

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

HYUNDAI MOTOR CO.
1992 HYUNDAI EXCEL
4 DOOR SEDAN (ACP)
NHTSA NO. MN0502

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



JUNE 08, 1992

FINAL REPORT

Prepared For:

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

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

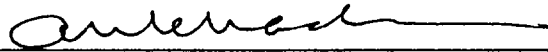
Prepared by: Dr. Anil V. Khadilkar, Program Manager

Mr. Brian O'Keefe, Test Engineer

Mr. Jerry Kratzke, Test Engineer

MOBILITY SYSTEMS AND EQUIPMENT COMPANY

Approved by:



Dr. Anil V. Khadilkar

Date:

08 June 1992

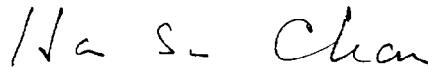
FINAL REPORT ACCEPTED BY:



Manager, New Car Assessment Program

AUG 19 1992

Date of Report Acceptance



COTR, New Car Assessment Program

AUG 19 1992

Date of Report Acceptance

1. Report No. MSE-92-N03	2. Government Accession No.	3. Recipient's Catalog No.																
4. Title and Subtitle NEW CAR ASSESSMENT PROGRAM (NCAP) FRONTAL BARRIER IMPACT TEST 1992 HYUNDAI EXCEL, 4 DOOR SEDAN NHTSA No. MN0502		5. Report Date JUNE 08, 1992																
		6. Performing Organization Code MSE																
7. Author(s) Dr. A. V. Khadilkar/Mr. Brian O'Keefe		8. Performing Organization Report No. R92027-03																
9. Performing Organization Name and Address MOBILITY SYSTEMS AND EQUIPMENT COMPANY 9920 La Cienega Boulevard, Suite 708 Inglewood, California 90301		10. Work Unit No. (TRAIS)																
		11. Contract or Grant No. DTNH22-90-D-32121, D.O. #3																
12. Sponsoring Agency Name and Address U.S. DEPARTMENT OF TRANSPORTATION NATIONAL HIGHWAY TRAFFIC SAFETY ADMIN. OFFICE OF MARKET INCENTIVES 400 SEVENTH STREET, S.W., ROOM 5313 WASHINGTON, D.C. 20590		13. Type of Report and Period Covered FINAL																
		14. Sponsoring Agency Code DOT/NHTSA/RM/OMI																
15. Supplementary Notes																		
16. Abstract A 35 mph frontal barrier impact test using a load cell barrier was conducted on a 1992 Hyundai Excel, 4 Door Sedan at the Mobility Systems and Equipment Company (MSE) crash test facility in San Bernardino, CA, on May 19, 1992. The barrier impact velocity was 34.60 mph, and the ambient temperature at the barrier face at the time of impact was 76 deg. F. The post-test vehicle crush maximum was 24.1 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>520</td> <td>544</td> </tr> <tr> <td>Chest Resultant Peak 60 Gs (3 ms clip)</td> <td>52.4</td> <td>36.8</td> </tr> <tr> <td>Femur Load Left</td> <td>1137</td> <td>817</td> </tr> <tr> <td>2250 Pounds Right</td> <td>1829</td> <td>993</td> </tr> </tbody> </table> TYPE OF RESTRAINT SYSTEM: Manual 2 point automatic shoulder and 2 point manual lap belt system at each front outboard seating positions.				Injury Criteria Threshold Value	Driver Dummy	Passenger Dummy	Head Injury Criterion HIC = 1000	520	544	Chest Resultant Peak 60 Gs (3 ms clip)	52.4	36.8	Femur Load Left	1137	817	2250 Pounds Right	1829	993
Injury Criteria Threshold Value	Driver Dummy	Passenger Dummy																
Head Injury Criterion HIC = 1000	520	544																
Chest Resultant Peak 60 Gs (3 ms clip)	52.4	36.8																
Femur Load Left	1137	817																
2250 Pounds Right	1829	993																
17. Key Words 35 MPH FRONTAL BARRIER IMPACT TEST NEW CAR ASSESSMENT PROGRAM (NCAP) 1992 HYUNDAI EXCEL, 4 DOOR SEDAN		18. Distribution Statement COPIES OF THIS REPORT ARE AVAILABLE FROM: Technical Reference Division Nat'l Hwy. Traffic Safety Admin. Room 5108, Nassif Building 400 7th St. S.W. Wash. DC 20590																
19. Security Classif. (of this report) UNCLASSIFIED	20. Security Classif. (of this page) UNCLASSIFIED	21. No. of Pages 36	22. Price															

TABLE OF CONTENTS

<u>SECTIONS</u>	<u>PAGES</u>
1 Purpose and Test Procedure	1
2 Summary of Frontal Barrier Impact Test	3
2.1 General Comments	3
3 Occupant and Vehicle Information	9
 <u>DATA TABLES</u>	
1 Test Vehicle Data	5
2 Post Crash Test Data	7
3 FMVSS 208 Occupant Crash Protection Data	10
4 Test Dummy Positioning Data	11
5 Seat Belt Positioning Data	13
6 Seat Belt Performance Assessment Test Data	14
7 Driver Dummy Positioning Data	15
8 Camera Location Data	16
9 Vehicle Accelerometer Locations and Data Summary	18
10 Test Vehicle Measurements	19
11 Pretest Vehicle Target Locations	21
12 Load Cell Locations on Fixed Barrier	22
13 Accident Investigation Division Data	23
 <u>APPENDICES</u>	
A Photographs	25
B-1 Vehicle and Dummy Response Data	27
B-2 Load Cell Barrier Data	29
C Dummy Configuration and Performance Verification Data	31
D Vehicle Owner's Manual Occupant Restraint	33
E Instrumentation and Calibration Data	35

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 1

PURPOSE AND TEST PROCEDURE

This 35 mph frontal barrier impact test is a part of the FY'92 Vehicle Barrier Impact and Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-90-D-32121. 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 January 1990.

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 2

SUMMARY OF FRONTAL BARRIER IMPACT TEST

A barrier was impacted by a 1992 Hyundai Excel, 4 Door Sedan, NHTSA No. MN0502, at a velocity of 34.60 mph. The frontal impact test was conducted by Mobility Systems and Equipment Company (MSE) on 19 May 1992. The general test and vehicle description information are 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 (60) channels of crash parameters were recorded using two (2) FM tape recorders and two (2) direct analog to digital acquisition unit and data acquisition computers. Time history plots of all recorded channels are presented in Appendix B.

2.1 GENERAL COMMENTS

The 1992 Hyundai Excel, 4 Door Sedan, was equipped with 4 cylinder engine and 4 speed automatic transmission. The test weight of the 1992 Hyundai Excel, 4 Door Sedan, with two (2) 50th percentile male dummies, instrumentation, and cameras was 2,701 pounds.

The 1992 Hyundai Excel, 4 Door Sedan, was involved in a frontal barrier crash at a velocity of 34.60 mph.

The maximum static crush for the vehicle of 24.1 inches occurred at the centerline of the bumper. The windshield was cracked, but otherwise the vehicle glazing remained intact. The driver's front door was opened without the aid of tools. The passenger's front door required a pry bar to open.

The driver ATD's face hit the steering wheel center hub and the top of steering wheel. The driver's left and right knees hit the dash panel. The driver also contacted the passenger on the rebound. The driver ATD had a HIC value of 520, the maximum chest acceleration (resultant clipped) was 52.4 g's and the maximum femur loads were 1137 (left) and 1829 (right) pounds.

The passenger ATD's head hit the dash panel. Both of his knees hit the glove box door and his right knee hit the door, the passenger also contacted the driver on the rebound. The HIC value for the passenger ATD was 544, the maximum chest acceleration (resultant clipped) was 36.8 g's, and the maximum femur loads was 817 (left) and 993 (right) pounds.

Seat belt spoolout, measured by high-speed film analysis, was 2.0 inches for the driver and 2.5 inches for the passenger.

There were no apparent visual indications of any standard solvent leaks or hood contact with the windshield. The windshield separated slightly from the outside molding on the bottom for 10 in. from the right corner inboard and for 3 in from the left corner inboard.

Appendix D shows occupant restraint system instructions by the manufacturer and Appendix E shows the instrumentation and calibration data.

Data Table No. 1 Test Vehicle Data

VEHICLE YEAR/MAKE/MODEL/BODY STYLE: 1992/HYUNDAI EXCEL/4 DOOR SEDAN

VEHICLE NHTSA NO.: M N 0 5 0 2 VIN: K M H V F 1 2 J 3 N U 5 3 5 3 3 5

VEHICLE BODY COLOR: WHITE; MONTH & YEAR OF MANUFACTURE: 11/91

ENGINE: 4 Cylinders; C.I.D; 1.5 Liters; CC
X Gas; Diesel; Turbocharged
PLACEMENT-- Longitudinal; X Transverse (Lateral)

TRANSMISSION: 4 Speed; Manual; X Automatic; X Overdrive
FINAL DRIVE: X Front Wheel Drive Rear Wheel Drive;
 Four Wheel Drive

DATE VEHICLE AVAILABLE FOR 35 MPH CRASH TESTING: 04/09/92

ODOMETER READING: 146 miles; OPTIONS: A/C; X P/S; P/Wdo.;
 Tilt Whl.; Cruise Control

DATA RECORD FROM VEHICLE'S TIRE PLACARD:

=====

Tire Pressure (at capacity): 28 psi Front; 28 psi Rear
Recommended Tire Size: P155/80 R13
Tires on Vehicle: P155/80 R13; Manufacturer: GENERAL
Number of Occupants: 2 Front; 3 Rear; N/A 3rd Seat; 5 TOTAL
Type of Front Seats: X Bucket; Bench; Split Bench
Type of Front Seat Back: Fixed; X Adjustable With X Lever
 Rotating Knob

Vehicle Maximum Capacity Loading = 850 lbs. (A)
No. of Occupants x 150 lbs.- - - = 750 lbs. (B)
Cargo Capacity (A - B)- - - - - = 100 lbs.

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

=====

Right Front = 676 lbs.
Left Front = 720 lbs. TOTAL FRONT = 1396 lbs. (61.0% of TOTAL)
Right Rear = 459 lbs.
Left Rear = 423 lbs.
TOTAL WEIGHT = 2278 lbs. TOTAL REAR = 882 lbs. (39.0% 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>2278</u>	lbs.
Maximum Cargo Carrying Capacity of Test Vehicle*- - - - -	<u>100</u>	lbs.
Weight of Two P.572 Dummies (2 x 164 lbs.)- - - - -	<u>328</u>	lbs.
TEST VEHICLE TARGET WEIGHT	<u>2706</u>	lbs.

*300 lbs. for light trucks and MPVs

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO:

Right Front =	<u>766</u>	lbs.	TOTAL FRONT =	<u>1558</u>	lbs. (58.0% of TOTAL)
Left Front =	<u>792</u>	lbs.			
Right Rear =	<u>593</u>	lbs.	TOTAL REAR =	<u>1143</u>	lbs. (42.0% of TOTAL)
Left Rear =	<u>550</u>	lbs.			

TOTAL WEIGHT= 2701 lbs. (which includes N/A 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> </u> Rt.Side <u>X</u> Left Side
2. <u>X</u> Rear Bumper Assembly	4. <u>Rear Seat Assembly</u>

TEST VEHICLE ATTITUDE:

As Delivered----Right Front = 25.80 inches
Left Front = 25.50 inches
Right Rear = 24.40 inches
Left Rear = 24.20 inches

Ready For Test--Right Front = 24.40 inches
Left Front = 24.60 inches
Right Rear = 22.90 inches
Left Rear = 22.90 inches

Test Vehicle Wheelbase: 93.80 inches; C.G.= 39.70 inches rearward of front wheel centerline

Total Vehicle Length:

Right Side =	<u>157.20</u>	inches
Left Side =	<u>157.20</u>	inches
Centerline =	<u>164.20</u>	inches

Data Table No. 2 Post Crash Test Data

DATA OF 35 MPH FRONTAL BARRIER IMPACT RATING TEST: 05/19/92

TIME OF TEST: 4:15 PM: AMBIENT TEMPERATURE AT BARRIER FACE: 76^oF

VEHICLE'S OCCUPANT COMPARTMENT TEMPERATURE: 78^oF

(spec. Range = 66 to 78 F.)

VEHICLE WINDSHIELD MOLDING TEMPERATURE: 78^oF.

VEHICLE IMPACT VELOCITY: Primary Speed Trap = N.D.* mph
Secondary Speed Trap 34.64 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 =157.2"; C/Line=164.2"; Left Side=157.2"
Vehicle Post-test Length-Right Side=137.1"; C/Line=140.1"; Left Side=137.7"
Vehicle Static Crush --- Right Side=20.1"; C/Line=24.1"; Left Side=19.5"

VEHICLE REBOUND FROM BARRIER FACE:

Vehicle Right Side = 20.0 inches
Vehicle Centerline = 19.8 inches
Vehicle Left Side = 20.0 inches

VEHICLE DUMMY CONTACT POINTS:

	DRIVER (I.D. No. 830)			PASSENGER (I.D. No. 814)		
	Strg.Col. Hub	Strg. Wheel	Instru. Panel	Instru. Panel	Knee Assy.	Glove Box Door
HEAD - - - - -	YES	YES	NO	YES	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	YES	YES	NO
REAR DOORS - - - - -	YES	NO	YES	NO

* NO DATA

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>0.3</u> " forward;	<u>0.3</u> " forward
Seat Adjuster Failure- - - -	<u>None</u> ;	<u>None</u>
Details of Any Failure:	N/A	

OTHER NOTABLE IMPACT EFFECTS: N/A

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: 1992 HYUNDAI EXCEL, 4 DOOR SEDAN

VEH. NHTSA NO.: MN0502; TEST DATE: 05/19/92

MAXIMUM ACCELERATION VALUES:		DRIVER DUMMY #830	PASSENGER DUMMY #814
Head Channel X HEAD X		170.0	31.6
Head Channel Y Y		24.9	18.2
Head Channel Z Z		51.9	64.2
HEAD RESULTANT R		178.1	175.8
Chest Channel X CHEST X		53.7	52.4
Chest Channel Y Y		18.2	32.3
Chest Channel Z Z		15.0	10.1
CHEST RESULTANT (3 msec clip) R		52.4	36.8
TIME INTERVAL (seconds)		0.0648 - 0.0678	0.1035 - 0.1065

HEAD INJURY CRITERIA (HIC) VALUES:

HIC HIC	519.9	544.0
t_1 (seconds)	0.0678	0.0708
t_2 (seconds)	0.0917	0.1068
Avg. Accel. t_1 to t_2	54.2	46.9

MAXIMUM FEMUR FORCES:

Right Side (lbs.) FR	1828.7	993.0
Left Side (lbs.) FL	1136.8	817.3

MAXIMUM SEAT BELT FORCES:

Lap Belt LAP	739.6	656.3
Shoulder Belt SHLDR	2752.4	2005.4

MAXIMUM SEAT BELT WEAVING SPOOL-OUT:

Lap/Shoulder Belt Combination	2.0	2.5
-------------------------------	-----	-----

Data Table No. 4 Test Dummy Positioning Data

PRE-IMPACT DATA:

Make/Model: HYUNDAI EXCEL

Body Style: 4 DOOR SEDAN

Model Year: 1992

NHTSA No.: MN0502

Color: WHITE

DATA FROM CERTIFICATION LABEL:

Vehicle Manufacturer: HYUNDAI

Date of Manufacture: 11/91; VIN: KMHVF12J3NU535335

GVWR: 3298 lb; GAWR: Front = 1730 lb; Rear = 1630 lb

POST-IMPACT DATA:

Date of Test: 05/19/92 Time: 4:15 PM Temperature: 76 °F

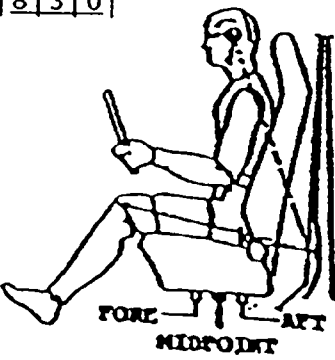
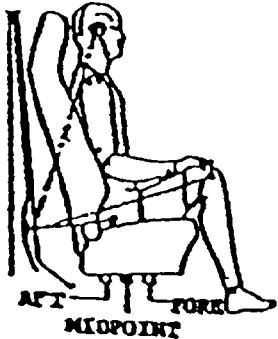
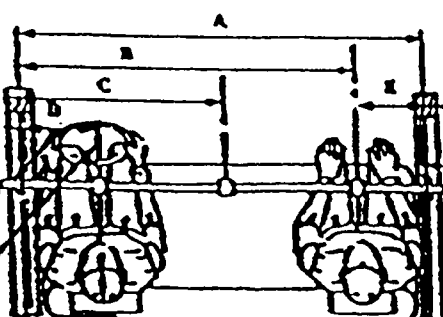
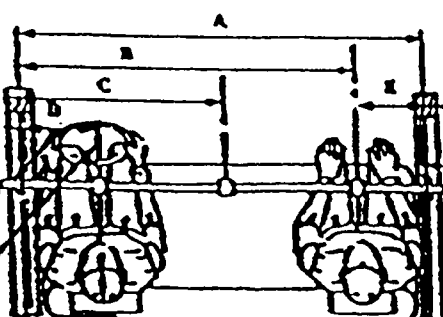
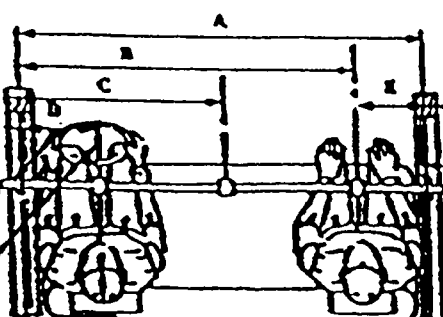
Required Impact Velocity Range: 34.5 to 35.5 mph

Impact Velocity: Primary = N/AV mph Secondary = 34.64 mph

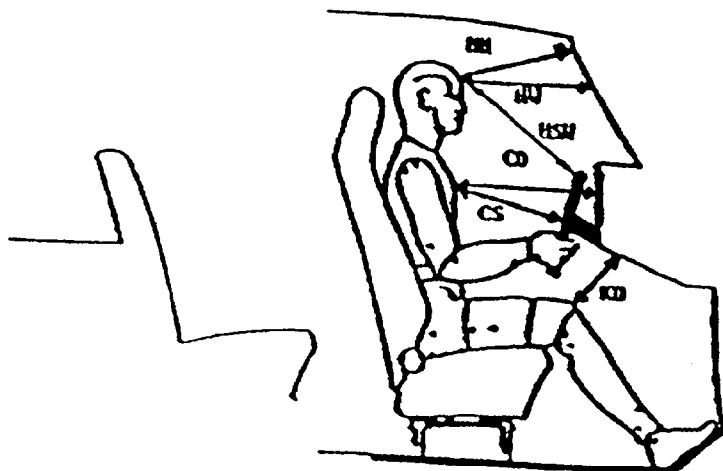
Seat Type: Bucket Adjuster Type: Lever

Bucket Seat Back Type: Adjustable Headrest

TECHNICIANS: Brian O'keefe, Levi Navarro

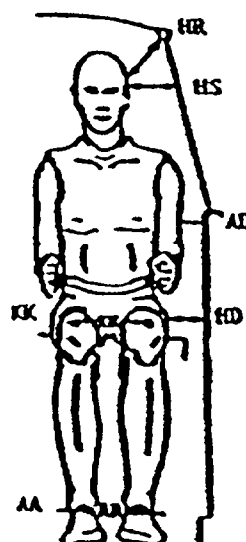
DRIVER DUMMY # <u>8 3 0 </u> HEAD <u>21.80"</u> TARGET <u>94.00°</u> KNEE <u>19.80"</u> JOINT <u>- 7.00°</u> APPROX- <u>5.20"</u> IMATE <u>-40.00°</u> "H" POINT	PASSENGER DUMMY # <u>8 1 4 </u> <u>23.00"</u> HEAD <u>92.00°</u> TARGET <u>22.20"</u> KNEE <u>- 7.00°</u> JOINT <u>6.00"</u> APPROX- <u>-40.00°</u> MATE "H" POINT											
												
FORE AFT MIDPOINT	AFT FORE MIDPOINT											
<table style="width: 100%;"> <tr> <td style="width: 20%;">A = <u>53.00"</u></td> <td rowspan="5" style="text-align: center; vertical-align: middle;">  </td> <td style="width: 20%;">B = <u>40.10"</u></td> </tr> <tr> <td>C = <u>26.50"</u></td> <td></td> </tr> <tr> <td>D = <u>13.40"</u></td> <td></td> </tr> <tr> <td>E = <u>12.90"</u></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>		A = <u>53.00"</u>		B = <u>40.10"</u>	C = <u>26.50"</u>		D = <u>13.40"</u>		E = <u>12.90"</u>			
A = <u>53.00"</u>		B = <u>40.10"</u>										
C = <u>26.50"</u>												
D = <u>13.40"</u>												
E = <u>12.90"</u>												
LATERAL BAR ADJUSTABLE POINTER LEFT FRONT DOOR	DOOR GLASS HEIGHT RIGHT FRONT DOOR											
DRIVER DUMMY # <u>8 3 0 </u>	PASSENGER DUMMY # <u>8 1 4 </u>											

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

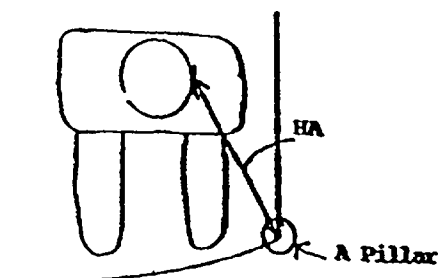


Driver		Passenger	
HH	12.00		11.80
HW	14.30		14.40
CD	21.80		21.40
CS	15.00		N/A
KD	L- 6.80		L- 7.30
KD	R- 5.90		R- 7.70
Torso		Torso	
Angle	16.00	Angle	15.00
Seat Back		Seat Back	
Angle	19.00	Angle	19.00
HSW	19.00		N/A

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.)

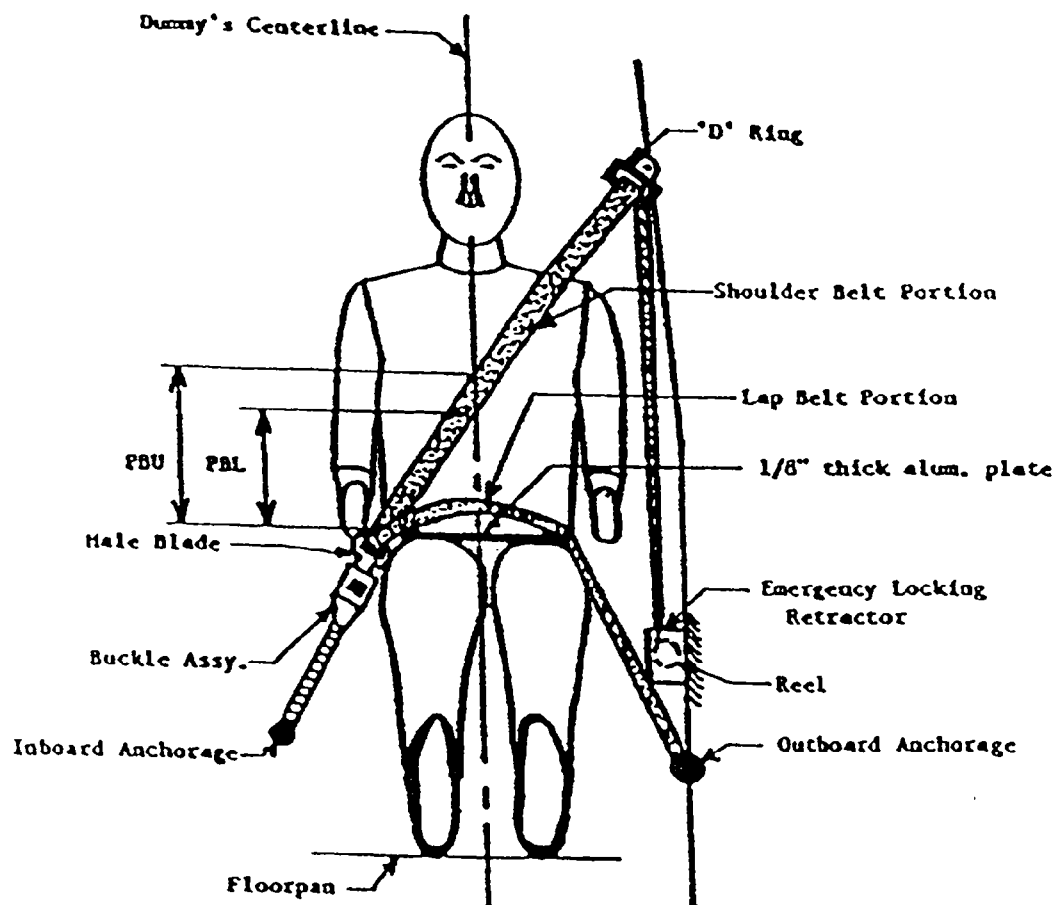


REMARKS



Driver		Passenger	
HR	3.80		4.20
HS	7.10		6.40
AD	2.70		2.40
HD	6.00		6.20
KK	14.00		11.30
AA	12.00		11.00
HA	18.80		17.20

Data Table No. 5 Seat Belt Positioning Data



FRONT VIEW OF DRIVER DUMMY

	DRIVER DUMMY (inches)	PASSENGER DUMMY (inches)
<u>PBU</u> -- Top surface of alum. plate to belt upper edge	10.80	12.80
<u>PBL</u> -- Top surface of alum. plate to belt lower edge	7.50	9.50
<u>LAP BELT TENSION, POUNDS</u>	— — —	— — —
<u>SHOULDER BELT TENSION, POUNDS</u>	— — —	— — —

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
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
33.00	28.80	30.00	31.00
26.00	26.00	26.00	26.50
SH-43.00 LAP-13.50	47.20 13.50	SH-43.00 LAP-13.50	42.00 13.50

BELT SPOOL-OFF DATA:

As determined by film analysis _____

As determined electronically _____

As determined mechanically _____

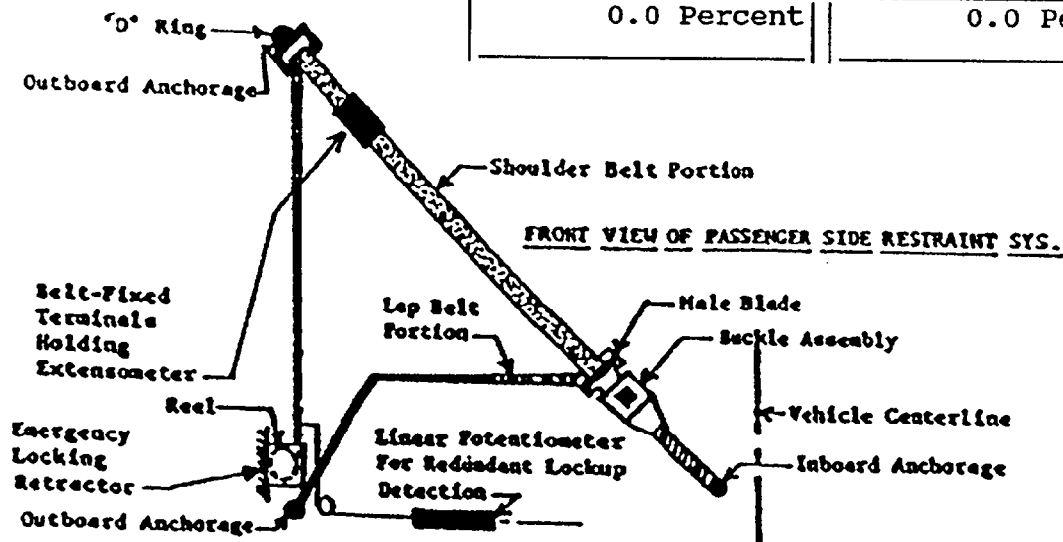
2.00 in	2.50 in
N/AV	N/AV
2.80 in	2.80 in

BELT STRAIN DATA:

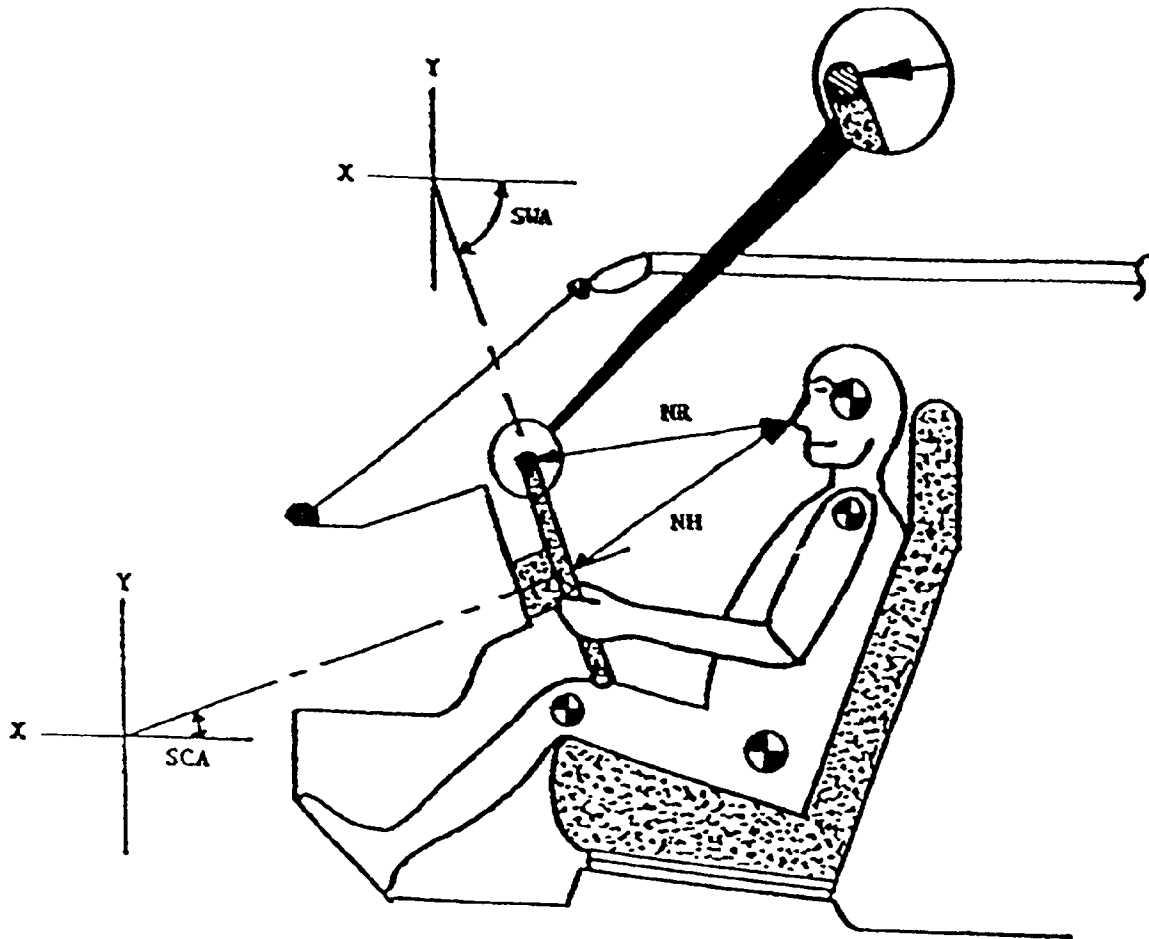
Measured between male blade and 'D' ring, electronically _____

mechanically _____

5.0 Percent	4.0 Percent
0.0 Percent	0.0 Percent



Data Table No. 7 Driver Dummy to Steering Wheel Positioning



LEFT SIDE VIEW

MEASUREMENTS	
<u>NR</u> --Distance from tip of dummy's nose to Top Rear surface of steering wheel rim.	17.7 Inches
<u>NH</u> --Distance from tip of dummy's nose to center of steering column hub.	18.1 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.	62.0 Degrees

Data Table 8 Camera Location Data

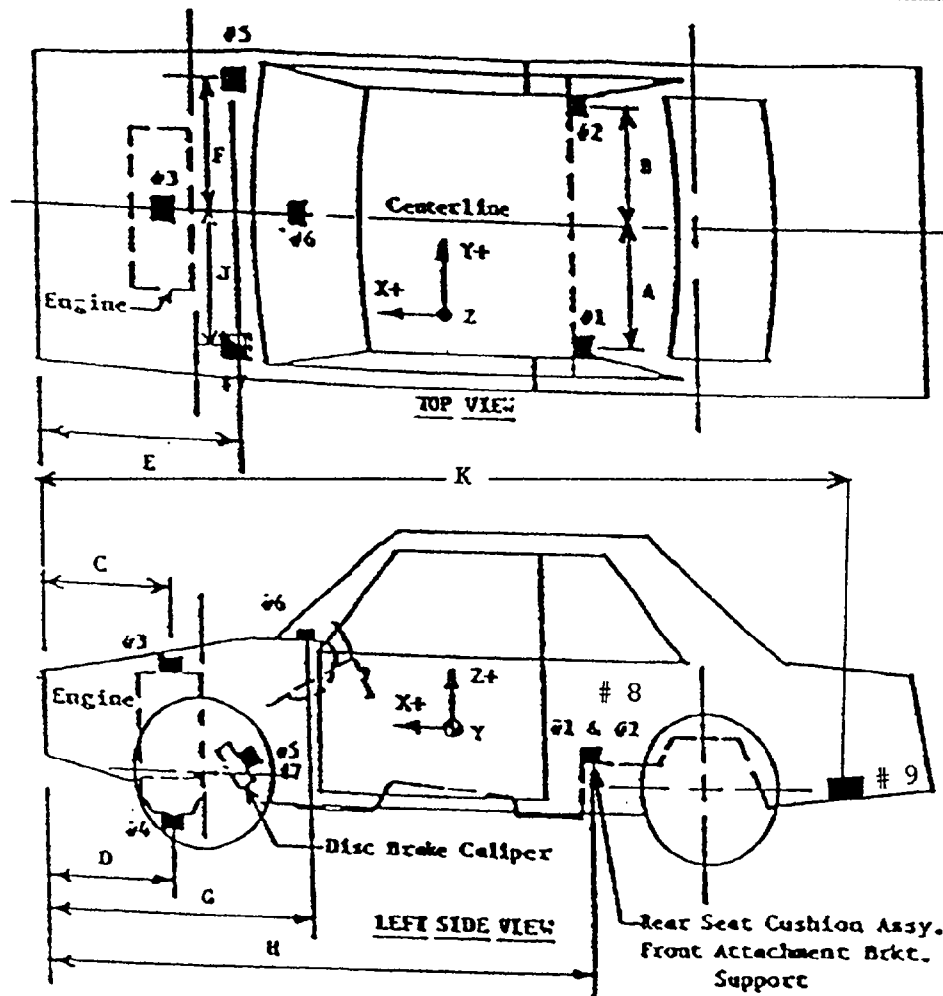
VEH. NHTSA NO.: MN0502; TEST DATE: 05/19/92; TIME: 4.15 PMVEH. YEAR/MAKE/MODEL/BODY STYLE: 1992/HYUNDAI EXCEL, 4 DOOR SEDAN

CAMERA NO.	VIEW	CAMERA POS. (in.)			ANGLE (deg)	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Left Side View	231	565	134	-20	575	15-70 ZOOM	24
2	Right Side View	26	260	40	- 1	253	13	580
3	Left Side View	48	390	68	- 7	385	25	615
4	Overhead	-14	0	159	-65	155	13	615
5	Pit-Engine	25	0	-72	+90	135	13	N/AV
6	Pit-Fuel Tank	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.
7	Front-Passenger	-17	15	95	-45	118	16	605
8	Front-Driver	-17	13	95	-46	118	16	615
9	Left Side-Driver	89	106	80	-19	98	16	610
10	Right Side-Passenger	90	112	77	-19	103	16	600
11	Right Side-'A' Post	7	162	45	0	169	28	660
12	Left Side-'A' Post	25	439	5	- 7	431	50	780
13	Onboard-Left Side	109	15	20	+ 2	31	13	700
14	Onboard-Right Side	109	14	20	+ 1	31	13	700
15	Left Side-Steering Col.	56	377	129	-17	373	28	545
16	Left Side-Steering Col.	56	377	114	-14	368	28	600
17	Right Side Passenger	73	100	60	-11	88	16	615

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

[illegible]

Data Table No. 9 Vehicle Accelerometer Location and Data Summary



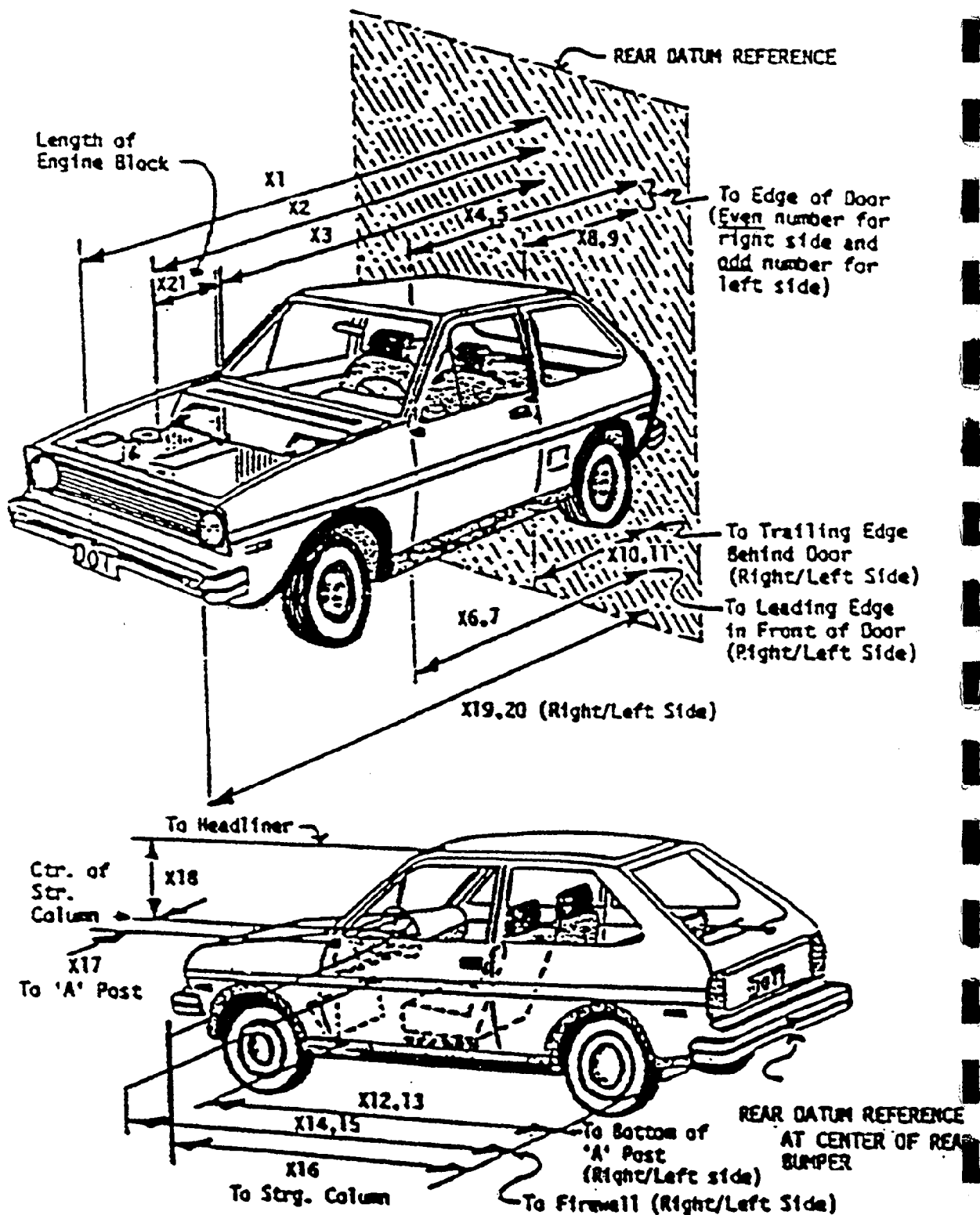
Dimension	Length (in.)
A	20.5
B	20.5
C	36.5
D	27.5
E	34.0
F	23.0
G	57.0
H	112.0
J	23.0
K	157.0

Loc. No.	Description	Maximum Value			
		X-	msec.	X+	msec.
1	Rear seat X-member @ Left Side	38.1	37.8	2.5	151.5
2	Rear seat X-member @ Right Side	36.5	37.3	2.9	145.1
3	Top of Engine Block	103.5	33.4	140.6	43.4
4	Bottom of Engine Block	121.4	41.9	74.1	36.5
5	Disc Brake Caliper Right Side	153.4	35.1	111.5	56.1
6	Instrument Panel	72.1	49.3	38.9	70.5
7	Disc Brake Caliper @Left Side	77.0	41.5	24.9	60.4
Loc. No.		Z-	msec	Z+	msec
8	Center Rear X Member	14.4	68.4	12.7	45.2
9	Vehicle Rear	18.2	31.2	25.8	41.7

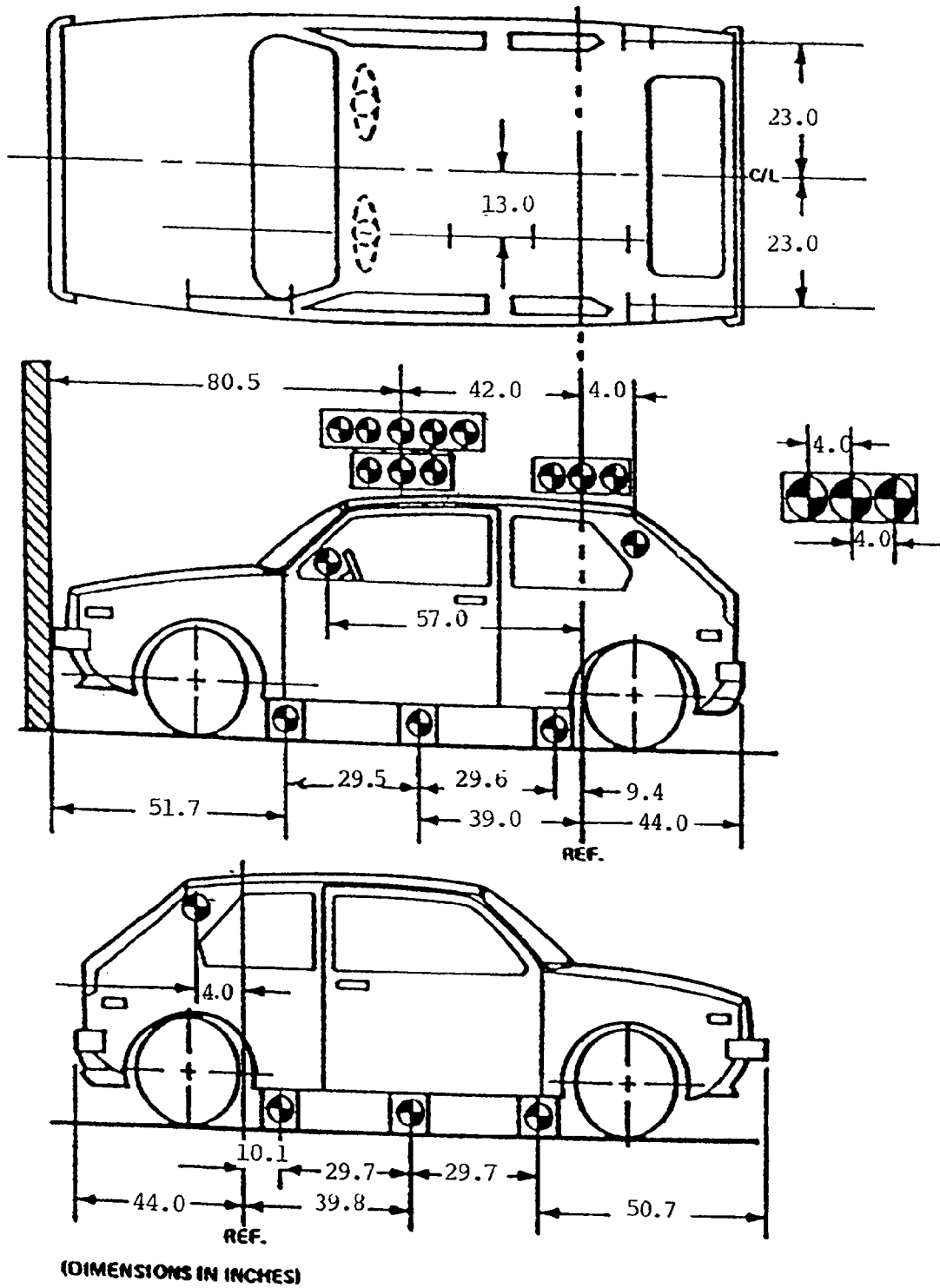
Data Table No. 10 Test Vehicle Measurements

NO.	MEASUREMENT DESCRIPTION	Pre-Test (in.)	Post-Test (in.)	Diff. (in.)
X1	Total Length of Test Vehicle at Centerline	164.2	140.1	24.1
X2	Rear Surface of Vehicle to Front of Engine	142.2	132.2	10.0
X3	Rear Surface of Vehicle to Firewall	122.2	114.7	7.5
X4	Rear Surface to Upr. Leading Edge of Right Door	89.5	88.0	1.5
X5	Rear Surface to Upr. Leading Edge of Left Door	89.0	88.2	0.8
X6	Rear Surface to Lwr. Leading Edge of Right Door	110.7	109.5	1.2
X7	Rear Surface to Lwr. Leading Edge of Left Door	110.7	109.7	1.0
X8	Rear Surface to Upr. Trailing Edge of Right Door	69.7	68.7	1.0
X9	Rear Surface to Upr. Trailing Edge of Left Door	69.7	69.0	0.7
X10	Rear Surface to Lwr. Trailing Edge of Right Door	73.7	72.8	0.9
X11	Rear Surface to Lwr. Trailing Edge of Left Door	73.7	72.8	0.9
X12	Rear Surface to Bottom 'A' Post on Right Side	111.2	110.0	1.2
X13	Rear Surface to Bottom 'A' Post on Left Side	111.2	110.0	1.2
X14	Rear Surface to Firewall on Right Side	122.2	116.0	6.2
X15	Rear Surface to Firewall on Left Side	121.7	117.0	4.7
X16	Rear Surface to Steering Column	93.2	93.2	0.0
X17	Center of Steering Column to 'A' Post	15.0	13.5	1.5
X18	Center Steering Column to Headlining	16.5	15.5	1.0
X19	Rear Surface to Right Side of Front Bumper	159.7	139.6	20.1
X20	Rear Surface to Left Side of Front Bumper	159.7	140.2	19.5
X21	Length of Engine Block	5.8	5.8	0.0

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



DATA TABLE No. 11 VEHICLE TARGET LOCATIONS



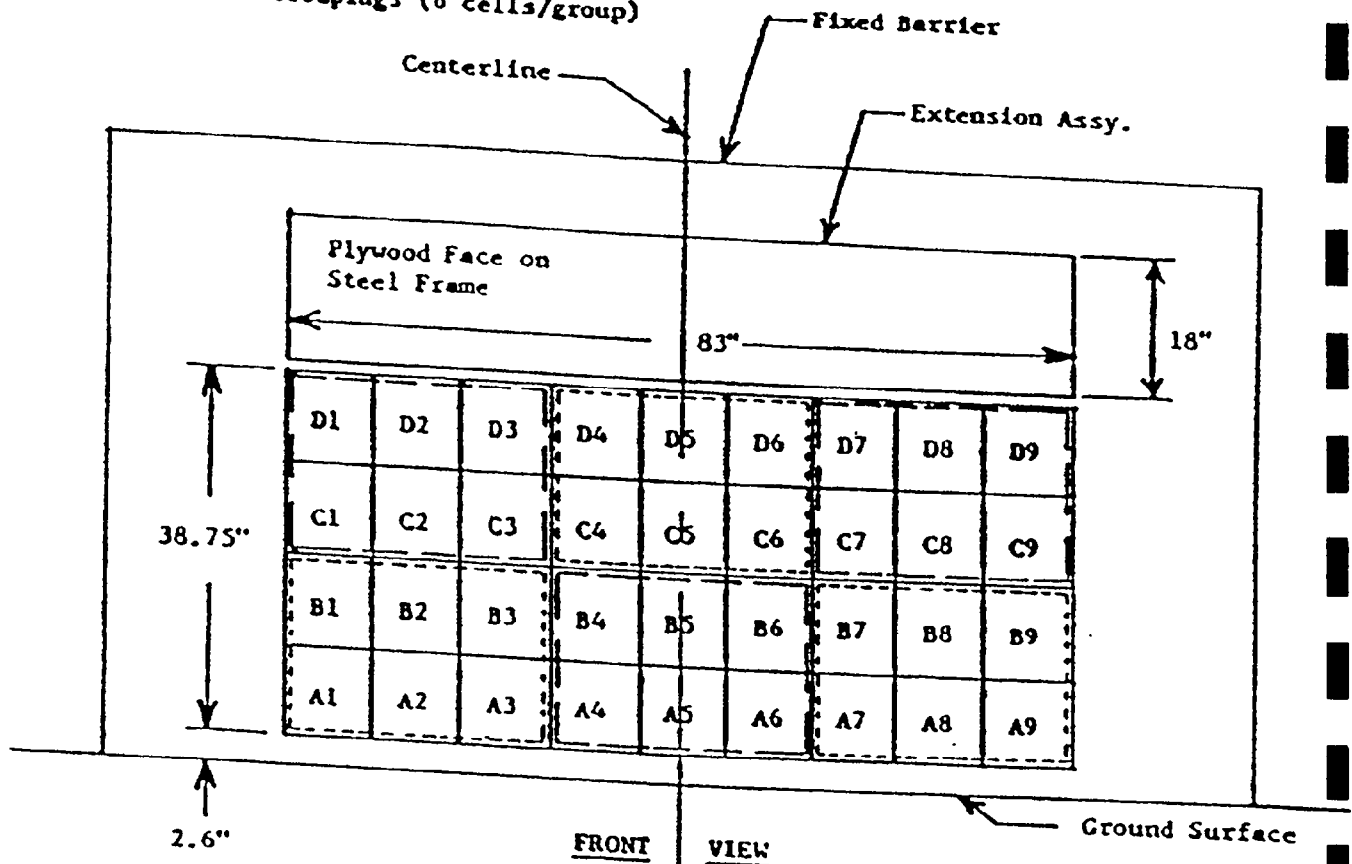
Data Table No. 12 Load Cell Locations on Fixed Barrier

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)

DATA TABLE No. 13

ACCIDENT INVESTIGATION DIVISION DATA FOR 35 MPH FRONTAL BARRIER IMPACT

VEHICLE MAKE/MODEL/BODY/STYLE: 1992 HYUNDAI EXCEL, 4 DOOR SEDAN

VEH. NHTSA NO.: MN0502; VIN: JMHVF12J3NU535335

MODEL YEAR: 1992; BUILD DATE: 11/91; TEST DATE: 05/19/92

VEH. SIZE CATEGORY: N/A; TEST WEIGHT: 2701 LB.

VEH. WHEELBASE: 93.8 IN; FRONT OVERHANG: 35 IN; OVERALL WIDTH: 63.1 IN

ACCELEROMETER DATA:

LOCATION: LEFT AND RIGHT SIDE PASSENGER COMPARTMENT

CALIBRATION PROCEDURE: 6 MO.S/DROP TEST

LINEARITY: GOOD; INTEGRATION ALGORITHM: NHTSA STANDARD

VEH. IMPACT SPEED: 34.6 MPH; TIME OF SEPARATION: 82.5 MSEC

VELOCITY CHANGE: 39.8 MPH (LEFT), 40.9 MPH (RIGHT)

COLLISION DEFORMATION CLASSIFICATION (CDC) CODE:

F (FRONTAL)

CRUSH DEPTH DIMENSIONS:

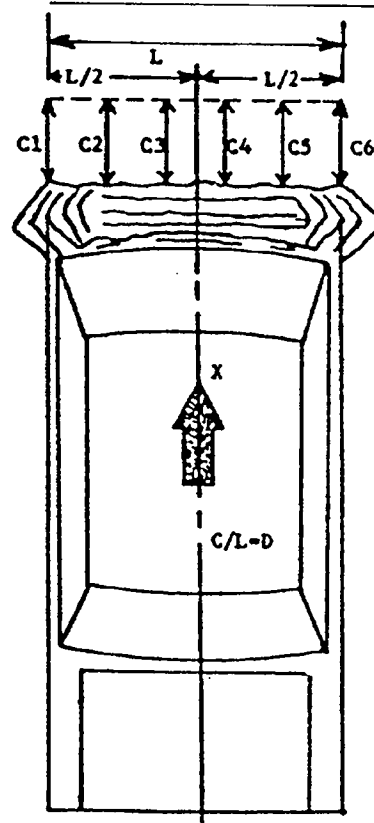
C1 =	<u>20.50 INCHES</u>
C2 =	<u>21.80 INCHES</u>
C3 =	<u>23.20 INCHES</u>
C4 =	<u>23.70 INCHES</u>
C5 =	<u>22.80 INCHES</u>
C6 =	<u>21.40 INCHES</u>

MIDPOINT OF DAMAGE:

D = VEHICLE CENTERLINE (LONGITUD.)

LENGTH OF DAMAGED REGION:

L = 52.00 INCHES



MSE-92-R92027-N03

THIS PAGE INTENTIONALLY LEFT BLANK

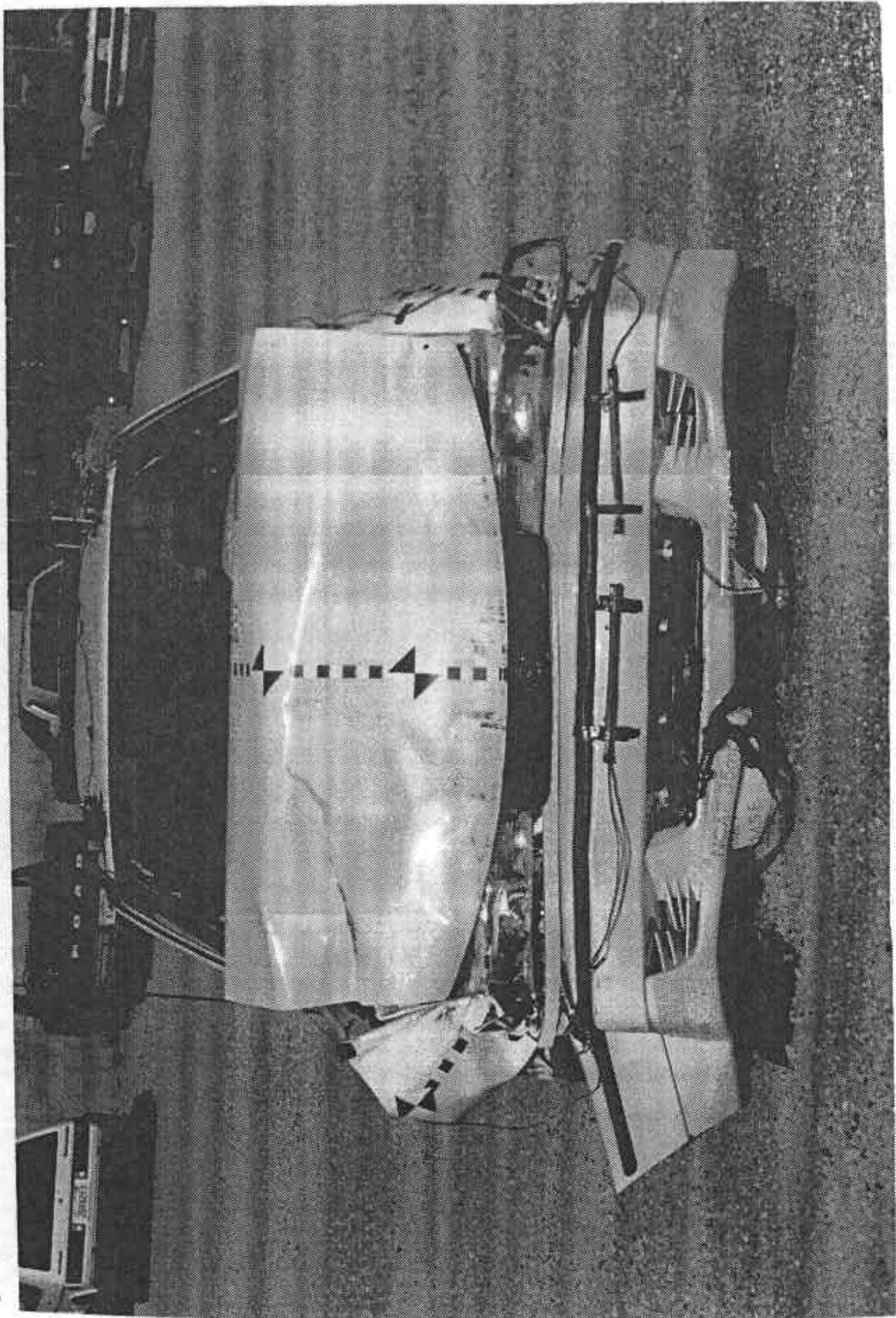
APPENDIX A

PHOTOGRAPHS

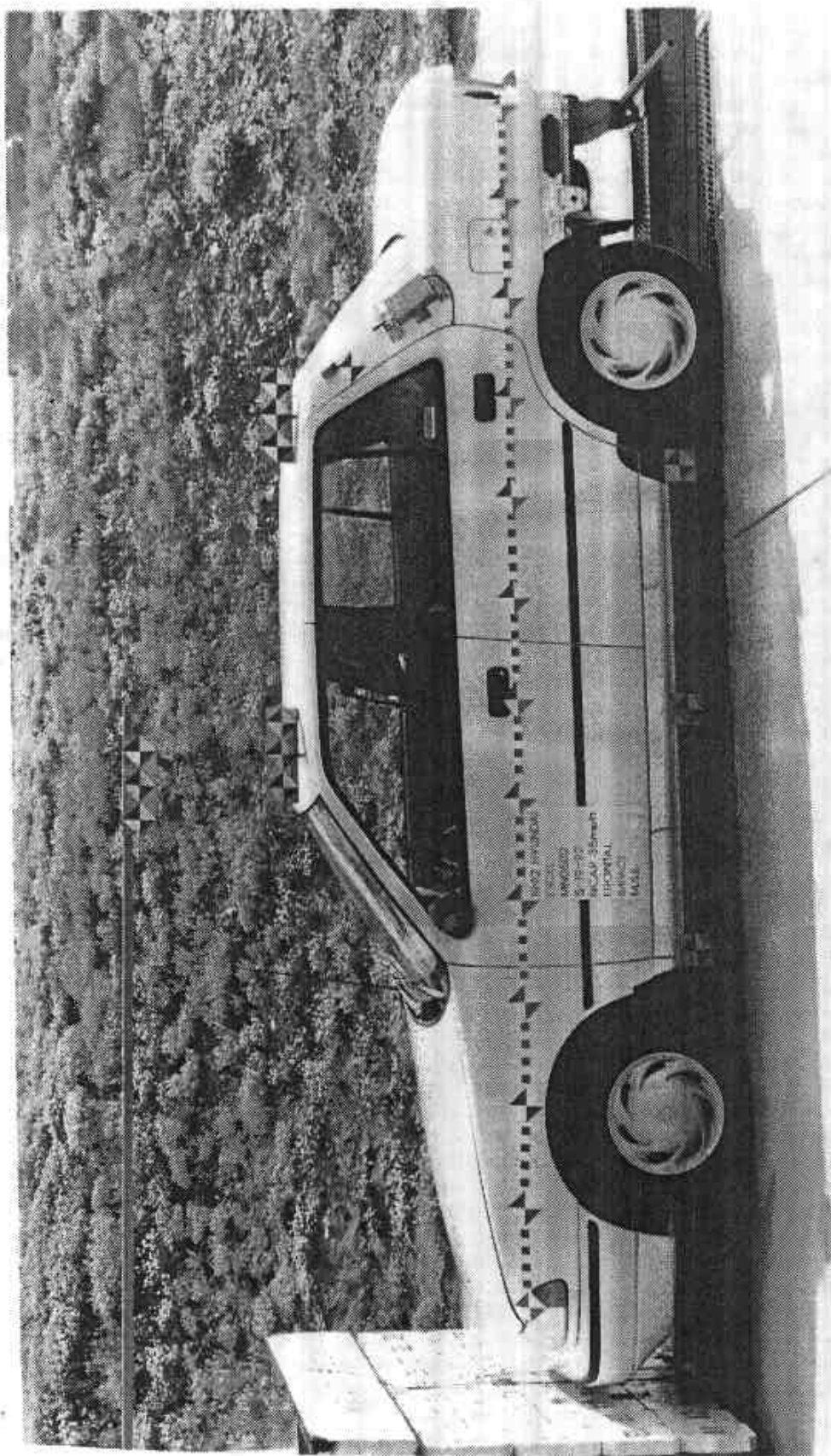
PRETEST FRONT VIEW
POSTTEST FRONT VIEW
PRETEST LEFT SIDE VIEW
POSTTEST LEFT SIDE VIEW
PRETEST RIGHT SIDE VIEW
POSTTEST RIGHT SIDE VIEW
PRETEST RIGHT FRONT 3/4 VIEW
POSTTEST RIGHT FRONT 3/4 VIEW
PRETEST LEFT REAR 3/4 VIEW
POSTTEST LEFT REAR 3/4 VIEW
PRETEST WINDSHIELD VIEW
POSTTEST WINDSHIELD VIEW
PRETEST 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 DUMMY & 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) KNEE CONTACT AREA



