

V1859

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

VOLVO GOTHENBURG SWEDEN

1992 VOLVO 940 GLS, 4-DOOR SEDAN

MN5902

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



05 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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16. Abstract A 30/15 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 16, 1992. The impact velocity of the Moving Deformable Barrier (MDB) was 33.24 mph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 76 °F. The target vehicle post test maximum crush was 15.25 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>55.0</td> <td>32.0</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td>67.0</td> <td>49.0</td> </tr> <tr> <td>Lower Spine (T) Accel., g</td> <td>52.0</td> <td>46.0</td> </tr> <tr> <td>12</td> <td></td> <td></td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td>59.5</td> <td>47.5</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td>59.0</td> <td>87.0</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	55.0	32.0	Left Lower Rib (LLR) Accel., g	67.0	49.0	Lower Spine (T) Accel., g	52.0	46.0	12			Thoracic Trauma Index (TTI)	59.5	47.5	Pelvis (PEV) Accel., g	59.0	87.0
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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

APPROXIMATE CONVERSIONS FROM METRIC MEASURES

SYMBOL WHEN YOU KNOW MULTIPLY BY TO FIND SYMBOL

LENGTH

mm	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

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

tsp	teaspoons	5	milliliters	ml
tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	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 33.24 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 16, 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. MN5902 was subjected to a side impact test at Mobility Systems and Equipment Co. on April 16, 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 30 mph and the struck vehicle moving at 15 mph. This is accomplished by towing a Moving Deformable Barrier (MDB) crabbed in a stationary position. The velocity of the MDB is to be 33.0 ± 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 33.24 mph. The actual impact point was 1.38 in. forward of the target impact point.

DATA SHEET NO. 1

SUMMARY OF RESULTS

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

VEH. BODY STYLE: 4 DOOR SEDAN

VIN: YV1JS8816N1073816

VEH. NHTSA NO.: MN5902

VEH. BUILD DATE: 12/91

TEST DATE: 04/16/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.

TEST RESULTS:

Vehicle Overall Length = 191.5 inches; Vehicle Overall Width .68 inches

Vehicle Test Weight: 999.0 lbs. Left Front

881 lbs. Left Rear

991.0 lbs. Right Front

885 lbs. Right Rear

1,990.0 lbs. TOTAL FRONT

1,766.0 lbs. TOTAL REAR

Wheelbase = 109.5 inches

Longitudinal C.G. from center of front axle = 51.5 inches

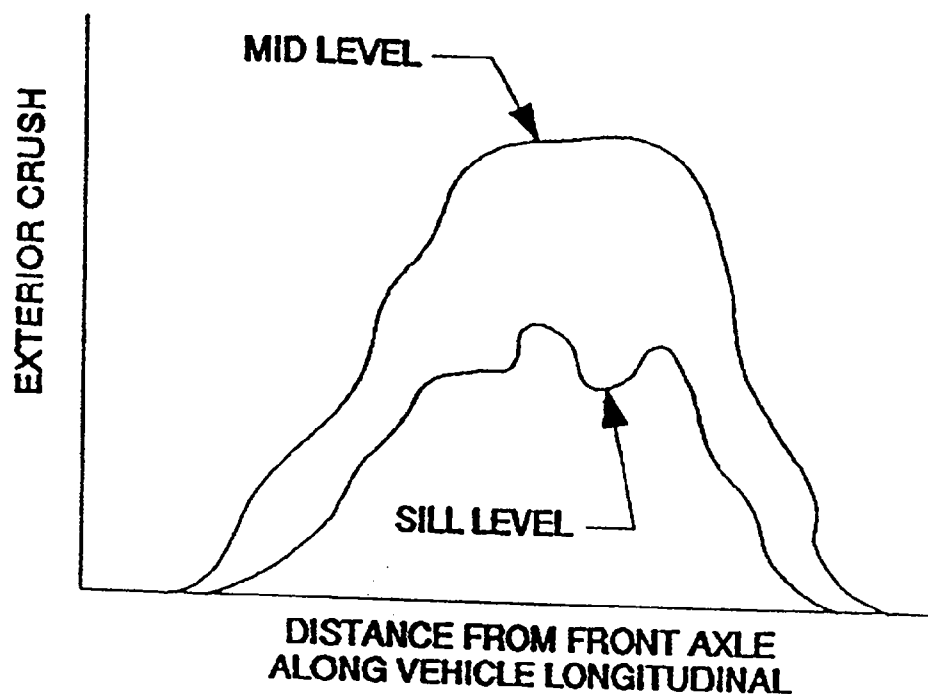
Impact Angle with respect to impactor = 90 degrees

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

1. LEVEL 1 (11.50 inches above ground) = 9.38 inches
2. LEVEL 2 (21.00 inches above ground) = 15.25 inches
3. LEVEL 3 (23.75 inches above ground) = 14.81 inches
4. LEVEL 4 (34.88 inches above ground) = 13.13 inches
5. LEVEL 5 (51.50 inches above ground) = 2.44 inches

Maximum Post Test Intrusion = 15.25 inches

External Lateral Damage Profile (sample shown below)



Occupants:

DRIVER

PASS. (LEFT REAR)

Dummy Identification

SID # 136

SID # 137

Restraint Used

Auto Belts

Manual Belts

Instrumentation:

& Driver Side Airbag

Number of Data Channels = 50

Number of Cameras: Onboard = 3 High Speed

Offboard = 6 (2 on MDB) High Speed, 1 Real Time

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: MOVED TO RIGHT

Front Seat Back Movement: MOVED TO RIGHT, TOP ANGLED AWAY FROM DOOR

Glazing Breakage: PASSENGER SIDE WINDOW SHATTERED, LEFT SIDE OF WINDSHIELD CRACKED

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 = 162 inches (including honey comb impact face)

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

C.G. Location Rearward of Front Axle = 44.5 inches

MDB Weight:	<u>835</u> lbs. Left Front	<u>645</u> Left Rear
	<u>835</u> lbs. Right Front	<u>645</u> Right Rear
	<u>1670</u> lbs. TOTAL FRONT	<u>1290</u> TOTAL REAR

TOTAL WEIGHT OF MDB = 2960 lbs.

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

Impact Speed = 33.24 mph

Maximum Static Crush of Honeycomb Impact Face:

1. ROW A at bumper level = 3.31 inches
2. ROW B at midstack level = 1.31 inches
3. ROW C at top of stack level = 3.37 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 IN. ABOVE B-POST LATCH STRIKER

Visible Dummy Contact Points--

	<u>FRONT SID</u>	<u>REAR SID</u>
HEAD	B-PILLAR, DOOR, AIRBAG	C PILLAR, HEADREST
SHOULDER	B PILLAR, DOOR	DOOR
HIP	DOOR	DOOR
LEFT KNEE	DOOR	DOOR, FRONT SEAT
RIGHT KNEE	CENTER CONSOLE	FRONT SEAT

	FRONT SID # 136				REAR SID # 137			
	+DIRECT		-DIRECT		+DIRECT		-DIRECT	
	MaxG	ms	MaxG	ms	MaxG	ms	MaxG	ms
RIB ACCELERATIONS:								
Upper Rib Lateral Y	<u>55</u>	<u>39</u>	<u>24</u>	<u>70</u>	<u>32</u>	<u>46</u>	<u>3</u>	<u>138</u>
Lower Rib Lateral Y	<u>67</u>	<u>37</u>	<u>19</u>	<u>70</u>	<u>49</u>	<u>45</u>	<u>5</u>	<u>68</u>
SPINE ACCELERATIONS:								
Lower Lateral Y	<u>52</u>	<u>41</u>	<u>10</u>	<u>88</u>	<u>46</u>	<u>43</u>	<u>12</u>	<u>63</u>
PELVIS ACCELERATIONS:								
Lateral Y	<u>59</u>	<u>33</u>	<u>12</u>	<u>109</u>	<u>87</u>	<u>36</u>	<u>19</u>	<u>70</u>

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

REMARKS:

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/23/92

APPROVED BY: *am*

DATE: 05/05/92

SIDE IMPACT DUMMY (SID) TEST DATA SUMMARY
1992 VOLVO 940 GLS, 4-DOOR SEDAN, NHTSA NO. MN5902

TEST DATE: 04/16/92

	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	18	74	13	57	7	41	29	53
Lateral ----- Y	32	51	8	65	97	54	12	45
Vertical ----- Z	47	59	5	26	32	68	55	52
RESULTANT ----- R	48	58	0	14	102	52	0	1
HIC ----- (TIME INTERVAL, SEC.)	196 (0.0444 TO 0.0804)				259 (0.0501 TO 0.0778)			
RIB ACCELERATIONS:								
1.Upper Rib Lateral Y	55	39	24	70	32	46	3	138
2.Upper Rib Lateral Y	57	39	23	70	33	46	4	138
1.Lower Rib Lateral Y	68	37	19	70	49	45	5	68
2.Lower Rib Lateral Y	69	37	19	71	49	45	5	68
SPINE ACCELERATIONS:								
1.Upper Lateral Y	65	38	13	62	29	51	7	136
2.Upper Lateral Y	63	38	13	62	N/AV	N/AV	N/AV	N/AV
1.Lower Lateral Y	53	41	10	88	46	42	12	63
2.Lower Lateral Y	51	41	11	88	47	42	12	72
PELVIS ACCELERATIONS:								
Lateral Y	59	33	12	109	87	36	19	70
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)	59.5				47.5			

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

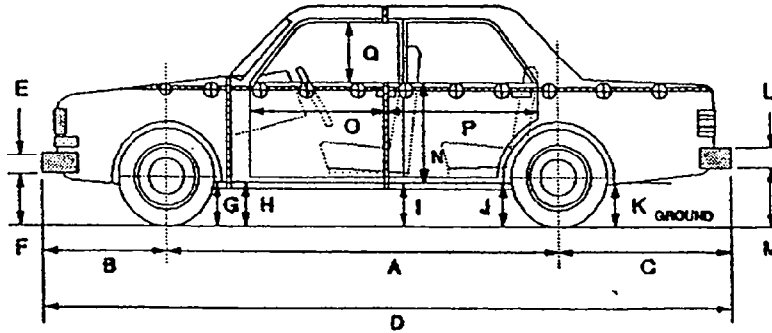
DATA SHEET NO. 2

PRE AND POSTTEST MEASUREMENTS (VEHICLE)

VEH.MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH.NHTSA NO.: MN5902 VIN.: YV1J58816N1073816

TEST DATE: 04/16/92 TEST LAB.: MOBILITY SYSTEMS & EQUIPMENT CO.



LEFT SIDE VIEW

NOTE: All dimensions are in inches

	PRETEST	POSTTEST	CHANGE
A	109.50	109.00	- 0.50
B	38.75	39.00	+ 0.25
C	43.25	42.00	- 1.25
D	191.50	190.00	- 1.50
E	5.50	5.50	- 0.00
F	14.38	16.19	+ 1.81
G	12.13	13.00	+ 0.88
H	12.13	12.38	+ 0.25
I	12.75	11.50	- 1.25
J	12.75	9.50	- 3.25
K	12.63	12.63	0.00
L	4.38	4.38	0.00
M	18.75	19.50	+ 0.75
N	21.50	24.75	+ 3.25
O	26.13	26.50	+ 0.37
P	50.25	46.00	- 4.25
Q	16.60	17.20	+ 0.60

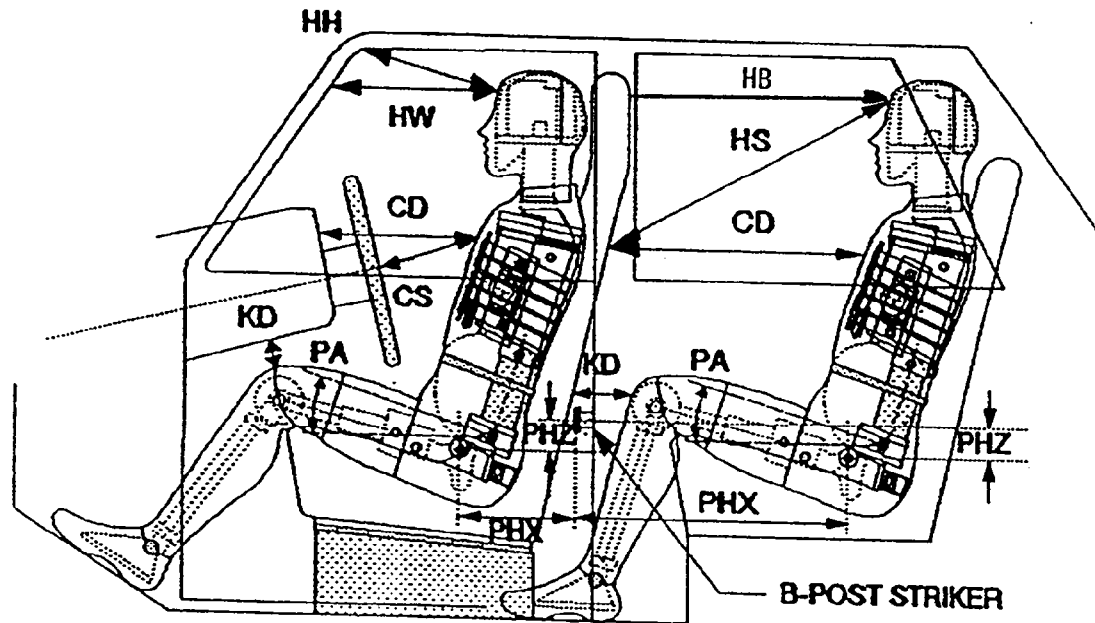
DATA SHEET NO. 3

SID LONGITUDINAL CLEARANCE DIMENSIONS

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



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

LEFT SIDE VIEW

DRIVER SID ID# 136

HH	17.25	inches
HW	20.75	inches
HS	N/A	inches
CD	30.50	inches
CS	20.75	inches
KDL	12.00	inches
KDR	3.88	inches
PA	24.00	inches
PHX	7.50	inches
PHZ	2.50	inches
HB	N/A	inches

REAR SID ID# 137

N/A	inches
N/A	inches
27.75	inches
21.00	inches
N/A	inches
6.38	inches
6.38	inches
25.00	inches
8.50	inches
7.25	inches
26.00	inches

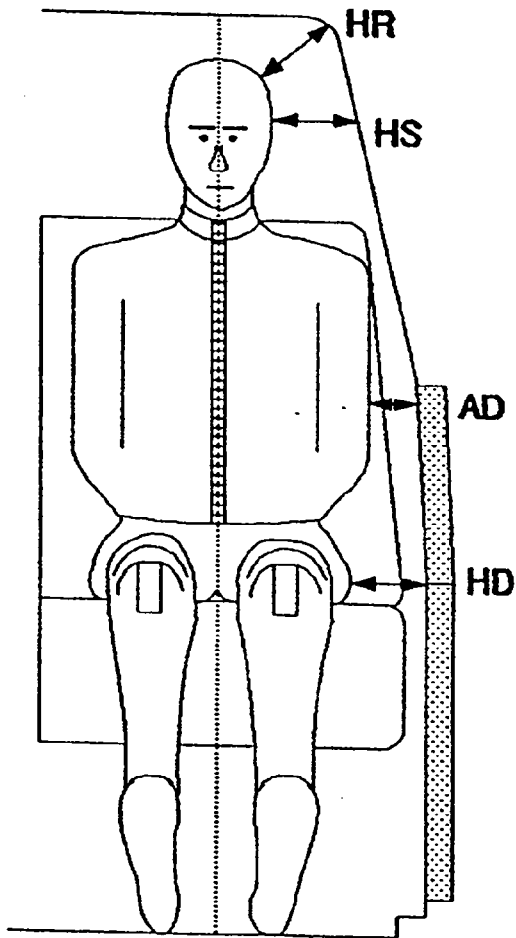
DATA SHEET NO. 4

SID LATERAL CLEARANCE DIMENSIONS

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



DRIVER SID ID# 136

HR	<u>5.50</u>	<u>inches</u>
HS	<u>6.75</u>	<u>inches</u>
AD	<u>3.50</u>	<u>inches</u>
HD	<u>5.50</u>	<u>inches</u>

REAR SID ID# 137

	<u>4.00</u>	<u>inches</u>
	<u>5.00</u>	<u>inches</u>
	<u>2.38</u>	<u>inches</u>
	<u>4.75</u>	<u>inches</u>

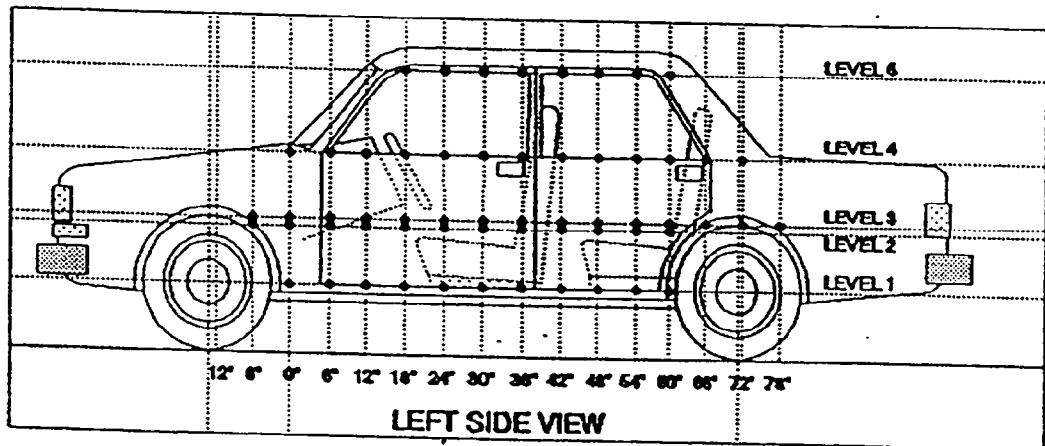
DATA SHEET NO. 5

VEHICLE SIDE MEASUREMENT

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 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 = 51.50 inches

LEVEL 4 @ Window Sill = 34.88 inches

LEVEL 3 @ Mid Door = 23.75 inches

LEVEL 2 @ Occupant H-Point = 21.00 inches

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

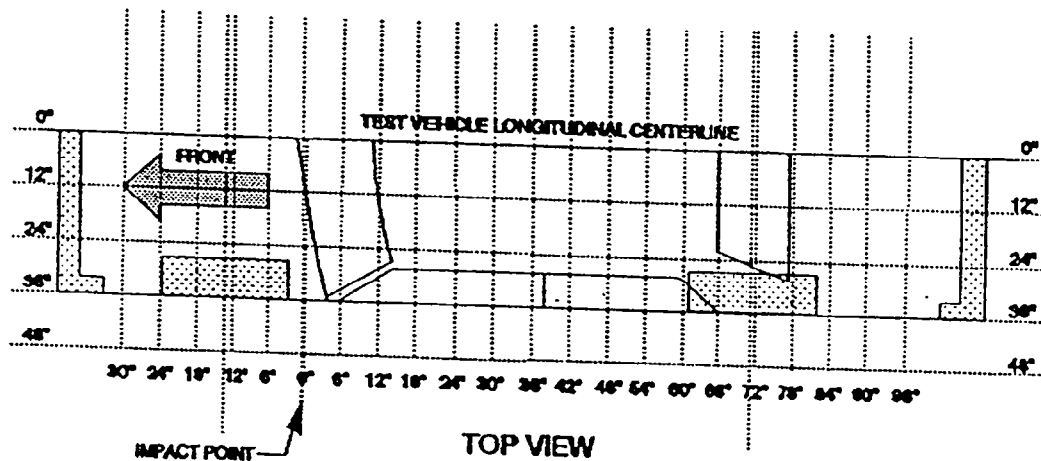
DATA SHEET NO. 6A

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 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>22.75</u>	<u>16.75</u>	<u>6.00</u>
6 inches	<u>24.19</u>	<u>16.63</u>	<u>7.56</u>
12 inches	<u>24.25</u>	<u>16.63</u>	<u>7.63</u>
18 inches	<u>24.94</u>	<u>16.63</u>	<u>8.31</u>
24 inches	<u>25.33</u>	<u>16.63</u>	<u>8.70</u>
30 inches	<u>25.25</u>	<u>16.65</u>	<u>8.60</u>
36 inches	<u>25.50</u>	<u>16.63</u>	<u>8.87</u>
42 inches	<u>25.88</u>	<u>16.75</u>	<u>9.13</u>
48 inches	<u>26.13</u>	<u>16.75</u>	<u>9.38</u>
54 inches	<u>23.50</u>	<u>16.75</u>	<u>6.75</u>
60 inches	<u>24.13</u>	<u>16.75</u>	<u>7.38</u>
66 inches	<u>22.13</u>	<u>16.75</u>	<u>5.38</u>
72 inches	<u>19.25</u>	<u>16.75</u>	<u>2.50</u>

REMARKS:

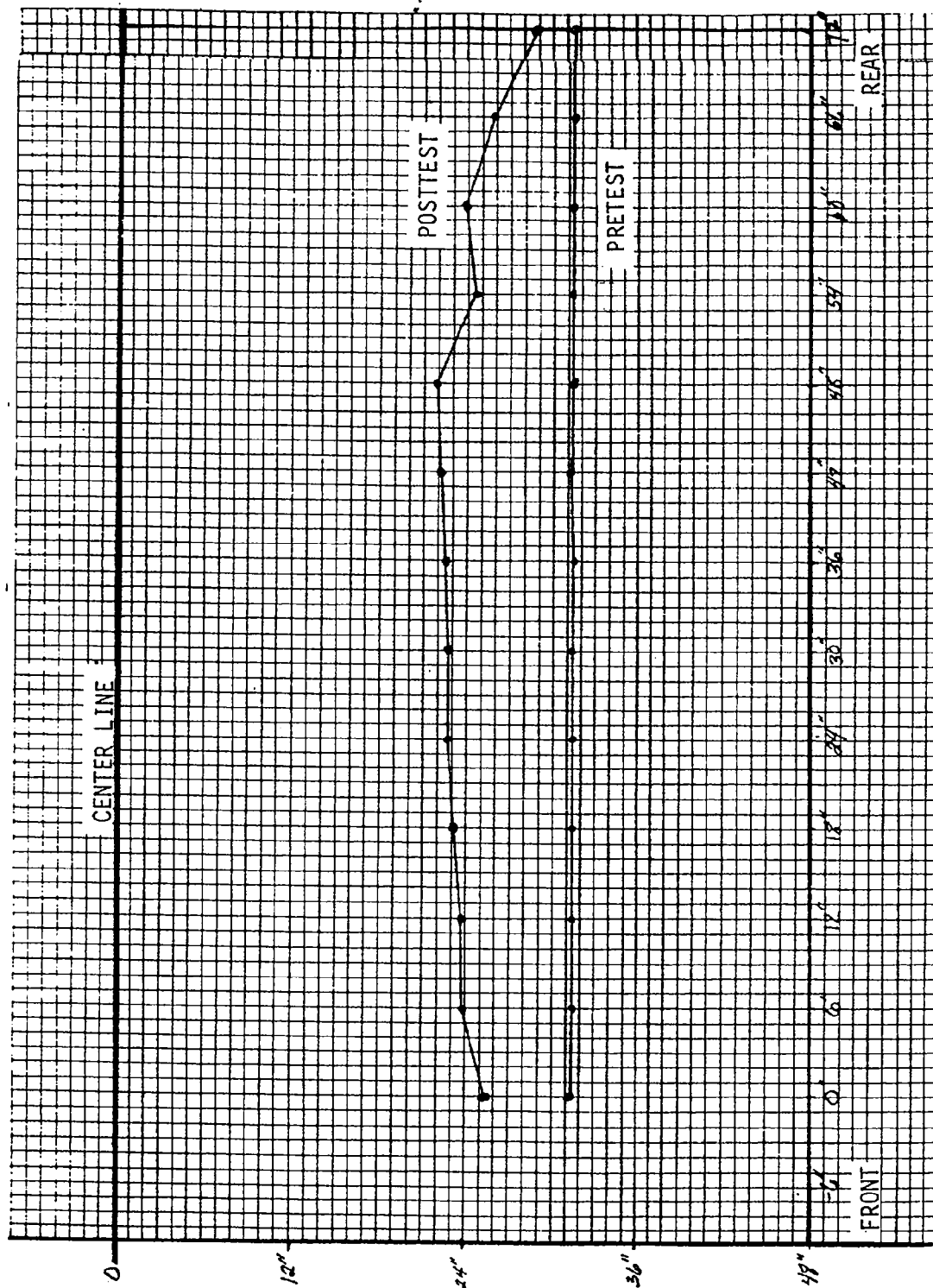
RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/23/92

APPROVED BY: *Arle*

DATE: 05/05/92

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



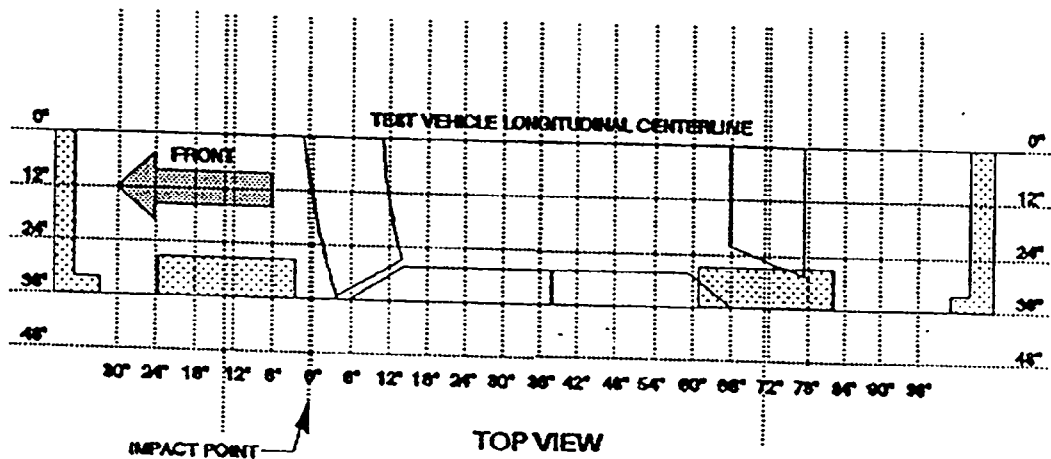
DATA SHEET NO. 68

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



LEVEL 2 AT OCCUPANT H-POINT

21 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

	POSTTEST (inches)	PRETEST (inches)	STATIC CRUSH (inches)
-6 inches	<u>N/A</u>	<u>14.25</u>	<u>N/A</u>
0 inch (impact point)	<u>19.25</u>	<u>14.69</u>	<u>4.56</u>
6 inches	<u>24.88</u>	<u>14.50</u>	<u>10.38</u>
12 inches	<u>25.69</u>	<u>14.50</u>	<u>11.19</u>
18 inches	<u>26.81</u>	<u>14.31</u>	<u>12.50</u>
24 inches	<u>27.13</u>	<u>14.38</u>	<u>12.75</u>
30 inches	<u>27.88</u>	<u>14.31</u>	<u>13.57</u>
36 inches	<u>28.19</u>	<u>14.13</u>	<u>14.06</u>
42 inches	<u>28.63</u>	<u>14.13</u>	<u>14.50</u>
48 inches	<u>28.50</u>	<u>14.13</u>	<u>14.38</u>
54 inches	<u>28.75</u>	<u>14.06</u>	<u>14.69</u>
60 inches	<u>29.25</u>	<u>14.00</u>	<u>15.25</u>
66 inches	<u>29.13</u>	<u>14.00</u>	<u>15.13</u>
72 inches	<u>23.00</u>	<u>14.00</u>	<u>9.00</u>

REMARKS:

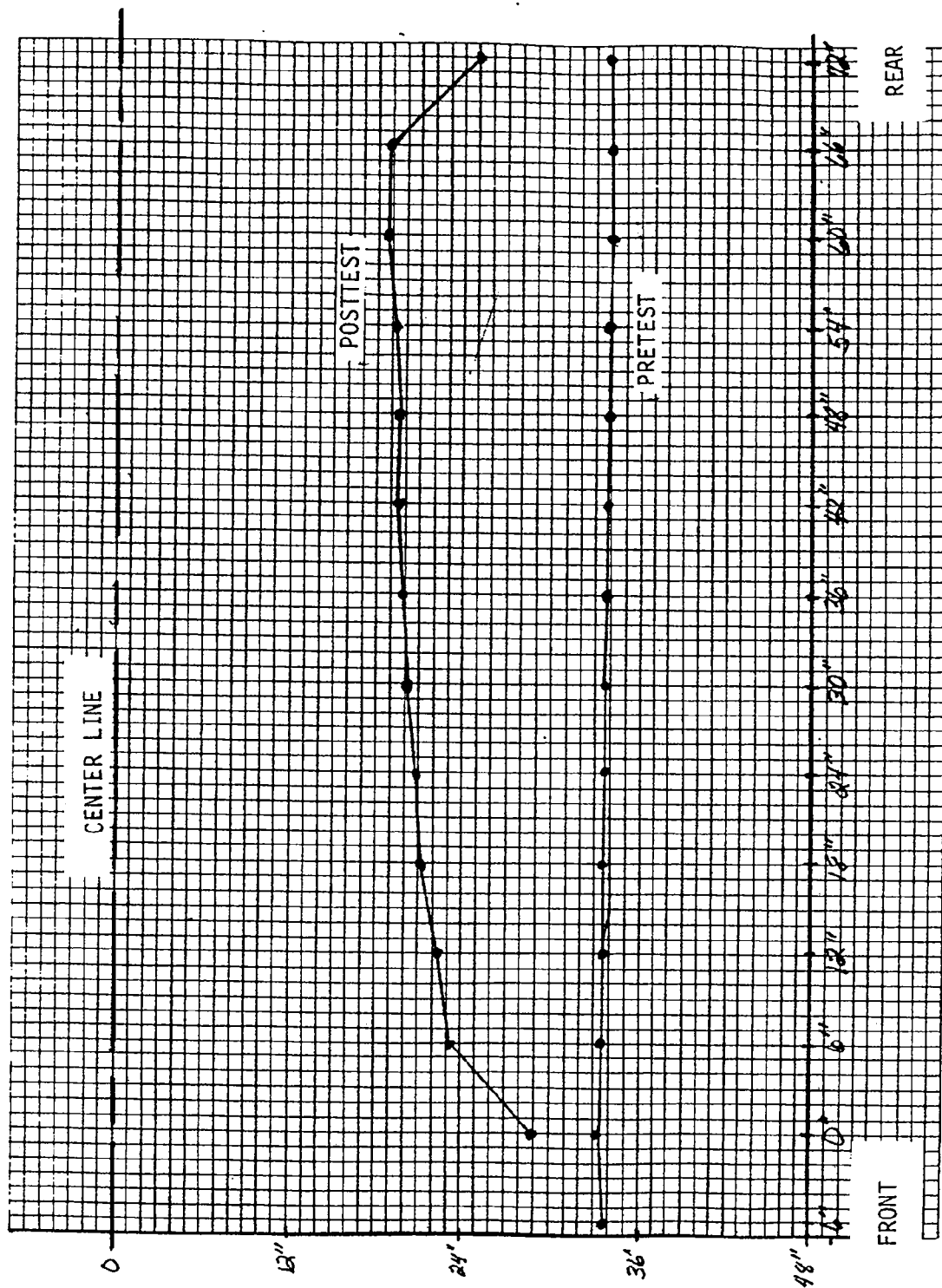
RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/23/92

APPROVED BY: *am*

DATE: 05/05/92

FIGURE 3-4B PRE AND POSTTEST EXTERIOR PROFILE AT LEVEL 2
H-POINT 21.0" ABOVE GROUND LEVEL



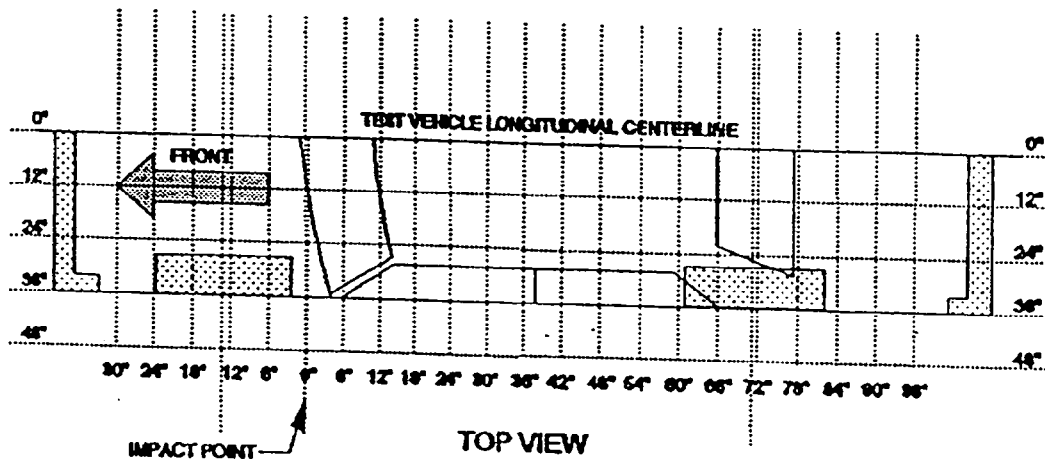
DATA SHEET NO. 6C

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



LEVEL 3 AT MID DOOR

23.75 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)
-6inches	<u>N/A</u>	<u>14.25</u>	<u>N/A</u>
0 inch (impact point)	<u>20.75</u>	<u>14.50</u>	<u>6.25</u>
6 inches	<u>24.06</u>	<u>14.88</u>	<u>9.18</u>
12 inches	<u>24.75</u>	<u>14.25</u>	<u>10.50</u>
18 inches	<u>25.88</u>	<u>14.13</u>	<u>11.75</u>
24 inches	<u>25.63</u>	<u>14.06</u>	<u>11.57</u>
30 inches	<u>26.25</u>	<u>14.00</u>	<u>12.25</u>
36 inches	<u>26.50</u>	<u>13.94</u>	<u>12.56</u>
42 inches	<u>27.00</u>	<u>13.88</u>	<u>13.12</u>
48 inches	<u>27.25</u>	<u>13.88</u>	<u>13.37</u>
54 inches	<u>27.81</u>	<u>13.75</u>	<u>14.06</u>
60 inches	<u>28.25</u>	<u>13.63</u>	<u>14.62</u>
66 inches	<u>28.44</u>	<u>13.63</u>	<u>14.81</u>
72 inches	<u>24.38</u>	<u>13.63</u>	<u>10.75</u>

REMARKS:

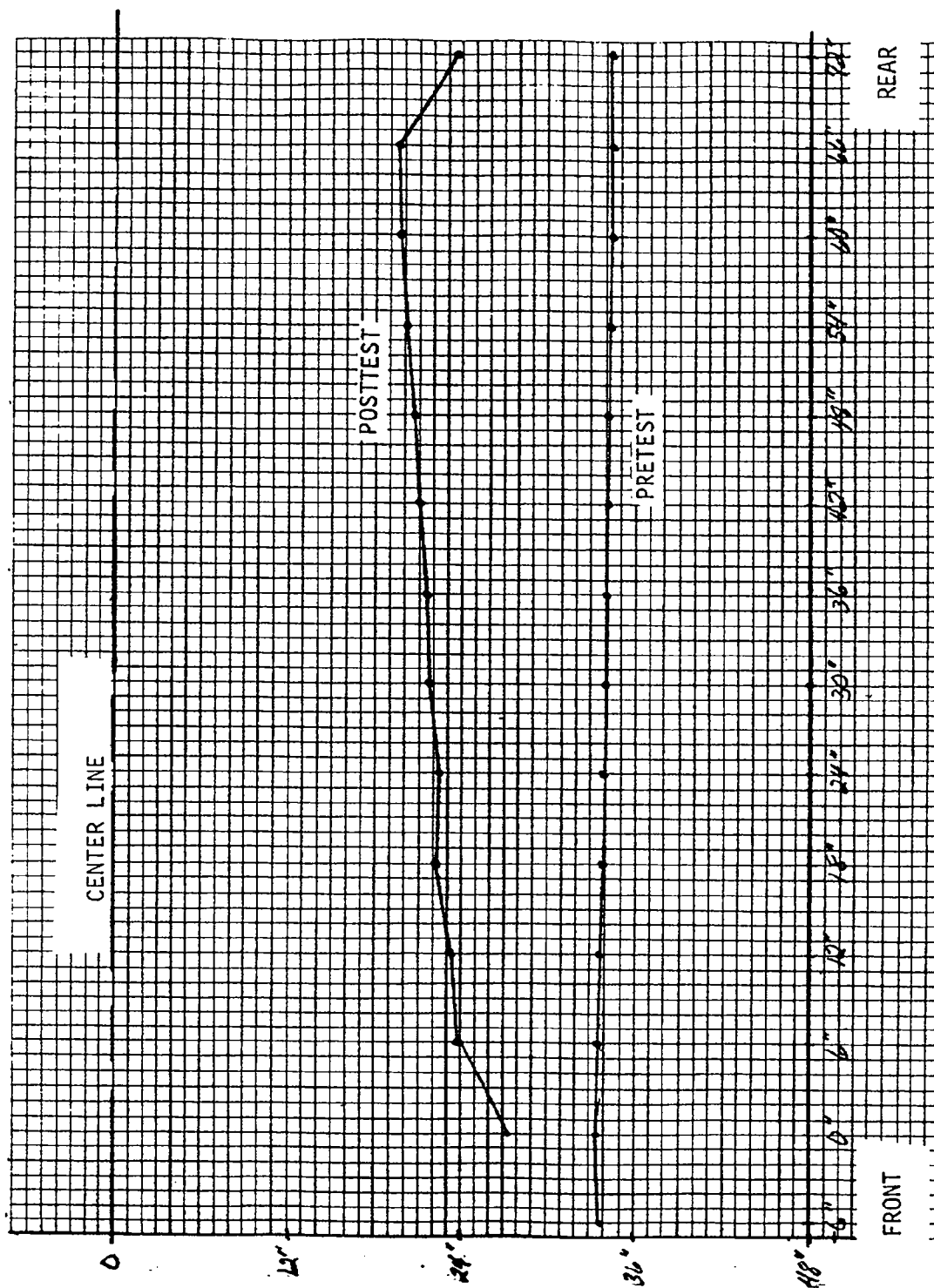
RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/23/92

APPROVED BY: *am*

DATE: 05/05/92

FIGURE 3-4C PRE AND POSTTEST EXTERIOR PROFILE AT LEVEL 3
MID DOOR 23.75" ABOVE GROUND LEVEL



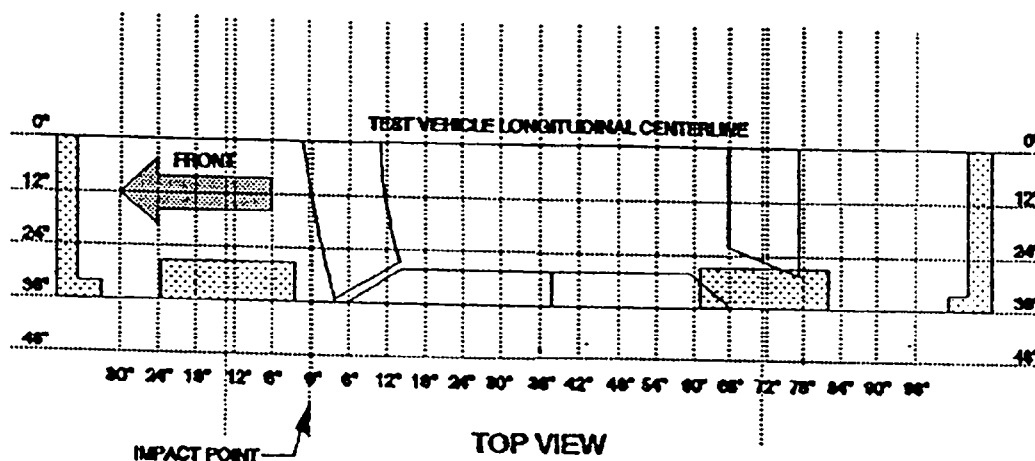
DATA SHEET NO. 6D

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



LEVEL 4 AT WINDOW SILL

34.88 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>17.81</u>	<u>16.50</u>	<u>1.31</u>
0 inch (impact point)	<u>17.88</u>	<u>16.25</u>	<u>1.63</u>
6 inches	<u>20.50</u>	<u>16.00</u>	<u>4.50</u>
12 inches	<u>22.44</u>	<u>14.75</u>	<u>7.69</u>
18 inches	<u>23.50</u>	<u>16.00</u>	<u>7.50</u>
24 inches	<u>24.25</u>	<u>15.75</u>	<u>8.50</u>
30 inches	<u>24.88</u>	<u>16.63</u>	<u>8.25</u>
36 inches	<u>25.25</u>	<u>15.63</u>	<u>9.62</u>
42 inches	<u>26.00</u>	<u>15.50</u>	<u>10.50</u>
48 inches	<u>26.13</u>	<u>15.25</u>	<u>10.88</u>
54 inches	<u>27.13</u>	<u>15.25</u>	<u>11.88</u>
60 inches	<u>28.00</u>	<u>15.06</u>	<u>12.94</u>
66 inches	<u>28.13</u>	<u>15.00</u>	<u>13.13</u>
72 inches	<u>21.25</u>	<u>15.00</u>	<u>6.25</u>

REMARKS:

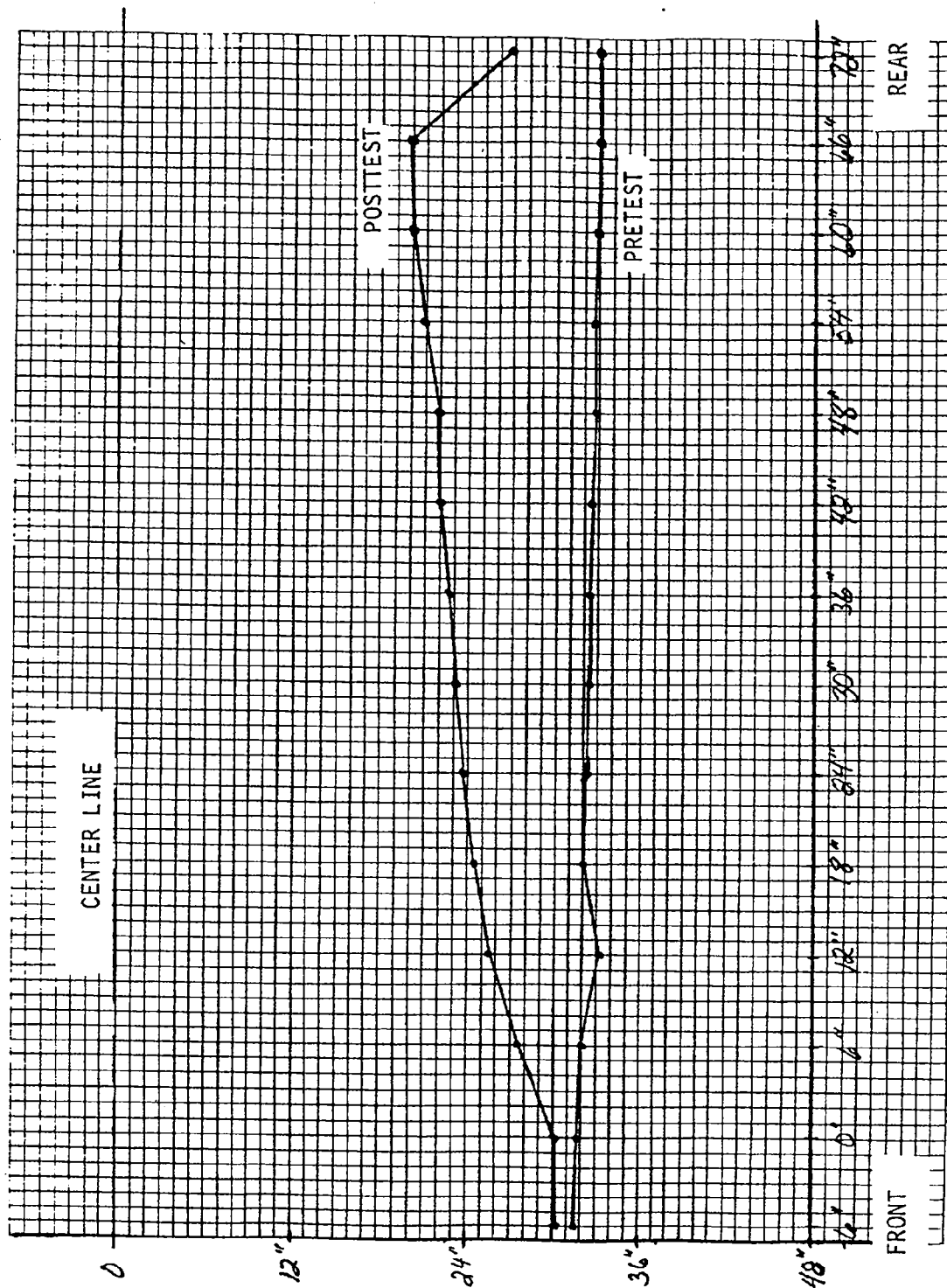
RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/23/92

APPROVED BY: *auk*

DATE: 05/05/92

FIGURE 3-4D PRE AND POSTTEST EXTERIOR PROFILE AT LEVEL 4
WINDOW SILL 34.88" ABOVE GROUND LEVEL



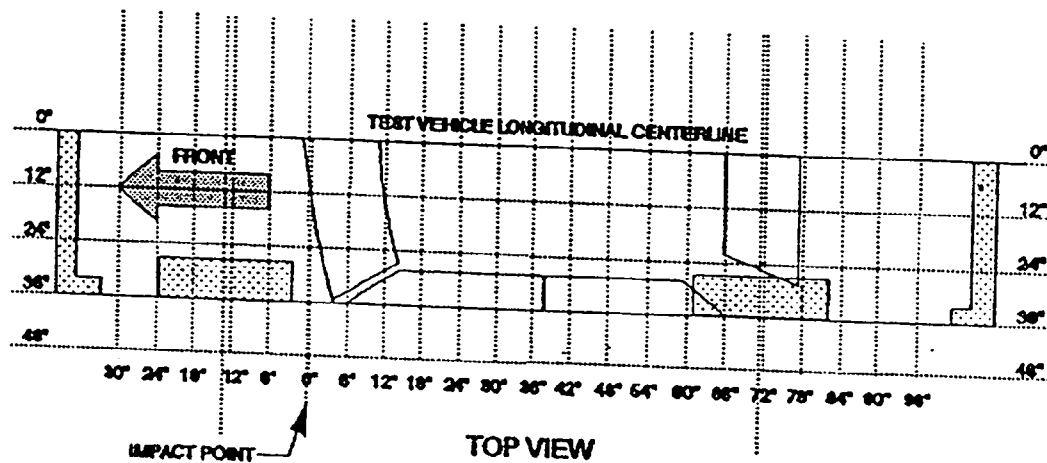
DATA SHEET NO. 6E

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



LEVEL 5 AT WINDOW TOP

51.50 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)
-6inches	<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>24.25</u>	<u>22.50</u>	<u>1.75</u>
30 inches	<u>21.06</u>	<u>22.25</u>	<u>-1.19</u>
36 inches	<u>22.00</u>	<u>22.38</u>	<u>-0.38</u>
42 inches	<u>22.75</u>	<u>22.31</u>	<u>0.44</u>
48 inches	<u>23.63</u>	<u>22.31</u>	<u>1.32</u>
54 inches	<u>24.75</u>	<u>22.31</u>	<u>2.44</u>
60 inches	<u>N/A</u>	<u>22.31</u>	<u>N/A</u>
66 inches	<u>N/A</u>	<u>22.25</u>	<u>N/A</u>
72 inches	<u>19.38</u>	<u>22.25</u>	<u>-2.87</u>

REMARKS:

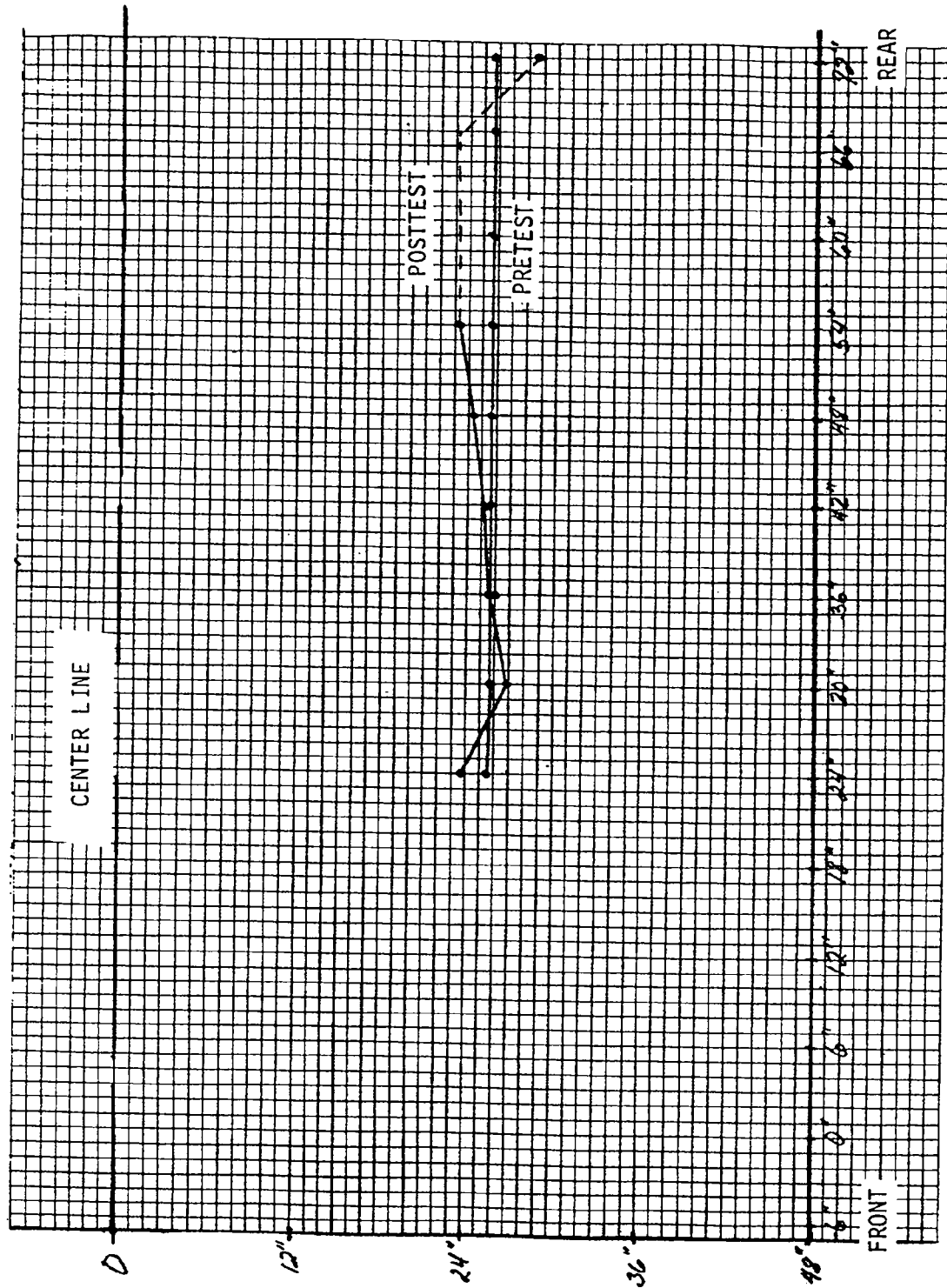
RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/23/92

APPROVED BY: *[Signature]*

DATE: 05/05/92

FIGURE 3-4A PRE AND POSTTEST EXTERIOR PROFILE AT LEVEL 5
WINDOW TOP 51.5" ABOVE GROUND LEVEL



DATA SHEET NO. 6F

SUMMARY OF VEHICLE EXTERIOR PROFILE STATIC CRUSH

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 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>N/A</u>	<u>N/A</u>	<u>1.31</u>	<u>N/A</u>
0 inch	<u>6.00</u>	<u>4.56</u>	<u>6.25</u>	<u>1.63</u>	<u>N/A</u>
Impact Point					
6 inches	<u>7.56</u>	<u>10.38</u>	<u>9.18</u>	<u>4.50</u>	<u>N/A</u>
12 inches	<u>7.63</u>	<u>11.19</u>	<u>10.50</u>	<u>7.69</u>	<u>N/A</u>
18 inches	<u>8.31</u>	<u>12.50</u>	<u>11.75</u>	<u>7.50</u>	<u>N/A</u>
24 inch	<u>8.70</u>	<u>12.75</u>	<u>11.57</u>	<u>8.50</u>	<u>1.75</u>
30 inches	<u>8.60</u>	<u>13.57</u>	<u>12.25</u>	<u>8.25</u>	<u>-1.19</u>
36 inches	<u>8.87</u>	<u>14.06</u>	<u>12.56</u>	<u>9.62</u>	<u>-0.38</u>
42 inches	<u>9.13</u>	<u>14.50</u>	<u>13.12</u>	<u>10.50</u>	<u>0.44</u>
48 inches	<u>9.38</u>	<u>14.38</u>	<u>13.37</u>	<u>10.88</u>	<u>1.32</u>
54 inches	<u>6.75</u>	<u>14.69</u>	<u>14.06</u>	<u>11.88</u>	<u>2.44</u>
60 inches	<u>7.38</u>	<u>15.25</u>	<u>14.12</u>	<u>12.94</u>	<u>N/A</u>
66 inches	<u>5.38</u>	<u>15.13</u>	<u>14.81</u>	<u>13.13</u>	<u>N/A</u>
72 inches	<u>2.50</u>	<u>9.00</u>	<u>10.75</u>	<u>6.25</u>	<u>-2.87</u>

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/23/92

APPROVED BY: *[Signature]*

DATE: 05/05/92

DATA SHEET NO. 7

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 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>3.37</u>	<u>1.00</u>	<u>0.94</u>
28 inches	<u>1.75</u>	<u>1.31</u>	<u>1.56</u>
24 inches	<u>0.75</u>	<u>0.31</u>	<u>1.19</u>
20 inches	<u>0.12</u>	<u>0.12</u>	<u>1.06</u>
16 inches	<u>-0.25</u>	<u>0.00</u>	<u>1.06</u>
12 inches	<u>-0.38</u>	<u>-0.13</u>	<u>1.13</u>
8 inches	<u>-0.44</u>	<u>-0.19</u>	<u>1.13</u>
4 inches	<u>-0.50</u>	<u>-0.13</u>	<u>0.94</u>
0 inches	<u>-0.57</u>	<u>-0.19</u>	<u>0.94</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>- 0.57</u>	<u>-0.19</u>	<u>1.25</u>
8 inches	<u>- 0.50</u>	<u>-0.19</u>	<u>1.25</u>
12 inches	<u>-0.57</u>	<u>-0.19</u>	<u>1.50</u>
16 inches	<u>-0.75</u>	<u>-0.25</u>	<u>1.63</u>
20 inches	<u>-0.82</u>	<u>-0.25</u>	<u>1.56</u>
24 inches	<u>-0.94</u>	<u>0.00</u>	<u>1.88</u>
28 inches	<u>-0.63</u>	<u>0.31</u>	<u>2.50</u>
32 inches	<u>1.50</u>	<u>0.62</u>	<u>3.31</u>

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

REMARKS:

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/23/92

APPROVED BY: *[Signature]*

DATE: 05/05/92

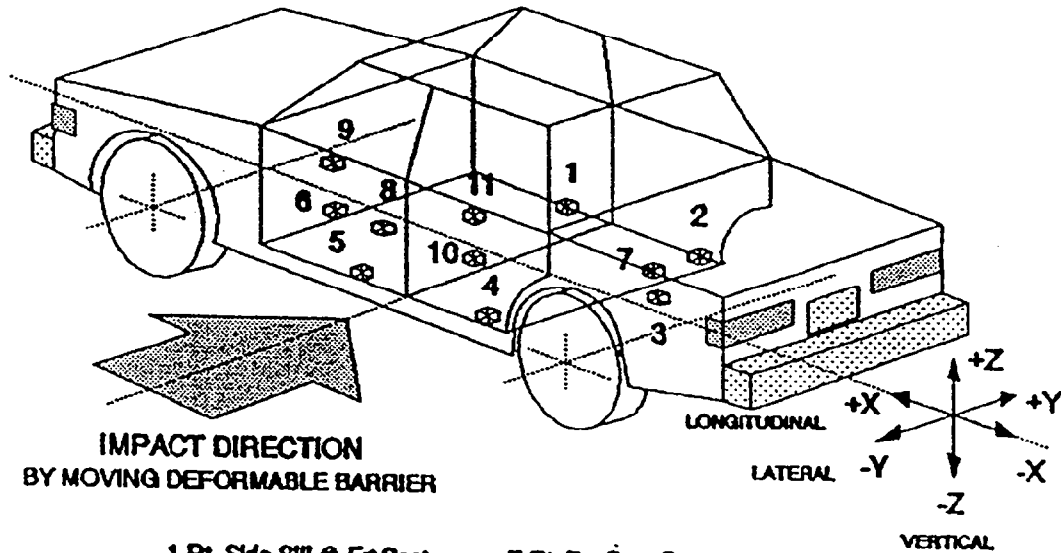
DATA SHEET NO. 8

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT CO.



- 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	<u>118</u>	<u>25</u>	<u>10.5</u>	<u>-9</u>	<u>19</u>	<u>22</u>	<u>18</u>	<u>14</u>	<u>20</u>	<u>23</u>	<u>18</u>
2	<u>78</u>	<u>21</u>	<u>10.5</u>	<u>-5</u>	<u>18</u>	<u>20</u>	<u>18</u>	<u>-10</u>	<u>9</u>	<u>21</u>	<u>18</u>
3	<u>38</u>	<u>-3</u>	<u>24.0</u>	<u>8</u>	<u>7</u>	<u>15</u>	<u>26</u>	<u>6</u>	<u>30</u>	<u>16</u>	<u>26</u>
4	<u>78</u>	<u>-23</u>	<u>10.5</u>	<u>-</u>	<u>-</u>	<u>53</u>	<u>23</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
5	<u>115</u>	<u>-22</u>	<u>10.5</u>	<u>-</u>	<u>-</u>	<u>59</u>	<u>14</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
6	<u>105</u>	<u>-30</u>	<u>24.5</u>	<u>-</u>	<u>-</u>	<u>143</u>	<u>8</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

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>---</u>	<u>--</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>120</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>125</u>	<u>19</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>91</u>	<u>7</u>	<u>---</u>	<u>--</u>	<u>---</u>	<u>--</u>
11	<u>71</u>	<u>-30</u>	<u>26.0</u>	<u>---</u>	<u>--</u>	<u>81</u>	<u>10</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. BRIAN O'KEEFE

DATE: 04/23/92

APPROVED BY: *Brian O'Keefe*

DATE: 05/05/92

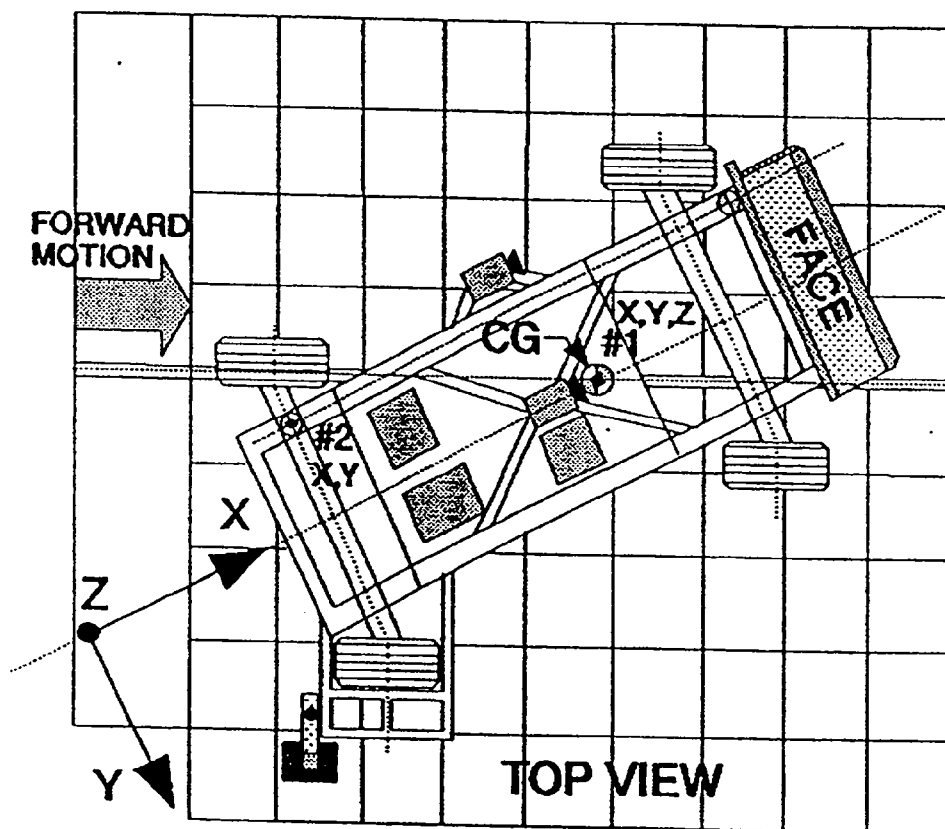
DATA SHEET NO. 9

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

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 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>137</u>	<u>21</u>	<u>39</u>
1 Lateral Y	<u>73</u>	<u>0</u>	<u>11.75</u>	<u>11</u>	<u>25</u>	<u>4</u>	<u>56</u>
1 Vertical Z	<u>73</u>	<u>0</u>	<u>11.75</u>	<u>31</u>	<u>24</u>	<u>30</u>	<u>48</u>
1 Resultant R	<u>73</u>	<u>0</u>	<u>11.75</u>	<u>35</u>	<u>24</u>	<u>0</u>	<u>294</u>
2 Longitudinal X	<u>12</u>	<u>-19</u>	<u>16.75</u>	<u>2</u>	<u>139</u>	<u>19</u>	<u>41</u>
3 Longitudinal X	<u>12</u>	<u>-19</u>	<u>16.75</u>	<u>2</u>	<u>106</u>	<u>5</u>	<u>21</u>

REFERENCE:

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

REMARKS:

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/23/92

APPROVED BY: *Amk*

DATE: 05/05/92

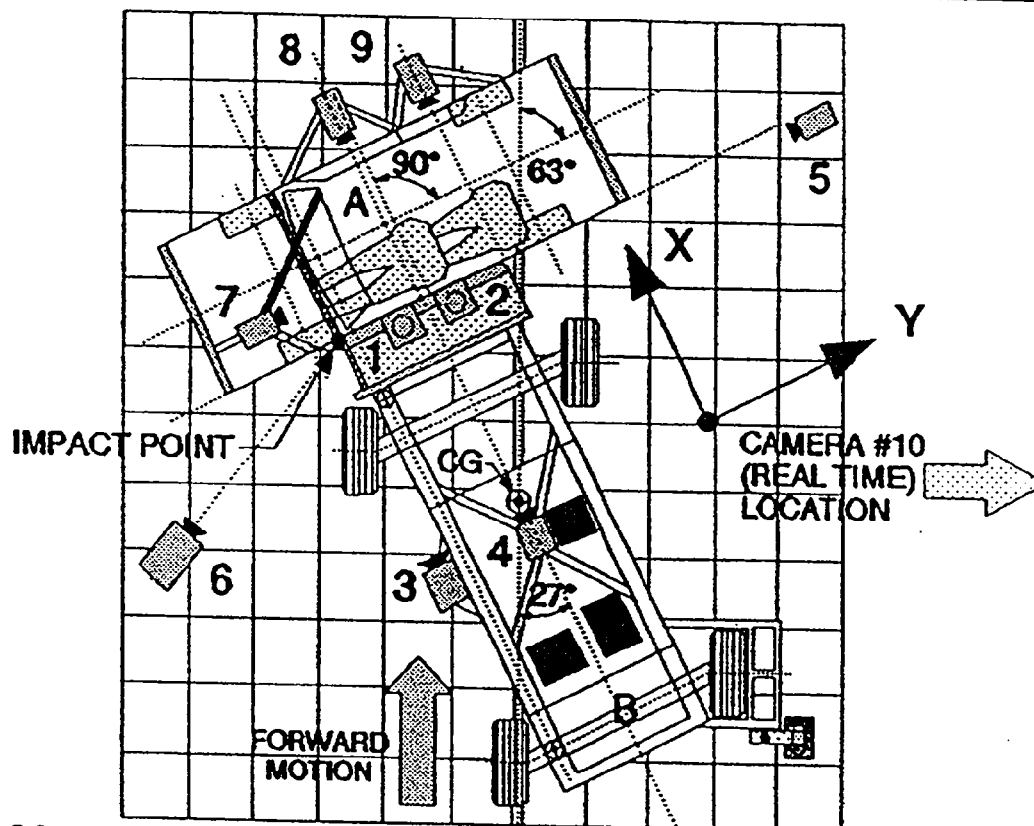
DATA SHEET NO. 10

HIGH SPEED CAMERA LOCATIONS AND DATA

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

TEST DATE: 04/16/92 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	N/A	<u>-121</u>	<u>-37</u>	<u>50</u>
4	<u>HIMAX</u>	16	N/A	<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>FASTAX II</u>	16	600	<u>15</u>	<u>-90</u>	<u>48</u>
8	<u>FASTAX II</u>	16	600	<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>	25	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. BRIAN O'KEEFE

DATE: 04/23/92

APPROVED BY: *auk*

DATE: 05/05/92

DATA SHEET NO. 11

TEST VEHICLE DATA

VEH. MOD YR/MAKE/MODEL/BODY: 1992 VOLVO 940 GLS (BLUE/GREEN)

VEH. NHTSA NO.: MN5902 VIN.: YV1JS8816N1073816

VEH. BUILD DATE: 12/91 TEST DATE: 04/16/92

TEST LABORATORY: MOBILITY SYSTEMS AND EQUIPMENT CO.

