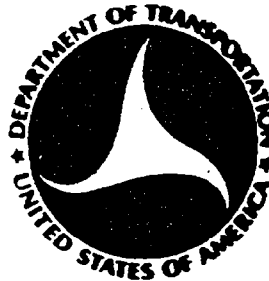


**OFFICE OF MARKET INCENTIVES
SIDE IMPACT PROTECTION STUDY
PASSENGER CARS**

1992 CHEVROLET LUMINA, 4 DOOR SEDAN

NHTSA NO. MN0108

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



07 AUGUST 1992

FINAL REPORT

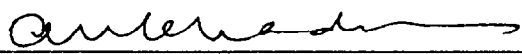
Prepared Under Contract No. DTNH22-87-C-07168, D.O. #4

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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Prepared by Mr. Jerry Kratzke/Mr. Pat Puzzuto/
Mr. Brian O'Keefe

Approved by: 
Dr. Anil V. Khadilkar

Date: 07 AUG-1992

Report Accepted by OMI:

Accepted by: Han S. Chen

Acceptance Date: OCT 2, 1992

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				6. Performing Organization Code MSE																			
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15. Supplementary Notes																							
16. Abstract A 30/15 mph 90° Impact (Moving Deformable Barrier) Test was conducted on the subject 1992 Chevrolet Lumina, 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 July 15, 1992. The impact velocity of the Moving Deformable Barrier (MDB) was 32.81 mph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 100°F. The target vehicle post test maximum crush was 12.1 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>55.3</td> <td>70.9</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td>60.2</td> <td>70.1</td> </tr> <tr> <td>Lower Spine (T) Accel., g</td> <td>66.7</td> <td>54.4</td> </tr> <tr> <td>12 Thoracic Trauma Index (TTI)</td> <td>63.5</td> <td>62.7</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td>70.5</td> <td>47.7</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	55.3	70.9	Left Lower Rib (LLR) Accel., g	60.2	70.1	Lower Spine (T) Accel., g	66.7	54.4	12 Thoracic Trauma Index (TTI)	63.5	62.7	Pelvis (PEV) Accel., g	70.5	47.7
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Pelvis (PEV) Accel., g	70.5	47.7																					
17. Key Words OMI SIDE IMPACT PROTECTION STUDY SIDE IMPACT DUMMY (SID) 1992 CHEVROLET LUMINA			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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				22. Price																			

METRIC CONVERSION FACTORS

APPROXIMATE CONVERSIONS FROM METRIC MEASURES

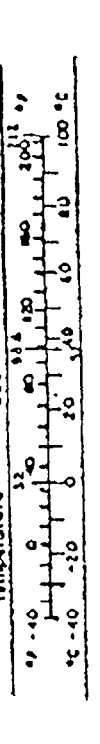
SYMBOL WHEN YOU KNOW MULTIPLY BY TO FIND SYMBOL

LENGTH	
mm	millimeters
cm	centimeters
m	meters
km	kilometers
AREA	
cm ²	square centimeters
m ²	square meters
km ²	square kilometers
ha	hectares (10,000 m ²)

MASS (weight)	
g	grams
kg	kilograms
t	tonnes (1000 kg)

VOLUME	
ml	milliliters
l	liters
m ³	cubic meters

TEMPERATURE (exact)	
°C	Celsius temperature
°F	Fahrenheit temperature



APPROXIMATE CONVERSIONS FROM METRIC MEASURES

SYMBOL WHEN YOU KNOW MULTIPLY BY TO FIND SYMBOL

LENGTH	
in	inches
ft	feet
yd	yards
mi	miles
AREA	
sq in	square inches
sq ft	square feet
sq yd	square yards
sq mi	square miles
acres	acres

MASS (weight)	
oz	ounces
lb	pounds
ton	tons (2000 lb)

VOLUME	
fl oz	fluid ounces
qt	quarts
gal	gallons
cu ft	cubic feet
cu yd	cubic yards

TEMPERATURE (exact)	
°F	Fahrenheit temperature
°C	Celsius temperature

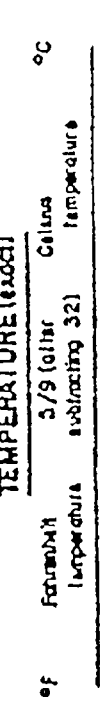


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SECTION 1

PURPOSE OF TEST

A 1992 Chevrolet Lumina, 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 32.81 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 July 15, 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 Chevrolet Lumina, NHTSA No. MN0108 was subjected to a side impact test at Mobility Systems and Equipment Co. on July 15, 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 32.81 mph. The actual impact point was less than 0.6 inch forward of the target impact point.

DATA SHEET NO. 1

SUMMARY OF RESULTS

VEH. MOD.YR/MAKE/MODEL: 1992 CHEVROLET LUMINA

VEH. BODY STYLE: 4 DOOR SEDAN VIN: 2G1WL54TON9107445

VEH. NHTSA NO.: MN0108 VEH. BUILD DATE: 08/91

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY

TEST RESULTS:

Vehicle Overall Length = 198.4 inches; Vehicle Overall Width 71.5 inches

Vehicle Test Weight: 1240 lbs. Left Front 729 lbs. Left Rear

1092 lbs. Right Front 680 lbs. Right Rear

2332 lbs. TOTAL FRONT 1409 lbs. TOTAL REAR

Wheelbase = 107.5 inches

Longitudinal C.G. from center of front axle = 40.5 inches

Impact Angle with respect to impactor = 90 degrees

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

1. LEVEL 1 (11.3 inches above ground) = 5.5 inches

2. LEVEL 2 (19.9 inches above ground) = 12.1 inches

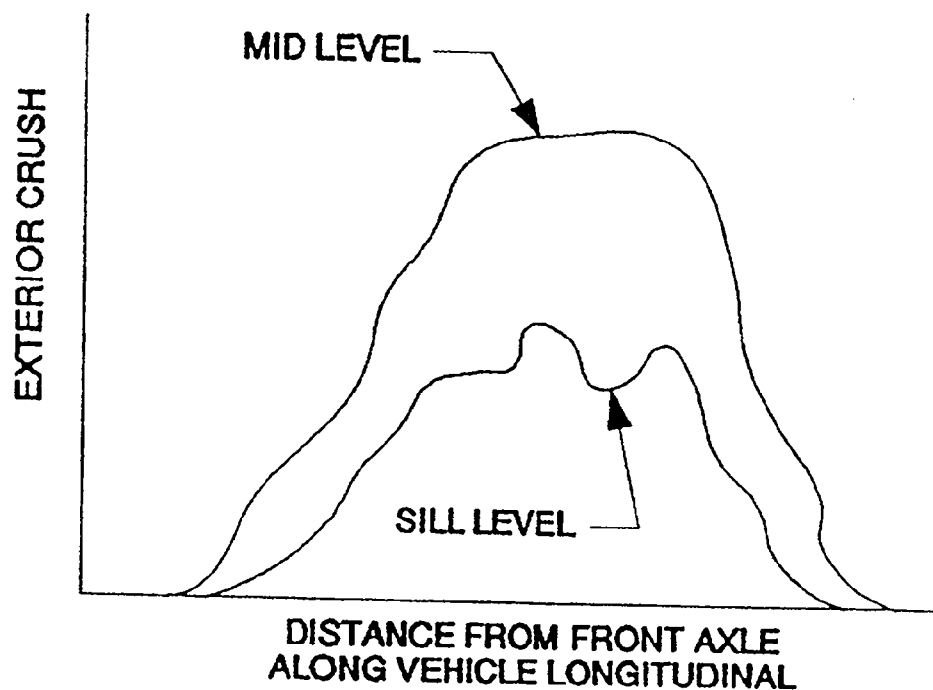
3. LEVEL 3 (23.0 inches above ground) = 10.8 inches

4. LEVEL 4 (35.0 inches above ground) = 8.5 inches

5. LEVEL 5 (52.6 inches above ground) = -5.6 inches

Maximum Post Test Intrusion = 12.1 inches

External Lateral Damage Profile (sample shown below)



Occupants:

	<u>DRIVER</u>	<u>PASS. (LEFT REAR)</u>
Dummy Identification	SID # <u>136</u>	SID # <u>137</u>
Restraint Used	3 Point continuous webbing automatic restraint	3 Point continuous webbing active restraint

Instrumentation:

Number of Data Channels = 50

Number of Cameras: Onboard = 3

Offboard = 6 High speed (2 on MDB), 1 real time

Door Opening:

	<u>LEFT SIDE</u>	<u>RIGHT SIDE</u>
FRONT --	No	No
REAR --	No	No

Arm Rest Location:

Front -- Right side of driver's split bench seat

Rear -- N/A

Front Seat Cushion Movement: To the right

Front Seat Back Movement: To the right

Glazing Breakage: Both impact side windows shattered, windshield cracked but remained intact

Pillar Failure: None

Sill Separation: None

Other Notable Impact Effect: None

MOVING DEFORMABLE BARRIER (MDB) RESULTS:

Overall Width of Framework Carriage = 52.5 inches

Overall Length of MDB = 162.0 inches (including honey comb impact face)

Wheelbase of Frame work Carriage (front and Rear) = 102.0 inches

C.G. Location of 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) = 27 degrees

Impact Speed = 32.81 mph

Maximum Static Crush of Honeycomb Impact Face:

1. ROW A at bumper level = 4.5 inches
2. ROW B at midstack level = 2.9 inches
3. ROW C at top of stack level = 5.0 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:
Upper trailing edge of door

Visible Dummy Contact Points--

	<u>FRONT SID</u>	<u>REAR SID</u>
HEAD	Window	Roof, c-pillar
SHOULDER	Door	Door
HIP	Seat, door	Seat, door
LEFT KNEE	Door	Door
RIGHT KNEE	Steering column	No contact

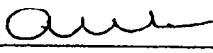
	<u>FRONT SID # 136</u>		<u>REAR SID # 137</u>	
	<u>+DIRECT</u>	<u>-DIRECT</u>	<u>+DIRECT</u>	<u>-DIRECT</u>
	<u>MaxG</u>	<u>ms</u>	<u>MaxG</u>	<u>ms</u>
RIB ACCELERATIONS:				
Upper Rib Lateral Y	<u>55.3</u>	<u>37.5</u>	<u>17.0</u>	<u>78.8</u>
Lower Rib Lateral Y	<u>60.2</u>	<u>43.8</u>	<u>70.9</u>	<u>48.1</u>
SPINE ACCELERATIONS:				
Lower Lateral Y	<u>8.0</u>	<u>60.6</u>	<u>70.1</u>	<u>46.9</u>
PELVIS ACCELERATIONS:				
Lateral Y	<u>11.2</u>	<u>82.5</u>	<u>66.7</u>	<u>40.0</u>
	<u>70.5</u>	<u>33.1</u>	<u>9.9</u>	<u>63.1</u>

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

REMARKS:

RECORDED BY: Mr. Brian O'Keefe

DATE: 07/21/92

APPROVED BY:  08/07/92

SIDE IMPACT DUMMY (SID) TEST DATA SUMMARY
1992 CHEVROLET LUMINA, 4-DOOR SEDAN, NHTSA NO. MN0108

TEST DATE: 07/15/92

	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	15.7	83.2	8.2	65.2	2.7	52.4	19.5	66.8
Lateral ----- Y	63.2	58.5	11.1	37.3	125.5	65.2	9.6	86.0
Vertical ----- Z	44.6	64.0	35.6	54.8	24.5	71.2	42.5	63.2
RESULTANT ----- R	68.7	55.7	0.0	0.0	128.4	65.0	0.0	0.0
HIC ----- (TIME INTERVAL, SEC.)	407.3 (0.0494 TO 0.0673)				797.7 (0.0620 TO 0.0687)			
RIB ACCELERATIONS:								
1.Upper Rib Lateral Y	55.3	37.5	17.0	78.8	70.9	48.1	8.0	60.6
2.Upper Rib Lateral Y	52.5	36.9	20.0	78.8	66.7	48.1	8.2	60.6
1.Lower Rib Lateral Y	60.2	43.8	16.5	79.4	70.1	46.9	11.2	82.5
2.Lower Rib Lateral Y	60.8	44.4	17.0	80.0	70.6	46.9	12.1	82.5
SPINE ACCELERATIONS:								
1.Upper Spine Lateral Y	76.0	44.4	27.5	71.9	50.7	59.4	16.8	78.8
2.Upper Spine Lateral Y	74.4	44.4	26.4	72.5	0.0	0.0	0.0	0.0
1.Lower Spine Lateral Y	66.7	40.0	11.7	69.4	54.4	50.6	25.4	75.6
2.Lower Spine Lateral Y	63.4	39.4	11.8	69.4	52.9	50.6	24.8	75.6
PELVIS ACCELERATIONS:								
Lateral Y	70.5	33.1	9.9	63.1	47.7	47.5	9.9	108.1
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)	63.5				62.7			

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

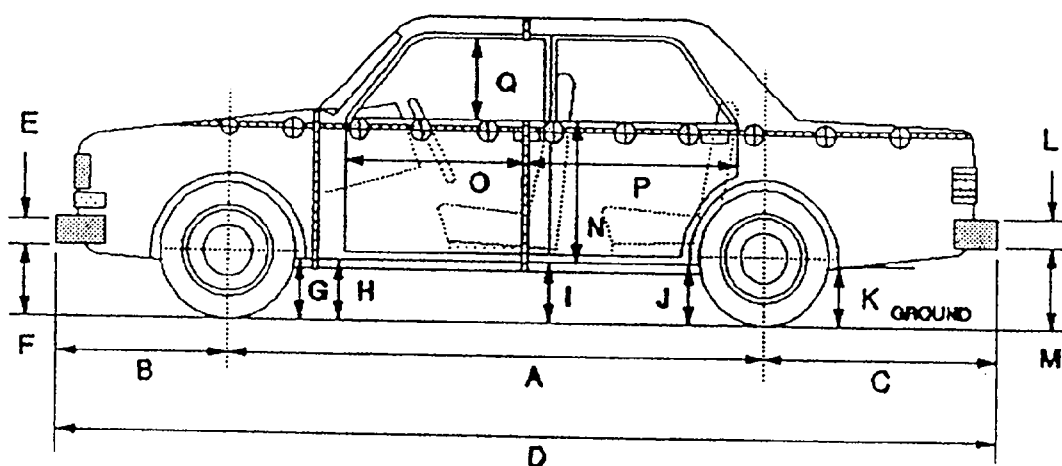
DATA SHEETS NO. 2

PRETEST AND POST TEST MEASUREMENTS

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54TON9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY



LEFT SIDE VIEW

	<u>Pretest</u> (inches)	<u>Post Test</u> (inches)	<u>Change</u>		<u>Pretest</u> (inches)	<u>Post Test</u> (inches)	<u>Change</u>
A	<u>107.5</u>	<u>106.4</u>	<u>1.1</u>	J	<u>10.3</u>	<u>10.4</u>	<u>0.1</u>
B	<u>46.3</u>	<u>47.5</u>	<u>1.2</u>	K	<u>12.8</u>	<u>13.9</u>	<u>1.1</u>
C	<u>44.6</u>	<u>44.1</u>	<u>0.5</u>	L	<u>9.0</u>	<u>9.0</u>	<u>0.0</u>
D	<u>198.4</u>	<u>198.0</u>	<u>0.4</u>	M	<u>14.5</u>	<u>15.5</u>	<u>1.0</u>
E	<u>7.5</u>	<u>7.5</u>	<u>0.0</u>	N	<u>25.5</u>	<u>21.5</u>	<u>4.0</u>
F	<u>14.0</u>	<u>14.0</u>	<u>0.0</u>	O	<u>31.0</u>	<u>30.0</u>	<u>1.0</u>
G	<u>9.5</u>	<u>9.3</u>	<u>0.2</u>	P	<u>50.5</u>	<u>47.6</u>	<u>3.9</u>
H	<u>9.4</u>	<u>9.9</u>	<u>0.5</u>	Q	<u>19.3</u>	<u>18.1</u>	<u>1.2</u>
I	<u>9.9</u>	<u>10.6</u>	<u>0.7</u>				

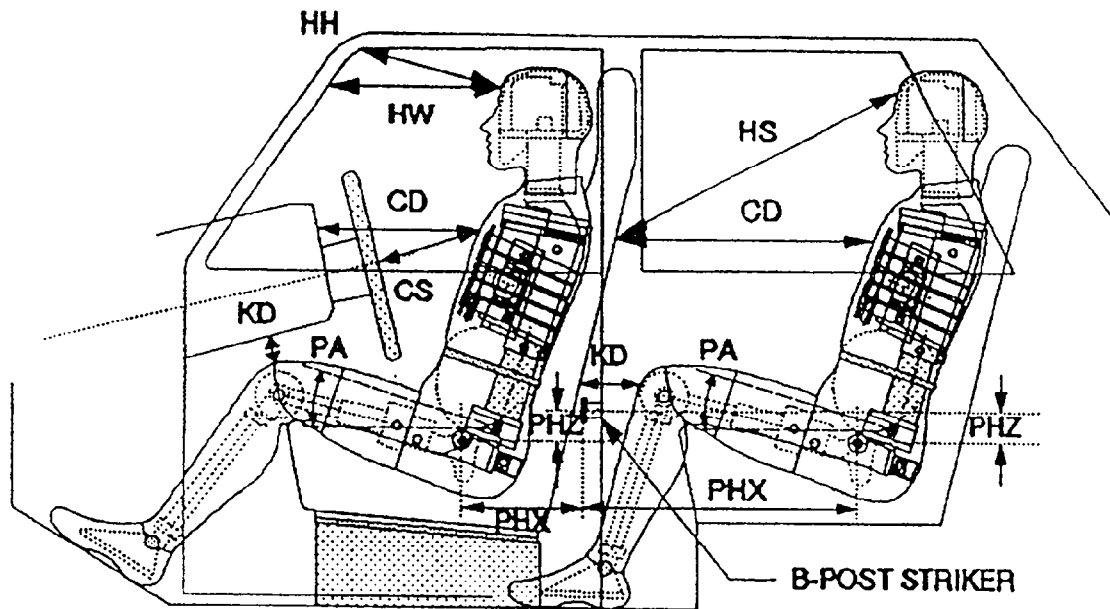
DATA SHEET NO. 3

SID LONGITUDINAL CLEARANCE DIMENSIONS

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54TON9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY



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	14.0	inches
HW	23.1	inches
HS	18.6	inches
CD	24.0	inches
CS	12.1	inches
KDL	2.6	inches
KDR	3.2	inches
PA	24	degrees
PHX	7.2	inches
PHY	2.3	inches

REAR SID ID# 137

N/A	inches
N/A	inches
25.5	inches
19.8	inches
N/A	inches
5.0	inches
4.8	inches
24	degrees
10.1	inches
11.4	inches

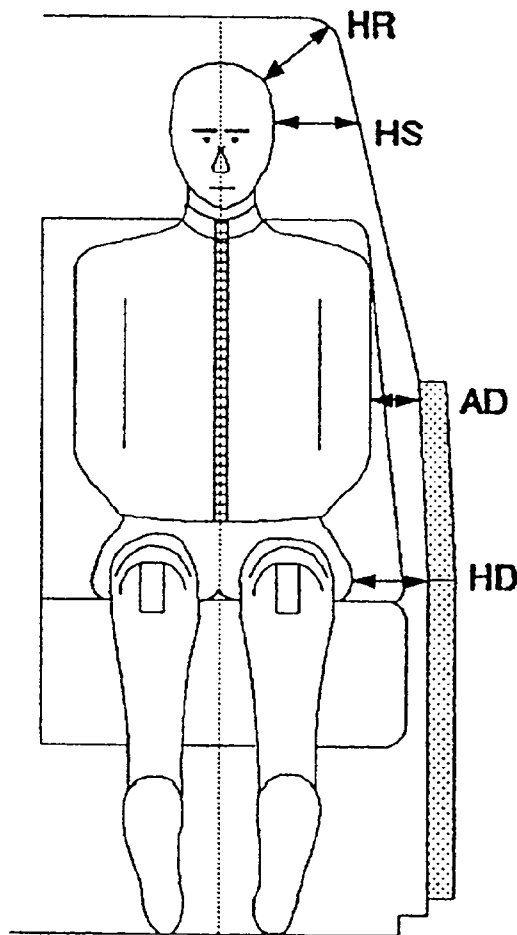
DATA SHEET NO. 4

SID LATERAL CLEARANCE DIMENSIONS

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54TON9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY



DRIVER SID ID# 136

HR	<u>6.5</u>	inches
HS	<u>12.5</u>	inches
AD	<u>4.5</u>	inches
HD	<u>5.1</u>	inches

REAR SID ID# 137

<u>6.3</u>	inches
<u>9.5</u>	inches
<u>4.5</u>	inches
<u>5.4</u>	inches

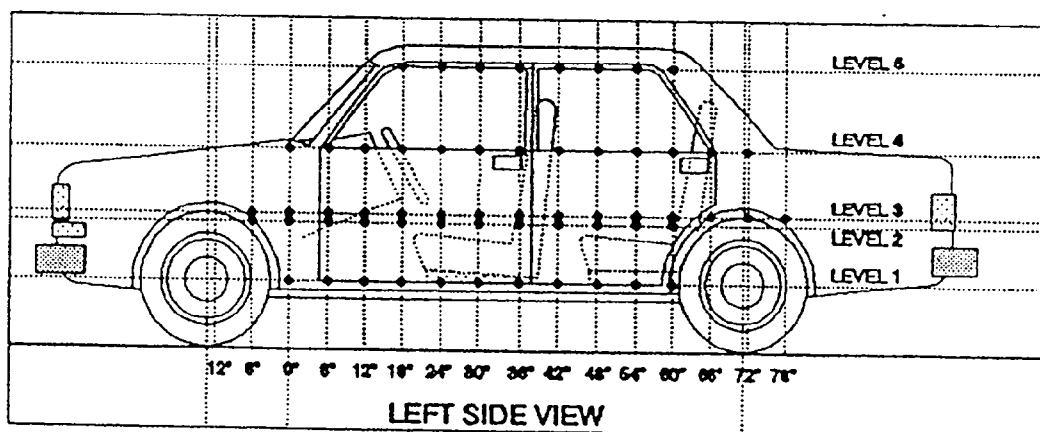
DATA SHEET NO. 5

VEHICLE SIDE MEASUREMENT

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54TON9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY



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

MEASUREMENTS ALONG THE VERTICAL 30" LINE SHOWN ABOVE:

LEVEL 5 @ Window Top = 52.6 inches

LEVEL 4 @ Window Sill = 35.0 inches

LEVEL 3 @ Mid Door = 23.0 inches

LEVEL 2 @ Occupant H-Point = 19.9 inches

LEVEL 1 @ Axle Centerline Height = 11.3 inches
(or Sill Top Height)

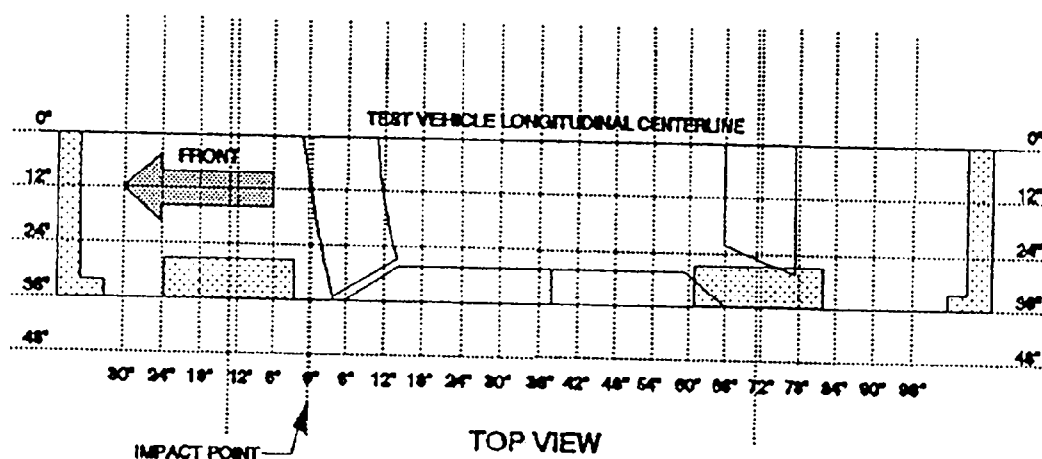
DATA SHEET NO. 6A

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54T0N9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY



LEVEL 1 AT AXLE CENTERLINE or TOP SIDE SILL

11.3 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>16.8</u>	<u>15.6</u>	<u>1.2</u>
6 inches	<u>17.2</u>	<u>15.5</u>	<u>1.7</u>
12 inches	<u>17.3</u>	<u>15.4</u>	<u>1.9</u>
18 inches	<u>18.1</u>	<u>15.3</u>	<u>2.8</u>
24 inches	<u>19.0</u>	<u>15.2</u>	<u>3.8</u>
30 inches	<u>19.5</u>	<u>15.1</u>	<u>4.4</u>
36 inches	<u>20.2</u>	<u>15.0</u>	<u>5.2</u>
42 inches	<u>20.6</u>	<u>15.1</u>	<u>5.5</u>
48 inches	<u>20.5</u>	<u>15.2</u>	<u>5.3</u>
54 inches	<u>19.4</u>	<u>15.3</u>	<u>4.1</u>
60 inches	<u>18.3</u>	<u>15.4</u>	<u>2.9</u>
66 inches	<u>17.4</u>	<u>15.5</u>	<u>1.9</u>
72 inches	<u>16.5</u>	<u>15.6</u>	<u>0.9</u>

REMARKS:

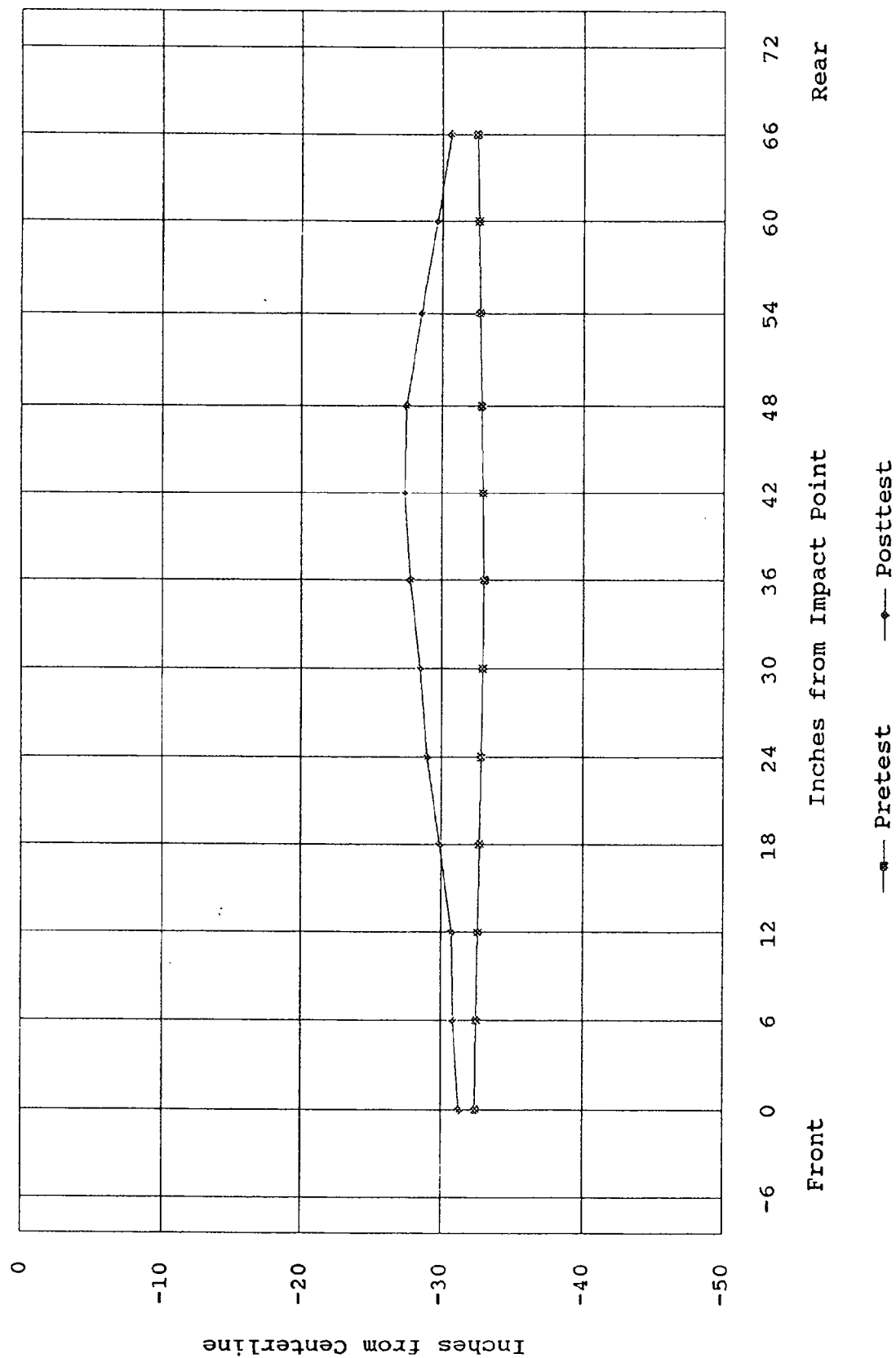
RECORDED BY: Mr. Brian O'Keefe

DATE: 07/16/92

APPROVED BY: *amh* 8/7/92

Pretest and Posttest Exterior Profile

Level 1 - Axle Centerline - 11.3" Above Ground Level



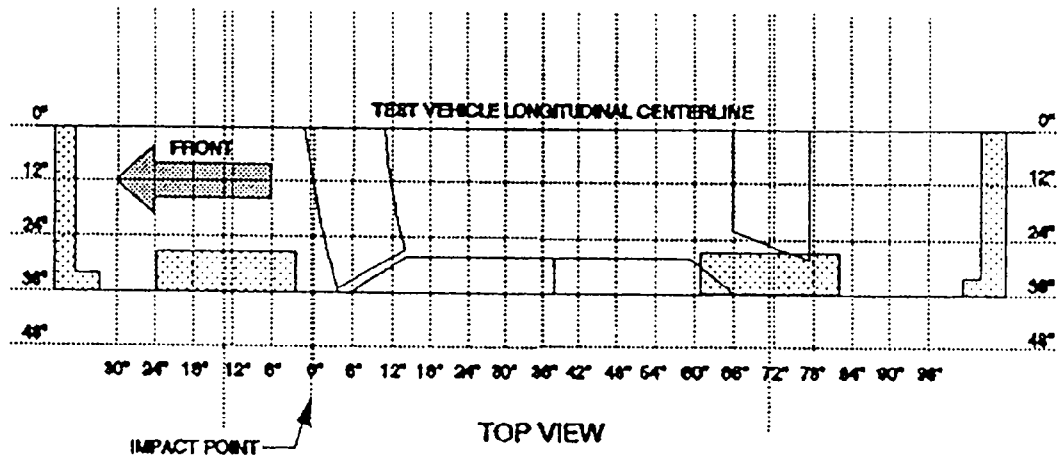
DATA SHEET NO. 6B

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54T0N9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY



LEVEL 2 AT OCCUPANT H-POINT

19.9 INCHES ABOVE GROUND LEVEL AT THE DOOR 30" LINE

ADD PROFILE INFORMATION ON THE NEXT PAGE

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

LEVEL 2 AT OCCUPANT H-POINT

	POST TEST (inches)	PRETEST (inches)	STATIC CRUSH (inches)
-6 inches	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
0 inch (impact point)	<u>15.7</u>	<u>12.2</u>	<u>3.5</u>
6 inches	<u>18.9</u>	<u>12.1</u>	<u>6.8</u>
12 inches	<u>20.3</u>	<u>12.0</u>	<u>8.3</u>
18 inches	<u>21.5</u>	<u>12.0</u>	<u>9.5</u>
24 inches	<u>22.3</u>	<u>11.9</u>	<u>10.4</u>
30 inches	<u>22.8</u>	<u>11.9</u>	<u>10.9</u>
36 inches	<u>23.1</u>	<u>11.9</u>	<u>11.2</u>
42 inches	<u>22.5</u>	<u>12.2</u>	<u>10.3</u>
48 inches	<u>22.9</u>	<u>12.1</u>	<u>10.8</u>
54 inches	<u>24.3</u>	<u>12.2</u>	<u>12.1</u>
60 inches	<u>24.0</u>	<u>12.4</u>	<u>11.6</u>
66 inches	<u>23.5</u>	<u>13.0</u>	<u>10.5</u>
72 inches	<u>14.5</u>	<u>13.2</u>	<u>1.3</u>

REMARKS:

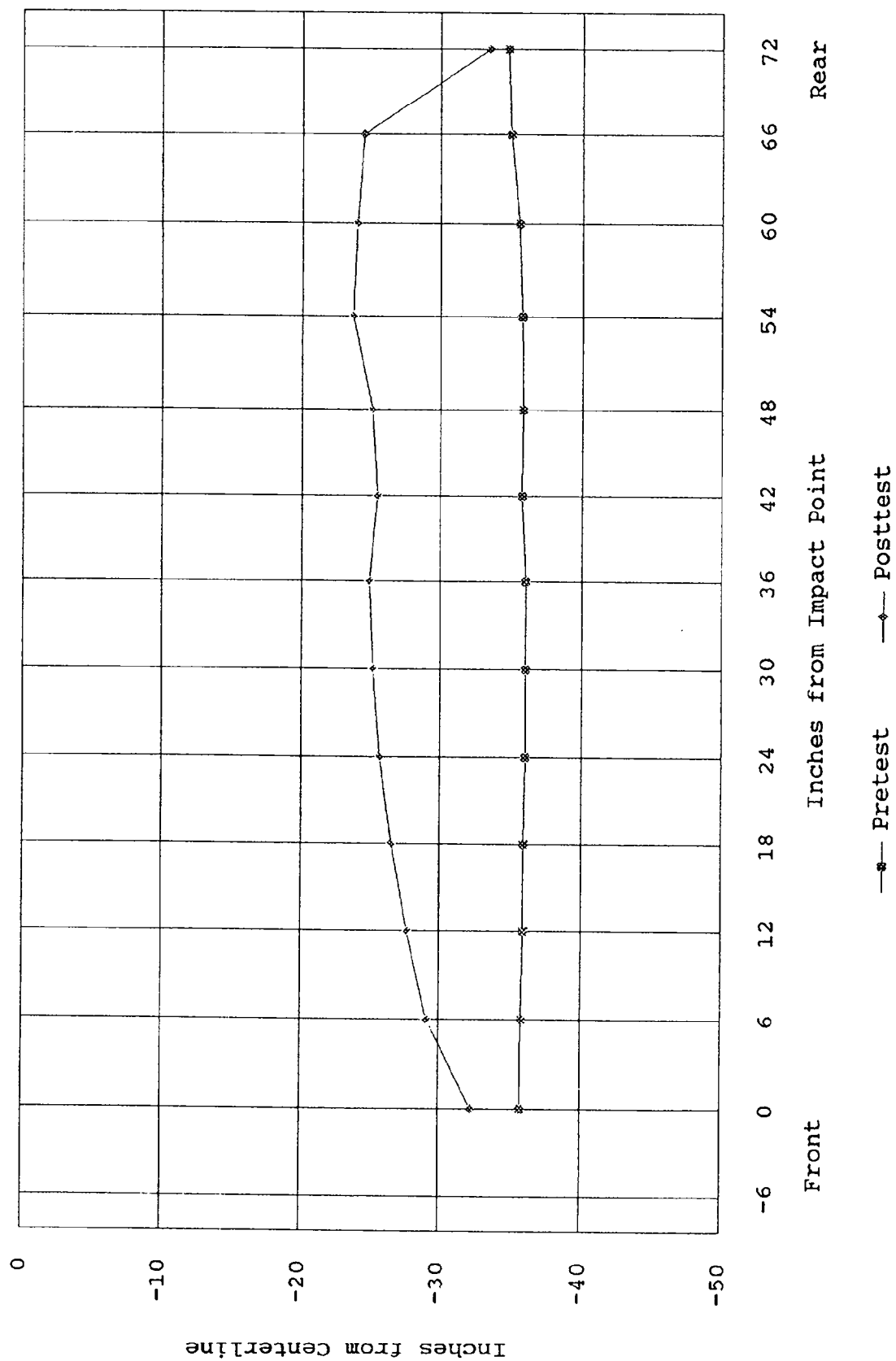
RECORDED BY: Mr. Brian O'Keefe

DATE: 07/16/92

APPROVED BY: 

Pretest and Posttest Exterior Profile

Level 2 - Occupant H-point - 19.9" Above Ground Level



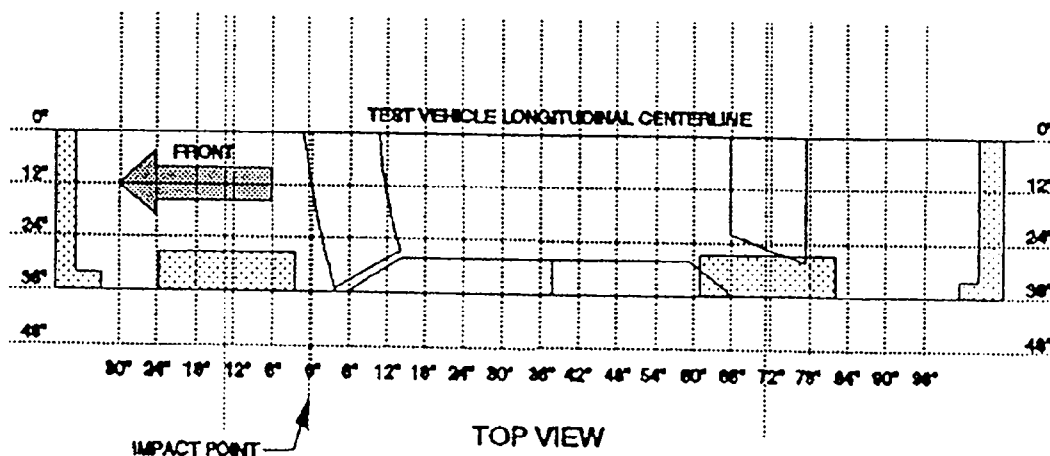
DATA SHEET NO. 6C

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54TON9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY



LEVEL 3 AT MID DOOR

23.0 INCHES ABOVE GROUND LEVEL AT THE DOOR 30" LINE

ADD PROFILE INFORMATION ON THE NEXT PAGE

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

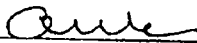
LEVEL 3 AT MID-DOOR

	POST TEST (inches)	PRETEST (inches)	STATIC CRUSH (inches)
-6 inches	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
0 inch (impact point)	<u>14.6</u>	<u>12.8</u>	<u>1.8</u>
6 inches	<u>18.0</u>	<u>12.5</u>	<u>5.5</u>
12 inches	<u>19.2</u>	<u>12.4</u>	<u>6.8</u>
18 inches	<u>20.0</u>	<u>12.4</u>	<u>7.6</u>
24 inches	<u>20.8</u>	<u>12.4</u>	<u>8.4</u>
30 inches	<u>21.4</u>	<u>12.3</u>	<u>9.1</u>
36 inches	<u>22.1</u>	<u>12.3</u>	<u>9.8</u>
42 inches	<u>21.7</u>	<u>12.3</u>	<u>9.4</u>
48 inches	<u>22.5</u>	<u>12.4</u>	<u>10.1</u>
54 inches	<u>23.2</u>	<u>12.4</u>	<u>10.8</u>
60 inches	<u>22.8</u>	<u>12.5</u>	<u>10.3</u>
66 inches	<u>22.1</u>	<u>12.6</u>	<u>9.5</u>
72 inches	<u>15.2</u>	<u>12.8</u>	<u>2.4</u>

REMARKS:

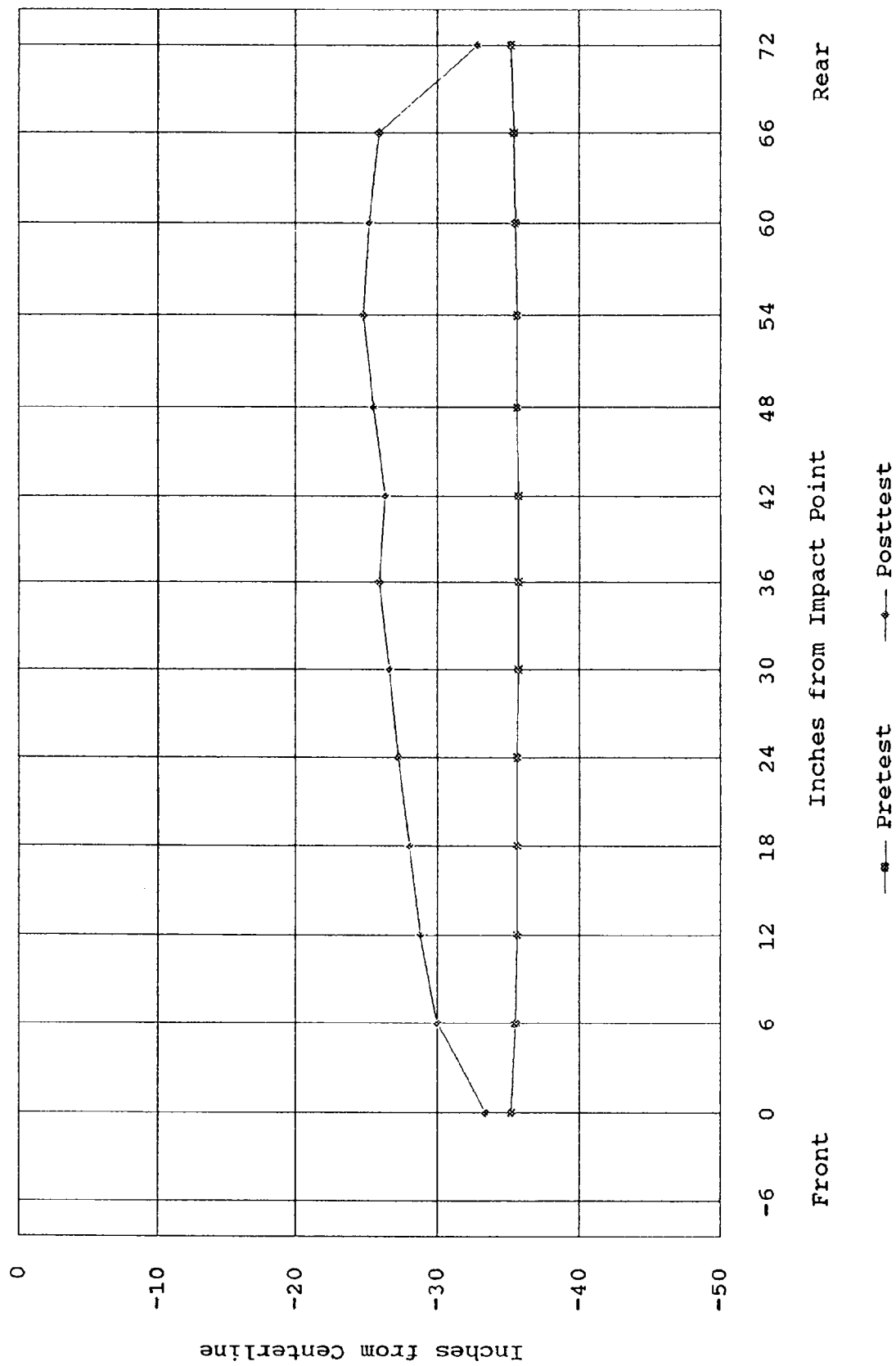
RECORDED BY: Mr. Brian O'Keefe

DATE: 07/16/92

APPROVED BY: 

Pretest and Posttest Exterior Profile

Level 3 - Mid-door - 23.0" Above Ground Level



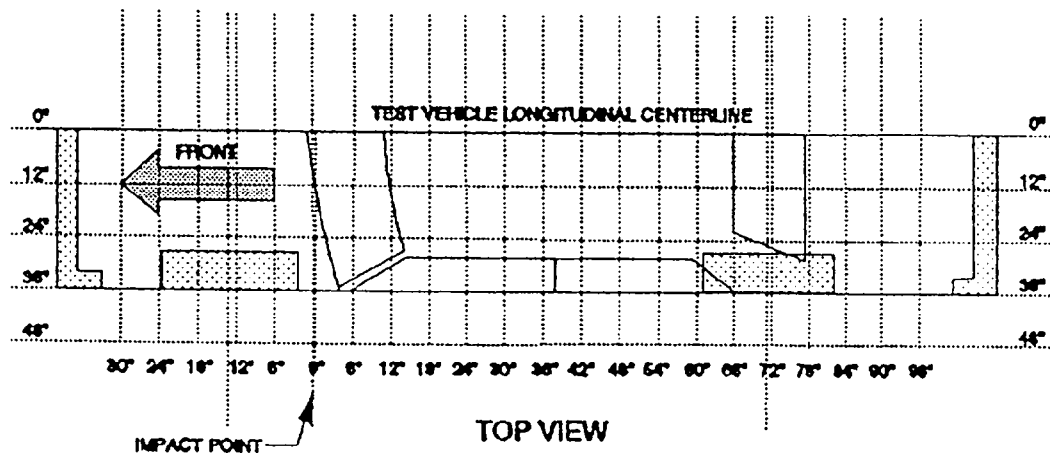
DATA SHEET NO. 6D

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54TON9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY



LEVEL 4 AT WINDOW SILL

35.0 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>14.8</u>	<u>15.5</u>	<u>-0.7</u>
0 inch (impact point)	<u>14.8</u>	<u>15.0</u>	<u>-0.2</u>
6 inches	<u>15.3</u>	<u>14.8</u>	<u>0.5</u>
12 inches	<u>17.6</u>	<u>14.6</u>	<u>3.0</u>
18 inches	<u>18.6</u>	<u>14.6</u>	<u>4.0</u>
24 inches	<u>19.5</u>	<u>14.5</u>	<u>5.0</u>
30 inches	<u>20.3</u>	<u>14.4</u>	<u>5.9</u>
36 inches	<u>21.0</u>	<u>14.3</u>	<u>6.7</u>
42 inches	<u>21.5</u>	<u>14.3</u>	<u>7.2</u>
48 inches	<u>22.5</u>	<u>14.4</u>	<u>8.1</u>
54 inches	<u>22.9</u>	<u>14.4</u>	<u>8.5</u>
60 inches	<u>21.6</u>	<u>14.4</u>	<u>7.2</u>
66 inches	<u>20.1</u>	<u>14.5</u>	<u>5.6</u>
72 inches	<u>16.2</u>	<u>14.6</u>	<u>1.6</u>

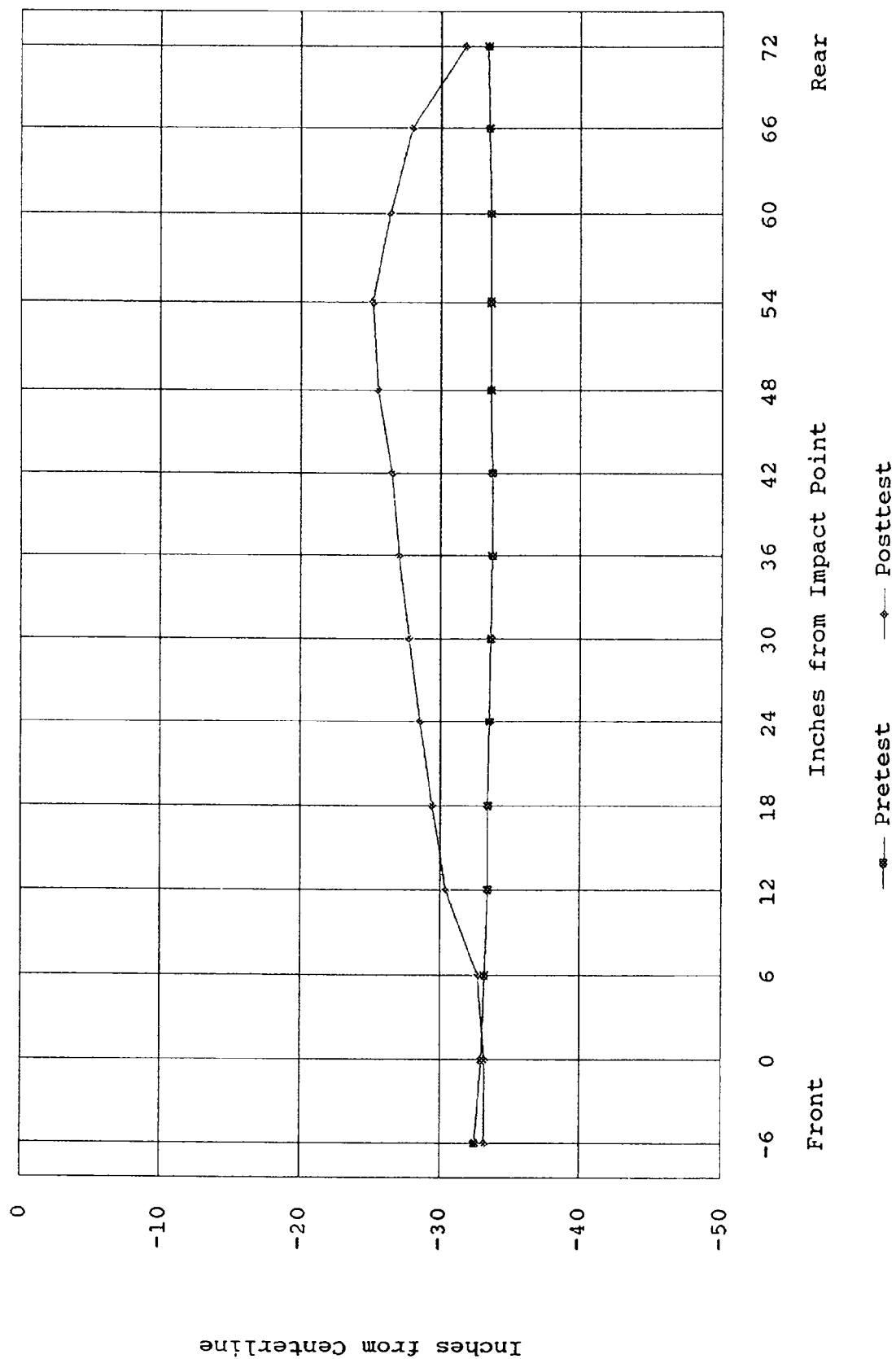
REMARKS:

RECORDED BY: Mr. Brian O'Keefe DATE: 07/16/92

APPROVED BY: *[Signature]* 8/7/92

Pretest and Posttest Exterior Profile

Level 4 - Window Sill - 35.0" Above Ground Level



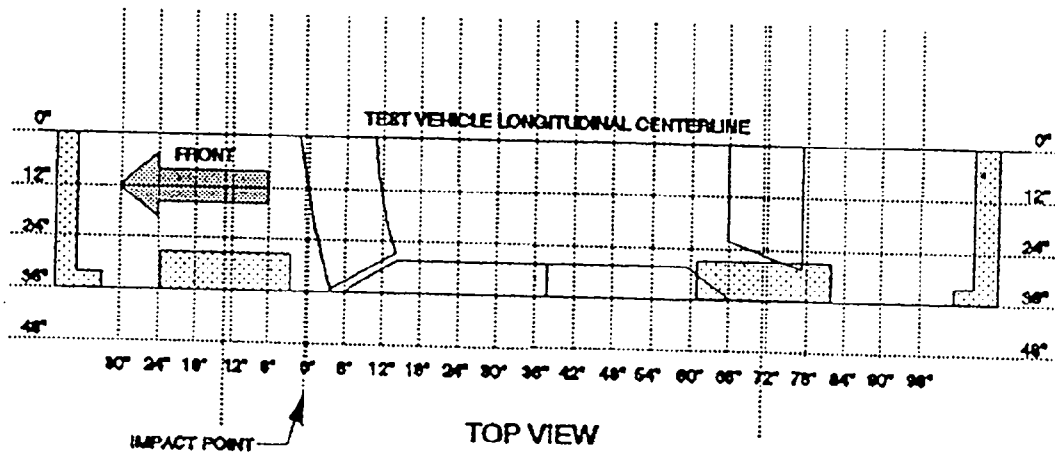
DATA SHEET NO. 6E

PRETEST AND POST TEST VEHICLE EXTERIOR PROFILES

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54TON9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY



LEVEL 5 AT WINDOW TOP

52.6 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>N/A</u>	<u>N/A</u>	<u>N/A</u>
30 inches	<u>19.8</u>	<u>22.5</u>	<u>-2.7</u>
36 inches	<u>20.8</u>	<u>22.3</u>	<u>-1.5</u>
42 inches	<u>22.0</u>	<u>22.4</u>	<u>-0.4</u>
48 inches	<u>22.6</u>	<u>22.3</u>	<u>0.3</u>
54 inches	<u>22.0</u>	<u>22.3</u>	<u>-0.3</u>
60 inches	<u>20.4</u>	<u>22.4</u>	<u>-2.0</u>
66 inches	<u>18.8</u>	<u>22.4</u>	<u>-3.6</u>
72 inches	<u>17.2</u>	<u>22.8</u>	<u>-5.6</u>

REMARKS:

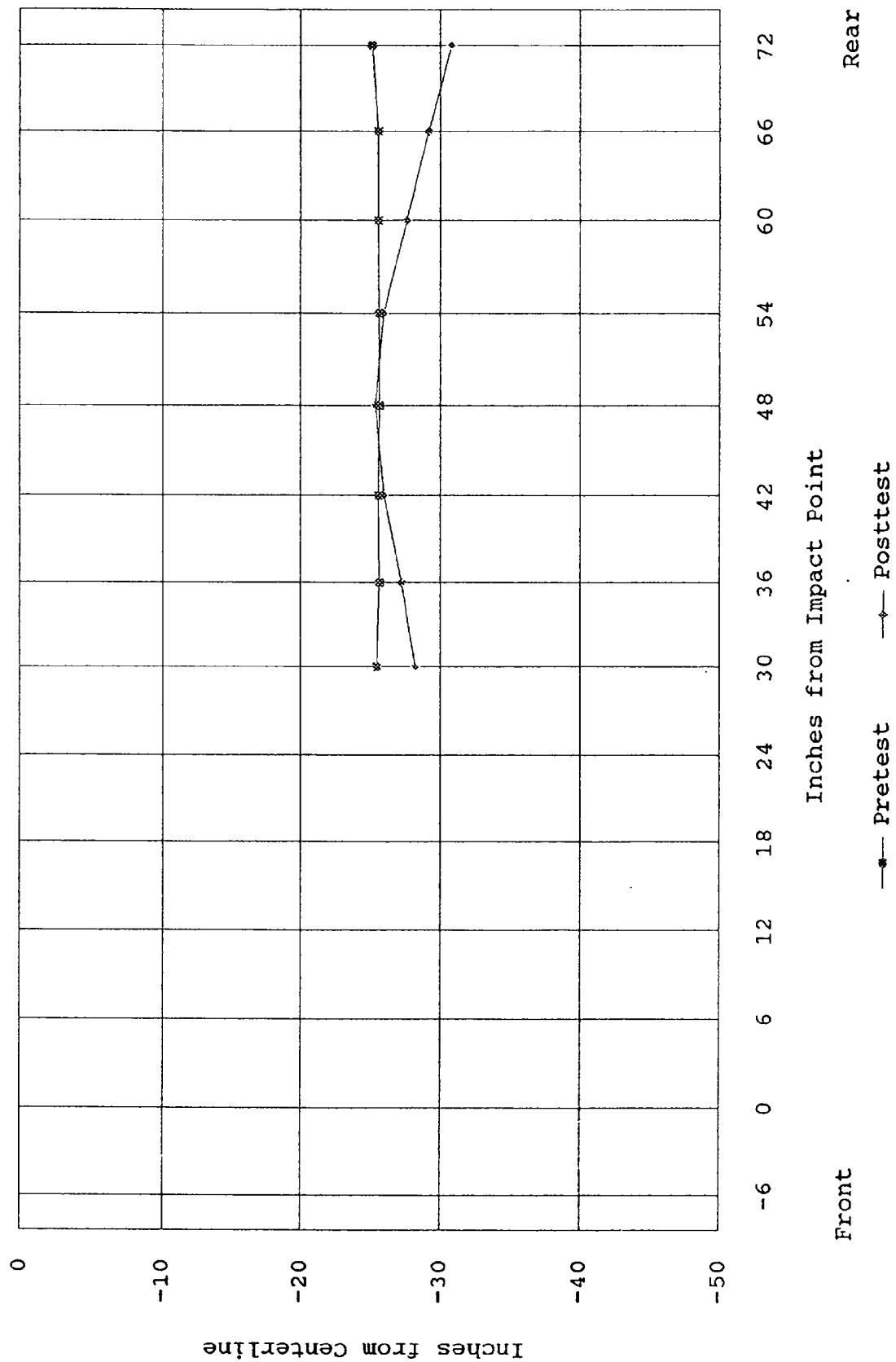
RECORDED BY: Mr. Brian O'Keefe

DATE: 07/16/92

APPROVED BY: *Ann* 8/7/92

Pretest and Posttest Exterior Profile

Level 5 - Window Top - 52.6" Above Ground Level



DATA SHEET NO. 6F

SUMMARY OF VEHICLE EXTERIOR PROFILE STATIC CRUSH

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54TON9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY

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>-0.7</u>	<u>N/A</u>
0 inch	<u>1.2</u>	<u>3.5</u>	<u>1.8</u>	<u>-0.2</u>	<u>N/A</u>
Impact Point					
6 inches	<u>1.7</u>	<u>6.8</u>	<u>5.5</u>	<u>0.5</u>	<u>N/A</u>
12 inches	<u>1.9</u>	<u>8.3</u>	<u>6.8</u>	<u>3.0</u>	<u>N/A</u>
18 inches	<u>2.8</u>	<u>9.5</u>	<u>7.6</u>	<u>4.0</u>	<u>N/A</u>
24 inch	<u>3.8</u>	<u>10.4</u>	<u>8.4</u>	<u>5.0</u>	<u>N/A</u>
30 inches	<u>4.4</u>	<u>10.9</u>	<u>9.1</u>	<u>5.9</u>	<u>-2.7</u>
36 inches	<u>5.2</u>	<u>11.2</u>	<u>9.8</u>	<u>6.7</u>	<u>-1.5</u>
42 inches	<u>5.5</u>	<u>10.3</u>	<u>9.4</u>	<u>7.2</u>	<u>-0.4</u>
48 inches	<u>5.3</u>	<u>10.8</u>	<u>10.1</u>	<u>8.1</u>	<u>0.3</u>
54 inches	<u>4.1</u>	<u>12.1</u>	<u>10.8</u>	<u>8.5</u>	<u>-0.3</u>
60 inches	<u>2.9</u>	<u>11.6</u>	<u>10.3</u>	<u>7.2</u>	<u>-2.0</u>
66 inches	<u>1.9</u>	<u>10.5</u>	<u>9.5</u>	<u>5.6</u>	<u>-3.6</u>
72 inches	<u>0.9</u>	<u>1.3</u>	<u>2.4</u>	<u>1.6</u>	<u>-5.6</u>

RECORDED BY: Mr. Brian O'Keefe DATE: 07/16/92

APPROVED BY: *Amu* 8/7/92

DATA SHEET NO. 7

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54TON9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY

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>5.0</u>	<u>2.9</u>	<u>4.5</u>
28 inches	<u>2.9</u>	<u>2.3</u>	<u>3.9</u>
24 inches	<u>1.9</u>	<u>1.5</u>	<u>3.0</u>
20 inches	<u>0.9</u>	<u>0.9</u>	<u>2.3</u>
16 inches	<u>0.2</u>	<u>0.5</u>	<u>1.8</u>
12 inches	<u>0.1</u>	<u>0.1</u>	<u>1.4</u>
8 inches	<u>-0.1</u>	<u>0.0</u>	<u>1.1</u>
4 inches	<u>-0.2</u>	<u>-0.1</u>	<u>1.0</u>
0 inches	<u>-0.2</u>	<u>0.0</u>	<u>1.2</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>-0.2</u>	<u>0.3</u>	<u>1.4</u>
8 inches	<u>-0.1</u>	<u>0.5</u>	<u>1.9</u>
12 inches	<u>-0.3</u>	<u>0.4</u>	<u>1.7</u>
16 inches	<u>-0.5</u>	<u>0.2</u>	<u>0.8</u>
20 inches	<u>-0.5</u>	<u>0.3</u>	<u>0.2</u>
24 inches	<u>-0.4</u>	<u>0.7</u>	<u>-0.3</u>
28 inches	<u>0.5</u>	<u>1.7</u>	<u>-0.7</u>
32 inches	<u>2.3</u>	<u>2.0</u>	<u>-1.1</u>

* Heights, in inches, measured above ground level

** Impact side

REMARKS:

** Right of center towards front of test vehicle.

RECORDED BY: Mr. Brian O'Keefe DATE: 07/20/92

APPROVED BY: *Am* 8/7/92

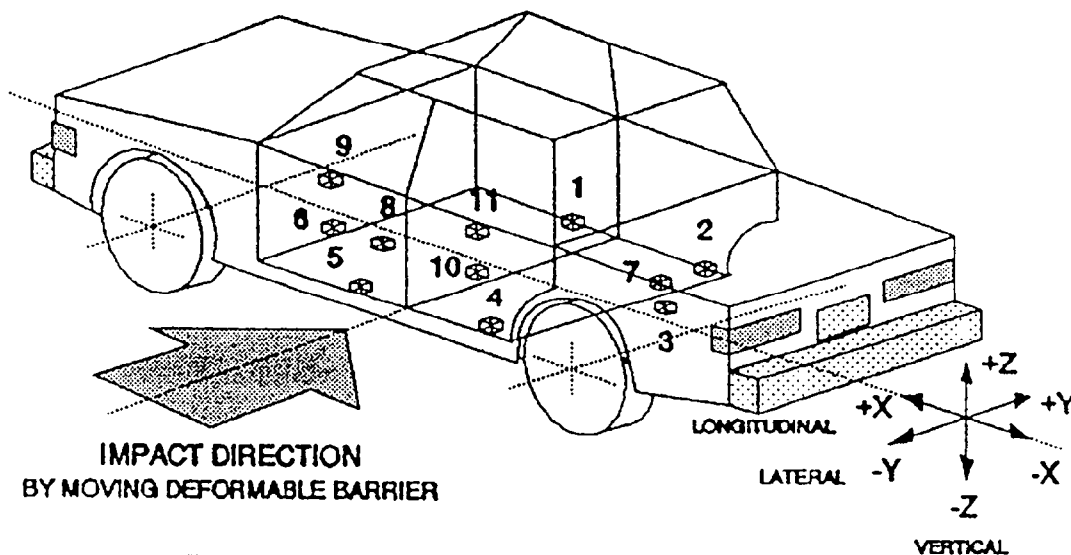
DATA SHEET NO. 8

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54T0N9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY



- 1-Rt. Side Sill @ Frt. Seat
- 2-Rt. Side Sill @ Rr. Seat
- 3-Rr. Floorpan Above Axle
- 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	125	20	10	5.8	8.4	22.4	9.6	-5.2	26.7	23.2	9.5
2	87	23	10	-5.9	8.4	21.2	20.9	-14.1	25.2	21.3	21.0
3	44	-2	22	12.8	22.8	21.0	42.3	8.8	11.8	21.1	22.7
4	87	-28	13	—	—	46.3	4.8	—	—	—	—
5	119	-28	13	—	—	32.8	16.3	—	—	—	—
6	113	-30	24	—	—	50.4	15.5	—	—	—	—

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>87</u>	<u>20</u>	<u>8</u>	<u>-4.2</u>	<u>53.9</u>	<u>-</u>	<u>-</u>	<u>---</u>	<u>--</u>	<u>---</u>	<u>--</u>
8	<u>102</u>	<u>-30</u>	<u>22</u>	<u>---</u>	<u>--</u>	<u>69.1</u>	<u>8.3</u>	<u>---</u>	<u>--</u>	<u>---</u>	<u>--</u>
9	<u>119</u>	<u>-30</u>	<u>30</u>	<u>---</u>	<u>--</u>	<u>103.0</u>	<u>17.3</u>	<u>---</u>	<u>--</u>	<u>---</u>	<u>--</u>
10	<u>80</u>	<u>-30</u>	<u>25</u>	<u>---</u>	<u>--</u>	<u>107.7</u>	<u>5.5</u>	<u>---</u>	<u>--</u>	<u>---</u>	<u>--</u>
11	<u>65</u>	<u>-30</u>	<u>25</u>	<u>---</u>	<u>--</u>	<u>95.2</u>	<u>5.3</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: 08/20/92

APPROVED BY: *Amh* 8/17/92

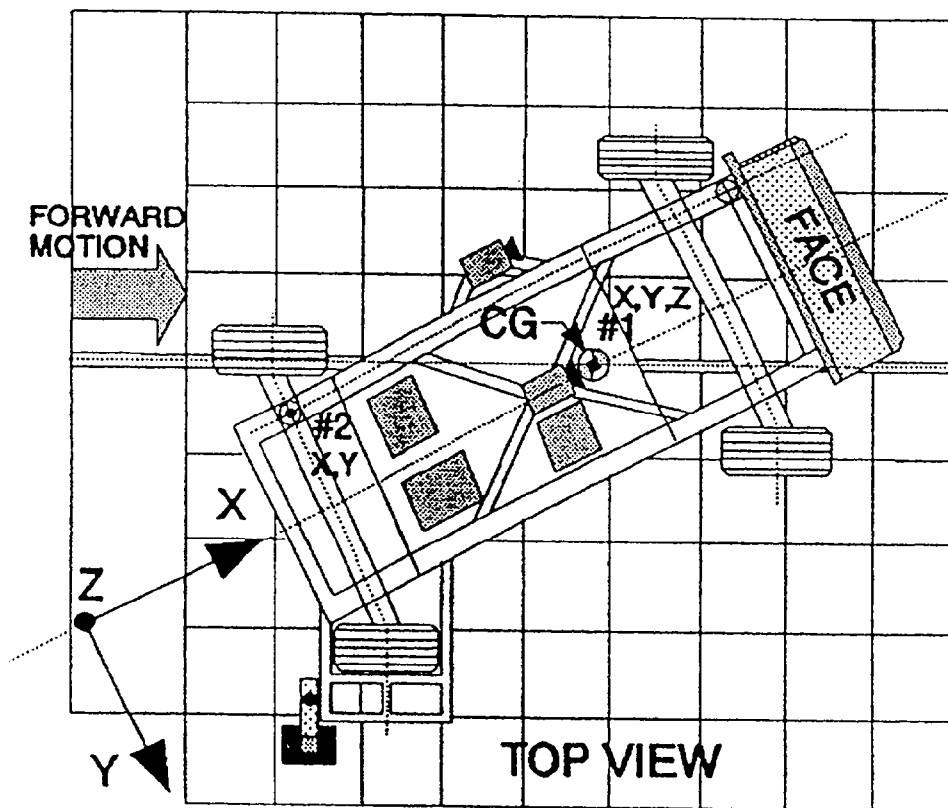
DATA SHEET NO. 9

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

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54TON9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY



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>12</u>	<u>1.1</u>	<u>230.5</u>	<u>18.8</u>	<u>40.7</u>
1 Lateral Y	<u>73</u>	<u>0</u>	<u>12</u>	<u>6.9</u>	<u>26.5</u>	<u>3.6</u>	<u>63.8</u>
1 Vertical Z	<u>73</u>	<u>0</u>	<u>12</u>	<u>39.3</u>	<u>45.7</u>	<u>24.6</u>	<u>39.5</u>
1 Resultant R	<u>73</u>	<u>0</u>	<u>12</u>	<u>41.2</u>	<u>45.7</u>	<u>—</u>	<u>—</u>
2 Longitudinal X	<u>12</u>	<u>-19</u>	<u>17</u>	<u>1.4</u>	<u>130.5</u>	<u>17.0</u>	<u>36.4</u>
3 Longitudinal X	<u>12</u>	<u>-19</u>	<u>17</u>	<u>1.5</u>	<u>89.2</u>	<u>6.0</u>	<u>21.1</u>

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

REMARKS:

RECORDED BY: Mr. Brian O'Keefe DATE: 07/20/92

APPROVED BY: *amb* 08/07/92

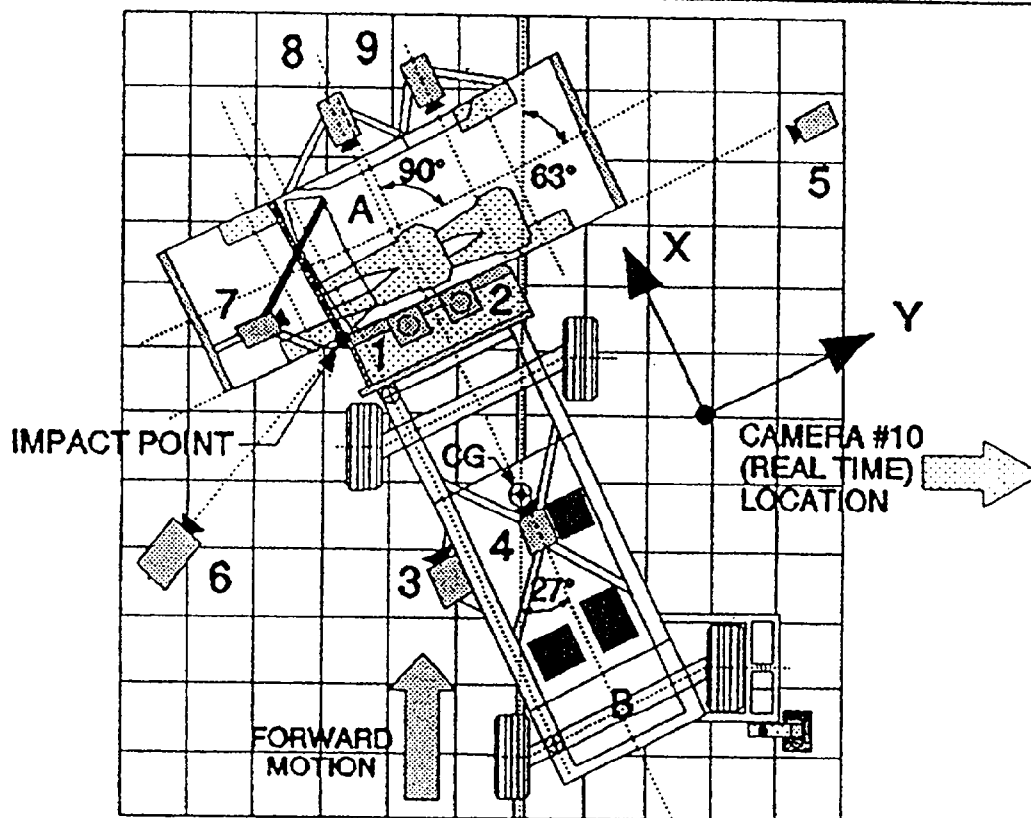
DATA SHEET NO. 10

HIGH SPEED CAMERA LOCATIONS AND DATA

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54TON9107445

TEST DATE: 07/15/92 TEST LAB.: MOBILITY SYSTEMS AND EQUIPMENT COMPANY



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	610	<u>12</u>	<u>12</u>	<u>236</u>
2	<u>FASTAX II</u>	28	600	<u>-12</u>	<u>12</u>	<u>236</u>
3	<u>HIMAX</u>	28	610	<u>-121</u>	<u>-37</u>	<u>50</u>
4	<u>HIMAX</u>	16	670	<u>-151</u>	<u>0</u>	<u>72</u>
5	<u>PHOTOSONIC</u>	13	600	<u>-105</u>	<u>690</u>	<u>48</u>
6	<u>FASTAX II</u>	28	610	<u>-108</u>	<u>-510</u>	<u>48</u>
7	<u>FASTAX II</u>	16	600	<u>16</u>	<u>-53</u>	<u>47</u>
8	<u>FASTAX II</u>	16	600	<u>77</u>	<u>30</u>	<u>38</u>
9	<u>FASTAX II</u>	16	600	<u>75</u>	<u>64</u>	<u>39</u>
10	<u>ARRIFLEX</u>	15-70	24	<u>—</u>	<u>—</u>	<u>—</u>

* REFERENCE (from point of impact)

+X = Forward

+Y = To The Right

+Z = Upward

REMARKS:

RECORDED BY: Mr. Brian O'Keefe

DATE: 07/23/92

APPROVED BY: *[Signature]* 08/07/92

DATA SHEET NO. 11

TEST VEHICLE DATA

VEH. MOD YR/MAKE/MODEL/BODY: 1992 CHEVROLET LUMINA 4 DOOR SEDAN

VEH. NHTSA NO.: MN0108 VIN.: 2G1WL54TON9107445

VEH. BUILD DATE: 08/91 TEST DATE: 07/15/92

TEST LABORATORY: MOBILITY SYSTEMS AND EQUIPMENT COMPANY

OBSERVERS: NONE

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): 30 psi Front; 30 psi Rear

Recommended Tire Size: P195/75 R14

Size of Tires Installed on Test Vehicle: P195/75 R14

Tire Manufacturer: Uniroyal

Number of Occupants: 3 Front; 3 Rear; 6 TOTAL

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

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

Vehicle Maximum Capacity Loading = 1058 lbs. (A)

Number of Occupants x 150 lbs. = 900 lbs. (B)

Vehicle Cargo Capacity = 158 lbs. (A - B)

DATA SHEET NO. 11 (Cont.)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Front: Right = 1030 lbs.; Left = 1008 lbs.; Front Total = 2038 lbs.

