

1398

**NEW CAR ASSESSMENT PROGRAM (NCAP)
FRONTAL BARRIER IMPACT TEST**

NISSAN MOTOR COMPANY, LIMITED
1990 NISSAN AXXESS
VAN (ACP)
NHTSA NO. ML5201

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



FEBRUARY 15, 1990

FINAL REPORT

Prepared For:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF MARKET INCENTIVES
400 Seventh Street, S.W.
Room No. 5313 (NRM-22)
Washington, DC 20590

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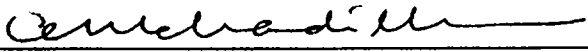
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MAR 13 1990

Date of Report Acceptance

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16. Abstract A 35 mph frontal barrier impact test using a load cell barrier was conducted on a 1990 Nissan Axxess, Van at the Mobility System and Equipment Company (MSE) crash test facility in Mira Loma, CA, 25 January 1990. The barrier impact velocity was 35.3 mph, and the ambient temperature at the barrier face at the time of impact was 78 deg. F. The post-test vehicle crush maximum was 22.0 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>1051</td> <td>654</td> </tr> <tr> <td>Chest Resultant Peak 60 Gs (3 ms clip)</td> <td>46.2</td> <td>45.9</td> </tr> <tr> <td>Femur Load Left</td> <td>919</td> <td>1257</td> </tr> <tr> <td>2250 Pounds Right</td> <td>1266</td> <td>1143</td> </tr> </tbody> </table>			Injury Criteria Threshold Value	Driver Dummy	Passenger Dummy	Head Injury Criterion HIC = 1000	1051	654	Chest Resultant Peak 60 Gs (3 ms clip)	46.2	45.9	Femur Load Left	919	1257	2250 Pounds Right	1266	1143
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Chest Resultant Peak 60 Gs (3 ms clip)	46.2	45.9															
Femur Load Left	919	1257															
2250 Pounds Right	1266	1143															
TYPE OF RESTRAINT SYSTEM: A motorized 2-point belt system and knee bolster as a passive restraint system and an active lap belt at each front outboard seating position.																	
17. Key Words 35 MPH FRONTAL BARRIER IMPACT TEST NEW CAR ASSESSMENT PROGRAM (NCAP) 1990 NISSAN/AXCESS/VAN AUTOMATIC CRASH PROTECTION	18. Distribution Statement COPIES OF THIS REPORT ARE AVAILABLE FROM: Technical Reference Division Nat'l Highway 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 1990 Nissan Axxess, Van, NHTSA No. ML5201, at a velocity of 35.3 mph. The frontal impact test was conducted by Mobility Systems and Equipment Company (MSE) on 25 January 1990. 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 (ATDs) 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-five (65) channels of crash parameters were recorded using two (2) FM tape recorders, three (3) computers and associated data acquisition system. Time history plots of all recorded channels are presented in Appendix B.

2.1 GENERAL COMMENTS

The 1990 Nissan Axxess, Van, was equipped with a 146.0 cubic inch, 4 cylinder engine and 5 speed manual transmission. The test weight of the 1990 Nissan Axxess, Van, with two (2) 50th percentile male dummies, instrumentation, and cameras was 3,433 pounds.

The 1990 Nissan Axxess, Van was involved in a frontal load cell barrier crash at a velocity of 35.3 mph.

The maximum static crush for the vehicle of 22.0 inches occurred at the centerline of the front bumper. The windshield was cracked especially where the steering wheel rim contacted it. There was no windshield separation. Both the driver's and passenger's front doors were opened without the aid of tools.

The driver ATD's head hit the steering wheel rim. The driver's left and right knees hit the dash panel and steering column. The driver ATD had a HIC value of 1,051, the maximum chest acceleration (resultant clipped) was 46.2 g's and the maximum femur loads were 919 (left) and 1,266 (right) pounds.

The passenger ATD's head made no contact and both of his knees hit the glovebox door. The HIC value for the passenger ATD was 654, the maximum chest acceleration (resultant clipped) was 45.9 g's, and the maximum femur loads were 1,257 (left) and 1,143 (right) pounds.

Seat belt spool out, measured by high-speed film analysis, was 2.8 inches for the driver and 2.4 inches for the passenger belts.

There were no apparent visual indications of any standard solvent leaks.

Each of the test vehicle's front outboard seating position was equipped with a 2-point, motorized belt system with a knee bolster as vehicle's Automatic Crash Protection System. Additionally each position had an active lap belt. The vehicle was tested with both the active lap belt and ACP system.

Data Table No. 1 Test Vehicle Data

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1990/NISSAN/AXXESS/VAN

VEHICLE NHTSA NO.: M L 5 2 0 1 VIN: J N 1 H M 1 5 P 4 L X 0 0 2 5 9 3

VEHICLE BODY COLOR: GOLD; MONTH & YEAR OF MANUFACTURE: 02/89

ENGINE: 4 Cylinders; 146.0 C.I.D; Liters; 2400 CC

X Gas; Diesel; Turbocharged

PLACEMENT-- Longitudinal; X Transverse (Lateral)

TRANSMISSION: 5 Speed; X Manual; Automatic; Overdrive

FINAL DRIVE: X Front Wheel Drive Rear Wheel Drive;

 Four Wheel Drive

DATE VEHICLE AVAILABLE FOR 35 MPH CRASH TESTING: 07/24/89

ODOMETER READING: 87 miles; OPTIONS: A/C; P/S; P/Wdo.;
 Tilt Whl.; Cruise Control

DATA RECORD FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): 29 psi Front; 29 psi Rear

Recommended Tire Size: P195/70R14

Tires on Vehicle: P195/70R14; Manufacturer: YOKOHOMA

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

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

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

Vehicle Maximum Capacity Loading = 820 lbs. (A)

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

Cargo Capacity (A - B) - - - - - = 70 lbs.

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Right Front = 897 lbs.

Left Front = 940 lbs. TOTAL FRONT = 1837 lbs. (60.5% of TOTAL)

Right Rear = 590 lbs.

Left Rear = 610 lbs.

TOTAL WEIGHT = 3037 lbs. TOTAL REAR = 1200 lbs. (39.5% 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>3037</u>	lbs.
Maximum Cargo Carrying Capacity of Test Vehicle*- - - - -	<u>70</u>	lbs.
Weight of Two P.572 Dummies (2 x 164 lbs.)- - - - -	<u>328</u>	lbs.
TEST VEHICLE TARGET WEIGHT	<u>3435</u>	lbs.

*300 lbs. for light trucks and MPVs

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front =	<u>1000</u>	lbs.	TOTAL FRONT =	<u>2013</u>	lbs. (58.6% of TOTAL)
Left Front =	<u>1013</u>	lbs.			
Right Rear =	<u>706</u>	lbs.	TOTAL REAR =	<u>1420</u>	lbs. (41.4% of TOTAL)
Left Rear =	<u>714</u>	lbs.			

TOTAL WEIGHT= 3433 lbs. (which includes 10 lbs. of cargo ballast weight placed in the cargo/luggage area)

VEHICLE COMPONENTS REMOVED TO MEET TARGET WEIGHT:

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

TEST VEHICLE ATTITUDE:

As Delivered---Right Front = 28.2 inches
Left Front = 28.1 inches
Right Rear = 28.8 inches
Left Rear = 28.8 inches

Ready For Test---Right Front = 27.3 inches
Left Front = 27.3 inches
Right Rear = 27.7 inches
Left Rear = 27.6 inches

Test Vehicle Wheelbase: 103.4 inches; C.G.= 42.8 inches rearward of front wheel centerline

Total Vehicle Length:

Right Side =	<u>161.2</u>	inches
Left Side =	<u>161.3</u>	inches
Centerline =	<u>169.0</u>	inches

Data Table No. 2 Post Crash Test Data

DATA OF 35 MPH FRONTAL BARRIER IMPACT RATING TEST: 01/25/90

TIME OF TEST: 4:20 PM: AMBIENT TEMPERATURE AT BARRIER FACE: 78^oF

VEHICLE'S OCCUPANT COMPARTMENT TEMPERATURE: 75^oF

(spec. Range = 66 to 78 F.)

VEHICLE WINDSHIELD MOLDING TEMPERATURE: 75^oF.

VEHICLE IMPACT VELOCITY: Primary Speed Trap = 35.3 mph
Secondary Speed Trap 35.3 mph
(Specified Range = 34.5 to 35.5 mph)

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

(a) entering the speed trap = 5.0 ft
(b) exiting the speed trap = 1.0 ft

VEHICLE STATIC CRUSH:

Vehicle Pre-test Length-Right Side =161.2"; C/Line=169.0"; Left Side=161.3"
Vehicle Post-test Length-Right Side=143.5"; C/Line=147.0"; Left Side=142.9"
Vehicle Static Crush --- Right Side=17.7"; C/Line=22.0"; Left Side=18.4"

VEHICLE REBOUND FROM BARRIER FACE:

Vehicle Right Side = 21.3 inches
Vehicle Centerline = 21.7 inches
Vehicle Left Side = 22.5 inches

VEHICLE DUMMY CONTACT POINTS:

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

VEHICLE DOOR OPENING INFORMATION:

	RIGHT SIDE		LEFT SIDE	
	OPENED	JAMMED	OPENED	JAMMED
FRONT DOORS - - - - -	YES	NO	YES	NO
REAR DOORS - - - - -	YES	NO	YES	YES

Data Table No. 2 (Cont'd) Post Crash Test Data

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

OTHER NOTABLE IMPACT EFFECTS:

- No fuel leaks.
- No windshield separation.
- Steering wheel rim came upwards and hit windshield. The windshield was cracked.

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: 1990/NISSAN/AXXESS/VAN

VEH. NHTSA NO.: ML5201; TEST DATE: 01/25/90

MAXIMUM ACCELERATION VALUES:		DRIVER DUMMY #465	PASSENGER DUMMY # 466
Head Channel X	HEAD X	-96.20	-44.43
Head Channel Y	Y	-20.11	12.37
Head Channel Z	Z	66.65	43.79
HEAD RESULTANT	R	97.18	56.83
Chest Channel X	CHEST X	-43.32	-50.19
Chest Channel Y	Y	-18.35	11.95
Chest Channel Z	Z	-20.31	-22.11
CHEST RESULTANT	R	46.20	45.87
TIME INTERVAL (seconds)		0.0803 to 0.0833	0.0756 to 0.0786

HEAD INJURY CRITERIA (HIC) VALUES:

HIC	HIC	1050.87	654.22
t_1 (seconds)		0.0621	0.0662
t_2 (seconds)		0.0934	0.1022
Avg. Accel. t_1 to t_2		64.54	50.54

MAXIMUM FEMUR FORCES:

Right Side (lbs.)	FR	1265.8	1143.3
Left Side (lbs.)	FL	918.6	1257.3

MAXIMUM SEAT BELT FORCES:

Lap Belt	LAP	926.7	593.6
Shoulder Belt	SHLDR	2572.0	2462.0

MAXIMUM SEAT BELT WEBBING SPOOL-OUT:

Lap/Shoulder Belt Combination	2.8	2.4
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Data Table No. 4 Test Dummy Positioning Data

PRE-IMPACT DATA:

Make/Model: NISSAN/AXXESS
 Body Style: VAN Model Year: 1990
 NHTSA No.: ML5201 Color: GOLD

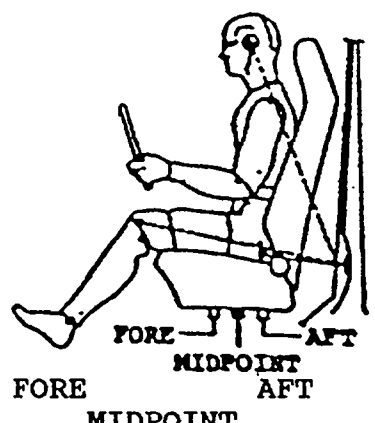
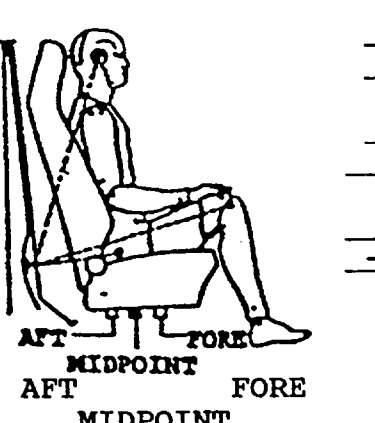
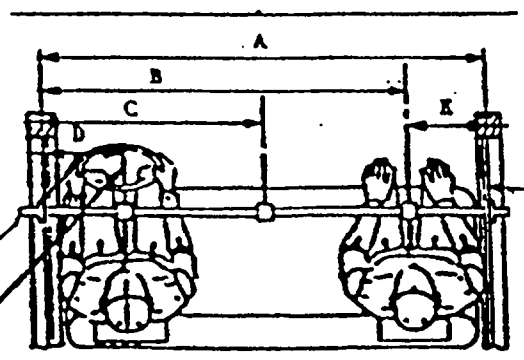
DATA FROM CERTIFICATION LABEL:

Vehicle Manufacturer: NISSAN MOTOR CO. LTD.
 Date of Manufacture: 02/89; VIN: JN1HM15P4LX002593
 GVWR: 3930 lb; GAWR: Front = 2065 lb; Rear = 1865 lb

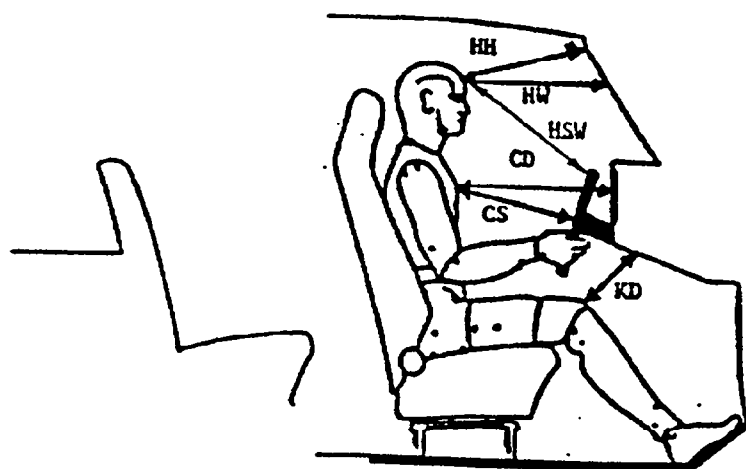
POST-IMPACT DATA:

Date of Test: 01/25/90 Time: 4:20 PM Temperature: 78 °F
 Required Impact Velocity Range: 34.5 to 35.5 mph
 Impact Velocity: Primary = 35.3 mph Secondary = 35.3 mph
 Seat Type: Bucket Adjuster Type: Manual
 Bucket Seat Back Type: Separately Adjustable Headrest

TECHNICIANS: Enrique Marin

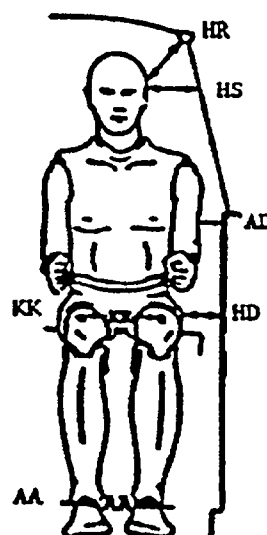
DRIVER DUMMY # <u>465</u> HEAD <u>21.7</u> " TARGET <u>92.0</u> ° KNEE <u>21.0</u> " JOINT <u>3.0</u> ° APPROX- <u>5.3</u> " IMATE <u>-32.0</u> ° "H" POINT 	PASSENGER DUMMY # <u>466</u> HEAD <u>21.7</u> " TARGET <u>93.0</u> ° KNEE <u>23.2</u> " JOINT <u>4.0</u> ° APPROX- <u>8.6</u> " MATE <u>-29.0</u> ° "H" POINT 
A = <u>59.10</u> " B = <u>43.40</u> " C = <u>29.55</u> " D = <u>16.10</u> " E = <u>15.60</u> "  DOOR GLASS HEIGHT LEFT FRONT DOOR RIGHT FRONT DOOR	
DRIVER DUMMY # <u>465</u>	PASSENGER DUMMY # <u>466</u>

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

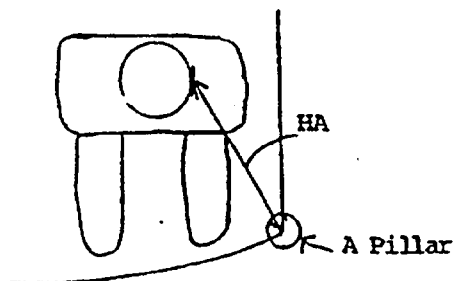


Driver		Passenger	
HH	14.1		13.4
HW	22.6		21.7
CD	23.5		26.0
CS	15.2		N/A
KD	L- 6.1		L- 4.7
KD	R- 7.0		R- 4.7
Torso		Torso	
Angle	25.0	Angle	25.0
Seat Back		Seat Back	
Angle	25.0	Angle	25.0
HSW	22.2		N/A

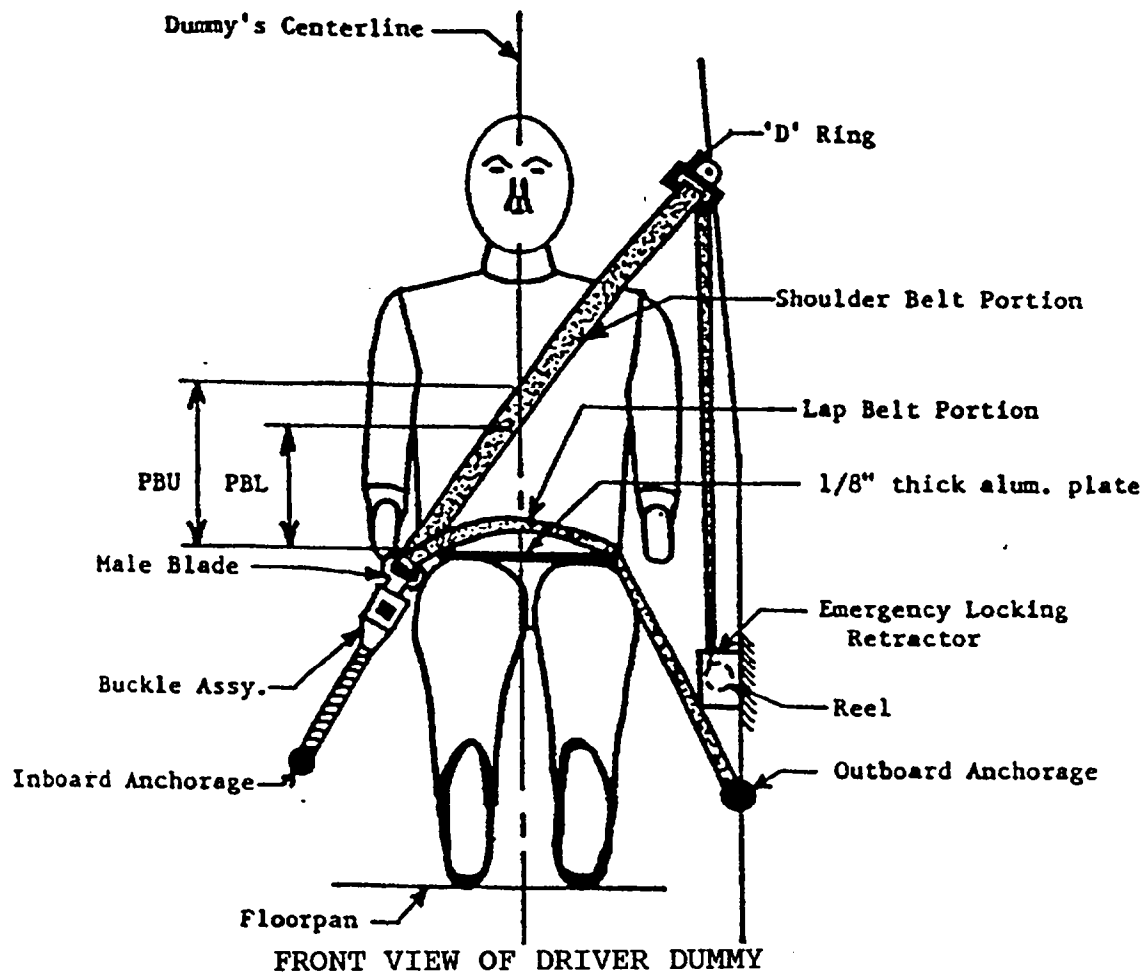
HSW = Head to Steering Wheel (in.)
 HA = Head Target to A Pillar (in.)
 HH = Head to Windshield Header (in.)
 HW = Head to Windshield (in.)
 CD = Chest to Dash (in.)
 CS = Chest to Steering Wheel (in.)
 HR = Head to Side Roof
 HS = Head to Side Window (in.)
 AD = Arm to Door (in.)
 HD = Hip to Door (in.)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



REMARKS



Driver		Passenger	
HR	6.3		6.4
HS	10.0		9.0
AD	5.5		5.5
HD	7.0		6.5
KK	14.7		11.5
AA	16.5		10.0
HA	26.0		24.0



	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
<u>PBU</u> -- Top surface of alum. plate to belt upper edge	11.7	14.5
<u>PBL</u> -- Top surface of alum. plate to belt lower edge	9.5	11.5
<u>LAP BELT TENSION, POUNDS</u>	0.0	0.0
<u>SHOULDER BELT TENSION, POUNDS</u>	0.0	0.0

Data Table 6 Seat Belt Performance Assessment Test Data

BELT LENGTH DATA:

Total belt length from retractor reel to bolt hole anchor point for continuous webbing systems _____

Retractor reel to 'D' ring as measured on Part 572 _____

Shoulder belt length as measured on Part 572 dummy _____

Lap belt length as measured on Part 572 dummy _____

Remainder of belt webbing left on retractor reel _____

DRIVER SIDE		PASSENGER SIDE	
PRE-TEST	POST-TEST	PRE-TEST	POST-TEST
S-63.5 L-48.8	S-63.5 L-48.8	S-60.2 L-47.0	S-60.2 L-47.0
5.5	5.2	6.5	6.7
36.0	38.5	37.0	39.0
32.5	29.5	33.4	28.0
S-22.0 L-16.3	S-19.8 L-19.3	S-16.7 L-13.6	S-14.5 L-19.0

BELT SPOOL-OFF DATA:

As determined by film analysis _____

As determined electronically _____

As determined mechanically _____

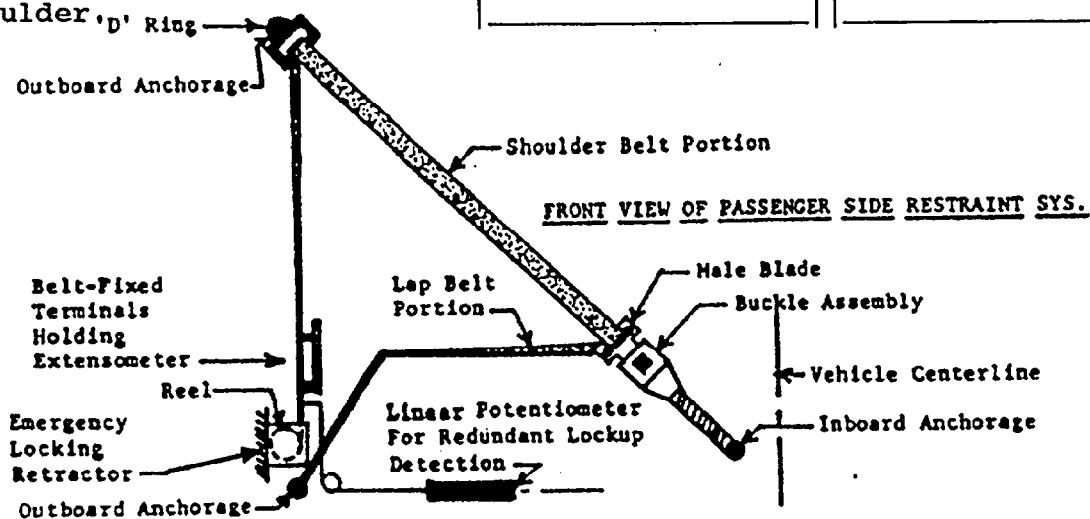
2.8 in	2.4 in
NOT MEASURED	NOT MEASURED
1.2 in	1.8 in

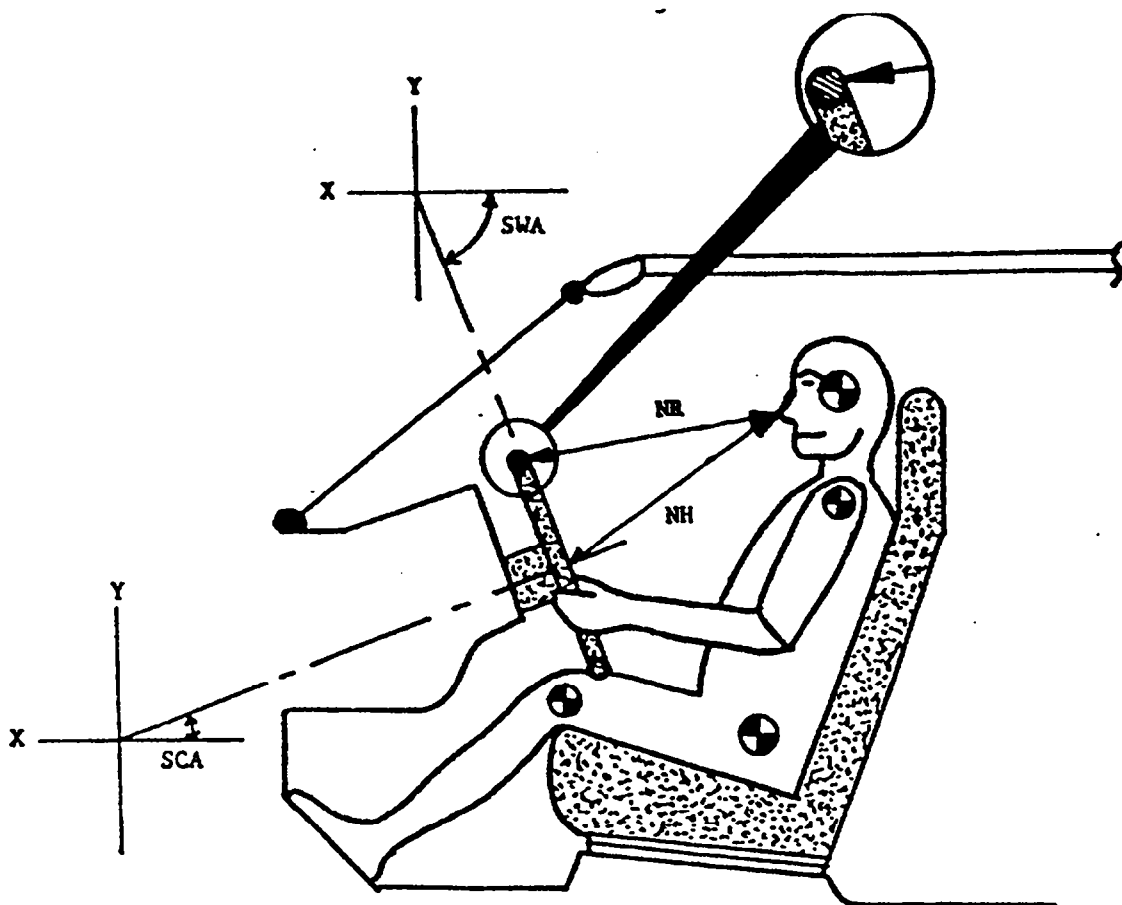
BELT STRAIN DATA:

Measured between retractor reel and 'D' ring _____

*S = Shoulder 'D' Ring
L = Lap

13.4 Percent	13.3 Percent
--------------	--------------





LEFT SIDE VIEW

MEASUREMENTS	
<u>NR</u> --Distance from tip of dummy's nose to Top Rear surface of steering wheel rim.	19.8 Inches
<u>NH</u> --Distance from tip of dummy's nose to center of steering column hub.	19.5 Inches
<u>SCA</u> --Angle of steering column relative to the horizontal X axis.	30.0 Degrees
<u>SWA</u> --Angle of steering wheel relative to the horizontal X axis.	60.0 Degrees

Data Table 8 Camera Location Data

VEH. NHTSA NO.: ML5201; TEST DATE: 01/25/90; TIME: 4:20 PM

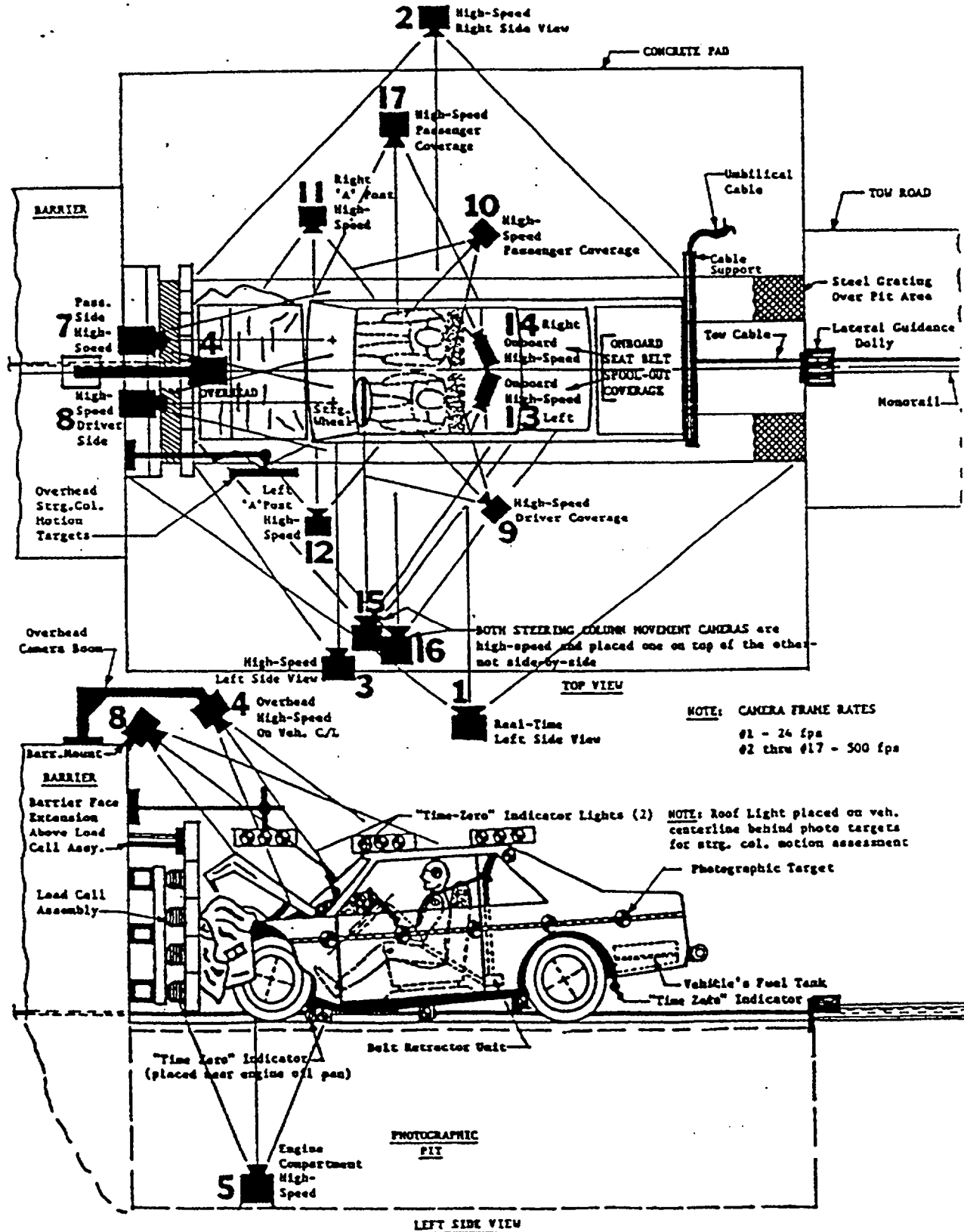
VEH. YEAR/MAKE/MODEL/BODY STYLE: 1990/NISSAN/AXXESS/VAN

CAMERA NO.	VIEW	CAMERA POS. (in.)			ANGLE (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Left Side View	-676	268	57	0	683	15-70 ZOOM	24
2	Right Side View	256	49	52	4	242	13	500
3	Left Side View	-295	45	35	0	281	16	650
4	Overhead	-1	-2	129	-64	113	13	550
5	Pit-Engine	2	59	-57	25	NR	13	550
6	Pit-Fuel Tank	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.
7	Front-Passenger	12	-13	105	-50	109	16	600
8	Front-Driver	-12	-14	106	-44	110	16	500
9	Left Side-Driver	-10	94	81.5	22	24	16	600
10	Right Side-Passenger	11	89	82.5	16	23	16	600
11	Right Side-'A' Post	162	18	54	2	161	28	650
12	Left Side-'A' Post	-297	-30	51	0	302	50	600
13	Onboard-Left Side	-17.5	103	22.5	4	41	13	700
14	Onboard-Right Side	17.5	103	22.5	0	41	13	900
15	Left Side-Steering Col.	-375	79	111	2	361	16	600
16	Left Side-Steering Col.	-371	81	129	10	362	16	600
17	Right Side Passenger	139	69	61	4	124	16	600

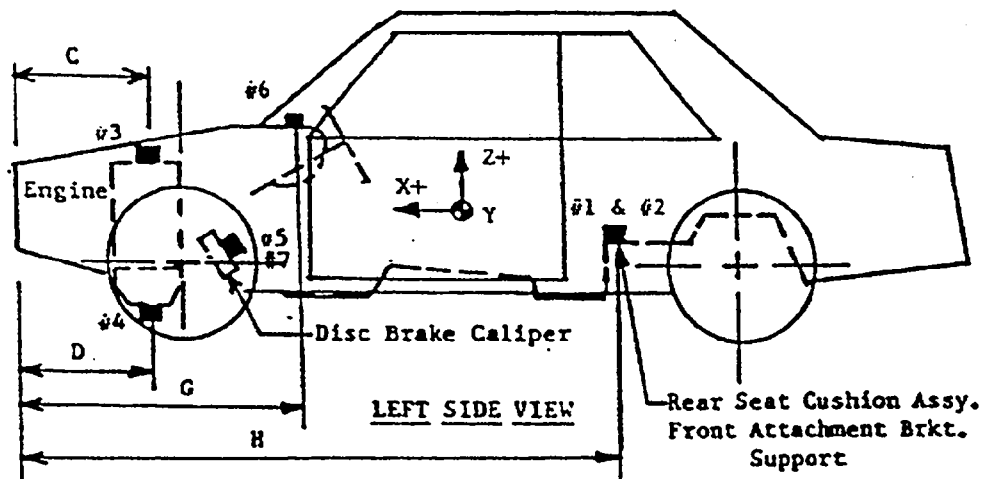
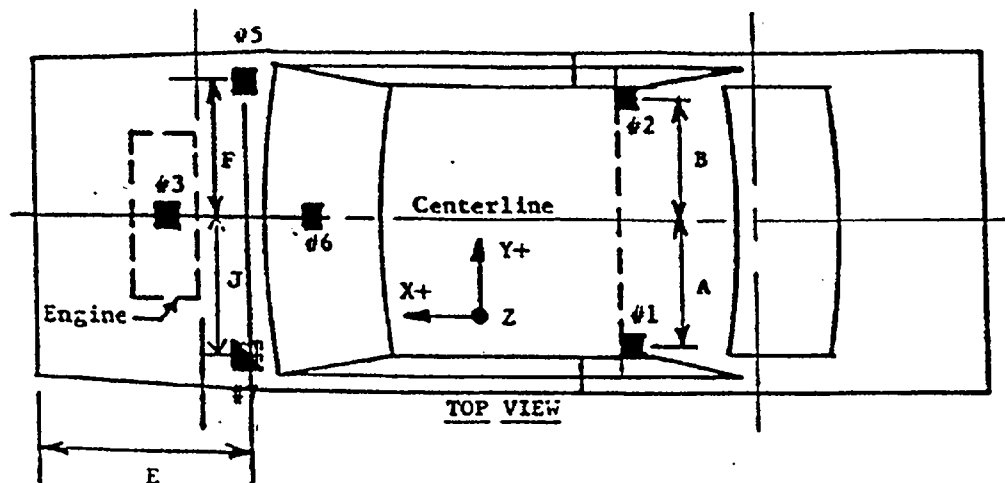
* X = film plane to monorail centerline
 Y = film plane to barrier face
 Z = film plane to ground

**Pit camera uses refractor lens for imagery.

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



Data Table No. 9 Vehicle Accelerometer Location and Data Summary

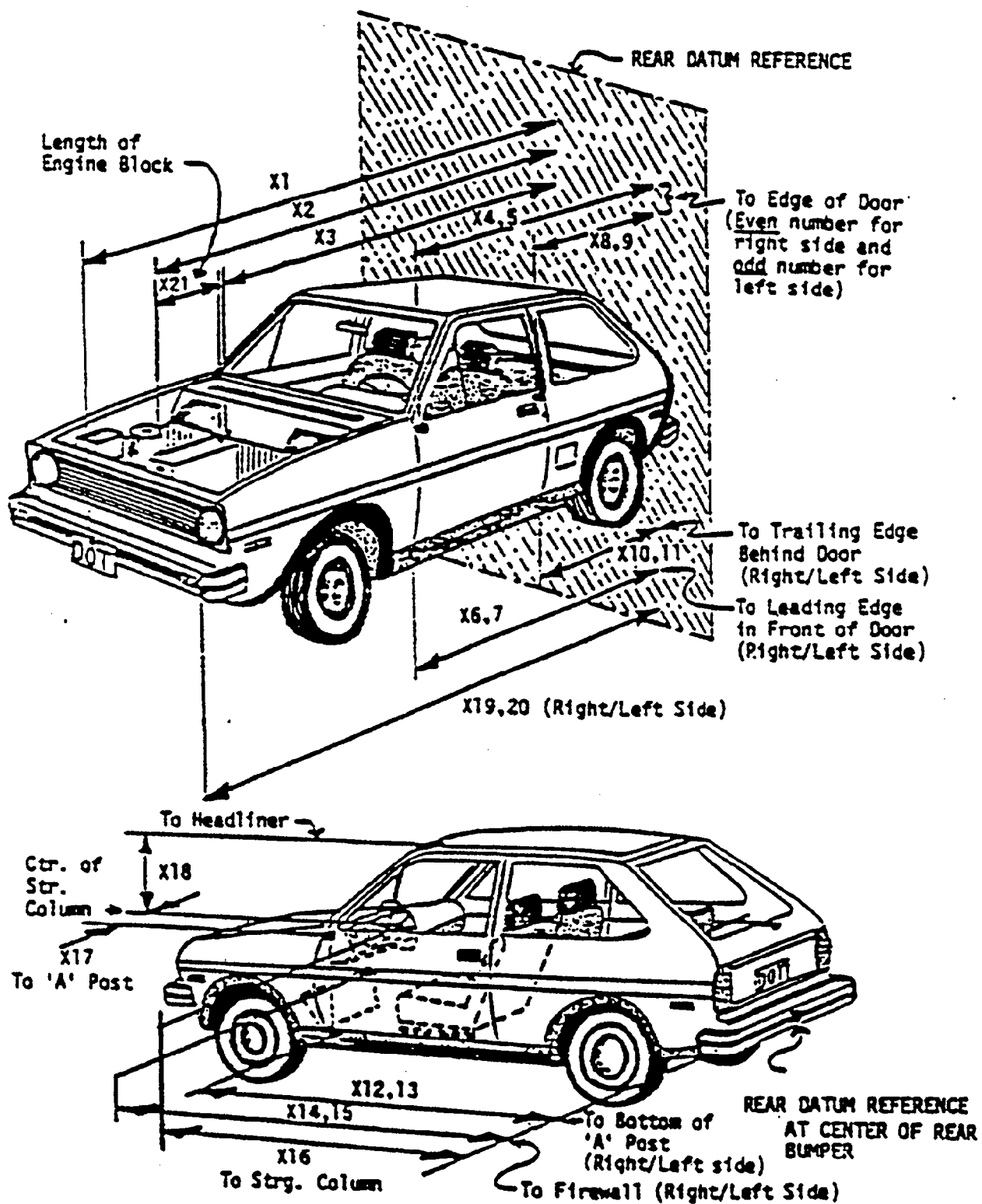


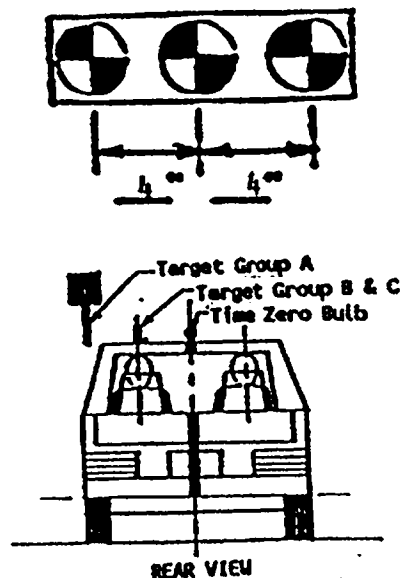
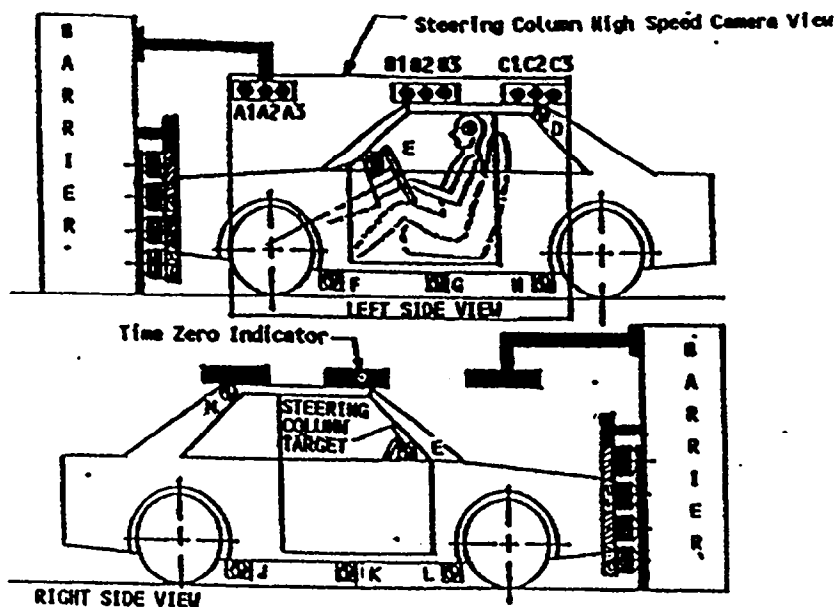
Dimension	Length (in.)
A	19.4
B	19.5
C	30.0
D	27.5
E	29.5
F	25.0
G	62.8
H	116.0
J	25.0

Loc. No.	Description	Maximum Value			
		X-	msec.	X+	msec.
1	Rear seat X-member @ Left Side	-38.6	31.6	1.5	164.6
2	Rear seat X-member @ Right Side	-36.8	35.5	1.8	165.1
3	Top of Engine Block	-140.1	26.3	31.2	37.7
4	Bottom of Engine	-127.3	27.4	52.9	33.7
5	Disc Brake Caliper Right Side	-104.8	40.4	35.7	66.4
6	Instrument Panel	-62.5	63.2	38.3	58.3
7	Disc Brake Caliper @Left Side	-96.2	42.7	39.6	61.5

NO.	MEASUREMENT DESCRIPTION	Pre-Test (in.)	Post-Test (in.)	Diff. (in.)
X1	Total Length of Test Vehicle at Centerline	169.0	147.0	22.0
X2	Rear Surface of Vehicle to Front of Engine	145.8	139.0	6.8
X3	Rear Surface of Vehicle to Firewall	135.5	134.1	1.4
X4	Rear Surface to Upr. Leading Edge of Right Door	118.2	117.7	0.5
X5	Rear Surface to Upr. Leading Edge of Left Door	118.3	117.7	0.6
X6	Rear Surface to Lwr. Leading Edge of Right Door	117.2	117.4	-0.2
X7	Rear Surface to Lwr. Leading Edge of Left Door	117.4	116.7	0.7
X8	Rear Surface to Upr. Trailing Edge of Right Door	80.0	79.7	0.3
X9	Rear Surface to Upr. Trailing Edge of Left Door	80.2	79.5	0.7
X10	Rear Surface to Lwr. Trailing Edge of Right Door	79.0	79.4	-0.4
X11	Rear Surface to Lwr. Trailing Edge of Left Door	79.4	79.2	0.2
X12	Rear Surface to Bottom 'A' Post on Right Side	117.1	118.7	-1.6
X13	Rear Surface to Bottom 'A' Post on Left Side	117.1	119.2	-2.1
X14	Rear Surface to Firewall on Right Side	133.3	132.3	1.0
X15	Rear Surface to Firewall on Left Side	133.3	132.6	0.7
X16	Rear Surface to Steering Column	102.0	104.7	-2.7
X17	Center of Steering Column to 'A' Post	15.1	14.5	0.6
X18	Center Steering Column to Headlining	18.7	12.1	6.6
X19	Rear Surface to Right Side of Front Bumper	161.2	143.5	17.7
X20	Rear Surface to Left Side of Front Bumper	161.3	142.9	18.4
X21	Length of Engine Block	13.0	13.0	0.0

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





BARRIER TARGETS	'X' From Imag. Barrier Face Vertical Plane	'Y' From Monorail C/L	'Z' Above Ground
A-1	62.5	23.0	79.0
A-2	66.5	23.0	78.8
A-3	70.5	23.0	78.5
BARRIER TARGETS	'X' From Imag. Barrier Face Vertical Plane	'Y' From Monorail C/L	'Z' Above Ground
B-1	74.5	14.0	62.6
B-2	78.5	14.0	62.6
B-3	82.5	14.0	62.6
C-1	145.7	14.0	64.3
C-2	149.7	14.0	64.3
C-3	153.7	14.0	64.3
D	145.6	25.0	57.8
E	64.5	13.5	40.7
F	54.5	27.1	5.6
G	88.5	27.1	5.8
H	122.6	27.5	6.5
J	122.2	27.5	6.4
K	88.2	27.1	6.0
L	54.5	27.1	5.6
M	146.8	25.0	57.7

NOTE: Diameter of all photo targets is 4".

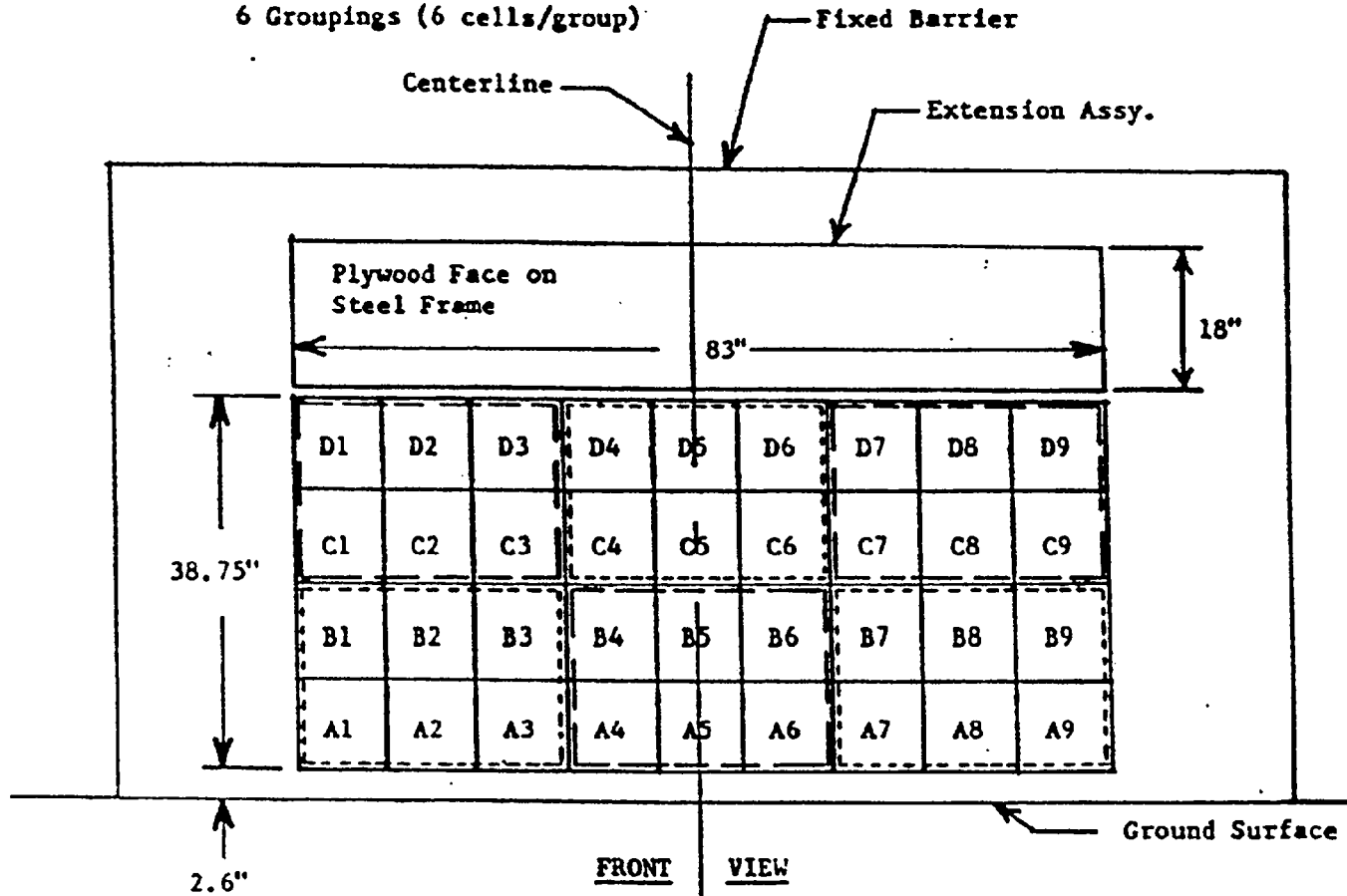
Data Table No. 12 Load Cell Locations on Fixed Barrier

36 Load Cells

4 Rows

9 Columns

6 Groupings (6 cells/group)



6 GROUPINGS OF 6 LOAD CELLS EACH

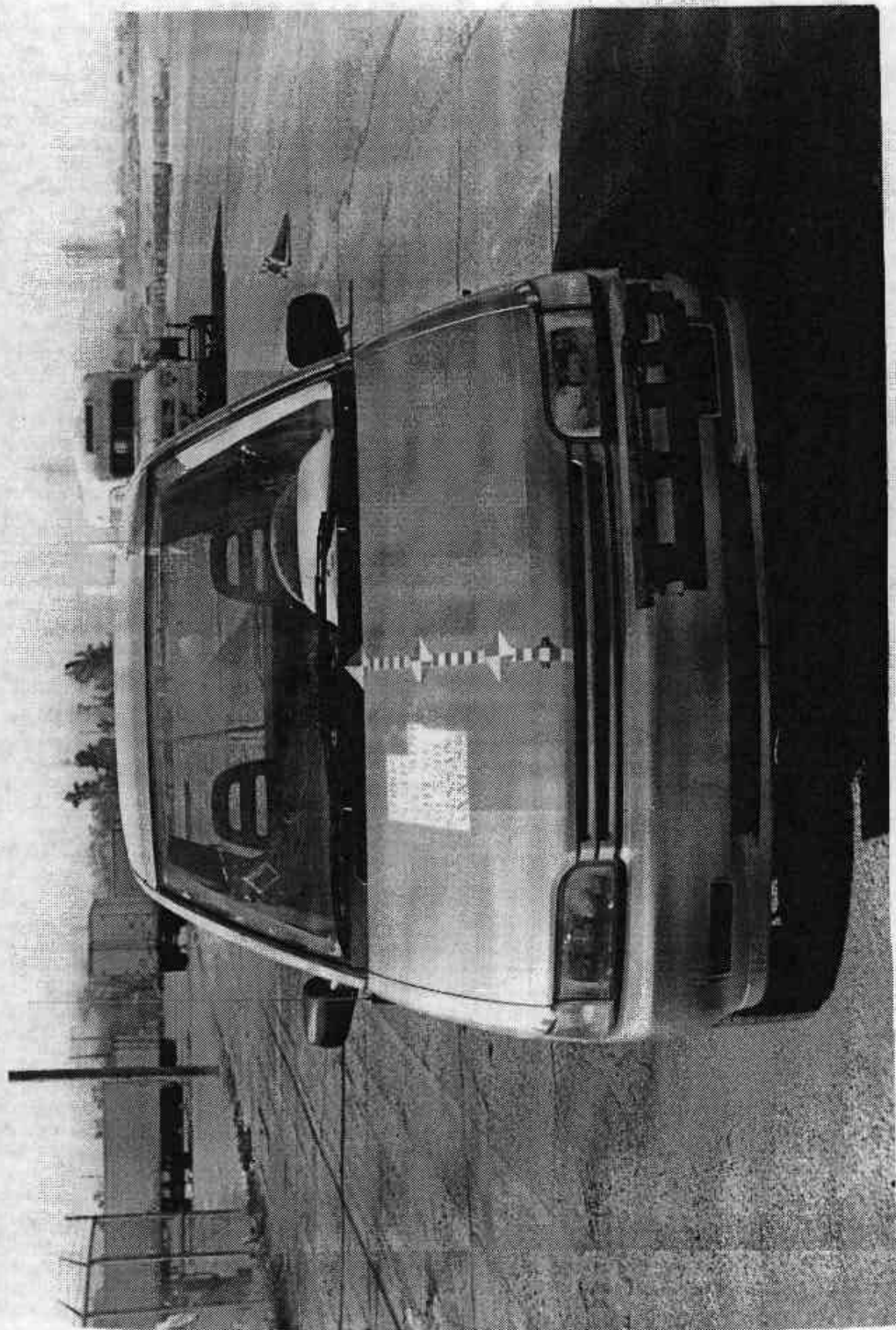
C1 thru D3	C4 thru D6	C7 thru D9
A1 thru B3	A4 thru B6	A7 thru B9

- 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 POSITION VIEW
POSTTEST DRIVER DUMMY POSITION VIEW
PRETEST PASSENGER DUMMY POSITION VIEW
POSTTEST PASSENGER DUMMY POSITION VIEW
PRETEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)
POSTTEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)
PRETEST PASSENGER & VEHICLE INTERIOR VIEW (Door Open)
POSTTEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)
POSTTEST DRIVER DUMMY (ATD) HEAD AND KNEE CONTACT AREA
POSTTEST PASSENGER DUMMY (ATD) HEAD AND KNEE CONTACT AREA