OBSERVERS: DR. BOB CHAN & MR. JEFF GIUSEPPE

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; N/A Bench; N/A Split Bench

Type of Front Seat Back: N/A Fixed; X Adjustable with N/A 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 = 859 lbs.; Left = 898 lbs.; Front Total = 1757 lbs.

(55 % of TOTAL shown below)

Rear: Right = 691 lbs.; Left = 731 lbs.; Front Total = 1422 lbs.

(45 % of TOTAL shown below)

Front Total + Rear Total = TOTAL DELV. = 3179 lbs.

CALCULATION OF TEST VEHICLE TARGET WEIGHT:

Total Test Vehicle Delivered Weight With Maximum Fluids = 3179 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 = 3682 (A + B + C)

ACTUAL WEIGHT OF TEST VEHICLE WITH TWO SIDs AND CARGO:

Front: Right = 991 lbs.; Left = 999 lbs.; Front Total = 1990 lbs.

(53 % of TOTAL shown below)

Rear: Right = 885 lbs.; Left = 881 lbs.; Front Total = 1766 lbs.

(47 % of TOTAL shown below)

Front Total + Rear Total = TOTAL ACTUAL = 3756 lbs. (which includes N/A
lbs. of cargo ballast weight)

TEST VEHICLE ATTITUDE:

As Delivered

Ready For Test

26 inches Right Front

25.38 inches Right Front

26 inches Left Front

25.63 inches Left Front

24 inches Right Rear

24.00 inches Right Rear

25 inches Left Rear

24.38 inches Left Rear

DATA SHEET NO. 11 (Cont.)

Test Vehicle Wheelbase = 109.5 inches

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

Total Vehicle Length: 183.75 inches Right Side

183.75 inches Left Side

191.5 inches Centerline

Arm Rest Location: Center of Back Seat

Seat Belt Upper Anchorage Location: 22 in. 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 = 109.5 inches

Impact Point 17.75 inches rearward of front axle centerline (which is 37" forward of the wheelbase midpoint)

REMARKS:

RECORDED BY: MR. BRIAN O'KEEFE

DATE: 04/23/92

APPROVED BY: 

DATE: 05/05/92

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	INSRAT: 200	CHLMAX: 11	INIVEL: 0.0
CALDAT: 26/MAR/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
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	INSRAT: 200	CHLMAX: 65	INIVEL: 0.0
CALDAT: 26/MAR/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
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	INSRAT: 200	CHLMAX: 14	INIVEL: 0.0
CALDAT: 26/MAR/92	NLP: 2999	DELT: 100	DASTAT: AM
NFP: -300			
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	INSRAT: 2000	CHLMAX: 5	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: 5	
SENTYP: AC	SENLOC: 01	SENATT: SPNU	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-2000, S/N: AN93	INSRAT: 2000	CHLMAX: 5	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: 6	
SENTYP: AC	SENLOC: 01	SENATT: RBLU	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO,	MODEL: 7264-2000,	S/N: AB97	
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 6	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
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	
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 6	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
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	
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 6	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
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	
CALDAT: 02/JAN/92	INSRAT: 2000	CHLMAX: 6	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
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	
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: 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: HDCG	
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	INSRAT: 2000	CHLMAX: 3	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: 22	
SENTYP: AC	SENLOC: 04	SENATT: RBLL	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-2000, S/N: AK29	INSRAT: 2000	CHLMAX: 3	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: 23	
SENTYP: AC	SENLOC: 04	SENATT: RBLL	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-2000, S/N: BA93	INSRAT: 2000	CHLMAX: 3	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: 24	
SENTYP: AC	SENLOC: 04	SENATT: SPNL	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-2000, S/N: BD12J	INSRAT: 2000	CHLMAX: 3	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: 25	
SENTYP: AC	SENLOC: 04	SENATT: SPNL	
AXIS: YL	UNITS: G'S	PREFIL: 1650	
INSMAN: MFG: ENDEVCO, MODEL: 7264-2000, S/N: BE91J	INSRAT: 2000	CHLMAX: 3	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: 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	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

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	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

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	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

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	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

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	INIVEL: 0.0
NFP: -300	NLP: 2999	DELT: 100	DASTAT: AM
INSCOM: NO COMMENT			

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
 CALDAT: 10/APR/92 INSRAT: 200 CHLMAX: 19
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

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: 2Z-200
 CALDAT: 10/APR/92 INSRAT: 200 CHLMAX: 19
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

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
 CALDAT: 10/APR/92 INSRAT: 200 CHLMAX: 81
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

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
 CALDAT: 10/APR/92 INSRAT: 200 CHLMAX: 55
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

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
 CALDAT: 10/APR/92 INSRAT: 200 CHLMAX: 172
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: CHANNEL DROPOUT BETWEEN 33.3 TO 69.4 MSEC.

INIVEL: 0.0
 DASTAT: AM

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
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

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
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: CHANNEL DROPOUT BETWEEN 41.7 TO 61.9 MSEC.

INIVEL: 0.0
 DASTAT: AM

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
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

Instrumentation Information

Inst. Group ID: 5 VEHNO: 2 CURNO: 44
 SENTYP: AC SENLOC: NA SENATT: DRLF
 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
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

Instrumentation Information

Inst. Group ID: 5 VEHNO: 2 CURNO: 45
 SENTYP: AC SENLOC: NA SENATT: DRLF
 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
 NFP: -300 NLP: 2999 DELT: 100
 INSCOM: NO COMMENT

INIVEL: 0.0
 DASTAT: AM

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: 29.6
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: 15.1
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: 29.6
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: 15.1
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. Pretest Occupant Compartment Left Side Showing Driver SID
17. Posttest Occupant Compartment Right Side Showing Driver SID
18. Posttest Occupant Compartment Driver SID
19. Pretest Occupant Compartment Left Side View Showing Passenger Side
20. Pretest Occupant Compartment Right Side view Showing Passenger Side
21. Posttest Occupant Compartment View Showing Passenger Side
22. Pretest Left Side View of MDB with Impact Face in Position
23. Pretest Right Side View of MDB with Impact Face in Position
24. Test Vehicle Tire Placard
25. Test Vehicle Manufacturer's certification Label

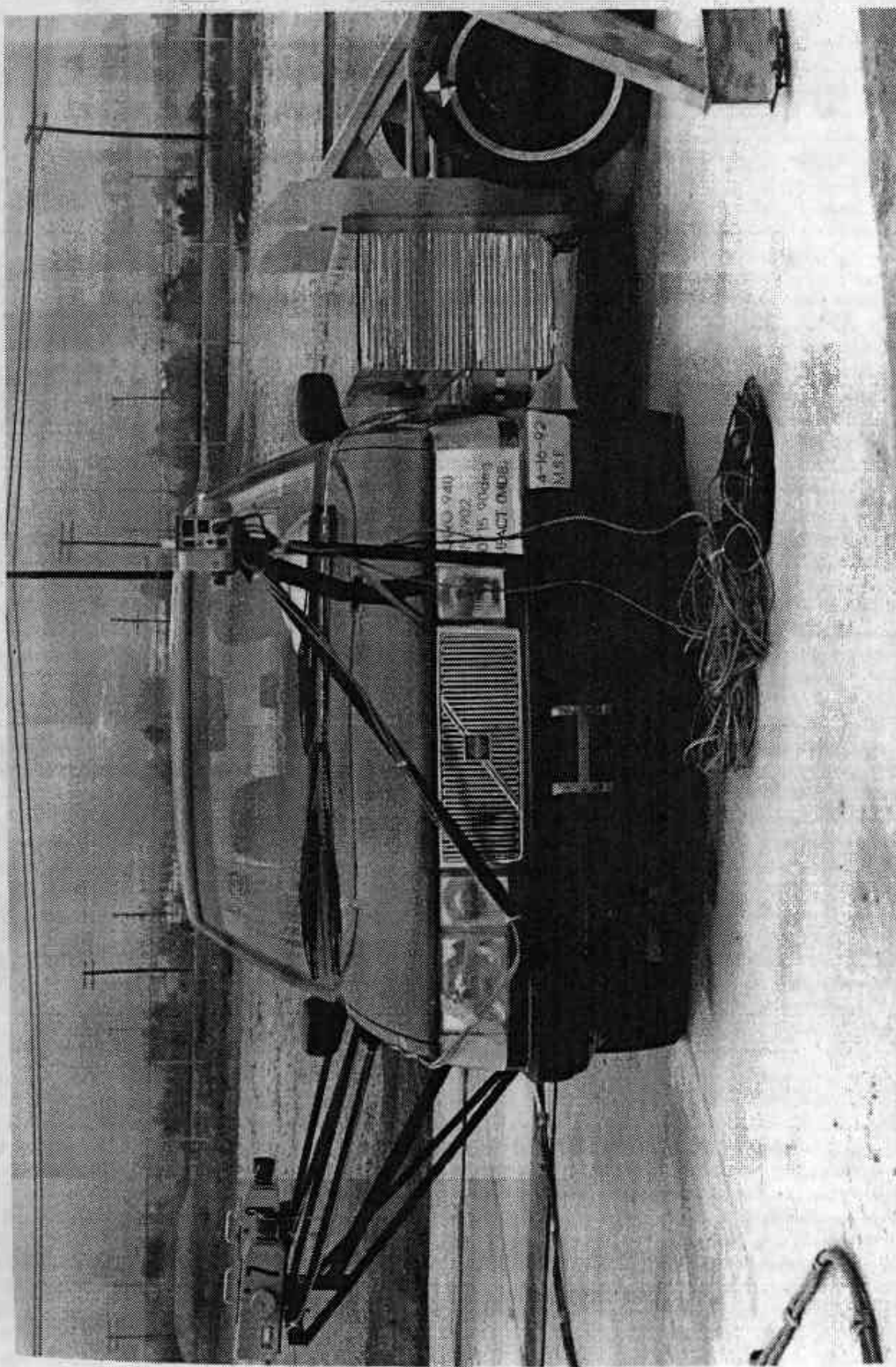


FIGURE 5-1 PRETEST FRONTAL VIEW OF TEST VEHICLE (TARGET VEHICLE)

