

NEW CAR ASSESSMENT PROGRAM (NCAP)

FRONTAL BARRIER IMPACT TEST

MITSUBISHI
1989 MITSUBISHI WAGON
4 DOOR VAN
NHTSA NO. MK5602

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



MAY 29, 1989

FINAL REPORT

Prepared For:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF MARKET INCENTIVES
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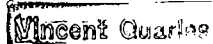
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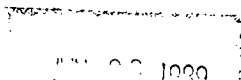
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16. Abstract A 35 mph frontal barrier impact test using a load cell barrier was conducted on a 1989 Mitsubishi Wagon, 4 Door Van, at the Mobility Systems and Equipment Company (MSE) crash test facility in Mira Loma, CA, on 09 May 1989. The barrier impact velocity was 35.0 mph, and the ambient temperature at the barrier face at the time of impact was 84°F. The posttest vehicle crush maximum was 17.7 in. A summary of occupant injury measure data from the test appears below:																		
<table border="1"> <thead> <tr> <th>Injury Criteria Threshold Value</th> <th>Driver Dummy</th> <th>Passenger Dummy</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criterion HIC = 1000</td> <td>805</td> <td>713</td> </tr> <tr> <td>Chest Resultant Peak 60 Gs (3 ms clip)</td> <td>49</td> <td>51</td> </tr> <tr> <td>Femur Load Left</td> <td>1,568</td> <td>1,427</td> </tr> <tr> <td>2250 Pounds Right</td> <td>1,607</td> <td>791</td> </tr> </tbody> </table>				Injury Criteria Threshold Value	Driver Dummy	Passenger Dummy	Head Injury Criterion HIC = 1000	805	713	Chest Resultant Peak 60 Gs (3 ms clip)	49	51	Femur Load Left	1,568	1,427	2250 Pounds Right	1,607	791
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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) 1989/MITSUBISHI WAGON/4 DOOR VAN		18. Distribution Statement Copies of this report are available from <u>Technical Reference Division</u> Nat'l Hwy. Traffic Safety Admin. Room 5108, Nassif Building 400 7th St. S.W. Wash. DC 20590																
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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 Mitsubishi Wagon, 4 Door Van, NHTSA No. MK5602, at a velocity of 35.0 mph. The frontal impact test was conducted by Mobility Systems and Equipment Company (MSE) on 09 May 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-seven (67) 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 Mitsubishi Wagon, 4 Door Van, was equipped with a 143 cubic inch 4 cylinder engine and 4 speed automatic transmission. The test weight of the 1989 Mitsubishi Wagon, 4 Door Van, with two (2) 50th percentile male dummies, instrumentation, and cameras, was 4,066 pounds.

The 1989 Mitsubishi Wagon was involved in a frontal load cell barrier crash at a velocity of 35.0 mph.

The maximum static crush for the vehicle was 17.7 inches. The windshield was not cracked, and the vehicle glazing remained intact. Both the driver's and passenger's front doors needed tools to open.

The driver ATD's head hit the steering wheel and the center hub. The driver's left and right knees hit the dash panel and steering column. The driver ATD had a HIC value of 805, the maximum chest acceleration (resultant clipped) was 49 g's, and the maximum femur loads were 1,568 (left) and 1,607 (right) pounds.

The passenger ATD's head had no initial contact but came back and hit the "B" pillar. Both of his knees hit the dash panel and glove box door. The HIC value for the passenger ATD was 713, the maximum chest acceleration (resultant clipped) was 51 g's, and the maximum femur loads were 1,427 (left) and 791 (right) pounds.

Seat belt spool out, measured by high-speed film analysis, was 1.5 inches for the driver and 1.9 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/MITSUBISHI/WAGON VAN 4 DOOR

VEHICLE NHTSA NO.:

M	K	5	6	0	2
---	---	---	---	---	---

 VIN:

J	A	4	F	N	4	4	W	2	K	A	0	0	0	6	7	2
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

VEHICLE BODY COLOR: SUMMIT WHITE; MONTH & YEAR OF MANUFACTURE: 12/88

ENGINE: 4 cylinders; 143 C.I.D.; 2.35 Liters; 2350 CC

X Gas; Diesel; Turbocharged

PLACEMENT— X Longitudinal; Transverse (Lateral)

TRANSMISSION: 4 speed; Manual; X Automatic; X Overdrive

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

DATE VEHICLE AVAILABLE FOR 35 MPH CRASH TESTING: 02/01/89

ODOMETER READING: 21 miles; OPTIONS: X A/C; X P/S; P/Wdo.;
X Tilt Whl.; X Cruise Control

DATA RECORD FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): 32 psi Front; 35 psi Rear

Recommended Tire Size: P205/75R14 RADIALS

Tires on Vehicle: 382 ALL SEASON; Manufacturer: YOKOHAMA

Number of Occupants: 2 Front; 2 Rear; 3 3rd Seat; 7 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 = 1420 lbs. (A)

No. of Occupants x 150 lbs - - = 1050 lbs. (B)

Cargo Capacity (A - B) - - - - = 370 lbs.

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Right Front = 943 lbs.

Left Front = 1057 lbs.

Right Rear = 703 lbs.

Left Rear = 738 lbs.

TOTAL WEIGHT = 3441 lbs.

TOTAL FRONT = 2000 lbs. (58.1 % of TOTAL)

TOTAL REAR = 1441 lbs. (41.9 % of TOTAL)

Data Table No. 1 (Con't) Test Vehicle Data

CALCULATION OF TEST VEHICLE TARGET WEIGHT:

Total Test Vehicle Delivered Weight With Maximum Fluids =	<u>3441</u>	lbs.
Maximum Cargo Carrying Capacity Of Test Vehicle*- - - - -	<u>300</u>	lbs.
Weight Of Two P.572 Dummies (2 x 164 lbs.)- - - - -	<u>328</u>	lbs.
TEST VEHICLE TARGET WEIGHT	<u>4069</u>	lbs.

*300 lbs. for light trucks and MPVs

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front = <u>1206</u> lbs.	TOTAL FRONT = <u>2489</u> lbs. (<u>61.2%</u> of TOTAL)
Left Front = <u>1283</u> lbs.	
Right Rear = <u>772</u> lbs.	TOTAL REAR = <u>1577</u> lbs. (<u>38.8%</u> of TOTAL)
Left Rear = <u>805</u> lbs.	
TOTAL WEIGHT= <u>4066</u> lbs. (which includes <u>341</u> lbs. of cargo ballast weight placed in the cargo/luggage area)	

VEHICLE COMPONENTS REMOVED TO MEET TARGET WEIGHT:

- | | |
|--|--|
| 1. <u>X</u> Spare Tire, Jack, Jack Stand | 3. <u>X</u> Tail lamp hsg. <u> </u> Rt. Side <u>X</u> Left Side |
| 2. <u> </u> Rear Bumper Assembly | 4. <u>Rear Seats</u> |

TEST VEHICLE ATTITUDE:

As Delivered—Right Front = <u>26.9</u> inches;	Ready For Test—Right Front = <u>25.8</u> in.
Left Front = <u>27.1</u> inches	Left Front = <u>26.7</u> in.
Right Rear = <u>27.9</u> inches	Right Rear = <u>26.9</u> in.
Left Rear = <u>28.1</u> inches	Left Rear = <u>27.7</u> in.
Test Vehicle Wheelbase: <u>87.5</u> inches; C.G.= <u>33.9</u> inches rearward of front wheel centerline	

Total Vehicle Length:

Right Side = <u>173.3</u> inches
Left Side = <u>173.3</u> inches
Centerline = <u>175.5</u> inches

Data Table No. 2 Post Crash Test Data

DATE OF 35 MPH FRONTAL BARRIER IMPACT RATINGS TEST: 05/09/89

TIME OF TEST: 2:55 PM ; AMBIENT TEMPERATURE AT BARRIER FACE: 84 °F.

VEHICLE'S OCCUPANT COMPARTMENT TEMPERATURE: 71 °F. (Spec. Range + 66 to 78° F.)

VEHICLE'S WINDSHIELD HOLDING TEMPERATURE: 71 °F.

VEHICLE IMPACT VELOCITY: Primary Speed Trap = 34.99 mph

Secondary Speed Trap = 34.99 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 ft

(b) exiting the speed trap = 1 ft

VEHICLE STATIC CRUSH: (All measurements in inches)

Vehicle Pre-test Length— Right Side= 173.3 ; C/Line= 175.5 ; Left Side= 173.3"

Vehicle Post-test Length —Right Side= 158.8 ; C/Line= 157.8 ; Left Side= 159.0"

VEHICLE STATIC CRUSH ---- Right Side= 14.5 ; C/Line= 17.7 ; Left Side= 14.3"

VEHICLE REBOUND FROM BARRIER FACE:

Vehicle Right Side = 72.5 inches

Vehicle Centerline = 73.5 inches

Vehicle Left Side = 72.5 inches

VISIBLE DUMMY CONTACT POINTS:

	DRIVER (I.D. No. <u>465</u>)			PASSENGER (I.D. No. <u>466</u>)		
	Strg. Col. Hub	Strg. Wheel	Instru. Panel	Instru. Panel	Knee Assv.	Glove Box Door
HEAD - - - - -	YES	NO	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 - - - - -	NO	YES	NO	YES
REAR DOORS - - - - -	YES	NO	N/A	N/A

VEHICLE'S FRONT SEAT MOVEMENT DURING CRASH EVENT:

	RIGHT SIDE	LEFT SIDE
Seat Cushion Shift - - -	<u>0.0</u> "forward;	<u>0.0</u> "forward
Seat Adjuster Failure- -	<u>NONE</u> ;	<u>NONE</u>

Details Of Any Failure: N/A

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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/ MITSUBISHI/ WAGON/ 4-DOOR VAN

VEH. NHTSA NO.: MK5602 ; TEST DATE: 05/09/89

MAXIMUM ACCELERATION VALUES:		DRIVER DUMMY # 465	PASSENGER DUMMY # 466
Head Channel X	HEAD X	-85.729	-31.758
Head Channel Y	Y	-48.660	-14.876
Head Channel Z	Z	-39.076	-70.272
HEAD RESULTANT	R	104.010	73.830
Chest Channel X	CHEST X	-50.690	-50.623
Chest Channel Y	Y	-18.460	17.991
Chest Channel Z	Z	20.833	11.104
CHEST RESULTANT	R	48.840	50.710
TIME INTERVAL (seconds)		0.0511 - 0.0541	0.0559 - 0.0589

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	HIC	804.96	713.02
t_1 (seconds)		0.05960	0.06180
t_2 (seconds)		0.08530	0.09780
Avg. Accel. t_1 to t_2		62.75	52.29

MAXIMUM FEMUR FORCES:

Right Side (lbs.)	FR	1607.00	791.02
Left Side (lbs.)	FL	1567.80	1426.50

MAXIMUM SEAT BELT FORCES:

Lap Belt	LAP	1426.10	1578.00
Shoulder Belt	SHLDR	1972.30	2163.60

MAXIMUM SEAT BELT WEBBING SPOOL-OUT:

Lap/Shoulder Belt Combination (in.)	2.04	1.80
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Data Table No. 4 Test Dummy Positioning Data

PRE-IMPACT DATA:

Make/Model: MITSUBISHI/ WAGON
 Body Style: 4-DOOR VAN Model Year: 89
 NHTSA No.: MK5602 Color: WHITE

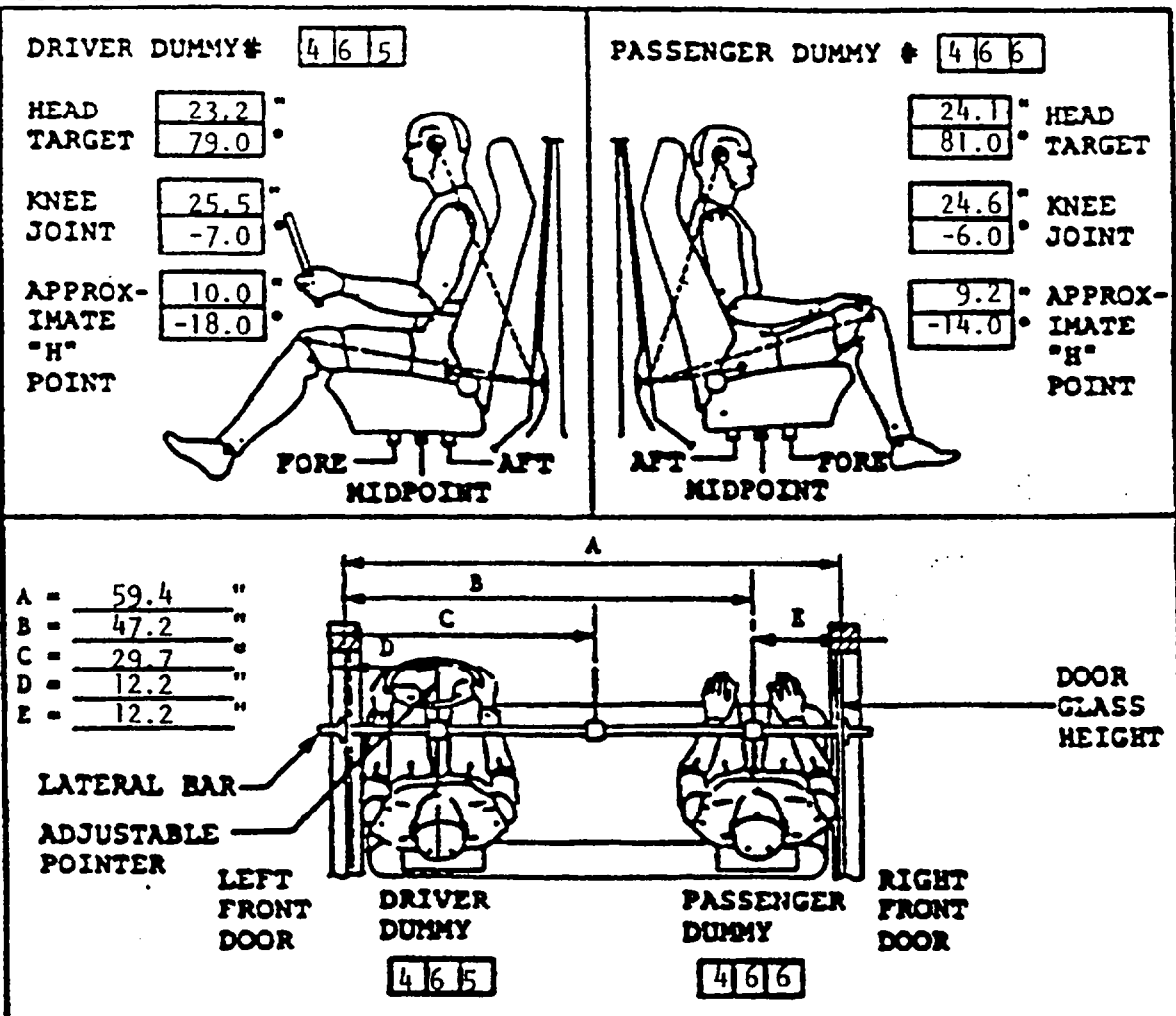
DATA FROM CERTIFICATION LABEL:

Vehicle Manufacturer: MITSUBISHI
 Date of Manufacture: 12/88 ; VIN: JA4FN44W2KA000672
 GVWR: 4861 lb; GAWR: Front = 2465 lb; Rear = 2524 lb

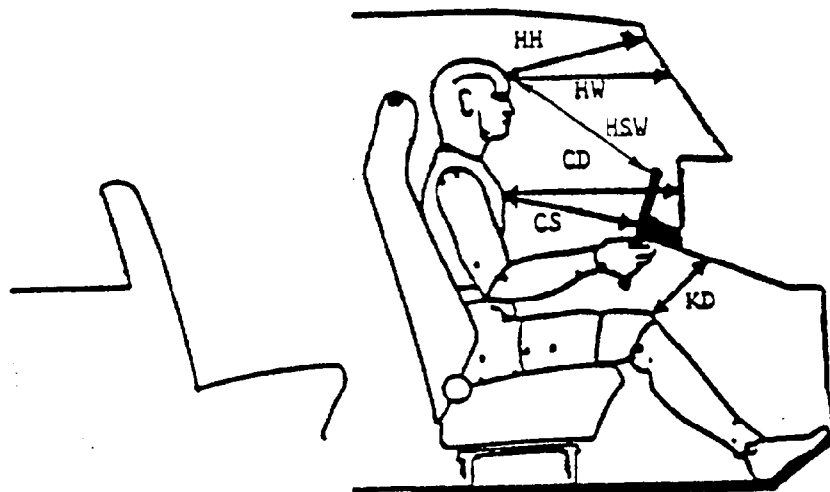
POST-IMPACT DATA:

Date of Test: 05/09/89 Time: 2:55 PM Temperature 84 °F
 Required Impact Velocity Range: 34.5 to 35.5 mph
 Impact Velocity: Primary = 34.99 mph Secondary = 34.99 mph
 Seat Type: BUCKET Adjuster Type: YES/LEVER
 Bucket Seat Back Type: HEADREST

Technicians:



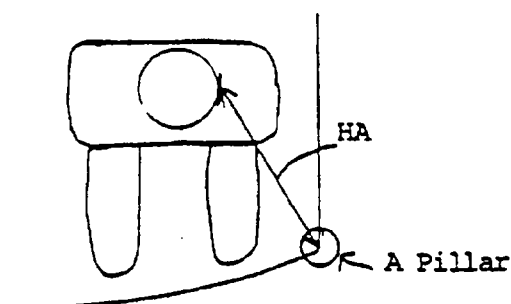
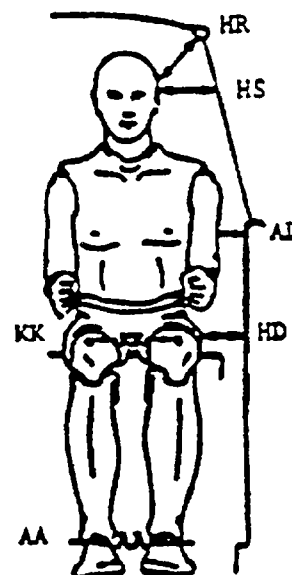
Data Table No. 4 (Cont'd) Test Dummy Positioning Data



	Driver	Passenger
HH	17.5	20.2
HW	21.0	23.3
CD	24.5	27.3
CS	15.5	N/A
KD L-	8.3	L- 9.4
KD R-	8.2	R- 9.6
Torso Angle	19	Torso Angle 18
Seat Back Angle	21.5	Seat Back Angle 21.5
HSW	25	N/A

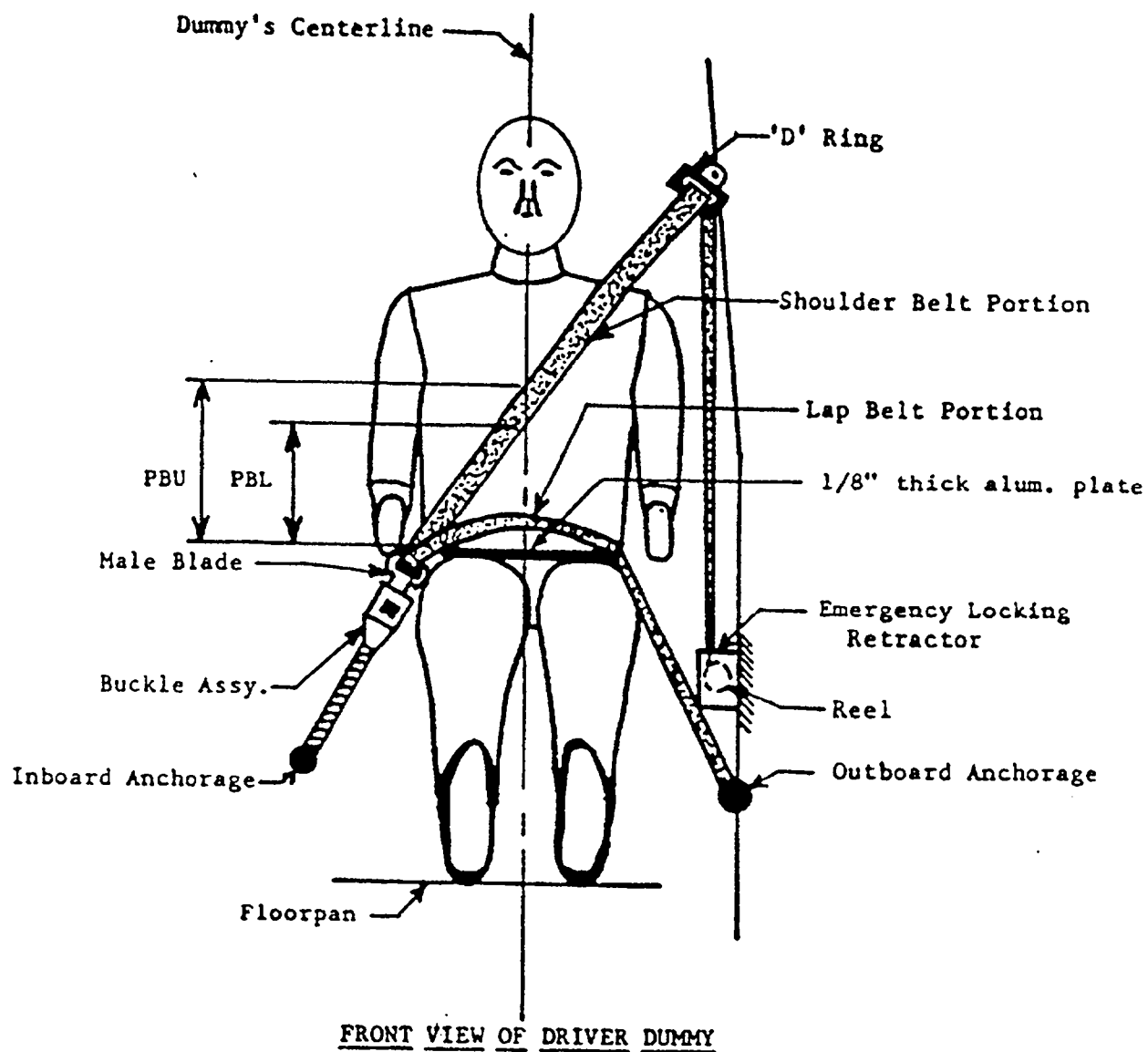
HSW = Head to Steering Wheel (in.)
 HA = Head Target to A pillar (in.)
 HH = Head to Windshield Header (in.)
 HW = Head to Windshield (in.)
 CD = Chest to Dash (in.)
 CS = Chest to Steering Wheel Hub (in.)
 KD = Knees to Dash (in.)
 HR = Head to Side Roof (in.)
 HS = Head to Side Window (in.)
 AD = Arm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

REMARKS:



	Driver	Passenger
HR	6.7	5.4
HS	7.5	7.1
AD	2.3	4.5
HD	5.5	4.0
KK	14.5	14.0
AA	15.5	12.5
HA	23.5	24.7

Data Table No. 5 Seat Belt Positioning Data



	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
<u>PBU</u> --Top surface of alum. plate to belt upper edge	13.3	13.5
<u>PBL</u> --Top surface of alum. plate to belt lower edge	9.8	10.0
<u>LAP BELT TENSION, POUNDS</u>	3.0	3.0
<u>SHOULDER BELT TENSION, POUNDS</u>	3.0	3.0

Data Table No. 6 Seat Belt Performance Assessment Test Data

BELT LENGTH DATA:

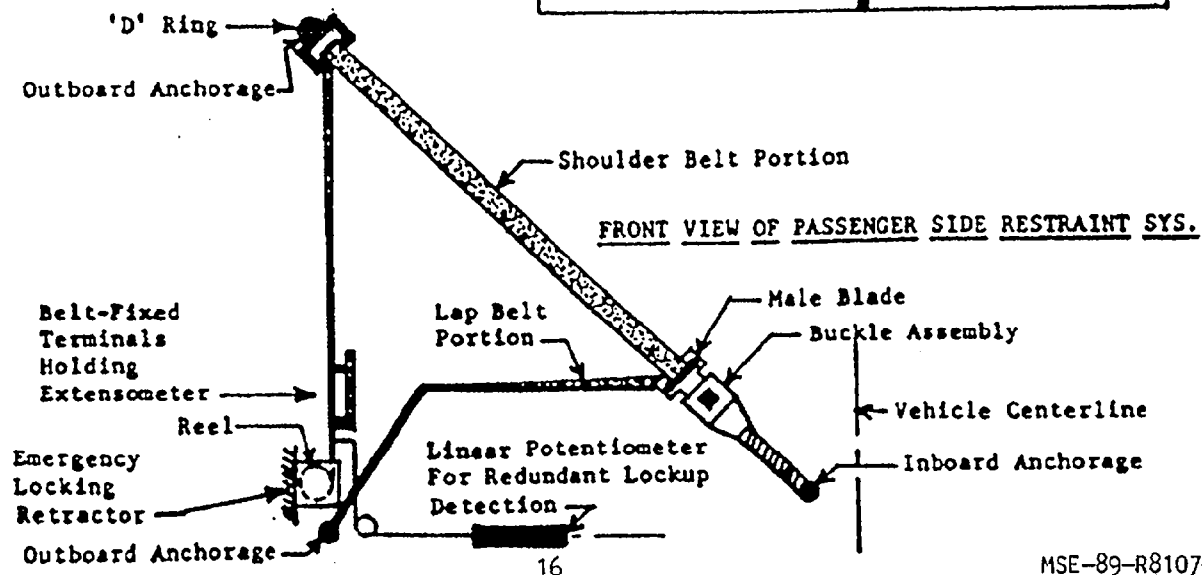
	DRIVER SIDE		PASSENGER SIDE	
	PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
Total Belt Length from retractor reel to bolt hole anchor point for continuous webbing systems	63.3	72.0	70.2	71.0
Retractor reel to 'D' ring as measured on Part 572 dummy	14.8	14.5	15.5	15.5
Shoulder belt length as measured on Part 572 dummy	22.5	32.0	30.2	29.5
Lap belt length as measured on Part 572 dummy	26.0	25.5	24.5	26.0
Remainder of belt webbing left on retractor reel	28.0	19.3	30.1	29.3

BELT SPOOL-OFF DATA:

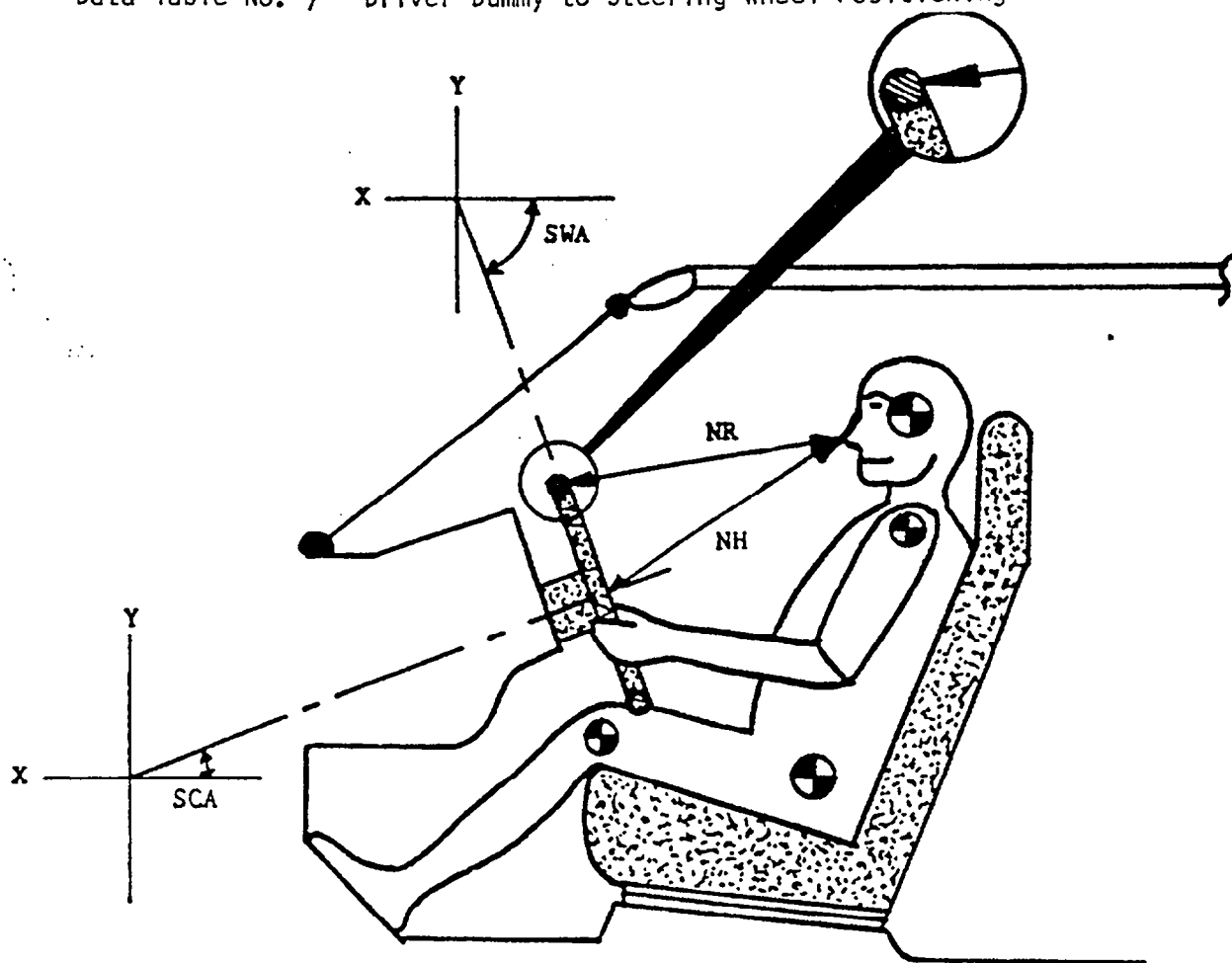
As determined by film analysis	1.5	1.9
As determined electronically	2.0	1.8
As determined mechanically	2.4	4.0

BELT STRAIN DATA:

Measured between retractor reel and 'D' ring	4.8 PERCENT	1.6 PERCENT
--	-------------	-------------



Data Table No. 7 Driver Dummy to Steering Wheel Positioning



LEFT SIDE VIEW

MEASUREMENTS		
<u>NR</u> --Distance from tip of dummy's nose to Top Rear surface of steering wheel rim	23.0	Inches
<u>NH</u> --Distance from tip of dummy's nose to center of steering column hub	21.0	Inches
<u>SCA</u> --Angle of steering column relative to the horizontal X axis	39.0	Degrees
<u>SWA</u> --Angle of steering wheel relative to the horizontal X axis.	61.0	Degrees

Data Table No. 8 Camera Location Data

VEH. NHTSA NO.: MK5602 ; TEST DATE: 05/09/98 ; TIME: 2:55 PM

VEH. YEAR/MAKE/MODEL/BODY STYLE: 1989/ MITSUBISHI/ WAGON/ 4-DOOR VAN

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	689	15-70 zoom	24
2	Right Side View	256	54	56	3	237	13	450
3	Left Side View	-345	51	38	0	326	16	500
4	Overhead	-1	-4	124	75	91	13	600
5	Pit-Engine	2	-42	-54	40	----	13	650
6	Pit-Fuel Tank	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.
7	Front-Passenger	13	-14	104	60	88	16	N.A.
8	Front-Driver	-12	-14	104	57	85	16	600
9	Left Side-Driver	-102	83	80	18	88	16	600
10	Right Side-Passenger	97	88	82	15	83	16	600
11	Right Side-'A' Post	170	17	53	-3	158	28	600
12	Left Side-'A' Post	-358	-24	48	0	340	50	600
13	Onboard-Left Side	10	99	31	20	51	13	400
14	Onboard-Right Side	-13	99	31	22	48	13	700
15	Left Side-Steering Col.	-475	84	127	9	460	28	600
16	Left Side-Steering Col.	-474	82	109	12	457	88	600
17	Right Side-Passenger	137	74	60	13	119	16	600

**PIT ENGINE CAMERA USES REFRACTOR MIRROR FOR FILM IMAGERY

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

TOP VIEW

High-Speed Right Side View
2

High-Speed Passenger Coverage
17

Right 'A' Post High-Speed
11

High-Speed Passenger Coverage
10

Pass. Side High-Speed
7

High-Speed Driver Side
8

Overhead Strg. Col. Motion Targets

Overhead Camera Boom

Left 'A' Post High-Speed
12

High-Speed Driver Coverage
9

High-Speed Left Side View
3

Real-Time Left Side View
1

High-Speed On Veh. C/L
4

ONBOARD SEAT BELT SPOOL-OUT COVERAGE

Right Onboard High-Speed
14

Left Onboard High-Speed
13

BOTH STEERING COLLISION MOVEMENT CAMERAS are high-speed and placed one on top of the other - not side-by-side

CONCRETE PAD

Umbilical Cable

Cable Support

TOW ROAD

Steel Grating Over Pit Area

Lateral Guidance Dolly

Monorail

NOTE: CAMERA FRAME RATES
#1 - 24 fps
#2 thru #17 - 500 fps

LEFT SIDE VIEW

Barrier Mount
Barrier Face Extension Above Load Cell Assy.
Load Cell Assembly

"Time-Zero" Indicator Lights (2)

Photographic Target

Vehicle's Fuel Tank

"Time-Zero" Indicator

Belt Retractor Unit

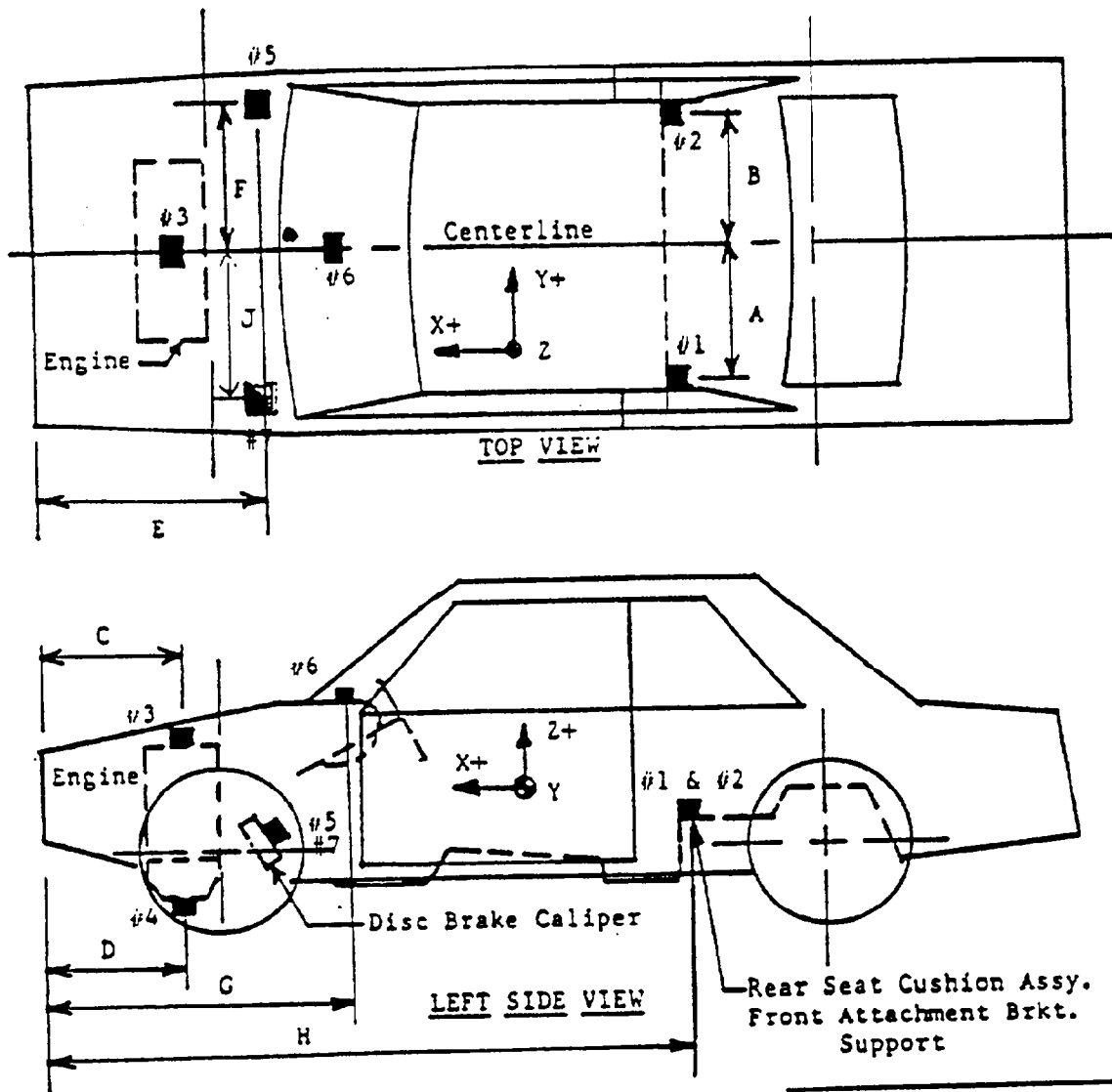
Engine Compartment High-Speed
5

"Time-Zero" Indicator (placed near engine oil pan)

PHOTOGRAPHIC PIT

NOTE: Roof Light placed on veh. centerline behind photo targets for strg. col. motion assessment

Data Table No. 9 Vehicle Accelerometer Location and Data Summary

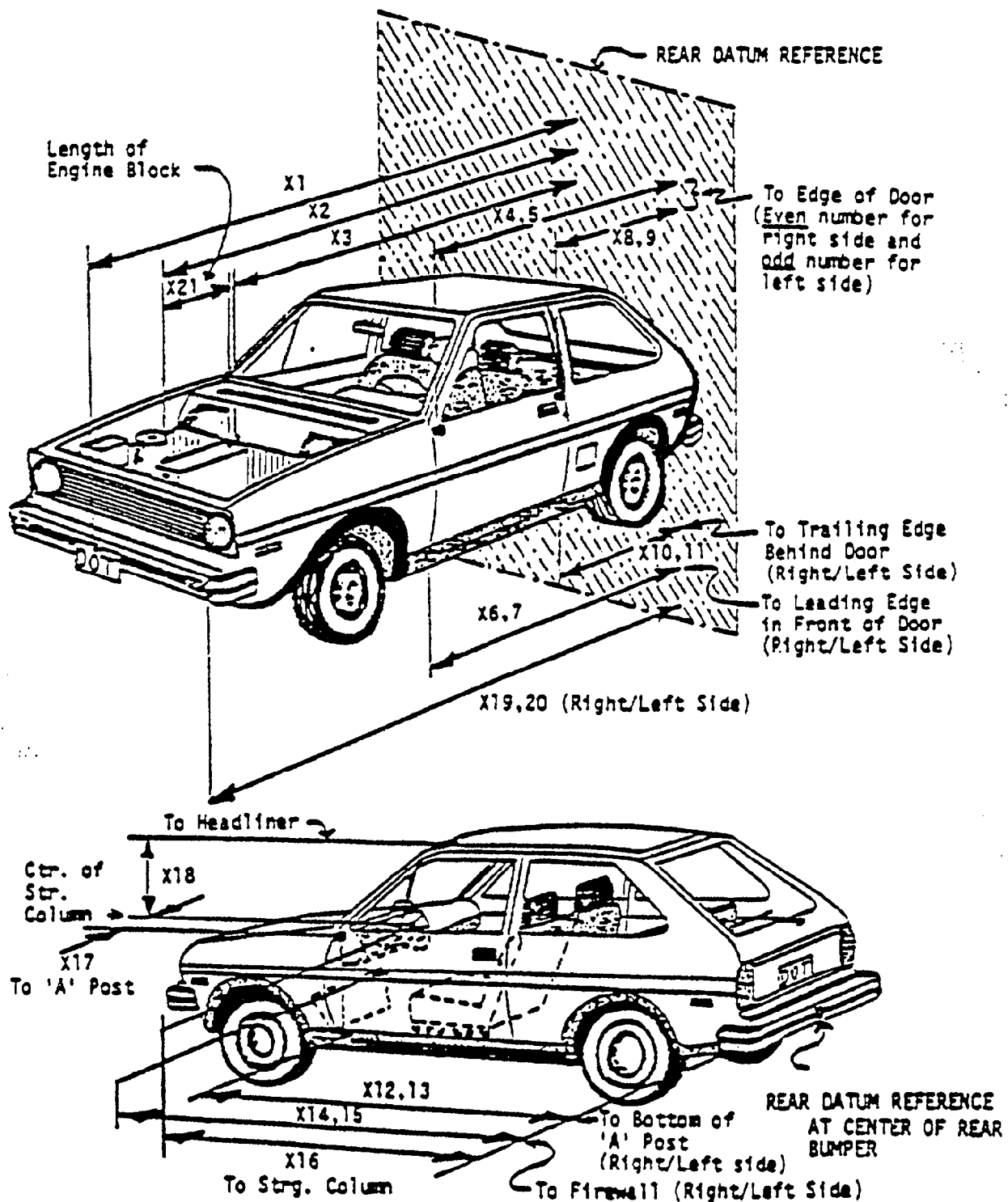


Dimension	Length (in.)
A	25.0
B	22.5
C	58.5
D	57.0
E	55.0
F	22.5
G	25.5
H	110.0
J	22.5

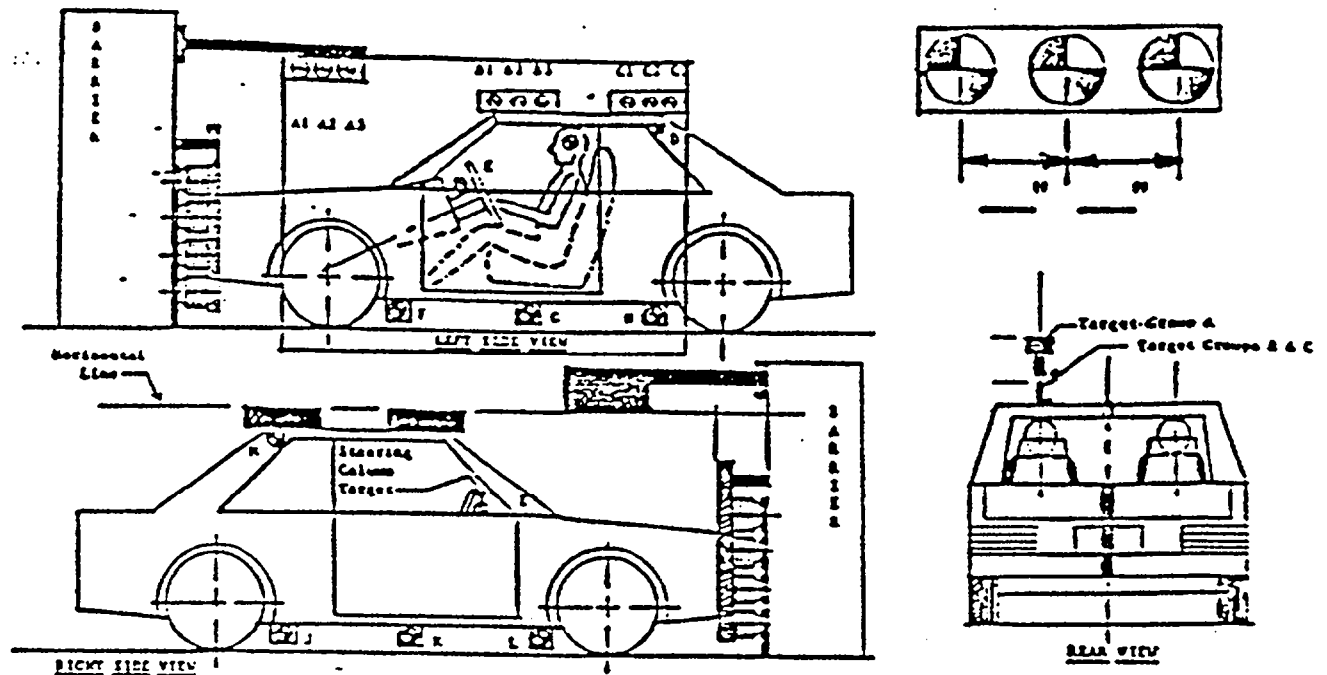
Loc. No.	Description	Maximum Value			
		X-	msec.	X+	msec.
1	Rear seat X-member @ Left Side	-43.9	29.0	8.7	131.3
2	Rear seat X-member @ Right Side	-49.0	5.5	2.5	152.9
3	Top of Engine Block	-40.6	22.3	4.5	106.4
4	Bottom of Engine	-44.7	18.5	4.1	151.7
5	Disc Brake Caliper @ Right Side	-45.5	39.5	6.7	143.4
6	Instrument Panel	-130.2	30.3	88.4	47.0
7	Disc Brake Caliper @ Left Side	-46.9	29.9	4.3	77.1

NO.	MEASUREMENT DESCRIPTION:	Pre-Test (in.)	Post-Test (in.)	Diff. (in.)
X1	Total Length of Test Vehicle at Centerline	175.5	157.8	17.7
X2	Rear Surface of Vehicle to Front of Engine	122.0	122.0	0.0
X3	Rear Surface of Vehicle to Firewall	102.0	102.0	0.0
X4	Rear Surface to Upr. Leading Edge of Right Door	156.5	152.3	4.2
X5	Rear Surface to Upr. Leading Edge of Left Door	156.5	153.0	3.5
X6	Rear Surface to Lwr. Leading Edge of Right Door	156.3	152.3	4.0
X7	Rear Surface to Lwr. Leading Edge of Left Door	156.3	152.5	3.8
X8	Rear Surface to Upr. Trailing Edge of Right Door	109.3	106.3	3.0
X9	Rear Surface to Upr. Trailing Edge of Left Door	109.3	106.8	2.5
X10	Rear Surface to Lwr. Trailing Edge of Right Door	108.9	106.3	2.6
X11	Rear Surface to Lwr. Trailing Edge of Left Door	108.9	106.5	2.4
X12	Rear Surface to Bottom of 'A' Post on Right Side	155.8	151.3	4.5
X13	Rear Surface to Bottom of 'A' Post on Left Side	155.8	151.0	4.8
X14	Rear Surface to Firewall on Right Side	102.0	102.0	0.0
X15	Rear Surface to Firewall on Left Side	102.0	102.0	0.0
X16	Rear Surface to Steering Column	138.0	134.0	4.0
X17	Center of Steering Column to 'A' Post	15.0	12.5	2.5
X18	Center of Steering Column to Headlining	22.4	20.5	1.9
X19	Rear Surface to Right Side of Front Bumper	173.3	158.8	14.5
X20	Rear Surface to Left Side of Front Bumper	173.3	159.0	14.3
X21	Length of Engine Block	17.0	17.0	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	26.0	21.0	86.0
A2	30.0	21.0	86.0
A3	34.0	21.0	86.0

VEHICLE TARGETS	'X' From Imag. Barrier Face Vertical Plane	'Y' From Vehicle C/L	'Z' Above Ground
B1	38.0	16.8	71.0
B2	42.0	16.8	71.0
B3	46.0	16.8	71.0
C1	152.5	16.8	73.2
C2	156.5	16.8	73.2
C3	160.5	16.8	73.2
D	157.2	27.8	63.8
E	31.0	16.8	44.5
F	66.3	30.4	8.8
G	92.3	30.4	9.2
H	118.4	30.4	9.8
J	118.4	30.4	9.1
K	92.2	30.4	8.3
L	66.0	30.4	7.9
M	157.2	27.8	63.6

NOTE: Diameter of all photo targets is 4".

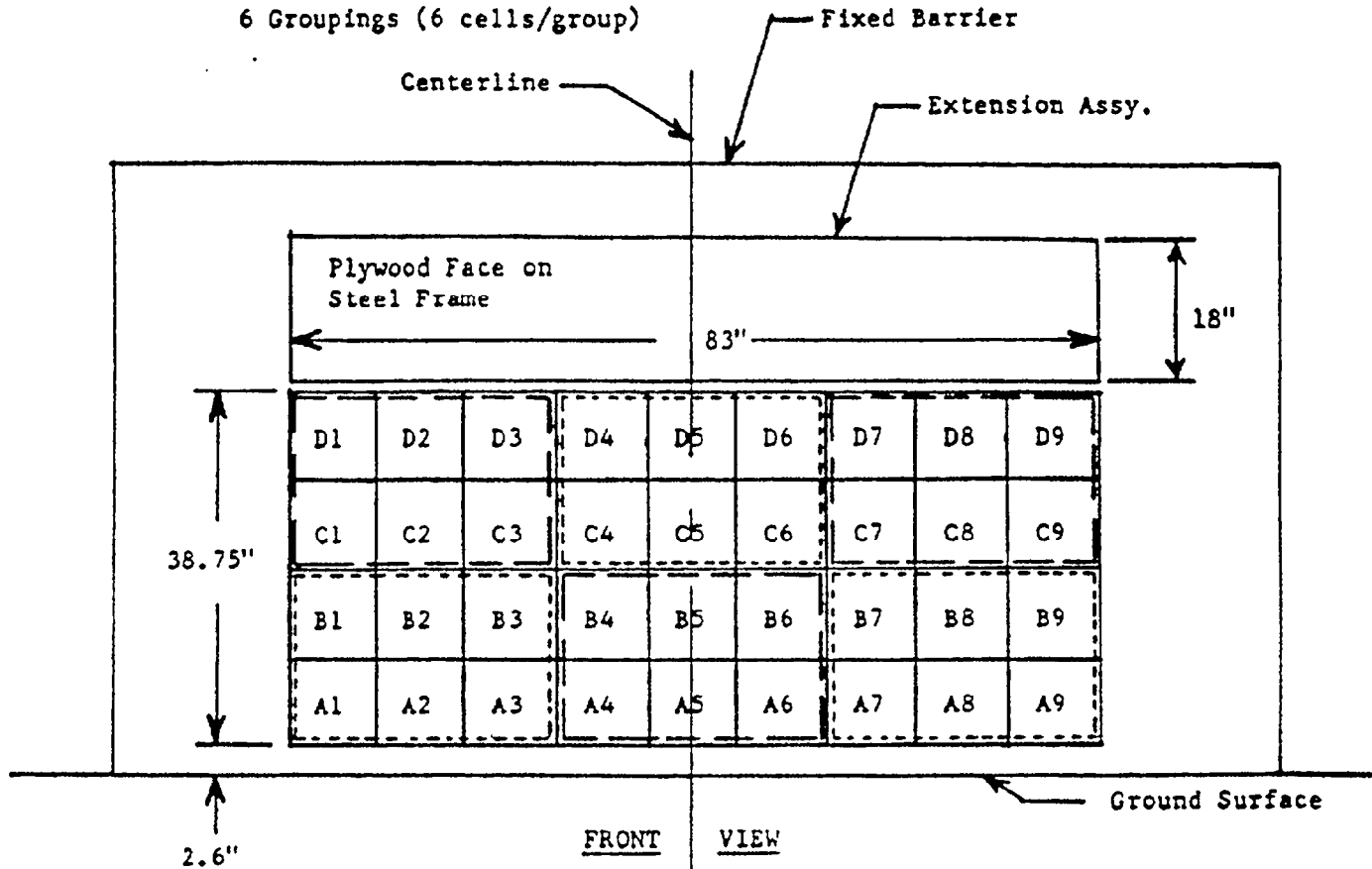
Data Table No. 12 Load Cell Locations on Fixed Barrier

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)

