

V1860

**OFFICE OF MARKET INCENTIVES
SIDE IMPACT PROTECTION STUDY
PASSENGER CARS**

VOLVO GOTHENBURG SWEDEN

1992 VOLVO 940 GLS, 4-DOOR SEDAN

NHTSA NO.: MN5901

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



12 MAY 1992

FINAL REPORT

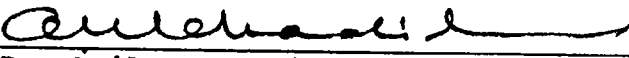
Prepared Under Contract No. DTNH22-87-C-07168, D.O. #4

For

**U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Rulemaking
Office of Market Incentives
400 Seventh Street, S.W.
Washington, DC 20590**

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7. Author(s) DR. ANIL V. KHADILKAR/MR. JERRY KRATZKE/ MR. BRIAN O'KEEFE/MR. PAT PUZZUTO		8. Performing Organization Report No. R92038-02																						
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15. Supplementary Notes																								
16. Abstract A 34/17 mph 90° Impact (Moving Deformable Barrier) Test was conducted on the subject 1992 Volvo 940 GLS, 4-Door Sedan in accordance with the specifications of the Office of Market Incentives "Side Impact Protection Study" Test Procedure. The test was conducted at the MSE facility in San Bernardino, on April 22, 1992. The impact velocity of the Moving Deformable Barrier (MDB) was 38.44 mph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 78 °F. The target vehicle post test maximum crush was 18.00 inches at level 2. The test vehicle's performance follows: <table border="1"> <thead> <tr> <th></th> <th>DRIVER</th> <th>PASS</th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td>86.0</td> <td>44.0</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td>71.0</td> <td>61.0</td> </tr> <tr> <td>Lower Spine (T) Accel., g</td> <td>99.0</td> <td>53.0</td> </tr> <tr> <td>12</td> <td></td> <td></td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td>92.5</td> <td>57.0</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td>66.0</td> <td>116.0</td> </tr> </tbody> </table> The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during side impact event.					DRIVER	PASS	Left Upper Rib (LUR) Accel., g	86.0	44.0	Left Lower Rib (LLR) Accel., g	71.0	61.0	Lower Spine (T) Accel., g	99.0	53.0	12			Thoracic Trauma Index (TTI)	92.5	57.0	Pelvis (PEV) Accel., g	66.0	116.0
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17. Key Words OMI SIDE IMPACT PROTECTION STUDY SIDE IMPACT DUMMY (SID) 1992 VOLVO 940 GLS		18. Distribution Statement COPIES OF THIS REPORT ARE AVAILABLE FROM: NATIONAL HIGHWAY TRAFFIC SAFETY ADMIN. TECHNICAL REFERENCE DIVISION DOCKET SECTION, RM. 5108 (DOC. NO.91-02) 400 7TH ST., SW, WASHINGTON, DC 20590 (202) 366-4949																						
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METRIC CONVERSION FACTORS

APPROXIMATE CONVERSIONS FROM METRIC MEASURES

SYMBOL WHEN YOU KNOW MULTIPLY BY TO FIND SYMBOL

LENGTH

m	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi

AREA

cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000m ²)	2.5	acres	

MASS (weight)

g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000kg)	1.1	short tons	

VOLUME

ml	milliliters	8.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	36	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³

TEMPERATURE (exact)

°C	Celsius	9/5 (then add 32)	Fahrenheit	°F

APPROXIMATE CONVERSIONS FROM METRIC MEASURES

SYMBOL WHEN YOU KNOW MULTIPLY BY TO FIND SYMBOL

LENGTH

in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km

AREA

in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha

MASS (weight)

oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000lb)	0.9	tonnes	t

VOLUME

fl oz	fluid ounces	5	milliliters	ml
pt	pints	16	milliliters	ml
qt	quarts	30	milliliters	ml
gal	gallons	0.24	liters	l
ft ³	cubic feet	0.47	liters	l
yd ³	cubic yards	0.95	liters	l
		3.8	liters	l
		0.03	cubic meters	m ³
		0.76	cubic meters	m ³

TEMPERATURE (exact)

°F	Fahrenheit	5/9 (after subtracting 32)	Celsius	°C

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SECTION 1

PURPOSE OF TEST

A 1992 Volvo 940 GLS, 4-door sedan was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in 27 degree crabbed position to the tow road guidance system at a velocity of 38.44 mph. The target vehicle was stationary and was positioned at an angle of 63 degree to the line of forward motion. The side impact test was conducted by the Mobility Systems and Equipment Co., on April 22, 1992. Pretest and posttest photographs of the test vehicle, the MDB and the side impact dummies (SIDs) are included in this report.

Two SIDs were placed in the driver and left rear designated seating positions according to instructions specified in the OMI Side Impact Protection Study Laboratory Test Procedure which is dated December 1991. The side impact event was documented by 10 cameras. Camera locations and other pertinent camera information are included in this report.

The SIDs were instrumented with the following accelerometers:

1. Left Upper Rib (LUR) uniaxial accelerometer
(Y-direction) (Primary and Redundant)
2. Left Lower Rib (LLR) uniaxial accelerometer
(Y-direction) (Primary and Redundant)
3. Lower Thoracic Spine (T₁₂) uniaxial accelerometer
(Y-direction) (Primary and Redundant)
4. Pelvic (PEV) section uniaxial accelerometer
(Y-direction).

In addition, the following transducers were included for each SID.

5. Upper Thoracic Spine (T₀₁) uniaxial accelerometer
(Y-direction) (Primary and Redundant)
6. Triaxial Accelerometer in SID Head
7. Lap Belt Load Cell
8. Shoulder Belt Load Cell

Total number of transducers per SID were:

12	Accelerometers
<u>2</u>	Belt Load cells
14	Total

SECTION 2

DATA SUMMARY

A 1992 Volvo 940 GLS, NHTSA No. MN5901 was subjected to a side impact test at Mobility Systems and Equipment Co. on April 22, 1992. This section provides a summary of test results from the test. The results are presented in Data Sheet No. 1.

This testing program is a part of an investigation and evaluation of side impact protection in production passenger cars. The test is specifically intended to simulate a 90 deg. intersection collision with the striking vehicle moving at 34 mph and the struck vehicle moving at 17 mph. This is accomplished by towing a Moving Deformable Barrier (MDB) crabbed in a stationary position. The velocity of the MDB is to be 38.0 ± 0.5 mph. The target impact point of the MDB is to be: the left edge of the MDB face to impact a point on the struck vehicle 37 ± 2 inches ahead of the midpoint of the wheelbase of the vehicle.

The actual test speed was 38.44 mph. The actual impact point was the exact target impact point.

DATA SHEET NO. 1

SUMMARY OF RESULTS

VEH. MOD.YR/MAKE/MODEL: 1992 VOLVO 940 GLS (WHITE)

VEH. BODY STYLE: 4 DOOR SEDAN

VIN: YV1JS881XNA062060

VEH. NHTSA NO.: MN5901

VEH. BUILD DATE: 10/91

TEST DATE: 04/22/92

TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY

TEST RESULTS:

Vehicle Overall Length = 191.75 inches; Vehicle Overall Width 68 inches

Vehicle Test Weight: 986 lbs. Left Front

886 lbs. Left Rear

990 lbs. Right Front

887 lbs. Right Rear

1976 lbs. TOTAL FRONT

1773 lbs. TOTAL REAR

Wheelbase = 109 inches

Longitudinal C.G. from center of front axle = 51.6 inches

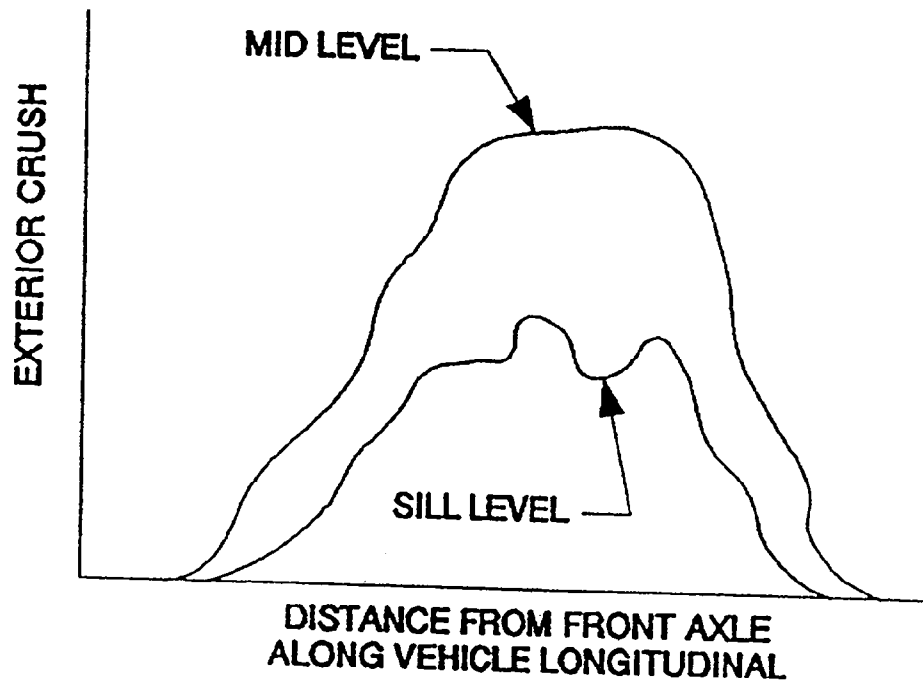
Impact Angle with respect to impactor = 90 degrees

Maximum Exterior Static Crush (provide External Damage Profile on next page):

1. LEVEL 1 (11.50 inches above ground) = 11.10 inches
2. LEVEL 2 (22.00 inches above ground) = 18.00 inches
3. LEVEL 3 (23.63 inches above ground) = 17.60 inches
4. LEVEL 4 (34.25 inches above ground) = 17.10 inches
5. LEVEL 5 (52.5 inches above ground) = 5.70 inches

Maximum Post Test Intrusion = 18.00 inches

External Lateral Damage Profile (sample shown below)



Occupants:

Dummy Identification

DRIVER

PASS. (LEFT REAR)

SID # 136

SID # 137

Restraint Used

Auto Belts

Manual Belts

& Driver Side Airbag

Instrumentation:

Number of Data Channels = 50

Number of Cameras: Onboard = 3

Offboard = 6 (2 on MDB)

Door Opening:

LEFT SIDE

RIGHT SIDE

FRONT --

NO

No

REAR --

No

No

Arm Rest Location:

Front -- N/A

Rear -- Center of Seat

Front Seat Cushion Movement: SEAT MOVED TO RIGHT AND BACK

Front Seat Back Movement: MOVED TO RIGHT MORE AT TOP THAN BELOW

Glazing Breakage: REAR PASSENGER WINDOW SHATTERED ON IMPACT, LEFT SIDE WINDSHIELD CRACKED, BUT INTACT.

Pillar Failure: NONE

Sill Separation: NONE

Other Notable Impact Effect: NONE

MOVING DEFORMABLE BARRIER (MDB) RESULTS:

Overall Width of Framework Carriage = 52.5 inches

Overall Length of MDB = 158 inches (including honey comb impact face)

Wheelbase of Frame work Carriage (front and Rear) = 102 inches

C.G. Location of Rearward of Front Axle = 44.50 inches

MDB Weight: 835 lbs. Left Front

645 Left Rear

835 lbs. Right Front

645 Right Rear

1670 lbs. TOTAL FRONT

1290 TOTAL REAR

TOTAL WEIGHT OF MDB = 2960 lbs.

Impact Angle (MDB Centerline to Target Vehicle Centerline) = 90 degrees

Impact Speed = 38.44 mph

Maximum Static Crush of Honeycomb Impact Face:

1. ROW A at bumper level = 5.3 inches

2. ROW B at midstack level = 2.3 inches

3. ROW C at top of stack level = 6.4 inches

Instrumentation:

Number of MDB Data Channels = 5

SIDE IMPACT DUMMY (SID) RESULTS

Location of B-Post Upper Anchorage Bolt or Side Rail (Auto. Belts) for Head Contact Analysis:
B- POST UPPER ANCHORAGE BOLT IS 22" ABOVE B-POST STRIKER

Visible Dummy Contact Points--

	<u>FRONT SID</u>	<u>REAR SID</u>
HEAD	B-PILLAR, RIGHT FRONT SEAT	C-PILLAR, HEADREST(BACK)
<i>Shoulder + SIDE</i> CHEST	B-PILLAR, DOOR	DOOR
<i>HIP</i> ABDOMEN	DOOR	DOOR
LEFT KNEE	DOOR	DOOR, FRONT SEAT
RIGHT KNEE	DOOR	FRONT SEAT

	FRONT SID # <u>136</u>				REAR SID # <u>137</u>			
	+DIRECT		-DIRECT		+DIRECT		-DIRECT	
	MaxG ms		MaxG ms		MaxG ms		MaxG ms	
RIB ACCELERATIONS:								
Upper Rib Lateral Y	<u>86</u>	<u>24</u>	<u>48</u>	<u>68</u>	<u>44</u>	<u>44</u>	<u>4</u>	<u>146</u>
Lower Rib Lateral Y	<u>71</u>	<u>23</u>	<u>30</u>	<u>65</u>	<u>61</u>	<u>43</u>	<u>8</u>	<u>65</u>
SPINE ACCELERATIONS:								
Lower Lateral Y	<u>99</u>	<u>27</u>	<u>27</u>	<u>62</u>	<u>53</u>	<u>39</u>	<u>30</u>	<u>65</u>
PELVIS ACCELERATIONS:								
Lateral Y	<u>66</u>	<u>29</u>	<u>14</u>	<u>109</u>	<u>116</u>	<u>35</u>	<u>31</u>	<u>69</u>

REFERENCE: (+) DIRECTION Lateral Y = to the right
 (-) DIRECTION Lateral Y = to the left

REMARKS:

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/22/92

APPROVED BY: *[Signature]*

SIDE IMPACT DUMMY (SID) TEST DATA SUMMARY
1992 VOLVO 940 GLS, 4-DOOR SEDAN, NHTSA NO. MN5901

TEST DATE: 04/22/92

	FRONT DUMMY -- ID # 136				REAR DUMMY -- ID # 137			
	POS.	DIRECT	NEG.	DIRECT	POS.	DIRECT	NEG.	DIRECT
	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
HEAD ACCELERATIONS:								
Longitudinal --- X	12	34	22	43	8	40	31	54
Lateral ----- Y	130	43	7	28	132	54	13	43
Vertical ----- Z	27	47	15	43	41	65	24	53
RESULTANT ----- R	132	43	0	11	137	54	0	8
HIC ----- (TIME INTERVAL, SEC.)	583 (0.0444 TO 0.0804)				629 (0.0501 TO 0.0778)			
RIB ACCELERATIONS:								
1.Upper Rib Lateral Y	86	24	48	68	44	44	4	146
2.Upper Rib Lateral Y	91	24	45	68	44	44	3	146
1.Lower Rib Lateral Y	71	23	30	65	61	43	8	65
2.Lower Rib Lateral Y	76	23	30	65	62	43	8	65
SPINE ACCELERATIONS:								
1.Upper Lateral Y	90	38	30	61	47	53	10	38
2.Upper Lateral Y	90	38	29	61	N/AV	N/AV	N/AV	N/AV
1.Lower Lateral Y	99	27	27	62	53	39	30	65
2.Lower Lateral Y	99	27	27	62	53	39	25	65
PELVIS ACCELERATIONS:								
Lateral Y	66	29	14	109	116	35	31	69
RIB DEFLECTION:								
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
THORACIC TRAUMA INDEX (TTI), G's (d)	92.5				57.0			

REFERENCE: Positive Direction -- Longitudinal (X) = forward
Lateral (Y) = to right
Vertical (Z) = down

Negative Direction -- Longitudinal (X) = rearward
Lateral (Y) = to left
Vertical (Z) = up

SECTION 3

SIDE IMPACT DUMMY (SID) AND VEHICLE TEST DATA

This section provides the test results and data for SID and the test vehicle. The data sheets are arranged as shown below:

Data Sheet No. 2: Pretest and Posttest Measurements (vehicle)

Data Sheet No. 3: SID Longitudinal Clearance Dimension

Data Sheet No. 4: SID Lateral Clearance Dimension

Data Sheet No. 5: Vehicle Side Measurements

Data Sheet No.

6A to 6E: Pretest and Posttest Vehicle Exterior Profile
at Levels 1 to 5

Data Sheet No.6F: Summary of Vehicle Exterior Profile Static Crush

Data Sheet No. 7: Exterior Static Crush for Side Impactor

Data Sheet No. 8: Test Vehicle Accelerometer Locations and Data
Summary

Data Sheet No. 9: Moving Deformable Barrier (MDB) Accelerometer
Locations and Data Summary

Data Sheet No.10: High Speed Camera Locations and Data

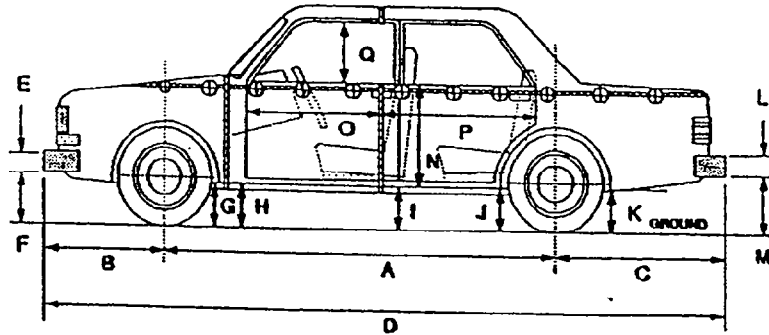
Data Sheet No.11: Test Vehicle Data

DATA SHEET NO. 2 PRE AND POSTTEST MEASUREMENTS (VEHICLE)

VEH.MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS/4 DOOR SEDAN

VEH.NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS & EQUIPMENT CO.



LEFT SIDE VIEW

NOTE: All dimensions are in inches

	PRETEST	POSTTEST	CHANGE
A	109.00	109.50	+ 0.50
B	39.25	39.00	- 0.25
C	43.50	43.50	- 0.00
D	191.75	191.00	- 0.75
E	5.00	5.00	- 0.00
F	14.50	15.25	+ 0.75
G	9.00	10.50	+ 1.50
H	9.00	12.50	- 3.50
I	9.50	12.00	- 2.50
J	9.50	8.25	- 1.25
K	12.10	12.50	- 0.40
L	4.50	4.50	0.00
M	18.25	19.50	1.25
N	26.50	24.50	- 2.00
O	27.00	26.00	- 1.00
P	50.25	47.00	- 3.25
Q	15.5	15.50	0.00

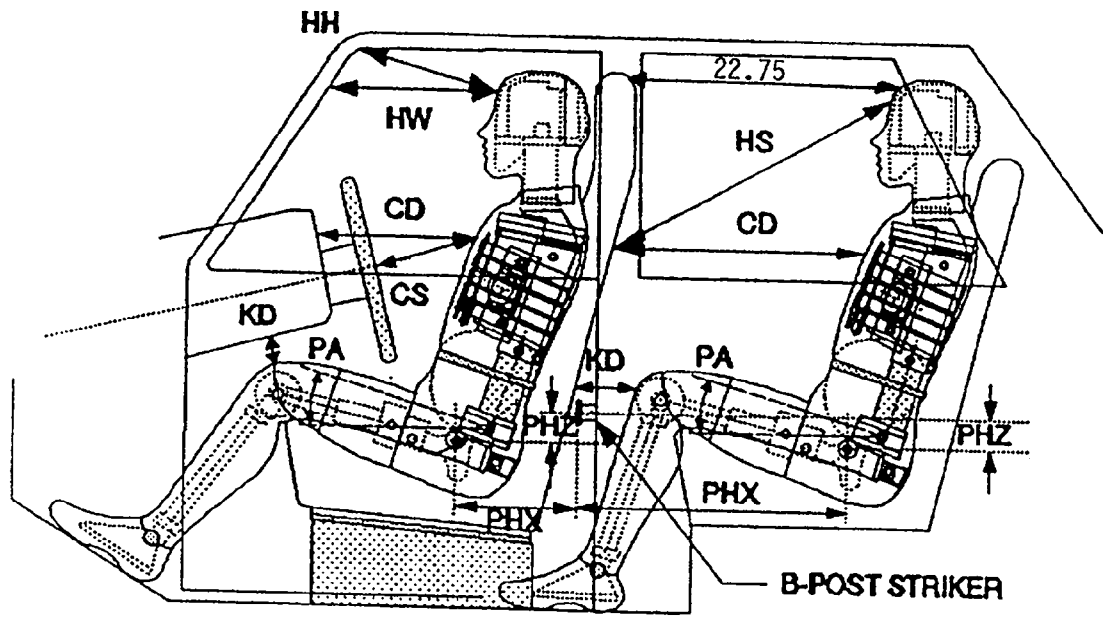
DATA SHEET NO. 3

SID LONGITUDINAL CLEARANCE DIMENSIONS

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

DRIVER SID ID# 136

HH	<u>22.00</u>	inches
HW	<u>27.00</u>	inches
HS	<u>N/A</u>	inches
CD	<u>24.25</u>	inches
CS	<u>14.00</u>	inches
KDL	<u>3.00</u>	inches
KDR	<u>2.50</u>	inches
PA	<u>24.50</u>	degrees
PHX	<u>7.56</u>	inches
PHZ	<u>3.00</u>	inches

REAR SID ID# 137

	<u>N/A</u>	inches
	<u>N/A</u>	inches
	<u>25.50</u>	inches
	<u>16.50</u>	inches
	<u>N/A</u>	inches
	<u>2.38</u>	inches
	<u>2.38</u>	inches
	<u>23.50</u>	degrees
	<u>9.63</u>	inches
	<u>5.56</u>	inches

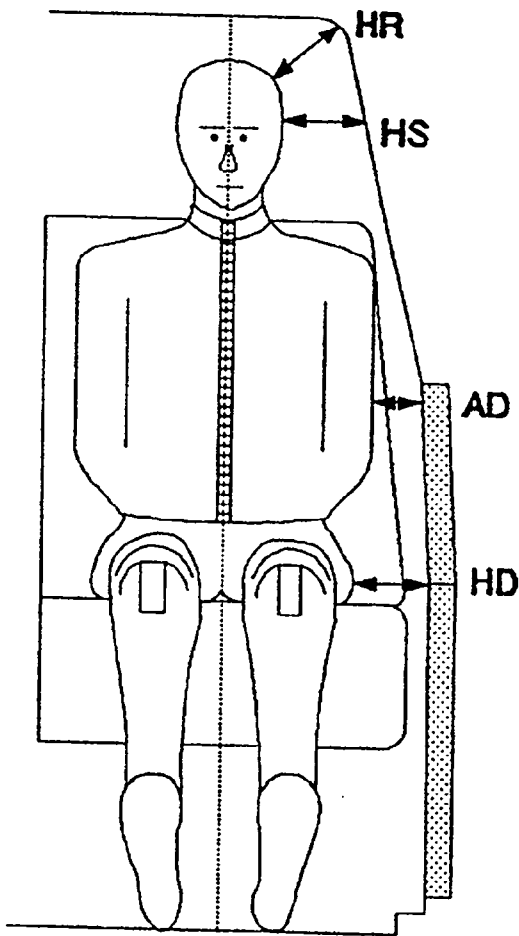
DATA SHEET NO. 4

SID LATERAL CLEARANCE DIMENSIONS

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



DRIVER SID ID# 136

HR	<u>6.13</u>	inches
HS	<u>7.50</u>	inches
AD	<u>3.25</u>	inches
HD	<u>6.50</u>	inches

REAR SID ID# 137

<u>5.00</u>	inches
<u>6.00</u>	inches
<u>3.50</u>	inches
<u>5.50</u>	inches

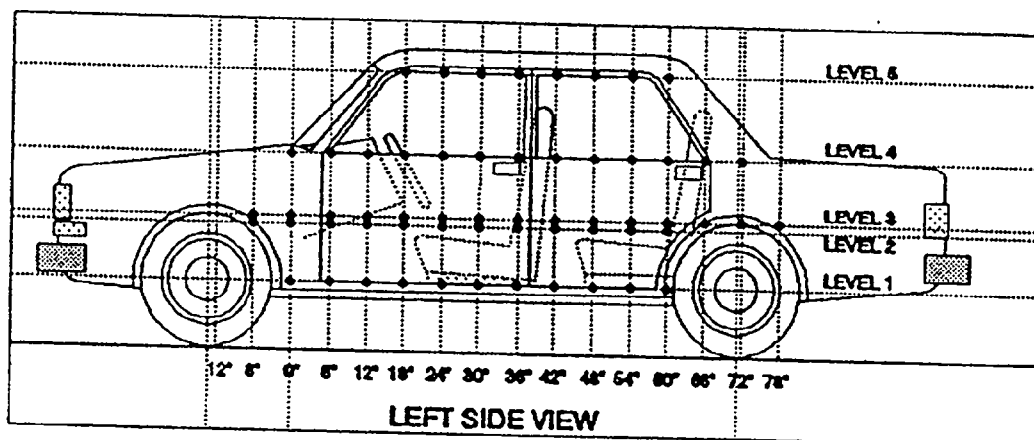
DATA SHEET NO. 5

VEHICLE SIDE MEASUREMENT

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



LEVEL 5 - WINDOW TOP
LEVEL 4 - WINDOW SILL
LEVEL 3 - MID-DOOR
LEVEL 2 - OCCUPANT H-POINT
LEVEL 1 - AXLE CENTERLINE HEIGHT or SILL TOP HEIGHT

MEASUREMENTS ALONG THE VERTICAL 30" LINE SHOWN ABOVE:

LEVEL 5 @ Window Top = 52.50 inches

LEVEL 4 @ Window Sill = 34.30 inches

LEVEL 3 @ Mid Door = 23.60 inches

LEVEL 2 @ Occupant H-Point = 22.00 inches

LEVEL 1 @ Axle Centerline Height = 11.50 inches
(or Sill Top Height)

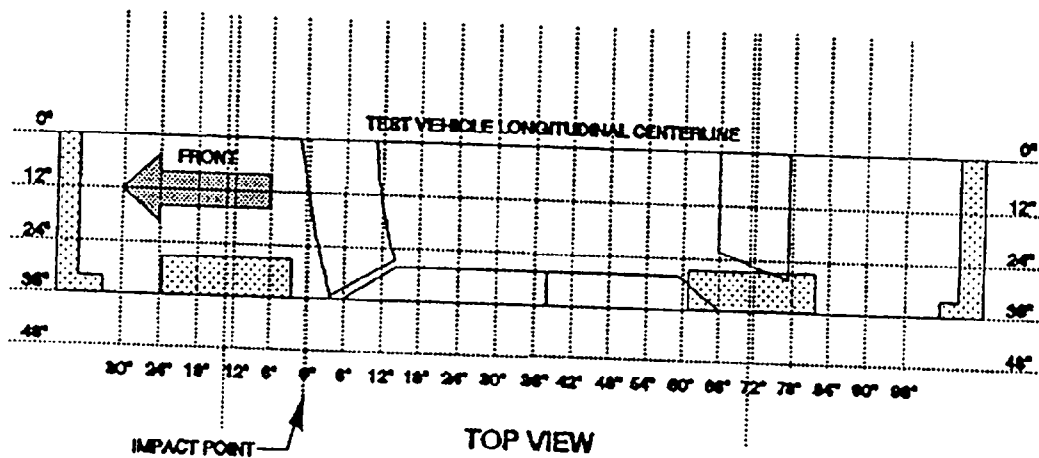
DATA SHEET NO. 6A

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



LEVEL 1 AT AXLE CENTERLINE or TOP SIDE SILL

11.50 INCHES ABOVE GROUND LEVEL AT THE DOOR 30" LINE

ADD PROFILE INFORMATION ON THE NEXT PAGE

NOTE: ALL TEST VEHICLE EXTERIOR PROFILES TAKEN FROM REFERENCE PLANE WHICH IS PARALLEL TO AND 48 INCHES FROM TEST VEHICLE LONGITUDINAL CENTERLINE

LEVEL 1 AT AXLE CENTERLINE

	POST TEST (inches)	PRETEST (inches)	STATIC CRUSH (inches)
-6inches	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
0 inch (impact point)	<u>24.50</u>	<u>16.75</u>	<u>7.75</u>
6 inches	<u>26.50</u>	<u>16.60</u>	<u>9.90</u>
12 inches	<u>27.25</u>	<u>16.60</u>	<u>10.65</u>
18 inches	<u>27.50</u>	<u>16.60</u>	<u>10.90</u>
24 inches	<u>27.75</u>	<u>16.60</u>	<u>11.15</u>
30 inches	<u>27.75</u>	<u>16.60</u>	<u>11.15</u>
36 inches	<u>27.75</u>	<u>16.60</u>	<u>11.15</u>
42 inches	<u>27.75</u>	<u>16.75</u>	<u>11.00</u>
48 inches	<u>27.75</u>	<u>16.75</u>	<u>11.00</u>
54 inches	<u>26.00</u>	<u>16.75</u>	<u>9.25</u>
60 inches	<u>23.25</u>	<u>16.75</u>	<u>6.50</u>
66 inches	<u>22.00</u>	<u>16.75</u>	<u>5.25</u>
72 inches	<u>19.25</u>	<u>16.75</u>	<u>2.50</u>

REMARKS:

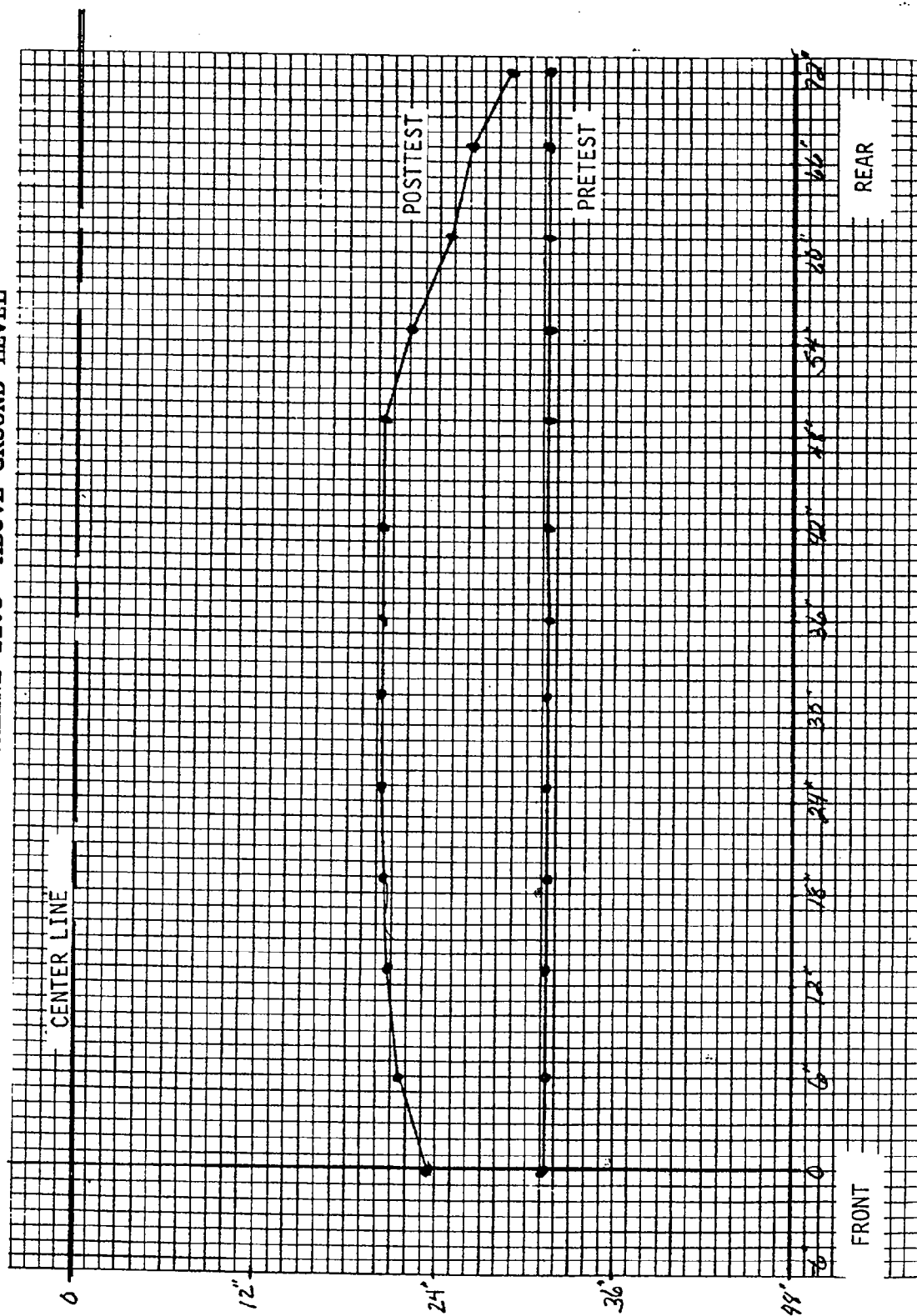
RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/22/92

APPROVED BY: 

DATE: 05/12/92

FIGURE 3-4A PRE AND POSTTEST EXTERIOR PROFILE AT LEVEL 1
AXLE CENTERLINE 11.5" ABOVE GROUND LEVEL



1992 VOLVO 940 GLS, NHTSA NO. MN5901

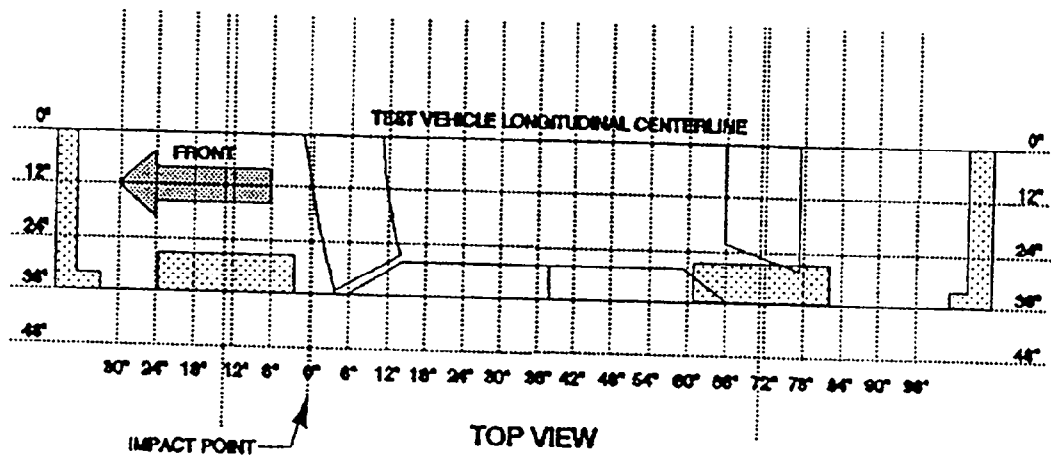
DATA SHEET NO. 6B

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



LEVEL 2 AT OCCUPANT H-POINT

22.00 INCHES ABOVE GROUND LEVEL AT THE DOOR 30" LINE

ADD PROFILE INFORMATION ON THE NEXT PAGE

NOTE: ALL TEST VEHICLE EXTERIOR PROFILES TAKEN FROM REFERENCE PLANE WHICH IS PARALLEL TO AND 48 INCHES FROM TEST VEHICLE LONGITUDINAL CENTERLINE

LEVEL 2 AT OCCUPANT H-POINT

	POST TEST (inches)	PRETEST (inches)	STATIC CRUSH (inches)
-6 inches	<u>20.75</u>	<u>14.25</u>	<u>6.50</u>
0 inch (impact point)	<u>22.00</u>	<u>14.70</u>	<u>7.30</u>
6 inches	<u>29.00</u>	<u>14.50</u>	<u>14.50</u>
12 inches	<u>29.50</u>	<u>14.50</u>	<u>15.00</u>
18 inches	<u>30.50</u>	<u>14.30</u>	<u>16.20</u>
24 inches	<u>30.75</u>	<u>14.40</u>	<u>16.35</u>
30 inches	<u>31.00</u>	<u>14.30</u>	<u>16.70</u>
36 inches	<u>31.50</u>	<u>14.10</u>	<u>17.40</u>
42 inches	<u>31.75</u>	<u>14.10</u>	<u>17.65</u>
48 inches	<u>31.25</u>	<u>14.10</u>	<u>17.15</u>
54 inches	<u>32.00</u>	<u>14.10</u>	<u>17.90</u>
60 inches	<u>32.00</u>	<u>14.00</u>	<u>18.00</u>
66 inches	<u>31.00</u>	<u>14.00</u>	<u>17.00</u>
72 inches	<u>22.00</u>	<u>14.00</u>	<u>8.00</u>

REMARKS:

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/22/92

APPROVED BY: *am*

DATE: 05/12/92

FIGURE 3-4B PRE AND POSTTEST EXTERIOR PROFILE AT LEVEL 2
H-POINT 22.0" ABOVE GROUND LEVEL



1992 VOLVO 940 GLS, NHTSA NO. MN5901

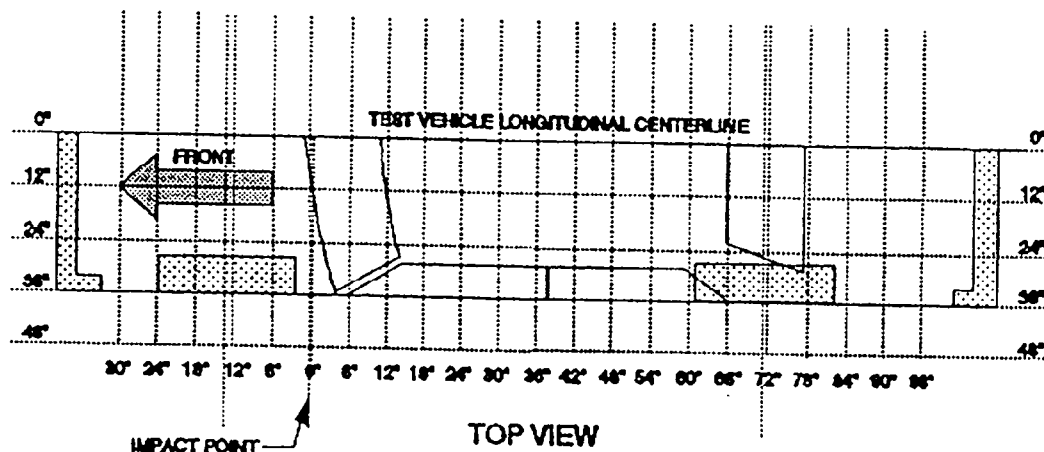
DATA SHEET NO. 6C

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



LEVEL 3 AT MID DOOR

23.60 INCHES ABOVE GROUND LEVEL AT THE DOOR 30" LINE

ADD PROFILE INFORMATION ON THE NEXT PAGE

NOTE: ALL TEST VEHICLE EXTERIOR PROFILES TAKEN FROM REFERENCE PLANE WHICH IS PARALLEL TO AND 48 INCHES FROM TEST VEHICLE LONGITUDINAL CENTERLINE

LEVEL 3 AT MID-DOOR

	POST TEST (inches)	PRETEST (inches)	STATIC CRUSH (inches)
-6 inches	<u>20.50</u>	<u>14.25</u>	<u>6.25</u>
0 inch	<u>23.00</u>	<u>14.50</u>	<u>8.50</u>
(impact point)			
6 inches	<u>27.75</u>	<u>14.40</u>	<u>13.35</u>
12 inches	<u>28.75</u>	<u>14.25</u>	<u>14.50</u>
18 inches	<u>29.75</u>	<u>14.10</u>	<u>15.65</u>
24 inches	<u>29.75</u>	<u>14.10</u>	<u>15.65</u>
30 inches	<u>30.00</u>	<u>14.00</u>	<u>16.00</u>
36 inches	<u>30.75</u>	<u>13.90</u>	<u>16.85</u>
42 inches	<u>31.00</u>	<u>13.90</u>	<u>17.10</u>
48 inches	<u>31.25</u>	<u>13.90</u>	<u>17.35</u>
54 inches	<u>31.25</u>	<u>13.75</u>	<u>17.50</u>
60 inches	<u>31.25</u>	<u>13.60</u>	<u>17.65</u>
66 inches	<u>30.75</u>	<u>13.60</u>	<u>17.15</u>
72 inches	<u>22.25</u>	<u>13.60</u>	<u>8.65</u>

REMARKS:

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/22/92

APPROVED BY: *auh*

DATE: 05/12/92

FIGURE 3-4C PRE AND POSTTEST EXTERIOR PROFILE AT LEVEL 3
MID DOOR 23.60" ABOVE GROUND LEVEL



1992 VOLVO 940 GLS, NHTSA NO. MN5901

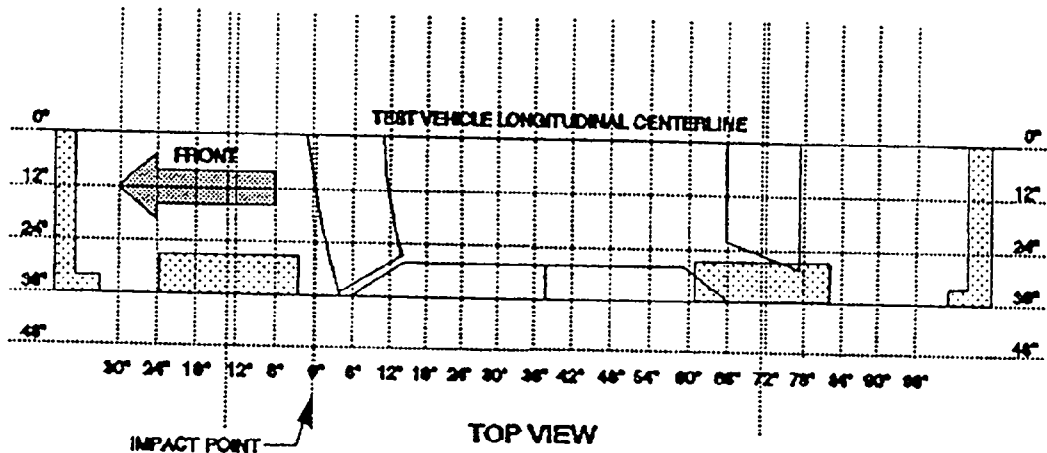
DATA SHEET NO. 6D

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



LEVEL 4 AT WINDOW SILL

34.30 INCHES ABOVE GROUND LEVEL AT THE DOOR 30° LINE

ADD PROFILE INFORMATION ON THE NEXT PAGE

NOTE: ALL TEST VEHICLE EXTERIOR PROFILES TAKEN FROM REFERENCE PLANE WHICH IS PARALLEL TO AND 48 INCHES FROM TEST VEHICLE LONGITUDINAL CENTERLINE

LEVEL 4 AT WINDOW SILL

	POST TEST (inches)	PRETEST (inches)	STATIC CRUSH (inches)
-6 inches	<u>19.75</u>	<u>16.50</u>	<u>3.25</u>
0 inch (impact point)	<u>20.25</u>	<u>16.25</u>	<u>4.00</u>
6 inches	<u>22.25</u>	<u>16.00</u>	<u>6.25</u>
12 inches	<u>23.50</u>	<u>14.75</u>	<u>8.75</u>
18 inches	<u>27.75</u>	<u>16.00</u>	<u>11.75</u>
24 inches	<u>28.60</u>	<u>15.75</u>	<u>12.85</u>
30 inches	<u>29.25</u>	<u>15.60</u>	<u>13.65</u>
36 inches	<u>29.50</u>	<u>15.60</u>	<u>13.90</u>
42 inches	<u>29.75</u>	<u>15.50</u>	<u>14.25</u>
48 inches	<u>30.00</u>	<u>15.25</u>	<u>14.75</u>
54 inches	<u>31.50</u>	<u>15.25</u>	<u>16.25</u>
60 inches	<u>32.25</u>	<u>15.10</u>	<u>17.15</u>
66 inches	<u>30.75</u>	<u>15.00</u>	<u>15.75</u>
72 inches	<u>21.50</u>	<u>15.00</u>	<u>6.50</u>

REMARKS:

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/22/92

APPROVED BY: *[Signature]*

DATE: 05/12/92

FIGURE 3-4D PRE AND POSTTEST EXTERIOR PROFILE AT LEVEL 4
WINDOW SILL 34.60' ABOVE GROUND LEVEL



1992 VOLVO 940 GLS, NHTSA NO. MN5901

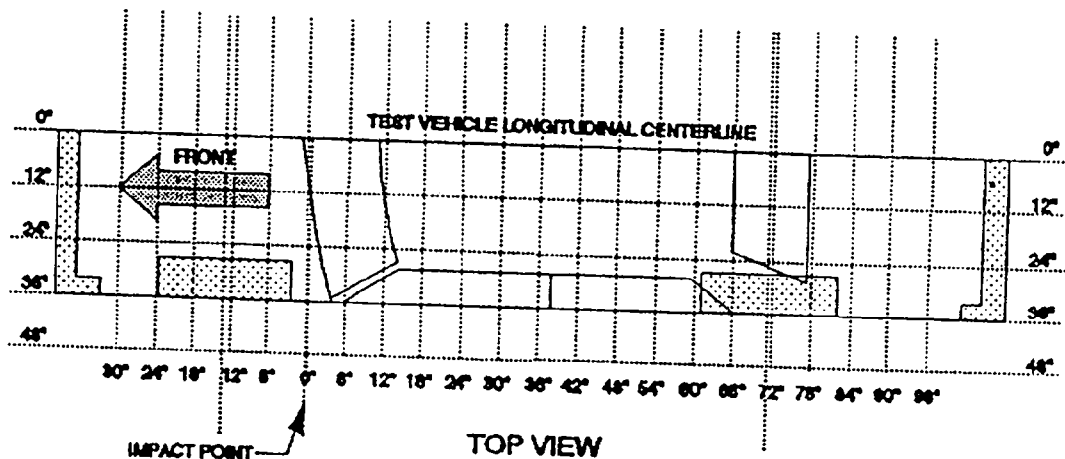
DATA SHEET NO. 6E

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



LEVEL 5 AT WINDOW TOP

52.50 INCHES ABOVE GROUND LEVEL AT THE DOOR 30° LINE

ADD PROFILE INFORMATION ON THE NEXT PAGE

NOTE: ALL TEST VEHICLE EXTERIOR PROFILES TAKEN FROM REFERENCE PLANE WHICH IS PARALLEL TO AND 48 INCHES FROM TEST VEHICLE LONGITUDINAL CENTERLINE

LEVEL 5 AT WINDOW TOP

	POST TEST (inches)	PRETEST (inches)	STATIC CRUSH (inches)
-6 inches	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
0 inch (impact point)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
6 inches	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
12 inches	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
18 inches	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
24 inches	<u>23.25</u>	<u>22.50</u>	<u>0.75</u>
30 inches	<u>27.00</u>	<u>22.25</u>	<u>4.75</u>
36 inches	<u>27.40</u>	<u>22.40</u>	<u>5.00</u>
42 inches	<u>28.00</u>	<u>22.30</u>	<u>5.70</u>
48 inches	<u>28.00</u>	<u>22.30</u>	<u>5.70</u>
54 inches	<u>28.00</u>	<u>22.30</u>	<u>5.70</u>
60 inches	<u>26.25</u>	<u>22.30</u>	<u>3.95</u>
66 inches	<u>24.00</u>	<u>22.25</u>	<u>1.75</u>
72 inches	<u>22.25</u>	<u>22.25</u>	<u>0.00</u>

REMARKS:

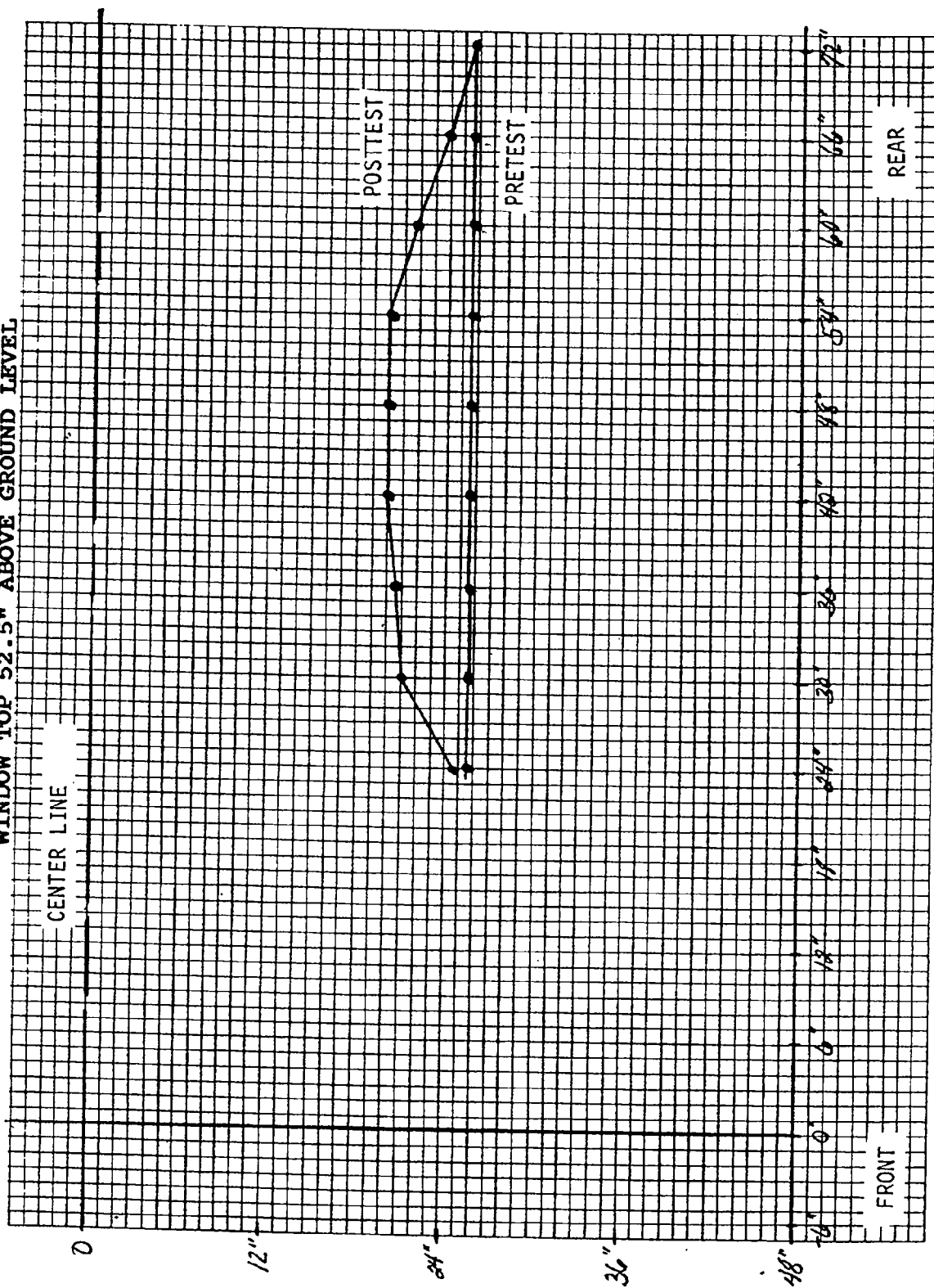
RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/22/92

APPROVED BY: *[Signature]*

DATE: 05/12/92

FIGURE 3-4A PRE AND POSTTEST EXTERIOR PROFILE AT LEVEL 5
WINDOW TOP 52.5" ABOVE GROUND LEVEL



1992 VOLVO 940 GLS, NHTSA NO. MN5901

DATA SHEET NO. 6F

SUMMARY OF VEHICLE EXTERIOR PROFILE STATIC CRUSH

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.

POSITION	LEVEL 1 (inches)	LEVEL 2 (inches)	LEVEL 3 (inches)	LEVEL 4 (inches)	LEVEL 5 (inches)
-6 inches	<u>N/A</u>	<u>6.50</u>	<u>6.25</u>	<u>3.25</u>	<u>N/A</u>
0 inch	<u>7.75</u>	<u>7.30</u>	<u>8.50</u>	<u>4.00</u>	<u>N/A</u>
Impact Point					
6 inches	<u>9.90</u>	<u>14.50</u>	<u>13.35</u>	<u>6.25</u>	<u>N/A</u>
12 inches	<u>10.65</u>	<u>15.00</u>	<u>14.50</u>	<u>8.75</u>	<u>N/A</u>
18 inches	<u>10.90</u>	<u>16.20</u>	<u>15.65</u>	<u>11.75</u>	<u>N/A</u>
24 inch	<u>11.15</u>	<u>16.35</u>	<u>16.85</u>	<u>12.85</u>	<u>0.75</u>
30 inches	<u>11.15</u>	<u>16.70</u>	<u>16.00</u>	<u>13.65</u>	<u>4.75</u>
36 inches	<u>11.15</u>	<u>17.40</u>	<u>16.85</u>	<u>13.90</u>	<u>5.00</u>
42 inches	<u>11.00</u>	<u>17.65</u>	<u>17.10</u>	<u>14.25</u>	<u>5.70</u>
48 inches	<u>11.00</u>	<u>17.15</u>	<u>17.35</u>	<u>14.75</u>	<u>5.70</u>
54 inches	<u>9.25</u>	<u>71.90</u>	<u>17.50</u>	<u>16.25</u>	<u>5.70</u>
60 inches	<u>6.50</u>	<u>18.00</u>	<u>17.60</u>	<u>17.15</u>	<u>3.95</u>
66 inches	<u>5.25</u>	<u>17.00</u>	<u>17.10</u>	<u>15.75</u>	<u>1.75</u>
72 inches	<u>2.50</u>	<u>8.00</u>	<u>8.60</u>	<u>6.50</u>	<u>0.00</u>

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/22/92

APPROVED BY: *am*

DATE: 05/12/92

DATA SHEET NO. 7

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.

LOCATION	TOP OF STACK LEVEL	MID- STACK LEVEL	BUMPER LEVEL
HEIGHT AT CENTERLINE*	32 inches	22 inches	17 inches
DISTANCES RIGHT OF CENTER**	(inches)	(inches)	(inches)
32 inches	<u>3.50</u>	<u>2.30</u>	<u>5.30</u>
28 inches	<u>0.90</u>	<u>1.75</u>	<u>4.50</u>
24 inches	<u>-0.25</u>	<u>1.10</u>	<u>3.75</u>
20 inches	<u>-0.20</u>	<u>0.75</u>	<u>3.25</u>
16 inches	<u>0.10</u>	<u>0.60</u>	<u>3.10</u>
12 inches	<u>0.60</u>	<u>0.60</u>	<u>2.90</u>
8 inches	<u>0.60</u>	<u>0.60</u>	<u>2.60</u>
4 inches	<u>0.25</u>	<u>0.70</u>	<u>2.60</u>
0 inches	<u>0.10</u>	<u>0.60</u>	<u>2.50</u>

DATA SHEET NO. 7 (Cont.)

LOCATION	TOP OF STACK LEVEL	MID- STACK LEVEL	BUMPER LEVEL
HEIGHT AT CENTERLINE*	32 inches	22 inches	17 inches
DISTANCES LEFT OF CENTER**	(inches)	(inches)	(inches)
4 inches	<u>0.25</u>	<u>0.60</u>	<u>2.40</u>
8 inches	<u>0.40</u>	<u>0.75</u>	<u>2.30</u>
12 inches	<u>0.60</u>	<u>0.80</u>	<u>2.25</u>
16 inches	<u>0.75</u>	<u>1.00</u>	<u>2.25</u>
20 inches	<u>1.00</u>	<u>1.00</u>	<u>2.20</u>
24 inches	<u>1.25</u>	<u>1.10</u>	<u>2.25</u>
28 inches	<u>4.40</u>	<u>1.60</u>	<u>2.60</u>
32 inches	<u>6.40</u>	<u>1.90</u>	<u>2.40</u>

* Heights, in inches, measured above ground level
 ** Impact side

REMARKS:

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/22/92

APPROVED BY: *am*

DATE: 05/12/92

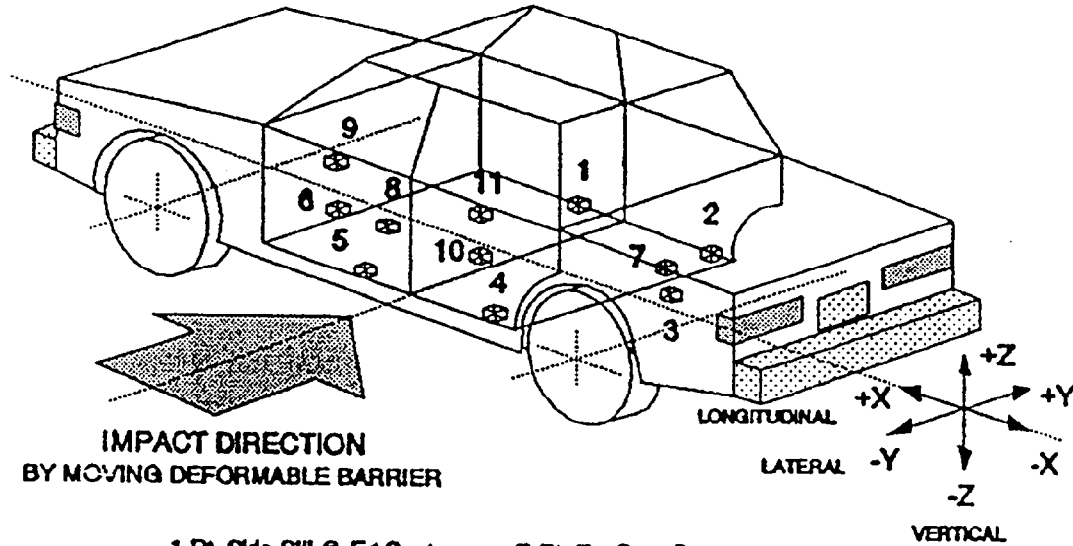
DATA SHEET NO. 8

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



IMPACT DIRECTION
BY MOVING DEFORMABLE BARRIER

- 1-Rt. Side Sill @ Frt. Seat
- 2-Rt. Side Sill @ Rr. Seat
- 3-Frt. Floorpan Above Aisle
- 4-Left Side Sill @ Rr. Seat
- 5-Left Side Sill @ Frt. Seat
- 6-Left Frt. Door On Centerline
- 7-Rt. Rr. Occ. Compartment
- 8-Midrear of Left Frt. Door
- 9-Left Frt. Door Upper Centerline
- 10-Midrear of Left Rear Door
- 11-Left Rear Door Upper Centerline

NO.	COORDINATES			LONG.-X (+/-)		LAT.-Y (+/-)		VERT.-Z (+/-)		RES.-R (+/-)	
	X (in.)	Y (in.)	Z (in.)	MaxG	ms	MaxG	ms	MaxG	ms	MaxG	ms
1	118	25	10.50	-6	20	21	27	9	18	22	18
2	78	21	10.50	-7	18	21	18	-7	9	23	18
3	38	-3	24.00	-8	65	17	26	-6	10	18	65
4	78	-23	10.50	-	-	58	23	-	-	-	-
5	115	-30	10.50	-	-	49	12	-	-	-	-
6	105	-	24.50	-	-	163	11	-	-	-	-

DATA SHEET NO. 8 (Cont.)

NO.	COORDINATES			LONG.-X (+/-)		LAT.-Y (+/-)		VERT.-Z (+/-)		RES.-R (+/-)	
	X (in.)	Y (in.)	Z (in.)	MaxG	ms	MaxG	ms	MaxG	ms	MaxG	ms
7	<u>79</u>	<u>13</u>	<u>10.5</u>	<u>-11</u>	<u>18</u>	<u>-</u>	<u>-</u>	<u>---</u>	<u>--</u>	<u>---</u>	<u>--</u>
8	<u>95</u>	<u>-30</u>	<u>24.5</u>	<u>---</u>	<u>--</u>	<u>161</u>	<u>6</u>	<u>---</u>	<u>--</u>	<u>---</u>	<u>--</u>
9	<u>105</u>	<u>-30</u>	<u>32.0</u>	<u>---</u>	<u>--</u>	<u>147</u>	<u>17</u>	<u>---</u>	<u>--</u>	<u>---</u>	<u>--</u>
10	<u>65</u>	<u>-30</u>	<u>25.5</u>	<u>---</u>	<u>--</u>	<u>132</u>	<u>14</u>	<u>---</u>	<u>--</u>	<u>---</u>	<u>--</u>
11	<u>71</u>	<u>-30</u>	<u>33.0</u>	<u>---</u>	<u>--</u>	<u>104</u>	<u>9</u>	<u>---</u>	<u>--</u>	<u>---</u>	<u>--</u>

REFERENCE:

X - Rear Bumper (+ = Forward)
Y - Vehicle Centerline (+ = To the Right)
Z - Ground Level (+ = Upward)

REMARKS:

RECORDED BY: MR. BRAIN O'KEEFE

DATE: 04/22/92

APPROVED BY: *[Signature]*

DATE: 05/12/92

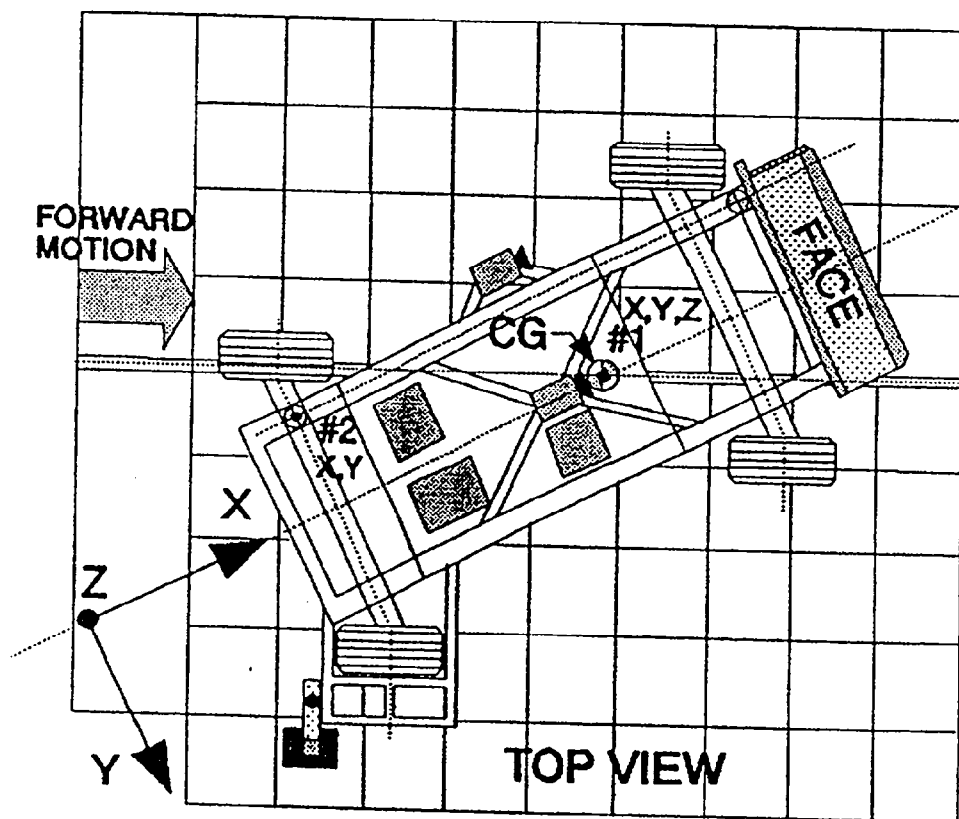
DATA SHEET NO. 9

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS
AND SAMPLE DATA SUMMARY

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



ACCELEROMETER LOCATIONS:

- 1 - MDB Center of Gravity (CG)
- 2 - Rear Frame Member

DATA SHEET NO. 9 (Cont.)

NO.	COORDINATES			POS. DIRECTION		NEG. DIRECTION	
	X* (in.)	Y* (in.)	Z* (in.)	MaxG	ms	MaxG	ms
1 Longitudinal X	<u>73</u>	<u>0</u>	<u>11.75</u>	<u>2</u>	<u>140</u>	<u>20</u>	<u>39</u>
1 Lateral Y	<u>73</u>	<u>0</u>	<u>11.75</u>	<u>8</u>	<u>25</u>	<u>3</u>	<u>57</u>
1 Vertical Z	<u>73</u>	<u>0</u>	<u>11.75</u>	<u>25</u>	<u>24</u>	<u>18</u>	<u>75</u>
1 Resultant R	<u>73</u>	<u>0</u>	<u>11.75</u>	<u>30</u>	<u>24</u>	<u>0</u>	<u>296</u>
2 Longitudinal X	<u>12</u>	<u>-19</u>	<u>16.75</u>	<u>2</u>	<u>168</u>	<u>21</u>	<u>40</u>
3 Longitudinal X	<u>12</u>	<u>-19</u>	<u>16.75</u>	<u>2</u>	<u>91</u>	<u>6</u>	<u>20</u>

REFERENCE:

X - Rear Bumper (+ = Forward)
Y - Vehicle Centerline (+ = To the Right)
Z - Ground Level (+ = Upward)

REMARKS:

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/22/92

APPROVED BY: 

DATE: 05/12/92

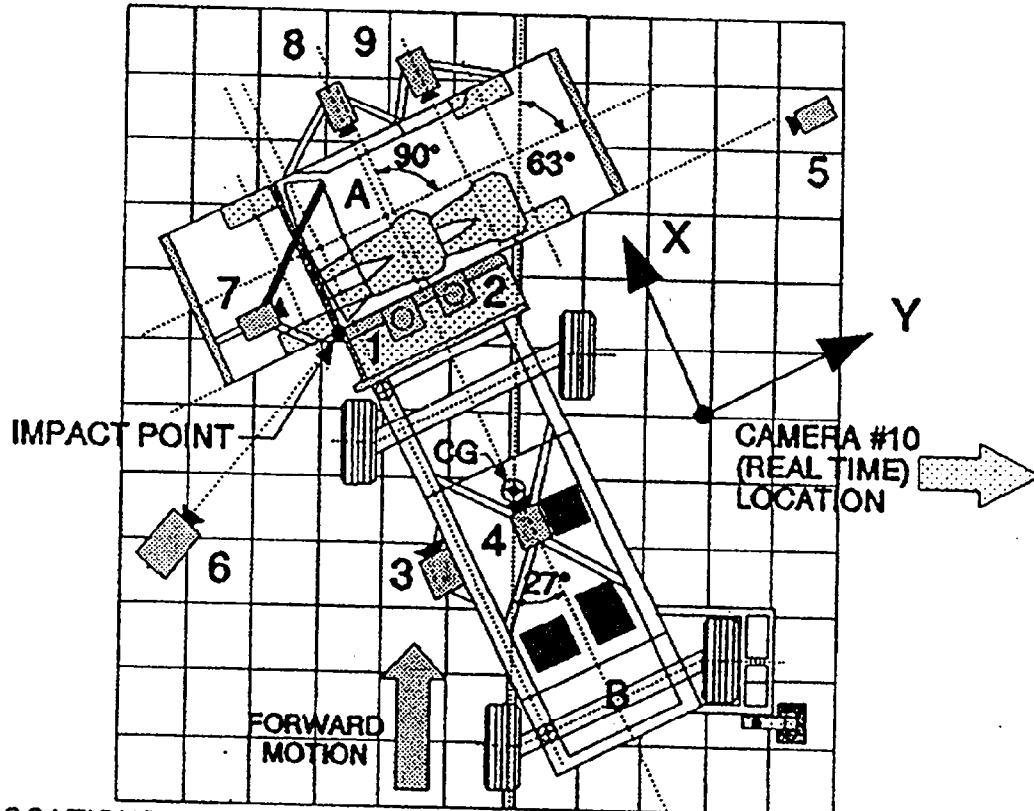
DATA SHEET NO. 10

HIGH SPEED CAMERA LOCATIONS AND DATA

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS / 4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

TEST DATE: 04/22/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



CAMERA LOCATIONS:

- | | |
|--------|--|
| No. 1 | Overhead view of test vehicle |
| No. 2 | Overhead closeup view of impact plane |
| No. 3 | MDB onboard closeup view of impact point |
| No. 4 | MDB onboard view of driver dummy kinematics |
| No. 5 | Right side ground level -- overall view |
| No. 6 | Left side ground level -- overall view |
| No. 7 | Test vehicle onboard driver dummy front view kinematics |
| No. 8 | Test vehicle onboard driver dummy side view kinematics |
| No. 9 | Test vehicle onboard passenger side view kinematics |
| No. 10 | Real time (24 fps) film coverage of pretest, test and post test events |

DATA SHEET NO. 10 (Cont.)