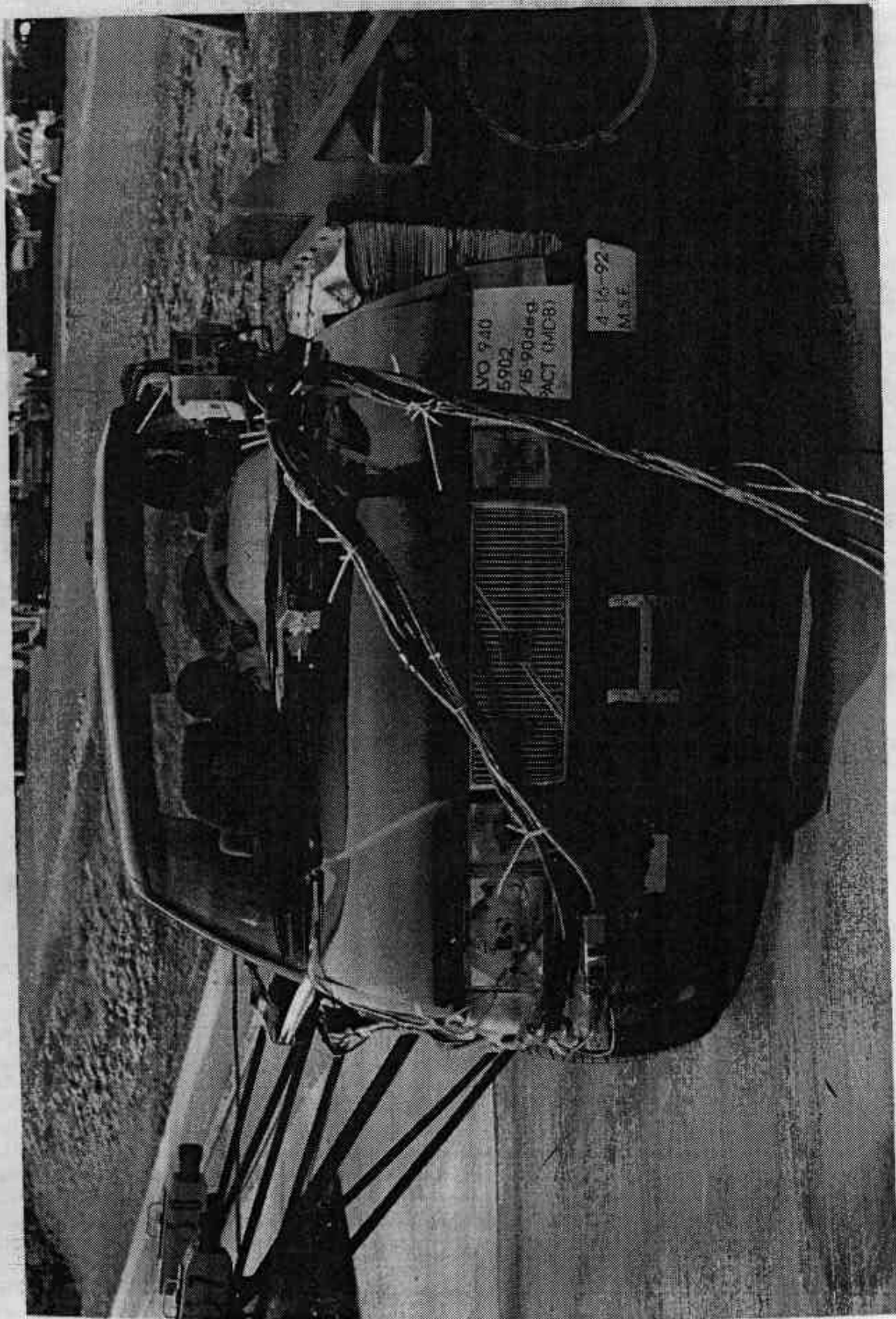


FIGURE 5-2 POSTTEST FRONTAL VIEW OF TEST VEHICLE

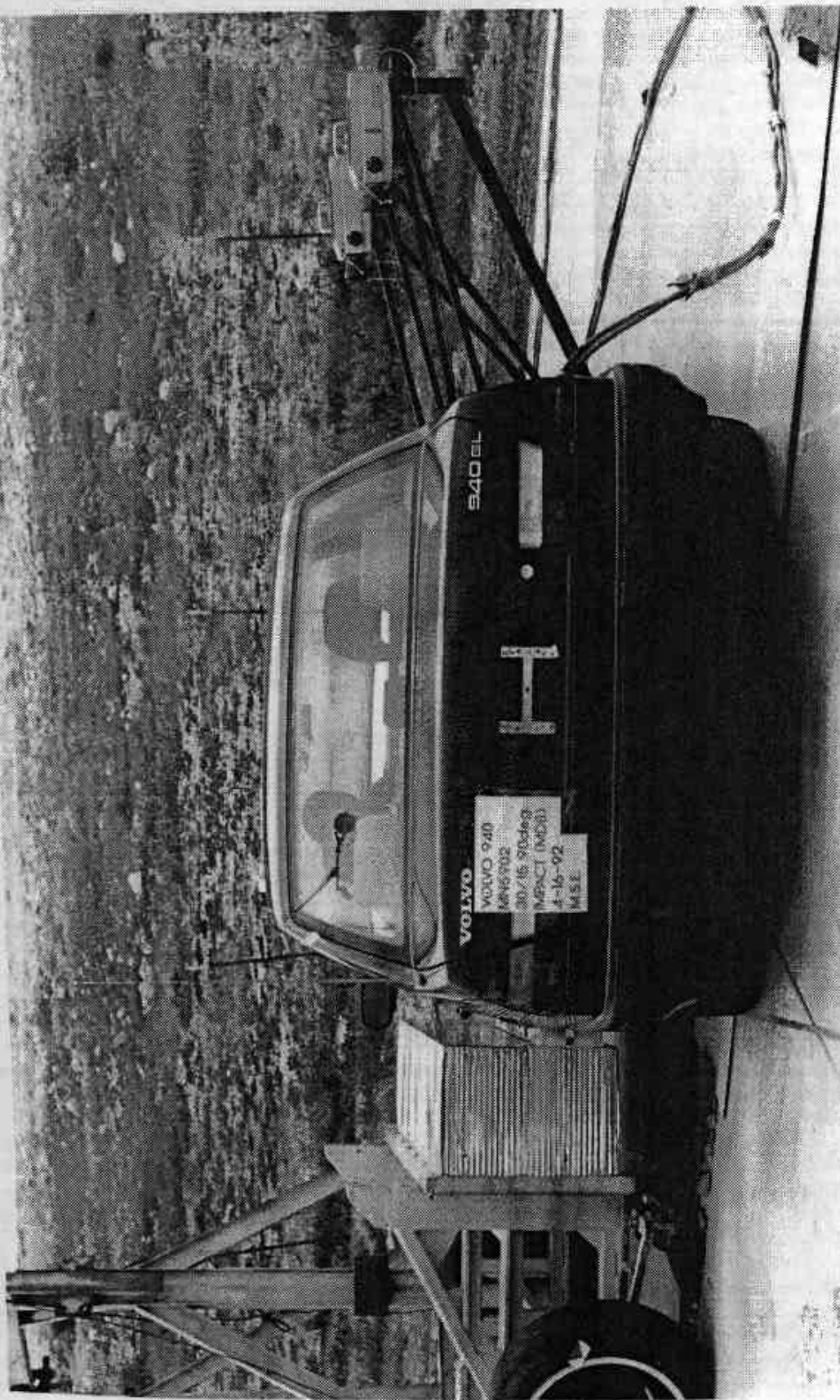


FIGURE 5-3 PRETEST REAR VIEW OF TEST VEHICLE

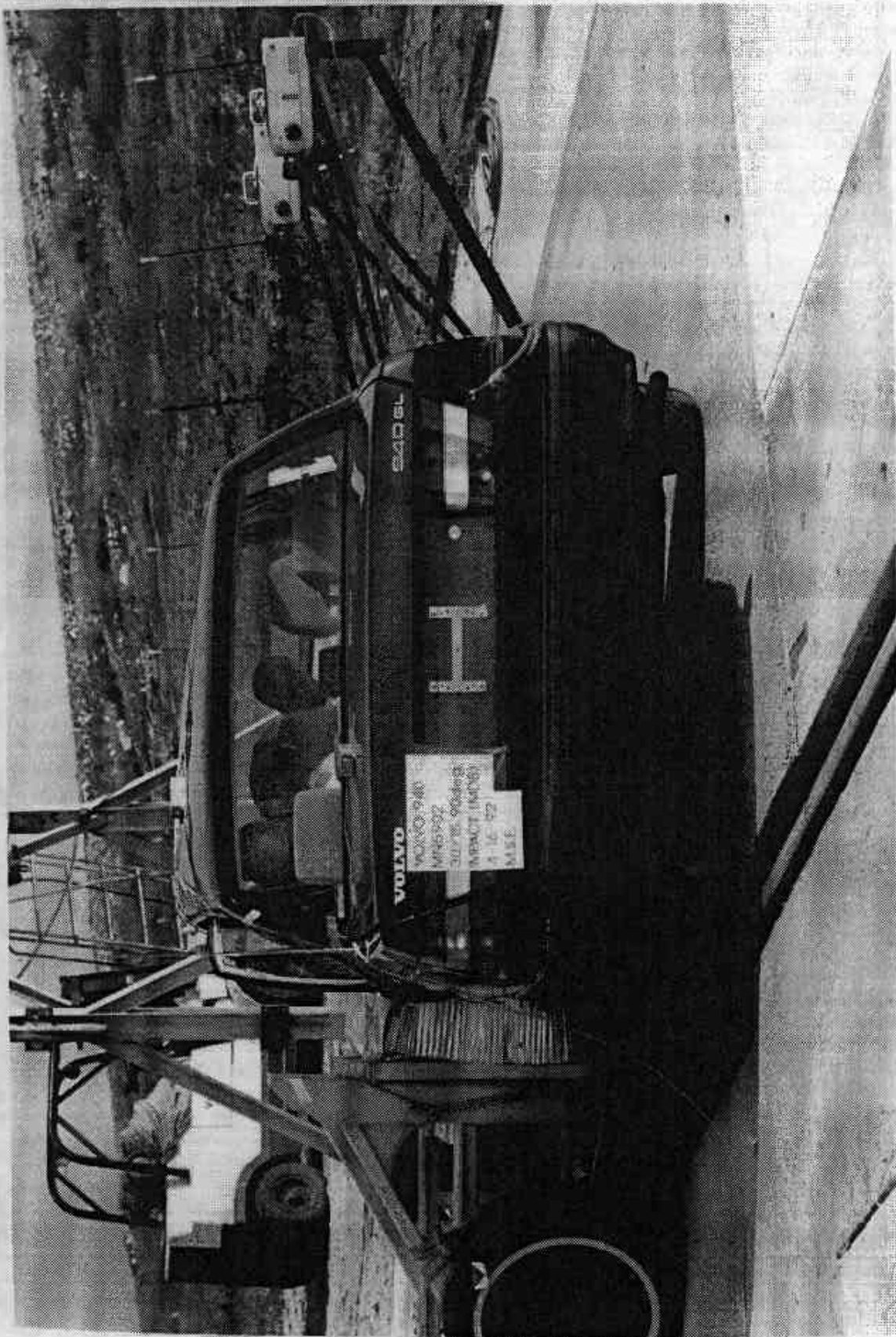


FIGURE 5-4 POSTTEST REAR VIEW OF TEST VEHICLE

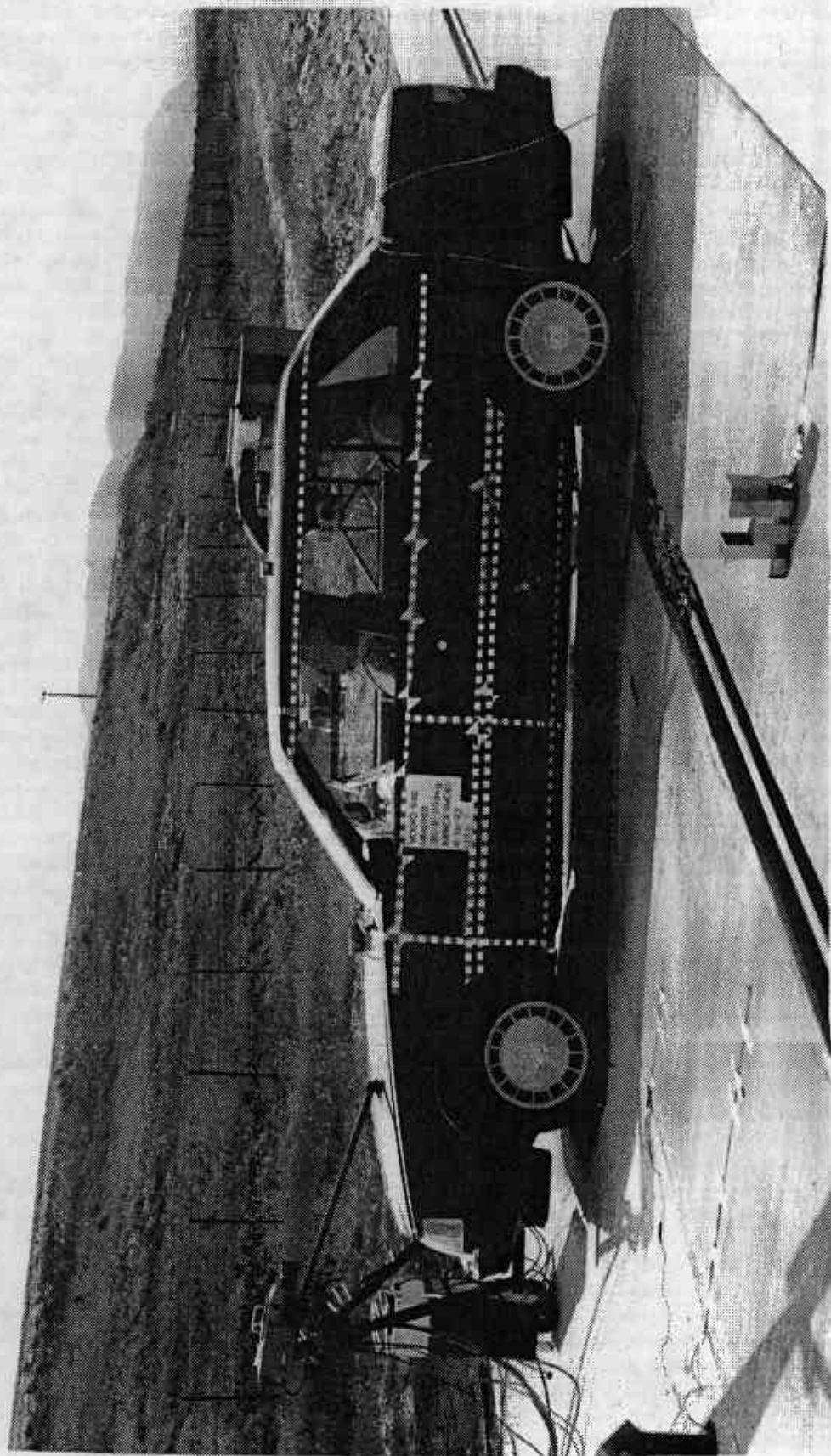


FIGURE 5-5 PRETEST STRUCK SIDE VIEW OF TEST VEHICLE

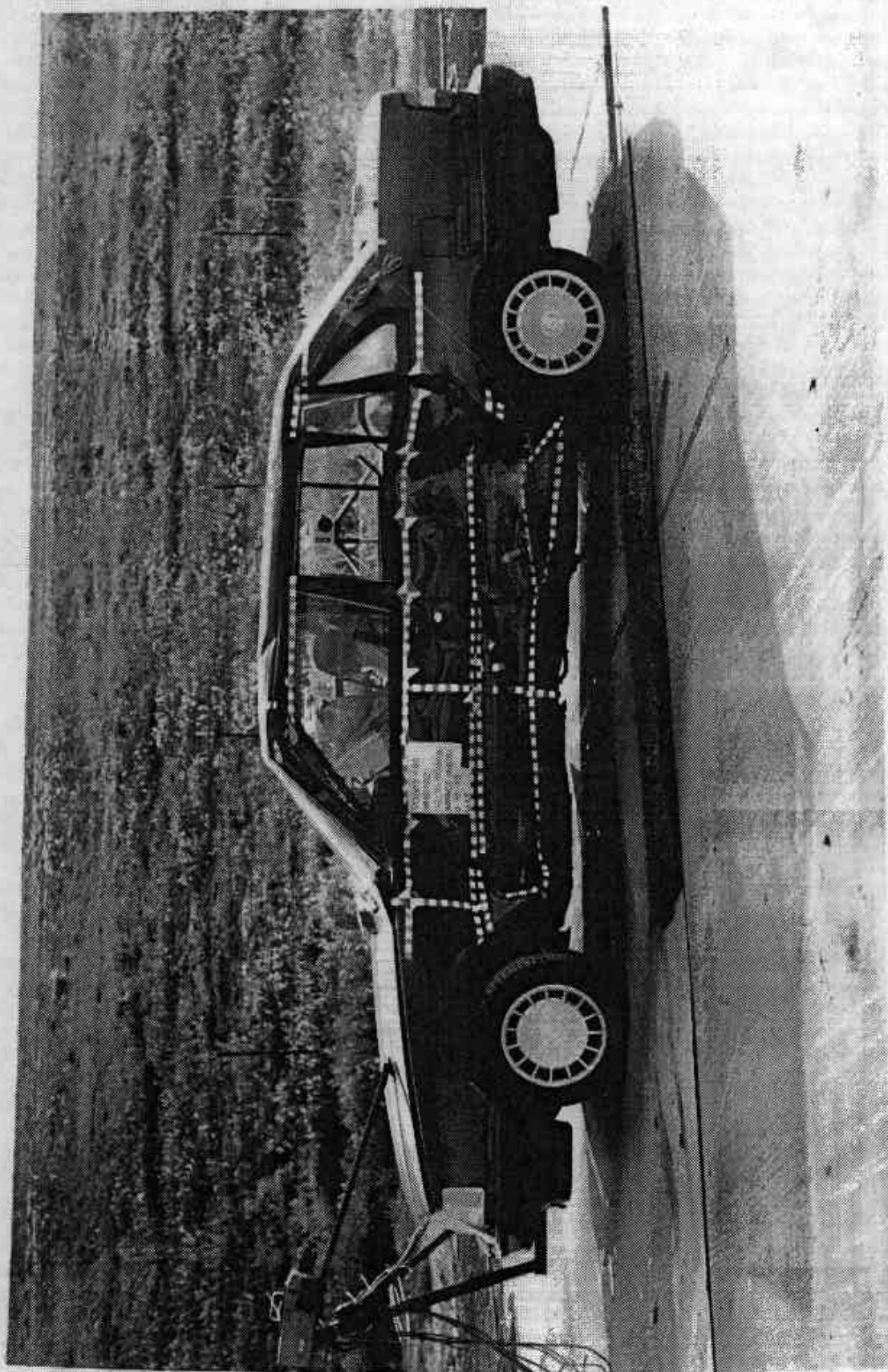


FIGURE 5-6 POSTTEST STRUCK SIDE VIEW OF TEST VEHICLE

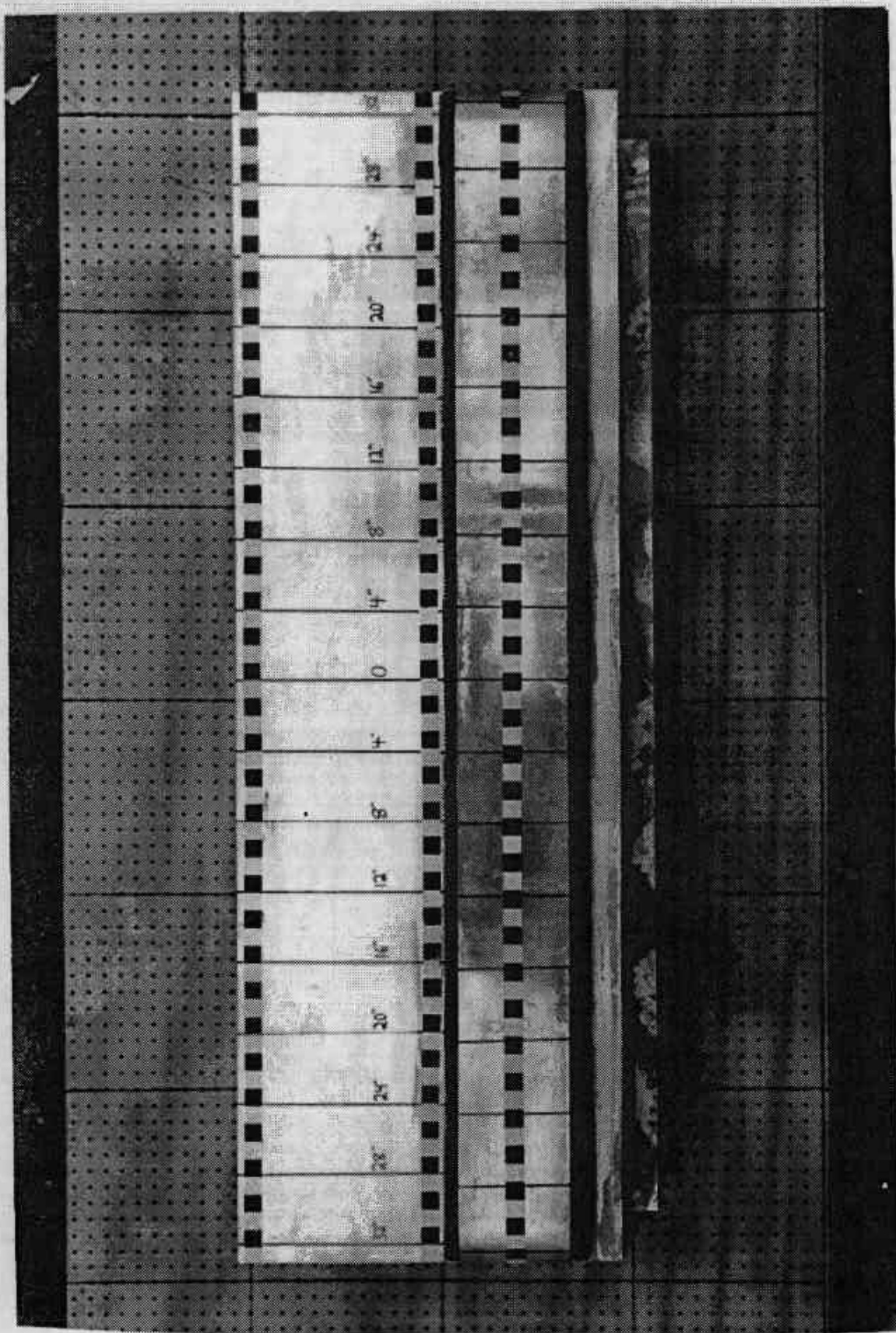


FIGURE 5-7 PRETEST FRONTAL VIEW OF MDB IMPACT FACE

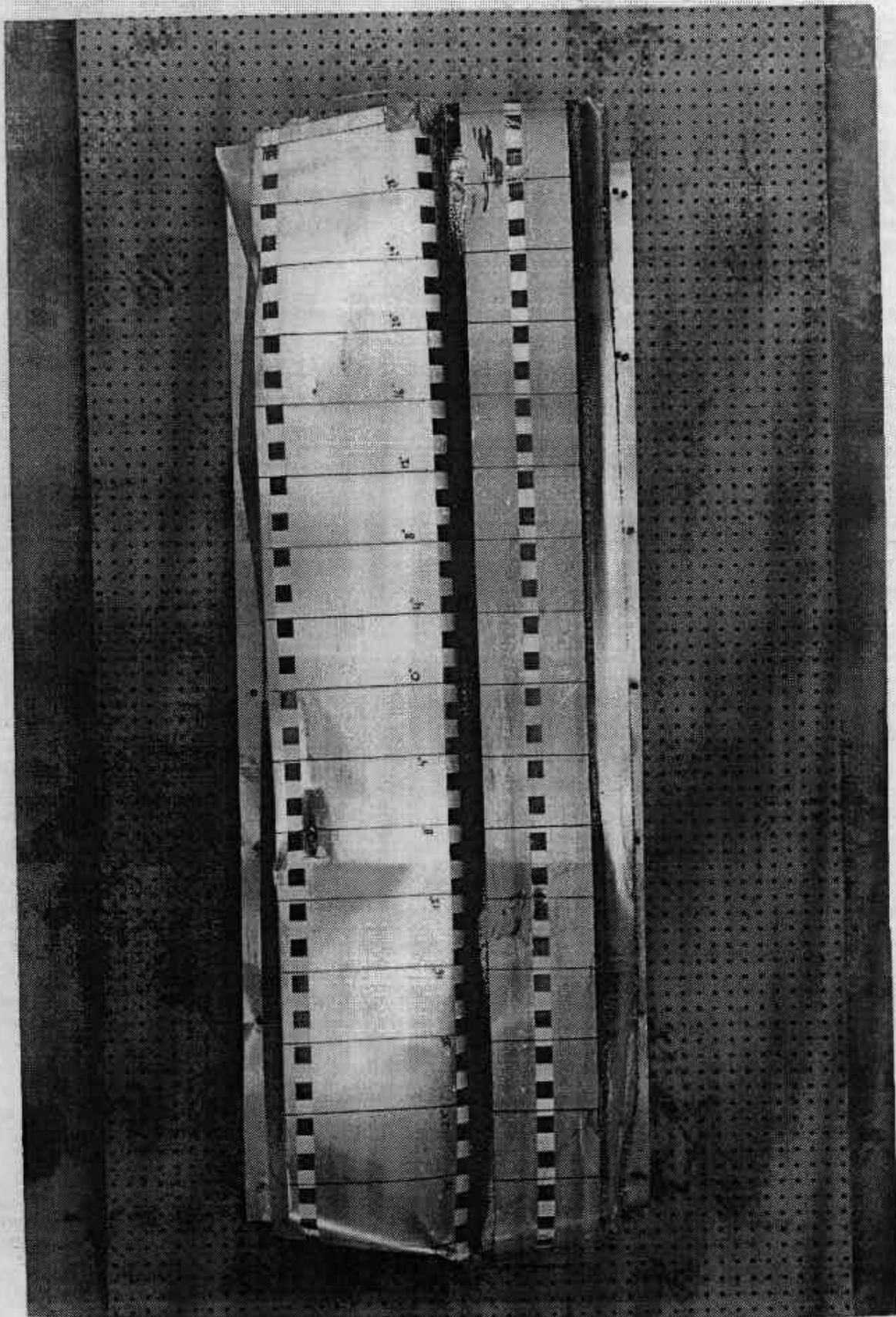


FIGURE 5-8 POSTTEST FRONTAL VIEW OF MDB IMPACT FACE

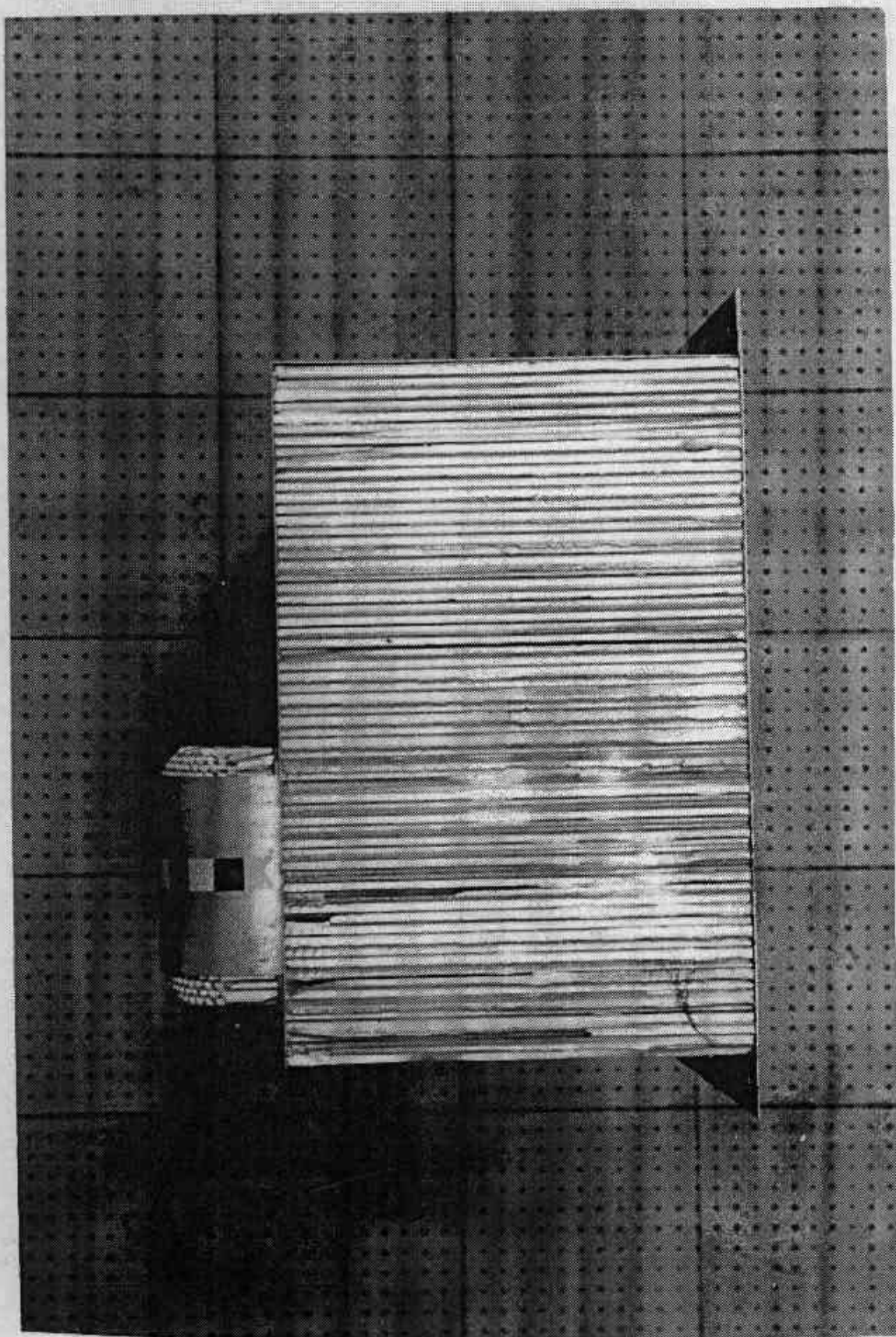


FIGURE 5-9 PRETEST LEFT SIDE VIEW OF MDB IMPACT FACE



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

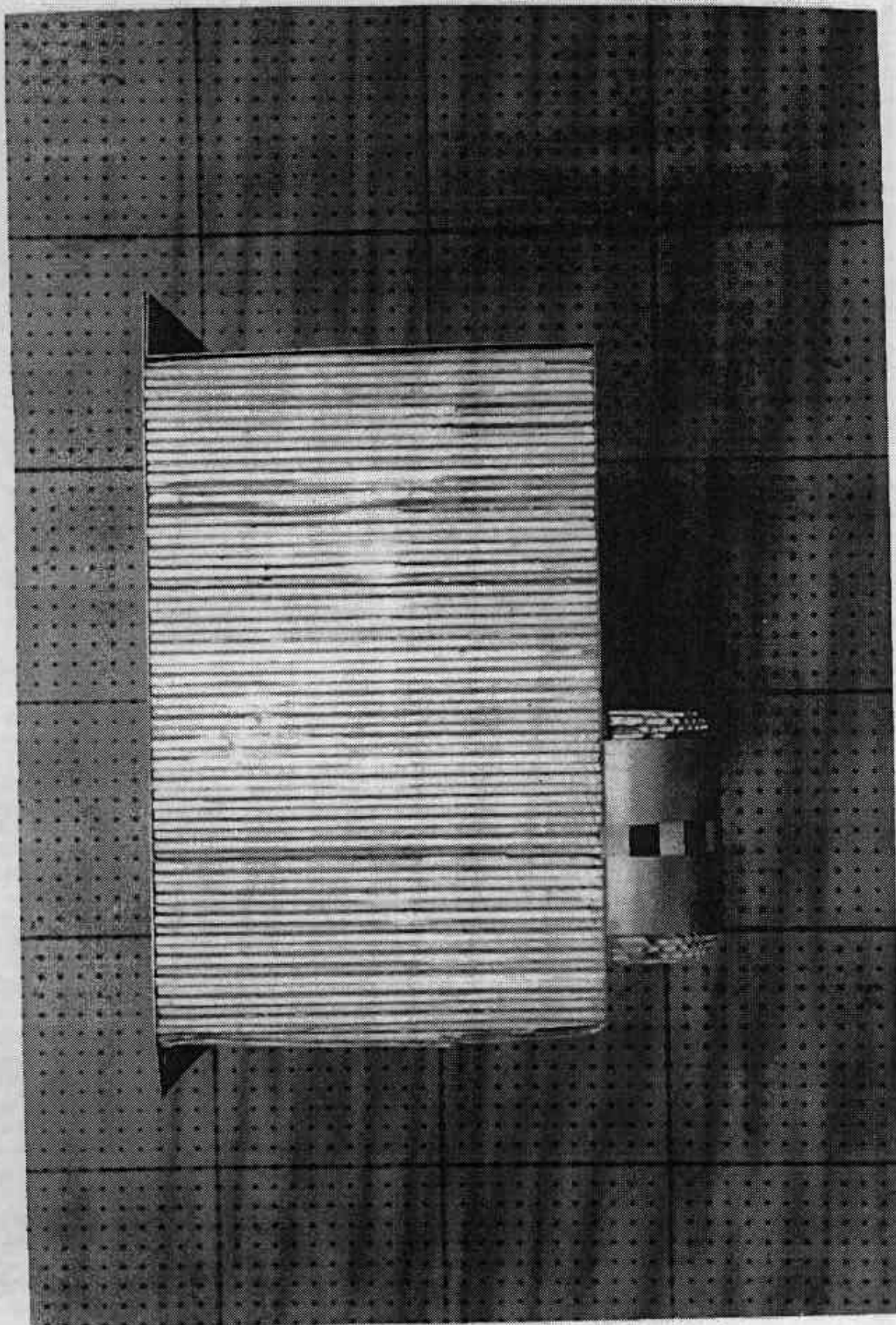


FIGURE 5-11 PRETEST RIGHT SIDE VIEW OF MDB IMPACT FACE

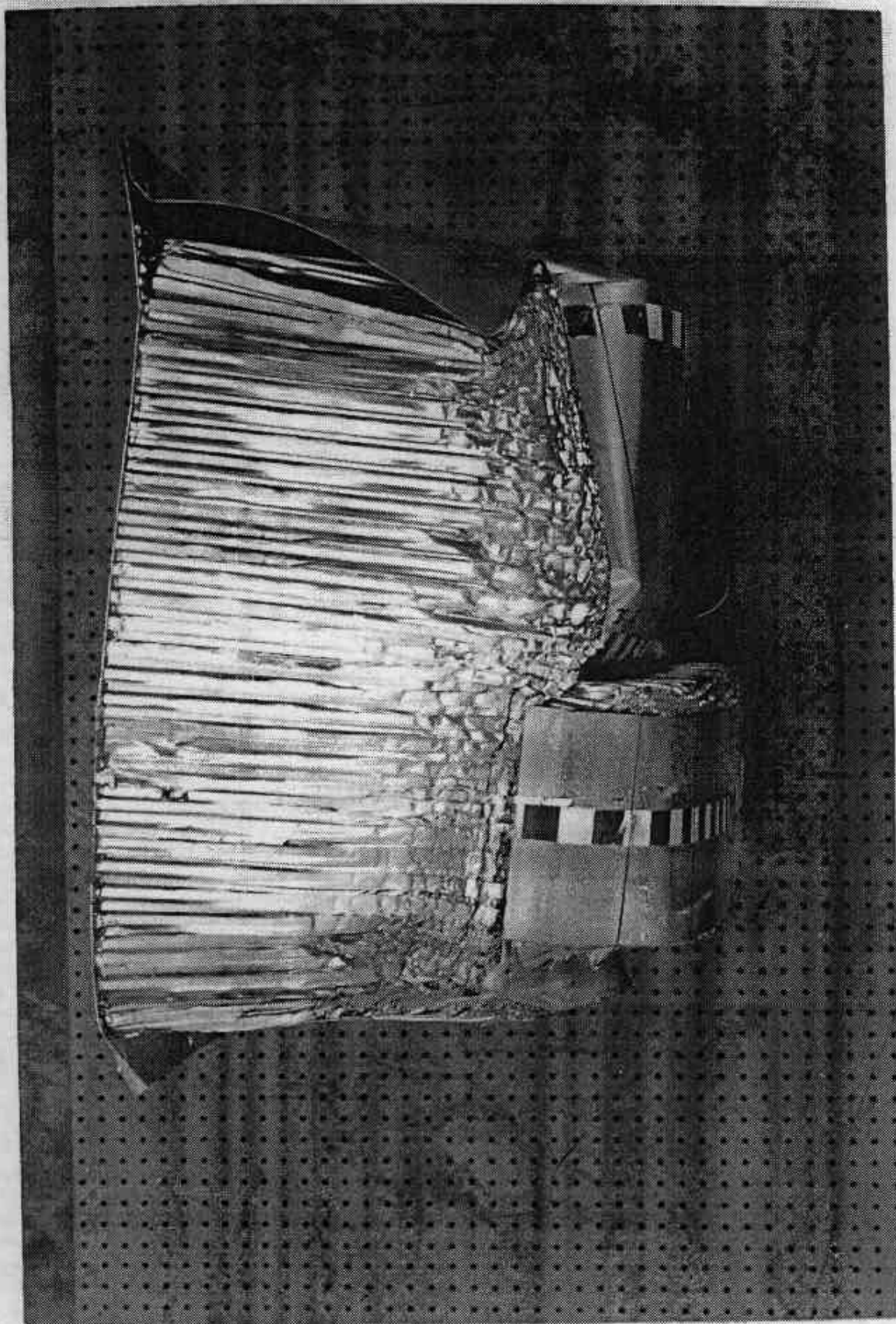


FIGURE 5-12 POSTTEST RIGHT SIDE VIEW OF MDB IMPACT FACE

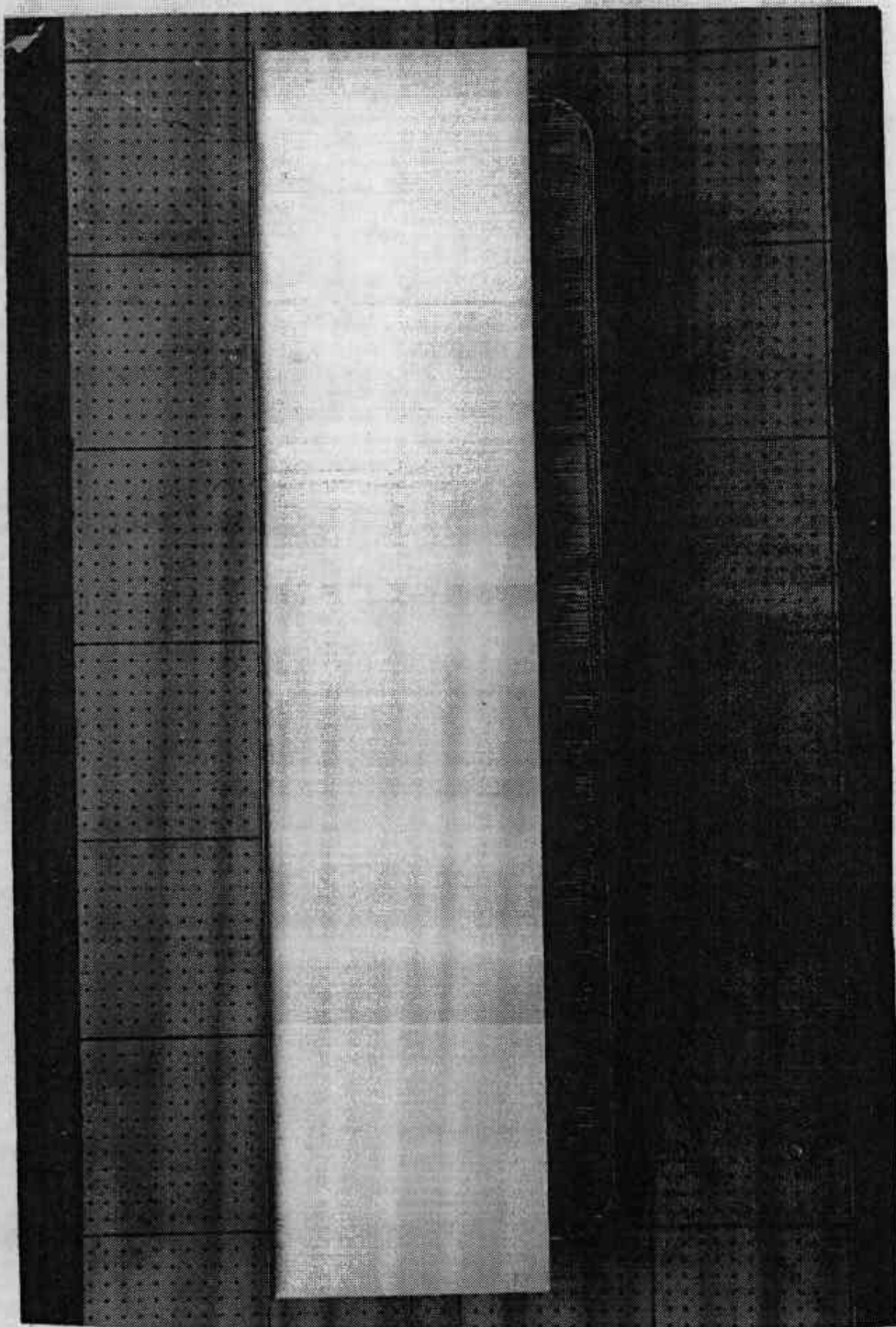


FIGURE 5-13 PRETEST TOP VIEW OF MDB IMPACT FACE

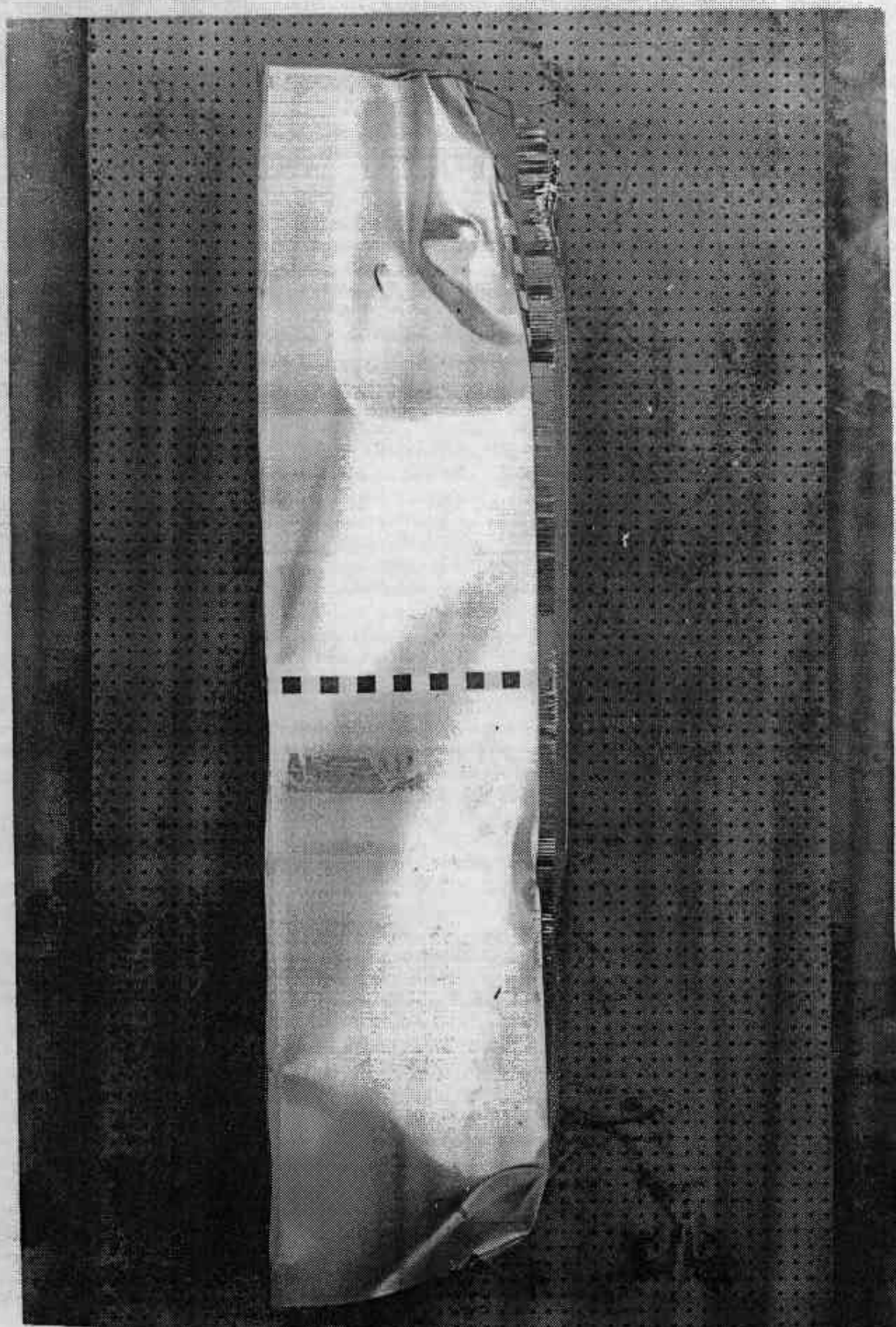


FIGURE 5-14 POSTTEST TOP VIEW OF MDB IMPACT FACE

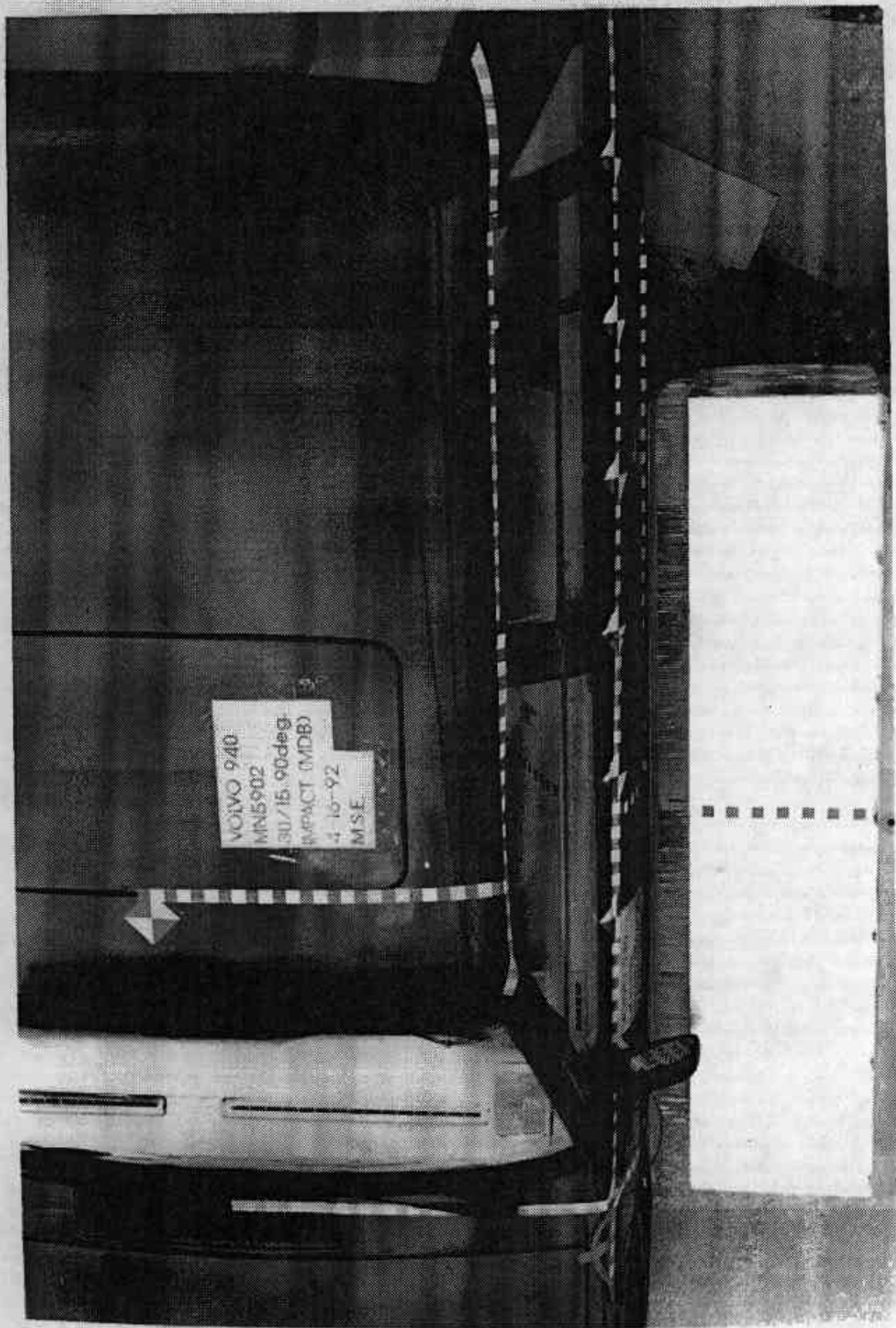


FIGURE 5-15 PRETEST OVERHEAD VIEW OF MDB POSITIONED AGAINST STRUCK SIDE OF TEST VEHICLE AT IMPACT LOCATION



FIGURE 5-16 PRETEST OCCUPANT COMPARTMENT LEFT SIDE SHOWING DRIVER SID

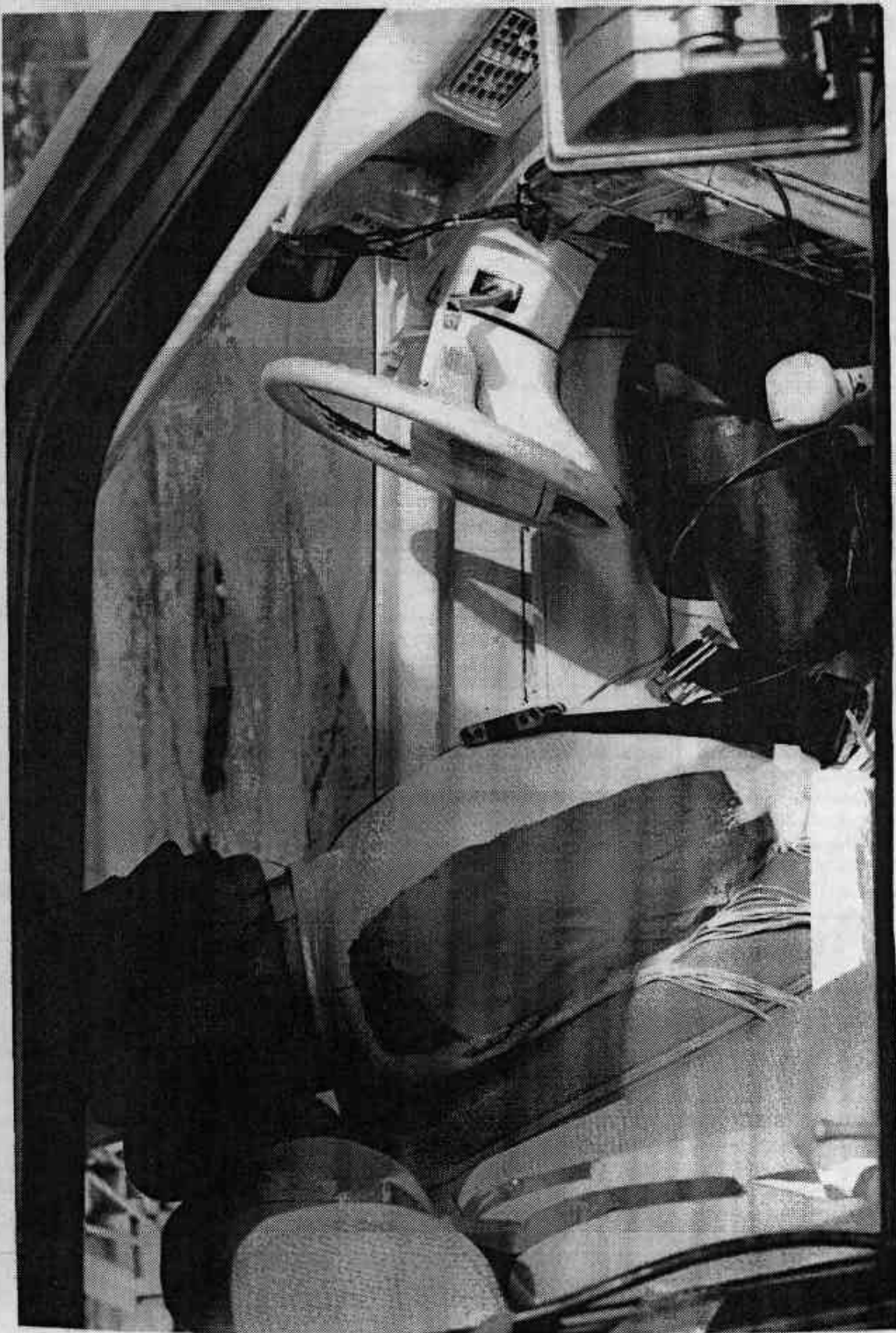


FIGURE 5-17 PRETEST OCCUPANT COMPARTMENT RIGHT SIDE SHOWING DRIVER SID



FIGURE 5-18 POSTTEST OCCUPANT COMPARTMENT DRIVER SID

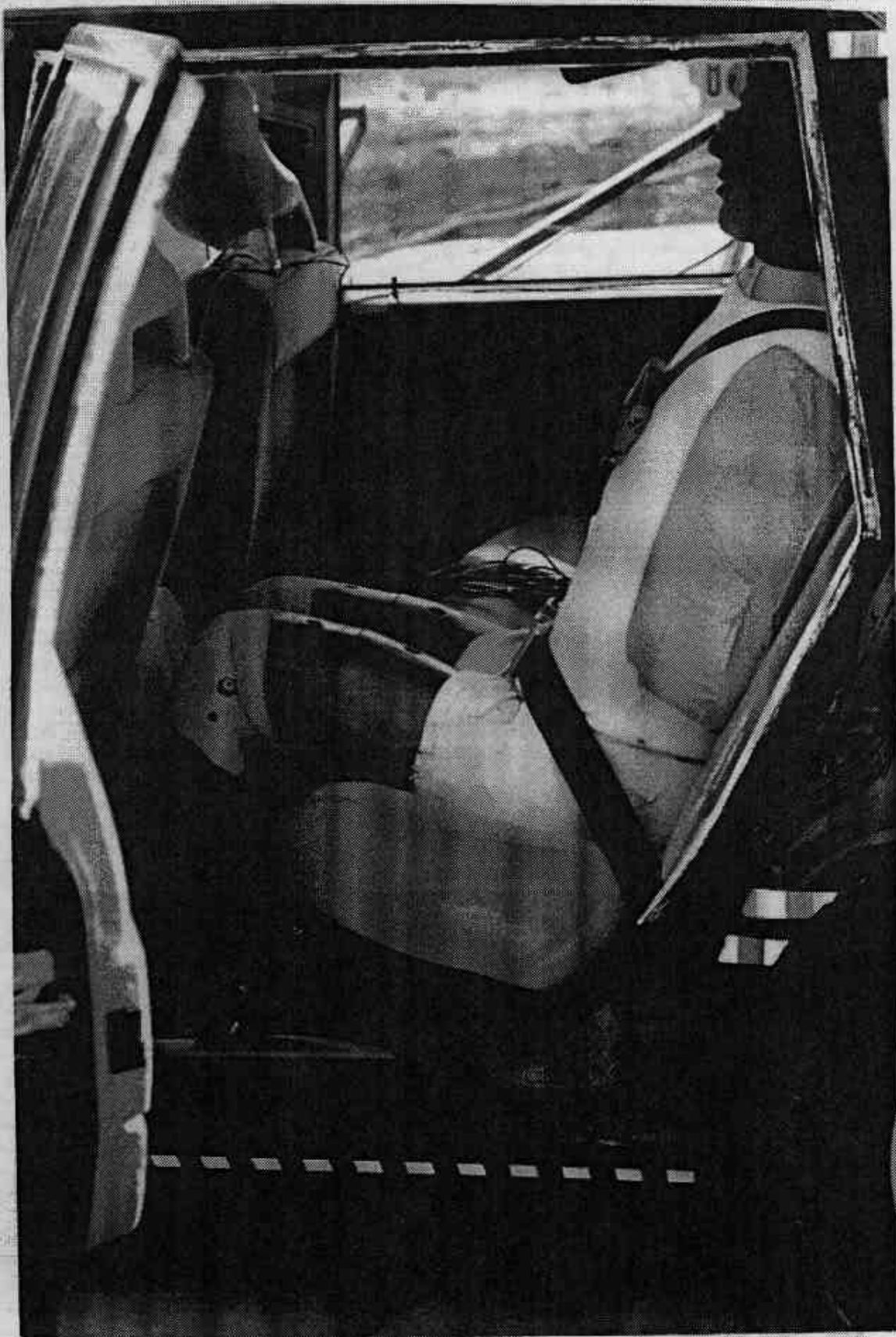


FIGURE 5-19 PRETEST OCCUPANT COMPARTMENT LEFT SIDE VIEW SHOWING
PASSENGER SIDE

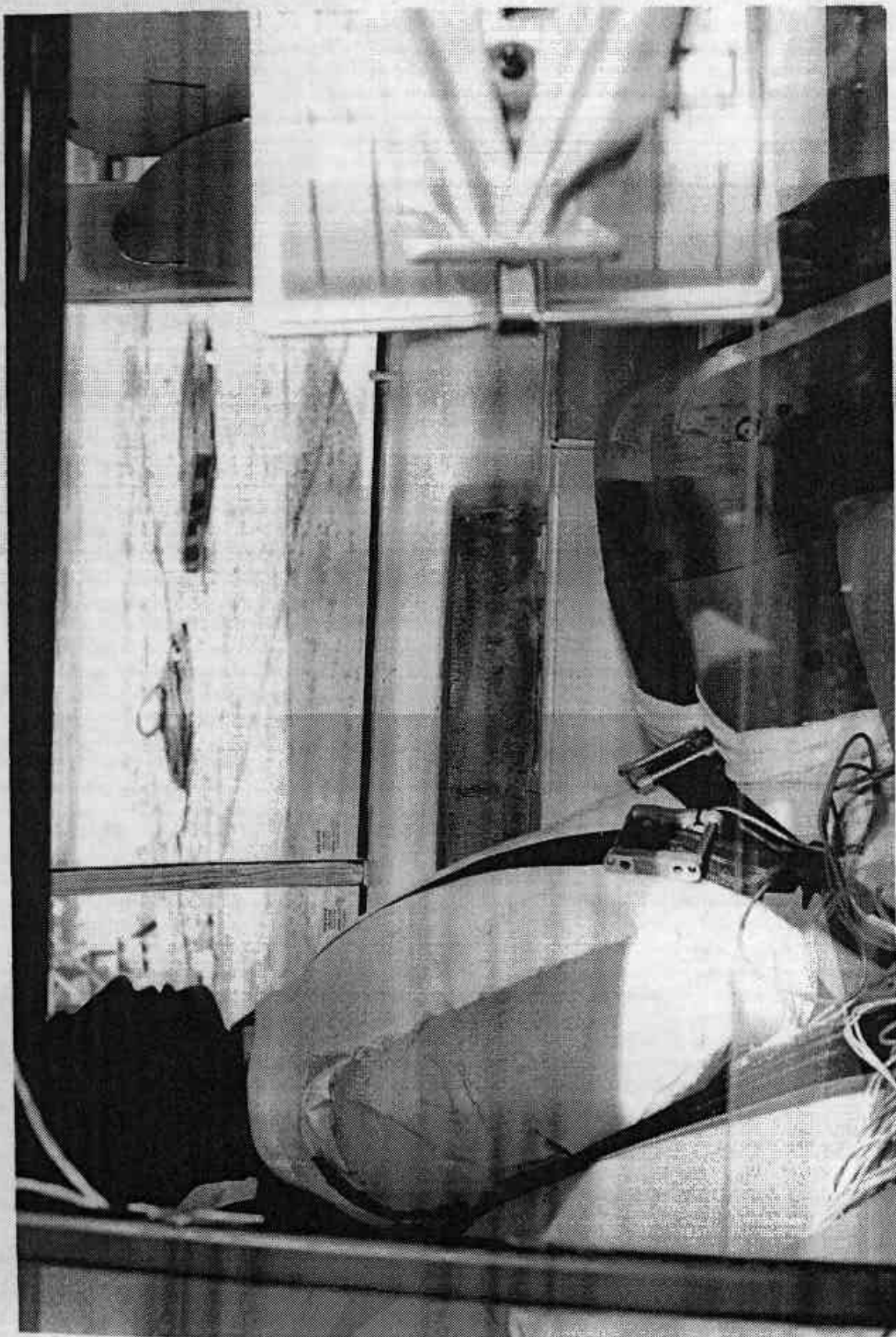


FIGURE 5-20 PRETEST OCCUPANT COMPARTMENT RIGHT SIDE VIEW SHOWING PASSENGER SID

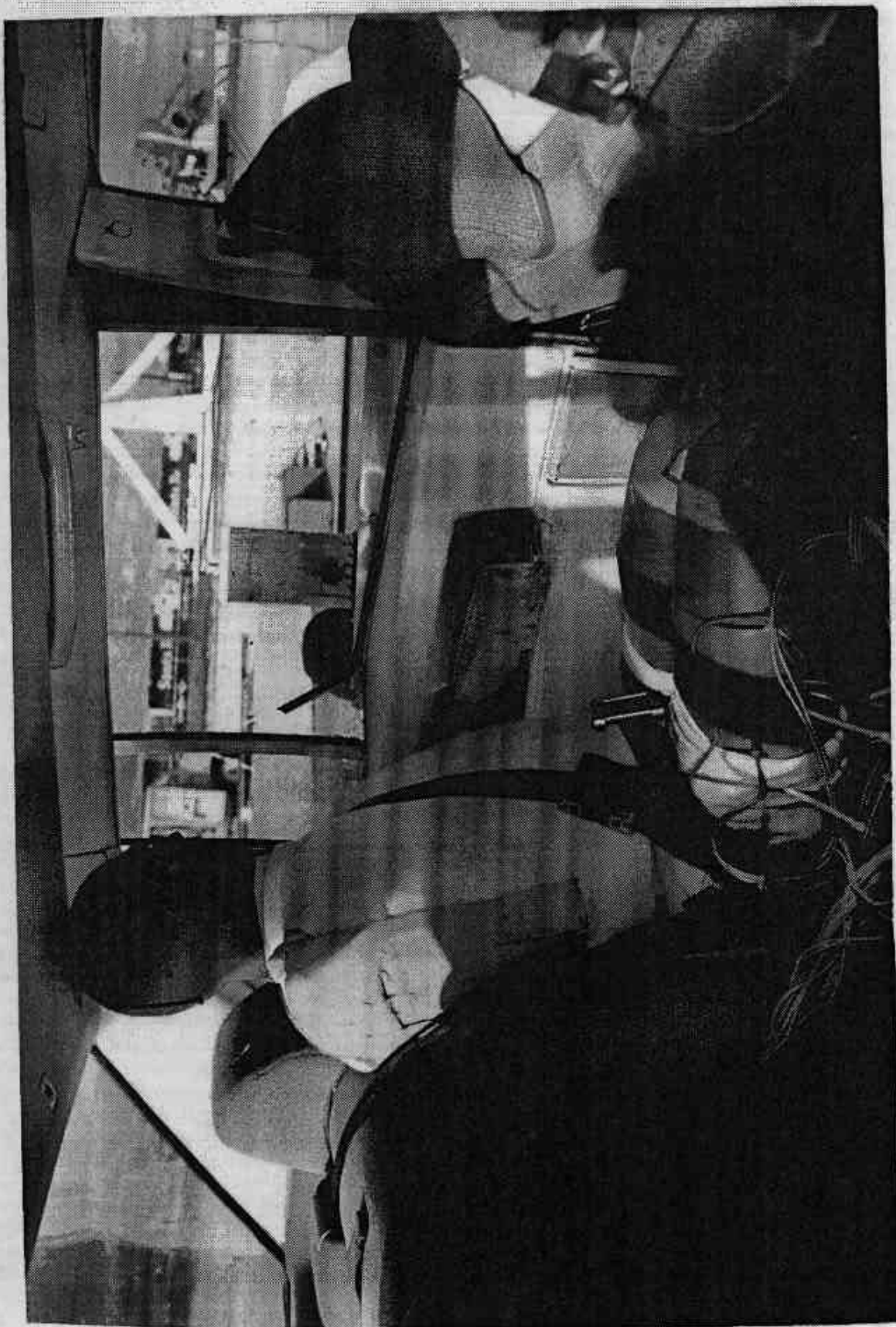


FIGURE 5-21 POSTTEST OCCUPANT COMPARTMENT VIEW SHOWING PASSENGER SIDE

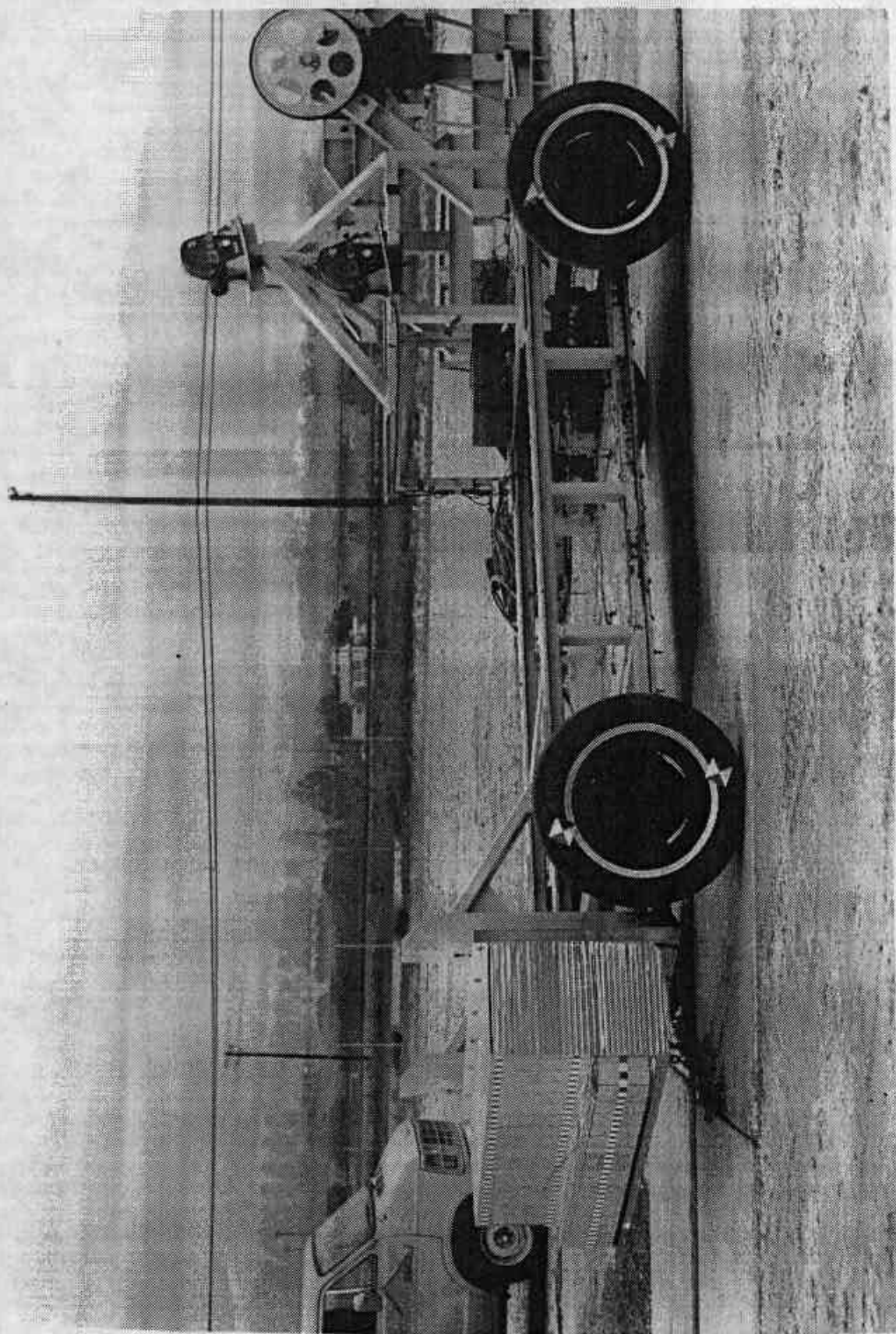


FIGURE 5-22 PRETEST LEFT SIDE VIEW OF MDB WITH IMPACT FACE IN POSITION

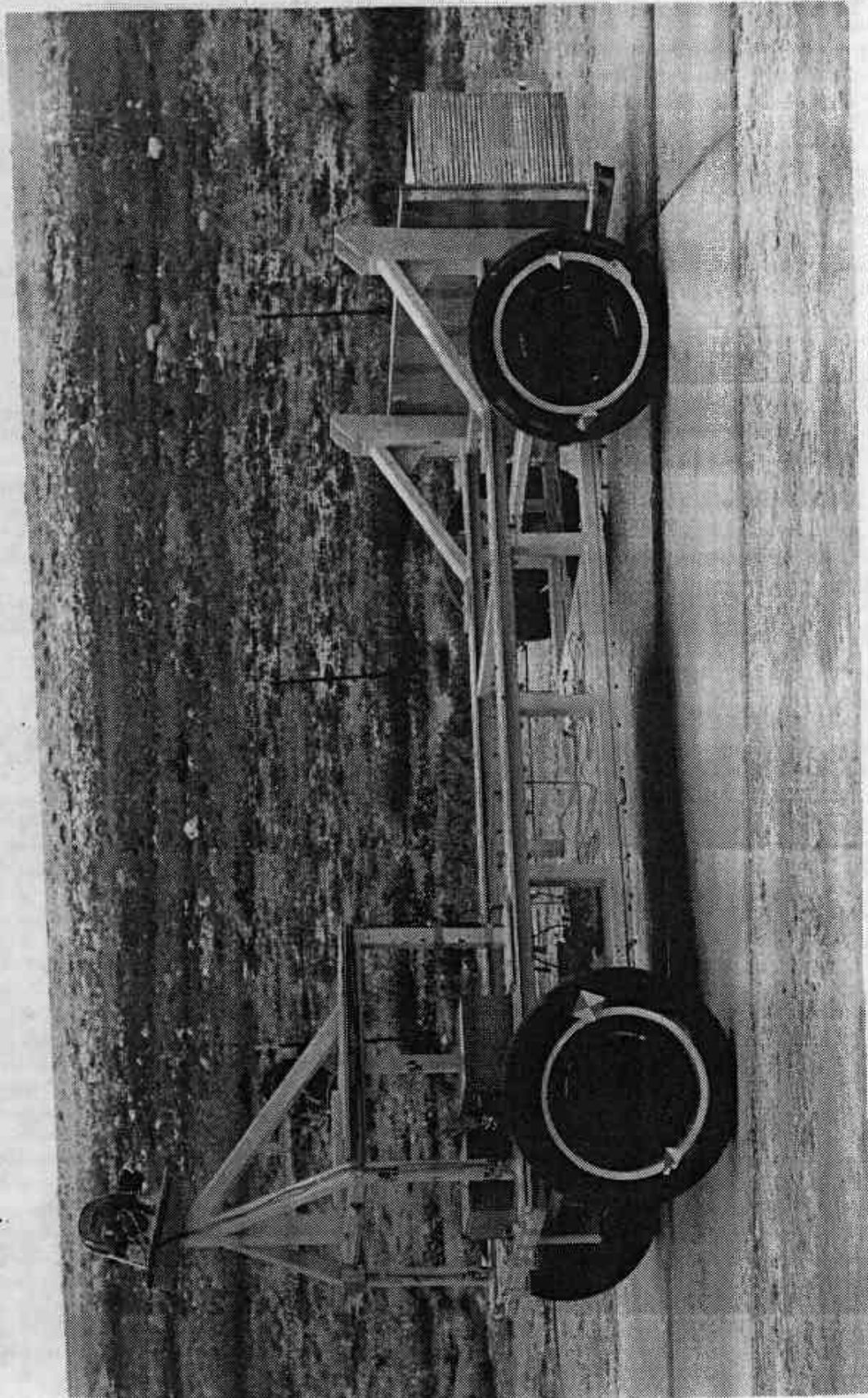


FIGURE 5-23 PRETEST RIGHT SIDE VIEW OF MDB WITH IMPACT FACE IN POSITION

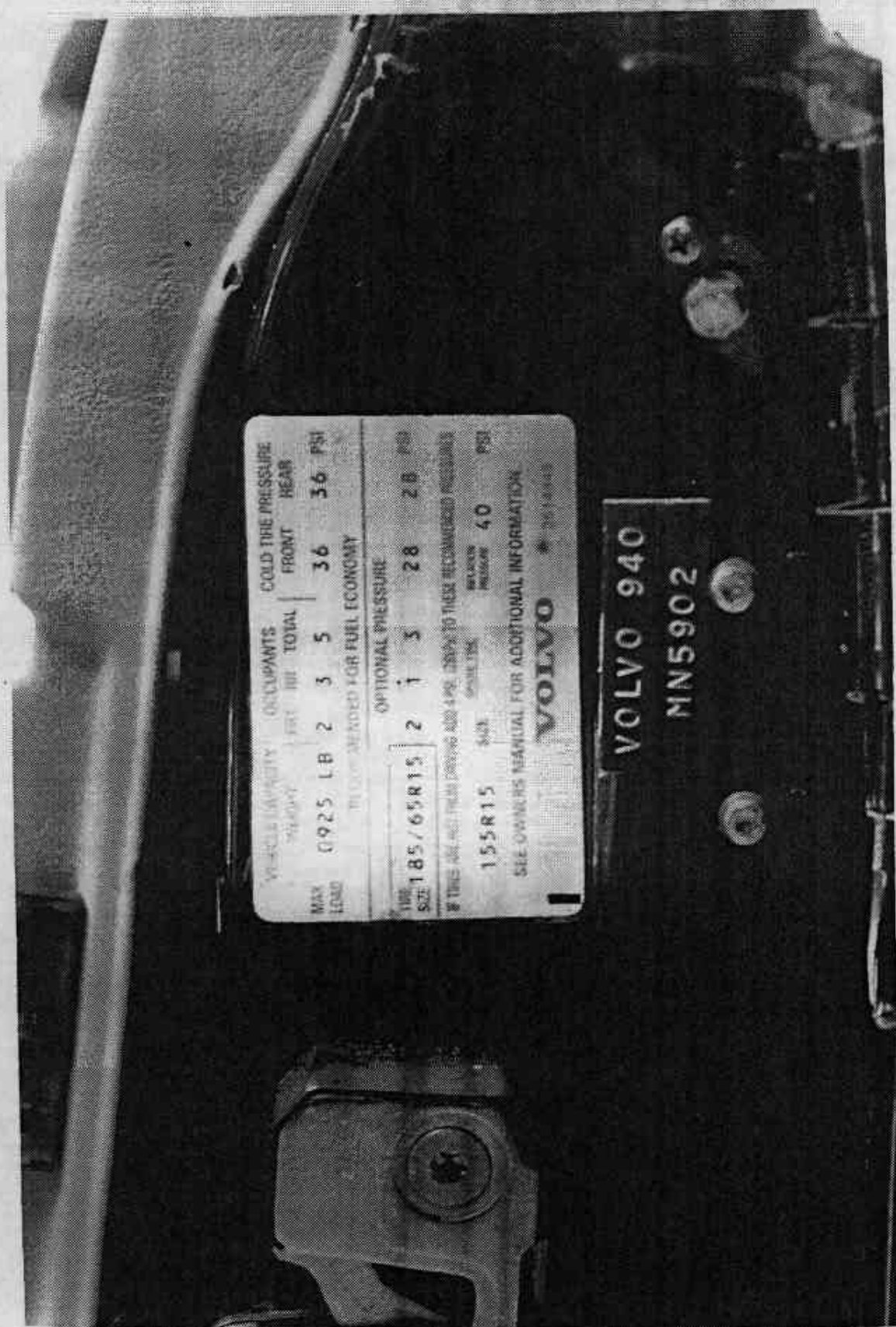


FIGURE 5-24 TEST VEHICLE TIRE PLACARD

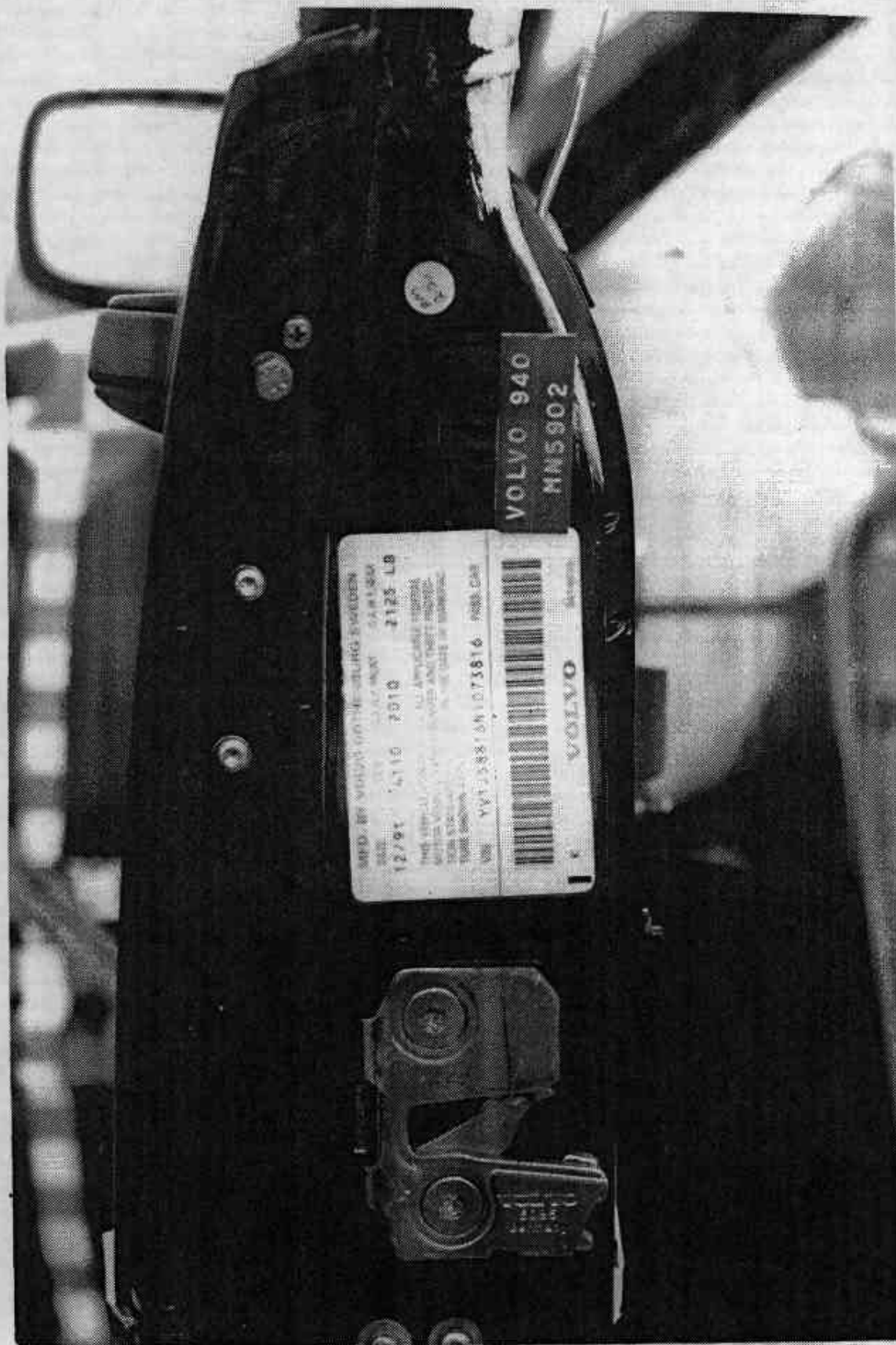


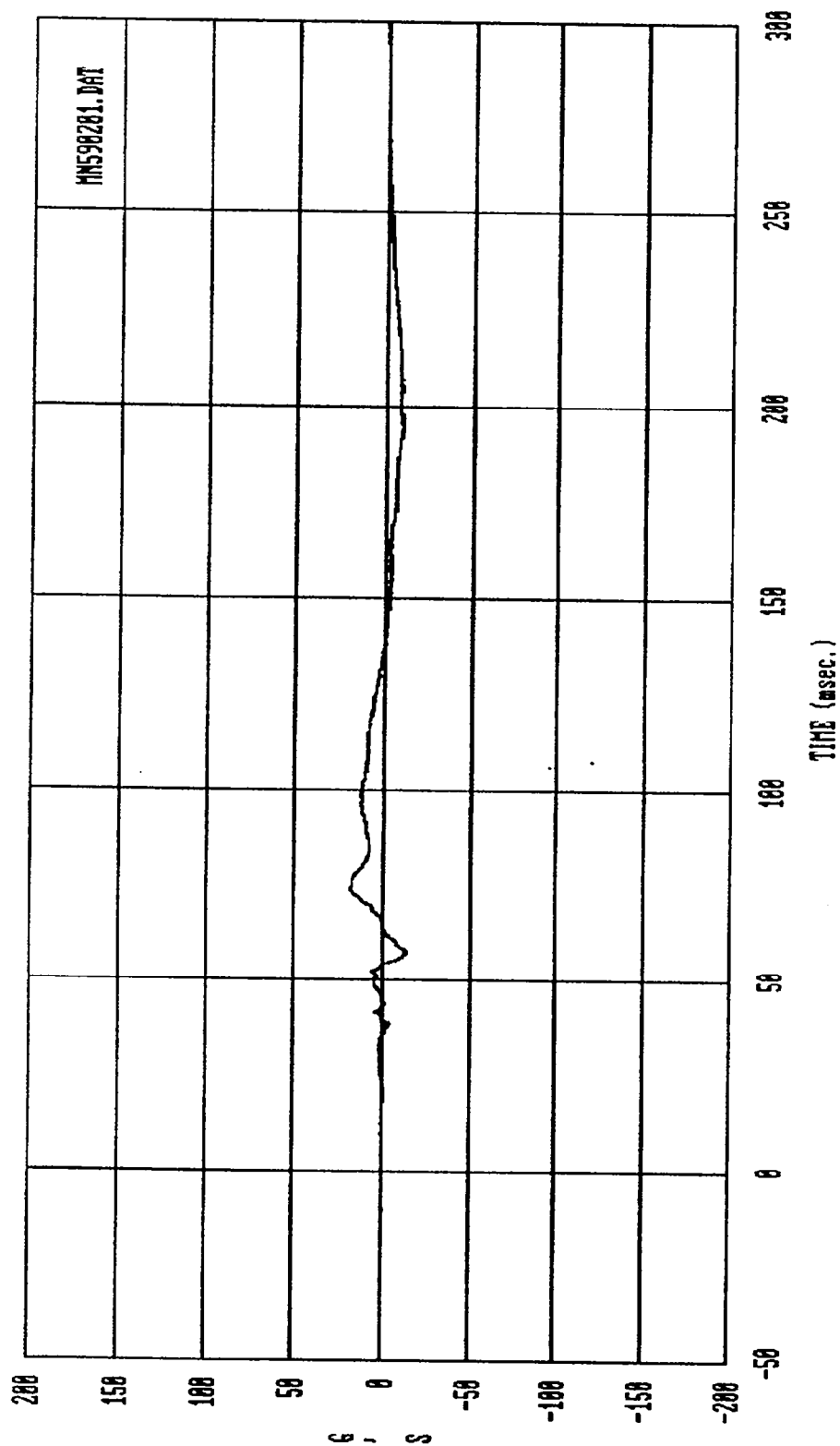
FIGURE 5-25 TEST VEHICLE MANUFACTURER'S CERTIFICATION LABEL

SECTION 6

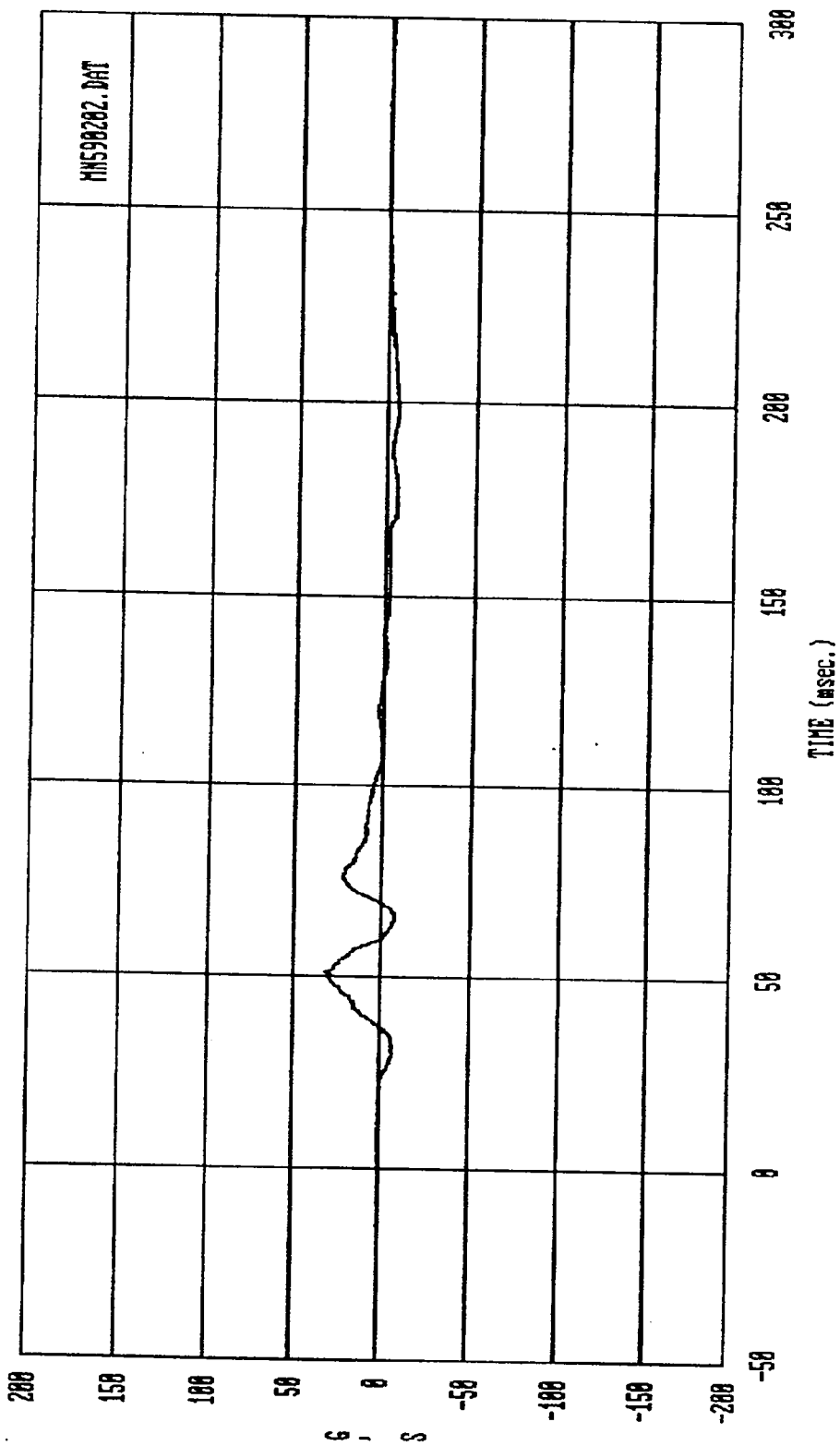
VEHICLE AND SID RESPONSE DATA

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

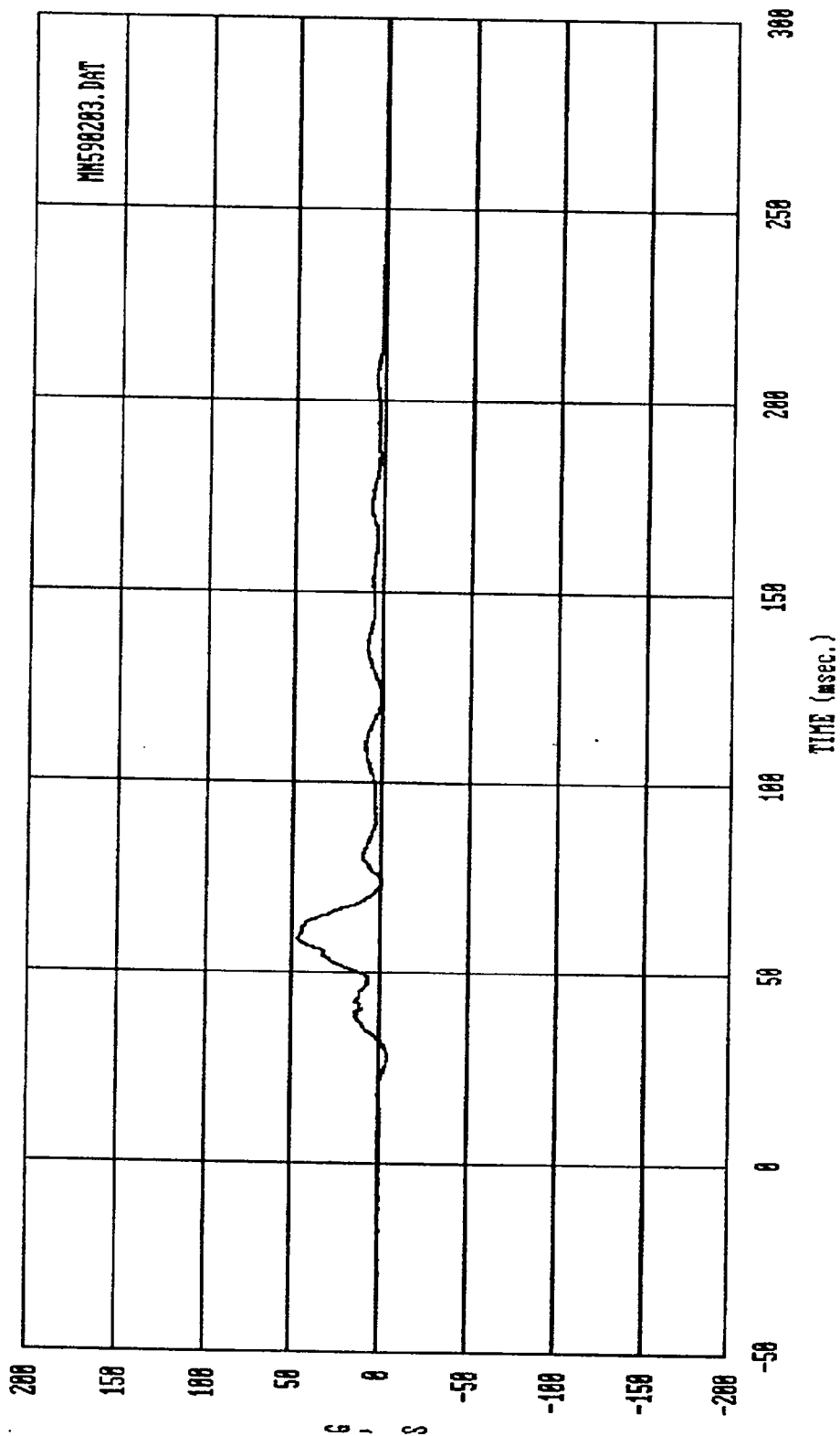
SID DATA



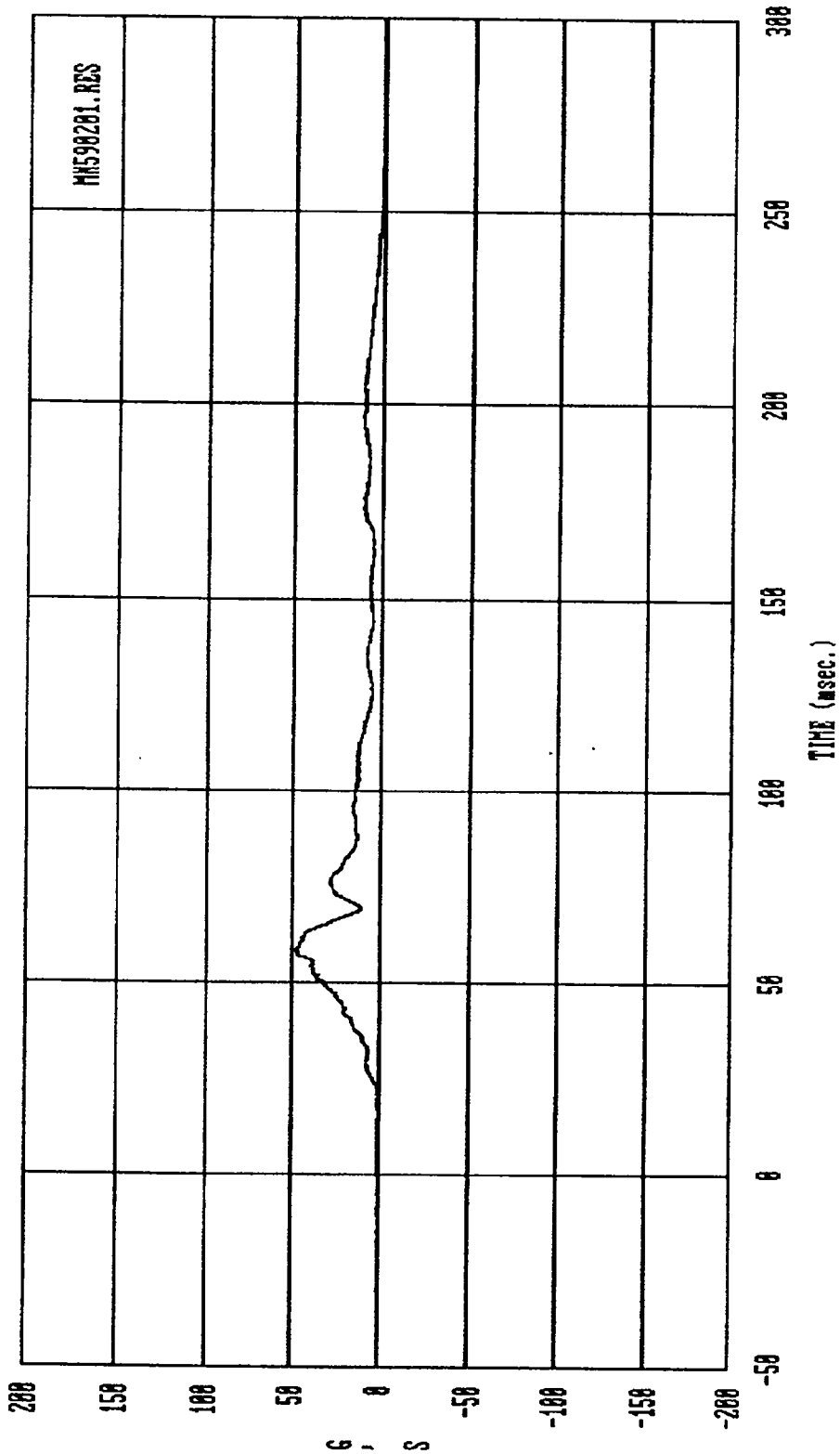
Curve: Driver Head acceleration -- X axis Filter: SAE CLASS 1000 Max = 18.984 Min = -13.225
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Driver Head acceleration -- Y axis Filter: SAE CLASS 1000 Max = 32.241 Min = -7.7878
 HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



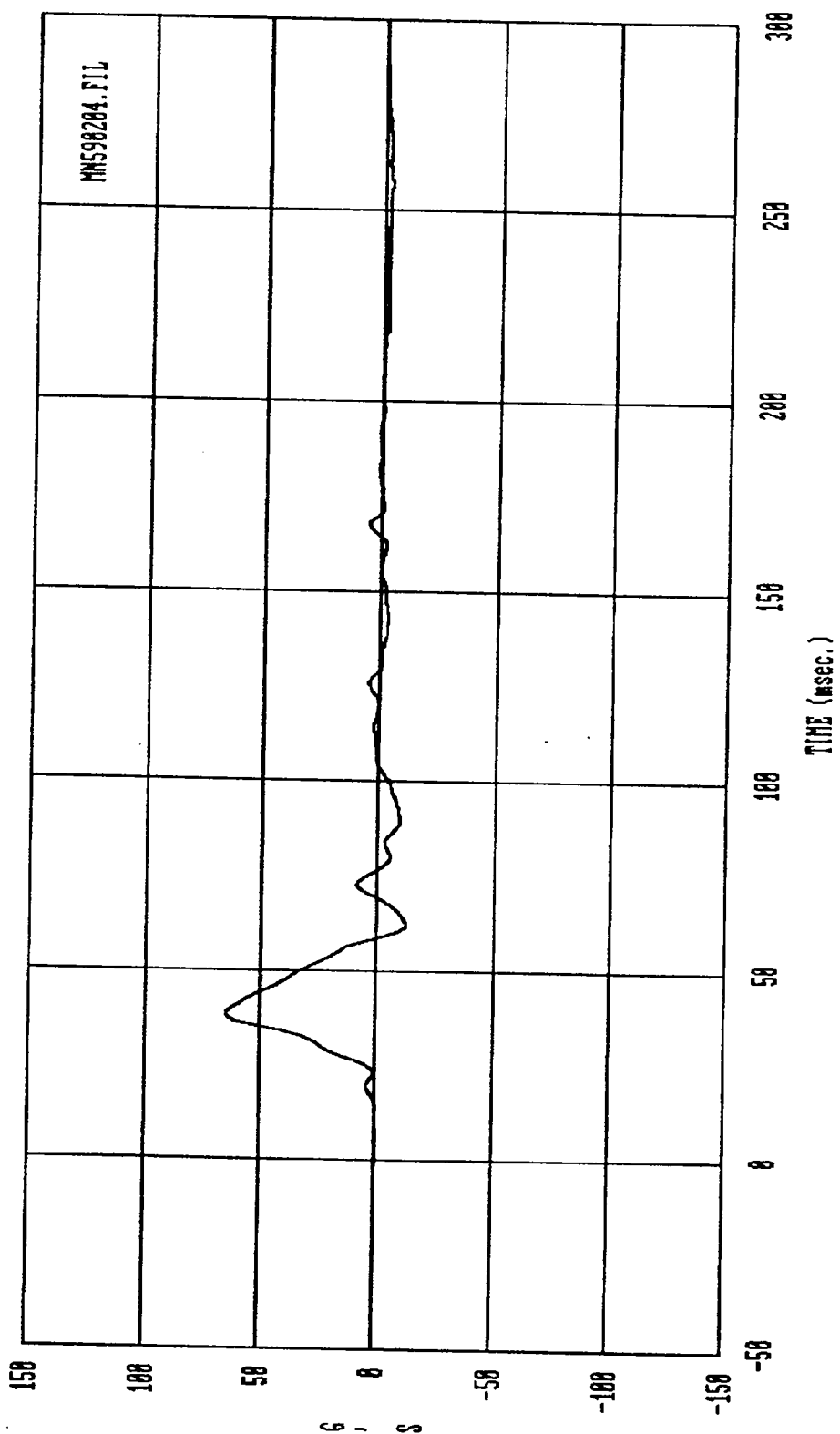
Curve: Driver Head acceleration — Z axis Filter: SAE CLASS 1000 Max = 46.941 Min = -4.5371
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Driver head resultant acceleration

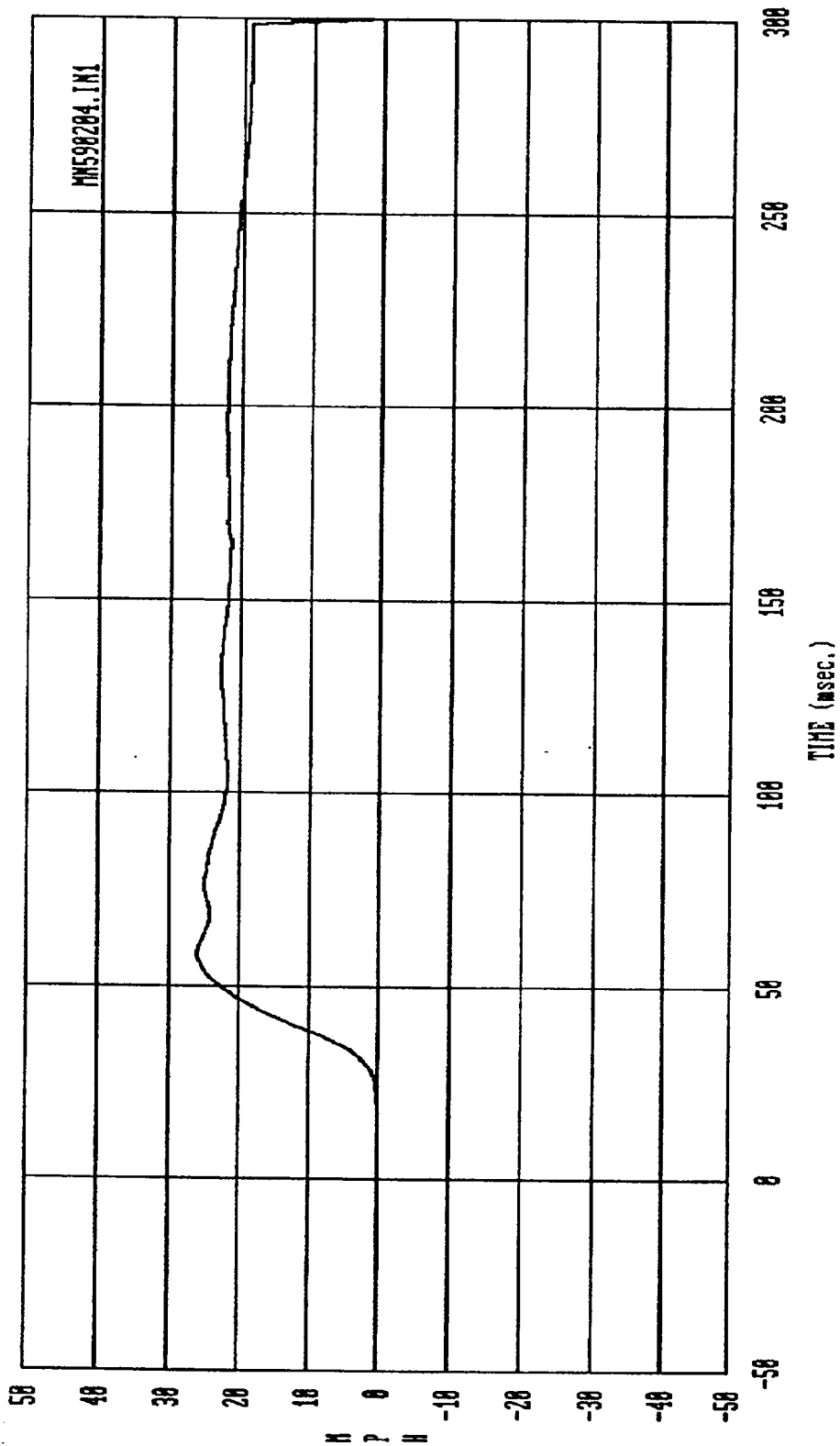
Filter: SAE CLASS 1000 Max = 48.384 Min = .00000

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



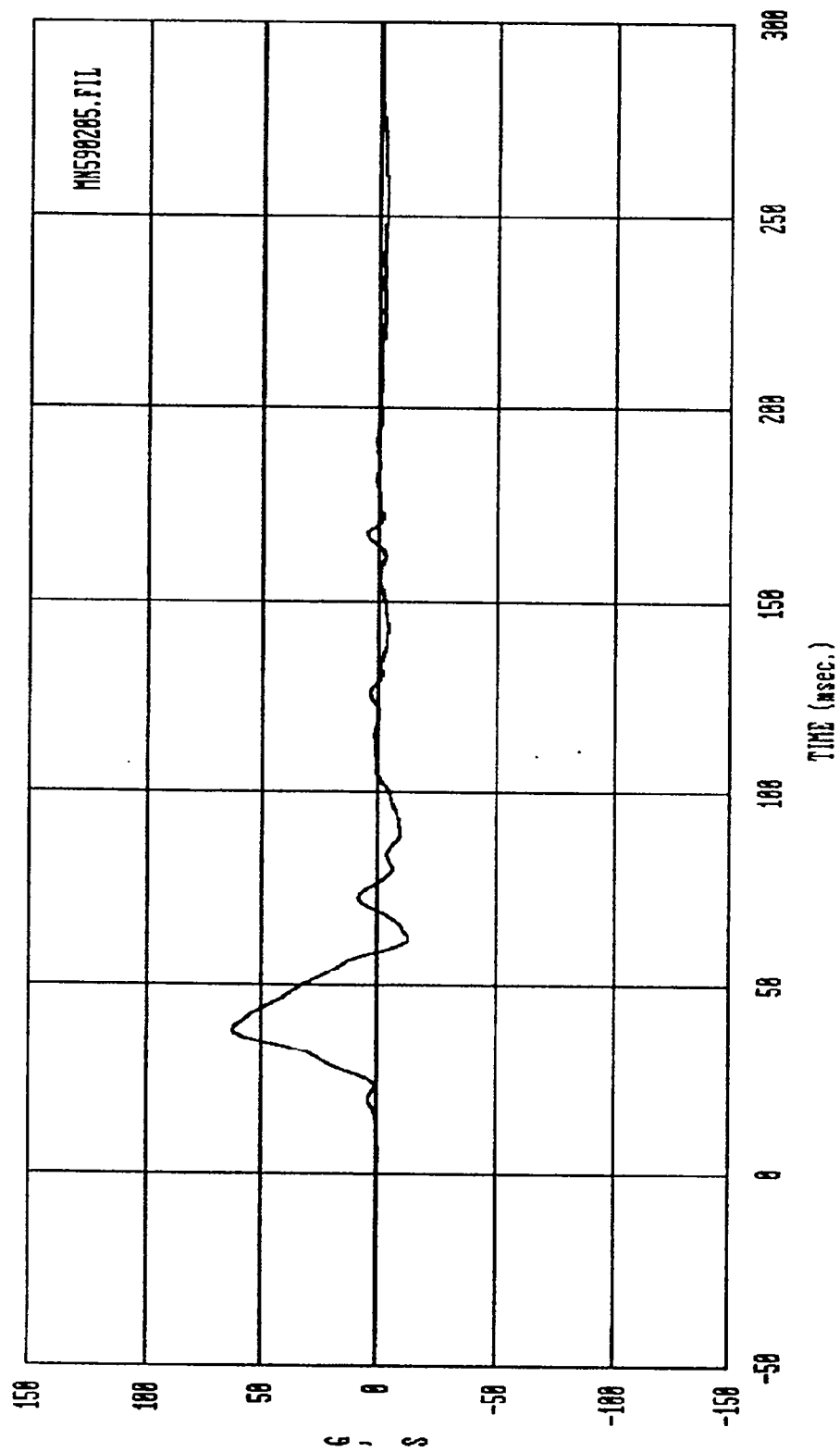
Curve: Driver upper spine acceleration — Primary Filter: FIR 100 Max = 65.376 Min = -12.656

NSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



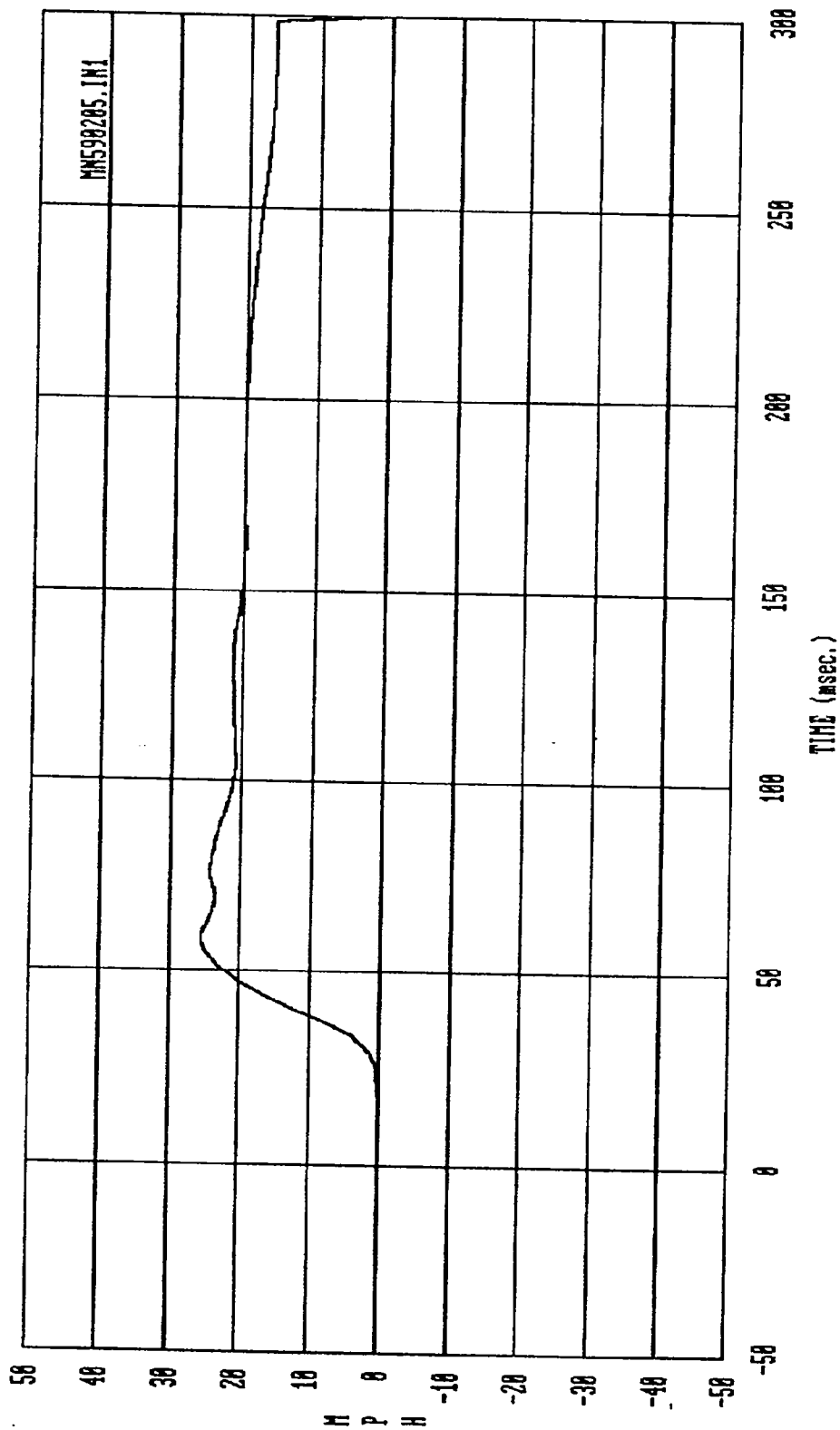
Curve: Driver upper spine delta V -- Primary Filter: FIR 100 Max = 26.152 Min = -.77644E-01

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



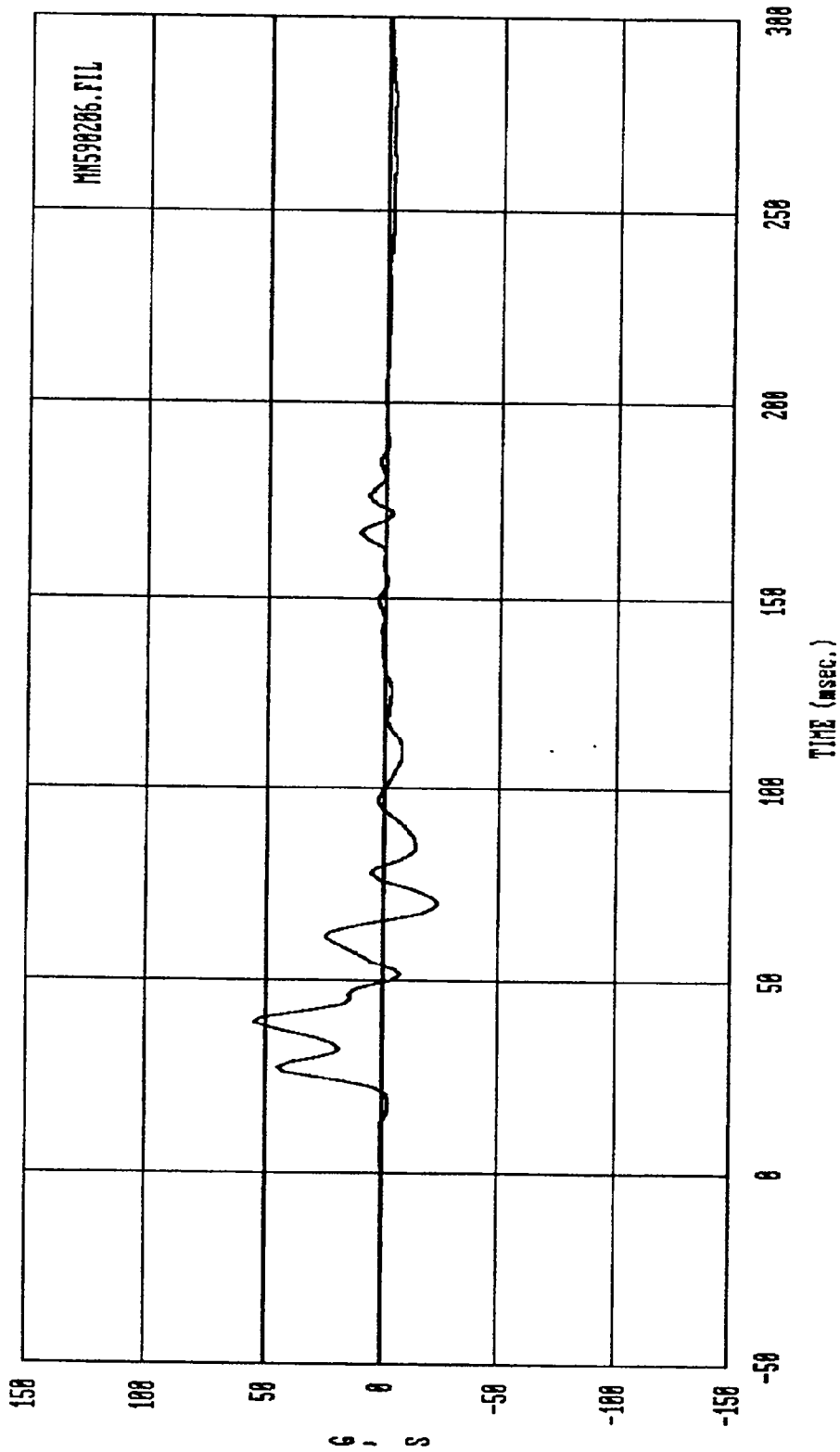
Curve: Driver upper spine acceleration -- Redundant Filter: FIR 100 Max = 63.286 Min = -13.135

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



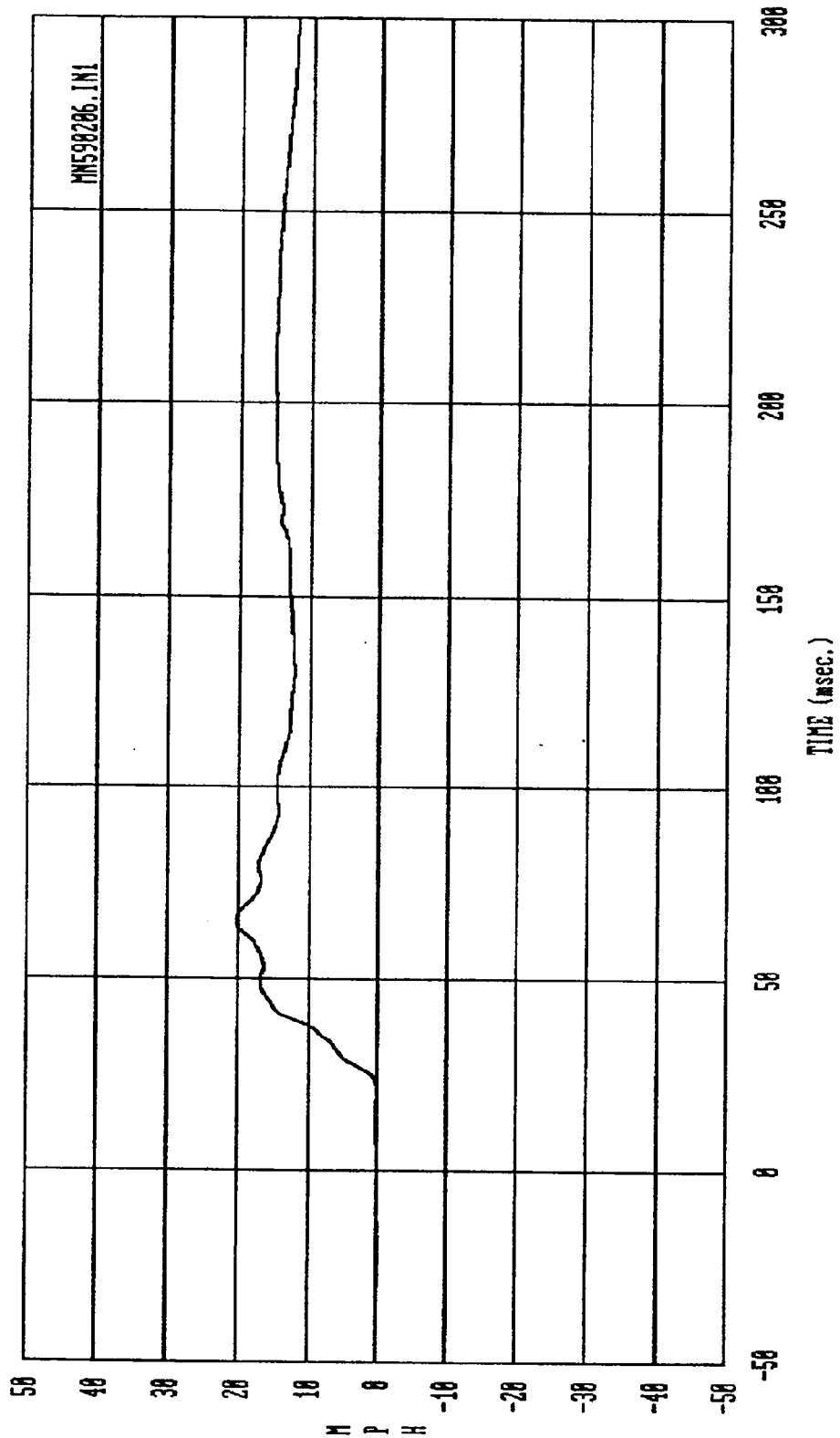
Curve: Driver upper spine delta V -- Redundant Filter: FIR 100 Max = 25.604 Min = -41.920-81