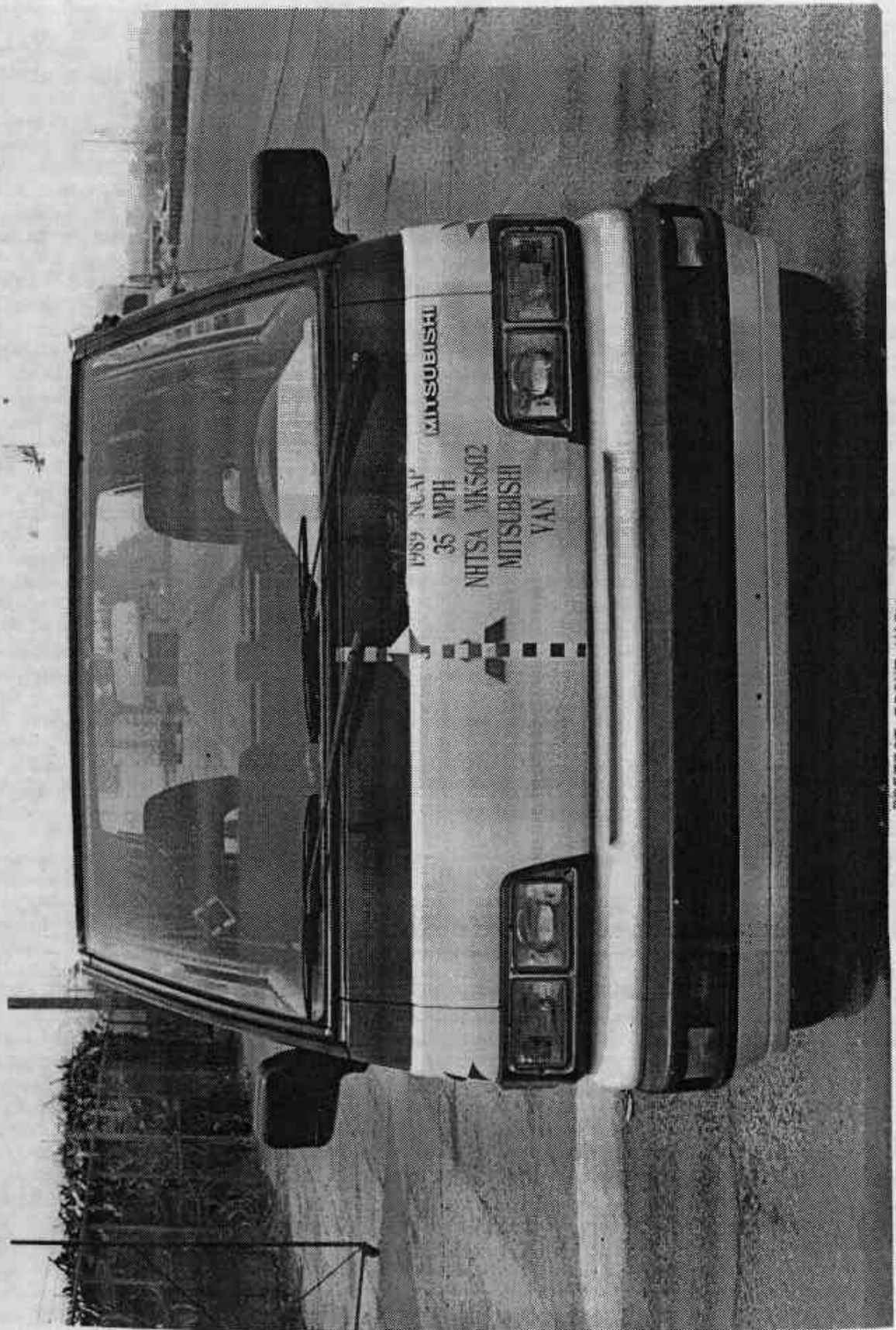
APPENDIX A

PHOTOGRAPHS

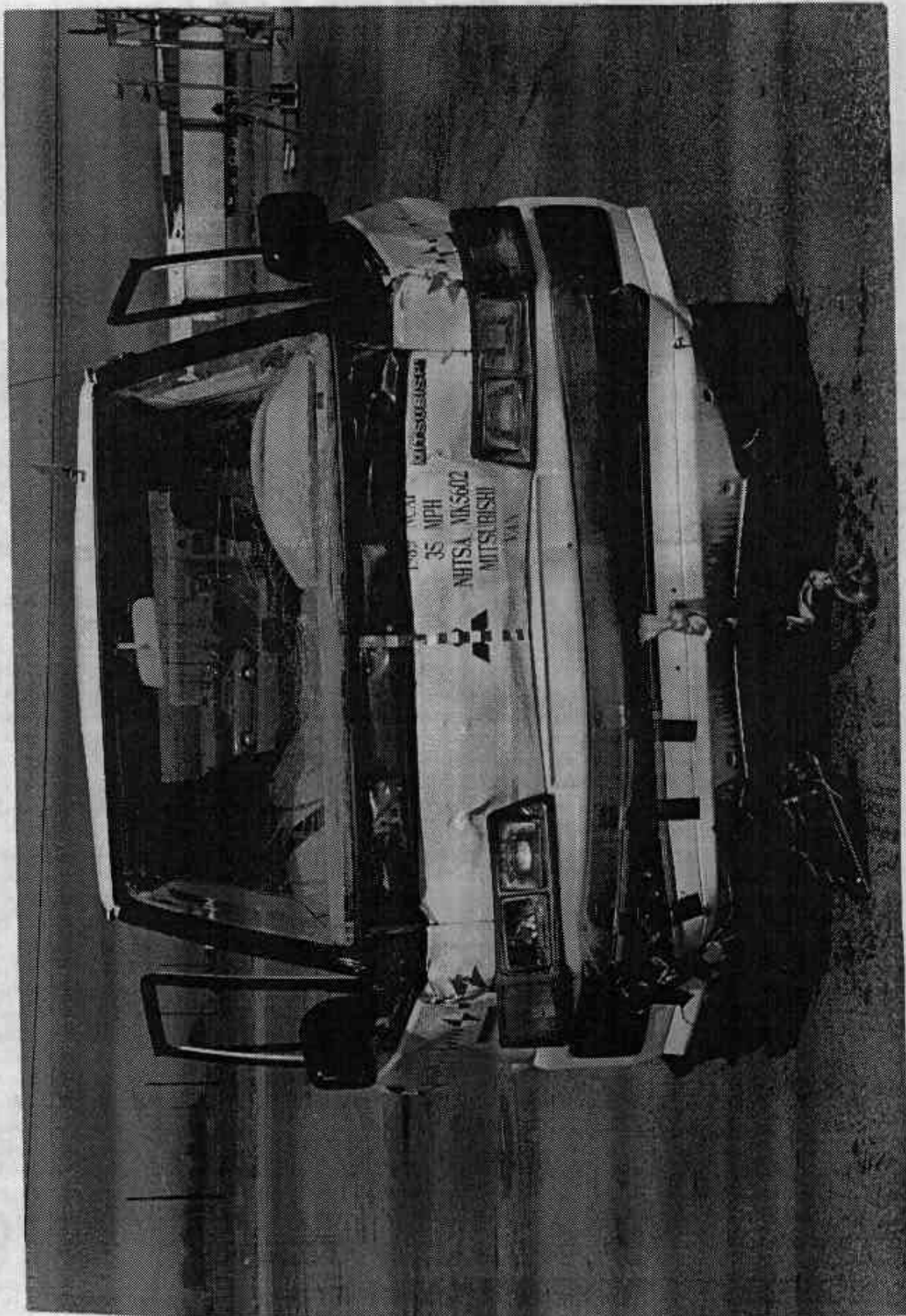
●

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/KNEE CONTACT

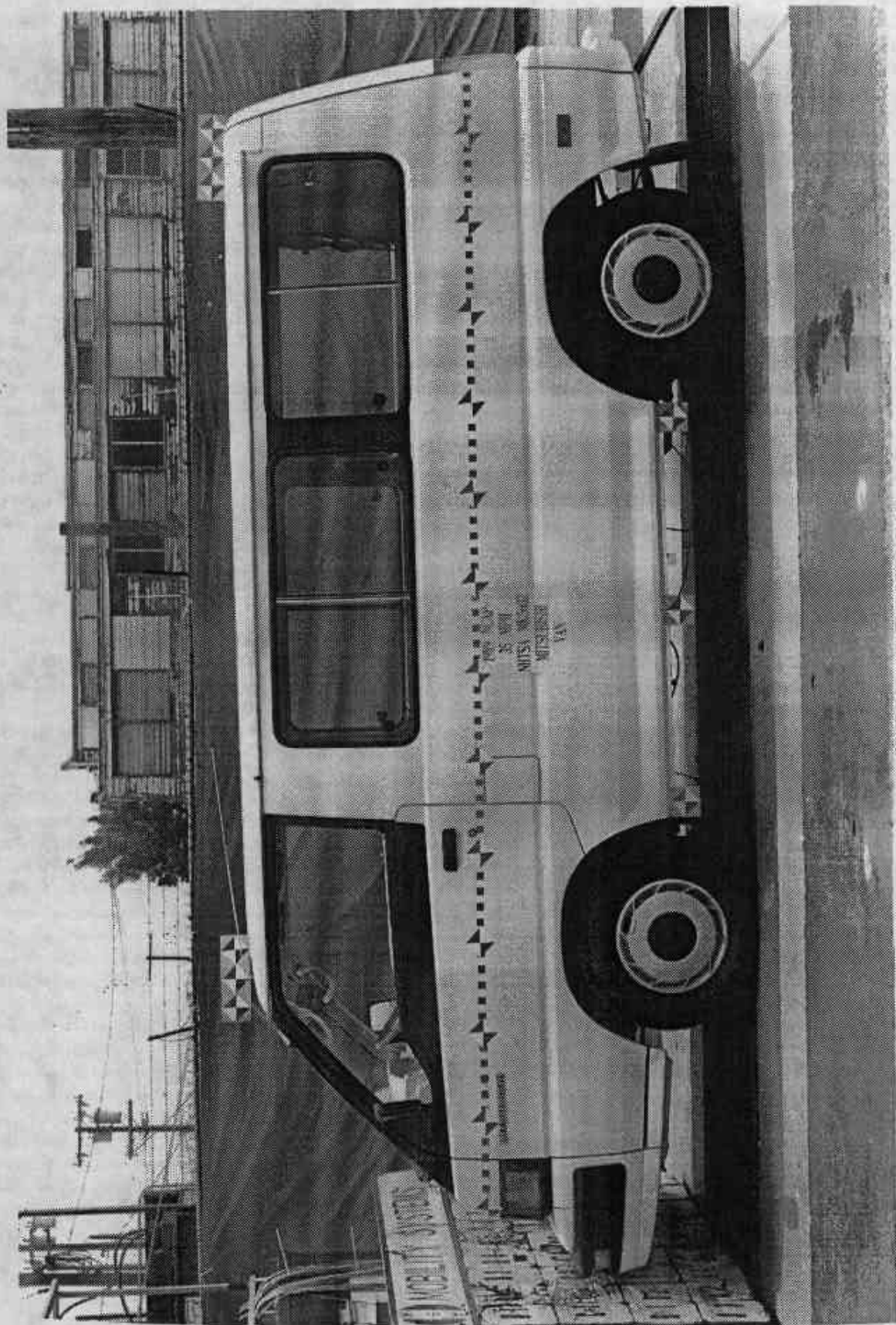
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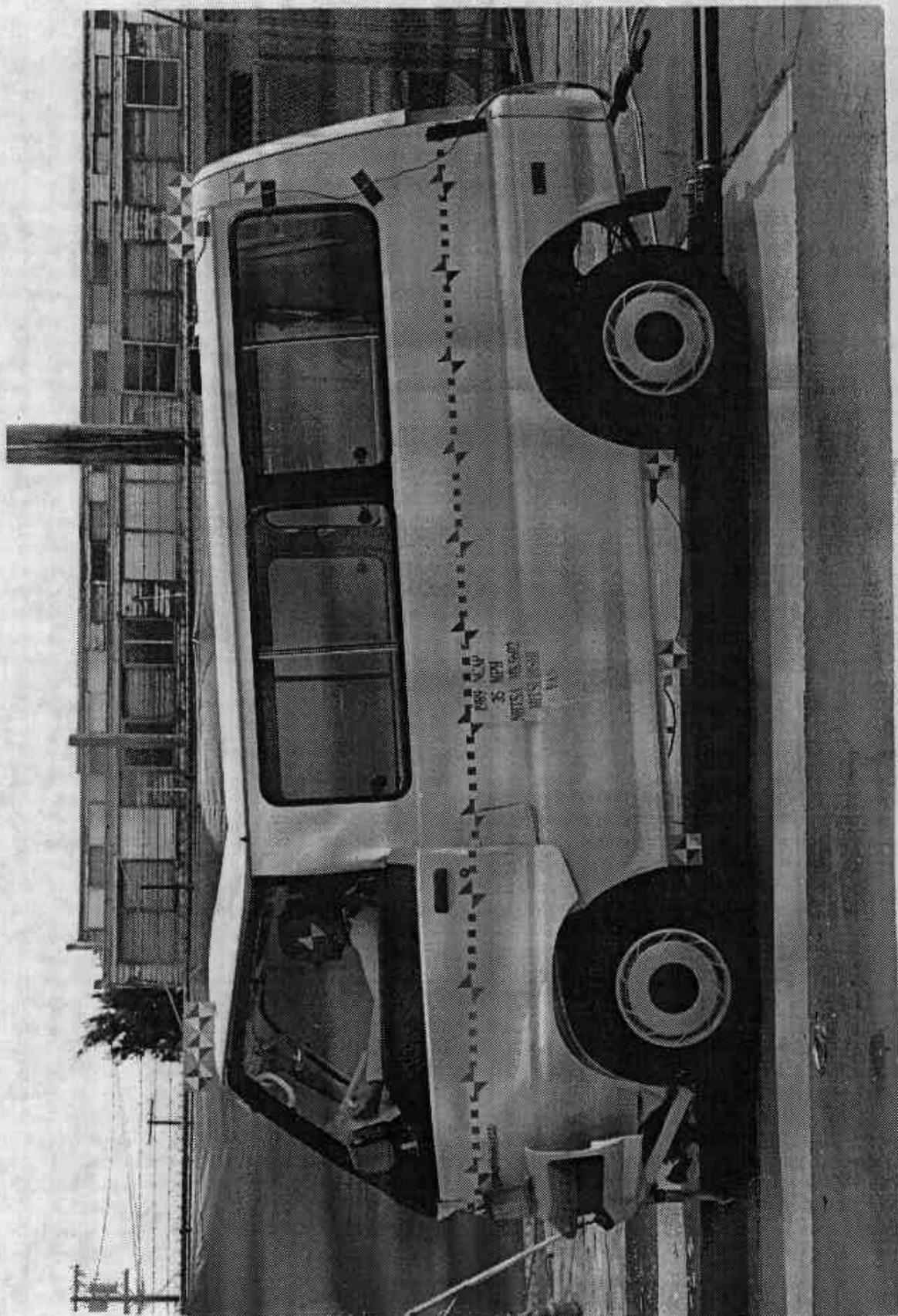
PRETEST FRONT VIEW



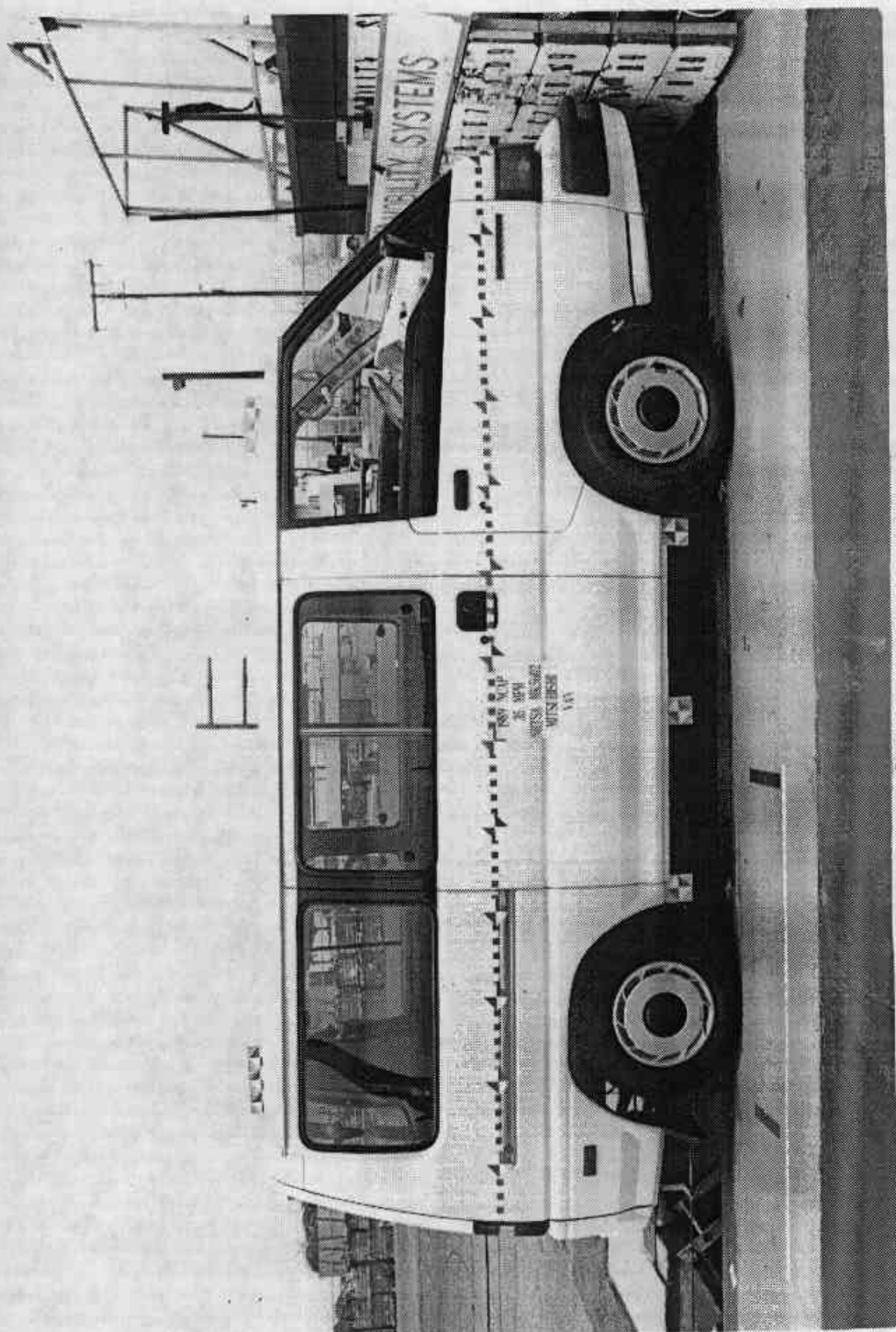
POSTTEST FRONT VIEW



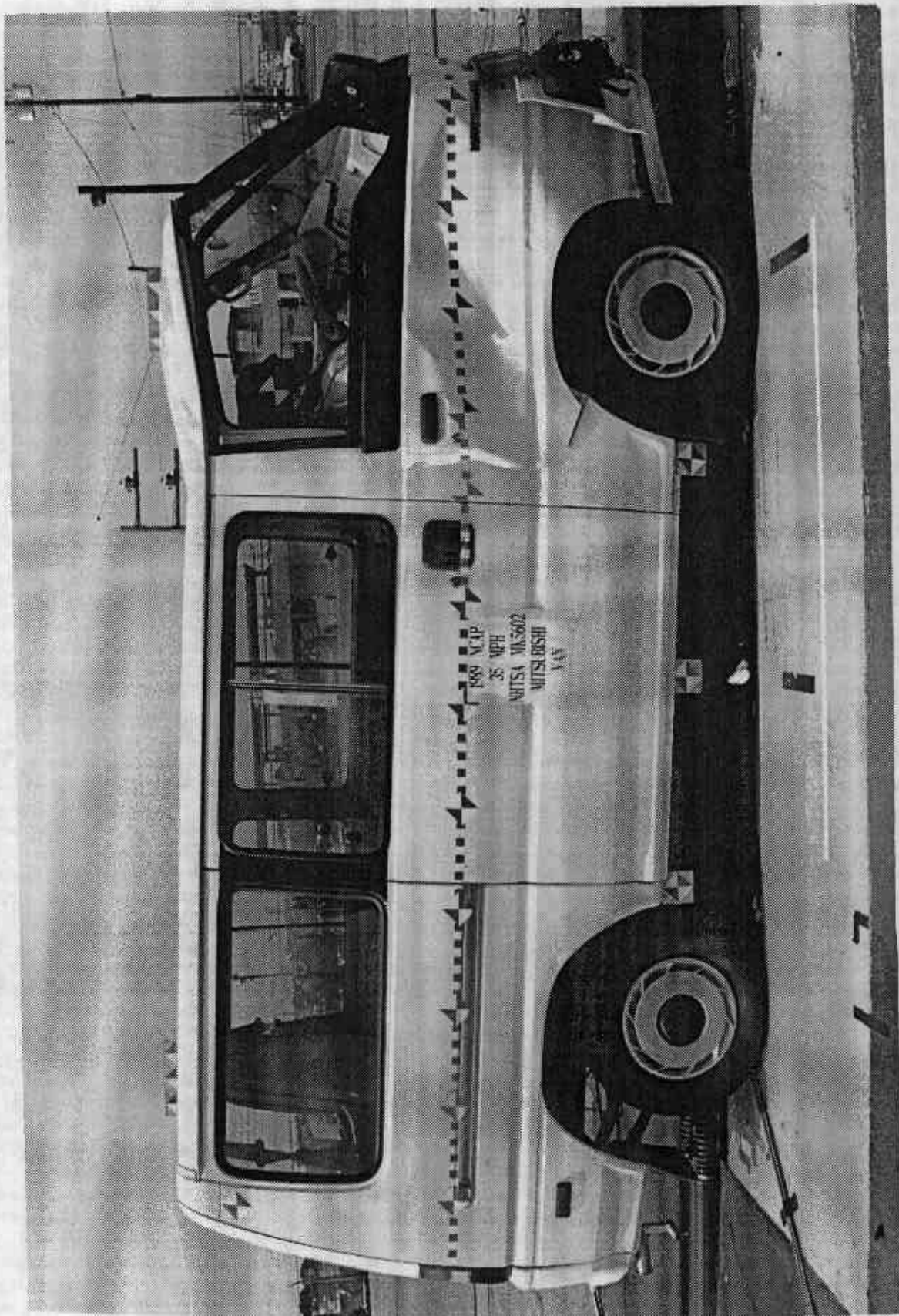
PRETEST LEFT SIDE VIEW



POSTTEST LEFT SIDE VIEW



PRETEST RIGHT SIDE VIEW



POSTTEST RIGHT SIDE VIEW



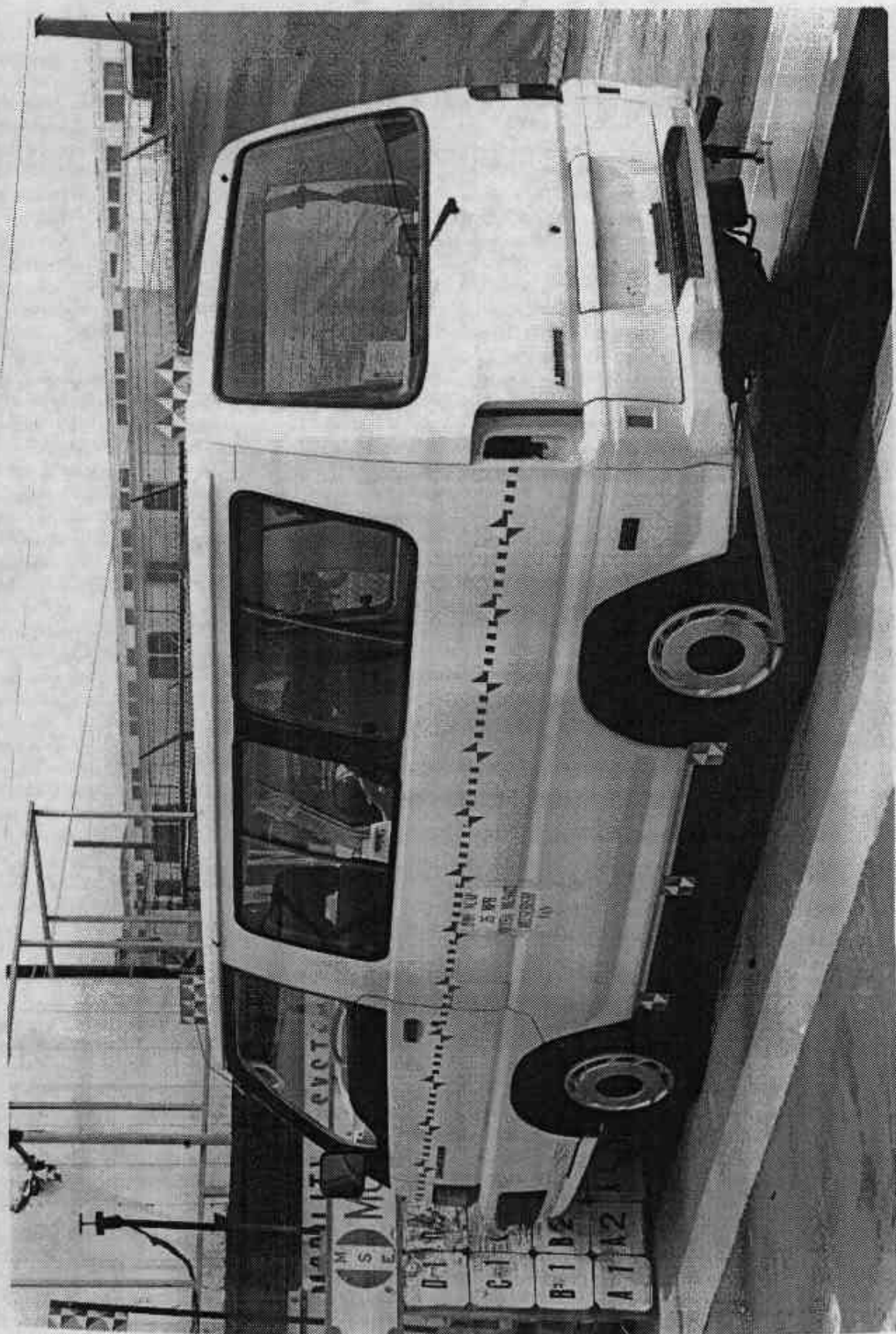
PRETEST RIGHT FRONT 3/4 VIEW



POSTTEST RIGHT FRONT 3/4 VIEW

A-8

MSE-89-R8107-N09



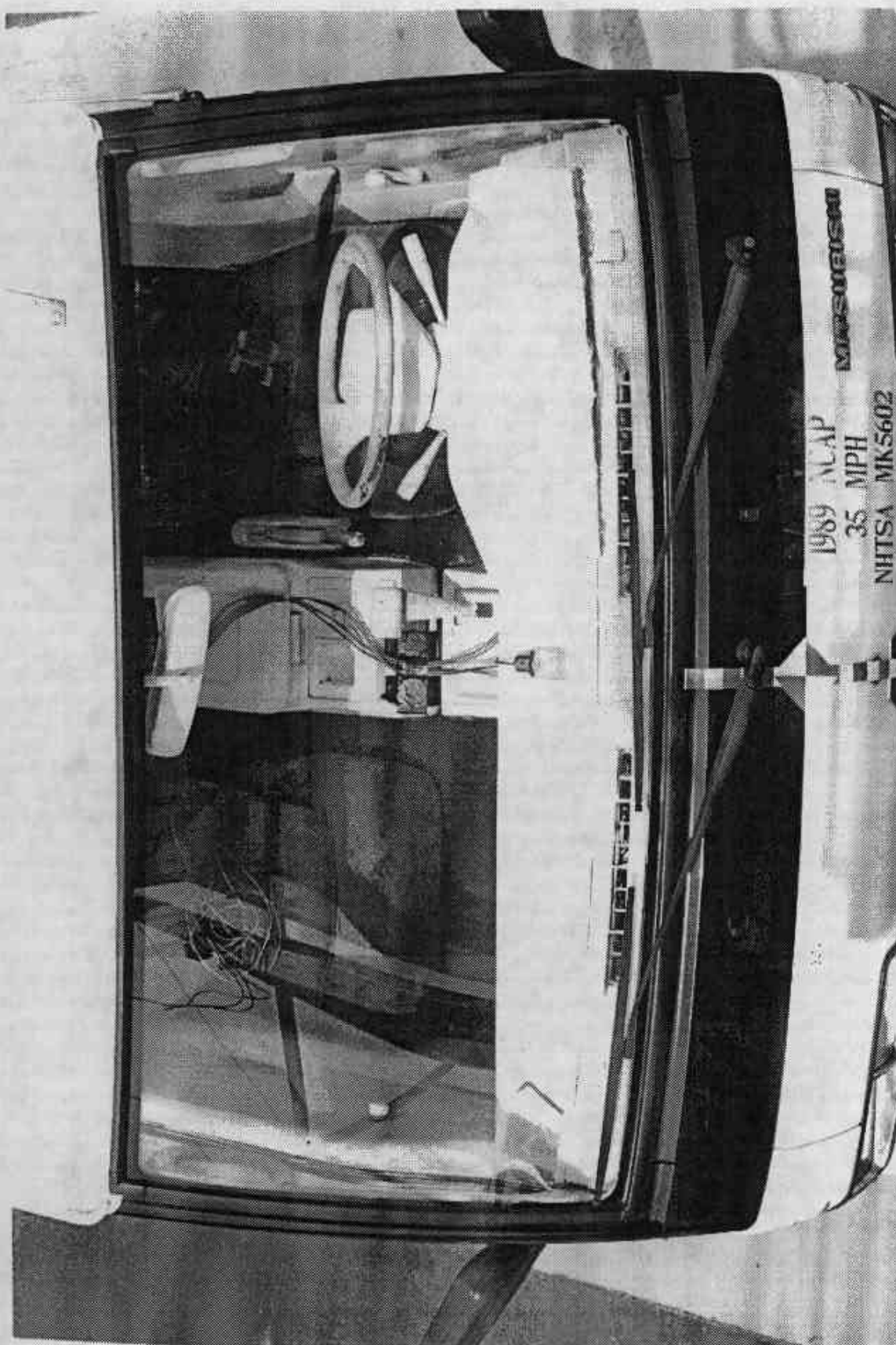
PRETEST LEFT REAR 3/4 VIEW



POSTTEST LEFT REAR 3/4 VIEW

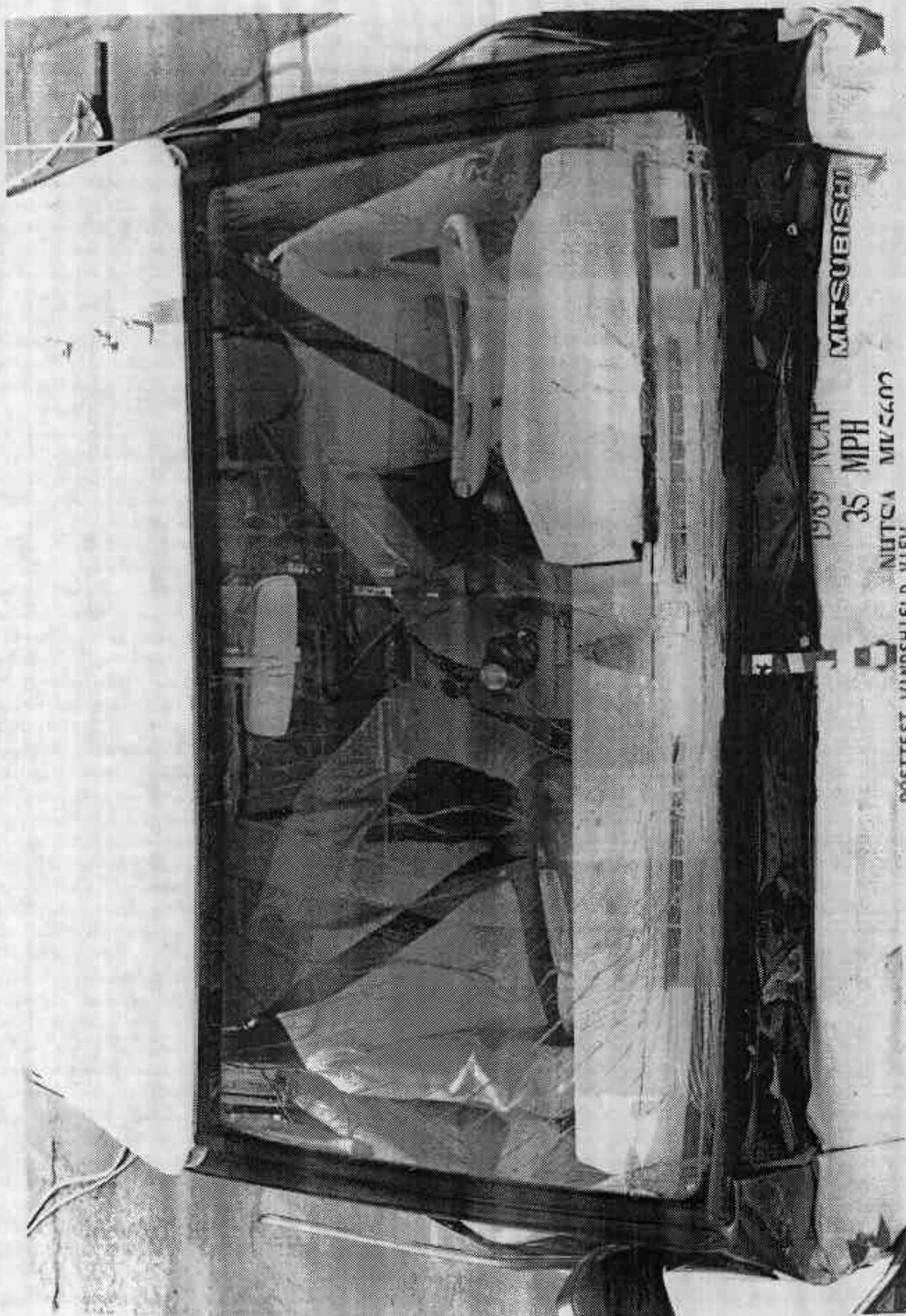
A-10

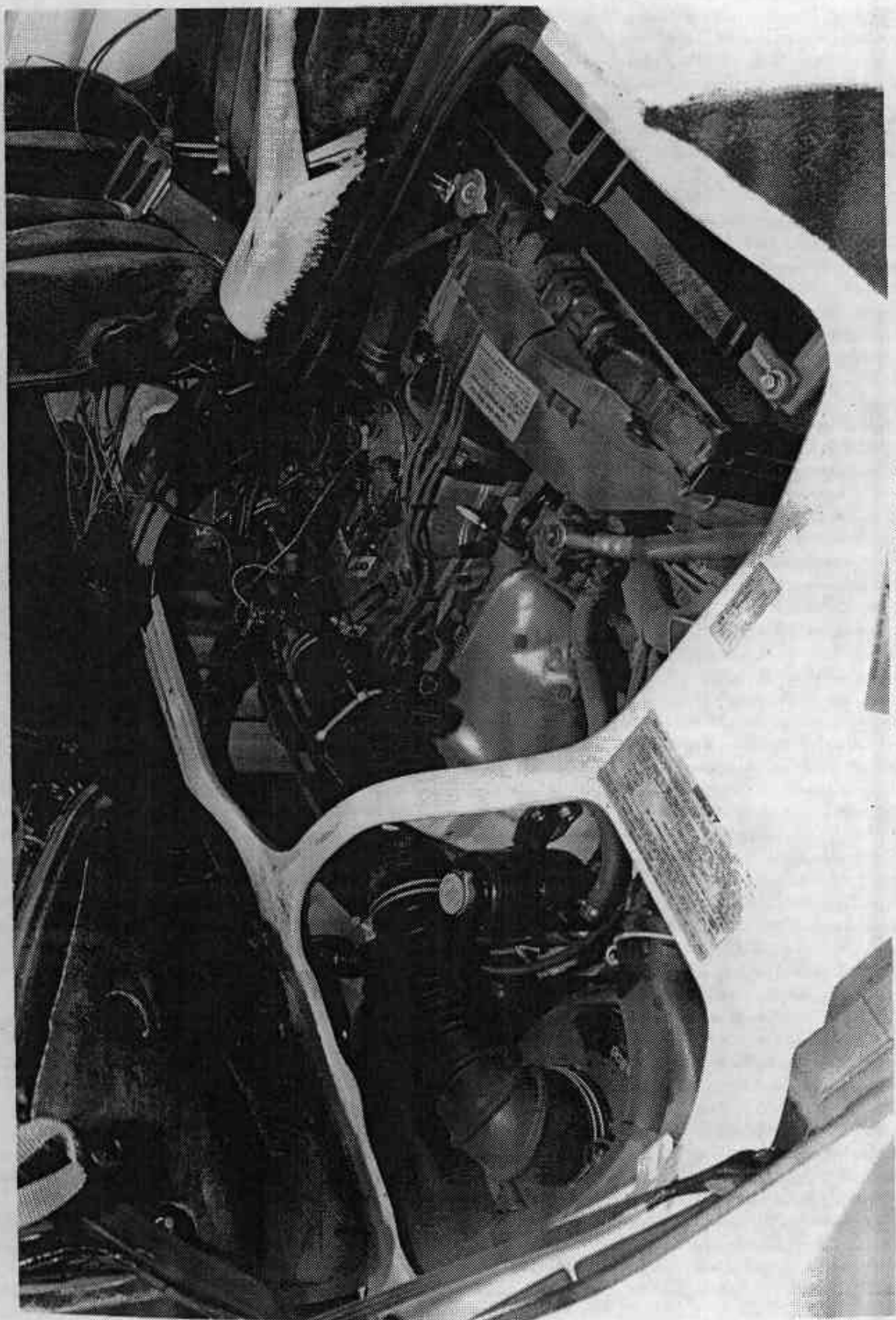
MSE-89-R8107-N09



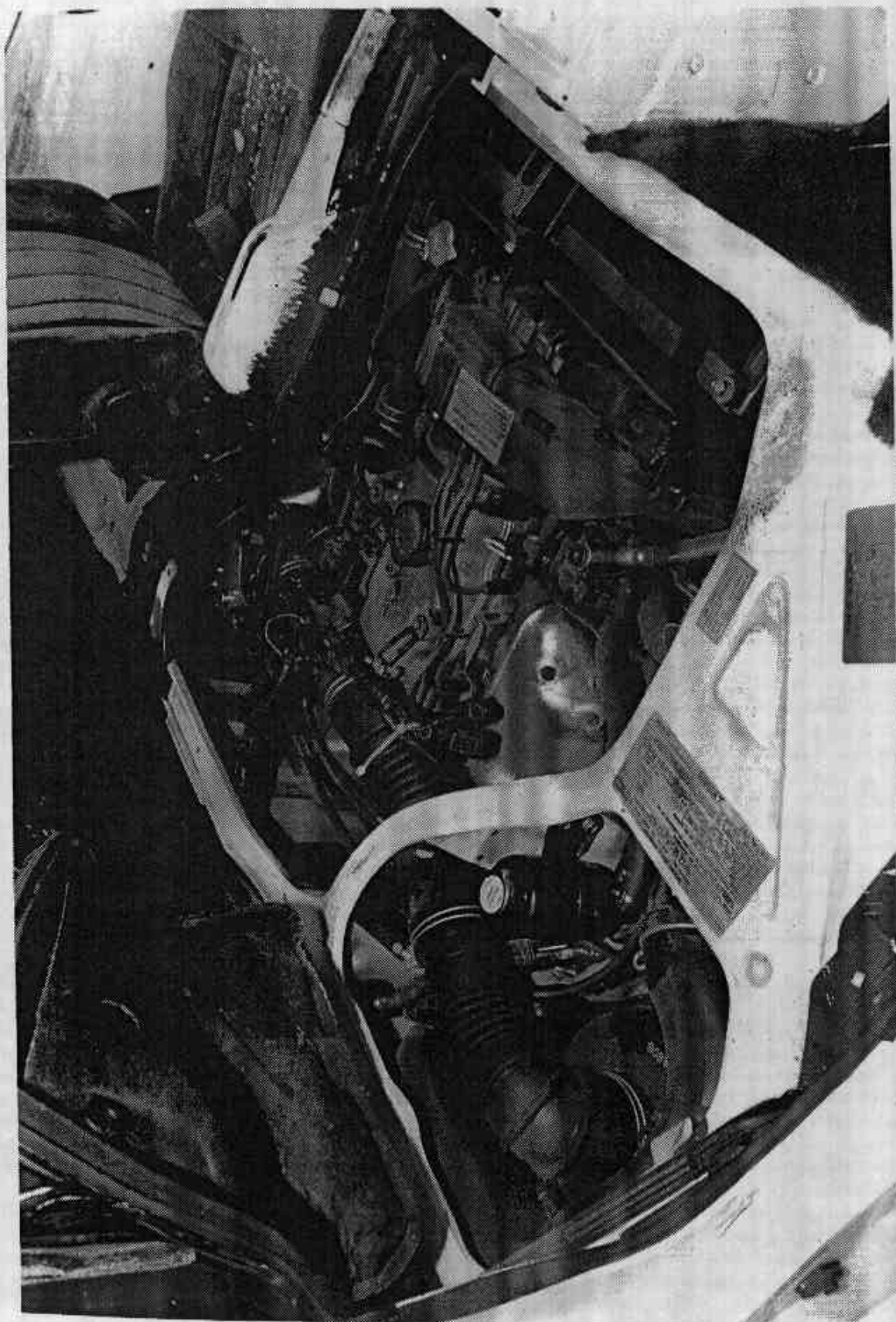
A-11

MSE-89-R8107-N09





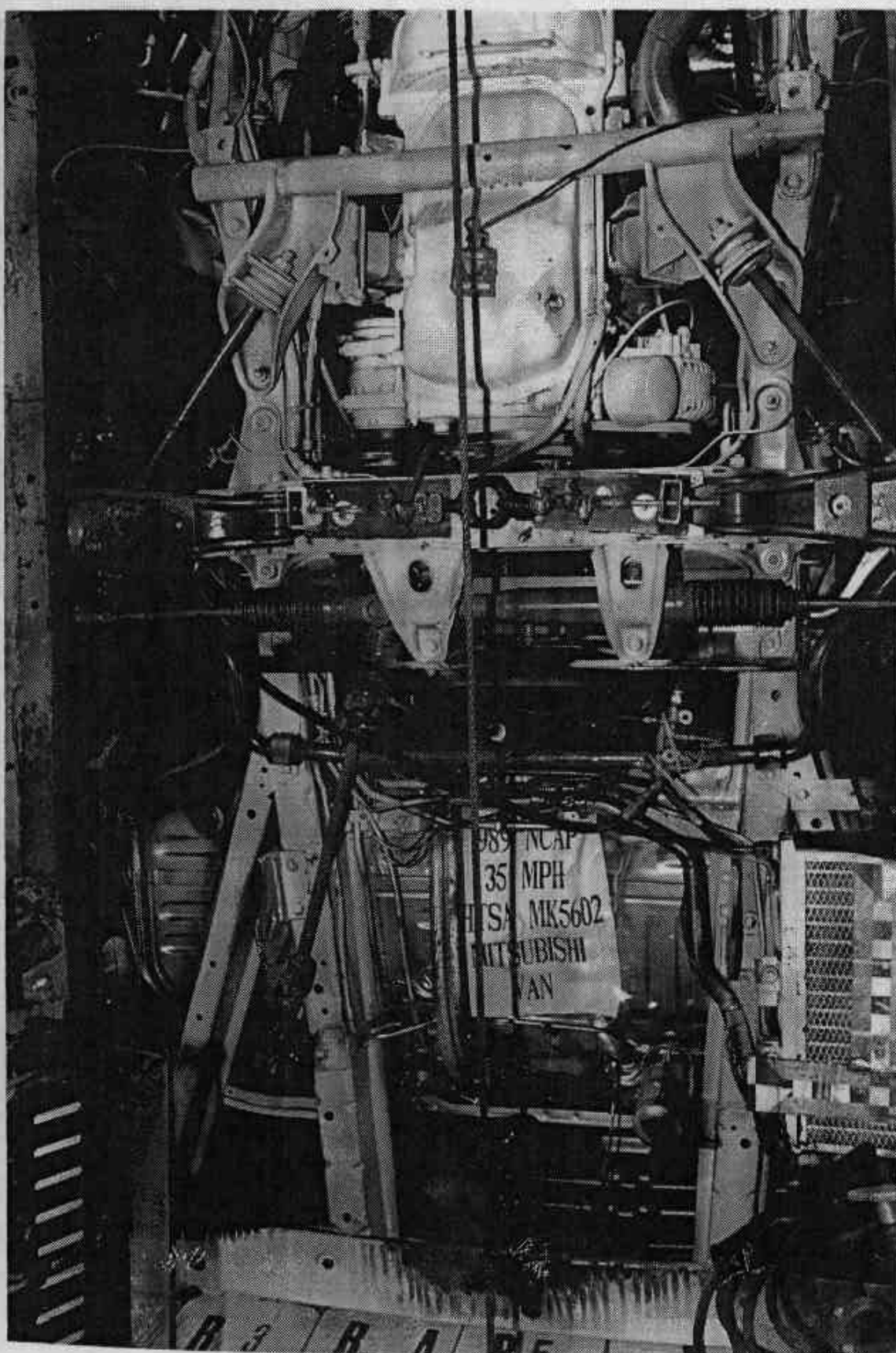
PRETEST ENGINE COMPARTMENT VIEW



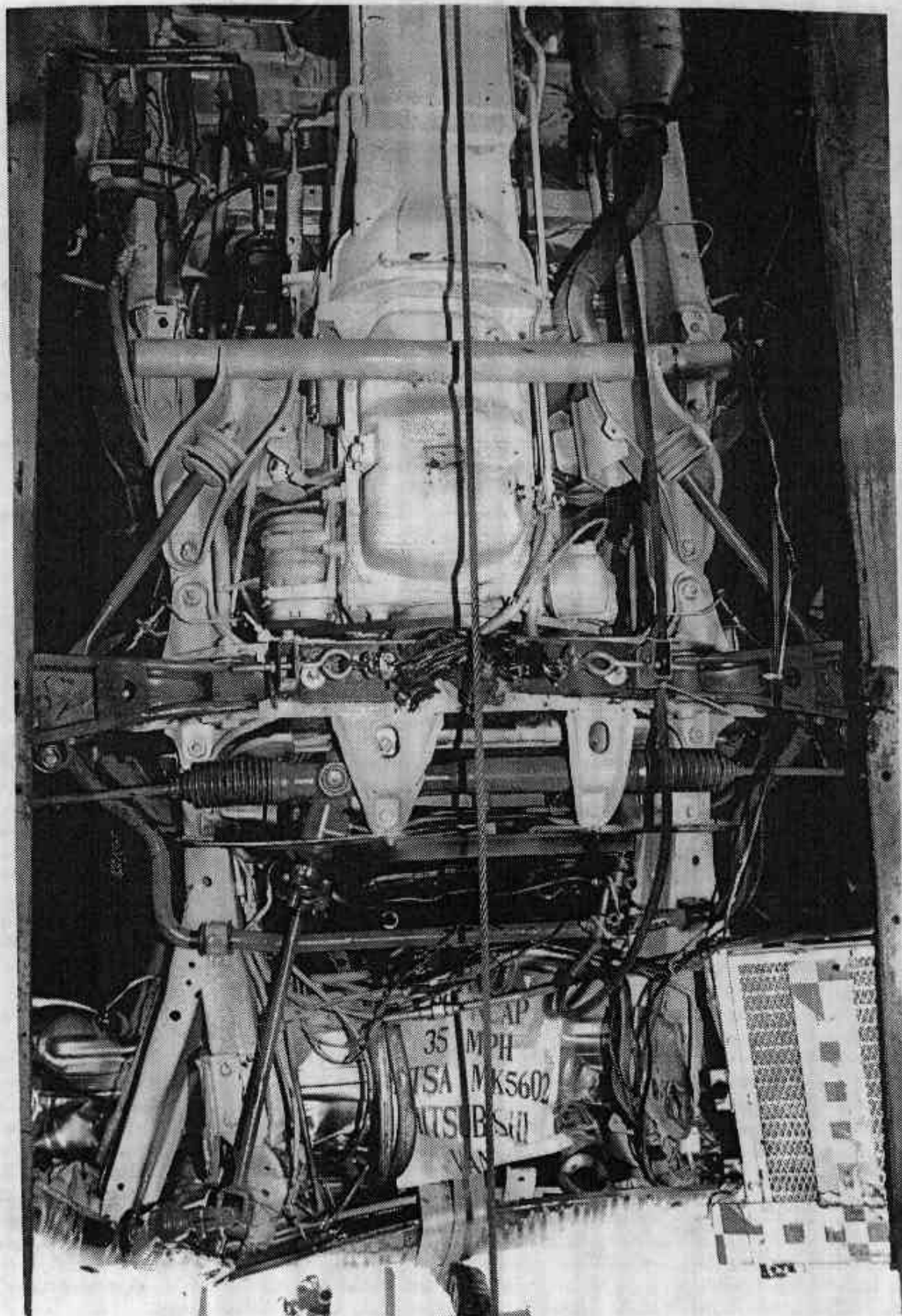
POSTTEST ENGINE COMPARTMENT VIEW

A-14

MSE-89-RB107-N09

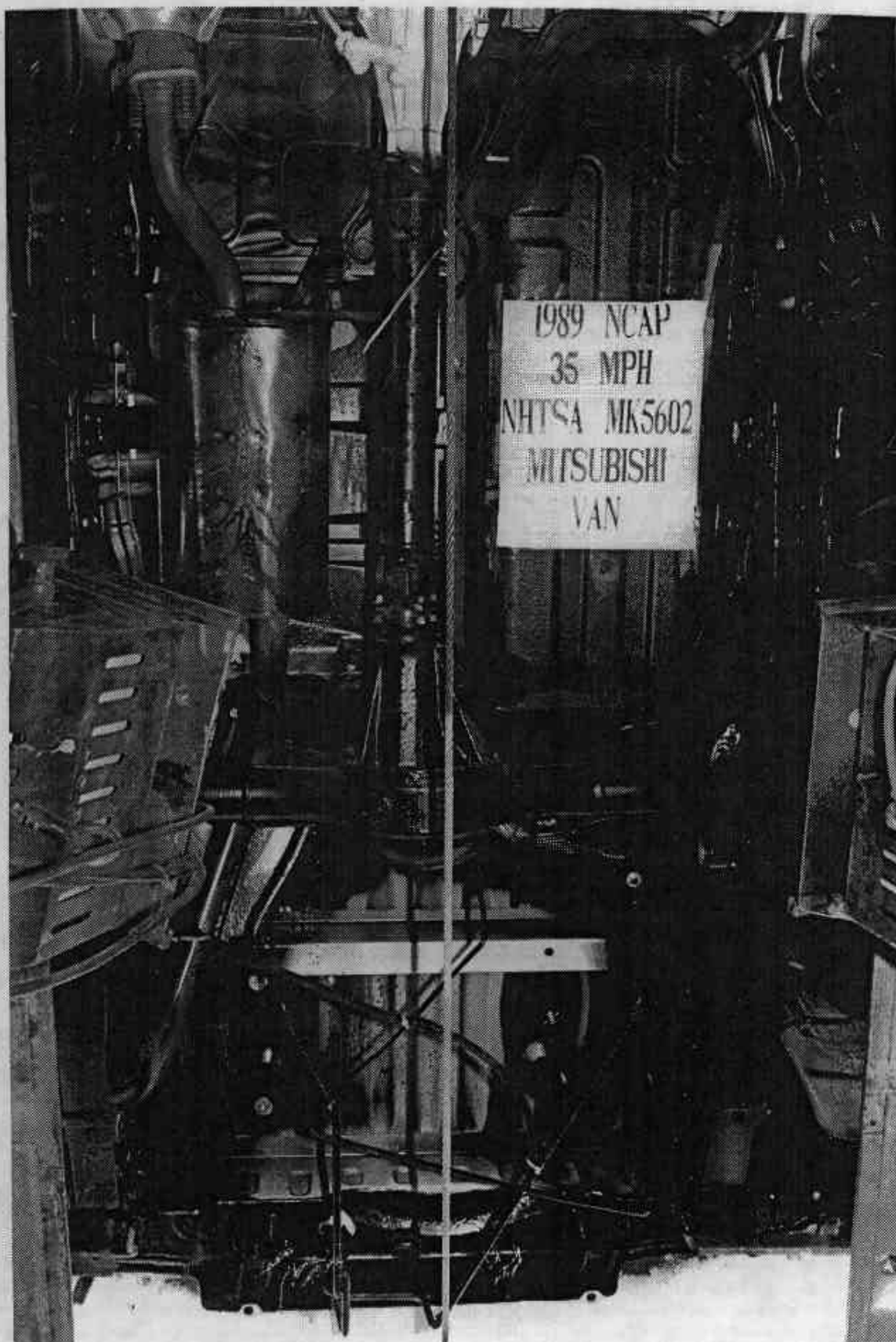


PRETEST FRONT UNDERBODY VIEW

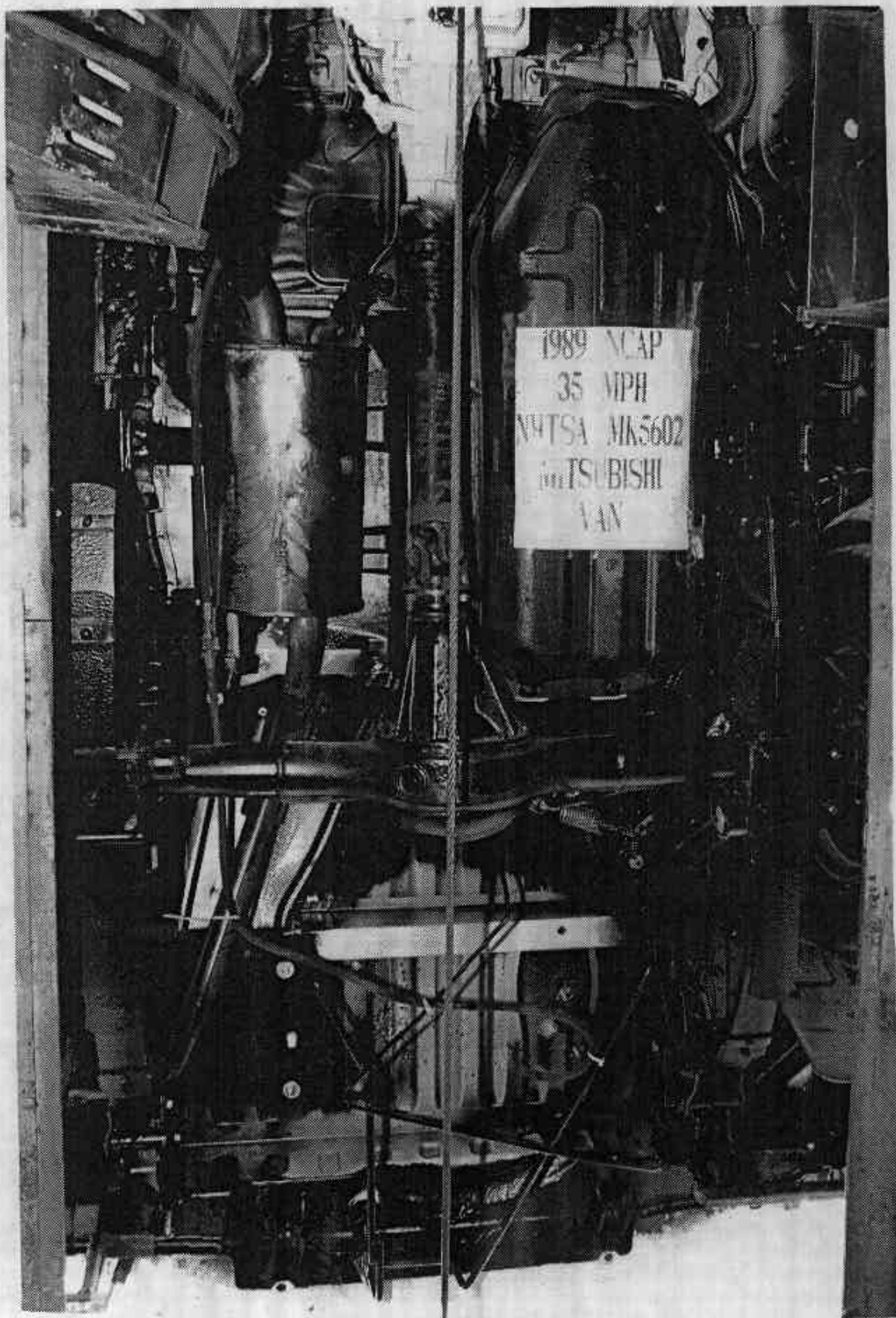


POSTTEST FRONT UNDERBODY VIEW
A-16

MSE-89-R8107-N09



PRETEST REAR UNDERBODY VIEW



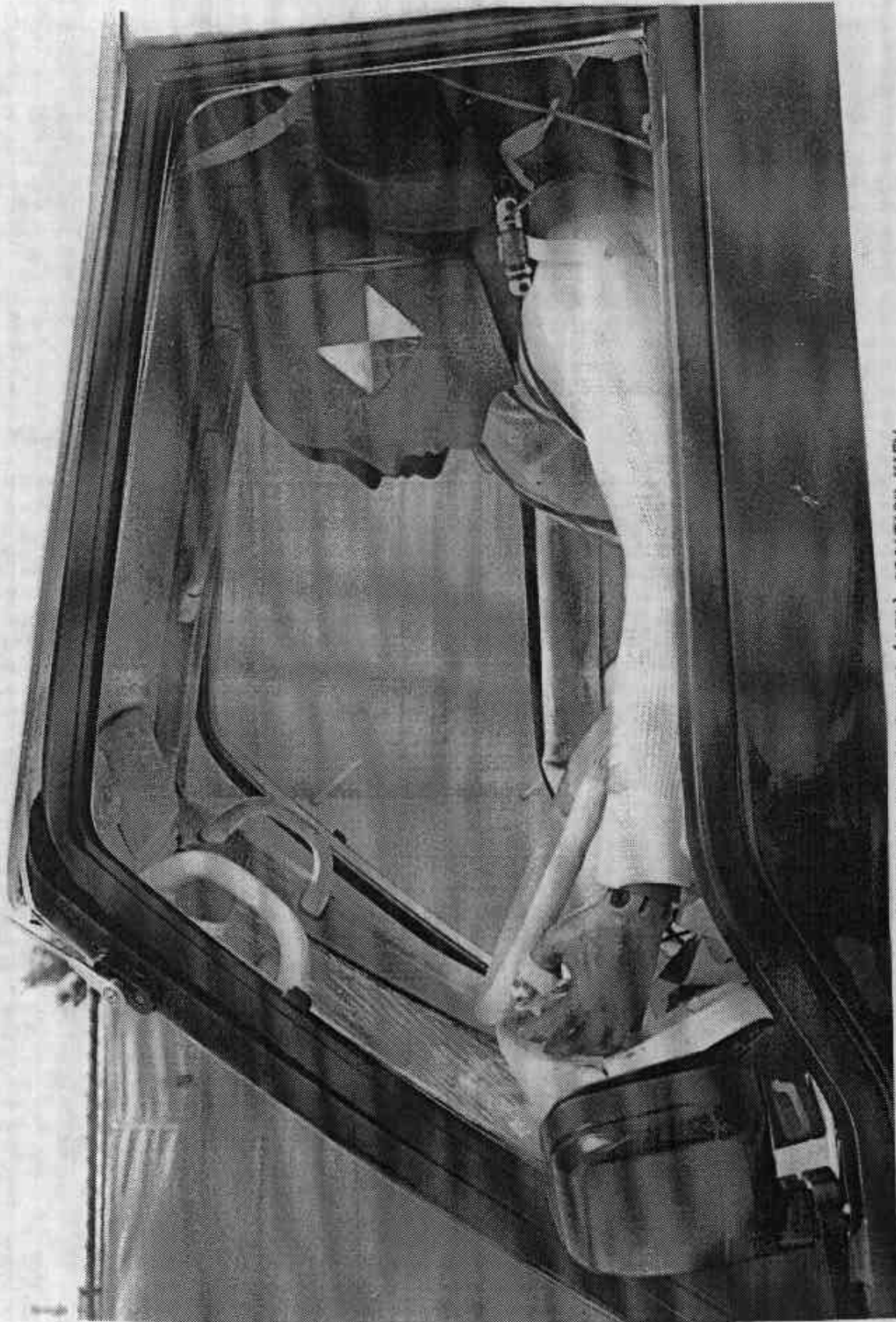
POSTTEST REAR UNDERBODY VIEW

A-18

MSE-89-R8107-N09



PRETEST DRIVER DUMMY (ATD) POSITION VIEW



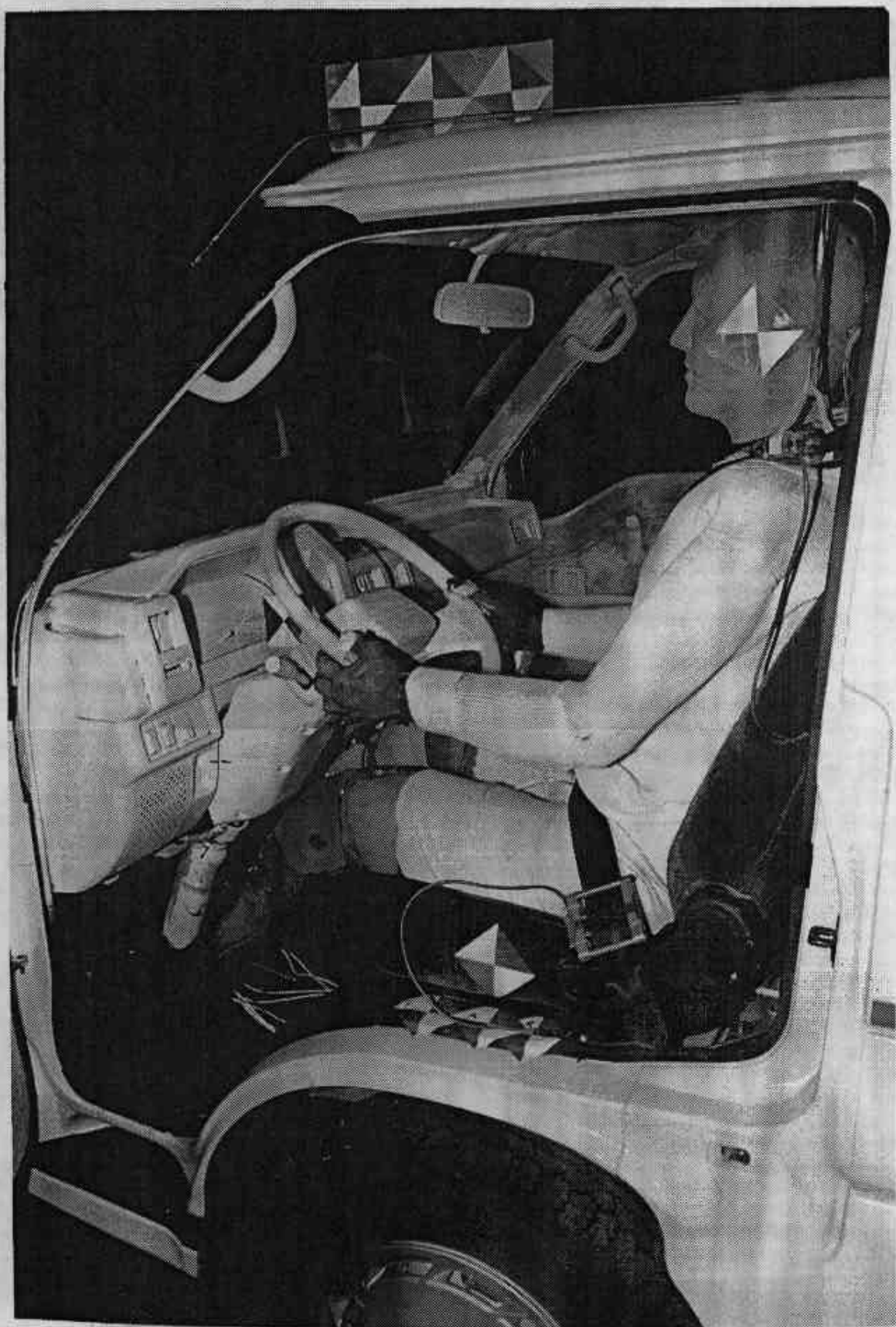
POSTTEST DRIVER DUMMY (ATD) POSITION VIEW