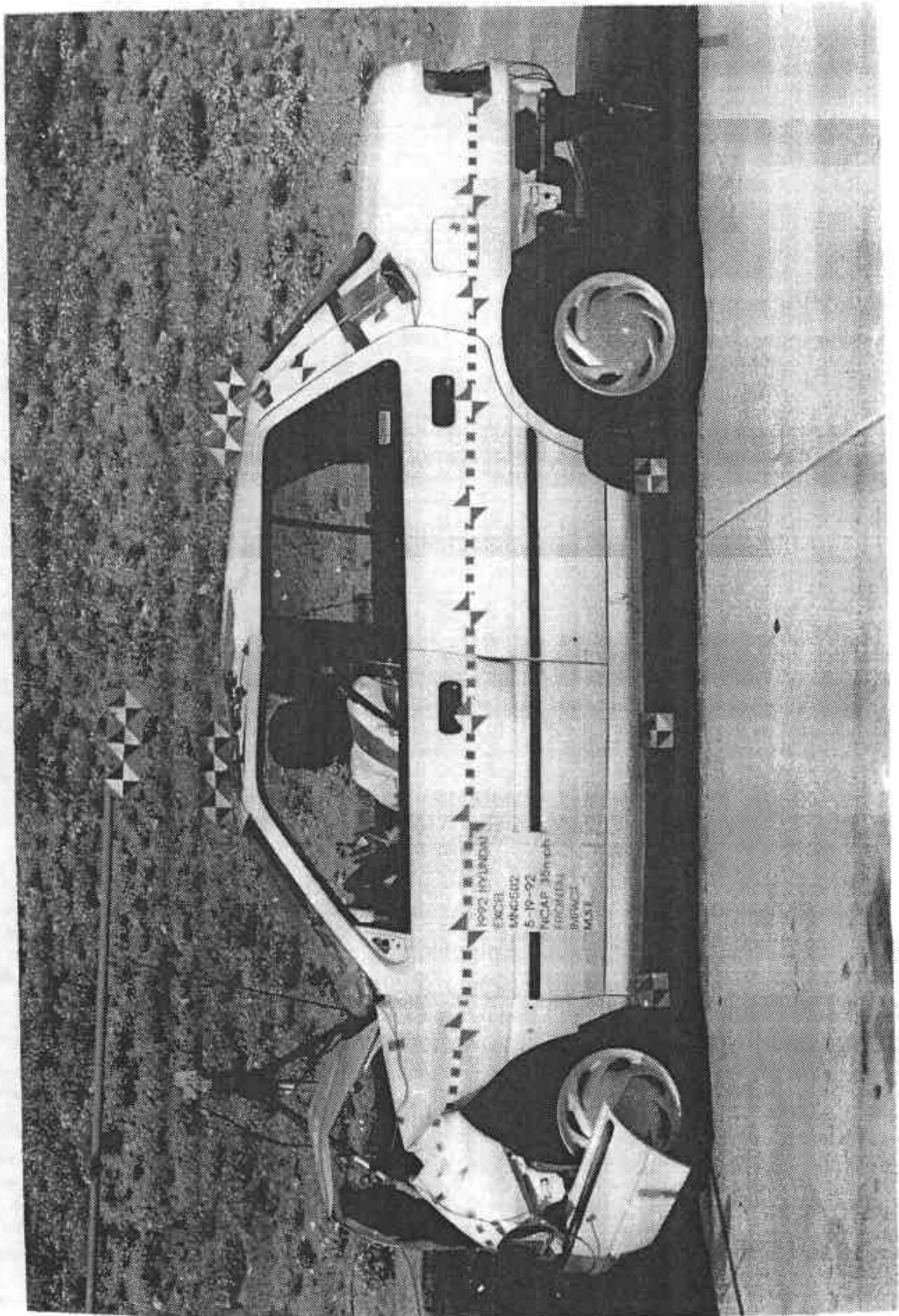
PRETEST FRONT VIEW



POSTTEST FRONT VIEW



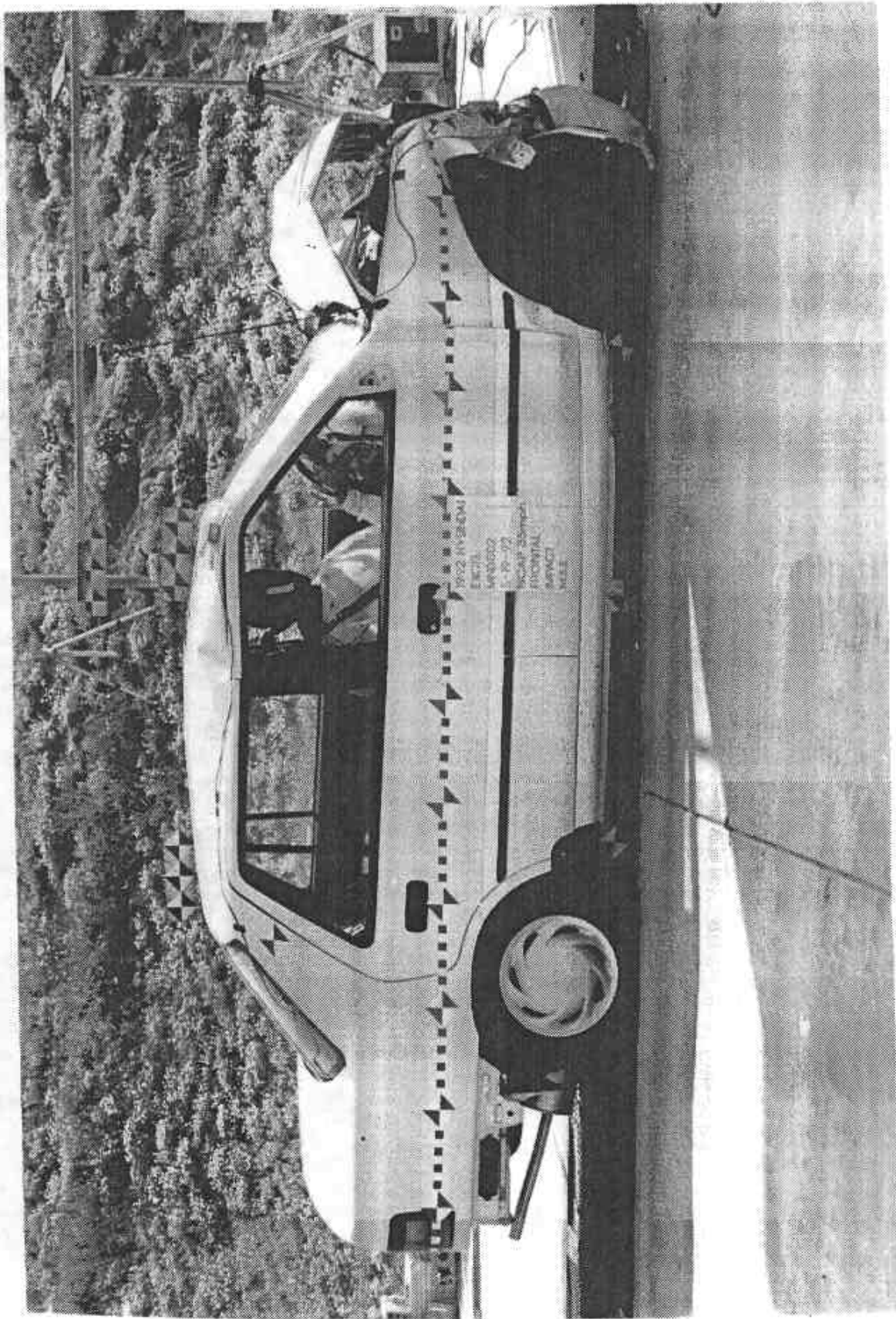
PRETEST LEFT SIDE VIEW



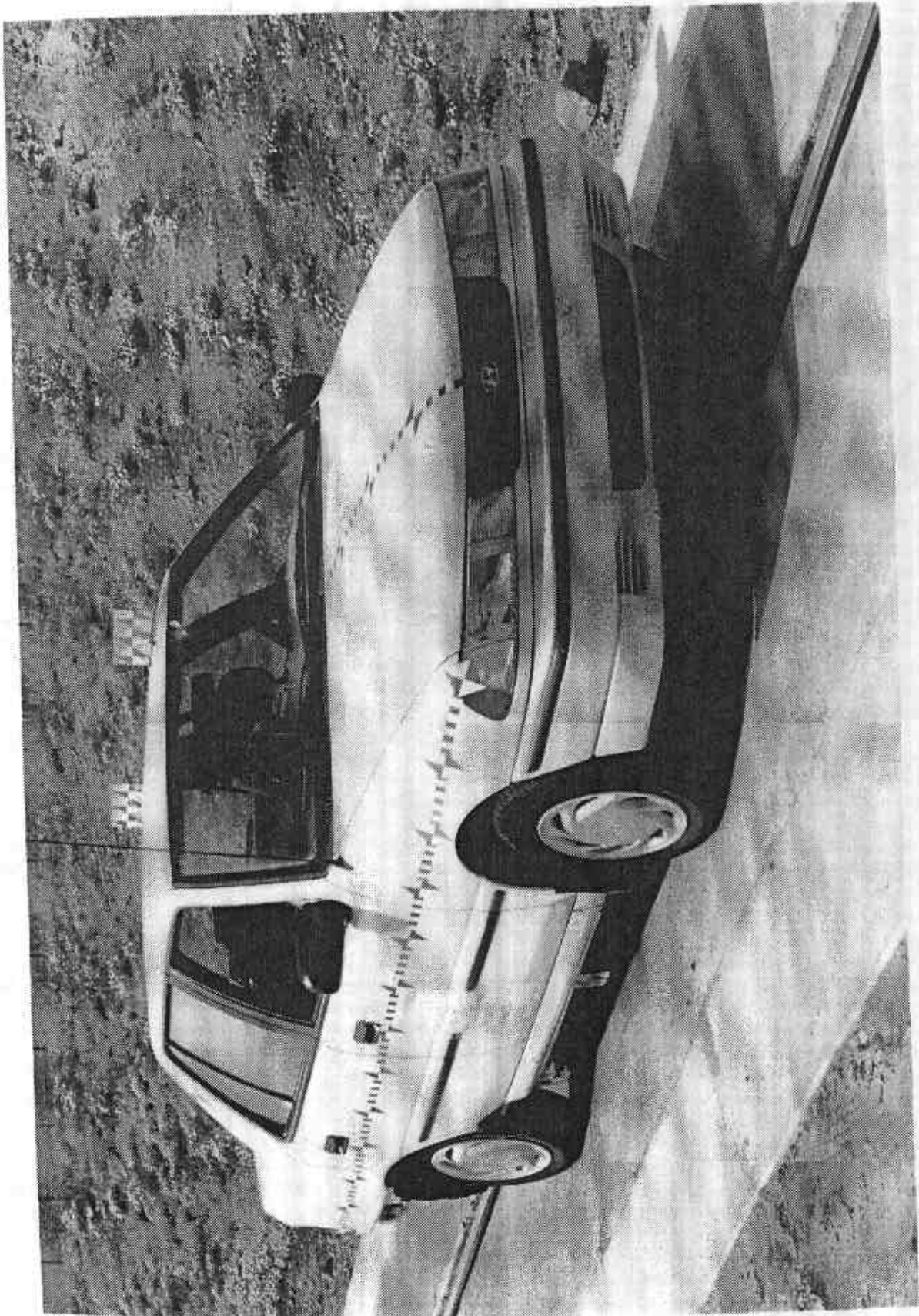
POSTTEST LEFT SIDE VIEW



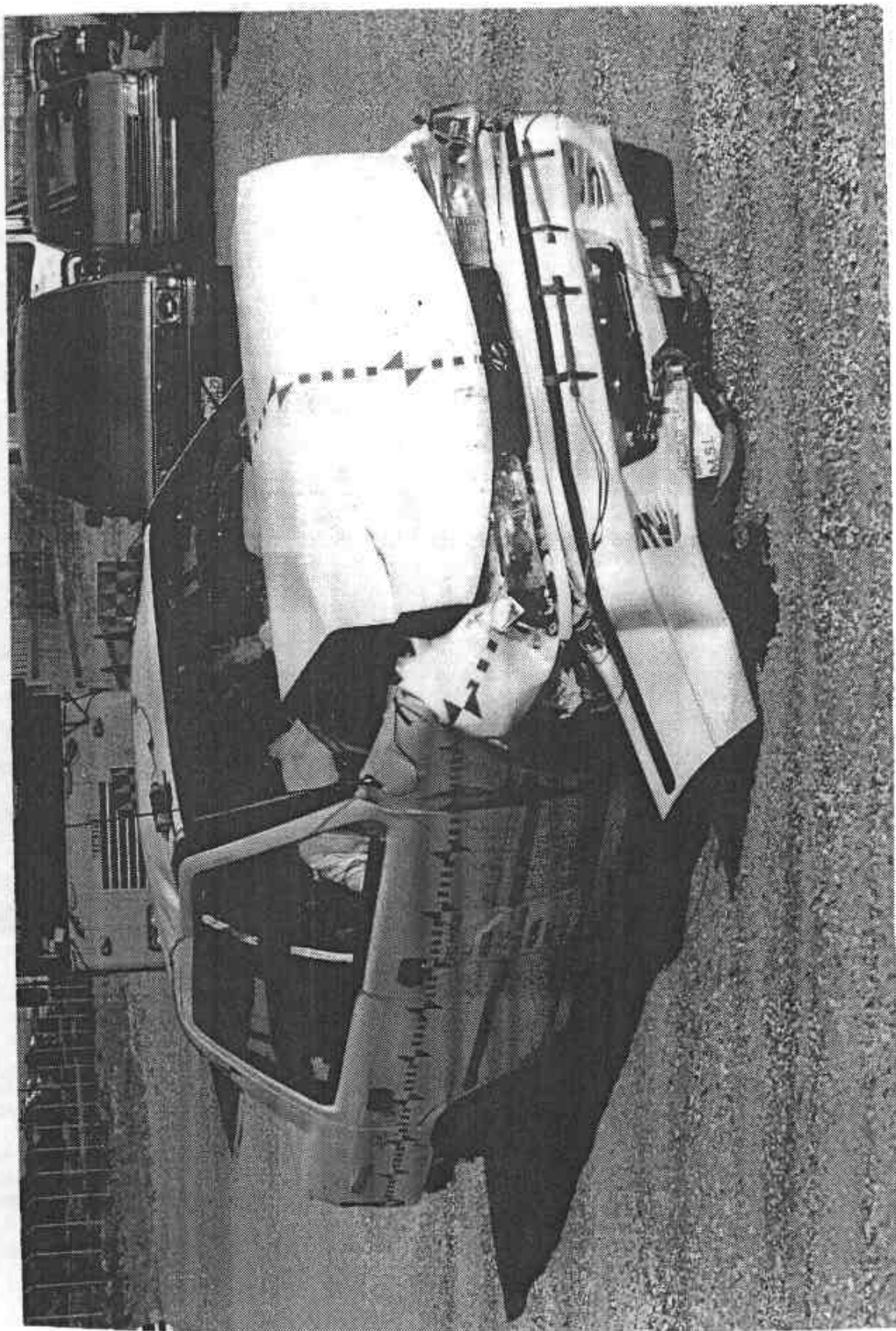
PRETEST RIGHT SIDE VIEW



POSTTEST RIGHT SIDE VIEW



PRETEST RIGHT FRONT 3/4 VIEW

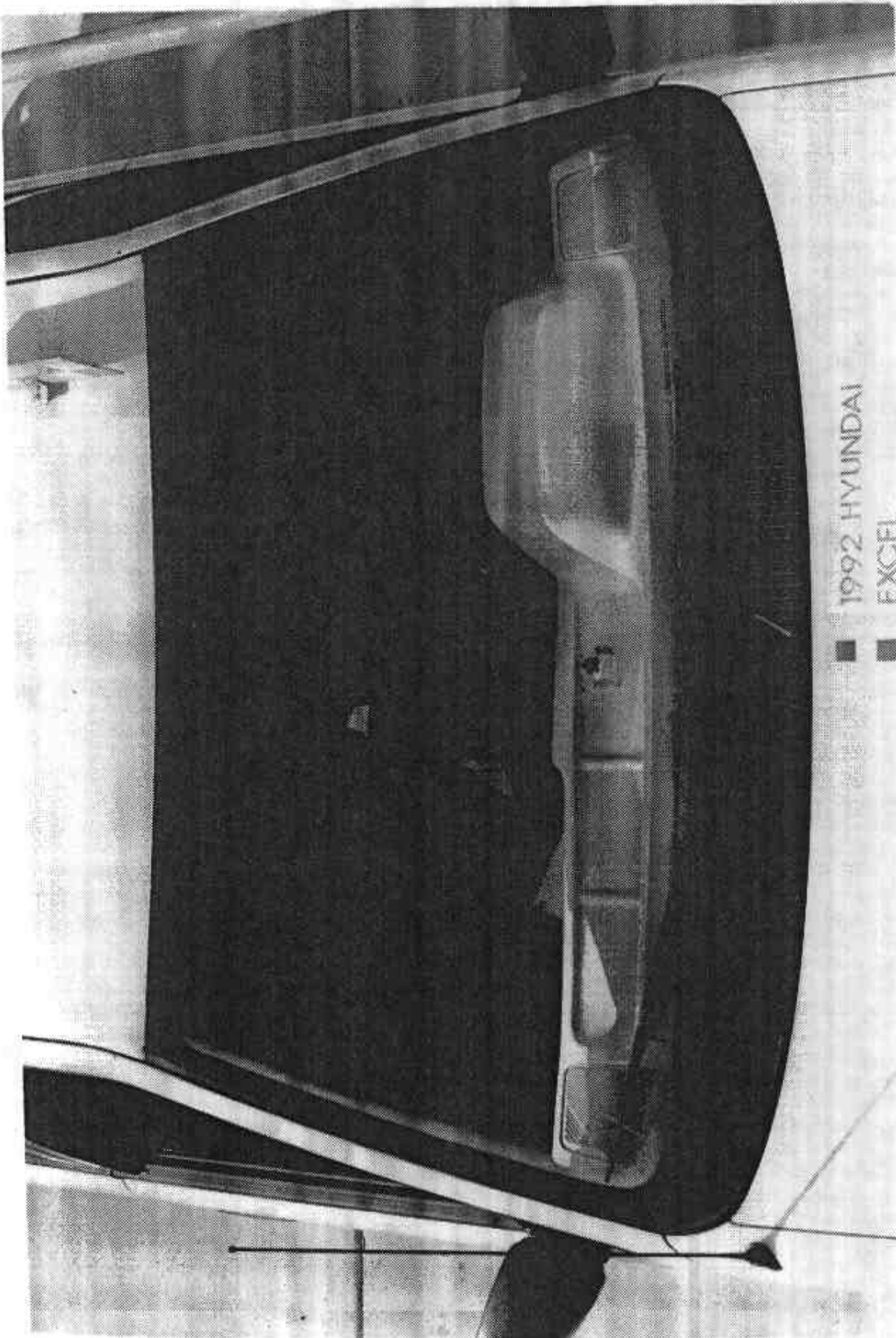




PRETEST LEFT REAR 3/4 VIEW

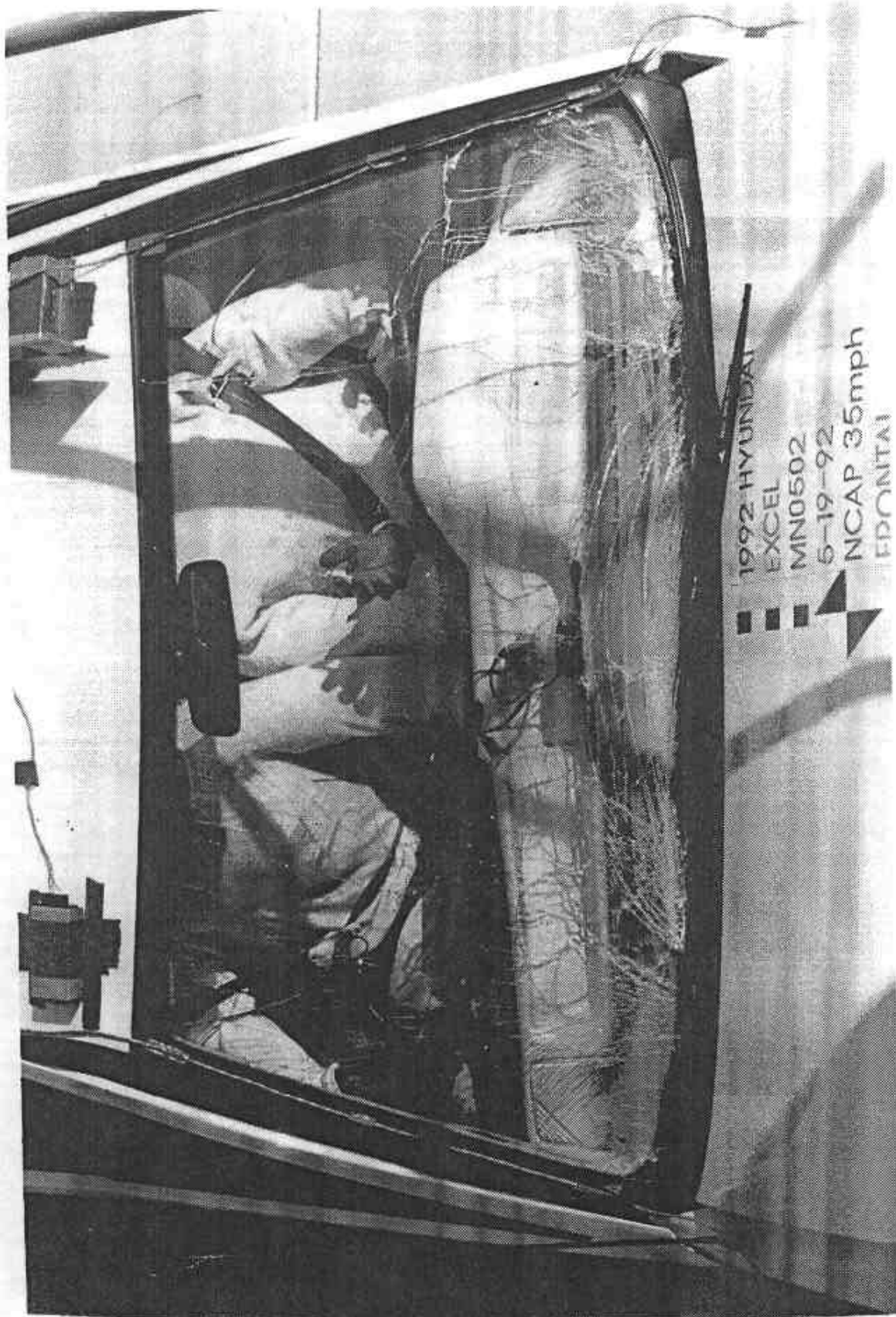


POSTTEST LEFT REAR 3/4 VIEW

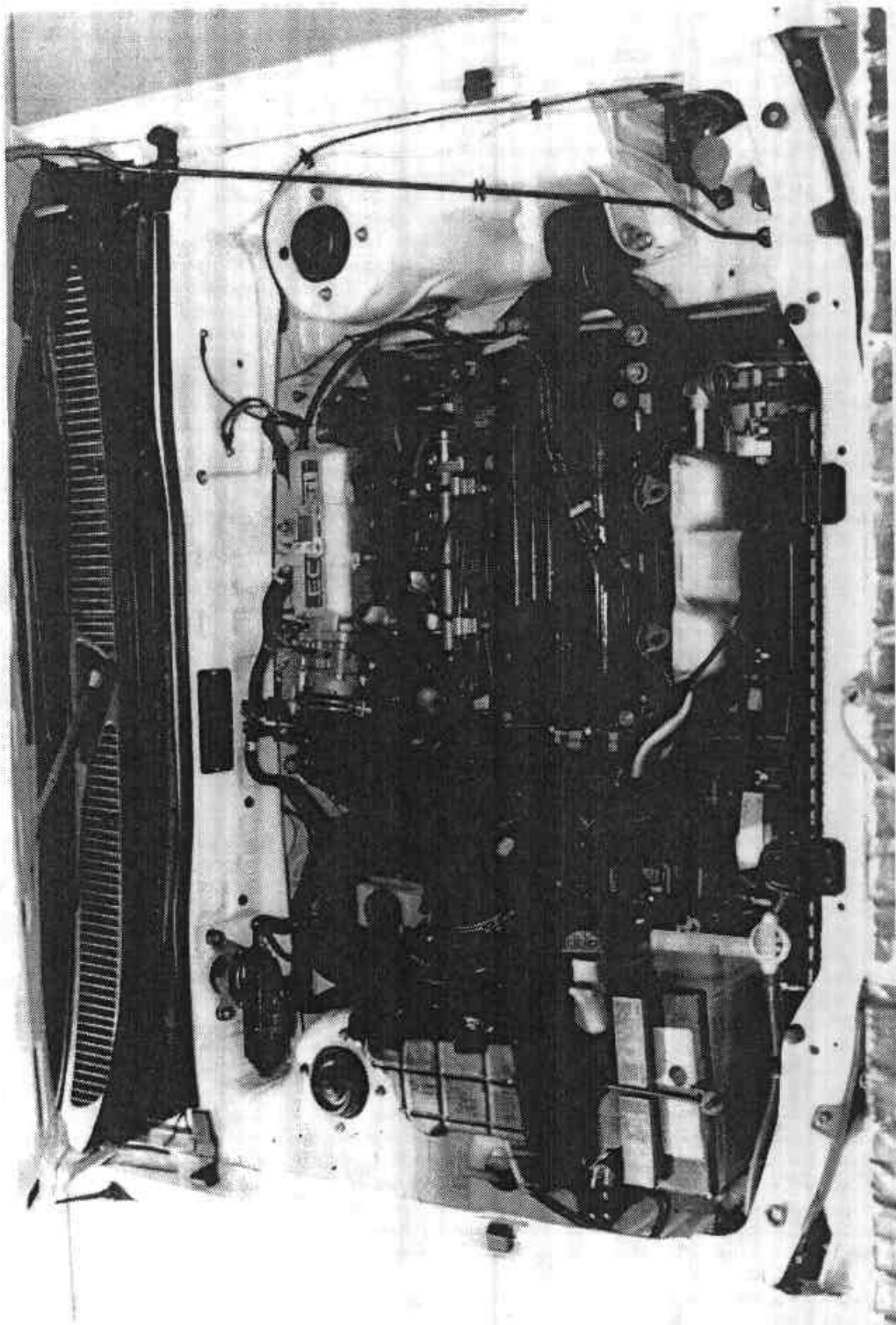


■ 1992 HYUNDAI
■ EXCEL

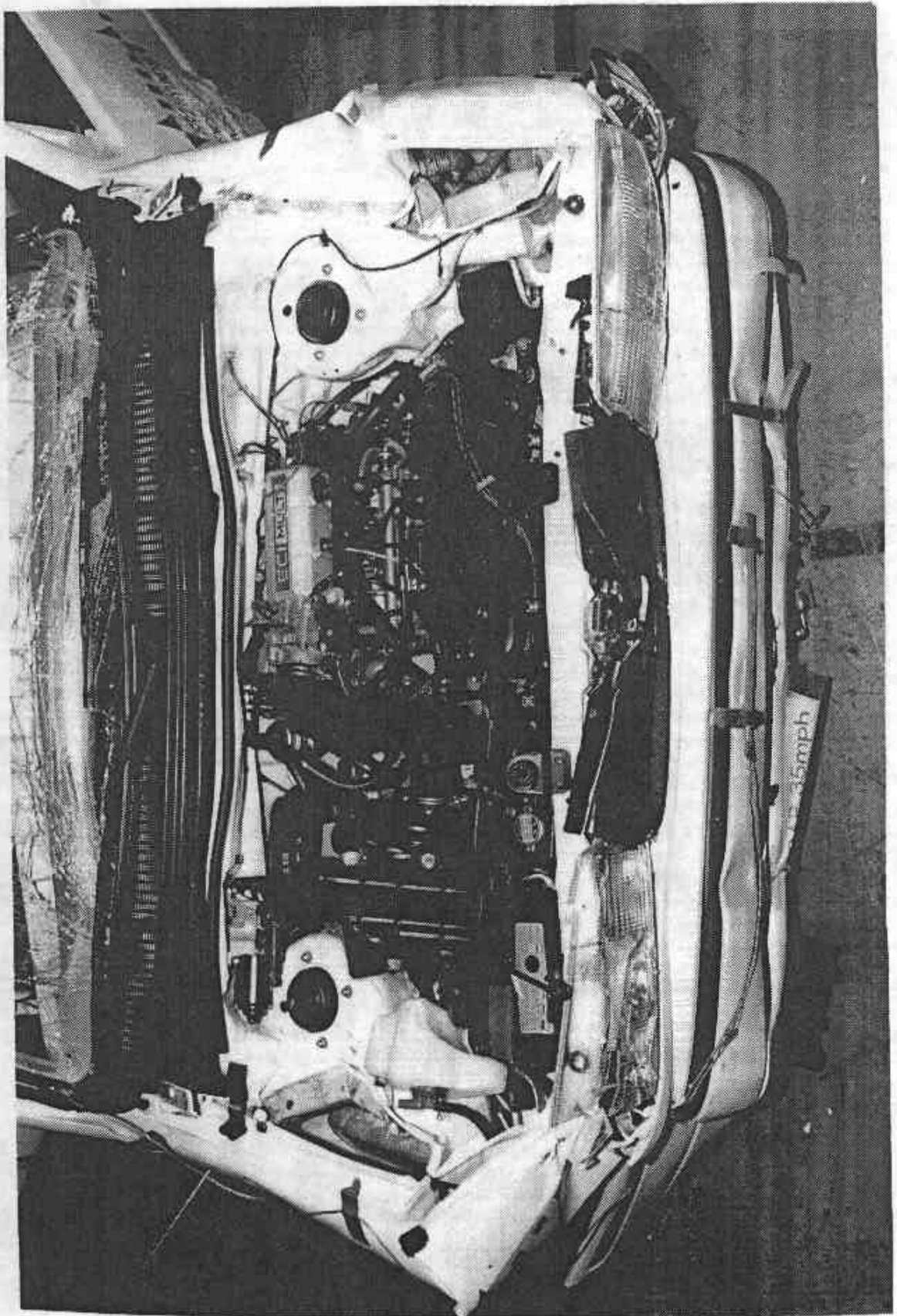
PRETEST WINDSHIELD VIEW



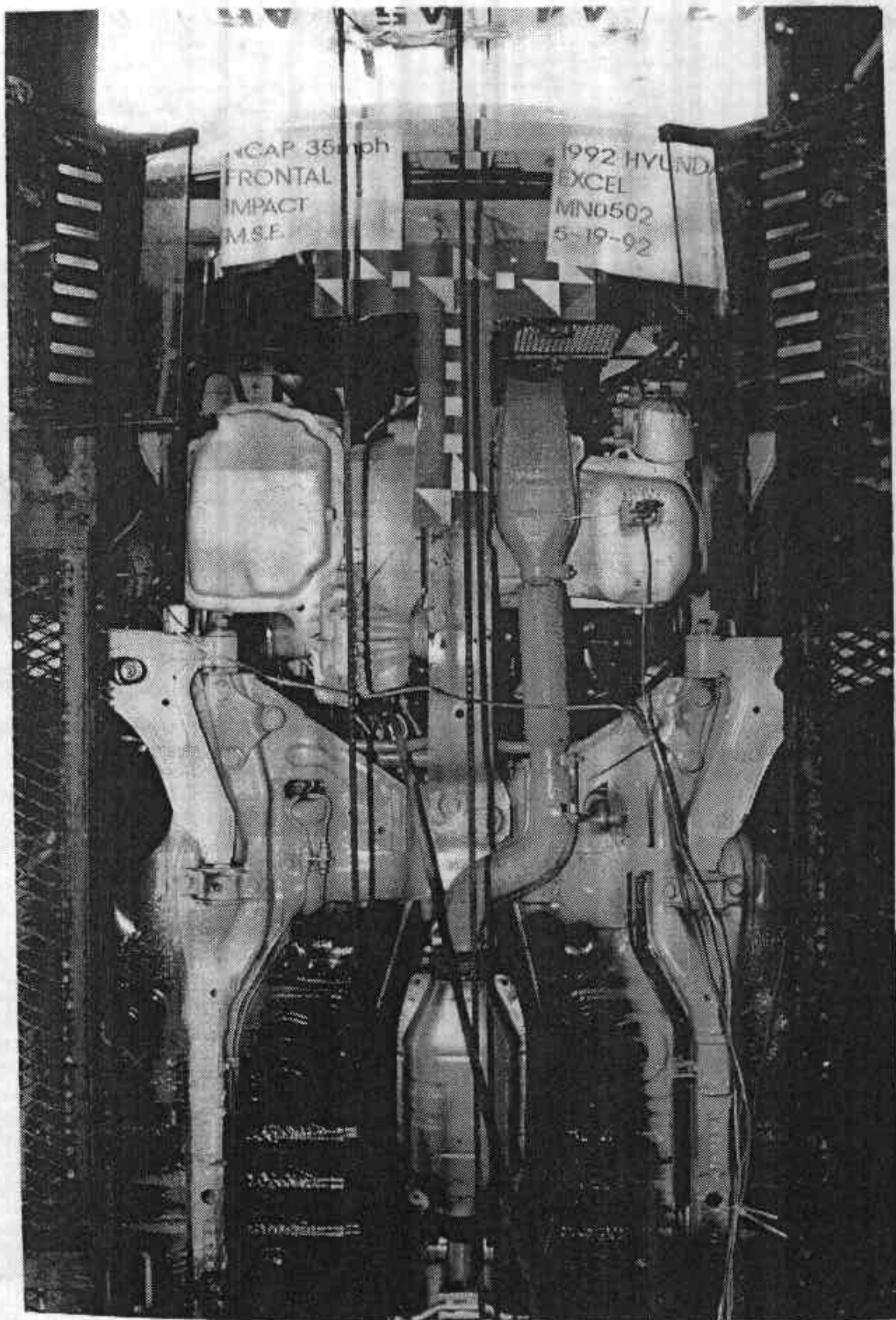
POSTTEST WINDSHIELD VIEW



PRETEST ENGINE COMPARTMENT VIEW

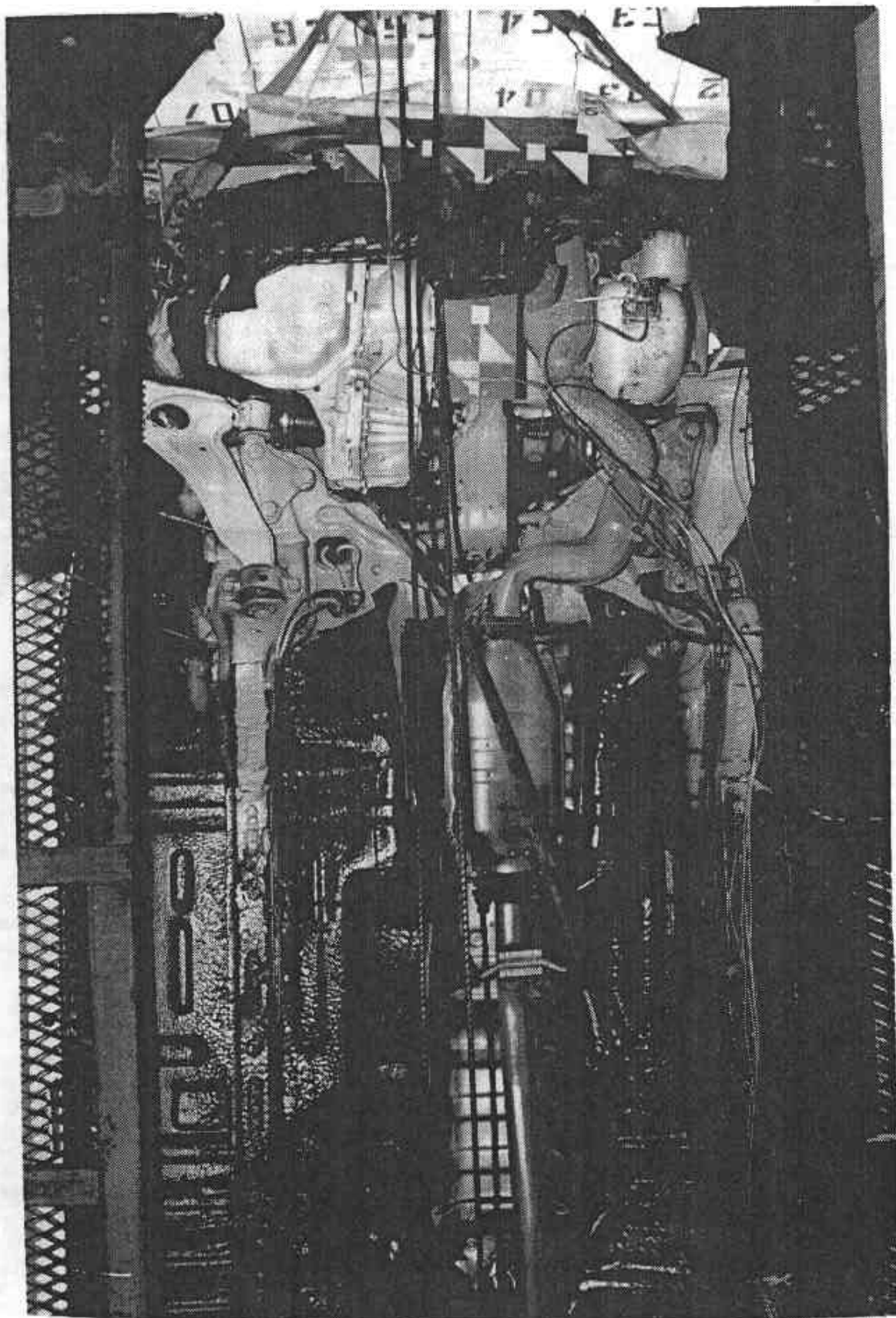


POSTTEST ENGINE COMPARTMENT VIEW



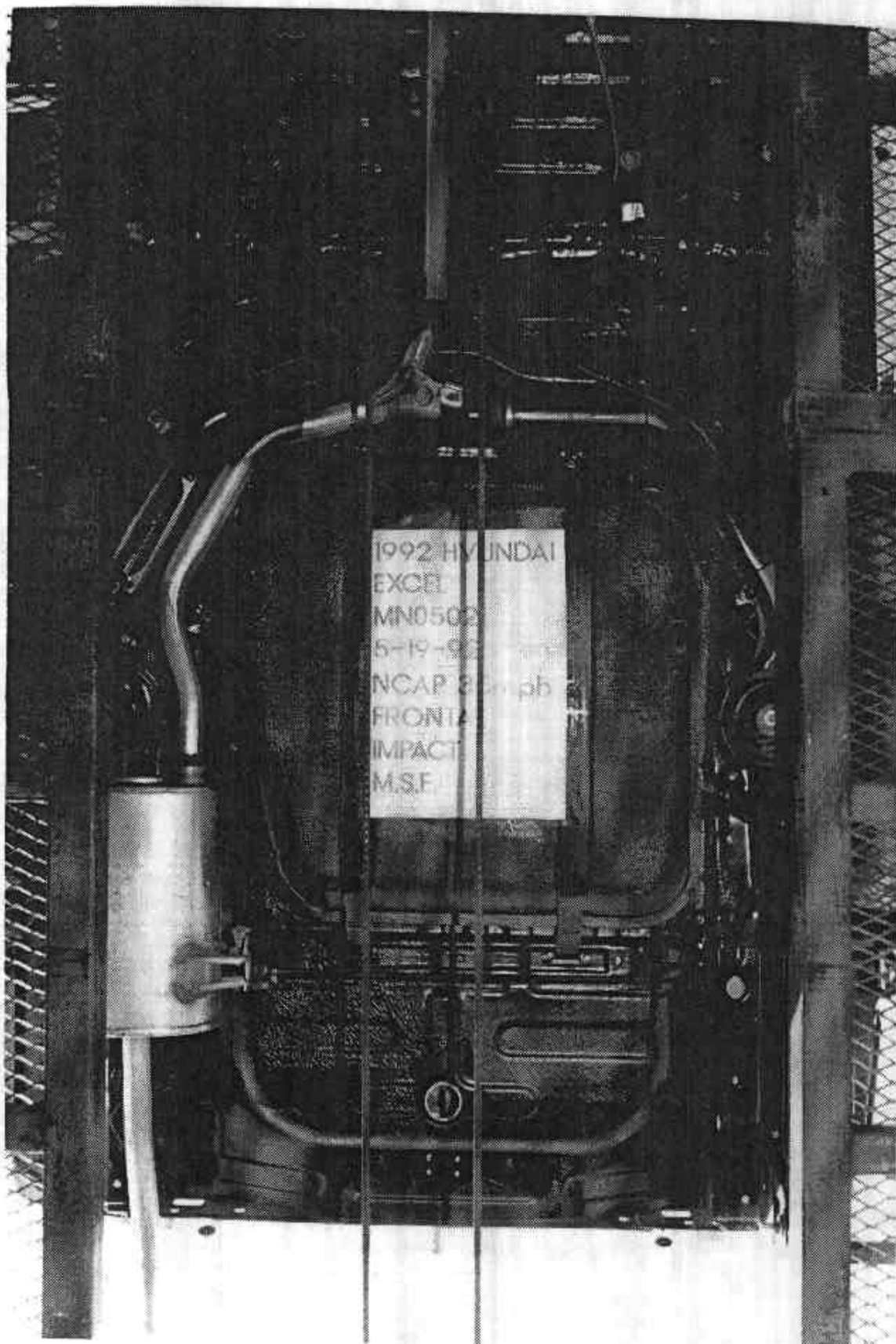
PRETEST FRONT UNDERBODY VIEW
A-15

MSE-92-R92027-N03



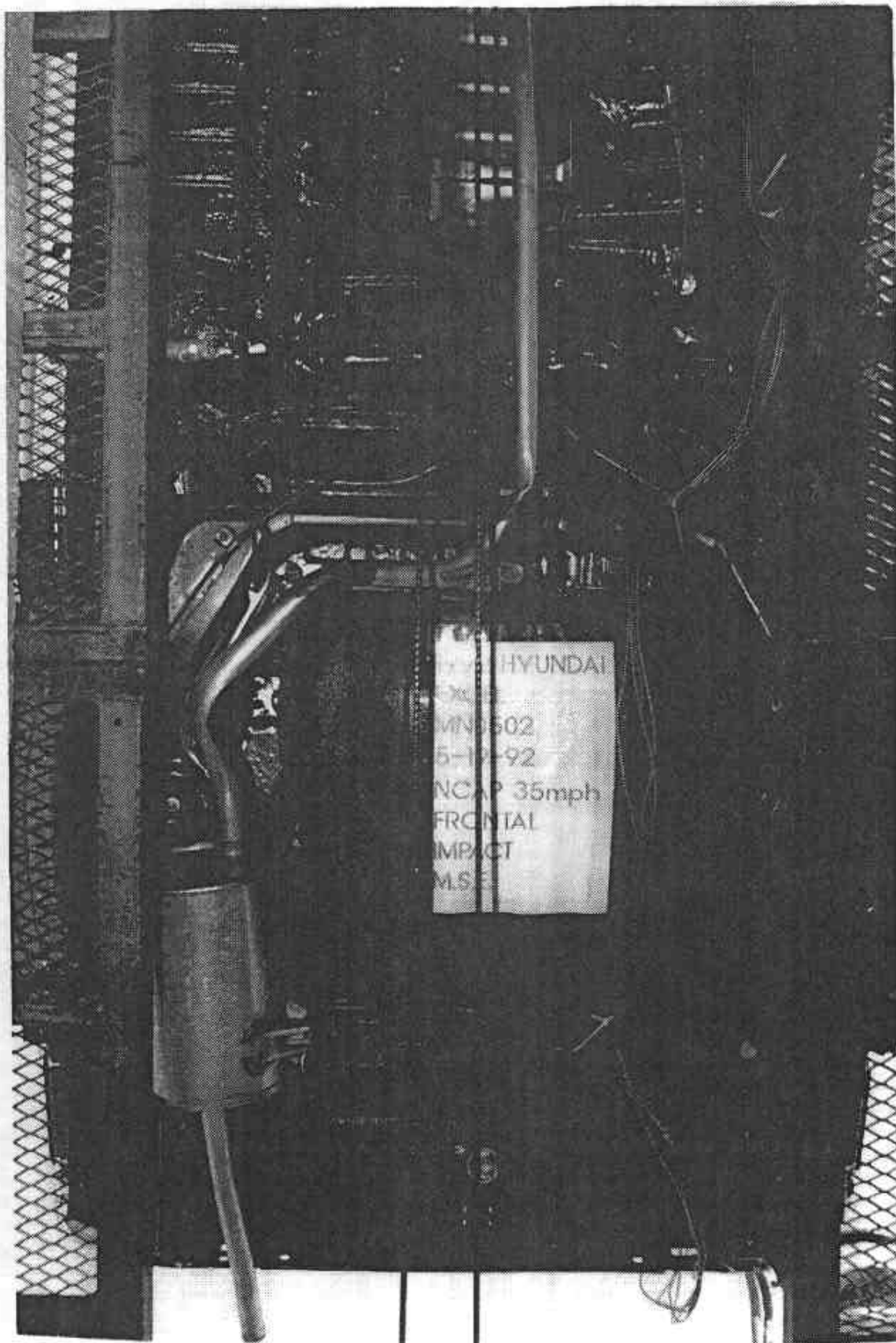
POSTTEST FRONT UNDERBODY VIEW
A-16

MSE-92-R92027-N03



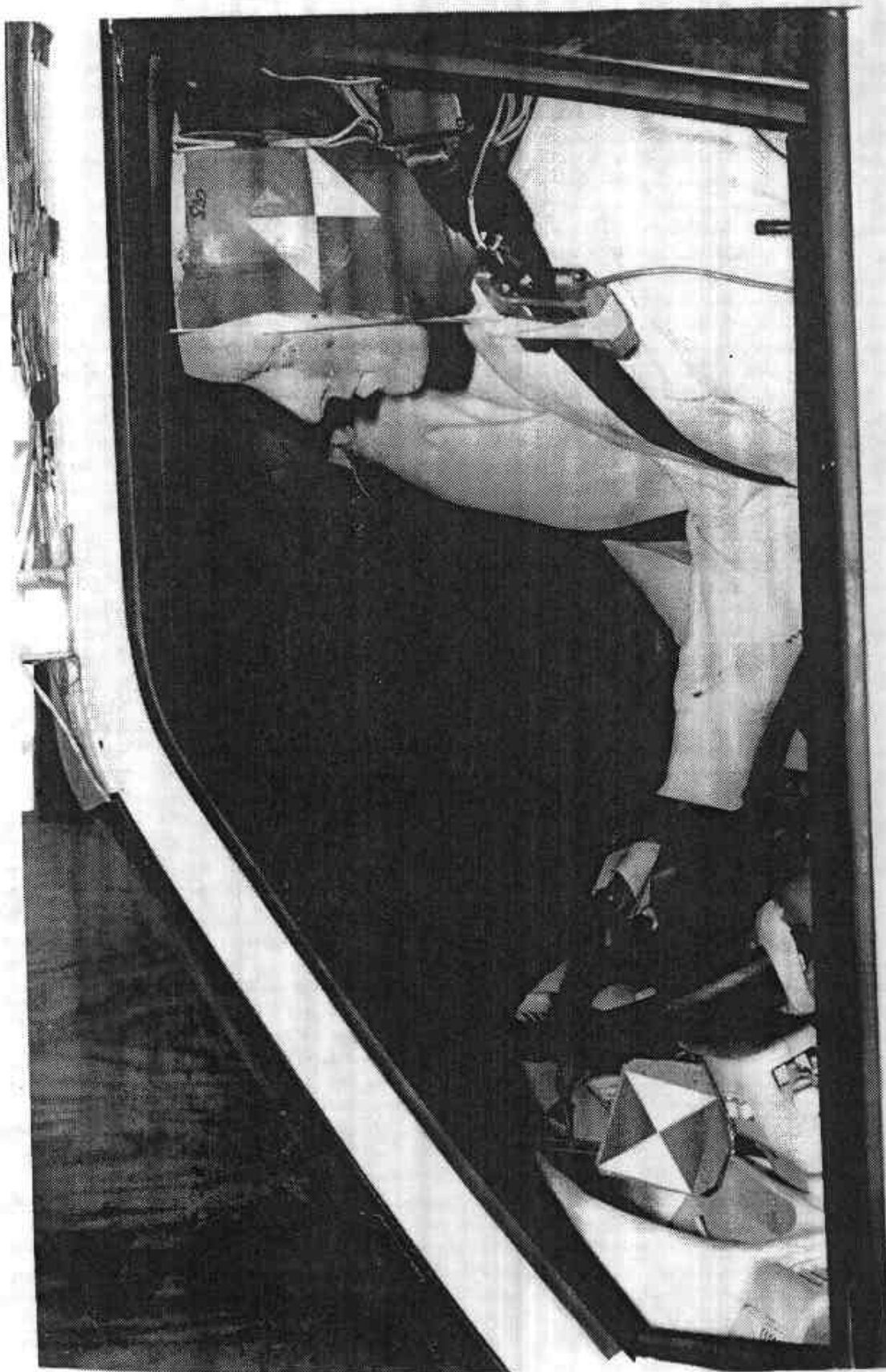
PRETEST REAR UNDERBODY VIEW
A-17

MSE-92-R92027-N03



POSTTEST REAR UNDERBODY VIEW
A-18

MSE-92-R92027-N03



PRETEST DRIVER DUMMY POSITION VIEW



POSTTEST DRIVER DUMMY POSITION VIEW

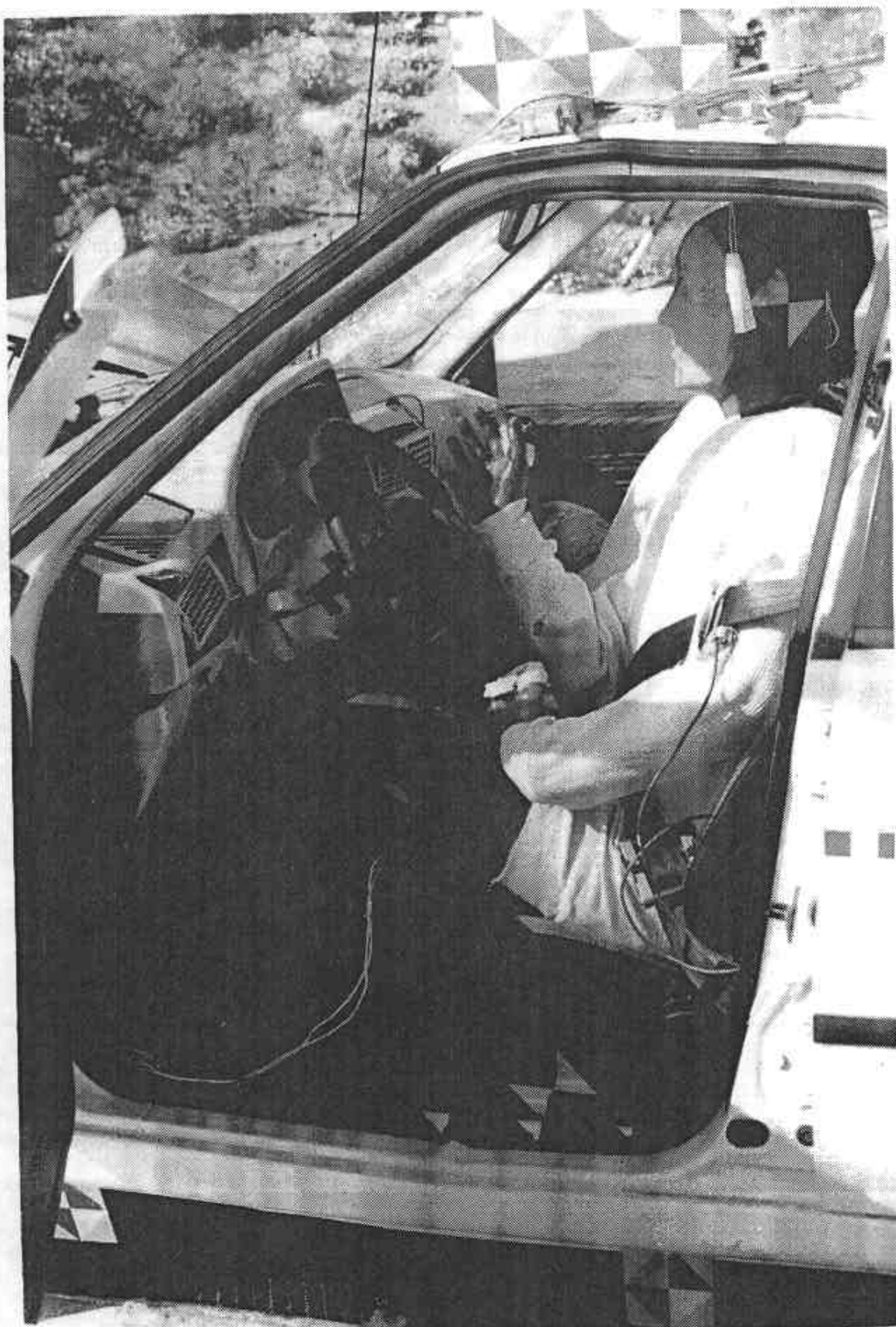


PRETEST PASSENGER DUMMY POSITION VIEW



POSTTEST PASSENGER DUMMY POSITION VIEW

INTENTIONALLY LEFT BLANK



POSTTEST DRIVER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

A-24

MSE-92-R92027-N03

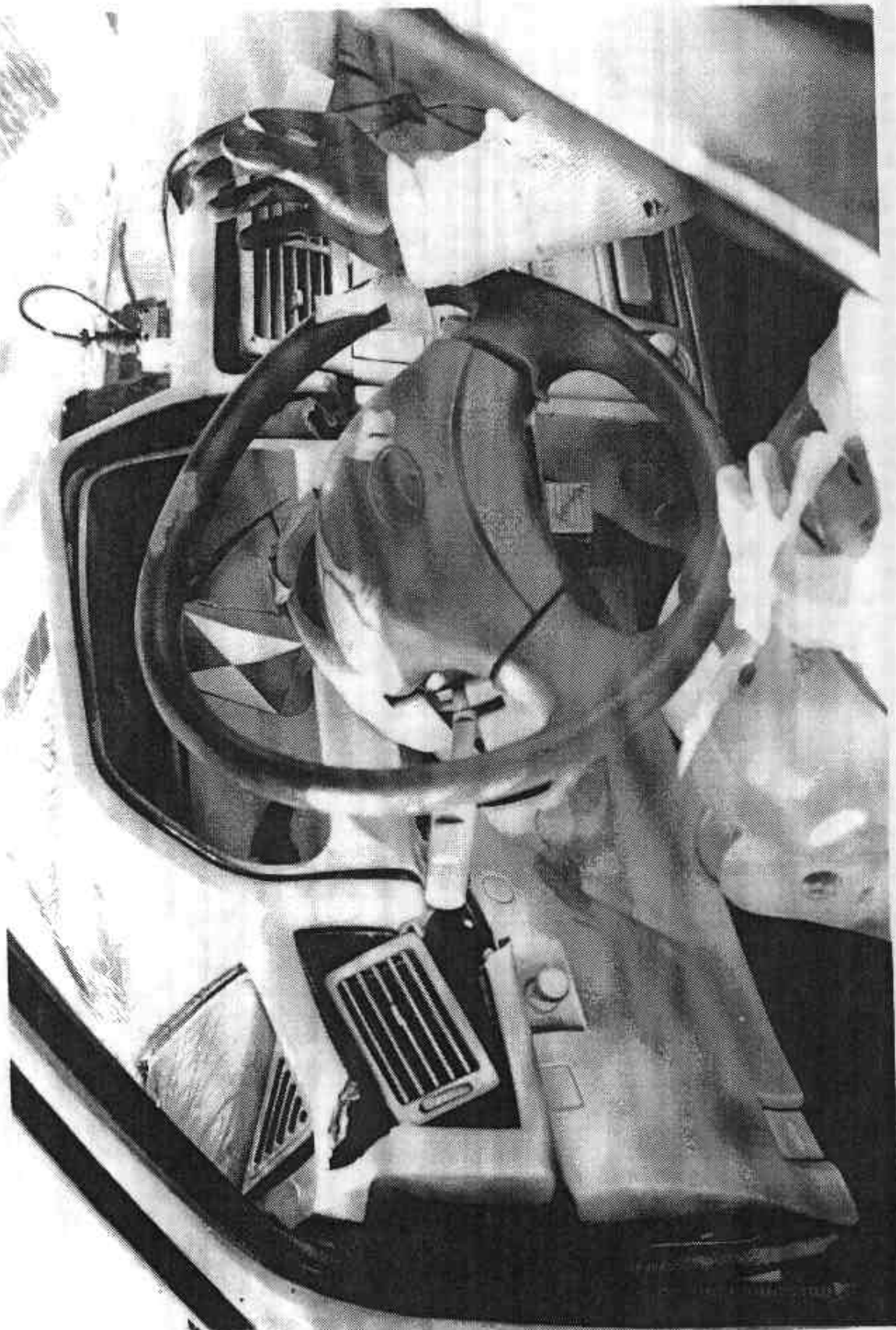
INTENTIONALLY LEFT BLANK



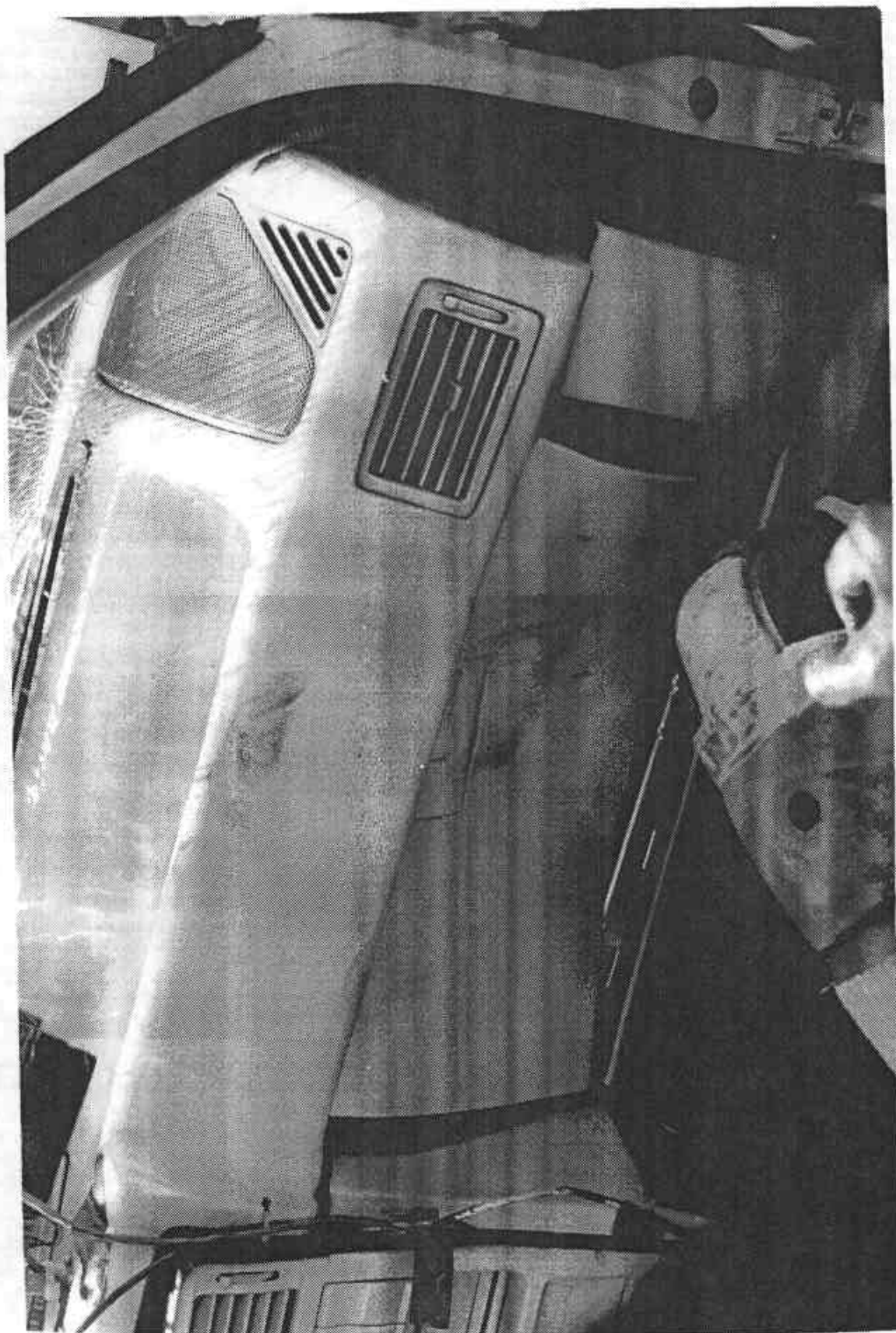
POSTTEST PASSENGER DUMMY & VEHICLE INTERIOR VIEW (Door Open)

A-26

MSE-92-R92027-N03



POSTTEST DRIVER DUMMY (ATD) HEAD AND KNEE CONTACT AREA



POSTTEST PASSENGER DUMMY (ATD) HEAD AND KNEE CONTACT AREA

THIS PAGE INTENTIONALLY LEFT BLANK

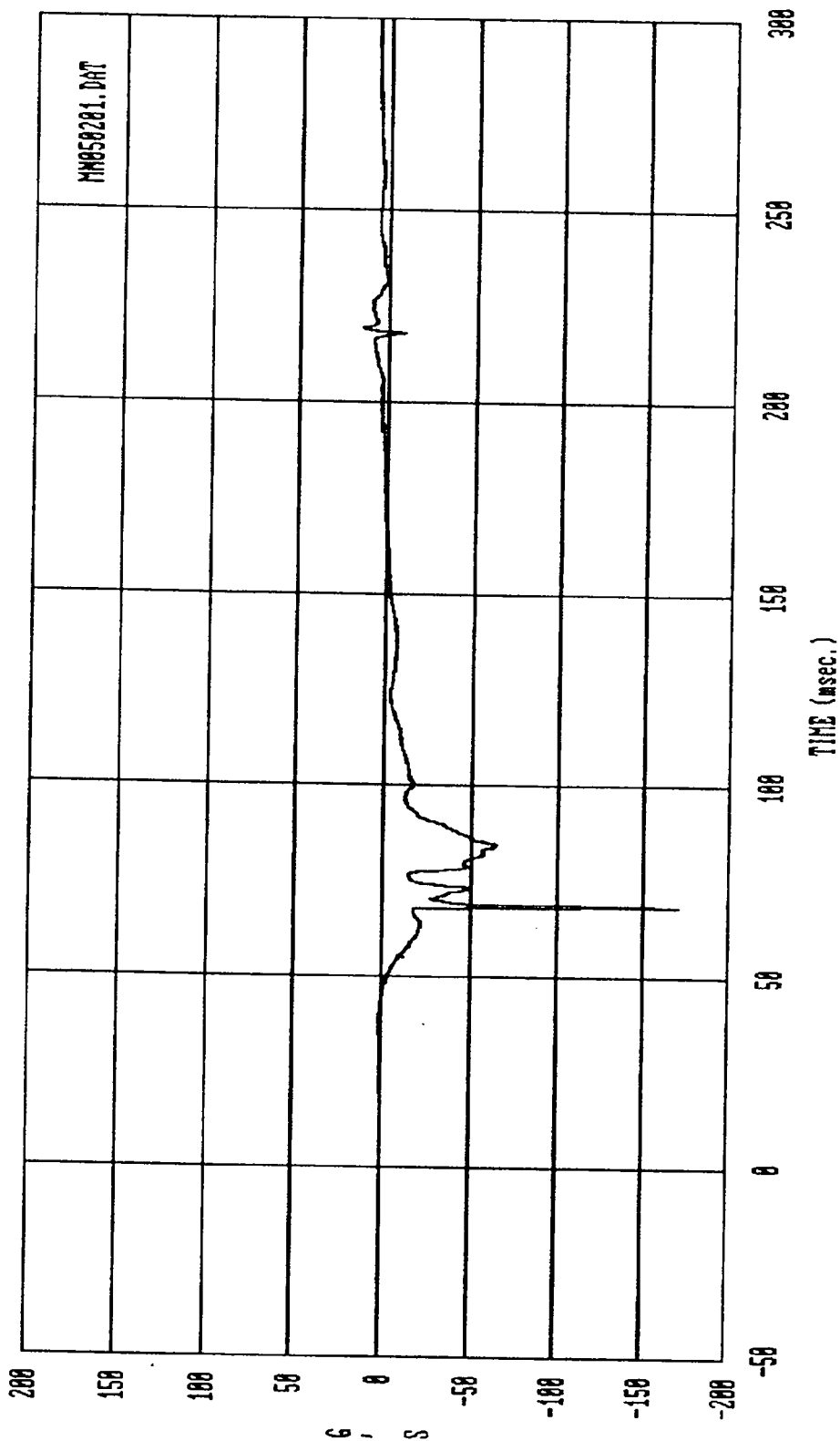
APPENDIX B-1

VEHICLE AND DUMMY (ATD) RESPONSE DATA

DATA FILTERING:

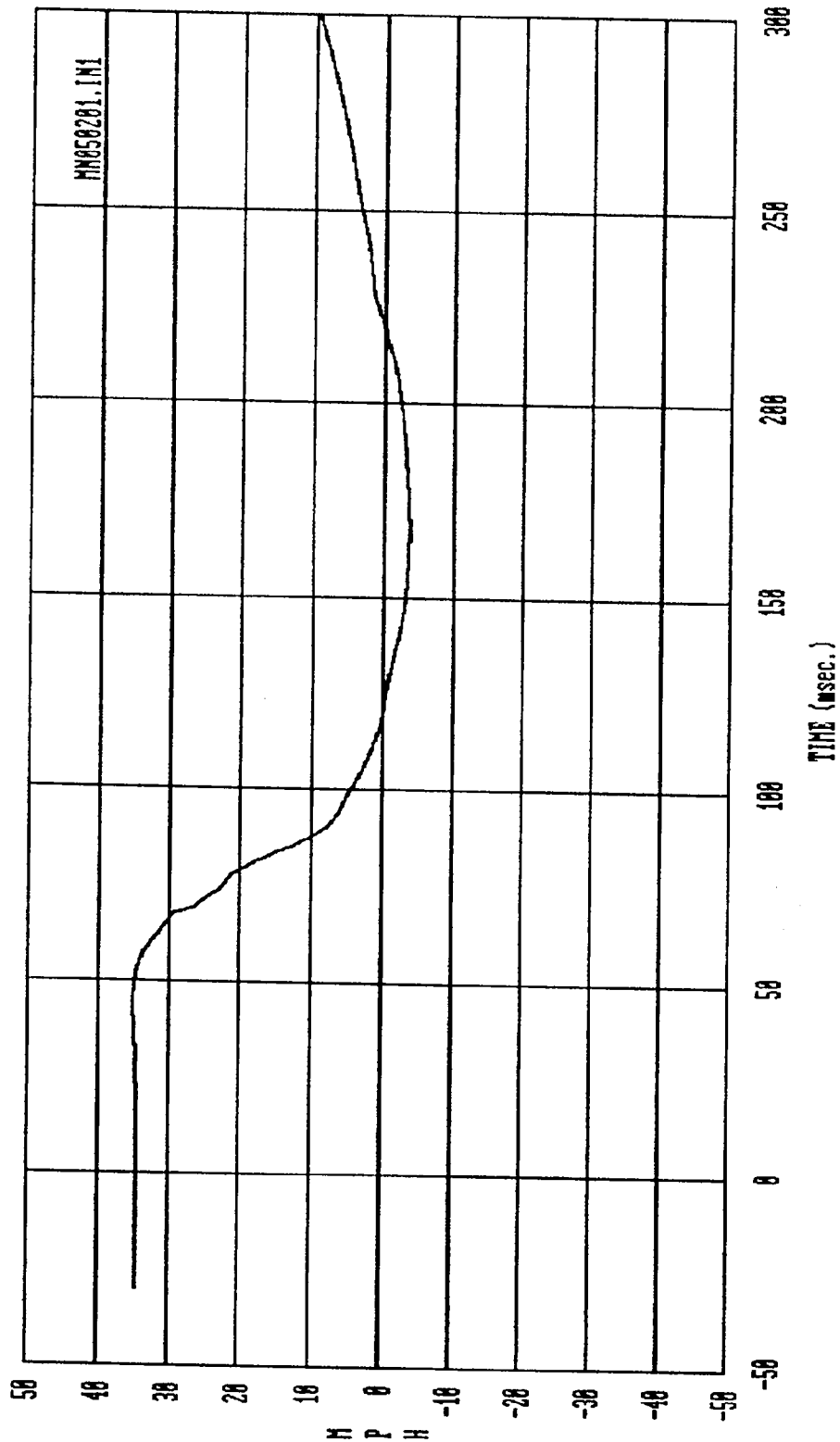
ATD Head Channels	- Class 1000
ATD Chest Channels	- Class 180
ATD Femur Channels	- Class 600
Vehicle Channels	- Class 60