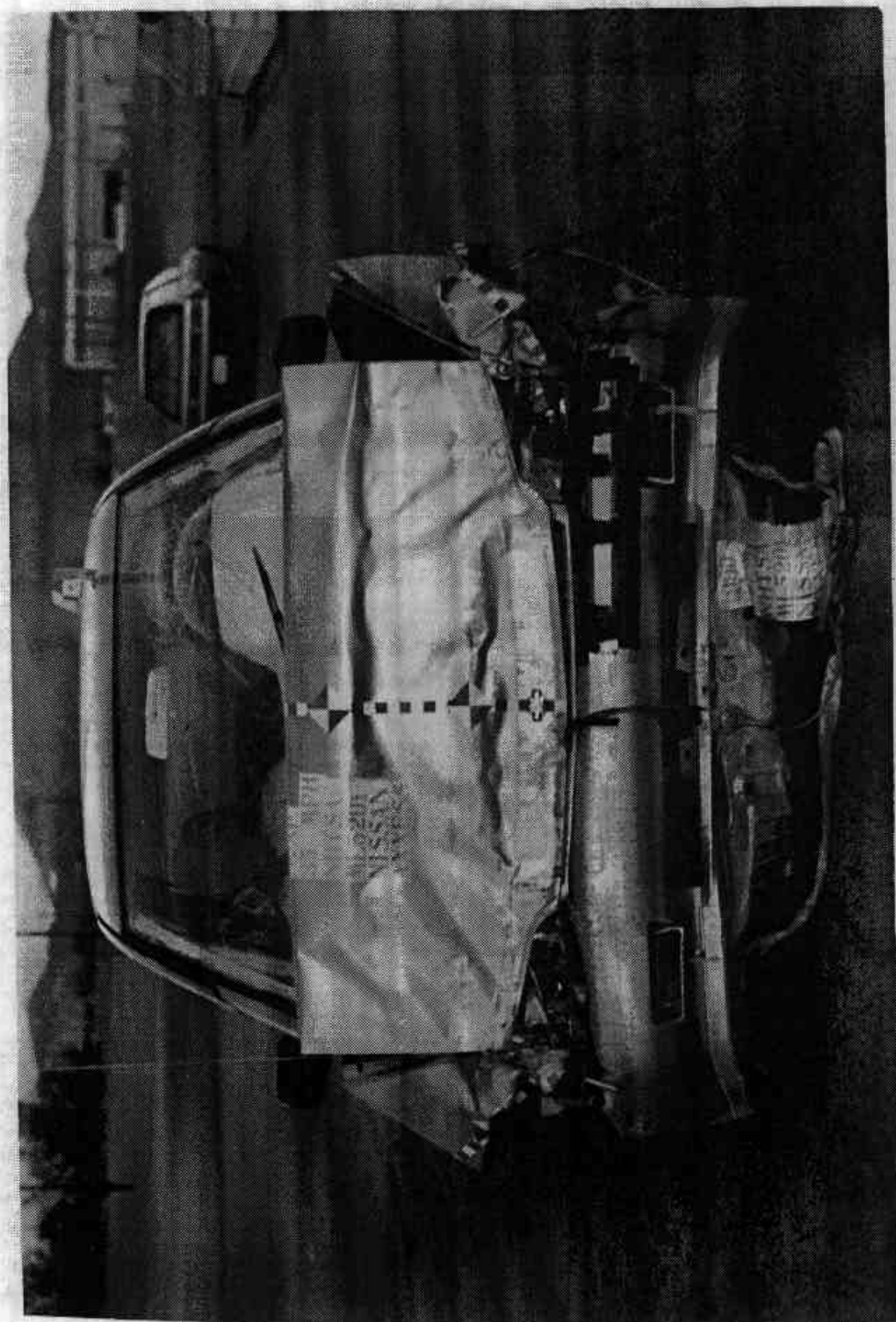
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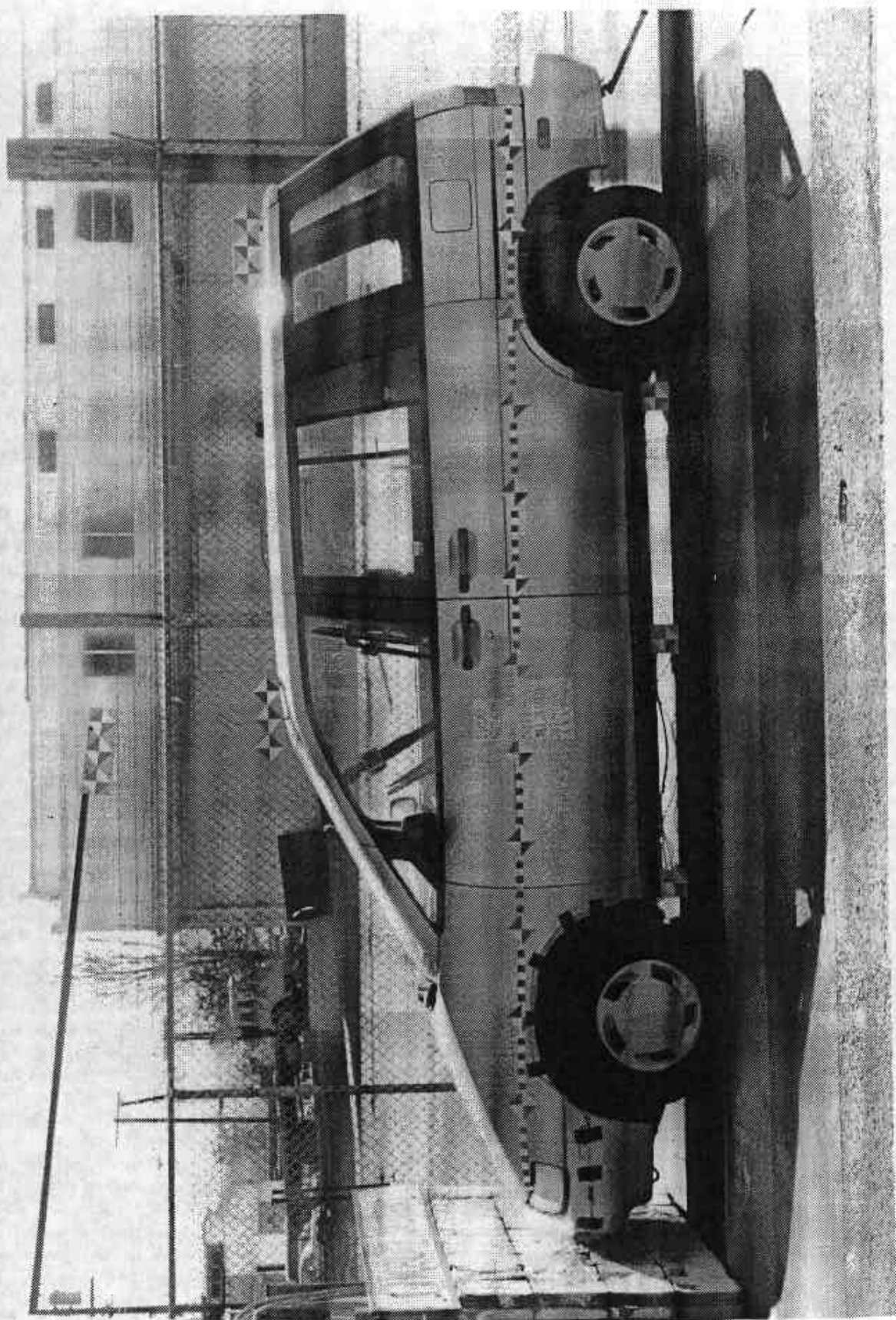
PRETEST FRONT VIEW

4-1

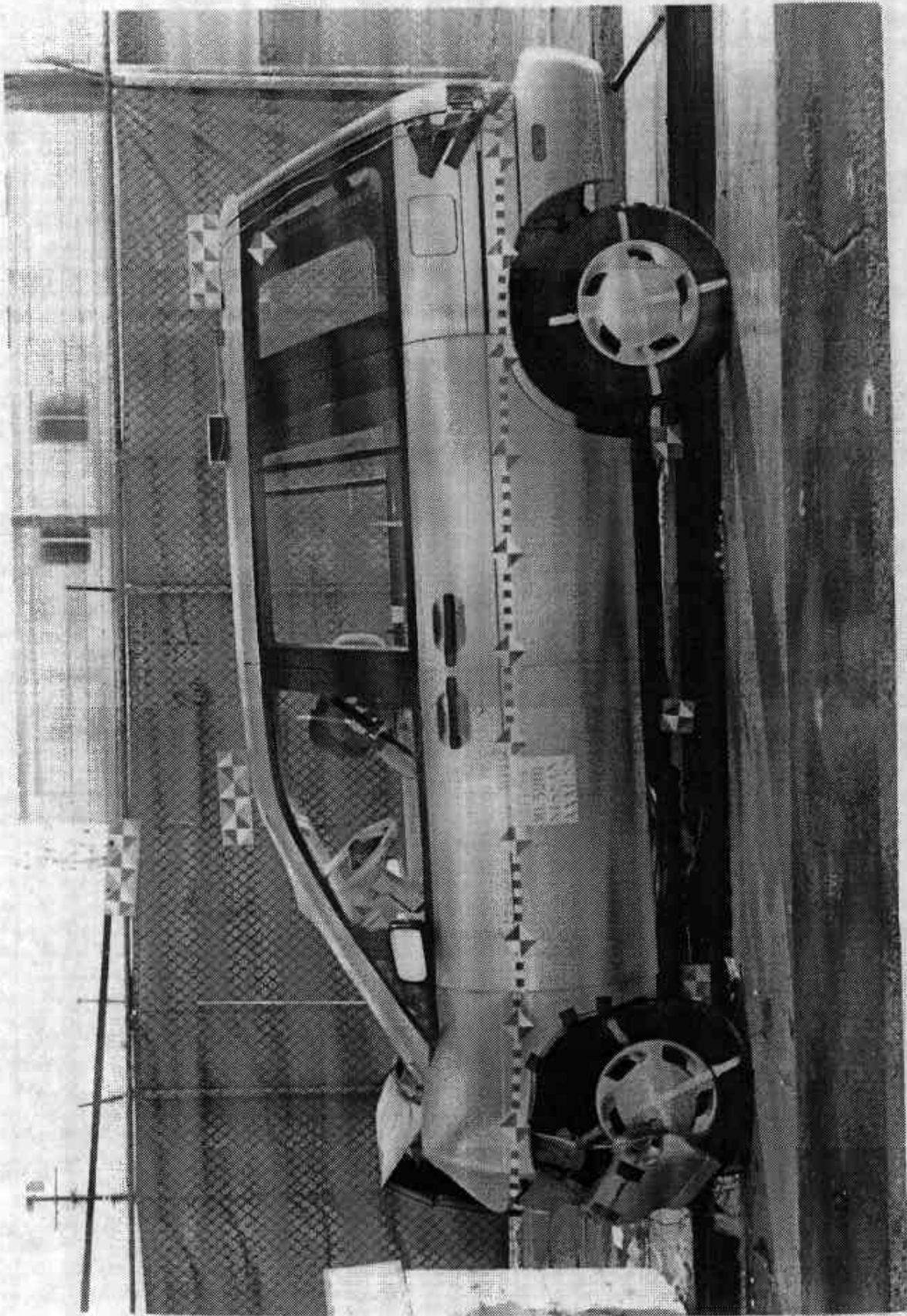
MSE-90-R9063-N05



POSTTEST FRONT VIEW



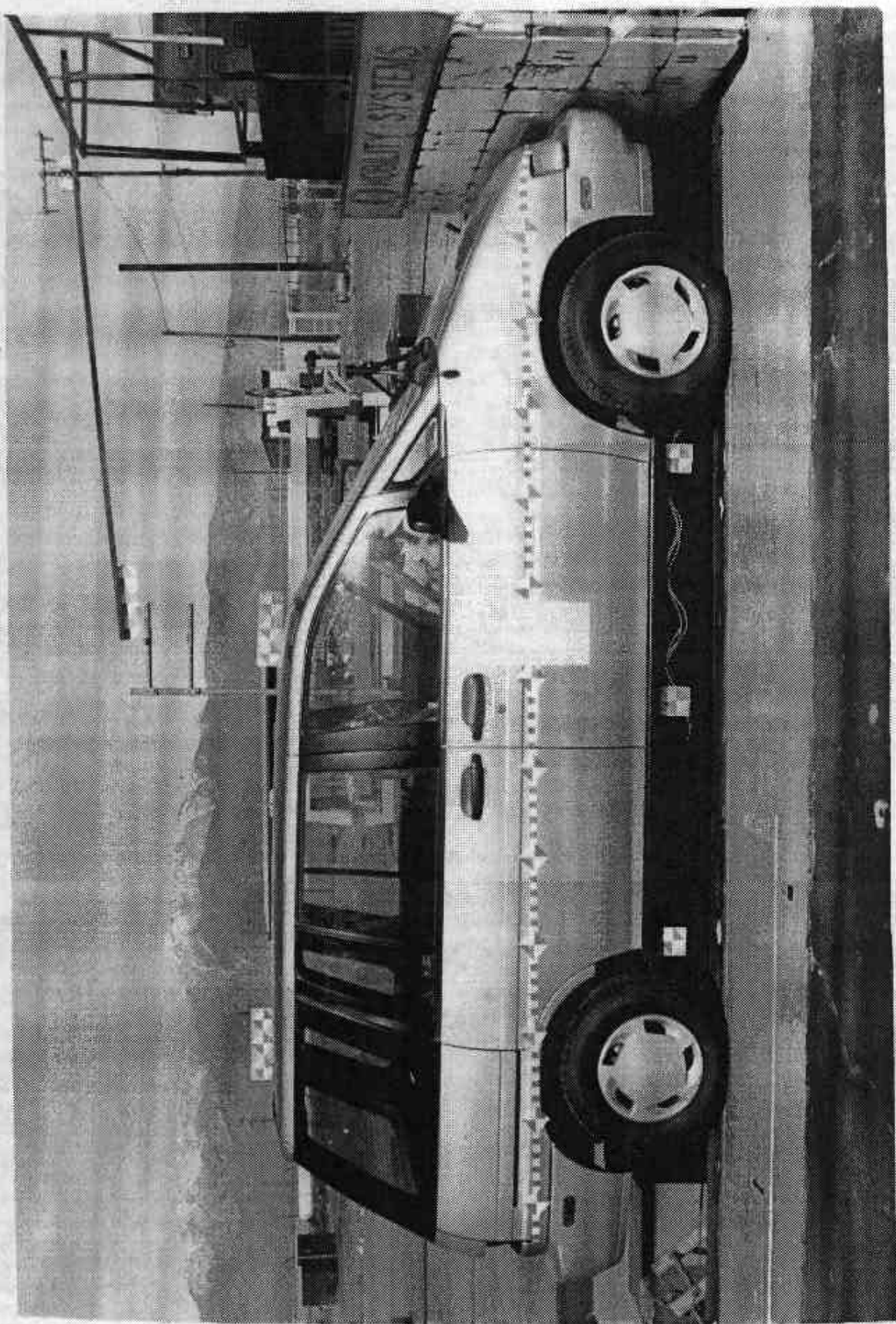
PRETEST LEFT SIDE VIEW



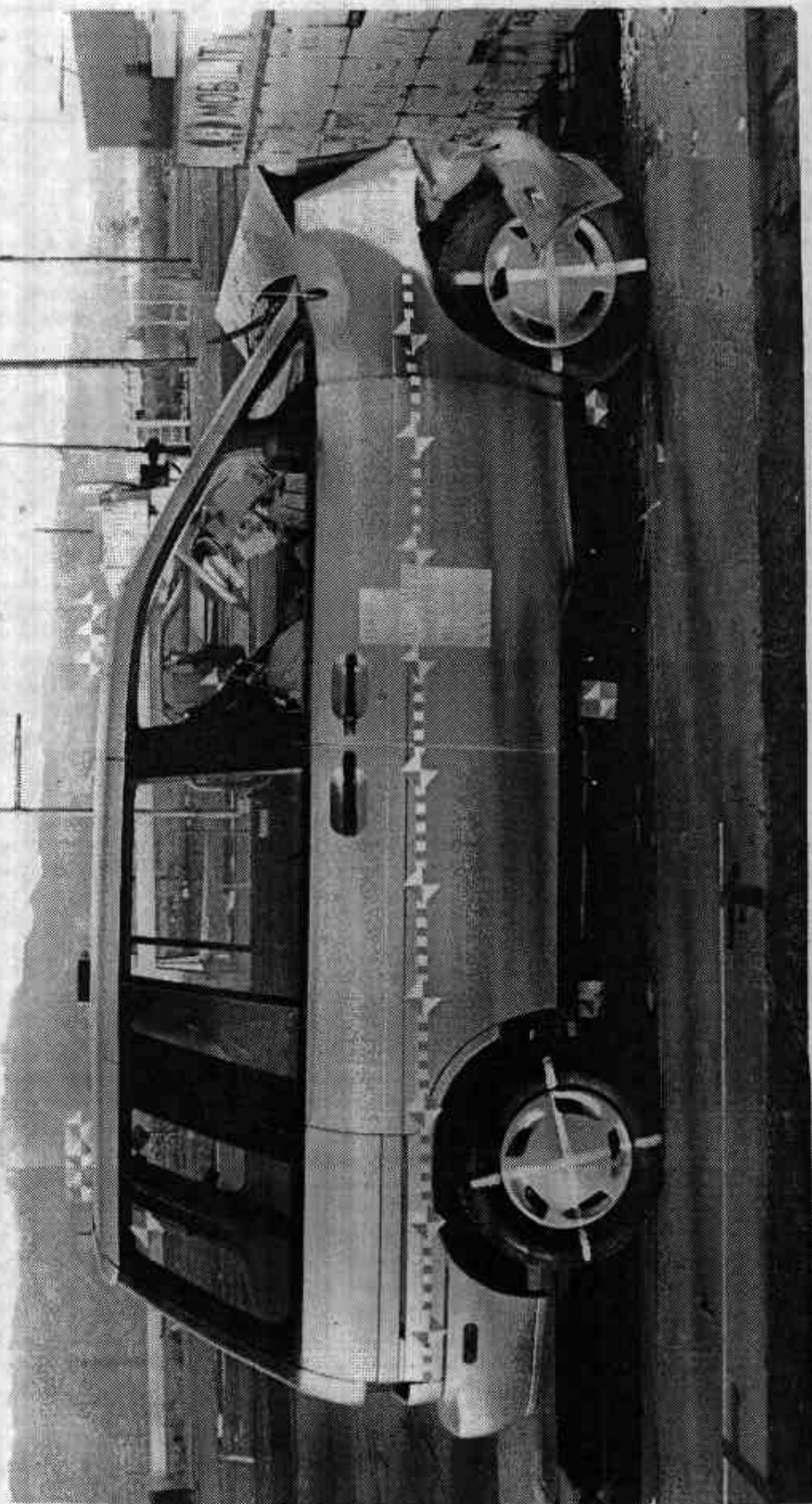
POSTTEST LEFT SIDE VIEW

A-4

MSE-90-R9063-N05



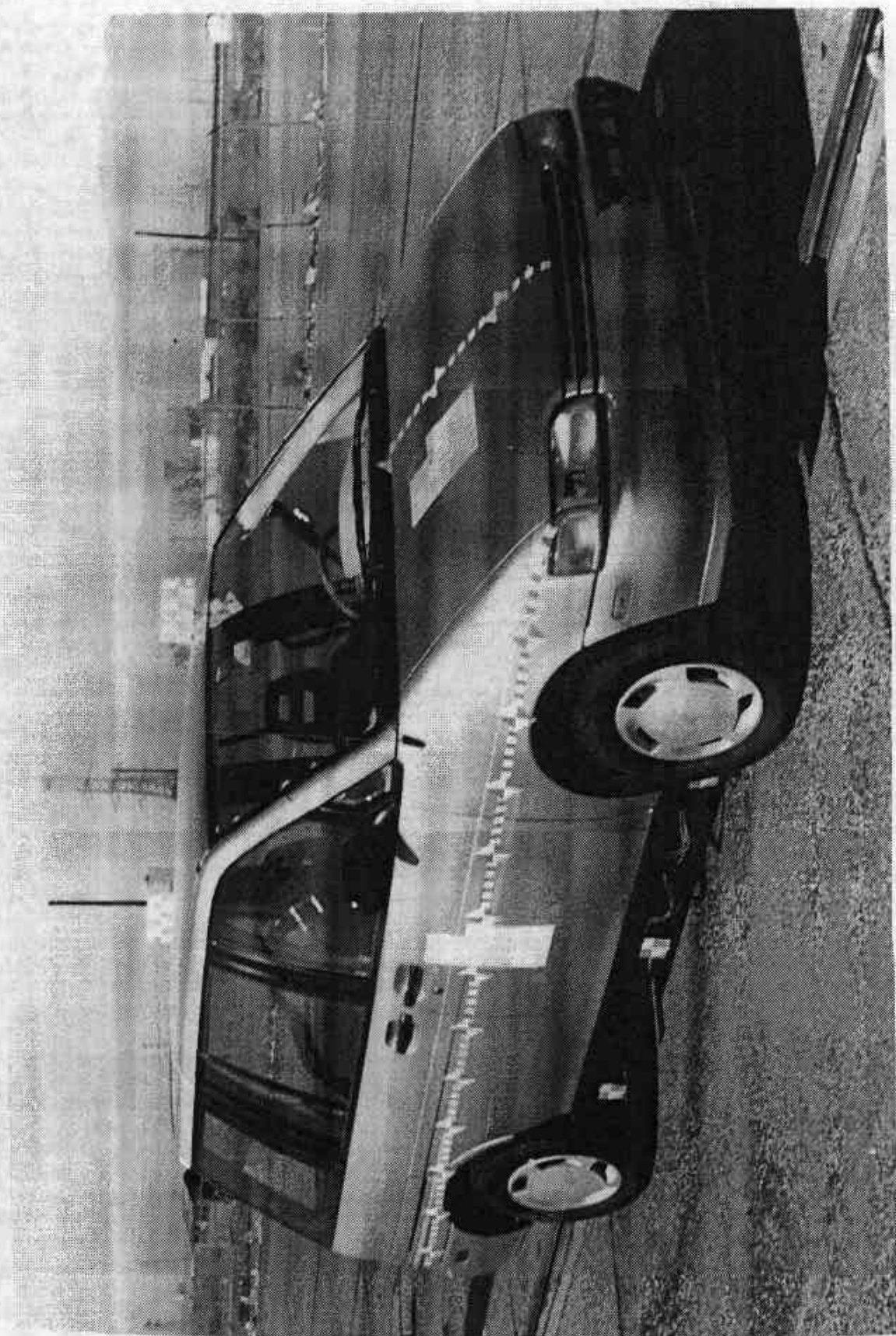
PRETEST RIGHT SIDE VIEW



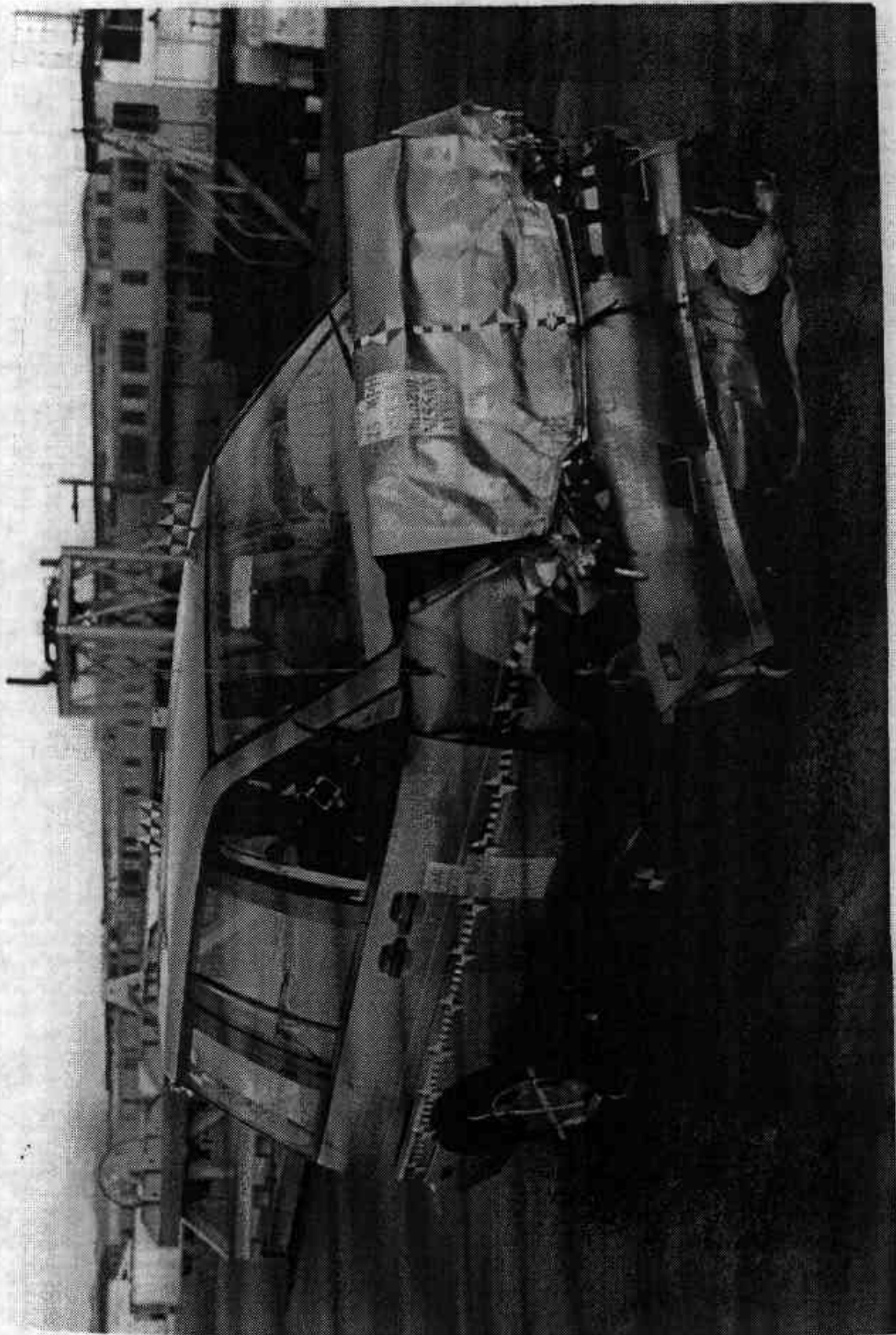
POSTTEST RIGHT SIDE VIEW

A-6

MSE-90-R9063-N05



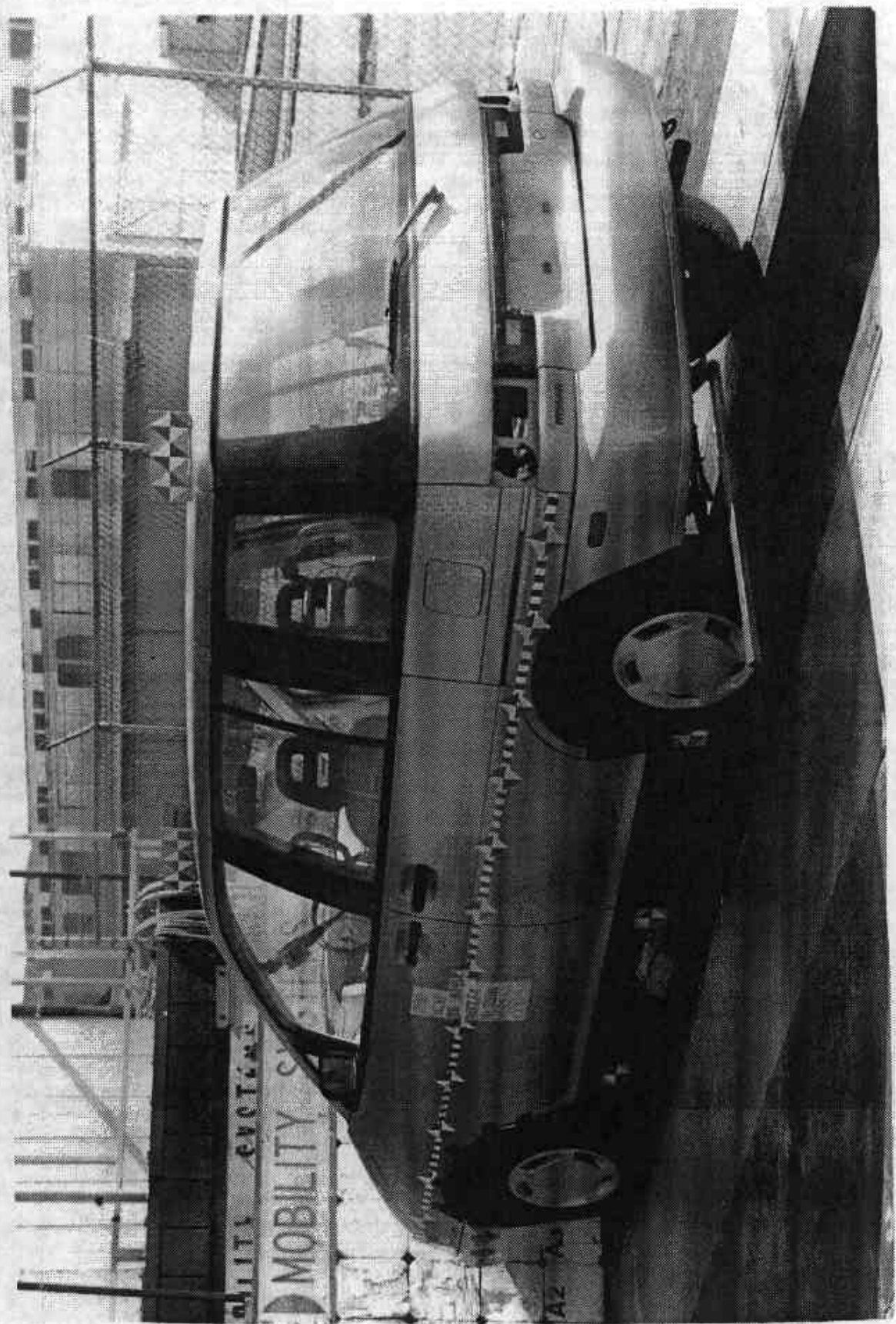
PRETEST RIGHT FRONT 3/4 VIEW



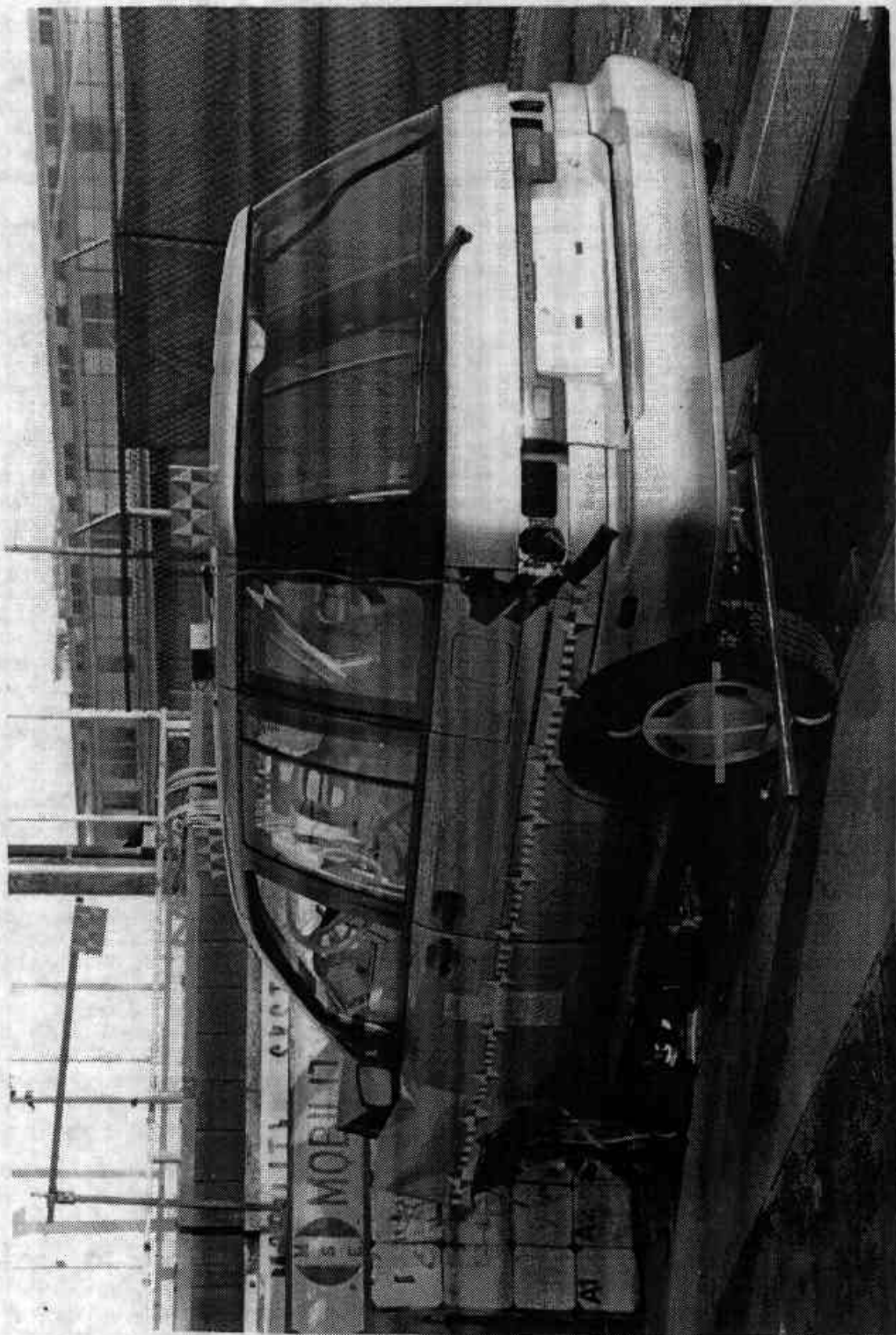
POSTTEST RIGHT FRONT 3/4 VIEW

A-8

MSE-90-R9063-N05



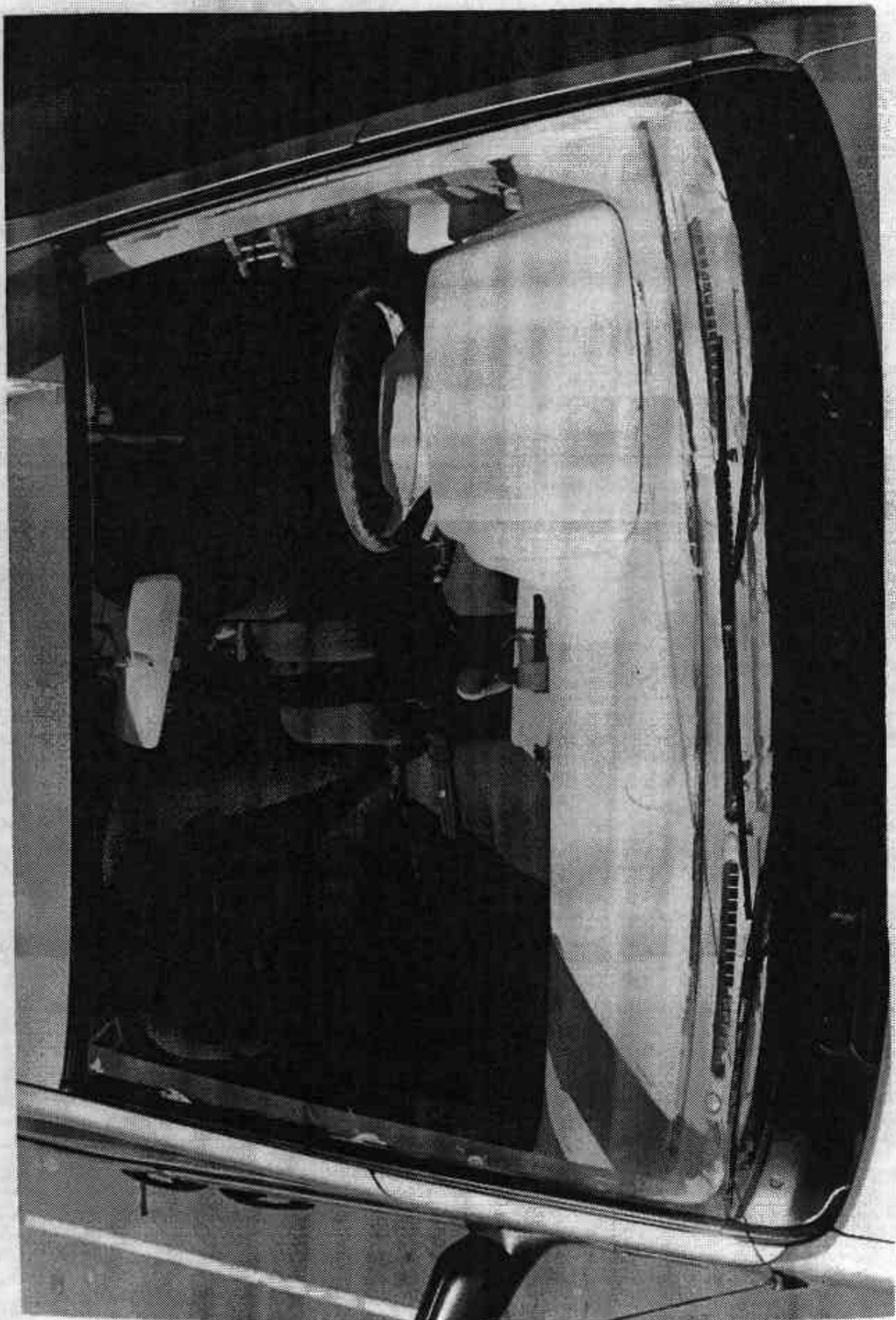
PRETEST LEFT REAR 3/4 VIEW



POSTTEST LEFT REAR 3/4 VIEW

A-10

MSE-90-R9063-N05



PRETEST WINDSHIELD VIEW

A-11

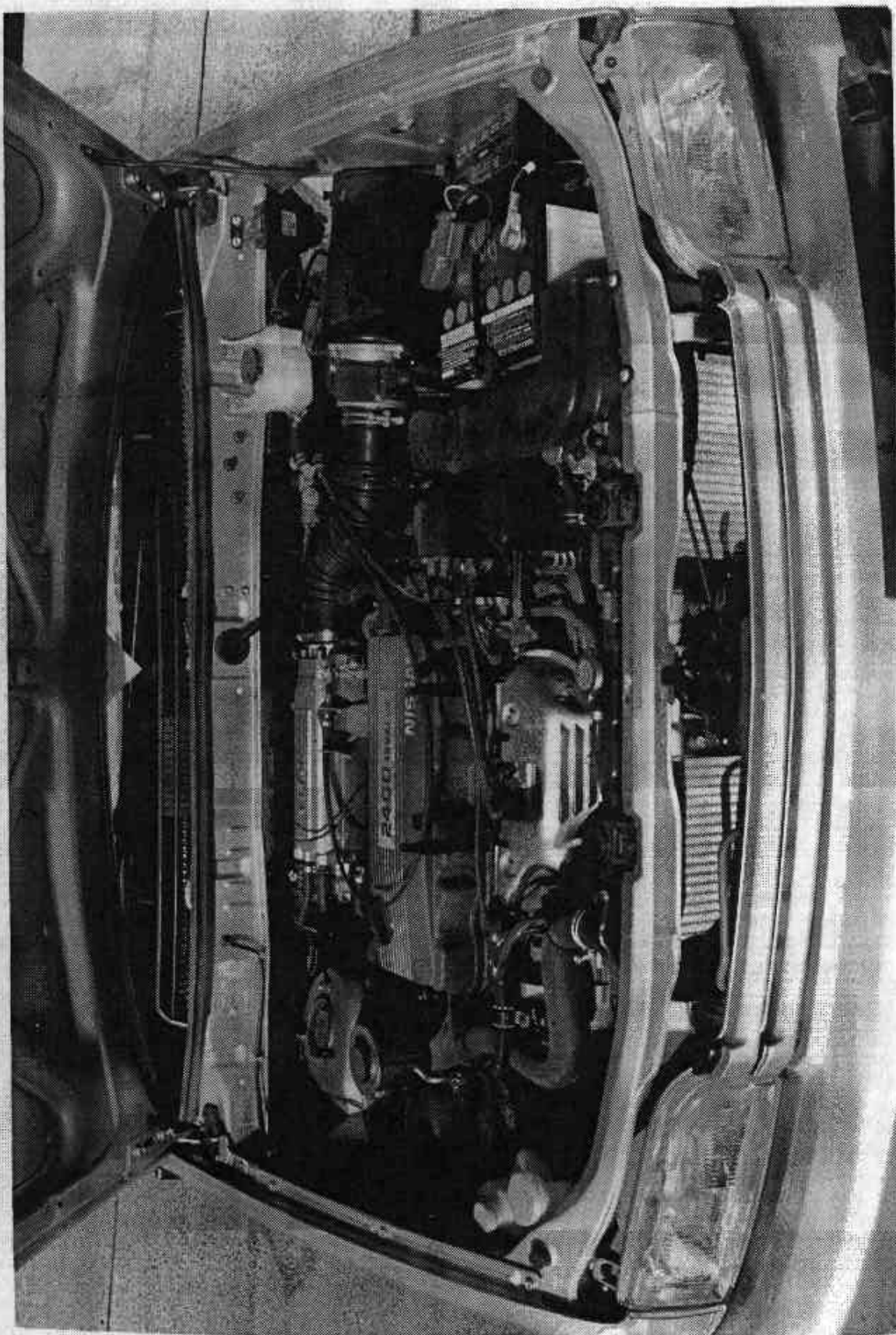
MSE-90-R9063-N05



POSTTEST WINDSHIELD VIEW

A-12

MSE-90-R9063-N05



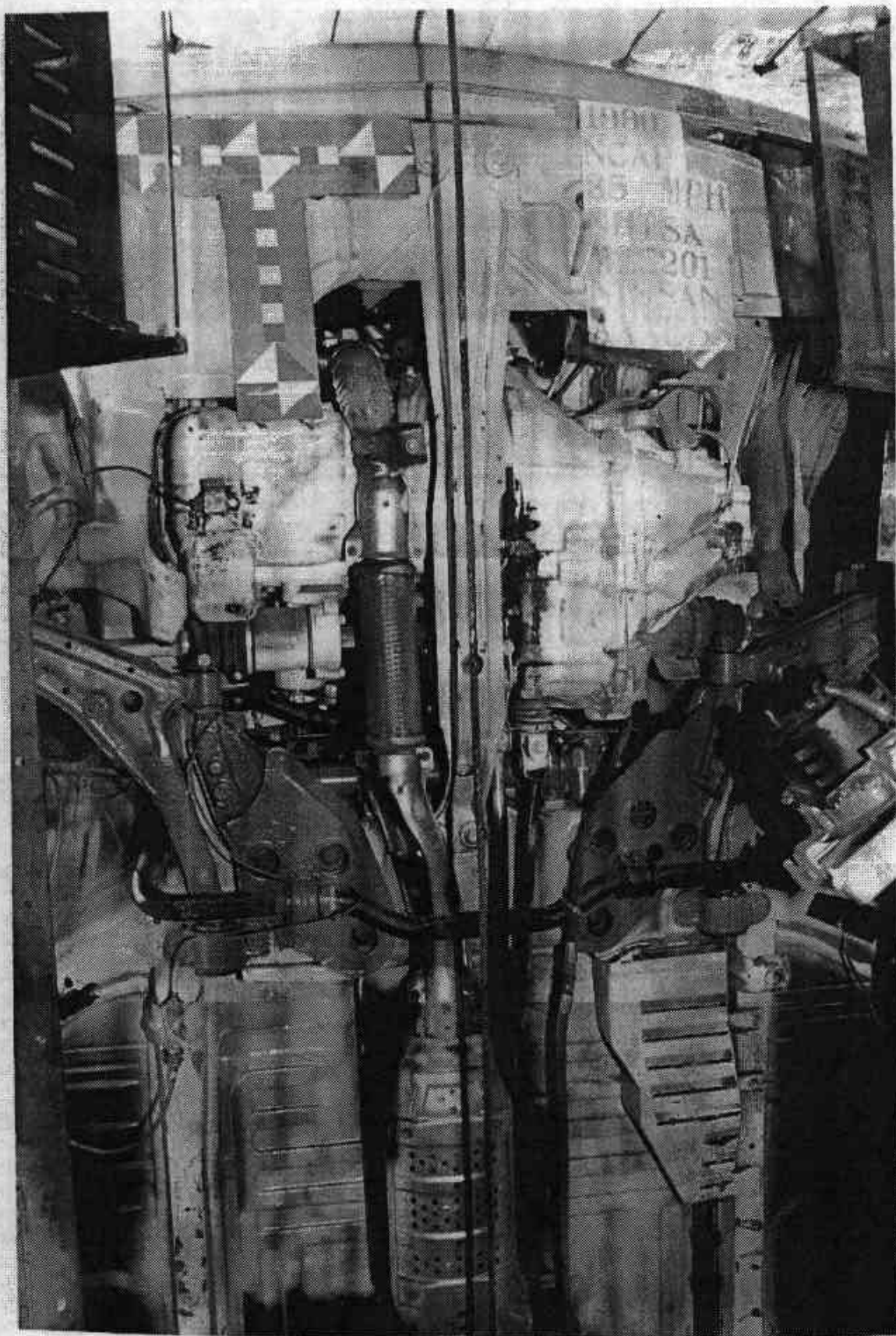
PRETEST ENGINE COMPARTMENT VIEW



POSTTEST ENGINE COMPARTMENT VIEW

A-14

MSE-90-R9063-N05



PRETEST FRONT UNDERBODY VIEW

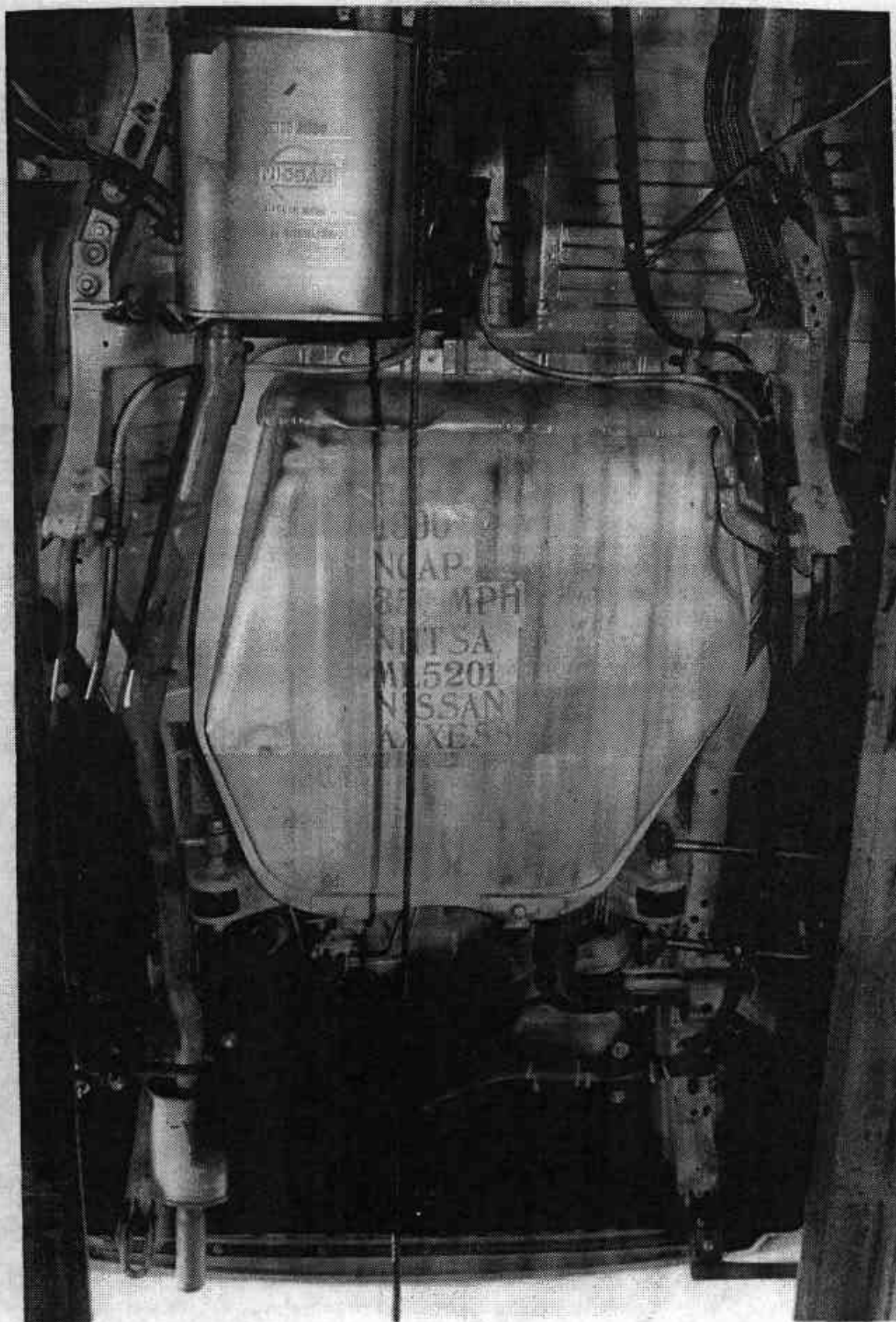
A-15

MSE-90-R9063-N05



POSTTEST FRONT UNDERBODY VIEW
A-16

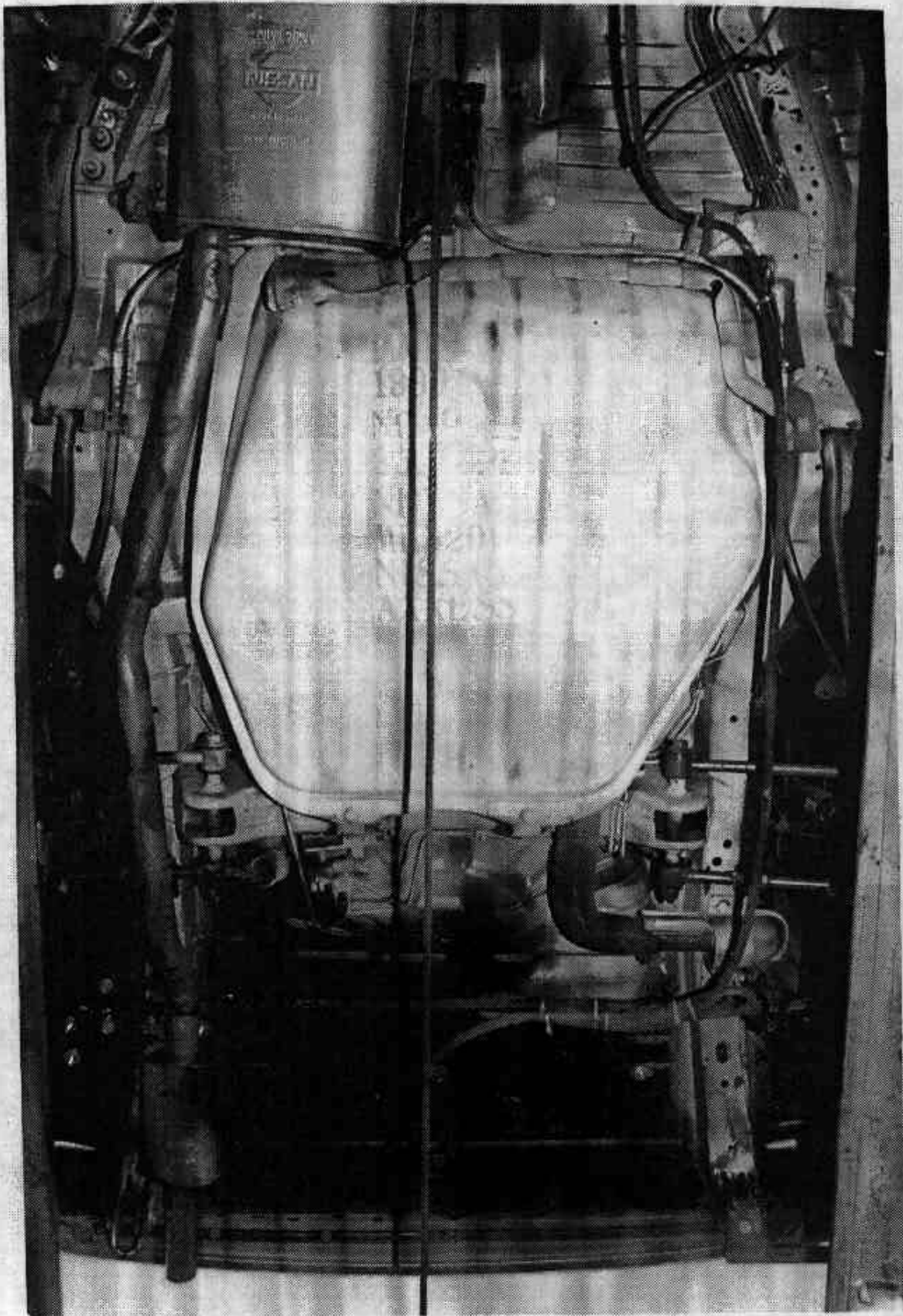
MSE-90-R9063-N05



PRETEST REAR UNDERBODY VIEW

A-17

MSE-90-R9063-N05



POSTTEST REAR UNDERBODY VIEW

A-18

MSE-90-R9063-N05



PRETEST DRIVER DUMMY POSITION VIEW



POSTTEST DRIVER DUMMY POSITION VIEW

A-20

MSE-90-R9063-N05



PRETEST PASSENGER DUMMY POSITION VIEW



POSTTEST PASSENGER DUMMY POSITION VIEW



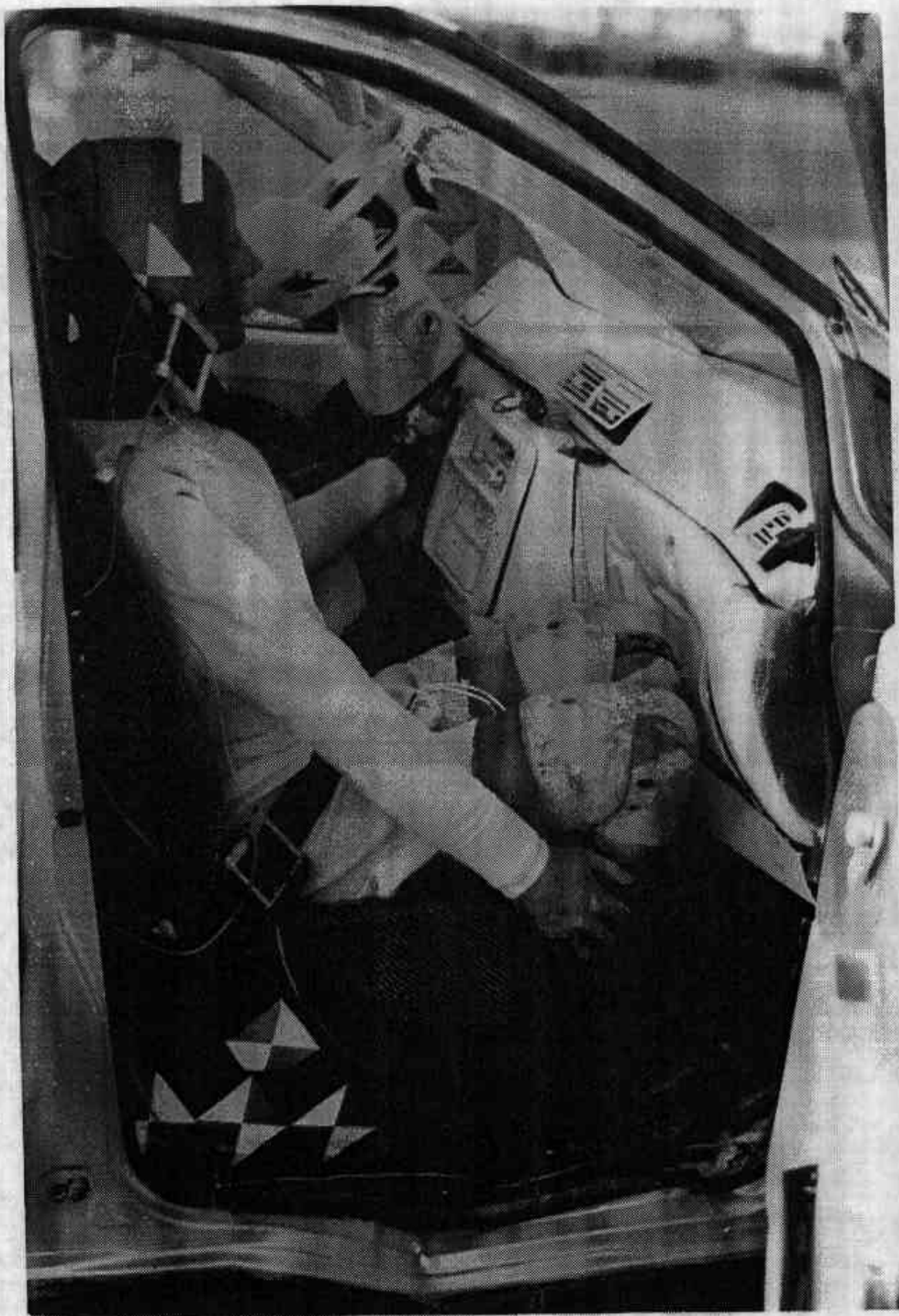
PRETEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)
A-23 MSE-90-R9063-N05



POSTTEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)
A-24 MSE-90-R9063-N05



PRETEST PASSENGER & VEHICLE INTERIOR VIEW (Door Open)
A-25 MSE-90-R9063-N05



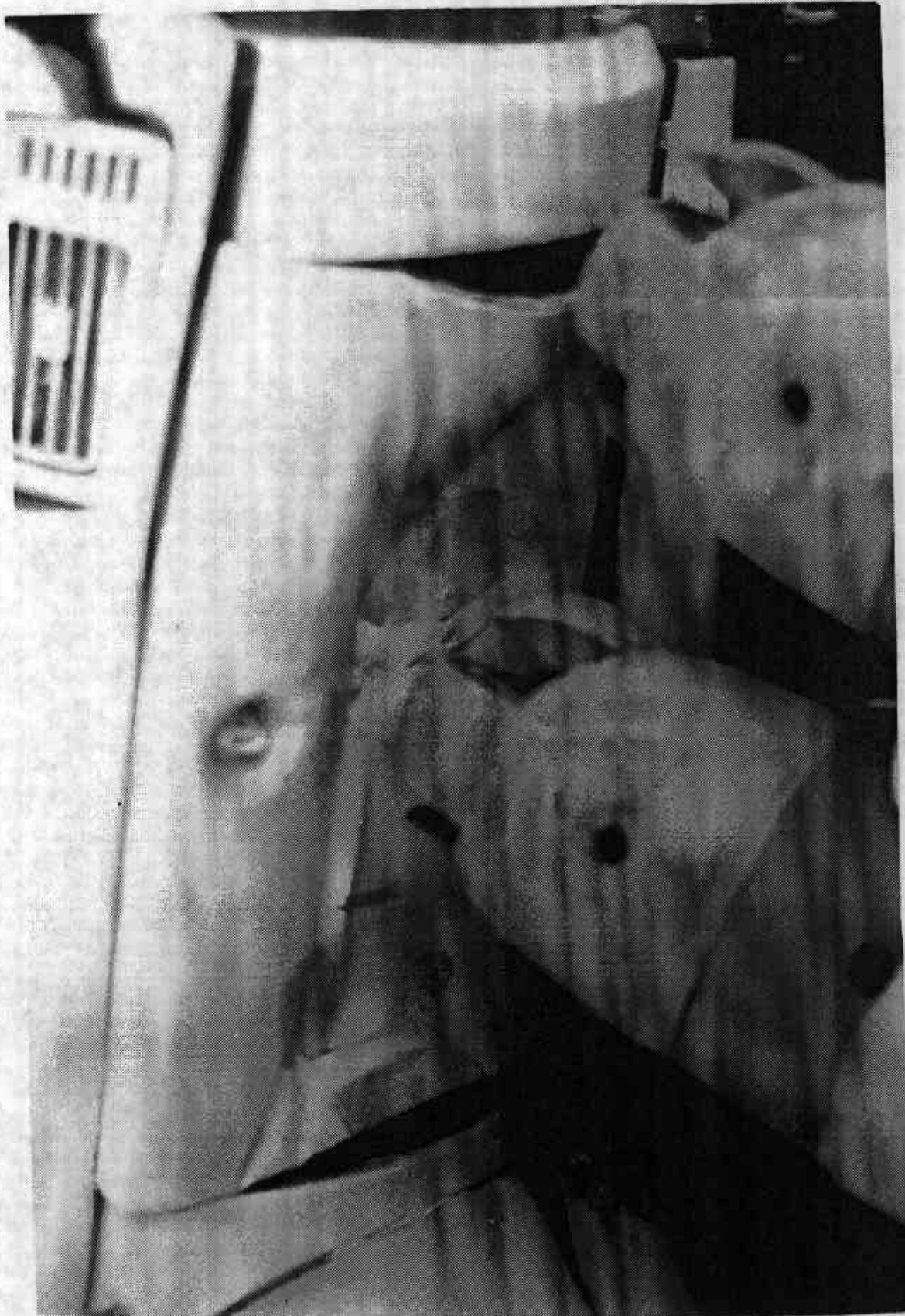
POSTTEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