PRETEST PASSENGER DUNHY (ATD) POSITION VIEW



POSTTEST PASSENGER DUMMY (ATD) POSITION VIEW



PRETEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

A-23

MSE-89-R8107-N09



POSTTEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

A-24

MSE-89-R8107-N09



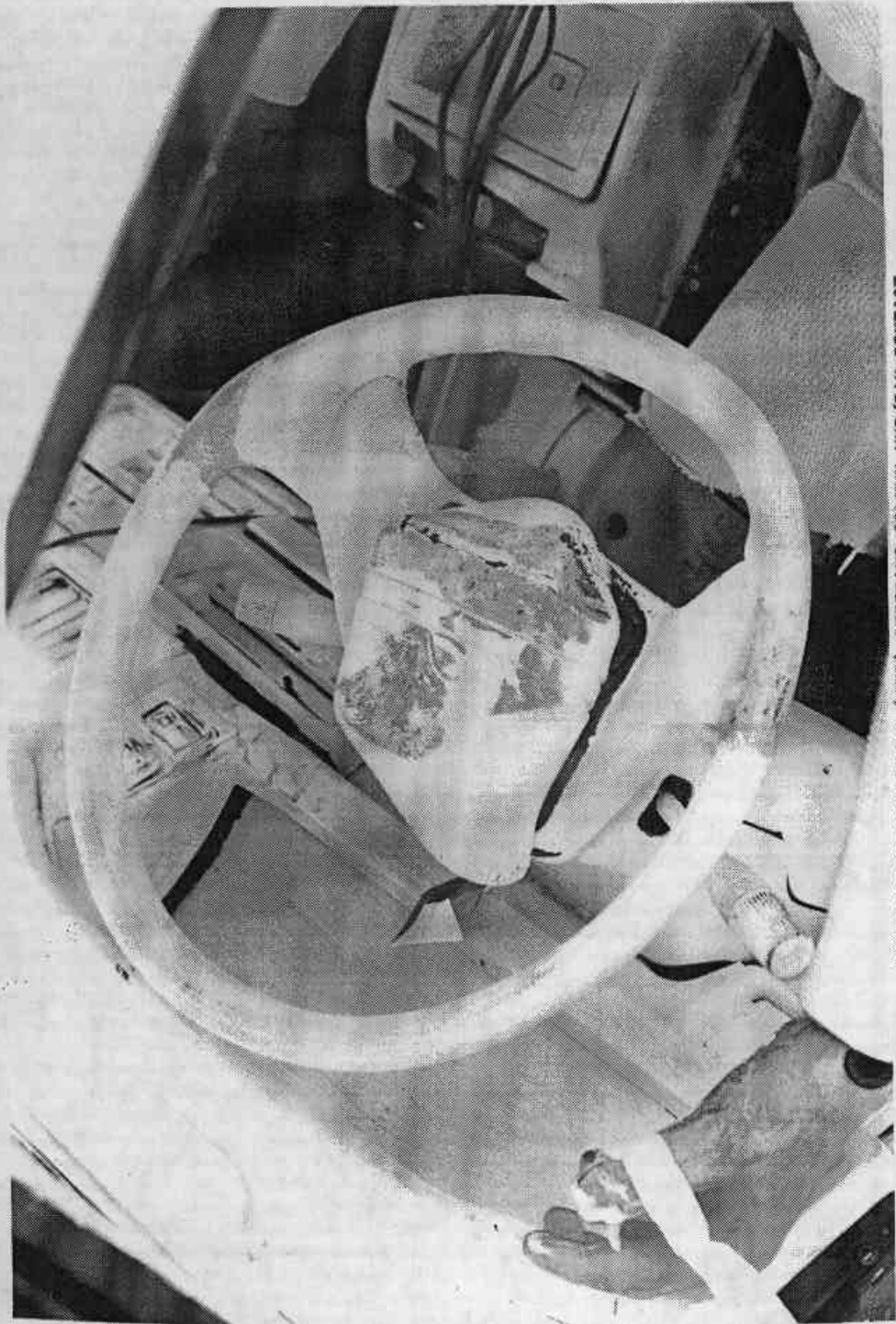
PRETEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)



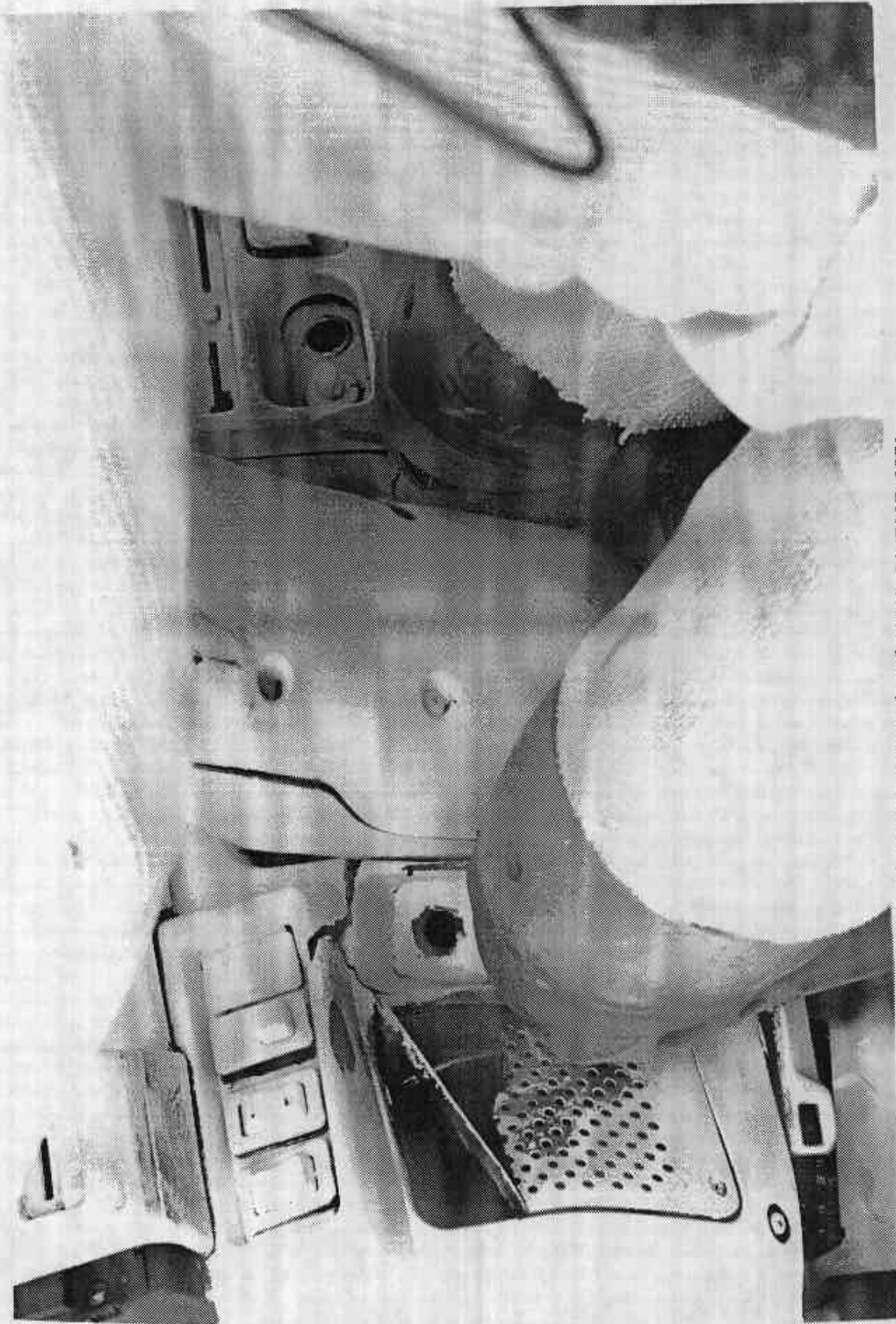
POSTTEST PASSENGER DUMMY (ATD) & VEHICLE INTERIOR VIEW (Door Open)

A-26

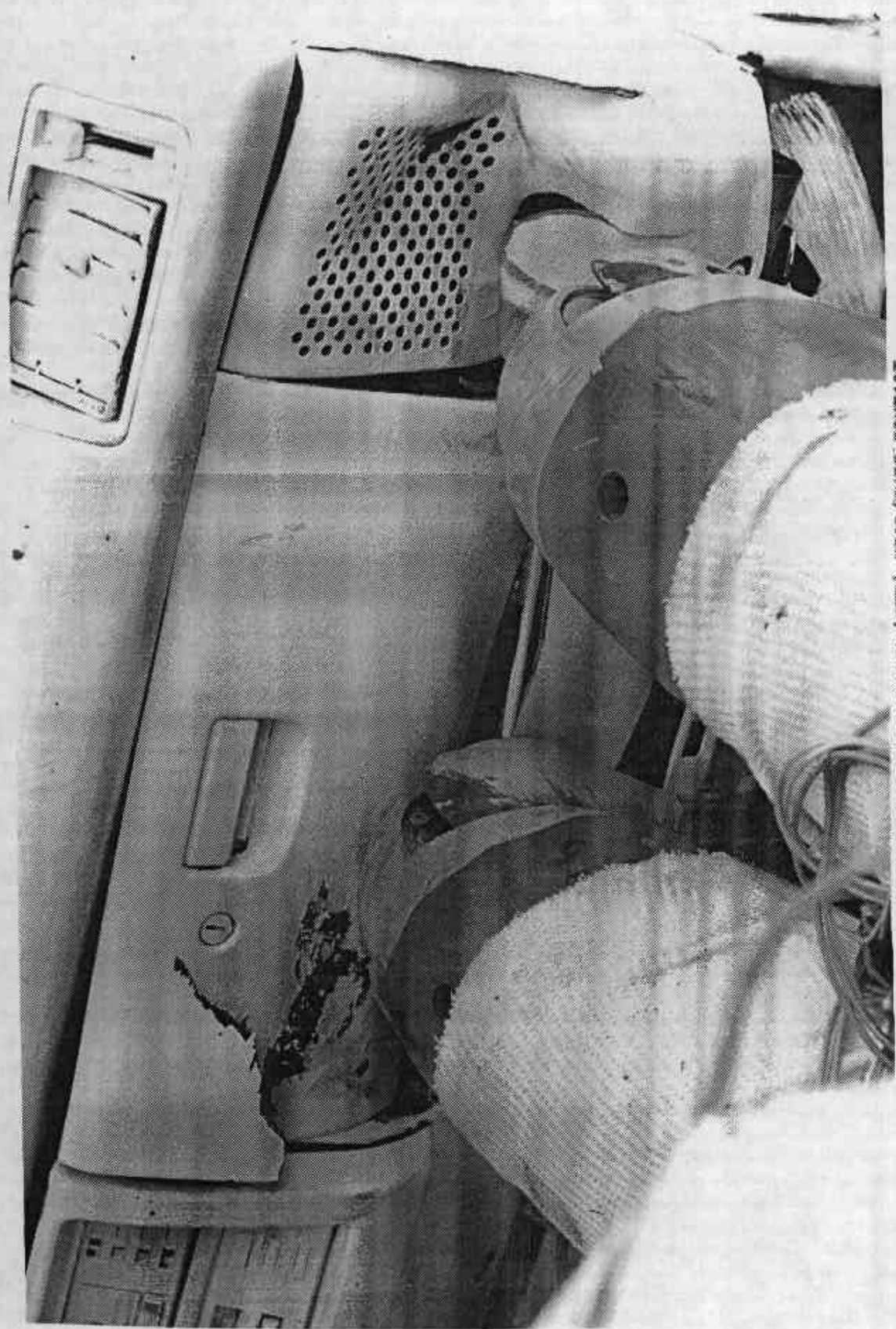
MSE-89-R8107-N09



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



POSTTEST DRIVER DUNNY (ATD) KNEE CONTACT AREA



POSTTEST PASSENGER DUMMY (ATD) HEAD/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: 09/MAY/89 TSTPRF: MSE CONNO: DTNH22-87-D-02009
TSTREF: NCAP99 TSTTYP: NCA TSTCFN: VTB
TKSURF: ASH TKCOND: DRY TEMP: 84 RECTYP: FMT
LINK: UMB CLSspd: 35.0 IMPANG: 0 OFFSET: 0.0
IMPPNT: 9999.9 MEASUR: ENG TOTCRV: 67
TSTCOM: NO COMMENTS

Vehicle Information

VGID: 2 VEHNO: 1 MAKE: 62 MODEL: 99 YEAR: 89 BODY: VN
 VIN: JA4FN44W2KA000672 ENGINE: 4CLM ENGDISP: 143 CID TRANSM: AR
 VEHTWT: 4066 WHLBAS: 87.5 VEHLN: 175.5 VEHWID: 67.5
 VEHCG: 33.9 STRSEP: SP COLMEC: OTH MODIND: P

MODDSC: UNMODIFIED

BX

1: 175.5
 2: 122.0
 3: 102.0
 4: 156.5
 5: 156.5
 6: 156.3
 7: 156.3
 8: 109.3
 9: 109.3
 10: 108.9
 11: 108.9
 12: 155.8
 13: 155.8
 14: 102.0
 15: 102.0
 16: 138.0
 17: 15.0
 18: 22.4
 19: 173.3
 20: 173.3
 21: 17.0

VEHSPD: 35.0 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: 70.0 DAMDST: 0.0 CRHDST: 17.7

AX

1: 157.8
 2: 122.0
 3: 102.0
 4: 152.3
 5: 153.0
 6: 152.3
 7: 152.5
 8: 106.3
 9: 106.8
 10: 106.3
 11: 106.5
 12: 151.3
 13: 151.0
 14: 102.0
 15: 102.0
 16: 134.0
 17: 12.5
 18: 20.5
 19: 158.8
 20: 159.0
 21: 17.0

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: 17.5 HW: 21.0 HR: 6.7 HS: 7.5 CD: 24.5 CS: 15.5 AD: 2.3 HD: 5.5
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: SH CNTRH2: NO CNTRC1: SW CNTRC2: NO CNTRL1: DP CNTRL2: OT
HIC: 805. T1: 59.600 T2: 85.300
CLIP3M: 48.8 LFEM: 1568. RFEM: 1607. CSI: 449. LBELT: 1426. SBELT: 1972.
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: 20.2 HW: 23.3 HR: 5.4 HS: 7.1 CD: 27.3 CS:999.9 AD: 4.5 HD: 4.0
KD: 9.4 HB:999.9 NB:999.9 CB:999.9 KB:999.9
RESTR1: 3PT RESTR2: DPL
RESTXT: NO COMMENTS
SEPOSN: CN AIRDEP: NA
CNTRH1: NO CNTRH2: NO CNTRC1: NO CNTRC2: NO CNTRL1: DP CNTRL2: NO
HIC: 713. T1: 61.800 T2: 97.800
CLIP3M: 50.7 LFEM: 1427. RFEM: 791. CSI: 430. LBELT: 1578. SBELT: 2164.
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: 17/APR/89	INSRAT: 200	CHLMAX: 43	INIVEL: 35.0
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: 17/APR/89	INSRAT: 200	CHLMAX: 24	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: 17/APR/89	INSRAT: 200	CHLMAX: 20	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: 17/APR/89	INSRAT: 200	CHLMAX: 26	INIVEL: 35.0
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: 17/APR/89	INSRAT: 200	CHLMAX: 21	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: B160H			
CALDAT: 17/APR/89	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: 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: 54	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: 56	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: 17/APR/89	INSRAT: 200	CHLMAX: 16	INIVEL: 35.0
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: 17/APR/89	INSRAT: 200	CHLMAX: 7	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: 17/APR/89	INSRAT: 200	CHLMAX: 35	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: B119H		
CALDAT: 17/APR/89	INSRAT: 200	CHLMAX: 33	INIVEL: 35.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 013	
SENTYP: AC	SENLOC: 02	SENATT: CHST	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-200,	S/N: B114H		
CALDAT: 17/APR/89	INSRAT: 200	CHLMAX: 22	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: B192H		
CALDAT: 17/APR/89	INSRAT: 200	CHLMAX: 15	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: 50	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: 33	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: LPB0	
AXIS: OT	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371, S/N: 333		
CALDAT: 30/AUG/88	INSRAT: 3500	CHLMAX: 42	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: 30/AUG/88	INSRAT: 3500	CHLMAX: 57	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: LPB0	
AXIS: OT	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371, S/N: 110		
CALDAT: 30/AUG/88	INSRAT: 3500	CHLMAX: 46	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: 330		
CALDAT: 30/AUG/88	INSRAT: 3500	CHLMAX: 64	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: 30/AUG/88 INSRAT: 24 CHLMAX: 9 INIVEL: 0.0
 NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
 INSCOM:

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: 30/AUG/88 INSRAT: 30 CHLMAX: 16 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: 30/AUG/88 INSRAT: 24 CHLMAX: 8 INIVEL: 0.0
 NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
 INSCOM:

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: 30/AUG/88 INSRAT: 30 CHLMAX: 5 INIVEL: 0.0
 NFP: -300 NLP: 2999 DELT: 100 DASTAT: GD
 INSCOM: SEAT BELT ELONGATION, POTENTIOMETER NOT COUPLED TIGHTLY TO BELT

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: 49 INIVEL: 35.0
 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: 71	INIVEL: 35.0
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: 53	INIVEL: 35.0
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: 111, S/N: 1116		
CALDAT: 20/DEC/88	INSRAT: 250	CHLMAX: 20	INIVEL: 35.0
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: 60	INIVEL: 35.0
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: 43	INIVEL: 35.0
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: 75	INIVEL: 35.0
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: 4	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: 10	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: 7	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: 6	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: 8	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: 6	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: 4	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

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: 8	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: 8	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: 41	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: 52	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: 65	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: 24	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: 55	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: 61	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: 43	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: 5	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: 6	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: 12	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: 15	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: 12	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: 11	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: 9	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: 13	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: 14	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: 5	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: LCC1	
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: LCC2	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19318		
CALDAT: 14/MAY/85	INSRAT: 50000	CHLMAX: 13	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: 13	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: 8	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: 8	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: 9	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

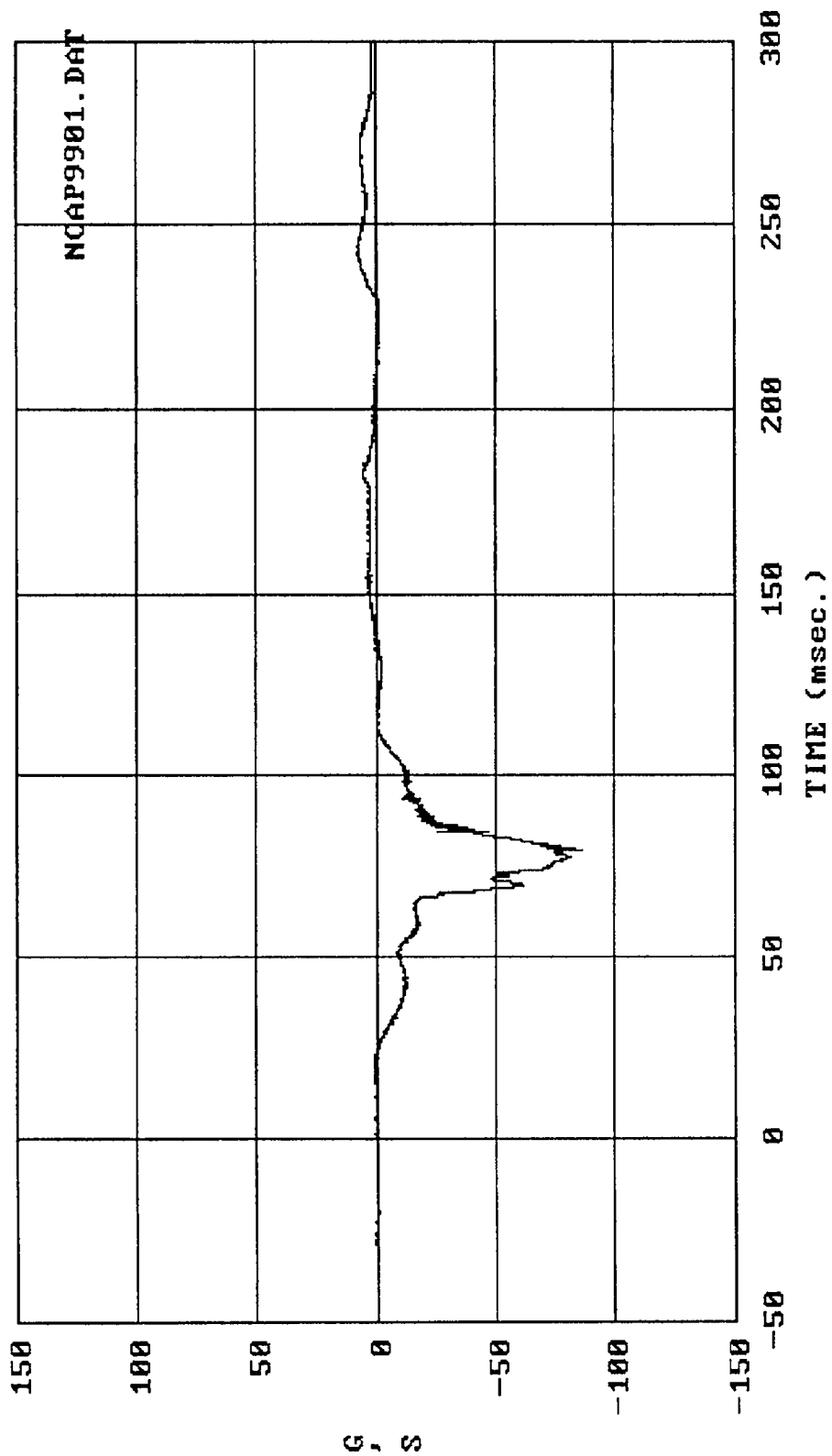
Inst. Group ID: 5	VEHNO: 0	CURNO: 065	
SENTYP: LC	SENLOC: NA	SENATT: LCD7	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19332		
CALDAT: 14/MAY/85	INSRAT: 50000	CHLMAX: 11	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

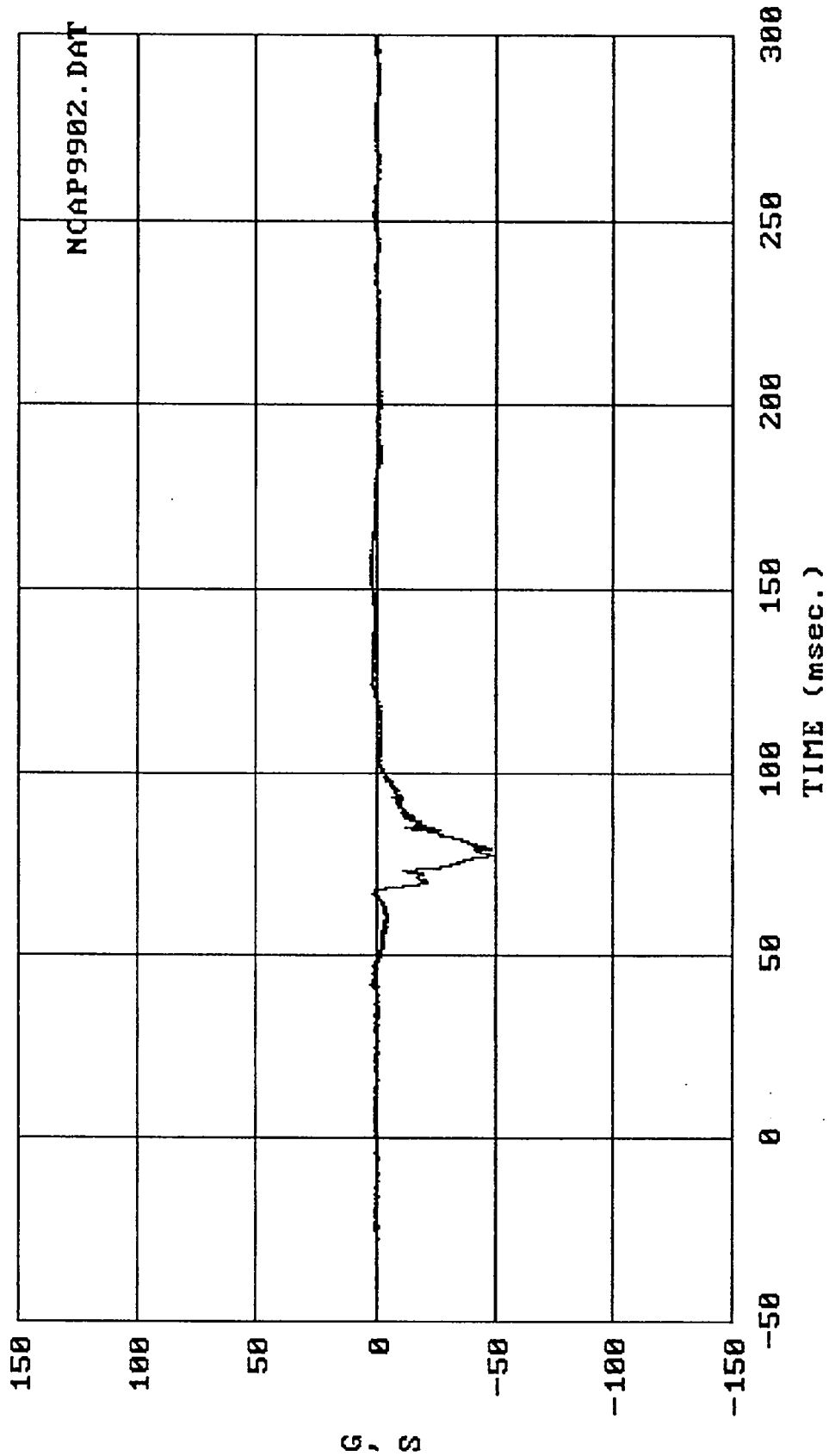
Instrumentation Information

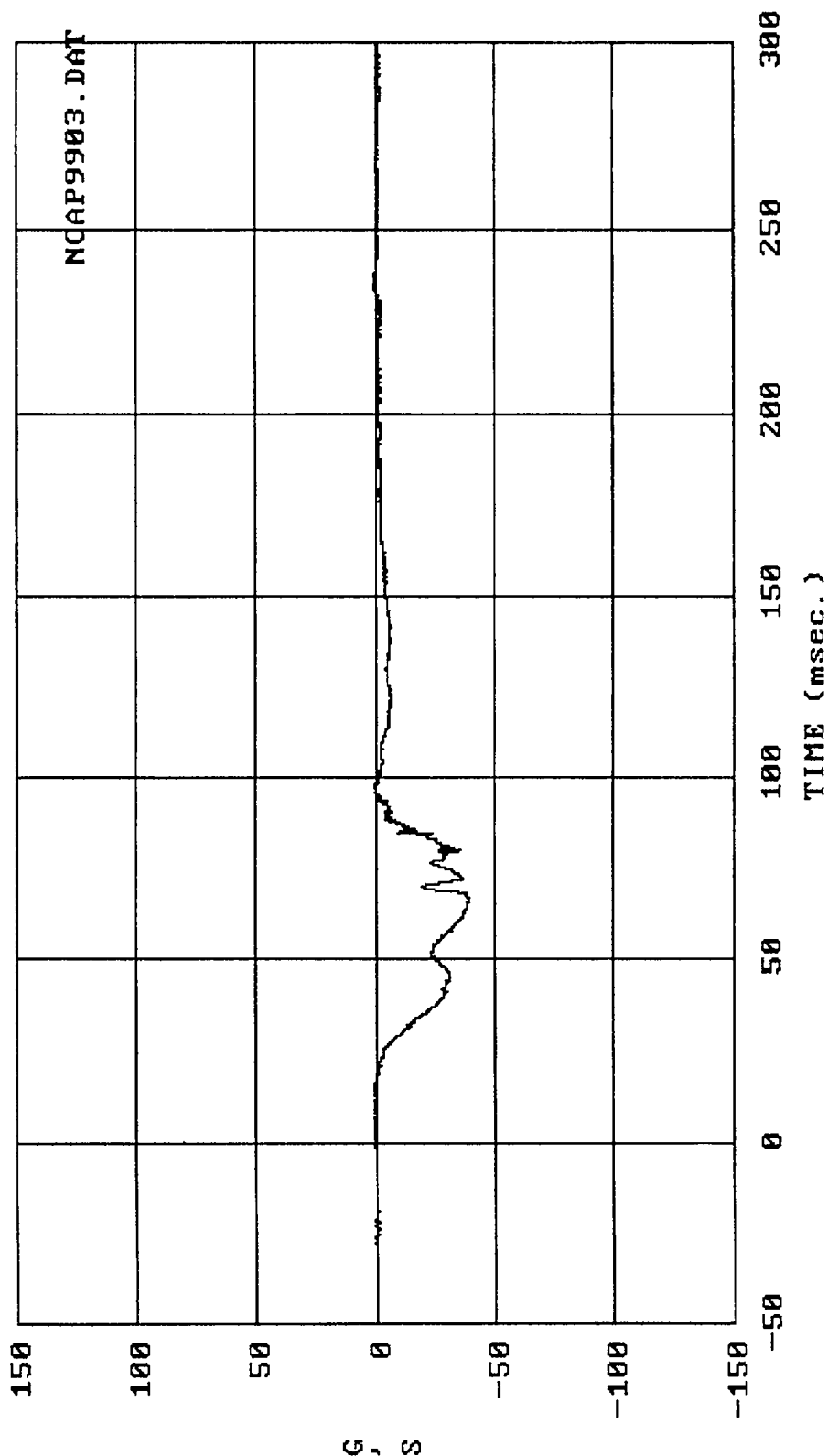
Inst. Group ID: 5	VEHNO: 0	CURNO: 066	
SENTYP: LC	SENLOC: NA	SENATT: LCD8	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19333			
CALDAT: 14/MAY/85	INSRAT: 50000	CHLMAX: 9	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

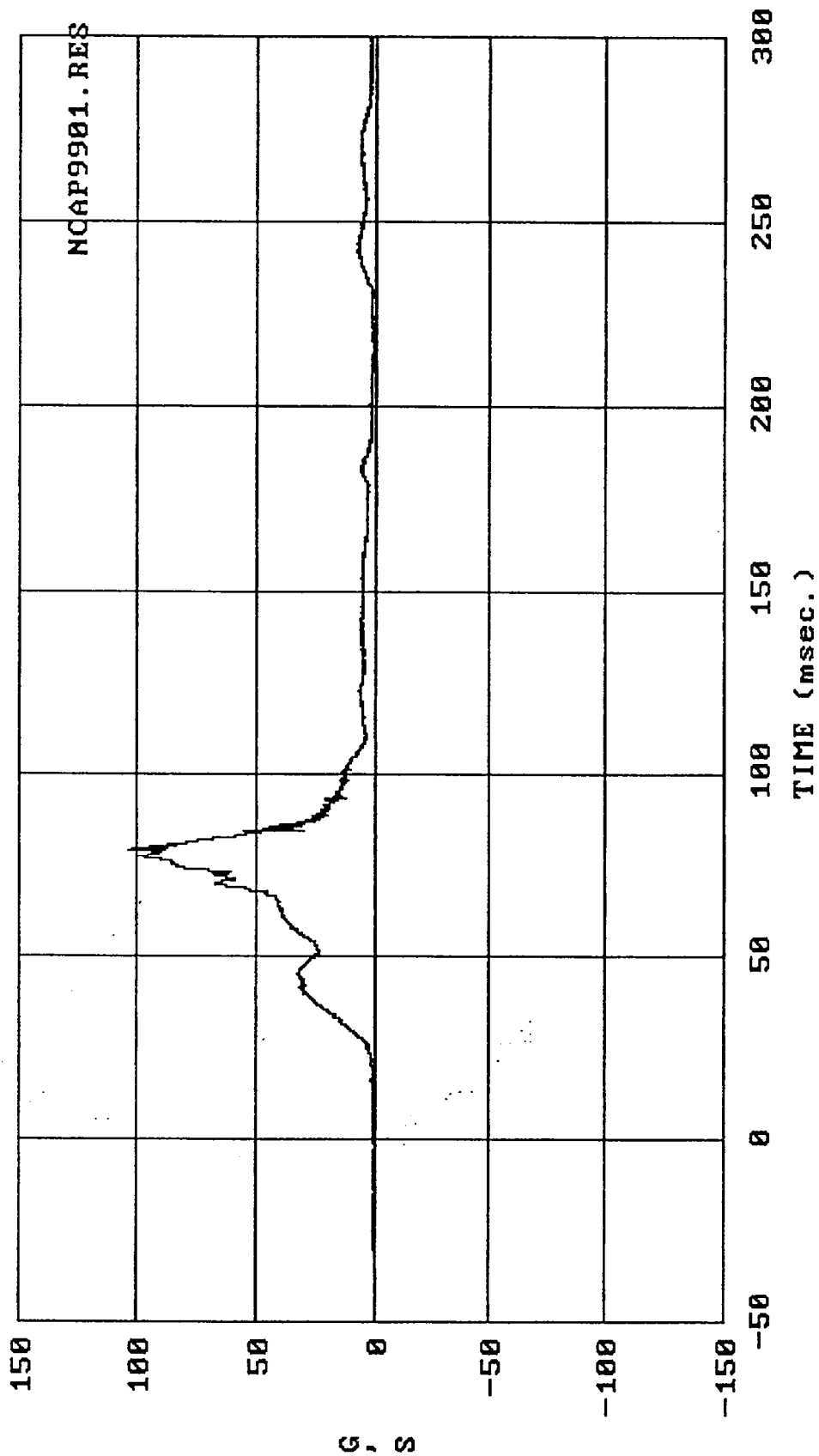
Inst. Group ID: 5	VEHNO: 0	CURNO: 067	
SENTYP: LC	SENLOC: NA	SENATT: LCD9	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19466			
CALDAT: 14/MAY/85	INSRAT: 50000	CHLMAX: 6	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			







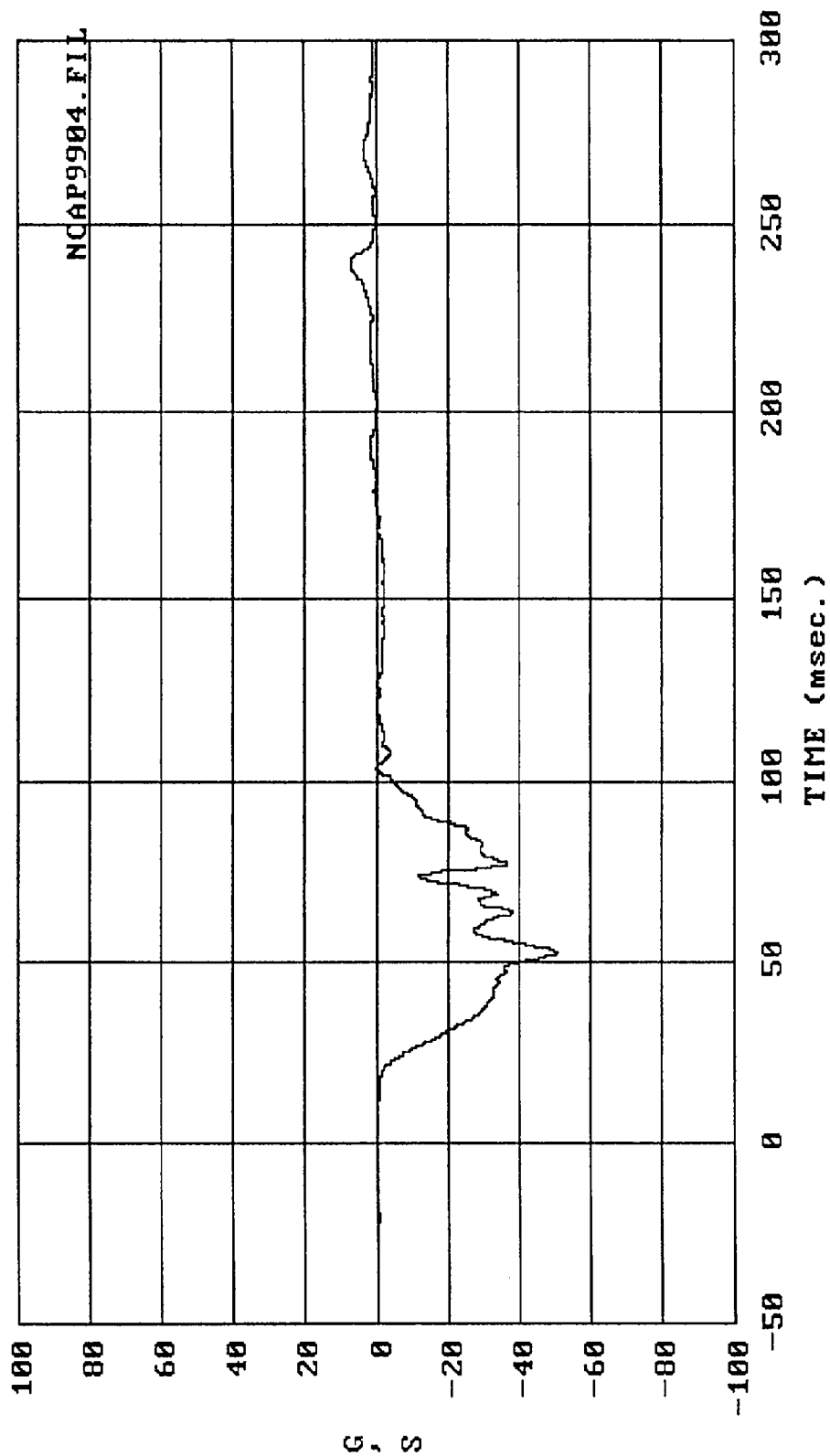
Filter: SAE CLASS 1000 Max = .94642 Min = -39.076
MSE 05/09/89 -- 1989 Mitsubishi Van : Driver Head accel., Z-axis



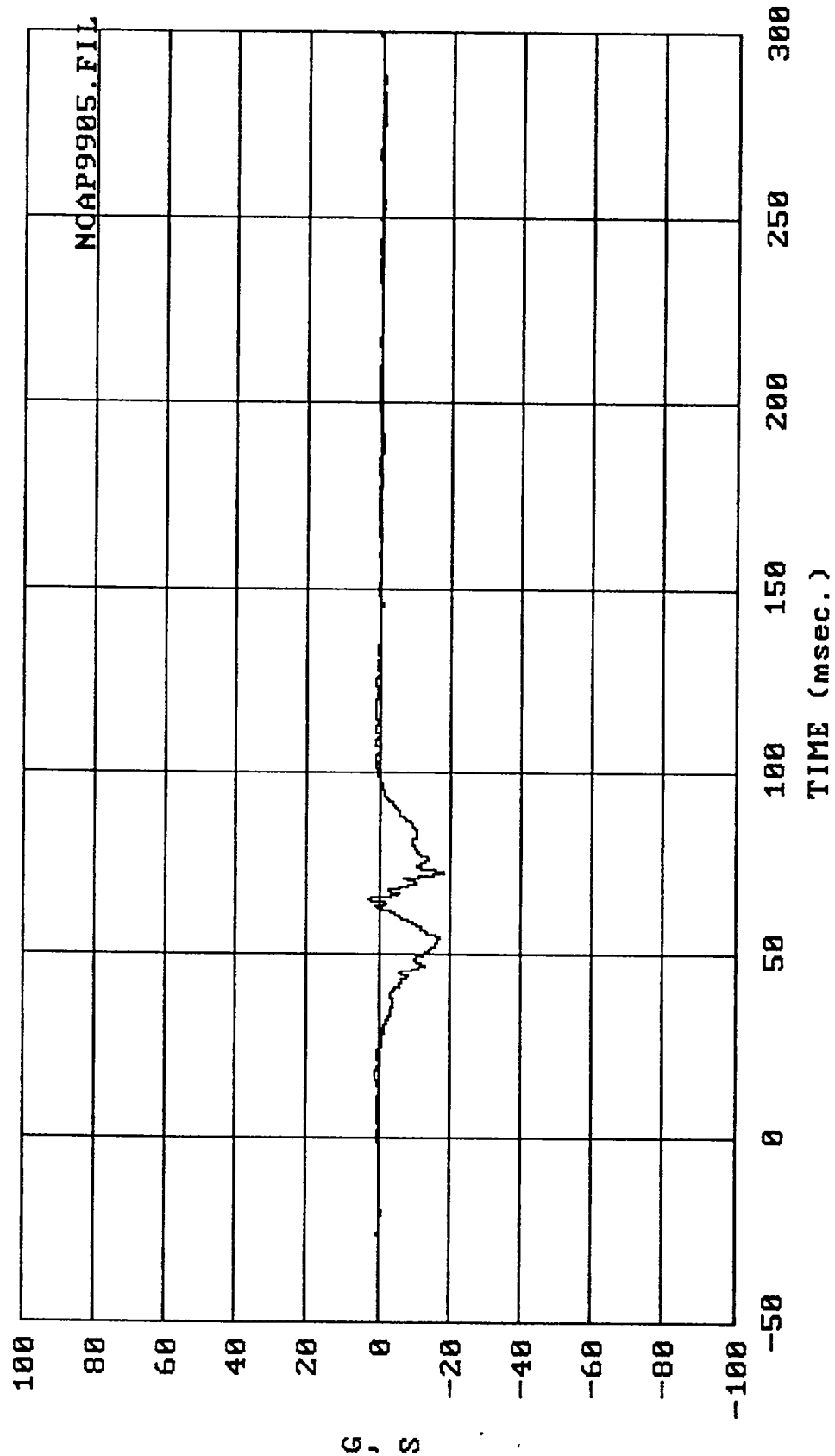
Filter: SAE CLASS 1000

Max = 104.01 Min = .23733

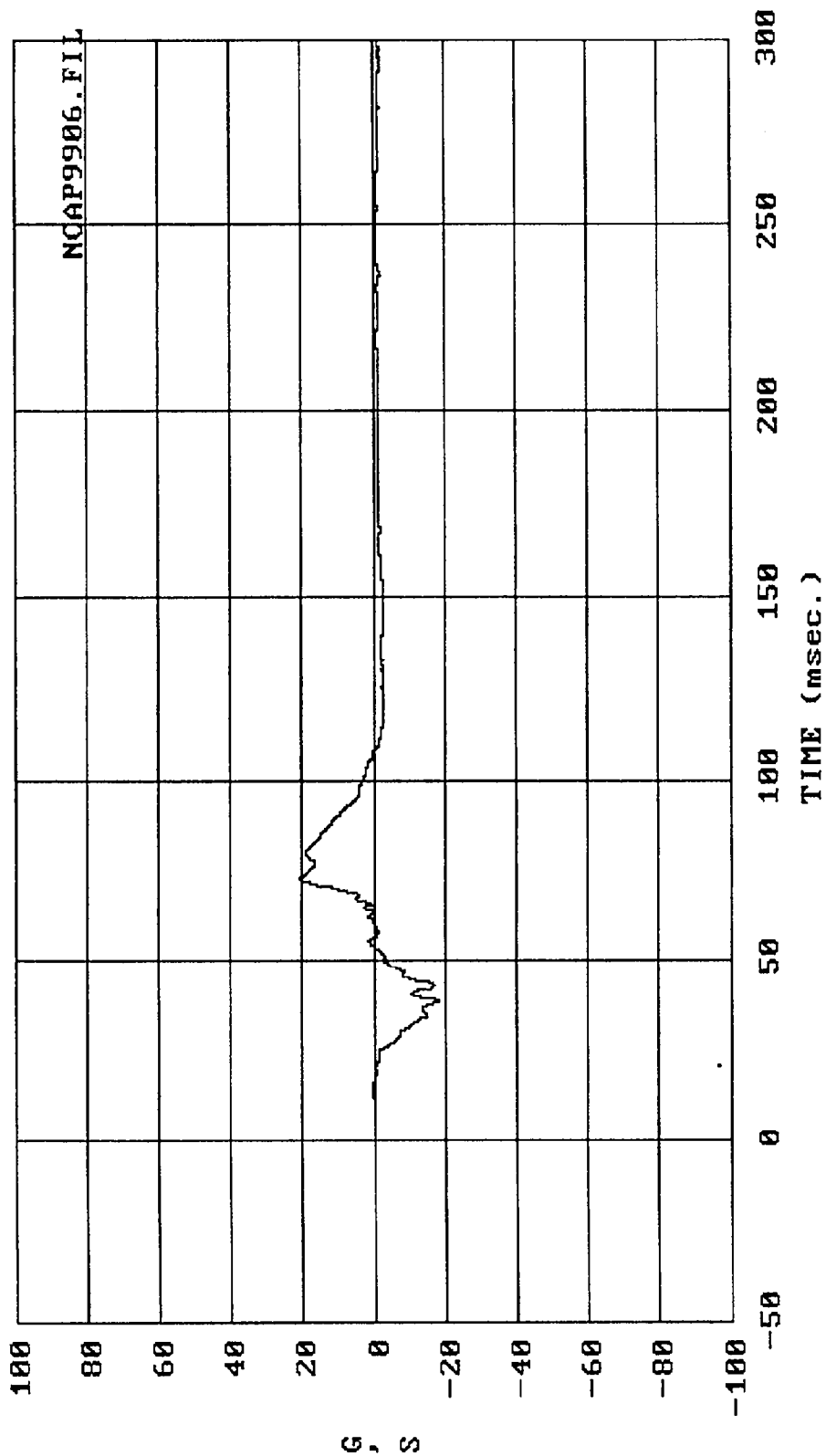
MSE 05/09/89 -- 1989 Mitsubishi Van : Driver Head resultant accel.



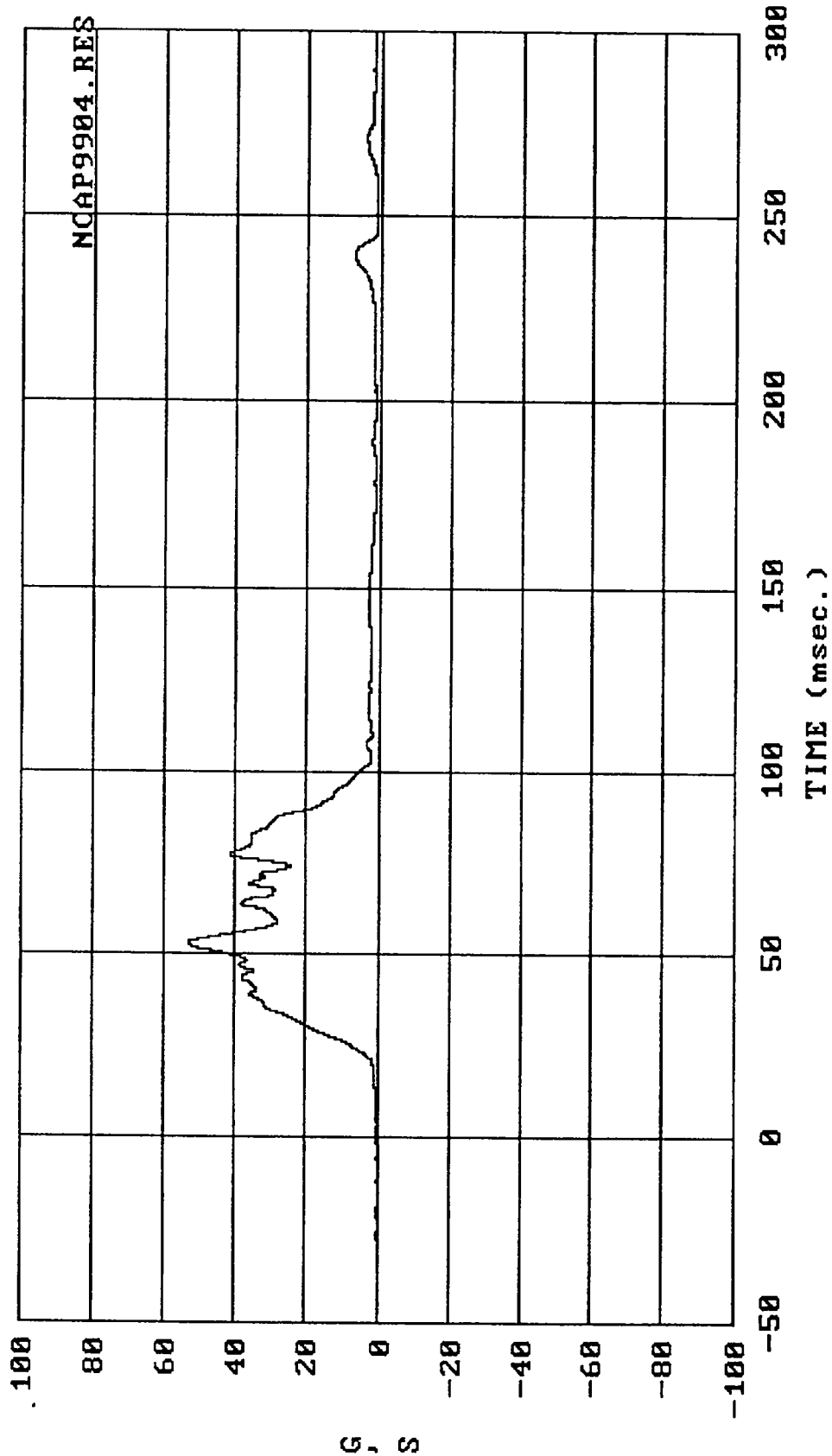
Filter: SAE CLASS 180 Max = 7.4424 Min = -50.690
MSE 05/09/89 --- 1989 Mitsubishi Van : Driver Chst accel., X-axis

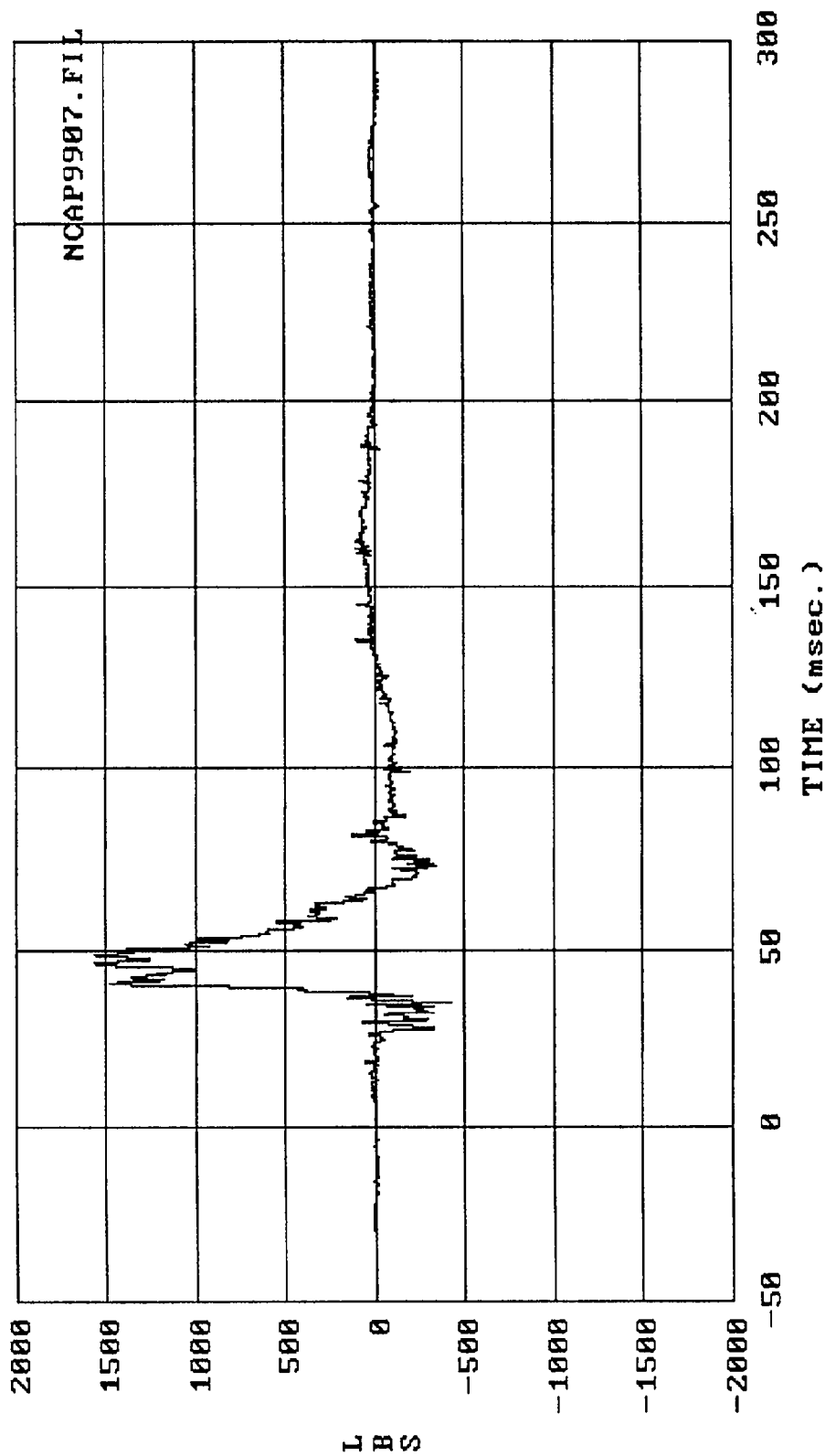


Filter: SAE CLASS 180 Max = 2.7727 Min = -18.460
MSE 05/09/89 -- 1989 Mitsubishi Van : Driver Chst accel., Y-axis

