

REPORT NO.: 214D-MGA-98-09

V2717

NEW CAR ASSESSMENT PROGRAM  
SIDE IMPACT TESTING  
PASSENGER CARS

1998 MAZDA 626  
4-DOOR SEDAN  
NHTSA NO: MW5401

MGA PROVING GROUNDS  
5000 WARREN ROAD  
BURLINGTON, WI 53105



Test Date: November 6, 1997

Report Date: December 18, 1997

FINAL REPORT

Prepared For:

U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
SAFETY PERFORMANCE STANDARDS  
OFFICE OF CRASHWORTHINESS STANDARDS  
ROOM 5313, NPS-10  
400 SEVENTH STREET, SW  
WASHINGTON, D.C. 20590

This Final Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-93-C-02047.

This document is disseminated under the sponsorship of the U. S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its content or use thereof.

Prepared By: *Dave Kosloske*  
Dave Kosloske, Project Engineer

Approved By: *John Fleck*  
John Fleck, Facility Director

Approval Date: *December 23, 1997*

FINAL REPORT ACCEPTED BY (OCWS):

Accepted By: \_\_\_\_\_  
Contract Technical Manager

Acceptance Date: \_\_\_\_\_

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 214D-MGA-98-09		2. Government Accession No.		3. Recipient's Catalog No.																			
4. Title and Subtitle New Car Assessment Program Side Impact Test of a 1998 Mazda 626 4-Door Sedan NHTSA No. MW5401				5. Report Date December 18, 1997																			
				6. Performing Organization Code MGA																			
7. Author(s) Dave Kosloske, Project Engineer				8. Performing Organization Report No. MGA-DOT-214-0																			
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105				10. Work Unit No.																			
				11. Contract or Grant No. DTNH22-93-C-02047																			
12. Sponsoring Agency Name and Address  U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards 400 Seventh St., S.W. Washington, D.C. 20590				13. Type of Report and Period Covered Final Test Report November 6, 1997 to December 18, 1997																			
				14. Sponsoring Agency Code NPS-10																			
15. Supplementary Notes																							
16. Abstract A 90° Moving Deformable Barrier NCAP side impact was conducted on the subject 1998 Mazda 626 4-Door Sedan to obtain new car assessment and research data indicant of FMVSS No. 214D performance. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on November 6, 1997.  The impact velocity of the Moving Deformable Barrier (MDB) was 61.5 kph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 21°C. The target vehicle post test maximum crush was 474 mm at level 2. The test vehicle's performance follows: <table border="0" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>DRIVER</u></th> <th style="text-align: center;"><u>PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td style="text-align: center;">57</td> <td style="text-align: center;">79</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">68</td> <td style="text-align: center;">92</td> </tr> <tr> <td>Lower Spine (T<sub>12</sub>) Accel., g</td> <td style="text-align: center;">93</td> <td style="text-align: center;">76</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">80</td> <td style="text-align: center;">84</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">136</td> <td style="text-align: center;">91</td> </tr> </tbody> </table> The 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 the side impact event.							<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	57	79	Left Lower Rib (LLR) Accel., g	68	92	Lower Spine (T <sub>12</sub> ) Accel., g	93	76	Thoracic Trauma Index (TTI)	80	84	Pelvis (PEV) Accel., g	136	91
	<u>DRIVER</u>	<u>PASS.</u>																					
Left Upper Rib (LUR) Accel., g	57	79																					
Left Lower Rib (LLR) Accel., g	68	92																					
Lower Spine (T <sub>12</sub> ) Accel., g	93	76																					
Thoracic Trauma Index (TTI)	80	84																					
Pelvis (PEV) Accel., g	136	91																					
17. Key Words New Car Assessment Program (NCAP) FMVSS No. 214D Side Impact Dummy (SID) Occupant Side Impact Protection				18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, Room 5108 (NAD-52) 400 Seventh Street, S.W. Washington, D.C. 20590																			
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 307	22. Price																		

## TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	PURPOSE AND TEST PROCEDURE	1-1
2	SUMMARY OF SIDE IMPACT TEST	2-1
3	SIDE IMPACT DUMMY (SID) AND VEHICLE TEST DATA	3-1
4	OCCUPANT AND VEHICLE INFORMATION	4-1
APPENDIX A	PHOTOGRAPHS	
APPENDIX B	VEHICLE AND SID RESPONSE DATA	
APPENDIX C	SID CONFIGURATION AND PERFORMANCE VERIFICATION	
APPENDIX D	TEST EQUIPMENT LIST AND CALIBRATION INFORMATION	

SECTION 1  
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY98 NCAP Side Impact Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-93-C-02047. The purpose of this test was to evaluate side impact protection of a 1998 Mazda 626 4-Door Sedan.

This side impact test was conducted in accordance with the New Car Assessment Program Side Impact Testing Procedure dated October 1996.

MGA does not endorse or certify products. The manufacturer's name appears solely for identification purposes only.

SECTION 2  
SUMMARY OF SIDE IMPACT TEST

A 1998 Mazda 626 4-Door Sedan was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 38.2 mph (61.5 kph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by MGA Research Corporation in Burlington, Wisconsin, on November 6, 1997. Pre- and post-test photographs of the test vehicle, the MDB and the side impact dummies (SIDs) are included in Appendix A.

Two Side Impact Dummies (SIDs) were placed in the driver and left rear designated seating positions according to instructions specified in the New Car Assessment Program Side Impact Laboratory Test Procedure which is dated October 1996. The side impact event was documented by nine high speed cameras. Camera locations and other pertinent camera information can be found in this report.

The SIDs were instrumented with the following accelerometers.

1. Left Upper Rib (LUR) uniaxial accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial accelerometer (Y-direction)
3. Lower Thoracic Spine (T<sub>12</sub>) uniaxial accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial accelerometer (Y-direction)
5. Head Center of Gravity triaxial accelerometers (X, Y, and Z-direction)

Appendix B contains the vehicle and dummy response data traces. A summary of the side impact dummy (SID) configuration and performance verification test data is shown in Appendix C. Dummy and vehicle calibration data can be found in Appendix D of this report.

The following table summarizes the results of the test:

Injury Criteria	Front SID	Rear SID
TTI (g)	80	84
Pelvis (g)	136	91

**SECTION 3**  
**SIDE IMPACT DUMMY (SID) AND**  
**VEHICLE TEST DATA**

DATA SHEET NO. 1

GENERAL VEHICLE TEST PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 VIN: 1YVGF22C7W5691579

Vehicle Body Color: Freeport Green Build Date: 9-23-97

Engine Data: 4 Cylinders;     CID; 2.0 Liter;     cc

Placement     Longitudinal;   X   Lateral

Transmission: 4 Speed;     Manual;   X   Automatic;   X   Overdrive

Final Drive:     Rear Wheel Drive;   X   Frt. Wheel Drive;     Four Wheel Drive

Odometer Reading 218 miles

Options:   X   A/C;   X   Pwr. Steering;   X   Pwr. Brakes;   X   Pwr. Windows;

  X   Cruise Control;   X   Tilt Wheel;   X   Power Door Locks;

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 32 Psi FRONT

26 Psi REAR

Recommended Tire Size: P185/70/R14

Tires on Test Vehicle: P185/70/R14 Manufacturer: Bridgestone

Vehicle Capacity Data:

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

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

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

Vehicle Maximum Capacity Loading = 385.5 kg (A)

No. of Occupants x 68.04 kg. = 340.1 kg (B)

Cargo Capacity (A-B) = 45.4 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	=	<u>399.2</u>	kg	Right Rear	=	<u>244.5</u>	kg
Left Front	=	<u>407.7</u>	kg	Left Rear	=	<u>244.9</u>	kg
TOTAL FRONT	=	<u>806.9</u>	kg	TOTAL REAR	=	<u>489.4</u>	kg
% of Total Vehicle Weight	=	<u>62.2</u>	%;	% of Total Weight	=	<u>37.8</u>	%
TOTAL WEIGHT	=	<u>1296.3</u>	kg				

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	=	<u>1296.3</u> kg
Cargo Carrying Capacity of Test Vehicle	=	<u>45.4</u> kg
Weight of 2 Side Impact Dummies (2 x <u>80.7</u> kg.)	=	<u>161.4</u> kg
TEST VEHICLE TARGET WEIGHT	=	<u>1503.1</u> kg

ACTUAL WEIGHT OF TEST VEHICLE WITH 2 DUMMIES AND CARGO (Fully Loaded):

Right Front	=	<u>403.7</u> kg	Right Rear	=	<u>300.7</u> kg
Left Front	=	<u>460.8</u> kg	Left Rear	=	<u>337.5</u> kg
TOTAL FRONT	=	<u>864.5</u> kg	TOTAL REAR	=	<u>638.2</u> kg
% of Total Weight	=	<u>57.5</u> %	% of Total Weight	=	<u>42.5</u> %
TOTAL TEST WEIGHT	=	<u>1502.7</u> kg			

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 673 mm Left Front 681 mm Right Rear 691 mm Left Rear 687 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 665 mm Left Front 661 mm Right Rear 655 mm Left Rear 640 mm

TEST ATTITUDE:

Right Front 659 mm Left Front 663 mm Right Rear 652 mm Left Rear 644 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2670 mm

C.G. = 1092 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4414 mm

Centerline = 4684 mm

Left Side = 4414 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 220 mm

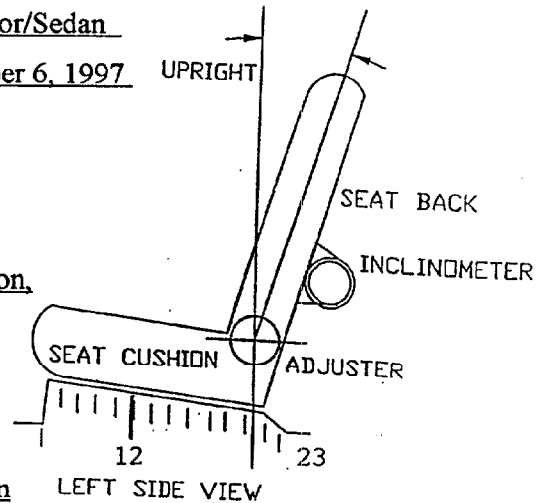
Test Position: 12th notch from foremost locking position,

23 total

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 5th detent from first locking position

as "0"



SECOND POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: Non-adjustable

Seat Back Adjustment Position: Non-adjustable

ADJUSTABLE STEERING COLUMN POSITION: Mid position (20.2°)

WINDOW POSITIONS: Left Front Closed Left Rear Closed

Right Front Open Right Rear Removed

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel system usable capacity = 16.9 gallons

Test Volume: 15.7 gallons 93 % of capacity

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

Wheelbase: = 2670 mm

Impact Point is 395 mm rearward of front axle centerline

DATA SHEET NO. 2  
TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan  
Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997  
Overall Length = 4684 mm; Overall Width = 1858 mm

TEST WEIGHT:

Right Front = 423.2 kg      Right Rear = 292.6 kg  
Left Front = 460.8 kg      Left Rear = 318.9 kg  
TOTAL FRONT = 884.0 kg      TOTAL REAR = 611.5 kg  
% of Total Weight = 59.1 %      % of Total Weight = 40.9 %  
TOTAL VEHICLE WEIGHT = 1495.5 kg  
Wheelbase = 2670 mm  
Longitudinal C.G. from Center of Front Axle = 1092 mm  
Impact Angle with Respect to Impactor = 90° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (224 mm above ground) = 294 mm
  2. LEVEL 2 (473 mm above ground) = 474 mm
  3. LEVEL 3 (580 mm above ground) = 423 mm
  4. LEVEL 4 (881 mm above ground) = 355 mm
  5. LEVEL 5 (1288 mm above ground) = 181 mm
- Maximum Post-Test Intrusion = 474 mm

OCCUPANTS:

	<u>Left Front Passenger</u>	<u>Left Rear Passenger</u>
Type of Dummy	<u>SID</u>	<u>SID</u>
Restraints Used	<u>type II belt</u> <u>and frontal airbag</u>	<u>type II belt</u>

TEST VEHICLE SUMMARY OF RESULTS (Cont'd)

INSTRUMENTATION:

Number of Vehicle Data Channels:	=	<u>23</u>
Number of Cameras: Onboard Vehicle	=	<u>3</u>
Offboard Vehicle	=	<u>4</u>
Deformable Barrier	=	<u>2</u>
TOTAL	=	<u>9</u>

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to left

MDB DETAILS:

Overall Width of Framework Carriage	=	<u>1252 mm</u>
Overall Length of MDB (incl. honeycomb impact face)	=	<u>4115 mm</u>
Wheelbase of Framework Carriage	=	<u>2591 mm</u>
Tread of Framework Carriage (Front & Rear)	=	<u>1880 mm</u>
C.G. Location Rearward of Front Axle	=	<u>1105 mm</u>
C.G. Location From Center Line	=	<u>-12 mm</u>
C.G. Location Above Ground Level	=	<u>484 mm</u>

MDB WEIGHT:

Left Front	=	<u>440.0 kg</u>	Left Rear	=	<u>242.5 kg</u>
Right Front	=	<u>338.2 kg</u>	Right Rear	=	<u>331.9 kg</u>
TOTAL FRONT	=	<u>778.2 kg</u>	TOTAL REAR	=	<u>574.4 kg</u>
TOTAL MDB WEIGHT	=	<u>1352.9 kg</u>			

Impact Angle (MDB C/L to Target Vehicle C/L) = 90° degrees

Impact Speed = Primary: 38.2 mph (61.5 kph) Secondary: 38.3 mph (61.6 kph)

CRASH TEST SUMMARY FOR SIDE IMPACTOR (Cont'd)

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A Top of Stack (813 mm) = 190 mm
2. Row B Mid Stack (686 mm) = 155 mm
3. Row C Top of Bumper (533 mm) = 72 mm
4. Row D Center of Bumper (432 mm) = 116 mm

INSTRUMENTATION:

Number of MDB Data Channels = 7

DATA SHEET NO. 4  
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to D-ring and left shoulder</u>	<u>to C-post and rear header</u>
Arm	<u>to upper door panel</u>	<u>to upper door panel</u>
Pelvis	<u>to lower door panel</u>	<u>to door panel</u>
Left Knee	<u>to door panel</u>	<u>to mid door panel</u>
Right Knee	<u>to left knee</u>	<u>to left knee</u>

DOOR OPENING:

	<u>LEFT SIDE</u>	<u>RIGHT SIDE</u>
Front	<u>Remained closed</u>	<u>Remained closed</u>
Rear	<u>Remained closed</u>	<u>Remained closed</u>

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal: 7 mm rearward      Vertical: 6 mm high

ARM REST LOCATIONS:

Front: 226 mm from bottom of window

Rear: 254 mm from bottom of window

POST-TEST OBSERVATIONS (Cont'd)

SEAT CRUSH:

Front Seat Back: 116 mm    Front Seat Cushion: 131 mm

Left Rear Seat Back: 183 mm    Rear Seat Cushion: 234 mm

GLAZING DAMAGE:

Windshield cracked and both front and rear left side door windows broken

PILLAR PERFORMANCE:

No failure noted

SILL SEPARATION:

None noted

OTHER NOTABLE IMPACT EFFECTS:

Frontal airbags did not deploy

AIRBAG DEPLOYMENT STATUS:

	<u>DRIVER</u>	<u>PASSENGER</u>
Frontal	<u>No</u>	<u>No</u>
Side	<u>N/A</u>	<u>N/A</u>

**SECTION 4**  
**OCCUPANT AND VEHICLE INFORMATION**

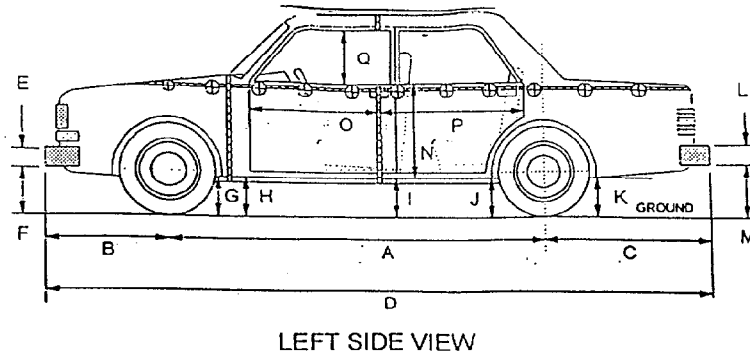
DATA SHEET NO. 5  
SIDE IMPACT DUMMY (SID) INSTRUMENTATION DATA

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan  
 Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

	Front Dummy ID #270				Rear Dummy ID #269			
	Pos. Direct.		Neg. Direct		Pos. Direct.		Neg. Direct	
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
<b>RIB ACCELERATIONS</b>								
Left Upper Rib (LUR) Y	56.7	42	-11.6	76	79.5	42	-6.4	124
Left Lower Rib (LLR) Y	67.5	42	-14.9	94	92.2	42	-31.3	75
<b>SPINE ACCELERATIONS</b>								
Lower Lateral Y	93.3	35	-31.3	71	75.9	42	-52.7	70
<b>PELVIS ACCELERATIONS</b>								
Lateral Y	135.7	31	-18.8	83	90.7	35	-23.1	71

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

**DATA SHEET NO. 6**  
**VEHICLE PRE AND POST-TEST MEASUREMENTS**



D = Length at Centerline  
R = Right Side Length  
S = Left Side Length  
T = Width at B Post  
E & L = Bumper Thickness

J1 = To Pinch Weld  
J2 = To Sill

ALL MEASUREMENTS IN (mm)

	PRE-TEST	POST-TEST	Δ CHANGE
A	2670	2632	-38
B	934	944	10
C	1080	1080	0
D	4684	4656	28
E	170	170	0
F	384	394	10
G	154	182	20
H	152	180	-28
I	154	171	17
J1/J2	154/154	157/161	3/7
K	208	216	8
L	320	320	0
M	278	300	22
N	650	612	-38
O	685	650	-35
P	1380	1220	-160
Q	360	324	-36
R	4414	4395	-19
S	4414	4341	-73
T	1858	1410	-448

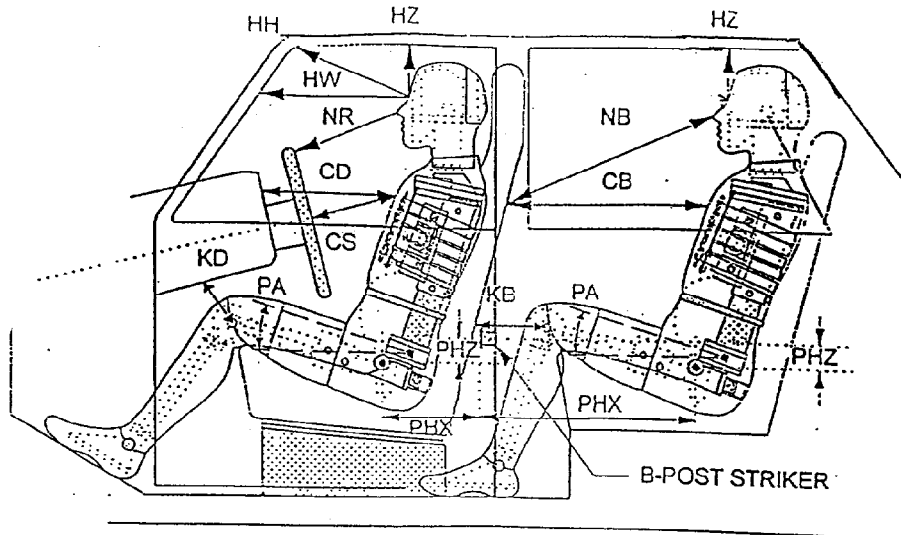
DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

NHTSA NO.: MW5401

Test Date: November 6, 1997



NOTE: All dimensions are in mm with tolerance of  $\pm 3$  mm

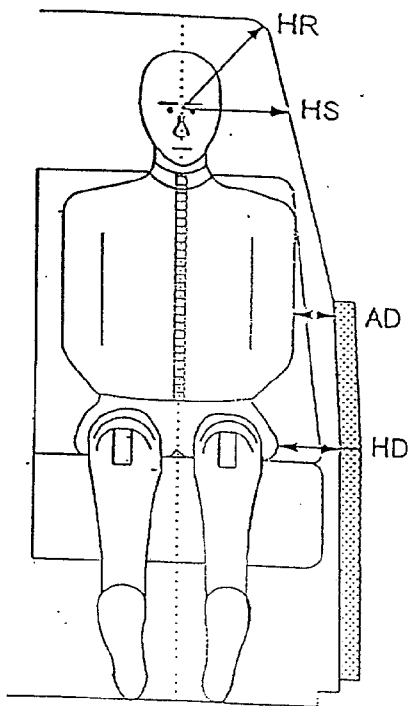
	DRIVER SID ID #270		LEFT REAR PASSENGER SID ID #269
HH	404	HZ	144
HW	638	NB	704
HZ	186	CB	608
NR	422	KBL (KBA)	164 (0.0°)
CD	537	KBR (KBA)	162 (0.0°)
CS	320	PA°	24.6°
KDL(KDA°)	150 (18.8°)	PHX	258
KDR(KDA°)	142 (26.1°)	PHZ	368
PA°	24.0°		
PHX	190		
PHZ	138		

NOTE: 2-door vehicle shown. Rear dummy PHX & PHZ measurements for 4-door vehicle would use the C-post striker as reference point.

**DATA SHEET NO. 8**  
**SIDE IMPACT DUMMY (SID) LATERAL CLEARANCE DIMENSIONS**

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

NHTSA NO.: MW5401      Test Date: November 6, 1997



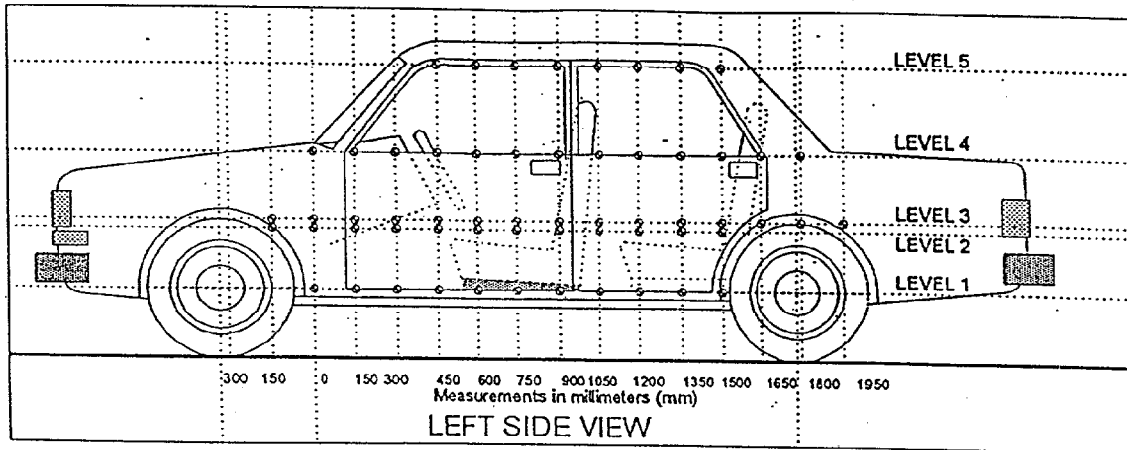
NOTE: All dimensions are in mm

	DRIVER SID ID #270	LEFT REAR PASSENGER SID ID #269
HR	228	232
HS	306	274
AD	100	132
HD	142	182

**DATA SHEET NO. 9**  
**VEHICLE SIDE MEASUREMENTS**

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

NHTSA NO.: MW5401 Test Date: November 6, 1997



MEASUREMENTS ARE TAKEN WHEN THE VEHICLE IS IN THE "AS TESTED"  
CONFIGURATION

MEASUREMENTS ALONG THE VERTICAL 750 mm. LINE SHOWN ABOVE

Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>224</u> mm
Level 2 @ Occupant H-Point	=	<u>473</u> mm
Level 3 @ Mid Door	=	<u>580</u> mm
Level 4 @ Window Sill	=	<u>881</u> mm
Level 5 @ Window Top	=	<u>1288</u> mm

**DATA SHEET NO. 10**  
**VEHICLE EXTERIOR CRUSH PROFILES**

Longitudinal Distance (mm)	Level 1 - Axle Centerline		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)	706	742	36
150	709	785	76
300	711	874	163
450	711	888	177
600	708	900	192
750	708	932	224
900	708	944	236
1050	707	947	240
1200	706	965	259
1350	706	1000	294
1500	702	934	232
1650	703	856	153
1800	704	800	96

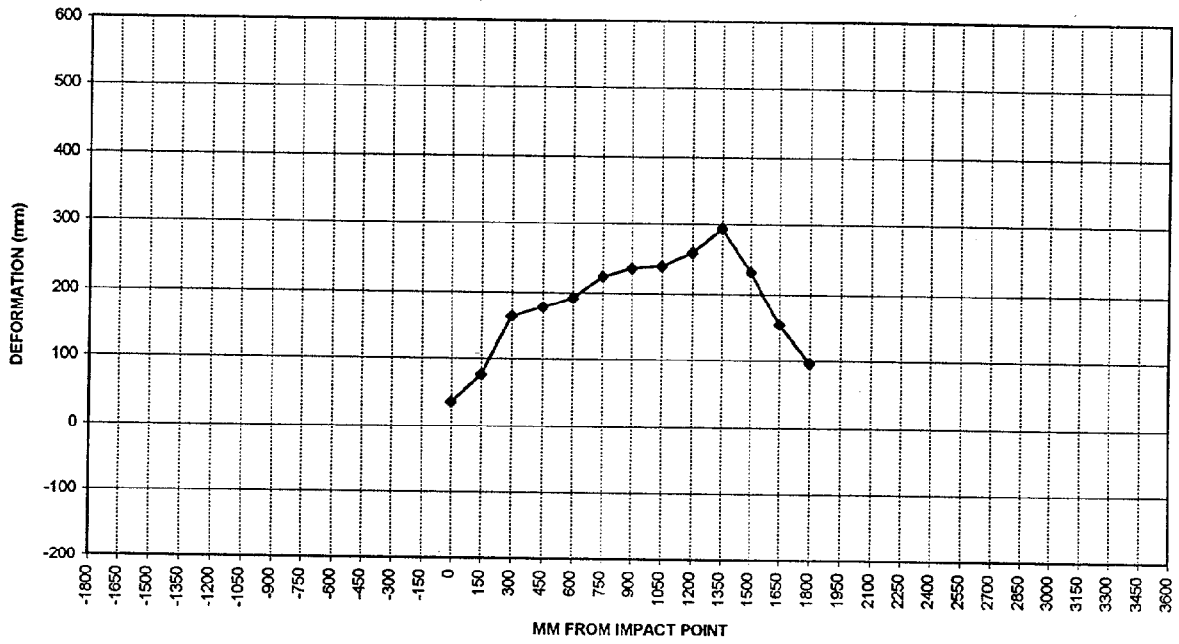
Reference plane is parallel to test vehicle longitudinal centerline.  
Given dimensions = Reference plane to car body

**DATA SHEET NO. 10**  
**VEHICLE EXTERIOR CRUSH PROFILES**

Longitudinal Distance (mm)	Level 1 - Axle Centerline		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950			
2100			
2250			
2400			
2550			
2700			
2850			
3000			
3150			
3300			
3450			
3600			

Reference plane is parallel to test vehicle longitudinal centerline.  
 Given dimensions = Reference plane to car body

# VEHICLE EXTERIOR STATIC CRUSH



LEVEL 1 - AXLE CENTERLINE

**DATA SHEET NO. 10**  
**VEHICLE EXTERIOR CRUSH PROFILES**

Longitudinal Distance (mm)	Level 2 - Occupant H-Point		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050	705	712	7
-900	672	684	12
-750	648	667	19
-600			
-450			
-300			
-150			
0 (impact point)	634	675	41
150	634	970	336
300	624	1012	388
450	625	1034	409
600	625	1045	420
750	625	1054	429
900	624	1063	439
1050	624	1067	443
1200	626	1100	474
1350	626	1095	469
1500	622	1082	460
1650	620	1067	447
1800	620	1034	414

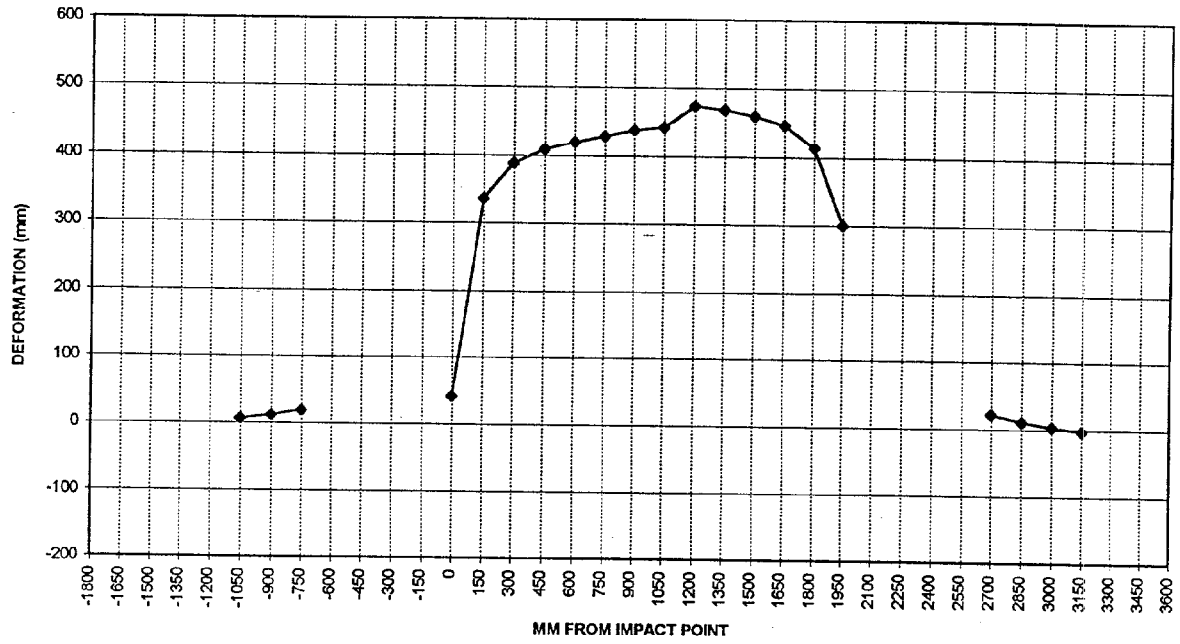
Reference plane is parallel to test vehicle longitudinal centerline.  
Given dimensions = Reference plane to car body