A-26

MSE-90-R9063-N05



POSTTEST DRIVER DUMMY (ATD) HEAD AND KNEE CONTACT AREA



POSTTEST PASSENGER DUMMY (ATD) HEAD AND KNEE CONTACT AREA

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: 1990 35MPH NCAP FRONTAL BARRIER IMPACT
TSTOBJ: ACQUIRE NCAP DATA USING TWO INSTR. DUMMIES AND LOAD CELL BARRIER
TSTDAT: 25/JAN/90 TSTPRF: MSE CONNO: DTNH22-87-D-02009
TSTREF: NCAP60 TSTTYP: NCA TSTCFN: VTB
TKSURF: ASH TKCOND: DRY TEMP: 78 RECTYP: FMT
LINK: UMB CLSSPD: 35.3 IMPANG: 0 OFFSET: 0.0
IMPPNT: 9999.9 MEASUR: ENG TOTCRV: 65
TSTCOM: NO COMMENTS

Vehicle Information

VGID: 2 VEHNO: 1 MAKE: 64 MODEL: 99 YEAR: 90 BODY: VN
 VIN: JN1HM15P4LX002593 ENGINE: 4CTF ENGDISP: 2.4 LITERS TRANSM: MF
 VEHTWT: 3433 WHLBAS: 103.4 VEHLEN: 169.0 VEHWID: 67.0
 VEHCG: 42.8 STRSEP: NA COLMEC: EMB MODIND: P

MODDSC: UNMODIFIED

BX

1: 169.0
 2: 145.8
 3: 135.5
 4: 118.2
 5: 118.3
 6: 117.2
 7: 117.4
 8: 80.0
 9: 80.2
 10: 79.0
 11: 79.4
 12: 117.1
 13: 117.1
 14: 133.3
 15: 133.3
 16: 102.0
 17: 15.1
 18: 18.7
 19: 160.2
 20: 161.3
 21: 13.0

VEHSPD: 35.3 CRBANG: 0 PDOF: 0 BMPENG: NA
 SILENG: NA APLENG: NA

DPD

1: 17.8
 2: 20.0
 3: 21.0
 4: 21.0
 5: 20.3
 6: 17.6

VDI: 12FCAW9 LENCNT: 67.0 DAMDST: 0.0 CRHDST: 22.0

AX

1: 147.0
 2: 139.0
 3: 134.1
 4: 117.7
 5: 117.7
 6: 117.4
 7: 116.7
 8: 79.7
 9: 79.5
 10: 79.4
 11: 79.2
 12: 118.7
 13: 119.2
 14: 132.3
 15: 132.6
 16: 104.7
 17: 14.5
 18: 12.1
 19: 143.5
 20: 142.9
 21: 13.0

CARANG: 999 VEHOR: 999
 VEHCOM: MODEL IS AXCESS

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: 14.1 HW: 22.6 HR: 6.3 HS: 10.0 CD: 23.5 CS: 15.2 AD: 5.5 HD: 7.0
KD: 6.1 HB:999.9 NB:999.9 CB:999.9 KB:999.9
RESTR1: PS2 RESTR2: LAP
RESTXT: NO COMMENTS
SEPOSN: CN AIRDEP: NA
CNTRH1: SR CNTRH2: NO CNTRC1: NO CNTRC2: NO CNTRL1: OT CNTRL2: DP
HIC: 1051. T1: 62.100 T2: 93.400
CLIP3M: 46.2 LFEM: 919. RFEM: 1266. CSI: 518. LBELT: 927. SBELT: 2572.
OCCCOM: CNTRL1 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: 13.4 HW: 21.7 HR: 6.4 HS: 9.0 CD: 26.0 CS:999.9 AD: 5.5 HD: 6.5
KD: 4.7 HB:999.9 NB:999.9 CB:999.9 KB:999.9
RESTR1: PS2 RESTR2: LAP
REXTXT: NO COMMENTS
SEPOSN: CN AIRDEP: NA
CNTRH1: NO CNTRH2: NO CNTRC1: NO CNTRC2: NO CNTRL1: DP CNTRL2: NO
HIC: 654. T1: 66.200 T2: 102.200
CLIP3M: 45.9 LFEM: 1257. RFEM: 1143. CSI: 449. LBELT: 594. SBELT: 2462.
OCCCOM:

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/JAN/90	INSRAT: 200	CHLMAX: 48	INIVEL: 35.3
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/JAN/90	INSRAT: 200	CHLMAX: 10	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 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/JAN/90	INSRAT: 200	CHLMAX: 33	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/JAN/90	INSRAT: 200	CHLMAX: 23	INIVEL: 35.3
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/JAN/90	INSRAT: 200	CHLMAX: 12	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/JAN/90	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: 16/JAN/90	INSRAT: 3000	CHLMAX: 31	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: 16/JAN/90	INSRAT: 3000	CHLMAX: 43	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: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: AE09			
CALDAT: 17/JAN/90	INSRAT: 200	CHLMAX: 22	INIVEL: 35.3
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: AD61			
CALDAT: 17/JAN/90	INSRAT: 200	CHLMAX: 6	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: HOCG	
AXIS: ZL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: AD98			
CALDAT: 17/JAN/90	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: 012	
SENTYP: AC	SENLOC: 02	SENATT: CHST	
AXIS: XL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: B114H			
CALDAT: 17/JAN/90	INSRAT: 200	CHLMAX: 29	INIVEL: 35.3
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: B119H			
CALDAT: 17/JAN/90	INSRAT: 200	CHLMAX: 17	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/JAN/90	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: 16/JAN/90	INSRAT: 3000	CHLMAX: 43	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: 16/JAN/90	INSRAT: 3000	CHLMAX: 39	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 017	
SENTYP: LC	SENLOC: 01	SENATT: LPBO	
AXIS: OT	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371, S/N: 333		
CALDAT: 16/JAN/90	INSRAT: 3500	CHLMAX: 27	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: 16/JAN/90	INSRAT: 3500	CHLMAX: 74	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 019	
SENTYP: LC	SENLOC: 02	SENATT: LPBO	
AXIS: OT	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371, S/N: 330		
CALDAT: 16/JAN/90	INSRAT: 3500	CHLMAX: 17	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 020	
SENTYP: LC	SENLOC: 02	SENATT: SHBT	
AXIS: OT	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371, S/N: 308		
CALDAT: 16/JAN/90	INSRAT: 3500	CHLMAX: 71	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: SHBT
 AXIS: OT UNITS: OTH PREFIL: 1650
 INSMAN: MFG: BOURNS, MODEL: 2051414101/0.5 IN LIN, S/N: NAV
 CALDAT: 25/JAN/90 INSRAT: 30 CHLMAX: 45 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: 022
 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: 25/JAN/90 INSRAT: 30 CHLMAX: 45 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: AC SENLOC: NA SENATT: SULF
 AXIS: XG UNITS: G'S PREFIL: 1650
 INSMAN: MFG: SETRA, MODEL: 111, S/N: 1103
 CALDAT: 17/JAN/90 INSRAT: 100 CHLMAX: 186 INIVEL: 35.3
 NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
 INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 024
 SENTYP: AC SENLOC: NA SENATT: SURF
 AXIS: XG UNITS: G'S PREFIL: 1650
 INSMAN: MFG: SETRA, MODEL: 111, S/N: 1124
 CALDAT: 17/JAN/90 INSRAT: 250 CHLMAX: 111 INIVEL: 35.3
 NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
 INSCOM:

Instrumentation Information

Inst. Group ID: 5 VEHNO: 1 CURNO: 025
 SENTYP: AC SENLOC: NA SENATT: ENGN
 AXIS: XG UNITS: G'S PREFIL: 1650
 INSMAN: MFG: SETRA, MODEL: 113B, S/N: 1877
 CALDAT: 17/JAN/90 INSRAT: 250 CHLMAX: 105 INIVEL: 35.3
 NFP: -300 NLP: 2999 DELT: 100 DASTAT: AM
 INSCOM:

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 026	
SENTYP: AC	SENLOC: NA	SENATT: ENGN	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: SETRA,	MODEL: 113B, S/N: 1878		
CALDAT: 17/JAN/90	INSRAT: 250	CHLMAX: 77	INIVEL: 35.3
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 027	
SENTYP: AC	SENLOC: NA	SENATT: DPLC	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: SETRA,	MODEL: 111, S/N: 1108		
CALDAT: 17/JAN/90	INSRAT: 250	CHLMAX: 54	INIVEL: 35.3
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 028	
SENTYP: AC	SENLOC: NA	SENATT: FLLR	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: SETRA,	MODEL: 111, S/N: 1123		
CALDAT: 17/JAN/90	INSRAT: 250	CHLMAX: 21	INIVEL: 35.3
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 029	
SENTYP: AC	SENLOC: NA	SENATT: FLRR	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: SETRA,	MODEL: 111, S/N: 1105		
CALDAT: 17/JAN/90	INSRAT: 100	CHLMAX: 80	INIVEL: 35.3
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 030	
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: 2	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 031	
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: 2	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 032	
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: 3	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 033	
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: 3	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 034	
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: 42	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 035	
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: 7	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 036	
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: 3	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 037	
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: 1	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 038	
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: 2	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 039	
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: 3	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 040	
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: 16	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 041	
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: 34	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 042	
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: 15	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 043	
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: 33	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 044	
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: 24	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: CF
INSCOM: DROPOUT IN DATA FROM APPROX. T=100 TO T=175 MSEC. - UNKNOWN CAUSE			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 045	
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: 40	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 046	
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: 14	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 047	
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: 2	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 048	
SENTYP: LC	SENLOC: NA	SENATT: LCC1	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19287			
CALDAT: 14/MAY/85	INSRAT: 50000	CHLMAX: 5	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 049	
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: 16	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 050	
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: 25	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 051	
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: 9	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 052	
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: 17	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 053	
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: 33	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 054	
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: 28	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 055	
SENTYP: LC	SENLOC: NA	SENATT: LCC8	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,		S/N: 19315	
CALDAT: 14/MAY/85	INSRAT: 50000	CHLMAX: 15	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 056	
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: 3	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 057	
SENTYP: LC	SENLOC: NA	SENATT: LCD1	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19460		
CALDAT: 14/MAY/85	INSRAT: 50000	CHLMAX: 2	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 058	
SENTYP: LC	SENLOC: NA	SENATT: LCD2	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19318		
CALDAT: 14/MAY/85	INSRAT: 50000	CHLMAX: 6	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 059	
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: 3	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 060	
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: 6	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 061	
SENTYP: LC	SENLOC: NA	SENATT: LCD5	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 120-FS, S/N: 19260			
CALDAT: 14/MAY/85	INSRAT: 50000	CHLMAX: 8	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 062	
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: 6	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

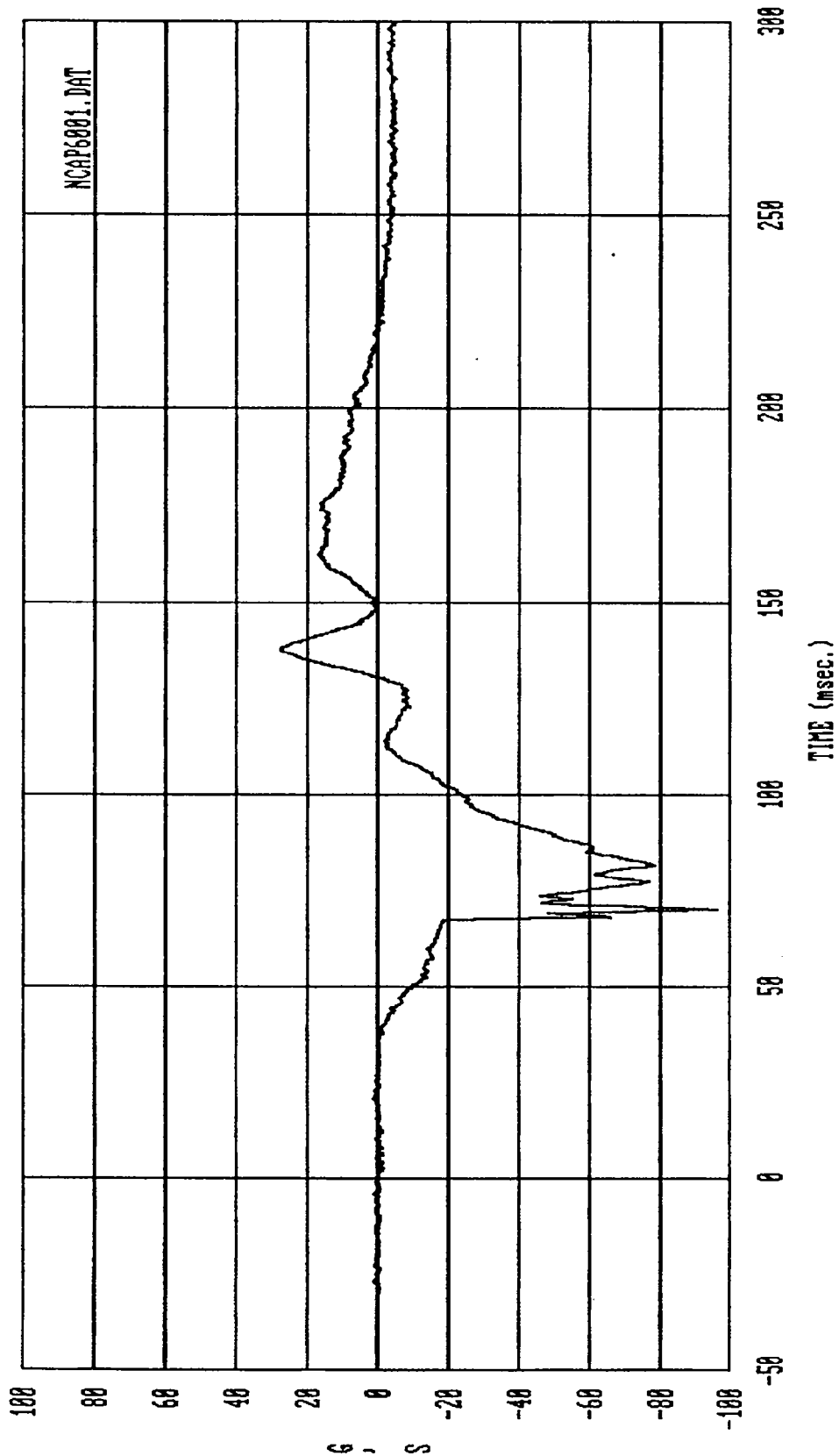
Inst. Group ID: 5	VEHNO: 0	CURNO: 063	
SENTYP: LC	SENLOC: NA	SENATT: LCD7	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19332			
CALDAT: 14/MAY/85	INSRAT: 50000	CHLMAX: 6	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 064	
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: 6	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			

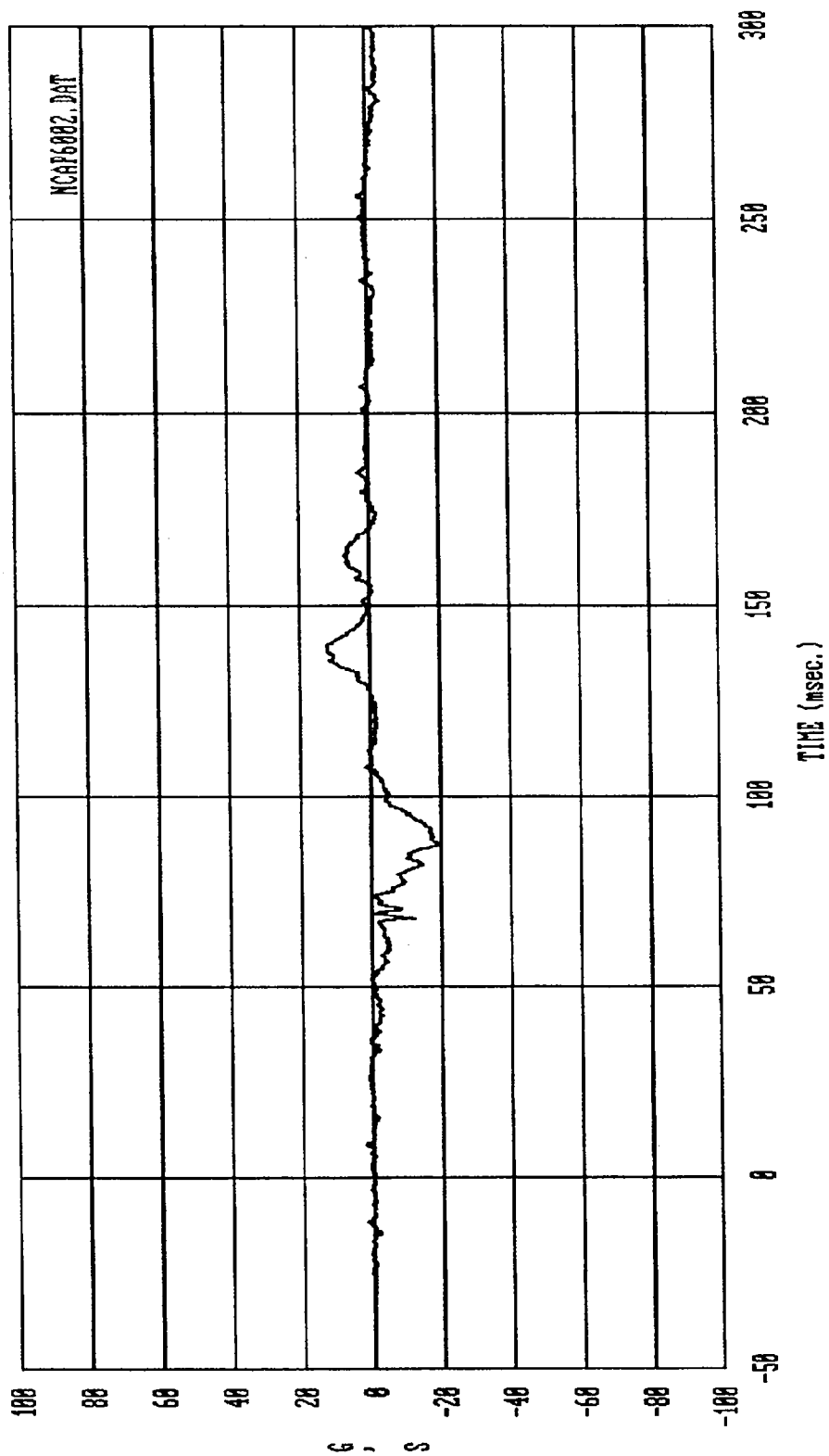
Instrumentation Information

Inst. Group ID: 5	VEHNO: 0	CURNO: 065	
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: 3	INIVEL: 0.0
NFP: -250	NLP: 2499	DELT: 120	DASTAT: AM
INSCOM:			



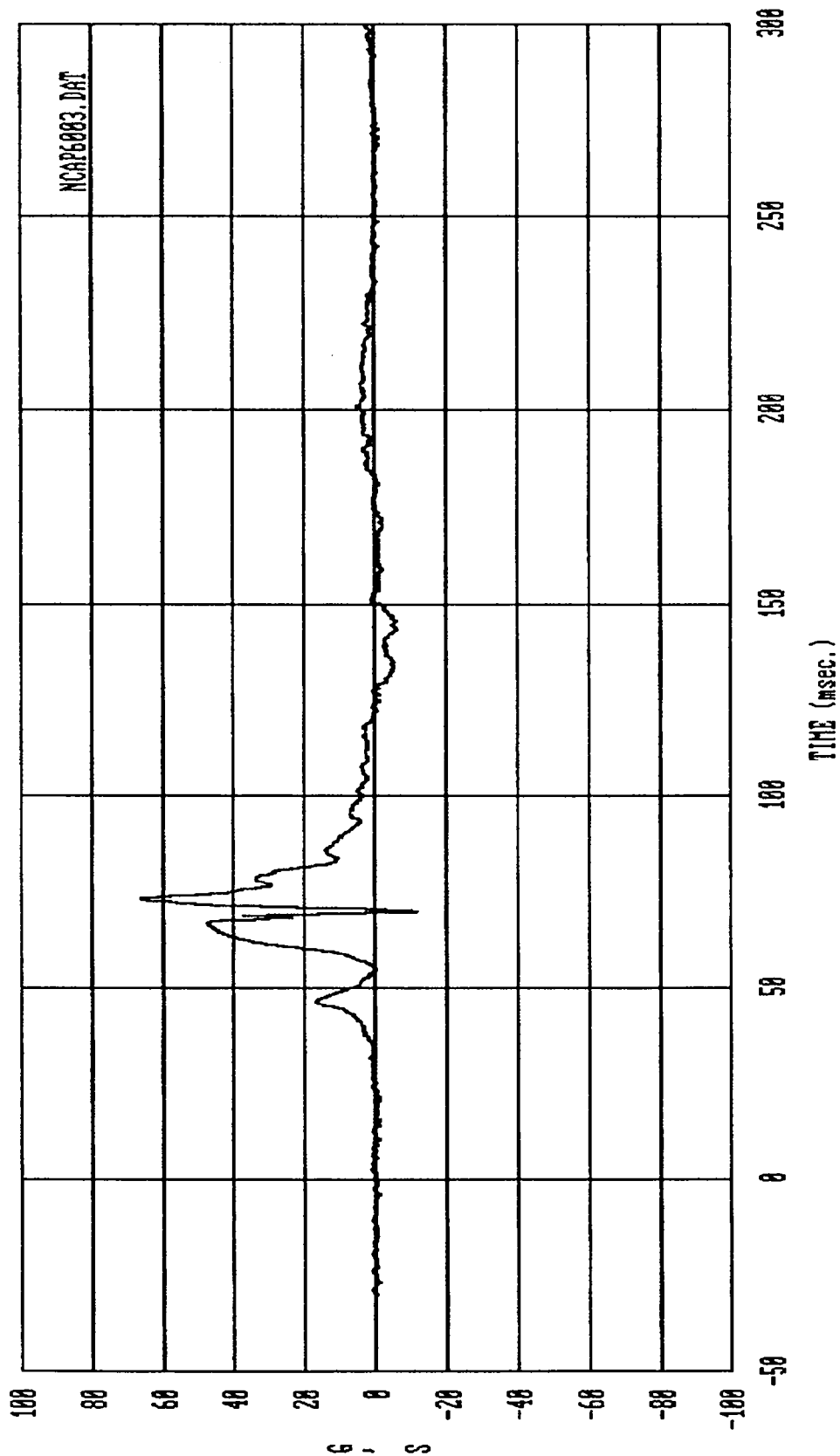
Curve: Driver Head acceleration -- X axis Filter: SAE CLASS 1000 Max = 27.574 Min = -96.203

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



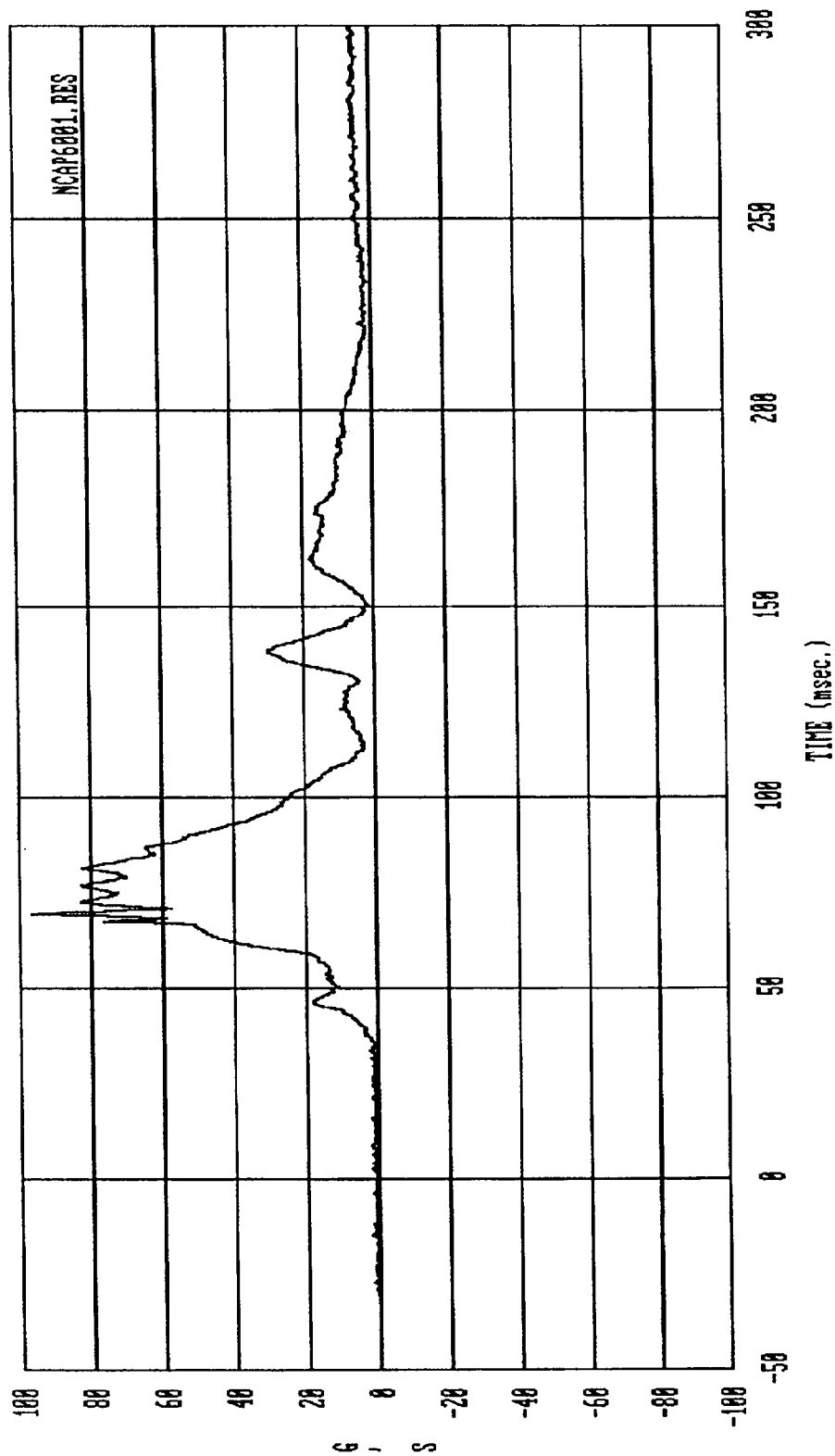
Curve: Driver Head acceleration -- Y axis Filter: SAE CLASS 1000 Max = 12.462 Min = -20.105

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

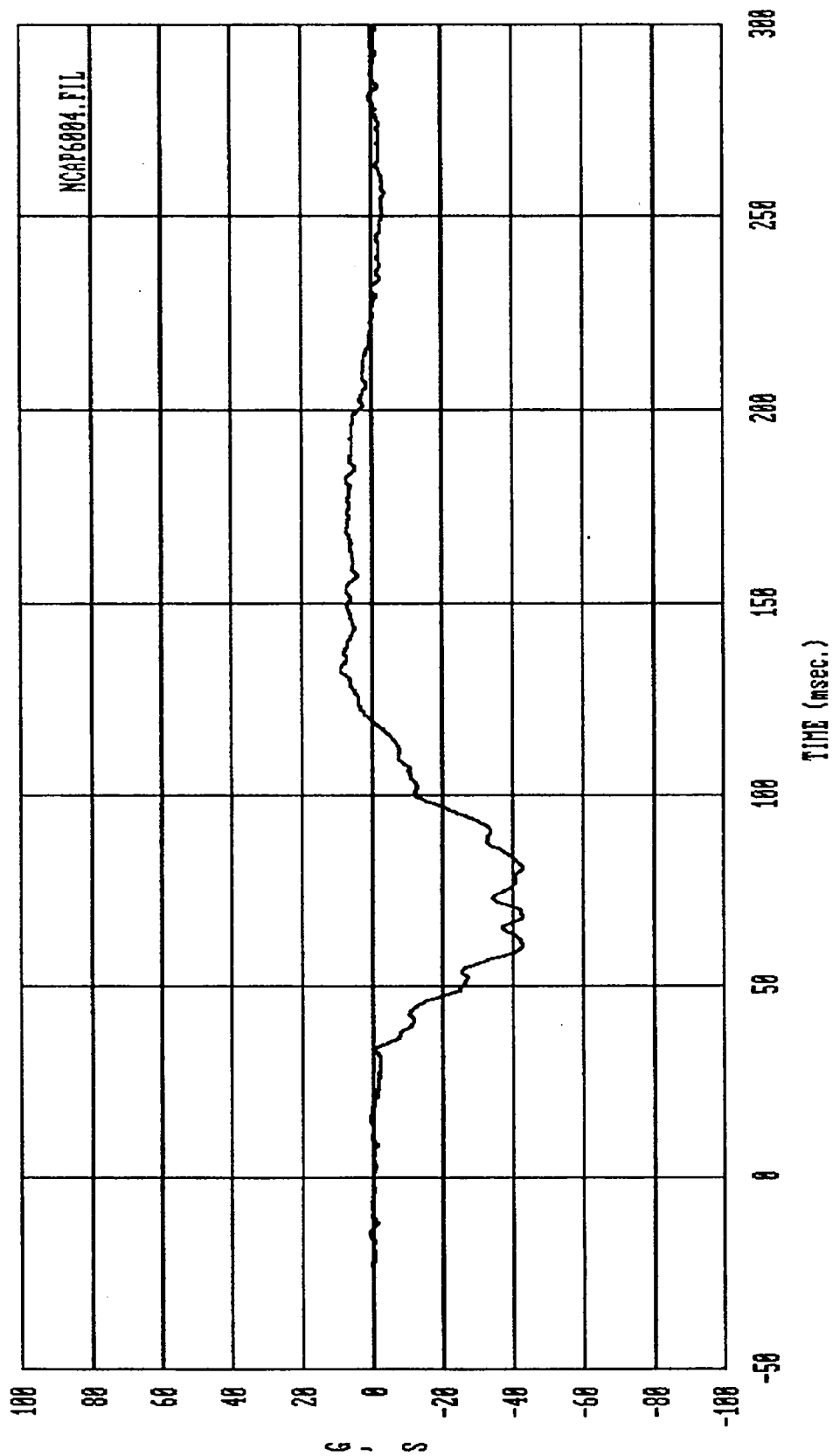


Curve: Driver Head acceleration -- Z axis Filter: SAE CLASS 1000 Max = 66.654 Min = -11.772

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

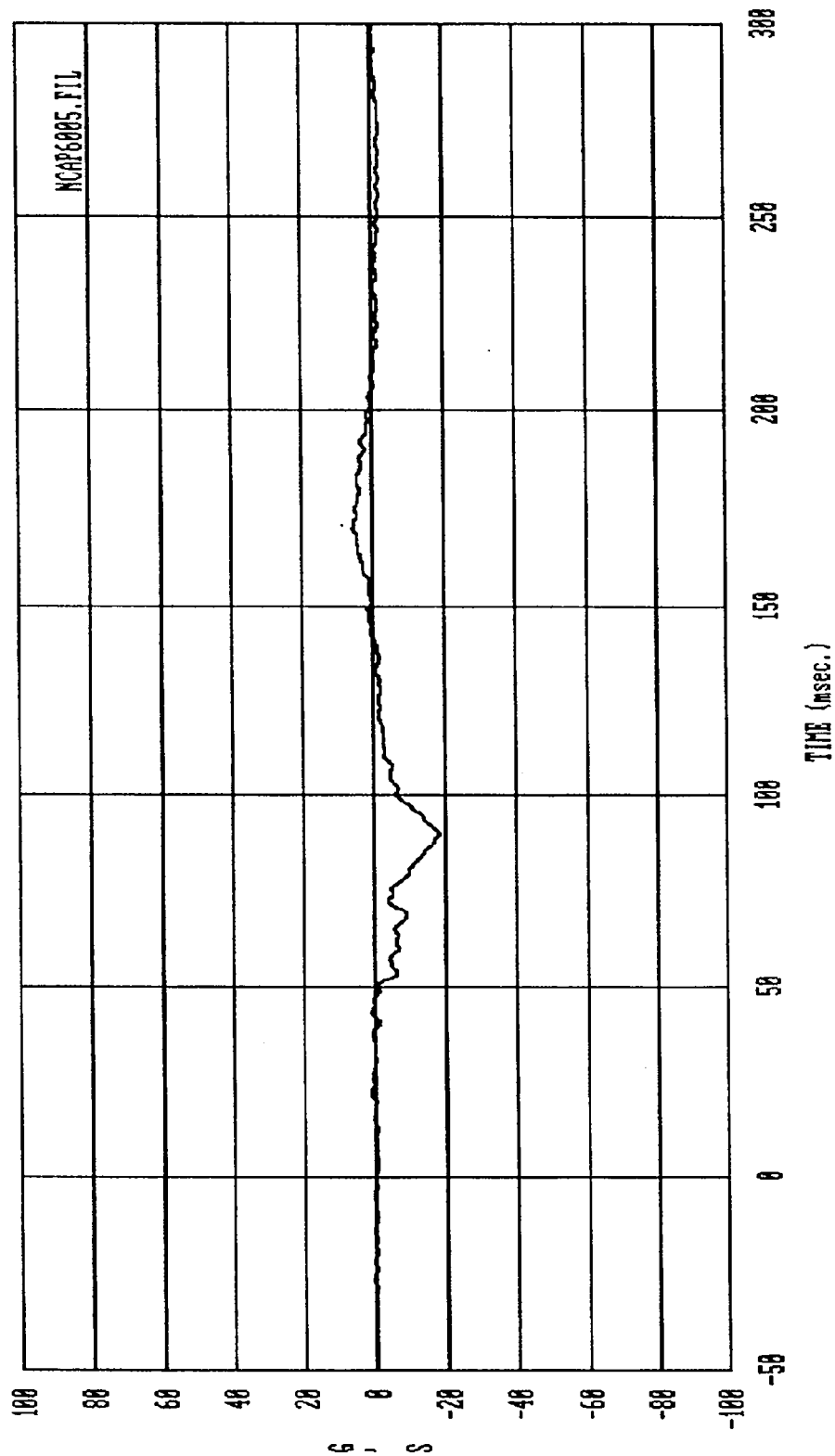


Curve: Driver Head resultant acceleration Filter: SAE CLASS 1000 Max = 97.176 Min = .16580
 MSE Date: 01/25/98 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Maxx

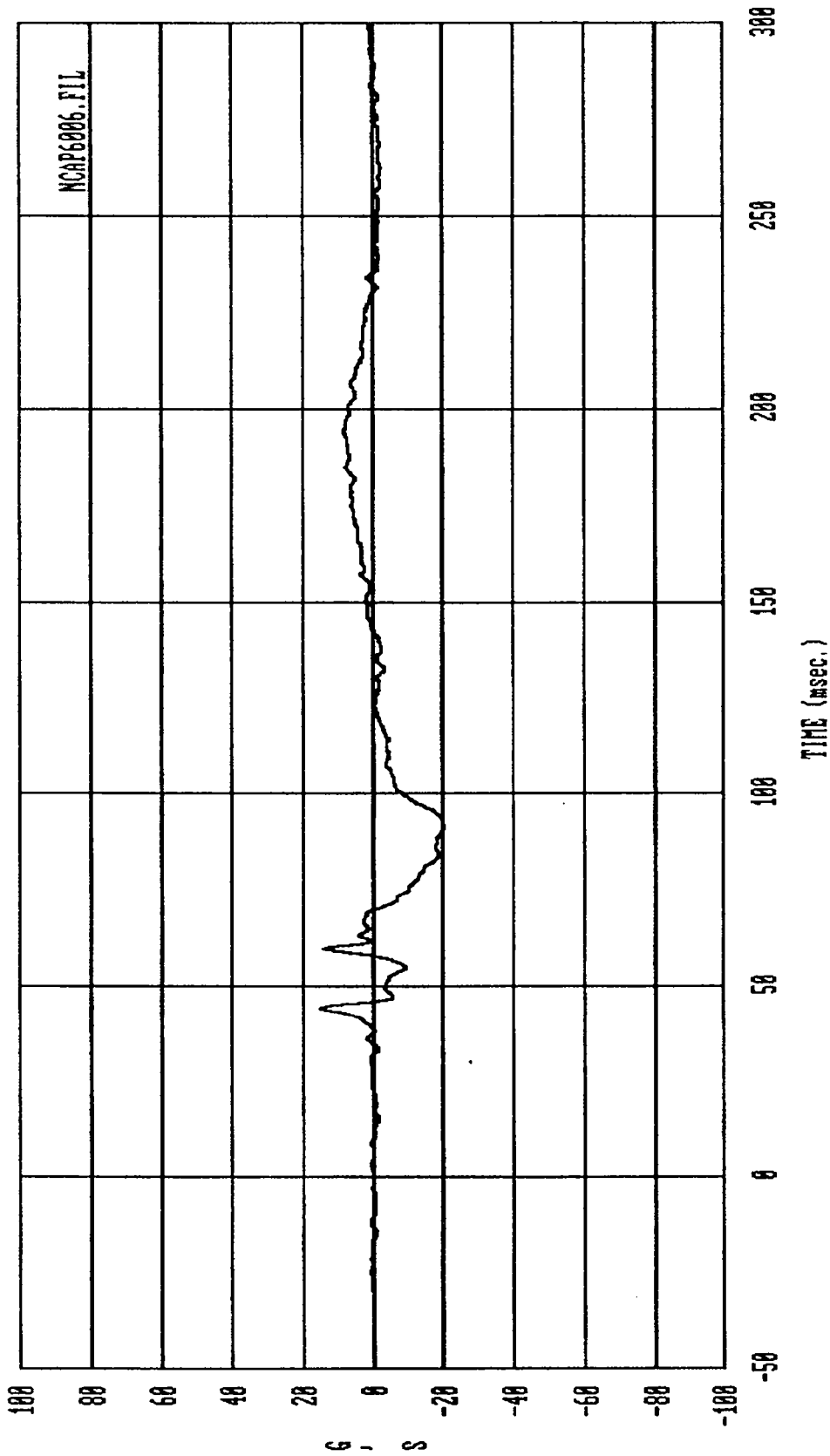


Curve: Driver Chest acceleration — X axis Filter: SAE CLASS 100 Max = 9.2535 Min = -43.322

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

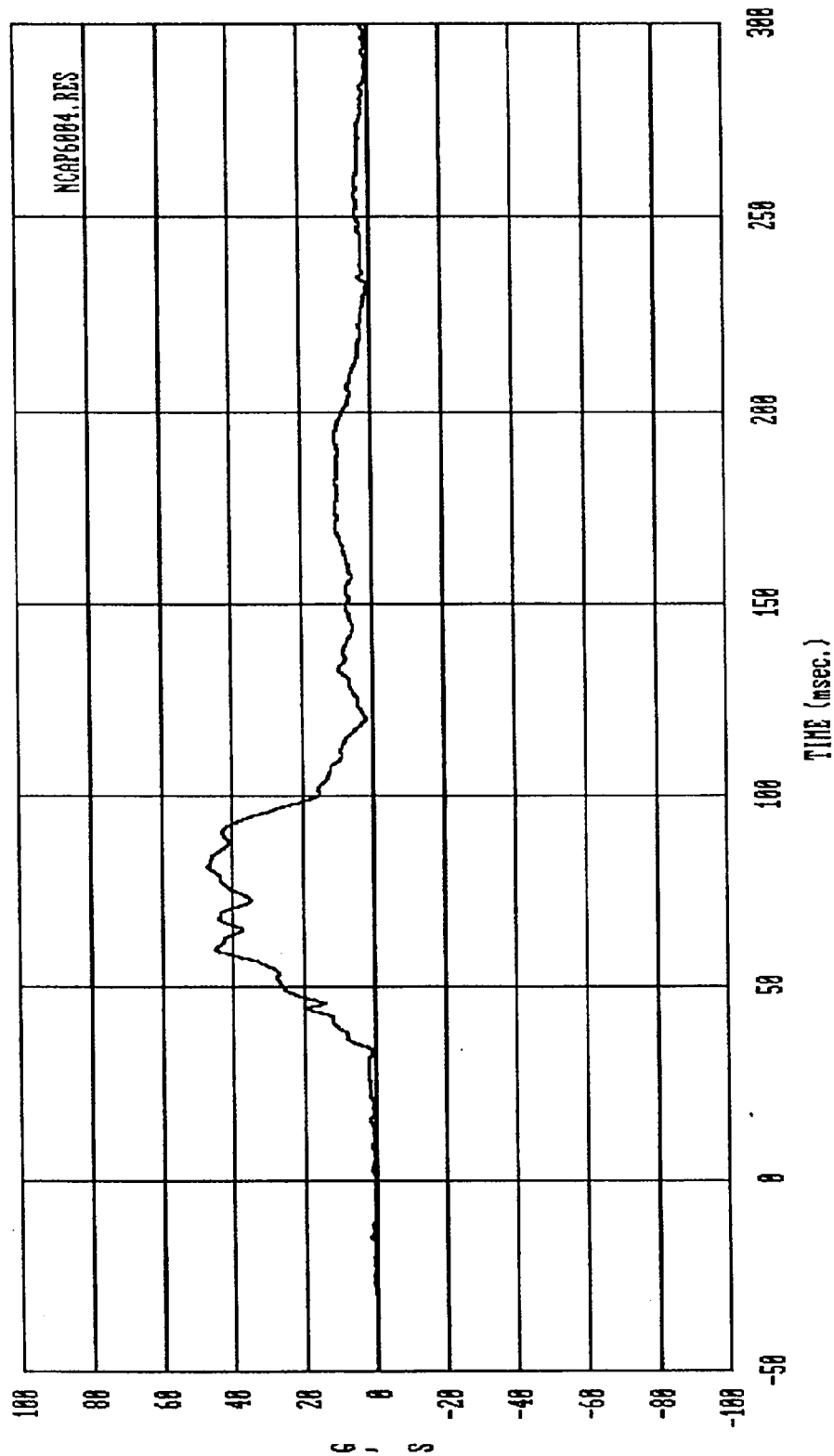


Curve: Driver Chest acceleration -- Y axis Filter: SAE CLASS 180 Max = 5.4841 Min = -18.352
 MSE Date: 8/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

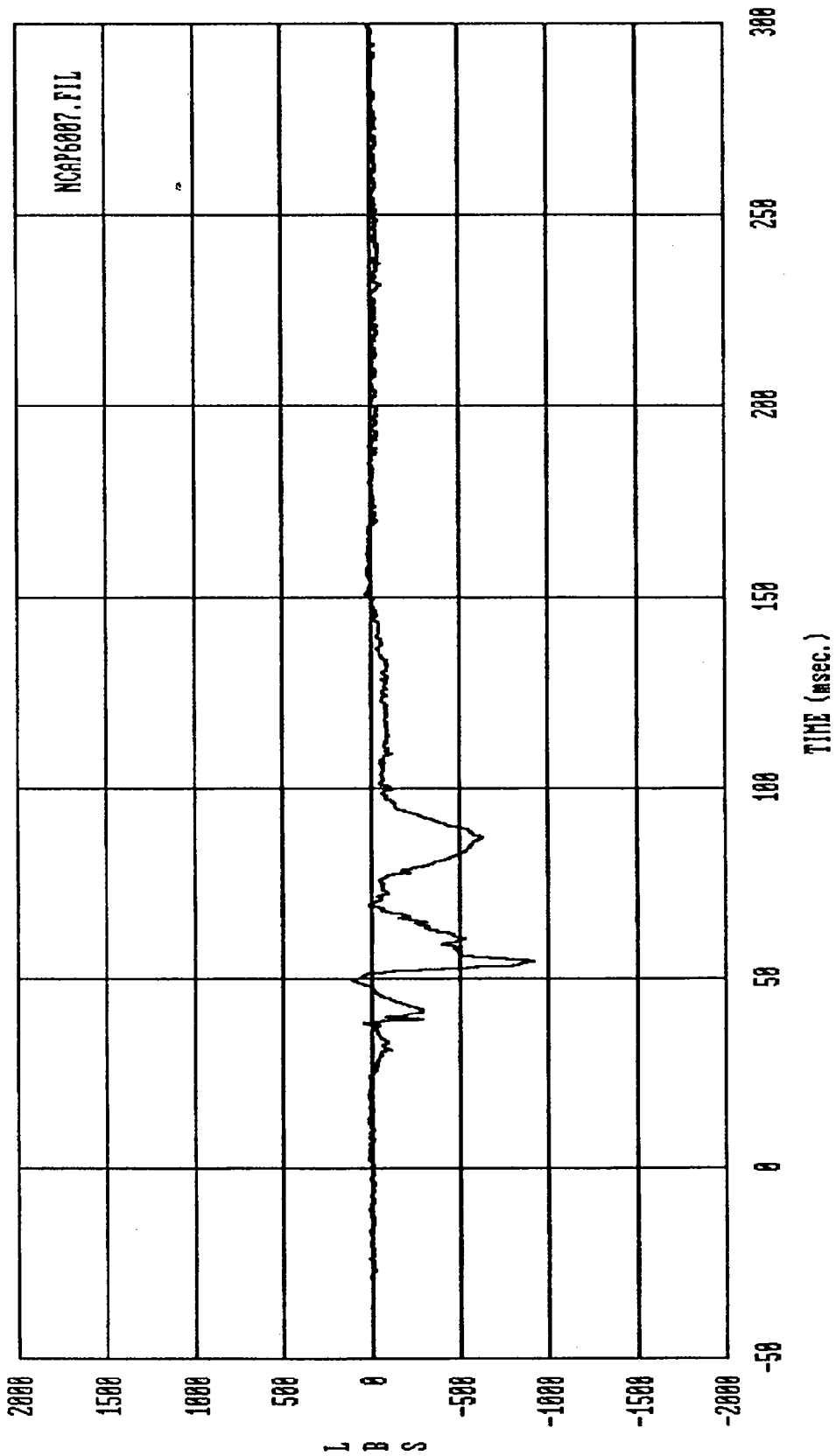


Curve: Driver Chest acceleration -- Z axis Filter: SAE CLASS 100 Max = 15.345 Min = -20.306

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

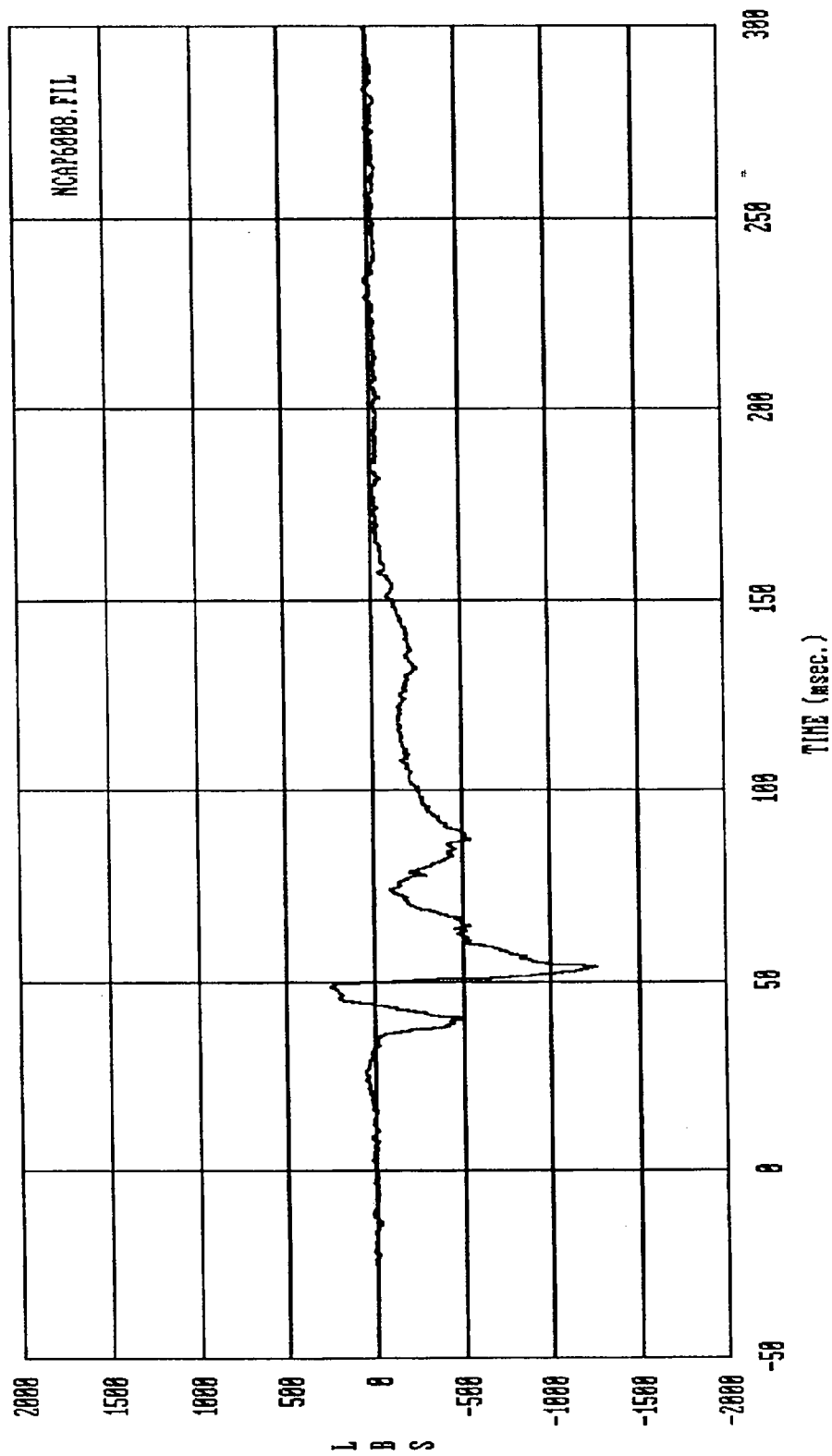


Curve: Driver Chest resultant acceleration Filter: SAE CLASS 100 Max = 47.836 Min = .89638E-01
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

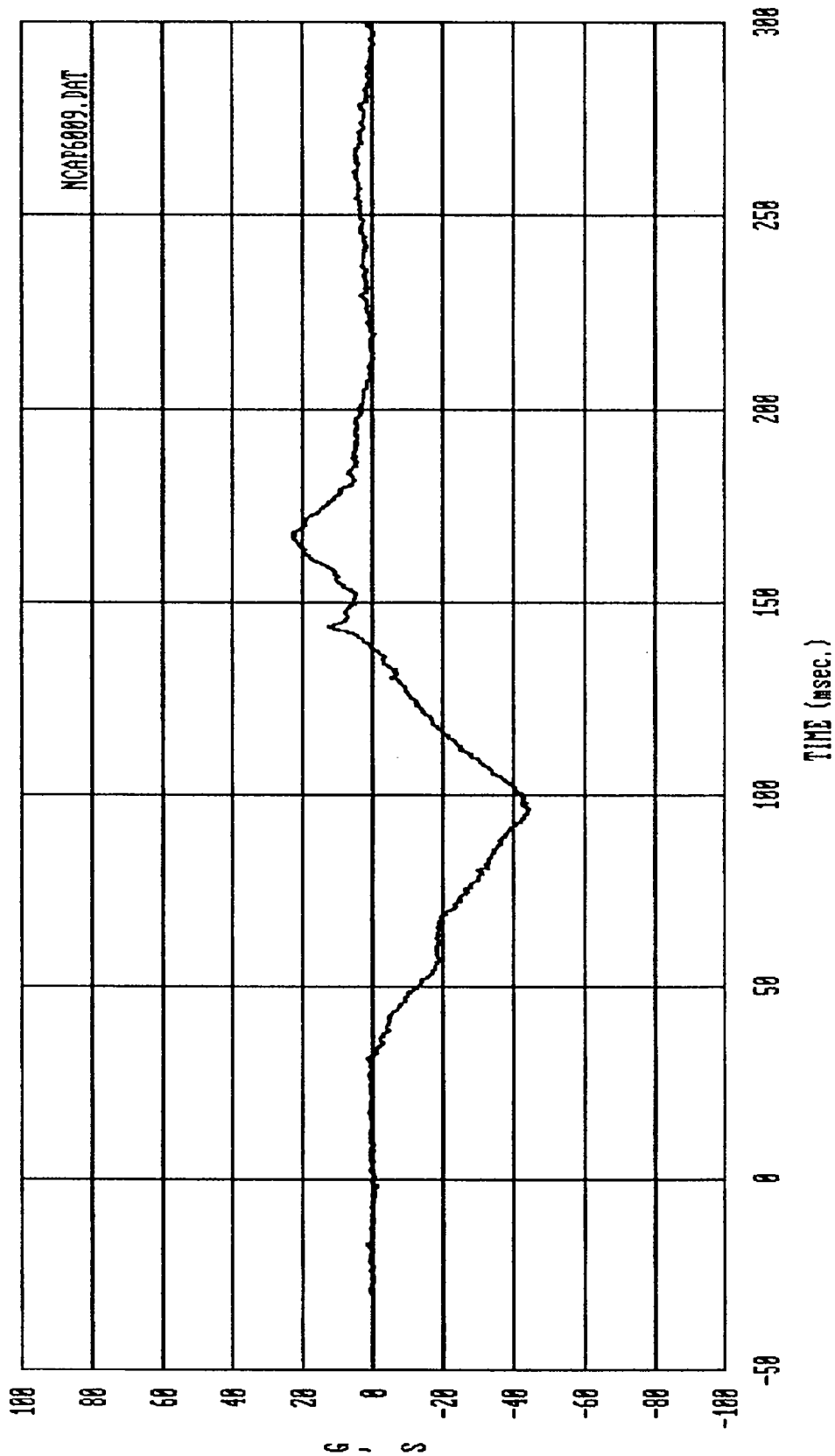


Curve: Driver Left Femur force Filter: SAE CLASS 600 Max = 112.72 Min = -918.57

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

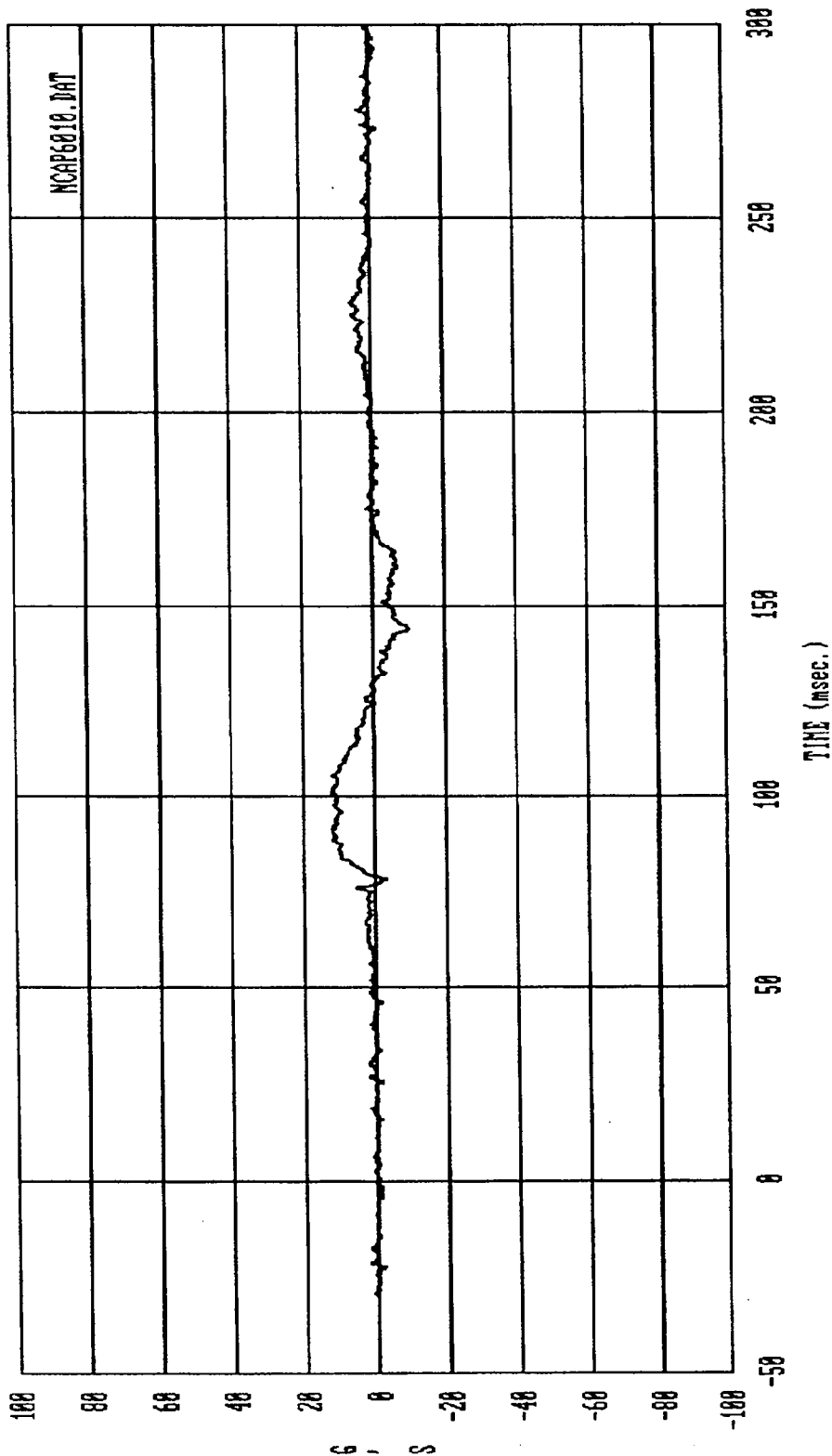


Curve: Driver Right Femur force
Filter: SAE CLASS 600 Max = 252.60 Min = -1265.8
MSE Date: 01/25/90 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Axxess

