: 50000	CHLMAX: 18	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

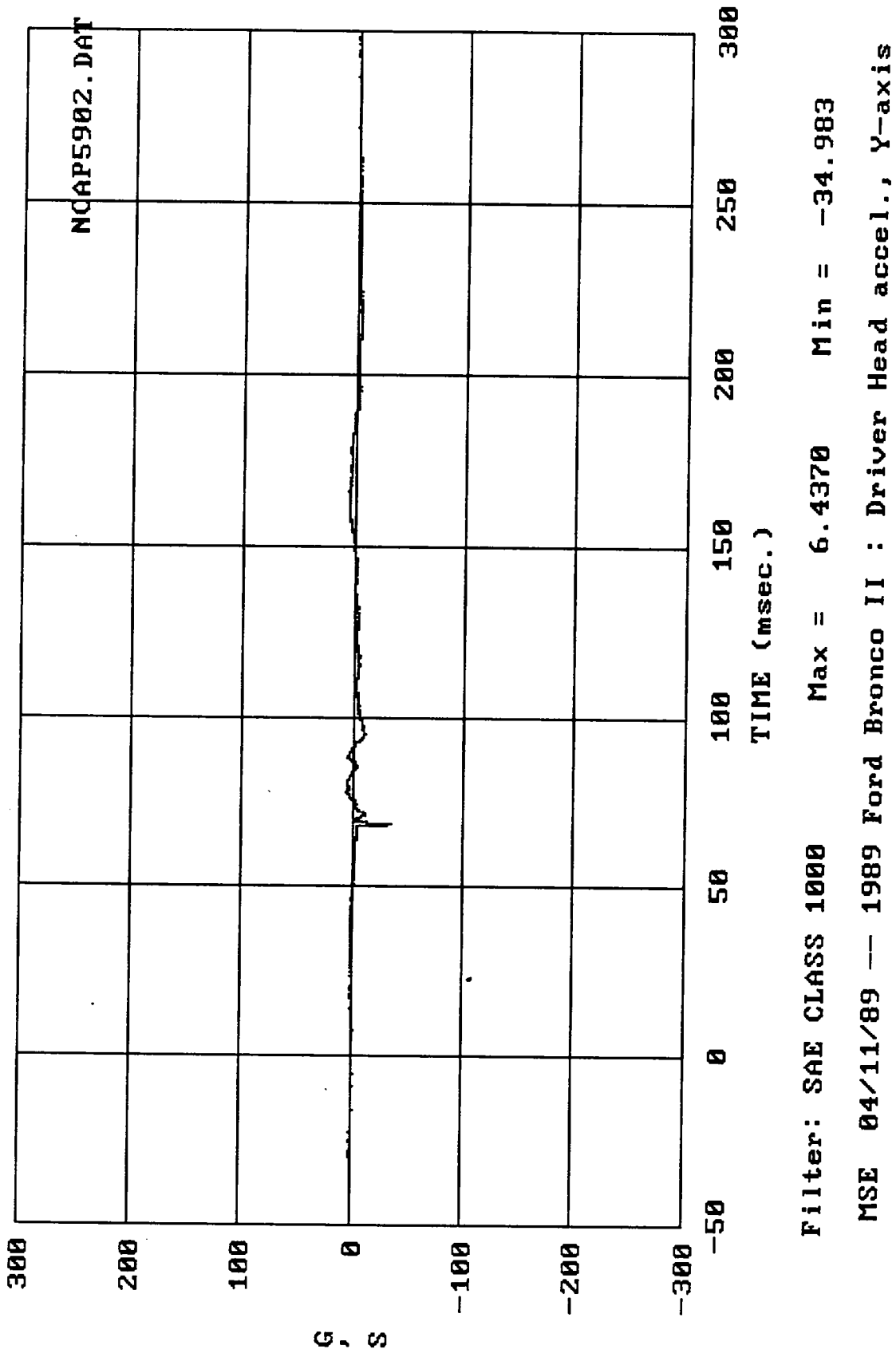
Instrumentation Information

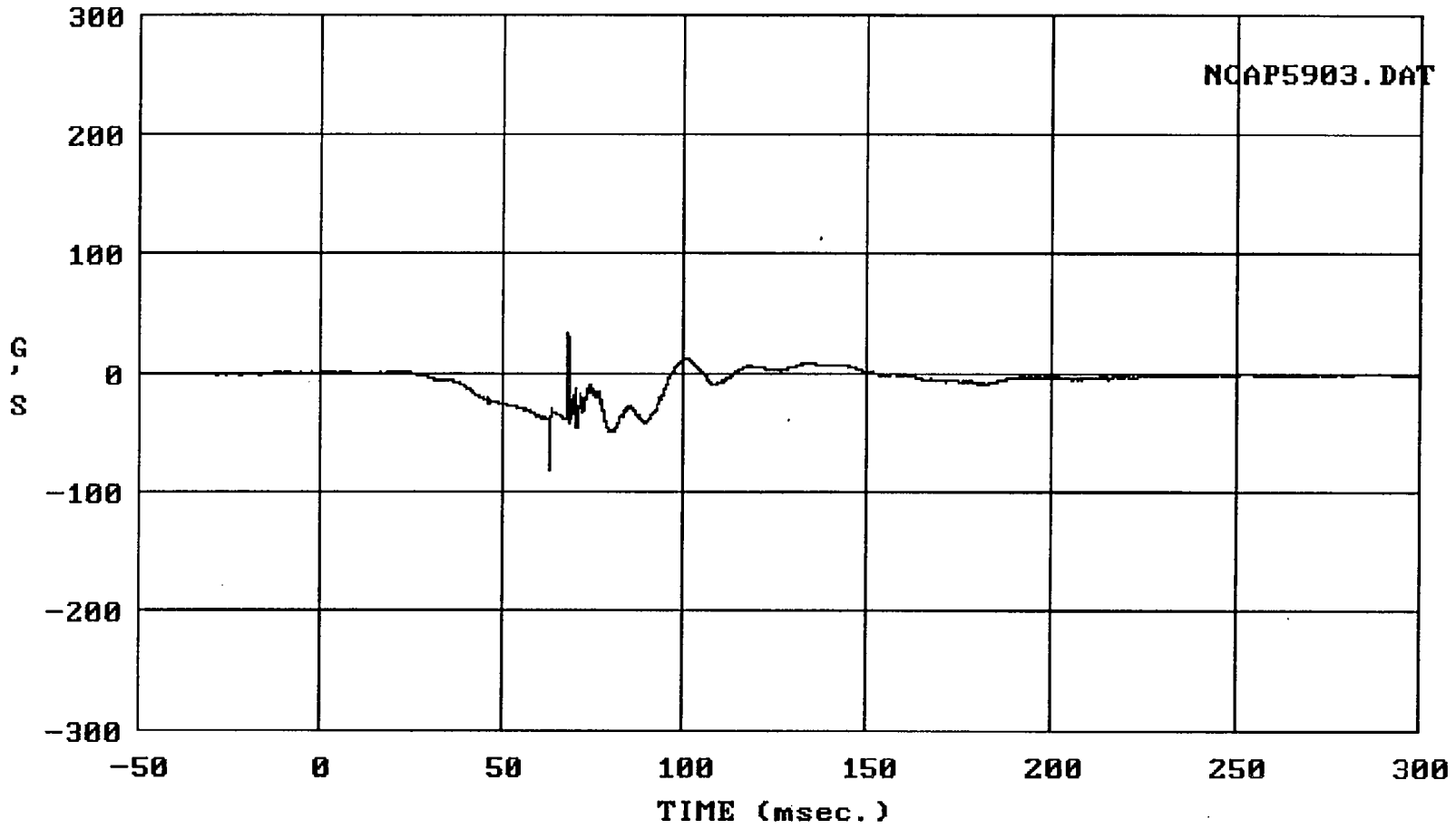
Inst. Group ID: 5	VEHNO: 0	CURNO: 067	
SENTYP: LC	SENLOC: NA	SENATT: LCD9	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE,	MODEL: 1220-FS,	S/N: 19466	
CALDAT: 14/MAY/85	INSRAT: 50000	CHLMAX: 6	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			



Filter: SAE CLASS 1000 Max = 20.152 Min = -282.17

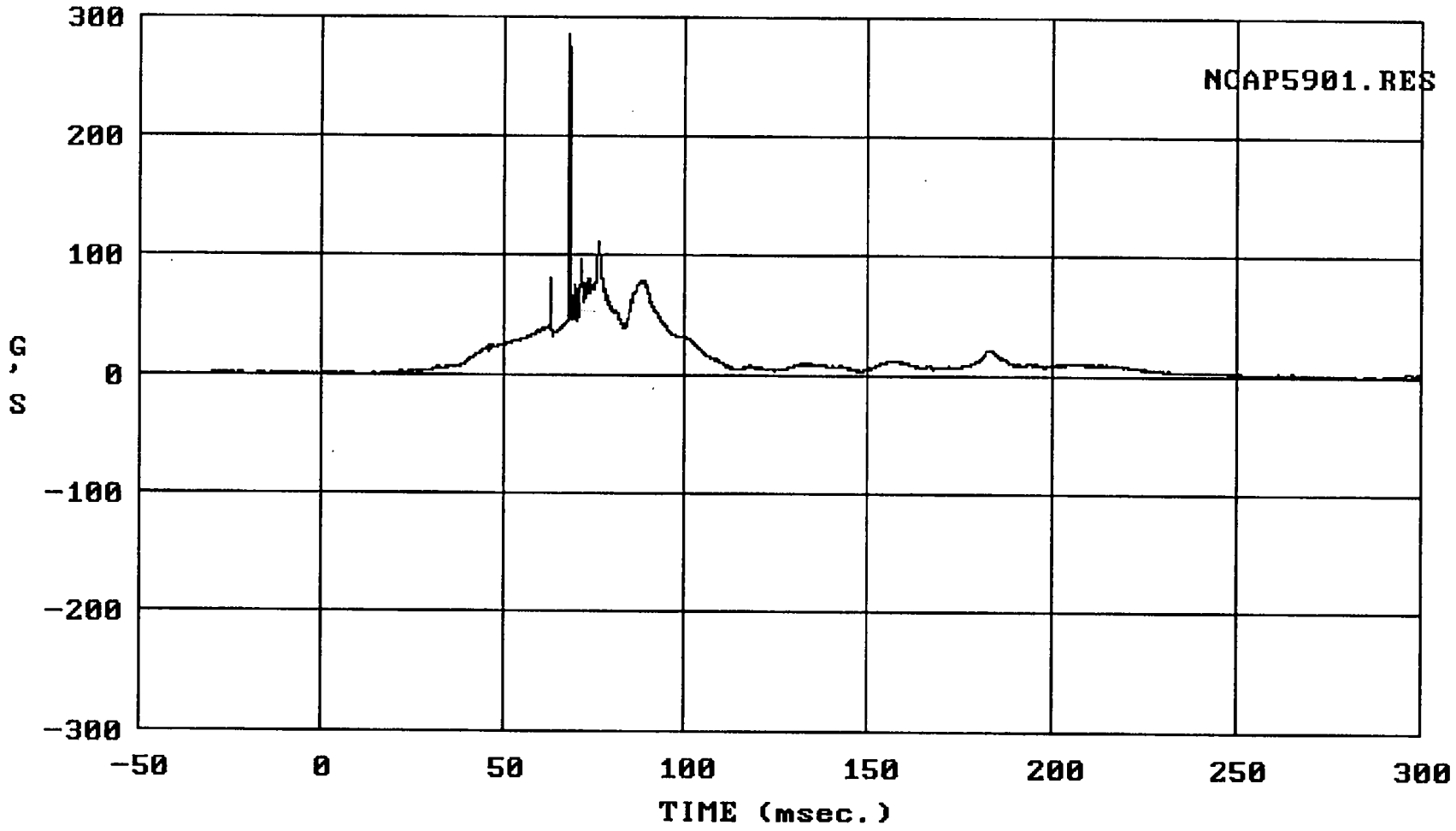
MSE 04/11/89 -- 1989 Ford Bronco II : Driver Head accel., X-axis


NCAP5902.DAT
300
200
100
0
-100
-200
-300
G, S
-50
0
50
100
150
200
250
300
TIME (msec.)
Filter: SAE CLASS 1000
Max = 6.4370
Min = -34.983
MSE 04/11/89 -- 1989 Ford Bronco II : Driver Head accel., Y-axis



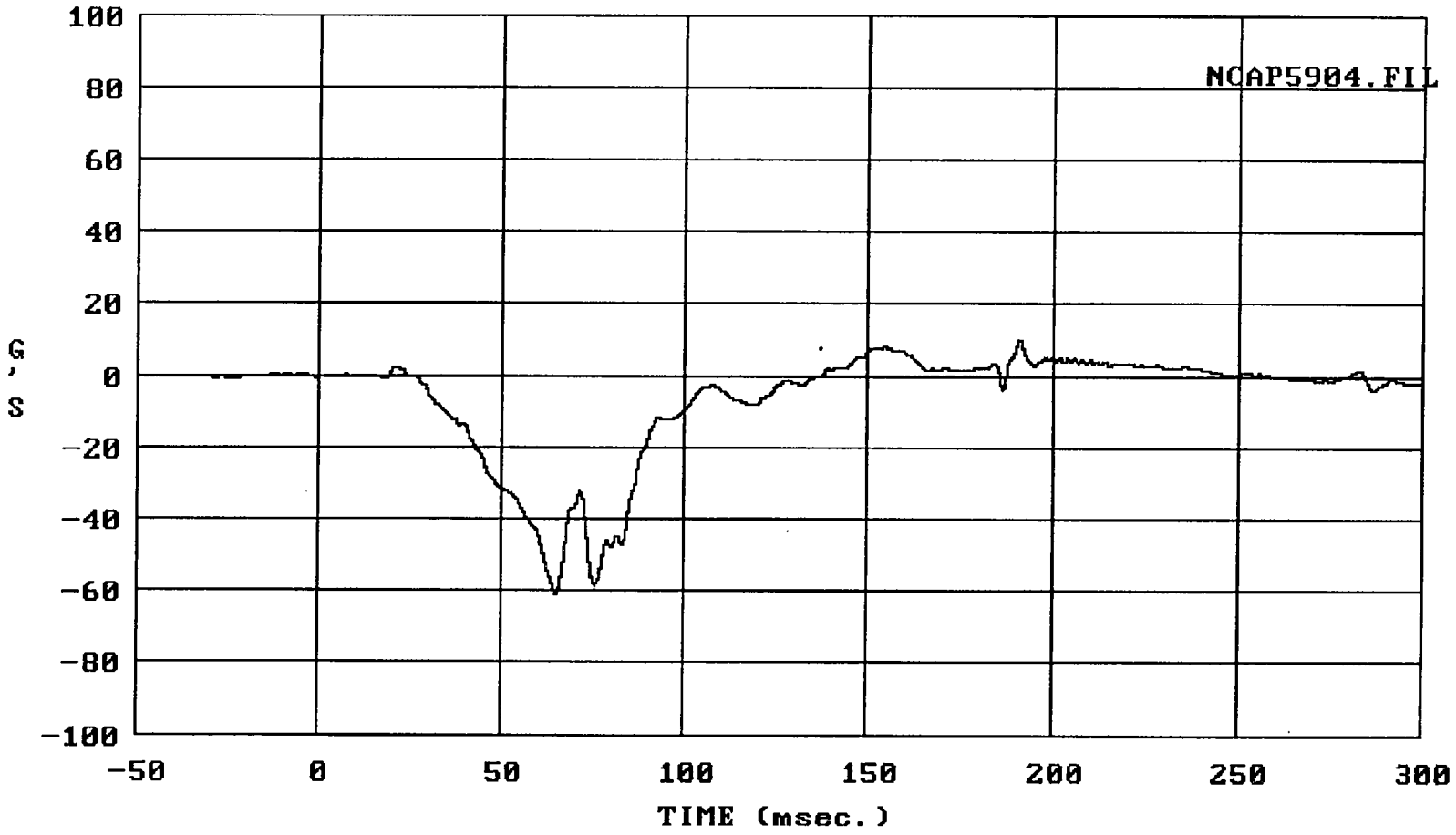
Filter: SAE CLASS 1000 Max = 33.674 Min = -80.504

MSE 04/11/89 -- 1989 Ford Bronco II : Driver Head accel., Z-axis



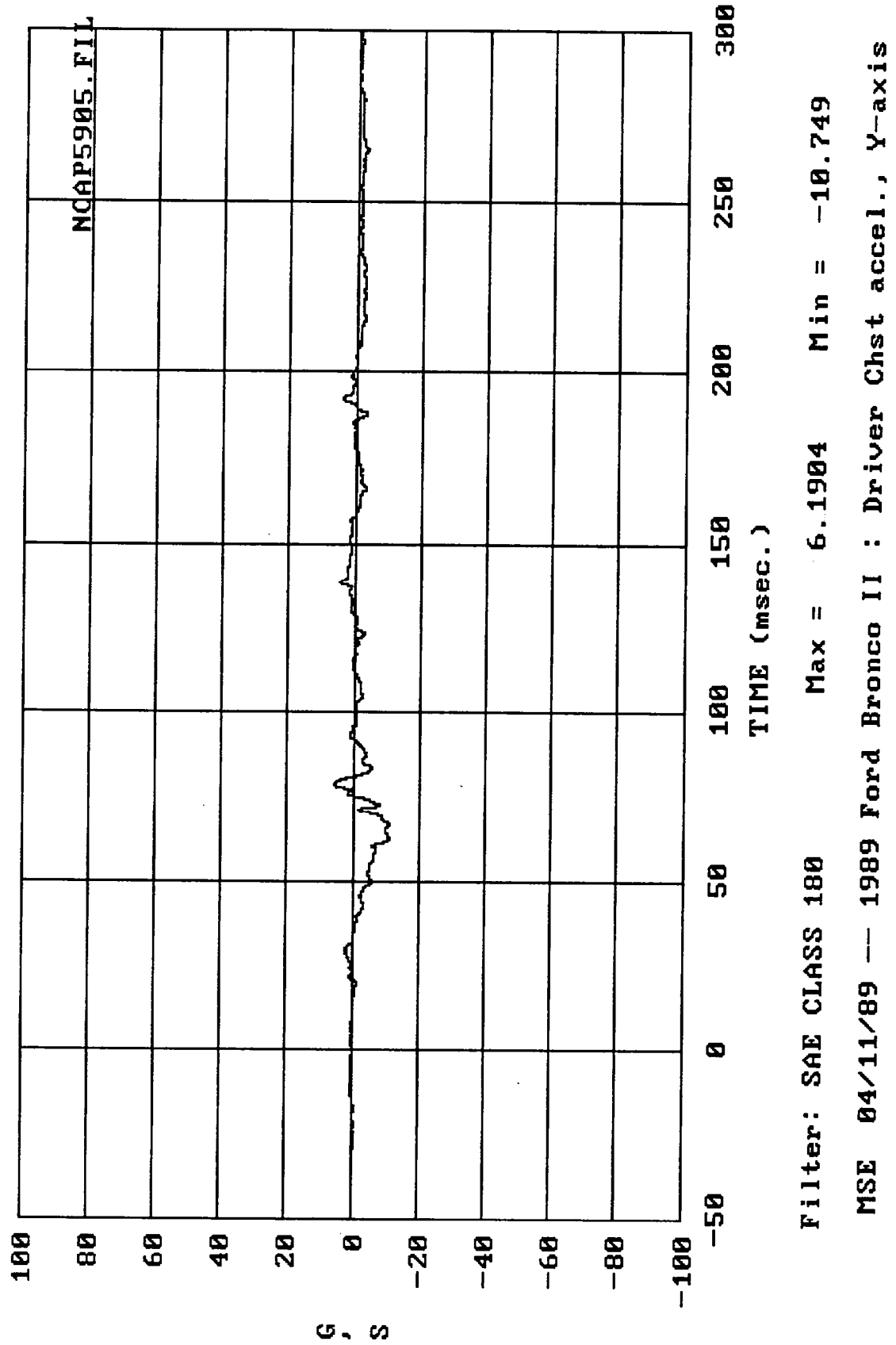
Filter: SAE CLASS 1000 Max = 285.62 Min = .14067

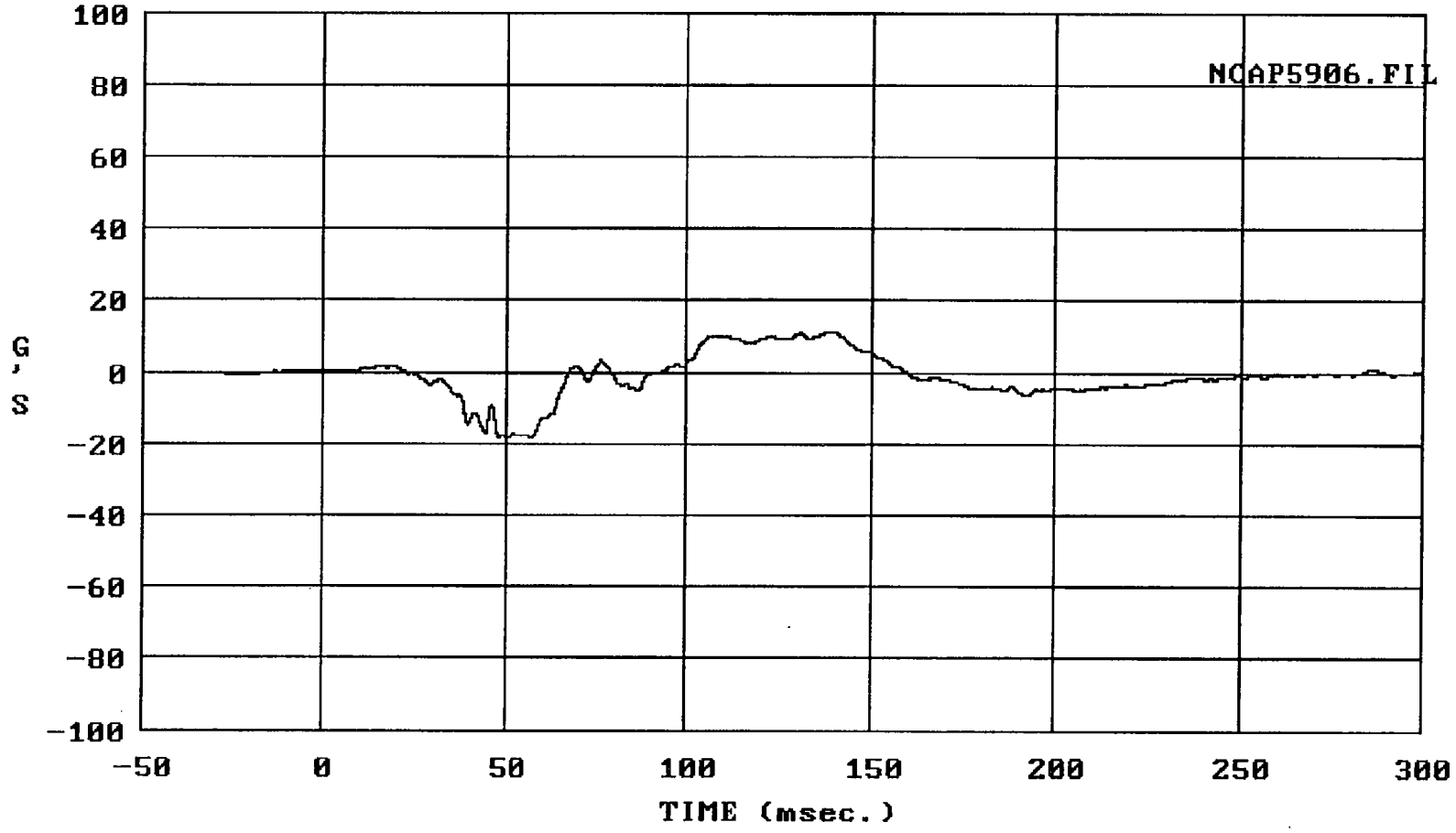
MSE 04/11/89 -- 1989 Ford Bronco II : Driver Head resultant accel.



Filter: SAE CLASS 180 Max = 10.417 Min = -60.851

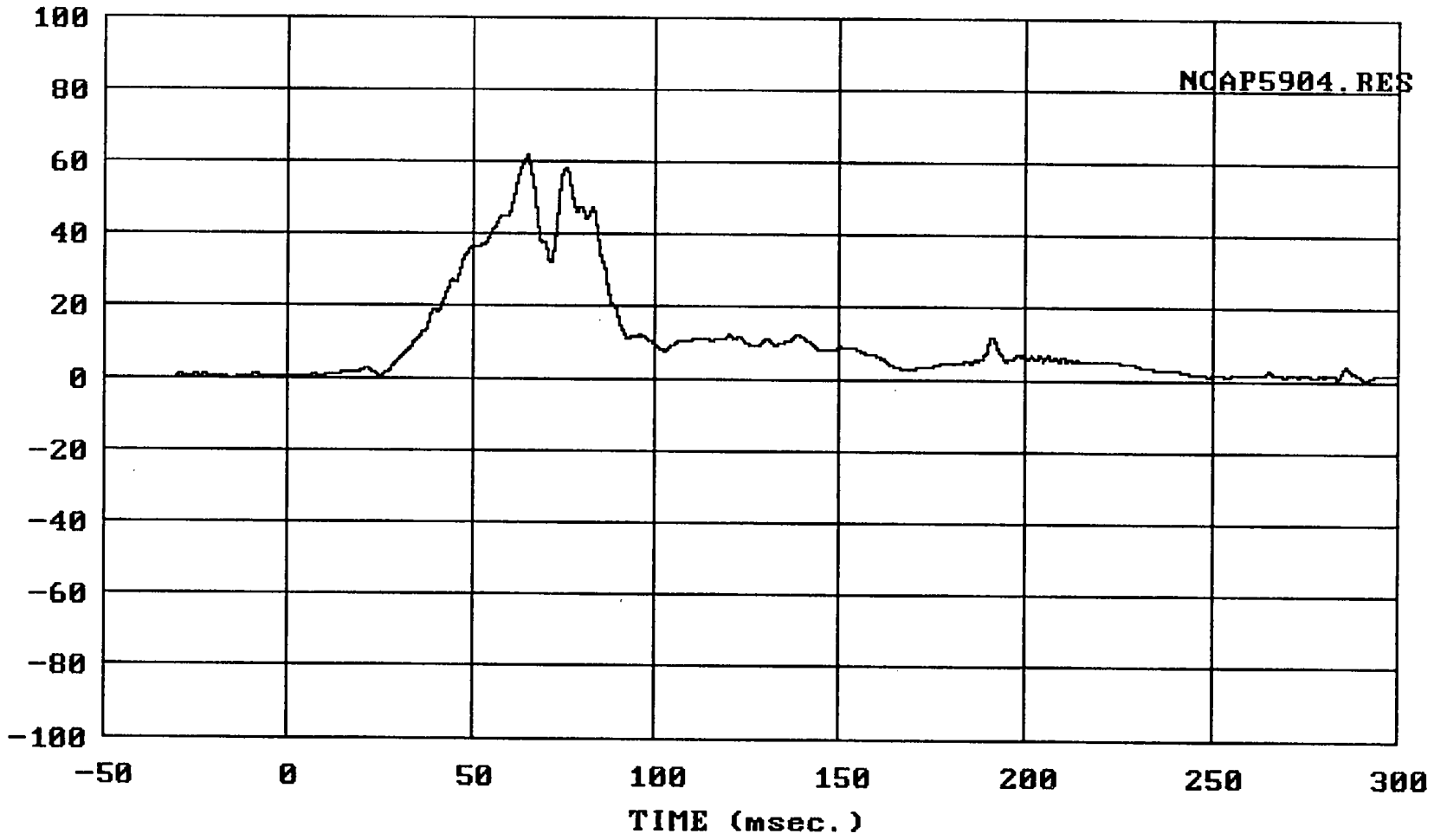
MSE 04/11/89 -- 1989 Ford Bronco II : Driver Chst accel., X-axis


NCAP5905.FIL
100
80
60
40
20
0
-20
-40
-60
-80
-100
G, S
-50
0
50
100
150
200
250
300
TIME (msec.)
Filter: SAE CLASS 180
Max = 6.1904
Min = -10.749
MSE 04/11/89 -- 1989 Ford Bronco II : Driver Chst accel., Y-axis



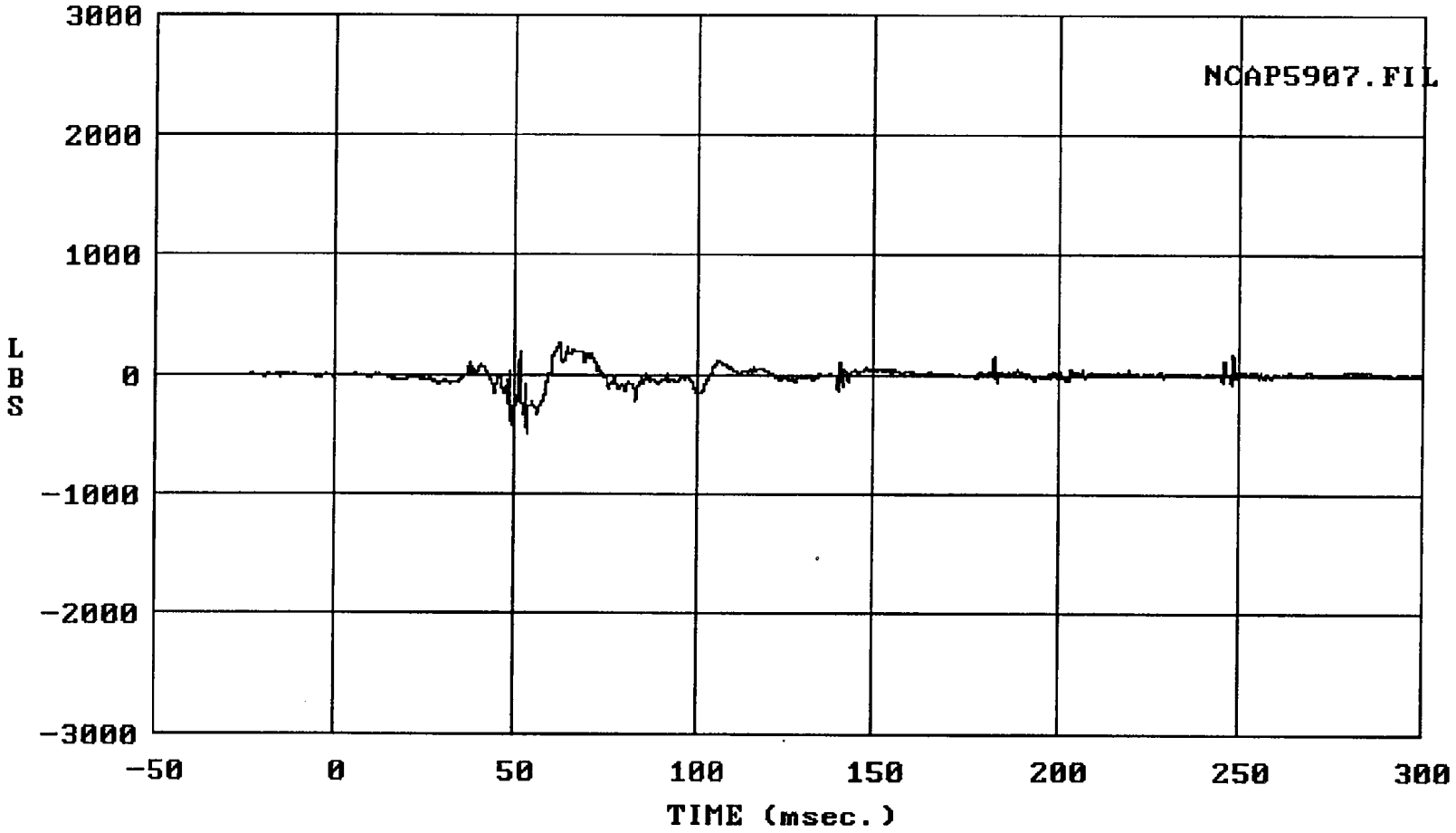
Filter: SAE CLASS 180 Max = 11.508 Min = -18.288

MSE 04/11/89 -- 1989 Ford Bronco II : Driver Chst accel., Z-axis



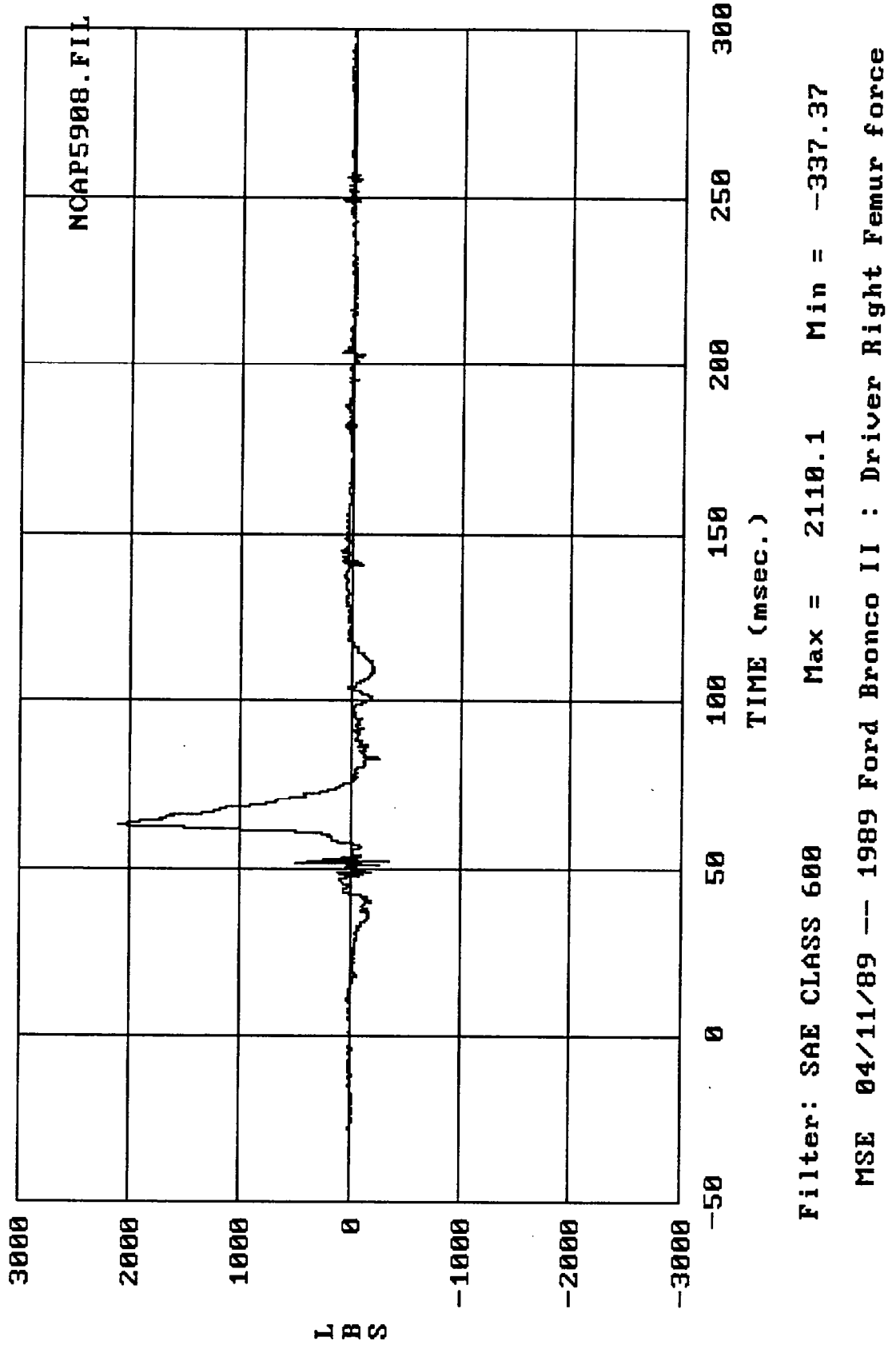
Filter: SAE CLASS 180 Max = 61.878 Min = .51949

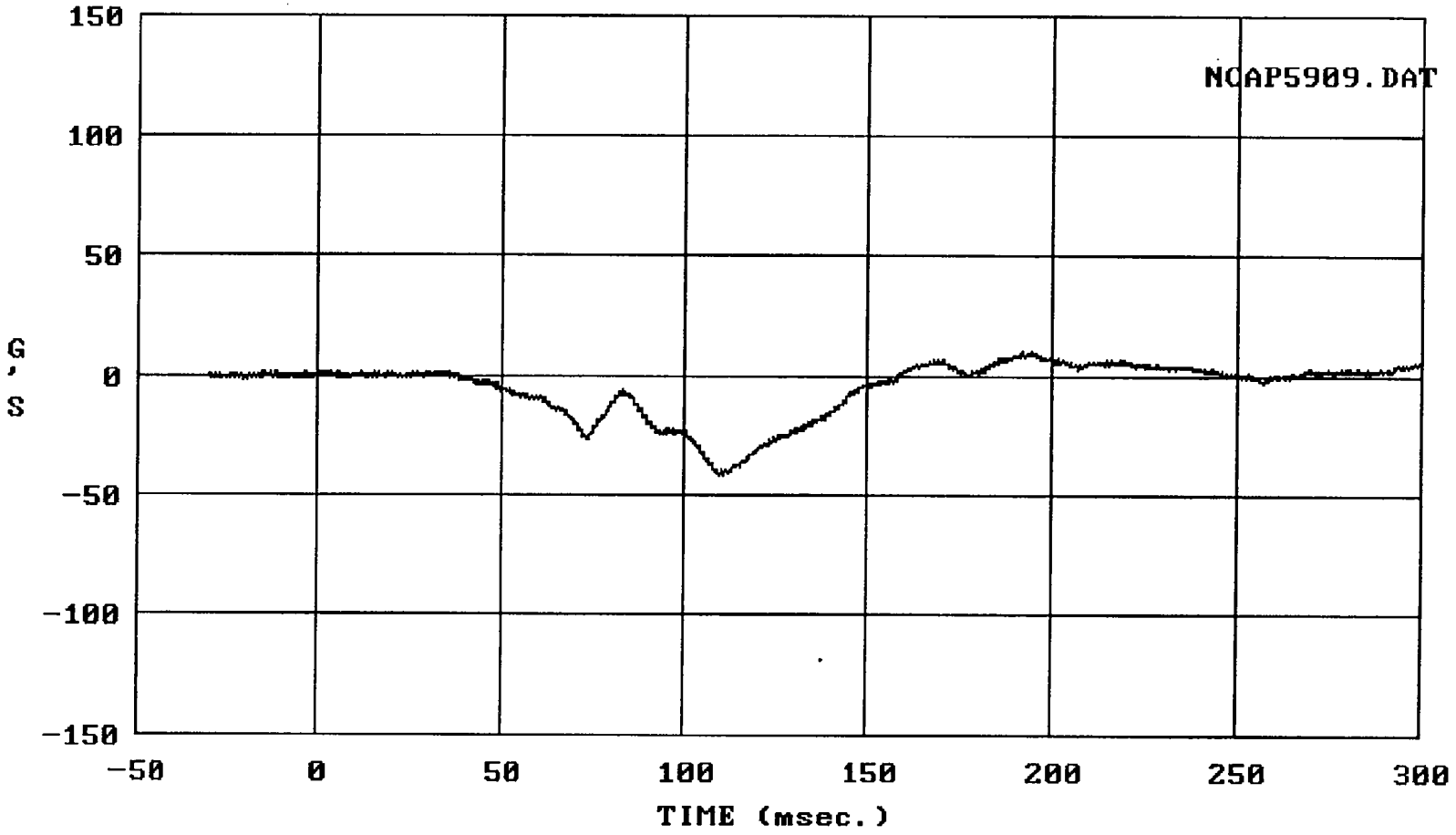
MSE 04/11/89 -- 1989 Ford Bronco II : Driver Chst resultant accel.