**DATA SHEET NO. 10**  
**VEHICLE EXTERIOR CRUSH PROFILES**

Longitudinal Distance (mm)	Level 2 - Occupant H-Point		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950	626	926	300
2100			
2250			
2400			
2550			
2700	648	670	22
2850	664	675	11
3000	688	692	4
3150	720	718	-2
3300			
3450			
3600			

Reference plane is parallel to test vehicle longitudinal centerline.  
 Given dimensions = Reference plane to car body

## VEHICLE EXTERIOR STATIC CRUSH



LEVEL 2 - OCCUPANT H-POINT

**DATA SHEET NO. 10**  
**VEHICLE EXTERIOR CRUSH PROFILES**

Longitudinal Distance (mm)	Level 3 - Mid-Door		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050	732	740	8
-900	692	705	13
-750	657	678	21
-600			
-450			
-300			
-150			
0 (impact point)	632	772	140
150	633	957	324
300	634	994	360
450	635	1000	365
600	635	1007	372
750	634	1024	390
900	634	1032	398
1050	635	1033	398
1200	634	1057	423
1350	632	1050	418
1500	631	1033	402
1650	630	1020	390
1800	631	992	361

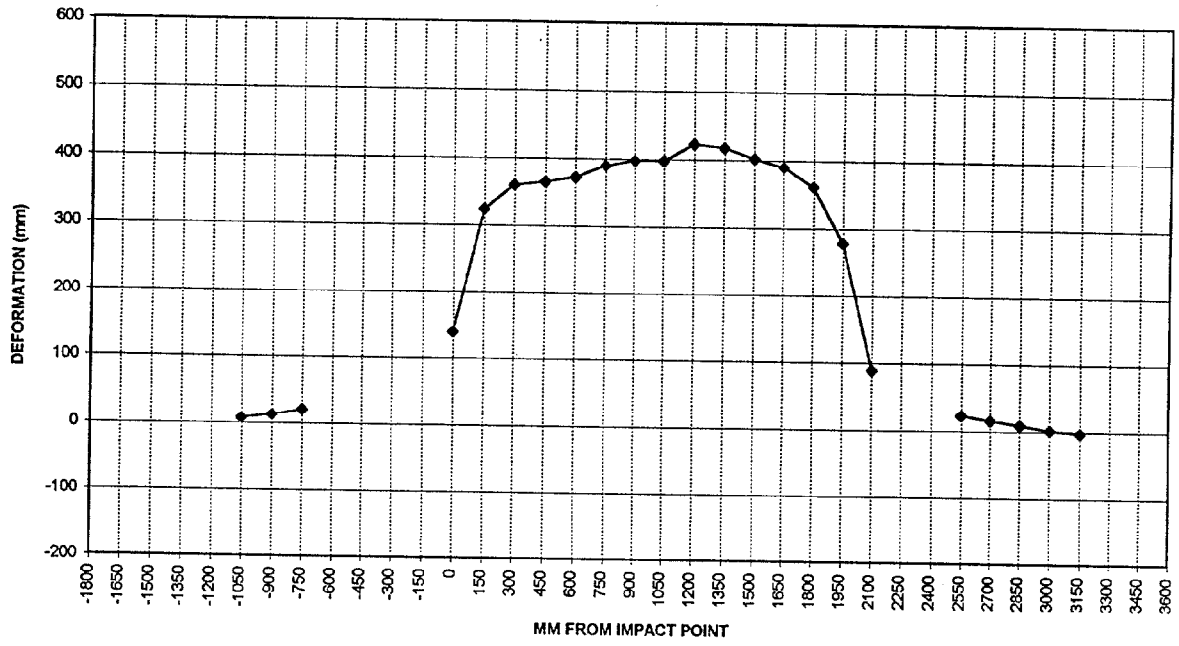
Reference plane is parallel to test vehicle longitudinal centerline.  
Given dimensions = Reference plane to car body

**DATA SHEET NO. 10**  
**VEHICLE EXTERIOR CRUSH PROFILES**

	Level 3 - Mid-Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950	630	908	278
2100	625	714	89
2250			
2400			
2550	645	668	23
2700	664	680	16
2850	685	694	9
3000	712	714	2
3150	767	765	-2
3300			
3450			
3600			

Reference plane is parallel to test vehicle longitudinal centerline.  
 Given dimensions = Reference plane to car body

# VEHICLE EXTERIOR STATIC CRUSH



LEVEL 3 - MID-DOOR

**DATA SHEET NO. 10**  
**VEHICLE EXTERIOR CRUSH PROFILES**

	Level 4 - Window Sill		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050	790	798	8
-900	760	777	17
-750	742	762	20
-600	730	756	26
-450	718	754	36
-300	712	754	42
-150	705	753	48
0 (impact point)	700	769	69
150	695	797	102
300	695	887	192
450	695	942	247
600	693	990	297
750	691	997	306
900	691	1002	311
1050	690	1010	320
1200	690	1040	350
1350	689	1035	346
1500	686	1039	353
1650	690	1045	355
1800	690	1005	315

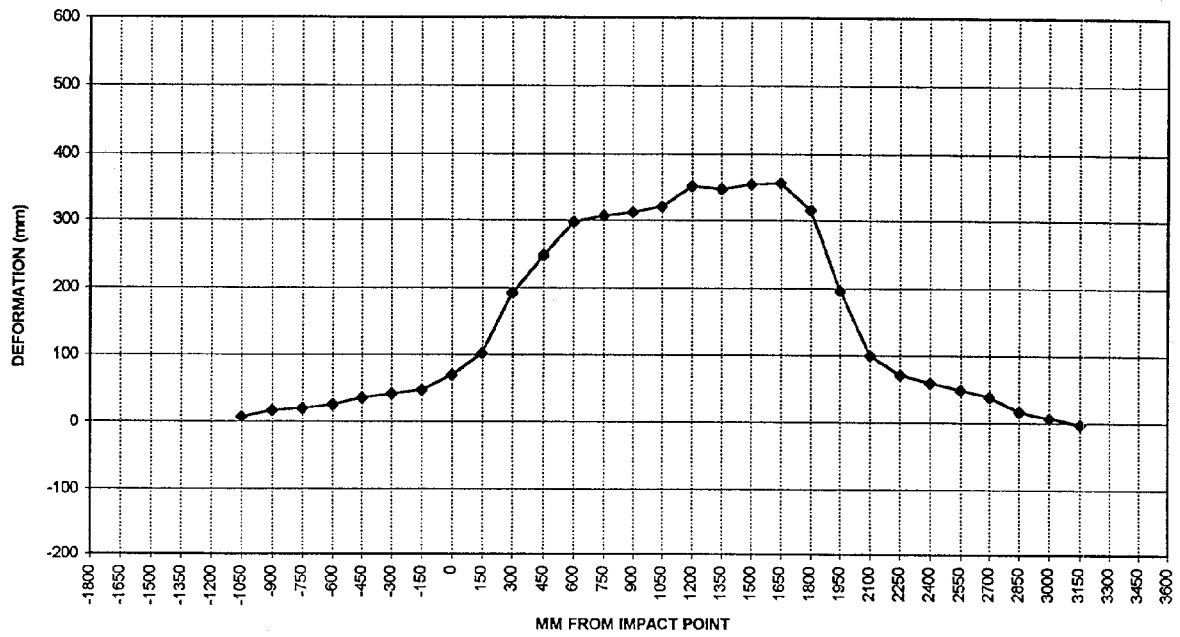
Reference plane is parallel to test vehicle longitudinal centerline.  
 Given dimensions = Reference plane to car body

**DATA SHEET NO. 10**  
**VEHICLE EXTERIOR CRUSH PROFILES**

Longitudinal Distance (mm)	Level 4 - Window Sill		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950	694	890	196
2100	698	798	100
2250	704	775	71
2400	714	773	59
2550	719	768	49
2700	730	769	39
2850	743	760	17
3000	763	770	7
3150	818	815	-3
3300			
3450			
3600			

Reference plane is parallel to test vehicle longitudinal centerline.  
 Given dimensions = Reference plane to car body

## VEHICLE EXTERIOR STATIC CRUSH



LEVEL 4 - WINDOW SILL

**DATA SHEET NO. 10**  
**VEHICLE EXTERIOR CRUSH PROFILES**

Longitudinal Distance (mm)	Level 5 - Window Top		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150			
300			
450			
600			
750	893	978	85
900	900	1010	110
1050	902	1048	146
1200	902	1083	181
1350	901	1067	166
1500	901	1040	139
1650	907	1005	98
1800	912	988	76

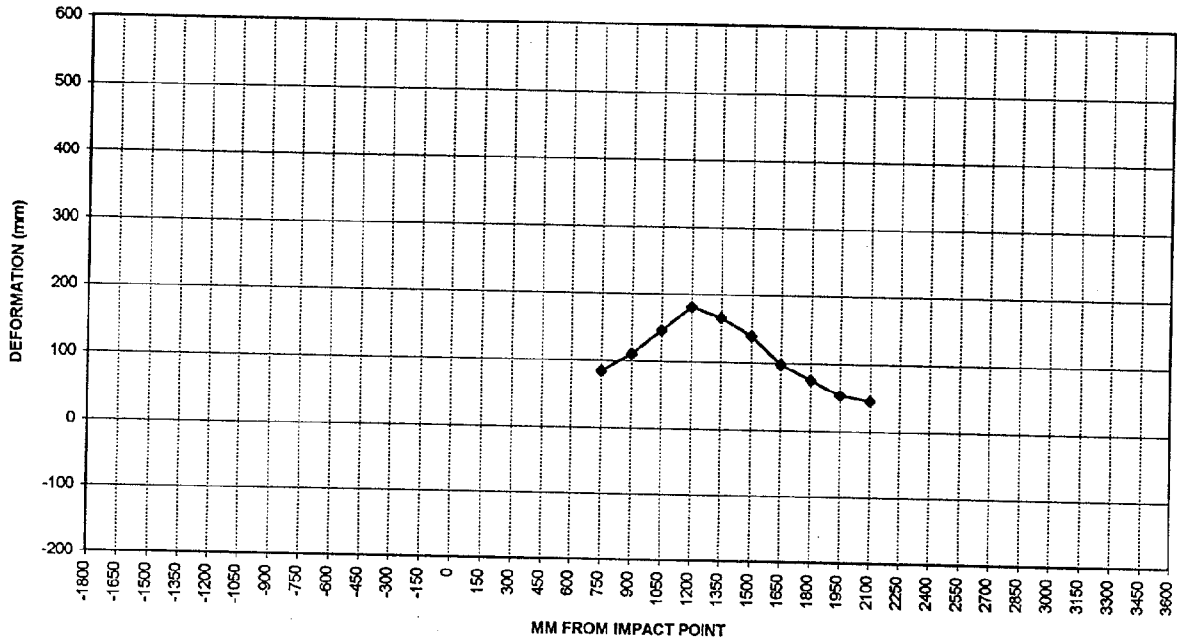
Reference plane is parallel to test vehicle longitudinal centerline.  
Given dimensions = Reference plane to car body

**DATA SHEET NO. 10**  
**VEHICLE EXTERIOR CRUSH PROFILES**

	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950	922	976	54
2100	938	984	46
2250			
2400			
2550			
2700			
2850			
3000			
3150			
3300			
3450			
3600			

Reference plane is parallel to test vehicle longitudinal centerline.  
 Given dimensions = Reference plane to car body

# VEHICLE EXTERIOR STATIC CRUSH



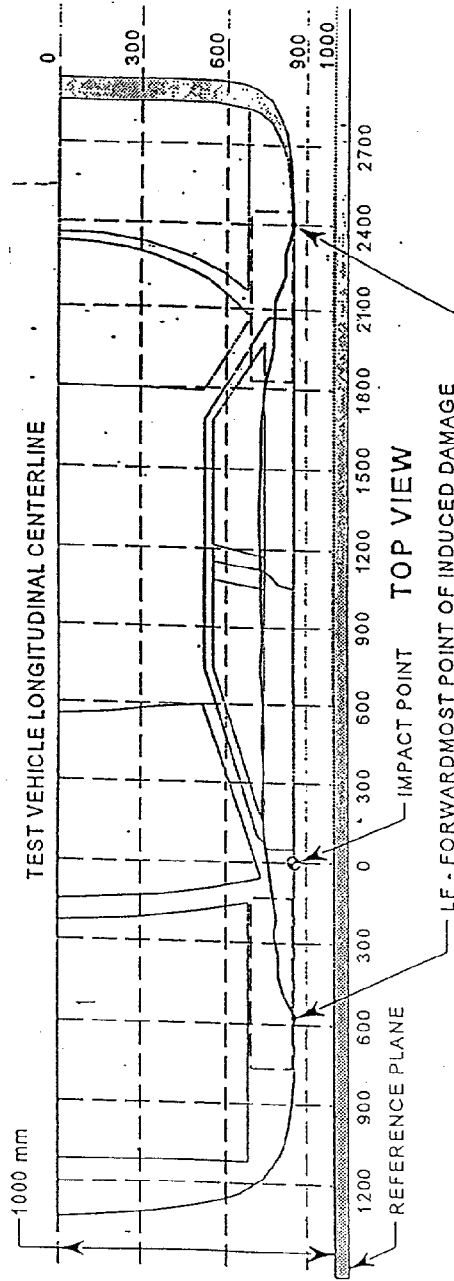
LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

NHTSA NO.: MW5401 Test Date: November 6, 1997



MEASUREMENT CONVENTIONS:  
 LR - REARWARDMOST POINT OF INDUCED DAMAGE  
 Forward of the impact point (towards front of vehicle) is considered negative (-).  
 Rearward of the impact point (toward rear of vehicle) is considered positive (+).

DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (LF = <u>-1050</u> mm)	712	705	7
2. <u>-210</u> mm	675	634	41
3. <u>630</u> mm	1045	625	420
4. <u>1470</u> mm	1082	622	460
5. <u>2310</u> mm	926	626	300
6. (LR = <u>3140</u> mm)	720	720	0

DATA SHEET NO. 12

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

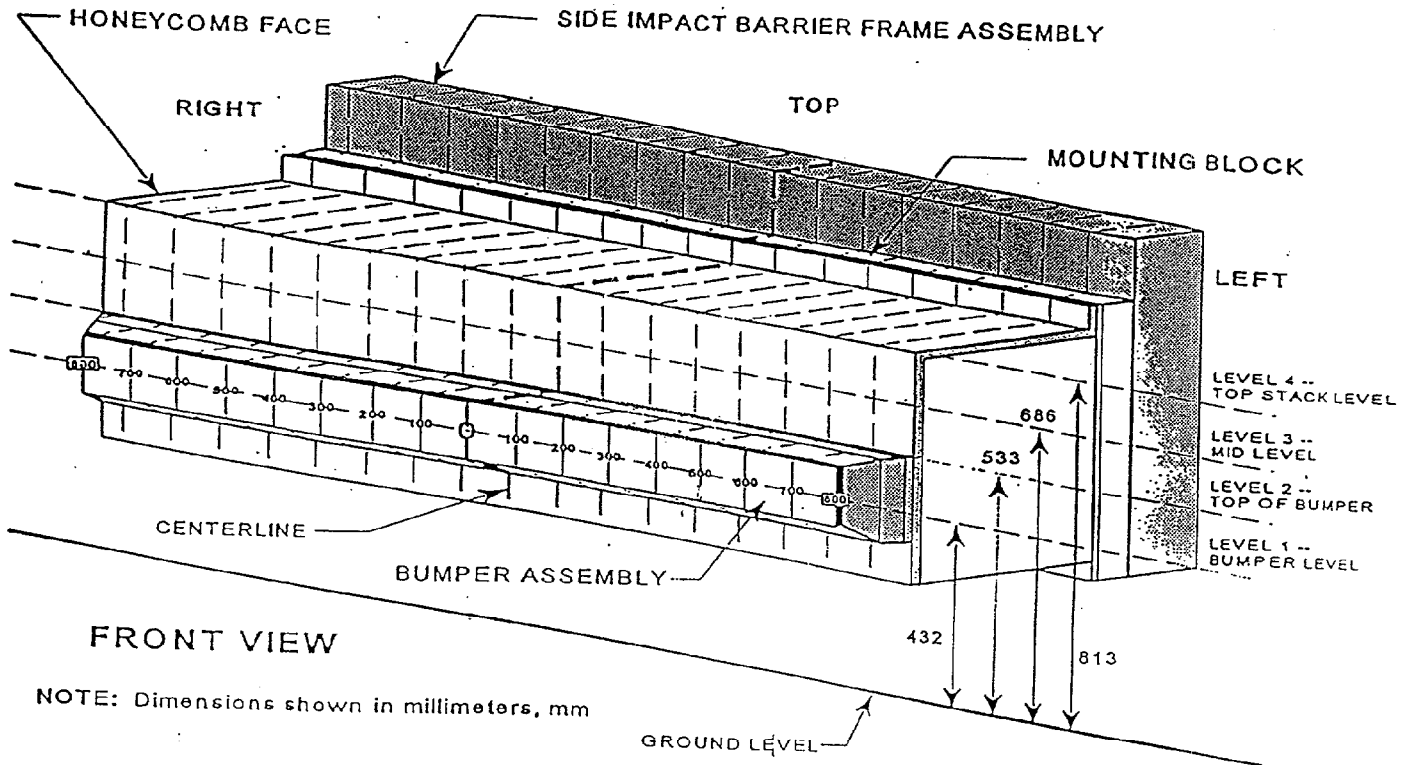
Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

Location	Height at CL	Distance Right of Center (mm)								Distance Left of Center (mm)								
		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level 4	813 mm	40	11	-2	-1	1	4	7	10	12	14	17	19	29	55	96	143	190
Mid Level Level 3	686 mm	16	-6	-5	-2	-1	1	5	5	7	8	11	12	14	19	38	86	155
Top Bumper Level 2	533 mm	31	17	9	8	9	10	12	14	15	18	20	25	29	34	41	54	72
Mid Bumper Level 1	432 mm	66	48	32	25	25	27	29	31	34	37	40	46	51	59	74	101	116

See next page for Barrier Face Graphic

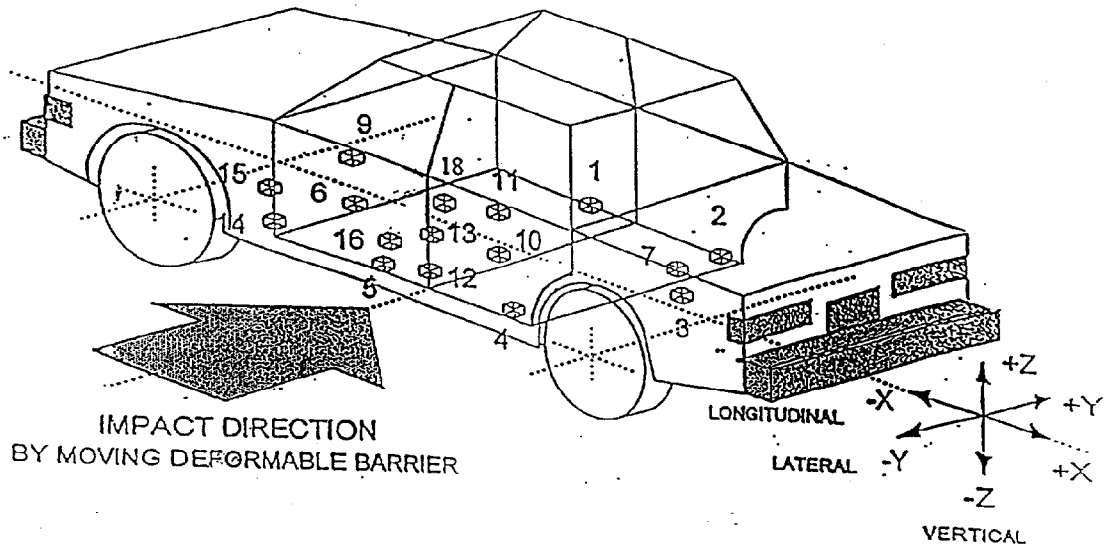
DATA SHEET NO. 12 (Cont'd)



**DATA SHEET 13**  
**TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY**

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997



- 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
- 9-Left Frt. Door Upper Ctrline

- 10-Midrear of Left Rear Door
- 11-Left Rear Door Upper Ctrline
- 12-Left Lower B-Post
- 14-Left Lower A-Post
- 15-Left Middle A-Post
- 16-Front Seat Track
- 18-Vehicle C.G.

DATA SHEET NO. 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

Accel. No.	Description	Coordinates (mm)*			Long. (X) Maximums (g's)		Lat. (Y) Maximums (g's)		Vert. (Z) Maximums (g's)		Resultant (g's)
		X	Y	Z	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
1	Rt. Side Sill @ Front Seat	2596	660	166	3.7	-5.0	20.2	-2.3	3.8	-3.7	20.5
2	Rt. Side Sill @ Rear Seat	1620	660	165	3.8	-4.1	30.4	-0.3	8.9	-5.1	31.7
3	Rr. Floorpan Above Axle	1022	0	437	5.1	-6.5	20.0	-2.9	9.6	-6.8	22.4
4	Left Side Sill @ Rr. Seat	1672	-660	160	---	---	72.3	-23.6	---	---	---
5	Left Side Sill @ Frt. Seat	2594	-664	164	---	---	46.7	-5.3	---	---	---
6	Left Front Door on Centerline	2652	-752	591	---	---	275.6	-69.5	---	---	---
7	Right Rear Occupant Compartment	1858	440	268	---	---	29.4	-2.6	---	---	---
9	Left Front Door Upper Centerline	2656	-760	775	---	---	226.0	-107.7	---	---	---
10	Midrear of Left Rear Door	1744	-744	625	---	---	269.2	-138.8	---	---	---
11	Left Rear Door Upper Centerline	1723	-756	806	---	---	211.7	-110.9	---	---	---
12	Left Lower B-Post	2142	-670	253	---	---	136.9	-33.5	---	---	---
14	Left Lower A-Post	3190	-667	258	---	---	33.4	-18.9	---	---	---
15	Left Mid A-Post**	3159	-779	807	---	---	52.0	-2.3	---	---	---
16	Driver Left Seat Track	2282	-680	380	---	---	137.4	-52.5	---	---	---
18	Vehicle CG***	2538	50	340	3.7	-8.8	31.5***	-3.5***	8.8	-5.6	31.7

\*Reference: X - Rear Bumper (+ Forward)

Y - Vehicle Centerline (+ To right)

Z - Ground Level (+ Up)

\*\* Data not valid after approximately 7 msec.

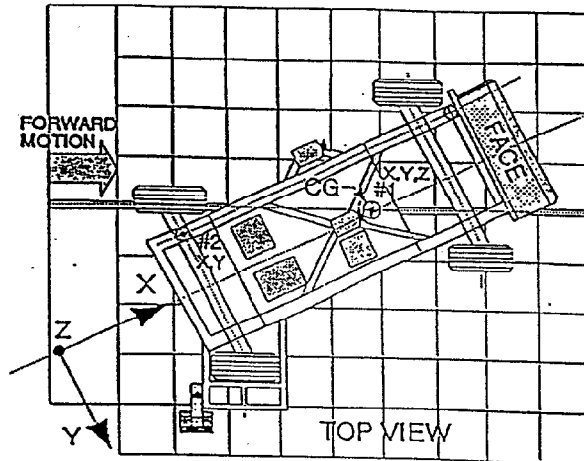
\*\*\* Data not valid after approximately 115 msec.

DATA SHEET NO. 14

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

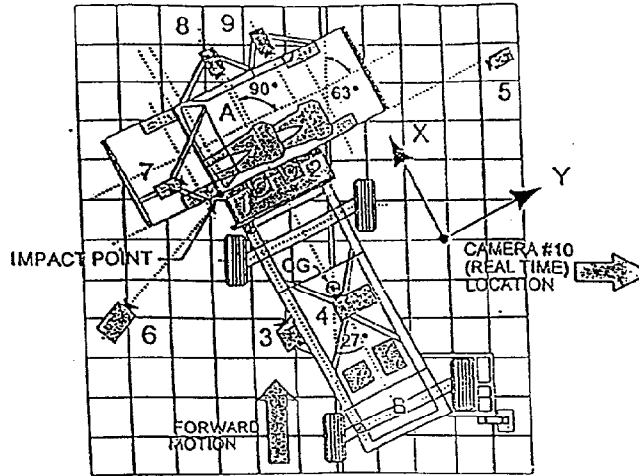


Accel. No.	Description	Coordinates (mm)*			(+ Positive)		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	1.3	173	-18.0	41
	Lateral (Y)	---	---	---	4.2	63	-5.4	41
	Vertical (Z)	---	---	---	19.6	60	-18.2	66
	Resultant (R)	---	---	---	22.1	60	---	---
2	Rear Frame Member	-2591	-625	622				
	Longitudinal (X)	---	---	---	1.8	190	-22.6	33
	Lateral (Y)	---	---	---	3.8	27	-1.4	196

\*Reference: X - Front Axle (+ Forward)  
 Y - Vehicle Centerline (+ To right)  
 Z - Ground Level (+ Up)

**DATA SHEET NO. 15**  
**HIGH SPEED CAMERA LOCATIONS AND DATA**

Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan  
 Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997



Camera No.	View	Coordinates (mm)*			Angle	Lens (mm)	Film Speed (fps)
		X	Y	Z			
	Real Time						
6	Left Impact	-380	-5200	1670		13	1000
8	Onboard Hood					13	1005
9	Onboard Front Occupant					8	943
7	Onboard Rear Occupant					8	1190
5	Right Impact	-720	10430	1720		25	1015
1	Top Overall	60	-1345	5000		8	1064
2	Top Impact	-260	0	5000		13	1023
4	Cart Overall					13	891
3	Cart Impact					25	1005

\* Reference: (from point of impact)  
 +X = Forward  
 +Y = To Right  
 +Z = Upward

DATA SHEET 16  
FUEL SYSTEM INTEGRITY POST IMPACT TEST DATA

Vehicle Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

TEST REQUIREMENTS:

Drain the test vehicle's fuel system and operate the engine until the fuel system is dry. Add Stoddard solvent, which has been dyed purple, until 92-94% of the stated usable capacity is reached. Operate the engine to assure the Stoddard solvent is present throughout the entire fuel system.