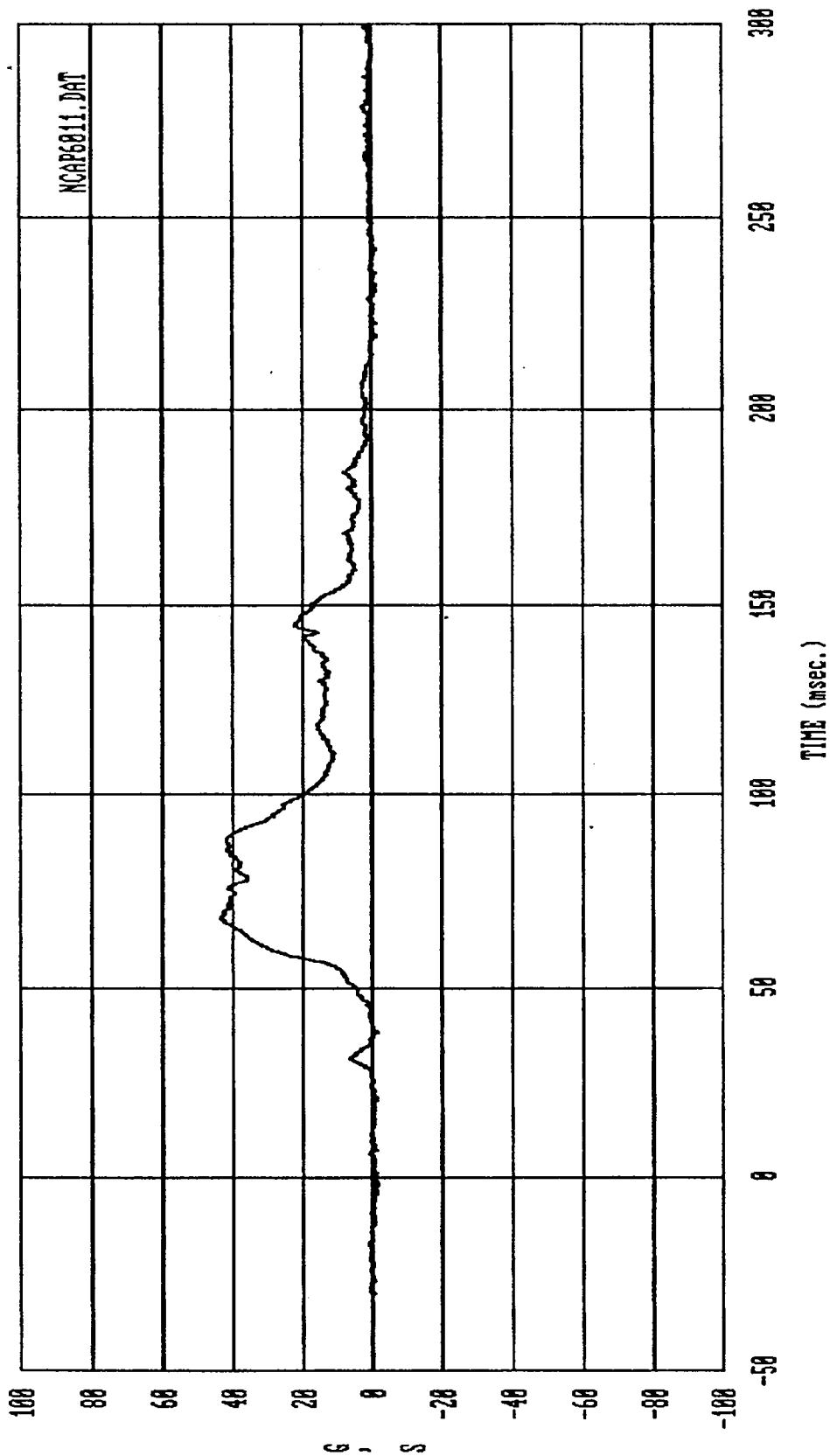


Curve: Passngr Head acceleration -- X axis Filter: SAE CLASS 1000 Max = 22.782 Min = -44.430

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

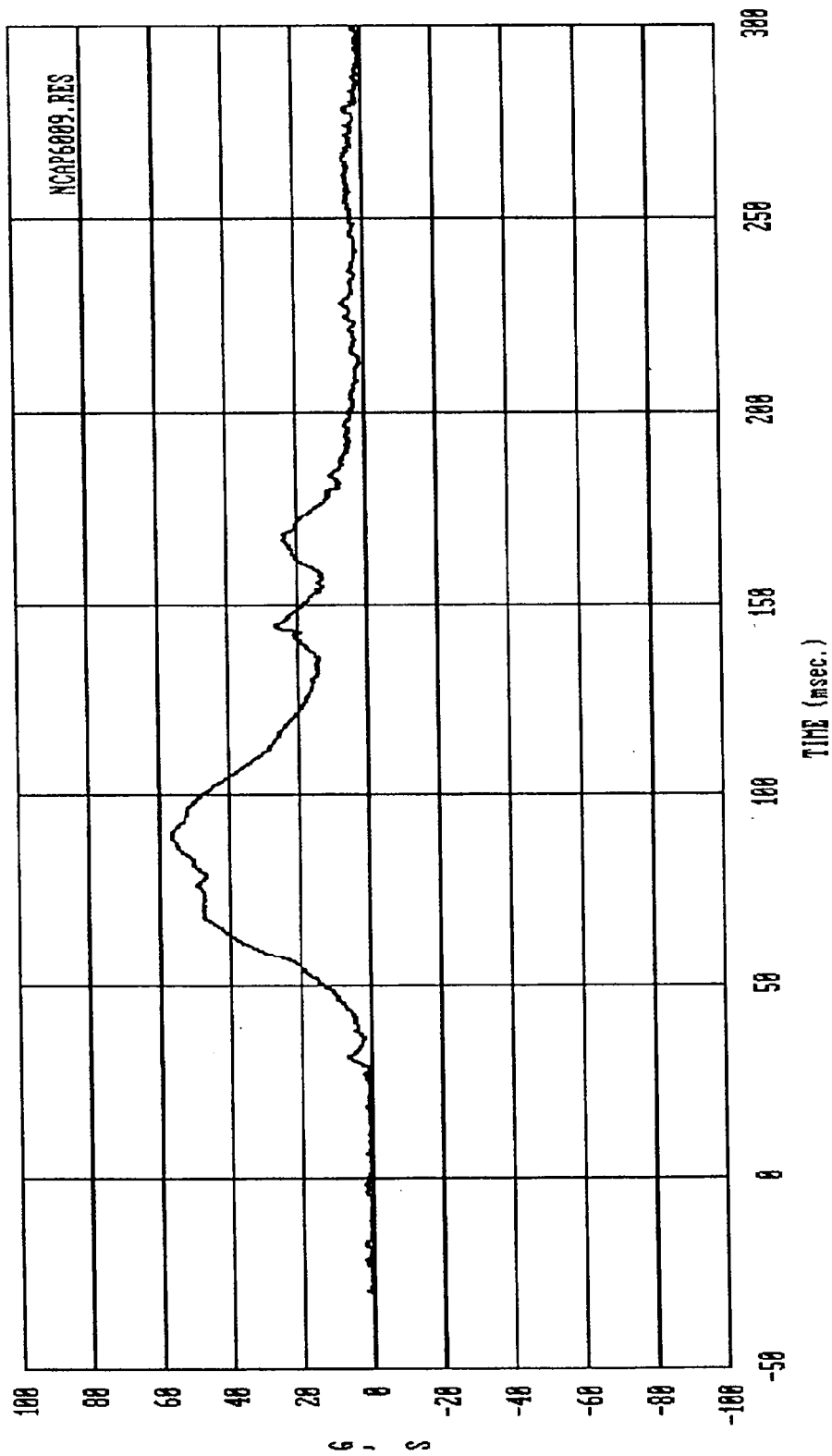


Curve: Pasngr Head acceleration -- Y axis Filter: SAE CLASS 1000 Max = 12.365 Min = -10.869
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

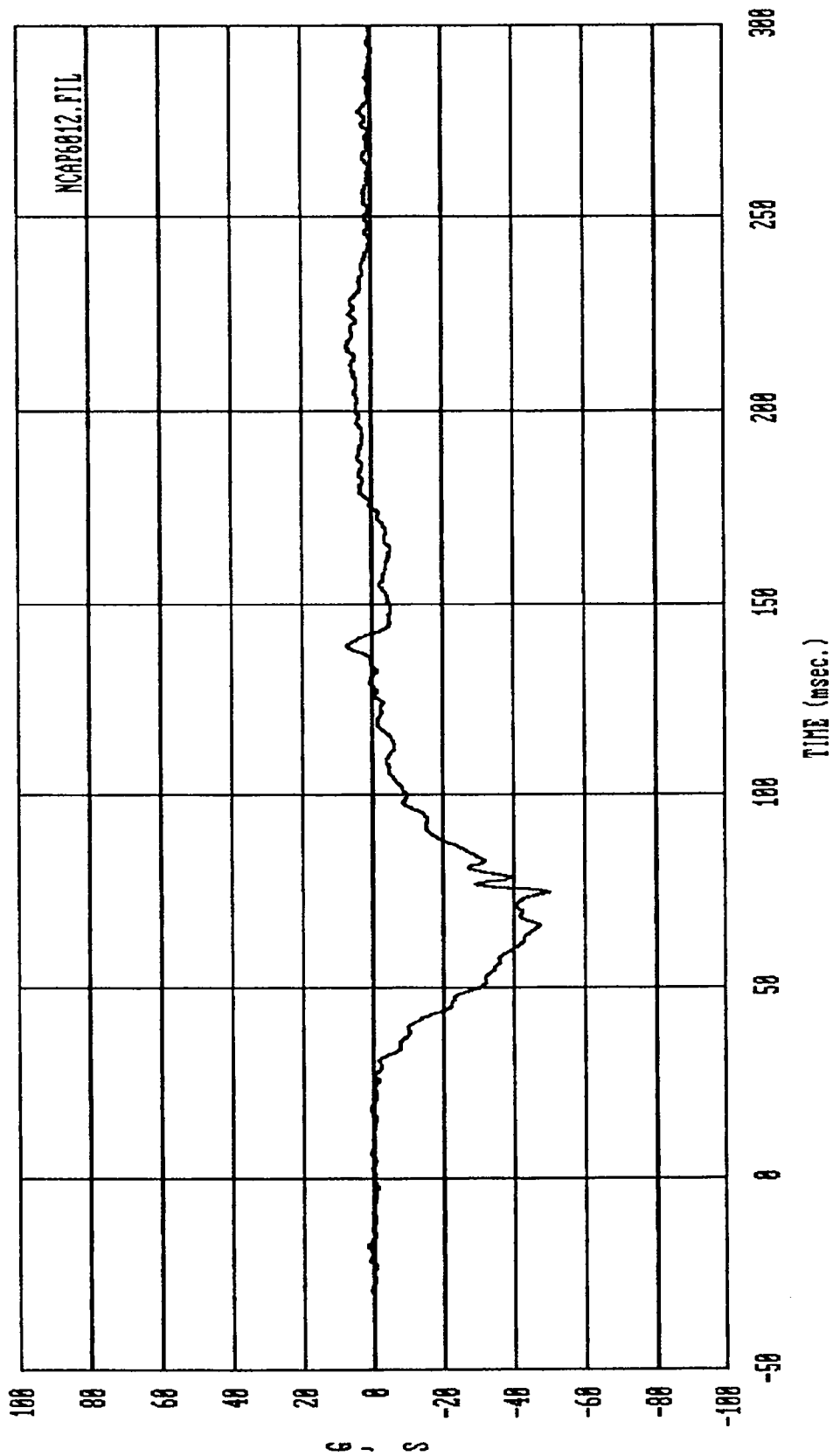


Curve: Pasngr Head acceleration -- Z axis Filter: SAE CLASS 1000 Max = 43.785 Min = -1.3876

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

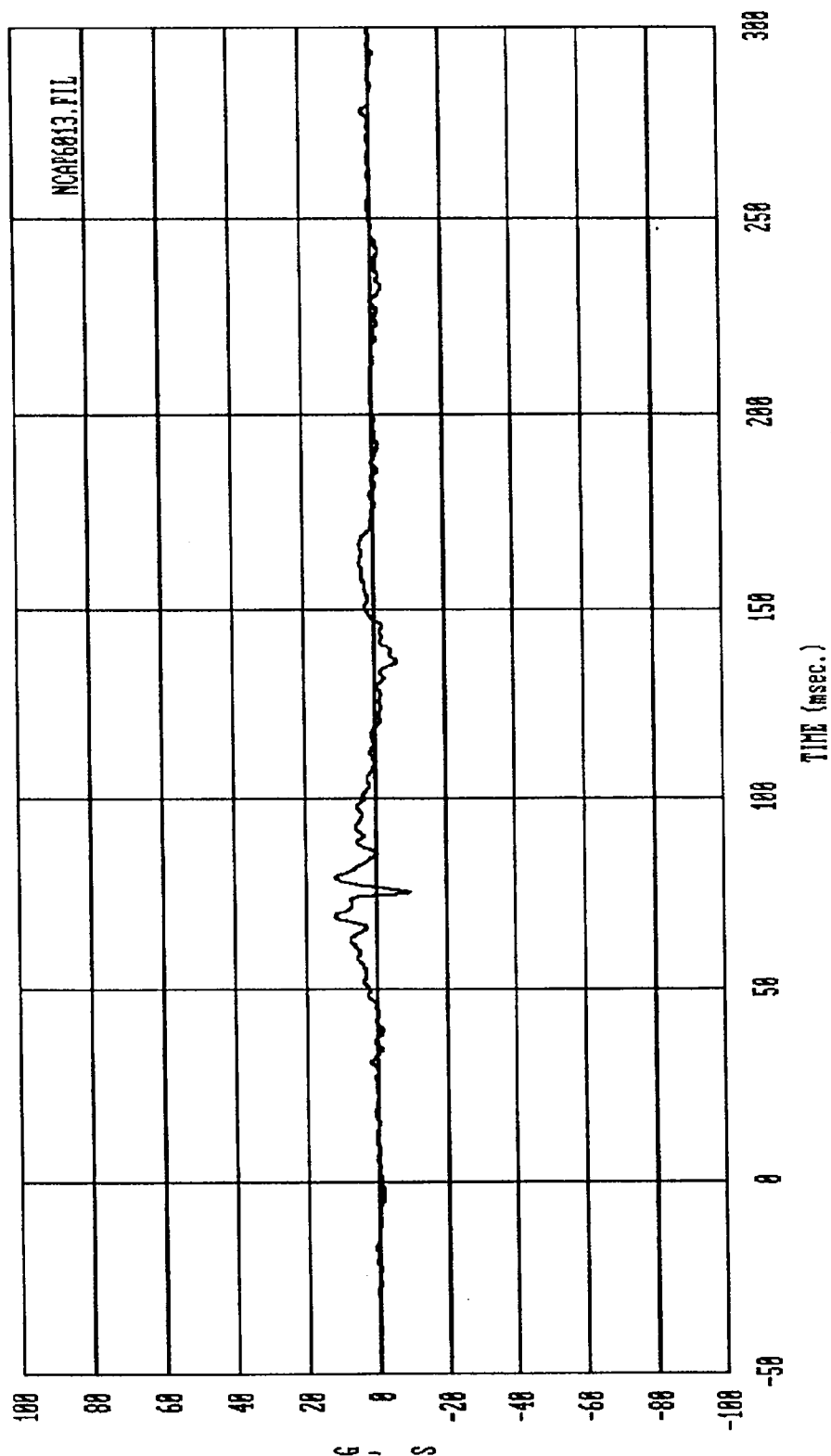


Curve: Pasngr Head resultant acceleration Filter: SAE CLASS 1000 Max = 56.827 Min = .23979
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

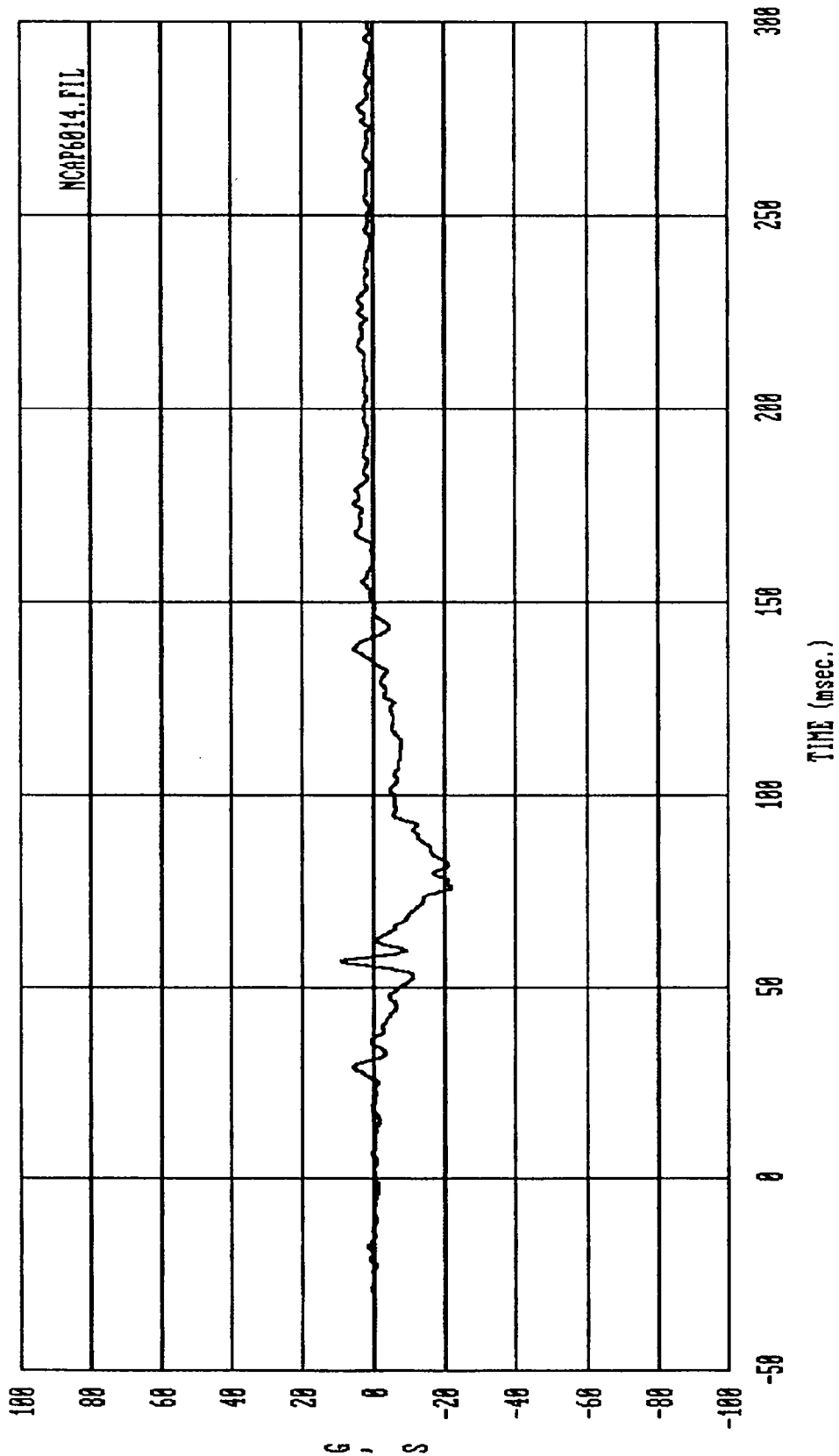


Curve: Pasngr Chest acceleration -- X axis Filter: SAE CLASS 100 Max = 7.0933 Min = -50.190

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

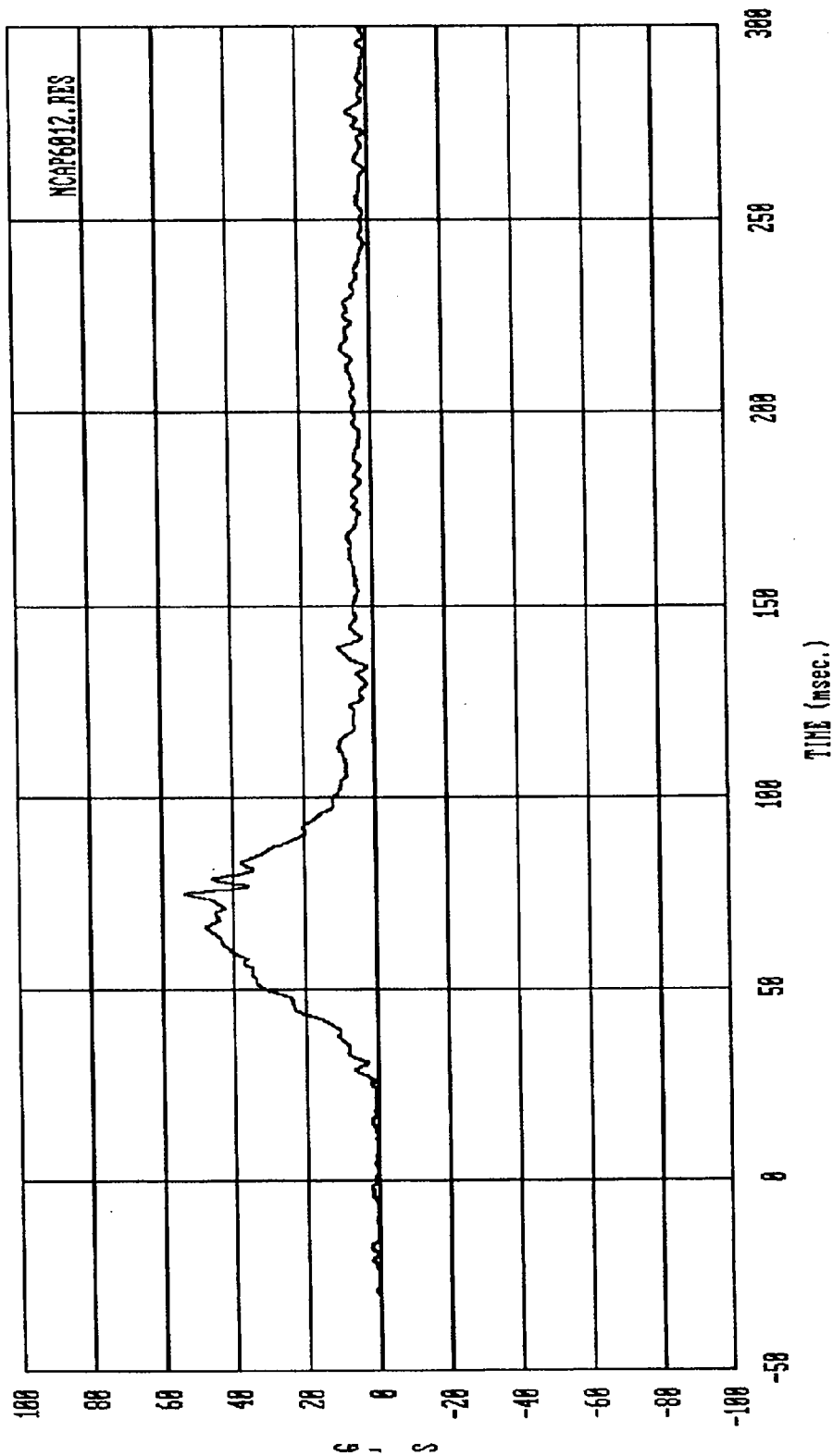


Curve: Pasngr Chest acceleration -- Y axis Filter: SAE CLASS 100 Max = 11.954 Min = -9.5405
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

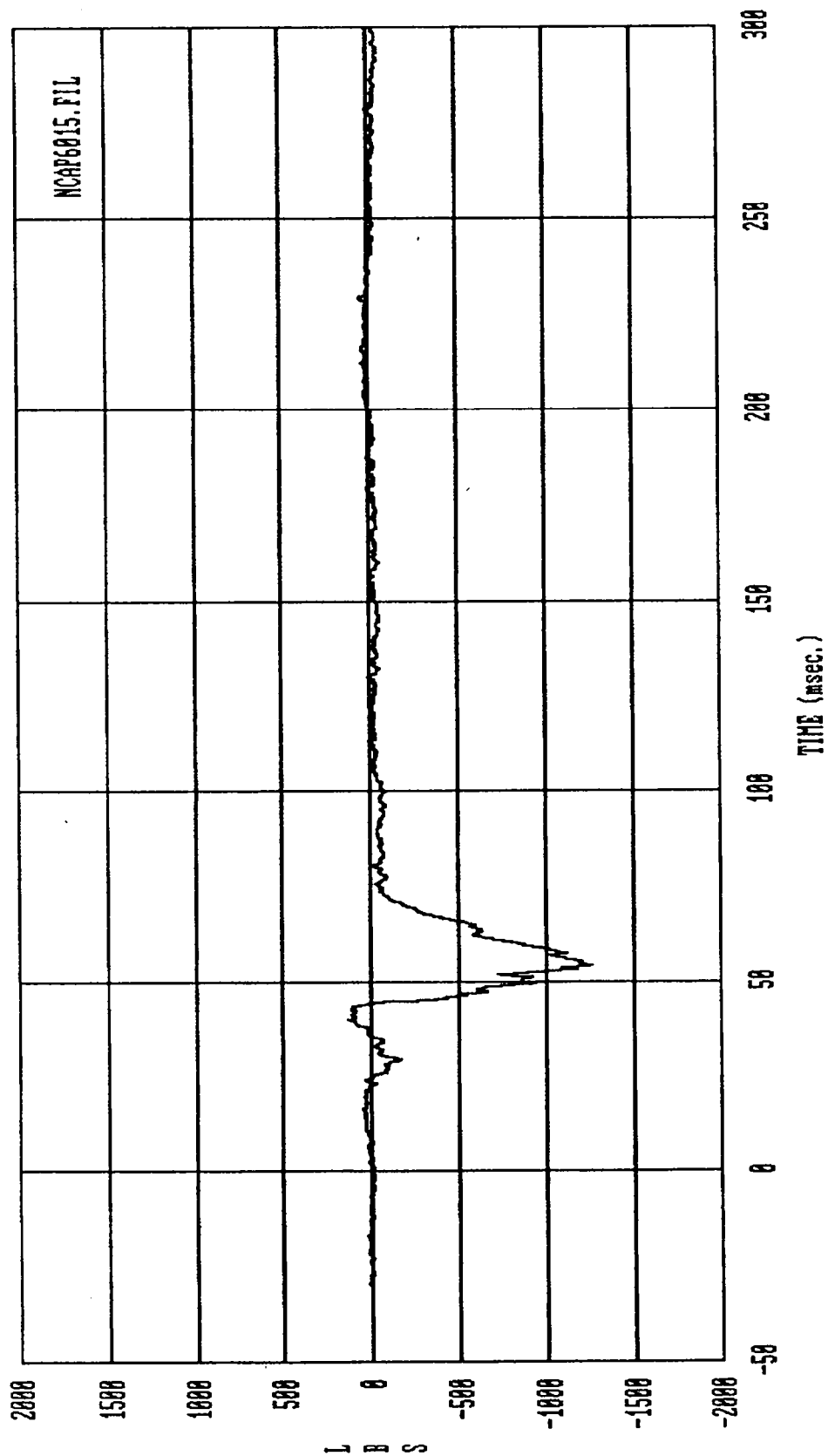


Curve: Pasngr Chest acceleration — Z axis Filter: SAE CLASS 100 Max = 9.1469 Min = -22.109

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

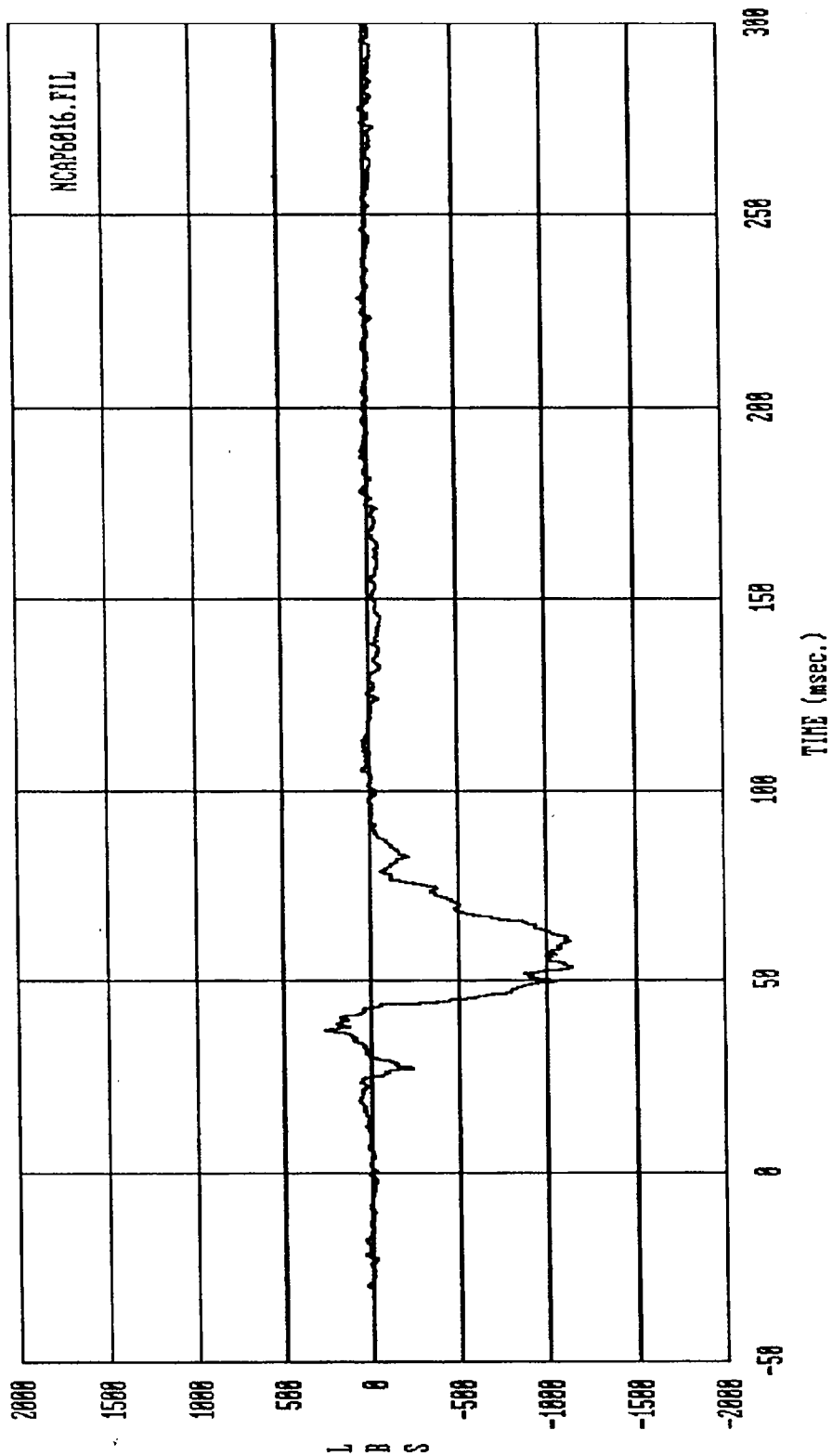


Curve: Pasngr Chest resultant acceleration Filter: SAE CLASS 180 Max = 53.747 Min = .21895
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

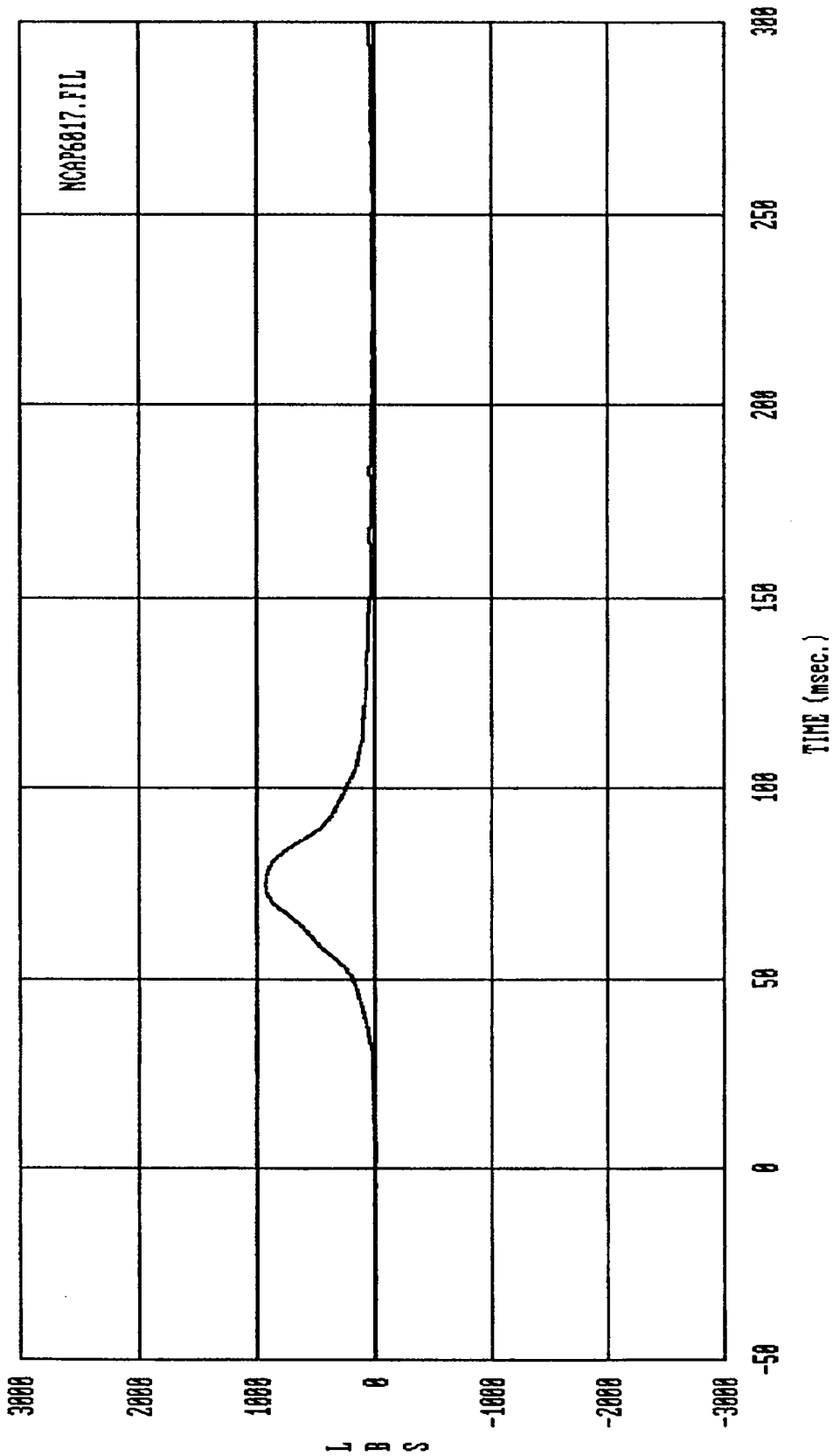


Curve: Pasngr Left Femur force Filter: SAE CLASS 600 Max = 126.76 Min = -1257.3

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

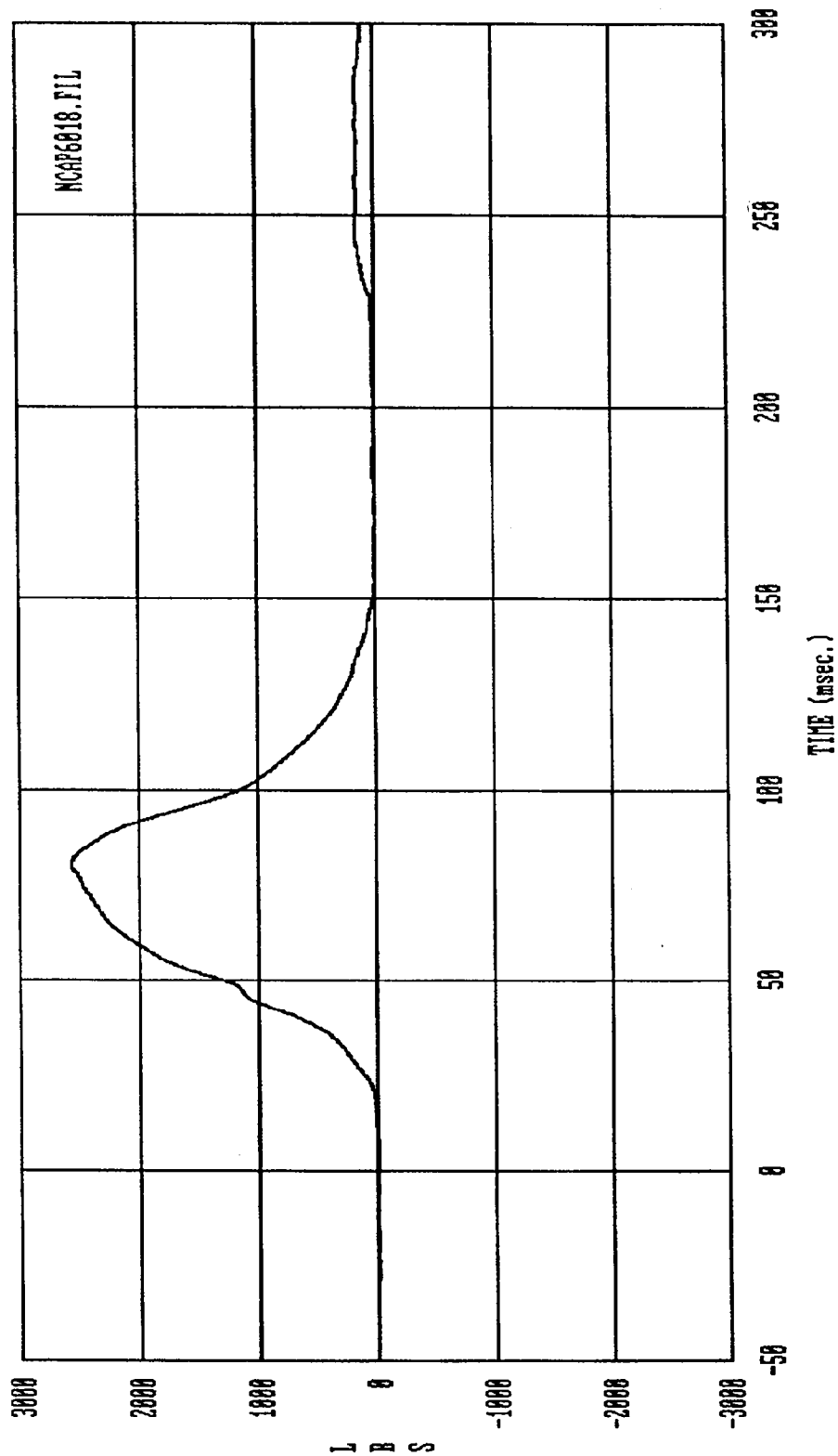


Curve: Pasngr Right Femur force Filter: SAE CLASS 600 Max = 271.36 Min = -1143.3
 MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

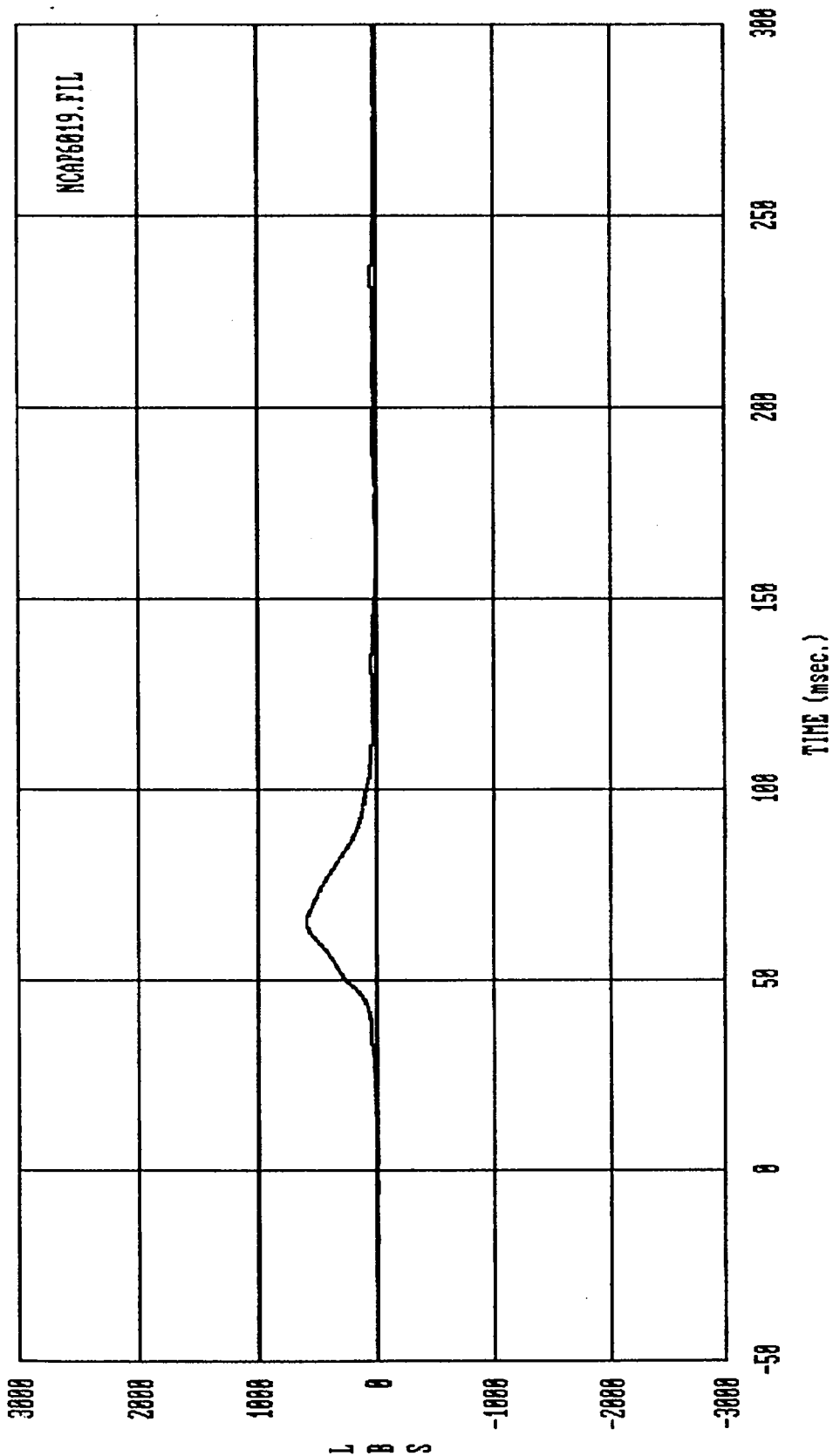


Curve: Driver Lap seat belt force Filter: SAE CLASS 60 Max = 926.69 Min = -10.148

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

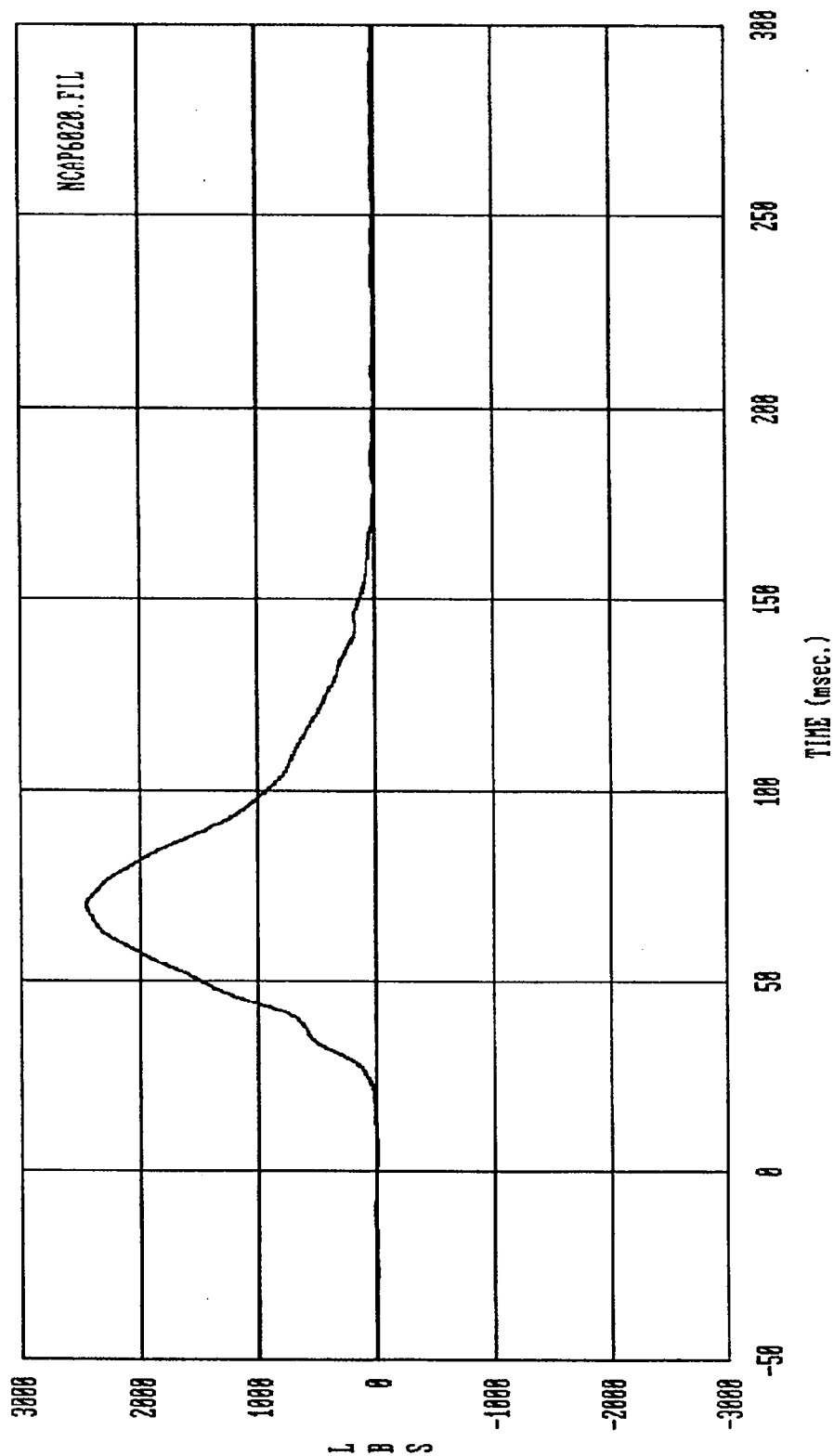


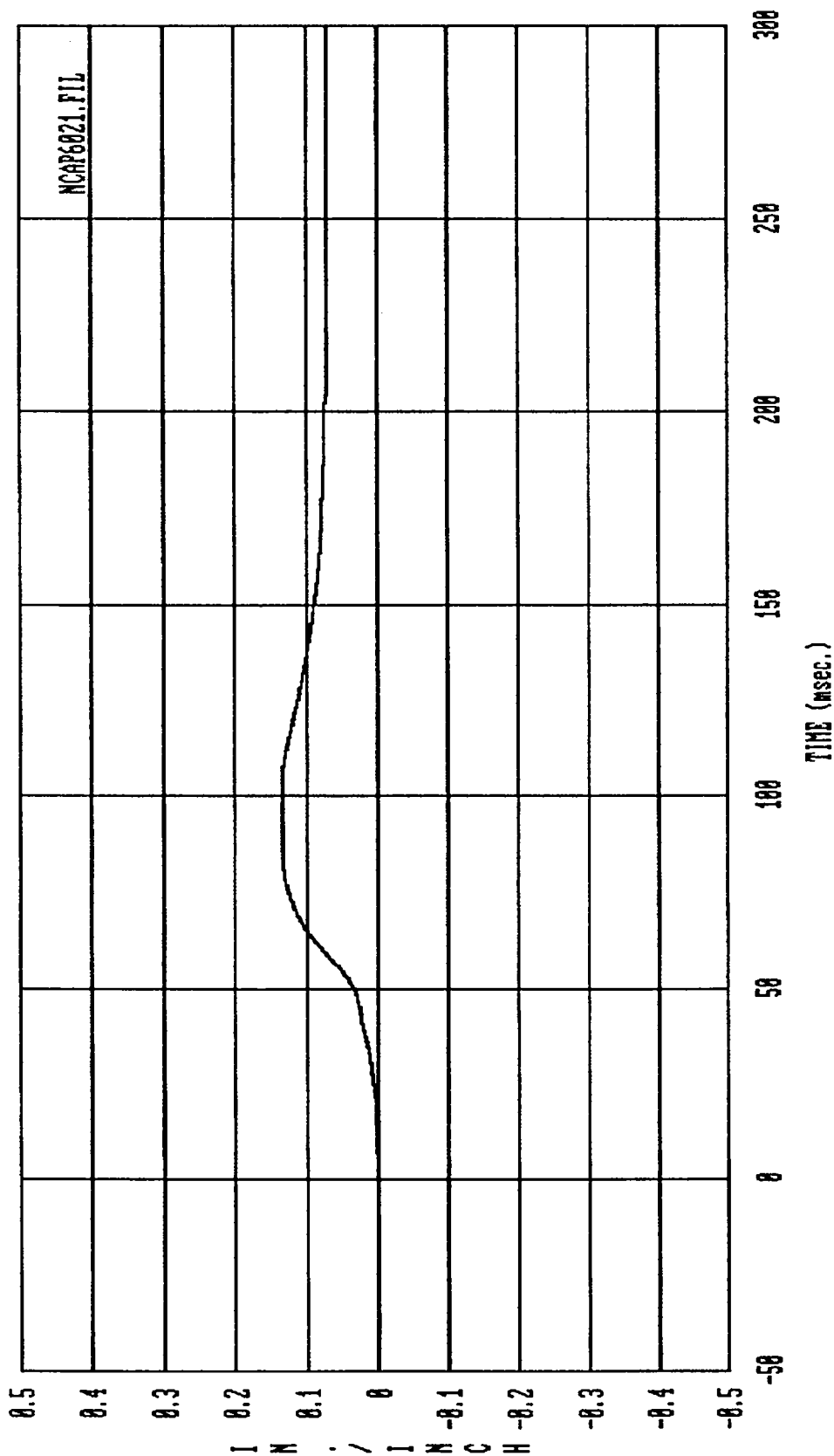
Curve: Driver Shoulder seat belt force Filter: SAE CLASS 60 Max = 2572.0 Min = -15.614
MSE Date: 01/25/90 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Axxess



Curve: Pasngr Lap seat belt force Filter: SAE CLASS 60 Max = 593.60 Min = -11.564

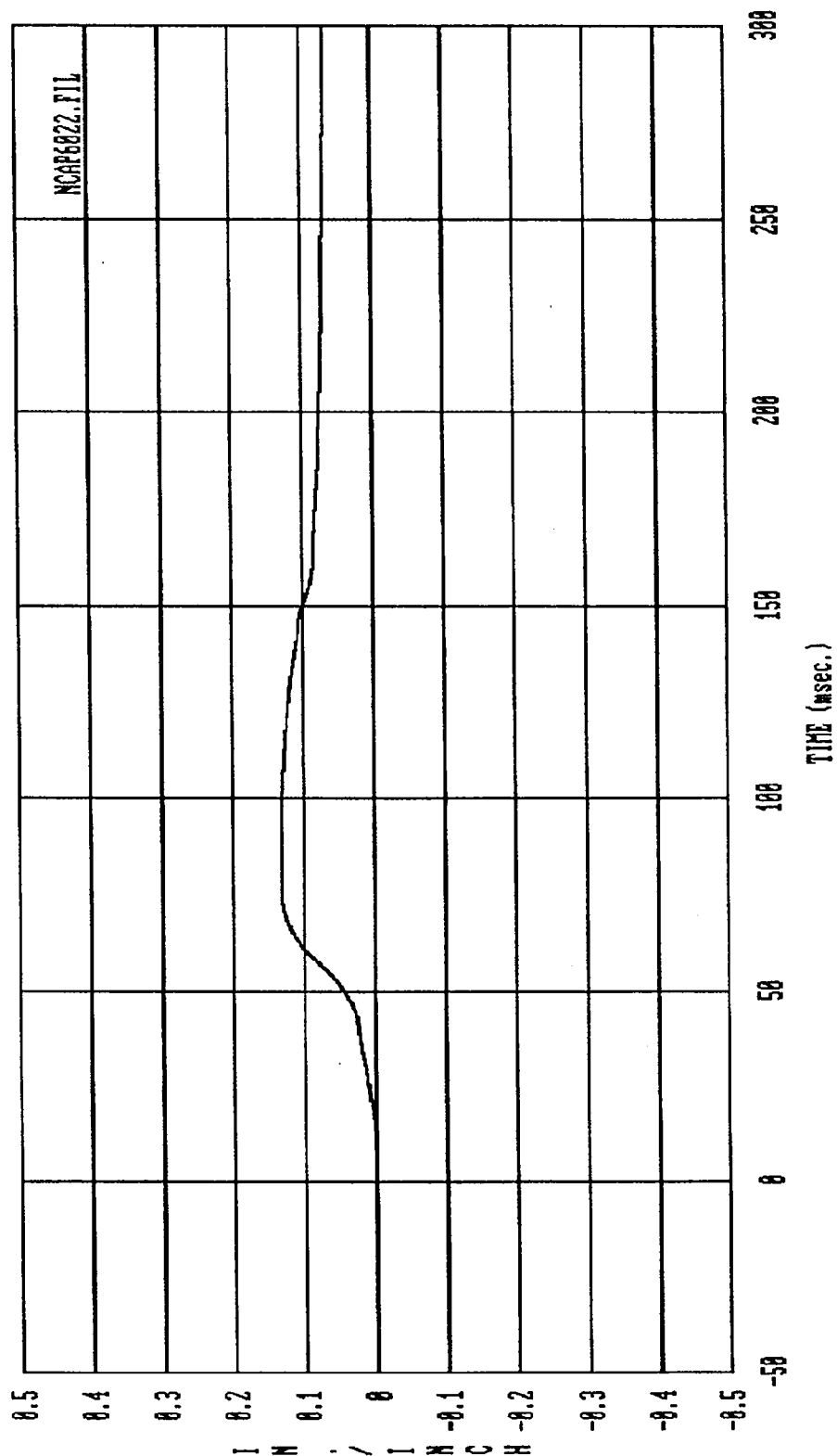
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



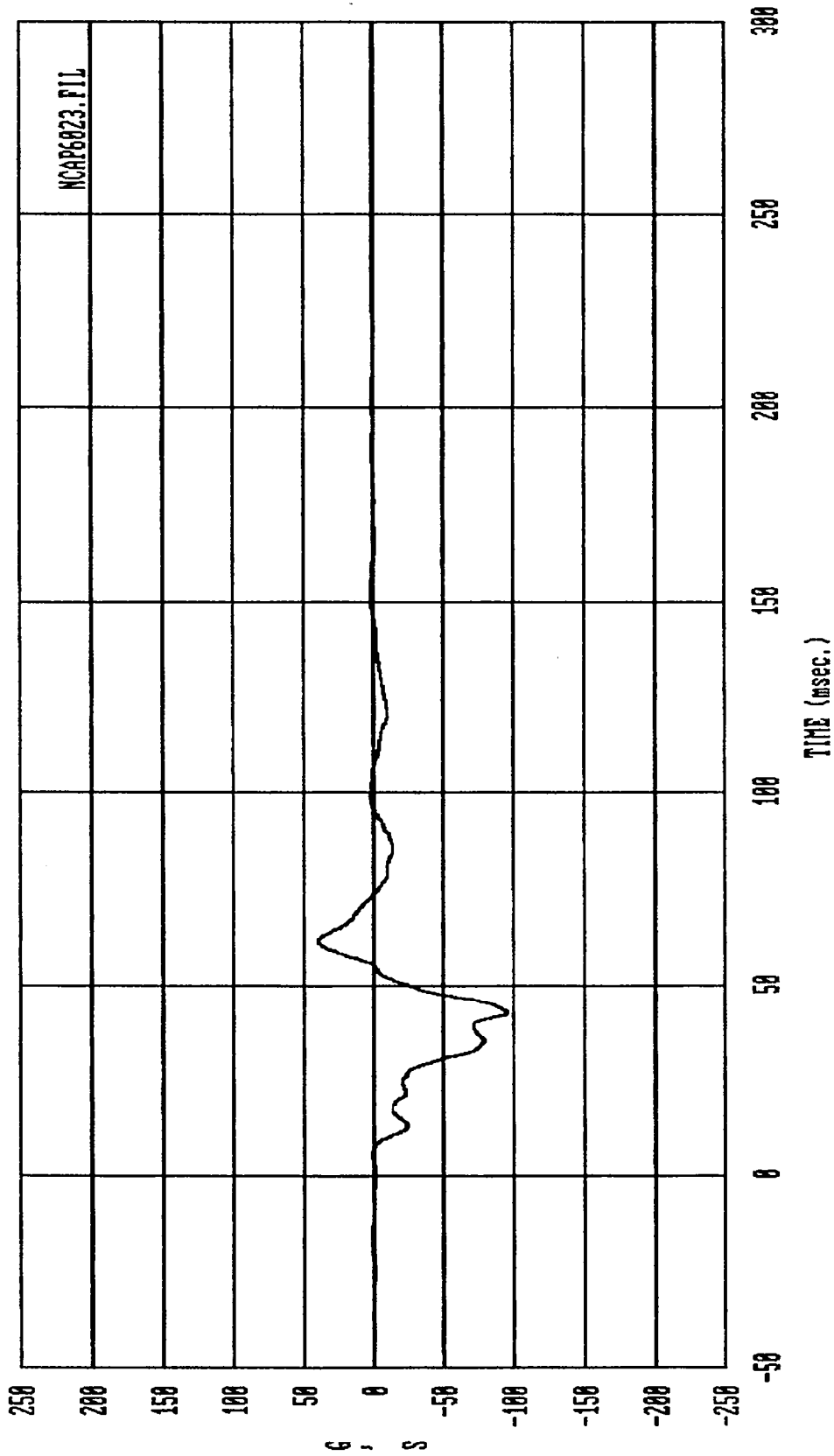


Curve: Driver seat belt elongation (Percent stretch) Filter: SAE CLASS 60 Max = .13483 Min = .70472E-01