Filter: SAE CLASS 600 Max = 266.63 Min = -484.38

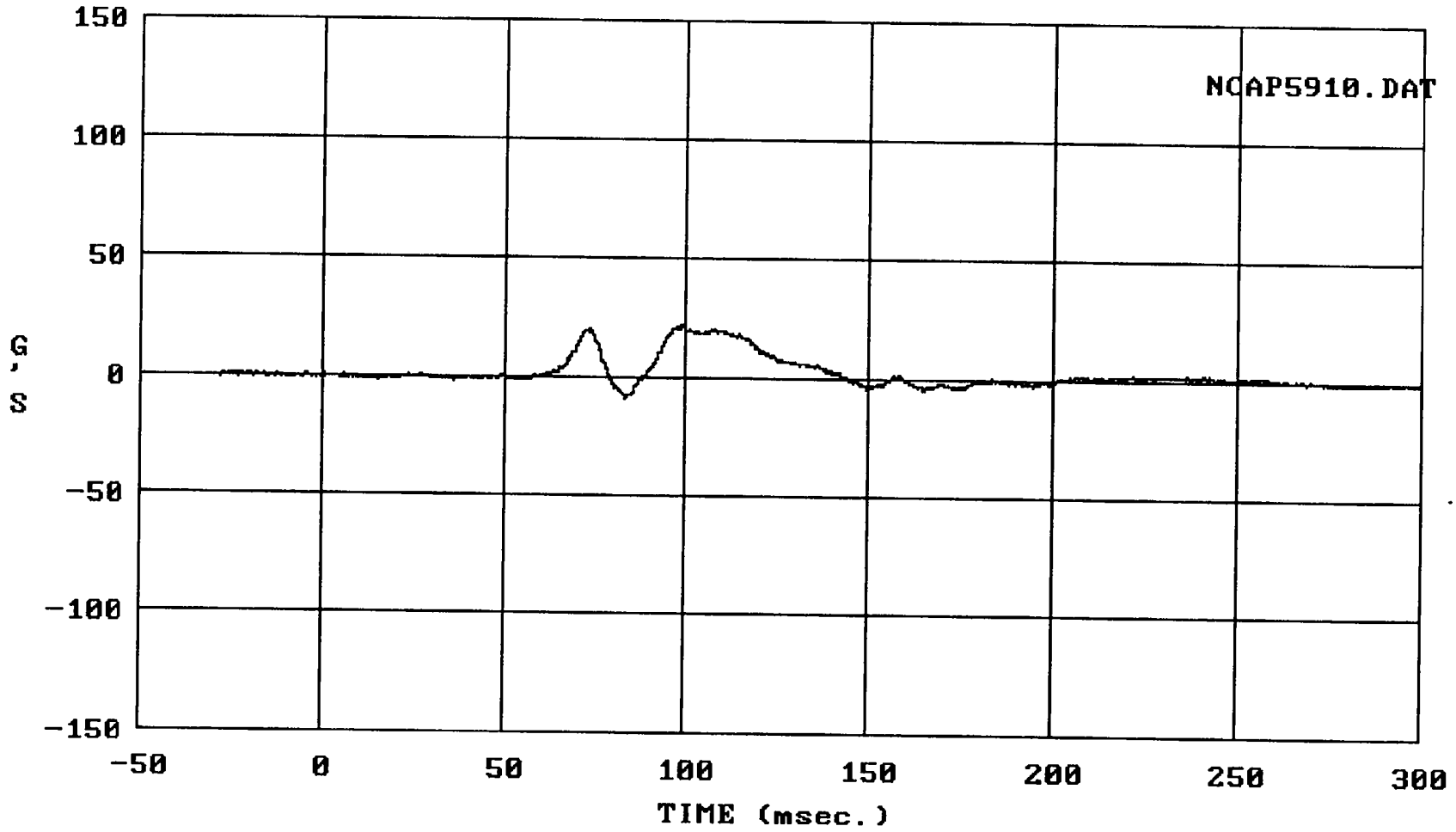
MSE 04/11/89 -- 1989 Ford Bronco II : Driver Left Femur force


NCAP5908.FIL
3000
2000
1000
0
-1000
-2000
-3000
LBS
-50
0
50
100
150
200
250
300
TIME (msec.)
Filter: SAE CLASS 600
Max = 2110.1
Min = -337.37
MSE 04/11/89 -- 1989 Ford Bronco II : Driver Right Femur force



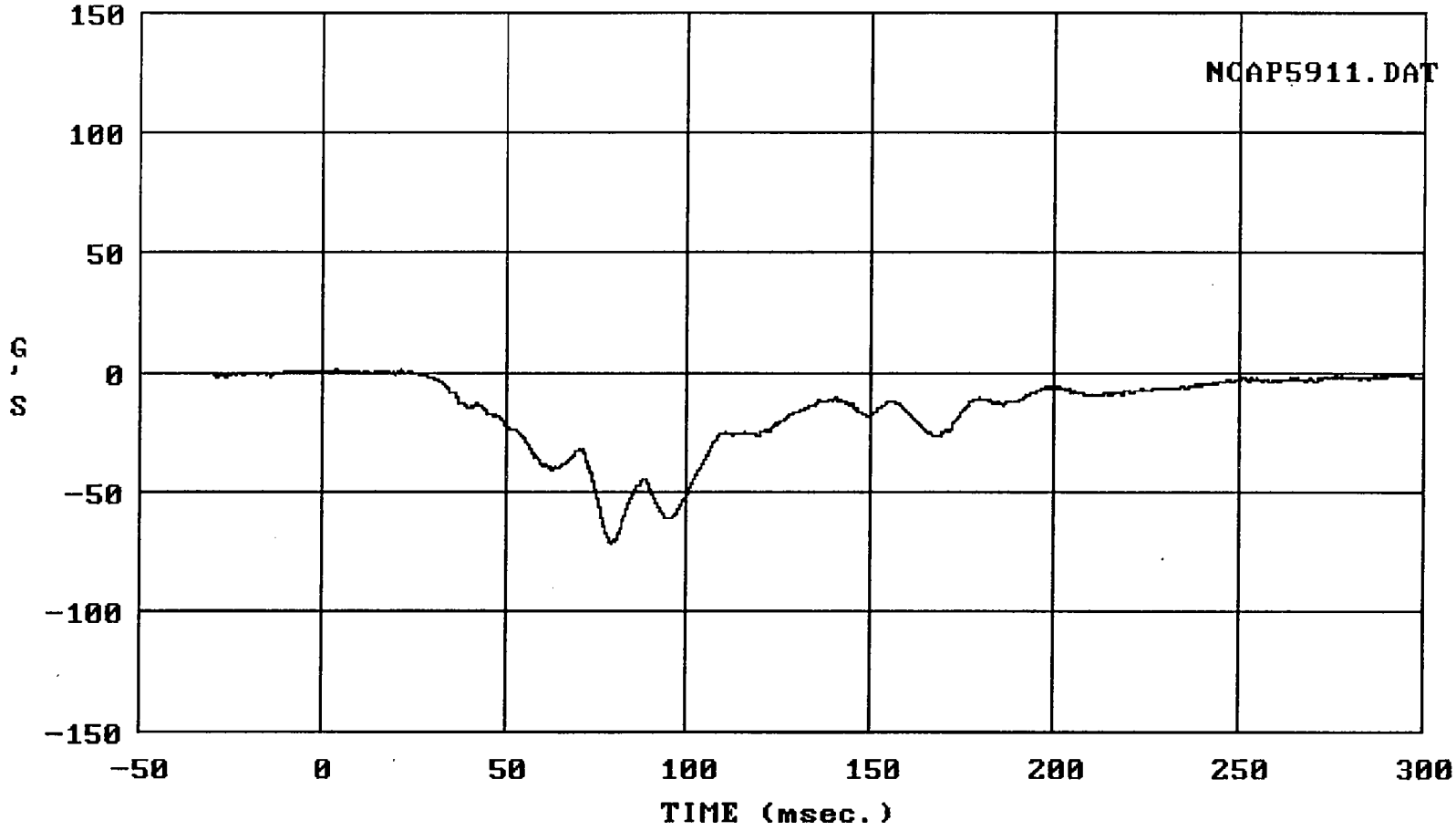
Filter: SAE CLASS 1000 Max = 10.635 Min = -41.510

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Head accel., X-axis



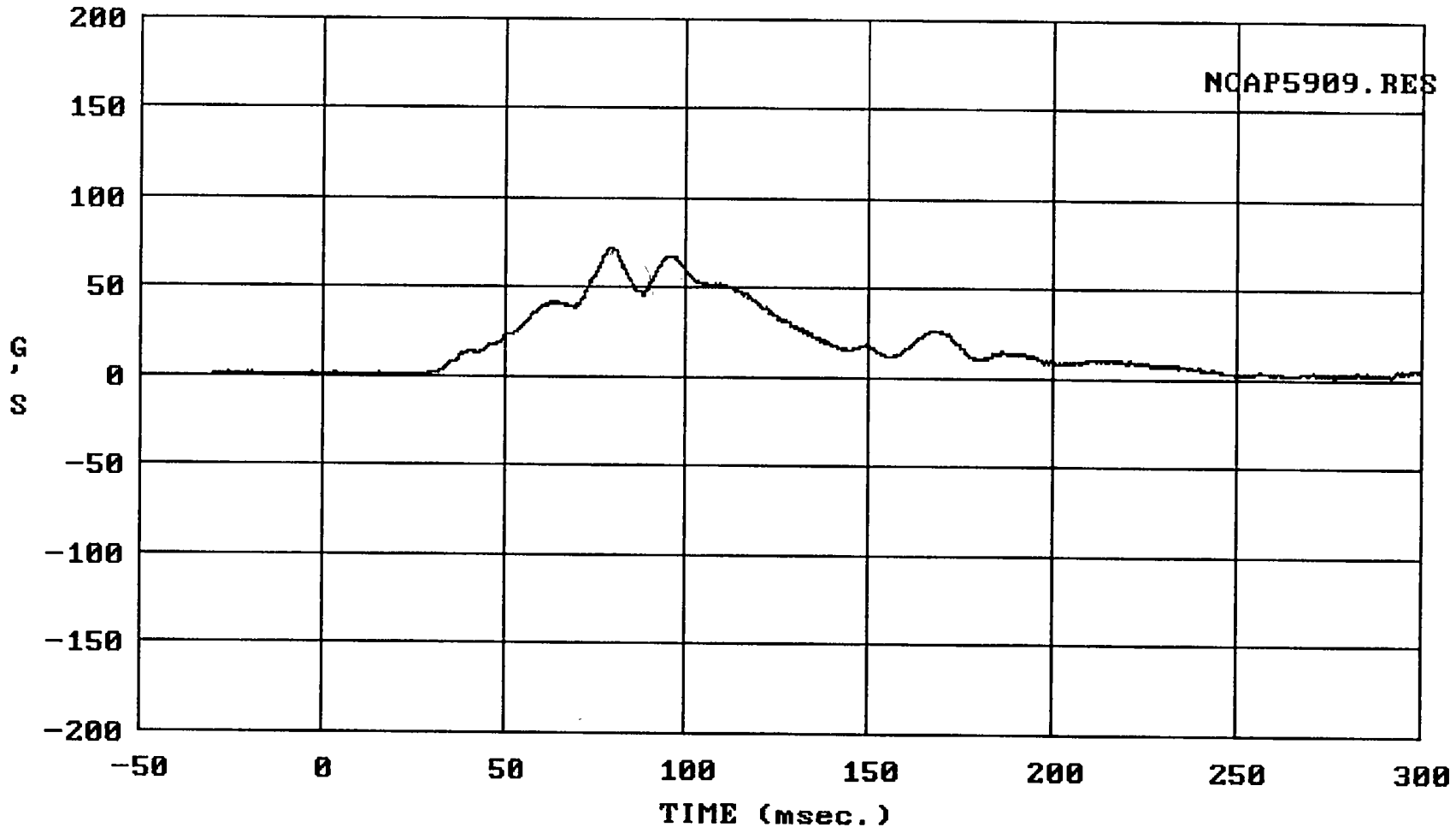
Filter: SAE CLASS 1000 Max = 22.731 Min = -8.7001

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Head accel., Y-axis



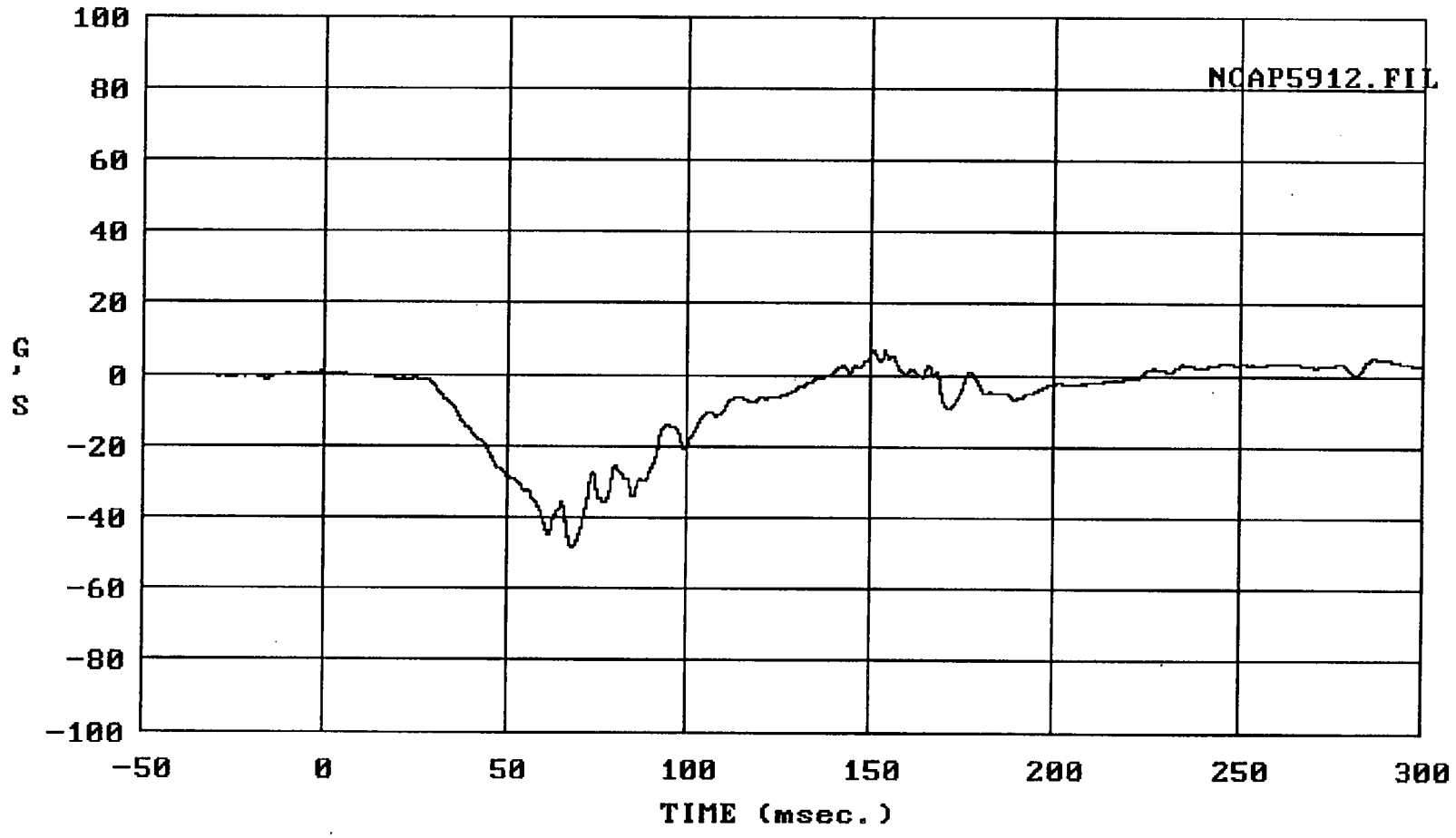
Filter: SAE CLASS 1000 Max = 1.4464 Min = -71.039

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Head accel., Z-axis



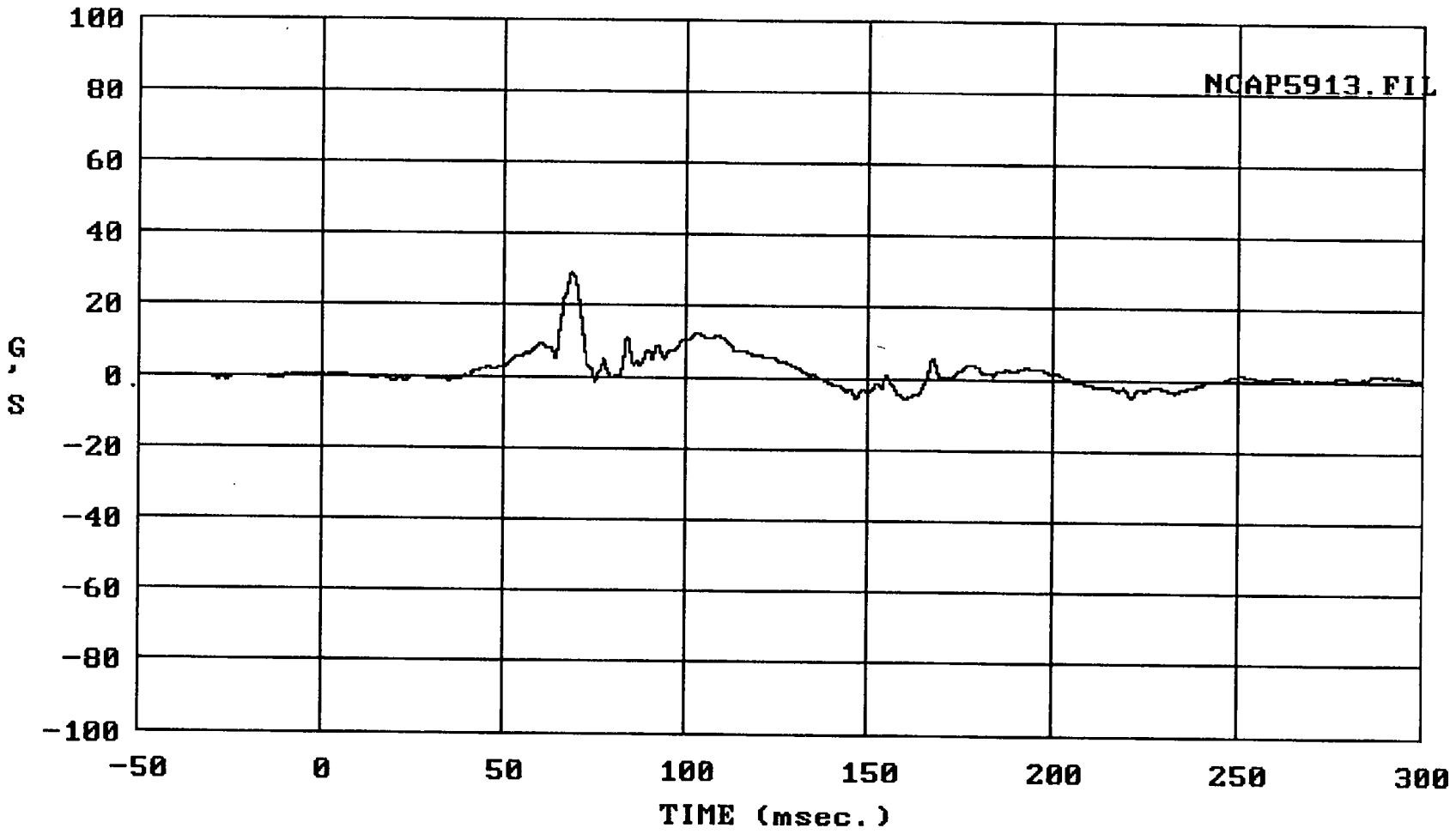
Filter: SAE CLASS 1000 Max = 72.339 Min = .13250

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Head resultant accel.



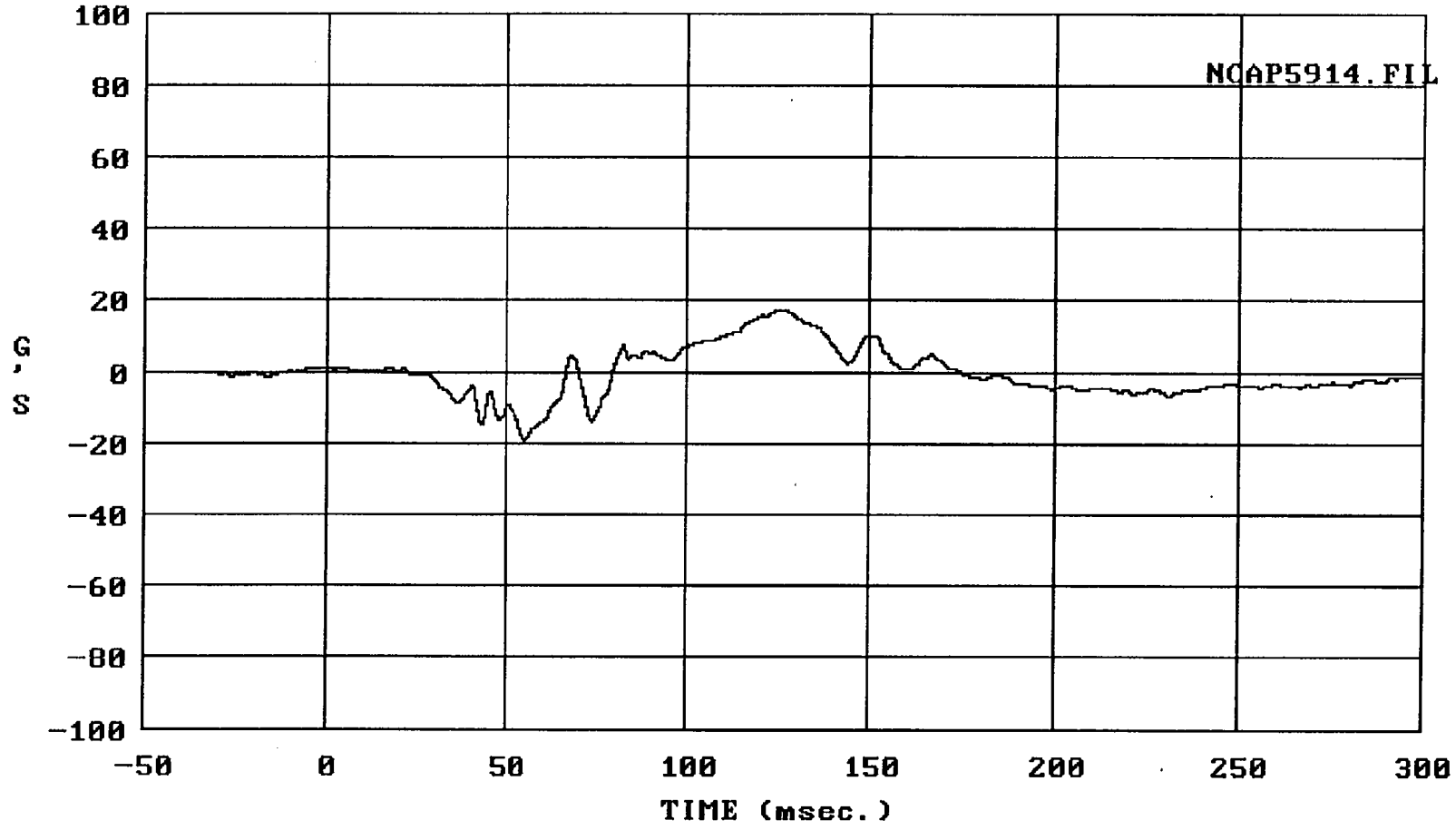
Filter: SAE CLASS 180 Max = 7.1382 Min = -48.287

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Chst accel., X-axis



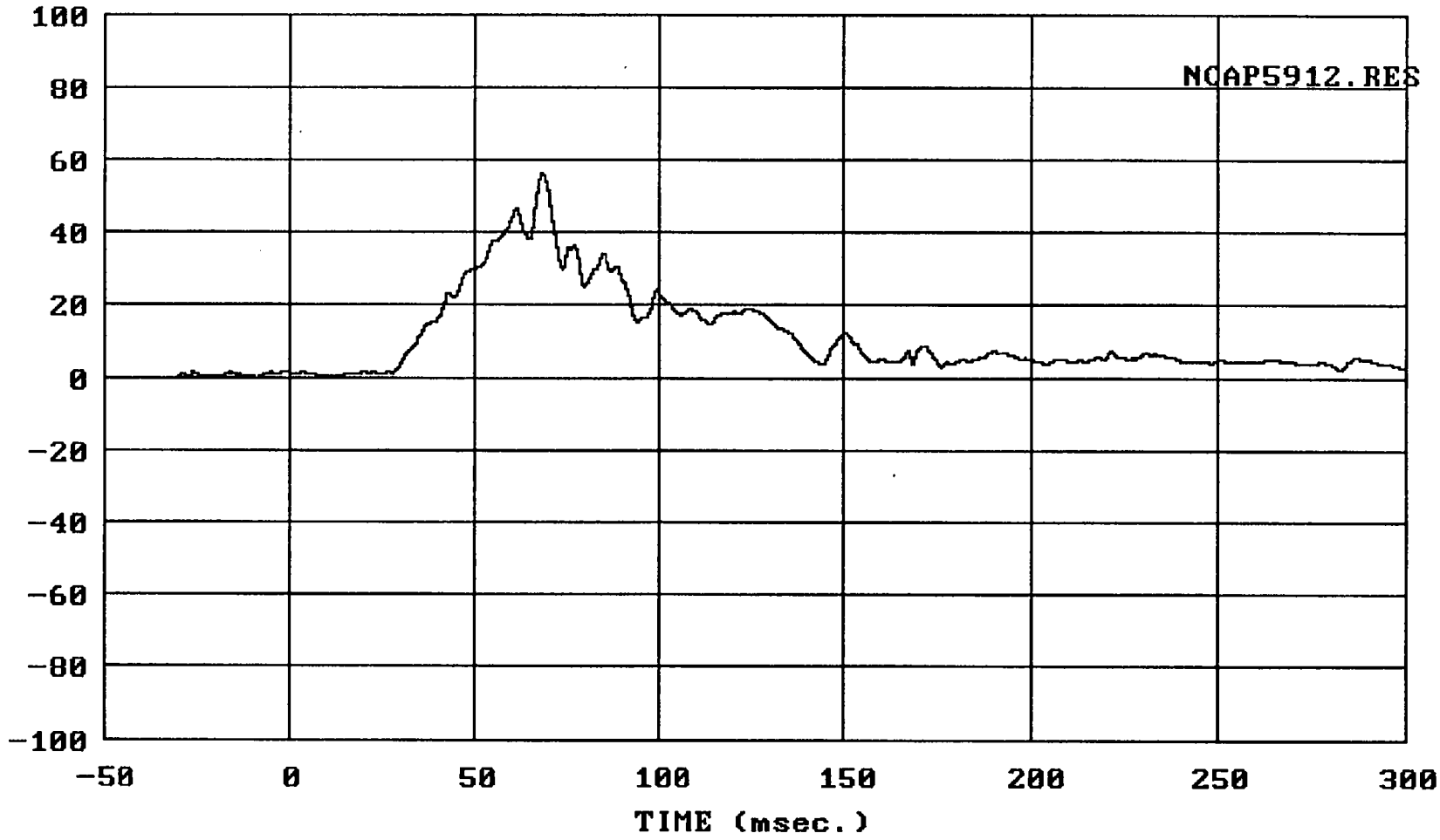
Filter: SAE CLASS 180 Max = 29.528 Min = -5.4314

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Chst accel., Y-axis



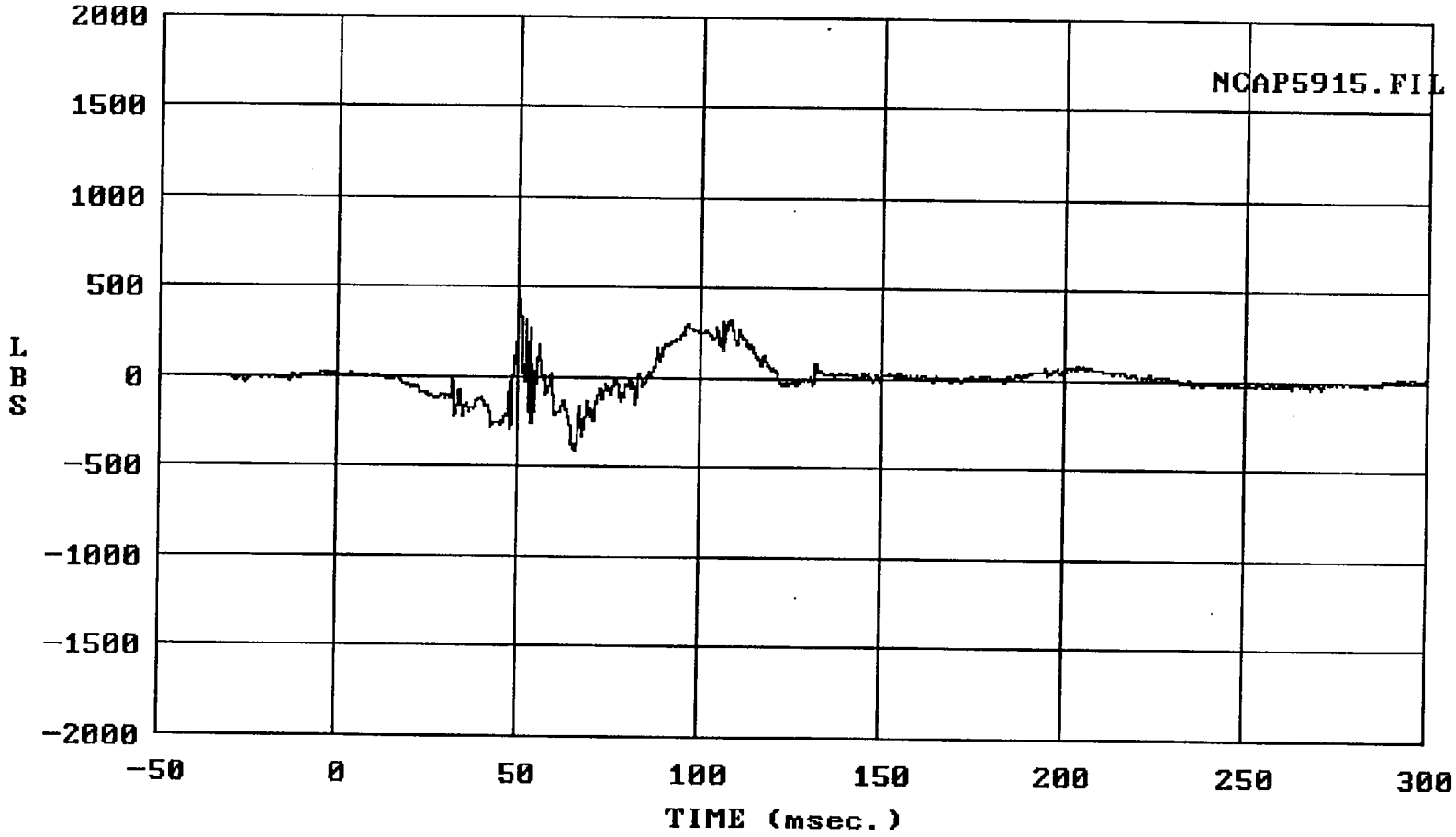
Filter: SAE CLASS 180 Max = 17.431 Min = -19.071

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Chst accel., Z-axis



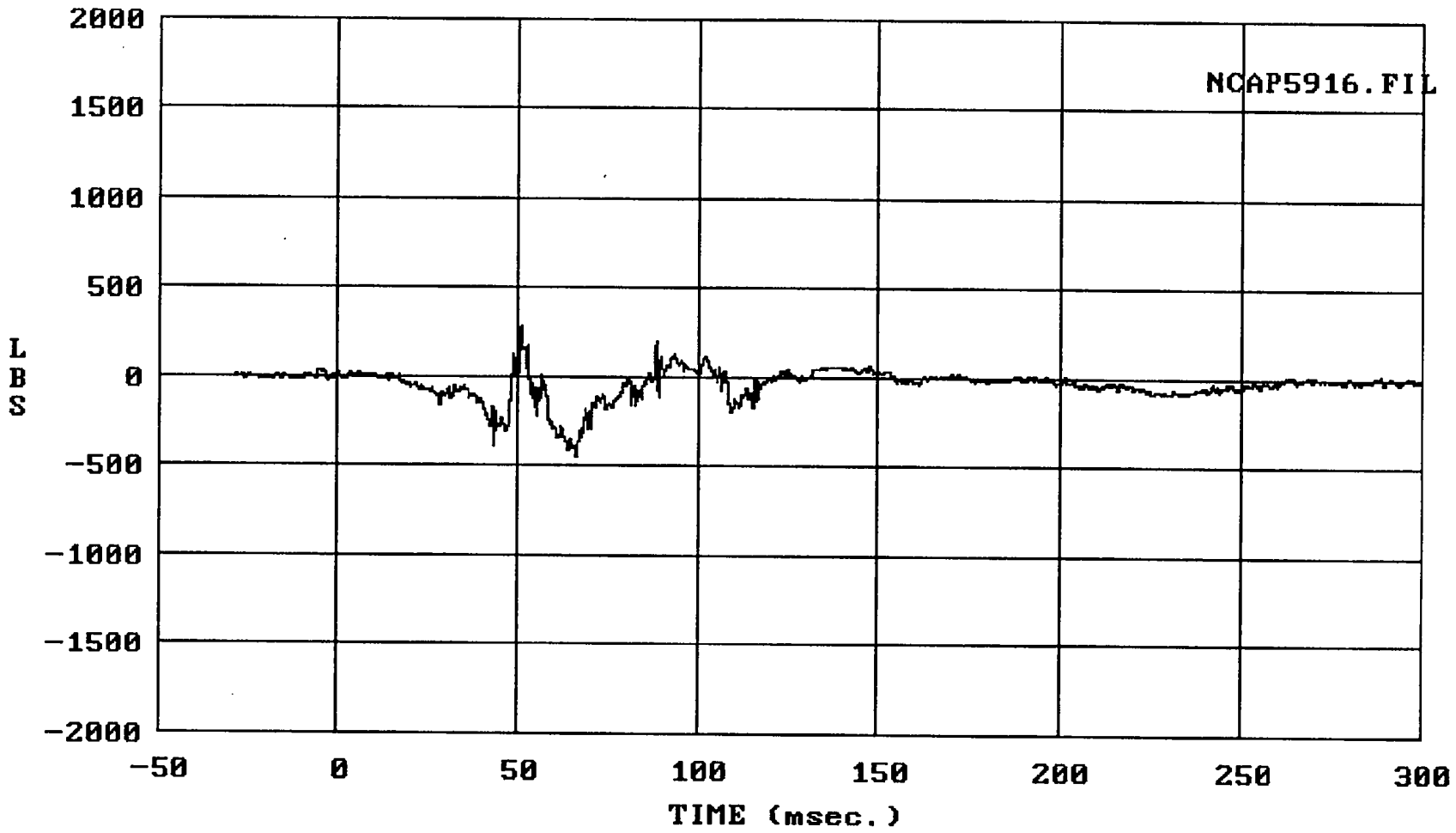
Filter: SAE CLASS 180 Max = 56.468 Min = .39127

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Chst resultant accel.



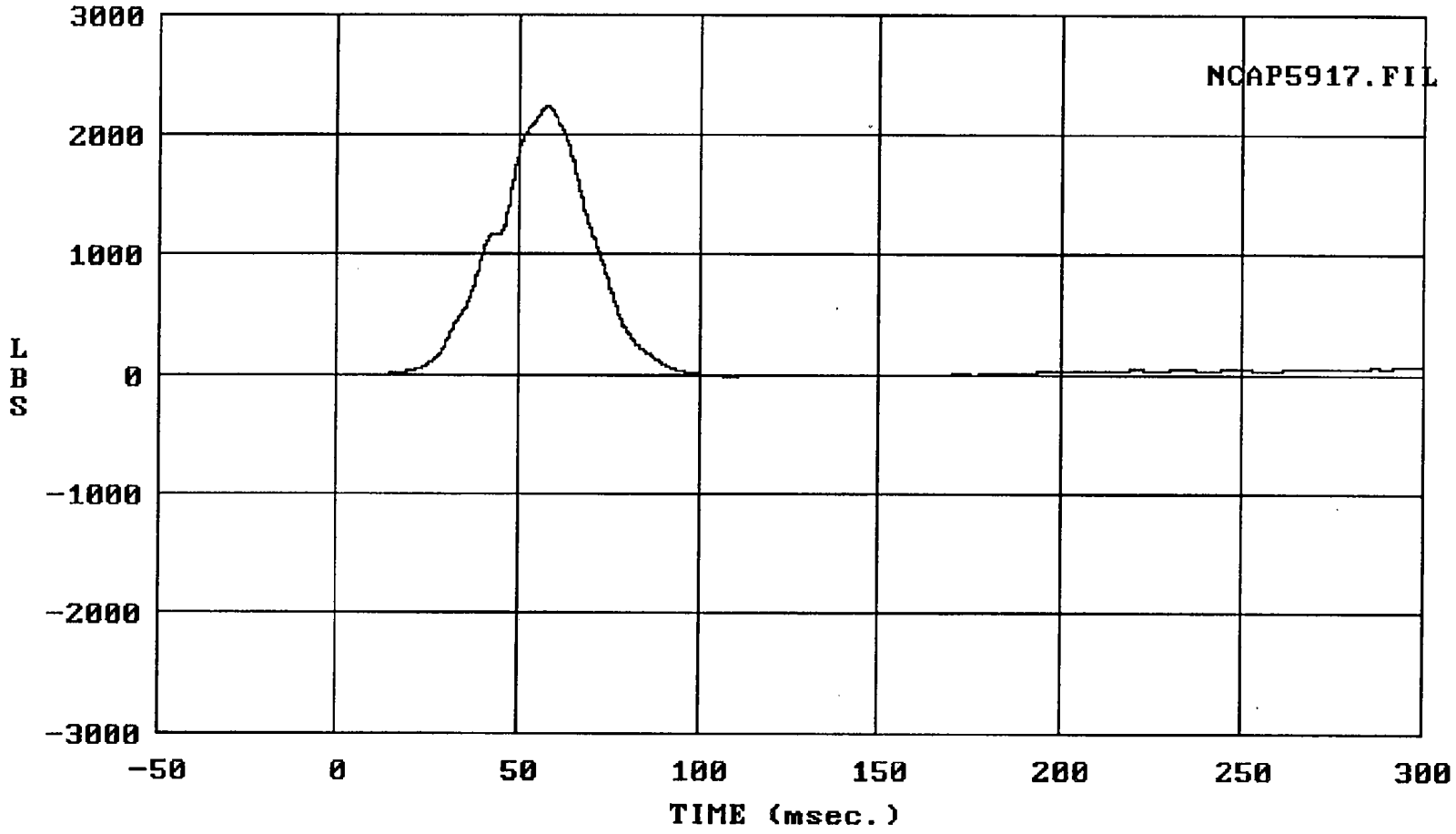
Filter: SAE CLASS 600 Max = 428.16 Min = -409.23

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Left Femur force



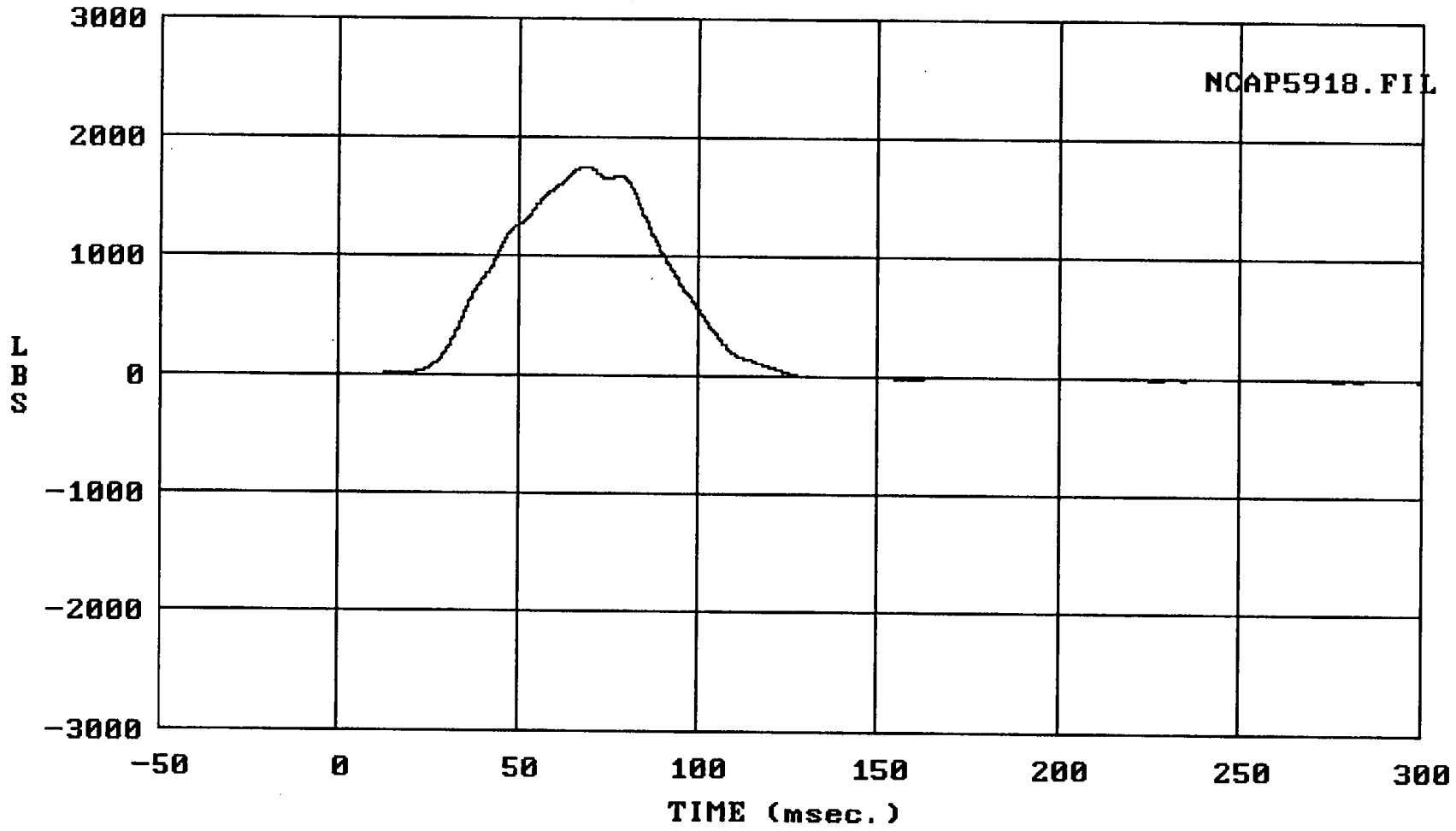
Filter: SAE CLASS 600 Max = 288.77 Min = -441.58