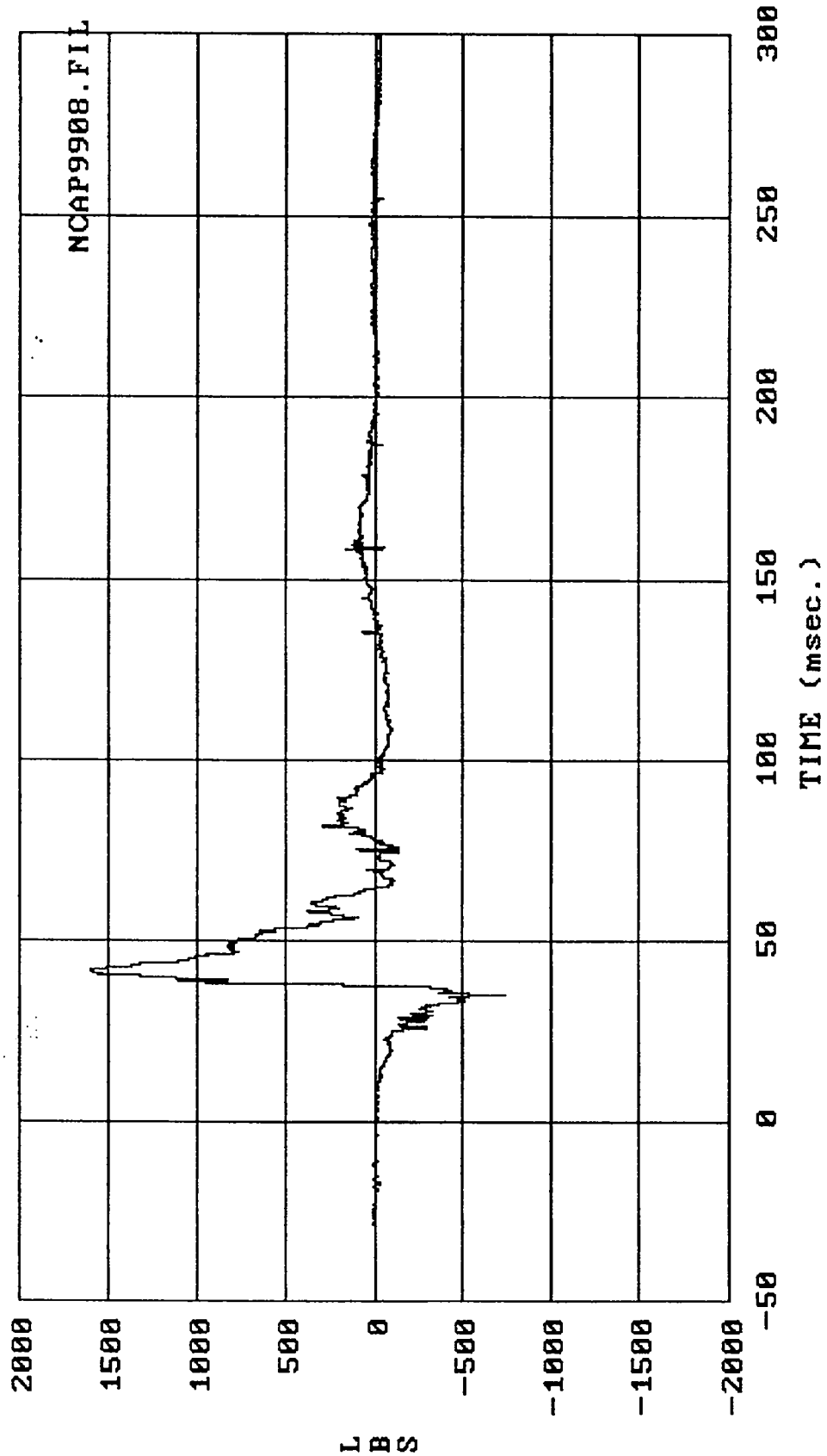


Filter: SAE CLASS 180 Max = 20.833 Min = -18.054
MSE 05/09/89 -- 1989 Mitsubishi Van : Driver Chst accel., Z-axis

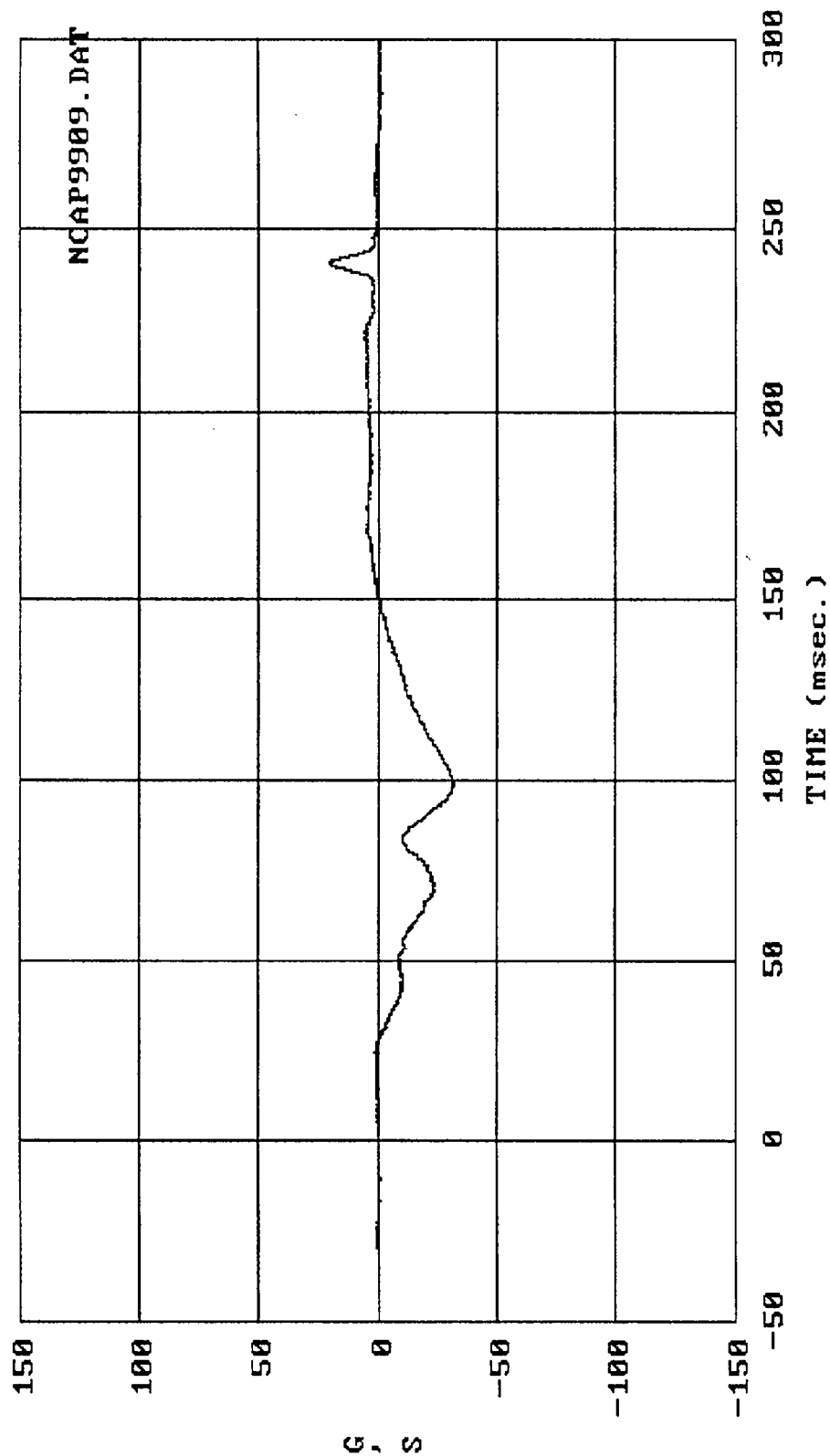




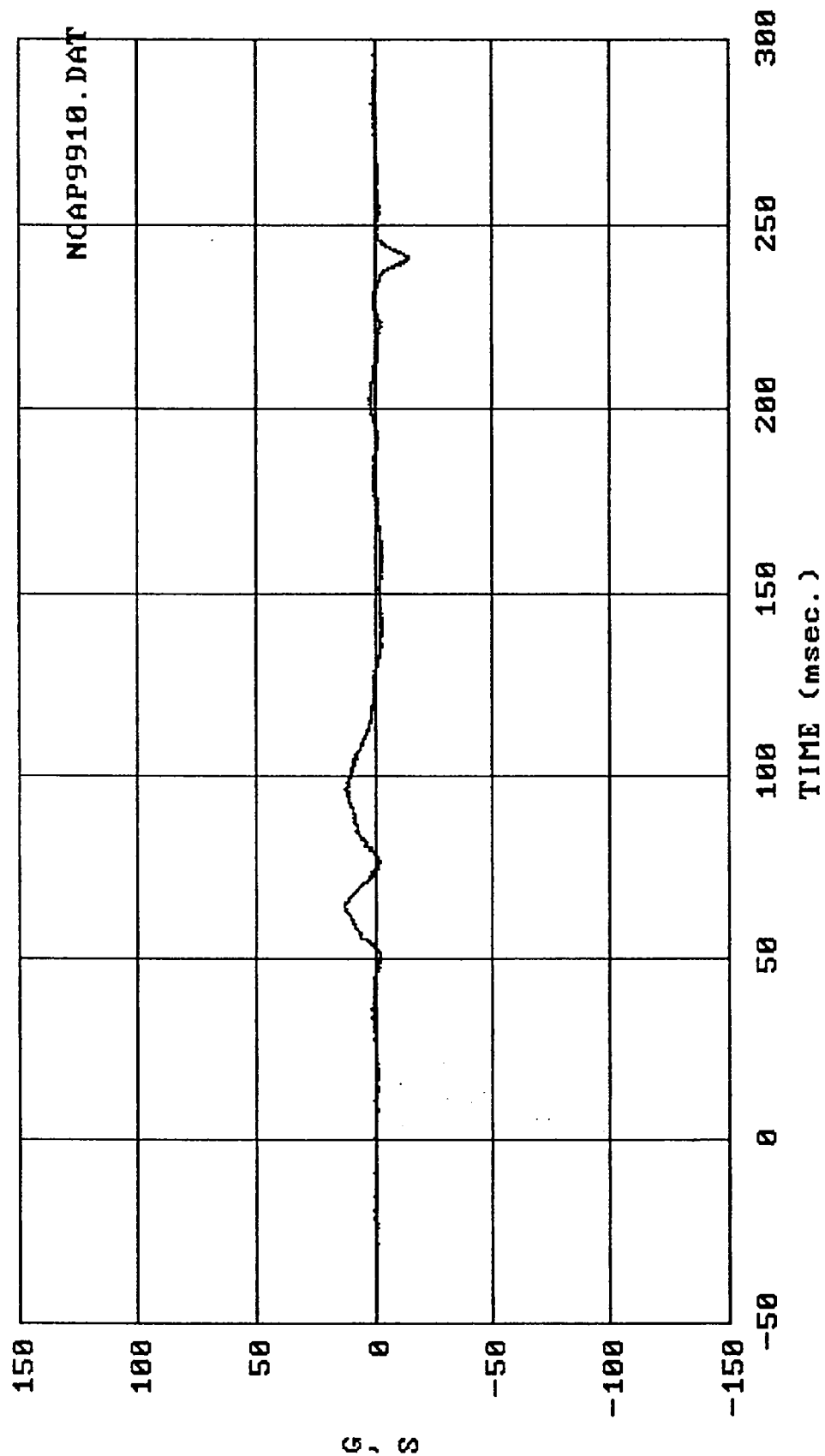
Filter: SAE CLASS 600 Max = 1567.8 Min = -427.40
MSE 05/09/89 -- 1989 Mitsubishi Van : Driver Left Femur force

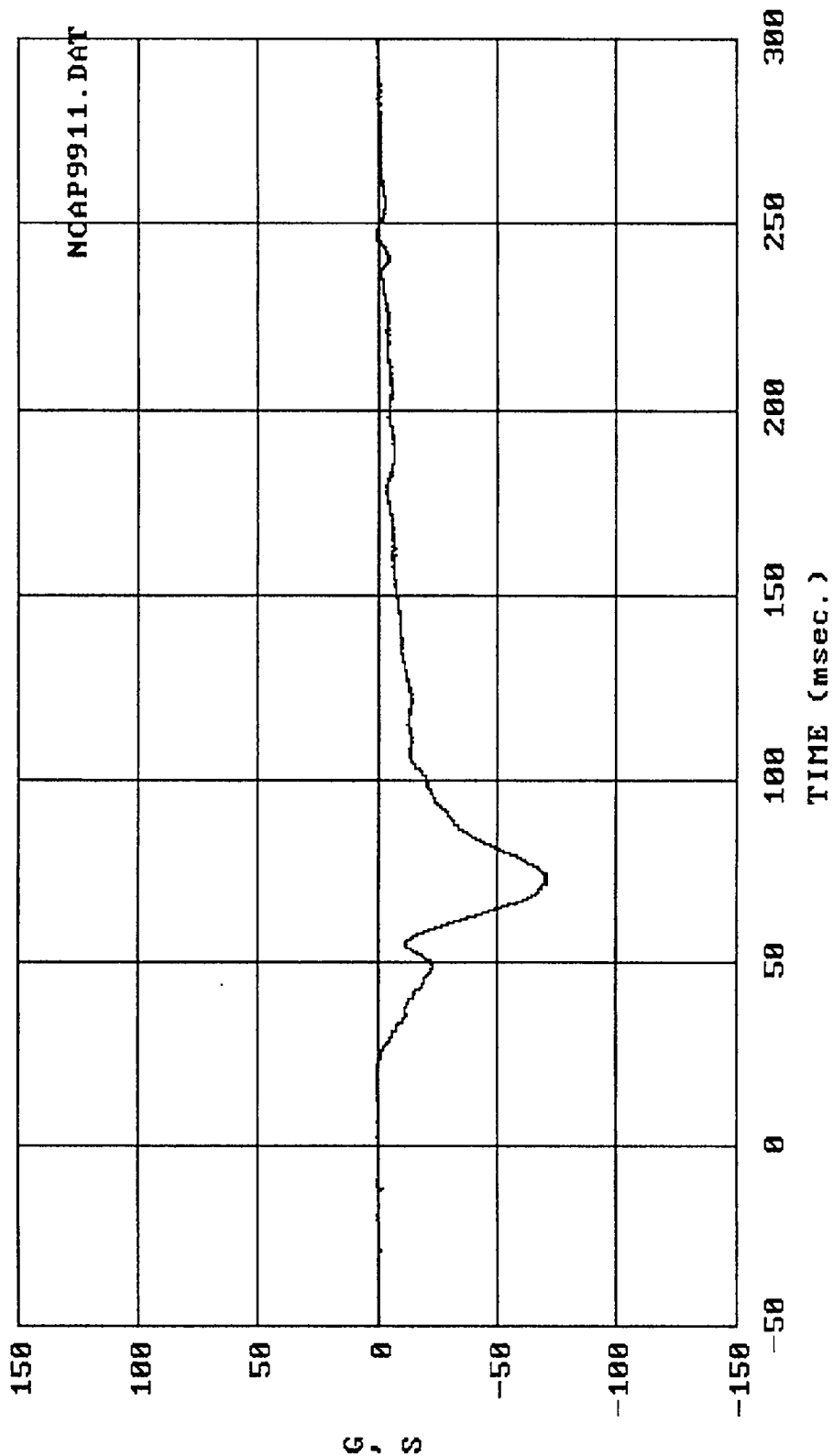


Filter: SAE CLASS 600 Max = 1607.0 Min = -731.24
MSE 05/09/89 -- 1989 Mitsubishi Van : Driver Right Femur force

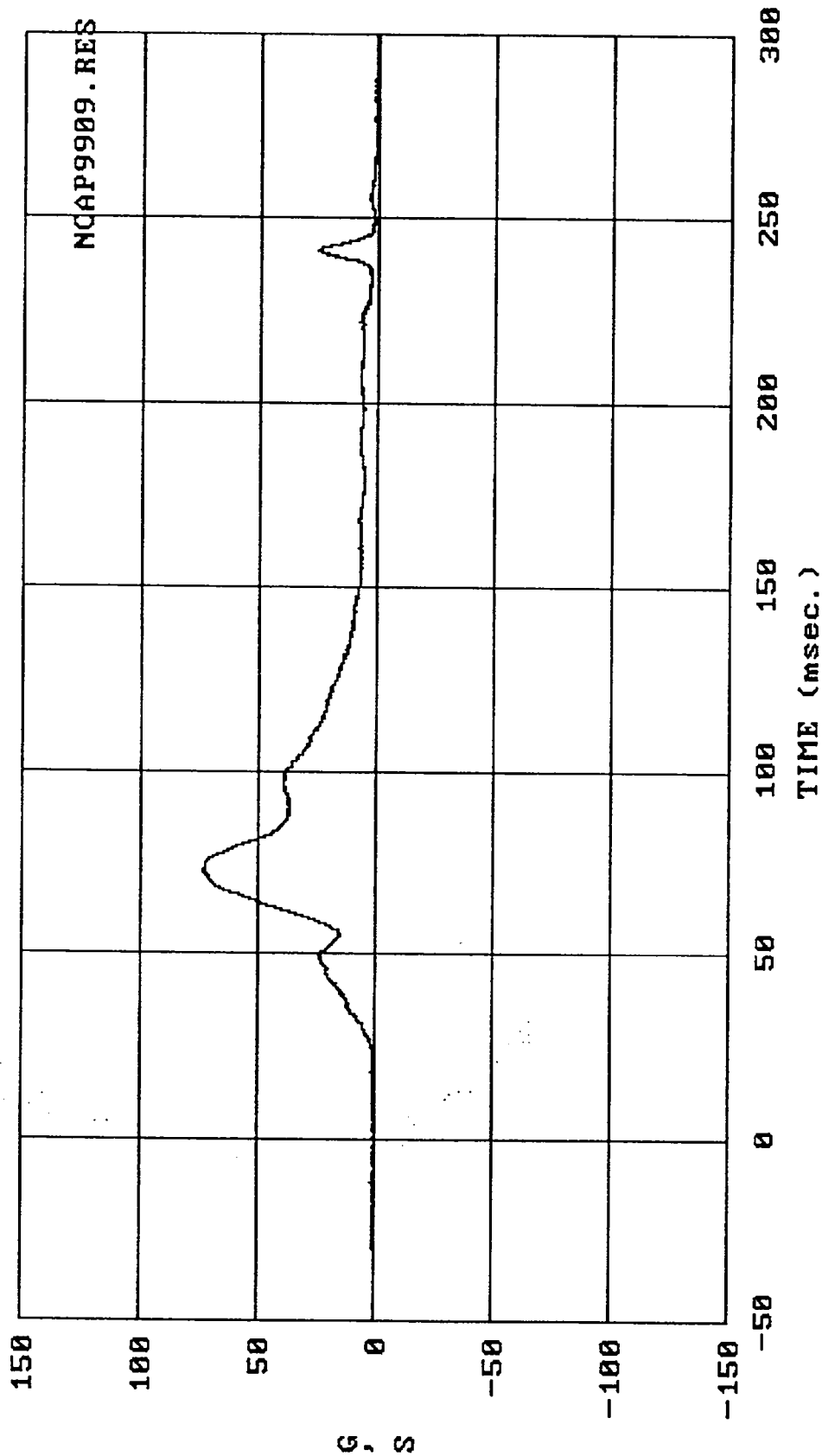


Filter: SAE CLASS 1000 Max = 20.778 Min = -31.758
MSE 05/09/89 -- 1989 Mitsubishi Van : Pasngr Head accel., X-axis





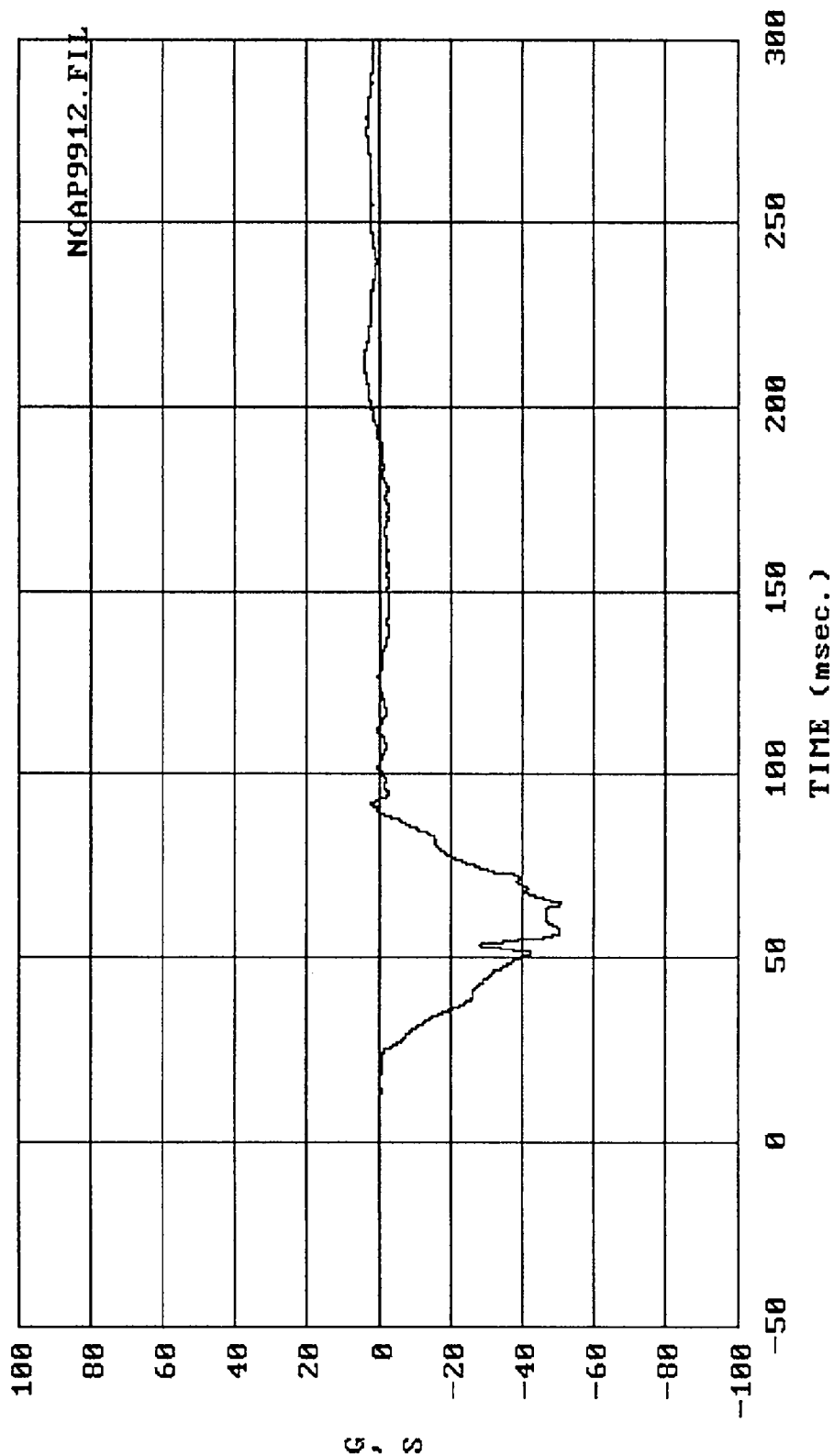
Filter: SAE CLASS 1000 Max = 1.0268 Min = -70.272
 MSE 05/09/89 --- 1989 Mitsubishi Van : Pasngr Head accel., Z-axis

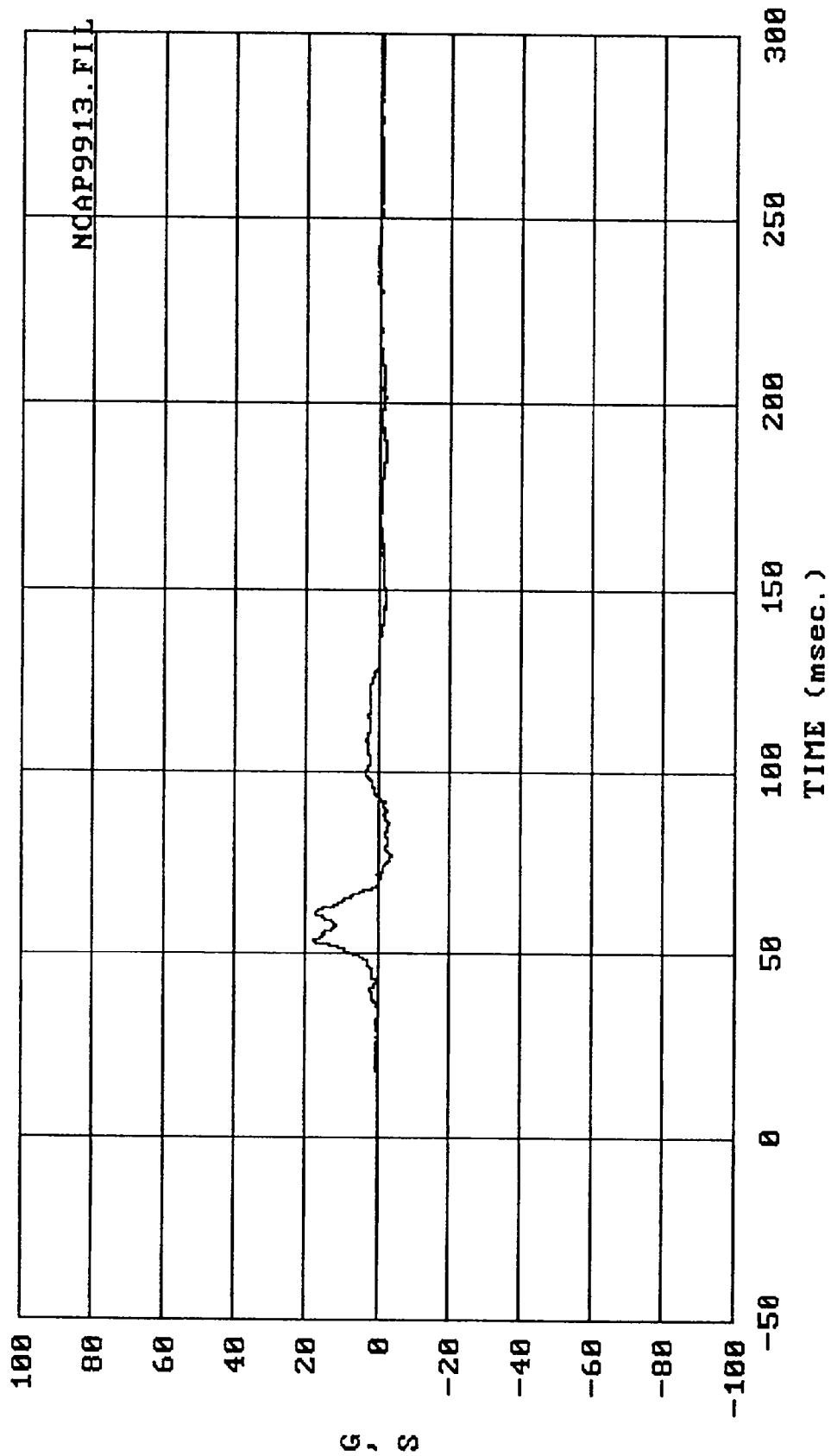


Filter: SAE CLASS 1000

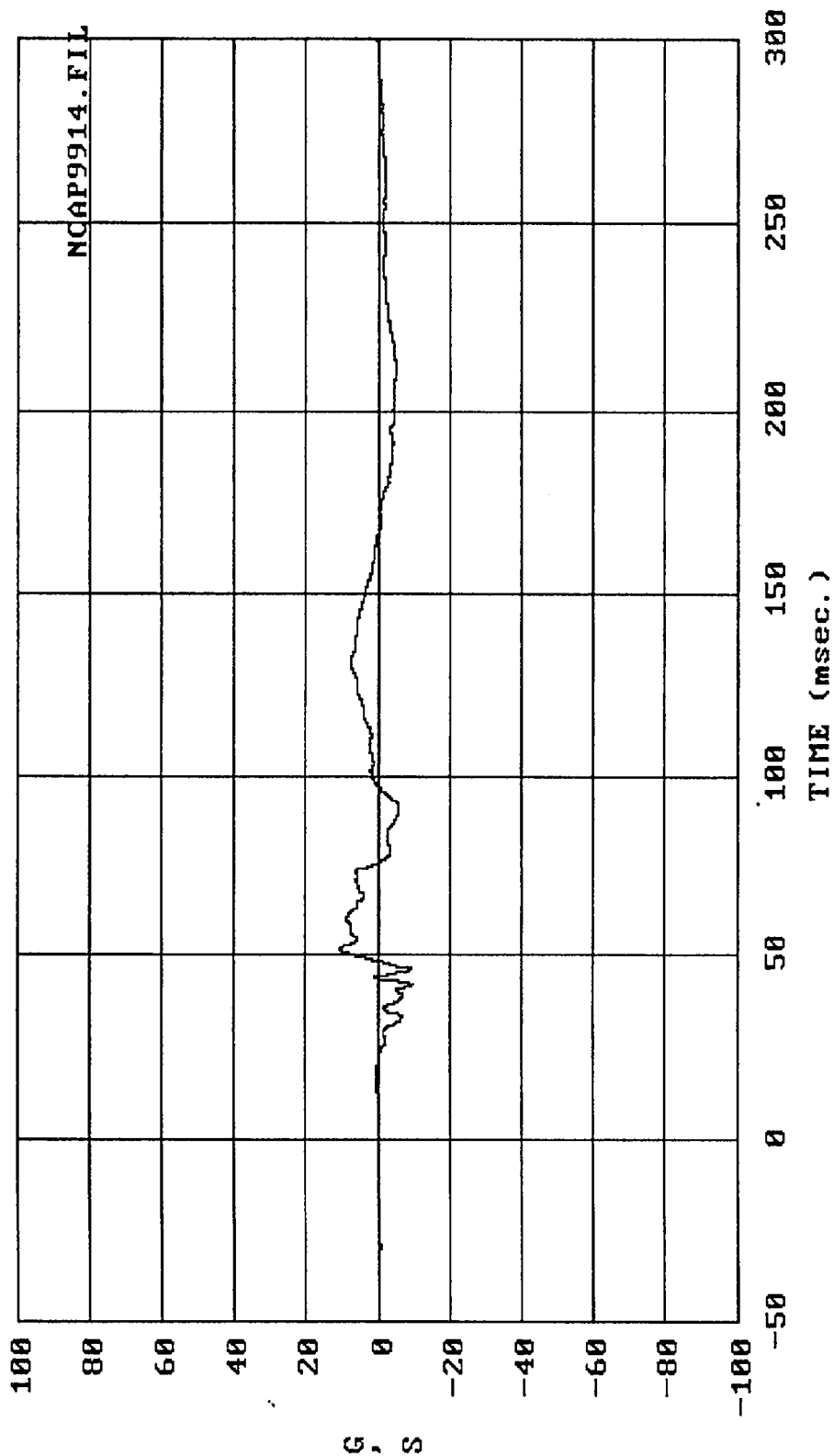
Max = 73.830 Min = .12446

MSE 05/09/89 -- 1989 Mitsubishi Van : Pasngr Head resultant acc.

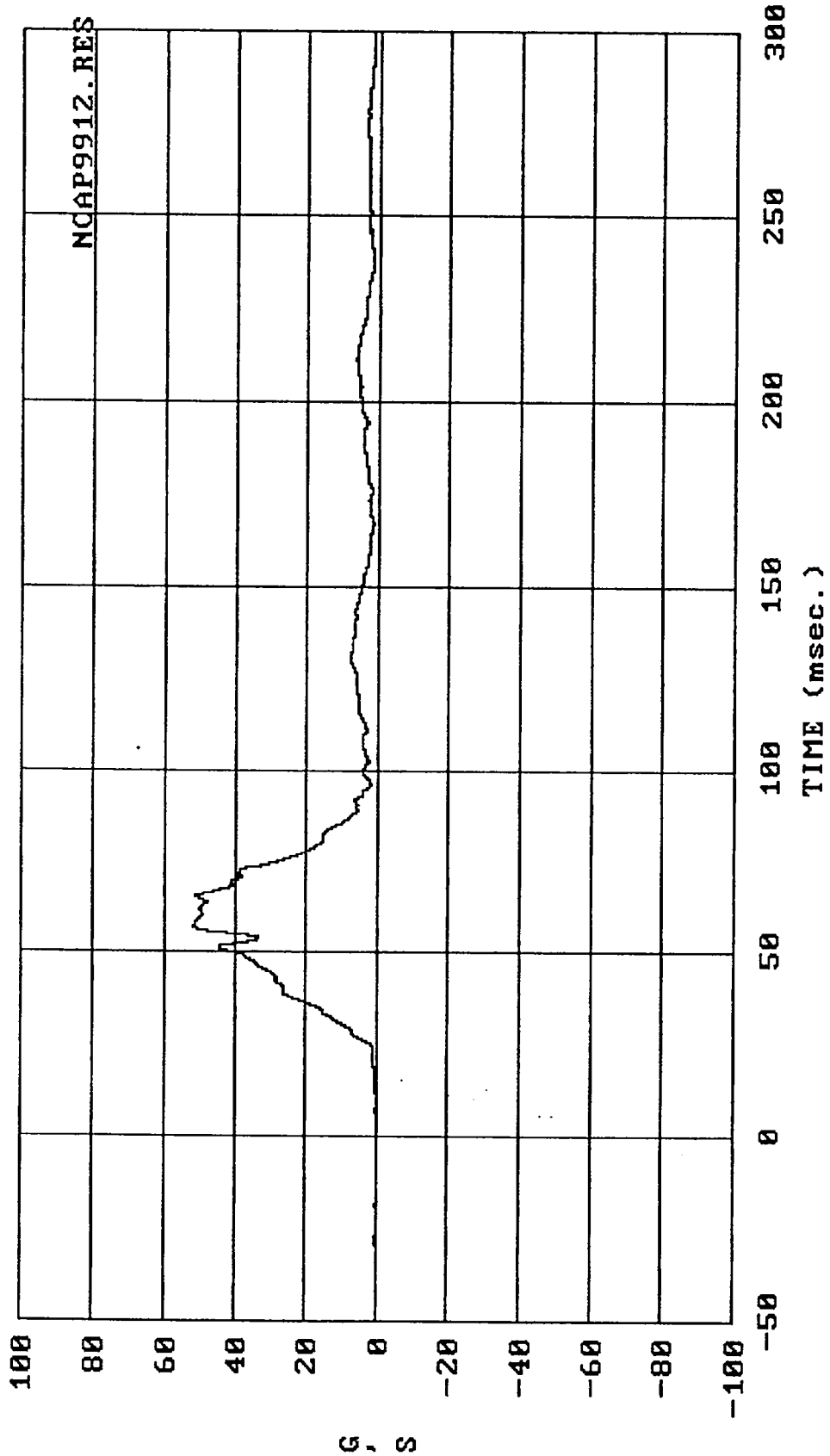




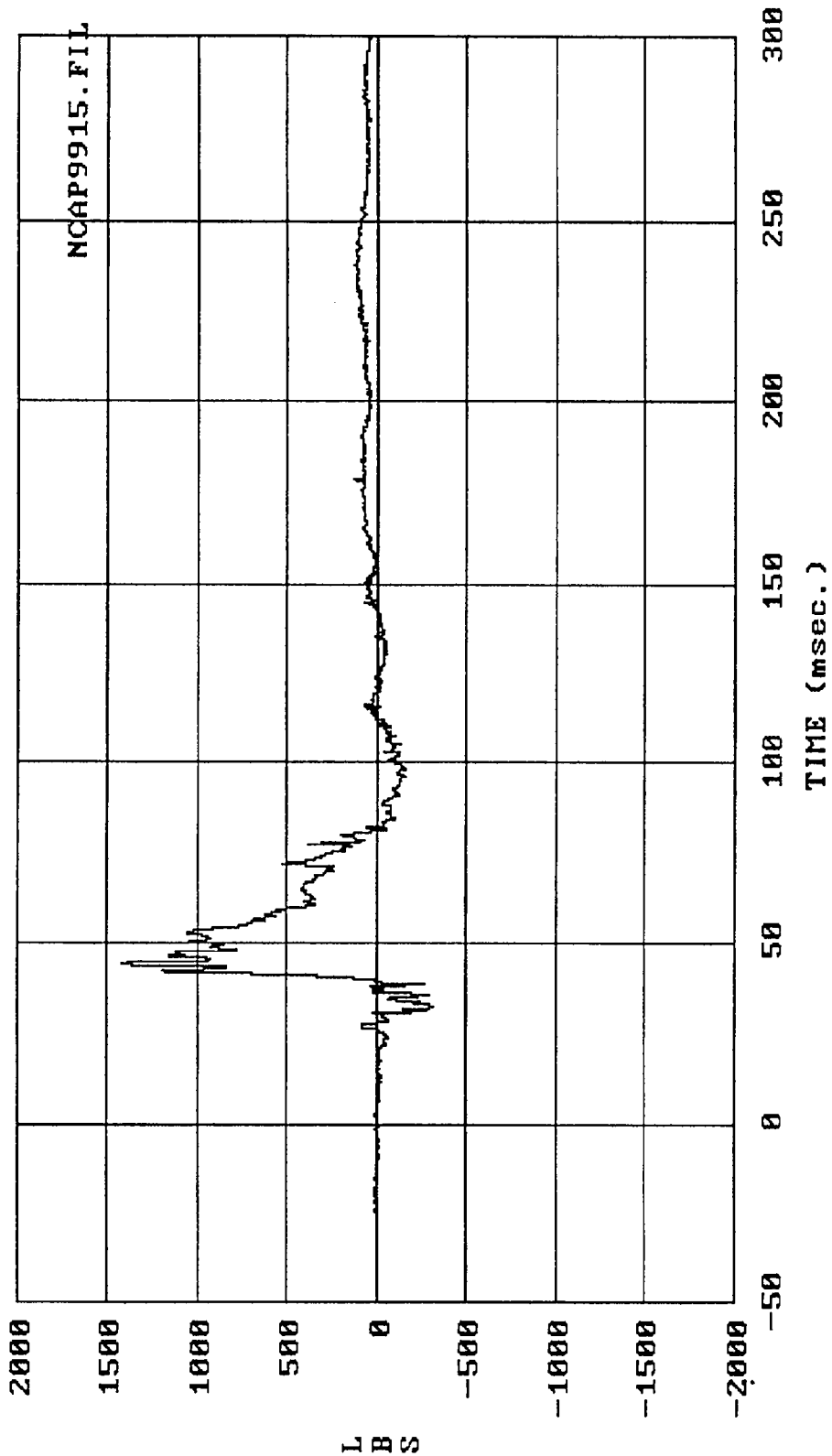
Filter: SAE CLASS 180 Max = 17.991 Min = -3.3723
MSE 05/09/89 -- 1989 Mitsubishi Van : Pasngr Chst accel., Y-axis



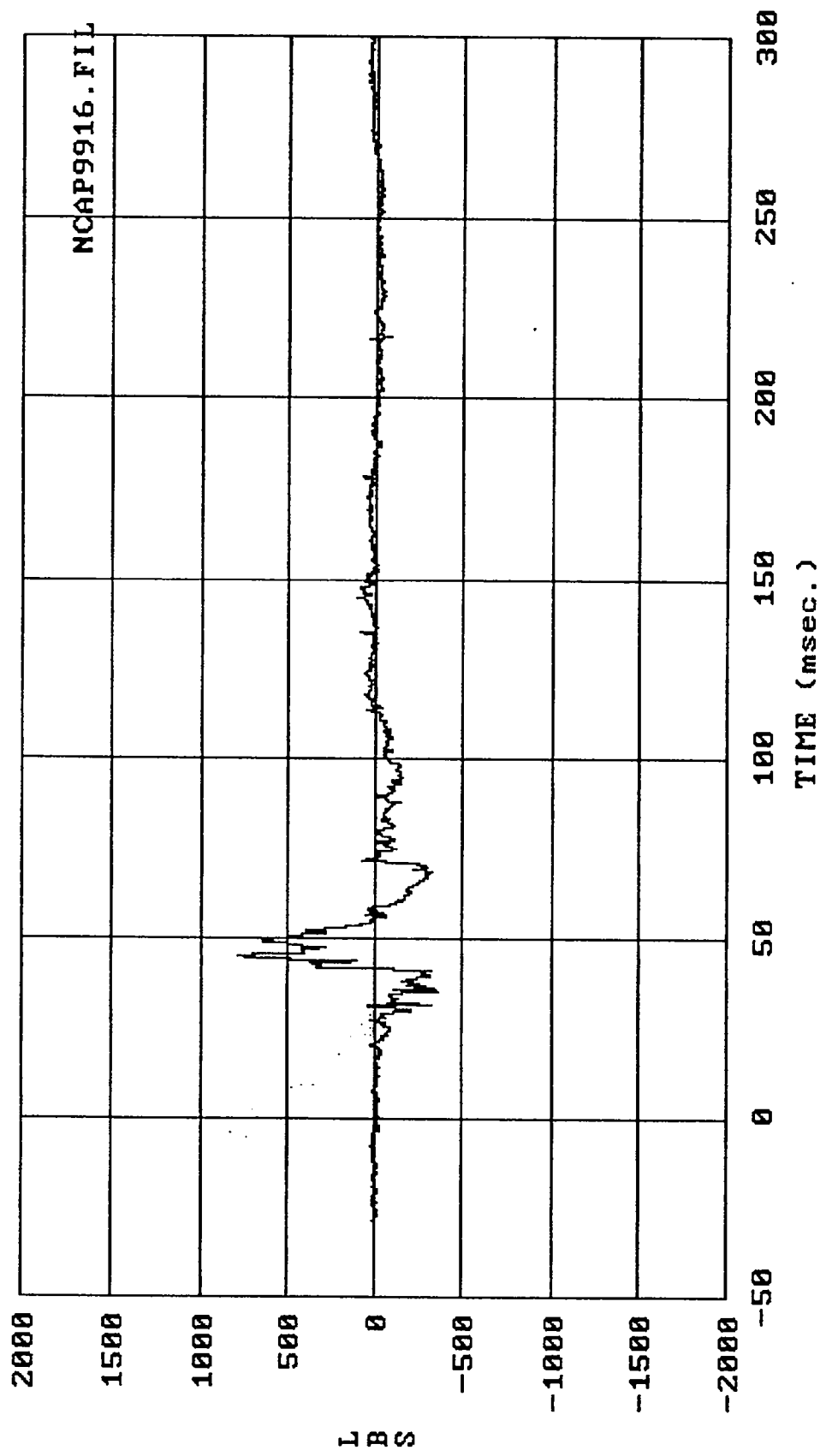
Filter: SAE CLASS 180 Max = 11.104 Min = -9.5223
MSE 05/09/89 -- 1989 Mitsubishi Van : Pasngr Chst accel., Z-axis



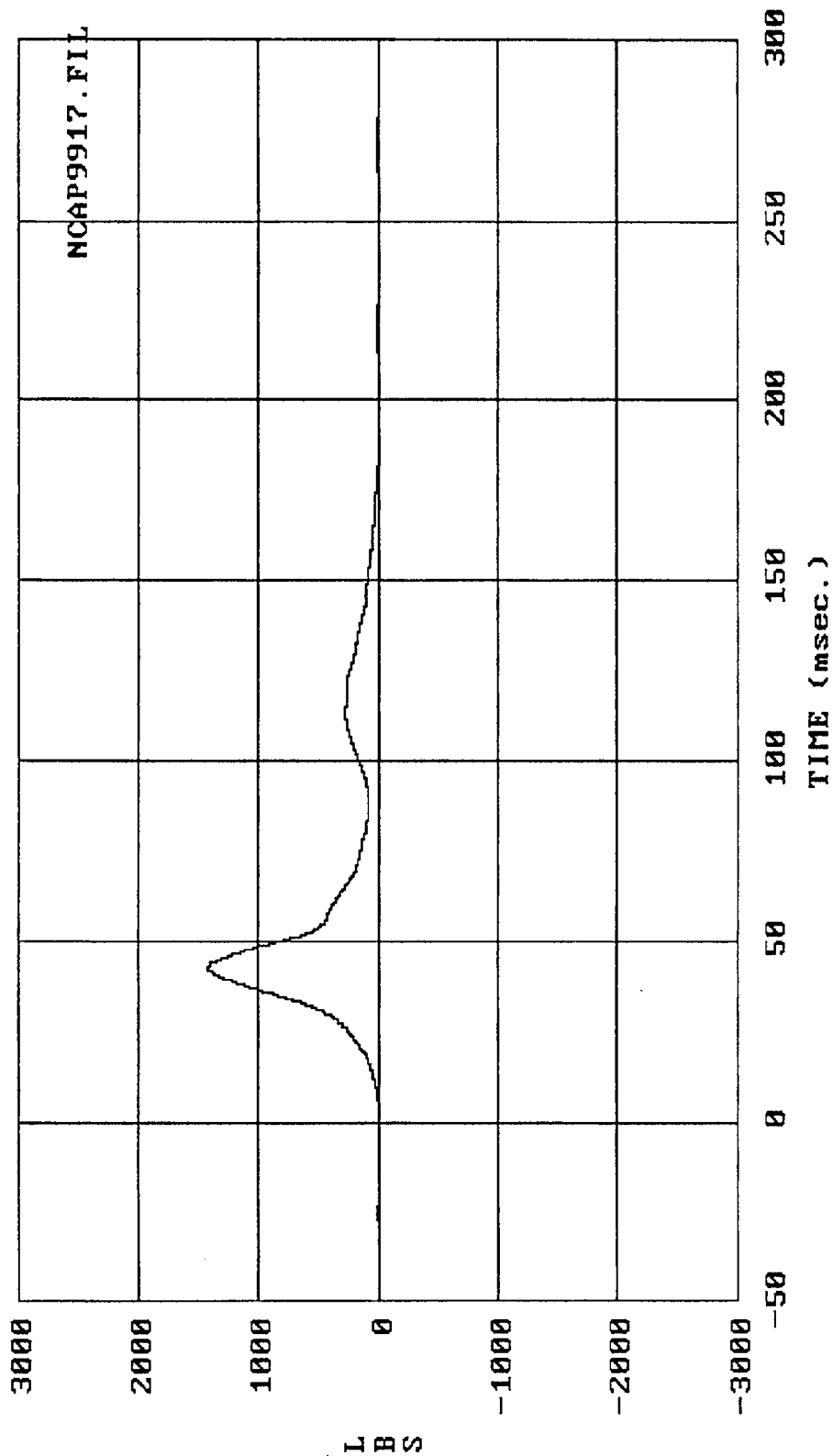
Filter: SAE CLASS 180 Max = 52.363 Min = .12385E-01
MSE 05/09/89 -- 1989 Mitsubishi Van : Pasngr Chst resultant acc.



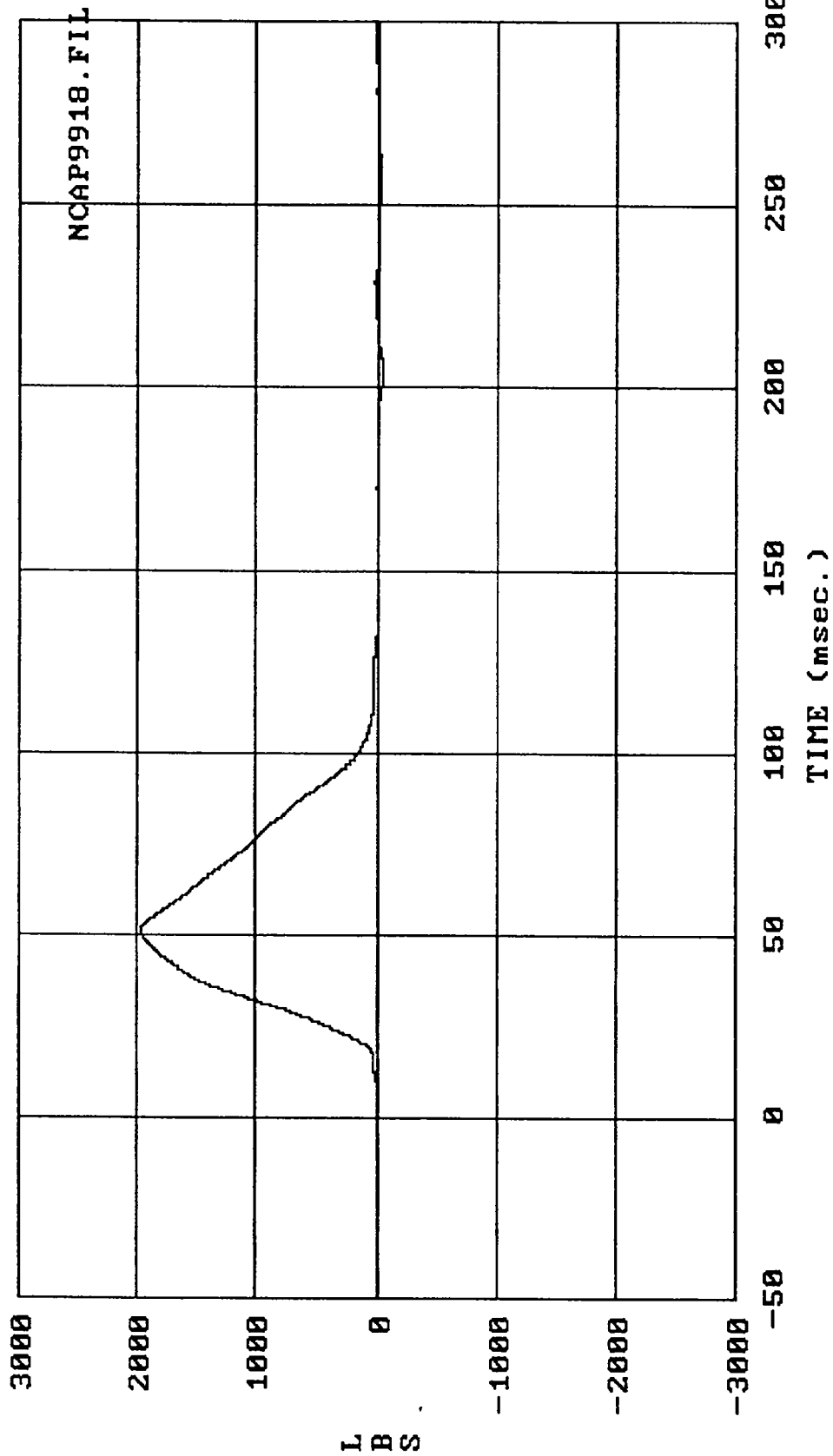
Filter: SAE CLASS 600 Max = 1426.5 Min = -313.02
MSE 05/09/89 -- 1989 Mitsubishi Van : Pasngr Left Femur force



Filter: SAE CLASS 600 Max = 791.33 Min = -362.38
 MSE 05/09/89 -- 1989 Mitsubishi Van : Pasngr Right Femur force



Filter: SAE CLASS 60 Max = 1426.1 Min = -7.2615
MSE 05/09/89 -- 1989 Mitsubishi Van : Driver Lap Belt force

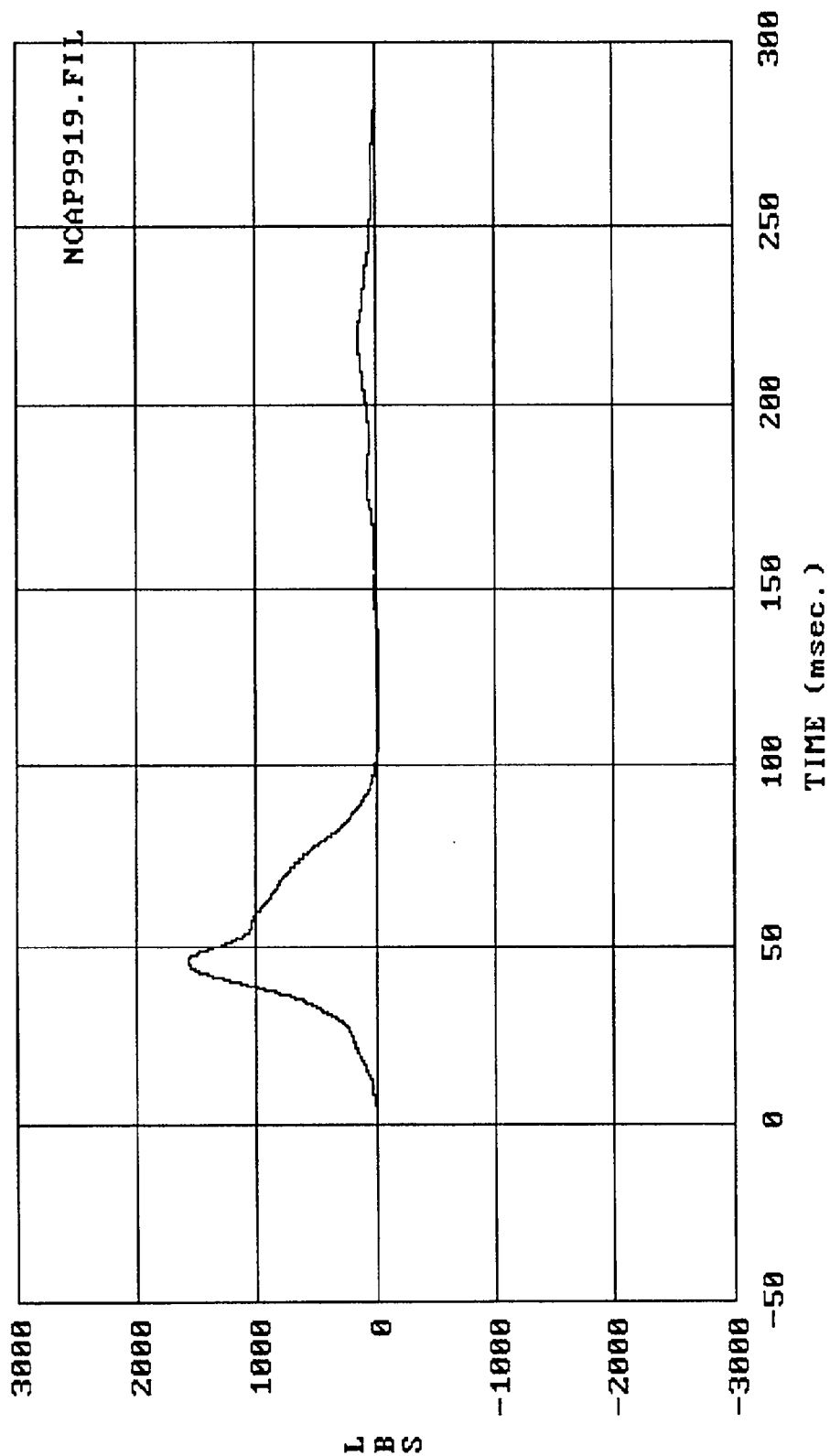


Filter: SAE CLASS 60

Max = 1972.3

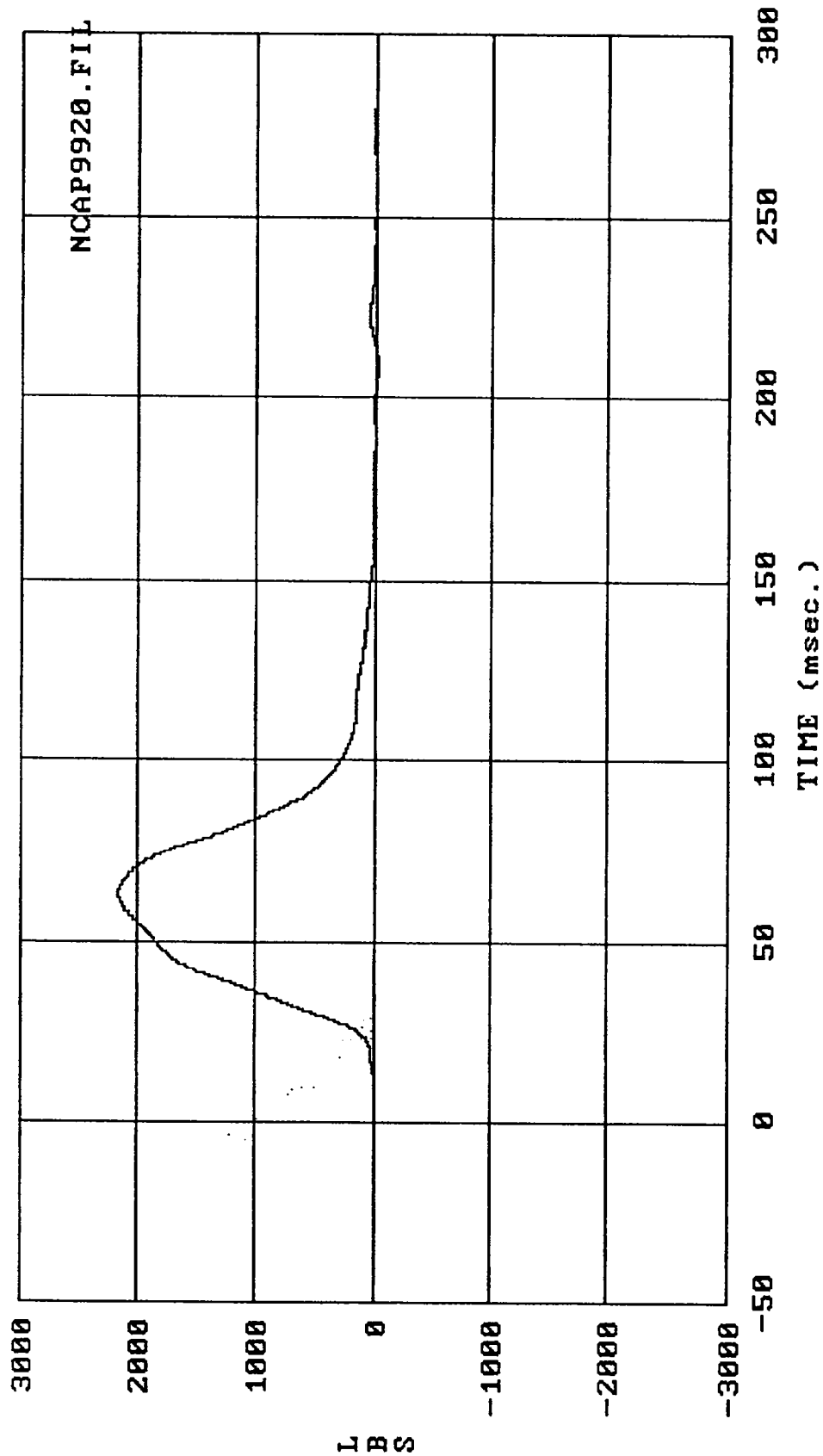
Min = -44.708

MSE 05/09/89 -- 1989 Mitsubishi Van : Driver Shoulder Belt force



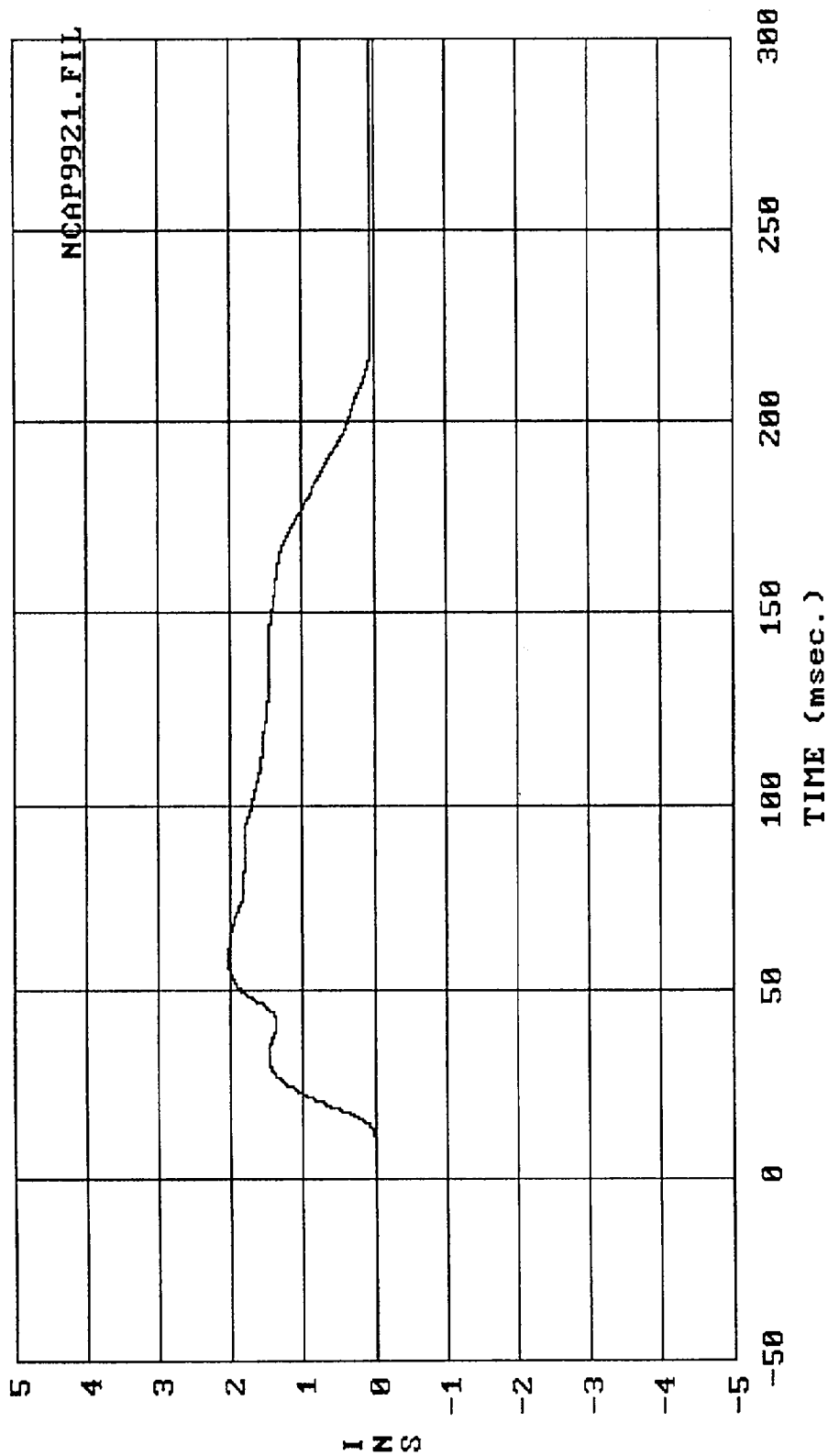
Filter: SAE CLASS 60 Max = 1578.0 Min = -25.294