MSE Date: 01/25/90 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Axxess

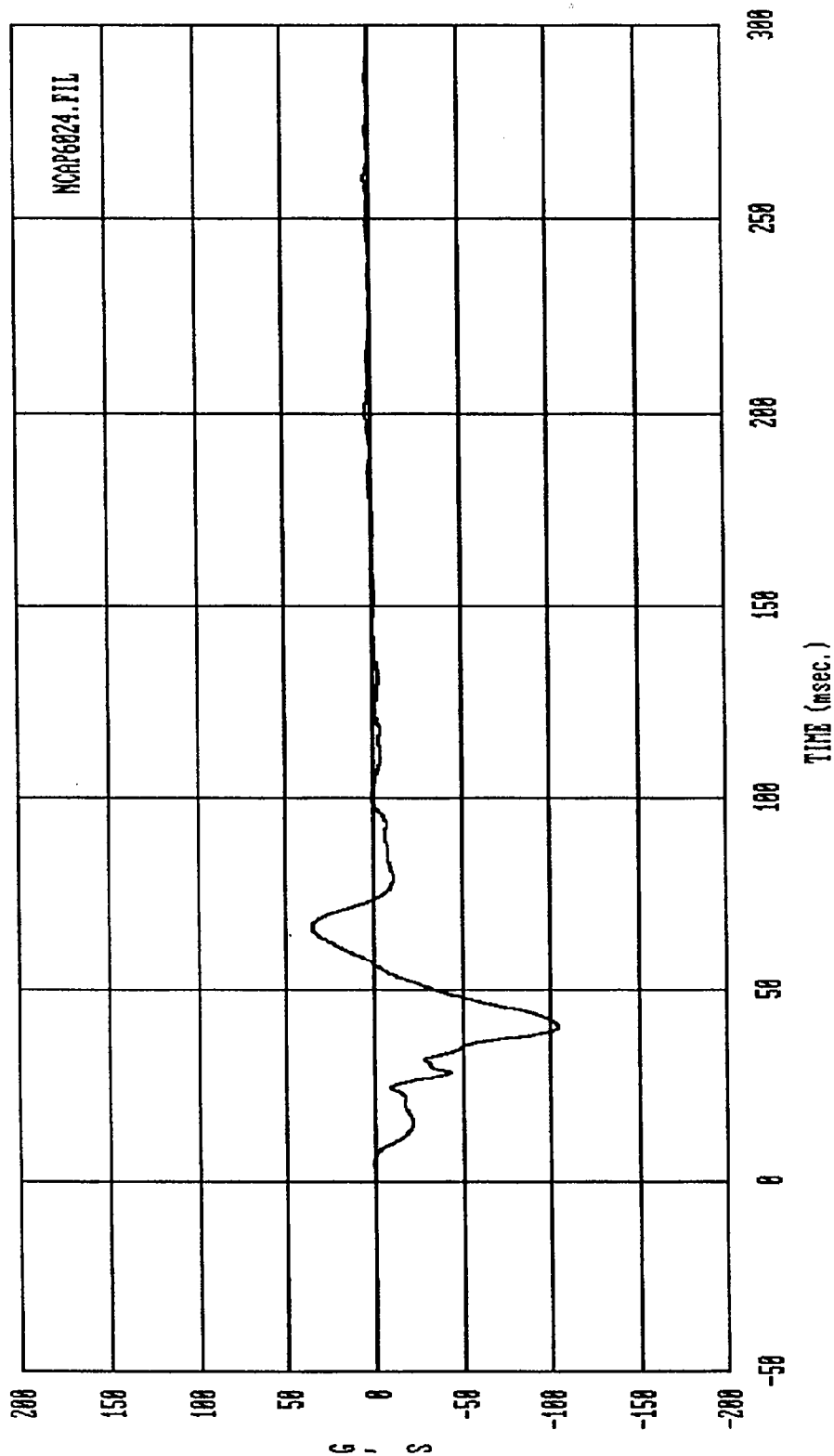


Curve: Pasngr seat belt elongation (Percent stretch) Filter: SAE CLASS 60 Max = .13269 Min = .668300-01
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



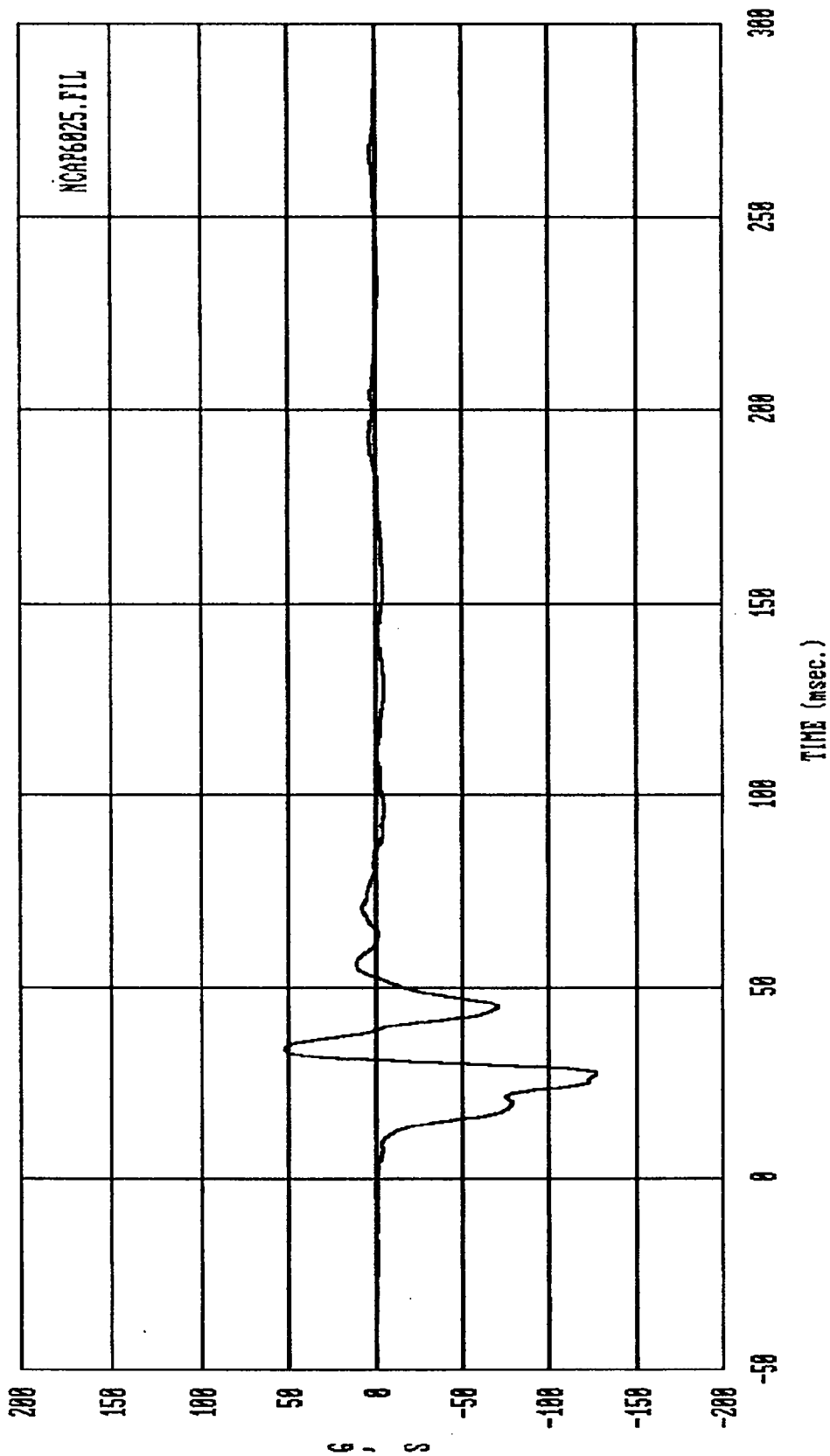
Curve: Left front brake caliper acceleration -- X axis Filter: SAE CLASS 60 Max = 39.556 Min = -96.241

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



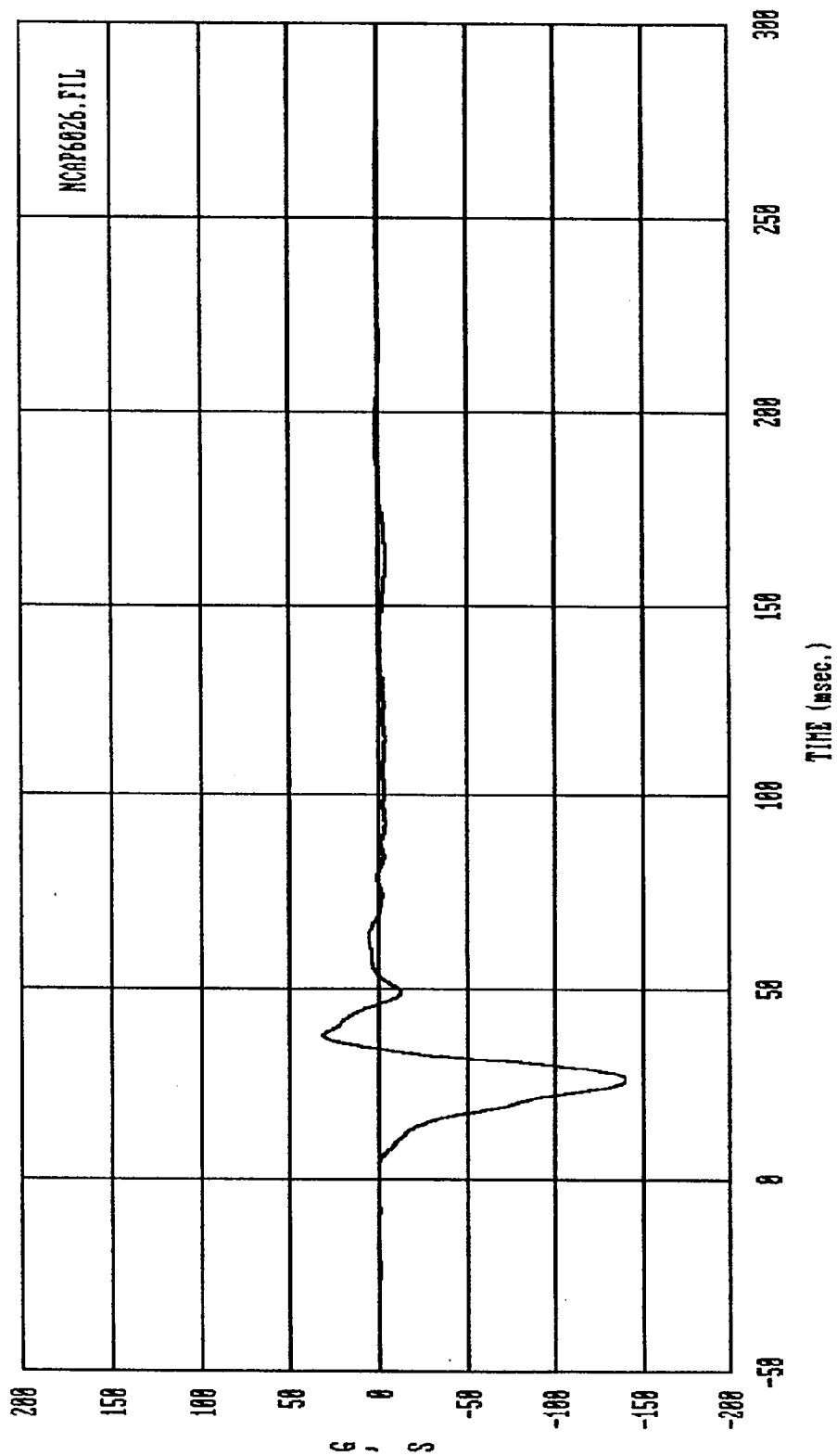
Curve: Right front brake caliper accel. -- X axis Filter: SAE CLASS 60 Max = 35.664 Min = -104.75

MSE Date: 01/25/90 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Axxess

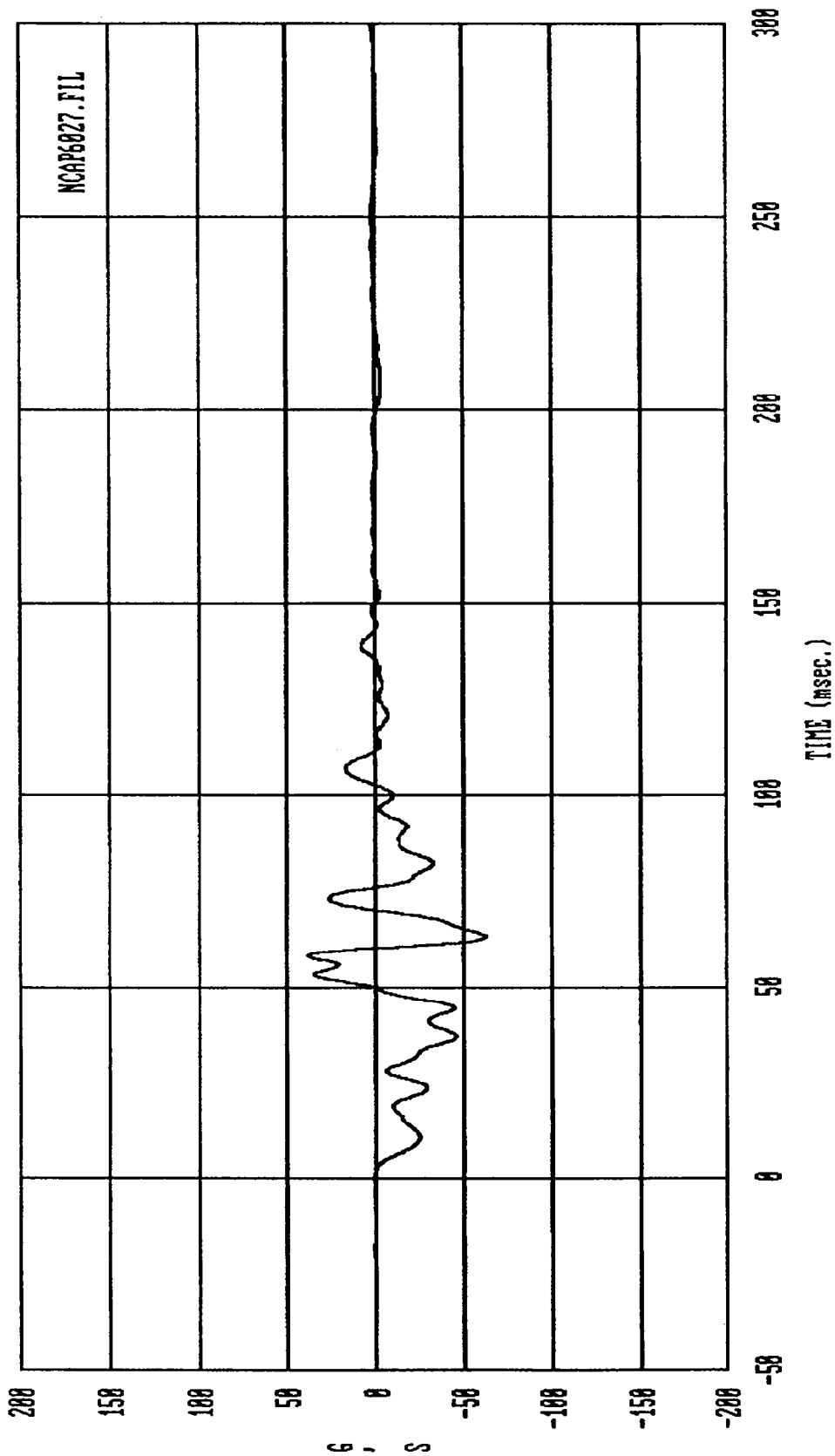


Curve: Engine bottom acceleration -- X axis Filter: SAE CLASS 60 Max = 52.878 Min = -127.30

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

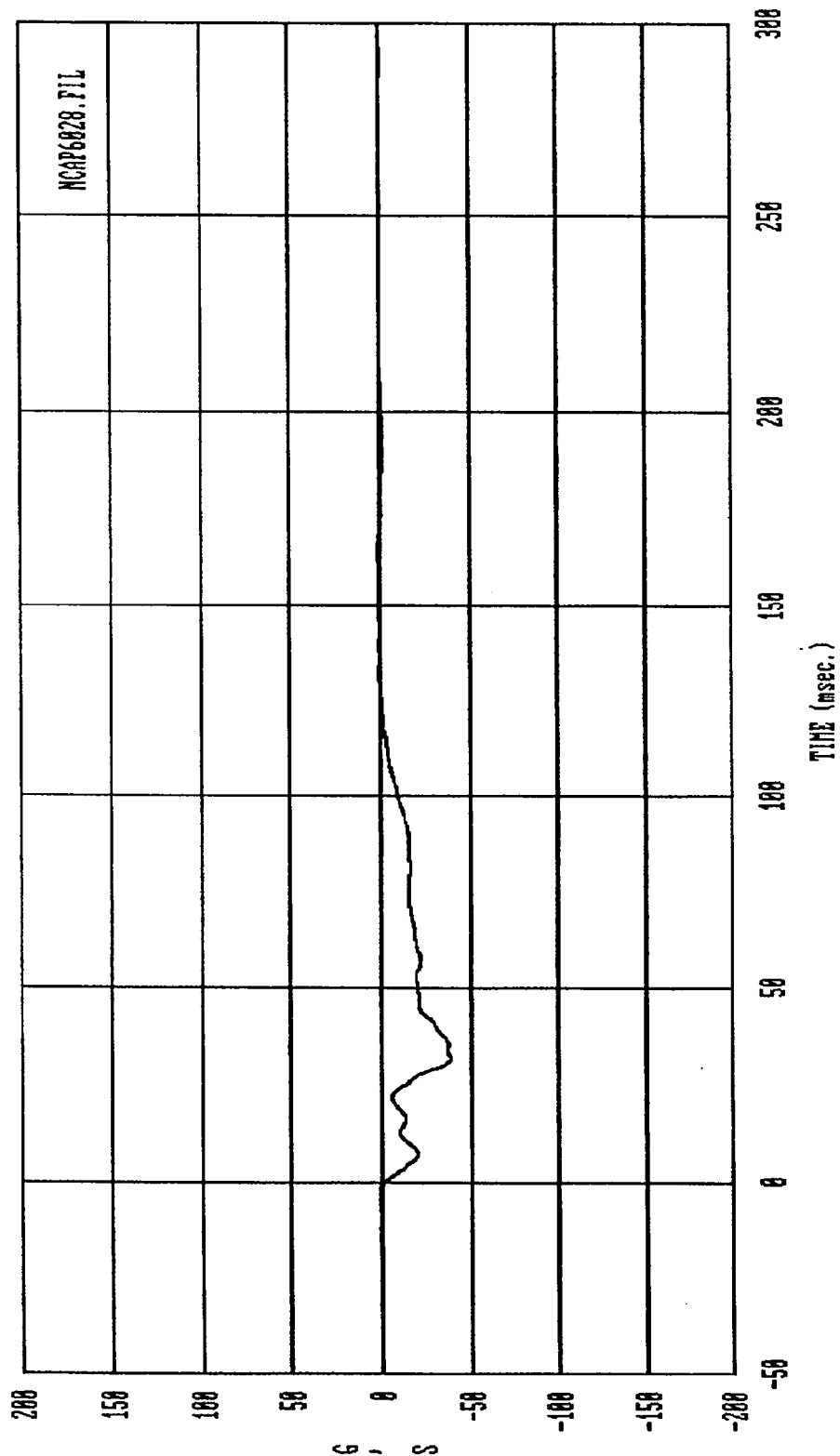


Curve: Engine top acceleration -- X axis Filter: SAE CLASS 60 Max = 31.289 Min = -140.88
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



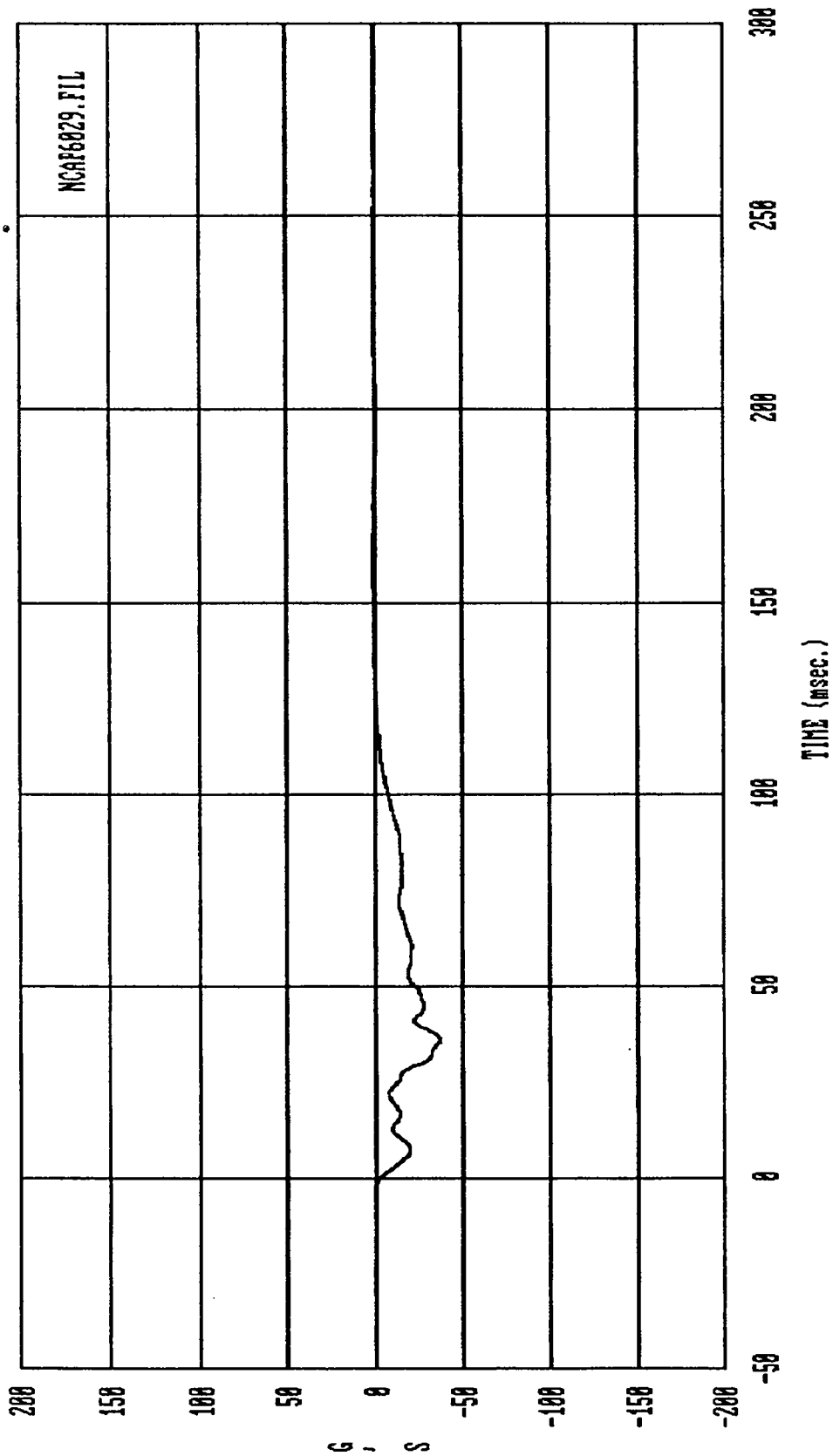
Curve: Instrument panel acceleration -- X axis Filter: SAE CLASS 60 Max = 38.265 Min = -62.517

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



Curve: Left-rear seat cross-member accel. — X axis Filter: SAE CLASS 60 Max = 1.4993 Min = -38.554

MSE Date: 8/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



Curve: Right-rear seat cross member accel. -- X axis Filter: SAE CLASS 60 Max = 1.8058 Min = -36.837

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

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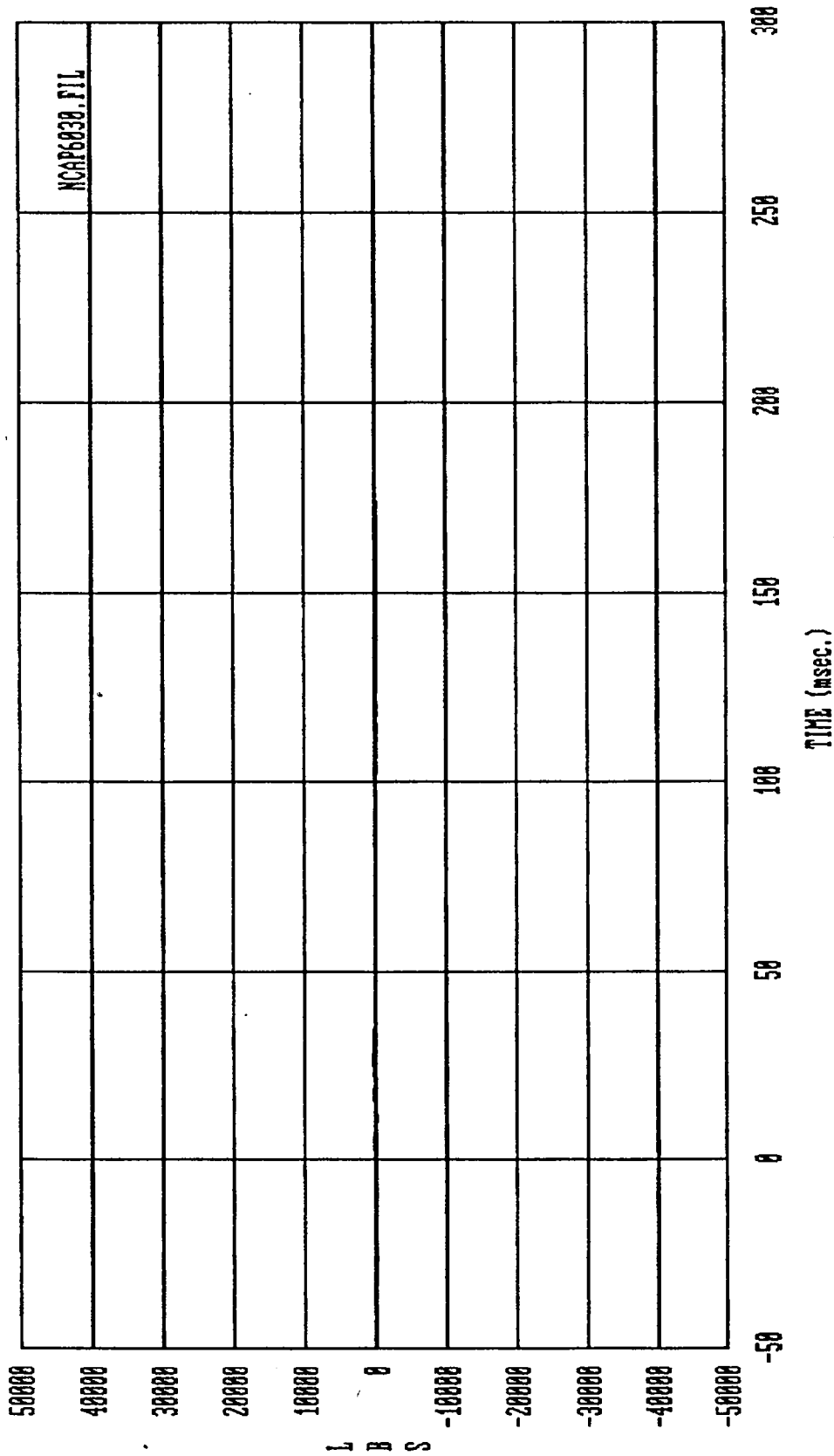
APPENDIX B-2

LOAD CELL BARRIER DATA

DATA FILTERING:

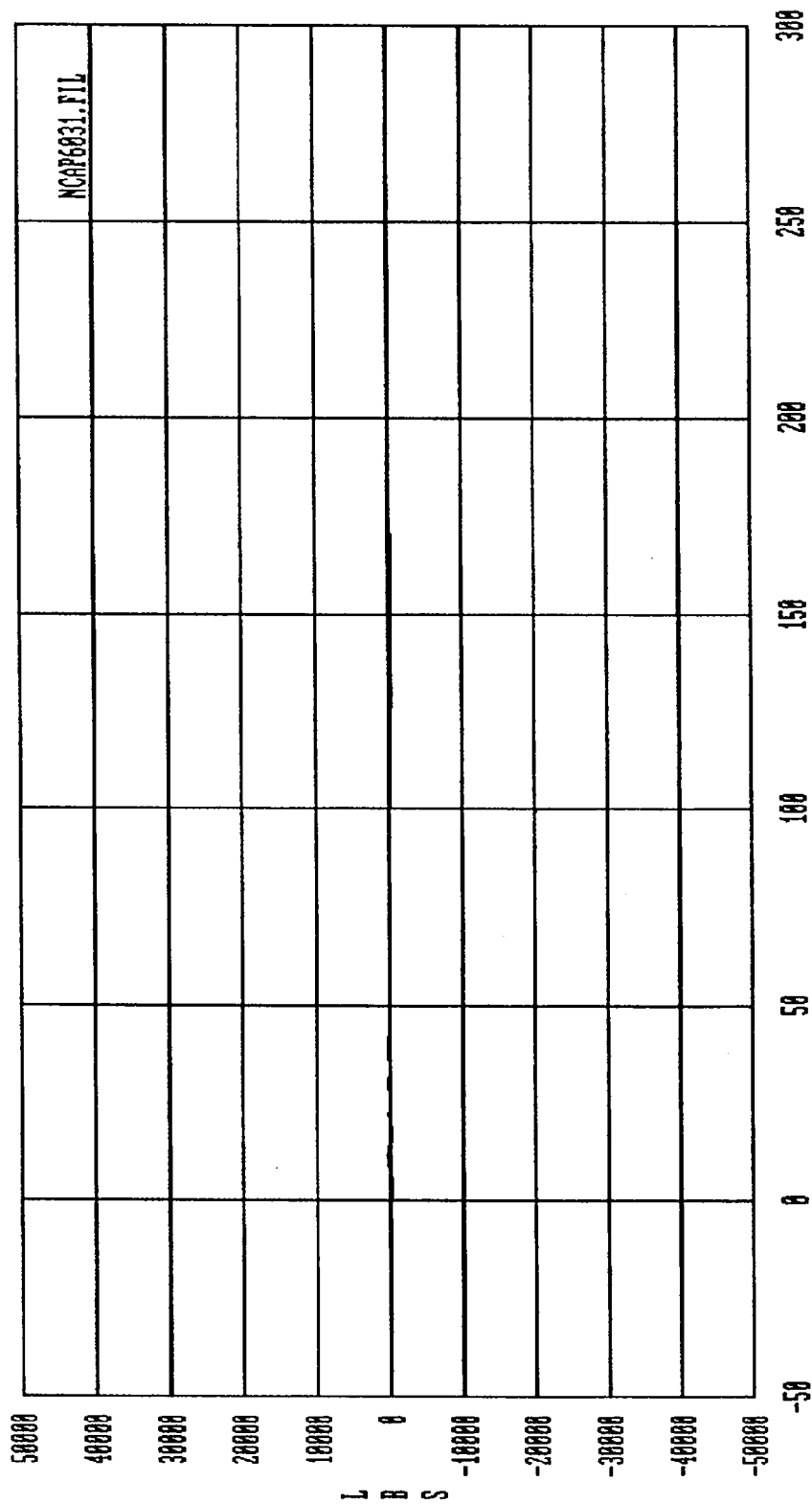
Load Cell Barrier Channels - Class 60

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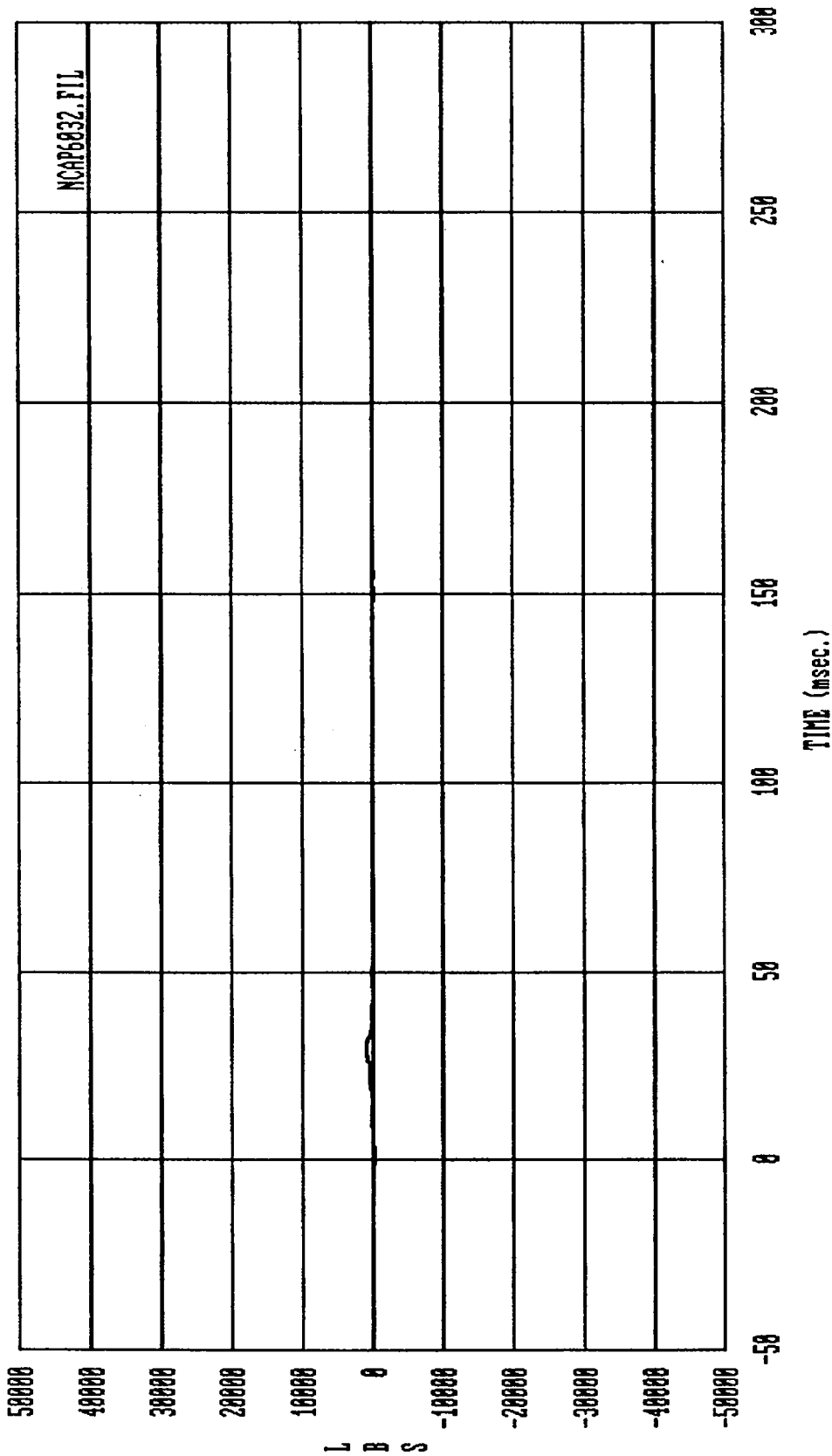
Curve: Force on Barrier load cell A1 Filter: SAE CLASS 60 Max = 348.44 Min = -195.66

MSE Date: 01/25/90 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Axxess



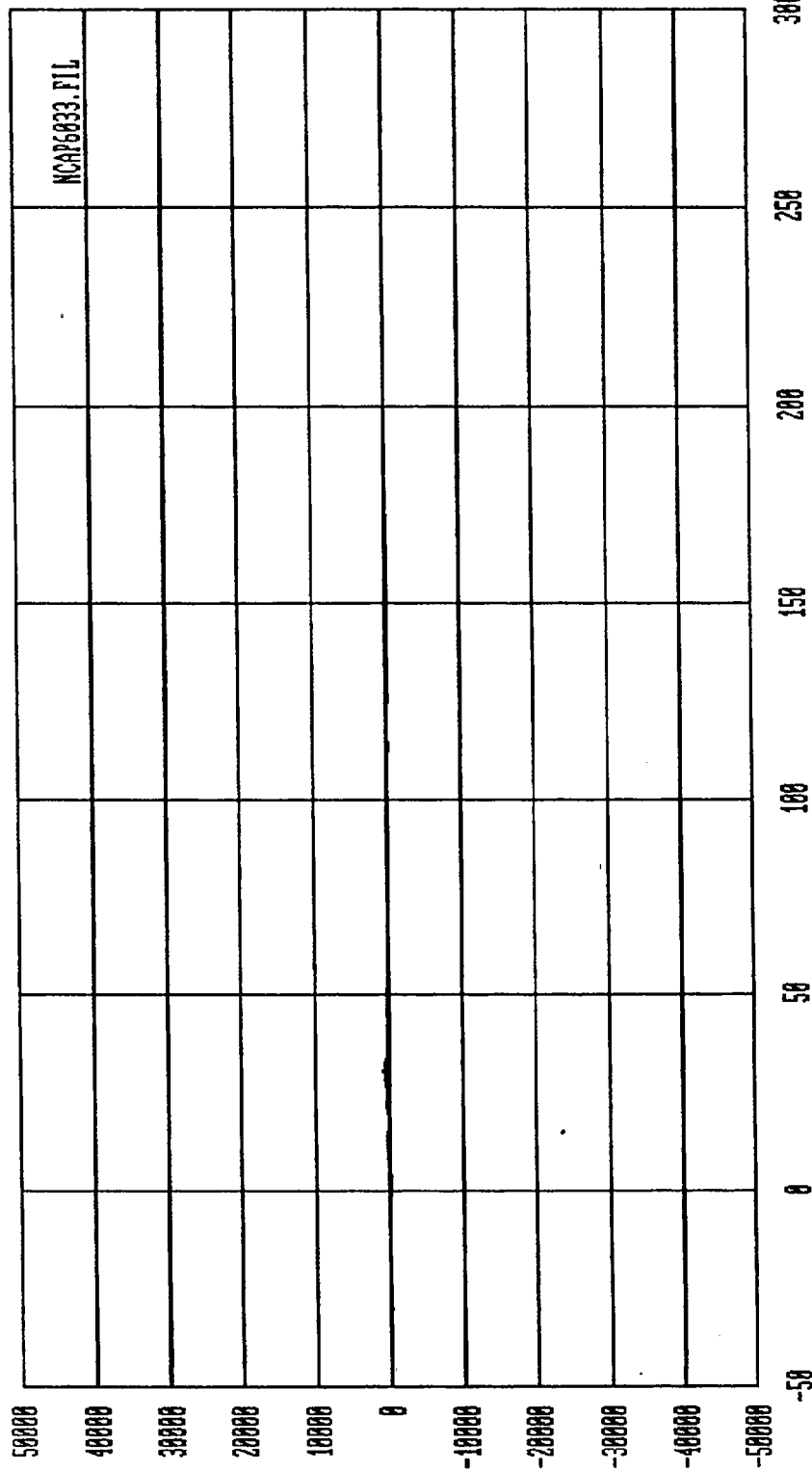
L
B
S

Curve: Force on Barrier load cell A2
 Filter: SAE CLASS 60
 Max = 322.45
 Min = -381.74
 MSE Date: 81/25/98
 Program: 1990 New Car Assessment
 Vehicle: 1990 Nissan Axxess



Curve: Force on Barrier load cell #3 Filter: SAE CLASS 60 Max = 1895.3 Min = -203.17

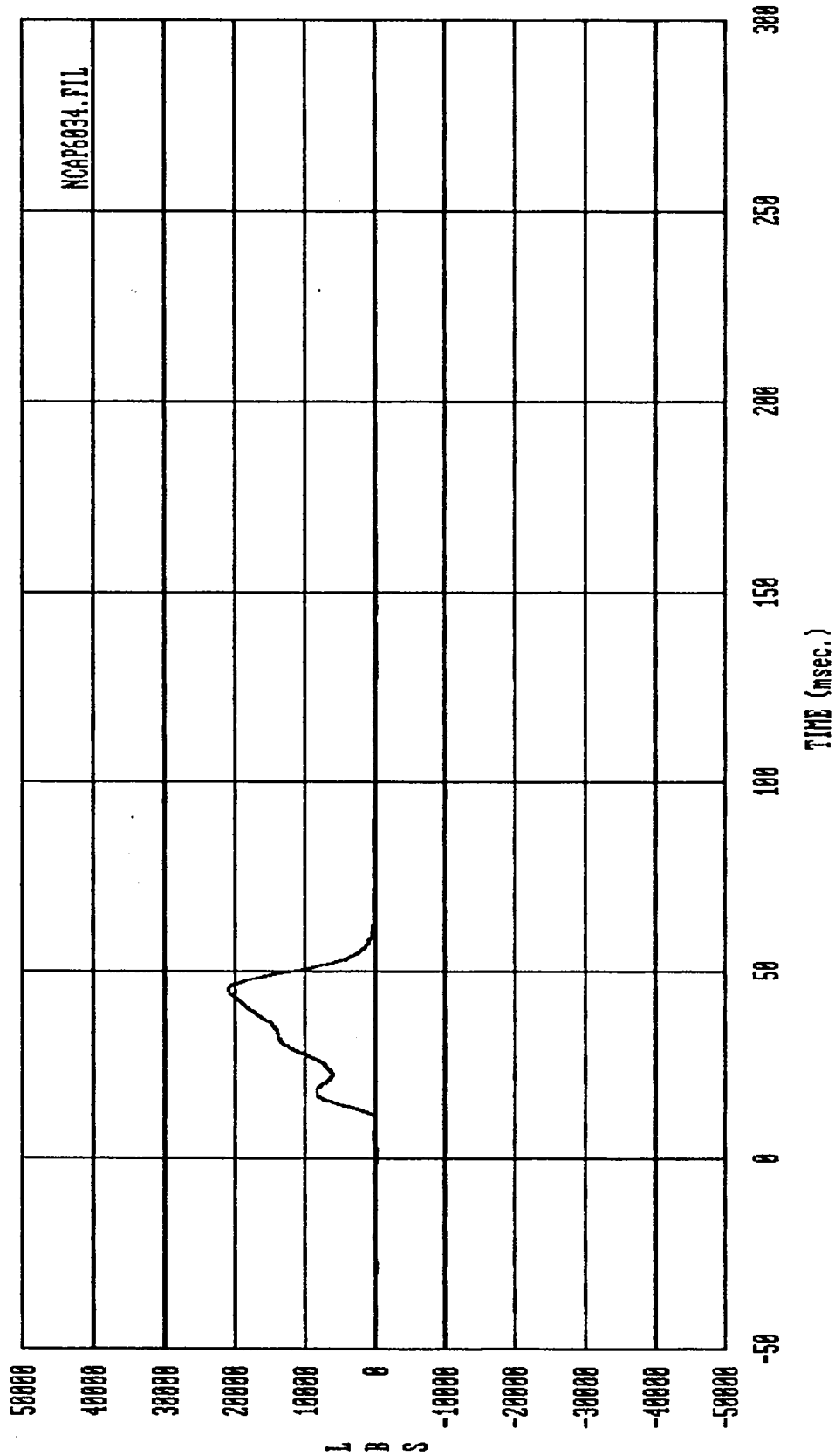
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



TIME (msec.)

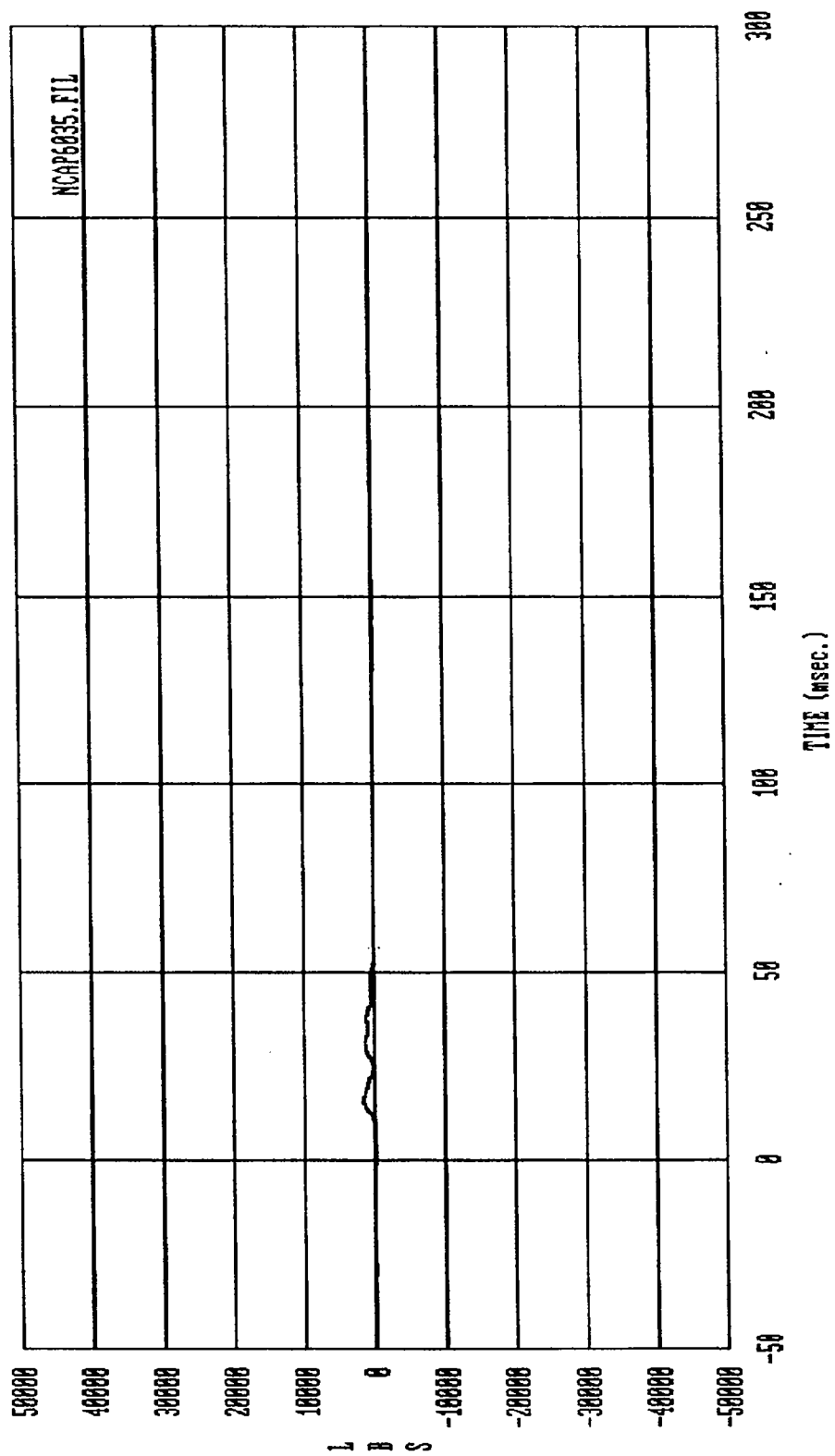
Curve: Force on Barrier load cell #4 Filter: SAE CLASS 60 Max = 706.40 Min = -222.10

HSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

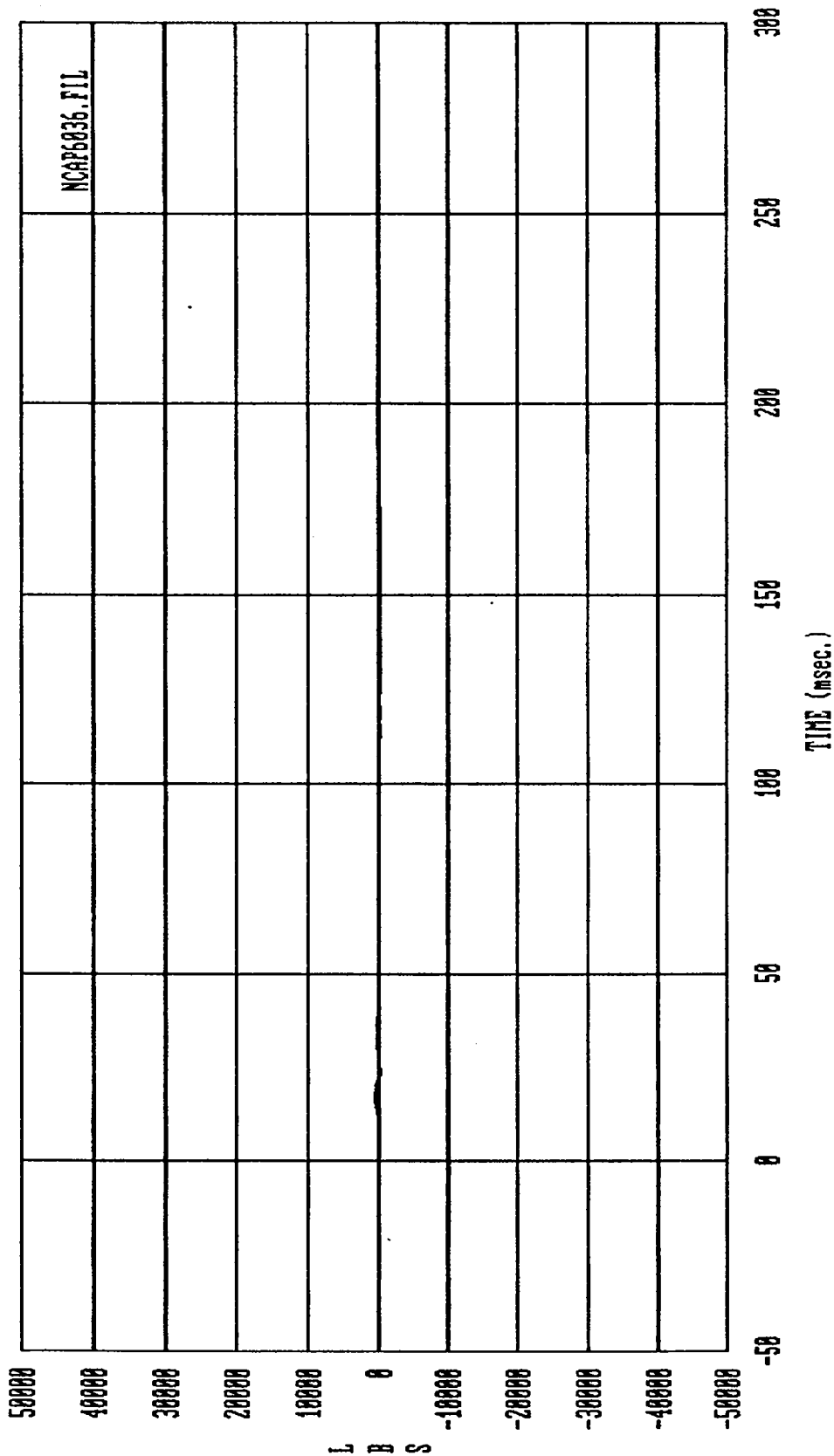


Curve: Force on Barrier load cell A5 Filter: SAE CLASS 60 Max = 20956. Min = -218.10

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

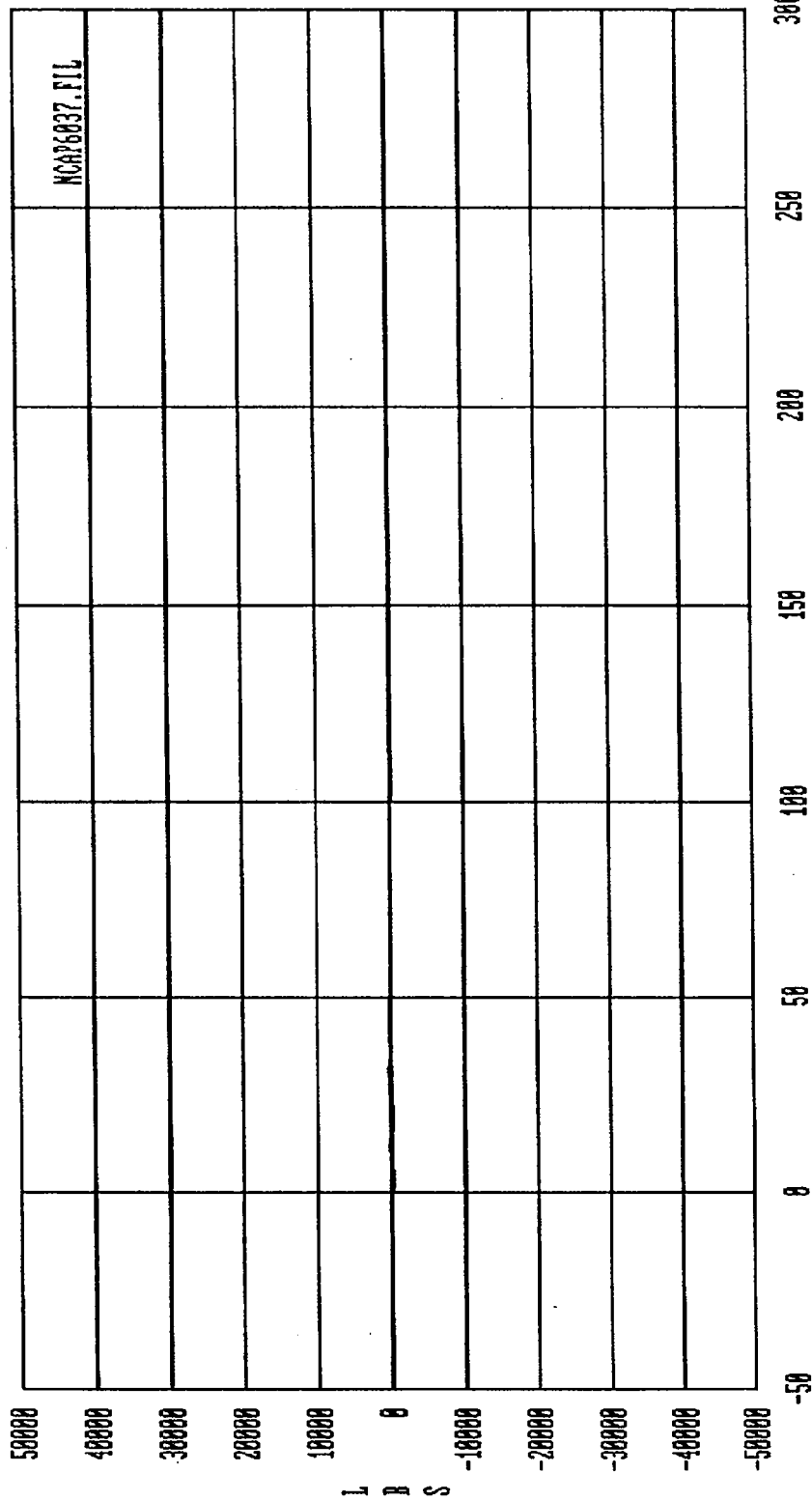


Curve: Force on Barrier load cell A6 Filter: SHE CLASS 60 Max = 1660.7 Min = -204.40
 MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



Curve: Force on Barrier load cell A7 Filter: SAE CLASS 60 Max = 631.06 Min = -214.71

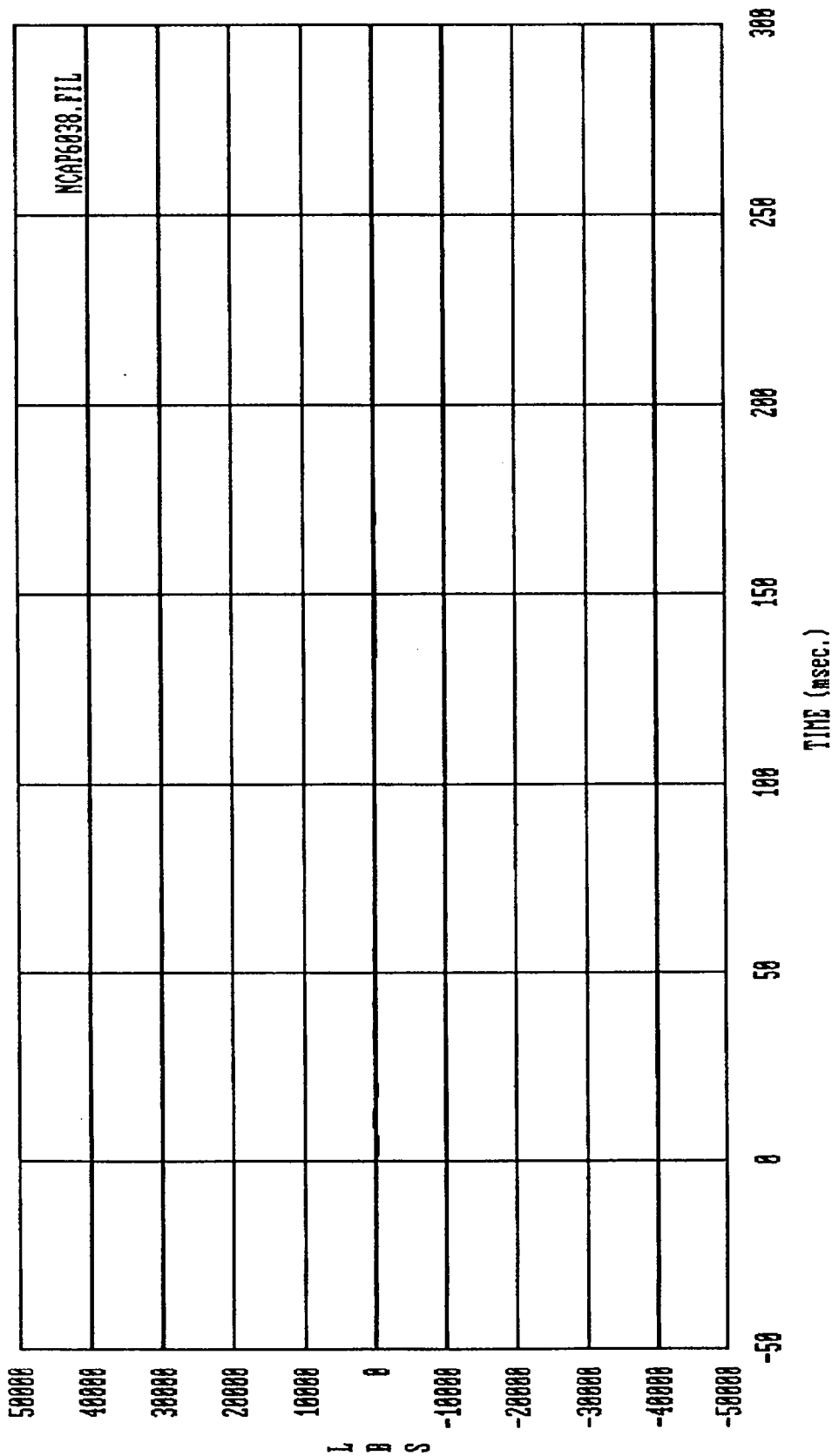
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



TIME (msec.)