(63 % of TOTAL shown below)

Rear: Right = 607 lbs.; Left = 572 lbs.; Rear Total = 1179 lbs.

(37 % of TOTAL shown below)

Front Total + Rear Total = TOTAL DELV. = 3217 lbs.

CALCULATION OF TEST VEHICLE TARGET WEIGHT:

Total Test Vehicle Delivered Weight With Maximum Fluids = 3217 lbs. (A)

Maximum Cargo Carry Capacity of Test Vehicle = 158 lbs. (B)

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

Test Vehicle Target Weight = 3703 (A + B + C)

ACTUAL WEIGHT OF TEST VEHICLE WITH TWO SIDs AND CARGO:

Front: Right = 1092 lbs.; Left = 1240 lbs.; Front Total = 2332 lbs.

(62 % of TOTAL shown below)

Rear: Right = 680 lbs.; Left = 729 lbs.; Front Total = 1409 lbs.

(38 % of TOTAL shown below)

Front Total + Rear Total = TOTAL ACTUAL = 3741 lbs. (which includes —
lbs. of cargo ballast
weight)

TEST VEHICLE ATTITUDE:

As Delivered

Ready For Test

28.8 inches Right Front

27.6 inches Right Front

28.5 inches Left Front

27.5 inches Left Front

29.4 inches Right Rear

28.1 inches Right Rear

29.0 inches Left Rear

27.6 inches Left Rear

DATA SHEET NO. 11 (Cont.)

Test Vehicle Wheelbase = 107.5 inches

C.G. = 40.5 inches Rearward of Front Wheel Centerline

Total Vehicle Length: 183.4 inches Right Side

183.4 inches Left Side

198.4 inches Centerline

Arm Rest Location: To right of driver on driver's side of split bench seat.

Seat Belt Upper Anchorage Location: Upper trailing edge of door.

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

Total Length of Seat Adjustment Travel = 9 inches

Total Number of Seat Adjustment Positions or Detents = 21

Front Seat Back Adjustment Position: 25°

Front Seat Back Torso Angle = 25 degrees

Front Seat Cushion Vertical Position: full down

DATA SHEET NO. 11 (Cont.)

ADJUSTABLE STEERING COLUMN POSITION: Center adjustment (64°)
(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: 15.3 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 = 107.5 inches

Impact Point 16.8 is inches rearward of front axle centerline (which is 37" forward of the wheelbase midpoint)

REMARKS: Actual impact point 16.2 inches rearward of front axle.

RECORDED BY: Mr. Brian O'Keefe

DATE: 07/15/92

SECTION 4

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

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

SECTION 5

PHOTOGRAPHS

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

1. Pretest Frontal View of Test Vehicle (Target Vehicle)
2. Posttest Frontal View of Test Vehicle
3. Pretest Rear View of Test Vehicle
4. Posttest Rear View of Test Vehicle
5. Pretest Struck Side View of Test Vehicle
6. Posttest Struck Side View of Test Vehicle
7. Pretest Frontal View of MDB Impact Face
8. Posttest Frontal View of MDB Impact Face
9. Pretest Left Side view of MDB Impact Face
10. Posttest Left Side View of MDB Impact Face
11. Pretest Right Side View of MDB Impact Face
12. Posttest Right Side View of MDB Impact Face
13. Pretest Top View of MDB Impact Face
14. Posttest Top View of MDB Impact Face
15. Pretest Overhead View of MDB Positioned Against Struck Side of Test Vehicle at Impact Locations
16. Posttest Overhead View of MDB Positioned Against Struck Side of Test Vehicle at Impact Locations
17. Pretest Occupant Compartment Left Side Showing Driver SID
18. Pretest Occupant Compartment Driver SID
19. Posttest Occupant Compartment Driver SID
20. Pretest Occupant Compartment Left Side View Showing Passenger SID
21. Pretest Occupant Compartment Right Side view Showing Passenger SID
22. Posttest Occupant Compartment View Showing Passenger SID
23. Pretest Right Side View of MDB with Impact Face in Position
24. Pretest Left Side View of MDB with Impact Face in Position
25. Tire Placard Label
26. Manufacturer's Certification Label
27. Driver Door Accelerometer Locations
28. Passenger Door Accelerometer Locations
29. Driver Door Accelerometers Installed, Door Panel in Place - Pretest
30. Passenger Door Accelerometers Installed, Door Panel in Place - Pretest
31. Driver Seating Position - Posttest
32. Passenger Seating Position - Posttest
33. 1992 Chevrolet Lumina, B-Pillar Cutout - View No. 1
34. 1992 Chevrolet Lumina, B-Pillar Cutout - View No. 2
35. 1992 Chevrolet Lumina, B-Pillar Cutout - View No. 3
36. 1992 Chevrolet Lumina, B-Pillar Cutout - View No. 4

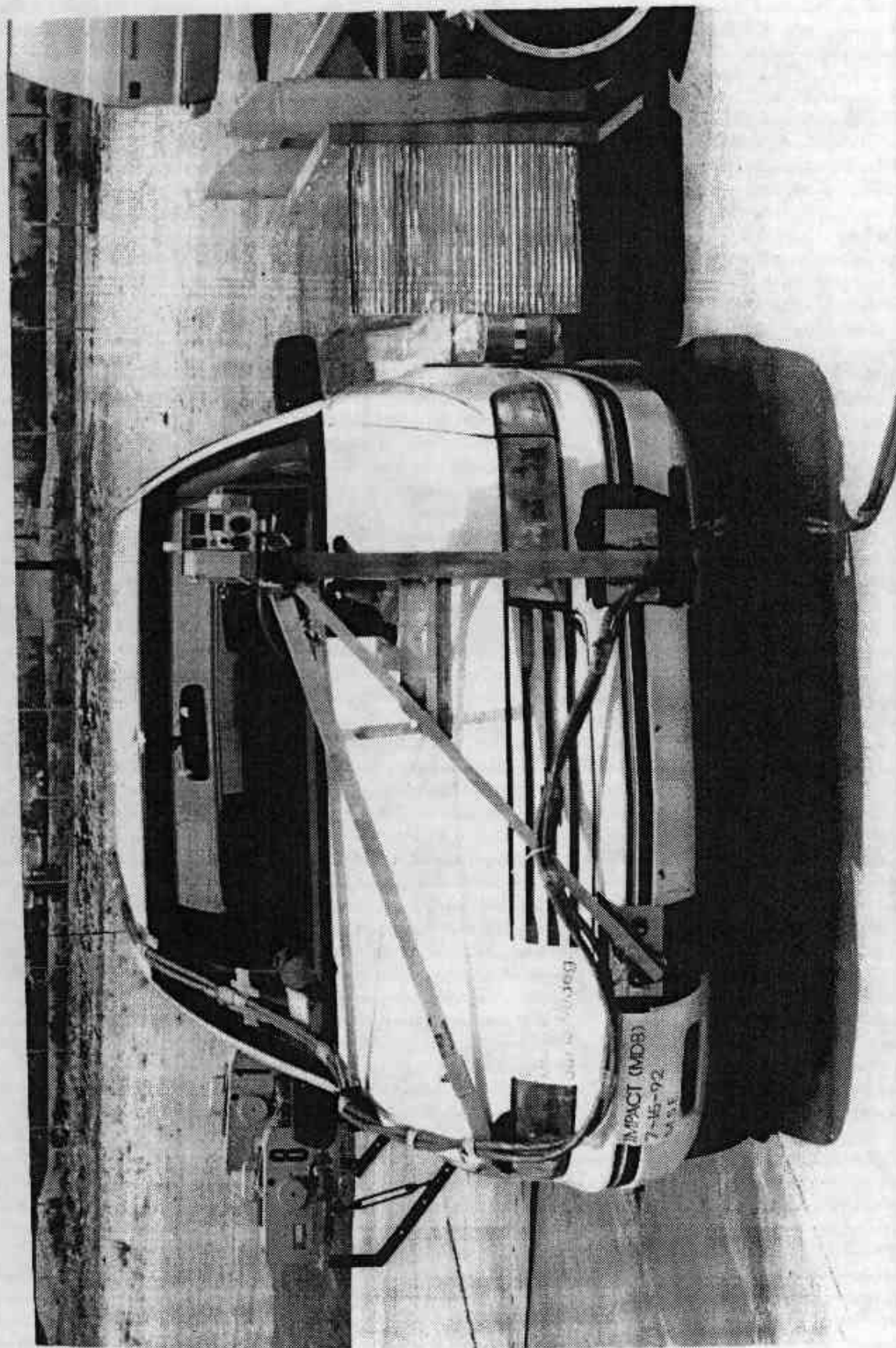


FIGURE 5-1 PRETEST FRONTAL VIEW OF TEST VEHICLE (TARGET VEHICLE)