MSE Date: 84/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



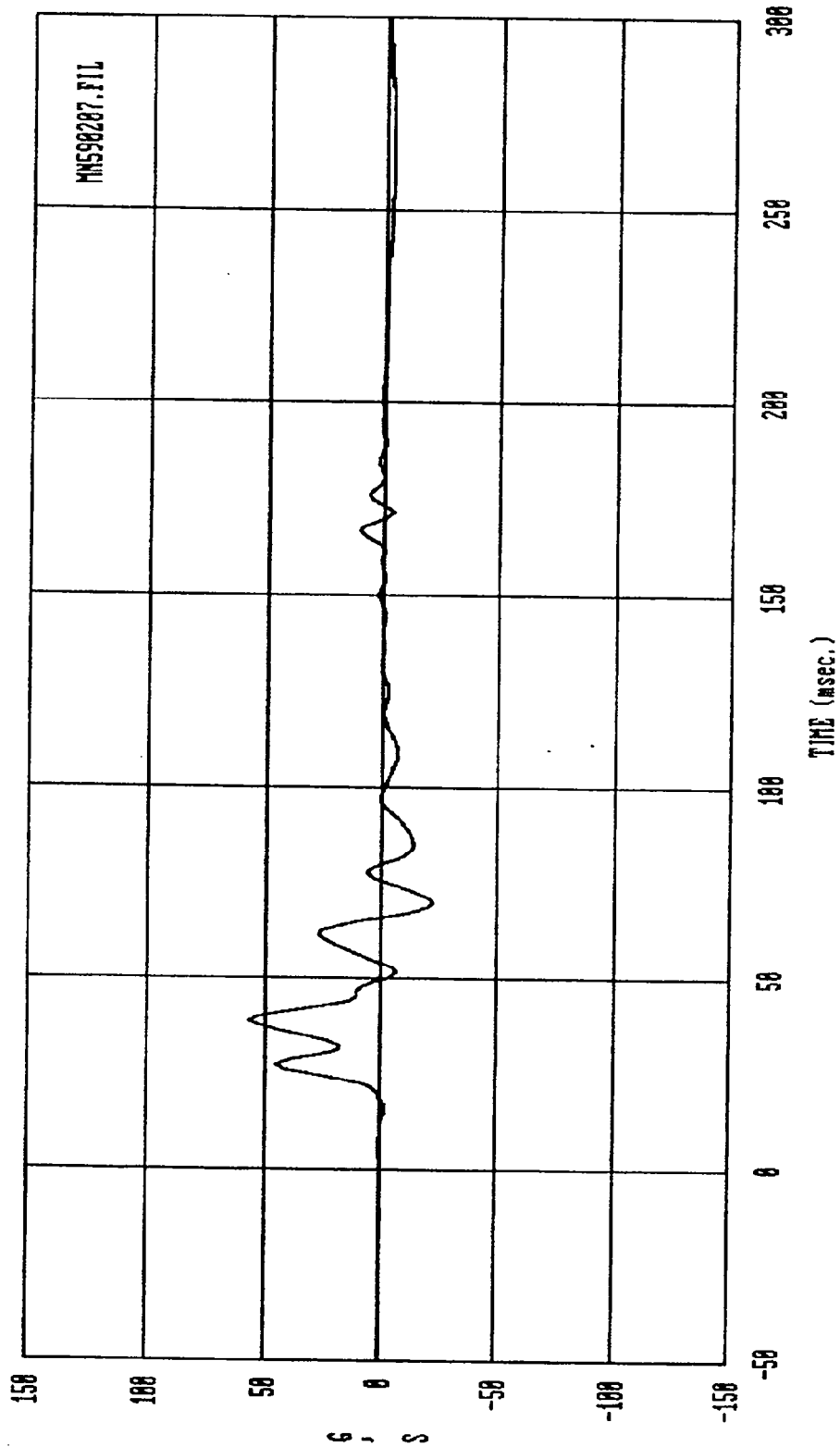
Curve: Driver upper rib acceleration — Primary Filter: FIR 100 Max = 55.167 Min = -24.384

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door

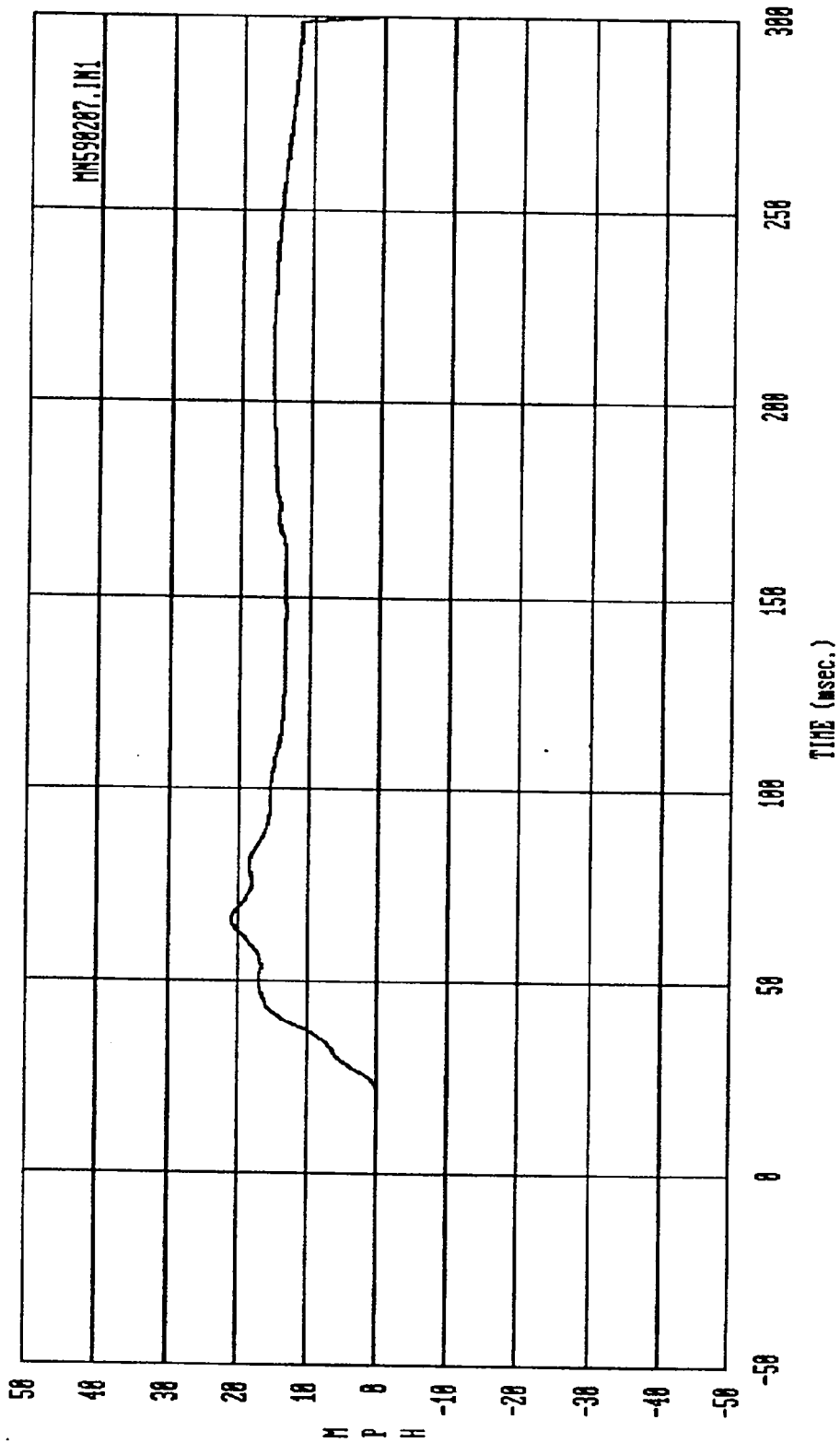


Curve: Driver upper rib delta V -- Primary Filter: FIR 100 Max = 28.293 Min = -.567372-01

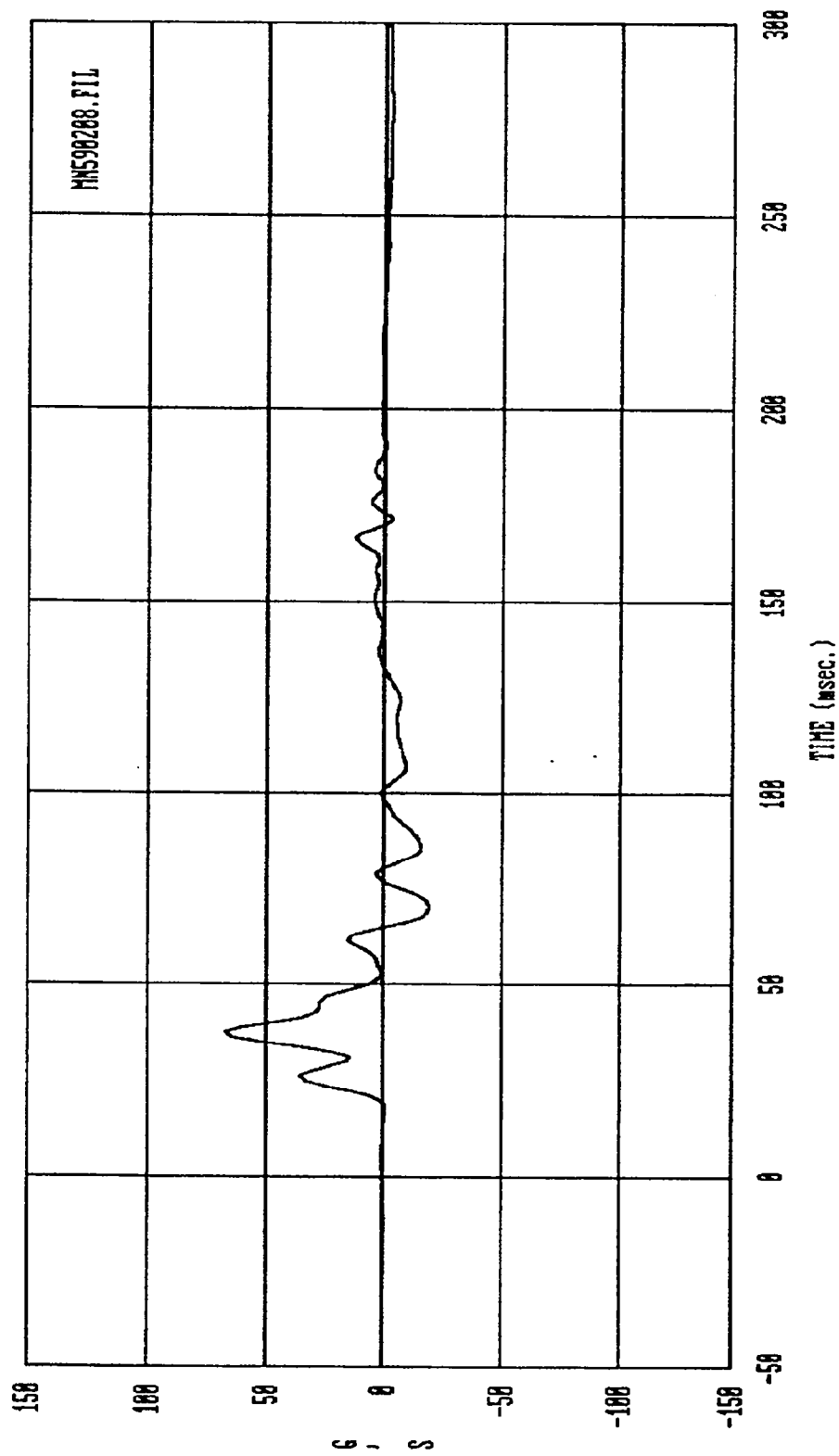
HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Driver upper rib acceleration -- Redundant Filter: FIR 100 Max = 56.948 Min = -22.537
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door

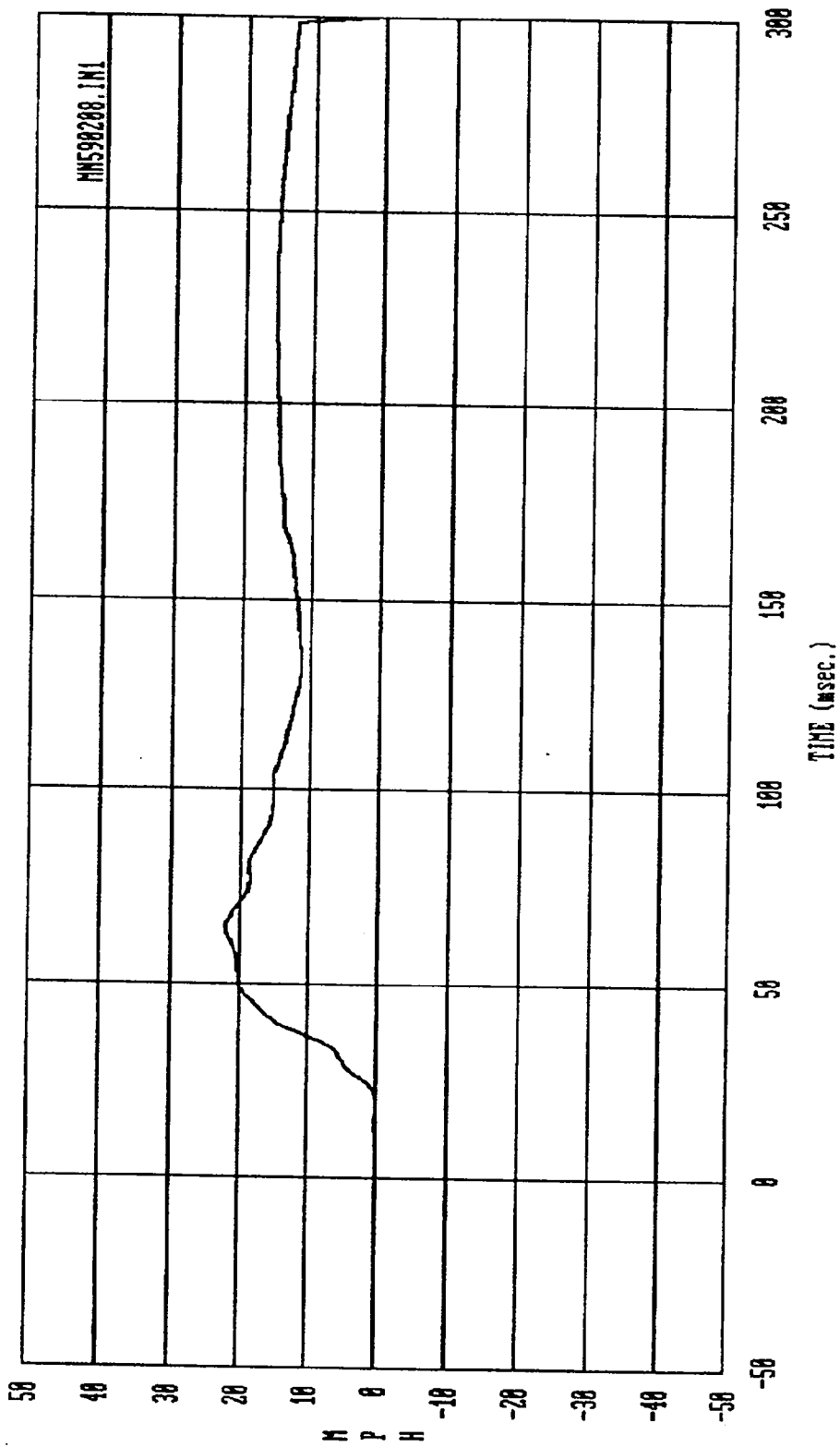


Curve: Driver upper rib delta V -- Redundant Filter: FIR 100 Max = 21.843 Min = -.72941E-01
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



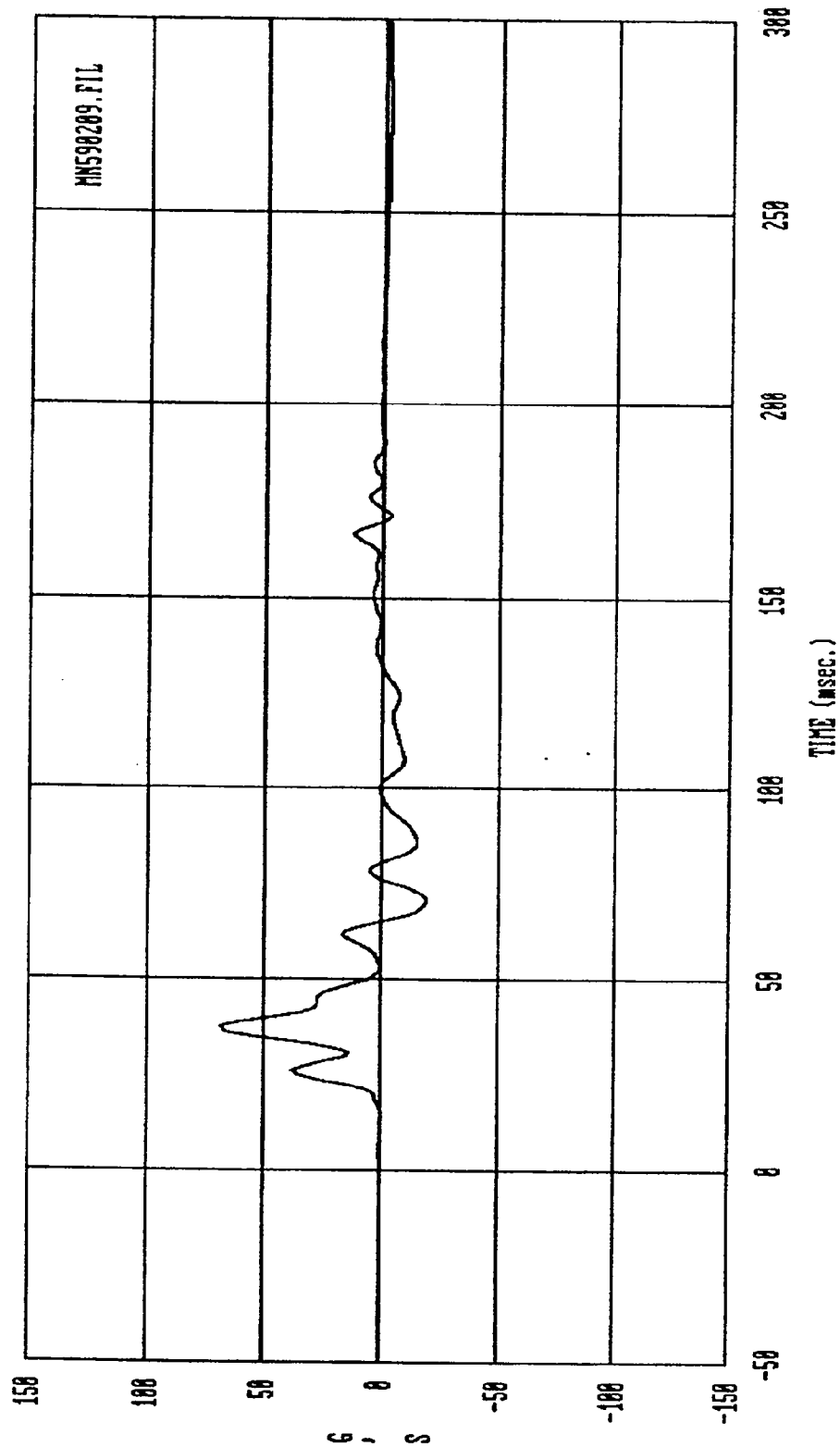
Curve: Driver lower rib acceleration -- Primary Filter: FIR 100 Max = 67.783 Min = -19.165

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door

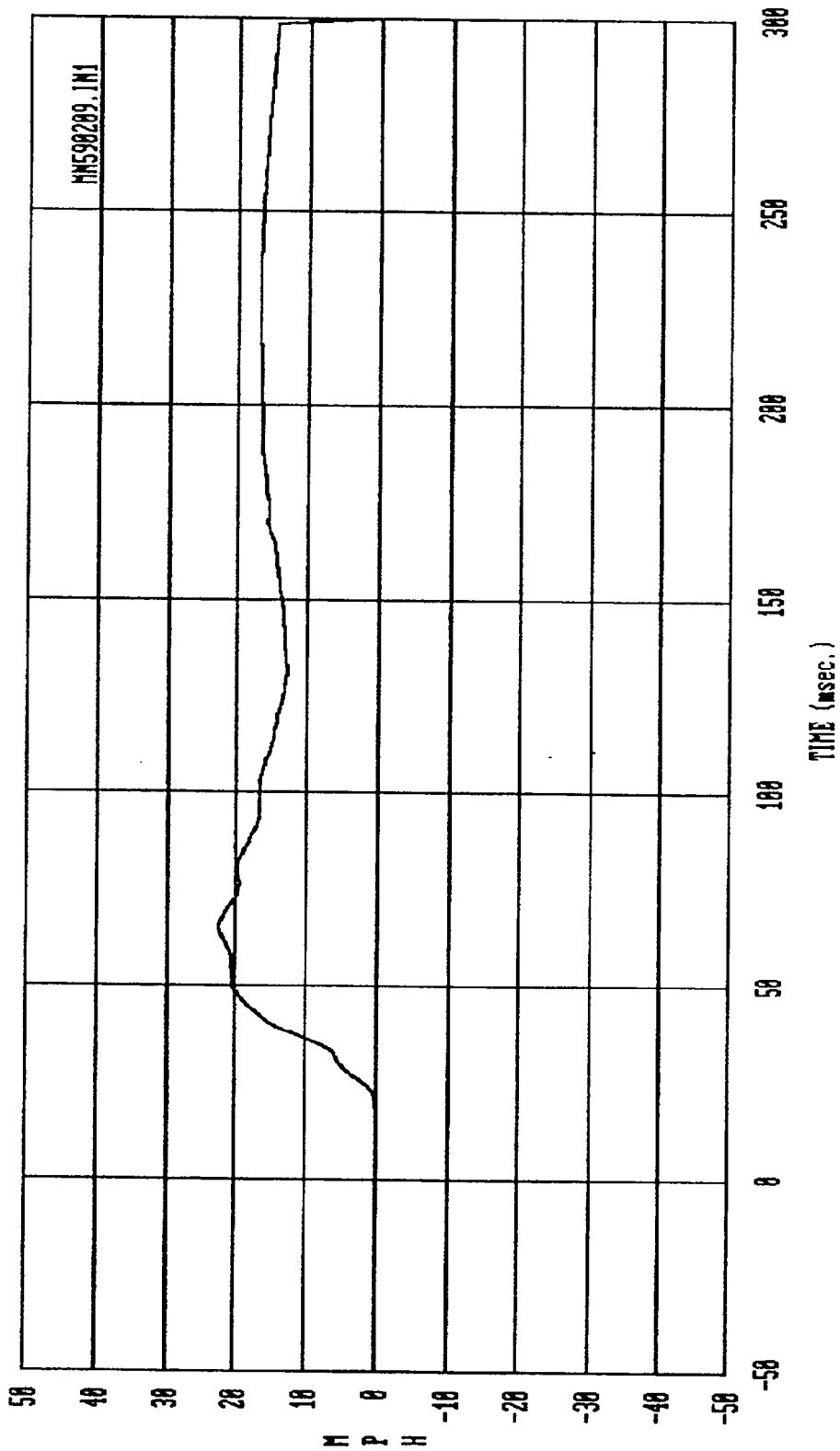


Curve: Driver lower rib delta V -- Primary Filter: FIR 100 Max = 22.135 Min = .67627E-01

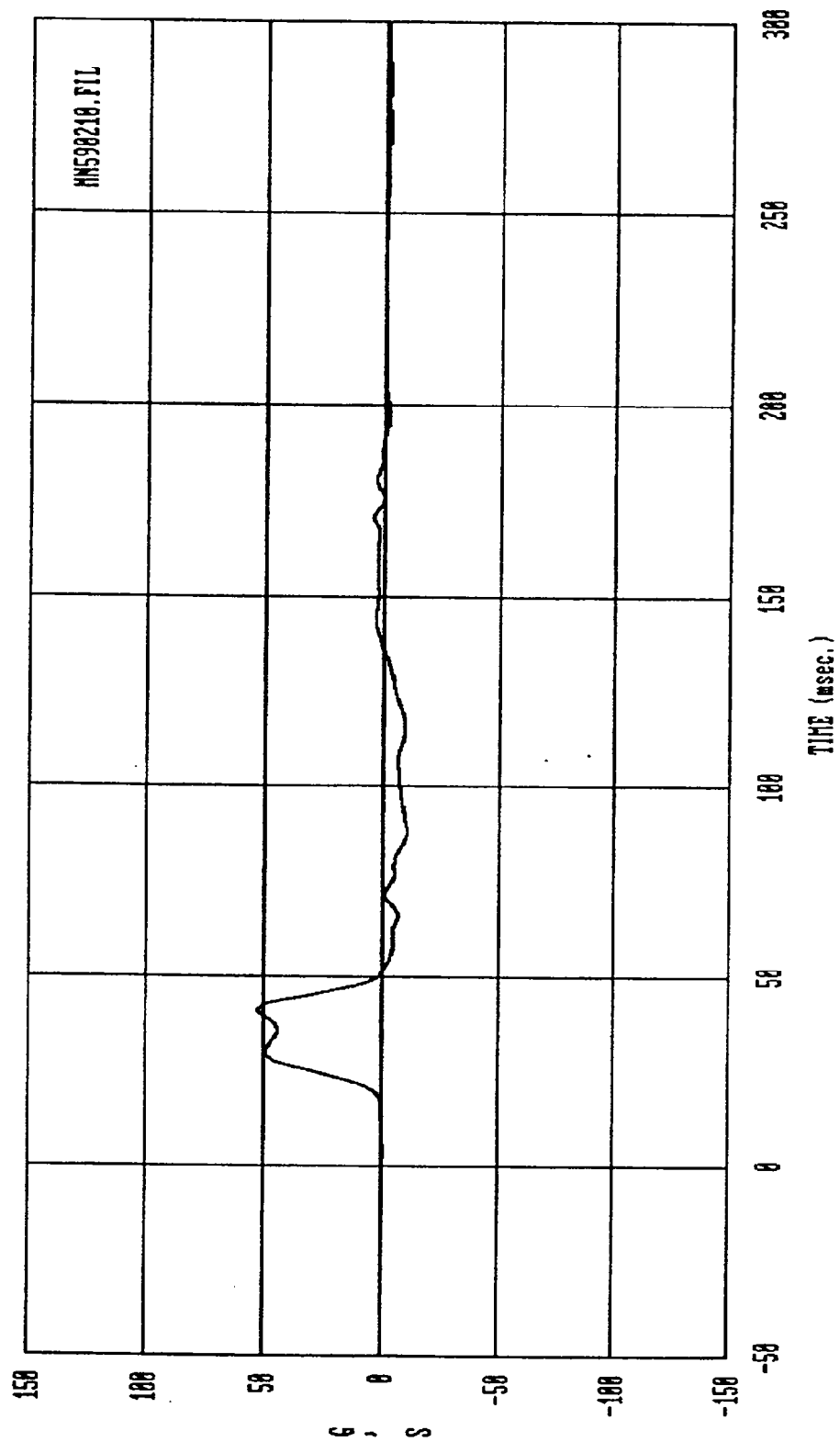
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



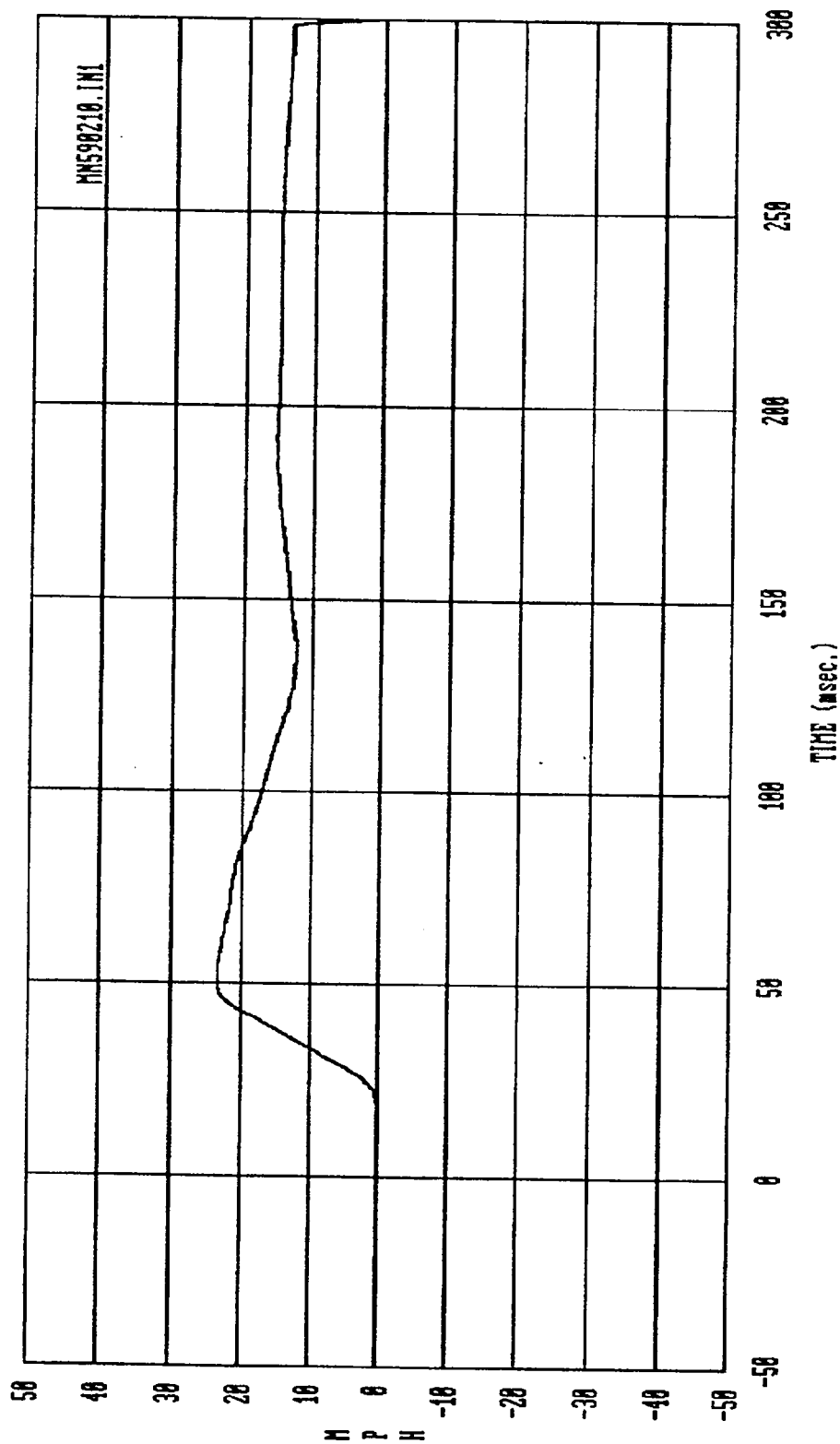
Curve: Driver lower rib acceleration -- Redundant Filter: FIR 180 Max = 69.888 Min = -18.981
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



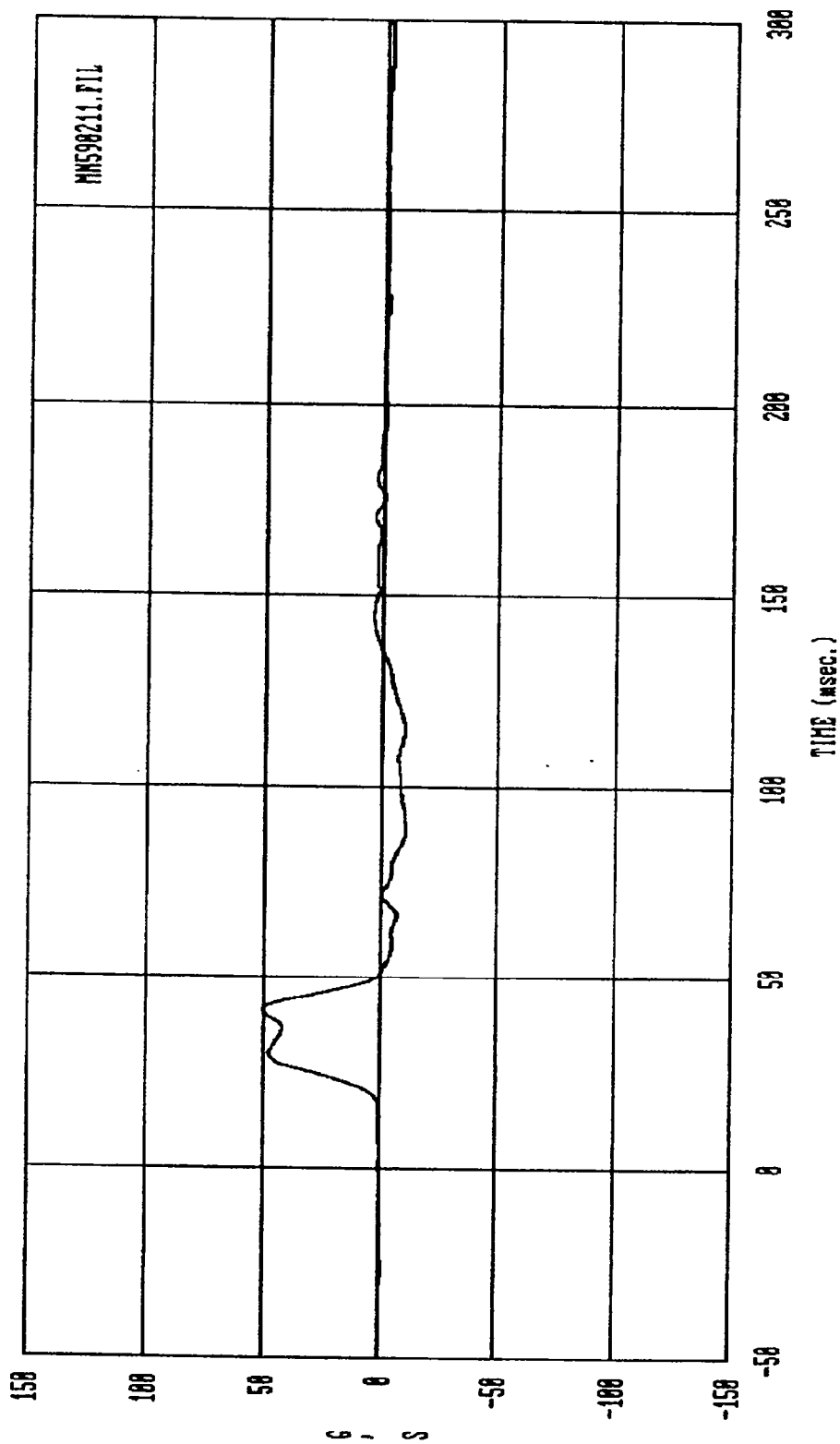
Curve: Driver lower rib delta V -- Redundant Filter: FIR 100 Max = 22.515 Min = .59321E-01
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



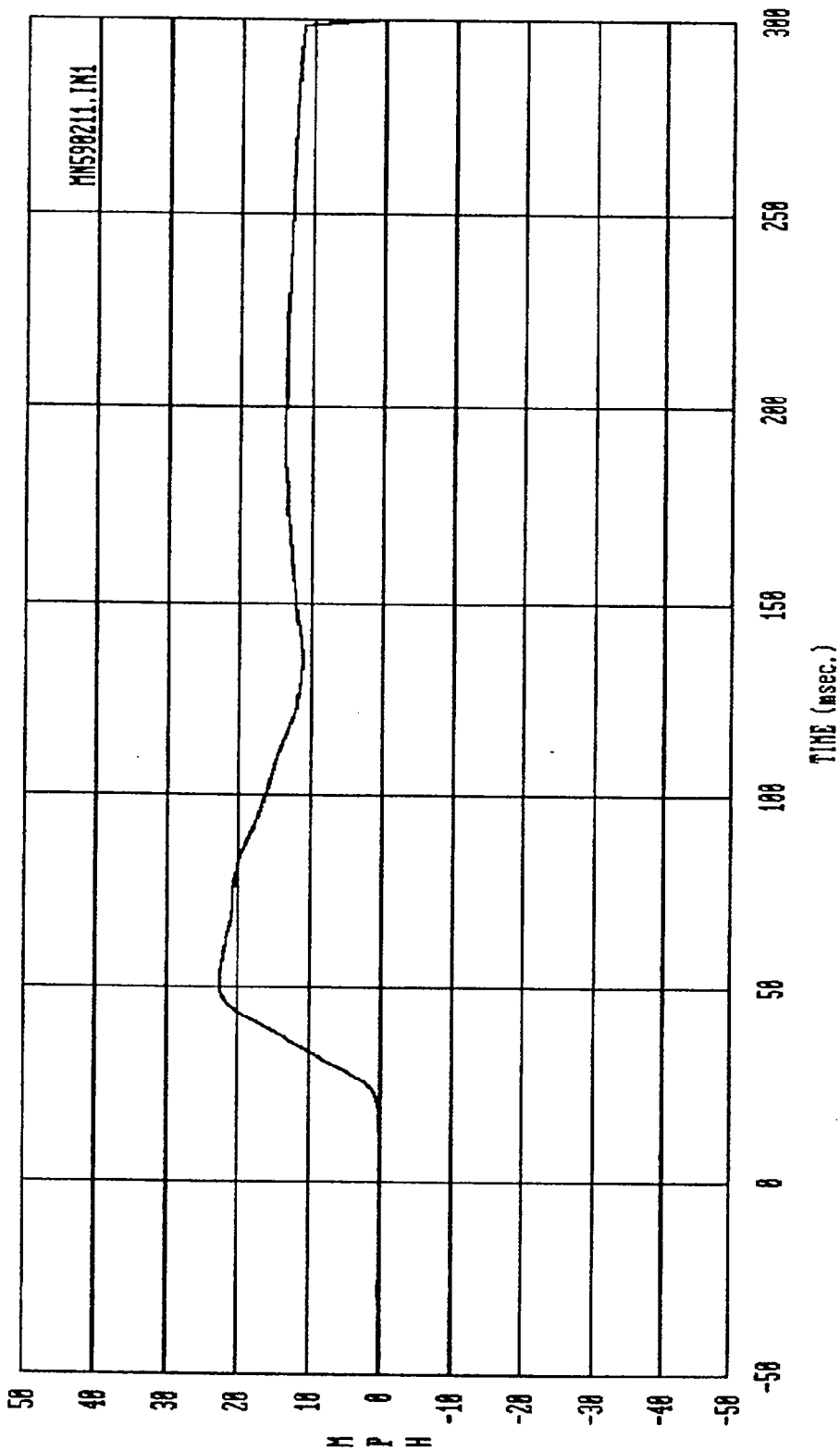
Curve: Driver lower spine acceleration -- Primary Filter: FIR 100 Max = 52.985 Min = -10.437
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



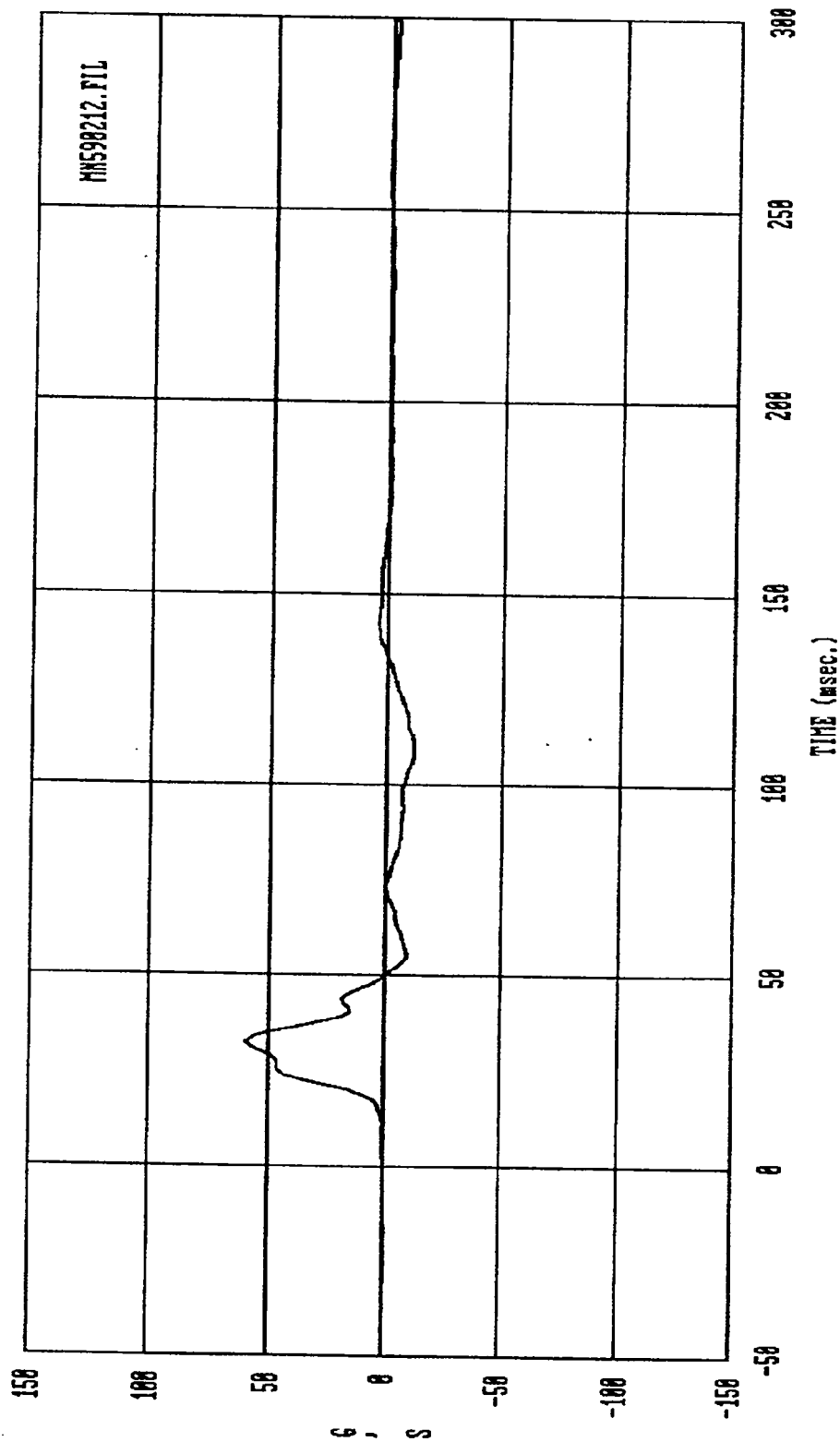
Curve: Driver lower spine delta V -- Primary Filter: FIR 100 Max = 23.479 Min = -45.543E-01
 HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Driver lower spine acceleration -- Redundant Filter: FIR 100 Max = 50.579 Min = -10.825
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



Curve: Driver lower spine delta V -- Redundant Filter: FIR 100 Max: 22.618 Min: 11.241
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



Curve: Driver pelvis acceleration

Filter: FIR 100

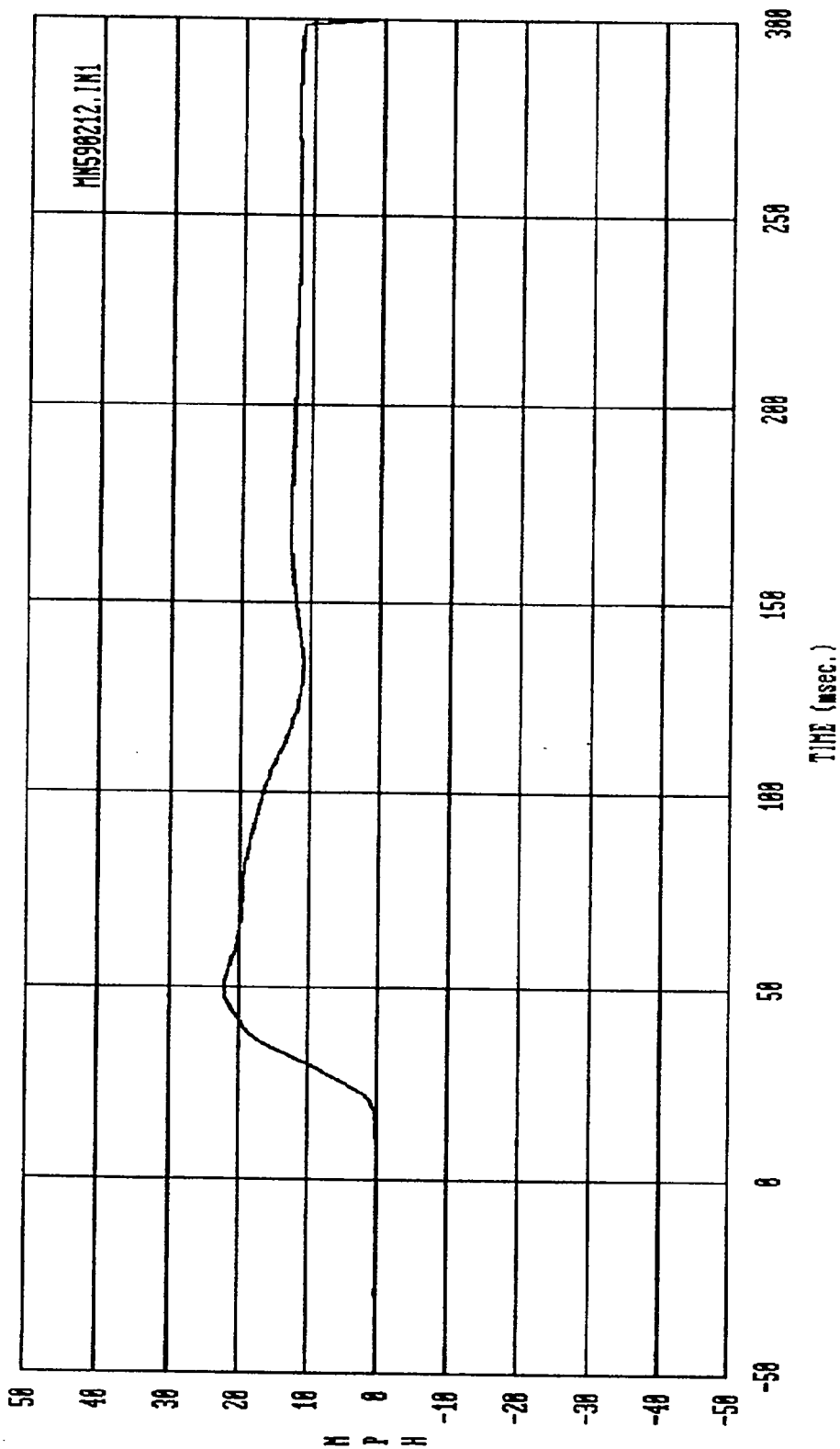
Max = 59.322 Min = -11.820

MSE

Date: 04/16/92

Program: 1992 Side Impact

Vehicle: 1992 Volvo 940 GLE 4 Door



Curve: Driver pelvis delta V

Filter: FIR 100

Max = 22.251

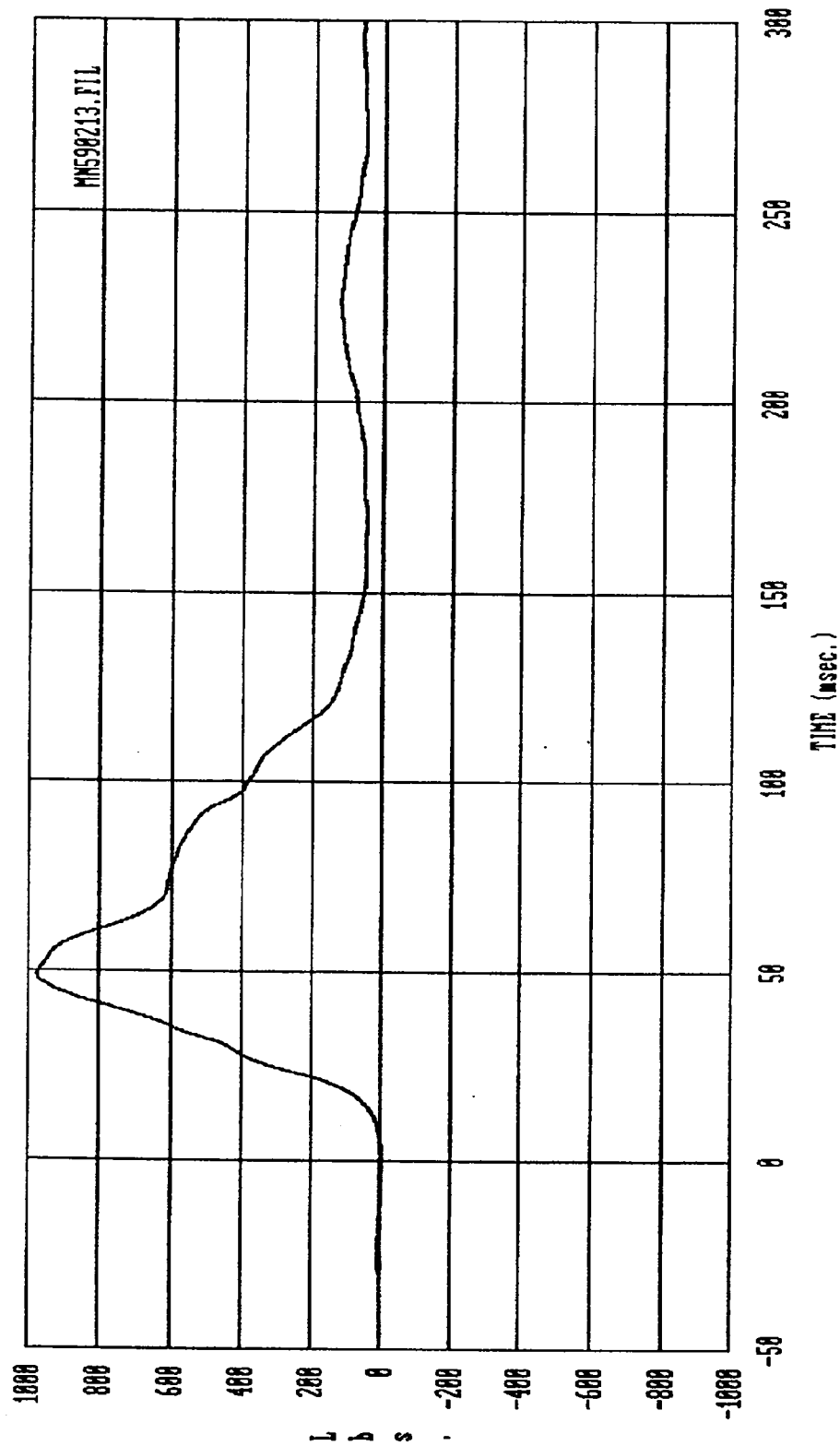
Min = 11.894

HSE

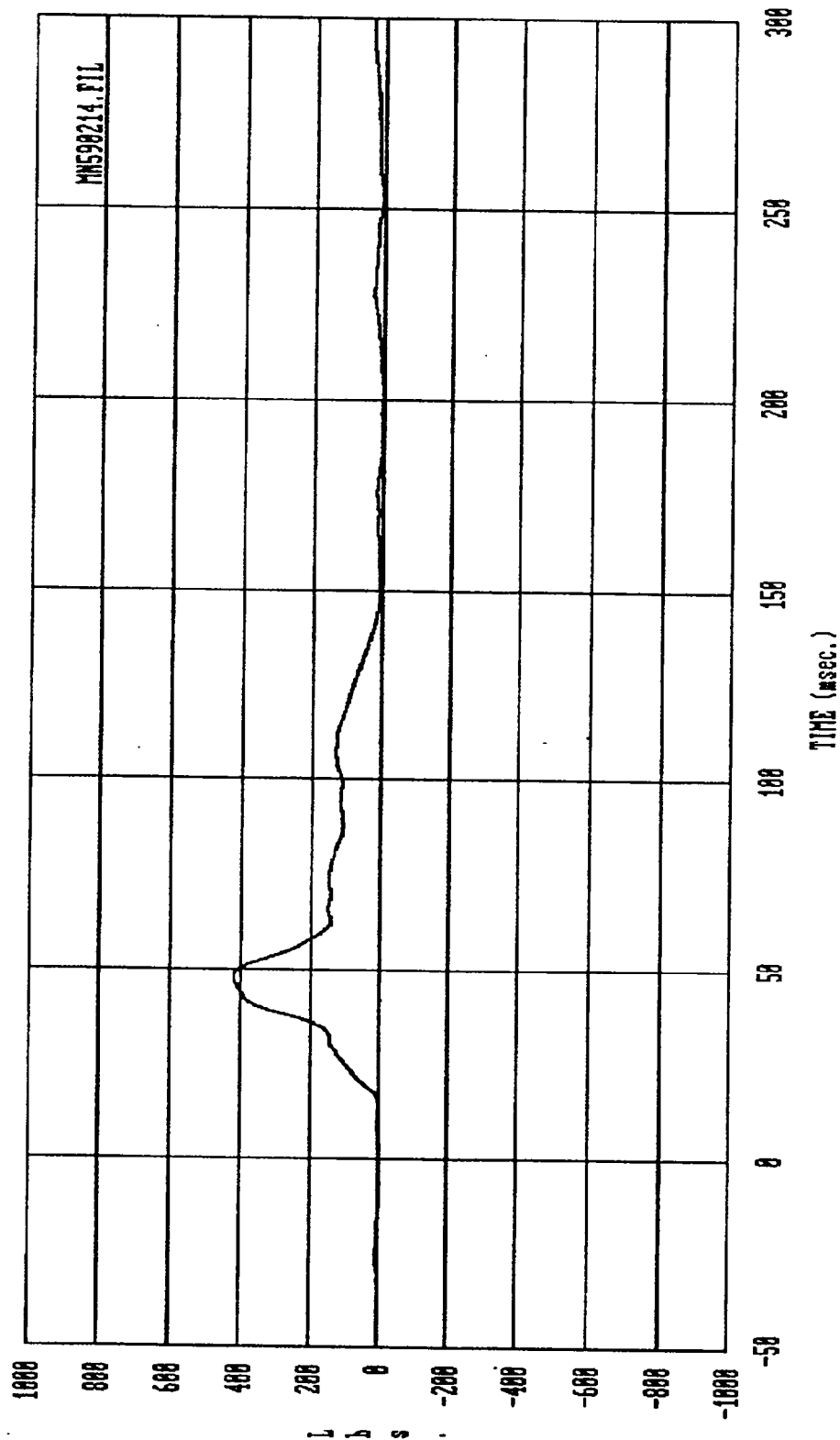
Date: 04/16/92

Program: 1992 Side Impact

Vehicle: 1992 Volvo 940 GLE 4 Door



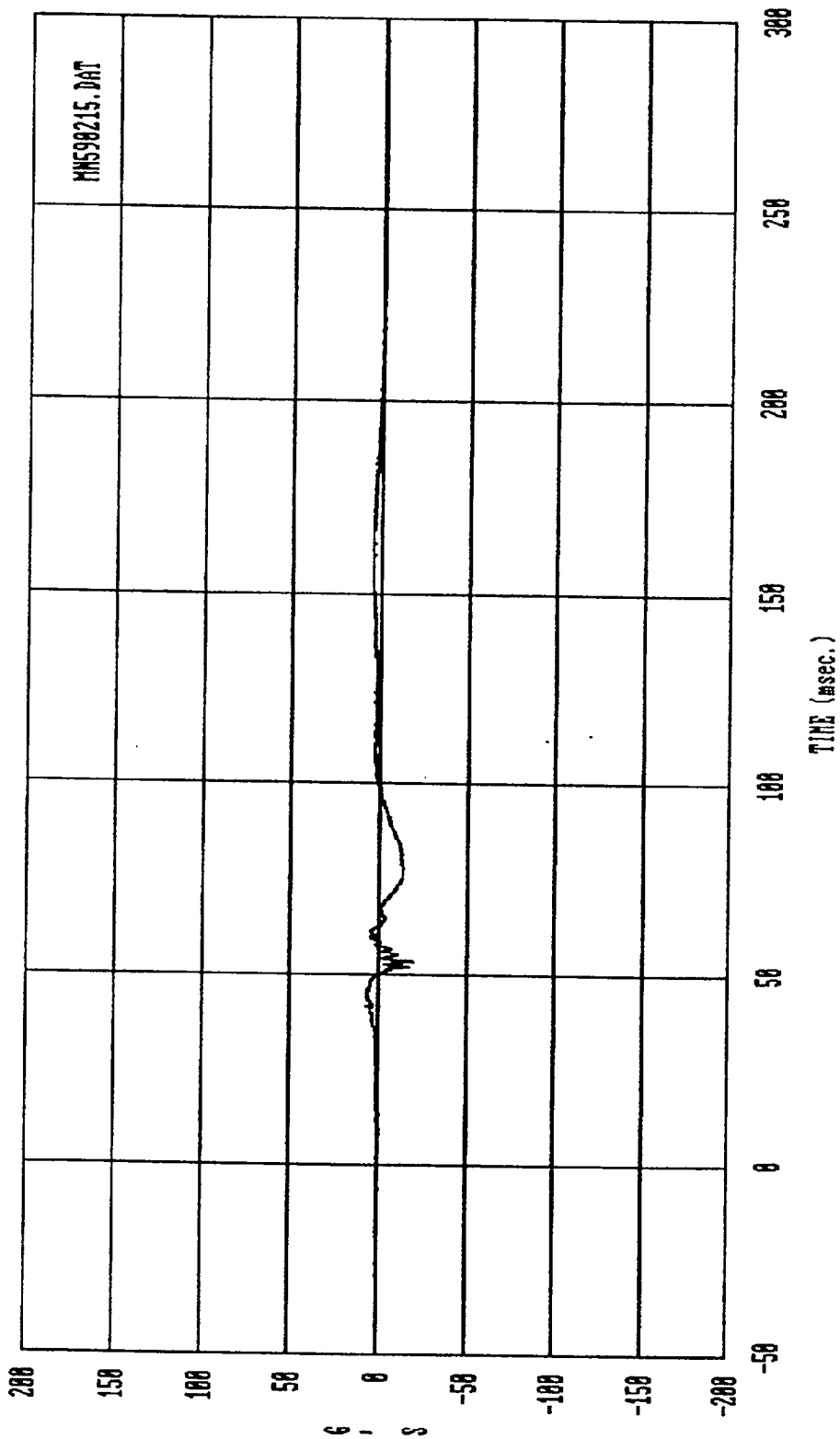
Curve: Driver lap belt load Filter: SAE CLASS 60 Max = 976.68 Min = 45.633
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



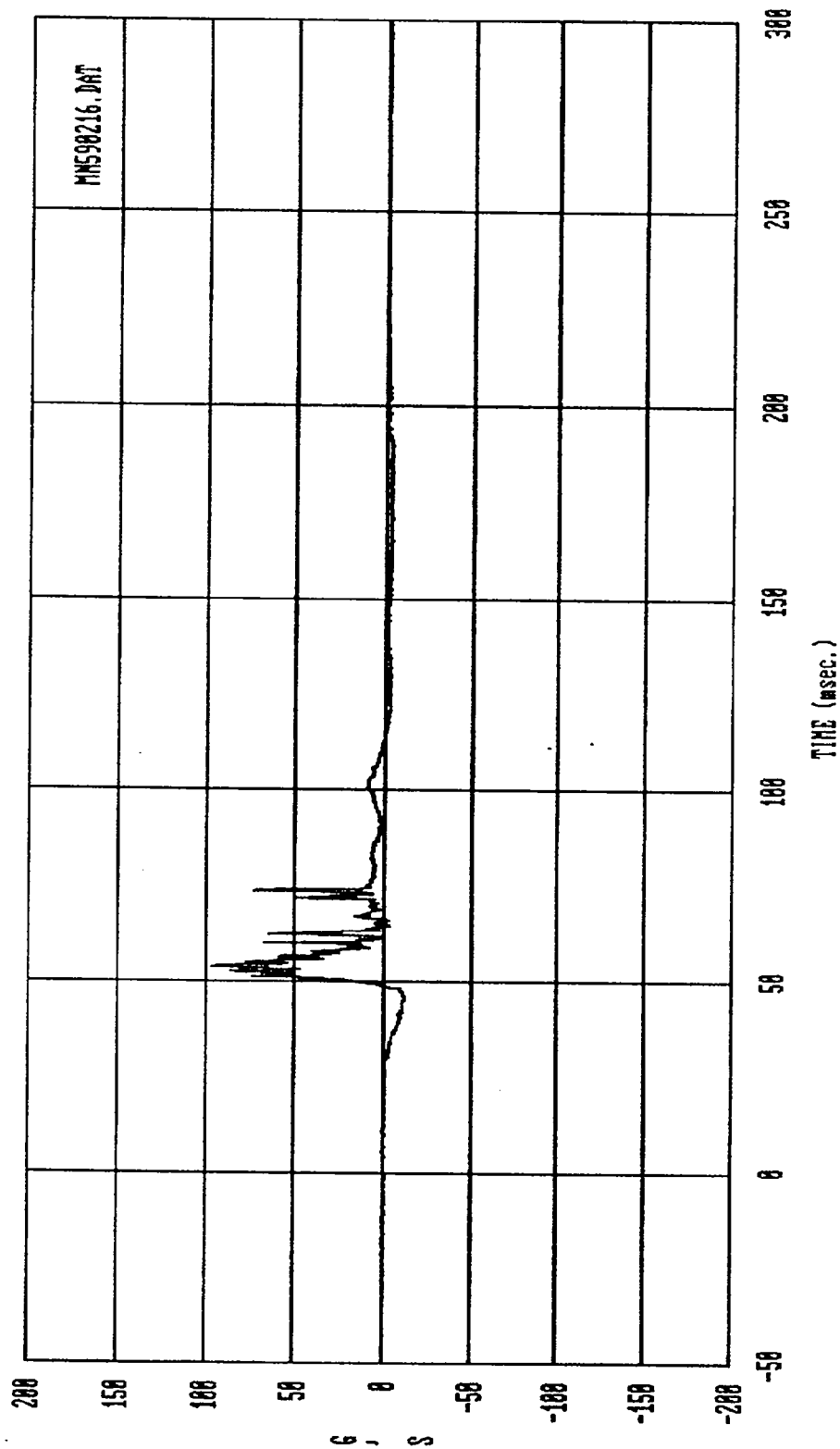
Curve: Driver shoulder belt load

Filter: SAE CLASS 60 Max = 421.51 Min = -3.1828

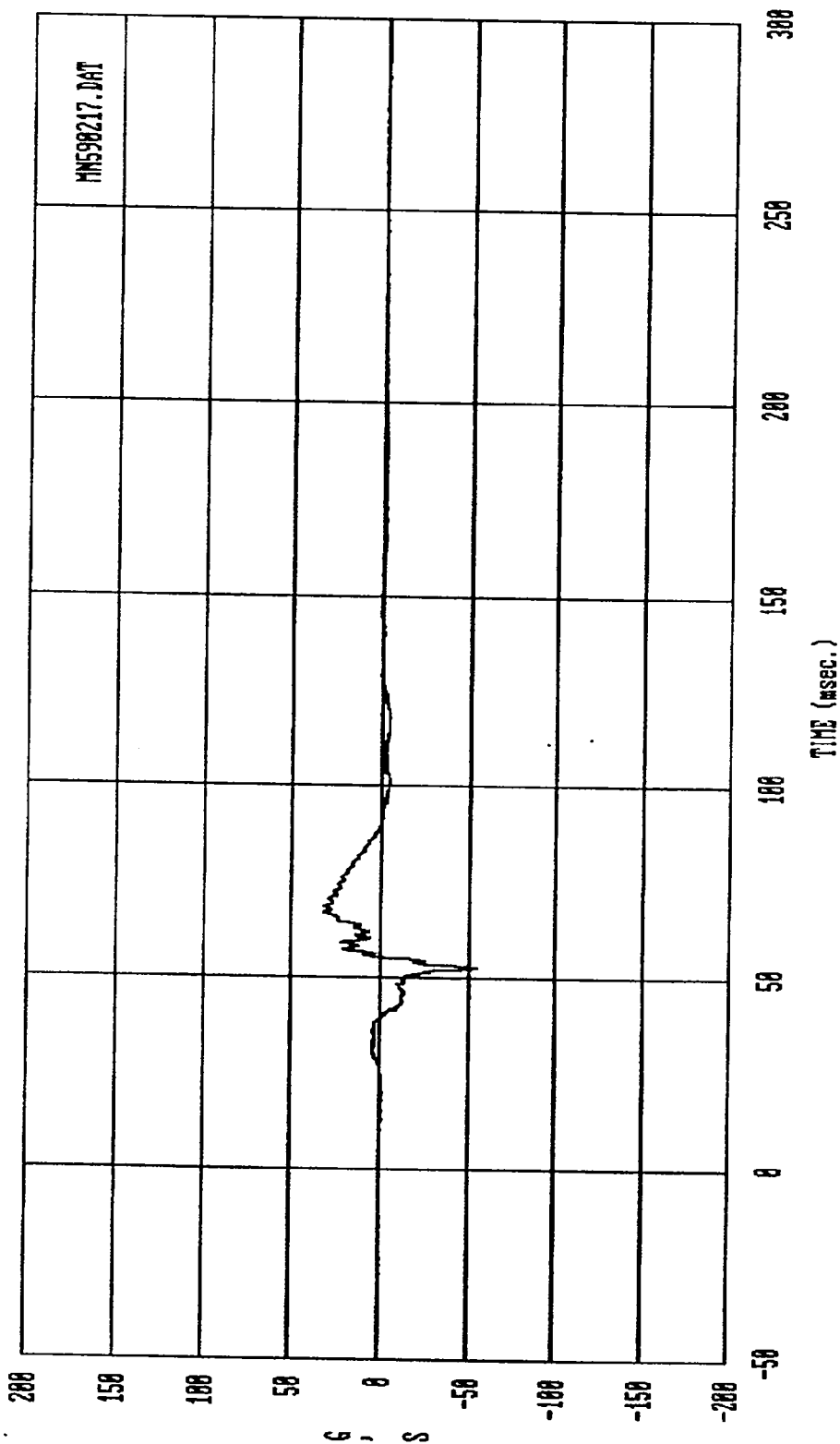
HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