MSE 05/09/89 — 1989 Mitsubishi Van : Pasngr Lap Belt force



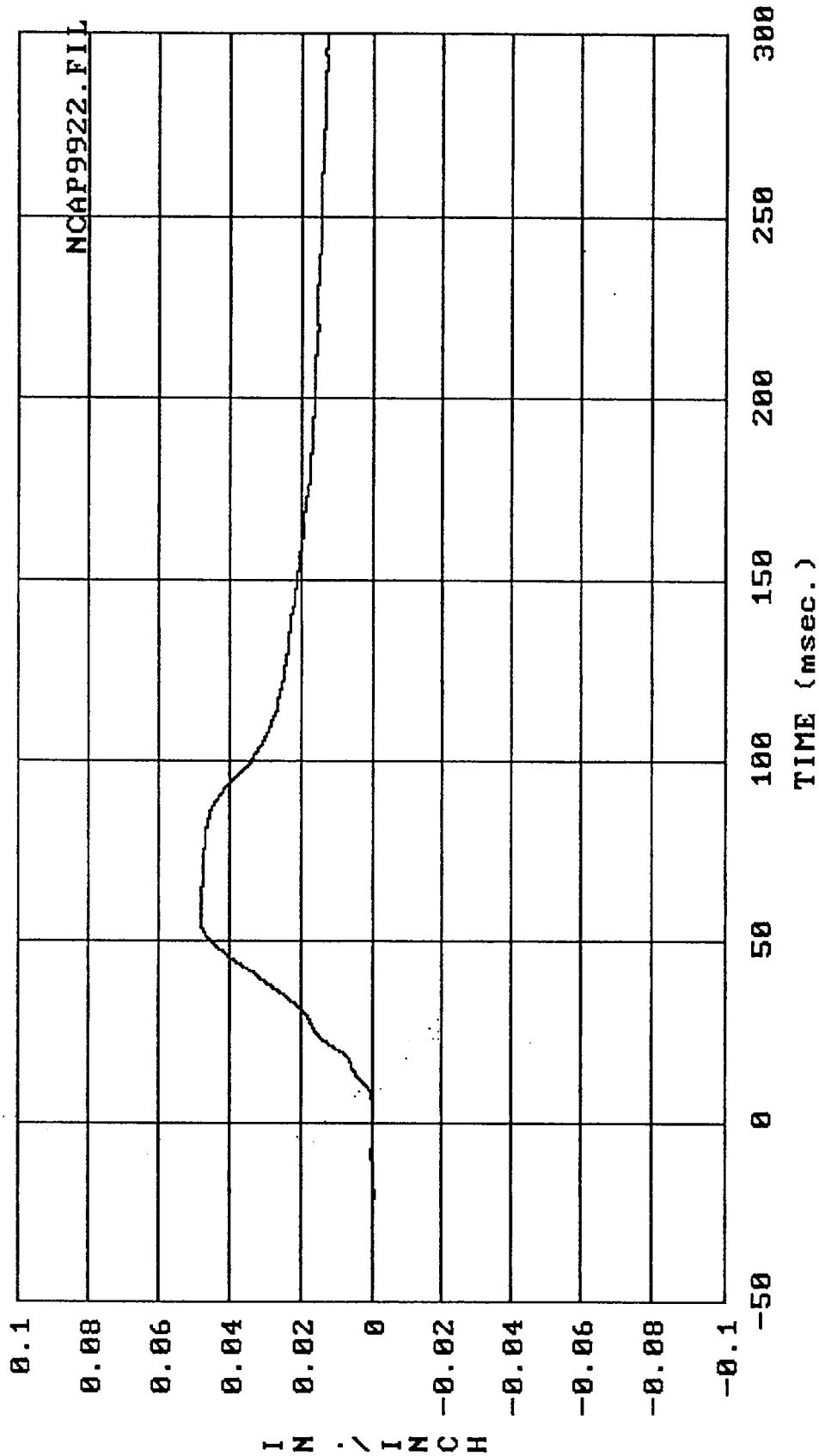
Filter: SAE CLASS 60 Max = 2163.6 Min = -13.687

MSE 05/09/89 --- 1989 Mitsubishi Van : Pasngr Shoulder Belt force

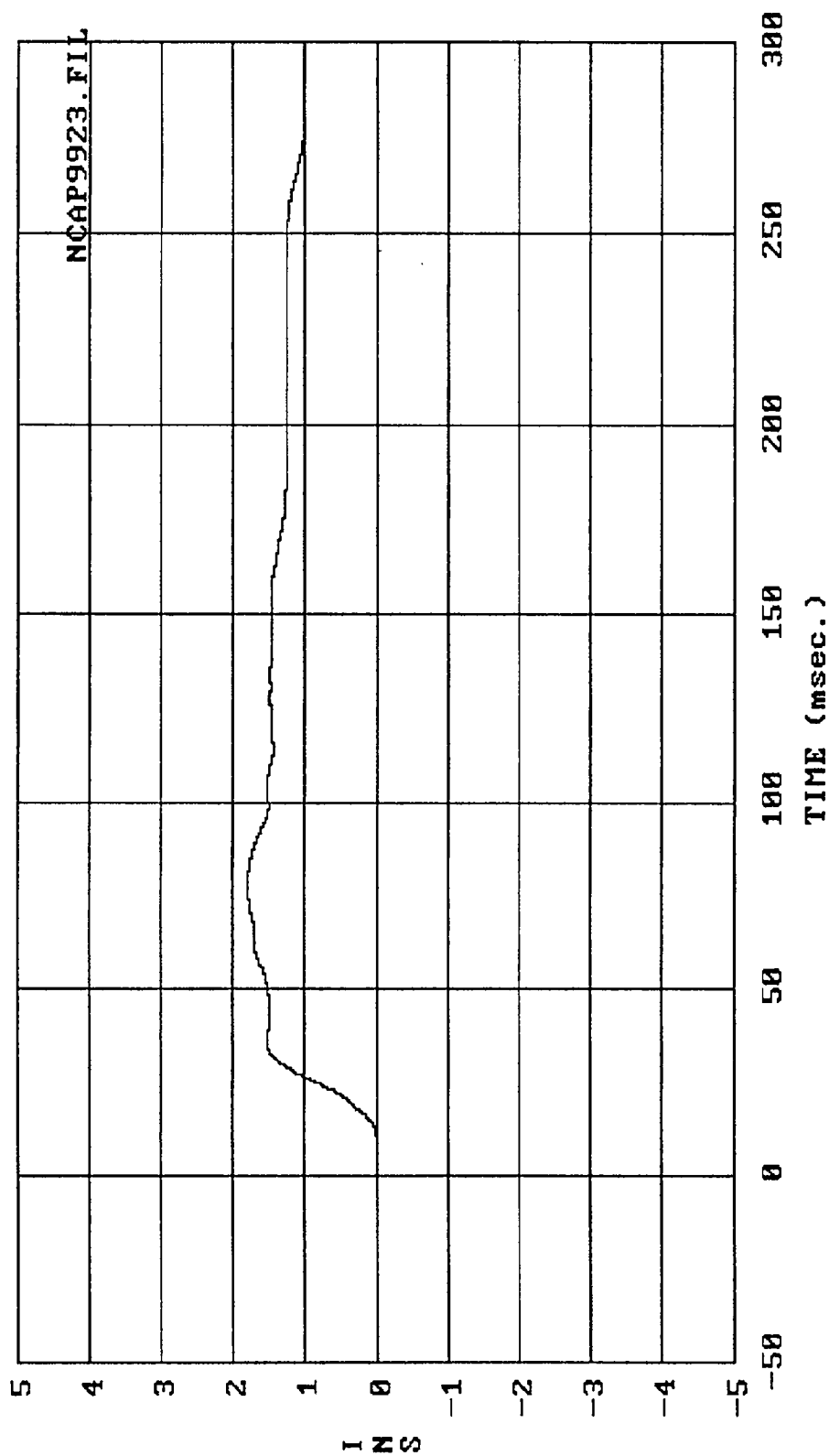


Filter: SAE CLASS 60 Max = 2.0439 Min = -.75571E-04

MSE 05/09/89 -- 1989 Mitsubishi Van : Driver Belt pullout

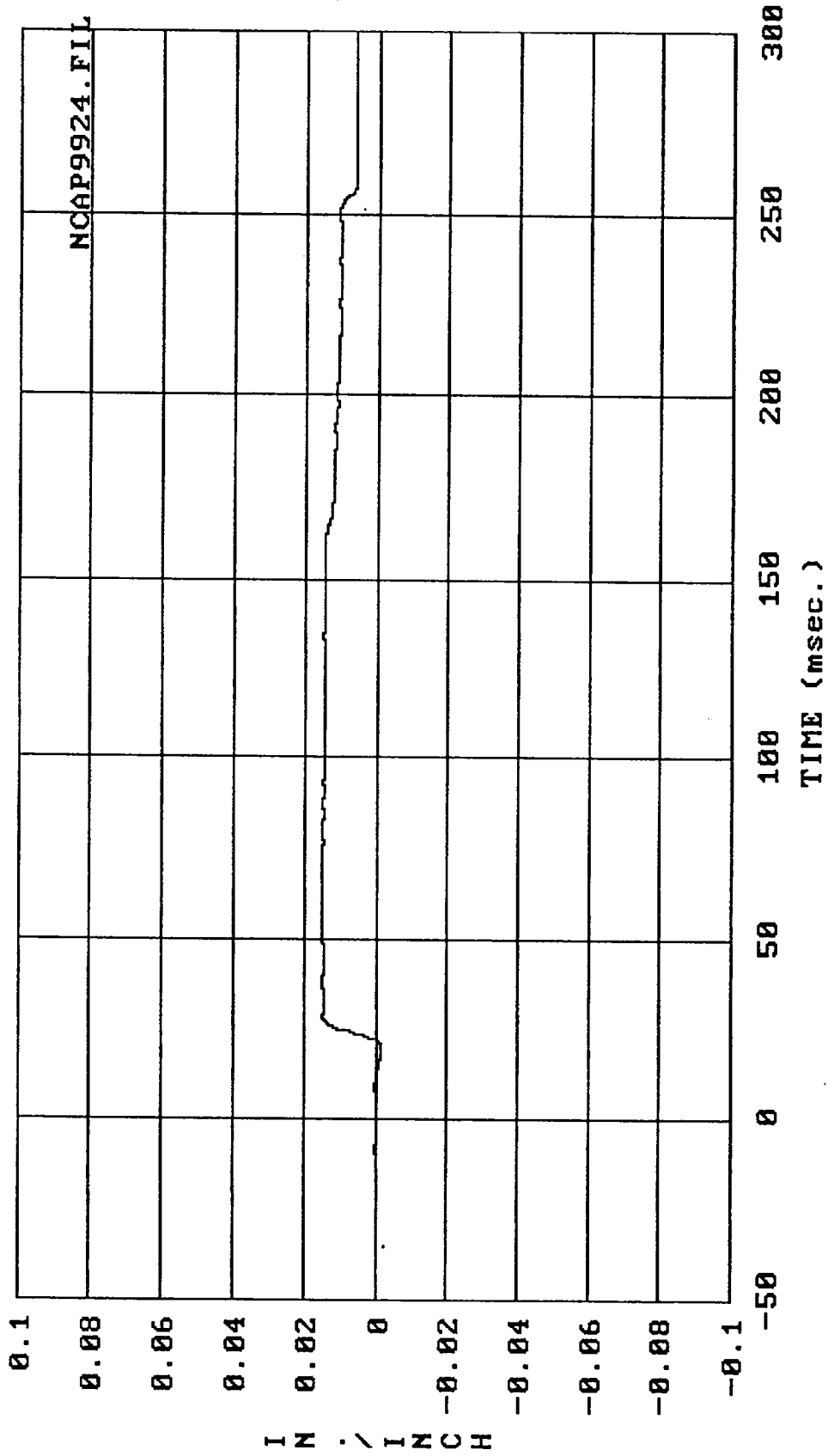


Filter: SAE CLASS 60 Max = .48229E-01 Min = .88785E-05
MSE 05/09/89 -- 1989 Mitsubishi Van : Driver Belt percent elongation

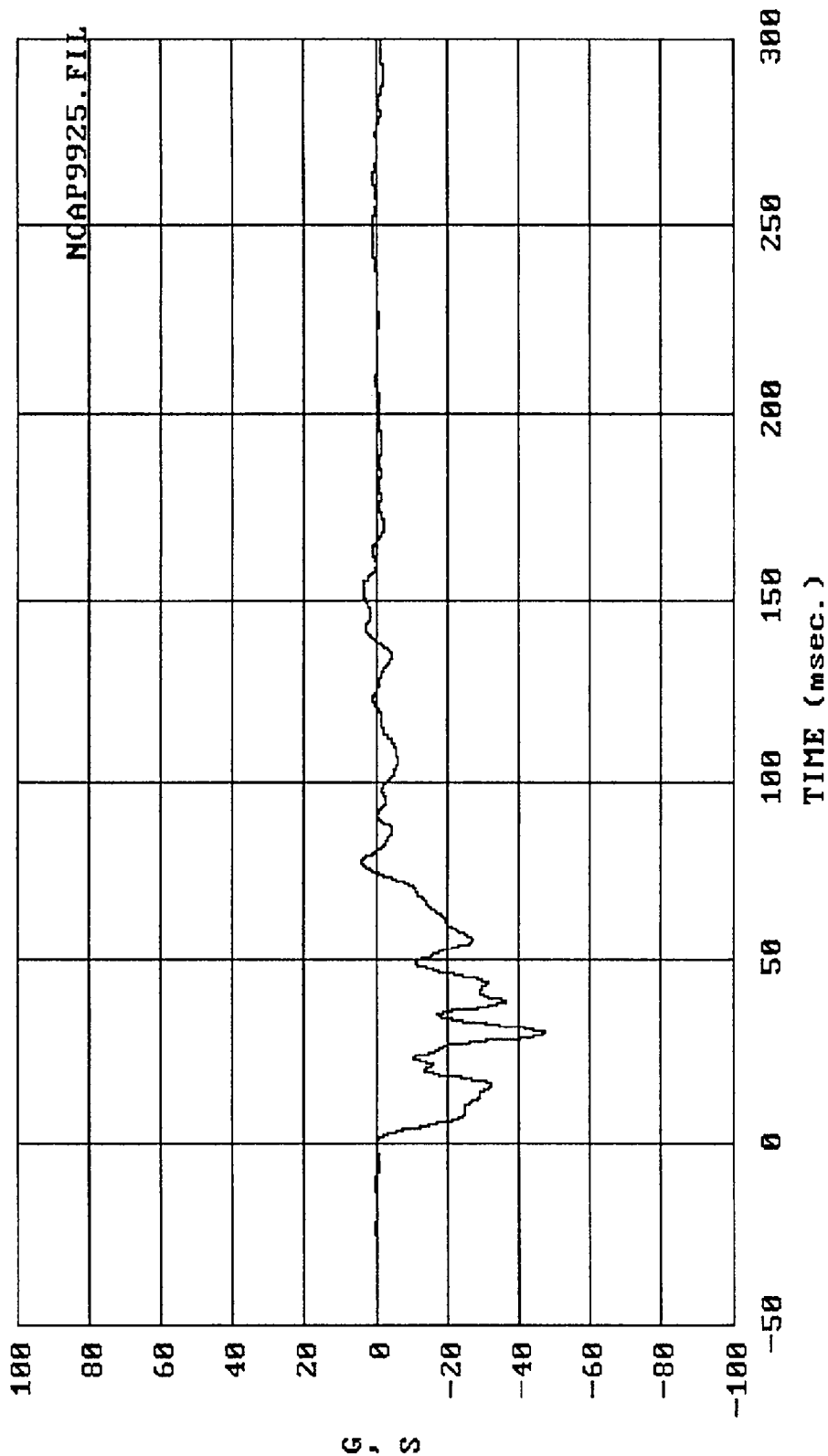


Filter: SAE CLASS 60 Max = 1.7989 Min = -.13296E-02

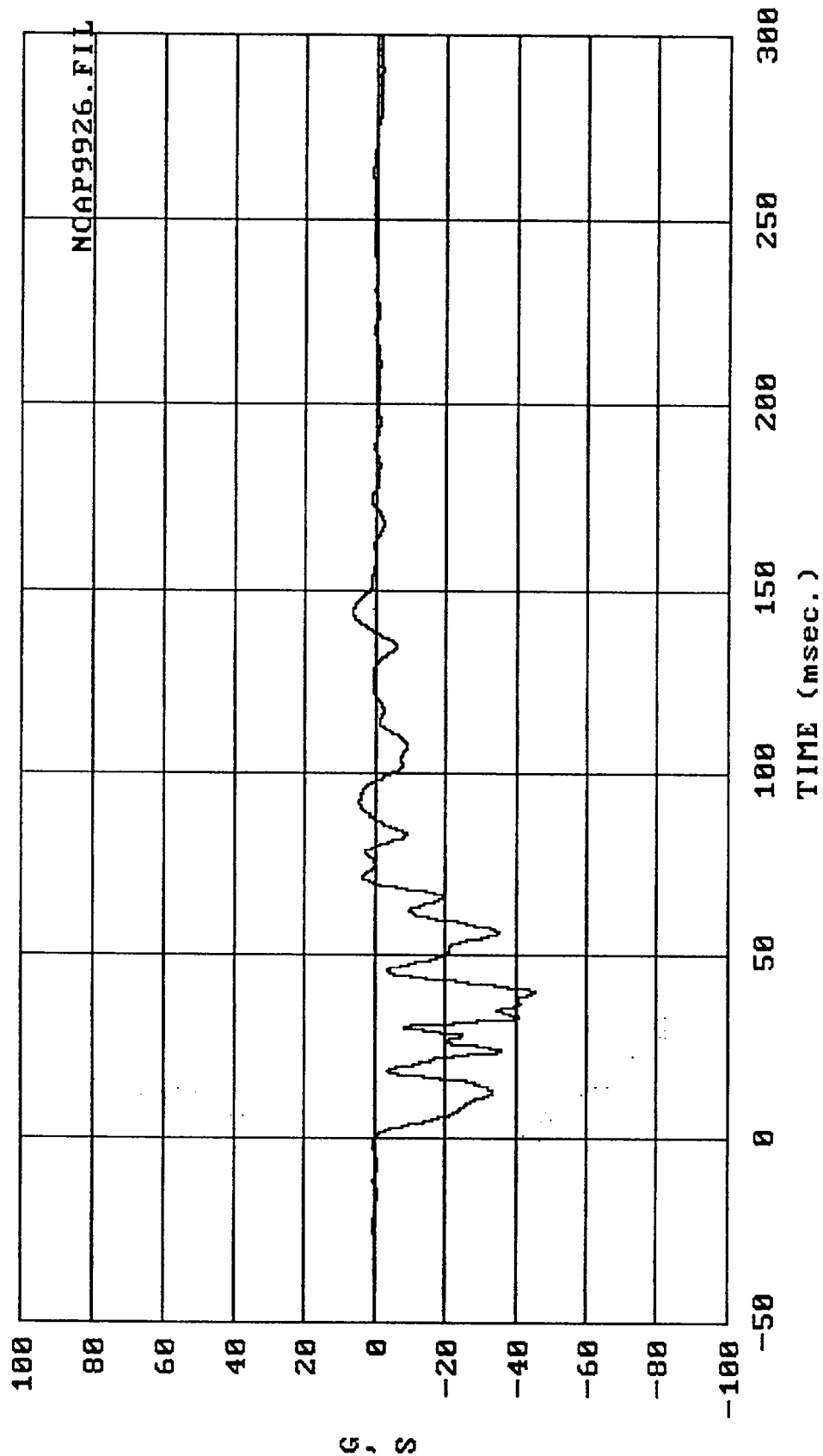
MSE 05/09/89 -- 1989 Mitsubishi Van : Pasngr Belt pullout



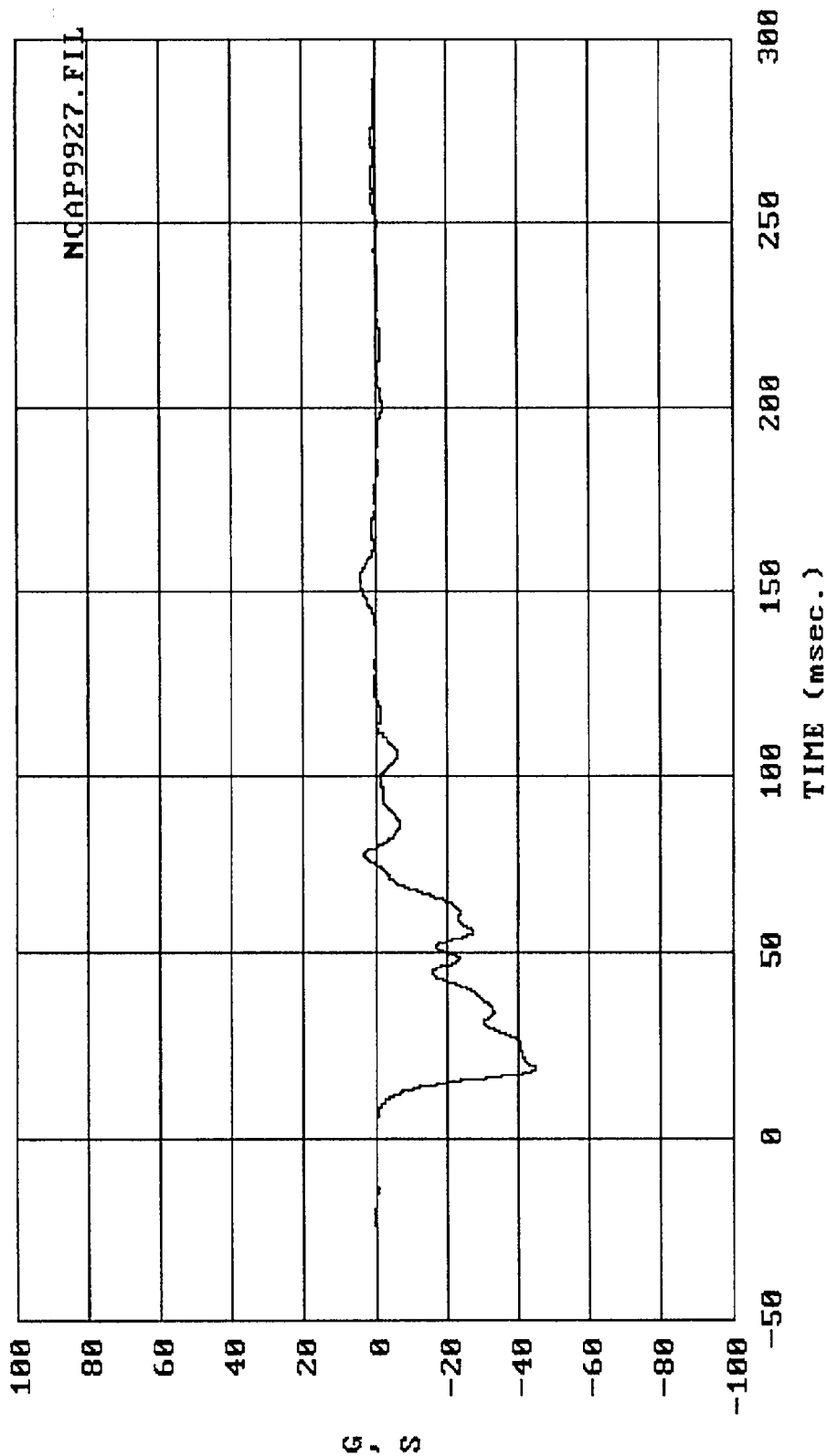
Filter: SAE CLASS 60 Max = .15768E-01 Min = -.13514E-02
 MSE 05/09/89 -- 1989 Mitsubishi Van : Pasngr Belt percent elongation



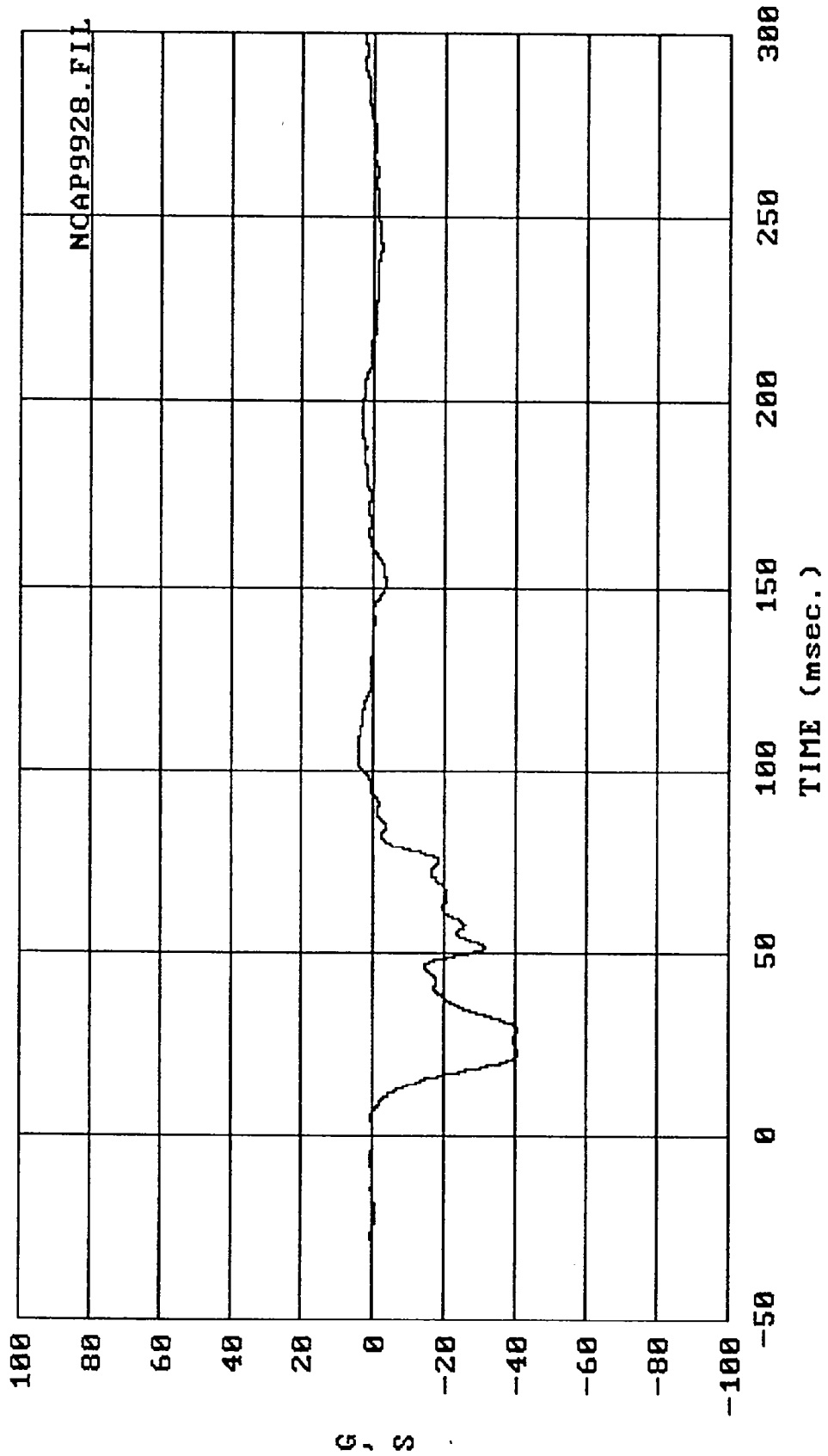
Filter: SAE CLASS 60 Max = 4.2776 Min = -46.873
MSE 05/09/89 -- 1989 Mitsubishi Van : Left front caliper accel.

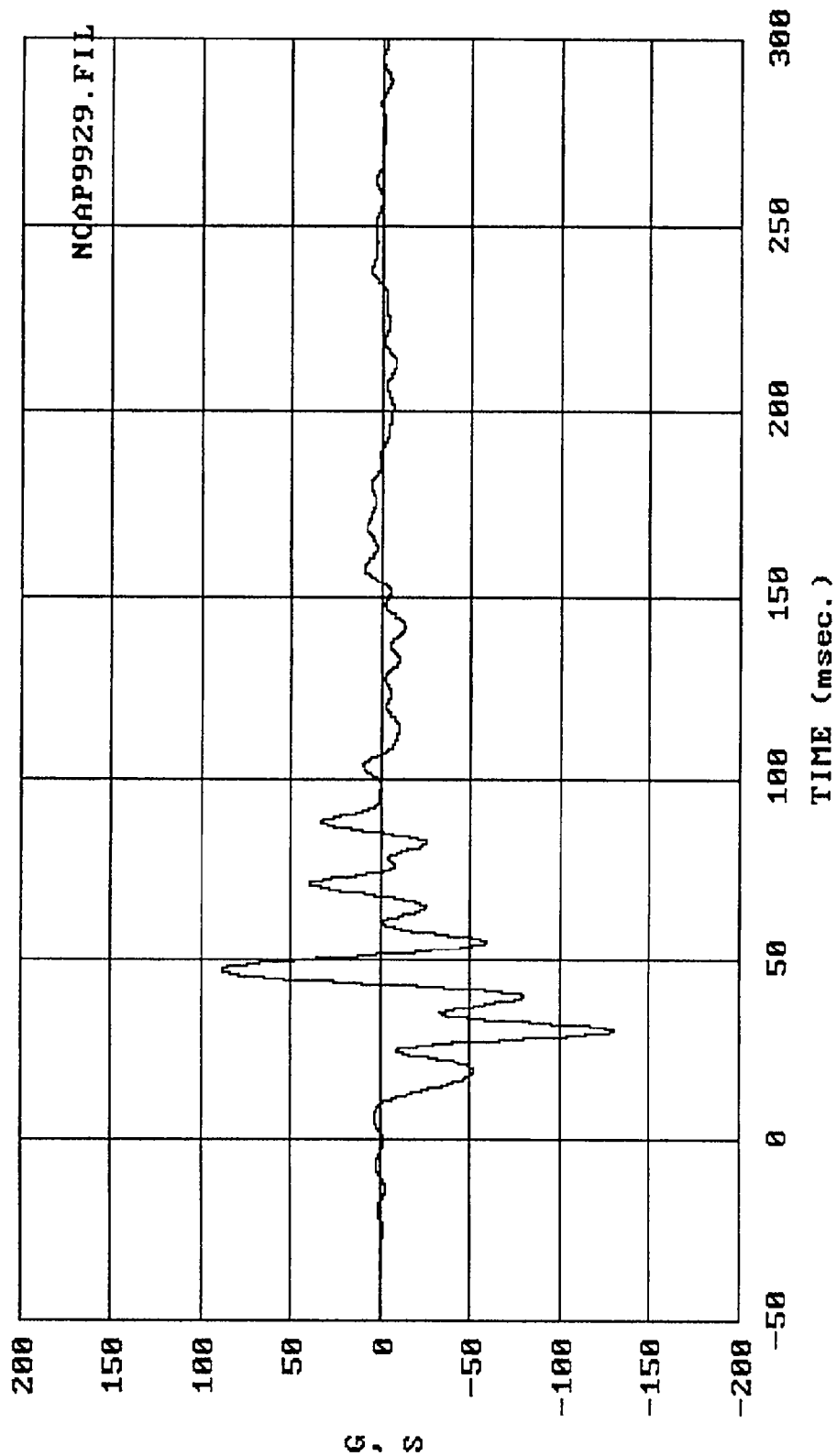


Filter: SAE CLASS 60 Max = 6.6649 Min = -45.461
 MSE 05/09/89 -- 1989 Mitsubishi Van : Right front caliper accel.

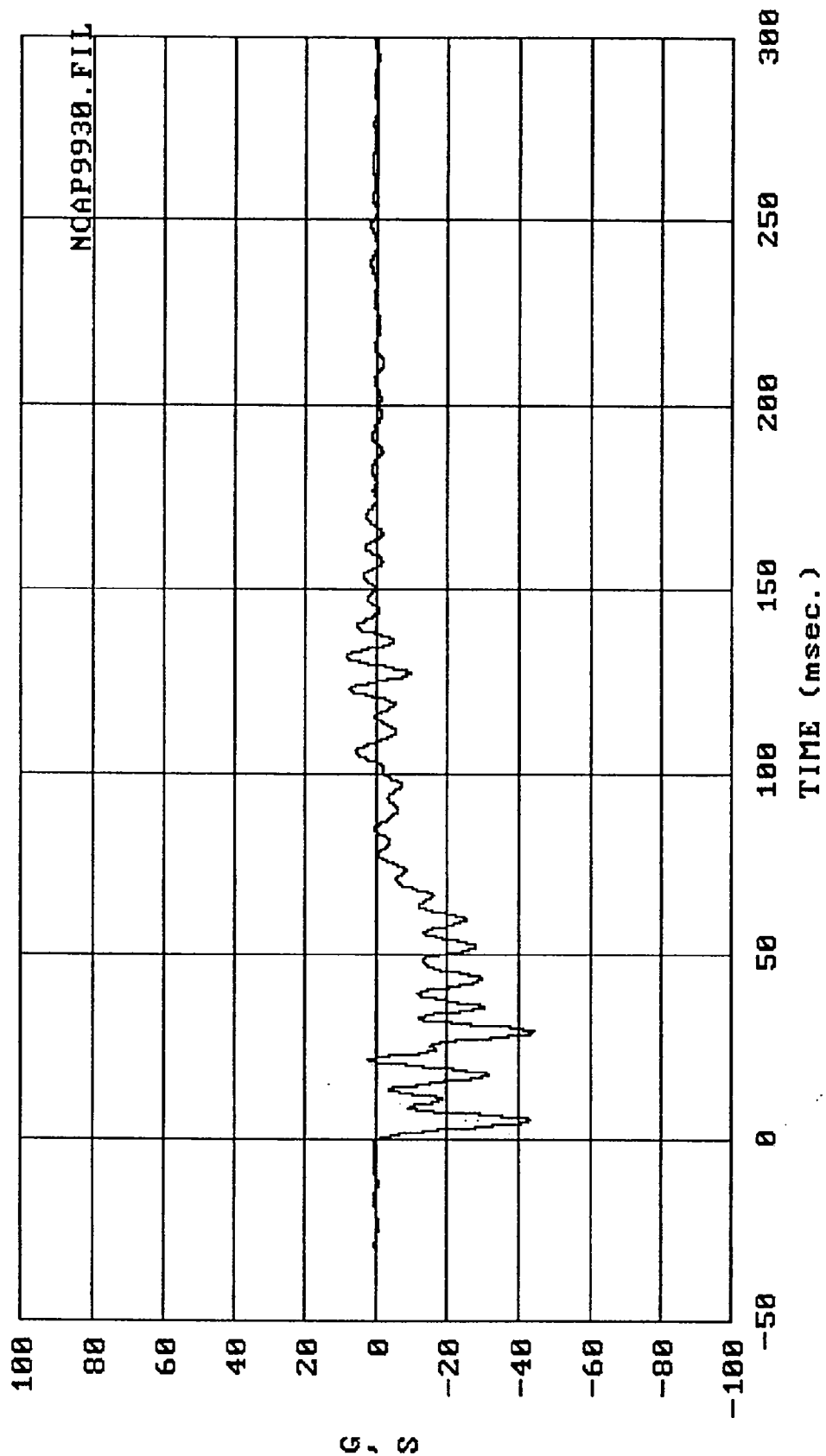


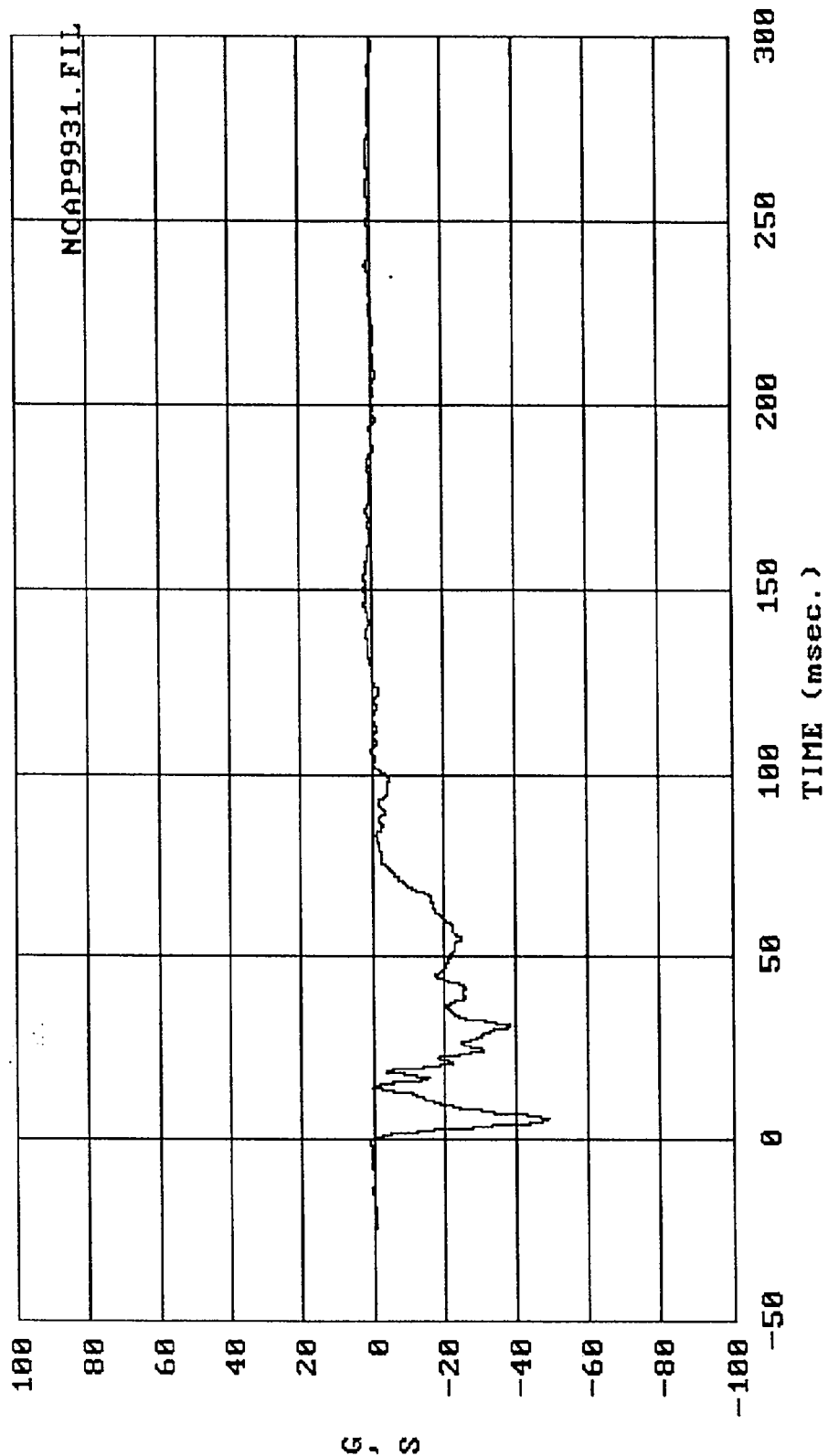
Filter: SAE CLASS 60 Max = 4.1082 Min = -44.700
 MSE 05/09/89 -- 1989 Mitsubishi Van : Engine bottom acceleration





Filter: SAE CLASS 60 Max = 88.410 Min = -130.24
MSE 05/09/89 — 1989 Mitsubishi Van : Instrument panel accel.





Filter: SAE CLASS 60 Max = 2.5385 Min = -48.951
MSE 05/09/89 -- 1989 Mitsubishi Van : Right-rear seat X-member accel.

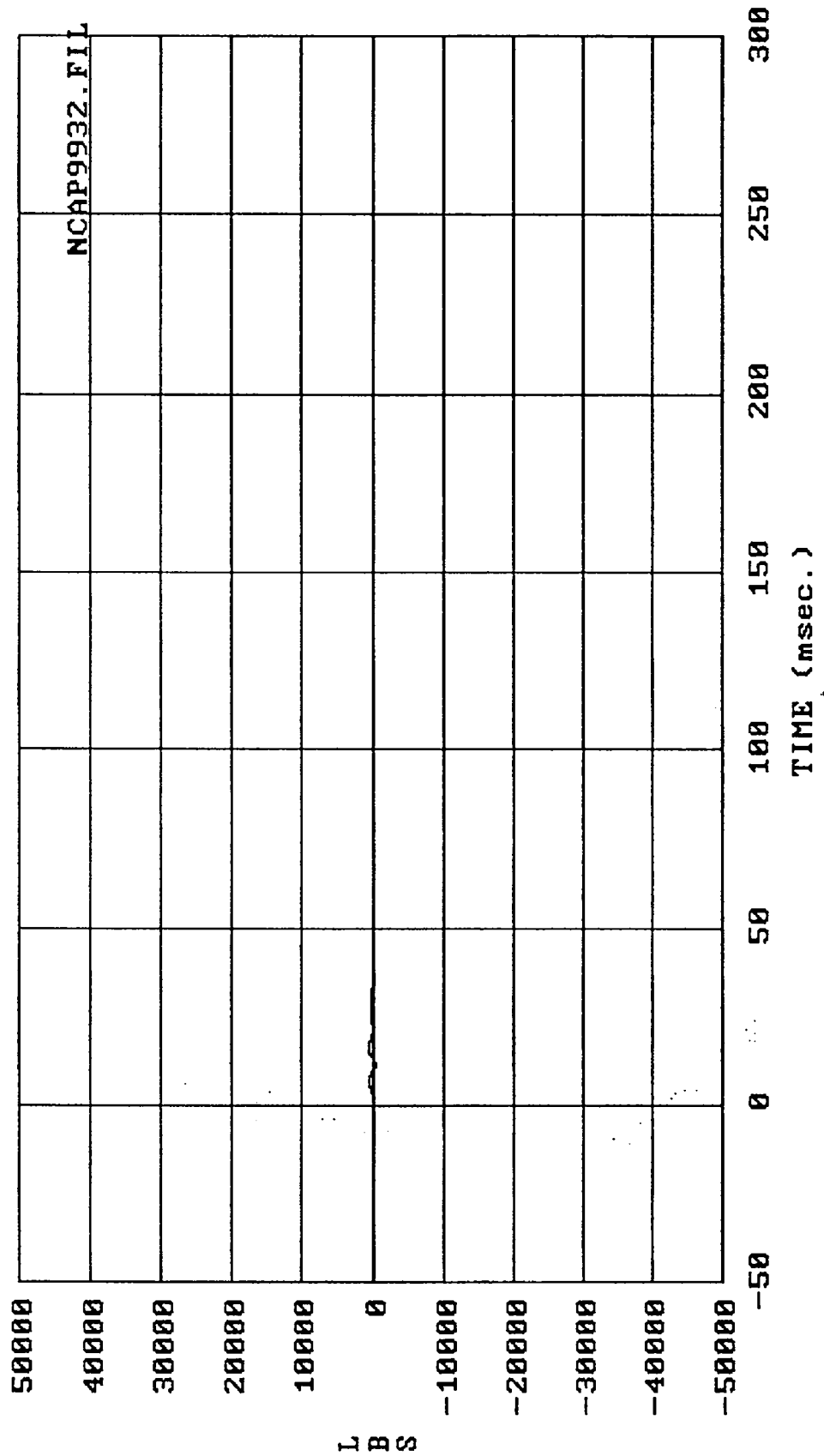
APPENDIX B-2

LOAD CELL BARRIER DATA

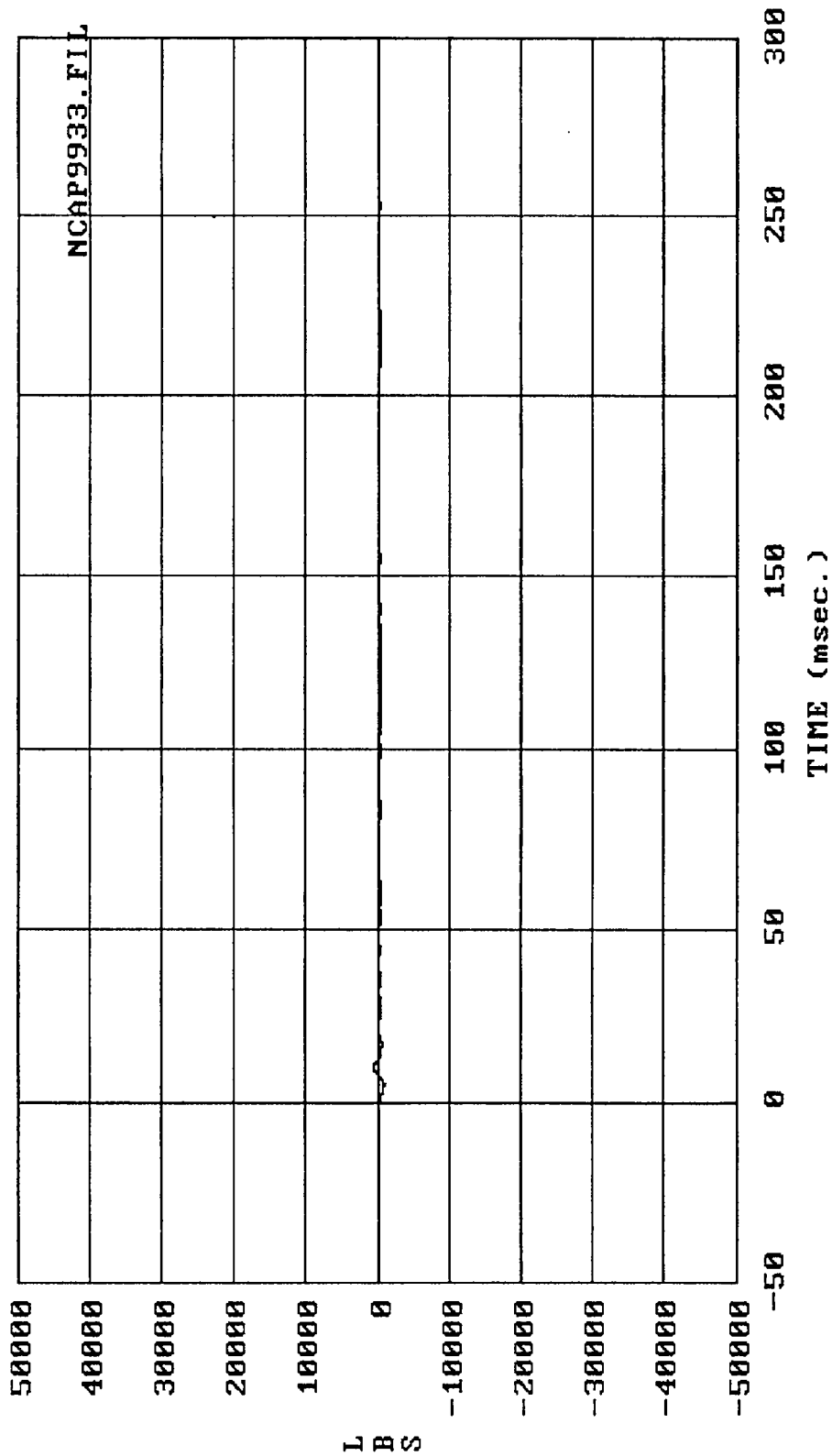
TERING:

1 Barrier Channels - Class 60

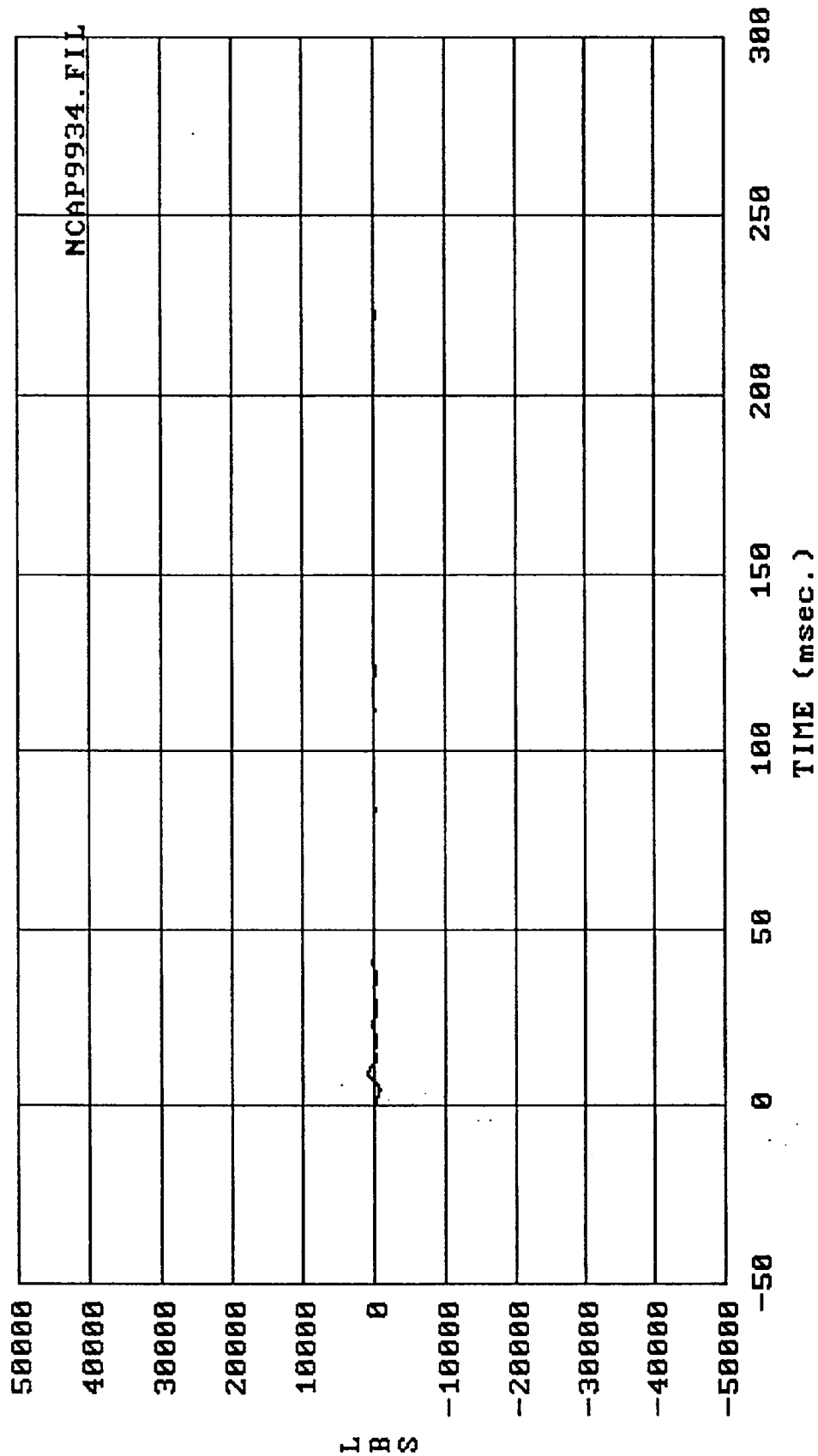
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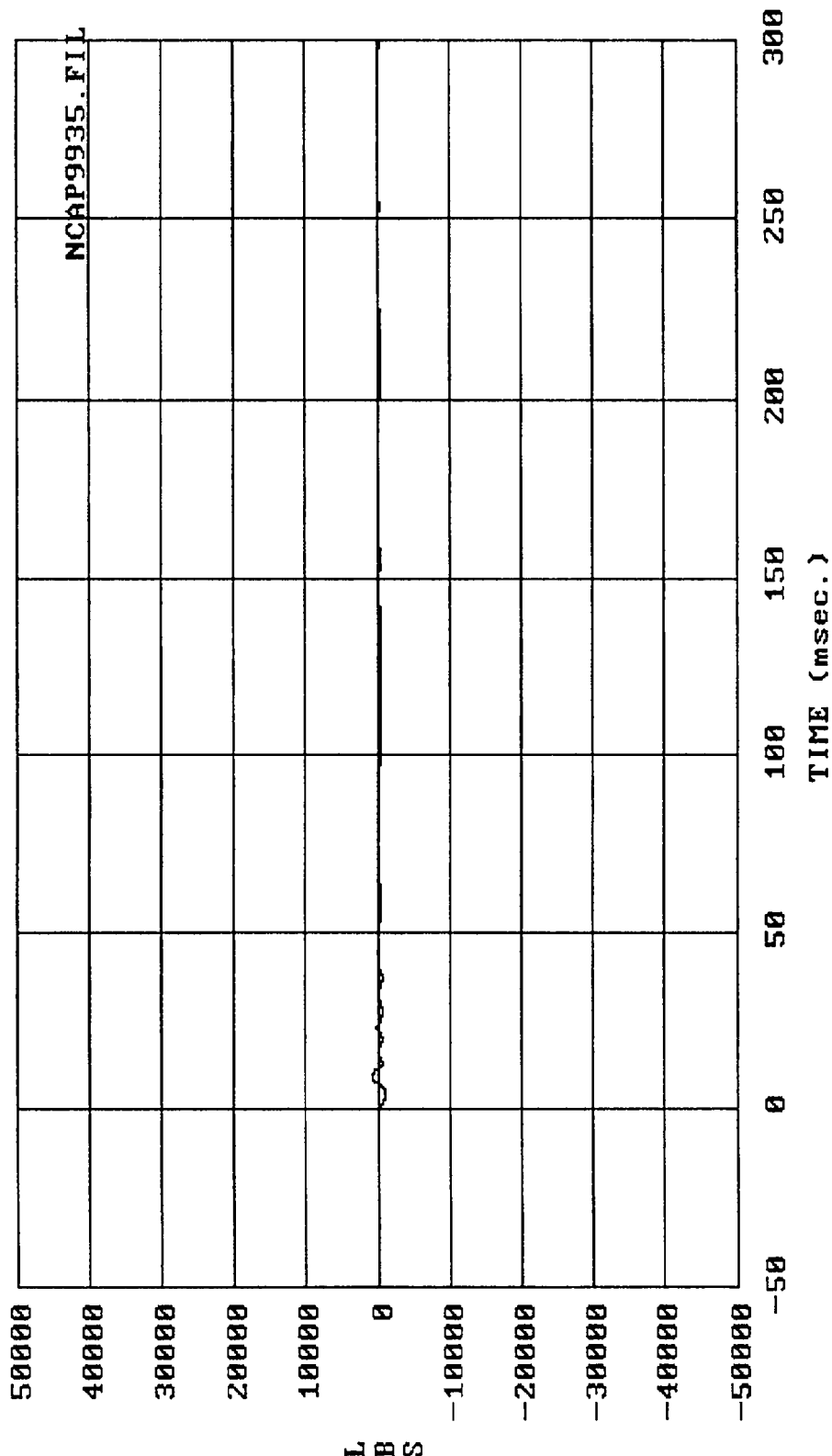
Filter: SAE CLASS 60 Max = 735.08 Min = -227.81
 MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell A1