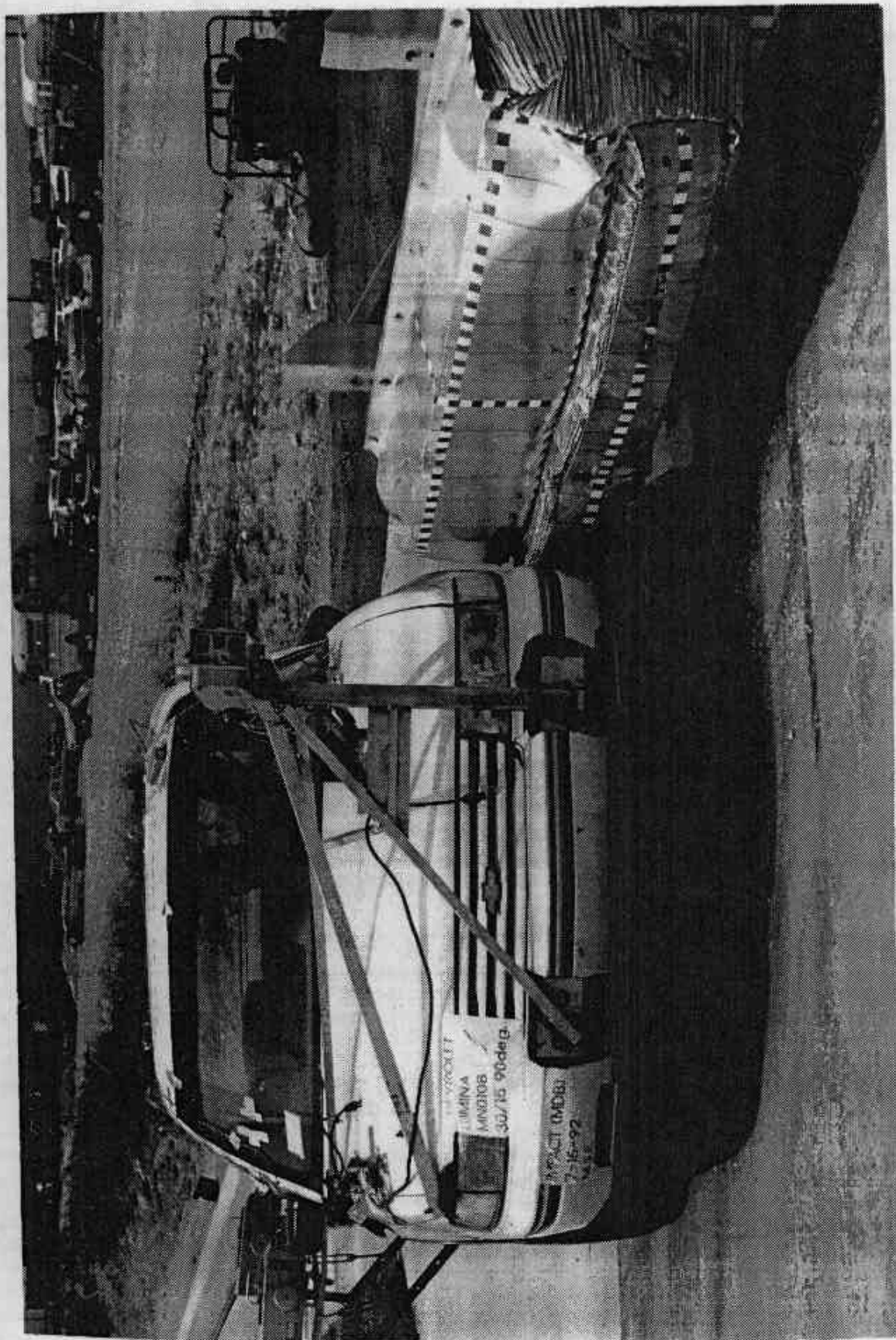


FIGURE 5-2 POSTTEST FRONTAL VIEW OF TEST VEHICLE

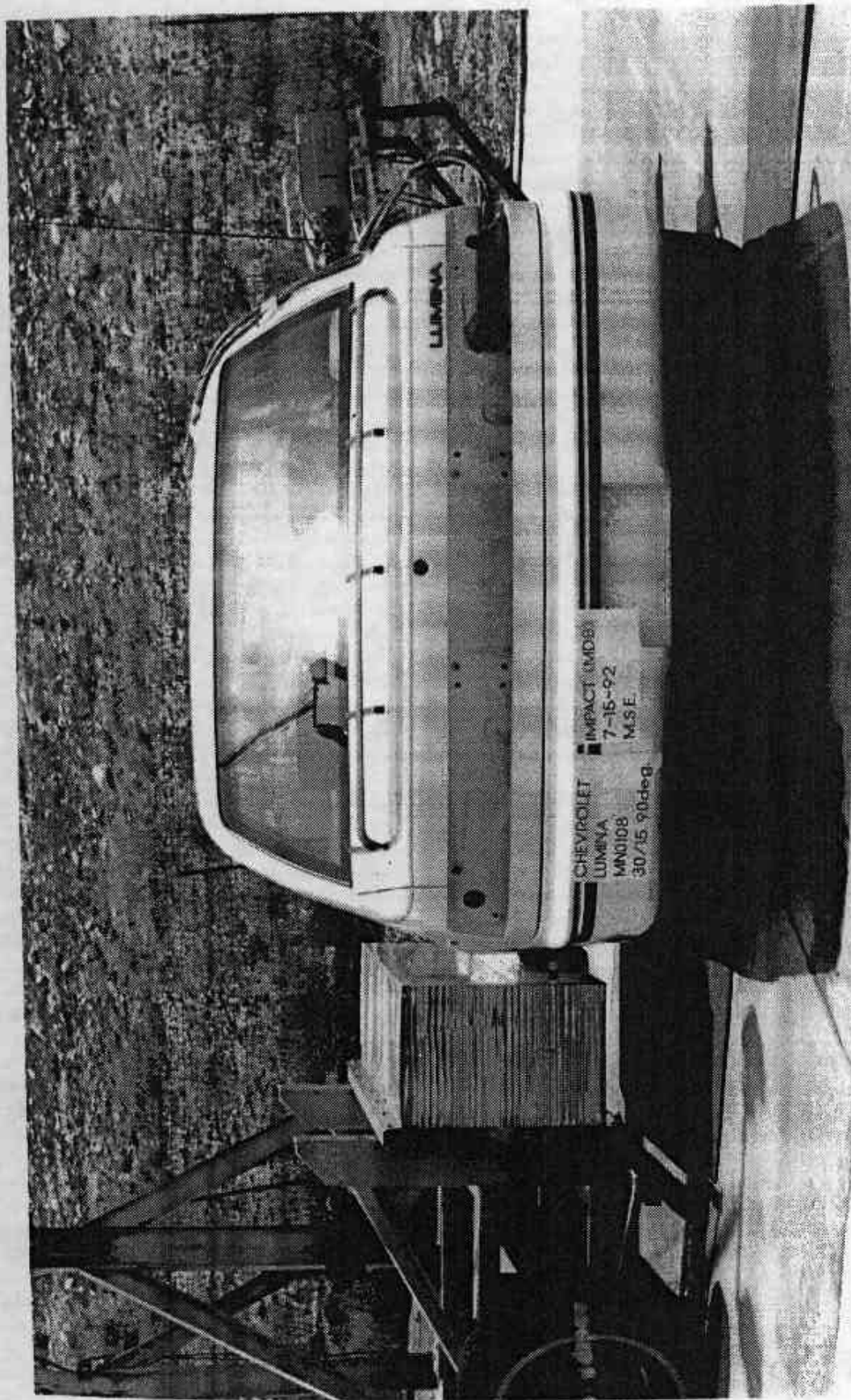


FIGURE 5-3 PRETEST REAR VIEW OF TEST VEHICLE

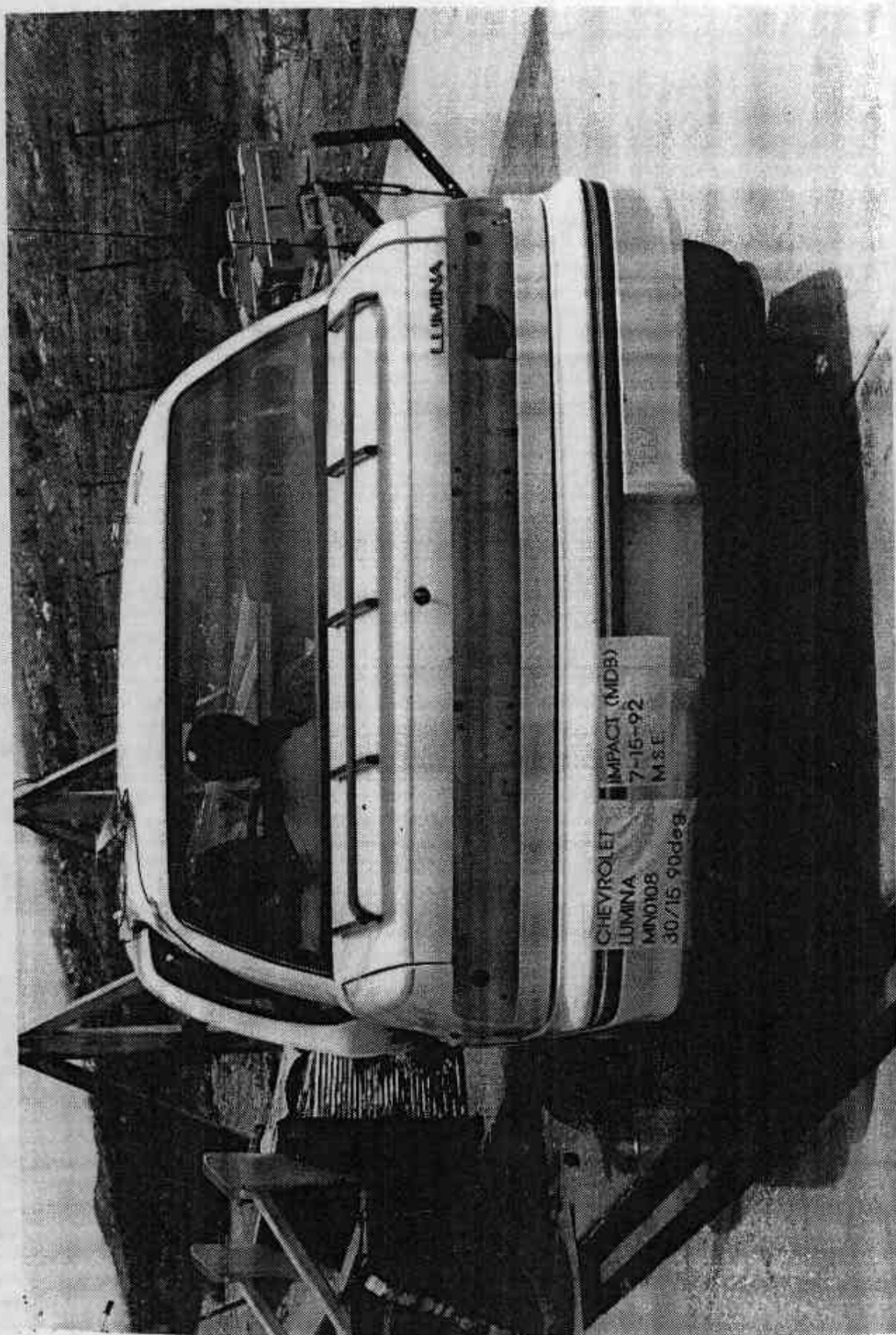


FIGURE 5-4 POSTTEST REAR VIEW OF TEST VEHICLE

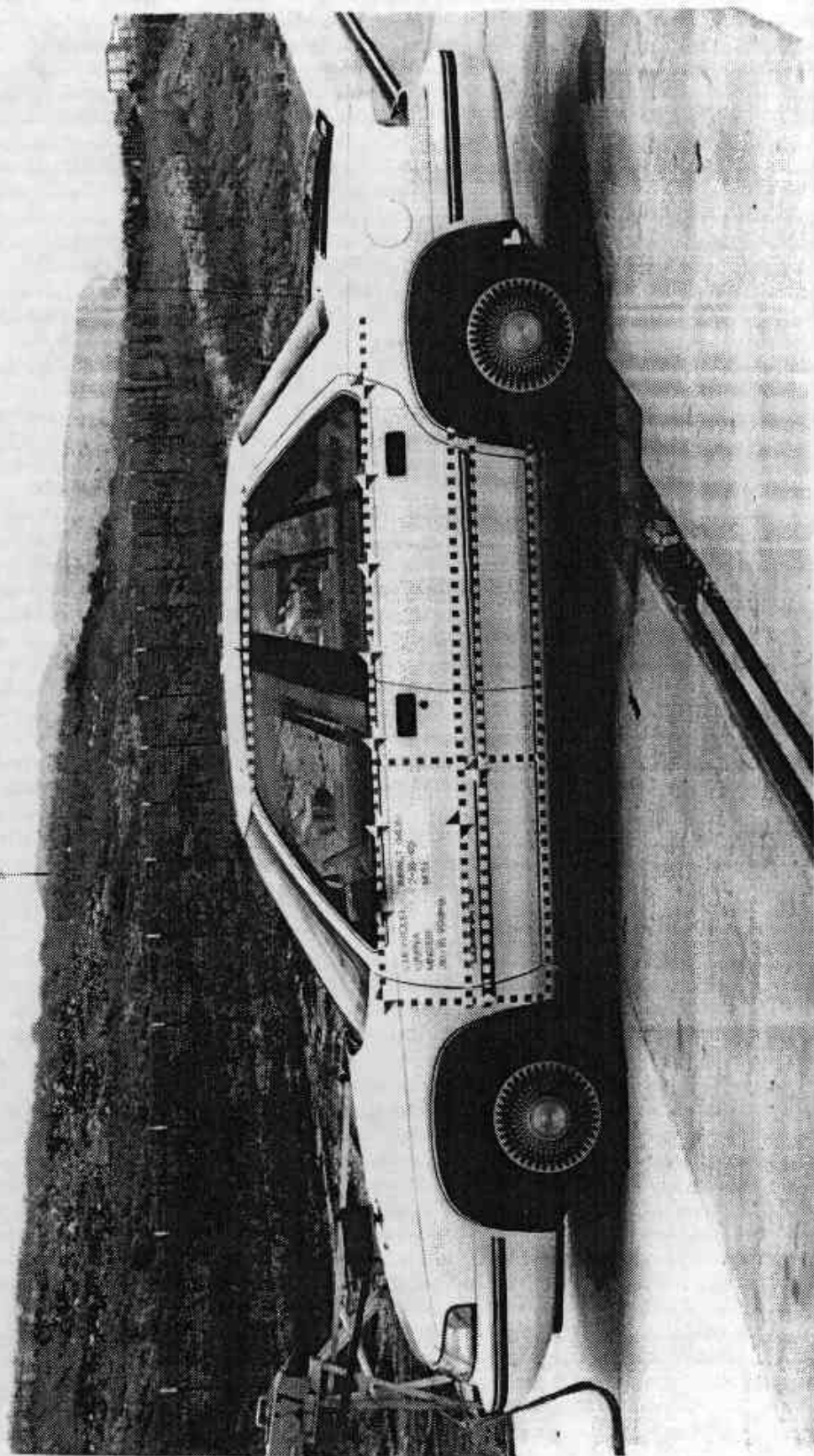


FIGURE 5-5 PRETEST STRUCK SIDE VIEW OF TEST VEHICLE

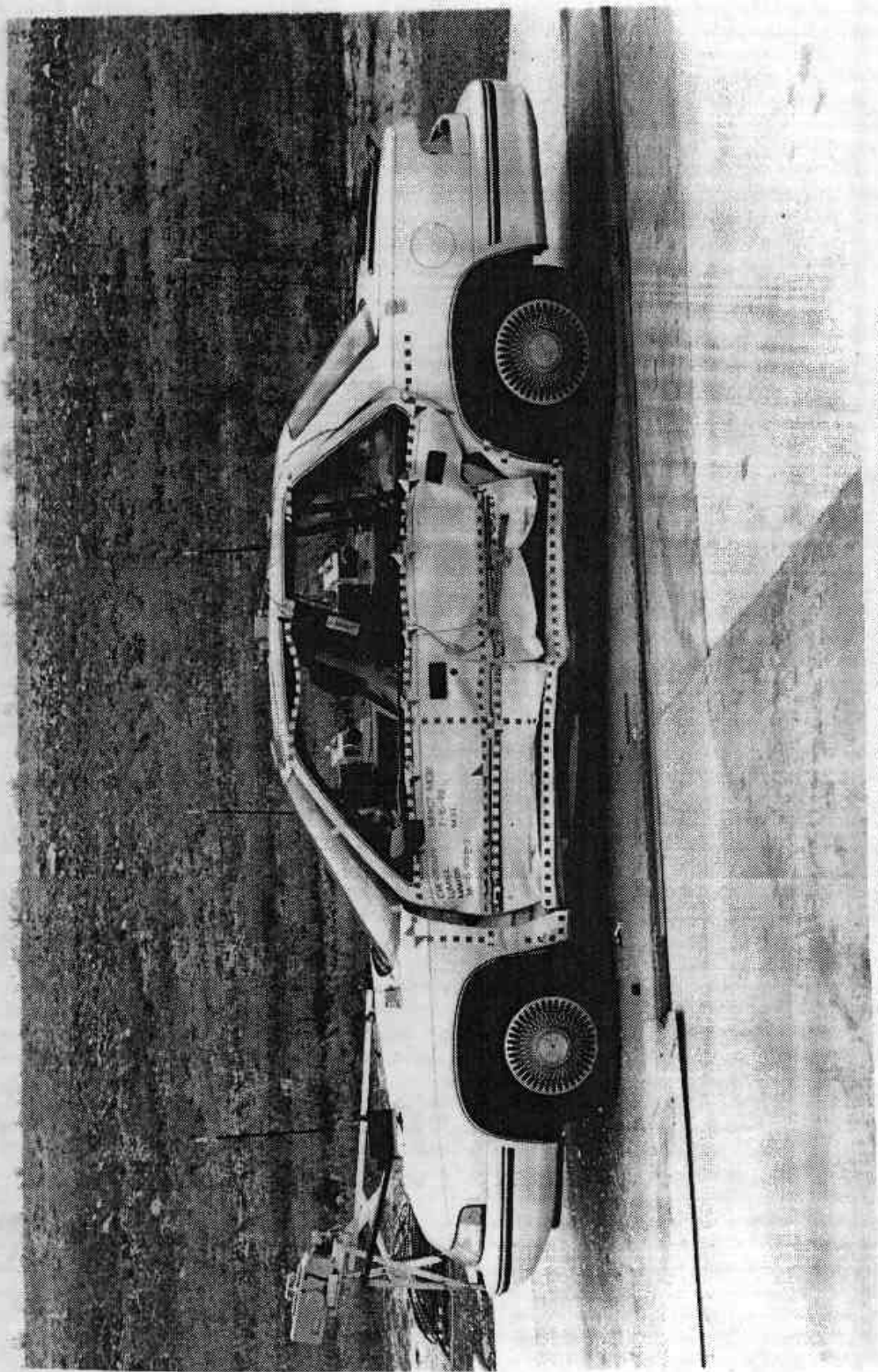


FIGURE 5-6 POSTTEST STRUCK SIDE VIEW OF TEST VEHICLE

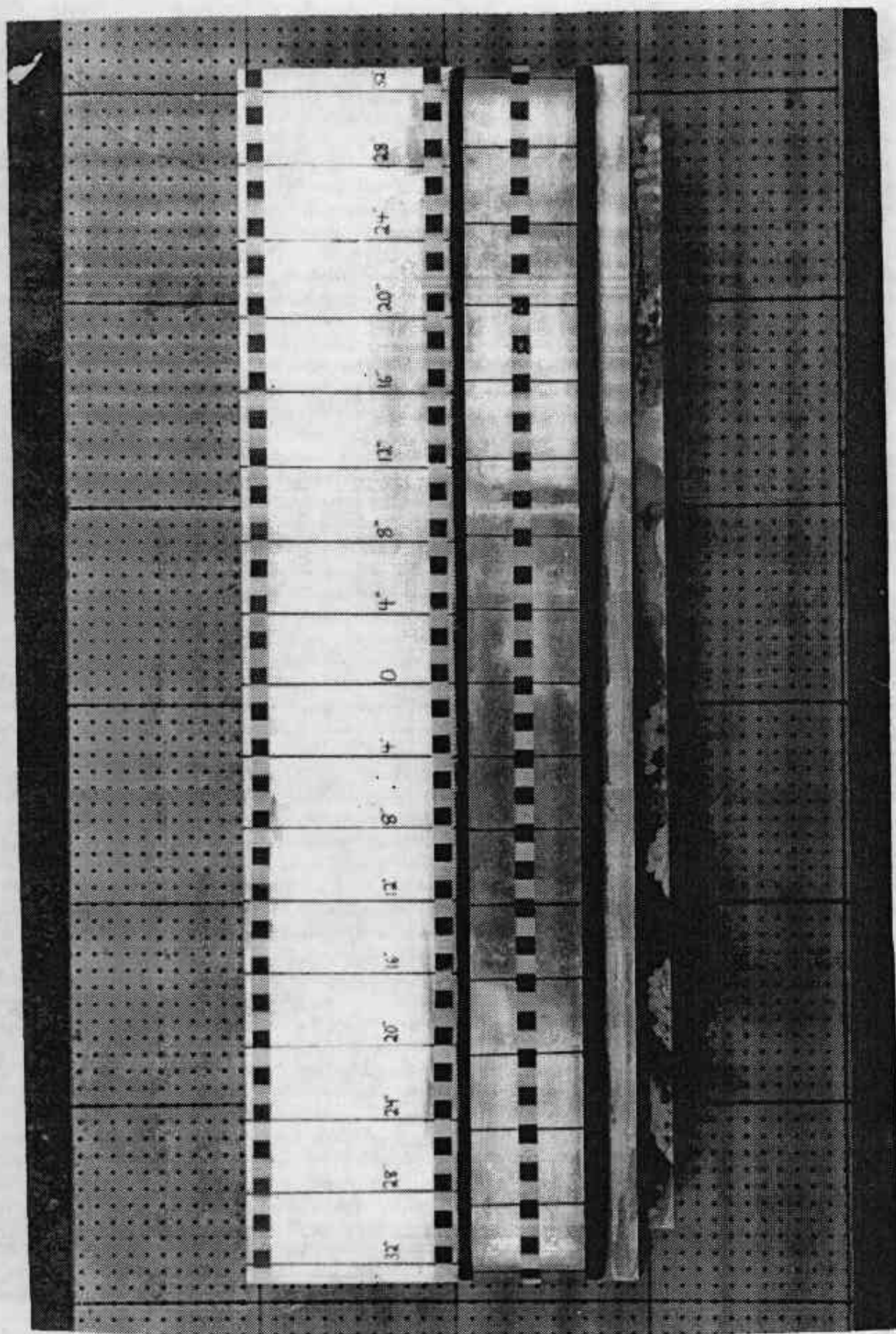


FIGURE 5-7 PRETEST FRONTAL VIEW OF MDB IMPACT FACE

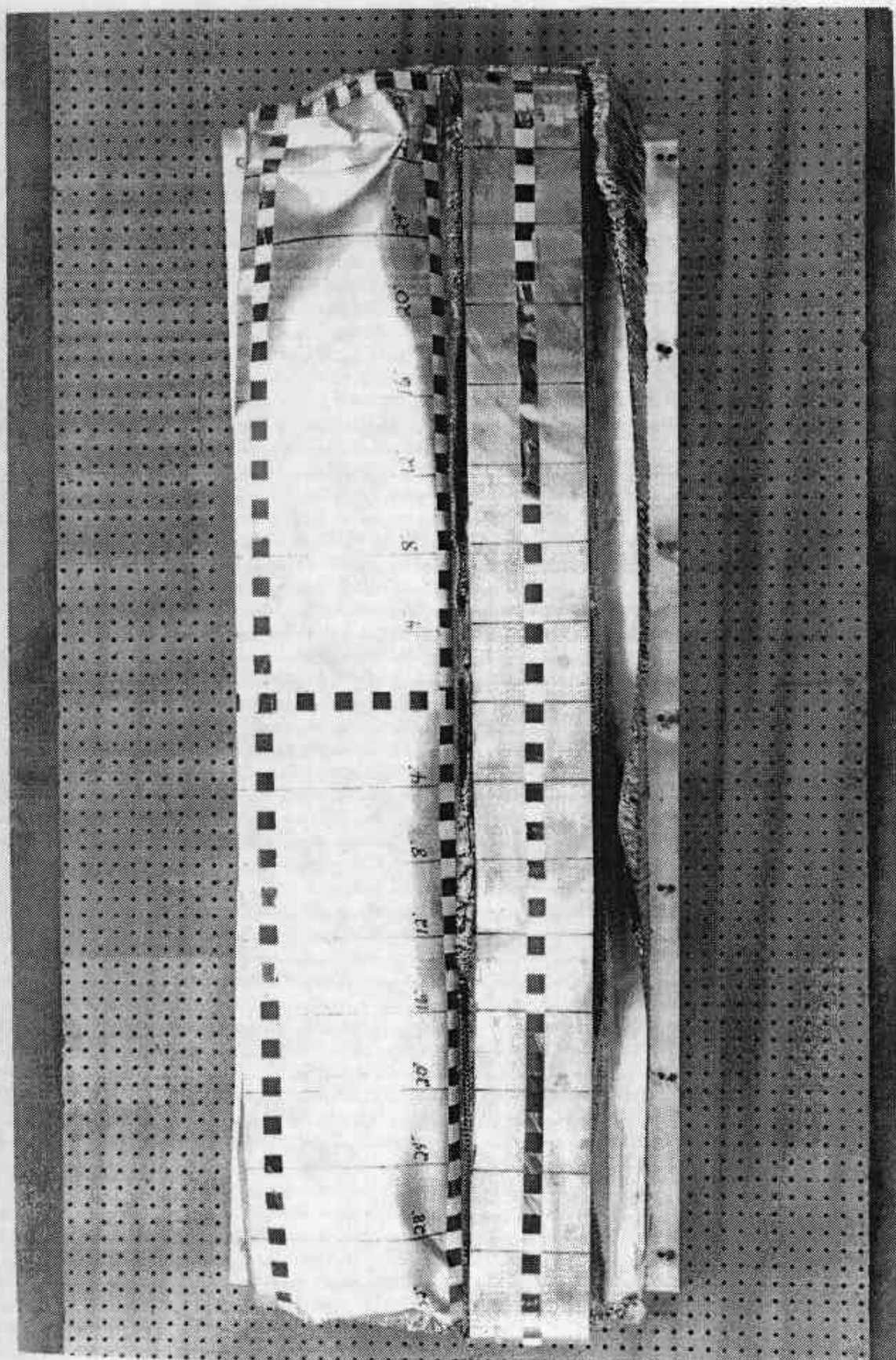


FIGURE 5-8 POSTTEST FRONTAL VIEW OF MDB IMPACT FACE

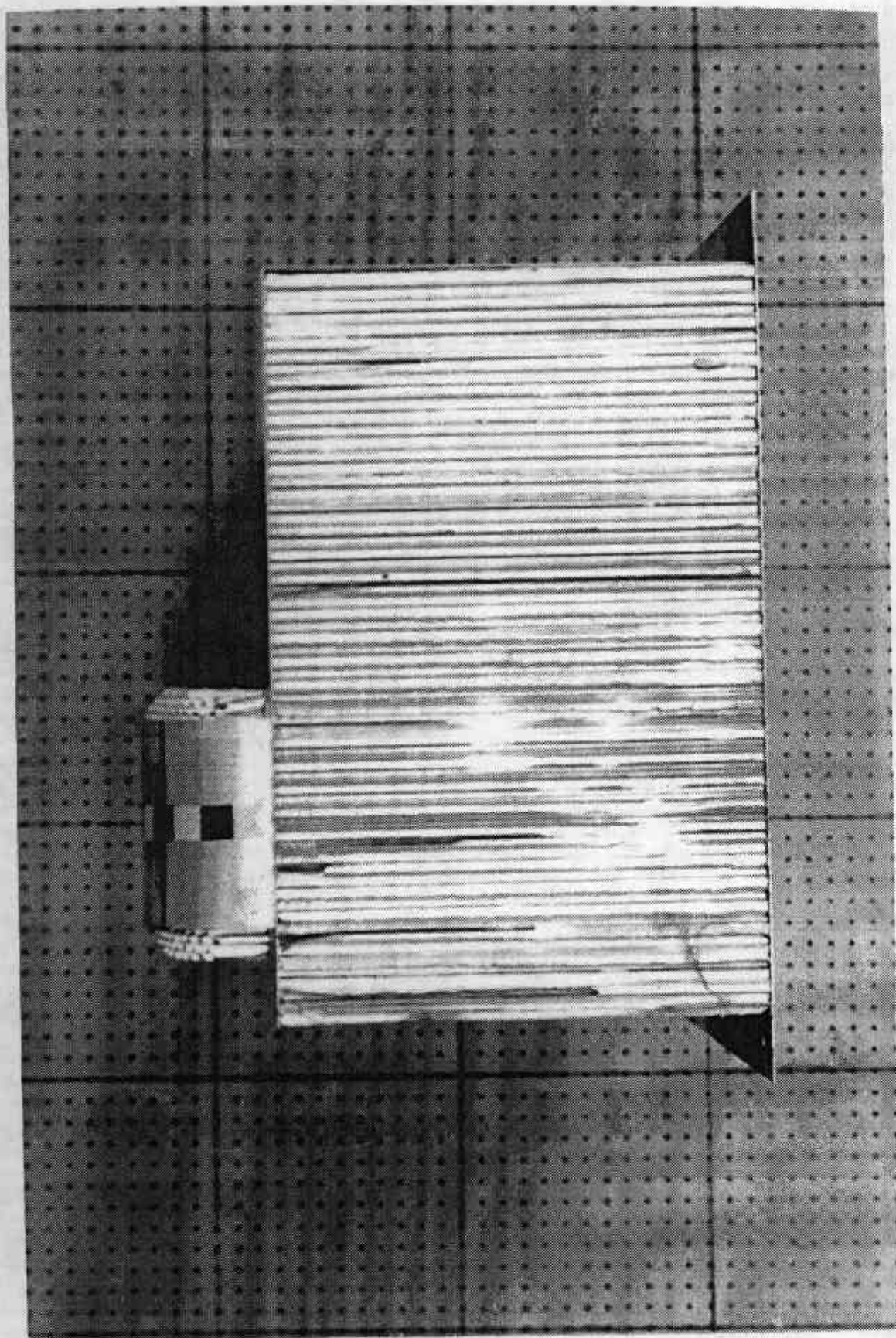


FIGURE 5-9 PRETEST LEFT SIDE VIEW OF MDB IMPACT FACE

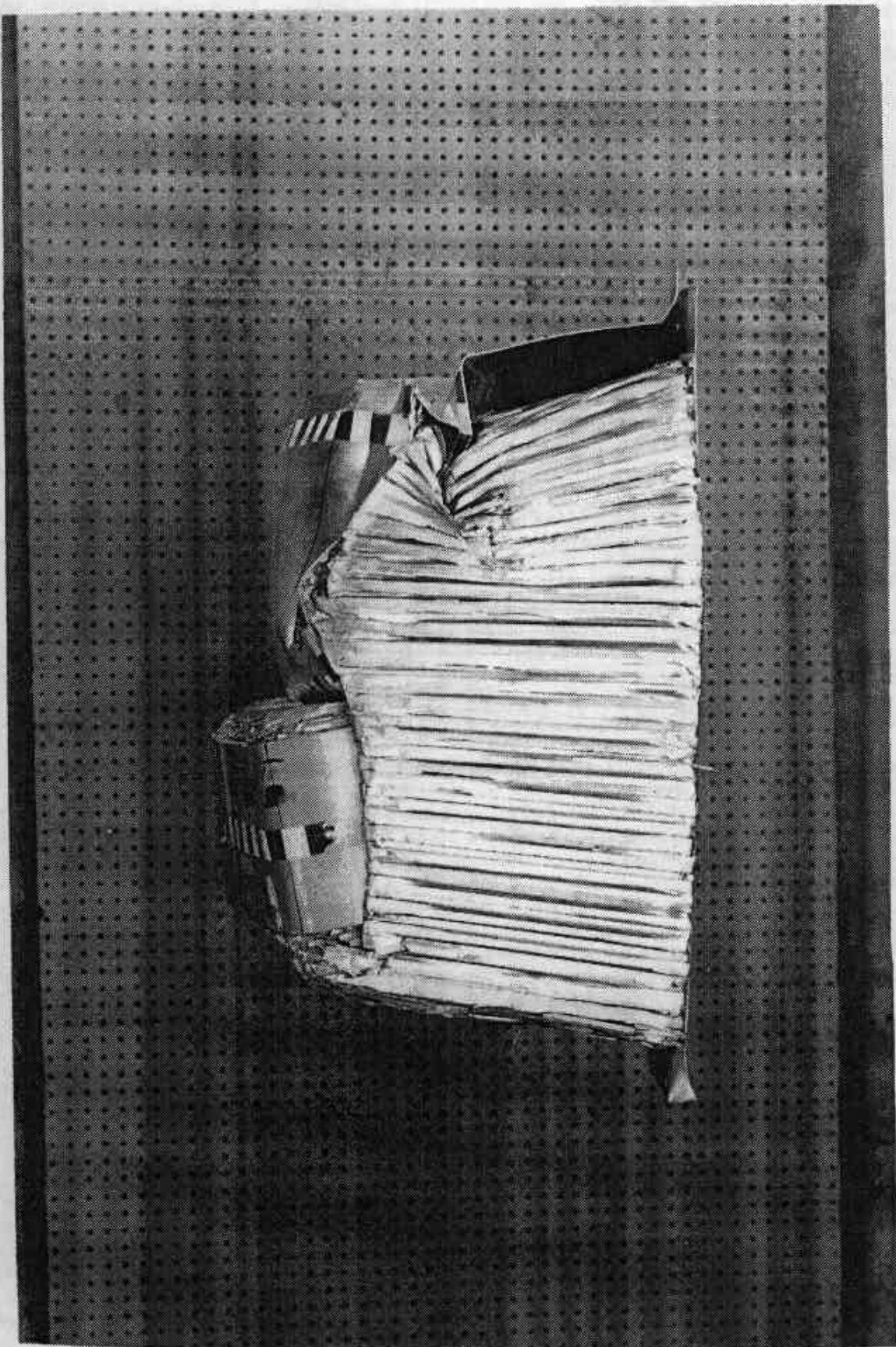


FIGURE 5-10 POSTTEST LEFT SIDE VIEW OF MDB IMPACT FACE

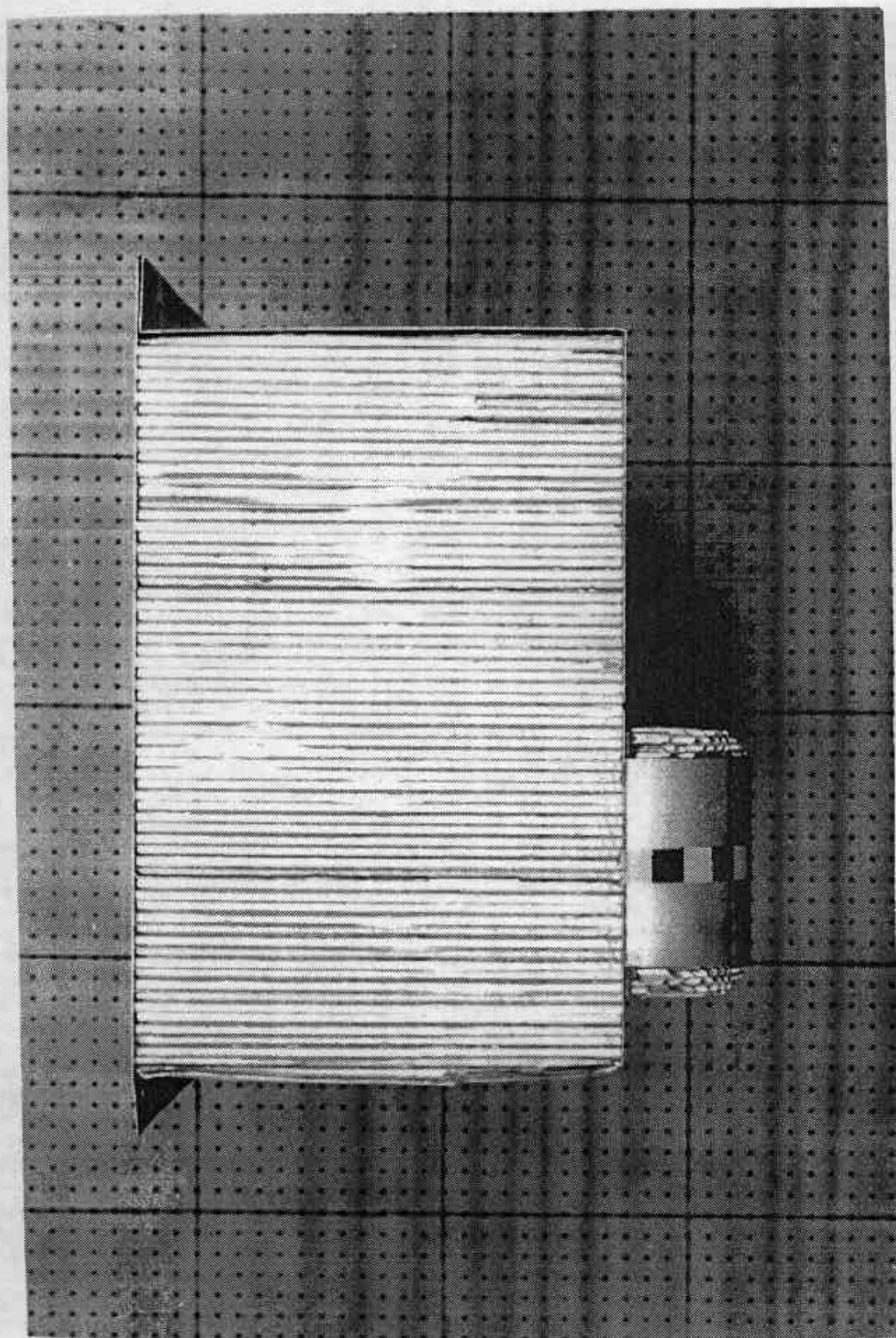


FIGURE 5-11 PRETEST RIGHT SIDE VIEW OF MDB IMPACT FACE

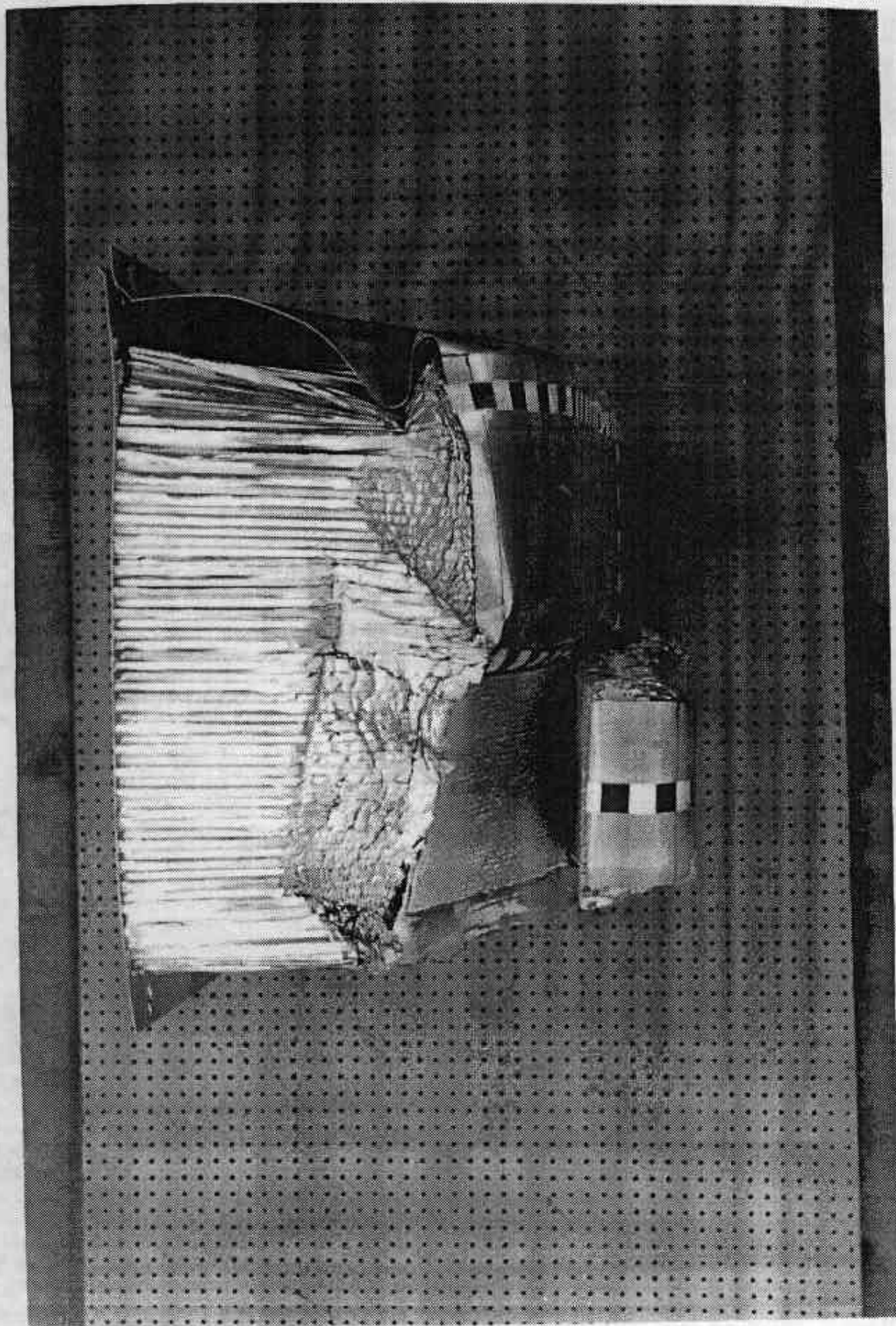


FIGURE 5-12 POSTTEST RIGHT SIDE VIEW OF MDB IMPACT FACE

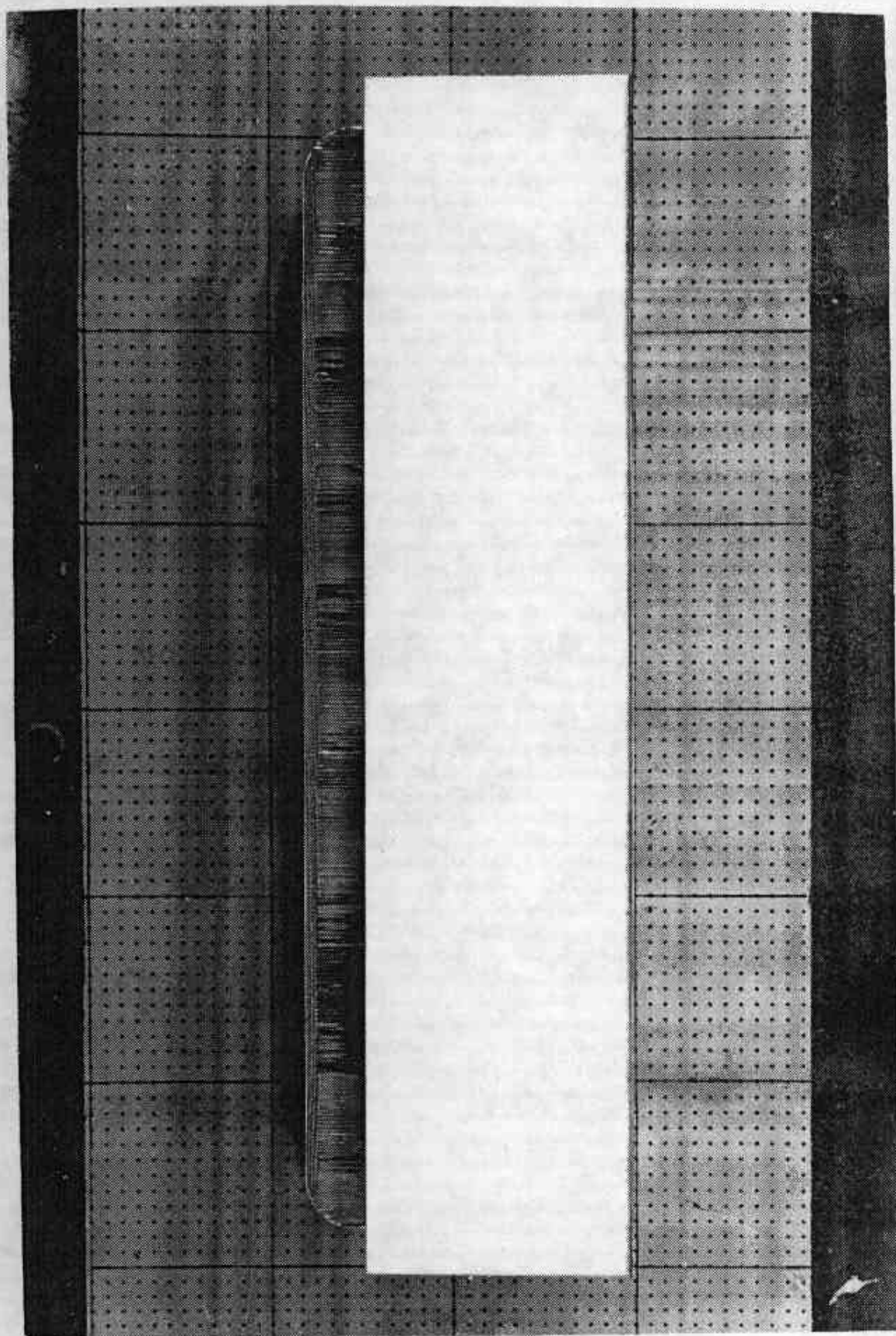


FIGURE 5-13 PRETEST TOP VIEW OF MDB IMPACT FACE

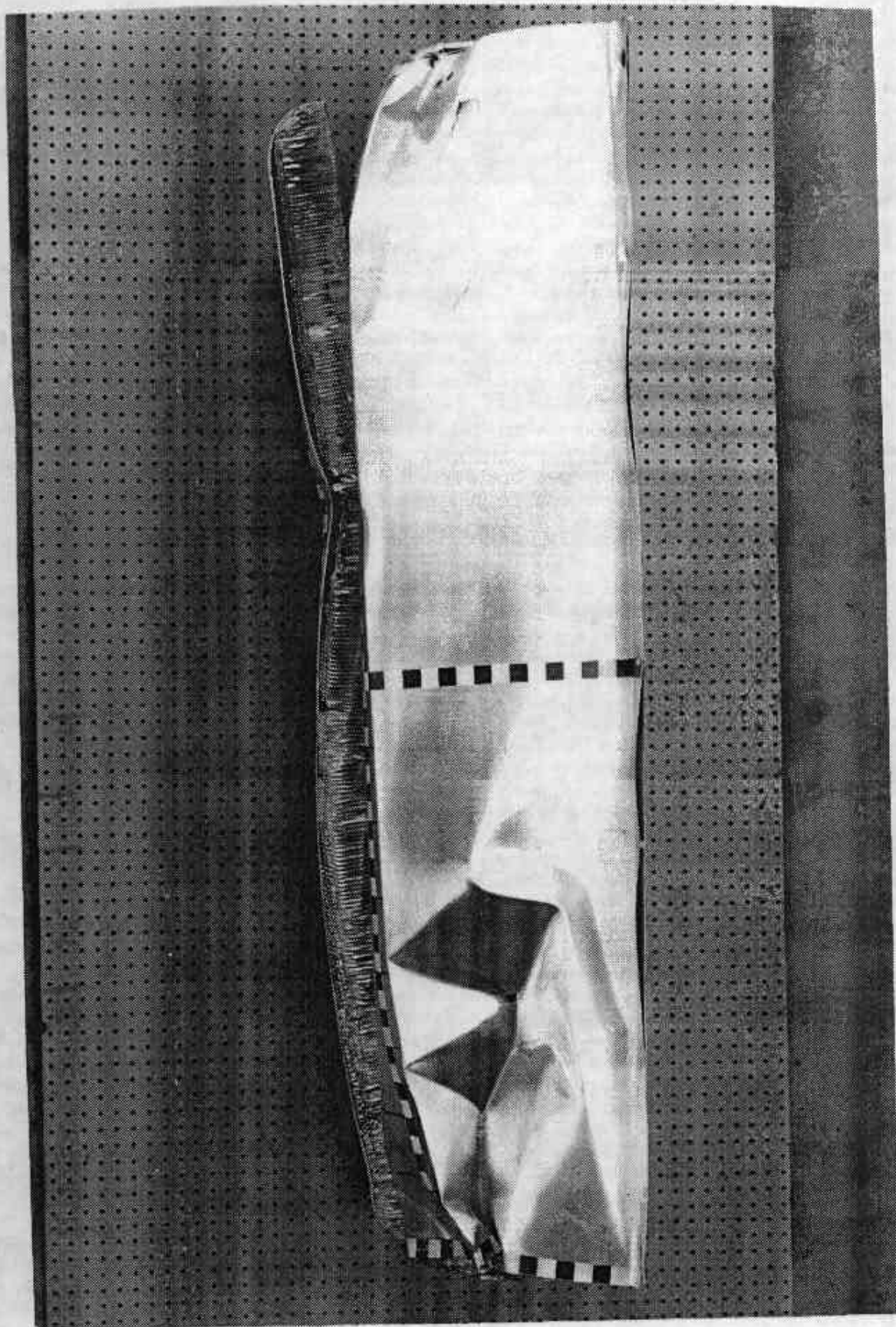


FIGURE 5-14 POSTTEST TOP VIEW OF MDB IMPACT FACE

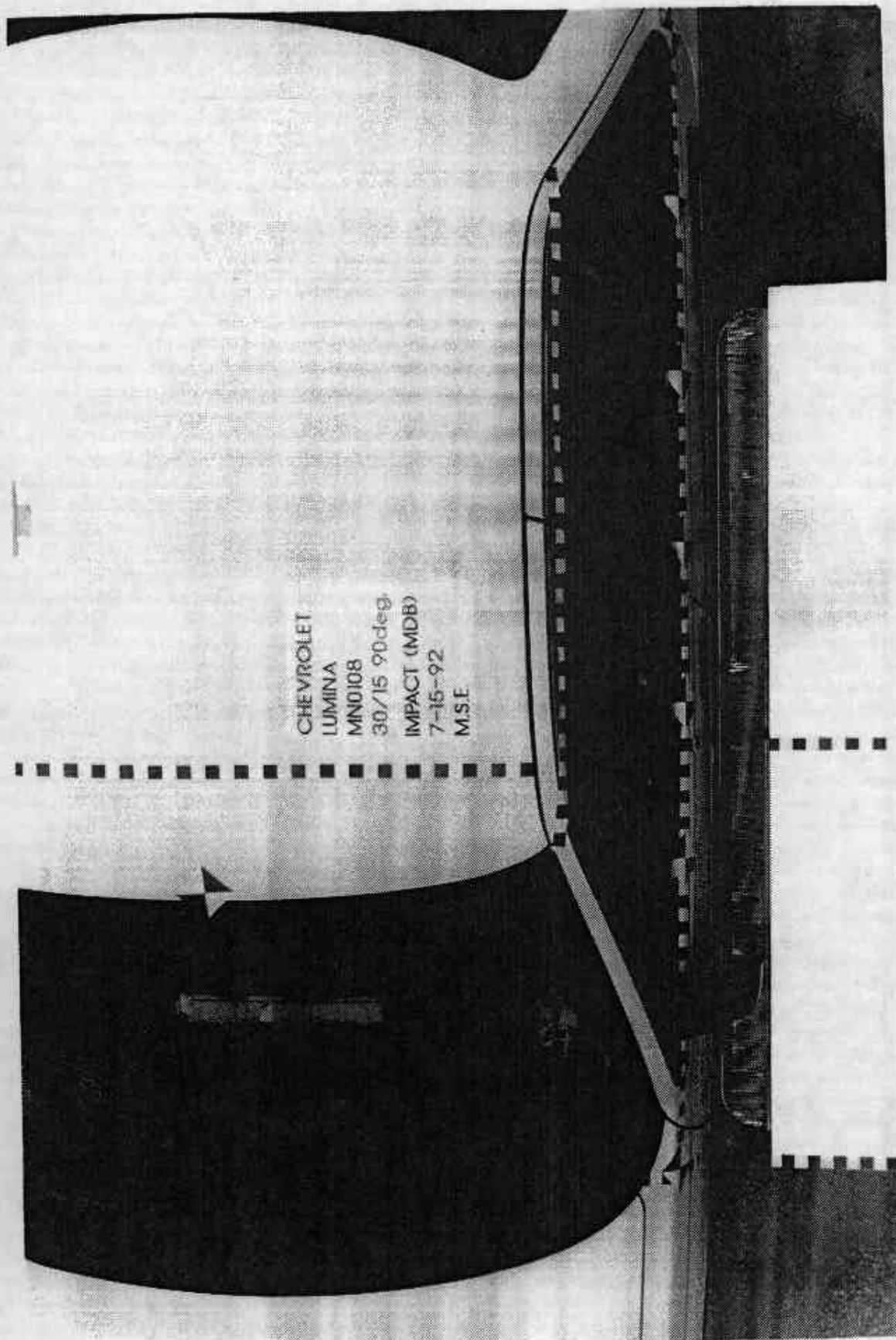


FIGURE 5-15 PRETEST OVERHEAD VIEW OF MDB POSITIONED AGAINST STRUCK SIDE
OF TEST VEHICLE AT IMPACT LOCATION

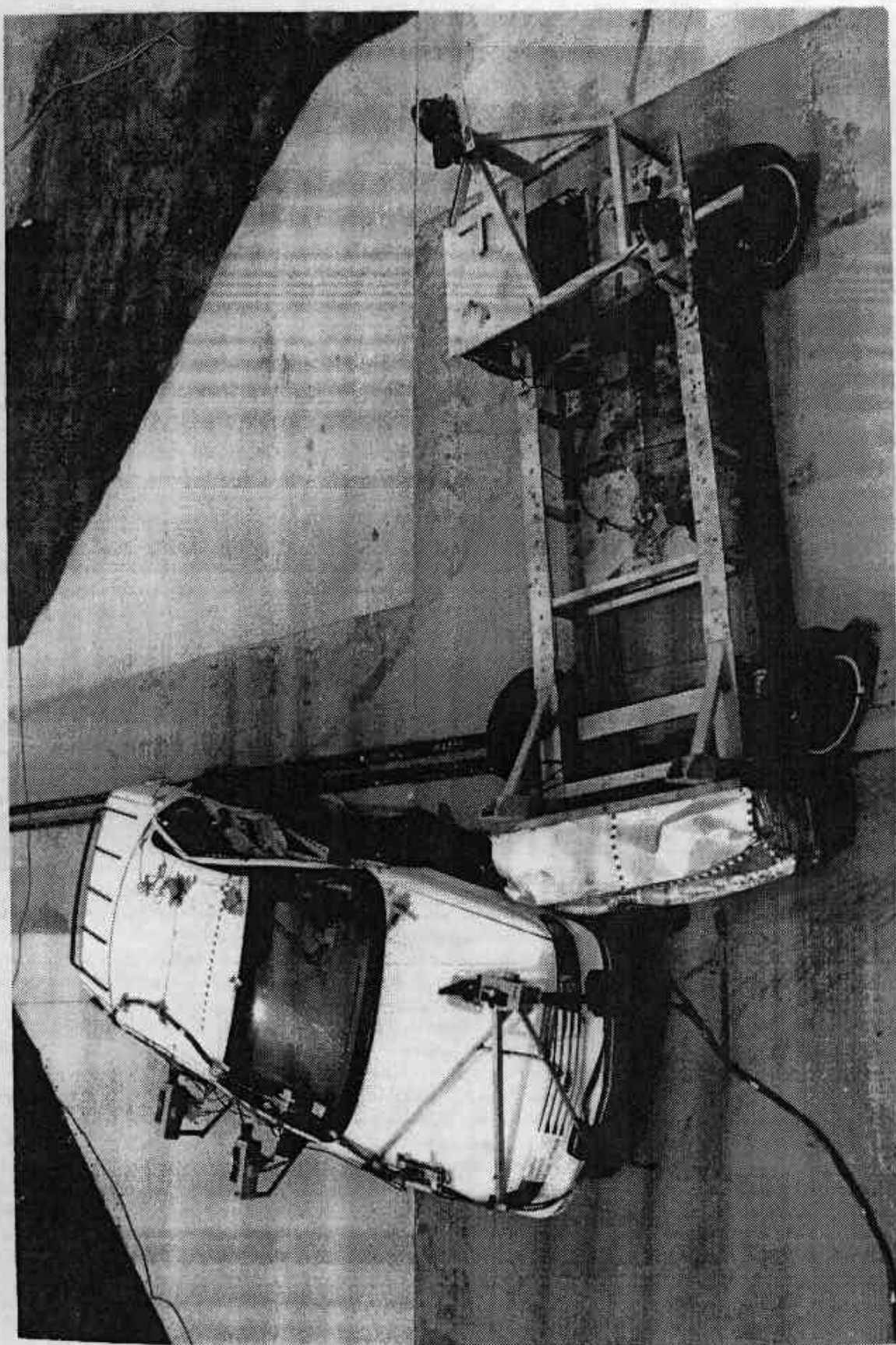


FIGURE 5-16 POSTTEST OVERHEAD VIEW OF MDB POSITIONED AGAINST STRUCK SIDE
OF TEST VEHICLE AT IMPACT LOCATION

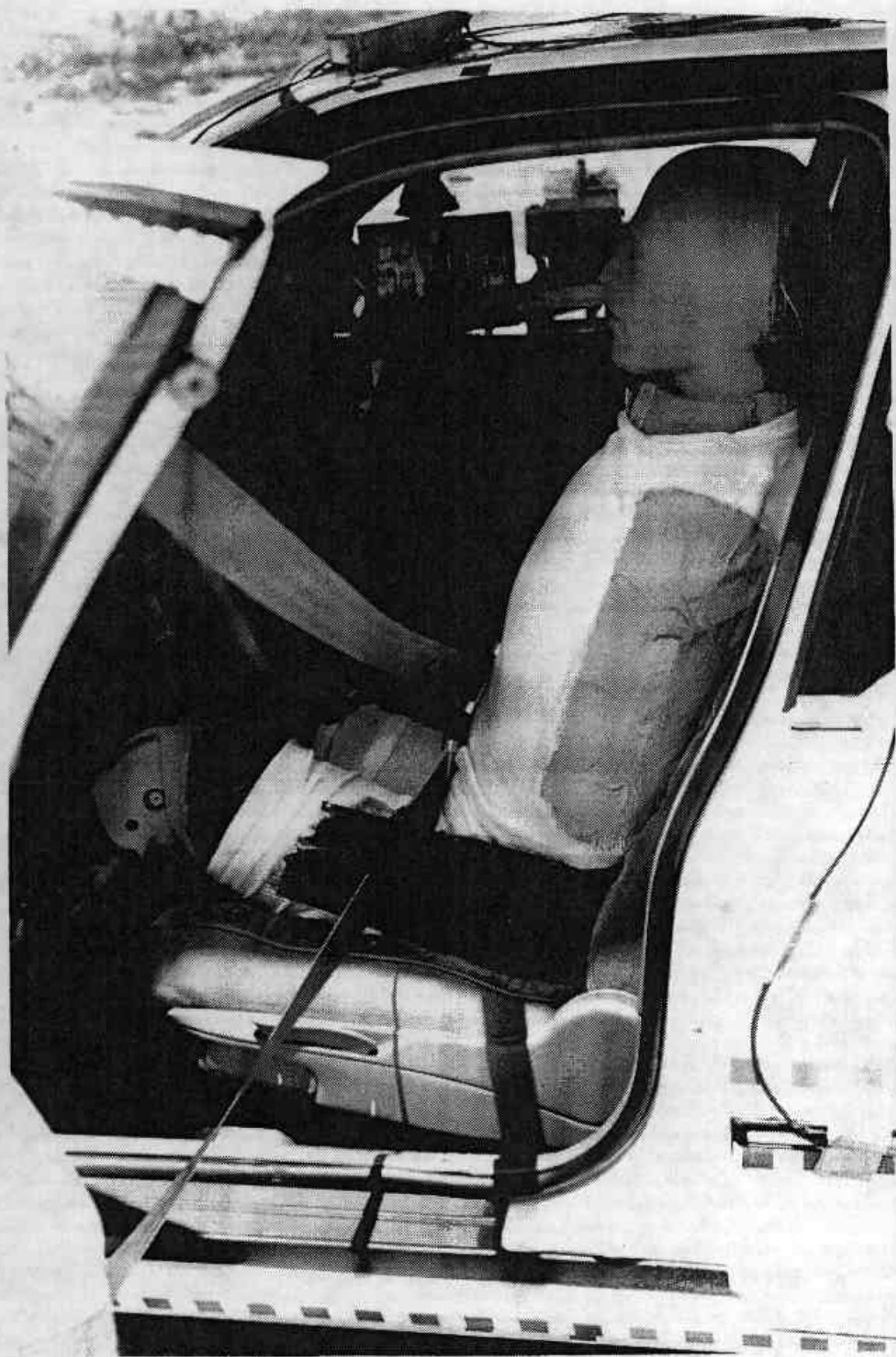


FIGURE 5-17 PRETEST OCCUPANT COMPARTMENT LEFT SIDE SHOWING DRIVER SID

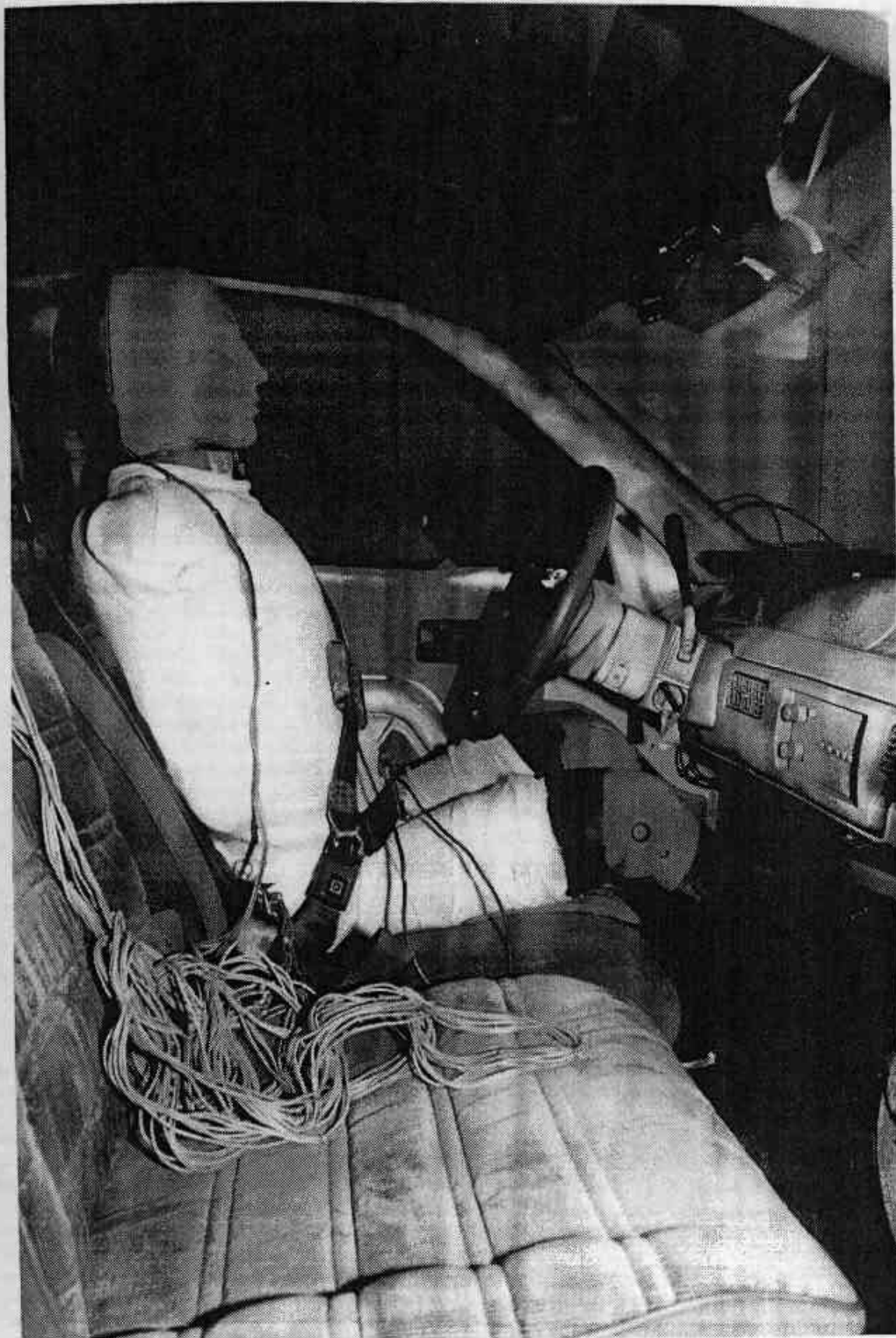


FIGURE 5-18 PRETEST OCCUPANT COMPARTMENT DRIVER SID

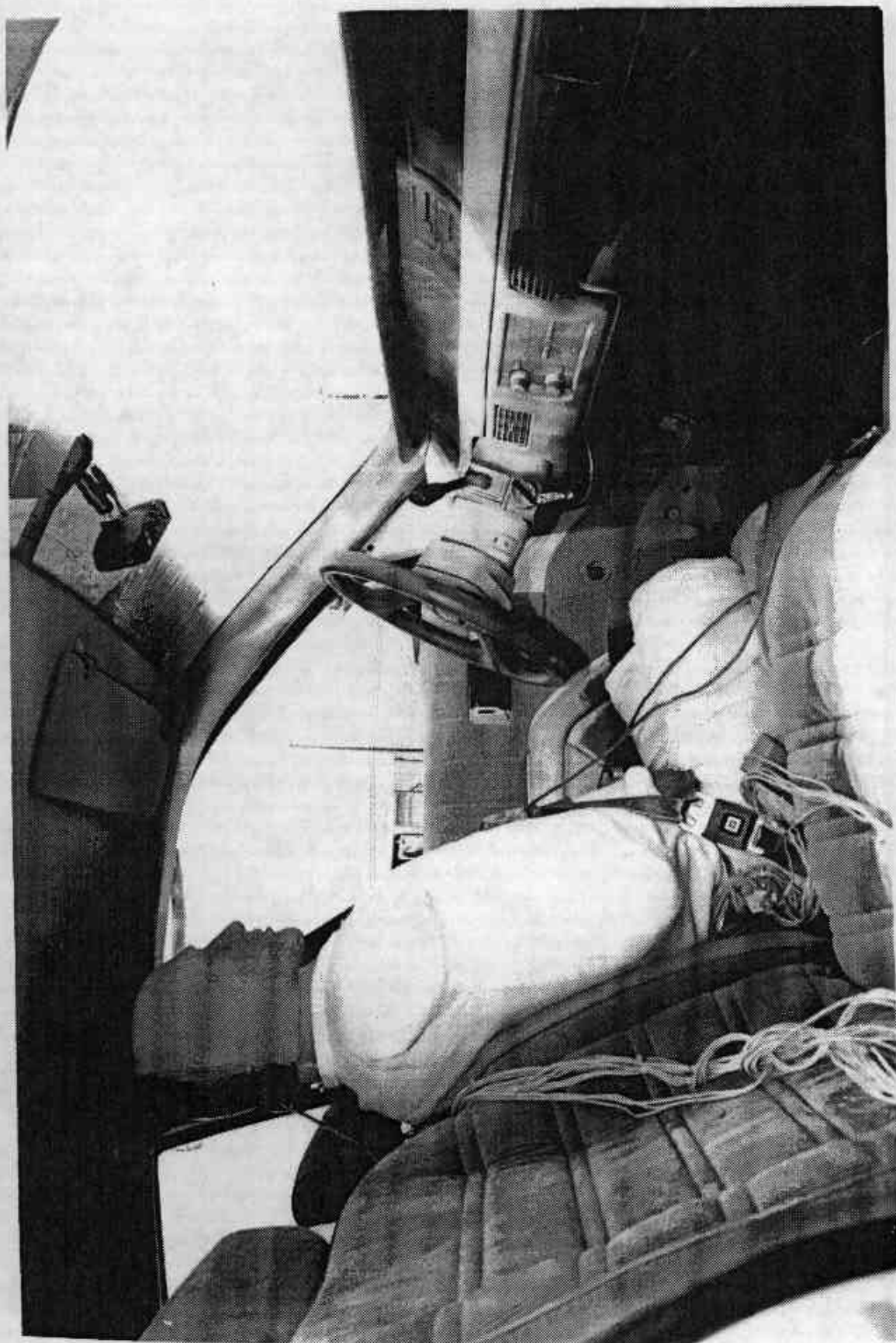


FIGURE 5-19 POSTTEST OCCUPANT COMPARTMENT DRIVER SID



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

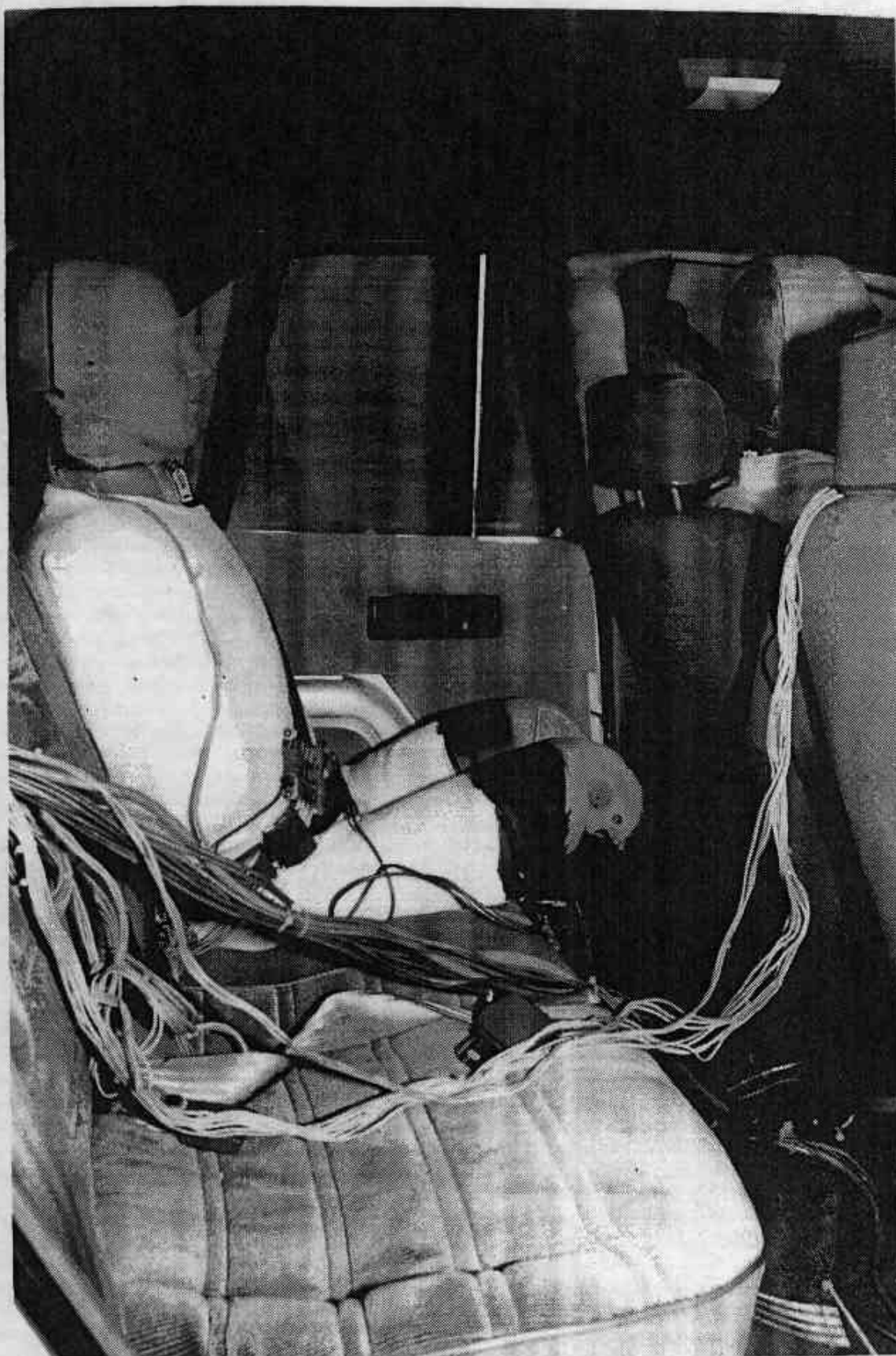


FIGURE 5-21 PRETEST OCCUPANT COMPARTMENT RIGHT SIDE VIEW SHOWING PASSENGER SID

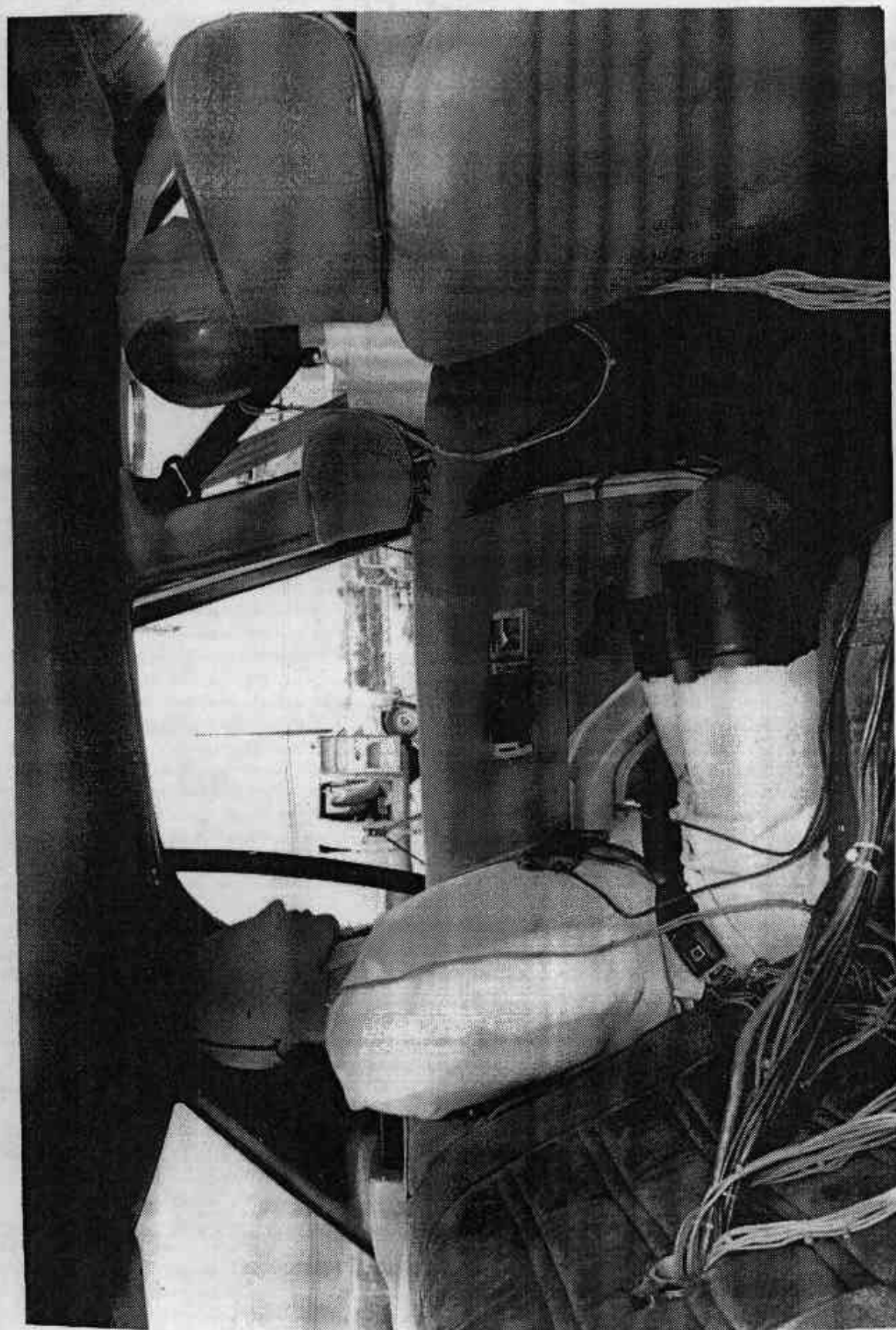


FIGURE 5-22 POSTTEST OCCUPANT COMPARTMENT VIEW SHOWING PASSENGER SID

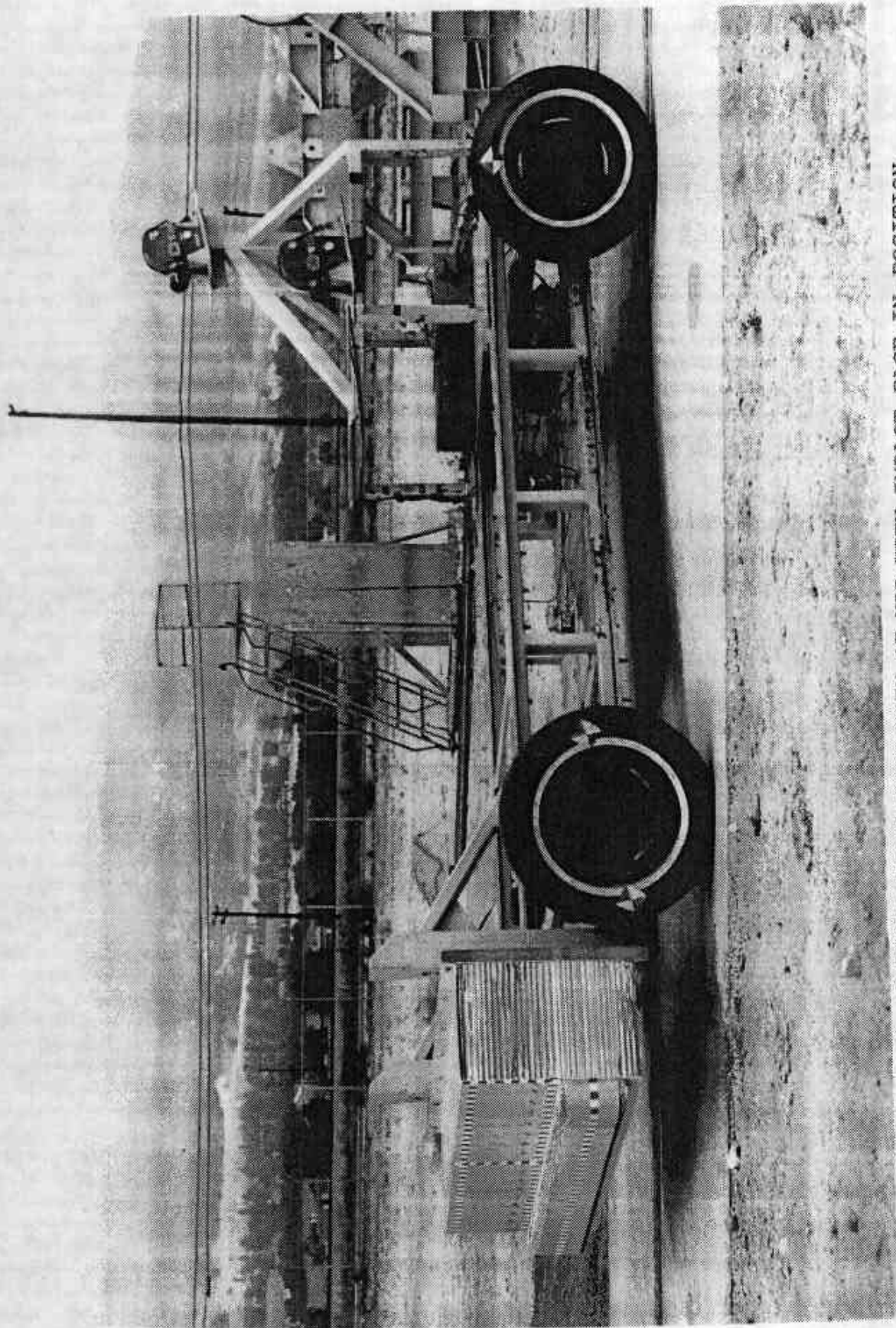


FIGURE 5-23 PRETEST RIGHT SIDE VIEW OF MDB WITH IMPACT FACE IN POSITION

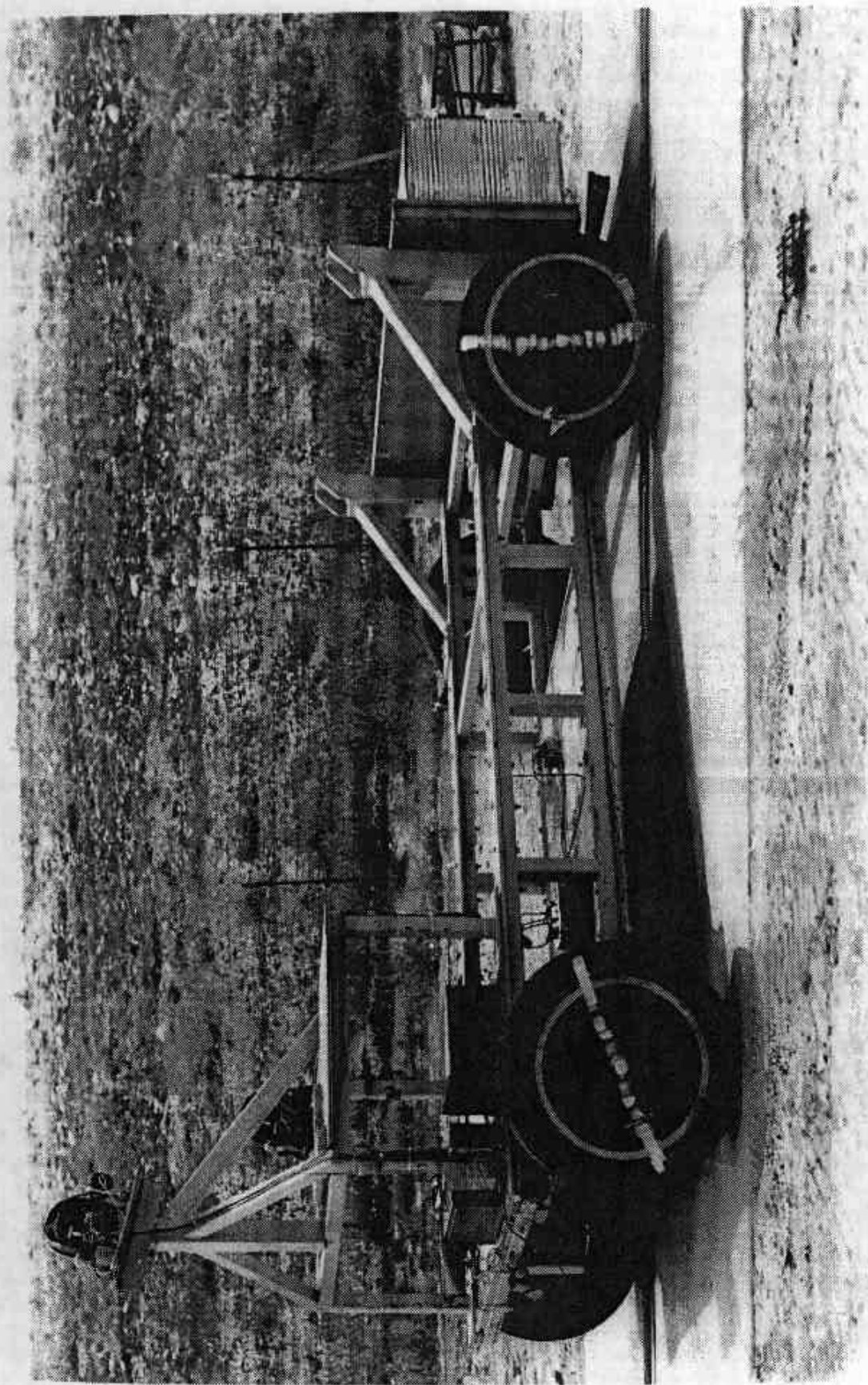


FIGURE 5-24 PRETEST LEFT SIDE VIEW OF MDB WITH IMPACT FACE IN POSITION

 TIRE-LOADING INFORMATION

OCCUPANTS		VEHICLE CAP		WT
FRT.	CTR.	RR.	TOTAL	LBS
3	0	3	6	1058
MAX. LOADING & GVWR SAME AS VEHICLE				480
CAPACITY WEIGHT		WAA	COLD TIRE	
MODEL: WM69		SPEED	PRESSURE	
TIRE SIZE		RTQ	PSI/KPA	
FRT	P195/75R14	S	30/210	
RR	P195/75R14	S	30/210	
SPA	T125/70D15	M	60/420	

IF TIRES ARE HOT, ADD 4PSI/28KPA
SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION.

CHEVROLET

LUMINA

WNCICE

FIGURE 5-25 TIRE PLACARD LABEL

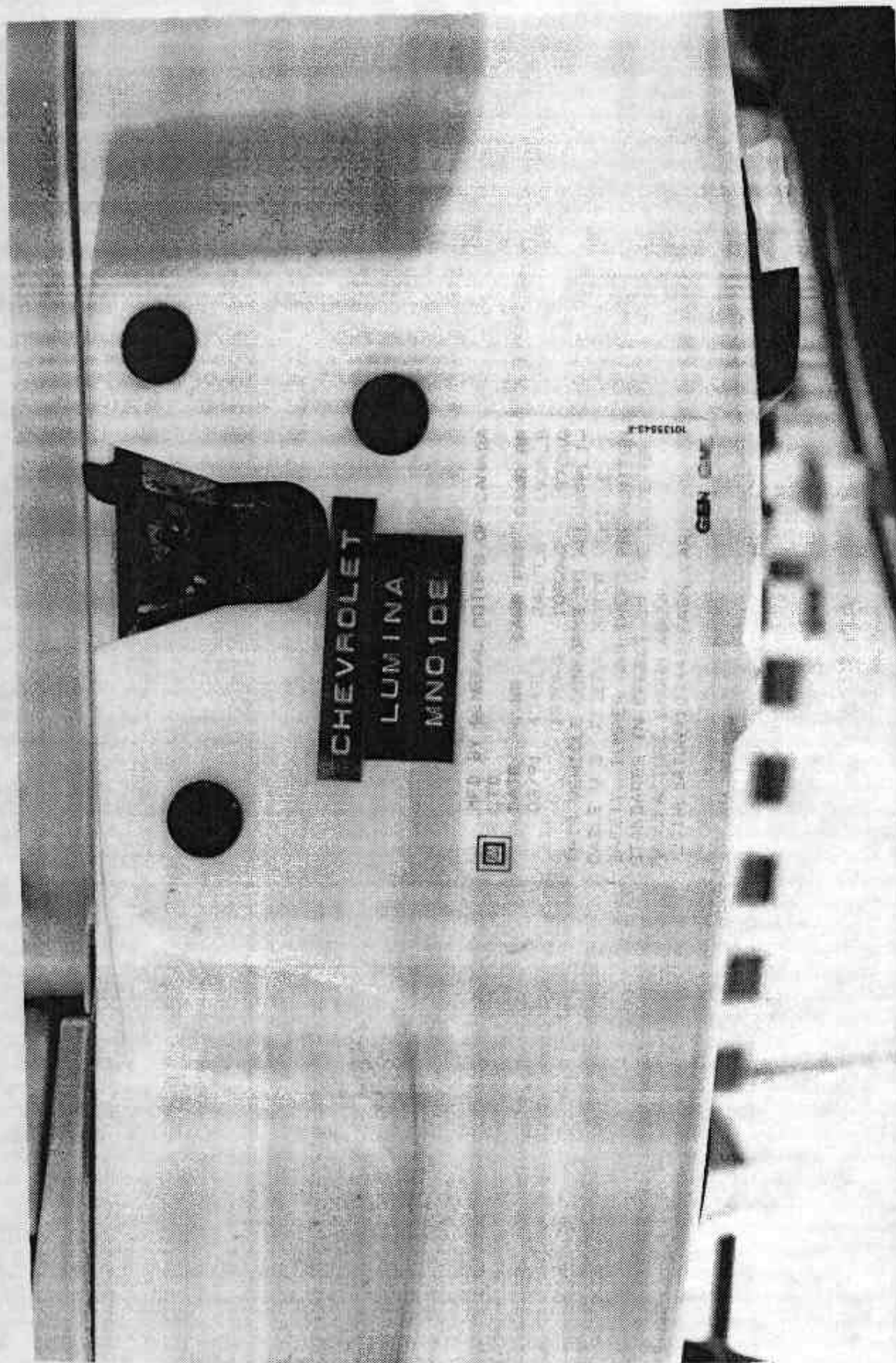


FIGURE 5-26 MANUFACTURER'S CERTIFICATION LABEL

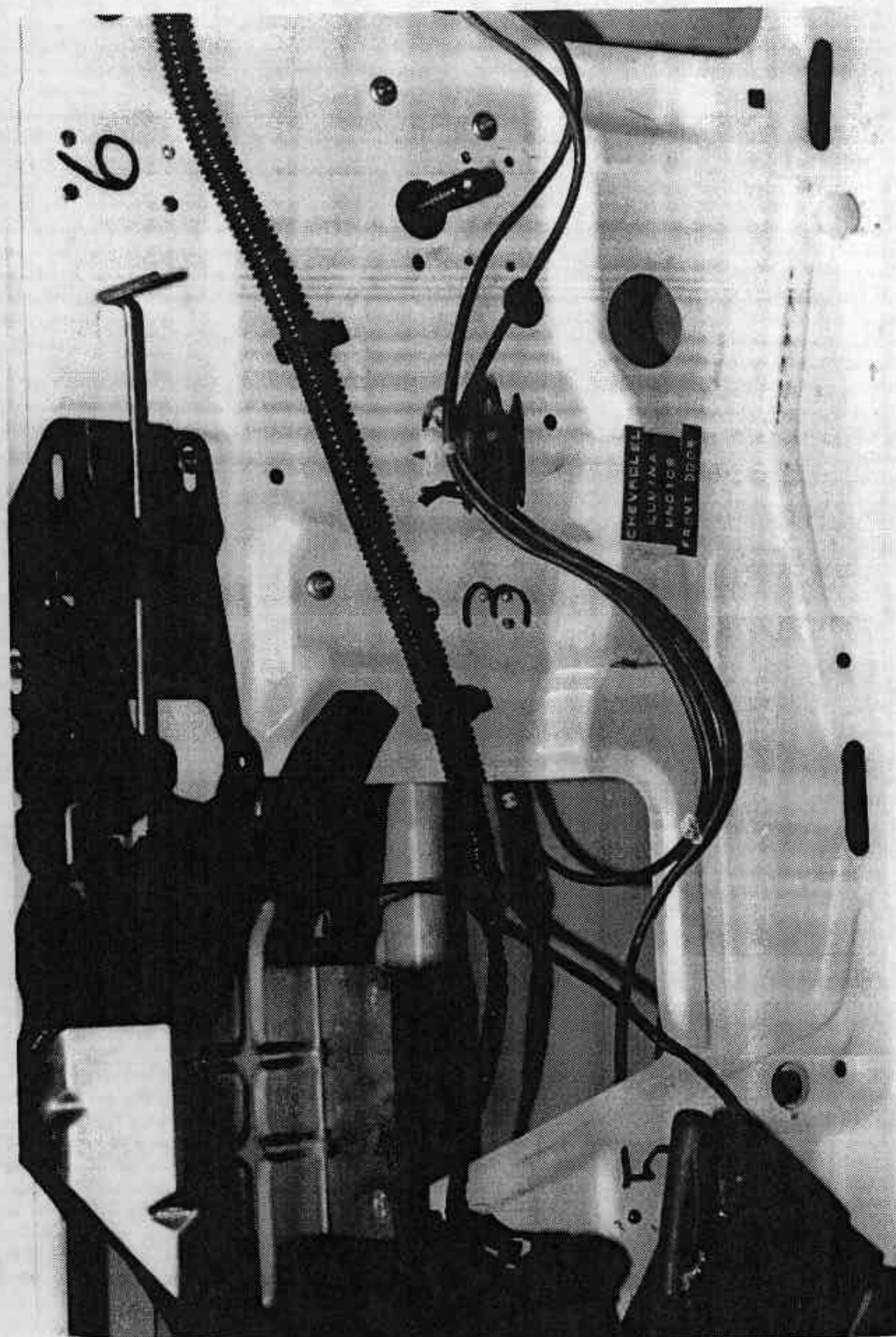


FIGURE 5-27 DRIVER DOOR ACCELEROMETER LOCATIONS

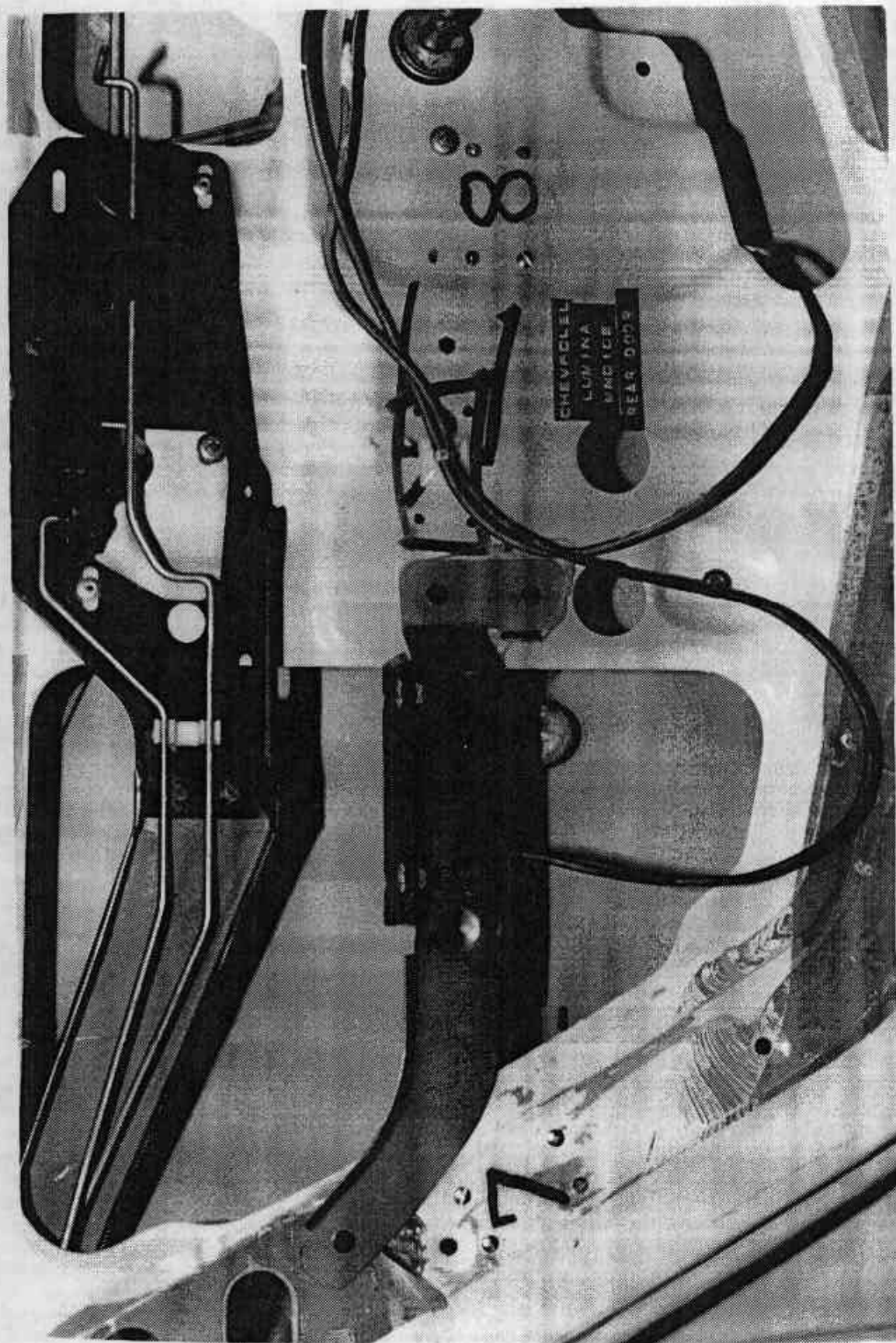


FIGURE 5-28 PASSENGER DOOR ACCELEROMETER LOCATIONS

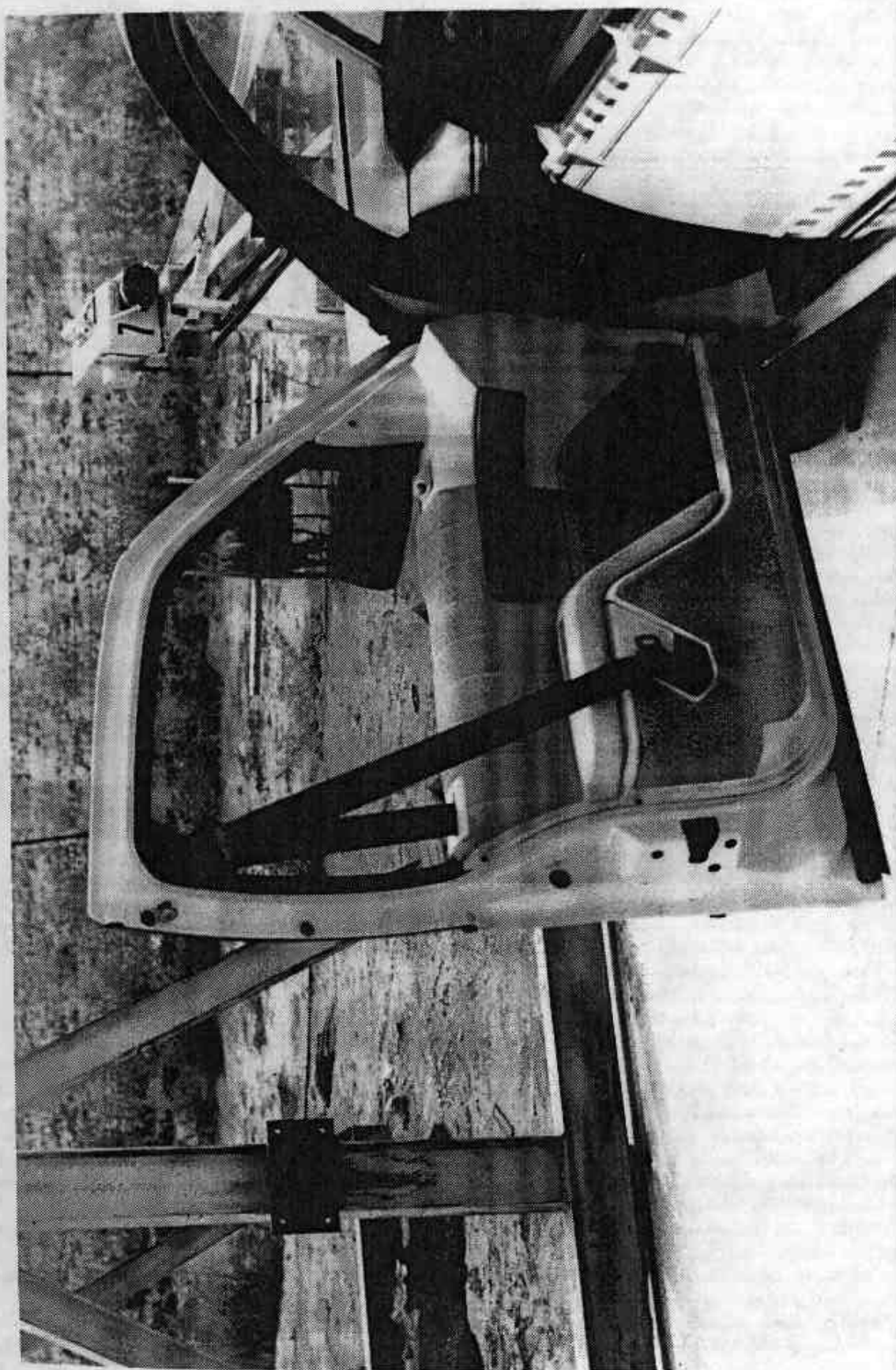


FIGURE 5-29 DRIVER DOOR ACCELEROMETERS INSTALLED, DOOR PANEL IN PLACE-PRETEST

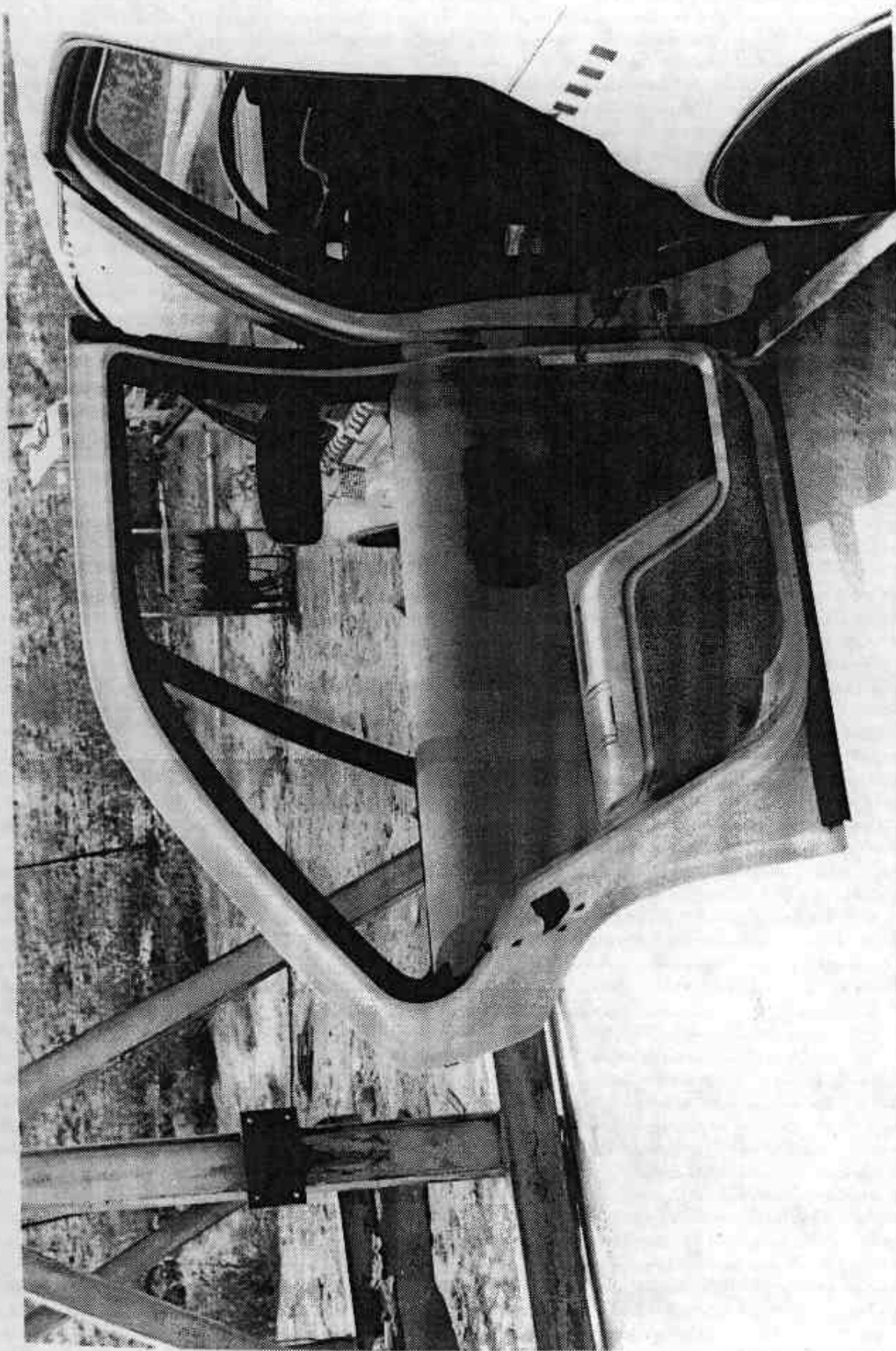


FIGURE 5-30 PASSENGER DOOR ACCELEROMETERS INSTALLED, DOOR PANEL IN PLACE-PRETEST



FIGURE 5-31 DRIVER SEATING POSITION - POSTTEST

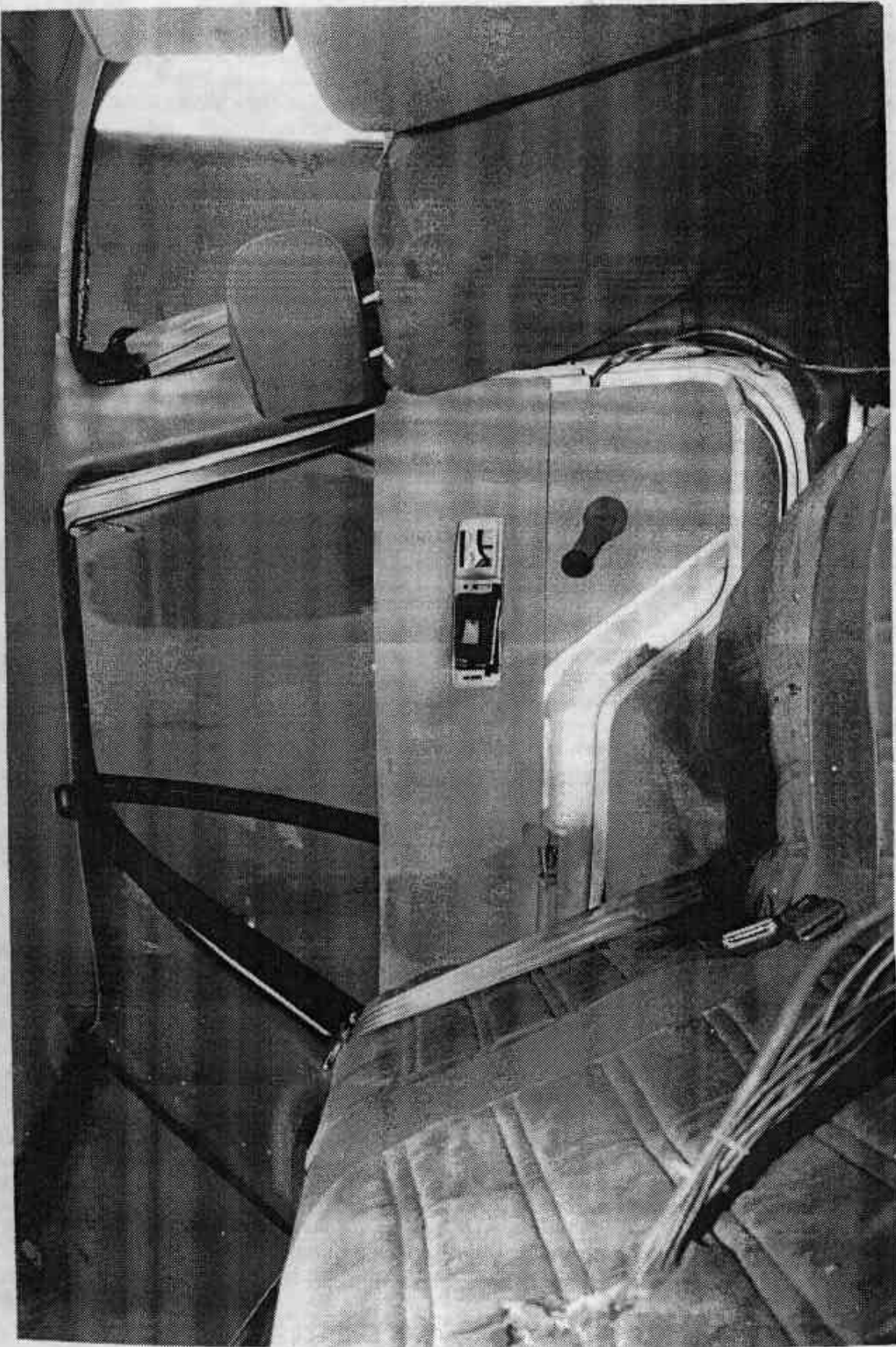


FIGURE 5-32 PASSENGER SEATING POSITION - POSTTEST

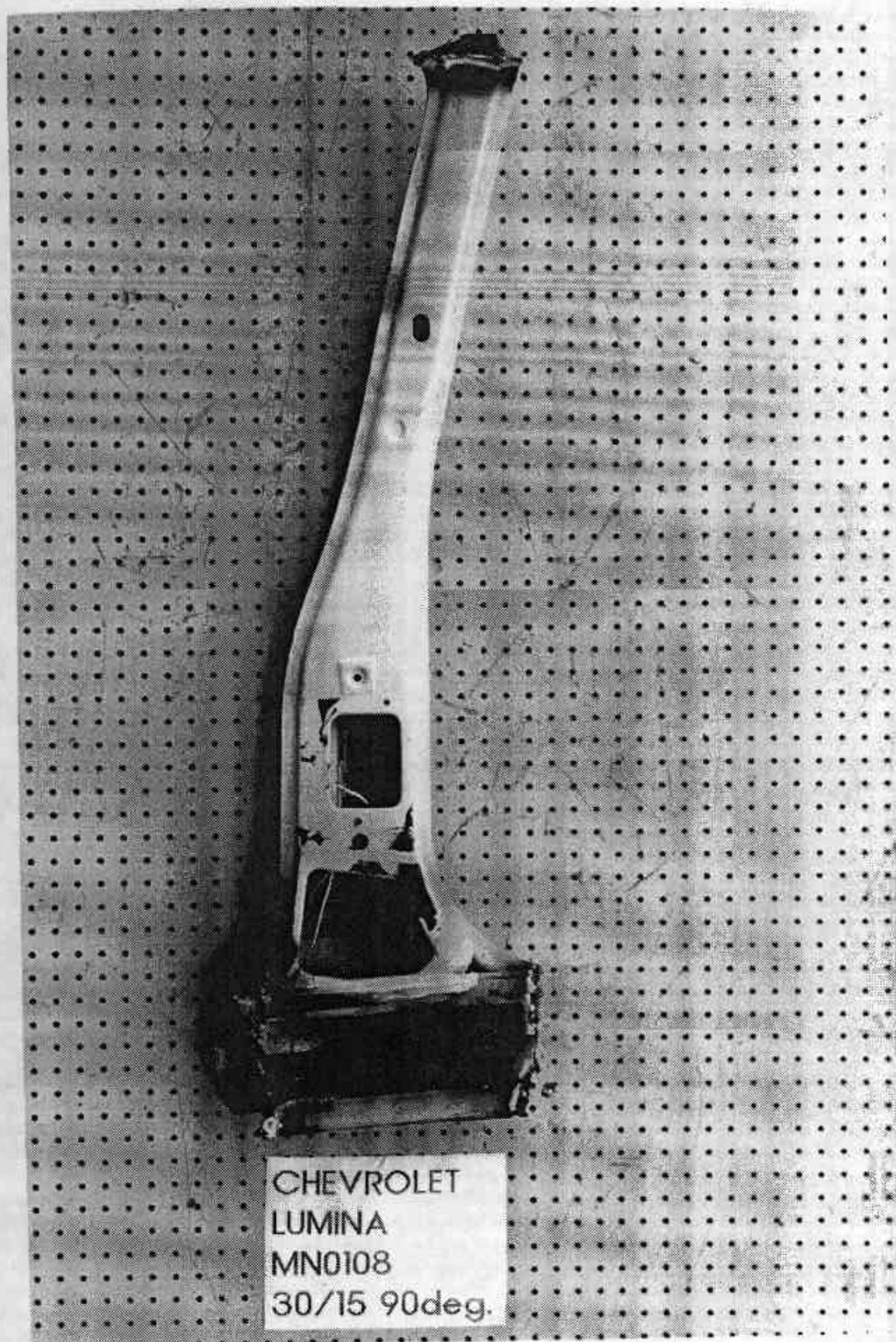


FIGURE 5-33 CHEVROLET LUMINA, B-PILLAR CUTOUT - VIEW NO. 1
74(a)

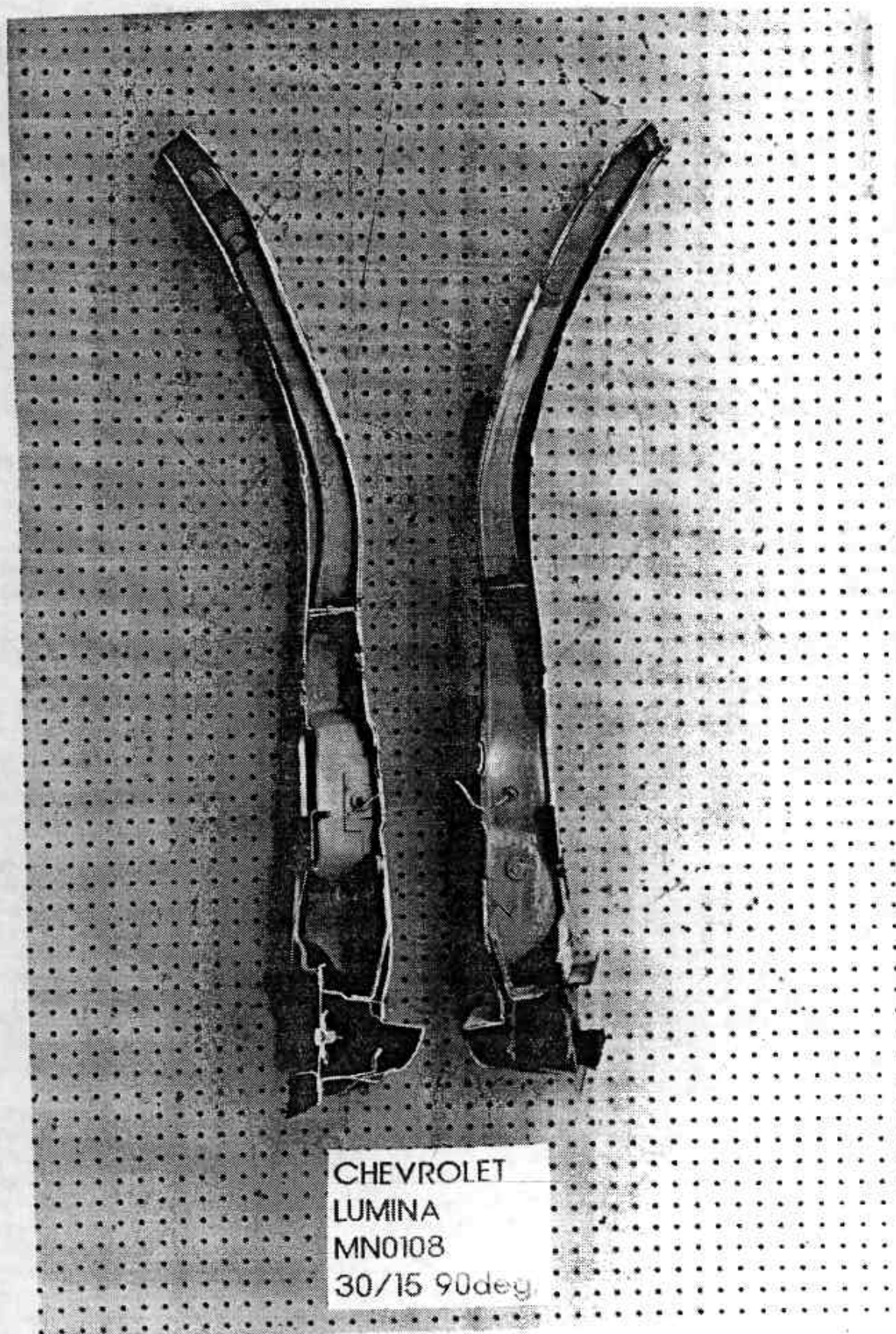


FIGURE 5-34 CHEVROLET LUMINA, B - PILLAR CUTOUT - VIEW NO. 2

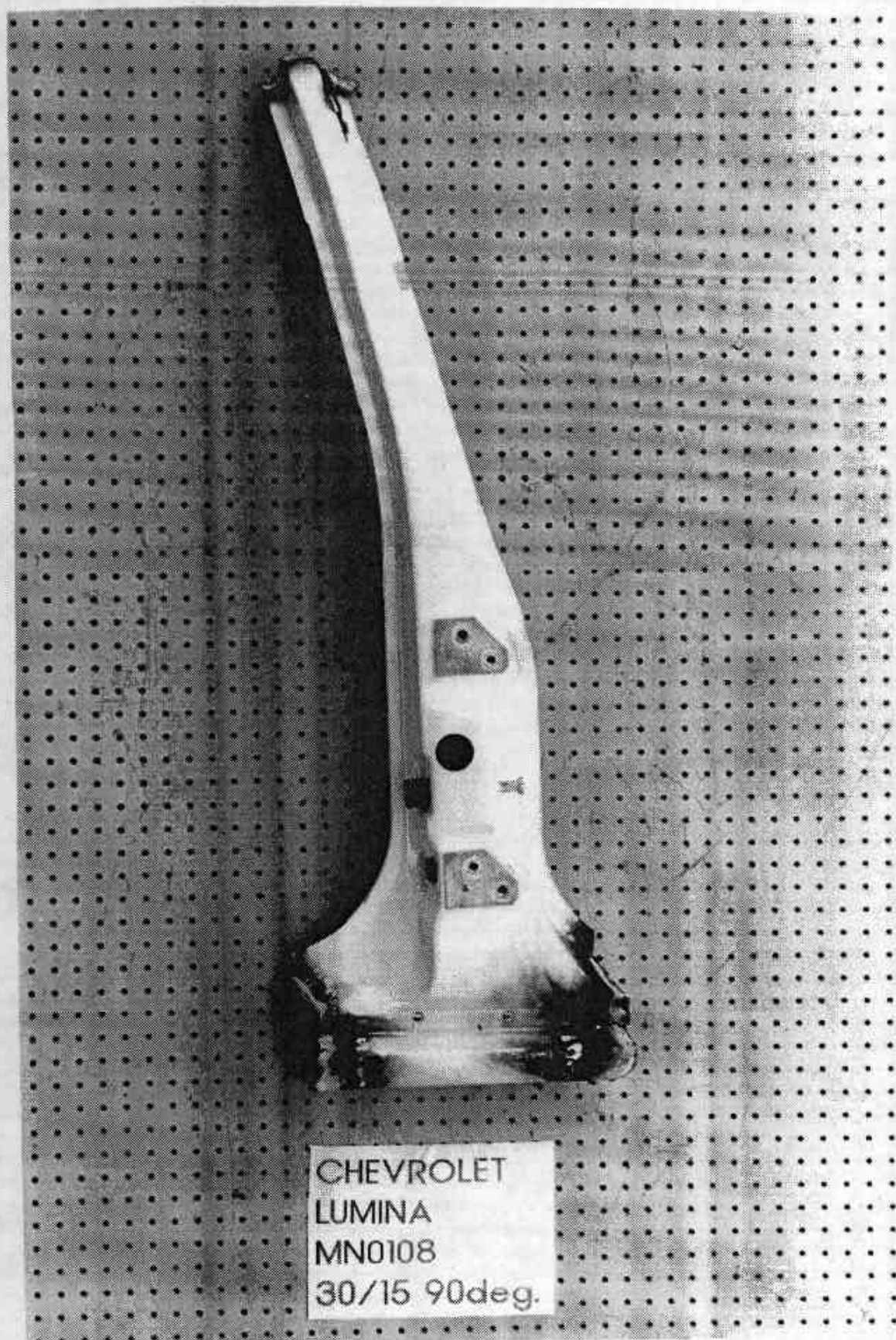


FIGURE 5-35 CHEVROLET LUMINA, B-PILLAR CUTOUT - VIEW NO. 3
74(c)

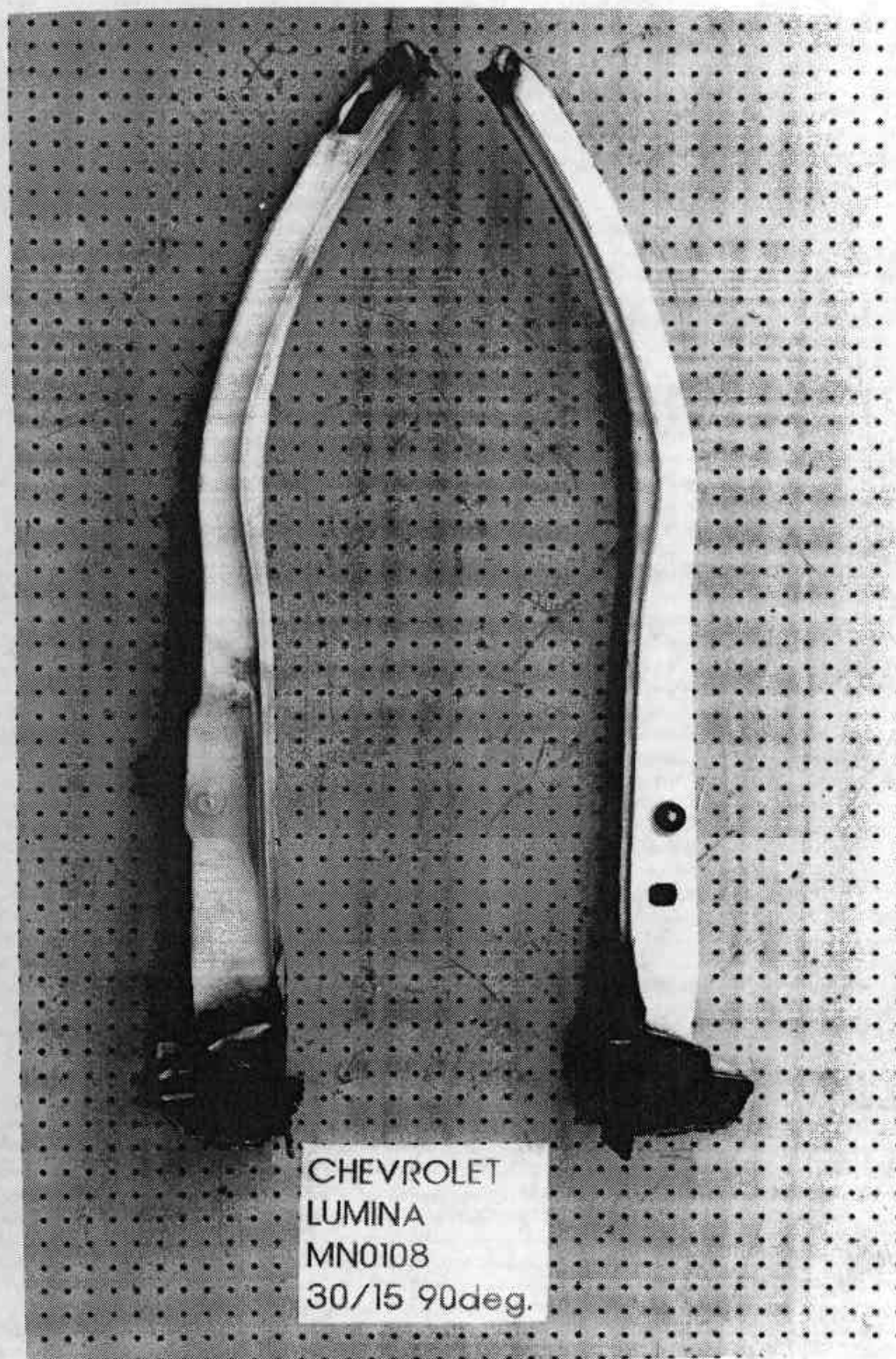


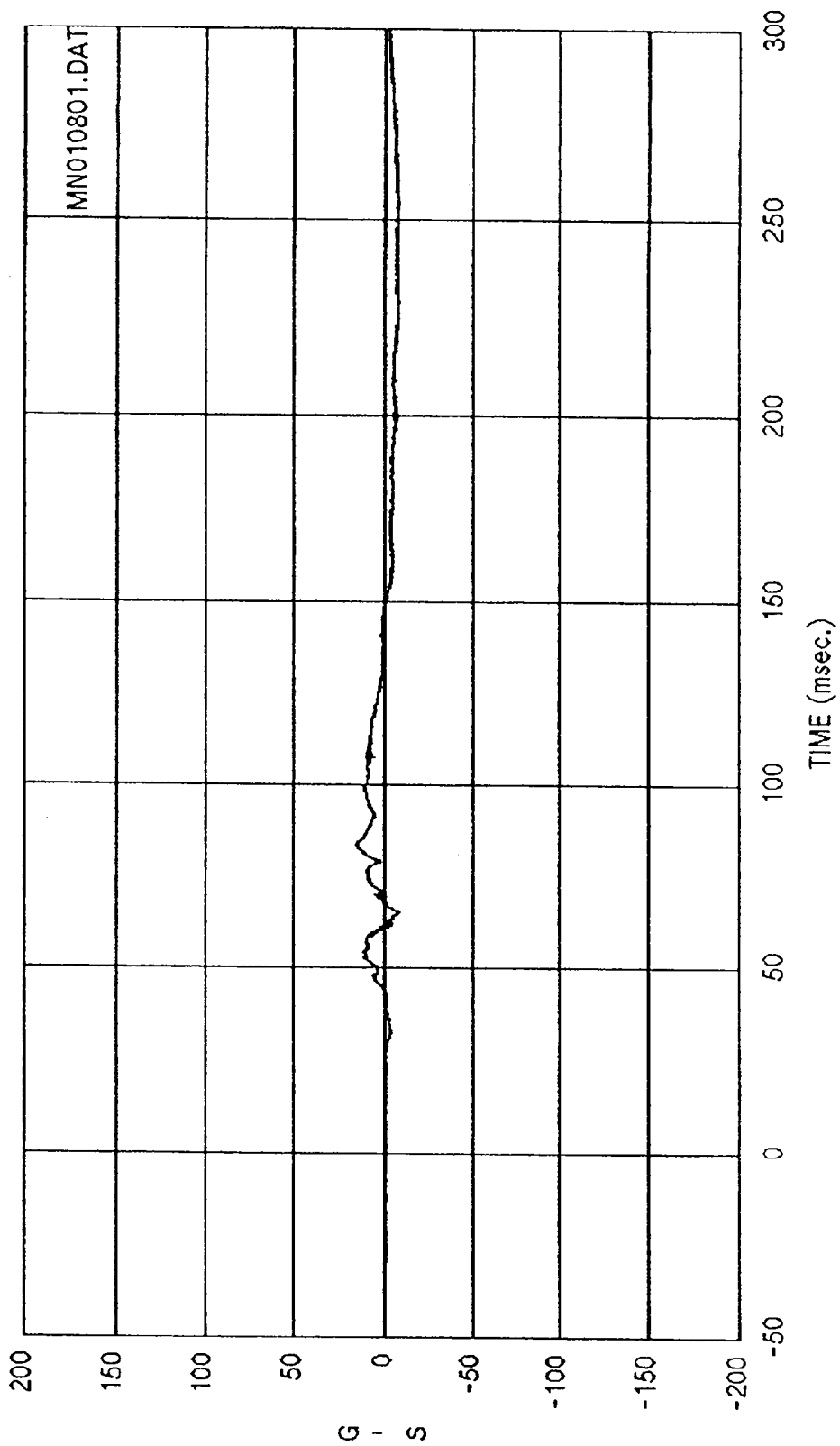
FIGURE 5-36 CHEVROLET LUMINA, B-PILLAR CUTOUT - VIEW NO. 4
74(d)