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Right Femur force



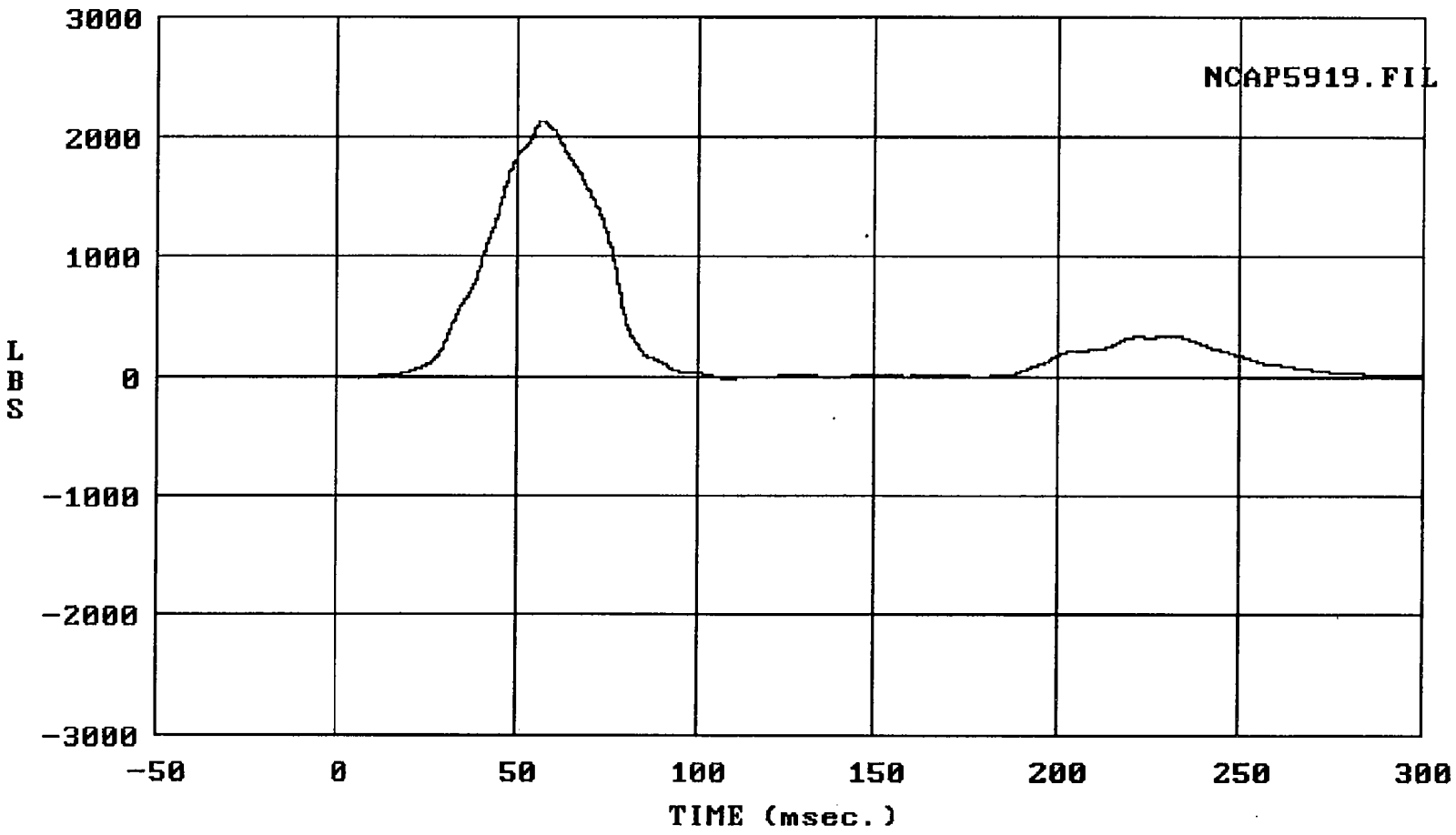
Filter: SAE CLASS 60 Max = 2239.0 Min = -13.296

MSE 04/11/89 -- 1989 Ford Bronco II : Driver Lap Belt force



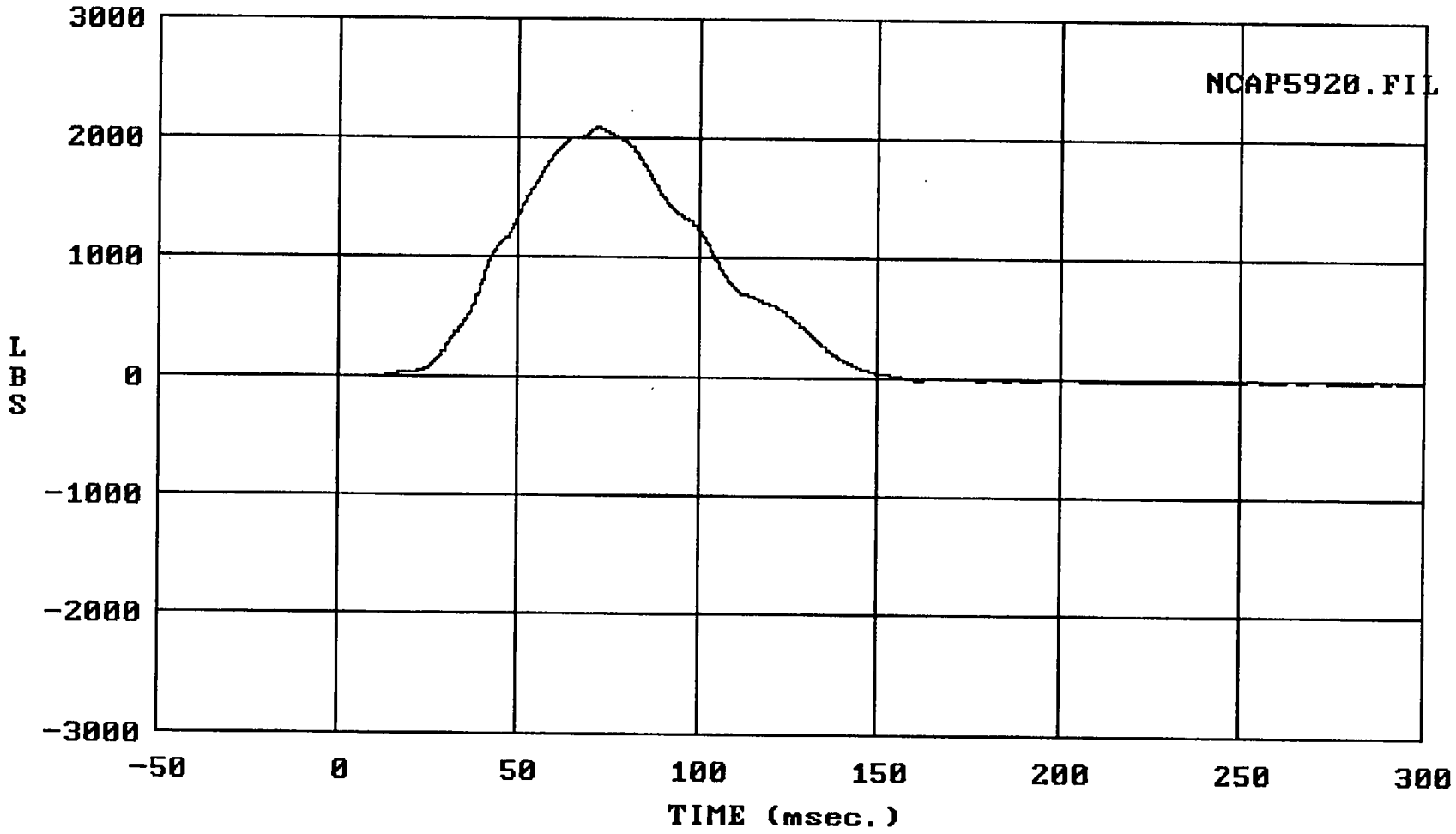
Filter: SAE CLASS 60 Max = 1754.9 Min = -12.252

MSE 04/11/89 -- 1989 Ford Bronco II : Driver Shoulder Belt force



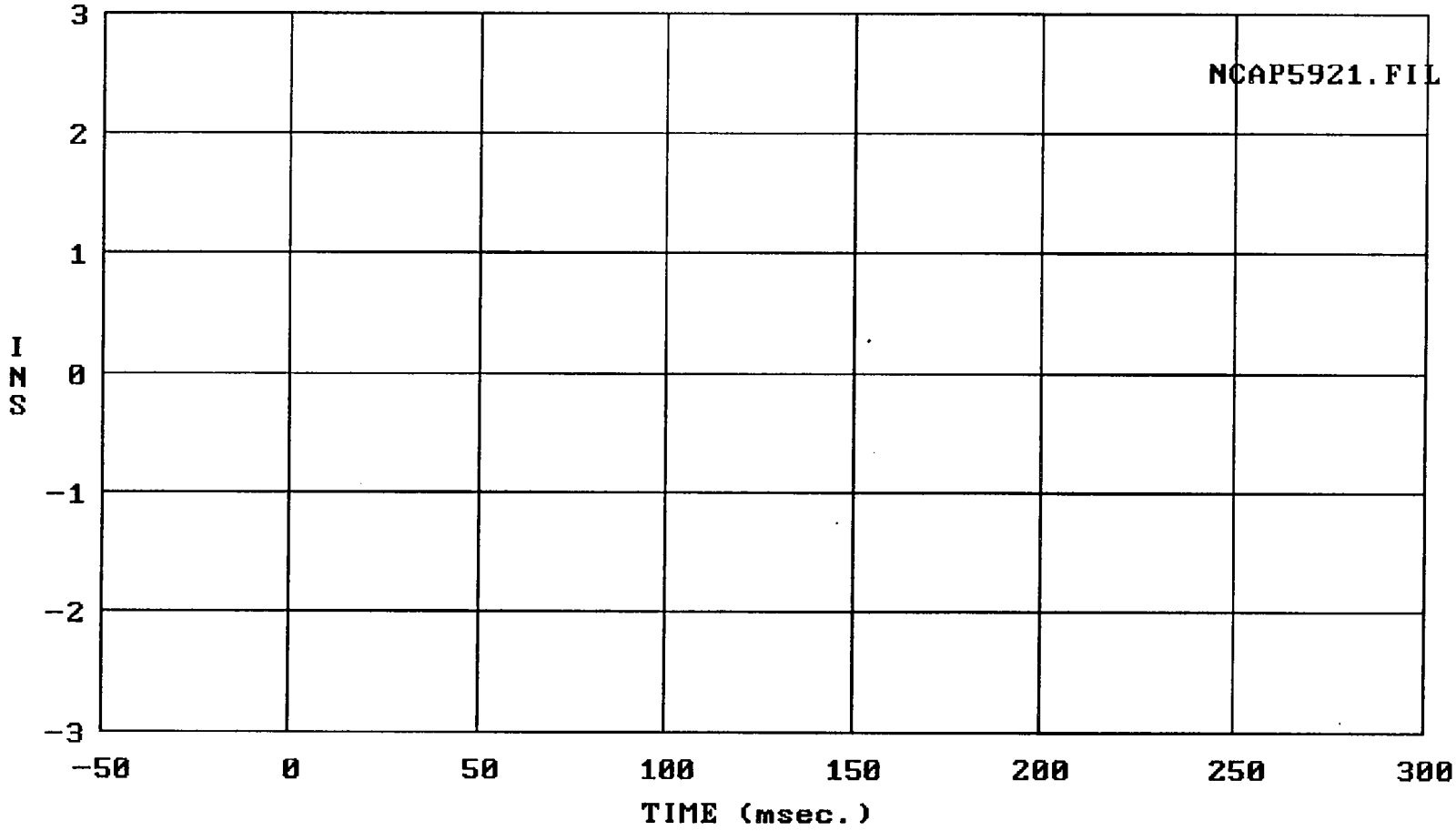
Filter: SAE CLASS 60 Max = 2131.6 Min = -12.101

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Lap Belt force



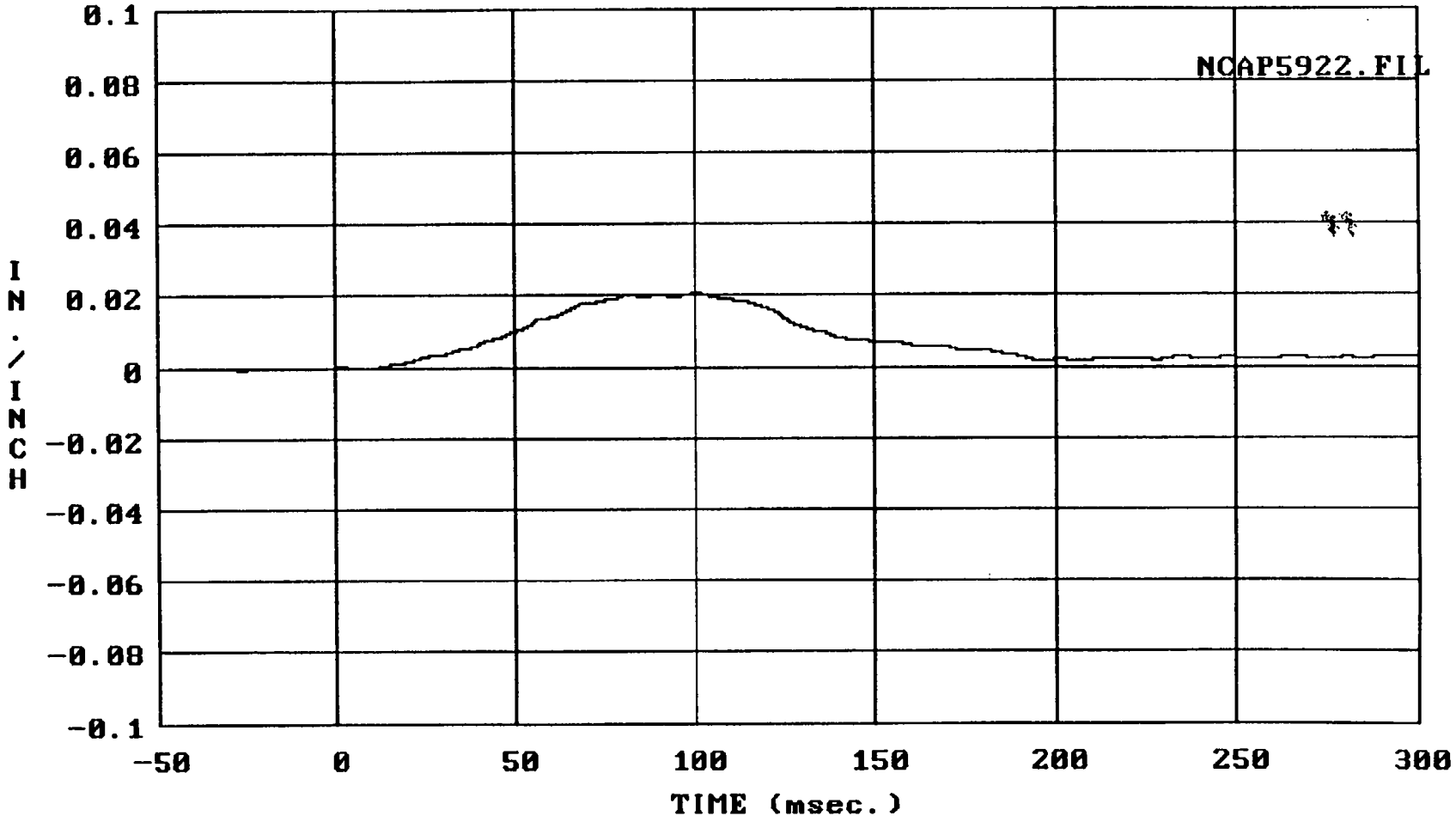
Filter: SAE CLASS 60 Max = 2091.3 Min = -23.468

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Shoulder Belt force



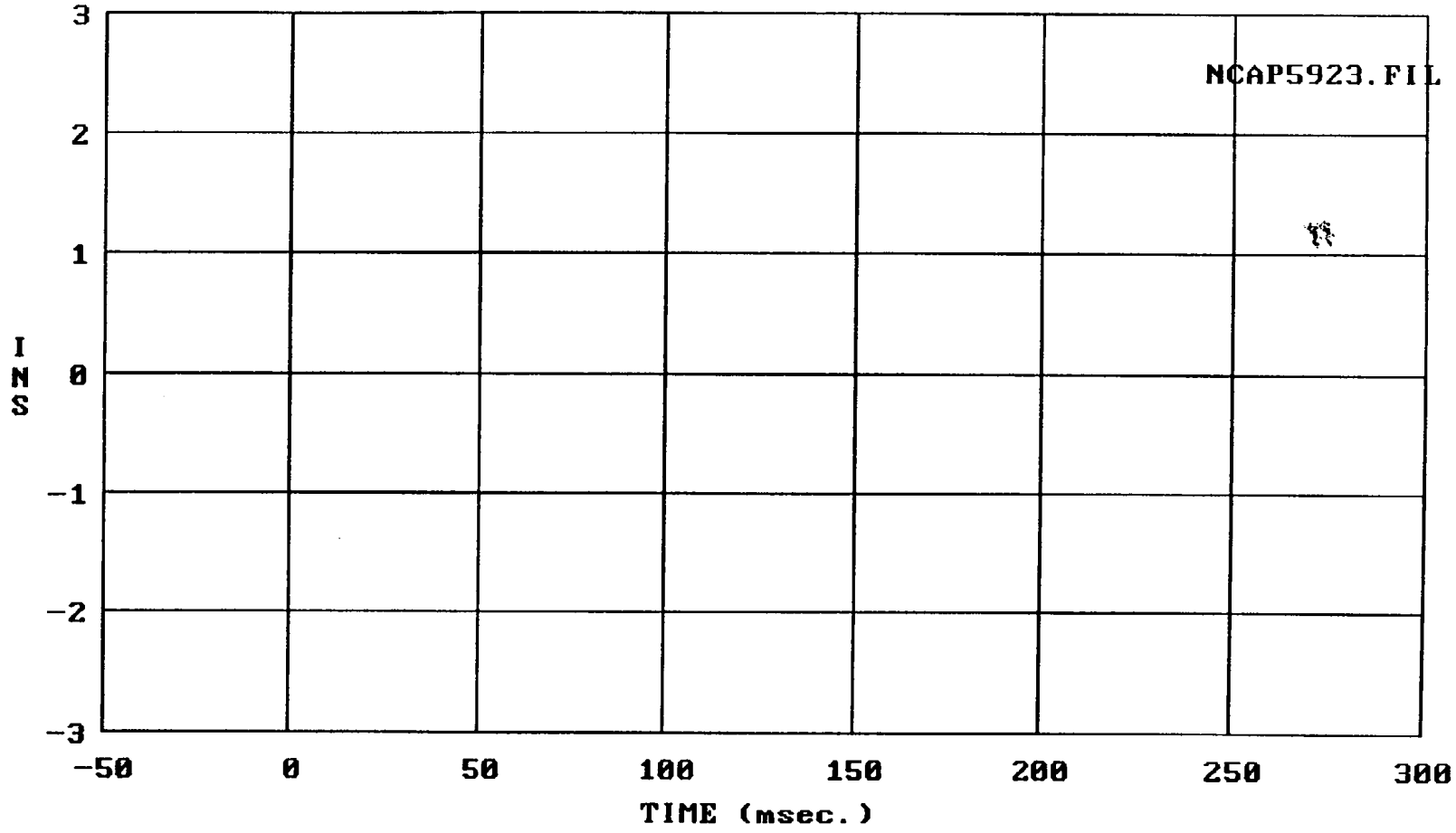
Filter: SAE CLASS 60 Max = .00000 Min = .00000

MSE 04/11/89 -- 1989 Ford Bronco II : Driver Belt pullout
(Not_used)



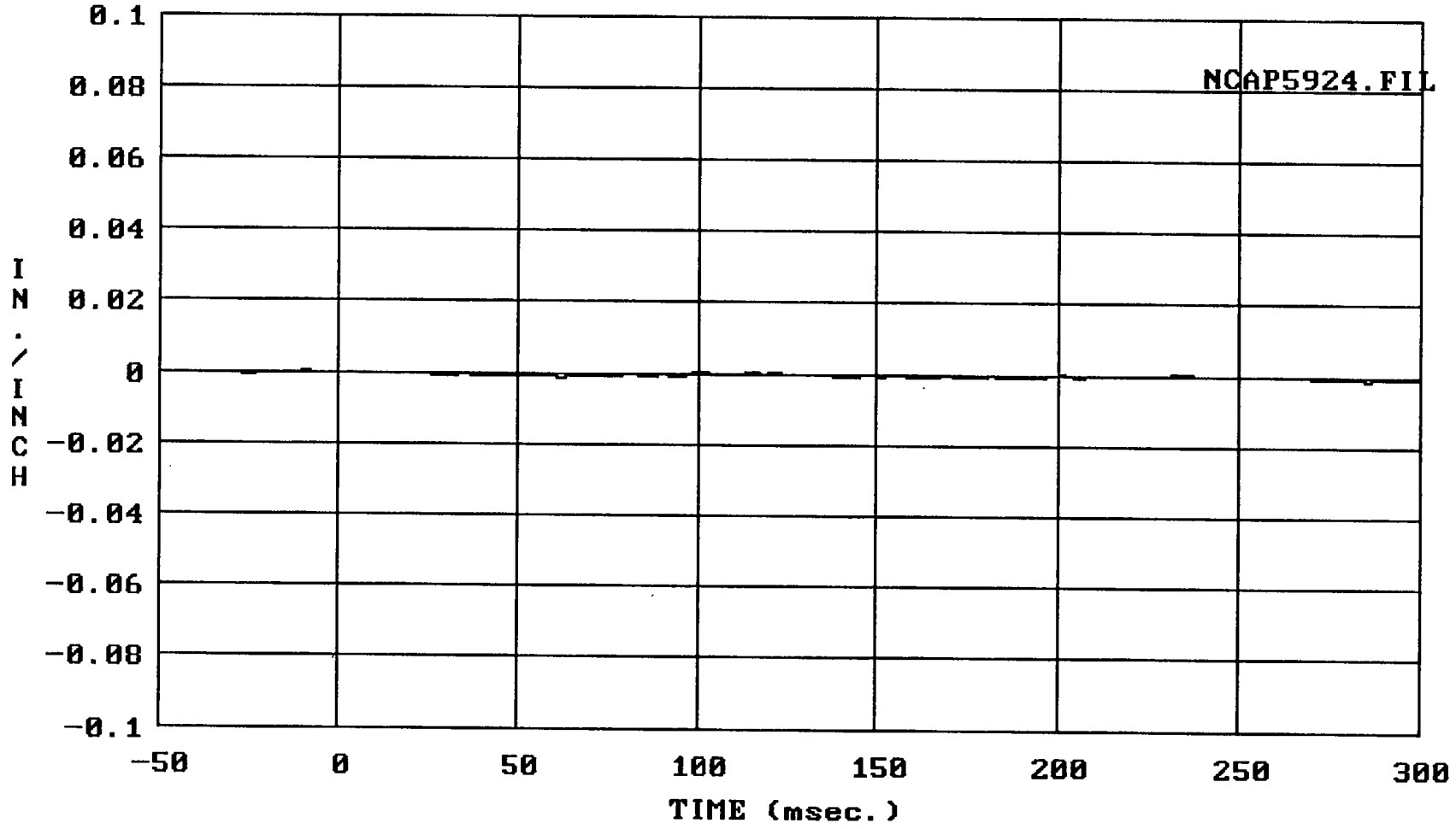
Filter: SAE CLASS 60 Max = .20796E-01 Min = -.21255E-03

MSE 04/11/89 -- 1989 Ford Bronco II : Driver Belt percent elongation



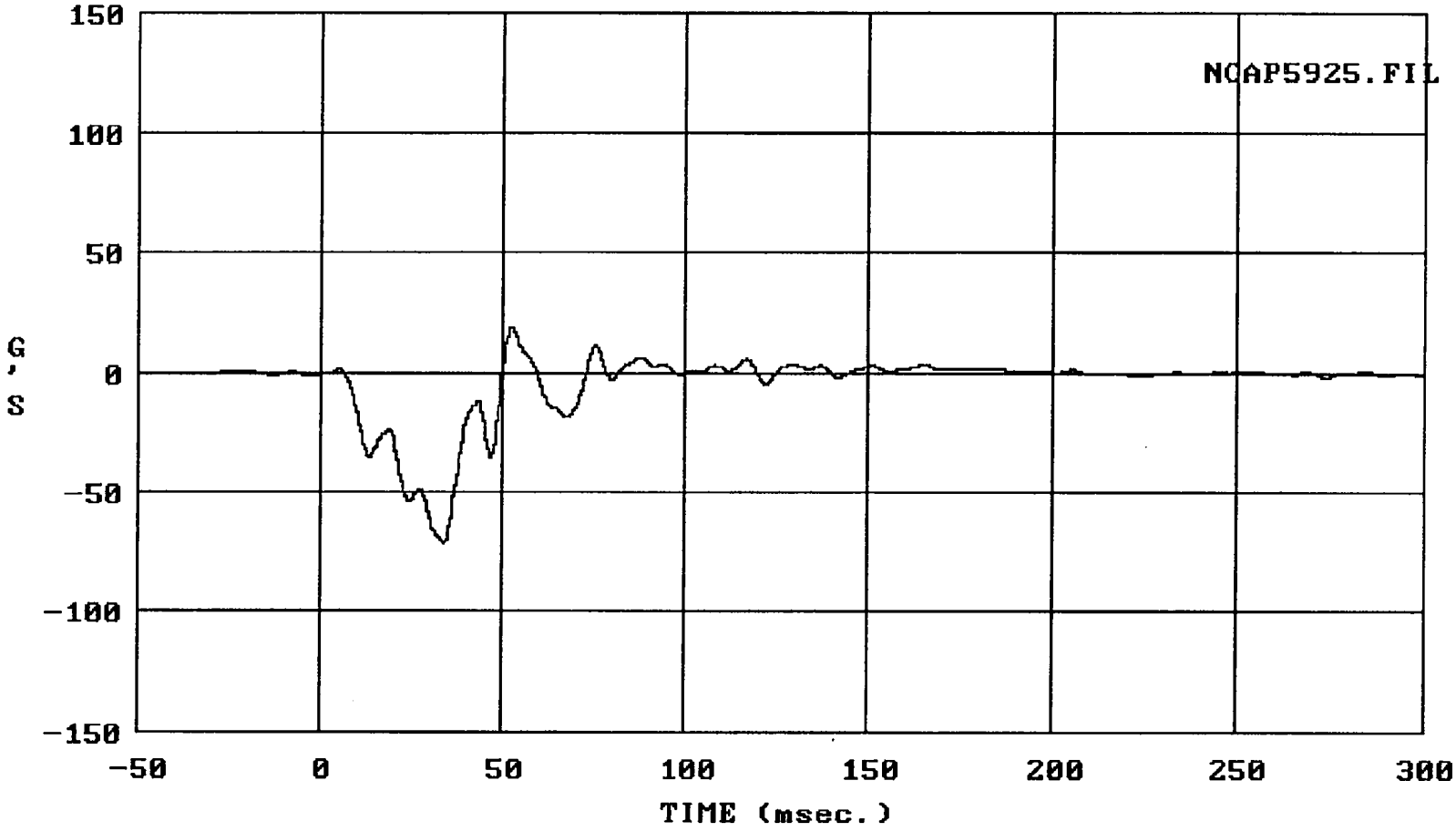
Filter: SAE CLASS 60 Max = .00000 Min = .00000

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Belt pullout
(Not_used)



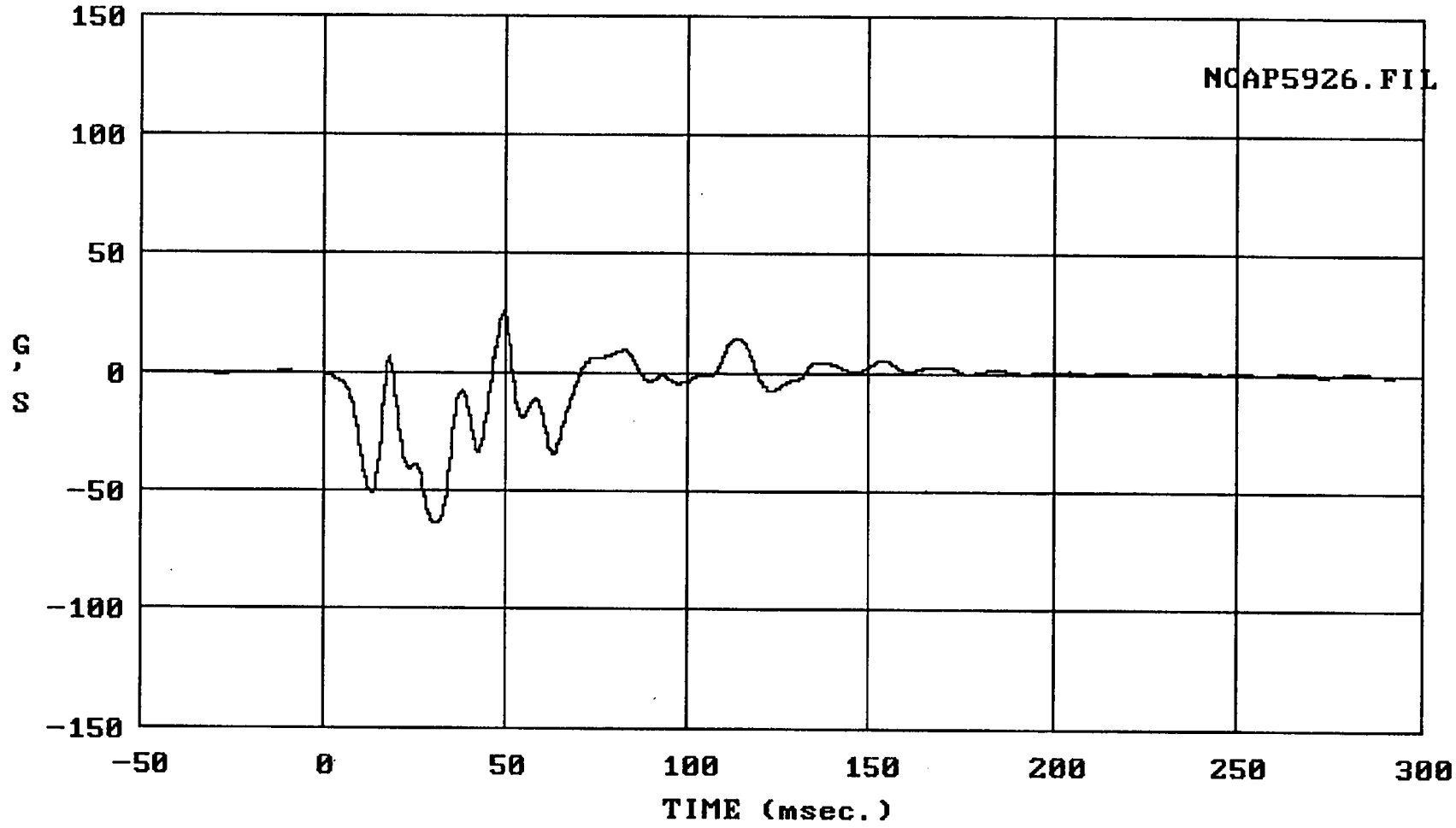
Filter: SAE CLASS 60 Max = .54428E-03 Min = -.95101E-03

MSE 04/11/89 -- 1989 Ford Bronco II : Pasngr Belt percent elongation
no_data



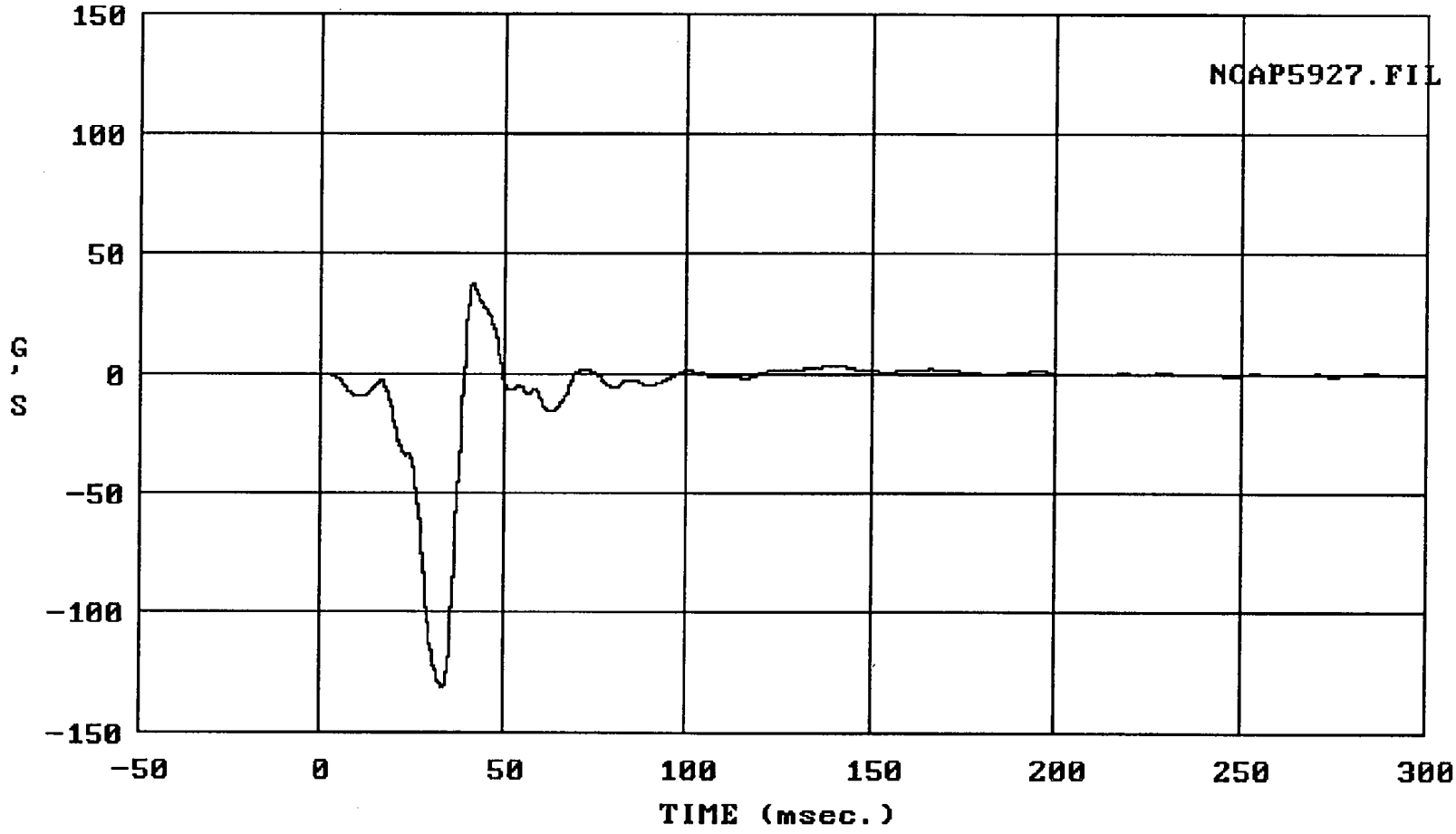
Filter: SAE CLASS 60 Max = 19.275 Min = -71.015

MSE 04/11/89 -- 1989 Ford Bronco II : Left front caliper accel.



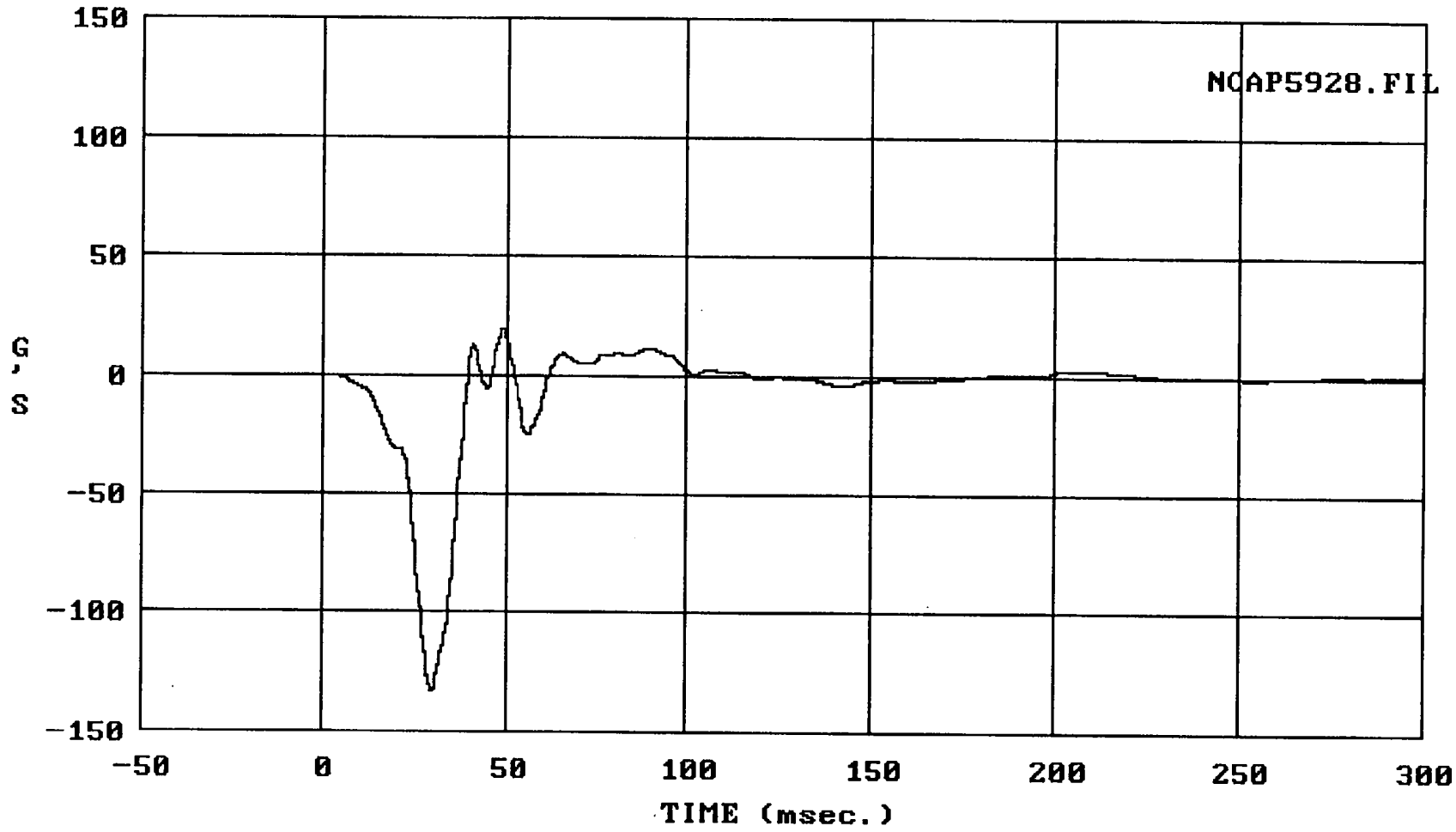
Filter: SAE CLASS 60 Max = 25.970 Min = -63.535

MSE 04/11/89 -- 1989 Ford Bronco II : Right front caliper accel.