NO.	TYPE	LENS SPEED		X*	COORDINATES	
		(mm)	(fps)		Y*	Z*
1	<u>FASTAX II</u>	16	600	<u>0</u>	<u>0</u>	<u>25'</u>
2	<u>FASTAX II</u>	28	600	<u>0</u>	<u>0</u>	<u>25'</u>
3	<u>HIMAX</u>	28	500	<u>-121</u>	<u>-37</u>	<u>50</u>
4	<u>HIMAX</u>	16	550	<u>-151</u>	<u>0</u>	<u>72</u>
5	<u>PHOTOSONIC</u>	13	600	<u>210</u>	<u>762</u>	<u>48</u>
6	<u>FASTAX II</u>	28	550	<u>94</u>	<u>-43</u>	<u>32</u>
7	<u>FASTAXII</u>	16	600	<u>15</u>	<u>-90</u>	<u>48</u>
8	<u>FASTAX II</u>	16	630	<u>98</u>	<u>2</u>	<u>43</u>
9	<u>FASTAX II</u>	16	620	<u>99</u>	<u>37</u>	<u>43</u>
10	<u>ARRIFLEX</u>	16	24	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

* REFERENCE (from point of impact)

+X = Forward

+Y = To The Right

+Z = Upward

REMARKS:

RECORDED BY: MR. BRAIN O'KEEFE

DATE: 04/22/92

APPROVED BY: *am*

DATE: 05/12/92

DATA SHEET NO. 11

TEST VEHICLE DATA

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS/4 DOOR SEDAN

VEH. NHTSA NO.: MN5901 VIN.: YV1JS881XNA062060

VEH. BUILD DATE: 10/91 TEST DATE: 04/22/92

TEST LABORATORY: MOBILITY SYSTEMS AND EQUIPMENT CO.

OBSERVERS: MR. JAMES JONES, COTR

Upon receipt, the vehicle will be examined visually for completeness, function, and damage. The roof and supporting structures such as the doors and windows should be checked for proper operation and any discrepancies which may influence the testing. The vehicle will be weighed.

DATA RECORDED FROM VEHICLE'S TIRE PLACARD:

Tire Pressure (at capacity): 36 psi Front; 36 psi Rear

Recommended Tire Size: 185/65 R15

Size of Tires Installed on Test Vehicle: 185/65 R15

Tire Manufacturer: MICHELIN

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

Type of Front Seat(s): X Buckets; Bench; Split Bench

Type of Front Seat Back: Fixed; X Adjustable with Lever or X Knob

Vehicle Maximum Capacity Loading = 925 lbs. (A)

Number of Occupants x 150 lbs. = 750 lbs. (B)

Vehicle Cargo Capacity = 175 lbs. (A - B)

DATA SHEET NO. 11 (Cont.)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:
Front: Right = 860 lbs.; Left = 892 lbs.; Front Total = 1752 lbs.

(55.3 % of TOTAL shown below)

Rear: Right = 692 lbs.; Left = 726 lbs.; Rear Total = 1418 lbs.

(44.7 % of TOTAL shown below)

Front Total + Rear Total = TOTAL DELV. = 3170 lbs.

CALCULATION OF TEST VEHICLE TARGET WEIGHT:

Total Test Vehicle Delivered Weight With Maximum Fluids = 3170 lbs. (A)

Maximum Cargo Carry Capacity of Test Vehicle = 175 lbs. (B)

Weight of Two Side Impact Dummies (2 X 164 lbs.) = 328 lbs. (C)

Test Vehicle Target Weight = 3673 (A + B + C)

ACTUAL WEIGHT OF TEST VEHICLE WITH TWO SIDS AND CARGO:

Front: Right = 990 lbs.; Left = 986 lbs.; Front Total = 1976 lbs.

(52.7 % of TOTAL shown below)

Rear: Right = 887 lbs.; Left = 886 lbs.; Front Total = 1773 lbs.

(47.3 % of TOTAL shown below)

Front Total + Rear Total = TOTAL ACTUAL = 3749 lbs. (which includes N/A
lbs. of cargo ballast
weight)

TEST VEHICLE ATTITUDE:

As Delivered

Ready For Test

25.9 inches Right Front

25.5 inches Right Front

26.4 inches Left Front

26.0 inches Left Front

25.6 inches Right Rear

25.0 inches Right Rear

25.9 inches Left Rear

25.3 inches Left Rear

DATA SHEET NO. 11 (Cont.)

Test Vehicle Wheelbase = 109 inches

C.G. = 51.6 inches Rearward of Front Wheel Centerline

Total Vehicle Length: 184 inches Right Side

184 inches Left Side

191.8 inches Centerline

Arm Rest Location: Center of Rear Seat

Seat Belt Upper Anchorage Location: 22" Above B-Post Striker

FRONT SEAT CUSHION PLACEMENT: mid-point of fore/aft travel

Total Length of Seat Adjustment Travel = 8 inches

Total Number of Seat Adjustment Positions or Detents = 16

Front Seat Back Adjustment Position: 25 degrees

Front Seat Back Torso Angle = 25 degrees

Front Seat Cushion Vertical Position: full down

DATA SHEET NO. 11 (Cont.)

ADJUSTABLE STEERING COLUMN POSITION: N/A
(using data supplied by the vehicle manufacturer)

WINDOW POSITIONS: CLOSED Left Front CLOSED Left Rear
OPEN Right Front OPEN Right Rear

Windows shall be in CLOSED position on the STRUCK side of the vehicle and in the OPEN position on the OPPOSITE side of the vehicle.

AMOUNT OF STODDARD SOLVENT IN FUEL TANK: 14.7 gallons (92-94% of UC)
(Usable Capacity (UC) supplied by the vehicle manufacturer)

LOCATION OF IMPACT POINT ON TEST VEHICLE SIDE TO BE IMPACTED:

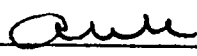
Wheelbase = 109 inches

Impact Point 17.5 is inches rearward of front axle centerline (which is 37" forward of the wheelbase midpoint)

REMARKS:

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/22/92

APPROVED BY: 

DATE: 05/12/92

SECTION 4

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

This section shows full list of Test Equipment List and the calibration dates.

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 1	
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: 11	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 2	
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: 65	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 3	
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: 14	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 4	
SENTYP: AC	SENLOC: 01	SENATT: SPNU	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-2000, S/N: BF59J			
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 5	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 5	
SENTYP: AC	SENLOC: 01	SENATT: SPNU	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-2000, S/N: AN93			
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 5	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 6	
SENTYP: AC	SENLOC: 01	SENATT: RBLU	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-2000, S/N: AB97	INSRAT: 2000	CHLMAX: 6	INIVEL: 0.0
CALDAT: 02/JAN/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 7	
SENTYP: AC	SENLOC: 01	SENATT: RBLU	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-2000, S/N: BE33J	INSRAT: 2000	CHLMAX: 6	INIVEL: 0.0
CALDAT: 02/JAN/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 8	
SENTYP: AC	SENLOC: 01	SENATT: RBLL	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-2000, S/N: BY89H	INSRAT: 2000	CHLMAX: 6	INIVEL: 0.0
CALDAT: 02/JAN/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 9	
SENTYP: AC	SENLOC: 01	SENATT: RBLL	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-2000, S/N: BL93H	INSRAT: 2000	CHLMAX: 6	INIVEL: 0.0
CALDAT: 02/JAN/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 10	
SENTYP: AC	SENLOC: 01	SENATT: SPNL	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-2000, S/N: BH50J	INSRAT: 2000	CHLMAX: 7	INIVEL: 0.0
CALDAT: 02/JAN/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 11	
SENTYP: AC	SENLOC: 01	SENATT: SPNL	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000,	S/N: BH69J	
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 7	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 12	
SENTYP: AC	SENLOC: 01	SENATT: PVCN	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000,	S/N: BM73J	
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 4	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 13	
SENTYP: LC	SENLOC: 01	SENATT: LPBO	
AXIS: NA	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371,	S/N: 333	
CALDAT: 09/APR/92	INSRAT: 3500	CHLMAX: 12	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 14	
SENTYP: LC	SENLOC: 01	SENATT: SHBT	
AXIS: NA	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371,	S/N: 327	
CALDAT: 09/APR/92	INSRAT: 3500	CHLMAX: 29	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 15	
SENTYP: AC	SENLOC: 04	SENATT: HDCC	
AXIS: XL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-200,	S/N: AE09	
CALDAT: 26/MAR/92	INSRAT: 200	CHLMAX: 16	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 16	
SENTYP: AC	SENLOC: 04	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: 66	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 17	
SENTYP: AC	SENLOC: 04	SENATT: HDCG	
AXIS: ZL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000, S/N: AD98		
CALDAT: 26/MAR/92	INSRAT: 200	CHLMAX: 21	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 18	
SENTYP: AC	SENLOC: 04	SENATT: SPNU	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000, S/N: BY98H		
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 3	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 19	
SENTYP: AC	SENLOC: 04	SENATT: SPNU	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000, S/N: BH27J		
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 0	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 20	
SENTYP: AC	SENLOC: 04	SENATT: RBLU	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000, S/N: AN03		
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 3	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 21	
SENTYP: AC	SENLOC: 04	SENATT: RBLU	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000,	S/N: AR17	
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 3	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 22	
SENTYP: AC	SENLOC: 04	SENATT: RBLL	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000,	S/N: AK29	
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 3	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 23	
SENTYP: AC	SENLOC: 04	SENATT: RBLL	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000,	S/N: BA93	
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 3	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 24	
SENTYP: AC	SENLOC: 04	SENATT: SPNL	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000,	S/N: BD12J	
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 3	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 25	
SENTYP: AC	SENLOC: 04	SENATT: SPNL	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000,	S/N: BE91J	
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 3	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 26	
SENTYP: AC	SENLOC: 04	SENATT: PVCN	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000, S/N: BC98J		
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 8	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 27	
SENTYP: LC	SENLOC: 04	SENATT: LPBO	
AXIS: NA	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371, S/N: 330		
CALDAT: 09/APR/92	INSRAT: 3500	CHLMAX: 7	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: CHANNEL FAILURE AFTER 57.0 MSEC.			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 28	
SENTYP: LC	SENLOC: 04	SENATT: SHBT	
AXIS: NA	UNITS: LBS	PREFIL: 1650	
INSMAN: MFG: LEBOW,	MODEL: 3371, S/N: 308		
CALDAT: 09/APR/92	INSRAT: 3500	CHLMAX: 8	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 29	
SENTYP: AC	SENLOC: 02	SENATT: DSRF	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: BELL & HOWELL,	MODEL: 4-202-0001, S/N: 21051		
CALDAT: 10/APR/92	INSRAT: 250	CHLMAX: 12	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 30	
SENTYP: AC	SENLOC: 02	SENATT: DSRF	
AXIS: YG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: BELL & HOWELL,	MODEL: 4-202-0001, S/N: 20839		
CALDAT: 10/APR/92	INSRAT: 250	CHLMAX: 27	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5 VEHNO: 2 CURNO: 31
 SENTYP: AC SENLOC: 02 SENATT: DSRF
 AXIS: ZG UNITS: G'S PREFIL: 1650
 INSMAN: MFG: BELL & HOWELL, MODEL: 4-202-0001, S/N: 19428
 CALDAT: 10/APR/92 INSRAT: 250 CHLMAX: 20
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

Instrumentation Information

Inst. Group ID: 5 VEHNO: 2 CURNO: 32
 SENTYP: AC SENLOC: 03 SENATT: DSRR
 AXIS: XG UNITS: G'S PREFIL: 1650
 INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 1X-200
 CALDAT: 10/APR/92 INSRAT: 200 CHLMAX: 4
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

Instrumentation Information

Inst. Group ID: 5 VEHNO: 2 CURNO: 33
 SENTYP: AC SENLOC: 03 SENATT: DSRR
 AXIS: YG UNITS: G'S PREFIL: 1650
 INSMAN: MFG: ENDEVCO, MODEL: 3031-200, S/N: 1Y-200
 CALDAT: 10/APR/92 INSRAT: 200 CHLMAX: 30
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

Instrumentation Information

Inst. Group ID: 5 VEHNO: 2 CURNO: 34
 SENTYP: AC SENLOC: 03 SENATT: DSRR
 AXIS: ZG UNITS: G'S PREFIL: 1650
 INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 1Z-200
 CALDAT: 10/APR/92 INSRAT: 200 CHLMAX: 14
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

Instrumentation Information

Inst. Group ID: 5 VEHNO: 2 CURNO: 35
 SENTYP: AC SENLOC: 03 SENATT: FLRR
 AXIS: XG UNITS: G'S PREFIL: 1650
 INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 2X-200
 CALDAT: 10/APR/92 INSRAT: 200 CHLMAX: 11
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 36	
SENTYP: AC	SENLOC: 03	SENATT: FLRR	
AXIS: YG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 2Y-200	INSRAT: 200	CHLMAX: 19	INIVEL: 0.0
CALDAT: 10/APR/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 37	
SENTYP: AC	SENLOC: 03	SENATT: FLRR	
AXIS: ZG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 22-200	INSRAT: 200	CHLMAX: 19	INIVEL: 0.0
CALDAT: 10/APR/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 38	
SENTYP: AC	SENLOC: 04	SENATT: DSLR	
AXIS: YG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 27-200	INSRAT: 200	CHLMAX: 81	INIVEL: 0.0
CALDAT: 10/APR/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 39	
SENTYP: AC	SENLOC: 01	SENATT: DSLF	
AXIS: YG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSOR, MODEL: 3031-200, S/N: 25-200	INSRAT: 200	CHLMAX: 55	INIVEL: 0.0
CALDAT: 10/APR/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 40	
SENTYP: AC	SENLOC: 01	SENATT: DRLF	
AXIS: YG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 21-200	INSRAT: 200	CHLMAX: 172	INIVEL: 0.0
CALDAT: 10/APR/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
INSCOM: CHANNEL DROPOUT BETWEEN 33.3 TO 69.4 MSEC.			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 41	
SENTYP: AC	SENLOC: OT	SENATT: FLRR	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: BELL & HOWELL, MODEL: 4-202-0001, S/N: 19288			
CALDAT: 10/APR/92	INSRAT: 250	CHLMAX: 27	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 42	
SENTYP: AC	SENLOC: OT	SENATT: DRLF	
AXIS: YG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 20-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 169	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: CHANNEL DROPOUT BETWEEN 41.7 TO 61.9 MSEC.			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 43	
SENTYP: AC	SENLOC: NA	SENATT: DRLF	
AXIS: YG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 23-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 169	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 44	
SENTYP: AC	SENLOC: NA	SENATT: DRLR	
AXIS: YG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 24-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 217	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 2	CURNO: 45	
SENTYP: AC	SENLOC: NA	SENATT: DRLR	
AXIS: YG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 26-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 195	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 46	
SENTYP: AC	SENLOC: OT	SENATT: IMCG	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 30-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 38	INIVEL: 34.2
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 47	
SENTYP: AC	SENLOC: OT	SENATT: IMCG	
AXIS: YG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 31-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 13	INIVEL: 17.4
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 48	
SENTYP: AC	SENLOC: NA	SENATT: IMCG	
AXIS: ZG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-200, S/N: 32-200			
CALDAT: 10/APR/92	INSRAT: 200	CHLMAX: 32	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 49	
SENTYP: AC	SENLOC: NA	SENATT: IMCR	
AXIS: XG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-100, S/N: 7X-100			
CALDAT: 10/APR/92	INSRAT: 100	CHLMAX: 47	INIVEL: 34.2
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

Instrumentation Information

Inst. Group ID: 5	VEHNO: 1	CURNO: 50	
SENTYP: AC	SENLOC: NA	SENATT: IMCR	
AXIS: YG	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: I.C. SENSORS, MODEL: 3031-100, S/N: 7Z-100			
CALDAT: 10/APR/92	INSRAT: 100	CHLMAX: 20	INIVEL: 17.4
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

SECTION 5

PHOTOGRAPHS

The photographs listed on this page are included in this section.

1. Pretest Frontal View of Test Vehicle (Target Vehicle)
2. Posttest Frontal View of Test Vehicle
3. Pretest Rear View of Test Vehicle
4. Posttest Rear View of Test Vehicle
5. Pretest Struck Side View of Test Vehicle
6. Posttest Struck Side View of Test Vehicle
7. Pretest Frontal View of MDB Impact Face
8. Posttest Frontal View of MDB Impact Face
9. Pretest Left Side view of MDB Impact Face
10. Posttest Left Side View of MDB Impact Face
11. Pretest Right Side View of MDB Impact Face
12. Posttest Right Side View of MDB Impact Face
13. Pretest Top View of MDB Impact Face
14. Posttest Top View of MDB Impact Face
15. Pretest Overhead View of MDB Positioned Against Struck Side of Test Vehicle at Impact Locations
16. Posttest Overhead View of MDB Positioned Against Struck Side of Test Vehicle at Impact Locations
17. Pretest Occupant Compartment Left Side Showing Driver SID
18. Posttest Occupant Compartment Right Side Showing Driver SID
19. Posttest Occupant Compartment Driver SID
20. Pretest Occupant Compartment Left Side View Showing Passenger Side
21. Pretest Occupant Compartment Right Side view Showing Passenger Side
22. Posttest Occupant Compartment View Showing Passenger Side
23. Pretest Left Side View of MDB with Impact Face in Position
24. Pretest Right Side View of MDB with Impact Face in Position
25. Test Vehicle Tire Placard
26. Test Vehicle Manufacturer's certification Label

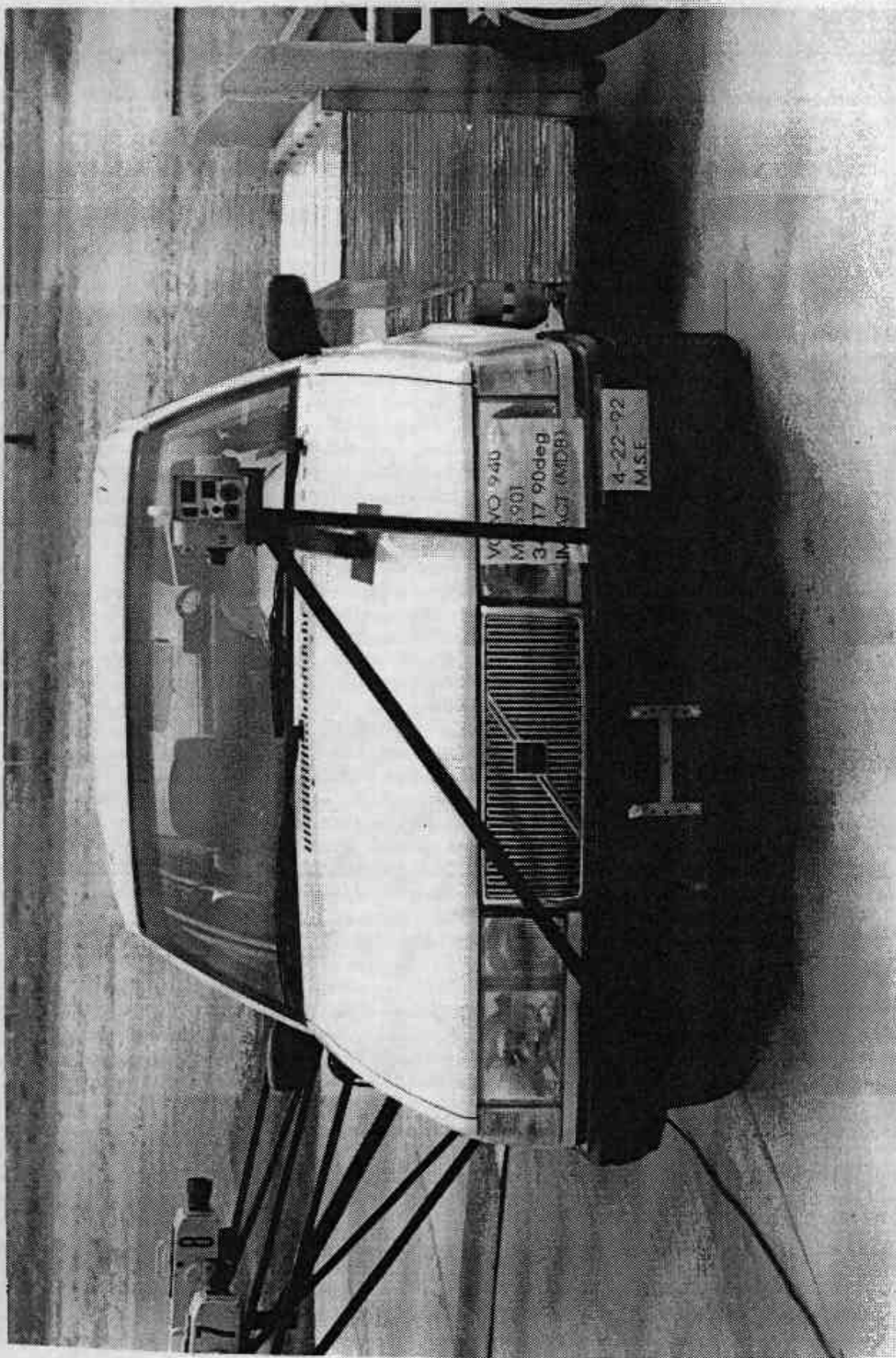


FIGURE 5-1 PRETEST FRONTAL VIEW OF TEST VEHICLE (TARGET VEHICLE)