TEST VEHICLE IMPACT TYPE: X Side Impact MDB 38.2 mph (61.5 kph)

FUEL SPILLAGE MEASUREMENT:

POST IMPACT TEST	TEST RESULTS	MAXIMUM ALLOWABLE
1. From impact until vehicle motion ceases	0	1 oz
2. For 5 minute period after vehicle motion ceases	0	5 oz
3. For next 25 minutes	0	1 oz./1 min

FUEL SPILLAGE LOCATION(S): None

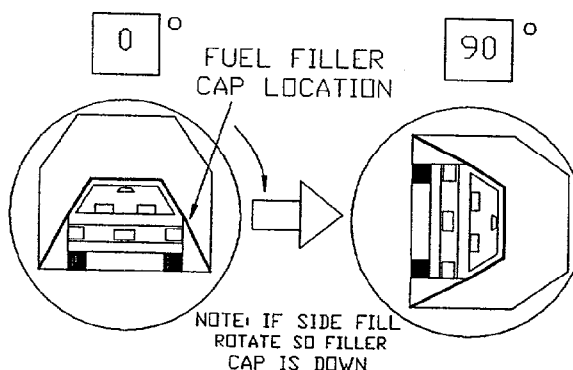
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 49 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 49 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

0° TO 90° ROTATION (FILLER CAP DOWN)	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz	5 oz
2. Sixth Minute From Onset of Rotation	0 oz	1 oz
3. Seventh Minute From Onset of Rotation	0 oz	1 oz
4. Eighth Minute if Required	0 oz	1 oz

FUEL SPILLAGE LOCATIONS(S): None

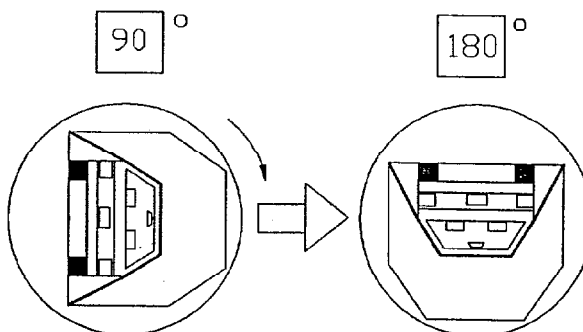
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 35 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 35 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

90° TO 180° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz	5 oz
2. Sixth Minute From Onset of Rotation	0 oz	1 oz
3. Seventh Minute From Onset of Rotation	0 oz	1 oz
4. Eighth Minute if Required	0 oz	1 oz

FUEL SPILLAGE LOCATIONS(S): None

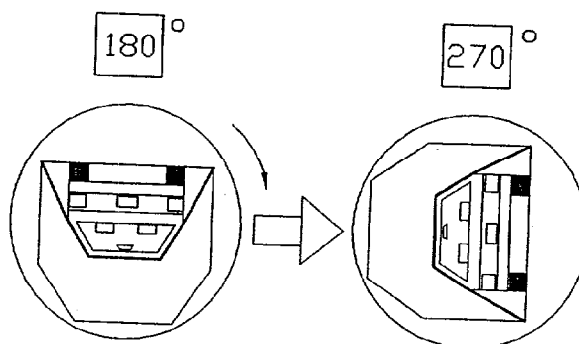
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

TEST PHASE: 180° - 270°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 11 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 11 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

180° TO 270° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz	5 oz
2. Sixth Minute From Onset of Rotation	0 oz	1 oz
3. Seventh Minute From Onset of Rotation	0 oz	1 oz
4. Eighth Minute if Required	0 oz	1 oz

FUEL SPILLAGE LOCATIONS(S): None

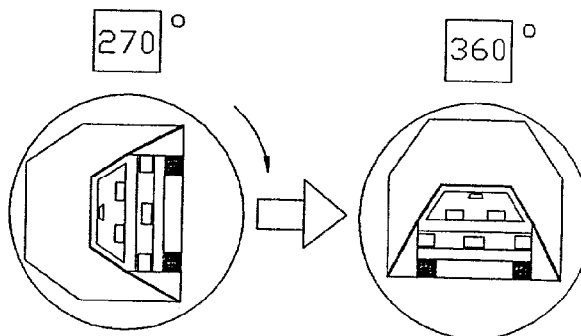
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1998/Mazda/626/4-Door/Sedan

Vehicle NHTSA No.: MW5401 Test Date: November 6, 1997

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 42 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 42 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

270° TO 360° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0 oz	5 oz
2. Sixth Minute From Onset of Rotation	0 oz	1 oz
3. Seventh Minute From Onset of Rotation	0 oz	1 oz
4. Eighth Minute if Required	0 oz	1 oz

FUEL SPILLAGE LOCATIONS(S): None

**APPENDIX A - PHOTOGRAPHS**

## TABLE OF PHOTOGRAPHS

	<u>Page No.</u>
Photo No. A-1 - Pre-Test Front View of Test Vehicle	A-1
Photo No. A-2 - Post-Test Front View of Test Vehicle	A-2
Photo No. A-3 - Pre-Test Rear View of Test Vehicle	A-3
Photo No. A-4 - Post-Test Rear View of Test Vehicle	A-4
Photo No. A-5 - Pre-Test Left Side View of Test Vehicle	A-5
Photo No. A-6 - Post-Test Left Side View of Test Vehicle	A-6
Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)	A-7
Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)	A-8
Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View	A-9
Photo No. A-10 - Post-Test MDB Positioned Against Vehicle (left side)	A-10
Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (right side)	A-11
Photo No. A-12 - Post-Test MDB Positioned Against Vehicle Overhead View	A-12
Photo No. A-13 - Pre-Test MDB Top View	A-13
Photo No. A-14 - Post-Test MDB Top View	A-14
Photo No. A-15 - Pre-Test MDB Front View	A-15
Photo No. A-16 - Post-Test MDB Front View	A-16
Photo No. A-17 - Pre-Test MDB Right Side View	A-17
Photo No. A-18 - Post-Test MDB Right Side View	A-18
Photo No. A-19 - Pre-Test MDB Left Side View	A-19
Photo No. A-20 - Post-Test MDB Left Side View	A-20
Photo No. A-21 - Pre-Test Driver Dummy Right Side View	A-21
Photo No. A-22 - Post-Test Driver Dummy Right Side View	A-22
Photo No. A-23 - Pre-Test Driver Dummy Left Side View	A-23
Photo No. A-24 - Post-Test Driver Dummy Left Side View	A-24
Photo No. A-25 - Pre-Test Driver Dummy Left Side View (Door Open)	A-25
Photo No. A-26 - Pre-Test Driver Dummy Shoulder and Door Top View	A-26
Photo No. A-27 - Post-Test Driver Dummy Shoulder and Door Top View	A-27
Photo No. A-28 - Post-Test Driver Dummy Contact	A-28

## TABLE OF PHOTOGRAPHS

	<u>Page No.</u>
Photo No. A-29 - Post-Test Driver Dummy Contact	A-29
Photo No. A-30 - Post-Test Driver Dummy Head Contact	A-30
Photo No. A-31 - Pre-Test Passenger Dummy Right Side View	A-31
Photo No. A-32 - Post-Test Passenger Dummy Right Side View	A-32
Photo No. A-33 - Pre-Test Passenger Dummy Left Side View	A-33
Photo No. A-34 - Post-Test Passenger Dummy Left Side View	A-34
Photo No. A-35 - Pre-Test Passenger Dummy Left Side View (Door Open)	A-35
Photo No. A-36 - Pre-Test Passenger Dummy Shoulder and Door Top View	A-36
Photo No. A-37 - Post-Test Passenger Dummy Shoulder and Door Top View	A-37
Photo No. A-38 - Post-Test Passenger Dummy Contact	A-38
Photo No. A-39 - Post-Test Passenger Dummy Contact	A-39
Photo No. A-40 - Post-Test Passenger Dummy Head Contact	A-40
Photo No. A-41 - Pre-Test Left Front Impact Point on Vehicle	A-41
Photo No. A-42 - Post-Test Left Front Impact Point on Vehicle	A-42
Photo No. A-43 - Impact	A-43
Photo No. A-44 - Vehicle Certification Label	A-44
Photo No. A-45 - Tire Placard	A-45
Photo No. A-46 - Rollover 90°	A-46
Photo No. A-47 - Rollover 180°	A-47
Photo No. A-48 - Rollover 270°	A-48
Photo No. A-49 - Rollover 360°	A-49
Photo No. A-50 - Left Front Attitude Point	A-50
Photo No. A-51 - Right Front Attitude Point	A-51
Photo No. A-52 - Left Rear Attitude Point	A-52
Photo No. A-53 - Right Rear Attitude Point	A-53

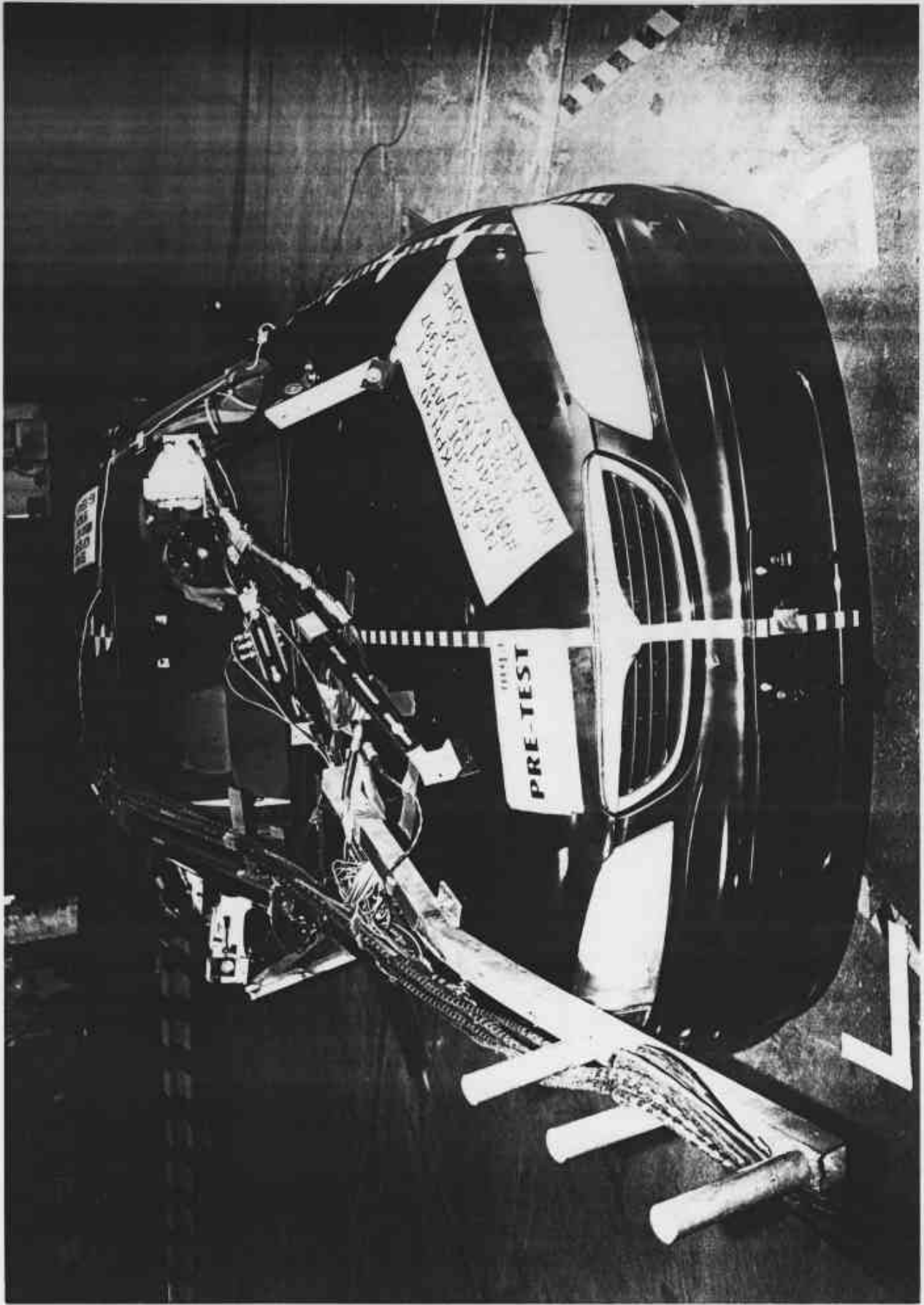


Photo No. A-1 - Pre-Test Front View of Test Vehicle

A-1

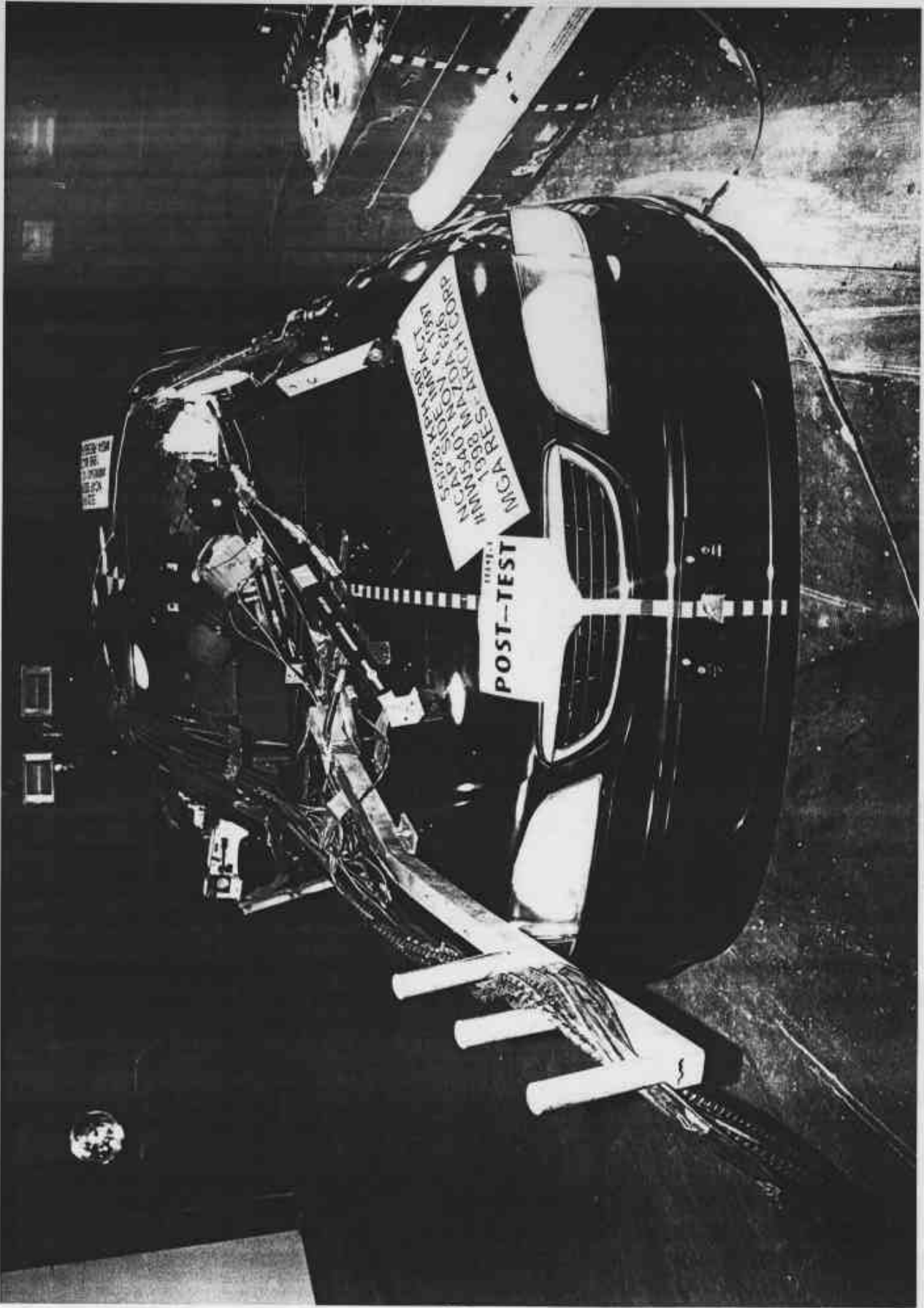


Photo No. A-2 - Post-Test Front View of Test Vehicle

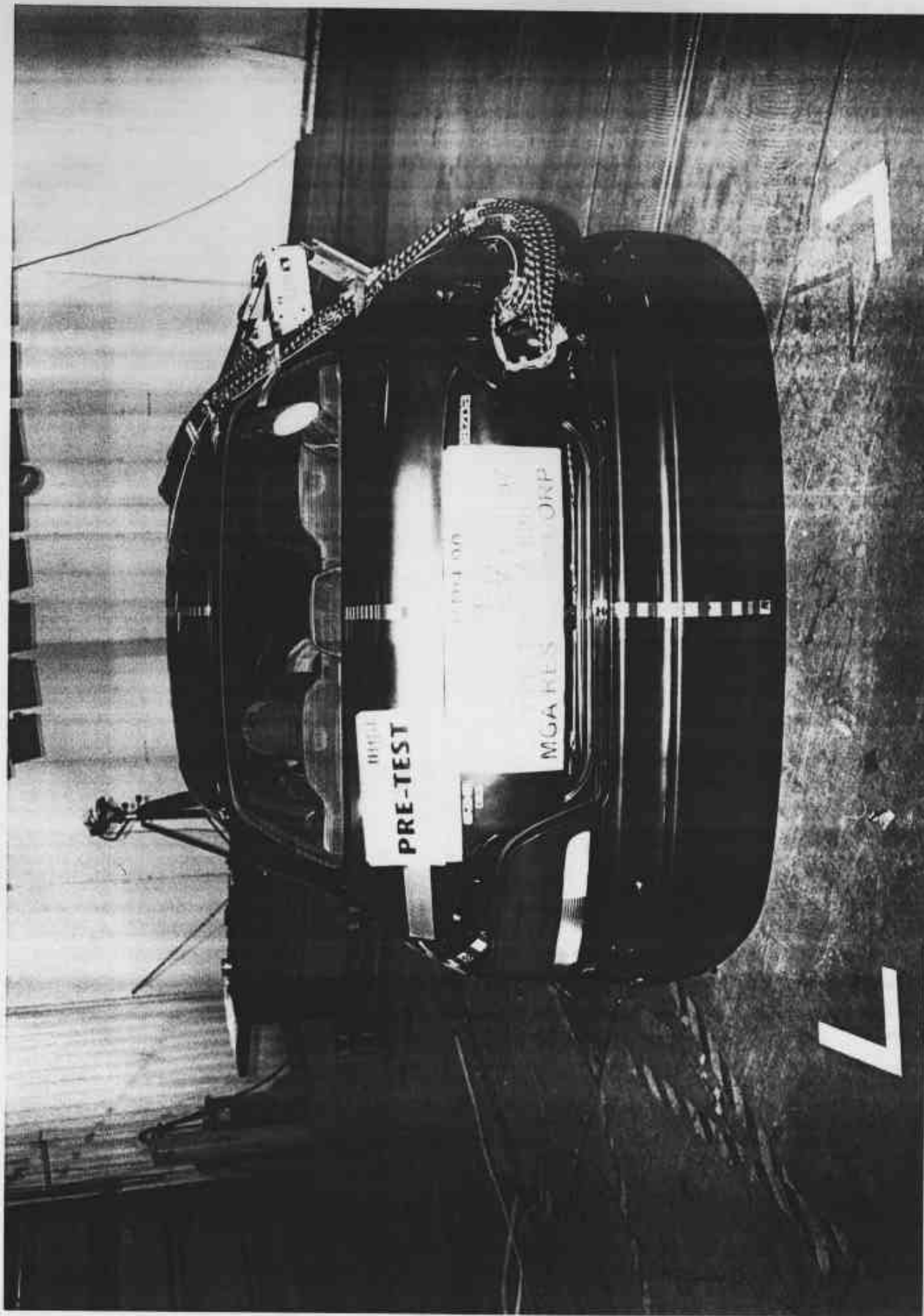


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

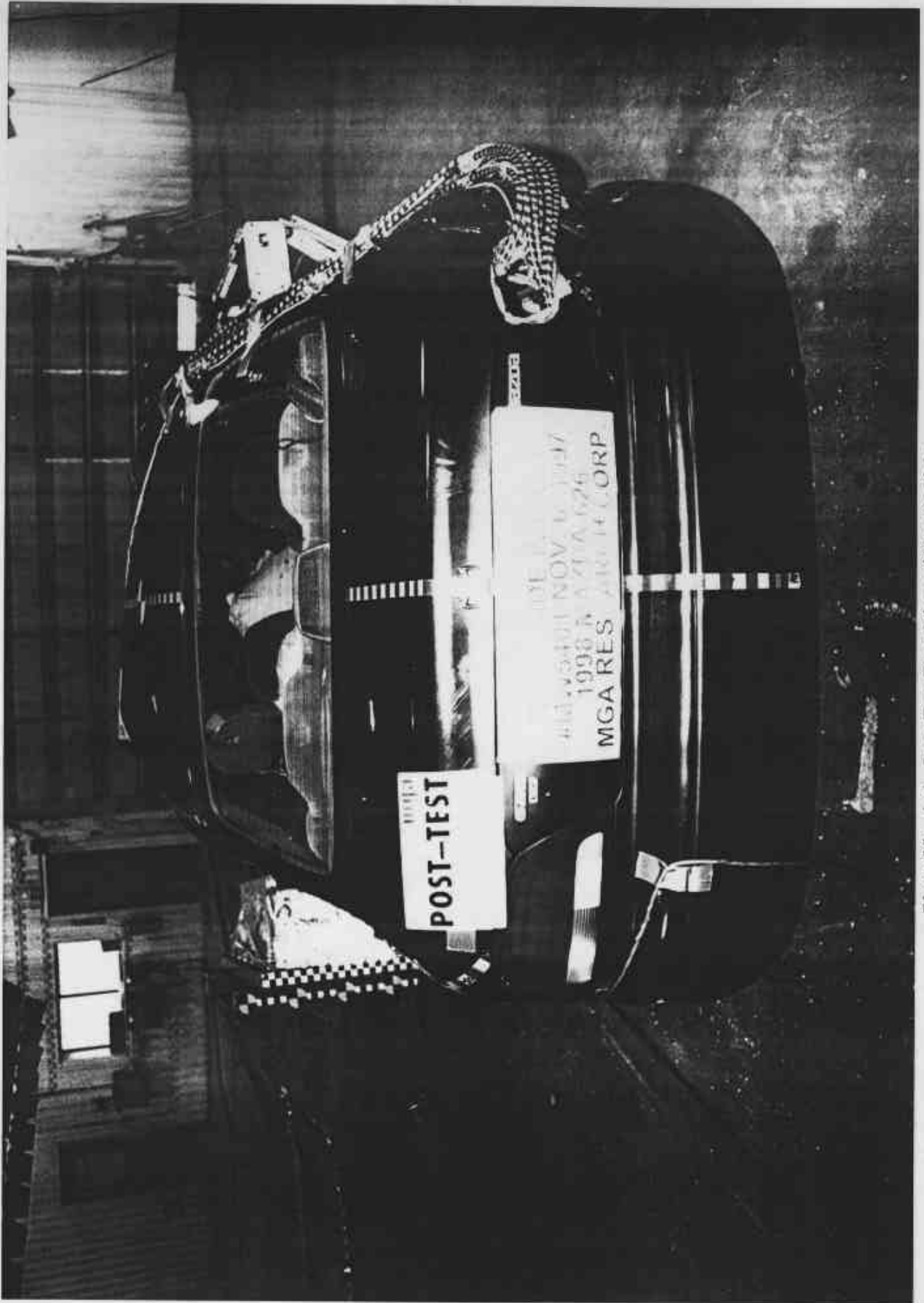


Photo No. A-4 - Post-Test Rear View of Test Vehicle

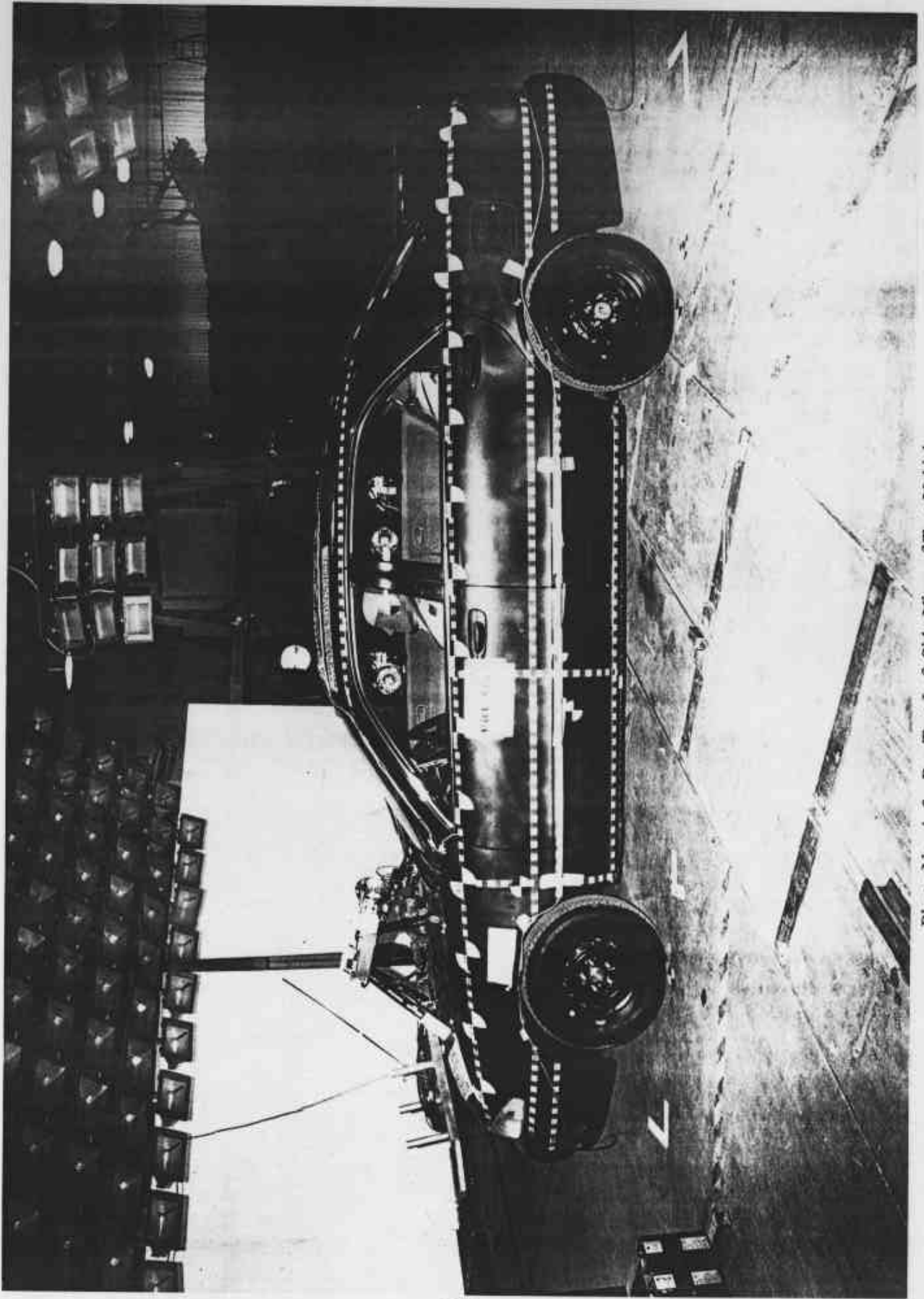


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

A-5

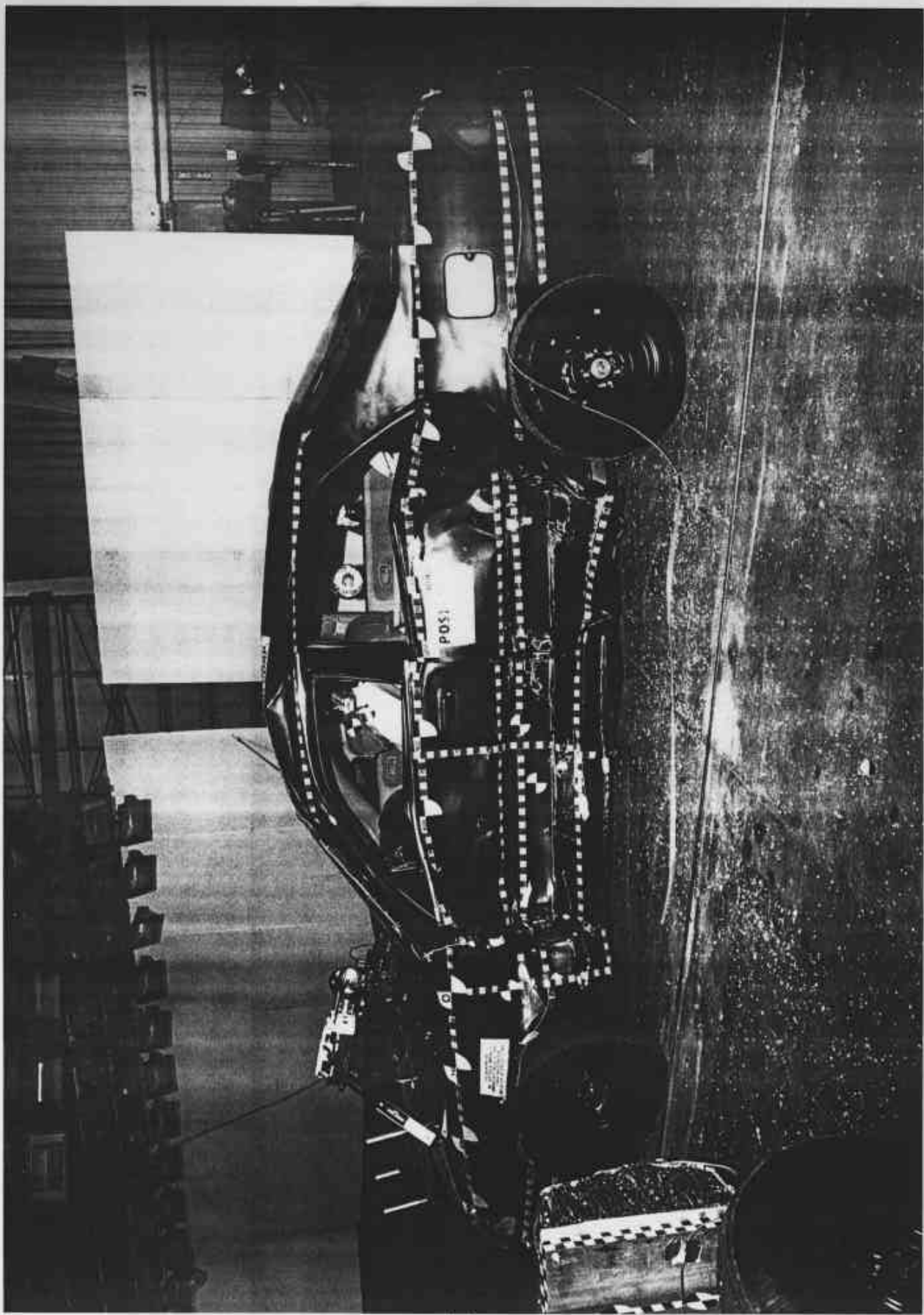


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

A-6

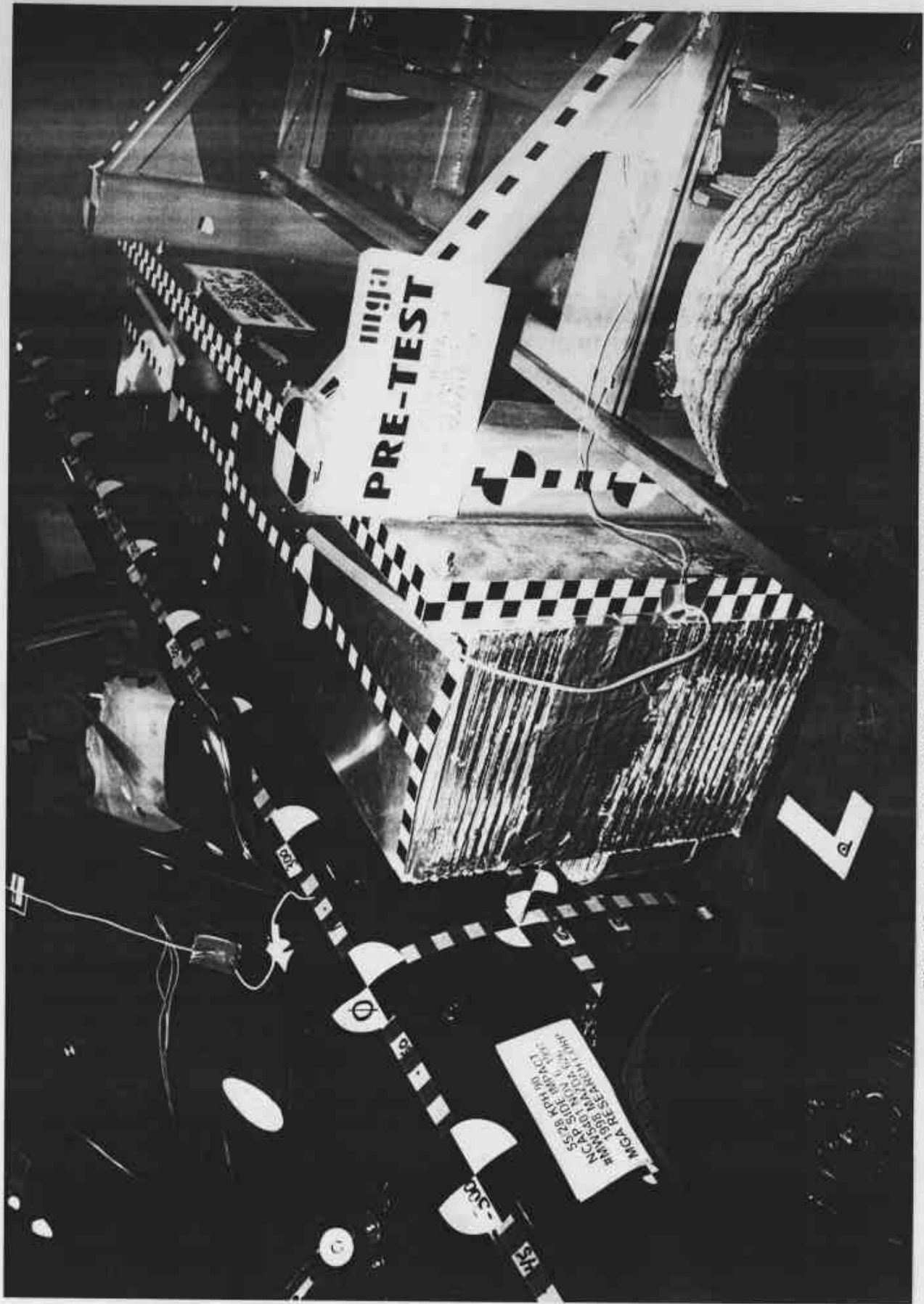


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)