THIS PAGE INTENTIONALLY LEFT BLANK



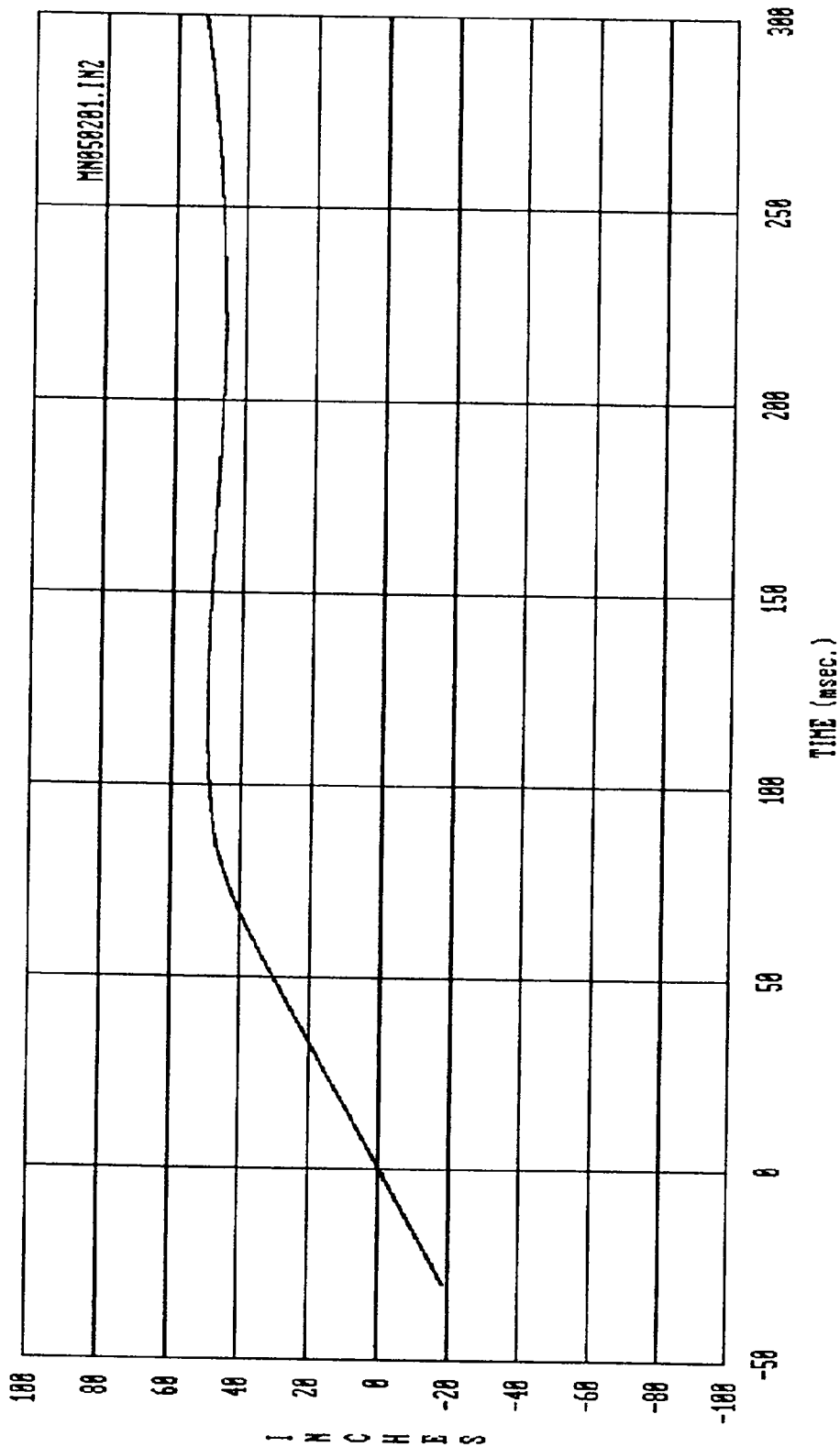
Curve: Driver head acceleration — X axis Filter: SAE CLASS 1000 Max = 16.521 Min = -170.81

MSE Date: 05/19/92 Program: 1992 NCAP - I3 Vehicle: 1992 Hyundai Excel



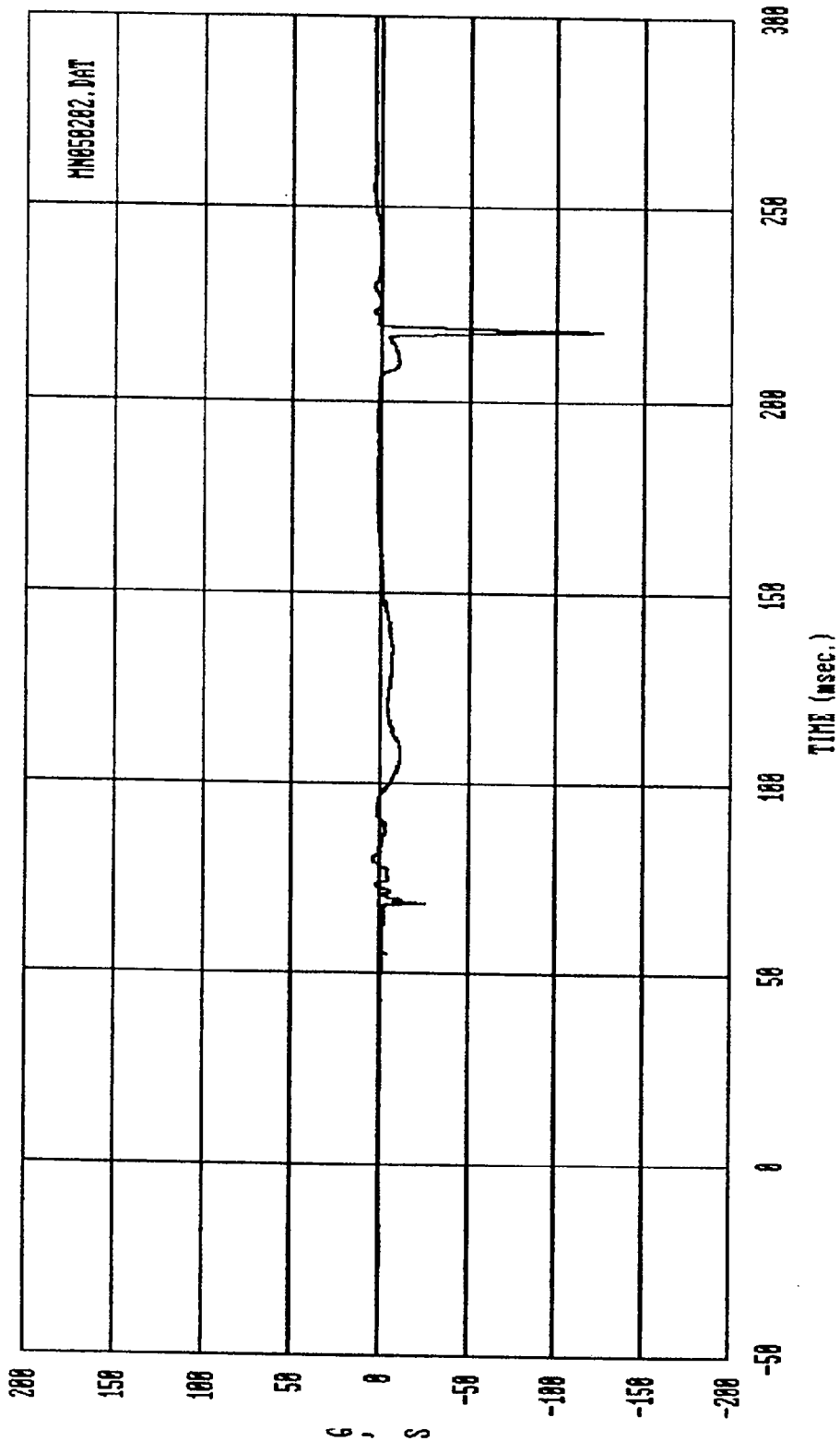
Curve: Driver head delta V -- X axis Filter: SAE CLASS 100 Max = 35.126 Min = -3.6373

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

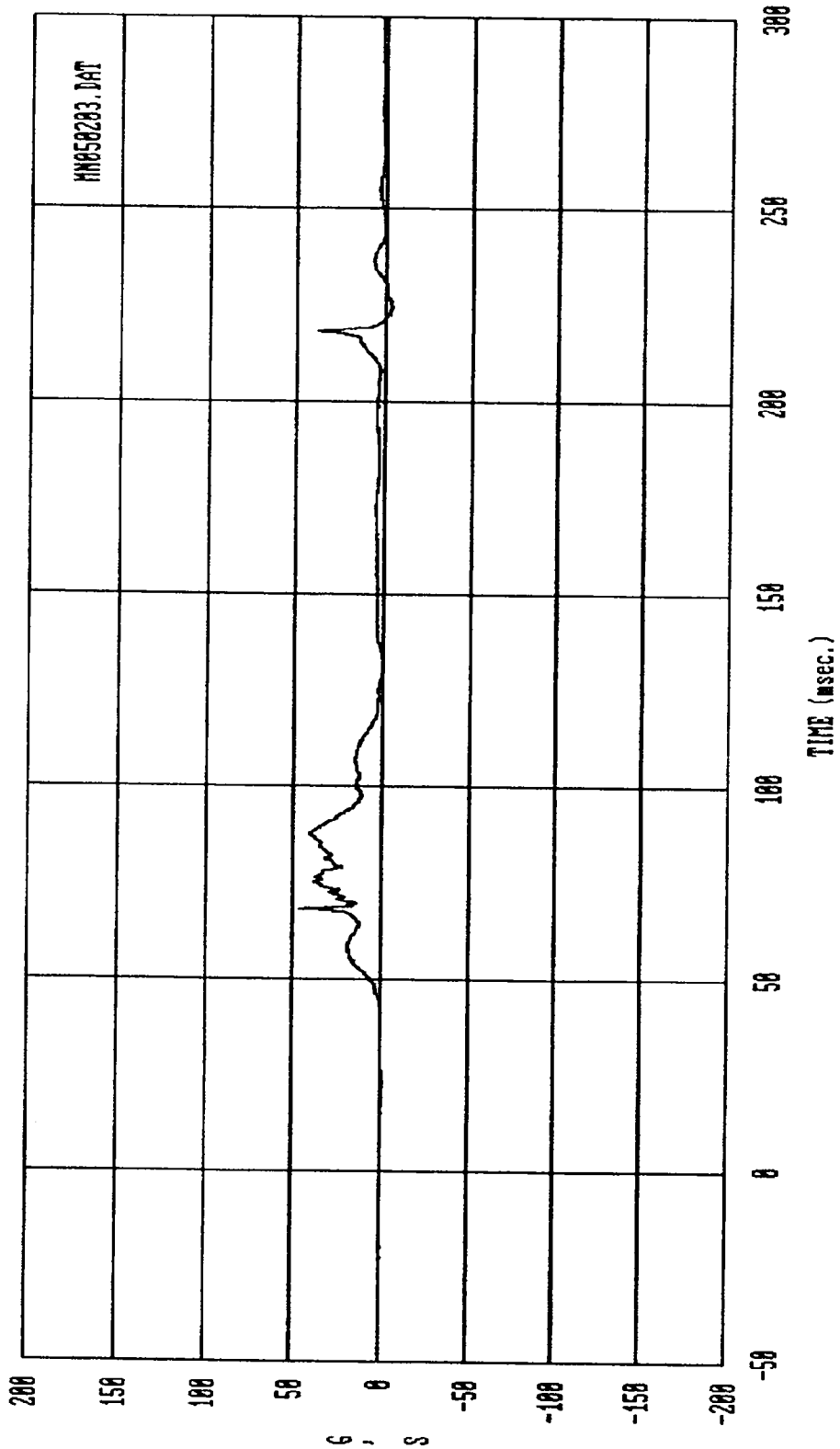


Curve: Driver head displacement — X axis Filter: SAE CLASS 180 Max = 52.276 Min = 45.776

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

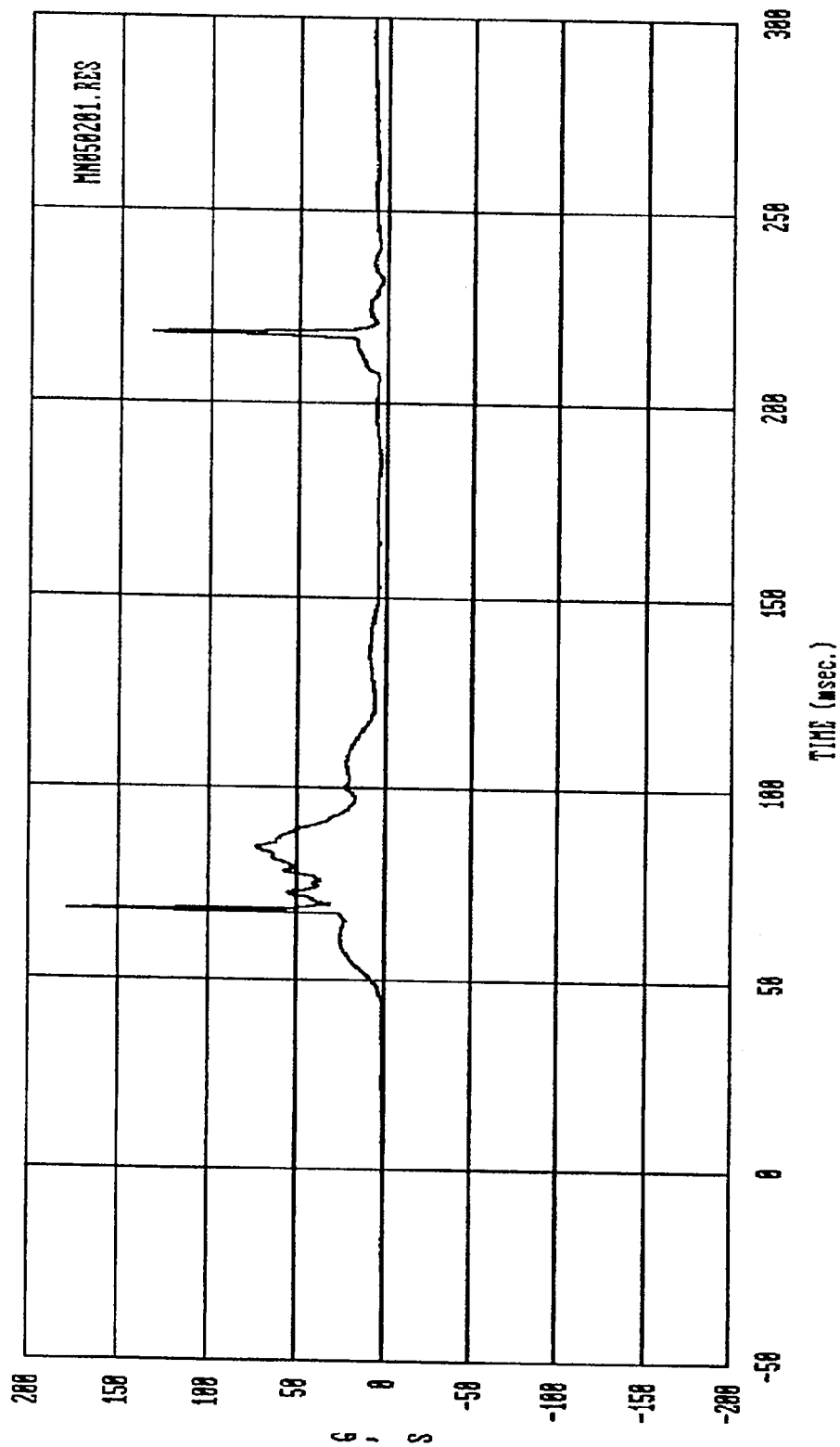


Curve: Driver head acceleration — Y axis Filter: SAE CLASS 1000 Max = 4.7132 Min = -125.77
 MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



Curve: Driver head acceleration -- Z axis Filter: SAE CLASS 1000 Max = 51.933 Min = -3.5993

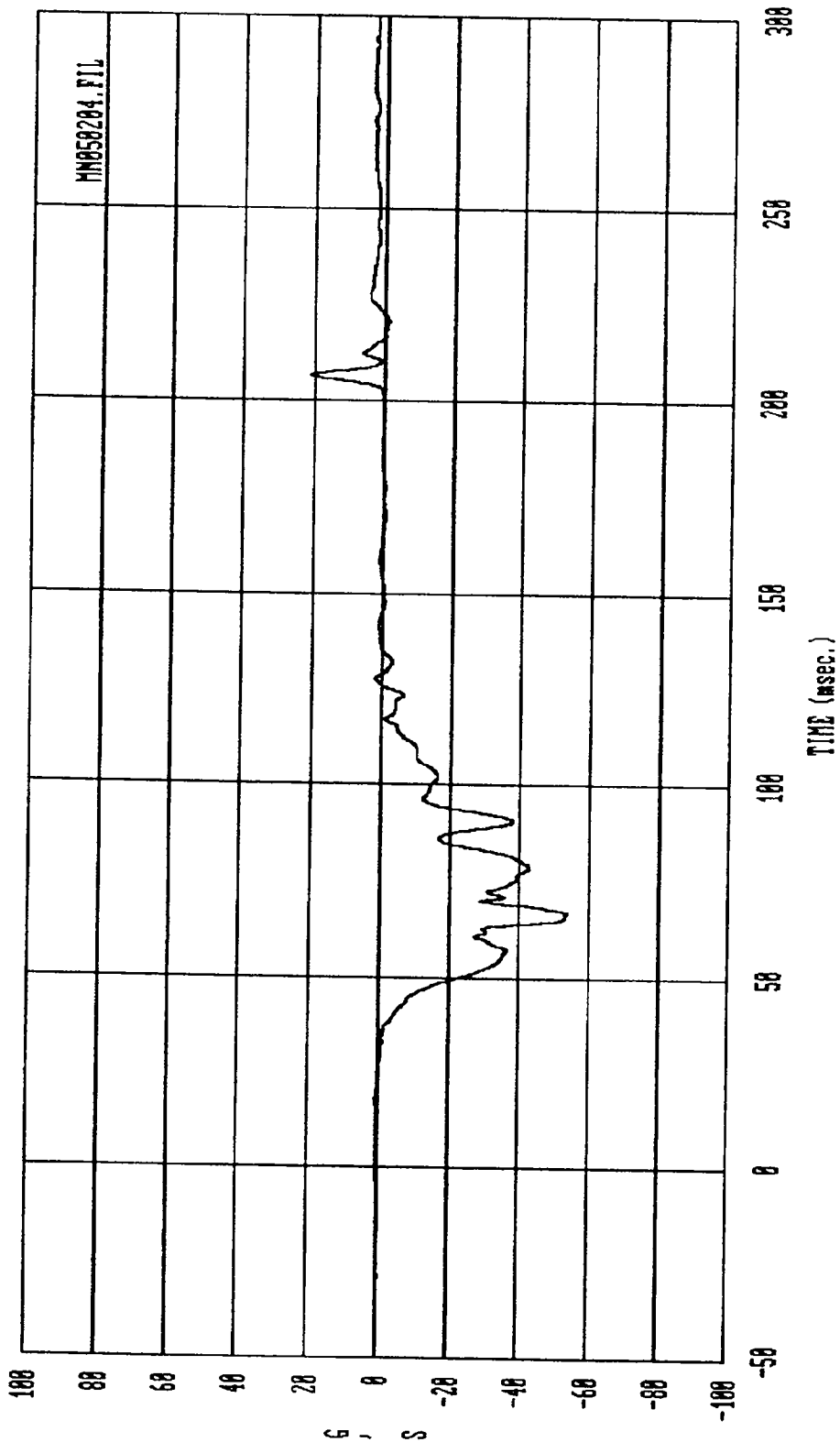
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



B1-6

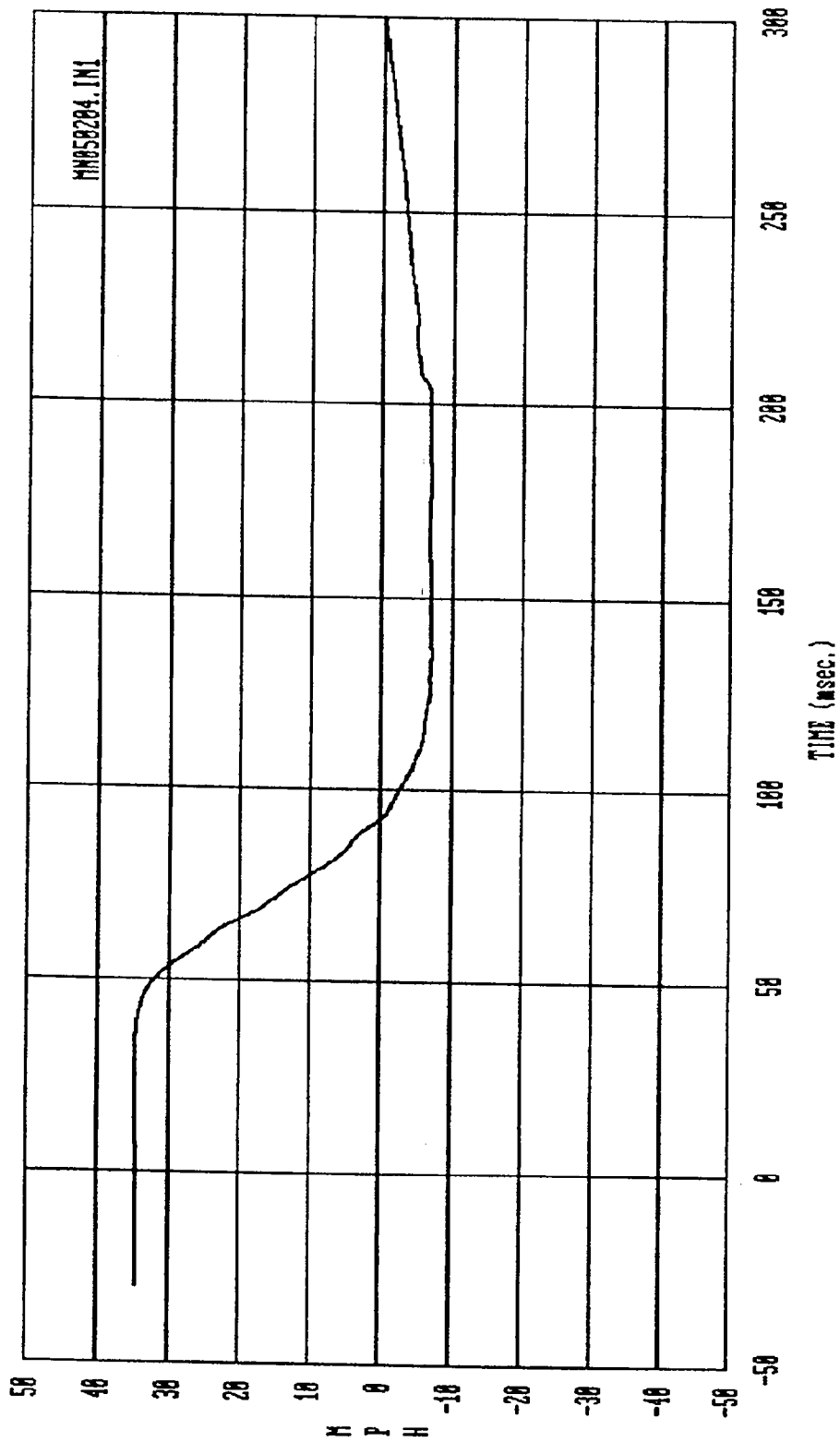
MSE-92-R92027-N03

Curve: Driver head acceleration -- Resultant Filter: SAE CLASS 1000 Max = 178.06 Min = .00000
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

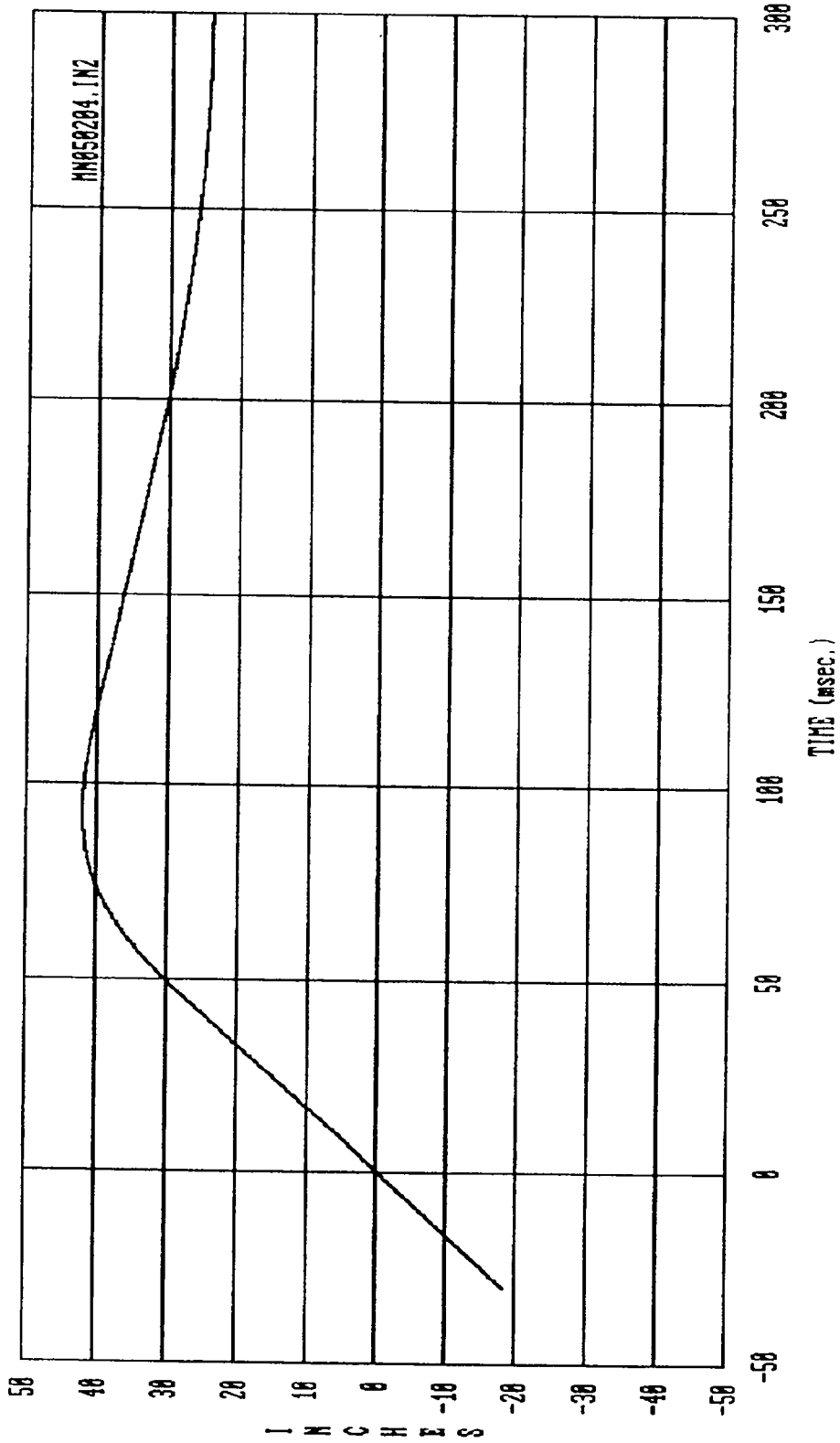


Curve: Driver chest acceleration -- X axis Filter: SAE CLASS 180 Max = 21.113 Min = -53.691

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

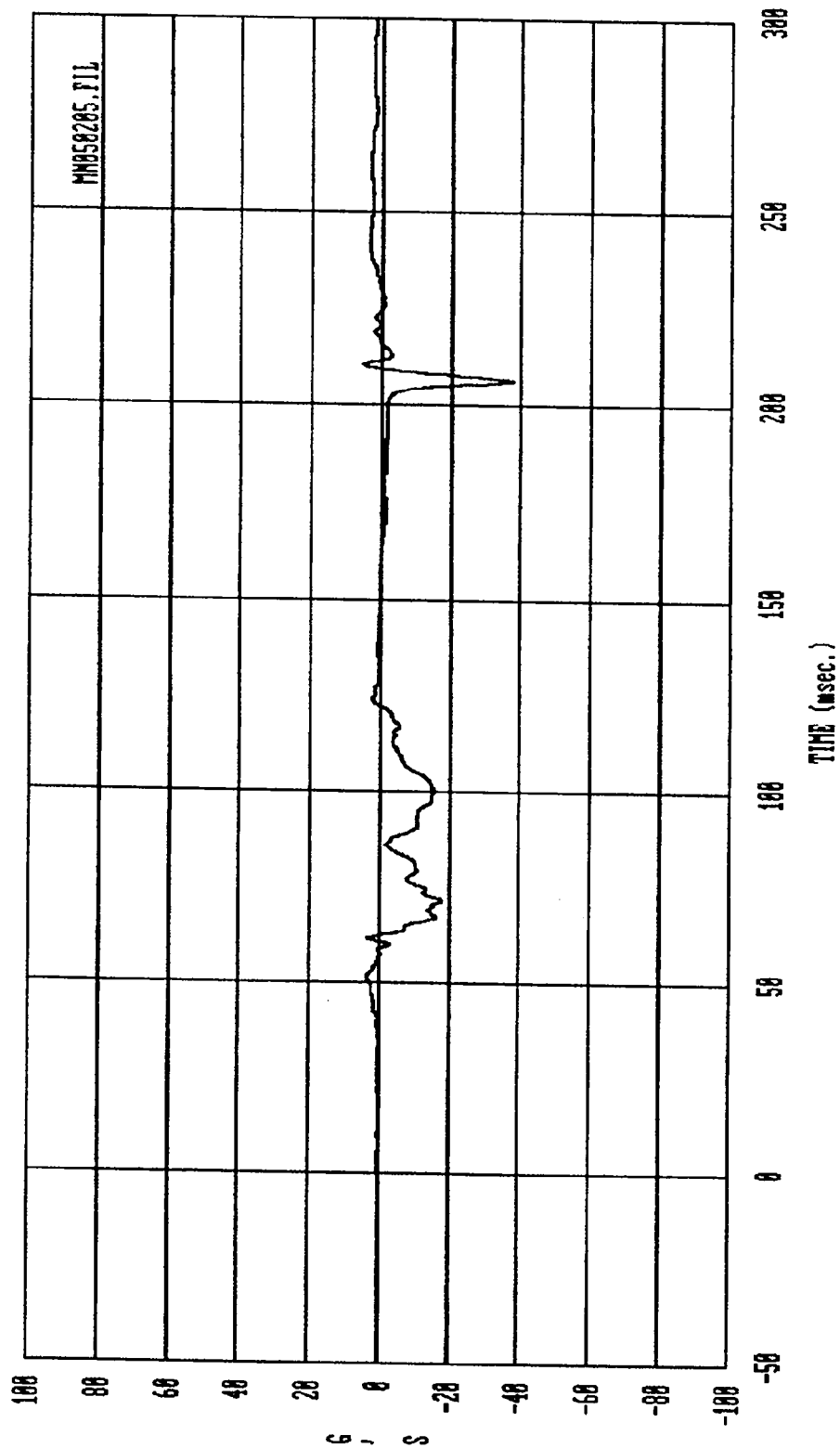


Curve: Driver chest delta V -- X axis
 Filter: SAE CLASS 180 Max = 34.834 Min = -7.1674
 MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



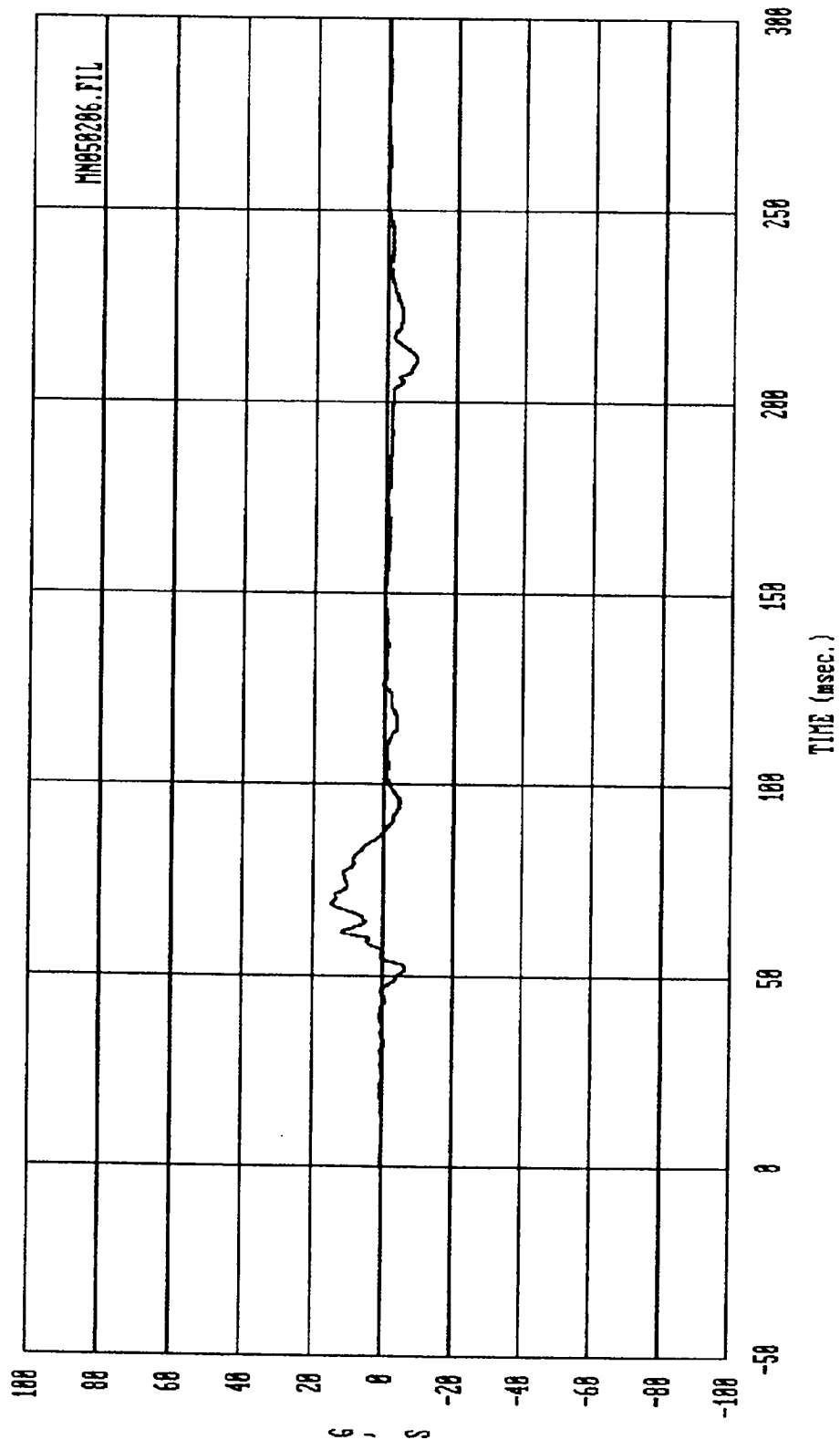
Curve: Driver chest displacement -- X axis Filter: SAE CLASS 180 Max = 42.897 Min = 24.457

MSE Date: 05/19/92 Program: 1992 NCAP - I3 Vehicle: 1992 Hyundai Excel



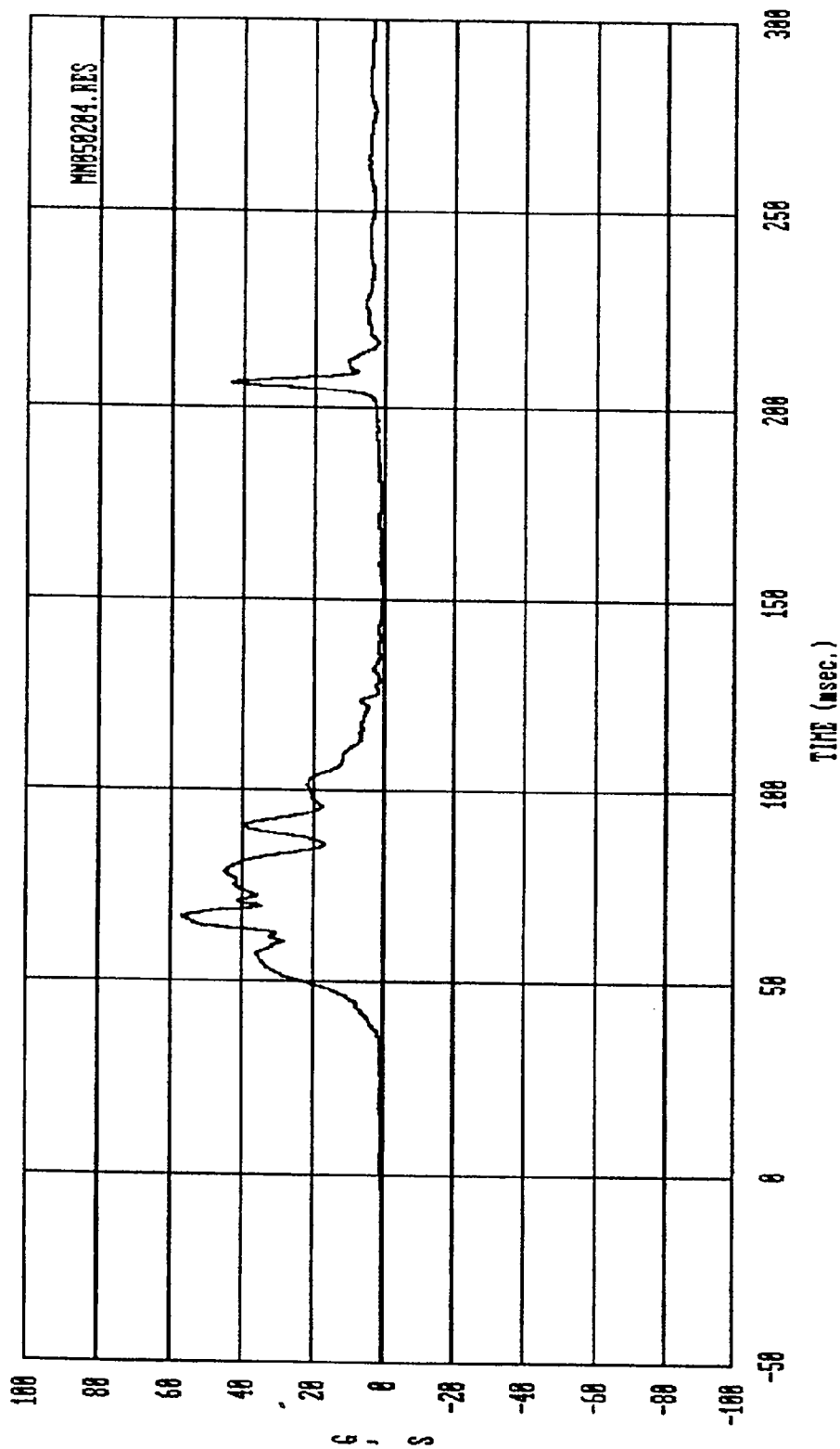
Curve: Driver chest acceleration -- Y axis Filter: SAE CLASS 100 Max = 5.1153 Min = -38.197

MSE Date: 85/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

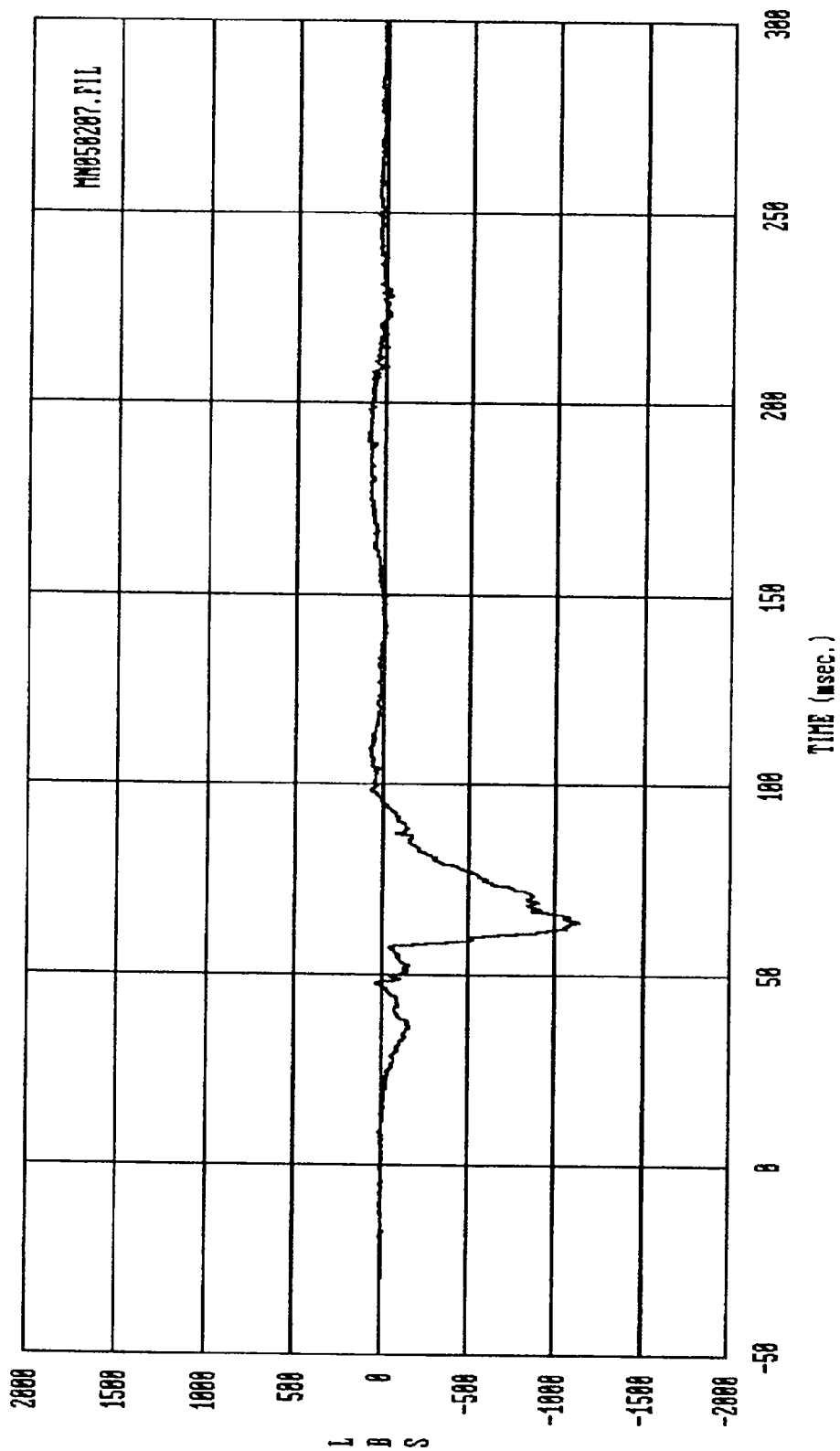


Curve: Driver chest acceleration -- Z axis Filter: SAE CLASS 180 Max = 14.953 Min = -8.7783

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

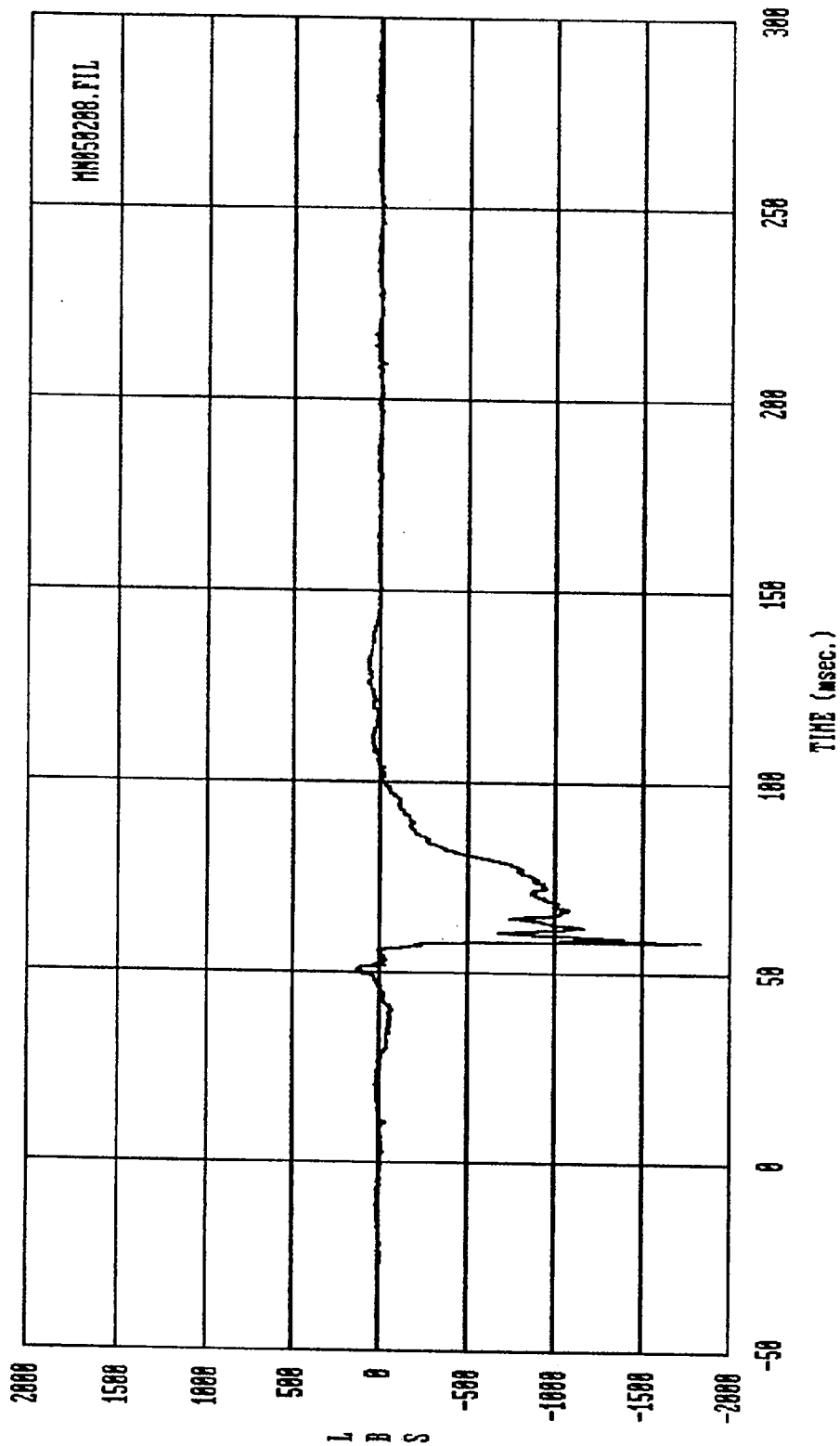


Curve: Driver chest acceleration -- Resultant Filter: SAE CLASS 188 Max = 56.898 Min = .30270
MSE Date: 05/19/92 Program: 1992 NCAP - M3 Vehicle: 1992 Hyundai Excel

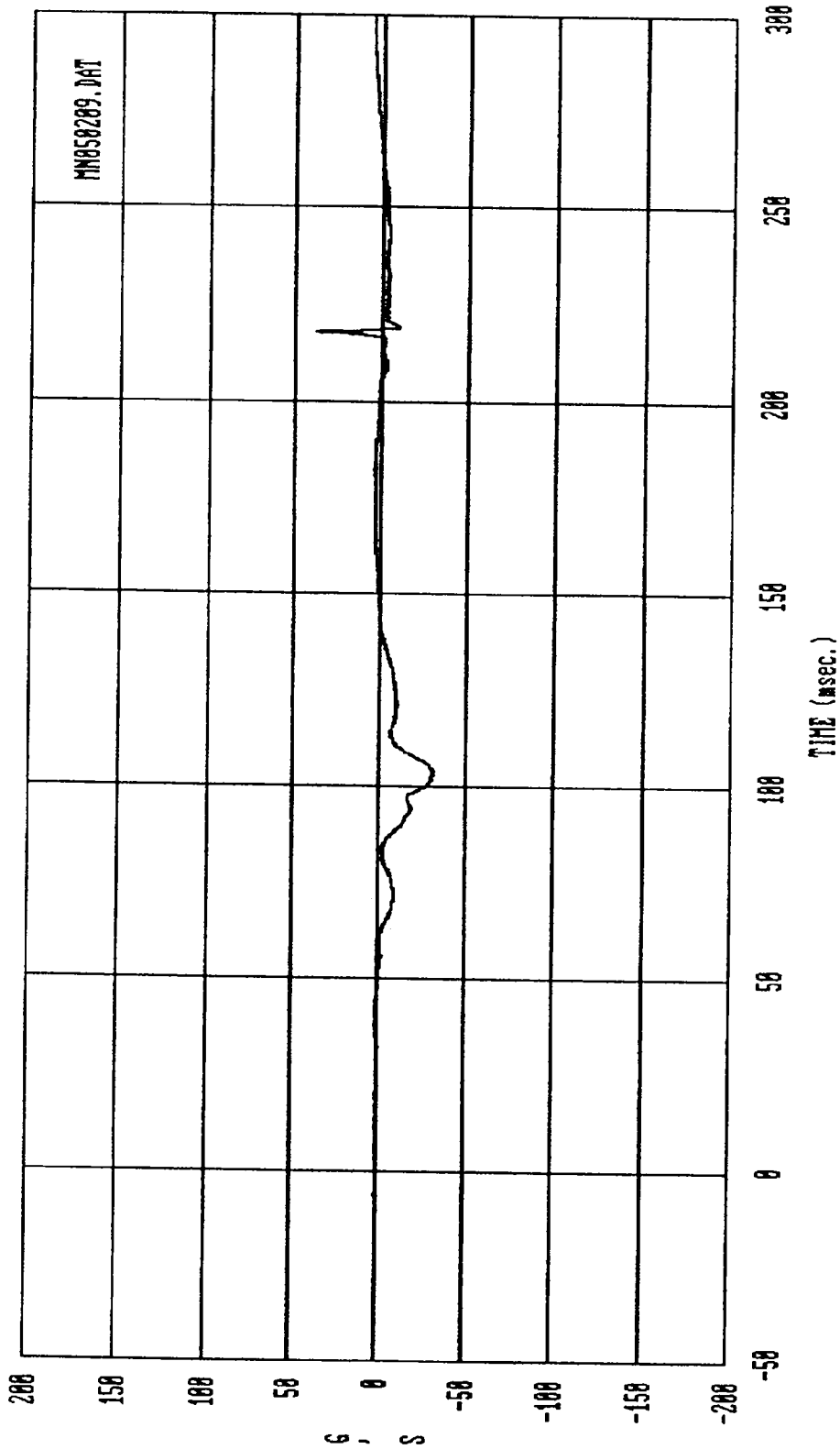


Curve: Driver femur load -- Left femur Filter: SAE CLASS 600 Max = 99.974 Min = -1136.8

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

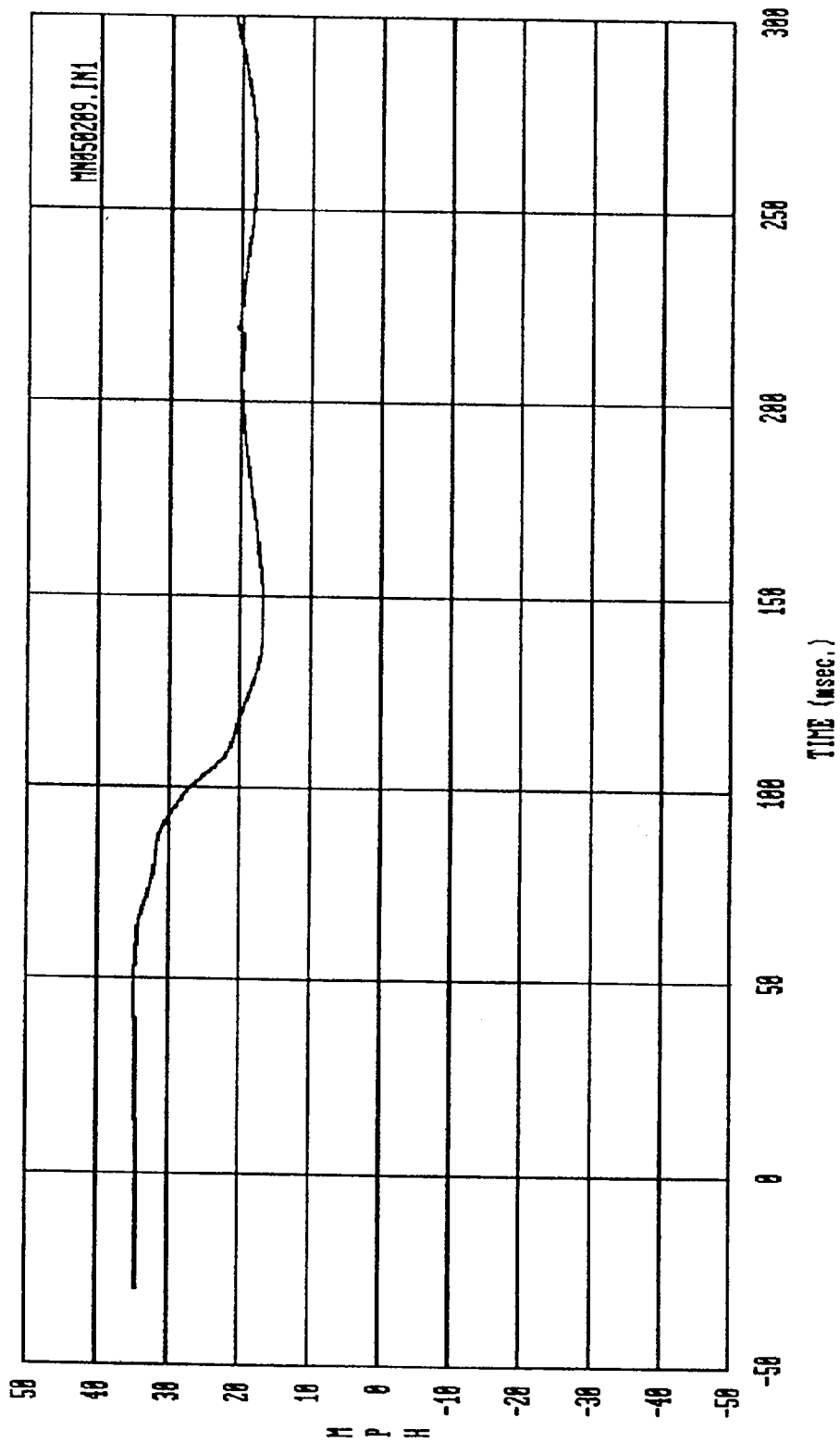


Curve: Driver femur load -- Right femur Filter: SAE CLASS 600 Max = 125.12 Min = -1023.7
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

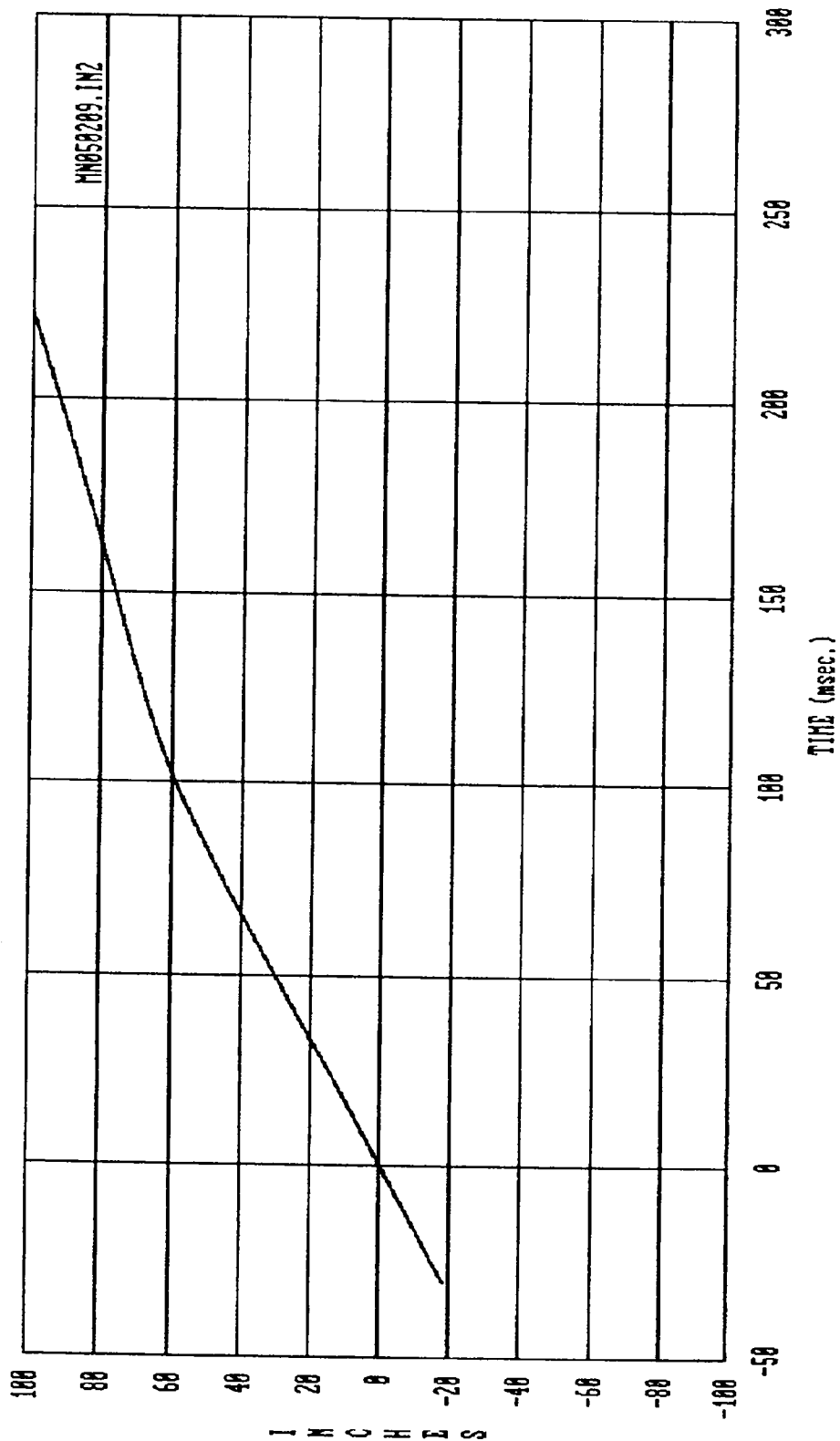


Curve: Passenger head acceleration — X axis Filter: SAE CLASS 1000 Max = 38.577 Min = -31.633

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

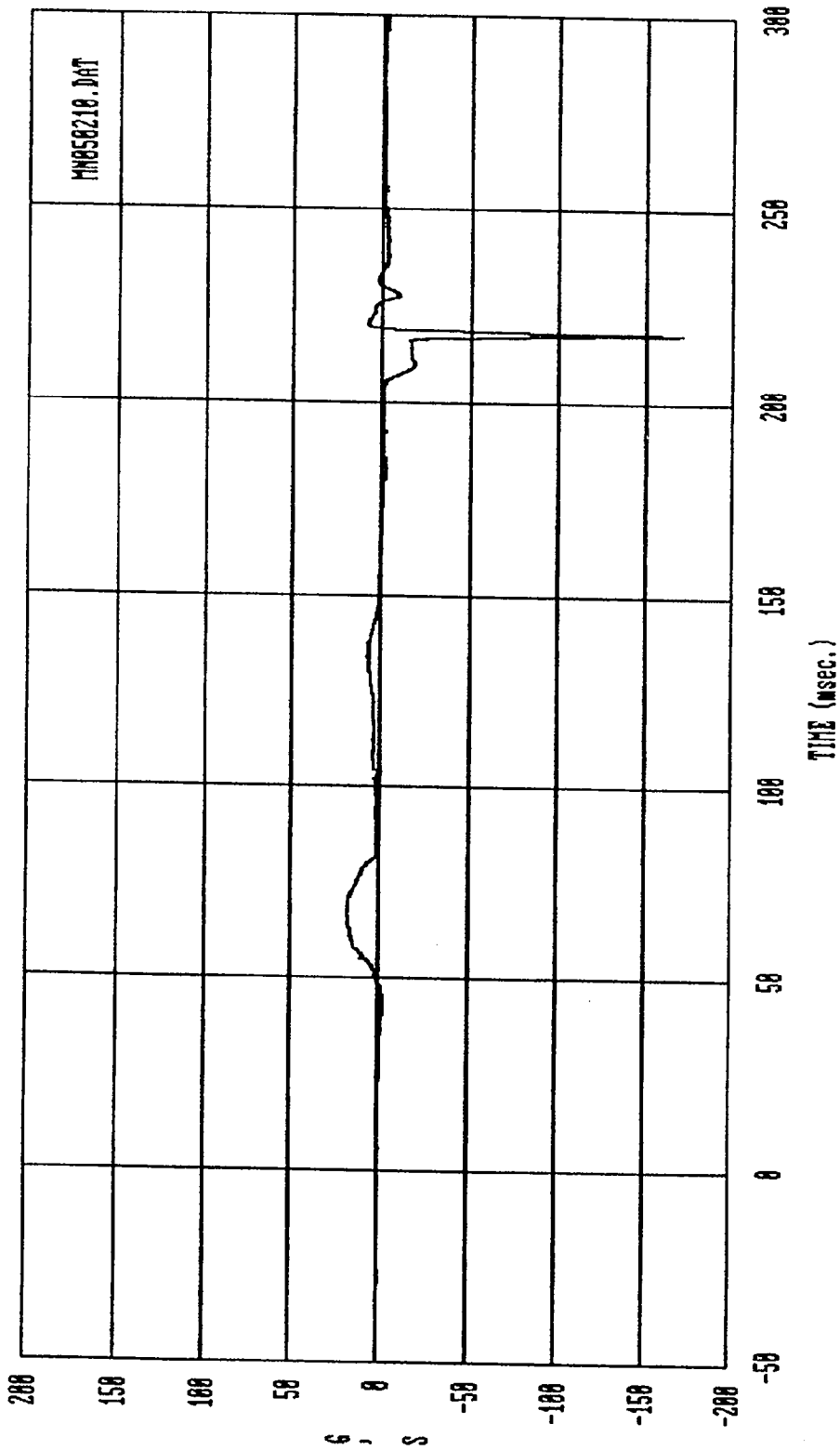


Curve: Passenger head delta V -- X axis
 Filter: SAE CLASS 180 Max = 34.952 Min = 16.820
 MSE Date: 05/19/92 Program: 1992 NCAP - 13 Vehicle: 1992 Hyundai Excel