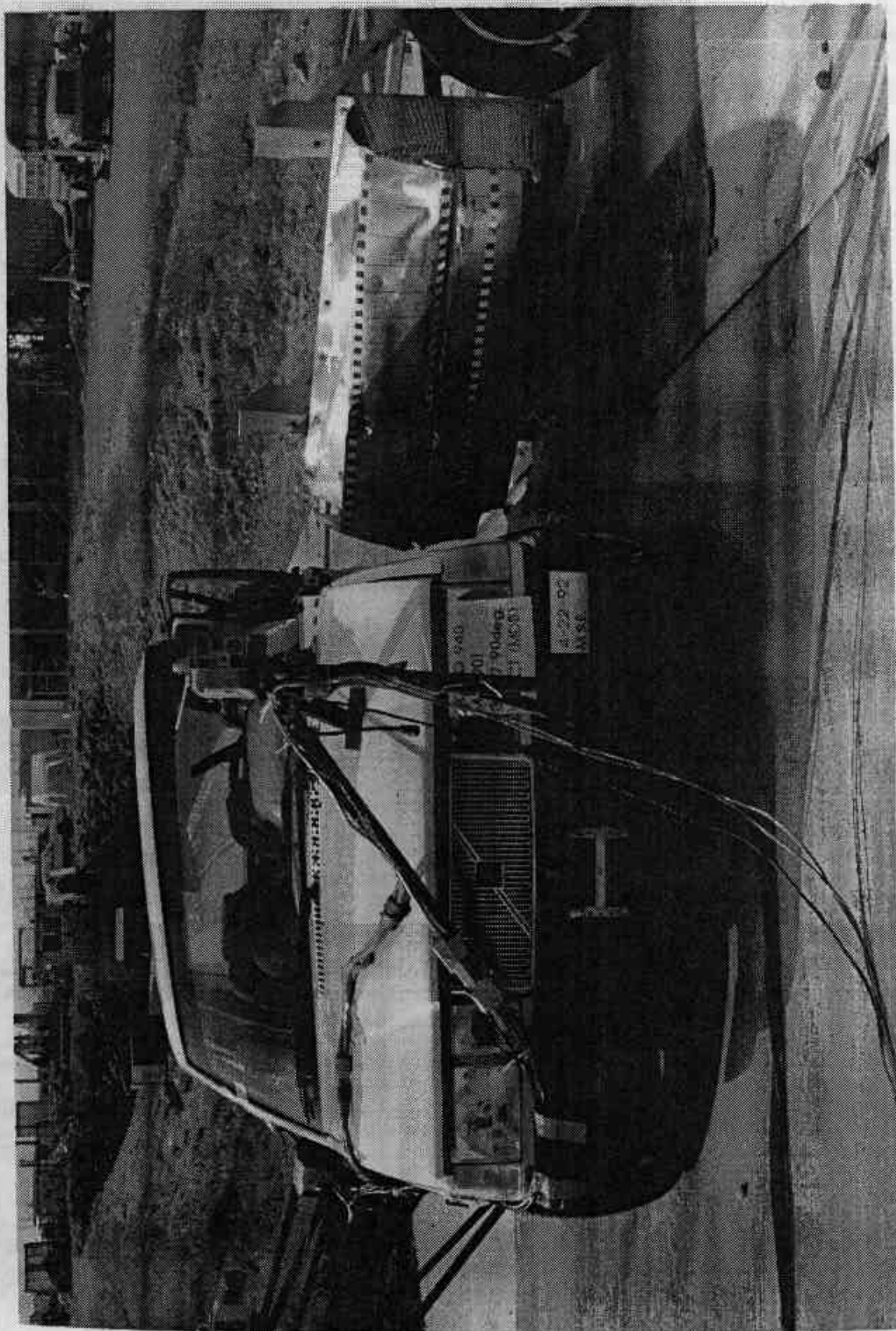


FIGURE 5-2 POSTTEST FRONTAL VIEW OF TEST VEHICLE

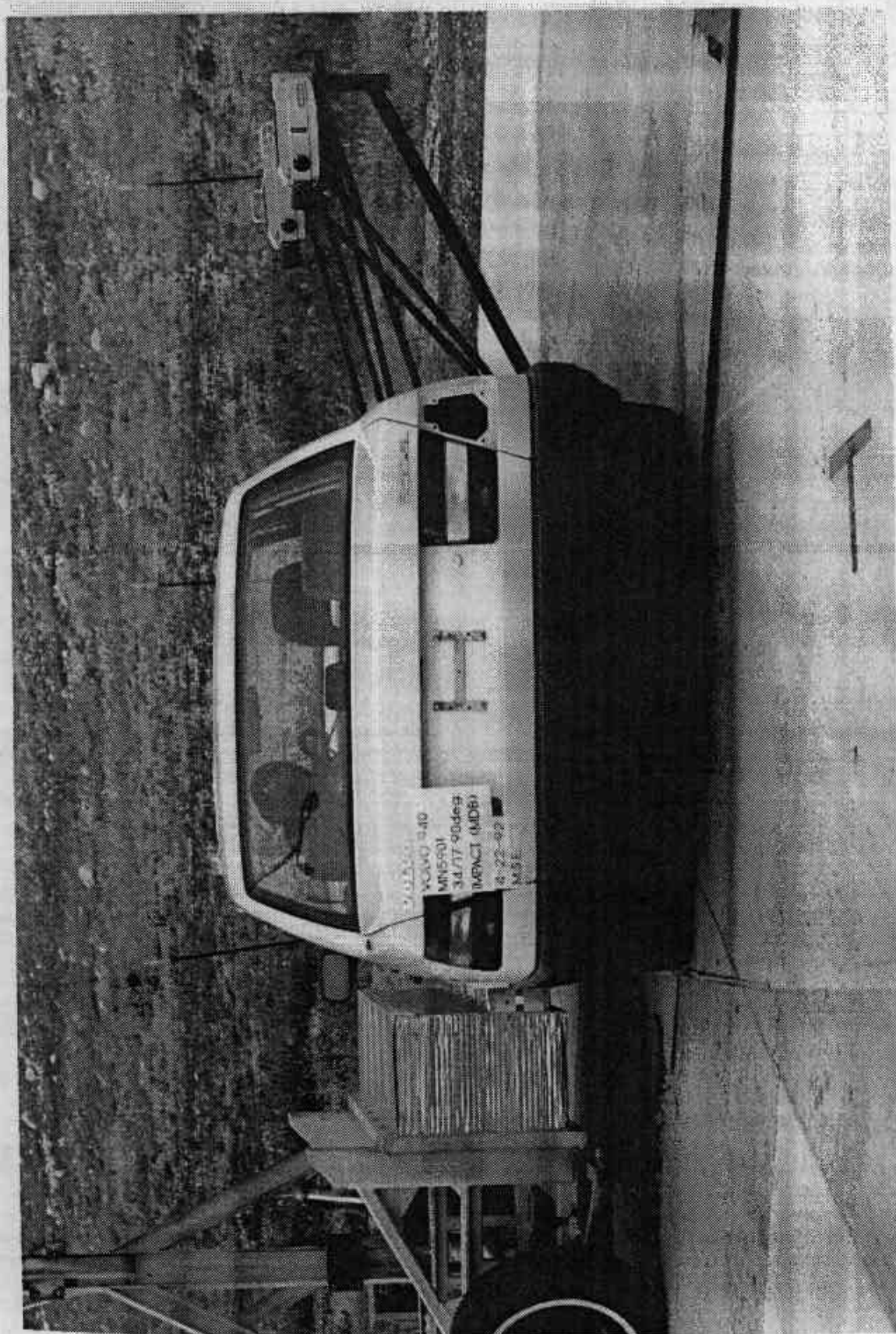


FIGURE 5-3 PRETEST REAR VIEW OF TEST VEHICLE

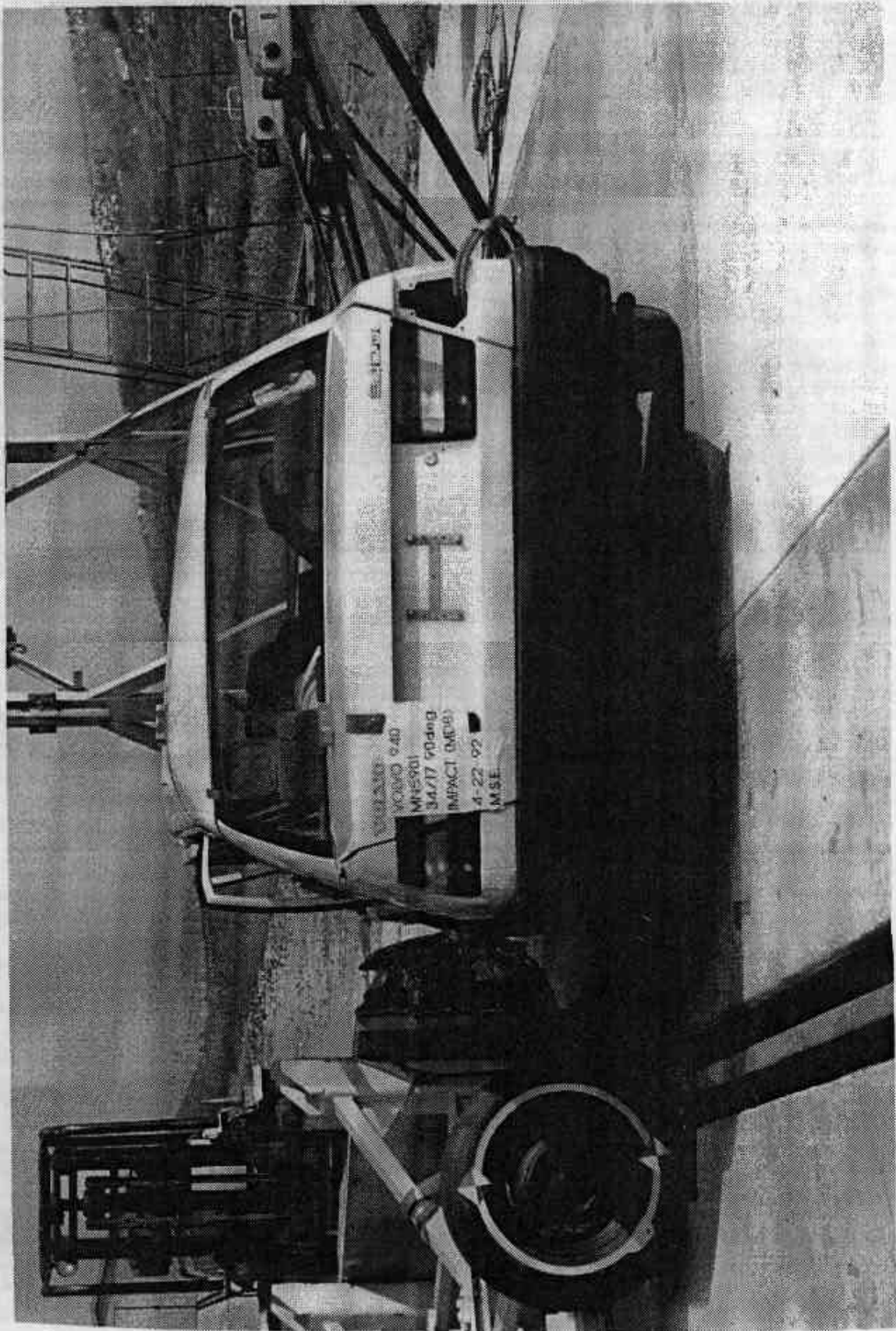


FIGURE 5-4 POSTTEST REAR VIEW OF TEST VEHICLE

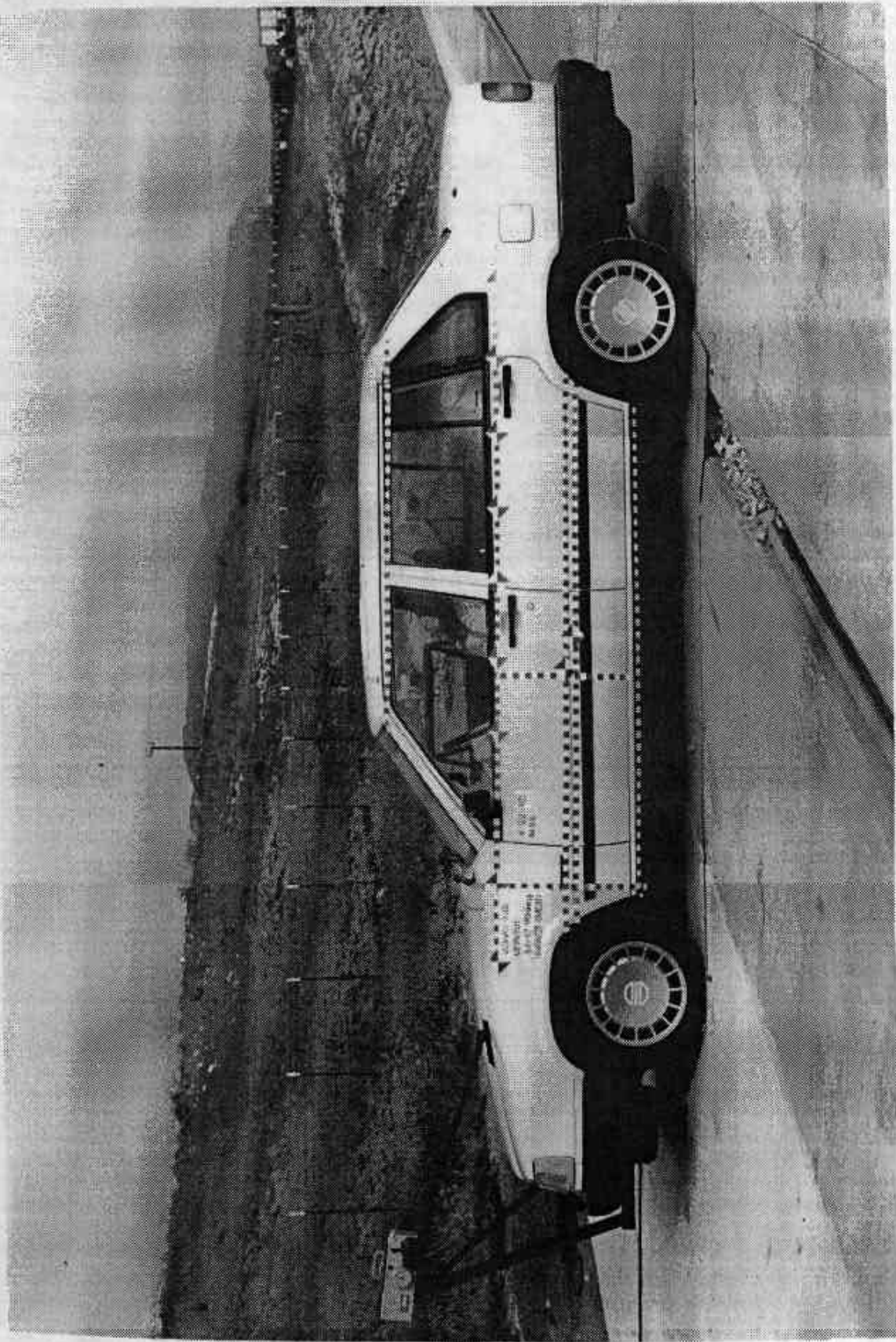


FIGURE 5-5 PRETEST STRUCK SIDE VIEW OF TEST VEHICLE

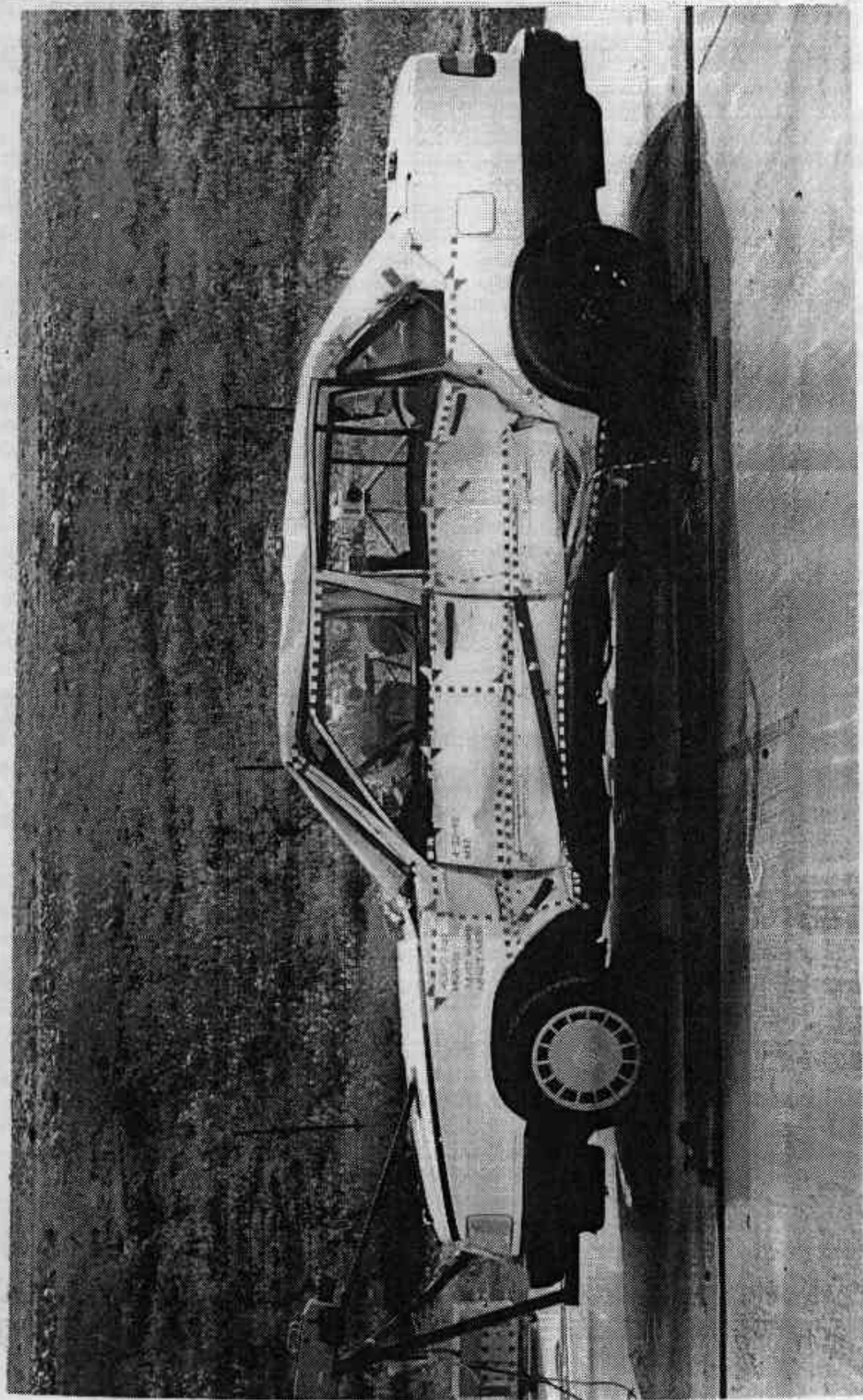


FIGURE 5-6 POSTTEST STRUCK SIDE VIEW OF TEST VEHICLE

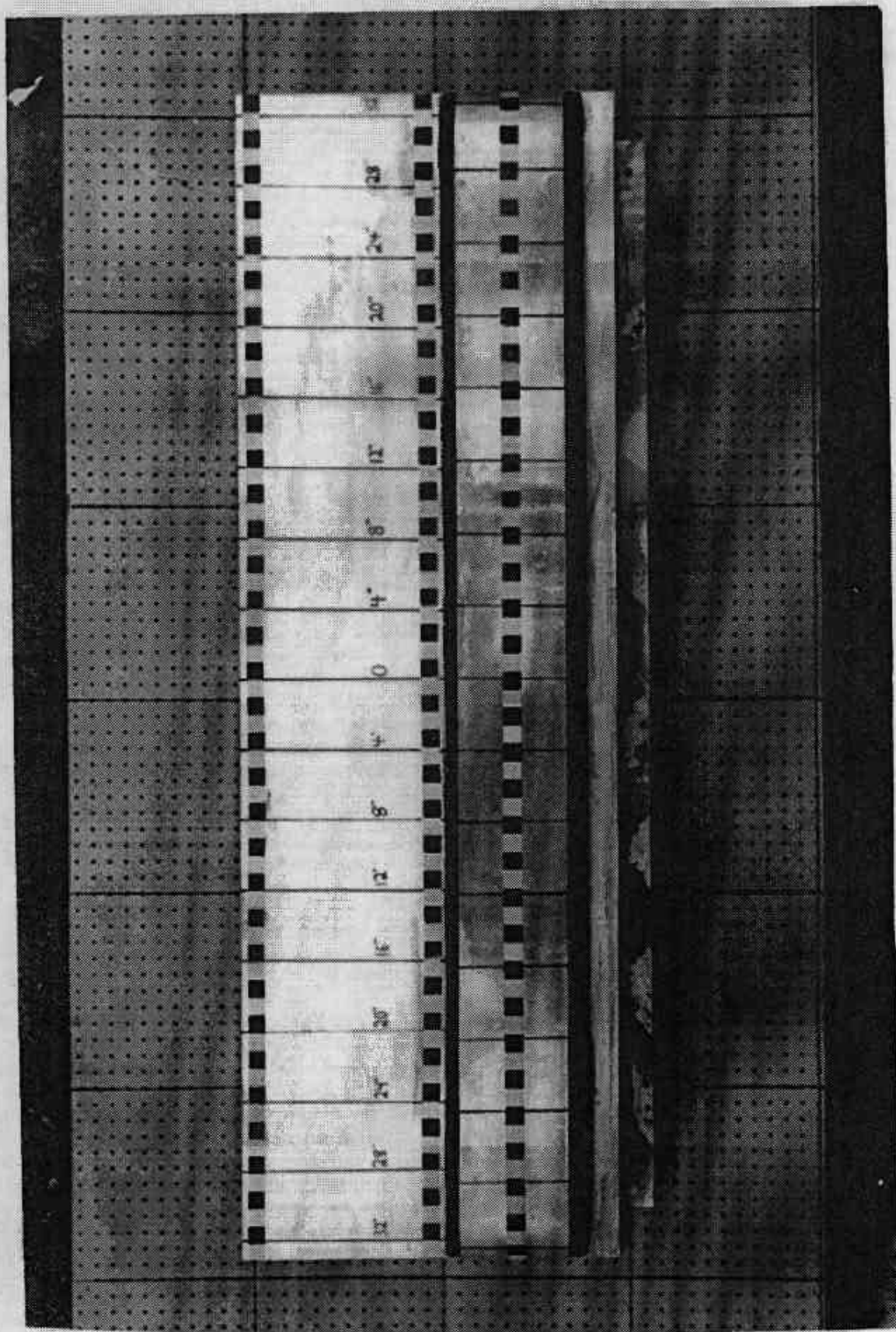


FIGURE 5-7 PRETEST FRONTAL VIEW OF MDB IMPACT FACE

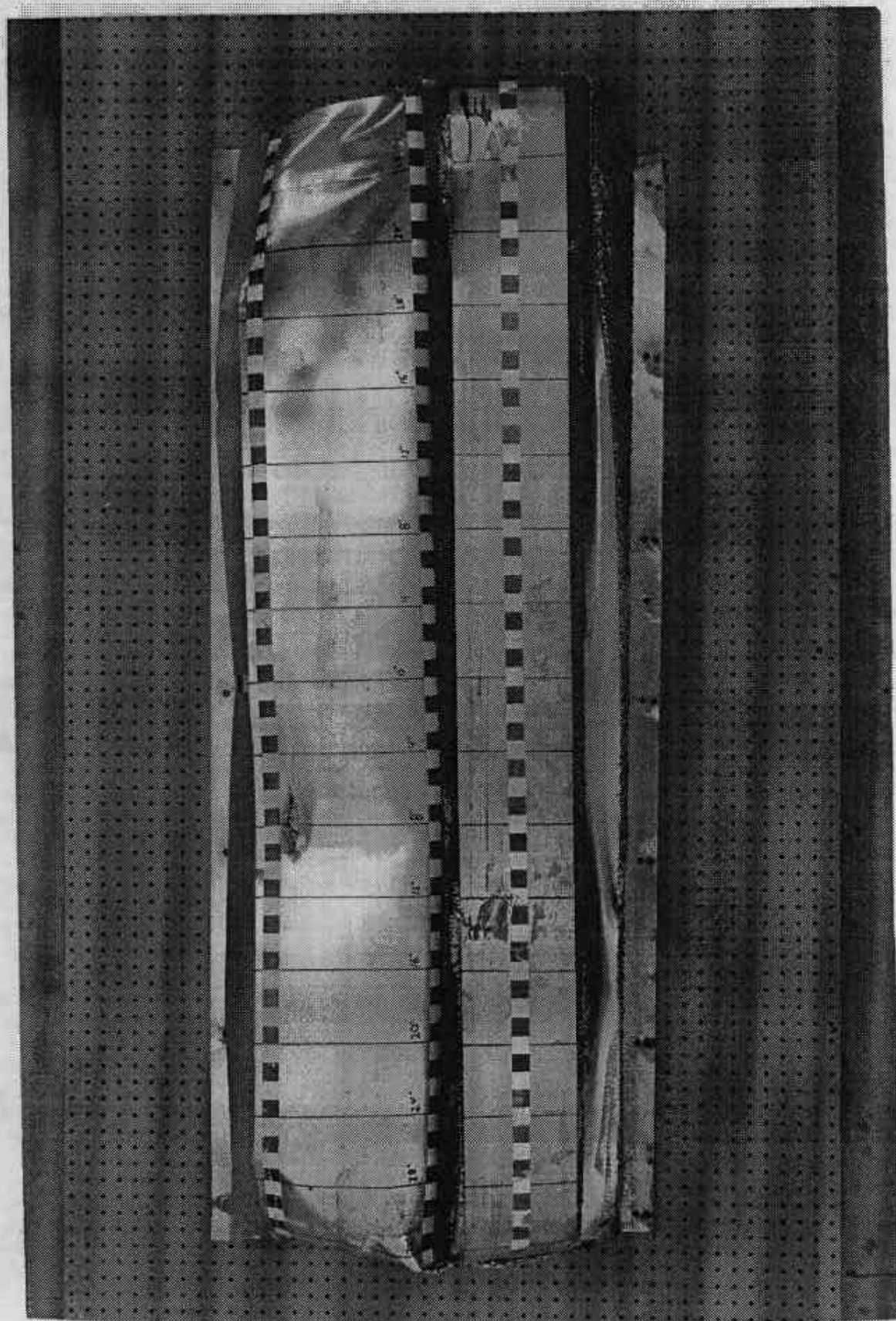


FIGURE 5-8 POSTTEST FRONTAL VIEW OF MDB IMPACT FACE

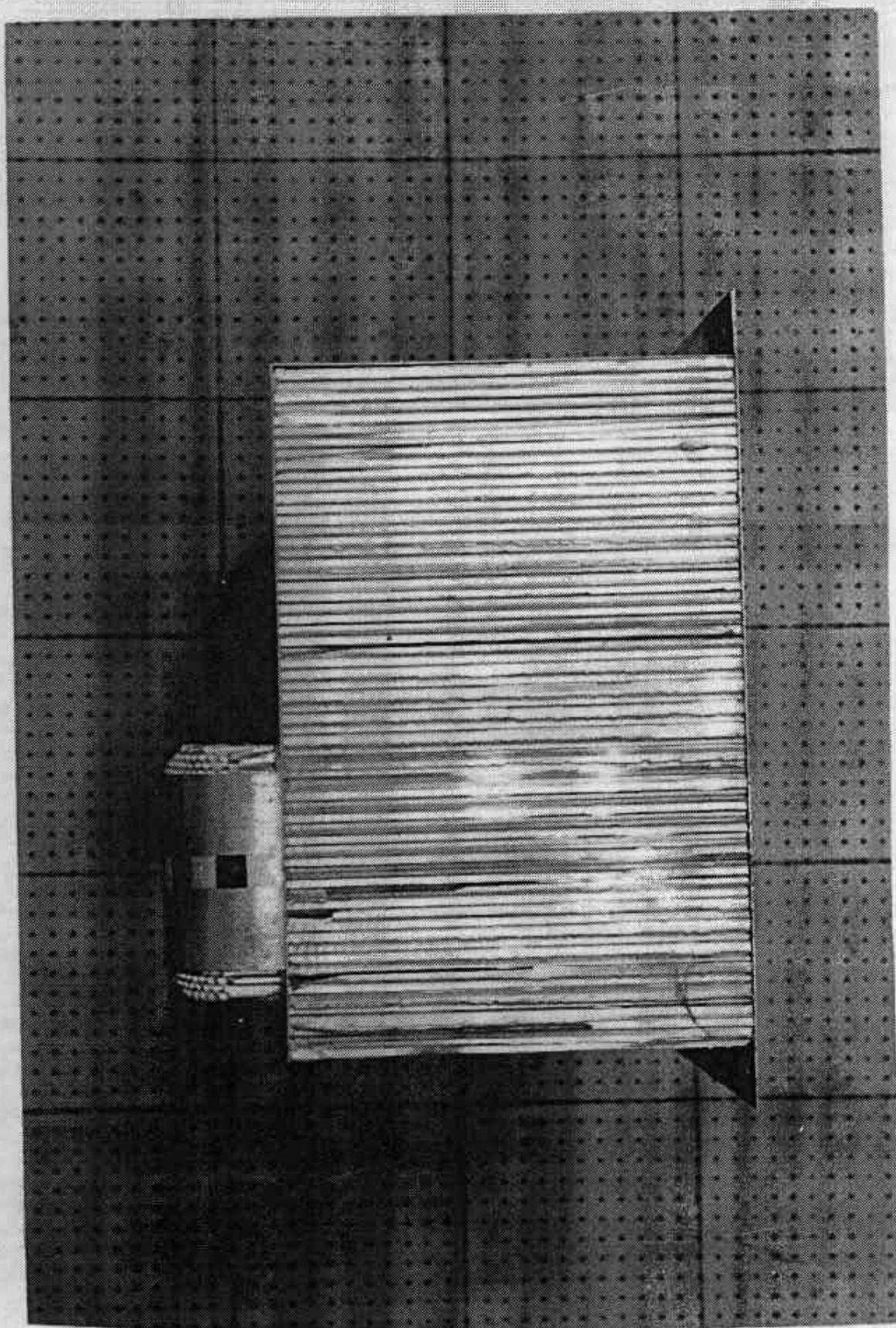


FIGURE 5-9 PRETEST LEFT SIDE VIEW OF MDB IMPACT FACE



FIGURE 5-10 POSTTEST LEFT SIDE VIEW OF MDB IMPACT FACE

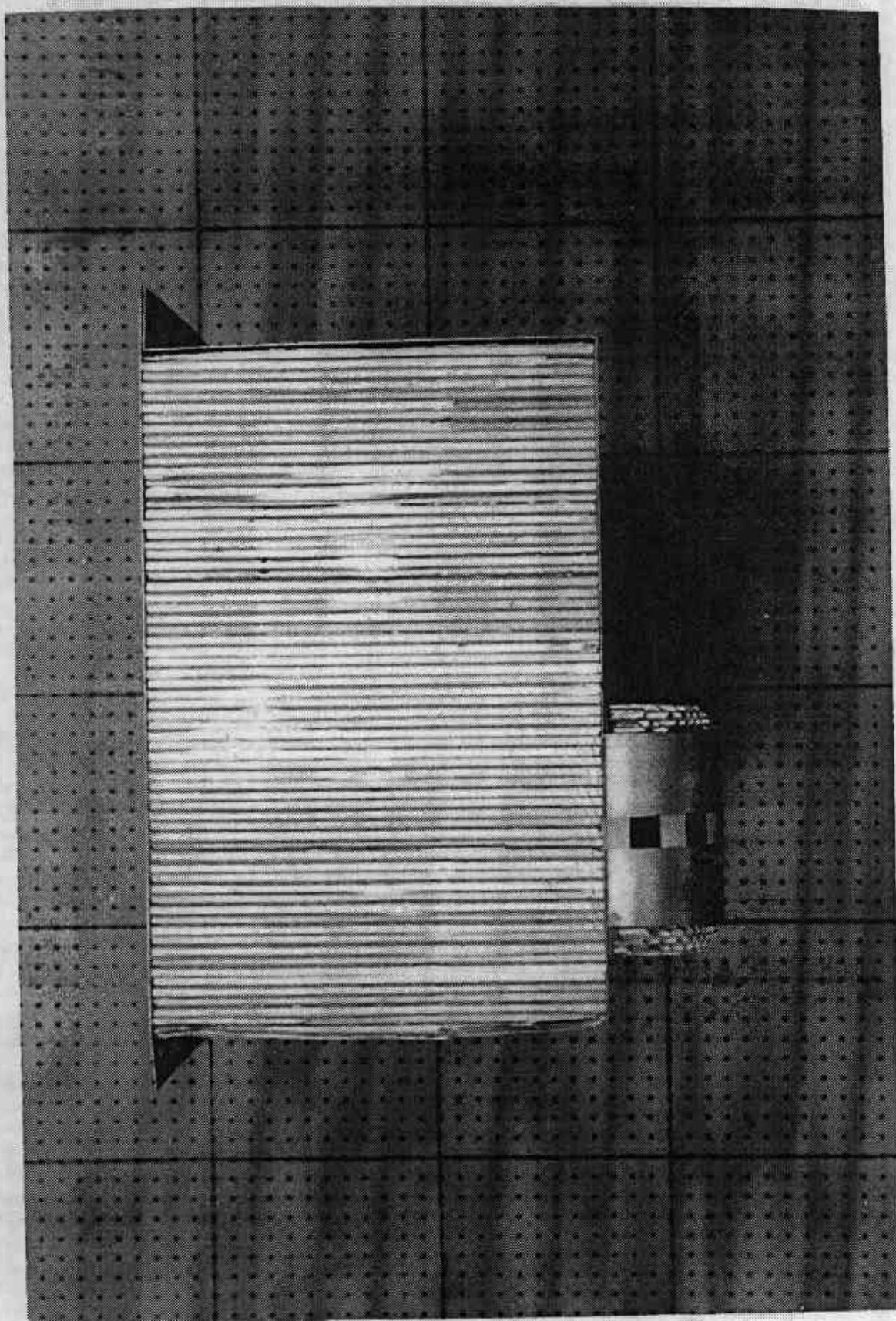


FIGURE 5-11 PRETEST RIGHT SIDE VIEW OF MDB IMPACT FACE

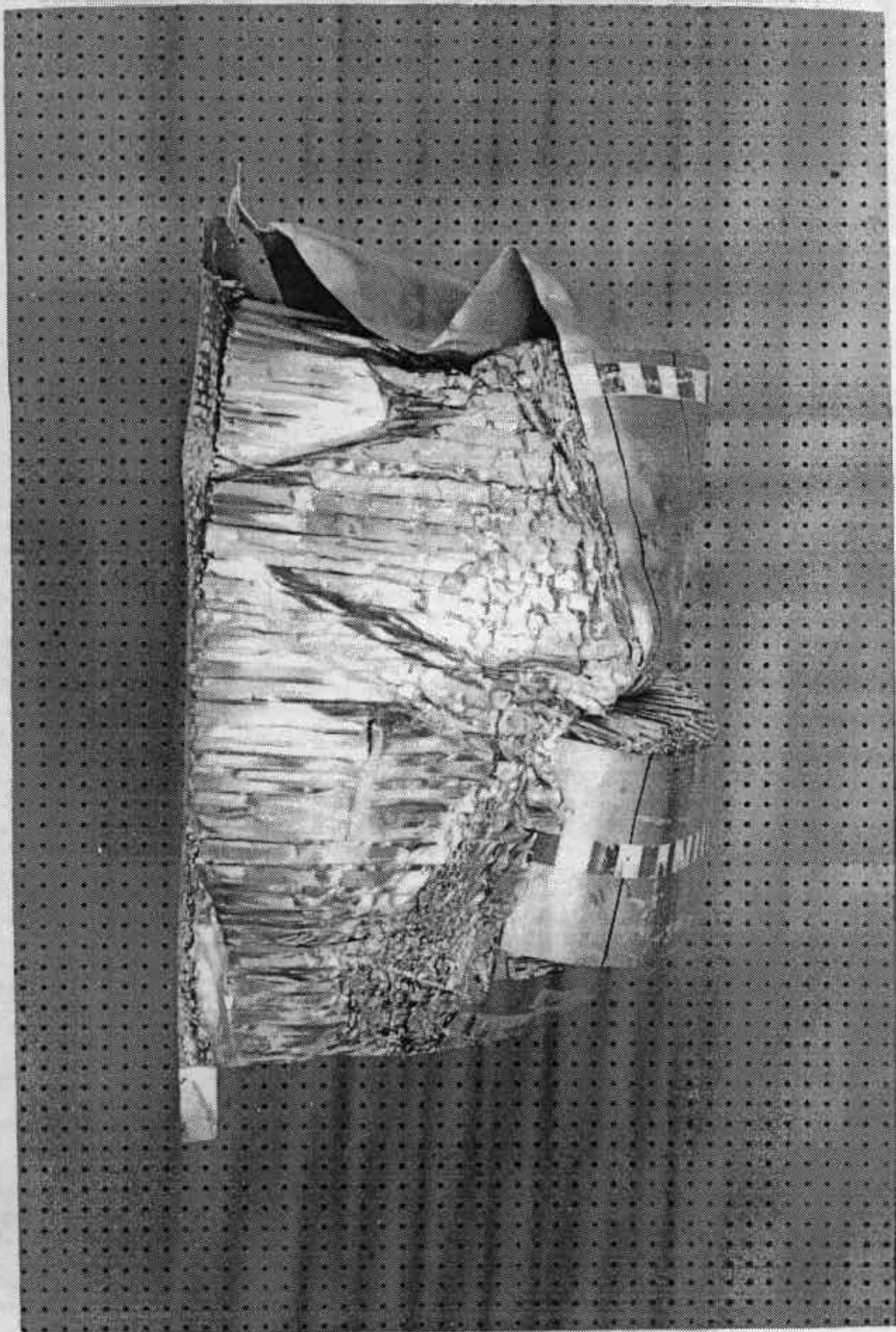


FIGURE 5-12 POSTTEST RIGHT SIDE VIEW OF MDB IMPACT FACE

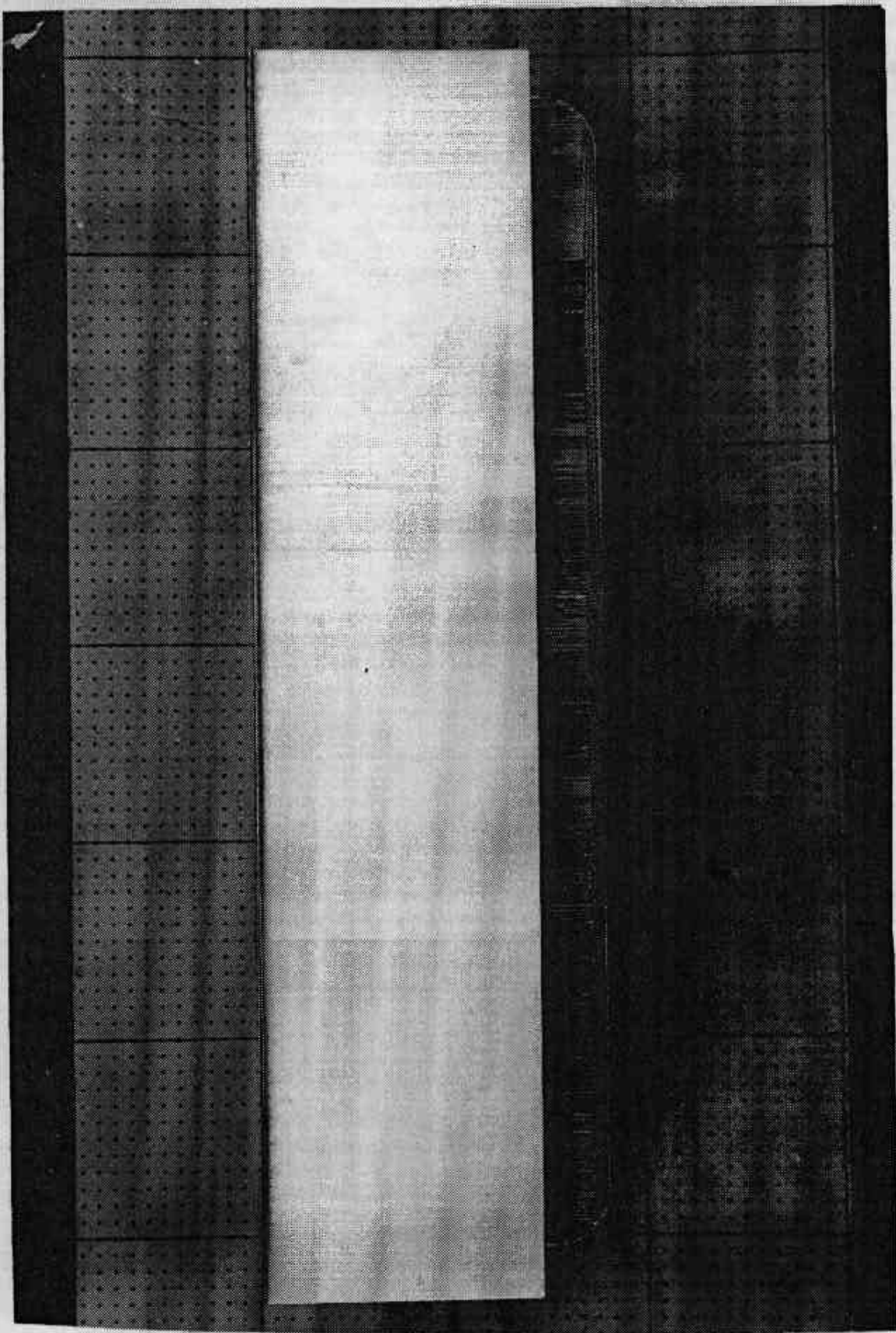


FIGURE 5-13 PRETEST TOP VIEW OF MDB IMPACT FACE

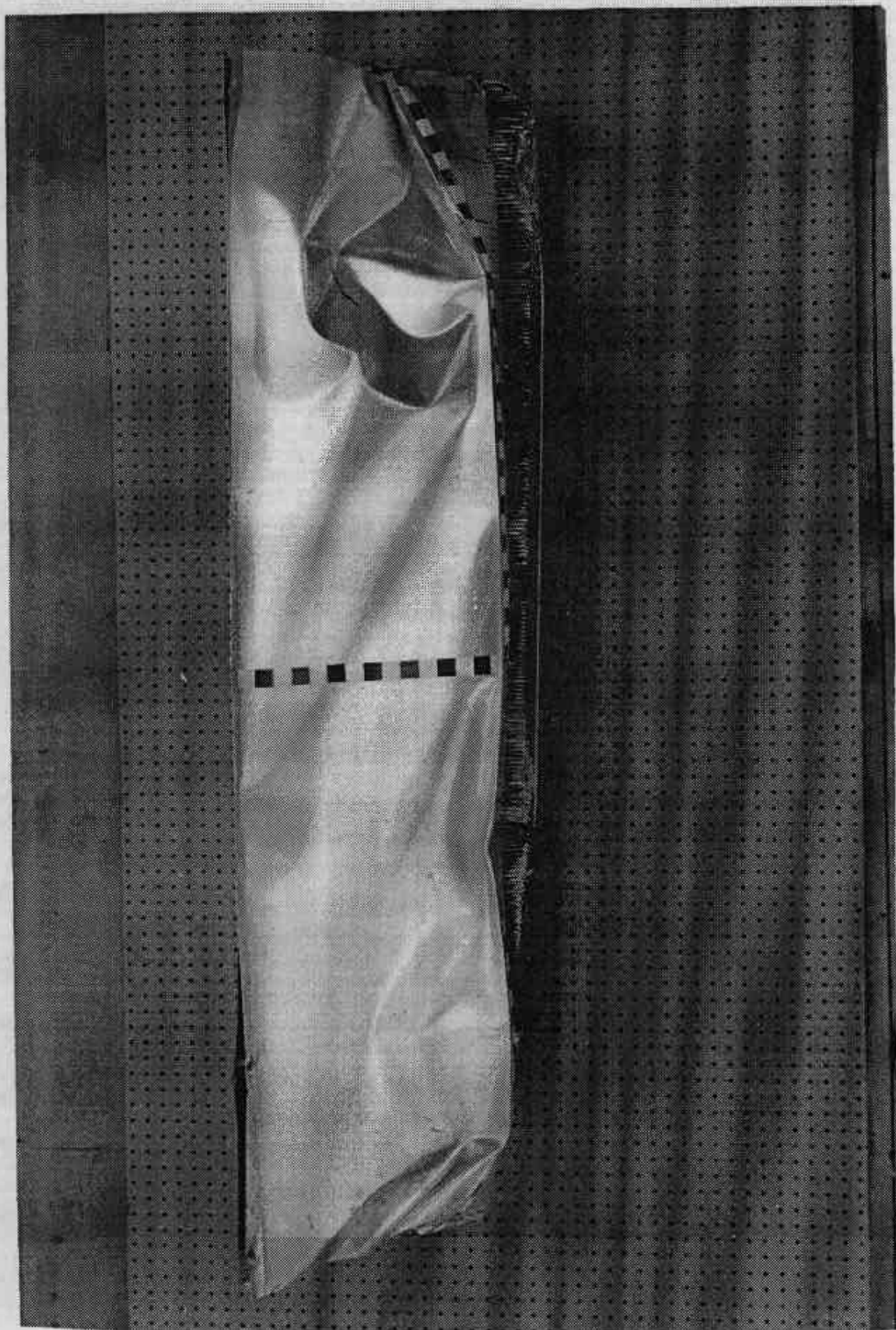


FIGURE 5-14 POSTTEST TOP VIEW OF MDB IMPACT FACE

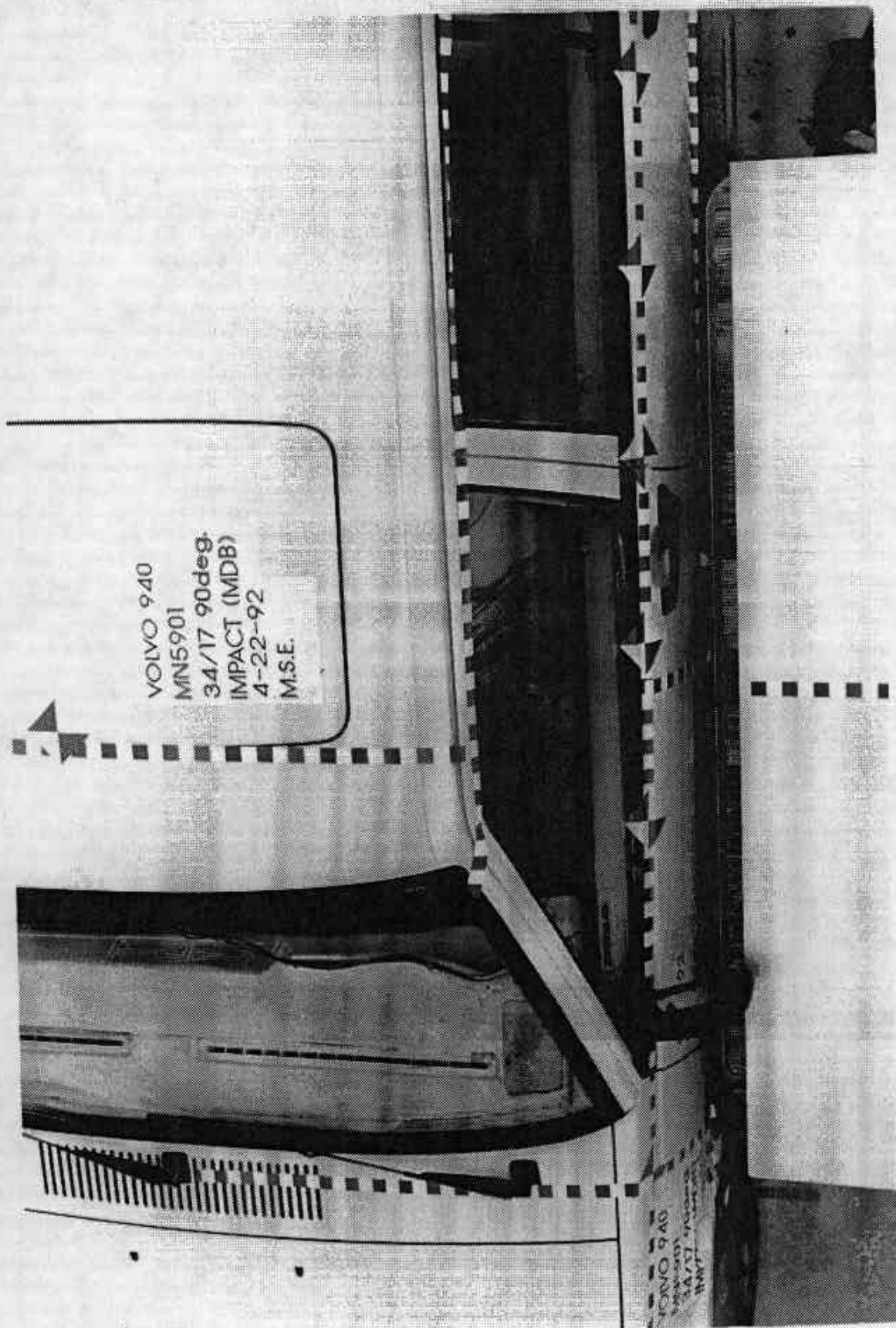


FIGURE 5-15 PRETEST OVERHEAD VIEW OF MDB POSITIONED AGAINST STRUCK SIDE
OF TEST VEHICLE AT IMPACT LOCATION

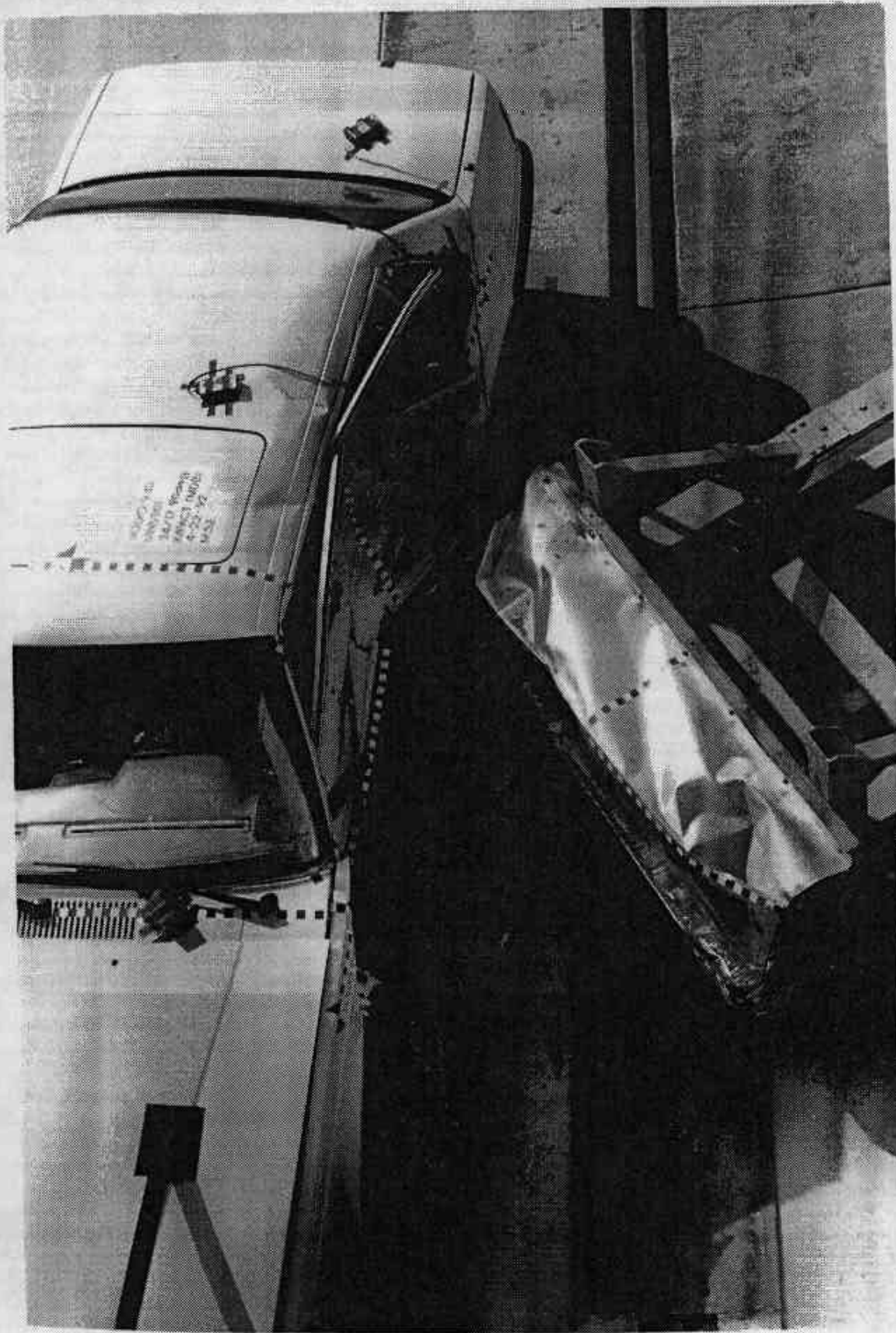


FIGURE 5-16 POSTTEST OVERHEAD VIEW OF MDB POSITIONED AGAINST STRUCK SIDE OF TEST VEHICLE AT IMPACT LOCATION



FIGURE 5-17 PRETEST OCCUPANT COMPARTMENT LEFT SIDE
SHOWING DRIVER SID

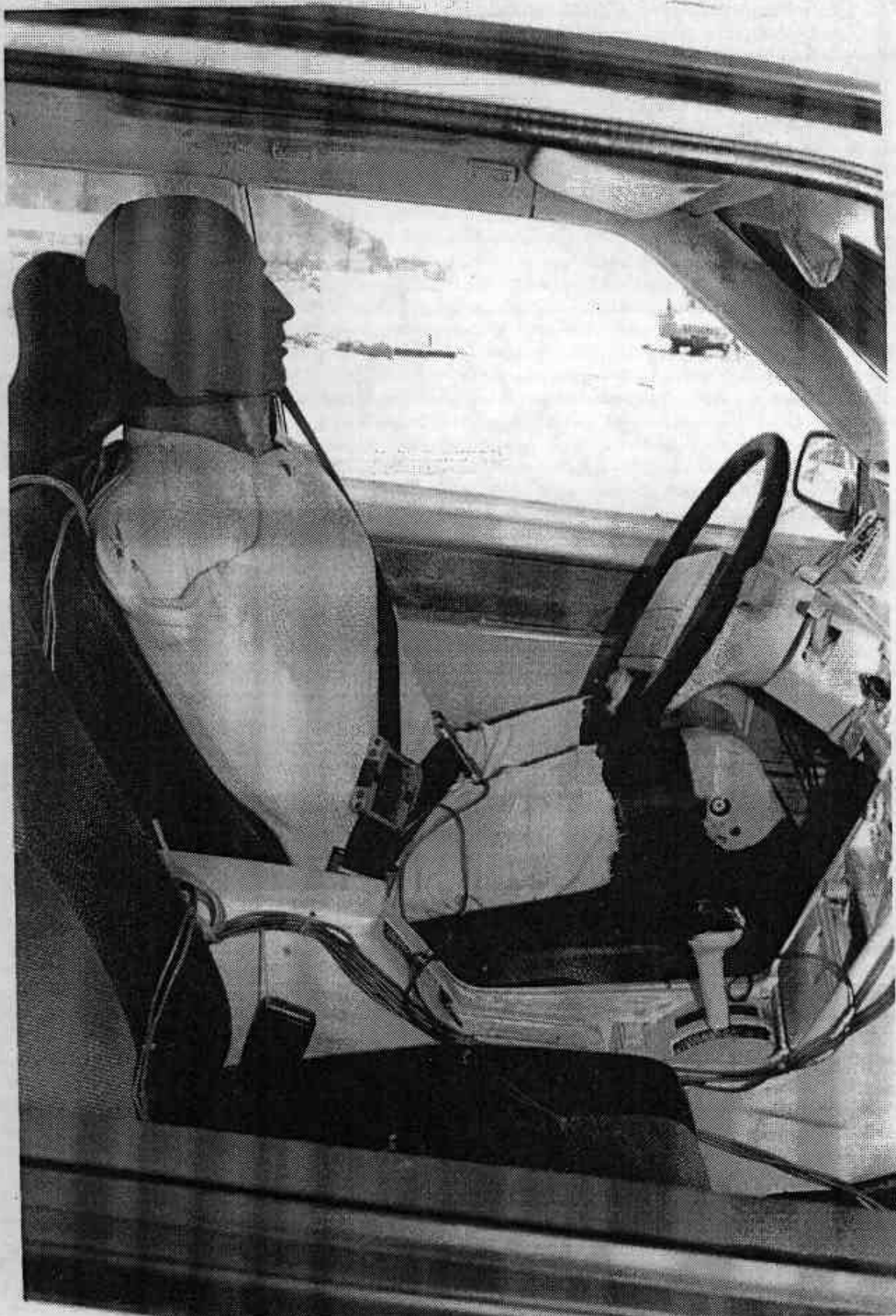


FIGURE 5-18 PRETEST OCCUPANT COMPARTMENT RIGHT SIDE SHOWING
DRIVER SID

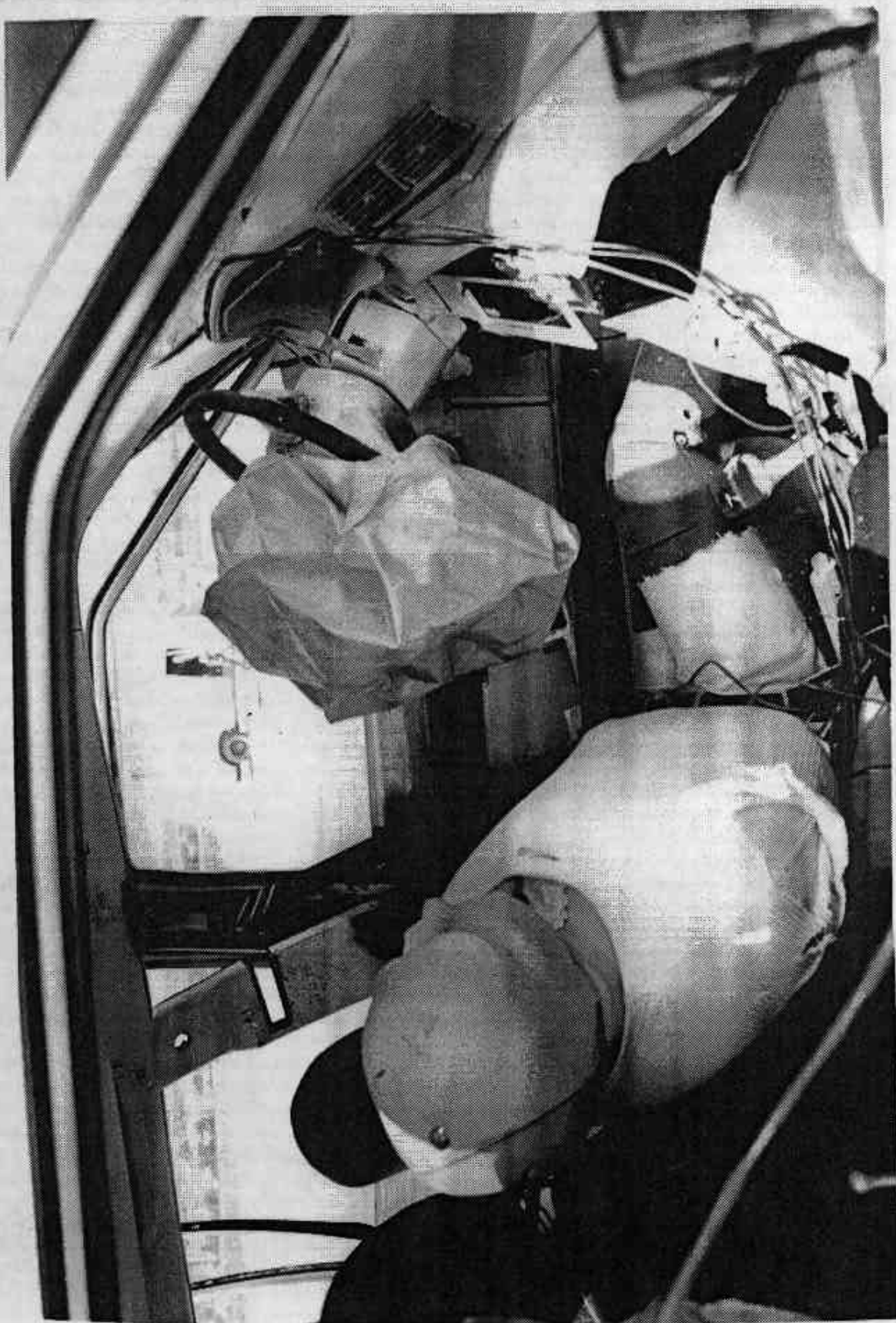


FIGURE 5-19 POSTTEST OCCUPANT COMPARTMENT DRIVER SIDE



FIGURE 5-20 PRETEST OCCUPANT COMPARTMENT LEFT SIDE VIEW
SHOWING PASSENGER SIDE



FIGURE 5-21 PRETEST OCCUPANT COMPARTMENT RIGHT SIDE VIEW SHOWING PASSENGER SID

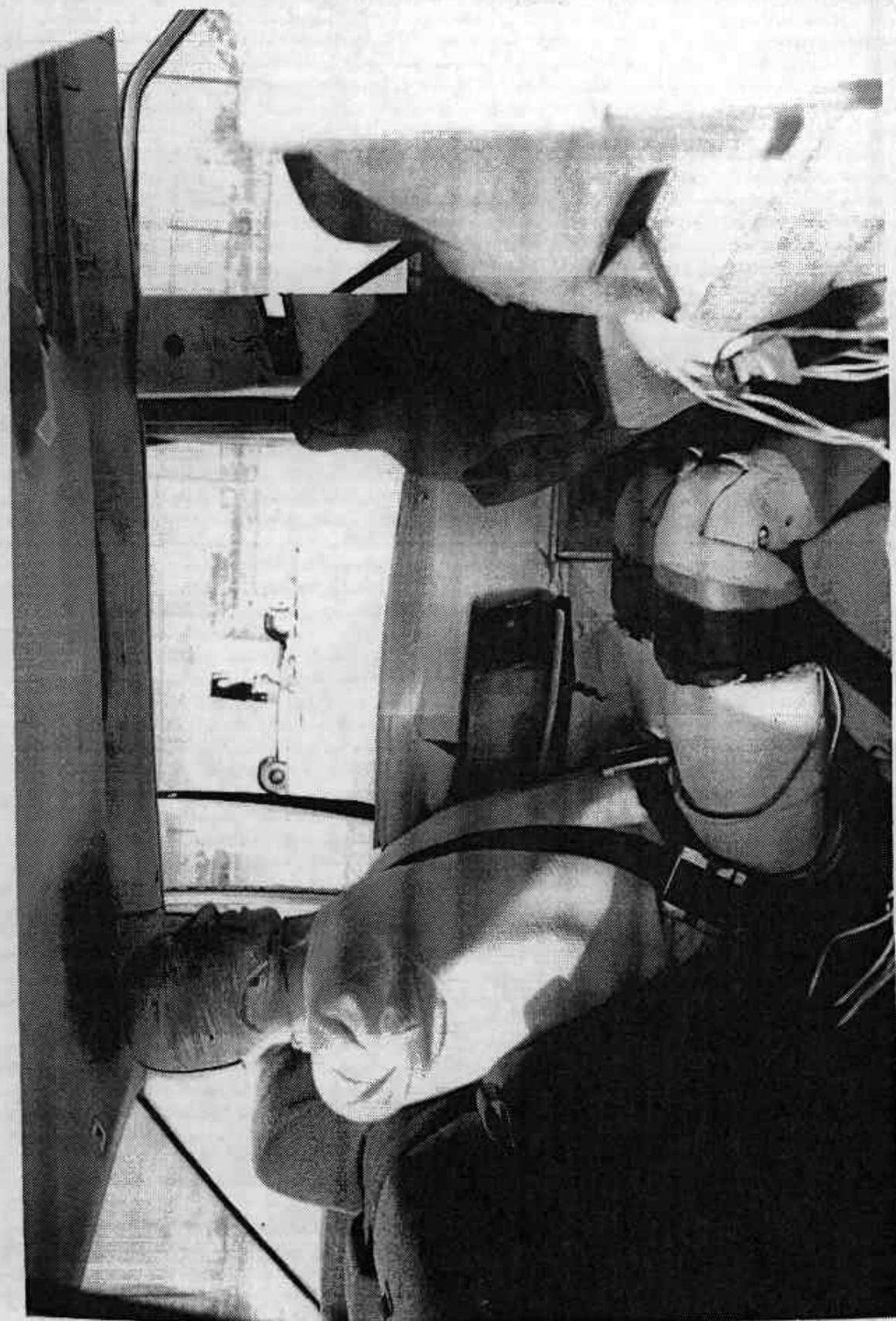


FIGURE 5-22 POSTTEST OCCUPANT COMPARTMENT VIEW SHOWING PASSENGER SIDE

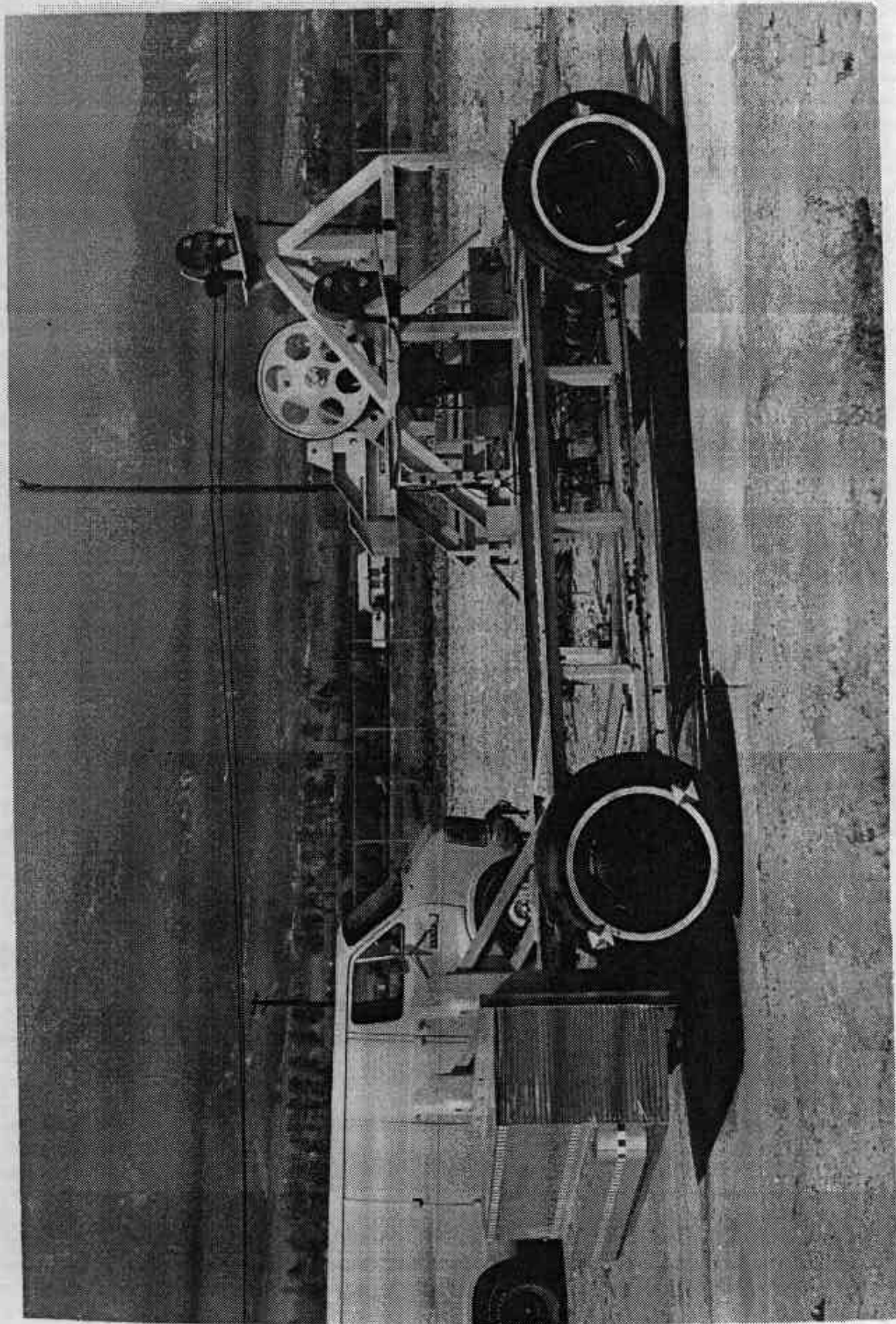


FIGURE 5-23 PRETEST LEFT SIDE VIEW OF MDB WITH IMPACT FACE IN POSITION

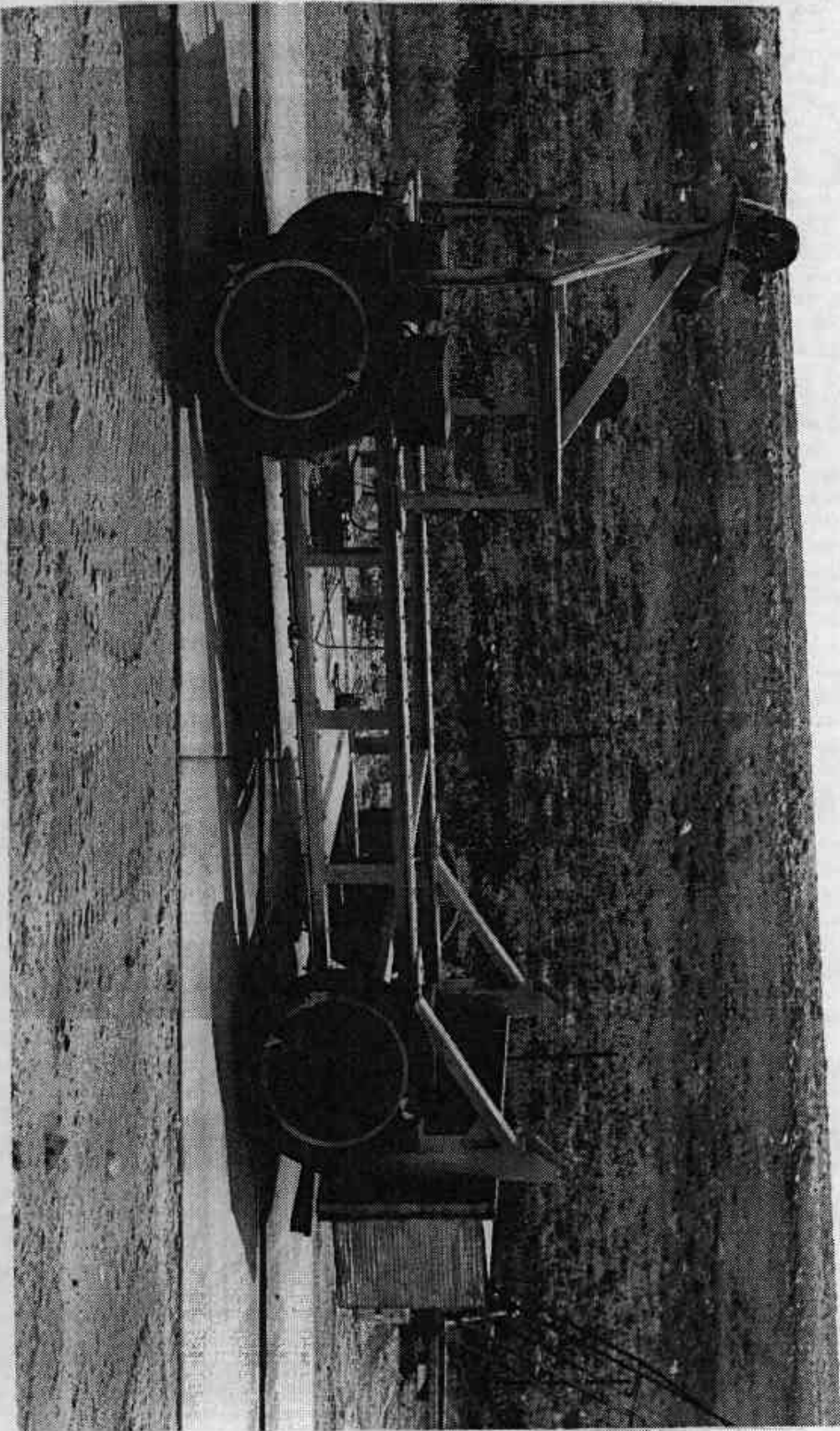


FIGURE 5-24 PRETEST RIGHT SIDE VIEW OF MDB WITH IMPACT FACE IN POSITION

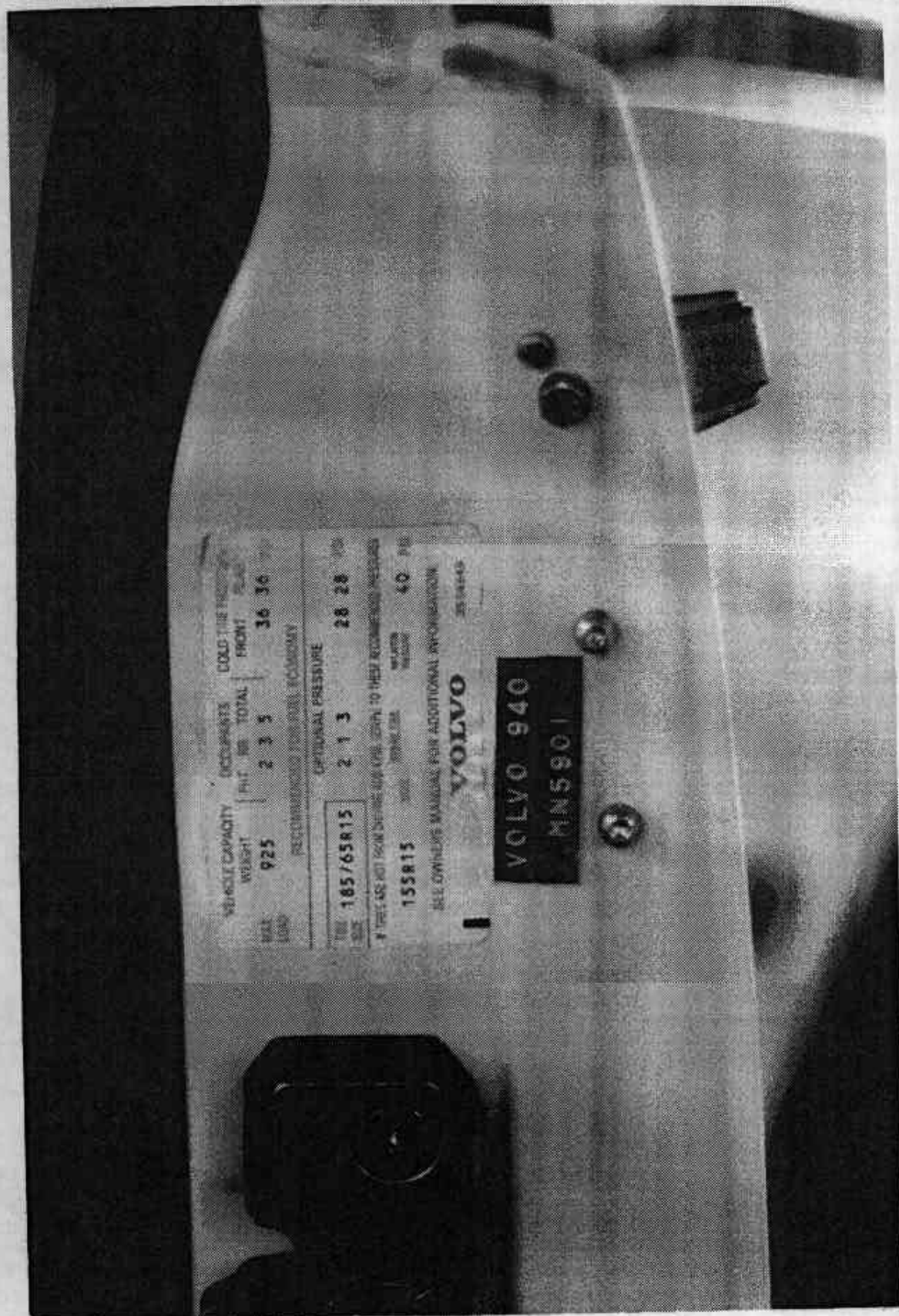


FIGURE 5-25 TEST VEHICLE TIRE PLACARD

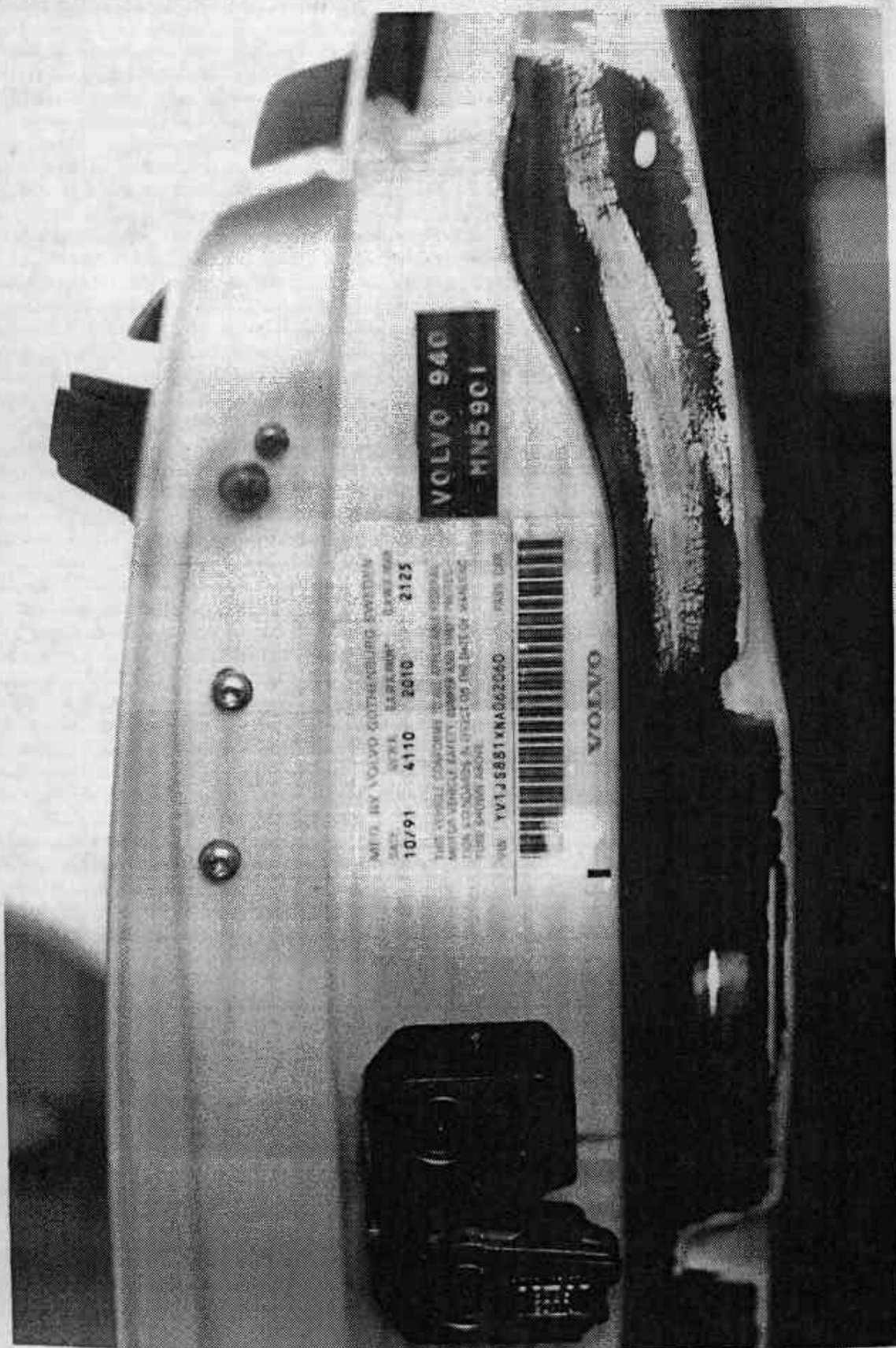


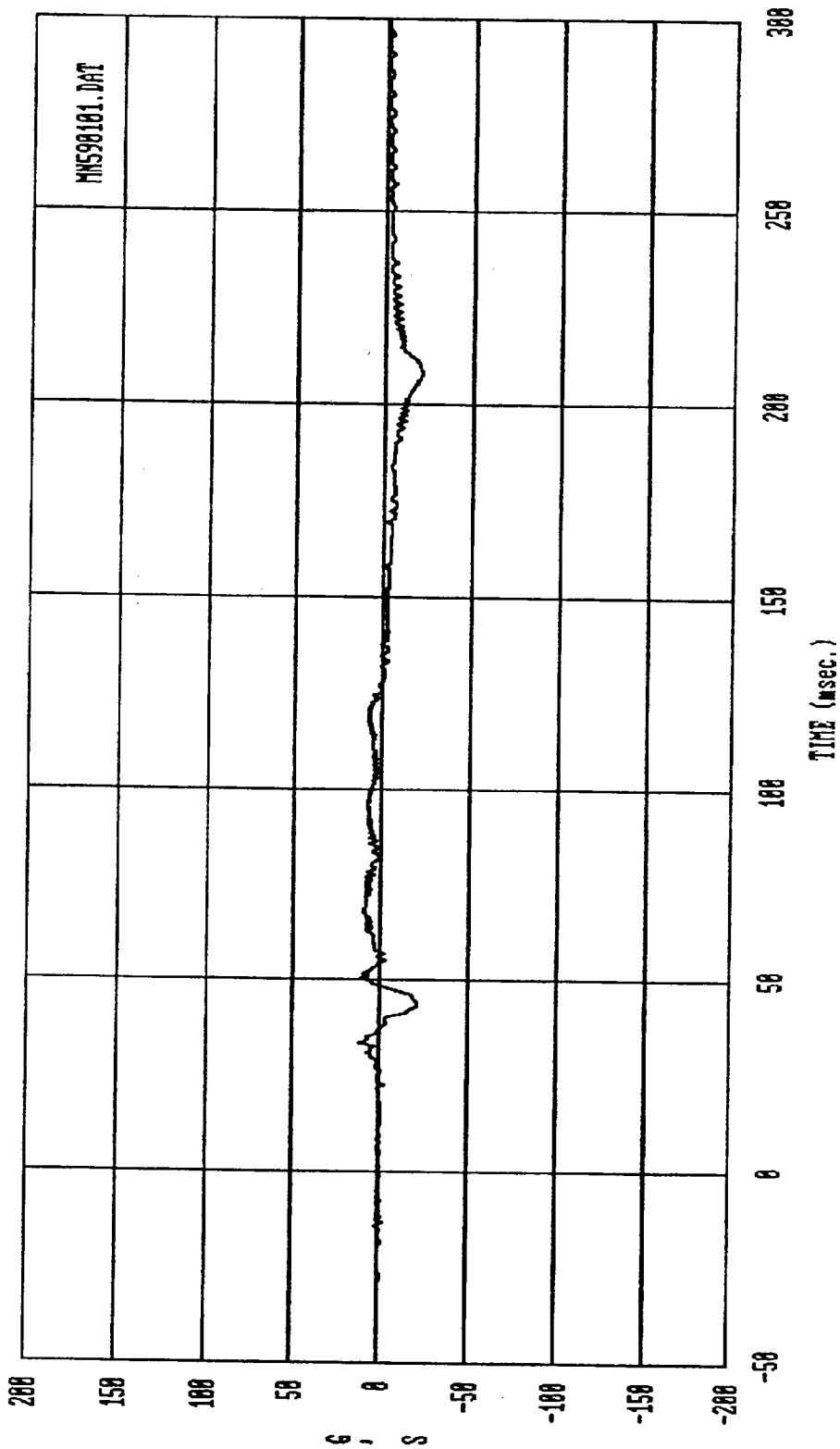
FIGURE 5-26 TEST VEHICLE MANUFACTURER'S CERTIFICATION LABEL

SECTION 6

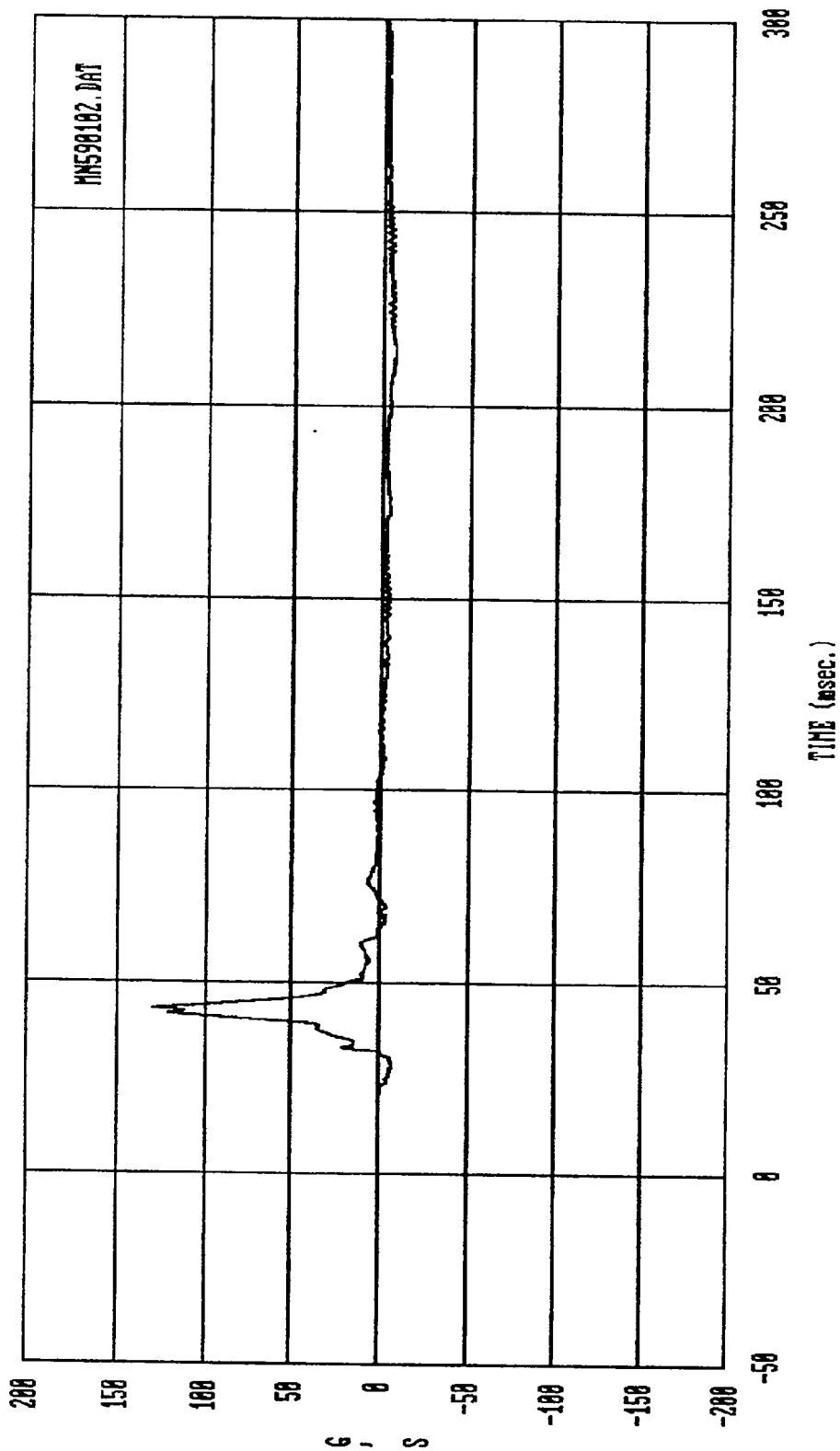
VEHICLE AND SID RESPONSE DATA

The dataplots from the side impact test are presented in this section.

SID DATA

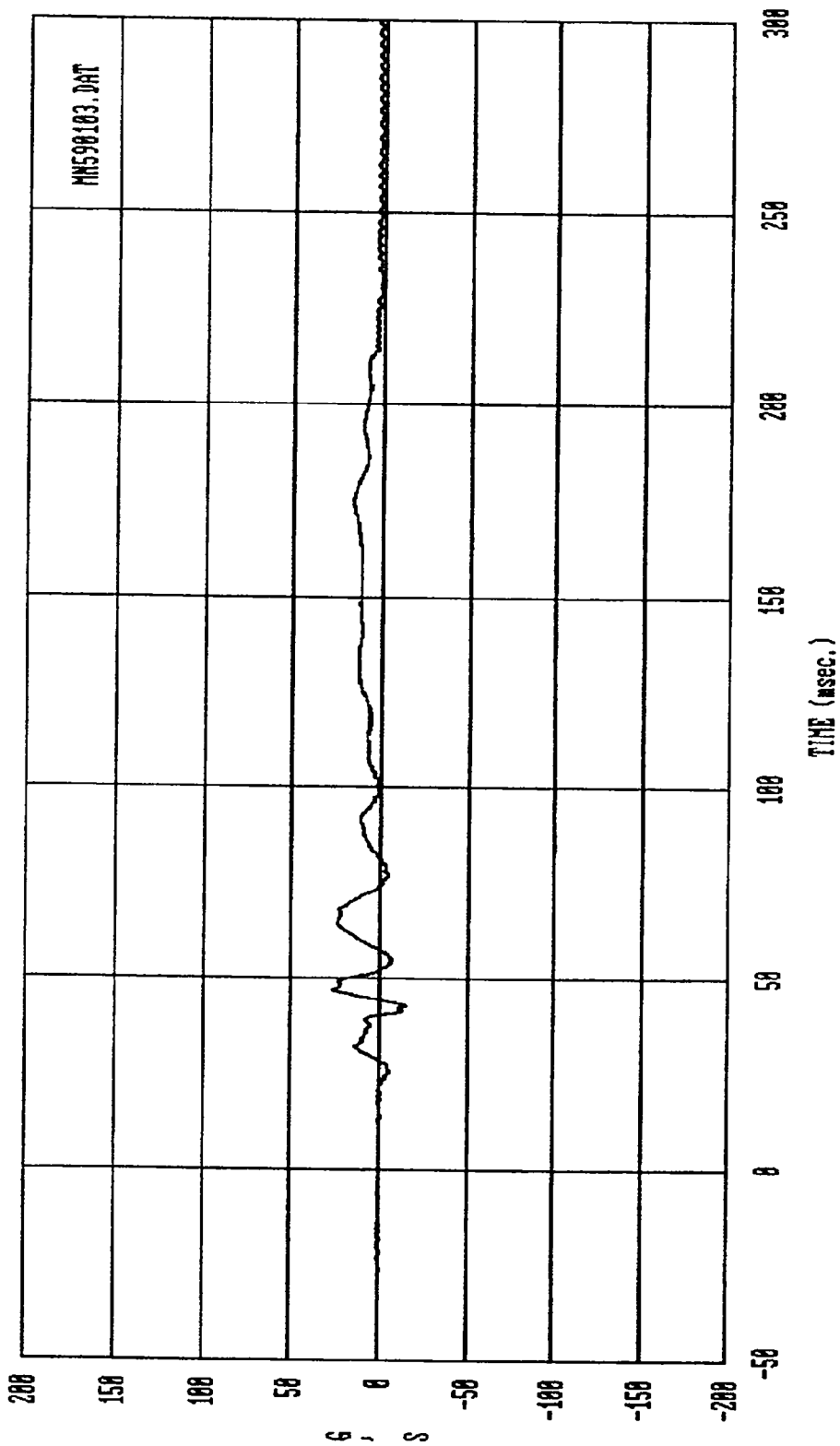


Curve: Driver Head acceleration -- X axis Filter: SAE CLASS 1000 Max = 11.688 Min = -21.453
 MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



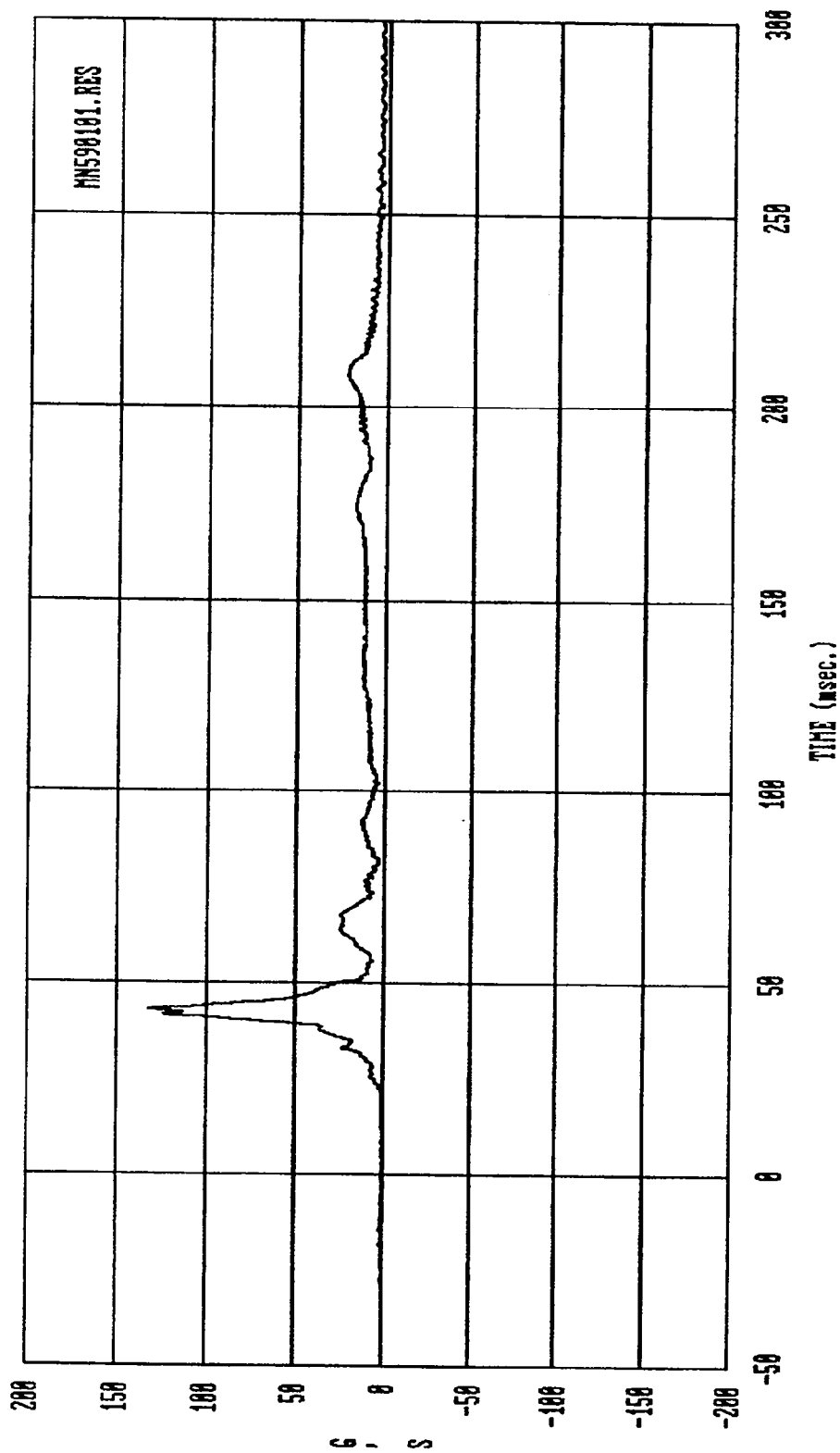
Curve: Driver Head acceleration -- Y axis Filter: SAE CLASS 1000 Max = 129.58 Min = -7.2633

HSE Date: 84/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



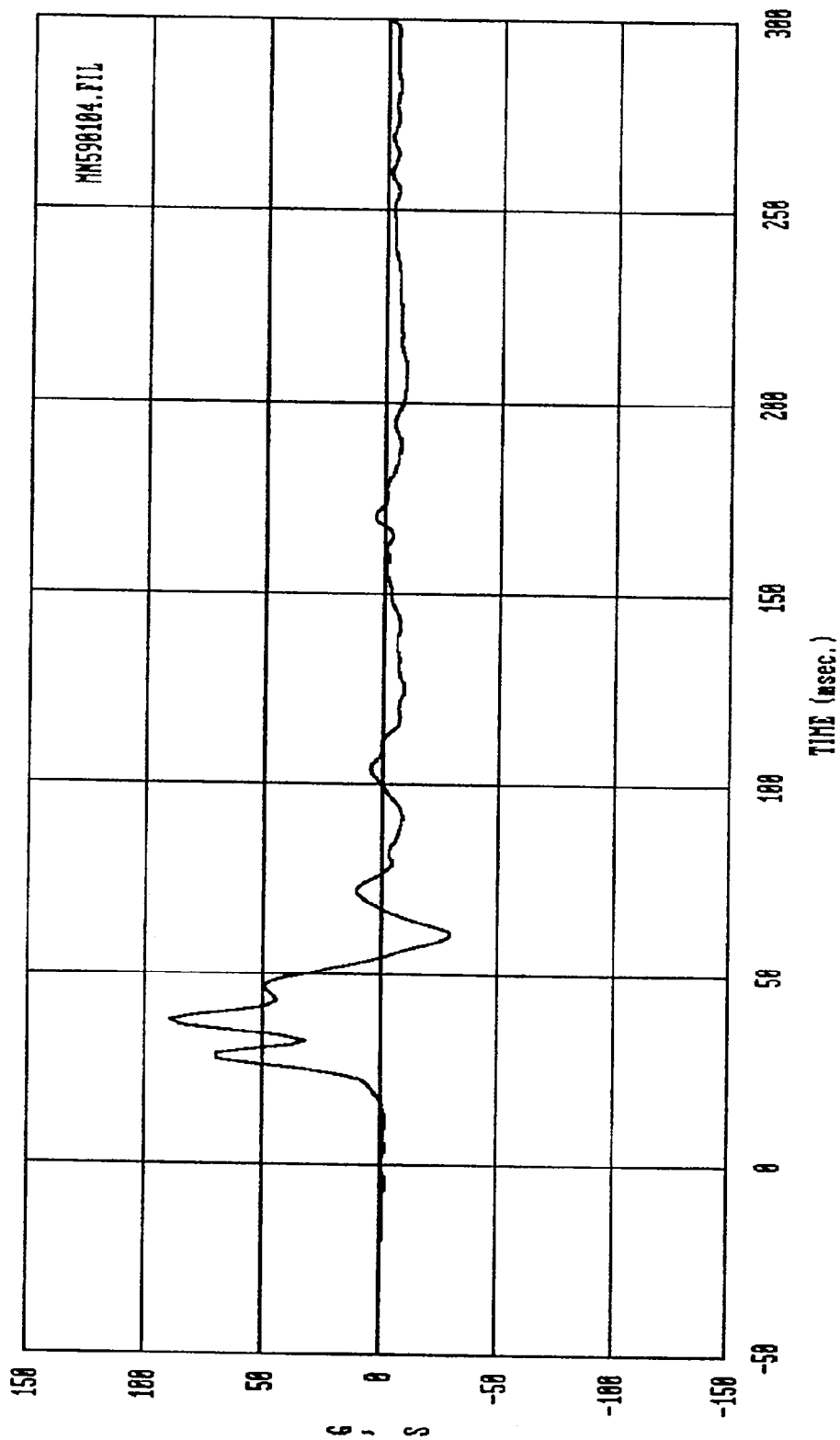
Curve: Driver Head acceleration -- Z axis Filter: SHE CLASS 1800 Max = 26.821 Min = -14.777

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



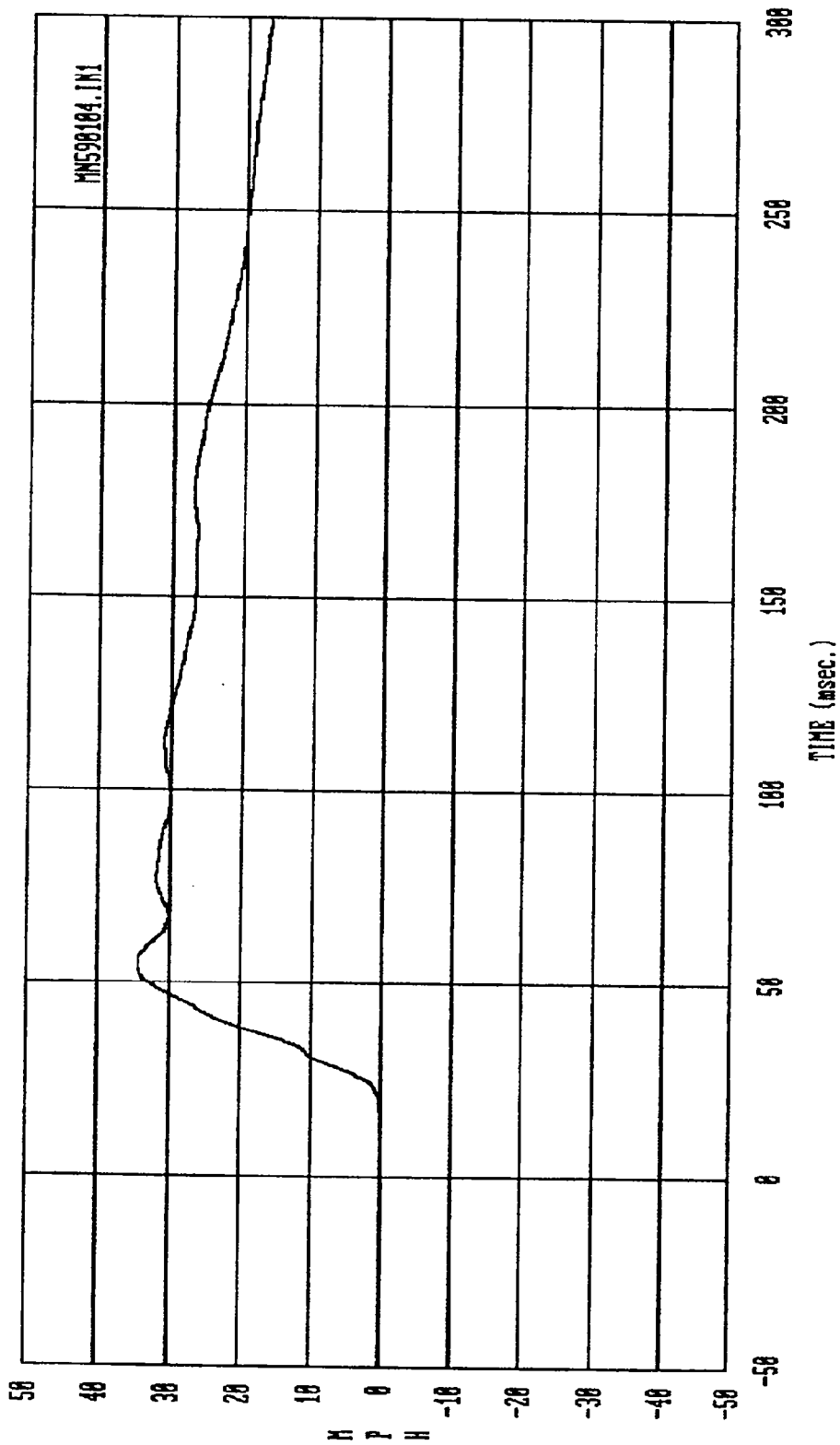
Curve: Driver head resultant acceleration Filter: SAE CLASS 1000 Max = 132.89 Min = .75824E-01

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



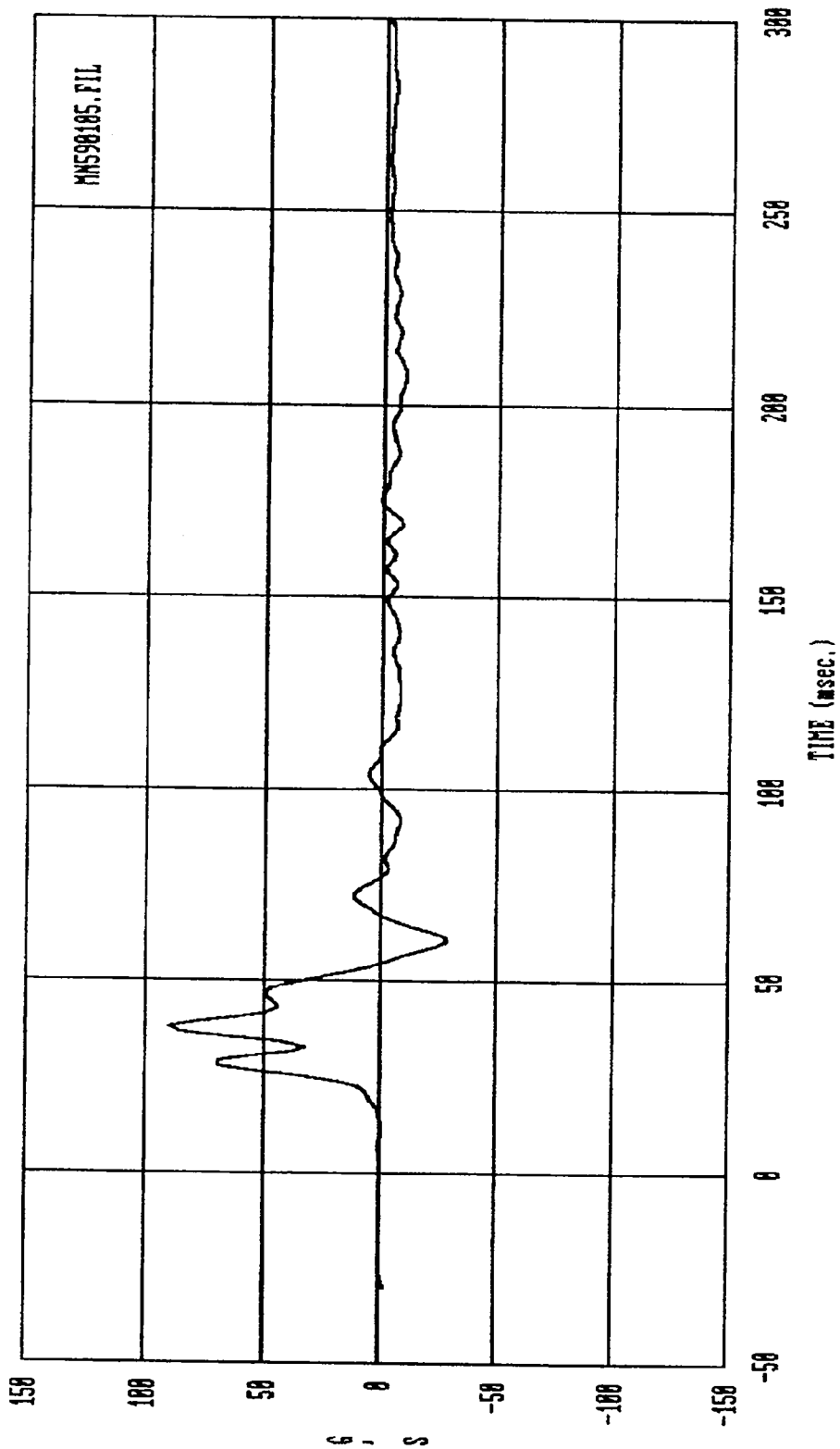
Curve: Driver upper spine acceleration -- Primary Filter: FIR 100 Max = 89.491 Min = -30.868

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



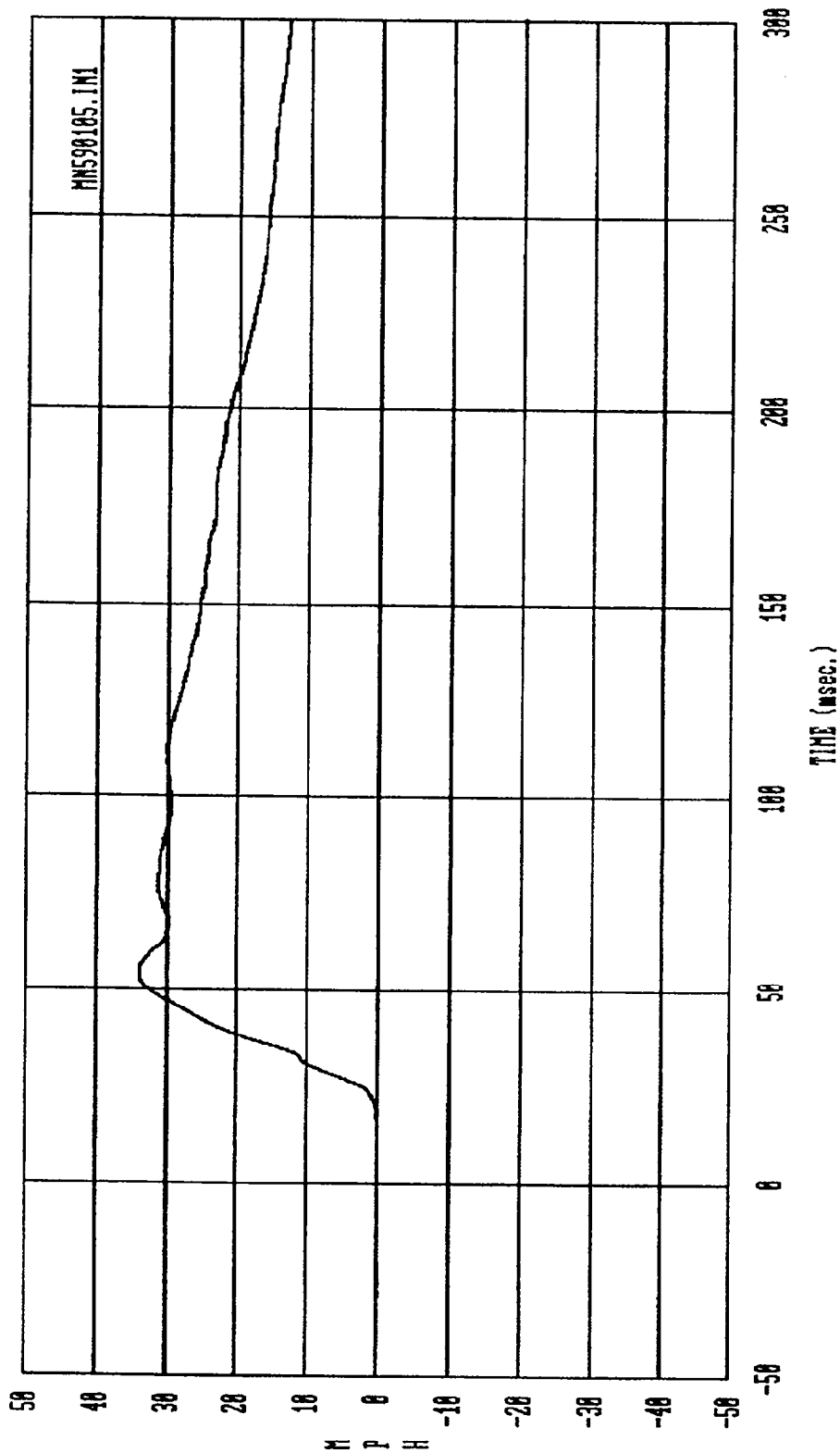
Curve: Driver upper spine delta V -- Primary Filter: FIR 100 Max = 34.451 Min = -.680002-81