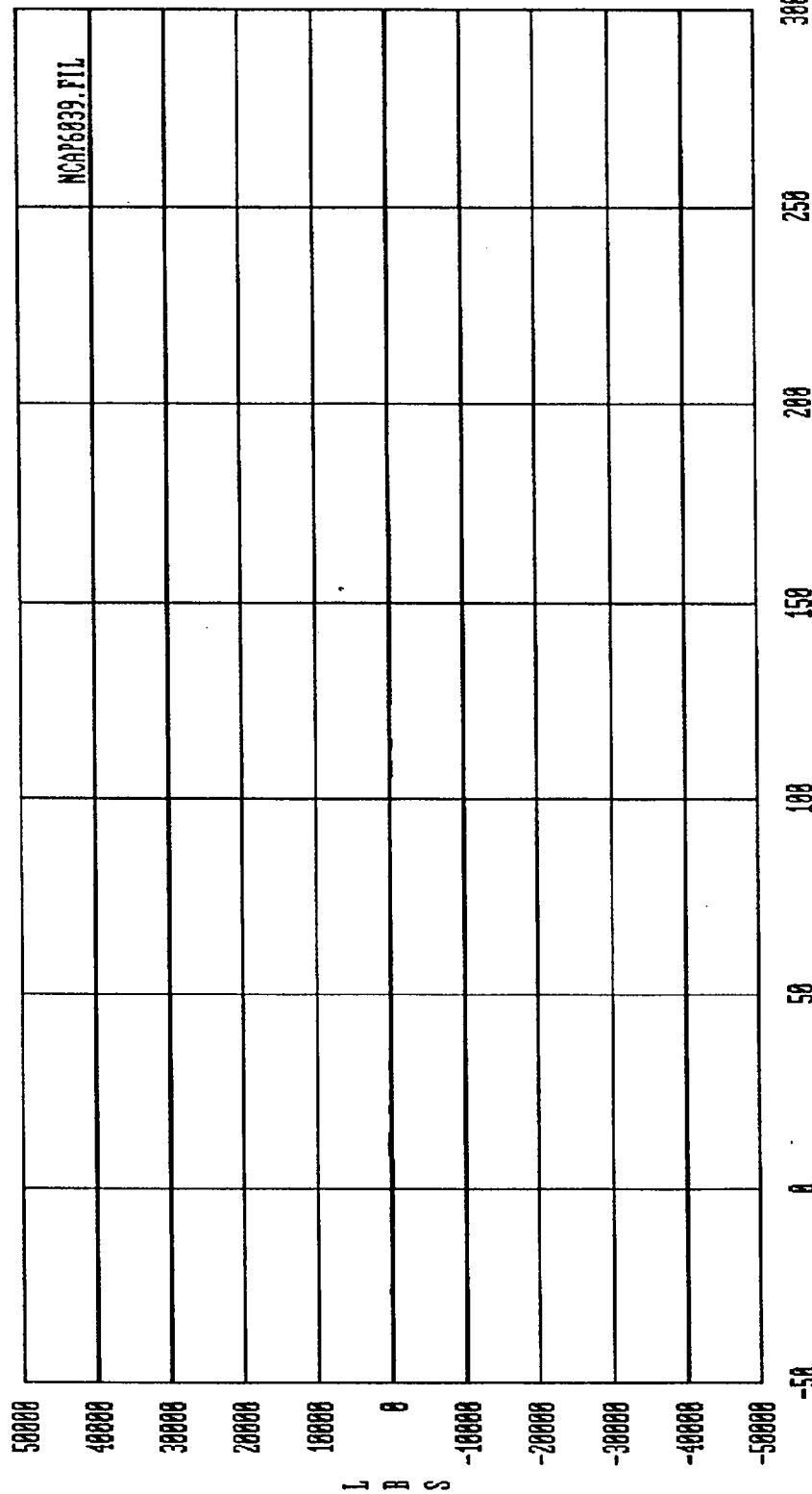
Curve: Force on Barrier load cell AB Filter: SHE CLASS 60 Max = 351.31 Min = -239.62

MSE Date: 81/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



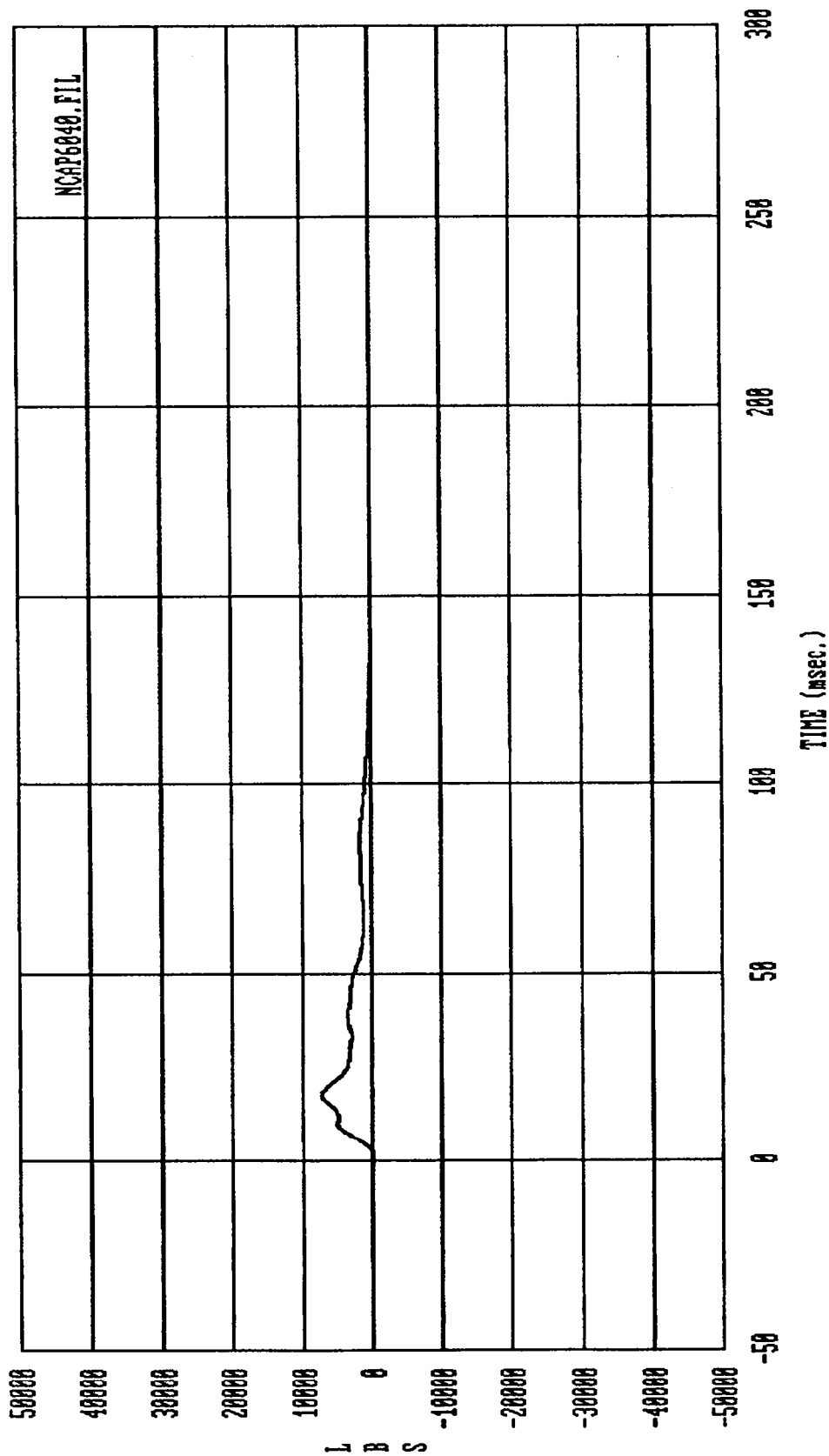
Curve: Force on Barrier load cell A9 Filter: SAE CLASS 60 Max = 165.87 Min = -187.81

MSE Date: 01/25/90 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Axxess



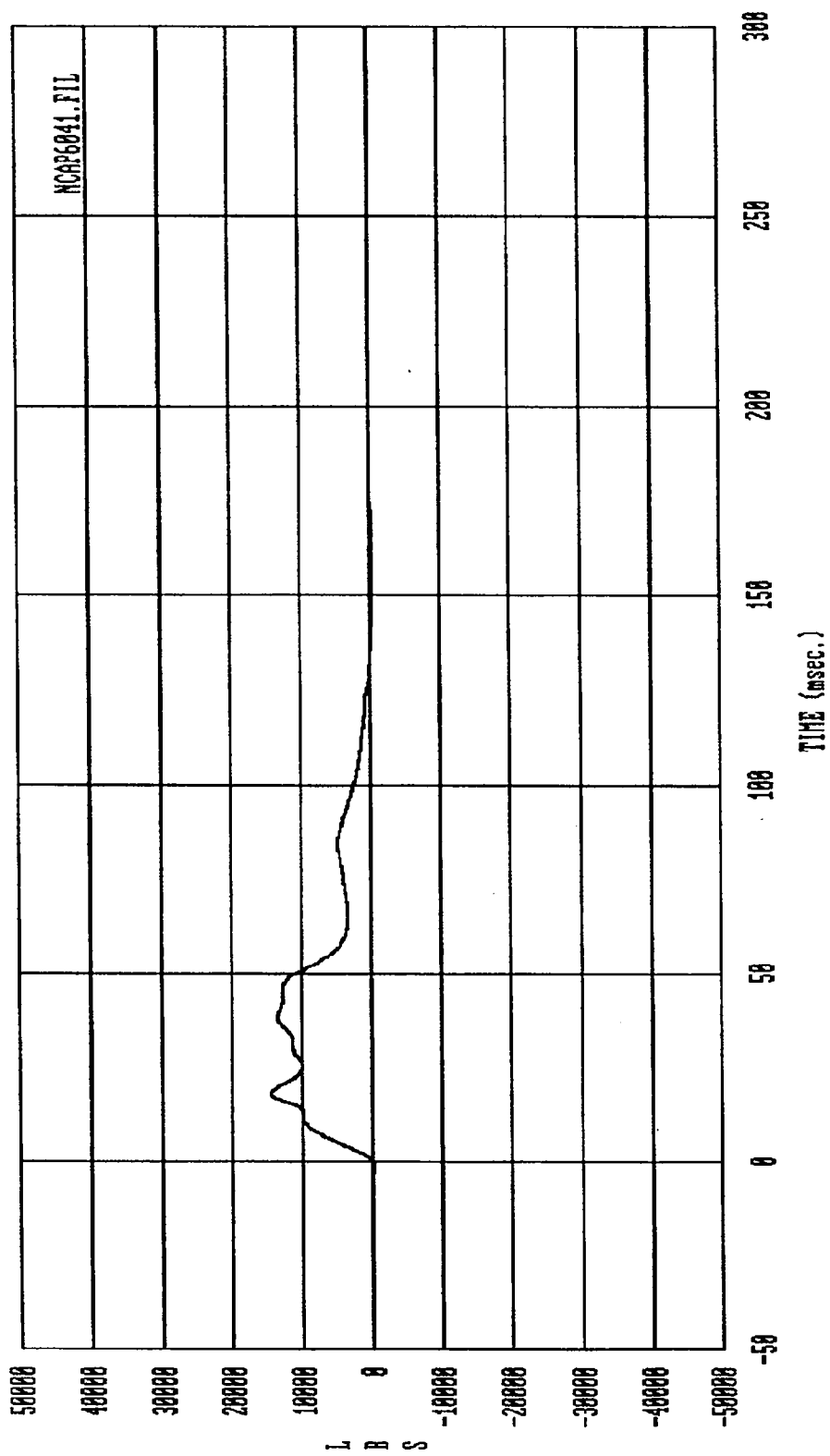
L
B
S

Curve: Force on Barrier load cell BL Filter: SAE CLASS 60 Max = 332.65 Min = -248.41
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

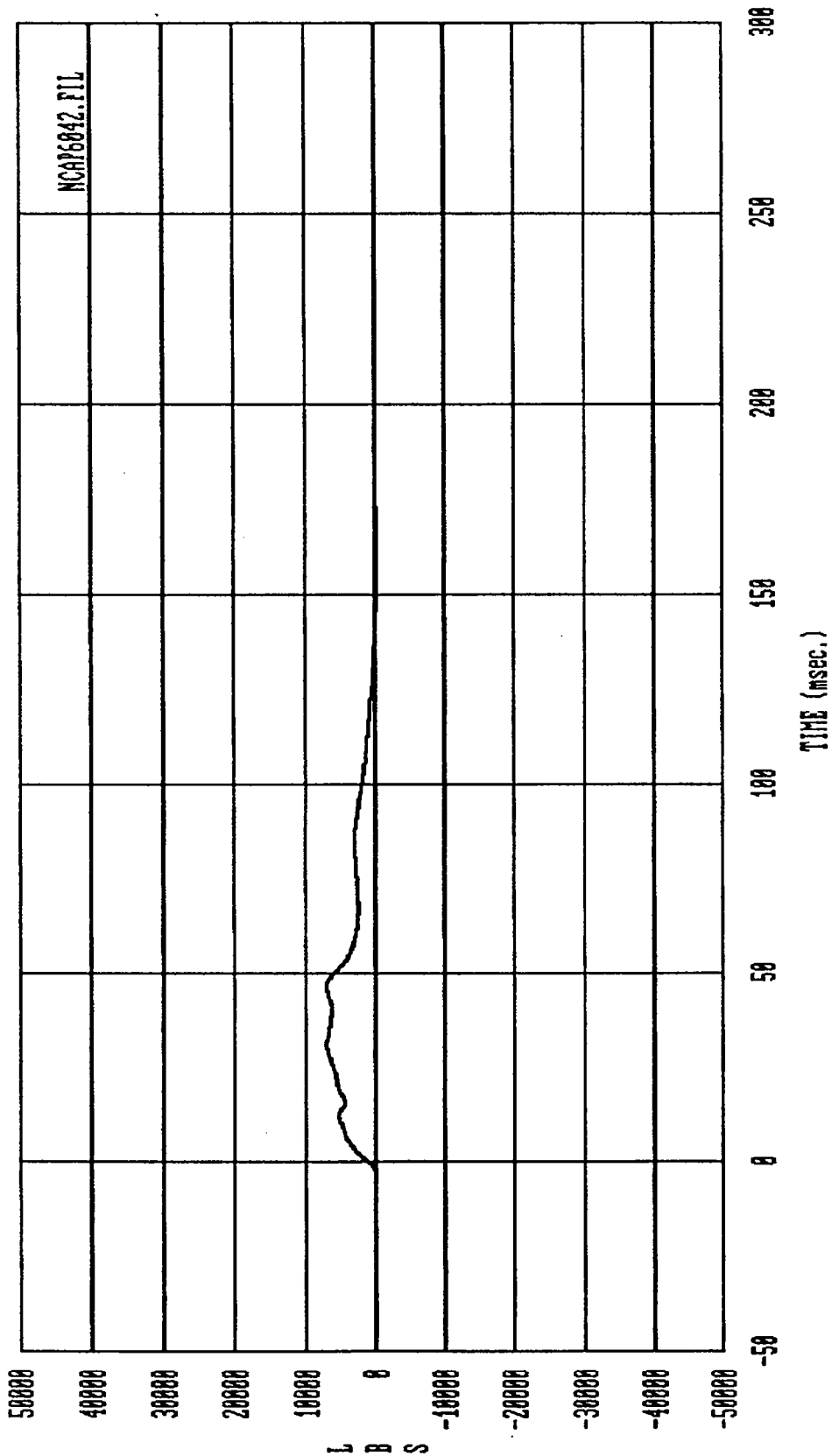


Curve: Force on Barrier load cell B2 Filter: SAE CLASS 60 Max = 7349.6 Min = -218.25

MSE Date: 01/25/90 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Axxess

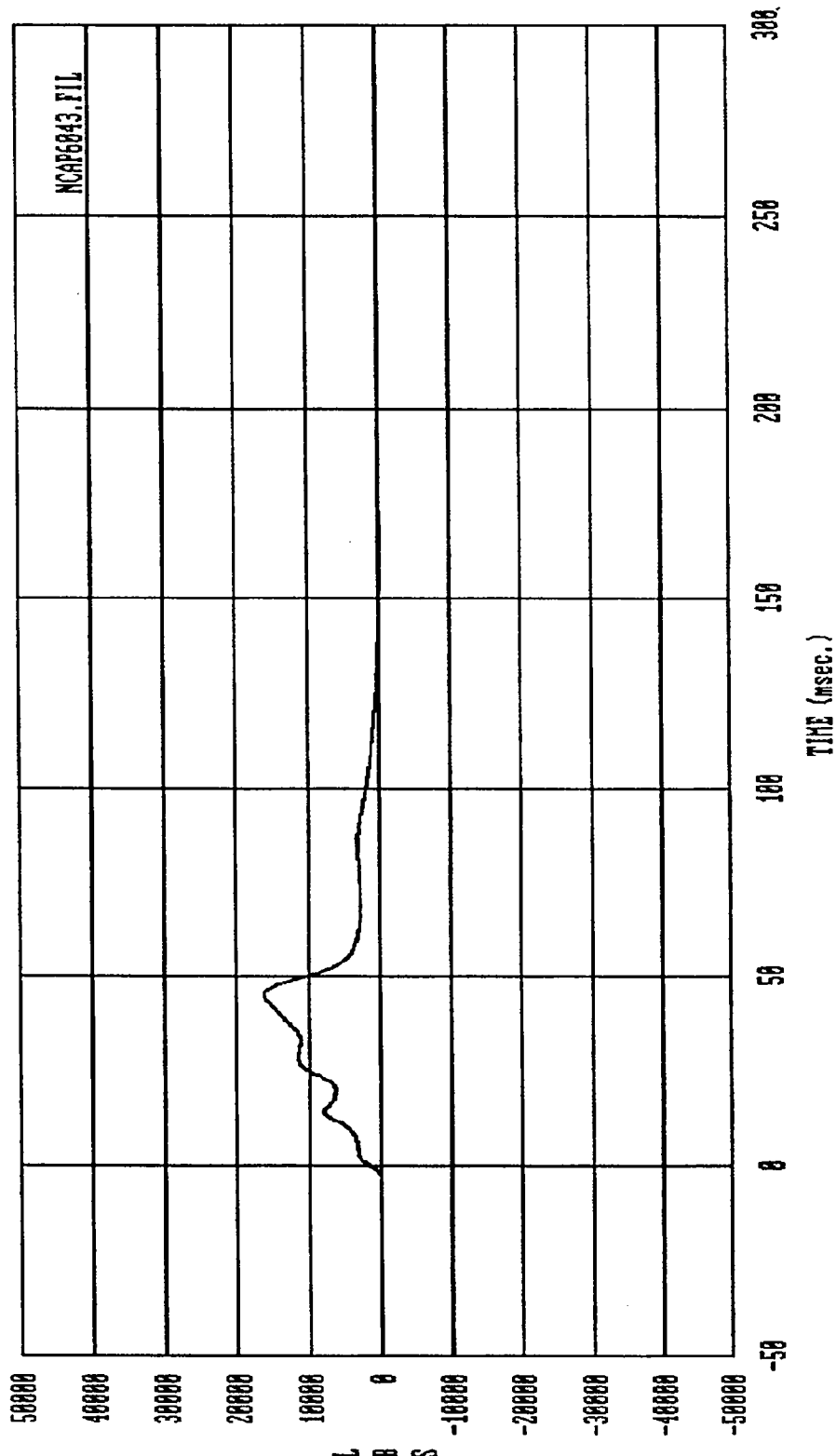


Curve: Force on Barrier load cell B3 Filter: SAE CLASS 60 Max = 14611. Min = -470.38
 MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



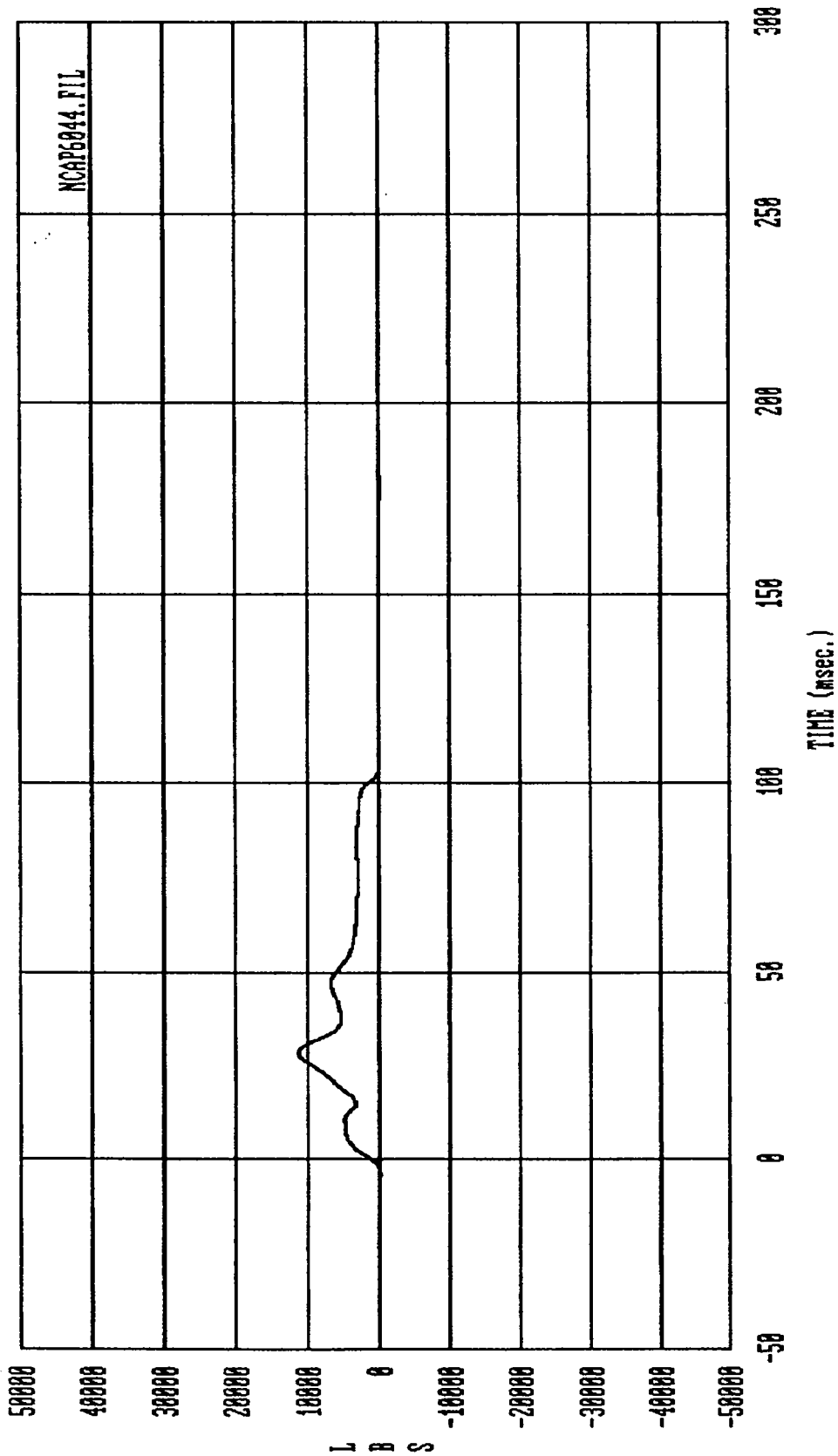
Curve: Force on Barrier load cell B4 Filter: SAE CLASS 60 Max = 7099.1 Min = -152.10

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



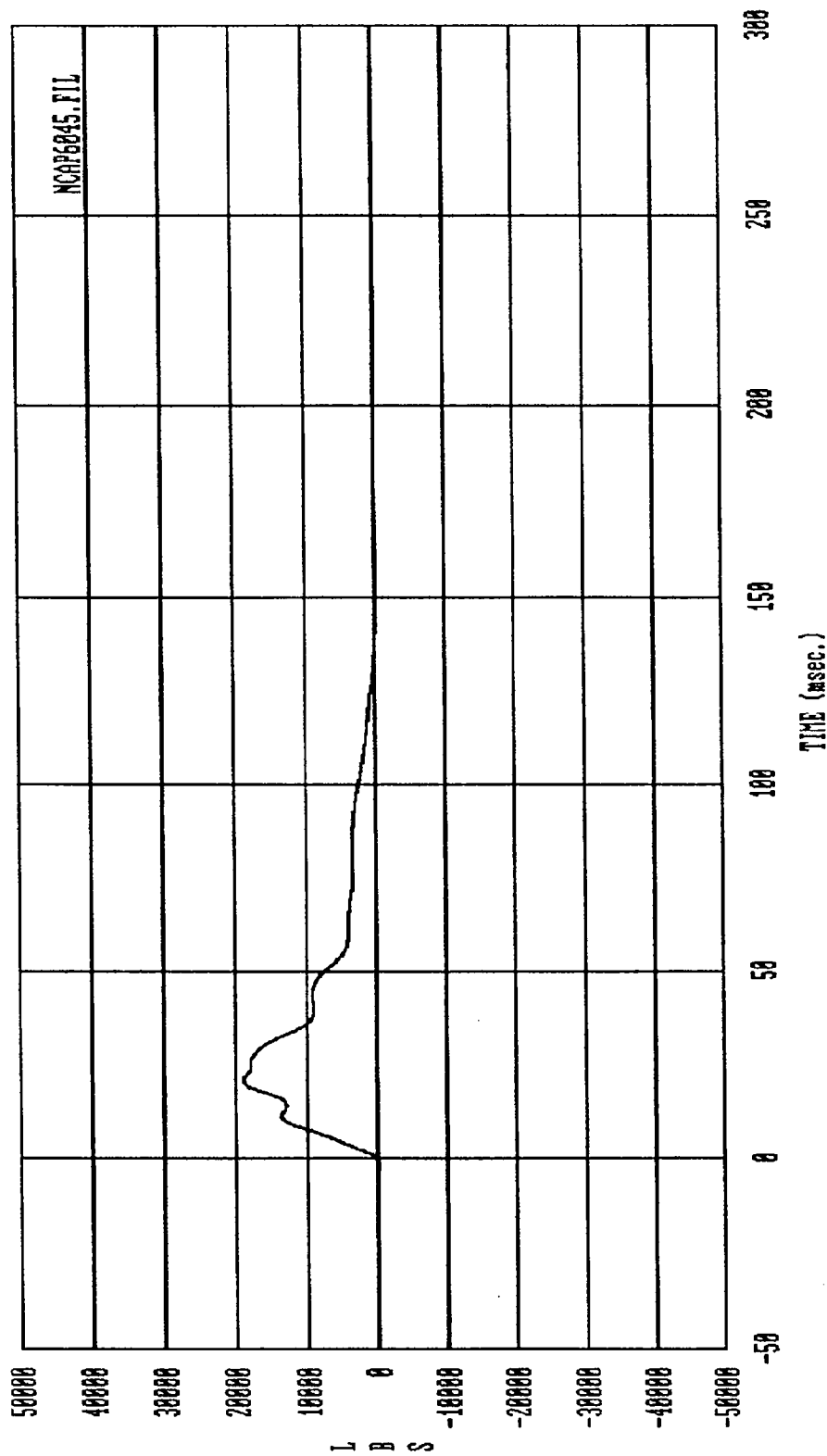
Curve: Force on Barrier load cell B5 Filter: SAE CLASS 60 Max = 16266. Min = -118.39

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

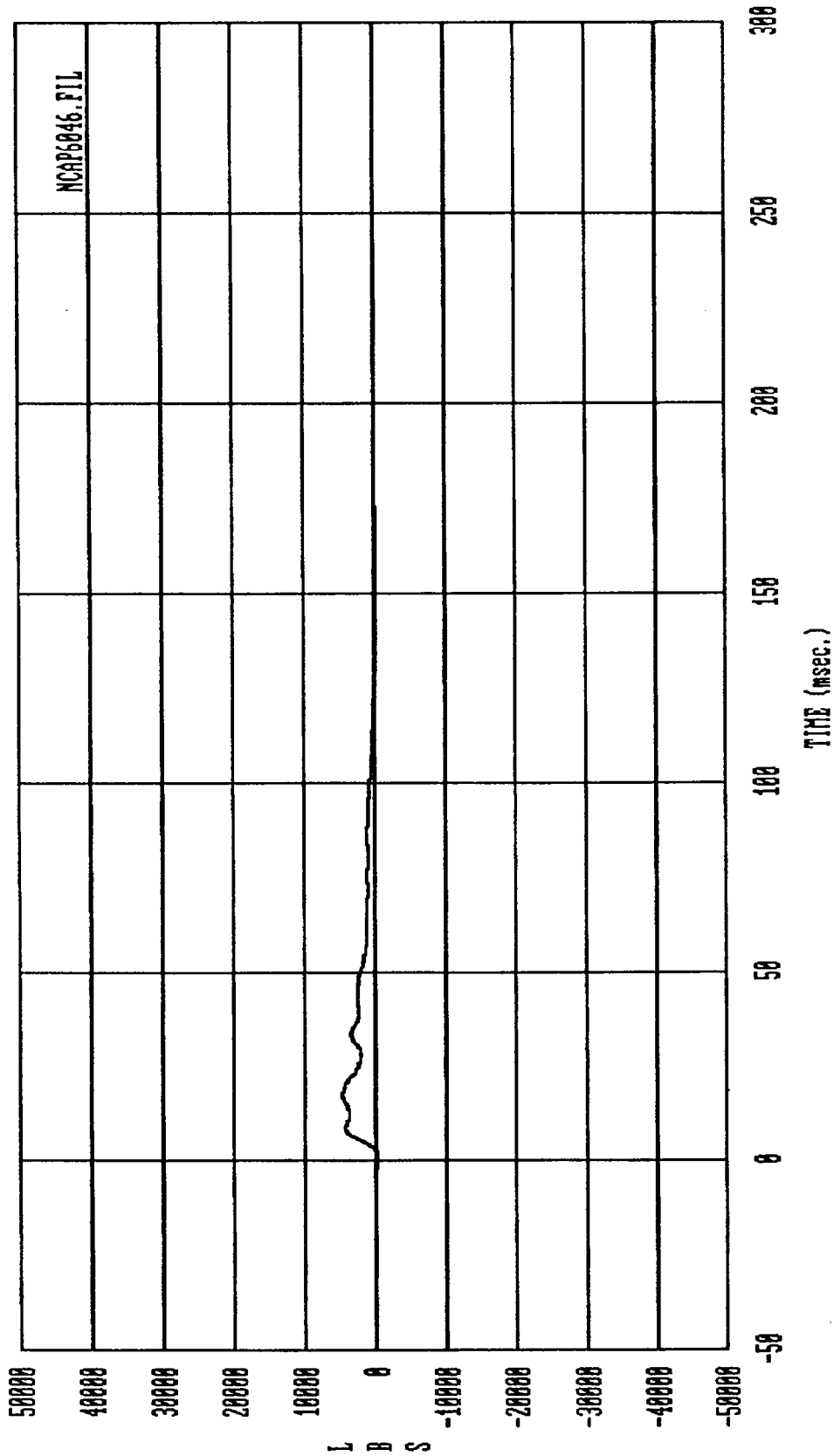


Curve: Force on Barrier load cell B6 Filter: SAE CLASS 60 Max = 11312. Min = -171.27

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

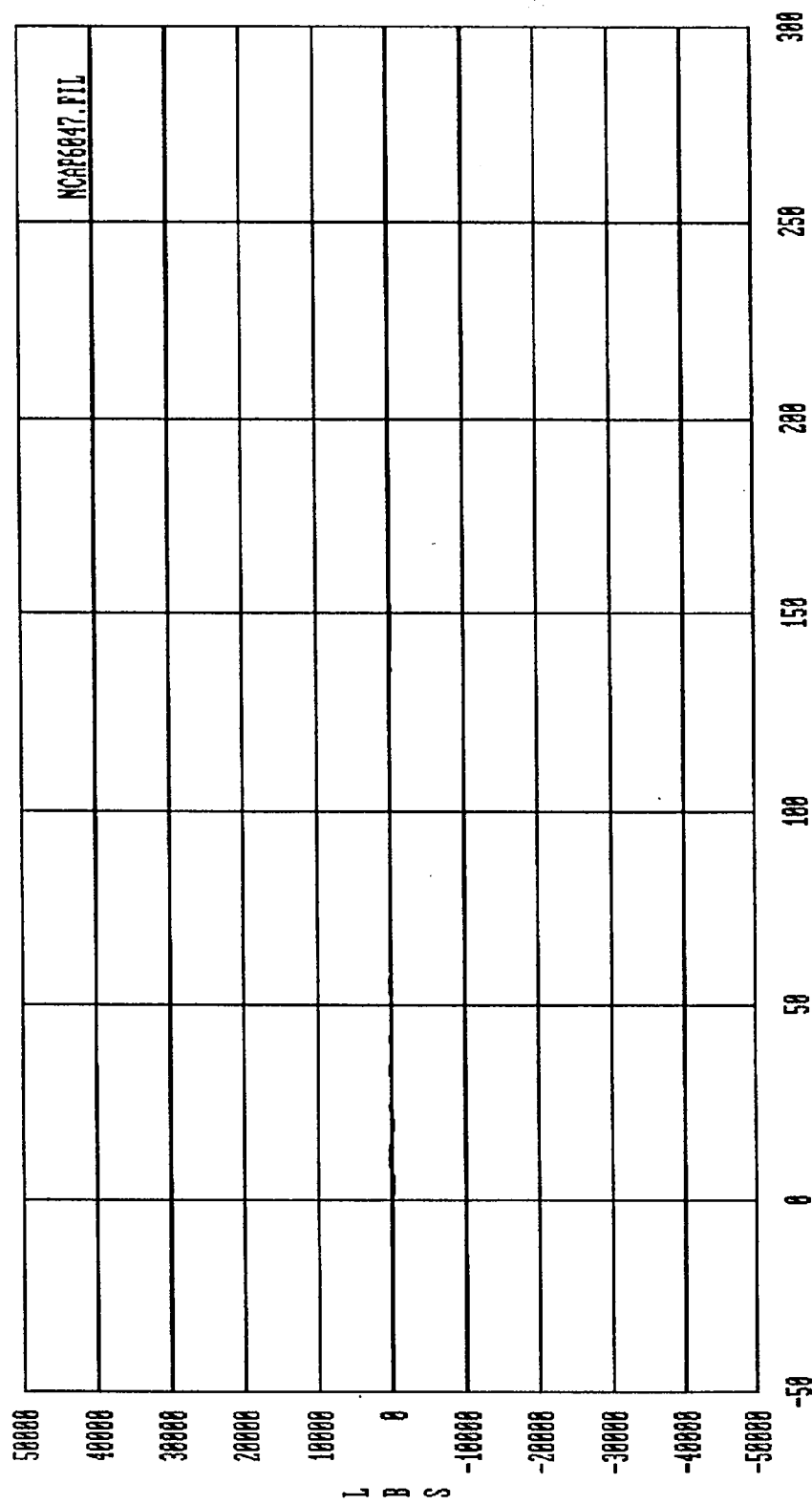


Curve: Force on Barrier load cell B7 Filter: SAE CLASS 60 Max = 18989, Min = -246,98
 MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

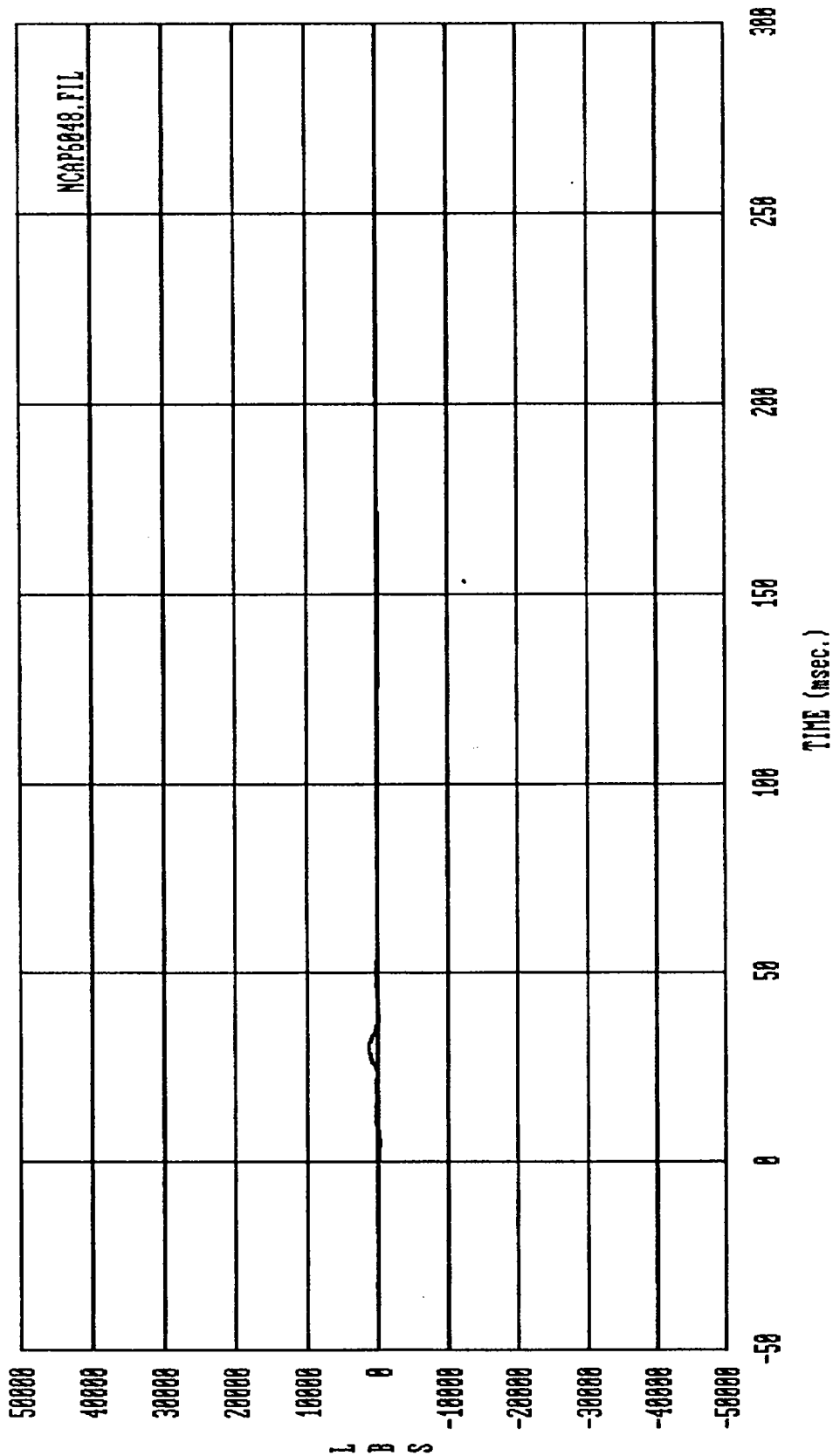


Curve: Force on Barrier load cell B8 Filter: SAE CLASS 60 Max = 4664.6 Min = -261.60

MSE Date: 01/25/90 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Axxess

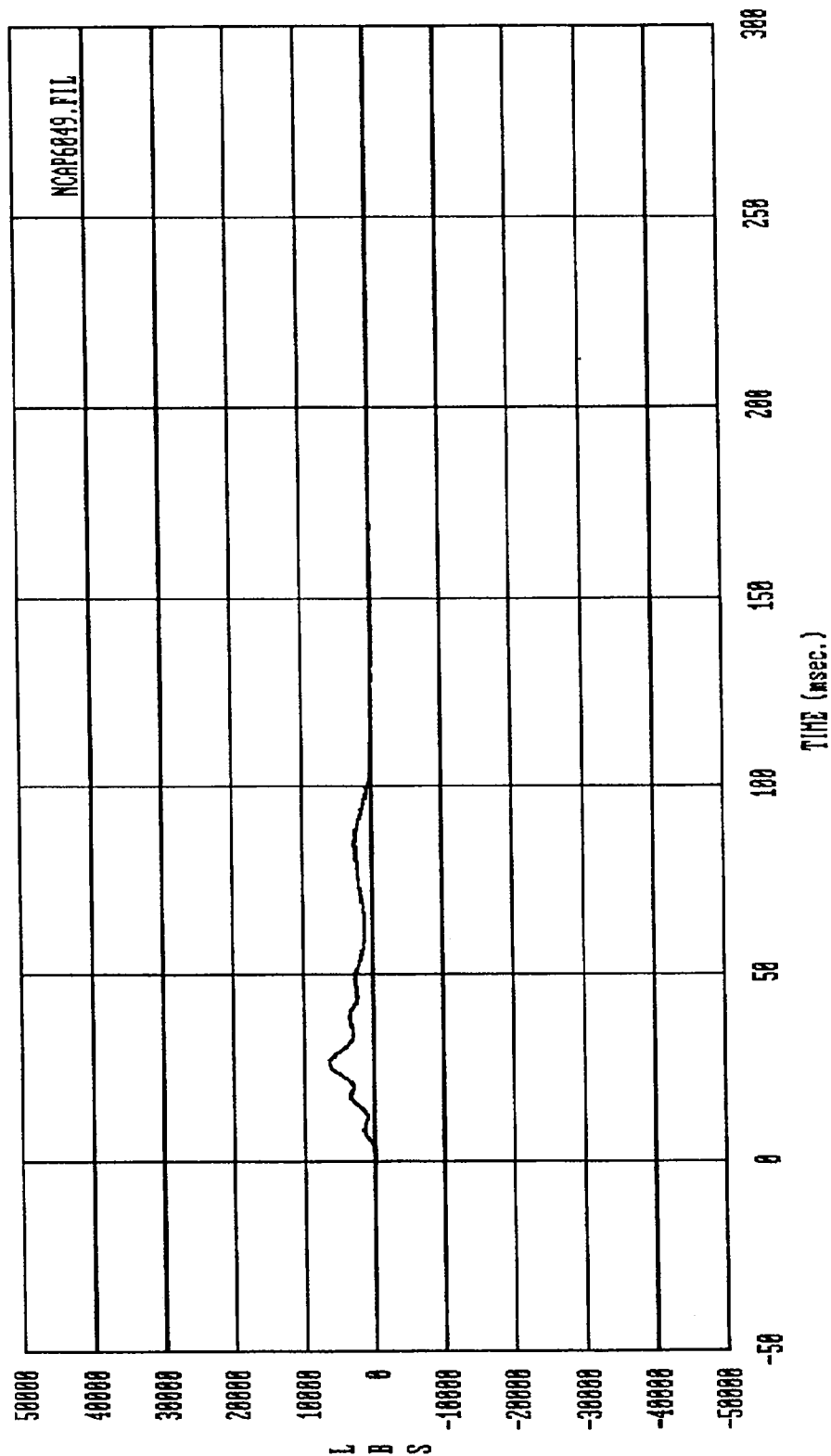


Curve: Force on Barrier load cell B9 Filter: SAE CLASS 60 Max = 171.15 Min = -173.18
 MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

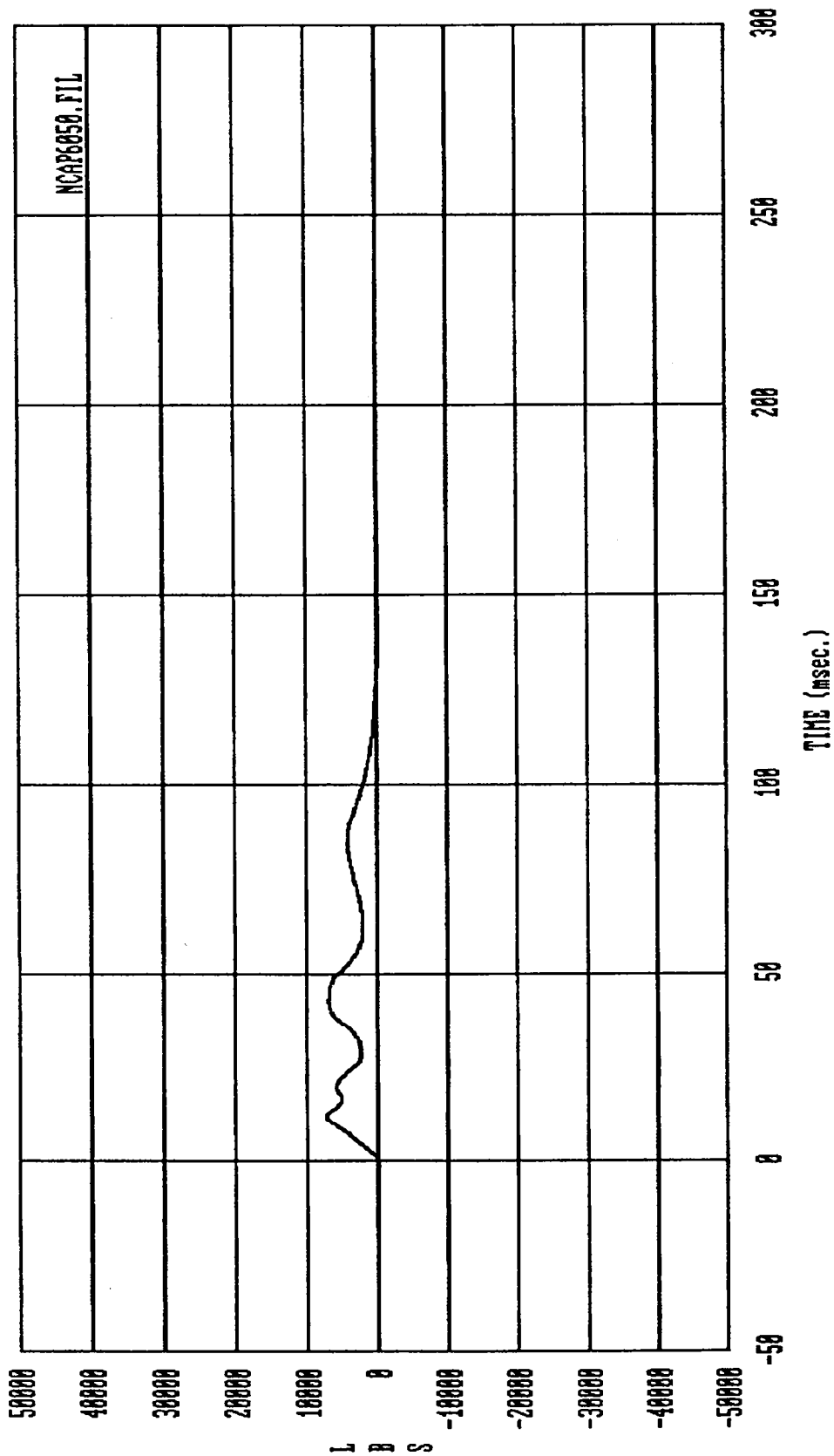


Curve: Force on Barrier load cell C1 Filter: SAE CLASS 60 Max = 1206.3 Min = -282.17

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

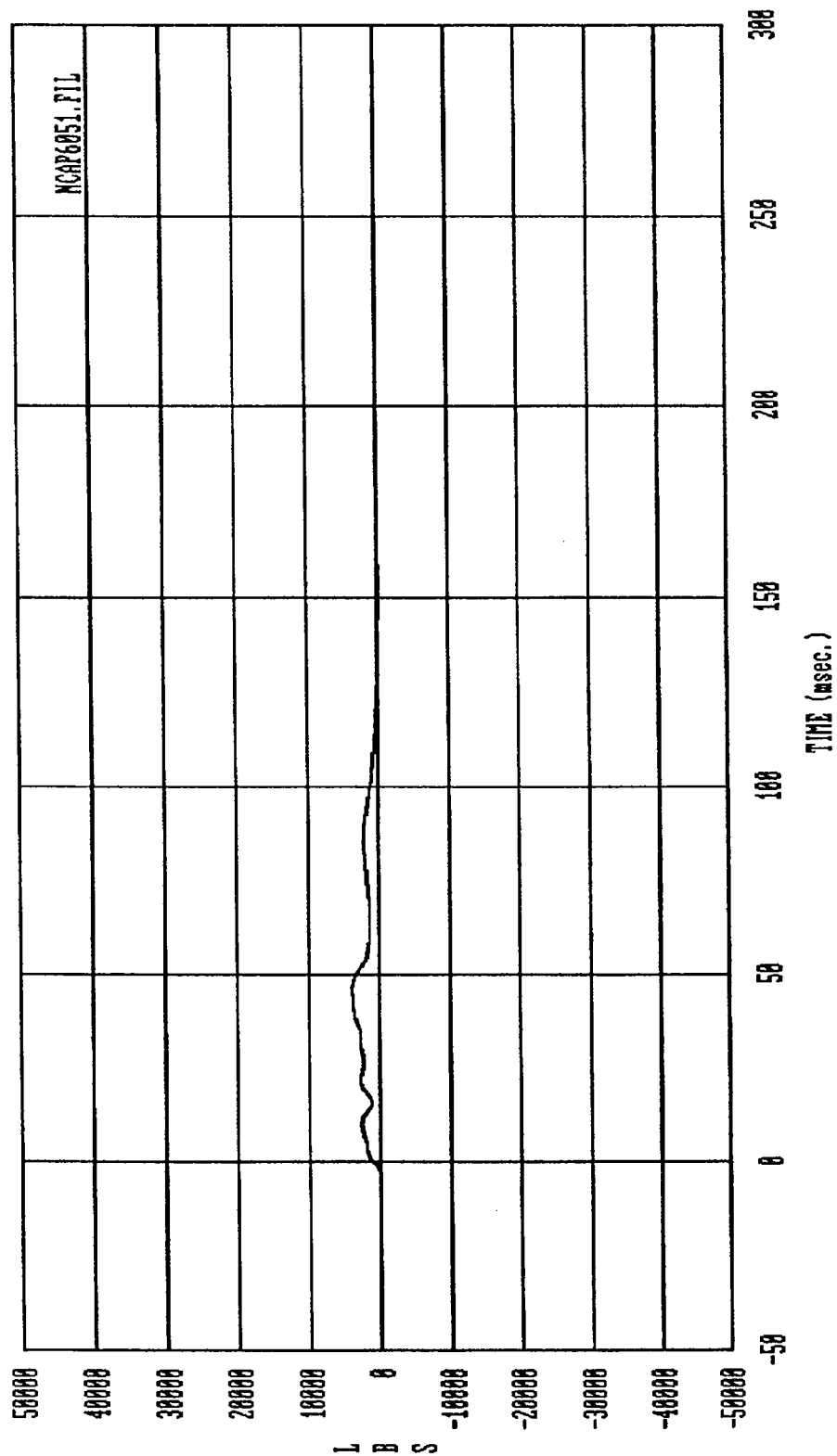


Curve: Force on Barrier load cell C2 Filter: SAE CLASS 60 Max = 6287.7 Min = -217.32
 MSE Date: 01/25/90 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Axxess

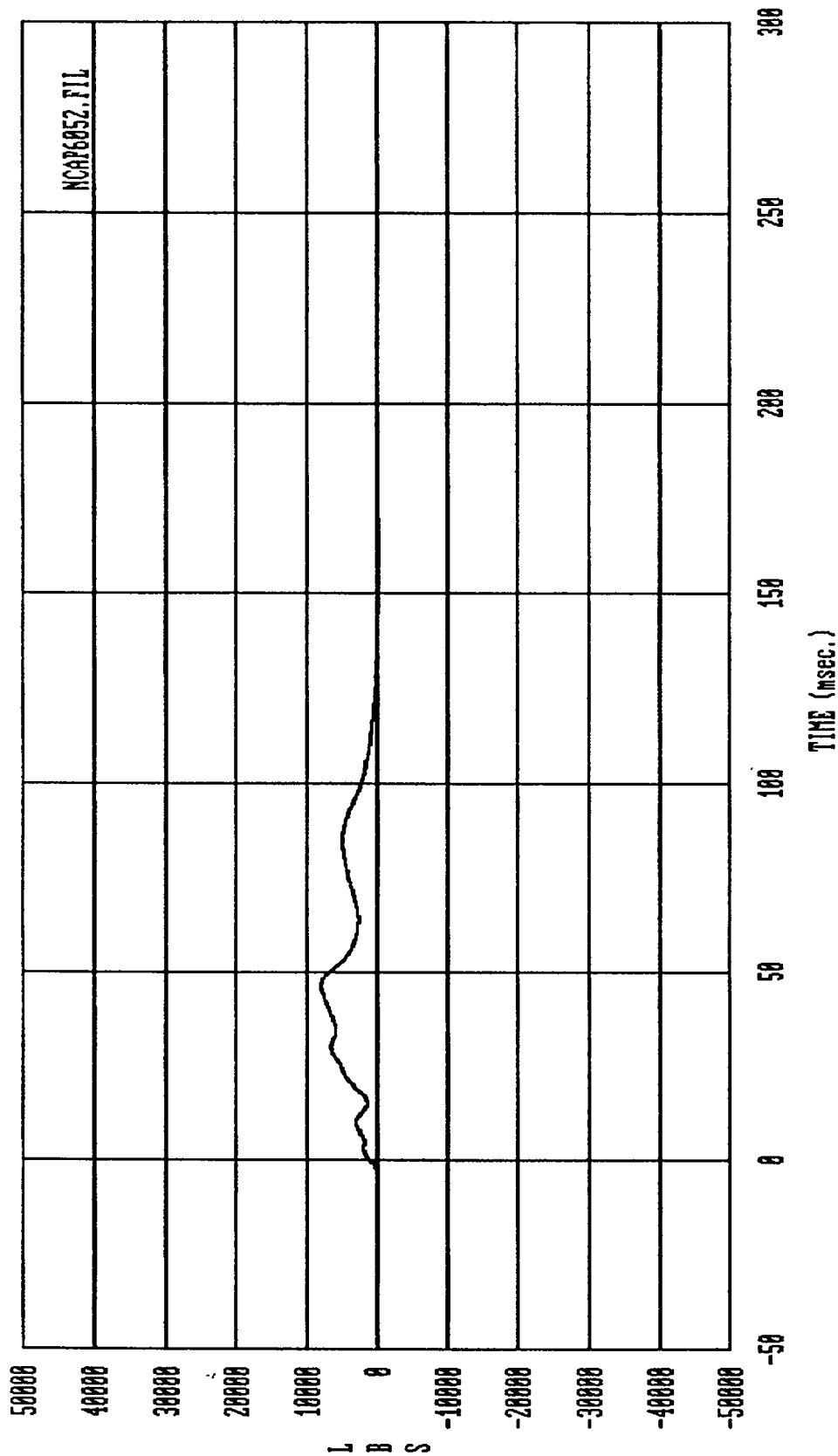


Curve: Force on Barrier load cell C3 Filter: SAE CLASS 60 Max = 7323.3 Min = -184.35