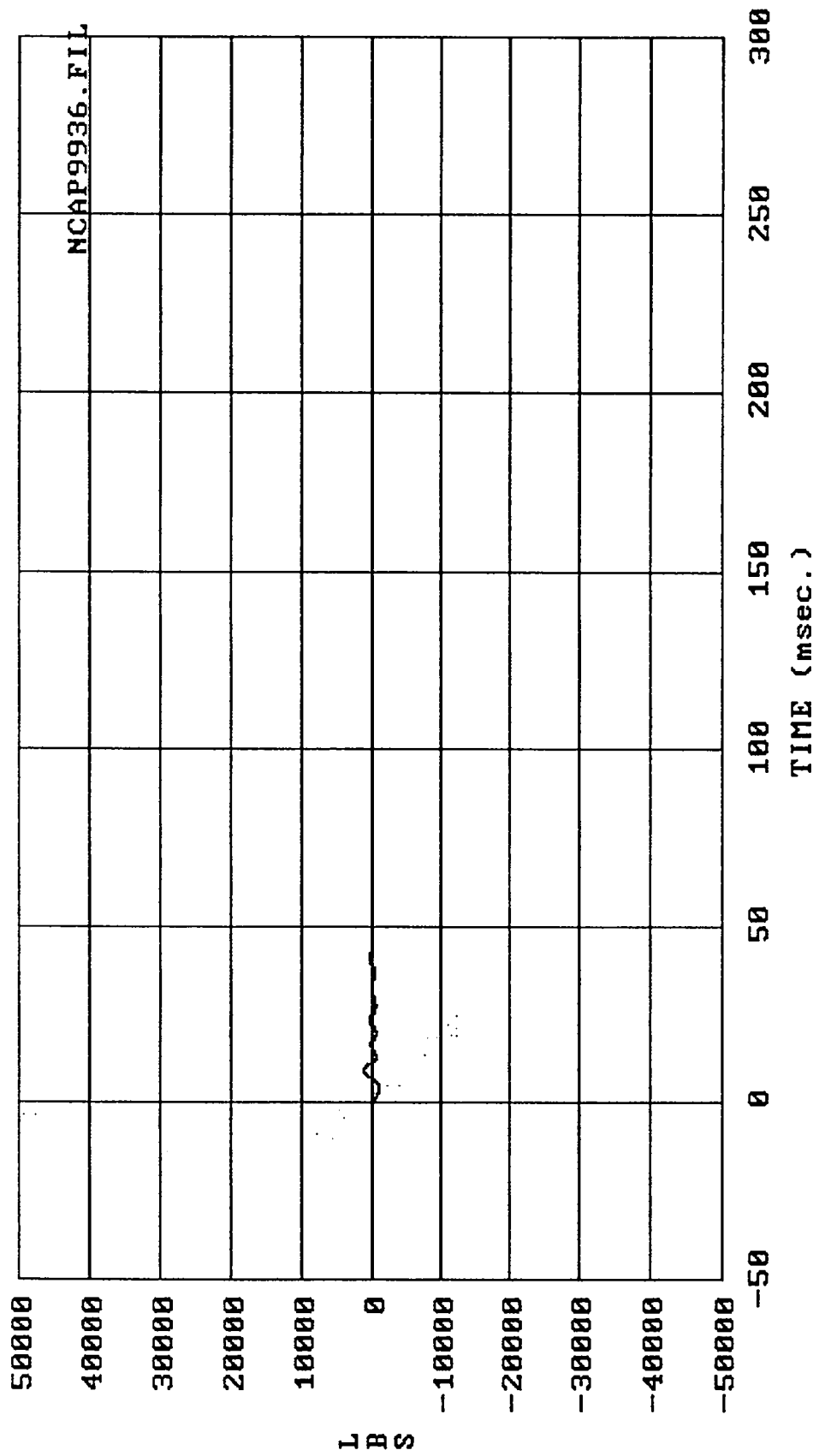
Filter: SAE CLASS 60 Max = 593.06 Min = -792.30
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell A2



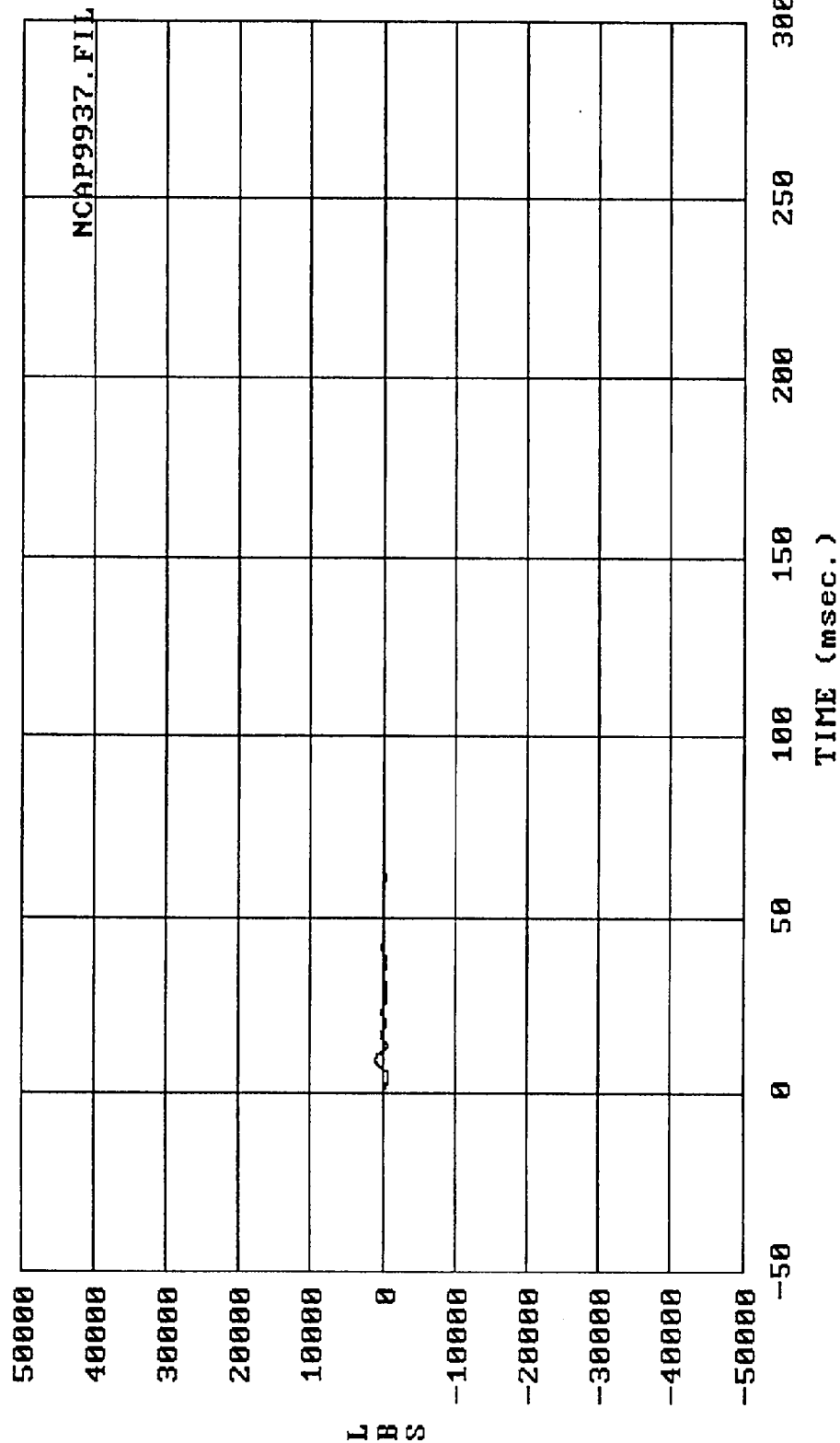
Filter: SAE CLASS 60 Max = 815.04 Min = -772.48
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell A3



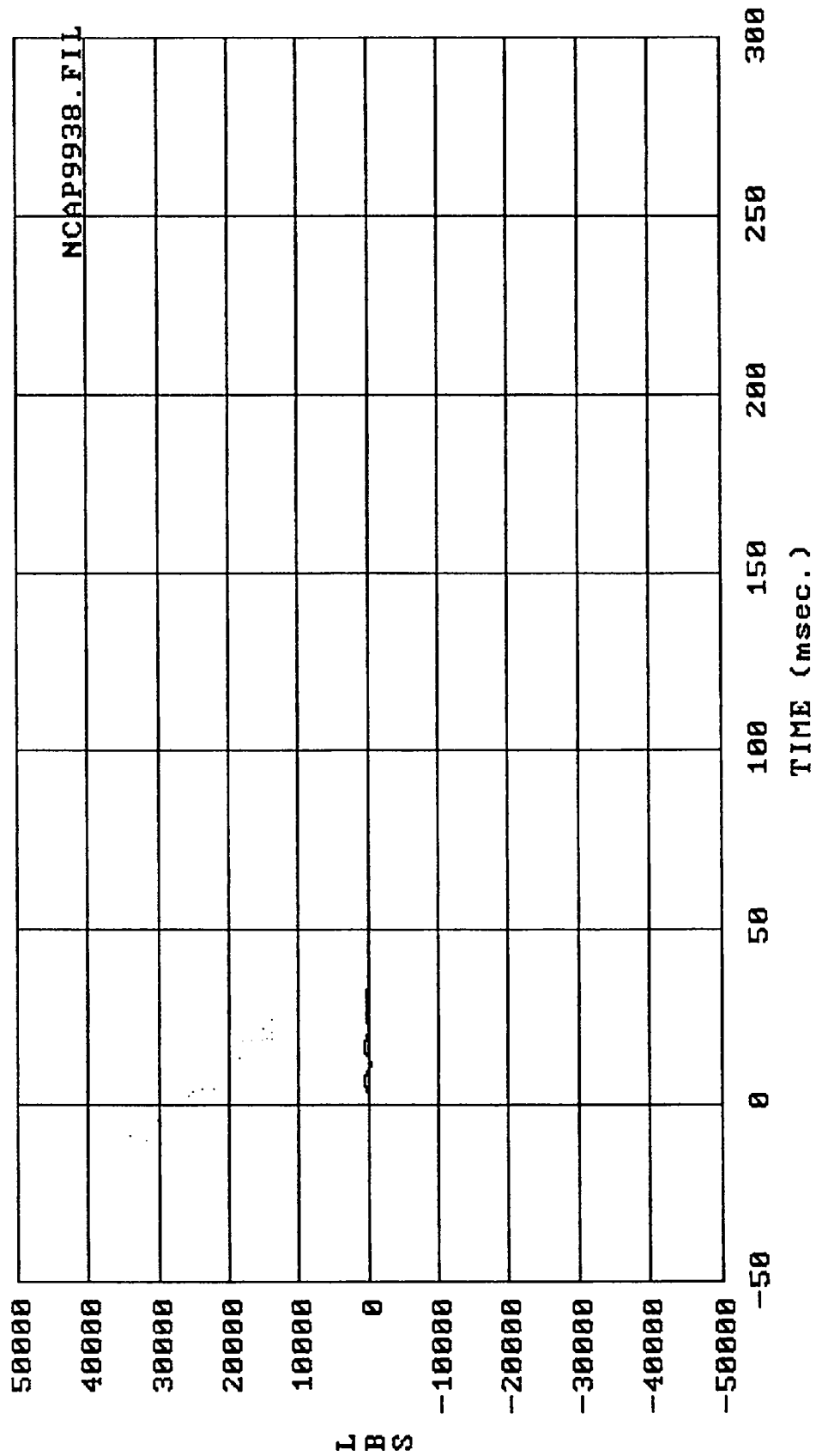
Filter: SAE CLASS 60 Max = 988.90 Min = -985.32
 MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell A4



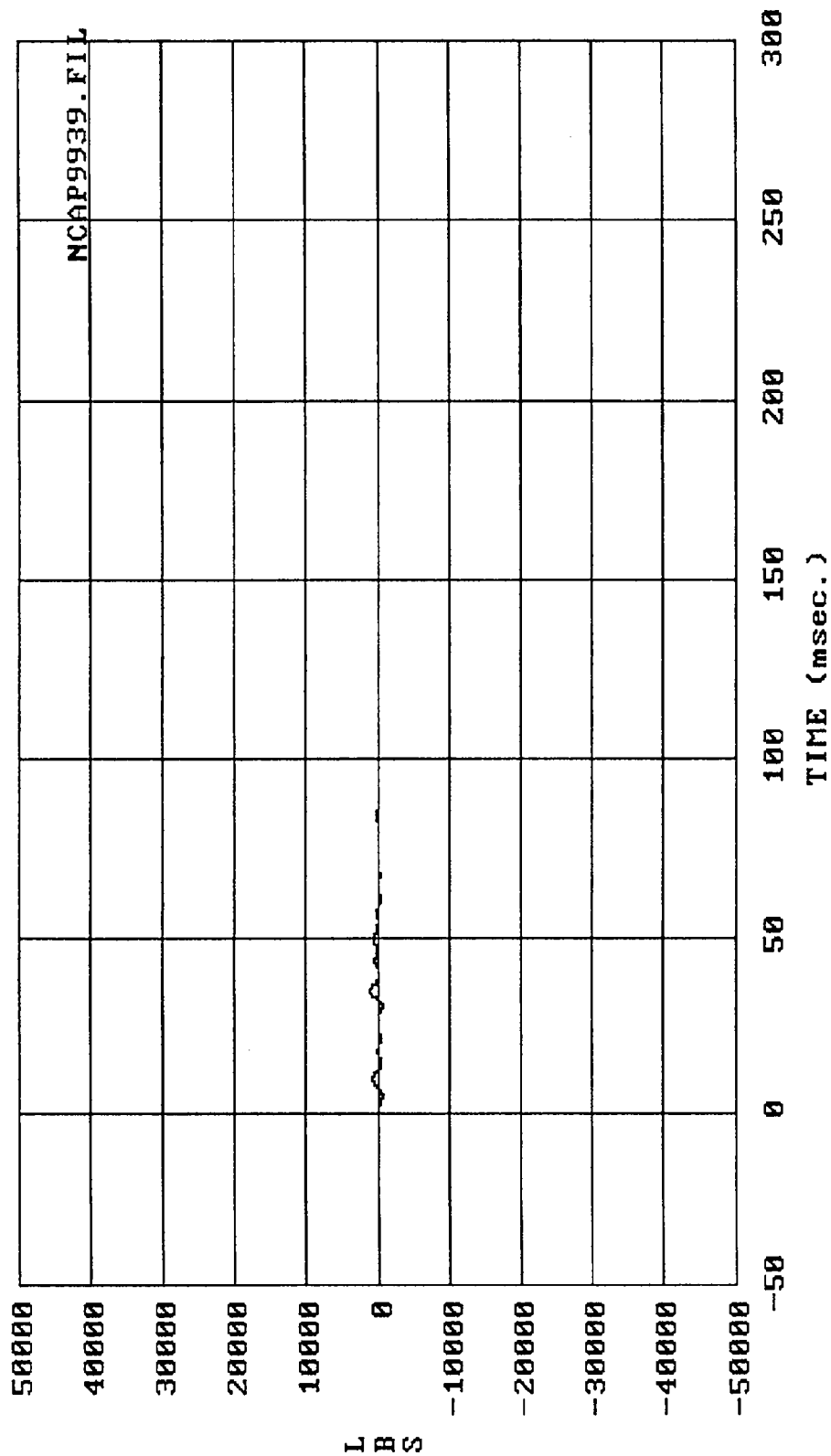
Filter: SAE CLASS 60 Max = 1288.2 Min = -980.72
MSE 05/09/89 --- 1989 Mitsubishi Van : Barrier force - Load cell A5



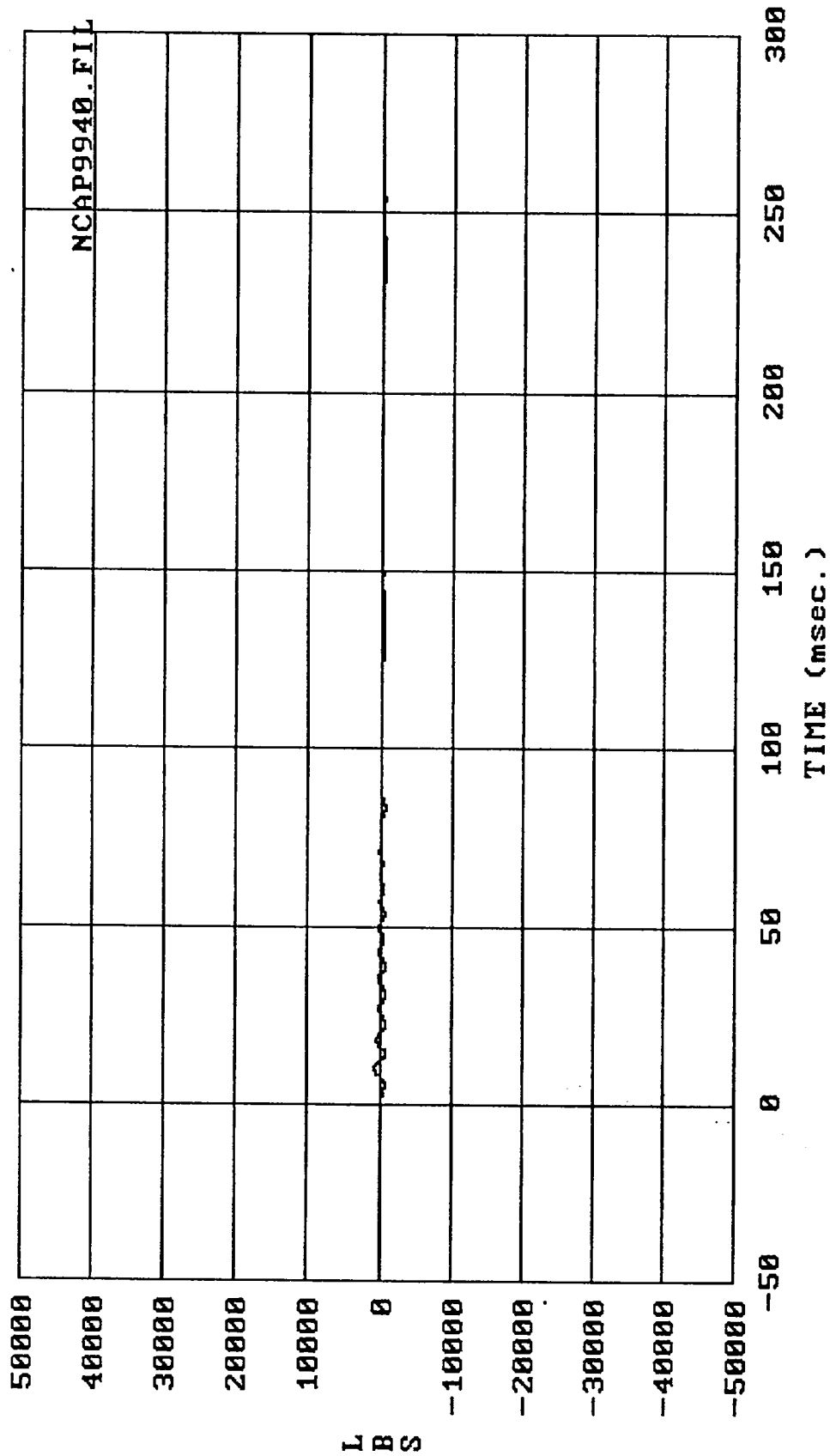
Filter: SAE CLASS 60 Max = 1231.6 Min = -722.75
 MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell A6



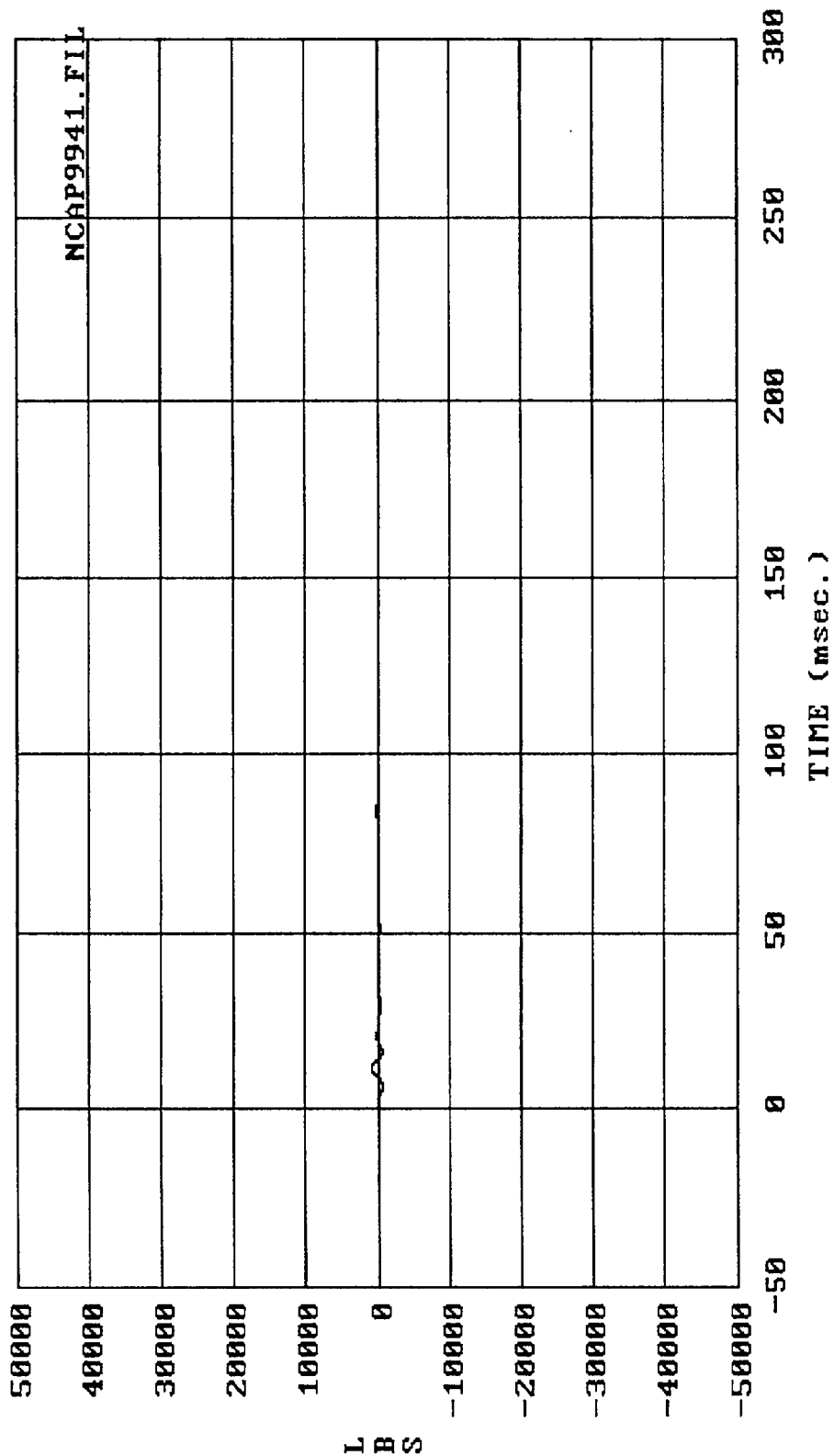
Filter: SAE CLASS 60 Max = 735.08 Min = -227.81
 MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell A7



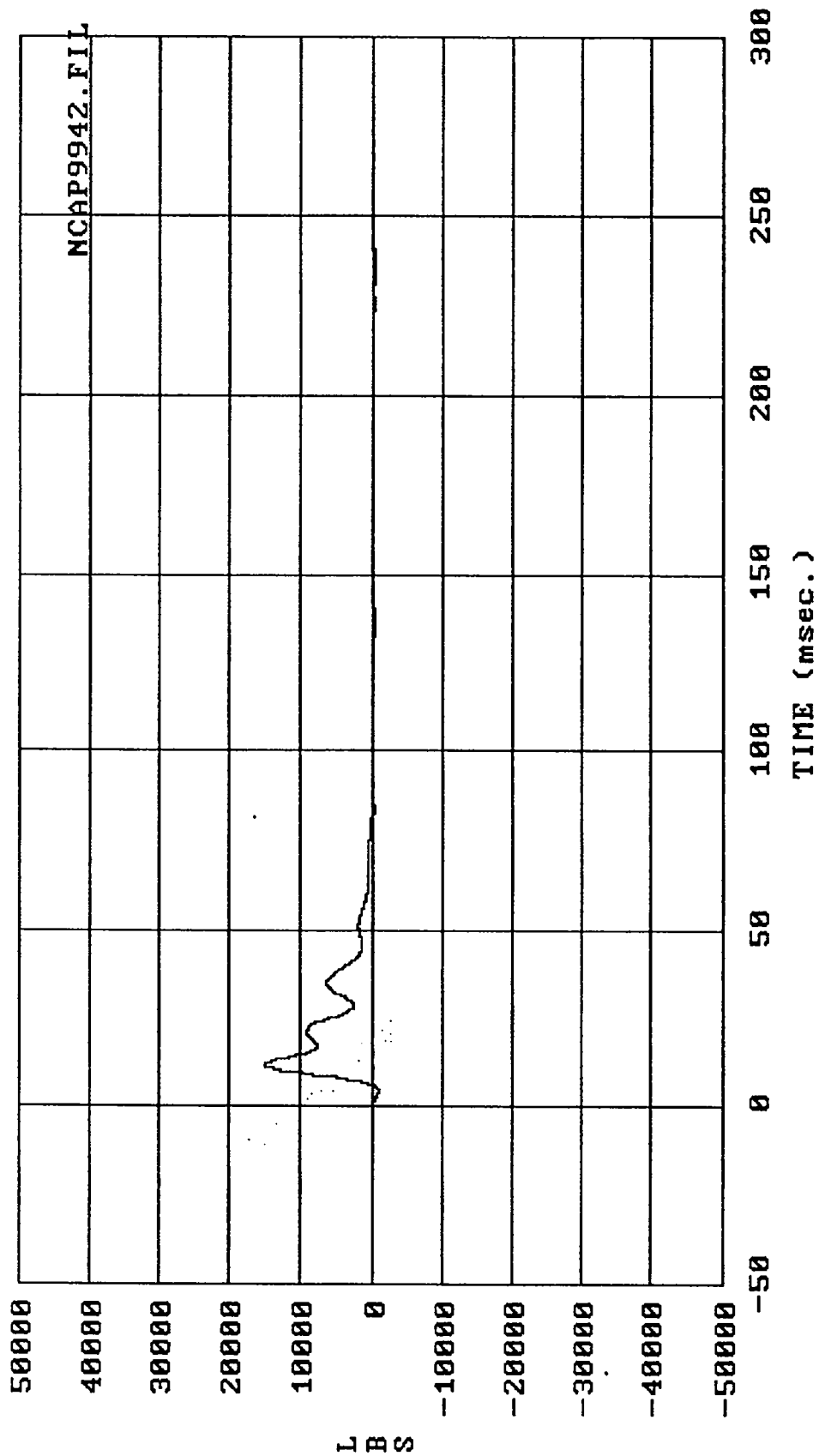
Filter: SAE CLASS 60 Max = 1113.7 Min = -477.40
 MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell A8



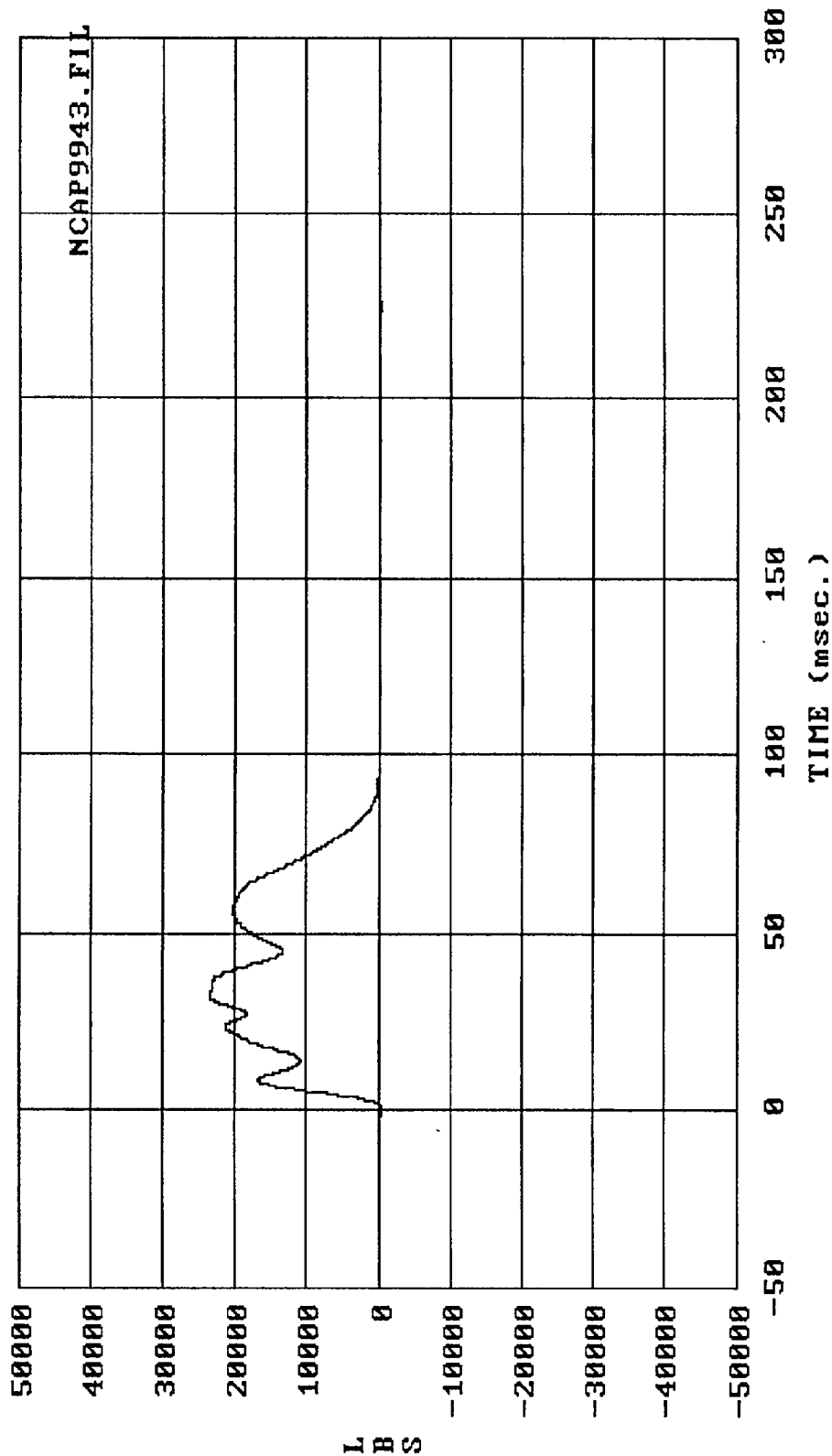
Filter: SAE CLASS 60 Max = 855.03 Min = -717.91
 MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force -- Load cell A9



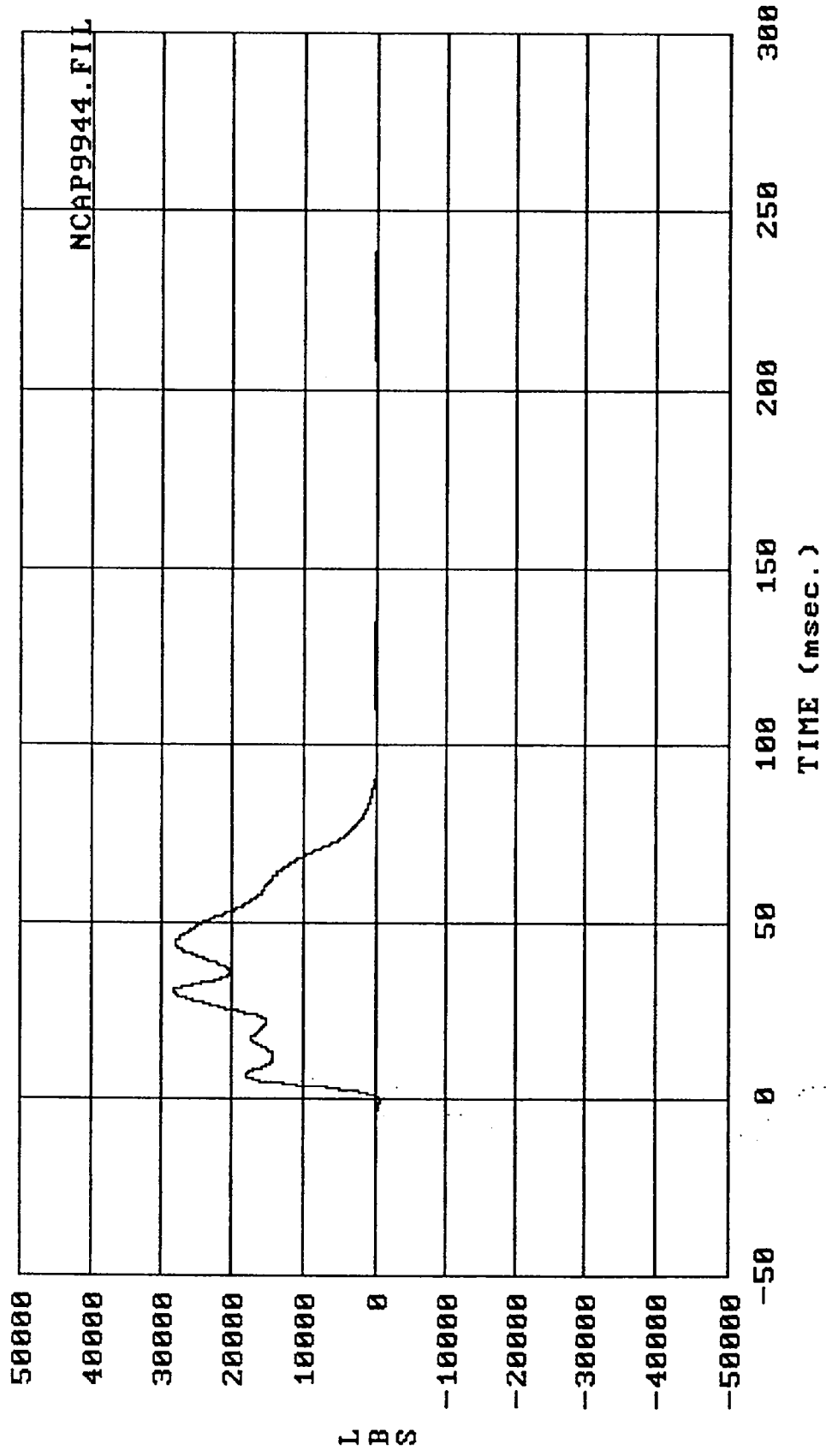
Filter: SAE CLASS 60 Max = 955.54 Min = -601.43
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell B1



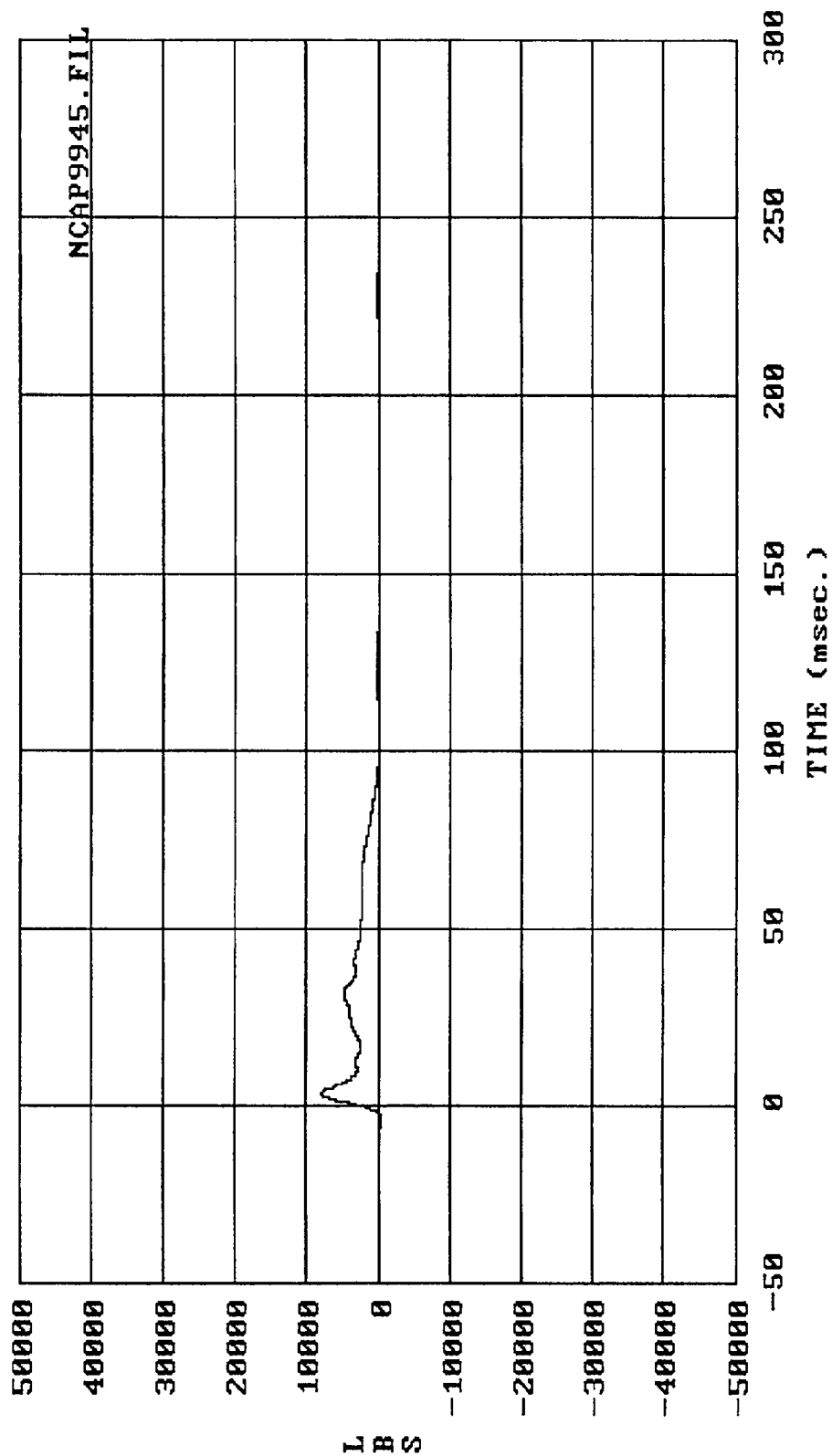
Filter: SAE CLASS 60 Max = 15174. Min = -789.78
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell B2



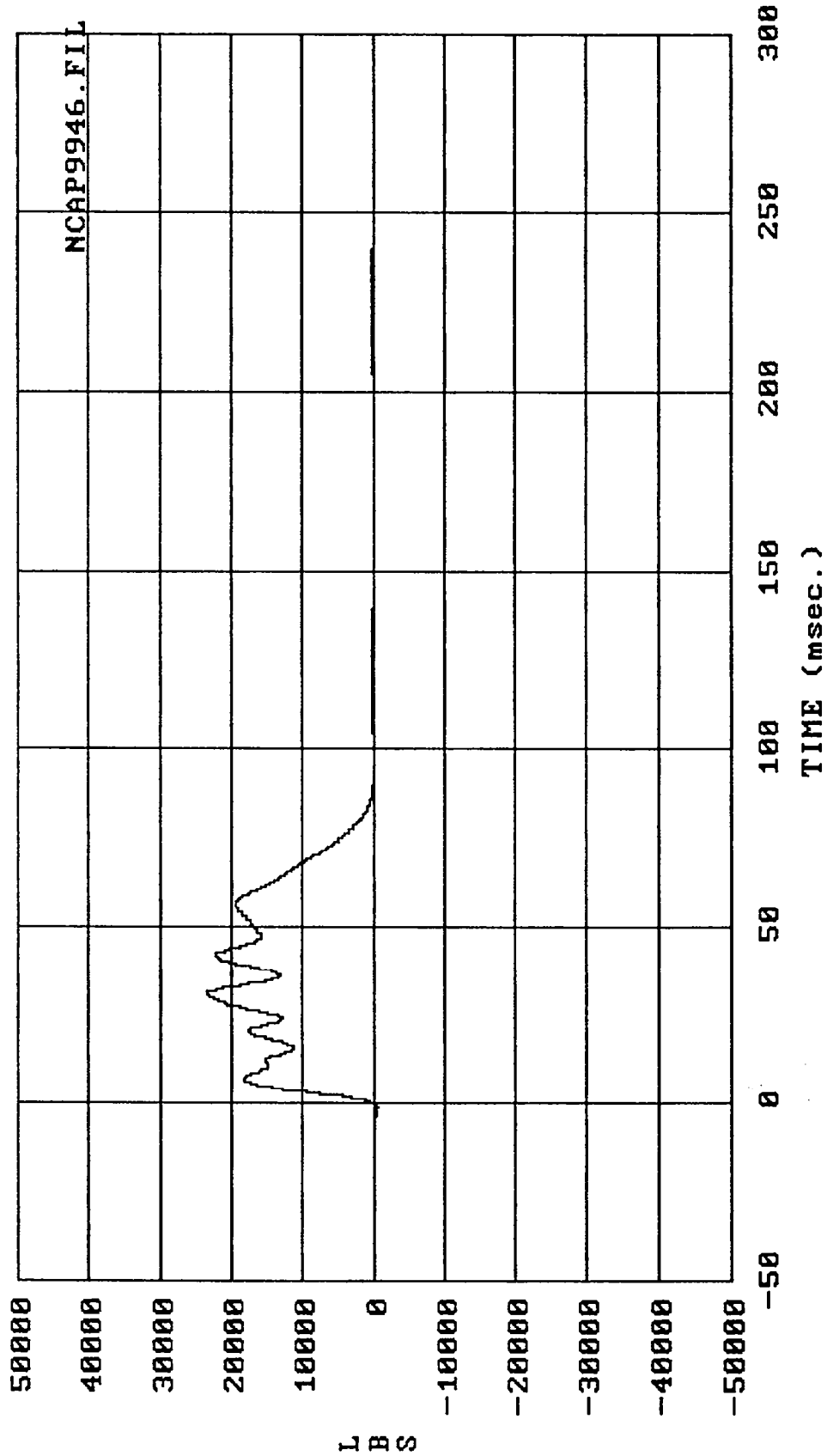
Filter: SAE CLASS 60 Max = 23557. Min = -422.22
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell B3



Filter: SAE CLASS 60 Max = 28304. Min = -399.05
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell B4

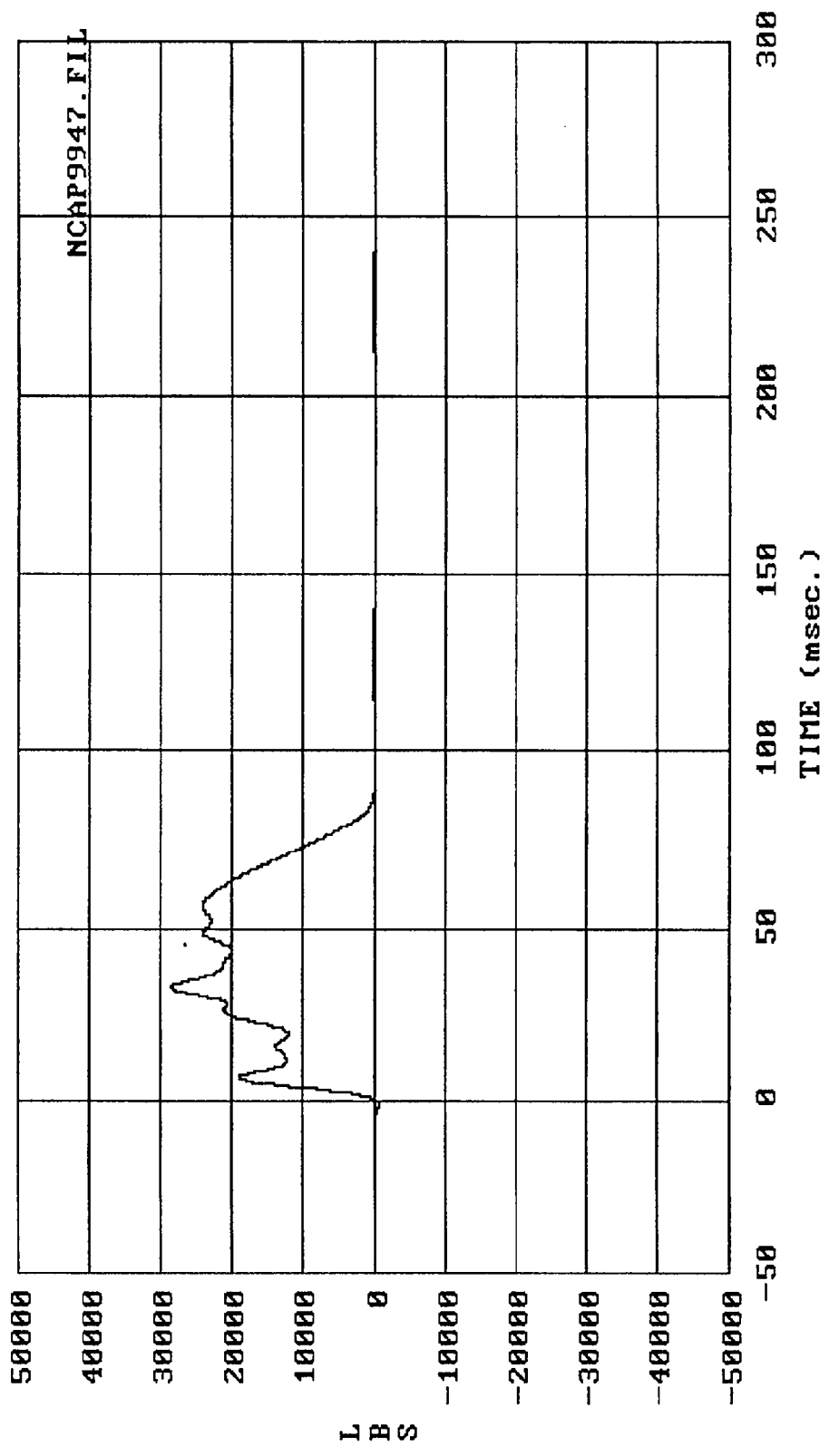


Filter: SAE CLASS 60 Max = 8087.3 Min = -117.77
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell B5

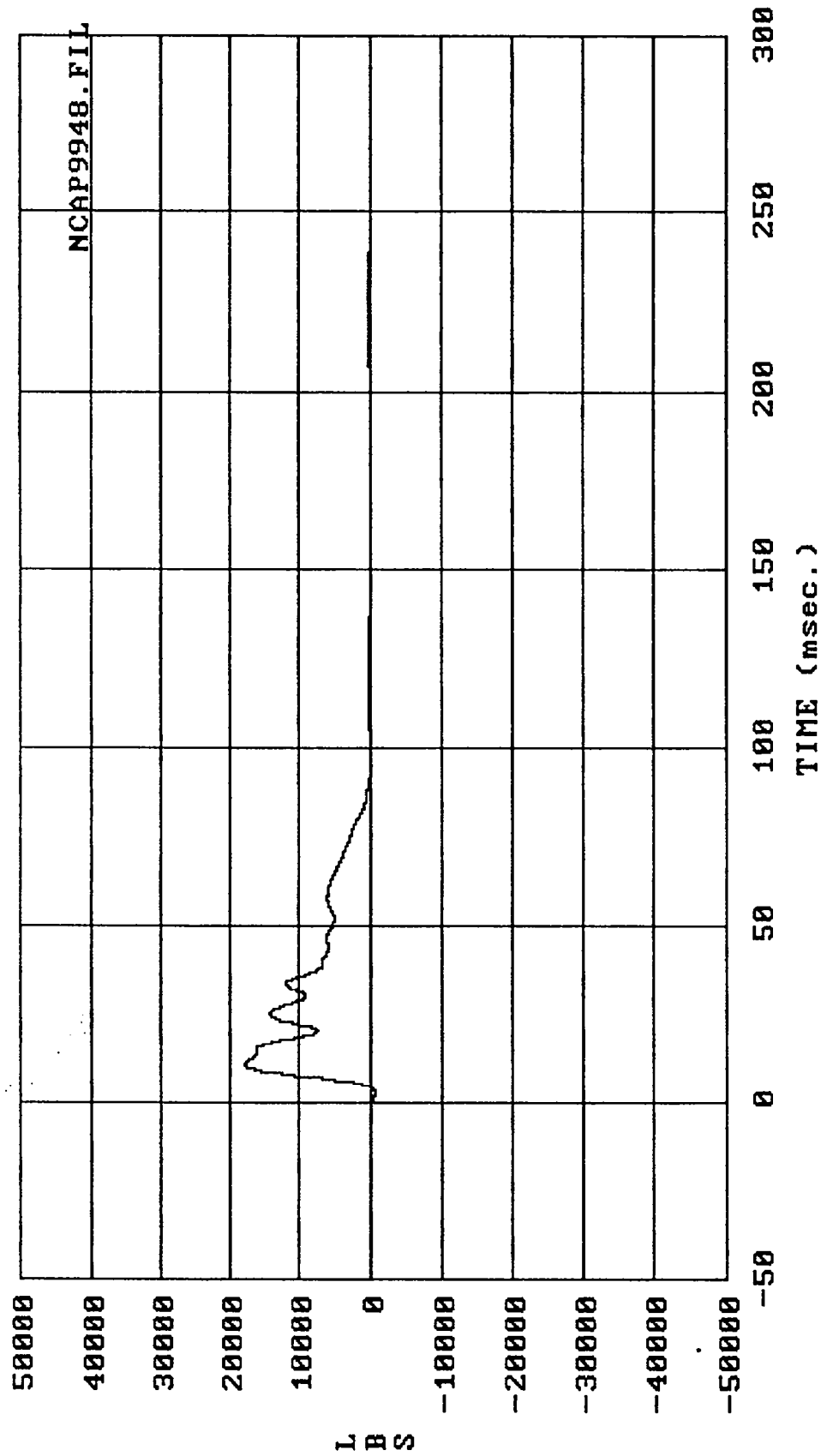


Filter: SAE CLASS 60 Max = 23518. Min = -102.68

MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell B6

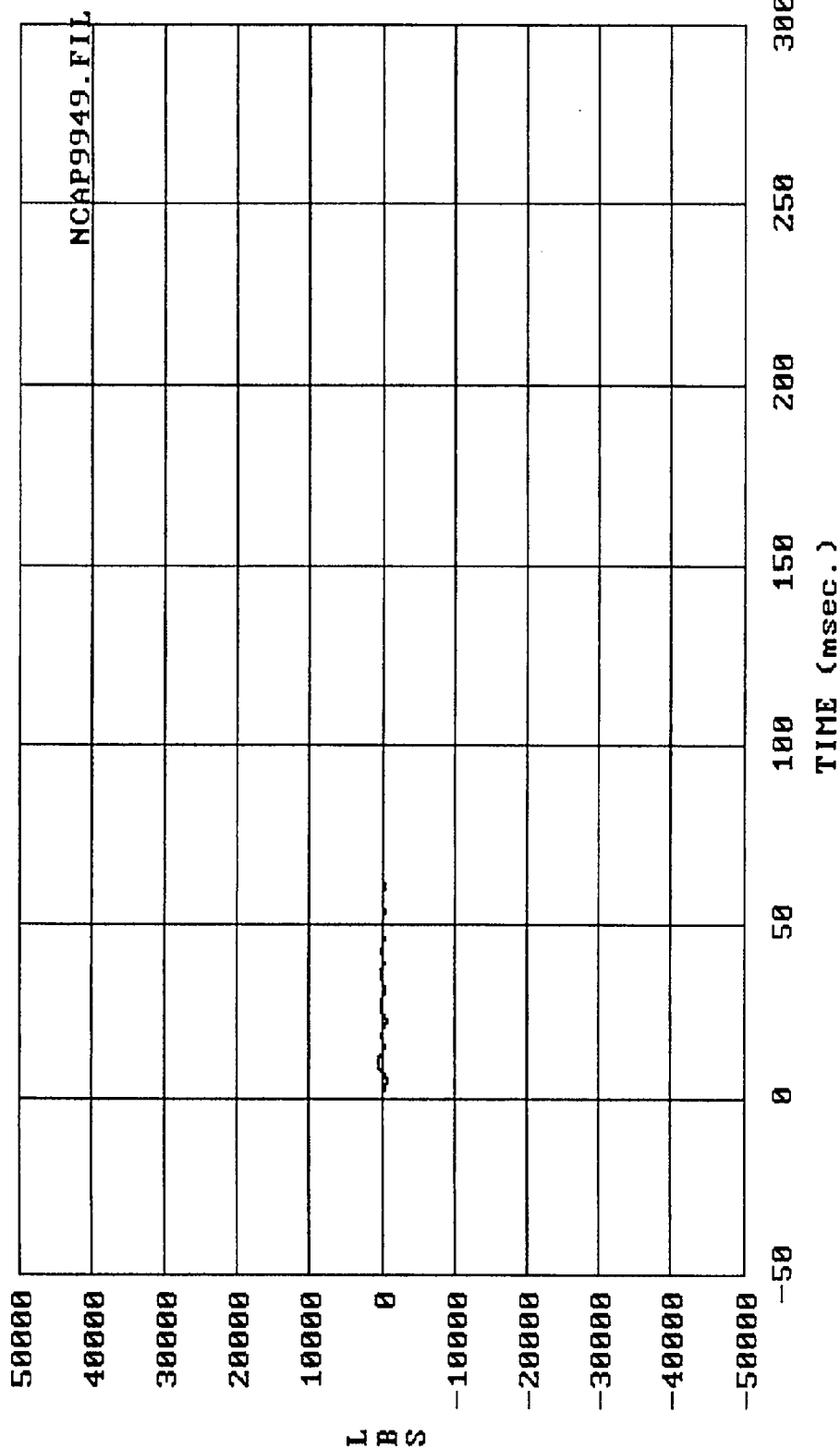


Filter: SAE CLASS 60 Max = 28557. Min = -135.32
 MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell B7