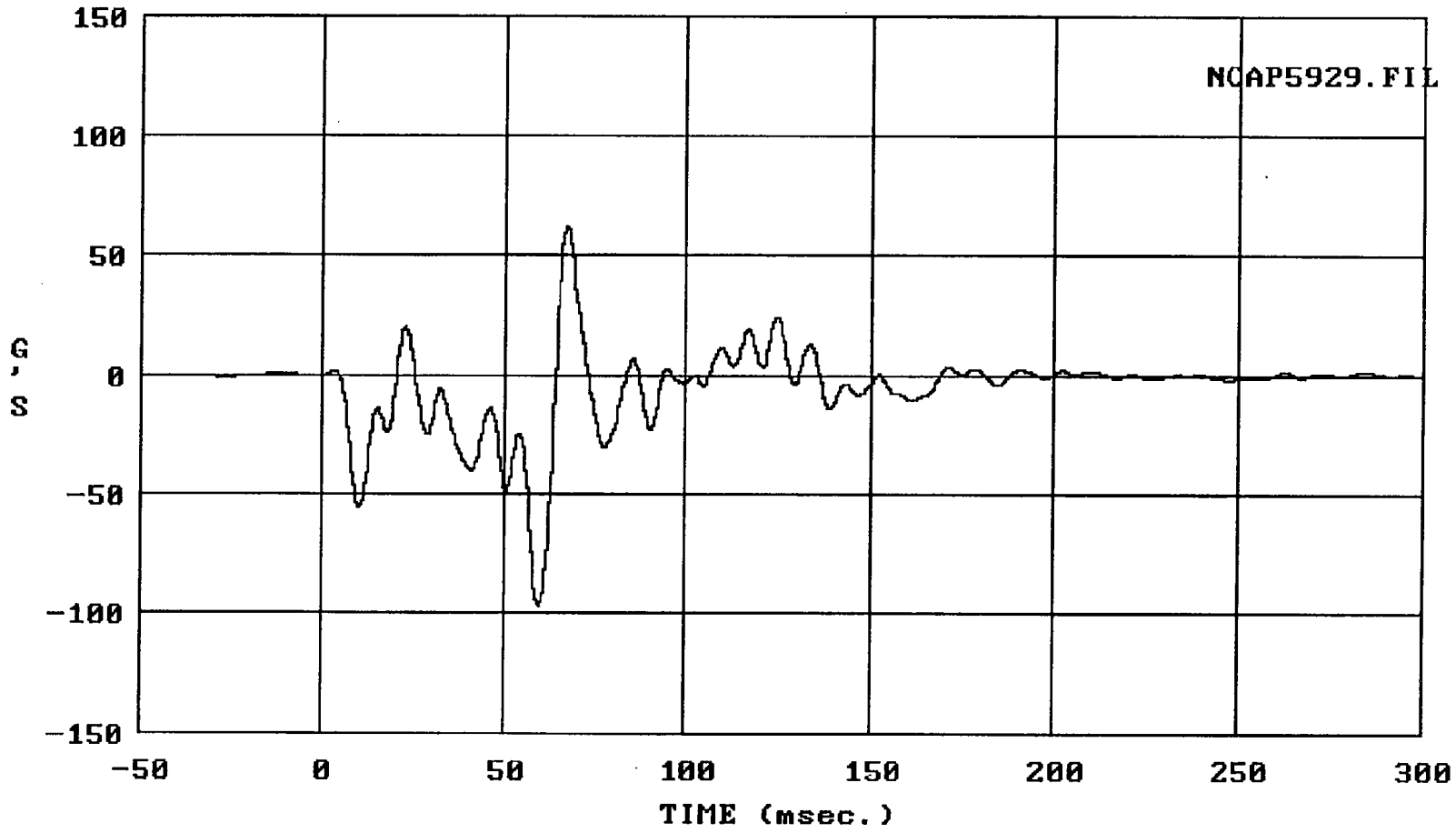
Filter: SAE CLASS 60 Max = 37.723 Min = -130.86

MSE 04/11/89 -- 1989 Ford Bronco II : Engine bottom acceleration



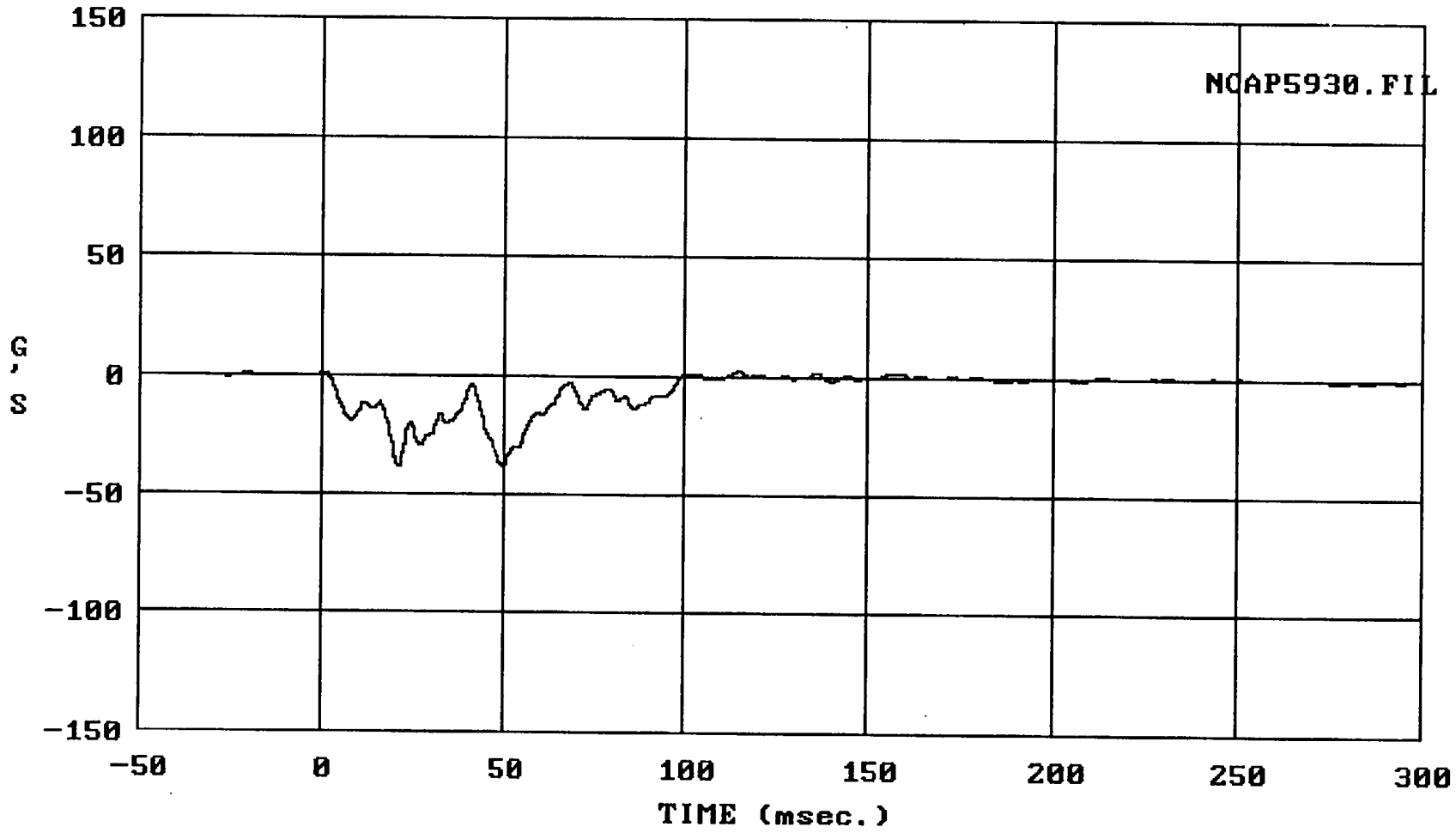
Filter: SAE CLASS 60 Max = 19.985 Min = -133.06

MSE 04/11/89 -- 1989 Ford Bronco II : Engine top acceleration



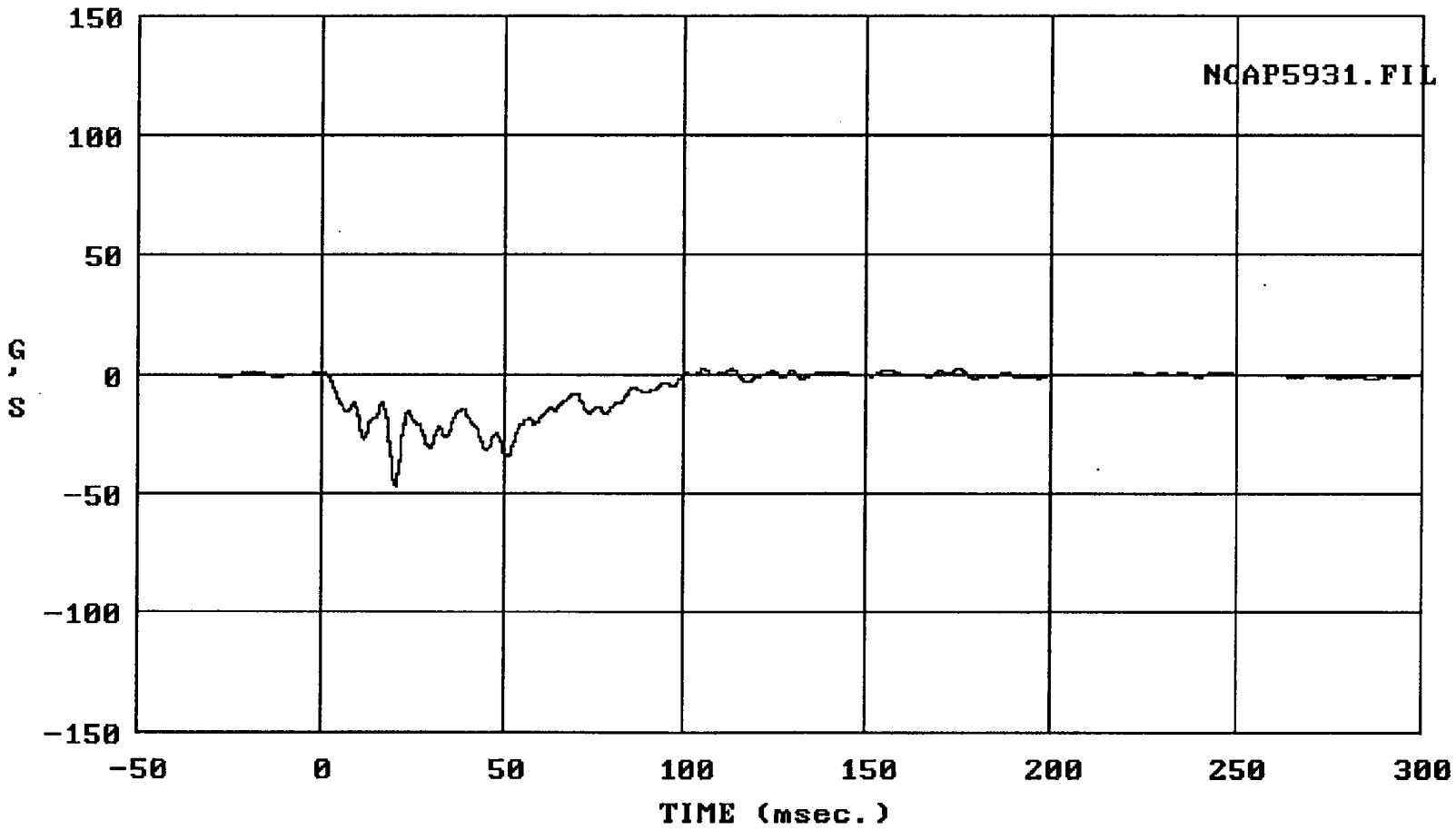
Filter: SAE CLASS 60 Max = 62.376 Min = -96.617

MSE 04/11/89 — 1989 Ford Bronco II : Instrument panel accel.



Filter: SAE CLASS 60 Max = 2.3354 Min = -38.403

MSE 04/11/89 -- 1989 Ford Bronco II : Left-rear seat X-member accel.



Filter: SAE CLASS 60 Max = 2.9854 Min = -47.030

MSE 04/11/89 -- 1989 Ford Bronco II : Right-rear seat X-member accel.

APPENDIX B-2

LOAD CELL BARRIER DATA

DATA FILTERING:

Load Cell Barrier Channels - Class 60

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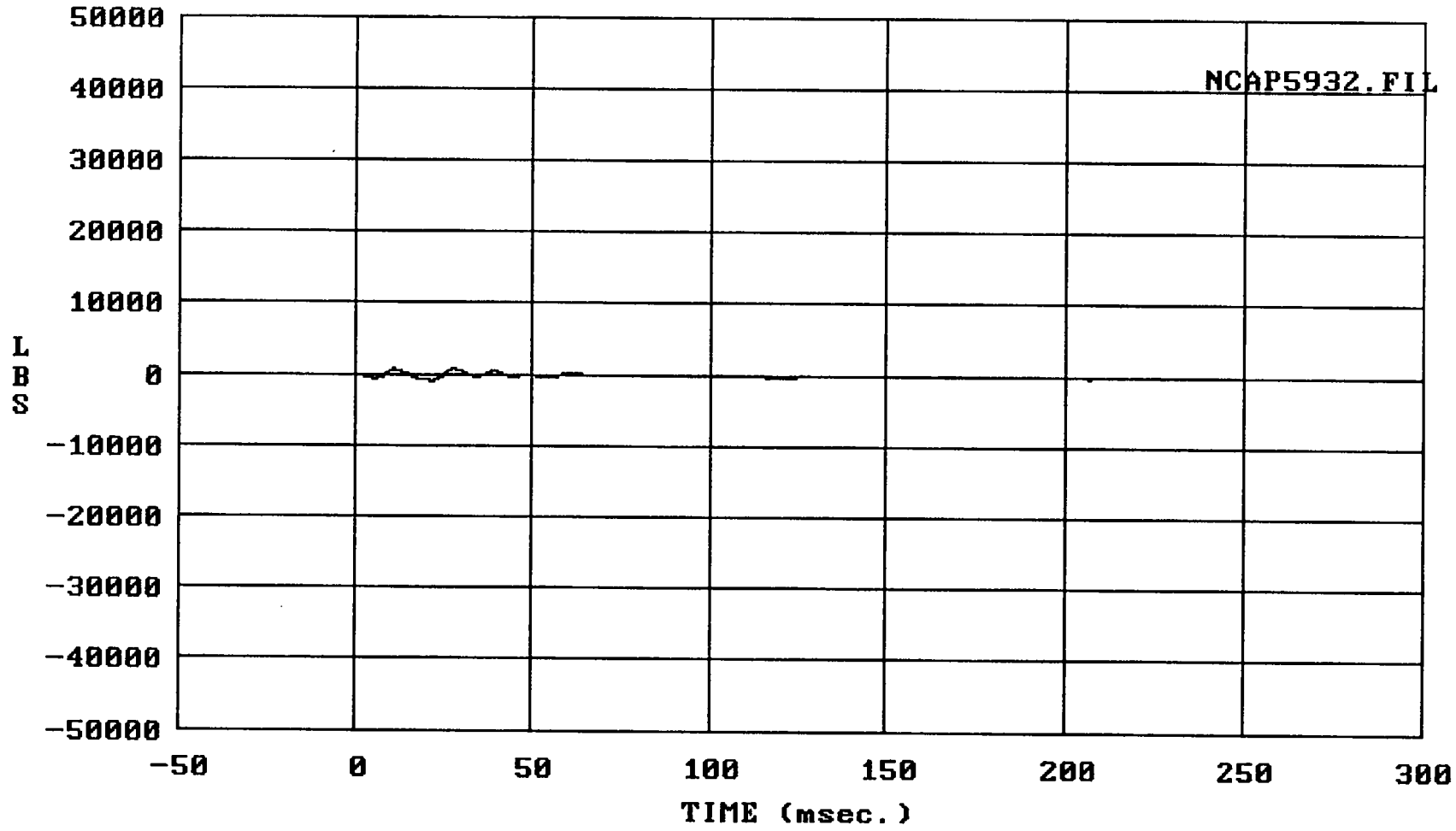
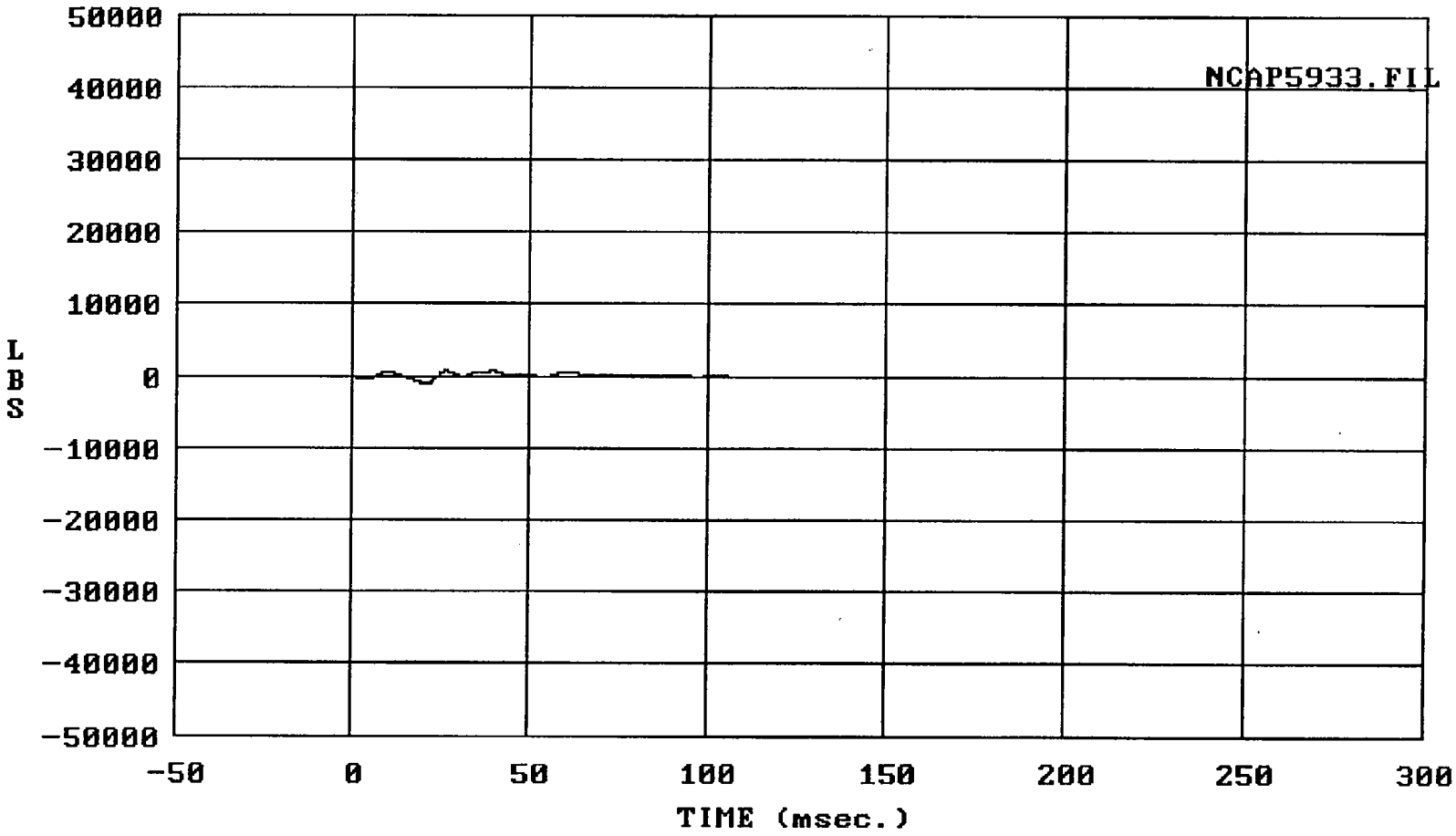


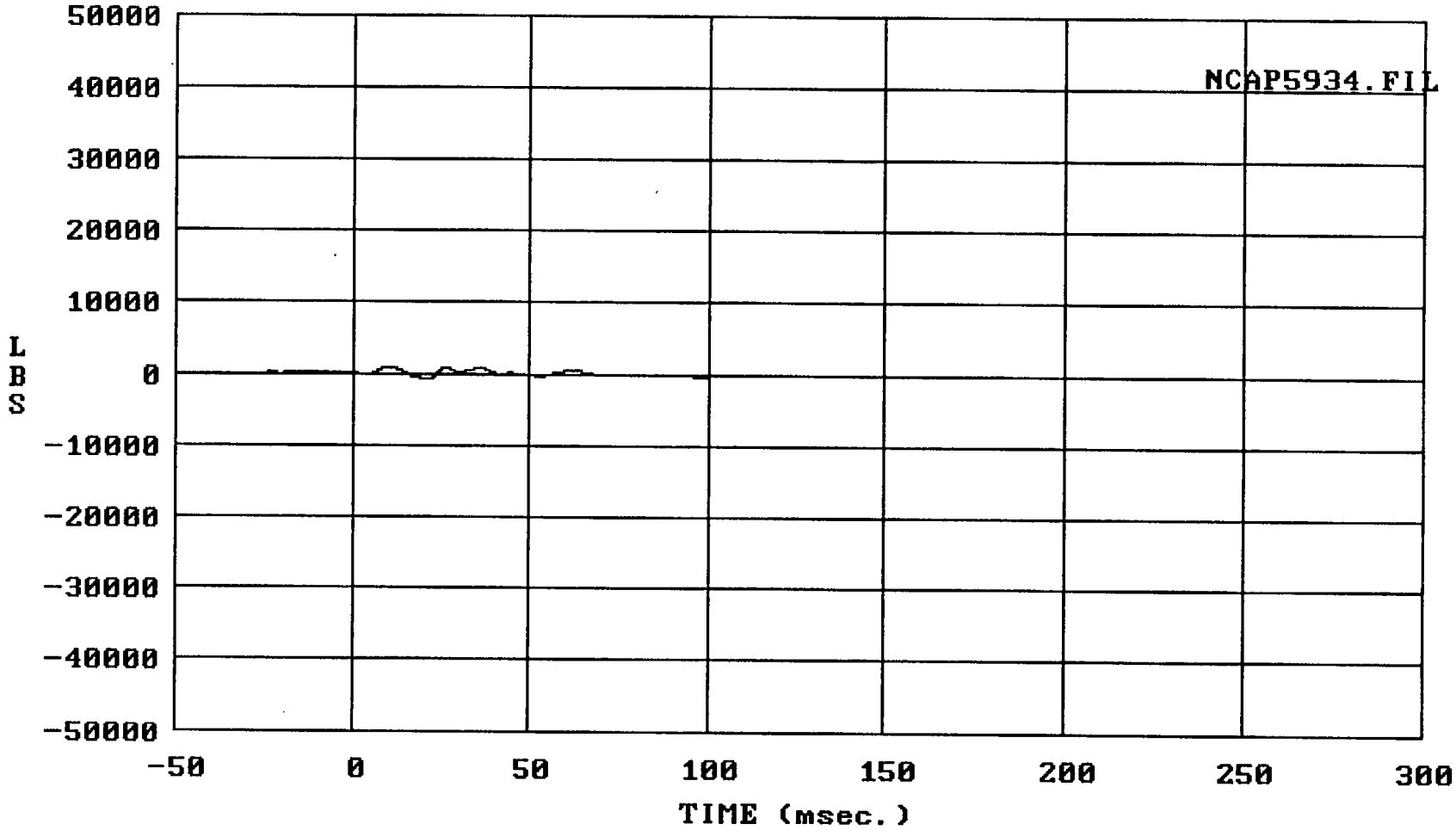
Filter: SAE CLASS 60 Max = 801.32 Min = -783.25

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell A1



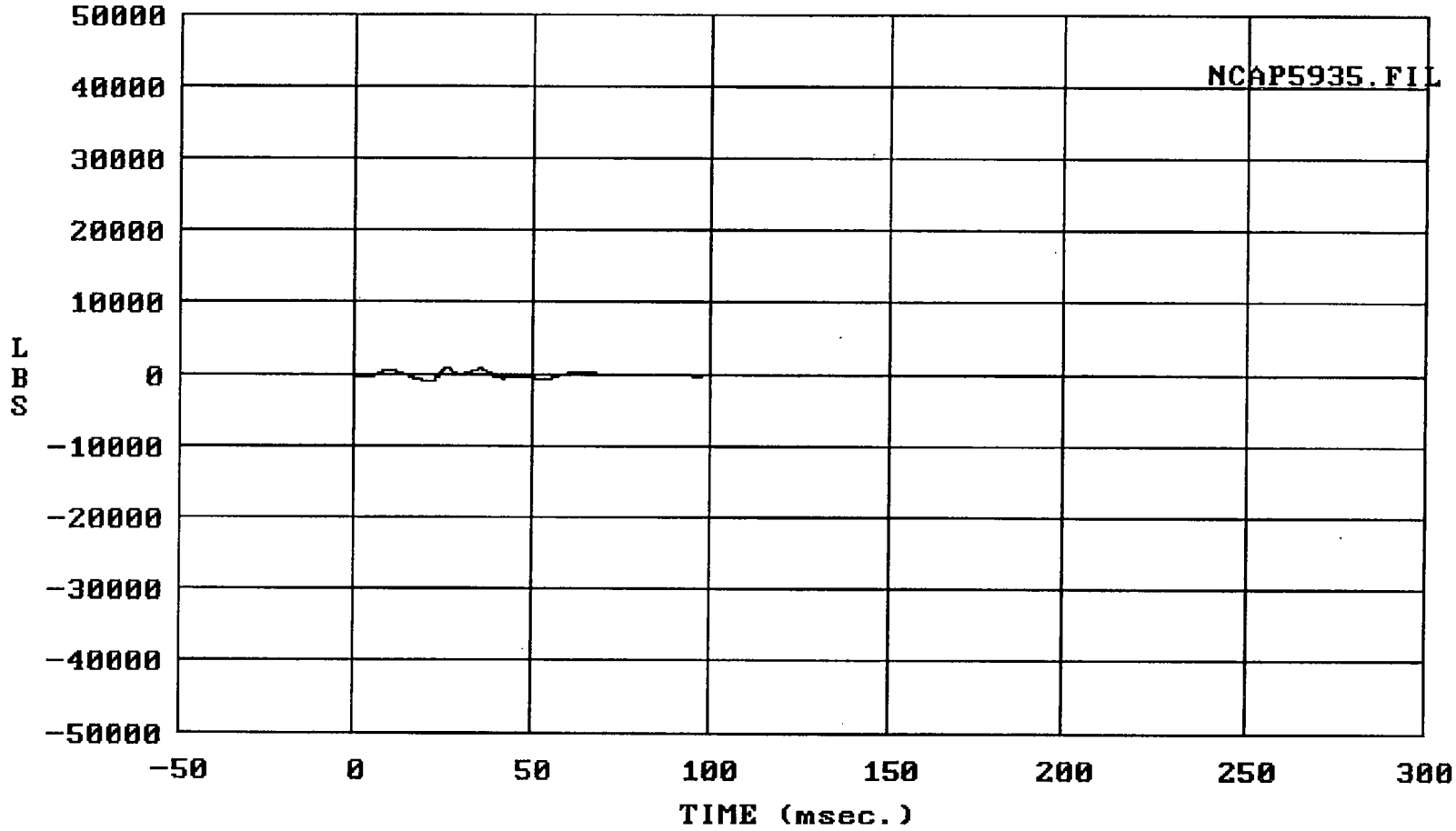
Filter: SAE CLASS 60 Max = 764.25 Min = -946.92

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell A2



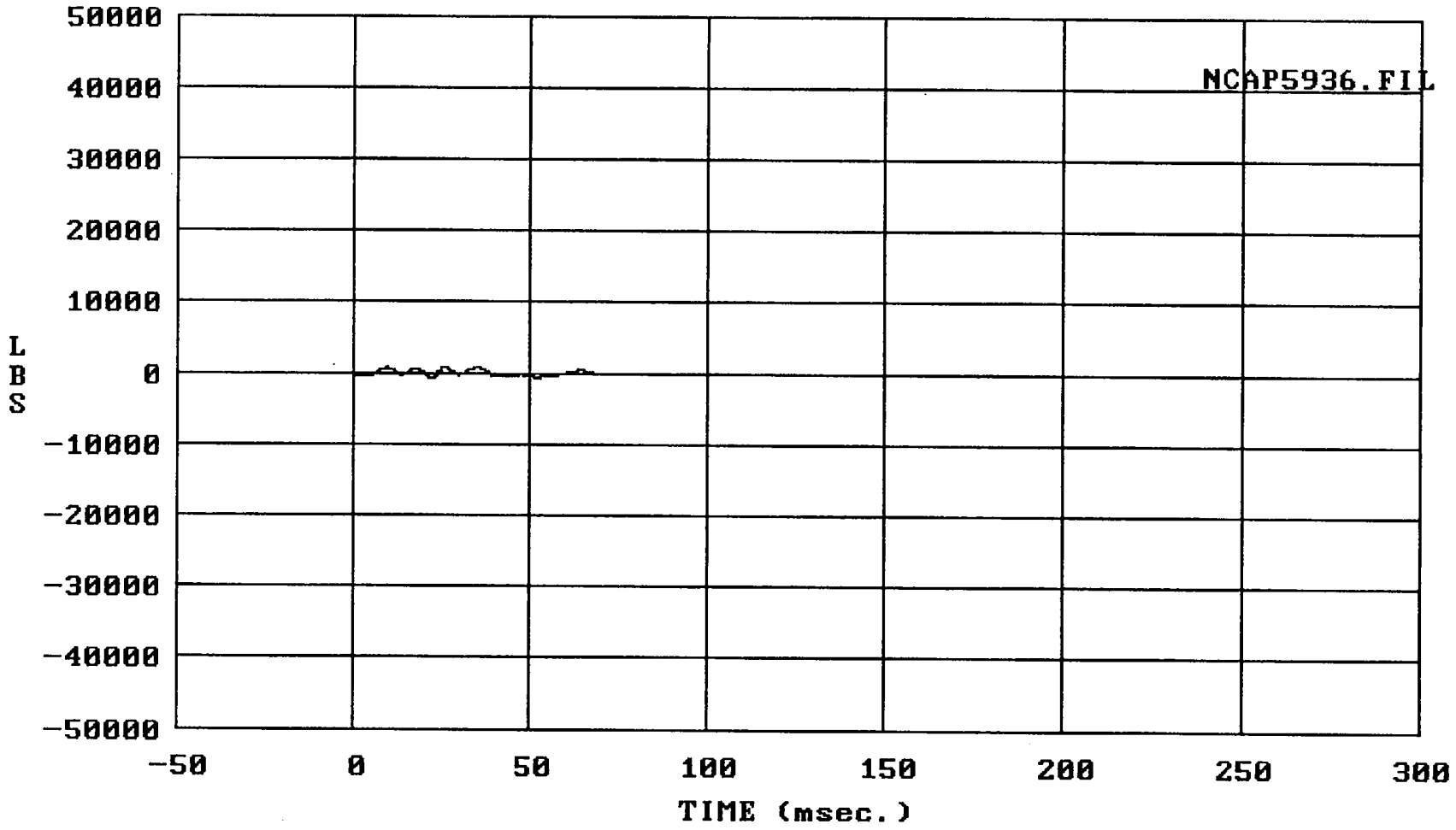
Filter: SAE CLASS 60 Max = 981.09 Min = -730.70

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell A3



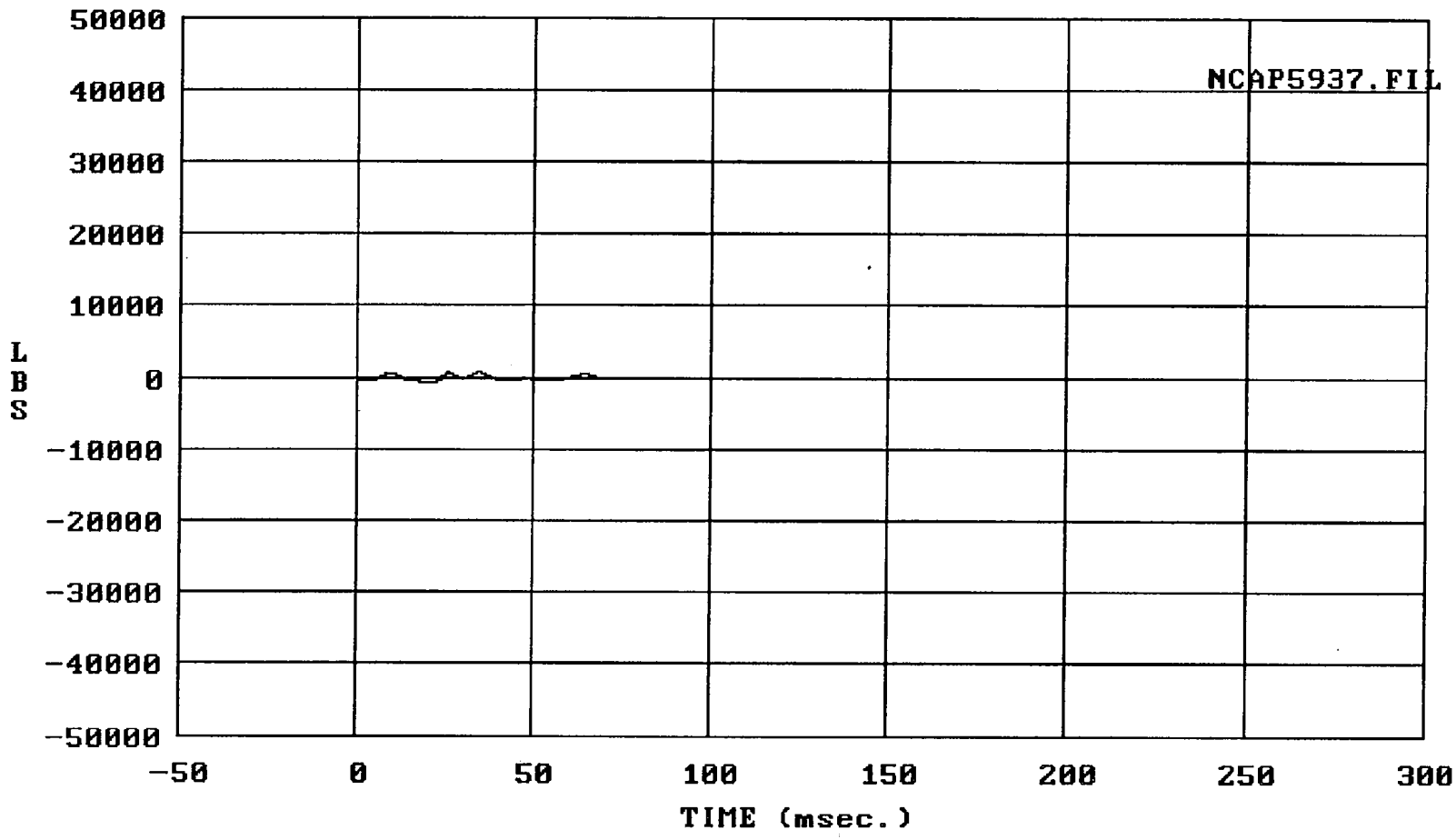
Filter: SAE CLASS 60 Max = 879.67 Min = -964.94

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell A4



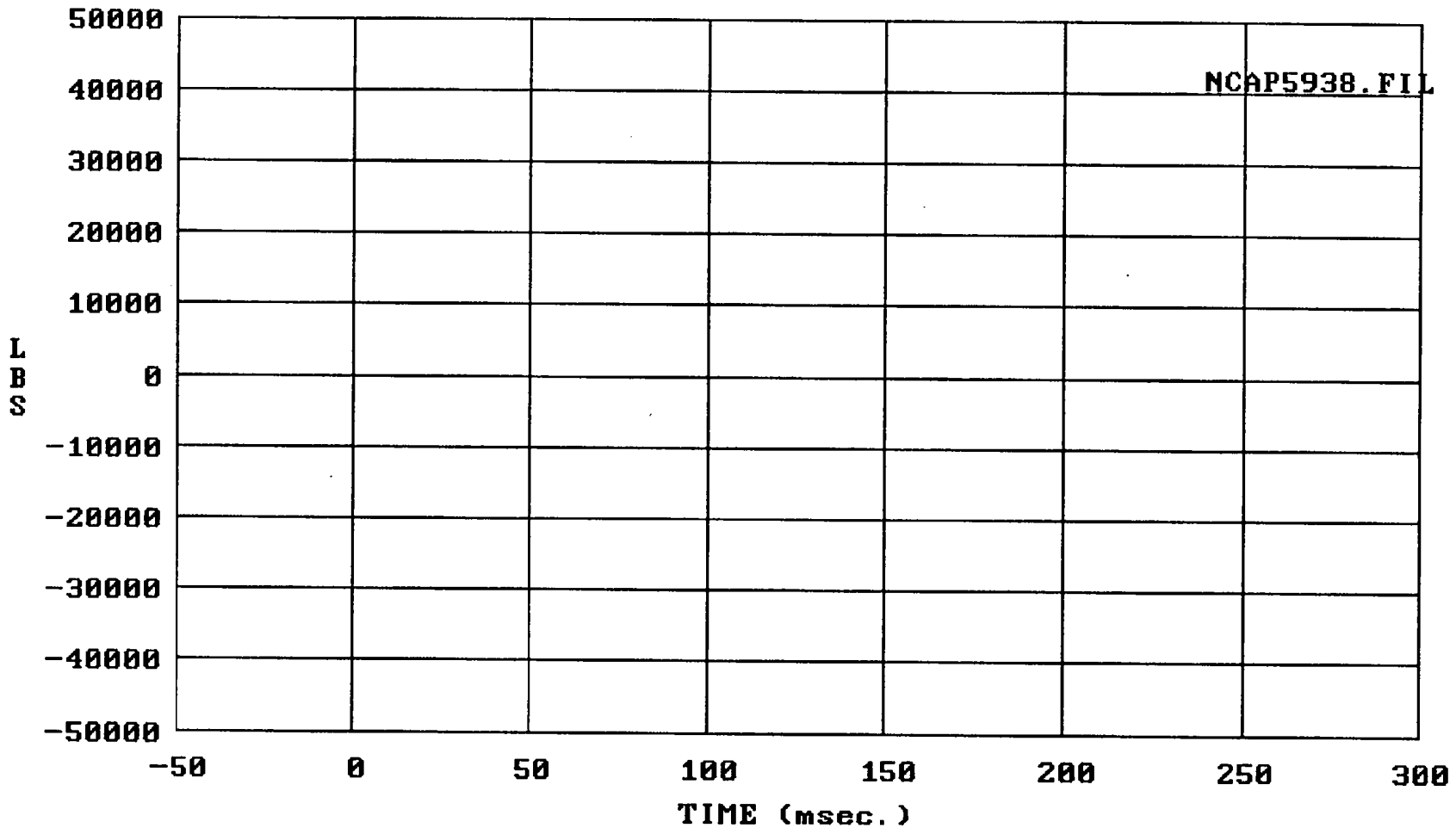
Filter: SAE CLASS 60 Max = 850.93 Min = -638.12

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell A5



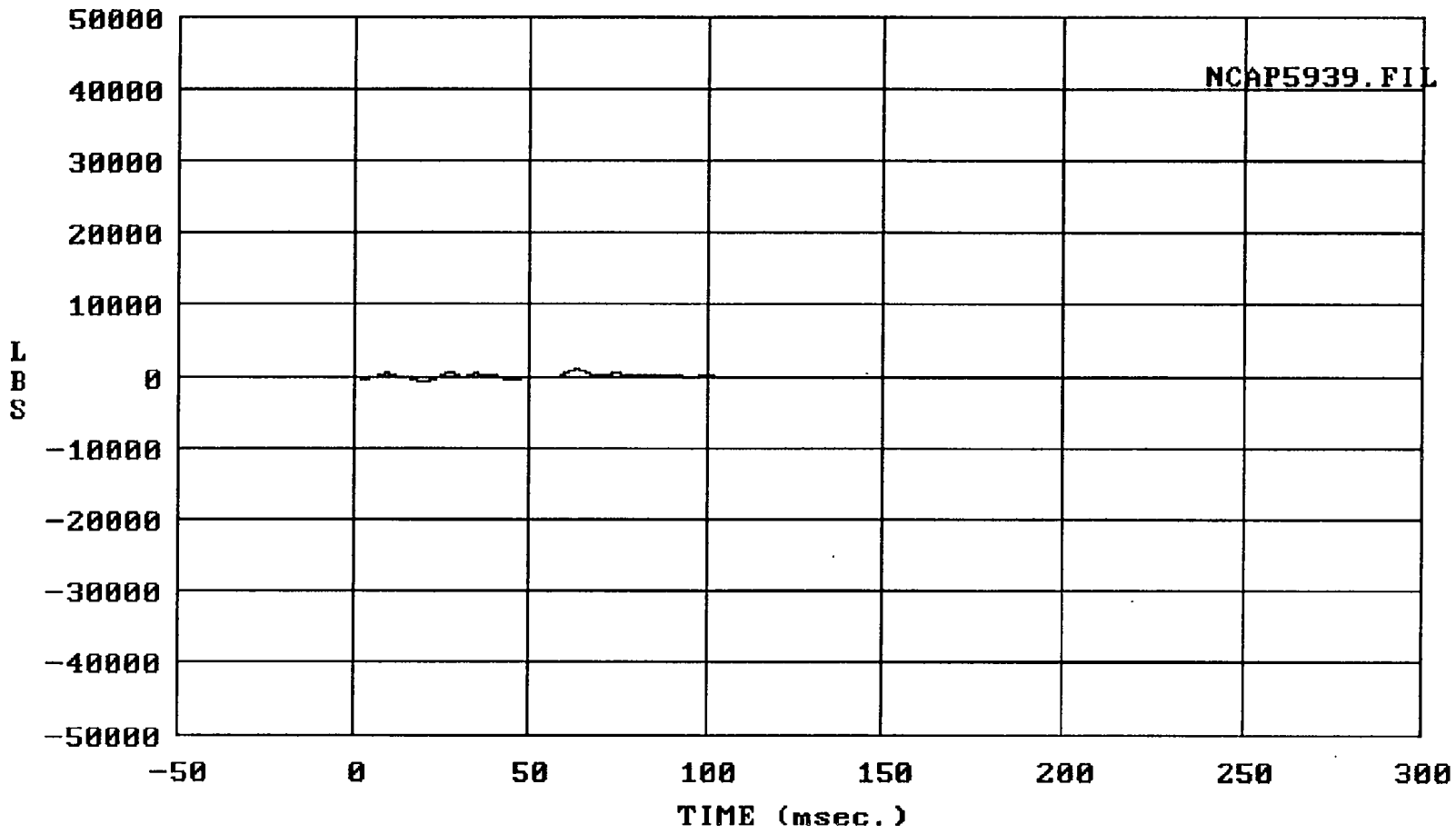
Filter: SAE CLASS 60 Max = 768.90 Min = -603.72