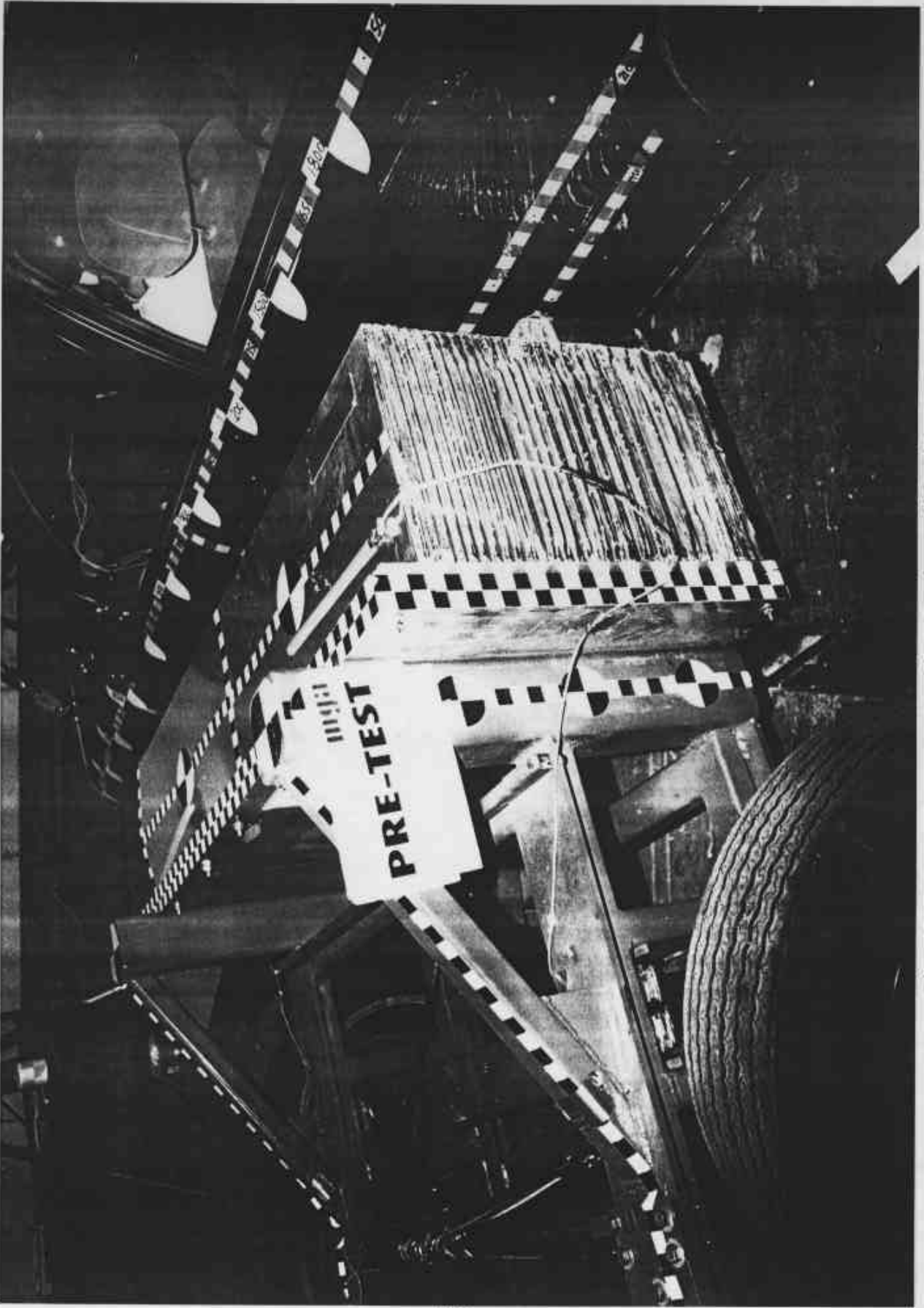


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)



Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View



Photo No. A-10 - Post-Test MDB Positioned Against Vehicle (left side)

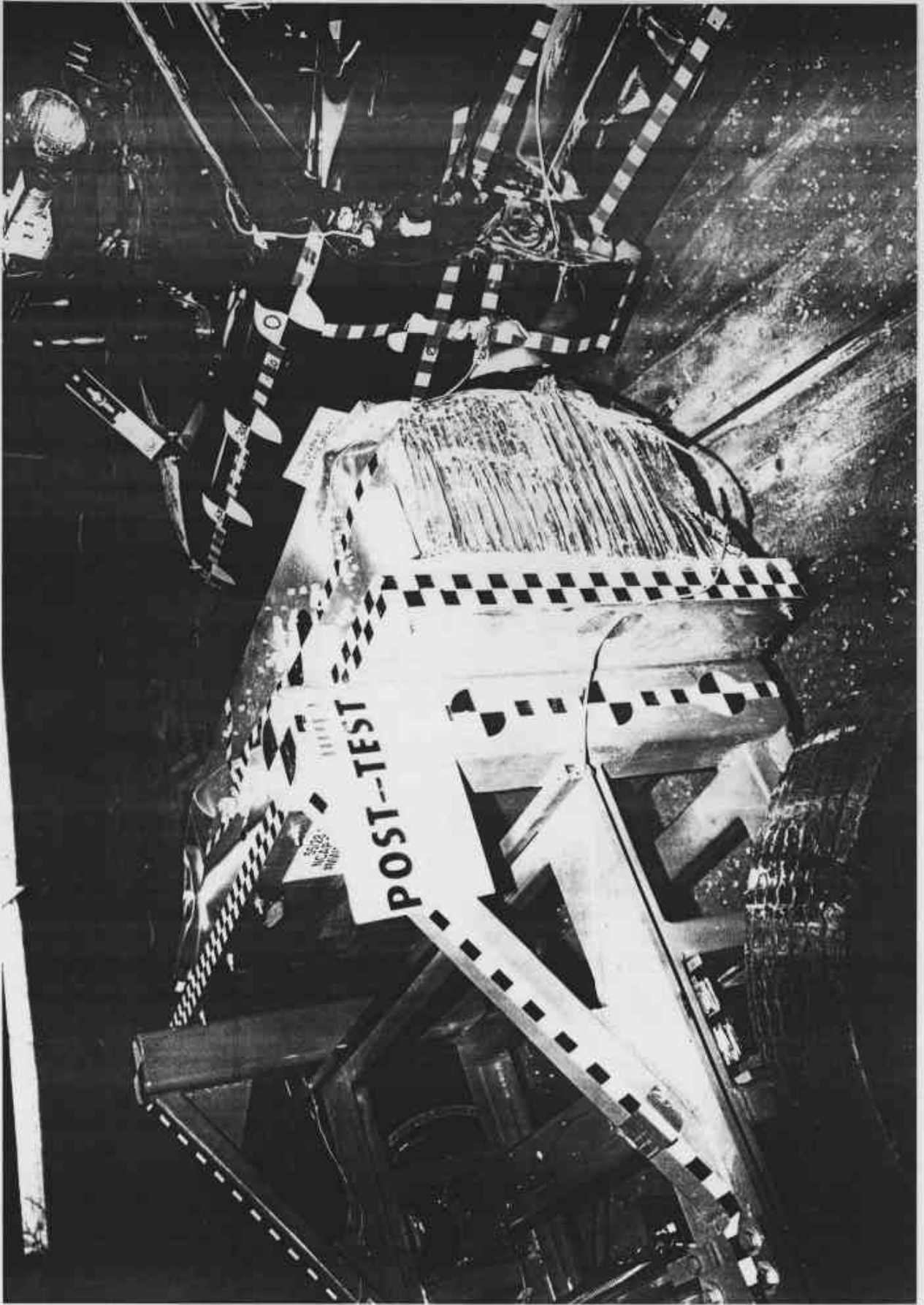


Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (right side)

A-11

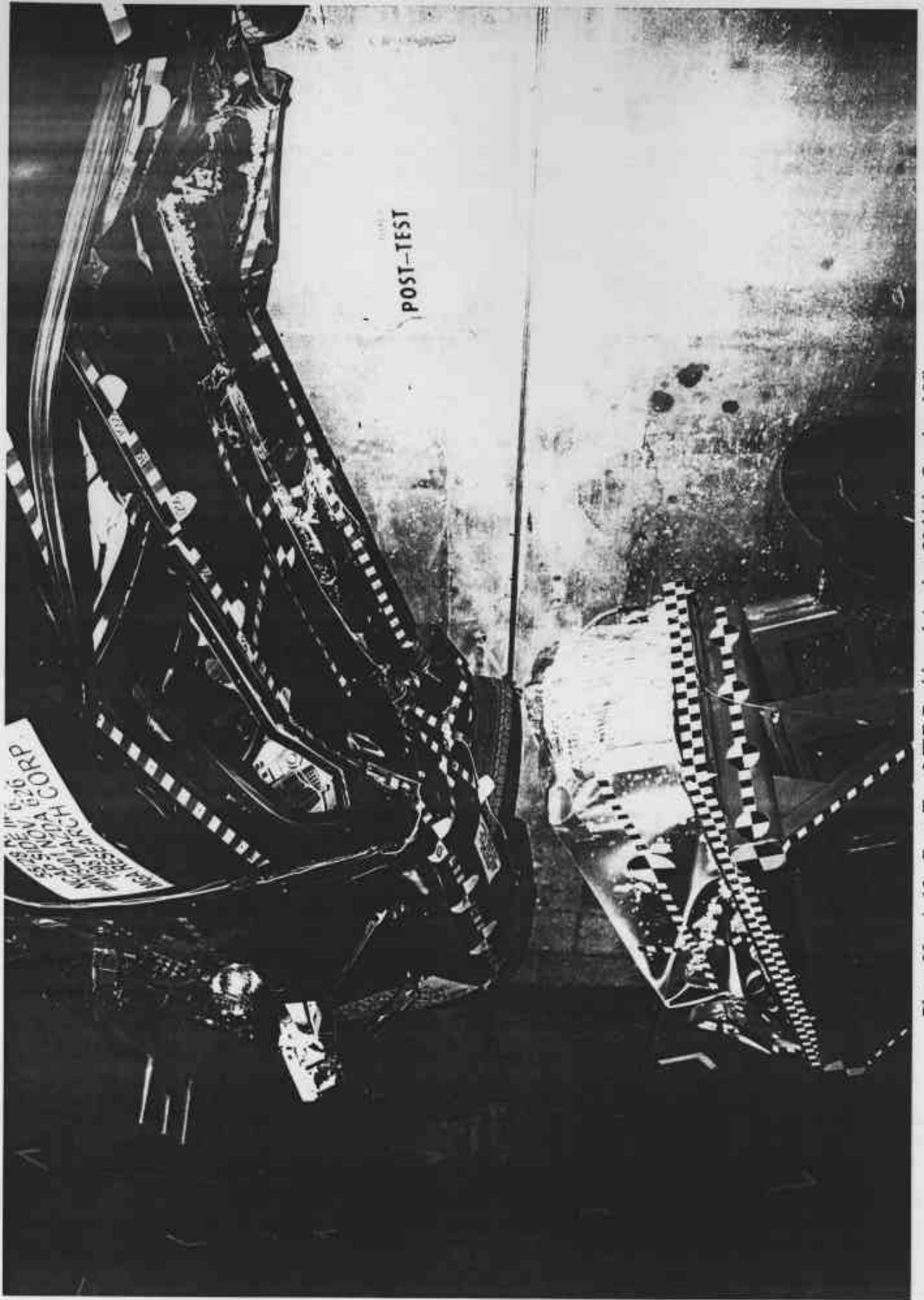


Photo No. A-12 - Post-Test MDB Positioned Against Vehicle Overhead View

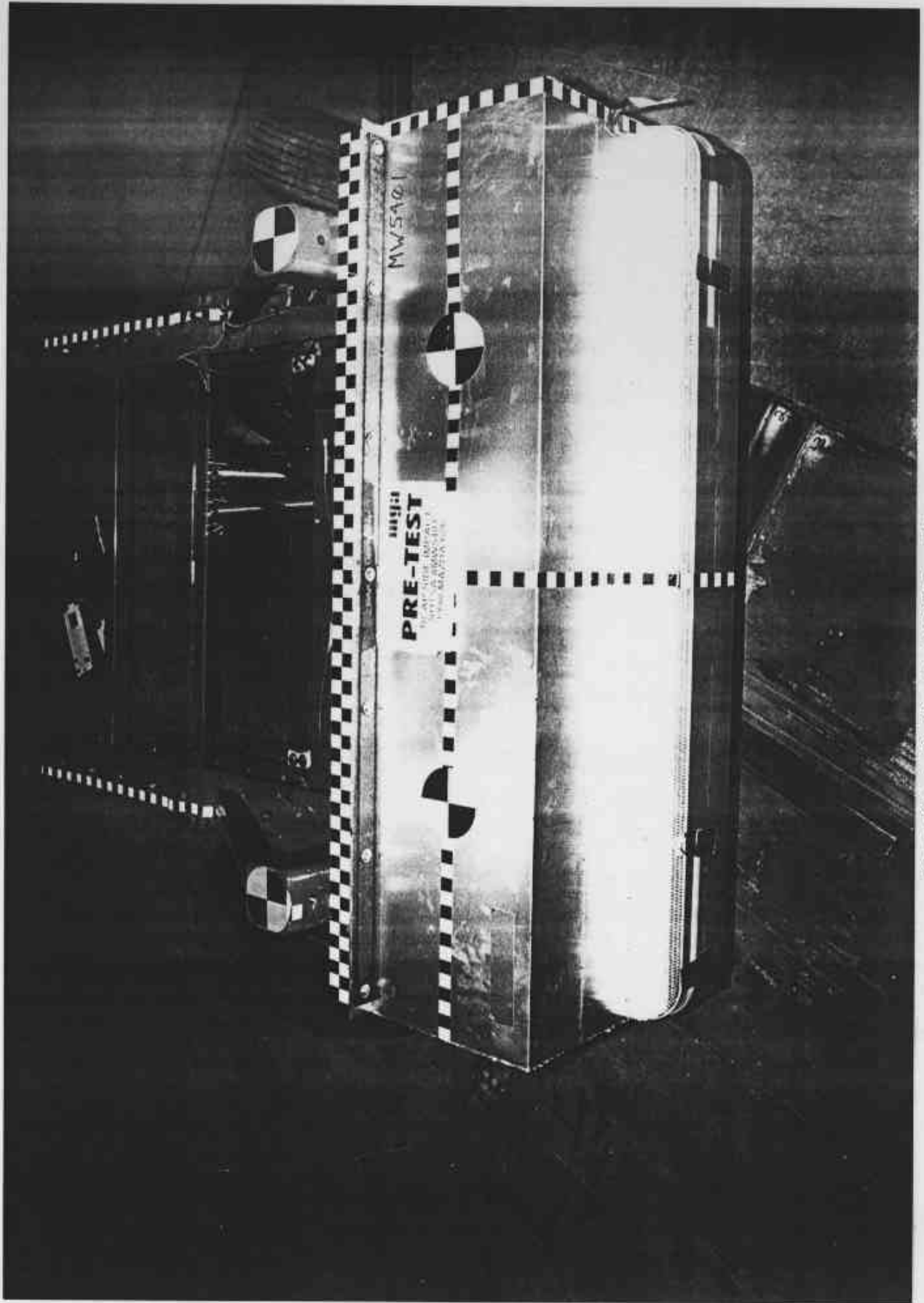
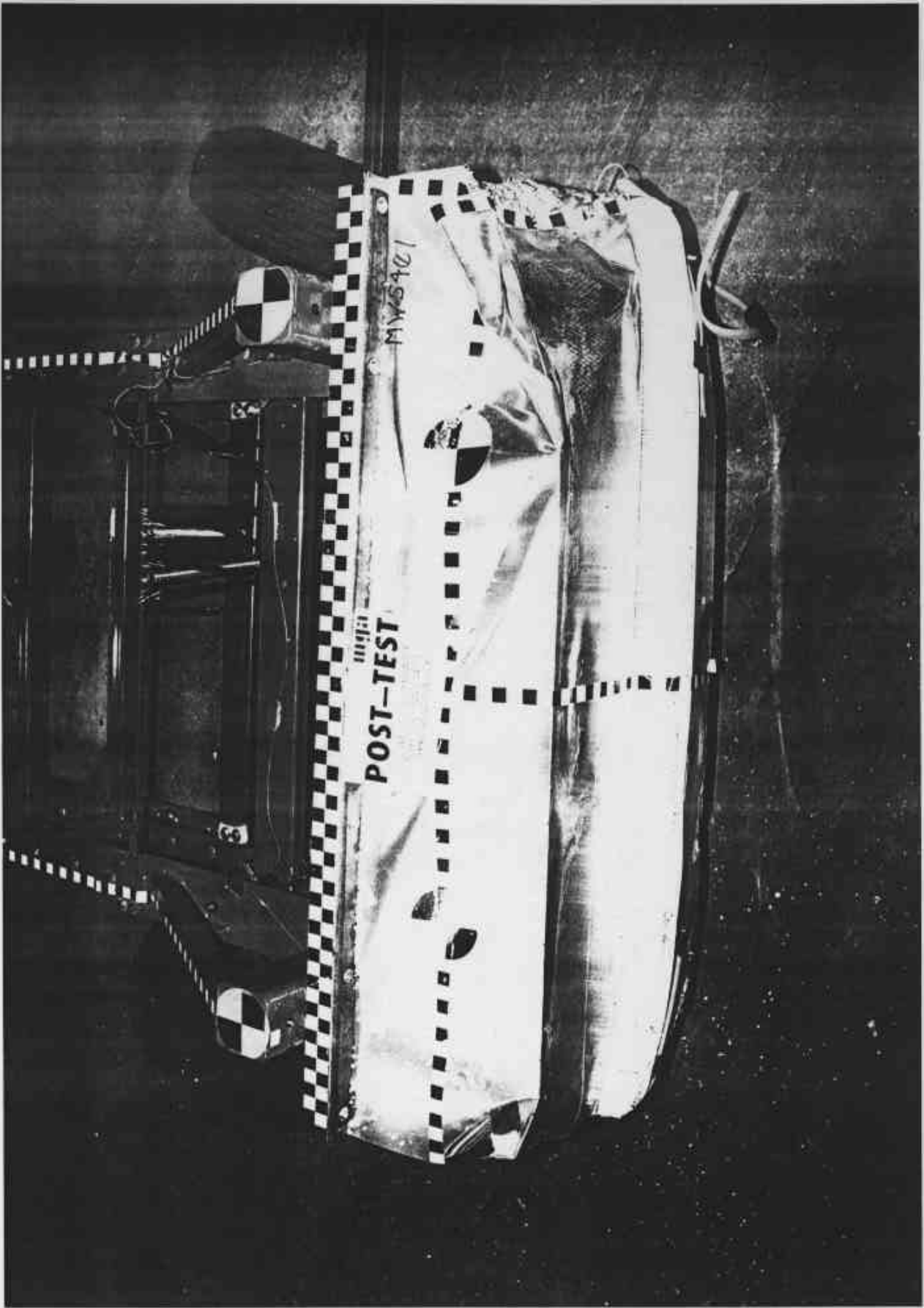


Photo No. A-13 - Pre-Test MDB Top View



A-14

Photo No. A-14 - Post-Test MDB Top View

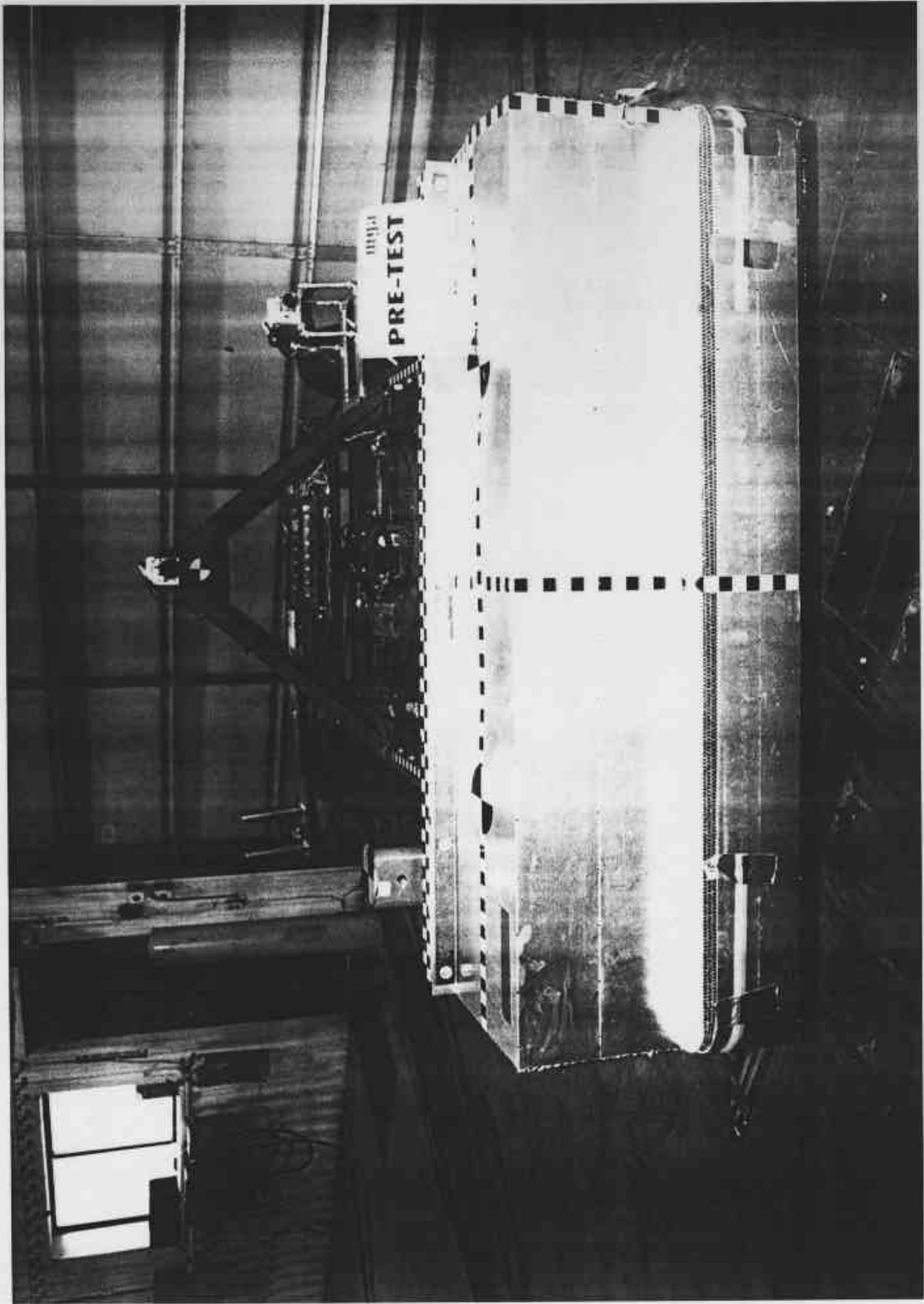
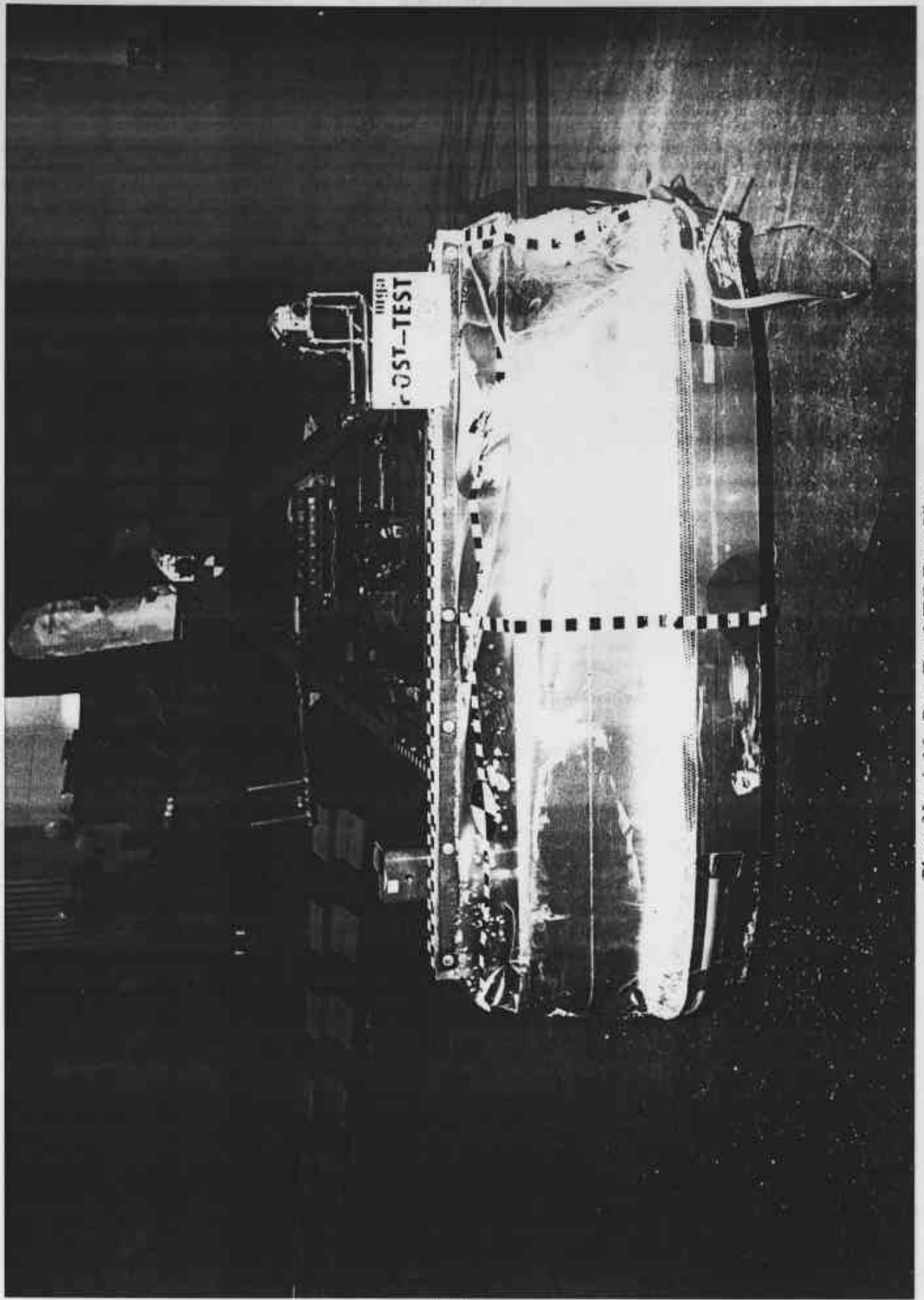