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



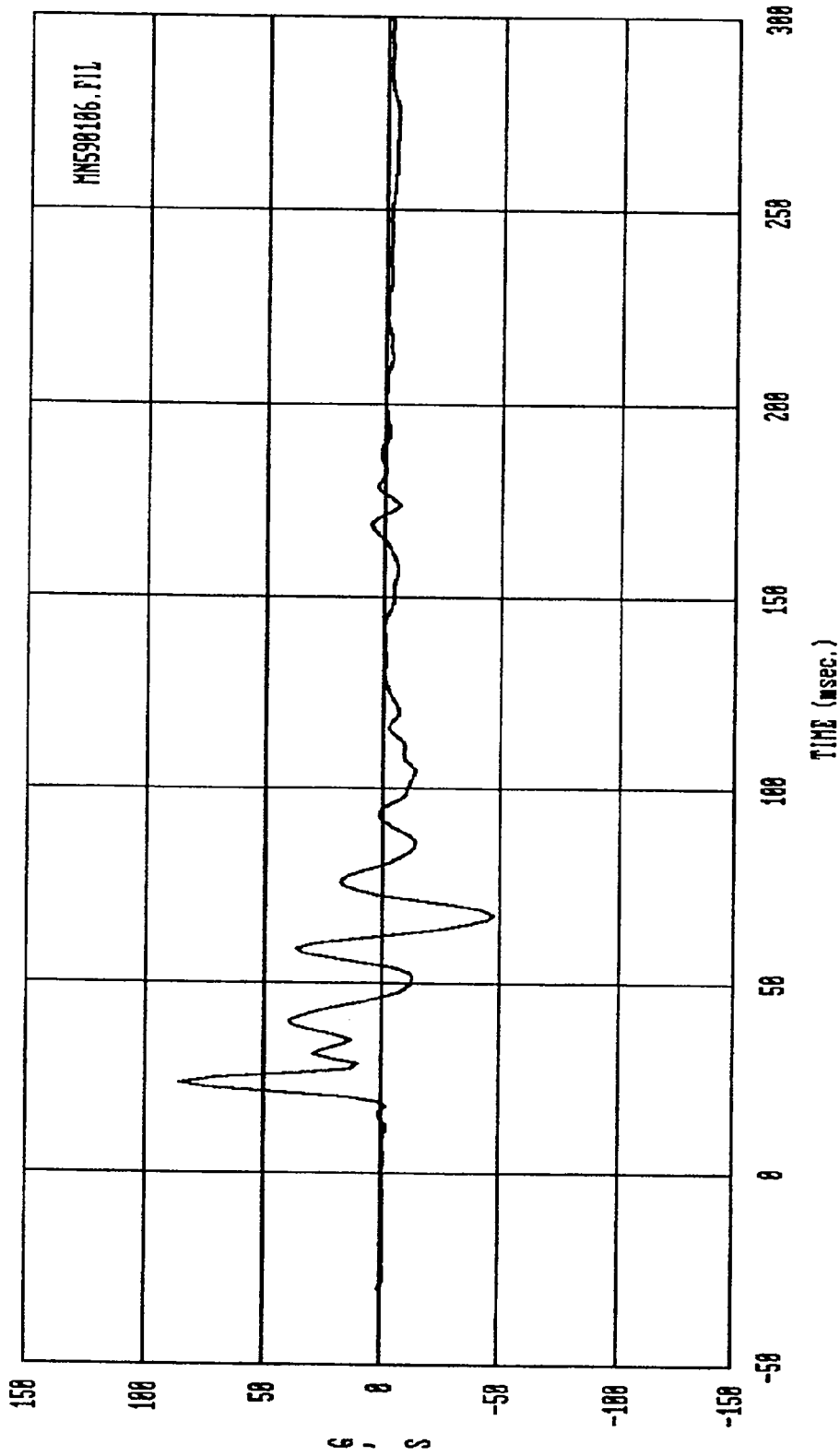
Curve: Driver upper spine acceleration -- Redundant Filter: FIR 100 Max = 98.052 Min = -29.160

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door

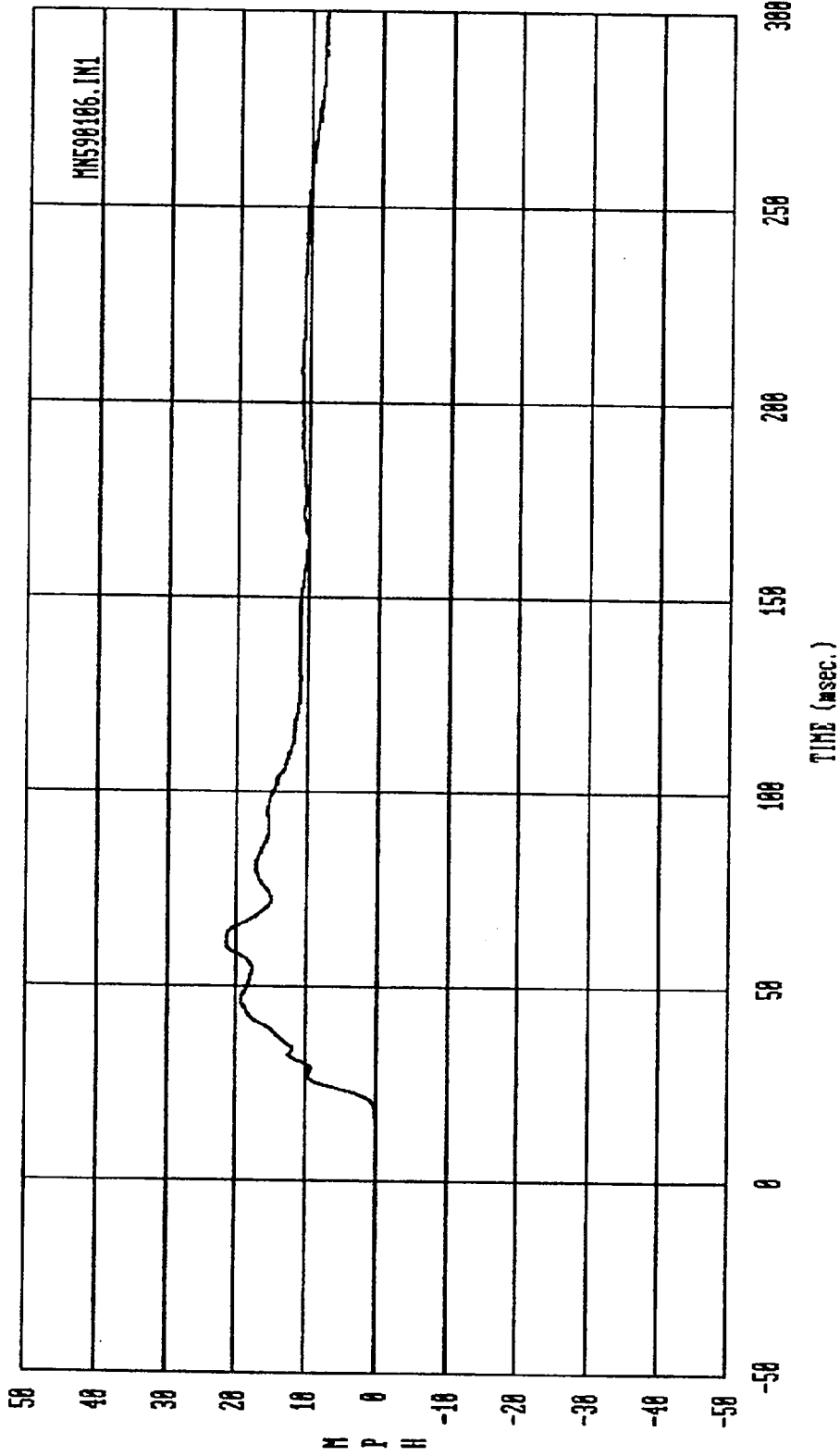


Curve: Driver upper spine delta V -- Redundant Filter: FIR 100 Max = 34.883 Min = -.83795E-02

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door

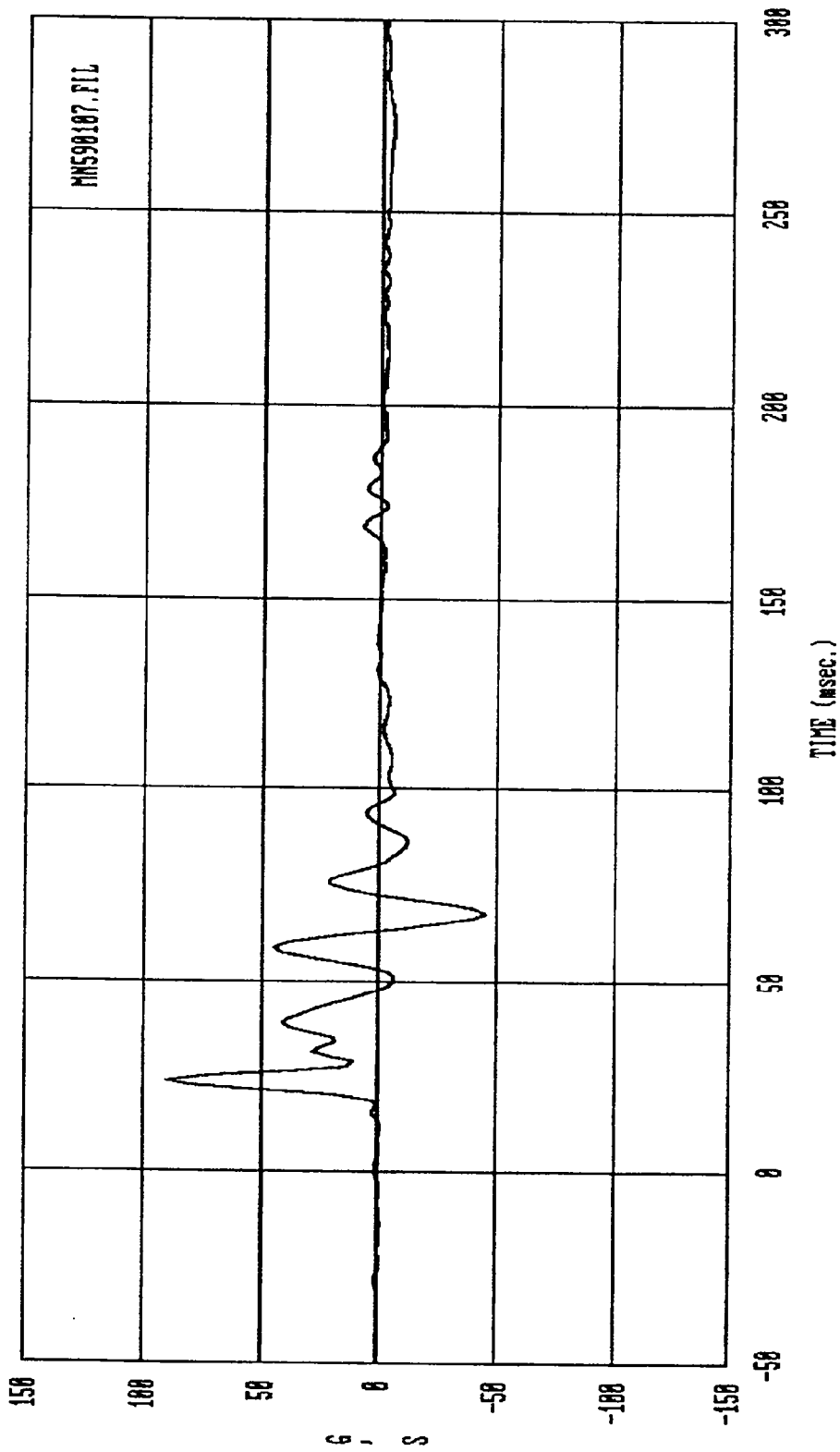


Curve: Driver upper rib acceleration -- Primary Filter: FIR 100 Max = 85.794 Min = -47.685
 MSE Date: 84/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



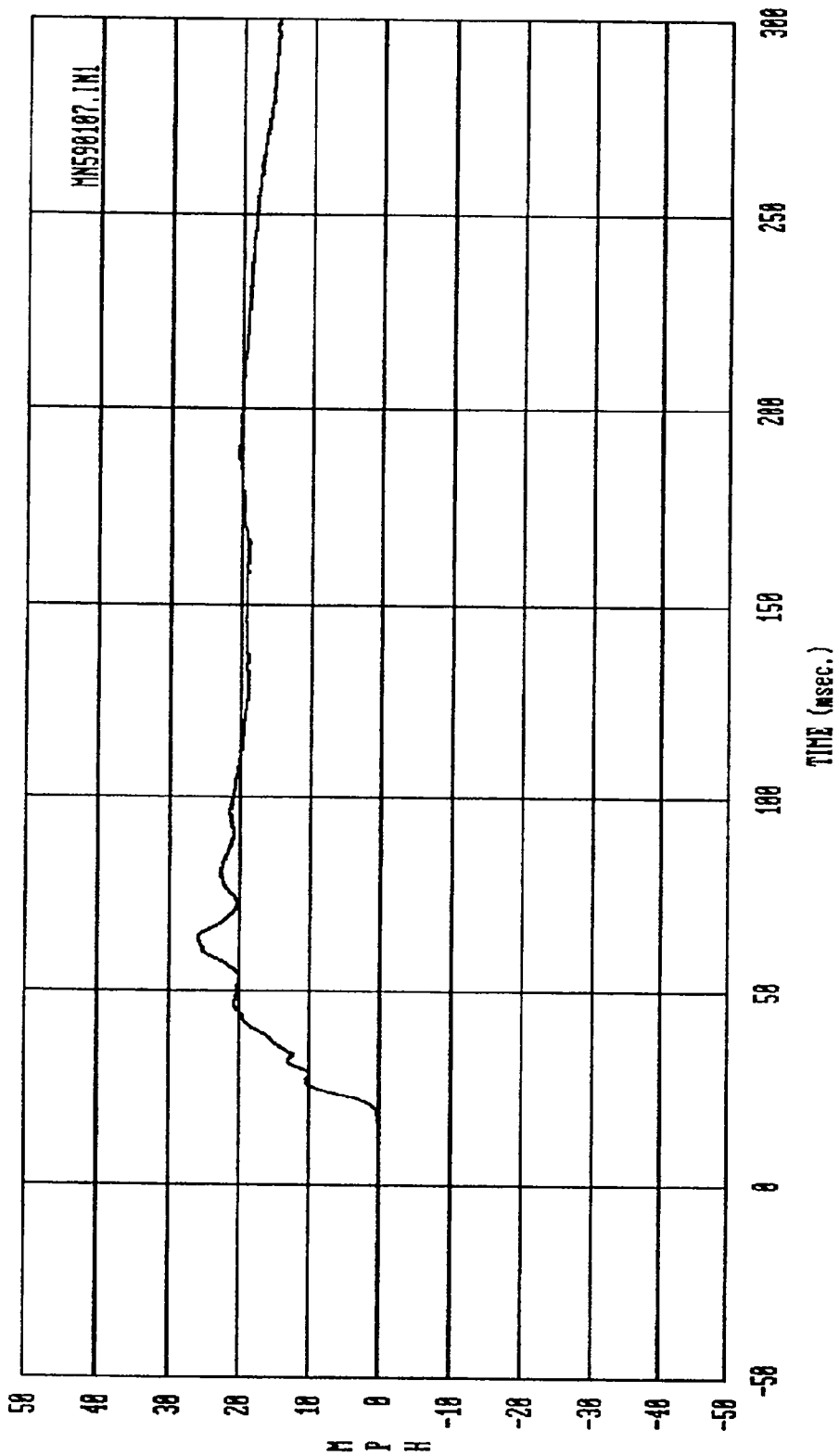
Curve: Driver upper rib delta V — Primary Filter: FIR 180 Max = 21.497 Min = -.34891E-01

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



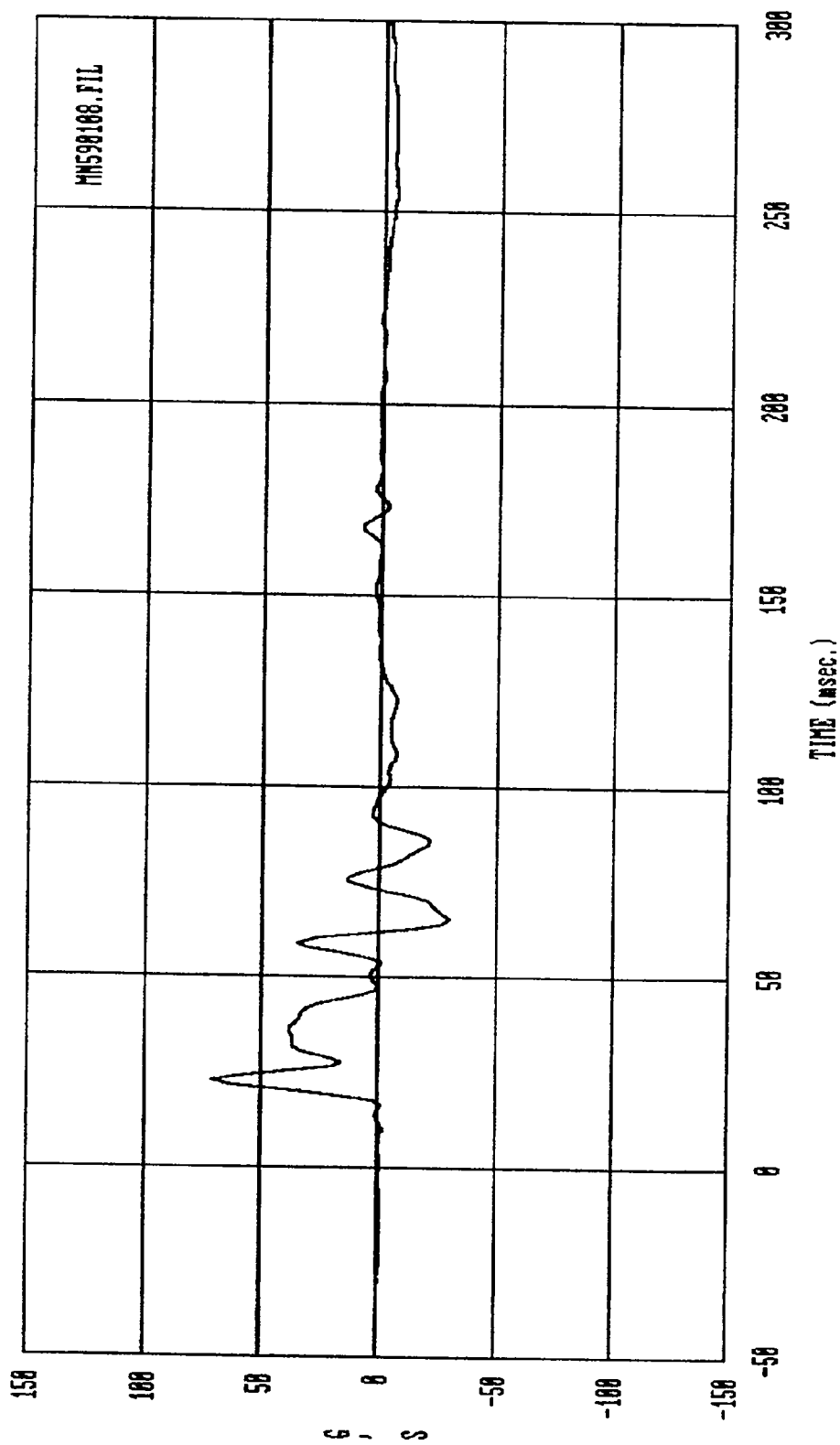
Curve: Driver upper rib acceleration -- Redundant Filter: FIR 100 Max = 90.644 Min = -45.872

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



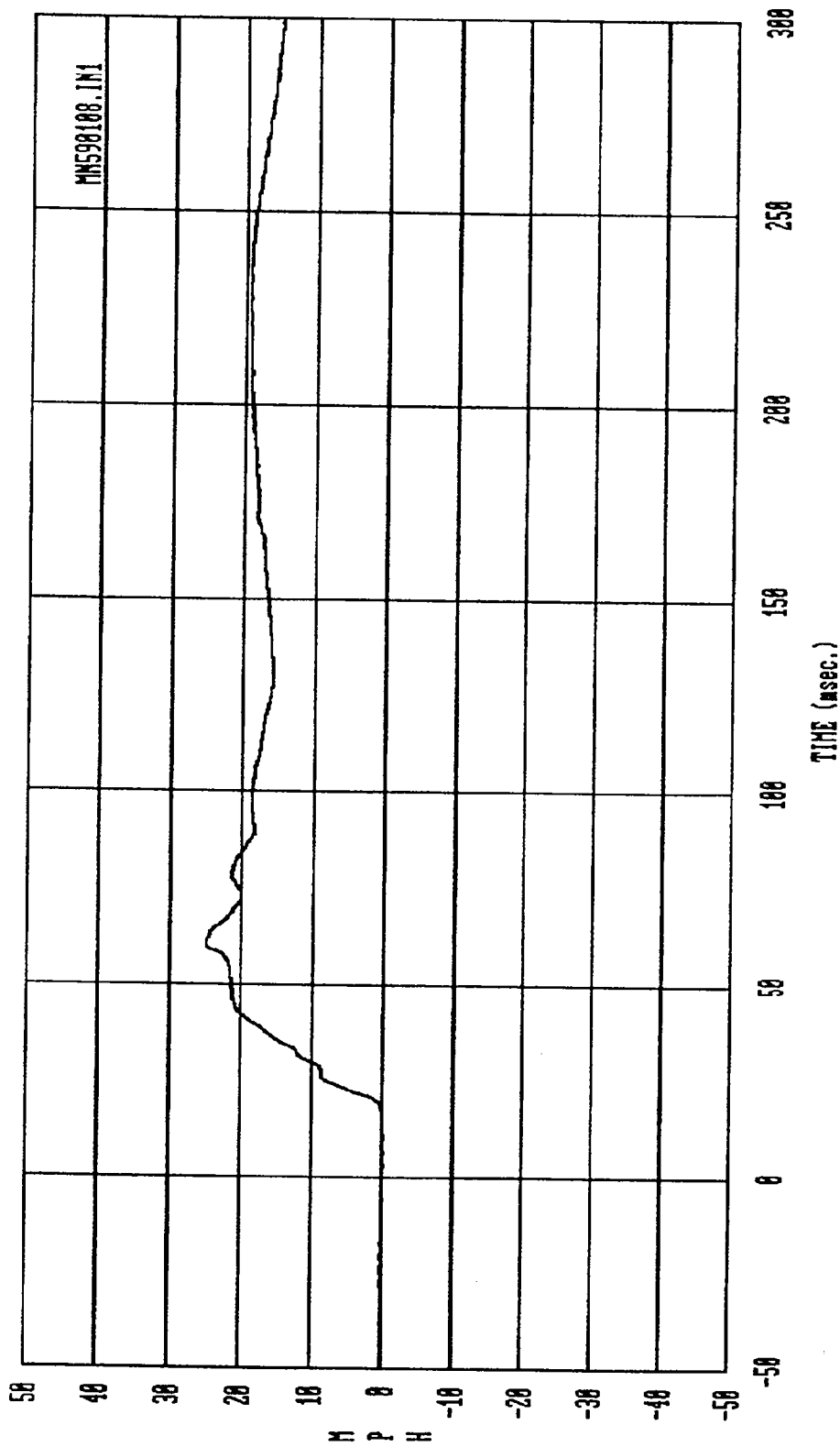
Curve: Driver upper rib delta V -- Redundant Filter: FIR 100 Max = 25.978 Min = .11378E-01

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



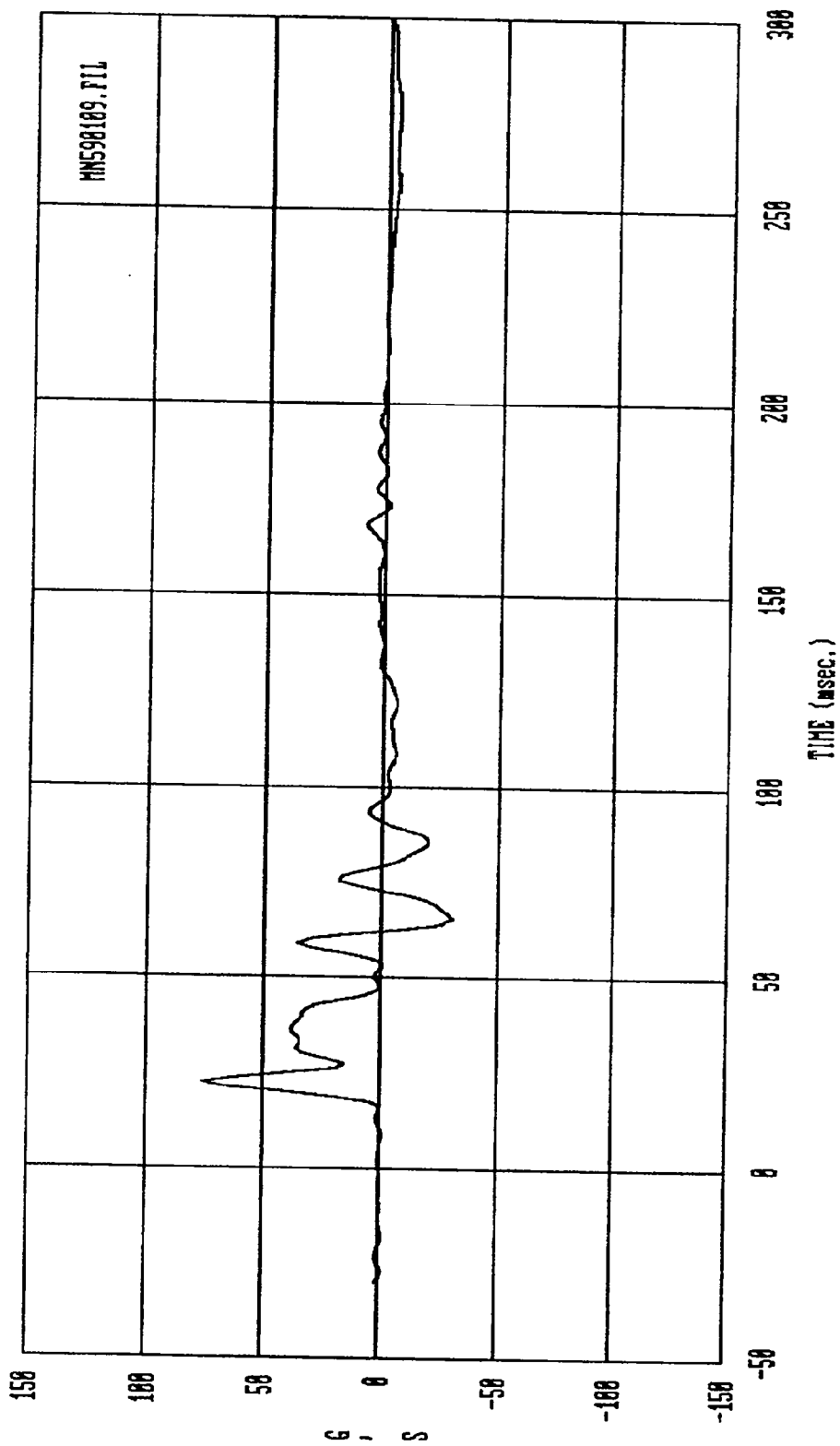
Curve: Driver lower rib acceleration — Primary Filter: FIR 100 Max = 71.002 Min = -38.016

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



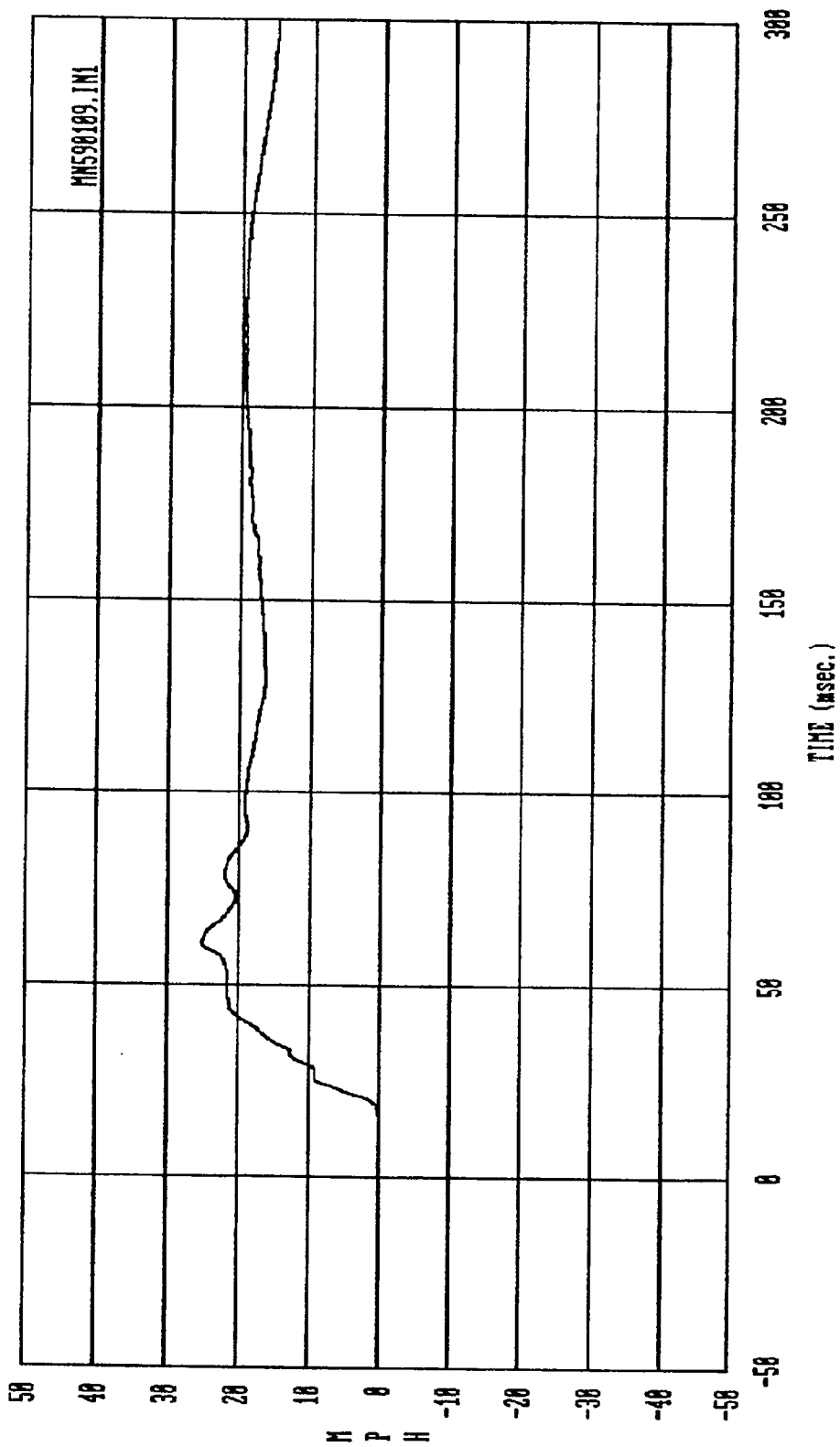
Curve: Driver lower rib delta V -- Primary Filter: FIR 100 Max = 25.835 Min = -.18779

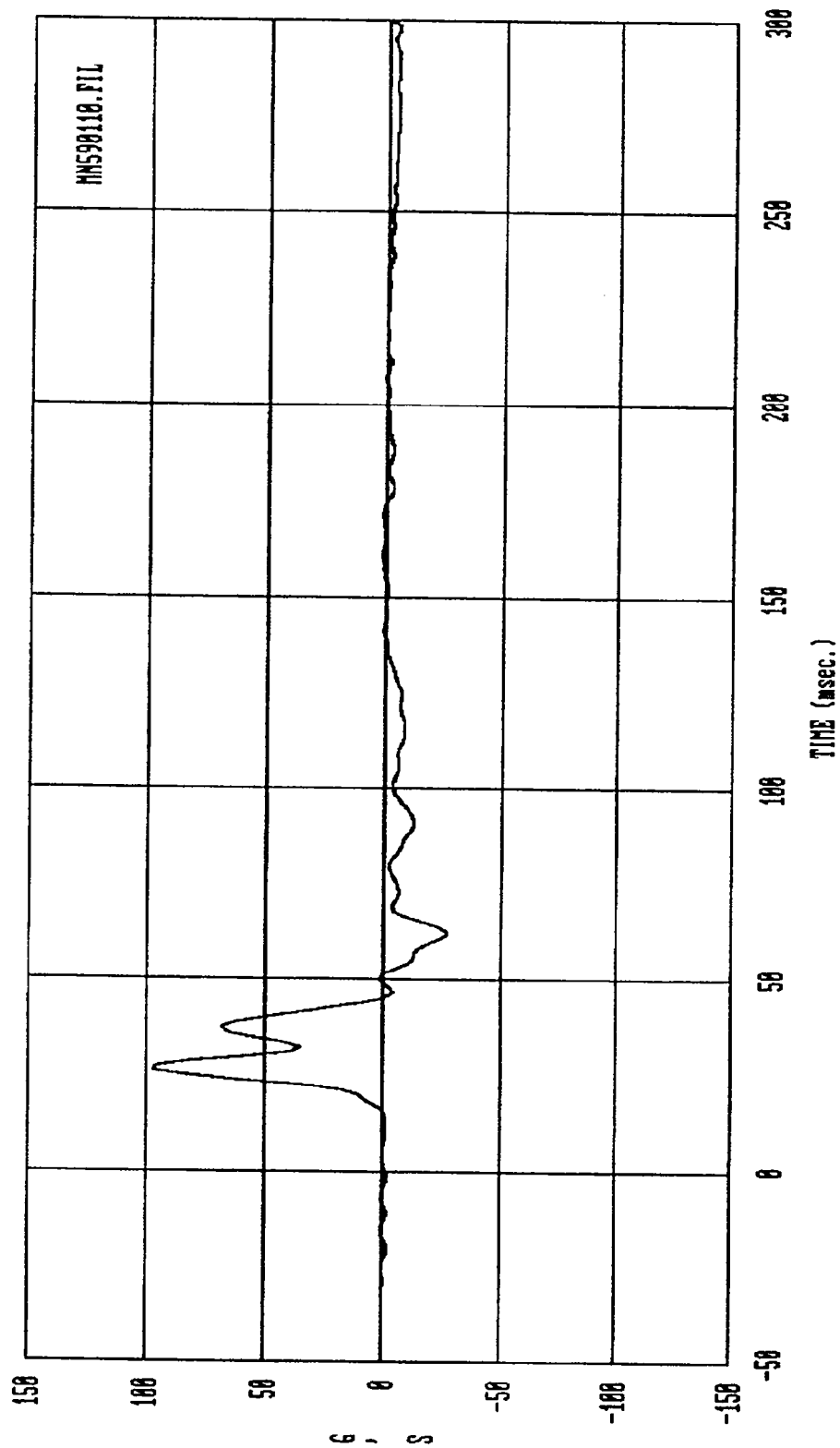
MSE Date: 04/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



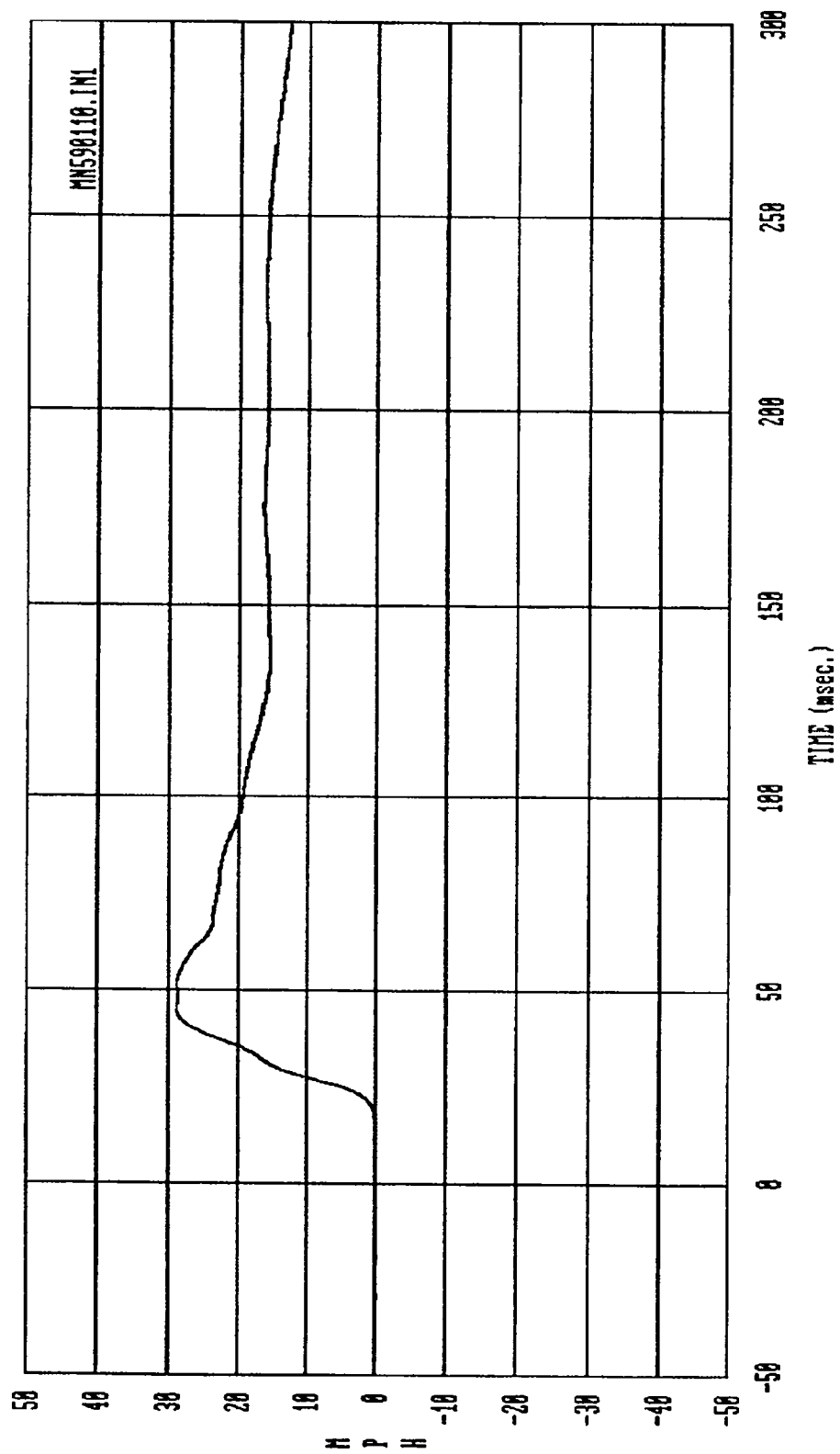
Curve: Driver lower rib acceleration -- Redundant Filter: FIR 100 Max = 76.001 Min = -30.003

MSE Date: 04/22/92 Program: Side Impact 34/17 90 deg. Vehicle: 1992 Volvo 940 GLS 4 Door



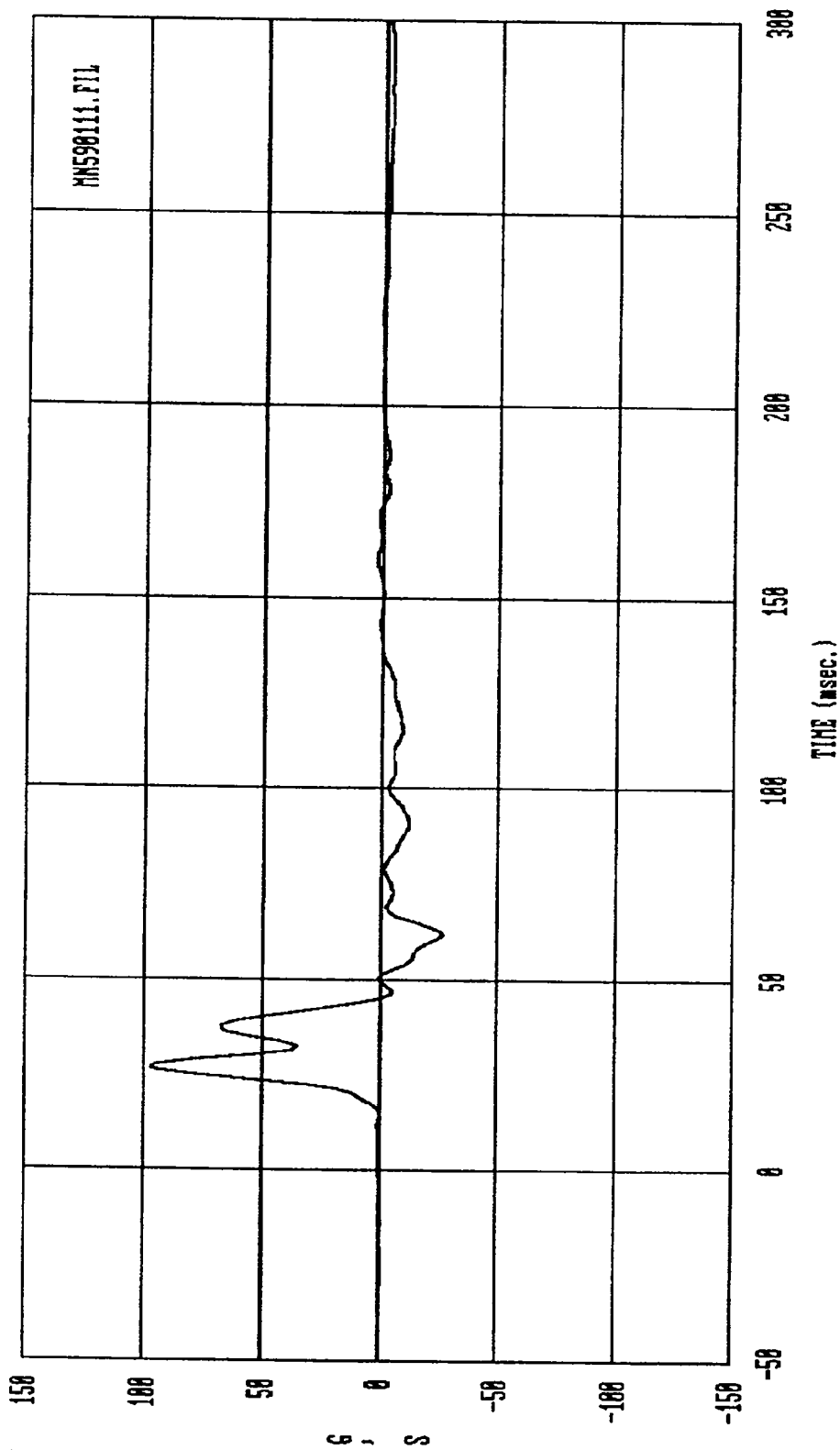


Curve: Driver lower spine acceleration -- Primary Filter: FIR 180 Max = 99.447 Min = -27.114
 MSE Date: 84/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



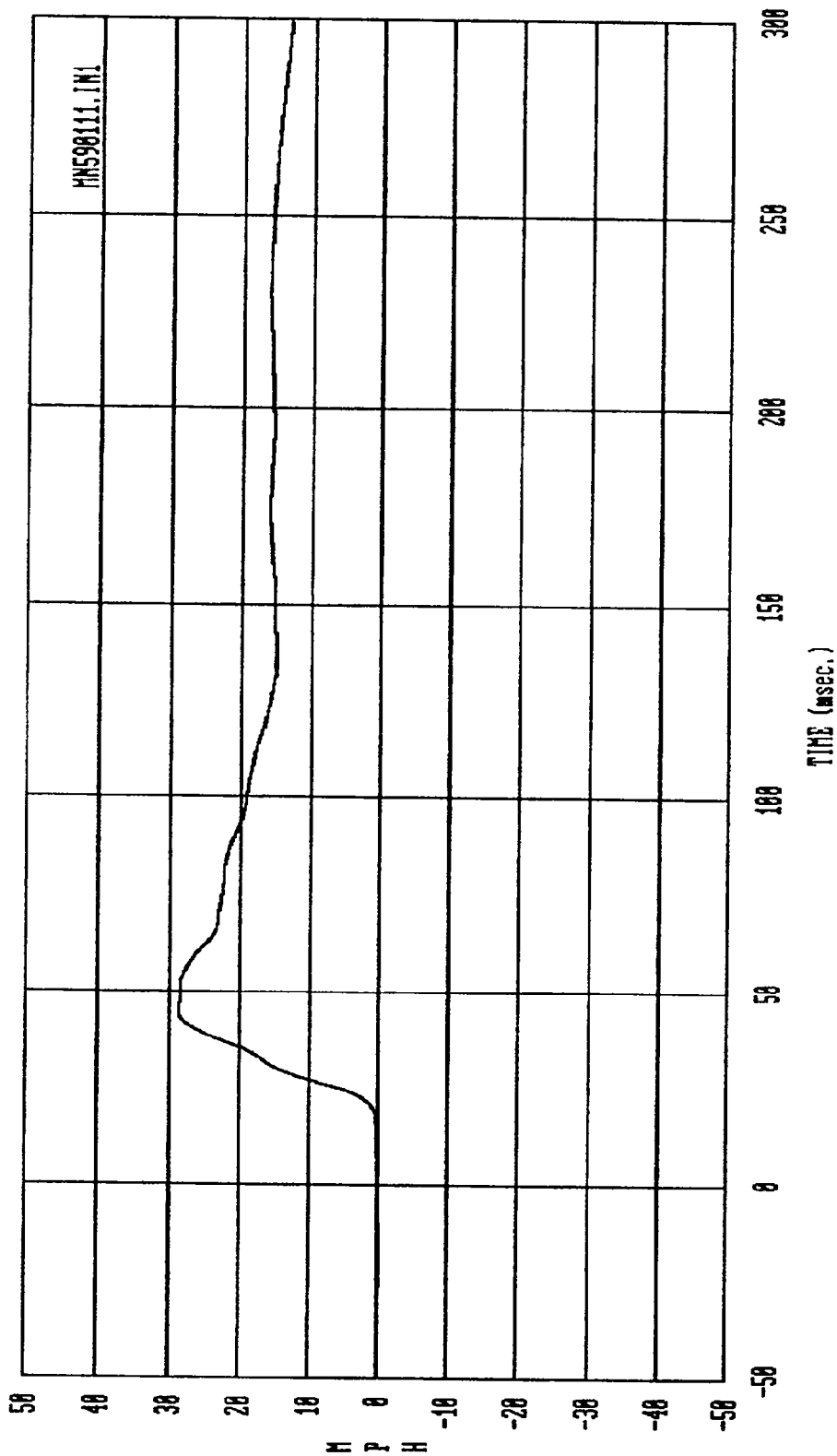
Curve: Driver lower spine delta V -- Primary Filter: FIR 100 Max = 28.920 Min = .42878D-01

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



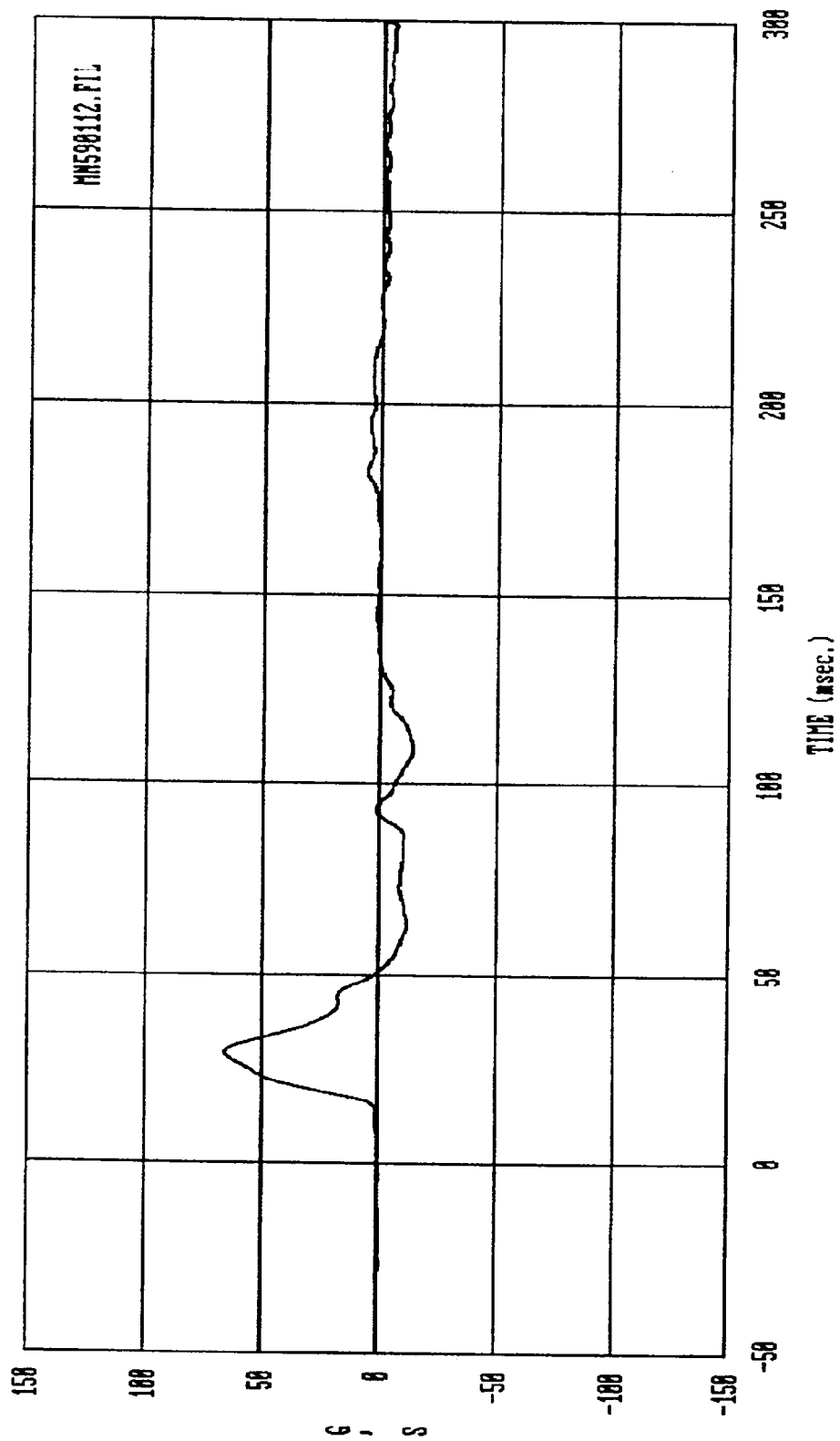
Curve: Driver lower spine acceleration -- Redundant Filter: FIR 100 Max = 99.869 Min = -26.712

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door

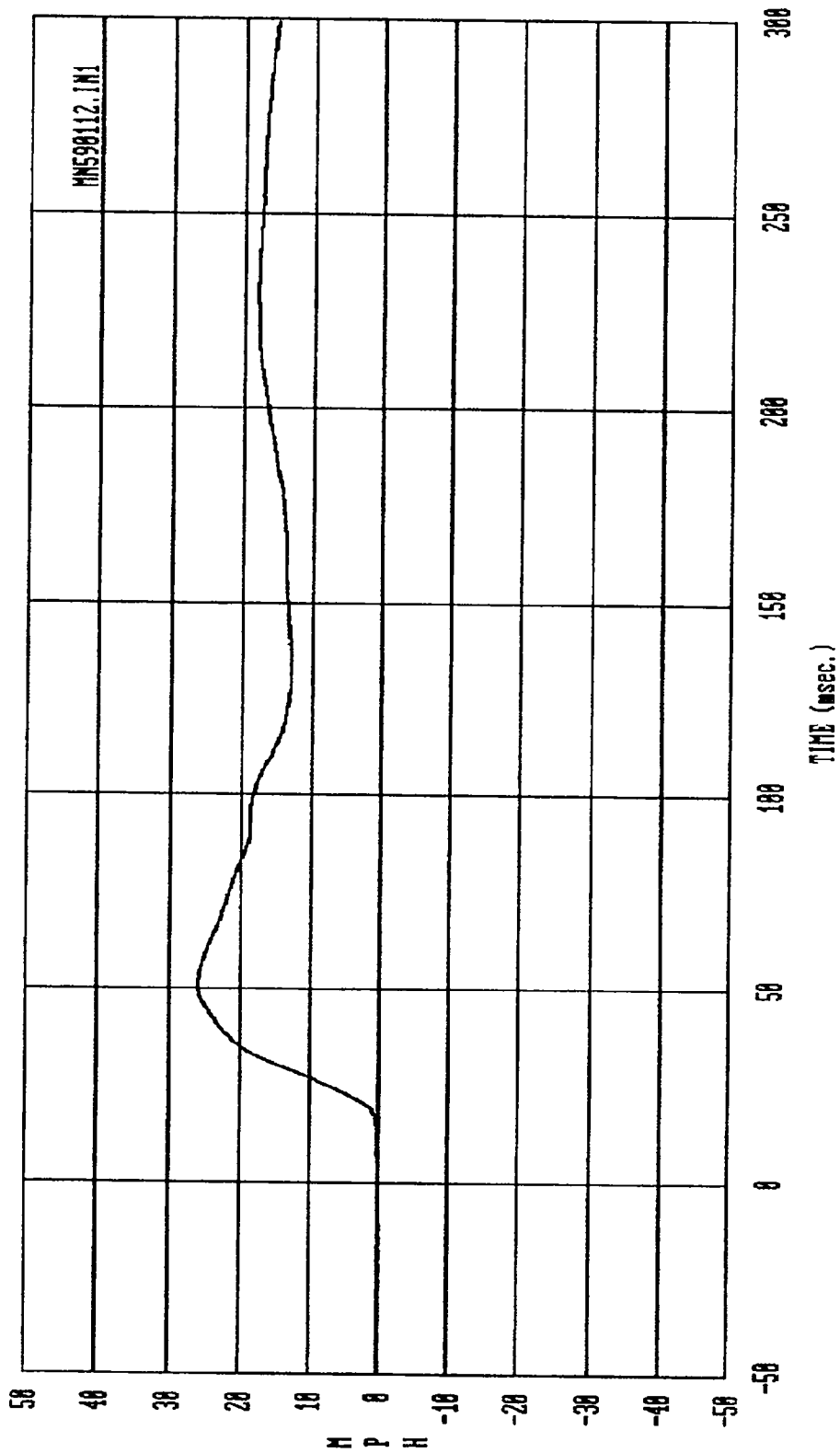


Curve: Driver lower spine delta V -- Redundant Filter: FIR 100 Max = 28.760 Min = .22635E-01

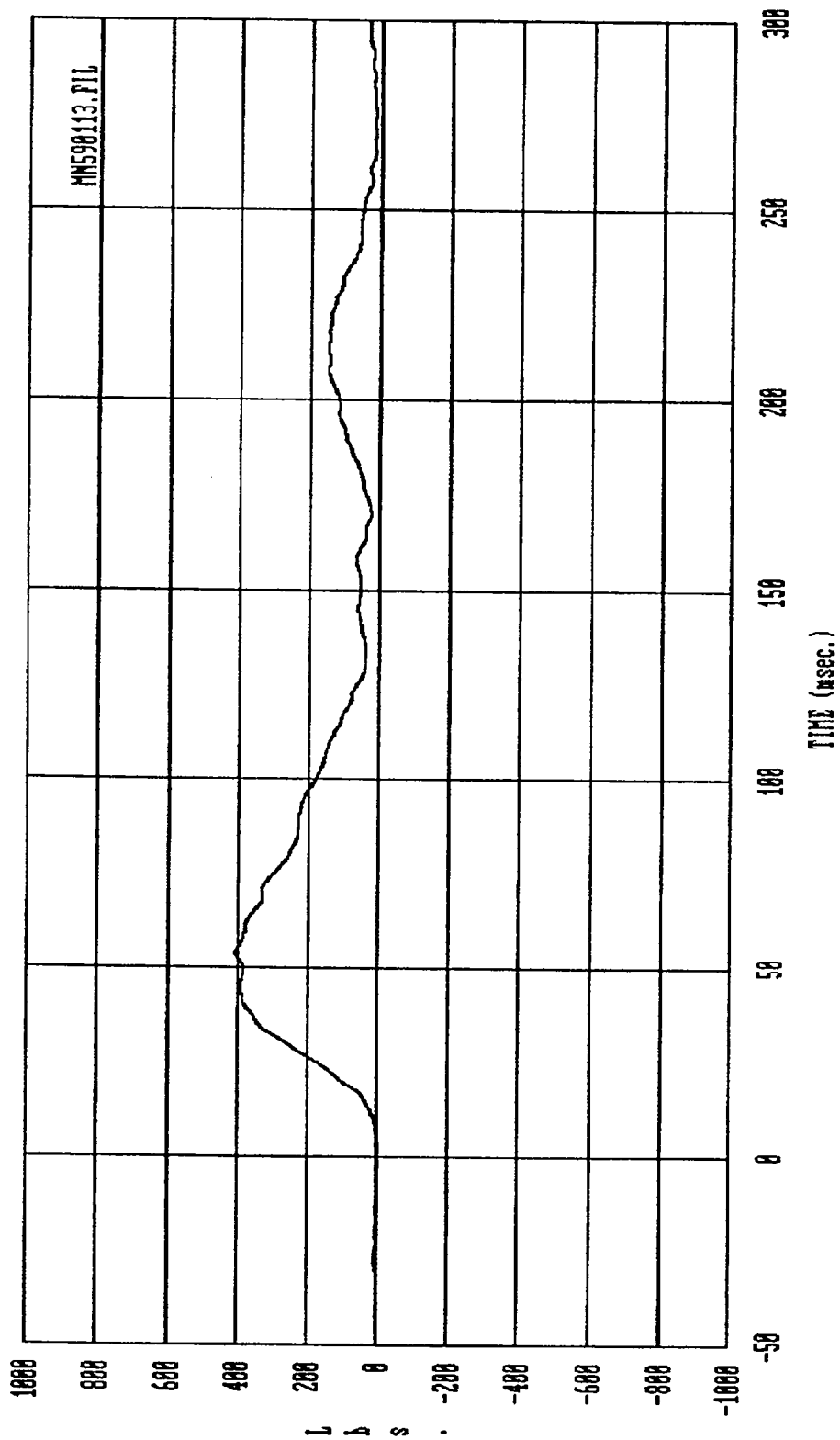
MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Driver pelvis acceleration Filter: FIR 100 Max = 66.168 Min = -13.986
 HSE Date: 04/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GUS 4 Door

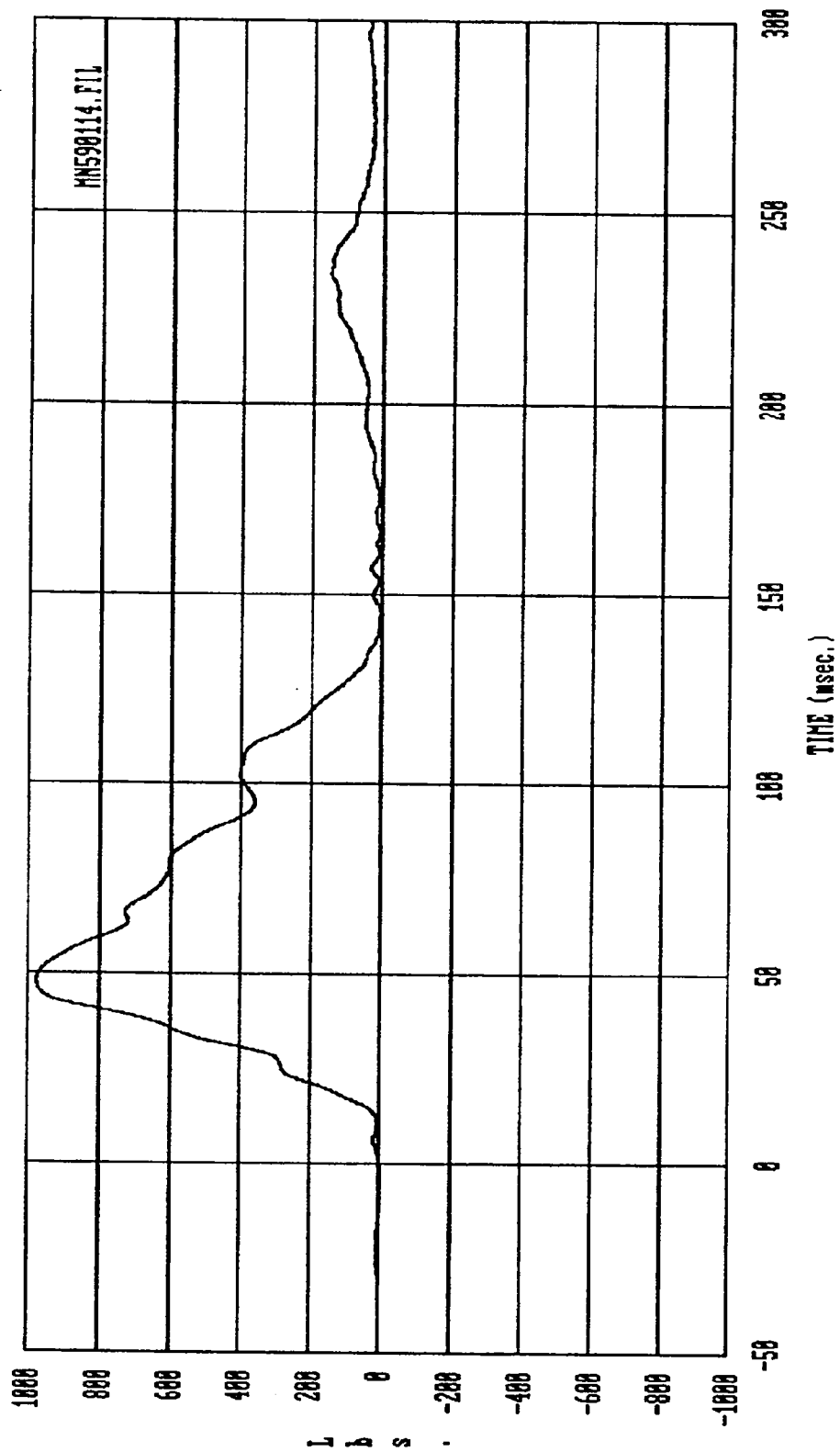


Curve: Driver pelvis delta V Filter: FIR 100 Max = 26.132 Min = -.19988E-01
HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



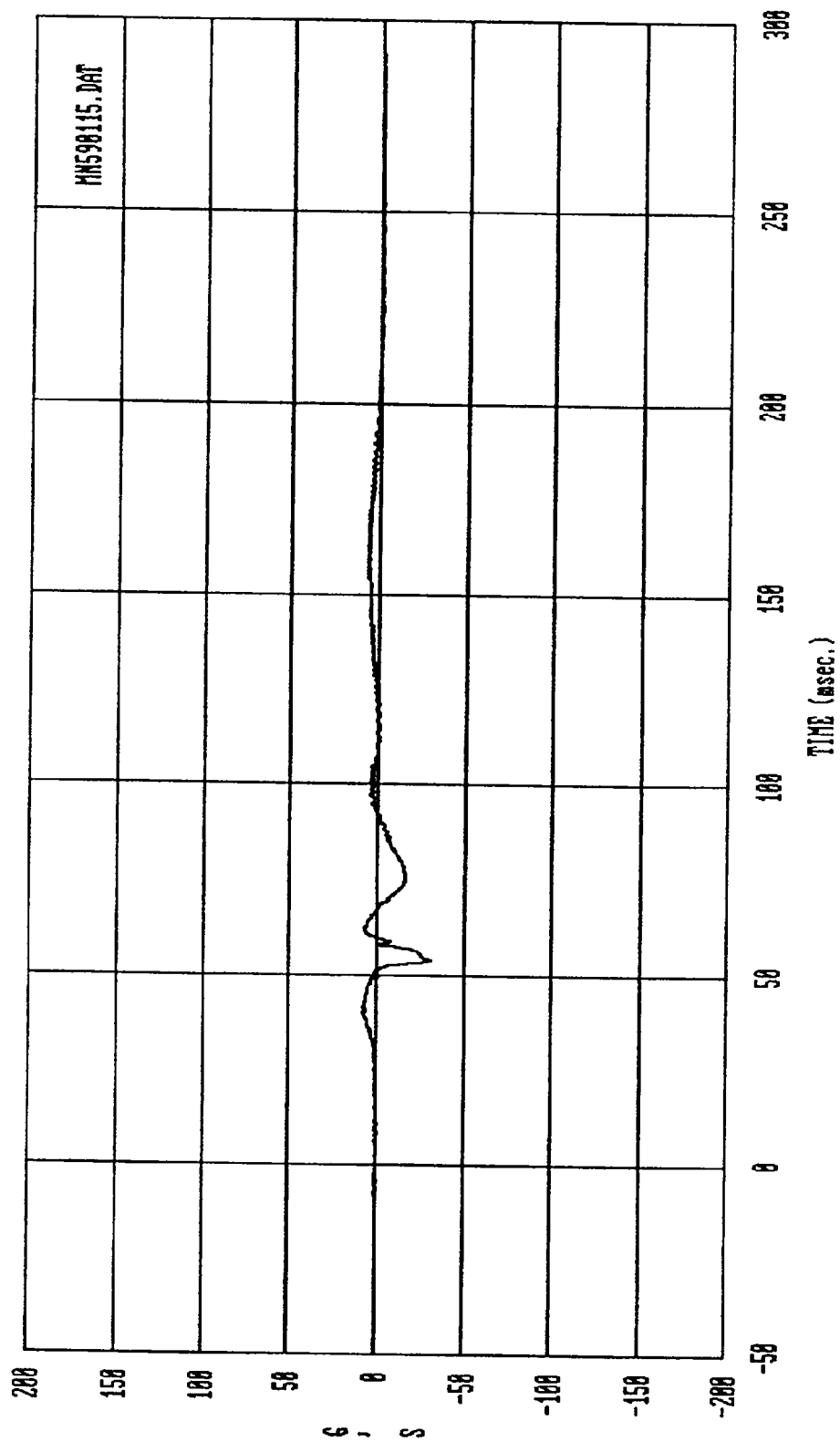
Curve: Driver lap belt load Filter: SAE CLASS 60 Max = 487.76 Min = 15.369

NSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



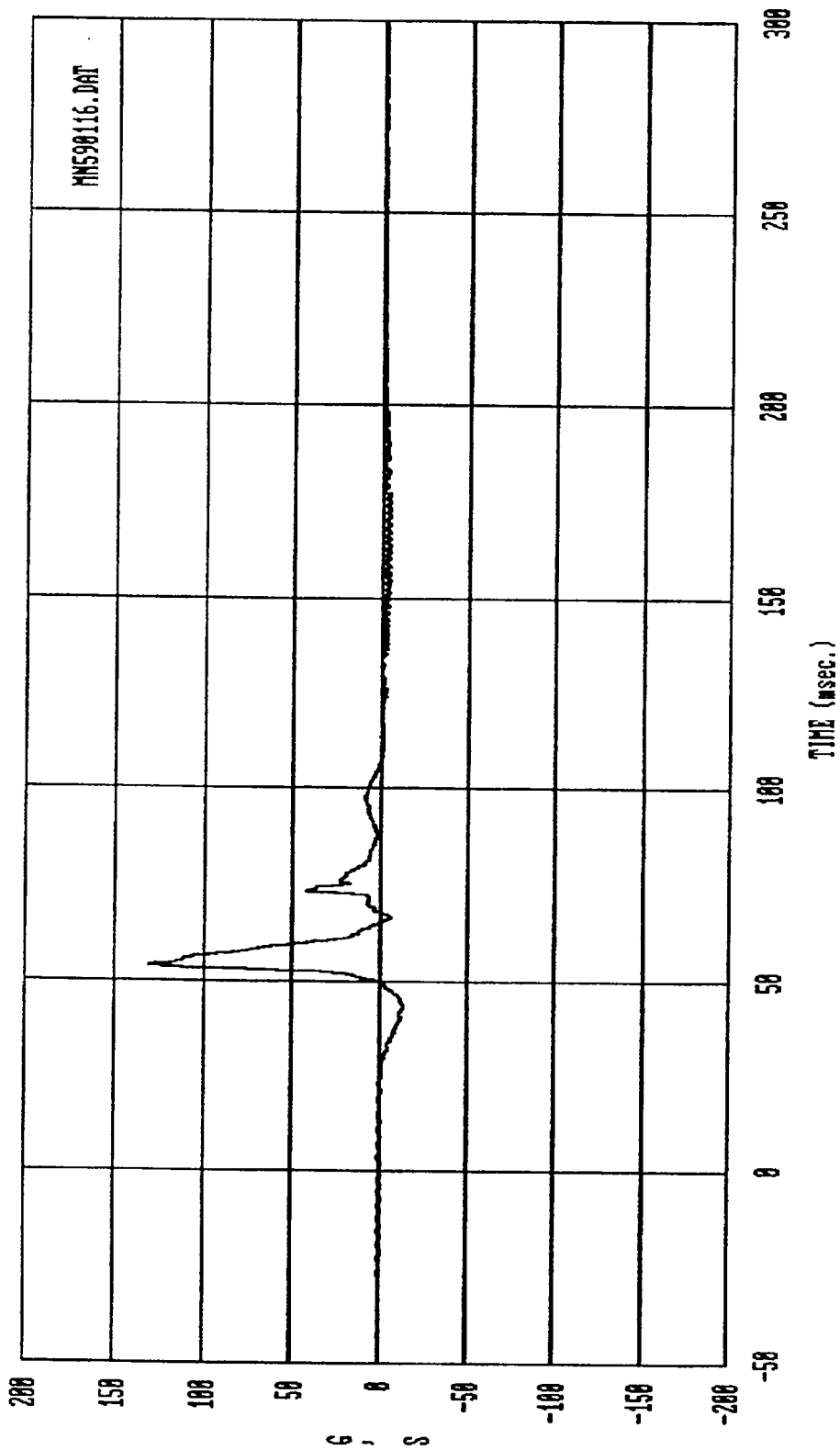
Curve: Driver shoulder belt load Filter: SAE CLASS 60 Max = 978.87 Min = 1.6848

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



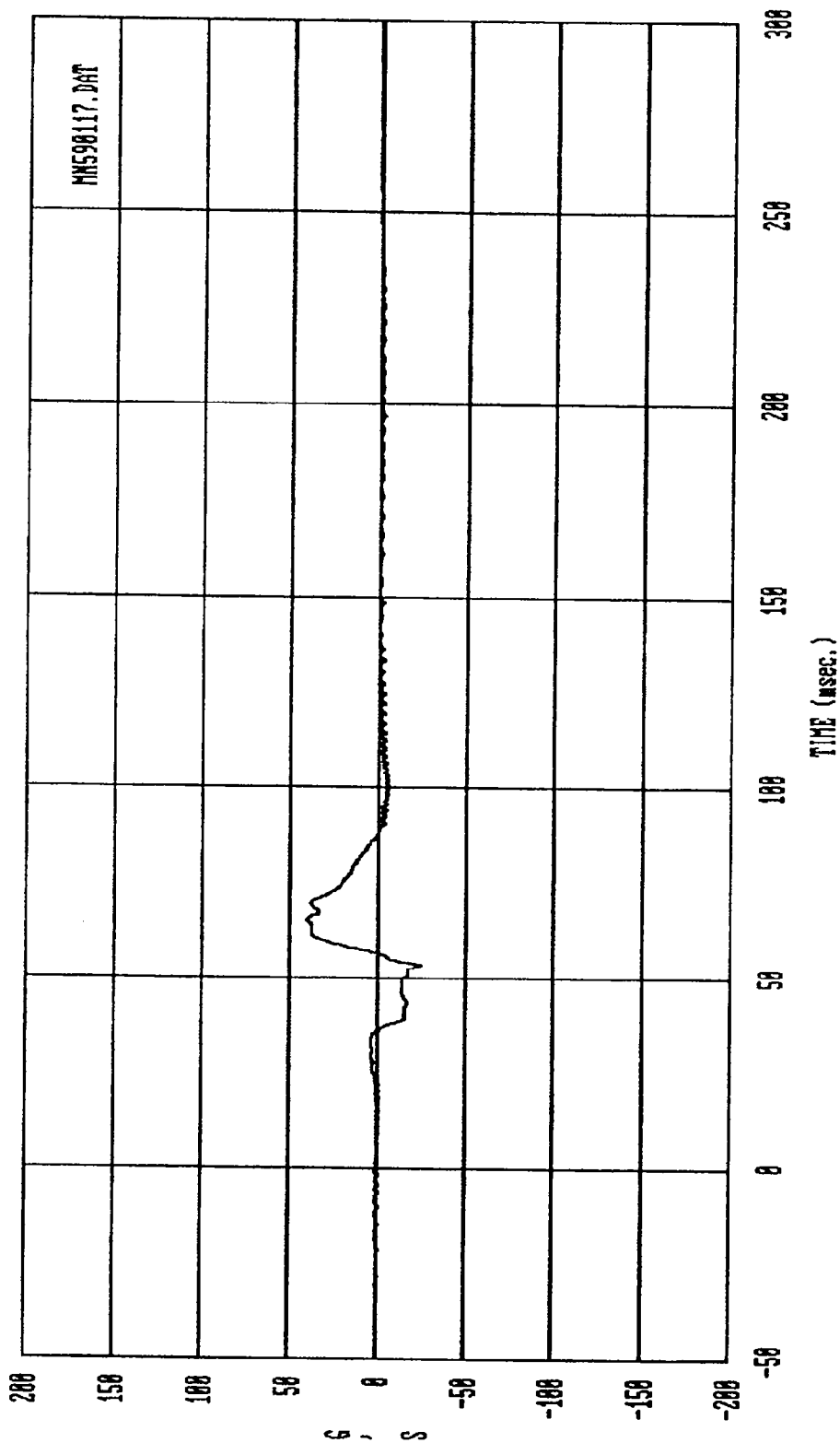
Curve: Passenger Head acceleration -- X axis Filter: SAE CLASS 1800 Max = 7.9940 Min = -30.456

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



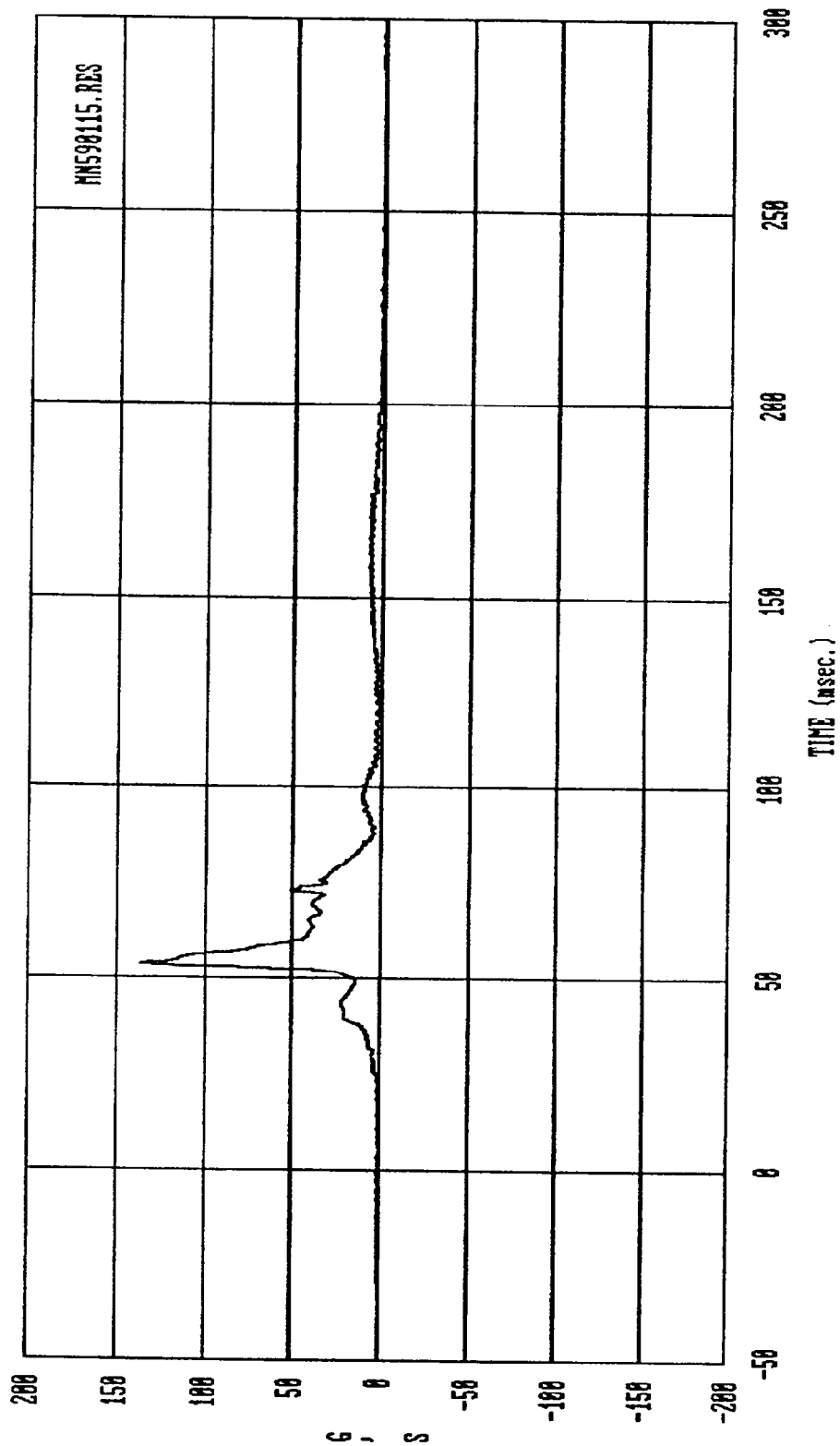
Curve: Passenger Head acceleration -- Y axis Filter: SAE CLASS 1000 Max = 131.54 Min = -13.146

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



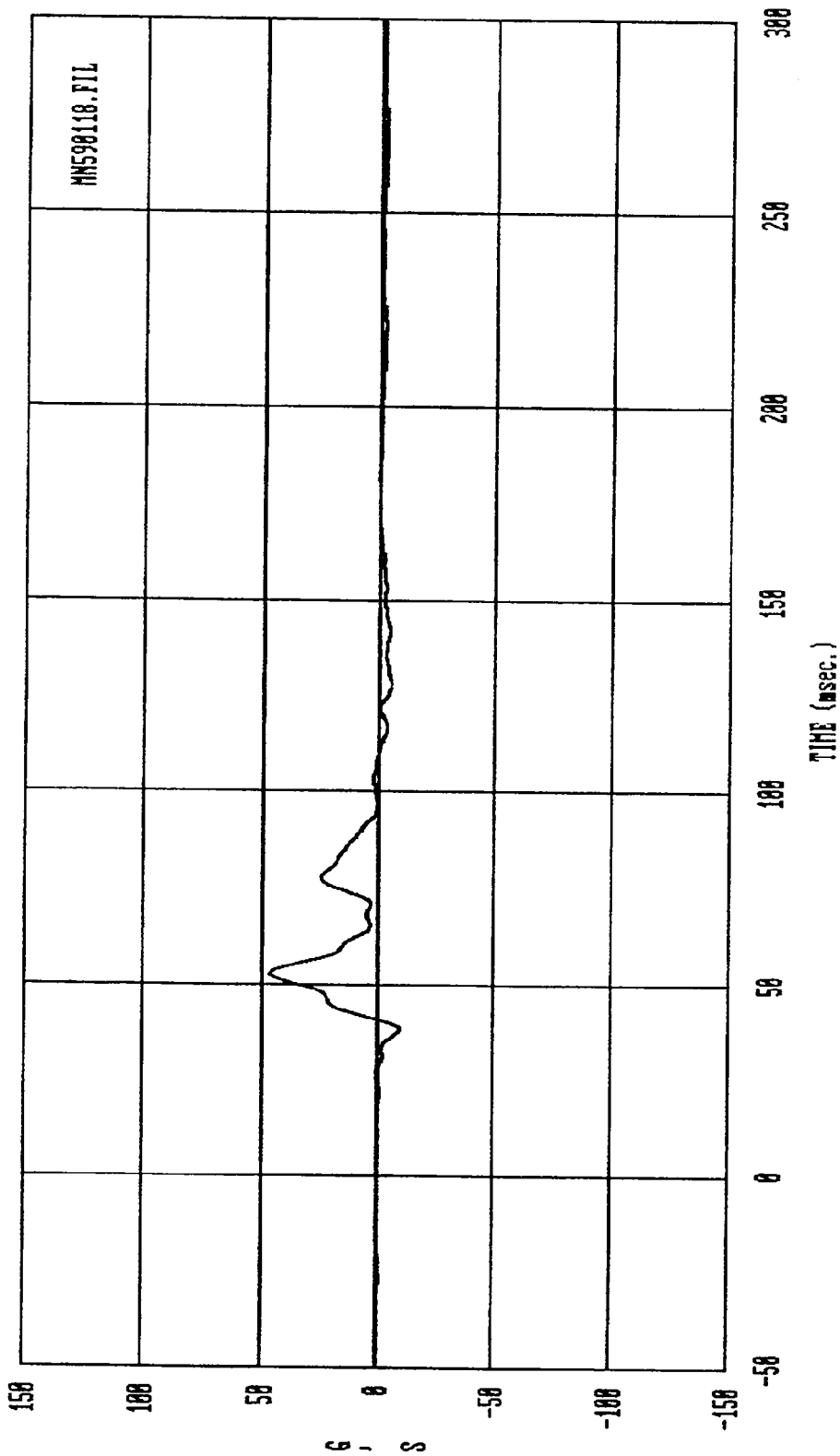
Curve: Passenger Head acceleration -- Z axis Filter: SAE CLASS 1000 Max = 40.574 Min = -24.440

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



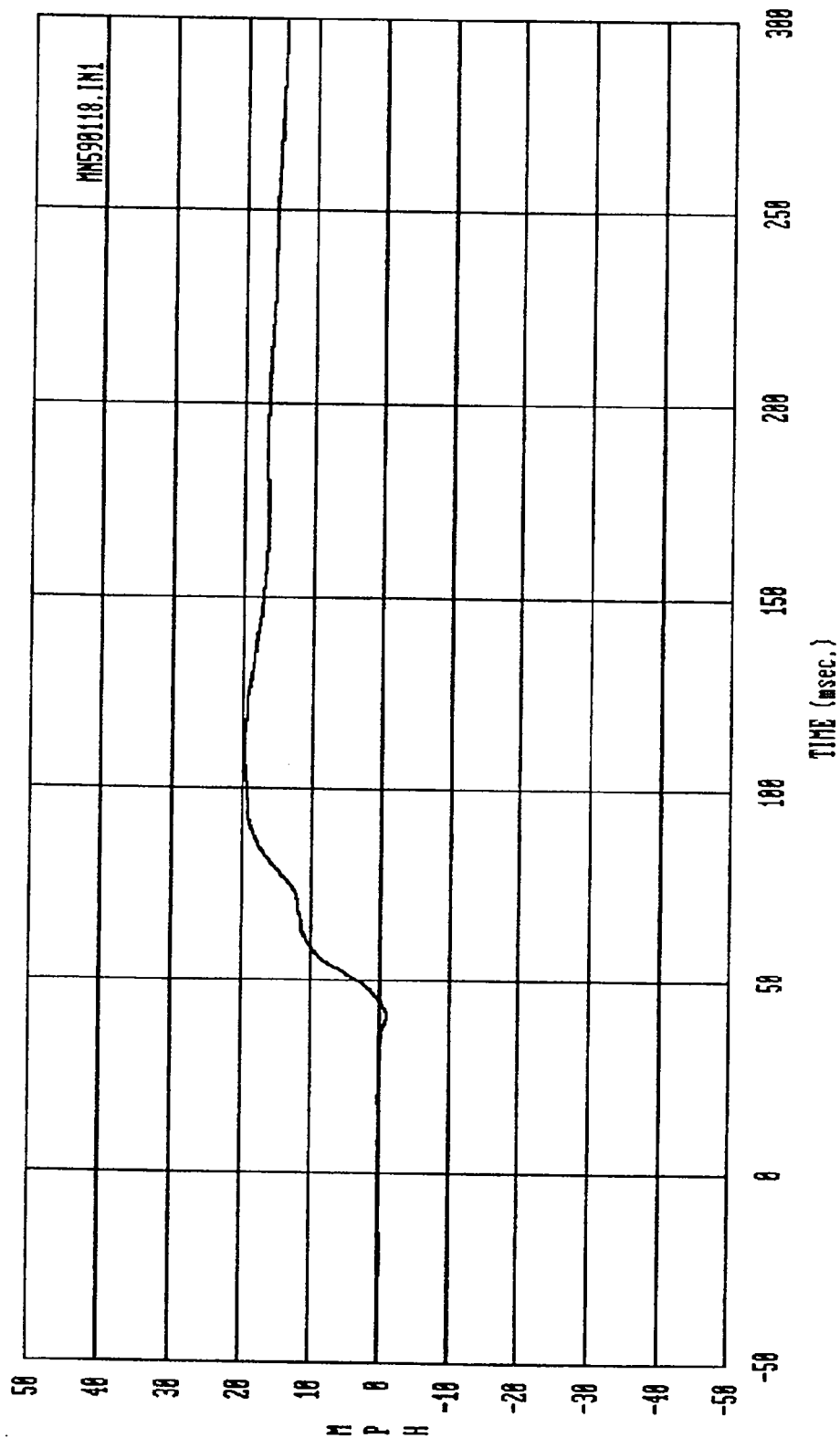
Curve: Passenger head resultant acceleration Filter: SAE CLASS 1800 Max = 136.88 Min = .18330

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



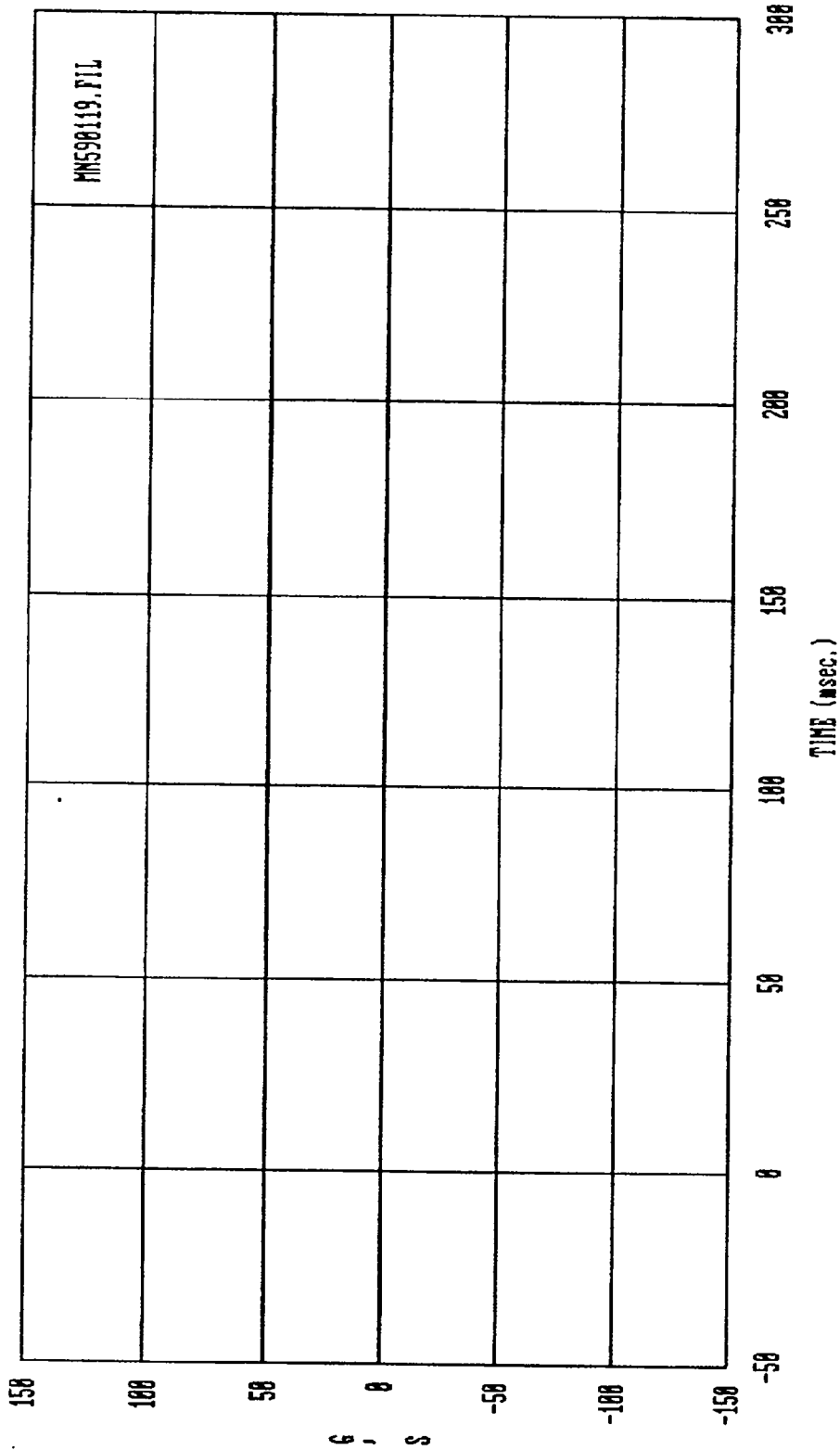
Curve: Passenger upper spine acceleration -- Primary Filter: FIR 100 Max = 47.376 Min = -10.301

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Passenger upper spine delta V — Primary Filter: FIR 100 Max = 19.851 Min = -98829

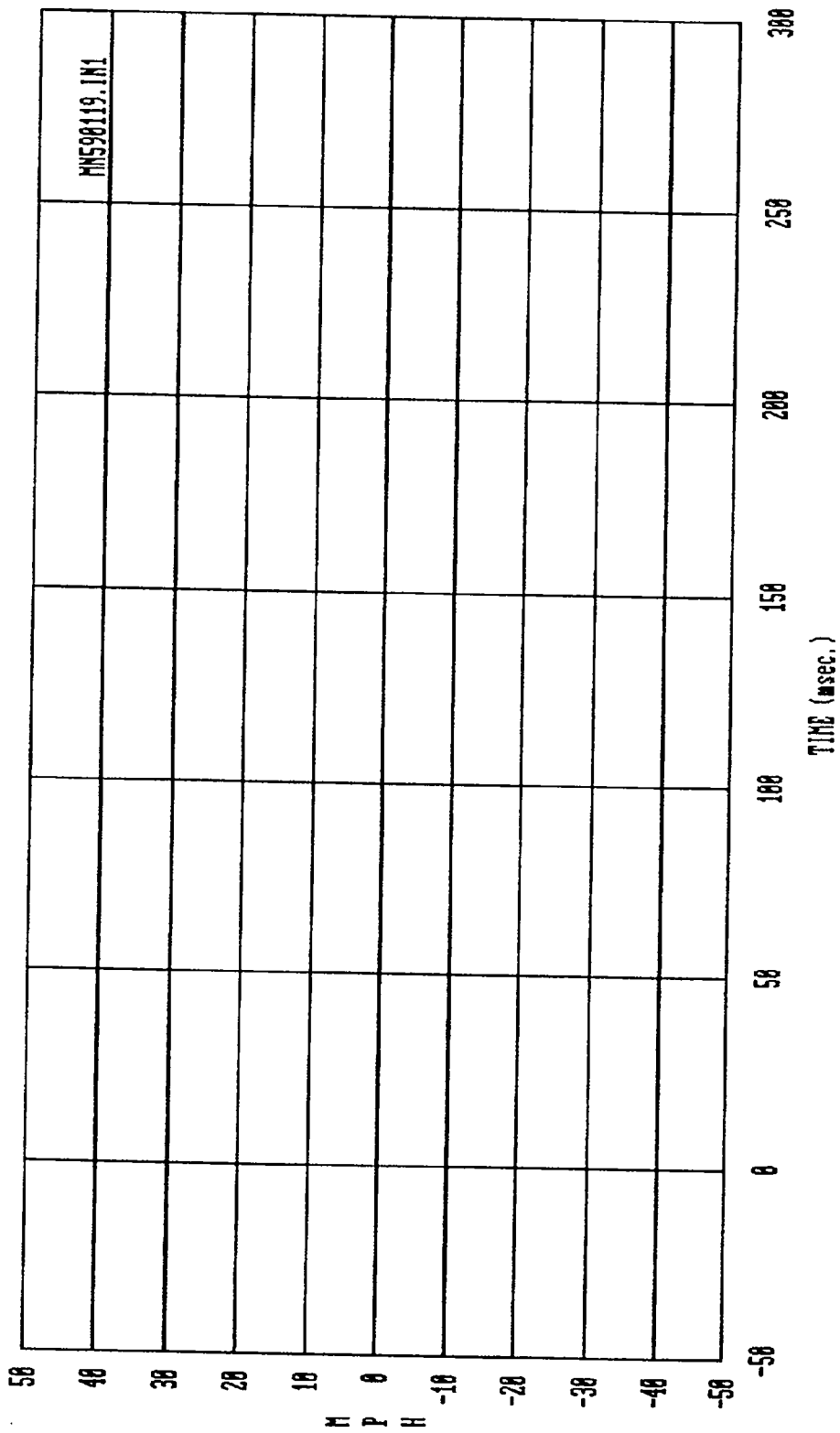
MSE Date: 04/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Passenger upper spine acceleration -- Redundant Filter: FIR 100 Max = .00000 Min = .00000

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door

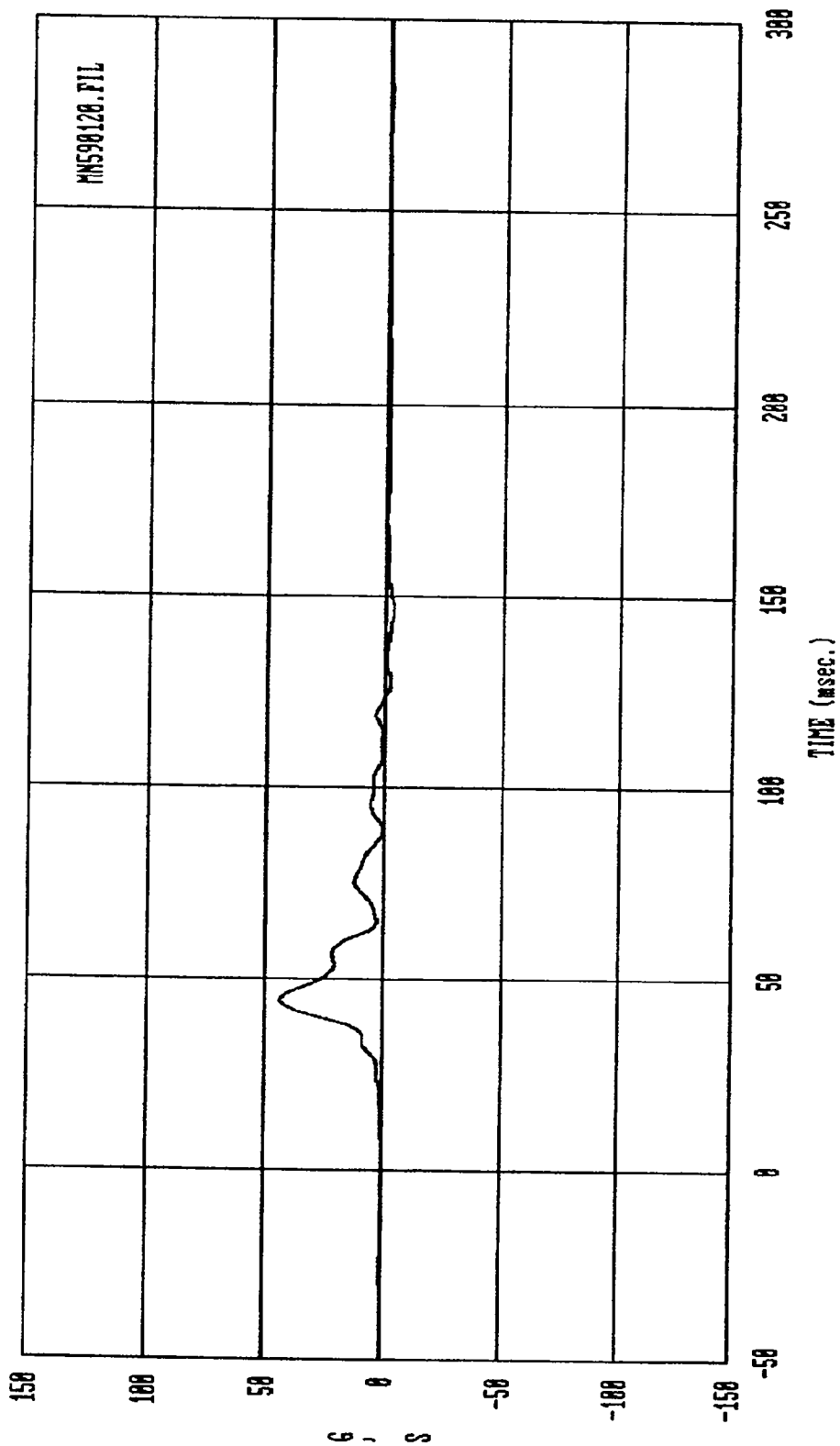
REDUNDANT ACCELEROMETER WAS KNOWN TO BE FAULTY



Curve: Passenger upper spine delta V -- Redundant Filter: FIR 100 Max = .00000 Min = .00000

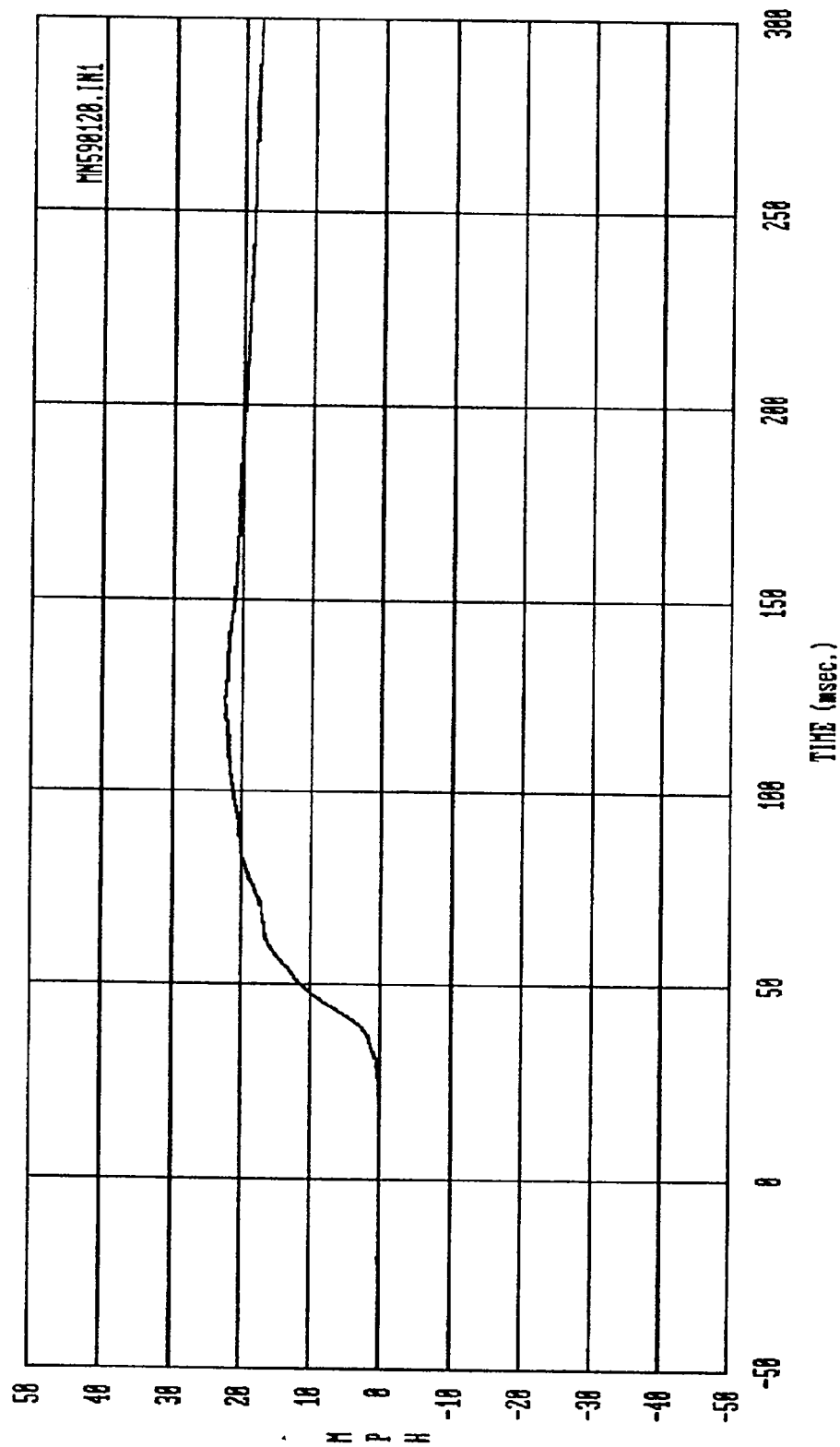
MSZ Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door

REDUNDANT ACCELEROMETER WAS KNOWN TO BE FAULTY



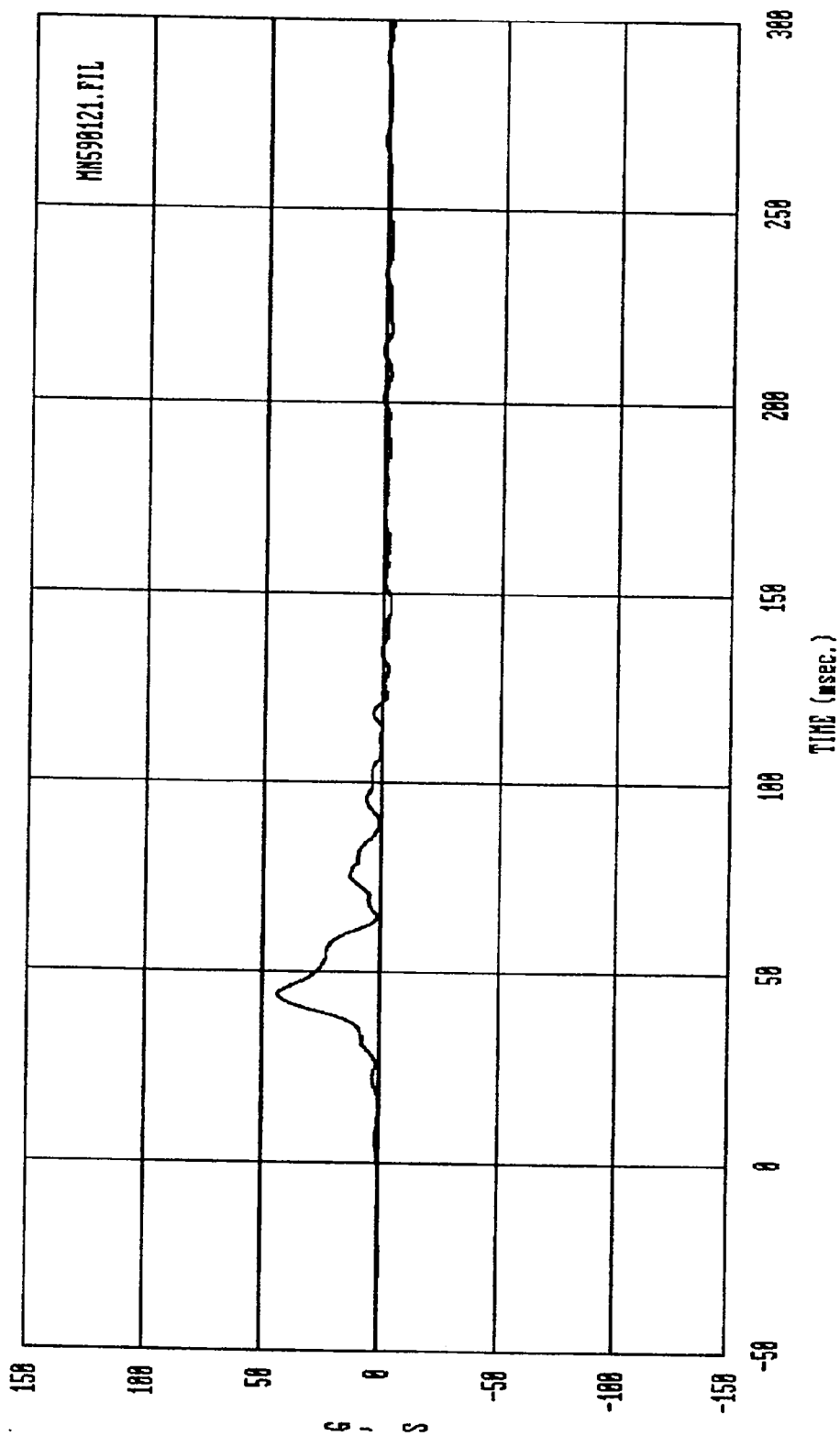
Curve: Passenger upper rib acceleration — Primary Filter: FIR 100 Max = 44.000 Min = -3.6553

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



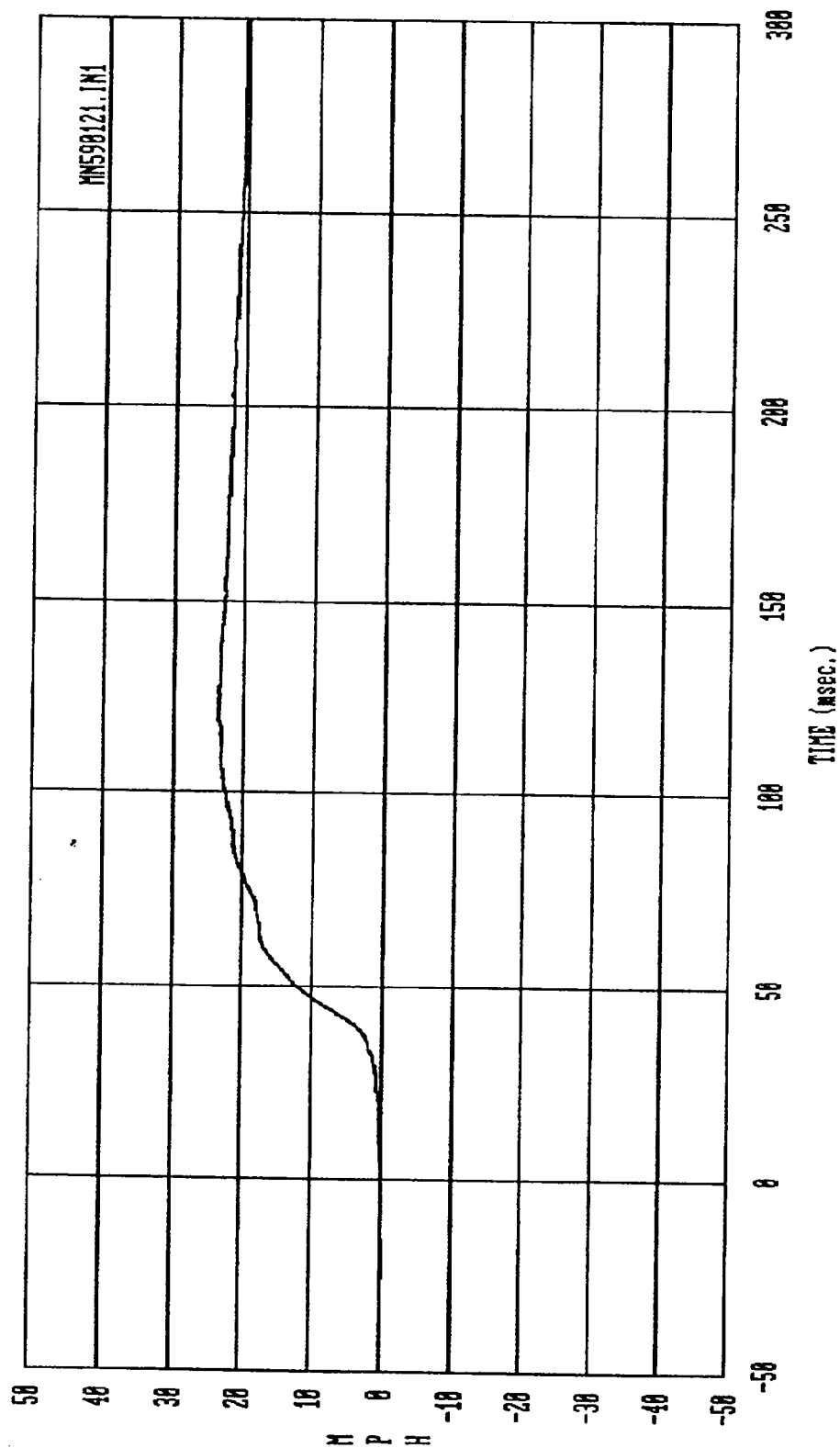
Curve: Passenger upper rib delta V -- Primary Filter: FIR 100 Max = 22.587 Min = -34027E-01

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



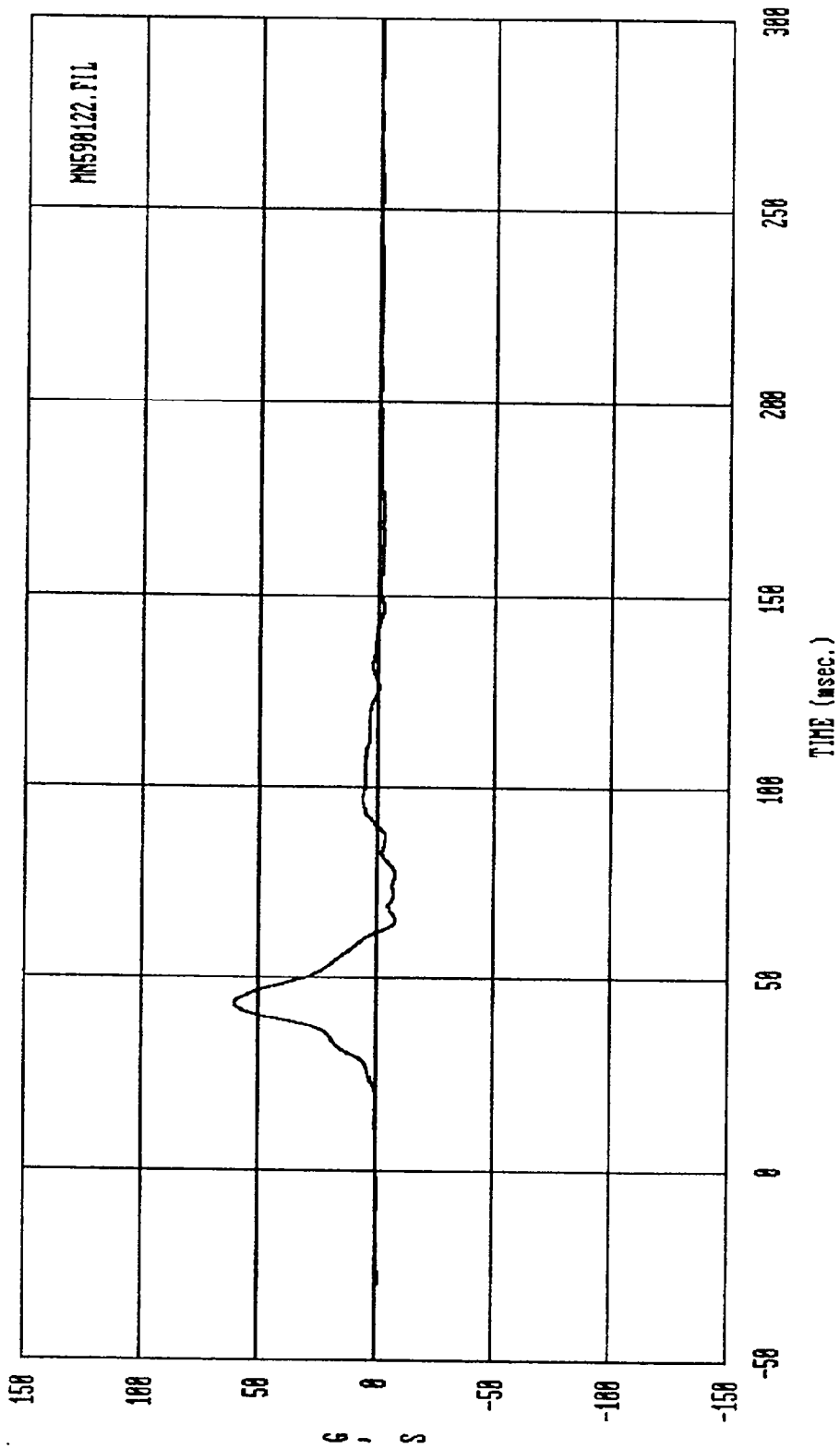
Curve: Passenger upper rib acceleration -- Redundant Filter: FIR 100 Max = 44.041 Min = -3.0731

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



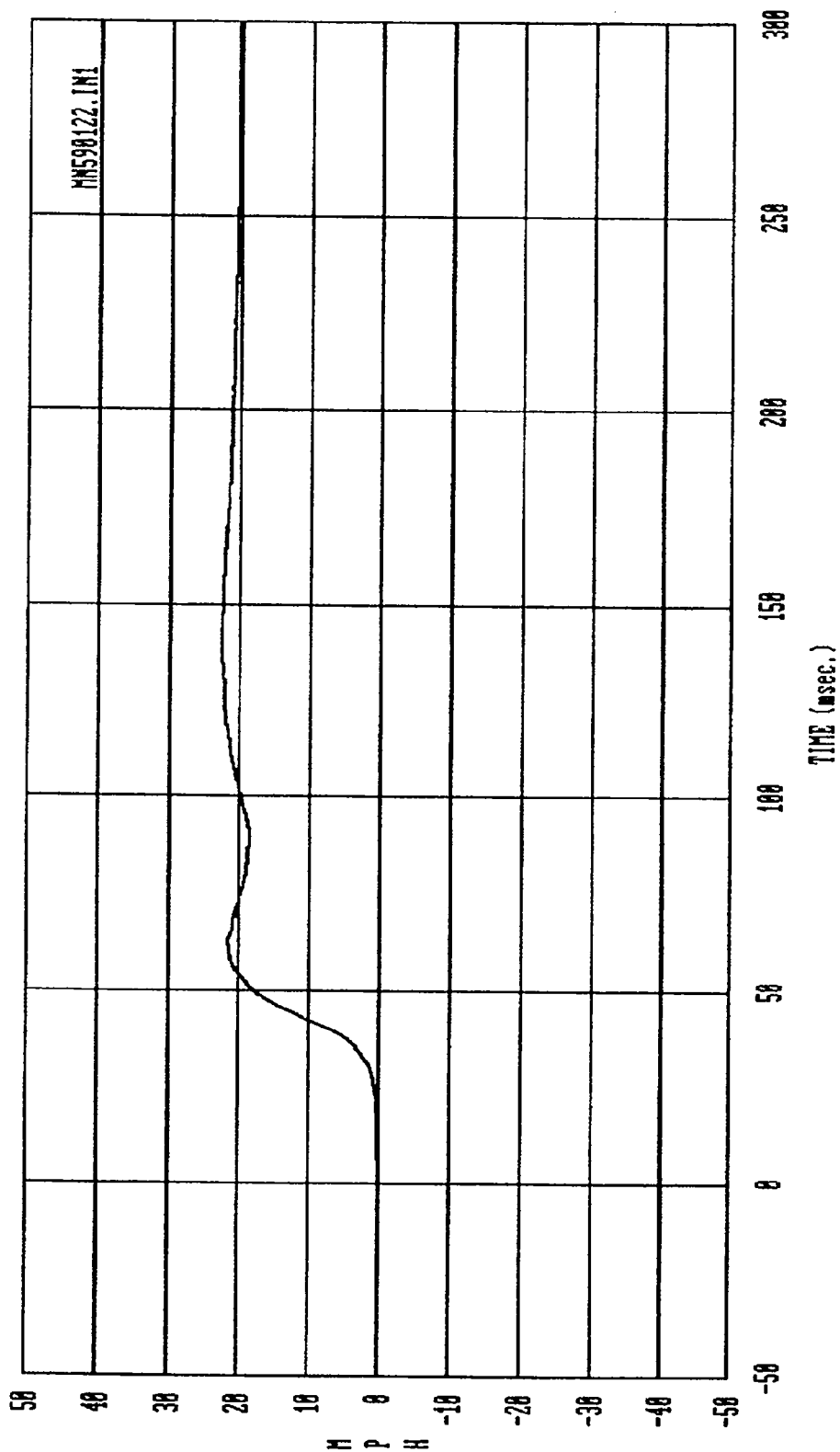
Curve: Passenger upper rib delta V -- Redundant Filter: FIR 100 Max = 23.680 Min = 17.461

NSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



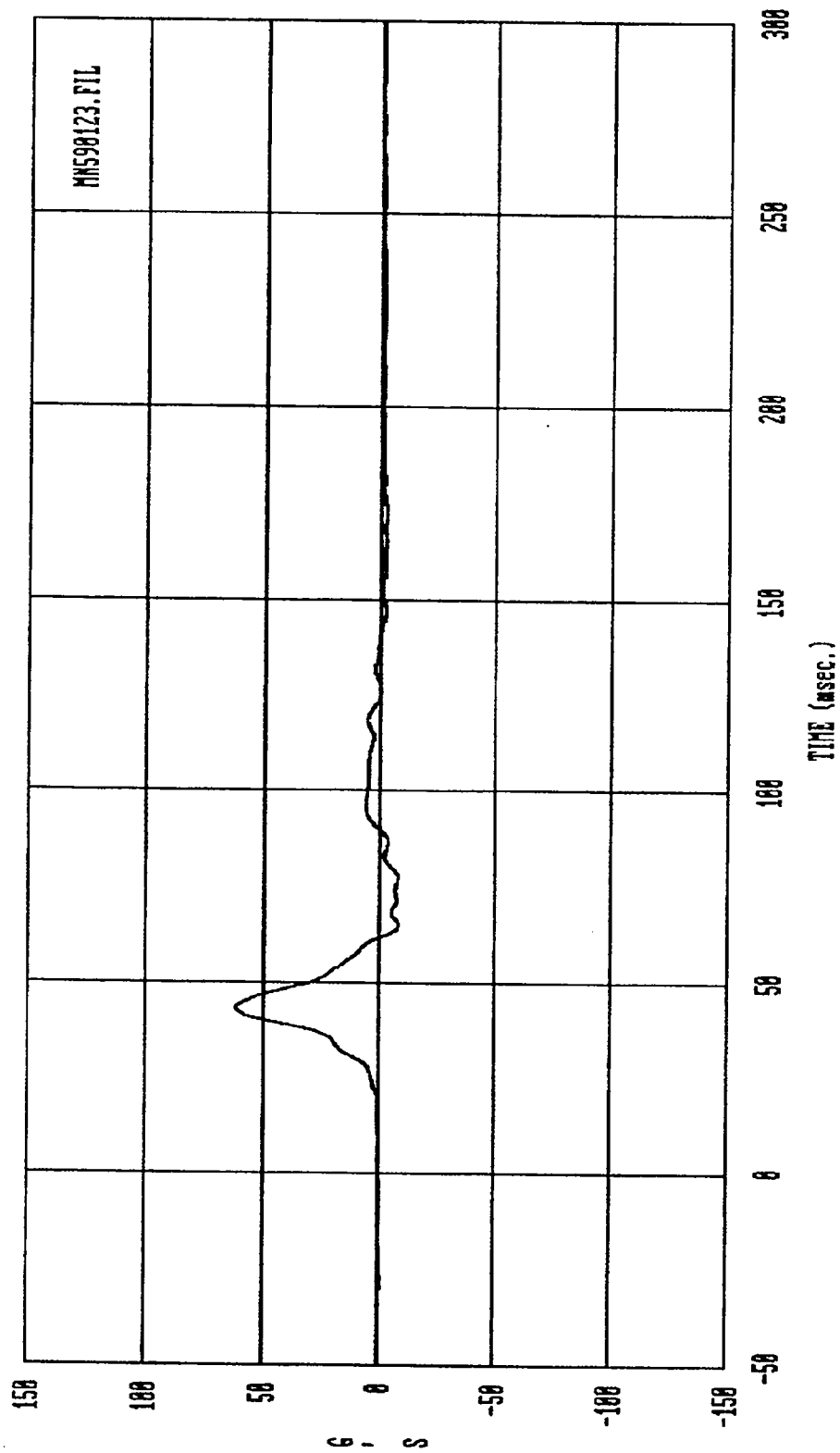
Curve: Passenger lower rib acceleration -- Primary Filter: FIR 100 Max = 68.539 Min = -8.3199

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door

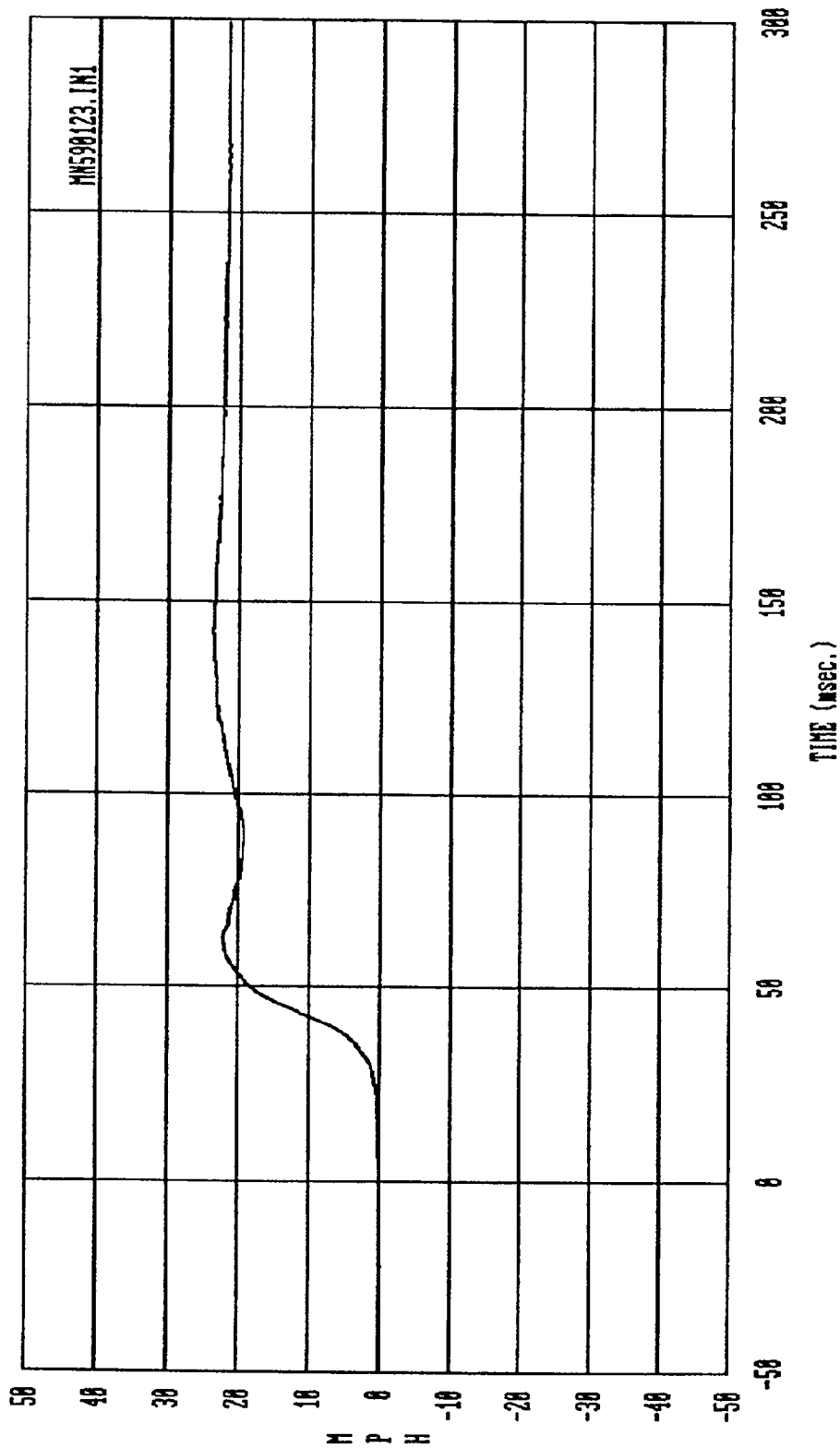


Curve: Passenger lower rib delta V -- Primary Filter: FIR 100 Max = 22.683 Min = .48880E-01

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door

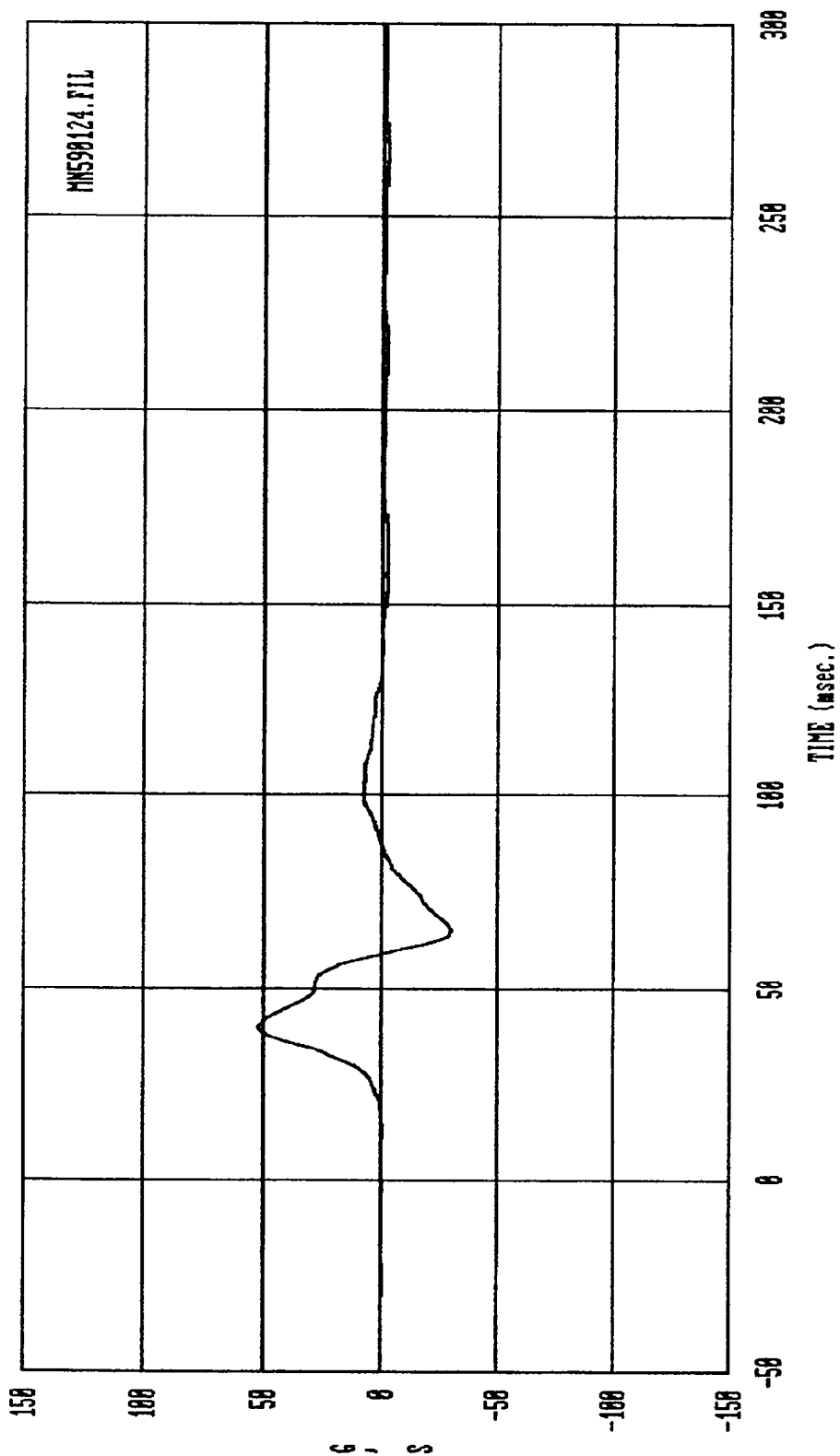


Curve: Passenger lower rib acceleration -- Redundant Filter: FIR 100 Max = 61.775 Min = -8.4896
 MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



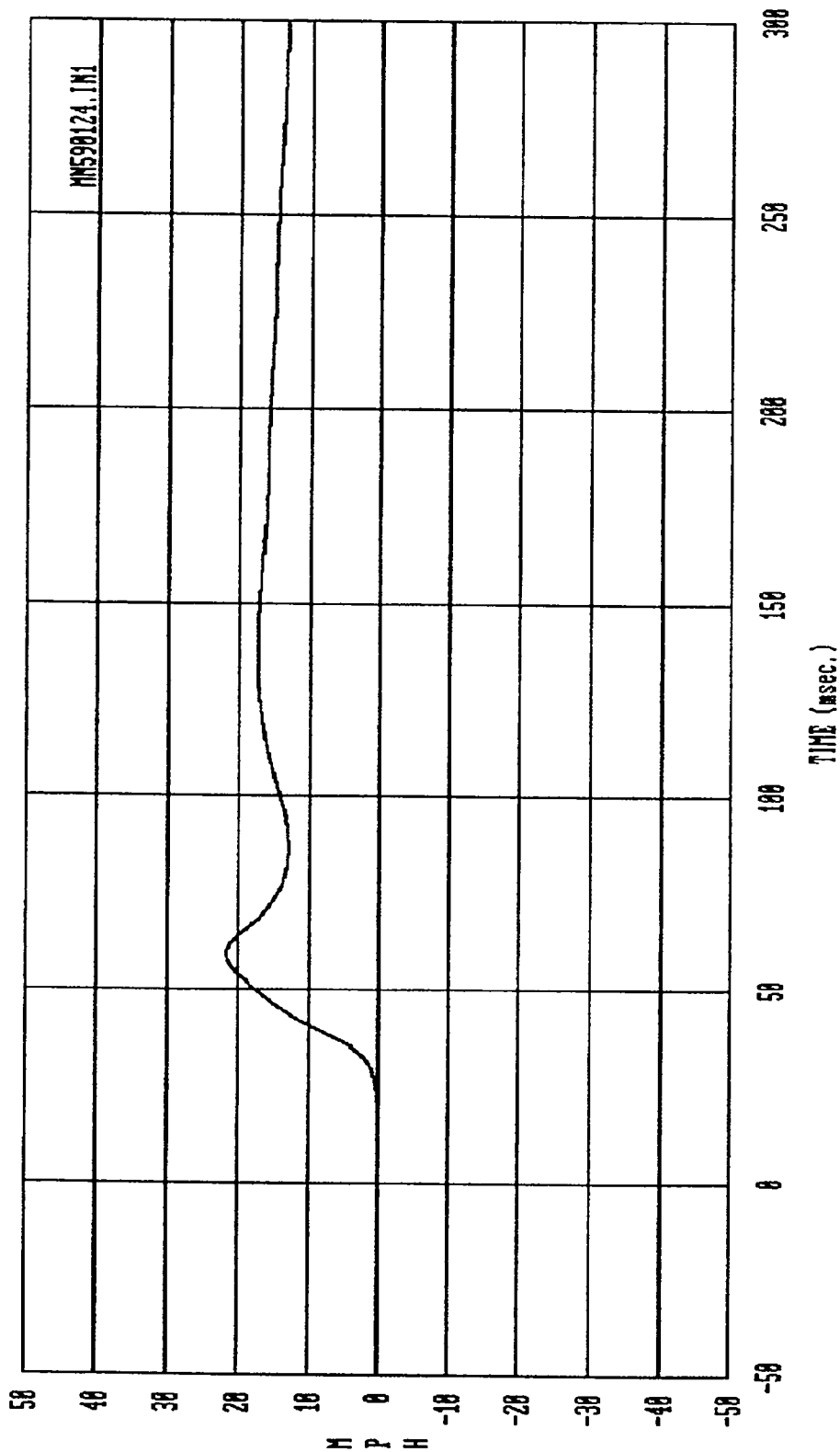
Curve: Passenger lower rib delta V -- Redundant Filter: FIR 100 Max = 23.695 Min = .57783E-01