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell A6



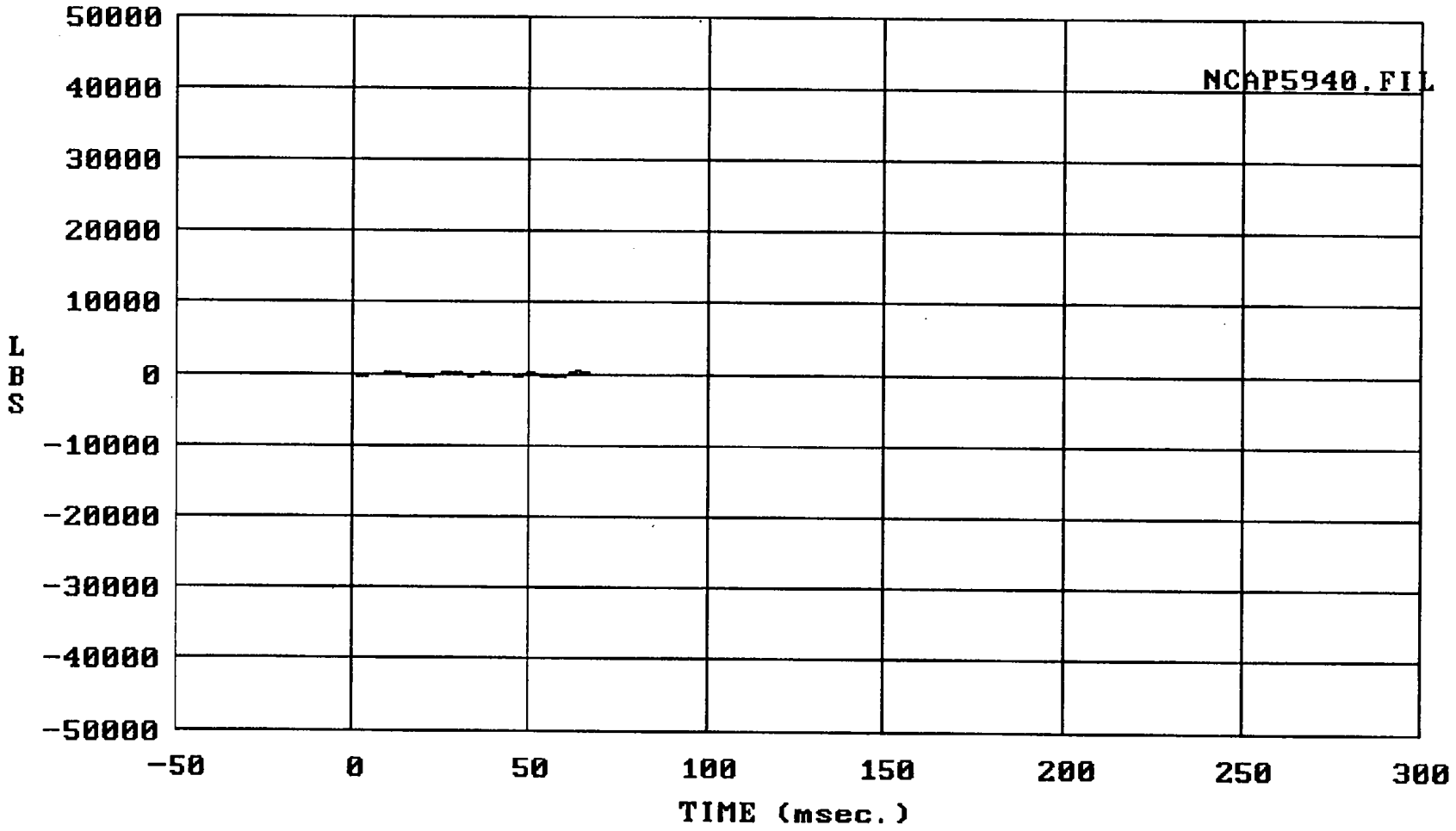
Filter: SAE CLASS 60 Max = .00000 Min = .00000

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell A7
(No_Data)



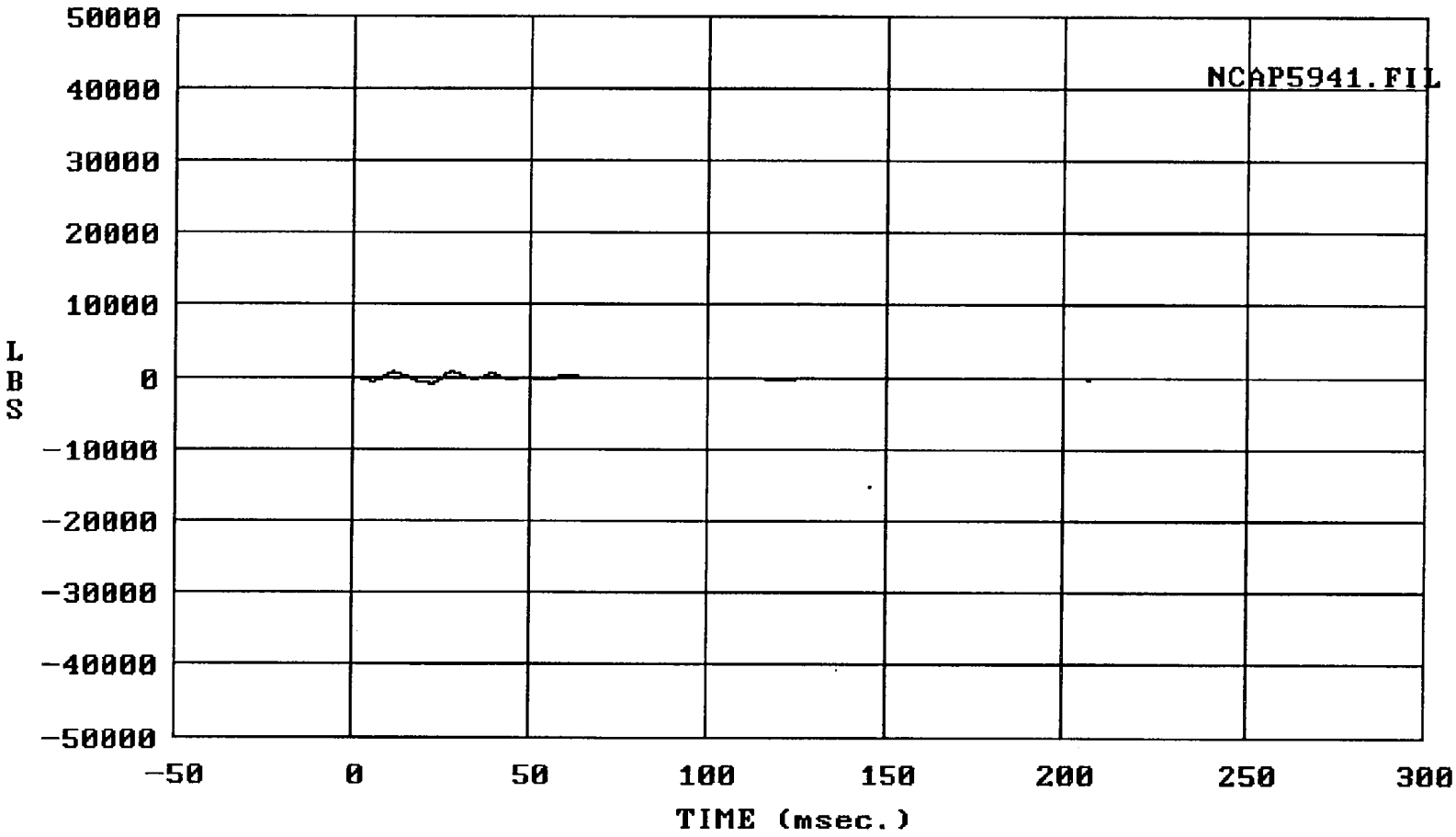
Filter: SAE CLASS 60 Max = 1069.7 Min = -601.72

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell A8



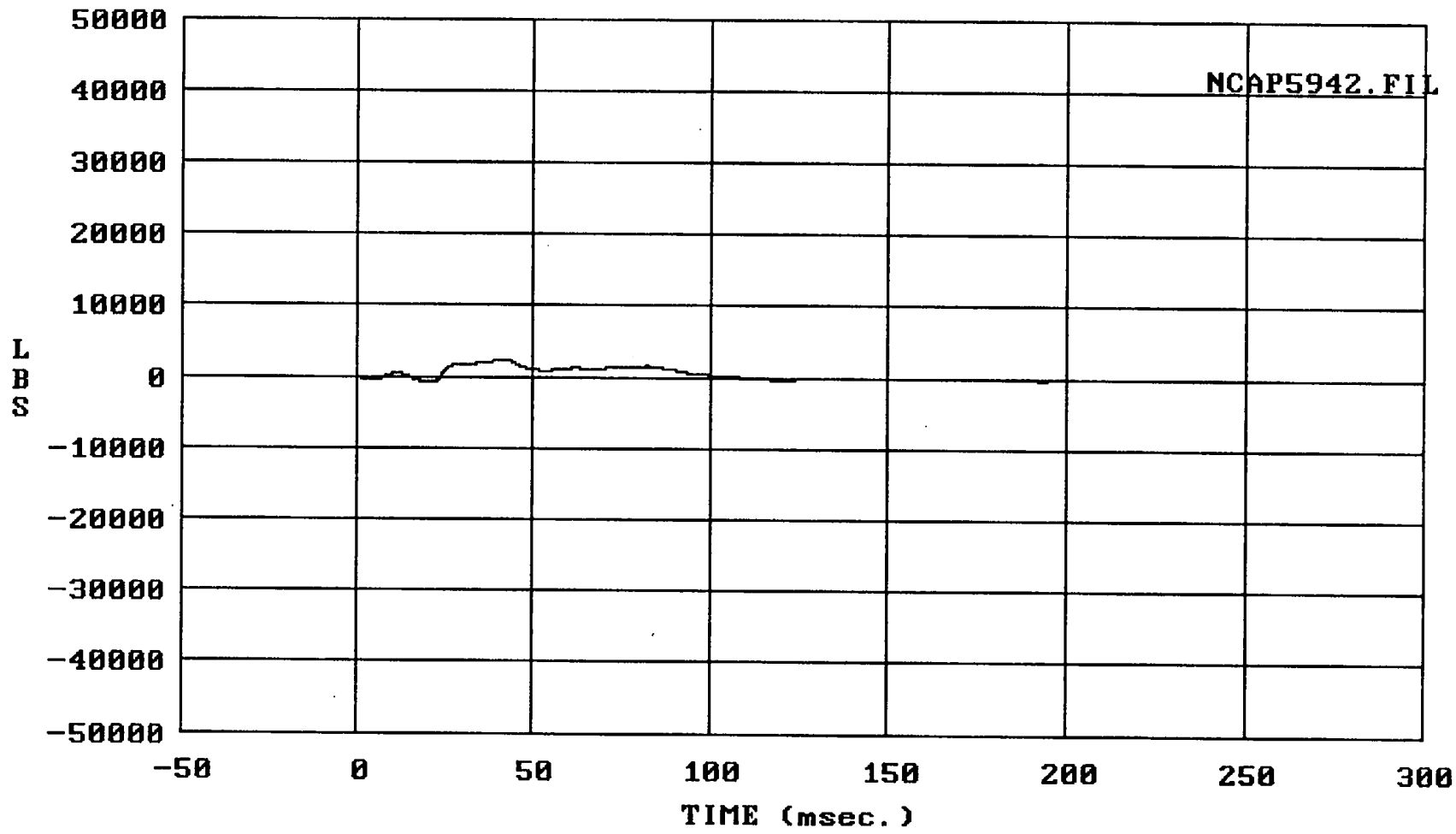
Filter: SAE CLASS 60 Max = 481.82 Min = -392.78

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell A9



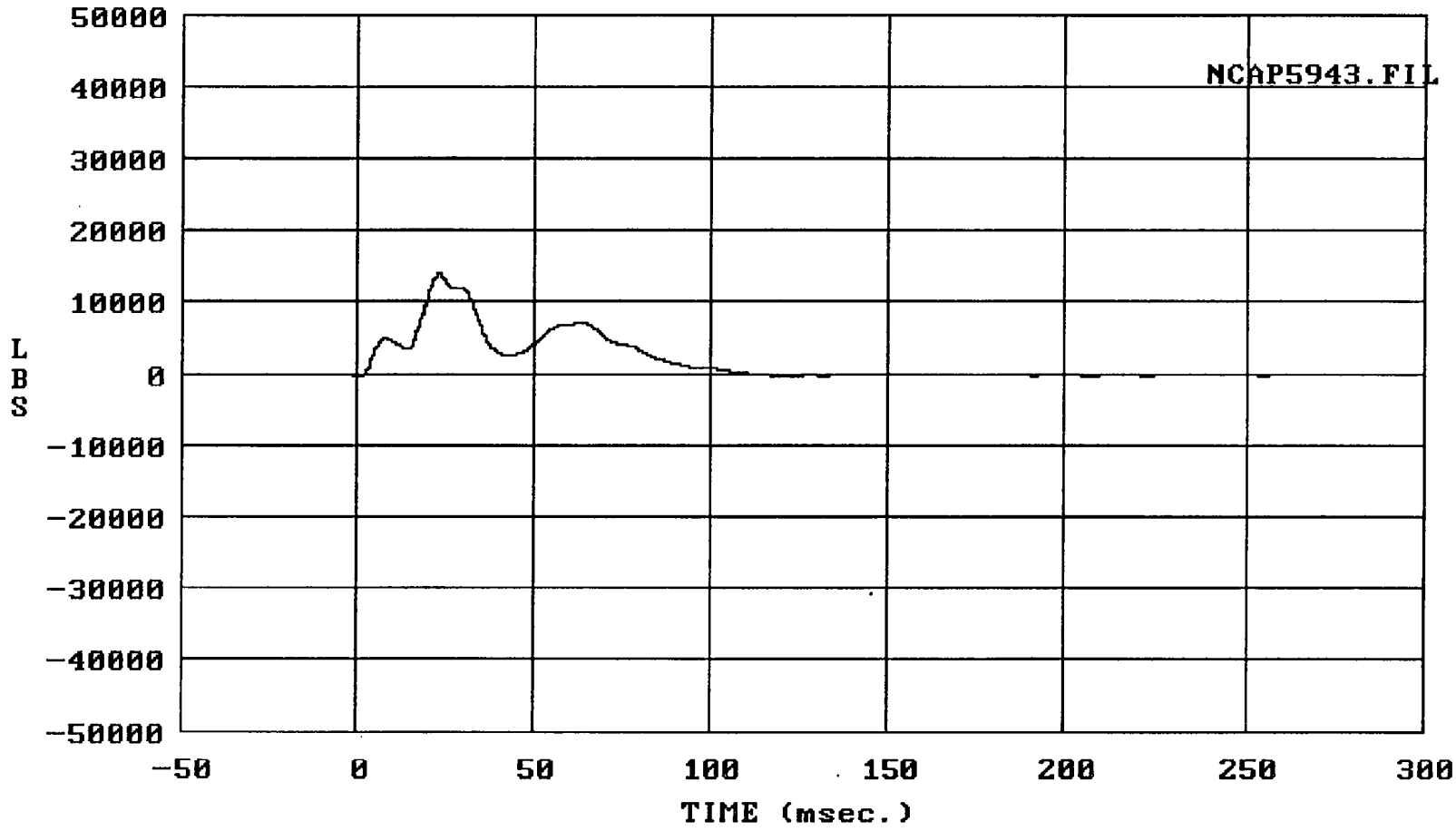
Filter: SAE CLASS 60 Max = 801.32 Min = -783.25

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell B1



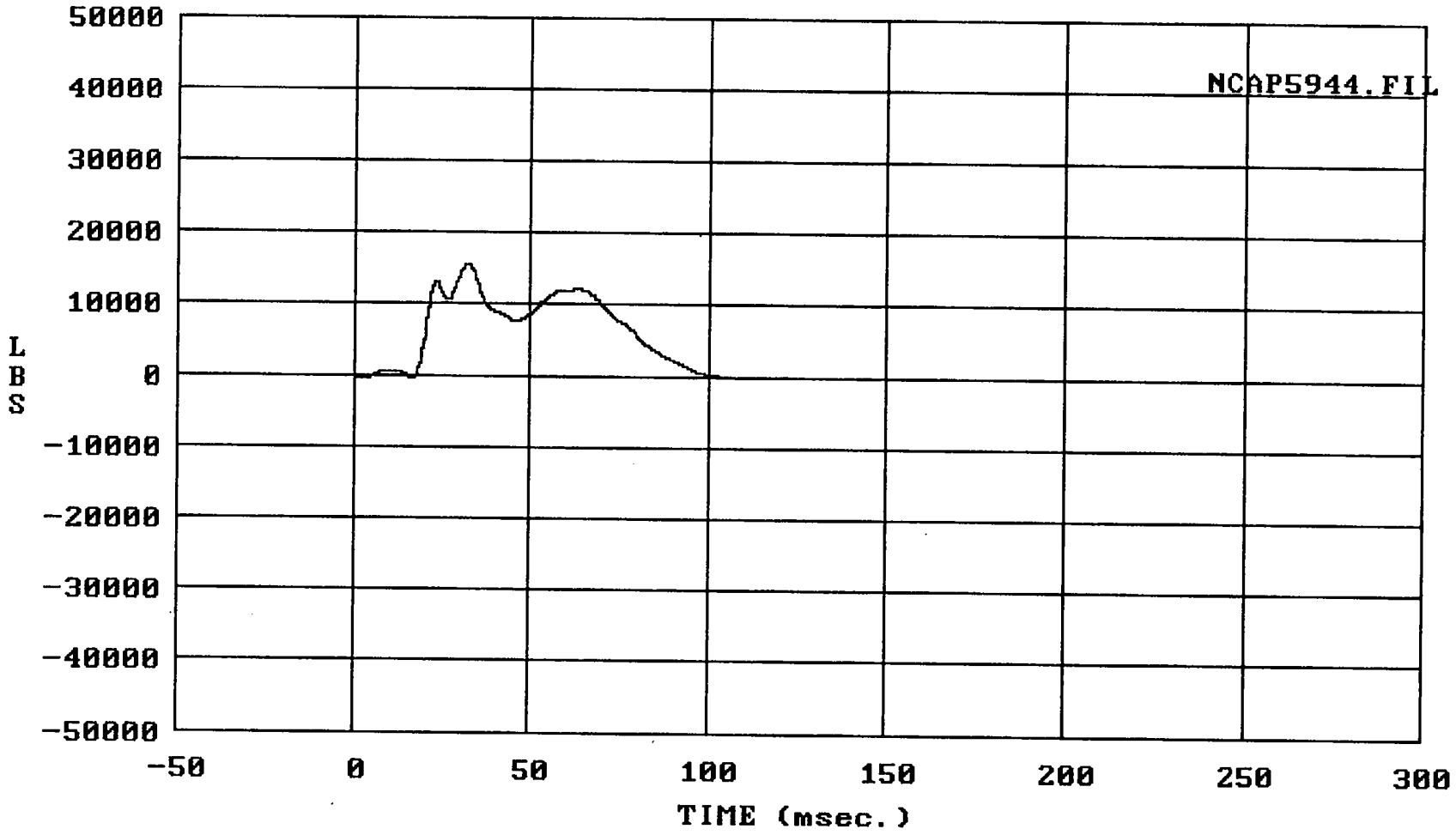
Filter: SAE CLASS 60 Max = 2503.5 Min = -625.32

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell B2



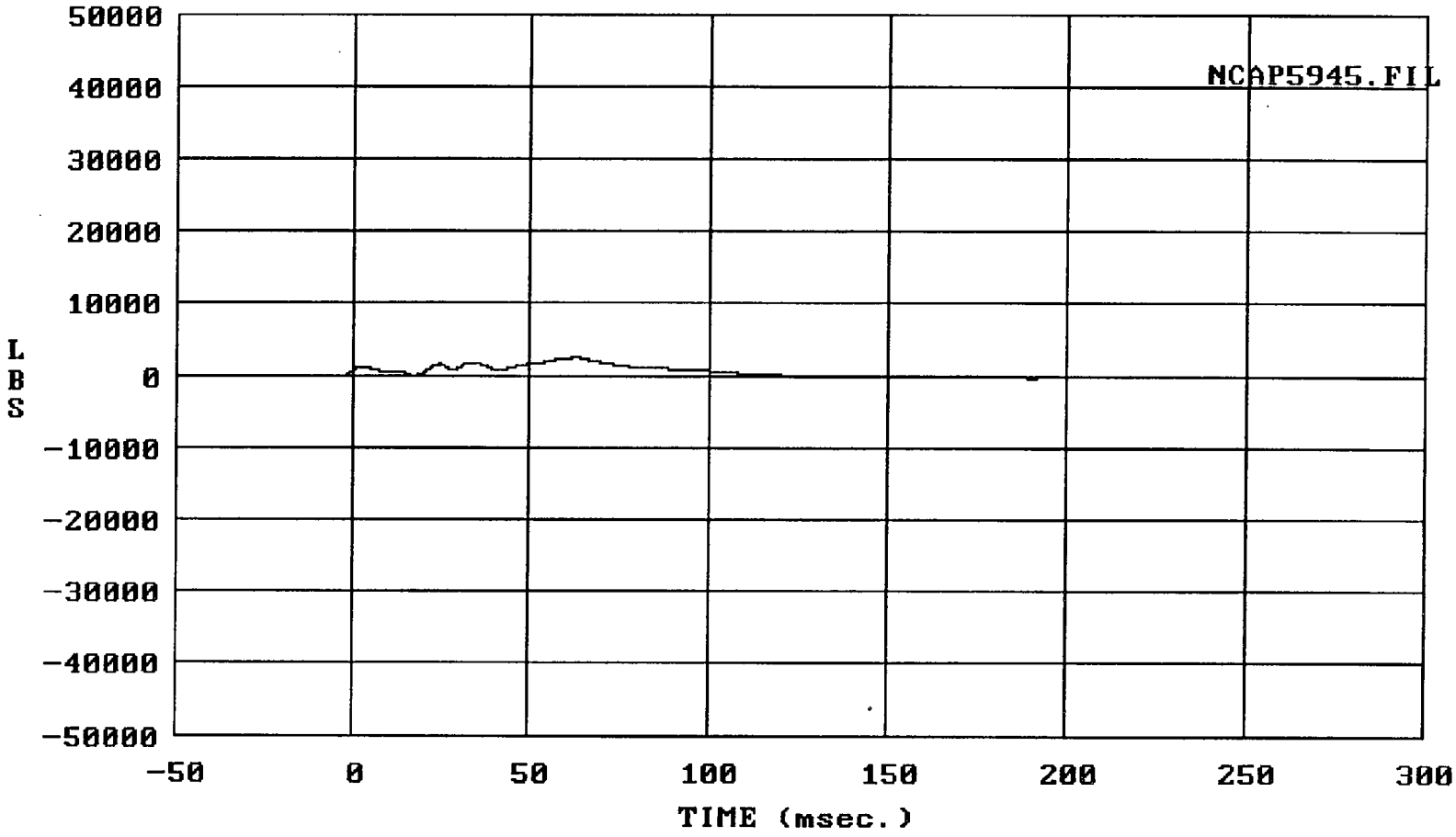
Filter: SAE CLASS 60 Max = 14051. Min = -384.72

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell B3



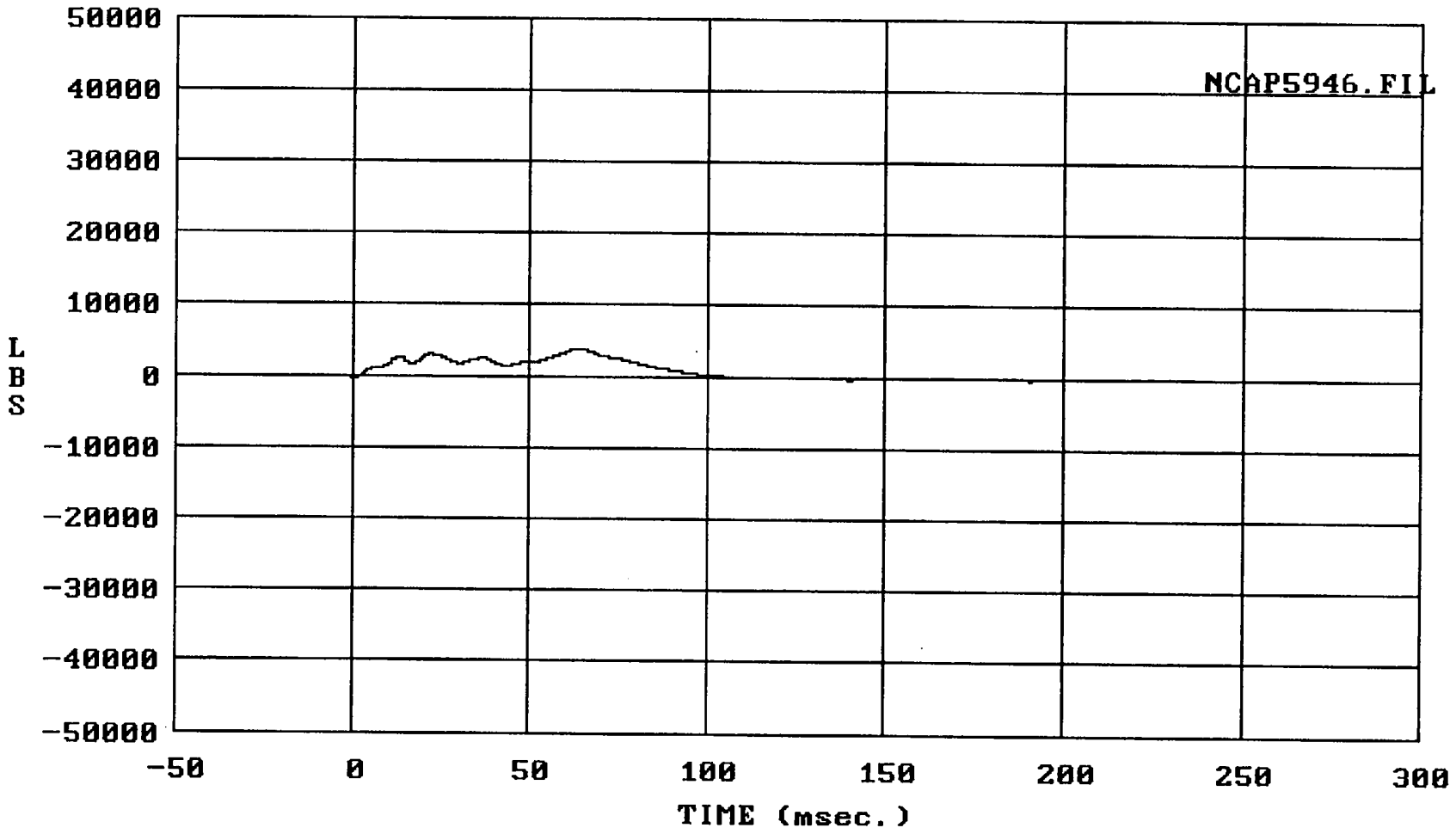
Filter: SAE CLASS 60 Max = 15788. Min = -350.12

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell B4



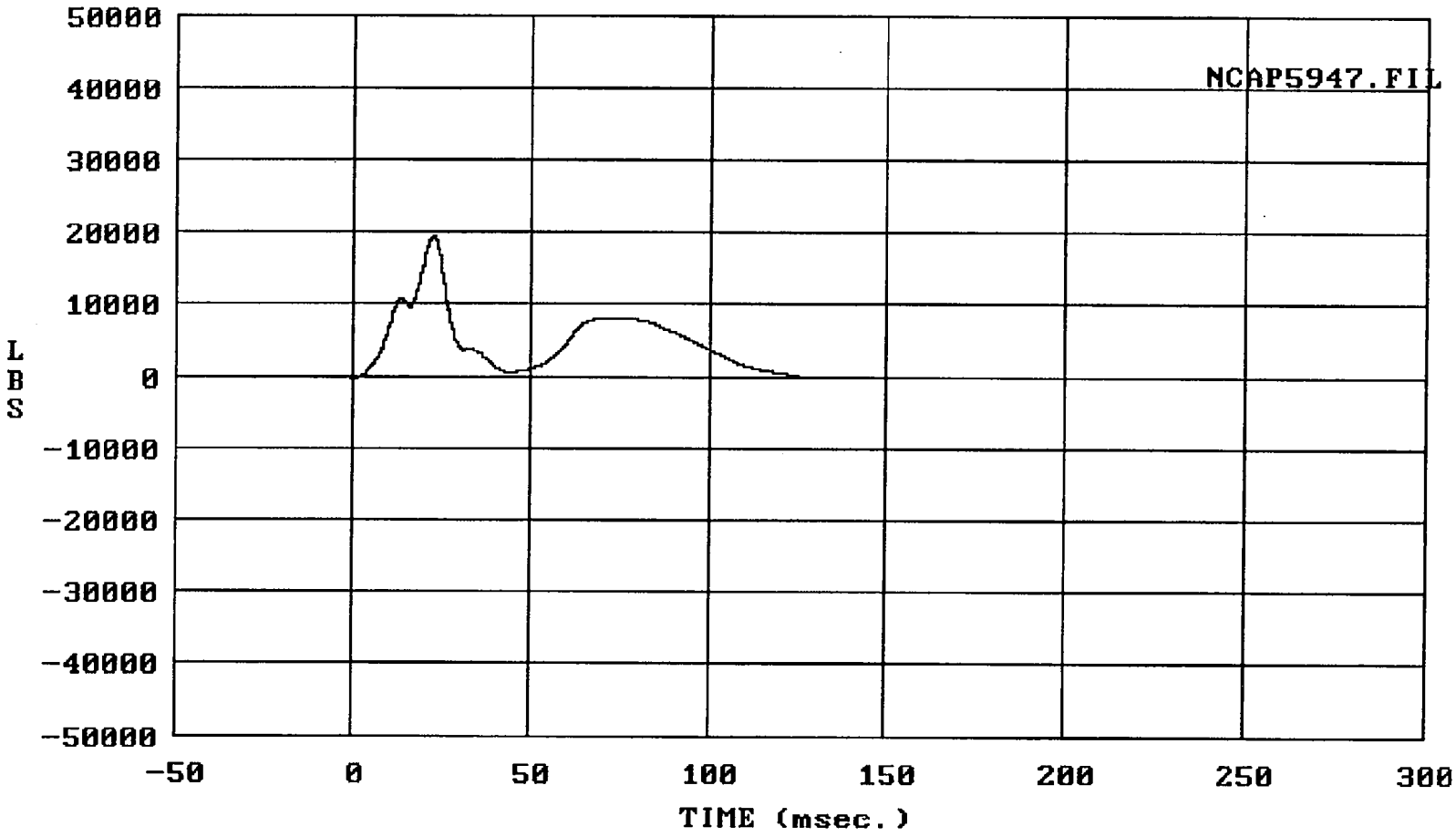
Filter: SAE CLASS 60 Max = 2580.7 Min = -184.14

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell B5



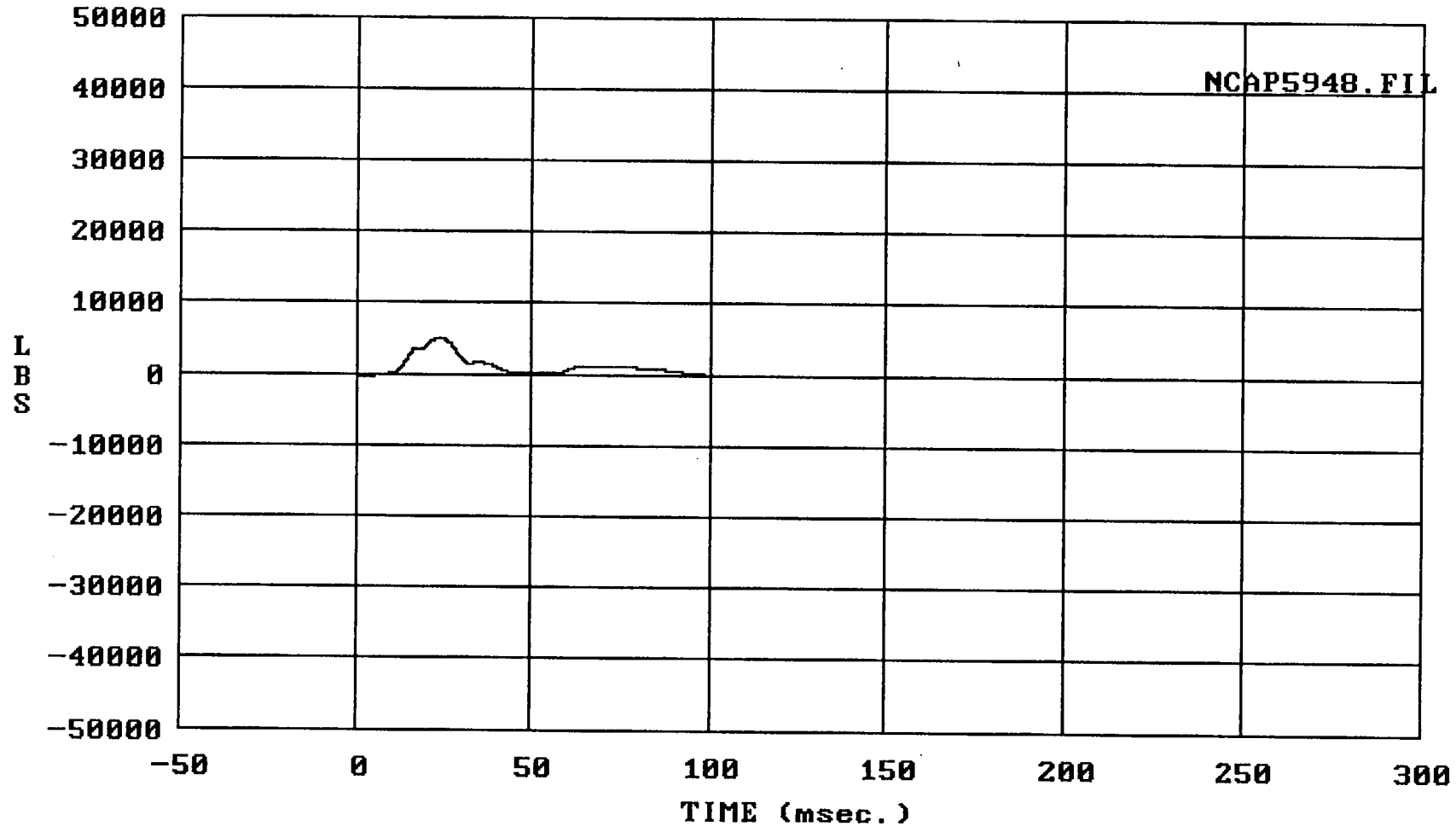
Filter: SAE CLASS 60 Max = 4015.9 Min = -201.99

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell B6



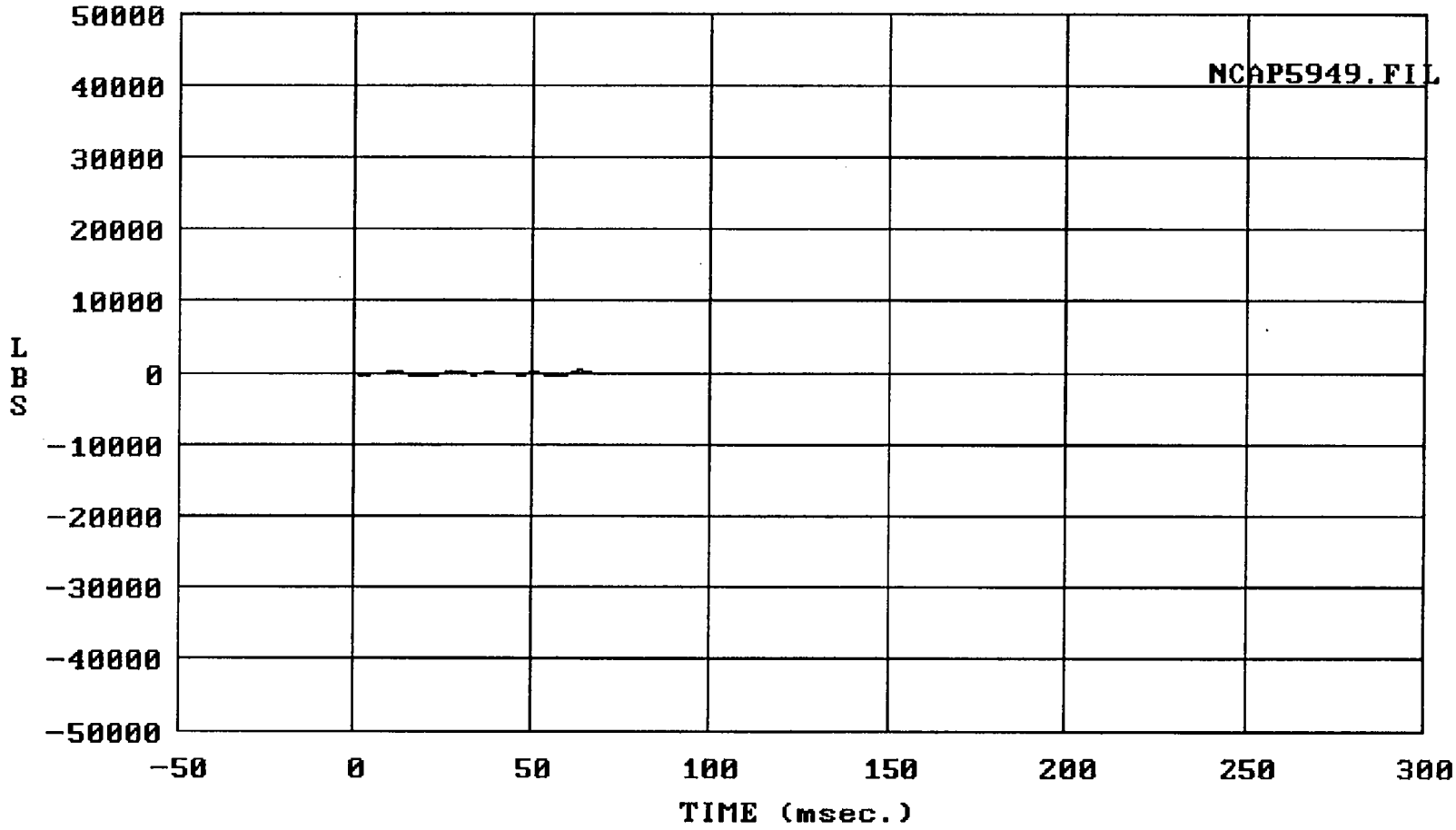
Filter: SAE CLASS 60 Max = 19500. Min = -218.32