SECTION 6

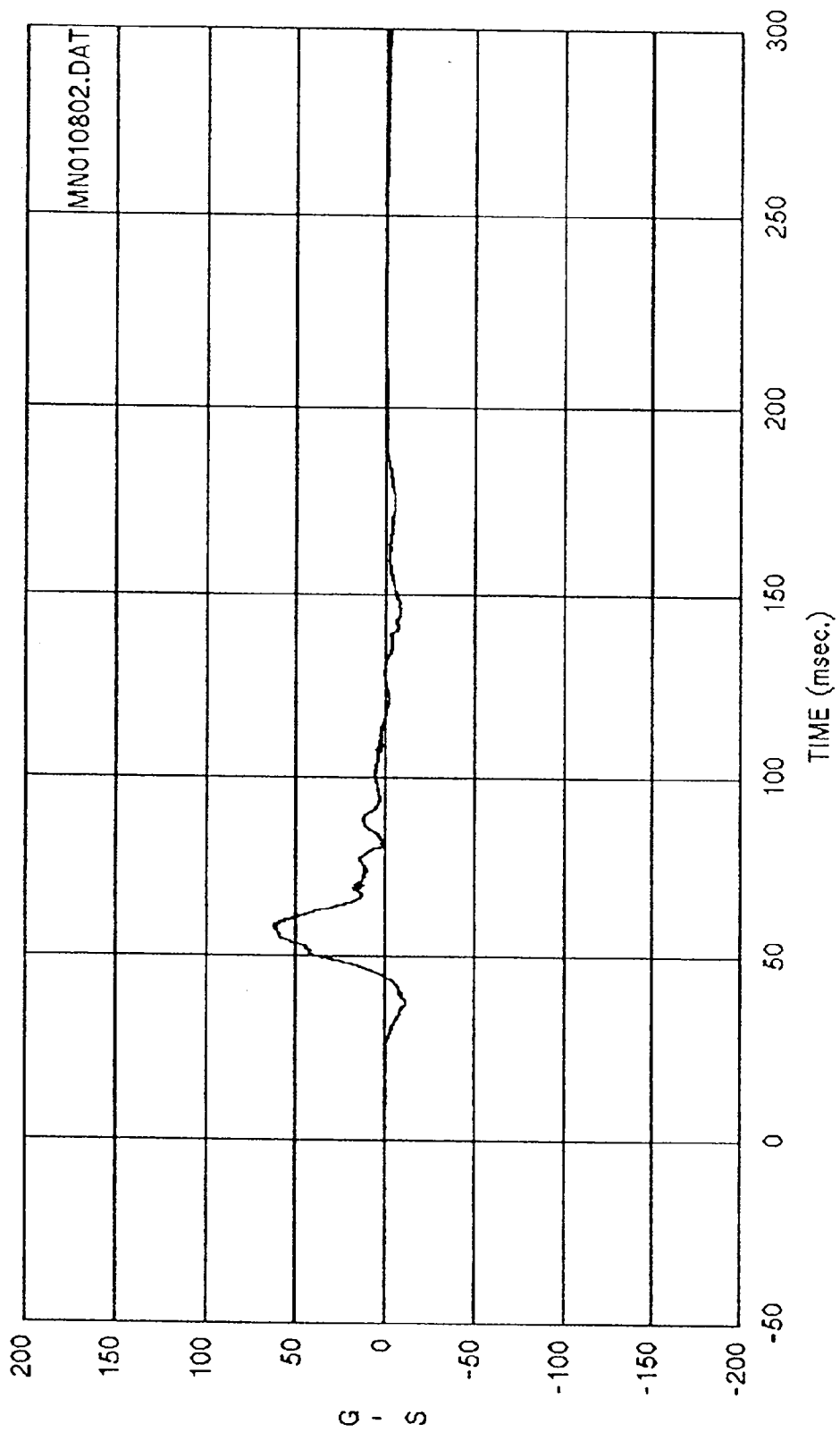
VEHICLE AND SID RESPONSE DATA

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

SID DATA

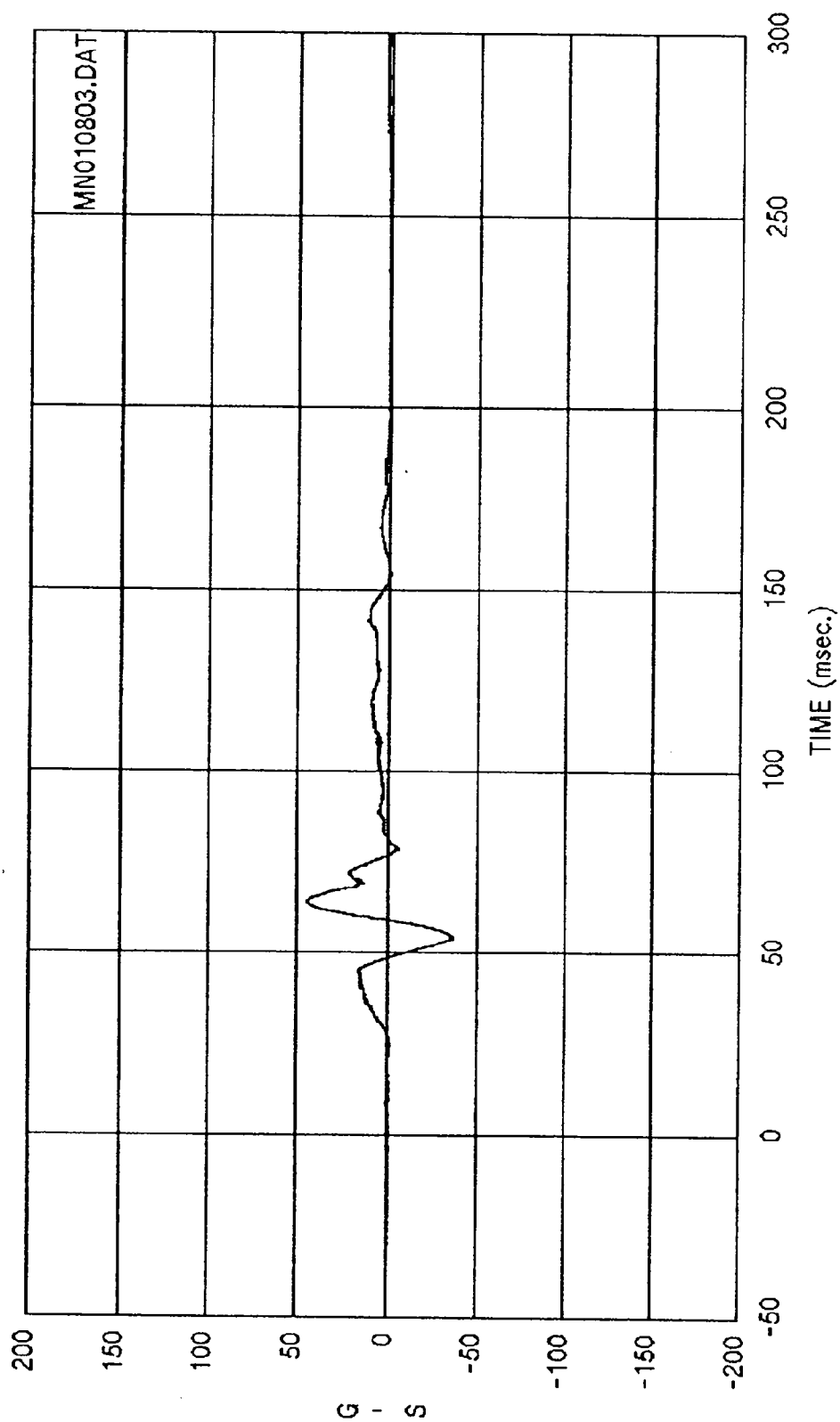


Curve: Driver Head acceleration -- X axis Filter: SAE CLASS 1000 Max = 15.673 Min = -8.2171
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



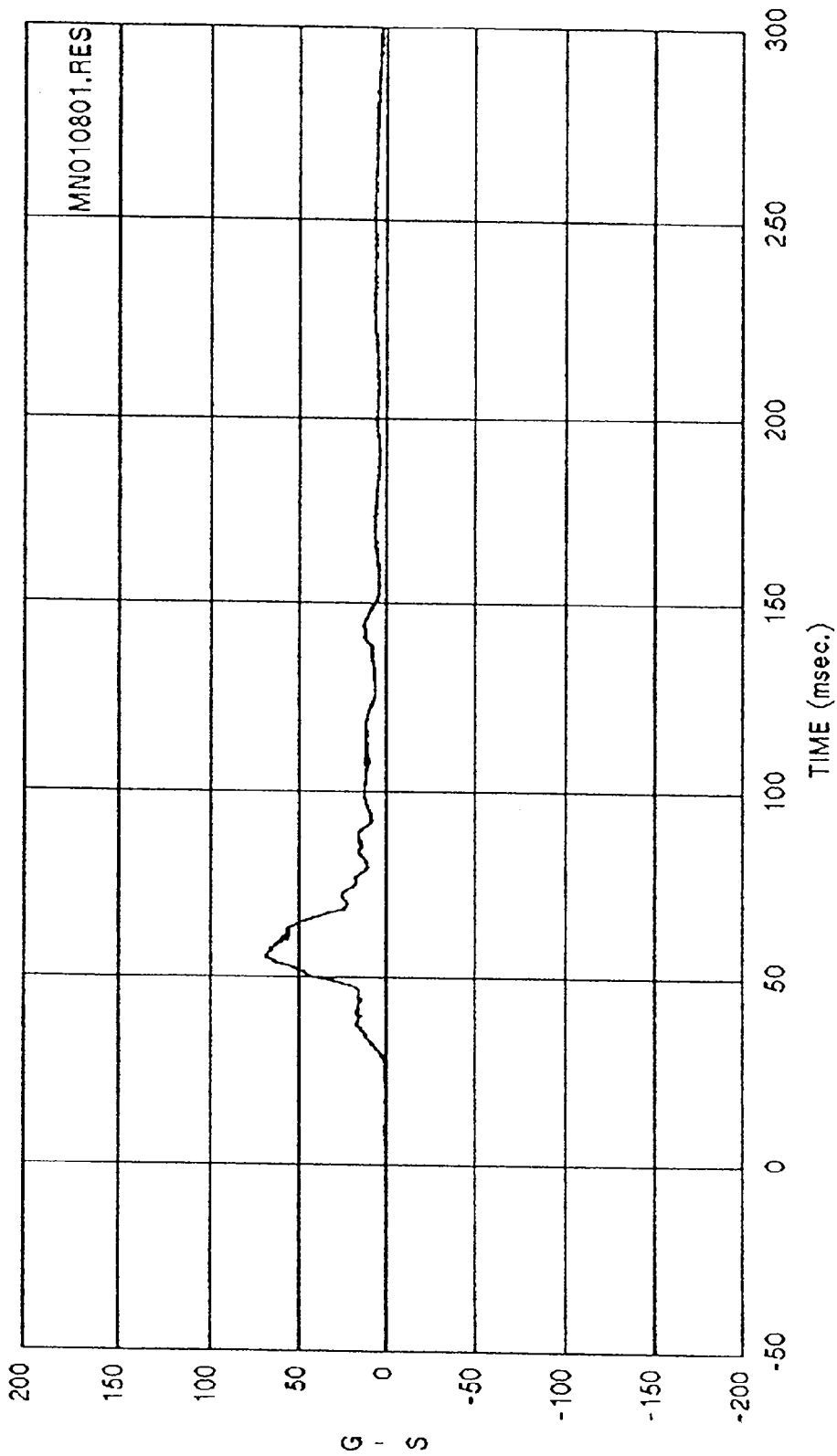
Curve: Driver Head acceleration -- Y axis Filter: SAE CLASS 1000 Max = 63.220 Min = -11.147

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



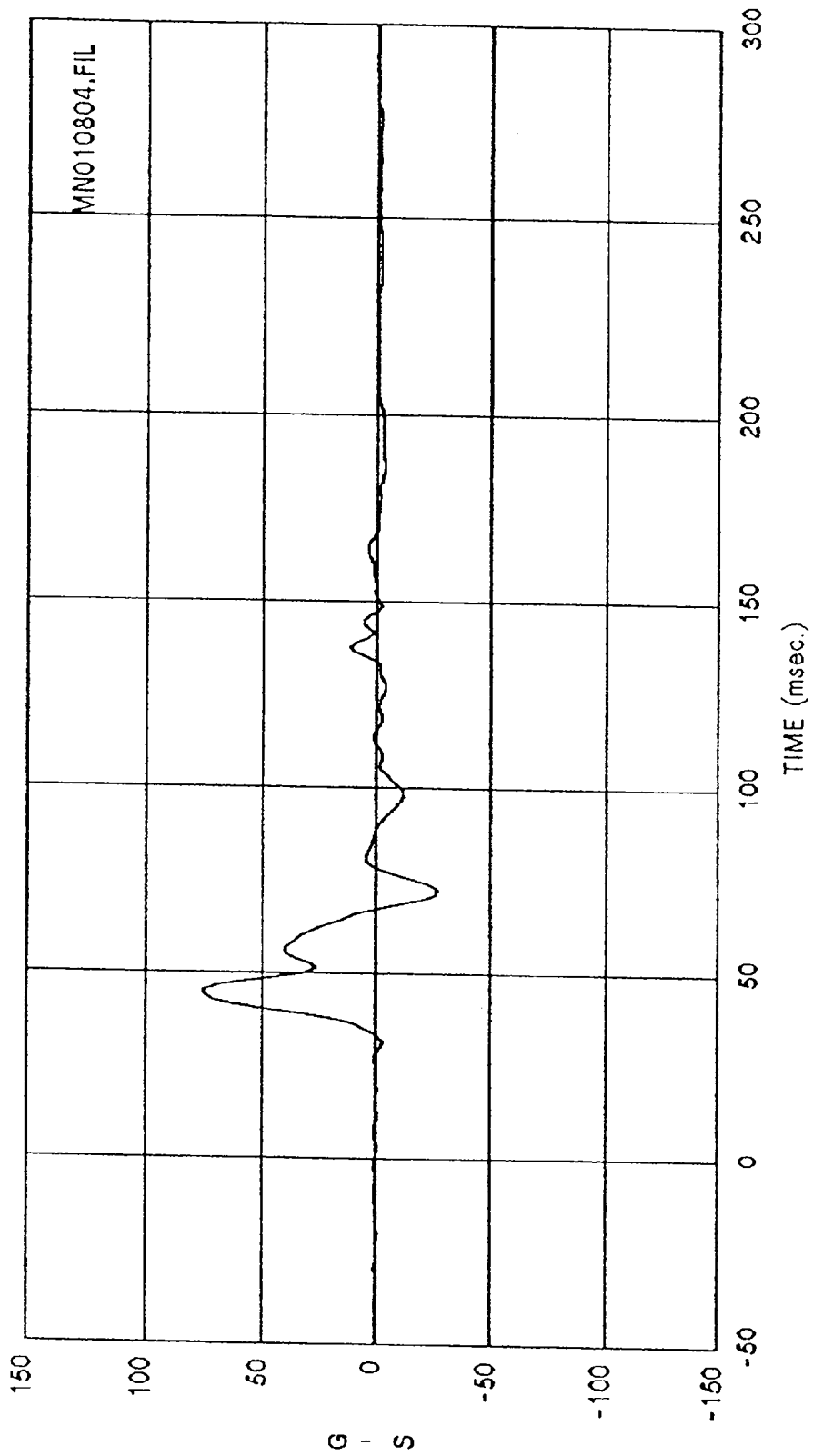
Curve: Driver Head acceleration -- Z axis Filter: SAE CLASS 1000 Max = 44.574 Min = -35.558

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



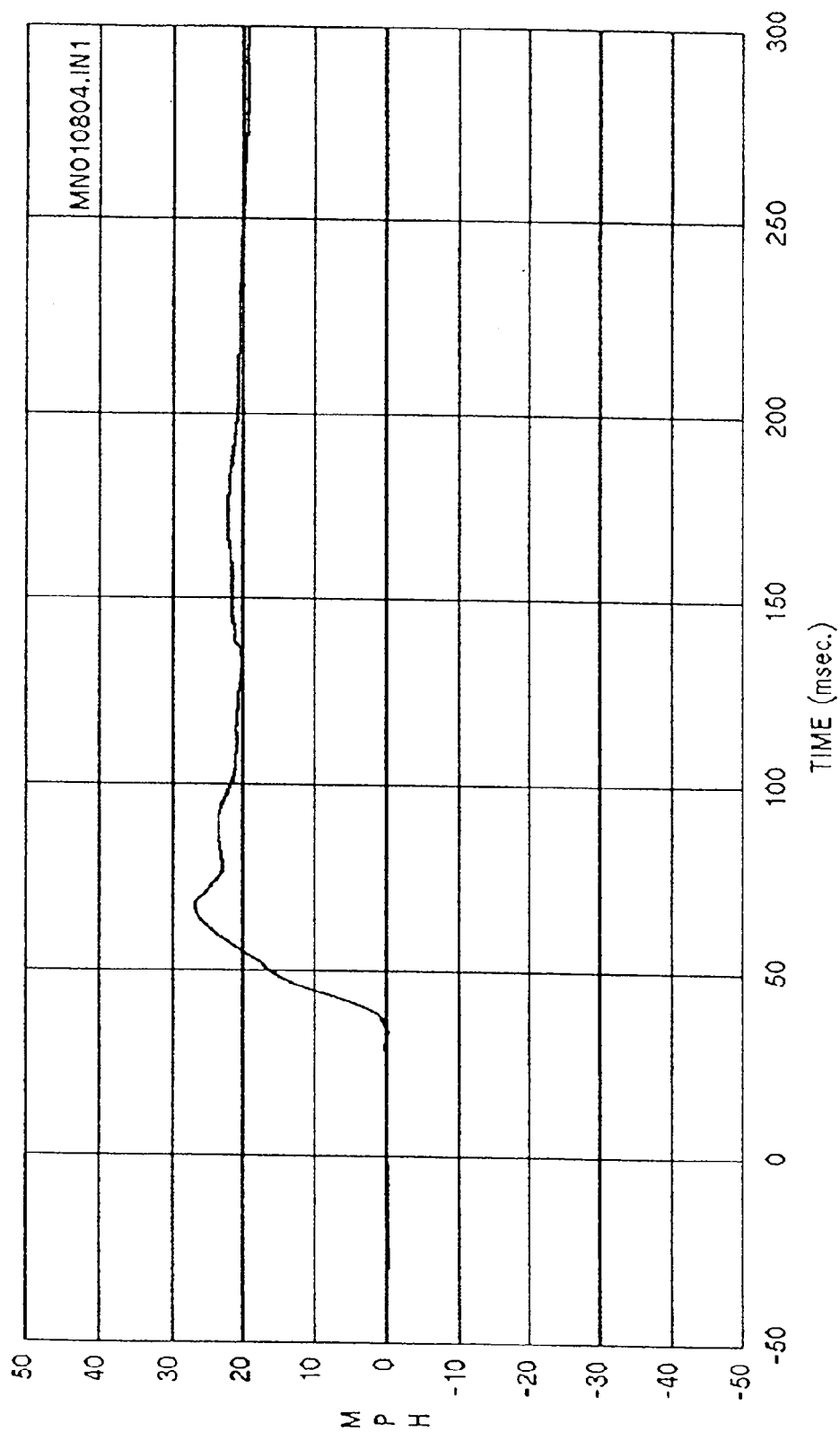
Curve: Driver head resultant acceleration Filter: SAE CLASS 1000 Max = 68.748 Min = .00000

MSE Date: 07/15/92 Program: Side Impact 30/15 90 Deg. Vehicle: 1992 Chevrolet Lumina

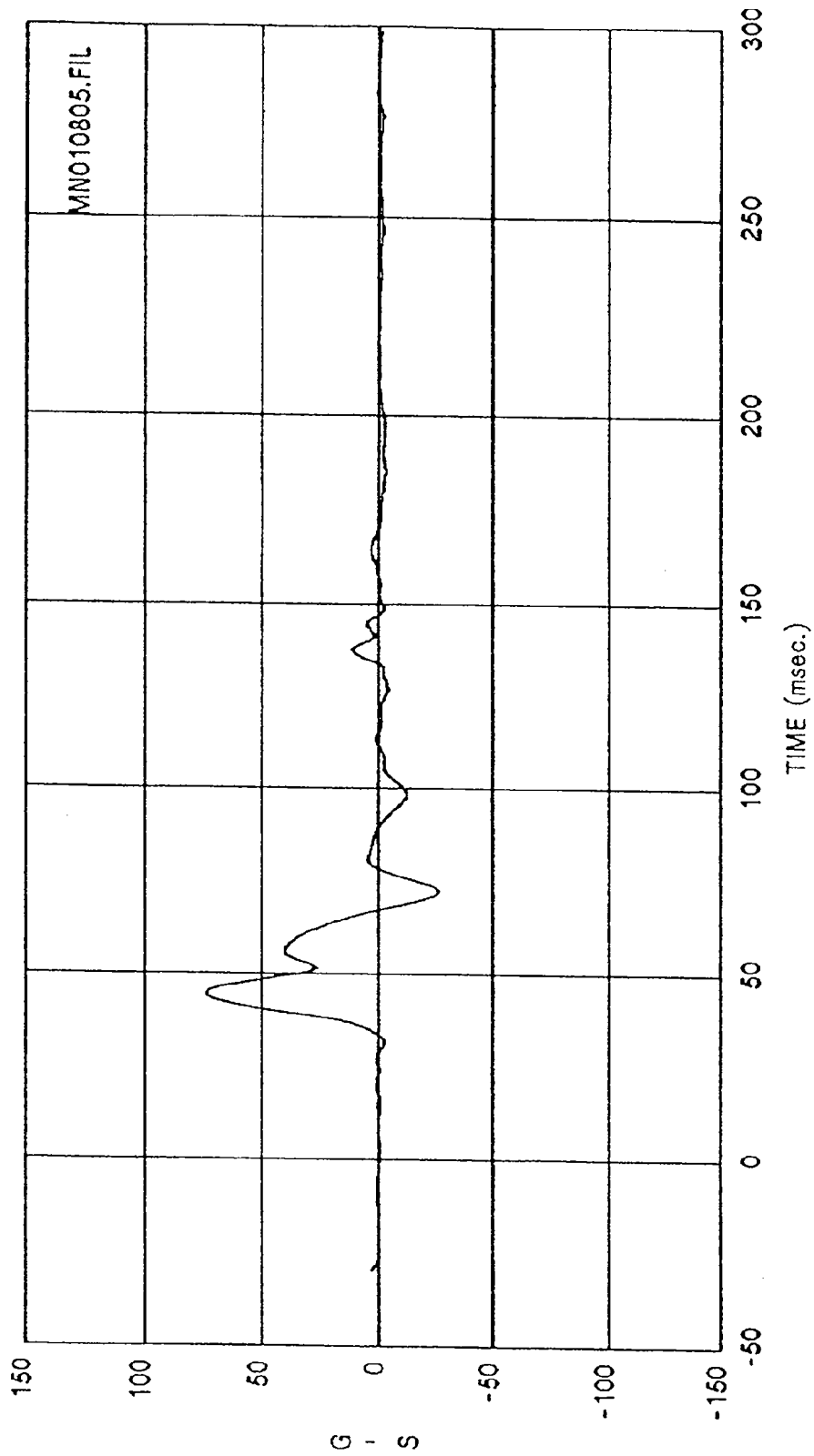


Curve: Driver upper spine acceleration -- Primary Filter: FIR 100 Max = 75.999 Min = -27.506

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

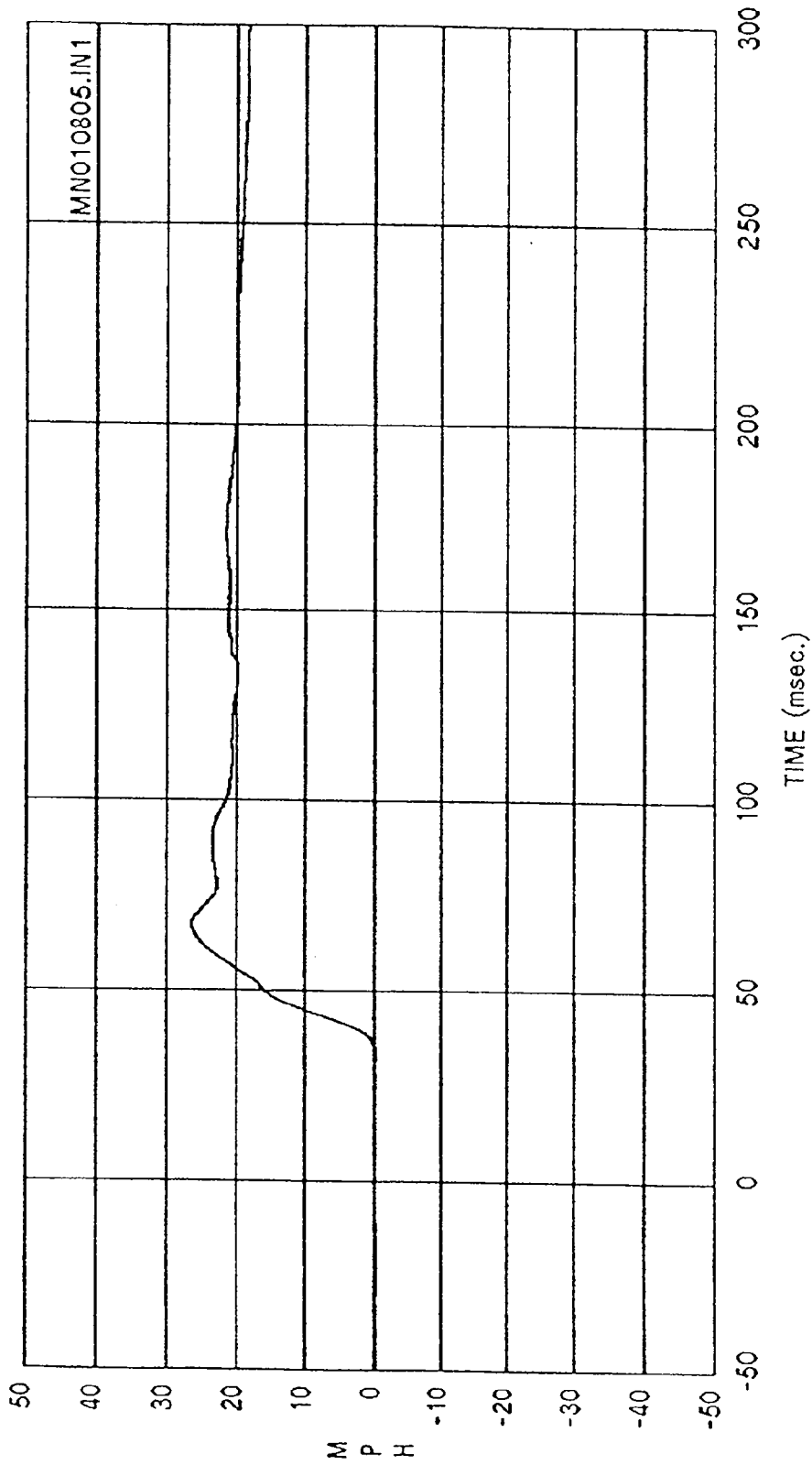


Curve: Driver upper spine delta V -- Primary Filter: FIR 100 Max = 27.031 Min = -.48283E-0
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



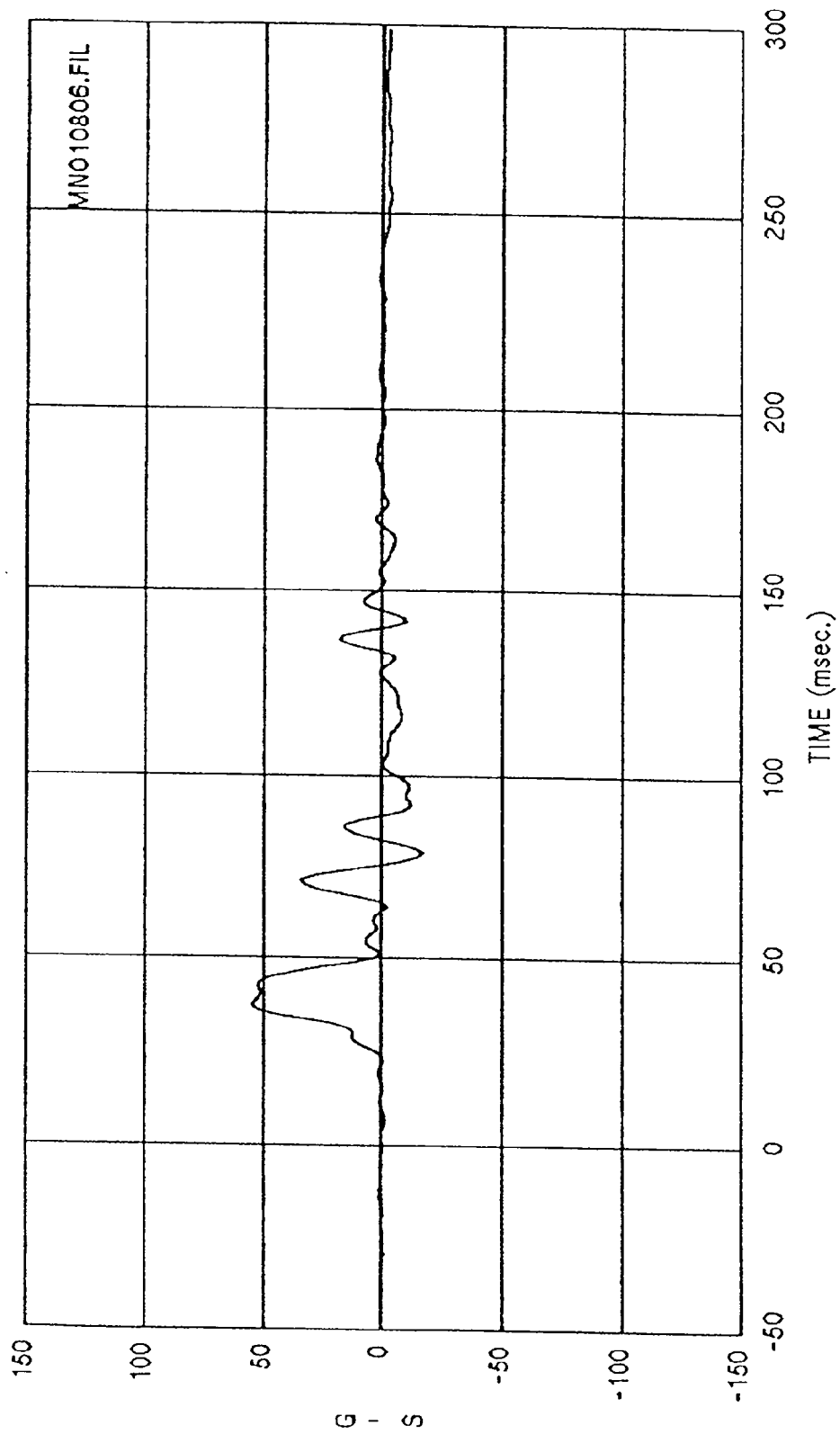
Curve: Driver upper spine acceleration -- Redundant Filter: FIR 100 Max = 74.387 Min = -26.415

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



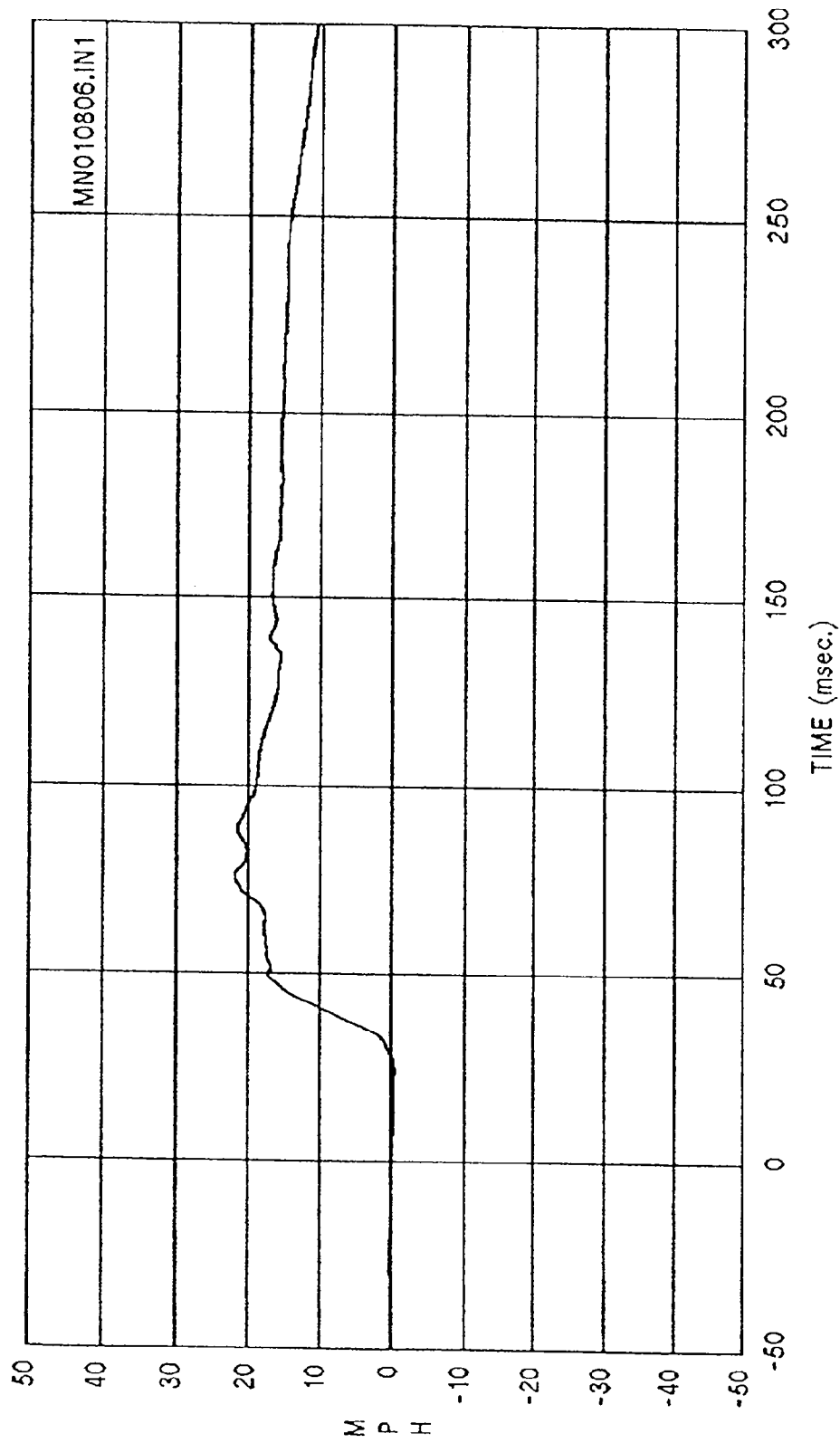
Curve: Driver upper spine delta V -- Redundant Filter: FIR 100 Max = 26.493 Min = -.27082

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



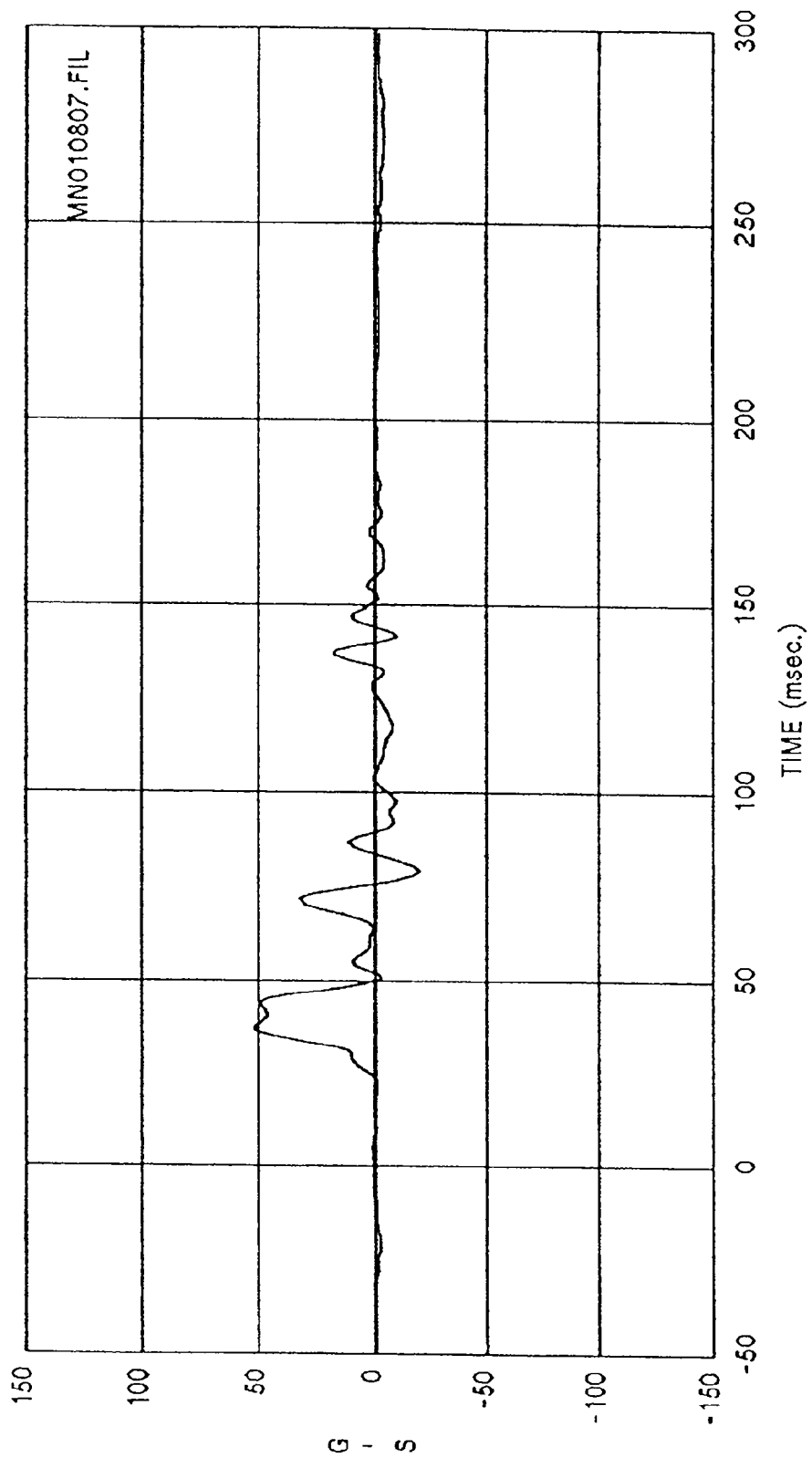
Curve: Driver upper rib acceleration -- Primary Filter: FIR 100 Max = 55.254 Min = -17.023

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



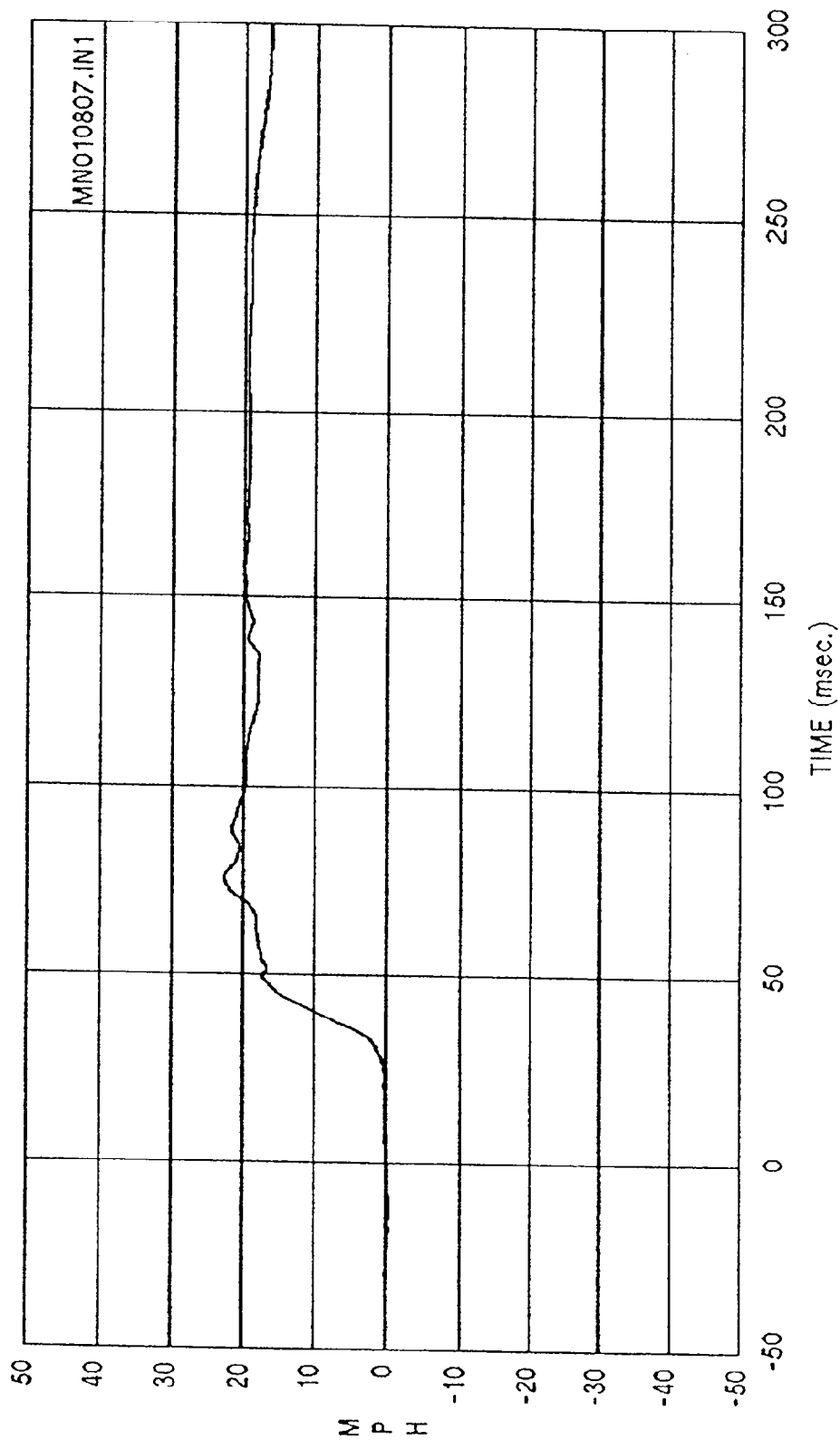
Curve: Driver upper rib delta V -- Primary Filter: FIR 100 Max = 22.022 Min = -.42836

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



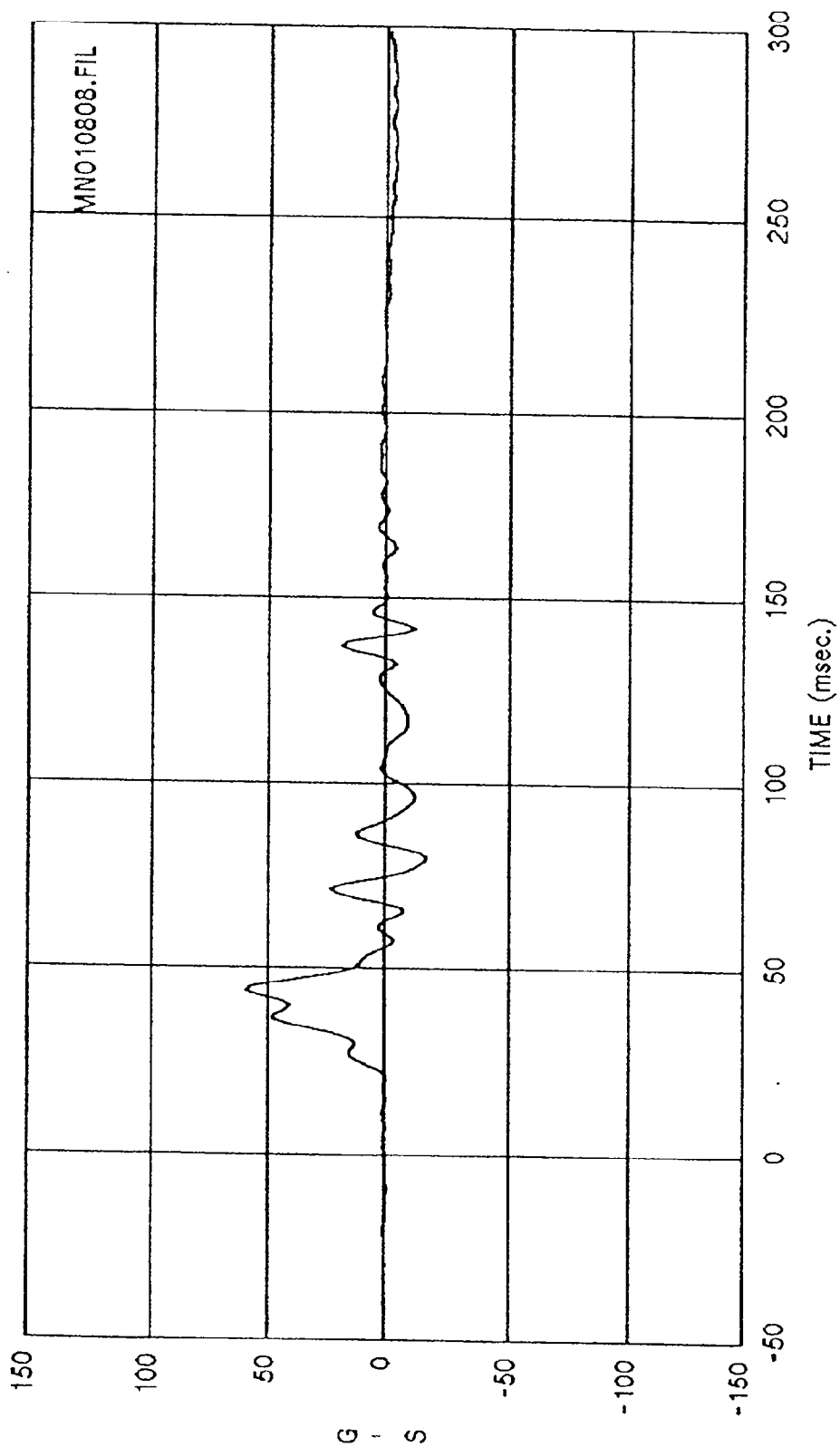
Curve: Driver upper rib acceleration -- Redundant Filter: FIR 100 Max = 52.468 Min = -20.037

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



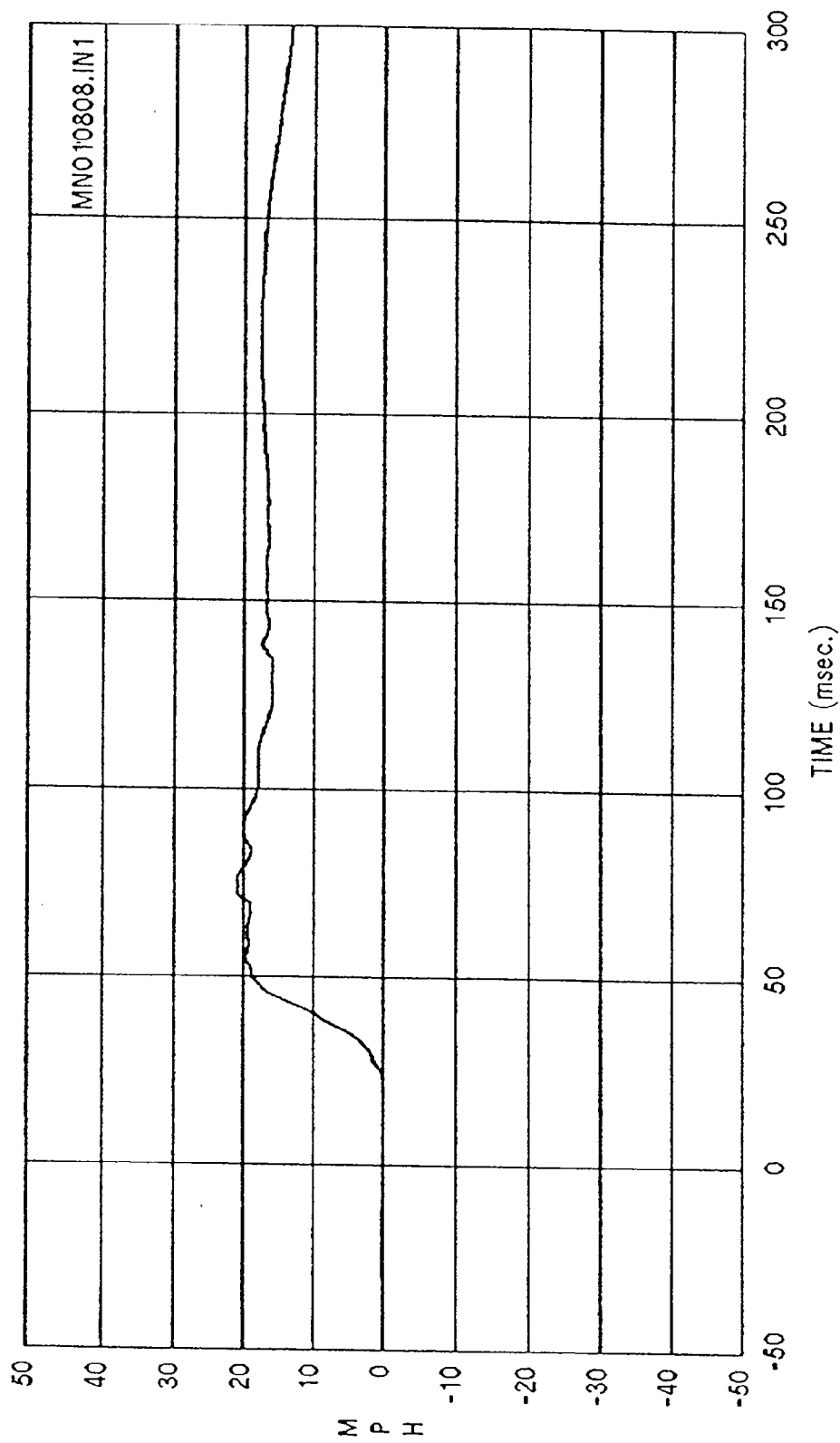
Curve: Driver upper rib delta V -- Redundant Filter: FIR 100 Max = 22.723 Min = .25103

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



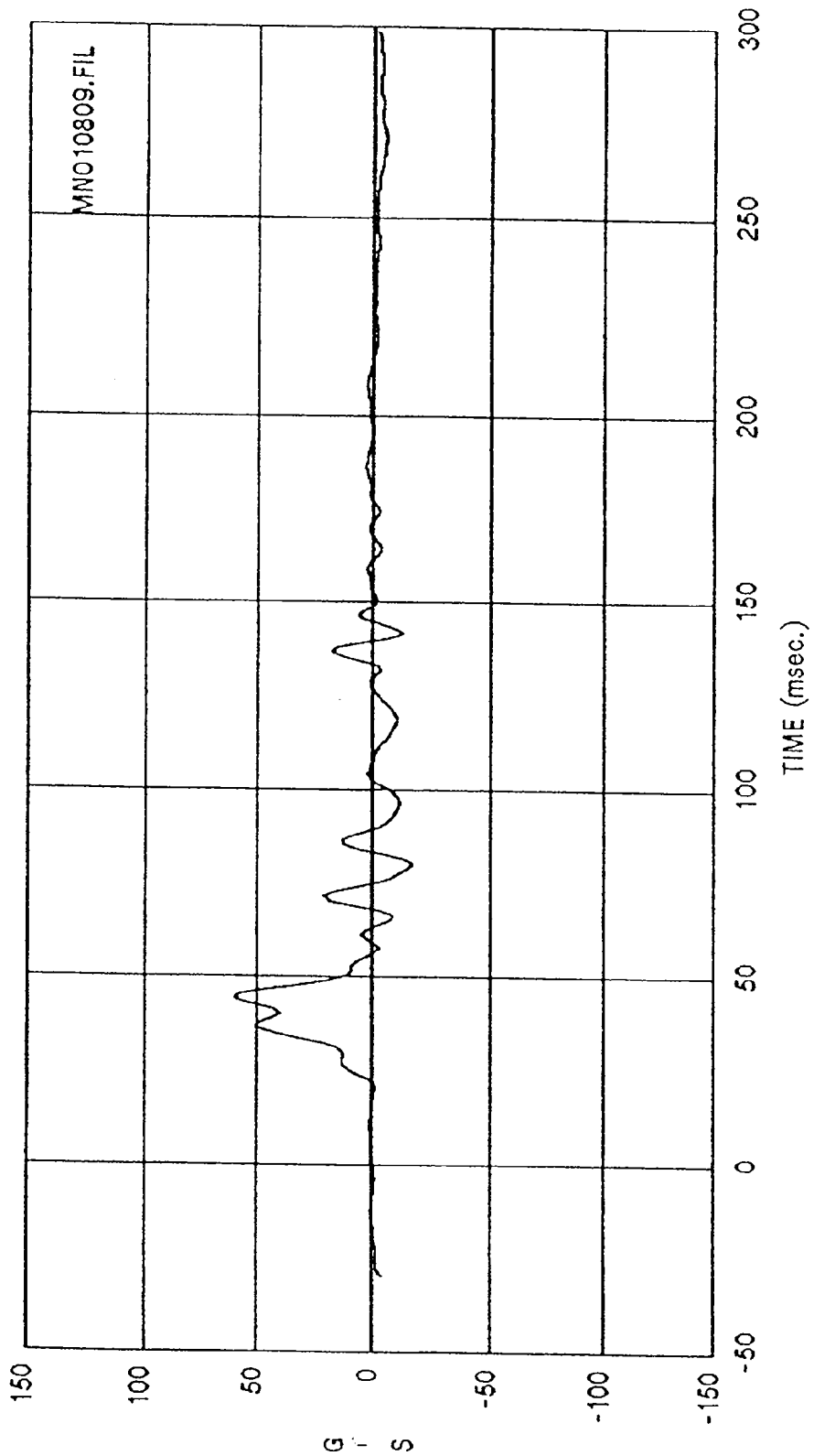
Curve: Driver lower rib acceleration -- Primary Filter: FIR 100 Max = 60.246 Min = -16.520

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



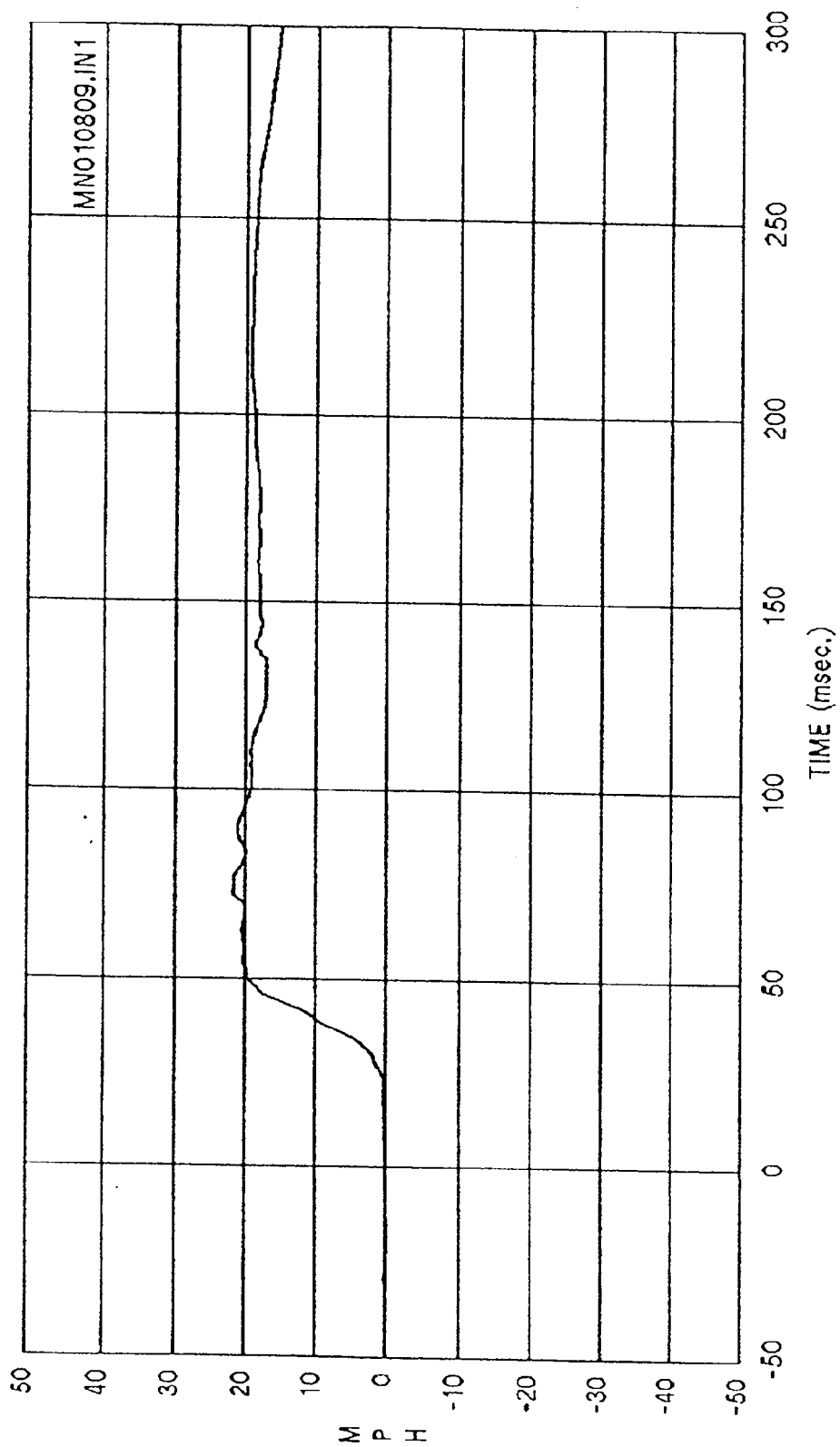
Curve: Driver lower rib delta V -- Primary Filter: FIR 100 Max = 21.065 Min = -.17855E-02

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



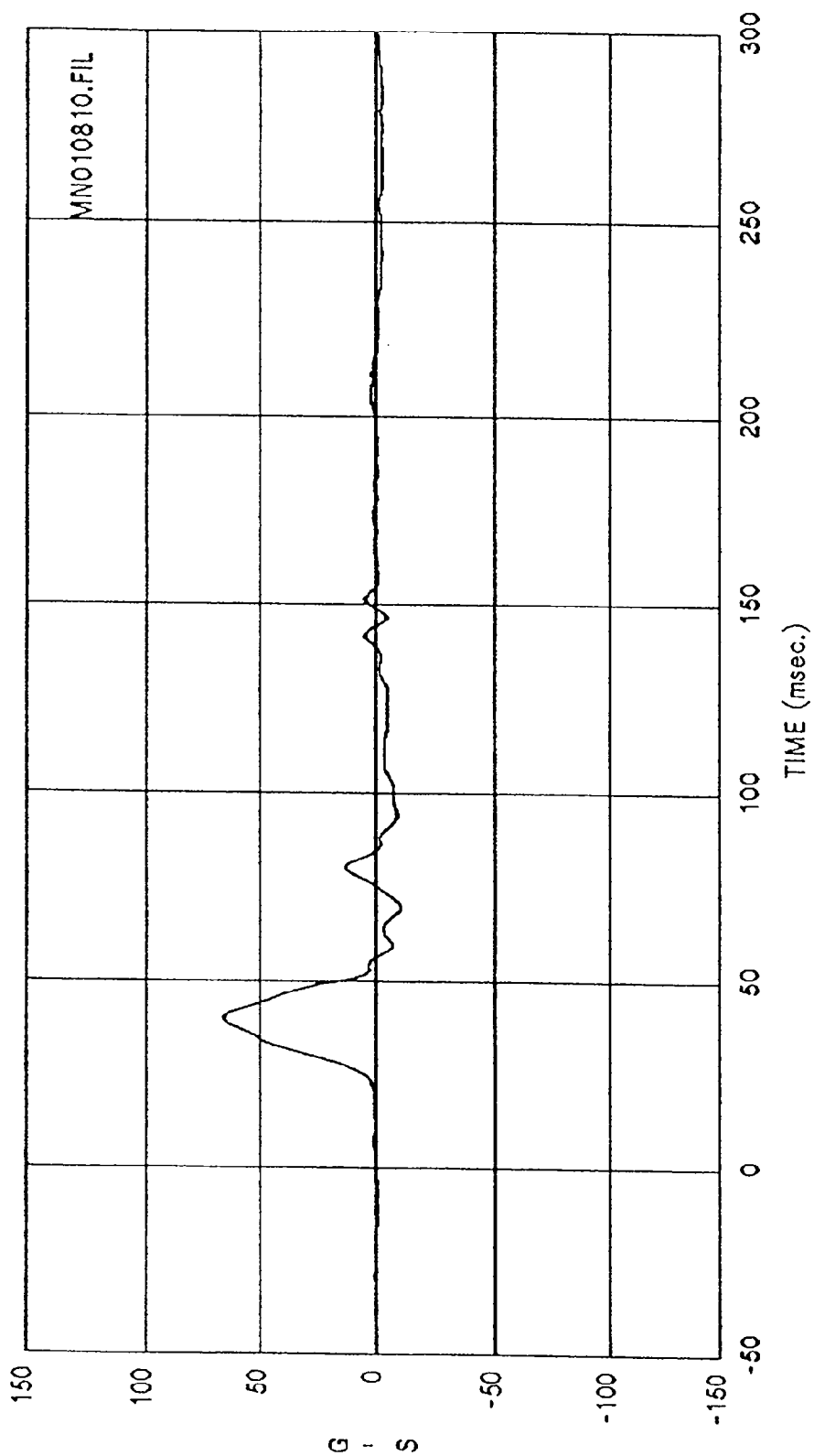
Curve: Driver lower rib acceleration -- Redundant Filter: FIR 100 Max = 60.753 Min = -17.035

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



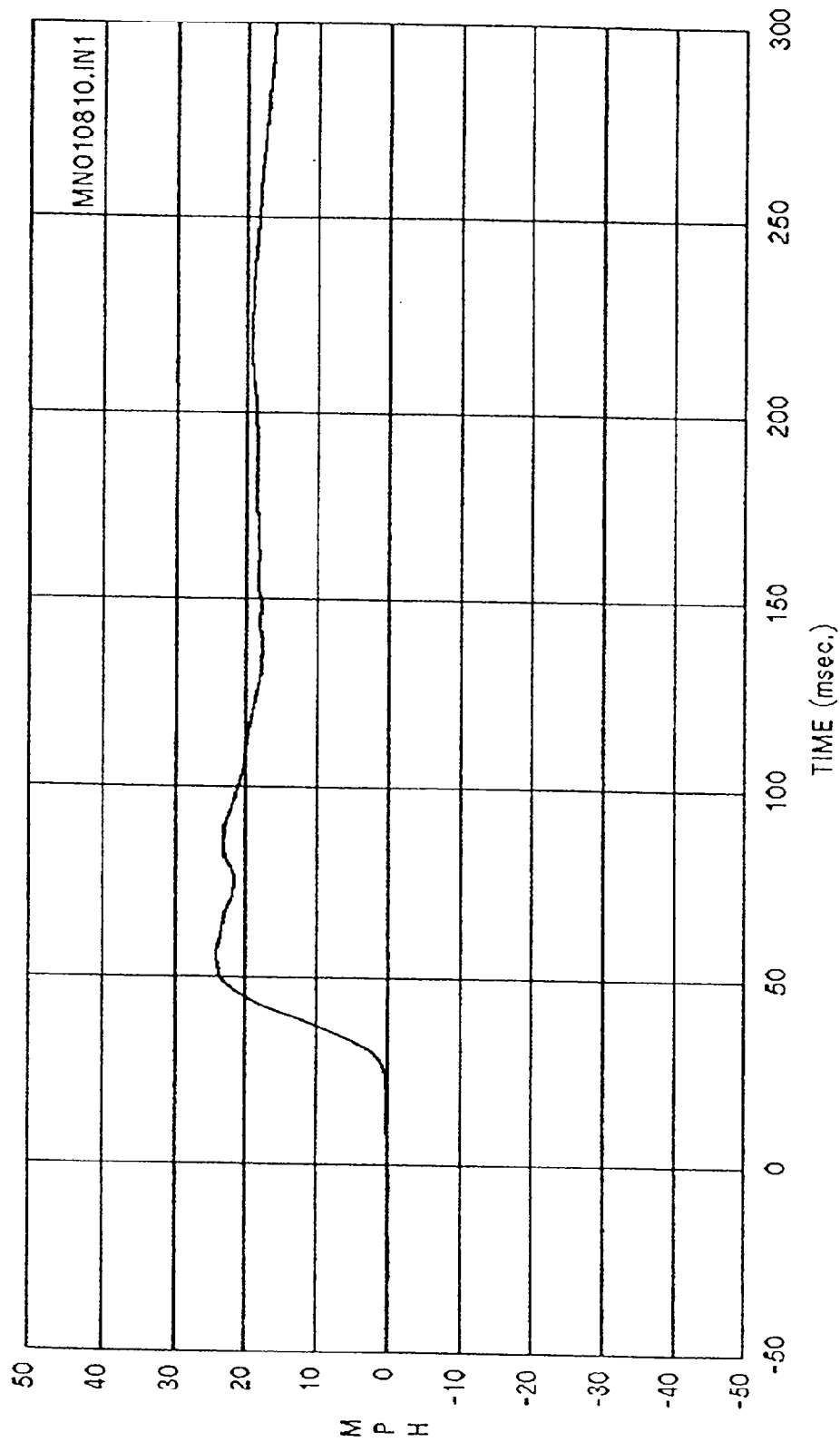
Curve: Driver lower rib delta V -- Redundant Filter: FIR 100 Max = 21.875 Min = -.59232E-0

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



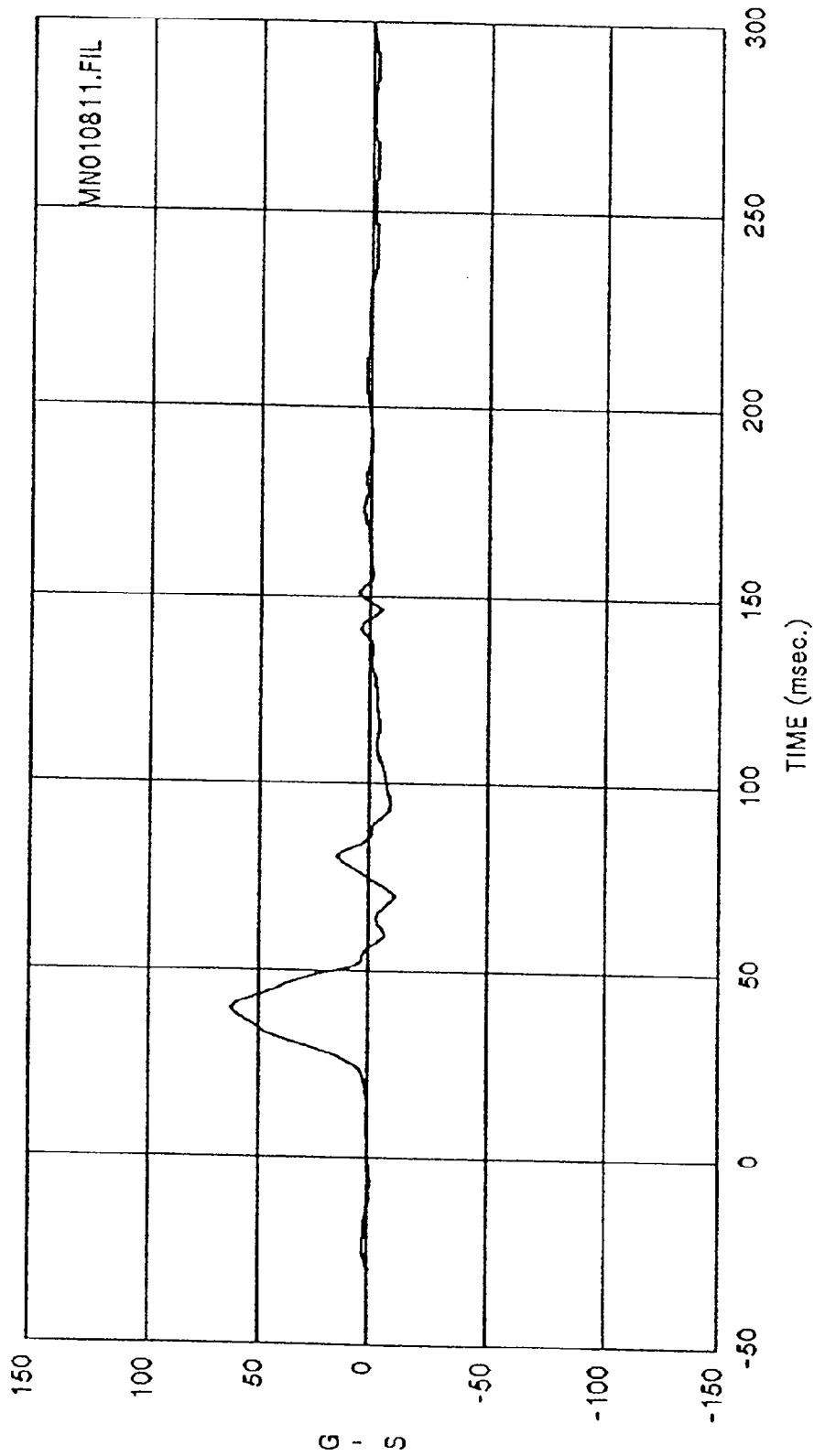
Curve: Driver lower spine acceleration -- Primary Filter: FIR 100 Max = 66.674 Min = -11.669

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



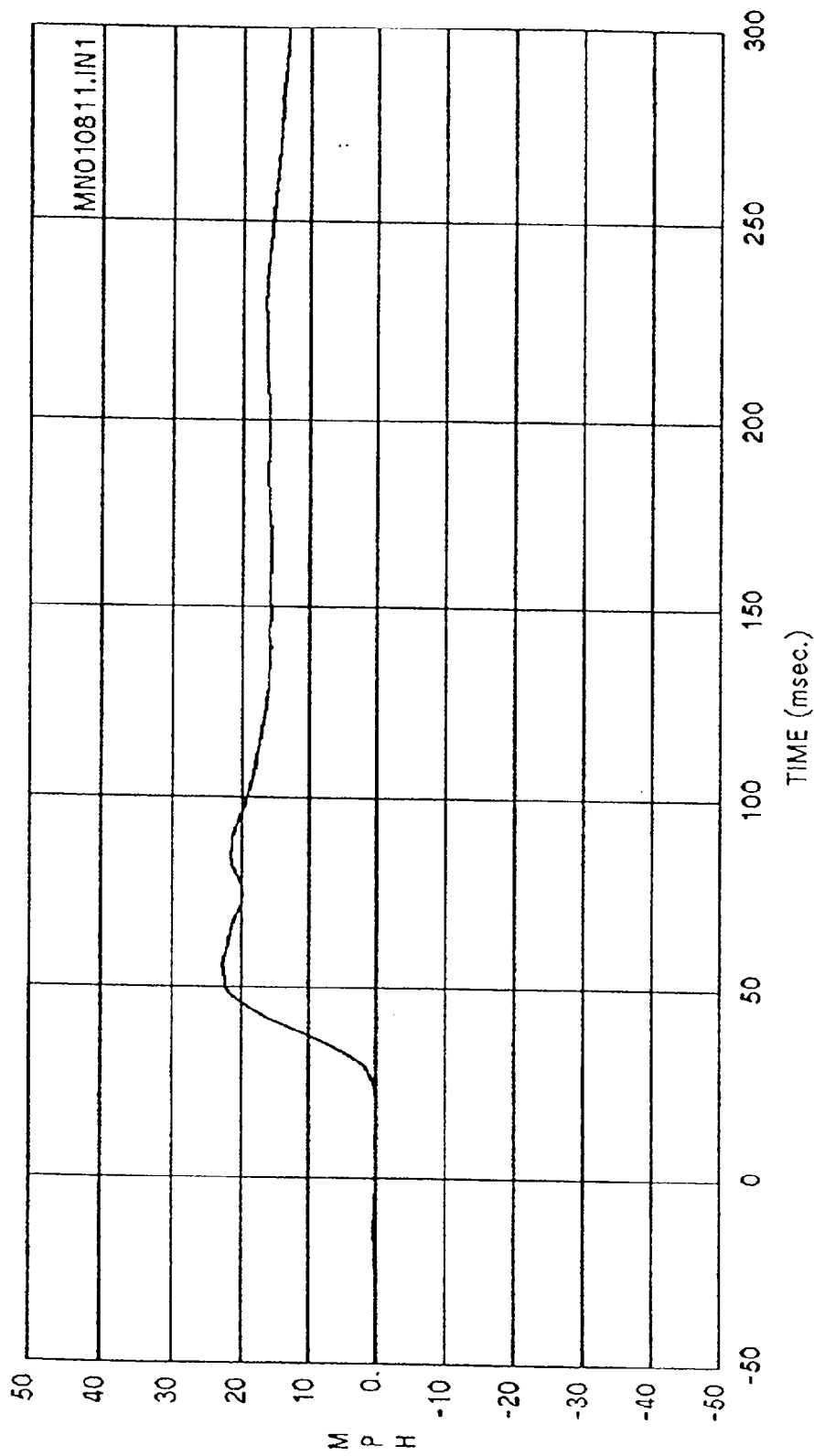
Curve: Driver lower spine delta V -- Primary Filter: FIR 100 Max = 24.258 Min = .17466