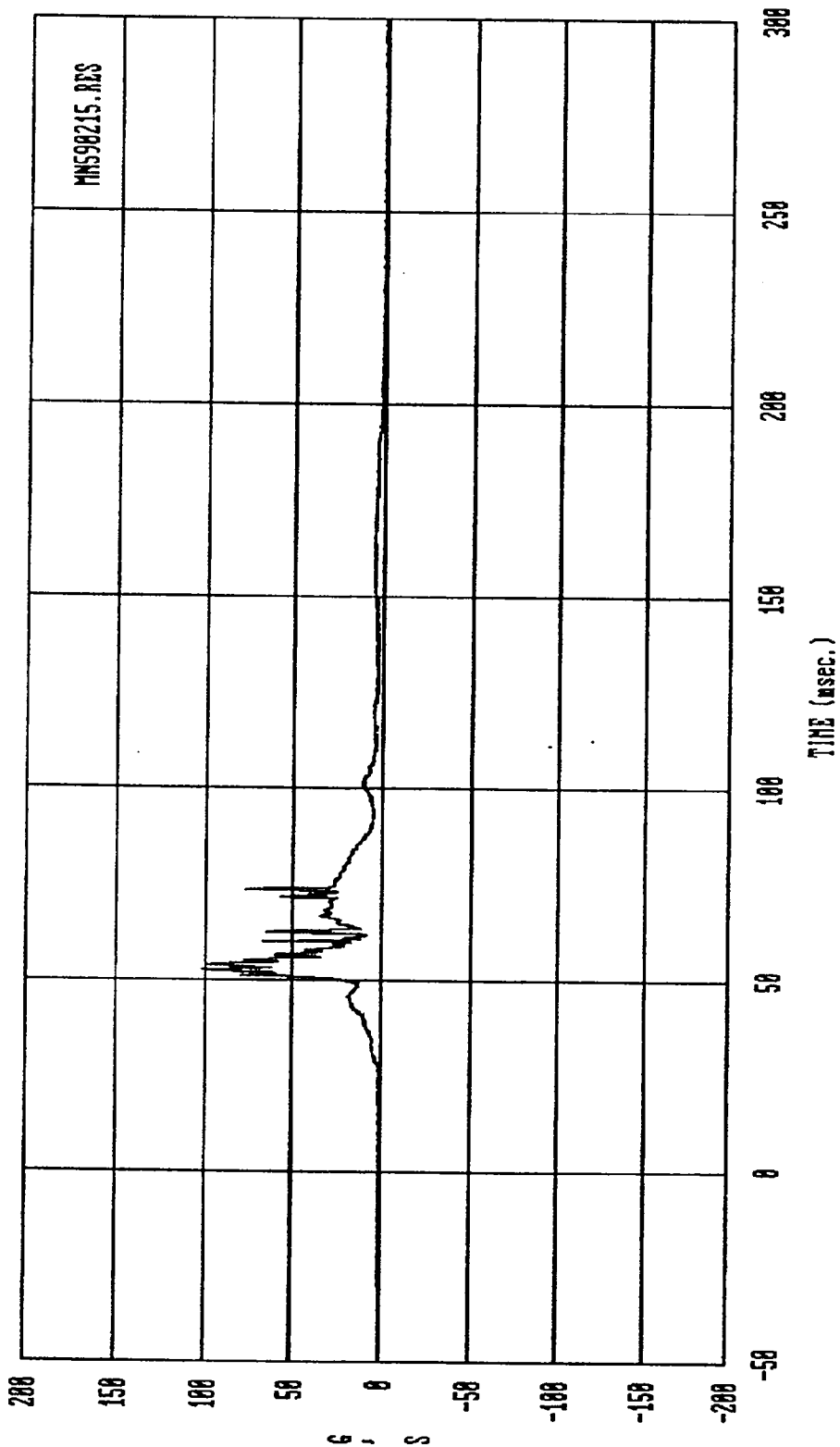
Curve: Passenger Head acceleration -- X axis Filter: SAE CLASS 1000 Max = 7.2272 Min = -28.565
 HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



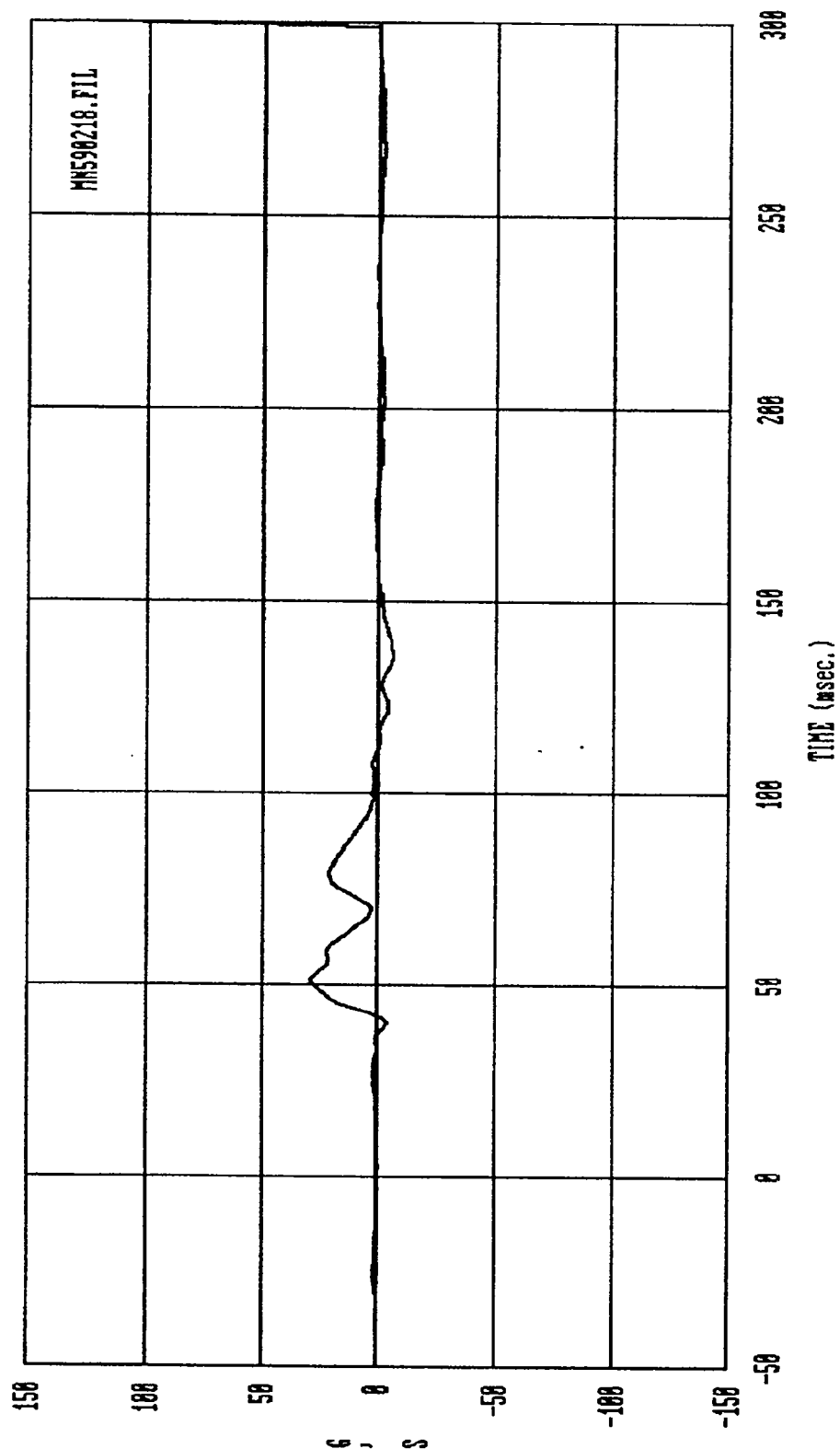
Curve: Passenger Head acceleration -- Y axis Filter: SAE CLASS 1000 Max = 96.770 Min = -12.316
 HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Passenger Head acceleration -- Z axis Filter: SAE CLASS 1000 Max = 32.308 Min = -55.246
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door

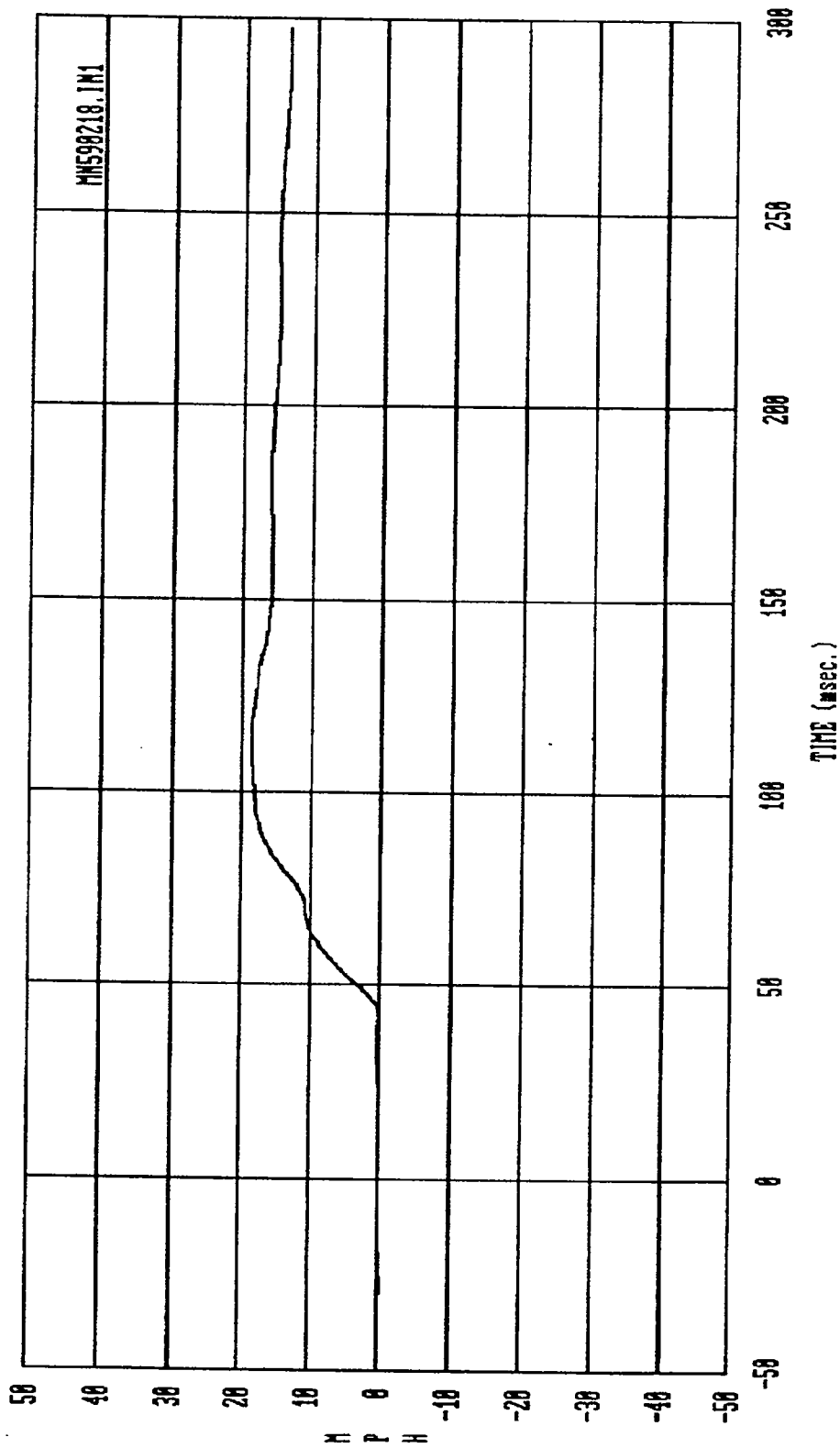


Curve: Passenger head resultant acceleration Filter: SAE CLASS 1000 Max = 101.85 Min = .00000
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



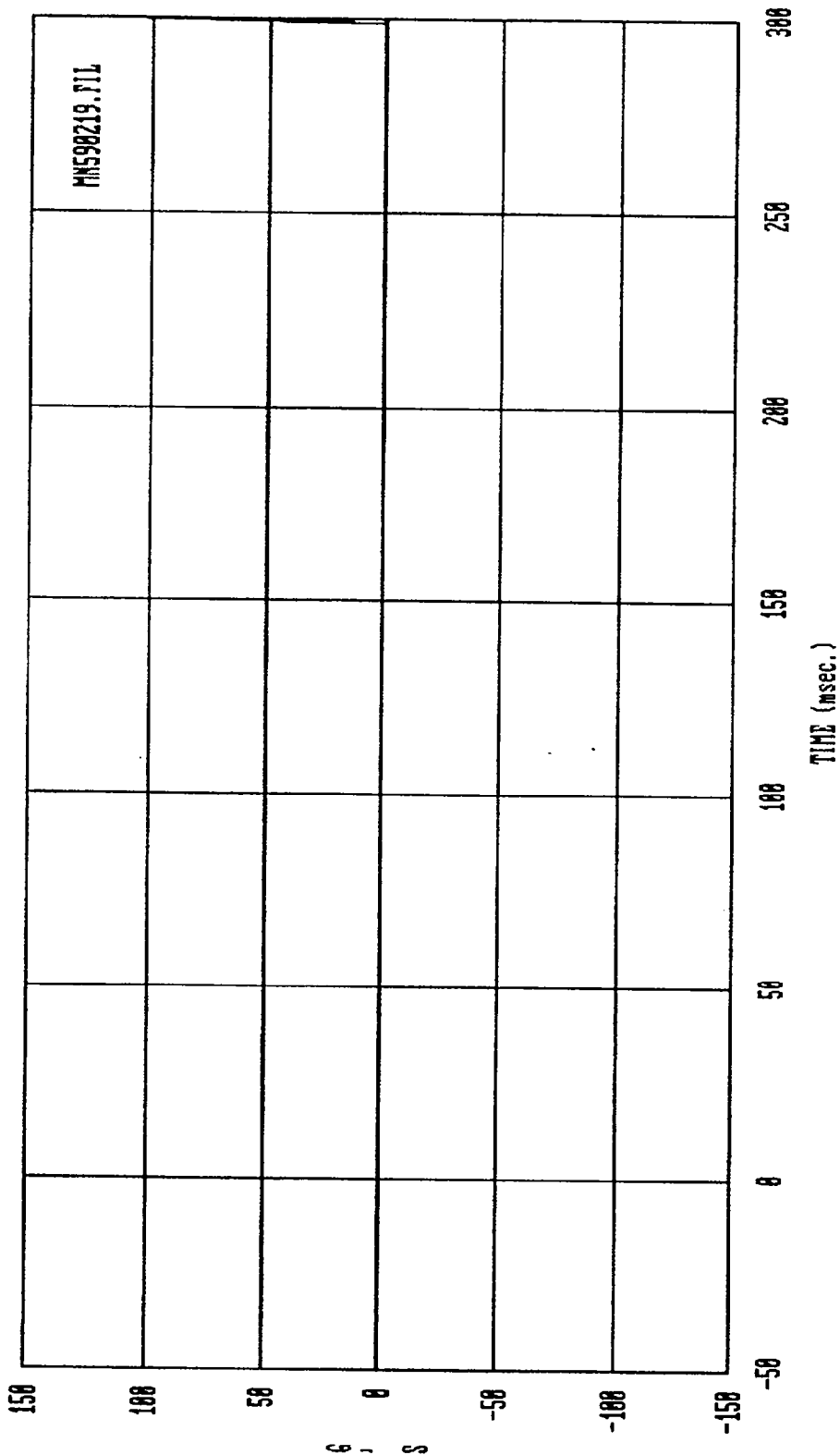
Curve: Passenger upper spine acceleration — Primary Filter: FIR 100 Max = 29.224 Min = -6.5669

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



Curve: Passenger upper spine delta V — Primary Filter: FIR 100 Max = 18.728 Min = -.24638E-01

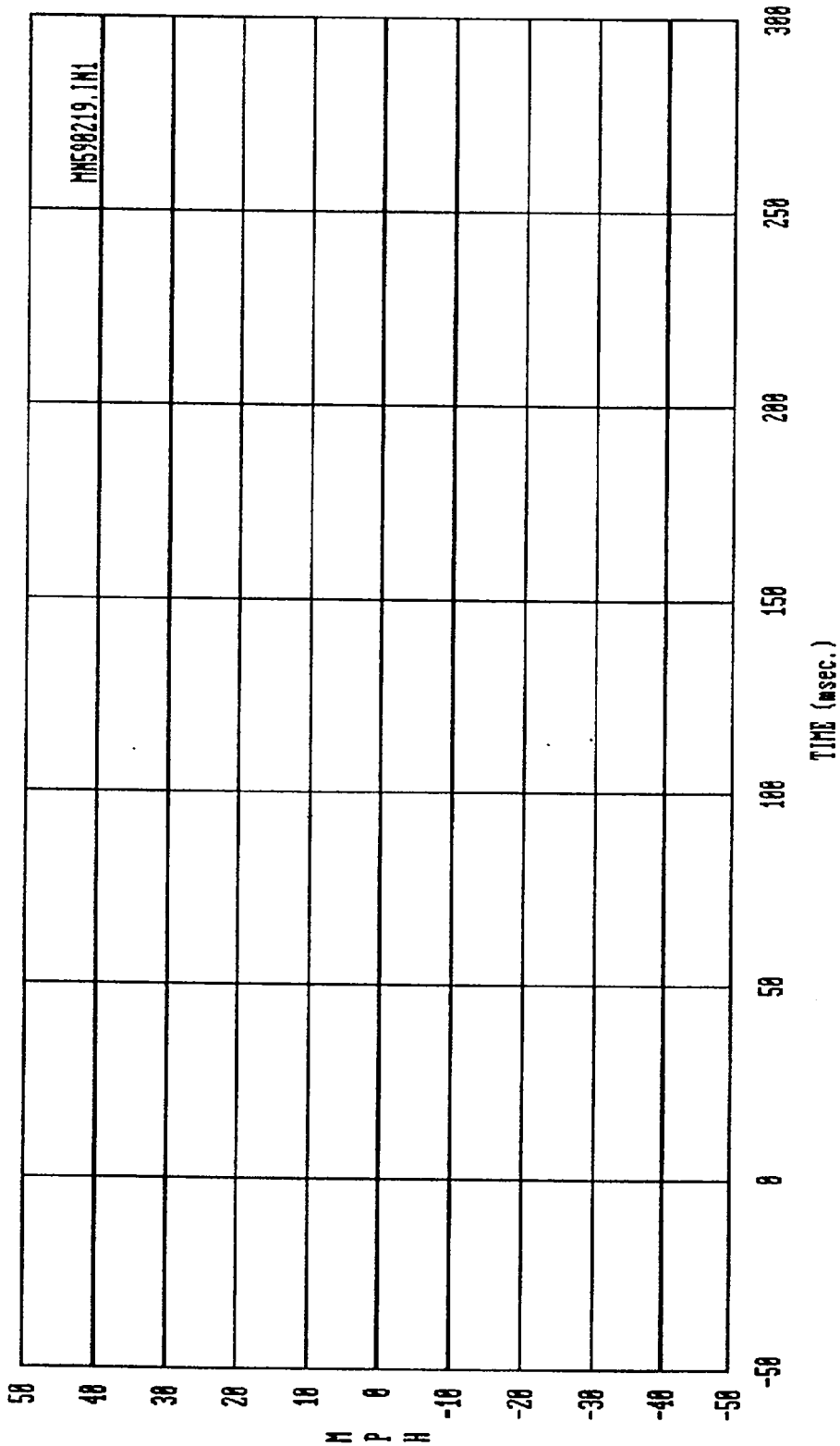
NSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



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

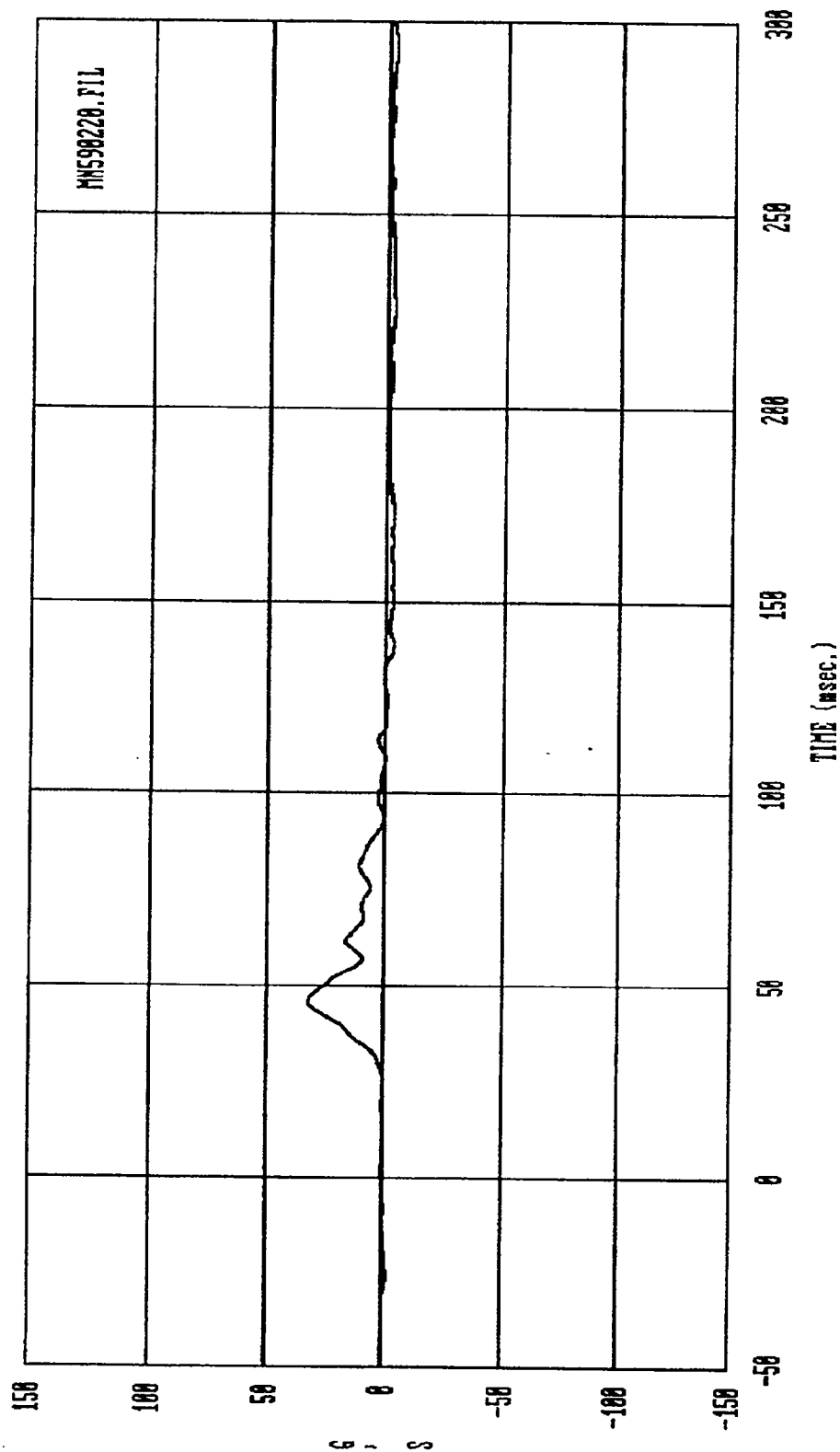
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door

REDUNDANT ACCELEROMETER WAS KNOWN TO BE FAULTY



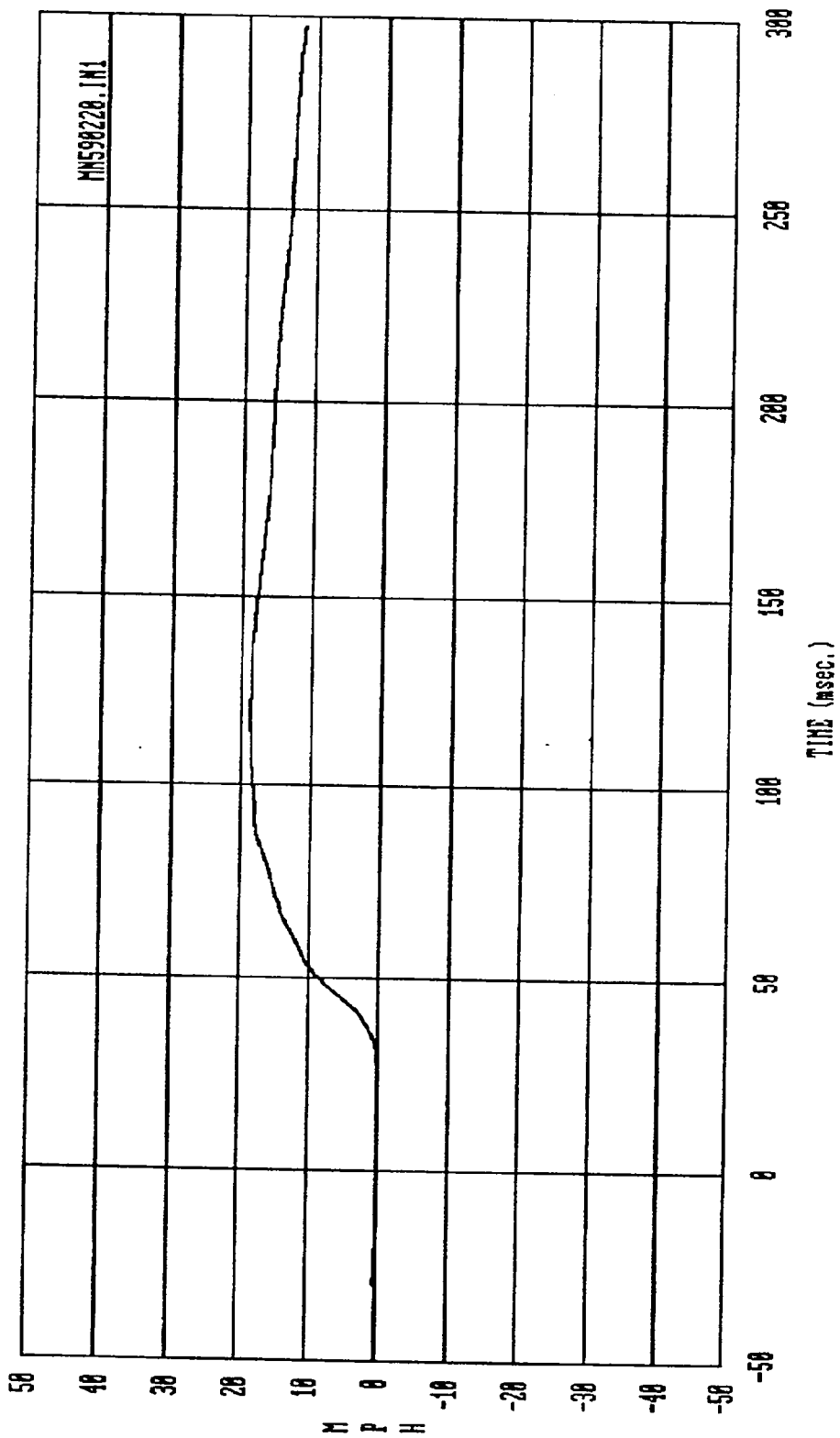
Curve: Passenger upper spine delta V -- Redundant Filter: FIR 100 Max = .00000 Min = .00000
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door

REDUNDANT ACCELEROMETER WAS KNOWN TO BE FAULTY



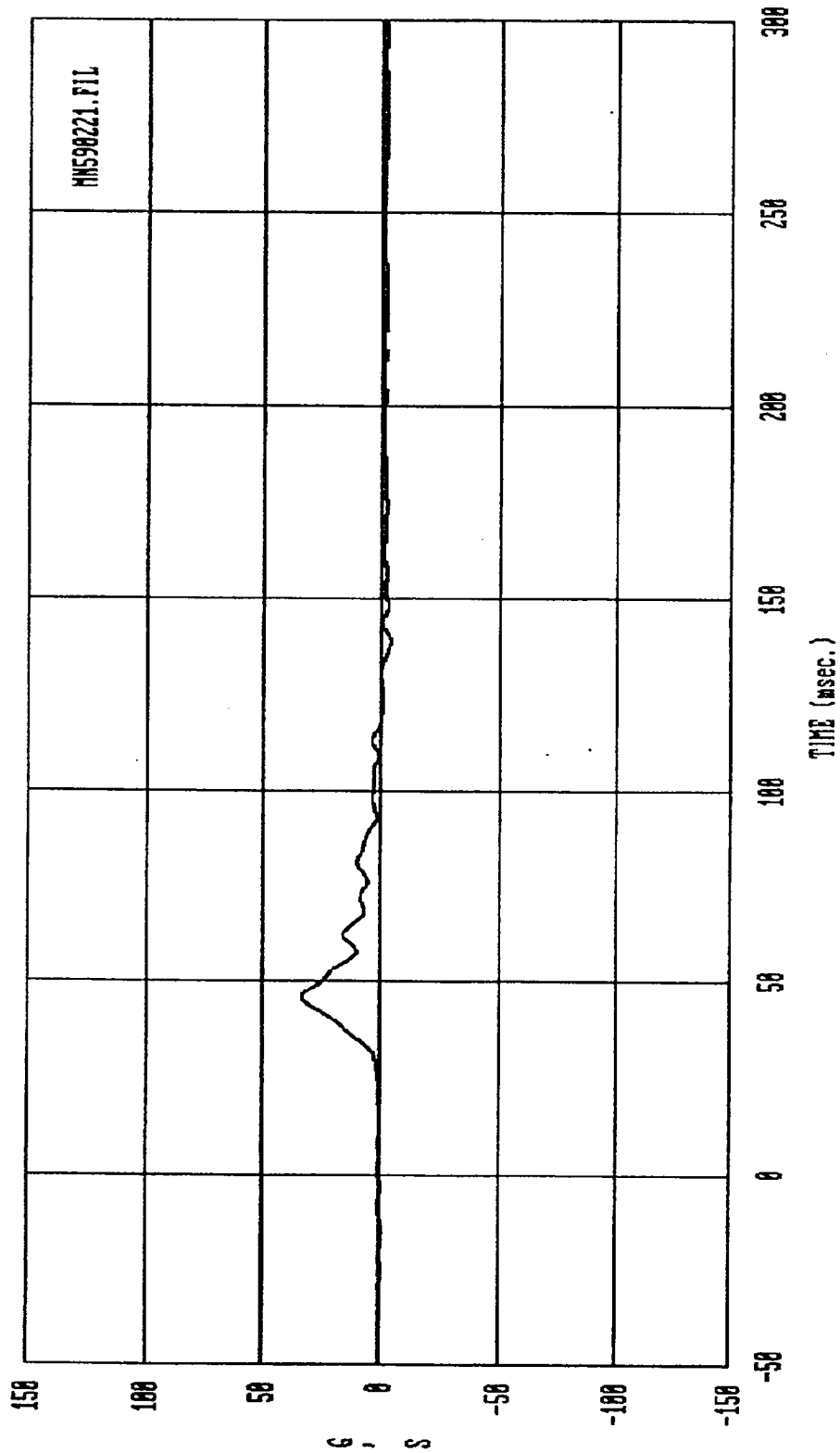
Curve: Passenger upper rib acceleration -- Primary Filter: FIR 100 Max = 32.474 Min = -3.2699

HSE Date: 84/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



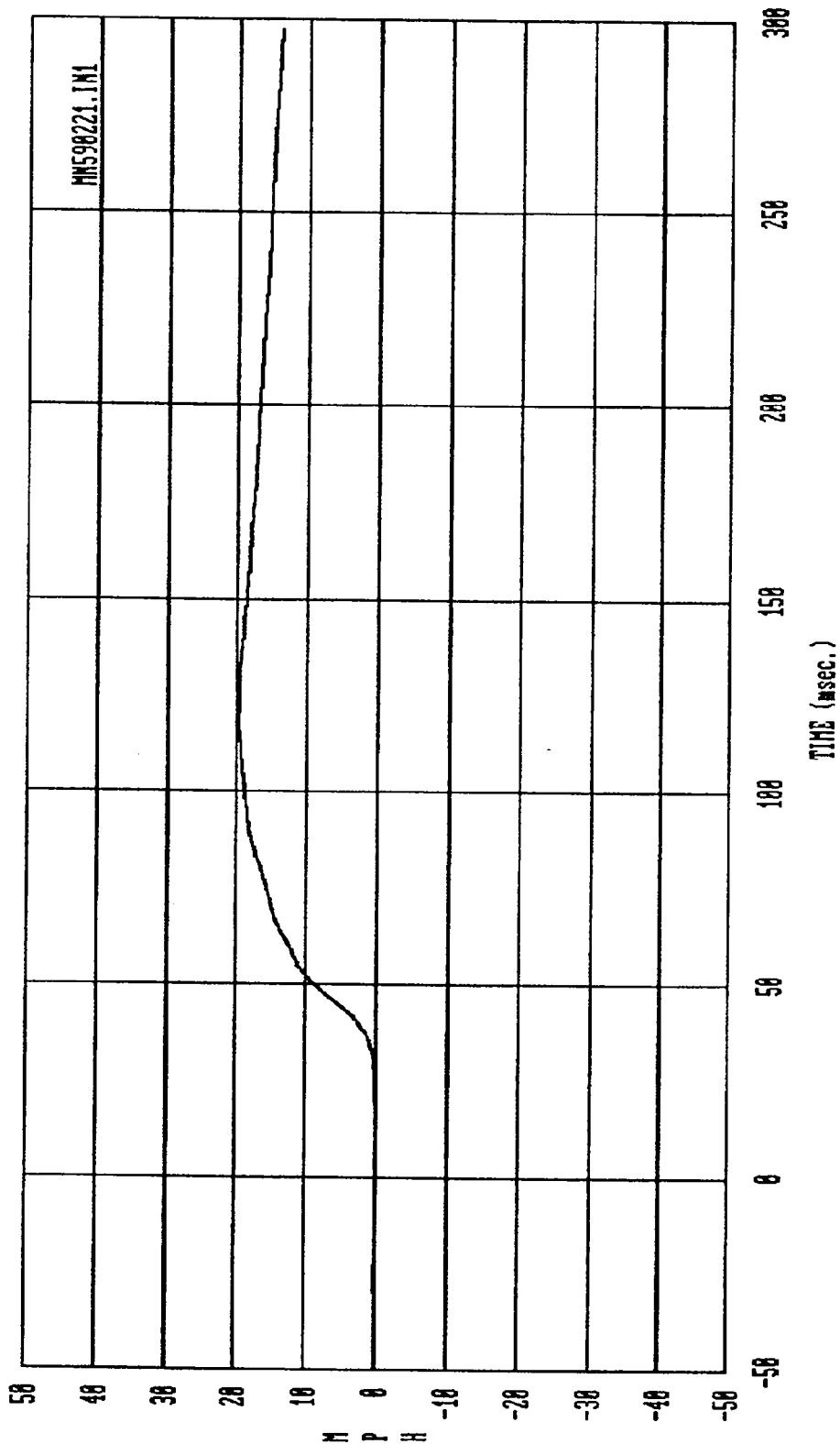
Curve: Passenger upper rib delta V -- Primary Filter: FIR 100 Max = 18.871 Min = .229235-01

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



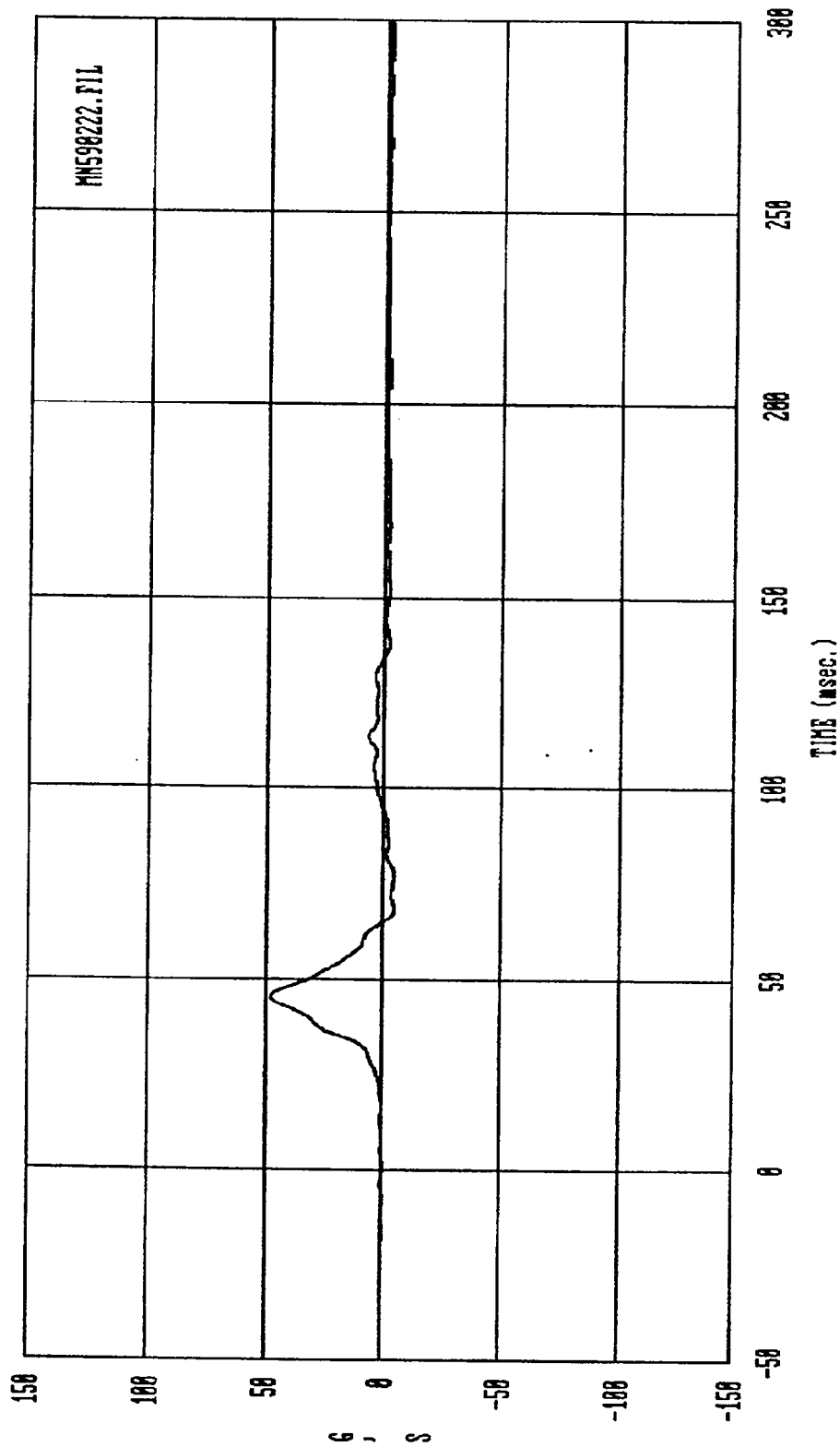
Curve: Passenger upper rib acceleration -- Redundant Filter: FIR 100 Max = 33.182 Min = -3.8371

HSE Date: 84/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door

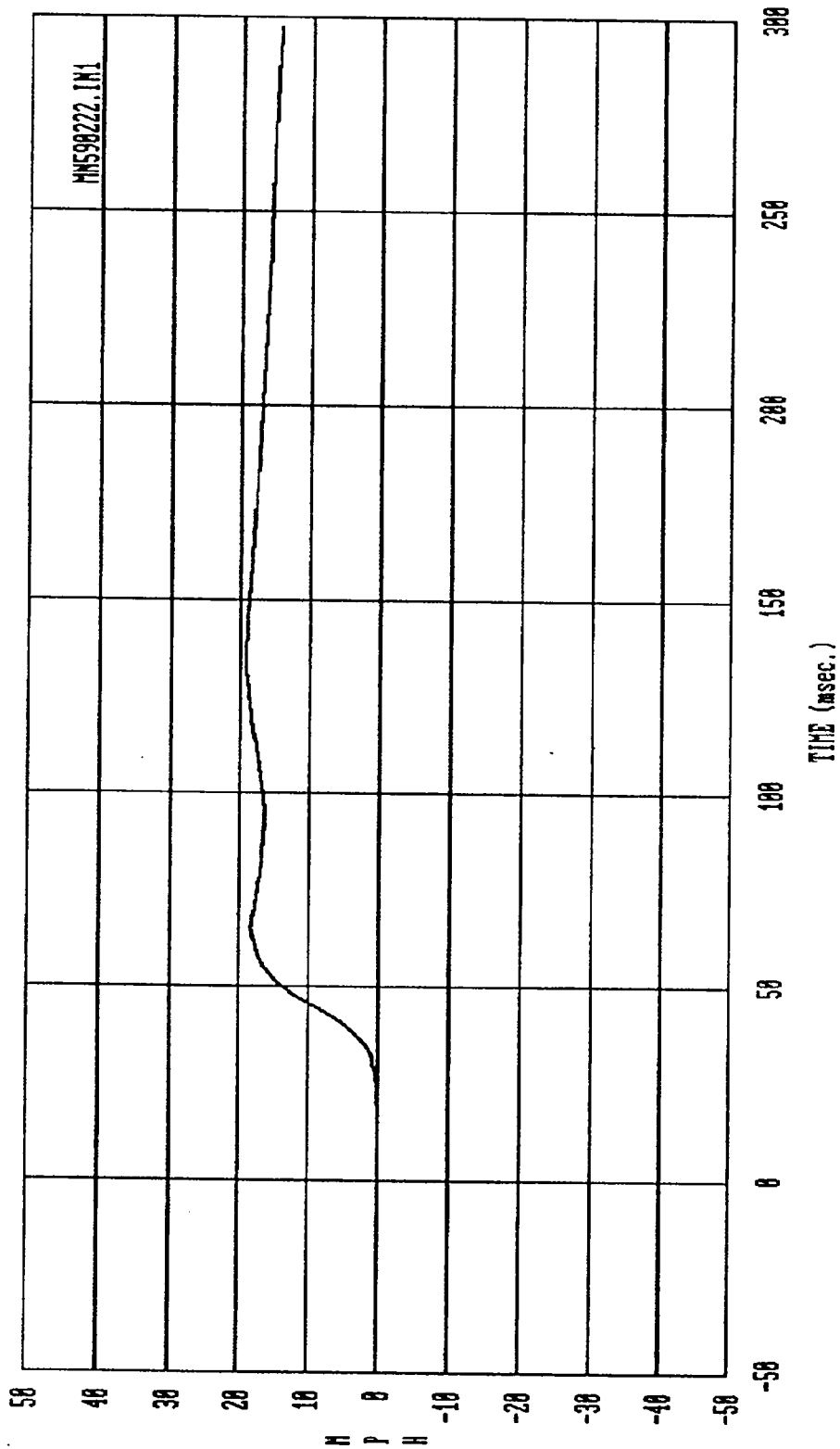


Curve: Passenger upper rib delta V — Redundant Filter: FIR 100 Max = 19.789 Min = .95545D-01

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door

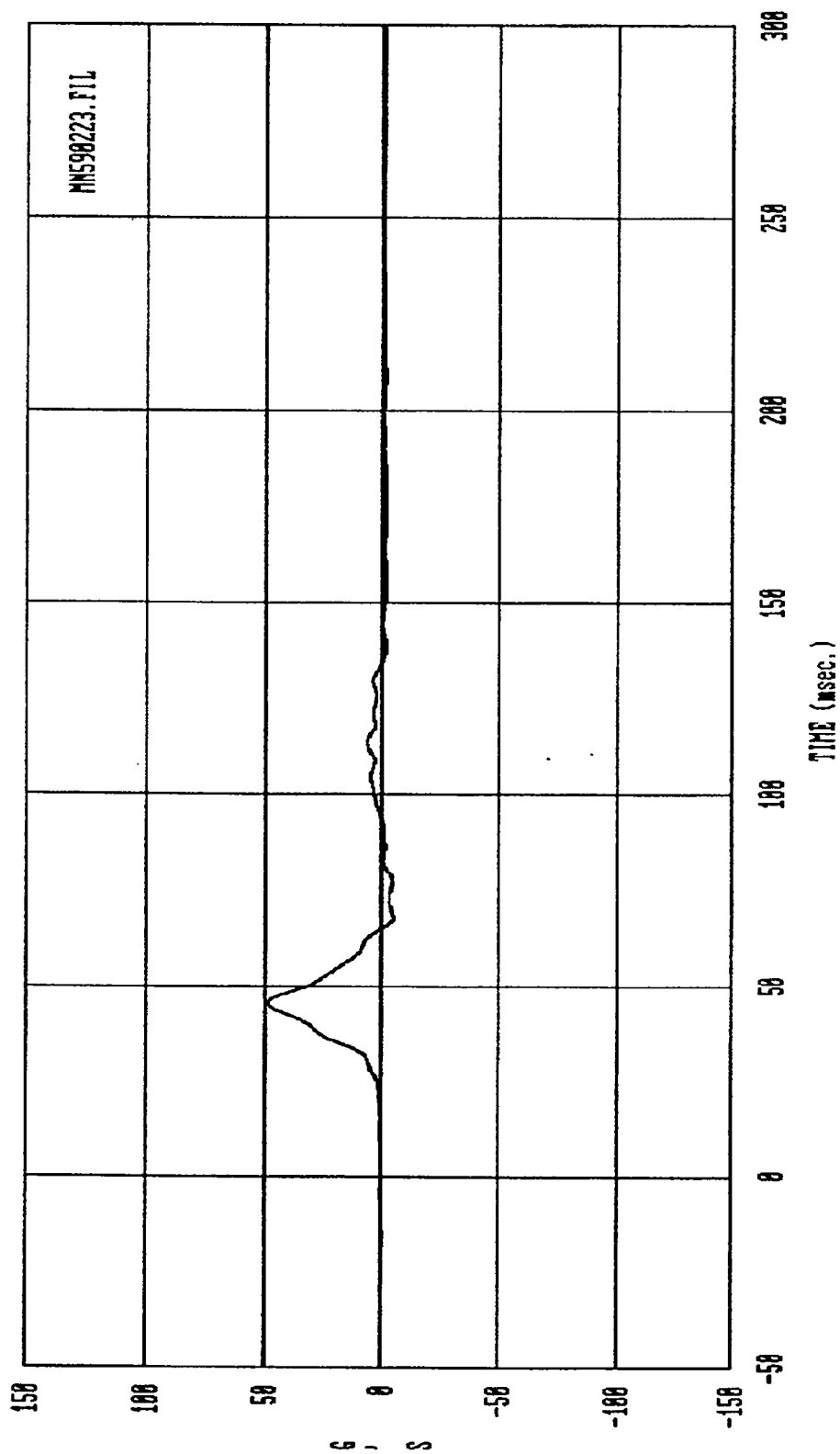


Curve: Passenger lower rib acceleration -- Primary Filter: FIR 100 Max = 48.583 Min = -4.9350
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



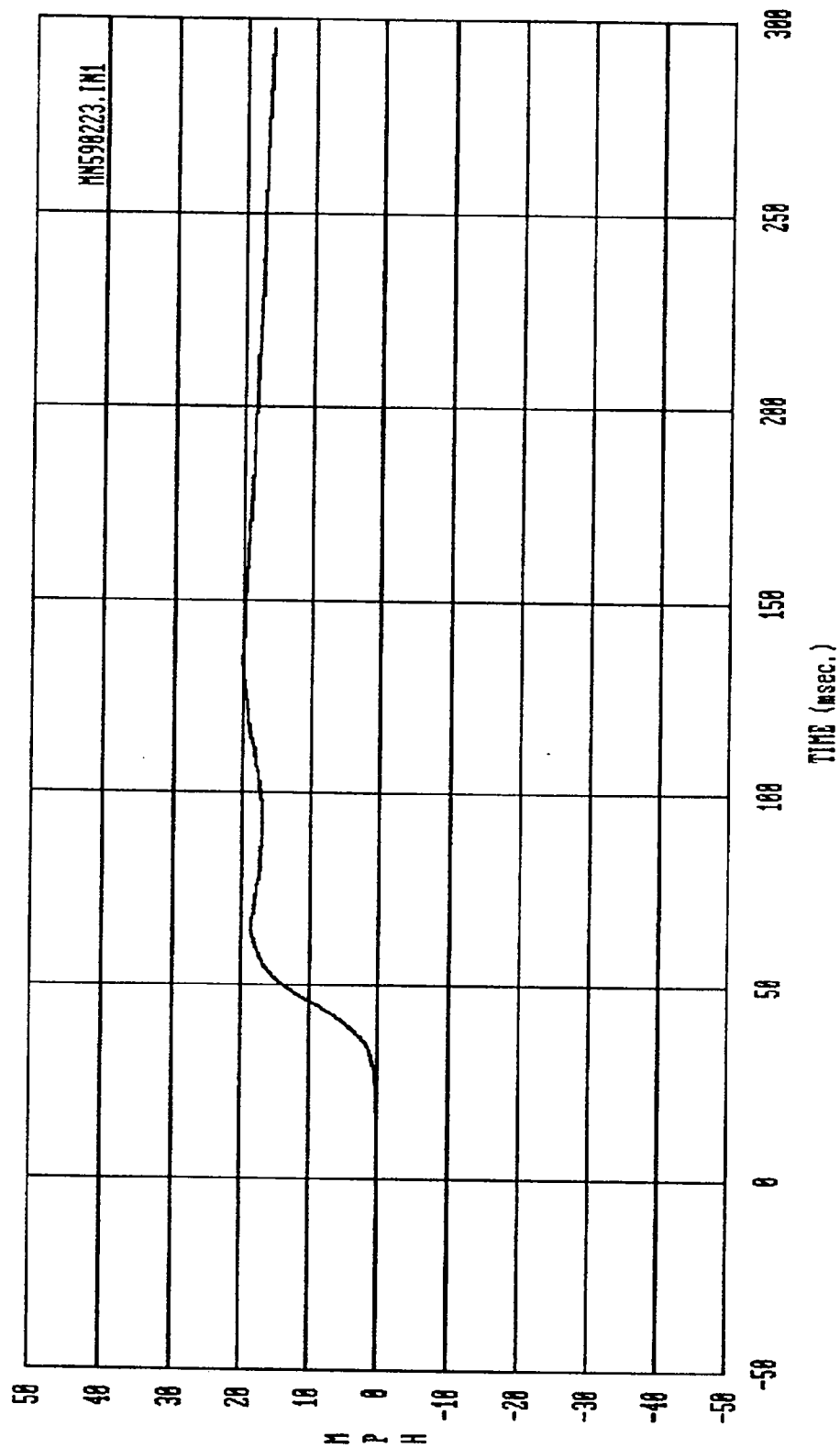
Curve: Passenger lower rib delta V -- Primary Filter: FIR 100 Max = 19.358 Min = -.16351E-01

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



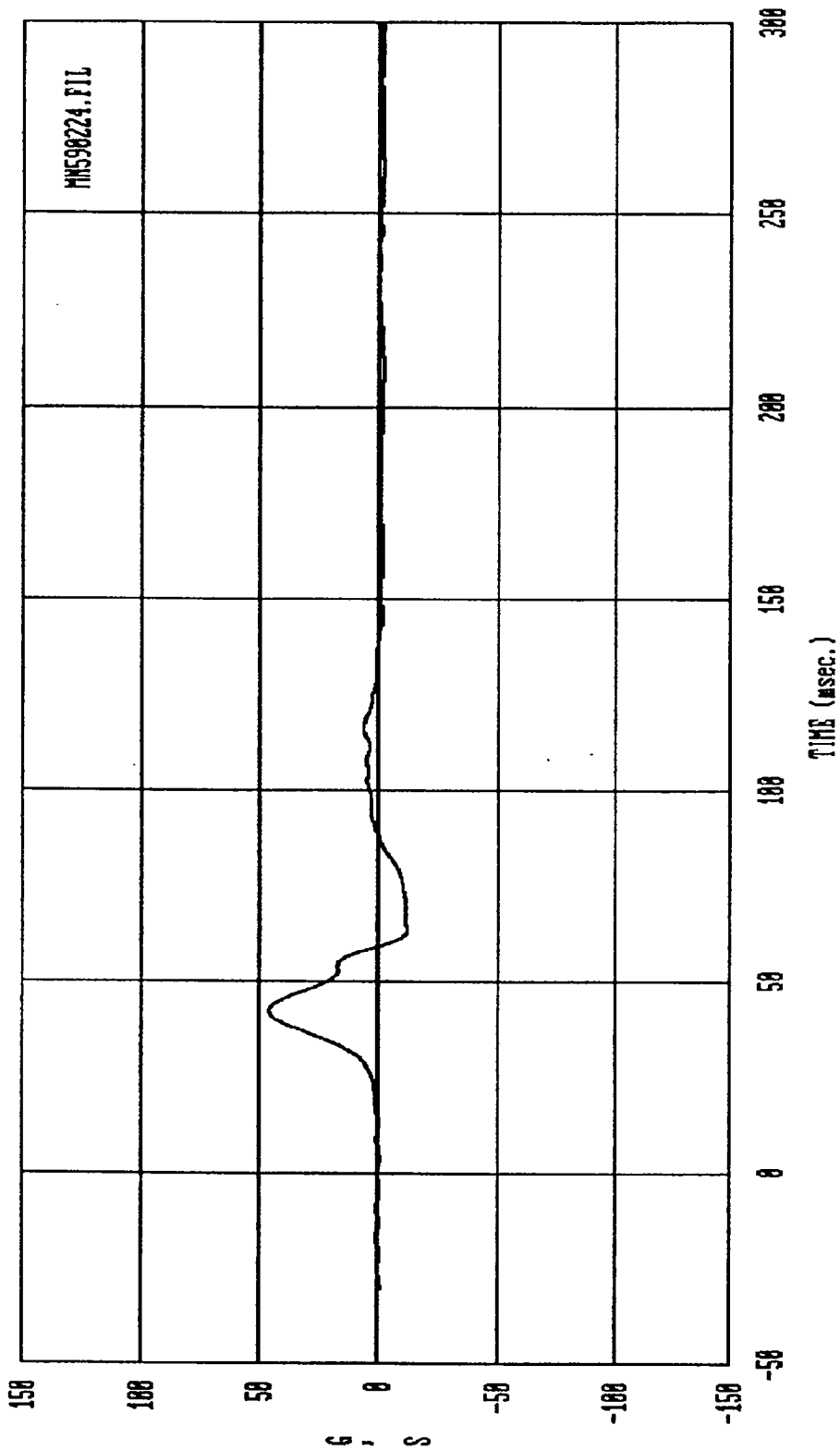
Curve: Passenger lower rib acceleration -- Redundant Filter: FIR 100 Max = 48.977 Min = -5.8410

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



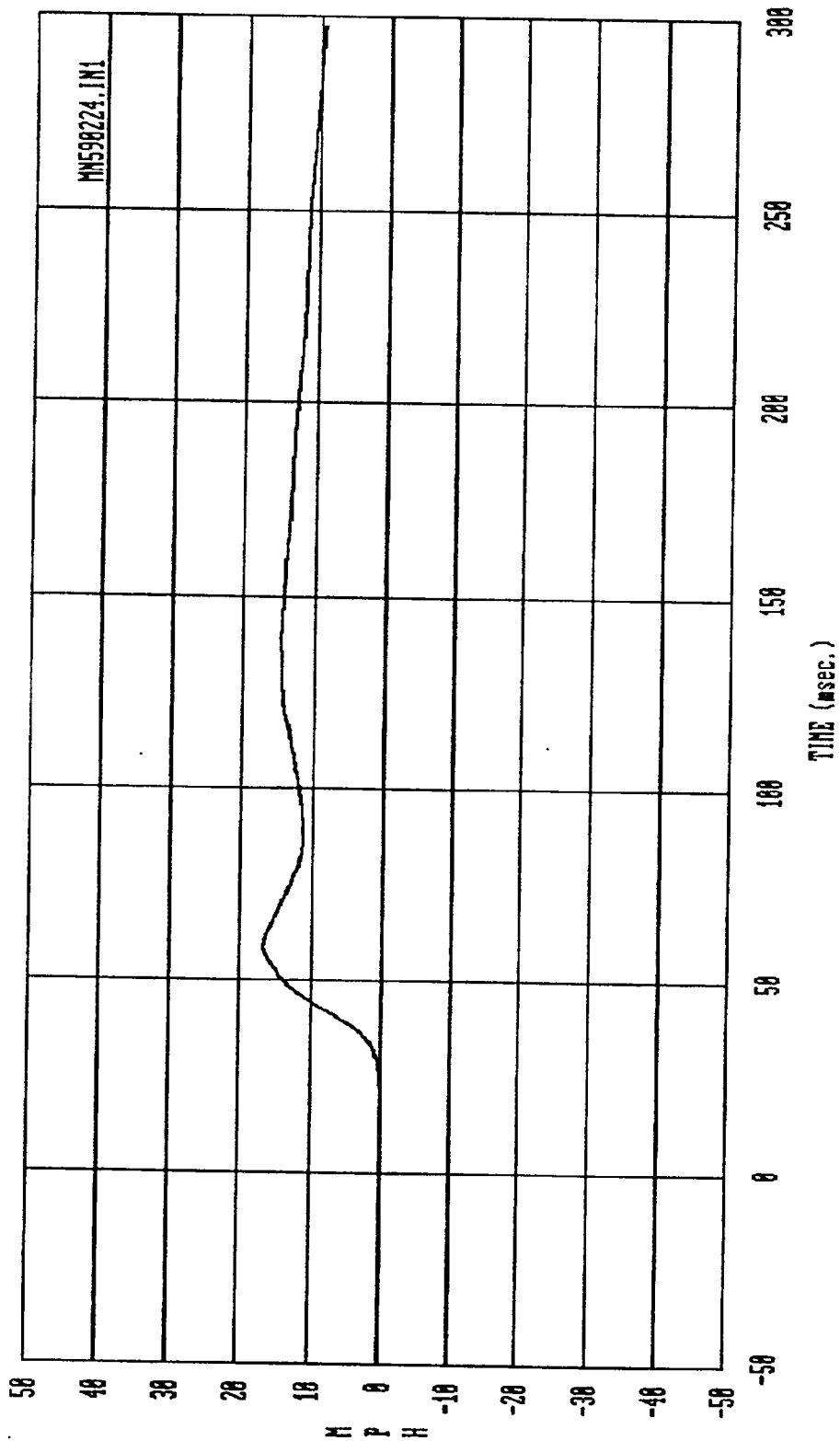
Curve: Passenger lower rib delta V -- Redundant Filter: FIR 100 Max = 28.166 Min = 16.210

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door

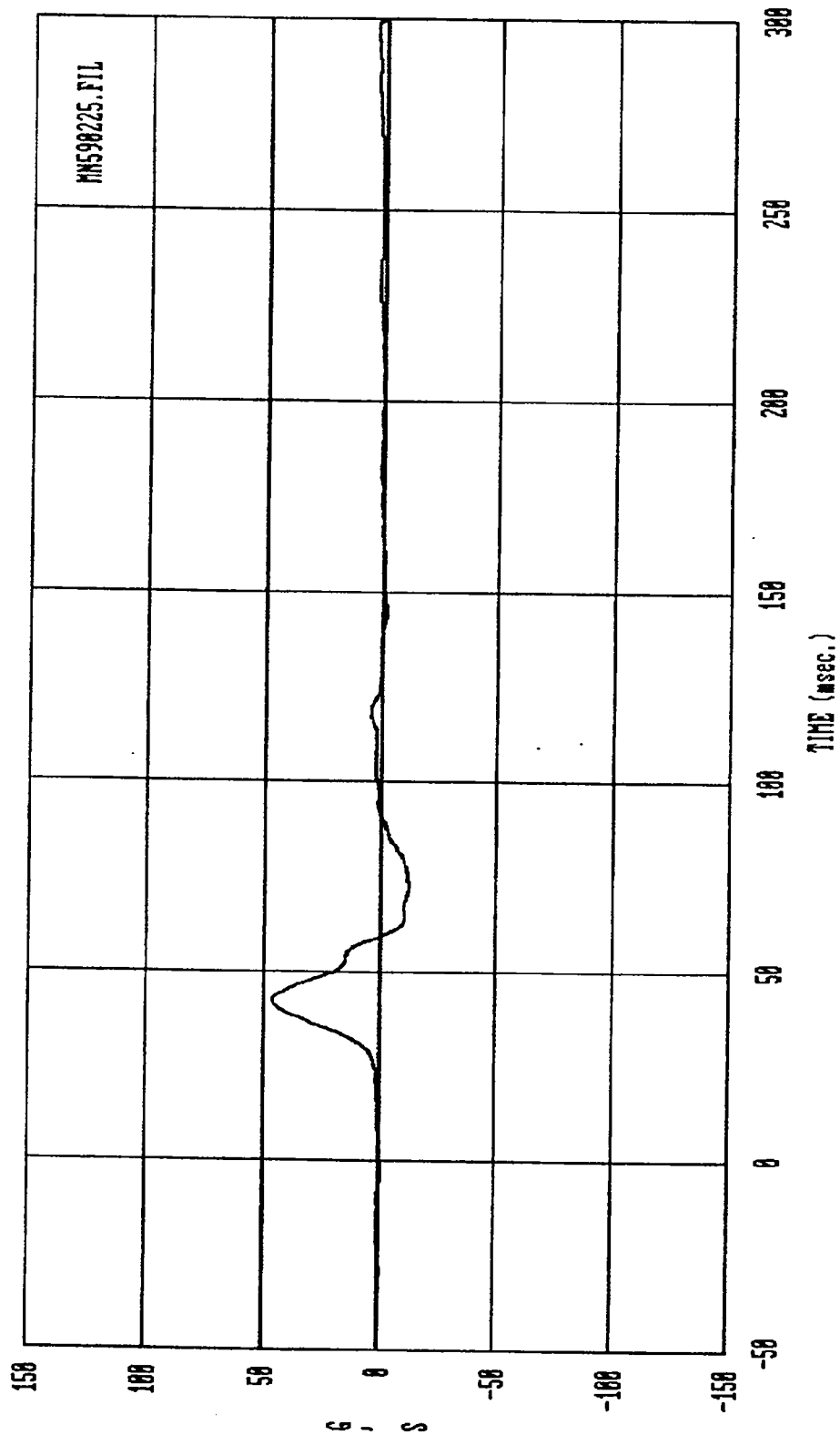


Curve: Passenger lower spine acceleration -- Primary Filter: FIR 180 Max = 46.188 Min = -12.336