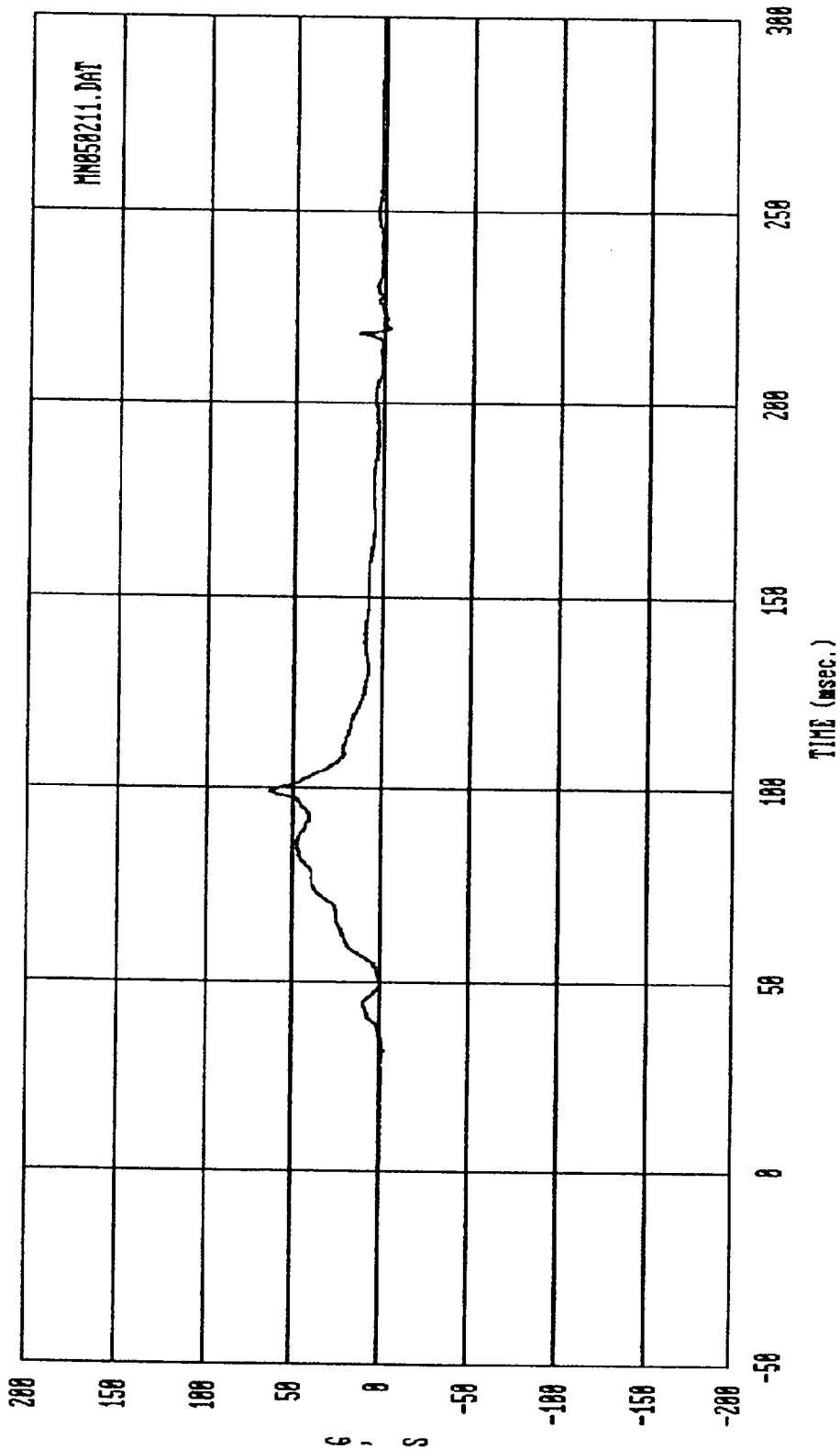


Curve: Passenger head displacement — X axis Filter: SAE CLASS 100 Max = 126.25 Min = .10000E+11

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

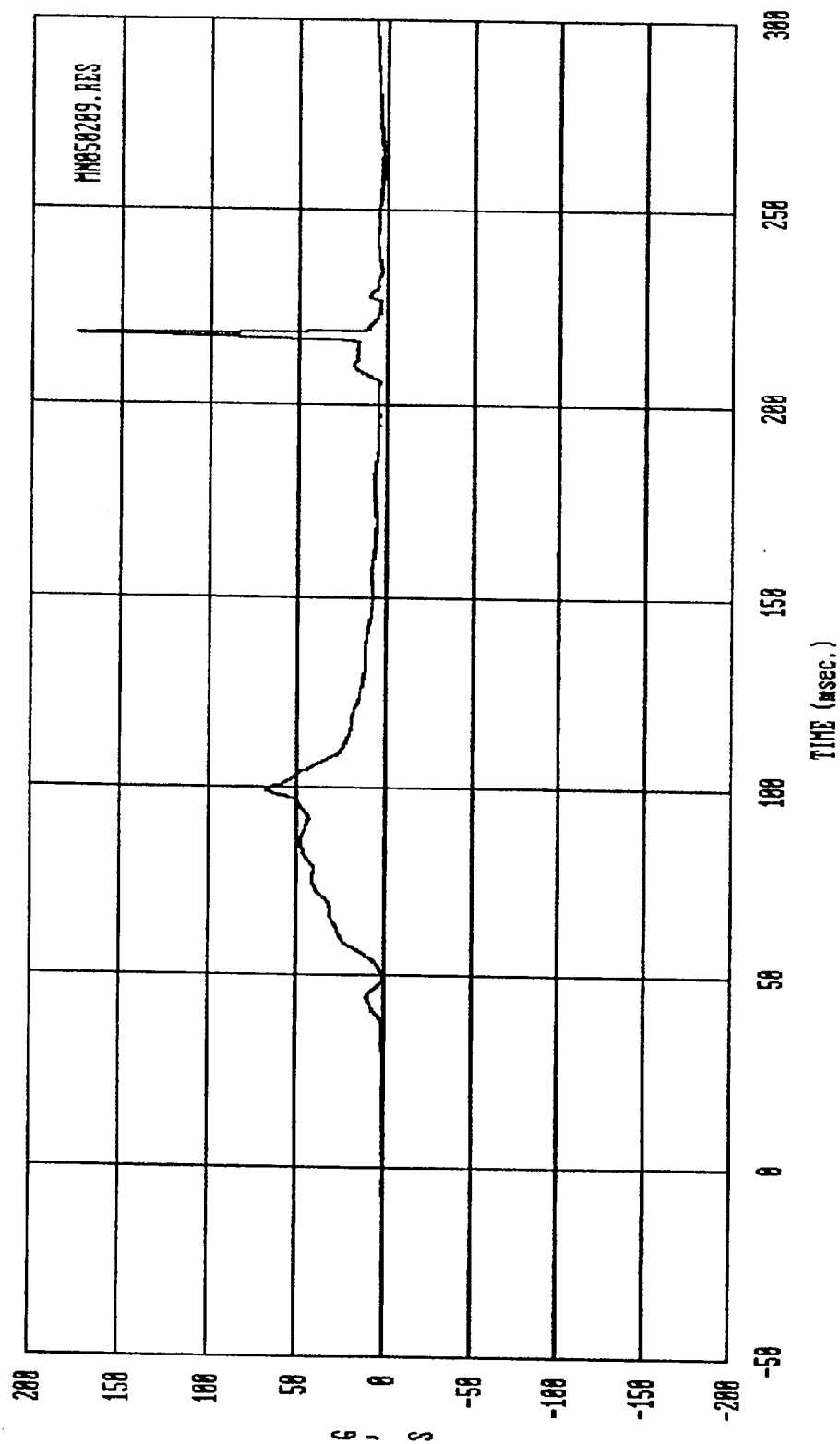


Curve: Passenger head acceleration -- Y axis Filter: SAE CLASS 1000 Max: 18.213 Min: -171.21
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

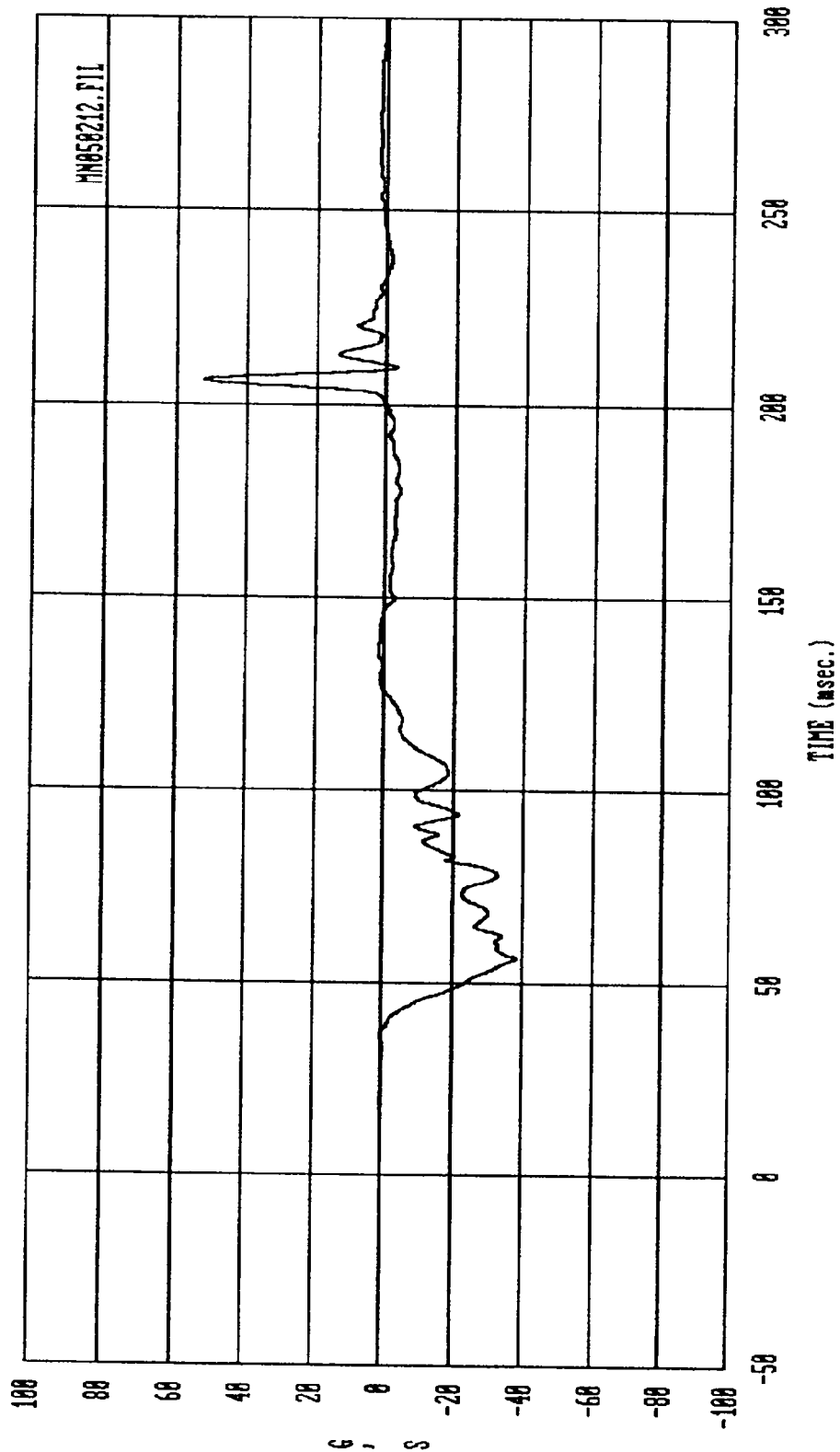


Curve: Passenger head acceleration -- Z axis Filter: SAE CLASS 1800 Max = 64.157 Min = -2.7575

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

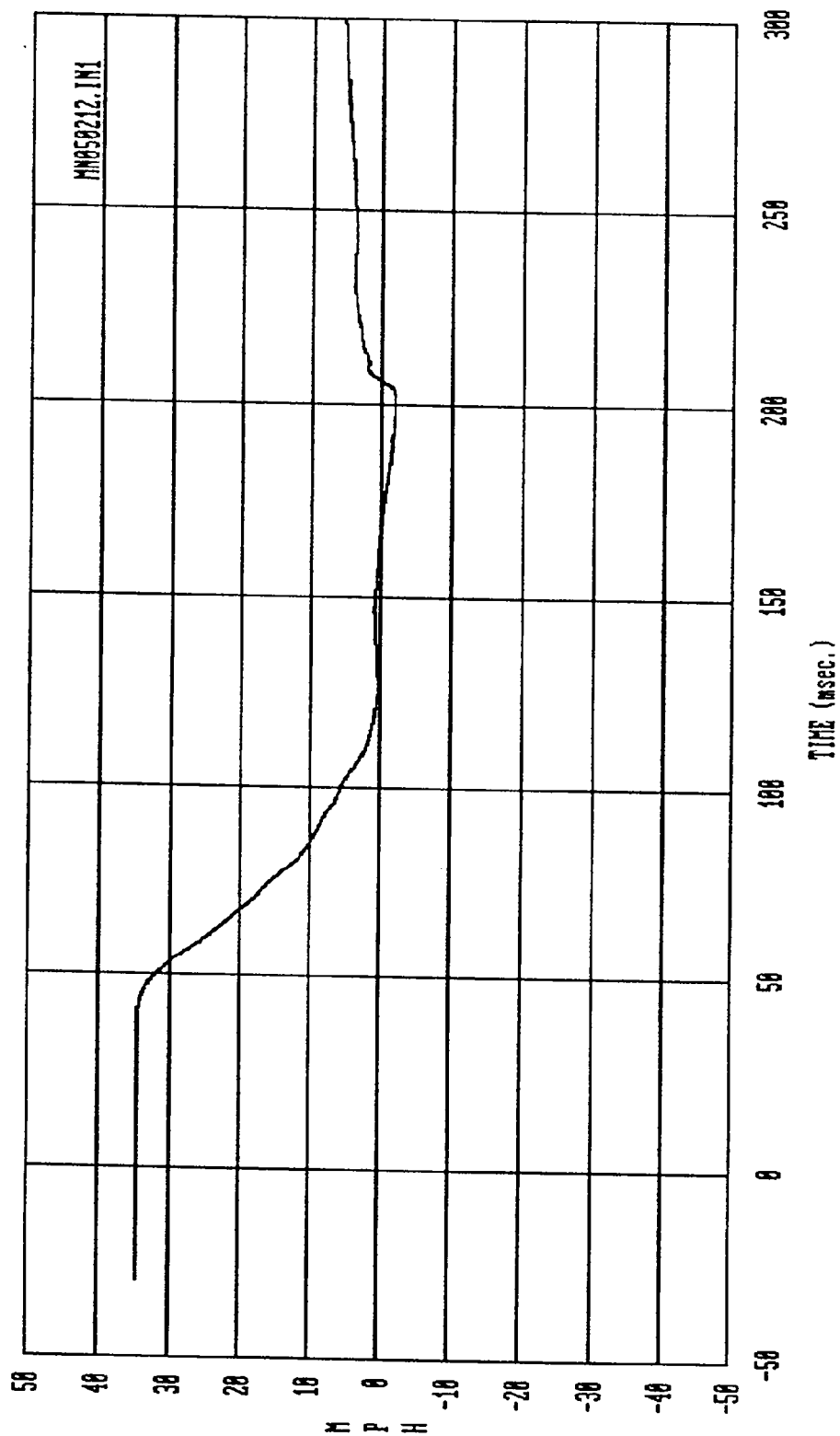


Curve: Passenger head acceleration -- Resultant Filter: SAE CLASS 1000 Max = 175.83 Min = .18011
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

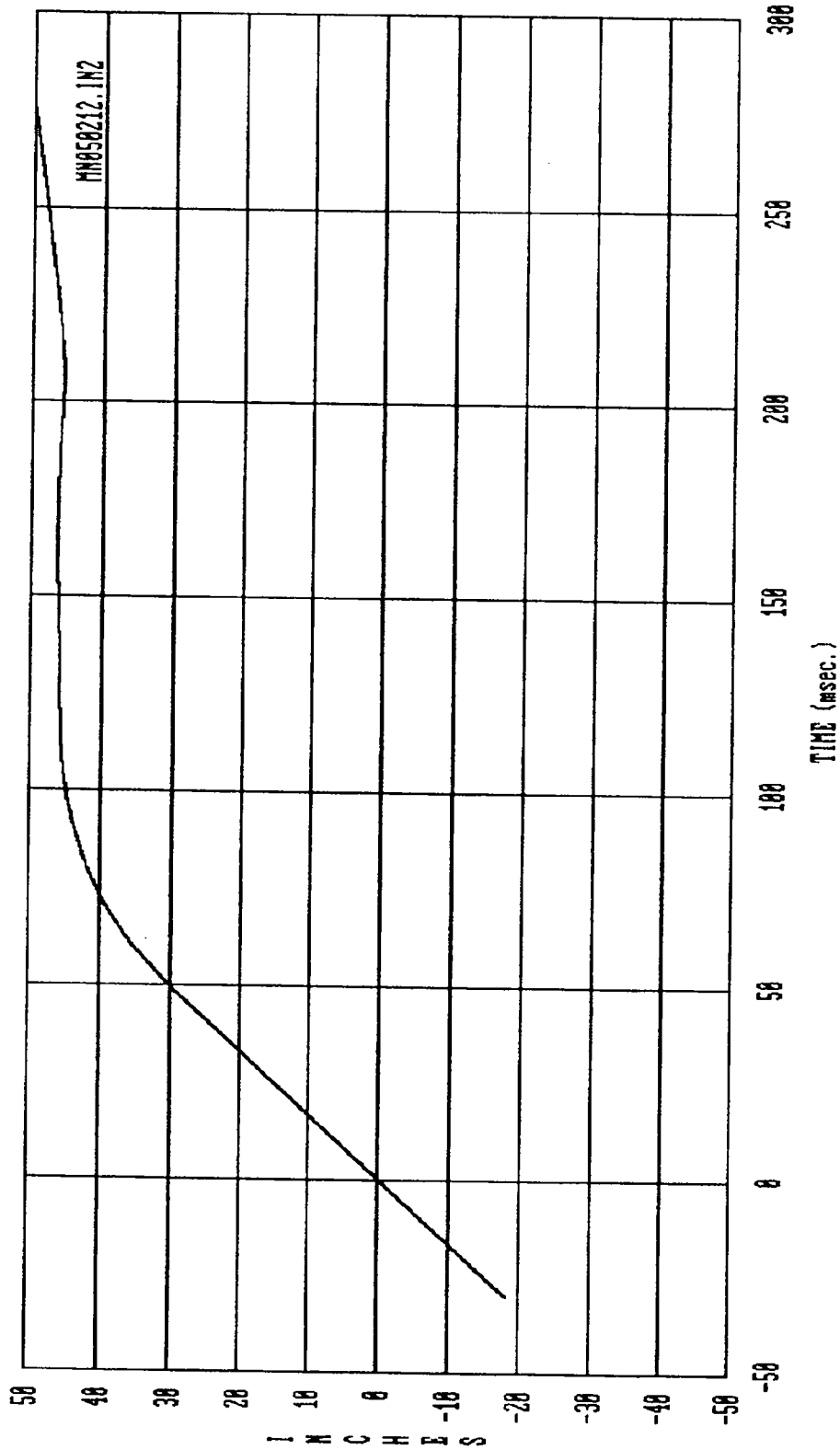


Curve: Passenger chest acceleration -- X axis Filter: SAE CLASS 100 Max = 52.417 Min = -38.486

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

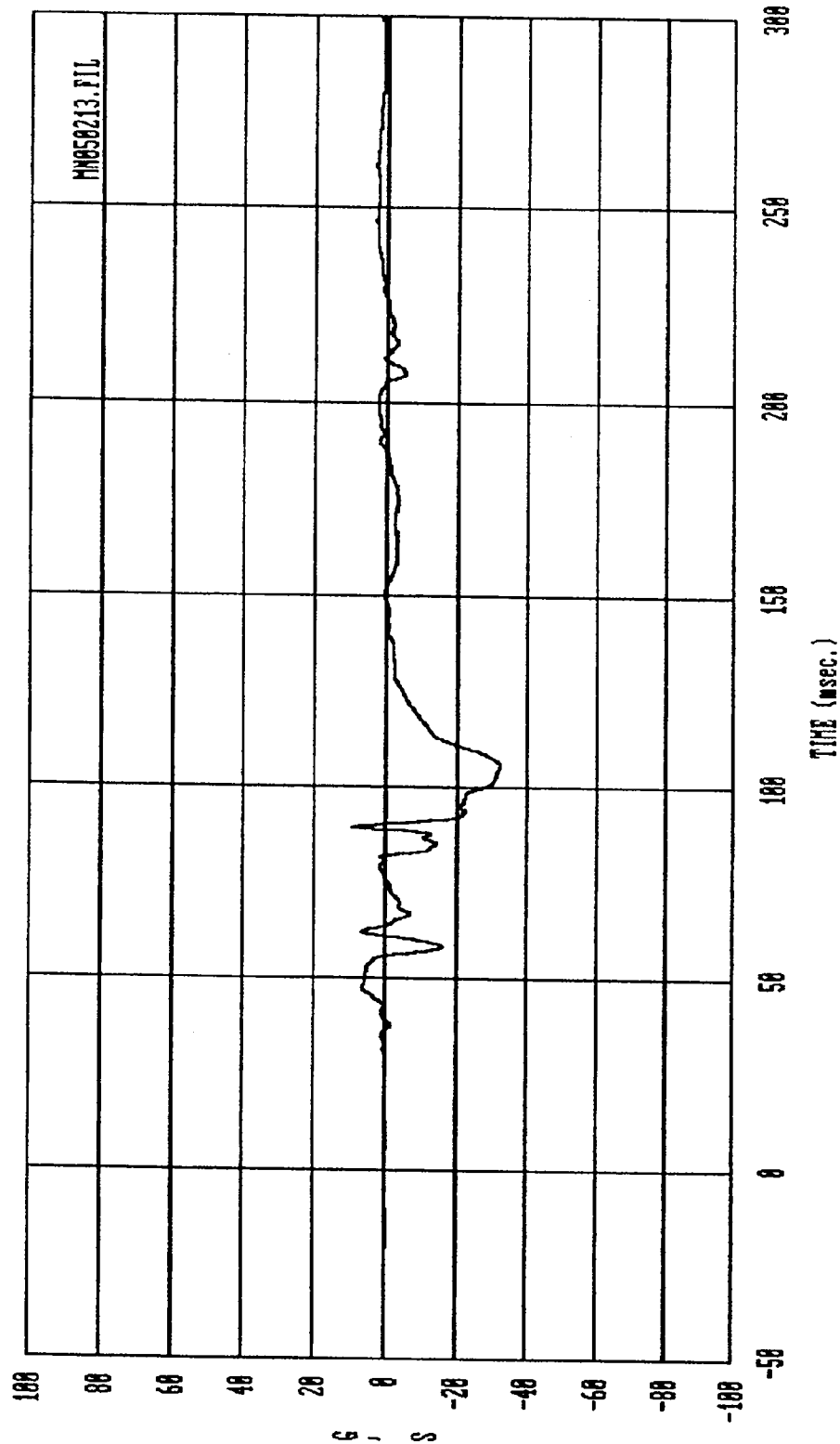


Curve: Passenger chest delta V -- X axis
 Filter: SAE CLASS 180 Max = 34.656 Min = -1.9359
 MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

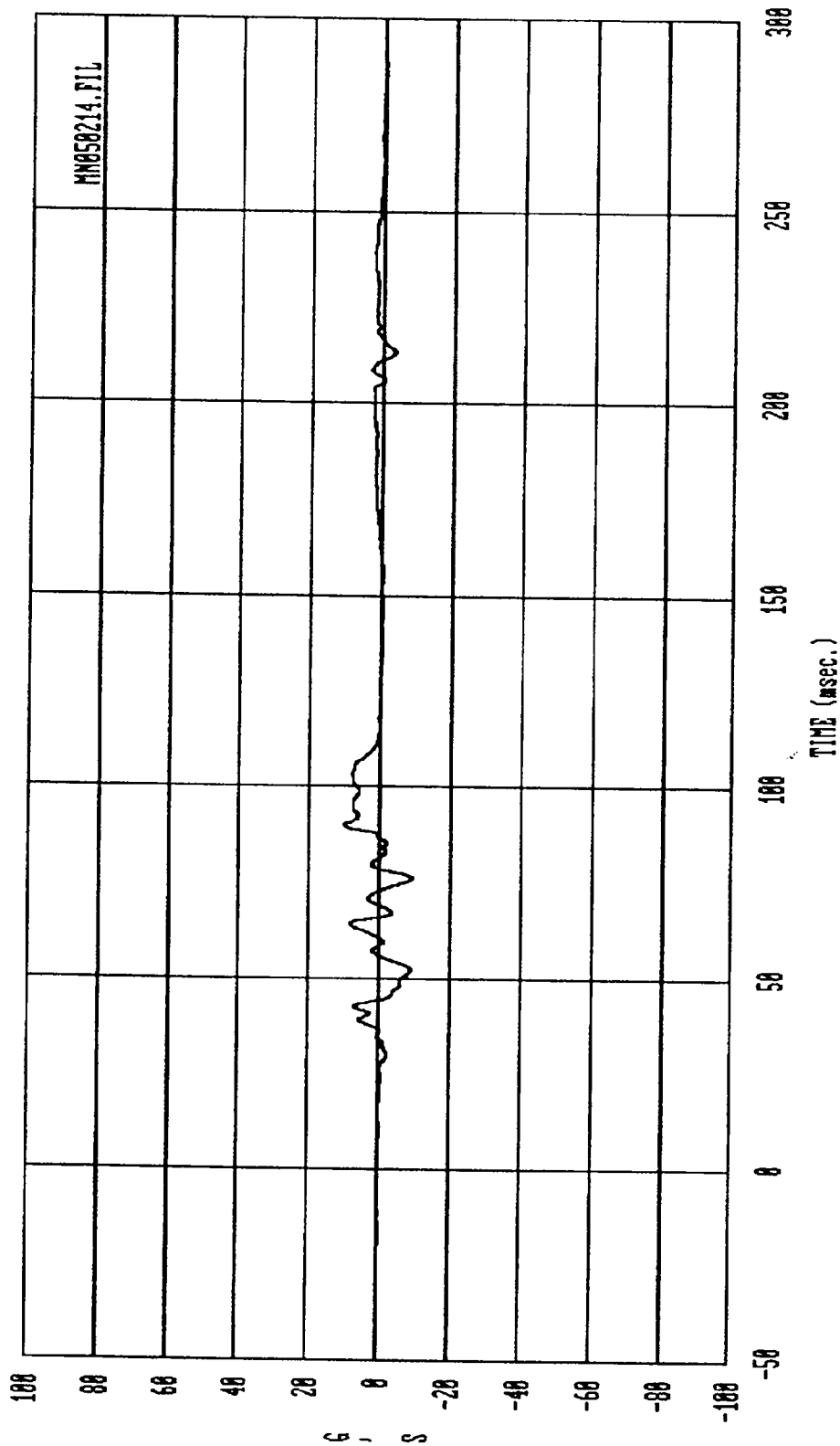


Curve: Passenger chest displacement — X axis Filter: SAE CLASS 180 Max = 52.212 Min = 45.558

MSE Date: 05/19/92 Program: 1992 NCAP - 13 Vehicle: 1992 Hyundai Excel

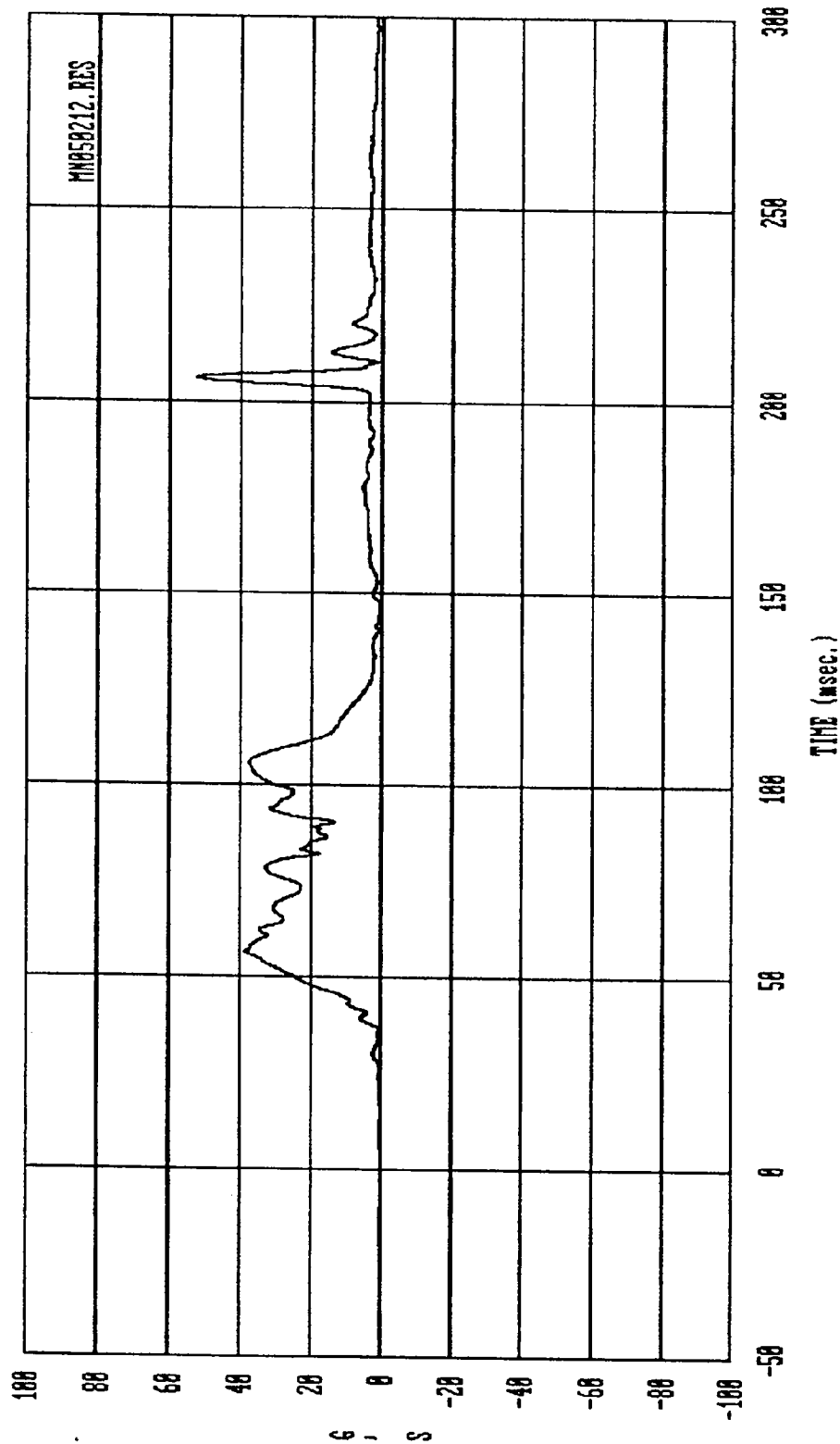


Curve: Passenger chest acceleration -- Y axis Filter: SAE CLASS 188 Max = 9.3927 Min = -32.207
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

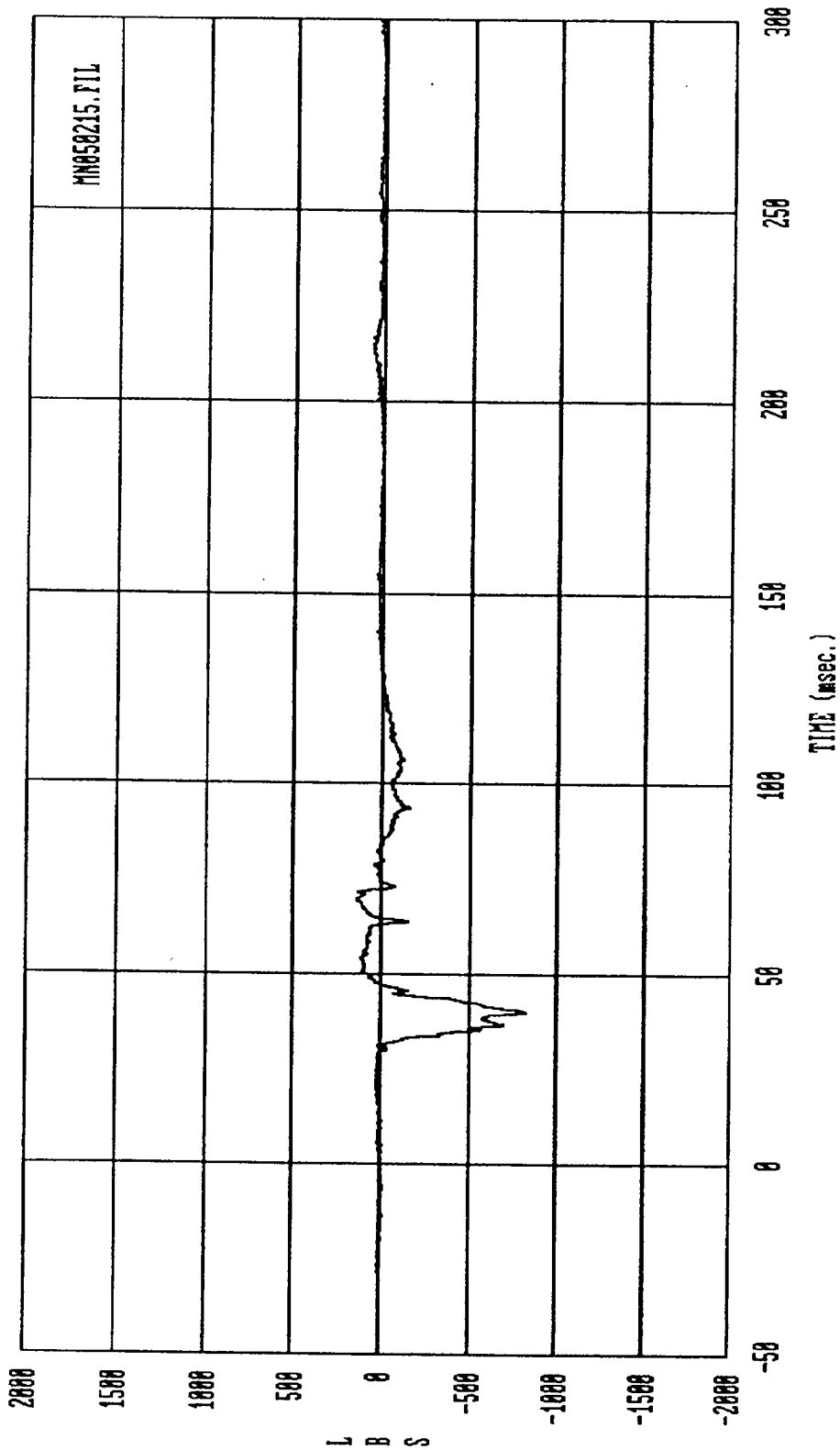


Curve: Passenger chest acceleration -- Z axis Filter: SAE CLASS 180 Max = 10.062 Min = -9.4382

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

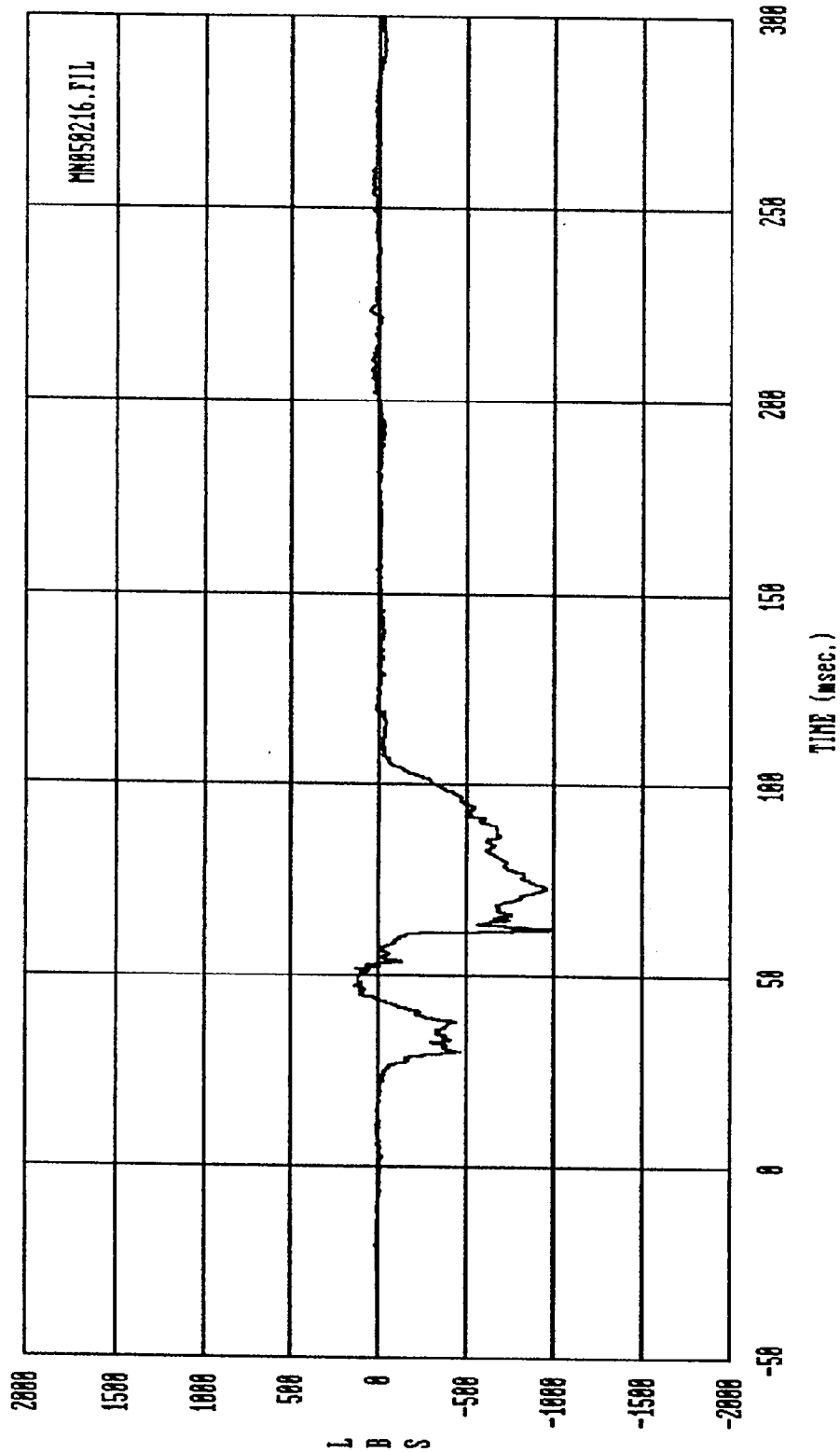


Curve: Passenger chest acceleration --- Resultant Filter: SAE CLASS 180 Max = 52.466 Min = .28944E-01
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



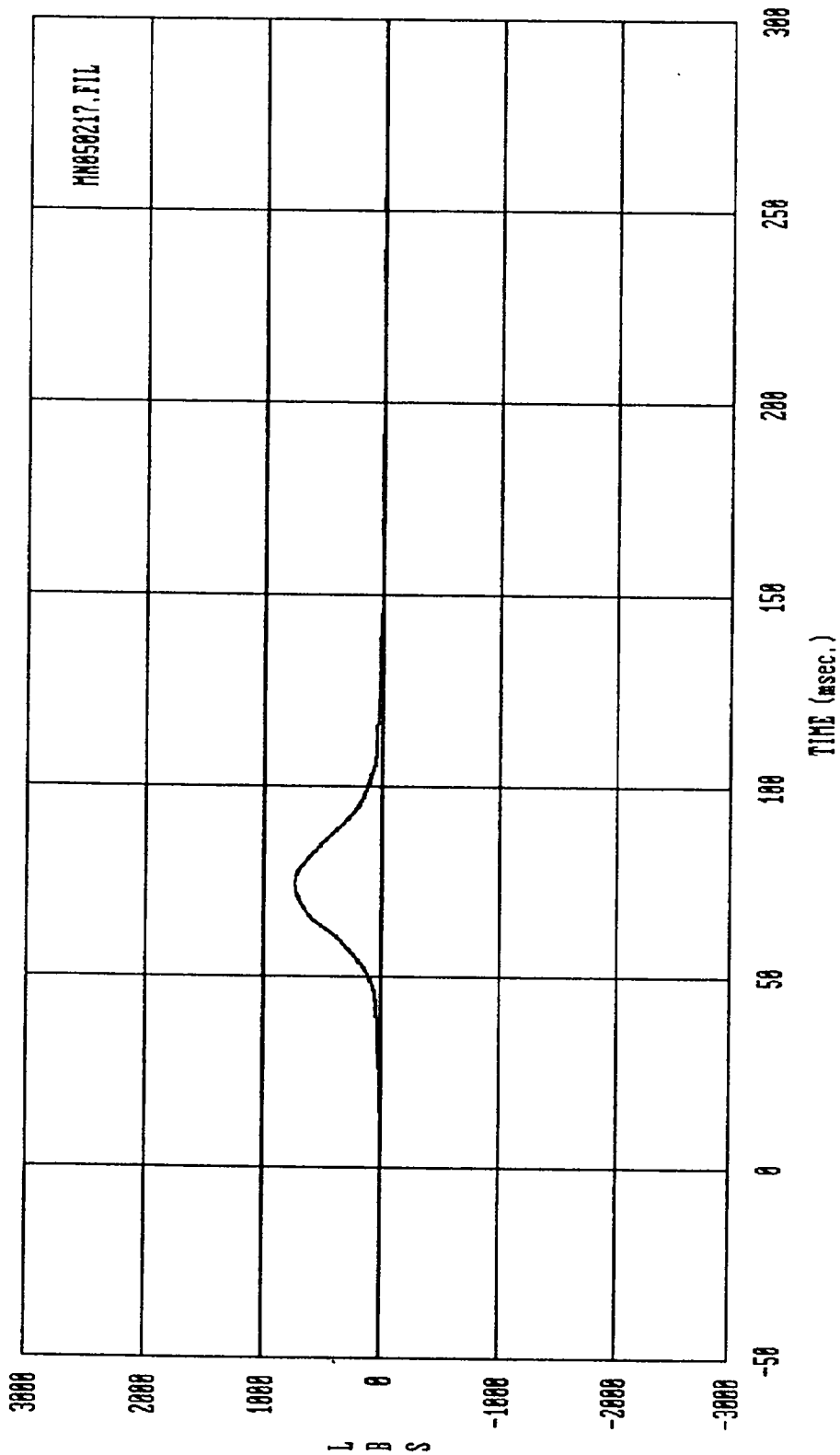
Curve: Passenger femur load -- Left femur Filter: SAE CLASS 600 Max = 144.23 Min = -817.28

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



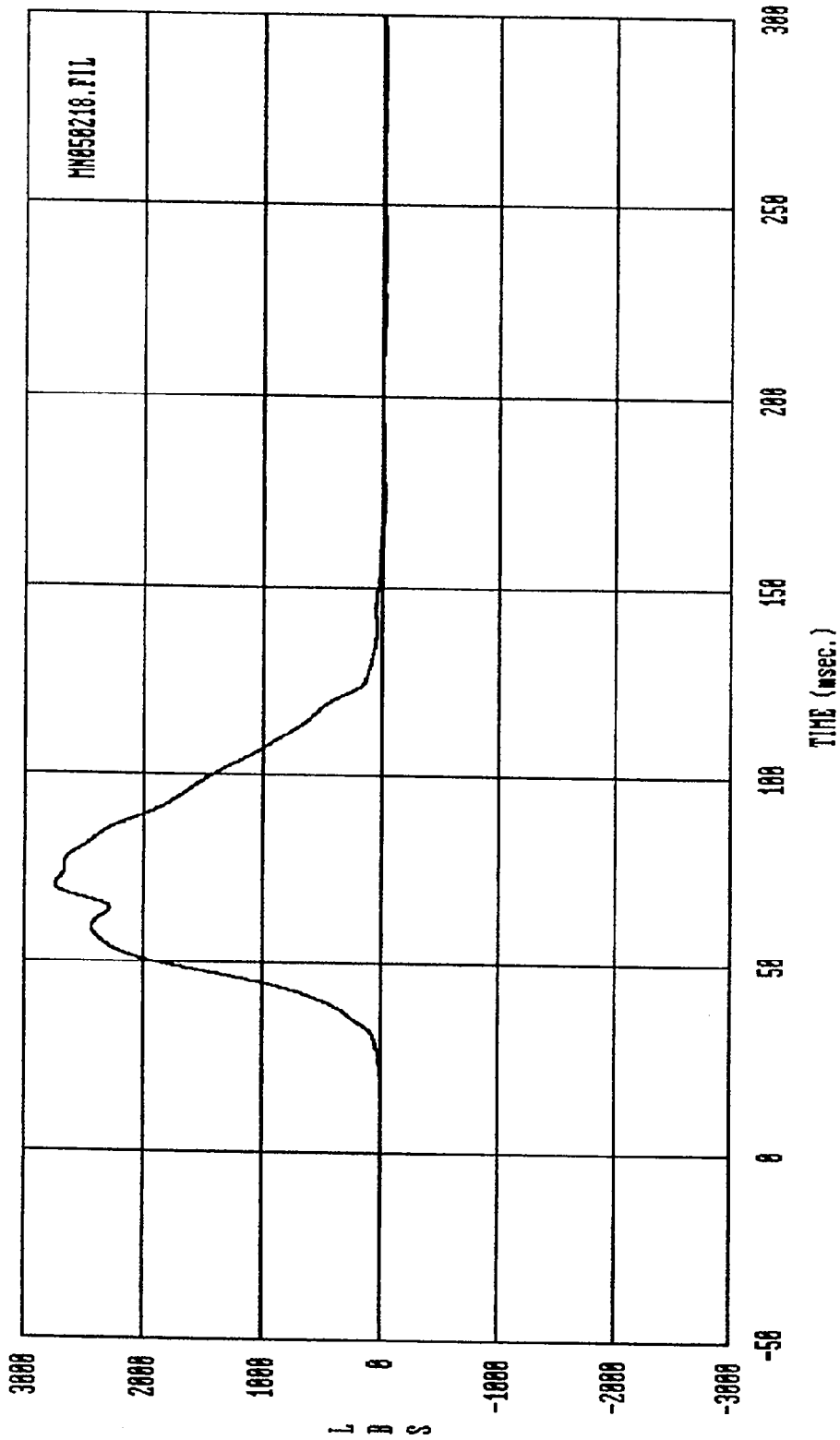
Curve: Passenger femur load -- Right femur Filter: SAE CLASS 600 Max = 130.74 Min = -992.97

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



Curve: Driver lap belt load Filter: SAE CLASS 60 Max = 739.64 Min = -.87502

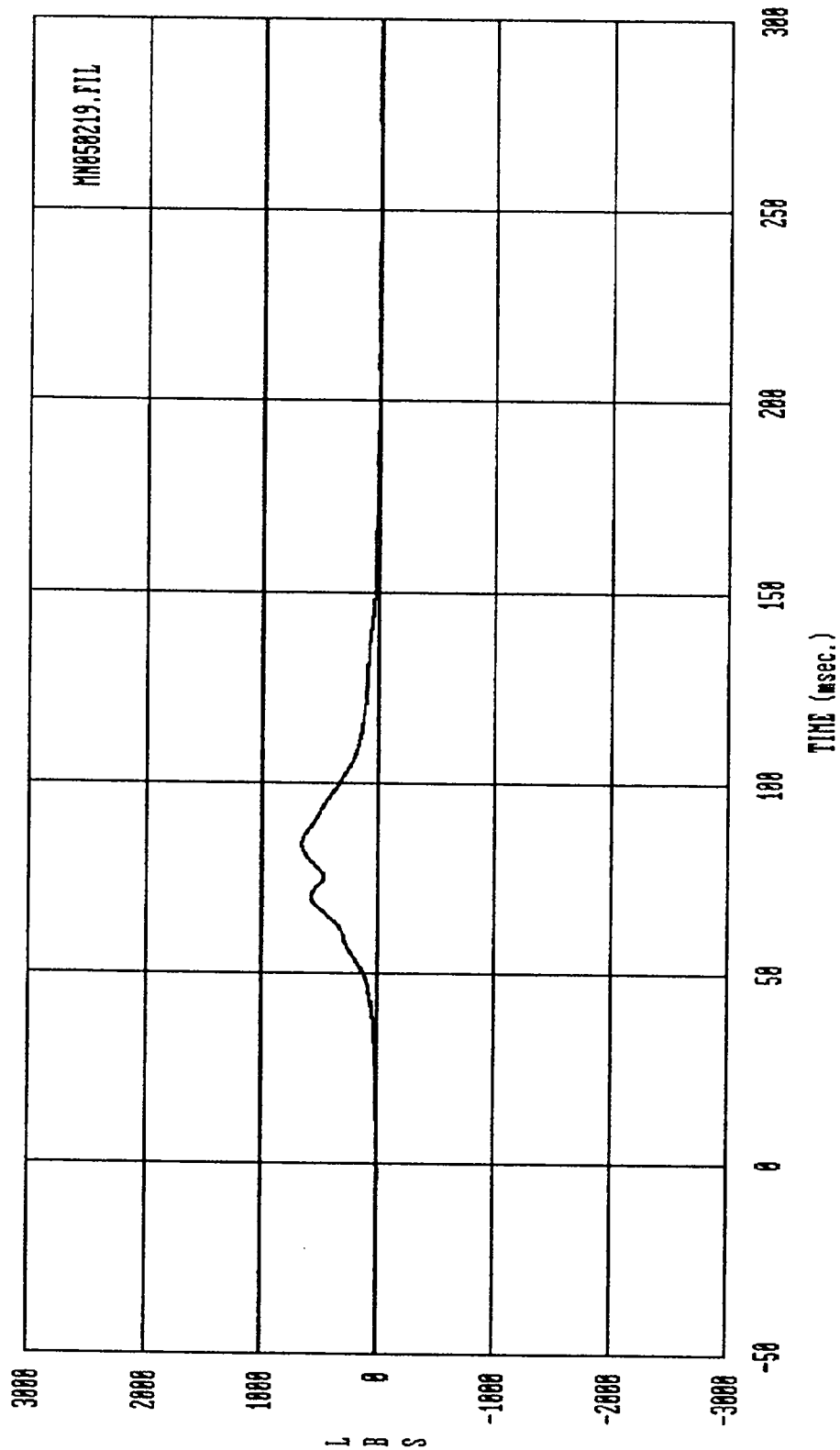
MSE Date: 05/19/92 Program: 1992 NCHP - #3 Vehicle: 1992 Hyundai Excel



B1-30

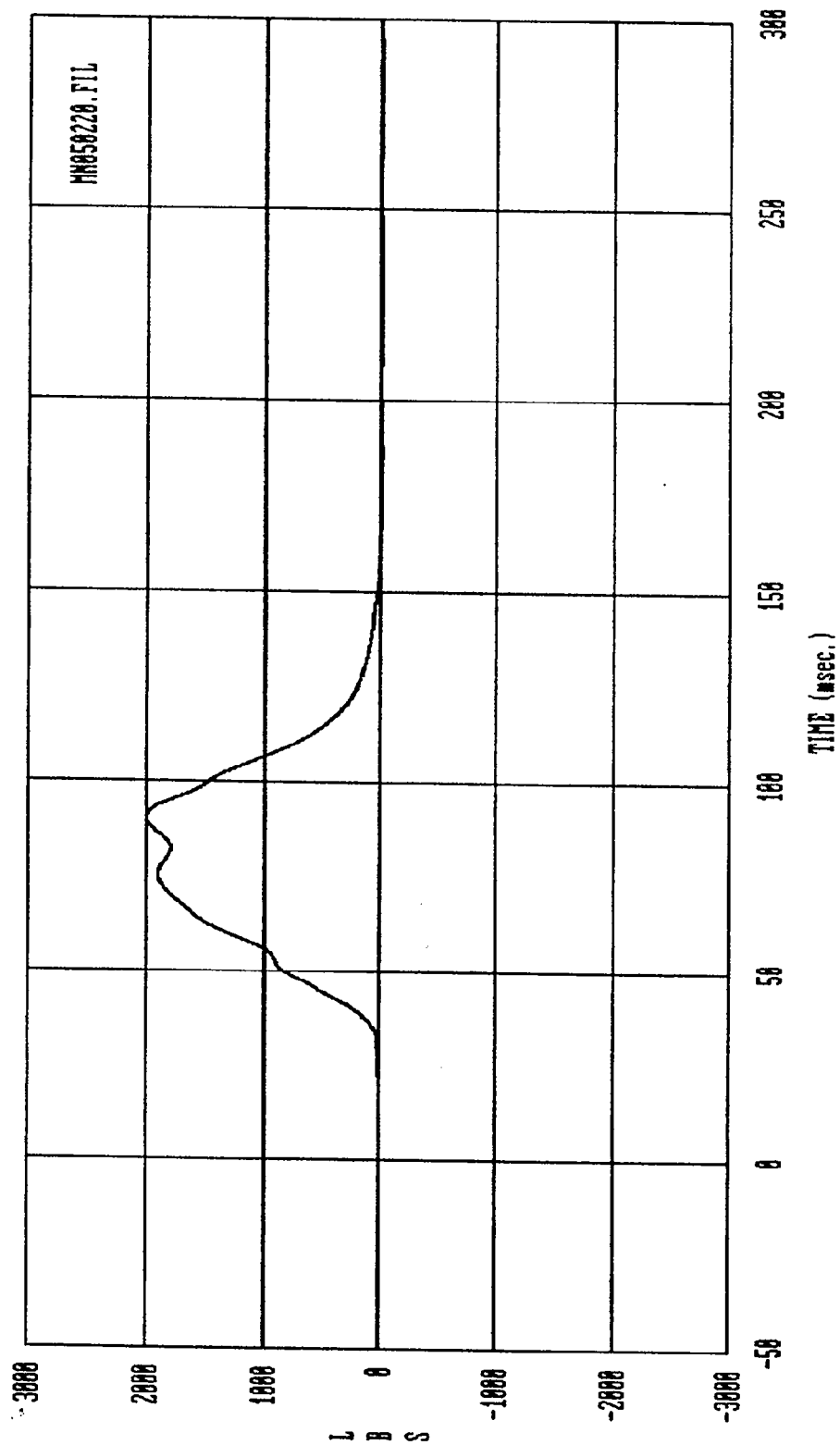
MSE-92-R92027-N03

Curve: Driver shoulder belt load Filter: SAE CLASS 60 Max = 2752.4 Min = -25.519
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

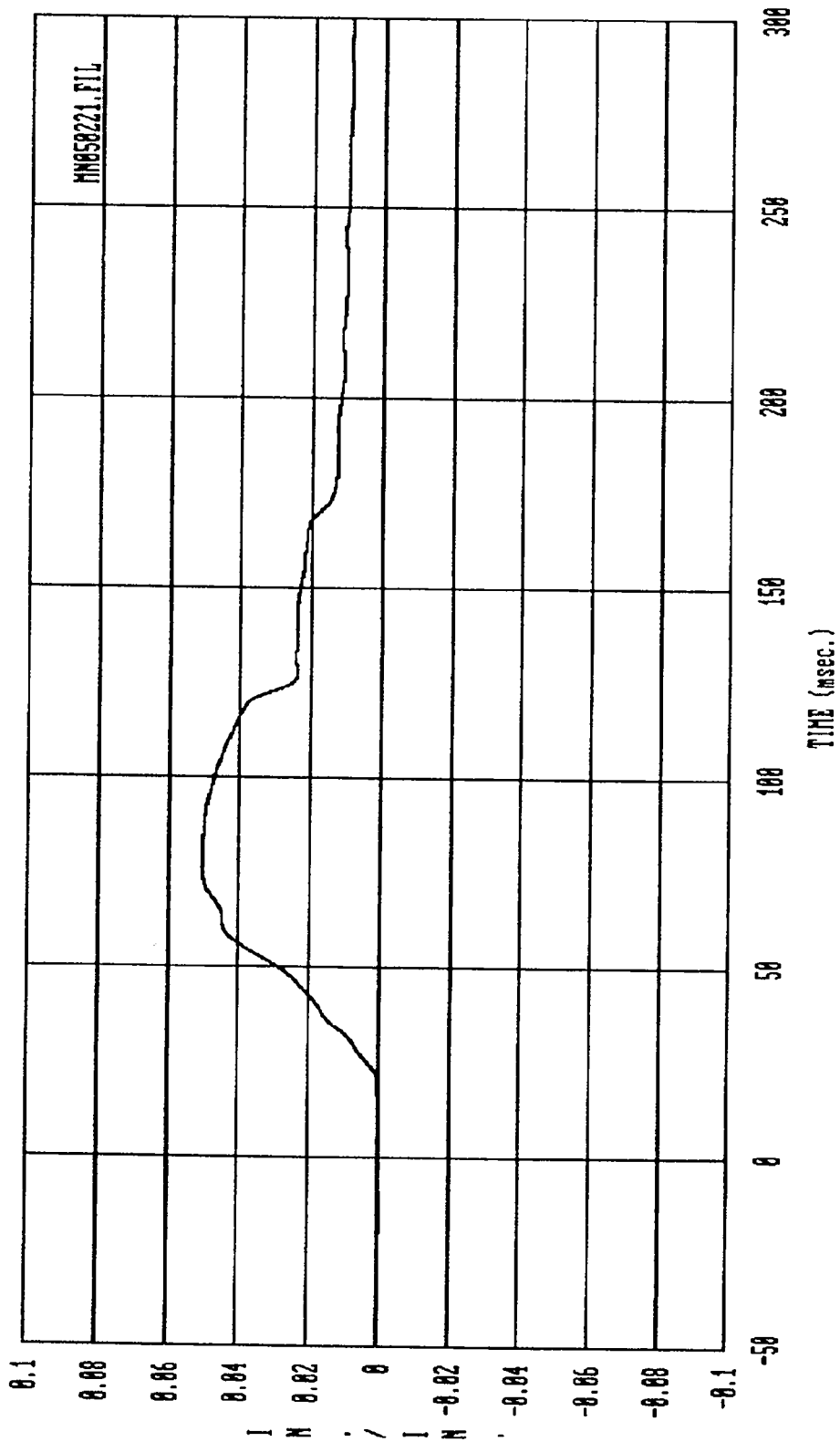


Curve: Passenger lap belt load Filter: SAE CLASS 60 Max = 656.31 Min = -2.2984

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

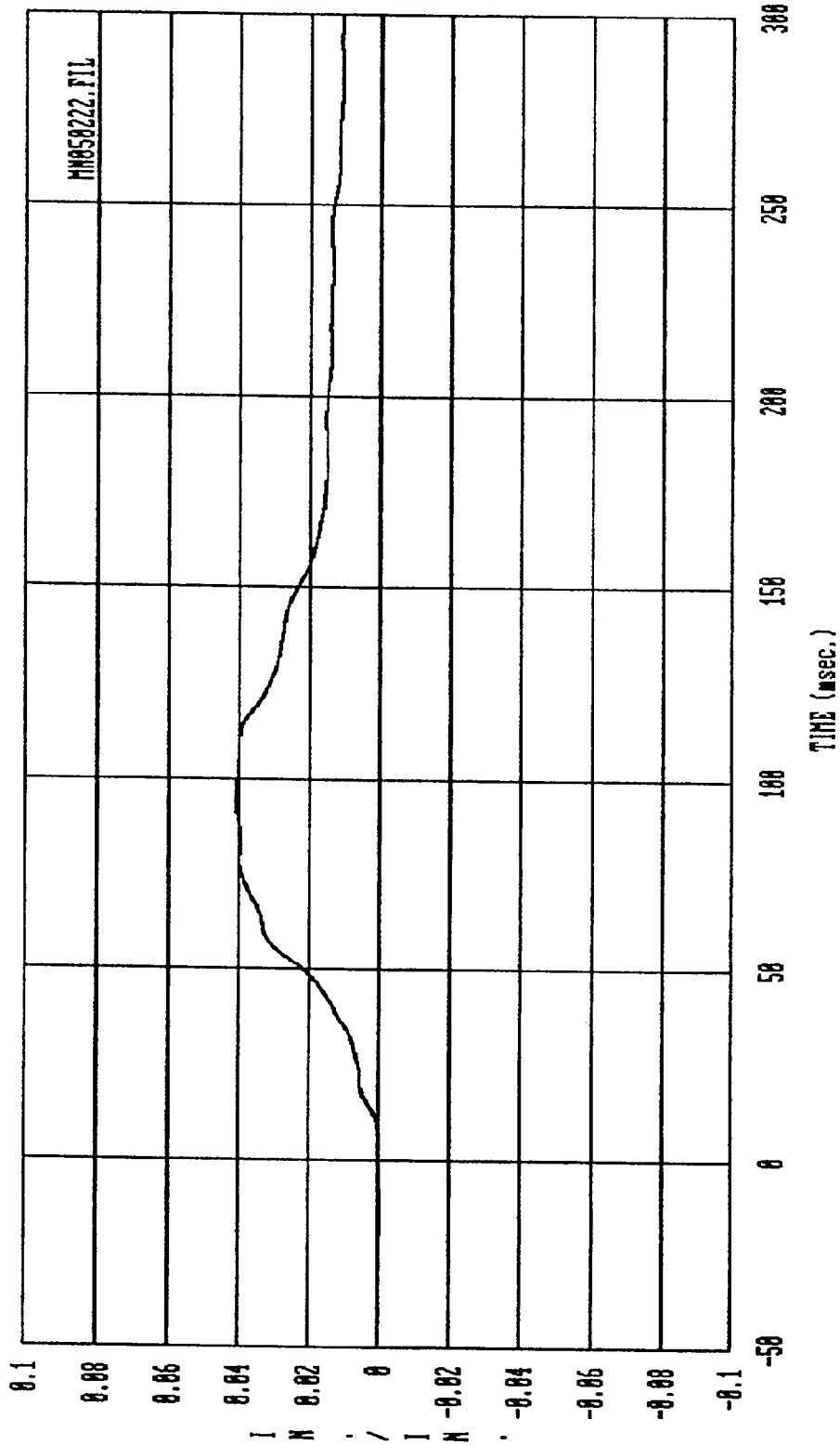


Curve: Passenger shoulder belt load Filter: SAE CLASS 60 Max = 2005.4 Min = -18.299
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

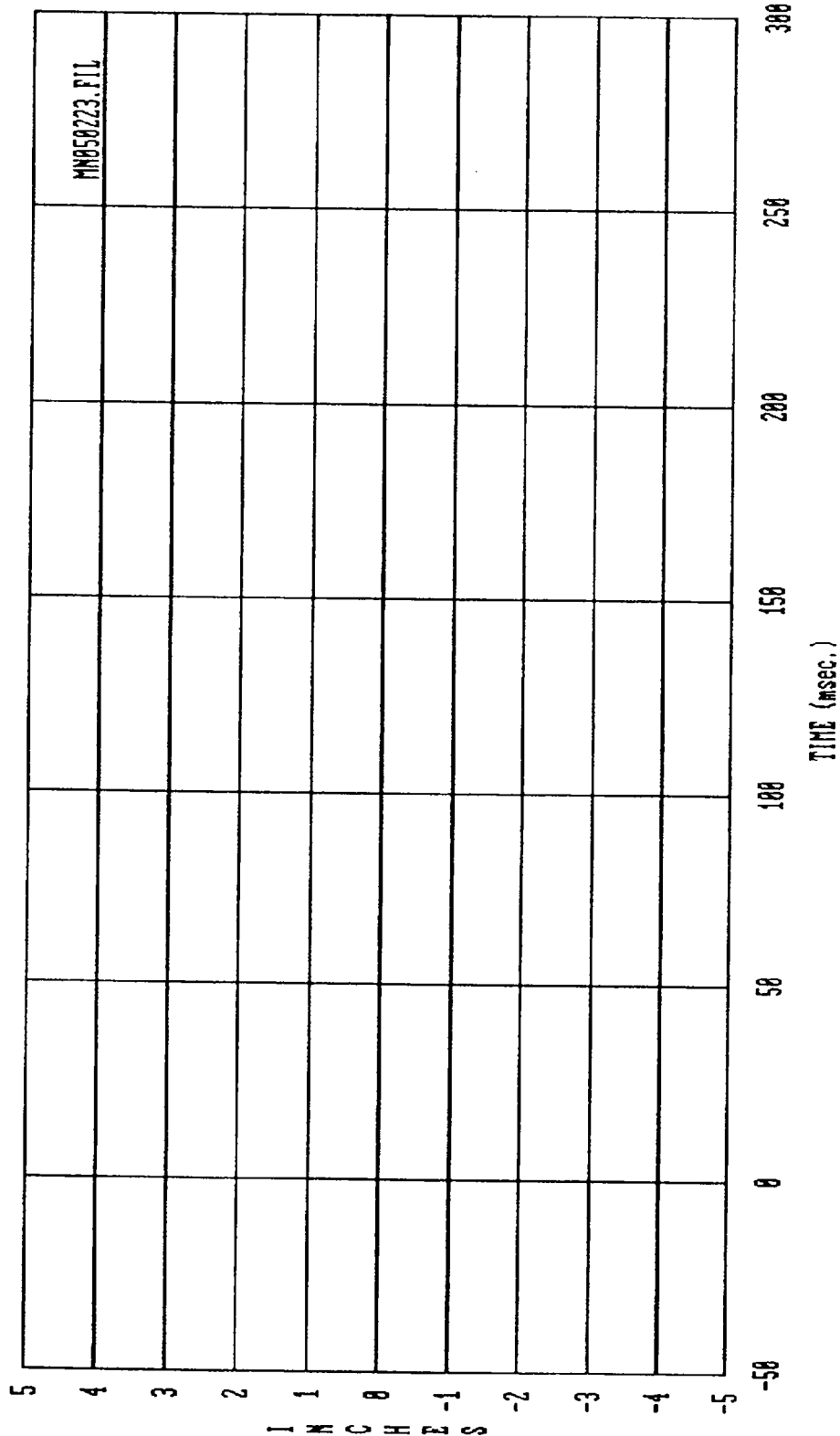


Curve: Driver seat belt elongation (Percent Stretch) Filter: SAE CLASS 60 Max = .50369E-01 Min = -.14307E-03