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

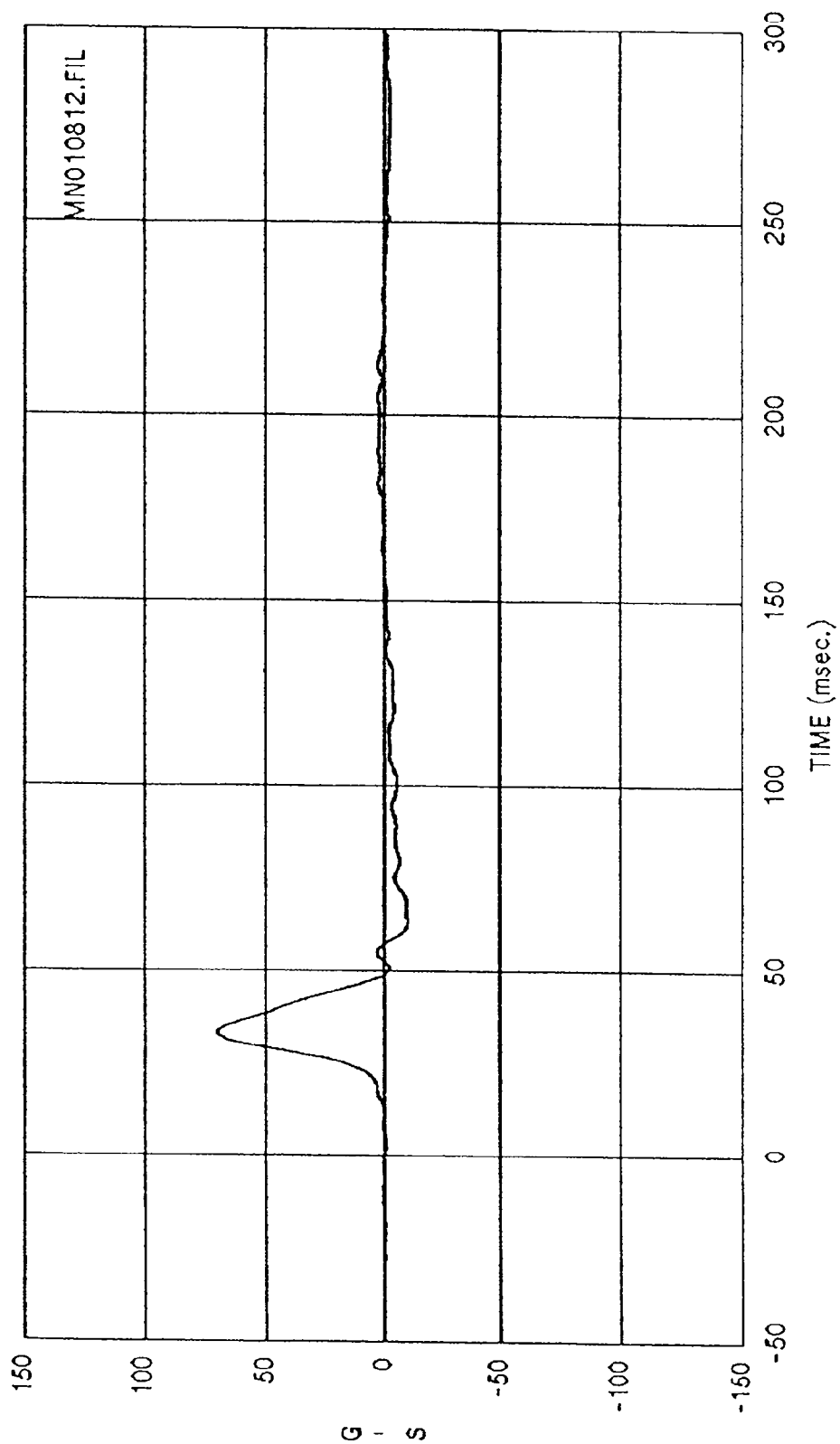


Curve: Driver lower spine acceleration -- Redundant Filter: FIR 100 Max = 63.422 Min = -11.834

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

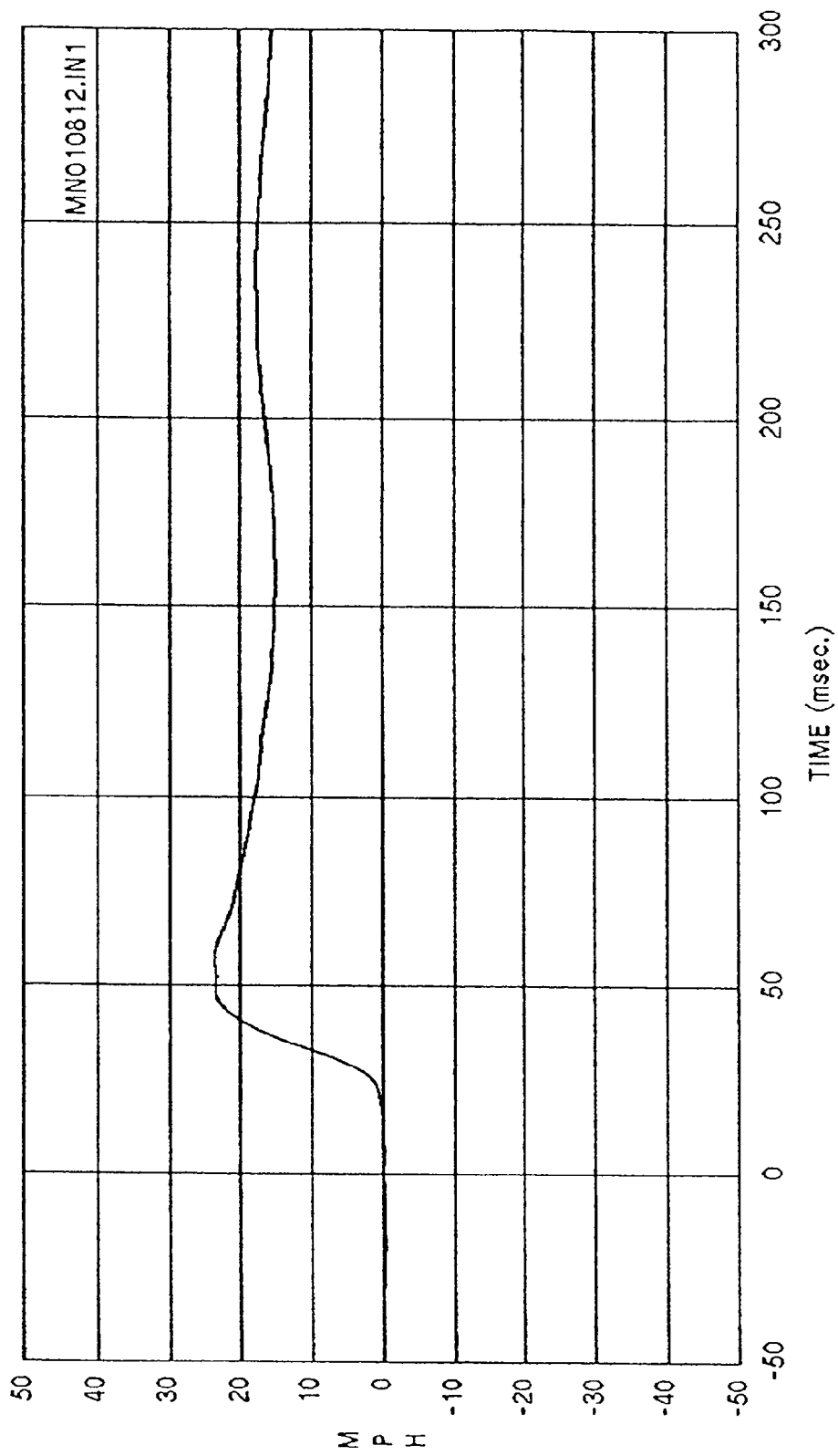


Curve: Driver lower spine delta V -- Redundant Filter: FIR 100 Max = 22.651 Min = -.68282E-06
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



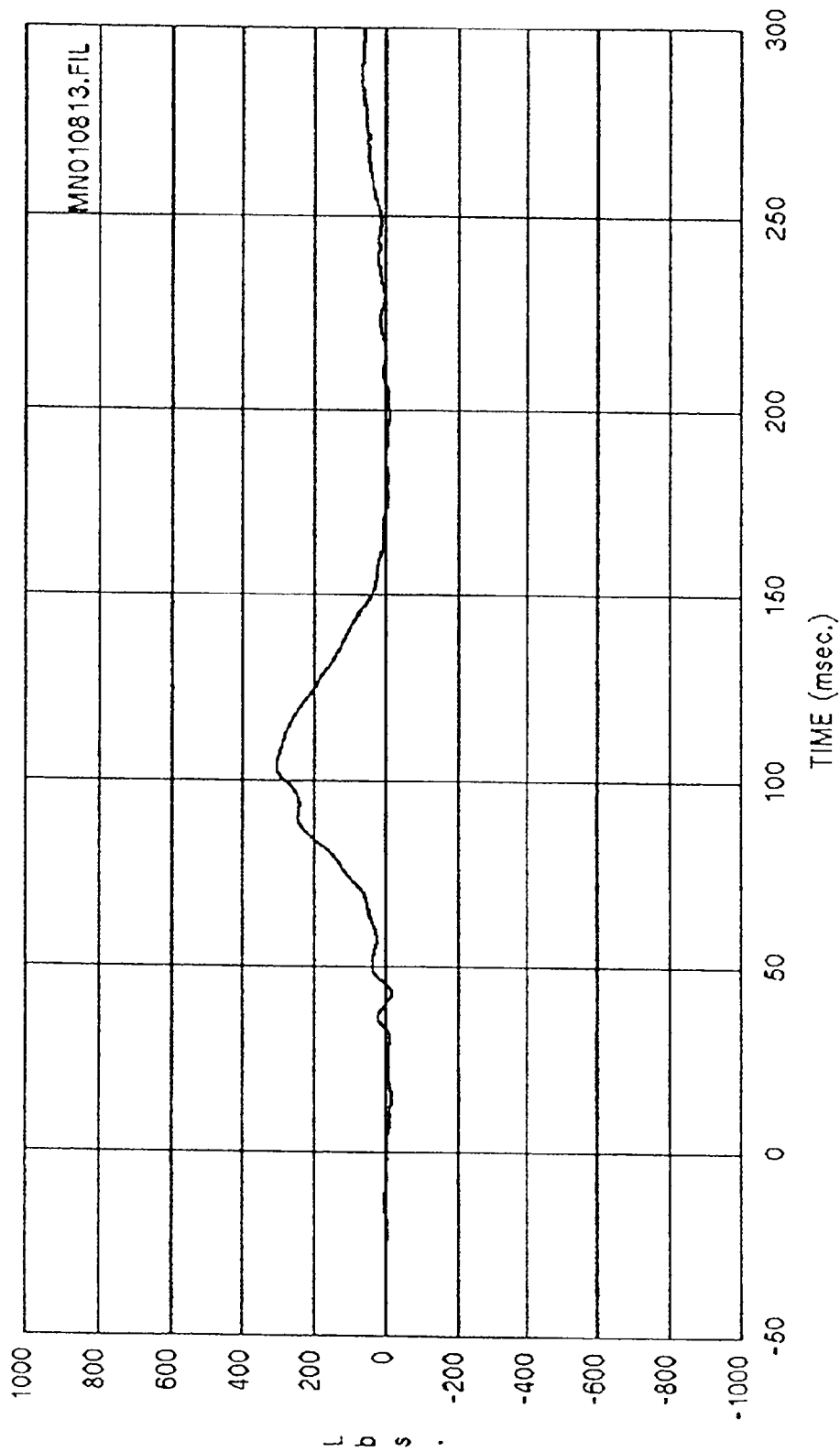
Curve: Driver pelvis acceleration Filter: FIR 100 Max = 70.500 Min = -9.9423

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



Curve: Driver pelvis delta V Filter: FIR 100 Max = 23.668 Min = -.58704E-01

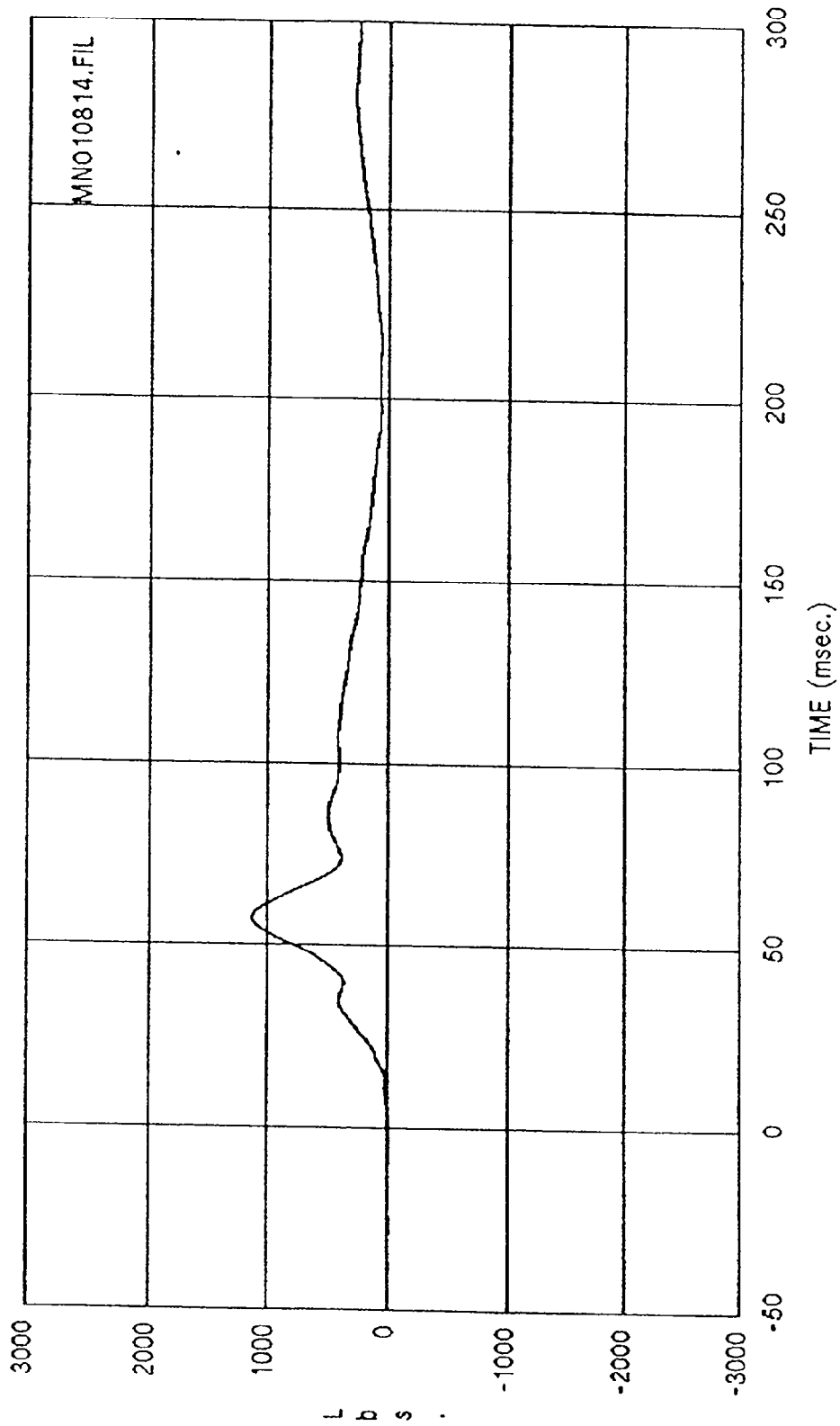
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



Curve: Driver lap belt load

Filter: SAE CLASS 60 Max = 309.50 Min = -14.983

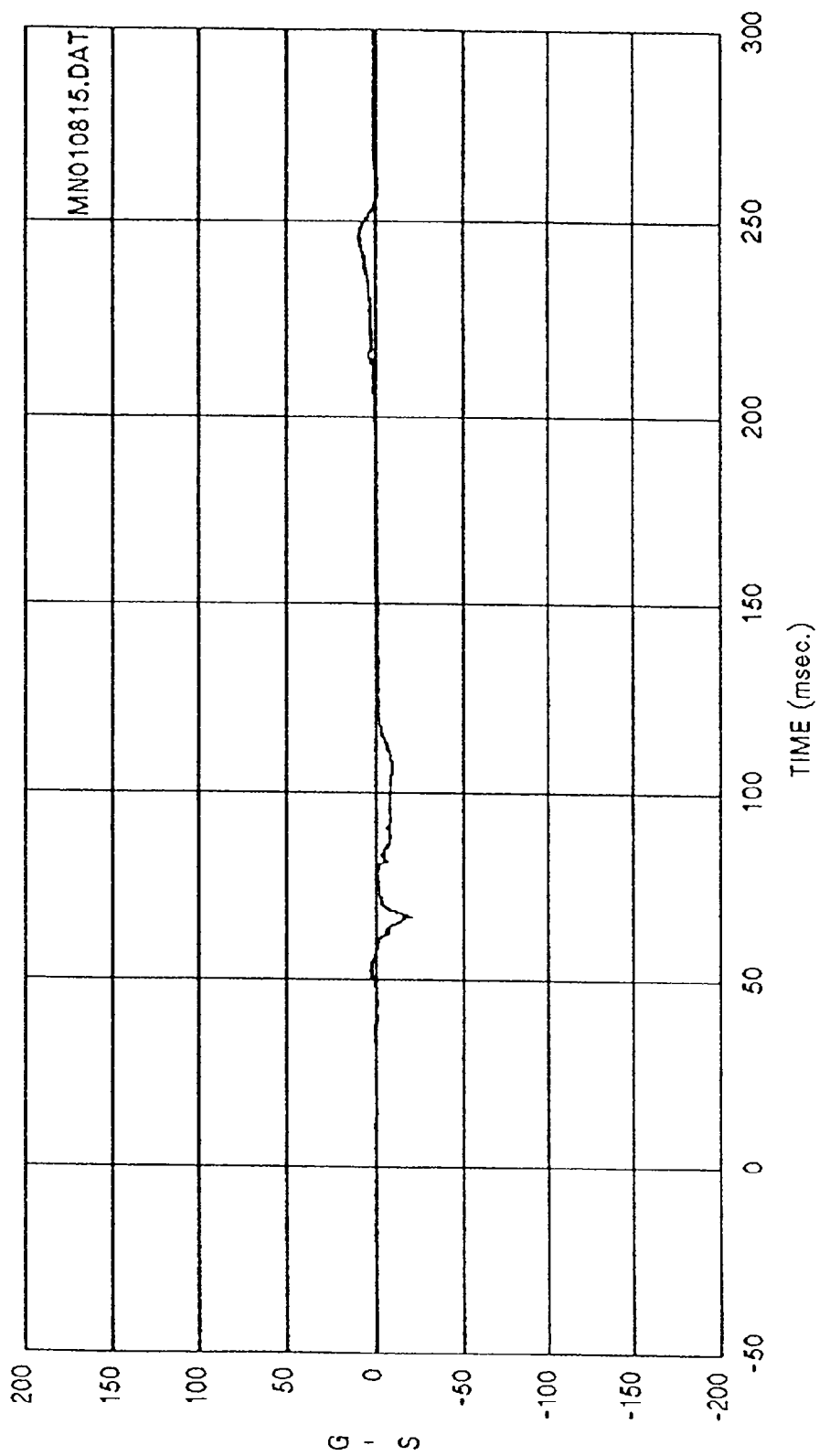
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



Curve: Driver shoulder belt load

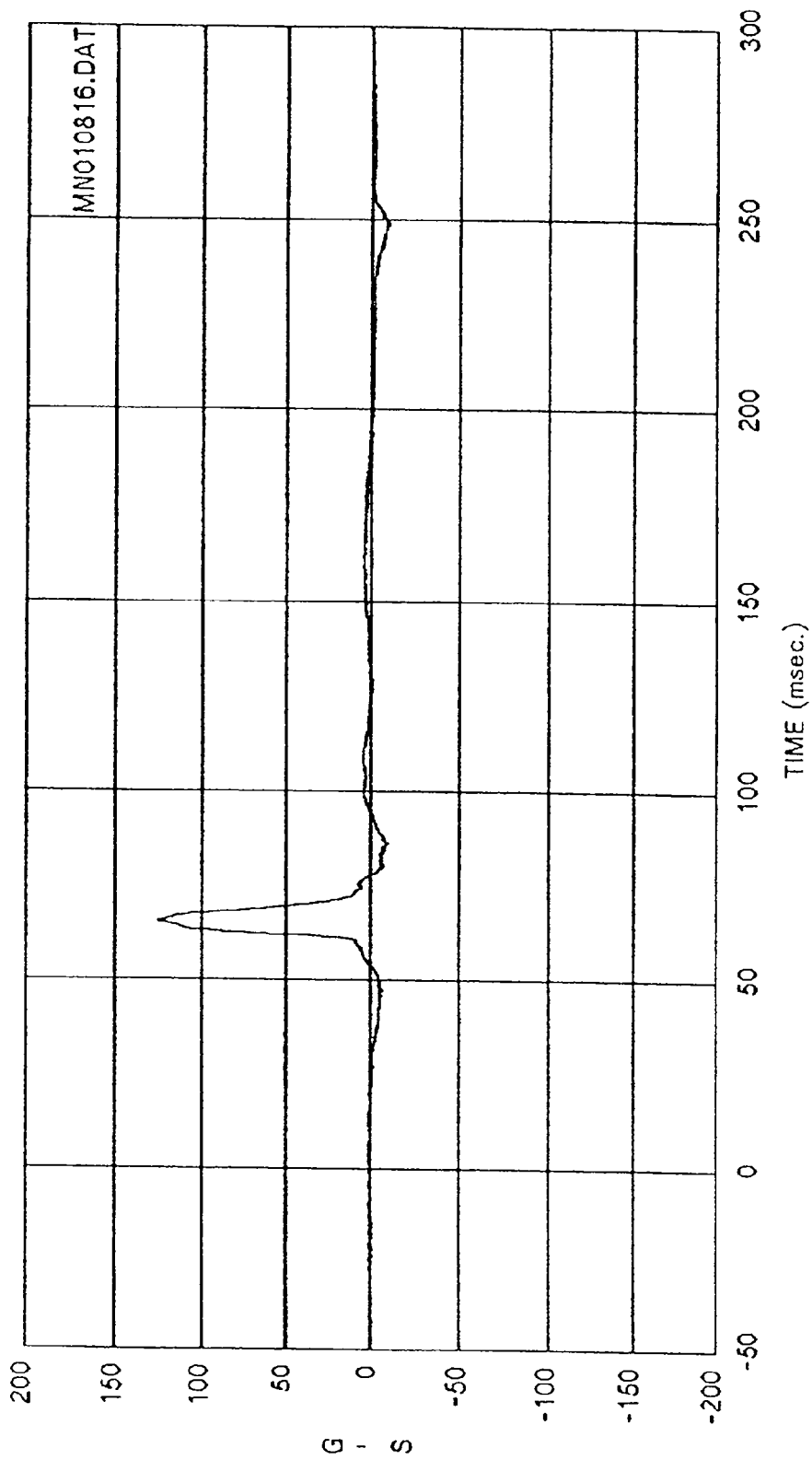
Filter: SAE CLASS 60 Max = 1125.5 Min = 21.284

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



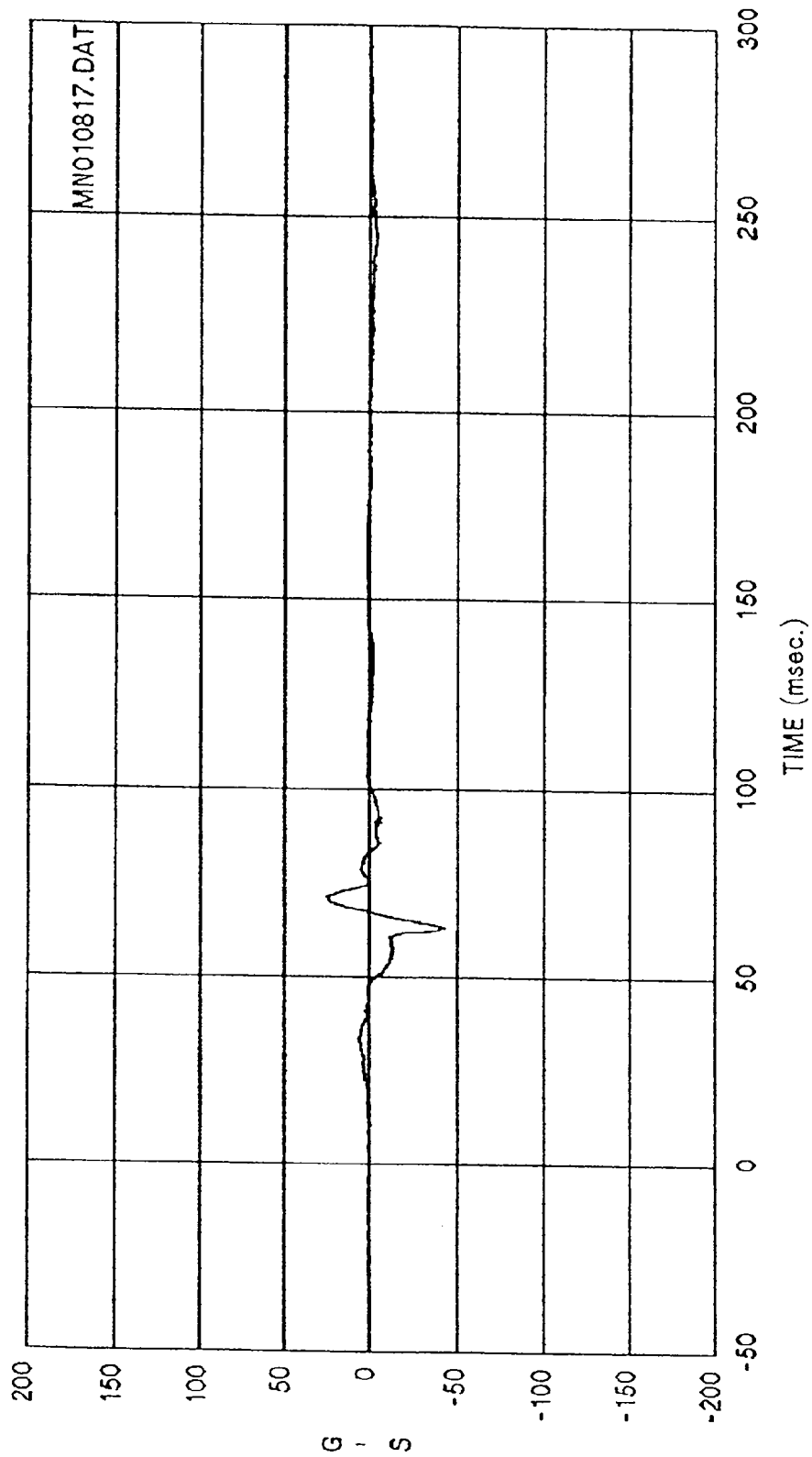
Curve: Passenger Head acceleration -- X axis Filter: SAE CLASS 1000 Max = 9.2784 Min = -19.460

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



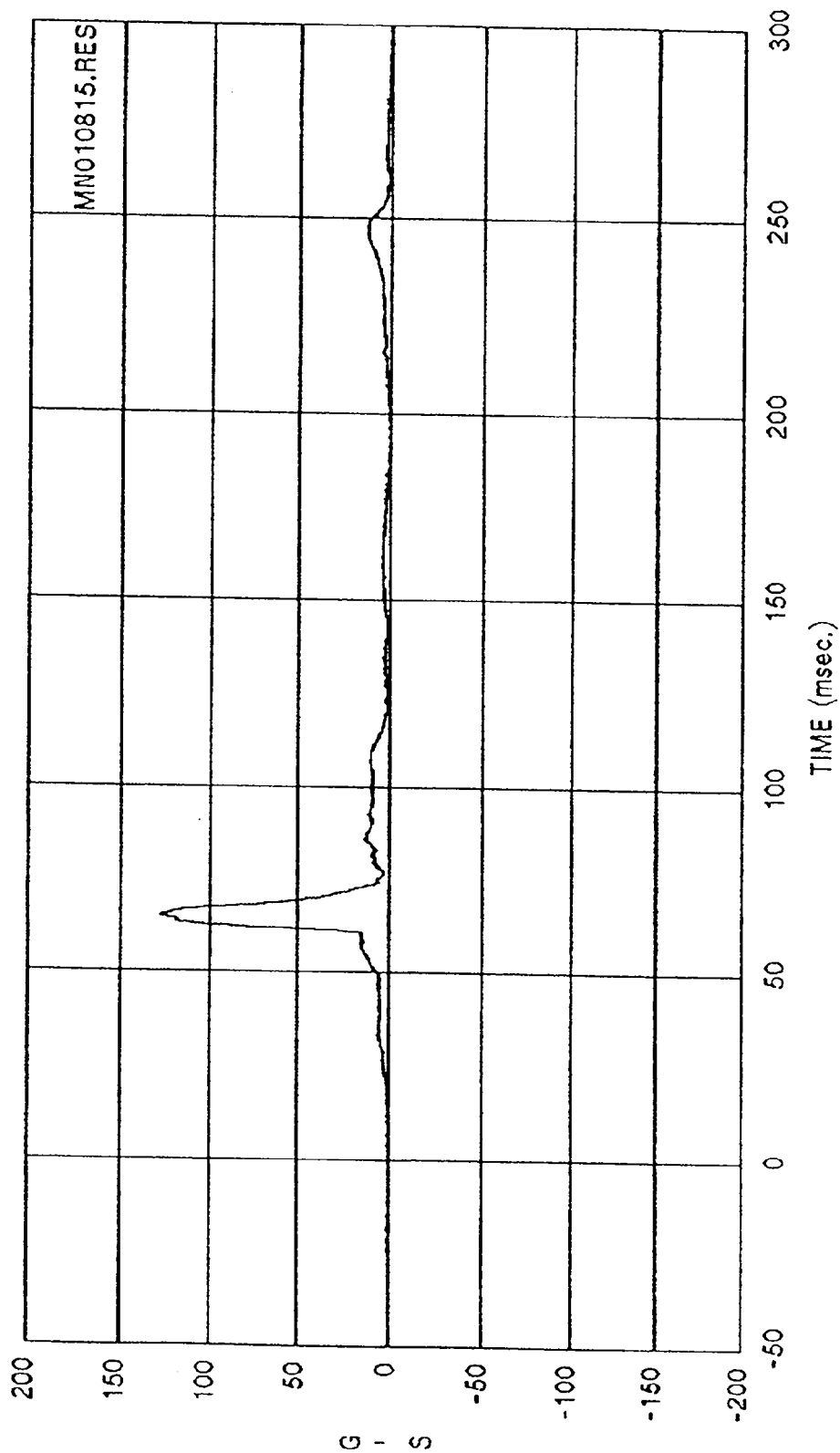
Curve: Passenger Head acceleration -- Y axis Filter: SAE CLASS 1000 Max = 125.52 Min = -9.635

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



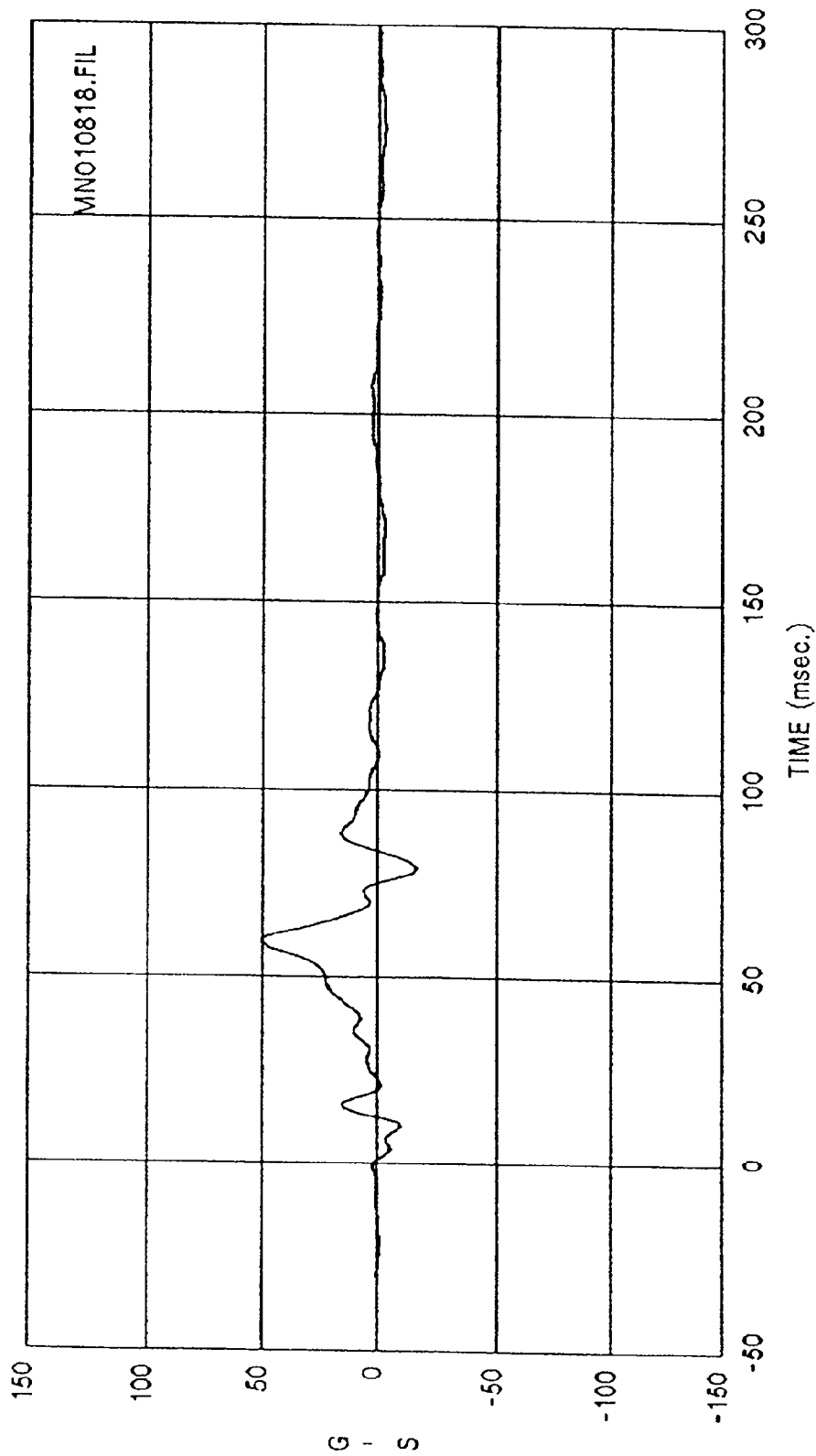
Curve: Passenger Head acceleration -- Z axis Filter: SAE CLASS 1000 Max = 24.521 Min = -42.45'

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



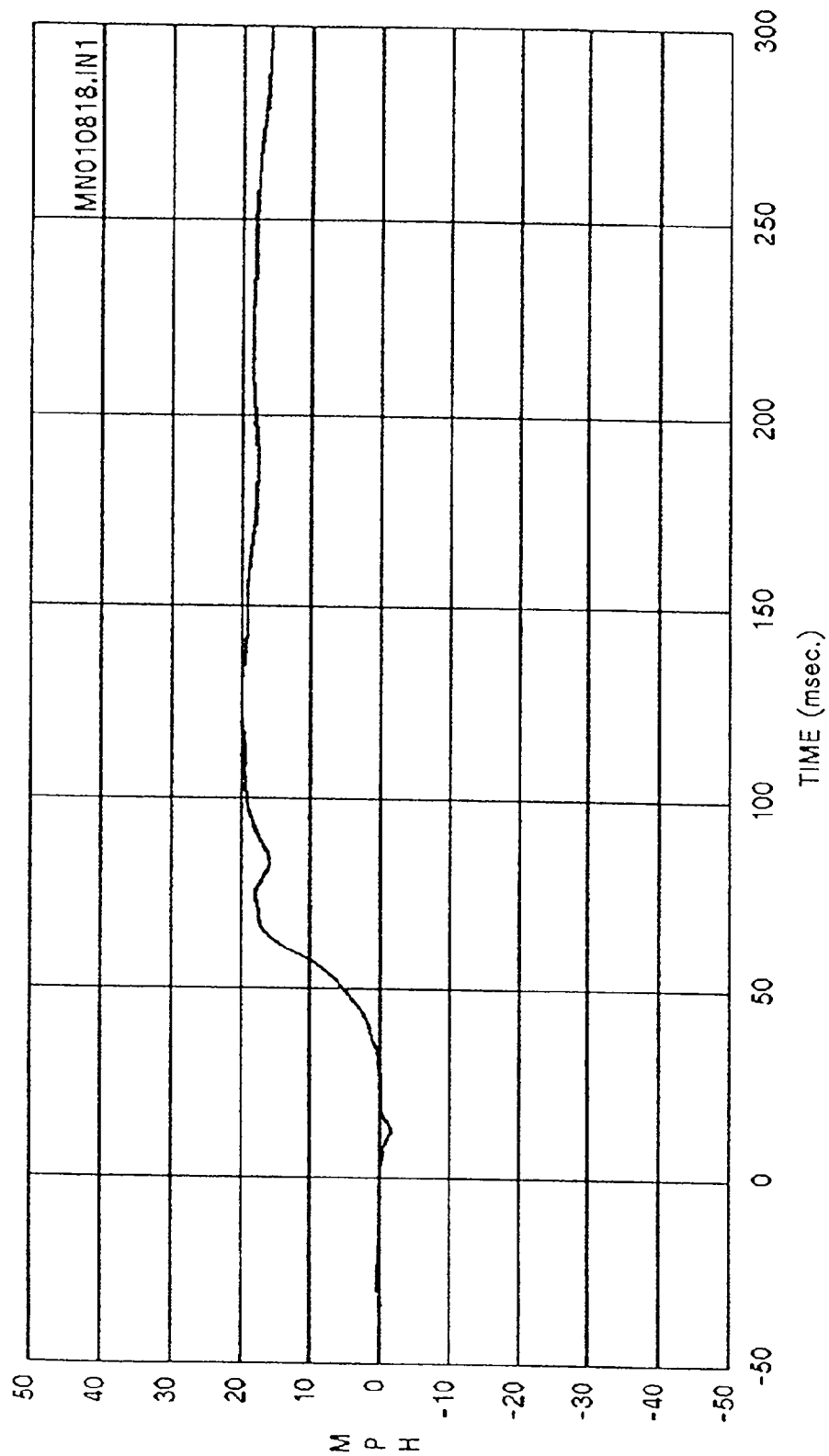
Curve: Passenger head resultant acceleration Filter: SAE CLASS 1000 Max = 128.43 Min = .00000

MSE Date: 07/15/92 Program: Side Impact 30/15 90 Deg. Vehicle: 1992 Chevrolet Lumina



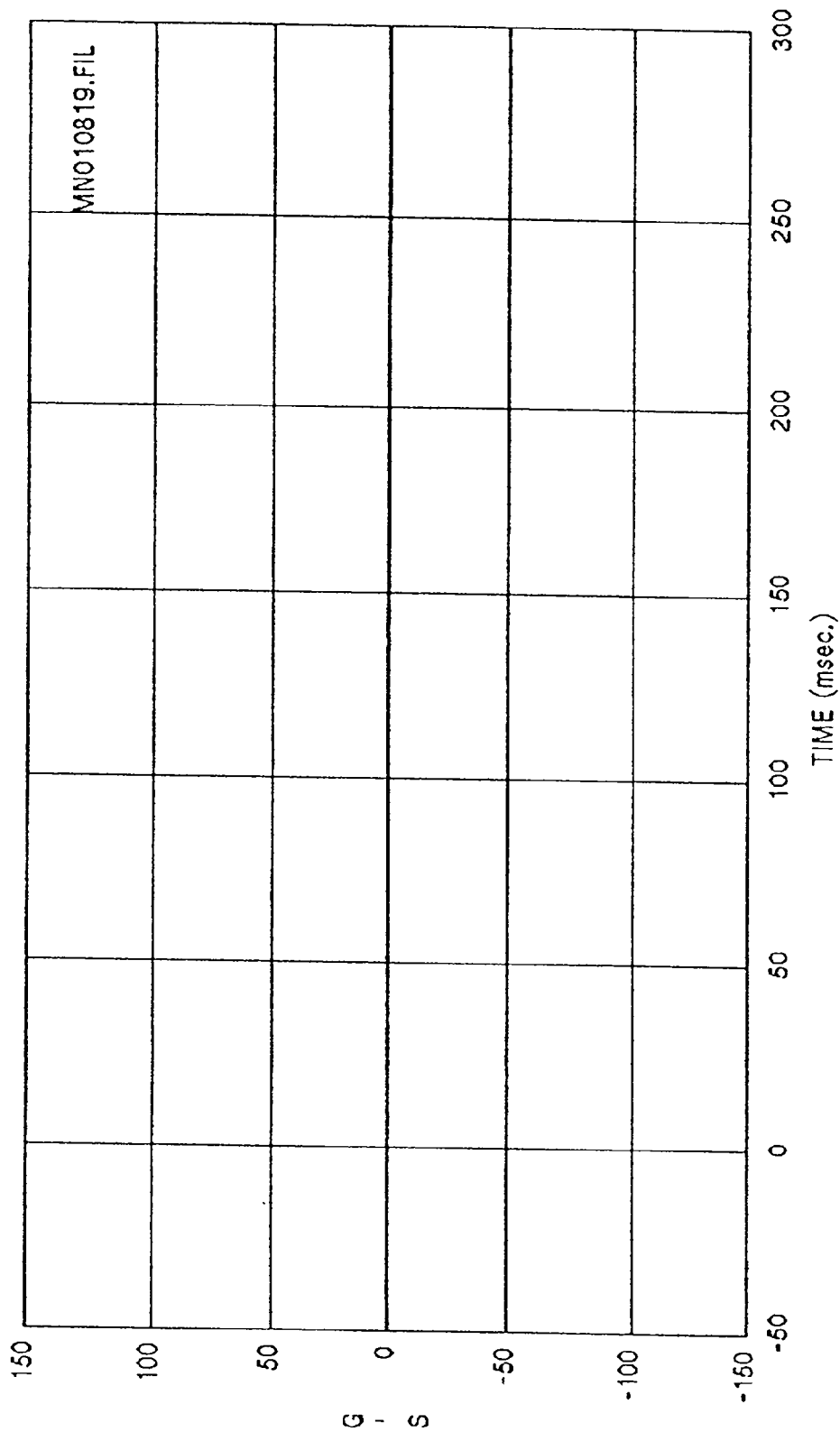
Curve: Passenger upper spine acceleration -- Primary Filter: FIR 100 Max = 50.723 Min = -16.785

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



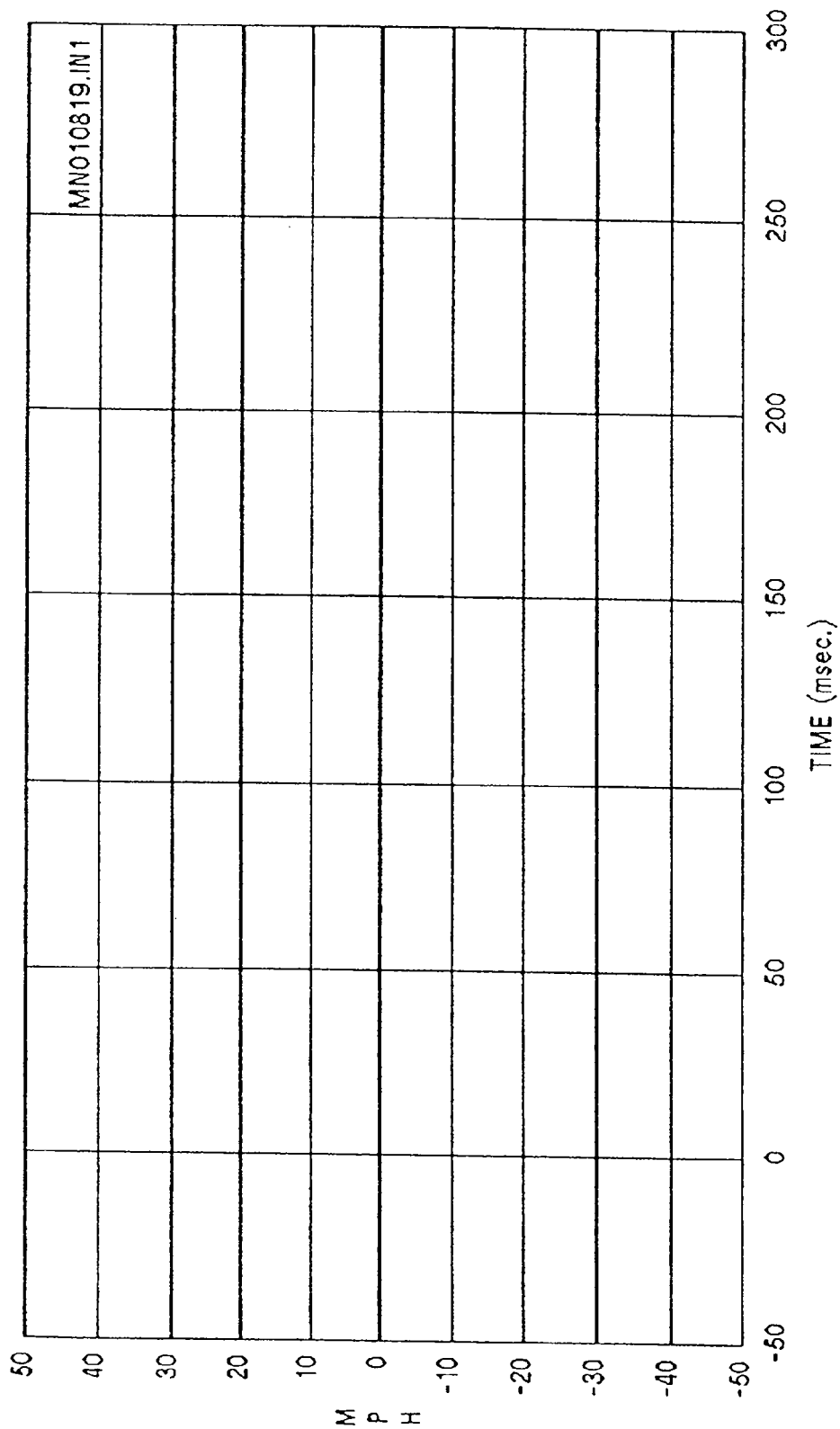
Curve: Passenger upper splne delta V -- Primary Filter: FIR 100 Max = 20.065 Min = -1.5685

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



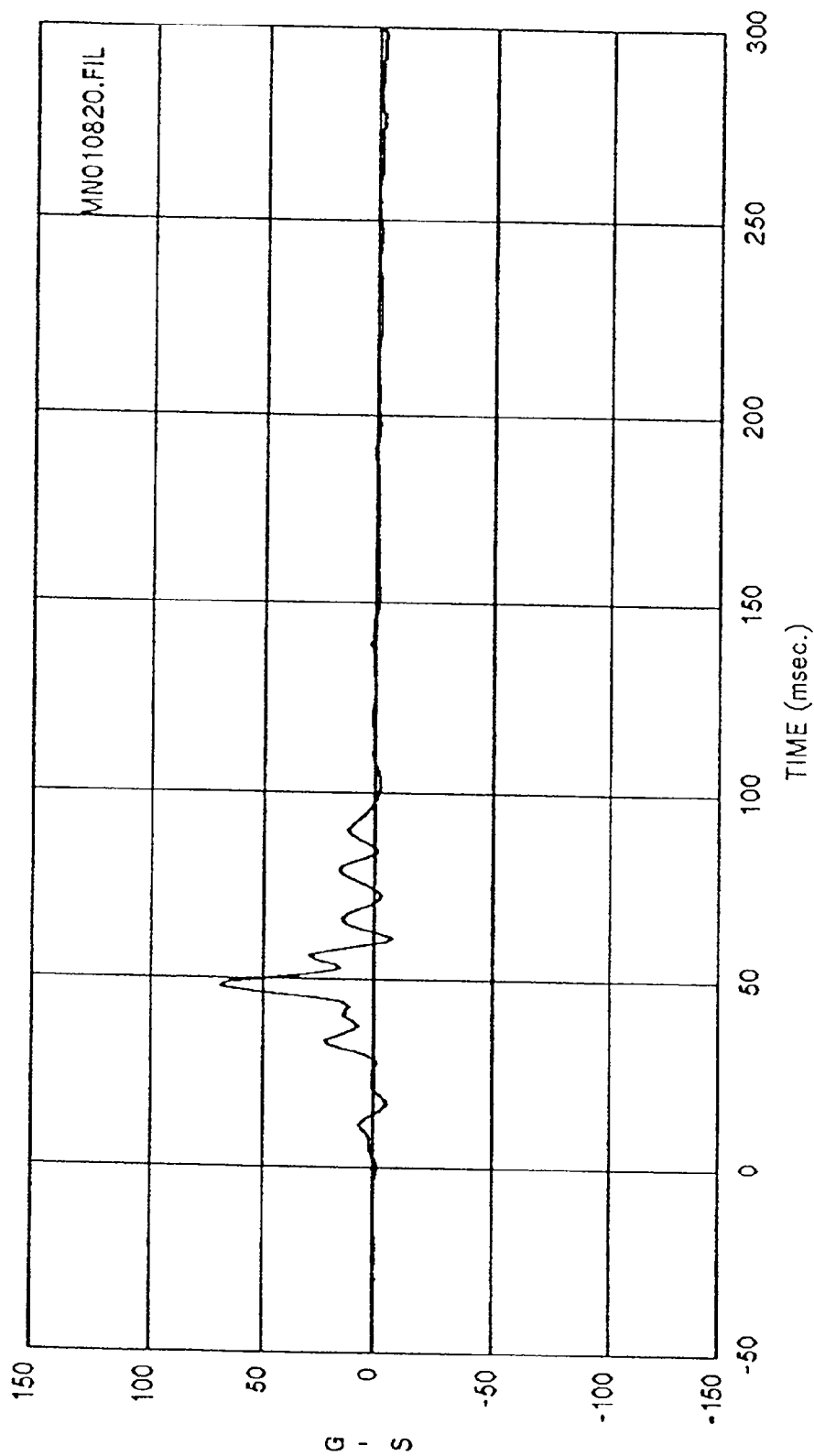
Curve: Passenger upper spine acceleration -- Redundant Filter: FIR 100 Max = .00000 Min = .00000

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



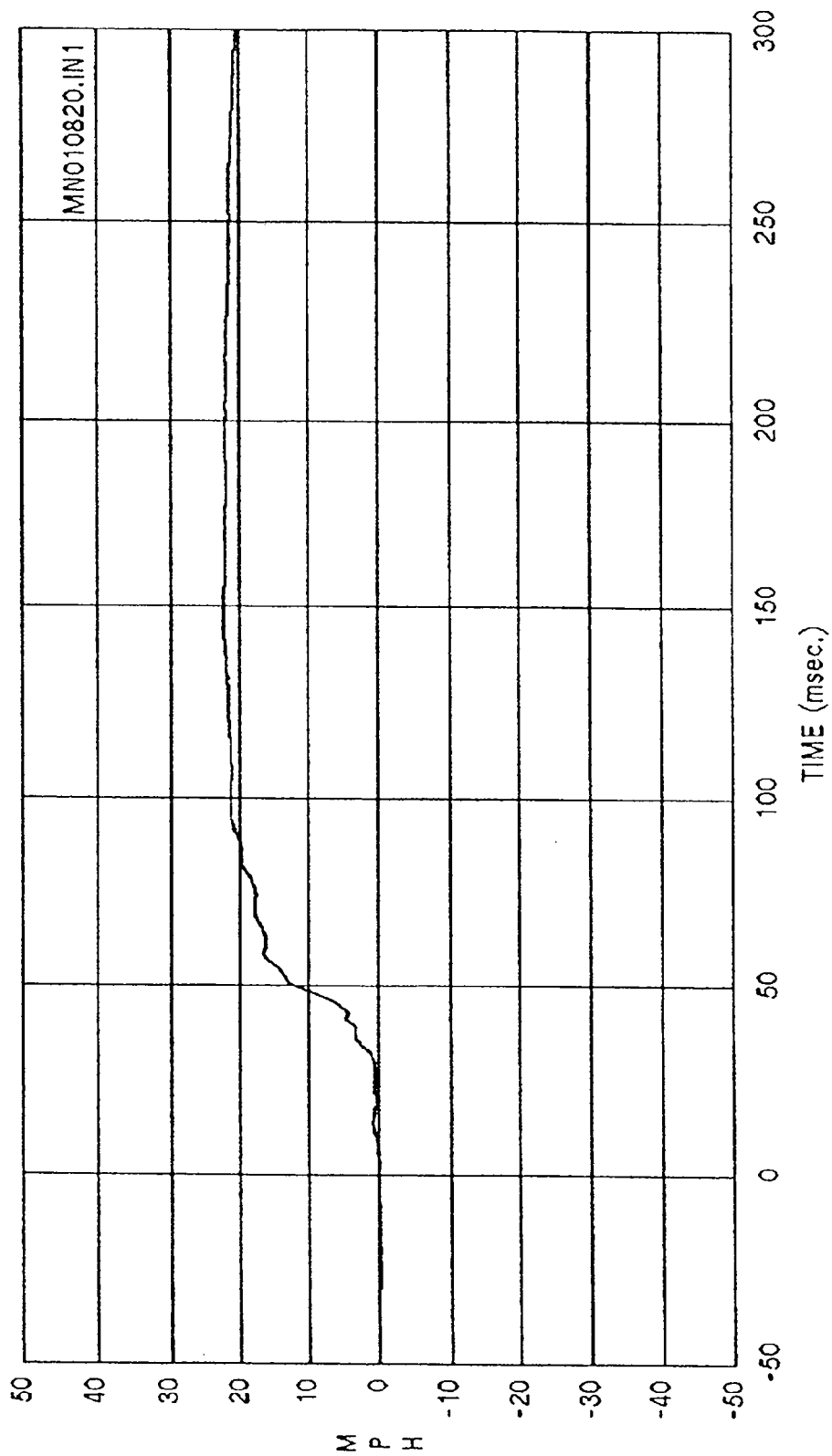
Curve: Passenger upper splne delta V -- Redundant Filter: FIR 100 Max = .00000 Min = .00000

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



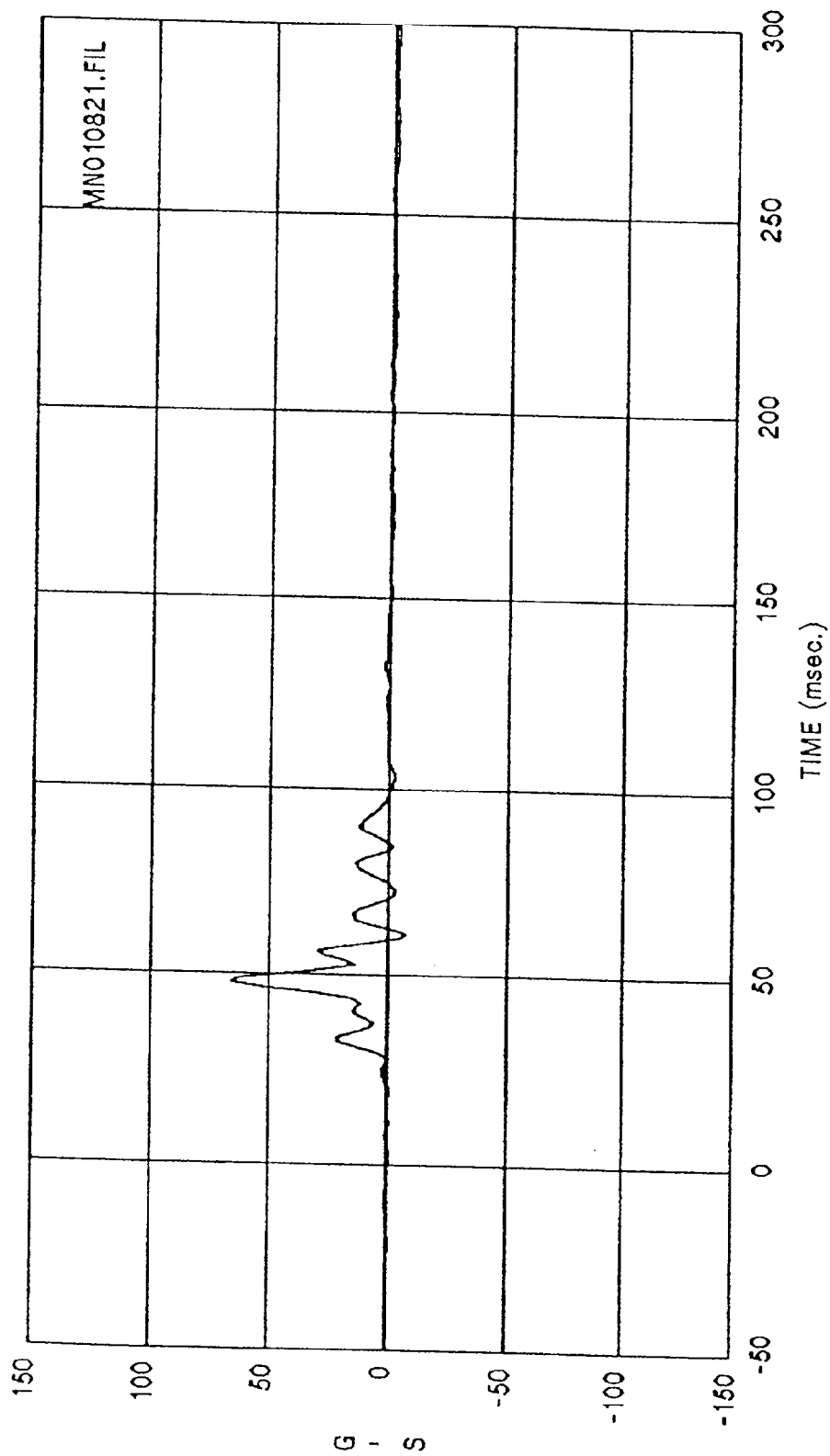
Curve: Passenger upper rib acceleration -- Primary Filter: FIR 100 Max = 70.909 Min = -7.9938

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



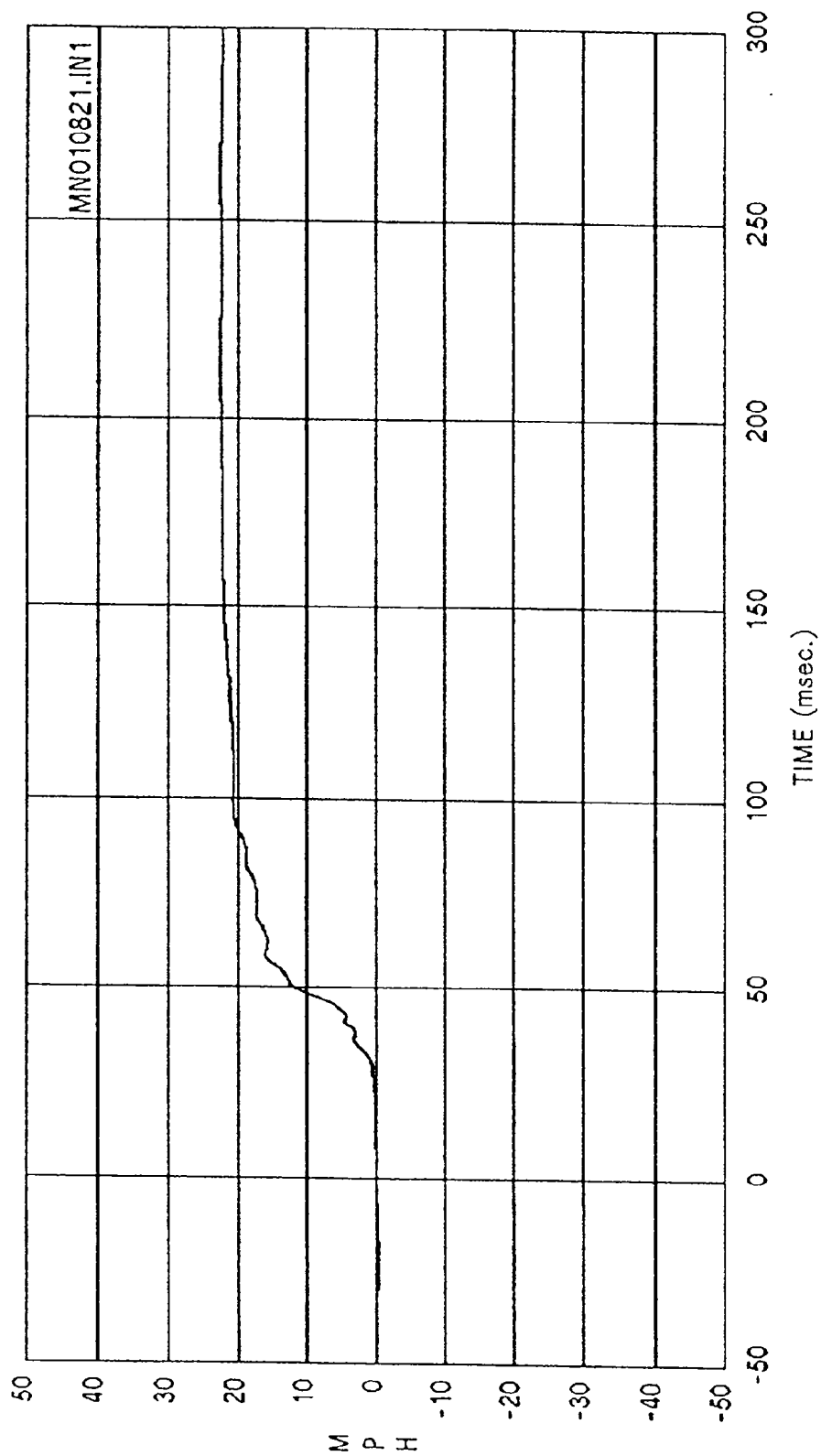
Curve: Passenger upper rib delta V -- Primary Filter: FIR 100 Max = 22.382 Min = -.50501E-0

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



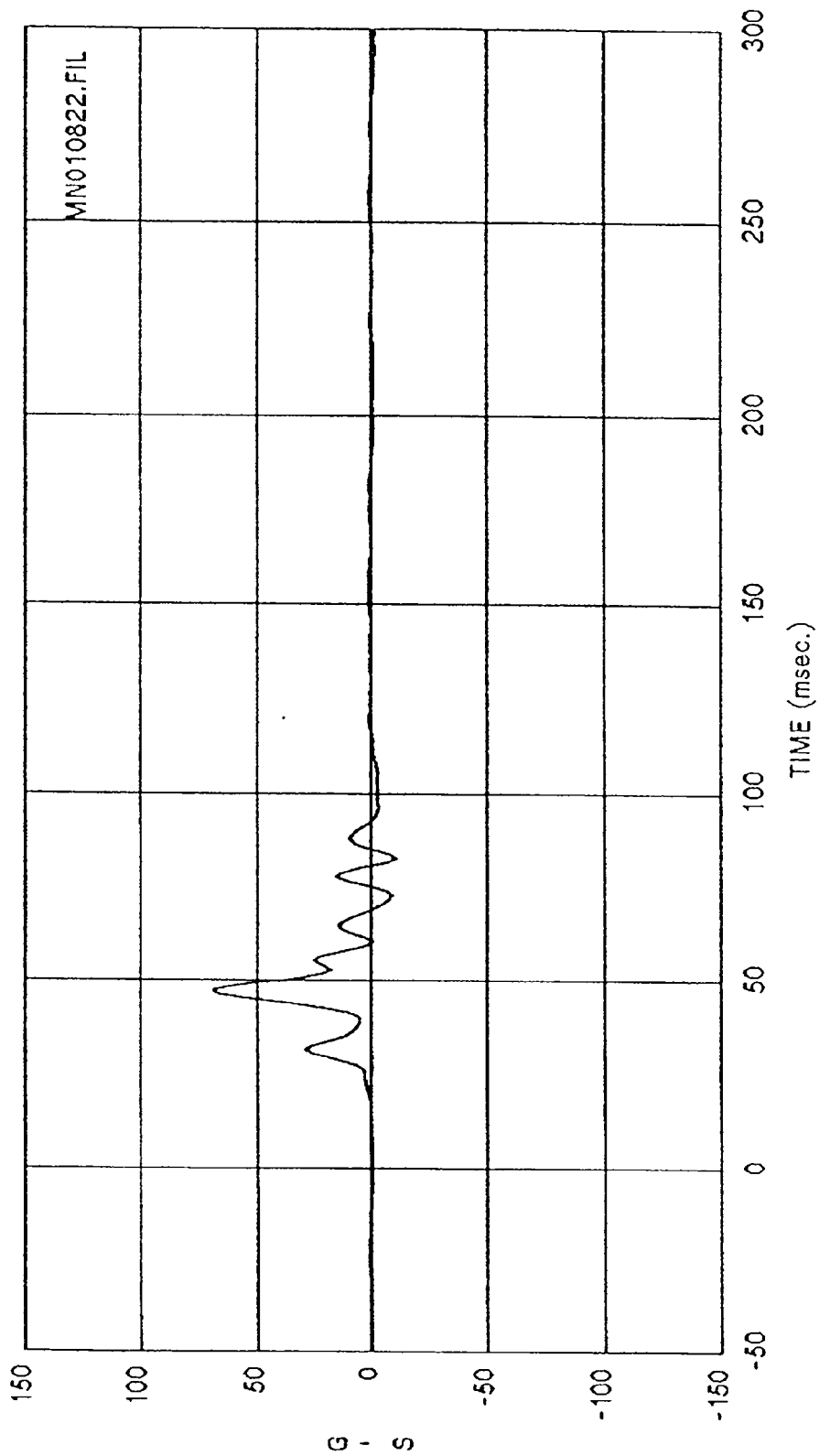
Curve: Passenger upper rib acceleration -- Redundant Filter: FIR 100 Max = 66.655 Min = -8.2477

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



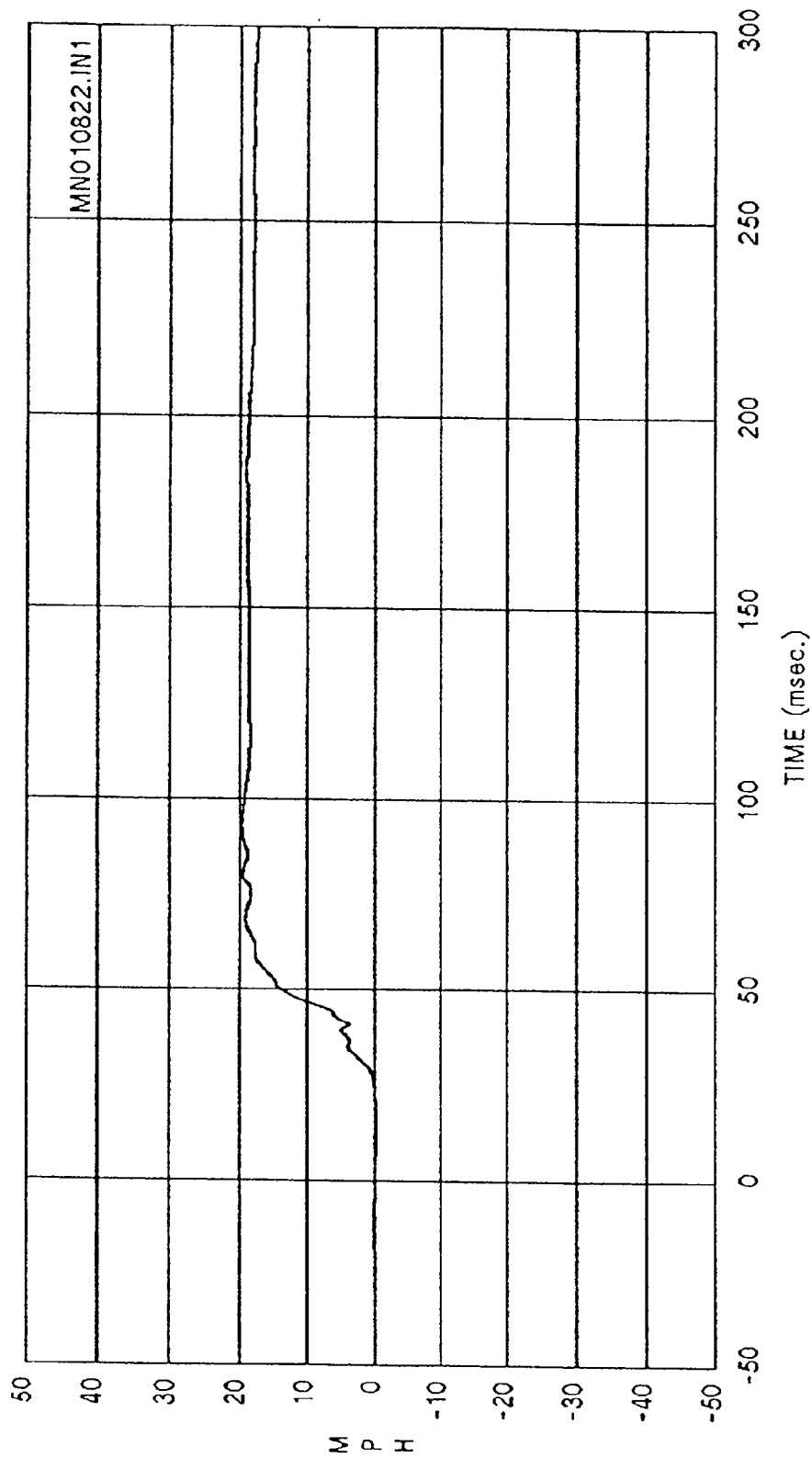
Curve: Passenger upper rib delta V -- Redundant Filter: FIR 100 Max = 22.575 Min = .18172E-C