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door

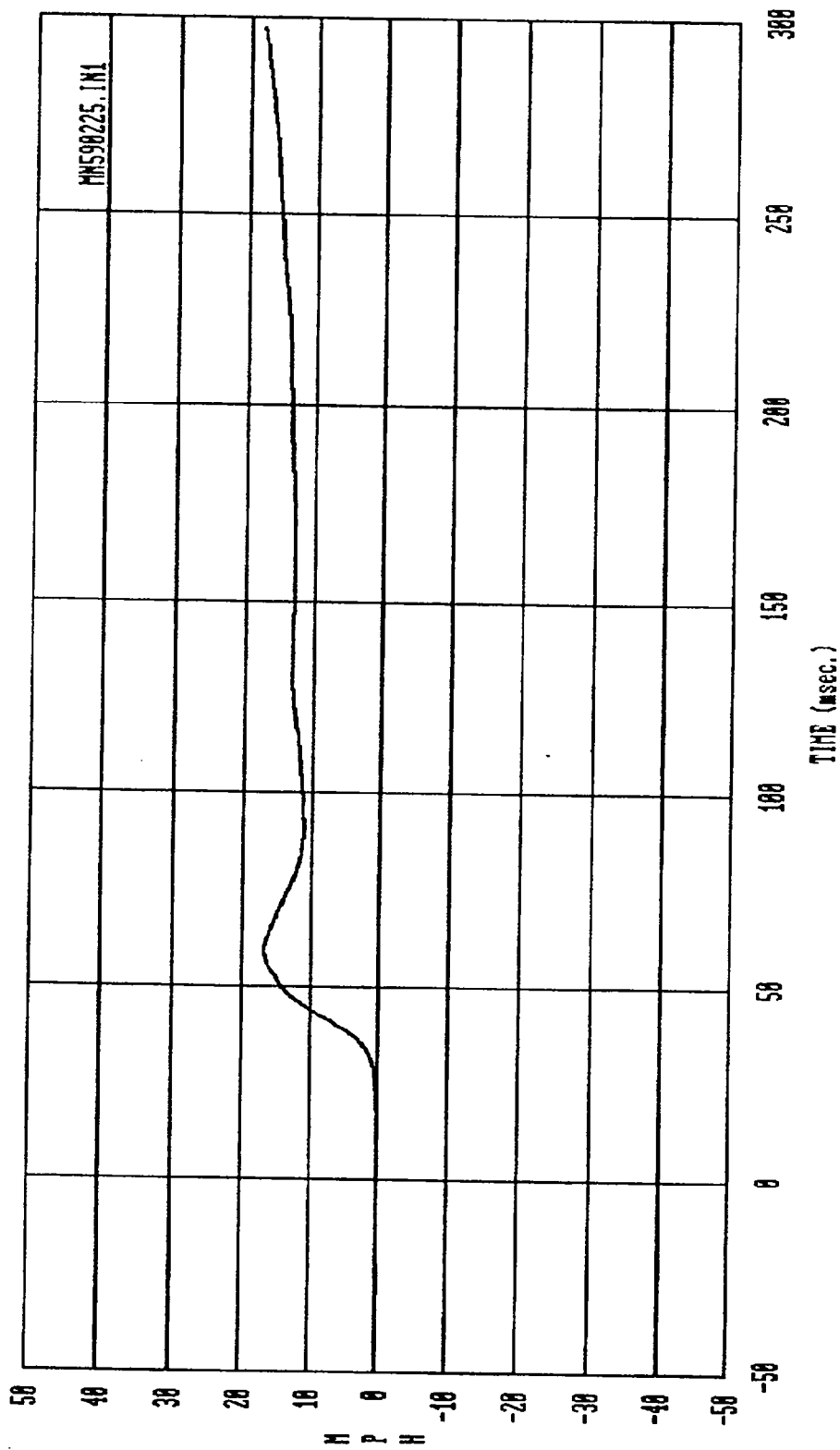


Curve: Passenger lower spine delta V — Primary Filter: FIR 100 Max = 16.888 Min = -7.48858-01
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



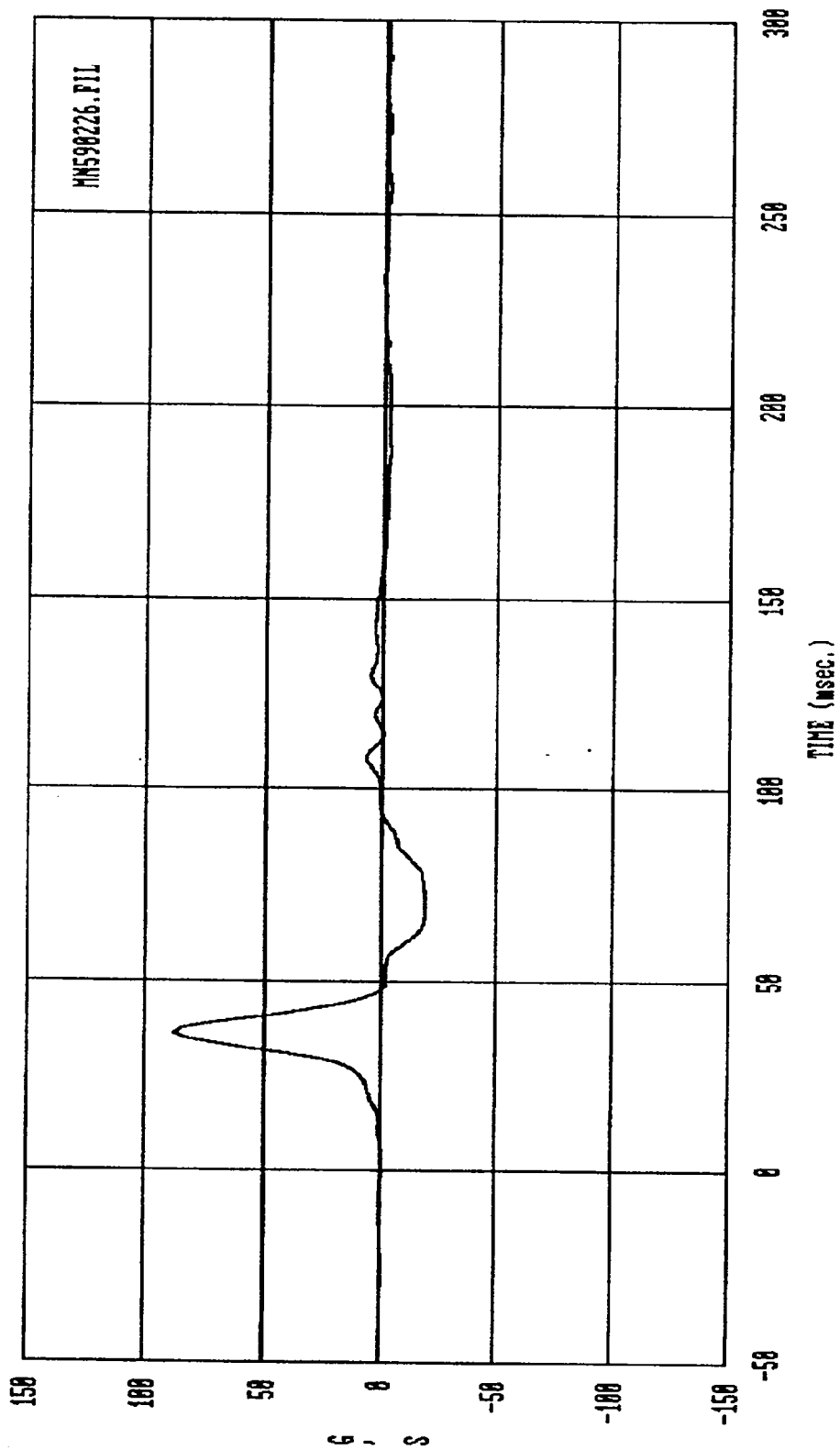
Curve: Passenger lower spine acceleration -- Redundant Filter: FIR 100 Max = 46.644 Min = -12.222

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GUS 4 Door

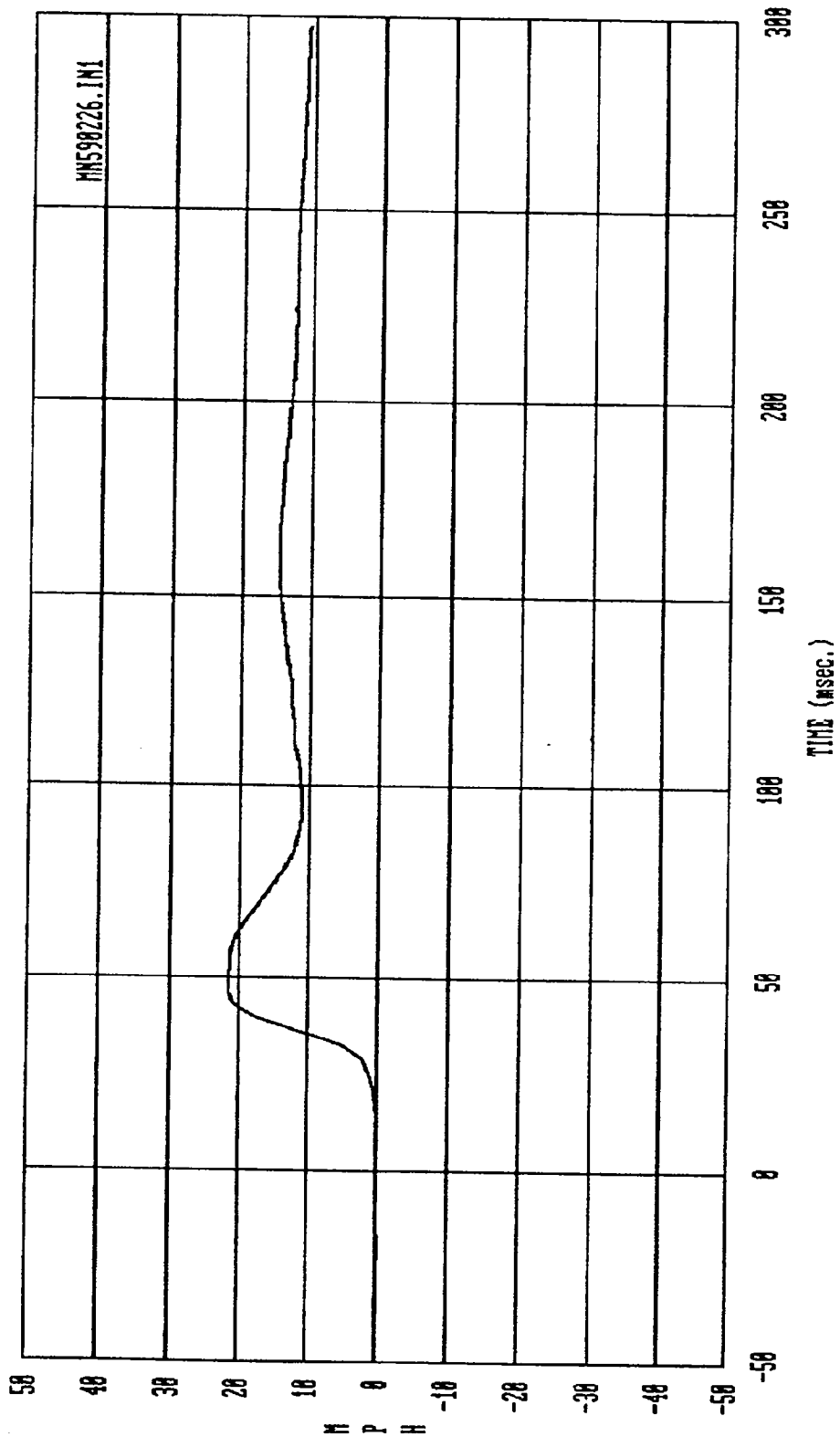


Curve: Passenger lower spine delta V -- Redundant Filter: FIR 100 Max = 18.192 Min = -15358E-01

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GUS 4 Door

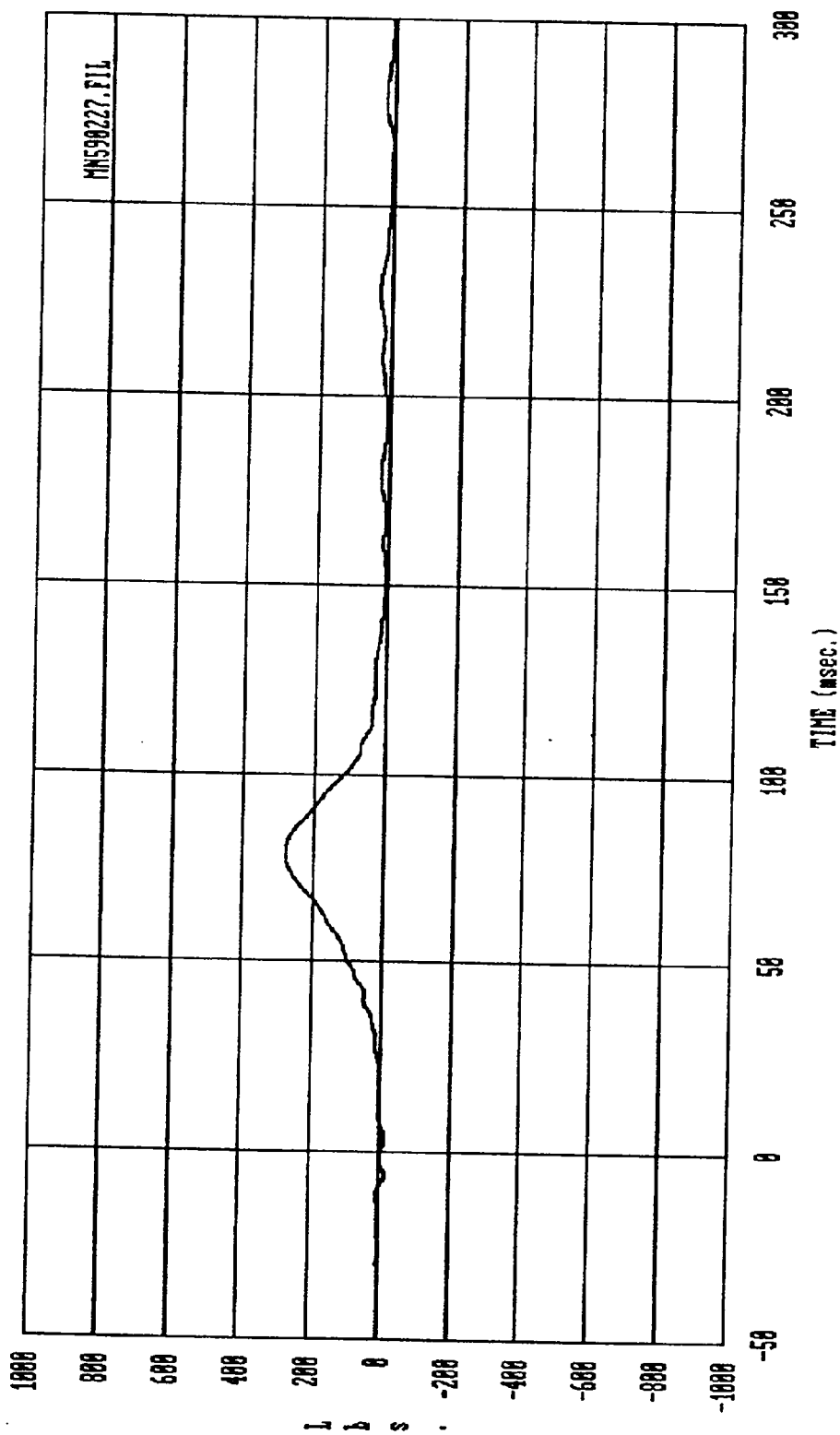


Curve: Passenger pelvis acceleration Filter: FIR 100 Max = 87.603 Min = -19.066
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Passenger pelvis delta V Filter: FIR 100 Max = 21.672 Min = -.57618E-01

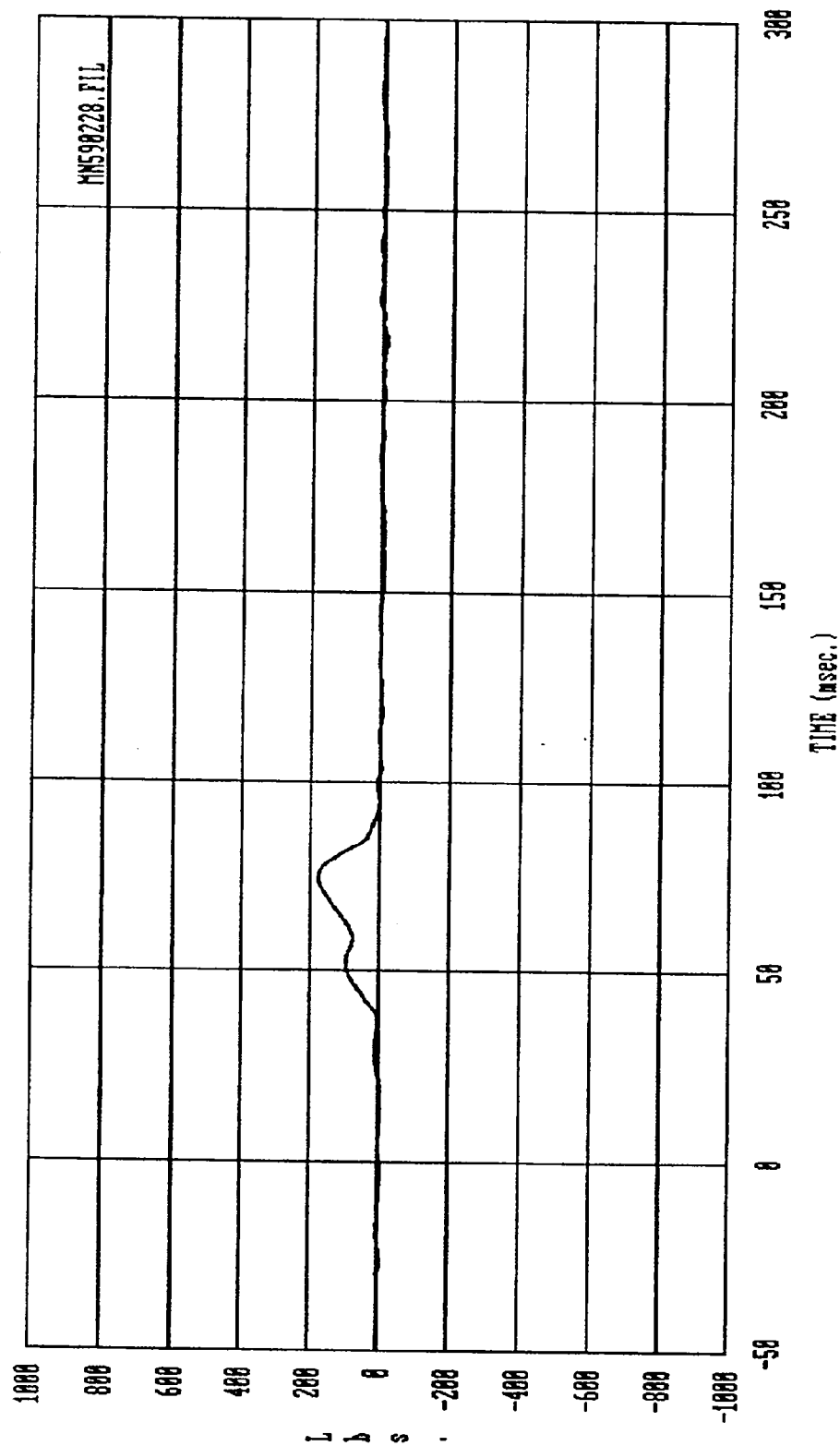
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



Curve: Passenger lap belt load

Filter: SAE CLASS 60 Max = 279.79 Min = -12.659

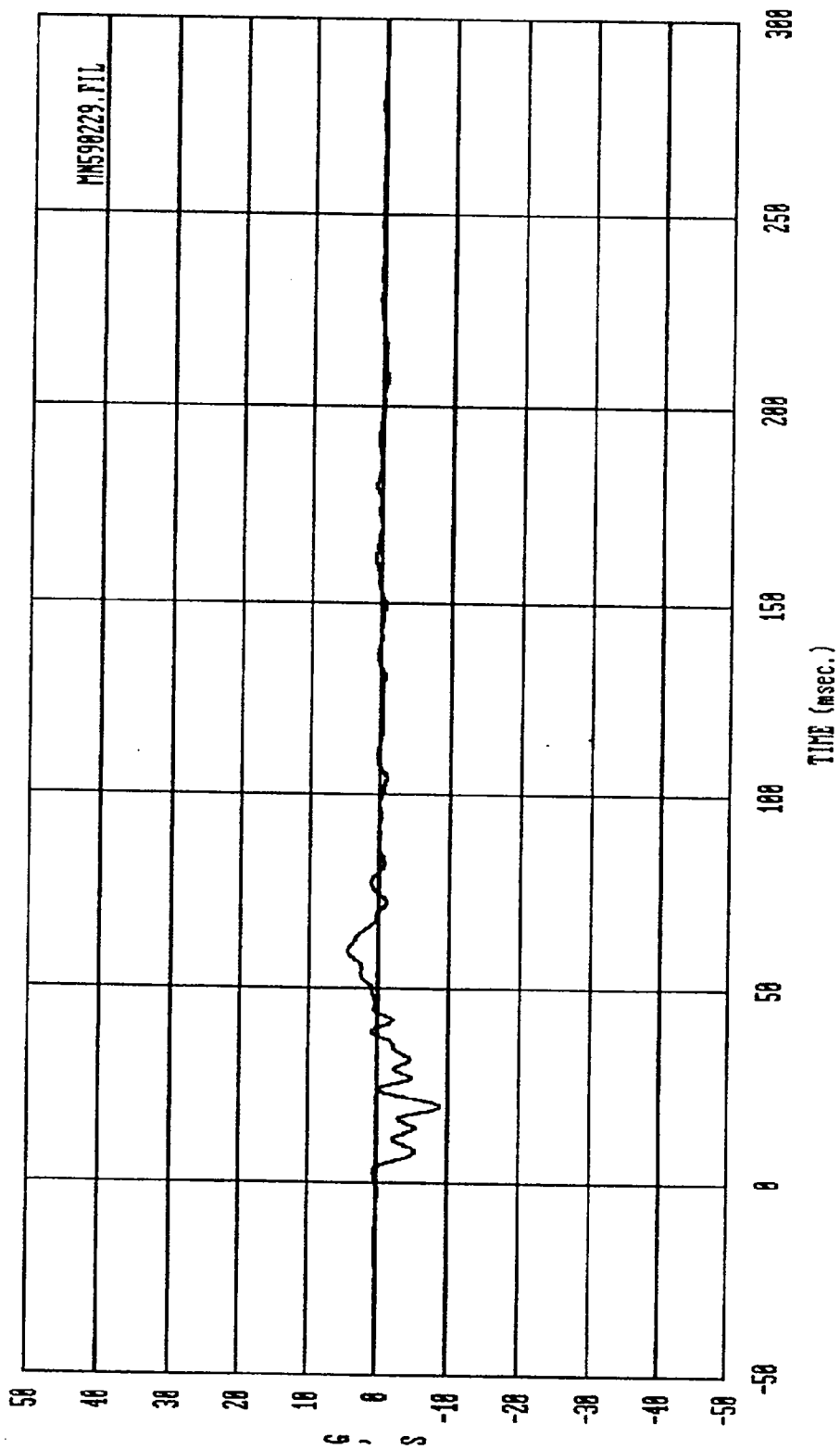
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



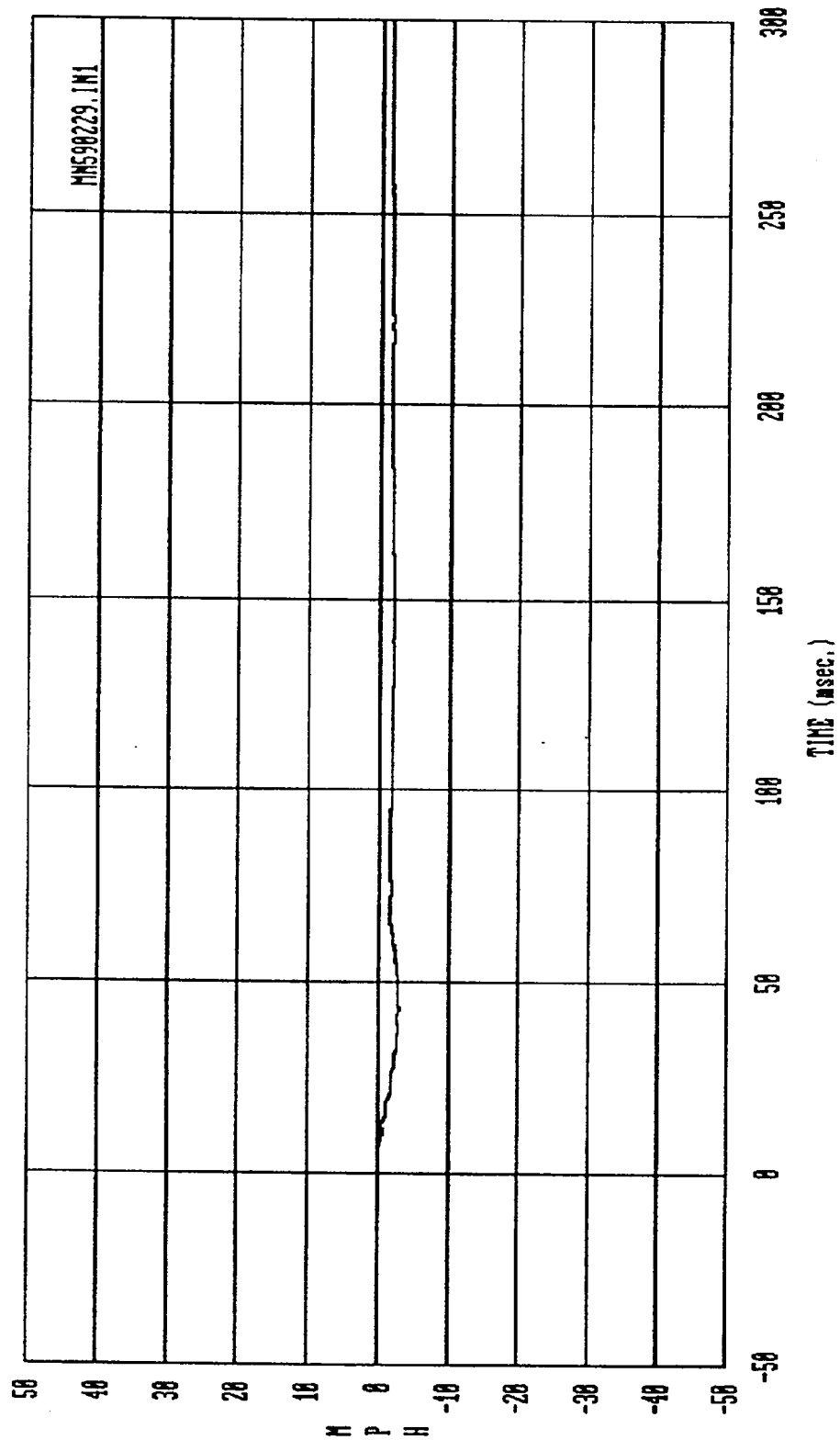
Curve: Passenger shoulder belt load Filter: SAE CLASS 60 Max = 177.22 Min = -10.789

MSE Date: 84/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door

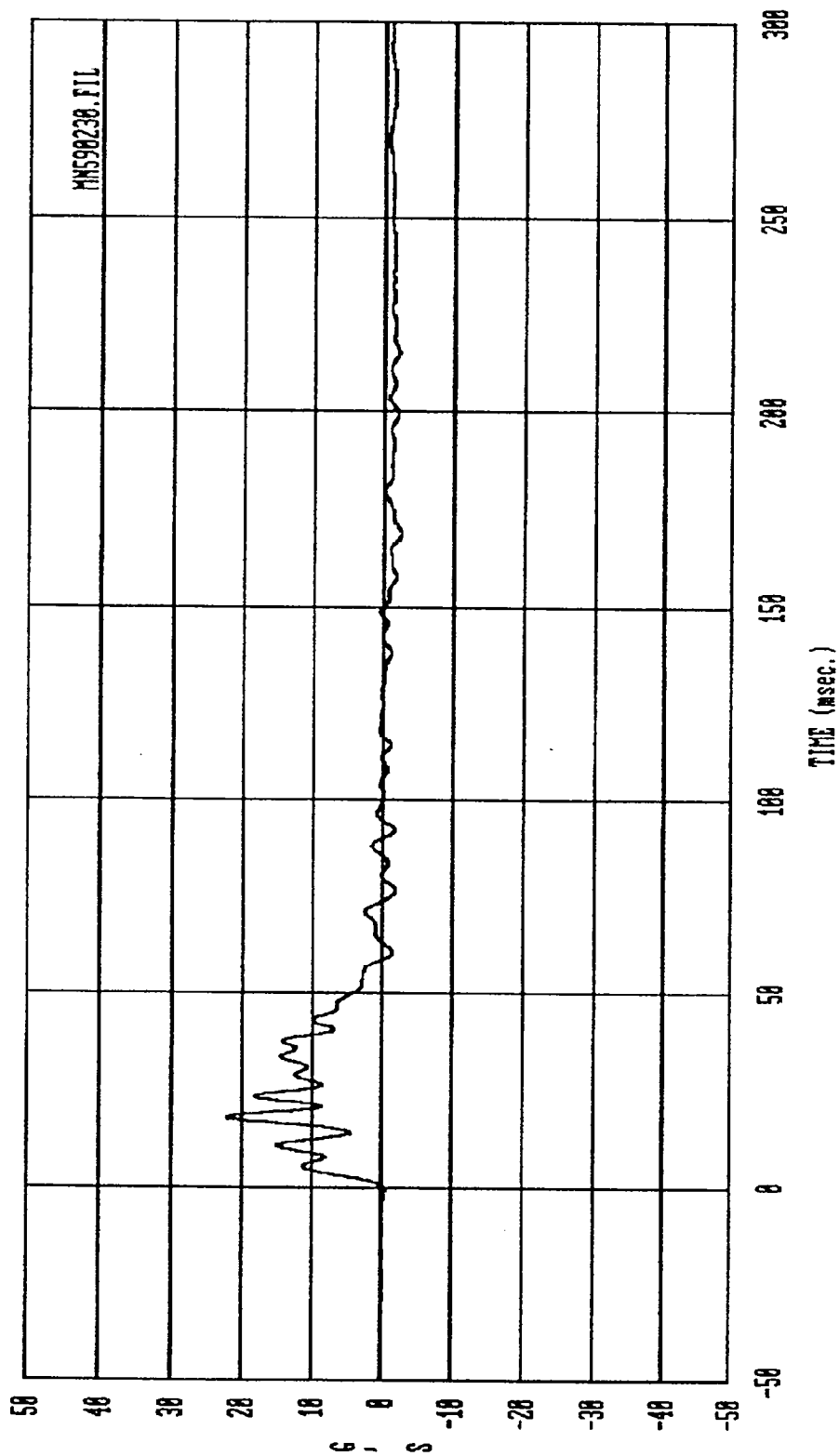
VEHICLE ACCELEROMETER DATA



Curve: Front seat right sill acceleration -- X axis Filter: SAE CLASS 60 Max = 4.4977 Min = -9.1193
 MSE Date: 84/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door

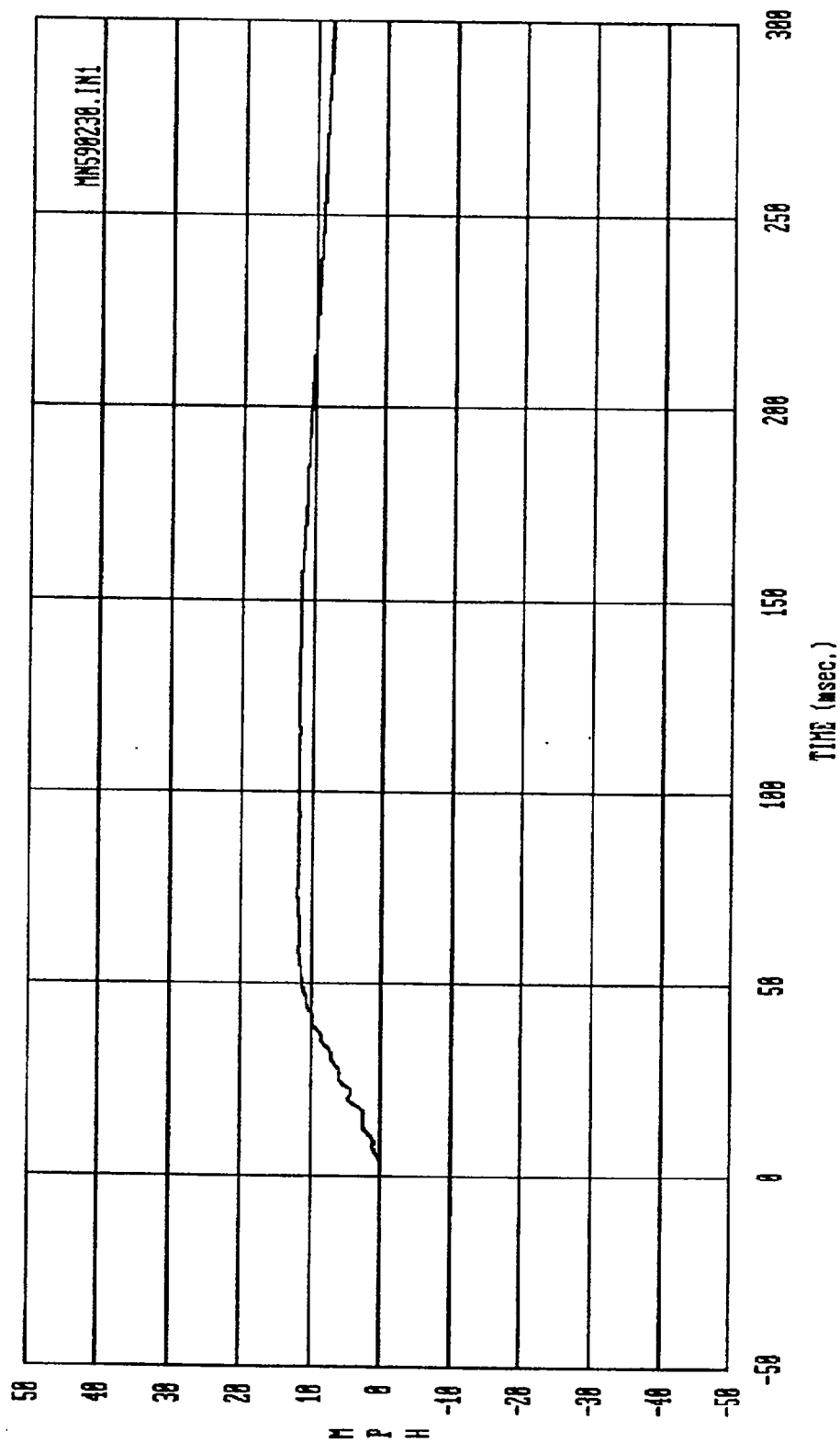


Curve: Front seat right sill delta V — X axis Filter: SAE CLASS 180 Max = .66292E-01 Min = -2.8443
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



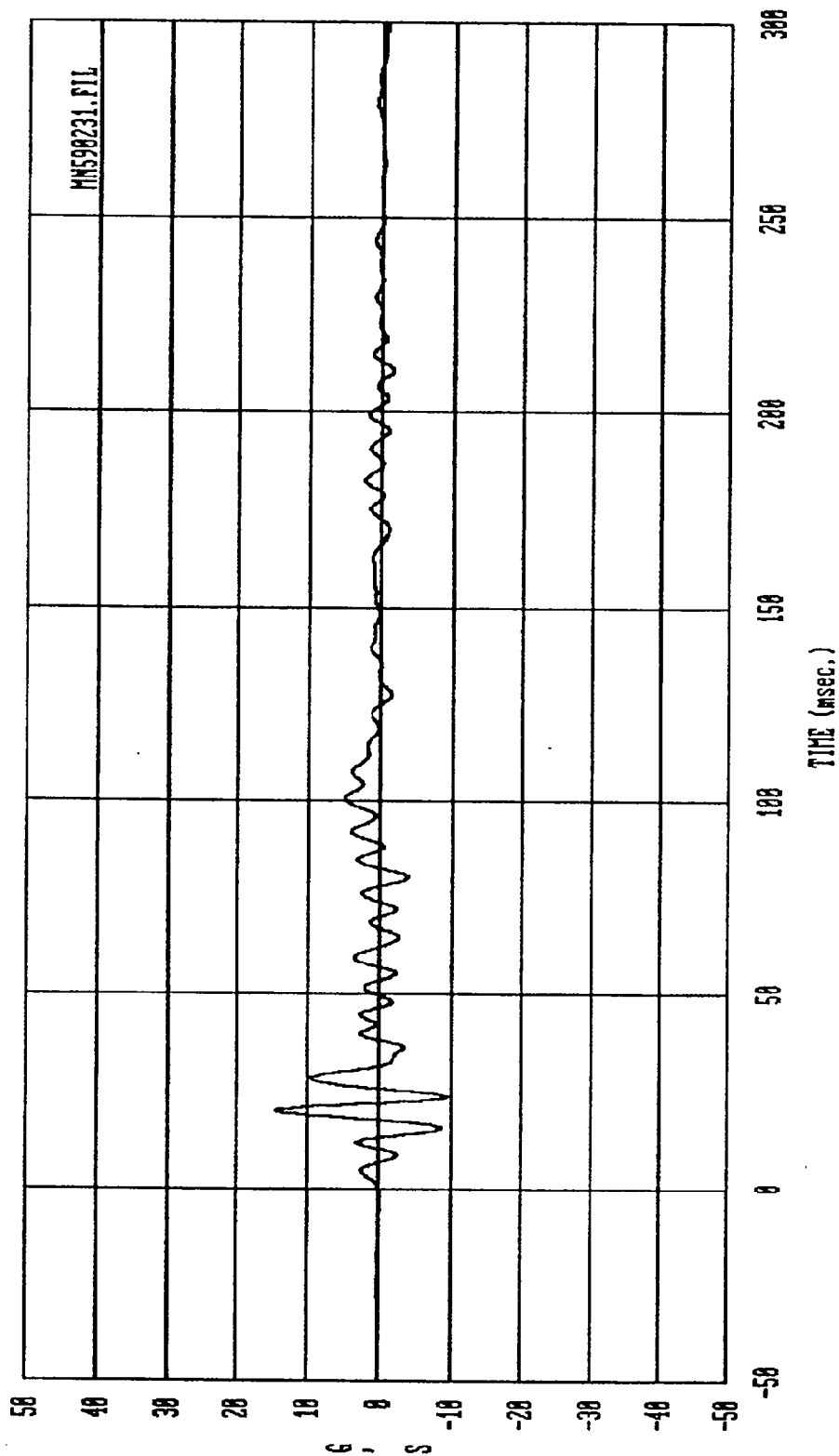
Curve: Front seat right sill acceleration -- Y axis Filter: SAE CLASS 60 Max = 22.225 Min = -2.5089

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



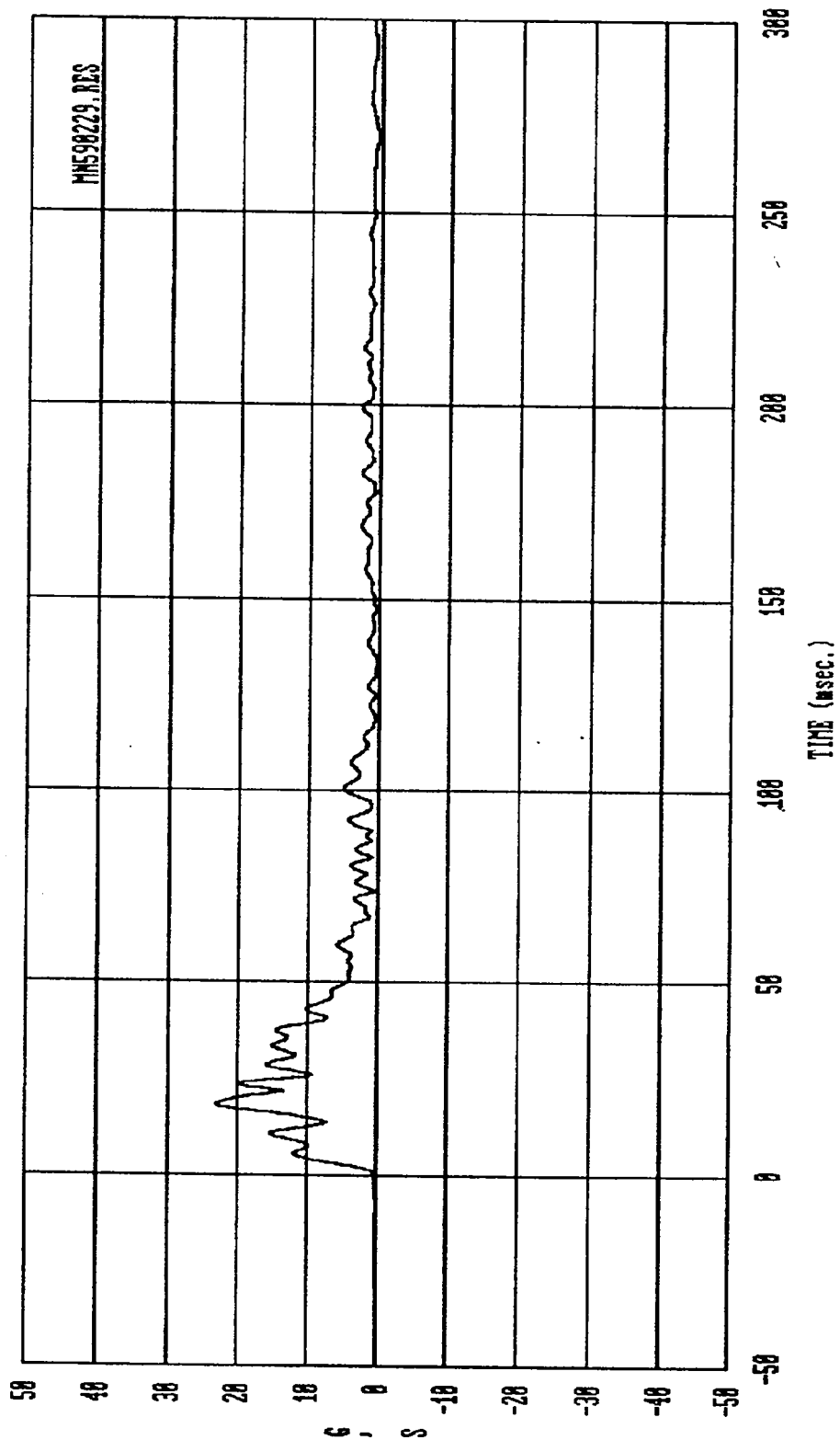
Curve: Front seat right sill delta V -- Y axis Filter: SAE CLASS 100 Max = 12.129 Min = -.148162-01

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



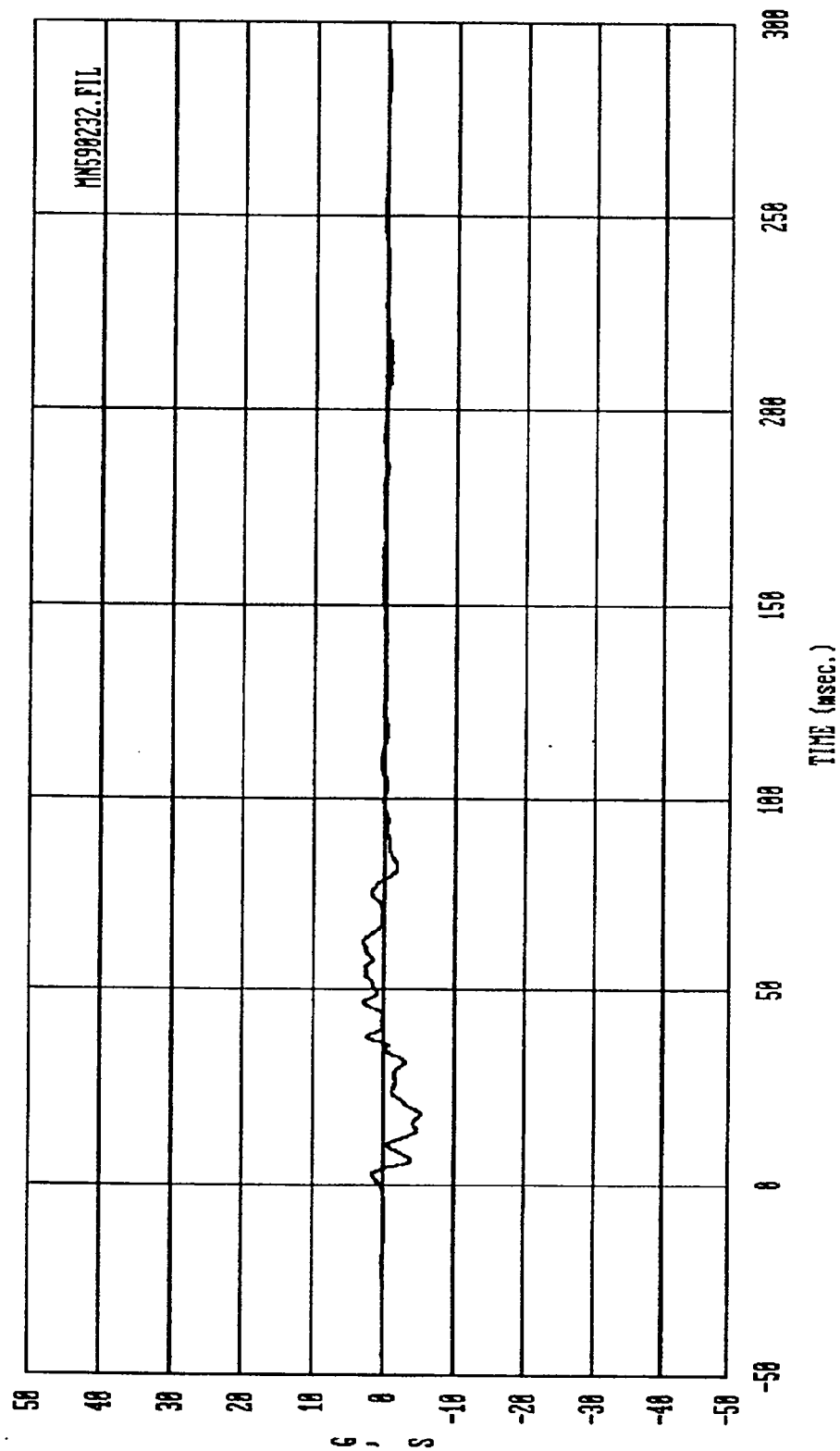
Curve: Front seat right sill acceleration — Z axis Filter: SAE CLASS 60 Max = 14.578 Min = -9.3296

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



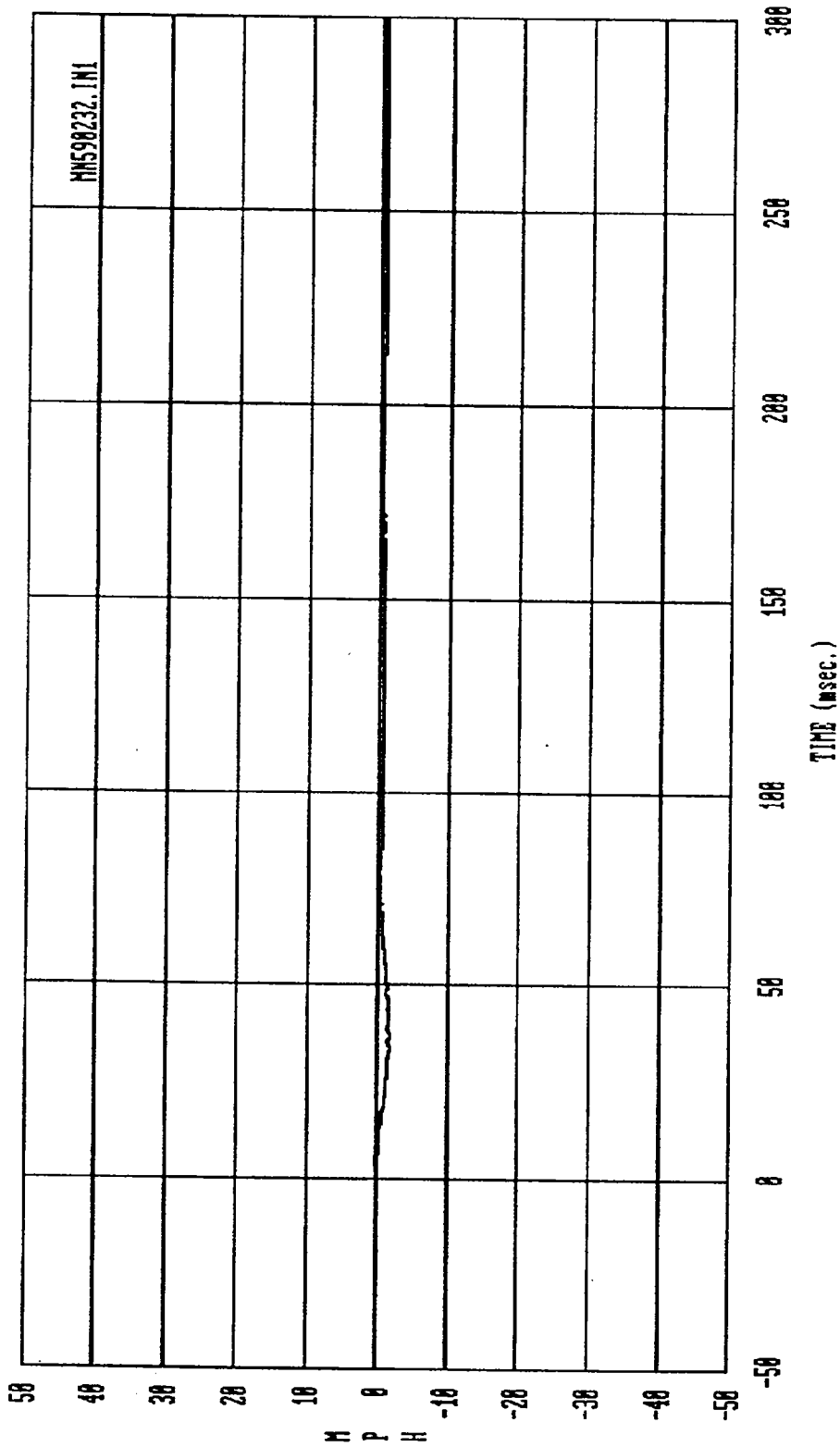
Curve: Front seat right sill resultant acceleration Filter: SAE CLASS 60 Max = 23.188 Min = .28882

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door

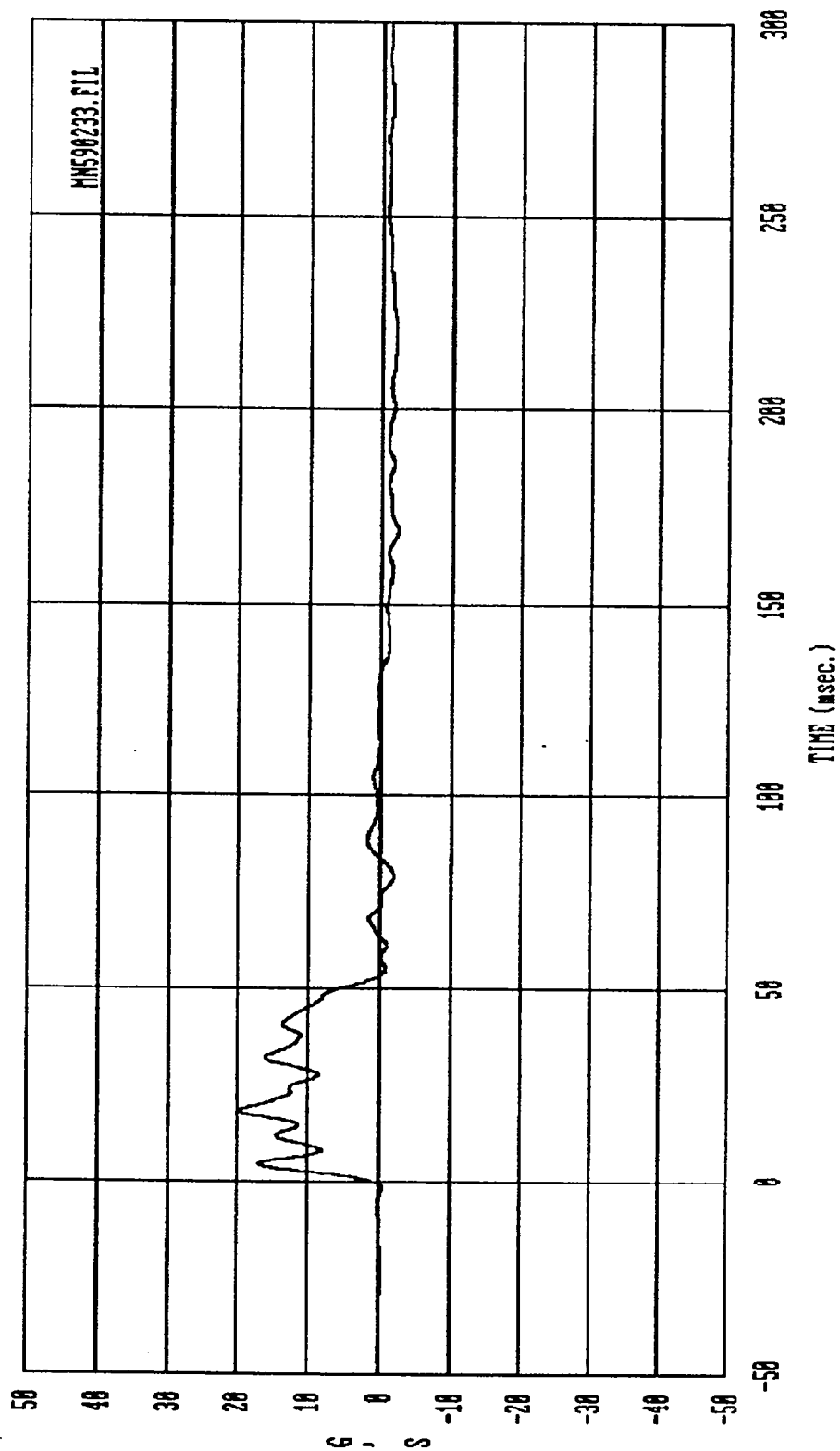


Curve: Rear seat right sill acceleration -- X axis Filter: SAE CLASS 60 Max = 2.9329 Min = -5.3305

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door

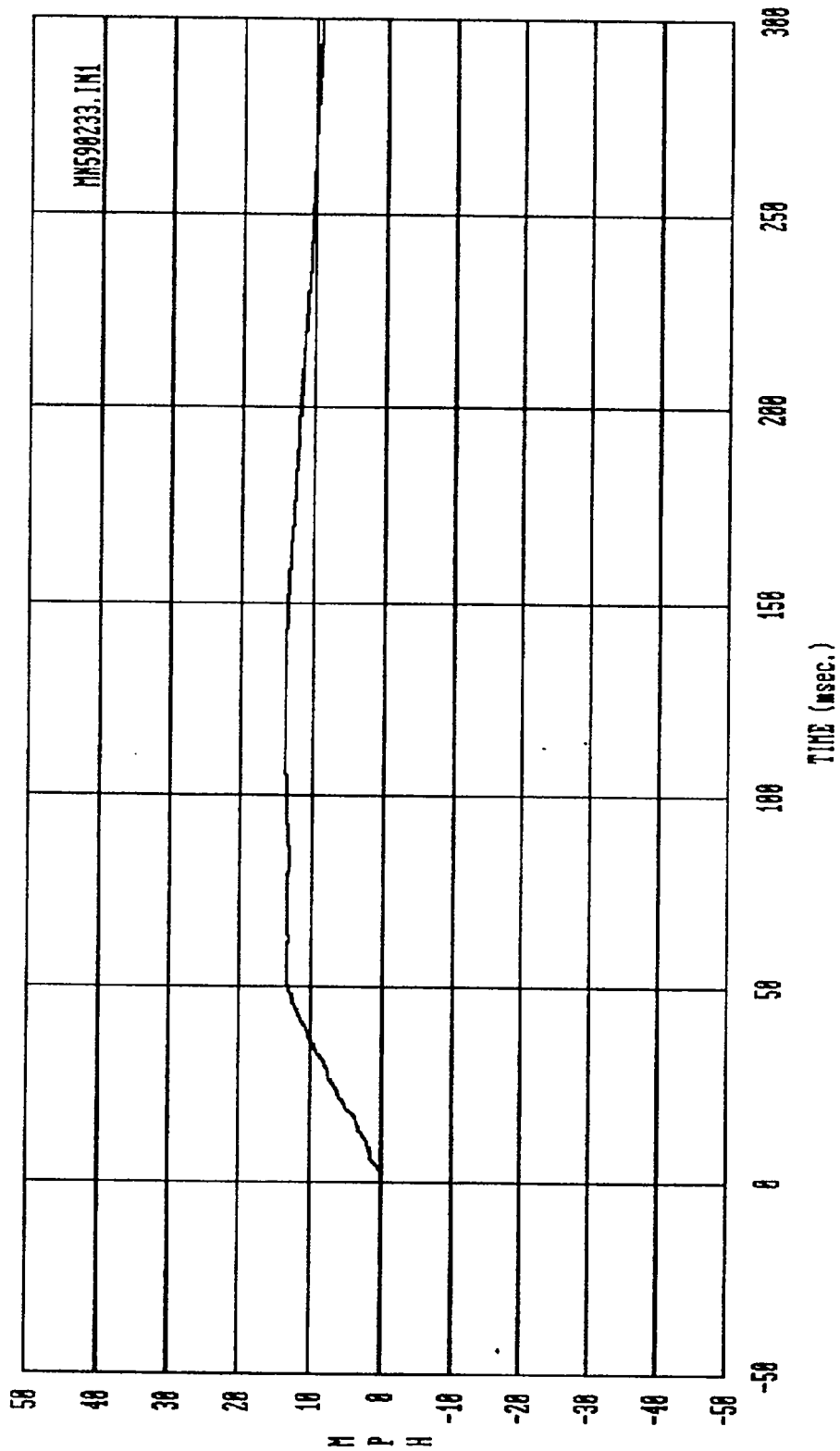


Curve: Rear seat right sill delta V -- X axis Filter: SAE CLASS 180 Max = .24938 Min = -1.8191
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



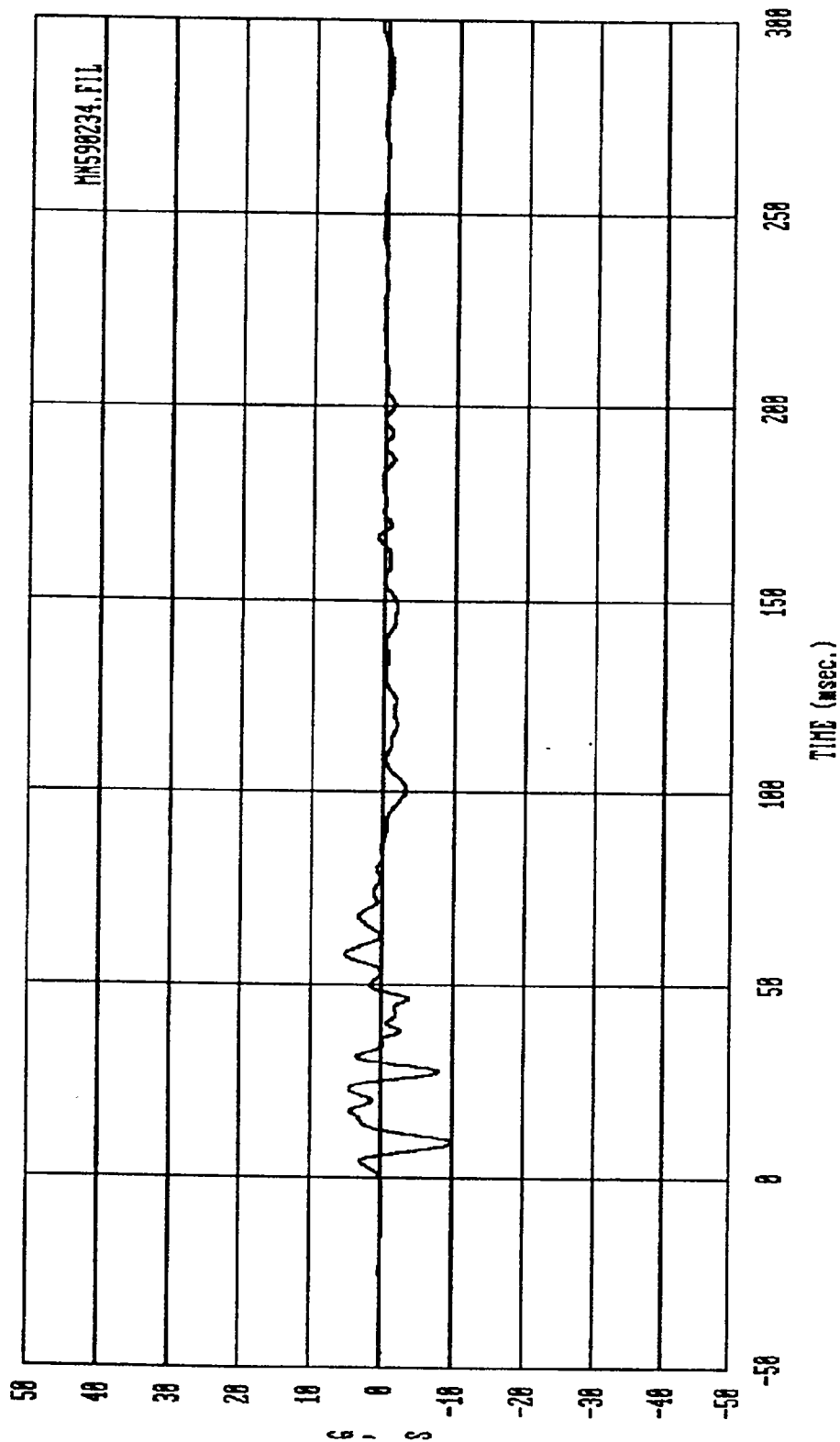
Curve: Rear seat right sill acceleration -- Y axis Filter: SAE CLASS 60 Max = 19.818 Min = -2.3853