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



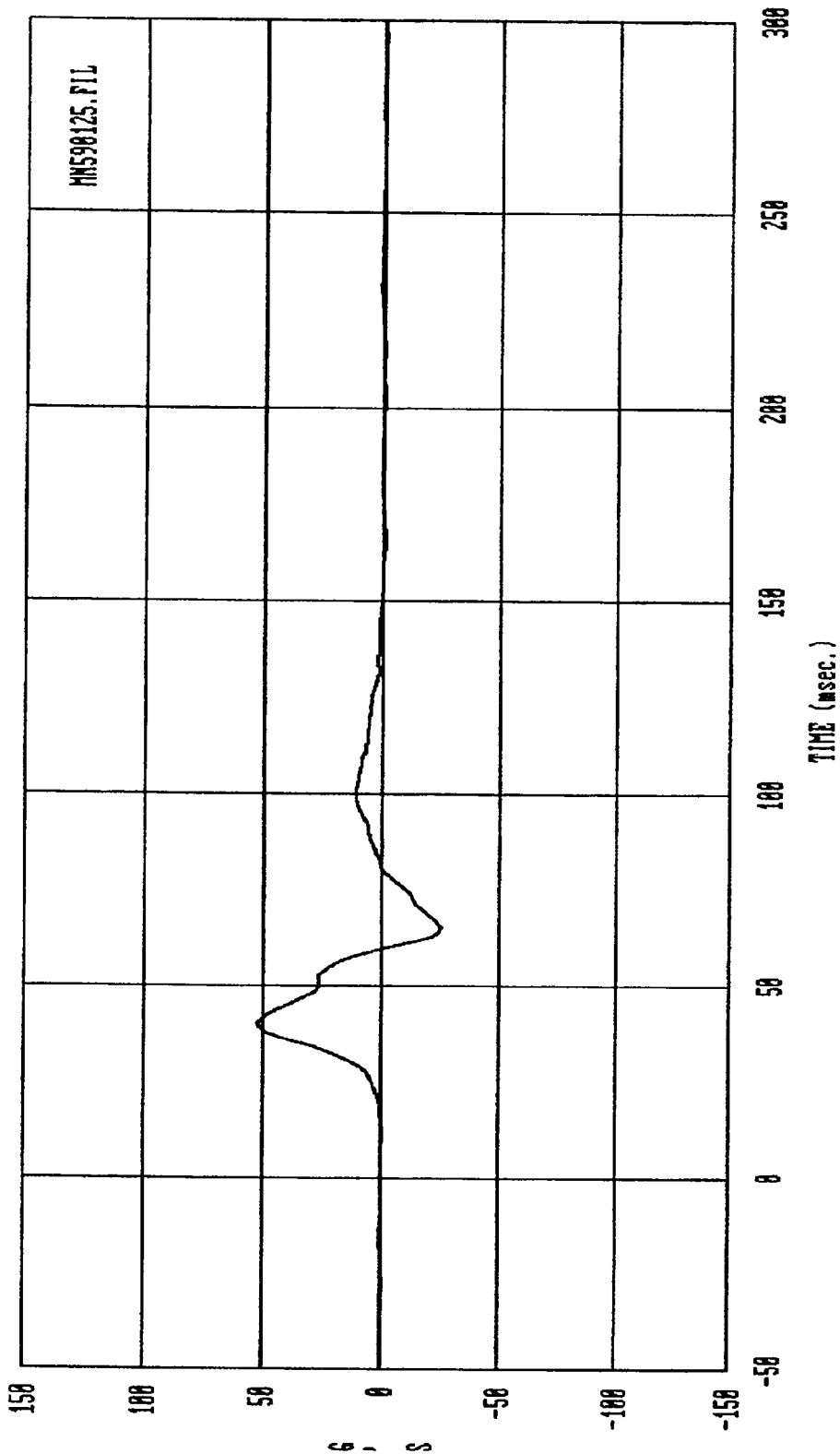
Curve: Passenger lower spine acceleration -- Primary Filter: FIR 100 Max = 52.462 Min = -29.896

NSE Date: 84/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door

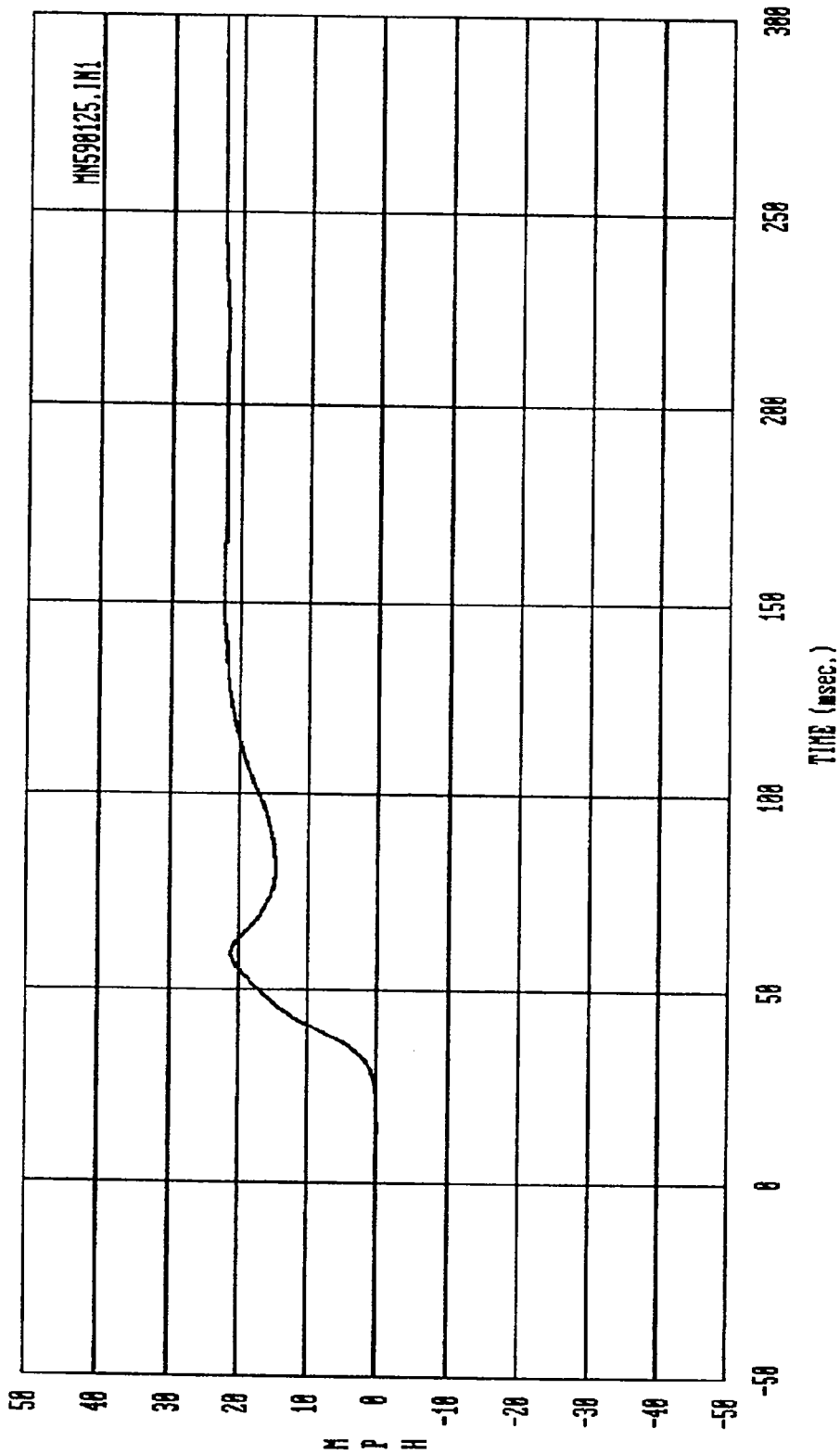


Curve: Passenger lower spine delta V -- Primary Filter: FIR 100 Max = 21.763 Min = .25416E-01

NSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door

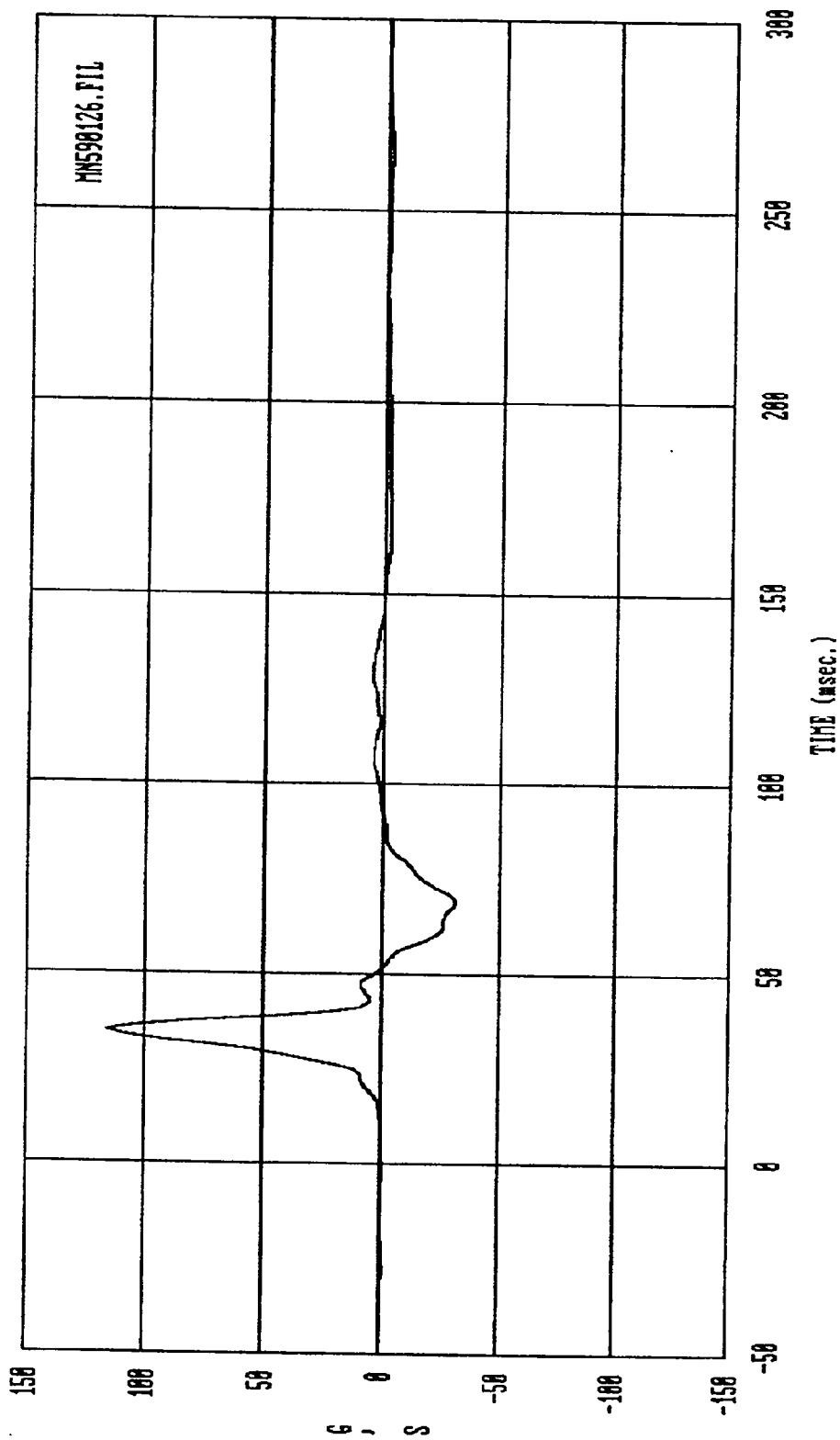


Curve: Passenger lower spine acceleration -- Redundant Filter: FIR 100 Max = 52.525 Min = -25.145
 HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Passenger lower spine delta V — Redundant Filter: FIR 100 Max = 22.666 Min = -.87155E-01

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Passenger pelvis acceleration

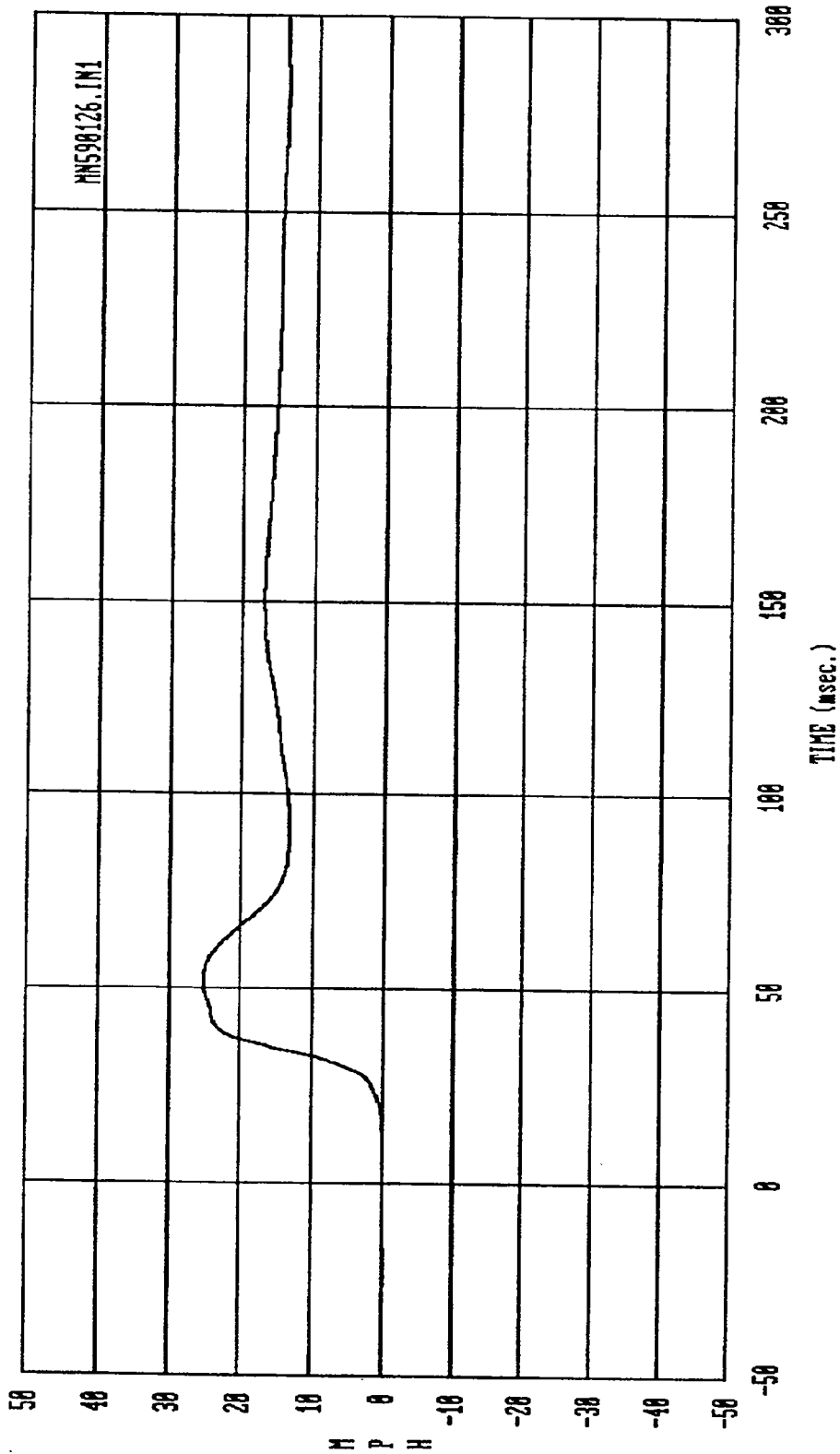
Filter: FIR 100

Max = 116.03 Min = -31.185

HSE

Date: 04/22/92

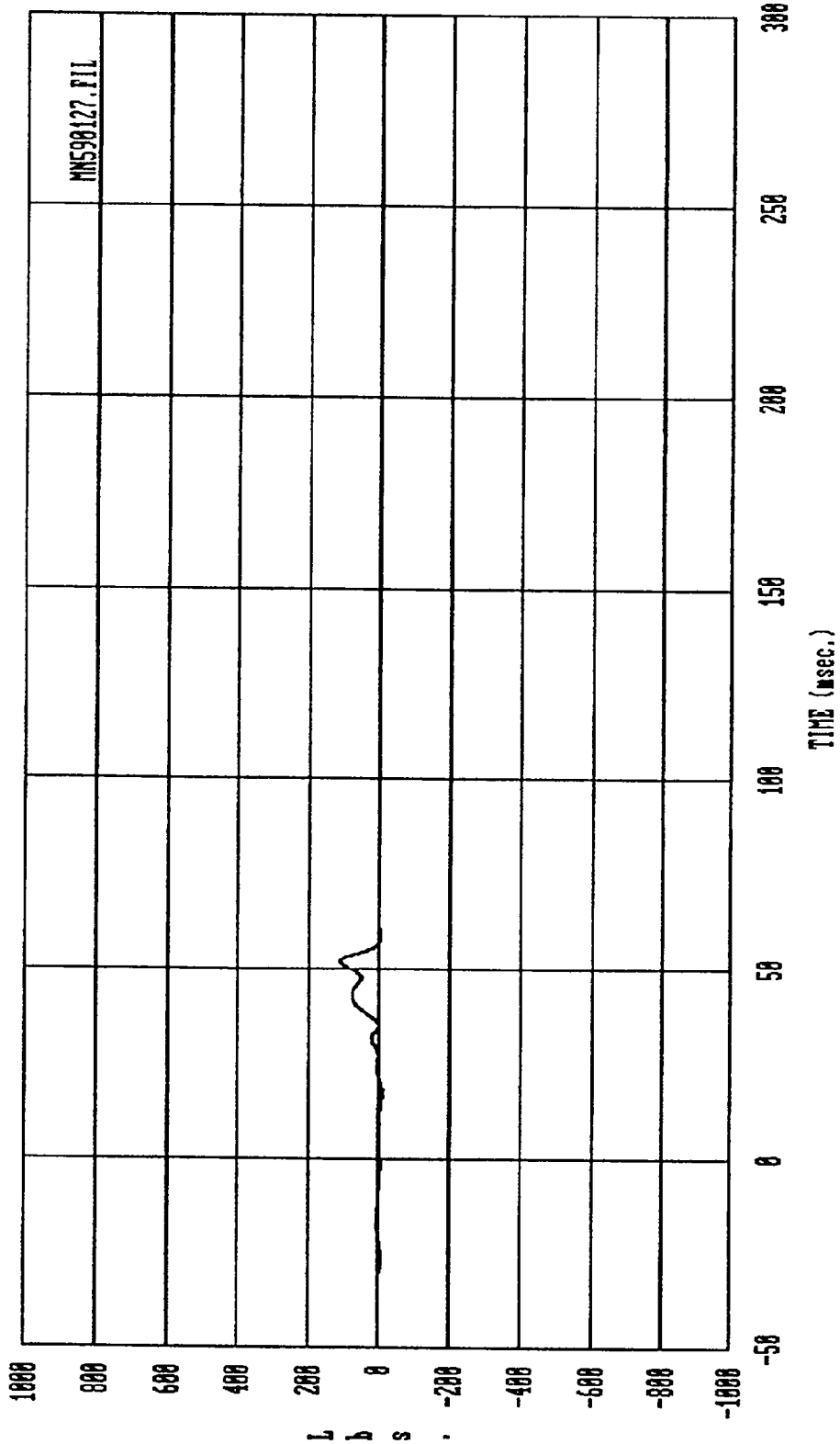
Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Passenger pelvis delta U

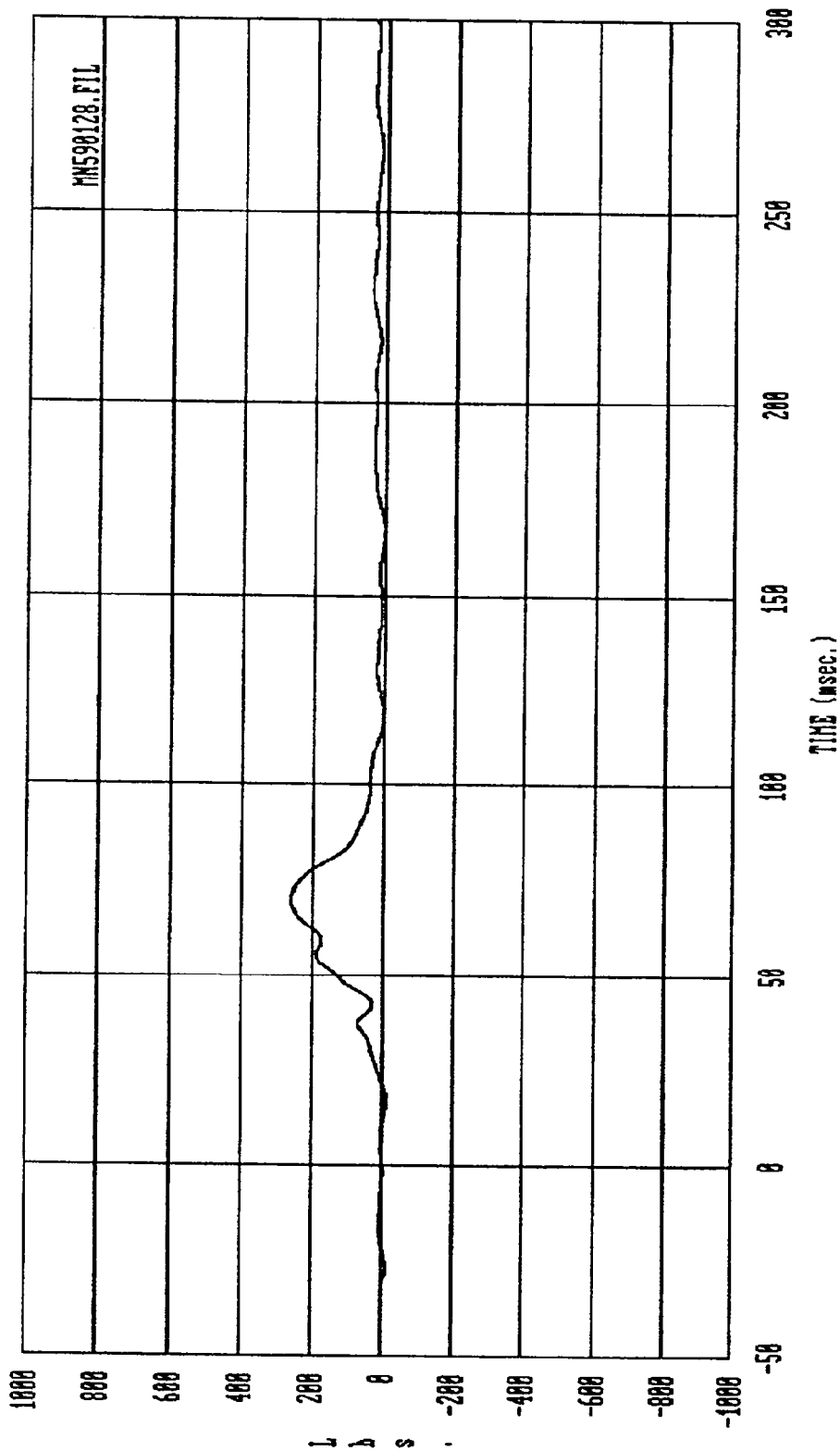
Filter: FIR 100 Max = 25.224 Min = 13.331

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



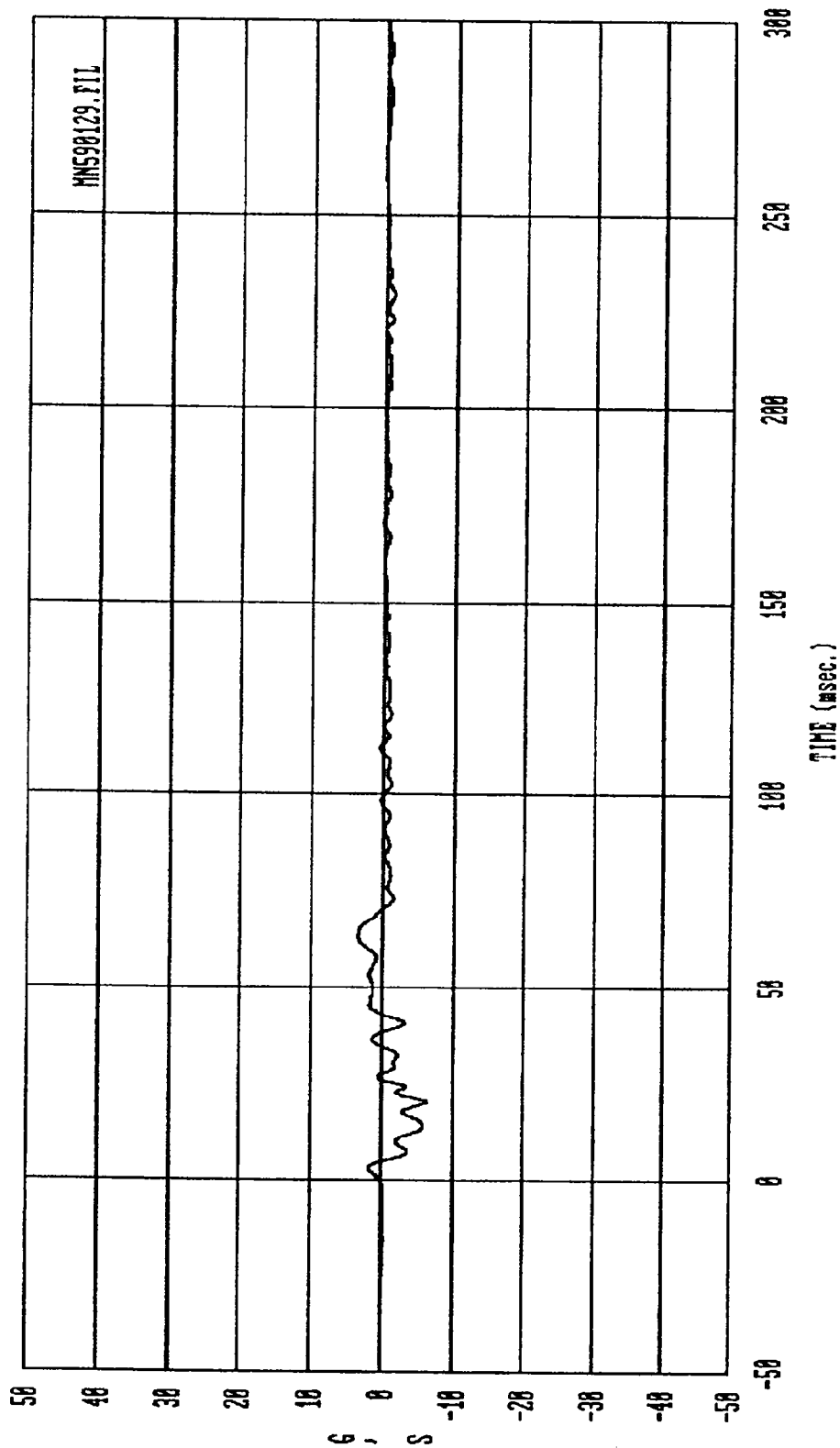
Curve: Passenger lap belt load Filter: SAE CLASS 60 Max = 111.28 Min = -11.089

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



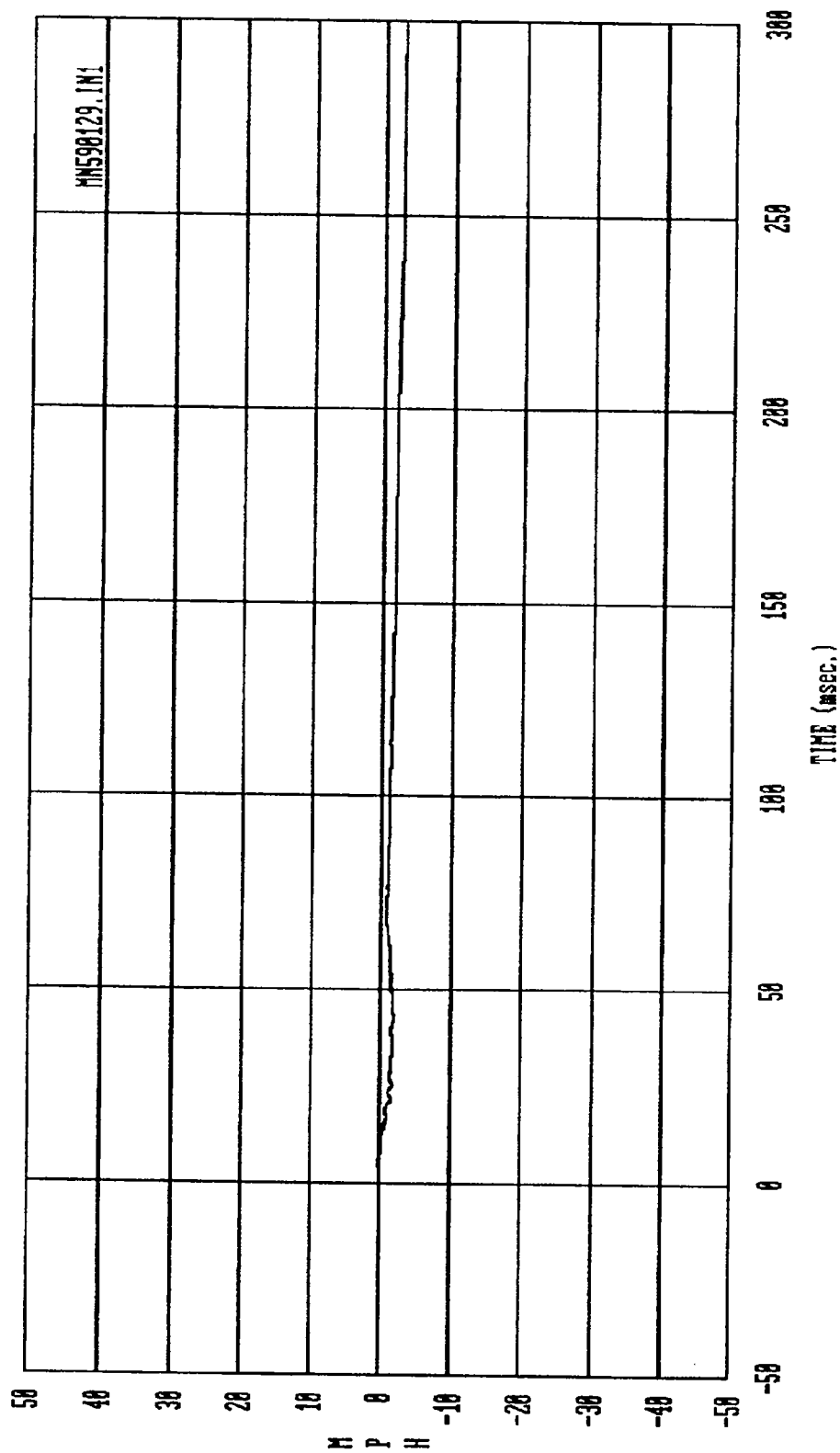
Curve: Passenger shoulder belt load Filter: SAE CLASS 60 Max = 263.59 Min = -11.733
 MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door

VEHICLE ACCELEROMETER DATA



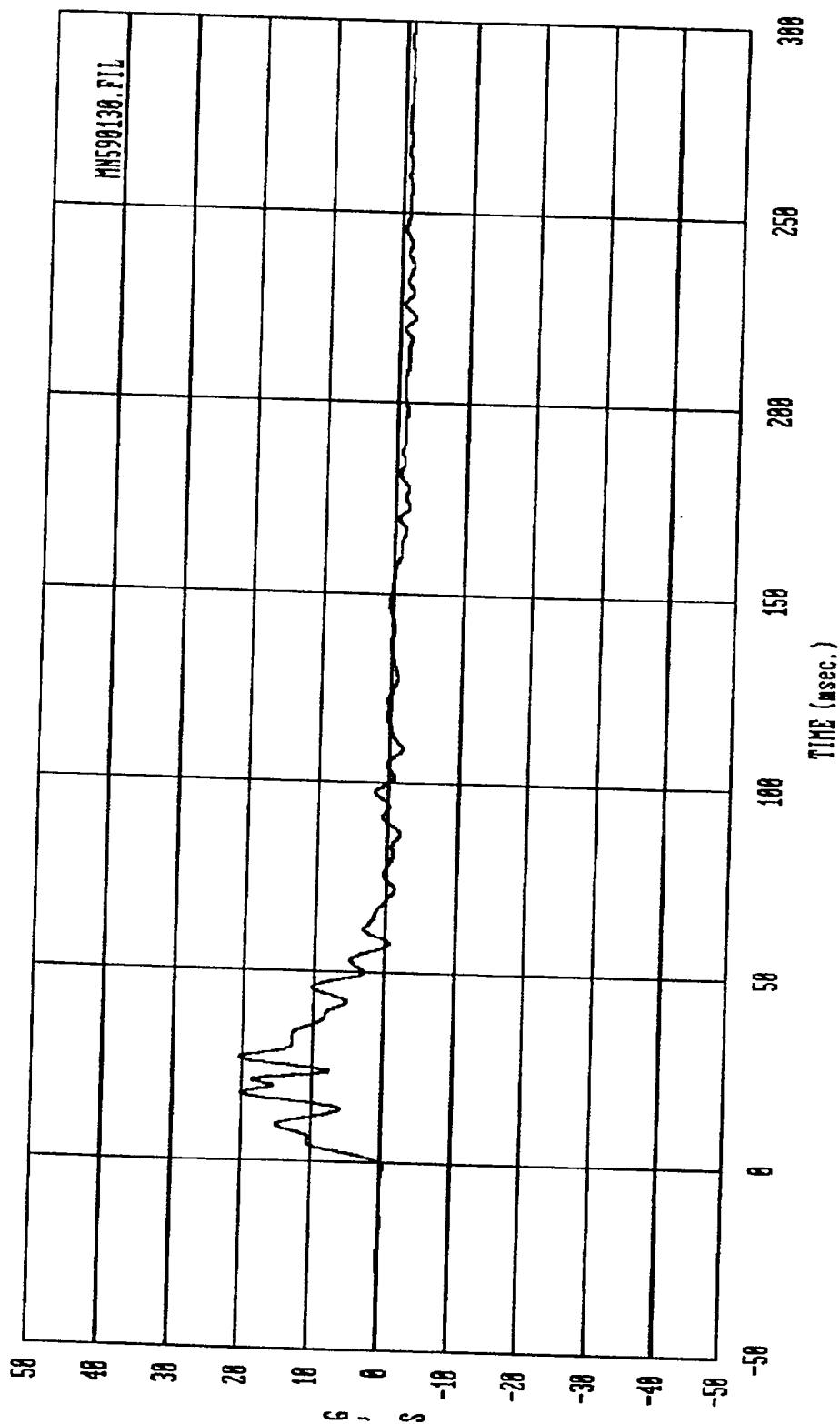
Curve: Front seat right sill acceleration -- X axis Filter: SAE CLASS 60 Max = 3.4719 Min = -6.3475

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



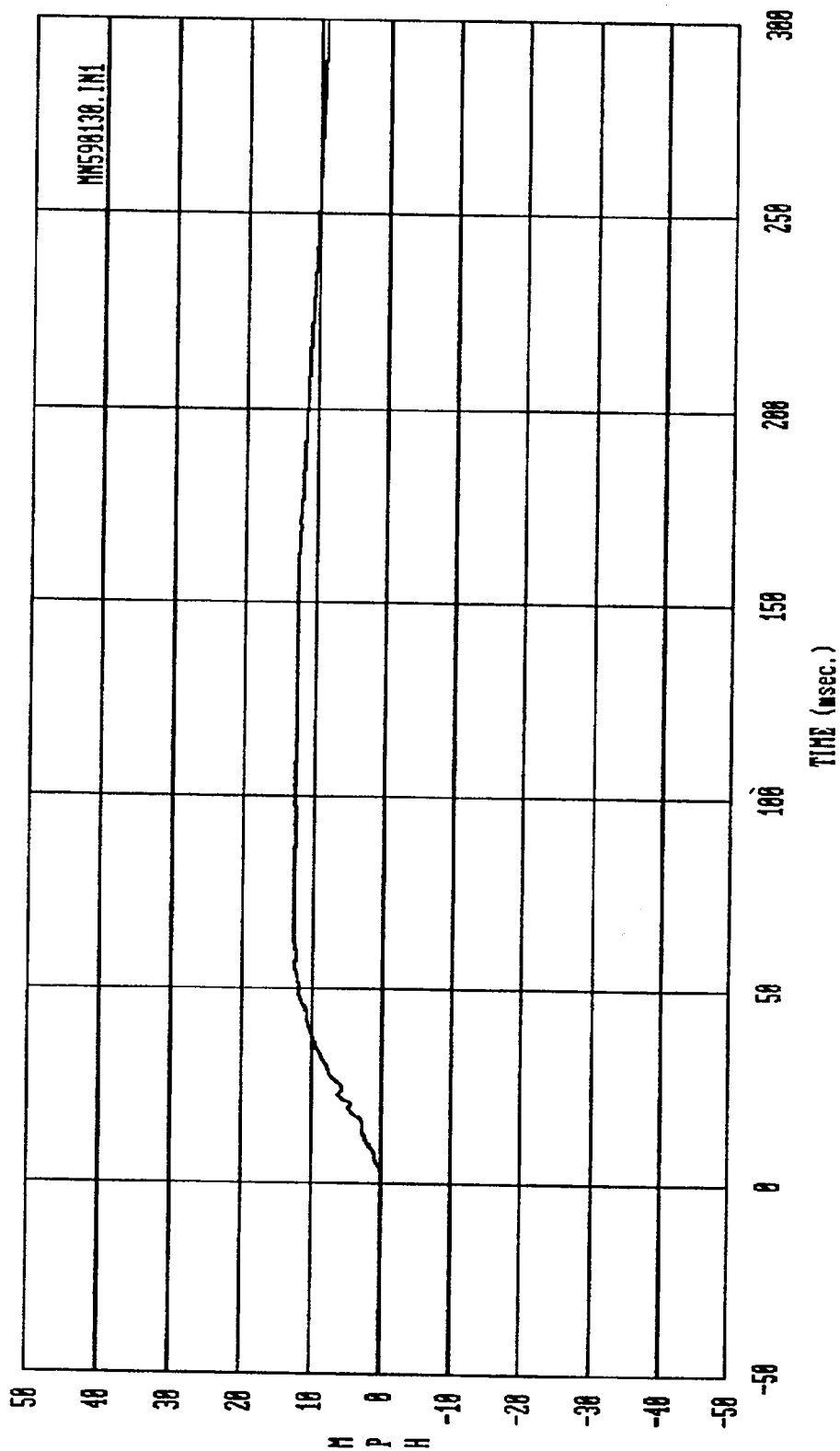
Curve: Front seat right sill delta V — X axis Filter: SAE CLASS 180 Max = .19681 Min = -2.7184

HSE Date: 84/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



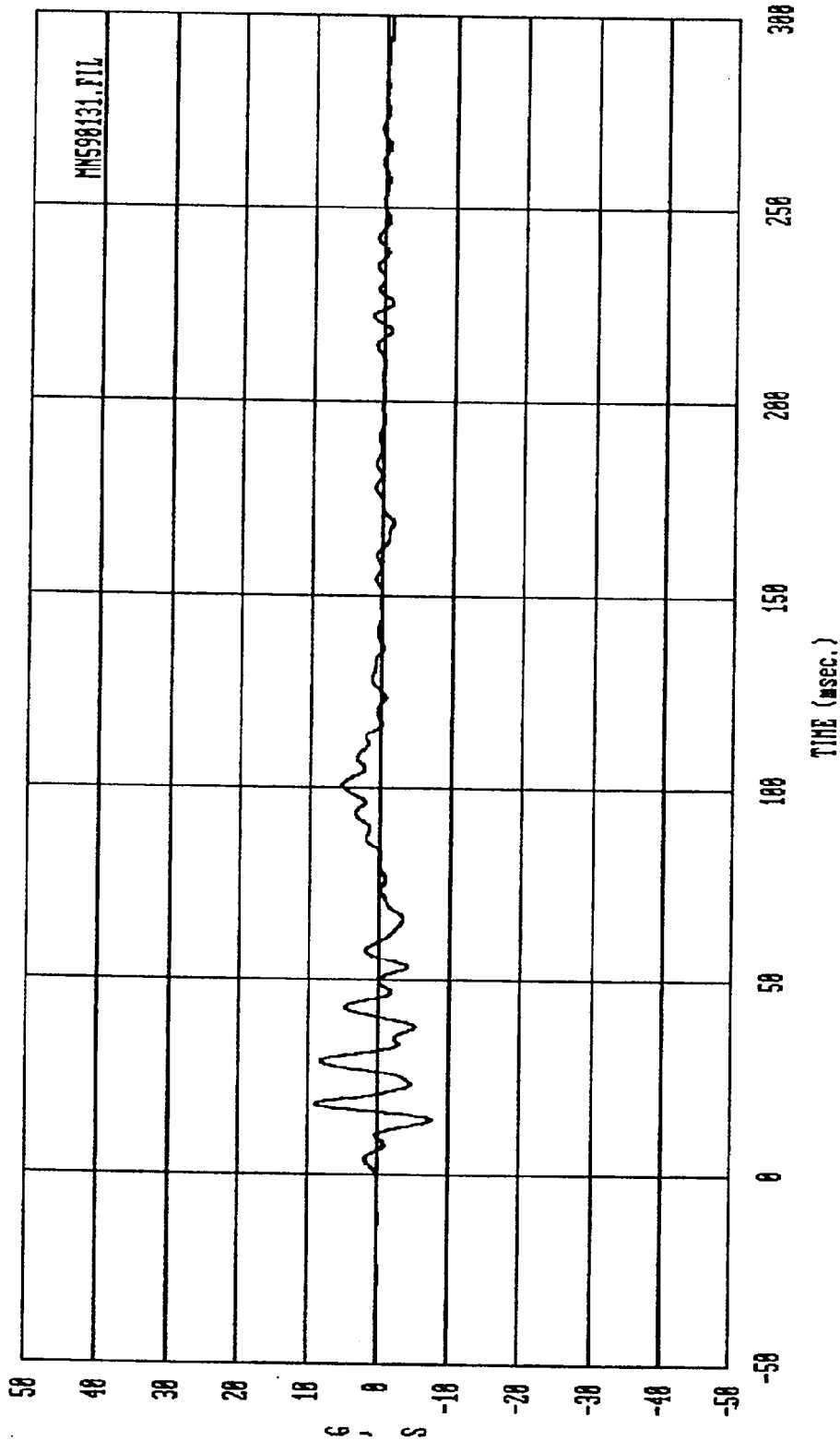
Curve: Front seat right sill acceleration -- Y axis Filter: SAE CLASS 60 Max = 20.539 Min = -2.1093

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



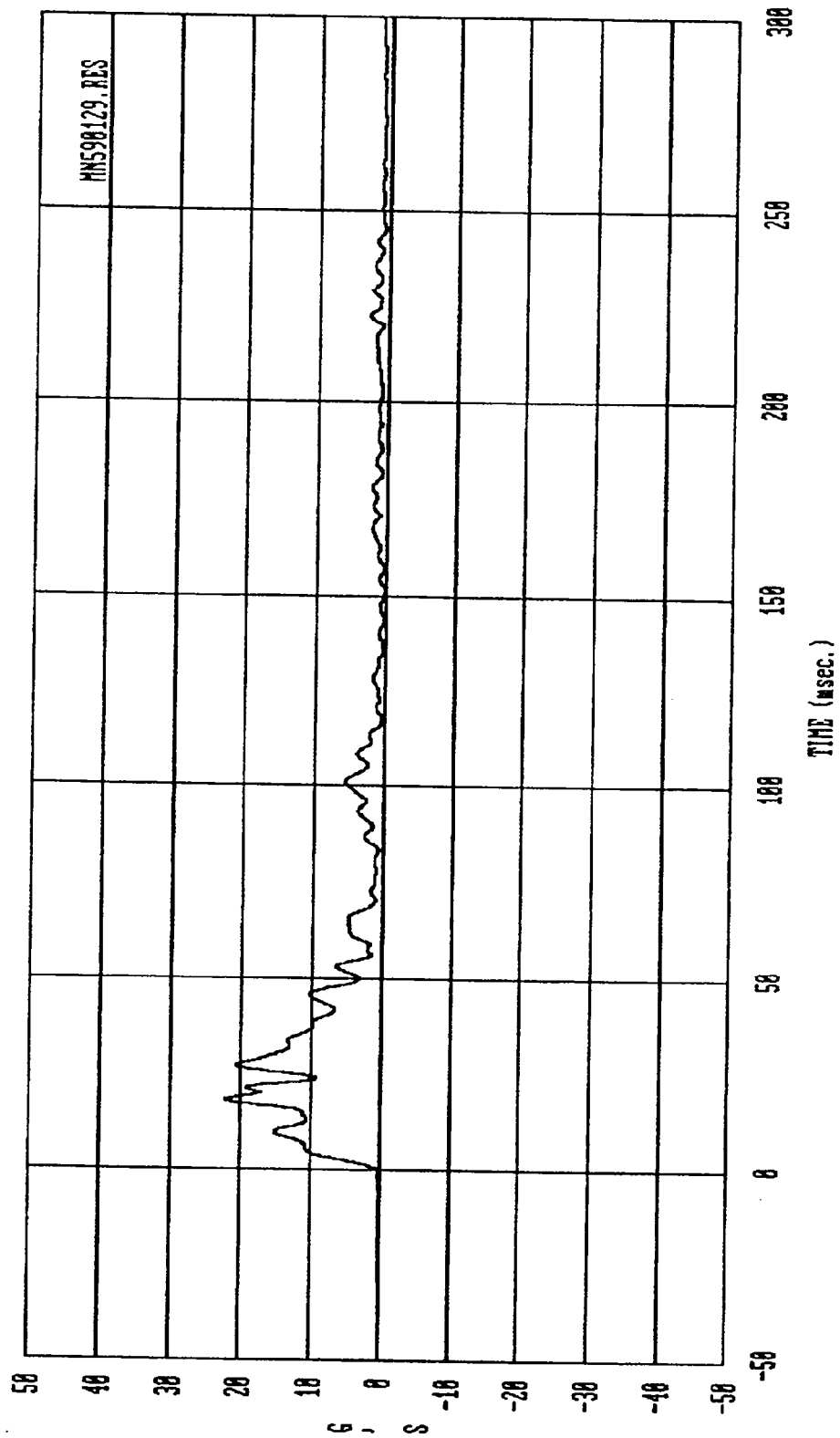
Curve: Front seat right sill delta V -- Y axis Filter: SAE CLASS 180 Max = 12.877 Min = -.38884E-02

HSE Date: 04/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GUS 4 Door



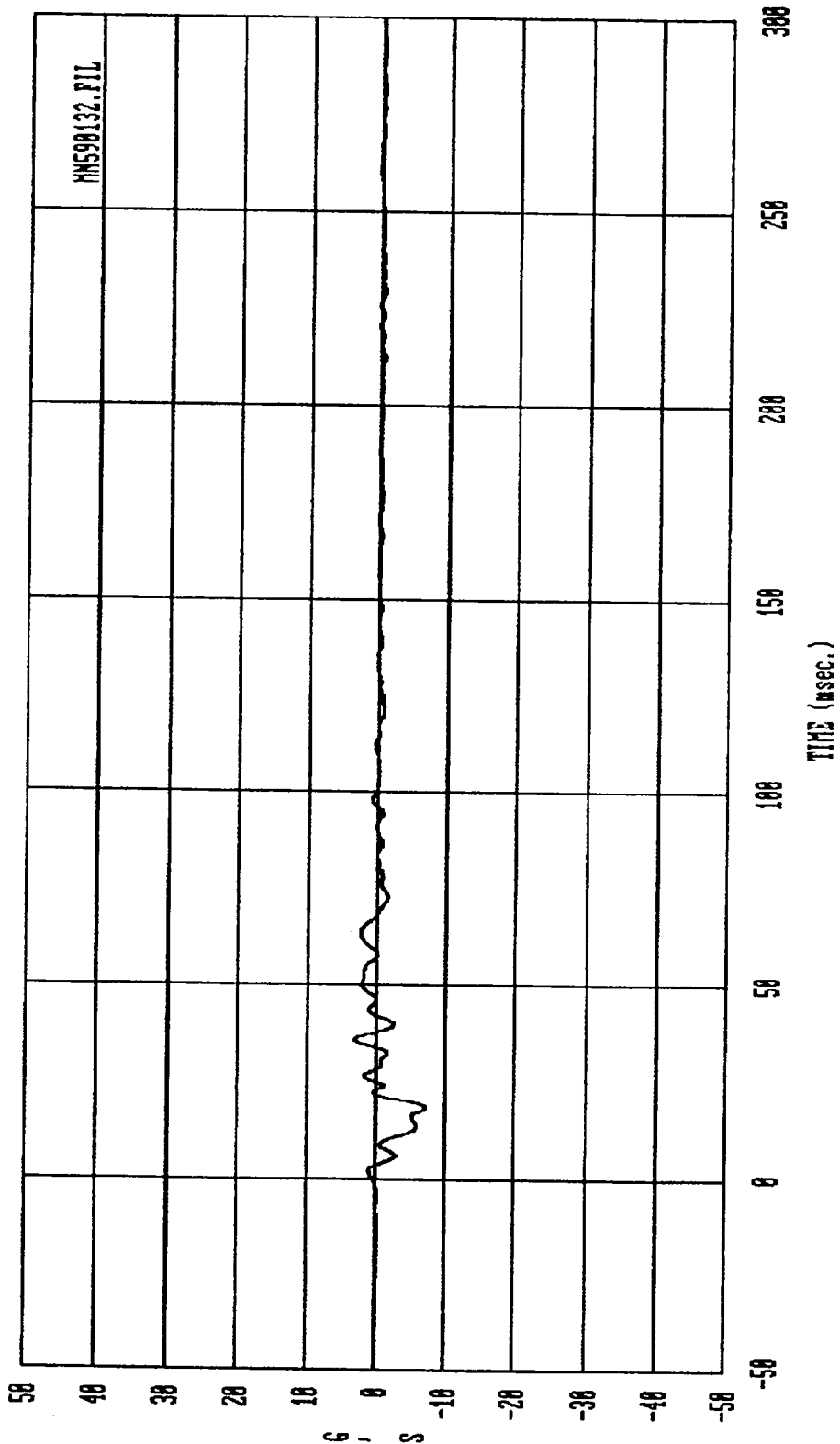
Curve: Front seat right sill acceleration -- Z axis Filter: SAE CLASS 60 Max = 8.9863 Min = -7.6813

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



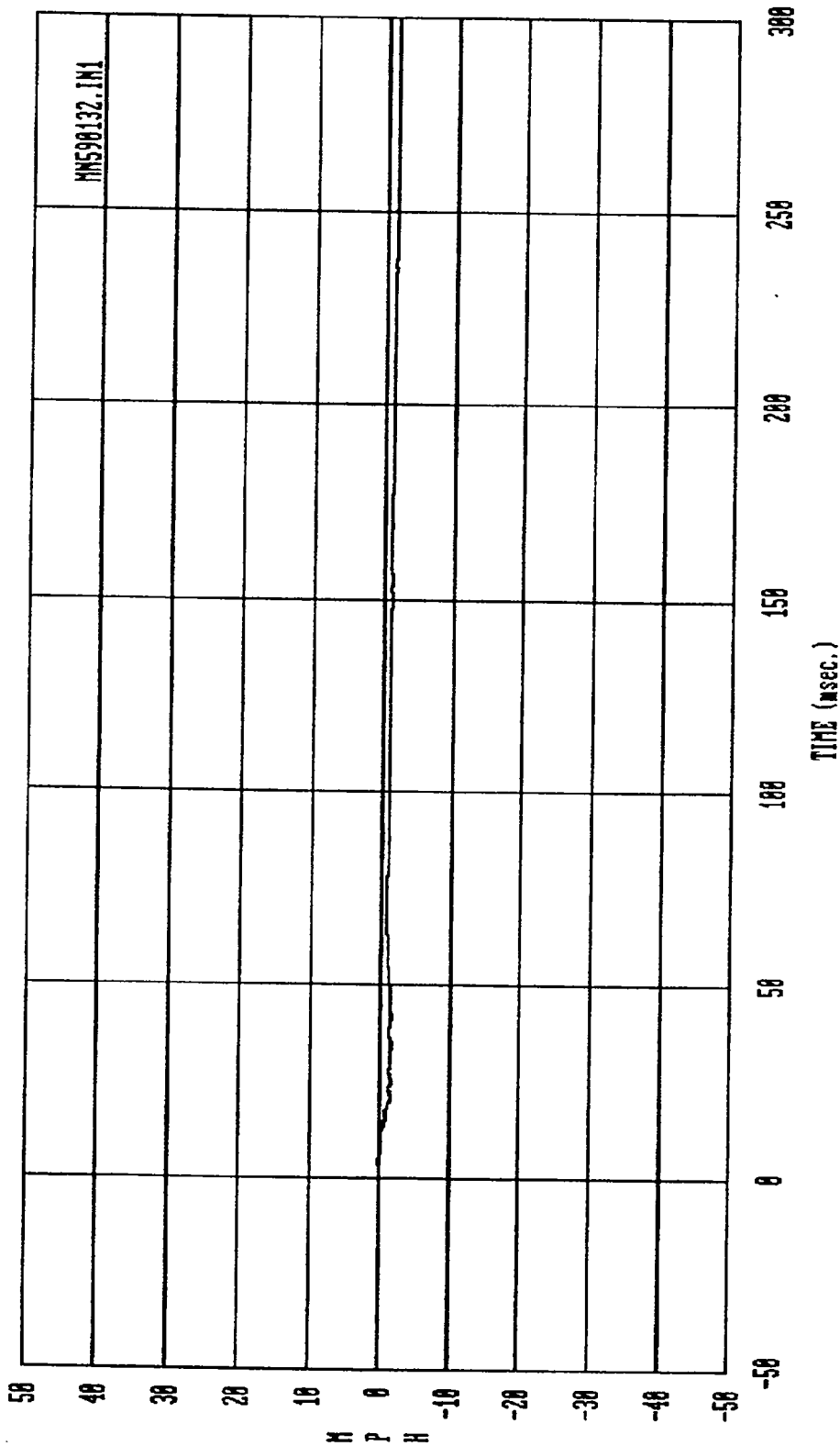
Curve: Front seat right sill resultant acceleration Filter: SAE CLASS 60 Max = 22.188 Min = .24979

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



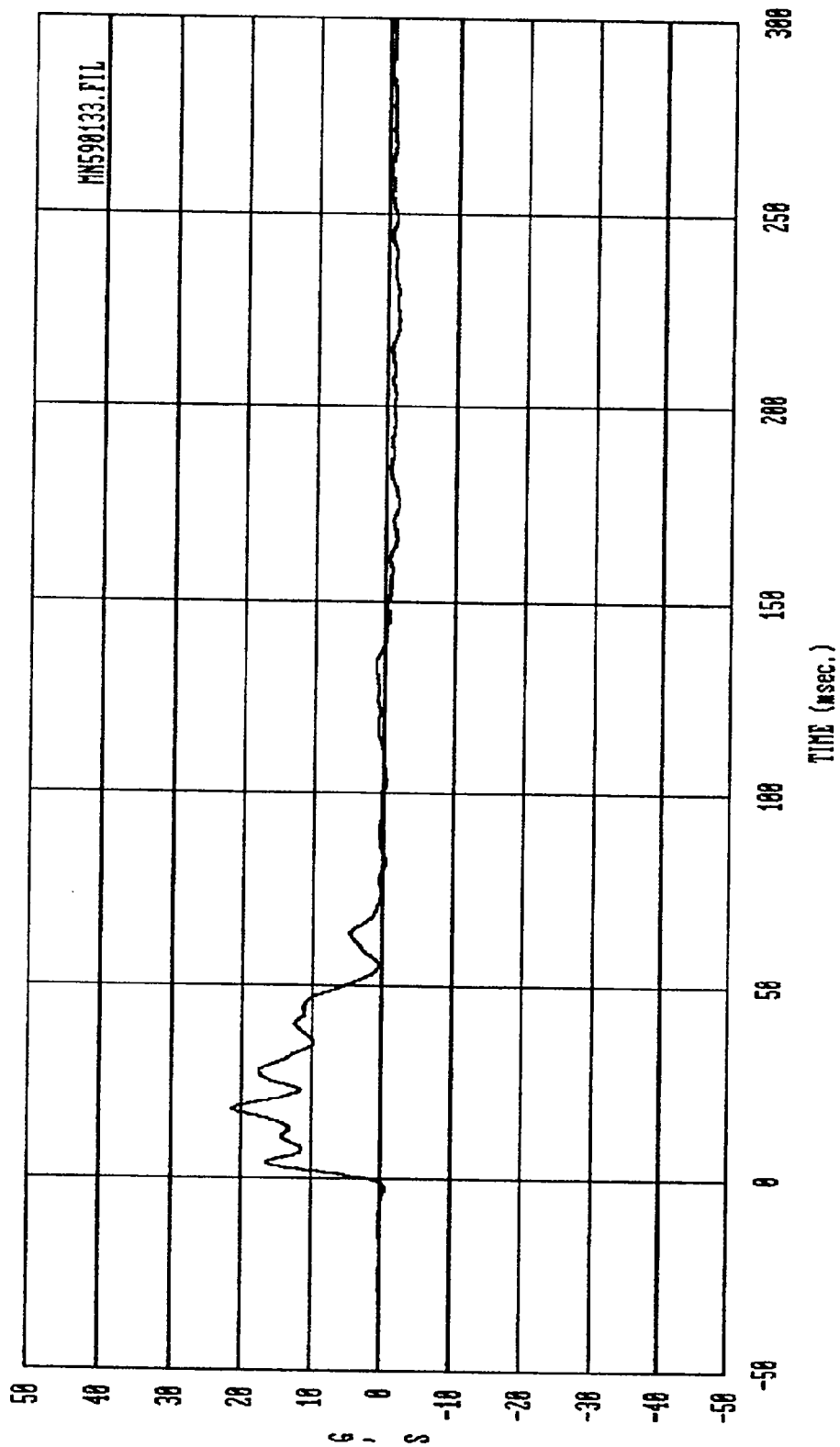
Curve: Rear seat right sill acceleration — X axis Filter: SAE CLASS 60 Max = 3.3172 Min = -7.2235

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



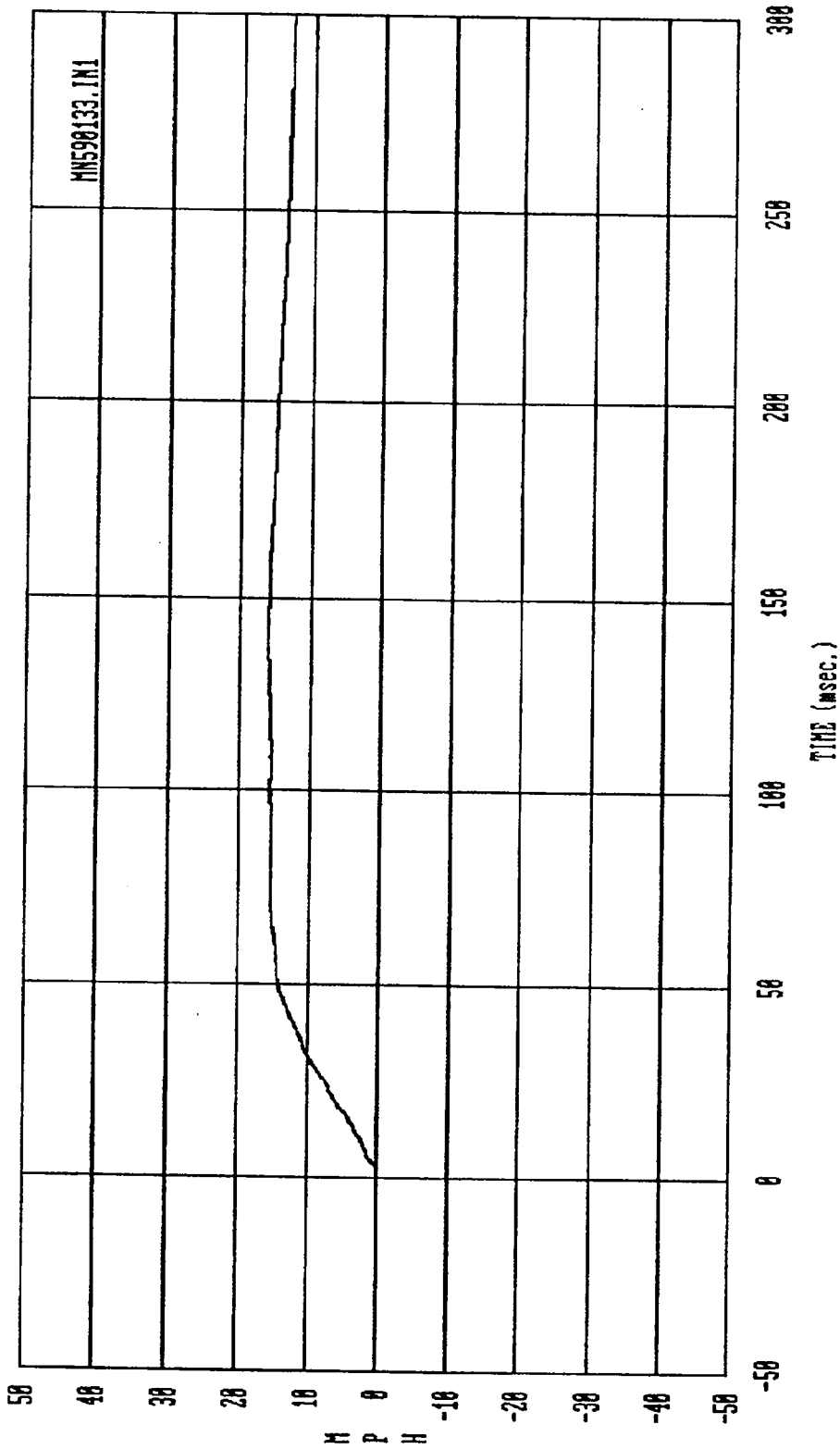
Curve: Rear seat right sill delta V — X axis Filter: SAE CLASS 180 Max = .14818 Min = -1.5716

MSE Date: 04/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door

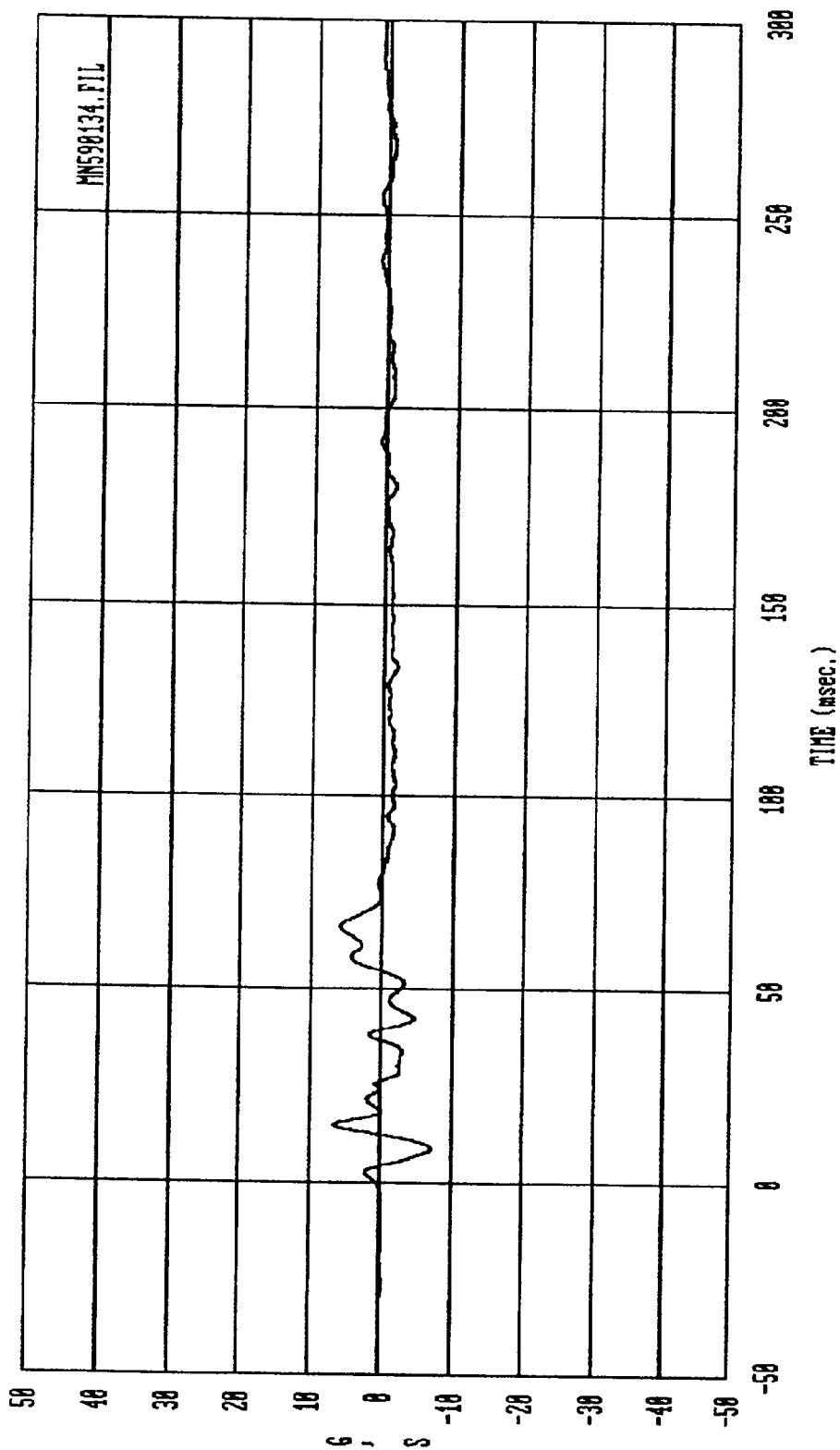


Curve: Rear seat right sill acceleration -- Y axis Filter: SAE CLASS 60 Max = 21.361 Min = -1.8882