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

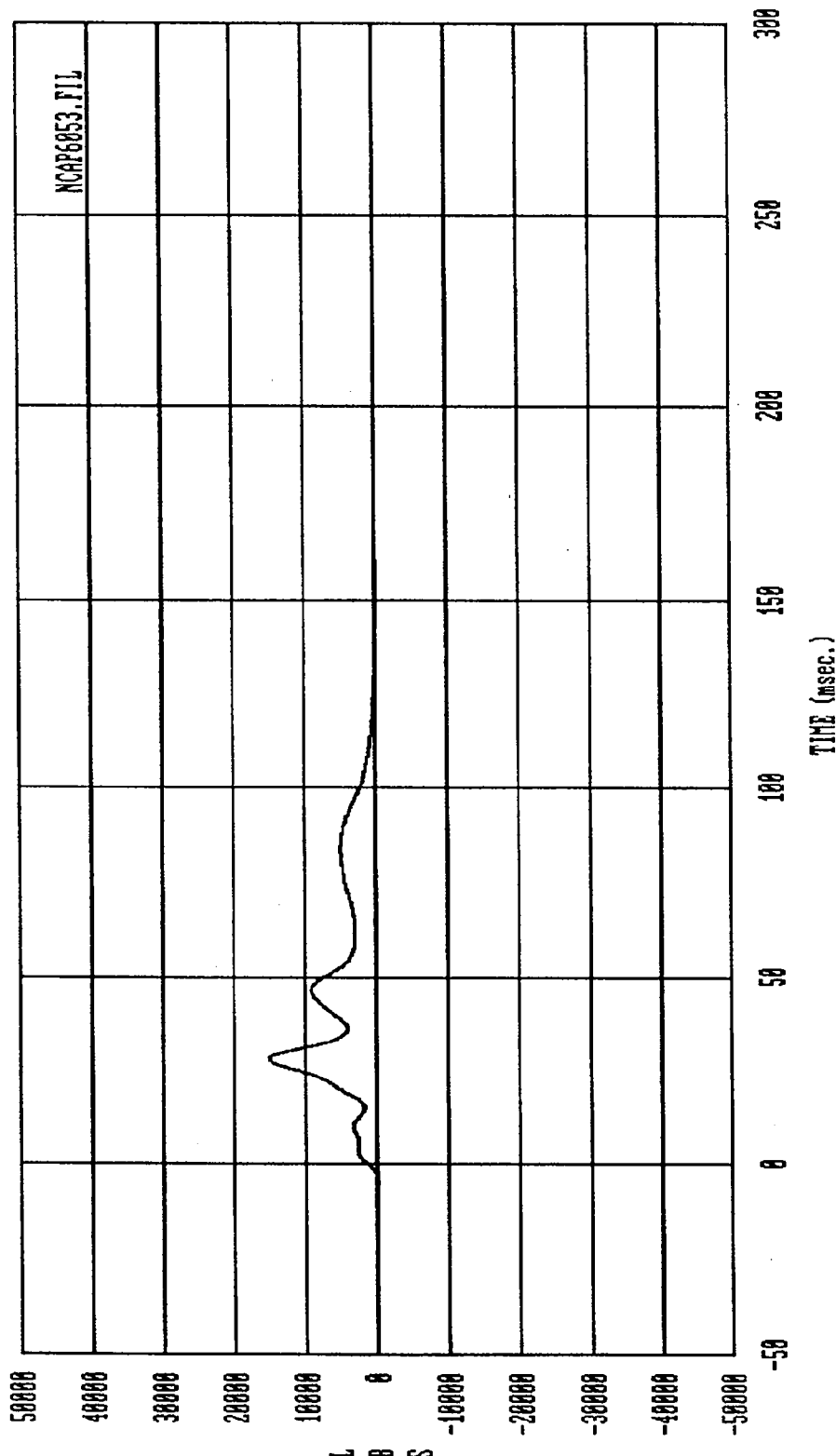


Curve: Force on Barrier load cell 04 Filter: SAE CLASS 60 Max = 3876.6 Min = -98.599
 MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

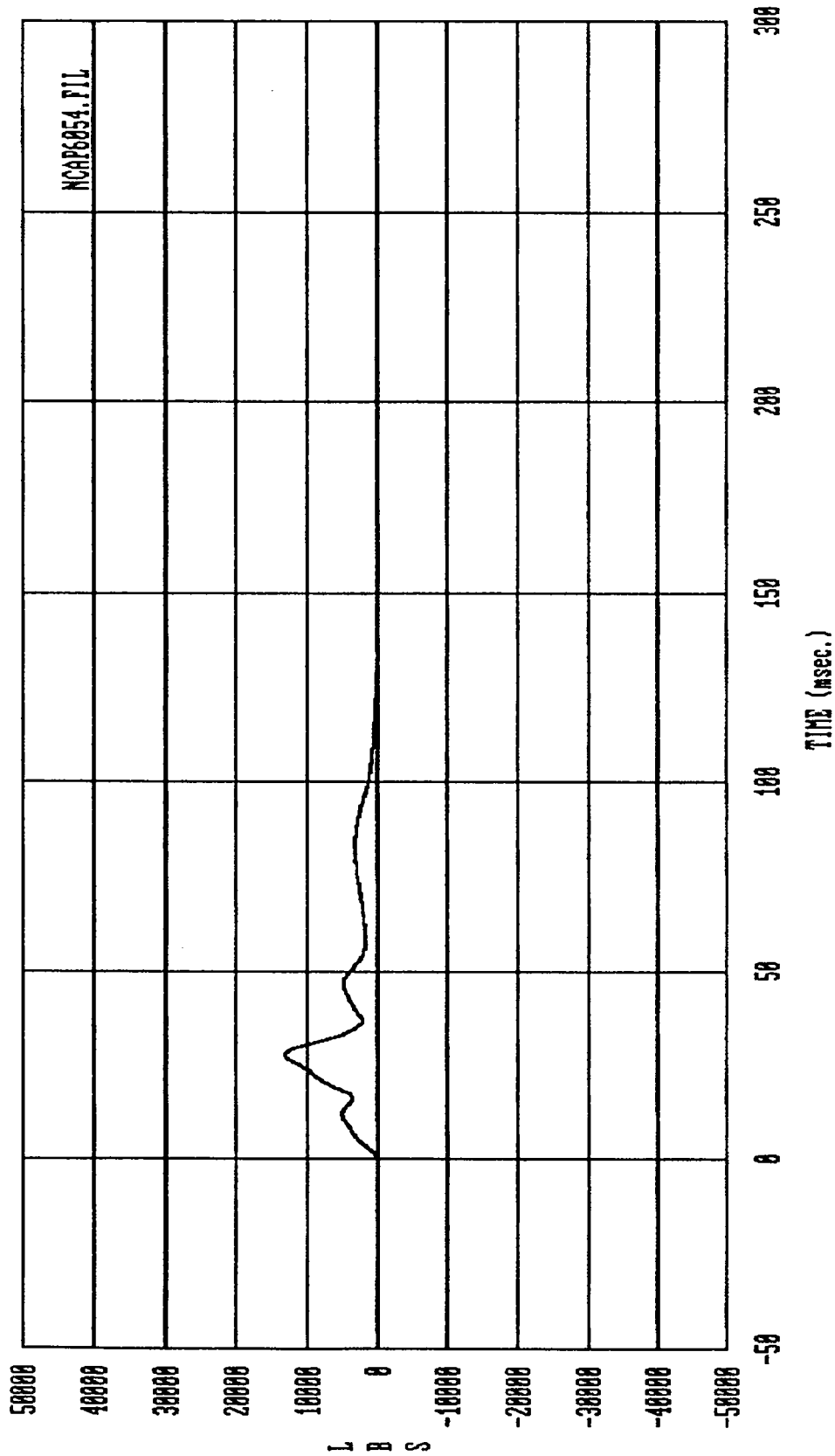


Curve: Force on Barrier load cell 05 Filter: SAE CLASS 60 Max = 8843.3 Min = -125.80

MSZ Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



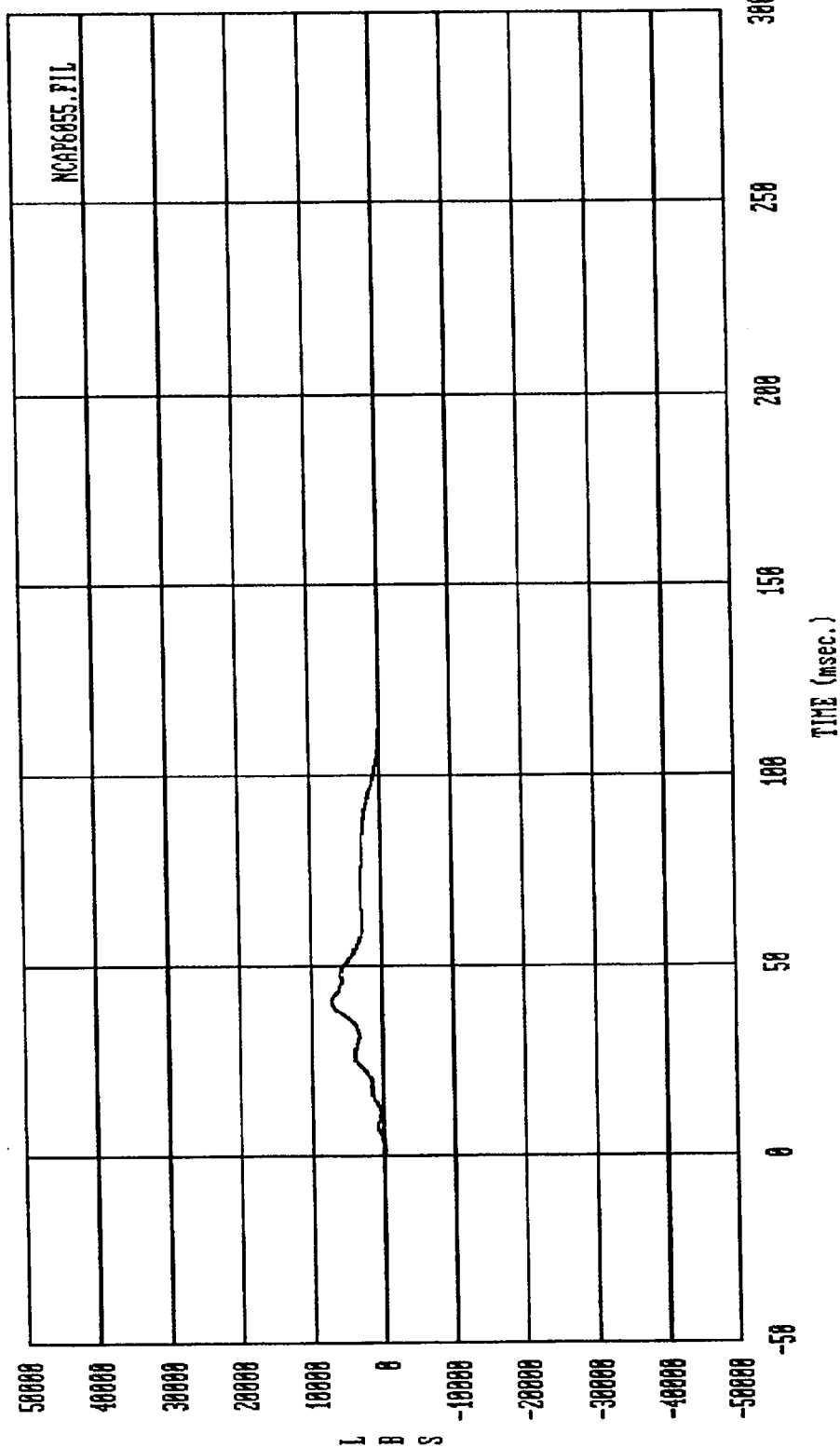
Curve: Force on Barrier load cell 06 Filter: SAE CLASS 60 Max = 15032. Min = -106.17
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



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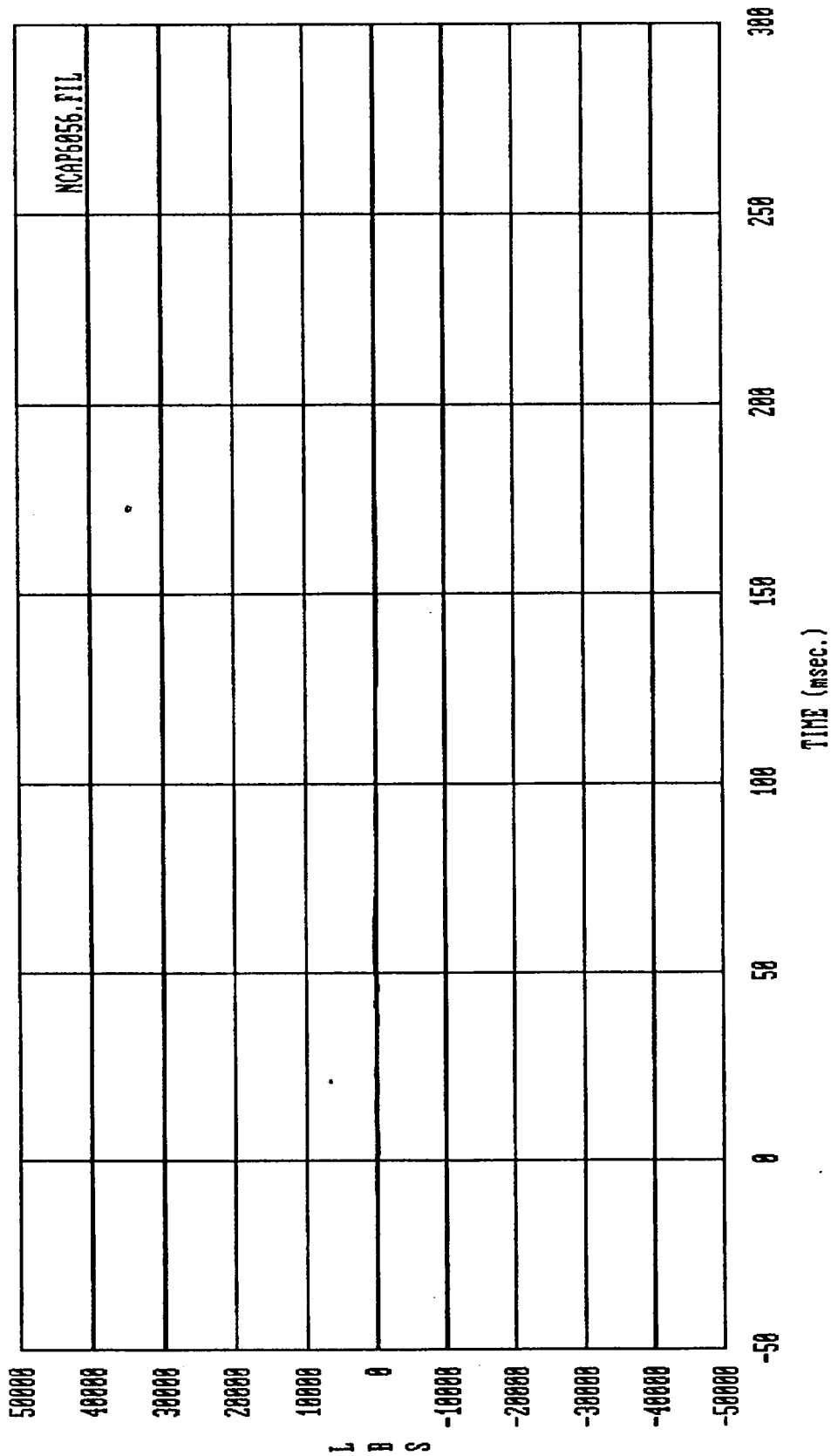
Curve: Force on Barrier load cell C7 Filter: SAE CLASS 60 Max = 13140. Min = -71.108

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



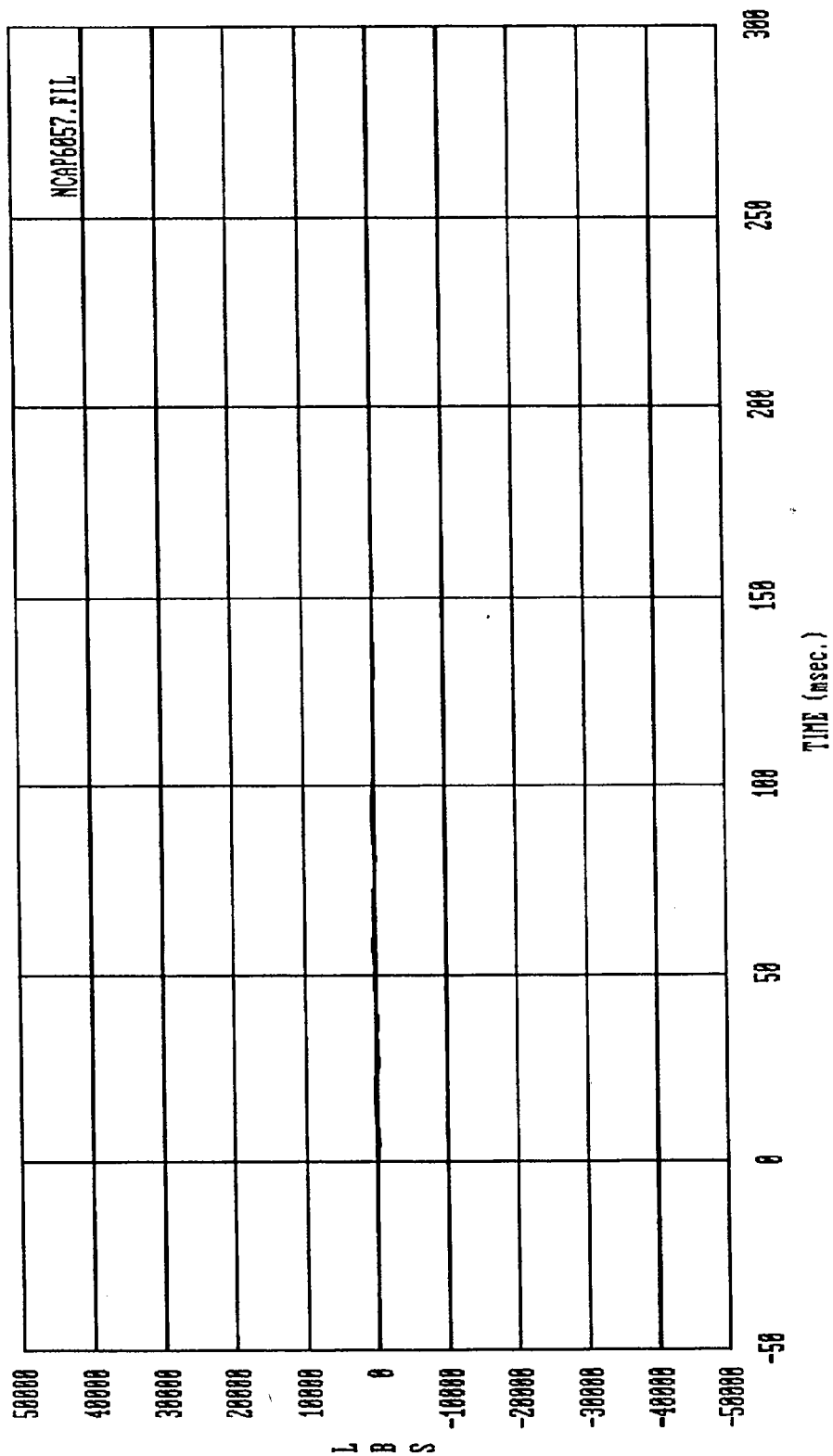
Curve: Force on Barrier load cell 08 Filter: SAE CLASS 60 Max = 7121.6 Min = -119.58

HSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

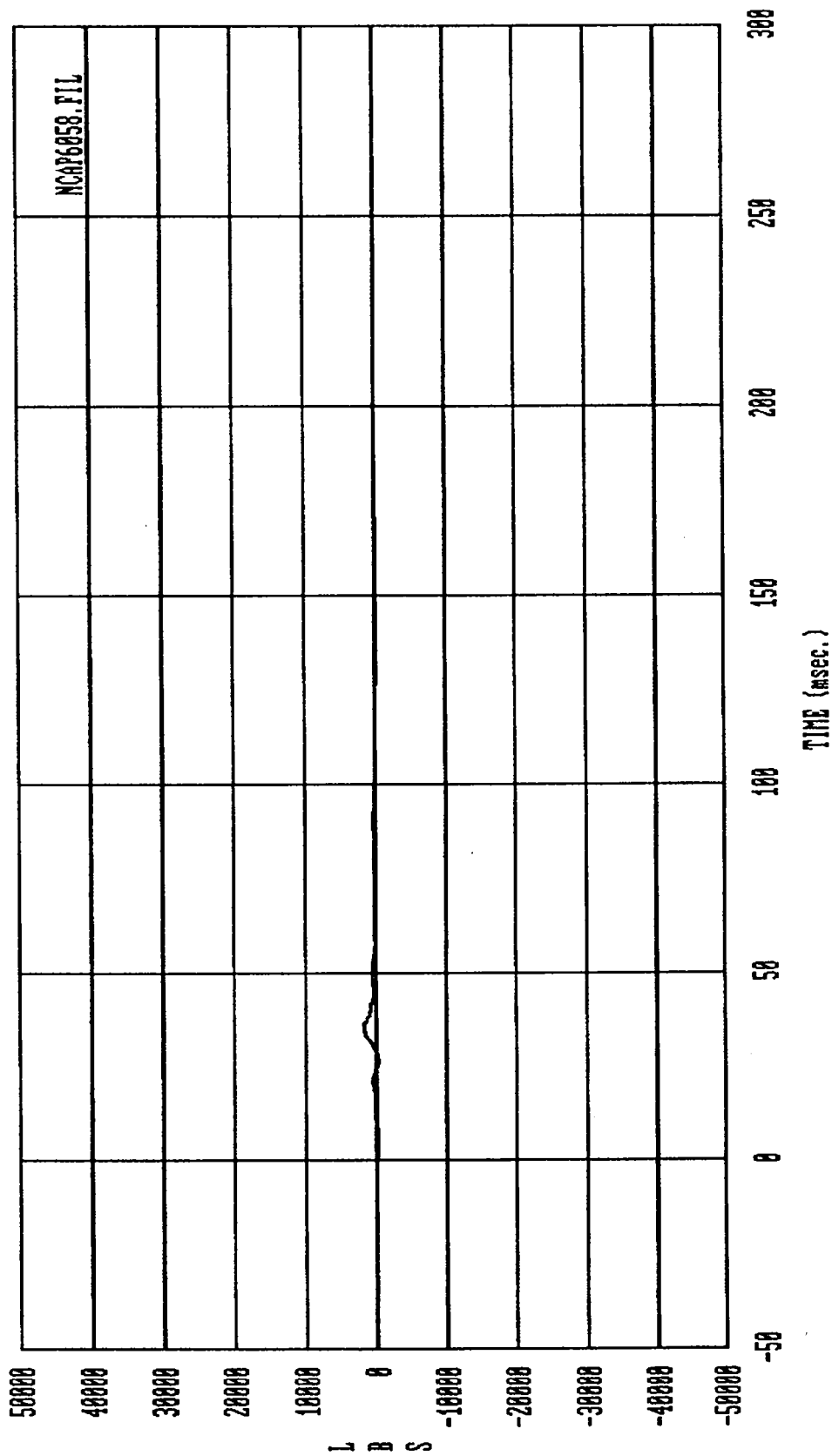


Curve: Force on Barrier load cell C9 Filter: SAE CLASS 60 Max = 586.18 Min = -155.37

MSE Date: 01/25/90 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Axxess

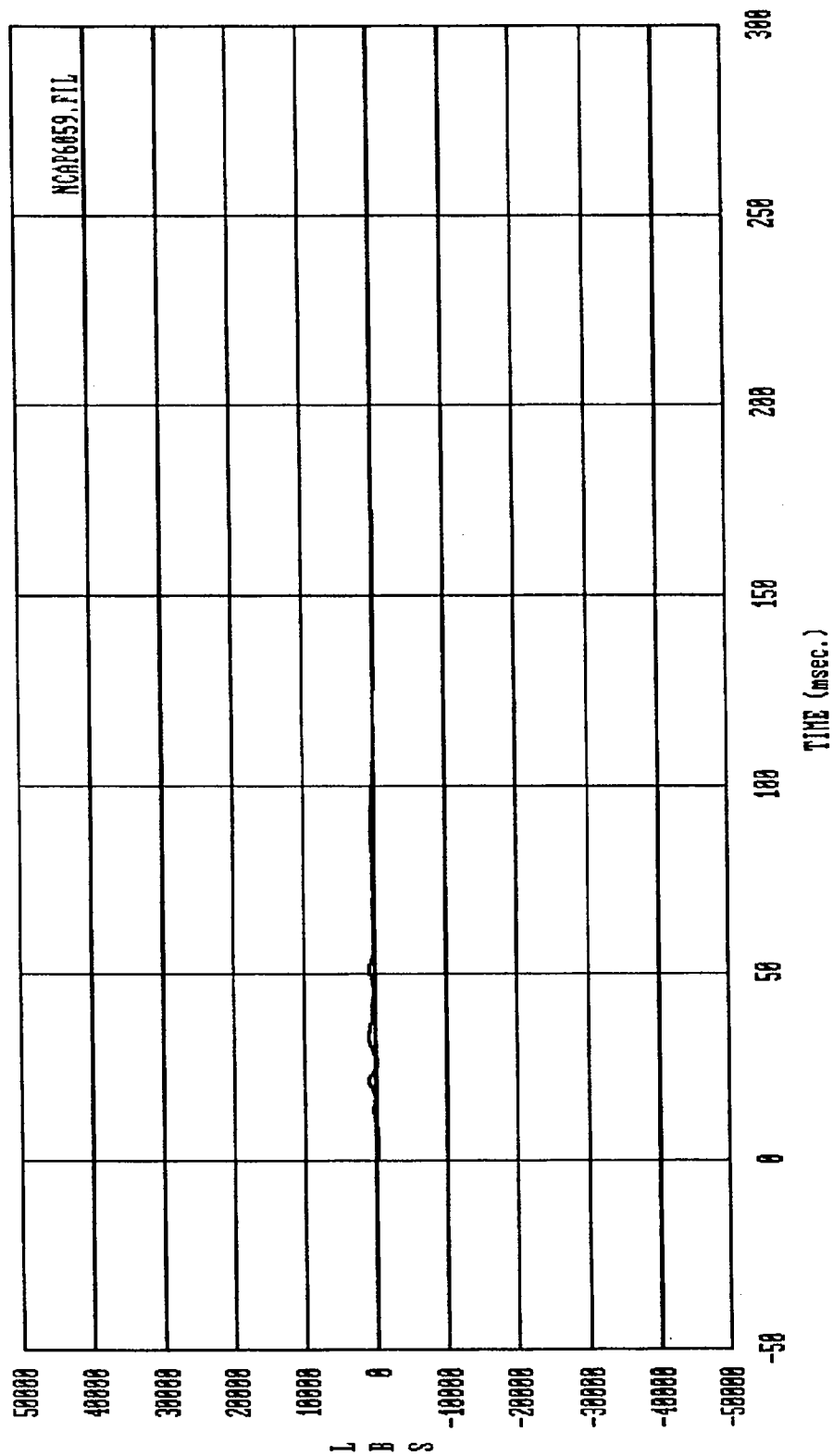


Curve: Force on Barrier load cell D1
 Filter: SAE CLASS 60 Max = 431.85 Min = -383.71
 MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

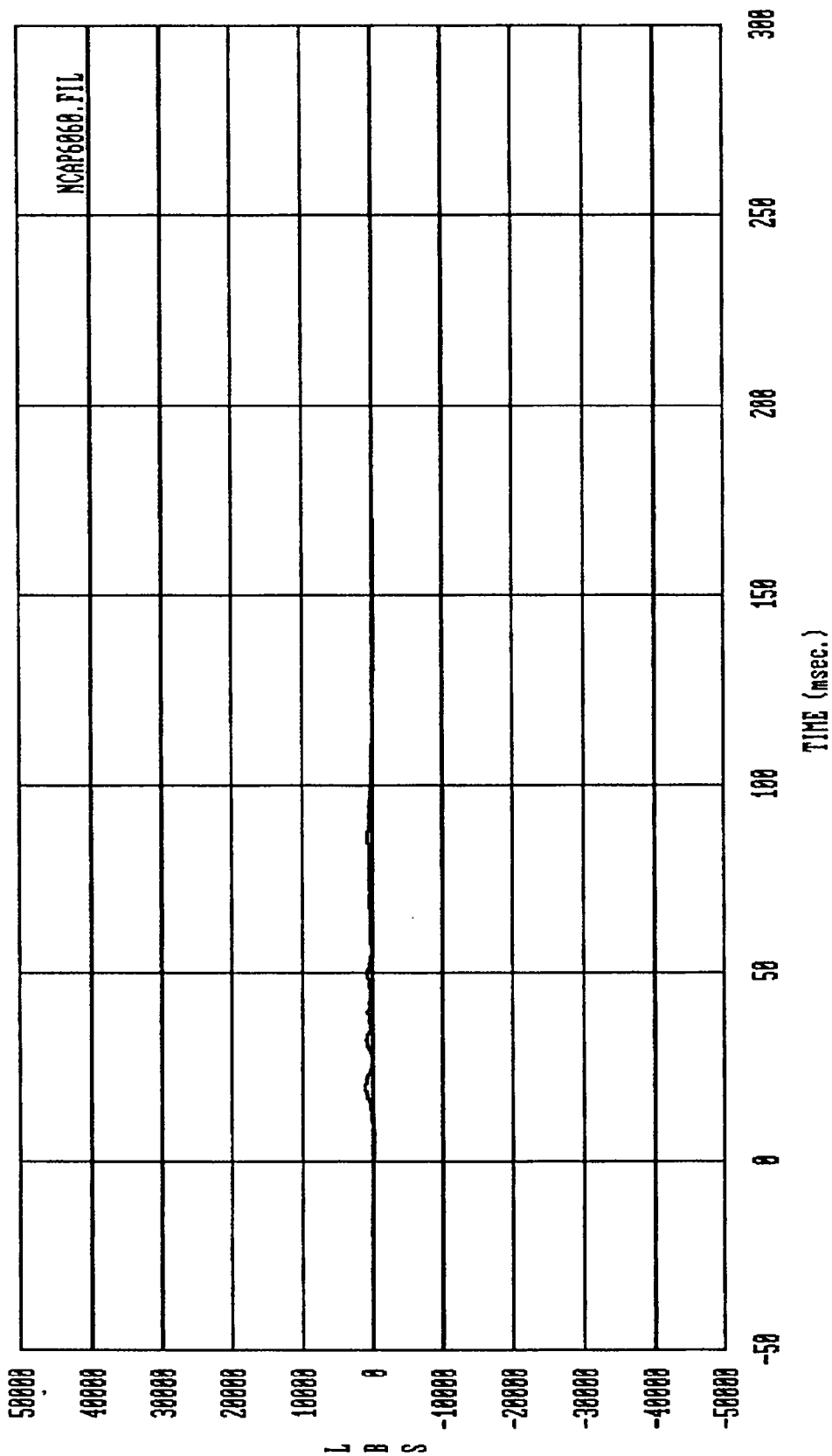


Curve: Force on Barrier load cell D2 Filter: SAE CLASS 60 Max = 1888.1 Min = -312.82

MSE Date: 81/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

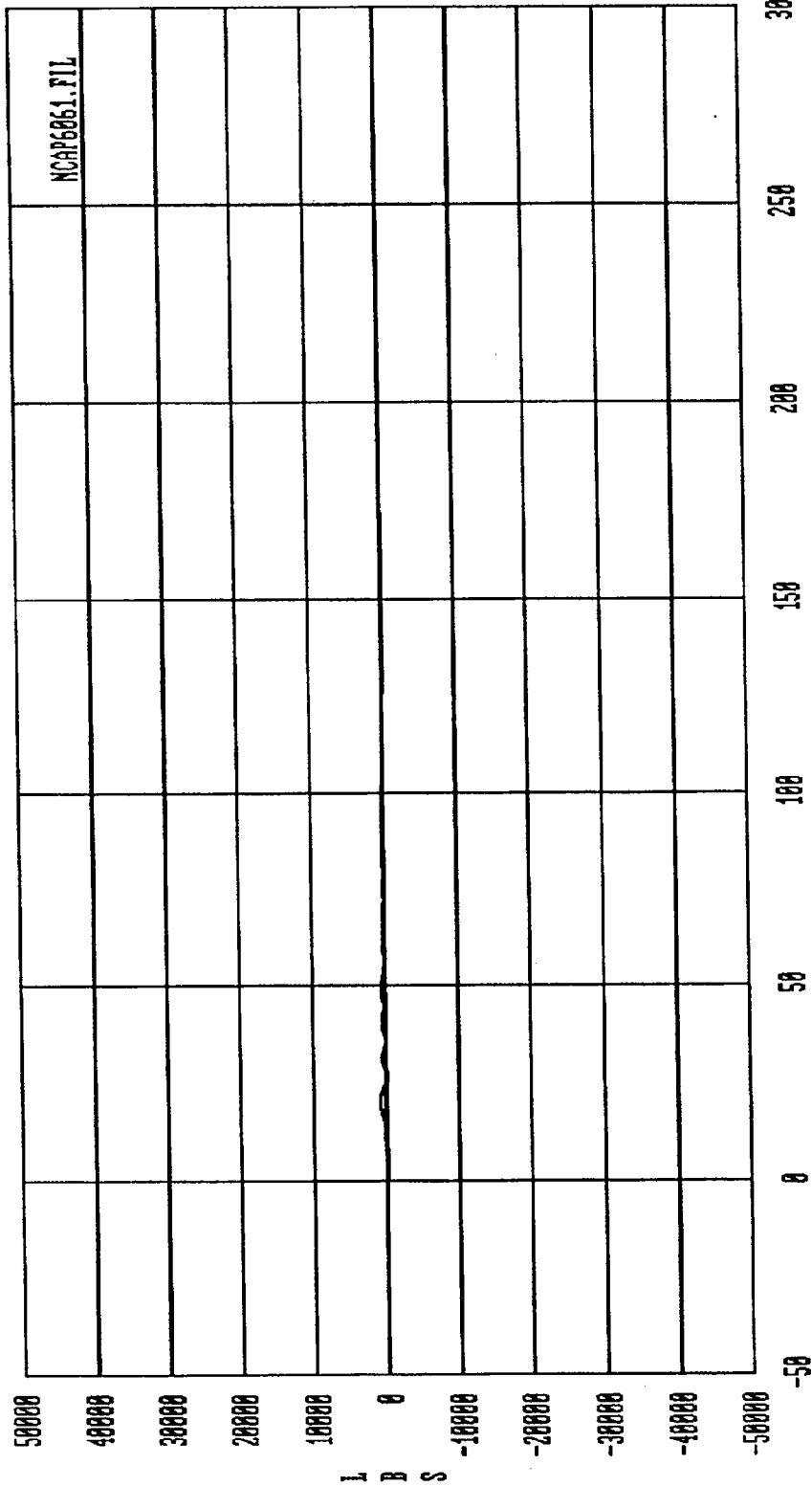


Curve: Force on Barrier load cell D3
 Filter: SAE CLASS 60
 Max = 1818.3
 Min = -274.60
 MSE Date: 01/25/90
 Program: 1998 New Car Assessment
 Vehicle: 1998 Nissan Axxess

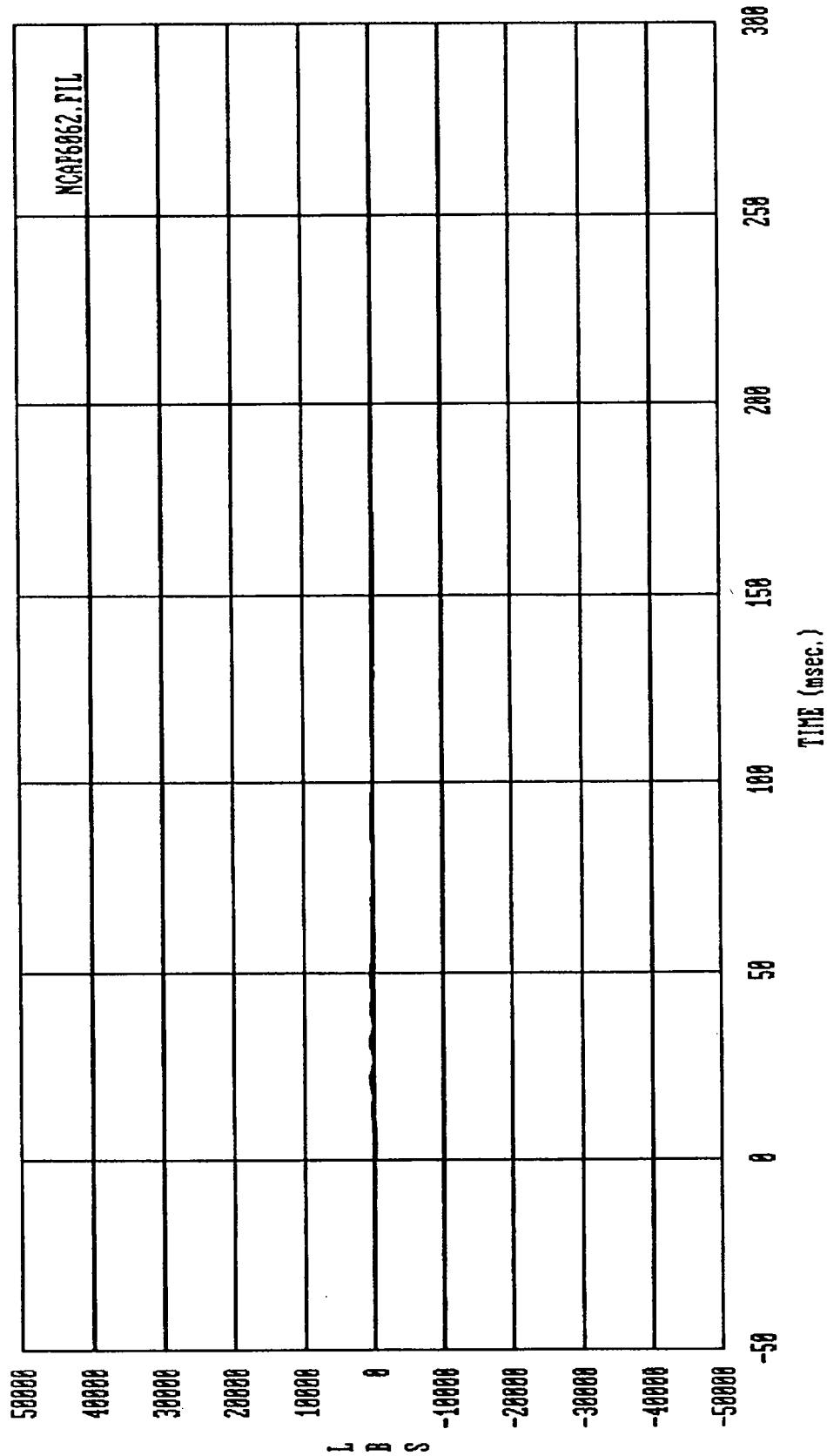


Curve: Force on Barrier load cell D4 Filter: SAE CLASS 60 Max = 1154.1 Min = -196.50

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

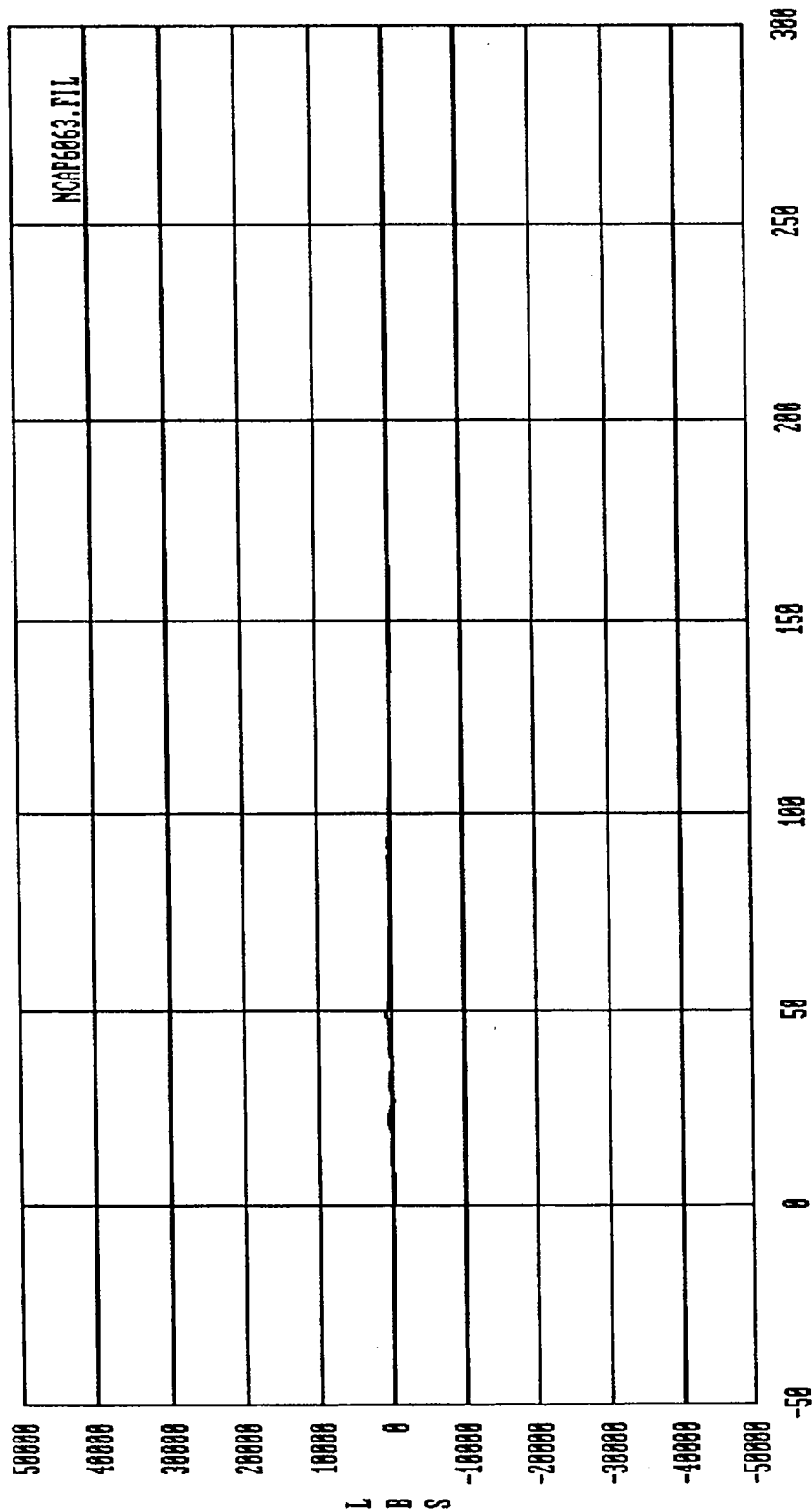


Curve: Force on Barrier load cell 05 Filter: SAE CLASS 60 Max = 791.00 Min = -193.65
MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



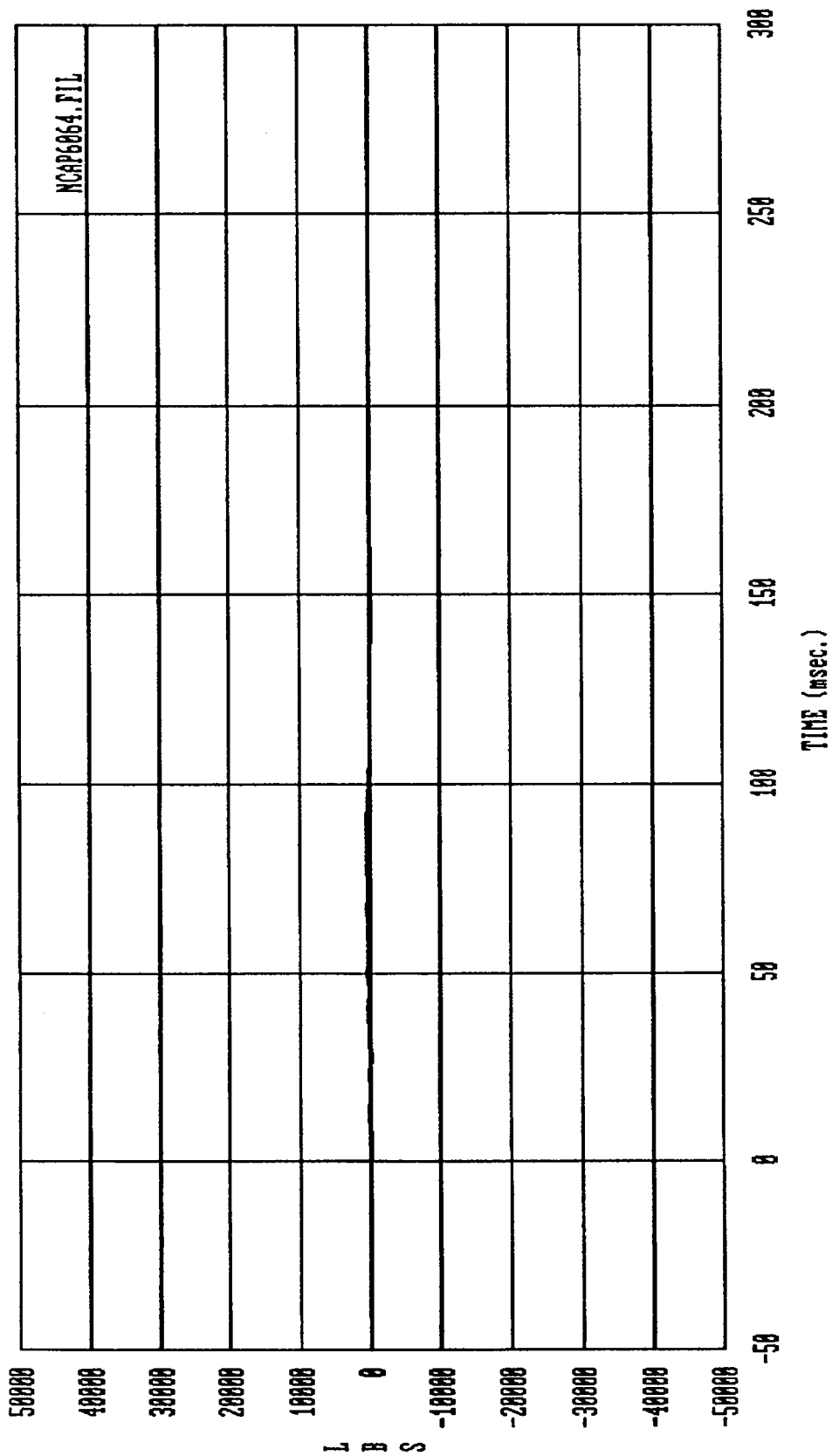
Curve: Force on Barrier load cell D6 Filter: SAE CLASS 60 Max = 596.60 Min = -183.74

MSE Date: 8/25/98 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



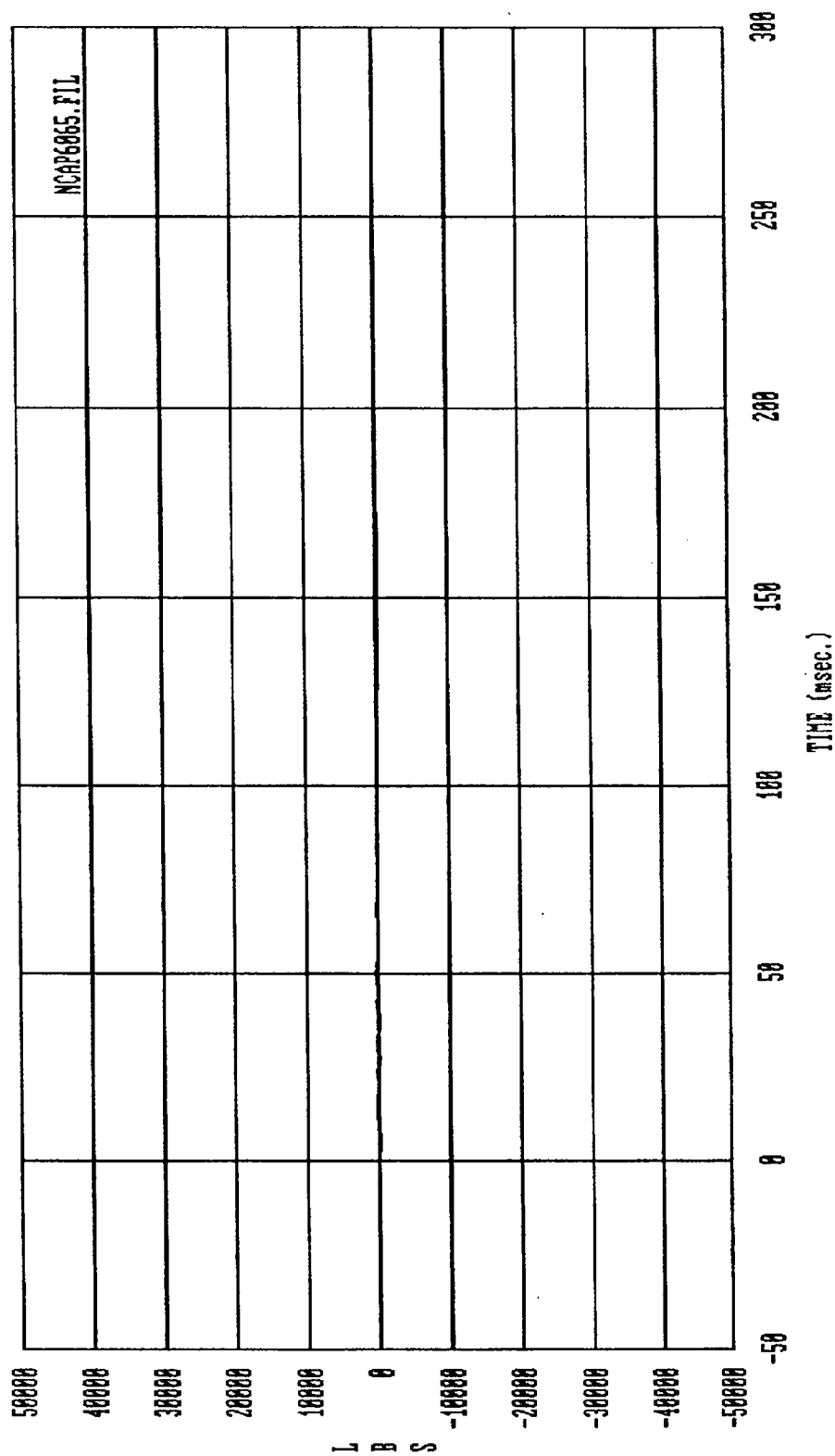
Curve: Force on Barrier load cell D7 Filter: SAE CLASS 60 Max = 730.83 Min = -152.42

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

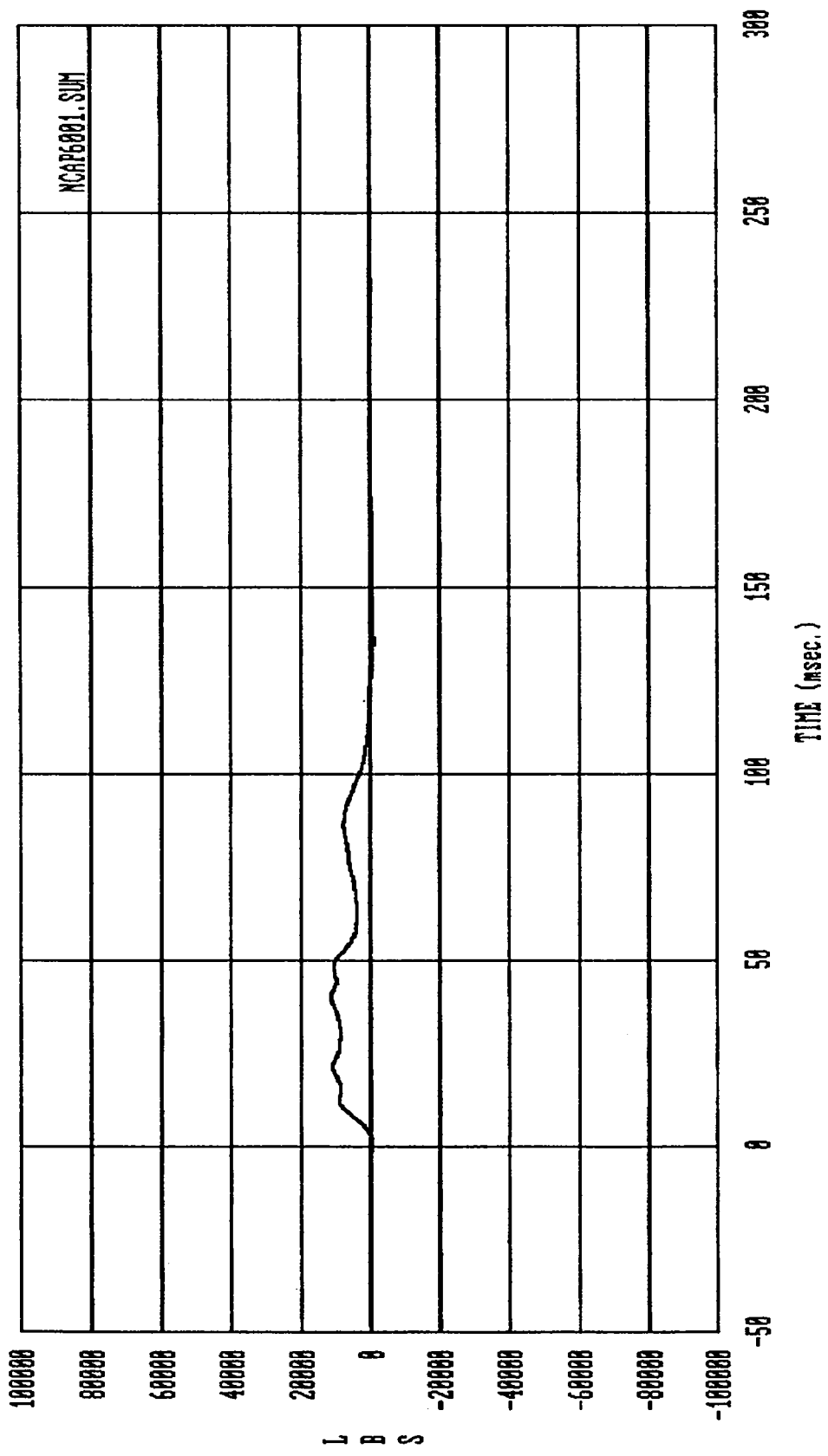


Curve: Force on Barrier load cell D8 Filter: SAE CLASS 60 Max = 617.18 Min = -168.75

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

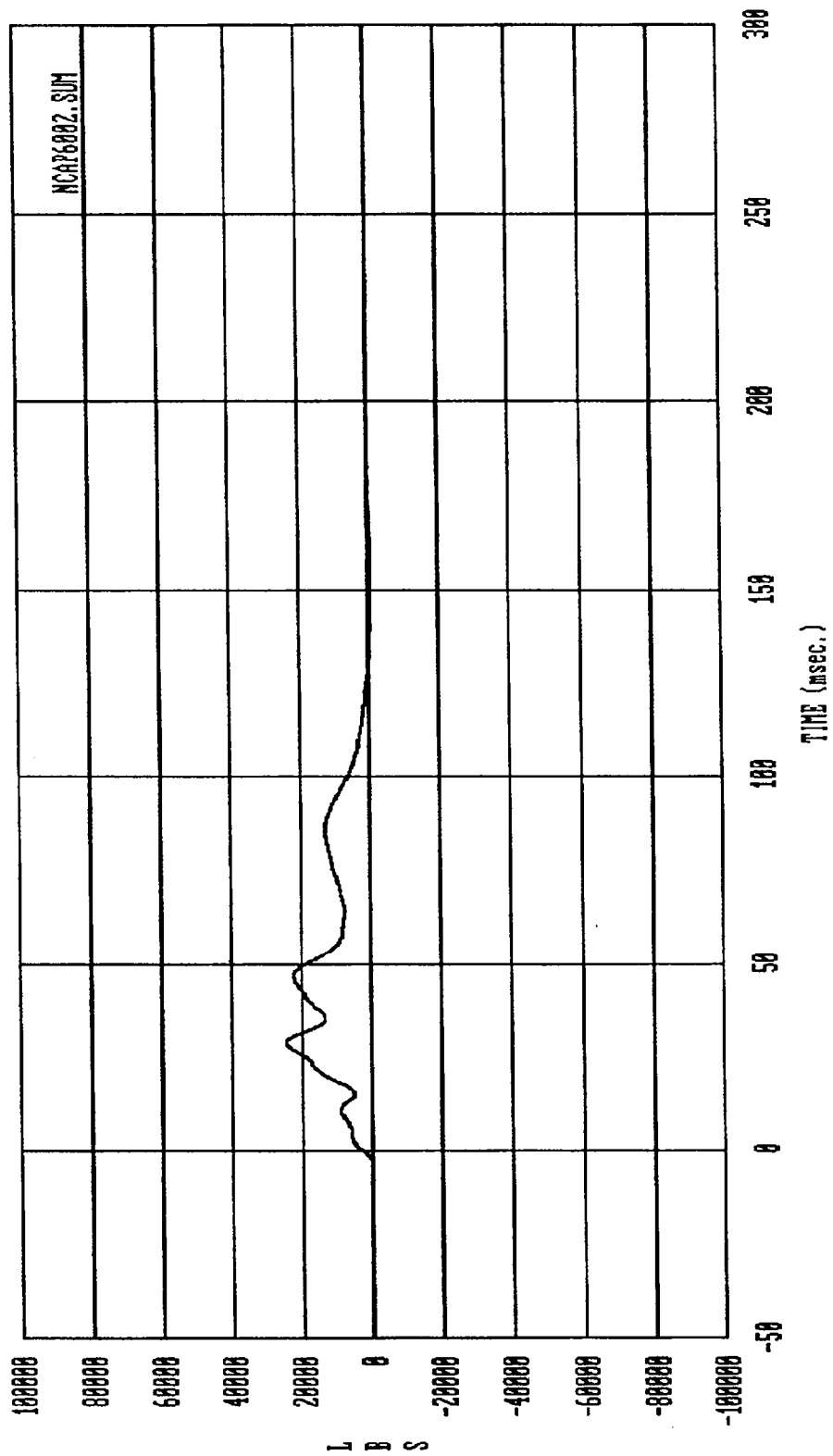


Curve: Force on Barrier load cell D9 Filter: SAE CLASS 60 Max = 323.32 Min = -212.19
MSE Date: 01/25/98 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Axxess