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell B7



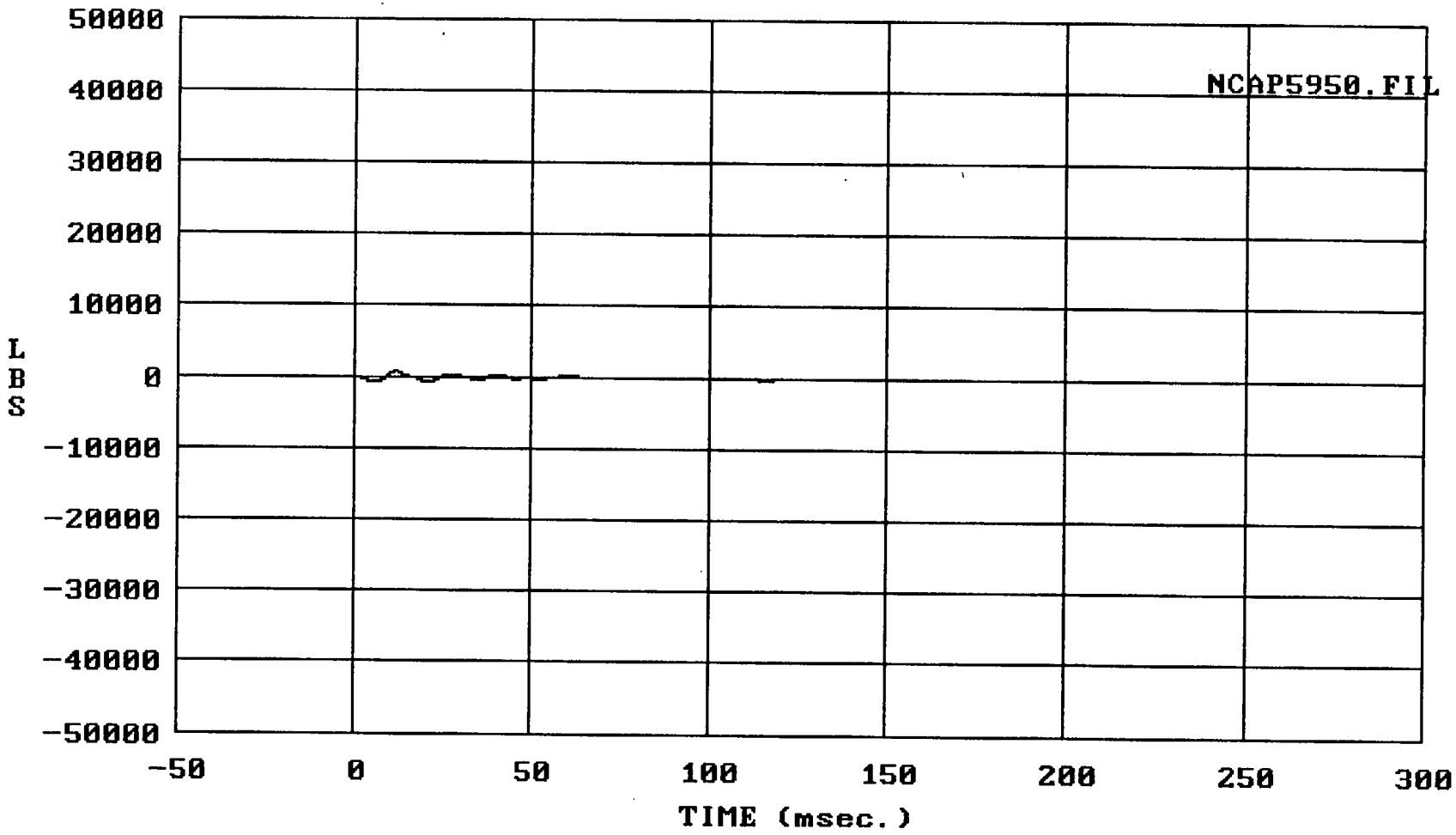
Filter: SAE CLASS 60 Max = 5254.4 Min = -274.43

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell B8



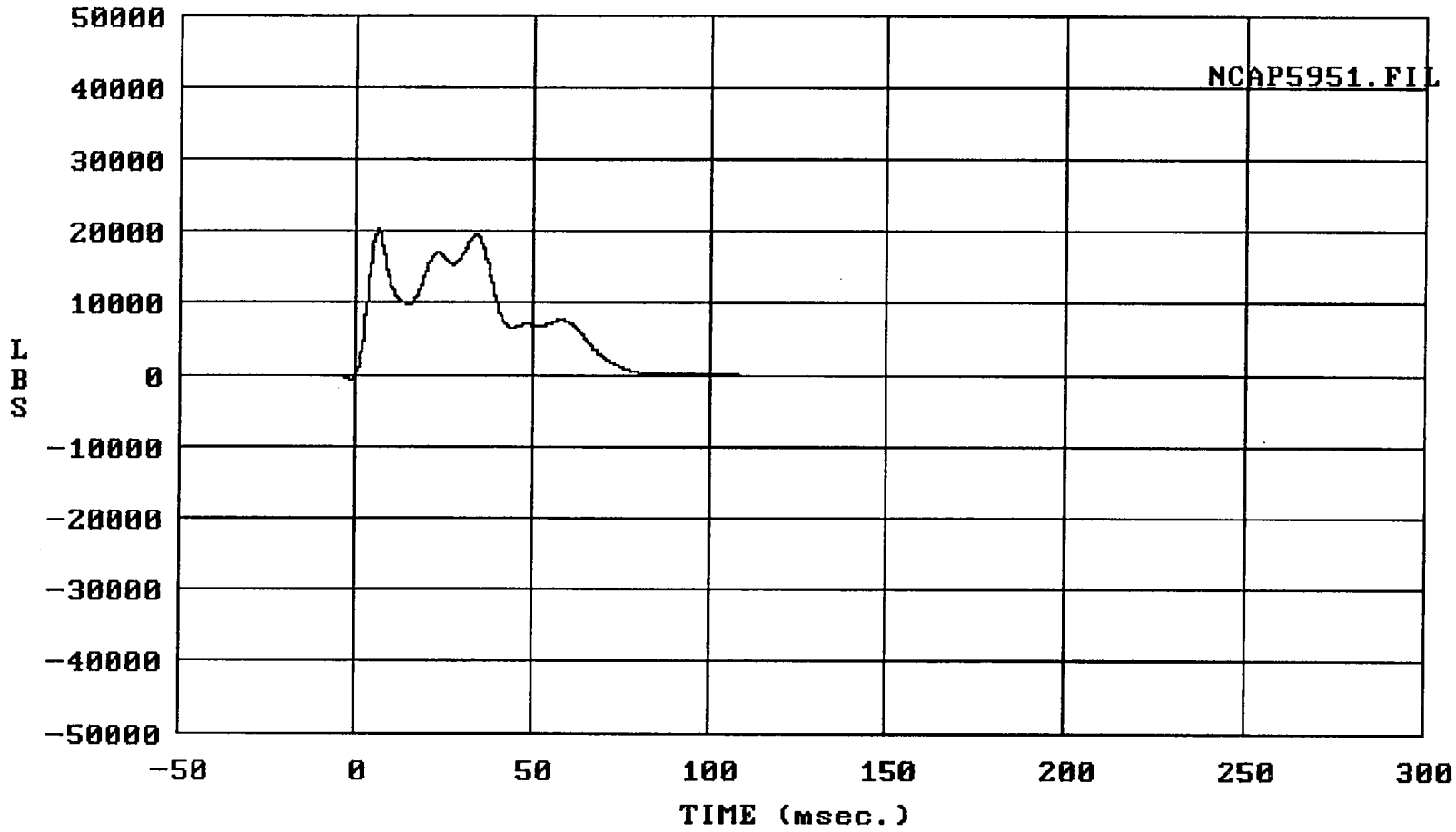
Filter: SAE CLASS 60 Max = 481.82 Min = -392.78

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell B9



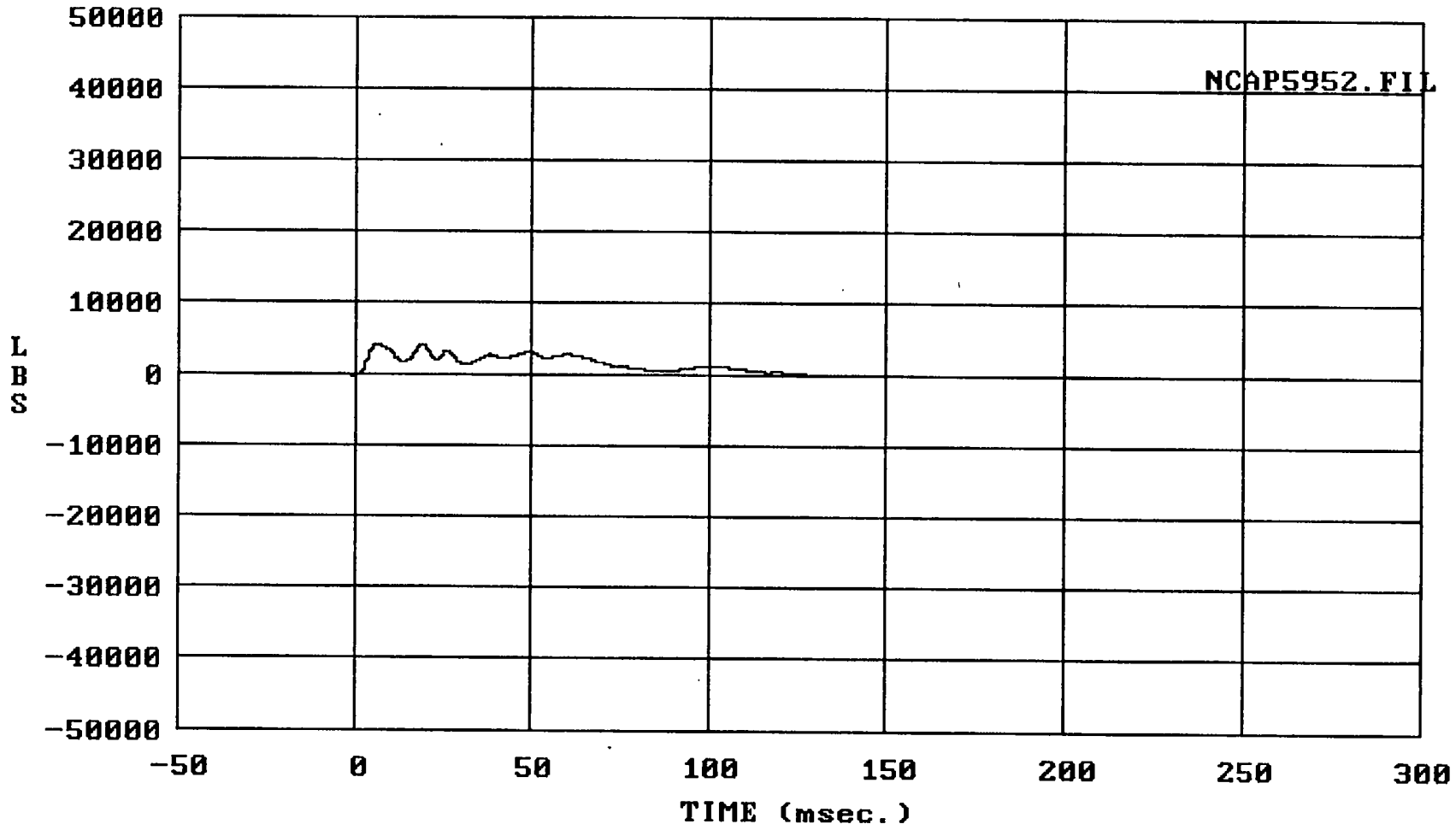
Filter: SAE CLASS 60 Max = 797.24 Min = -682.42

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell C1



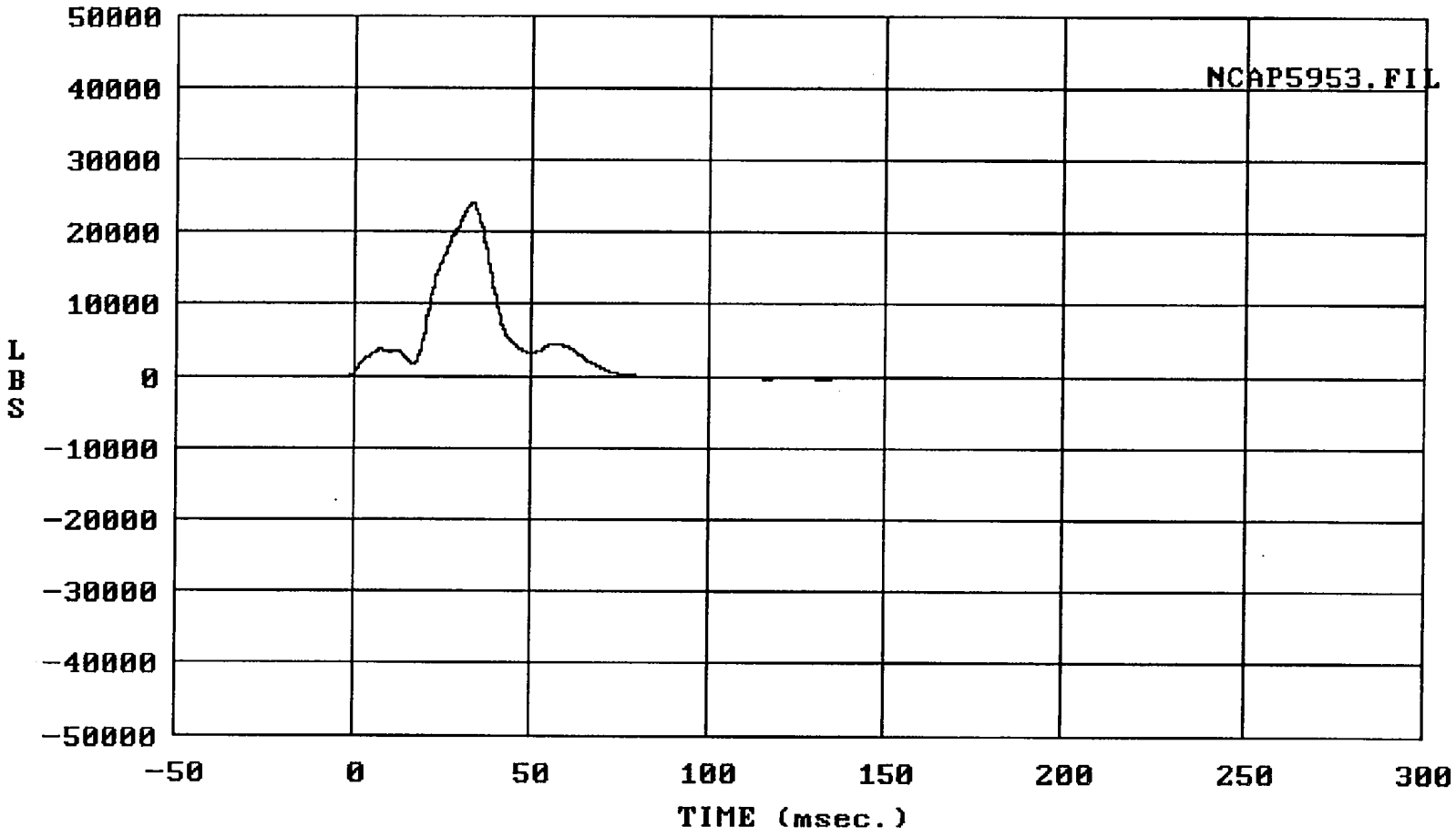
Filter: SAE CLASS 60 Max = 20338. Min = -124.80

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell C2



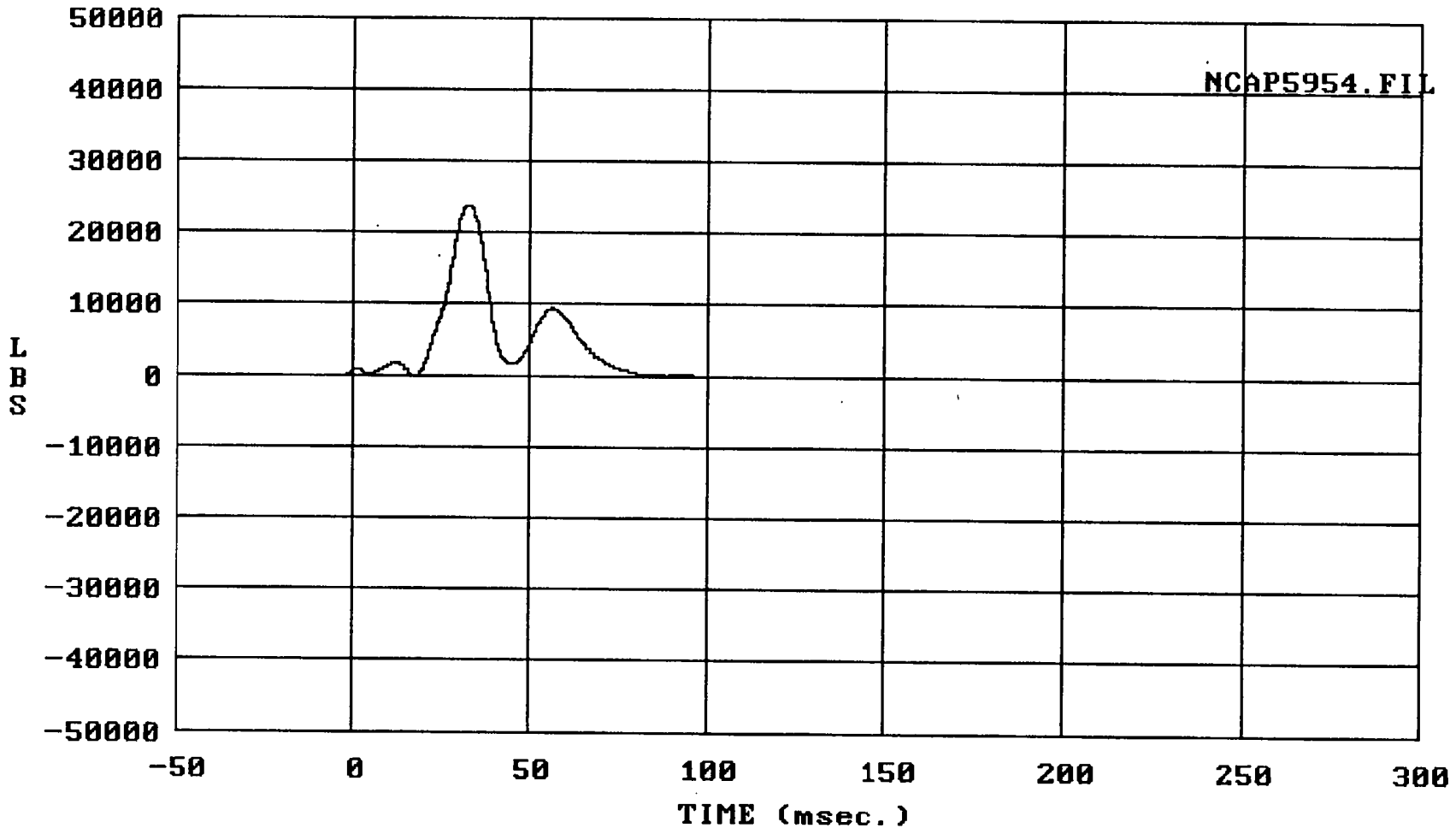
Filter: SAE CLASS 60 Max = 4250.6 Min = -119.07

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell C3



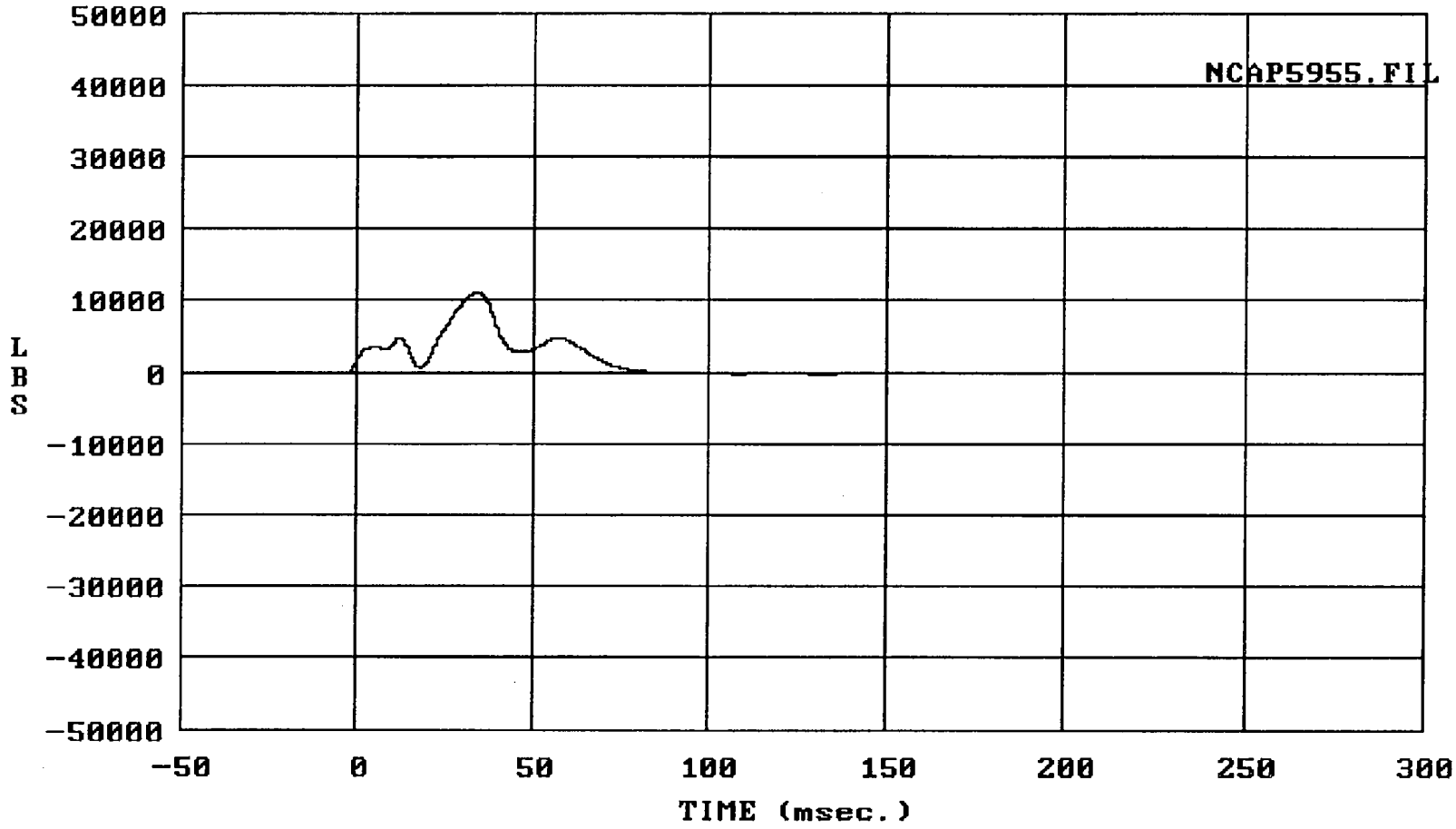
Filter: SAE CLASS 60 Max = 24056. Min = -176.43

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell C4



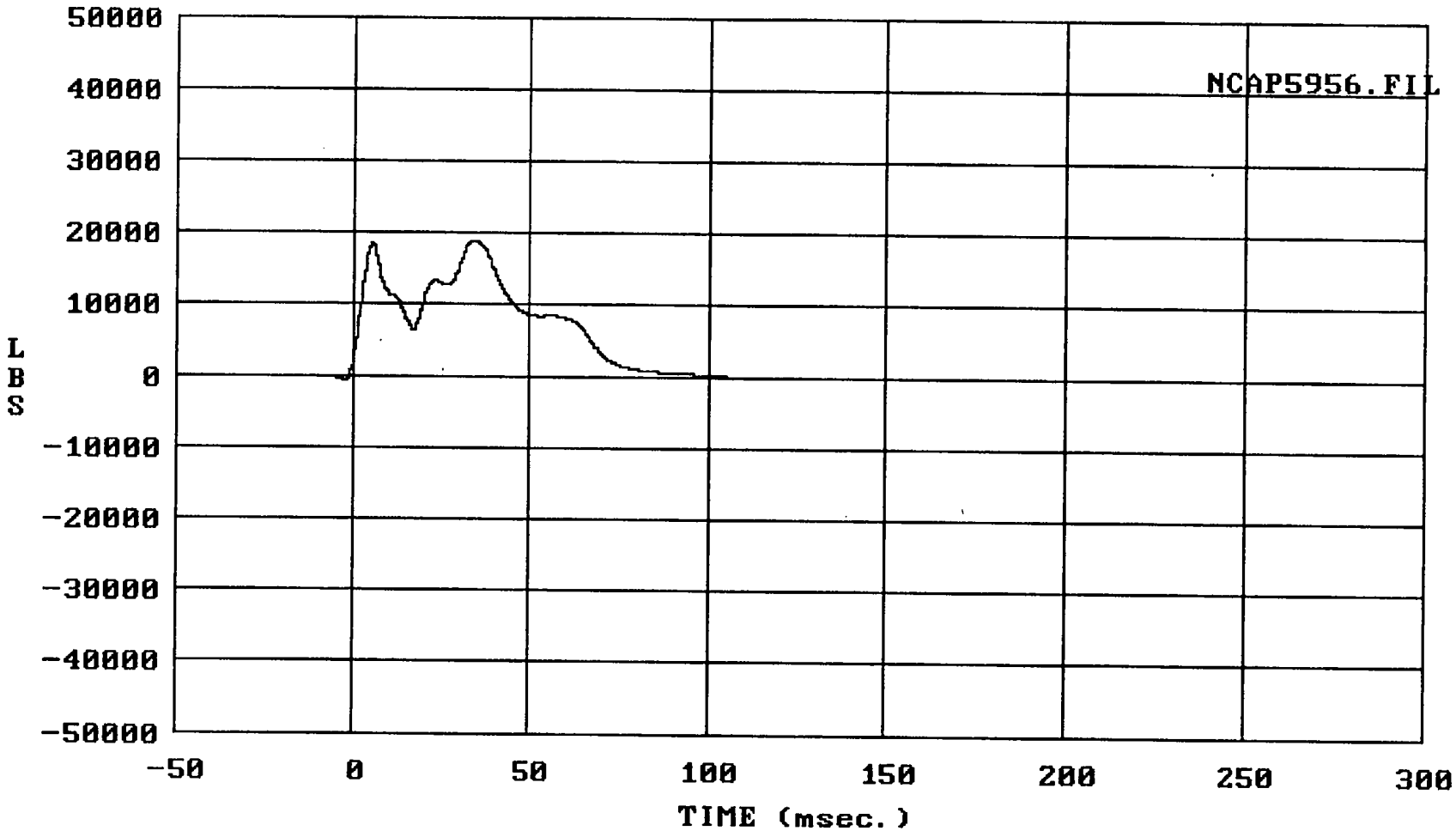
Filter: SAE CLASS 60 Max = 23833. Min = -134.25

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell C5



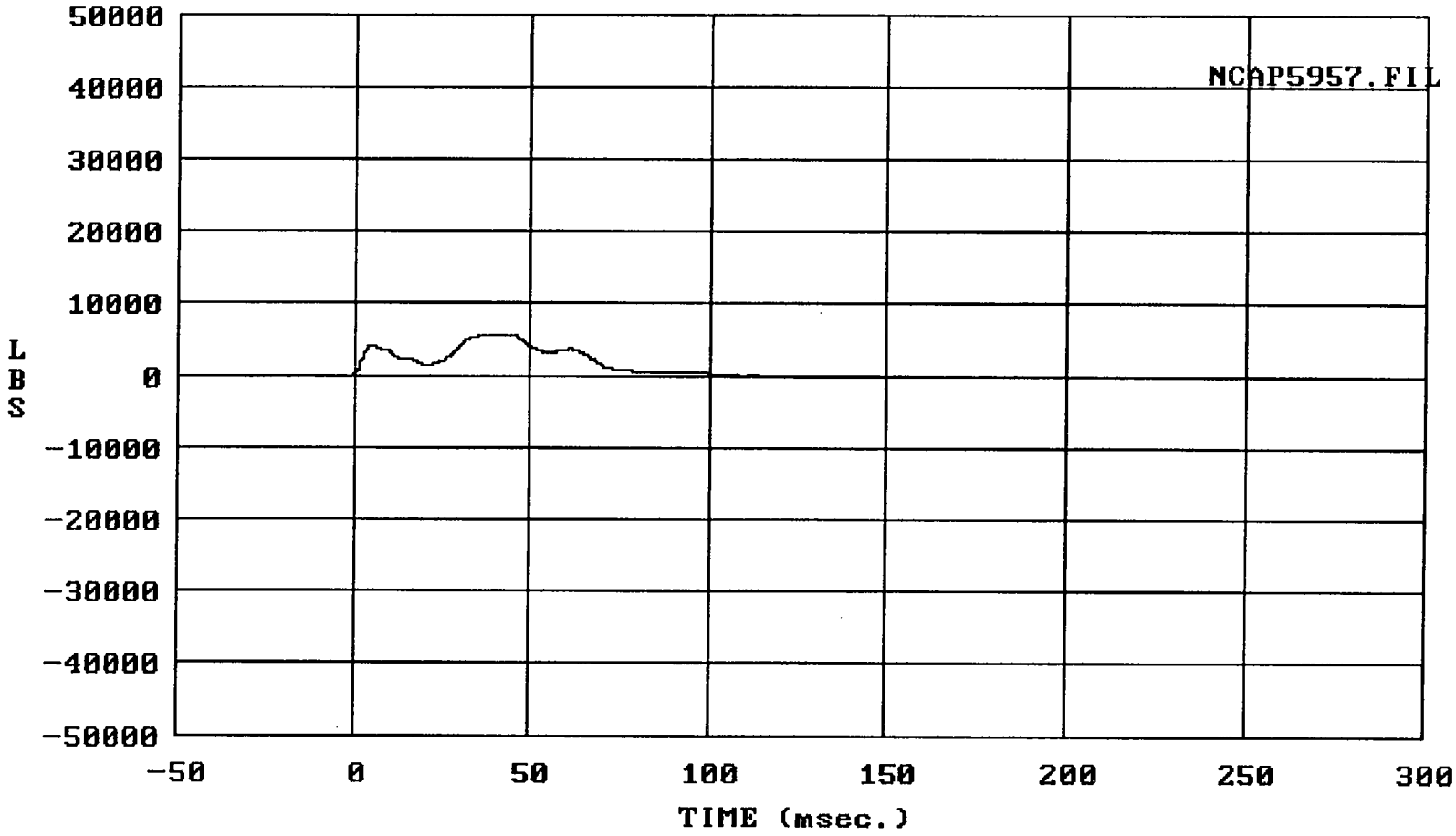
Filter: SAE CLASS 60 Max = 11140. Min = -204.04

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell C6



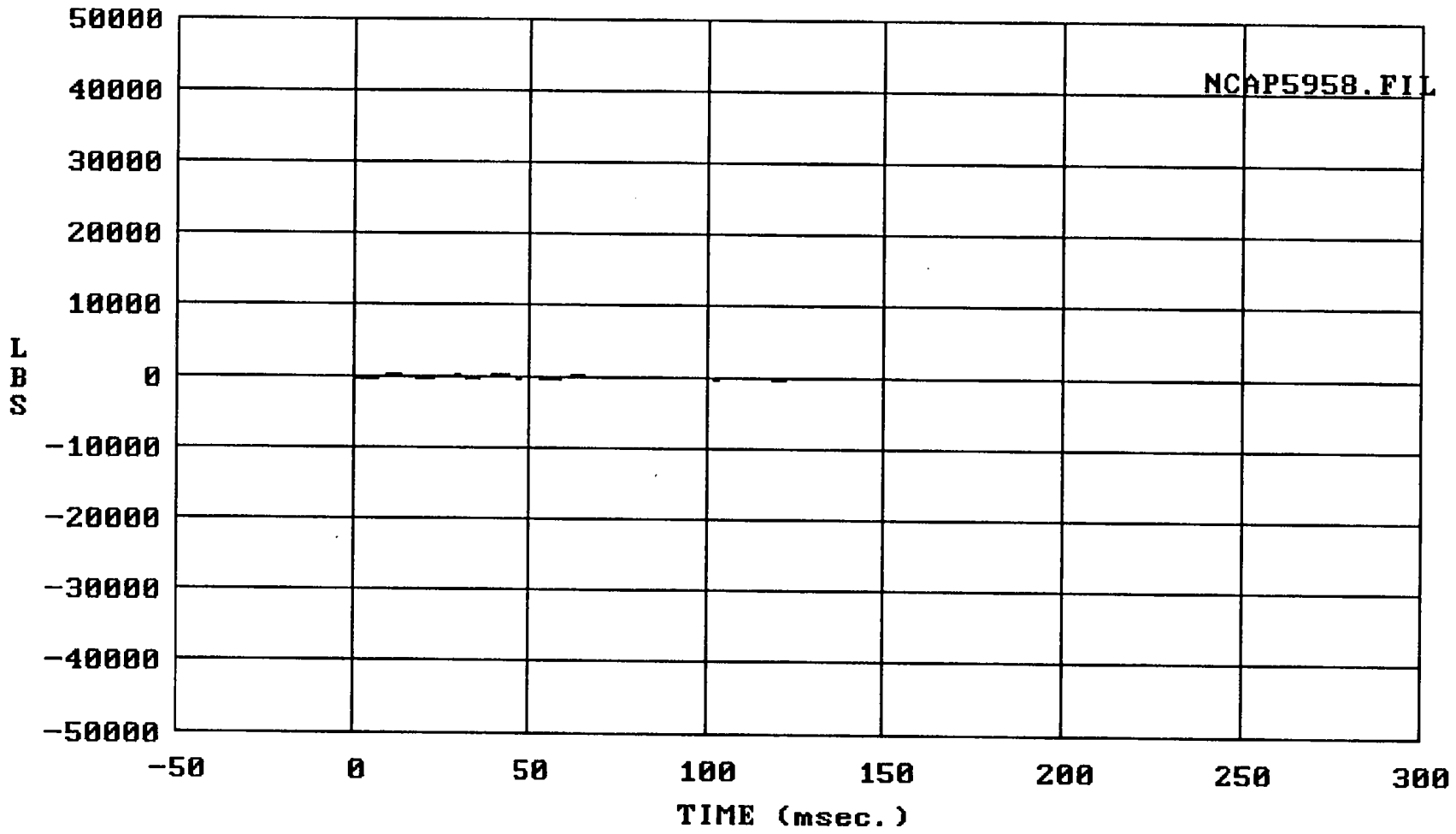
Filter: SAE CLASS 60 Max = 18945. Min = -129.16

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell C7



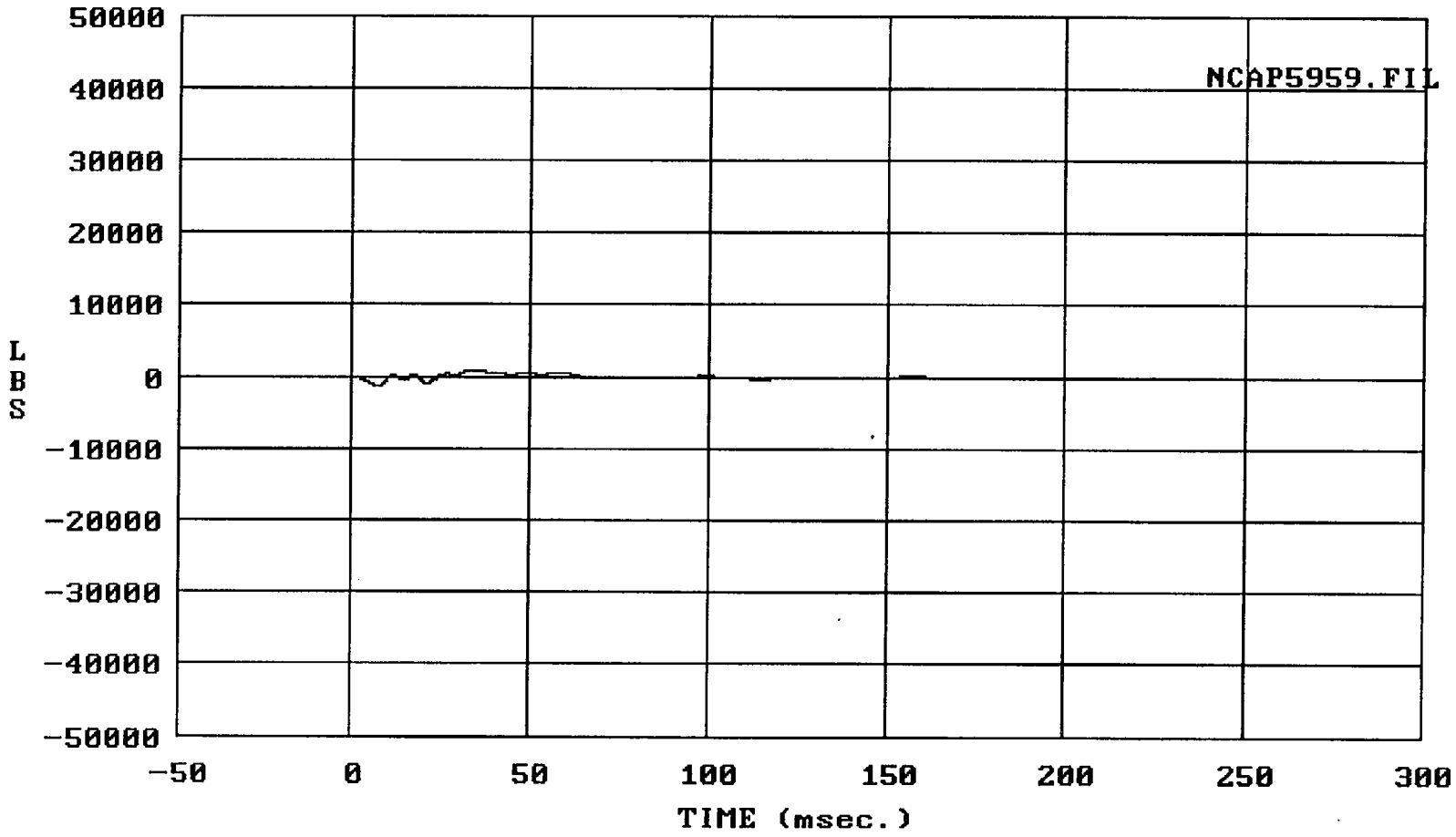
Filter: SAE CLASS 60 Max = 5827.9 Min = -128.98

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell C8



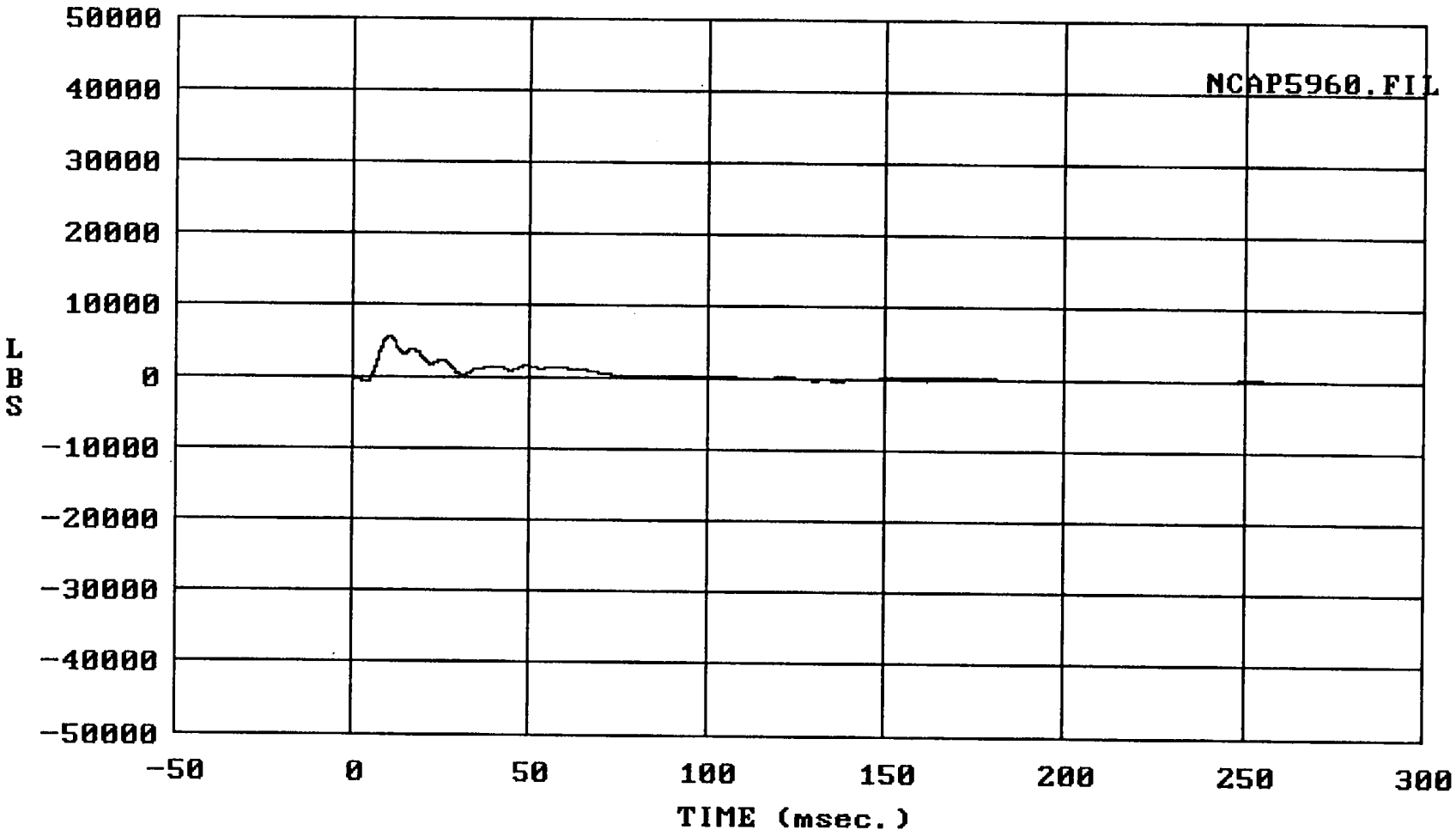
Filter: SAE CLASS 60 Max = 411.10 Min = -390.24