Photo No. A-15 - Pre-Test MDB Front View

A-15



A-16

Photo No. A-16 - Post-Test MDB Front View

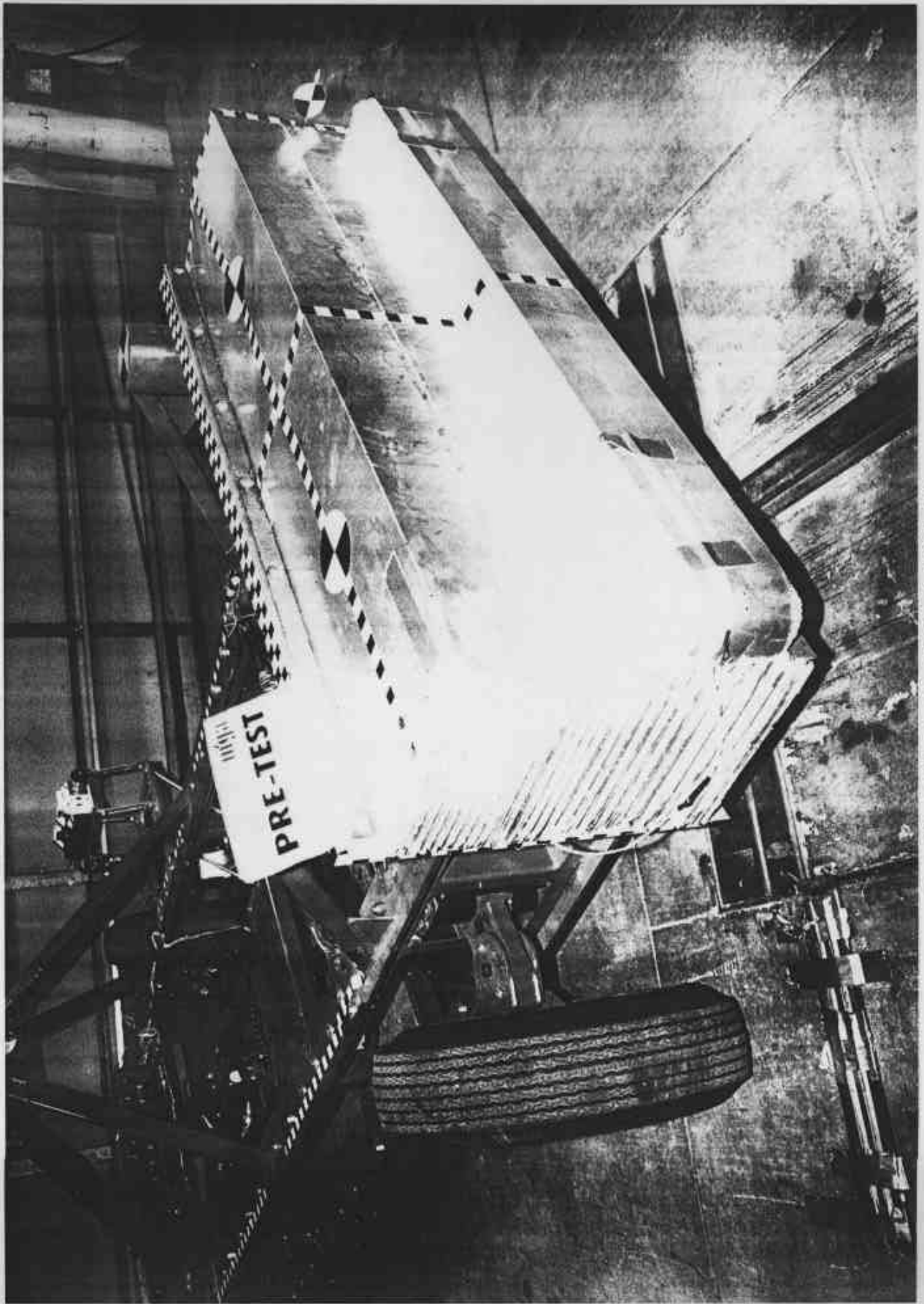


Photo No. A-17 - Pre-Test MDB Right Side View

A-17

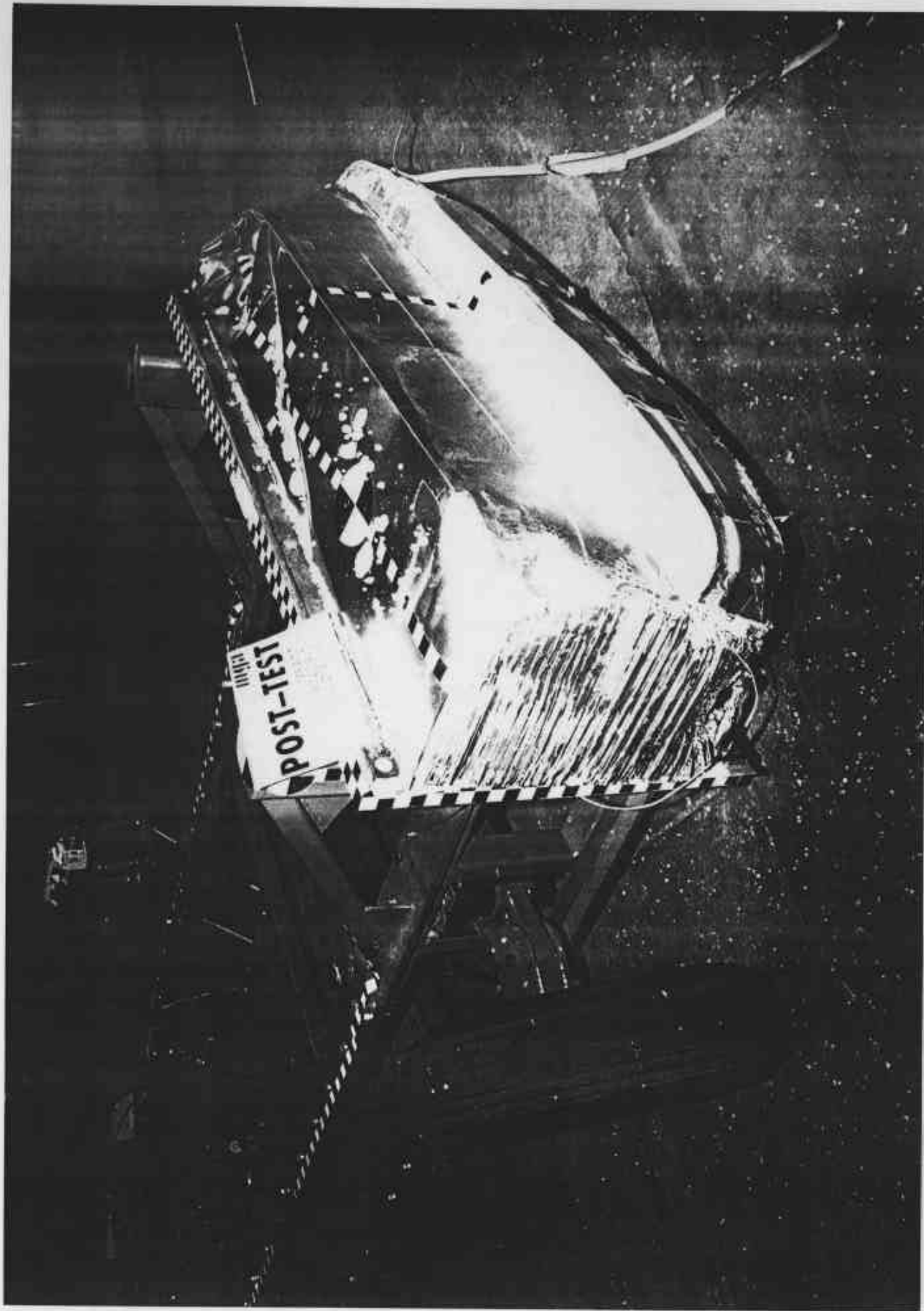


Photo No. A-18 - Post-Test MDB Right Side View

A-18

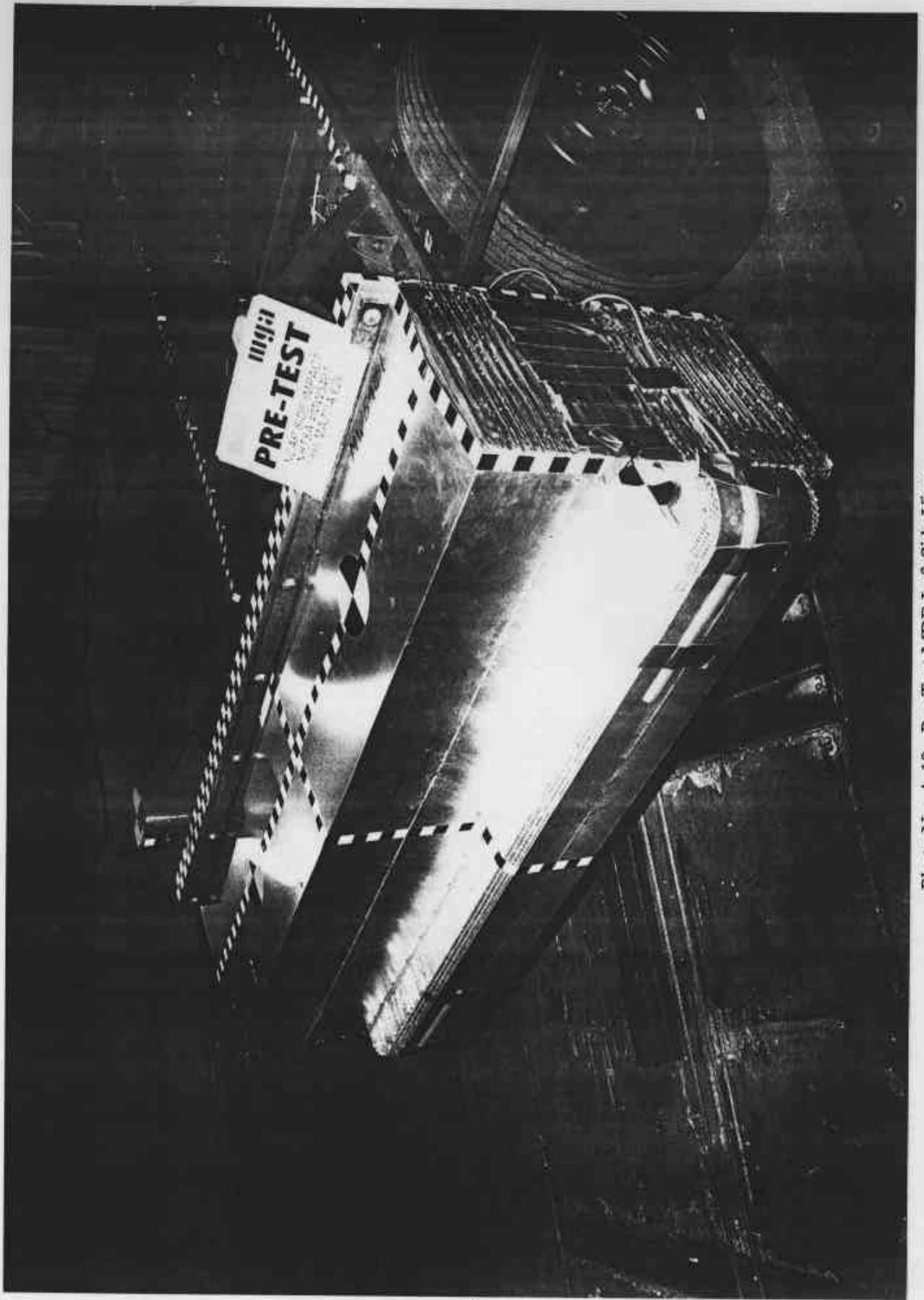


Photo No. A-19 - Pre-Test MDB Left Side View

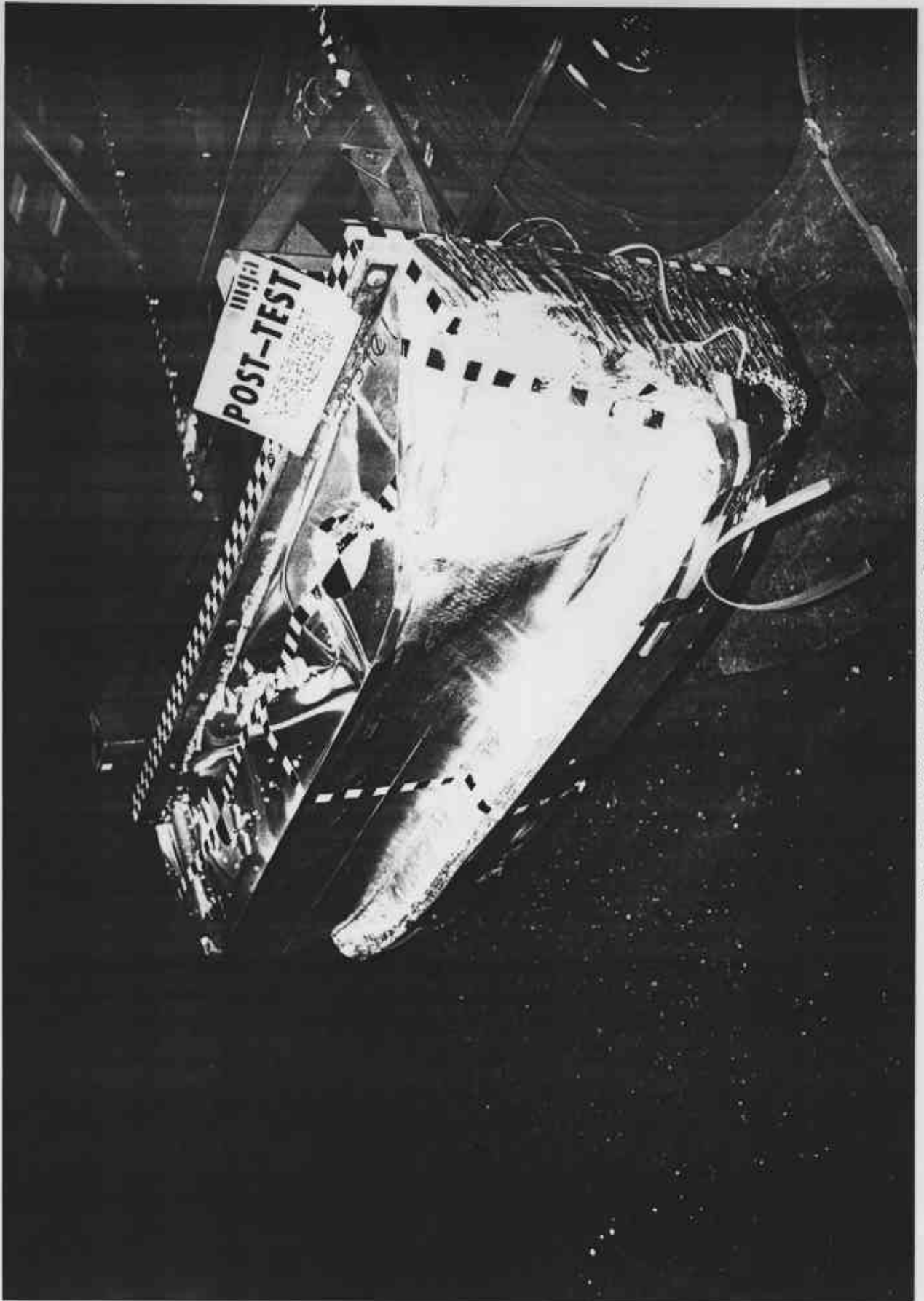


Photo No. A-20 - Post-Test MDB Left Side View

A-20

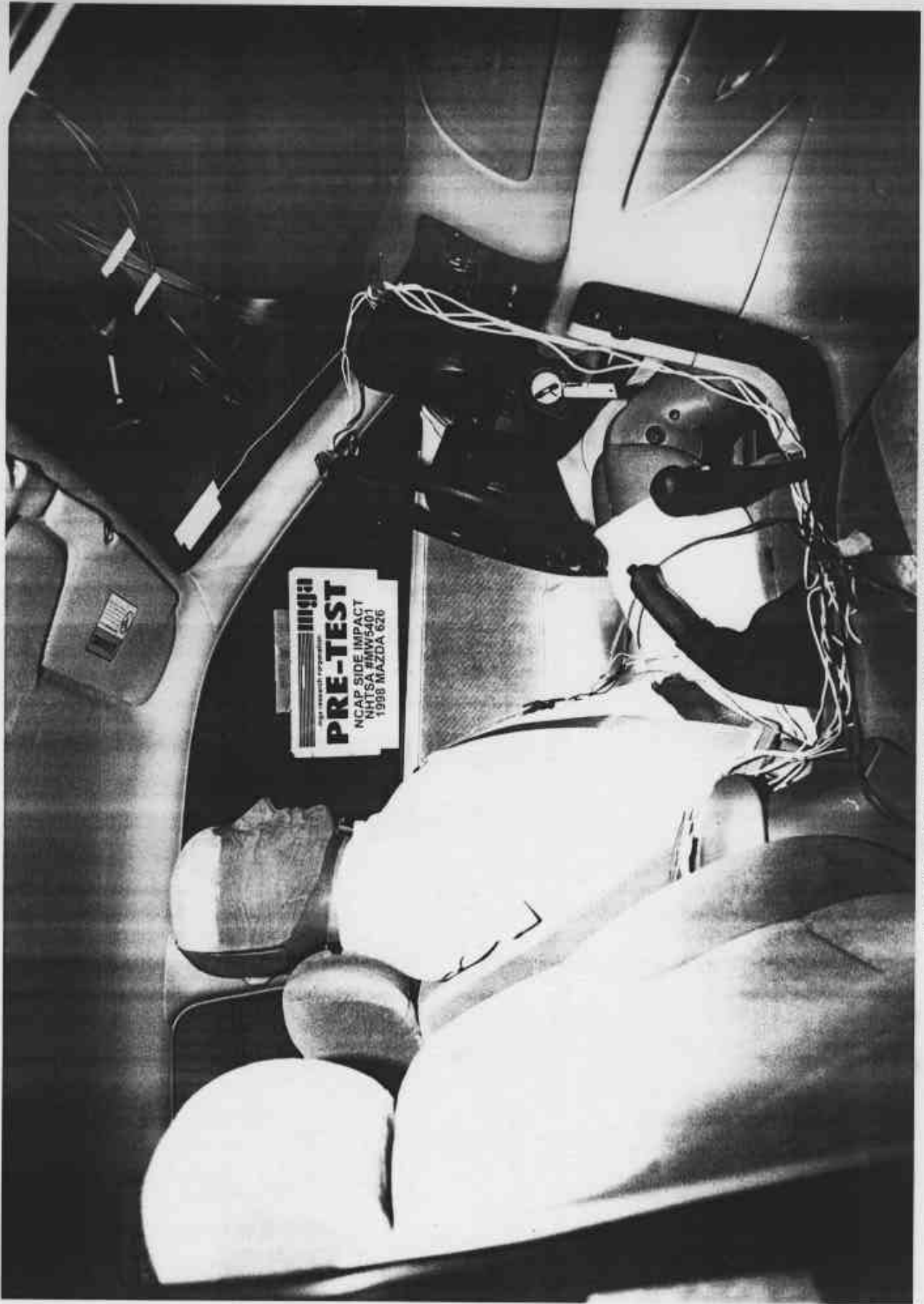
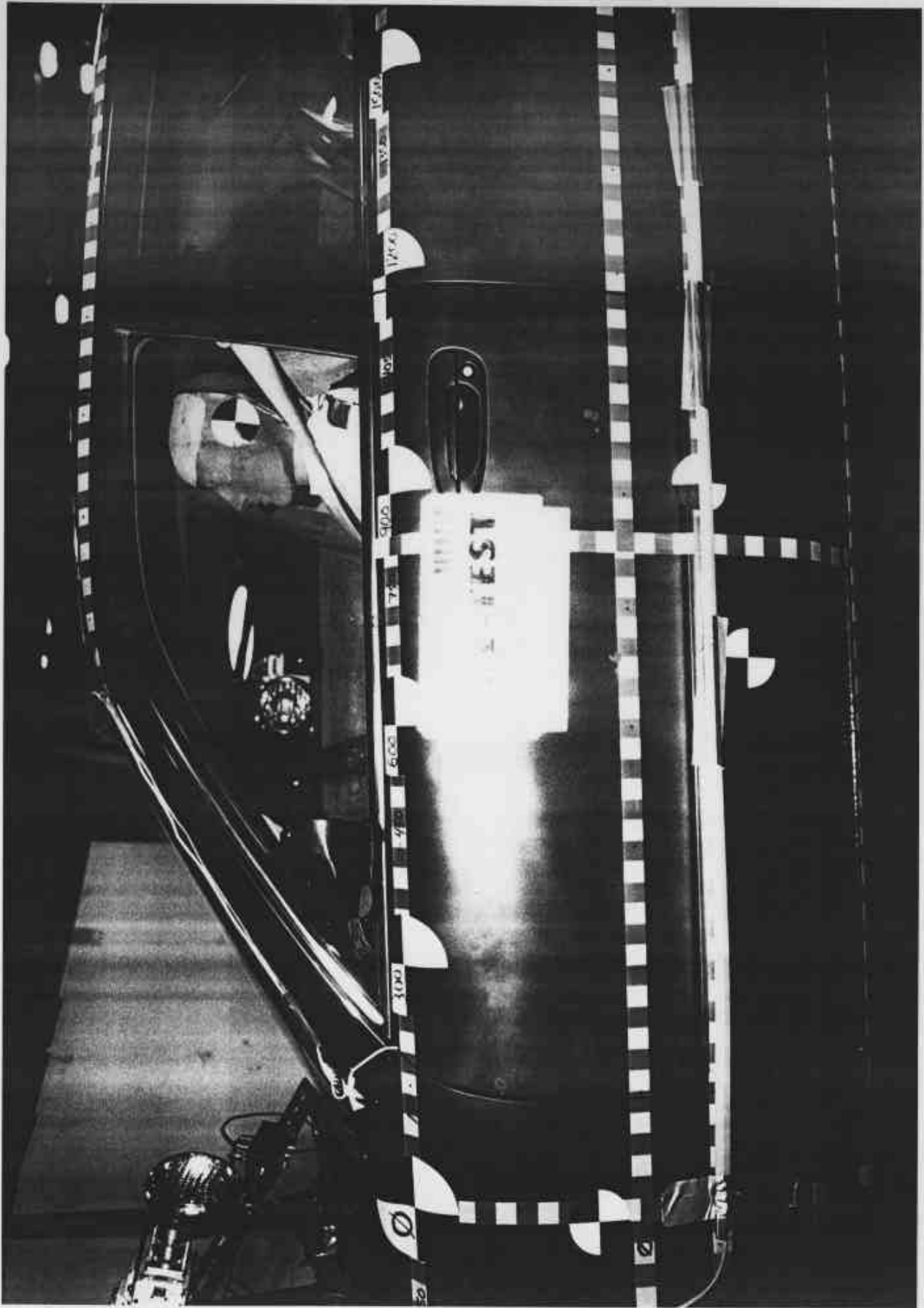


Photo No. A-21 - Pre-Test Driver Dummy Right Side View



Photo No. A-22 - Post-Test Driver Dummy Right Side View



A-23

Photo No. A-23 - Pre-Test Driver Dummy Left Side View

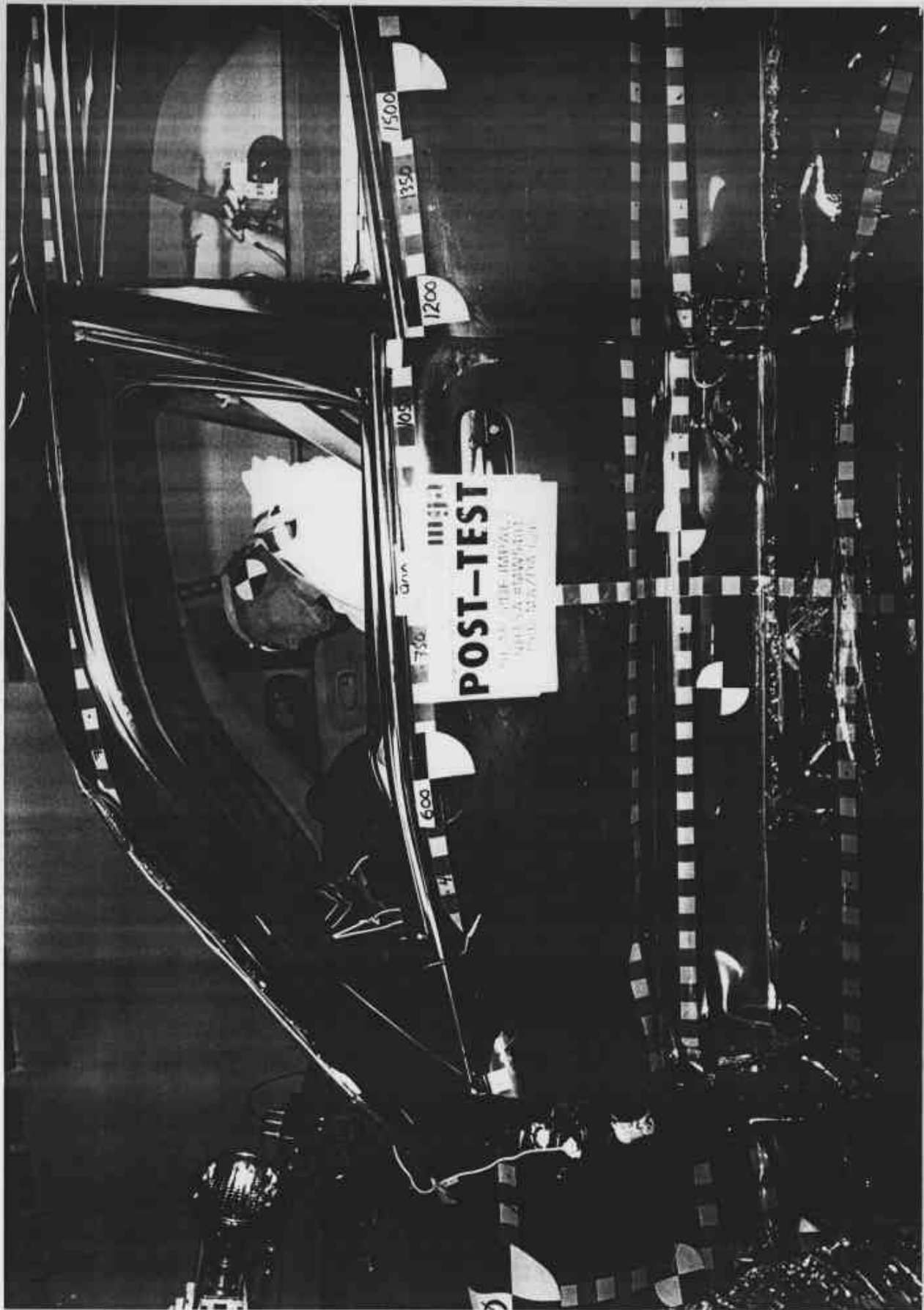


Photo No. A-24 - Post-Test Driver Dummy Left Side View

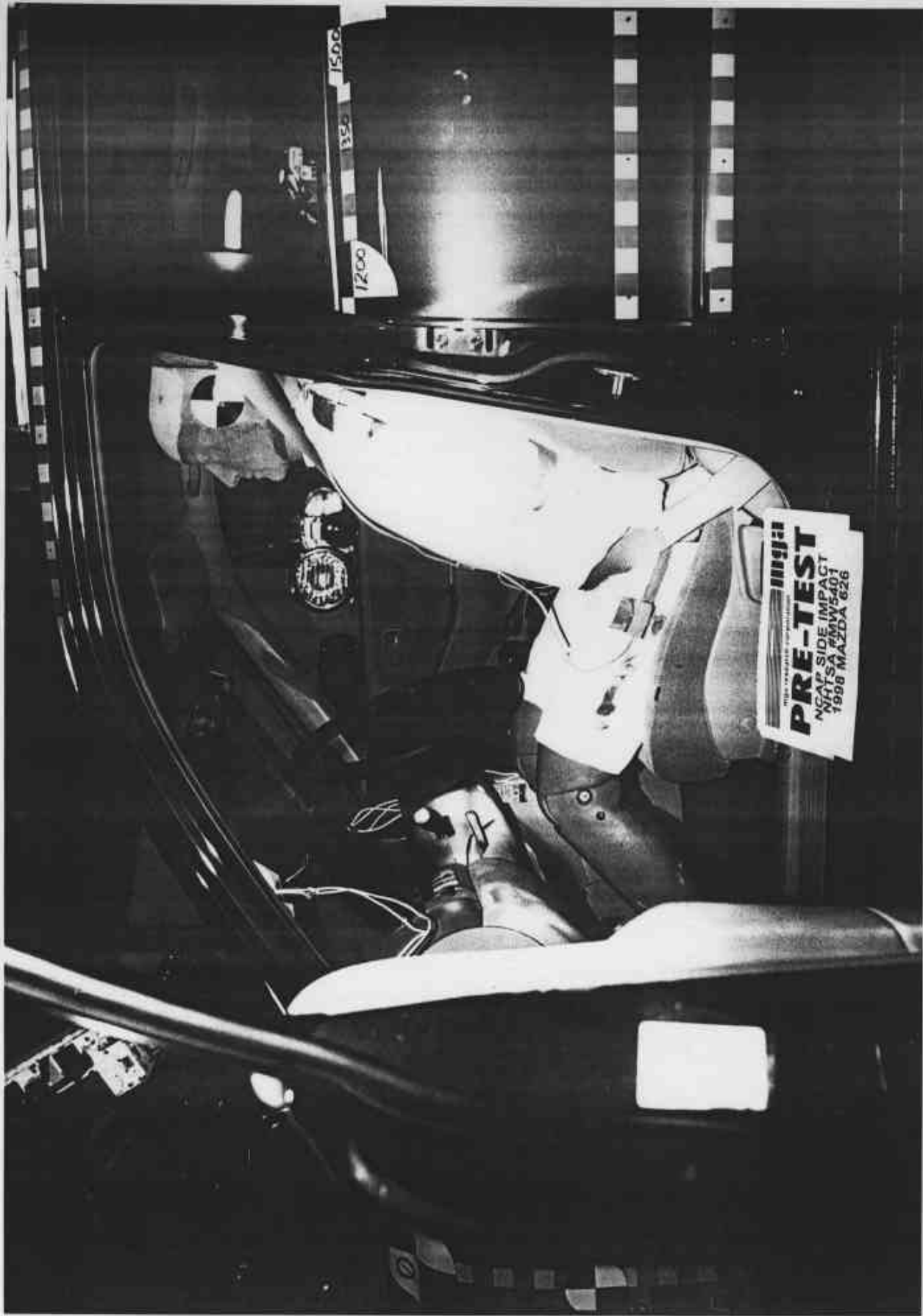


Photo No. A-25 - Pre-Test Driver Dummy Left Side View (Door Open)