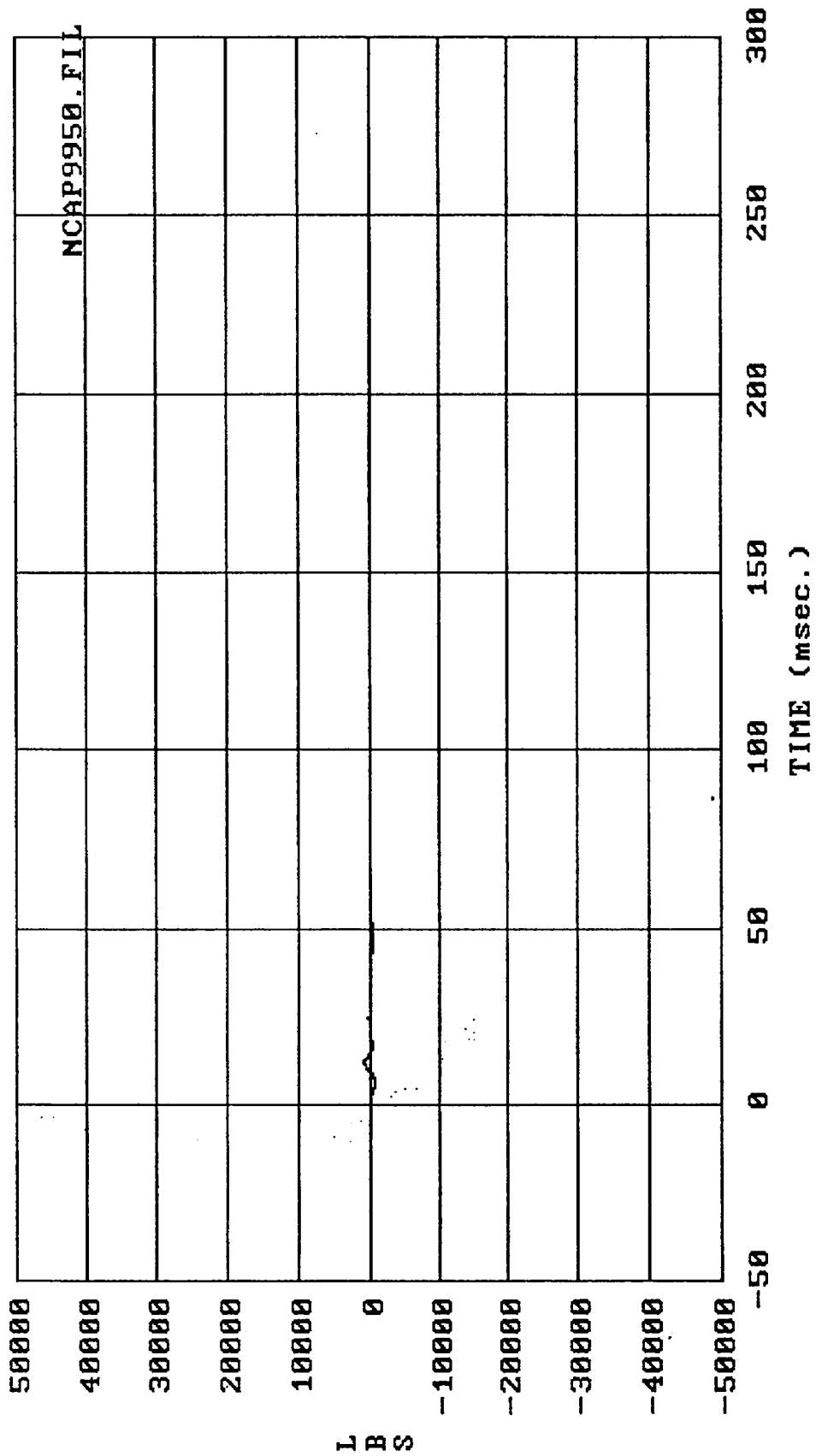


Filter: SAE CLASS 60 Max = 18046. Min = -633.65

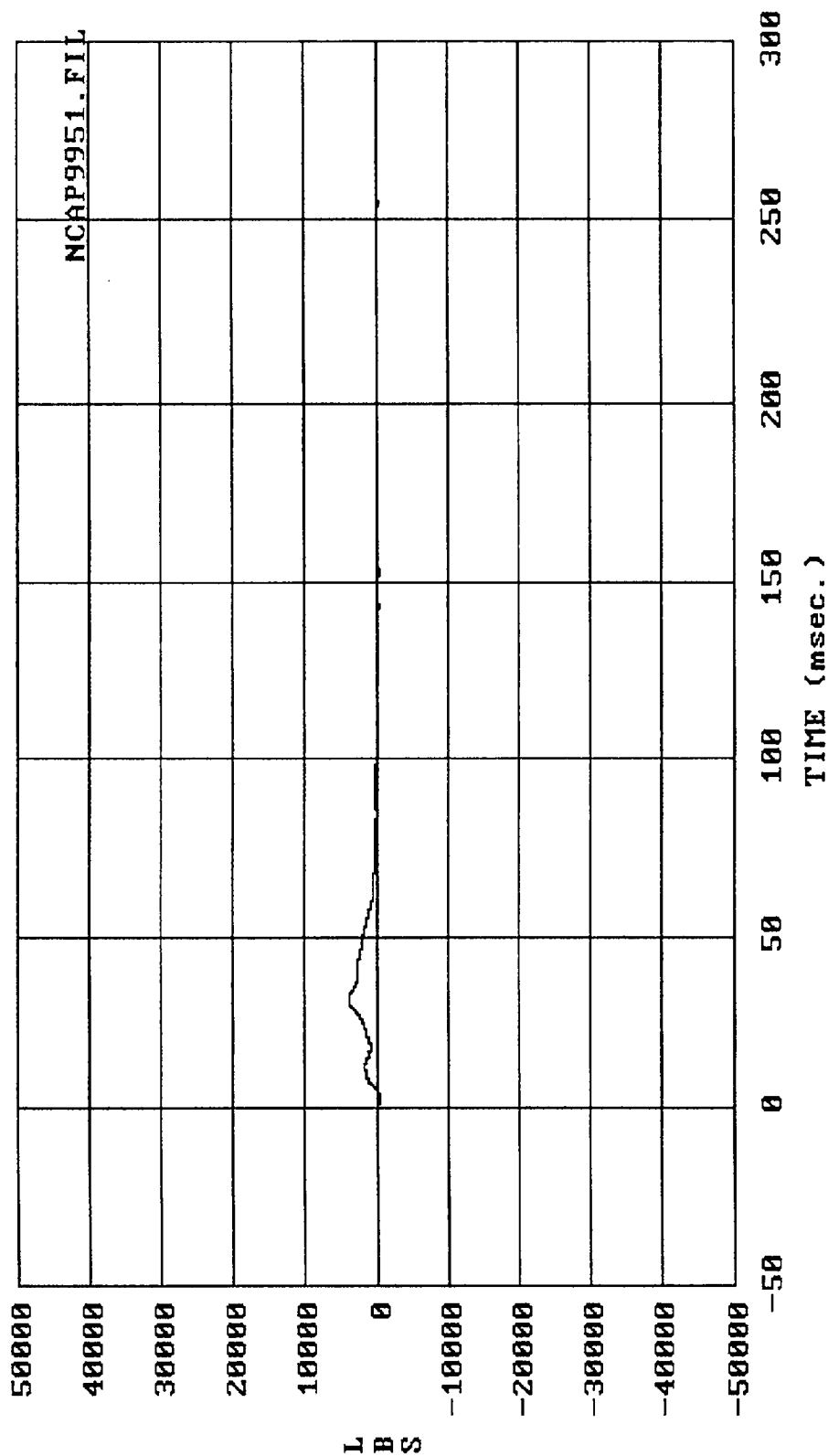
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell B8



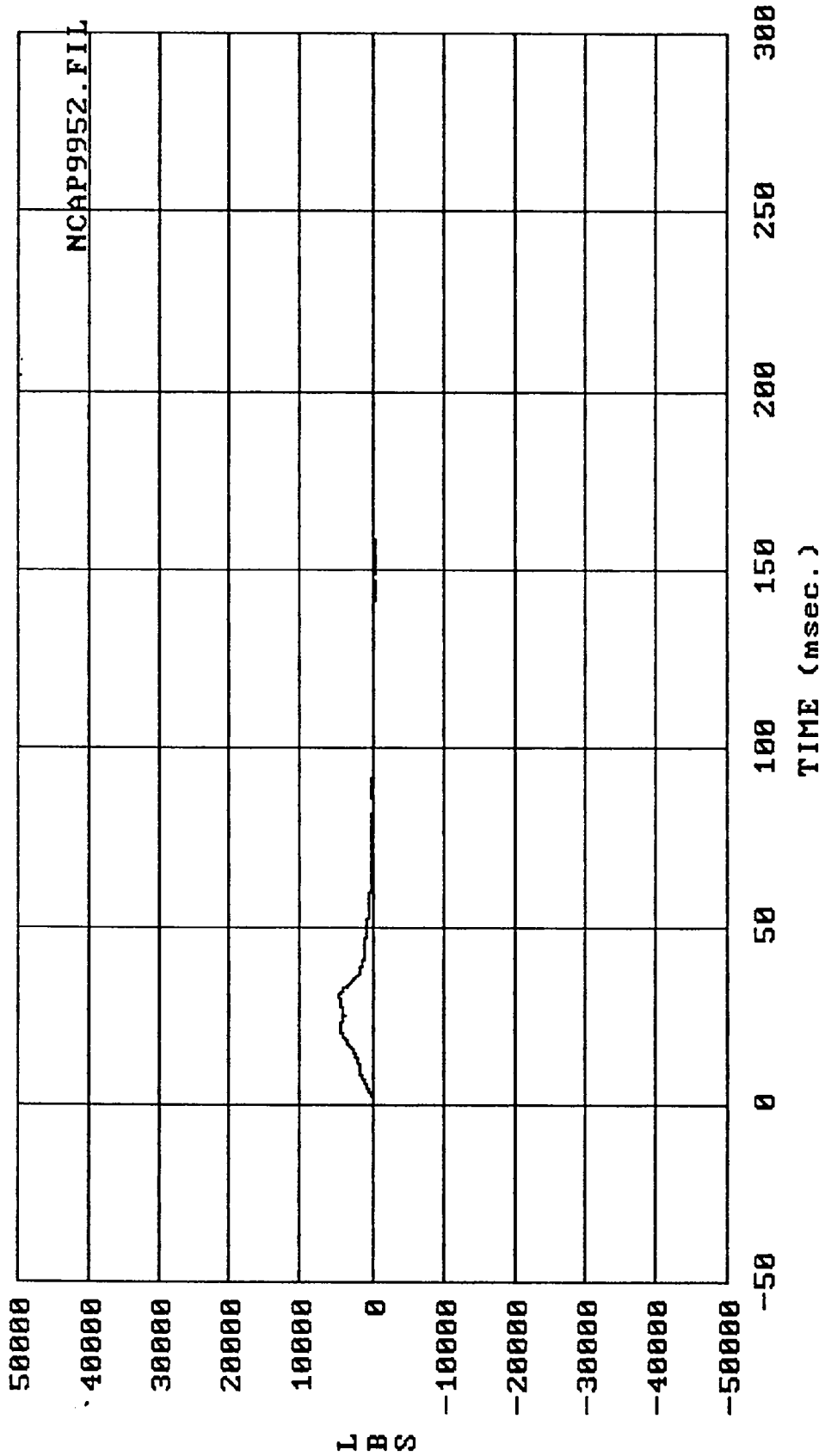
Filter: SAE CLASS 60 Max = 672.18 Min = -511.76
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell B9



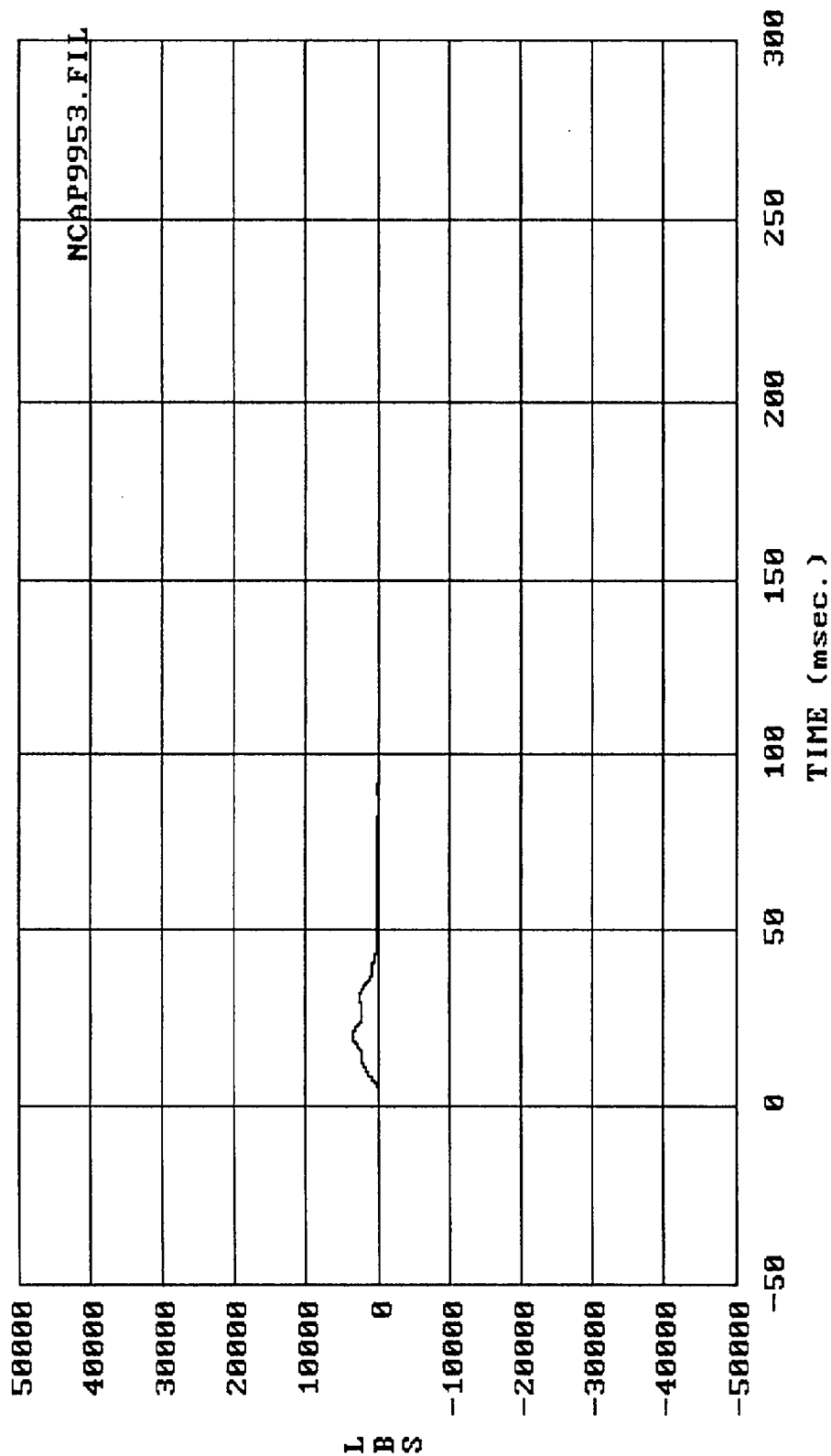
Filter: SAE CLASS 60 Max = 815.71 Min = -594.18
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell C1



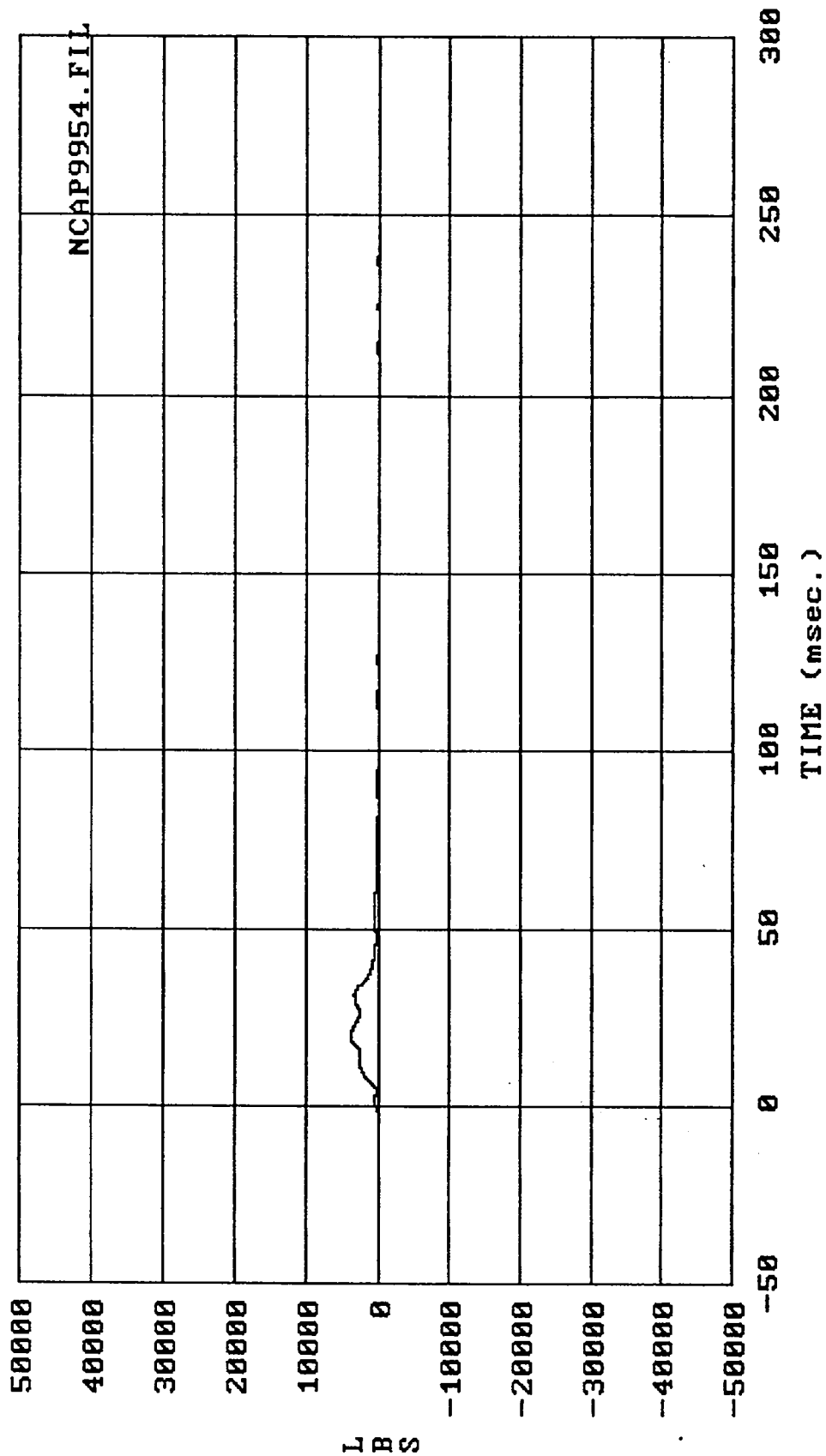
Filter: SAE CLASS 60 Max = 4033.1 Min = -290.29
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell C2



Filter: SAE CLASS 60 Max = 4678.6 Min = -188.50
 MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell C3

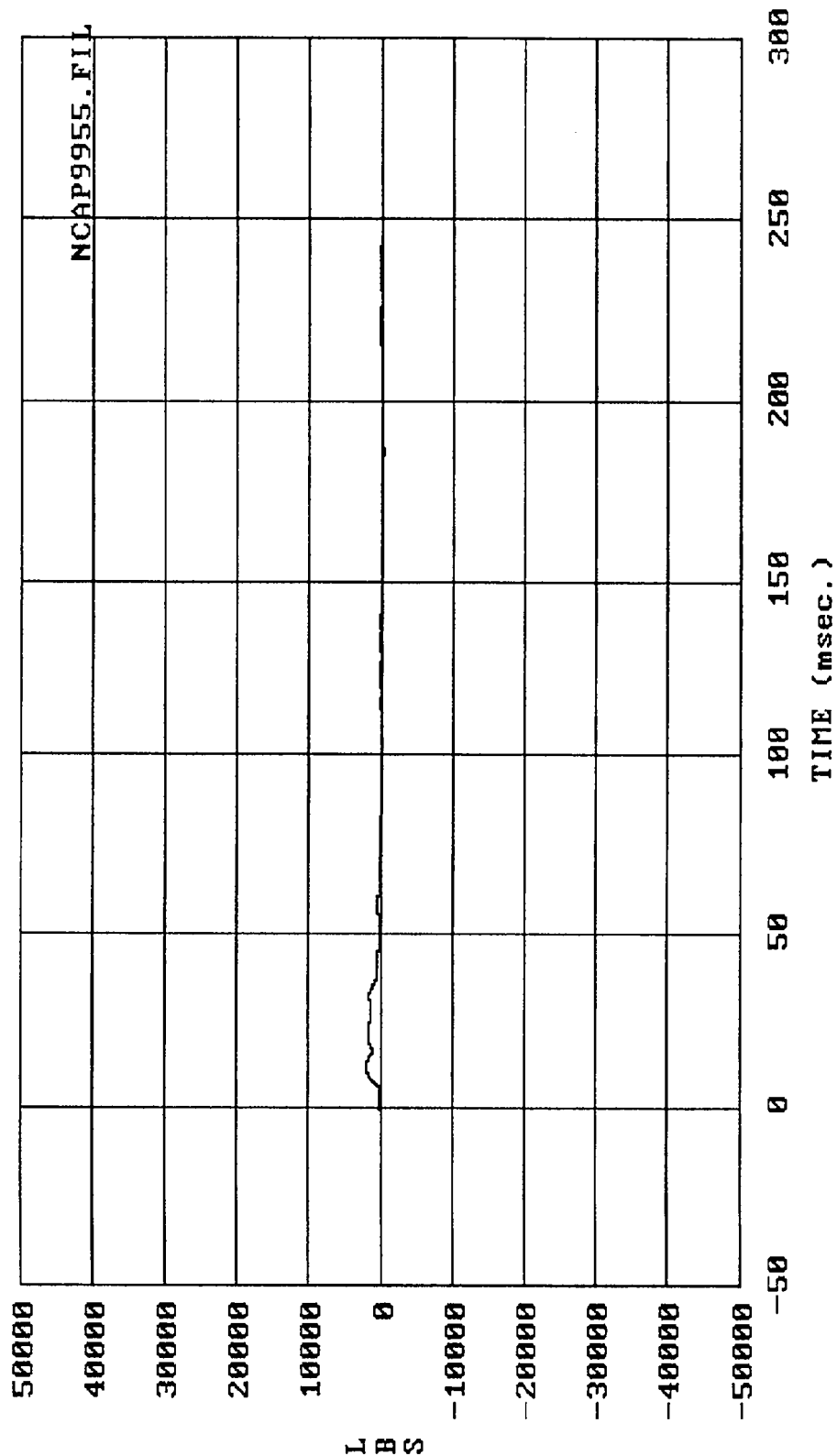


Filter: SAE CLASS 60 Max = 3702.2 Min = -145.63
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell C4

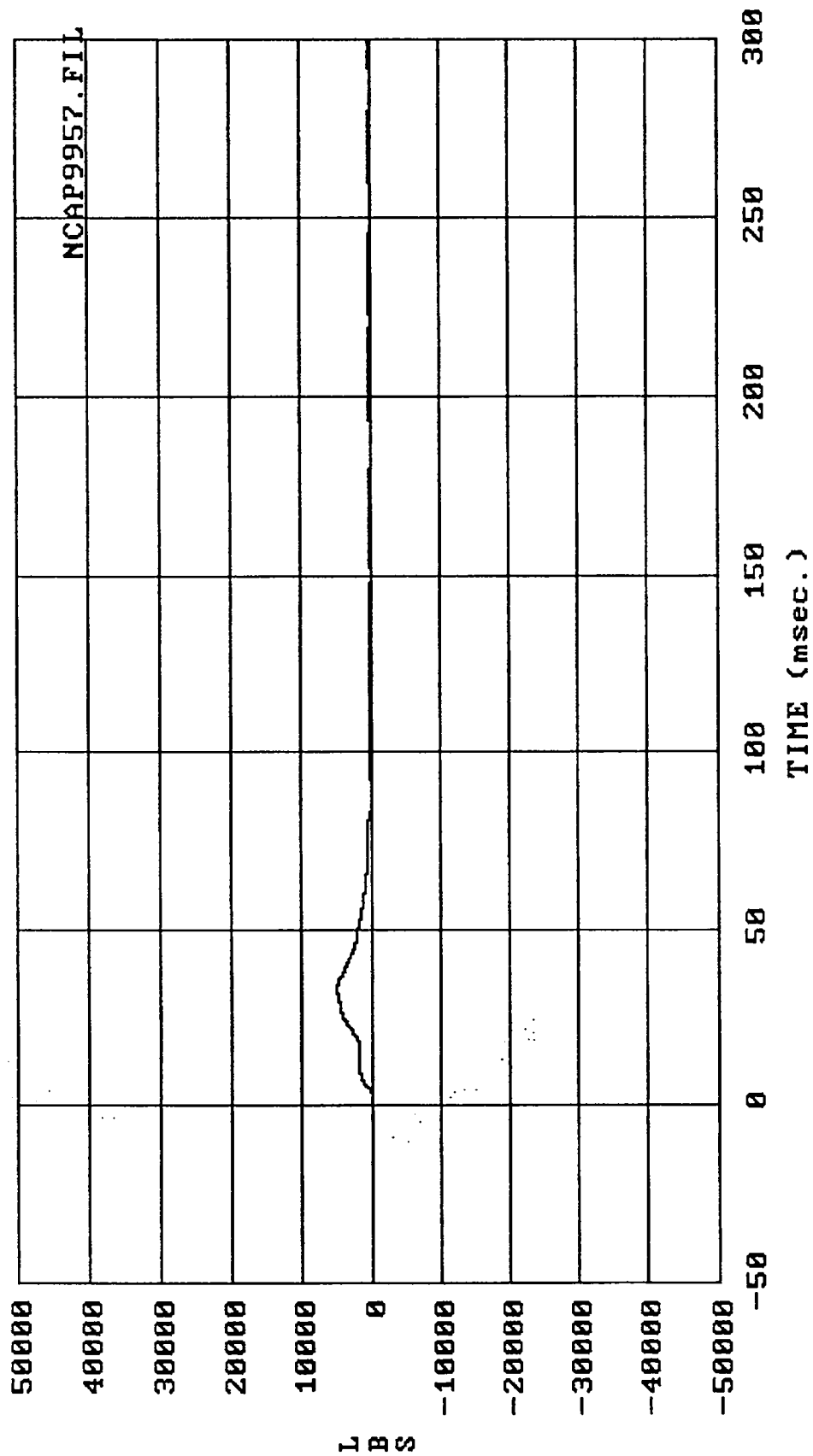


Filter: SAE CLASS 60 Max = 4045.2 Min = -129.28

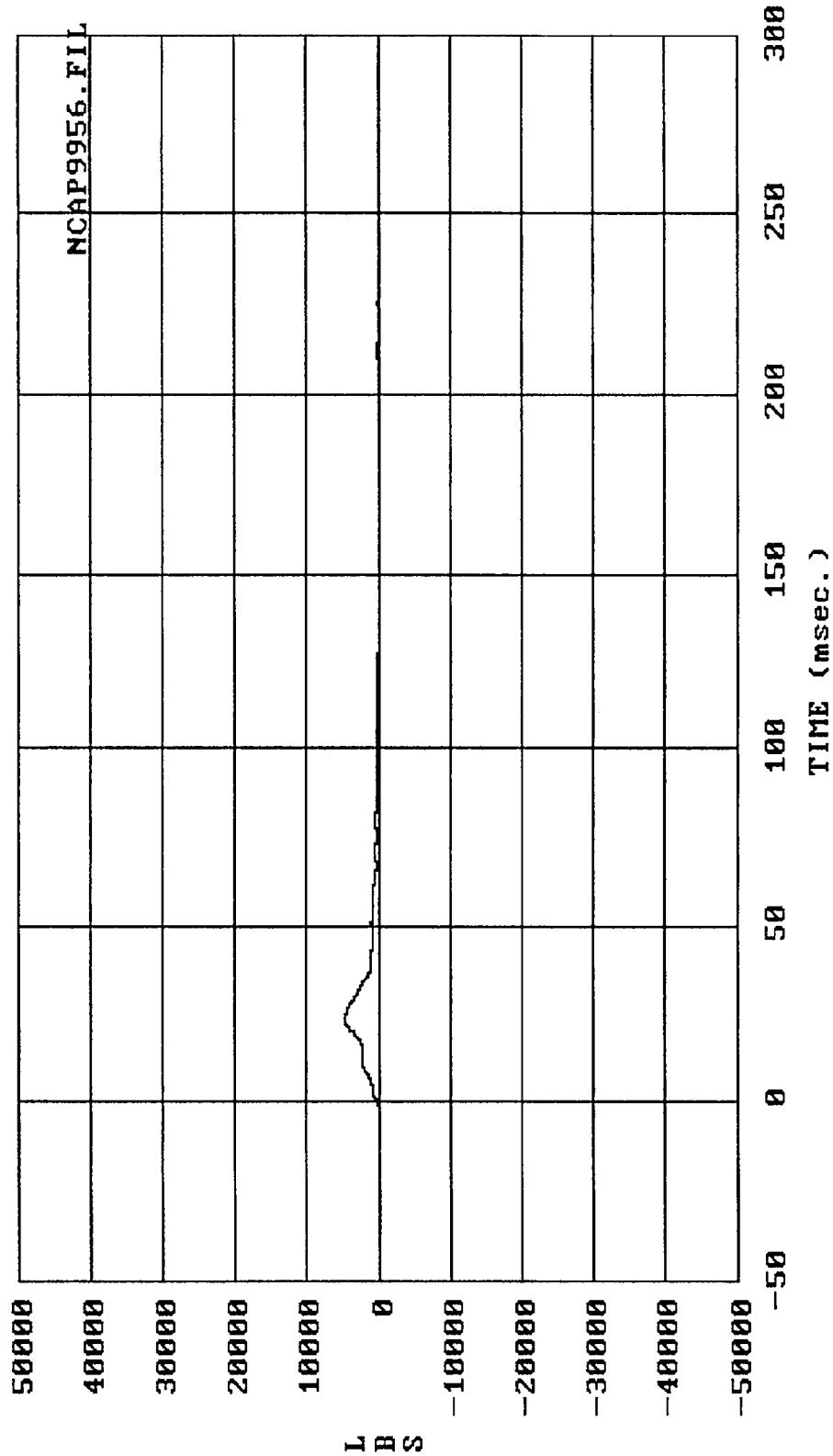
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell C5



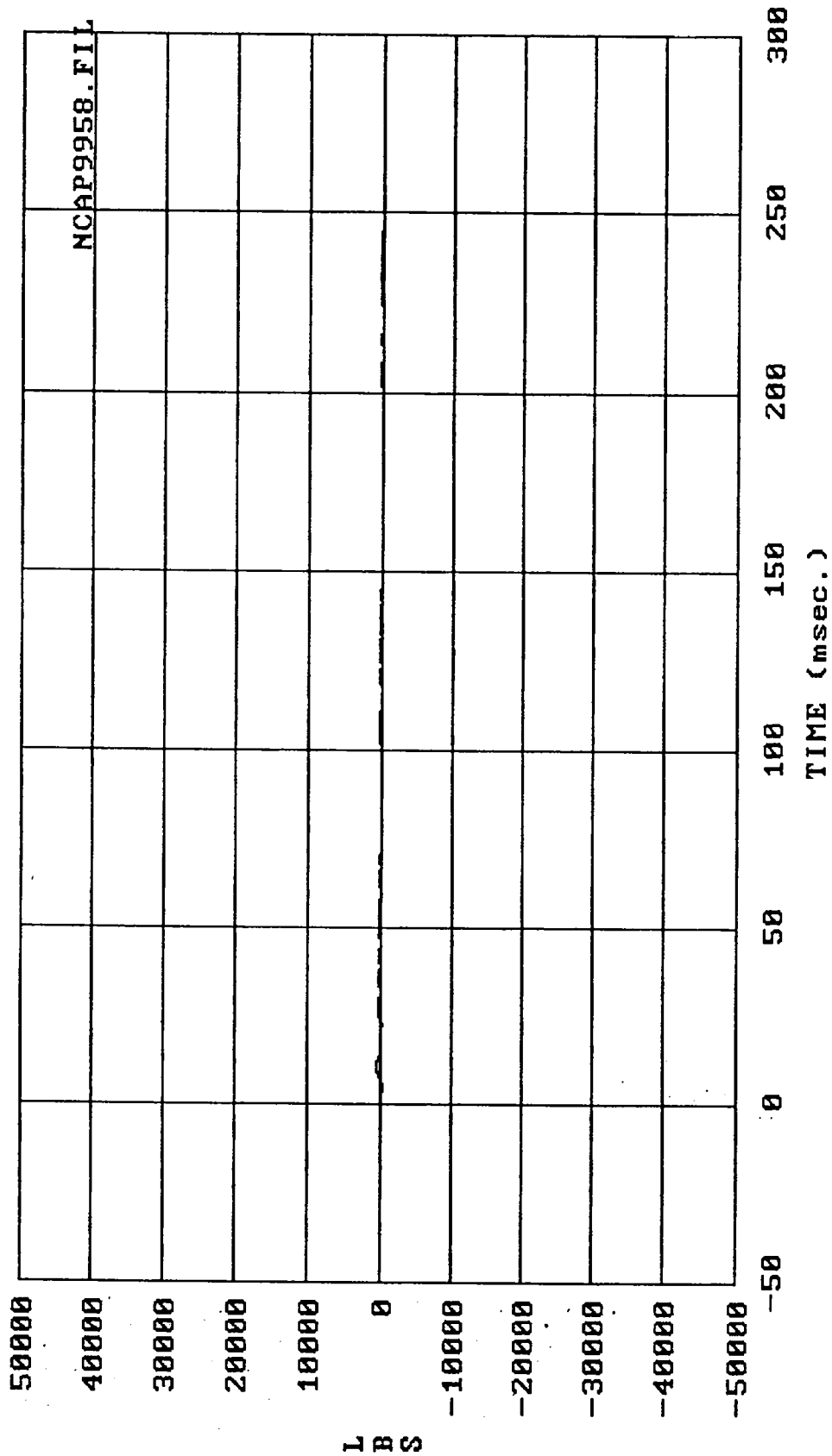
Filter: SAE CLASS 60 Max = 2105.8 Min = -164.04
 MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell C6



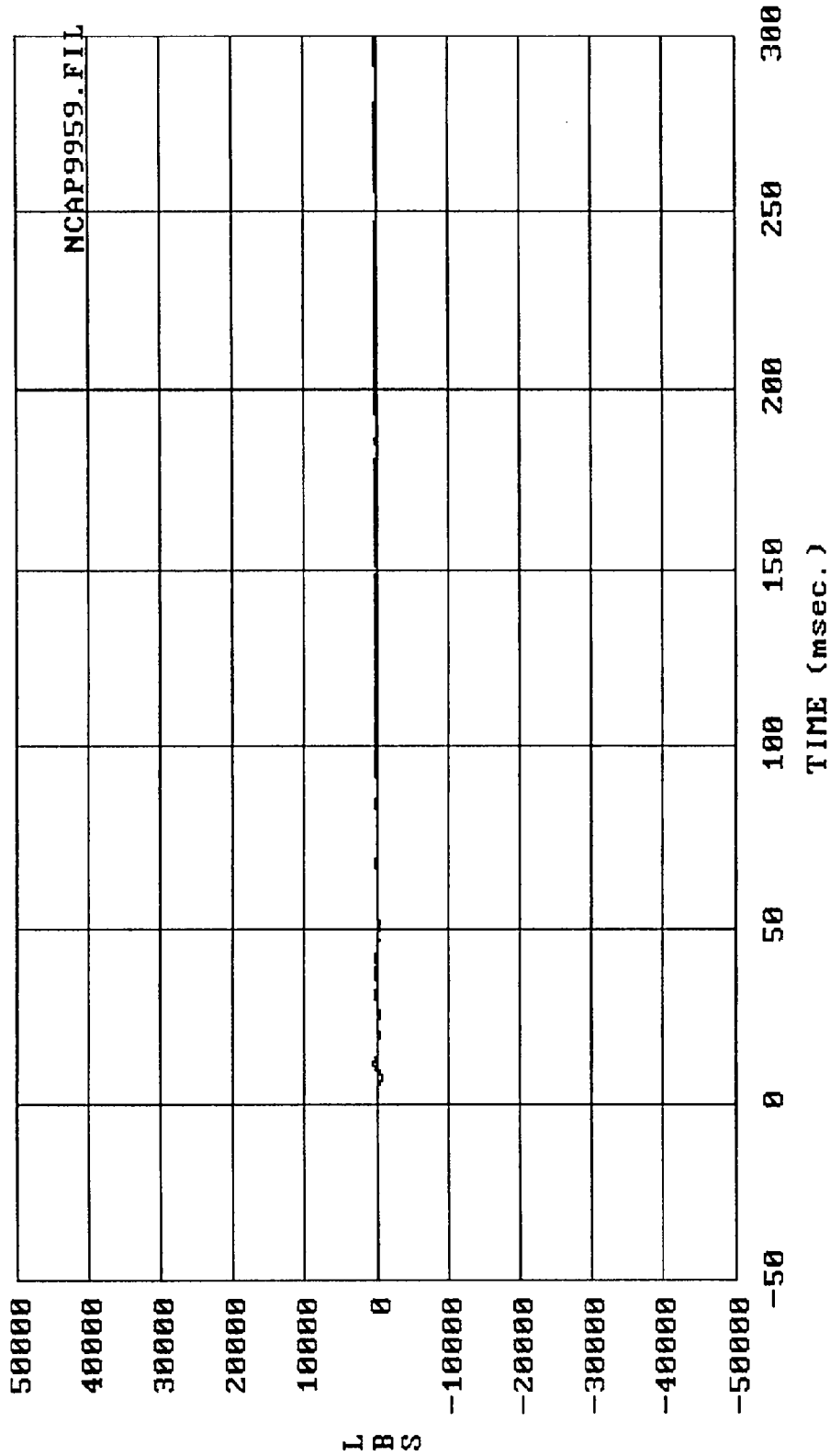
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MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell C8



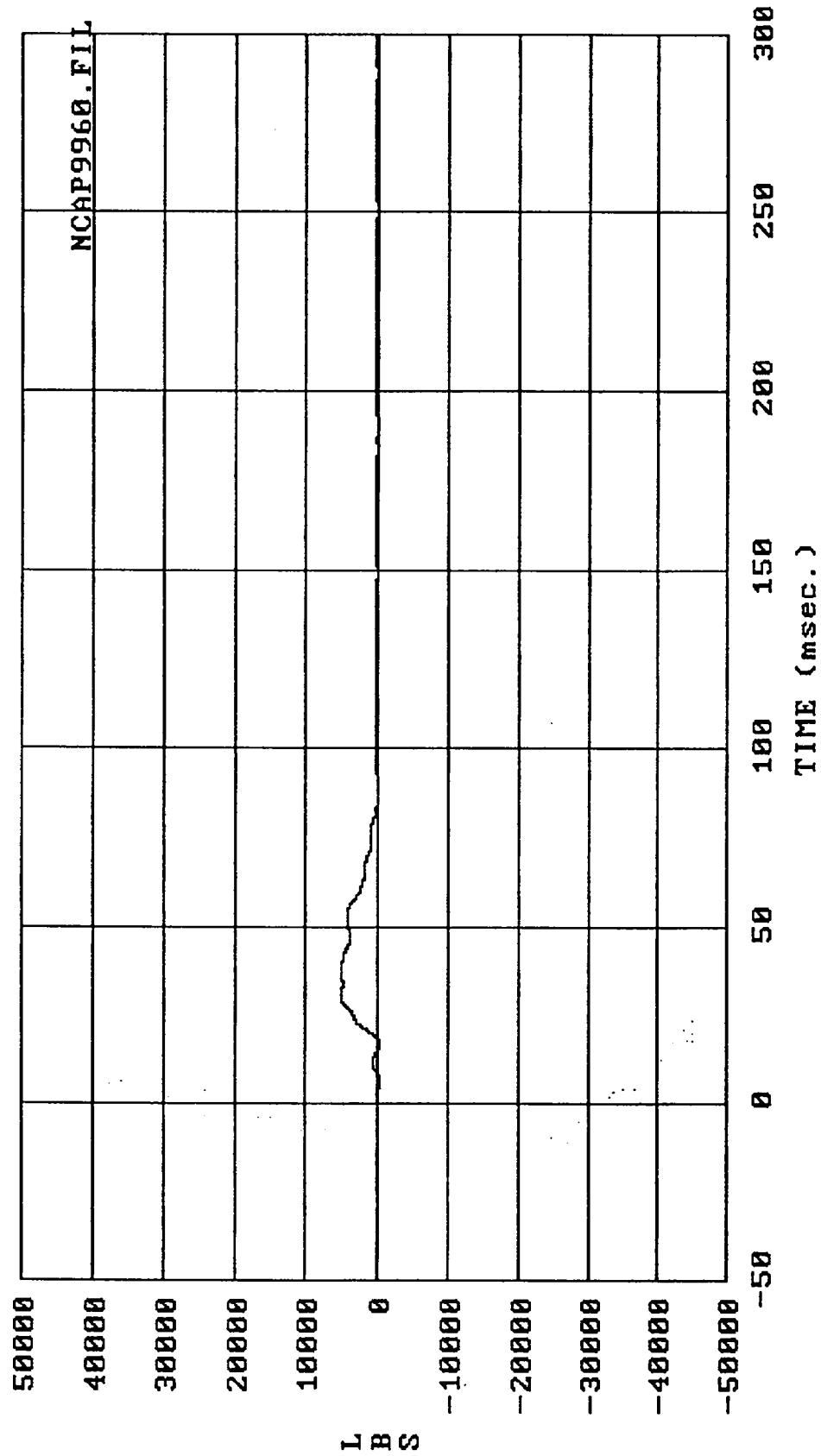
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MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell C7



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MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell C9

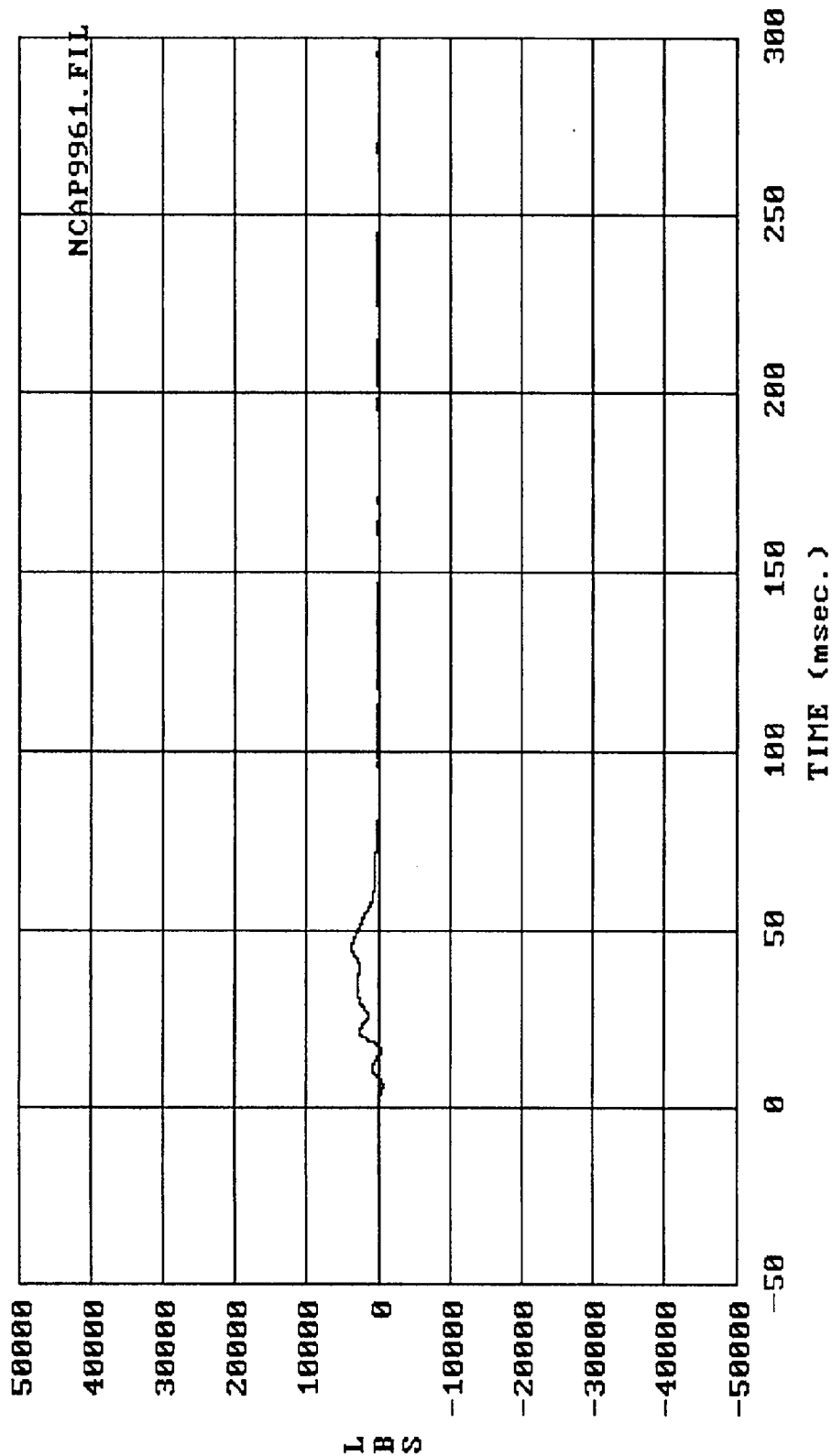


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MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell D1

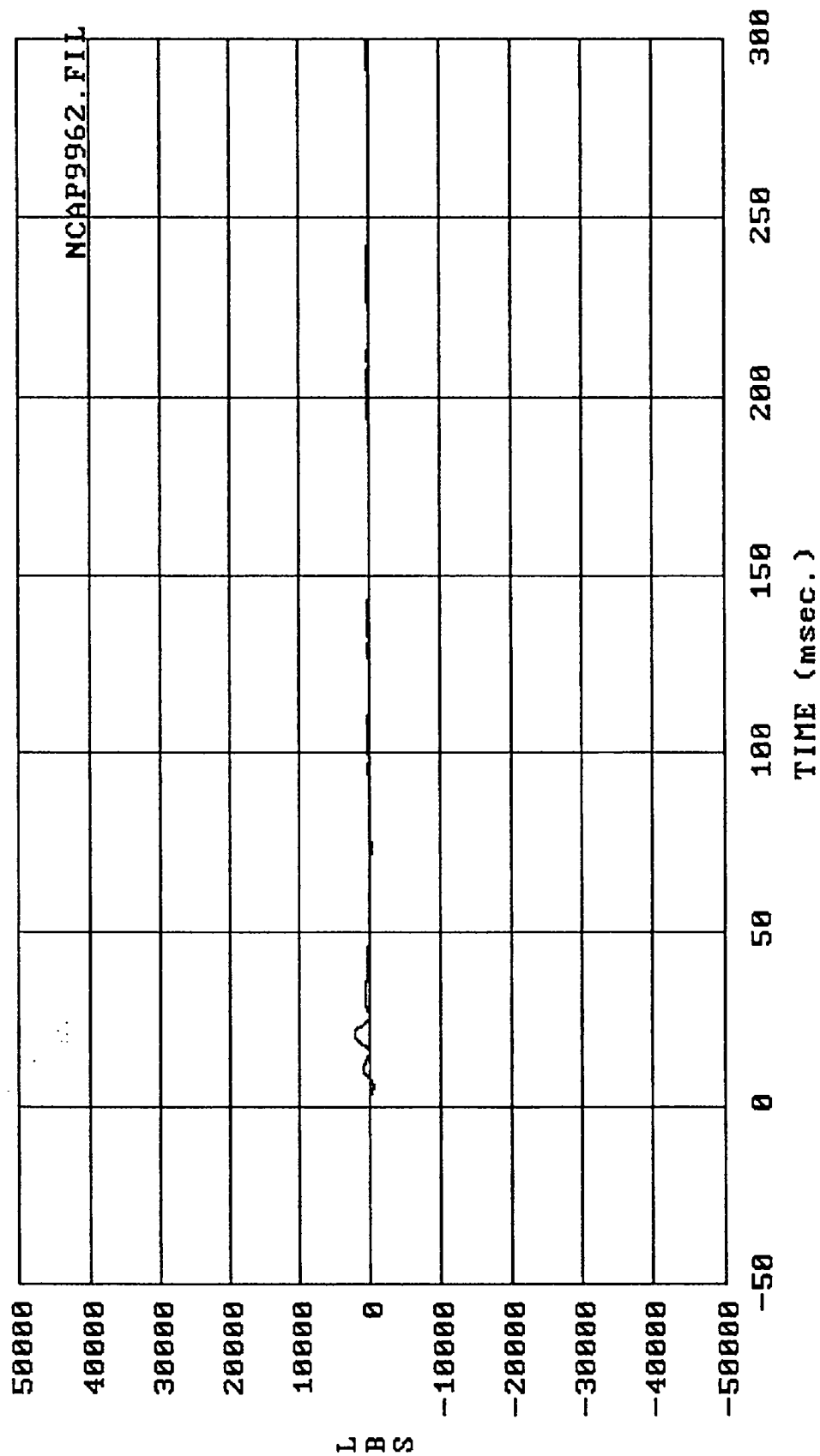


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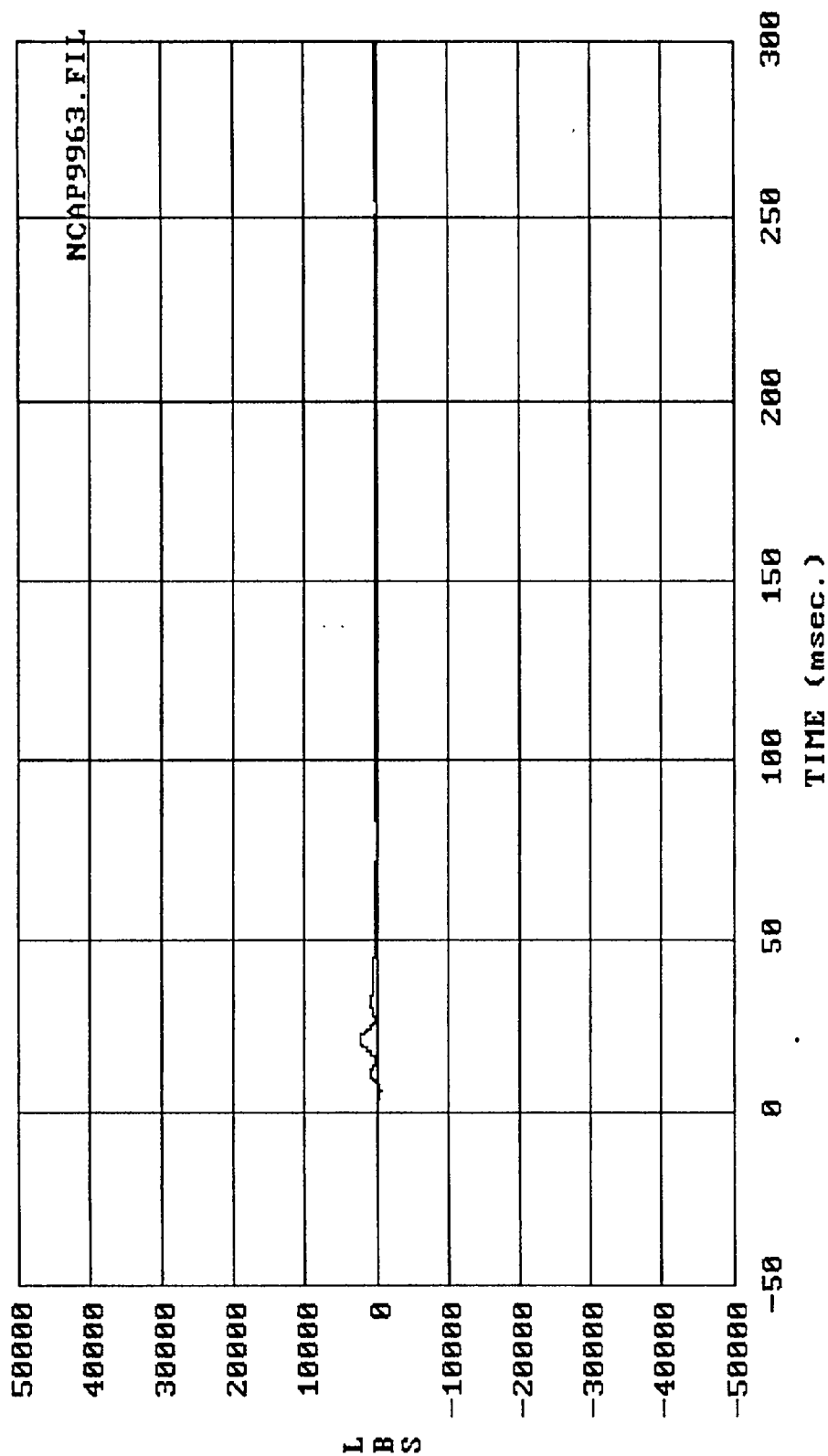
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell D2



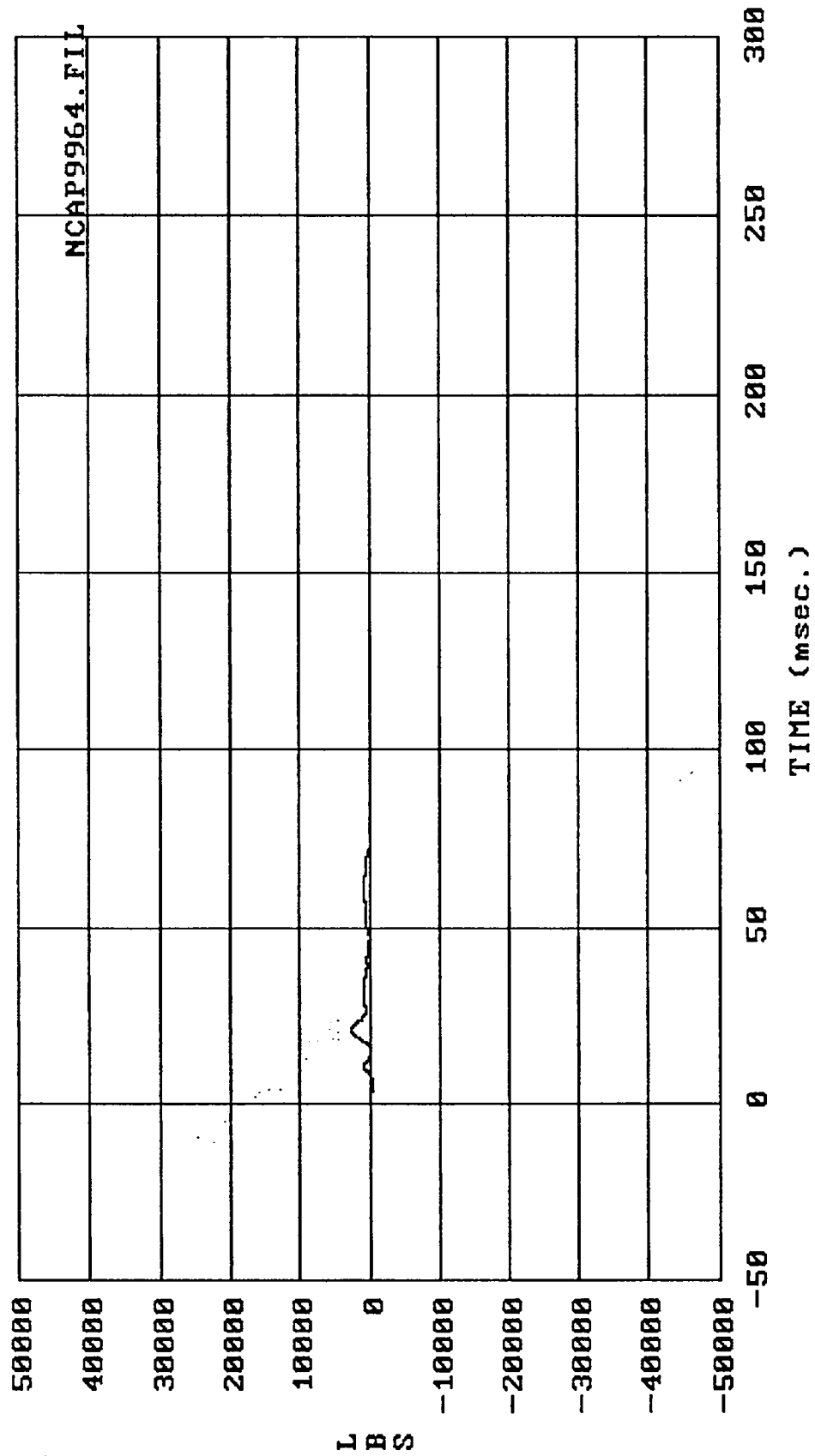
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MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell D3