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



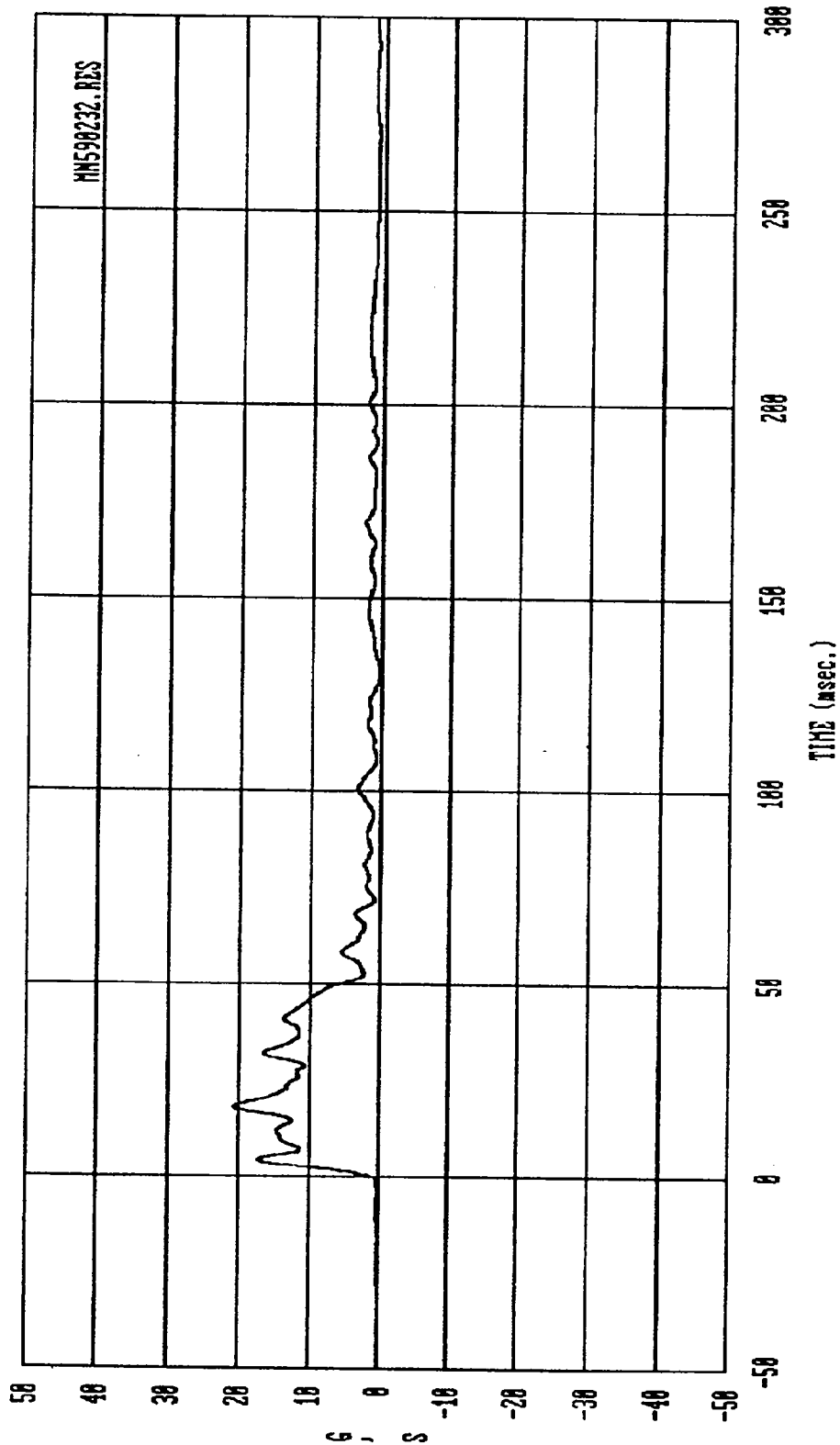
Curve: Rear seat right sill delta V — Y axis Filter: SAE CLASS 180 Max = 13.863 Min = 9.1984

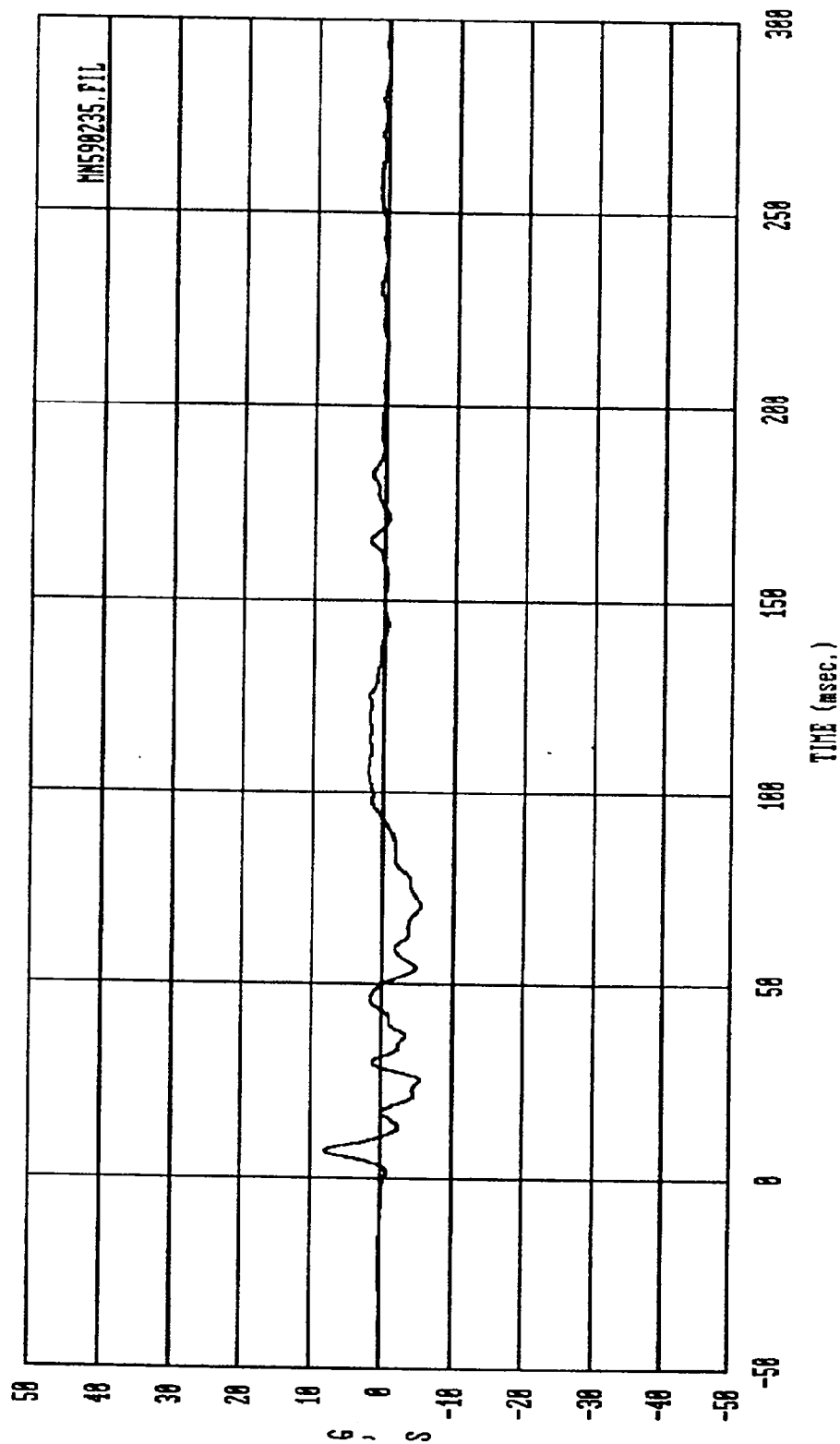
HSE Date: 8/4/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



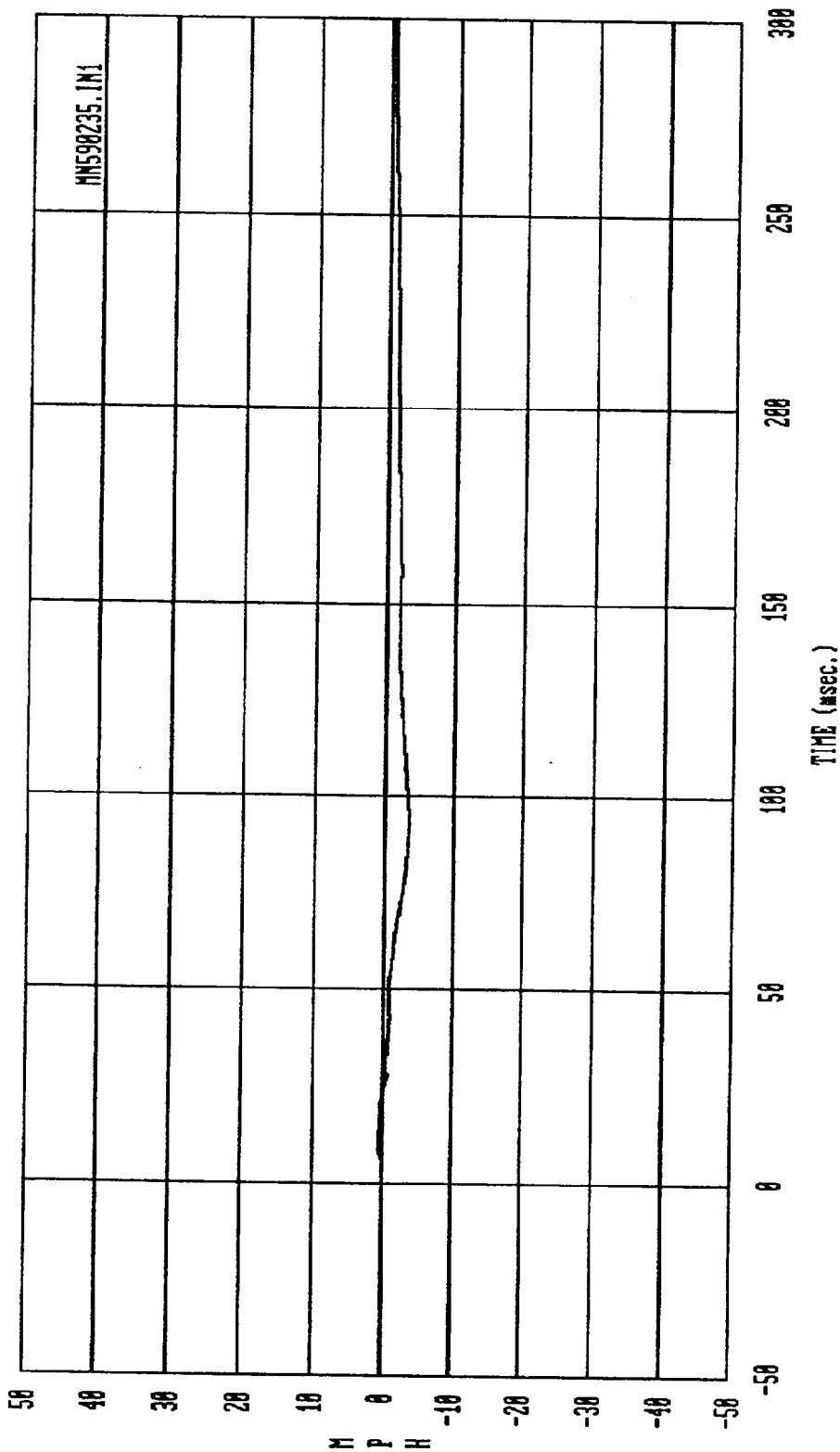
Curve: Rear seat right sill acceleration — Z axis Filter: SAE CLASS 60 Max = 5.2836 Min = -10.088

NSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door

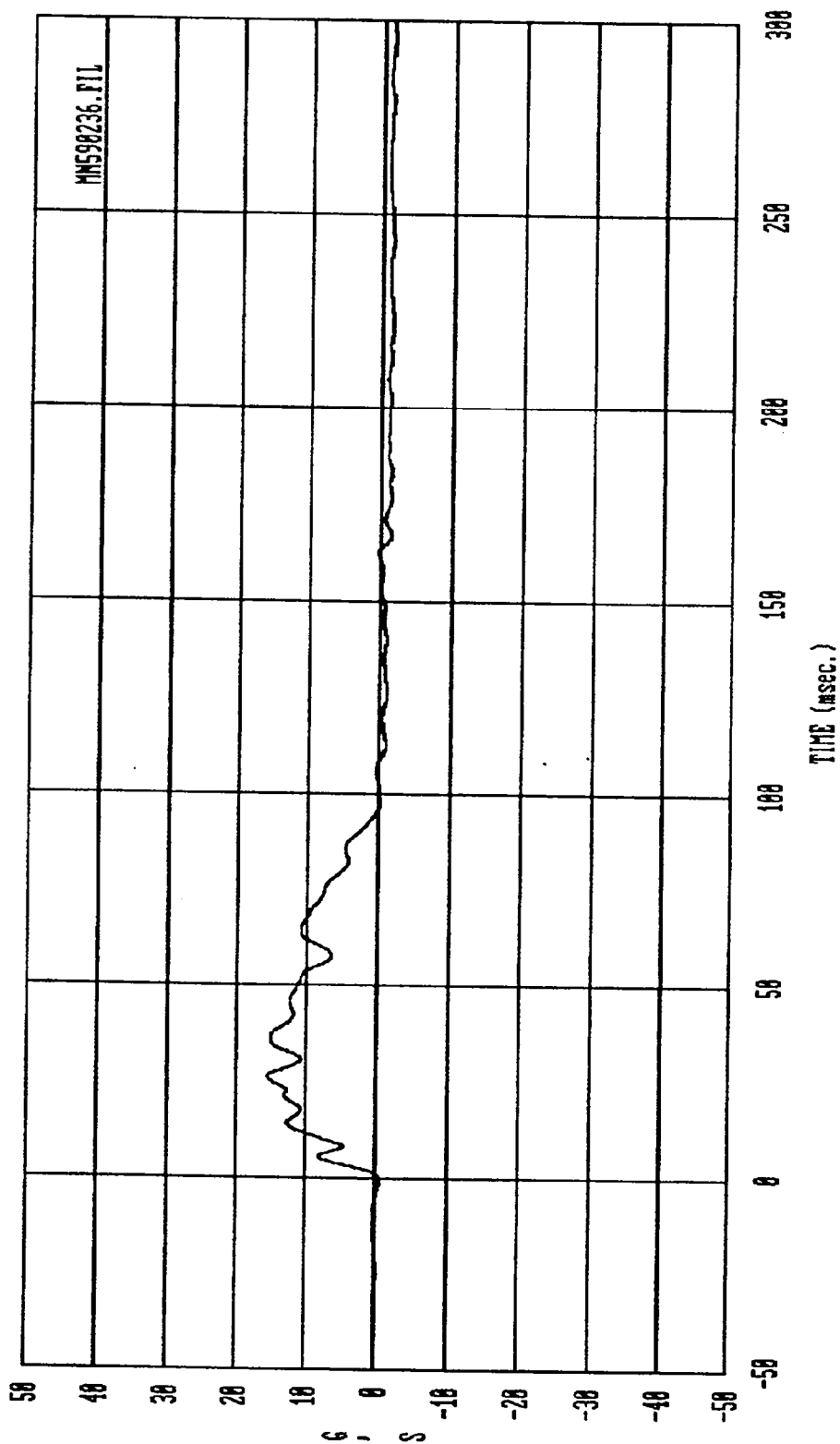




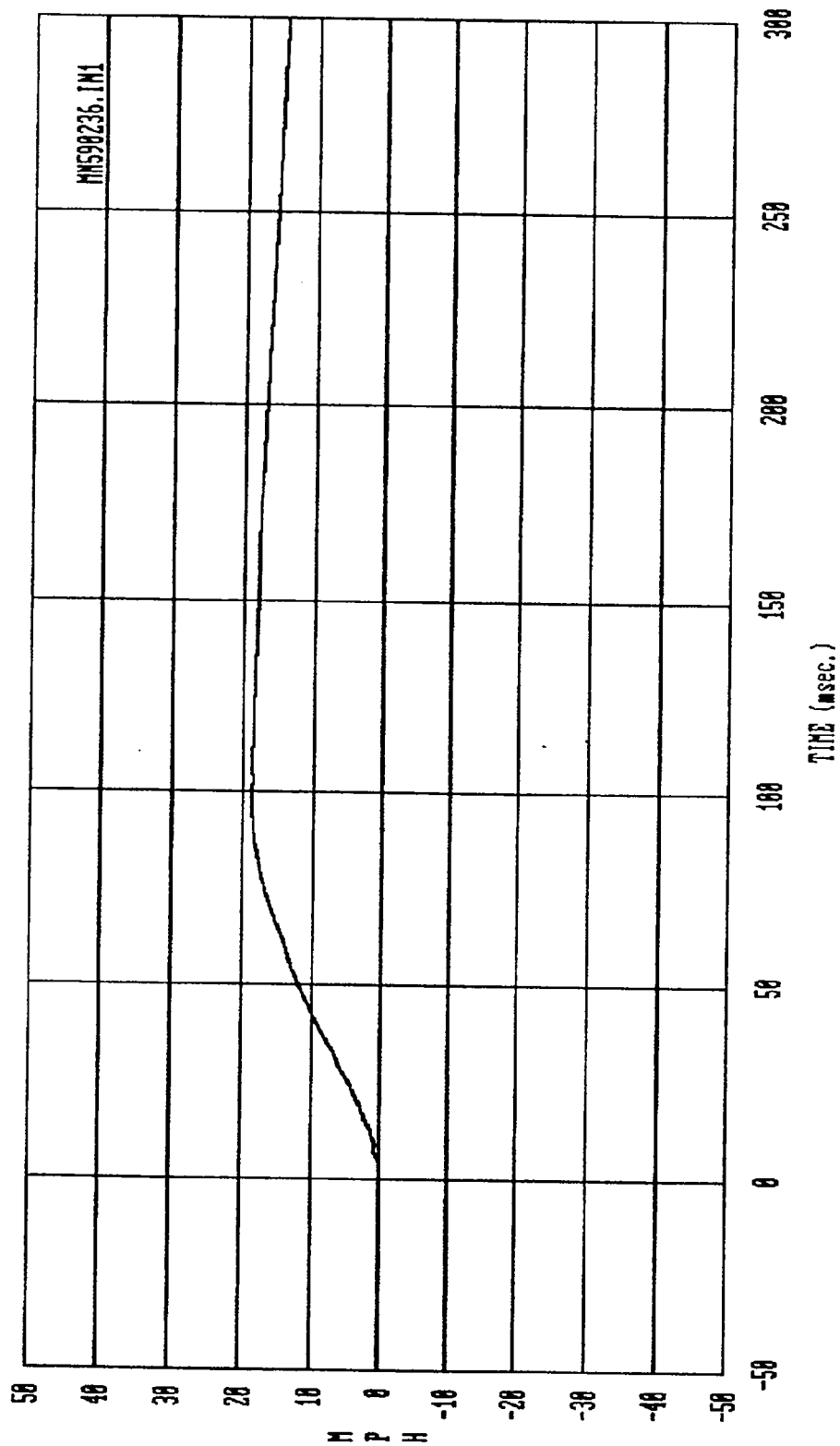
Curve: Rear floor above axle acceleration -- X axis Filter: SAE CLASS 60 Max = 7.9322 Min = -5.4632
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



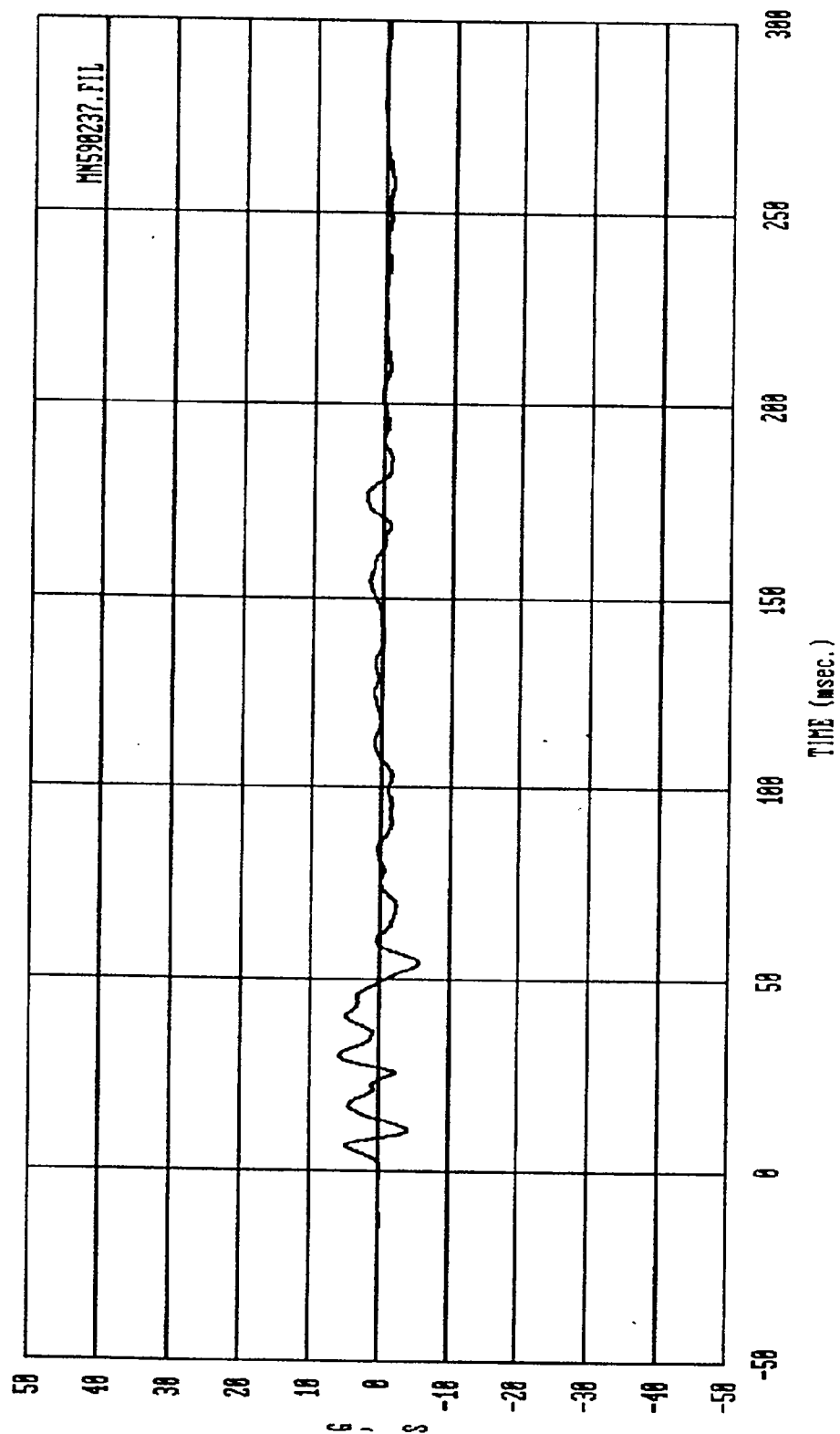
Curve: Rear floor above axle delta V -- X axis Filter: SAE CLASS 188 Max = .66829 Min = -3.4714
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



Curve: Rear floor above axle acceleration -- Y axis Filter: SAE CLASS 60 Max = 15.460 Min = -1.5975
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door

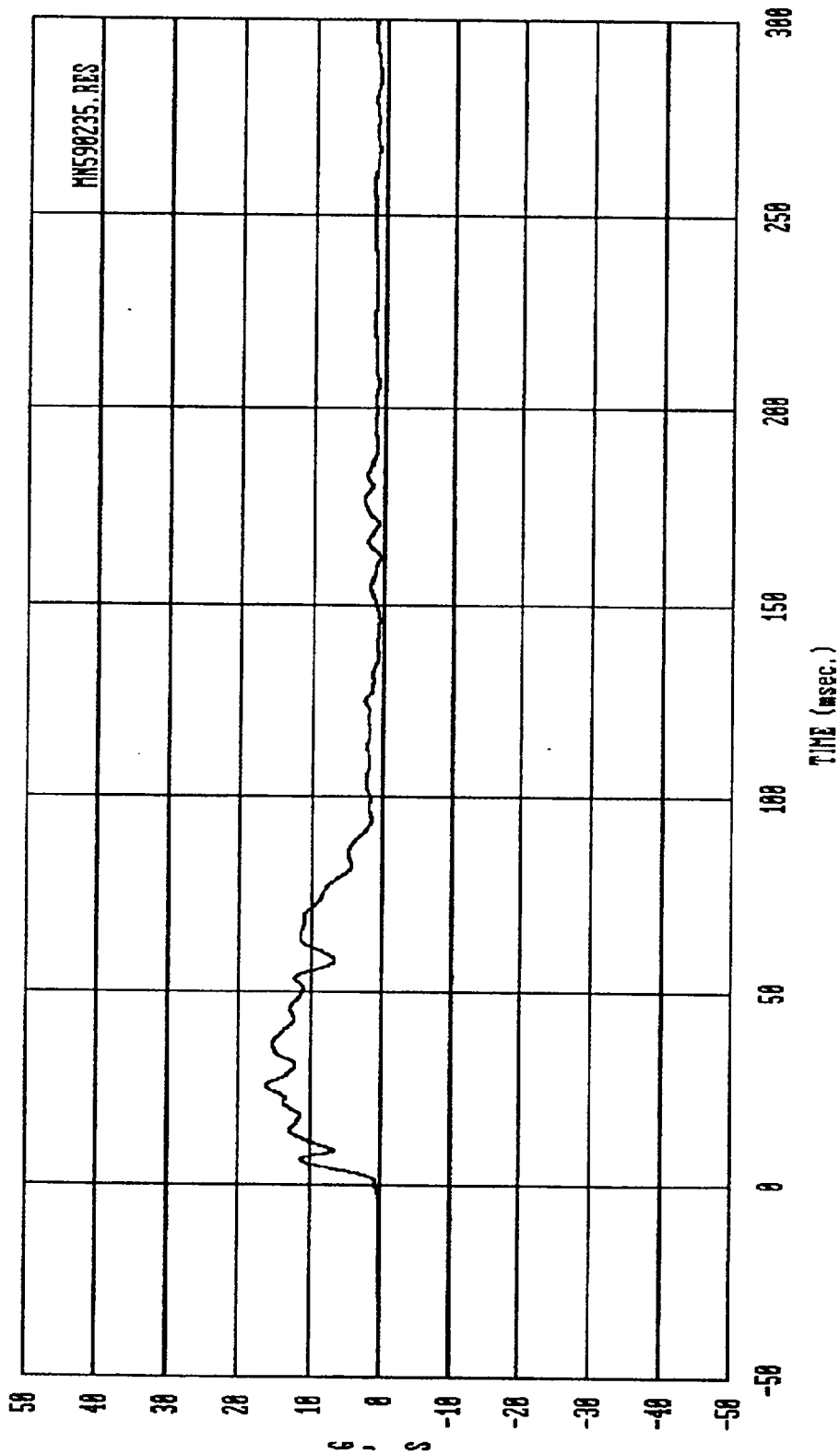


Curve: Rear floor above axle delta U -- Y axis Filter: SAE CLASS 180 Max = 18.813 Min = -.82844E-02
 HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GJS 4 Door

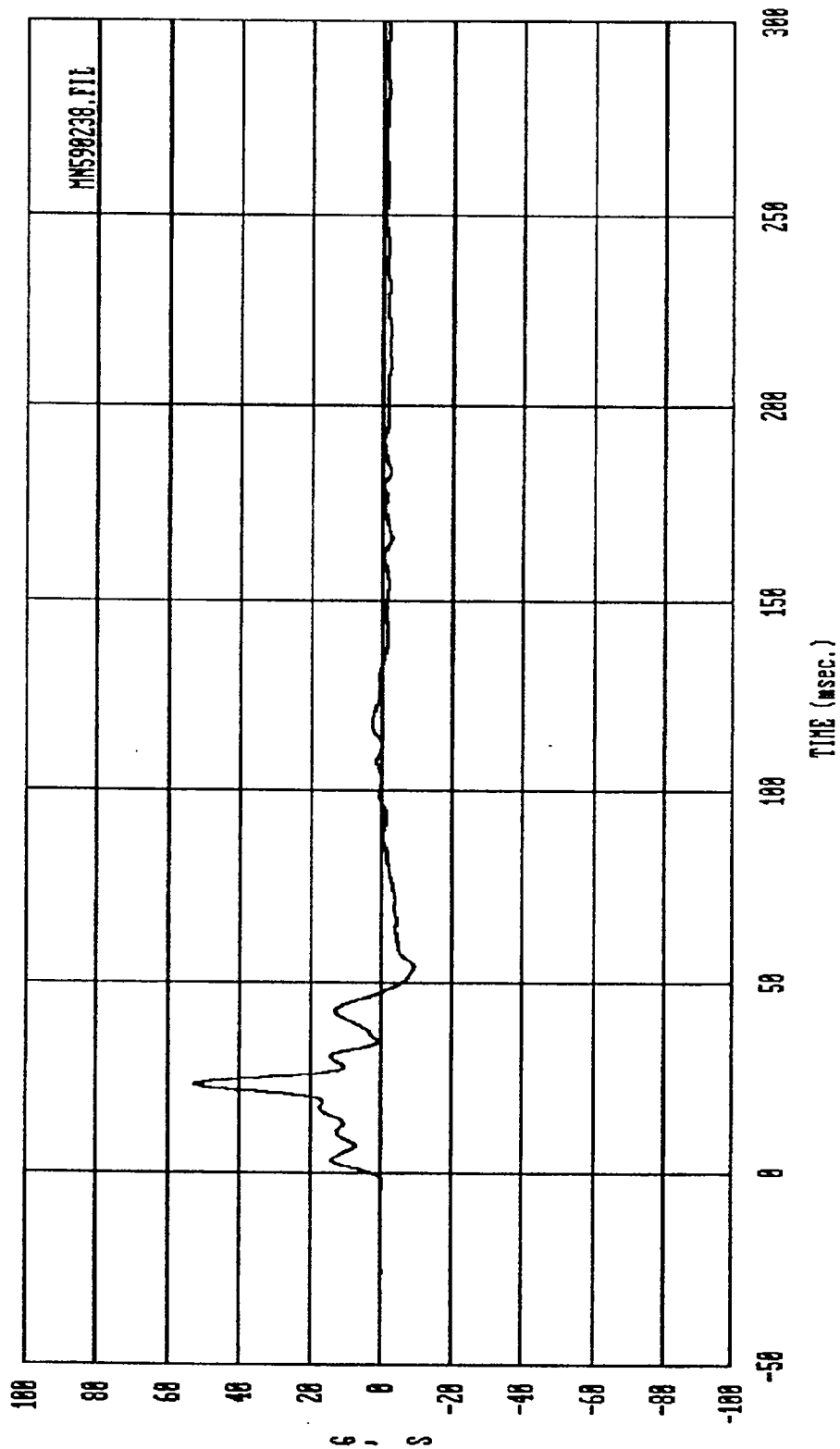


Curve: Rear floor above axle acceleration — Z axis Filter: SAE CLASS 60 Max = 5.8878 Min = -5.4233

NSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door

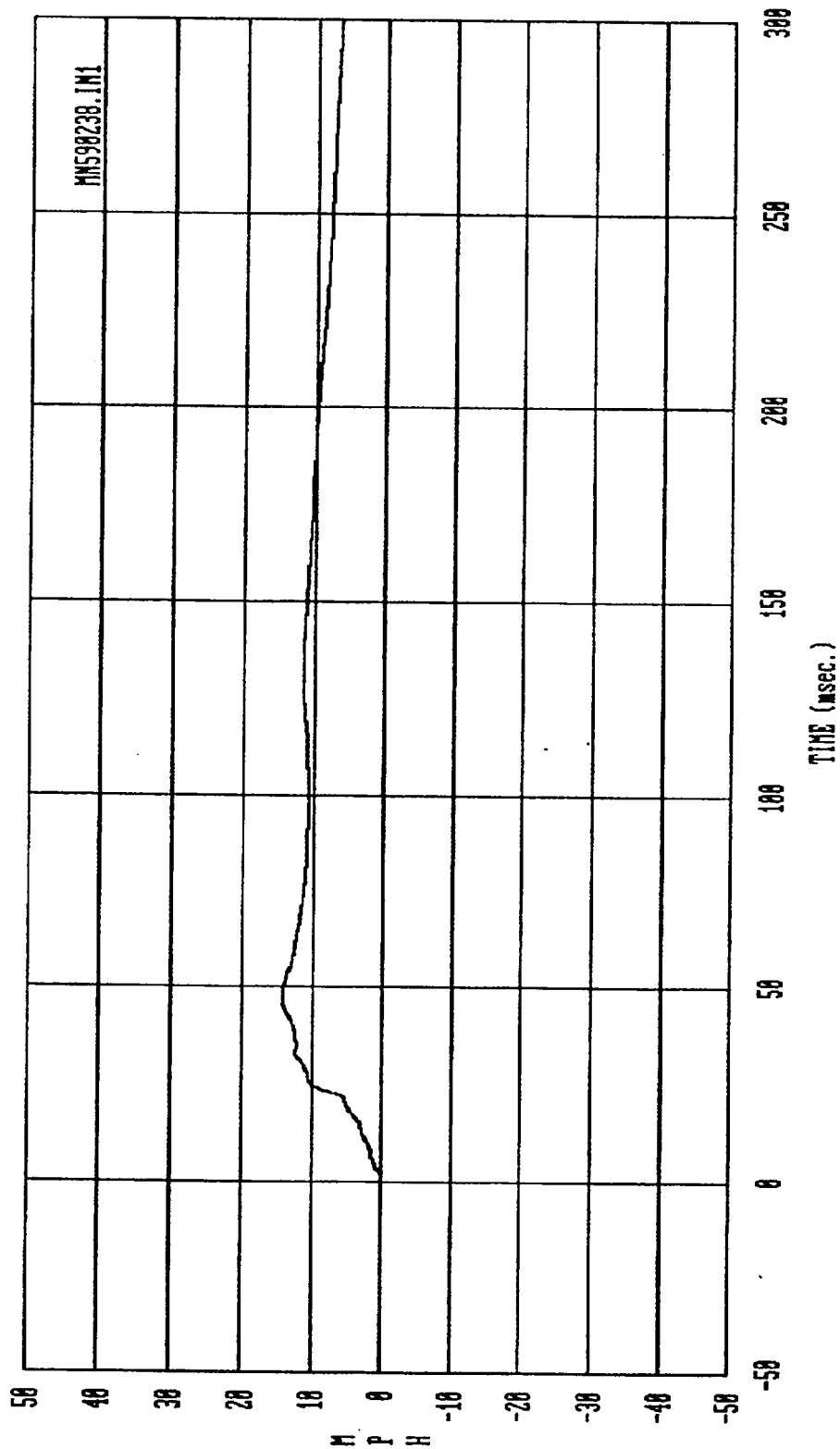


Curve: Rear floor above axle resultant acceleration Filter: SAE CLASS 60 Max = 16.484 Min = .59552
 MSE Date: 84/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door

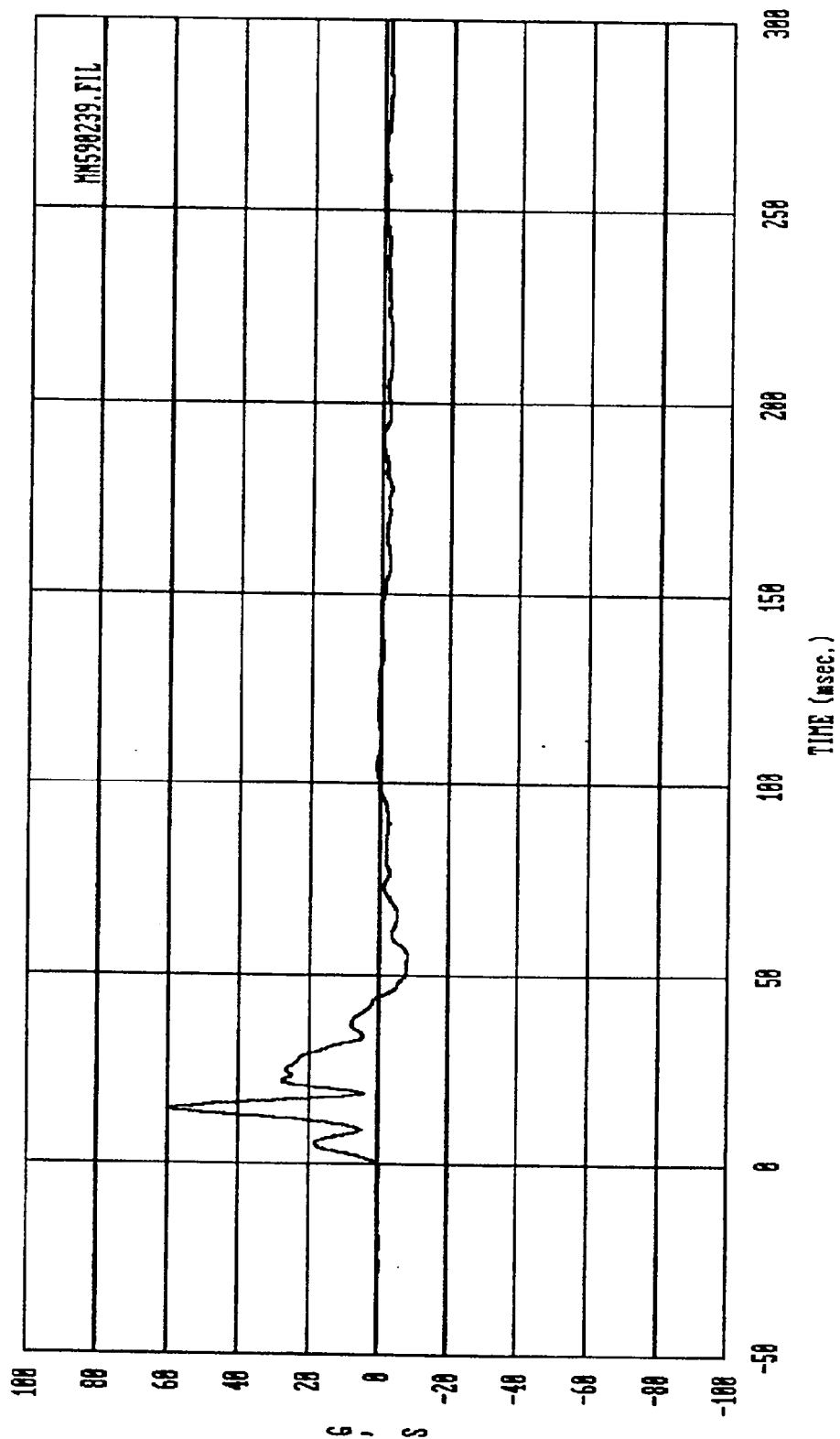


Curve: Rear seat left sill acceleration -- Y axis Filter: SAE CLASS 60 Max = 53.113 Min = -9.2224

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door

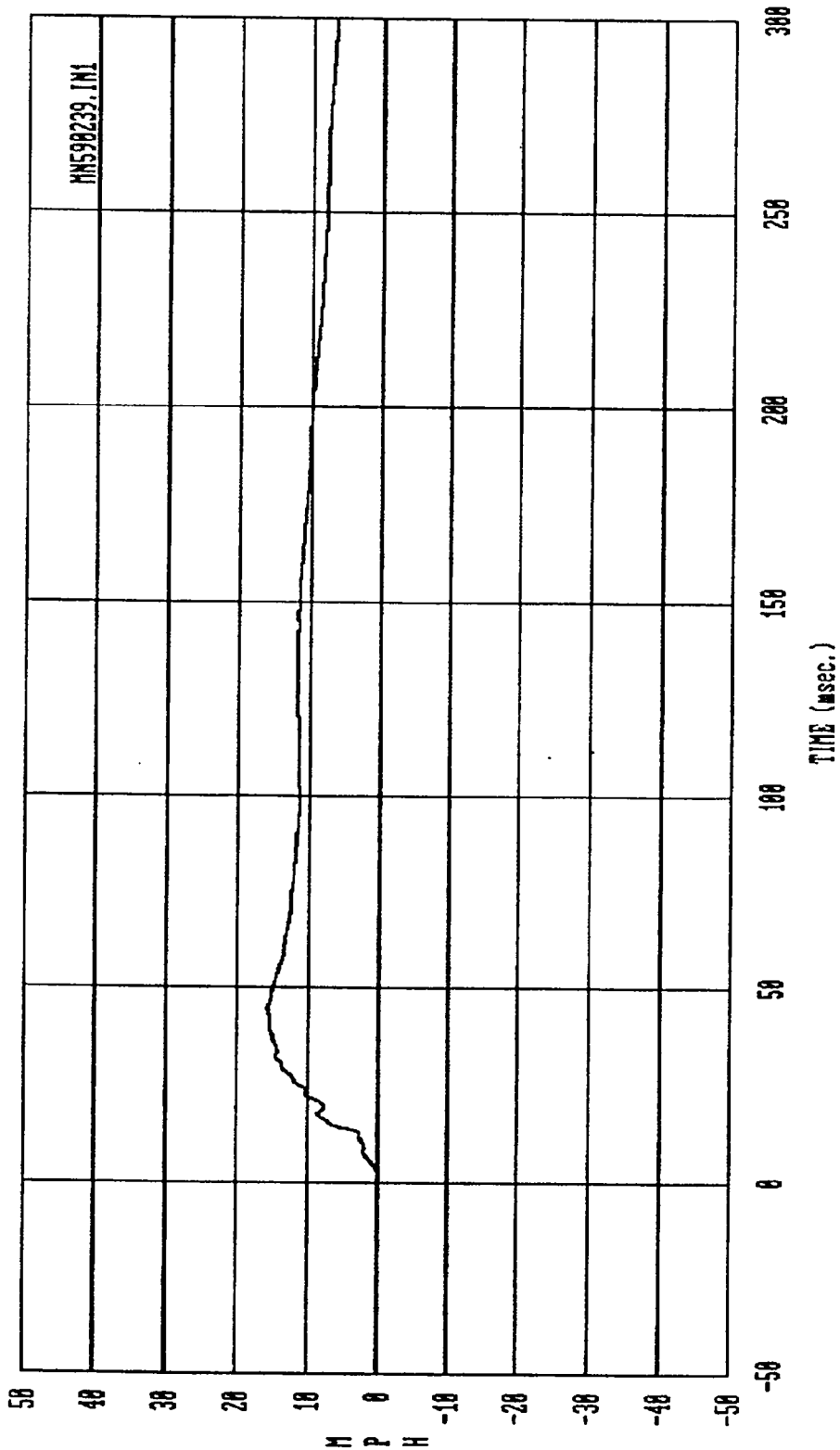


Curve: Rear seat left sill delta V -- Y axis Filter: SAE CLASS 180 Max = 14.426 Min = -.44914E-02
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



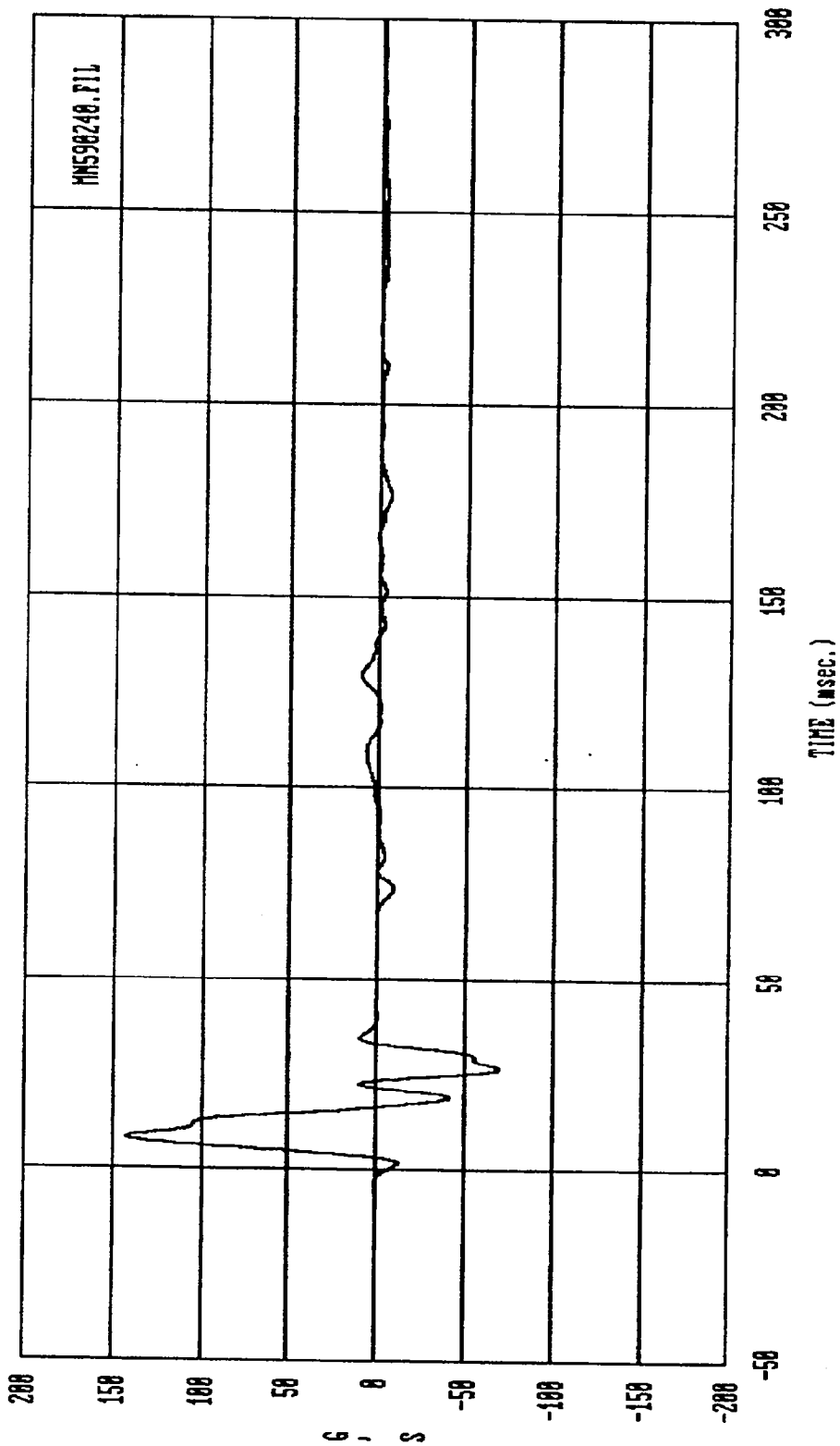
Curve: Front seat left Sill acceleration -- Y axis Filter: SAE CLASS 60 Max = 59.492 Min = -8.1812

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door

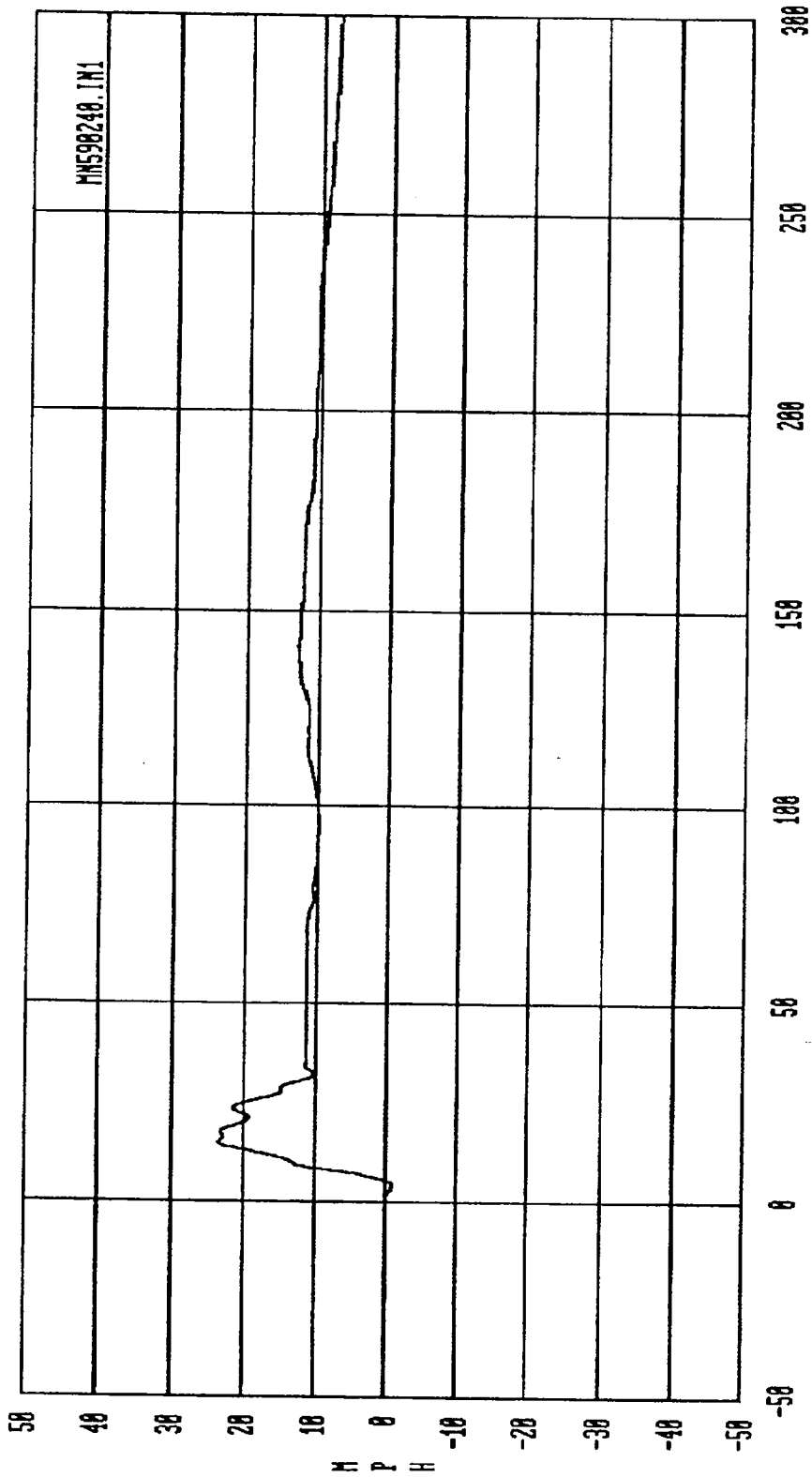


Curve: Front seat left Sill delta V -- Y axis Filter: SAE CLASS 180 Max = 15.832 Min = .78278E-02

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



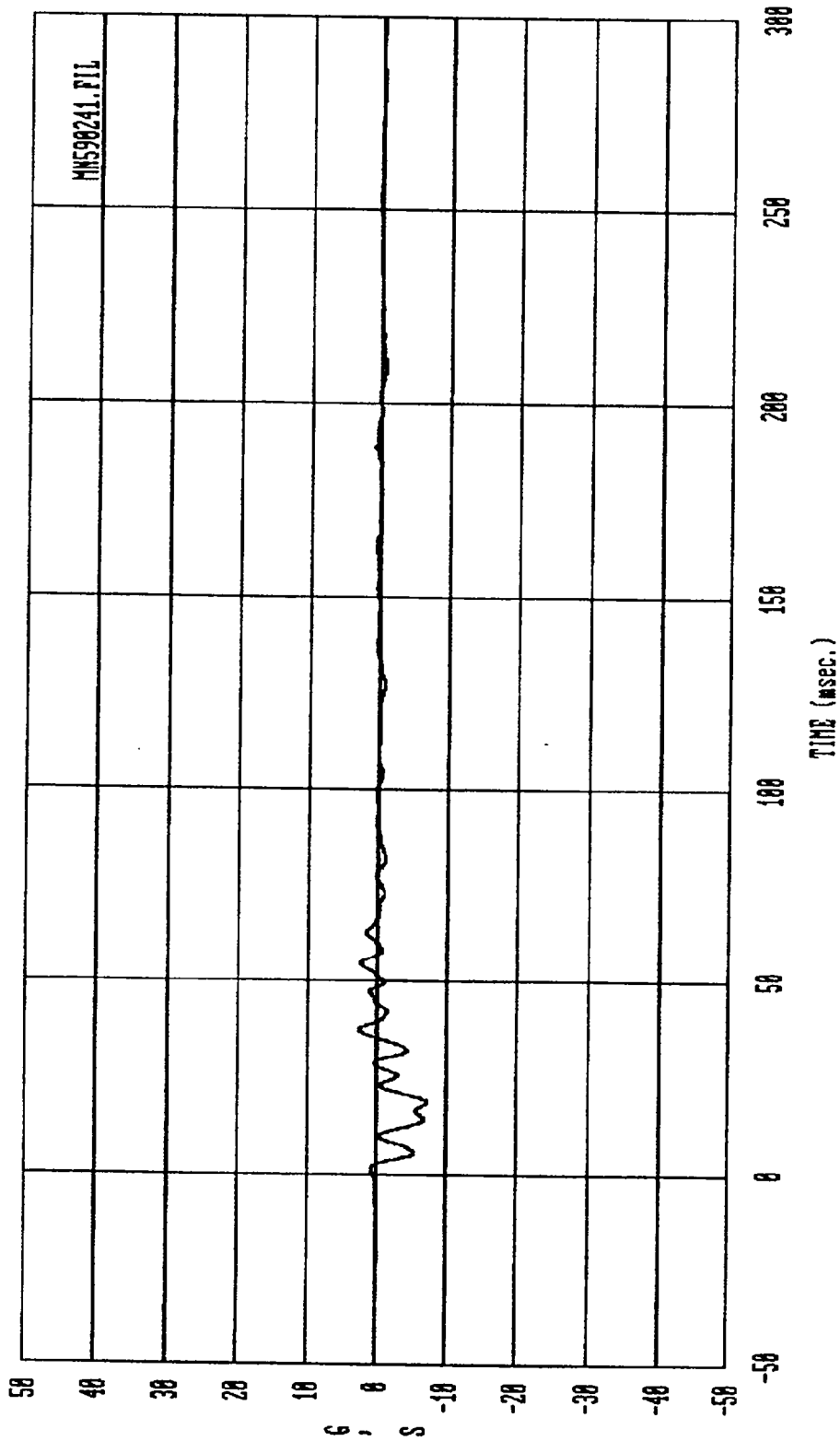
Curve: Left front door at centerline -- Y axis Filter: SAE CLASS 60 Max = 142.95 Min = -69.769
 MSE Date: 84/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



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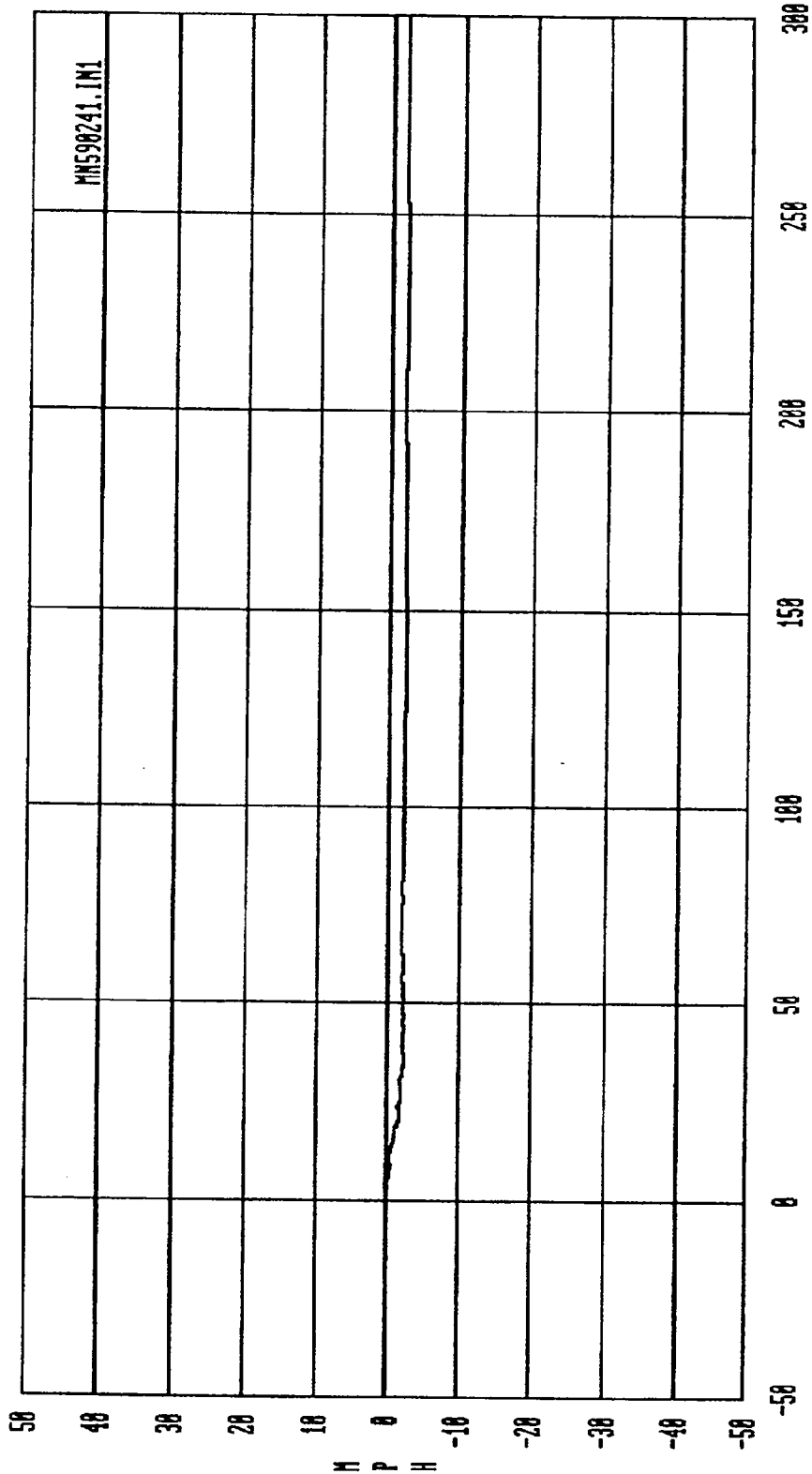
Curve: Left front door at centerline -- Y axis Filter: SAE CLASS 100 Max = 23.493 Min = -.98812

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



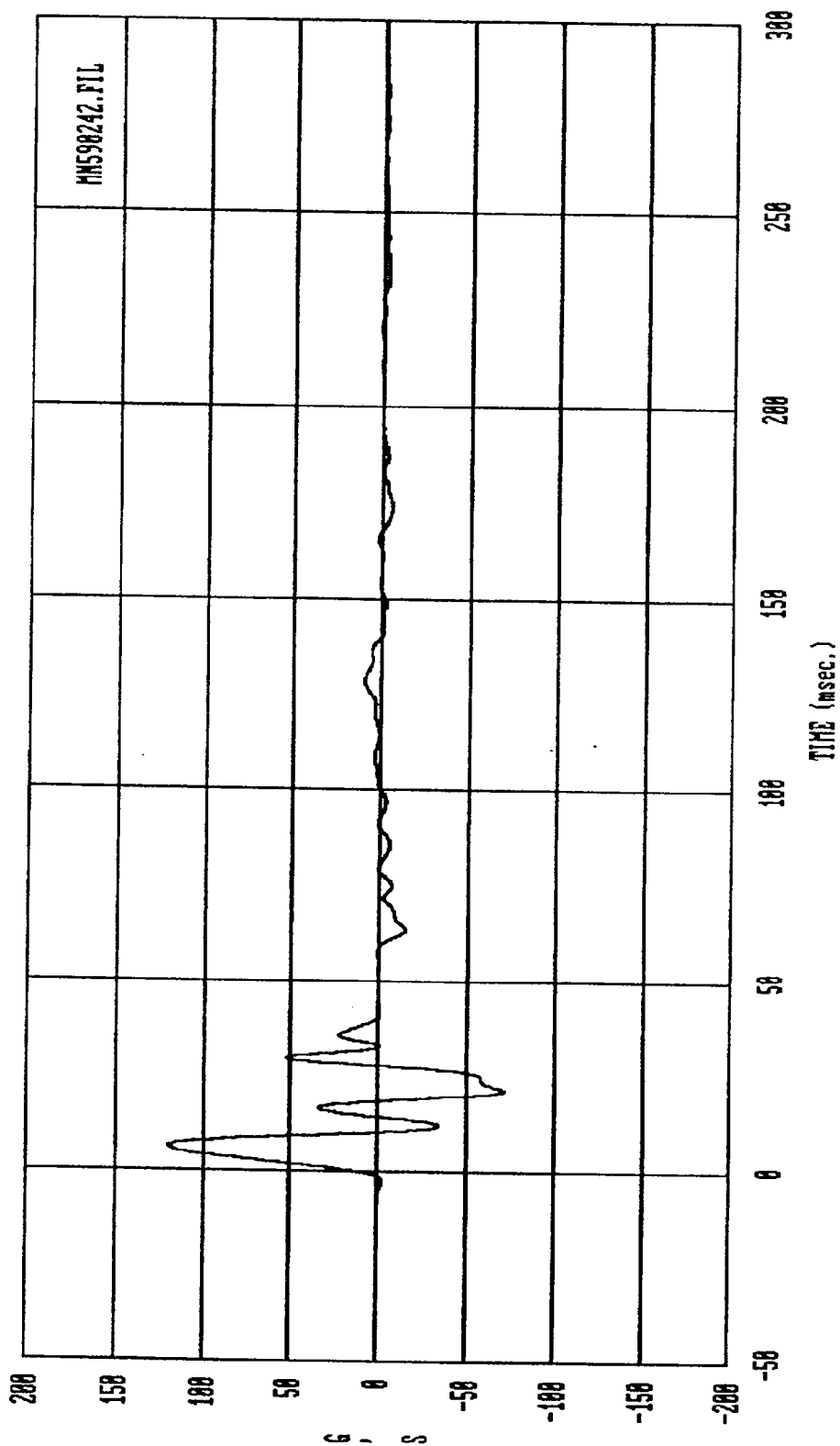
Curve: Right rear occupant compartment -- X axis Filter: SAE CLASS 60 Max = 2.6265 Min = -7.3289

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



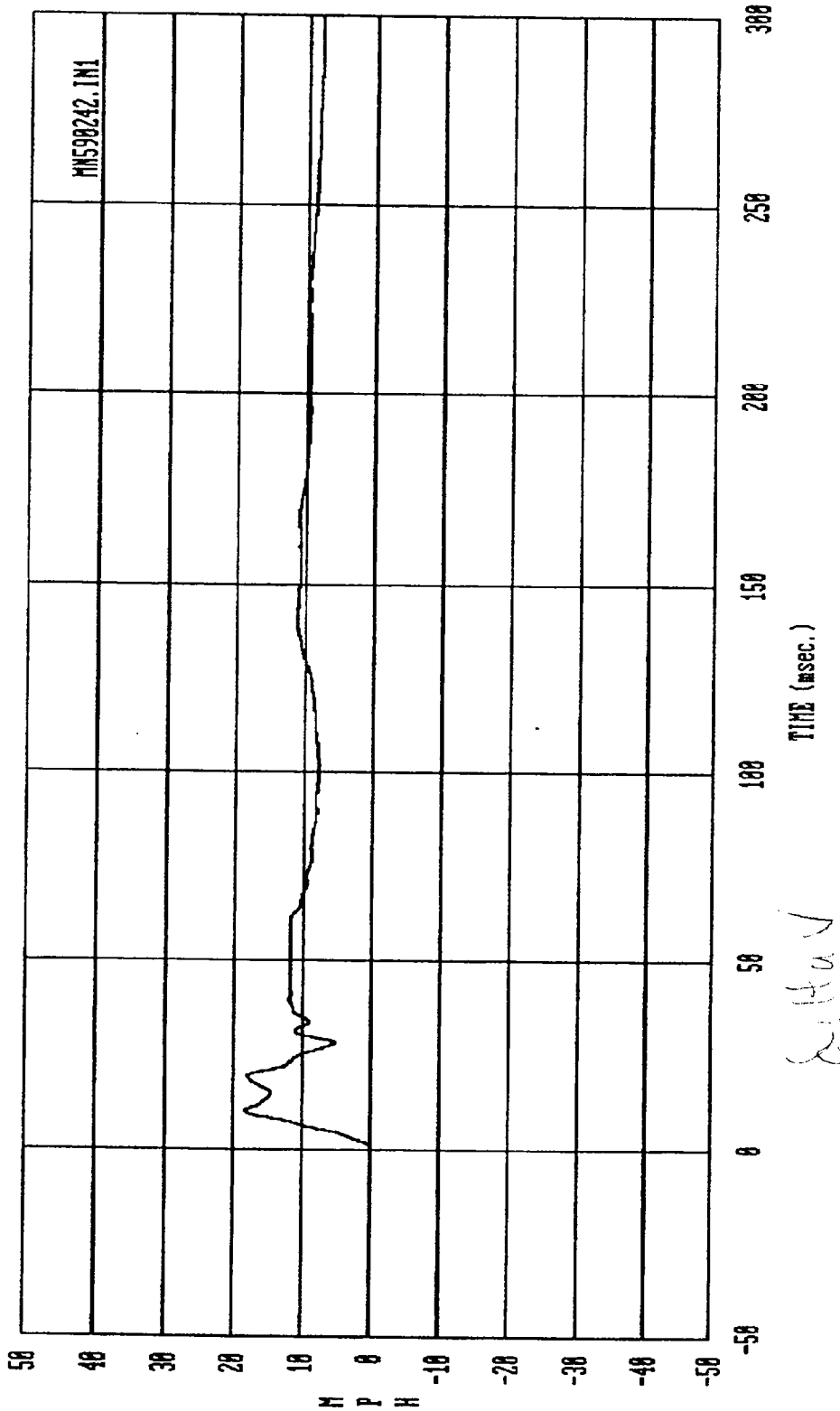
Curve: Right rear occupant compartment — X axis Filter: SAE CLASS 180 Max = .17745 Min = -2.3587