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door

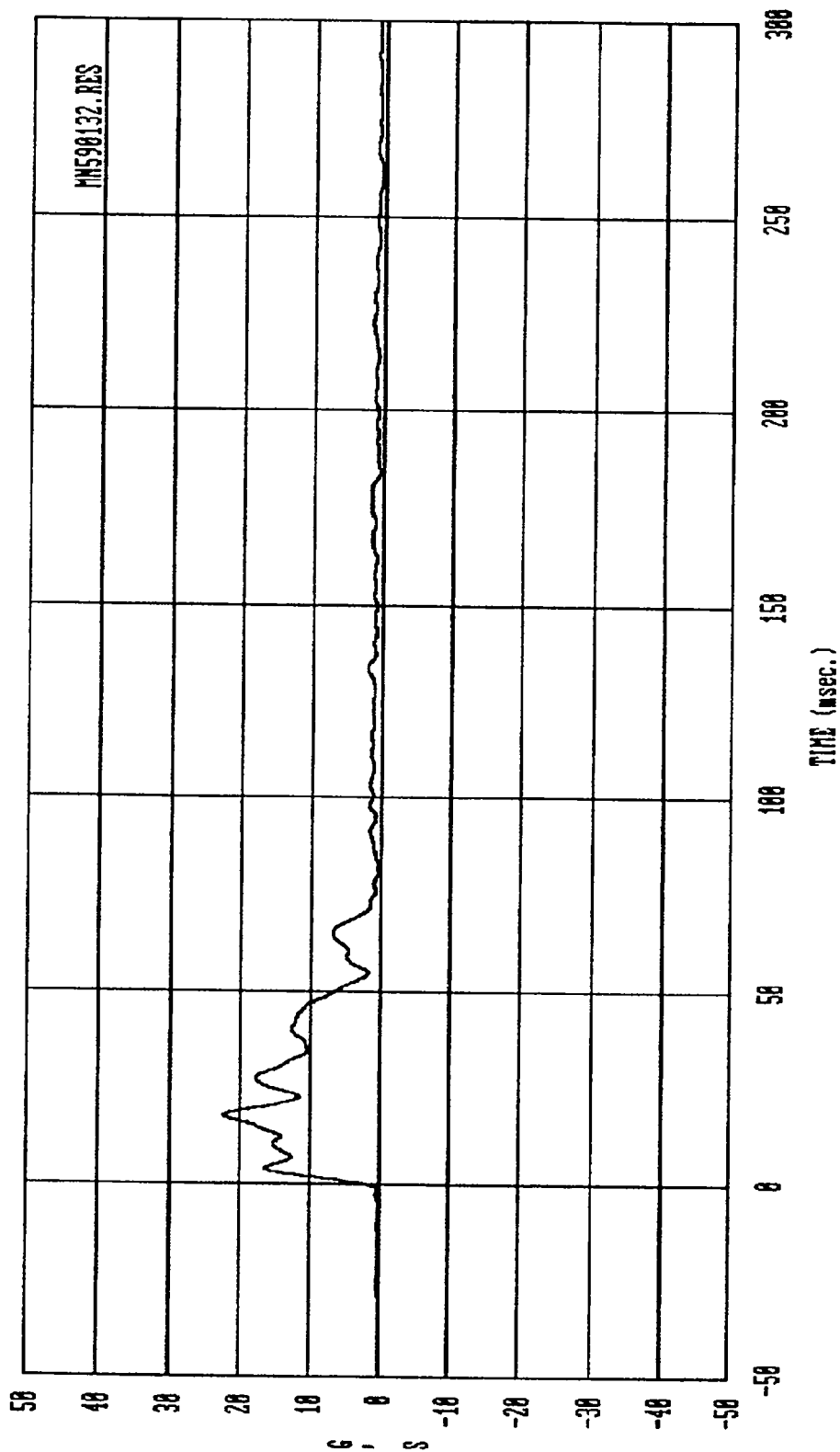


Curve: Rear seat right sill delta V -- Y axis Filter: SAE CLASS 180 Max = 16.100 Min = 13.846
HSE Date: 04/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



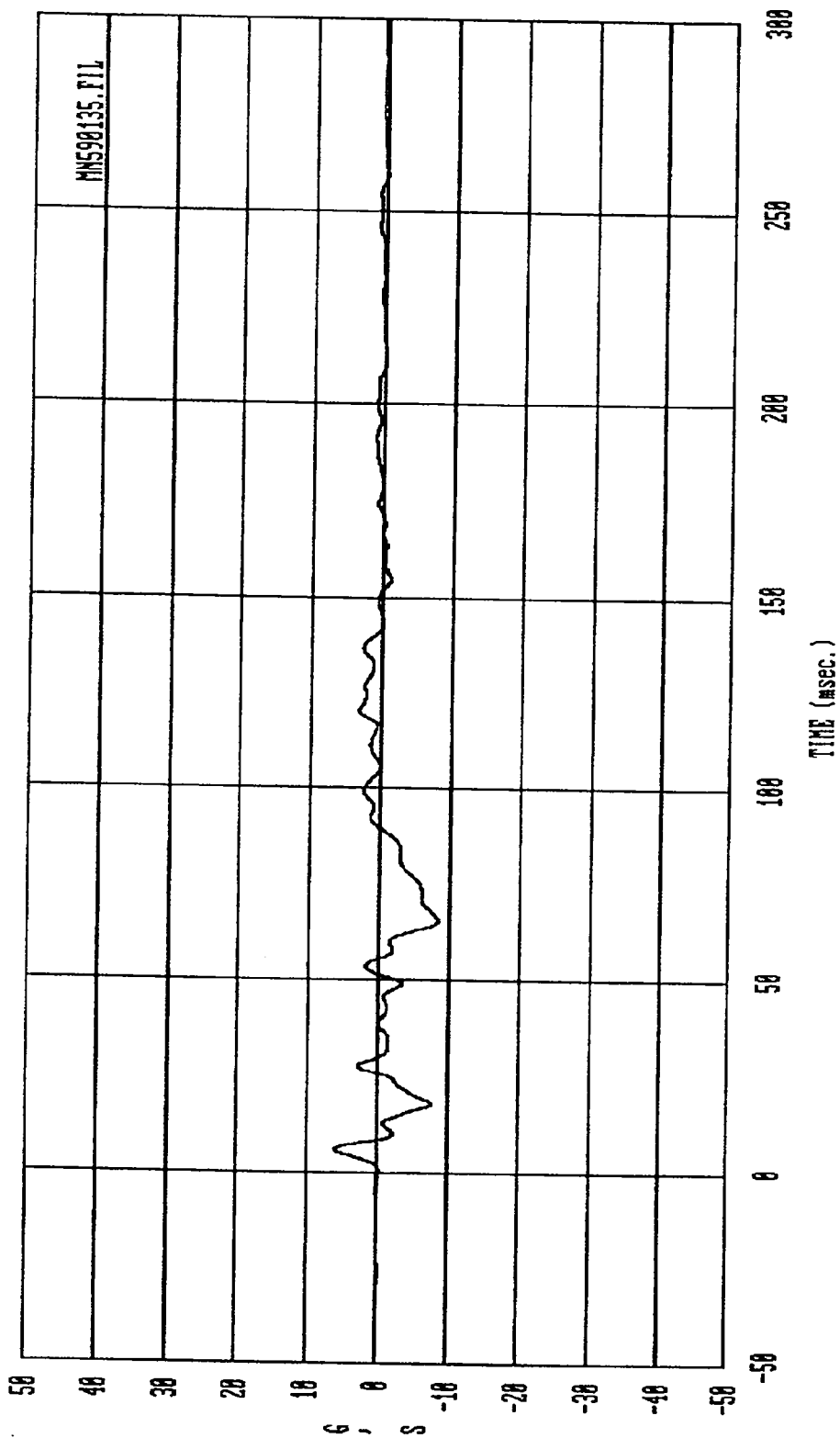
Curve: Rear seat right sill acceleration -- Z axis Filter: SAE CLASS 60 Max = 6.6858 Min = -7.2970

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



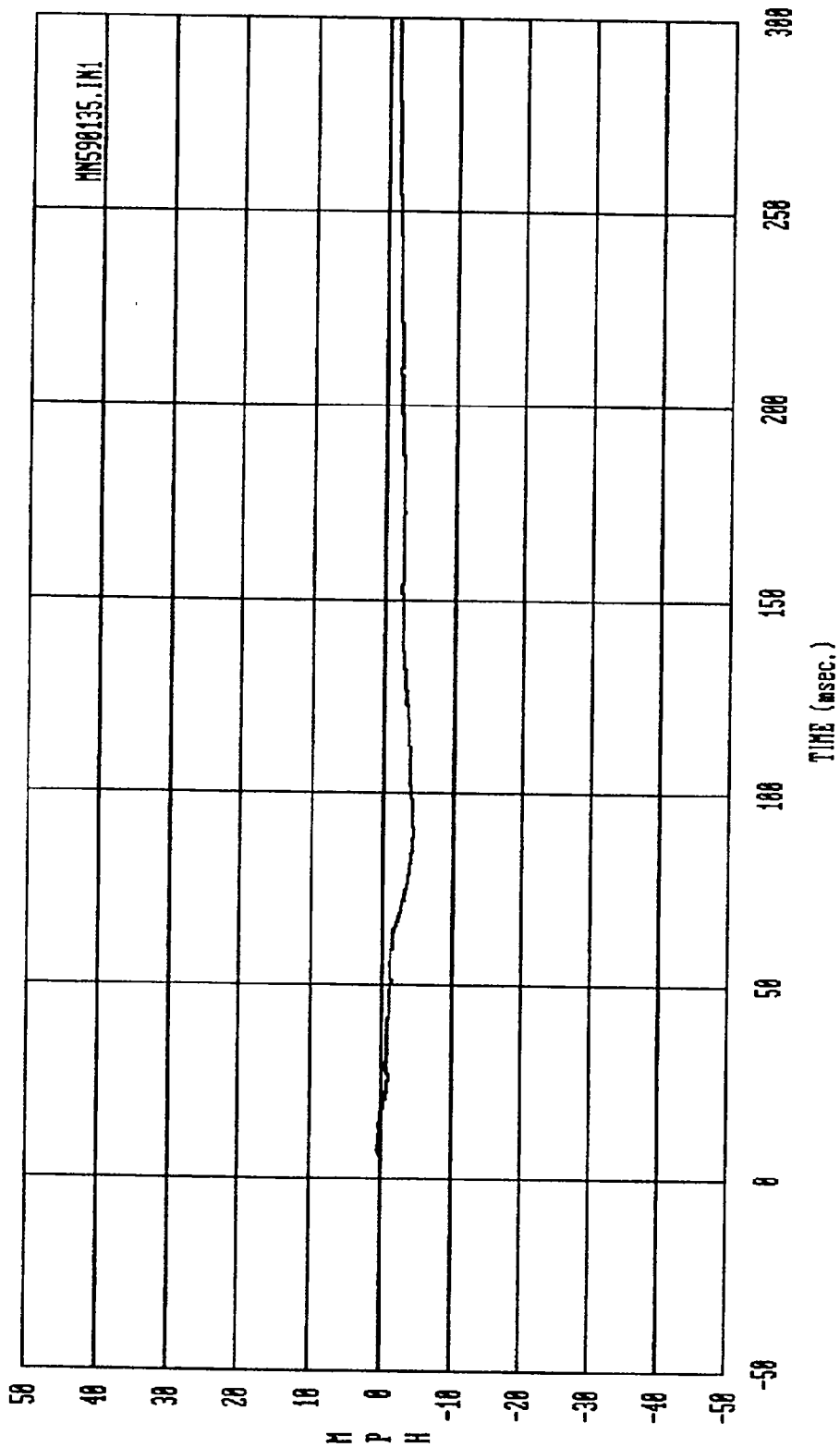
Curve: Rear seat right sill resultant acceleration Filter: SAE CLASS 60 Max = 22.518 Min = .48227

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



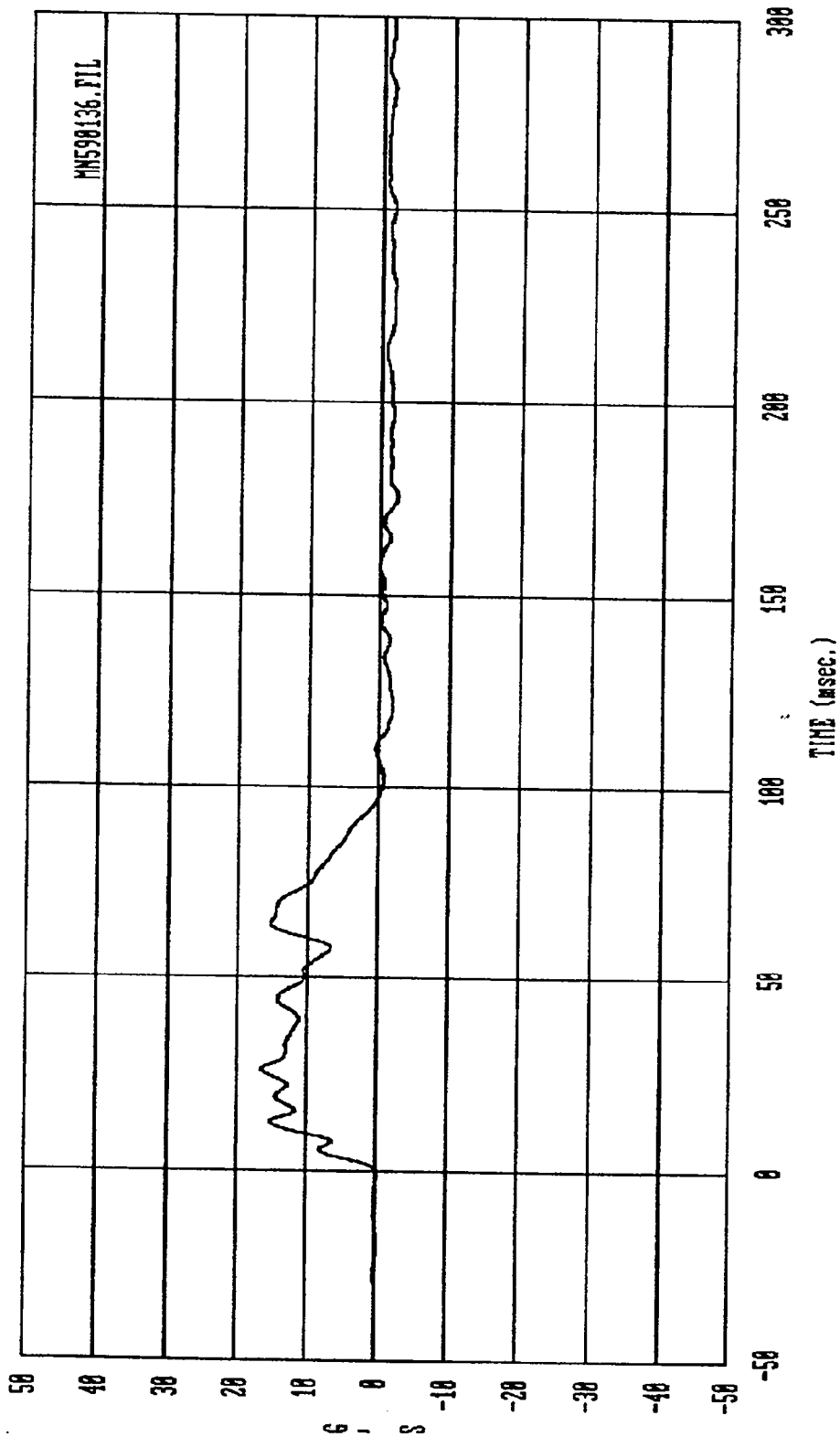
Curve: Rear floor above axle acceleration -- X axis Filter: SAE CLASS 60 Max = 6.1681 Min = -8.4551

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



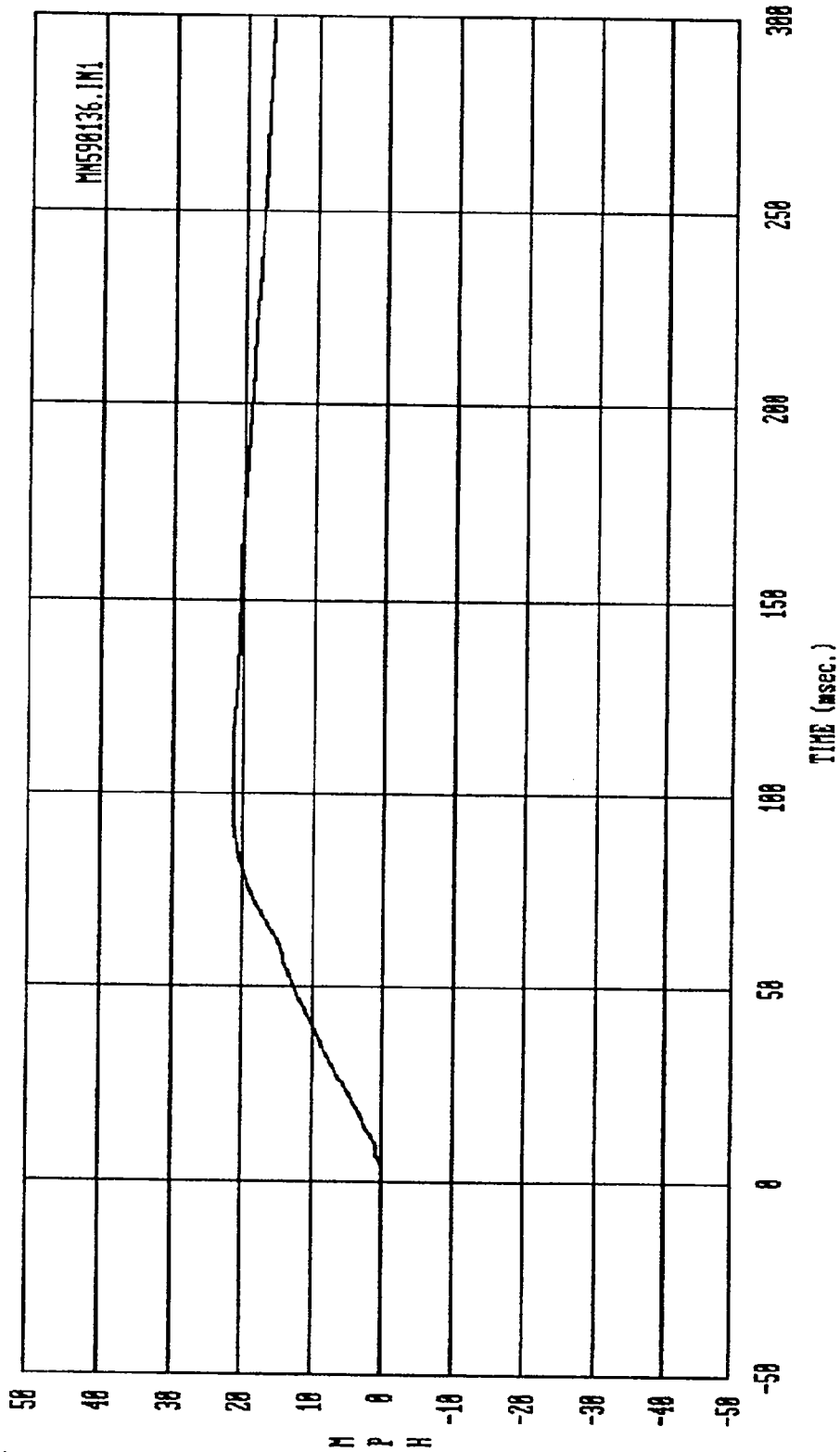
Curve: Rear floor above axle delta V -- X axis Filter: SAE CLASS 180 Max = .62745 Min = -4.2245

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



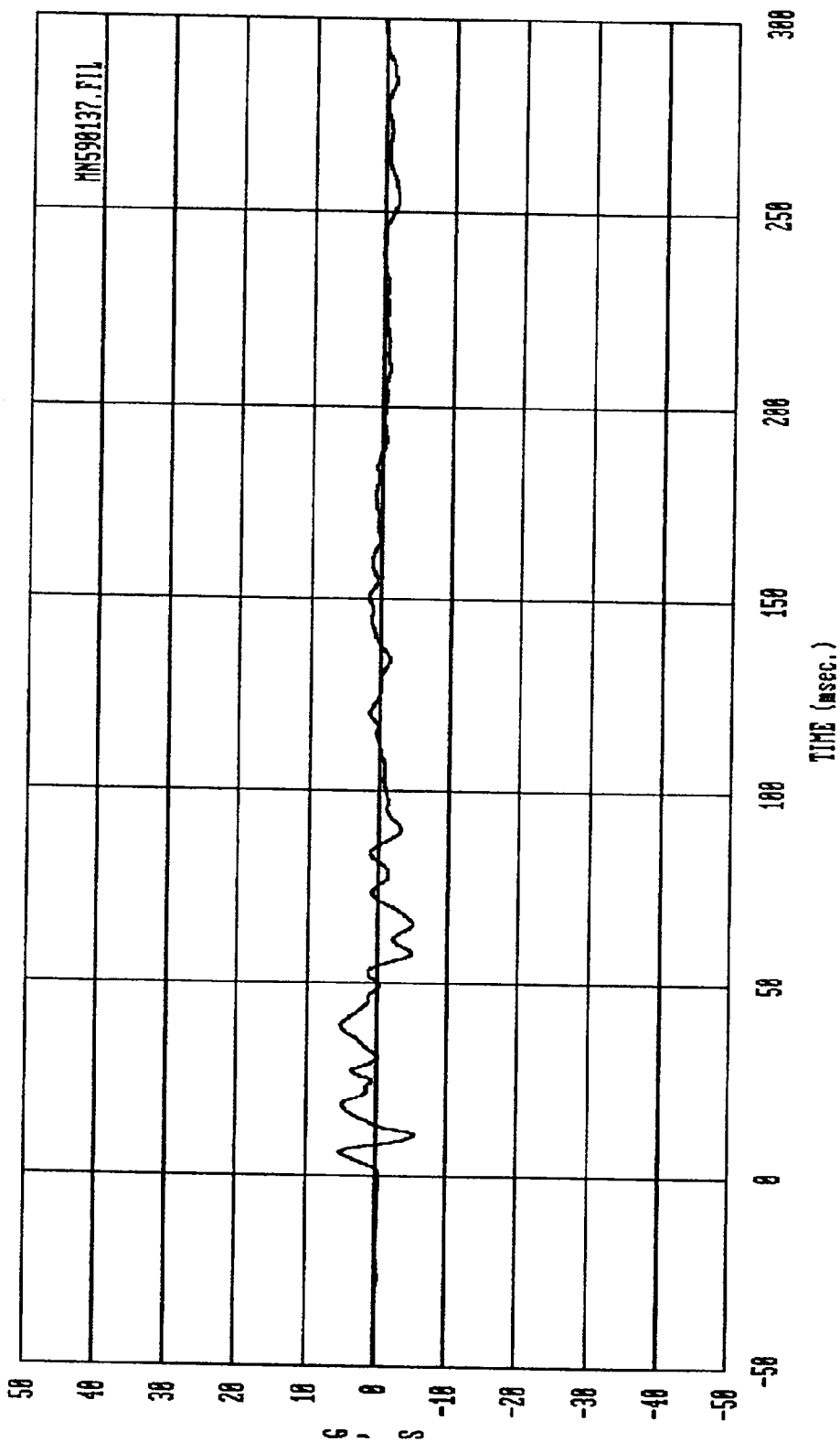
Curve: Rear floor above axle acceleration -- Y axis Filter: SAE CLASS 60 Max = 16.670 Min = -2.4437

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



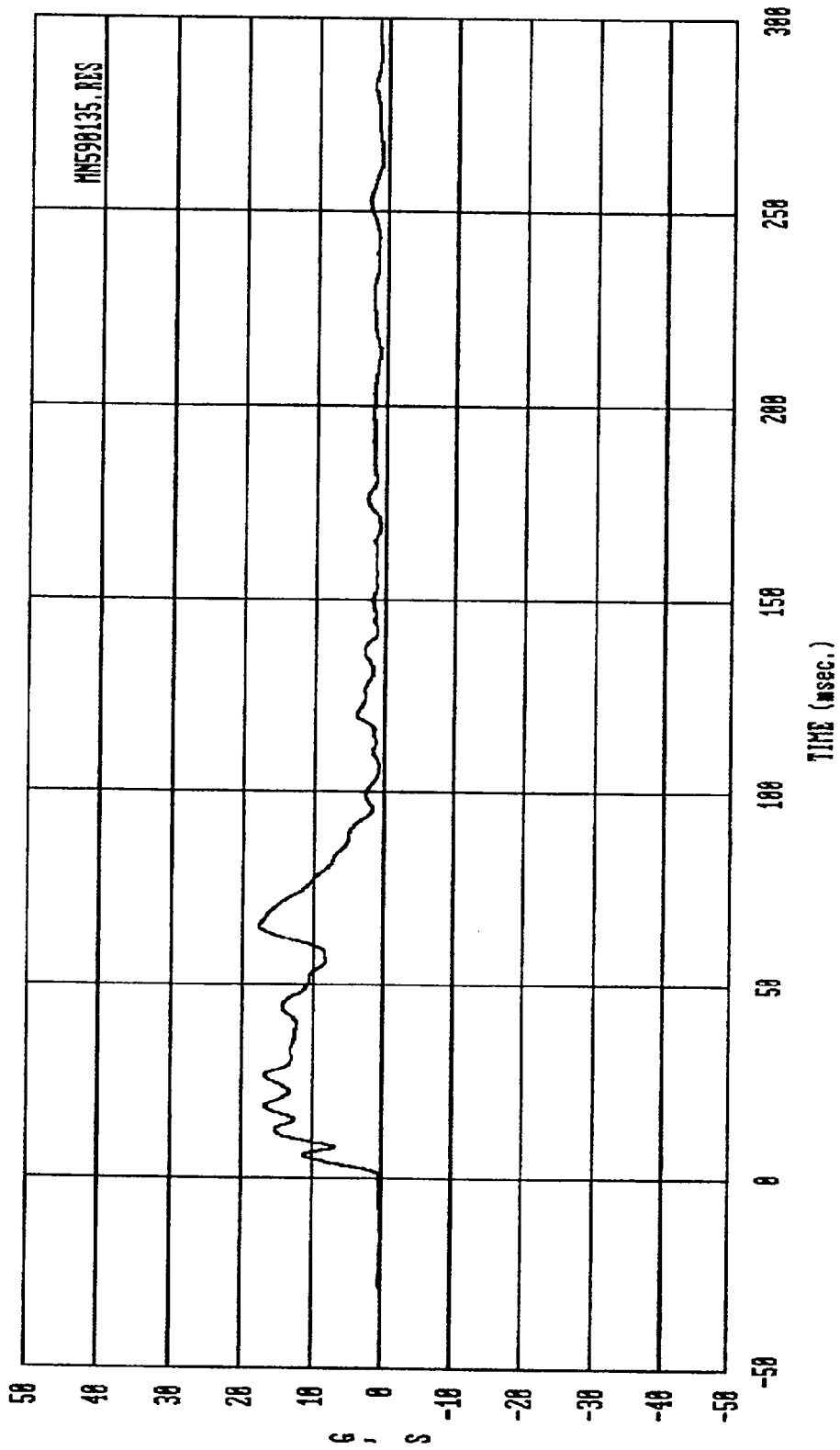
Curve: Rear floor above axle delta V — Y axis Filter: SAE CLASS 180 Max = 21.506 Min = -.25763E-02

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



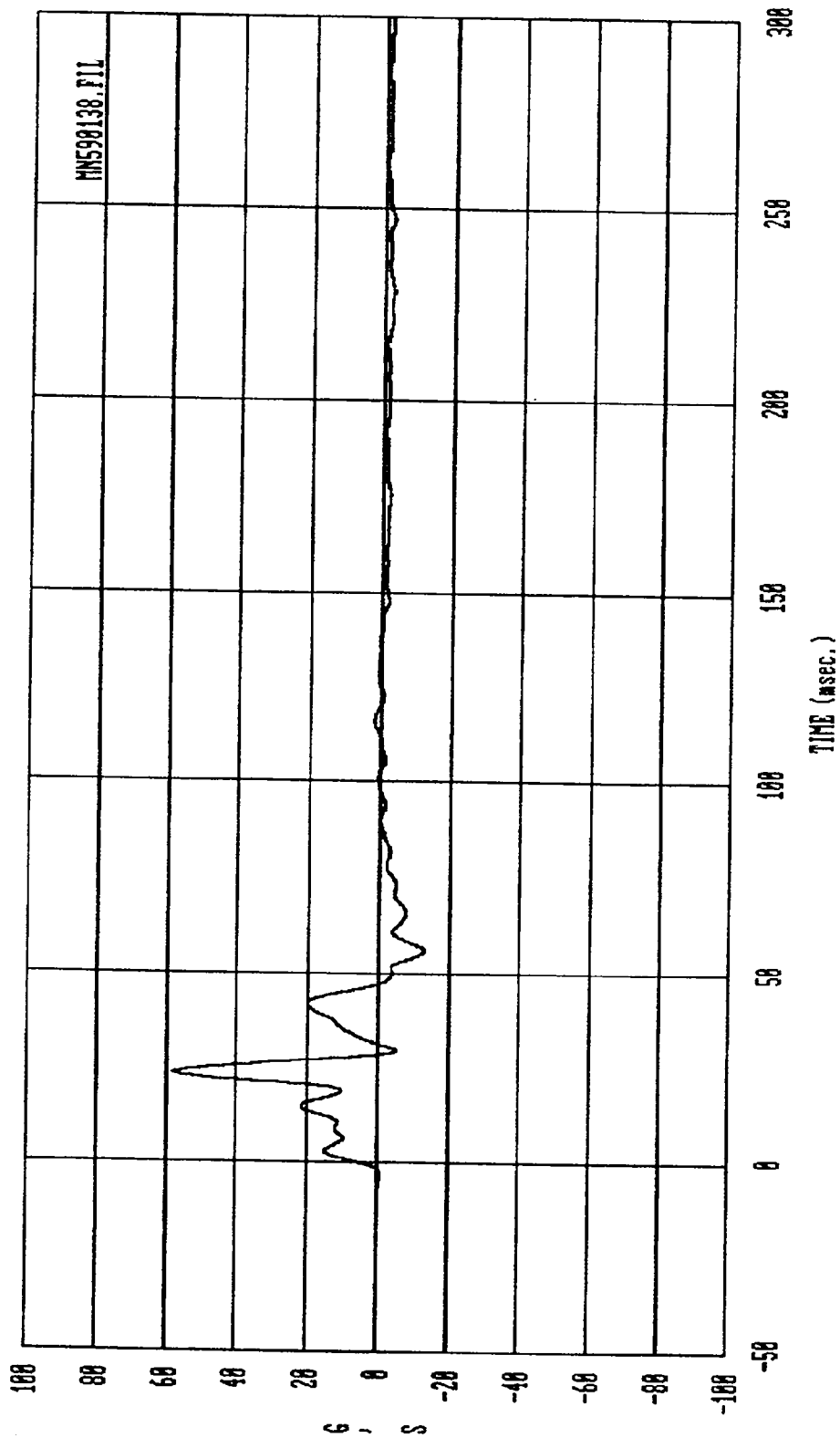
Curve: Rear floor above axle acceleration -- Z axis Filter: SAE CLASS 60 Max = 5.3124 Min = -5.5410

MSE Date: 04/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



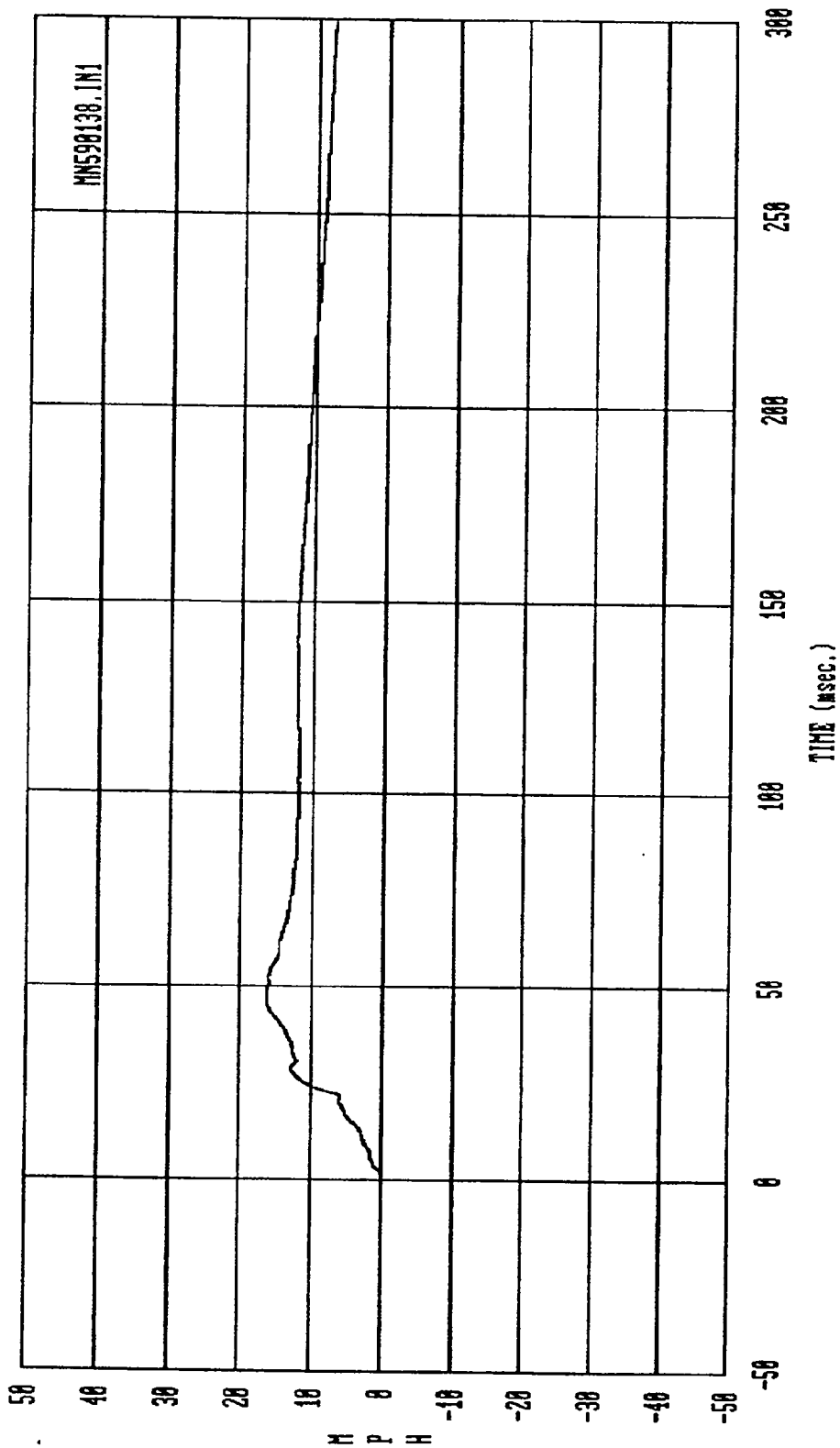
Curve: Rear floor above axle resultant acceleration Filter: SAE CLASS 60 Max = 17.931 Min = .44385

NSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



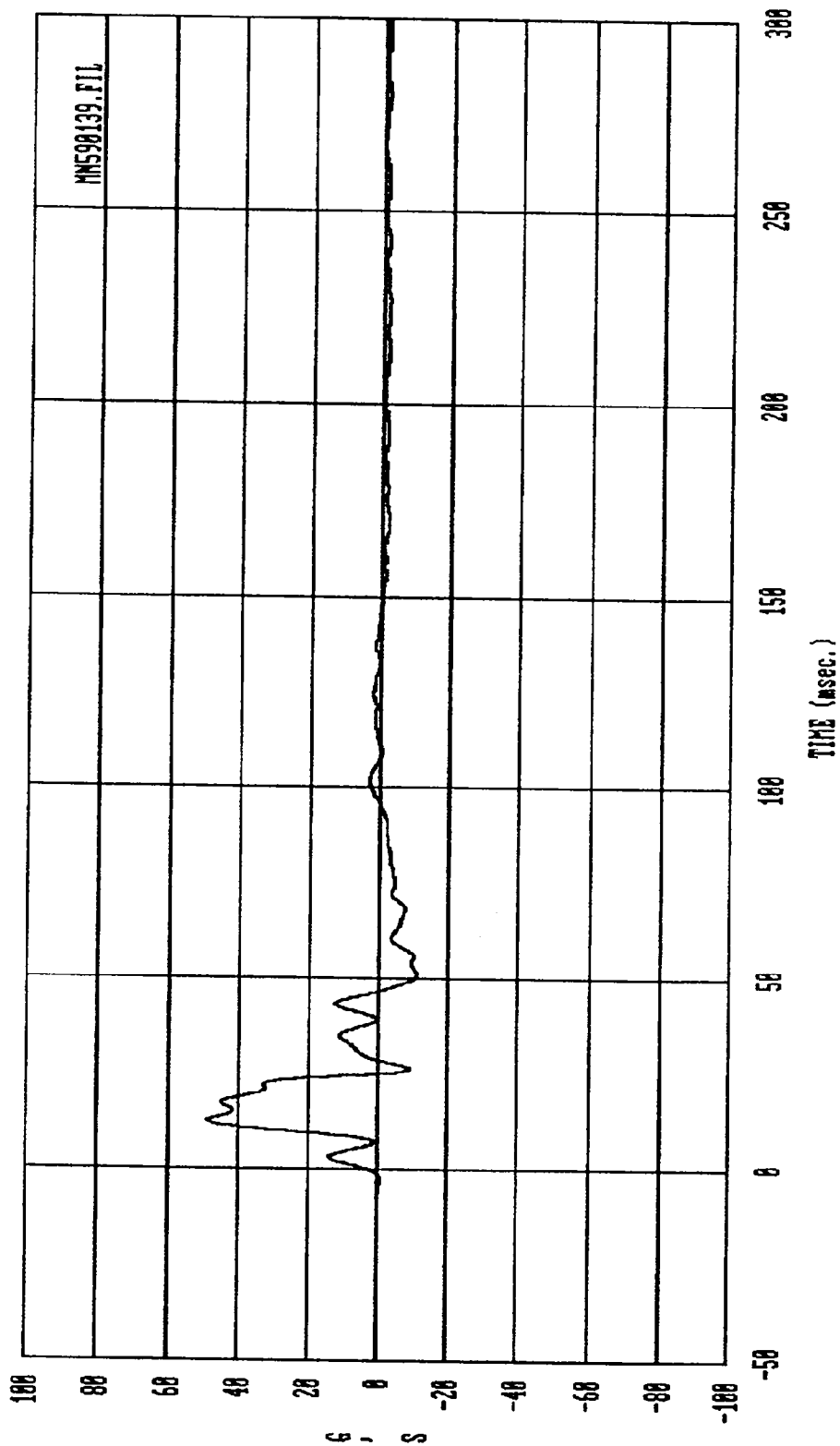
Curve: Rear seat left sill acceleration -- Y axis Filter: SAE CLASS 60 Max = 57.986 Min = -12.886

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



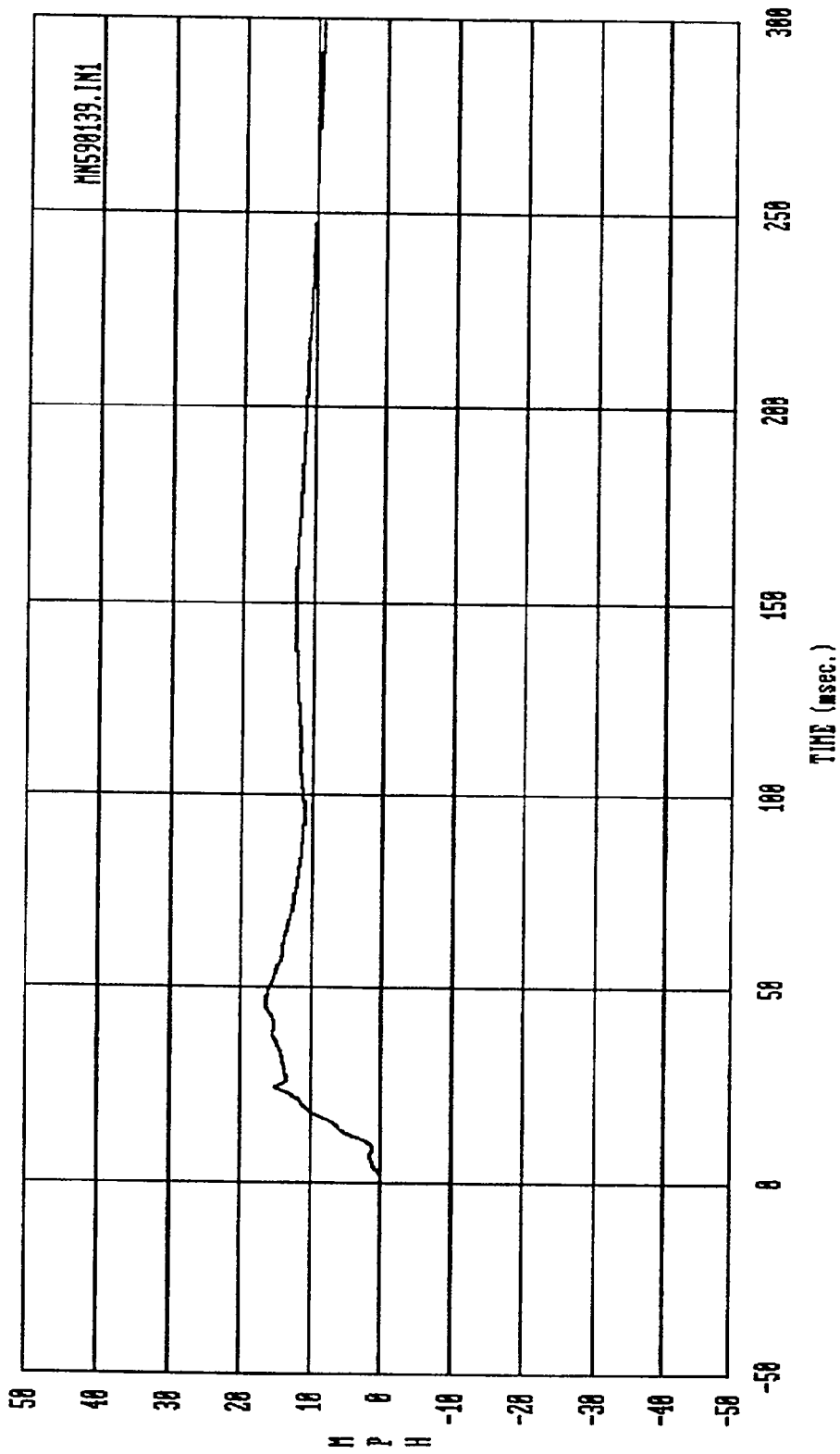
Curve: Rear seat left sill delta V -- Y axis Filter: SAE CLASS 180 Max = 16.379 Min = 1.6851

NSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



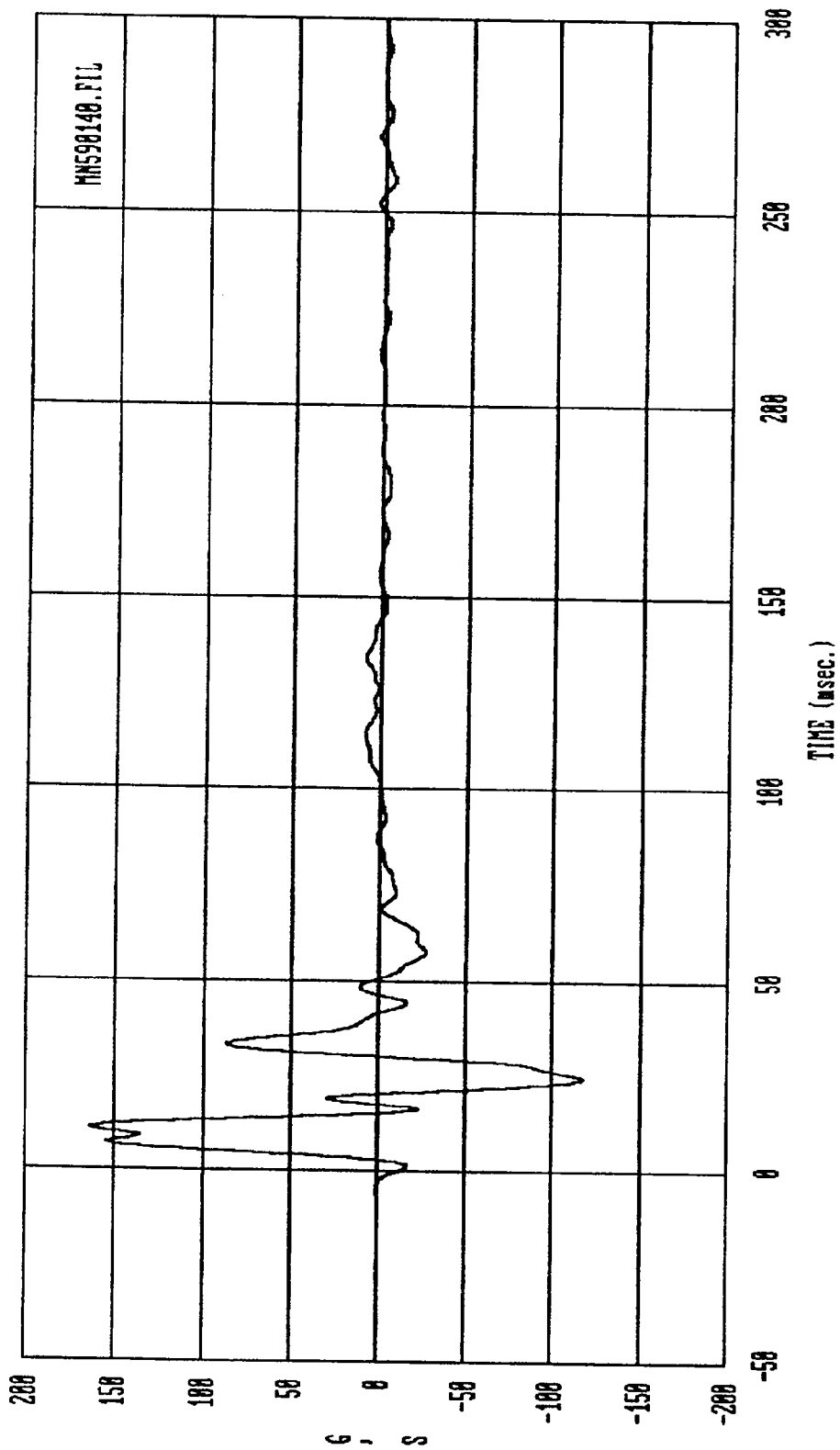
Curve: Front seat left Sill acceleration -- Y axis Filter: SAE CLASS 60 Max = 49.886 Min = -11.835

HSE Date: 84/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



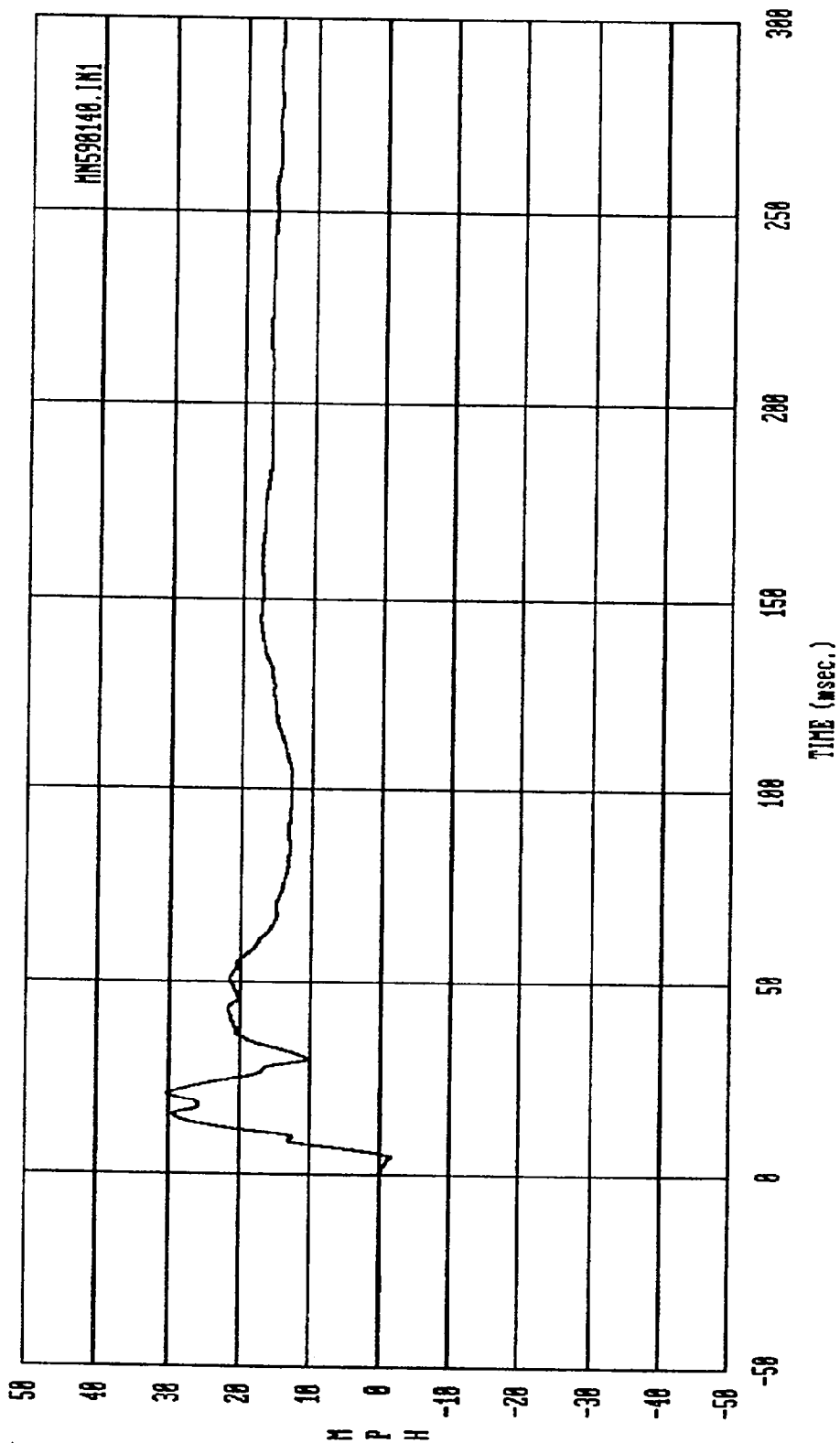
Curve: Front seat left Sill delta V -- Y axis Filter: SAE CLASS 180 Max = 16.484 Min = -.118622-81

MSJ Date: 04/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door

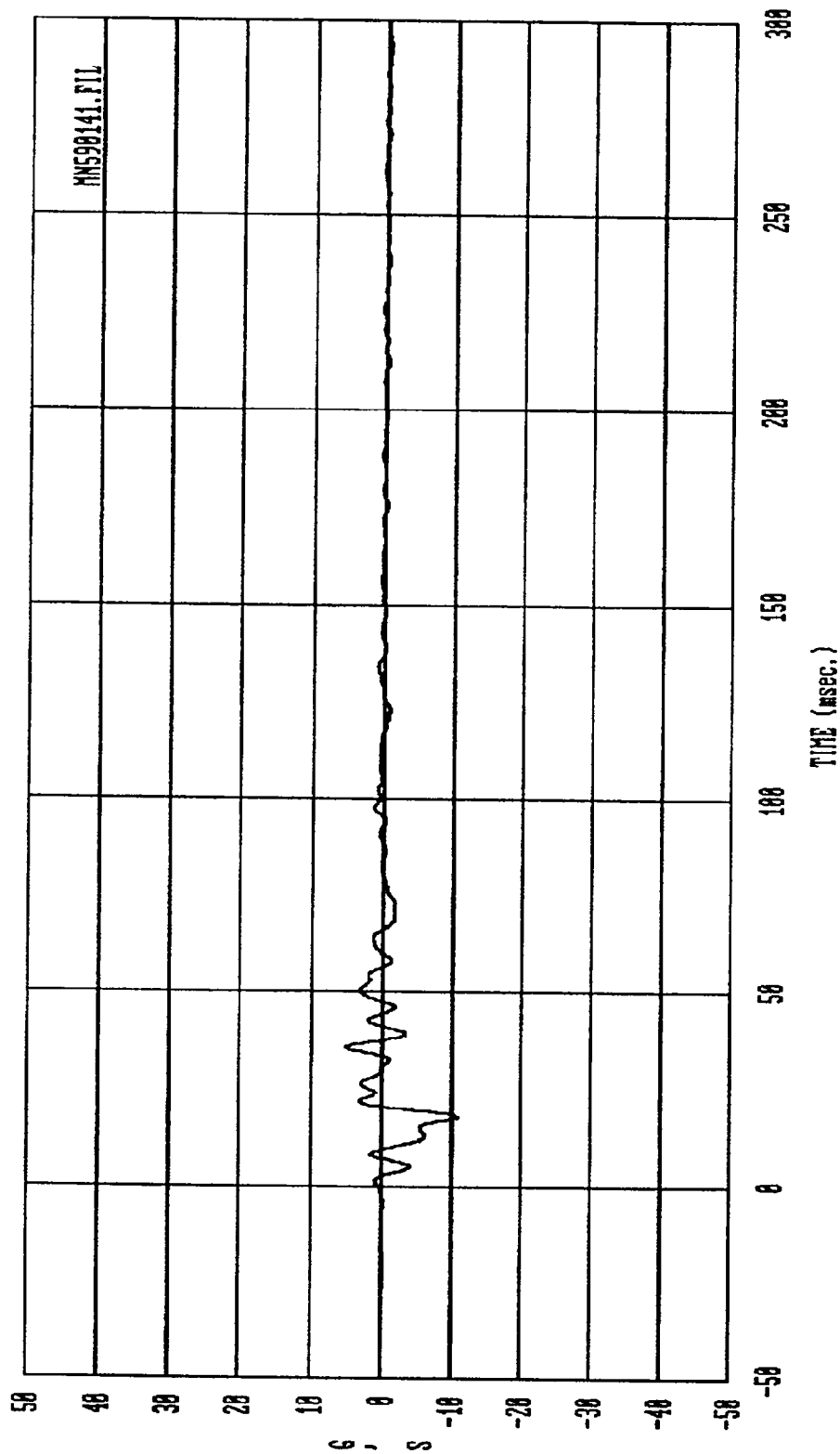


Curve: Left front door at centerline -- Y axis Filter: SAE CLASS 60 Max = 163.86 Min = -117.45

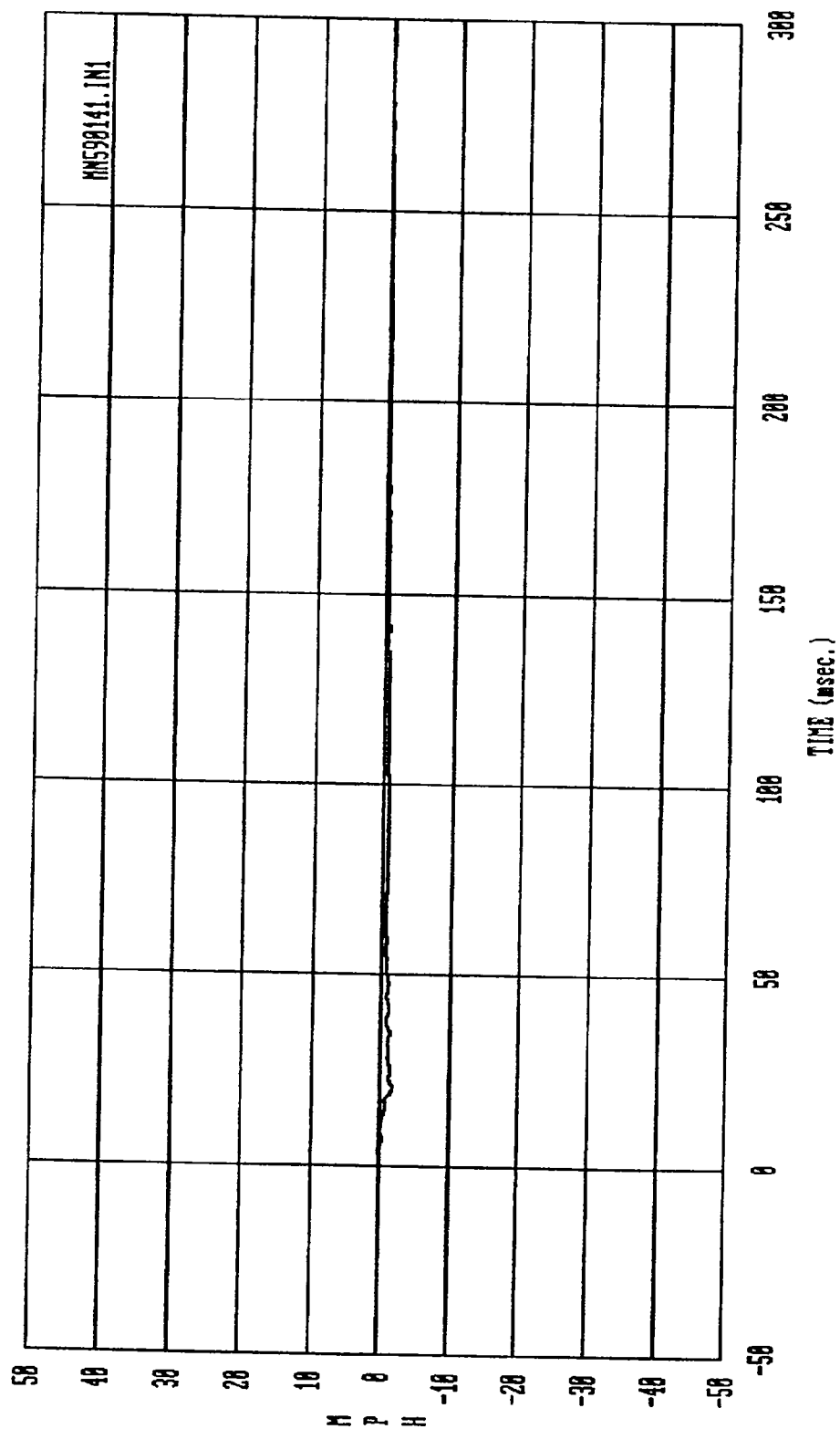
MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



Curve: Left front door at centerline -- Y axis Filter: SAE CLASS 180 Max = 30.387 Min = -1.5642
 MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door

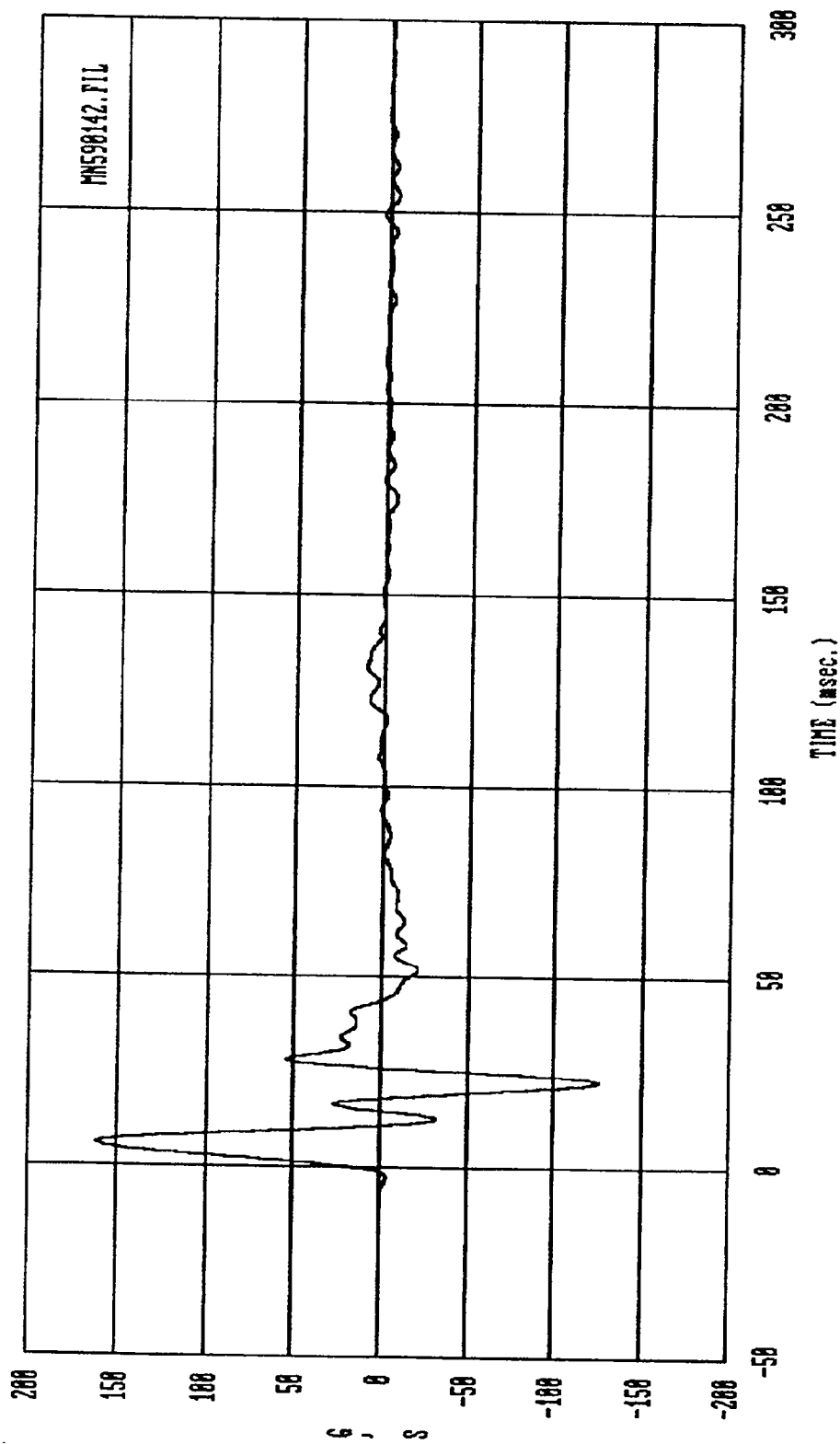


Curve: Right rear occupant compartment -- X axis Filter: SAE CLASS 60 Max = 5.2872 Min = -11.035
MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



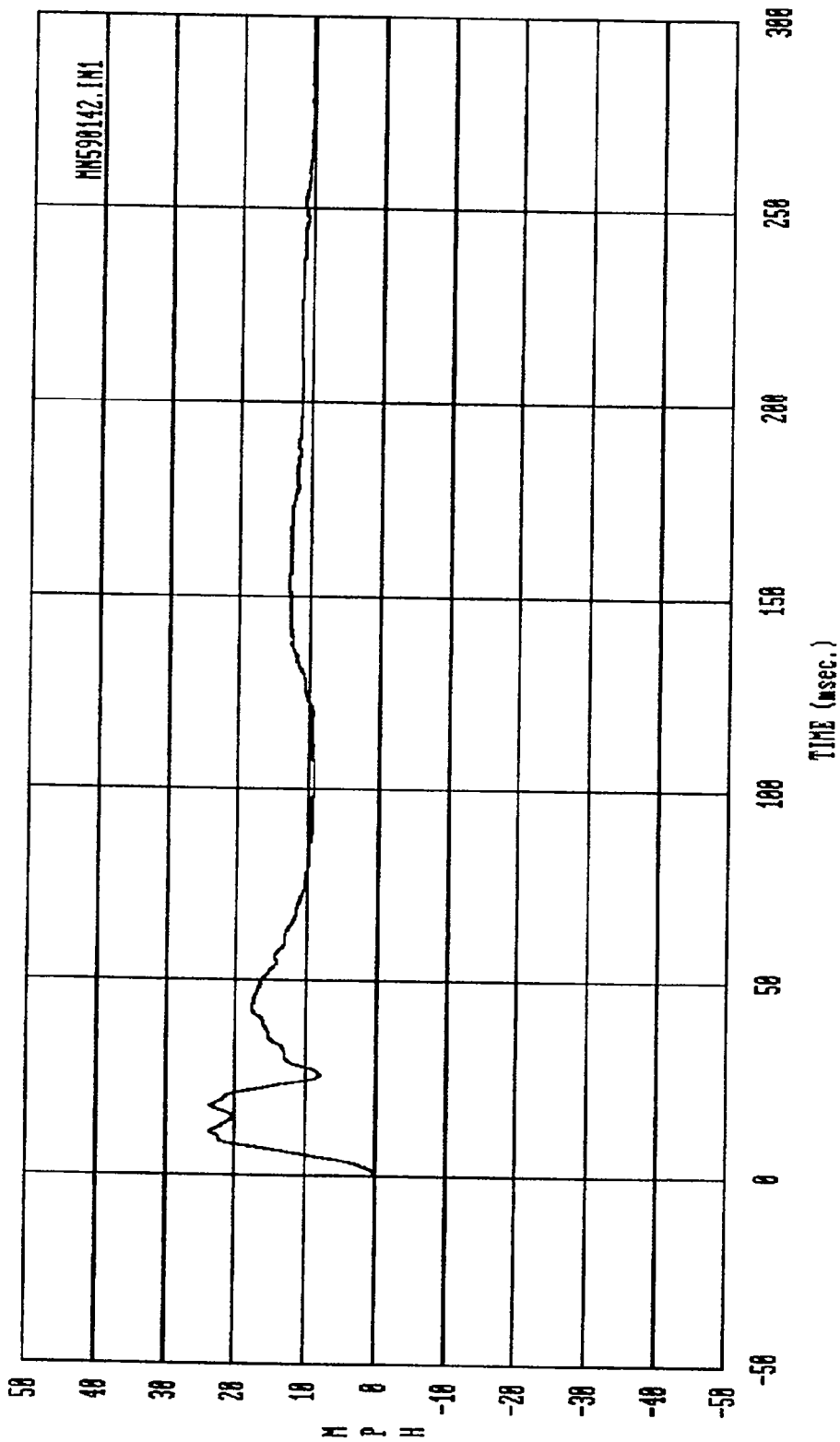
Curve: Right rear occupant compartment -- X axis Filter: SAE CLASS 180 Max = .15511 Min = -1.7854