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

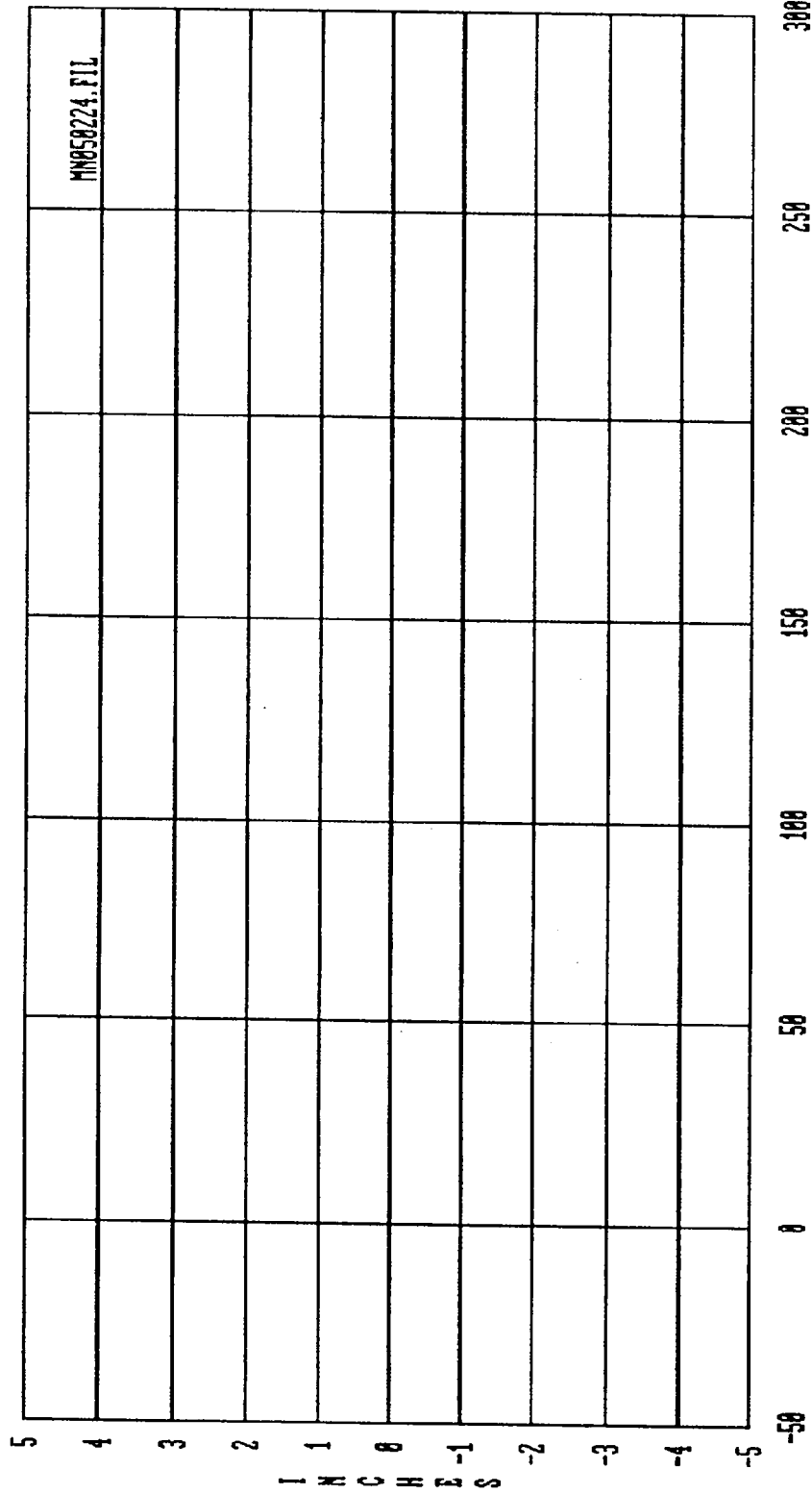


Curve: Passenger seat belt elongation (Percent Stretch) Filter: SAE CLASS 60 Max = .40952E-01 Min = -.93543E-06
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



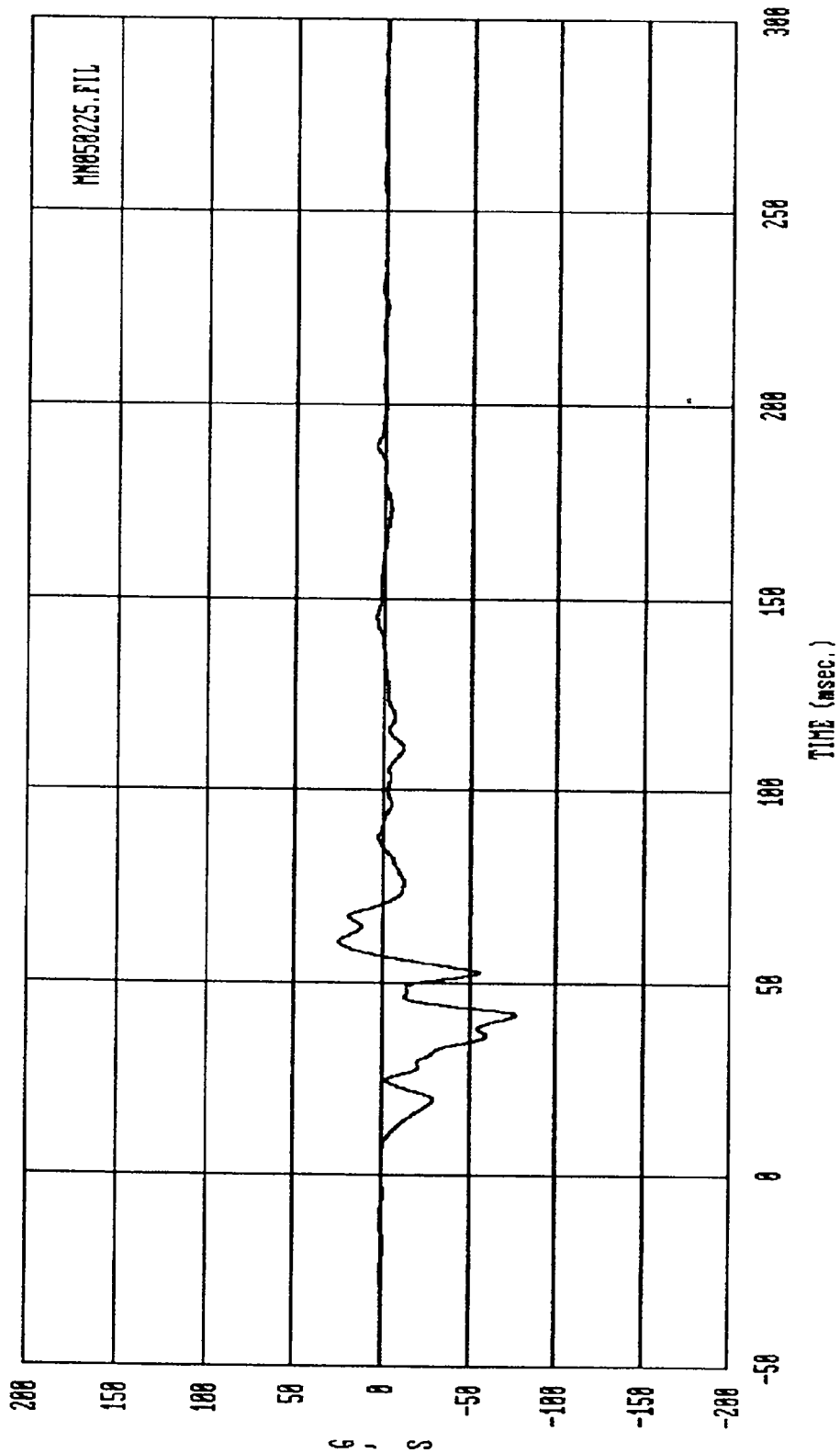
Curve: Driver seat belt pullout Filter: SAE CLASS 60 Max = .00000 Min = .00000

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



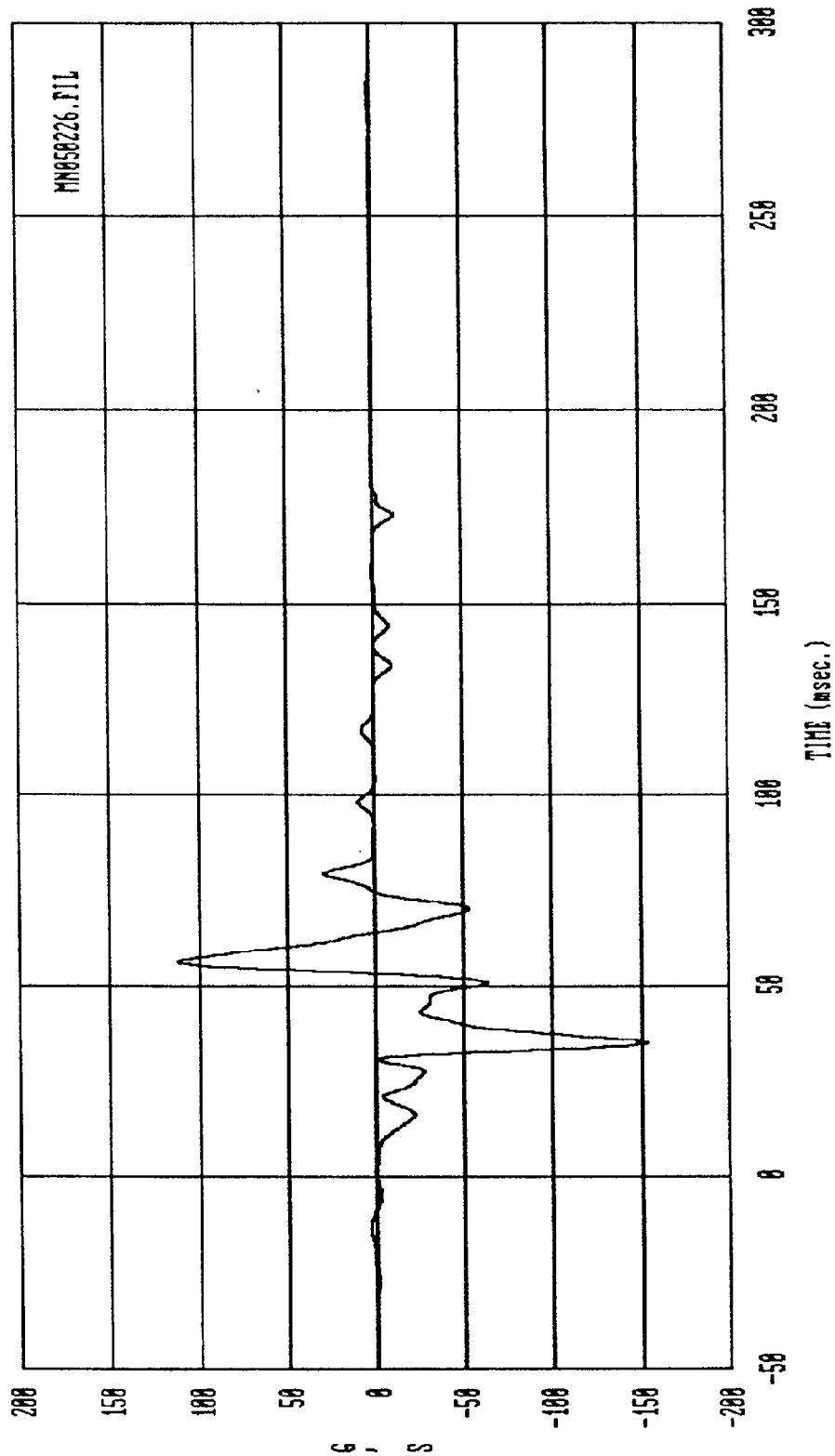
Curve: Passenger seat belt pullout Filter: SAE CLASS 60 Max = .00000 Min = .00000

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

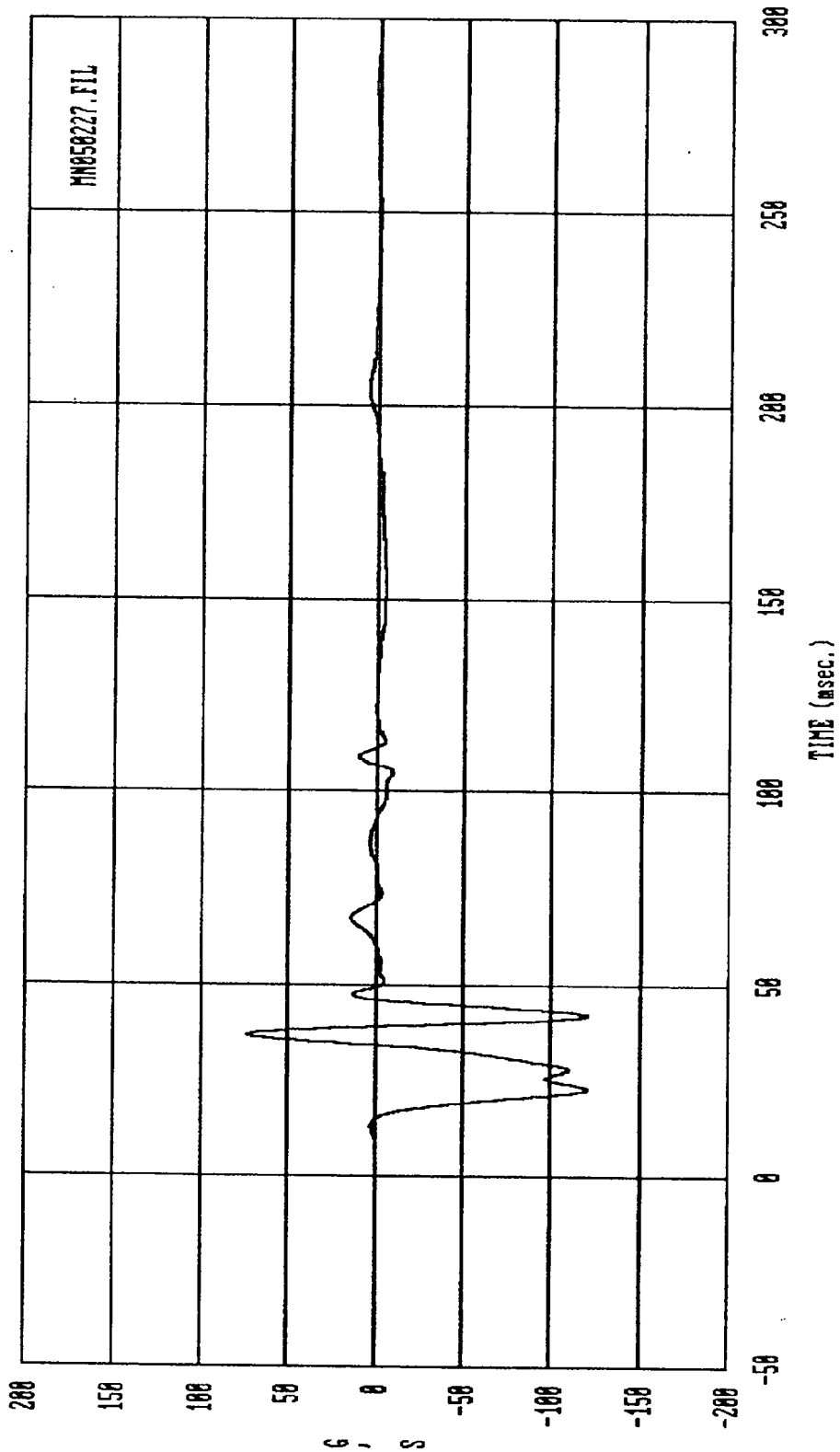


Curve: Left front caliper acceleration -- X axis Filter: SAE CLASS 60 Max = 24.942 Min = -76.993

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

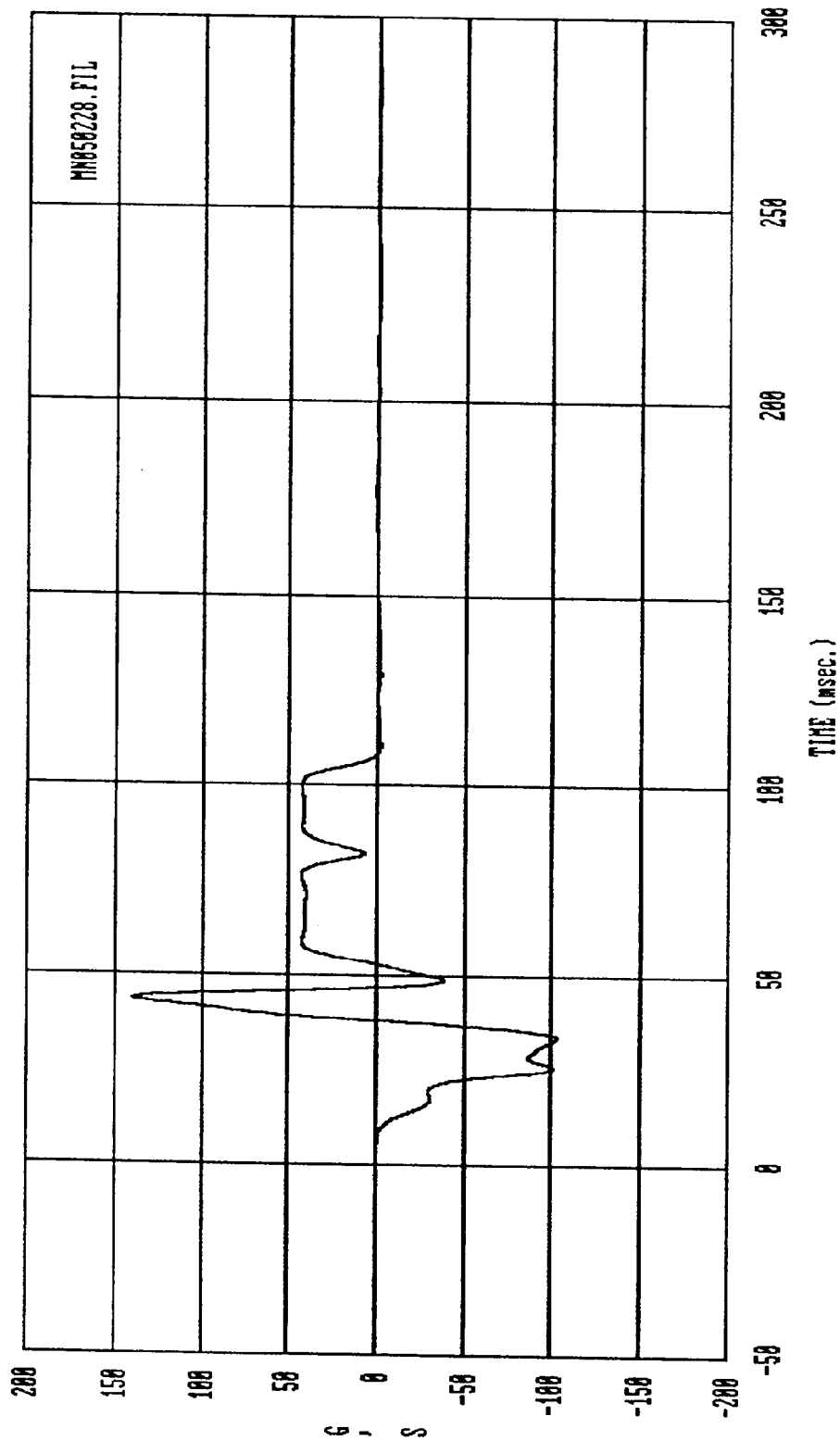


Curve: Right front caliper acceleration — X axis Filter: SAE CLASS 60 Max = 111.54 Min = -153.38
MSE Date: 85/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



Curve: Engine bottom acceleration -- X axis Filter: SAE CLASS 60 Max = 74.123 Min = -121.38

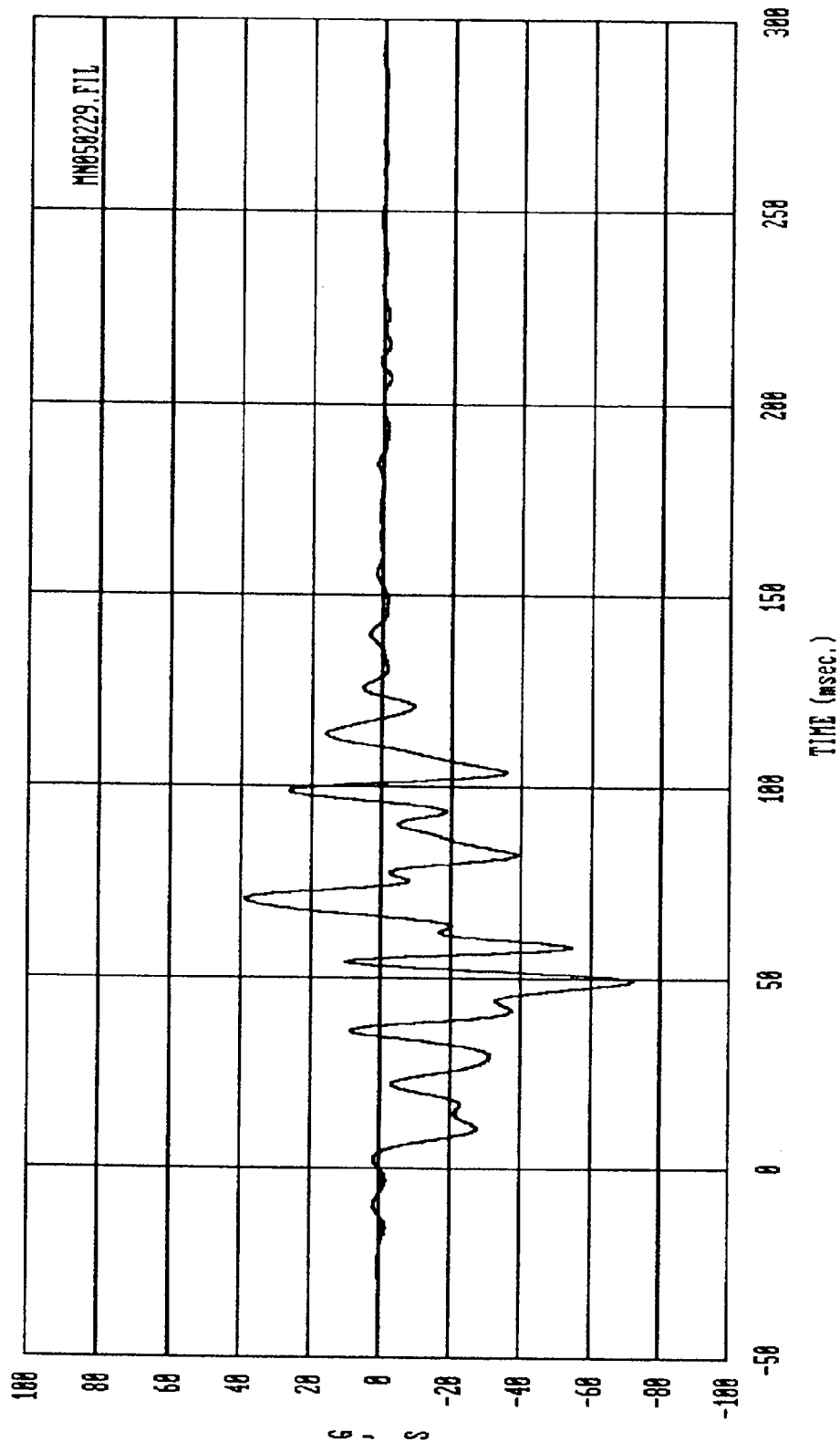
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



B1-40

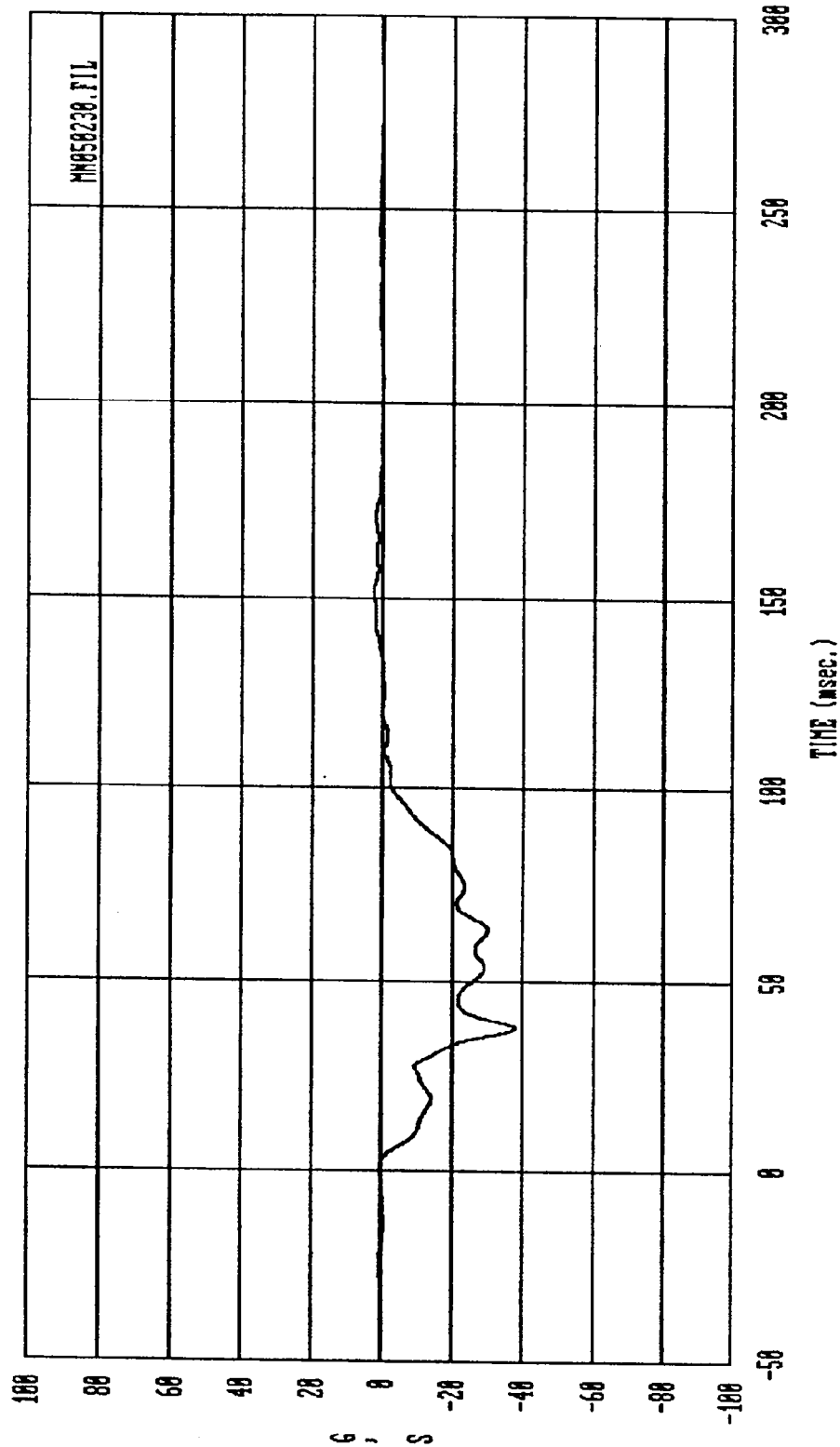
Curve: Engine top acceleration -- X axis Filter: SAE CLASS 60 Max = 140.64 Min = -103.52
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

MSE-92-R92027-N03

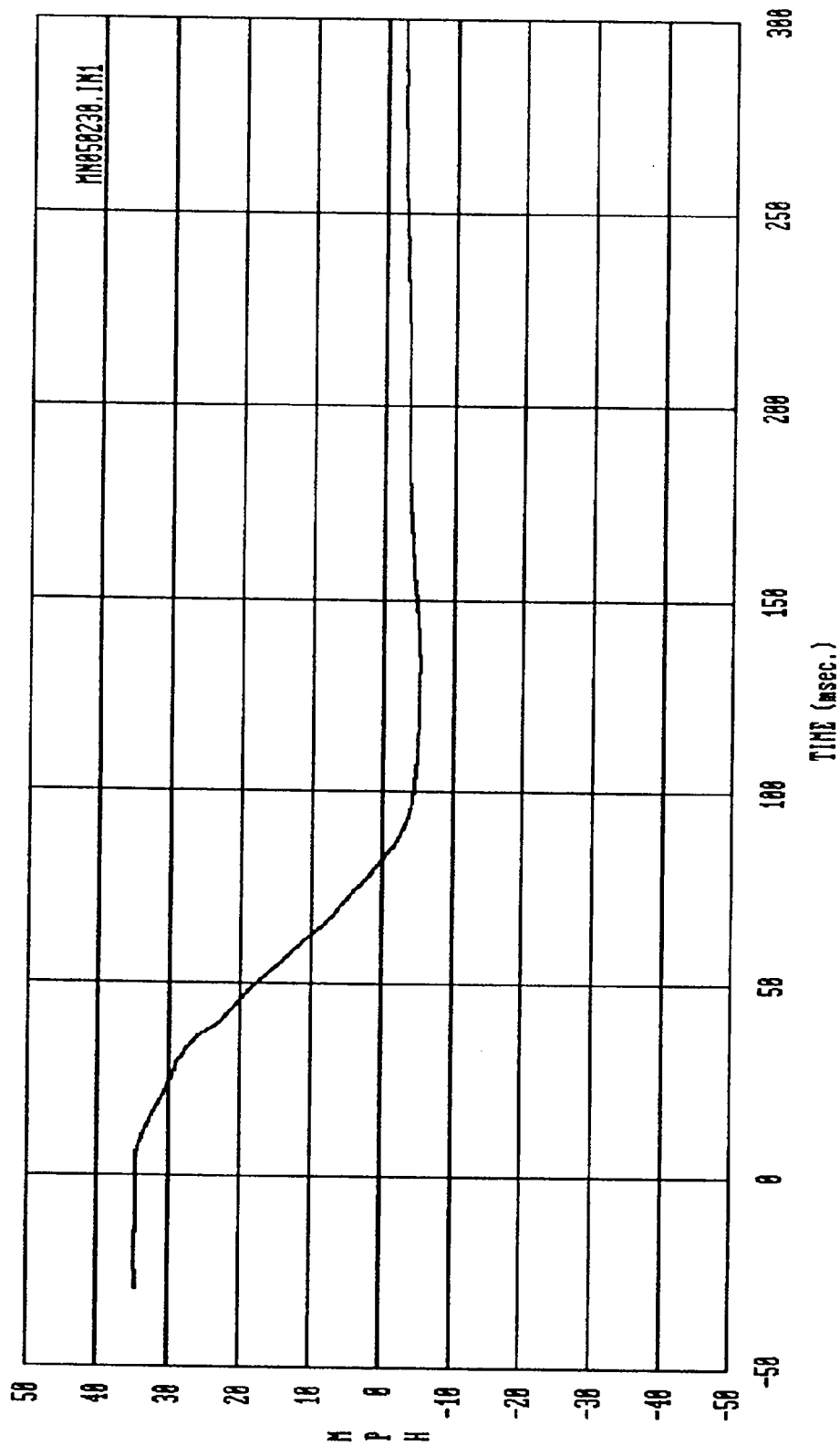


Curve: Dashpanel acceleration -- X axis Filter: SAE CLASS 60 Max = 38.945 Min = -72.084

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

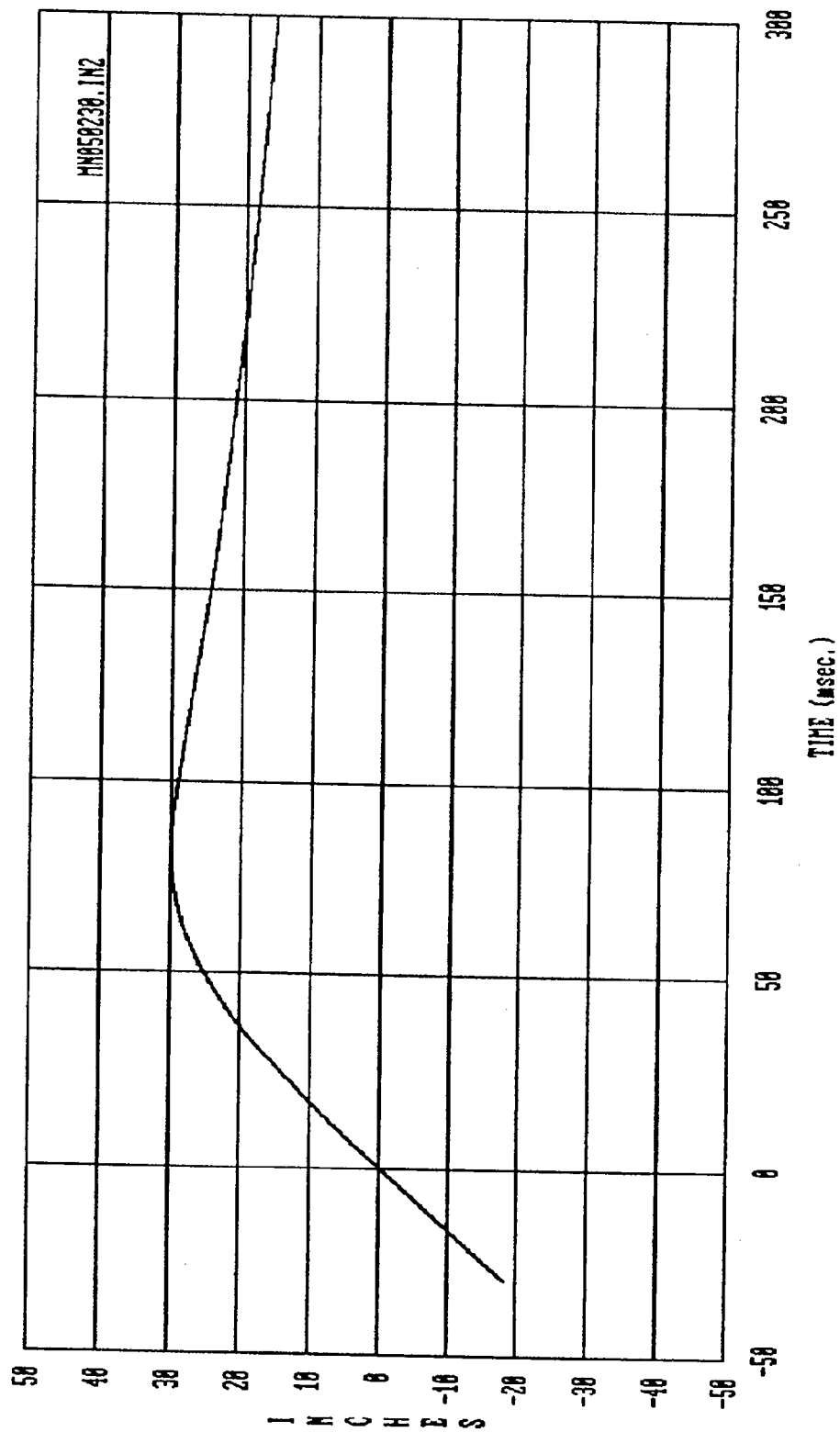


Curve: Left rear cross-member accel. -- X axis Filter: SAE CLASS 60 Max = 2.5264 Min = -38.884
MSE Date: 85/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

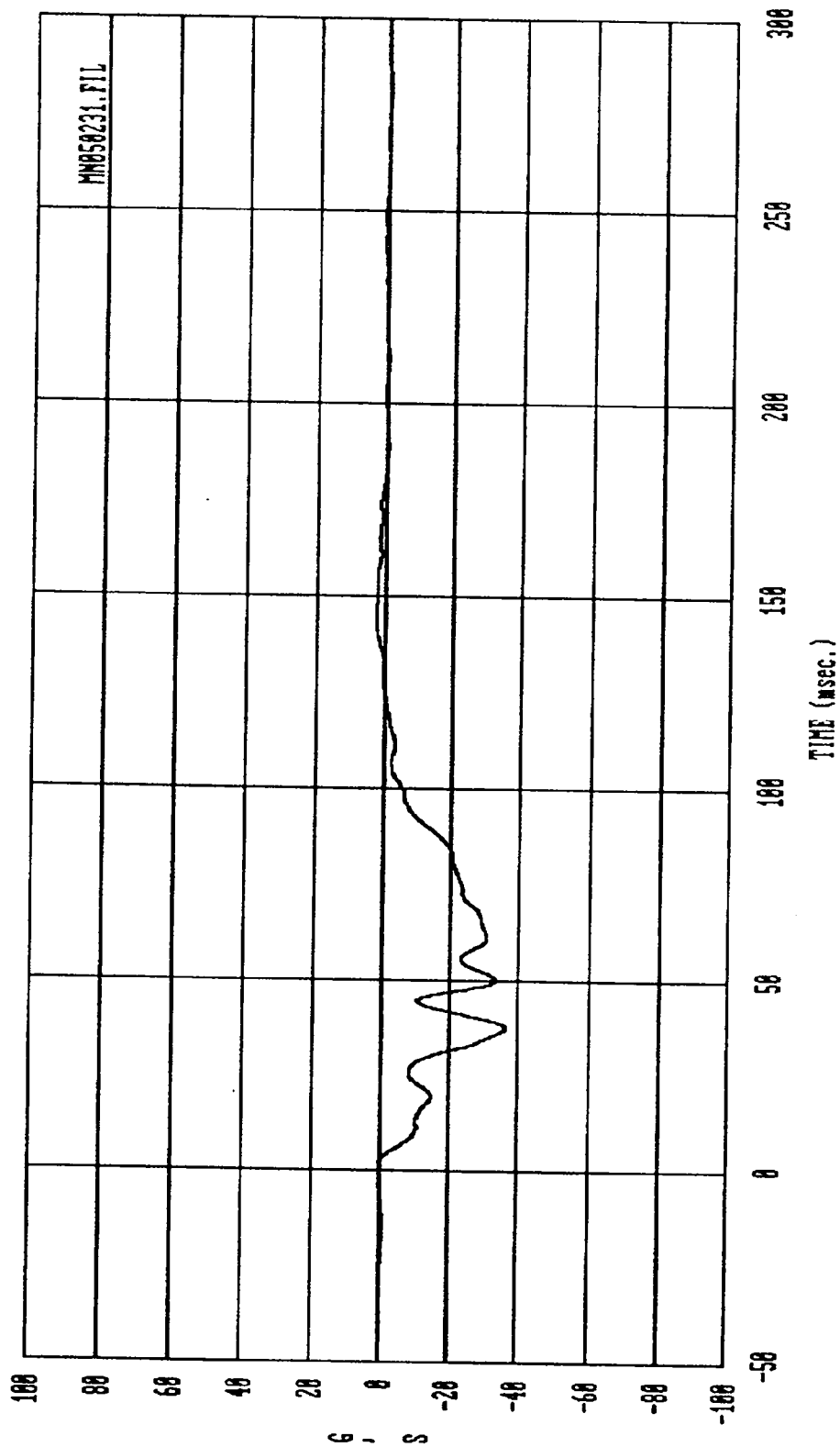


Curve: Left rear seat cross-member delta V -- X axis Filter: SAE CLASS 180 Max = 34.607 Min = -5.2026

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



Curve: Left rear seat cross-member disp. — X axis Filter: SAE CLASS 100 Max = 29.938 Min = 16.819
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

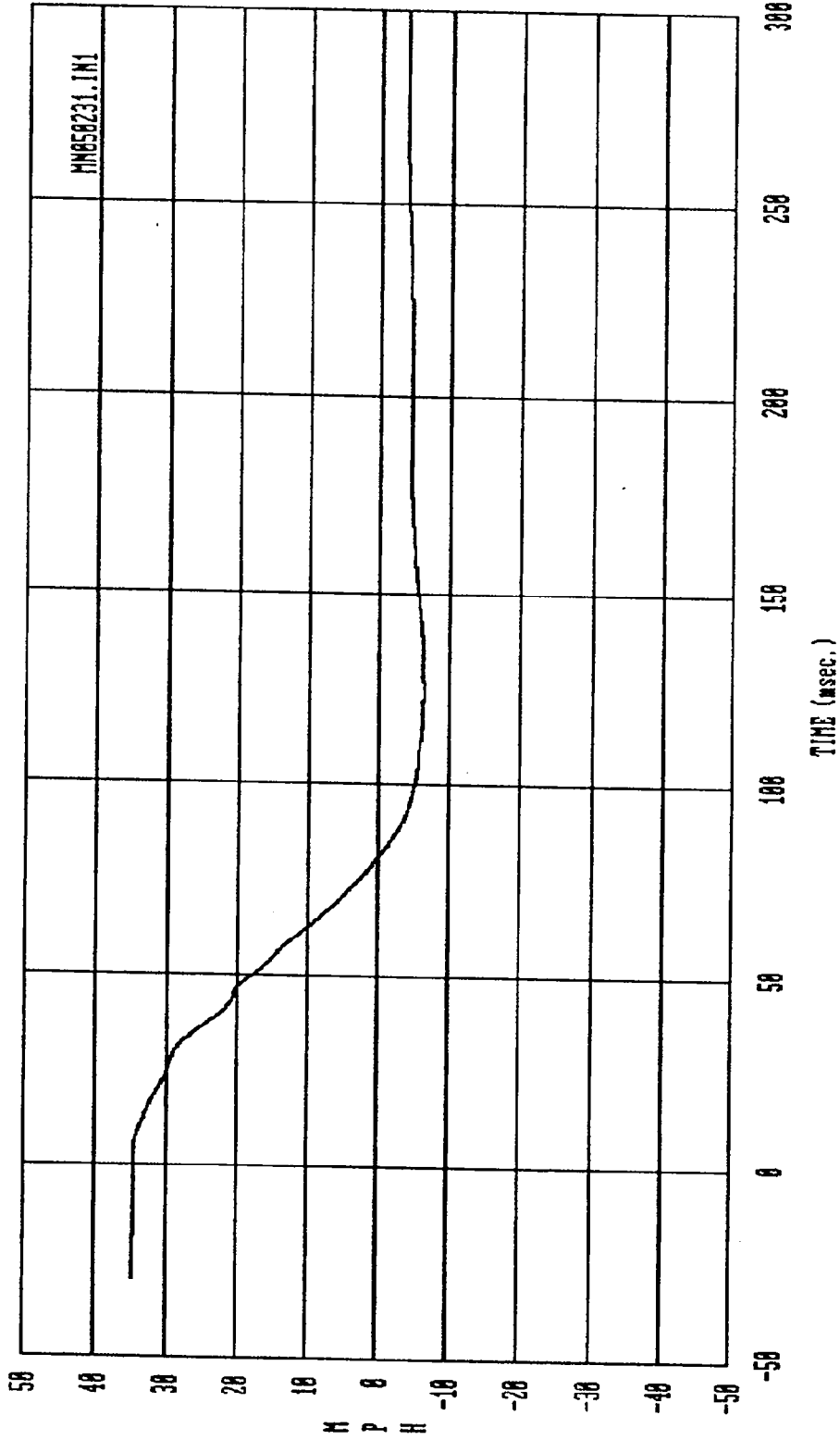


B1-45

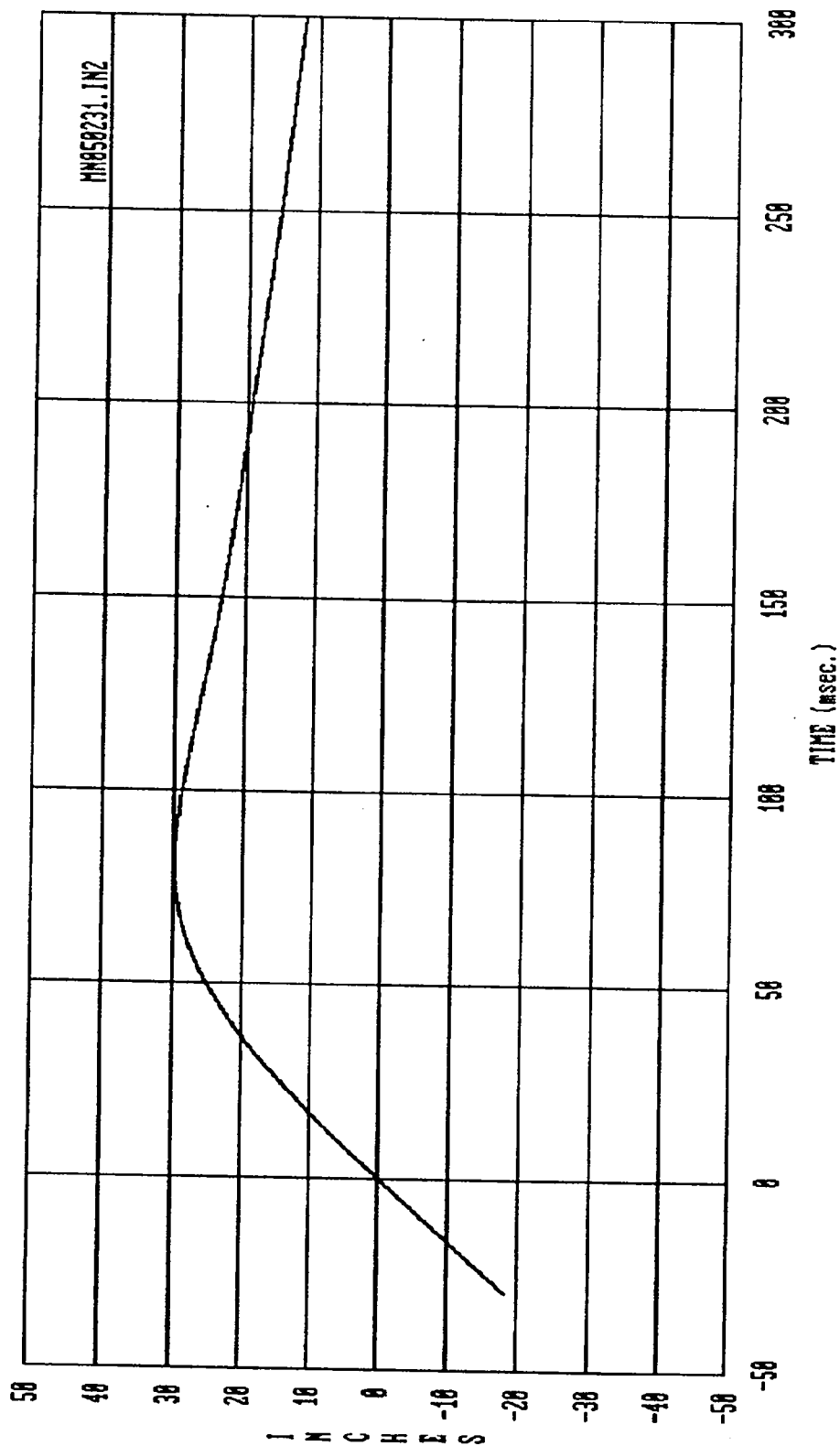
Curve: Right rear cross-member accel. -- X axis Filter: SAE CLASS 60 Max = 2.8548 Min = -36.486

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

MSE-92-R92027-N03

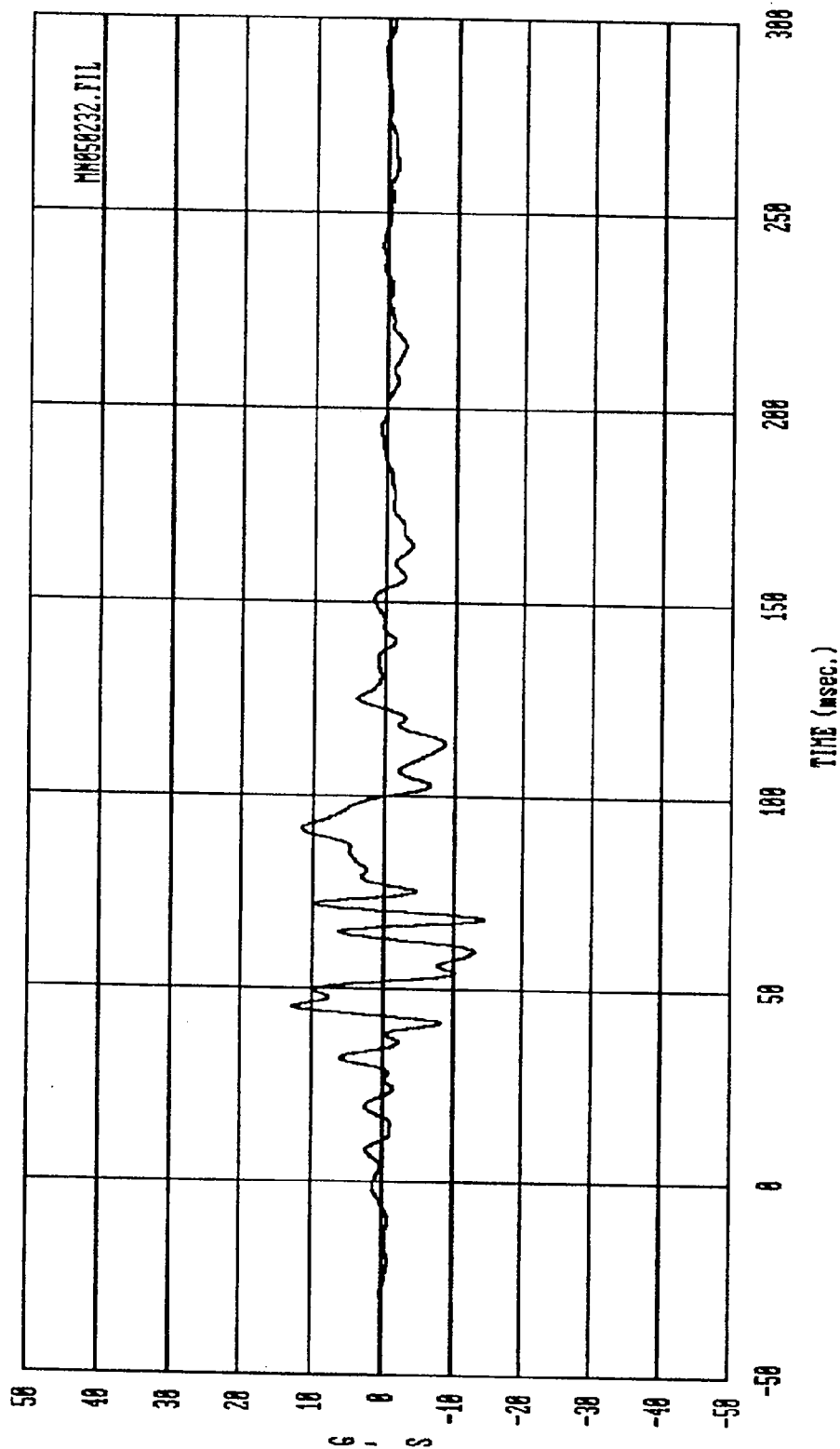


Curve: Right rear seat cross-member delta V — X axis Filter: SAE CLASS 180 Max = 34.618 Min = -6.3828
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

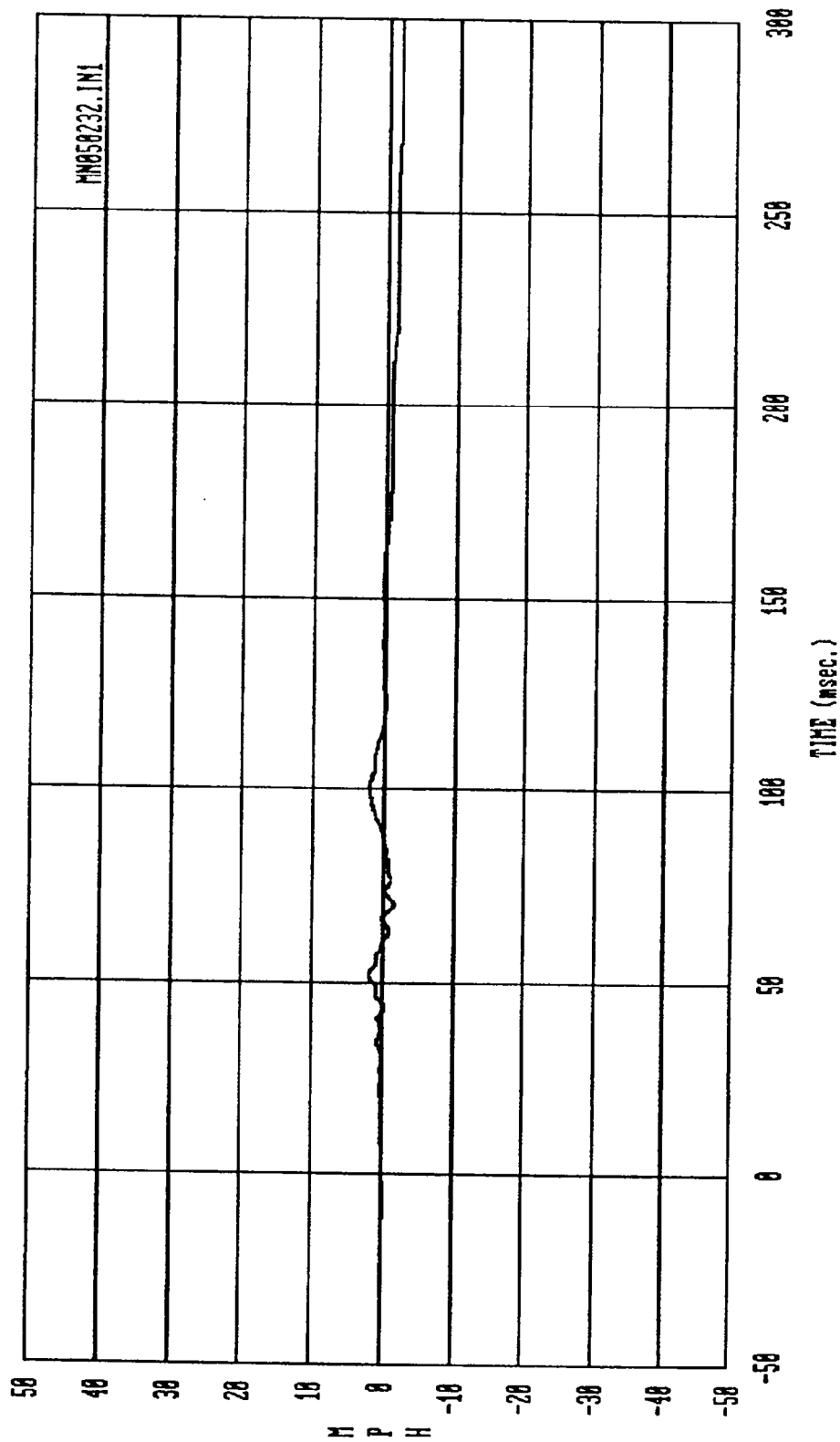


Curve: Right rear seat cross-member disp. -- X axis Filter: SAE CLASS 180 Max = 29.894 Min = 12.181

MSE Date: 05/19/92 Program: 1992 NCAP - E3 Vehicle: 1992 Hyundai Excel

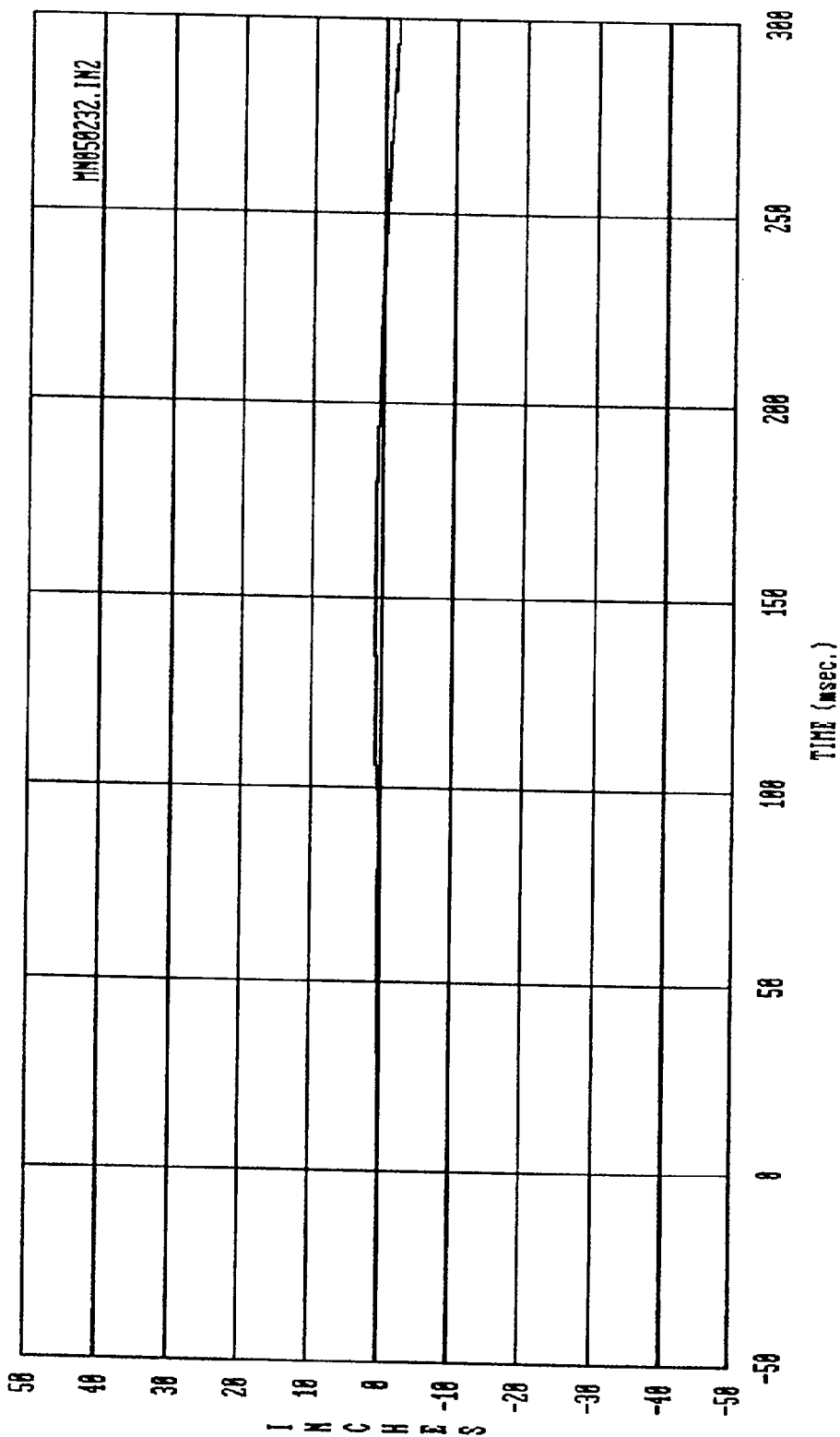


Curve: Center rear cross-member accel. -- Z axis Filter: SAE CLASS 60 Max = 12.700 Min = -14.423
 MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

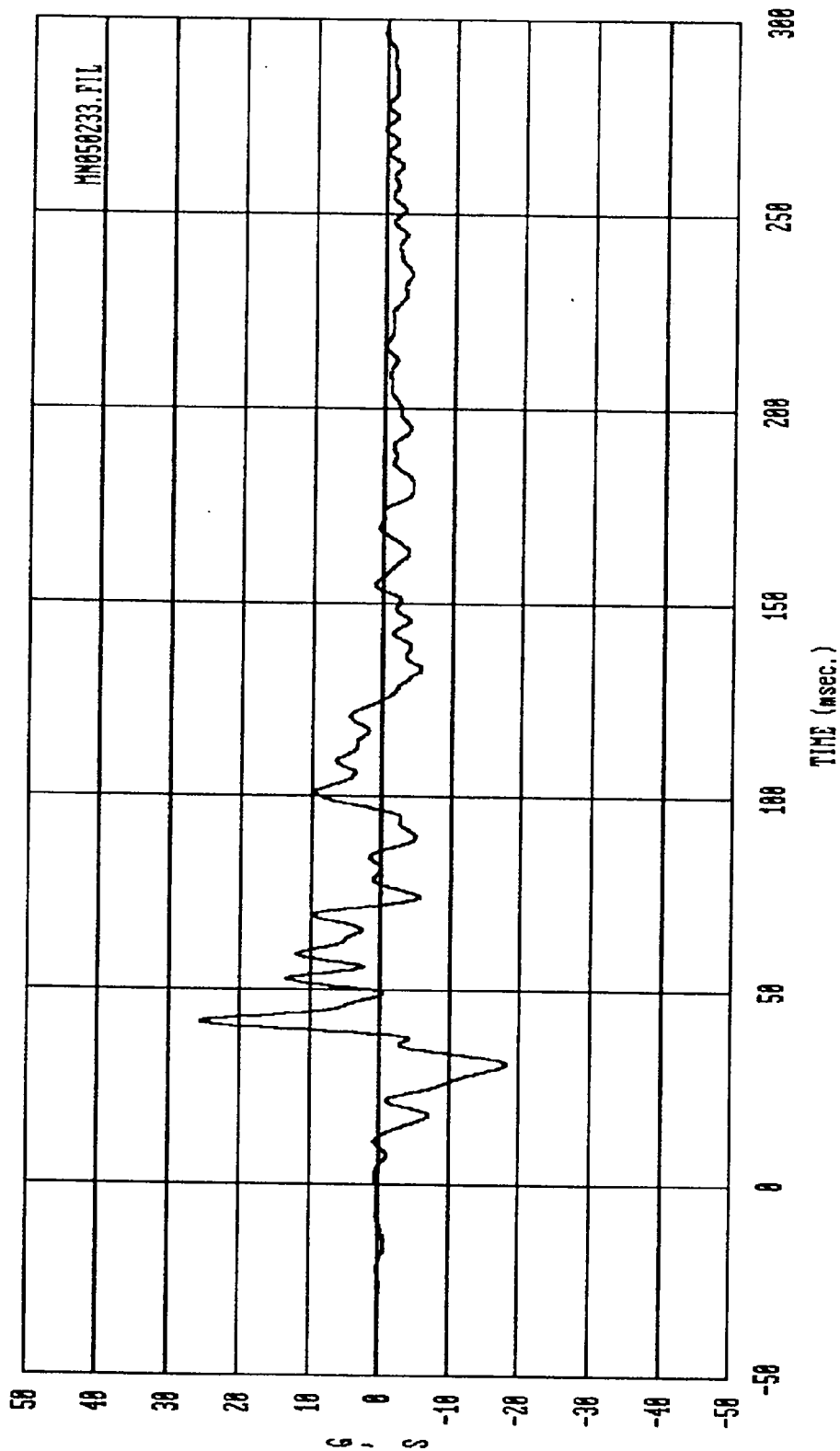


Curve: Center rear seat cross-member delta V — Z axis Filter: SAE CLASS 180 Max = 2.8945 Min = -1.8895