A-25



A-26

Photo No. A-26 - Pre-Test Driver Dummy Shoulder and Door Top View



A-27

Photo No. A-27 - Post-Test Driver Dummy Shoulder and Door Top View



Photo No. A-28 - Post-Test Driver Dummy Contact

A-28



Photo No. A-29 - Post-Test Driver Dummy Contact

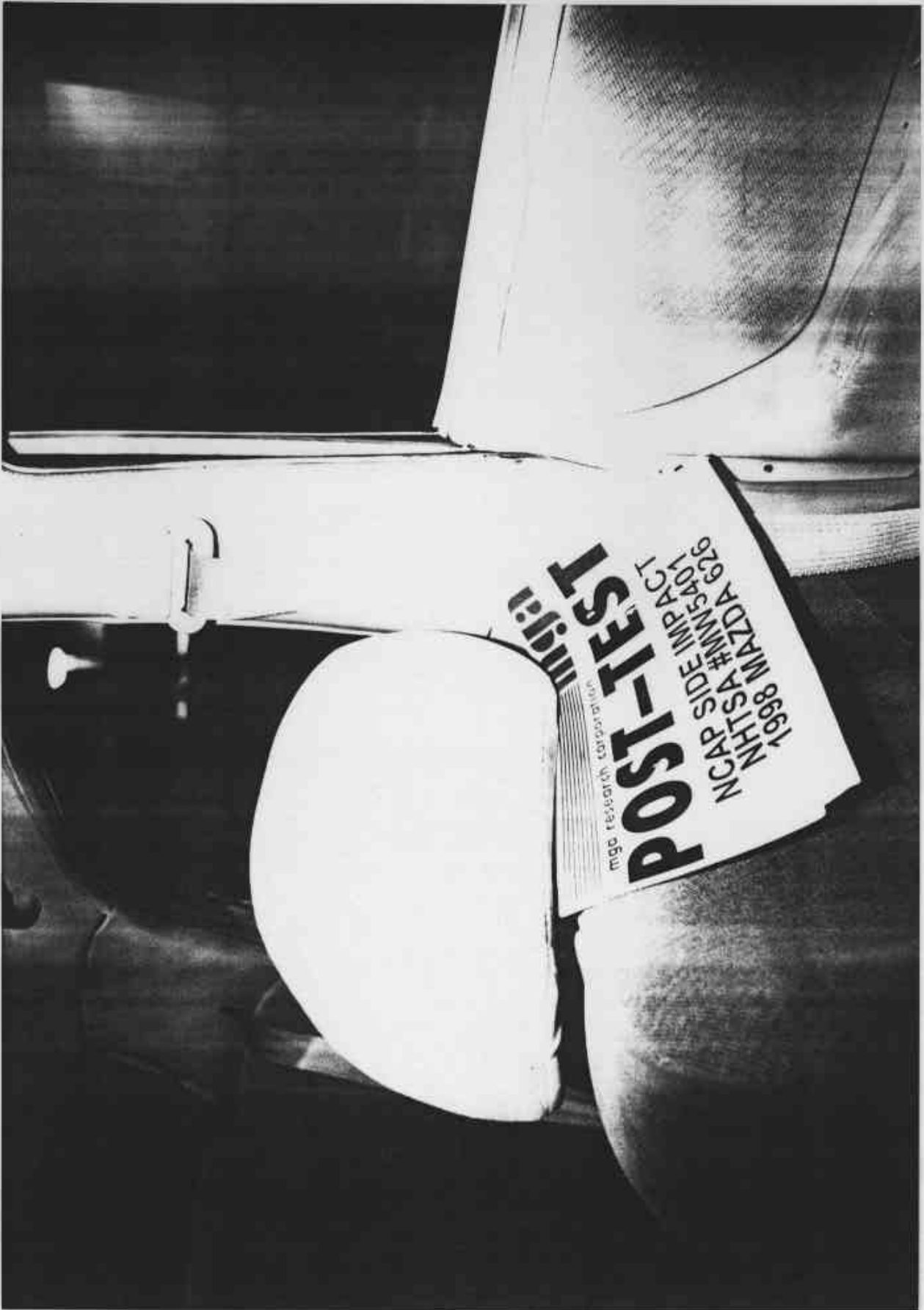


Photo No. A-30 - Post-Test Driver Dummy Head Contact

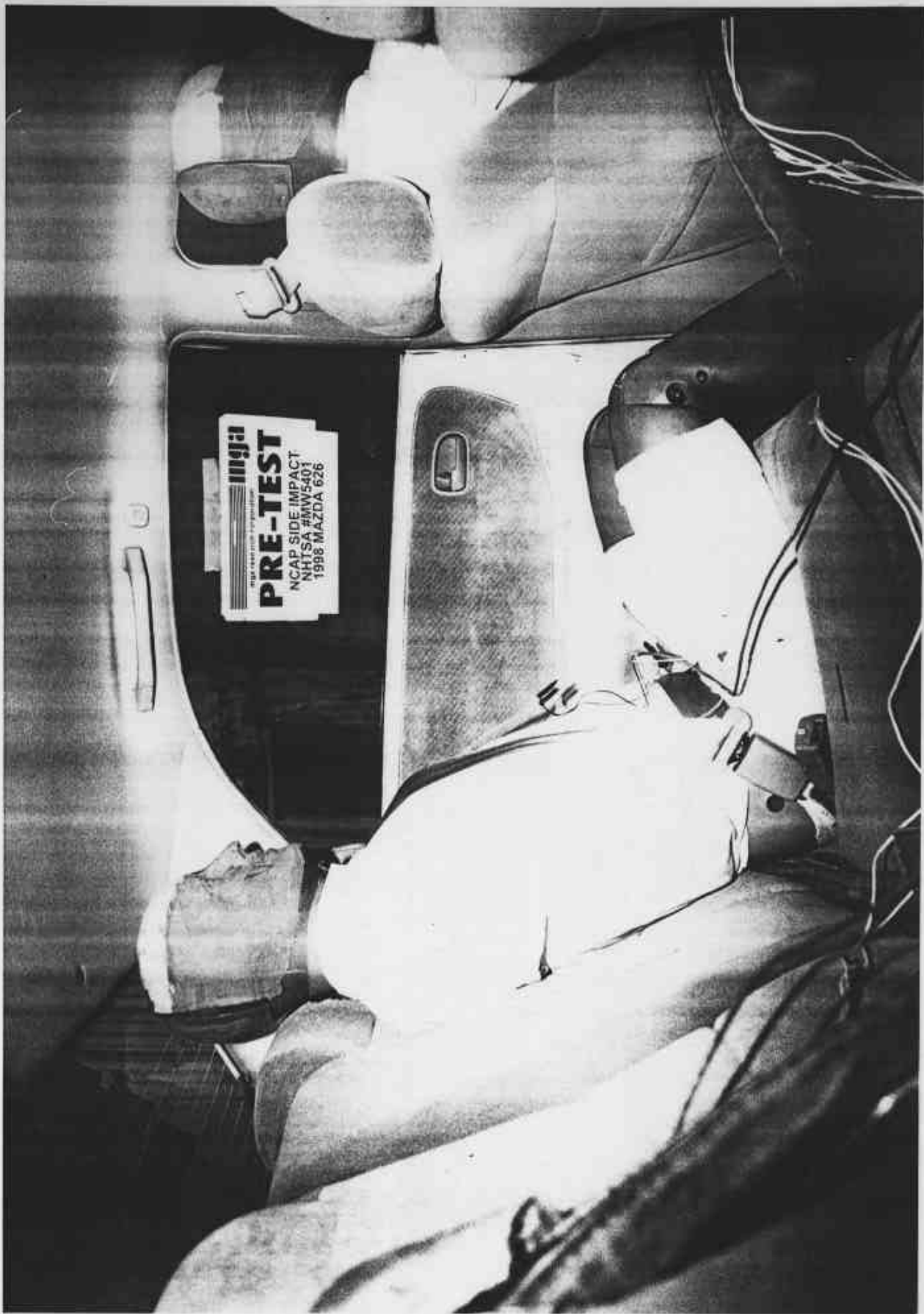


Photo No. A-31 - Pre-Test Passenger Dummy Right Side View

A-31

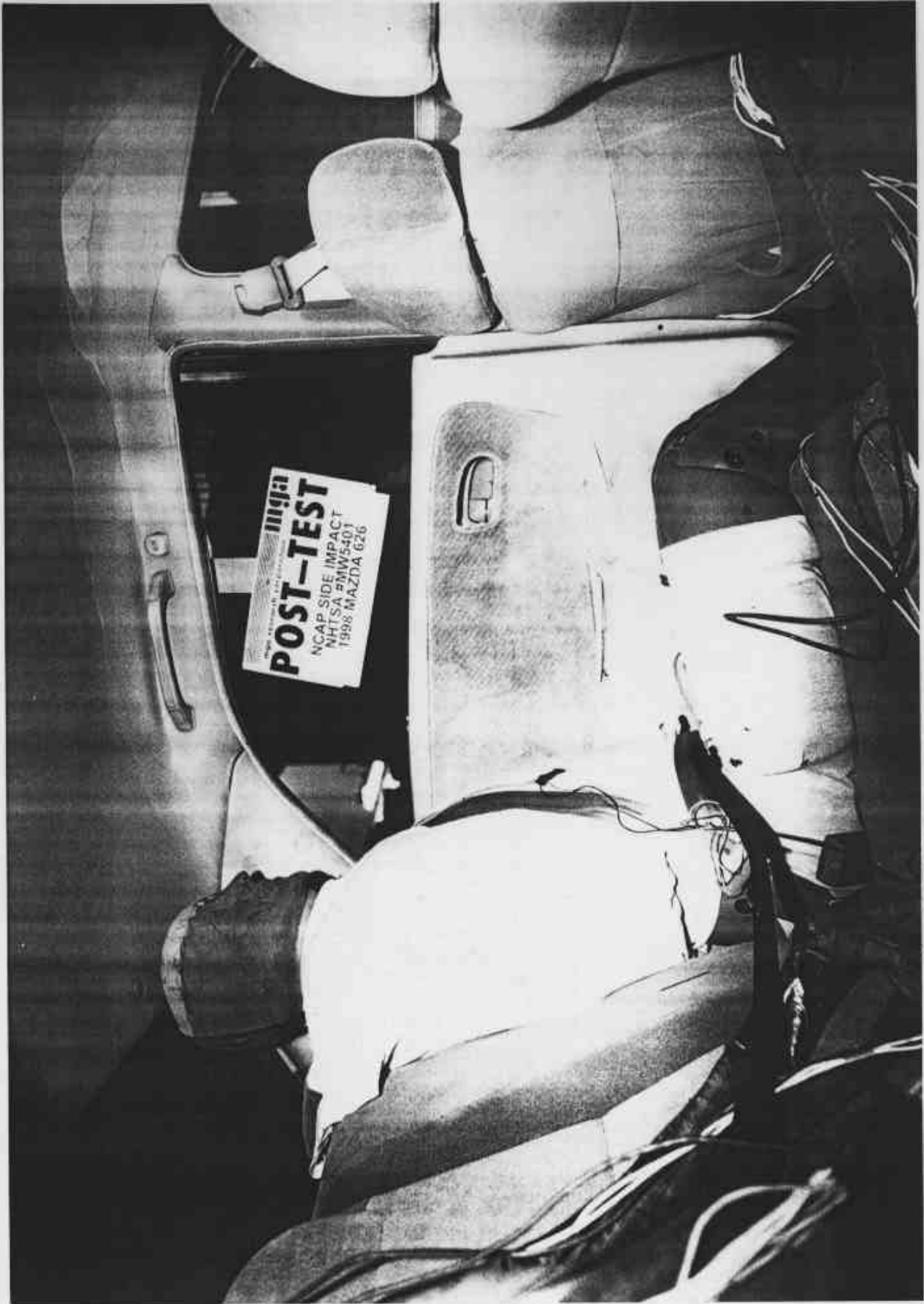


Photo No. A-32 - Post-Test Passenger Dummy Right Side View

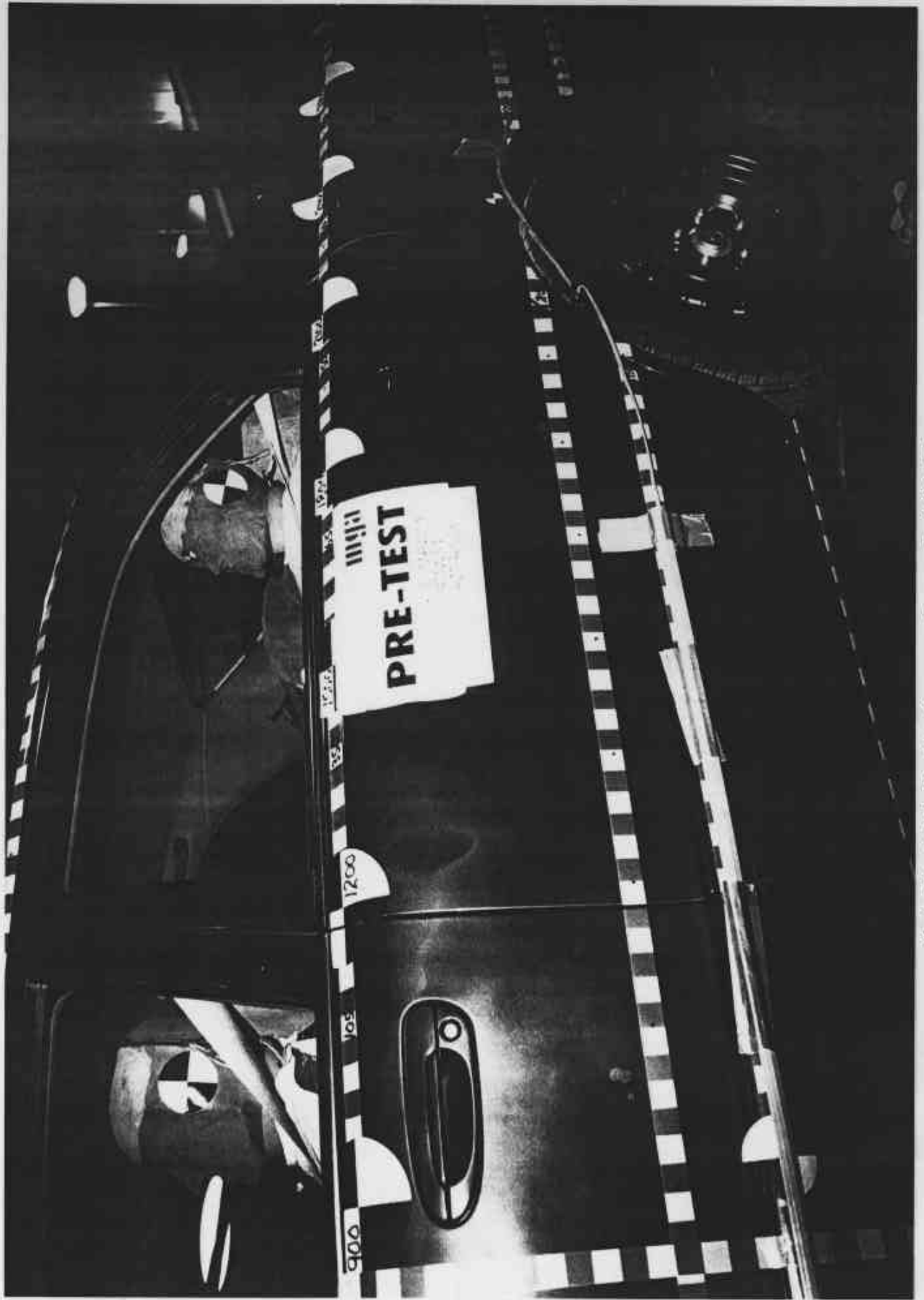


Photo No. A-33 - Pre-Test Passenger Dummy Left Side View

A-33

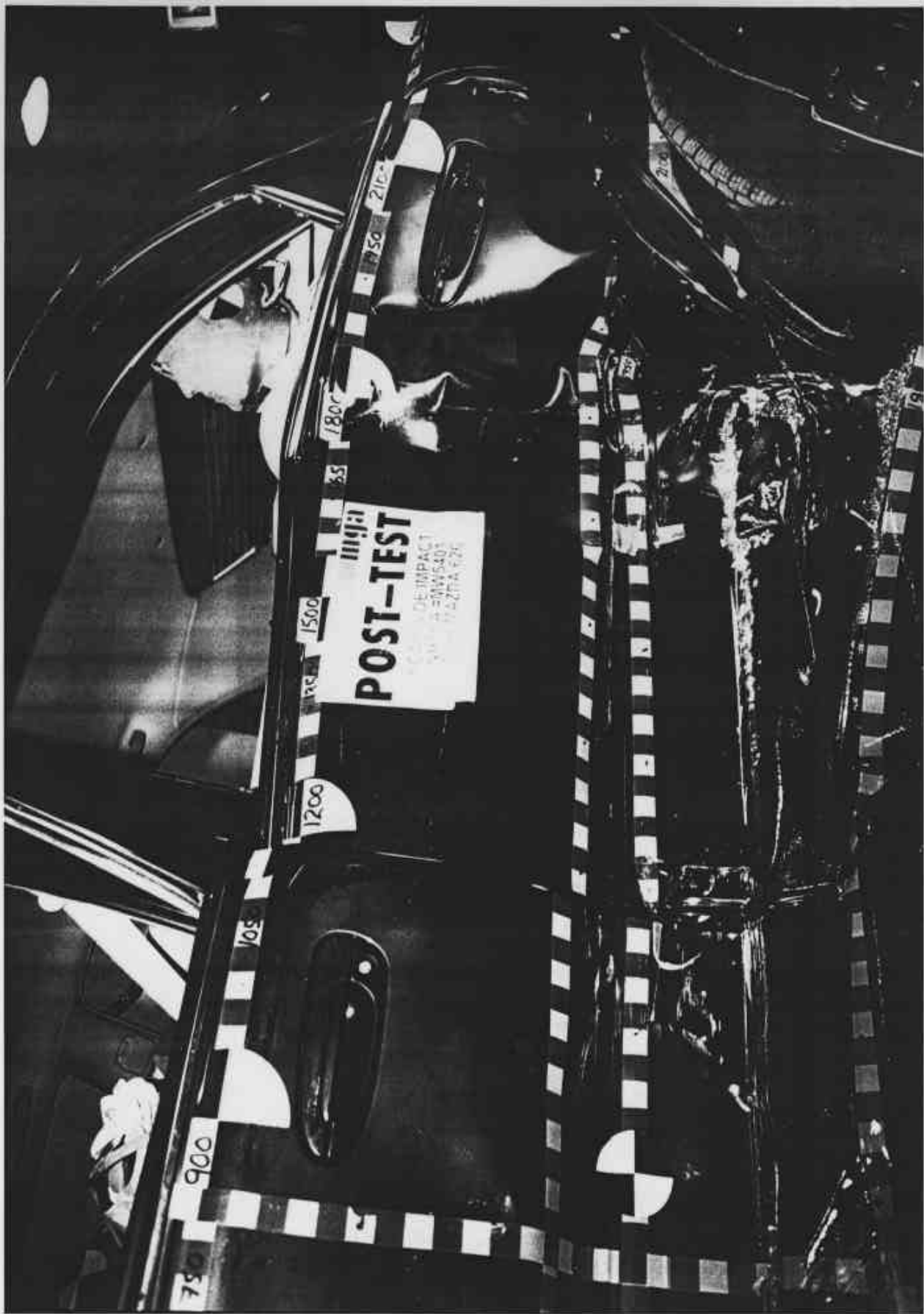


Photo No. A-34 - Post-Test Passenger Dummy Left Side View

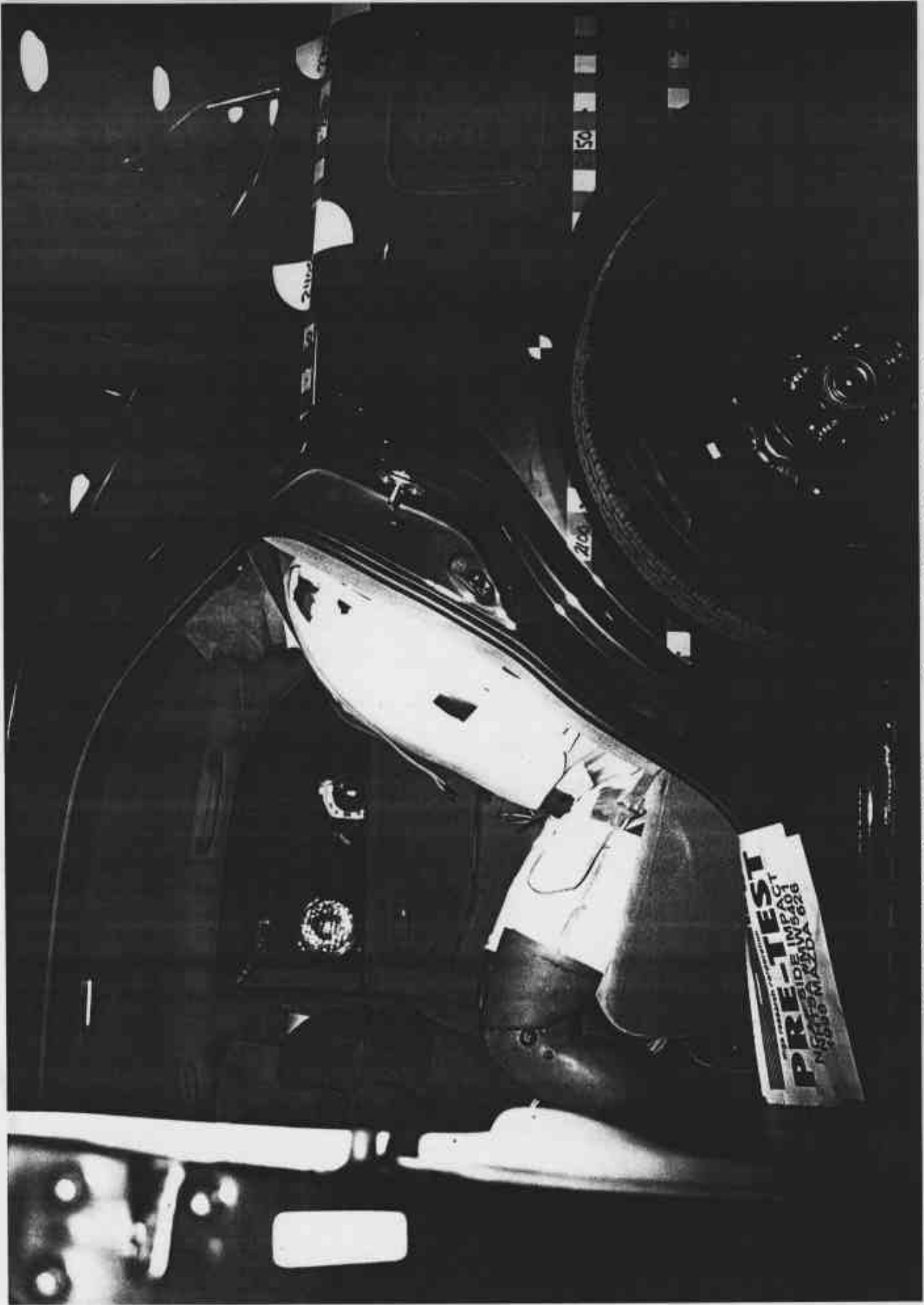
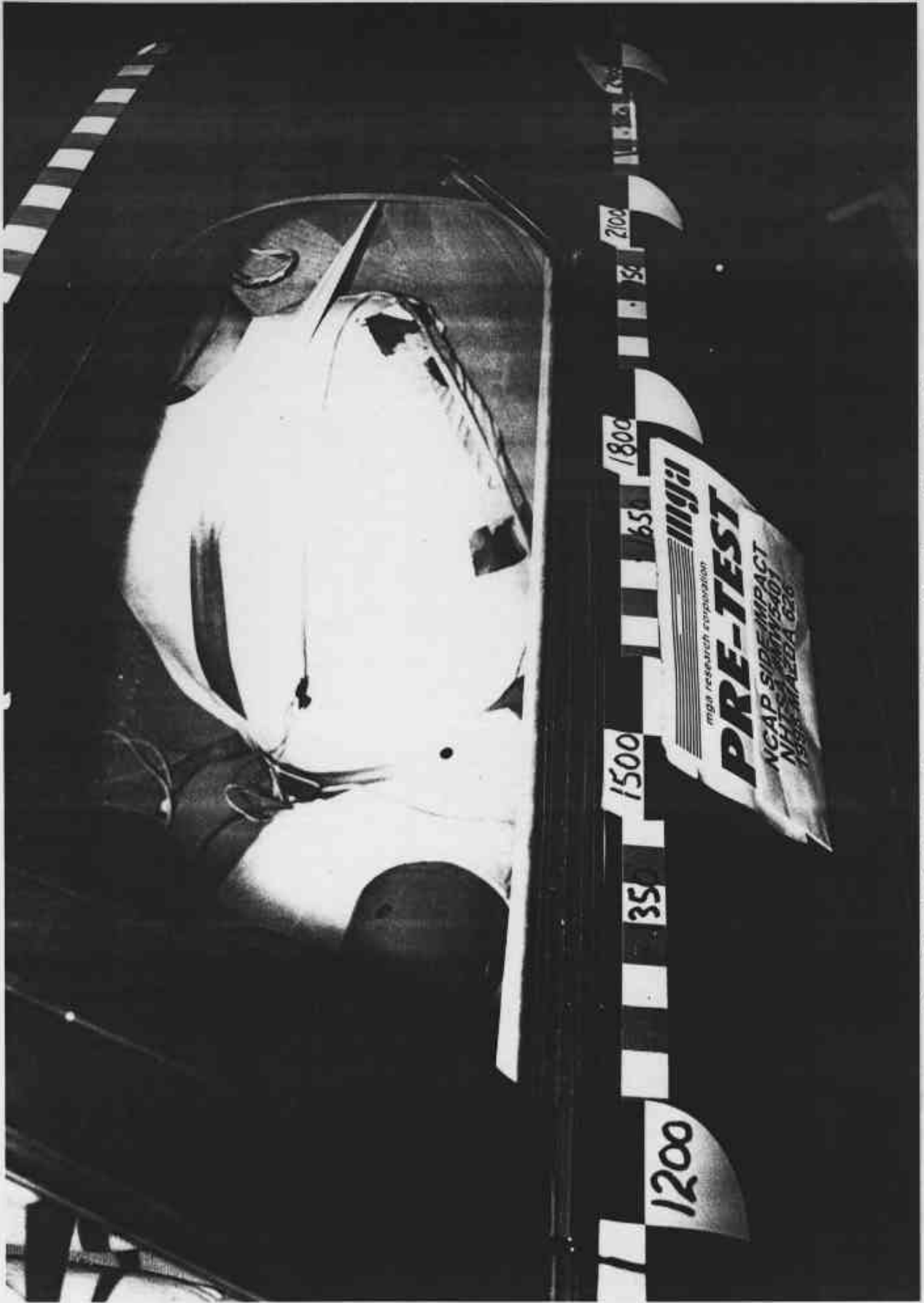


Photo No. A-35 - Pre-Test Passenger Dummy Left Side View (Door Open)

A-35



A-36

Photo No. A-36 - Pre-Test Passenger Dummy Shoulder and Door Top View



A-37

Photo No. A-37 - Post-Test Passenger Dummy Shoulder and Door Top View



Photo No. A-38 - Post-Test Passenger Dummy Contact

A-38



Photo No. A-39 - Post-Test Passenger Dummy Contact



Photo No. A-40 - Post-Test Passenger Dummy Head Contact

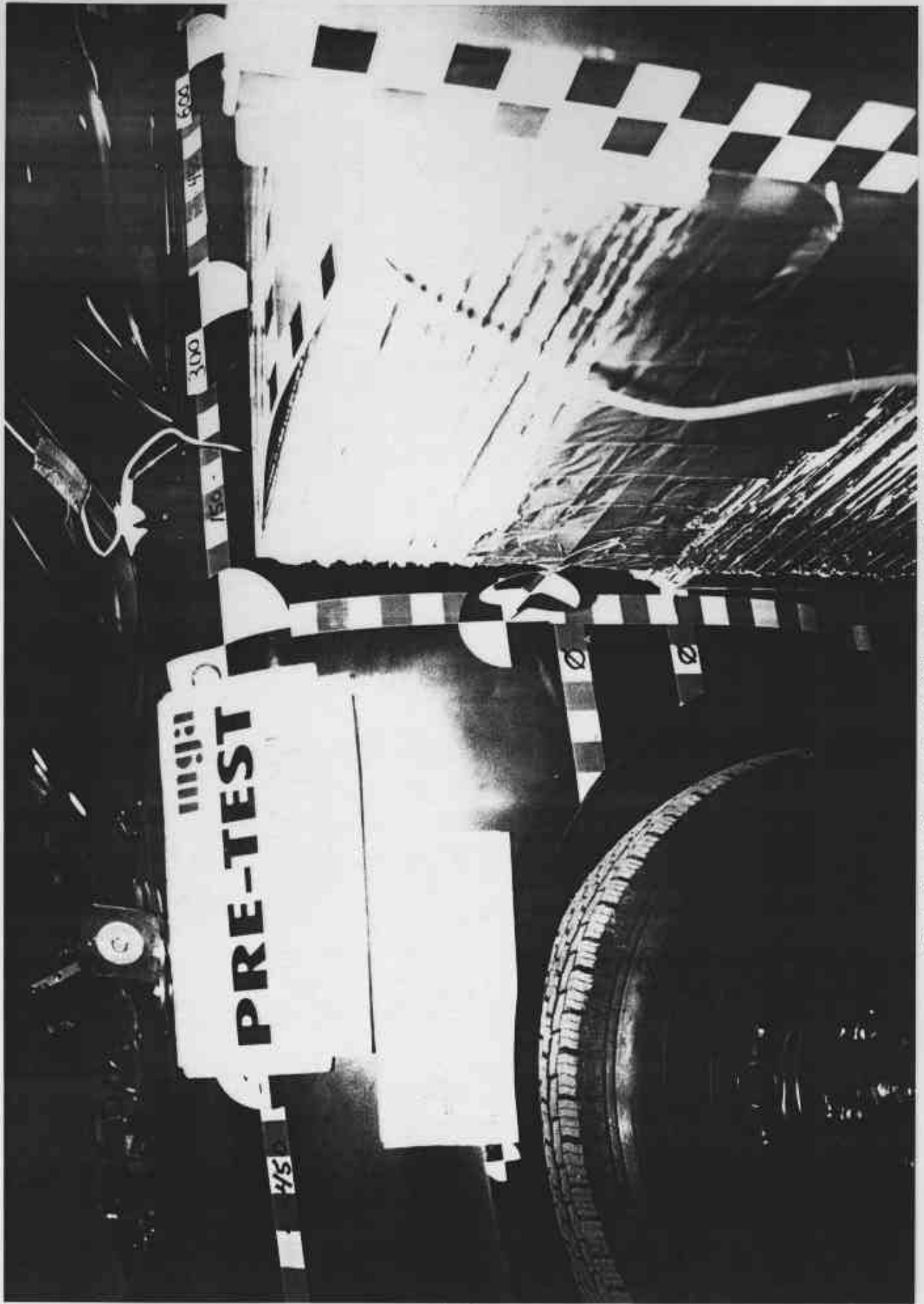
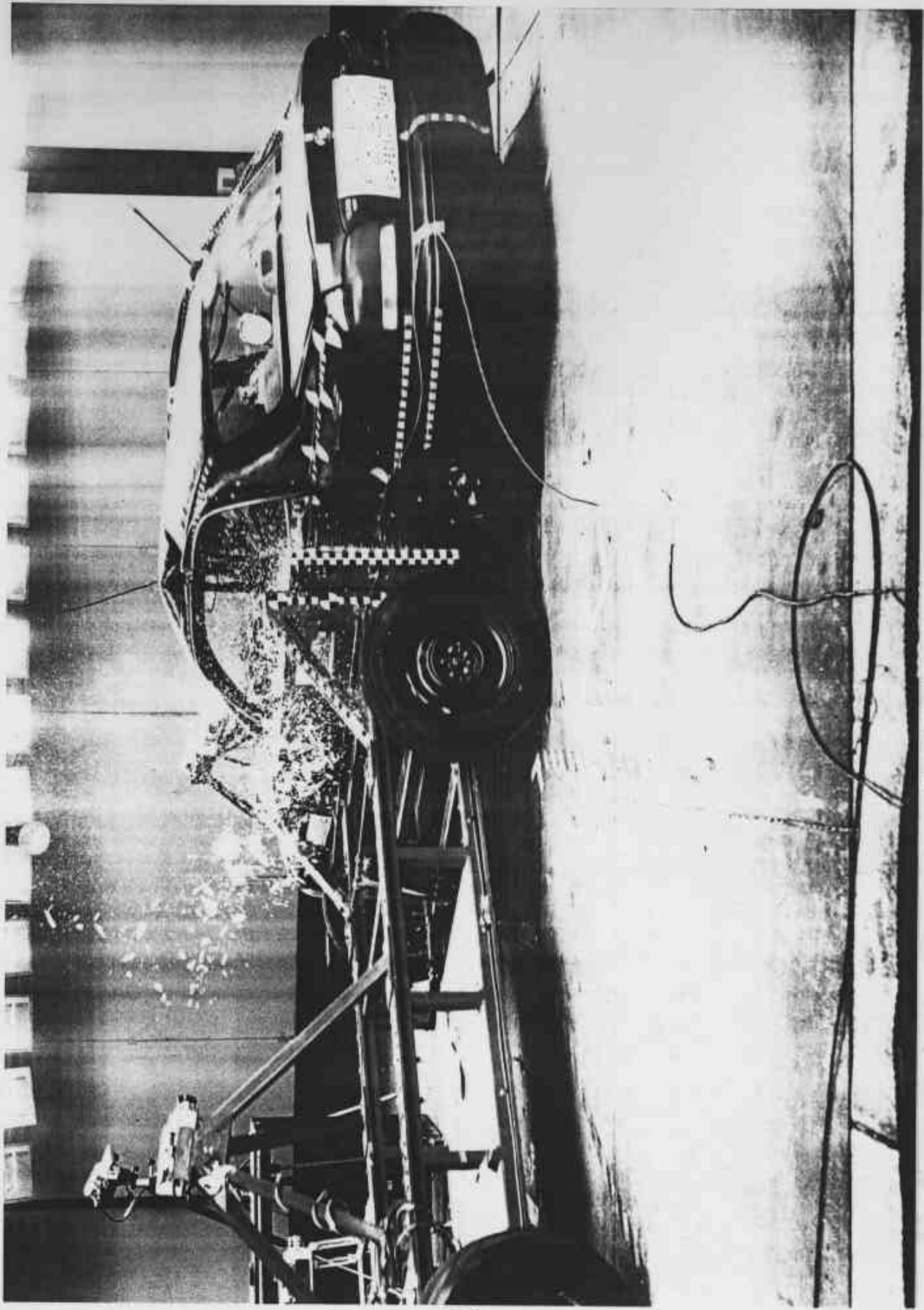


Photo No. A-41 - Pre-Test Left Front Impact Point on Vehicle

A-41



Photo No. A-42 - Post-Test Left Front Impact Point on Vehicle



A-43

Photo No. A-43 - Impact

BY AUTOMOBILE  
INTERNATIONAL, INC.