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell C9



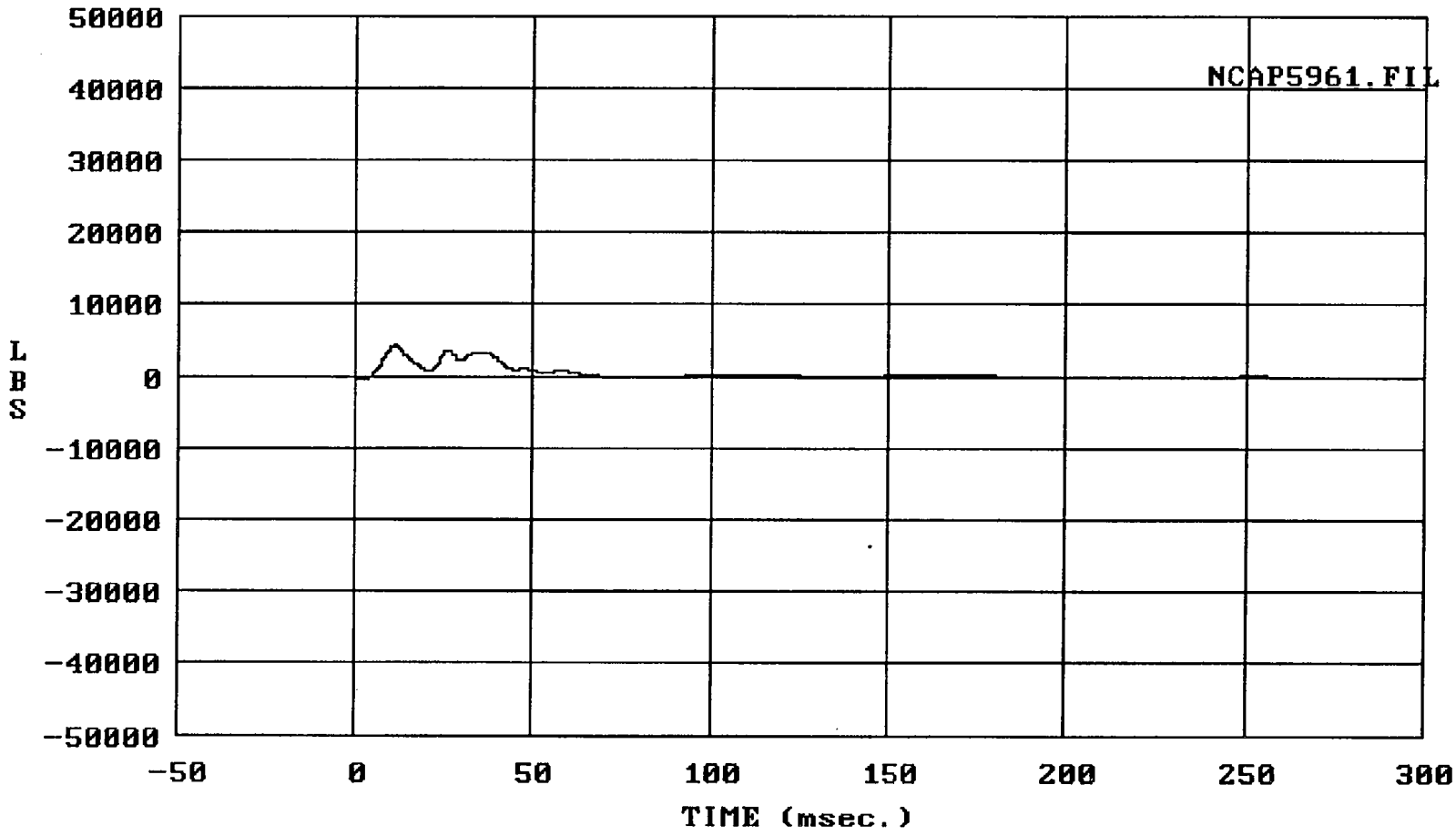
Filter: SAE CLASS 60 Max = 942.10 Min = -1224.6

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell D1



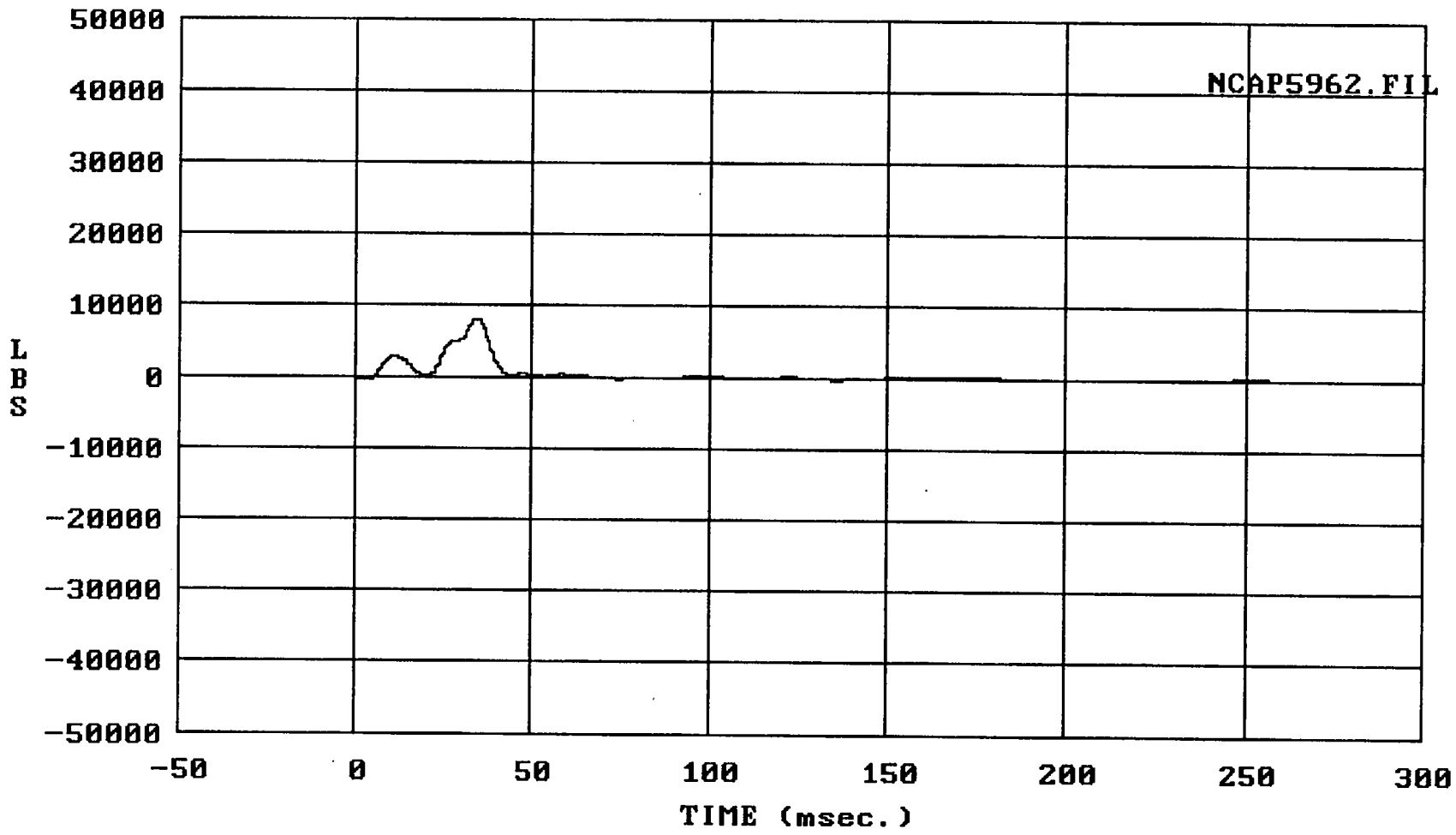
Filter: SAE CLASS 60 Max = 5822.7 Min = -696.28

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell D2



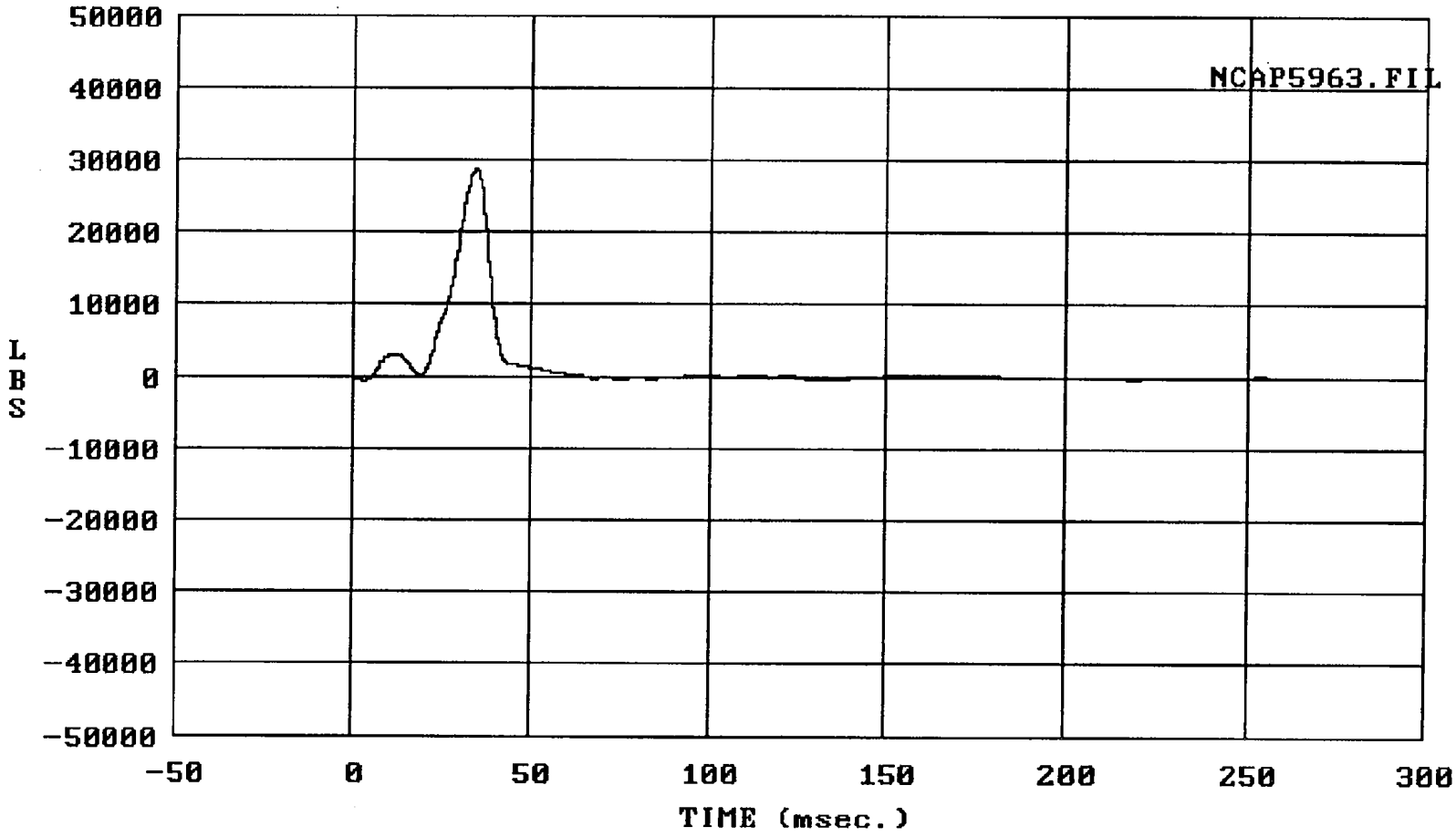
Filter: SAE CLASS 60 Max = 4420.6 Min = -365.76

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell D3



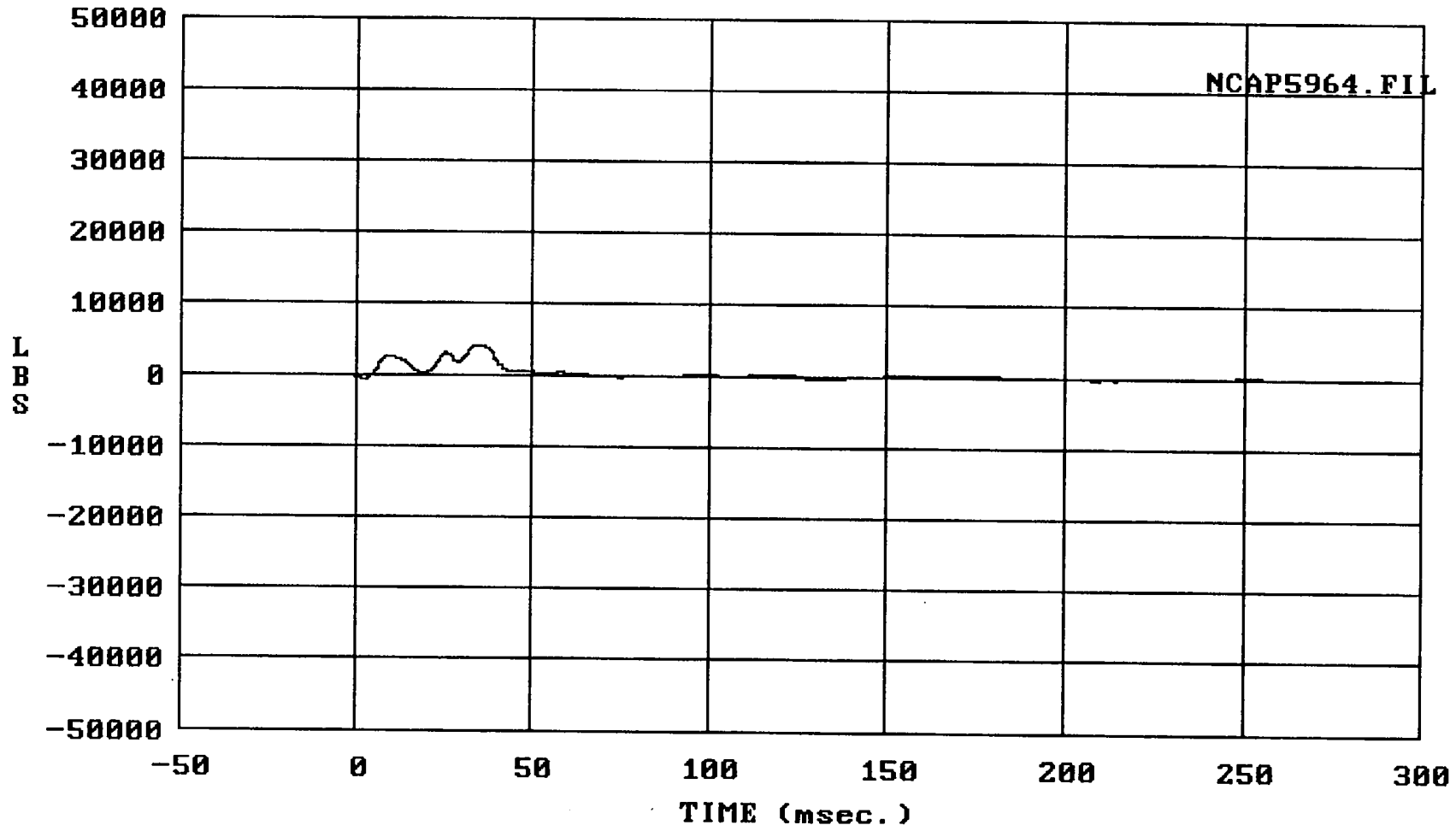
Filter: SAE CLASS 60 Max = 8247.1 Min = -453.49

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell D4



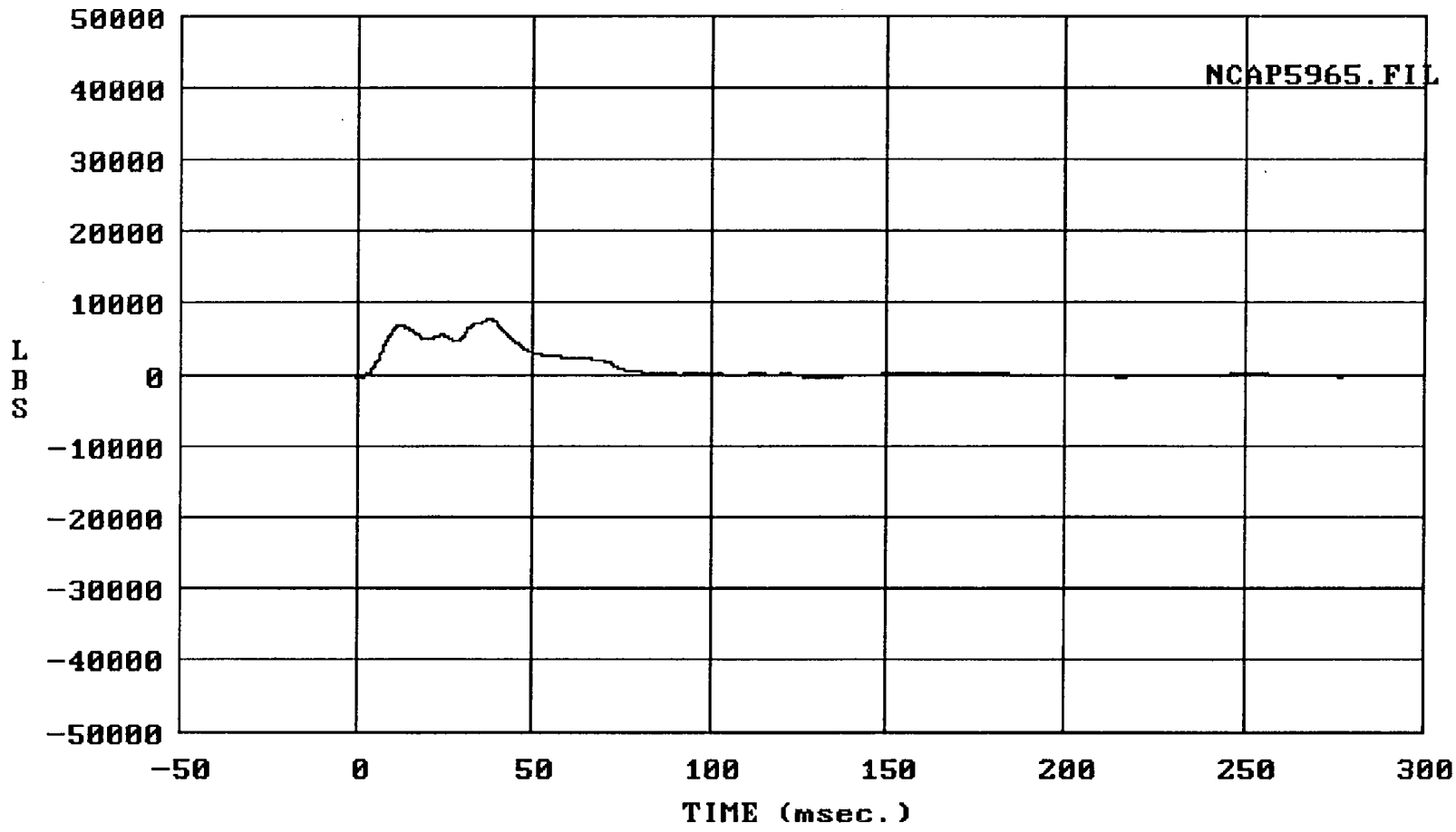
Filter: SAE CLASS 60 Max = 28876. Min = -493.67

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell D5



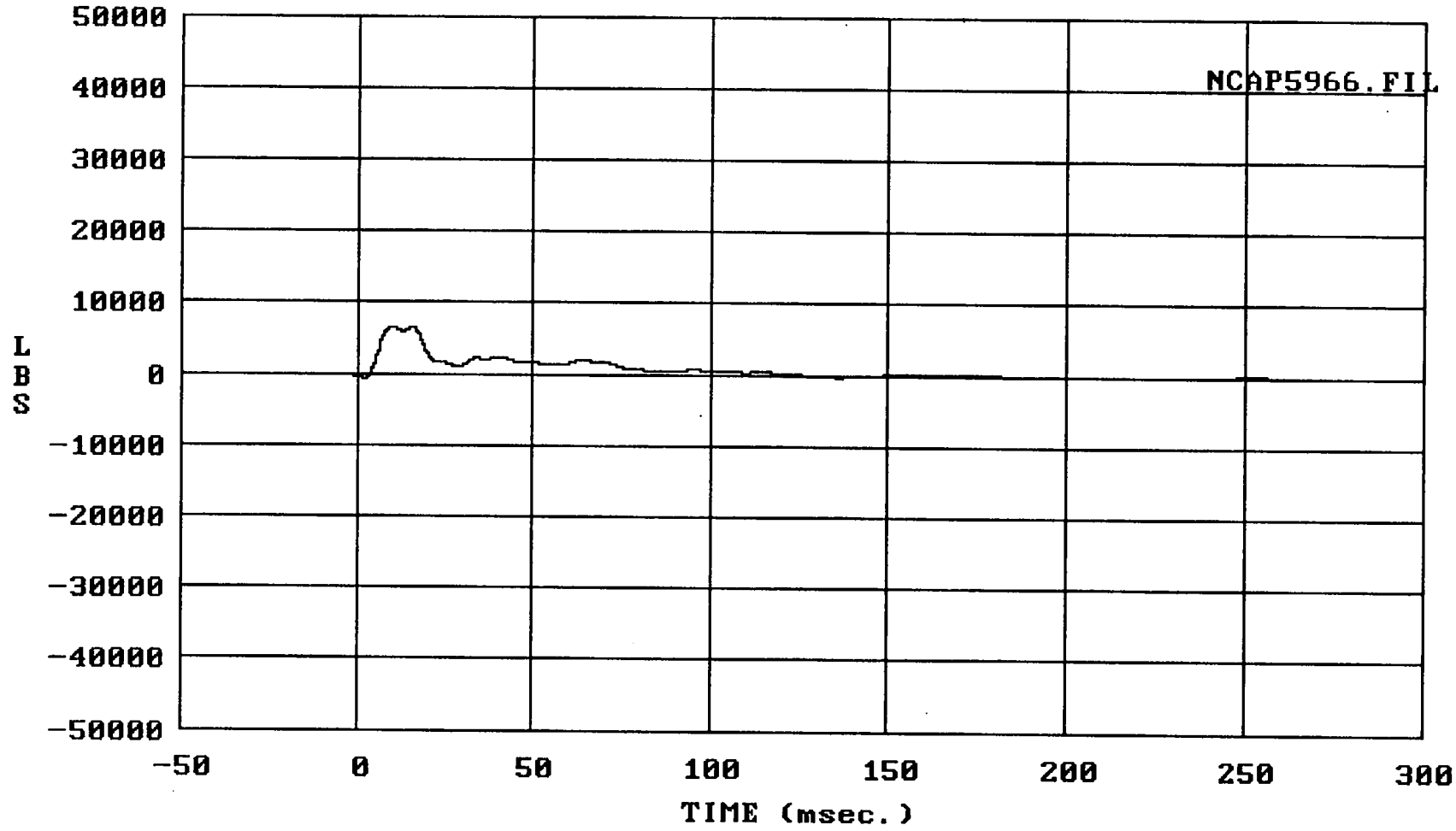
Filter: SAE CLASS 60 Max = 4263.6 Min = -503.21

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell D6



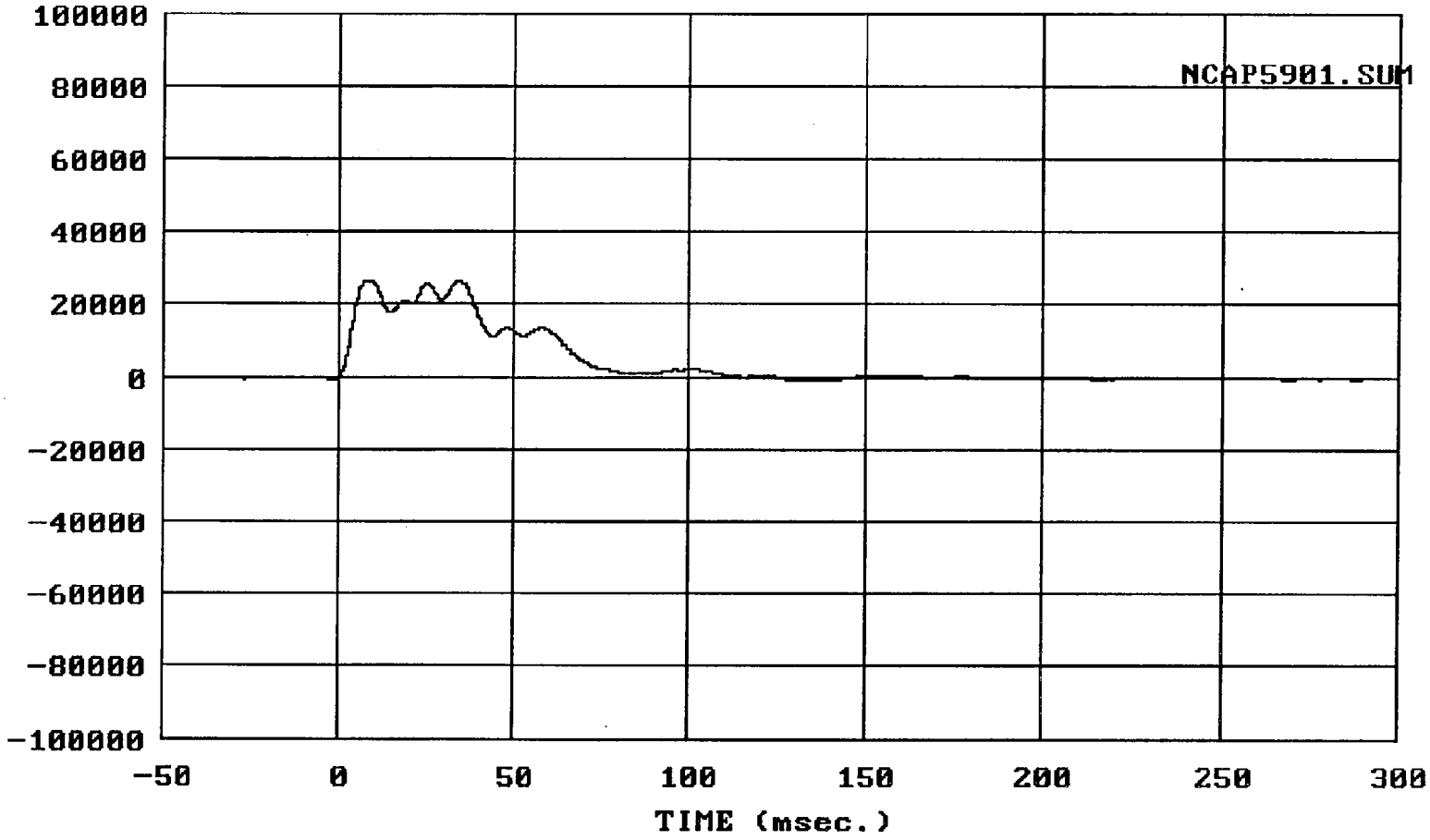
Filter: SAE CLASS 60 Max = 7759.8 Min = -268.81

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell D7



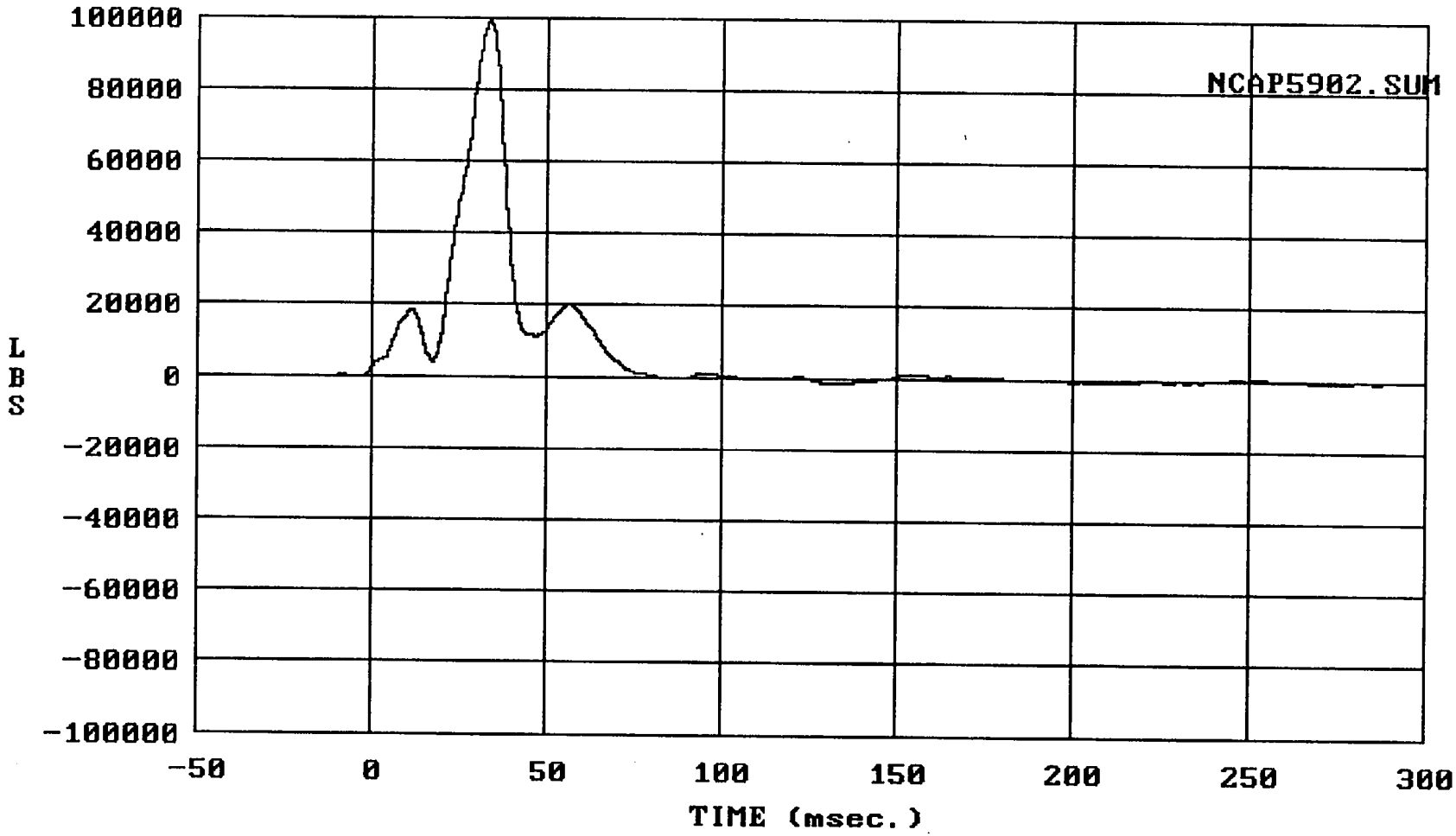
Filter: SAE CLASS 60 Max = 6699.2 Min = -509.57

MSE 04/11/89 -- 1989 Ford Bronco II : Barrier force - Load cell D8



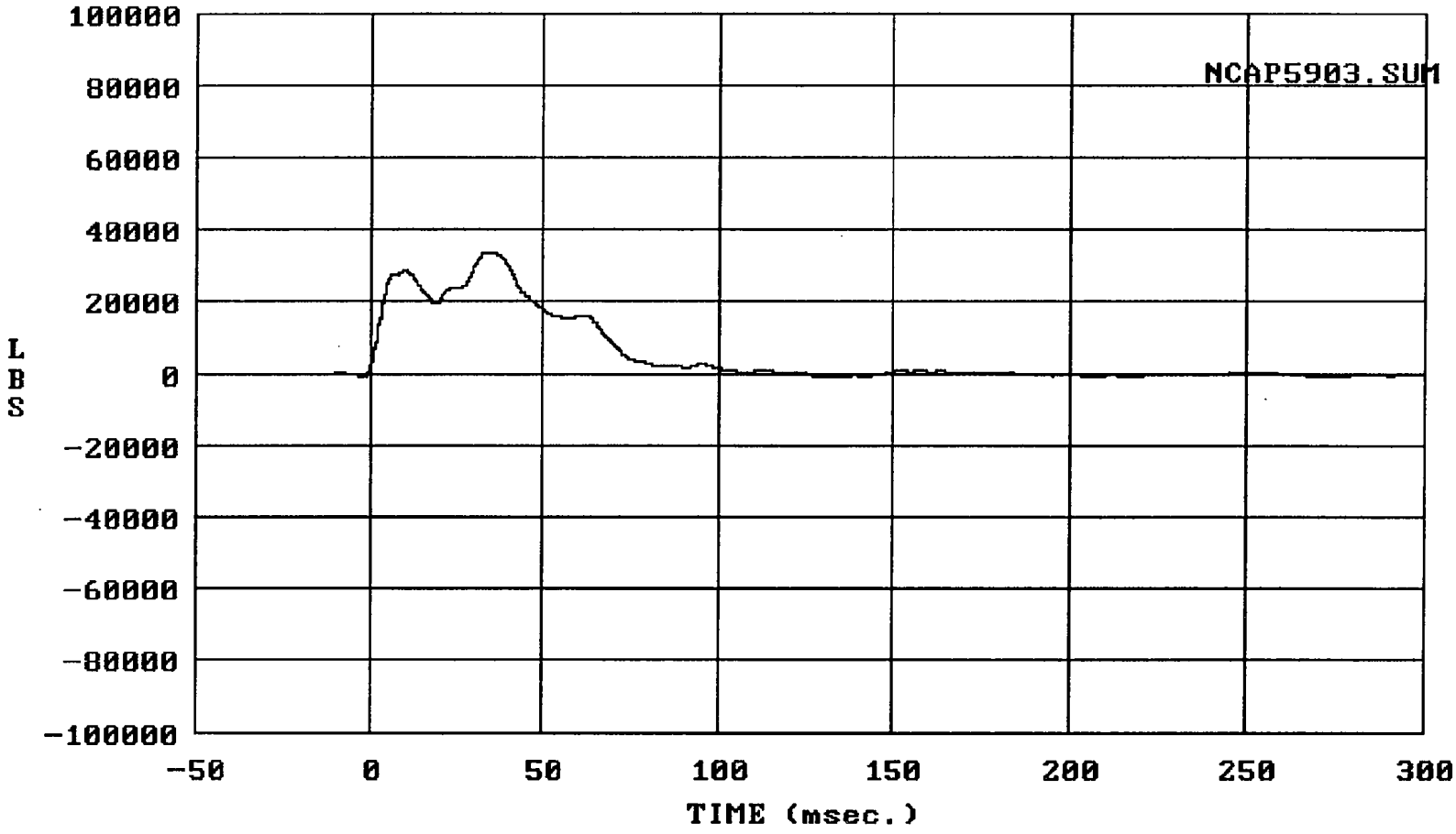
Filter: SAE CLASS 60 Max = 26686. Min = -594.19

MSE 04/11/89 -- 1989 Ford Bronco II : LCB sum frc C1,C2,C3,D1,D2,D3
Group_1



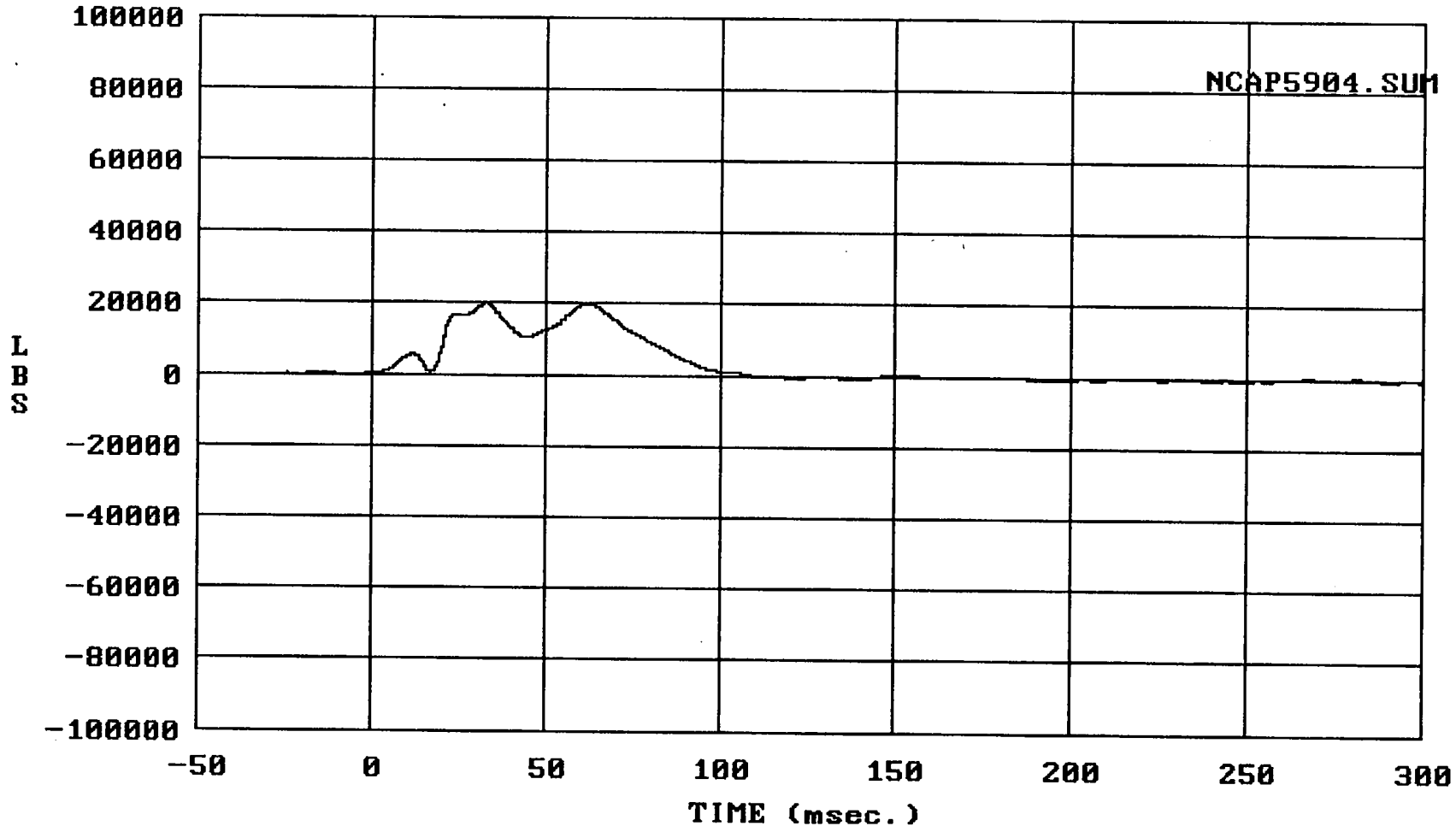
Filter: SAE CLASS 60 Max = 99284. Min = -1190.0