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

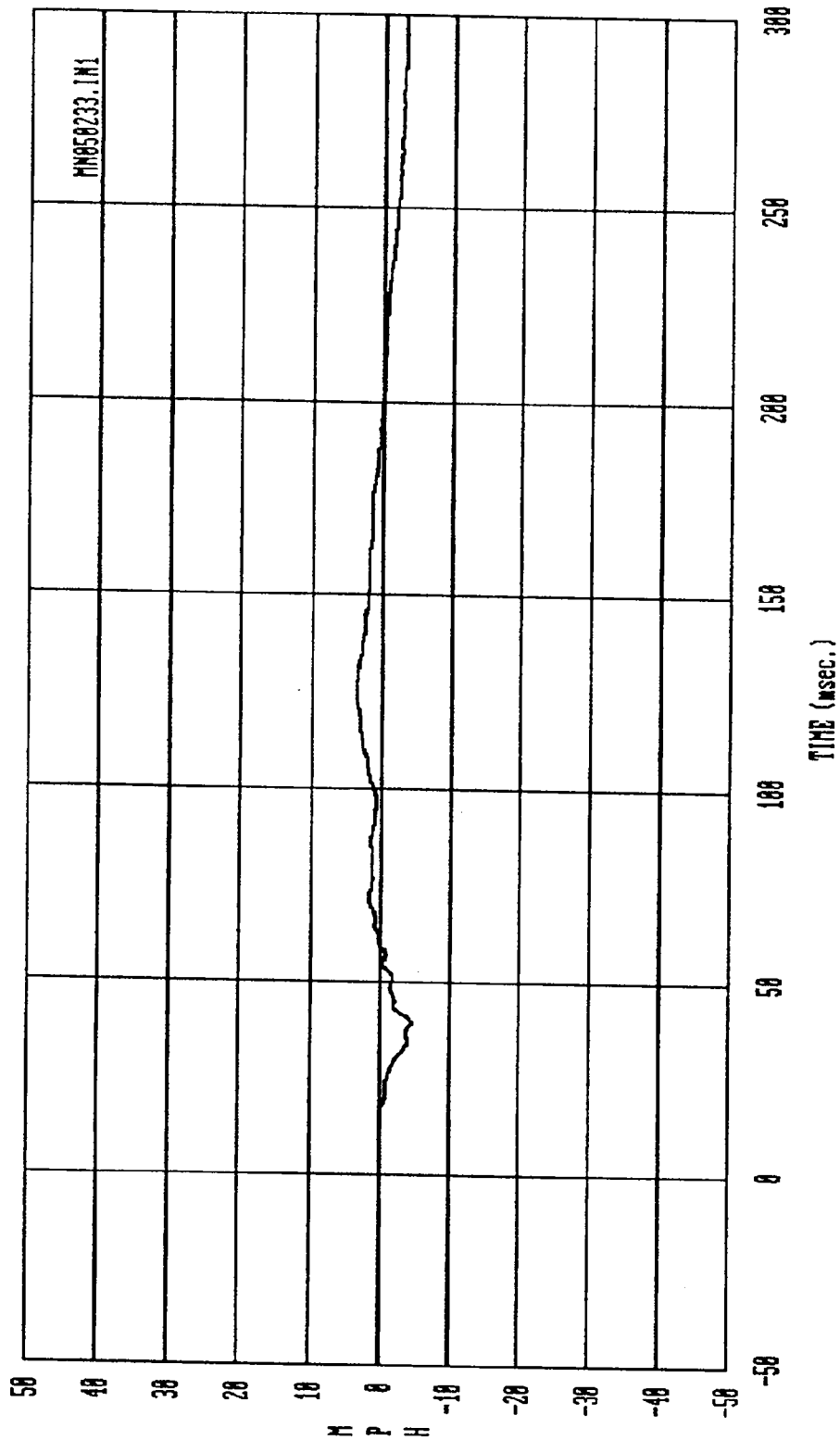


Curve: Center rear seat cross-member disp. -- Z axis Filter: SAE CLASS 100 Max = 1.0370 Min = -1.8547
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

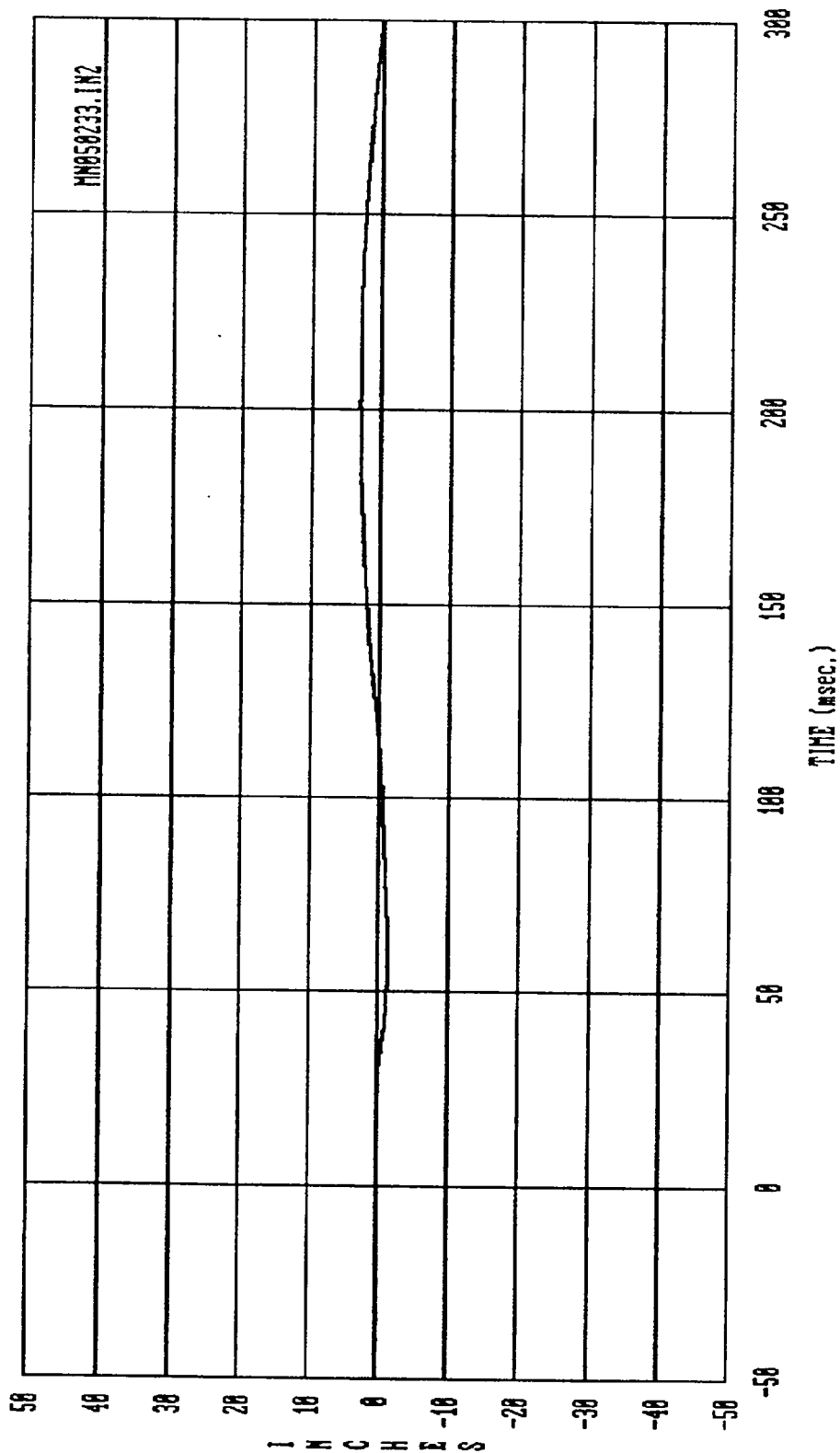


Curve: Center rear acceleration -- Z axis Filter: SAE CLASS 60 Max = 25.813 Min = -18.198

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



Curve: Center rear delta V -- Z axis
 Filter: SAE CLASS 100 Max = 3.7520 Min = -4.4202
 Date: 05/19/92
 Program: 1992 NCAP - #3
 Vehicle: 1992 Hyundai Excel



Curve: Center rear disp. -- Z axis Filter: SAE CLASS 100 Max = 3.8689 Min = -1.3925

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

THIS PAGE INTENTIONALLY LEFT BLANK

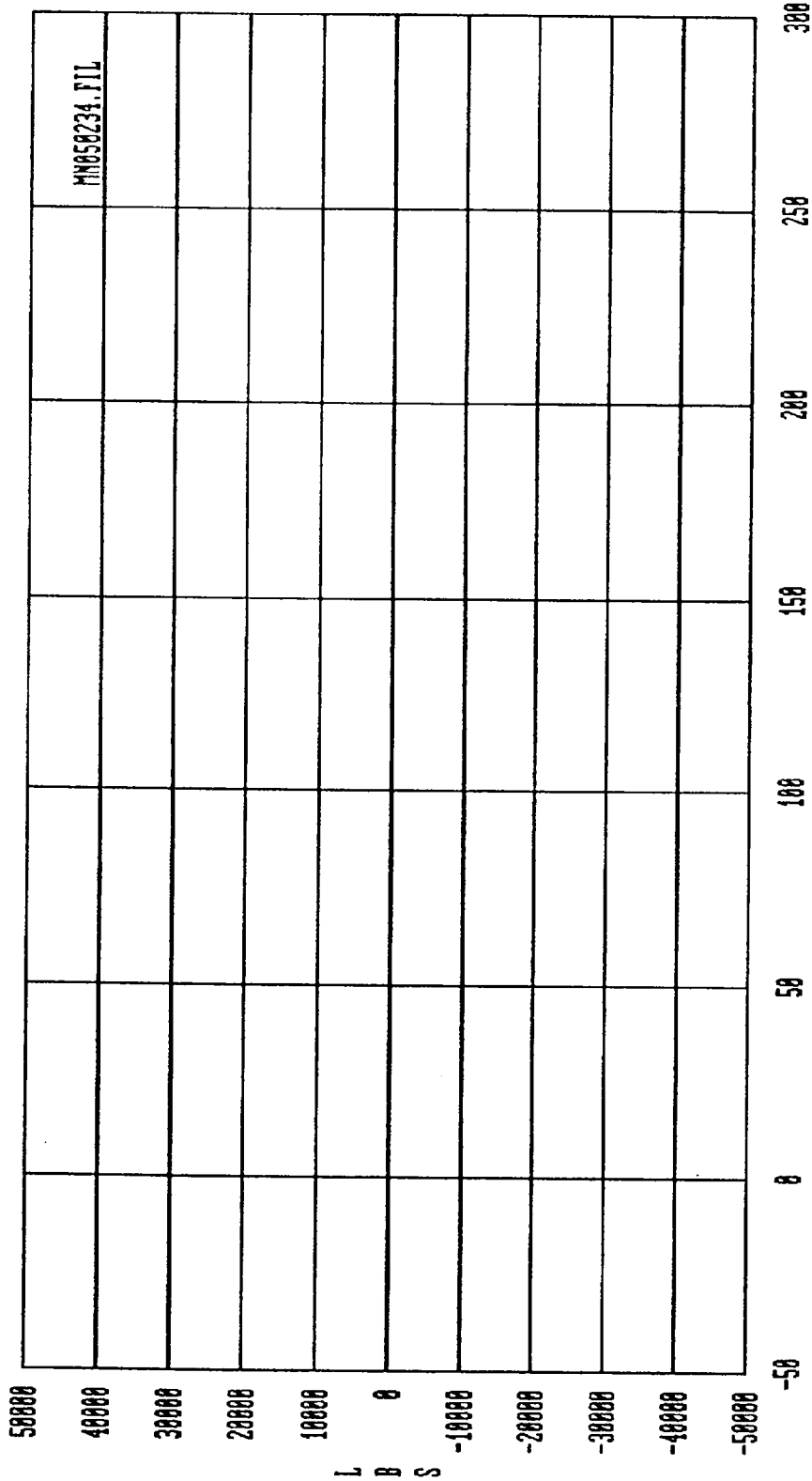
APPENDIX B-2

LOAD CELL BARRIER DATA

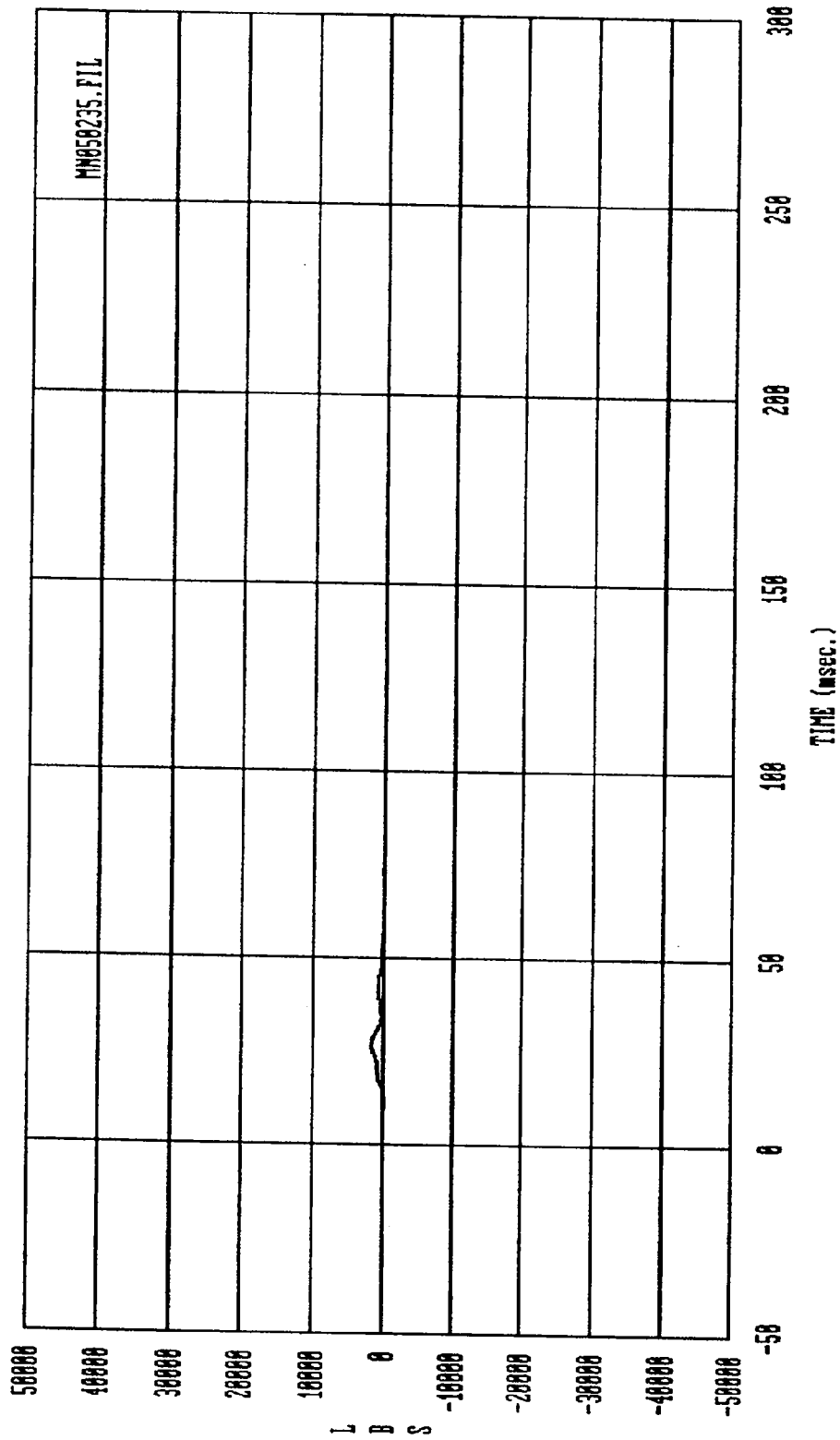
DATA FILTERING:

Load Cell Barrier Channels - Class 60

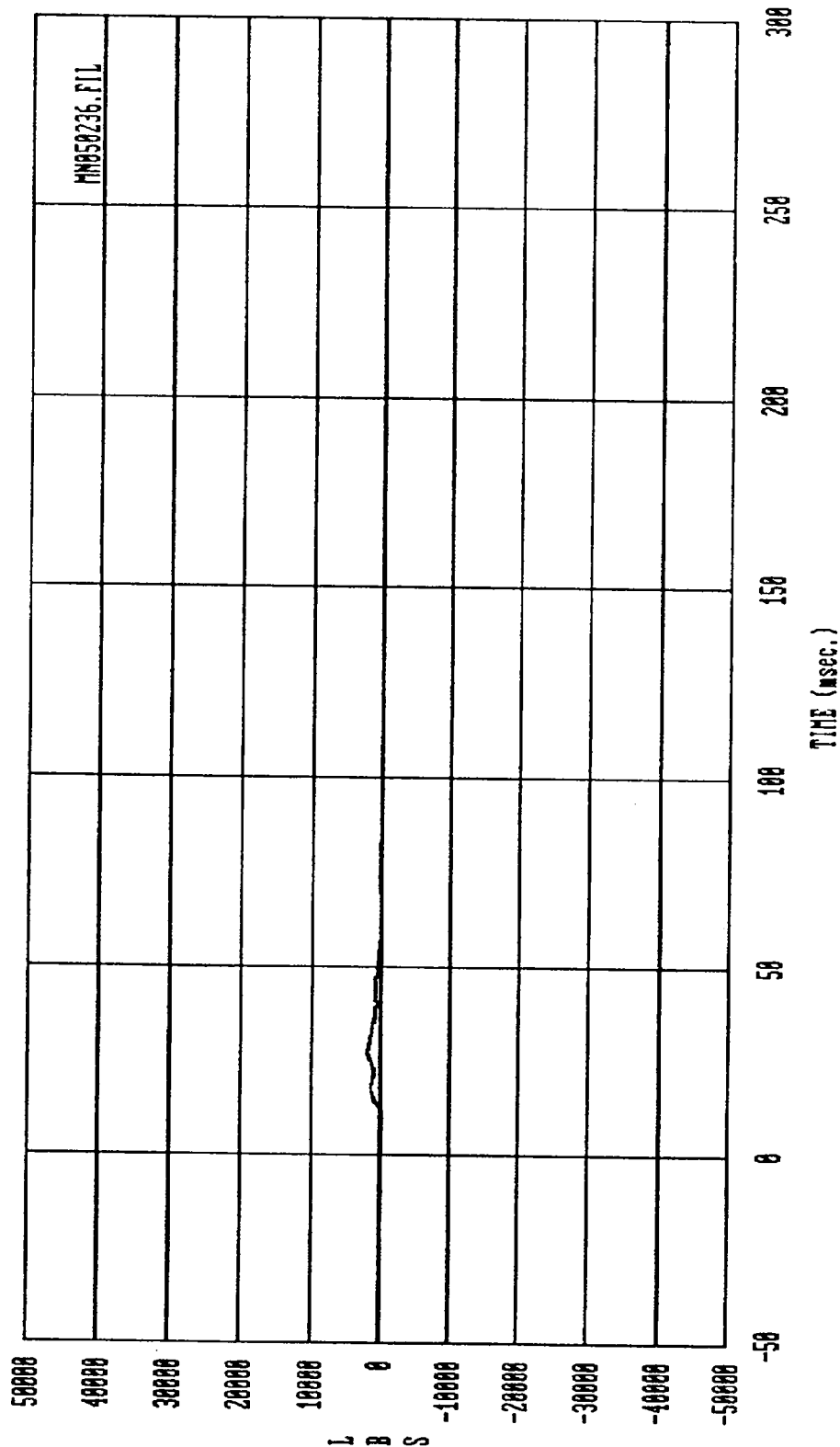
THIS PAGE INTENTIONALLY LEFT BLANK



Curve: Force on Barrier load cell A1 Filter: SAE CLASS 60 Max = .00000 Min = .00000
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

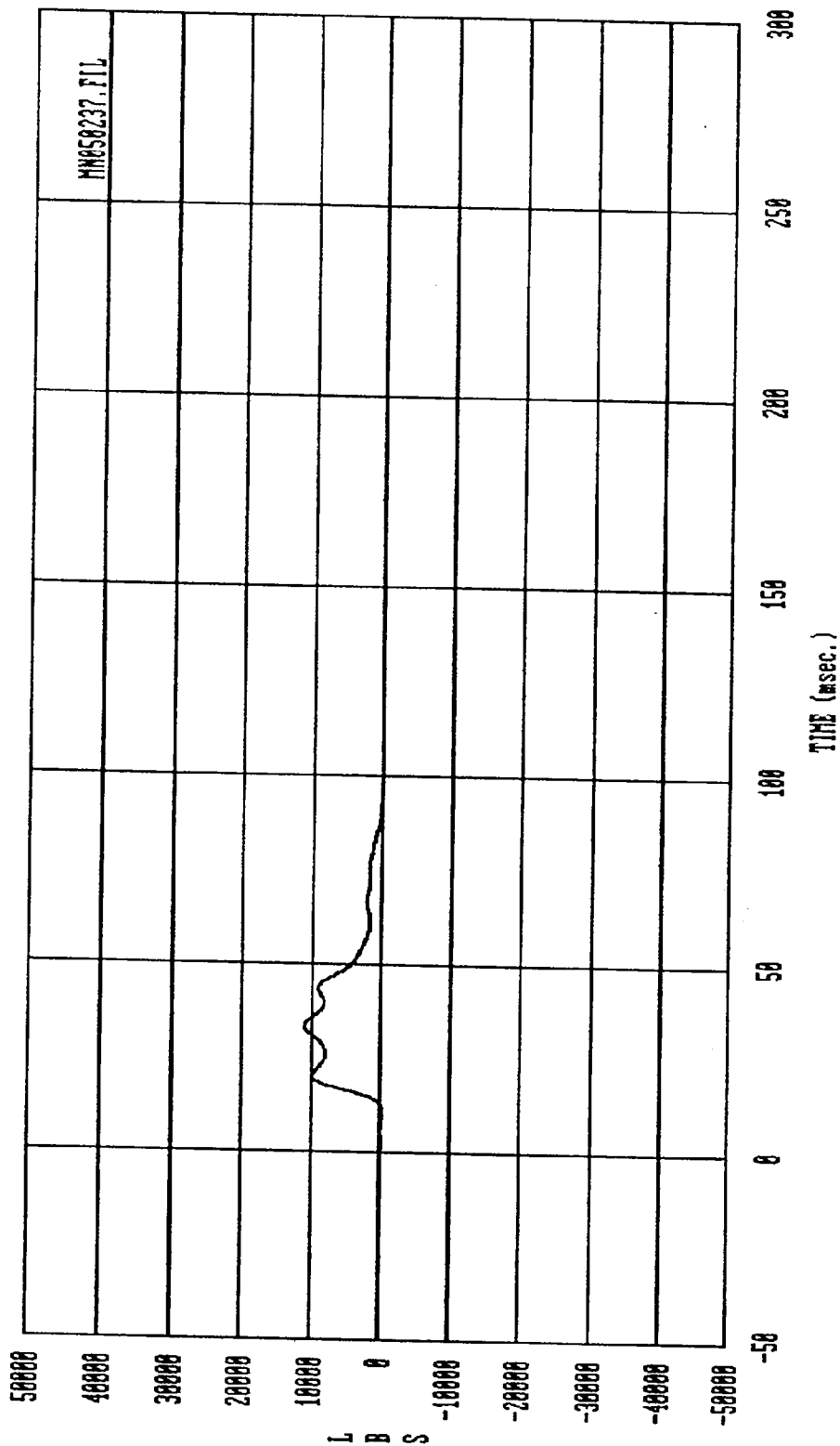


Curve: Force on Barrier load cell #2 Filter: SAE CLASS 60 Max = 1801.6 Min = -103.92
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

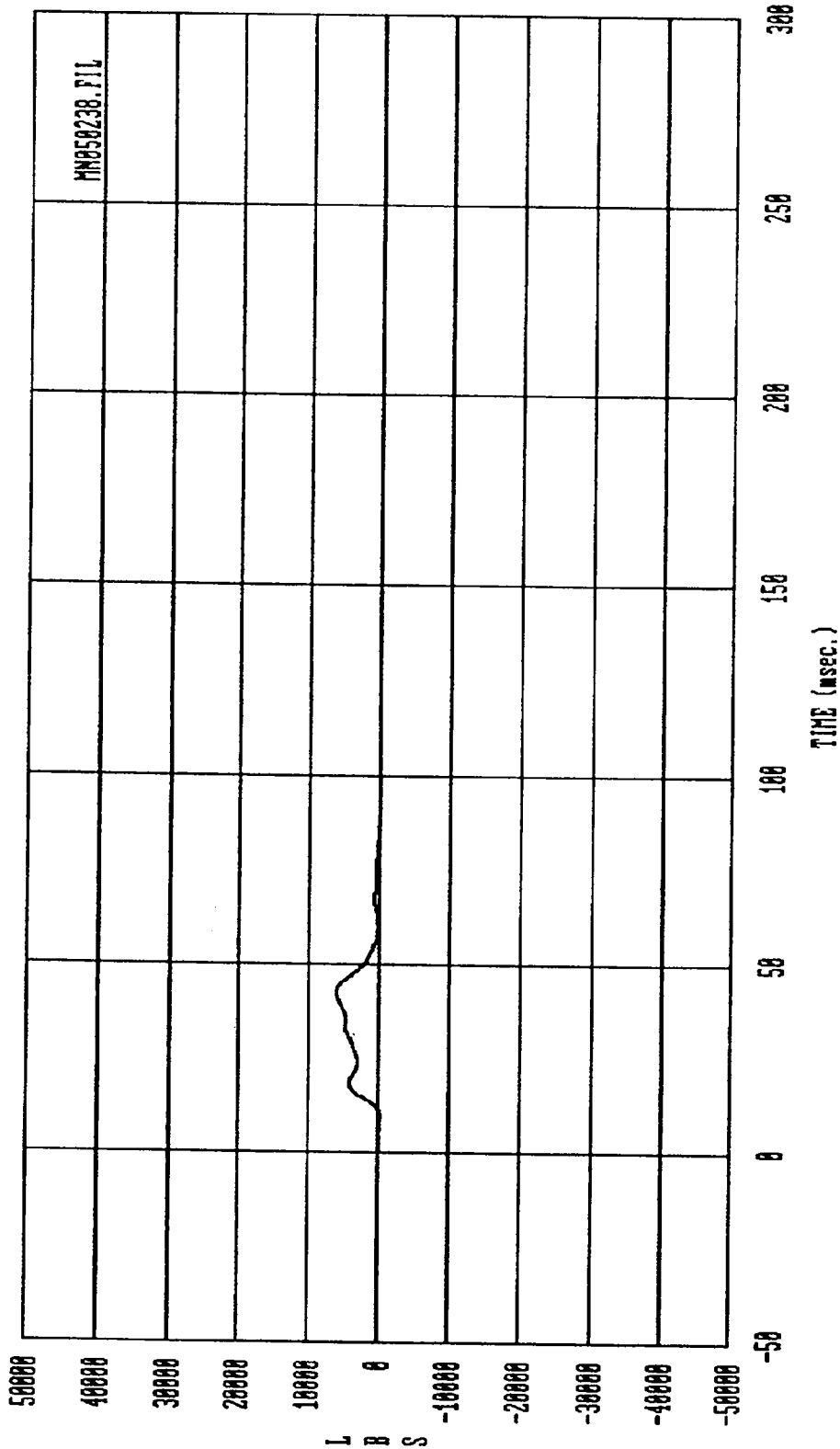


Curve: Force on Barrier load cell A3 Filter: SAE CLASS 60 Max = 1934.1 Min = -251.38

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

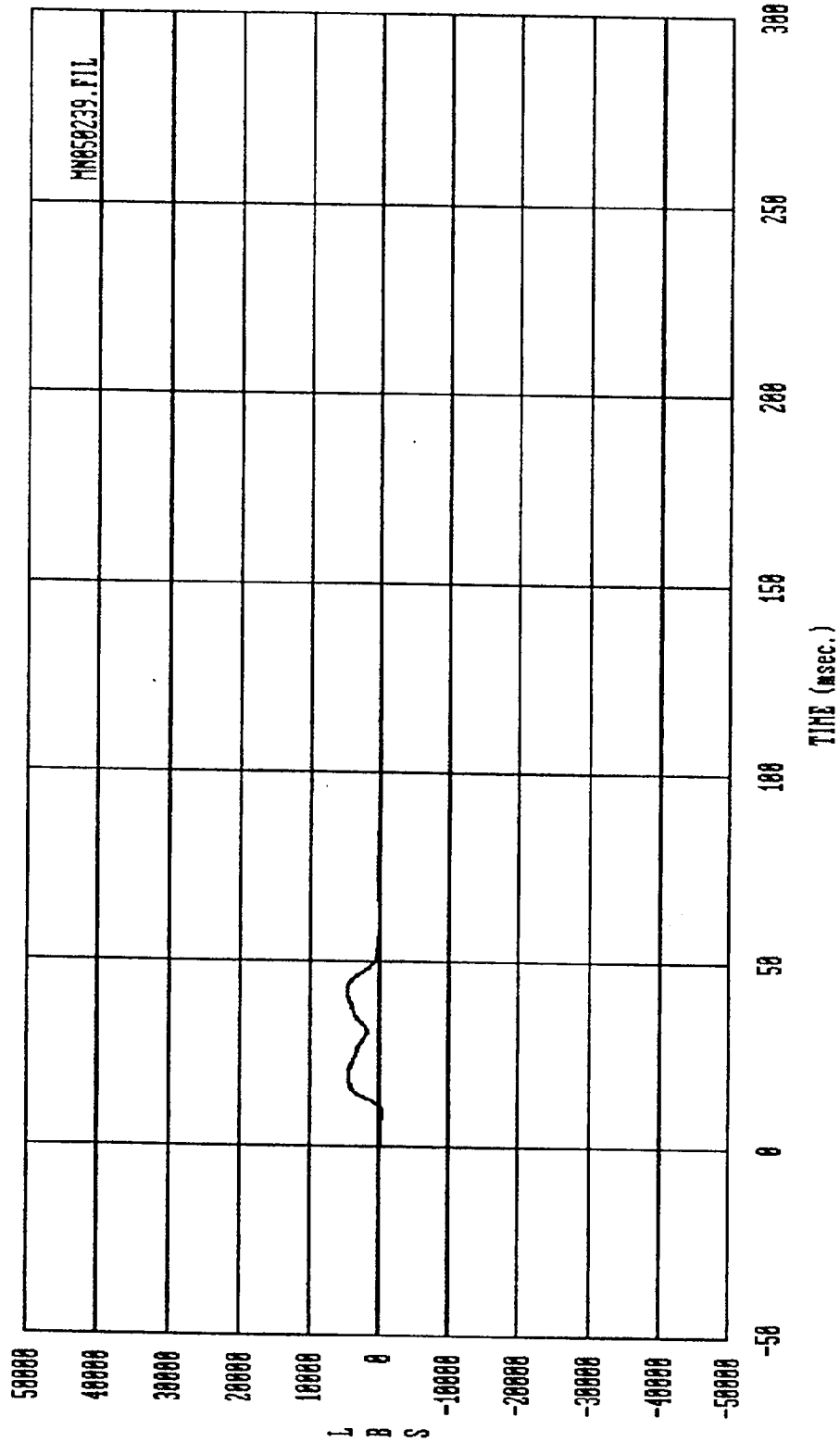


Curve: Force on Barrier load cell #4 Filter: SAE CLASS 60 Max = 11111. Min = -366.82
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

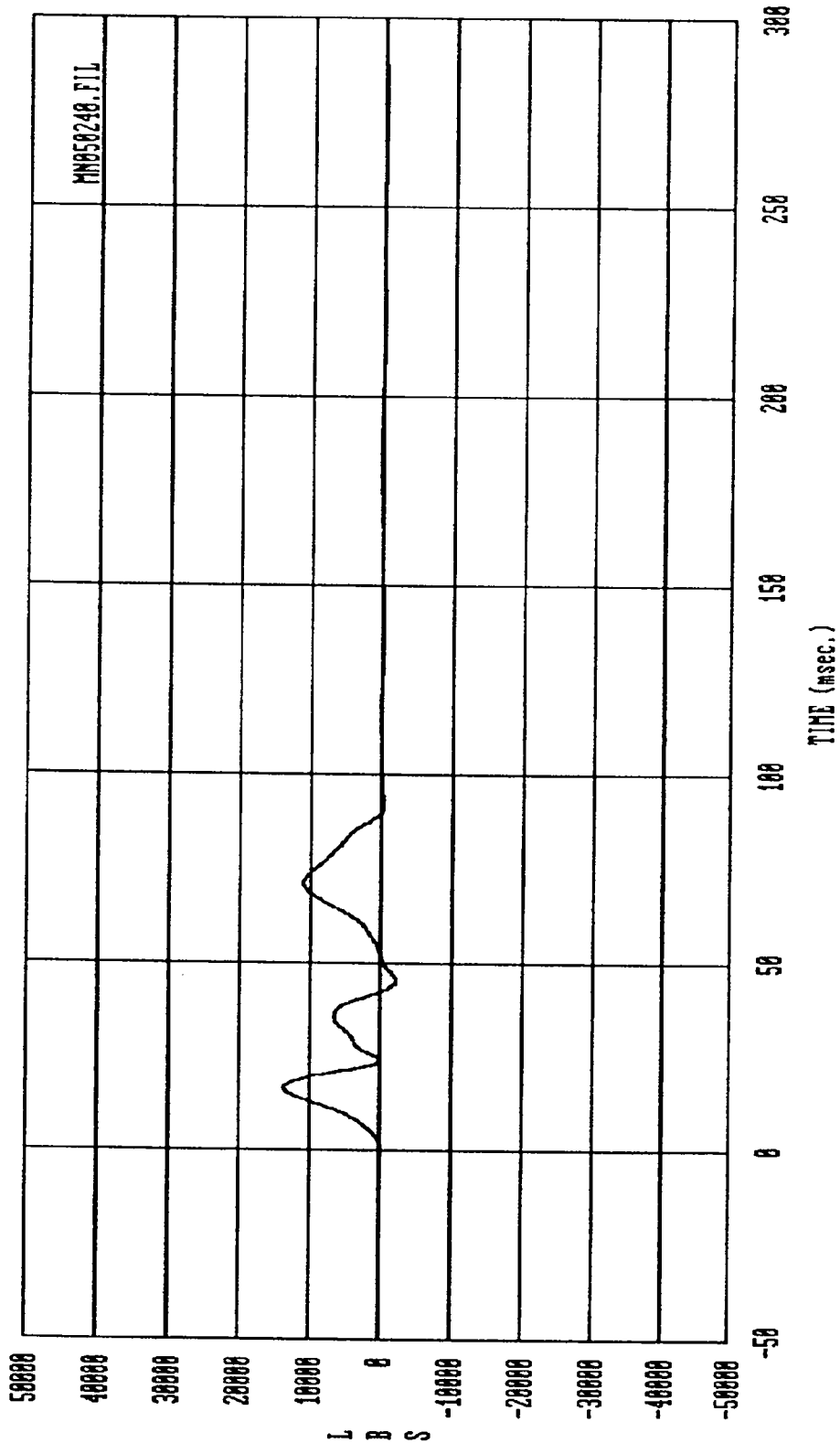


Curve: Force on Barrier load cell #5 Filter: SAE CLASS 60 Max = 6128.1 Min = -386.35

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

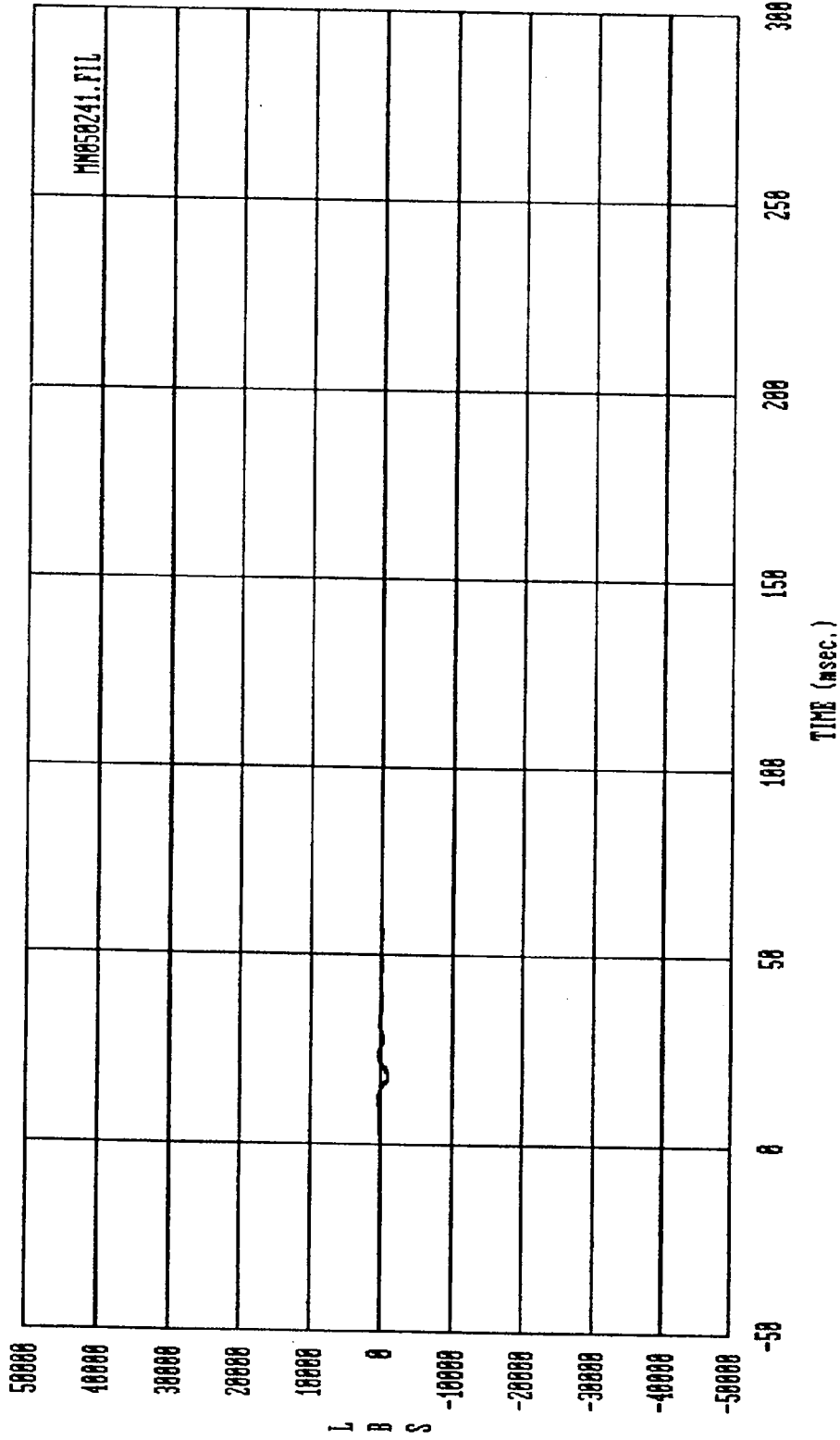


Curve: Force on Barrier load cell A6 Filter: SAE CLASS 60 Max = 4602.6 Min = -409.13
 MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



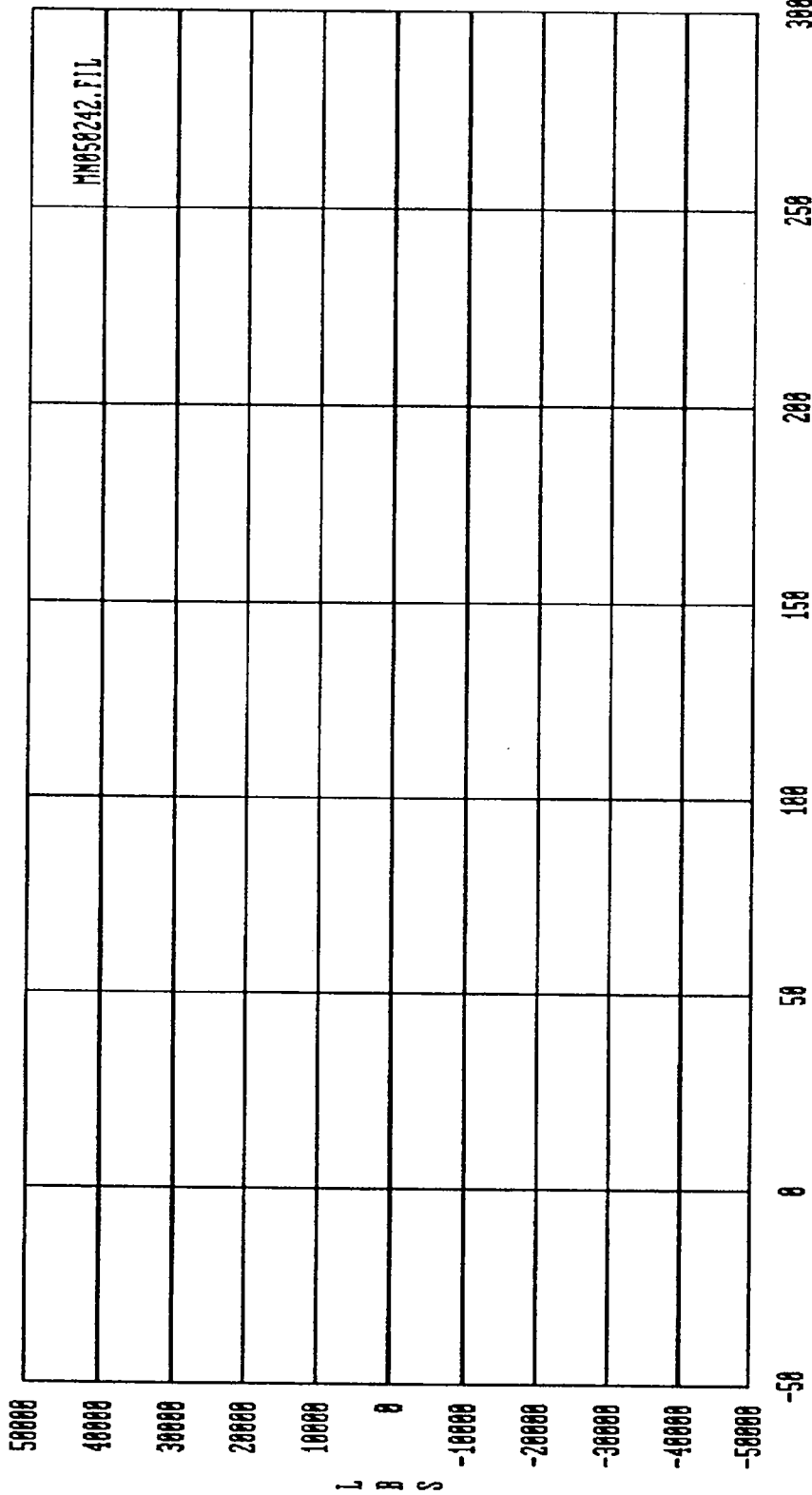
Curve: Force on Barrier load cell A7 Filter: SAE CLASS 60 Max = 13743. Min = -2187.5

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



Curve: Force on Barrier load cell A8 Filter: SAE CLASS 60 Max = 441.63 Min = -1000.8

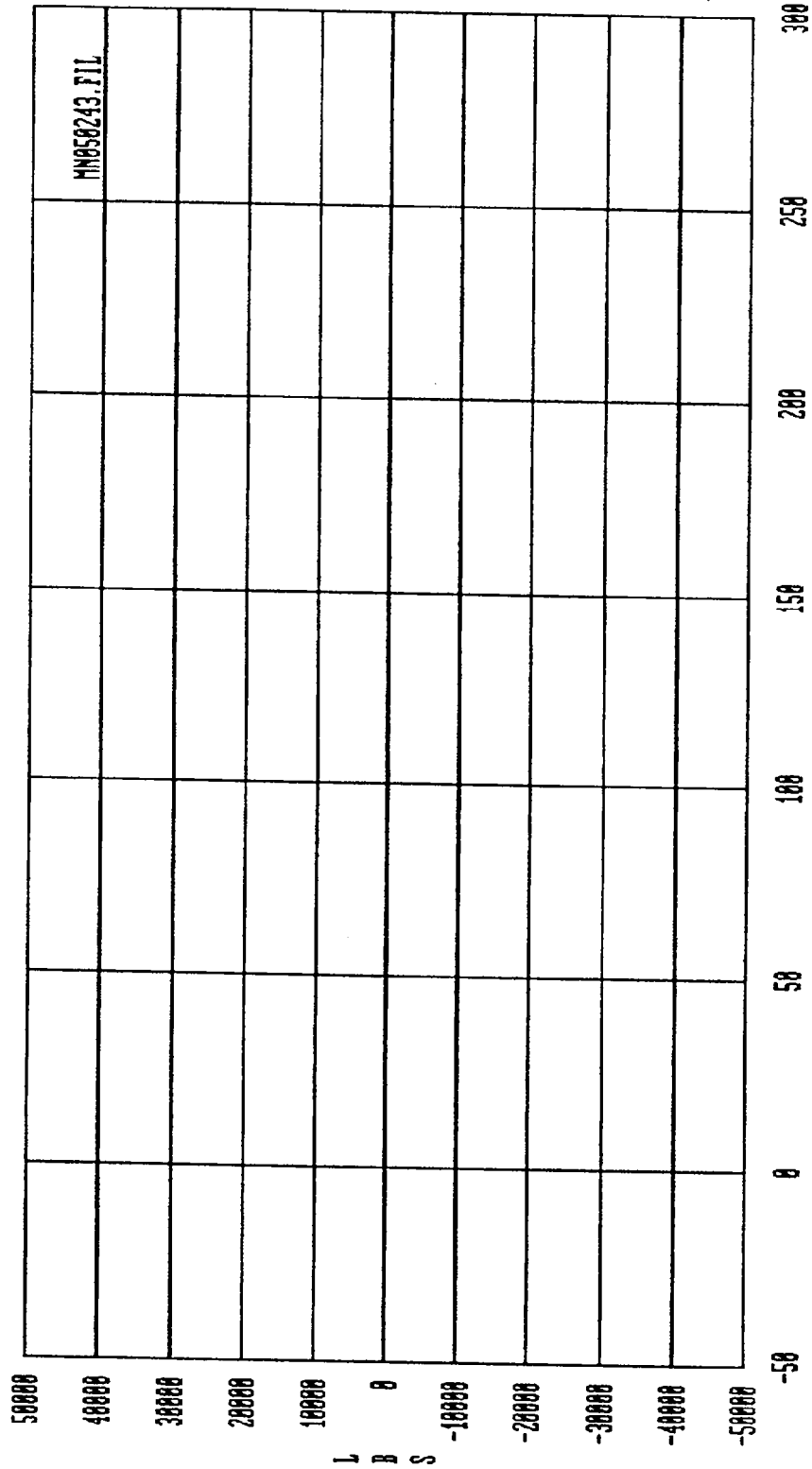
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



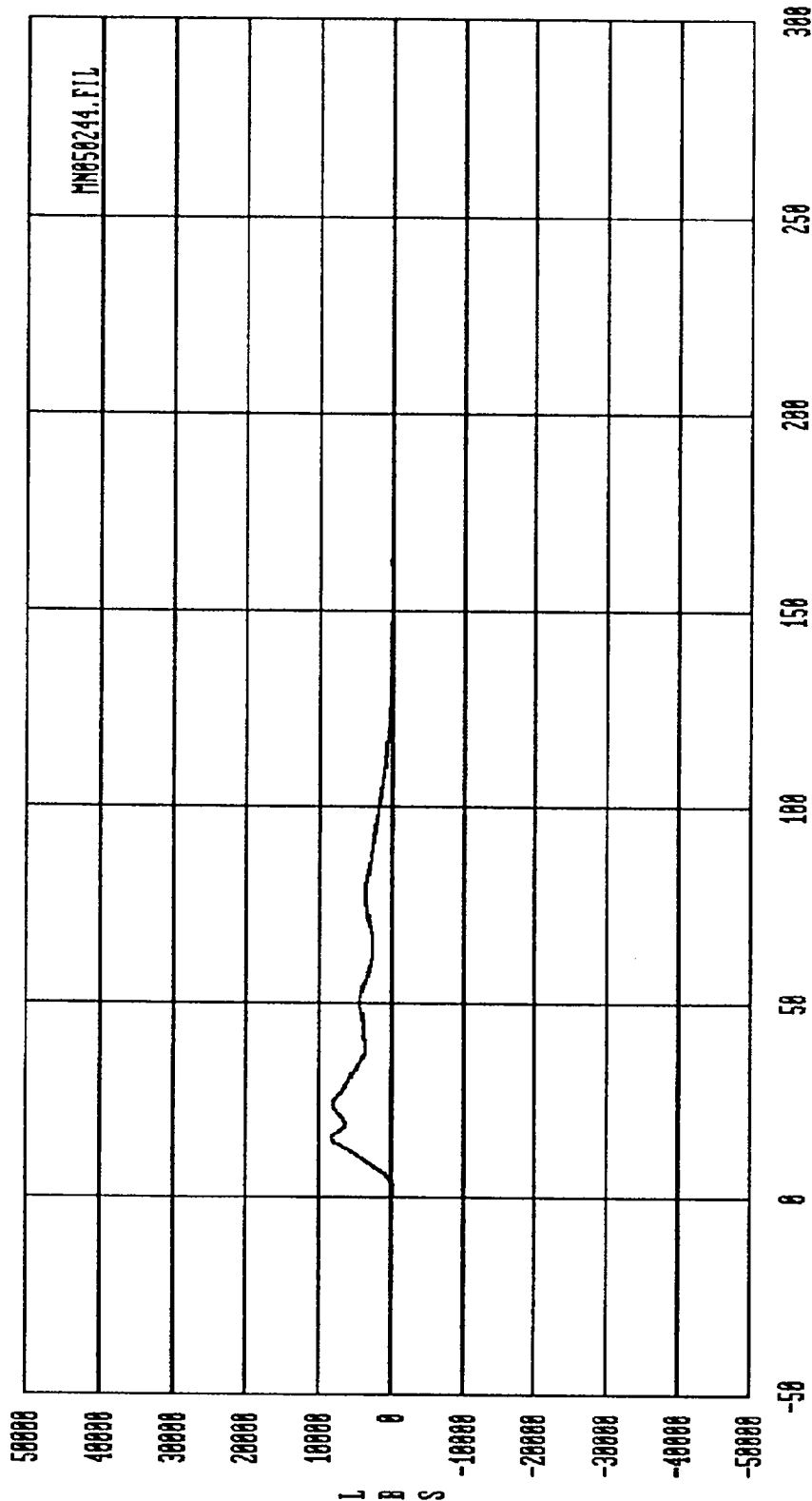
TIME (msec.)

Curve: Force on Barrier Load cell A9 Filter: SAE CLASS 60 Max = .00000 Min = .00000

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



Curve: Force on Barrier load cell B1 Filter: SAE CLASS 60 Max = .00000 Min = .00000
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

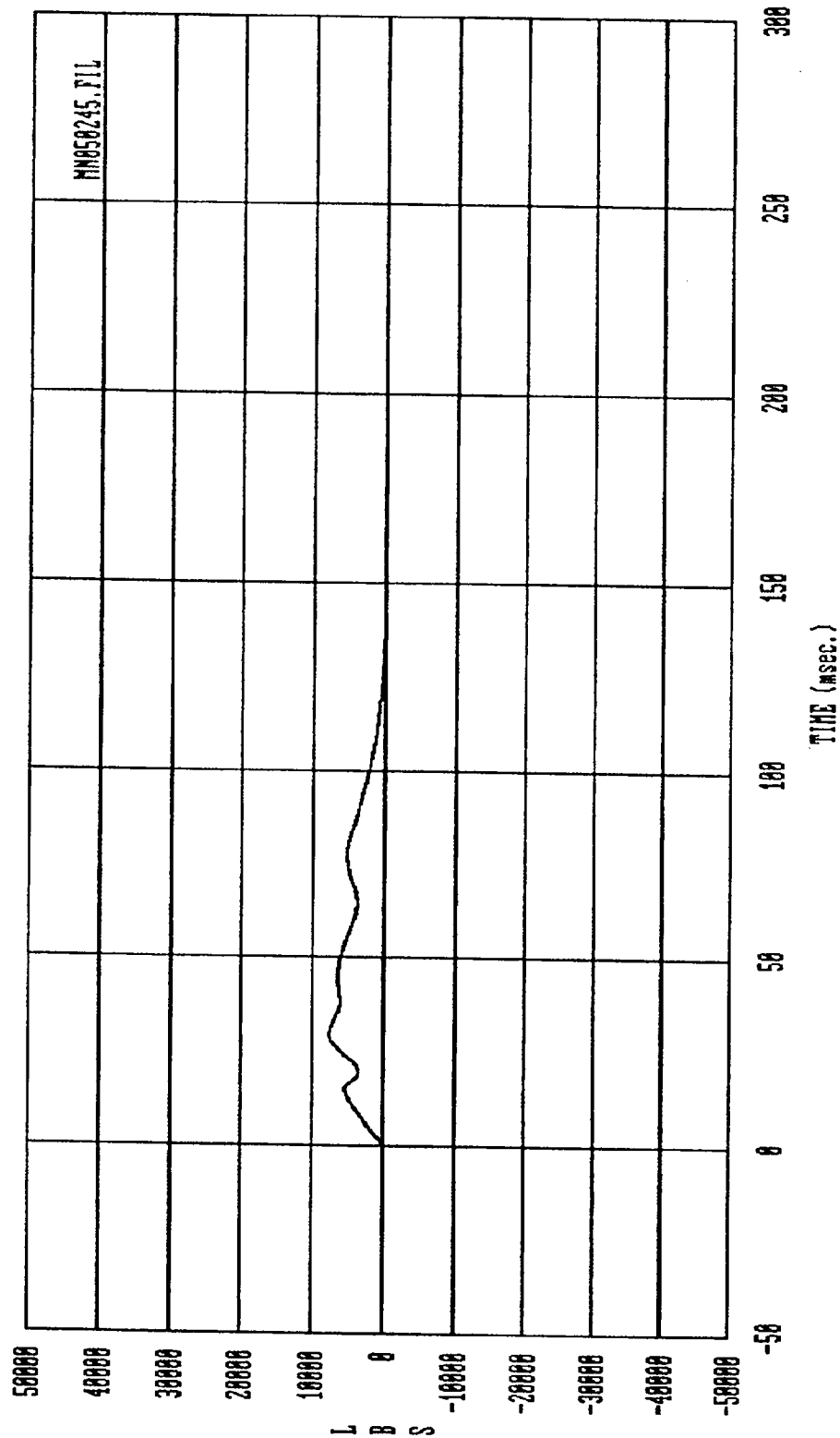


B2-11

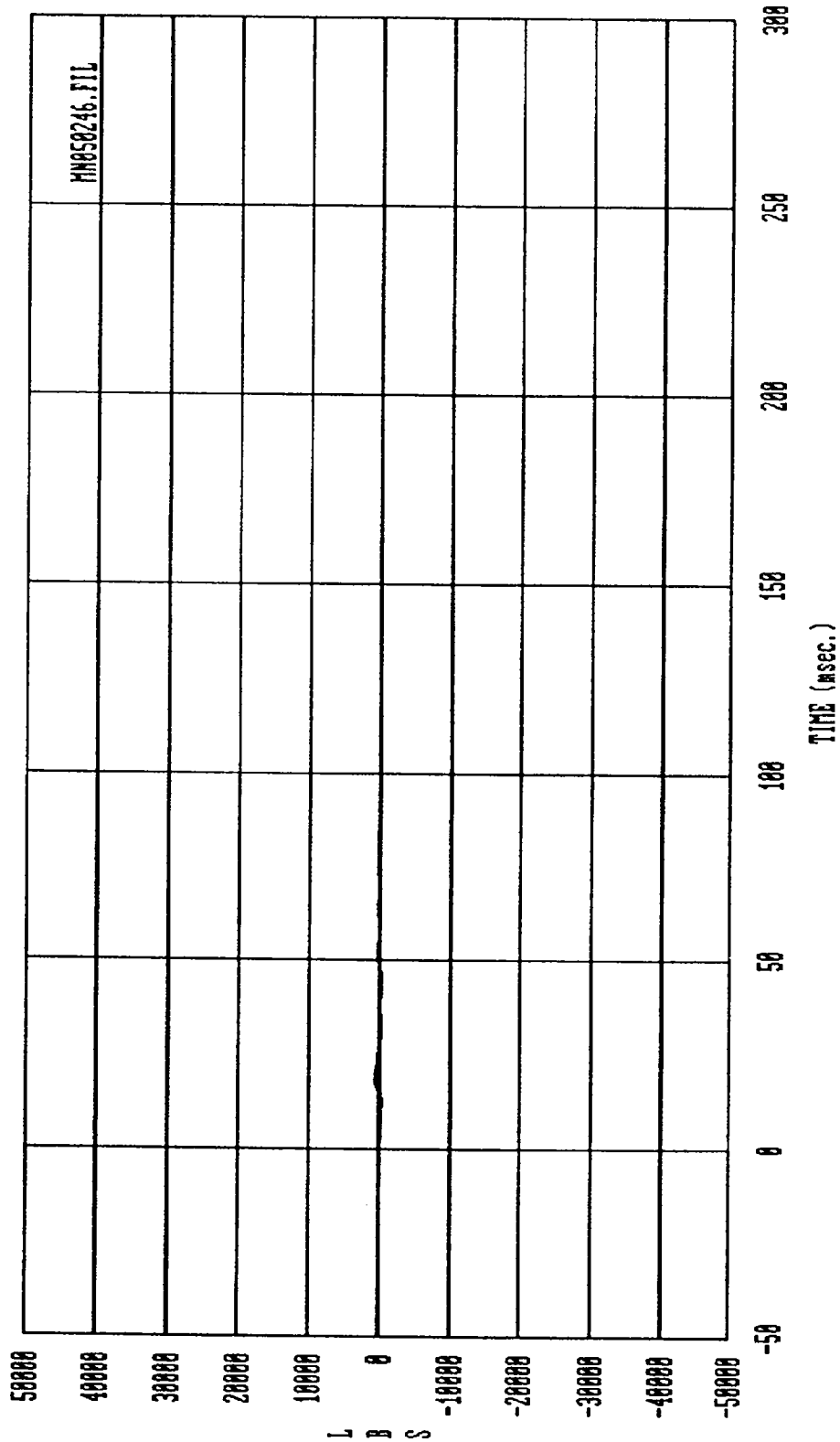
MSE-92-R92027-N03

Curve: Force on Barrier load cell B2 Filter: SAE CLASS 60 Max = 8338.1 Min = -138.96

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

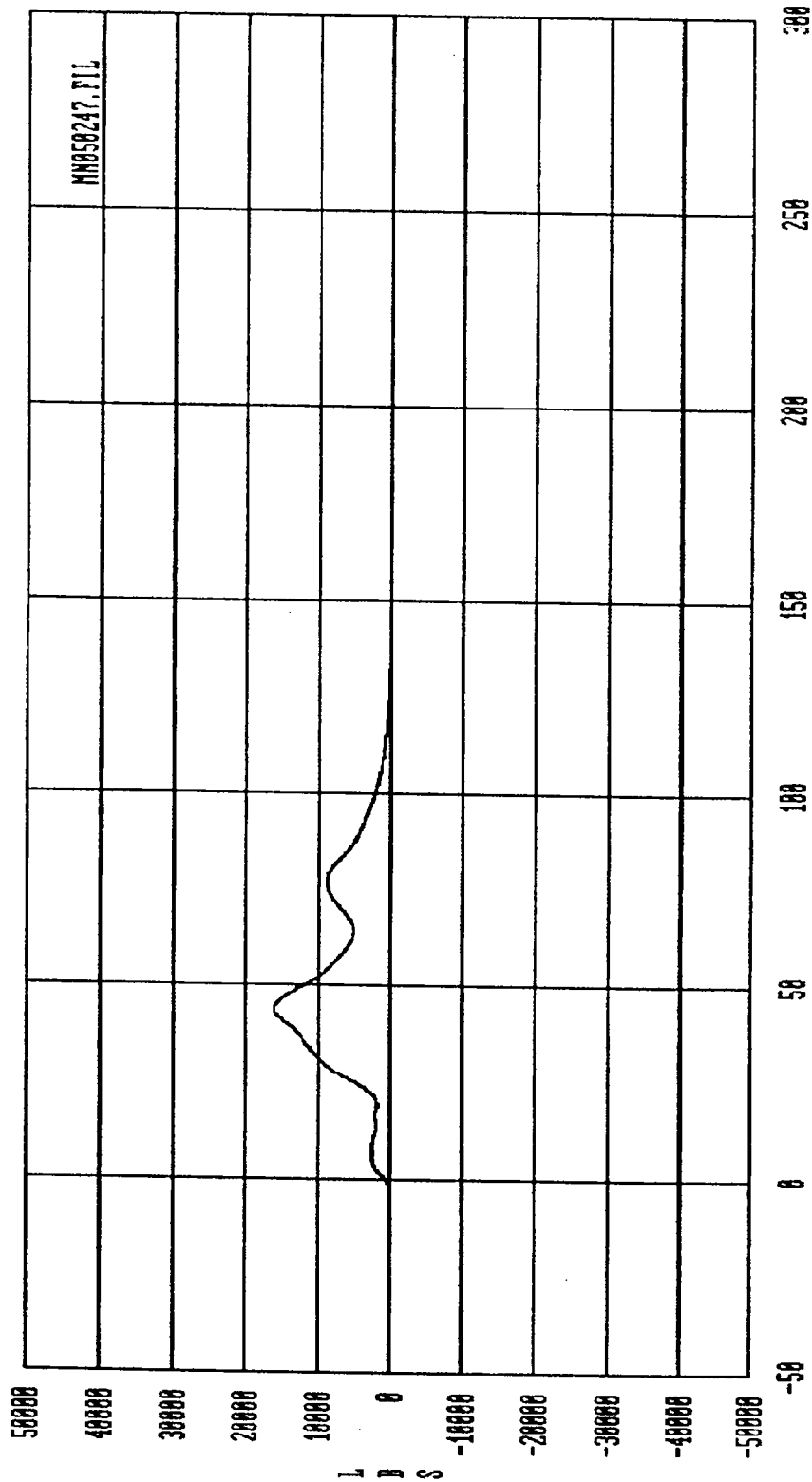


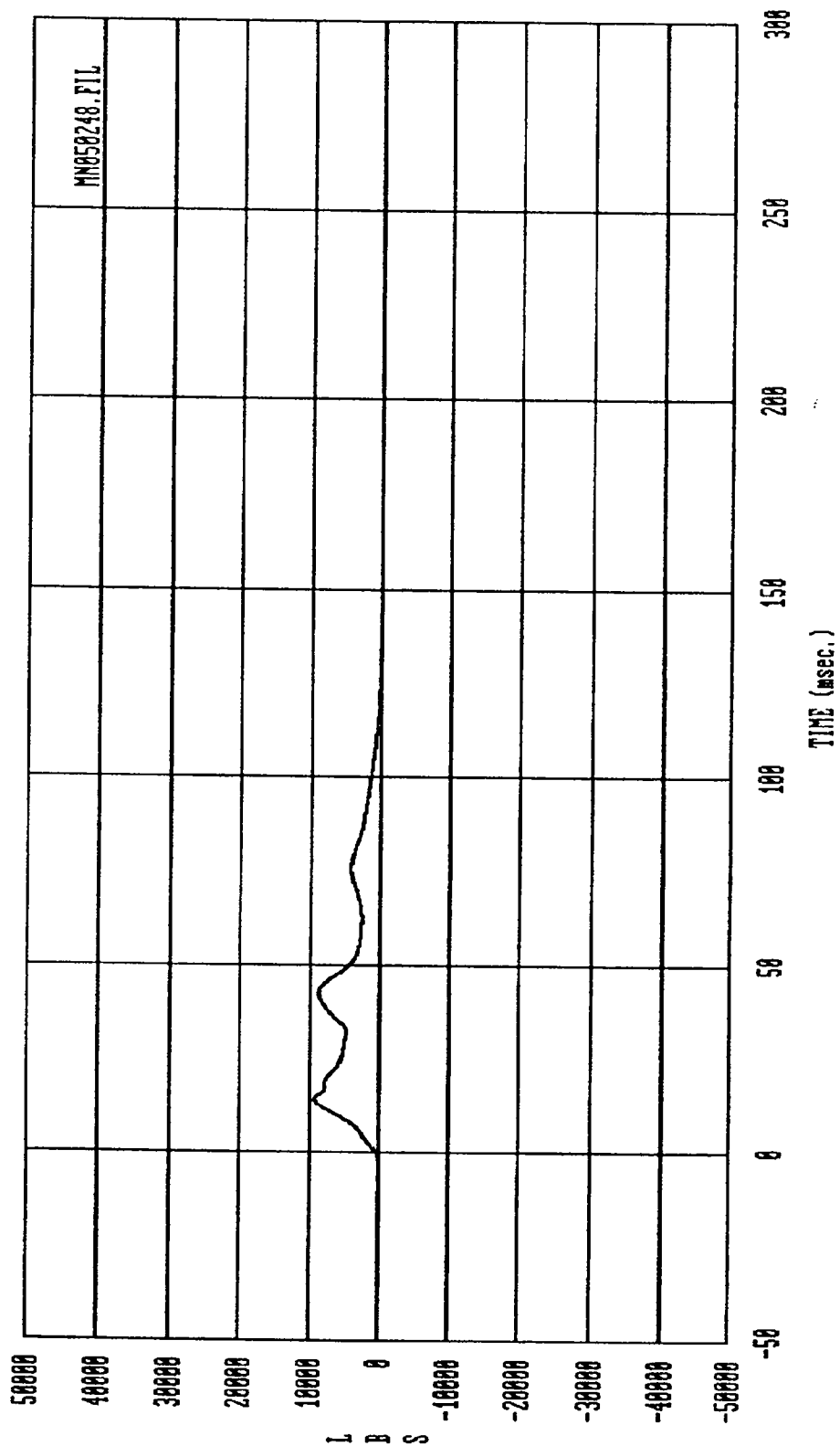
Curve: Force on Barrier load cell B3 Filter: SAE CLASS 60 Max = 7644.8 Min = 1.1222
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