DATE	GAWR/PNBA	GAWR/PNBE	FRT	GAWR/PNBE	RR
09/23/97	3962 LB	2123 LB		1839 LB	
	1797 KG	963 KG		834 KG	

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY  
STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE  
**BUMPER AND THEFT PREVENTION**

1YVGF22C7W5691579



BODY COLOR CODE; 11J

TYPE PASSENGER

MADE IN U.S.A

Photo No. A-44 - Vehicle Certification Label

VEHICLE CAPACITY WEIGHT (GD7A)  
 CAPACITÉ PORTEUSE DU VEHICULE 385kg(850 lbs)

FRONT SEAT ..... 2  
 SIEGE AVANT ..... 2  
 REAR SEAT ..... 3  
 SIEGE ARRIERE ..... 3  
 TOTAL ..... 5

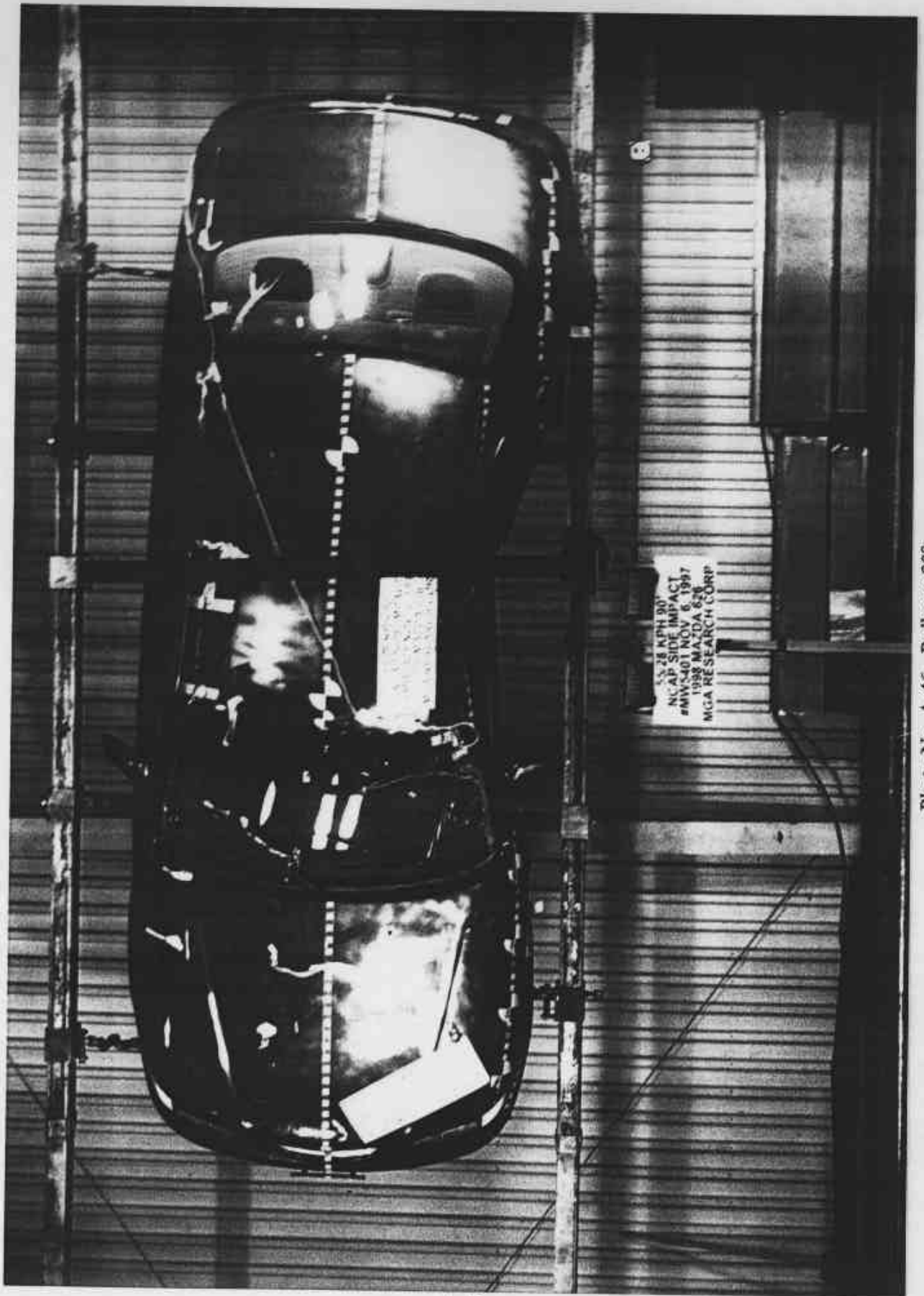
SEATING CAPACITY  
 NOMBRE DE PLACES

TIRE INFLATION PRESSURE PRESSION DE GONFLAGE DES PNEUS Kgf/cm <sup>2</sup> (P.S.I., lb/PO <sup>2</sup> )	FRONT/AV.	REAR/AR.
	2.2(32)	1.8(26)

TIRE SIZE  
 TAILLE DES PNEUS

P185/70R14	87S
P205/60R15	90H

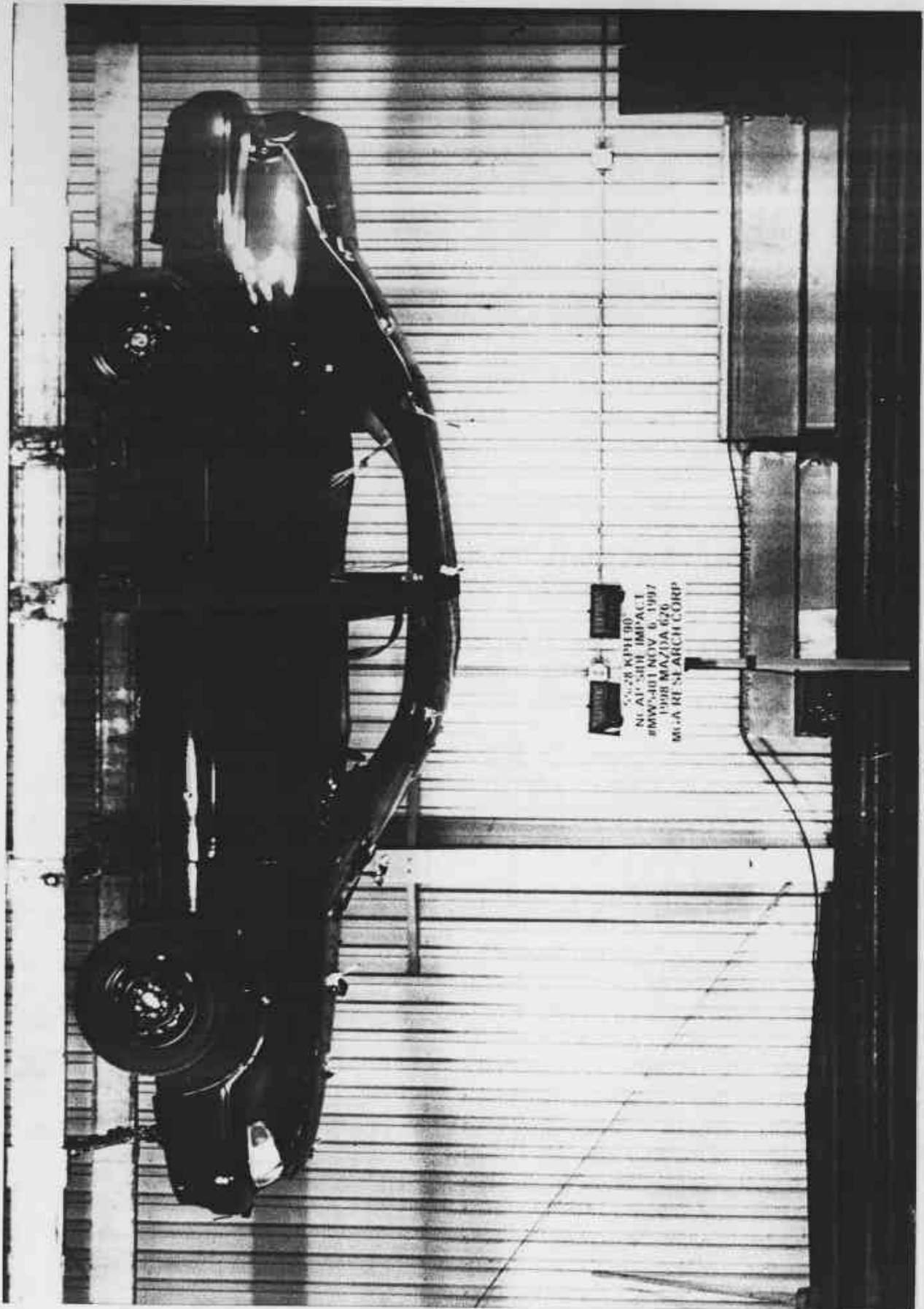
Photo No. A-45 - Tire Placard



55.28 KPH 90°  
NCAP SIDE IMPACT  
#MWS401 NOV 6, 1997  
1998 MAZDA 626  
MGA RESEARCH CORP

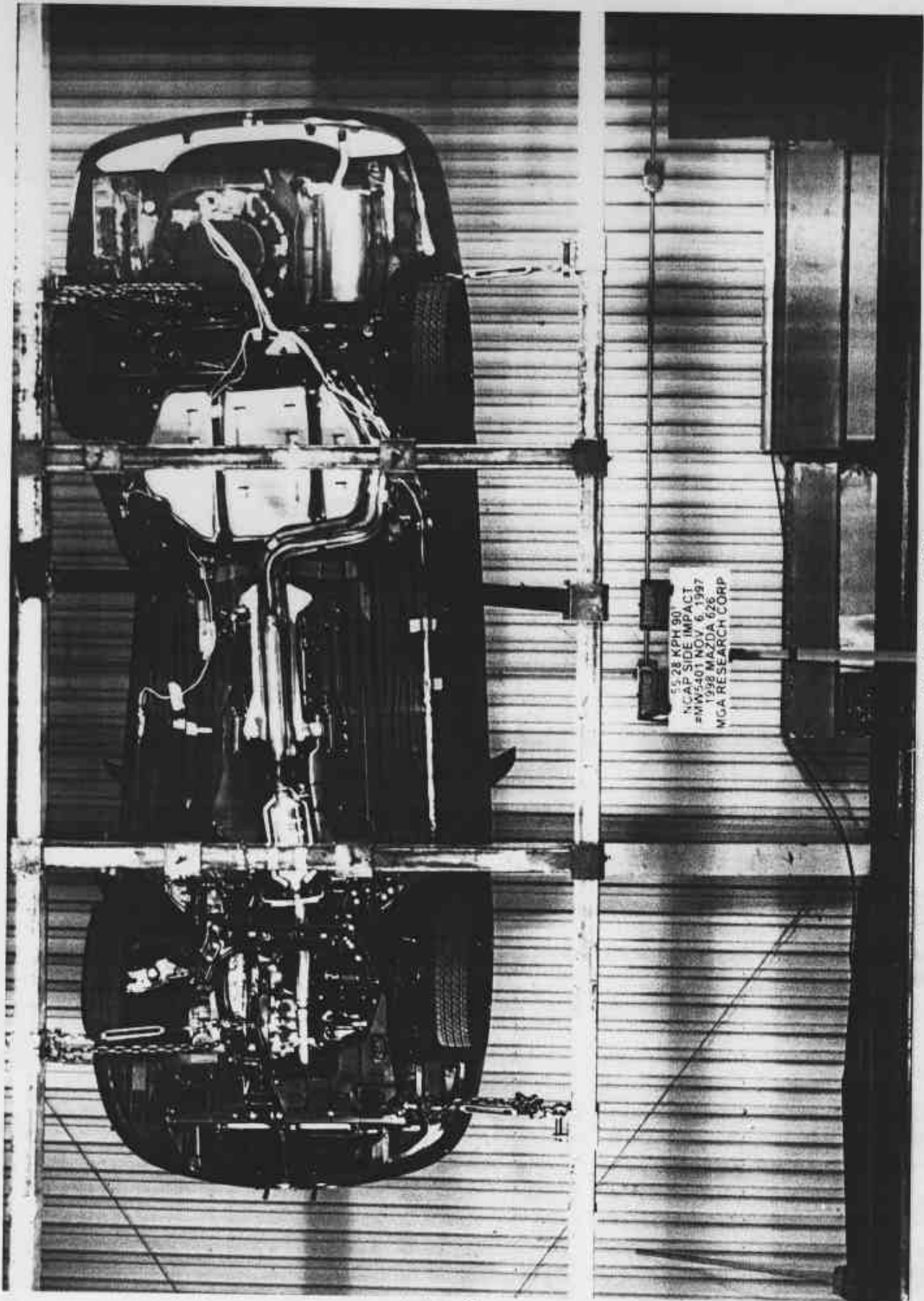
Photo No. A-46 - Rollover 90°

A-46



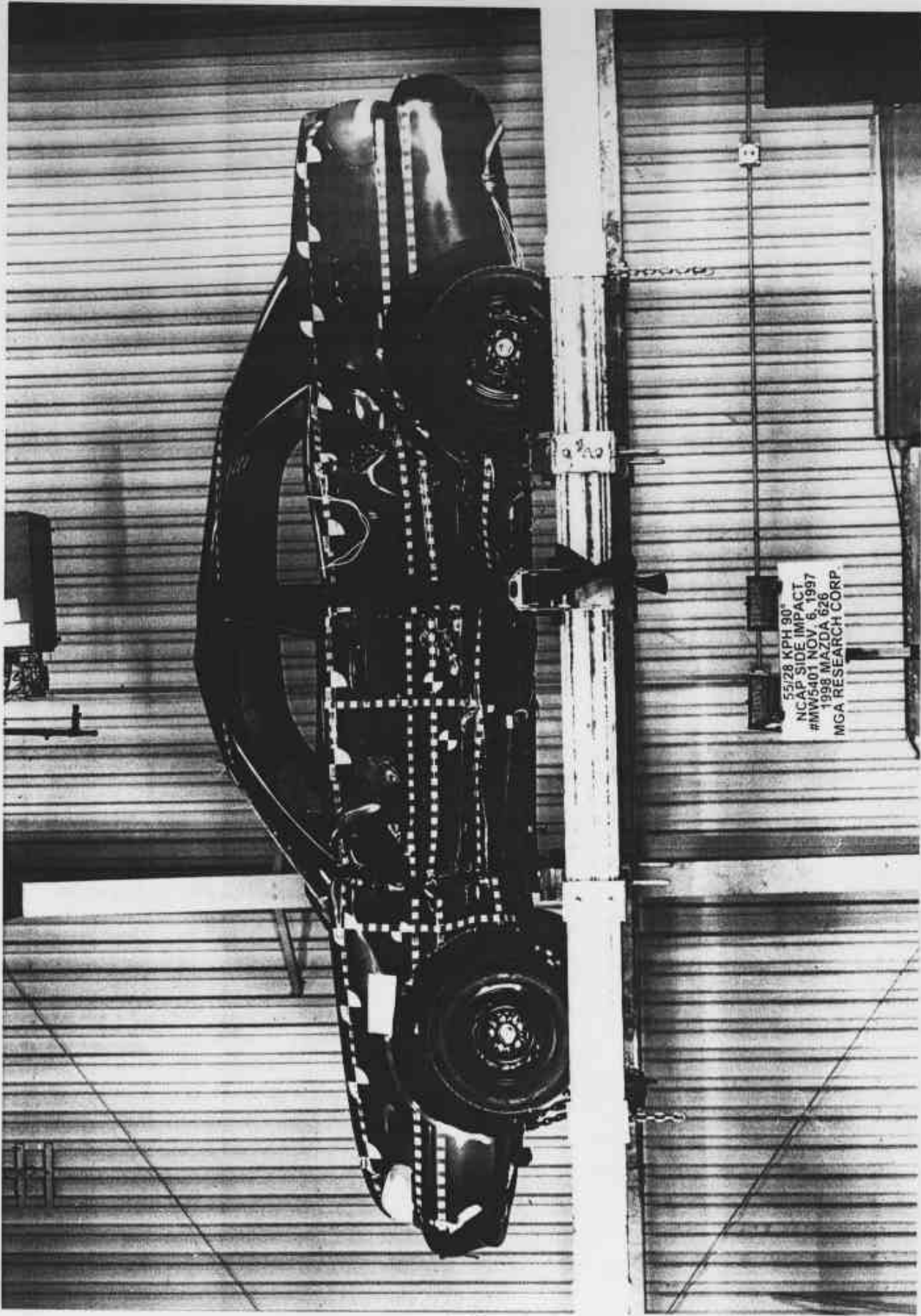
A-47

Photo No. A-47 - Rollover 180°



A-48

Photo No. A-48 - Rollover 270°



55/28 KPH 90°  
NCA P SIDE IMPACT  
#MW6401 NOV 6 1997  
1998 MAZDA 626  
MGA RESEARCH CORP

Photo No. A-49 - Rollover 360°

A-49



Photo No. A-50 - Left Front Attitude Point

A-50



Photo No. A-51 - Right Front Attitude Point

A-51

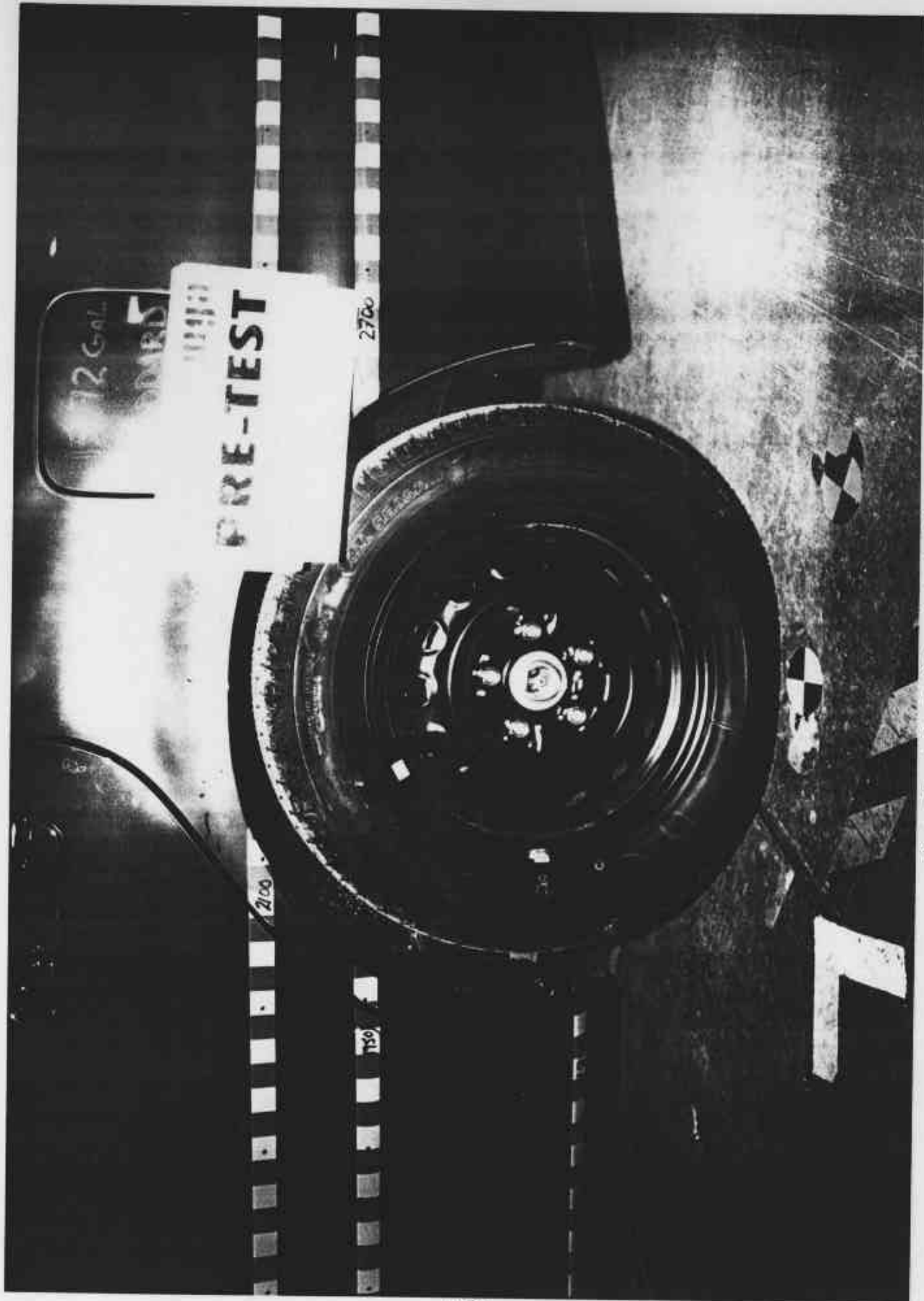


Photo No. A-52 - Left Rear Attitude Point

A-52

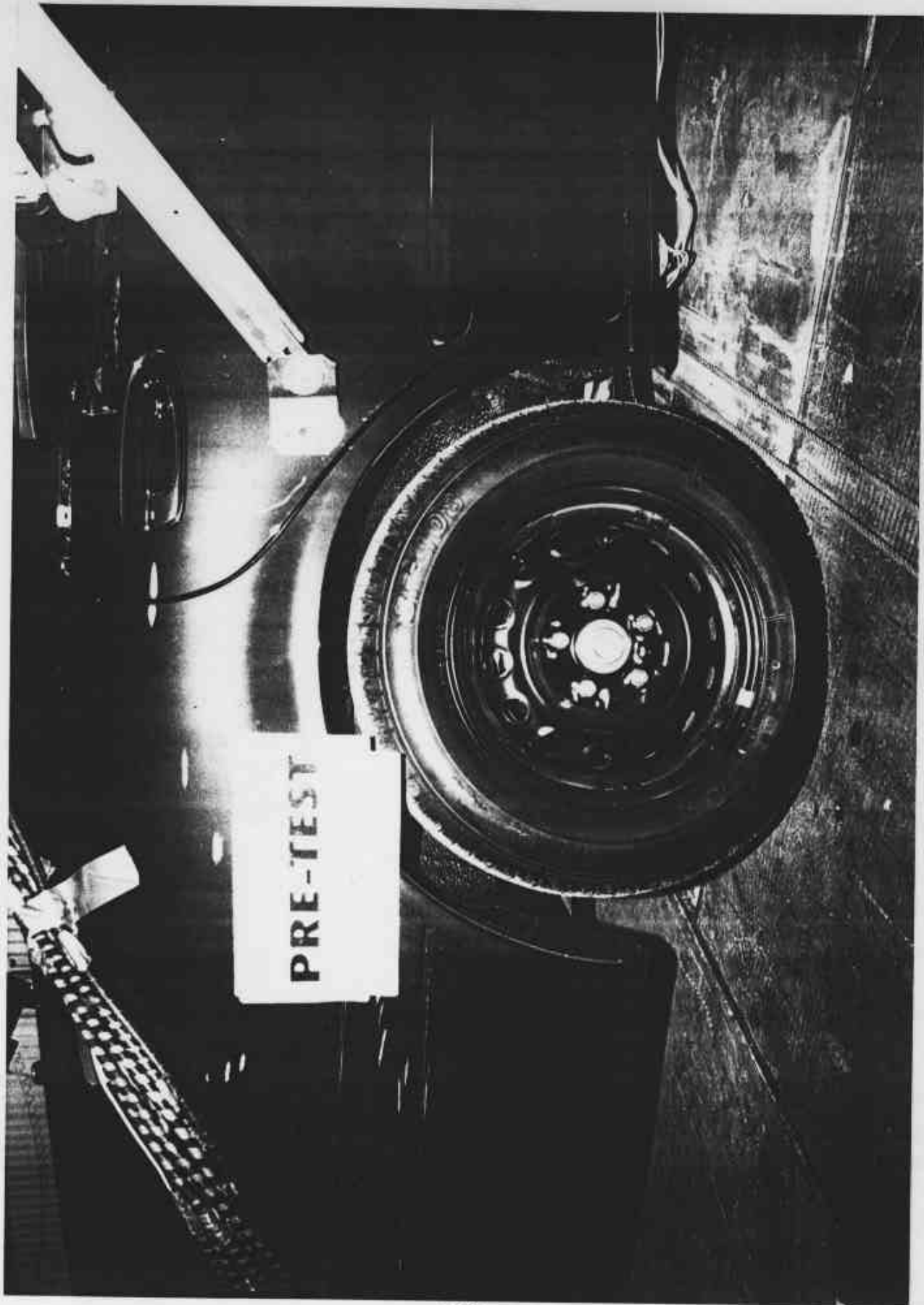


Photo No. A-53 - Right Rear Attitude Point

A-53

**APPENDIX B - VEHICLE AND SID RESPONSE DATA**

Table of Data Plots

<u>Occupant:</u>	<u>Page No.</u>
Figure B-1 - Driver Head X Acceleration vs. Time	B-1
Figure B-2 - Driver Head X Velocity vs. Time	B-2
Figure B-3 - Driver Head Y Acceleration vs. Time	B-3
Figure B-4 - Driver Head Y Velocity vs. Time	B-4
Figure B-5 - Driver Head Z Acceleration vs. Time	B-5
Figure B-6 - Driver Head Z Velocity vs. Time	B-6
Figure B-7 - Driver Head Resultant vs. Time	B-7
Figure B-8 - Driver Upper Rib Y Acceleration vs. Time	B-8
Figure B-9 - Driver Upper Rib Y Velocity vs. Time	B-9
Figure B-10 - Driver Lower Rib Y Acceleration vs. Time	B-10
Figure B-11 - Driver Lower Rib Y Velocity vs. Time	B-11
Figure B-12 - Driver Lower Spine Y Acceleration vs. Time	B-12
Figure B-13 - Driver Lower Spine Y Velocity vs. Time	B-13
Figure B-14 - Driver Pelvis Y Acceleration vs. Time	B-14
Figure B-15 - Driver Pelvis Y Velocity vs. Time	B-15
Figure B-16 - Driver Leg Contact vs. Time	B-16
Figure B-17 - Driver Shoulder Contact vs. Time	B-17
Figure B-18 - Rear Passenger Head X Acceleration vs. Time	B-18
Figure B-19 - Rear Passenger Head X Velocity vs. Time	B-19
Figure B-20 - Rear Passenger Head Y Acceleration vs. Time	B-20
Figure B-21 - Rear Passenger Head Y Velocity vs. Time	B-21
Figure B-22 - Rear Passenger Head Z Acceleration vs. Time	B-22
Figure B-23 - Rear Passenger Head Z Velocity vs. Time	B-23
Figure B-24 - Rear Passenger Head Resultant vs. Time	B-24
Figure B-25 - Rear Passenger Upper Rib Y Acceleration vs. Time	B-25
Figure B-26 - Rear Passenger Upper Rib Y Velocity vs. Time	B-26
Figure B-27 - Rear Passenger Lower Rib Y Acceleration vs. Time	B-27
Figure B-28 - Rear Passenger Lower Rib Y Velocity vs. Time	B-28
Figure B-29 - Rear Passenger Lower Spine Y Acceleration vs. Time	B-29