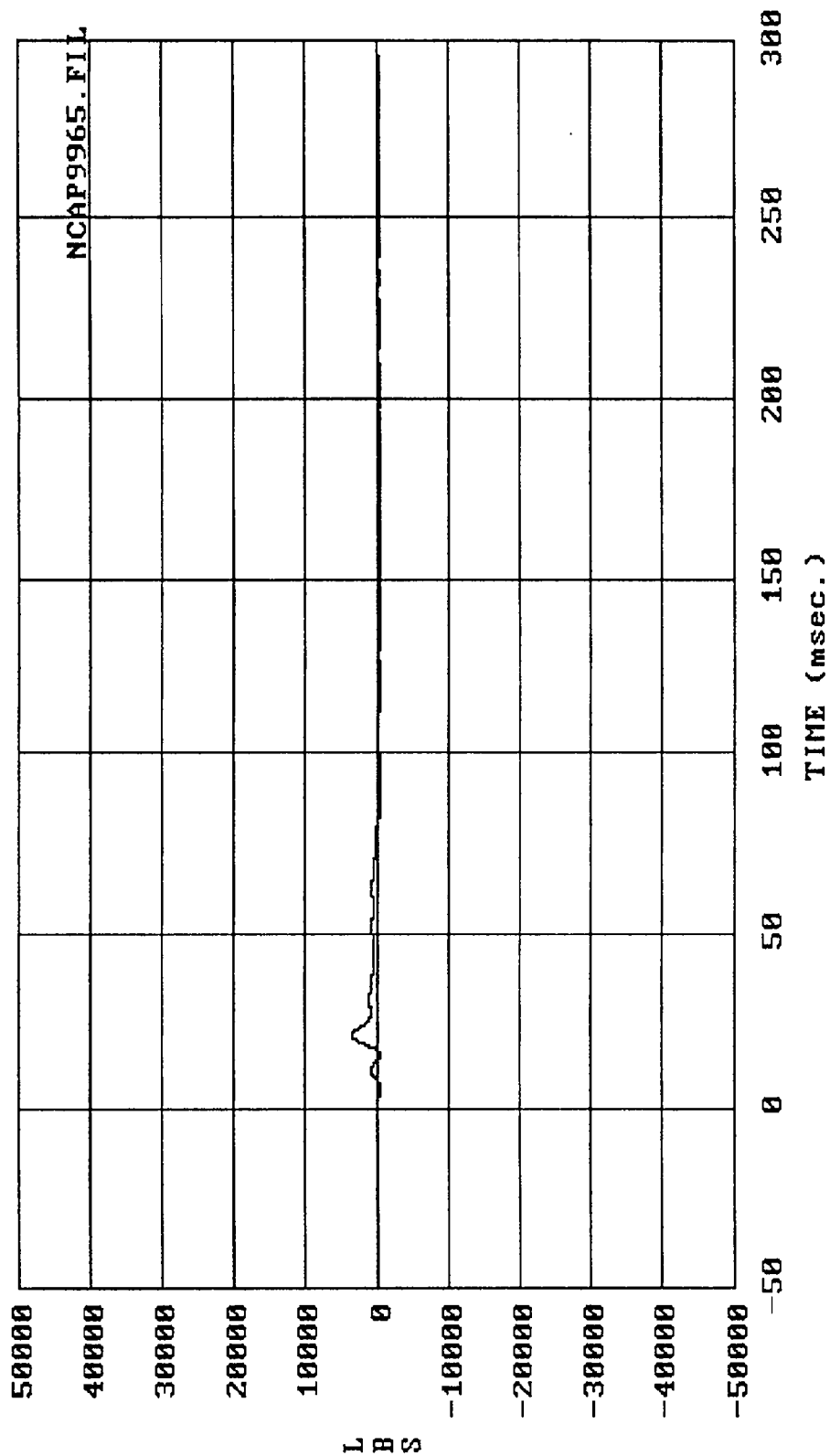
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MSE 05/09/89 --- 1989 Mitsubishi Van : Barrier force - Load cell D4



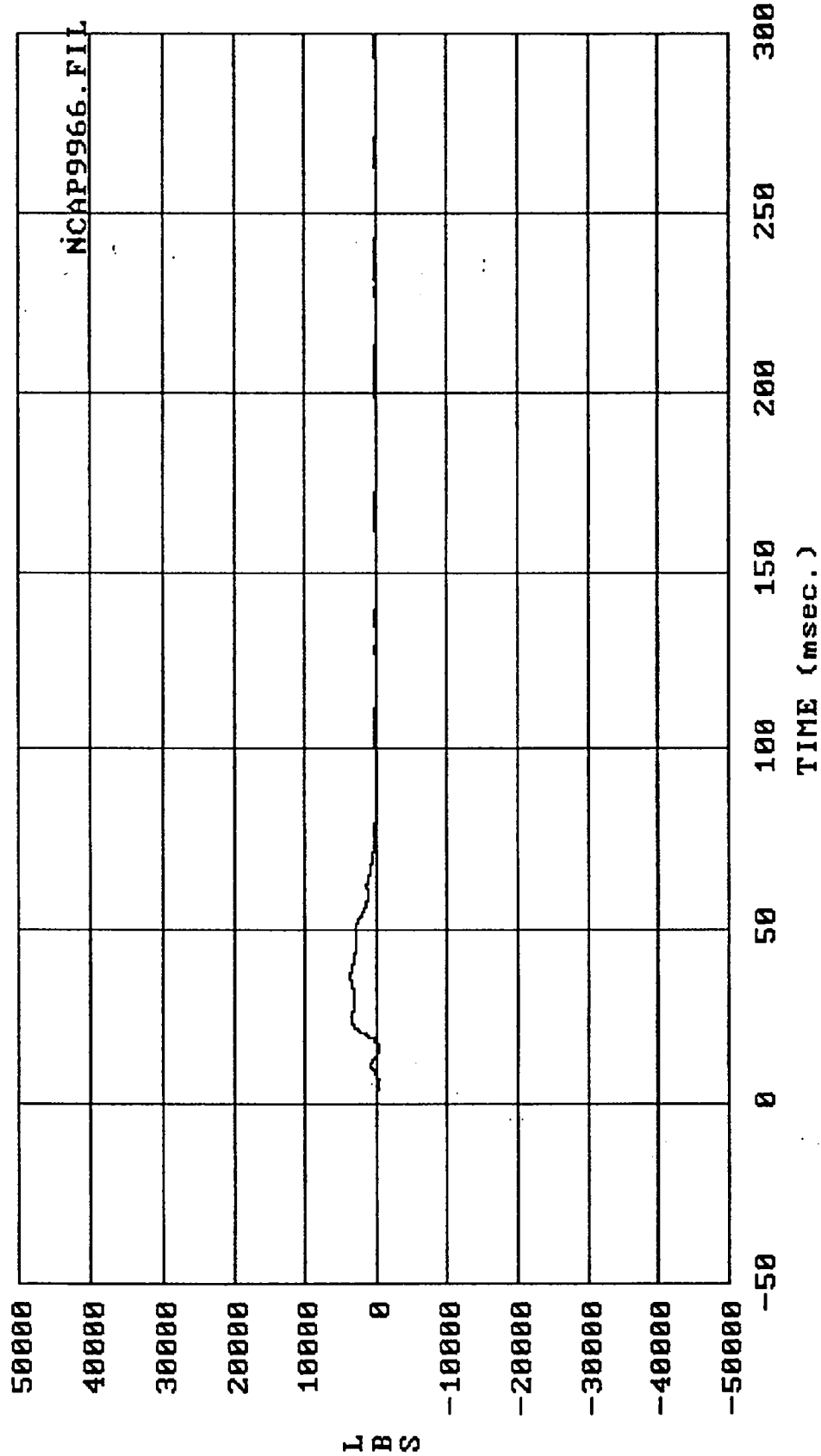
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 MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell D5



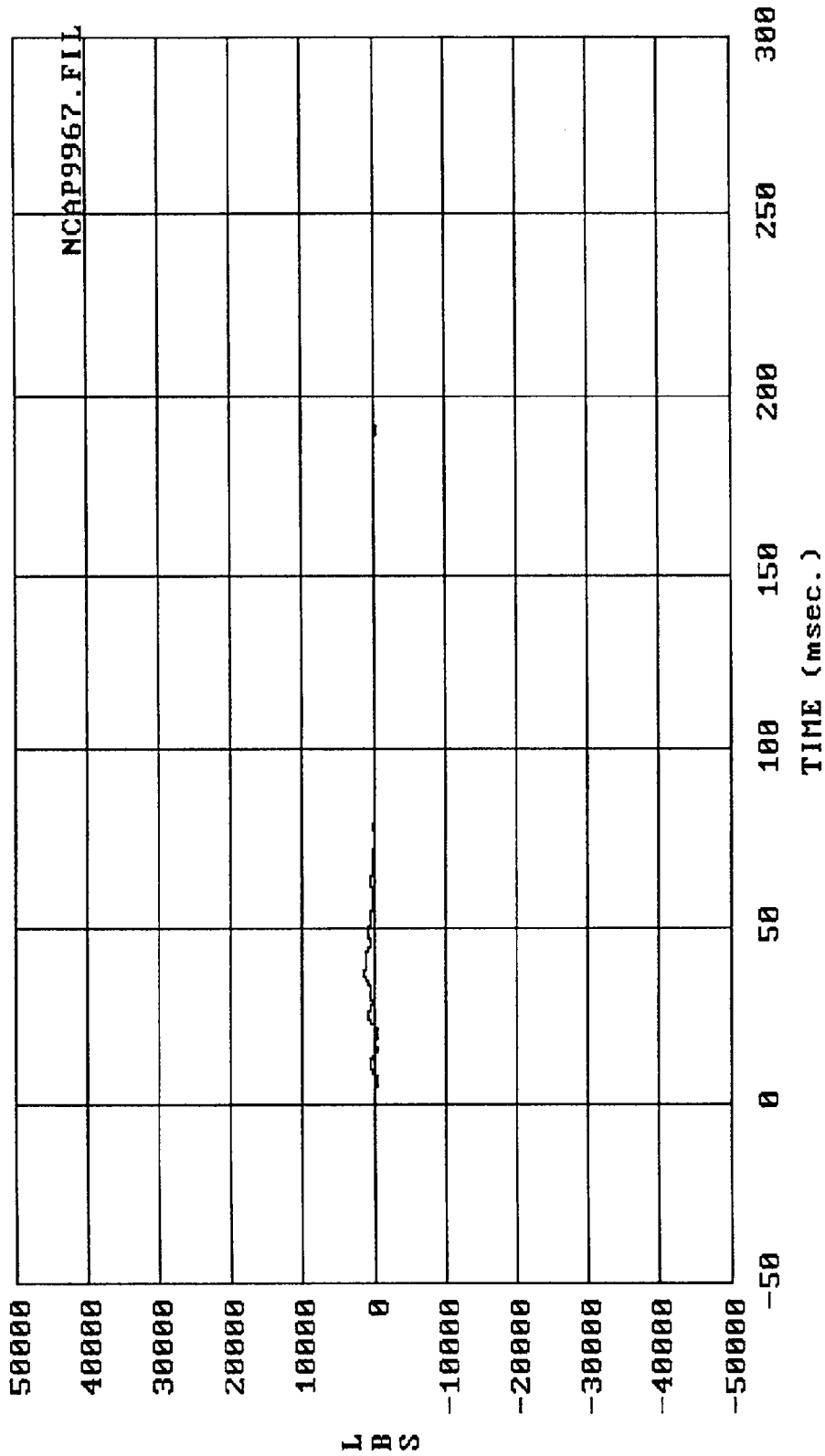
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MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell D6



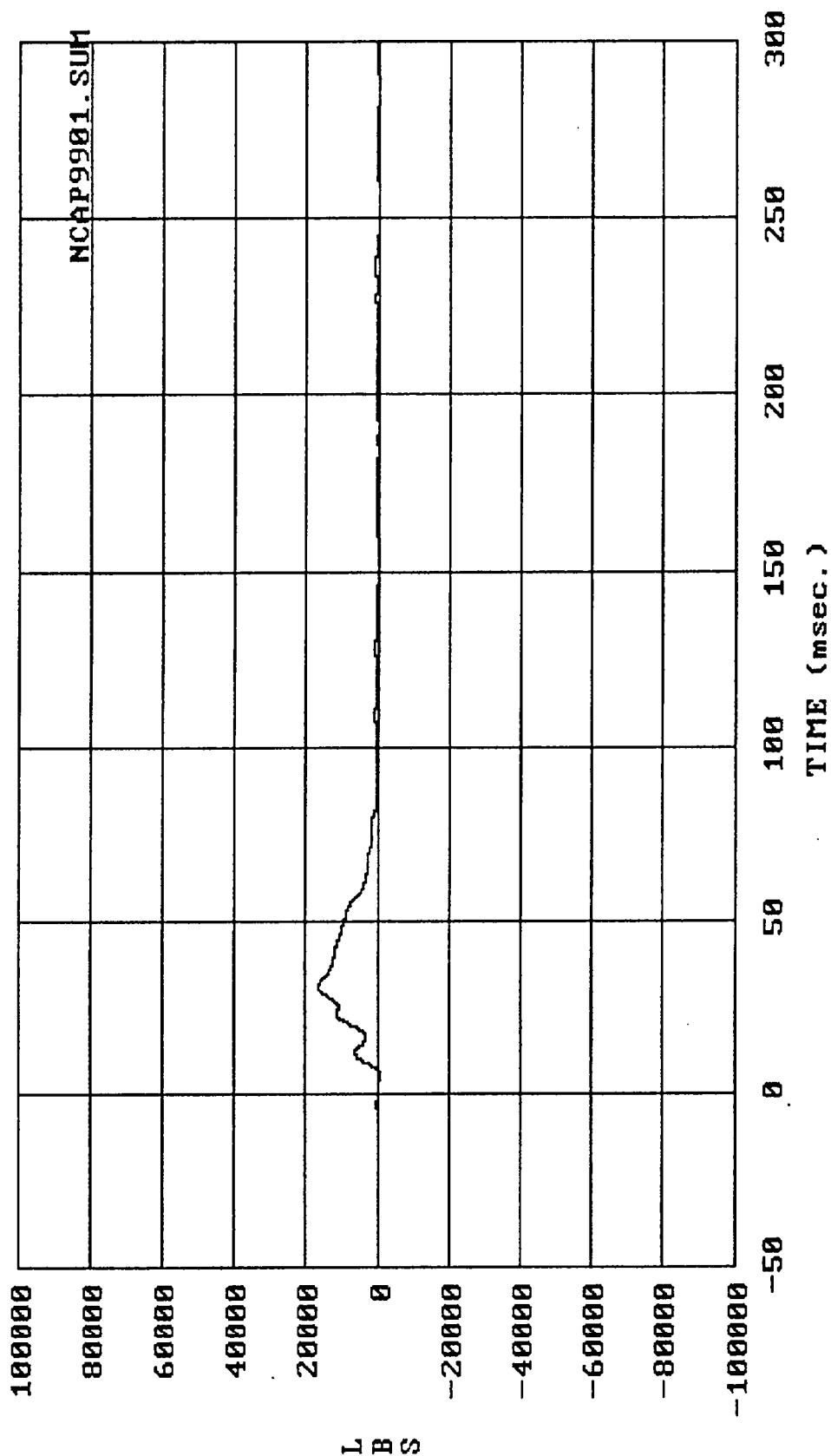
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 MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell D7



Filter: SAE CLASS 60 Max = 3866.6 Min = -382.54
MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell D8

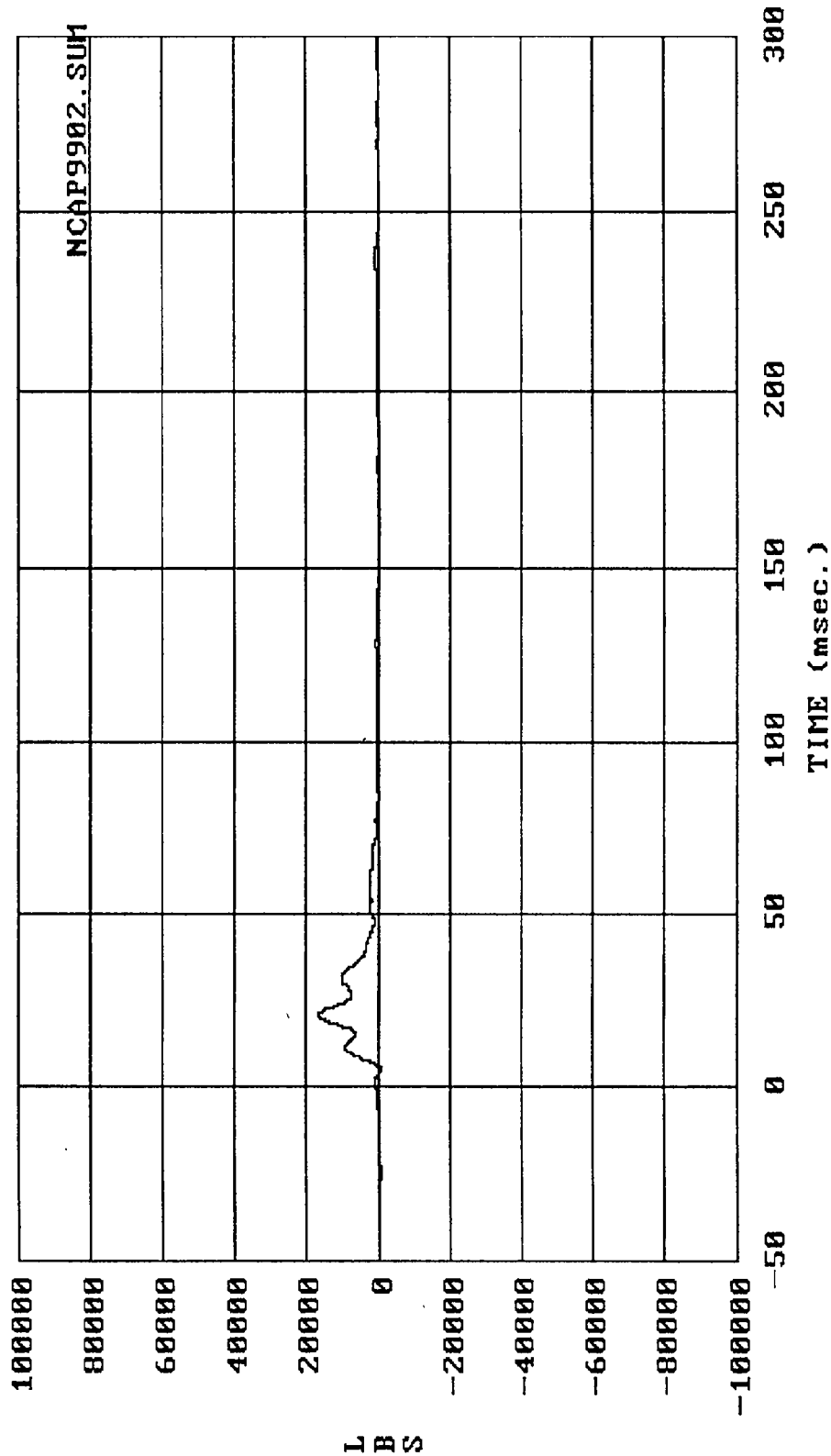


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 MSE 05/09/89 -- 1989 Mitsubishi Van : Barrier force - Load cell D9



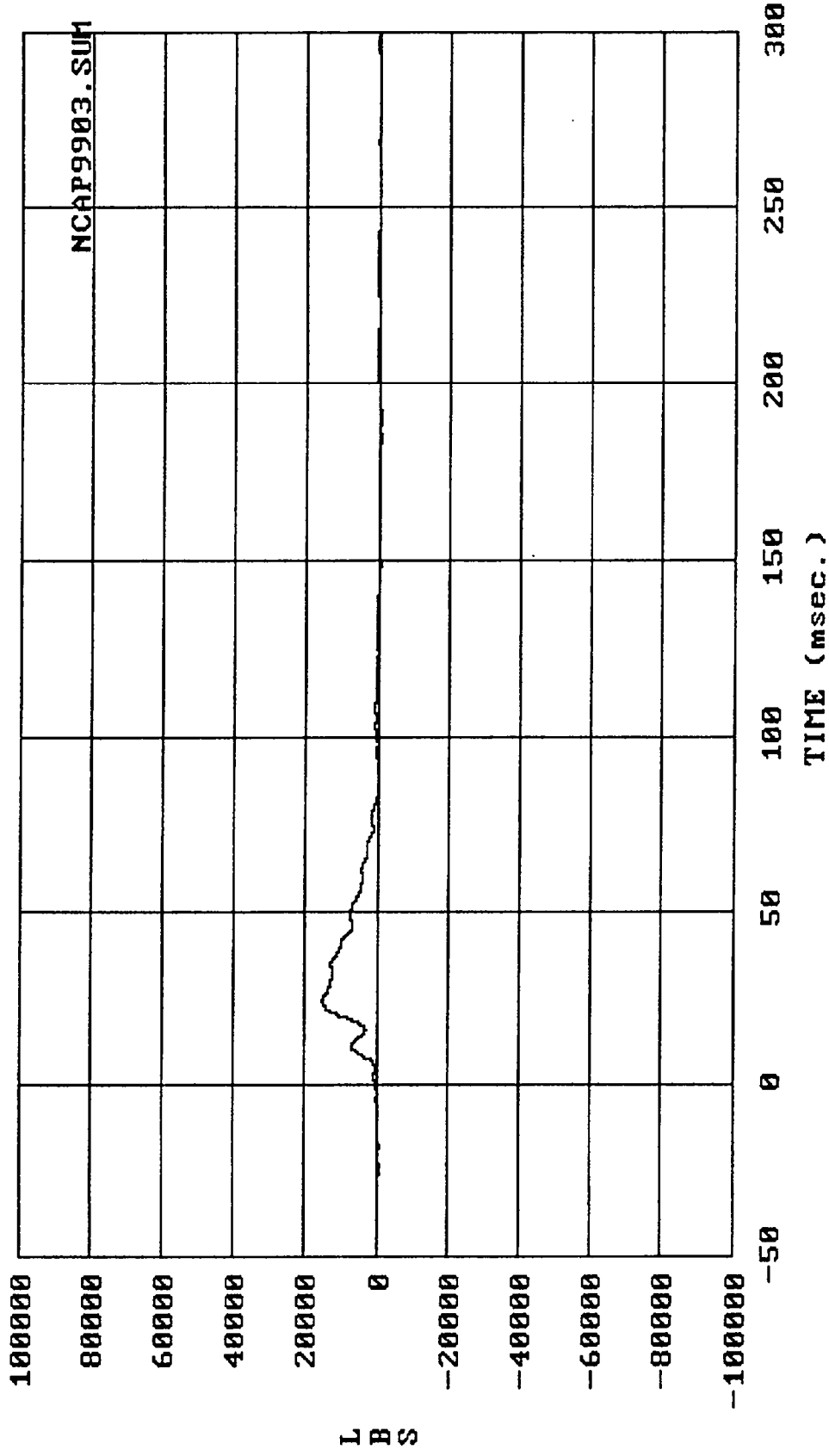
Filter: SAE CLASS 60 Max = 16957. Min = -491.12

MSE 05/09/89 -- 1989 Mitsubishi Van : LCB sum frc C1,C2,C3,D1,D2,D3
Group_1



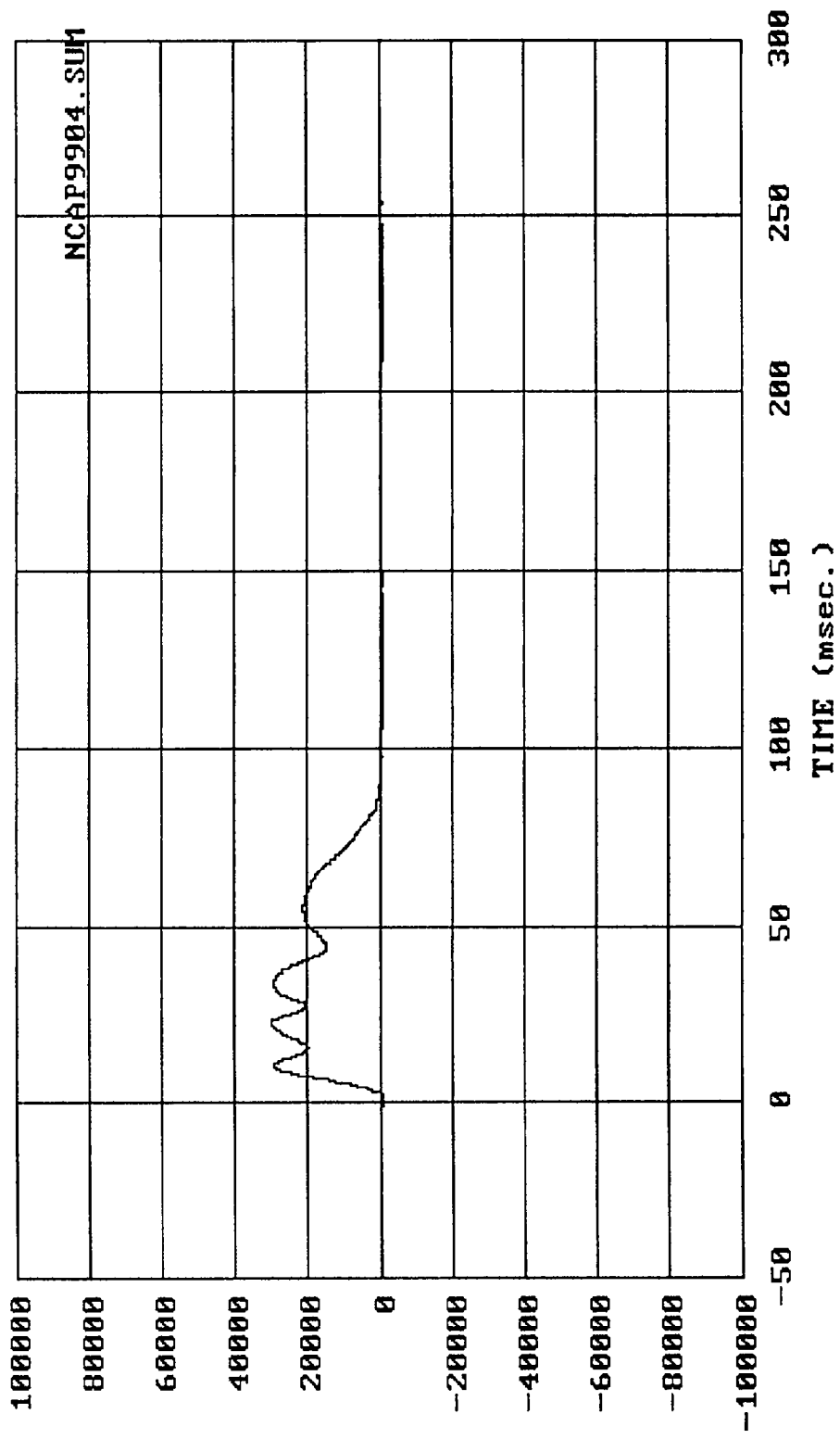
Filter: SAE CLASS 60 Max = 16839. Min = -476.10

MSE 05/09/89 -- 1989 Mitsubishi Van : LCB sum frc C4,C5,C6,D4,D5,D6
Group_2

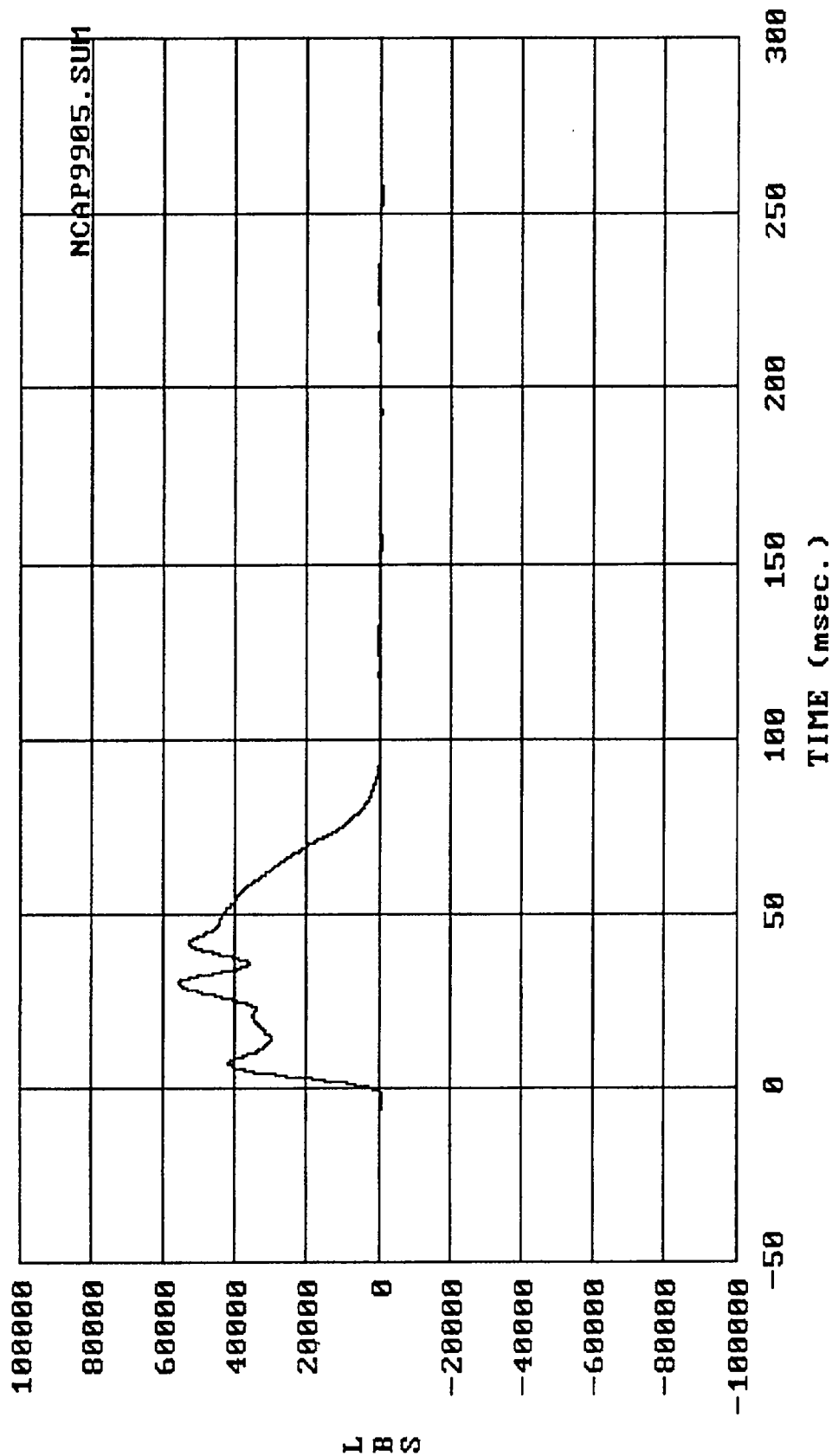


Filter: SAE CLASS 60 Max = 15341. Min = -563.58

MSE 05/09/89 --- 1989 Mitsubishi Van : LCB sum frc C7,C8,C9,D7,D8,D9
Group_3

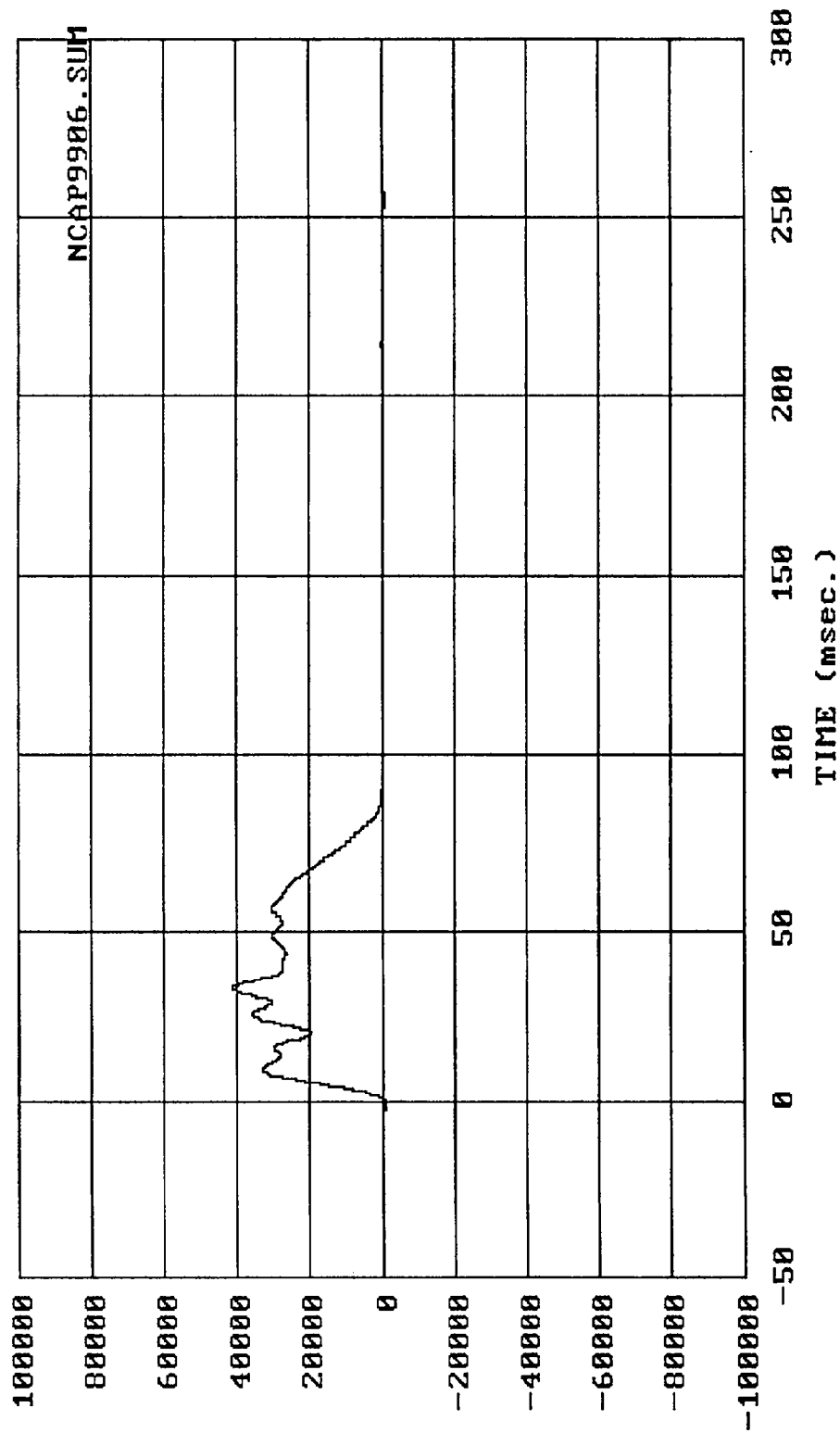


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 Group_4

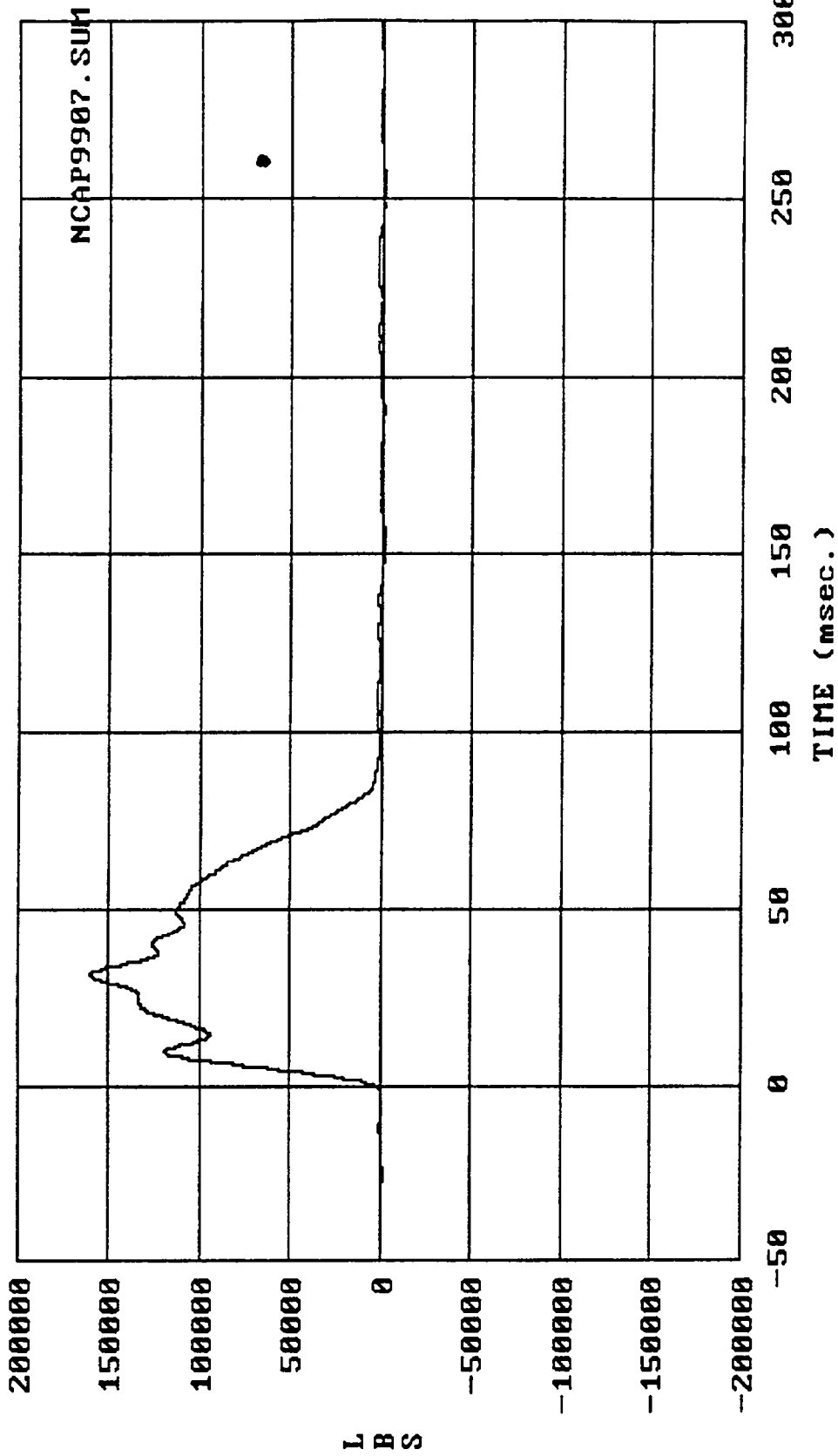


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MSE 05/09/89 -- 1989 Mitsubishi Van : LCB sum frc A4,A5,A6,B4,B5,B6
Group_5



Filter: SAE CLASS 60 Max = 41584. Min = -471.80
 MSE 05/09/89 -- 1989 Mitsubishi Van : LCB sum frc A7,A8,A9,B7,B8,B9
 Group_6



Filter: SAE CLASS 60

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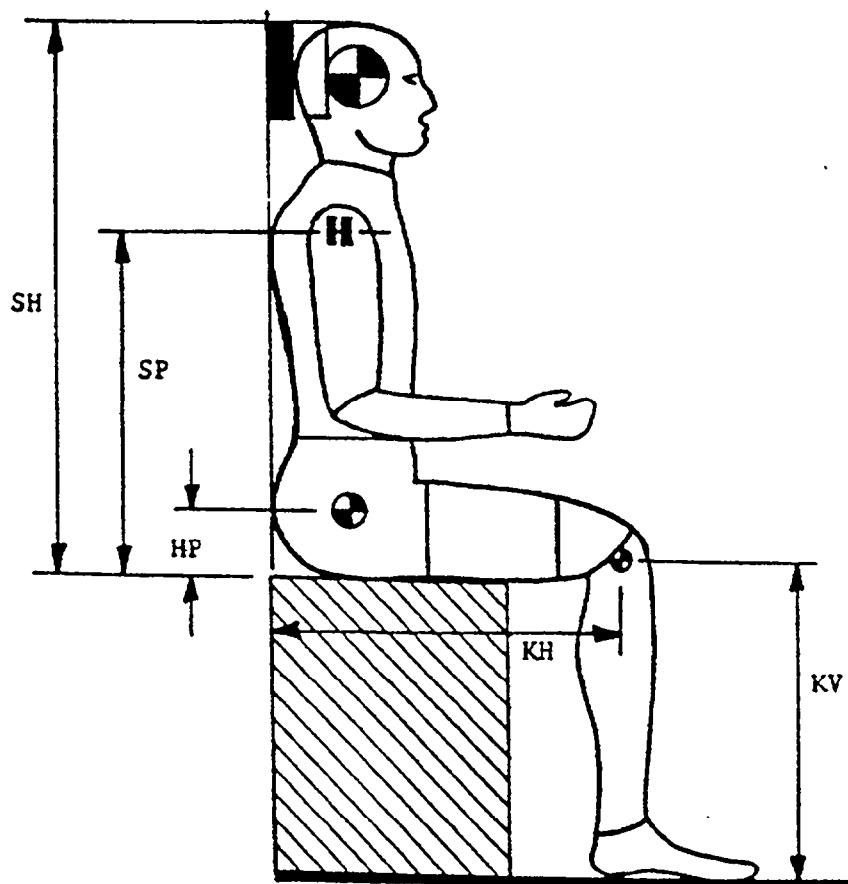
MSE 05/09/89 -- 1989 Mitsubishi Van : Load Cell Barrier sum total force

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APPENDIX C

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION TESTS

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I. CONFIGURATION VERIFICATION DATA:

	P.572 SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
DATE OF CONFIGURATION VERIFICATION		05/05/89	
VERIFICATION NUMBER FOR DUMMY*		03	
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"	20.5	
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"	14.95	

TECHNICIAN'S NAME: MARK 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
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TECHNICIAN'S NAME: MARK WALKER

		PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION-----		05/05 - 05/07/89	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY*-----		03	
VERIF. LAB. TEMPERATURE (66 to 78°F Range)-----		66-72 °F.	°F.
VERIF. LAB. HUMIDITY (10 to 70% Range)		60-65 %	%
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST--			
a. Peak Resultant Accel.-	210 to 260G	241.0	
b. Peak Lateral Accel.-	- 10G	7.75	
c. Time above 100G- - -	0.9 to 1.5ms	1.0	
2. NECK BENDING TEST--			
a. Pendulum Speed - - -	21.5 to 25.5 fps	22.29	
b. Pend. Avg. Decel. over t ₃ - t ₂	20 to 24G	22.35	
c. Peak Resultant Head Acceleration - - - -	26G max.	24.8	
d. Pendulum Decel.(t ₂ -t ₁)	- 3ms	1.0	
e. Pendulum Decel.(t ₃ -t ₂)	25 to 30 ms	29.6	
f. Pendulum Decel.(t ₄ -t ₃)	- 10ms	10.0	
g. Max. Head Rotation -	63 to 73°	63.9	
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	33.0	
	Displ.- 2.1 to 3.1"	2.47	
60°	Time- - 40.3 to 51.7ms	51.4	
	Displ.- 4.3 to 5.3"	4.87	
Maximum (61.0°)	Time- - 53.2 to 66.8ms	61.0	
	Displ.- 5.0 to 6.0"	5.25	

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

TECHNICIAN'S NAME: MARK WALKER

TEST PARAMETER		SPECIFICATION	Pre-Test (if required)	Post-Test (if required)
2. NECK BENDING TEST....				
<u>Continued:</u>				
h. Chordal Displacement:				
Head Rotation Angle--				
60°	Time	67.0 to 83.0 ms	70.0	
	Displ.	4.3 to 5.3 in.	4.88	
30°	Time	85.4 to 104.6 ms	87.4	
	Displ.	2.1 to 3.1 in.	2.23	
0°	Time	101.0 to 123.0 ms	101.0	
	Displ.	-.5 to 0.5 in.	0.0	
3. ABDOMINAL COMPRESSION TEST:				
(Preload = 10 pounds)				
a. Force @ .5" - - - -		23 to 36 lbs.	26.0	
b. Force @ .75" - - - -		36 to 50 lbs.	39.0	
c. Force @ 1.0" - - - -		50 to 63 lbs.	55.0	
d. Force @ 1.5" - - - -		73 to 88 lbs.	83.0	
4. LUMBAR FLEXION TEST:				
a. Force @ 20° - - - -		22 to 34 lbs.	27.5	
b. Force @ 30° - - - -		34 to 46 lbs.	40.2	
c. Force @ 40° - - - -		46 to 58 lbs.	56.0	
d. Return Angle - - - -		12° maximum	10.8	
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed- - -	21.78-22.22 fps	21.80		
(2) Peak Deflection- -	1.7" maximum	1.70		
(3) Peak Resistive Force- - - - -	2250 lbs. maximum	2051.0		
(4) Internal Hysteresis - - -	50 to 70%	70.0		
b. Low Speed				
(1) Probe Speed- - -	13.86-14.14 fps	13.89		
(2) Peak Deflection- -	1.1" maximum	1.05		
(3) Peak Resistive Force- - - - -	1450 lbs. maximum	1324.5		
(4) Internal Hyster. - - -	50 to 70%	70.0		

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

II. PERFORMANCE VERIFICATION DATA (Continued)

NHTSA DUMMY I.D. NO.:

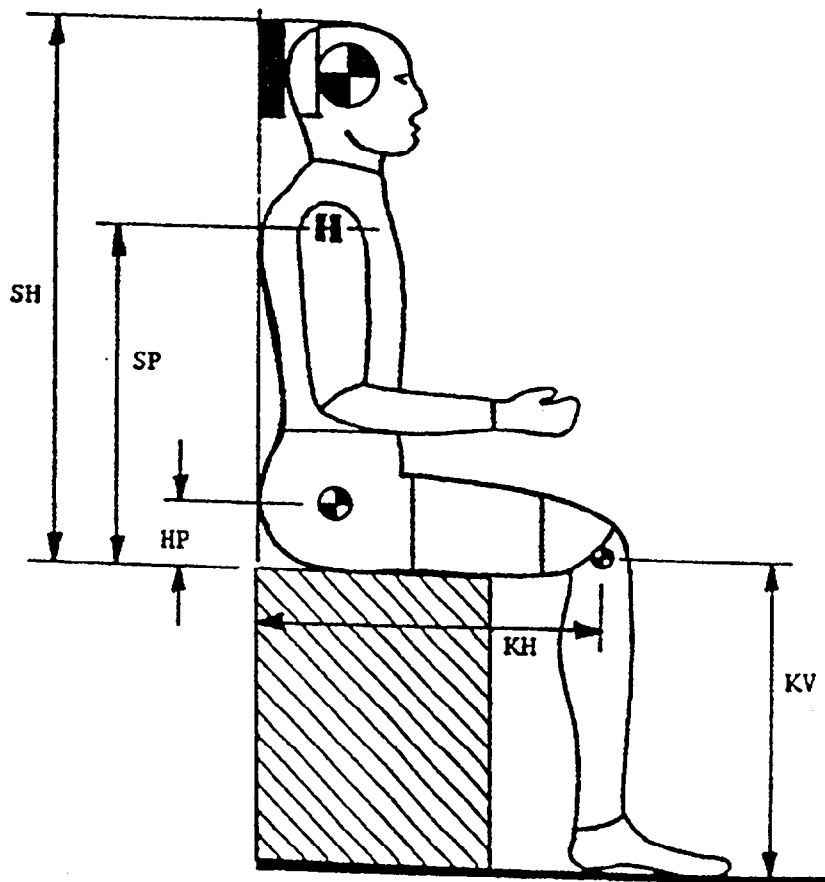
4	6	5
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TECHNICIAN'S NAME: MARK WALKER

TEST PARAMETER	SPECIFICATION	Pre-Test (if required)	Post-Test (if required)
6. <u>KNEE IMPACT TESTS:</u>			
a. Right Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.91	
(2) Maximum Force - -	1850 to 2500 lbs.	2411.0	
(3) Time Above 1000g--	1.7 ms minimum	1.75	
b. Left Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.95	
(2) Maximum Force - -	1850 to 2500 lbs.	2472.8	
(3) Time Above 1000g--	1.7 ms minimum	1.70	

REMARKS:

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

TECHNICIAN'S NAME: M. WALKER

DATE: 4 0 0

TEST PARAMETER		SPECIFICATION	Pre-Test (if required)	Post-Test (if required)
2. NECK BENDING TEST....				
<u>Continued:</u>				
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
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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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Seat Belts

ND06A-B

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



Seat Unibelt Restraint System

ND068-41

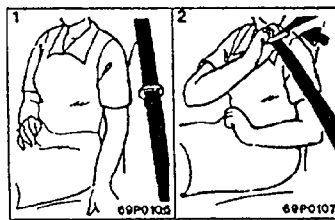
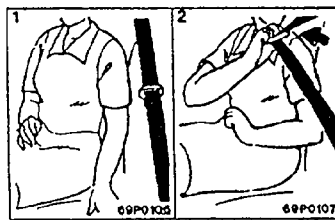
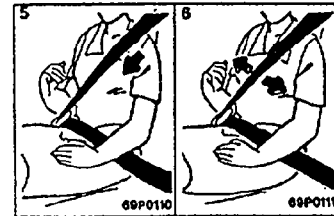
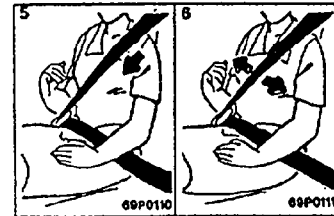
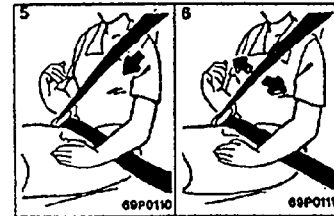
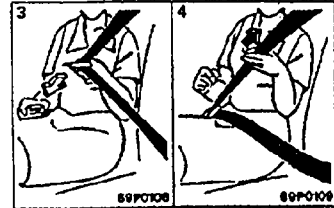
Front seats, second seats, and both outer side of third seats, are equipped with a UNIBELT system which uses a single belt and an emergency locking retractor.

This system is designed to provide comfort and safety by permitting full extension and automatic retraction of the belts during normal vehicle operation.

A sensing device inside the belt retractor is designed to lock the retractor in the event of an abrupt change in vehicle motion.

CAUTION

When the second seat (swivel seat) is fixed in the rear-facing direction, the unibelt must not be used; be sure to use the lap belt.



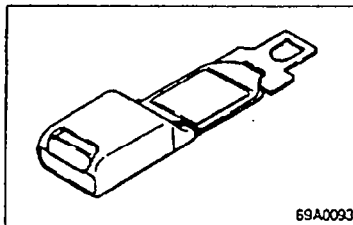
Unibelt Instructions

ND068-81

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



3. Pull the webbing, and move the movable latch plate toward the buckle. This system will not lock up if you stop or hesitate, so relax and continue to "buckle-up". Push the latch plate into the buckle until a "click" is heard.
4. Pull up on the shoulder belt to insure that there is no slack in the lap belt. The lap belt will not tighten during use; therefore you can set it right now to safe, comfortable snugness.



Seat Belt Extender (for Unibelt)

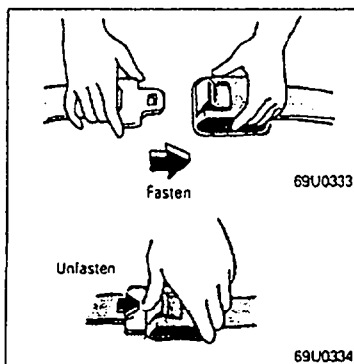
NO06J-AJ

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

5. Check the belt slackness. The belt will retain the small amount of slack necessary for comfort when you return to your normal seating position.

If the belt is still too tight, pull out 6" or 8" of webbing, let it return to your chest, and repeat the above motion.

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



Second Seat Lap Belts

NO06C-G4

The second seat lap belts should be used in the following circumstances.

- 1 - When the second seat is used facing backward.

Caution

Be sure to use the unbelt system when the second seat is used facing forward.

- 2 - If the child restraint system is installed.

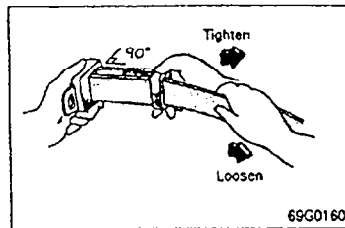


How to Install the Second Seat Lap Belts

Holding the latch plate by hand, pull it out and insert the latch plate into the buckle. The webbing with the latch plate is automatically retracted until the belt fits the wearer snugly. To release, hold the plate and push the button on the buckle.

As the belt retracts automatically, keep the plate held while retracting so that the belt stows slowly.

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



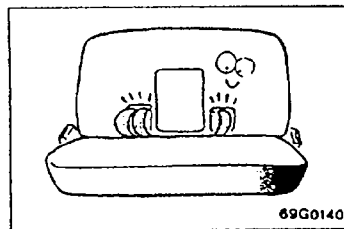
Third Seat Center Lap Belt

NO06C-H4

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

NOTE

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



When the seat belts are not being used, they can be stored in the pocket in the seatback.

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

Child Restraint

NO06F-L4

When transporting children in your vehicle, some type of restraint system should be used regardless of the size of the child. This is required by law in most states. The child restraint system must be installed to the third seat belt by using center lap belt or second seat by using lap belt or it may be installed in the front passenger's seat or third outer seat by using Seat Unibelt Retraint System with locking clip. See your authorized dealer to obtain a locking clip. However, according to accident statistics, children are safer when properly restrained in the rear seating positions rather than the front. Holding a child in your arms is no substitute for a restraint system. Failure to use a restraint system can result in severe or fatal injury to your child.



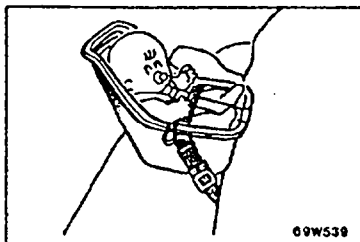
Infants and Small Children

For babies weighing up to approximately 9 kg (20 lbs.), a good infant carrier should be used. For small children over 9 kg (20 lbs.), a good child seat should be used.

Before purchasing a restraint system, make sure that it has a label certifying that it meets applicable Federal Motor Vehicle Safety Standards.

The restraint system should be appropriate for your child's weight and height. This information can be found on the restraint system's label for instructions. After purchasing the restraint system, carefully follow the instructions that come with it. Failure to do so can result in severe or fatal injury to your child. When not in use, keep your child or infant seat secured with the seat belt or remove it from the vehicle in order to prevent injury to occupants in the event of a sudden stop.

Use the second seat lap belt or the third seat center lap belt to install the child restraint system.



INFANT CARRIER

This type of carrier is recommended if the child is unable to sit up alone. The child is securely restrained facing in a rearward direction so that in the event of a forward collision the child is adequately supported.

After installation of the Infant carrier, shake the carrier back and forth, and side to side to see that it is positively secured with the seat belt.

If the infant carrier moves, readjust the length of the seat belt.



CHILD SEAT

The child seat aids in distributing loads that might be exerted on a child more widely over the child's body.

After installation of the child seat, shake the child seat back and forth, and side to side to see that it is positively secured with the seat belt.

If the child seat moves, readjust the length of the seat belt.



Installing a Child Restraint System to the Second Seat by Using Lap Belt

1. Place the infant carrier or child seat onto the seat.

NOTE

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

2. Pass the lap belt through the infant carrier or child seat and insert the latch plate into the buckle.

CAUTION

Be sure the lap belt is not twisted.

Installing a Child Restraint System to the Unibelt System

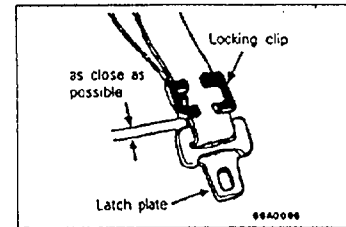
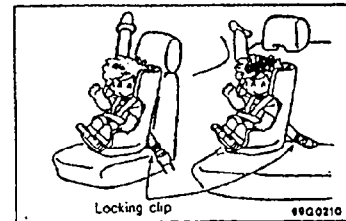
It is recommended that the child restraint system not be installed to the unbelt system (front passenger's seat, second seats, third outer seats).

If it is installed to the unbelt system for some unavoidable reason, a locking clip must be used. If a locking clip has not been supplied with your child restraint system, it may be purchased from your authorized dealer. Failure to use the seat belt locking clip as directed may result in severe or fatal injury to your child in the event of an accident.

To use the locking clip, install the child restraint system according to the instruction that come with the child restraint system/locking clip.

Make sure that the seat belt is snug on the child restraint system.

Do not allow the latch plate to slide along the webbing.





Installation

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

CAUTION

To help lessen the severity of injury in an accident, the locking clip must be removed from the seat belt webbing when the seat belt is to be used for normal restraint.

Children too Large for Child Seats

Children too large for child seat can use the combination lap and shoulder belt. If the shoulder belt crosses the face or neck, use the second seat lap belt or third seat center lap belt. Make sure that the child is seated upright in the seat with the lap belt fastened low on the hips and as snug as possible. Belt fit should be checked periodically, in case the belt has been mispositioned by the child's squirming or slouching.

Pregnant Woman Restraint

NO00G-8

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



Maintenance and Inspection of Seat Belts

ND06H-AB

The webbing used in belts may be cleaned with soap or detergent in water. Do not attempt to bleach or re-dye belts. The resulting color may rub off and webbing strength could be affected. Regularly check lap belt buckles and release mechanisms for positive action and emergency locking retractors for positive engagement.

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