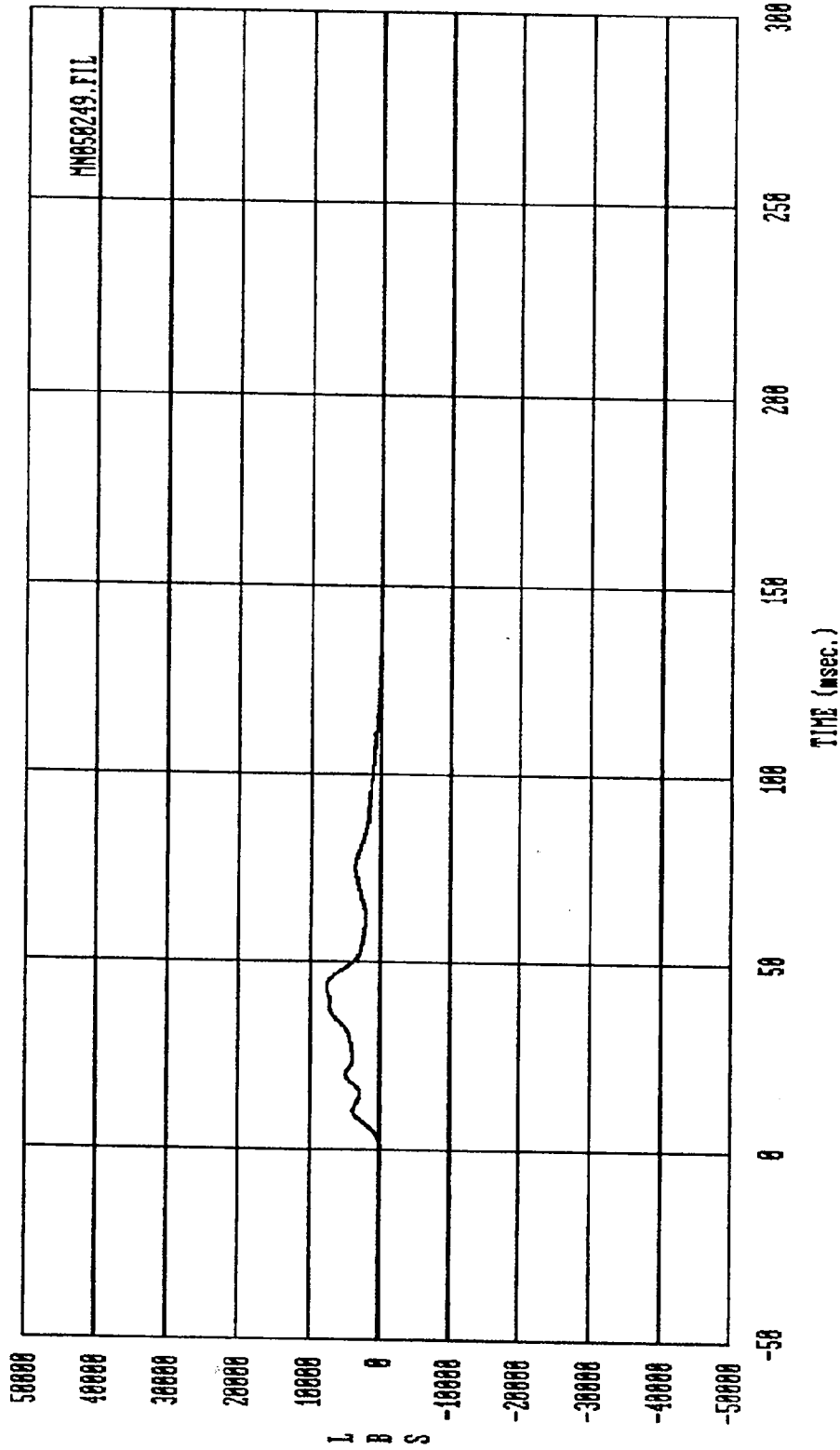


Curve: Force on Barrier load cell B4 Filter: SAE CLASS 60 Max = 677.11 Min = -295.23

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

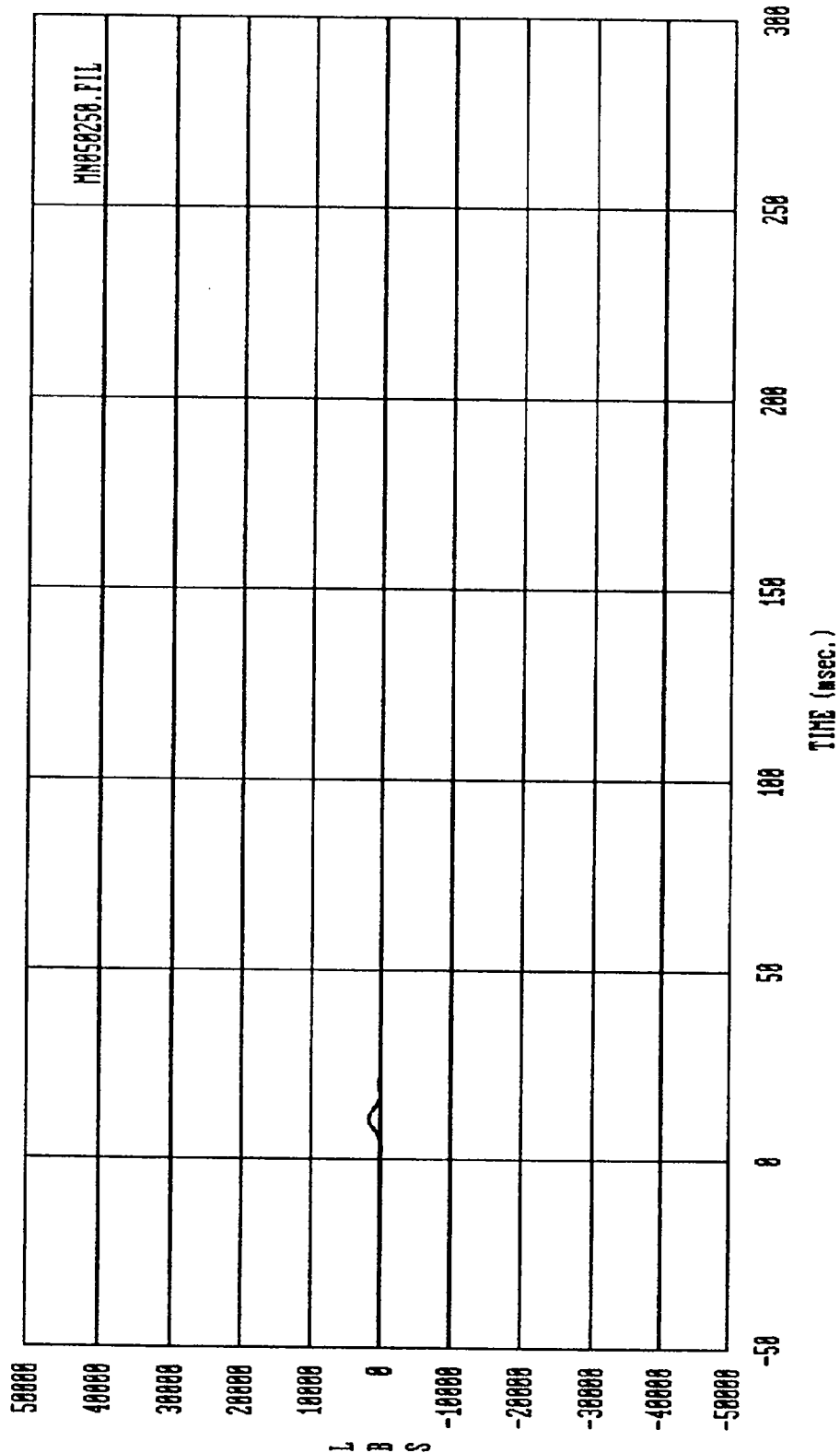






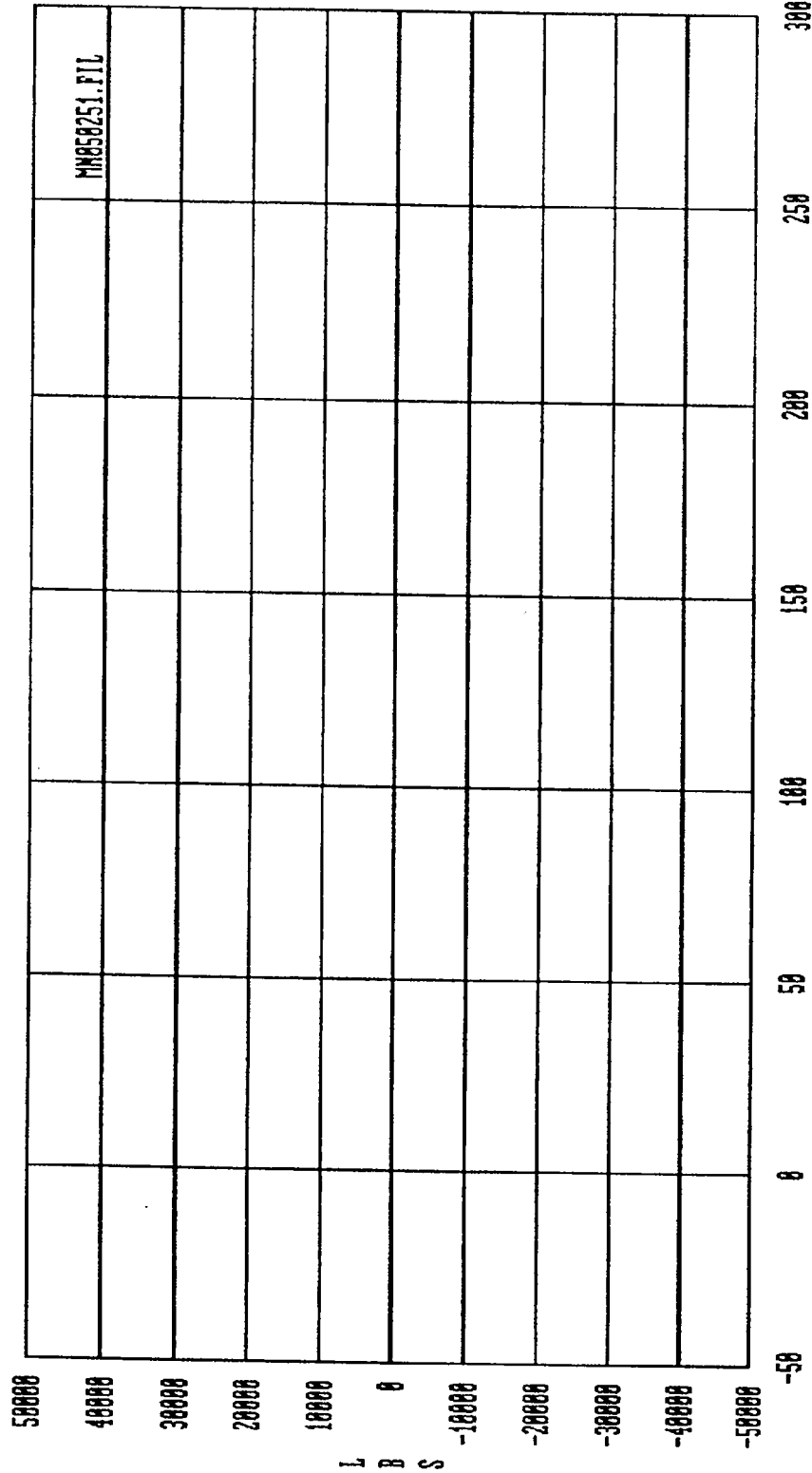
Curve: Force on Barrier load cell B7 Filter: SAE CLASS 60 Max = 7716.8 Min = -86.894

MSE Date: 05/19/92 Program: 1992 NCAP - E3 Vehicle: 1992 Hyundai Excel



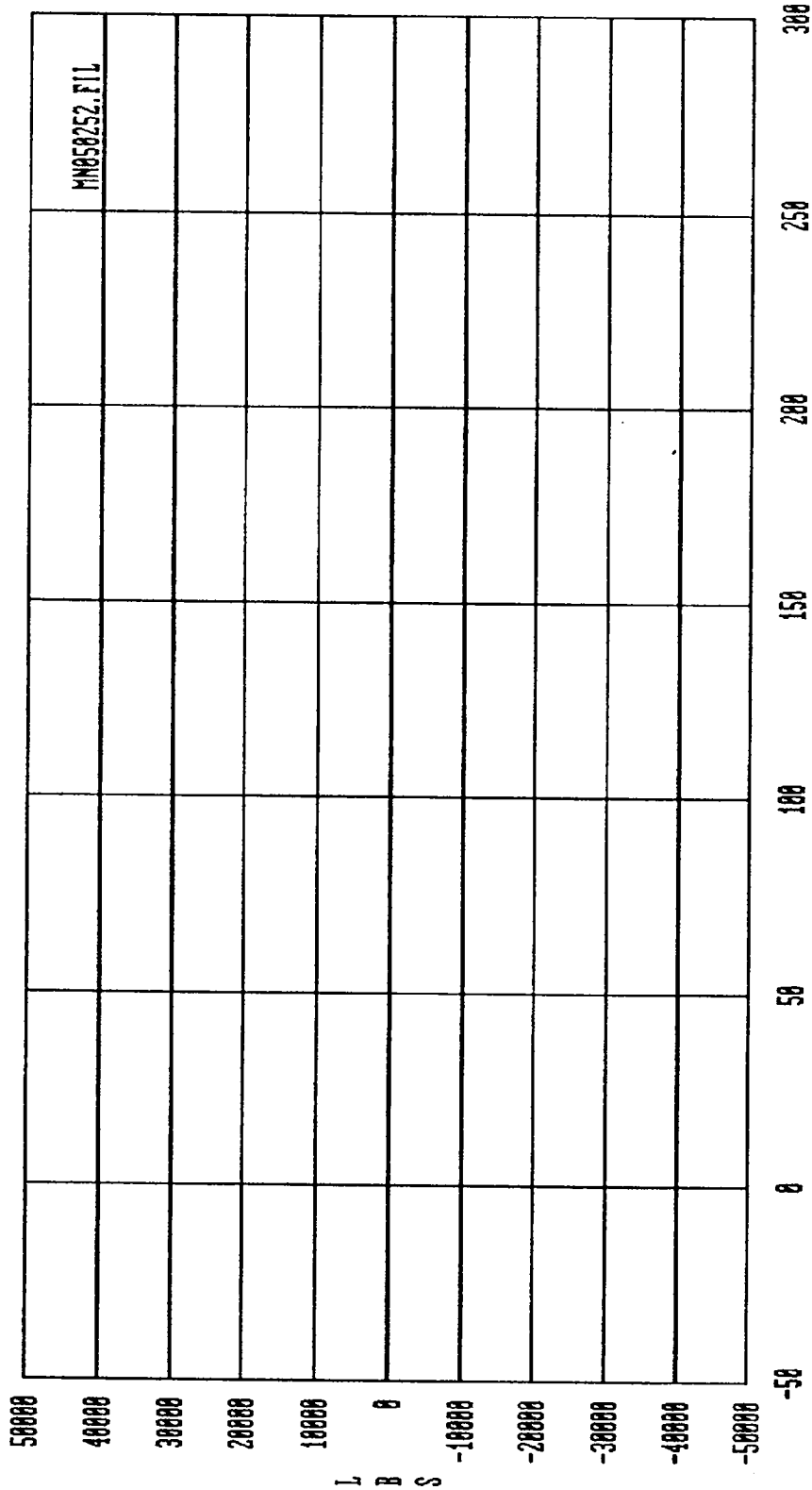
Curve: Force on Barrier load cell B8 Max = 1645.6 Min = -87.392

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



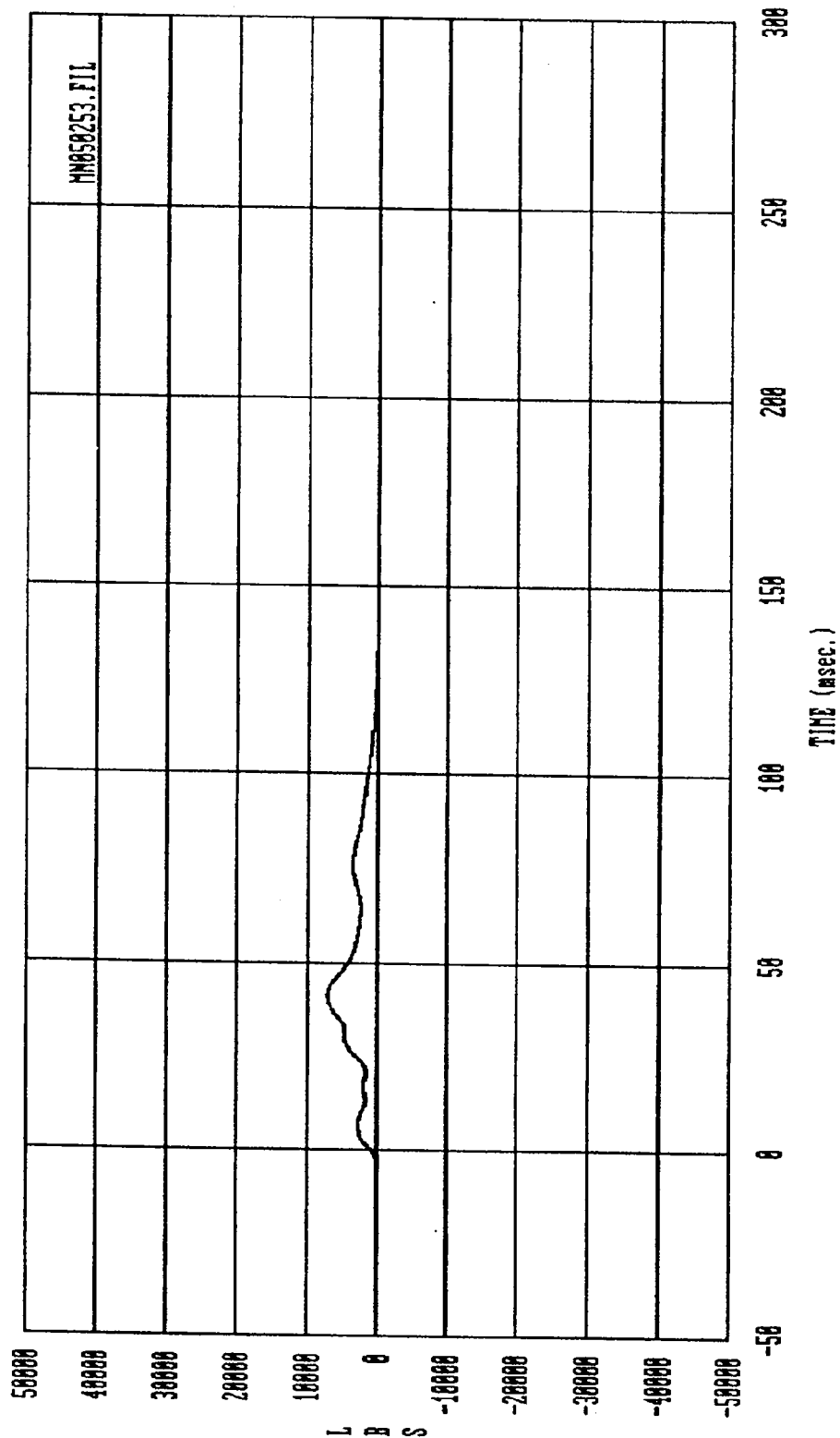
Curve: Force on Barrier load cell B9 Filter: SAE CLASS 60 Max = .00000 Min = .00000

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

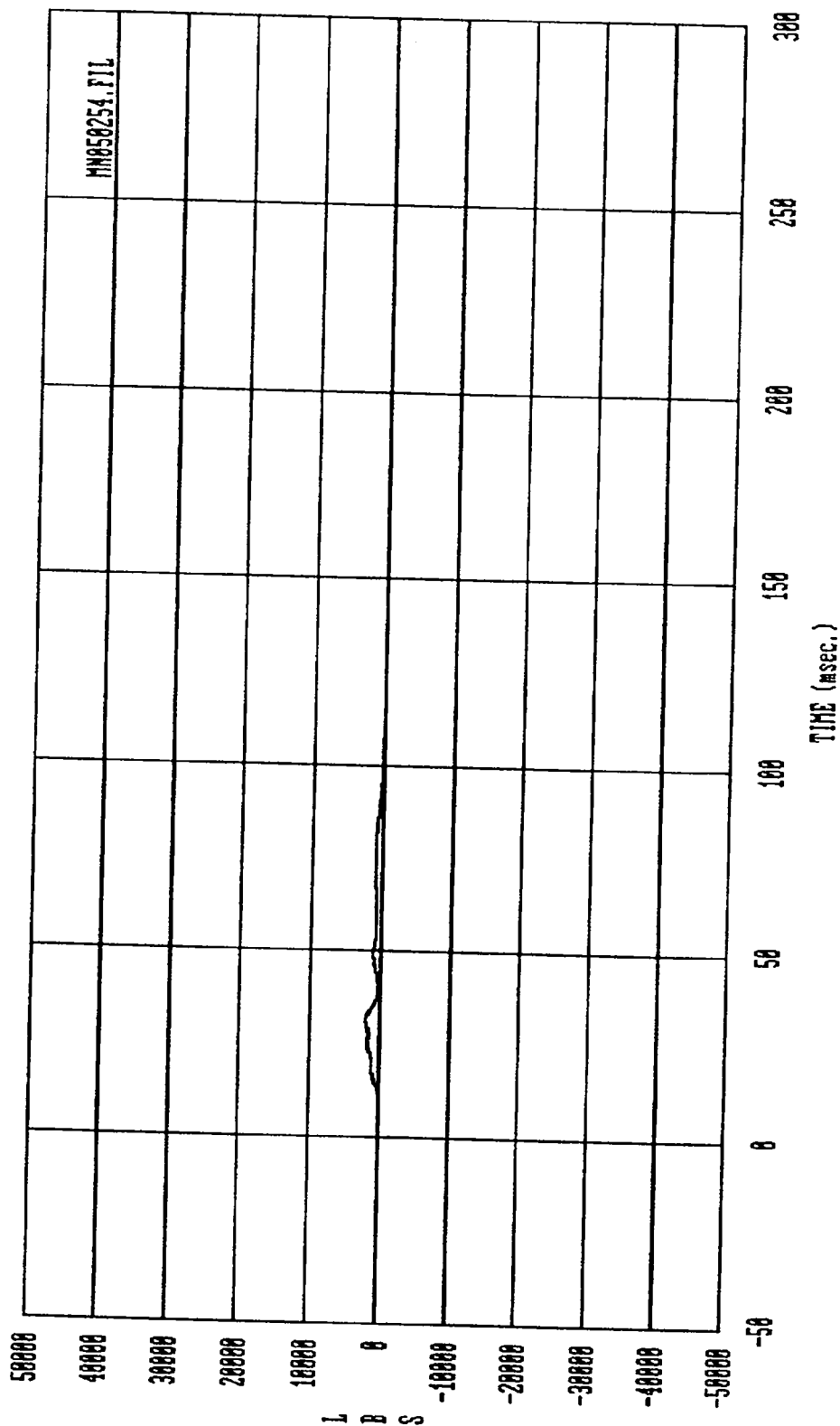


Curve: Force on Barrier load cell C1 Filter: SAE CLASS 60 Max = .00000 Min = .00000

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

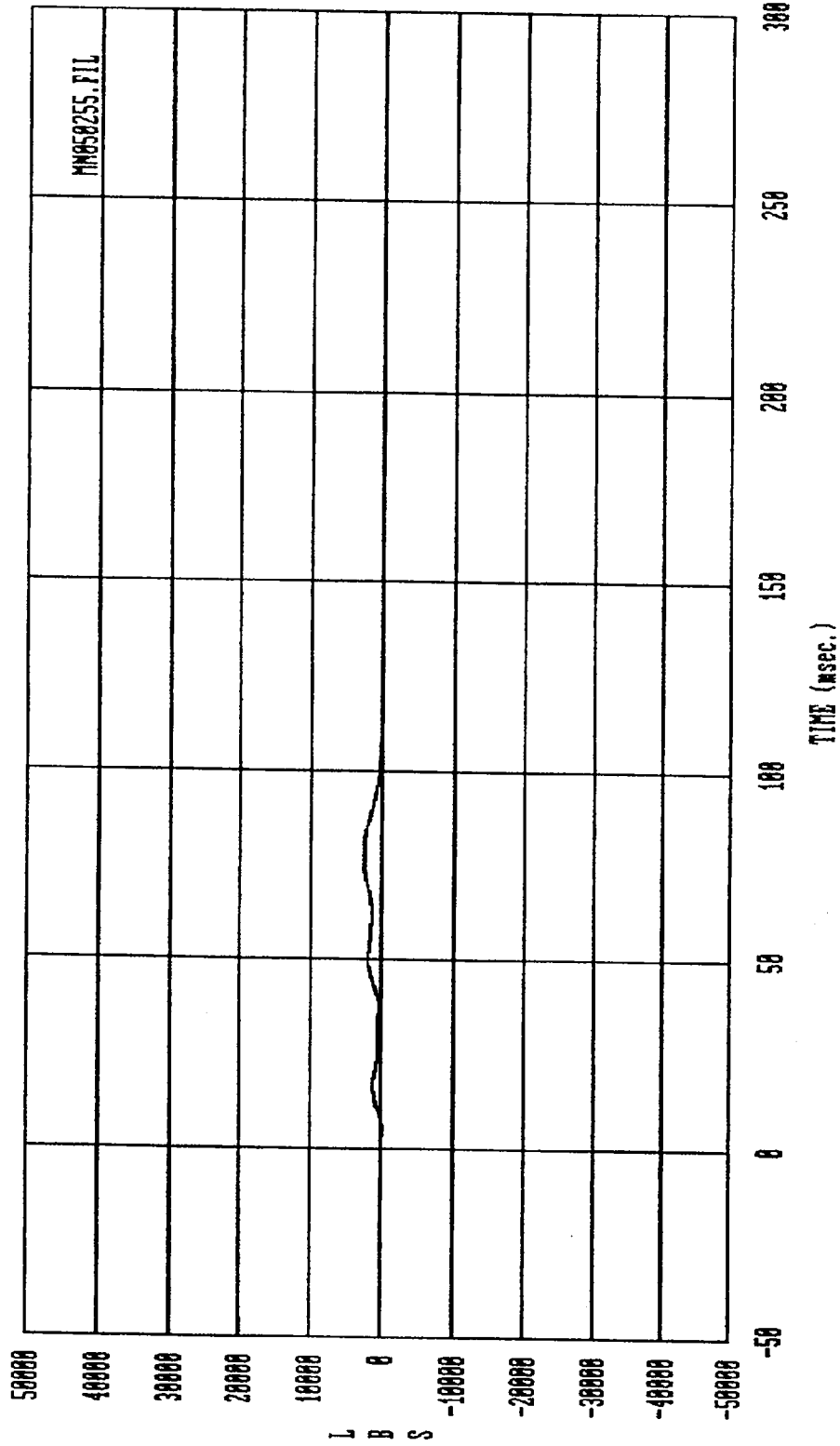


Curve: Force on Barrier load cell C2 Filter: SAE CLASS 60 Max = 7191.9 Min = -18.854
 MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

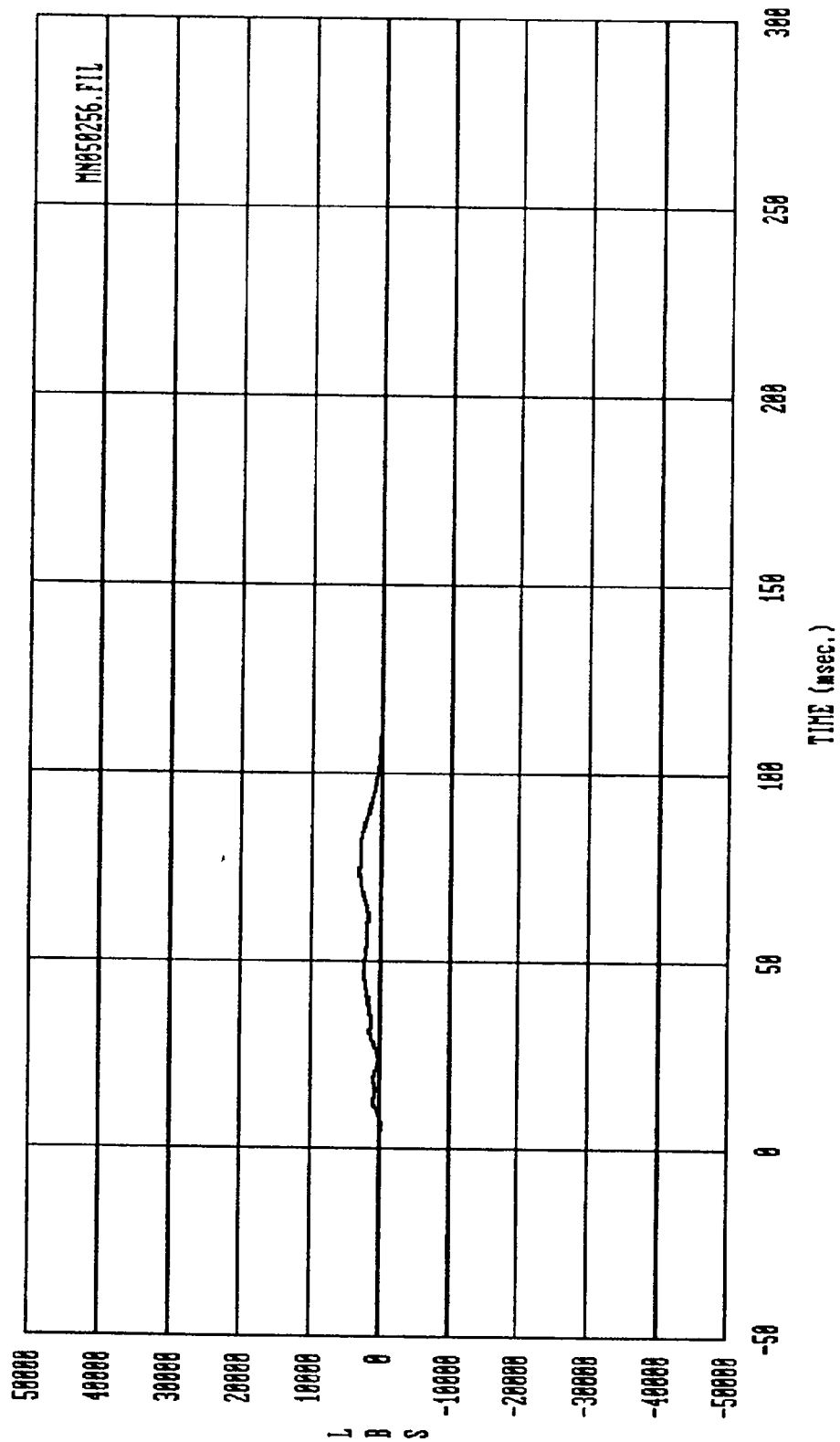


Curve: Force on Barrier load cell C3 Filter: SAE CLASS 60 Max = 2113.5 Min = -79.719

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

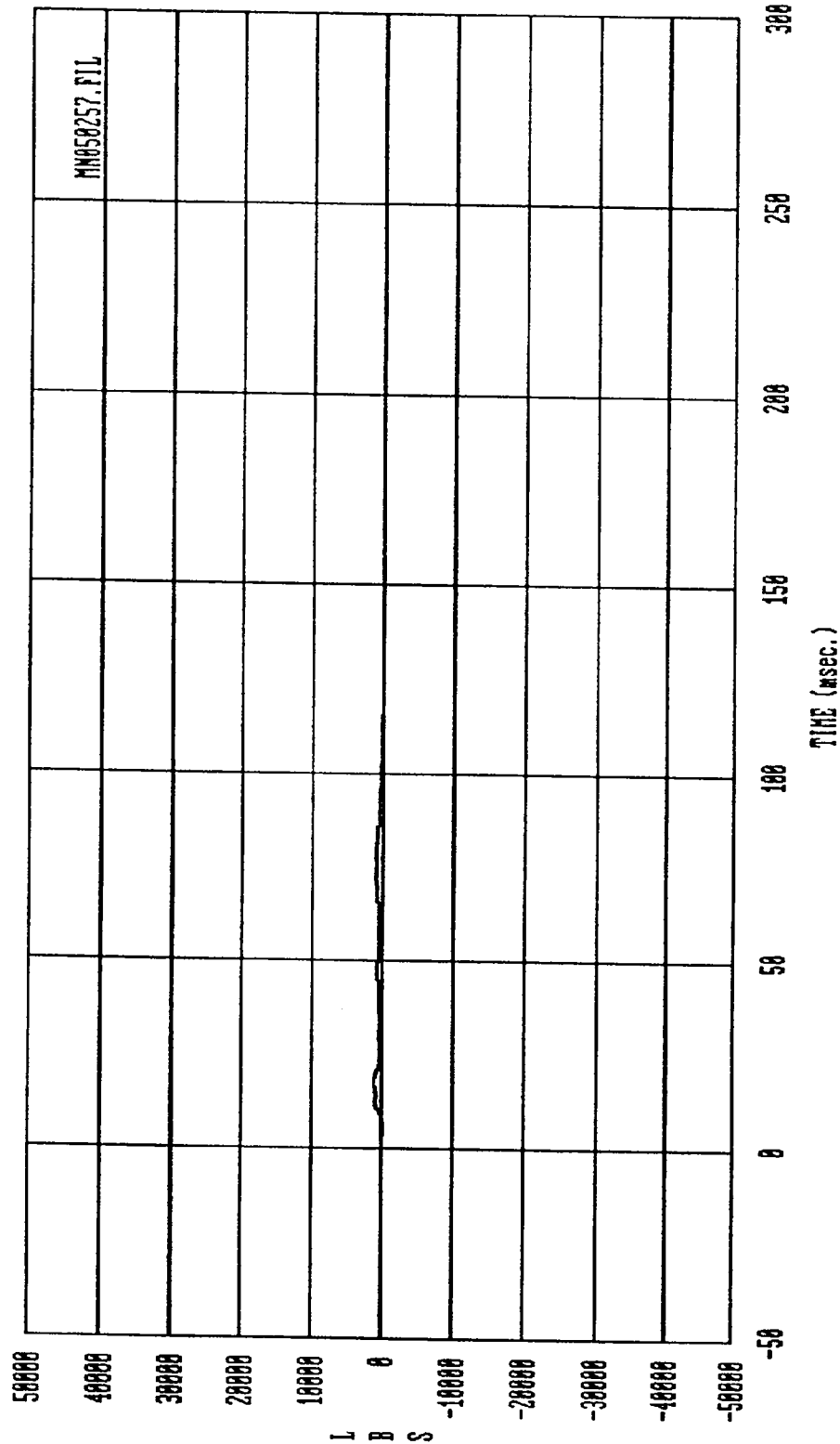


Curve: Force on Barrier load cell C4 Filter: SAE CLASS 60 Max = 2594.7 Min = -95.147
 HSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



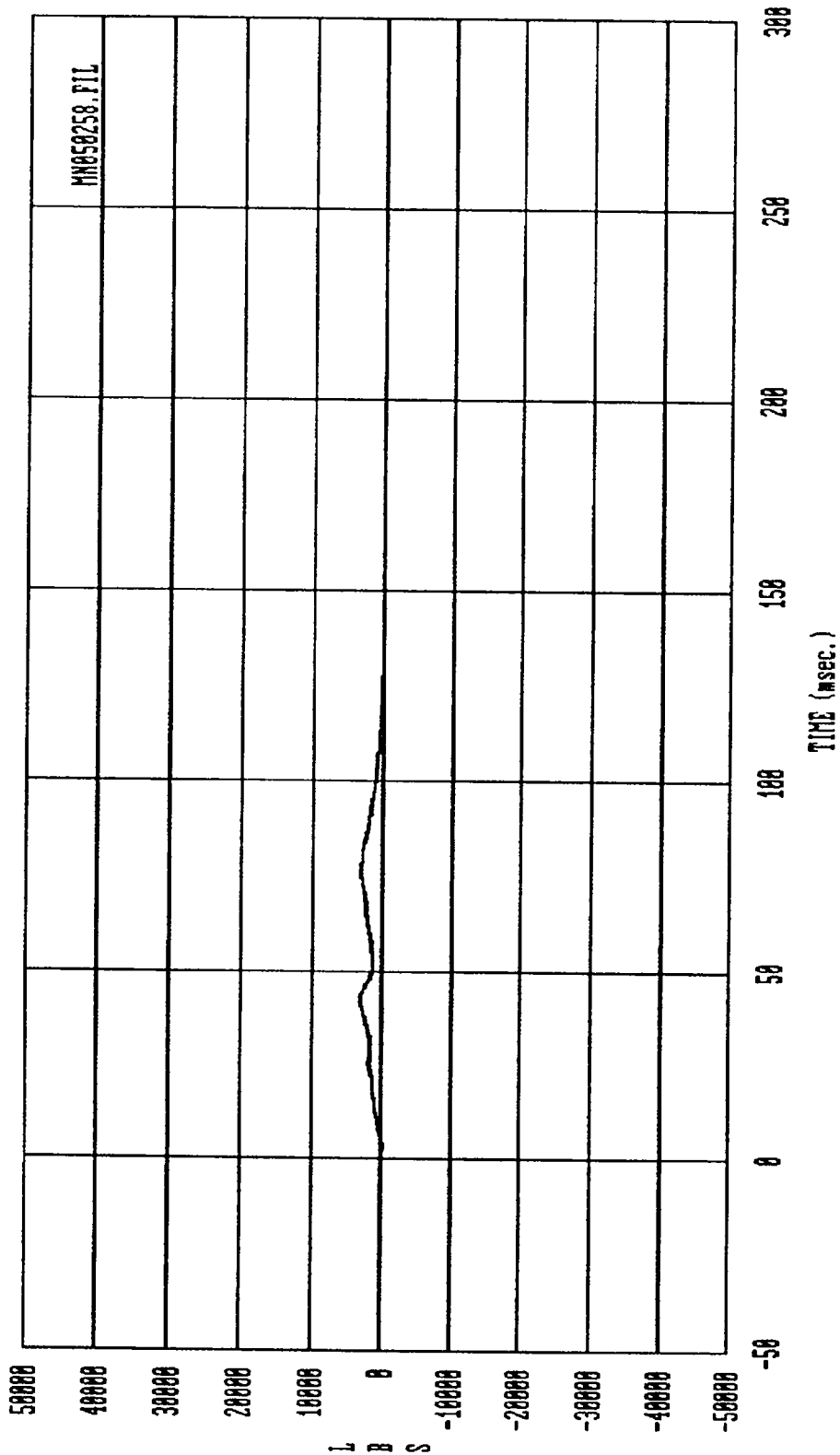
Curve: Force on Barrier load cell CS Filter: SAE CLASS 60 Max = 3000.9 Min = -95.500

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



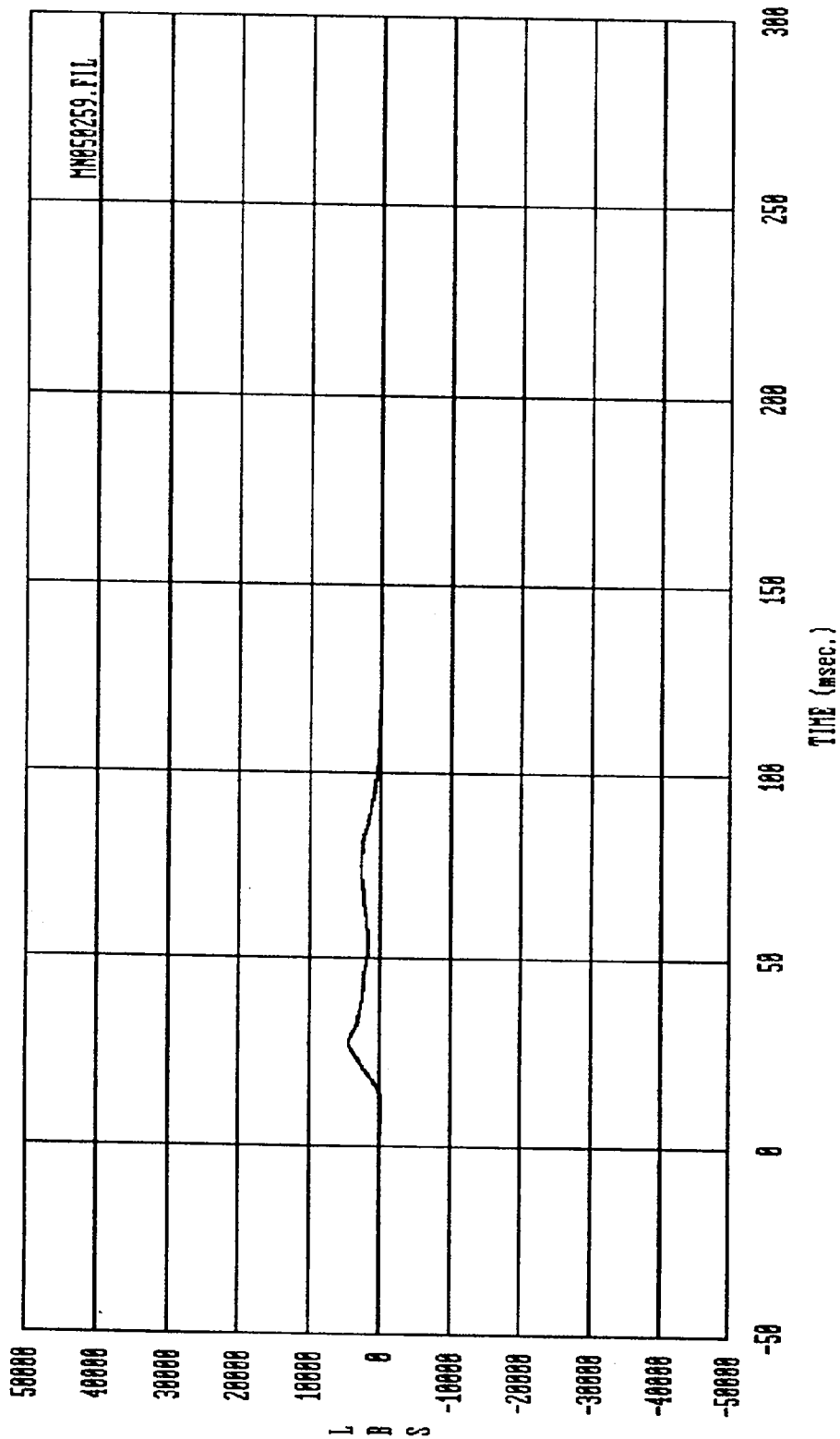
Curve: Force on Barrier load cell C6 Filter: SAE CLASS 60 Max = 1184.4 Min = -184.25

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

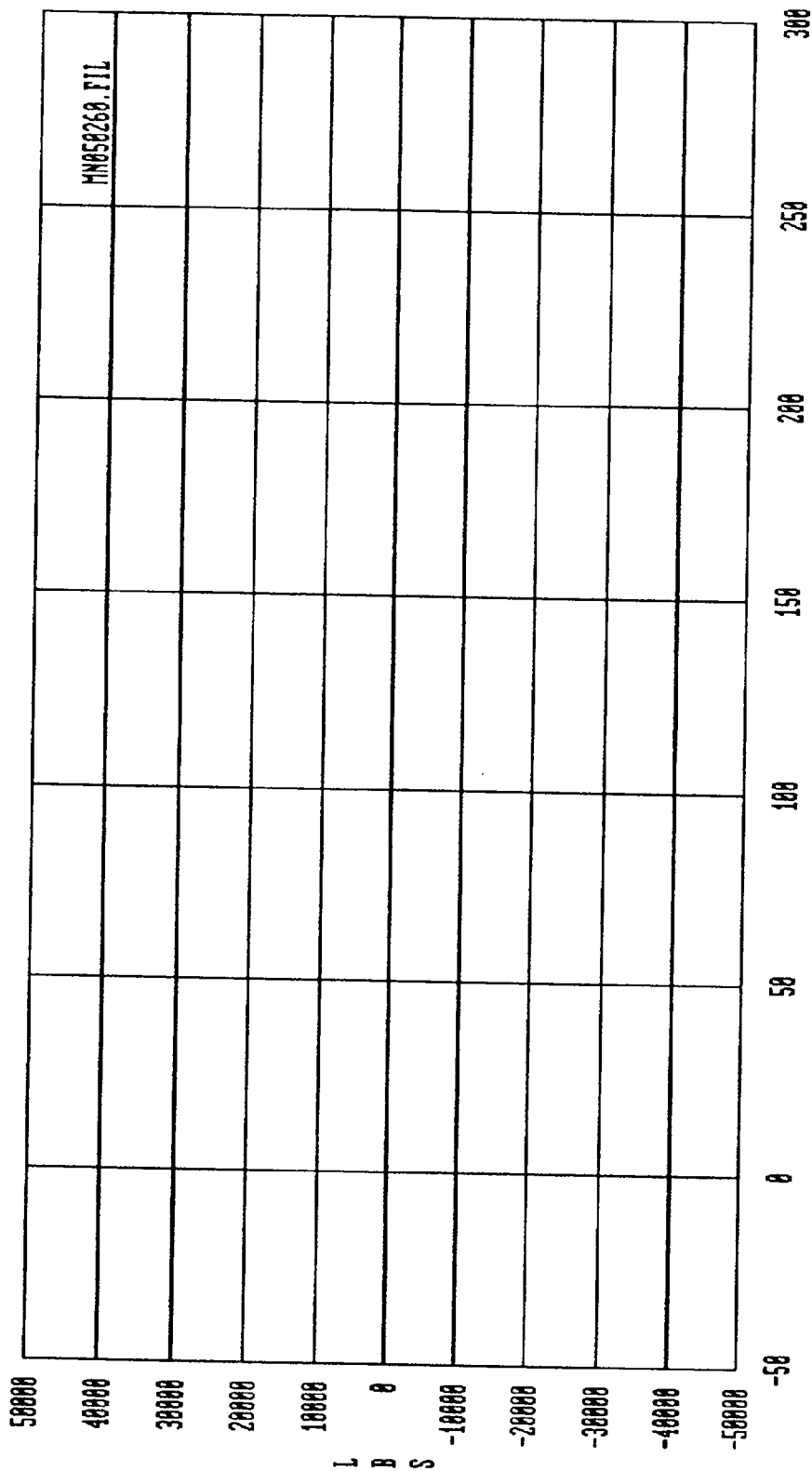


Curve: Force on Barrier load cell C7 Filter: SAE CLASS 60 Max = 3178.0 Min = -94.725

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



Curve: Force on Barrier load cell (LBS) Filter: SAE CLASS 60 Max = 4595.9 Min = -265.02
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

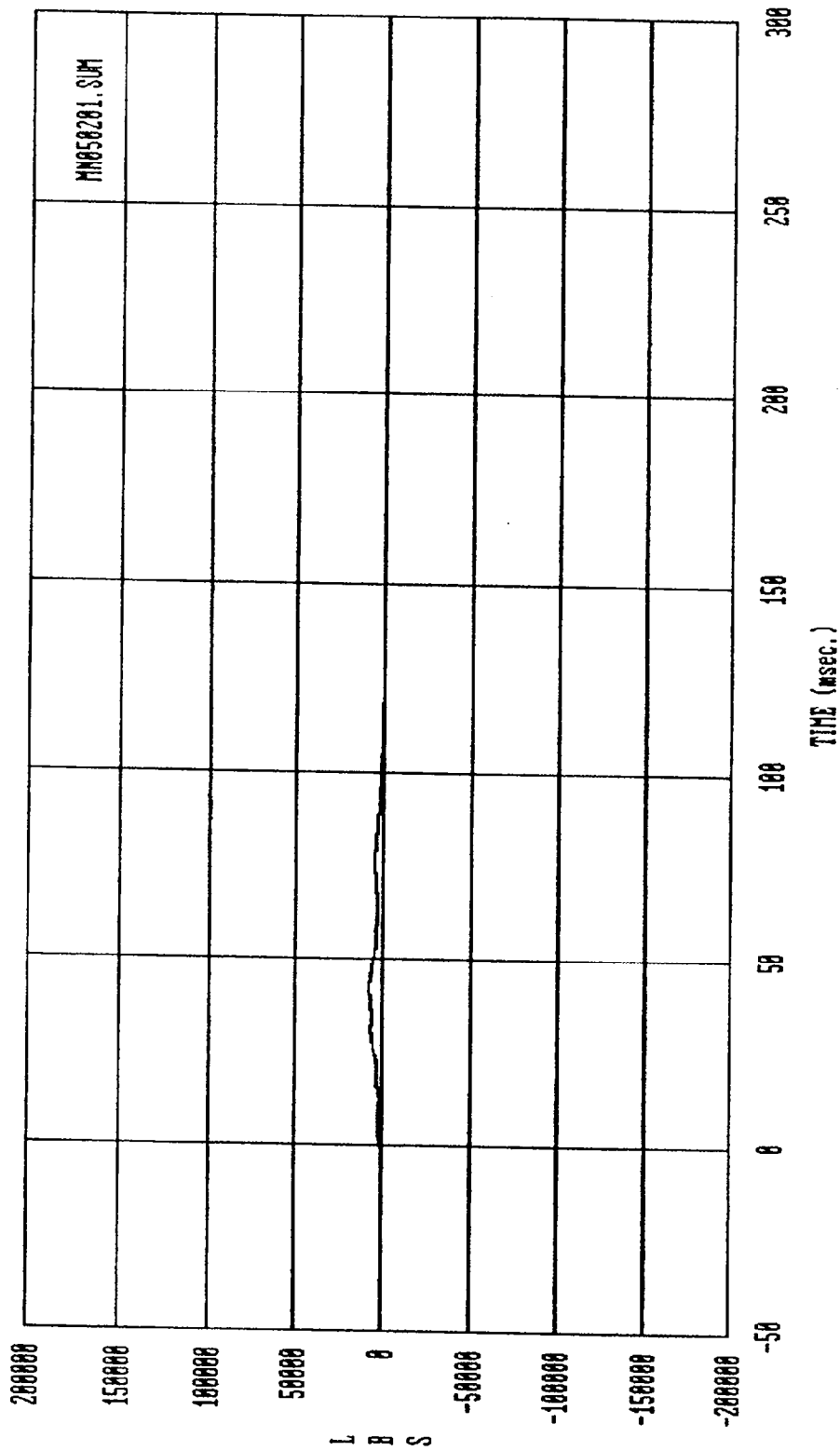


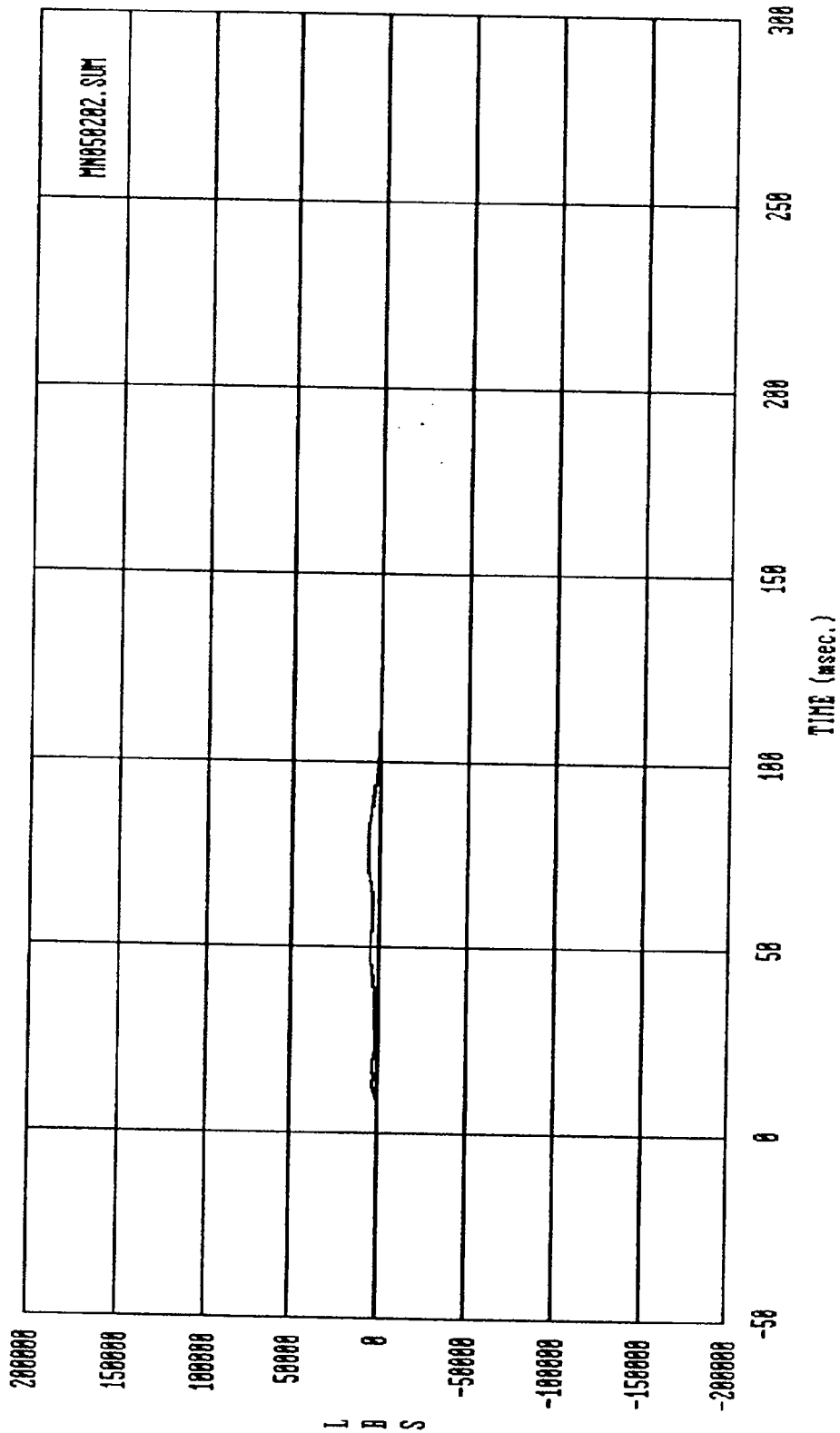
Curve: Force on barrier load cell C9*

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

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

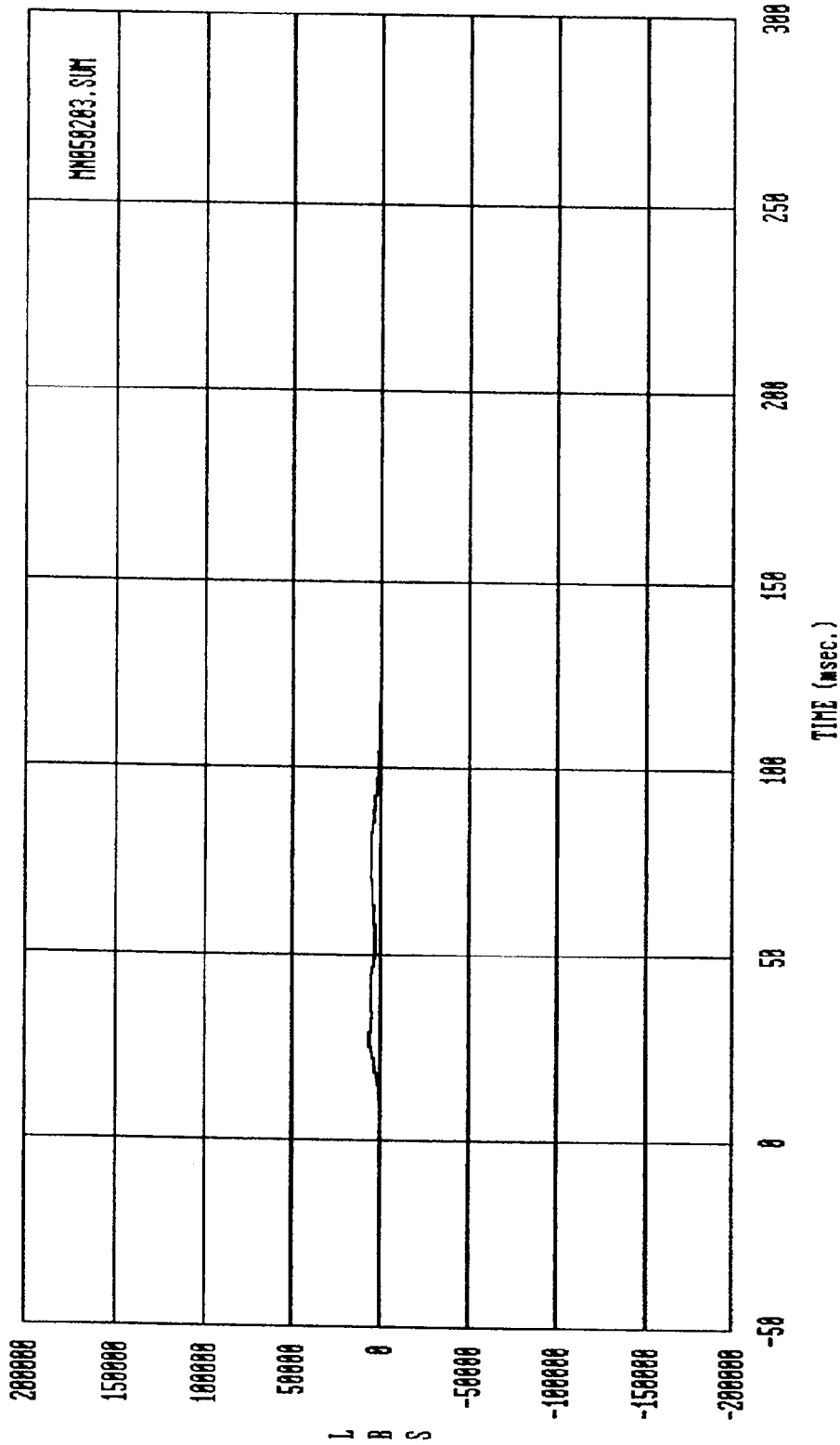
* LOAD CELLS D₁ TO D₉ WERE NOT USED IN FINAL SUMMATION





Curve: LCB sum force C4,C5,C6 -- Group 2 Filter: SAE CLASS 60 Max = 6682.8 Min = -291.83

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

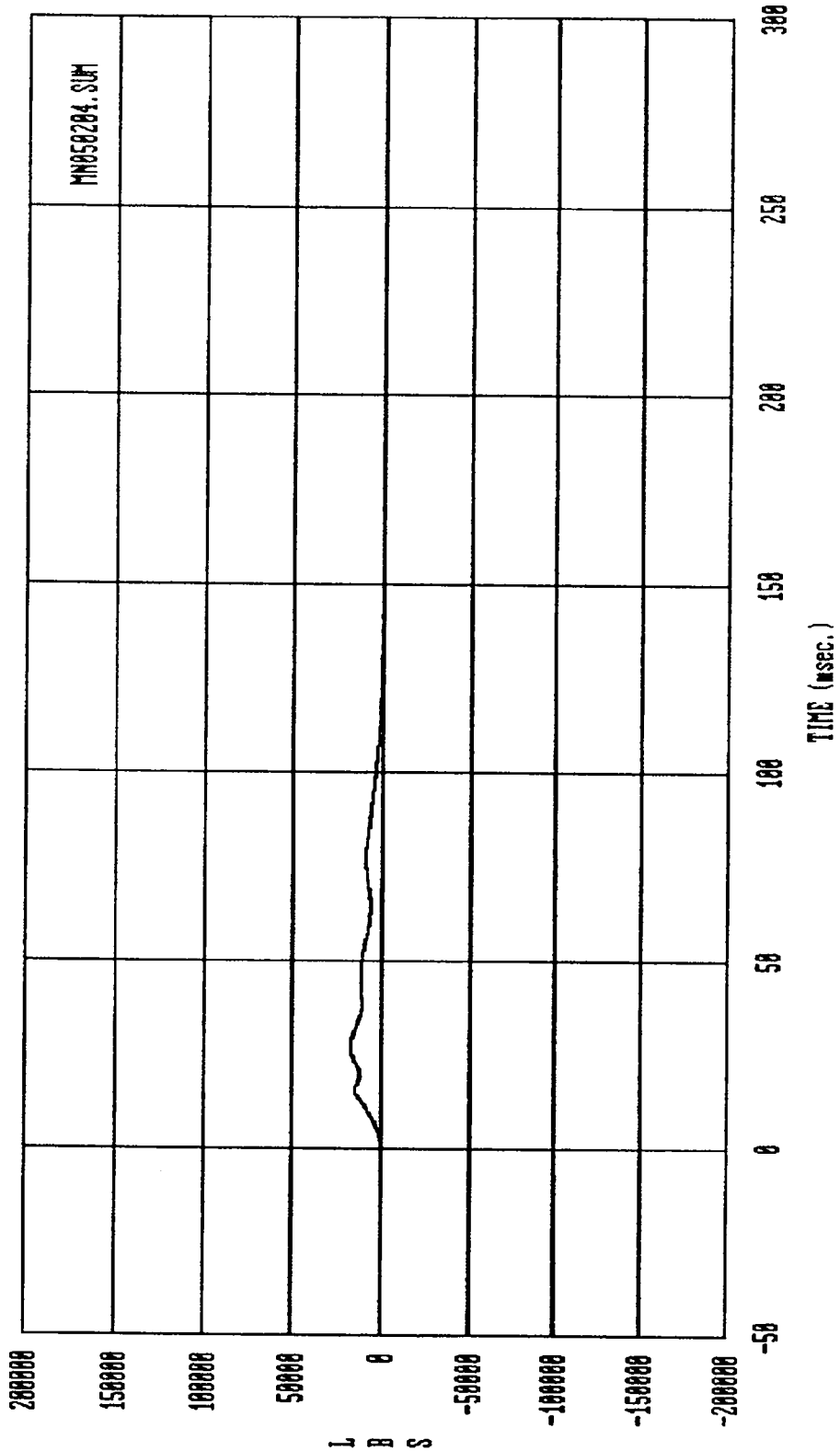


B2-30

Curve: LCB sum force C7/C8/C9 -- Group 3 Filter: SAE CLASS 60 Max = 6272.0 Min = -103.61