MSE 04/11/89 -- 1989 Ford Bronco II : LCB sum frc C4,C5,C6,D4,D5,D6
Group_2



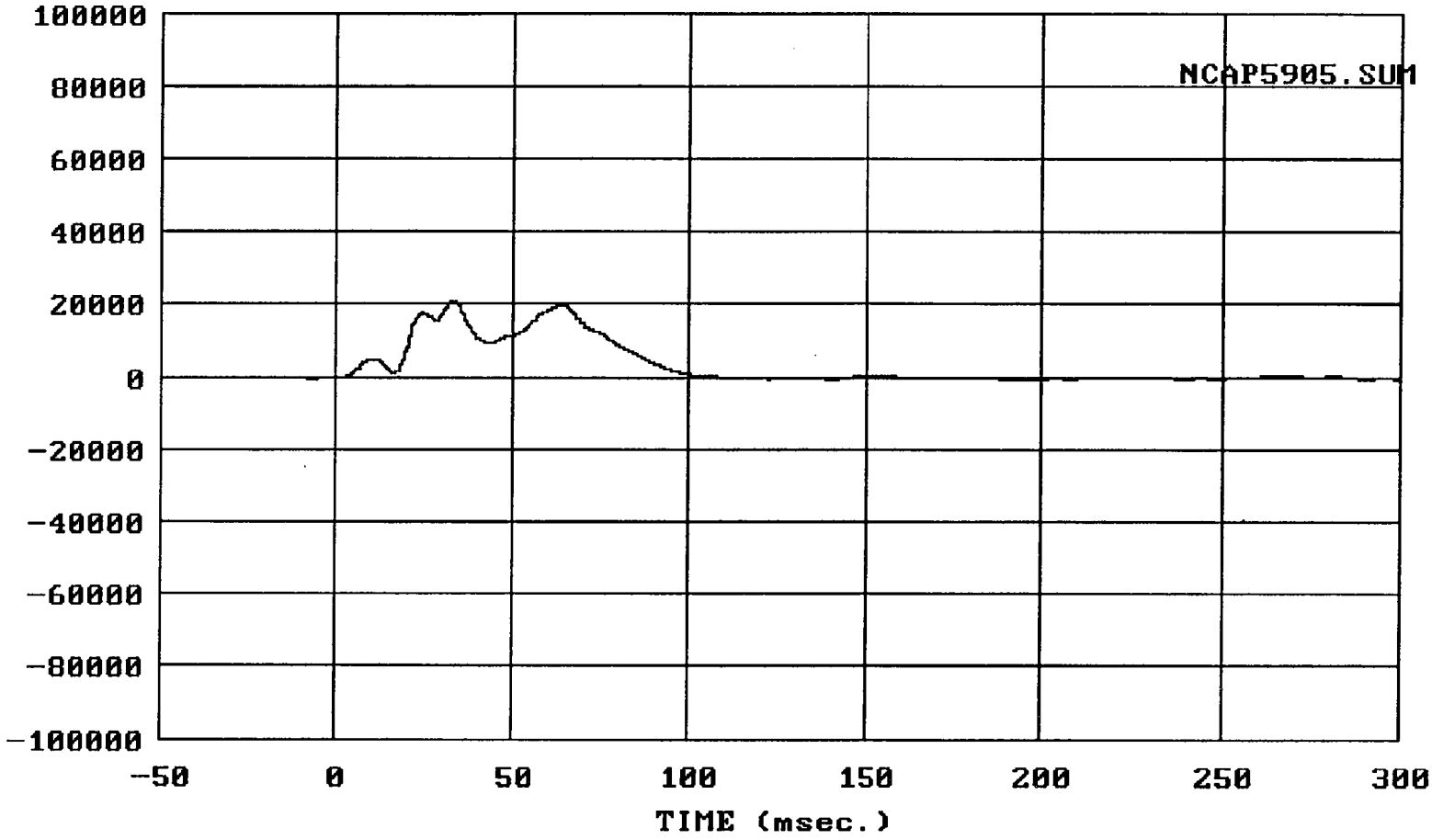
Filter: SAE CLASS 60 Max = 33923. Min = -770.81

MSE 04/11/89 -- 1989 Ford Bronco II : LCB sum frc C7,C8,C9,D7,D8,D9
Group_3



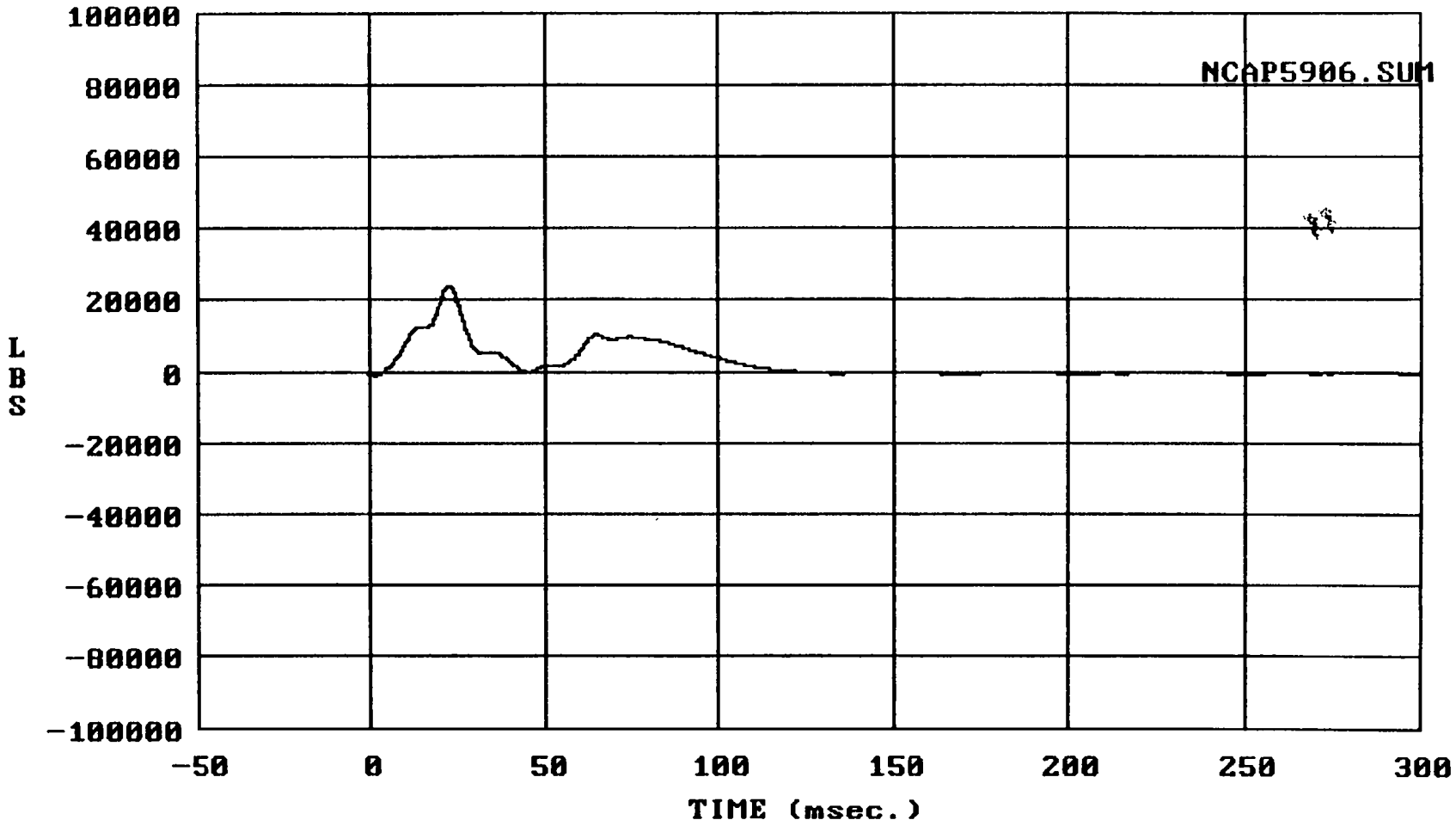
Filter: SAE CLASS 60 Max = 20338. Min = -701.00

MSE 04/11/89 -- 1989 Ford Bronco II : LCB sum frc A1,A2,A3,B1,B2,B3
Group_4



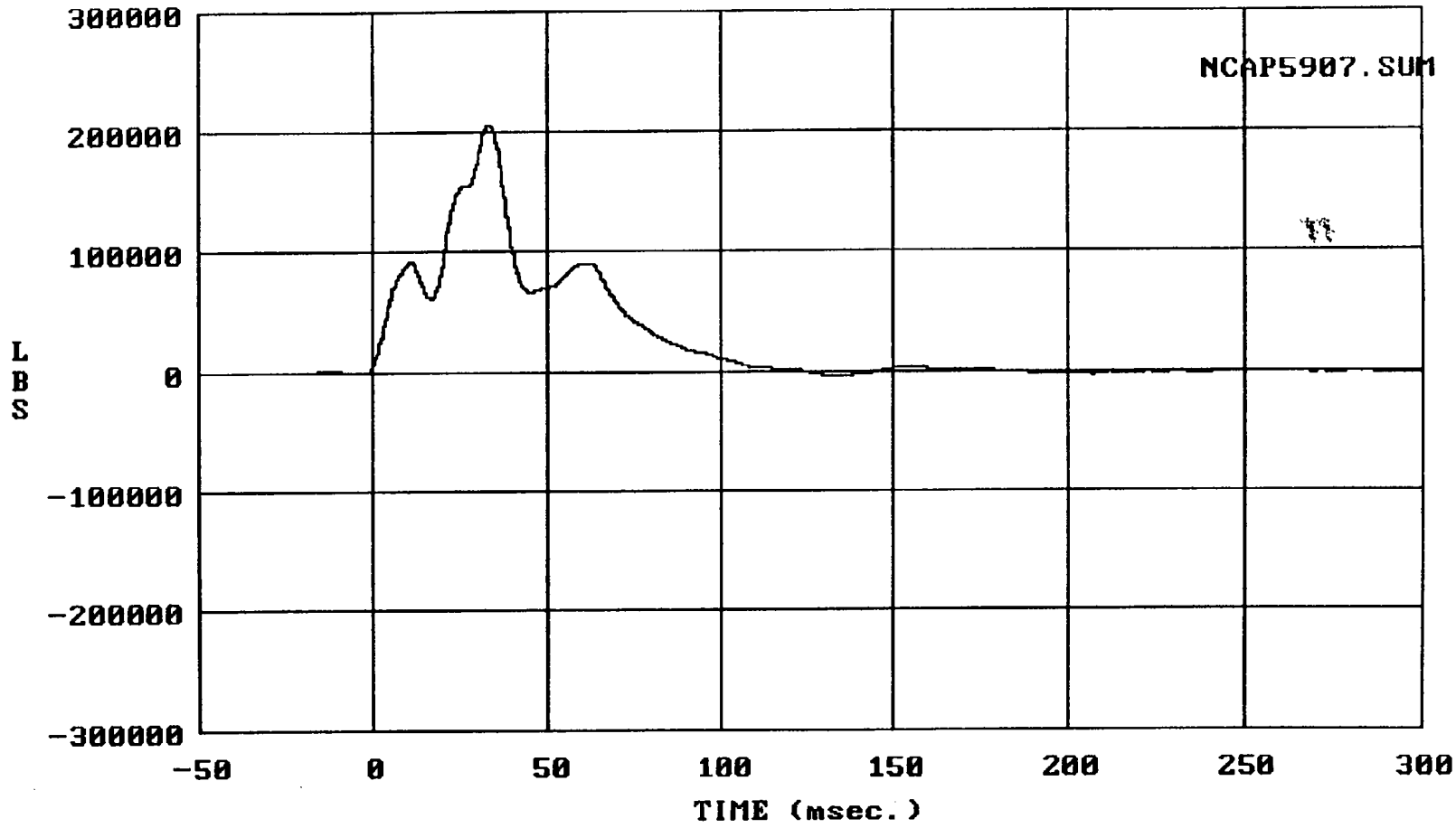
Filter: SAE CLASS 60 Max = 21314. Min = -698.24

MSE 04/11/89 -- 1989 Ford Bronco II : LCB sum frc A4,A5,A6,B4,B5,B6
Group_5



Filter: SAE CLASS 60 Max = 24056. Min = -942.37

MSE 04/11/89 -- 1989 Ford Bronco II : LCB sum frc A7,A8,A9,B7,B8,B9
Group_6



Filter: SAE CLASS 60 Max = .20618E+06 Min = -3244.0

MSE 04/11/89 -- 1989 Ford Bronco II : Load Cell Barrier sum total force

APPENDIX C

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION TESTS

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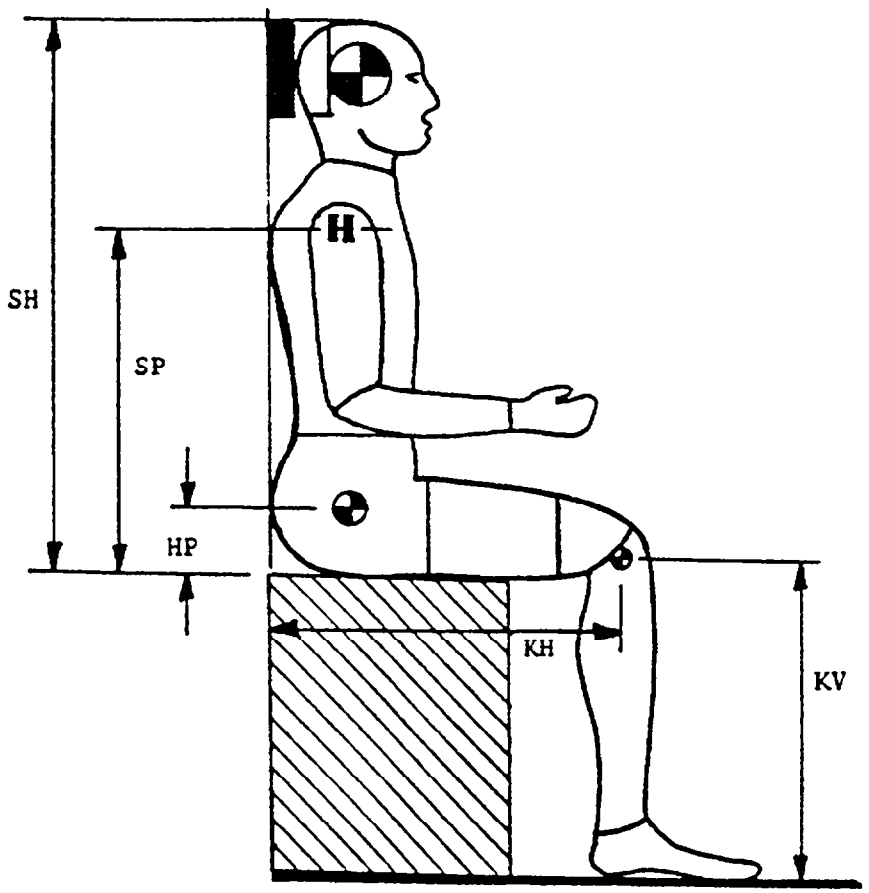
NHTSA DUMMY I.D. NO.: 4 6 5

I. CONFIGURATION VERIFICATION DATA:



	P.572 SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
DATE OF CONFIGURATION VERIFICATION		04/06/89-04/10/89	
VERIFICATION NUMBER FOR DUMMY*		02	
SH - Seated Height- - - - - - - -	35.6 to 35.8"	35.6	
SP - Shoulder Pivot Height- - - -	21.8 to 22.4"	21.8	
HP - Hip Pivot Height - - - - - -	3.9" ref.	3.9	
KH - Knee Pivot from back line- -	20.1 to 20.7"	20.6	
KV - Knee Pivot from floor- - - -	19.3 to 19.9"	19.3	
SW - Shoulder Width - - - - - - -	17.8 to 18.4"	18.2	
HW - Hip Width- - - - - - - - - -	14.0 to 15.4"	15.0	

TECHNICIAN'S NAME: M. WALKER

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

DUMMY CONFIG. & PERF. VERIF. DATA....Continued:

II. PERFORMANCE VERIFICATION DATA:

NHTSA DUMMY I.D. NO.: 4 6 5

TECHNICIAN'S NAME: M. WALKER

			PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION----------			04/06/89-04/10/89	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY*------			02	
VERIF. LAB. TEMPERATURE (66 to 78°F Range)-----			70 to 74 °F.	°F.
VERIF. LAB. HUMIDITY (10 to 70% Range)			33 to 58 %	%
TEST PARAMETER			SPECIFICATION	
1. HEAD DROP TEST--				
a. Peak Resultant Accel.-			210 to 260G	246.2
b. Peak Lateral Accel.- -			- 10G	10.0
c. Time above 100G- - - -			0.9 to 1.5ms	1.1
2. NECK BENDING TEST--				
a. Pendulum Speed - - - -			21.5 to 25.5 fps	22.34
b. Pend. Avg. Decel. over $t_3 - t_2$			20 to 24G	24.0
c. Peak Resultant Head Acceleration - - - - -			26G max.	24.39
d. Pendulum Decel.(t_2-t_1)			- 3ms	2.6
e. Pendulum Decel.(t_3-t_2)			25 to 30 ms	30.0
f. Pendulum Decel.(t_4-t_3)			- 10ms	7.2
g. Max. Head Rotation - -			63 to 73°	66.4
h. Chordal Displacement-- Head Rotation Angle-				
0°	Time- -		-2 to 2 ms	2.0
	Displ.-		-.5 to .5"	0.0
30°	Time- -		25.6 to 34.4ms	34.0
	Displ.-		2.1 to 3.1"	2.48
60°	Time- -		40.3 to 51.7ms	50.0
	Displ.-		4.3 to 5.3"	4.68
Maximum (62 °)	Time- -		53.2 to 66.8ms	62.0
	Displ.-		5.0 to 6.0"	5.14

*beginning with "1" at the start of each fiscal year's crash test program

II. PERFORMANCE VERIFICATION DATA (Continued) NHTSA DUMMY I.D. NO.: 4 6 5

TECHNICIAN'S NAME: M. WALKER

TEST PARAMETER		SPECIFICATION	Pre-Test (if required)	Post-Test (if required)
2. NECK BENDING TEST.... Continued:				
h. Chordal Displacement:				
Head Rotation Angle--				
60°	Time	67.0 to 83.0 ms	72.0	
	Displ.	4.3 to 5.3 in.	4.55	
30°	Time	85.4 to 104.6 ms	88.0	
	Displ.	2.1 to 3.1 in.	2.12	
0°	Time	101.0 to 123.0 ms	101.0	
	Displ.	-.5 to 0.5 in.	0.03	
3. ABDOMINAL COMPRESSION TEST:				
(Preload = 10 pounds)				
a. Force @ .5"		23 to 36 lbs.	24.0	
b. Force @ .75"		36 to 50 lbs.	40.0	
c. Force @ 1.0"		50 to 63 lbs.	58.0	
d. Force @ 1.3"		73 to 88 lbs.	87.0	
4. LUMBAR FLEXION TEST:				
a. Force @ 20°		22 to 34 lbs.	30.7	
b. Force @ 30°		34 to 46 lbs.	37.0	
c. Force @ 40°		46 to 58 lbs.	47.2	
d. Return Angle		12° maximum	9.0	
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed		21.78-22.22 fps	21.99	
(2) Peak Deflection		1.7" maximum	1.68	
(3) Peak Resistive Force		2250 lbs. maximum	2078.7	
(4) Internal Hysteresis		50 to 70%	70.0	
b. Low Speed				
(1) Probe Speed		13.86-14.14 fps	13.88	
(2) Peak Deflection		1.1" maximum	1.01	
(3) Peak Resistive Force		1450 lbs. maximum	1337.7	
(4) Internal Hyster.		50 to 70%	60.0	

DUMMY CONFIG. & PERF. VERIF. DATA....Continued:

II. PERFORMANCE VERIFICATION DATA (Continued) NHTSA DUMMY I.D. NO.: 4 6 5

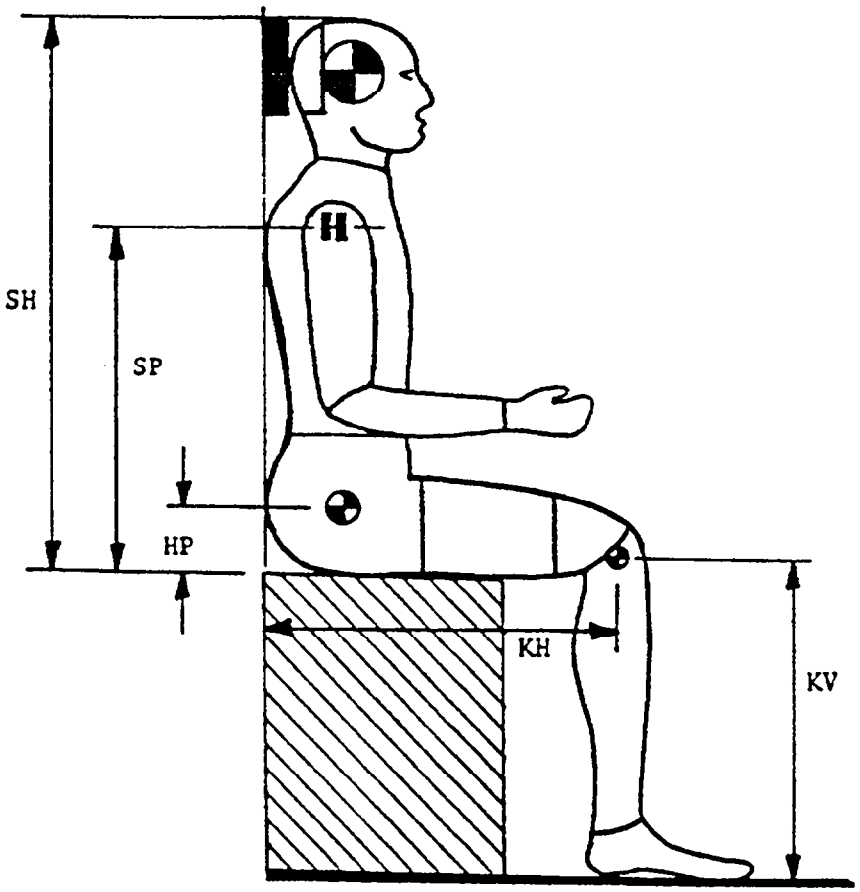
TECHNICIAN'S NAME: M. WALKER

TEST PARAMETER	SPECIFICATION	Pre-Test (if required)	Post-Test (if required)
6. KNEE IMPACT TESTS:			
a. Right Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.76	
(2) Maximum Force - -	1850 to 2500 lbs.	2381.0	
(3) Time Above 1000#-	1.7 ms minimum	1.75	
b. Left Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.82	
(2) Maximum Force - -	1850 to 2500 lbs.	2273.8	
(3) Time Above 1000#-	1.7 ms minimum	1.85	

REMARKS:

NHTSA DUMMY I.D. NO.: 4 6 6

I. CONFIGURATION VERIFICATION DATA:



	P.572 SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
DATE OF CONFIGURATION VERIFICATION		04/06/89-04/10/89	
VERIFICATION NUMBER FOR DUMMY*		02	
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"	19.3	
SW - Shoulder Width - - - - - - -	17.8 to 18.4"	18.4	
HW - Hip Width- - - - - - - - - -	14.0 to 15.4"	14.9	

TECHNICIAN'S NAME: M. WALKER

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

DUMMY CONFIG. & PERF. VERIF. DATA....Continued:

II. PERFORMANCE VERIFICATION DATA:

NHTSA DUMMY I.D. NO.: 4 6 6

TECHNICIAN'S NAME: M. WALKER

			PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION----------			04/06/89-04/10/89	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY*------			02	
VERIF. LAB. TEMPERATURE (66 to 78°F Range)-----			70 to 74 °F.	°F.
VERIF. LAB. HUMIDITY (10 to 70% Range)			33 to 58 %	%
TEST PARAMETER		SPECIFICATION		
1. HEAD DROP TEST--				
a. Peak Resultant Accel.-		210 to 260G	223.5	
b. Peak Lateral Accel.- -		- 10G	4.21	
c. Time above 100G- - - -		0.9 to 1.5ms	1.2	
2. NECK BENDING TEST--				
a. Pendulum Speed - - - -		21.5 to 25.5 fps	22.3	
b. Pend. Avg. Decel. over $t_3 - t_2$		20 to 24G	24.0	
c. Peak Resultant Head Acceleration - - - - -		26G max.	24.12	
d. Pendulum Decel.(t_2-t_1)		- 3ms	2.2	
e. Pendulum Decel.(t_3-t_2)		25 to 30 ms	30.0	
f. Pendulum Decel.(t_4-t_3)		- 10ms	6.2	
g. Max. Head Rotation - -		63 to 73°	67.04	
h. Chordal Displacement-- Head Rotation Angle-				
0°	Time- -	-2 to 2 ms	2.0	
	Displ.-	-.5 to .5"	0.0	
30°	Time- -	25.6 to 34.4ms	33.2	
	Displ.-	2.1 to 3.1"	2.6	
60°	Time- -	40.3 to 51.7ms	48.6	
	Displ.-	4.3 to 5.3"	4.9	
Maximum (62 °)	Time- -	53.2 to 66.8ms	62.0	
	Displ.-	5.0 to 6.0"	5.52	

*beginning with "1" at the start of each fiscal year's crash test program

II. PERFORMANCE VERIFICATION DATA (Continued) NHTSA DUMMY I.D. NO.: 4 6 6

TECHNICIAN'S NAME: M. WALKER

TEST PARAMETER		SPECIFICATION	Pre-Test (if required)	Post-Test (if required)
2. NECK BENDING TEST.... Continued:				
h. Chordal Displacement:				
Head Rotation Angle--				
60°	Time	67.0 to 83.0 ms	73.0	
	Displ.	4.3 to 5.3 in.	4.8	
30°	Time	85.4 to 104.6 ms	88.4	
	Displ.	2.1 to 3.1 in.	2.28	
0°	Time	101.0 to 123.0 ms	101.0	
	Displ.	-.5 to 0.5 in.	0.231	
3. ABDOMINAL COMPRESSION TEST:				
(Preload = 10 pounds)				
a. Force @ .5" - - - - -		23 to 36 lbs.	28.0	
b. Force @ .75" - - - - -		36 to 50 lbs.	40.0	
c. Force @ 1.0" - - - - -		50 to 63 lbs.	59.0	
d. Force @ 1.3" - - - - -		73 to 88 lbs.	86.0	
4. LUMBAR FLEXION TEST:				
a. Force @ 20° - - - - -		22 to 34 lbs.	27.6	
b. Force @ 30° - - - - -		34 to 46 lbs.	35.9	
c. Force @ 40° - - - - -		46 to 58 lbs.	47.5	
d. Return Angle - - - - -		12° maximum	12.0	
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed- - -		21.78-22.22 fps	22.11	
(2) Peak Deflection-		1.7" maximum	1.7	
(3) Peak Resistive Force- - - - - -		2250 lbs. maximum	2065.7	
(4) Internal Hysteresis - - -		50 to 70%	66.9	
b. Low Speed				
(1) Probe Speed- - -		13.86-14.14 fps	13.87	
(2) Peak Deflection-		1.1" maximum	1.1	
(3) Peak Resistive Force- - - - - -		1450 lbs. maximum	1267.0	
(4) Internal Hyster.		50 to 70%	58.2	

DUMMY CONFIG. & PERF. VERIF. DATA....Continued:

II. PERFORMANCE VERIFICATION DATA (Continued) NHTSA DUMMY I.D. NO.: 4 6 6

TECHNICIAN'S NAME: M. WALKER

TEST PARAMETER	SPECIFICATION	Pre-Test (if required)	Post-Test (if required)
6. KNEE IMPACT TESTS:			
a. Right Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.80	
(2) Maximum Force - -	1850 to 2500 lbs.	2150.8	
(3) Time Above 1000#-	1.7 ms minimum	2.1	
b. Left Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.81	
(2) Maximum Force - -	1850 to 2500 lbs.	1925.3	
(3) Time Above 1000#-	1.7 ms minimum	2.0	

REMARKS:

APPENDIX D

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

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BEFORE DRIVING YOUR VEHICLE

OCCUPANT RESTRAINT SYSTEMS

WARNING — Be sure to LOCK ALL DOORS before driving away. Locking the doors, along with using the safety belts provided, will minimize the risk of injury or ejection in an accident.

Ford Motor Company recommends that you always "buckle up." In some areas restraint system use is required by law.

WARNING — Passengers should not be allowed to ride in the cargo area of any vehicle. Persons who are not riding in a seat with a fastened safety belt are much more likely to suffer serious bodily injury in the event of a collision.

WARNING — All vehicle occupants, including pregnant women, should wear their safety belts for maximum protection in the event of a collision. All vehicle occupants, including pregnant women, should be sure the lap belt or lap belt portion of the lap-shoulder belt, is fitted snugly and as low as possible around the hips, not on the waist. Shoulder belts should also be properly adjusted for minimum slack. Failure to properly utilize the safety belts may increase the chance and/or severity of injury in the event of a collision.

According to accident statistics, properly restrained children are safer in the rear seat than in the front seat.

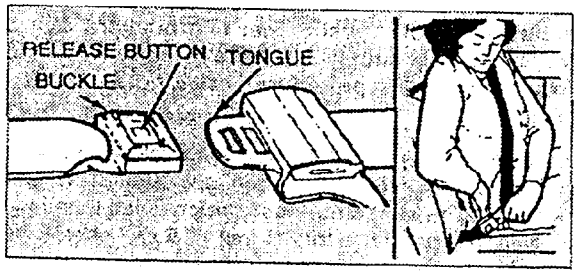
For young children, infant and child restraints should be obtained and used in accordance with the instructions provided by the manufacturer of the infant and child restraint. See Infant and Child Restraints. Child restraint use is required by law in most states and provinces.

BEFORE DRIVING YOUR VEHICLE

Front Lap-Shoulder Belts

The belt system allows freedom of movement, locking tight only on hard braking or impacts of approximately 5 mph (8 km/h) or more. The system cannot be made to lock by jerking on the belt.

After entering your vehicle, close the door and adjust the front seat to obtain the best position for your driving comfort, access to controls and visibility. Then pull the lap-shoulder belt from the retractor so the shoulder portion of the belt crosses your outboard shoulder and chest and insert the belt tongue into the proper buckle until you hear a snap and feel it latch.



Pull up on the shoulder portion of the belt to tighten the lap portion to a snug fit. Be sure the belt is as low on your hips as possible. The front lap shoulder belts are equipped with a comfort regulator to reduce belt pressure against your chest if the shoulder belt is uncomfortably tight. The shoulder belt can be adjusted much like a window shade to maintain a small amount of slack in the belt. The adjacent door must be closed to use this comfort regulator feature.

Adjustment Procedure

To set the comfort regulator, the shoulder belt initially should be positioned snugly against the chest. If the belt is not positioned snugly, the comfort regulator may already be engaged. Disengagement is accomplished by the following procedure:

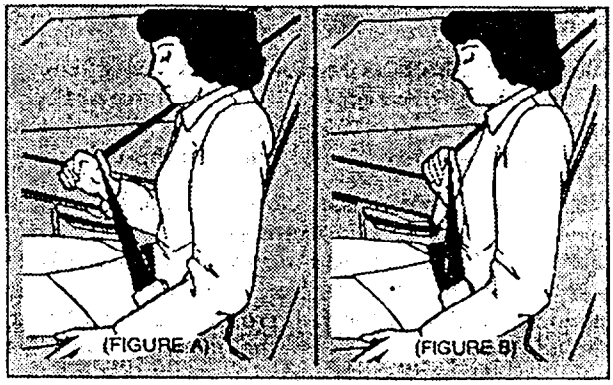


Figure A – Pull the shoulder belt outward 4 or 5 inches (10 to 13 cm), then release it and allow belt to fully retract. Repeat procedure if belt is not snug to the chest.

Figure B – Now the belt tension may be adjusted by pulling down **slightly** on the shoulder belt and releasing. The **least amount of slack** needed to relieve tension, but not more than 1 inch (2.5 cm) should be pulled out when using the comfort regulator system as the belt does not retract at a sudden stop but "locks" in its current adjusted position.

- If the desired setting is not achieved or excess slack develops as you change seat position, repeat the above procedure.
- When the door is opened, the comfort regulator will release automatically, permitting the lap-shoulder belt to retract. After unbuckling the belt it is recommended that you guide the tongue during retraction to prevent it from striking you or the vehicle.

WARNING — The belt system must be snug to restrain you properly. Never allow more than 1 inch (2.5 cm) of slack to be introduced into your safety belt system because the belt locks upon impact where it is positioned. Wearing the belt too loosely will negate any real safety protection. 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. Be sure the lap portion of the belt is fitted snugly and as low as possible around the hips, not on the waist. Failure to follow these precautions could increase the chance and/or severity of injury in an accident.

Lap Belts Without Retractors

The center seating position of the front three-passenger bench seat is equipped with a lap belt that does not have a retractor. This belt should be shortened and fastened when not in use. To lengthen the belt, tip the tongue at a right angle to the belt and pull the belt over your lap until the tongue reaches the buckle.

To fasten the belt, insert the tongue into the open end of the proper buckle until you hear a snap and feel the latch engage. Then pull on the loose end of the webbing to snug the belt. The belt should be snug and as low as possible around the hips, never around the waist.

Rear Lap Belts with Retractors

Pull the belt out of the retractor with a steady motion and insert the tongue into the buckle until you hear a snap and feel the latch engage.

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

To Untwist Or Unjam The Safety Belt

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

- Pull on the belt with both hands to tighten it on the retractor spool.
- Feed the belt back into the retractor until it is on the retractor spool.
- Pull the belt out of the retractor as far as it will go. Remove any foreign matter or untwist the belt as necessary and let the belt retract.
- Extend and retract the belt about five times to make sure the belt retractor operates properly.

Unfastening Safety Belts

Push the release button in the buckle and allow the belts to unlatch. For belts with retractors, guide the tongue to its original position while the belt retracts, to minimize the possibility of it striking you or part of the vehicle.

Safety Belt Extension Assembly

A safety belt assembly that is too short even when fully extended can be lengthened approximately eight inches (20 cm) with a safety belt extension assembly (54611C22) available from your dealer.

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.

Safety Belt Maintenance

Safety belt assemblies should be periodically inspected to assure that they have not become damaged and that they remain in proper operating condition, particularly if they have been subjected to severe stress.

WARNING — All safety belt assemblies, including retractors and attaching hardware, should be inspected after any collision. Ford recommends that all safety belt assemblies in use during a collision be replaced unless the collision was minor and a qualified technician finds that the belts show no 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.

Infant and Child Restraints

WARNING — For maximum protection in the event of a collision or sudden stop, always protect the infant and child occupants of your vehicle with an infant or child safety seat designed especially for them and which conforms to applicable motor vehicle safety standards. Do not permit children to sit where they cannot be properly restrained.

According to accident statistics, properly restrained children are safer in the rear seat than in the front seat.

WARNING – Since a safety belt or child restraint can become very hot in a closed vehicle, be sure and check the seat cover and buckles before placing a child in them.

If infant and child safety seats are not installed and used correctly, they may not provide the protection they were designed to provide. Be sure to read and follow carefully all of the installation and use instructions, and obey all warnings supplied with the infant and child safety seats.

All child restraint systems are designed to be secured in vehicle seats by lap belts or the lap belt portion of a lap-shoulder belt system. Using a child restraint system without properly securing it to the vehicle could increase the risk of personal injury to the child occupying it in a collision or sudden stop. An improperly installed child restraint system could also endanger other occupants of the vehicle.

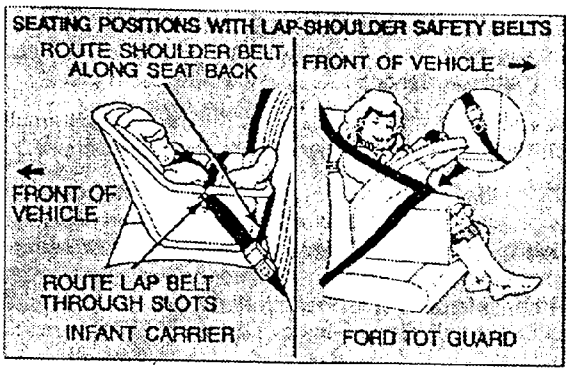
The following test should be performed after properly installing an infant or child safety seat in the front or rear center seat position which is equipped with a manually adjustable lap belt. Before placing the child in the infant or child seat, tighten the lap belt, forcibly tilt the seat from side to side, and also tug it forward to see if the lap belt holds it securely in place. If belt slippage occurs, the infant or child seat should be properly installed in a different seating position. If the new position is another center seating position, the test procedure should be repeated.

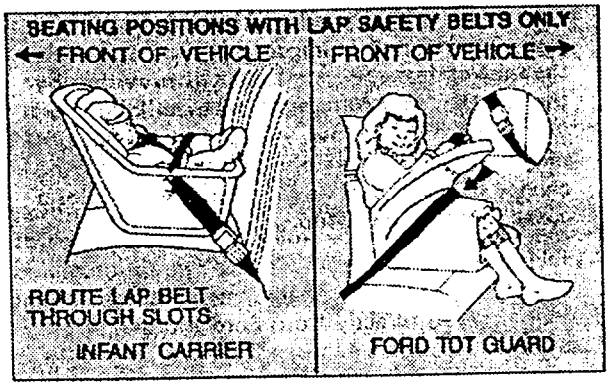
Never leave a child unattended in your vehicle. Always remove the key from the ignition and take it with you.

BEFORE DRIVING YOUR VEHICLE

WARNING – When using ANY infant or child restraint system it is important that you follow the instructions and WARNINGS provided by the manufacturer concerning its installation and use. Failure to follow each of the restraint manufacturer's instructions could increase the chance or severity of an injury in the event of a collision or sudden stop.

A child should never be allowed to ride unrestrained. The Ford Tot-Guard is available from your dealer and may be ordered directly from Ford Motor Company. This accessory unit is secured by vehicle lap belts or lap-shoulder belts and does not rely on the seat back for its support. **The Tot-Guard is for use only in a forward-facing vehicle seat equipped with a safety belt.**





The Tot-Guard is designed for use by children who weigh between 20 and 50 pounds (9 and 23 kg) and whose seated height is between 19 and 28 inches (48 and 71 cm). To order the Tot-Guard see the order form in the back of this guide. (The Tot-Guard is not available in Canada.)

A variety of other safety seats for infants and small children may be purchased from local retailers.

When the Ford Tot-Guard is used in the right front seat with a lap-shoulder belt system, the lap and shoulder belt should be positioned as shown in the illustration. These instructions apply **ONLY** to the Ford Tot-Guard. Other infant or child restraint systems may require different belt placements or procedures.

Should difficulty be experienced in buckling up the Tot-Guard because the vehicle safety belt is too short even when fully extended, a safety belt extension assembly (54611C22) can be obtained from your dealer at no charge to provide extra length. Do not use other extension assemblies.

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.

For children having a seated height greater than 28 inches (71 cm), which is the maximum height for use of the Tot-Guard, use the belts provided with the vehicle. If the shoulder belt portion of the lap-shoulder belt contacts or remains in front of the child's face, chin, neck or throat, a good belt fit may be provided by placing the child closer to the center of the vehicle.

WARNING — If the shoulder belt portion contacts or remains in front of the child's face, chin, neck or throat, move the child to a seat with a lap belt only, if available. Failure to follow this precaution can increase the risk or severity of injury in the event of a collision.

Child Seat Tether Attachment Locations

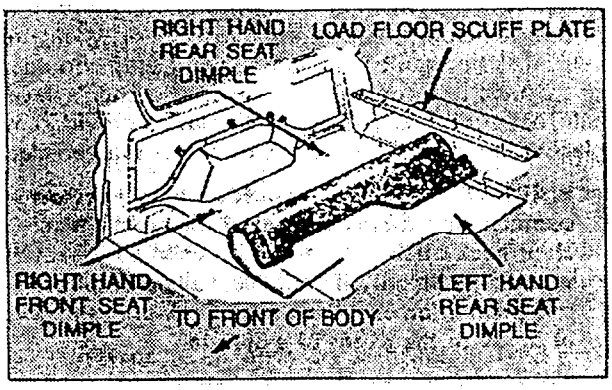
Some child safety seats provide a tether strap which goes over the back of the vehicle seat and attaches to an anchorage in the floor behind the rear seat. If there is a seat behind the seat in which the tethered child safety seat is installed, the tether strap should be hooked either to the tongue of the lap belt in the seat directly behind the child safety seat, or around the webbing of that belt after its tongue has been snapped into its buckle. (The Ford Tot-Guard does not require a top tether strap.)

Installation Procedure For Tether Strap

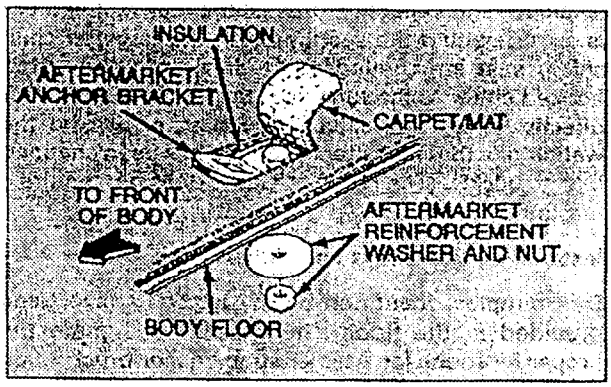
Drill dimples, identified by the letter T, have been provided in the floor. The dimples designate the proper locations for a tether strap anchor bracket bolt when using a child seat in the right rear or left rear

seating positions, or in the right front seating position if there is no rear seat.

1. To locate the drill dimple for the rear seating positions remove the rear load floor scuff plate if required, and lift the rear of the carpet or mat and insulation. To locate the drill dimple for the right front seating position, lift the right front corner of the rear floor carpet or mat.



2. Install the anchor bracket onto the metal floor in accordance with seat manufacturer's instructions.



3. Cut out and remove sufficient insulation to clear the anchor bracket.
4. Make a U-shaped cut in the carpet or mat a little larger than the anchor bracket to allow access to the anchor bracket.

   WARNING — The anchor bracket must be bolted directly to the floor sheet metal. Interior trim must NOT be trapped between the anchor bracket and the sheet metal.

   Failure to properly install the anchor bracket could result in improper attachment performance in the event of an accident.

5. Follow the seat manufacturer's instructions to attach the tether strap to the anchor bracket.

   WARNING — If the anchor bolt(s) are ever removed, the hole(s) in the floor must be sealed to prevent the possibility of exhaust fumes entering the passenger compartment.