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



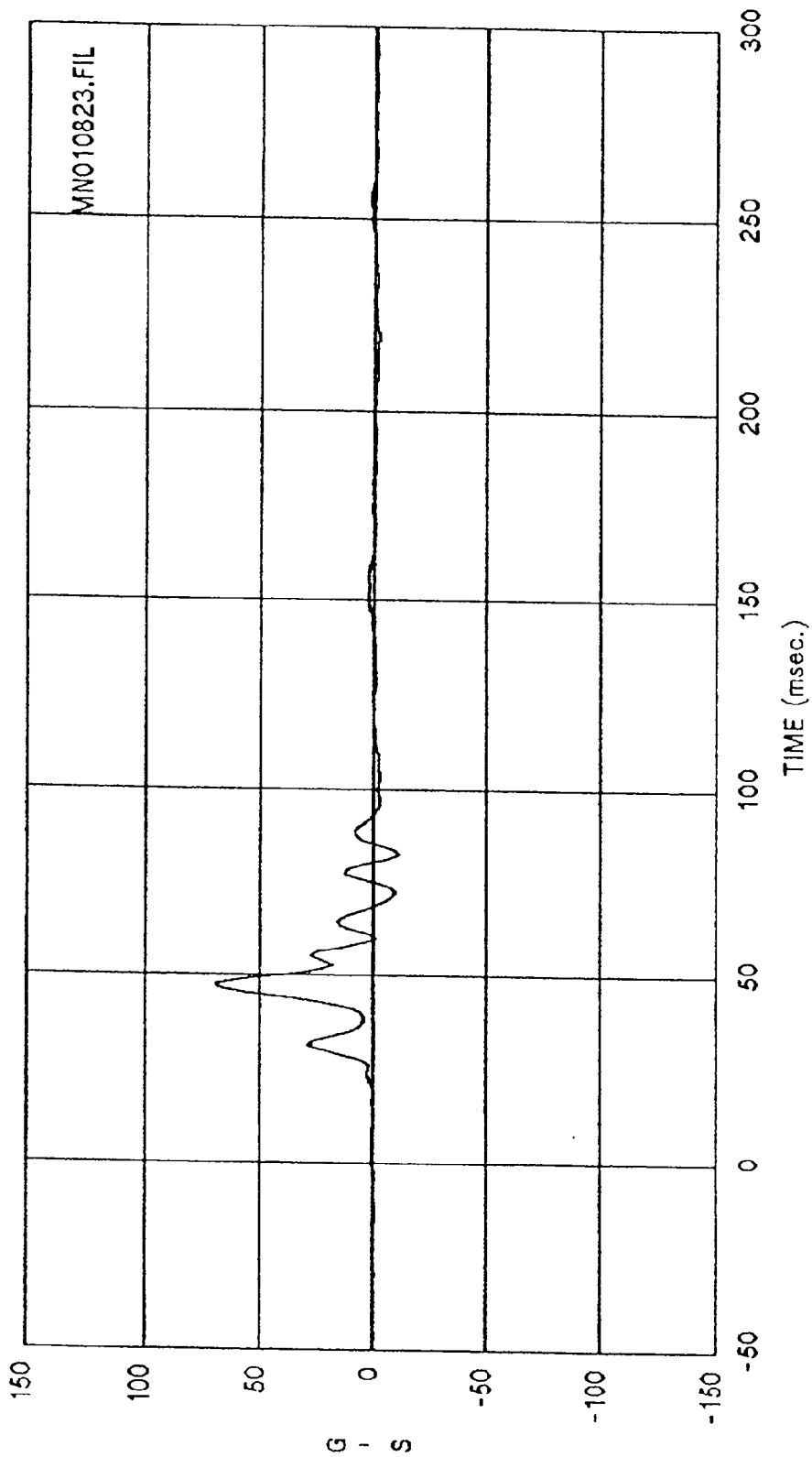
Curve: Passenger lower rib acceleration -- Primary Filter: FIR 100 Max = 70.135 Min = -11.245

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



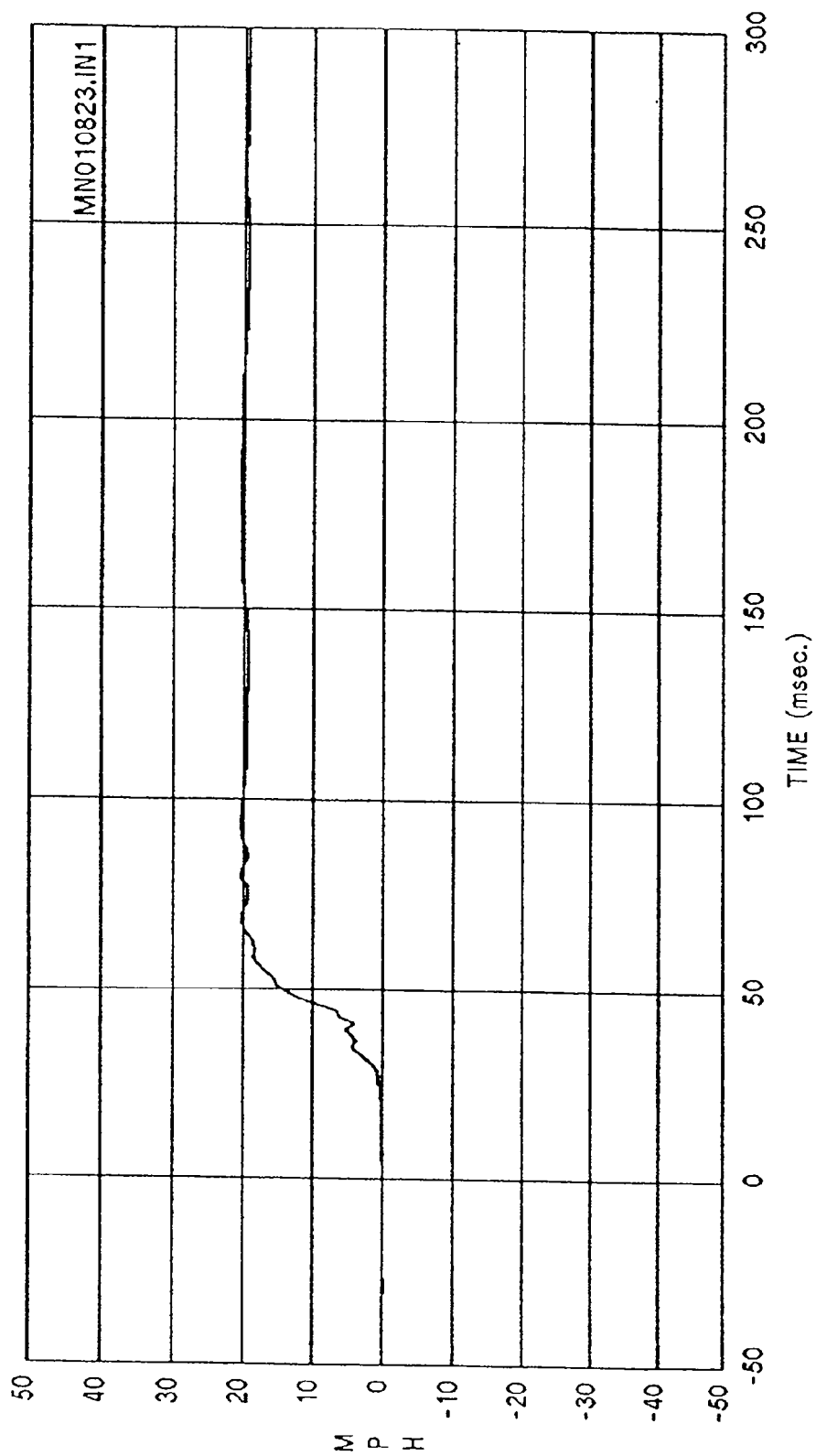
Curve: Passenger lower rib delta V -- Primary Filter: FIR 100 Max = 19.694 Min = -.18714

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



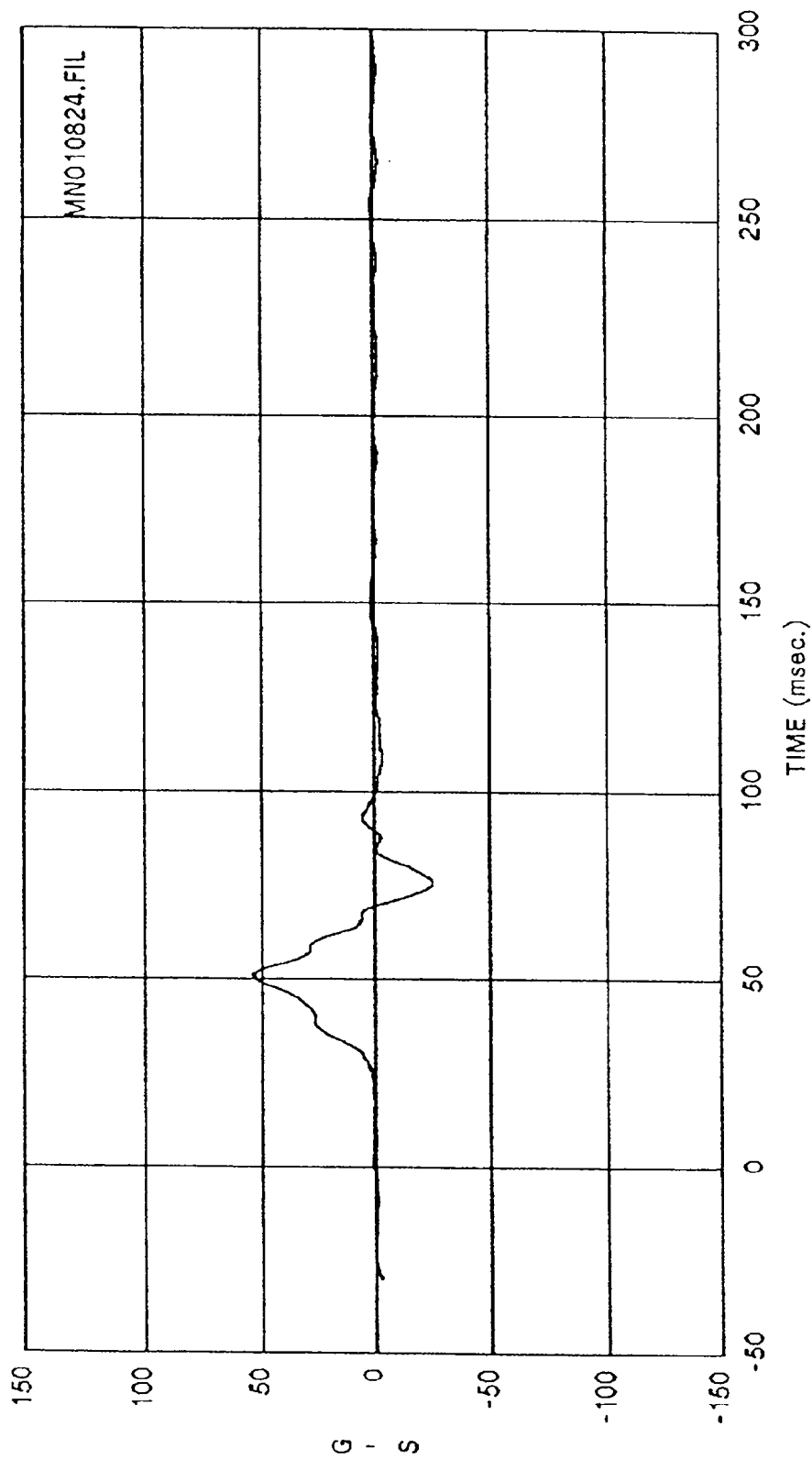
Curve: Passenger lower rib acceleration -- Redundant Filter: FIR 100 Max = 70.613 Min = -12.054

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



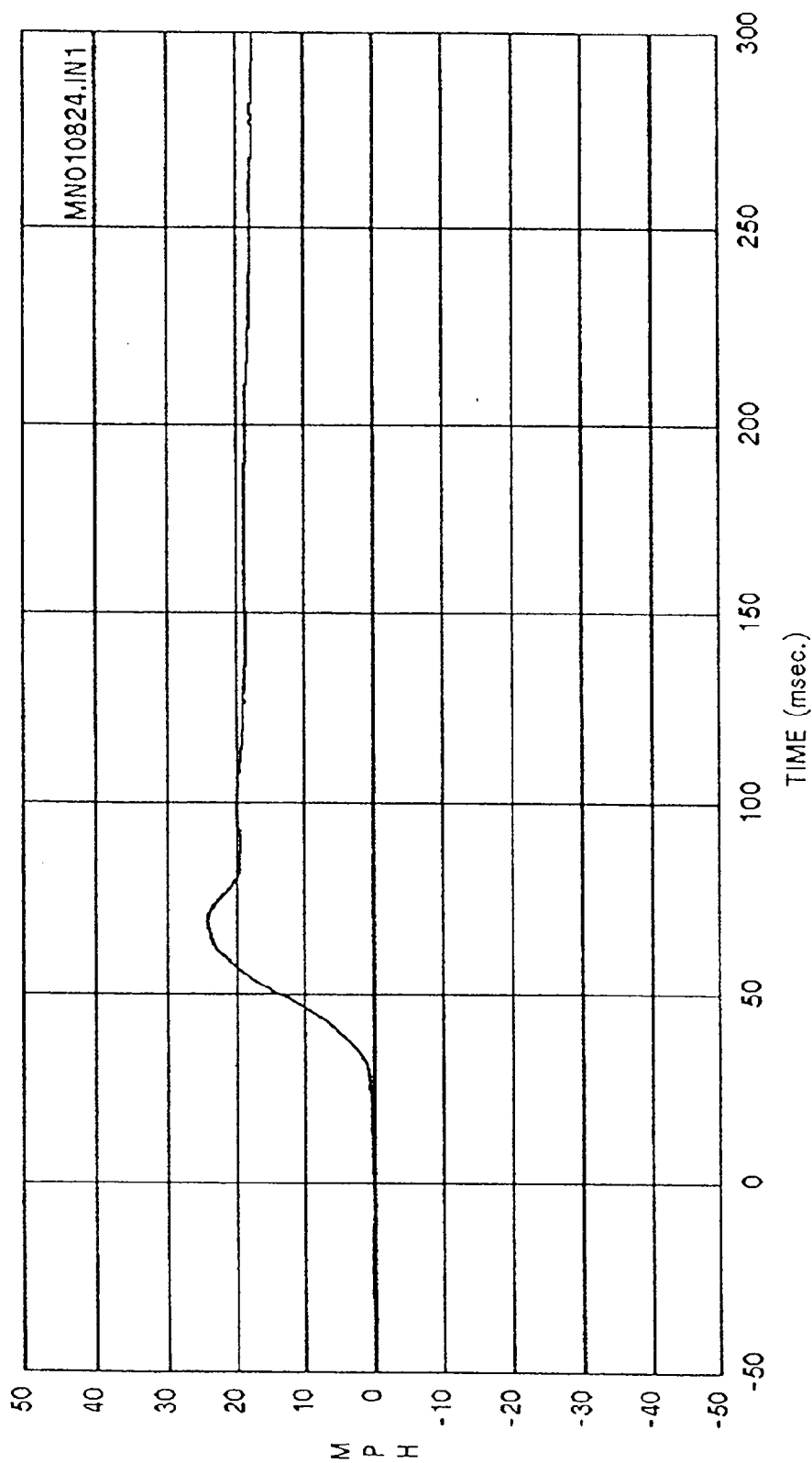
Curve: Passenger lower rib delta V -- Redundant Filter: FIR 100 Max = 20.403 Min = .72321E-0

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



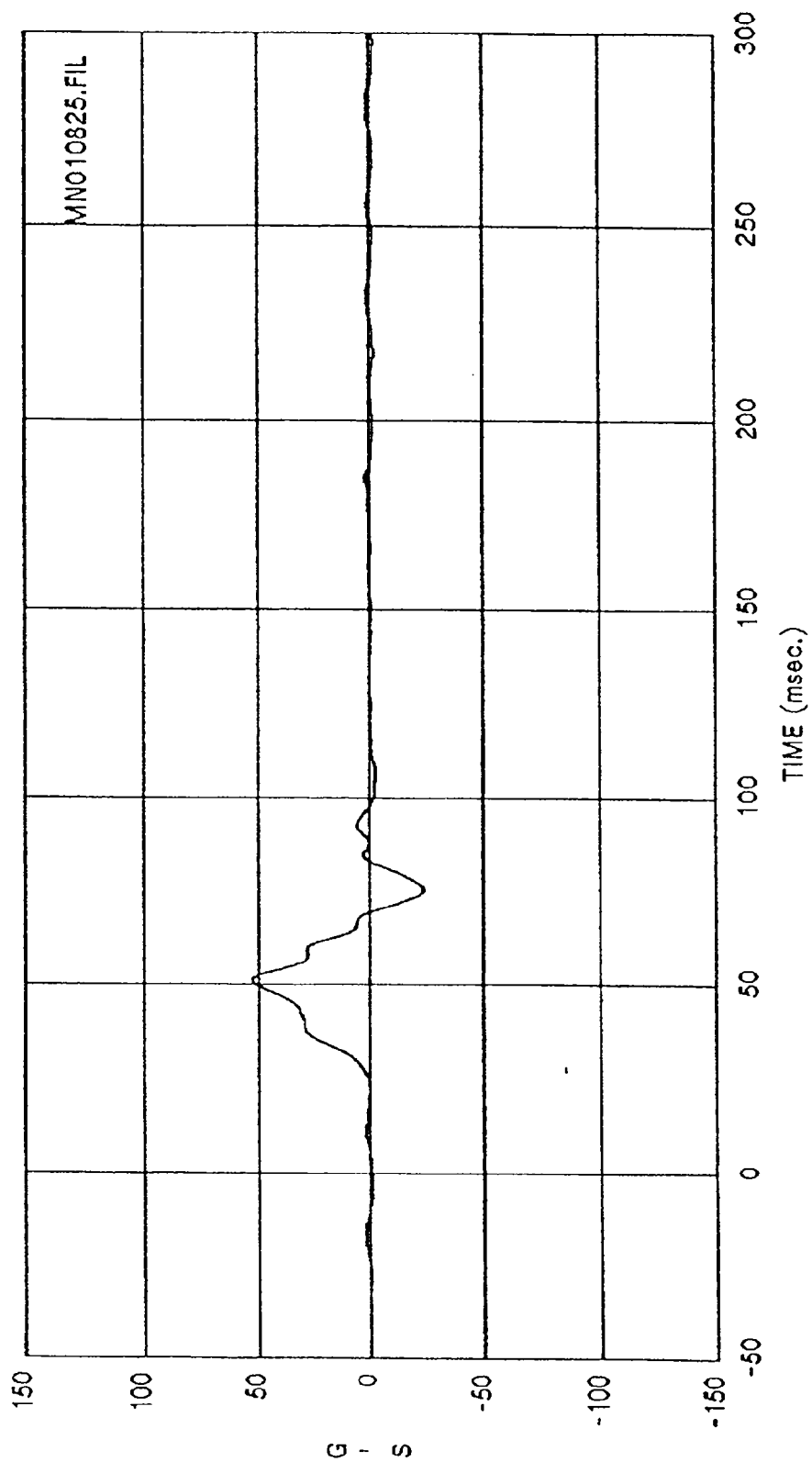
Curve: Passenger lower spine acceleration -- Primary Filter: FIR 100 Max = 54.412 Min = -25.439

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



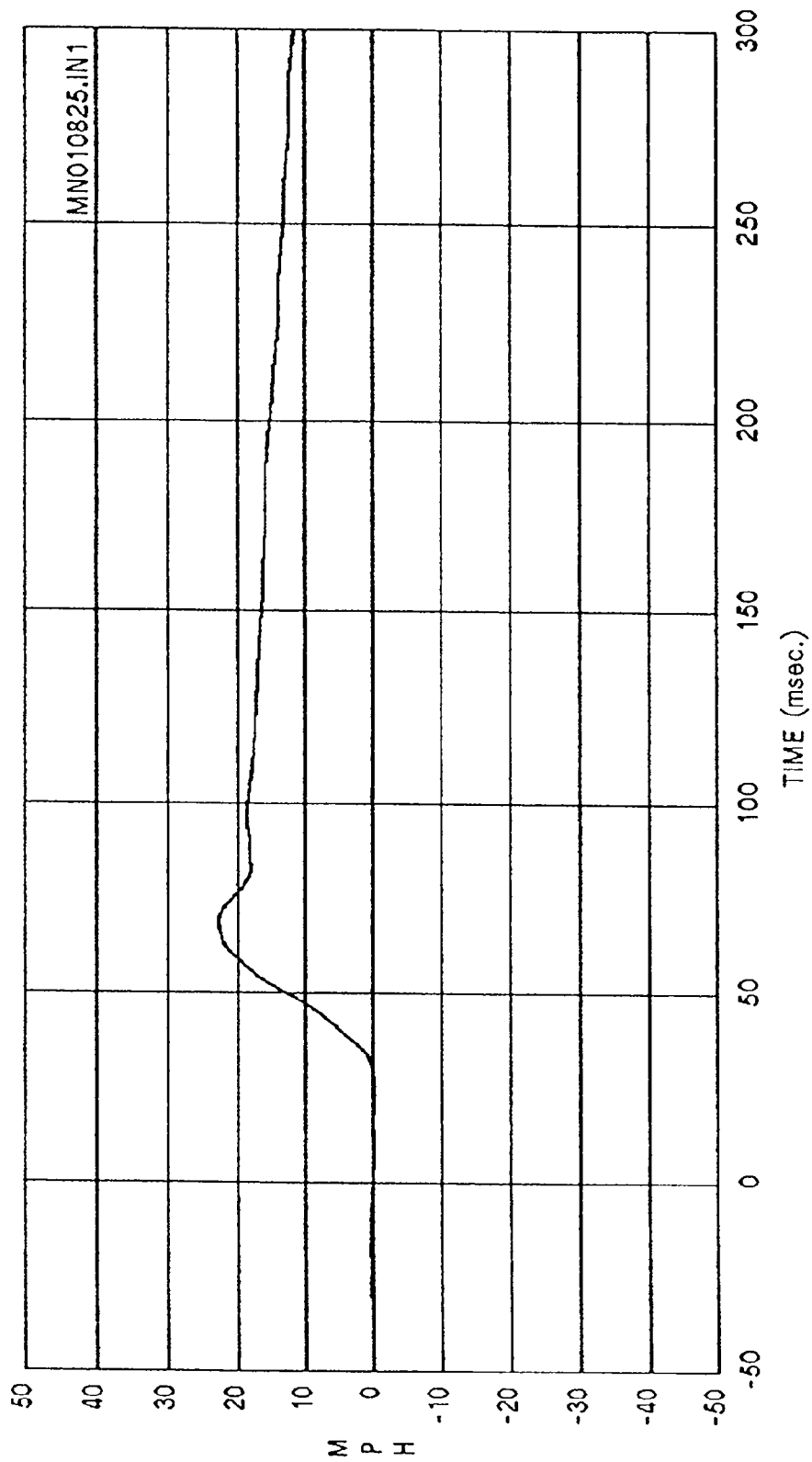
Curve: Passenger lower spine delta V -- Primary Filter: FIR 100 Max = 24.219 Min = .96722E-0

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



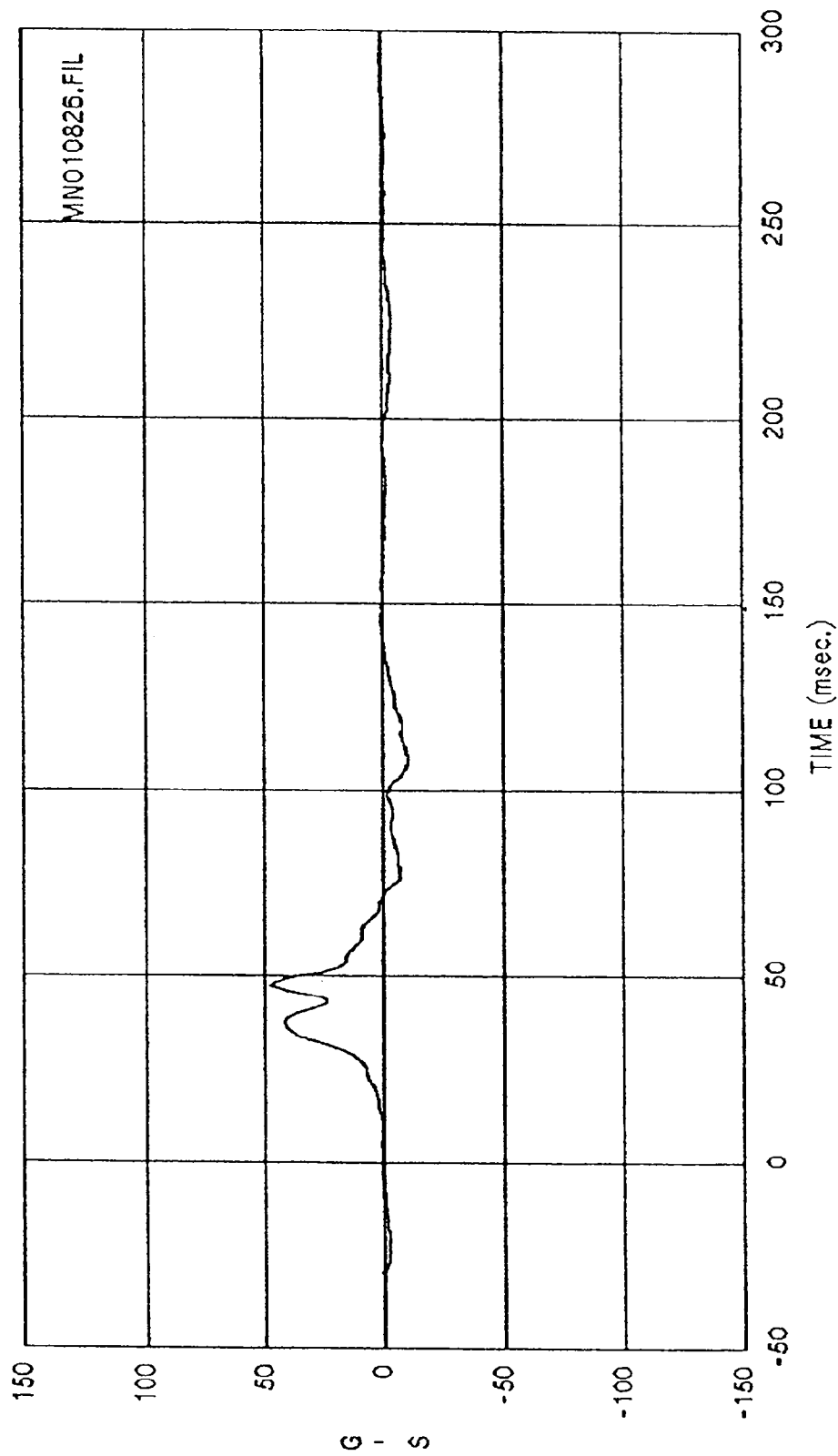
Curve: Passenger lower spine acceleration -- Redundant Filter: FIR 100 Max = 52.869 Min = -24.776

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

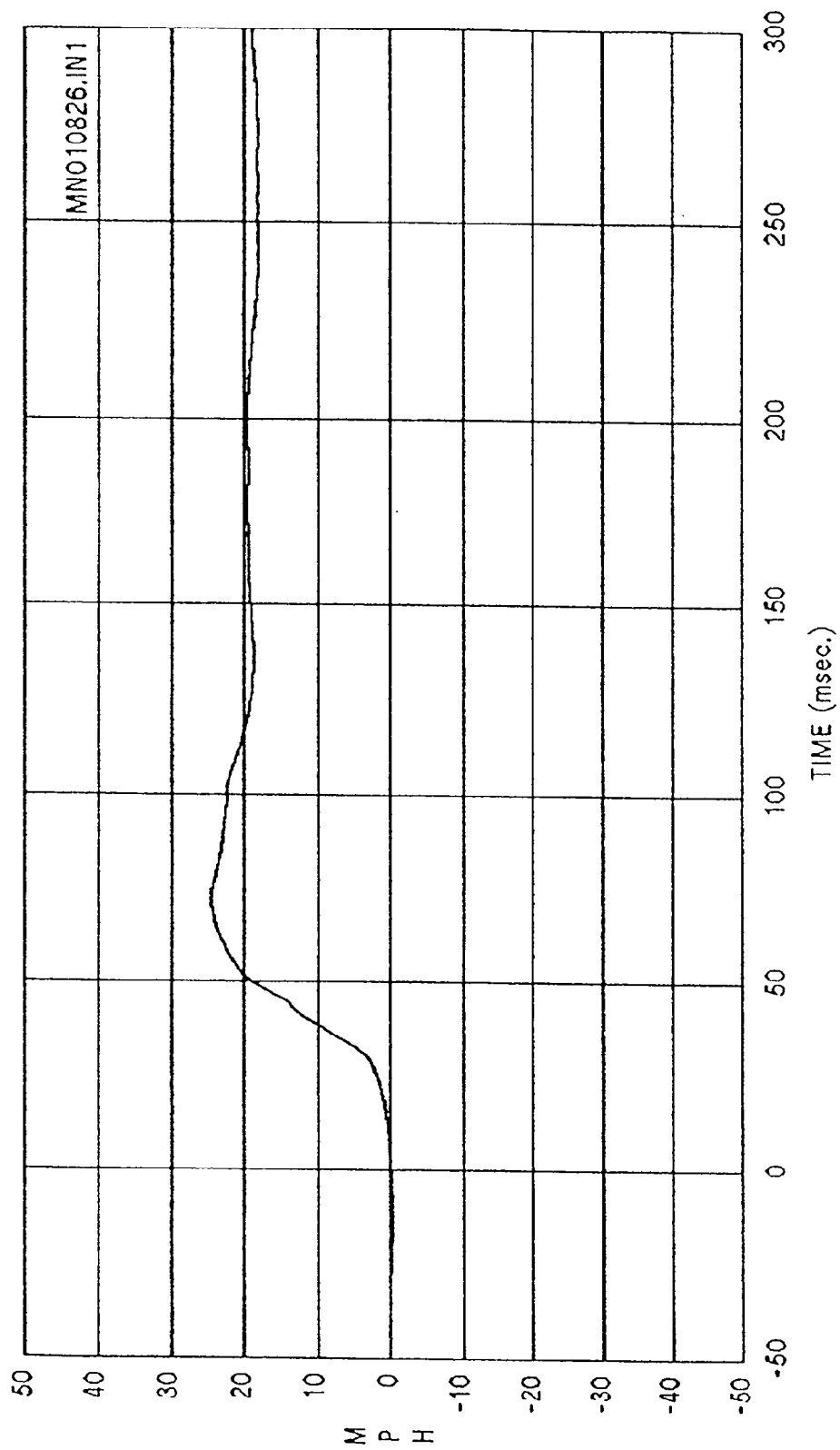


Curve: Passenger lower spine delta V -- Redundant Filter: FIR 100 Max = 22.735 Min = -21532

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

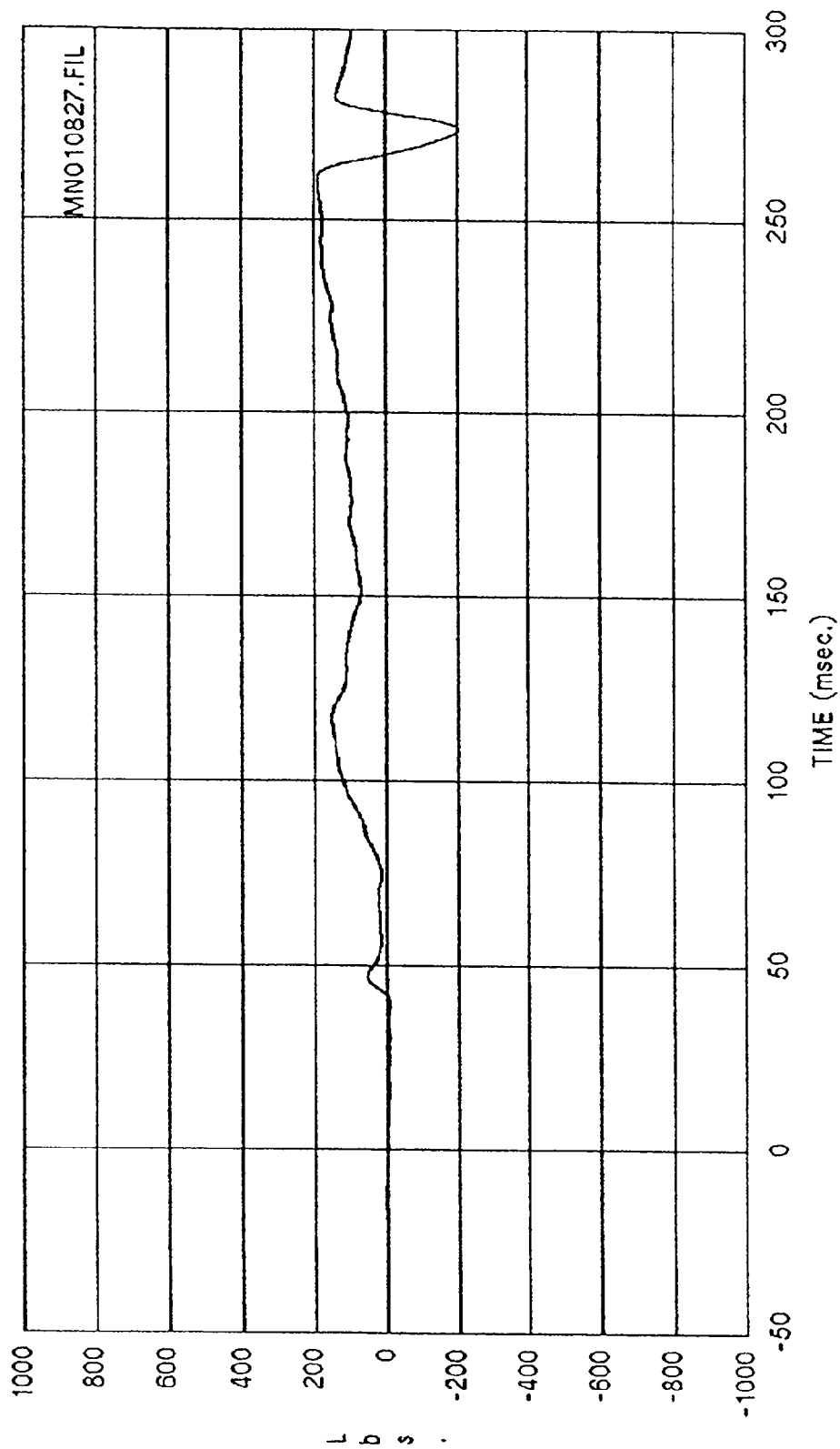


Curve: Passenger pelvis acceleration Filter: FIR 100 Max = 47.697 Min = -9.8742
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



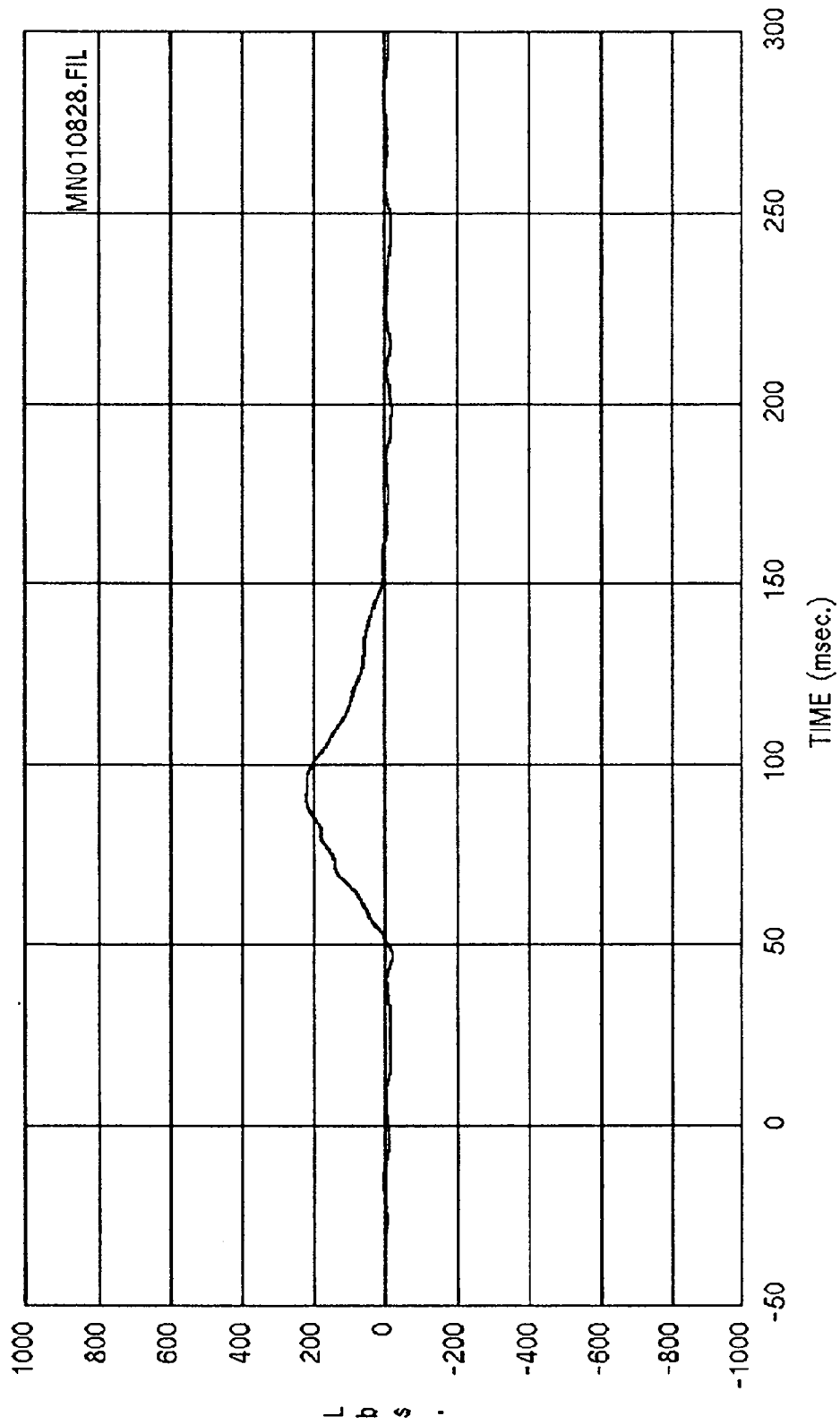
Curve: Passenger pelvis delta V Filter: FIR 100 Max = 24.555 Min = 18.258

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



Curve: Passenger lap belt load Filter: SAE CLASS 60 Max = 189.04 Min = -205.52

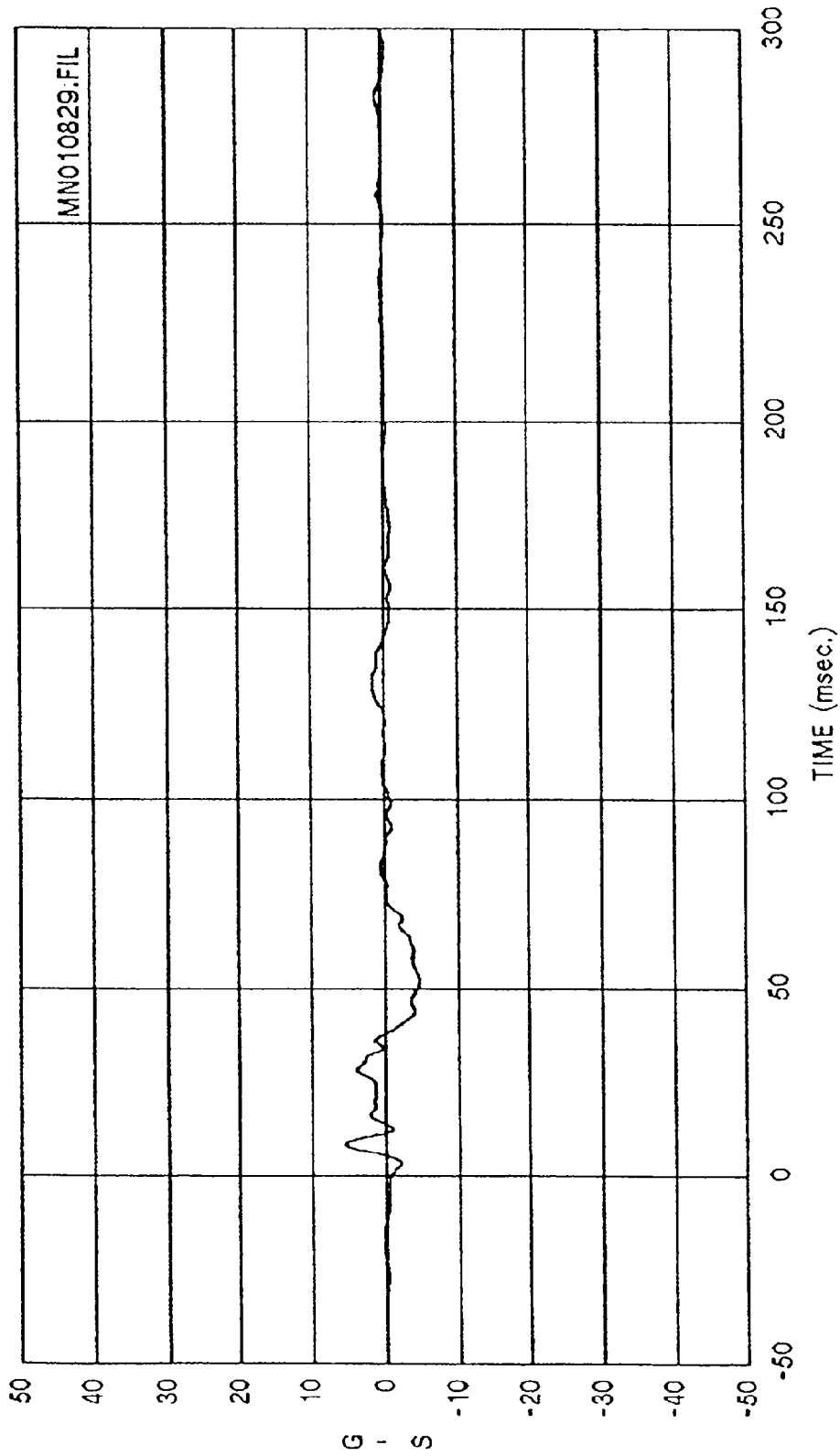
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



Curve: Passenger shoulder belt load Filter: SAE CLASS 60 Max = 221.20 Min = -21.610

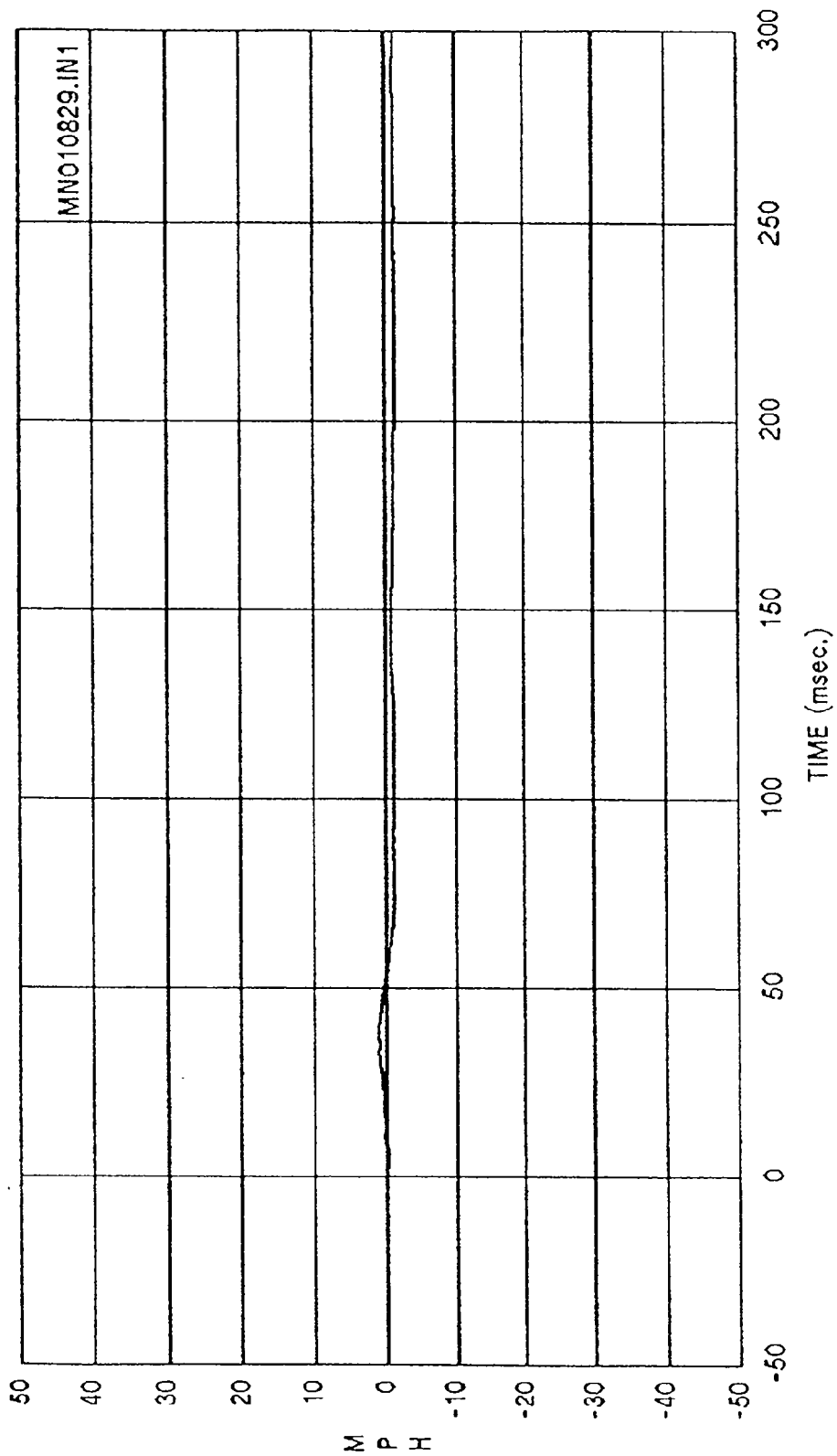
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

VEHICLE ACCELEROMETER DATA



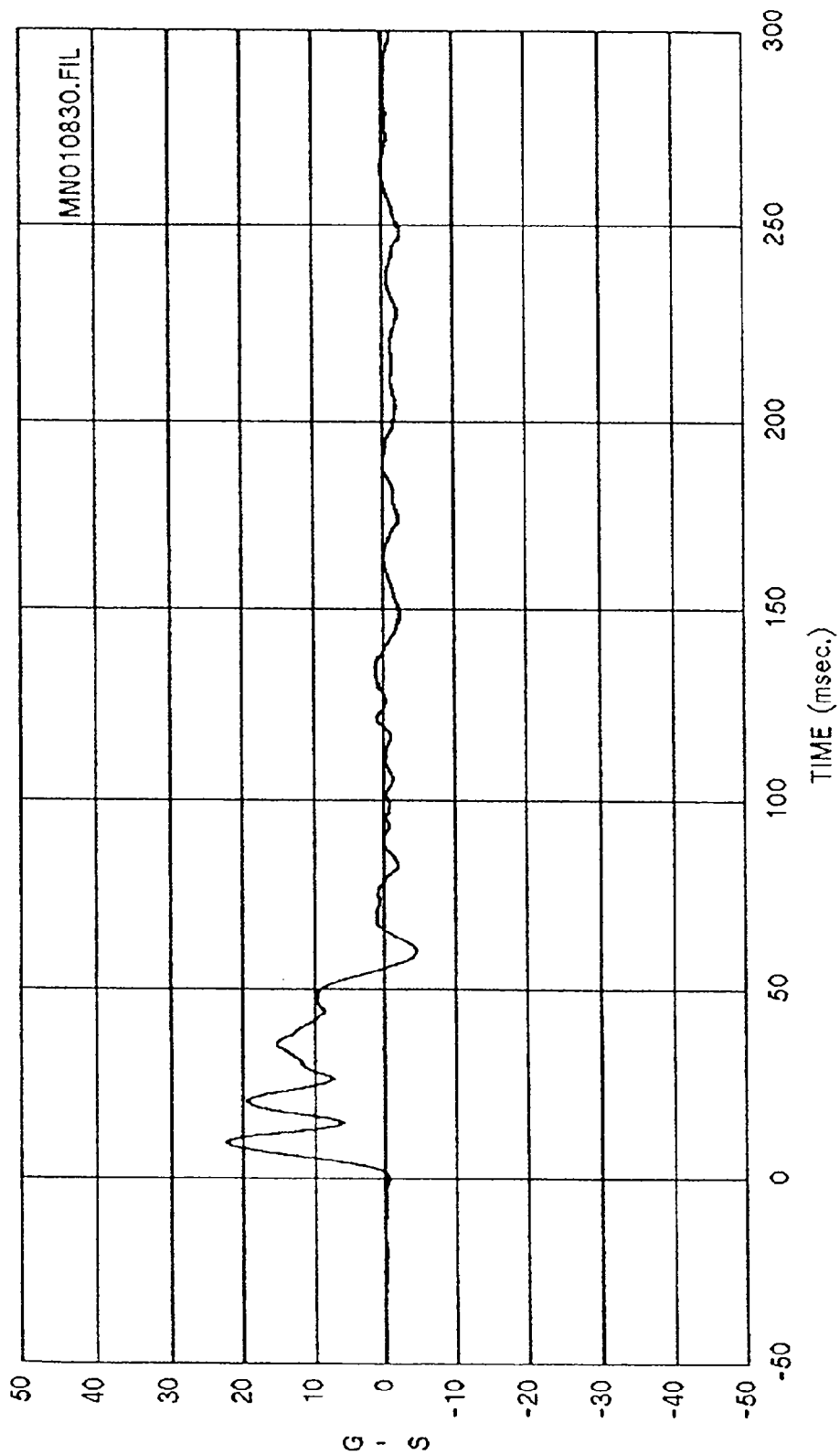
Curve: Front seat right sill acceleration -- X axis Filter: SAE CLASS 60 Max = 5.7526 Min = -4.5496

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

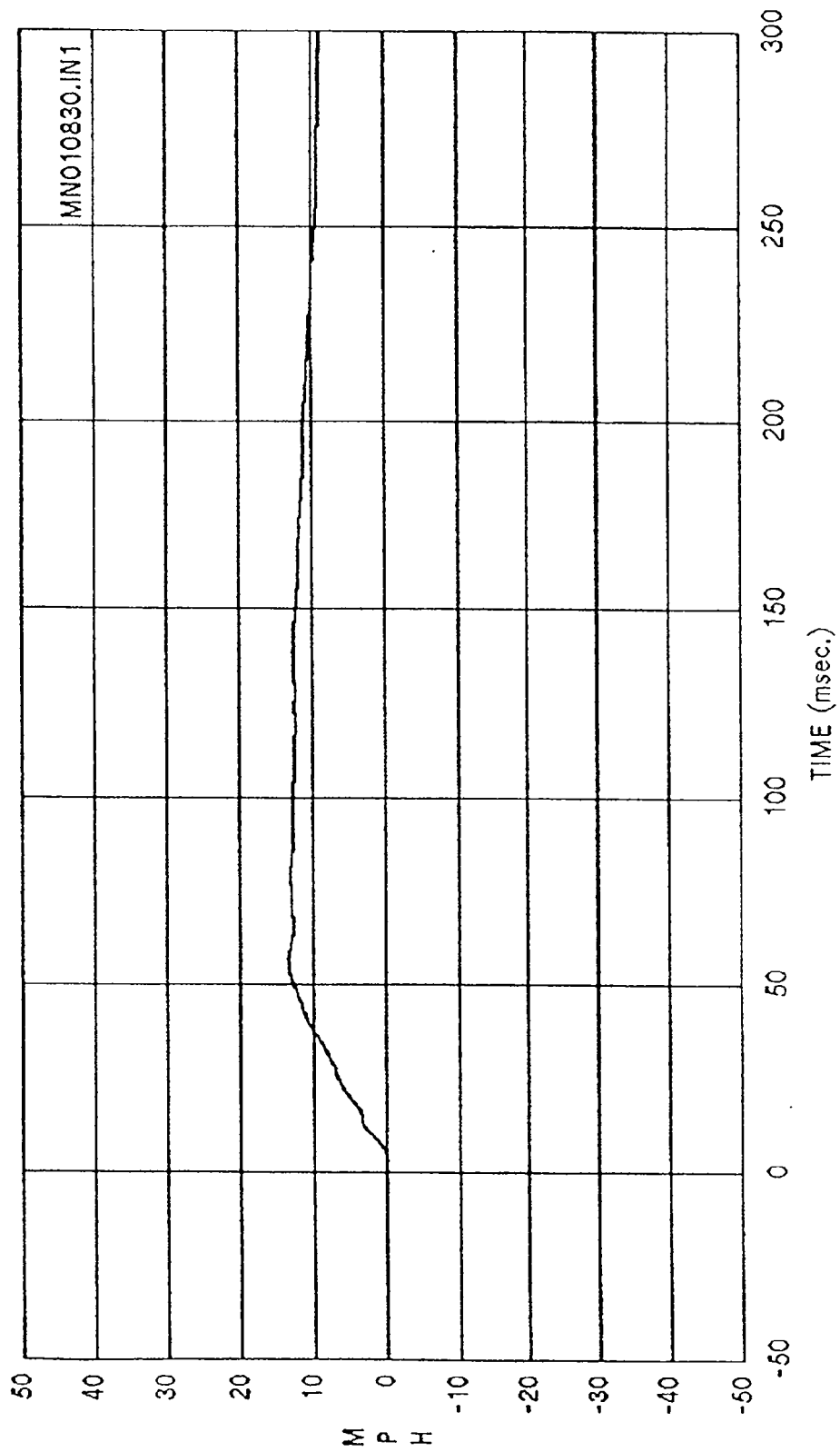


Curve: Front seat right slll delta V -- X axis Filter: SAE CLASS 180 Max = 1.2295 Min = -1.4279

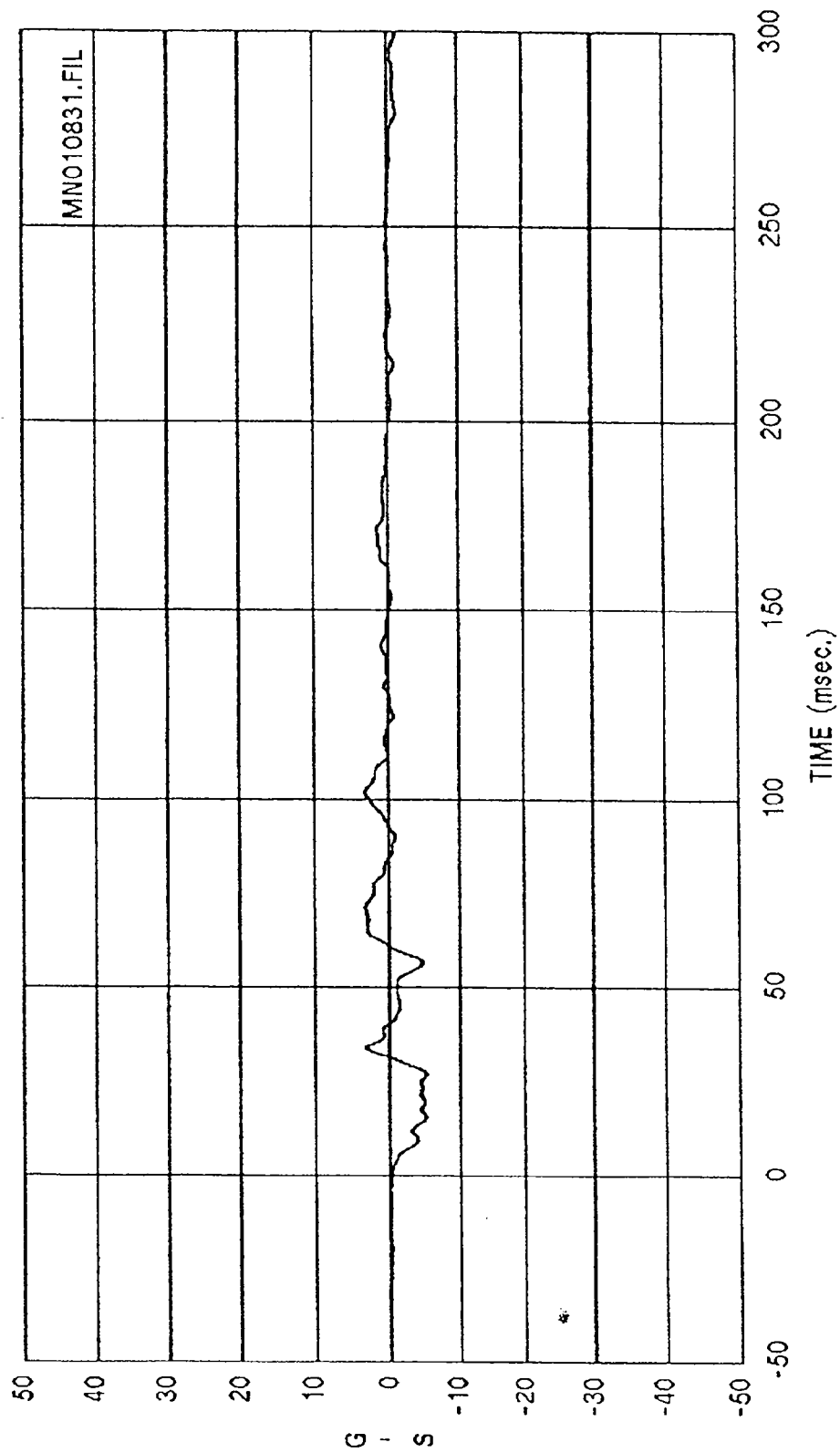
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



Curve: Front seat right side acceleration -- Y axis Filter: SAE CLASS 60 Max = 22.418 Min = -45.537
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

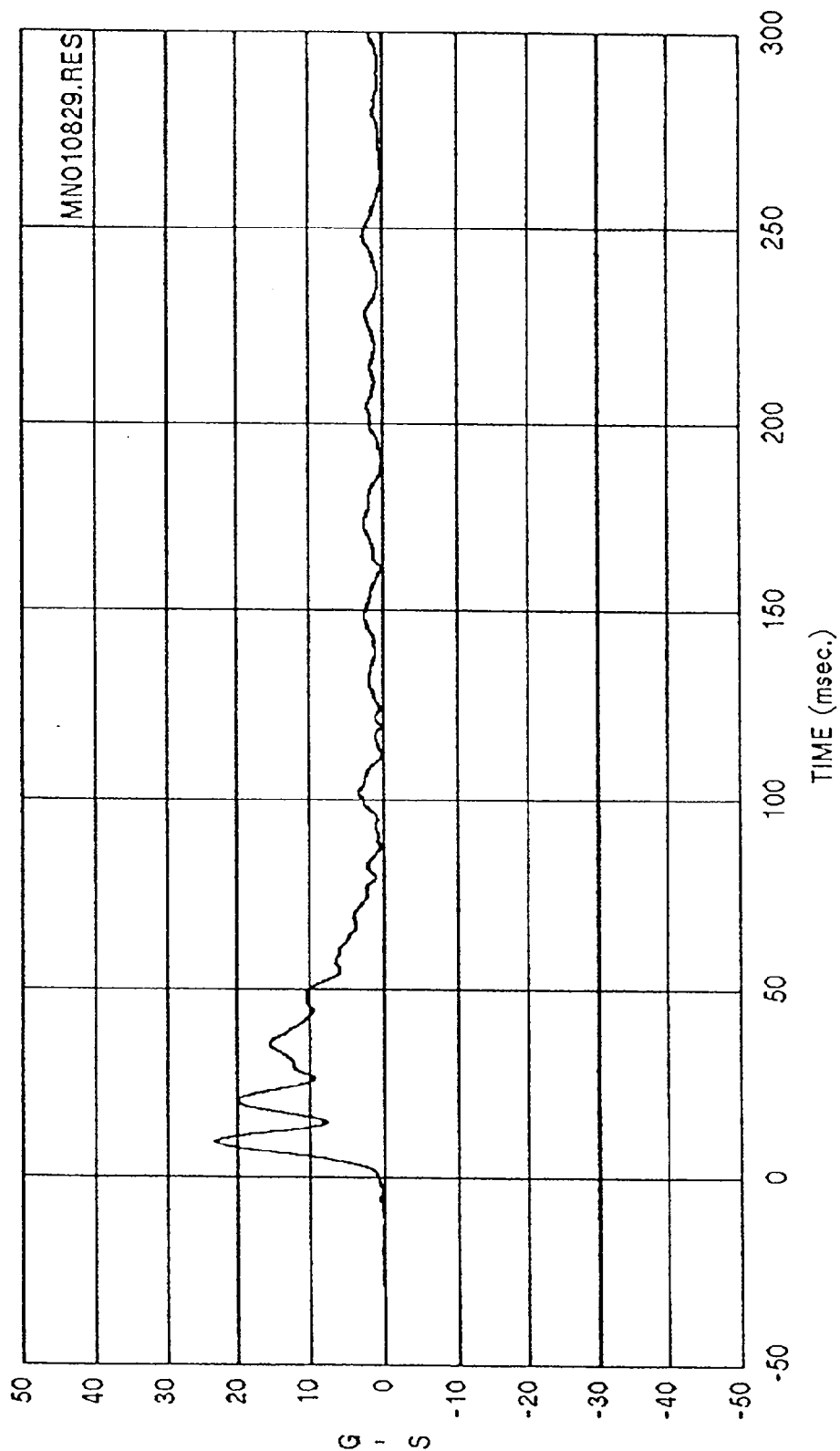


Curve: Front seat right sill delta V -- Y axis Filter: SAE CLASS 180 Max = 13.468 Min = -13.513E-1
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



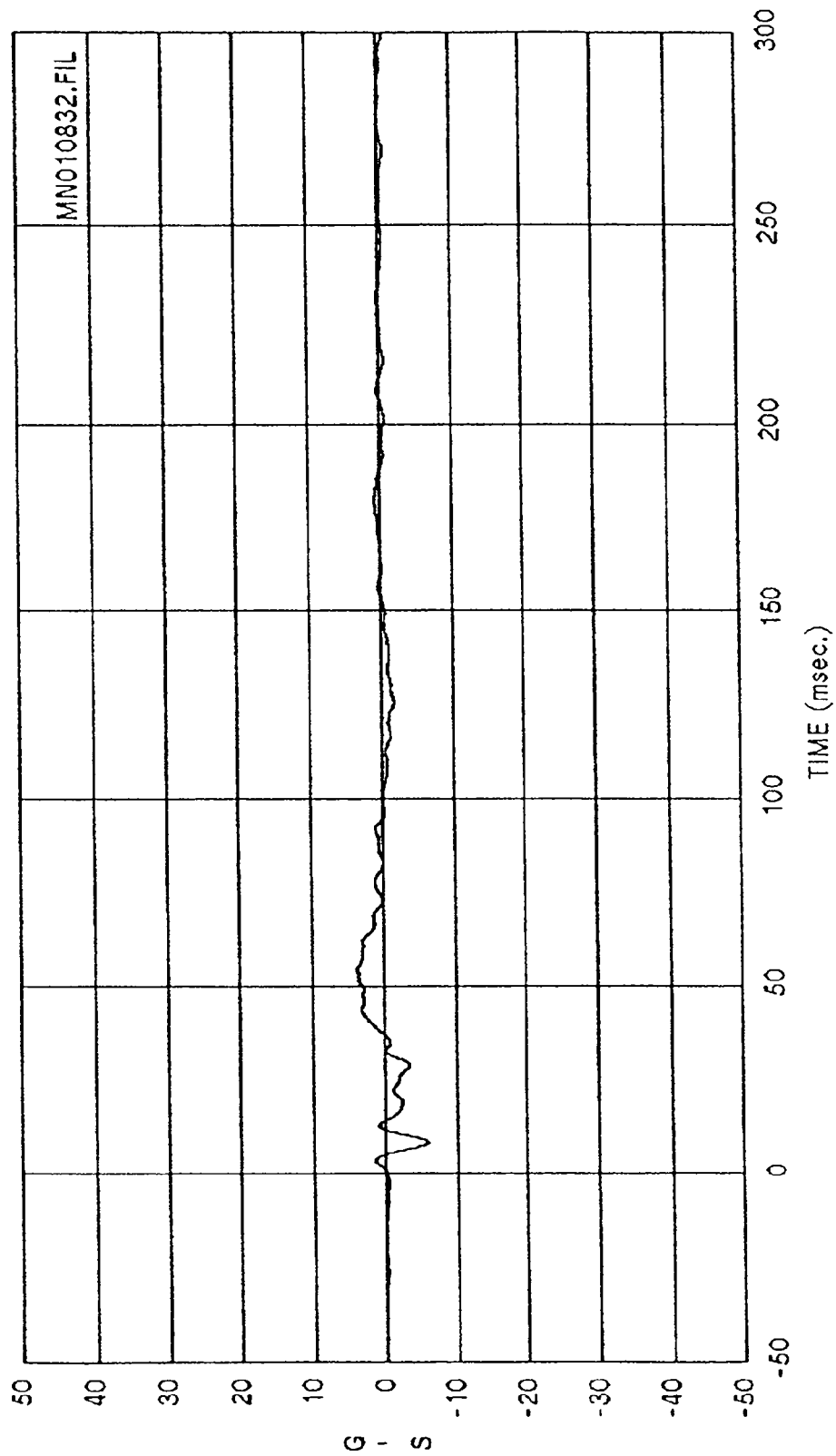
Curve: Front seat right sill acceleration -- Z axis Filter: SAE CLASS 60 Max = 3.2283 Min = -5.1533

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



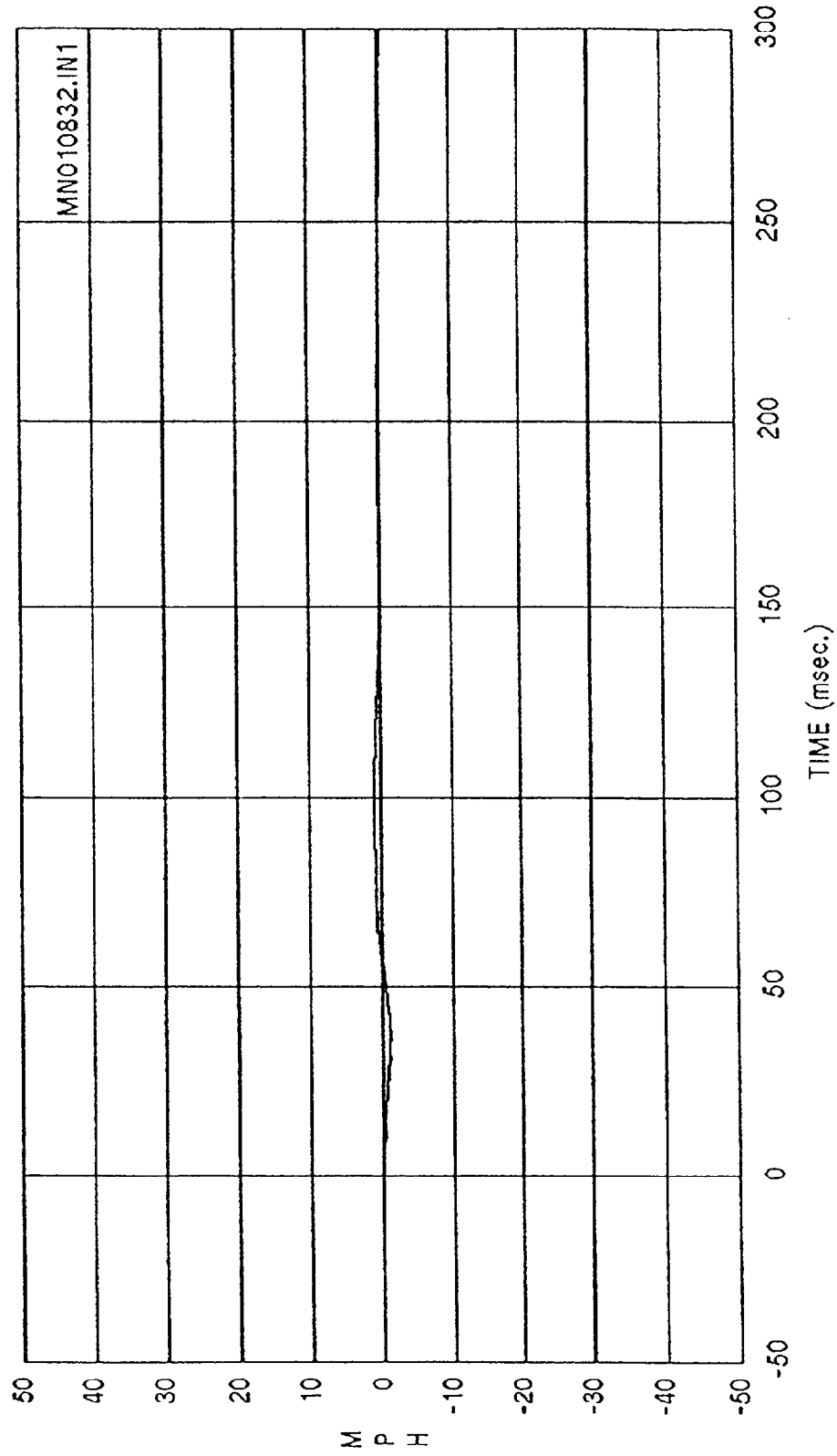
Curve: Front seat right sill resultant acceleration Filter: SAE CLASS 60 Max = 23.203 Min = .22602

MSE Date: 07/15/92 Program: Side Impact 30/15 90 Deg. Vehicle: 1992 Chevrolet Lumina