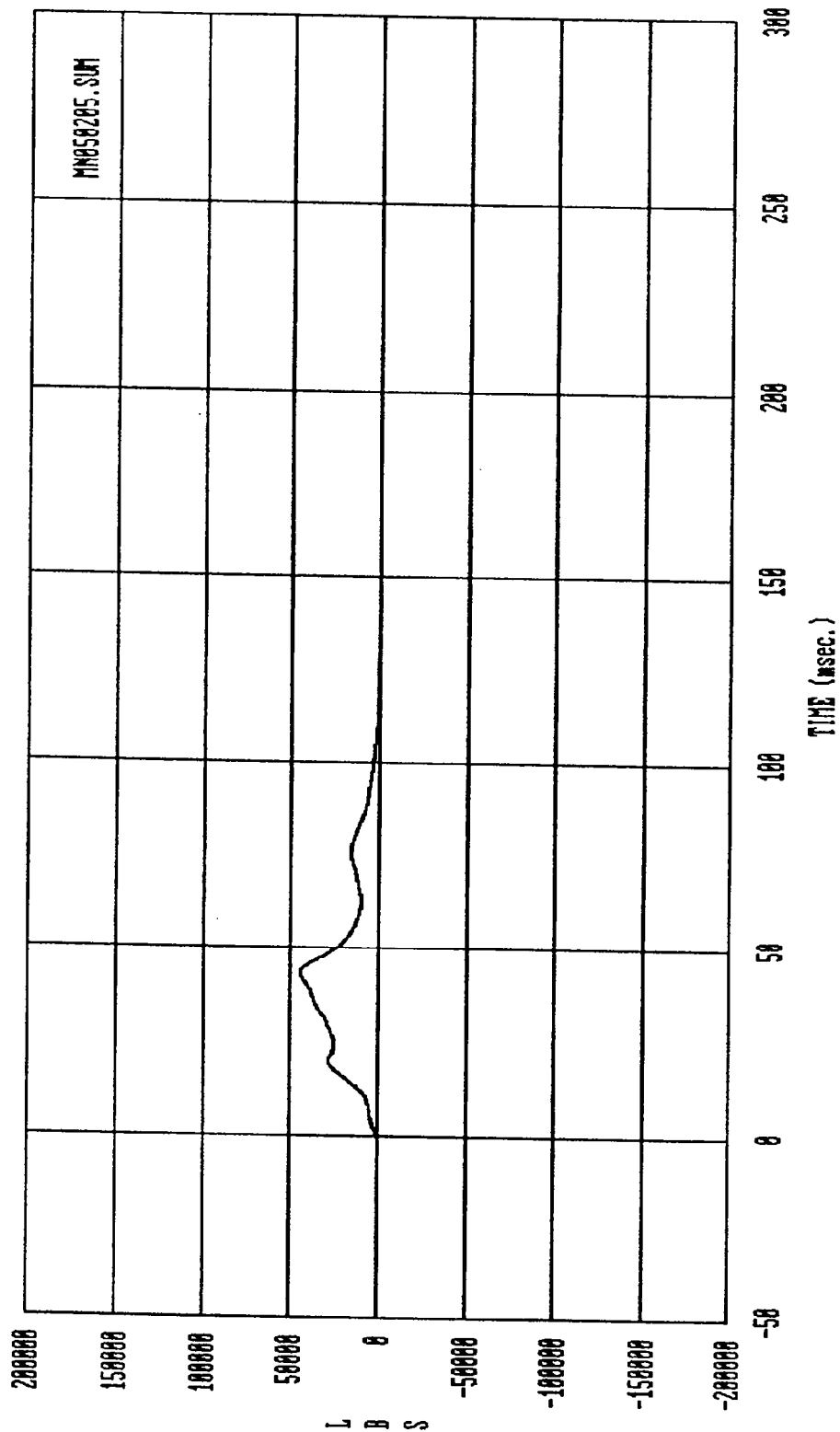
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

MSE-92-R92027-N03



Curve: LCB sum force A1,A2,A3,B1,B2,B3 -- Group 4 Filter: SAE CLASS 60 Max = 17694. Min = -49.628

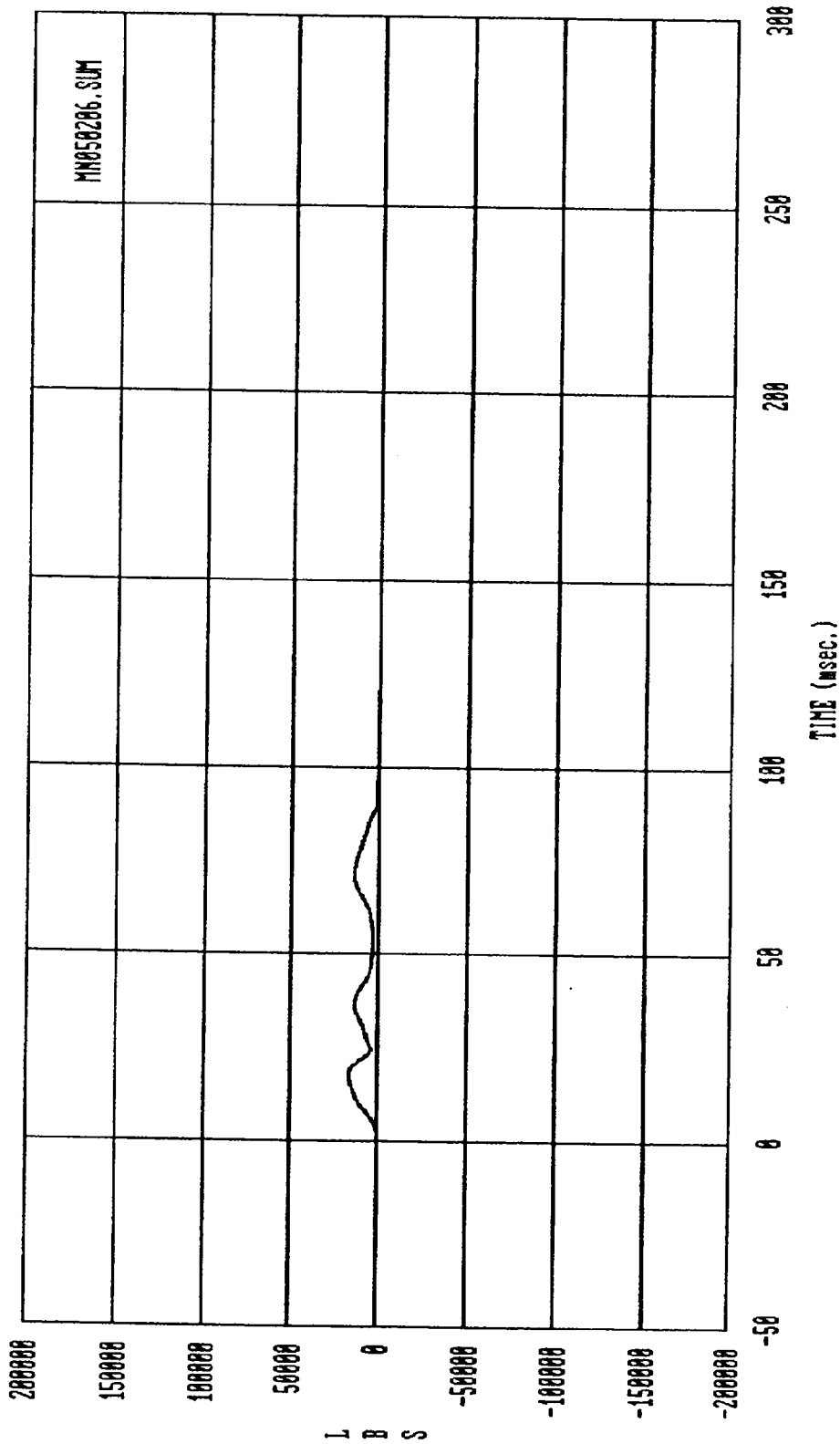
MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



MM050205.SUM

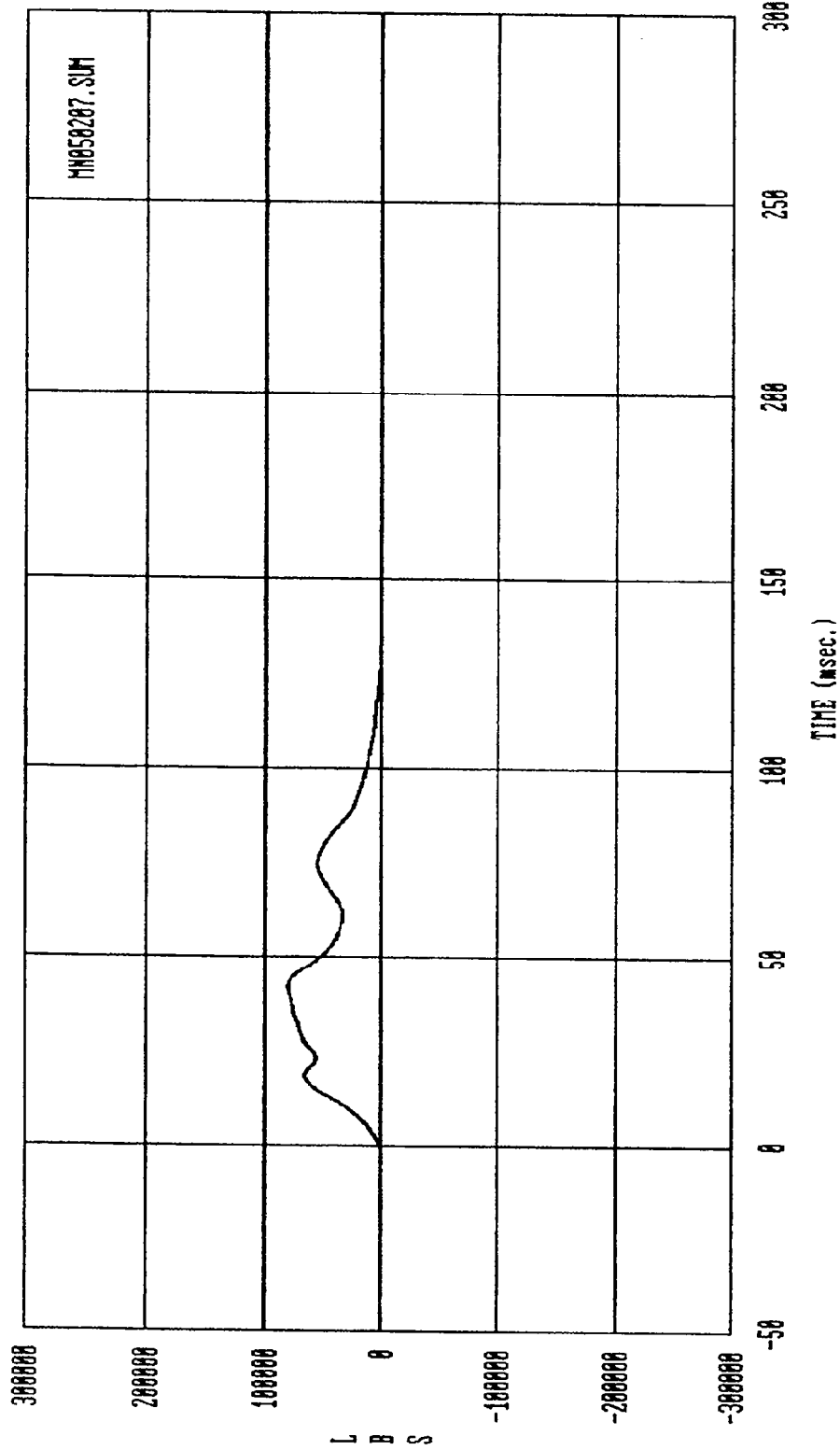
Curve: LCB sum force A4,A5,A6,B4,B5,B6 -- Group 5 Filter: SAE CLASS 60 Max = 44400. Min = 79.970

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



Curve: LCB sum force N7, A8, A9, B7, B8, B9 -- Group 6 Filter: SAE CLASS 60 Max = 16552. Min = -268.36

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel



Curve: Load Cell Barrier total force*

Filter: SAE CLASS 60 Max = 88895. Min = -95.262

MSE Date: 05/19/92 Program: 1992 NCAP - #3 Vehicle: 1992 Hyundai Excel

* ROW D (LOAD CELLS D₁ TO D₉) IS NOT INCLUDED IN THE SUMMATION.

APPENDIX C

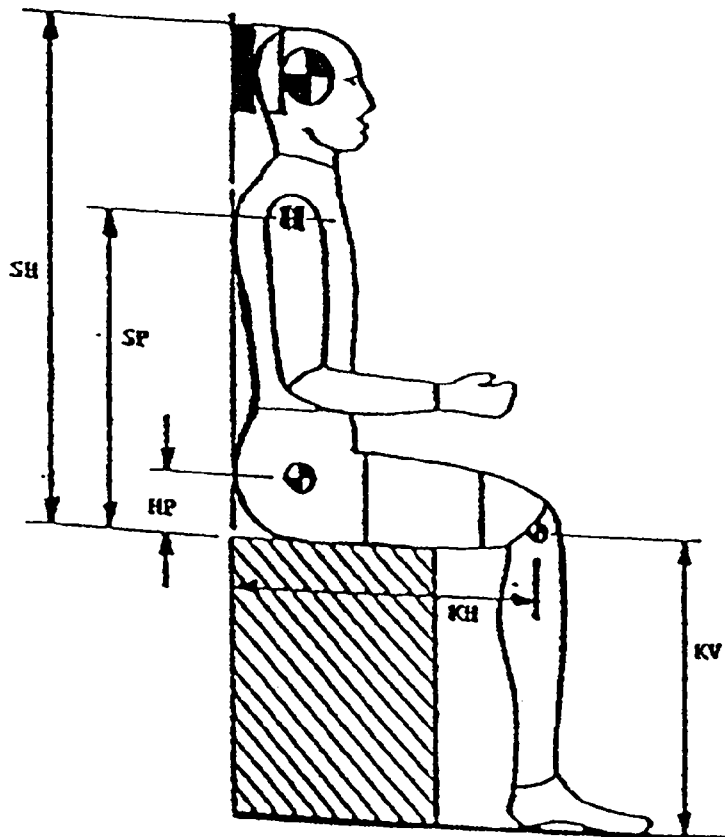
PART 572 DUMMY CONFIGURATION AND
PERFORMANCE VERIFICATION TESTS

THIS PAGE INTENTIONALLY LEFT BLANK

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NO.: 8 3 0

I. CONFIGURATION VERIFICATION DATA:



	P. 572 SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
DATE OF CONFIGURATION VERIFICATION	////////////////	05/03/92	
VERIFICATION NUMBER FOR DUMMY* ---	////////////////	01	
SH - Seated Height- - - - -	35.6 to 35.8"	35.60	
SP - Shoulder Pivot Height- - - -	21.8 to 22.4"	22.00	
HP - Hip Pivot Height- - - - -	3.9 ref.	3.90	
KH - Knee Pivot from back line- -	20.1 to 20.7"	20.50	
KV - Knee Pivot from floor- - - -	19.3 to 19.9"	19.40	
SW - Shoulder Width- - - - -	17.8 to 18.4"	18.20	
HW - Hip Width- - - - -	14.0 to 15.4"	14.40	

TECHNICIAN'S NAME: MR. MARK WALKER

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

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

II. PERFORMANCE VERIFICATION DATA:

NHTSA DUMMY I.D. NO.: 8 3 0

TECHNICIAN NAME: MR. MARK WALKER

DATE OF PERFORMANCE VERIFICATION-----		PRE-TEST (if required)	POST-TEST (if required)
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY*-----		05/03/92	
VERIF. LAB. TEMPERATURE (66° to 78°F Range)-----		01	
VERIF. LAB. HUMIDITY (10 to 70% Range)-----		66-72 °F	F
TEST PARAMETER		40-70 %	%
SPECIFICATION			
1. HEAD DROP TEST--			
a. Peak Resultant Accel.	210 to 260G	253.90	
b. Peak Lateral Accel.-	<10G	10.00	
c. Time above 100G - - -	0.9 to 1.5 ms	1.20	
2. NECK BENDING TEST--			
a. Pendulum Speed- - -	21.5 to 22.5 fps	21.90	
b. Pend. Avg. Decel. over (t ₃ - t ₂)	20 to 24G	21.00	
c. Peak Resultant Head Acceleration - - -	26G max.	24.40	
d. Pendulum Decel.(t ₂ - t ₁)	<3 ms	3.00	
e. Pendulum Decel.(t ₃ - t ₂)	25 to 30 ms	30.00	
f. Pendulum Decel.(t ₄ - t ₃)	<10 ms	9.50	
g. Max. Head Rotation -	63 to 73	64.00	
h. Chordal Displacement- Head Rotation Angle-			
0	Time- -	-2 to 2 ms	1.00
0	Displ.-	-.5 to .5"	0.02
30	Time- -	22.6 to 34 ms	31.00
30	Displ.-	2.1 to 3.1"	2.32
60	Time- -	40.3 to 51.7ms	47.20
60	Displ.-	4.3 to 5.3"	4.50
Maximum	Time- -	53.2 to 66.8ms	61.00
0 (64.0)	Displ.-	5.0 to 6.0"	5.10

*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.: 8 | 3 | 0 |

TECHNICIAN NAME: MR. MARK WALKER

TEST PARAMETER		SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST----				
Continued:				
h. Chordal Displacement- Head Rotation Angle-				
60°	Time- -	67.0 to 83.0 ms	75.00	
	Displ.-	4.3 to 5.3 in.	4.50	
30°	Time- -	85.4 to 104.6 ms	93.00	
	Displ.-	2.1 to 3.1 in.	2.10	
0°	Time- -	101.0 to 123.0 ms	102.00	
	Displ.-	-.5 to 0.5 in.	0.10	
3. ABDOMINAL COMPRESSION				
TEST: (Preload=10 pounds)				
a. Force @ .5" - - - -		23 to 36 lbs.	32.00	
b. Force @ .75" - - - -		36 to 50 lbs.	43.00	
c. Force @ 1.0"- - - -		50 to 63 lbs.	58.00	
d. Force @ 1.3"- - - -		73 to 88 lbs.	82.00	
4. LUMBAR FLEXION TEST:				
a. Force @ 20° - - - -		22 to 34 lbs.	26.00	
b. Force @ 30° - - - -		34 to 46 lbs.	40.00	
c. Force @ 40° - - - -		46 to 58 lbs.	53.00	
d. Return Angle- - - -		12° maximum	10.00	
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed - - -		21.78-22.22 fps	21.83	
(2) Peak Deflection -		1.7" maximum	1.62	
(3) Peak Resistive Force - - - - -		2250 lbs.maximum	2019.50	
(4) Internal Hysteresis		50 to 70%	68.00	
b. Low Speed				
(1) Probe Speed - - -		13.86-14.14 fps	14.05	
(2) Peak Deflection -		1.1" maximum	1.06	
(3) Peak Resistive Force - - - - -		1450 lbs.maximum	1355.80	
(4) Internal Hysteresis		50 to 70%	65.00	

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

II. PERFORMANCE VERIFICATION DATA:

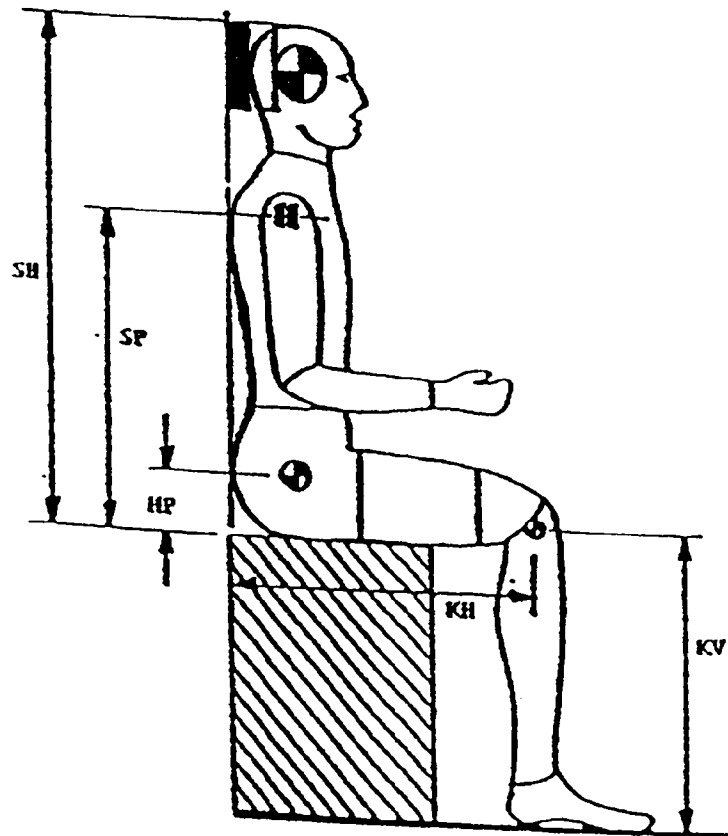
NHTSA DUMMY I.D. NO.:

8	3	0
---	---	---

TECHNICIAN NAME: MR. MARK WALKER

TEST PARAMETER	SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
=====			
6. <u>KNEE IMPCT TESTS:</u>			
a. Right Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.85	
(2) Maximum Force - -	1850 to 2500 lbs	2450.00	
(3) Time Above 1000#-	1.7 ms minimum	1.70	
b. Left Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.83	
(2) Maximum Force - -	1850 to 2500 lbs	2268.00	
(3) Time Above 1000#-	1.7 ms minimum	1.70	

PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

NHTSA DUMMY I.D. NO.: 8 | 1 | 4 |I. CONFIGURATION VERIFICATION DATA:

	P. 572 SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
DATE OF CONFIGURATION VERIFICATION	////////////////	05/03/92	
VERIFICATION NUMBER FOR DUMMY* ---	////////////////	01	
SH - Seated Height- - - - -	35.6 to 35.8"	35.60	
SP - Shoulder Pivot Height- - - -	21.8 to 22.4"	21.90	
HP - Hip Pivot Height - - - - -	3.9 ref.	3.90	
KH - Knee Pivot from back line- -	20.1 to 20.7"	20.50	
KV - Knee Pivot from floor- - - -	19.3 to 19.9"	19.50	
SW - Shoulder Width - - - - -	17.8 to 18.4"	18.10	
HW - Hip Width- - - - -	14.0 to 15.4"	14.50	

TECHNICIAN'S NAME: MR. MARK WALKER

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

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

II. PERFORMANCE VERIFICATION DATA:

NHTSA DUMMY I.D. NO.: 8 | 1 | 4

TECHNICIAN NAME: MR. MARK WALKER

DATE OF PERFORMANCE VERIFICATION-----		PRE-TEST (if required)	POST-TEST (if required)
SEQUENTIAL VERIFICATION NUMBER FOR DUMMY*-----		05/03/92	
VERIF. LAB. TEMPERATURE (66° to 78°F Range)-----		01	
VERIF. LAB. HUMIDITY (10 to 70% Range)-----		65-72 °F	F
TEST PARAMETER		40-70 %	%
SPECIFICATION			
1. HEAD DROP TEST--			
a. Peak Resultant Accel.	210 to 260G	244.90	
b. Peak Lateral Accel.-	<10G	5.00	
c. Time above 100G - - -	0.9 to 1.5 ms	1.20	
2. NECK BENDING TEST--			
a. Pendulum Speed- - - -	21.5 to 22.5 fps	21.90	
b. Pend. Avg. Decel. over (t ₃ - t ₂)	20 to 24G	21.20	
c. Peak Resultant Head Acceleration - - - -	26G max.	24.06	
d. Pendulum Decel.(t ₂ - t ₁)	<3 ms	1.50	
e. Pendulum Decel.(t ₃ - t ₂)	25 to 30 ms	28.00	
f. Pendulum Decel.(t ₄ - t ₃)	<10 ms	7.00	
g. Max. Head Rotation -	63 to 73	65.70	
h. Chordal Displacement- Head Rotation Angle-			
0°	Time- -	-2 to 2 ms	0.00
	Displ.-	-.5 to .5"	0.00
30°	Time- -	22.6 to 34 ms	30.00
	Displ.-	2.1 to 3.1"	2.75
60°	Time- -	40.3 to 51.7ms	45.50
	Displ.-	4.3 to 5.3"	5.20
Maximum	Time- -	53.2 to 66.8ms	59.00
(65.70)	Displ.-	5.0 to 6.0"	5.90

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

TECHNICIAN NAME: MR. MARK WALKER

TEST PARAMETER		SPECIFICATION	PRE-TEST (if required)	POST-TEST (if required)
2. NECK BENDING TEST-----				
<u>Continued:</u>				
h. Chordal Displacement- Head Rotation Angle-				
60°	Time- -	67.0 to 83.0 ms	72.00	
	Displ.-	4.3 to 5.3 in.	5.30	
30°	Time- -	85.4 to 104.6 ms	89.00	
	Displ.-	2.1 to 3.1 in.	2.70	
0°	Time- -	101.0 to 123.0 ms	103.00	
	Displ.-	-.5 to 0.5 in.	0.30	
3. ABDOMINAL COMPRESSION				
<u>TEST:</u> (Preload=10 pounds)				
a. Force @ .5" - - - -		23 to 36 lbs.	28.00	
b. Force @ .75" - - - -		36 to 50 lbs.	41.00	
c. Force @ 1.0" - - - -		50 to 63 lbs.	57.00	
d. Force @ 1.3" - - - -		73 to 88 lbs.	82.00	
4. LUMBAR FLEXION TEST:				
a. Force @ 20° - - - -		22 to 34 lbs.	23.00	
b. Force @ 30° - - - -		34 to 46 lbs.	34.00	
c. Force @ 40° - - - -		46 to 58 lbs.	49.00	
d. Return Angle- - - -		12° maximum	10.00	
5. CHEST IMPACT TESTS:				
a. High Speed				
(1) Probe Speed - - -		21.78-22.22 fps	22.08	
(2) Peak Deflection -		1.7" maximum	1.62	
(3) Peak Resistive Force - - - - -		2250 lbs.maximum	1900.80	
(4) Internal Hysteresis		50 to 70%	65.00	
b. Low Speed				
(1) Probe Speed - - -		13.86-14.14 fps	14.04	
(2) Peak Deflection -		1.1" maximum	0.52	
(3) Peak Resistive Force - - - - -		1450 lbs.maximum	1257.70	
(4) Internal Hysteresis		50 to 70%	62.00	

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

II. PERFORMANCE VERIFICATION DATA:

NHTSA DUMMY I.D. NO.: 8 | 1 | 4 |

TECHNICIAN NAME: MR. MARK WALKER

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	6.92	
(2) Maximum Force - -	1850 to 2500 lbs	2209.50	
(3) Time Above 1000#-	1.7 ms minimum	1.85	
b. Left Side--			
(1) Probe Speed - - -	6.76 to 7.04 fps	6.88	
(2) Maximum Force - -	1850 to 2500 lbs	2108.30	
(3) Time Above 1000#-	1.7 ms minimum	1.90	

APPENDIX D

VEHICLE OWNER'S MANUAL OCCUPANT RESTRAINT SYSTEM INSTRUCTIONS

THIS PAGE INTENTIONALLY LEFT BLANK

FEATURES OF YOUR HYUNDAI

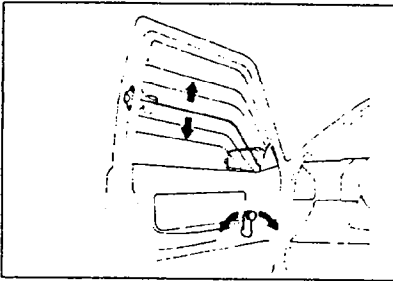
ZB08A1-A

WINDOW GLASS

To raise or lower the window, turn the window regulator handle clockwise or counter-clockwise.

NOTE:

When opening or closing the windows, make sure your passenger's arms and hands are safely out of the way.



ZB09A1-A

SEAT BELT PRECAUTIONS AND WARNINGS

All occupants of the vehicle should wear their seat belts at all times. Your state's laws may require that some or all occupants of the vehicle use seat belts. The possibility of injury or the severity of injury in an accident will be decreased if this elementary safety precaution is observed. In addition, the following recommendations are made:

ZB09B1-A

Baby or Small Child

Some states require the use of child restraint systems for babies and small children. Whether this is required by law or not, it is strongly recommended that a child restraint seat or infant restraint system be used for babies or small children weighing less than 40 pounds. Information about the use of such restraints is included on page 1-13.

ZB09C1-A

Larger Children

It is recommended that larger children occupy the rear seat and wear their seat belts. If the child is in the front seat, it should be securely restrained by the seat belt. Under no circumstances should the child be allowed to stand or kneel on the seat. Children are afforded the most safety in the event of an accident when they are restrained by a proper child restraint system.

ZB09D1-A

Pregnant Women

The use of a seat belt is recommended for pregnant women to lessen the chance of injury in an accident. When a seat belt is used, it should be placed as low and snugly as possible on the hips, not across the abdomen. For specific recommendations, consult a physician.

ZB09E1-A

Injured Person

A seat belt should be used when an injured person is being transported. When this is necessary, you should consult a physician for recommendations.

ZB09F1-A

One Person Per Belt

Two people (including children) should never attempt to use a single seat belt. This could increase the severity of injuries in case of an accident.

ZB09G1-A

Do Not Lie Down

To prevent injuries in the event of an accident, and to achieve maximum effectiveness of the seat belt system, all passengers should be sitting up and the front seats should be in an upright position when the car is moving. As seat belt cannot operate properly if the person is lying down in the rear seat or if the front seat is at or near the fully reclined position.

FEATURES OF YOUR HYUNDAI

ZB09H1-A

CARE OF SEAT BELTS

Seat belt systems should never be disassembled or modified. In addition, care should be taken to assure that seat belts and belt hardware are not damaged by seat hinges, doors or other abuse.

ZB09I1-A

Periodic Inspection

It is recommended that all seat belts be inspected periodically for wear or damage of any kind. Parts of the system that are damaged should be replaced as soon as possible.

ZB09J1-A

Keep Belts Clean and Dry

Seat belts should be kept clean and dry. If belts become dirty, they can be cleaned using a mild soap solution and warm water. Bleach, dye, strong detergents or abrasives should not be used because they may damage and weaken the fabric.

ZB09K1-A

When to Replace Seat Belts

The entire seat belt assembly or assemblies should be replaced if the vehicle has been involved in an accident. This should be done even if no damage is visible. Additional questions concerning seat belt operation should be directed to your Hyundai Dealer.

ZB09L1-A

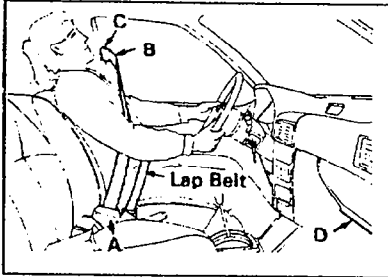
PASSIVE SEAT BELTS (Front seat)

Your Hyundai is equipped with a new safety seat belt system for the driver and the front seat passenger to be restrained automatically as they sit down and close the door. Your new safety seat belt system consists of a retractor (A), a tab (B), a buckle (C), a knee bolster (D) and a manual lap belt assembly. Always make sure that the metal tab is inserted into the buckle of the upper rear edge of the door before entering in your vehicle.

ZB09M1-A

WARNING:

- o For full restraint system protection, securely fasten the manual lap belt in addition to the automatic shoulder belt whenever the car is moving.



- o Front seat passengers should not ride in a moving vehicle with the seatback reclined. The safety seat belts operate securely only when the seatback is in an upright position.
- o Both arms should not be under or over the belt. Rather, one should be over and the other under, as shown in the illustration.
- o Do not wear the shoulder portion of the seat belt under your arm as this increases the possibility of serious injury to you in the event of an accident.
- o When wearing the passive seat belt, make sure that the belt is positioned midway over the shoulder-NEVER ACROSS THE NECK.
- o To operate the automatic seat belt system, the shoulder belt tongue should always remain inserted in the shoulder belt buckle.
- o Do not wear the lap belt across the shoulder belt.
- o Be careful not to damage the belt webbing or hardware, and that they do not get caught or pinched in the seat or doors.

FEATURES OF YOUR HYUNDAI

- o While closing the front door of your Excel, make sure the seat back is reclined sufficiently to allow the free movement of the shoulder belts. Any contact between the seat cushions and shoulder belts may result in the shoulder belt being pinched by the door (When closed).
- o Hyundai recommends that children be seated in the rear seats.
- o Avoid wearing twisted seat belts.
- o Release the shoulder belt buckle from the tongue only in an emergency.
- o The retractors lock only on sudden impact or stops. The belt will allow some freedom of movement if done slowly.

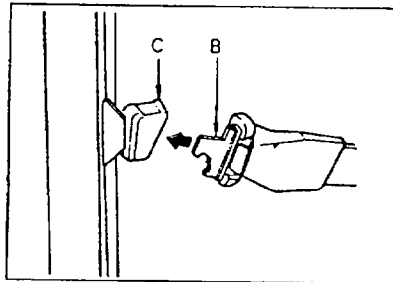
ZB09N1-A

How The Passive Seat Belt System Works

The metal tab (B) is inserted in the buckle (C) which is fastened firmly to the upper rear edge of the door. The other end of the belt is wound automatically on the Web Locking Retractor (A) under the seat.

When you open the front doors, it extends the belt from the retractor and provides access to the interior. When the door is closed, the belt automatically places itself diagonally across the chest.

The seat belt automatically adjusts to the proper length. If you lean forward in a slow, easy motion, the belt will extend and let you move around. If there is a sudden stop or impact, however, the belt will lock into position. It will also lock if you try to lean forward too quickly.



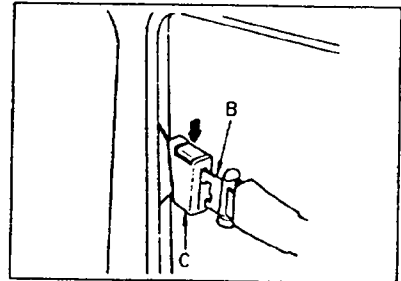
ZB0901-A

To Release The Seat Belt

If required, press the emergency release button on the buckle (C) marked PRESS EMERGENCY.

When it is released, the belt tab (B) should automatically drawback into the retractor.

For your safety, we recommend that you hold the belt tab (B) with your hand and allow it to retract gently.



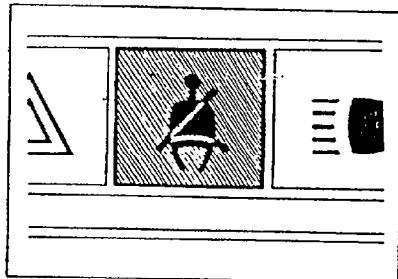
FEATURES OF YOUR HYUNDAI

ZB09P2-A

SEAT BELT WARNING LIGHT AND CHIME

With the key in the "ON" position and the lap belt unfastened, the seat belt warning light will stay on and the chime will sound for six seconds. (Driver's only).

If the shoulder belt is disconnected while the key is in the "ON" position, the warning light will flash for 60 seconds. (Driver's only).



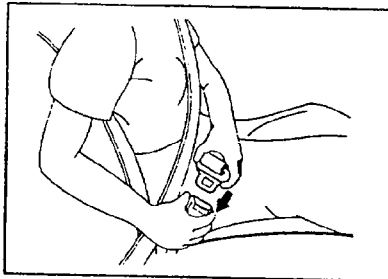
ZB09Q1-A

LAP BELTS (2-Point Emergency Locking Retractor Type) (Front Seat)

To Fasten Your Lap Belt

To fasten your seat belt, pull it out of the retractor and insert the metal tab into the buckle. There will be an audible "click" when the tab locks into the buckle.

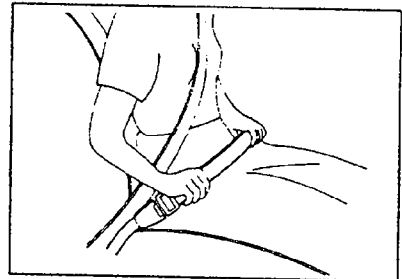
The seat belt automatically adjusts to the proper length only after the lap belt is adjusted manually so that it fits snugly around your hips. If you lean forward in a slow, easy motion, the belt will extend and let you move around. If there is a sudden stop or impact, however, the belt will lock into position. It will also lock if you try to lean forward too quickly.



ZB09R1-A

Adjusting Your Lap Belt

You should place the belt as low as possible on your hips, not on your waist. If located too high on your body, the chances of sliding out from under it and being injured are increased. Pull the belt toward the retractor to take up extra slack.



FEATURES OF YOUR HYUNDAI

ZB09S1-A

To Release the Lap Belt

When you want to release the lap belt, press the button in the locking buckle. The lap belt should then retract automatically. If it does not, make sure it is not twisted and try again.

NOTE:

Inspect both front seat lap belt receivers periodically or immediately after an accident to see if a red "REPLACE BELT" sticker is visible (see figure).

WARNING:

If for any reason the red "REPLACE BELT" sticker is visible on the lap belt receiver, have the entire seat belt assembly replaced immediately. Failure to replace the seat belt assembly may result in serious injury to the occupant in the event of a subsequent accident.

ZB09T1-A

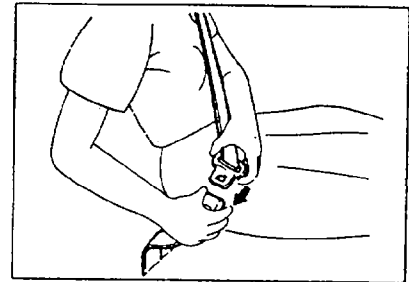
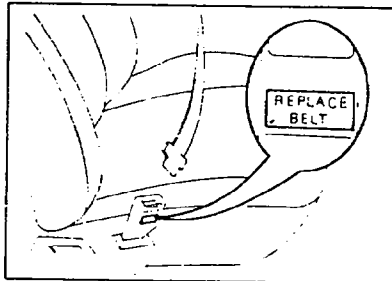
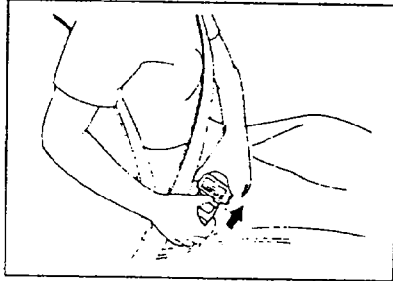
SEAT BELTS

(3-Point Emergency Locking Retractor type) (Rearseat outboard)

To Fasten Your Belt

To fasten your seat belt, pull it out of the retractor and insert the metal tab into the buckle. There will be an audible "click" when the tab locks into the buckle.

The seat belt automatically adjusts to the proper length only after the lap belt is adjusted manually so that it fits snugly around your hips. If you lean forward in a slow, easy motion, the belt will extend and let you move around. If there is a sudden stop or impact, however, the belt will lock into position. It will also lock if you try to lean forward too quickly.

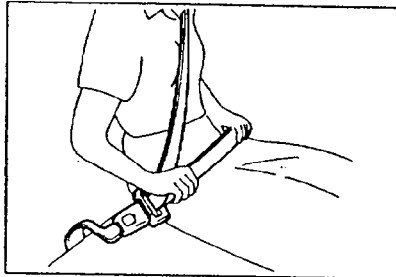


FEATURES OF YOUR HYUNDAI

ZB09U1-A

Adjusting Your Seat Belt

You should place the belt as low as possible on your hips, not on your waist. If located too high on your body, the chances of sliding out from under it and being injured are increased. Both arms should not be under or over the belt. Rather, one should be over and the other under, as shown in the illustration.



ZB09V2-A

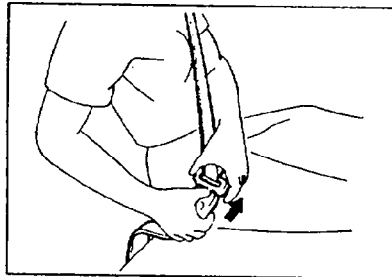
To Release the Seat Belt

The seat belt is released by pressing the release button in the locking buckle. When it is released, the belt should automatically draw back into the retractor.

If this does not happen, check the belt to be sure it is not twisted, then try again.

WARNING:

When you return the rear seatback to its upright position after the rear seatback was folded down, be careful not to damage the belt webbing or hardware, and that they do not get caught or pinched in the rear seat. (For 3 door model only)

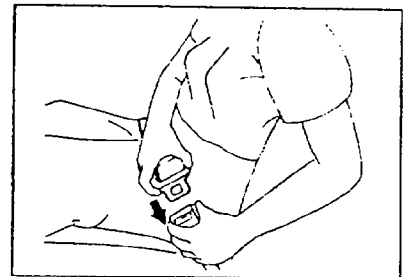


ZB09W1-A

SEAT BELTS (2-Point Static Type) (Rear Seat Center)

To Fasten Your Belt

To fasten a 2-point static type belt, insert the metal tab into the locking buckle. There will be an audible "click" when the tab locks into the buckle. Check to make sure the belt is properly locked and that the belt is not twisted.

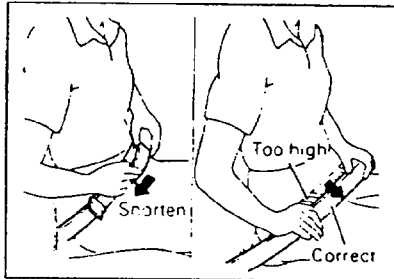


FEATURES OF YOUR HYUNDAI

ZB09X1-A

Adjusting Your Belt

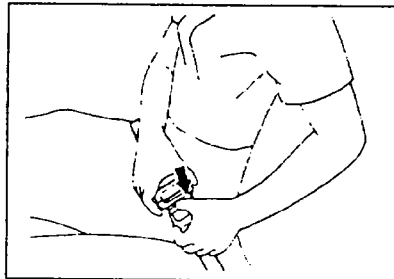
With this type of belt, the length must be adjusted manually so it fits snugly around your body. The belt should be placed as low as possible on your hips, not on your waist. If the belt is too high it could increase the possibility of your being injured in an accident because you could slide under it.



ZB09Y1-A

To Release the Belt

When you want to release the seat belt, press the button in the locking buckle.



ZB10A1-A

CHILD RESTRAINT SYSTEM

Children riding in the car should sit in the rear seat and be restrained to minimize the risk of injury in an accident, sudden stop, or sudden maneuver. According to accident statistics provided by the National Highway Traffic Safety Administration (NHTSA), children are safer when properly restrained in the rear seating positions than in the front seat.

Larger children should use one of the seat belts provided. For smaller children, we strongly recommend the use of a commercially available child restraint system that meets the requirements of the Federal Motor Vehicle Safety Standard, (FMVSS), because it offers the most protection against injury. All states now have laws which require that small children must be seated in a child passenger seat restraint system. Check local laws. All child restraint systems are designed to be secured by lap belts or the lap belt portion of a lap-shoulder belt.

Children could be injured in a crash if their restraints are not properly secured. For small children and babies we strongly recommend a child seat or infant seat. Before buying a particular child restraint system, make sure it fits your car seat and seat belts, and fits your child. Follow all the instructions provided by the manufacturer when installing the child restraint system.

FEATURES OF YOUR HYUNDAI

ZB10B1-A

CAUTION:

- o Since a safety belt or child restraint system can become very hot if it is left in a closed vehicle, be sure and check the seat cover and buckles before placing a child there.
- o When the child restraint system is not in use, store it in the trunk or fasten it with a safety belt so that it will not be thrown forward in the case of a sudden stop or accident.
- o It is recommended that a child restraint system be placed in the vehicle's rear seat since this can make an important contribution to safety.
- o Children who are old enough to sit by themselves should sit in the rear seat and be restrained with the seat belt.
- o Always make sure that the shoulder belt portion of the outboard lap/shoulder belt is positioned midway over the shoulder - never across the neck. The lap belt portion of the lap/shoulder belt or the center seat lap belt must always be positioned as low as possible on your hips, not on your waist. See illustration and instructions on page (1-12).
- o If the seat belt will not properly fit the child, we recommend the use of a suitable booster seat in the rear seat in order to raise the child's seating height so that the seat belt will properly fit the child. Before purchasing a booster seat, make sure that it meets applicable Motor

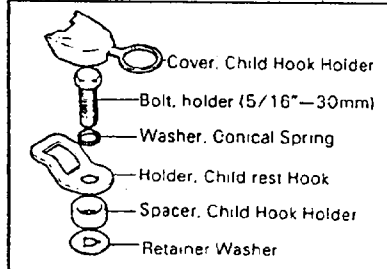
Vehicle Safety Standards and that it is satisfactory for use with this vehicle.

- o Never allow a child to stand up or kneel on the seat.
- o Never use an infant carrier or child safety seat that "hooks" over a seatback; it may not provide adequate security in an accident.
- o Never allow a child to be held in a person's arms while they are in a moving vehicle. As this could result in serious injury to the child in the event of an accident. Holding a child in a moving vehicle does not provide the child with any means of protection during an accident, even if the person holding the child is wearing a seat belt.

ZB10C2-A

Using a Child Restraint System

To install a child hook holder, use a 5/16" 18 UNC thread bolt and 11mm spacer as



indicated in the illustration below. You can damage the holder nut on your vehicle if you force a bolt with a different thread into the holder nut.

In addition to the bolt, you may also need a spacer and a locking clip depending on the vehicle or the position in which the child seat is installed.

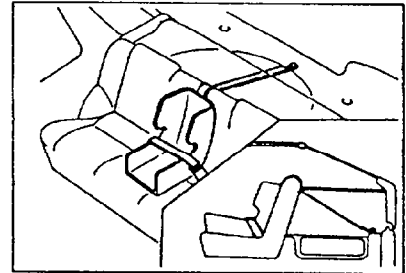
If these parts do not come with your child seat, you can purchase them from your Hyundai dealer.

ZB10D2-A

CHILD HOOK HOLDER NUT LOCATION

(3 Door Model)

The child hook holder nut is located on the rear floor as shown below.

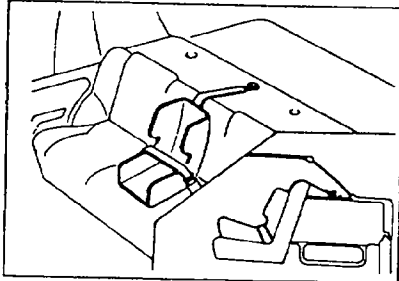


FEATURES OF YOUR HYUNDAI

ZB10E1-A

(4 Door Model)

The child hook holder nut is located on the rear package tray as shown below.

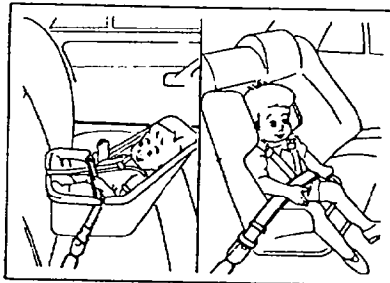


ZB10F1-A

Installation on Rear Seat Center Position

Use the seat belt of the rear seat to install the child restraint system as illustrated. After installation of the child restraint system, shake the child seat back and forth, and side to side to see that it is positively secured with the seat belt. If the child seat moves, readjust the length of the seat belt.

Then, if equipped, insert the child restraint tether strap hook into the child hook holder and tighten to secure the seat. Always refer to the child restraint system manufacturers recommendation before installing your vehicle.



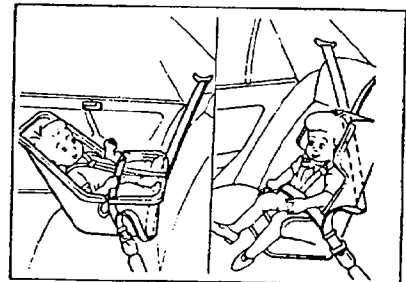
ZB10G1-A

Outboard Shoulder/Lap Belt

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. If your child restraint has a top strap, install the child rest hook holder to the provided anchorage. Secure the child restraint with the outboard lap belt of the rear seat and latch the top strap hook onto the anchor bracket.

NOTE:

- o Before using the locking clip, read the instructions supplied by the manufacturer.
- o Child restraint anchors 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.



FEATURES OF YOUR HYUNDAI

ZB10H1-A

Installation on Front Seat:

To install a child restraint system in the front of your vehicle, a seat belt locking clip is required.

Secure the child restraint system with the lap belt, as shown in the illustration, below. To prevent looseness of the lap belt, use a genuine Hyundai locking clip (available from your Hyundai dealer) or one of equivalent dimension and strength. To install the locking clip, insert the lap through the recesses of the locking clip near the top of the lap belt, as shown in the illustration. (Follow the instructions attached to the locking clip for its use).

When your child restraint system is not installed, the locking clip should be stored in the glove box to prevent it from being lost.

To use a child hook, pull out the rear seat belt and then let it rewind to where it locks. Latch the hook onto the tab of the rear seatbelt and tighten the strap of the child seat.

NOTE:

- o Be sure to secure the child restraint system with the lap belt when using a child hook.
- o On passive restraint vehicles, it is not recommended that a child restraint system be placed in the front seat.
- o You can find helpful instructions on your sun visor for your child restraint.

ZB10H1-A

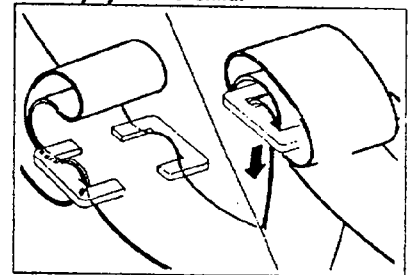
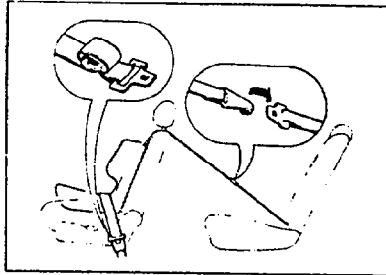
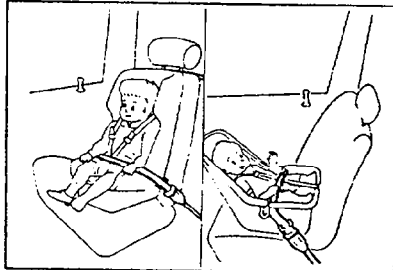
Adjusting The Lap Belt (Front seat)

To prevent slack in the lap belt, it will be necessary to secure the lap belt when you use the child restraint system. Secure the child restraint with the lap belt as illustrated.

1. Pull the lap belt out fully.
2. Tie up the slack of the lap belt using the locking clip at any convenient point along the lap belt. Make the loop as large as possible to remove any slack.
3. After you have tied up the belt, pull on it in the direction of the arrows to make sure that it does not slip.

WARNING:

Never install the child restraint with the passive seat belt because it is not designed to secure the child restraint. Failure to follow this warning may result in injury to the child.



APPENDIX E
INSTRUMENTATION AND CALIBRATION DATA

THIS PAGE INTENTIONALLY LEFT BLANK

General Test Information

VERSNO: V2 TGID: 1
TITLE: 1992 35 MPH NCAP FRONTAL BARRIER IMPACT
TSTOBJ: ACQUIRE NCAP DATA USING TWO INSTR. DUMMIES AND LOAD CELL BARRIER
TSTDAT: 19/MAY/92 TSTPRF: MSE CONNO: DTNH22-90-D-32121
TSTREF: MN0502 TSTTYP: NCA TSTCFN: VTB
TKSURF: CON TKCOND: DRY TEMP: 78 RECTYP: FMT
LINK: UMB CLSSPD: 34.6 IMPANG: 0 OFFSET: 0.0
IMPPNT: 9999.9 MEASUR: ENG TOTCRV: 60
TSTCOM: NO COMMENTS

Vehicle Information

VGID: 2 VEHNO: 1 MAKE: 34 MODEL: 99 YEAR: 92 BODY: 4S
 VIN: KMHVF12J3NU535335 ENGINE: 4CTF ENGDISP: 1.5 LITERS TRANSM: AF
 VEHTWT: 2701 WHLBAS: 93.8 VEHLLEN: 164.2 VEHWID: 63.1
 VEHCG: 39.7 STRSEP: NO COLMEC: CYL MODIND: P
 MODDSC: UNMODIFIED

BX

1: 164.2
 2: 142.2
 3: 122.2
 4: 89.5
 5: 89.0
 6: 110.7
 7: 110.7
 8: 69.7
 9: 69.7
 10: 73.7
 11: 73.7
 12: 111.2
 13: 111.2
 14: 122.2
 15: 121.7
 16: 93.2
 17: 15.0
 18: 16.5
 19: 159.7
 20: 159.7
 21: 5.8

VEHSPD: 34.6 CRBANG: 0 PDOF: 0 BMPENG: NA
 SILENG: NA APLENG: NA

DPD

1: 20.5
 2: 21.8
 3: 23.2
 4: 23.7
 5: 22.8
 6: 21.4

VDI: 12FCAW9 LENCNT: 52.0 DAMDST: 0.0 CRHDST: 24.1

AX

1: 140.1
 2: 132.2
 3: 114.7
 4: 88.0
 5: 88.2
 6: 109.5
 7: 109.7
 8: 68.7
 9: 69.0
 10: 72.8
 11: 72.8
 12: 110.0
 13: 110.0
 14: 116.0
 15: 117.0
 16: 110.0
 17: 13.5
 18: 15.5
 19: 139.6
 20: 140.2
 21: 5.8

CARANG: 999 VEHOR: 999
 VENCOM: VEHICLE MODEL IS EXCEL.

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: 830
DUMMOD: UNMODIFIED
DUMOSC: NO COMMENTS
HH: 12.0 HW: 14.3 HR: 3.8 HS: 7.1 CD: 21.8 CS: 15.0 AD: 2.7 HD: 6.0
KD: 6.8 HB: 999.9 NB: 999.9 CB: 999.9 KB: 999.9
RESTR1: 3PT RESTR2: SWE
REXTXT: NO COMMENTS
SEPOSN: CN AIRDEP: NA
CNTRH1: SR CNTRH2: SH CNTRC1: SW CNTRC2: NO CNTRL1: DP CNTRL2: NO
HIC: 519. T1: 67.800 T2: 91.700
CLIP3M: 52.4 LFEM: 1137. RFEM: 1829. CSI: 442. LBELT: 740. SBELT: 2752.
OCCCOM: DRIVER HEAD IMPACTED WITH PASSENGER HEAD WHILE IN REBOUND.

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: 814
DUMMOD: UNMODIFIED
DUMDSC: NO COMMENTS
HH: 11.8 HW: 14.4 HR: 4.2 HS: 6.4 CD: 21.4 CS: 999.9 AD: 2.4 HD: 6.2
KD: 7.7 HB: 999.9 NB: 999.9 CB: 999.9 KB: 999.9
RESTR1: 3PT RESTR2: NON
REXTXT: NO COMMENTS
SEPOSN: CN AIRDEP: NA
CNTRH1: DP CNTRH2: OT CNTRC1: NO CNTRC2: NO CNTRL1: DP CNTRL2: NO
HIC: 544. T1: 70.800 T2: 106.800
CLIP3M: 36.8 LFEM: 817. RFEM: 993. CSI: 358. LBELT: 656. SBELT: 2005.
OCCCOM: PASSENGER HEAD IMPACTED WITH DRIVER HEAD WHILE IN REBOUND.

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: BJ27H			
CALDAT: 26/MAR/92	INSRAT: 200	CHLMAX: 85	INIVEL: 34.6
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: BG78H			
CALDAT: 26/MAR/92	INSRAT: 200	CHLMAX: 63	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: AR39			
CALDAT: 26/MAR/92	INSRAT: 200	CHLMAX: 26	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: BF83H			
CALDAT: 26/MAR/92	INSRAT: 200	CHLMAX: 30	INIVEL: 34.6
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: BJ15H			
CALDAT: 26/MAR/92	INSRAT: 200	CHLMAX: 24	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 006	
SENTYP: AC	SENLOC: 01	SENATT: CHST	
AXIS: ZL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: 8G29H			
CALDAT: 26/MAR/92	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: 634			
CALDAT: 07/APR/92	INSRAT: 3000	CHLMAX: 38	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: 550			
CALDAT: 07/APR/92	INSRAT: 3000	CHLMAX: 83	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 009	
SENTYP: AC	SENLOC: 02	SENATT: HDCG	
AXIS: XL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-200, S/N: AE09			
CALDAT: 26/MAR/92	INSRAT: 200	CHLMAX: 20	INIVEL: 34.6
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: 26/MAR/92	INSRAT: 200	CHLMAX: 86	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 011	
SENTYP: AC	SENLOC: 02	SENATT: HDCG	
AXIS: ZL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-200,	S/N: AD98		
CALDAT: 26/MAR/92	INSRAT: 200	CHLMAX: 32	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 012	
SENTYP: AC	SENLOC: 02	SENATT: CHST	
AXIS: XL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-200,	S/N: B114H		
CALDAT: 26/MAR/92	INSRAT: 200	CHLMAX: 28	INIVEL: 34.6
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: 26/MAR/92	INSRAT: 200	CHLMAX: 40	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 014	
SENTYP: AC	SENLOC: 02	SENATT: CHST	
AXIS: ZL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-200,	S/N: B192H		
CALDAT: 26/MAR/92	INSRAT: 200	CHLMAX: 13	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 015	
SENTYP: LC	SENLOC: 02	SENATT: FMRL	
AXIS: XL	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: GSE INC, MODEL: 2430,	S/N: 559		
CALDAT: 07/APR/92	INSRAT: 3000	CHLMAX: 28	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: 07/APR/92	INSRAT: 3000	CHLMAX: 34	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: CF
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 017	
SENTYP: LC	SENLOC: 01	SENATT: LPB0	
AXIS: OT	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371,	S/N: 333	
CALDAT: 09/APR/92	INSRAT: 3500	CHLMAX: 24	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: 09/APR/92	INSRAT: 3500	CHLMAX: 81	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 019	
SENTYP: LC	SENLOC: 02	SENATT: LPB0	
AXIS: OT	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371,	S/N: 330	
CALDAT: 09/APR/92	INSRAT: 3500	CHLMAX: 20	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: 09/APR/92	INSRAT: 3500	CHLMAX: 58	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: INS	PREFIL: 1650	
INSMAN: MFG: ETI, MODEL: LCP12A-12, S/N: 1			
CALDAT: 19/MAY/92	INSRAT: 25	CHLMAX: 0	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: SEAT BELT ELONGATION, UNITS ARE IN./IN.			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 022	
SENTYP: DS	SENLOC: 02	SENATT: SHBT	
AXIS: OT	UNITS: INS	PREFIL: 1650	
INSMAN: MFG: ETI, MODEL: LCP12A-12, S/N: 2			
CALDAT: 19/MAY/92	INSRAT: 25	CHLMAX: 0	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: SEAT BELT ELONGATION, UNITS ARE IN./IN.			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 023	
SENTYP: DS	SENLOC: 01	SENATT: SHBE	
AXIS: OT	UNITS: OTH	PREFIL: 1650	
INSMAN: MFG: CELESCO, MODEL: 20 IN., S/N: NA			
CALDAT: 19/MAY/92	INSRAT: 20	CHLMAX: 0	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: NO
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 024	
SENTYP: DS	SENLOC: 02	SENATT: SHBE	
AXIS: OT	UNITS: OTH	PREFIL: 1650	
INSMAN: MFG: MSE, MODEL: 24 IN. LIN., S/N: 112			
CALDAT: 19/MAY/92	INSRAT: 24	CHLMAX: 0	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: NO
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 025	
SENTYP: AC	SENLOC: NA	SENATT: SULF	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR, MODEL: 3031-200, S/N: 25-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 128	INIVEL: 34.6
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 026	
SENTYP: AC	SENLOC: NA	SENATT: SURF	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR, MODEL: 3031-200, S/N: 21-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 204	INIVEL: 34.6
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 027	
SENTYP: AC	SENLOC: NA	SENATT: ENGN	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR, MODEL: 3031-200, S/N: 30-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 161	INIVEL: 34.6
NFP: -300	NLP: 2999	DELT: 100	DASTAT: CF
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 028	
SENTYP: AC	SENLOC: NA	SENATT: ENGN	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR, MODEL: 3031-200, S/N: 20-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 171	INIVEL: 34.6
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 029	
SENTYP: AC	SENLOC: NA	SENATT: DPLC	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR, MODEL: 3031-200, S/N: 22-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 54	INIVEL: 34.6
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 030	
SENTYP: AC	SENLOC: NA	SENATT: FLLR	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR, MODEL: 3031-200, S/N: 24-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 34	INIVEL: 34.6
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 031	
SENTYP: AC	SENLOC: NA	SENATT: FLRR	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR, MODEL: 3031-200, S/N: 27-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 29	INIVEL: 34.6
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 032	
SENTYP: AC	SENLOC: NA	SENATT: SECR	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR, MODEL: 3031-200, S/N: 26-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 24	INIVEL: 34.6
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 033	
SENTYP: AC	SENLOC: NA	SENATT: TRFC	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR, MODEL: 3031-200, S/N: 29-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 33	INIVEL: 34.6
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 034	
SENTYP: LC	SENLOC: NA	SENATT: LCA1	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19349			
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 0	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 035	
SENTYP: LC	SENLOC: NA	SENATT: LCA2	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS, S/N: 19324			
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 5	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 036	
SENTYP: LC	SENLOC: NA	SENATT: LCA3	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,		S/N: 19283	
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 8	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 037	
SENTYP: LC	SENLOC: NA	SENATT: LCA3	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,		S/N: 19263	
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 25	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 038	
SENTYP: LC	SENLOC: NA	SENATT: LCA5	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,		S/N: 19265	
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 13	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 039	
SENTYP: LC	SENLOC: NA	SENATT: LCA6	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,		S/N: 19266	
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 13	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 040	
SENTYP: LC	SENLOC: NA	SENATT: LCA7	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,		S/N: 19317	
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 31	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: QD
INSCOM: QUESTIONABLE DATA AFTER 50 MSEC.			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 041	
SENTYP: LC	SENLOC: NA	SENATT: LCA8	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19270		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 5	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 042	
SENTYP: LC	SENLOC: NA	SENATT: LCA9	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19428		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 0	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 043	
SENTYP: LC	SENLOC: NA	SENATT: LCB1	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19273		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 0	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 044	
SENTYP: LC	SENLOC: NA	SENATT: LCB1	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19276		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 24	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 045	
SENTYP: LC	SENLOC: NA	SENATT: LCB3	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19258		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 17	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 046	
SENTYP: LC	SENLOC: NA	SENATT: LCB4	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19278		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 4	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 047	
SENTYP: LC	SENLOC: NA	SENATT: LCB5	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19279		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 33	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 048	
SENTYP: LC	SENLOC: NA	SENATT: LCB6	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19282		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 26	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 049	
SENTYP: LC	SENLOC: NA	SENATT: LCB7	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19262		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 16	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 050	
SENTYP: LC	SENLOC: NA	SENATT: LCB8	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19285		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 6	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 051	
SENTYP: LC	SENLOC: NA	SENATT: LC89	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19286		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 0	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 052	
SENTYP: LC	SENLOC: NA	SENATT: LCC1	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19287		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 0	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 053	
SENTYP: LC	SENLOC: NA	SENATT: LCC2	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19288		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 15	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 054	
SENTYP: LC	SENLOC: NA	SENATT: LCC3	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19289		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 6	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 055	
SENTYP: LC	SENLOC: NA	SENATT: LCC4	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,	S/N: 19291		
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 6	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 056	
SENTYP: LC	SENLOC: NA	SENATT: LCC5	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,		S/N: 19324	
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 7	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 057	
SENTYP: LC	SENLOC: NA	SENATT: LCC6	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,		S/N: 19313	
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 4	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 058	
SENTYP: LC	SENLOC: NA	SENATT: LCC7	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,		S/N: 19314	
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 7	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 059	
SENTYP: LC	SENLOC: NA	SENATT: LCC8	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,		S/N: 19315	
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 11	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 060	
SENTYP: LC	SENLOC: NA	SENATT: LCC9	
AXIS: XG	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: INTERFACE, MODEL: 1220-FS,		S/N: 19316	
CALDAT: 11/SEP/89	INSRAT: 50000	CHLMAX: 0	INIVEL: 0.0
NFP: -300	NLP: 2877	DELT: 120	DASTAT: AM
INSCOM:			

CALIBRATION DATA FOR INSTRUMENTATION USED IN DUMMY CALIBRATION

DUMMY INSTRUMENTS	MFR	MODEL	S/N	CAL DATE	CAL DUE DATE
CHEST DEFLECTION POT	BECKMAN	5311	N/A	EACH USE	EACH USE
CHEST IMPACTOR ACCEL	ENTRAN	EGV-1	14N3N-V13-1	03/17/92	09/17/92
NECK PENDULUM ACCEL	"	"	"	"	"
NECK ROTATION NO. 1	BECKMAN	5311	N/A	EACH USE	EACH USE
NECK ROTATION NO. 2	BECKMAN	5311	N/A	EACH USE	EACH USE
NECK EXTENSION POT	BOURNS	80294-20518-1840202	1684-067	EACH USE	EACH USE
ABDOMINAL COMPRESSION LOAD	LEBOW/EATON	3167	1573	03/17/92	09/17/92
LUMBAR FLEXION LOAD	"	"	"	"	"
LUMBAR ROTATION	BOURNS	3590S-2-102	N/A	EACH USE	EACH USE
ABDOMINAL DISPLACEMENT	CELESCO	PT-101-15B	0786551	EACH USE	EACH USE
TIMER	MSE	MSE TIM	#1	02/18/92	02/18/92
TIME TRAP	MSE	1"	#1	08/18/92	08/18/92