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



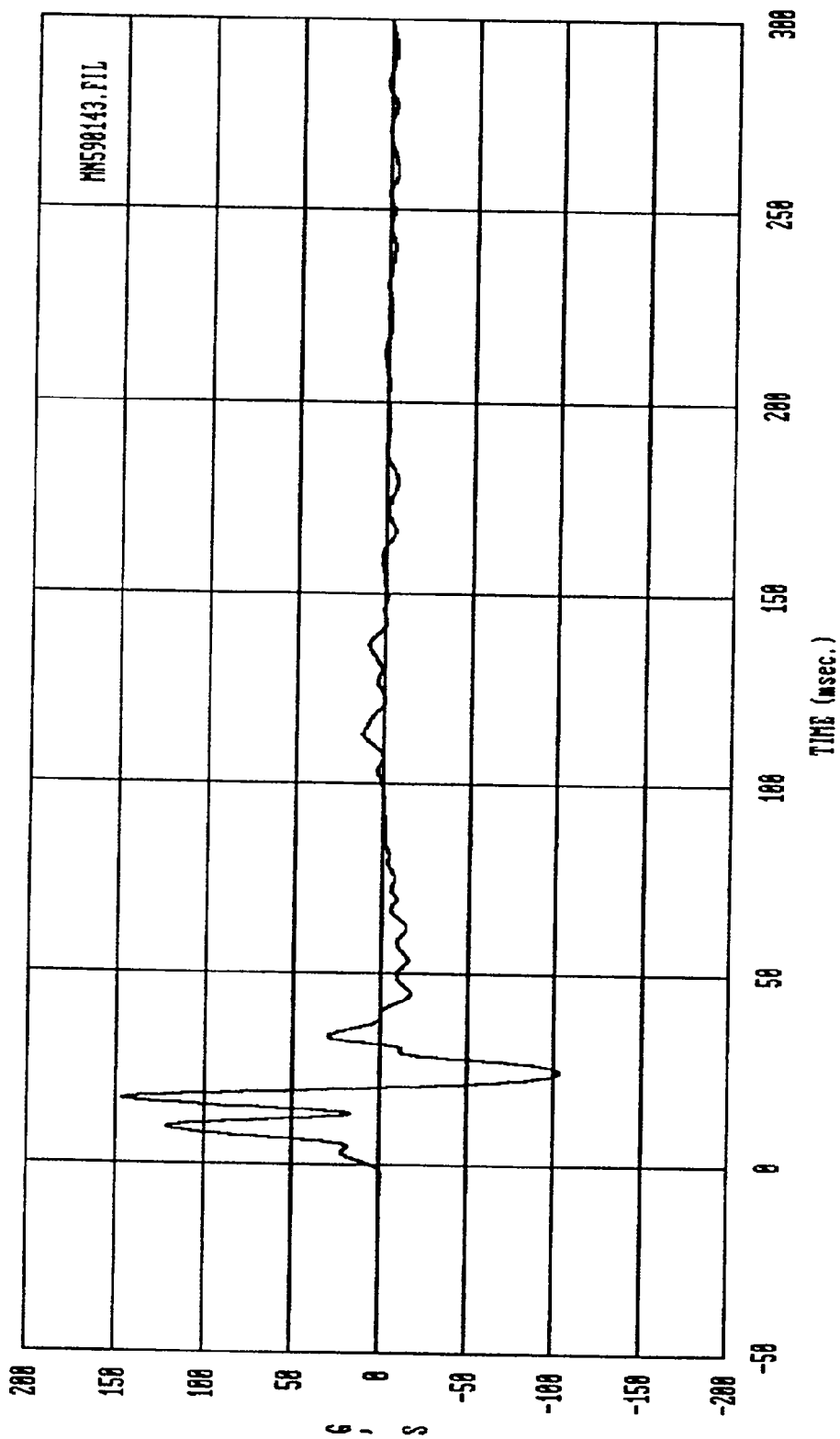
Curve: Left front door at mid-rear -- Y axis Filter: SAE CLASS 60 Max = 160.98 Min = -125.32

HSE Date: 04/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



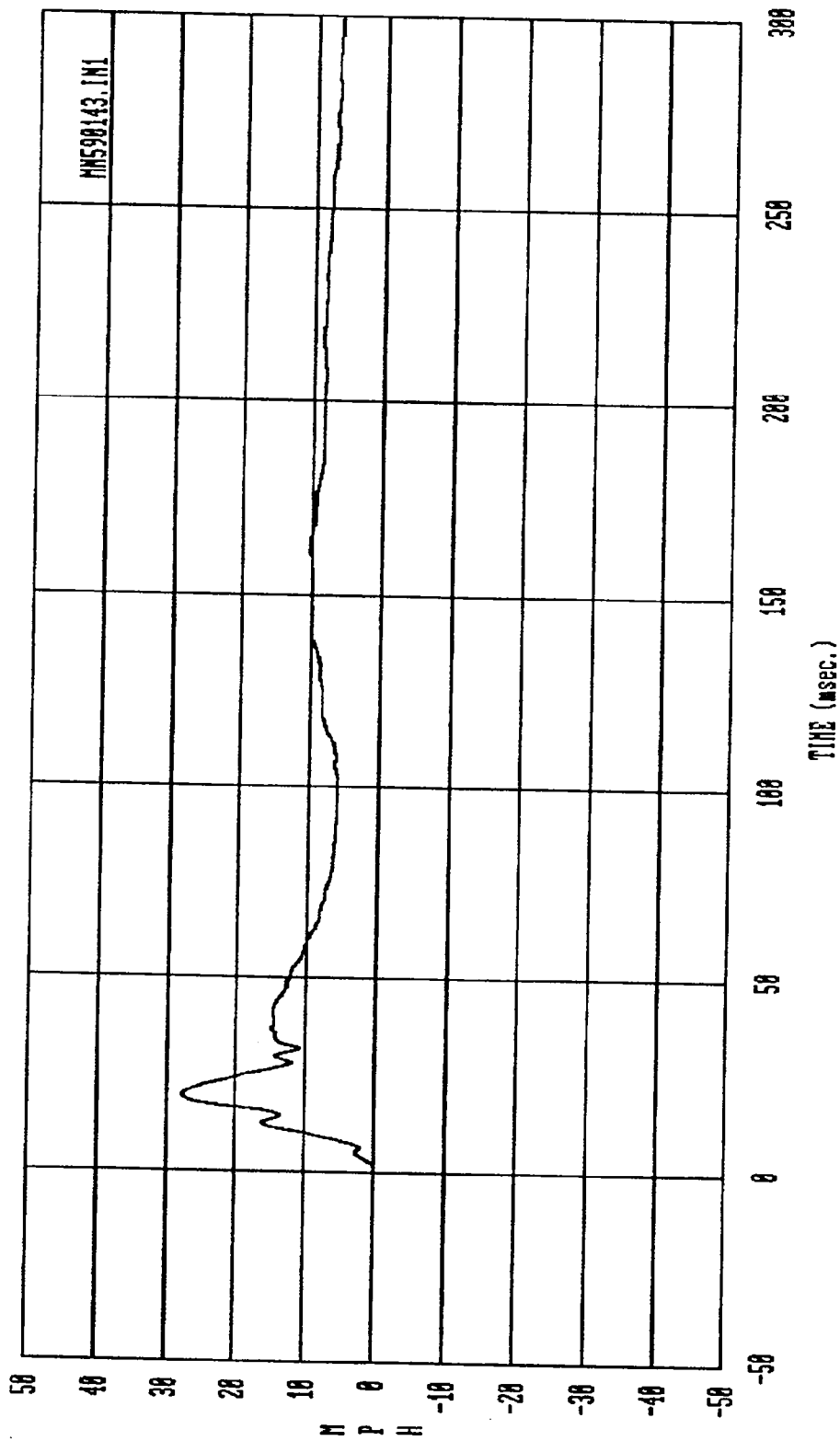
Curve: Left front door at mid-rear -- Y axis Filter: SAE CLASS 180 Max = 23.663 Min = 8.1298

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



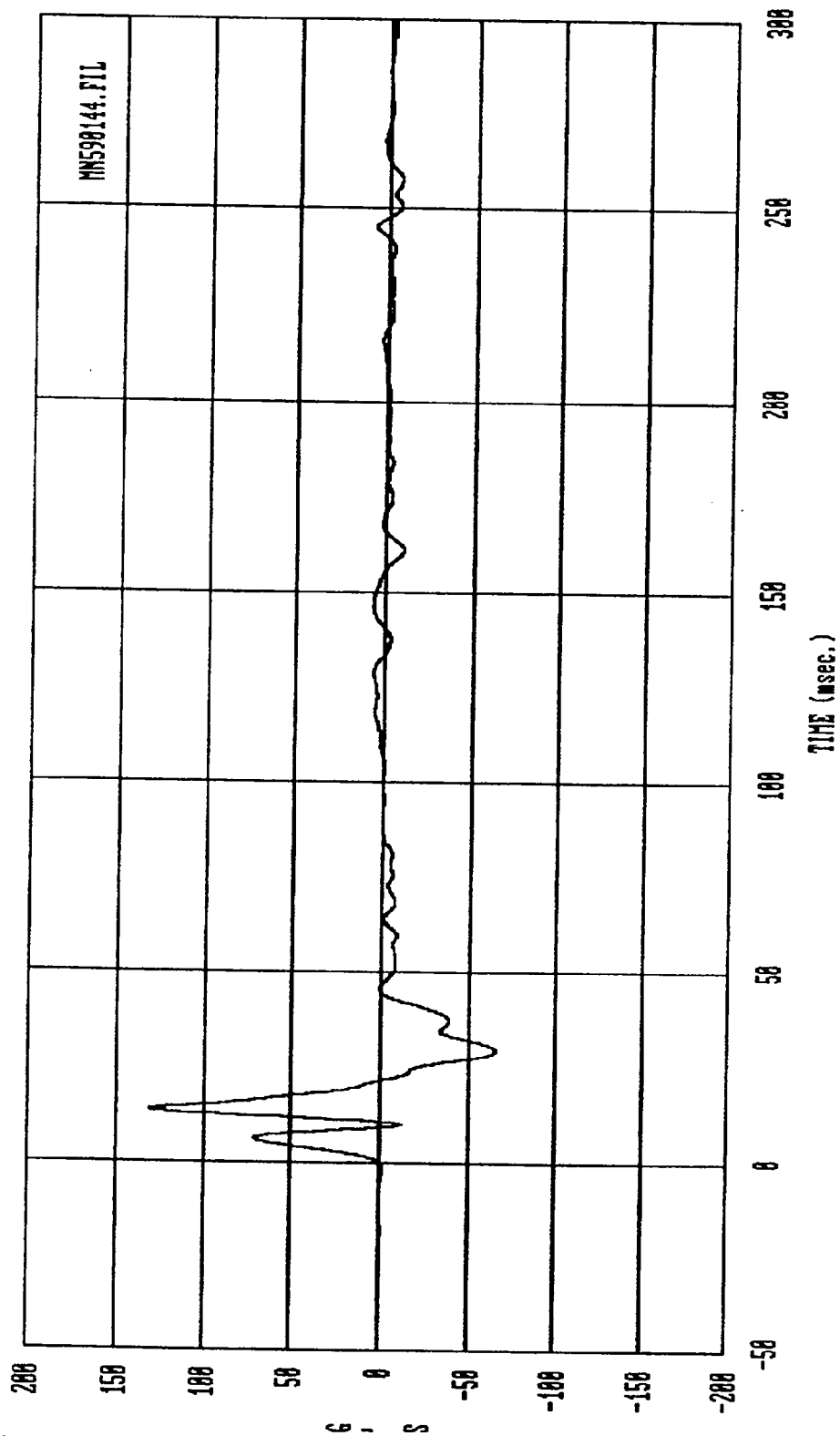
Curve: Left front door at upper centerline — Y axis Filter: SAE CLASS 60 Max = 147.18 Min = -182.97

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



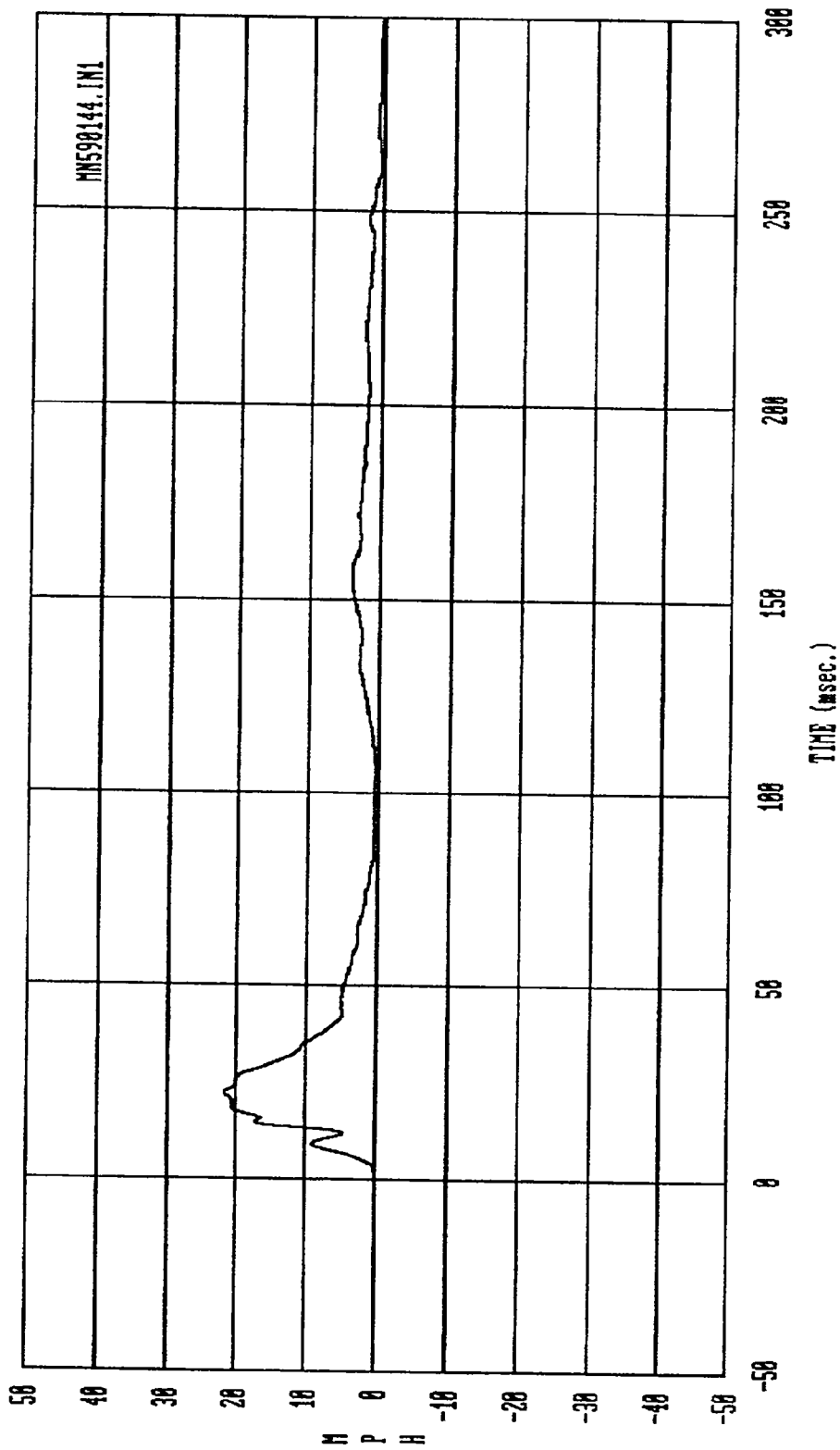
Curve: Left front door at upper centerline -- Y axis Filter: SAE CLASS 180 Max = 27.962 Min = -.19237E-02

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



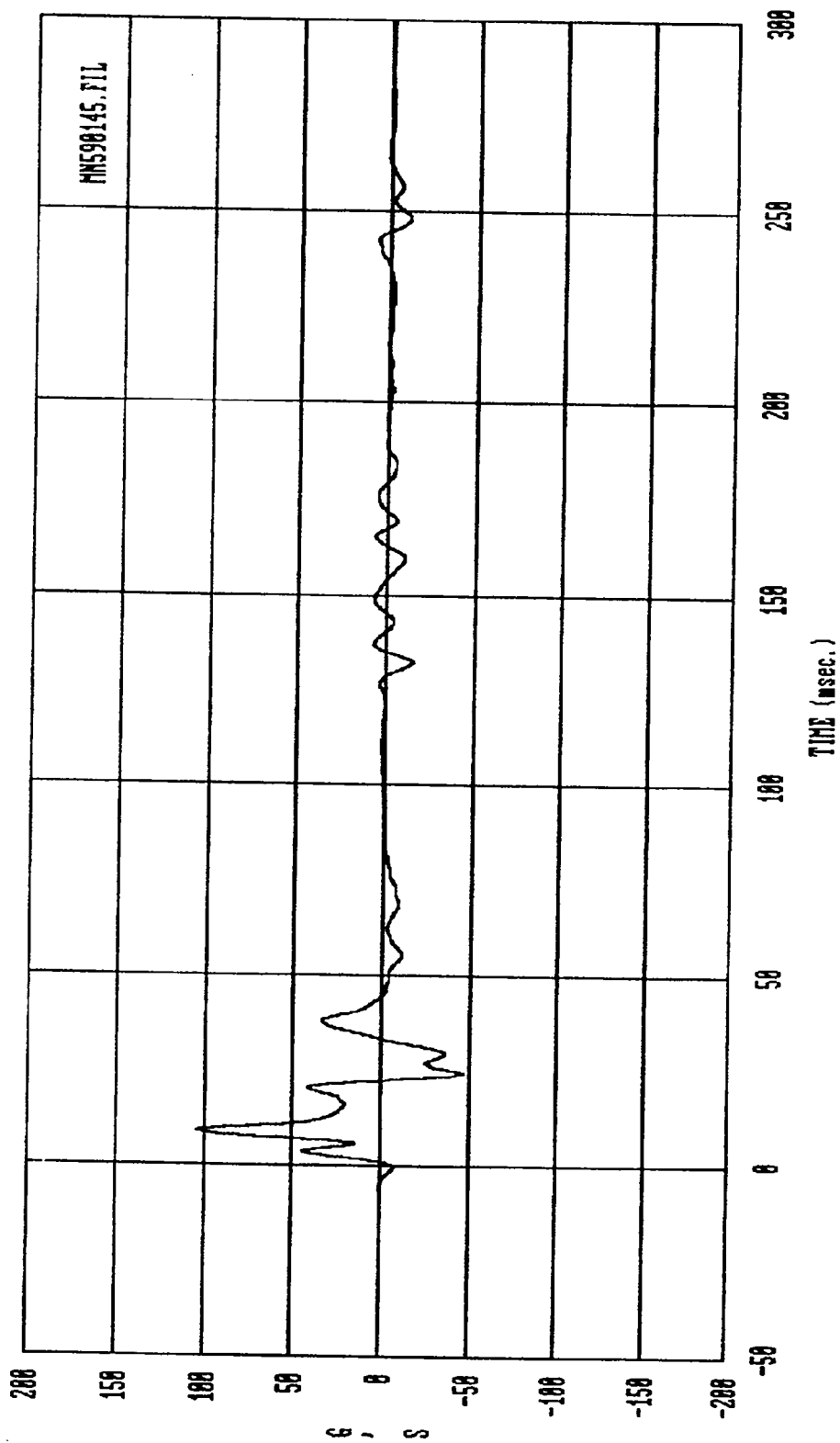
Curve: Left rear door at mid-rear -- Y axis Filter: SAE CLASS 60 Max = 131.66 Min = -65.877

NSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



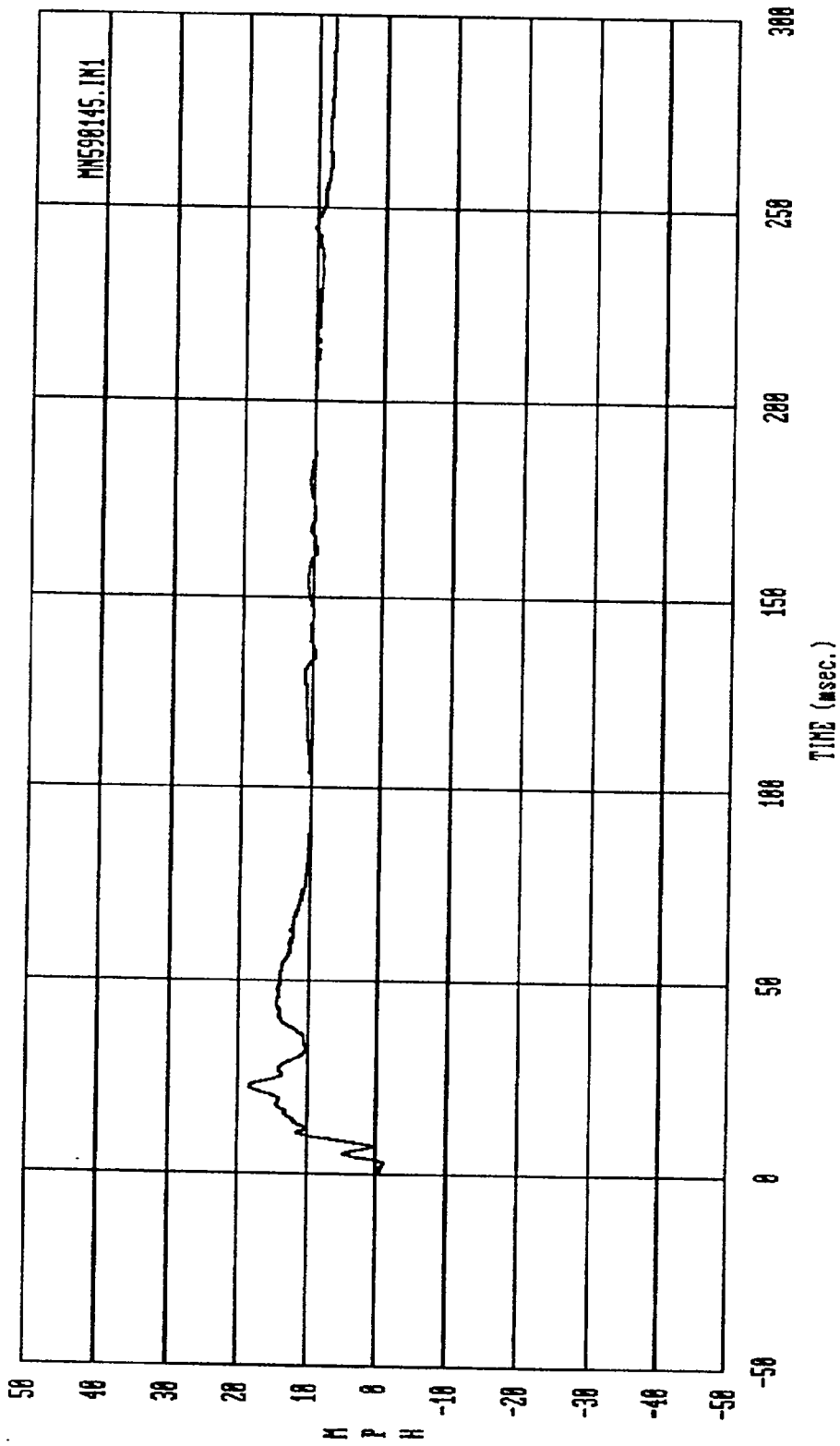
Curve: Left rear door at mid-rear -- Y axis Filter: SAE CLASS 100 Max = 21.831 Min = -.25740E-01

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Left rear door at upper centerline — Y axis Filter: SAE CLASS 60 Max = 183.75 Min = -46.195

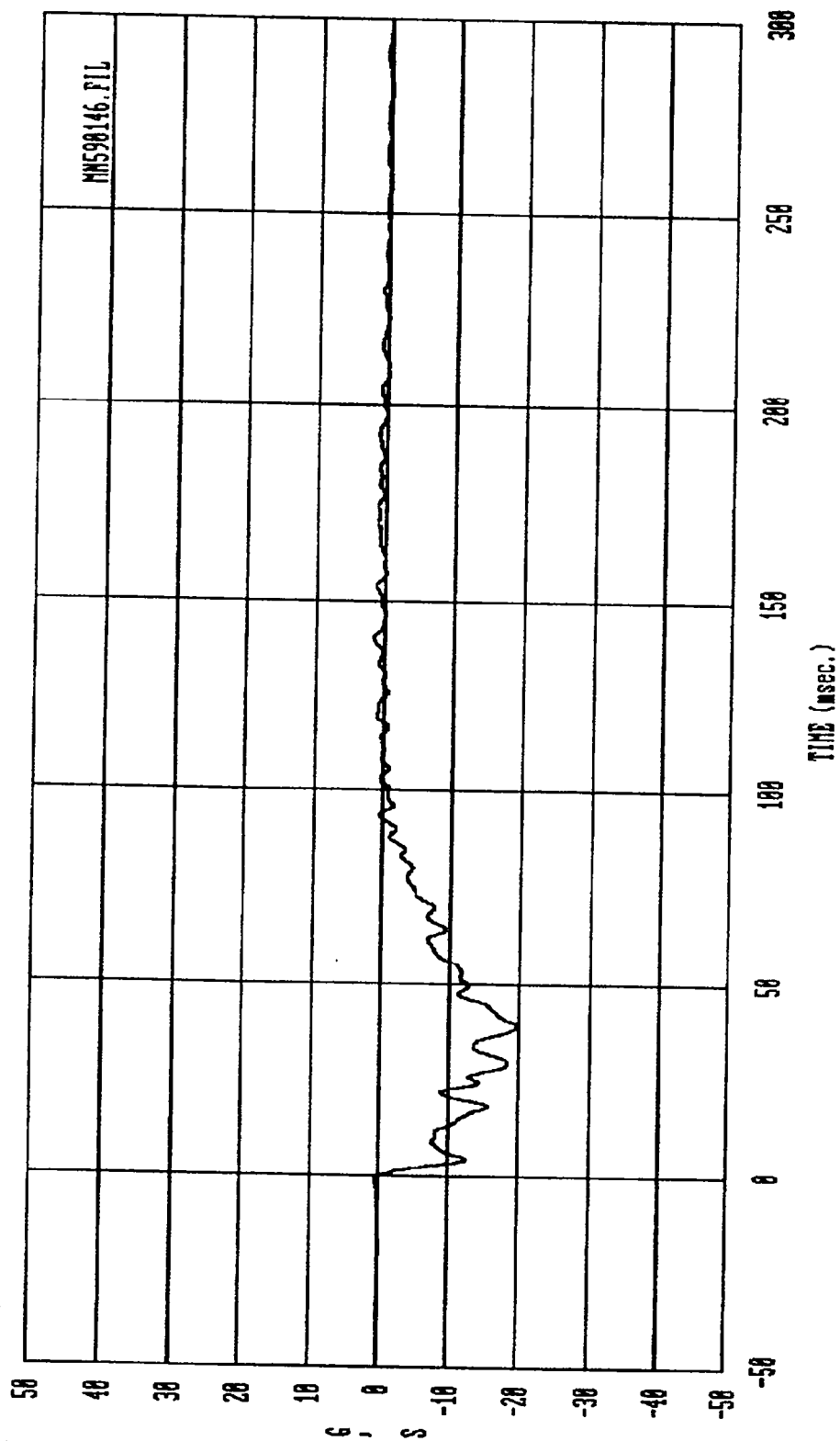
MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Left rear door at upper centerline -- Y axis Filter: SAE CLASS 180 Max = 18.586 Min = -1.8679

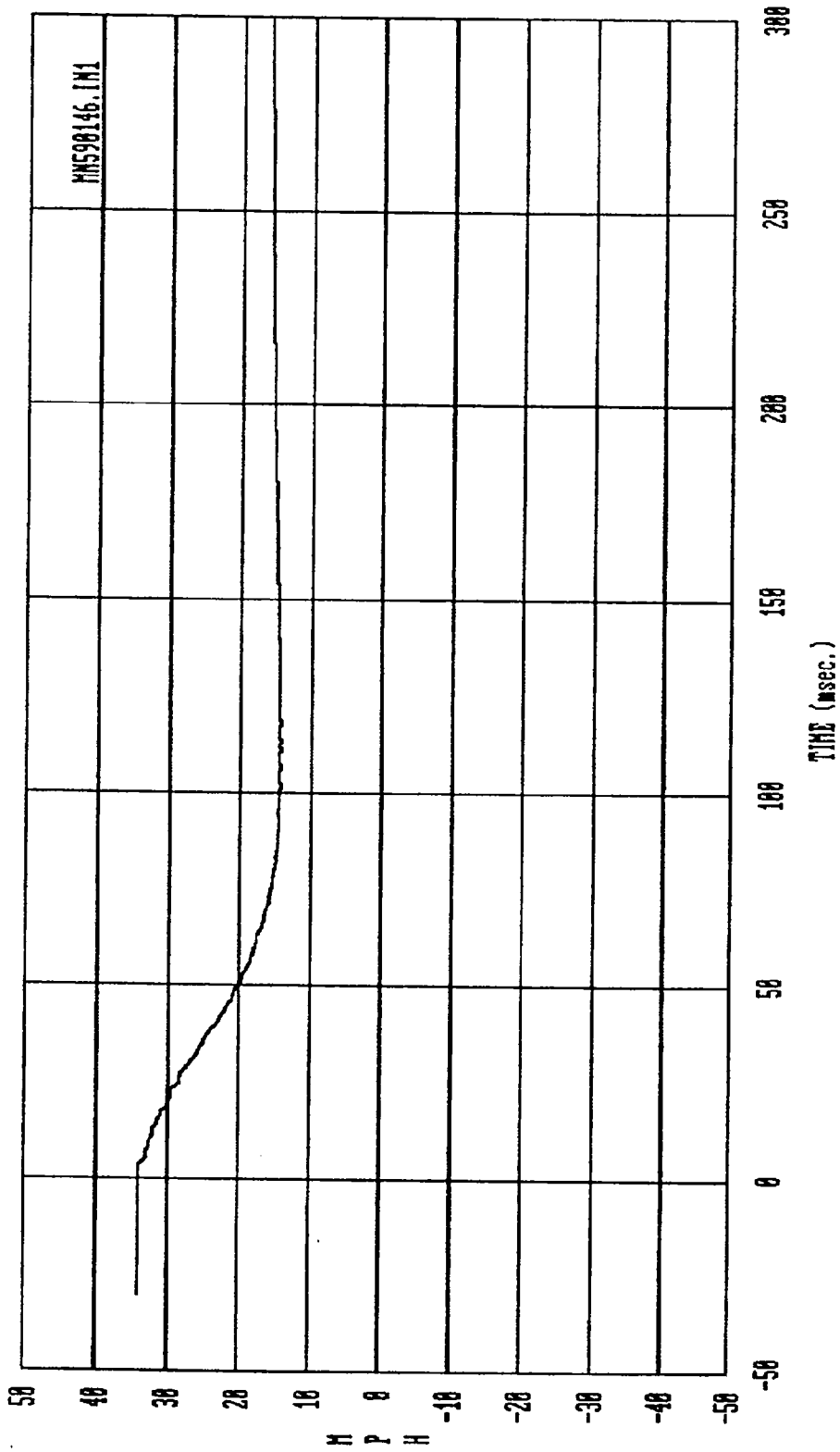
HSE Date: 04/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door

MDB ACCELEROMETER DATA



Curve: H.D.B. C/G acceleration -- X axis Filter: SAE CLASS 60 Max = 1.6117 Min = -19.834

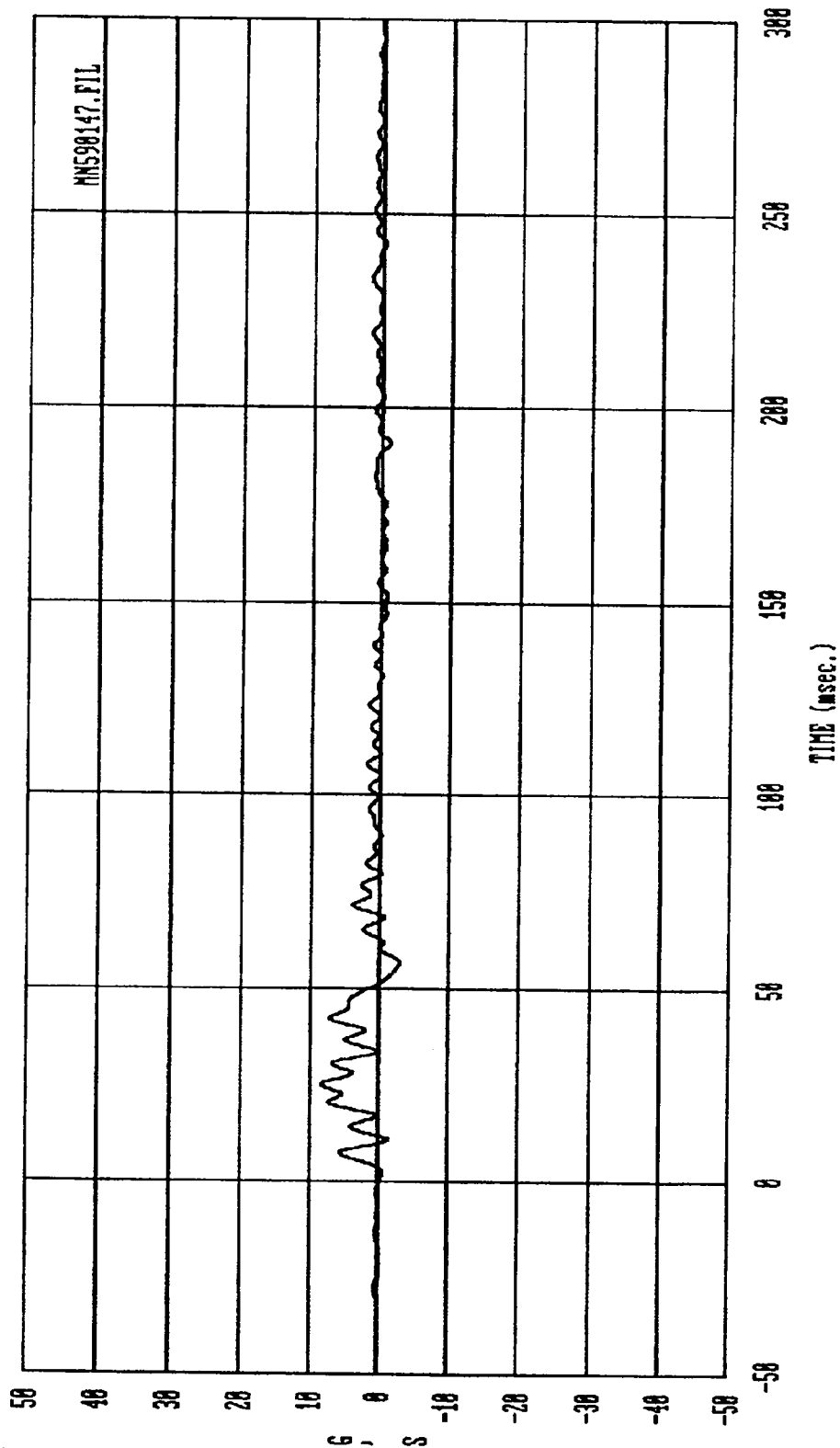
MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: H.D.B. C/G delta V -- X axis

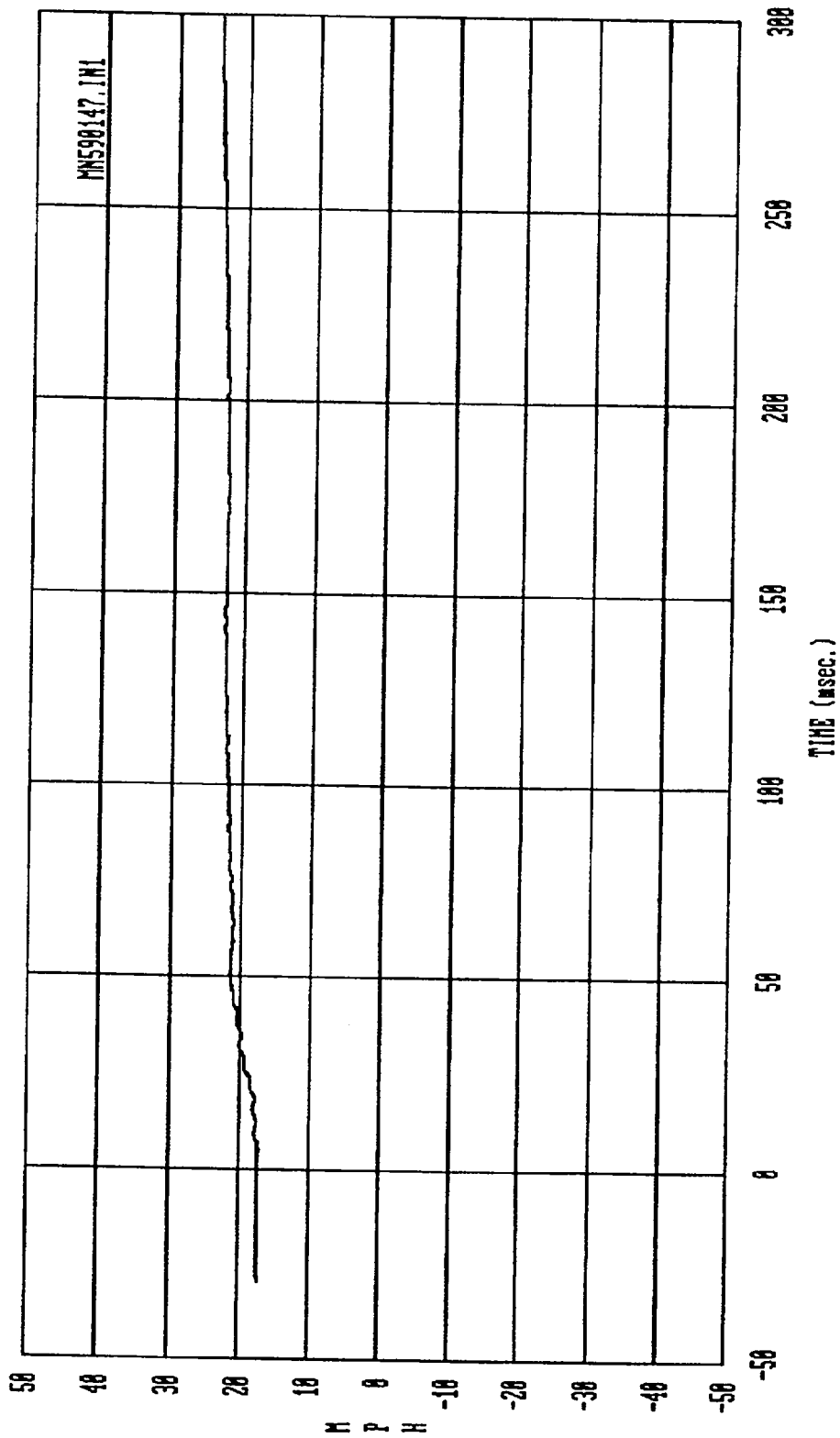
Filter: SAE CLASS 100 Max = 34.263 Min = 14.371

HSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



Curve: N.D.B. C/G acceleration -- Y axis Filter: SAE CLASS 60 Max = 8.4763 Min = -2.9483

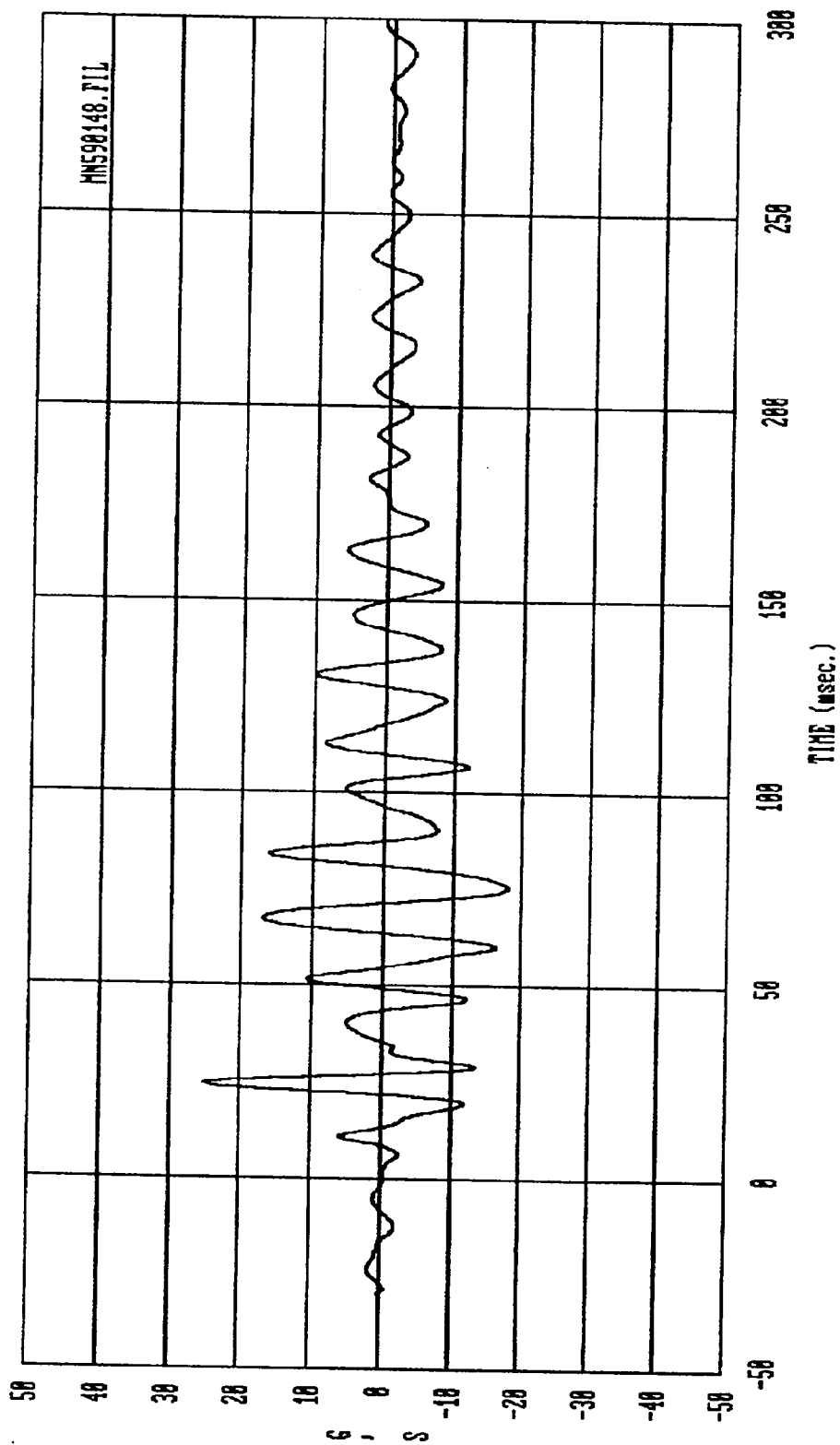
MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: H.D.B. C/G delta V -- Y axis

Filter: SAE CLASS 180 Max = 24.033 Min = 17.392

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: M.D.B. C/G acceleration -- Z axis

Filter: SAE CLASS 60

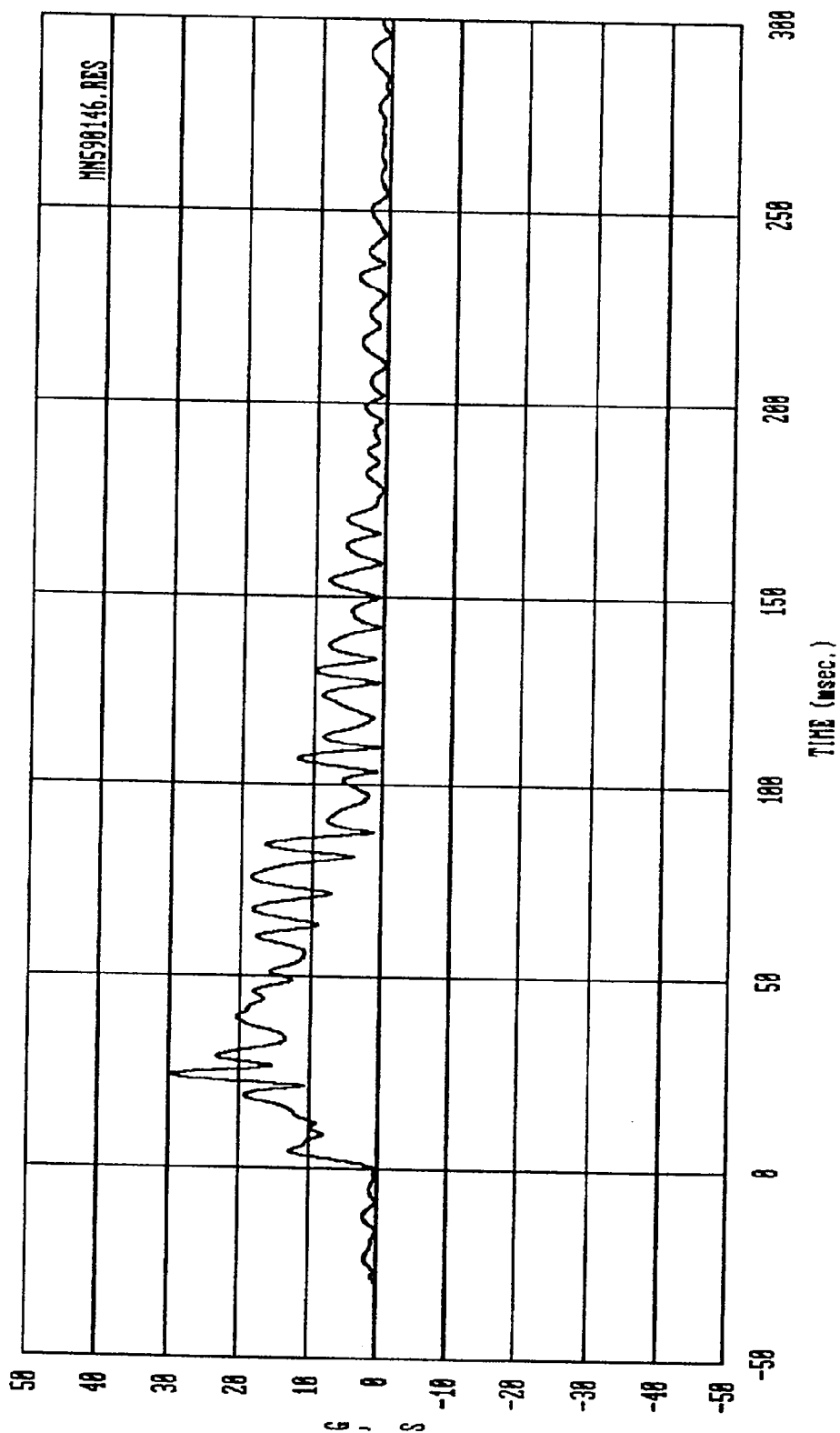
Max = 25.125

Min = -18.824

HSE

Date: 84/22/92

Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: H.D.B. C/G resultant acceleration

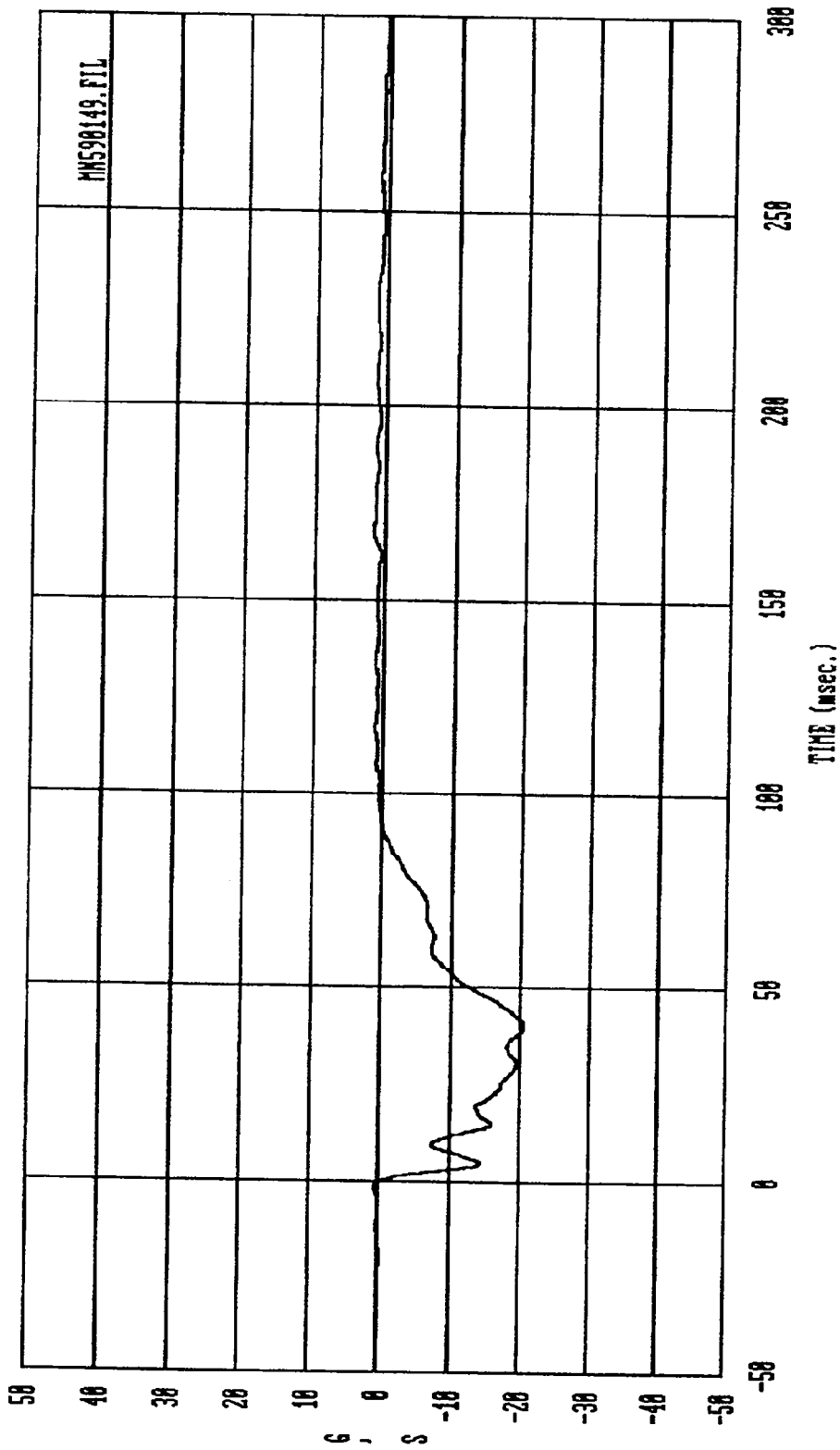
Filter: SAE CLASS 60

Max: 29.908

Min: .15558

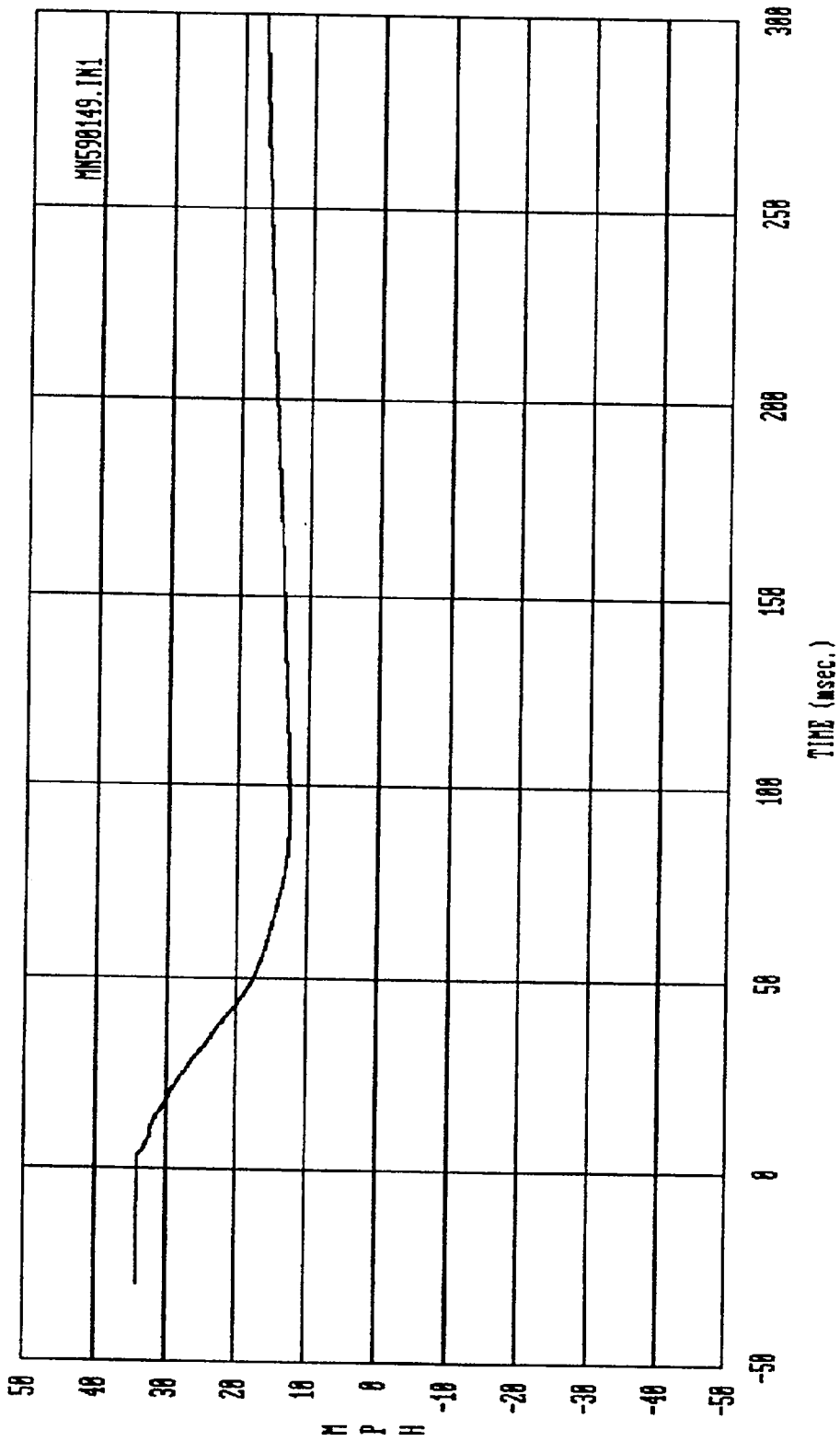
MSE Date: 04/22/92

Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLE 4 Door



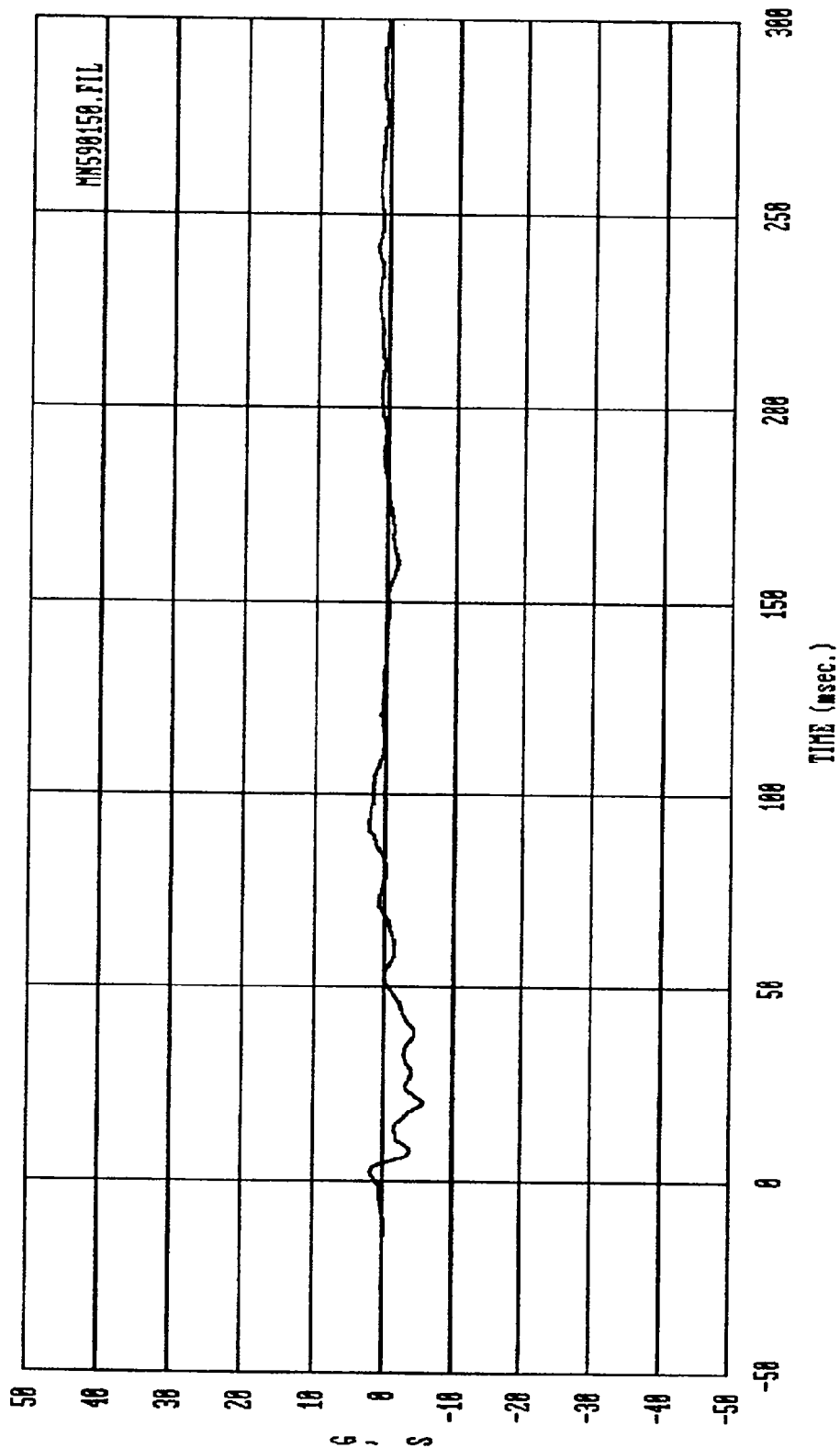
Curve: H.D.B. rear C/G acceleration -- X axis Filter: SAE CLASS 60 Max = 1.6109 Min = -20.501

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



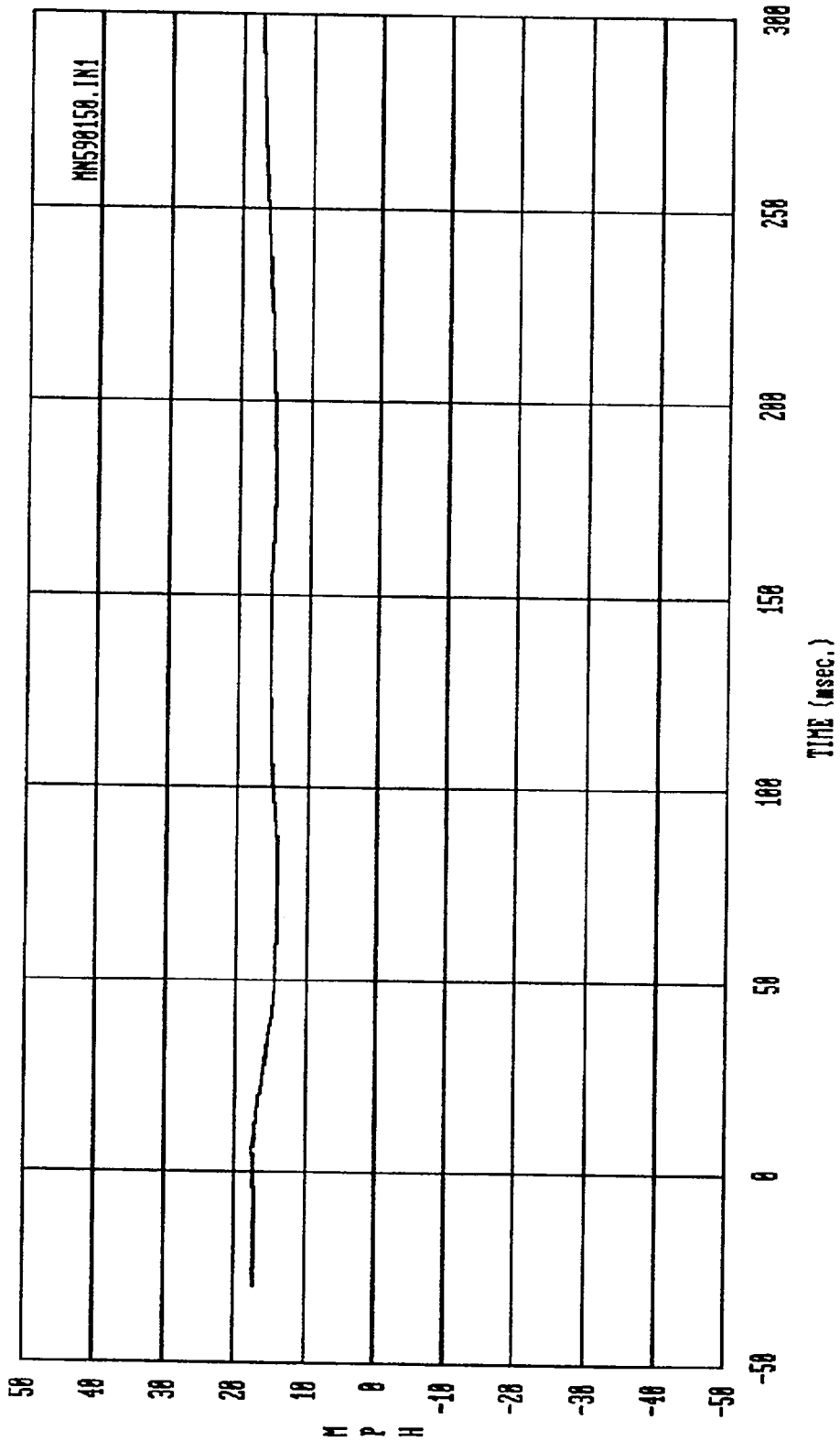
Curve: M.D.B. rear C/G delta V — X axis Filter: SAE CLASS 180 Max = 34.250 Min = 12.591

HSE Date: 84/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: H.D.B. rear C/G acceleration — Y axis Filter: SAE CLASS 60 Max = 2.4587 Min = -5.6654

MSE Date: 04/22/92 Program: Side Impact 34/17 98 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: H.D.B. rear C/G delta V -- Y axis Filter: SAE CLASS 180 Max = 17.699 Min = 14.265

MSE Date: 04/22/92 Program: Side Impact 34/17 90 Deg. Vehicle: 1992 Volvo 940 GLS 4 Door

SECTION 7

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Two SID's were used during the test. They were:

DRIVER POSITION: SID, SERIAL NO. 136

LEFT REAR PASSENGER

POSITION: SID, SERIAL NO. 137

The pretest SID calibration data are shown in this section.

SID IMPACT CALIBRATION SUMMARY SHEET

S.I.D. I.D. NO. : 136

Sheet No. 2 of 3 TEST PARAMETER	SPECIFICATION	Pretest Calibration	Posttest Calibration
3. ABDOMINAL COMPRESSION TEST (Preload = 10 pounds) a. Force @ .5" - - - - b. Force @ .75"- - - - c. Force @ 1.0"- - - - d. Force @ 1.3"- - - -	23 - 36 lbs. 36 - 50 lbs. 50 - 63 lbs 73 - 88 lbs.	N/A N/A N/A N/A	
4. LUMBAR FLEXION TEST: a. Force @ 20' - - - - b. Force @ 30' - - - - c. Force @ 40' - - - - d. Return Angle - - - -	22 to 34 lbs 34 to 46 lbs 46 to 58 lbs 12 maximum	N/A N/A N/A N/A	
5. THORAX IMPACT TEST: a. Upper Rib accel.- - - b. Lower Rib accel.- - - c. Lower Spine accel - -	VEL:14.18ft/sec Primary 37 - 46g's Sec Primary 37 - 46g's Sec Primary 15 -22 g's Sec	39.10 38.60 19.70	
6. PELVIC IMPACT TEST: Pelvic accel. - - - -	Vel:14.19 ft/sec 40 - 60g's	52.52	

SID IMPACT CALIBRATION SUMMARY SHEET

S.I.D. I.D. NO. : 137

Sheet No. 2 of 3 TEST PARAMETER	SPECIFICATION	Pretest Calibration	Posttest Calibration
3. ABDOMINAL COMPRESSION TEST (Preload = 10 pounds) a. Force @ .5" - - - - b. Force @ .75"- - - - c. Force @ 1.0"- - - - d. Force @ 1.3"- - - -	23 - 36 lbs. 36 - 50 lbs. 50 - 63 lbs 73 - 88 lbs.	N/A N/A N/A N/A	
4. LUMBAR FLEXION TEST: a. Force @ 20' - - - - b. Force @ 30' - - - - c. Force @ 40' - - - - d. Return Angle - - - -	22 to 34 lbs 34 to 46 lbs 46 to 58 lbs 12 maximum	N/A N/A N/A N/A	
5. THORAX IMPACT TEST: a. Upper Rib accel.- - - b. Lower Rib accel.- - - c. Lower Spine accel - -	VEL:14.17ft/sec Primary 37 - 46g's Sec Primary 37 - 46g's Sec Primary 15 -22 g's Sec	45.20 41.10 20.30	
6. PELVIC IMPACT TEST: Pelvic accel. - - - -	Vel:14.09 ft/sec 40 - 60g's	56.93	