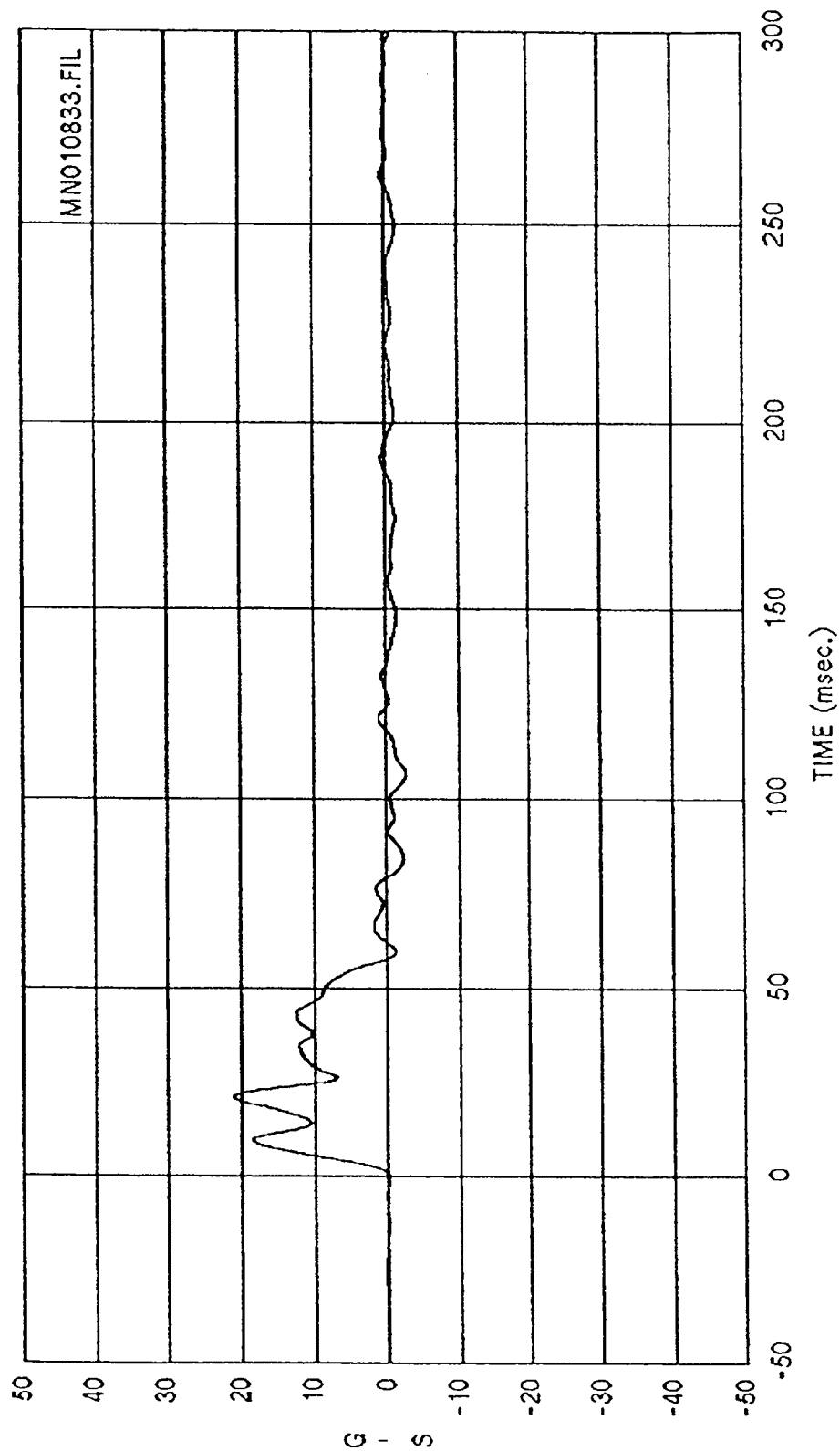
Curve: Rear seat right sill acceleration -- X axis Filter: SAE CLASS 60 Max = 3.7941 Min = -5.9078

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

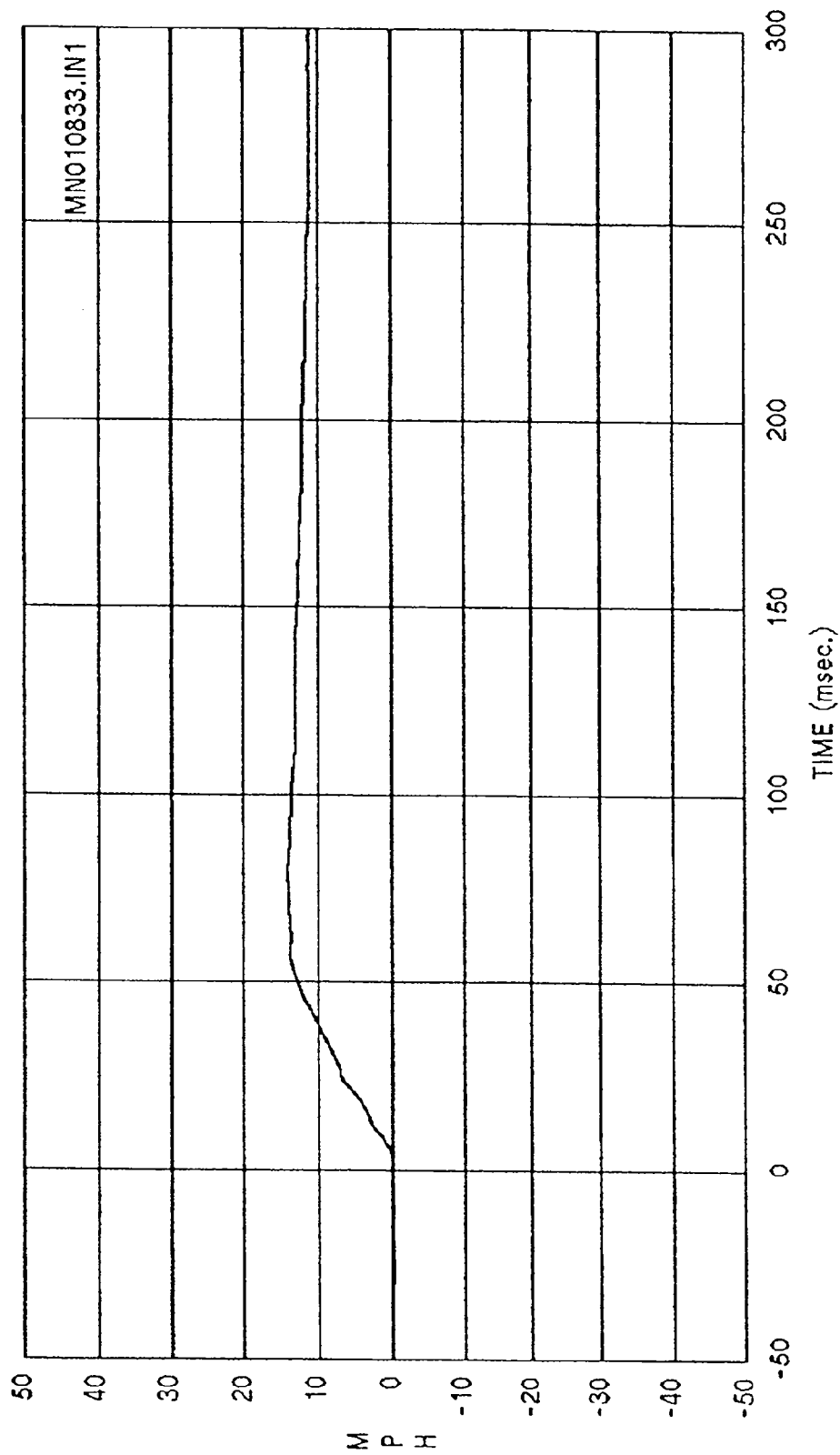


Curve: Rear seat right sill delta V -- X axis Filter: SAE CLASS 180 Max = 1.0623 Min = -1.1892

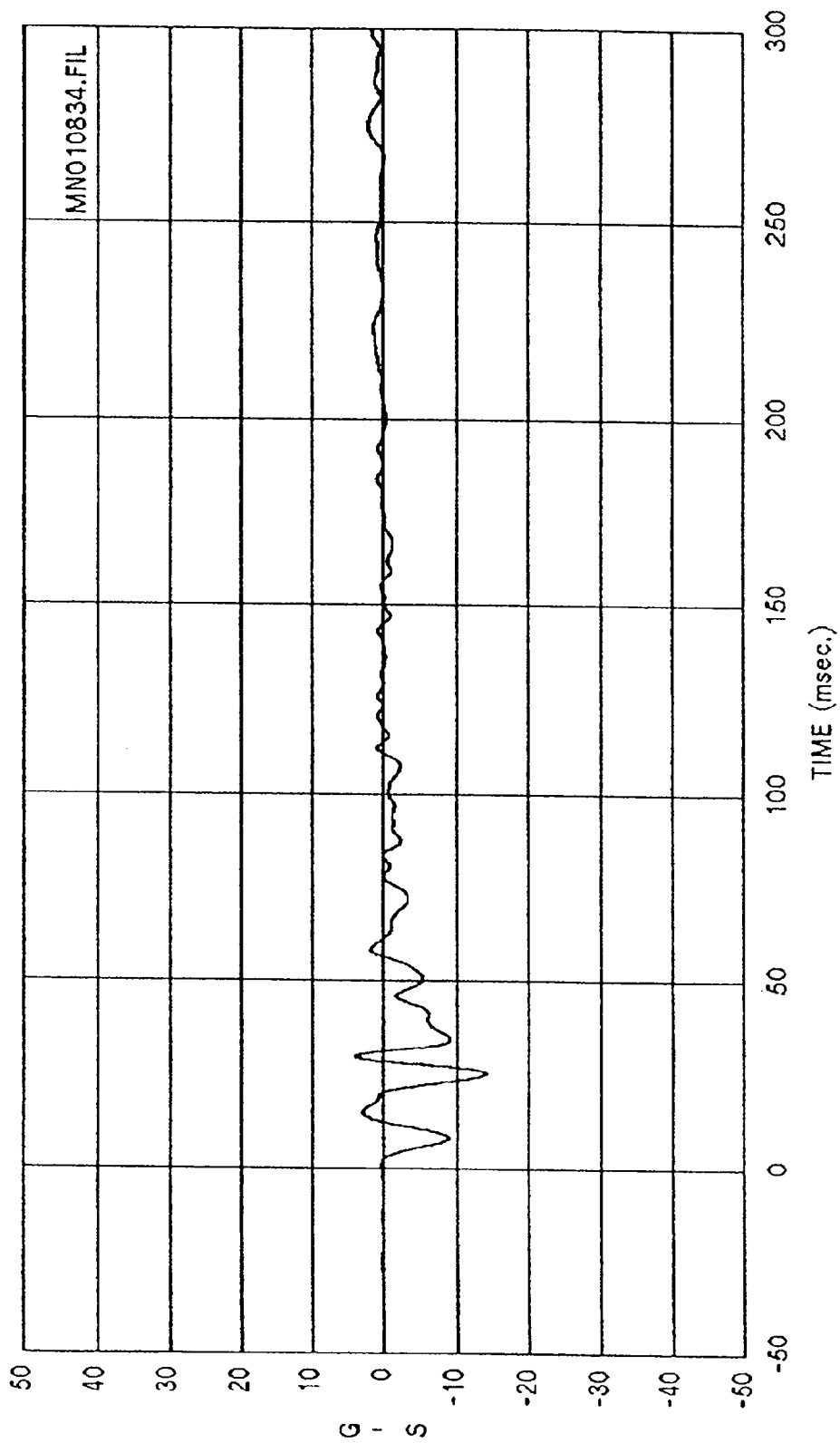
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



Curve: Rear seat right side acceleration -- Y axis Filter: SAE CLASS 60 Max = 21.182 Min = -2.7418
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

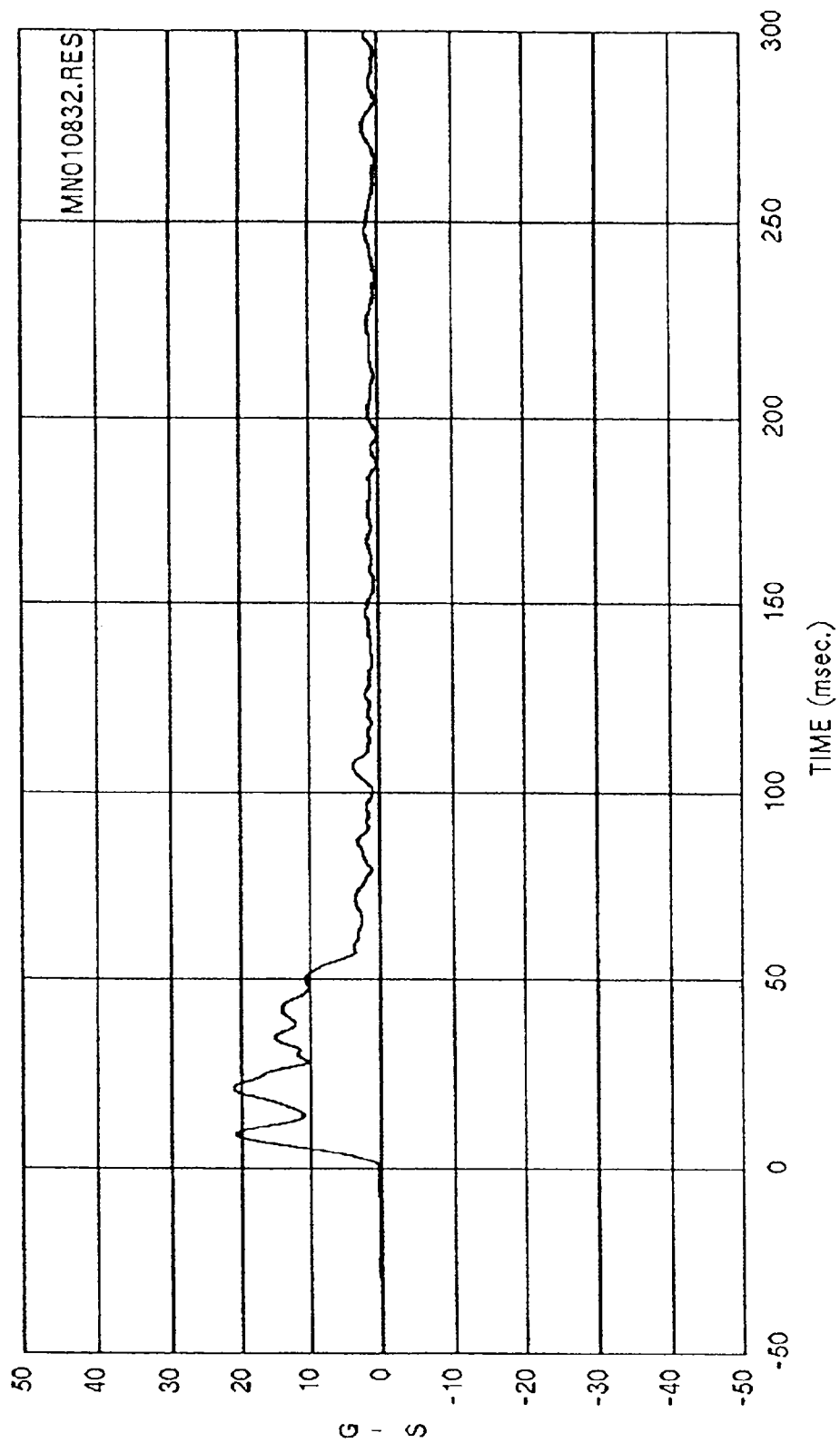


Curve: Rear seat right sill delta V -- Y axis Filter: SAE CLASS 180 Max = 14,088 Min = 11,092
MSE Date: 07/15/92 Program: Slide Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

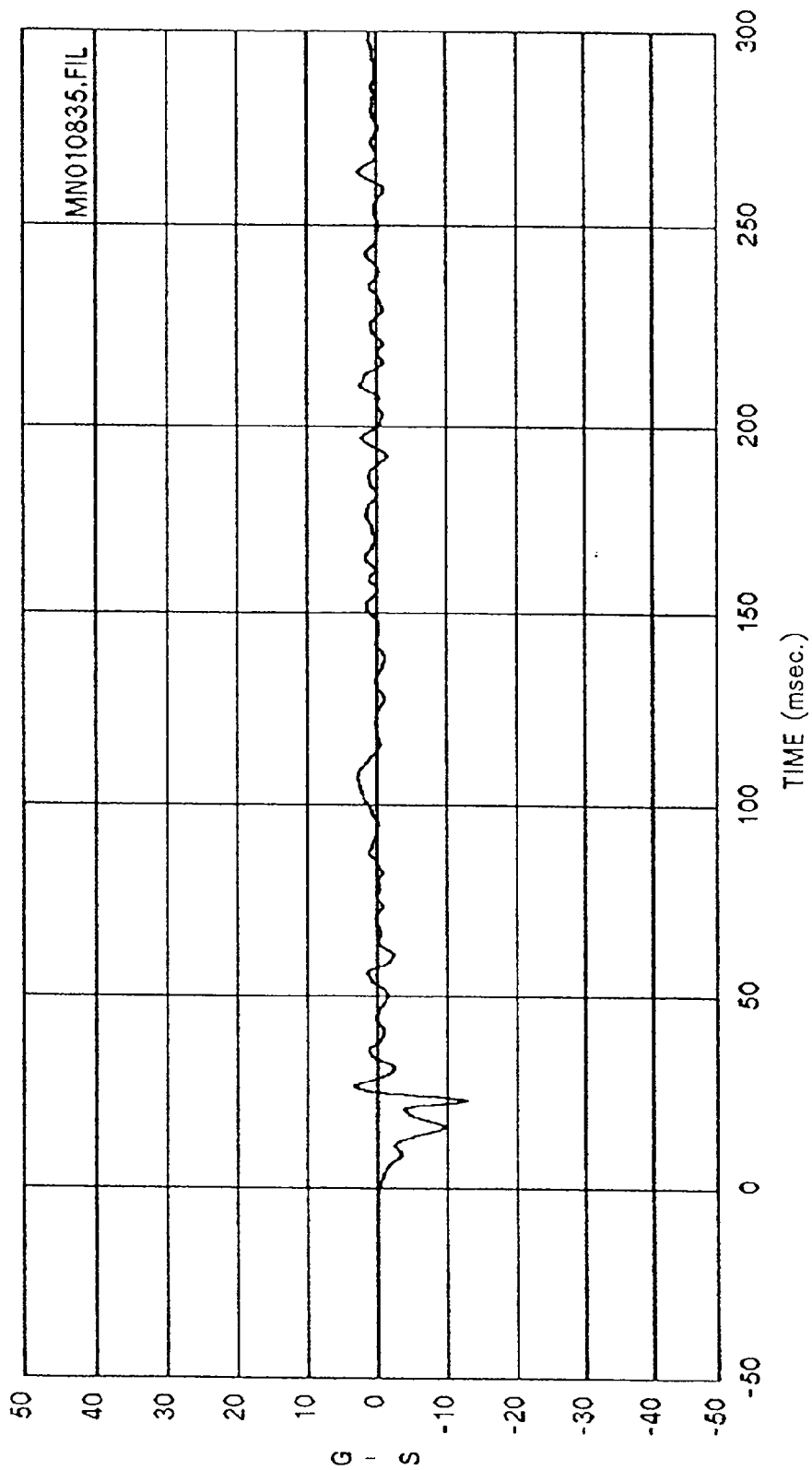


Curve: Rear seat right sill acceleration -- Z axis Filter: SAE CLASS 60 Max = 4.0239 Min = -14.131

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

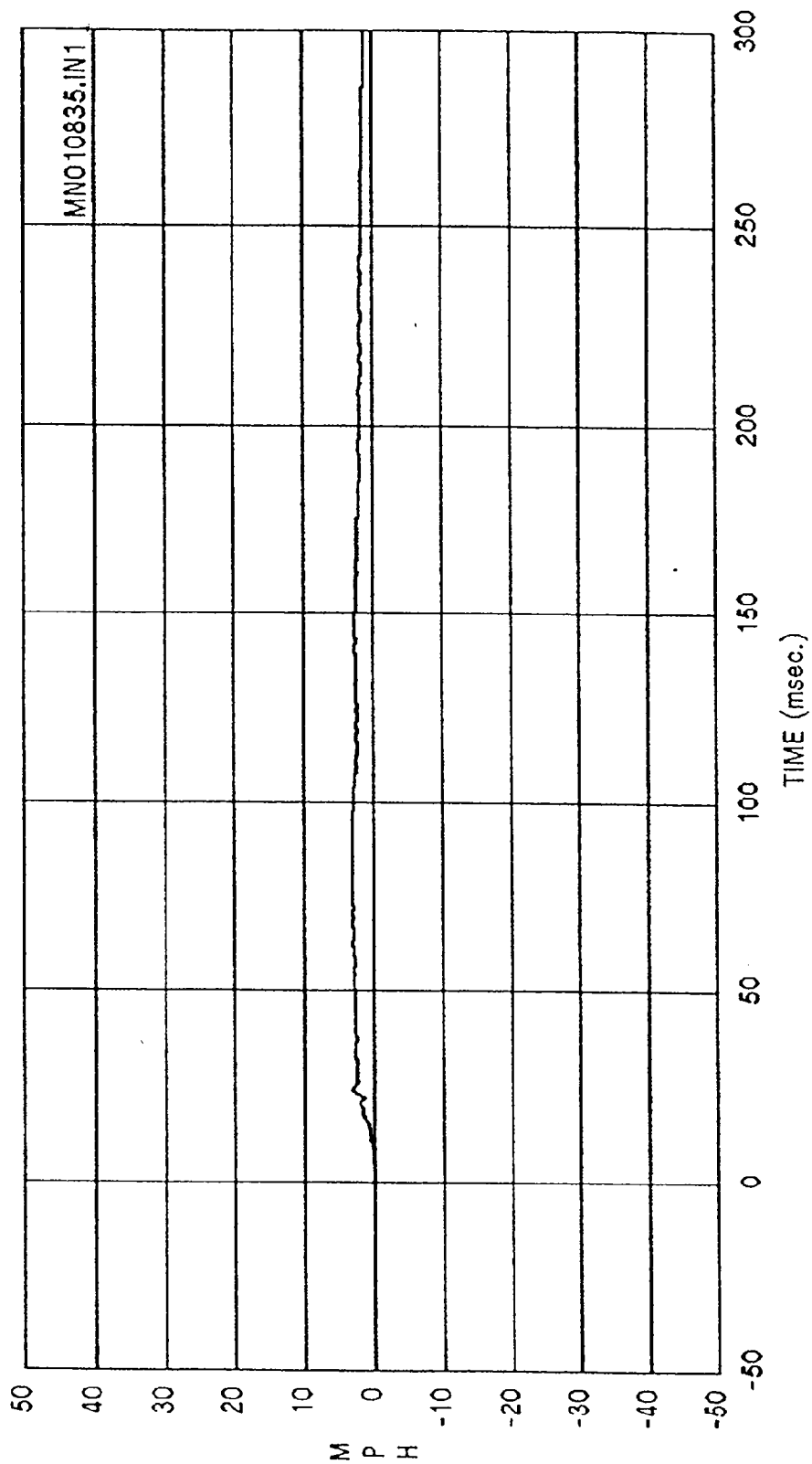


Curve: Rear seat right sill resultant acceleration Filter: SAE CLASS 60 Max = 21.291 Min = .23026
MSE Date: 07/15/92 Program: Side Impact 30/15 90 Deg. Vehicle: 1992 Chevrolet Lumina



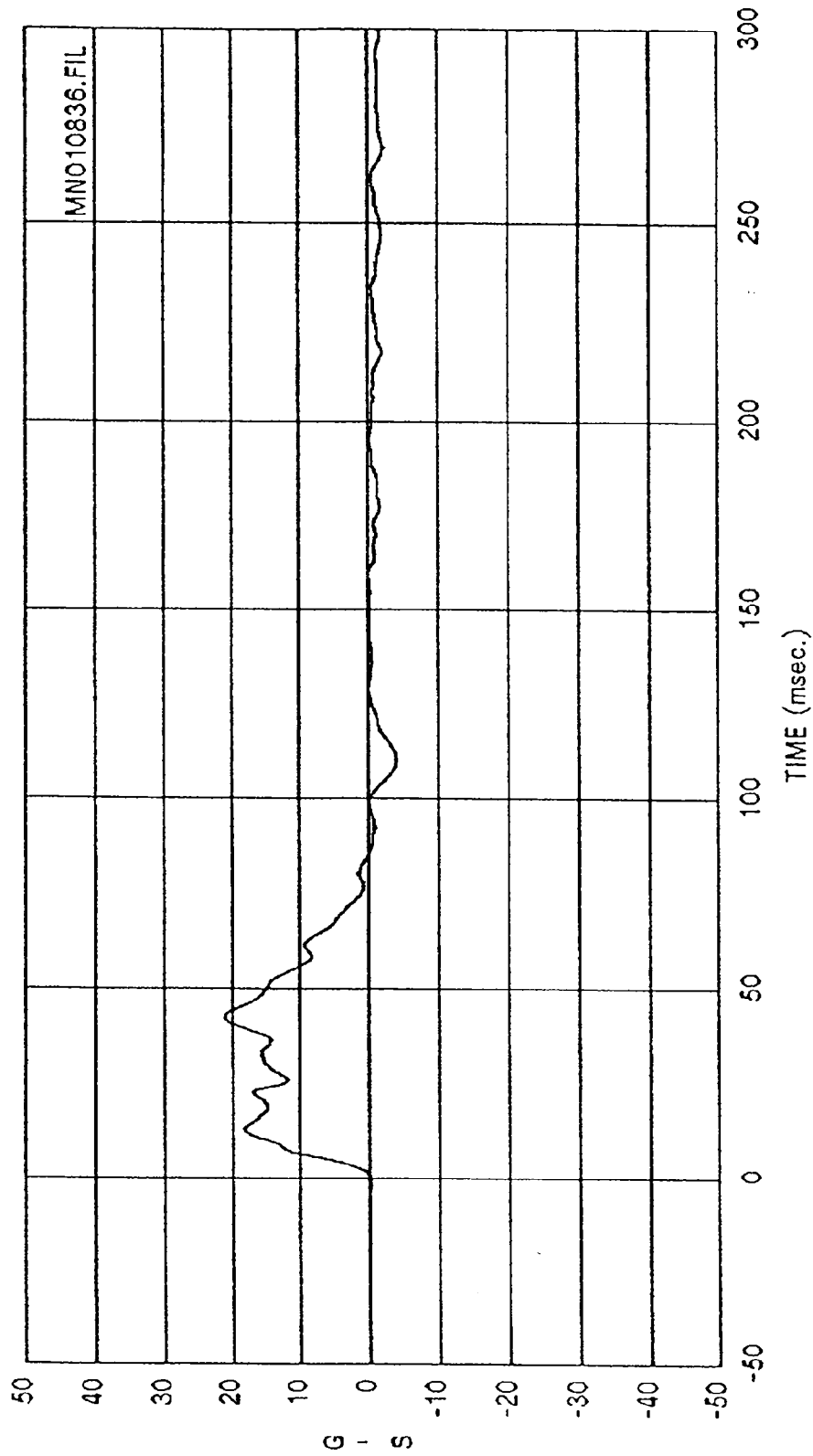
Curve: Rear floor above axle acceleration -- X axis Filter: SAE CLASS 60 Max = 3.1028 Min = -12.847

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

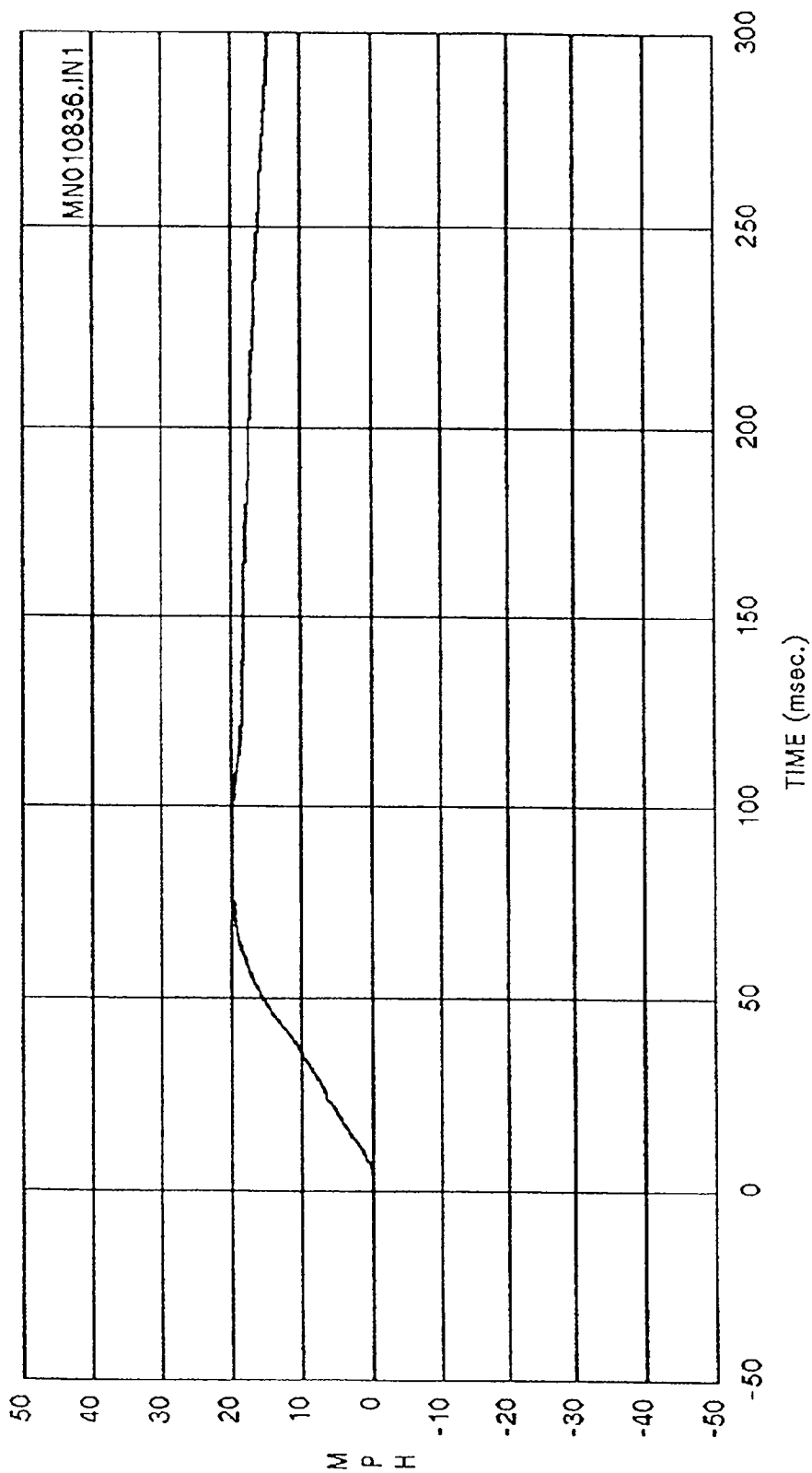


Curve: Rear floor above axle delta V -- X axls Filter: SAE CLASS 180 Max = 2.9791 Min = .46130

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

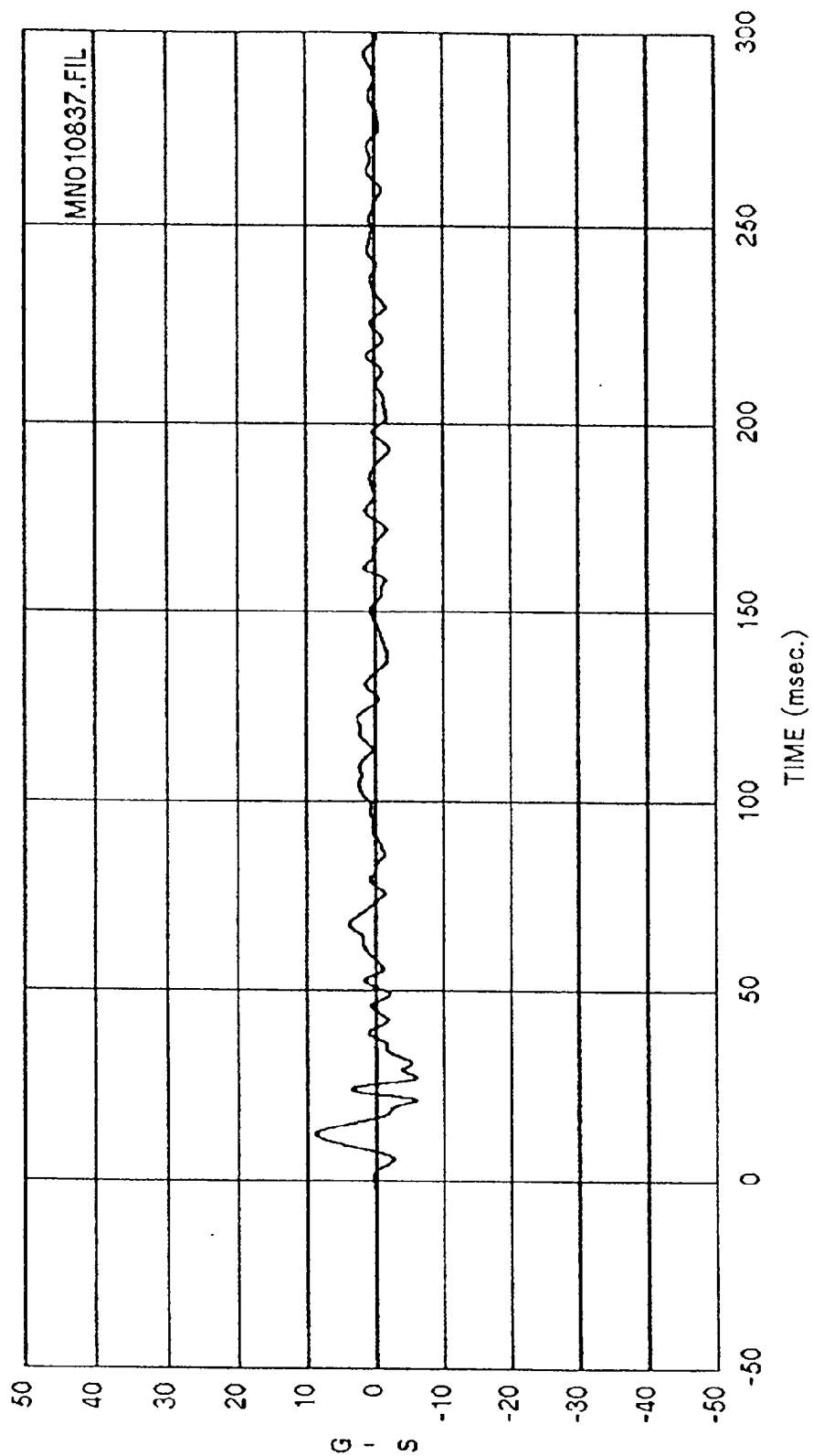


Curve: Rear floor above axle acceleration -- Y axis Filter: SAE CLASS 60 Max = 21.032 Min = -4.1561
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



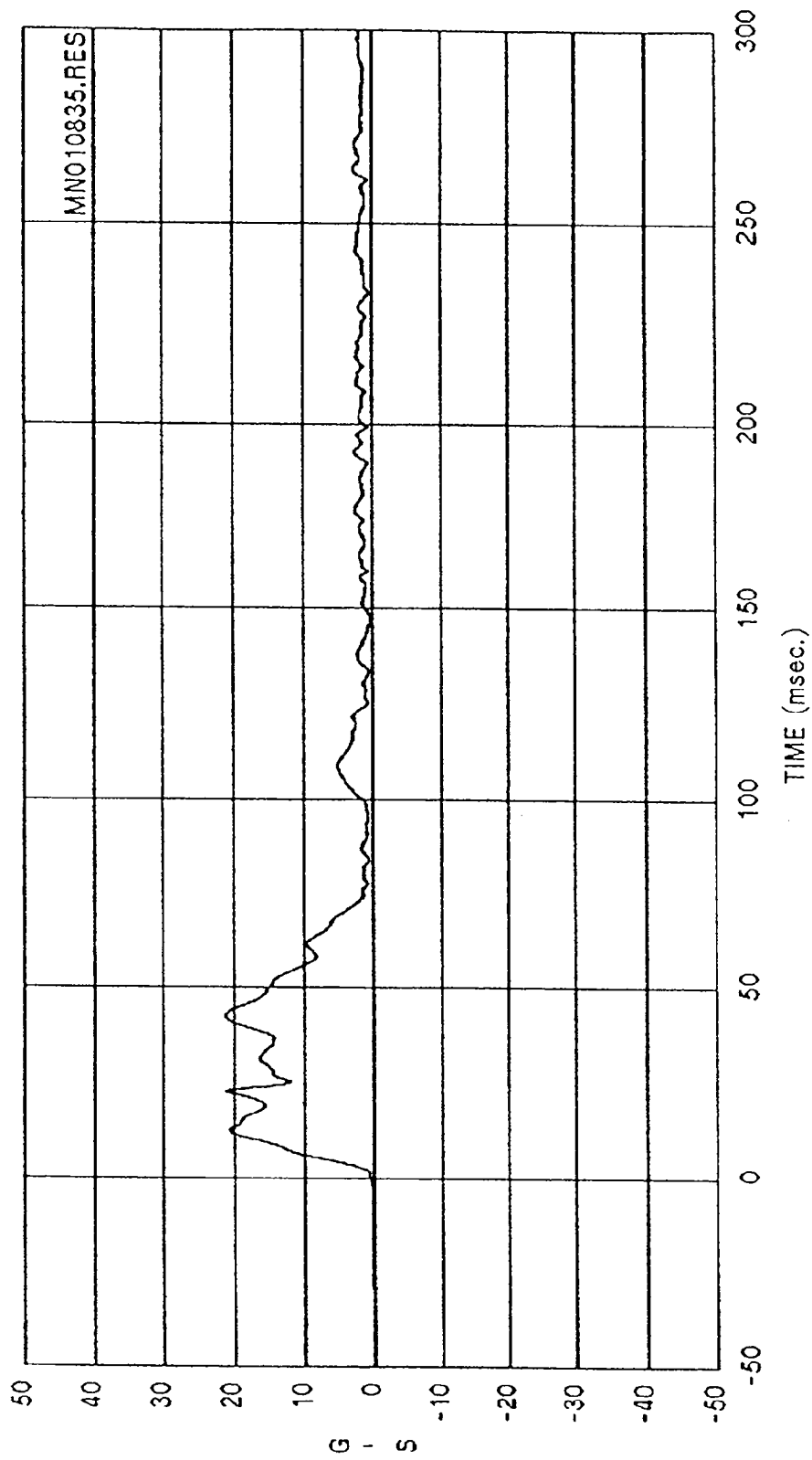
Curve: Rear floor above axle delta V -- Y axis Filter: SAE CLASS 180 Max = 19.869 Min = -.21400
02

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



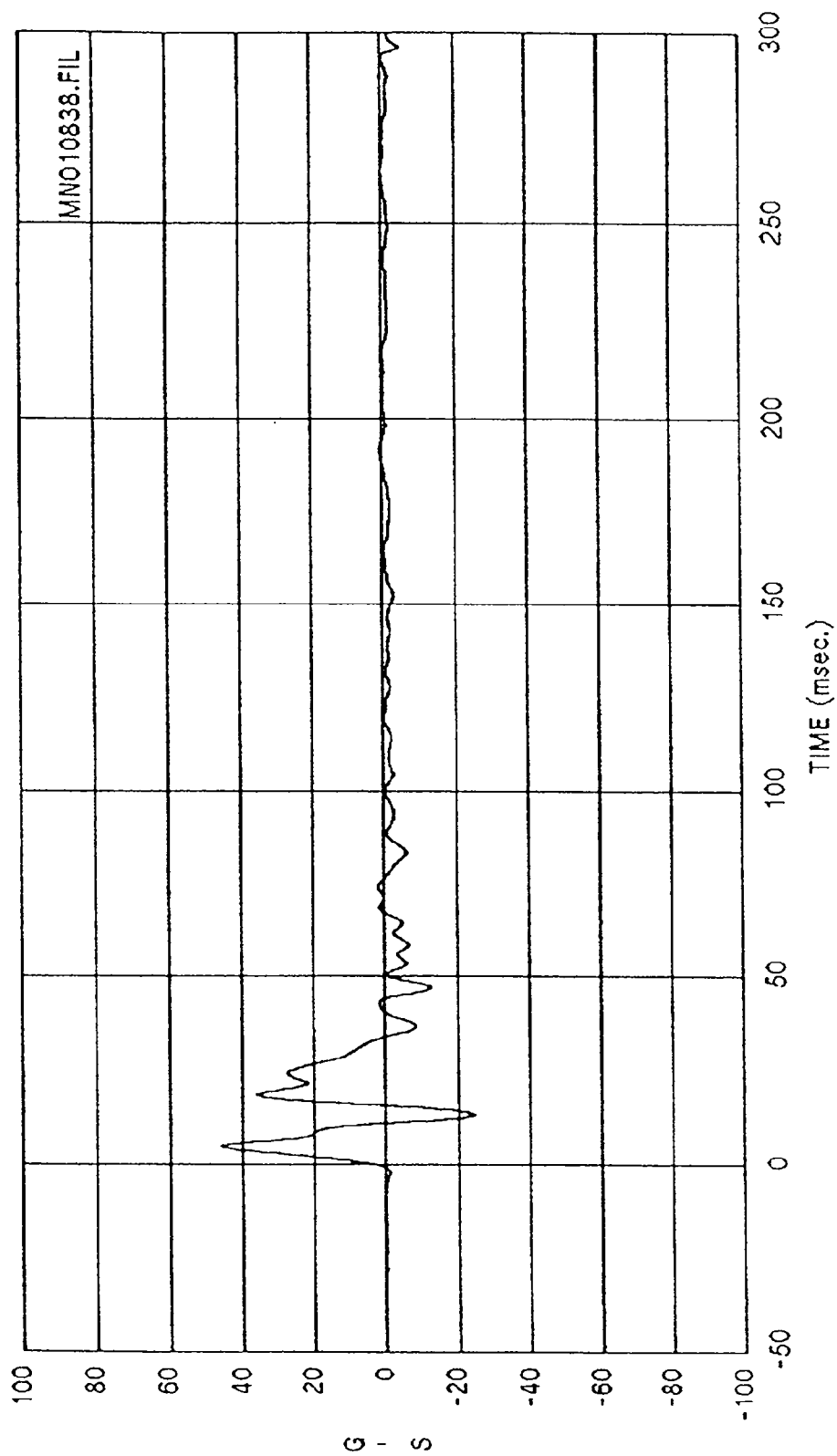
Curve: Rear floor above axle acceleration -- Z axis Filter: SAE CLASS 60 Max = 8.7551 Min = -6.1112

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



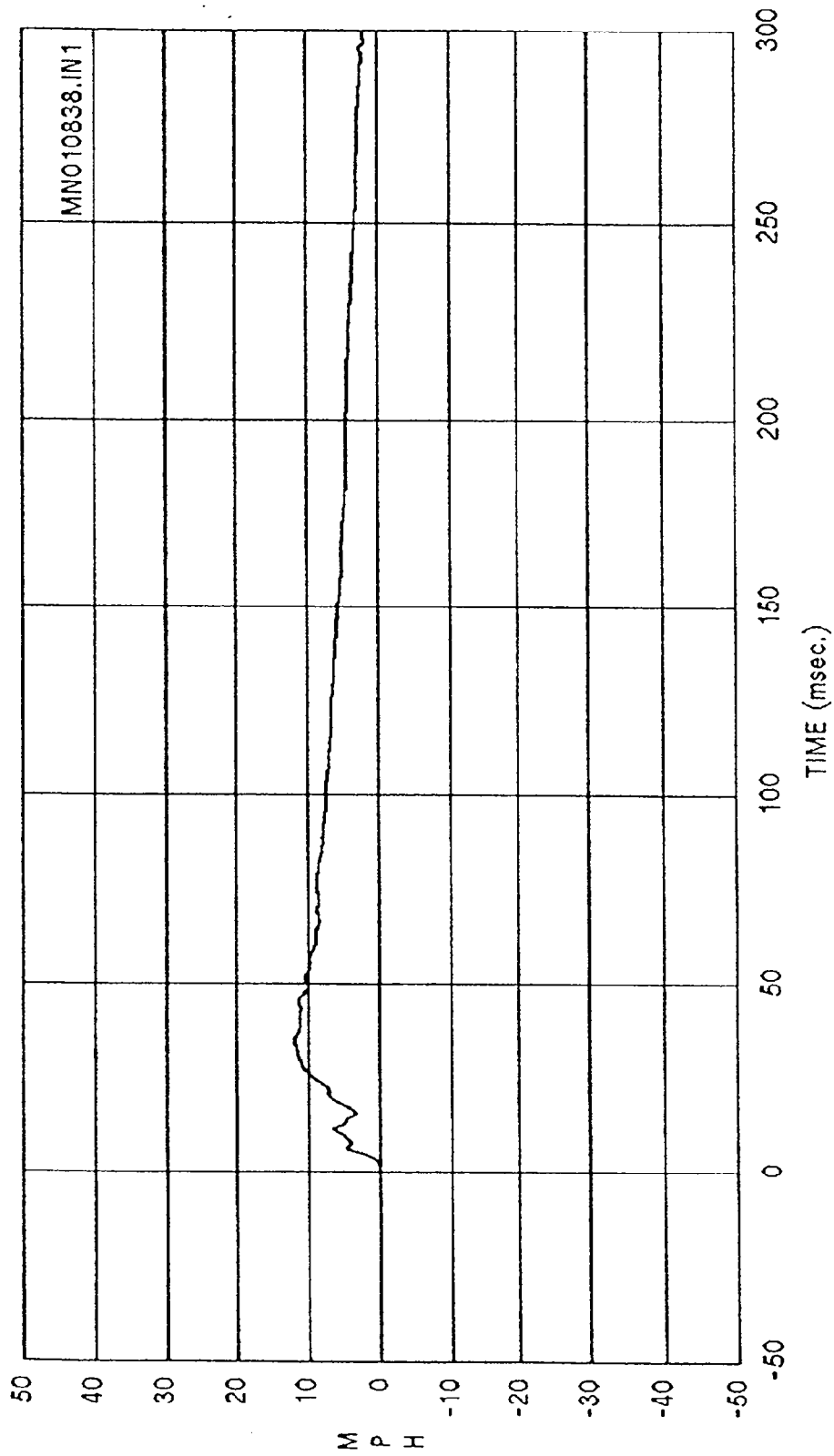
Curve: Rear floor above axle resultant acceleration Filter: SAE CLASS 60 Max = 21.148 Min = .31566

MSE Date: 07/15/92 Program: Side Impact 30/15 90 Deg. Vehicle: 1992 Chevrolet Lumina



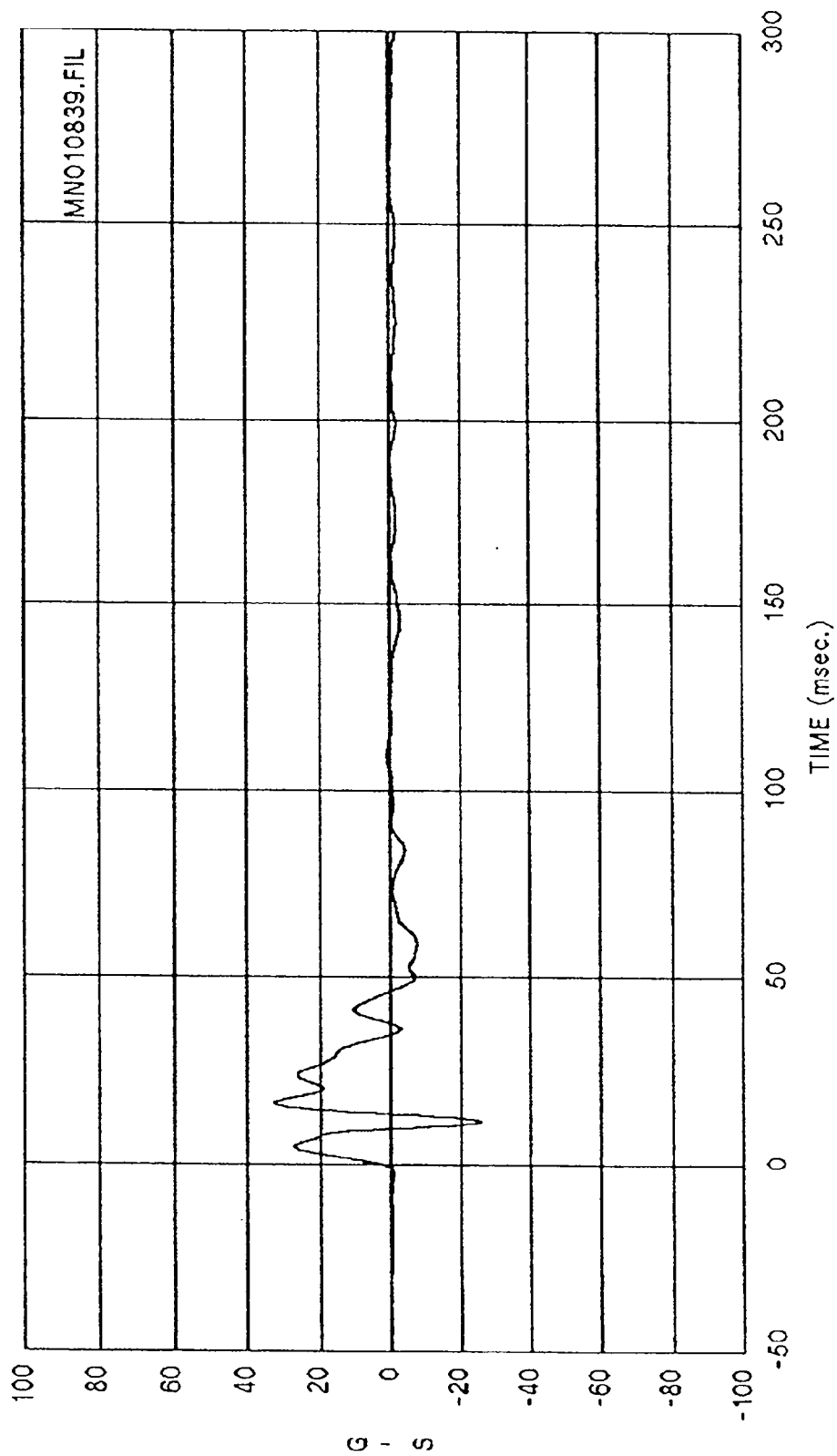
Curve: Rear seat left sill acceleration -- Y axis Filter: SAE CLASS 60 Max = 46.255 Min = -24.653

MSE Date: 07/15/92 Program: Slide Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



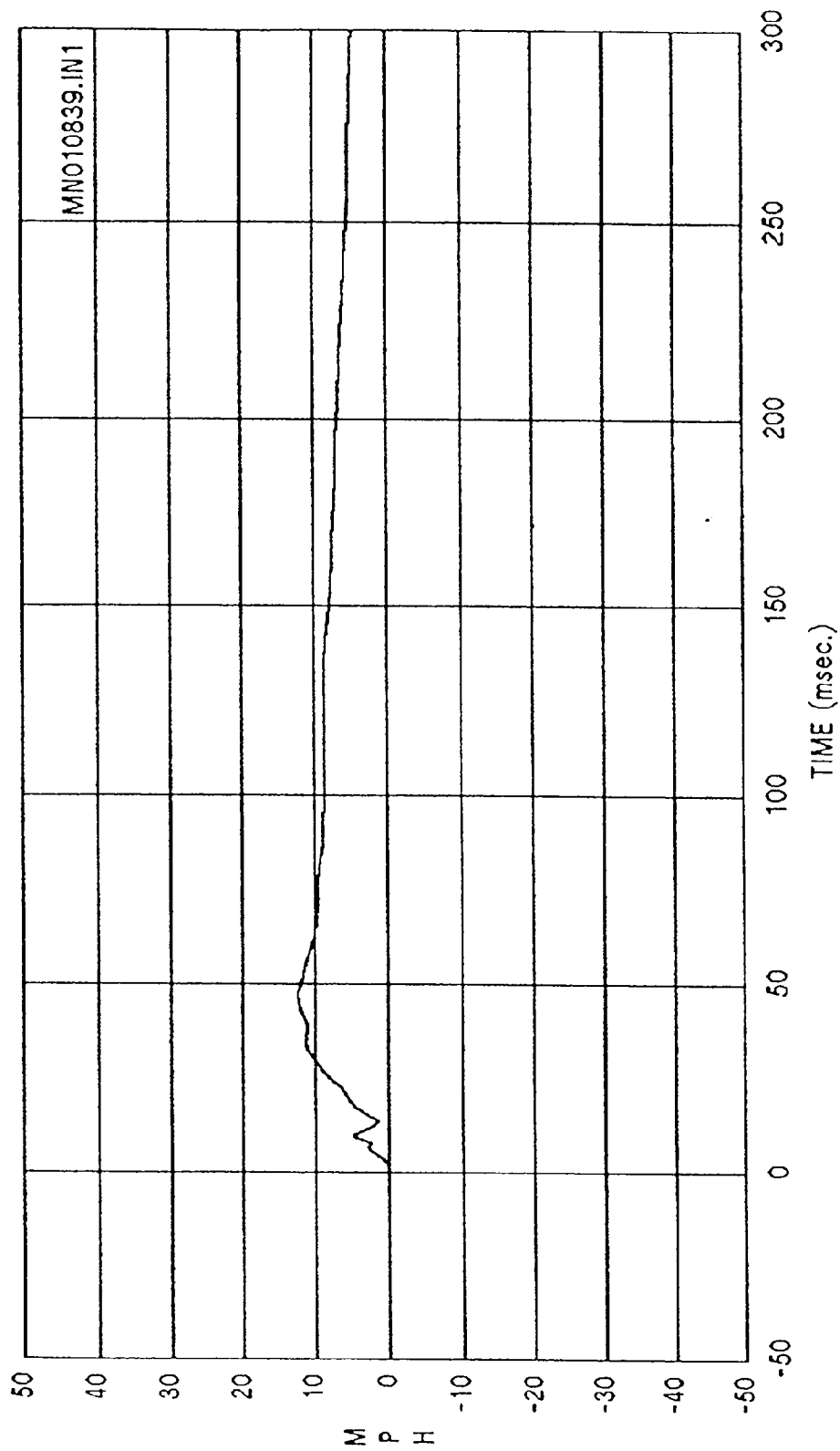
Curve: Rear seat left sill delta V -- Y axis Filter: SAE CLASS 180 Max = 11.901 Min = 1.9187

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

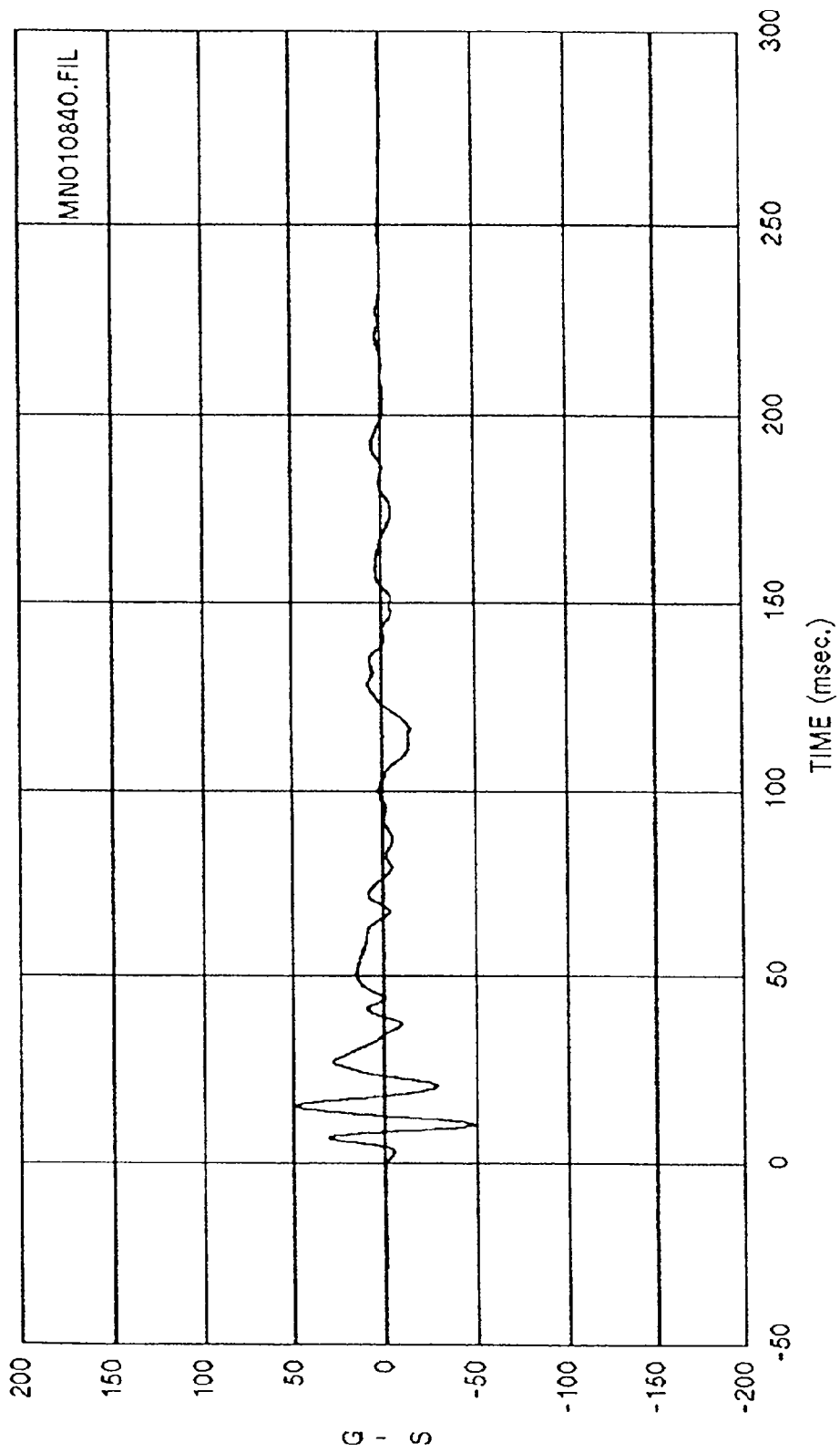


Curve: Front seat left Sill acceleration -- Y axis Filter: SAE CLASS 60 Max = 32.819 Min = -26.118

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

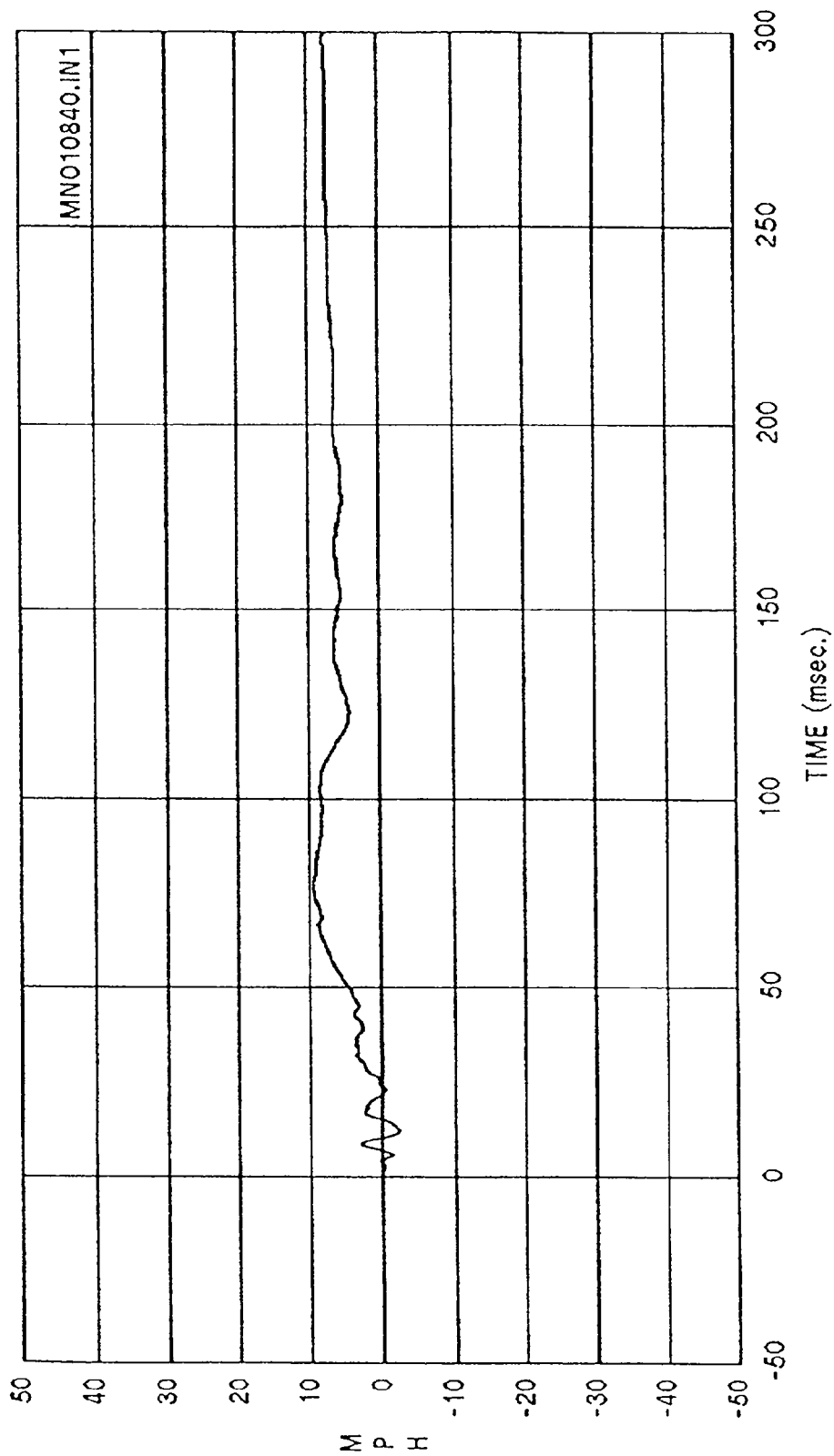


Curve: Front seat left Sill delta V -- Y axis Filter: SAE CLASS 180 Max = 12.362 Min = -.69555E-1
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



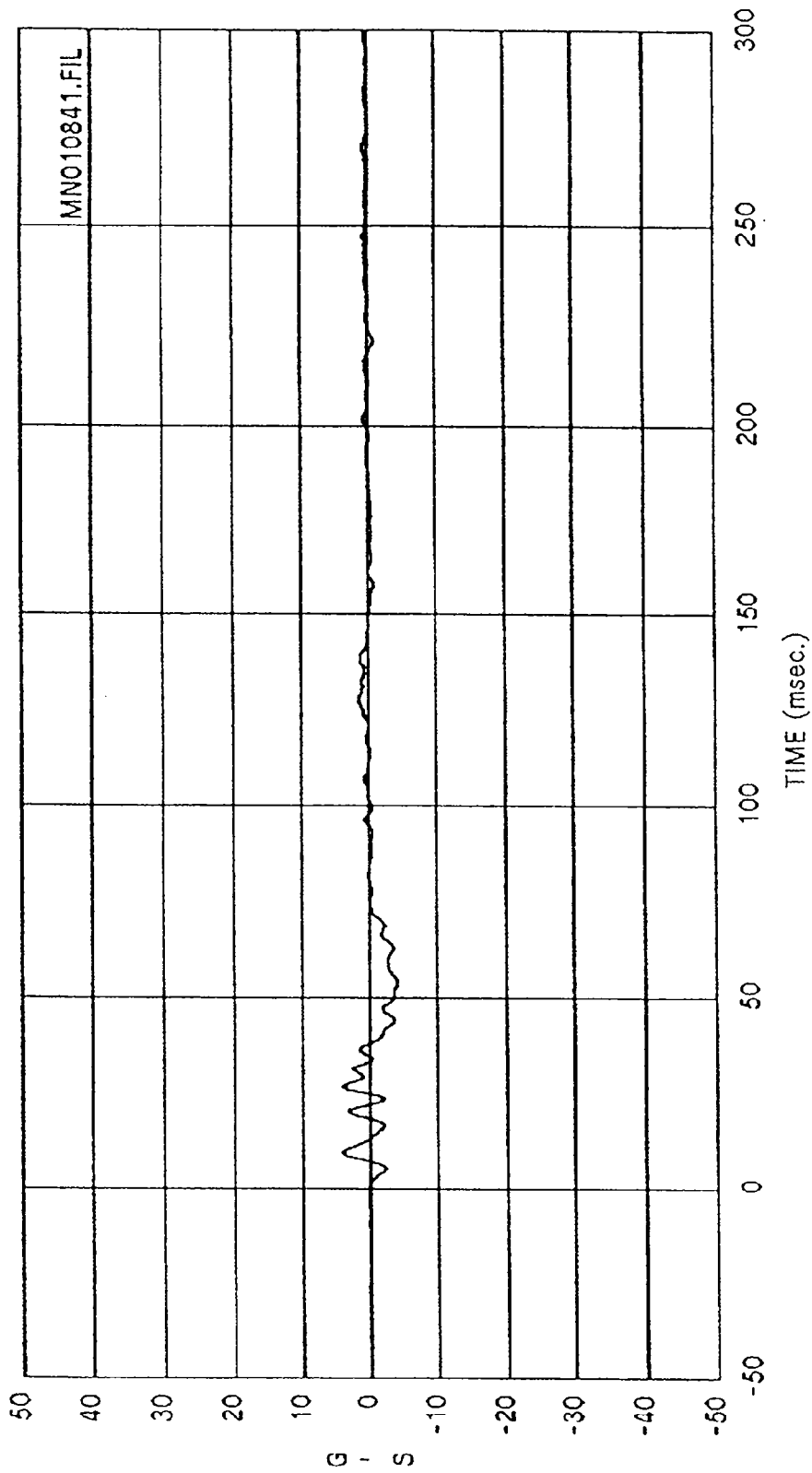
Curve: Left front door at centerline -- Y axis Filter: SAE CLASS 60 Max = 50.398 Min = -49.423

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



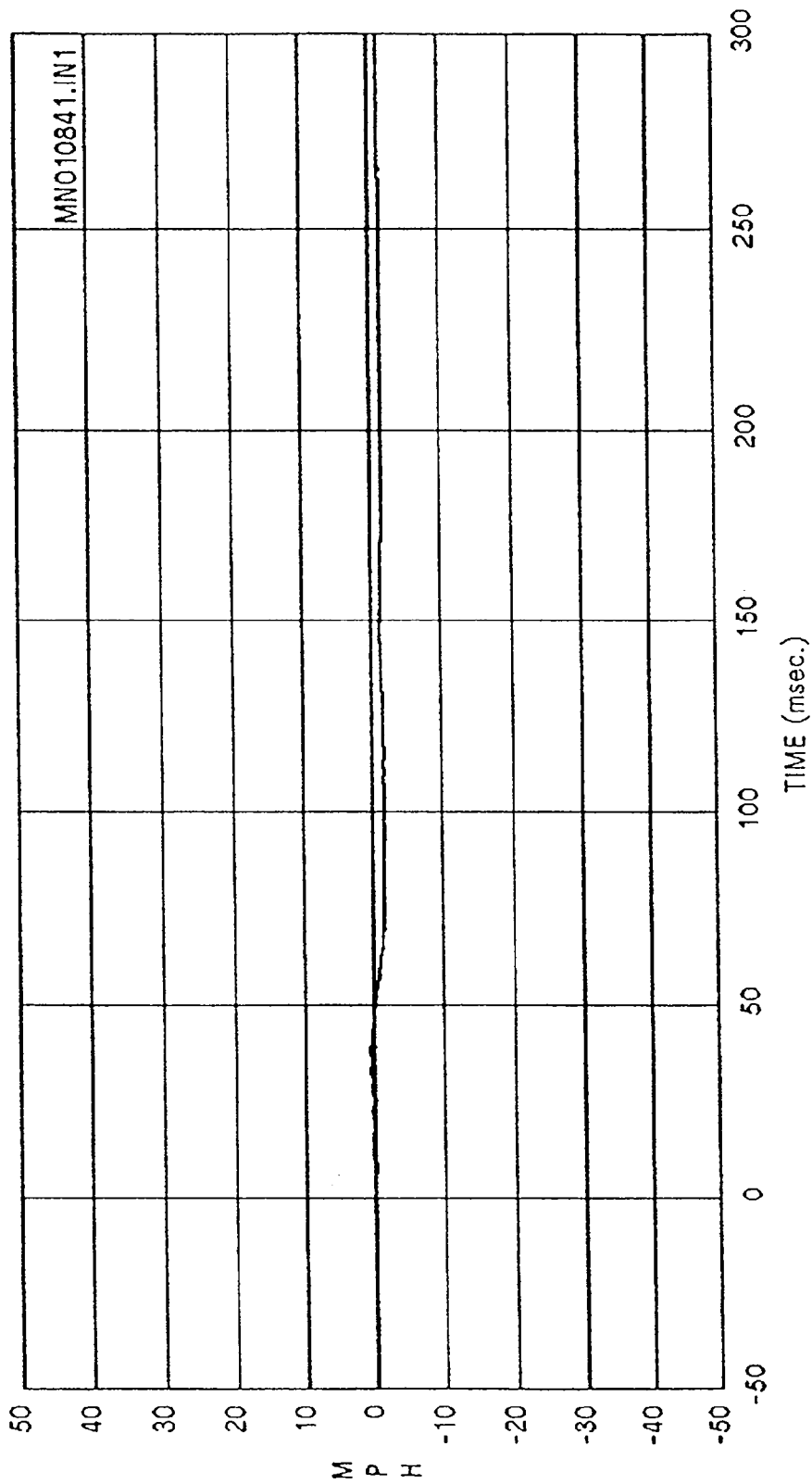
Curve: Left front door at centerline -- Y axis Filter: SAE CLASS 180 Max = 9.4467 Min = -2.3125

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



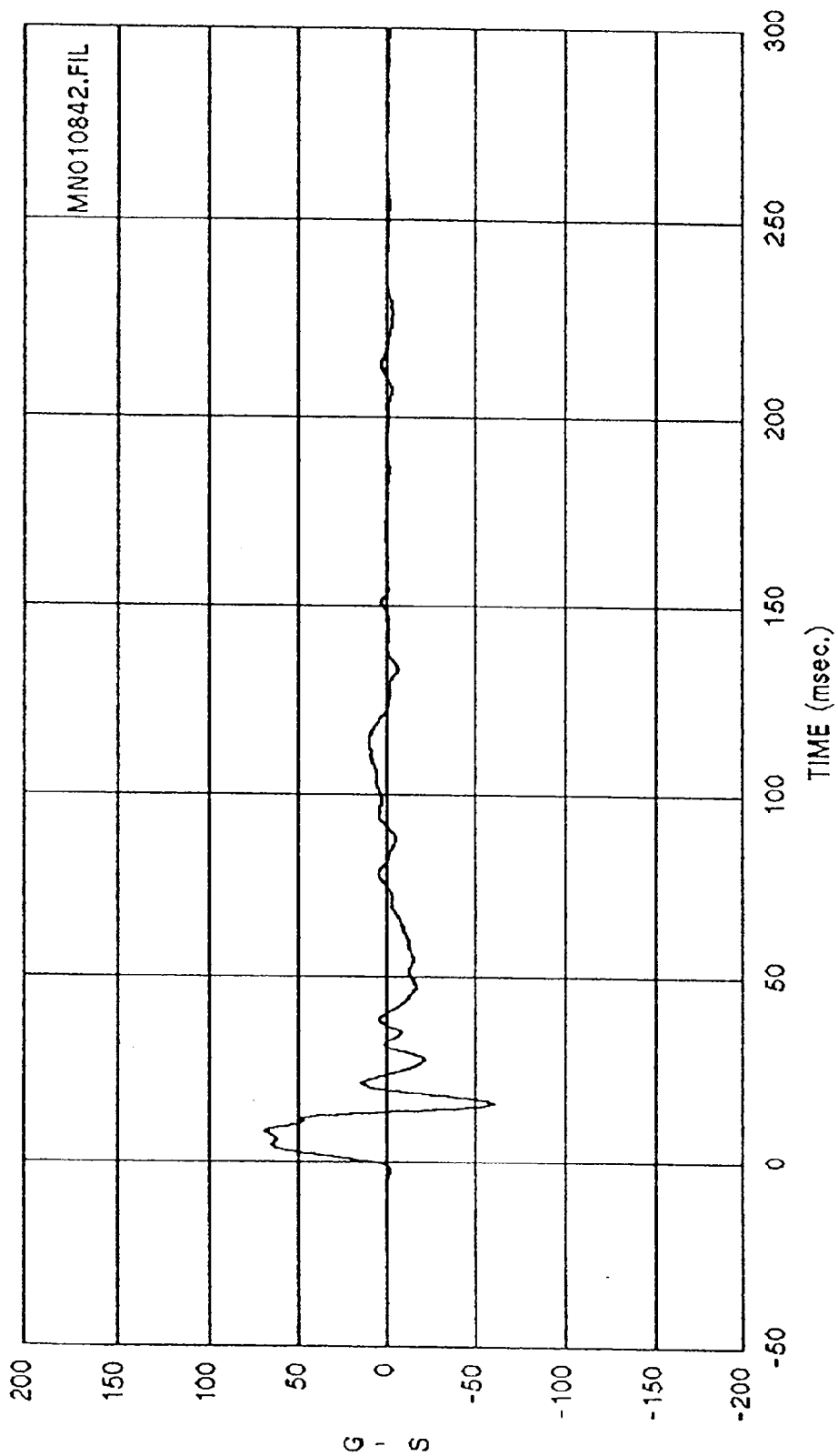
Curve: Right rear occupant compartment -- X axis Filter: SAE CLASS 60 Max = 4.0248 Min = -4.2228