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door

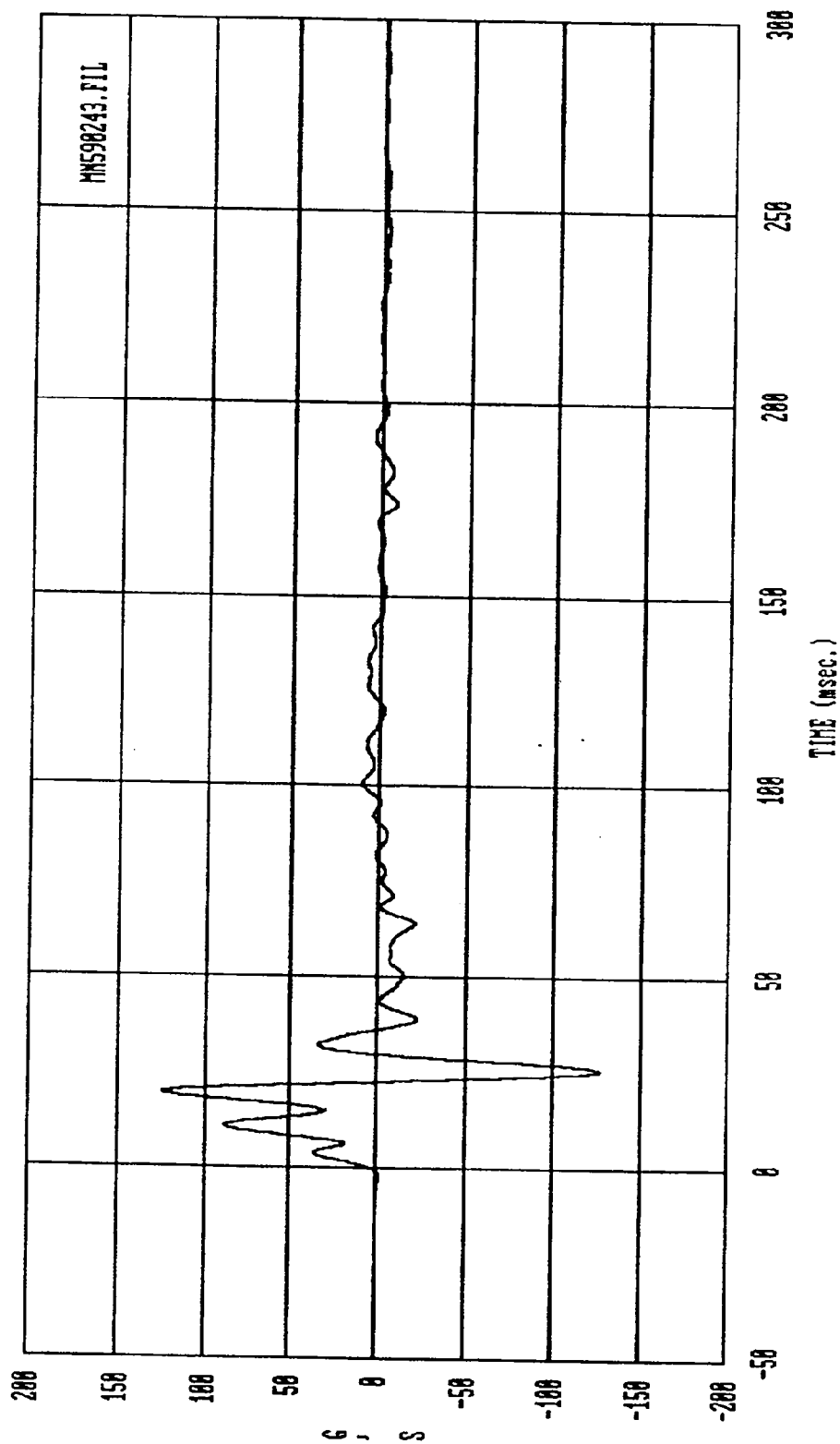


Curve: Left front door at mid-rear -- Y axis Filter: SAE CLASS 60 Max = 128.40 Min = -71.245

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door

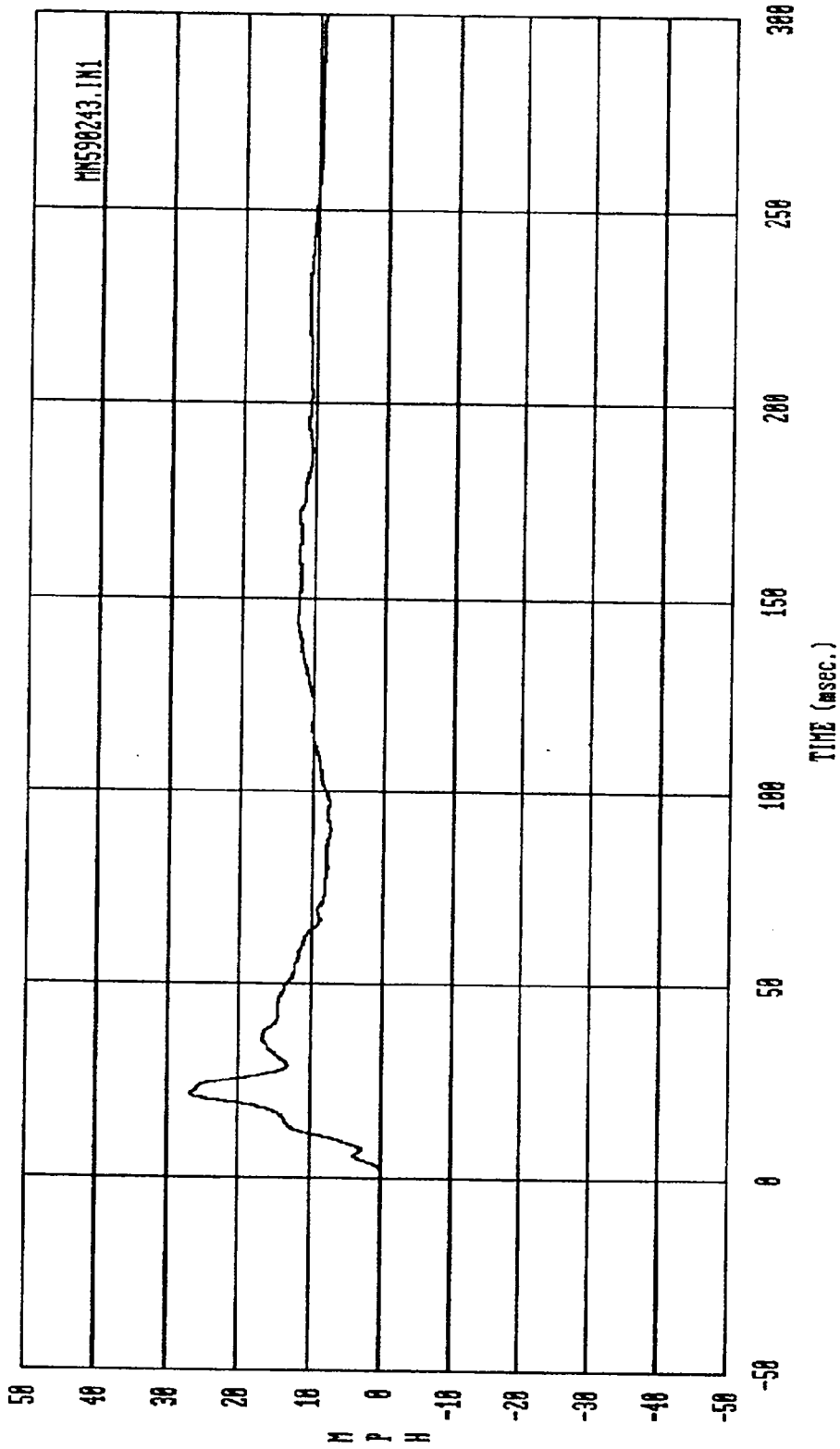


Curve: Left front door at mid-rear -- Y axis Filter: SAE CLASS 180 Max = 18.438 Min = -22.781E-01
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



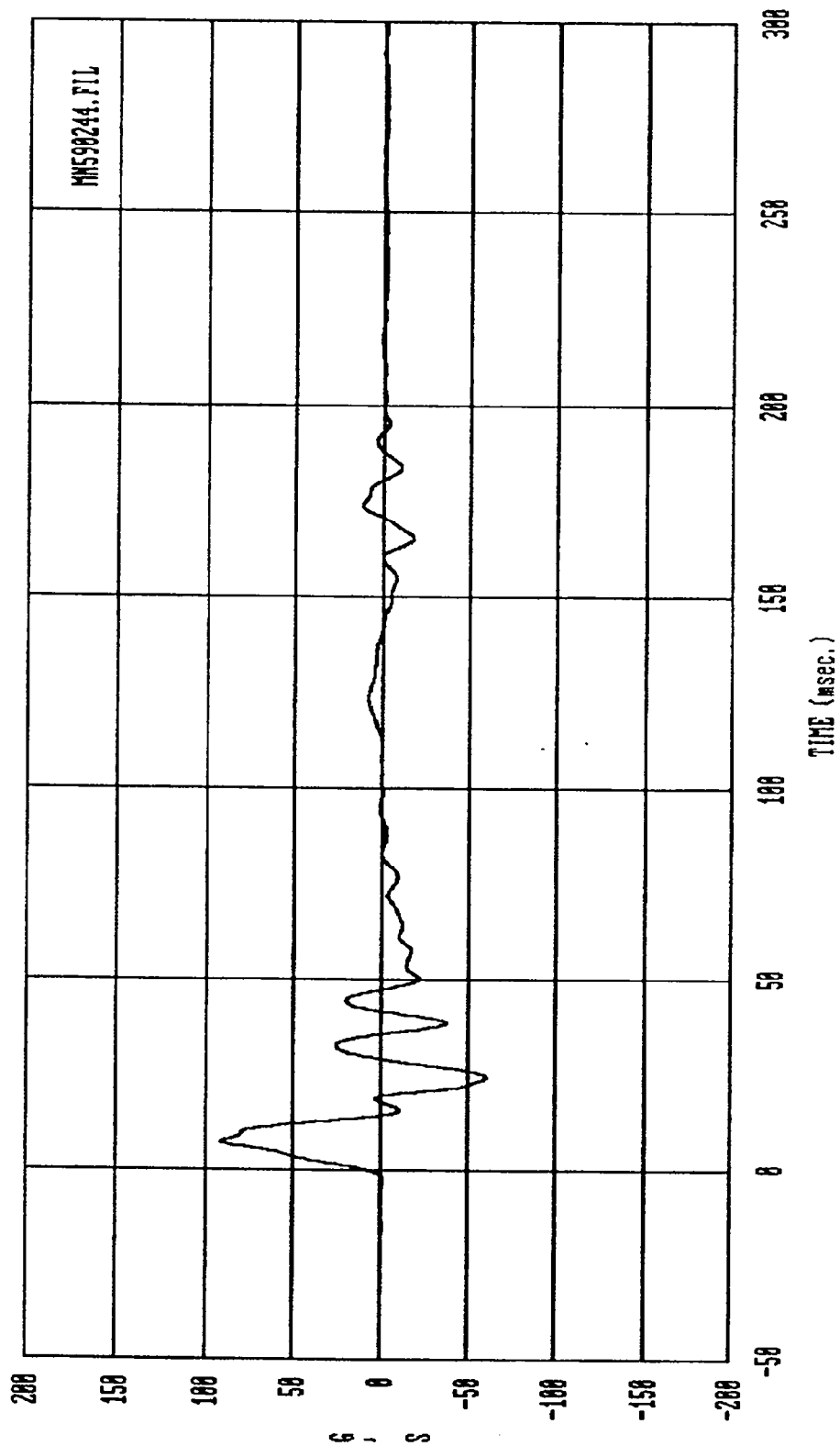
Curve: Left front door at upper centerline -- Y axis Filter: SAE CLASS 60 Max = 124.98 Min = -127.38

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



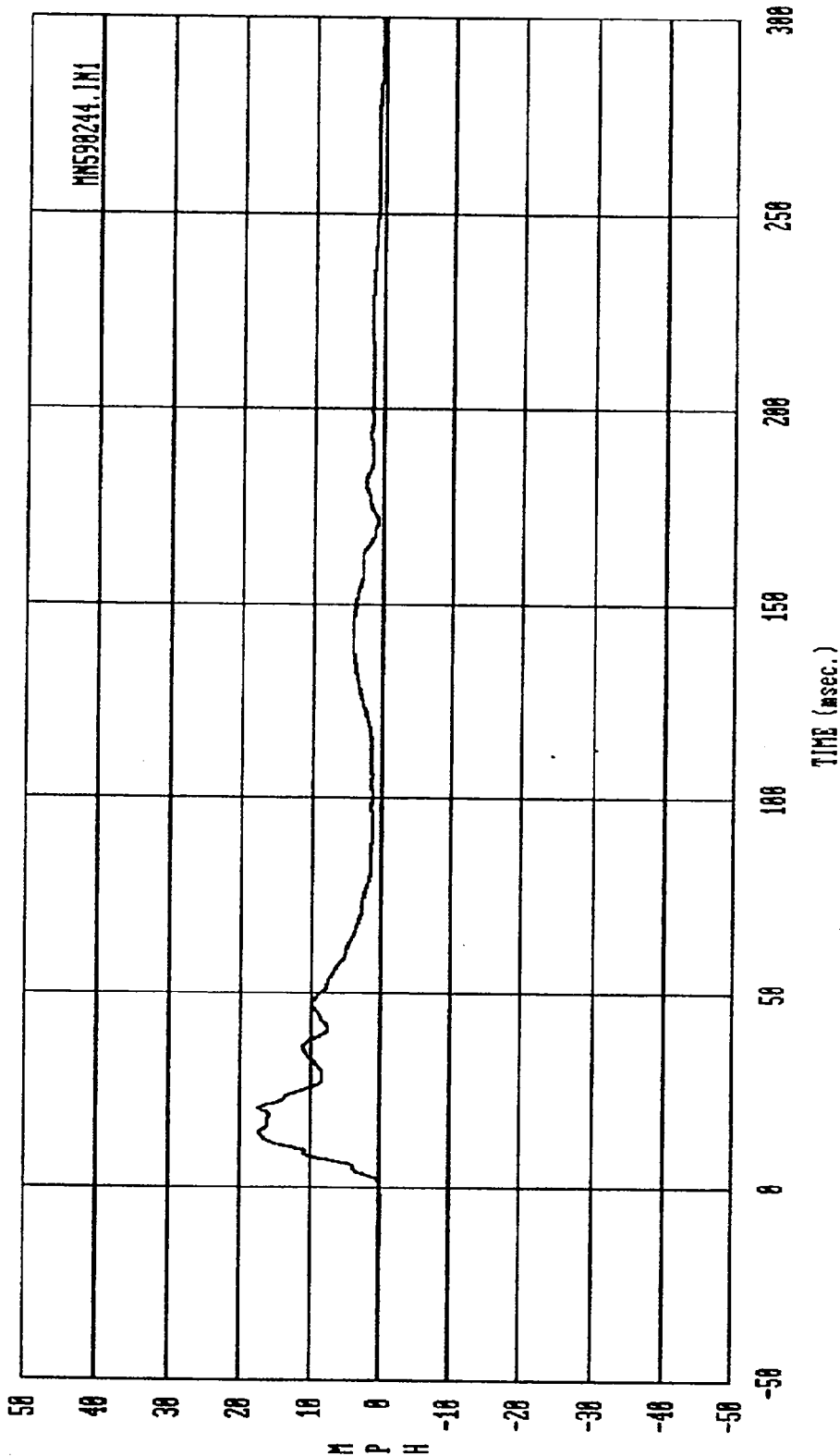
Curve: Left front door at upper centerline — Y axis Filter: SAE CLASS 180 Max = 26.793 Min = -.24328E-02

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



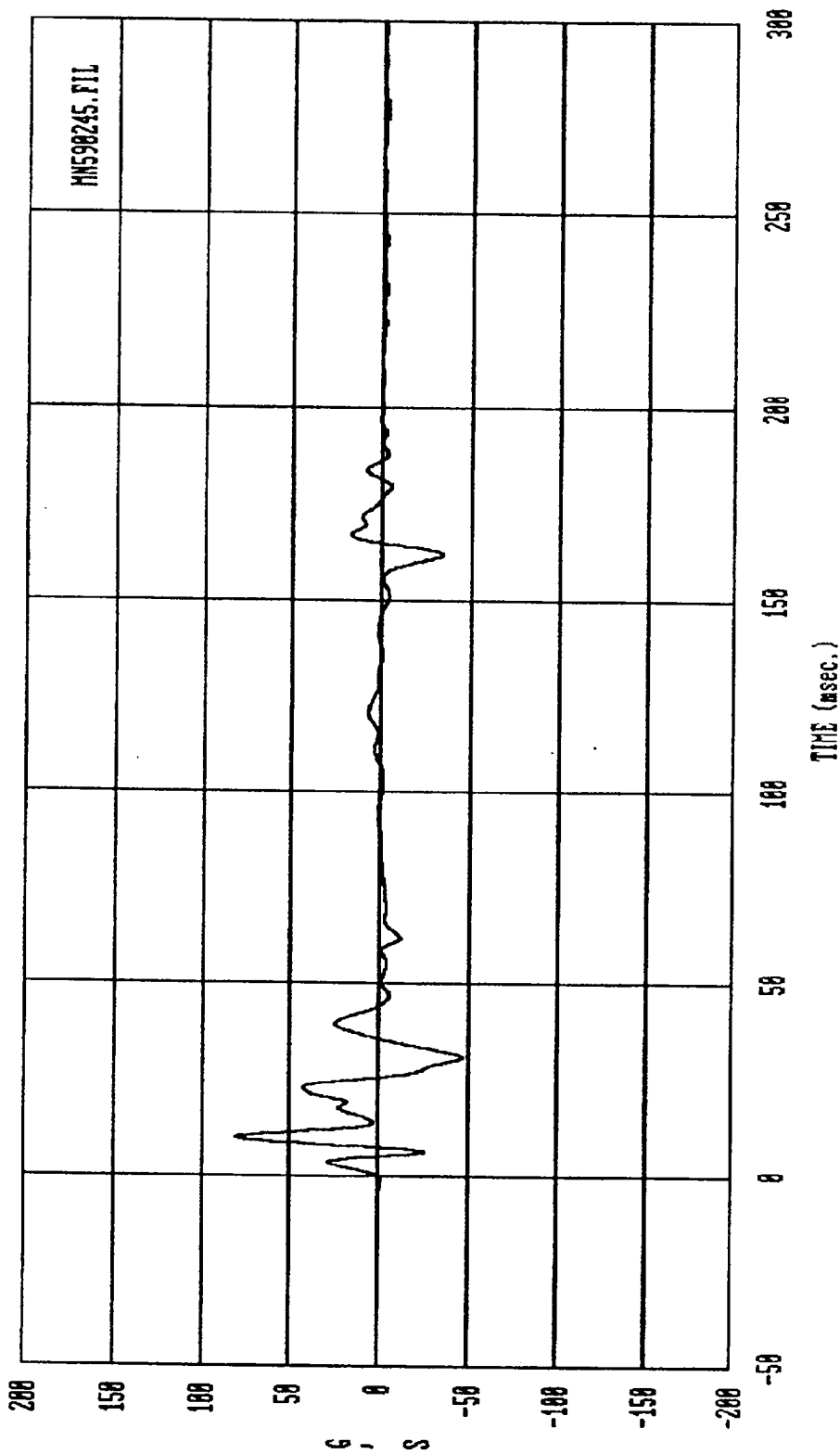
Curve: Left rear door at mid-rear — Y axis Filter: SAE CLASS 60 Max = 91.310 Min = -61.228

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



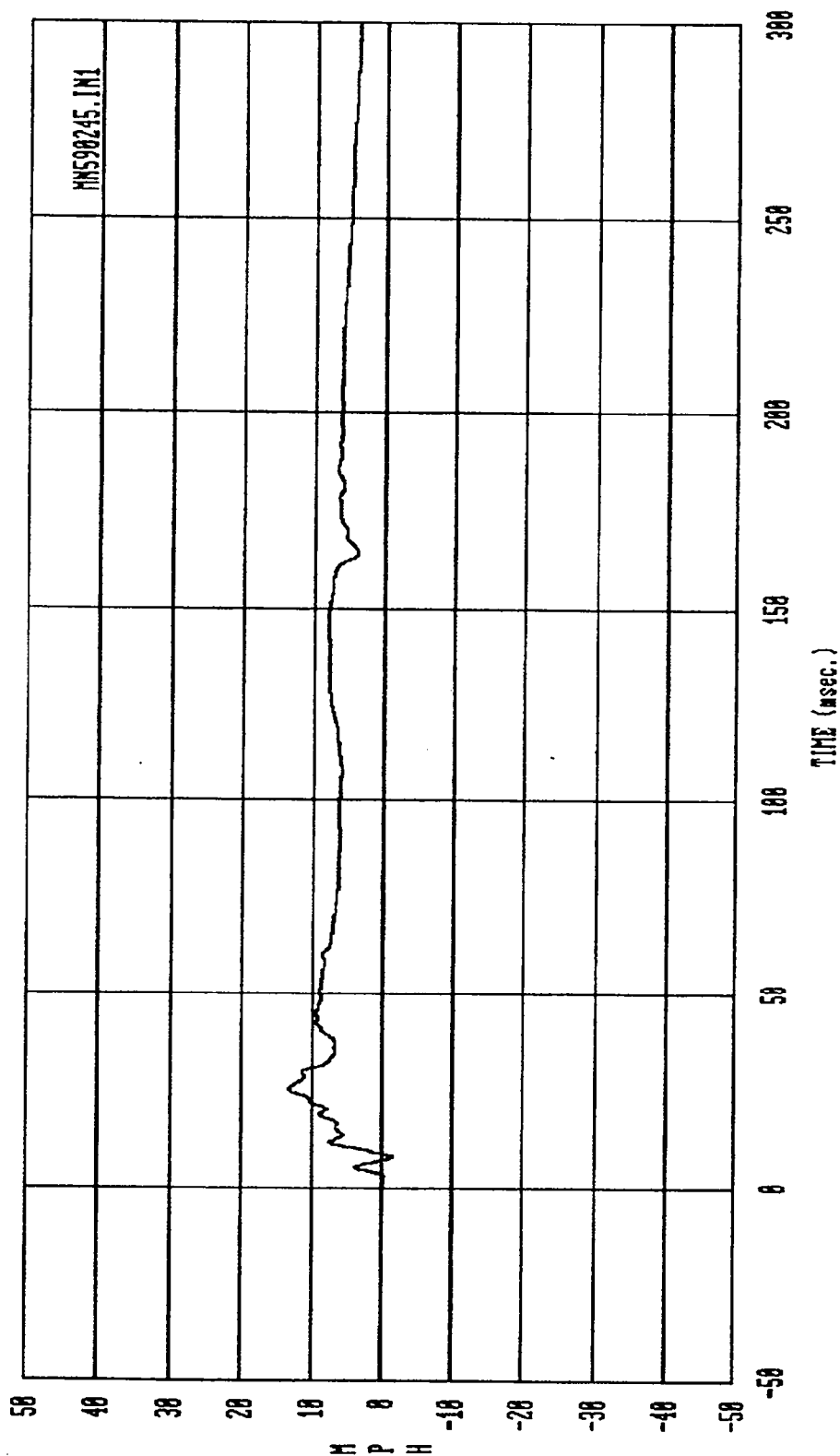
Curve: Left rear door at mid-rear -- Y axis Filter: SAE CLASS 180 Max = 17.406 Min = .43000E-01

MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: Left rear door at upper centerline -- Y axis Filter: SAE CLASS 60 Max: 80.630 Min: -47.440

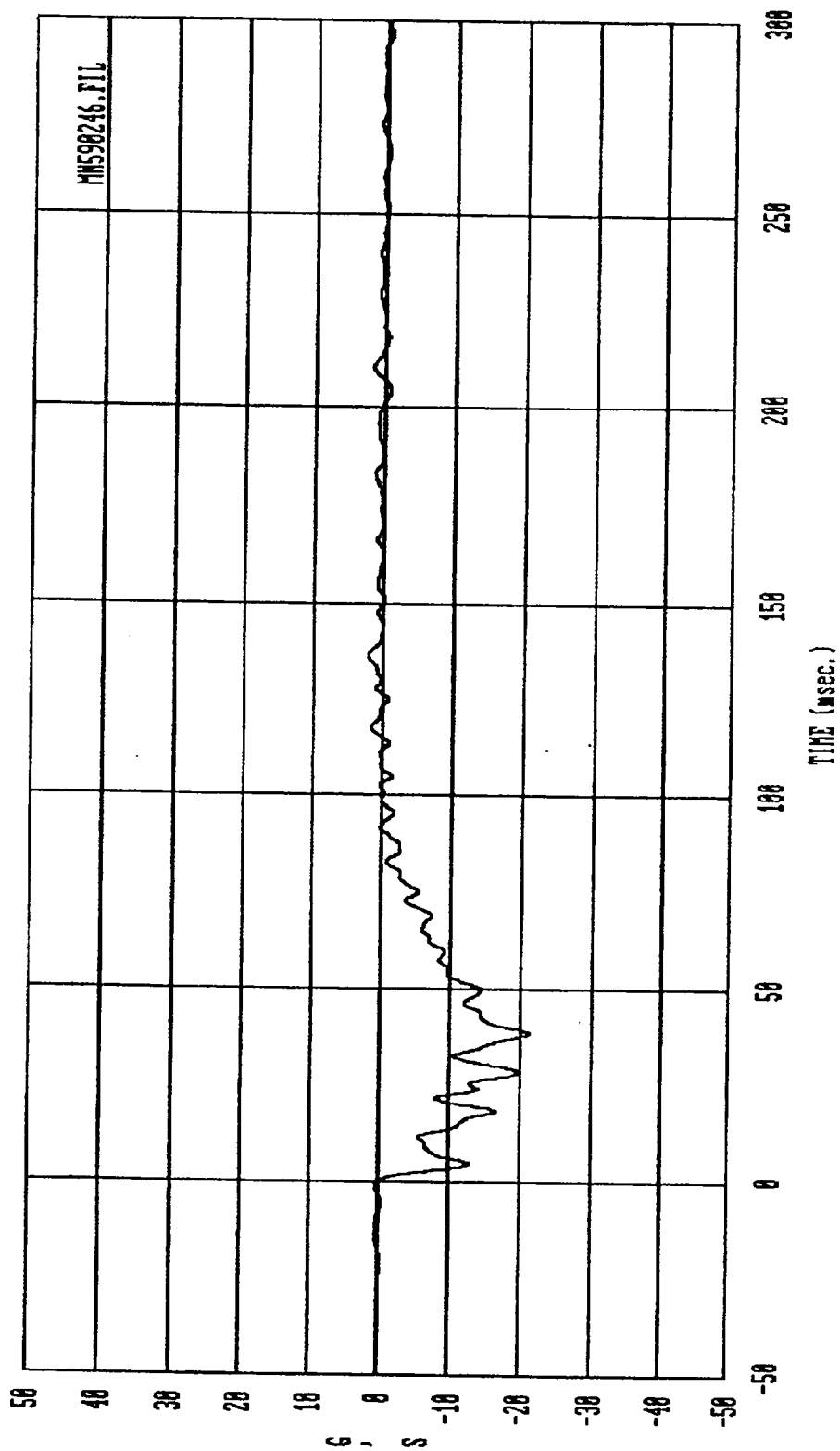
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



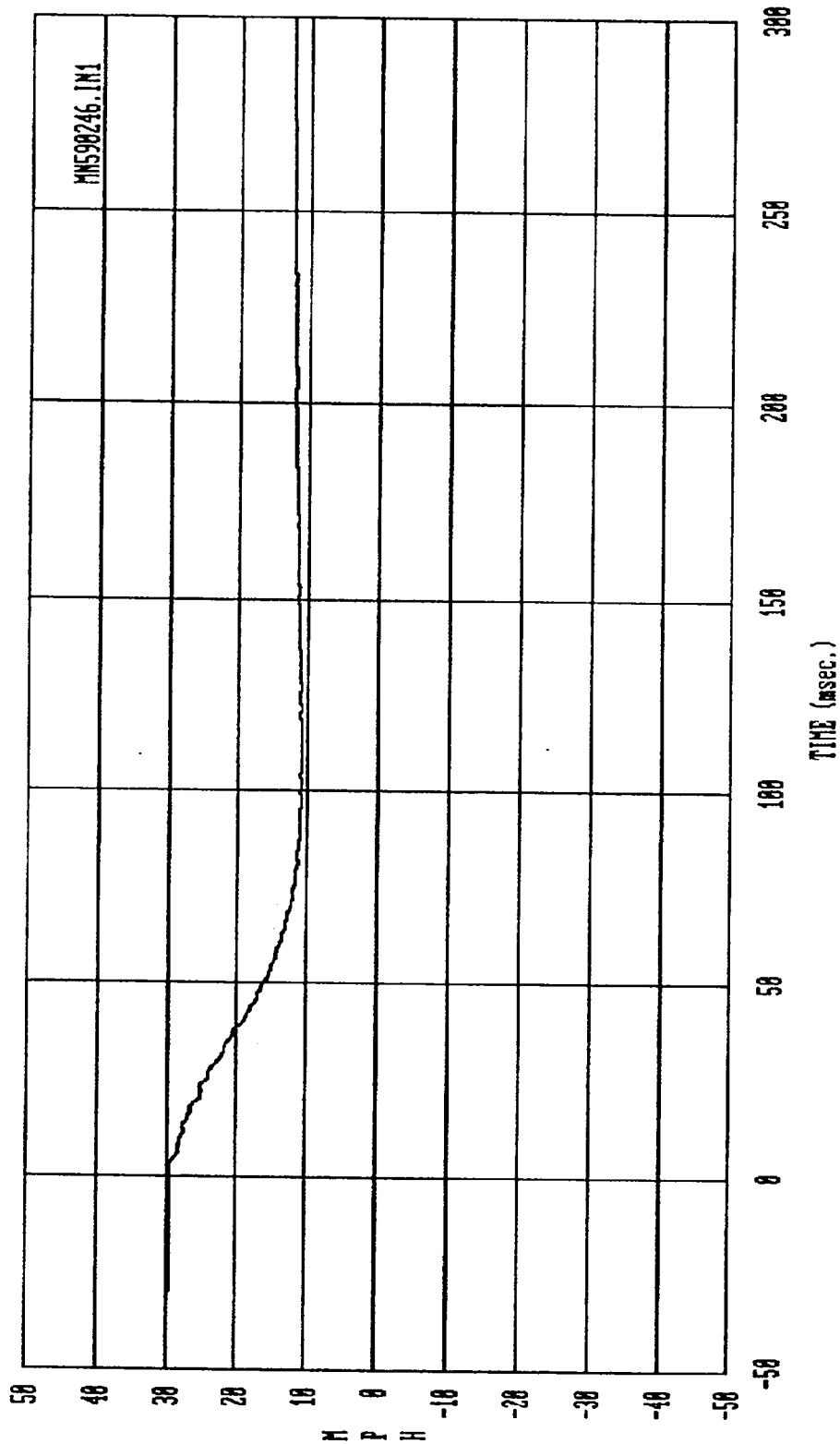
Curve: Left rear door at upper centerline -- Y axis Filter: SAE CLASS 180 Max = 13.376 Min = -1.5133

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door

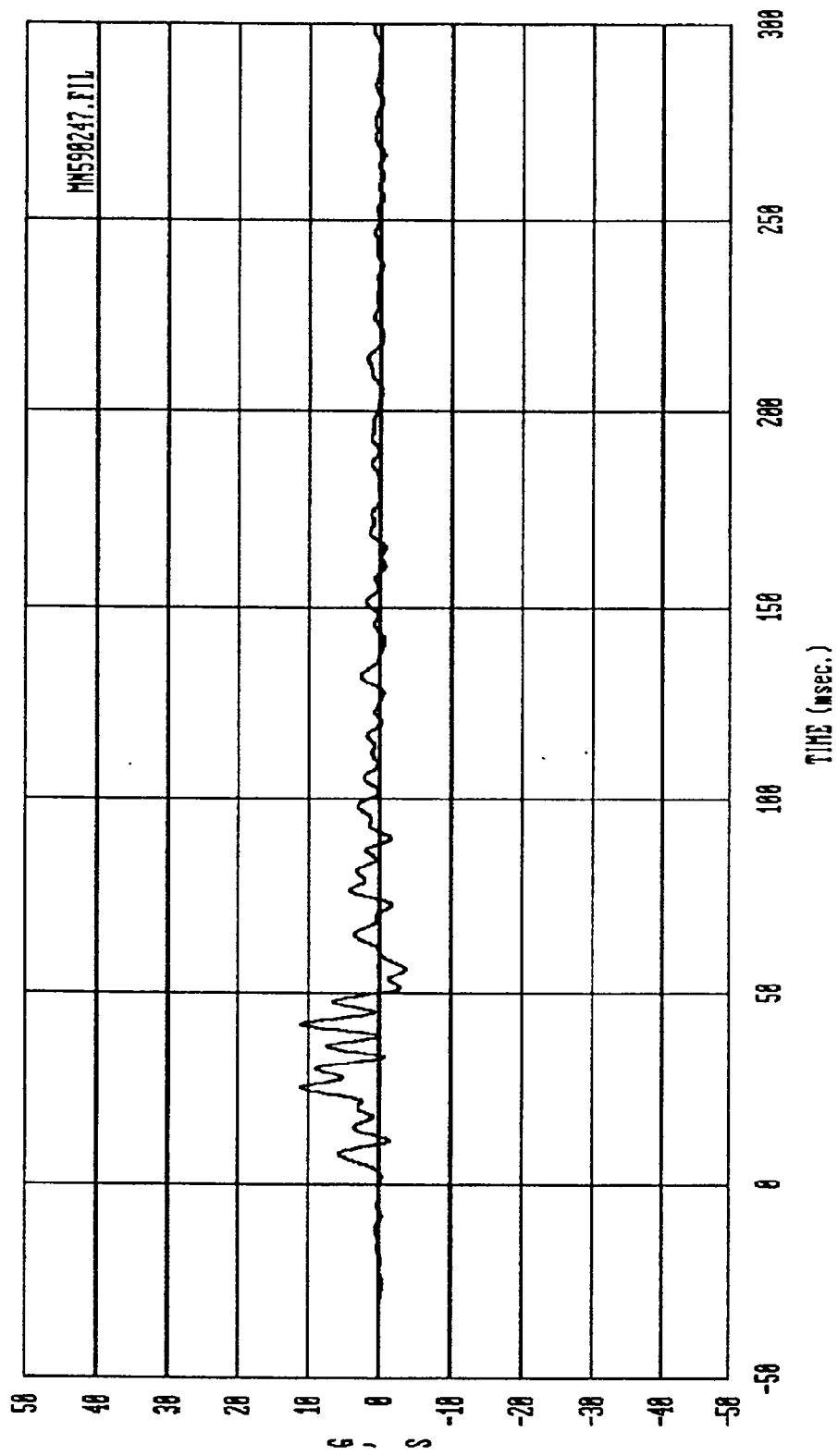
MDB ACCELEROMETER DATA



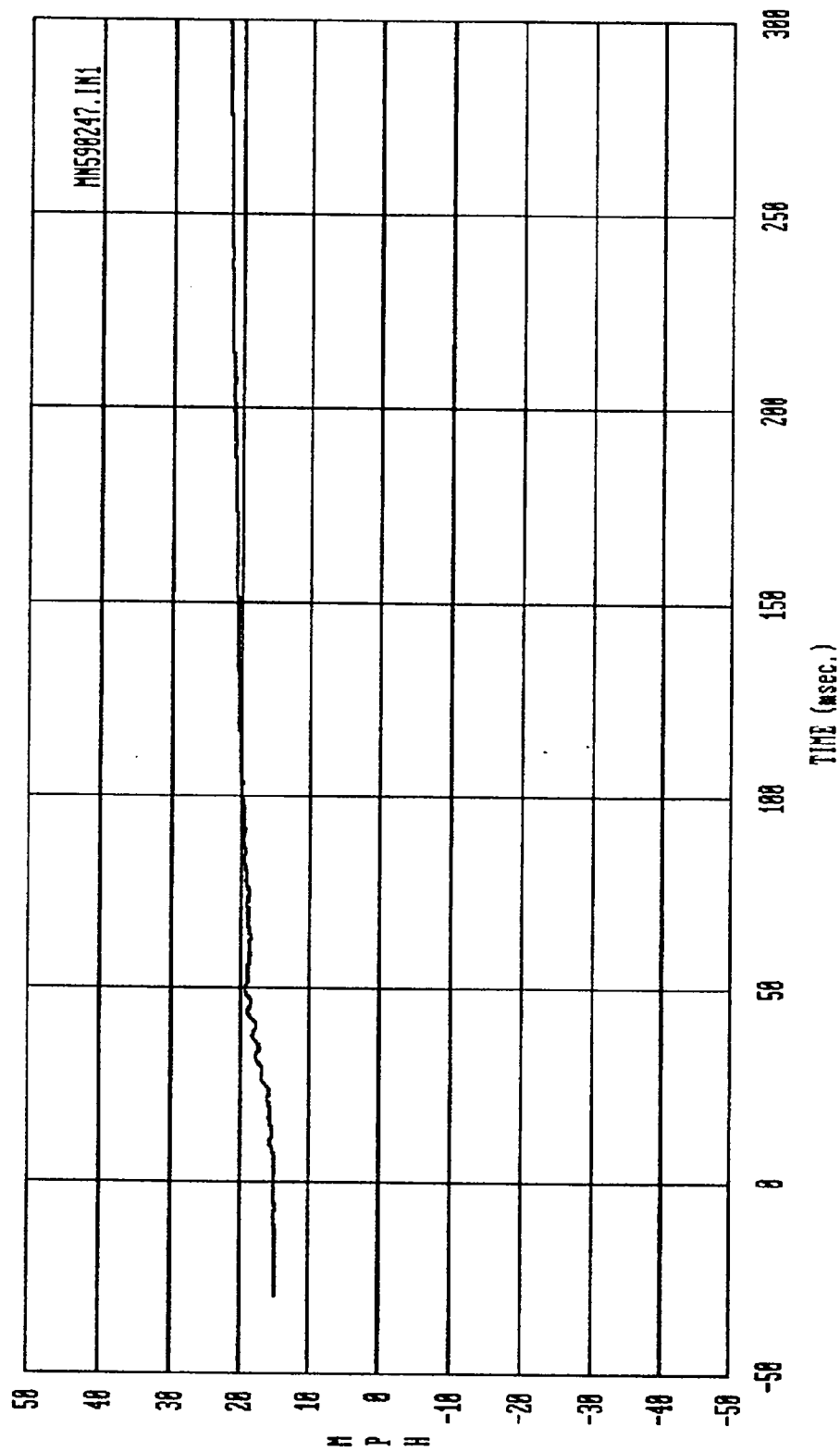
Curve: H.D.B. C/G acceleration — X axis Filter: SAT CLASS 60 Max = 2.2046 Min = -21.284
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



Curve: H.D.B. C/G delta V — X axis
 Filter: SAE CLASS 180 Max = 29.638 Min = 10.727
 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door
 Date: 04/16/92
 MSE



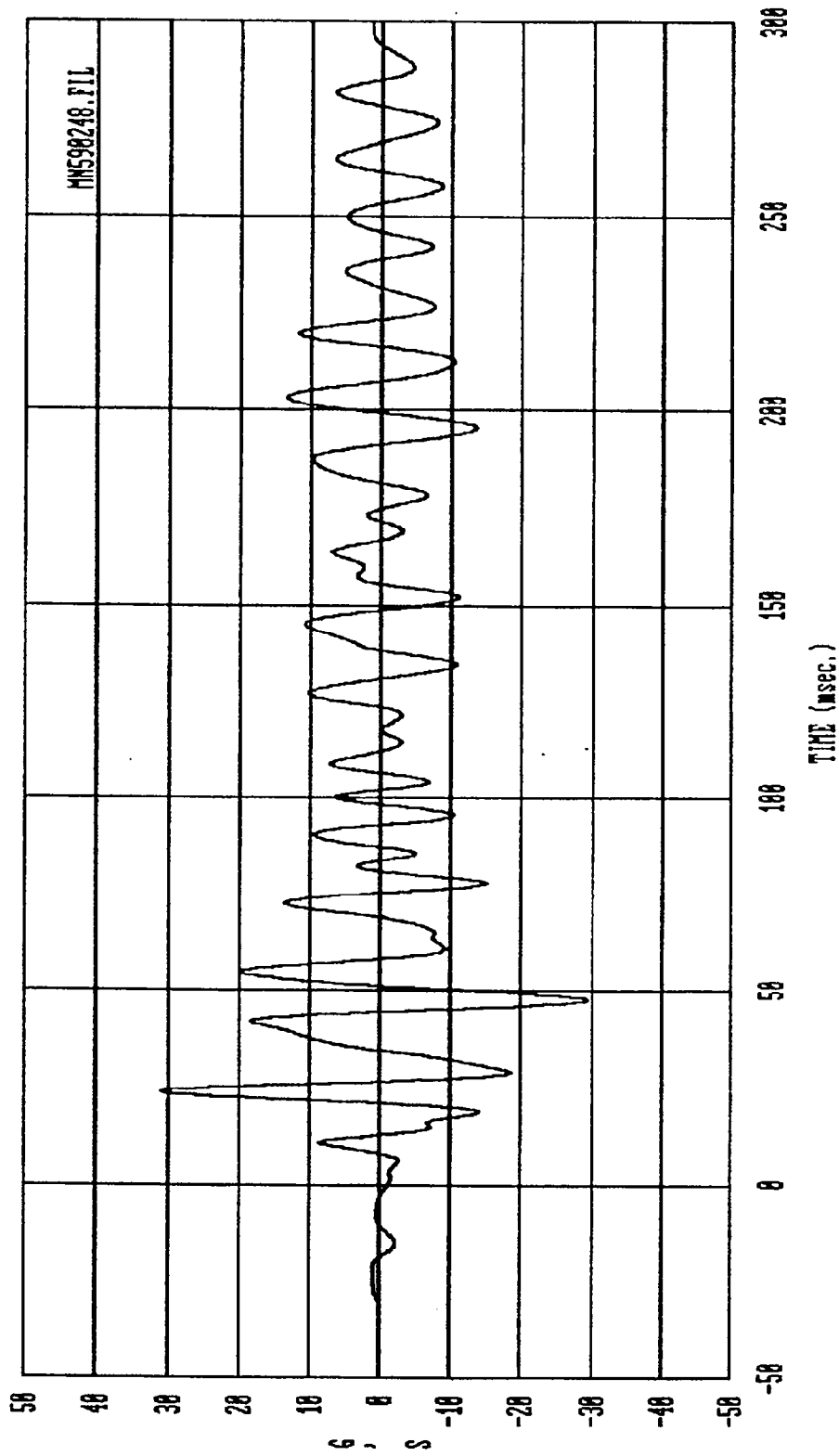
Curve: M.D.B. C/G acceleration -- Y axis Filter: SAE CLASS 60 Max = 11.896 Min = -3.6650
 HSE Date: 84/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



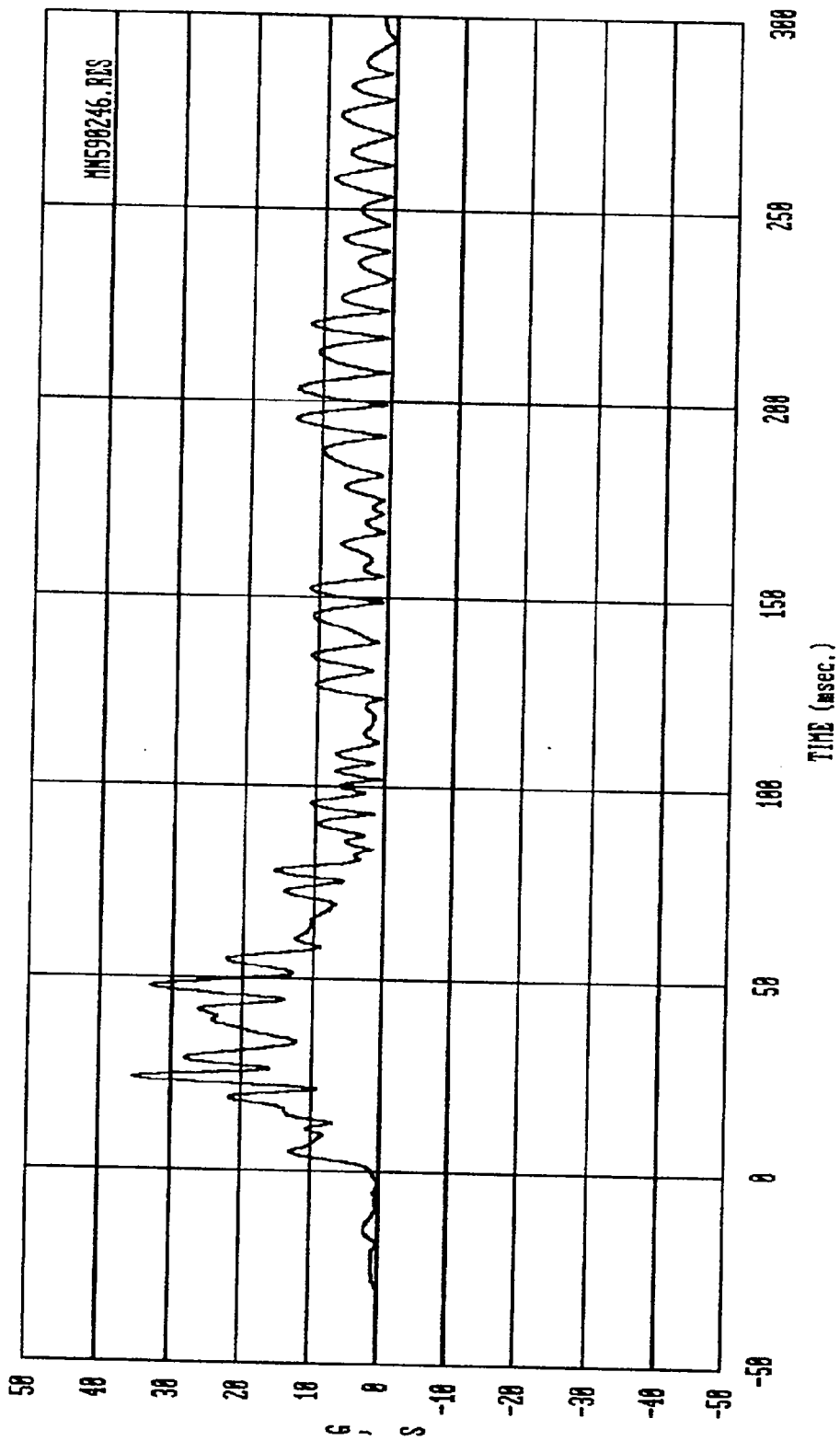
Curve: M.D.B. C/G delta V -- Y axis

Filter: SAE CLASS 180 Max = 22.131 Min = 15.067

HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLE 4 Door



Curve: M.D.B. C/G acceleration -- Z axis Filter: SAE CLASS 60 Max = 31.236 Min = -29.542
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



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

Filter: SAE CLASS 60

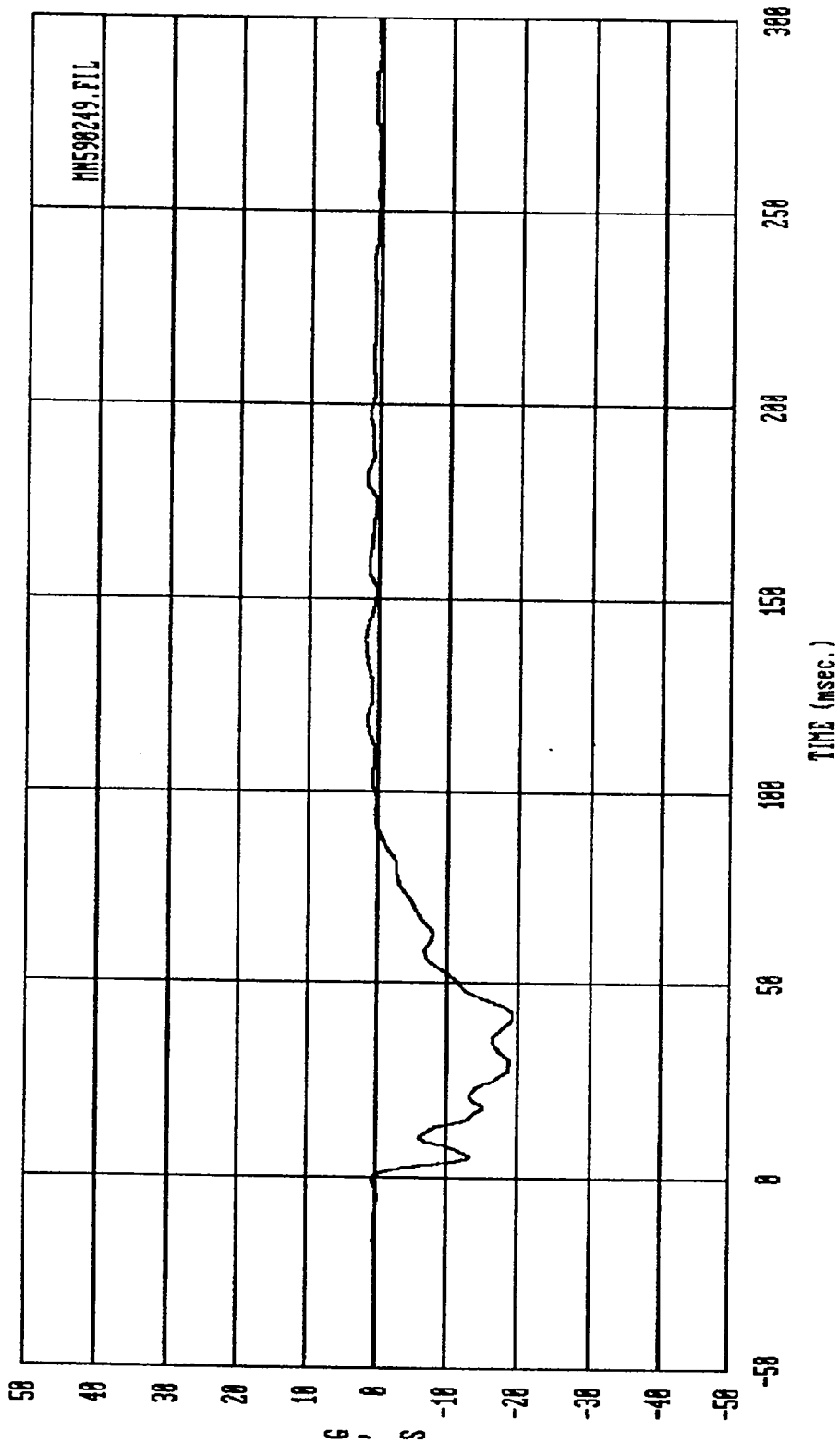
Max = 35.364

Min = .43941E-01

MSE Date: 04/16/92

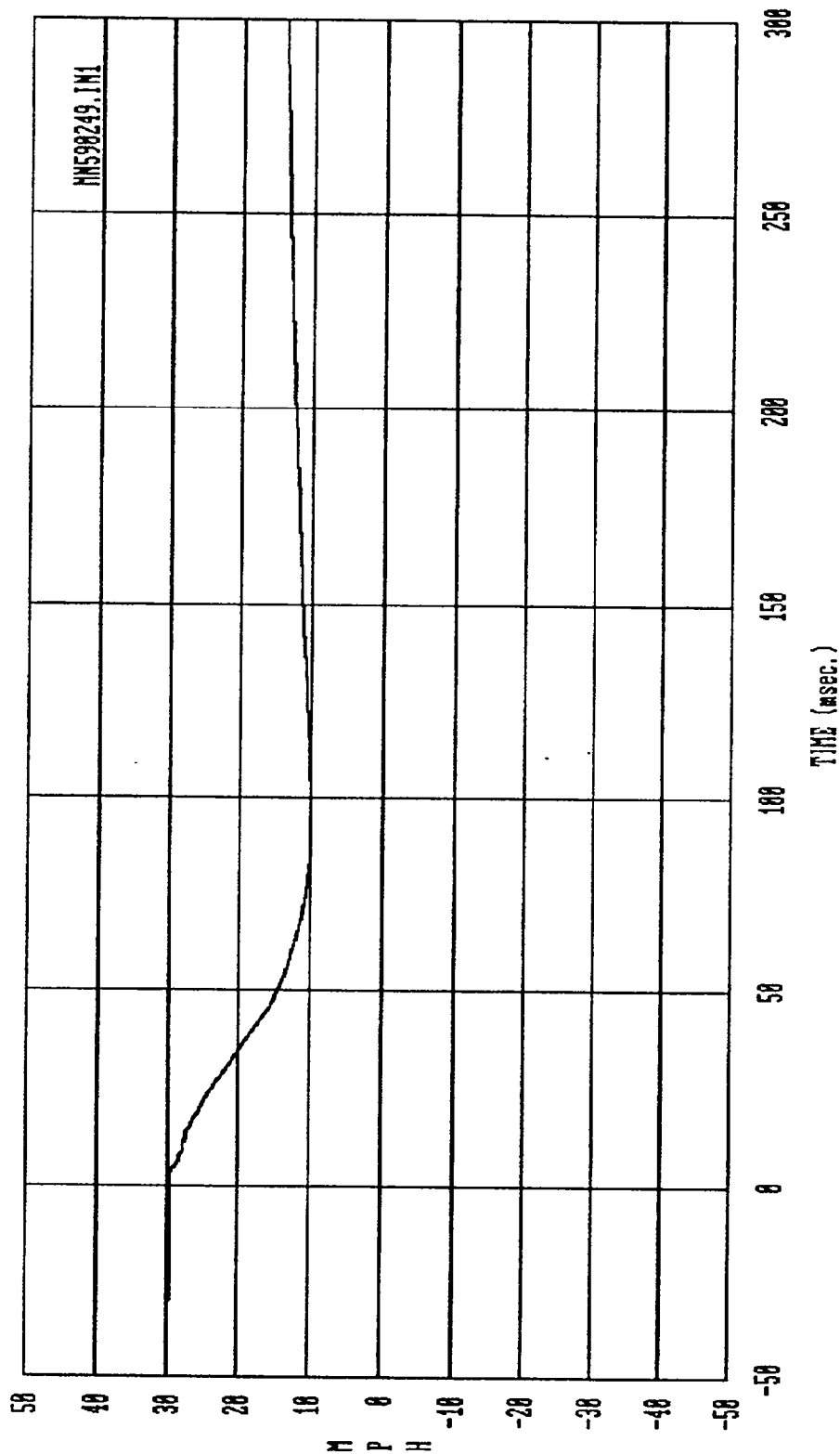
Program: 1992 Side Impact

Vehicle: 1992 Volvo 940 GLE 4 Door

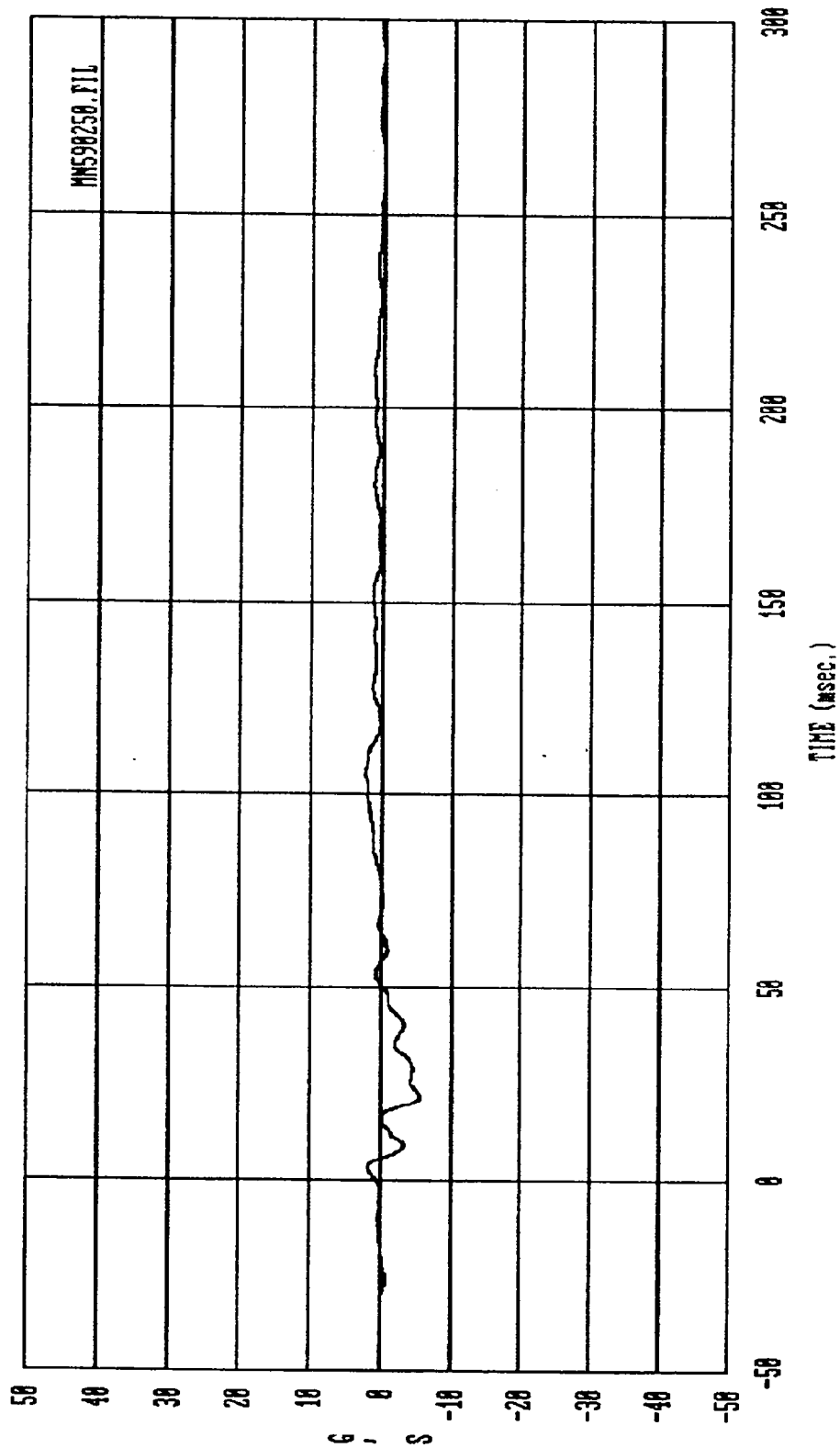


Curve: M.D.B. rear O/G acceleration -- X axis Filter: SAE CLASS 60 Max = 1.9814 Min = -19.303

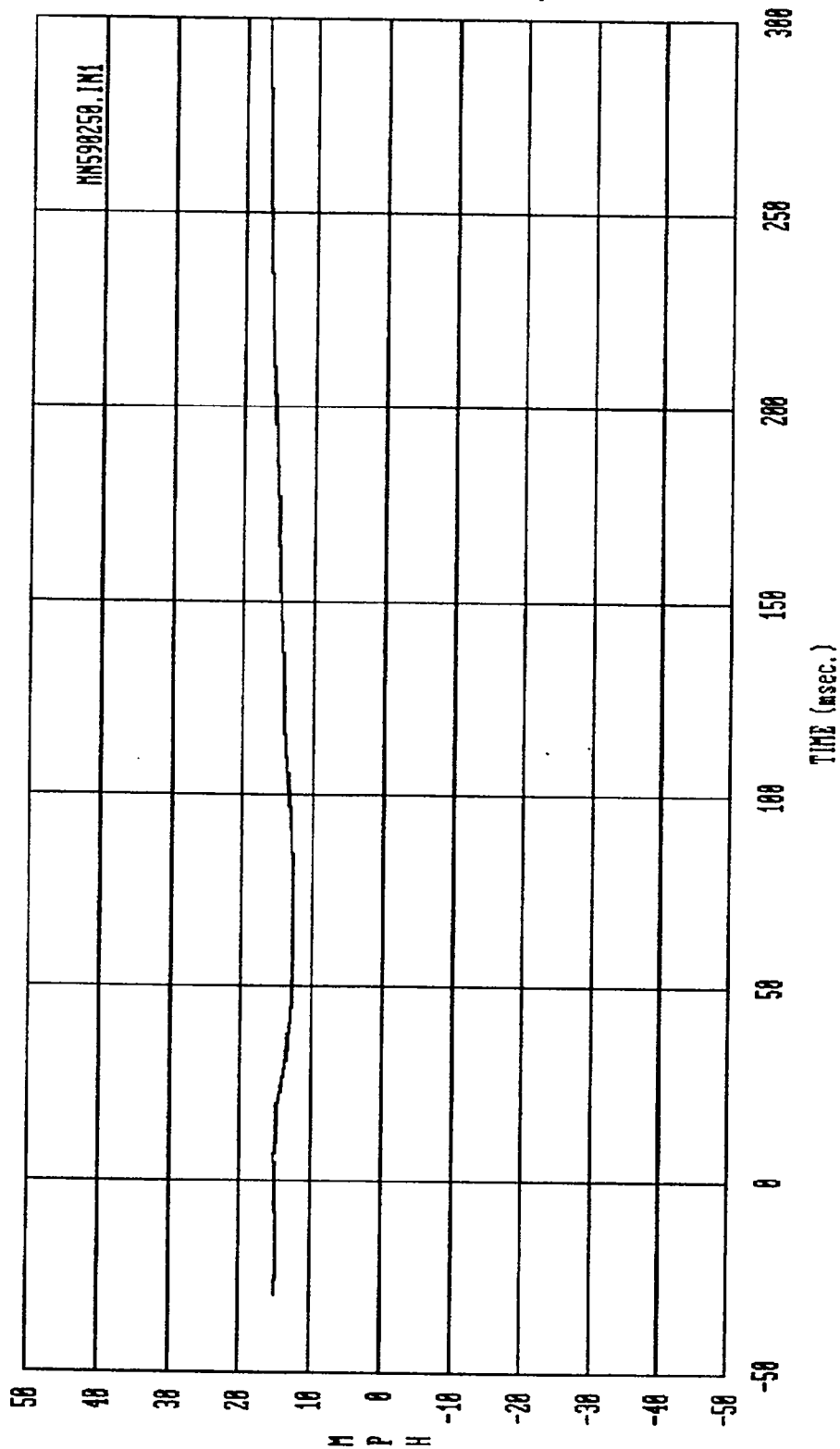
MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: H.D.B. rear C/G delta V -- X axis Filter: SAE CLASS 188 Max = 29.630 Min = 9.9690
 MSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: H.D.B. rear C/G acceleration — Y axis Filter: SHE CLASS 60 Max = 2.3809 Min = -5.4684
 HSE Date: 04/16/92 Program: 1992 Side Impact Vehicle: 1992 Volvo 940 GLS 4 Door



Curve: M.D.B. rear C/G delta V -- Y axis Filter: SAE CLASS 188 Max = 16.929 Min = 12.768
MSE Date: 04/16/92 Program: 1992 Side Impact 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:14.14ft/sec Primary 37 - 46g's Sec Primary 37 - 46g's Sec Primary 15 -22 g's Sec	37.168 40.385 37.312 37.862 18.320 18.384	
6. PELVIC IMPACT TEST: Pelvic accel. - - - -	Vel:14.11 ft/sec 40 - 60g's	54.718	

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:14.19ft/sec Primary 37 - 46g's Sec Primary 37 - 46g's Sec Primary 15 -22 g's Sec	38.294 42.377 38.134 39.498 18.041 15.299	
6. PELVIC IMPACT TEST: Pelvic accel. - - - -	Vel:14.09 ft/sec 40 - 60g's	49.072	