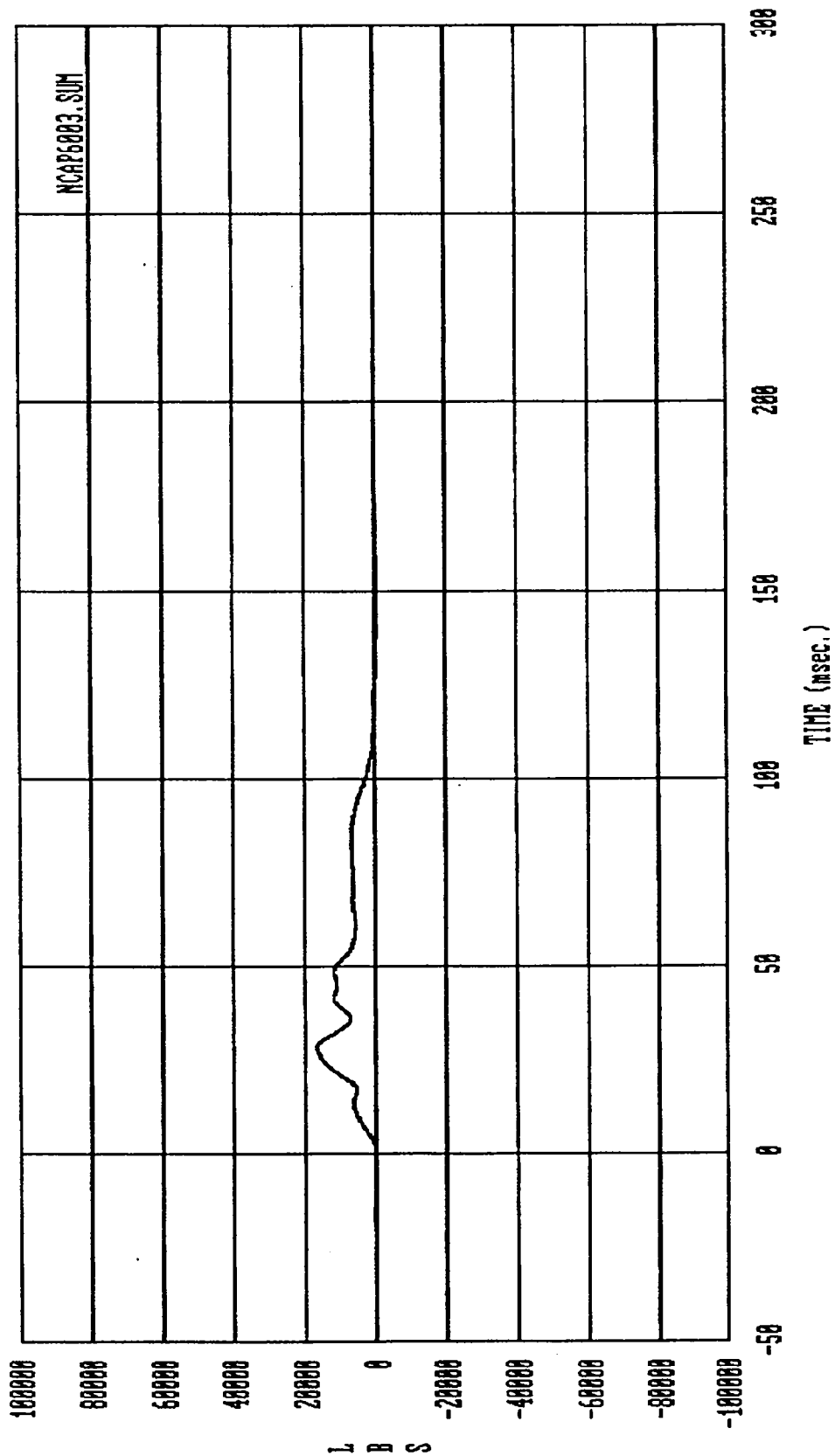
Curve: LCB sum force C1,C2,C3,D1,D2,D3 -- Group 1 Filter: SAE CLASS 60 Max = 11492. Min = -973.79

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



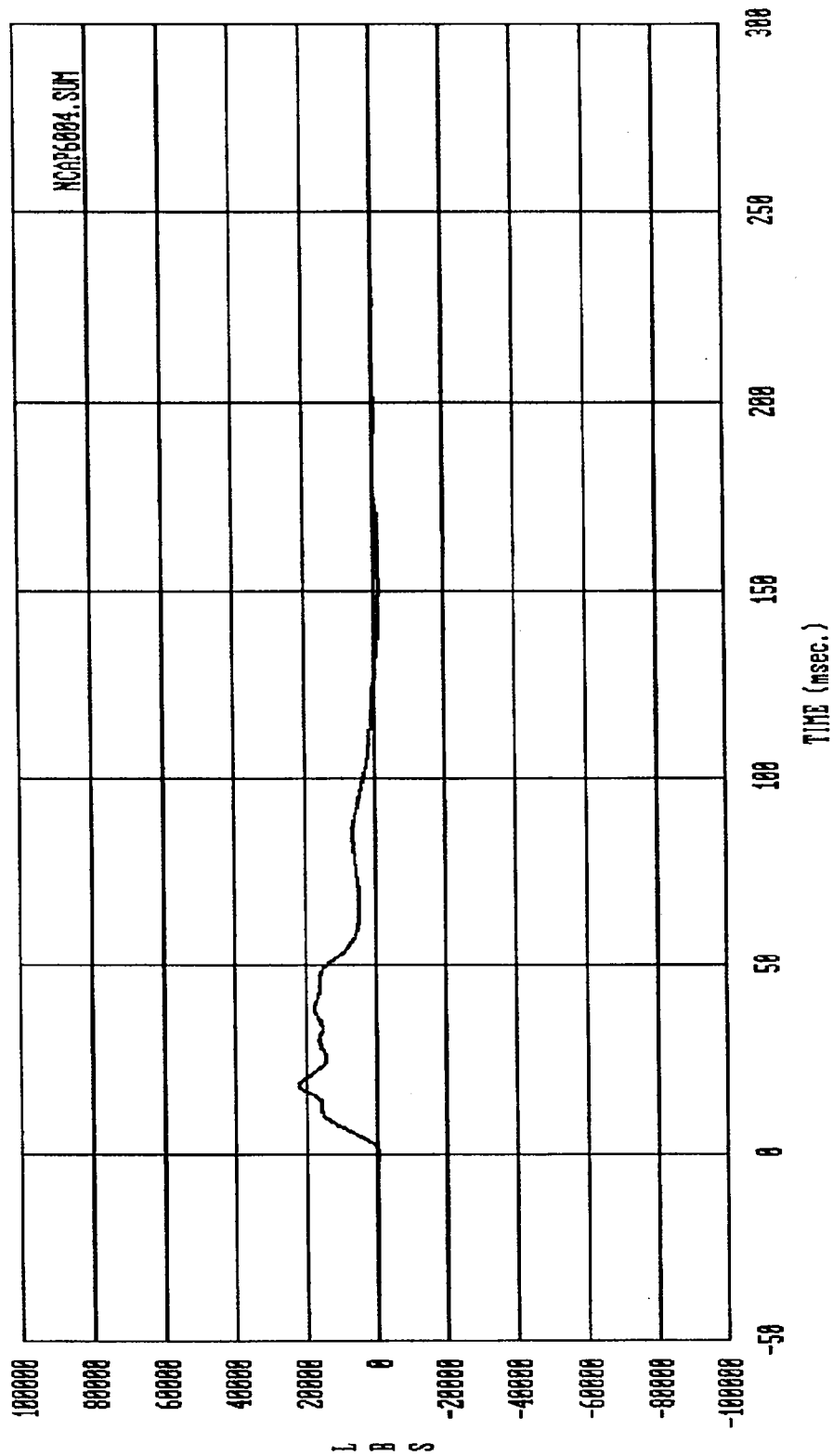
Curve: LCB sum force C4,C5,C6,D4,D5,D6 -- Group 2 Filter: SAE CLASS 60 Max = 24447. Min = -823.95

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



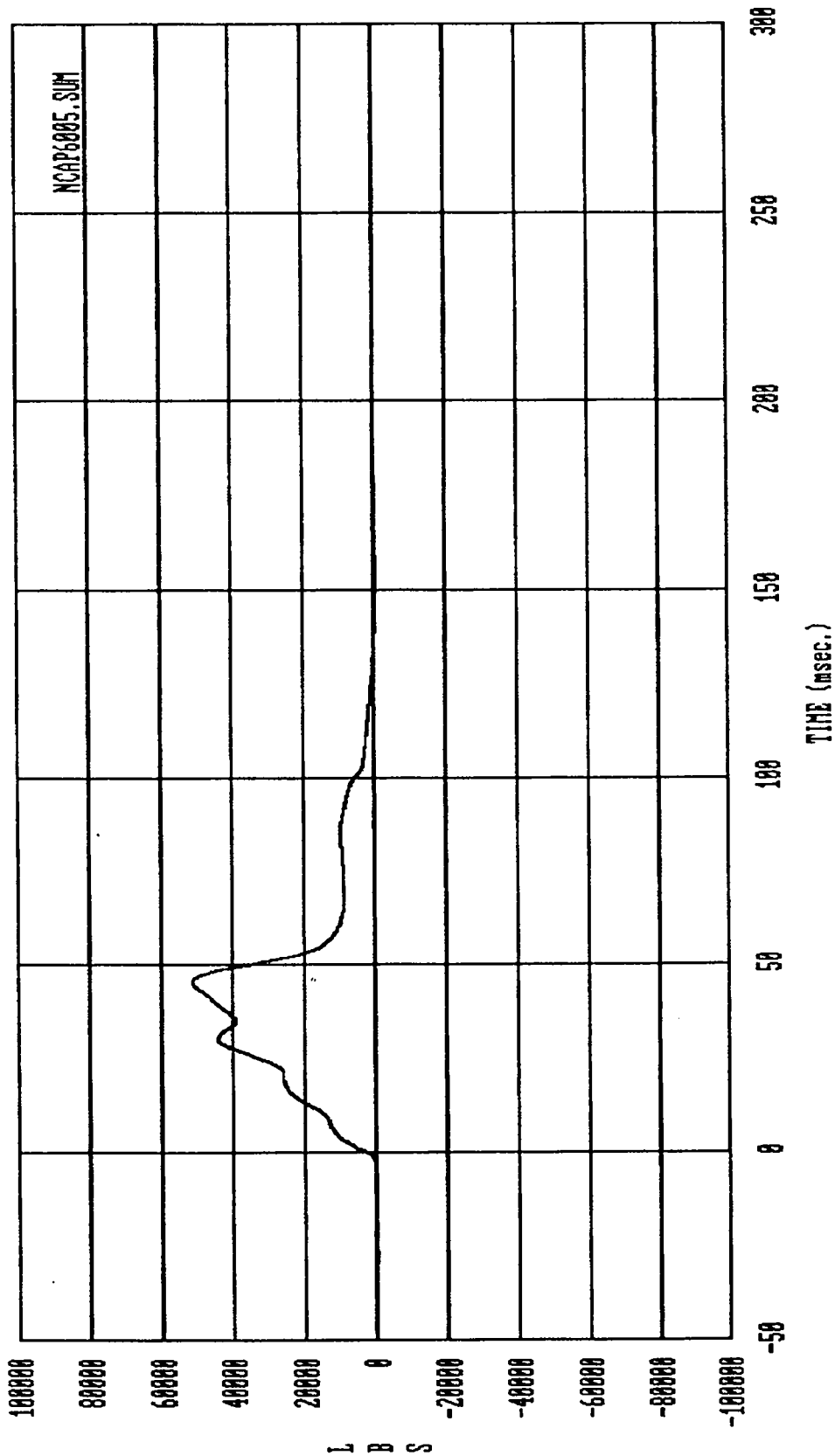
Curve: LCB sum force C7,C8,C9,D7,D8,D9 -- Group 3 Filter: SAE CLASS 60 Max = 16770. Min = -690.23

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess



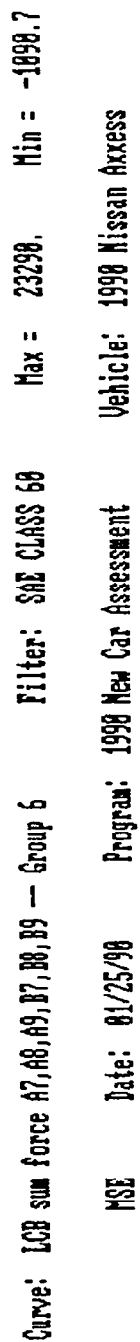
Curve: LCB sum force A1,A2,A3,B1,B2,B3 -- Group 4 Filter: SAE CLASS 60 Max = 22161. Min = -1412.0

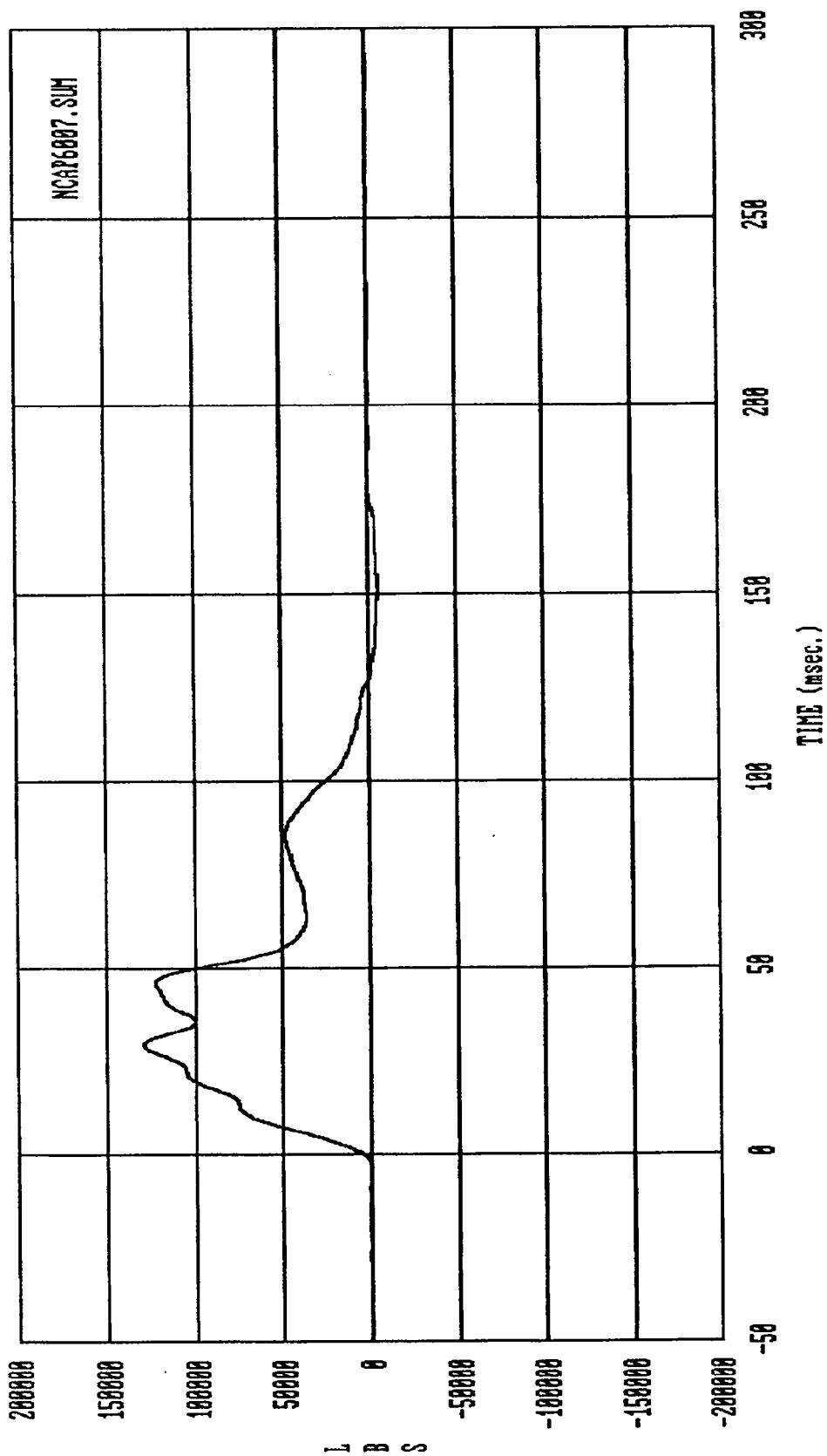
MSE Date: 01/25/90 Program: 1998 New Car Assessment Vehicle: 1998 Nissan Axxess



Curve: LCB sum force A4,A5,A6,B4,B5,B6 -- Group 5 Filter: SAE CLASS 60 Max = 51482. Min = -588.06

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess





Curve: Load Cell Barrier total force Filter: SAE CLASS 60 Max = .12975E+06 Min = -5382.4

MSE Date: 01/25/90 Program: 1990 New Car Assessment Vehicle: 1990 Nissan Axxess

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APPENDIX C

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION TESTS

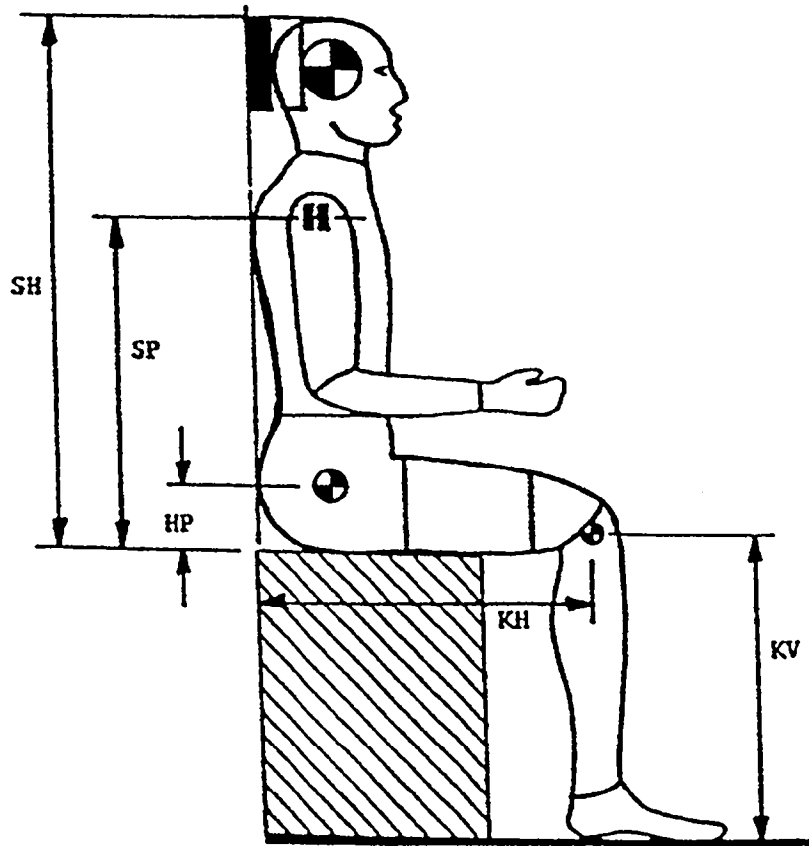
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PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NO.:

4	6	5
---	---	---

I. CONFIGURATION VERIFICATION DATA:



	P. 572 SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
DATE OF CONFIGURATION VERIFICATION	////////////////	08/04/89	
VERIFICATION NUMBER FOR DUMMY* ---	////////////////	01	
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"	15.0	

TECHNICIAN'S NAME: APURVA MAPARA

*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:
 TECHNICIAN NAME: APURVA MAPARA

NHTSA DUMMY I.D. NO.:

4	6	5
---	---	---

DATE OF PERFORMANCE VERIFICATION-----		PRE-TEST (if required)	POST-TEST (if required)
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY*-----		07/21-08/01/89	
VERIF. LAB. TEMPERATURE (66 to 78°F Range)----		01	
VERIF. LAB. HUMIDITY (10 to 70% Range)-----		68-74 °F	°F
TEST PARAMETER		60-70 %	%
SPECIFICATION			
1. HEAD DROP TEST--			
a. Peak Resultant Accel.	210 to 260G	257.78	
b. Peak Lateral Accel.-	≤10G	4.99	
c. Time above 100G - - -	0.9 to 1.5 ms	1.2	
2. NECK BENDING TEST--			
a. Pendulum Speed- - - -	21.5 to 22.5 fps	21.8	
b. Pend. Avg. Decel. over $t_3 - t_2$	20 to 24G	21.3	
c. Peak Resultant Head Acceleration - - - -	26G max.	23.4	
d. Pendulum Decel. ($t_2 - t_1$)	≤ 3 ms	2.8	
e. Pendulum Decel. ($t_3 - t_2$)	25 to 30 ms	27.4	
f. Pendulum Decel. ($t_4 - t_3$)	≤10 ms	9.6	
g. Max. Head Rotation -	63 to 73°	63.9	
h. Chordal Displacement- Head Rotation Angle-			
0°	Time- -	-2 to 2 ms	0.0
	Displ.-	-.5 to .5"	0.003
30°	Time- -	22.6 to 34 ms	34.0
	Displ.-	2.1 to 3.1"	2.24
60°	Time- -	40.3 to 51.7ms	51.7
	Displ.-	4.3 to 5.3"	4.3
Maximum (62.4°)	Time- -	53.2 to 66.8ms	62.4
	Displ.-	5.0 to 6.0"	5.00

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

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

II. PERFORMANCE VERIFICATION DATA:

NHTSA DUMMY I.D. NO.:

4 6 5

TECHNICIAN NAME: APURVA MAPARA

TEST PARAMETER		SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST----				
Continued:				
h. Chordal Displacement- Head Rotation Angle-				
60°	Time- -	67.0 to 83.0 ms	70.0	
	Displ.-	4.3 to 5.3 in.	4.3	
30°	Time- -	85.4 to 104.6 ms	88.6	
	Displ.-	2.1 to 3.1 in.	2.1	
0°	Time- -	101.0 to 123.0 ms	101.0	
	Displ.-	-.5 to 0.5 in.	0.081	
3. ABDOMINAL COMPRESSION TEST: (Preload=10 pounds)				
a. Force @ .5" - - - -		23 to 36 lbs.	25.75	
b. Force @ .75" - - - -		36 to 50 lbs.	36.75	
c. Force @ 1.0"- - - -		50 to 63 lbs.	54.0	
d. Force @ 1.3"- - - -		73 to 88 lbs.	78.7	
4. LUMBAR FLEXION TEST:				
a. Force @ 20 - - - -		22 to 34 lbs.	33.0	
b. Force @ 30 - - - -		34 to 46 lbs.	41.2	
c. Force @ 40 - - - -		46 to 58 lbs.	54.2	
d. Return Angle- - - -		12° maximum	11.0	
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed - - -		21.78-22.22 fps	21.81	
(2) Peak Deflection -		1.7" maximum	1.64	
(3) Peak Resistive Force - - - -		2250 lbs.maximum	2156.2	
(4) Internal Mysteresis		50 to 70%	68.3	
b. Low Speed				
(1) Probe Speed - - -		13.86-14.14 fps	14.13	
(2) Peak Deflection -		1.1" maximum	1.05	
(3) Peak Resistive Force - - - -		1450 lbs.maximum	1385.35	
(4) Internal Mysteresis		50 to 70%	65.7	

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

II. PERFORMANCE VERIFICATION DATA:

NHTSA DUMMY I.D. NO.:

4	6	5
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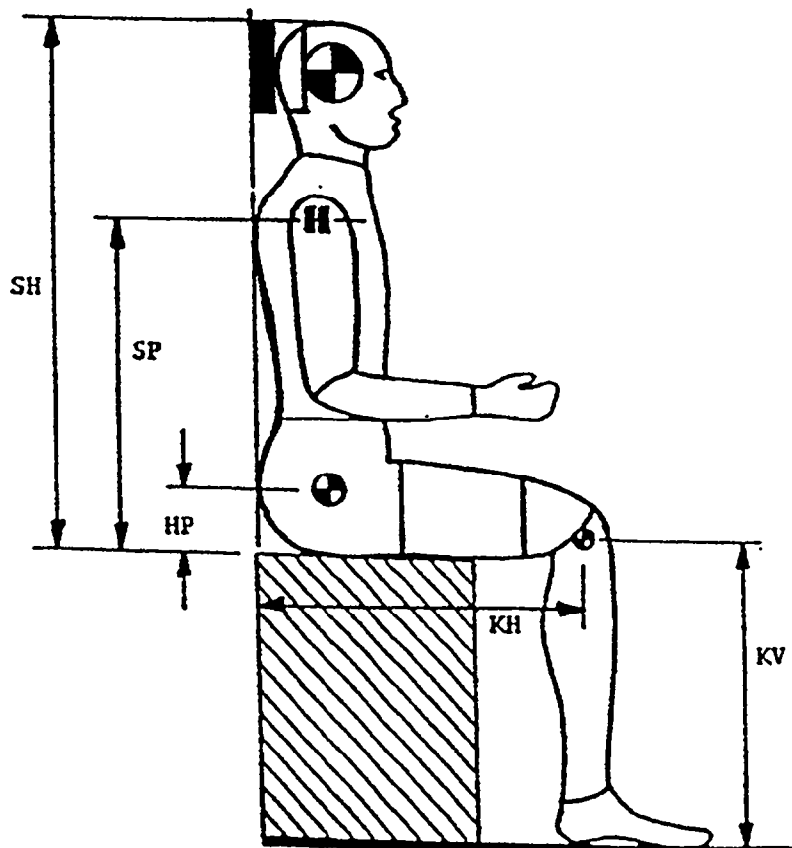
TECHNICIAN NAME: APURVA MAPARA

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
=====	=====	=====	=====
6. KNEE IMPCT TESTS:			
a. Right Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.83	
(2) Maximum Force - -	1850 to 2500 lbs	2352.5	
(3) Time Above 1000#-	1.7 ms minimum	1.9	
b. Left Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.84	
(2) Maximum Force - -	1850 to 2500 lbs	2382.06	
(3) Time Above 1000#-	1.7 ms minimum	1.8	

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NO.:

4	6	6
---	---	---

I. CONFIGURATION VERIFICATION DATA:

	P. 572 SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
DATE OF CONFIGURATION VERIFICATION	//////	08/03/89	
VERIFICATION NUMBER FOR DUMMY* ---	//////	01	
SH - Seated Height- - - - -	35.6 to 35.8"	35.6	
SP - Shoulder Pivot Height- - - -	21.8 to 22.4"	21.9	
HP - Hip Pivot Height - - - - -	3.9 ref.	3.9	
KH - Knee Pivot from back line- -	20.1 to 20.7"	20.5	
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"	15.0	

TECHNICIAN'S NAME: APURVA MAPARA

*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:
TECHNICIAN NAME: APURVA MAPARA

NHTSA DUMMY I.D. NO.:

4	6	6
---	---	---

		PRE-TEST (if required)	POST-TEST (if required)
DATE OF PERFORMANCE VERIFICATION-----		07/21-08/02/89	
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY*-----		01	
VERIF. LAB. TEMPERATURE (66 to 78° F Range)----		68-74 °F	°F
VERIF. LAB. HUMIDITY (10 to 70% Range)-----		60-70 %	%
TEST PARAMETER	SPECIFICATION		
1. HEAD DROP TEST--			
a. Peak Resultant Accel.	210 to 260G	229.9	
b. Peak Lateral Accel.--	≤ 10G	6.34	
c. Time above 100G - - -	0.9 to 1.5 ms	1.25	
2. NECK BENDING TEST--			
a. Pendulum Speed- - - -	22.5 to 22.5 fps	21.89	
b. Pend. Avg. Decel. over $t_3 - t_2$	20 to 24G	22.69	
c. Peak Resultant Head Acceleration - - - -	26G max.	25.4	
d. Pendulum Decel. ($t_2 - t_1$)	≤ 3 ms	2.3	
e. Pendulum Decel. ($t_3 - t_2$)	25 to 30 ms	29.3	
f. Pendulum Decel. ($t_4 - t_3$)	≤ 10 ms	8.4	
g. Max. Head Rotation -	63 to 73°	65.765	
h. Chordal Displacement- Head Rotation Angle-			
0°	Time- -	-2 to 2 ms	-2.0
	Displ.-	-.5 to .5"	0.008
30°	Time- -	22.6 to 34 ms	31.8
	Displ.-	2.1 to 3.1"	2.256
60°	Time- -	40.3 to 51.7ms	49.3
	Displ.-	4.3 to 5.3"	4.45
Maximum	Time- -	53.2 to 66.8ms	60.0
(60°)	Displ.-	5.0 to 6.0"	4.9

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

TECHNICIAN NAME: APURVA MAPARA

TEST PARAMETER		SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST----- Continued: h. Chordal Displacement- Head Rotation Angle-				
60°	Time- -	67.0 to 83.0 ms	70.2	
	Displ.-	4.3 to 5.3 in.	4.4	
30°	Time- -	85.4 to 104.6 ms	87.1	
	Displ.-	2.1 to 3.1 in.	2.1	
0°	Time- -	101.0 to 123.0 ms	102.0	
	Displ.-	-.5 to 0.5 in.	0.169	
3. ABDOMINAL COMPRESSION TEST: (Preload=10 pounds)				
a. Force @ .5" - - - -		23 to 36 lbs.	28.0	
b. Force @ .75" - - - -		36 to 50 lbs.	43.0	
c. Force @ 1.0" - - - -		50 to 63 lbs.	58.0	
d. Force @ 1.3" - - - -		73 to 88 lbs.	84.5	
4. LUMBAR FLEXION TEST:				
a. Force @ 20 - - - -		22 to 34 lbs.	28.6	
b. Force @ 30 - - - -		34 to 46 lbs.	40.3	
c. Force @ 40 - - - -		46 to 58 lbs.	52.6	
d. Return Angle- - - -		12° maximum	11.0	
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed - - -		21.78-22.22 fps	21.8	
(2) Peak Deflection -		1.7" maximum	1.69	
(3) Peak Resistive Force - - - - -		2250 lbs.maximum	2145.68	
(4) Internal Mysteresis		50 to 70%	68.2	
b. Low Speed				
(1) Probe Speed - - -		13.86-14.14 fps	13.88	
(2) Peak Deflection -		1.1" maximum	1.02	
(3) Peak Resistive Force - - - - -		1450 lbs.maximum	1388.97	
(4) Internal Mysteresis		50 to 70%	58.6	

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

II. PERFORMANCE VERIFICATION DATA:

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

TECHNICIAN NAME: APURVA MAPARA

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
=====	=====	=====	=====
6. KNEE IMPCT TESTS:			
a. Right Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.88	
(2) Maximum Force - -	1850 to 2500 lbs	2099.69	
(3) Time Above 1000#-	1.7 ms minimum	2.1	
b. Left Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.83	
(2) Maximum Force - -	1850 to 2500 lbs	2130.35	
(3) Time Above 1000#-	1.7 ms minimum	1.9	

APPENDIX D

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

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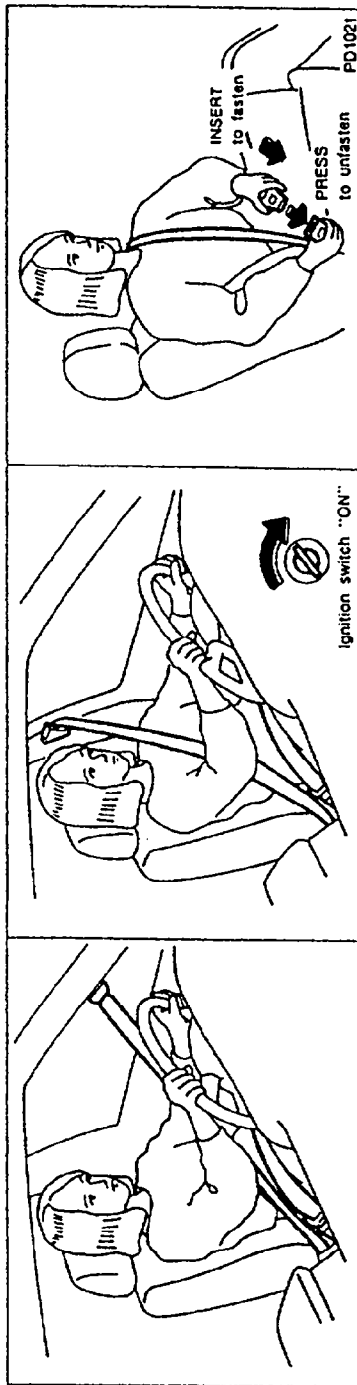
AUTOMATIC SEAT BELT SYSTEM (For U.S.A.)

The Automatic Seat Belt system consists of an automatic shoulder belt and a manual lap belt for the driver and front passenger seat positions. The shoulder belts automatically adjust to the body and seating positions when the door is closed and the ignition key is turned "ON".

- For most effective protection, always fasten the manual lap belt in addition to the automatic shoulder belt.
- To properly operate the automatic seat belt system, the shoulder belt tongue should always remain inserted in the shoulder belt buckle, located in the rail of the door opening.
- NISSAN recommends that children be seated in the rear seats using the available seat belts. See Precautions on Seat Belt Usage earlier in this Section.

System malfunction

If, while the ignition switch is turned "ON" with either front door open, the warning light flickers and the chime sounds faster than usual for about 6 seconds, it may indicate a malfunction in the system. Have the system checked by your NISSAN dealer.



Fastening the belts

1. Open the door and make sure that the shoulder buckle is in the forward position. Then get into the vehicle and close the door.

If the ignition switch is in the "ON" position, the shoulder buckle will move to the rear position when closing the door.

2. Adjust the seat.

The seatback should not be in a reclining position any more than needed for comfort. Seat belts are most effective when the passenger sits well back and straight up in the seat.

3. Turn the ignition switch ON. The shoulder buckle will move to the rear position and will fit across your chest. Pull the shoulder belt toward the retractor to take up extra slack.

- Do not touch the door guide rail while the shoulder buckle is moving.

- Do not wear the shoulder belt across the neck or under your outer arm. The shoulder belt should be positioned midway over the shoulder for the most effective protection.

4. Slowly pull the lap belt out of the retractor and insert the tongue into the lap buckle until it snaps. Position the lap belt low on the hips and pull the belt toward the retractor to take up extra slack.

- Do not wear the lap belt across the shoulder belt.

- The retractors are designed to lock during a sudden stop or on impact. A slow pulling motion will permit the belt to move, and allow you some freedom of movement in the seat.

Unfastening the belts

1. To unfasten the lap belt, press the button on the lap buckle. The seat belt will automatically retract.

2. Open the door. The shoulder belt buckle will move to the forward position and the shoulder belt will move away from your chest.

- Do not touch the door guide rail while the shoulder buckle is moving.
- Do not unfasten the shoulder belt tongue from the buckle except in emergency. See "Operation in emergency" later in this Section.

How the automatic shoulder belt works

While the Ignition switch is on:

The shoulder buckle will move to the forward position when the door is opened, and it will move to the rear position when the door is closed.

While the Ignition switch is off:

The shoulder buckle will remain or move to the front position when the door is opened, and it will remain in the front position when the door is closed until the ignition switch is turned "ON".

If the shoulder buckle operates abnormally, have the system checked by your NISSAN dealer.

Seat belt warning light "  " and warning chime

When the Ignition switch is turned on with the door open (the shoulder buckle is at the front position):

The chime will sound for about 6 seconds, and the warning light will flicker continuously. The warning light will go off when the door is closed and the shoulder buckle reaches the rear position.

When the Ignition switch is turned on with the door closed:

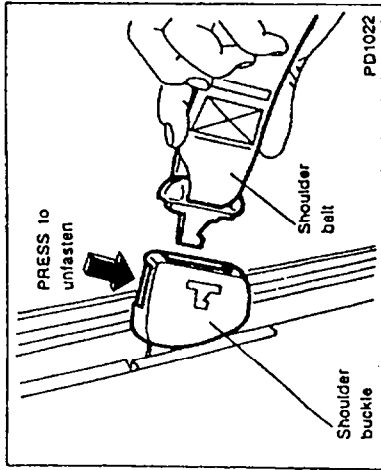
The chime will sound and the warning light will flicker until the shoulder buckle reaches the rear position. The warning light will come on for several seconds after the shoulder buckle reaches the rear position.

If the shoulder belt tongue is disconnected from the buckle:

When the ignition switch is turned on and the shoulder buckle reaches the rear position, the warning light will come on for about 100 seconds and the chime will sound for about 6 seconds until the shoulder belt is connected to the shoulder buckle. Insert the shoulder belt tongue into the shoulder buckle before driving.

If the driver side lap belt is not fastened:

When the ignition switch is turned ON and the shoulder buckle reaches the rear position, the warning light will come on for about 6 seconds and the chime will sound for about 6 seconds until the lap belt is fastened. Fasten the lap belt before driving.

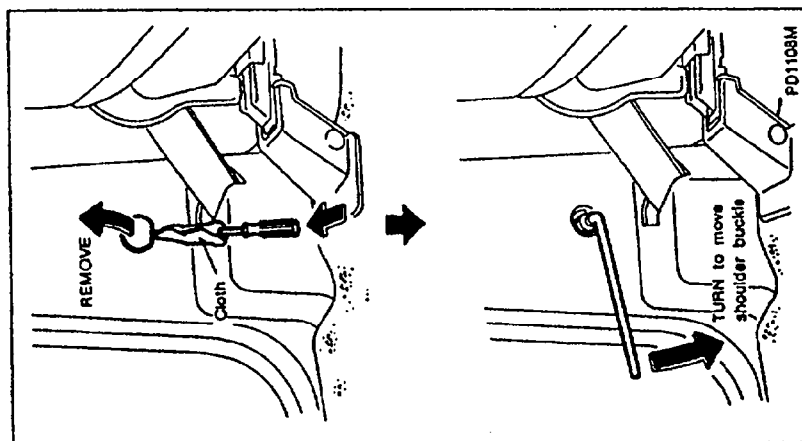


Operation in an accident

Emergency release

If you need to release the shoulder belt from the shoulder belt buckle in an emergency, press the buckle marked with "PRESS EMERGENCY". Use this feature only when the shoulder belt keeps you from leaving the vehicle in an accident.

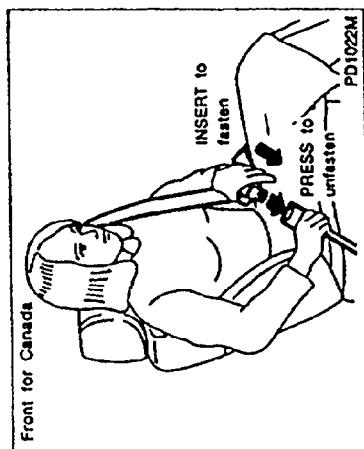
For normal use, the shoulder belt should always be connected to the buckle.



If either shoulder belt buckle does not operate

1. Slide the seat forward as far as possible.
2. Remove the blind cap in the lower portion of the center pillar with a screwdriver. The shaft end of the motor will be visible.
3. Using the wrench supplied in the glove box, turn the shaft of the motor counterclockwise to move the shoulder buckle to the rear position.

Have the automatic seat belt system checked and repaired by your NISSAN dealer.



3-POINT TYPE WITH RETRACTOR

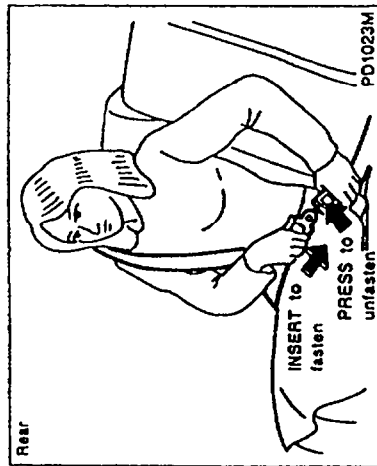
Every person who drives or rides in this vehicle should wear a seat belt at all times.

Fastening the belts

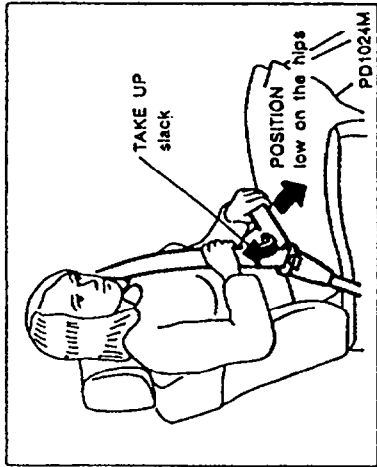
1. Adjust the seat.

The seatback should not be in a reclining position any more than needed for comfort. Seat belts are most effective when the passenger sits well back and straight up in the seat.

2. Slowly pull the seat belt out of the retractor and insert the tongue into the buckle until it snaps.



The retractor is designed to lock during a sudden stop or on impact. A slow pulling motion will permit the belt to move, and allow you some freedom of movement in the seat.



3. Position the lap belt portion low on the hips as shown.
4. Pull the shoulder belt portion toward the retractor to take up extra slack.

Unfastening the belts

To unfasten the belt, press the button on the buckle. The seat belt will automatically retract.

Checking seat belt operation (3-point type with retractor)

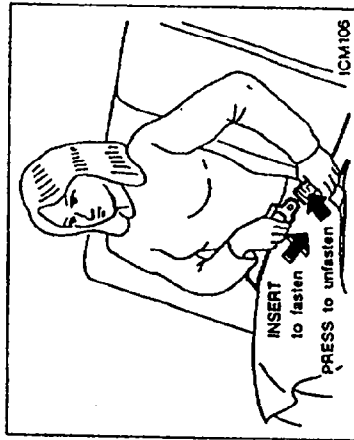
Your seat belt retractors are designed to lock belt movement by two separate methods:

- 1) When the belt is pulled quickly from the retractor.
- 2) When the vehicle slows down rapidly.

To increase your confidence in the belts, check the operation as follows:

- Grasp the shoulder belt and pull quickly forward. The retractor should lock and restrict further belt movement.

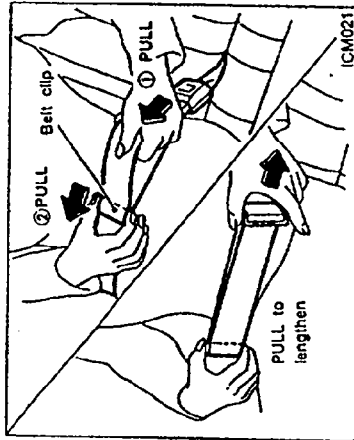
If the retractor does not lock during this check or if you have any question about belt operation, see your NISSAN dealer.



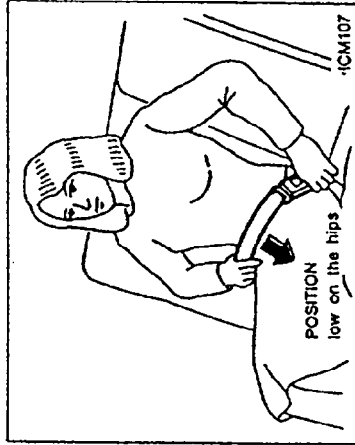
2-POINT TYPE WITHOUT RETRACTOR

Fastening the belts

1. Insert the tongue into the buckle until it snaps.



2. To lengthen, hold the tongue at a right angle to the belt and pull on the belt. To shorten, pull the free end of the belt away from the tongue, then pull the belt clip to take up the slack.



3. Position the lap belt low on the hips as illustrated.

Unfastening the belts

To unfasten the belt, press the button on the buckle.

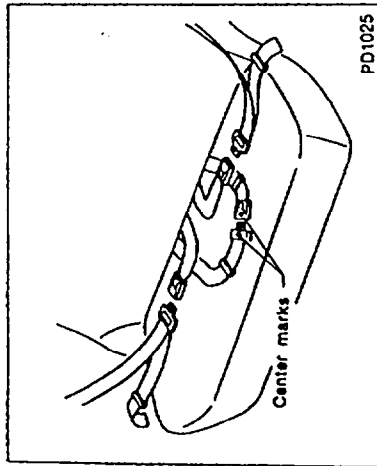
Fasten the seat belts when not in use to prevent them from being caught in the door.

SEAT BELT EXTENDERS

(Except for the automatic seat belt)
If, because of body size or driving position, it is not possible to properly fit the lap-shoulder belt and fasten it, an extender is available which is compatible with the installed seat belts. The extender adds approximately 8 inches (200 mm) of length and may be used for either the driver or front passenger seating position. See your NISSAN dealer for assistance if the extender is required.

WARNING:

- Only NISSAN belt extenders, made by the same company which made the original equipment belts, should be used with NISSAN belts.
- Persons who can use the standard seat belt should not use an extender. Such unnecessary use could result in serious personal injury in the event of an accident.



Selecting correct set of belts

The center seat belt buckle and tongue are identified by the "CENTER" label. The center seat belt tongue can be fastened only into the center seat belt buckle.

SEAT BELT MAINTENANCE

- To clean the belt webbing, apply a mild soap solution or any solution recommended for cleaning upholstery or carpets. Then brush it, wipe with a cloth and allow it to dry in the shade. Do not allow the belts to retract until they are completely dry.
- Periodically check to see that the belt and the metal components such as buckles, tongues, retractors, flexible wires and anchors work properly. If loose parts, deterioration, cuts or other damage on the webbing is found, the entire belt assembly should be replaced.

CHILD RESTRAINT SYSTEMS FOR INFANTS AND SMALL CHILDREN

It is very important that infants and small children riding in a vehicle be placed in a restraint system.

WARNING:

Children and infants should never be carried on your lap; it is not possible for even the strongest adult to resist the forces of an accident. The child could be crushed between the adult and parts of the vehicle. Also, do not put the same seat belt around both your child and yourself. In general, child restraint systems are designed to be installed with a lap belt or the lap portion of a three-point type seat belt. A child restraint system should never be installed with an automatic belt (also known as a "passive" belt), since such a belt will not properly secure the child seat.

According to traffic accident statistics, the rear seat is safer than the front seat for installation of a child restraint.

The safest place to install a child restraint system is in the middle of the second seat. Any position in the rear seat is better than the second seat. An improperly installed child restraint could lead to serious injury in an accident.

Child restraint systems specially designed for infants and small children are offered by several manufacturers. Some systems may be used for both infants and small children. When selecting any child restraint system, keep the following points in mind:

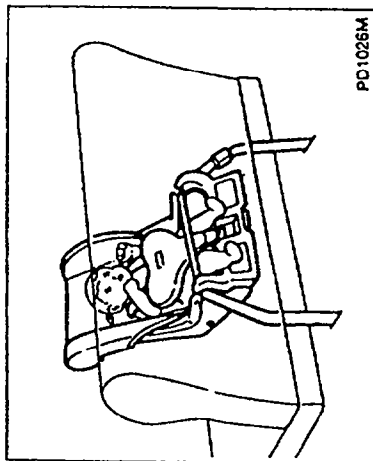
- 1) Choose only a system with a label certifying that it complies with Federal Motor Vehicle Safety Standard 213 or Canadian Motor Vehicle Safety Standard 213.
- 2) Place your child in the child restraint and check the various adjustments to be sure the child restraint is compatible with your child. Always follow all recommended procedures.
- 3) Check the child restraint in your vehicle to be sure it is compatible with the vehicle's seat belt system.

WARNING:

- Follow all of the child restraint manufacturer's instructions for installation and use. When purchasing a child restraint, be sure to select one which will fit your child and vehicle as it may not be possible to properly install some types of child restraints in your vehicle.
- When your child restraint system is not in use, keep it secured with a seat belt to prevent it from being thrown forward in case of a sudden stop or accident.

- Remember that a child restraint left in a closed vehicle can become very hot. Check the seating surface and buckles before placing your child in the child restraint.

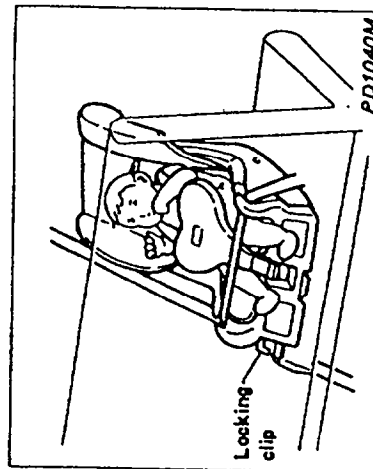
- All U.S. states and some provinces or territories require that infants and small children be restrained in approved child restraint systems at all times while the vehicle is being operated.



Installation on 2nd seat or 3rd seat

Center lap belt of 2nd seat

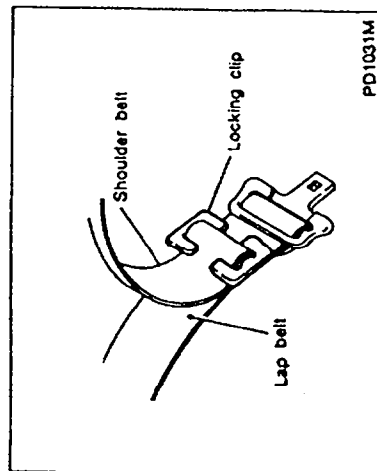
Secure the child restraint with the lap belt as illustrated. Adjust the belt for a snug fit over the child restraint.



Outboard shoulder/lap belt

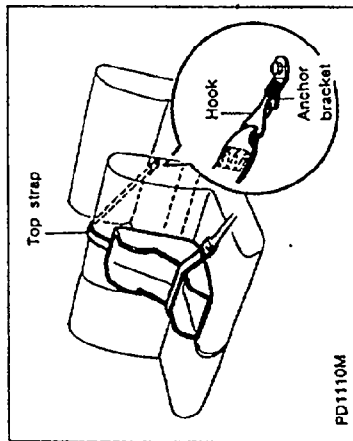
Before using the locking clip, read the instructions attached to the clip.

Secure the child restraint with the lap belt as illustrated. To prevent slack in the lap belt, it will be necessary to secure the lap/shoulder belt in place with a locking clip.



Use a NISSAN genuine locking clip (part number 999JW-A3000, available from your NISSAN dealer), or one which is equivalent in dimensions and strength.

When your child restraint system is not in use, keep the locking clip in the glove box to prevent it from being lost.



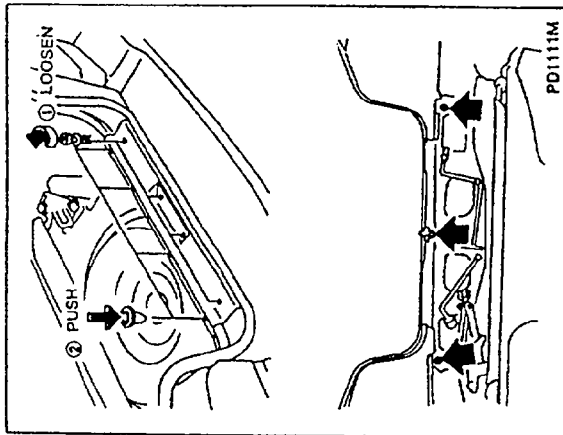
If your child restraint has a top strap, install the anchor bracket to the provided anchorage. Secure the child restraint with the outboard lap belt and latch the top strap hook onto the anchor bracket. To install the anchor bracket, a metric bolt of the dimensions listed below must be used.

Bolt diameter: 8.0 mm

Bolt length: more than 1.18 in (30 mm)

Thread pitch: 1.25 mm

Child restraint anchorages are designed to withstand only those loads imposed by correctly fitted child restraints. Under no circumstances are they to be used for adult seat belts or harnesses.



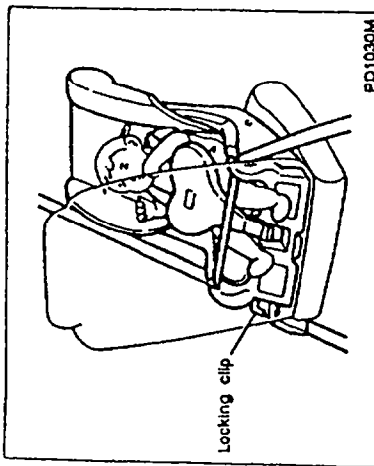
- 2) Push the top center of each clip until it snaps, then remove the clips ②.
- 3) Remove the finisher.

Anchorage location

Anchorages are located in the rear back panel.

For installing to the center anchorage, it is necessary to remove the back panel finisher. Remove it in the following manner.

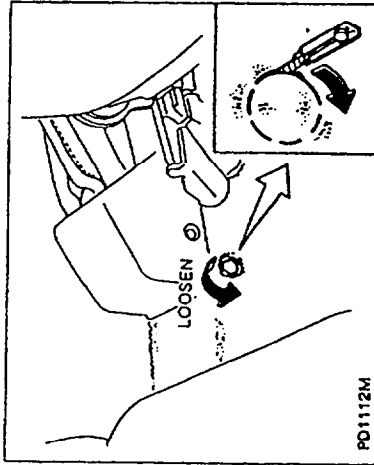
- 1) Loosen the 4 screws ①, then remove them as illustrated.



**Installation on front passenger seat
(For Canada)**

Before using the locking clip, read the instructions attached to the clip.

Secure the child restraint with the lap belt as illustrated. To prevent slack in the lap belt, it will be necessary to secure the lap/shoulder belt in place with a locking clip.

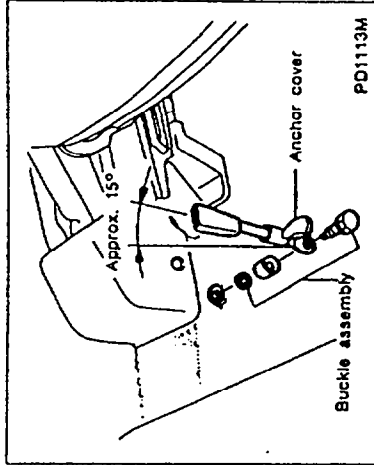


**Installation on front passenger seat
(For U.S.A.)**

- Do not use the buckle installed on the front passenger seat. Use a NISSAN genuine buckle assembly (part number 86892 30R79) for the child restraint, available from NISSAN dealers.
- Install the buckle assembly properly by following the instructions attached to it as follows:

Installation of buckle assembly

The anchorage to install the buckle is located on the rear end of the seat slide rail support.

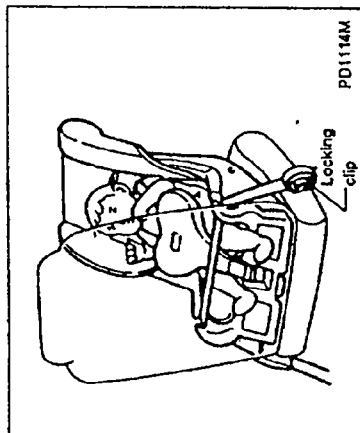


1. Cut along the slit circle of the floor carpet as shown.
2. Loosen the bolt.
3. Slide the seat to its rearmost position.
4. Place the buckle assembly inclining it approx. 15 degrees toward the front. At this time be careful not to allow the buckle assembly and the passenger seat to interfere with each other. They should not be touching, then tighten the bolt.

Tightening torque:

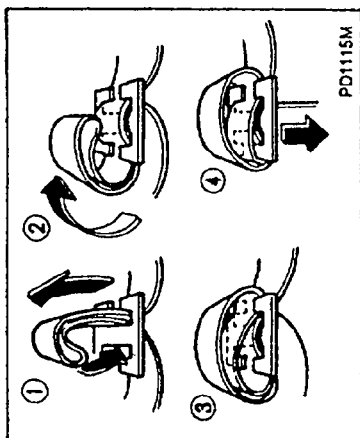
32 to 41 ft-lb
(43 to 55 N·m)

5. If the buckle assembly is removed, be sure to reinstall the original bolt.

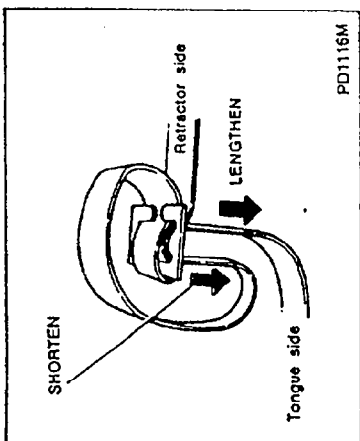


Installation of child restraint

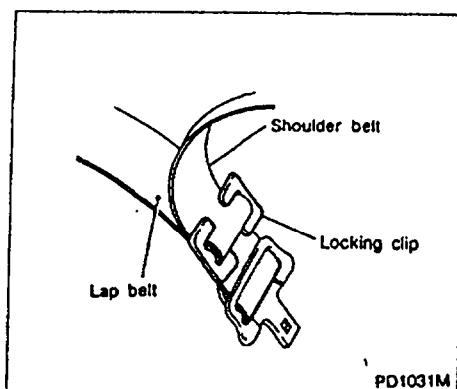
1. Slide the seat to its rearmost position.
2. Secure the child restraint with the lap belt as illustrated.
3. Tilt the buckle forward to take up slack in the belt.



4. Withdraw the webbing all the way from the retractor, and install the locking clip as close to the retractor as possible.

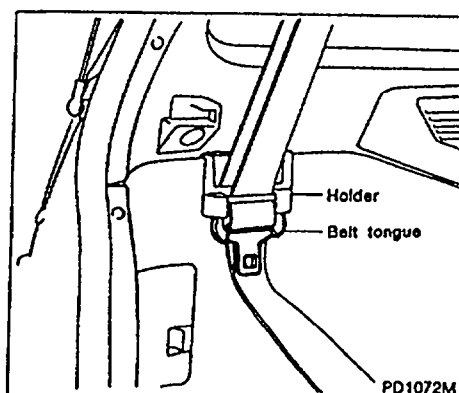


5. Adjust the webbing so that it is withdrawn all the way.
 6. Slide the seat forward so that the lap belt is fully extended from the retractor.
- Never install the child restraint with the automatic shoulder belt because it is not suitable to secure the child restraint.



Use a NISSAN genuine locking clip (part number 999JW-A3000, available from your NISSAN dealer), or one which is equivalent in dimensions and strength.

When your child restraint system is not in use, keep the locking clip in the glove box to prevent it from being lost.



3rd seat belt holder

After use, place the seat belt tongue into the holder.