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



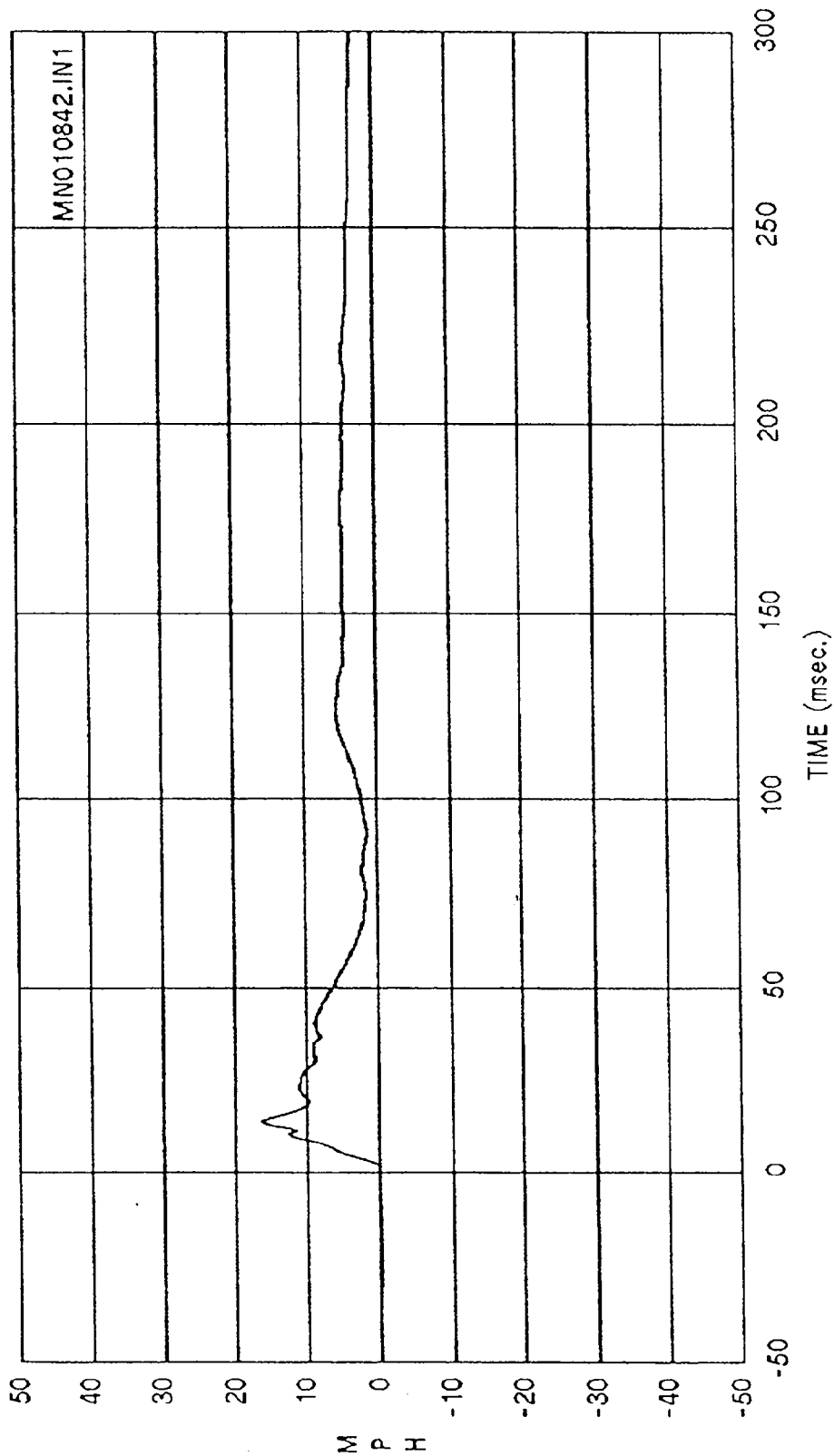
Curve: Right rear occupant compartment -- X axis Filter: SAE CLASS 180 Max = .54757 Min = -1.7574

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



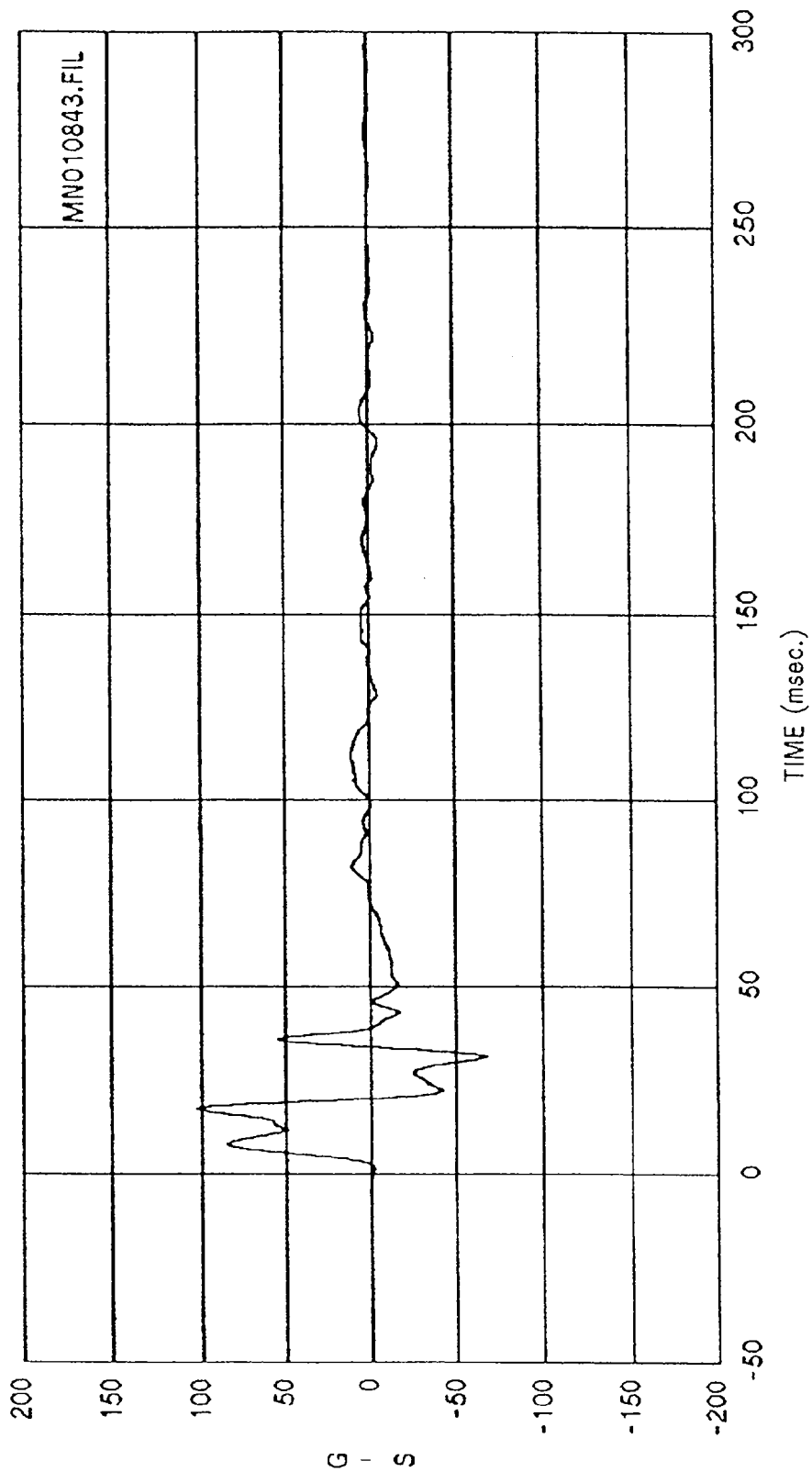
Curve: Left front door at mld-rear -- Y axis Filter: SAE CLASS 60 Max = 69.088 Min = -60.540

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



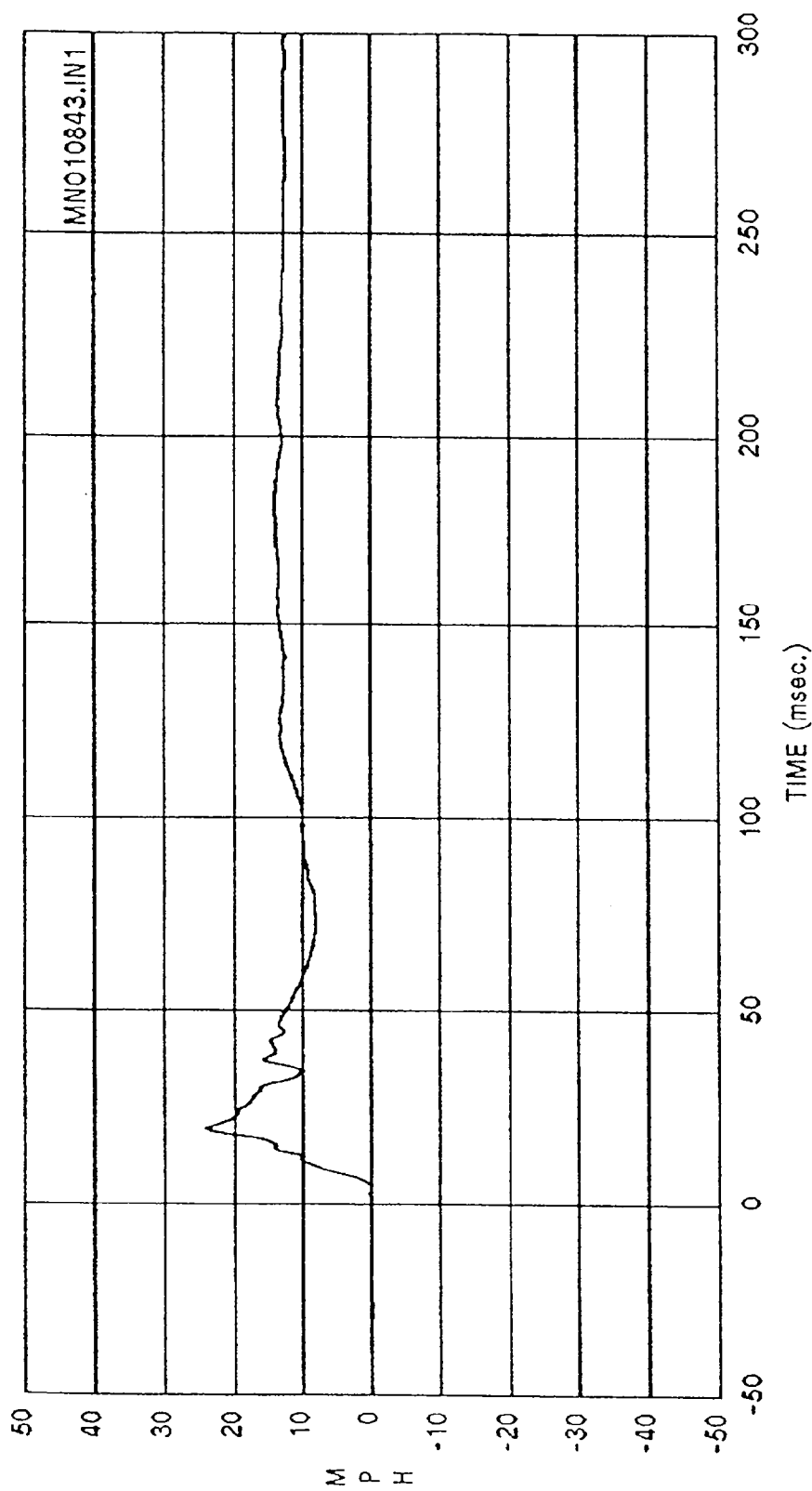
Curve: Left front door at mid-rear -- Y axis Filter: SAE CLASS 180 Max = 16.451 Min = -.45161E-

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



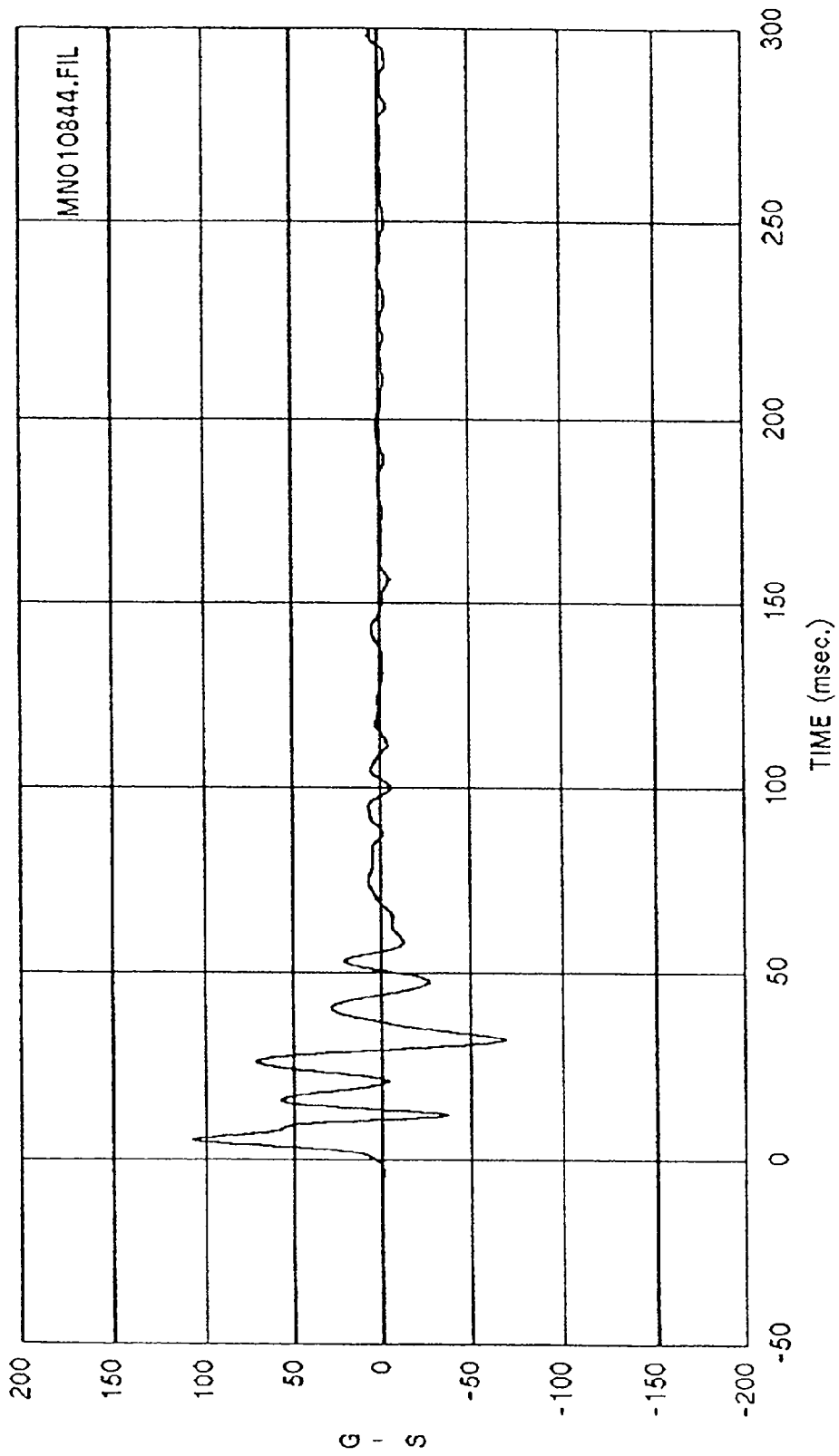
Curve: Left front door at upper centerline -- Y axis Filter: SAE CLASS 60 Max = 102.95 Min = -66.915

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



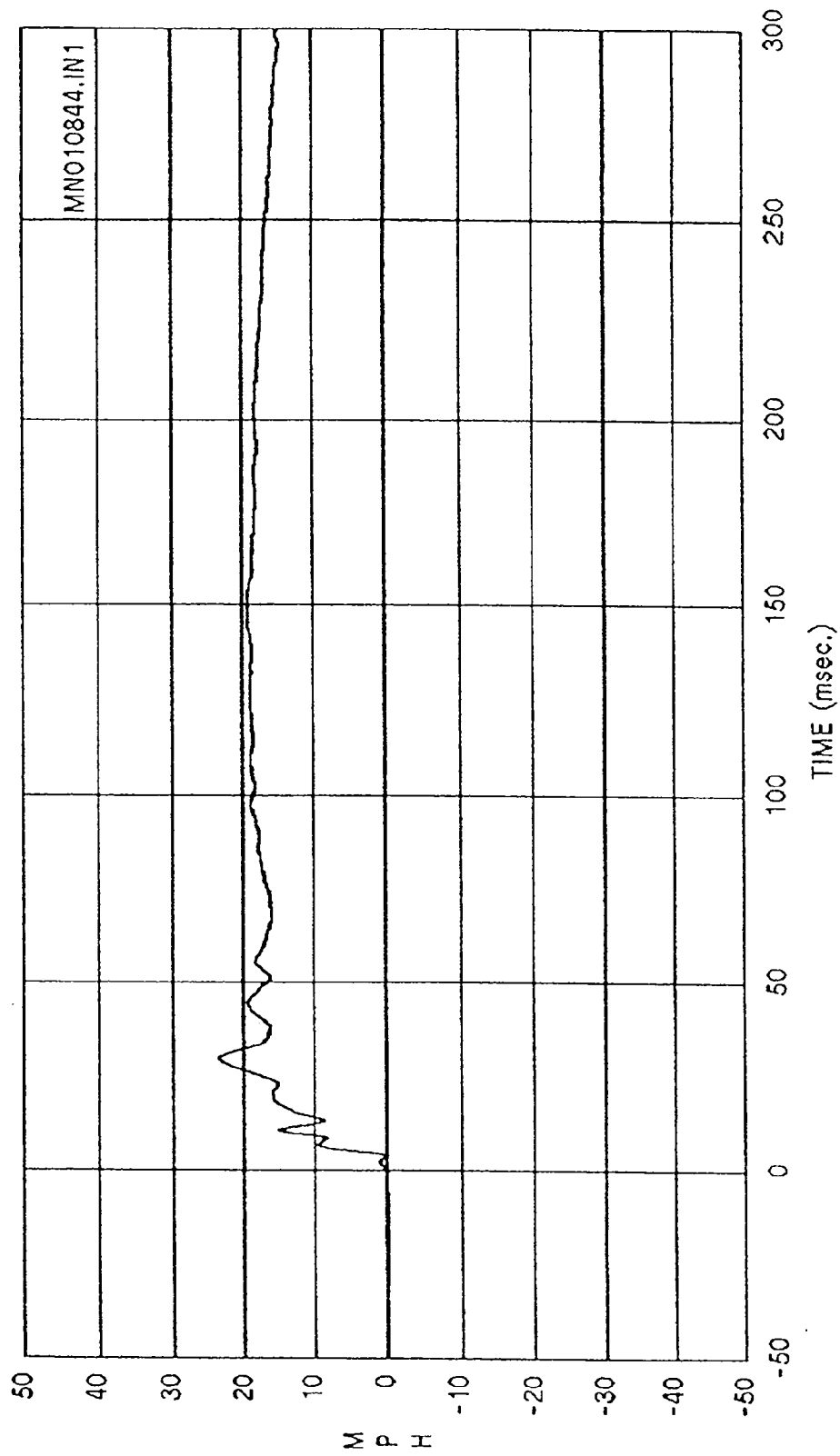
Curve: Left front door at upper centerline -- Y axis Filter: SAE CLASS 180 Max = 24.055 Min = -.57240l

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

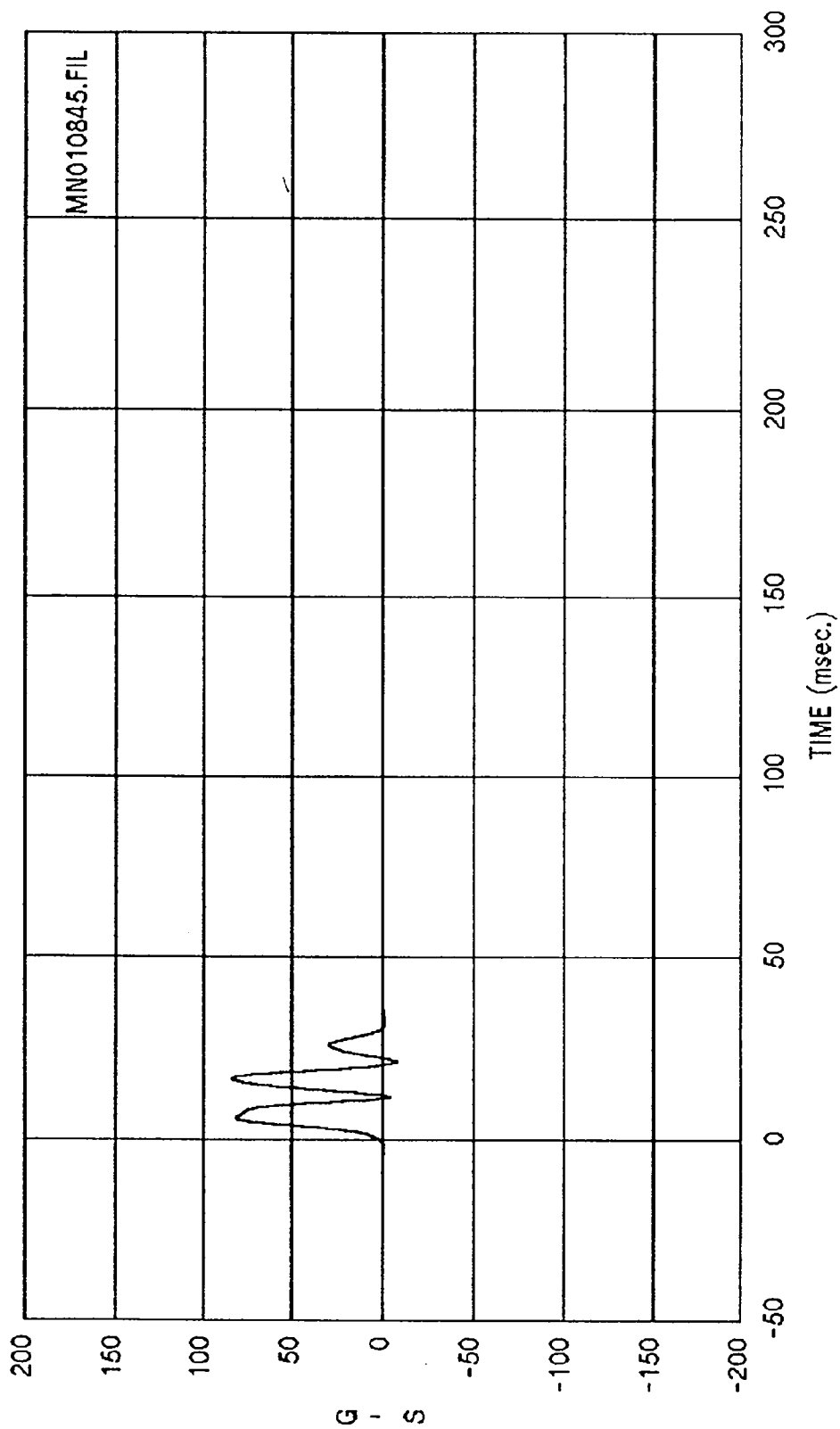


Curve: Left rear door at mid-rear -- Y axis Filter: SAE CLASS 60 Max = 107.65 Min = -68.863

MSE Date: 07/15/92 Program: Slide Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

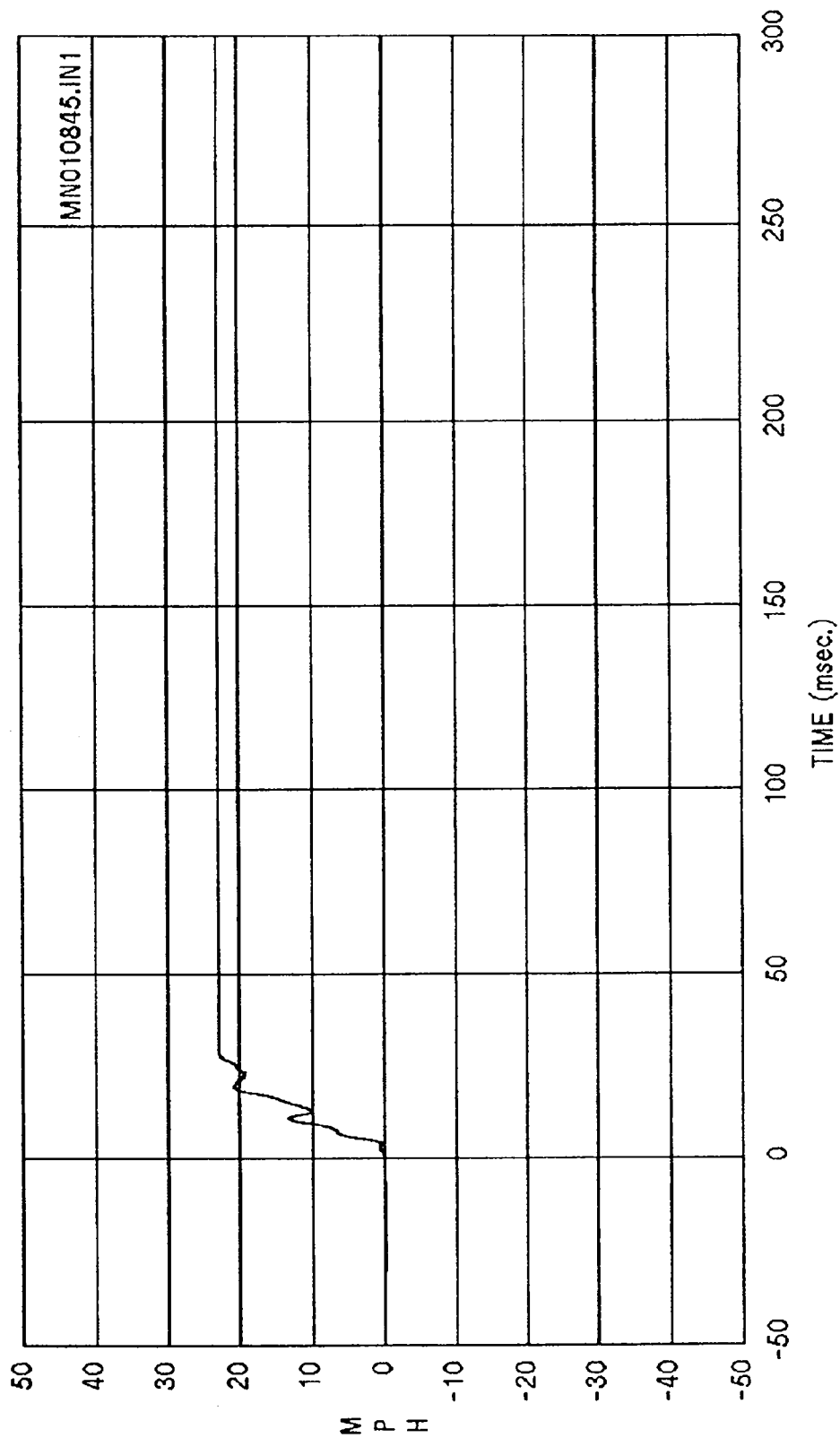


Curve: Left rear door at mld-rear -- Y axis Filter: SAE CLASS 180 Max = 23.726 Min = -.79906E-
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



Curve: Left rear door at upper centerline -- Y axis Filter: SAE CLASS 60 Max = 84.205 Min = -8.3026

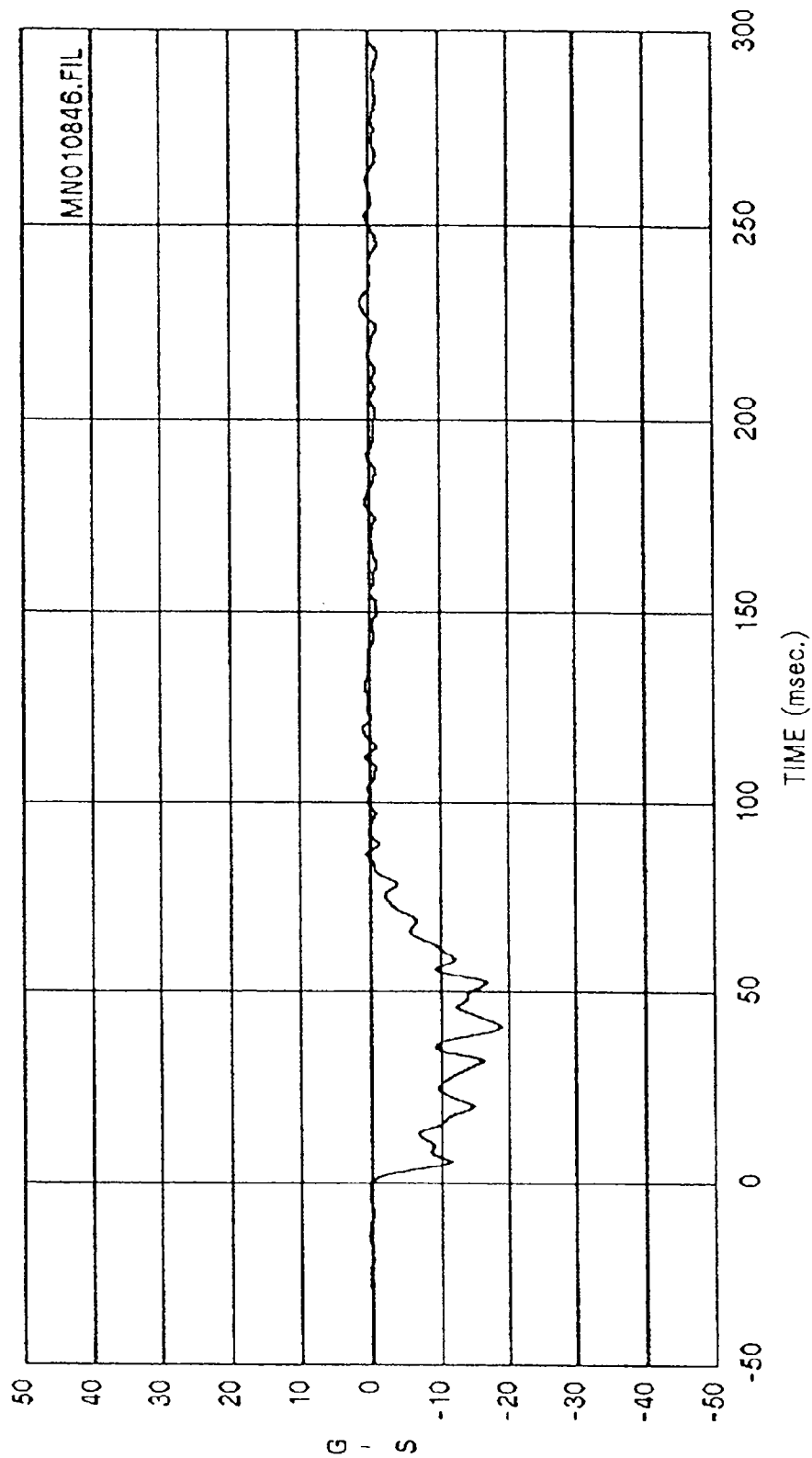
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



Curve: Left rear door at upper centerline -- Y axis Filter: SAE CLASS 180 Max = 22.864 Min = .45677

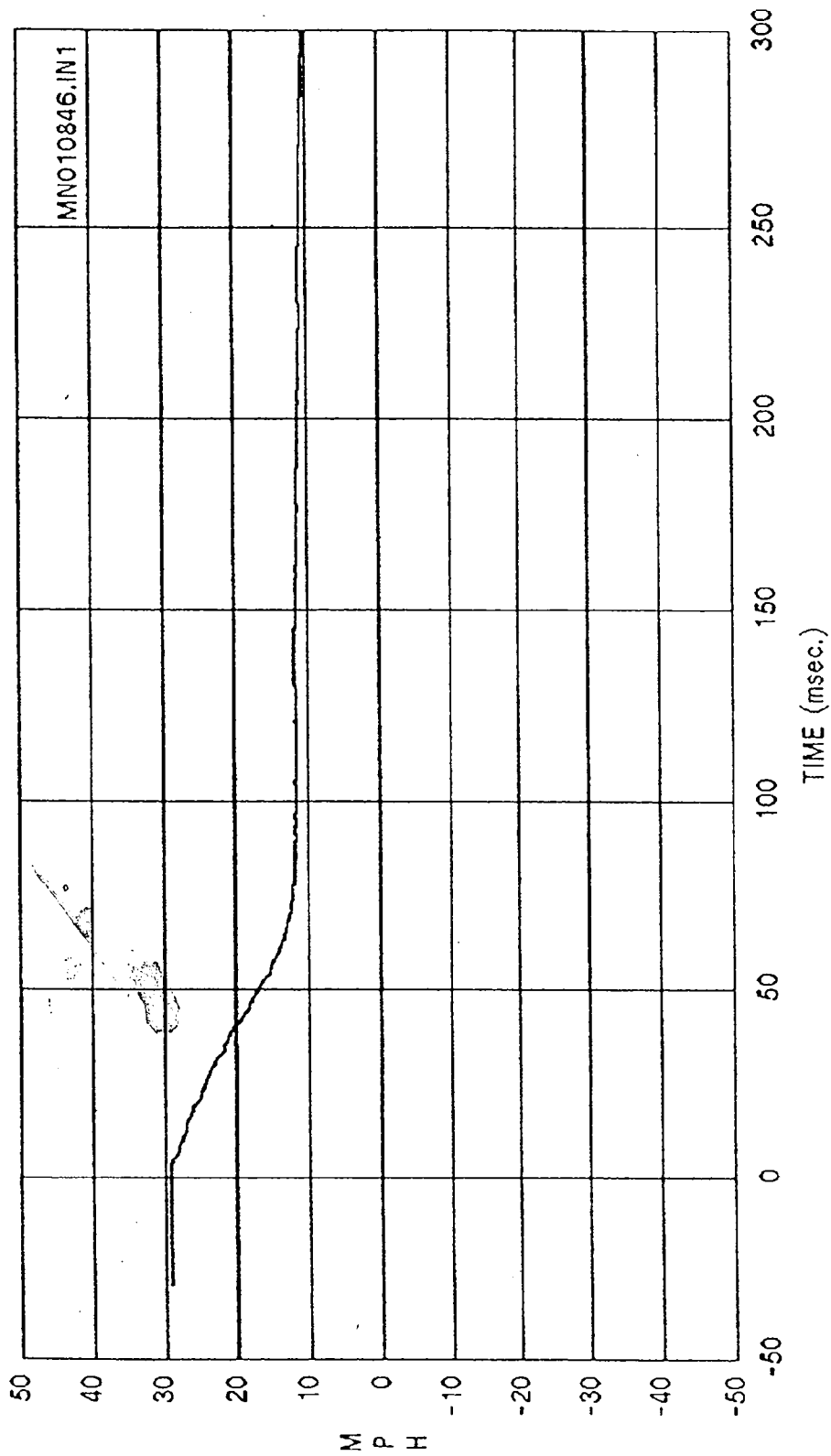
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

MDB ACCELEROMETER DATA

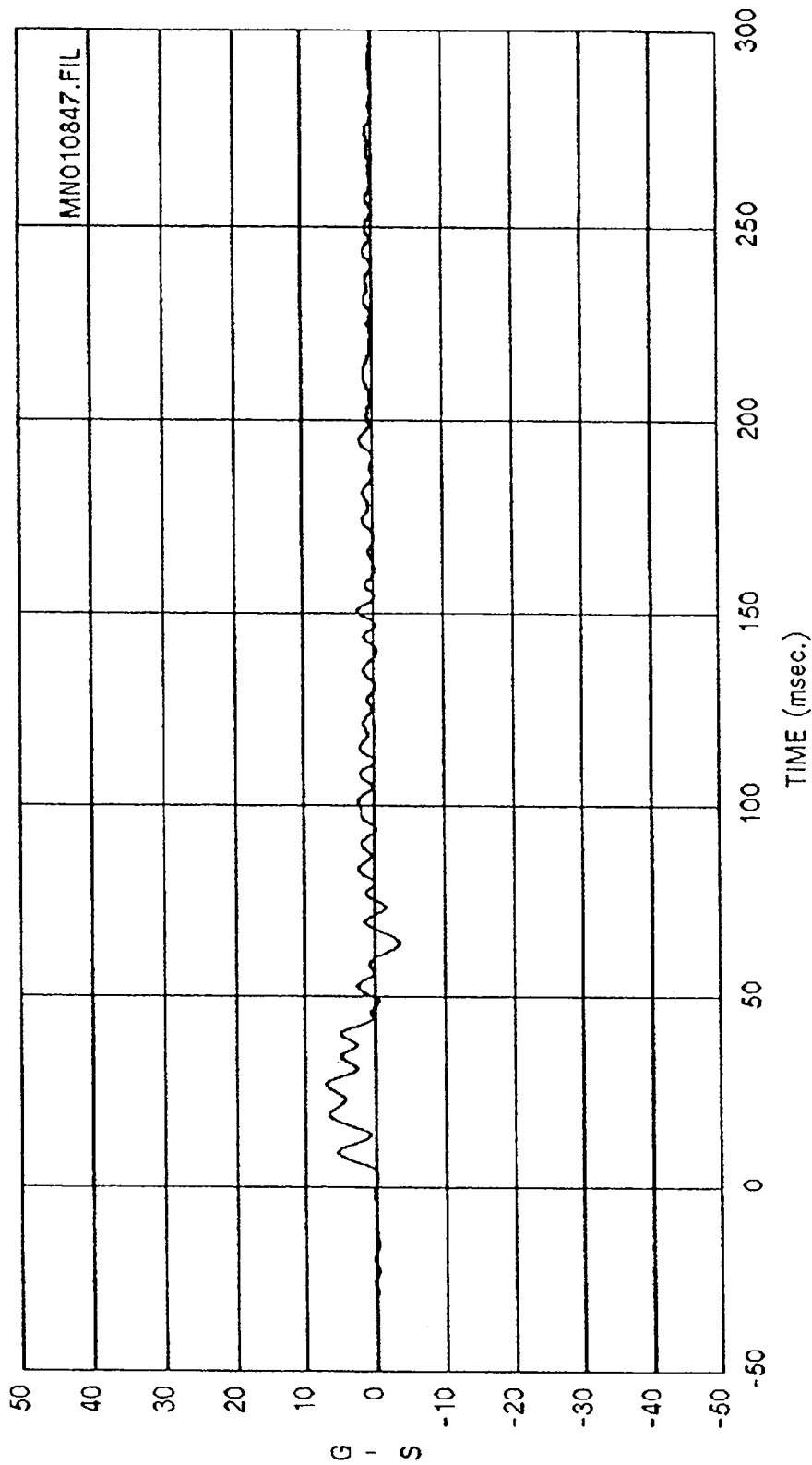


Curve: M.D.B. C/G acceleration -- X axis Filter: SAE CLASS 60 Max = 1.1421 Min = -18.846

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

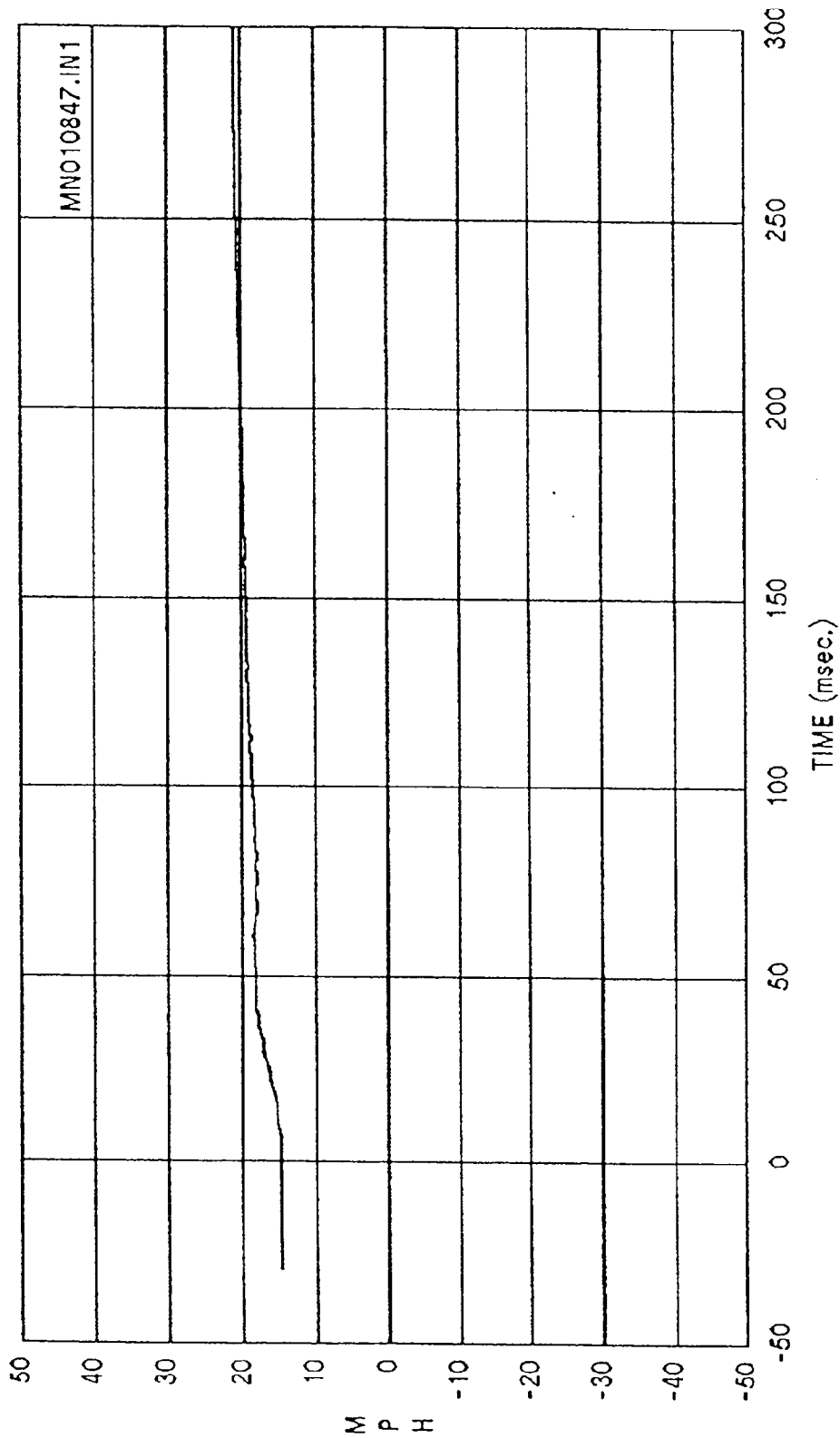


Curve: M.D.B. C/G delta V -- X axis Filter: SAE CLASS 180 Max = 29.234 Min = 10.384
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



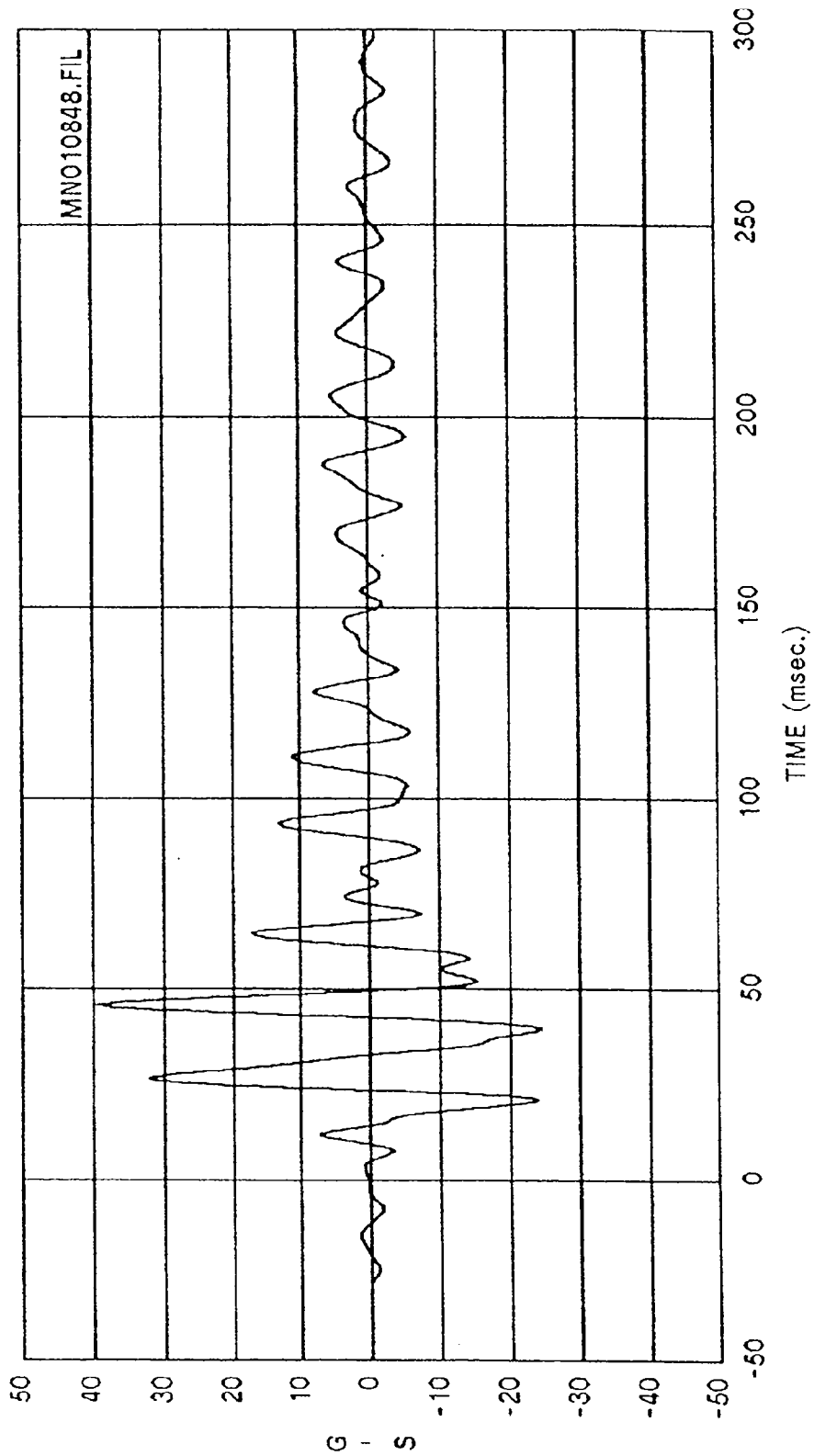
Curve: M.D.B. C/G acceleration -- Y axis Filter: SAE CLASS 60 Max = 6.9402 Min = -3.6353

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



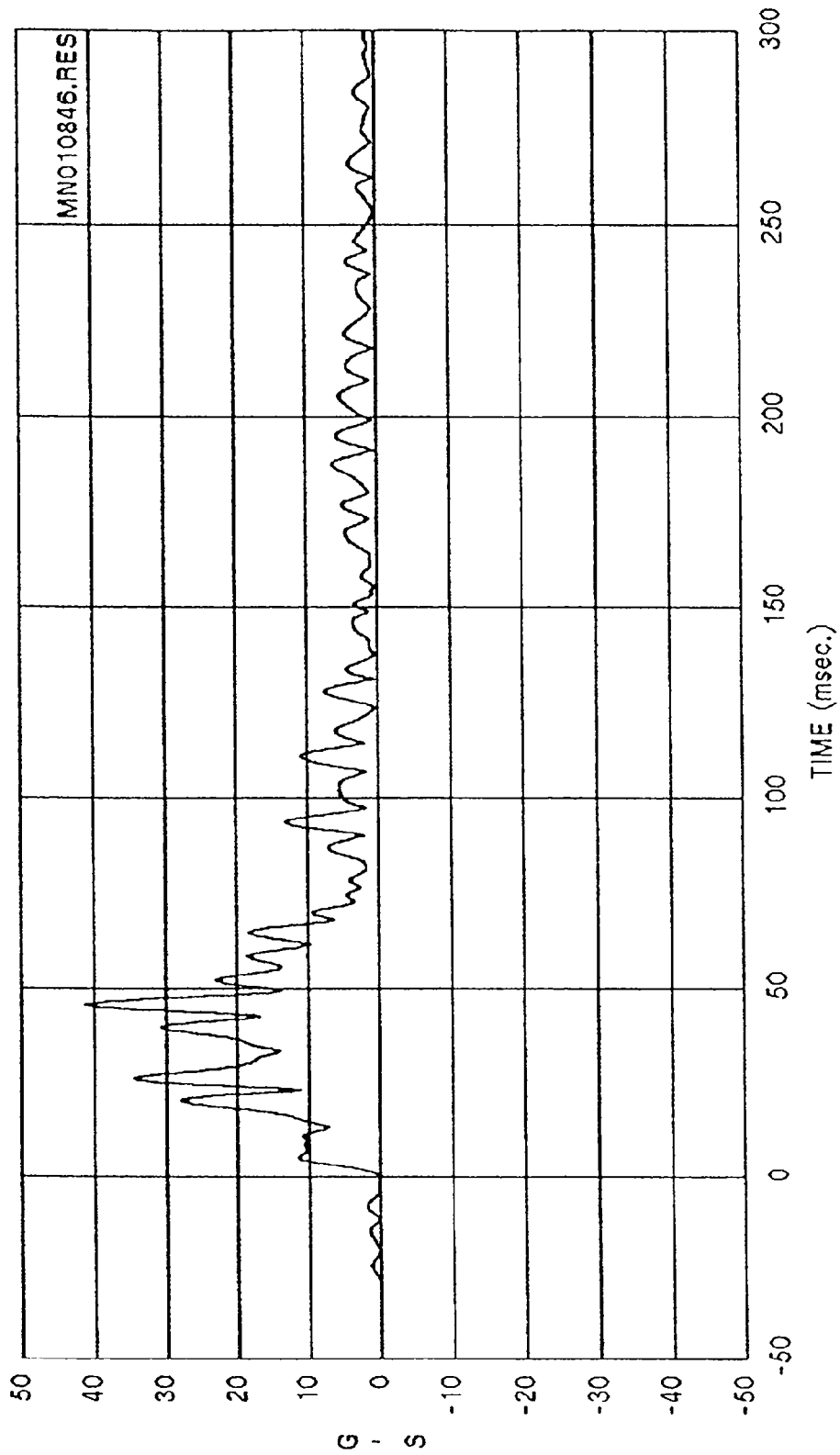
Curve: M.D.B. C/G delta V -- Y axis Filter: SAE CLASS 180 Max = 21.102 Min = 14.859

MSE Date: 07/15/92 Program: Slide Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

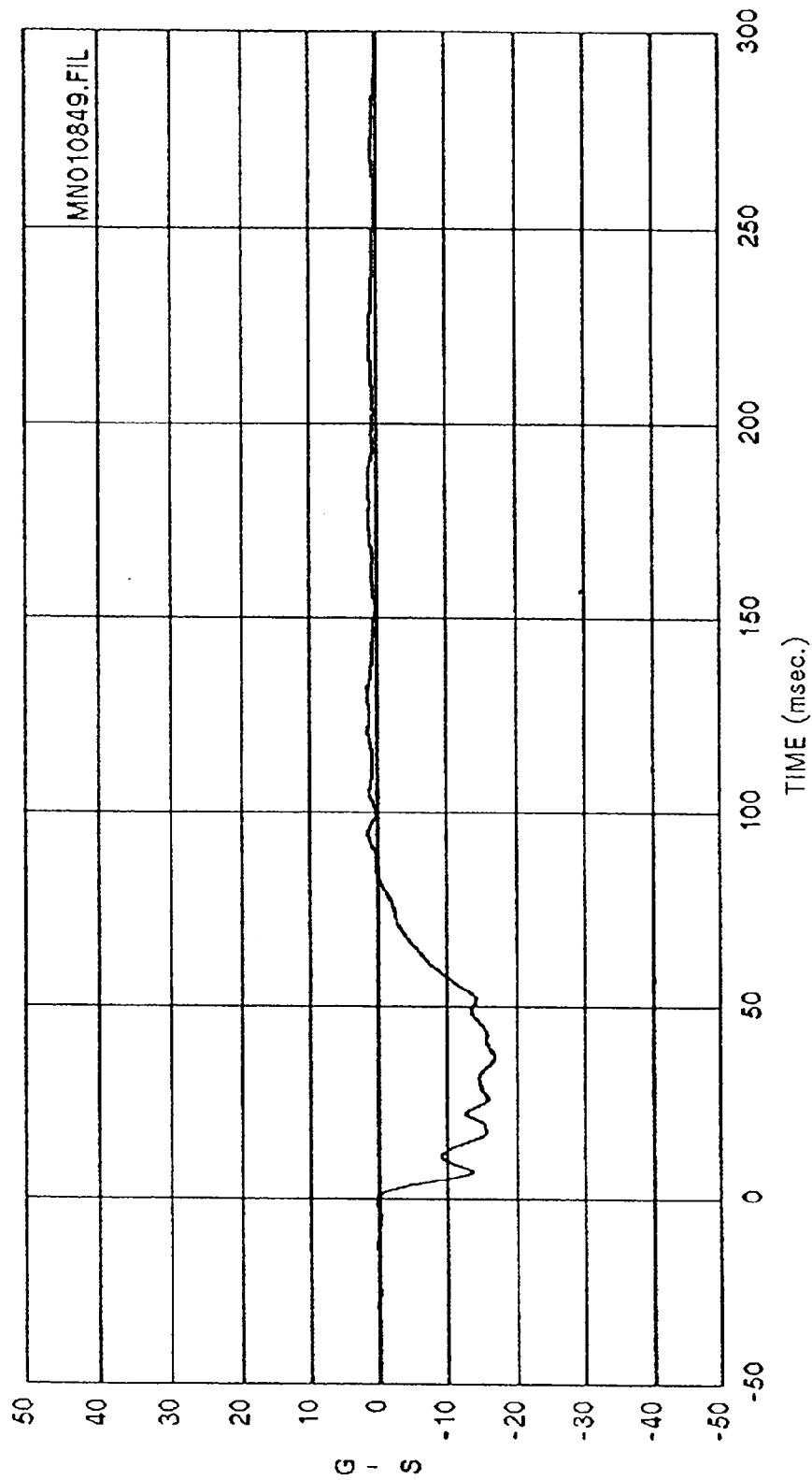


Curve: M.D.B. C/G acceleration -- Z axis Filter: SAE CLASS 60 Max = 39.333 Min = -24.628

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

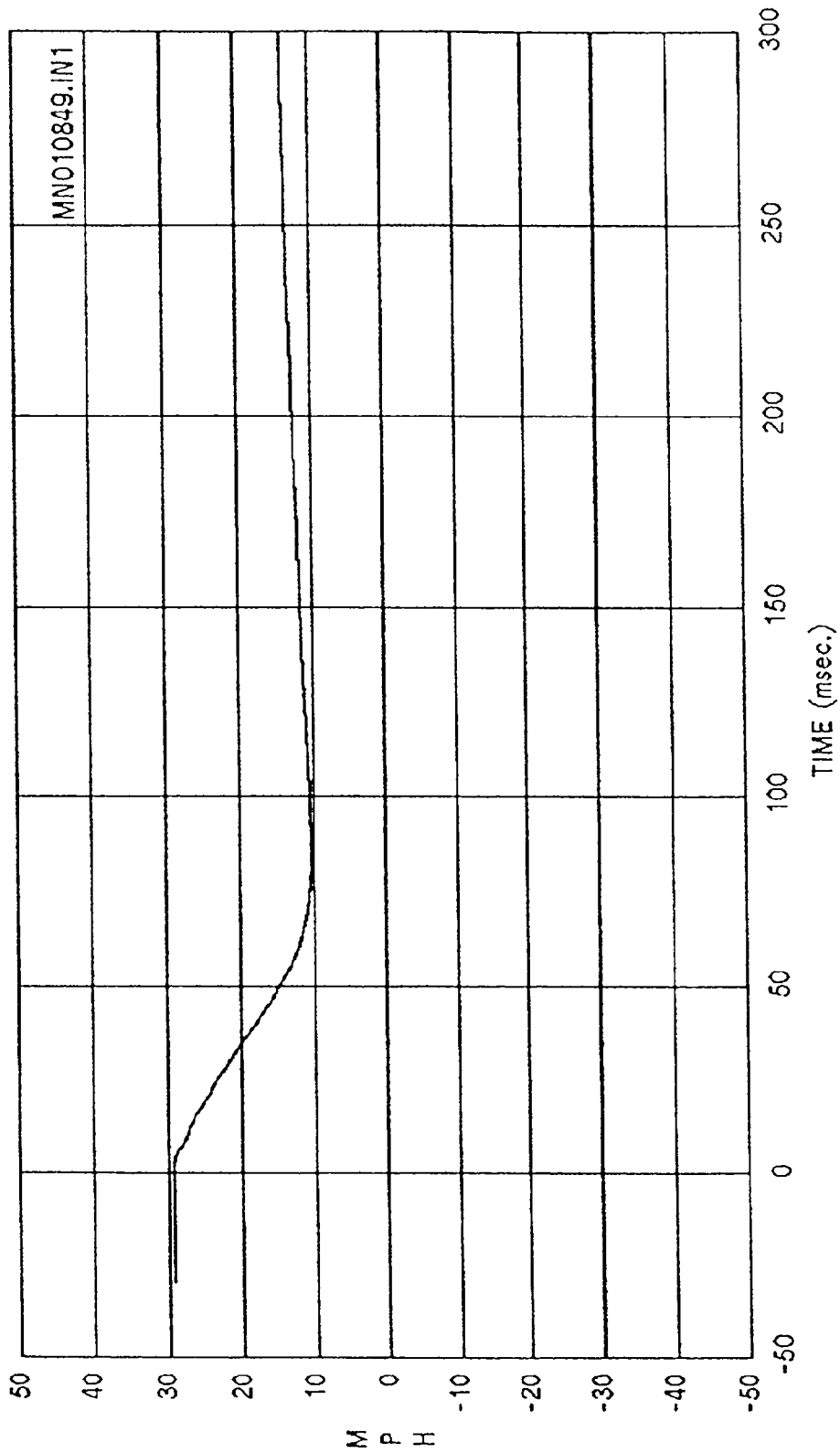


Curve: M.D.B. C/G resultant acceleration Filter: SAE CLASS 60 Max = 41.173 Min = .31312
MSE Date: 07/15/92 Program: Side Impact 30/15 90 Deg. Vehicle: 1992 Chevrolet Lumina



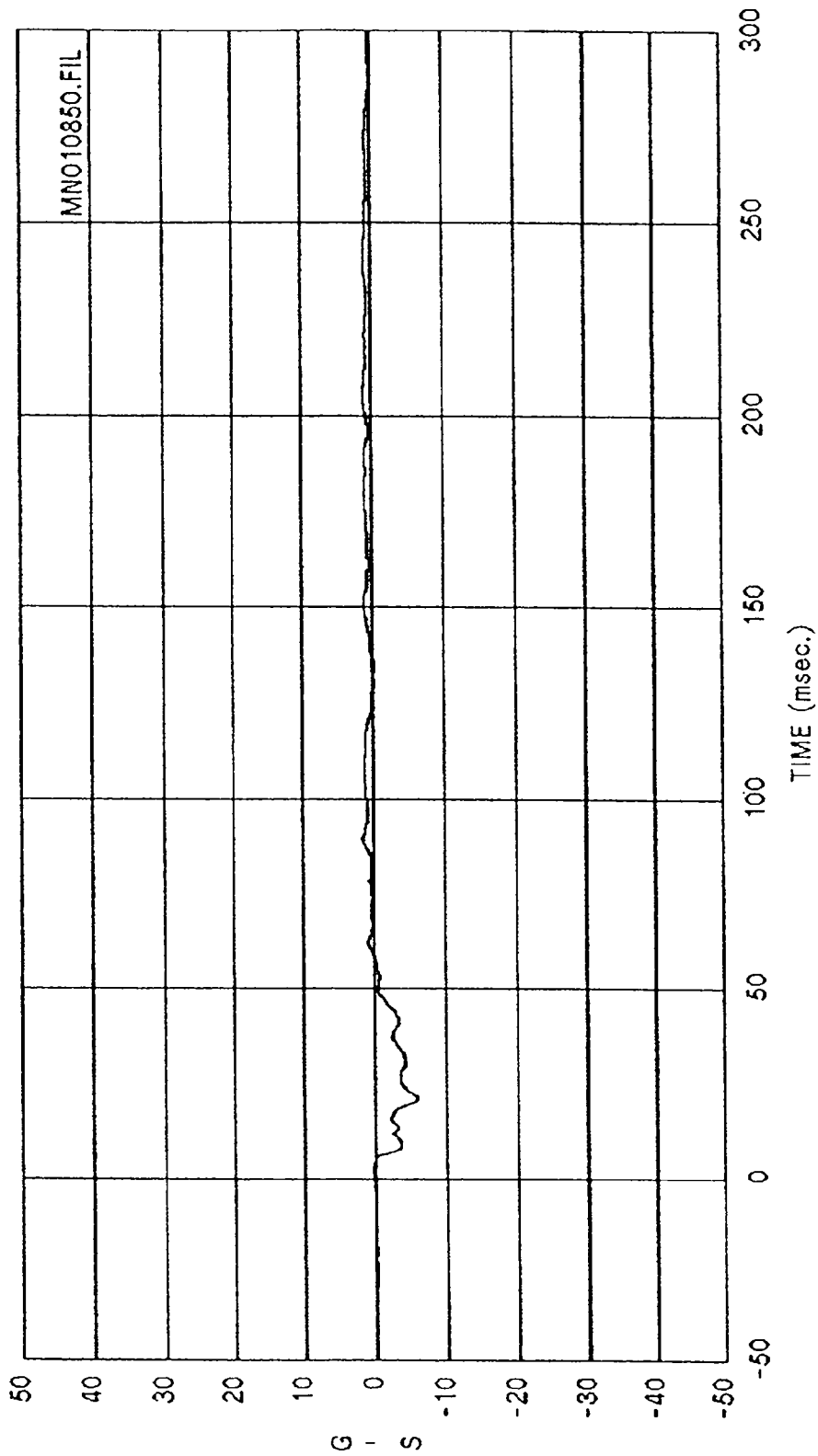
Curve: M.D.B. rear C/G acceleration -- X axis Filter: SAE CLASS 60 Max = 1.4100 Min = -16.961

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

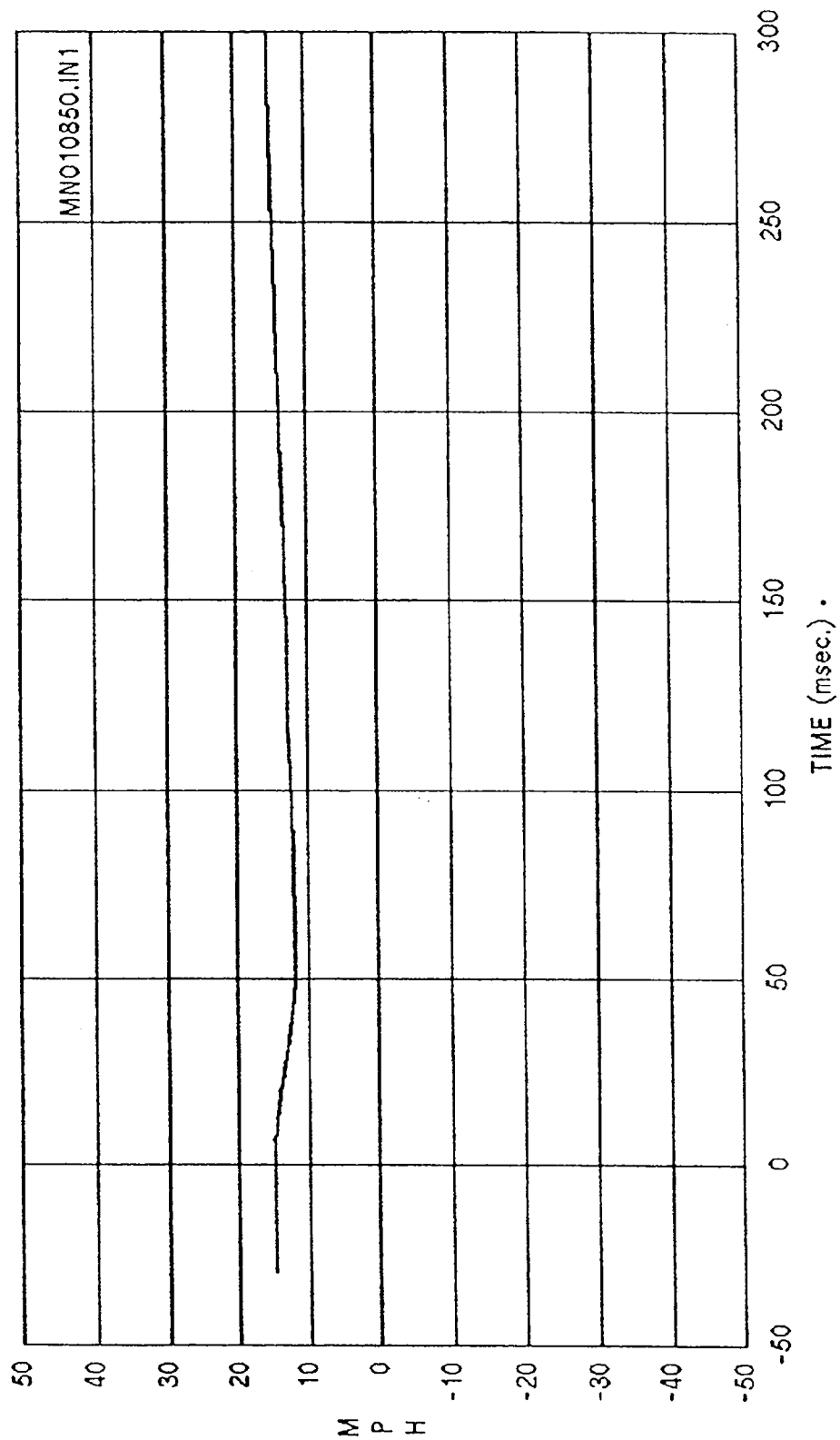


Curve: M.D.B. rear C/G delta V -- X axis Filter: SAE CLASS 180 Max = 29.237 Min = 10.394

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



Curve: M.D.B. rear C/G acceleration -- Y axis Filter: SAE CLASS 60 Max = 1.4711 Min = -5.9956
MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina



Curve: M.D.B. rear C/G delta V -- Y axis Filter: SAE CLASS 180 Max = 15.184 Min = 11.824

MSE Date: 07/15/92 Program: Side Impact, 30/15, 90 deg. Vehicle: 1992 Chevrolet Lumina

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 (DRIVER)

TEST PARAMETER	SPECIFICATION	Pretest Calibration	Posttest Calibration
1. ABDOMINAL COMPRESSION TEST (Preload = 10 pounds)			
a. Force @ .5" - - - -	23 - 36 lbs.	N/A	
b. Force @ .75"- - - -	36 - 50 lbs.	N/A	
c. Force @ 1.0"- - - - -	50 - 63 lbs	N/A	
d. Force @ 1.3"- - - - -	73 - 88 lbs.	N/A	
2. LUMBAR FLEXION TEST:			
a. Force @ 20' - - - -	22 to 34 lbs	N/A	
b. Force @ 30' - - - -	34 to 46 lbs	N/A	
c. Force @ 40' - - - - -	46 to 58 lbs	N/A	
d. Return Angle - - - -	12 maximum	N/A	
3. THORAX IMPACT TEST:	VEL:13.97ft/sec		
a. Upper Rib accel.- - -	Primary 37 - 46g's Sec	39.7 40.1	
b. Lower Rib accel.- - -	Primary 37 - 46g's Sec	37.2 38.3	
c. Lower Spine accel - -	Primary 15 -22 g's Sec	20.8 20.7	
4. PELVIC IMPACT TEST:	Vel:13.87 ft/sec		
Pelvic accel. - - - -	40 - 60g's	43.9	

SID IMPACT CALIBRATION SUMMARY SHEET

S.I.D. I.D. NO. : 137 (PASSENGER)

TEST PARAMETER	SPECIFICATION	Pretest Calibration	Posttest Calibration
1. ABDOMINAL COMPRESSION TEST (Preload = 10 pounds)			
a. Force @ .5" - - - -	23 - 36 lbs.	N/A	
b. Force @ .75"- - - -	36 - 50 lbs.	N/A	
c. Force @ 1.0"- - - -	50 - 63 lbs	N/A	
d. Force @ 1.3"- - - -	73 - 88 lbs.	N/A	
2. LUMBAR FLEXION TEST:			
a. Force @ 20' - - - -	22 to 34 lbs	N/A	
b. Force @ 30' - - - -	34 to 46 lbs	N/A	
c. Force @ 40' - - - -	46 to 58 lbs	N/A	
d. Return Angle - - - -	12 maximum	N/A	
3. THORAX IMPACT TEST:	VEL:14.02ft/sec		
a. Upper Rib accel.- - -	Primary 37 - 46g's Sec	40.3 40.9	
b. Lower Rib accel.- - -	Primary 37 - 46g's Sec	39.0 39.5	
c. Lower Spine accel - -	Primary 15 -22 g's Sec	20.1 20.4	
4. PELVIC IMPACT TEST:	Vel:14.12 ft/sec		
Pelvic accel. - - - -	40 - 60g's	40.3	