## Table of Data Plots

<u>Occupant:</u>	<u>Page No.</u>
Figure B-30 - Rear Passenger Lower Spine Y Velocity vs. Time	B-30
Figure B-31 - Rear Passenger Pelvis Y Acceleration vs. Time	B-31
Figure B-32 - Rear Passenger Pelvis Y Velocity vs. Time	B-32
Figure B-33 - Rear Passenger Leg Contact vs. Time	B-33
Figure B-34 - Rear Passenger Shoulder Contact vs. Time	B-34
<u>Vehicle:</u>	
Figure B-35 - Left Side Sill at Front Seat Y Acceleration vs. Time	B-35
Figure B-36 - Left Side Sill at Front Seat Y Velocity vs. Time	B-36
Figure B-37 - Left Side Sill at Rear Seat Y Acceleration vs. Time	B-37
Figure B-38 - Left Side Sill at Rear Seat Y Velocity vs. Time	B-38
Figure B-39 - Right Side Sill at Front Seat X Acceleration vs. Time	B-39
Figure B-40 - Right Side Sill at Front Seat X Velocity vs. Time	B-40
Figure B-41 - Right Side Sill at Front Seat Y Acceleration vs. Time	B-41
Figure B-42 - Right Side Sill at Front Seat Y Velocity vs. Time	B-42
Figure B-43 - Right Side Sill at Front Seat Z Acceleration vs. Time	B-43
Figure B-44 - Right Side Sill at Front Seat Z Velocity vs. Time	B-44
Figure B-45 - Right Side Sill at Front Seat Resultant Acceleration vs. Time	B-45
Figure B-46 - Right Side Sill at Rear Seat X Acceleration vs. Time	B-46
Figure B-47 - Right Side Sill at Rear Seat X Velocity vs. Time	B-47
Figure B-48 - Right Side Sill at Rear Seat Y Acceleration vs. Time	B-48
Figure B-49 - Right Side Sill at Rear Seat Y Velocity vs. Time	B-49
Figure B-50 - Right Side Sill at Rear Seat Z Acceleration vs. Time	B-50
Figure B-51 - Right Side Sill at Rear Seat Z Velocity vs. Time	B-51
Figure B-52 - Right Side Sill at Rear Seat Resultant Acceleration vs. Time	B-52
Figure B-53 - Left Driver Seat Track Y Acceleration vs. Time	B-53
Figure B-54 - Left Driver Seat Track Y Velocity vs. Time	B-54
Figure B-55 - Rear Floorpan above Axle X Acceleration vs. Time	B-55

## Table of Data Plots

<u>Vehicle (Cont'd):</u>	<u>Page No.</u>
Figure B-56 - Rear Floorpan above Axle X Velocity vs. Time	B-56
Figure B-57 - Rear Floorpan above Axle Y Acceleration vs. Time	B-57
Figure B-58 - Rear Floorpan above Axle Y Velocity vs. Time	B-58
Figure B-59 - Rear Floorpan above Axle Z Acceleration vs. Time	B-59
Figure B-60 - Rear Floorpan above Axle Z Velocity vs. Time	B-60
Figure B-61 - Rear Floorpan above Axle Resultant Acceleration vs. Time	B-61
Figure B-62 - Right Rear Occupant Compartment Y Acceleration vs. Time	B-62
Figure B-63 - Right Rear Occupant Compartment Y Velocity vs. Time	B-63
Figure B-64 - Left Lower A-Post Y Acceleration vs. Time	B-64
Figure B-65 - Left Lower A-Post Y Velocity vs. Time	B-65
Figure B-66 - Left Mid A-Post Y Acceleration vs. Time*	B-66
Figure B-67 - Left Mid A-Post Y Velocity vs. Time*	B-67
Figure B-68 - Left Lower B-Post Y Acceleration vs. Time	B-68
Figure B-69 - Left Lower B-Post Y Velocity vs. Time	B-69
Figure B-70 - Vehicle Center of Gravity X Acceleration vs. Time	B-70
Figure B-71 - Vehicle Center of Gravity X Velocity vs. Time	B-71
Figure B-72 - Vehicle Center of Gravity Y Acceleration vs. Time**	B-72
Figure B-73 - Vehicle Center of Gravity Y Velocity vs. Time**	B-73
Figure B-74 - Vehicle Center of Gravity Z Acceleration vs. Time	B-74
Figure B-75 - Vehicle Center of Gravity Z Velocity vs. Time	B-75
Figure B-76 - Vehicle Center of Gravity Resultant Acceleration vs. Time	B-76
Figure B-77 - Left Front Door on Centerline Y Acceleration vs. Time	B-77
Figure B-78 - Left Front Door on Centerline Y Velocity vs. Time	B-78
Figure B-79 - Left Front Door Upper Centerline Y Acceleration vs. Time	B-79
Figure B-80 - Left Front Door Upper Centerline Y Velocity vs. Time	B-80
Figure B-81 - Midrear of Left Rear Door Y Acceleration vs. Time	B-81
Figure B-82 - Midrear of Left Rear Door Y Velocity vs. Time	B-82
Figure B-83 - Left Rear Door Upper Centerline Y Acceleration vs. Time	B-83

\* Data not valid after approximately 7 msec.

\*\* Data not valid after approximately 115 msec.

## Table of Data Plots

<u>Barrier:</u>	<u>Page No.</u>
Figure B-84 - Left Rear Door Upper Centerline Y Velocity vs. Time	B-84
Figure B-85 - Moving Barrier Center of Gravity X Acceleration vs. Time	B-85
Figure B-86 - Moving Barrier Center of Gravity X Velocity vs. Time	B-86
Figure B-87 - Moving Barrier Center of Gravity Y Acceleration vs. Time	B-87
Figure B-88 - Moving Barrier Center of Gravity Y Velocity vs. Time	B-88
Figure B-89 - Moving Barrier Center of Gravity Z Acceleration vs. Time	B-89
Figure B-90 - Moving Barrier Center of Gravity Z Velocity vs. Time	B-90
Figure B-91 - Moving Barrier Center of Gravity Resultant Acceleration vs. Time	B-91
Figure B-92 - Moving Barrier Rear Axle X Acceleration vs. Time	B-92
Figure B-93 - Moving Barrier Rear Axle X Velocity vs. Time	B-93
Figure B-94 - Moving Barrier Rear Axle Y Acceleration vs. Time	B-94
Figure B-95 - Moving Barrier Rear Axle Y Velocity vs. Time	B-95
Figure B-96 - Left Barrier Contact	B-96
Figure B-97 - Right Barrier Contact	B-97
<u>Redundant:</u>	
Figure B-98 - Driver Upper Rib Y Redundant Acceleration vs. Time	B-98
Figure B-99 - Driver Upper Rib Y Redundant Velocity vs. Time	B-99
Figure B-100 - Driver Lower Rib Y Redundant Acceleration vs. Time	B-100
Figure B-101 - Driver Lower Rib Y Redundant Velocity vs. Time	B-101
Figure B-102 - Driver Lower Spine Y Redundant Acceleration vs. Time	B-102
Figure B-103 - Driver Lower Spine Y Redundant Velocity vs. Time	B-103
Figure B-104 - Driver Pelvis Y Redundant Acceleration vs. Time	B-104
Figure B-105 - Driver Pelvis Y Redundant Velocity vs. Time	B-105
Figure B-106 - Rear Passenger Upper Rib Y Redundant Acceleration vs. Time	B-106
Figure B-107 - Rear Passenger Upper Rib Y Redundant Velocity vs. Time	B-107
Figure B-108 - Rear Passenger Lower Rib Y Redundant Acceleration vs. Time	B-108
Figure B-109 - Rear Passenger Lower Rib Y Redundant Velocity vs. Time	B-109

Table of Data Plots

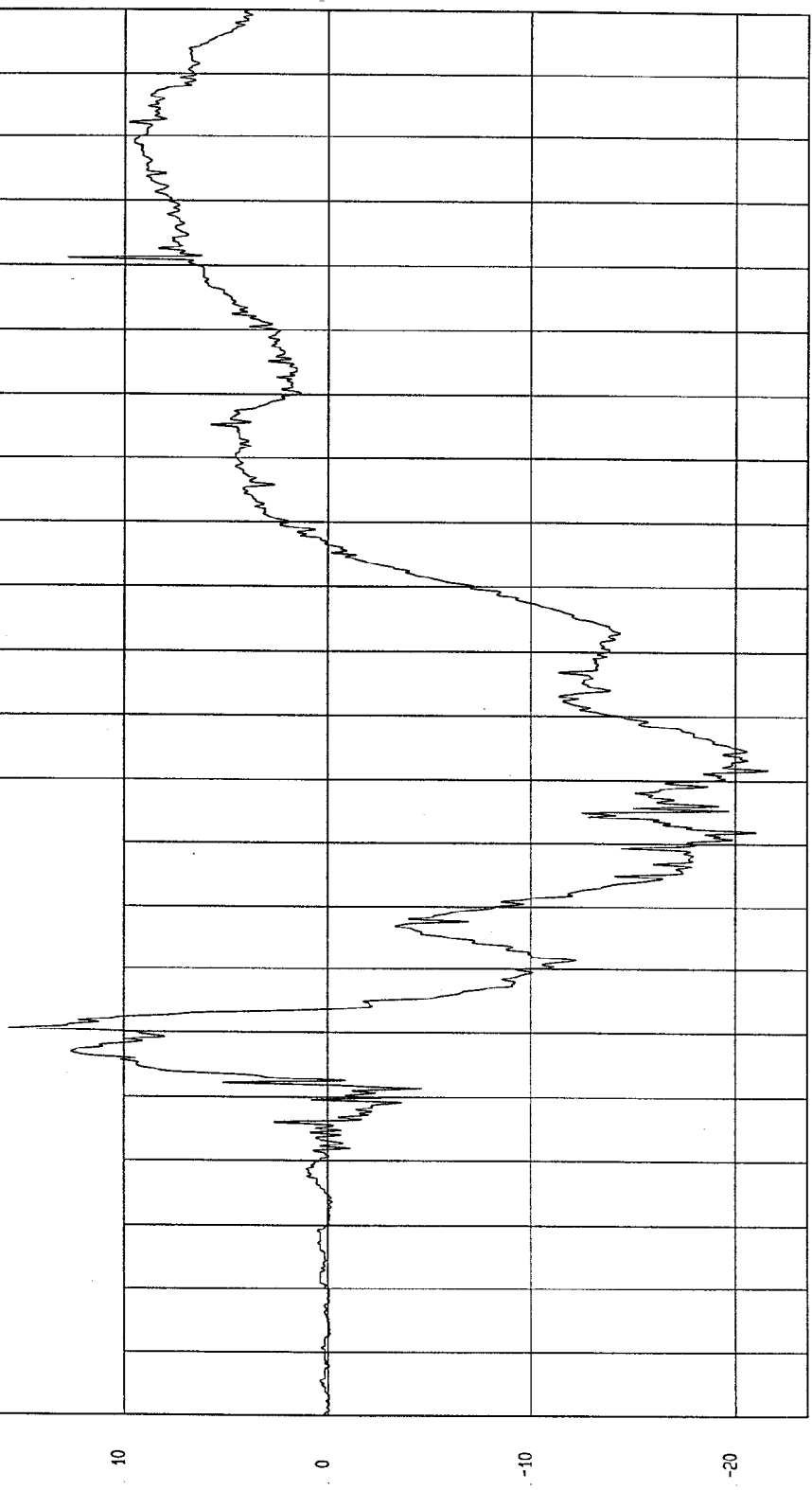
<u>Redundant (Cont'd):</u>	<u>Page No.</u>
Figure B-110 - Rear Passenger Lower Spine Y Redundant Acceleration vs. Time	B-110
Figure B-111 - Rear Passenger Lower Spine Y Redundant Velocity vs. Time	B-111
Figure B-112 - Rear Passenger Pelvis Y Redundant Acceleration vs. Time	B-112
Figure B-113 - Rear Passenger Pelvis Y Redundant Velocity vs. Time	B-113
<u>FIR Filtered</u>	
Figure B-114 - Driver Upper Rib Y Acceleration vs. Time	B-114
Figure B-115 - Driver Upper Rib Y Redundant Acceleration vs. Time	B-115
Figure B-116 - Driver Lower Rib Y Acceleration vs. Time	B-116
Figure B-117 - Driver Lower Rib Y Redundant Acceleration vs. Time	B-117
Figure B-118 - Driver Lower Spine Y Acceleration vs. Time	B-118
Figure B-119 - Driver Lower Spine Y Redundant Acceleration vs. Time	B-119
Figure B-120 - Driver Pelvis Y Acceleration vs. Time	B-120
Figure B-121 - Driver Pelvis Y Redundant Acceleration vs. Time	B-121
Figure B-122 - Rear Passenger Upper Rib Y Acceleration vs. Time	B-122
Figure B-123 - Rear Passenger Upper Rib Y Redundant Acceleration vs. Time	B-123
Figure B-124 - Rear Passenger Lower Rib Y Acceleration vs. Time	B-124
Figure B-125 - Rear Passenger Lower Rib Y Redundant Acceleration vs. Time	B-125
Figure B-126 - Rear Passenger Lower Spine Y Acceleration vs. Time	B-126
Figure B-127 - Rear Passenger Lower Spine Y Redundant Acceleration vs. Time	B-127
Figure B-128 - Rear Passenger Pelvis Y Acceleration vs. Time	B-128
Figure B-129 - Rear Passenger Pelvis Y Redundant Acceleration vs. Time	B-129

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -21.58 G'S at 82 msec Maximum = 15.61 G'S at 41 msec

DRIVER HEAD X ACCELERATION

1 B97128AF.A12 Filterclass (1000)

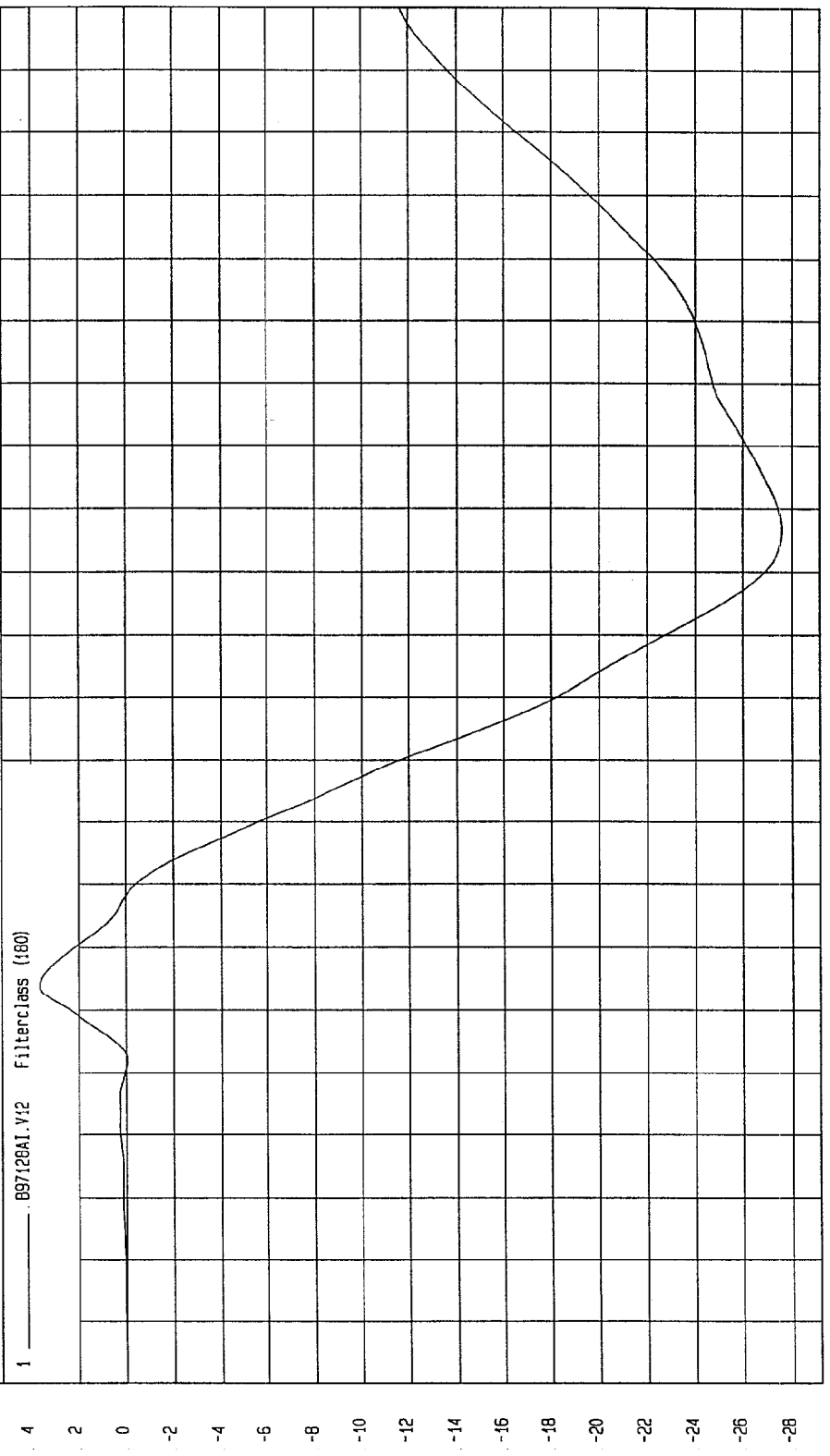


M&A Research  
12-03-1997 18:08

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
 COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -27.57 KPH at 117 msec Maximum = 3.65 KPH at 44 msec

DRIVER HEAD X VELOCITY

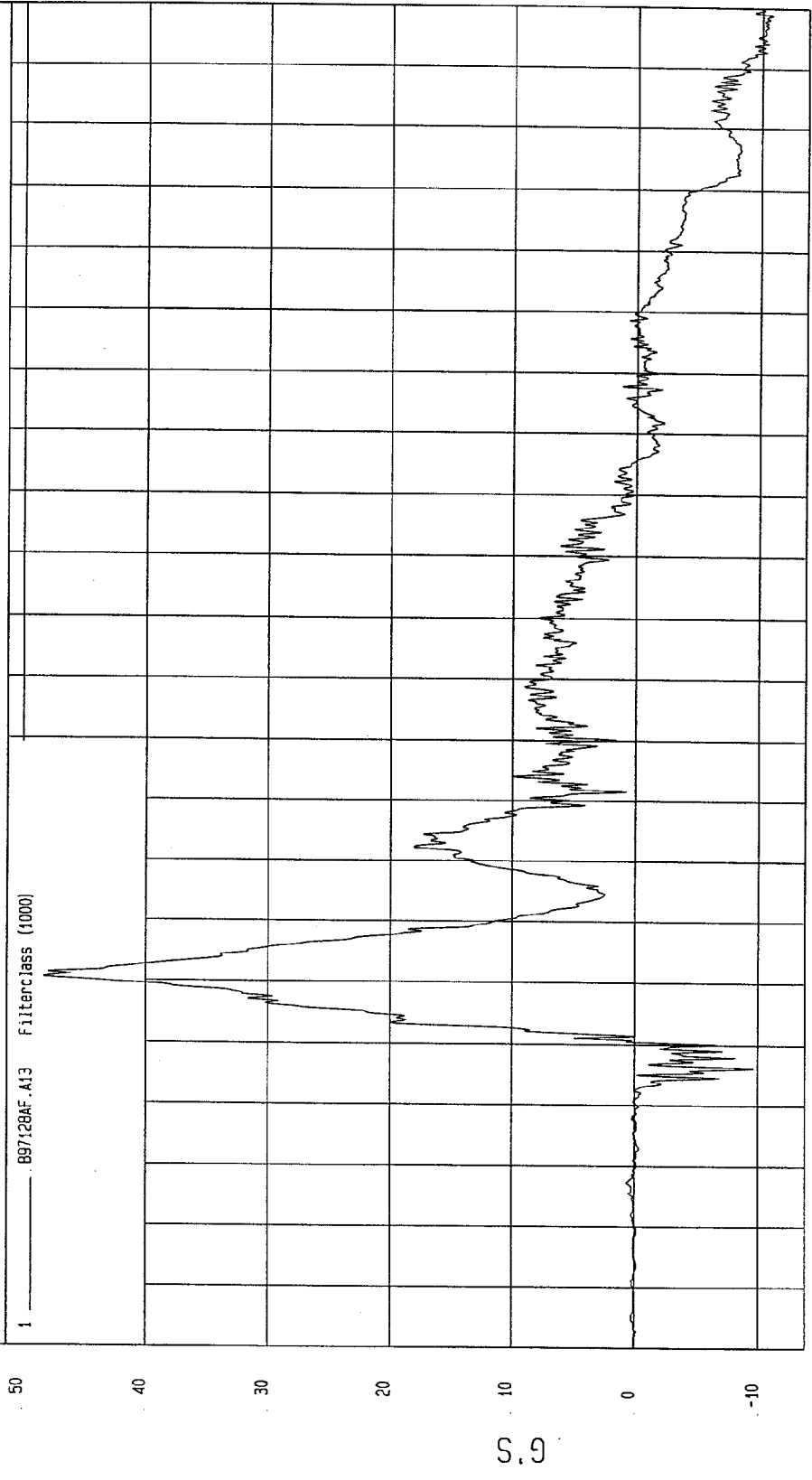


MECA Research  
 12-03-1997 18:28

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
 COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -10.77 G'S at 199 msec Maximum = 48.33 G'S at 40 msec

DRIVER HEAD Y ACCELERATION



TIME (SECONDS)

19  
18  
17  
16  
15  
14  
13  
12  
11  
10  
9  
8  
7  
6  
5  
4  
3  
2  
1  
0  
-1  
-2

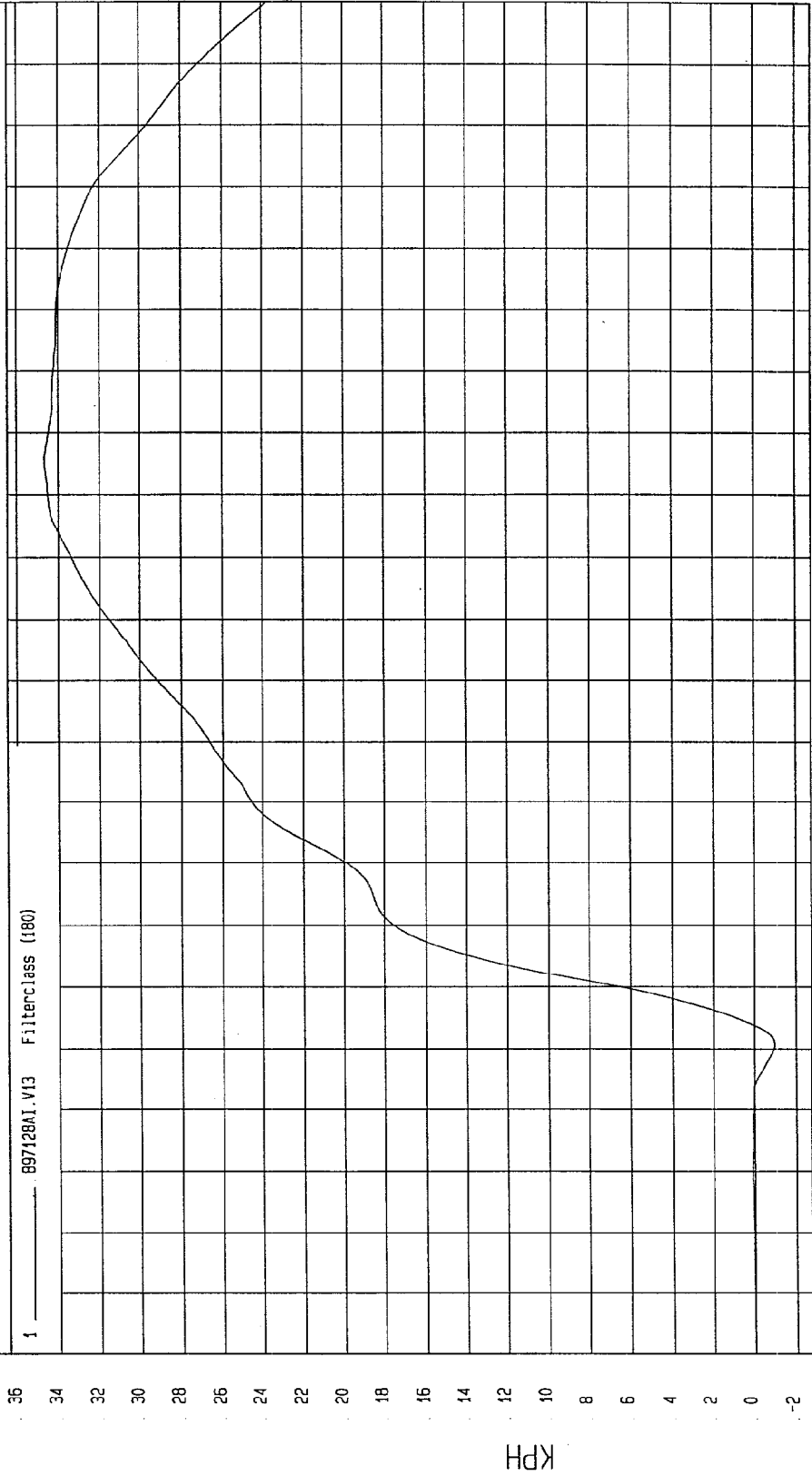
NGA Research  
12-03-1997 16:08

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -.97 KPH at 31 msec  
Maximum = 34.66 KPH at 126 msec

DRIVER HEAD Y VELOCITY



NSA Research  
12-03-1997 16:28

TIME Seconds

KPH

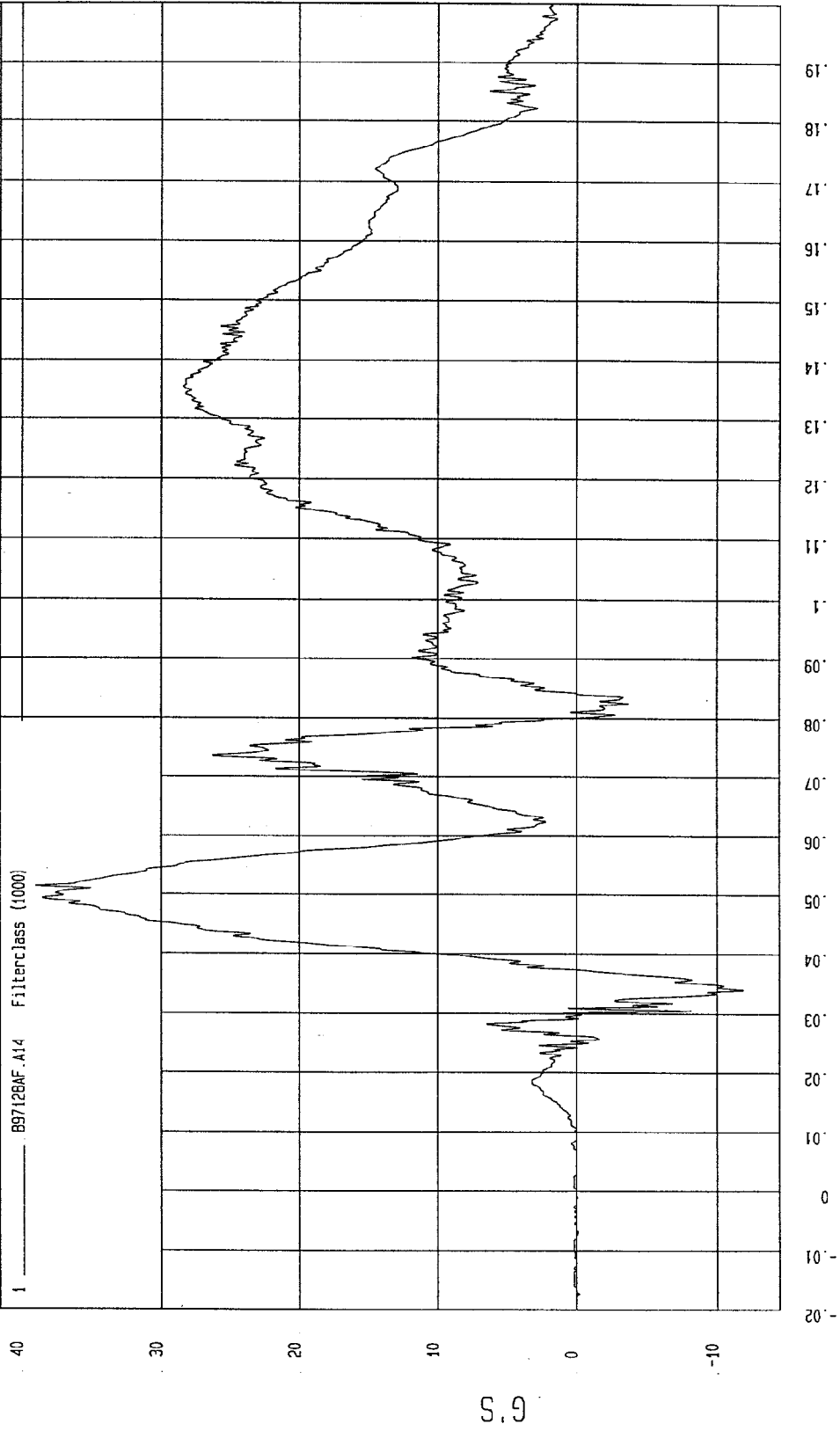
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -11.81 G'S at 34 msec  
Maximum = 39.02 G'S at 51 msec

DRIVER HEAD Z ACCELERATION

1 \_\_\_\_\_ B9712BAF.A14 FilterClass (1000)



M&A Research  
12-03-1997 16:08

TEST DATE: 11-06-1997

TEST: HIGH SPEED LATERAL IMPACT

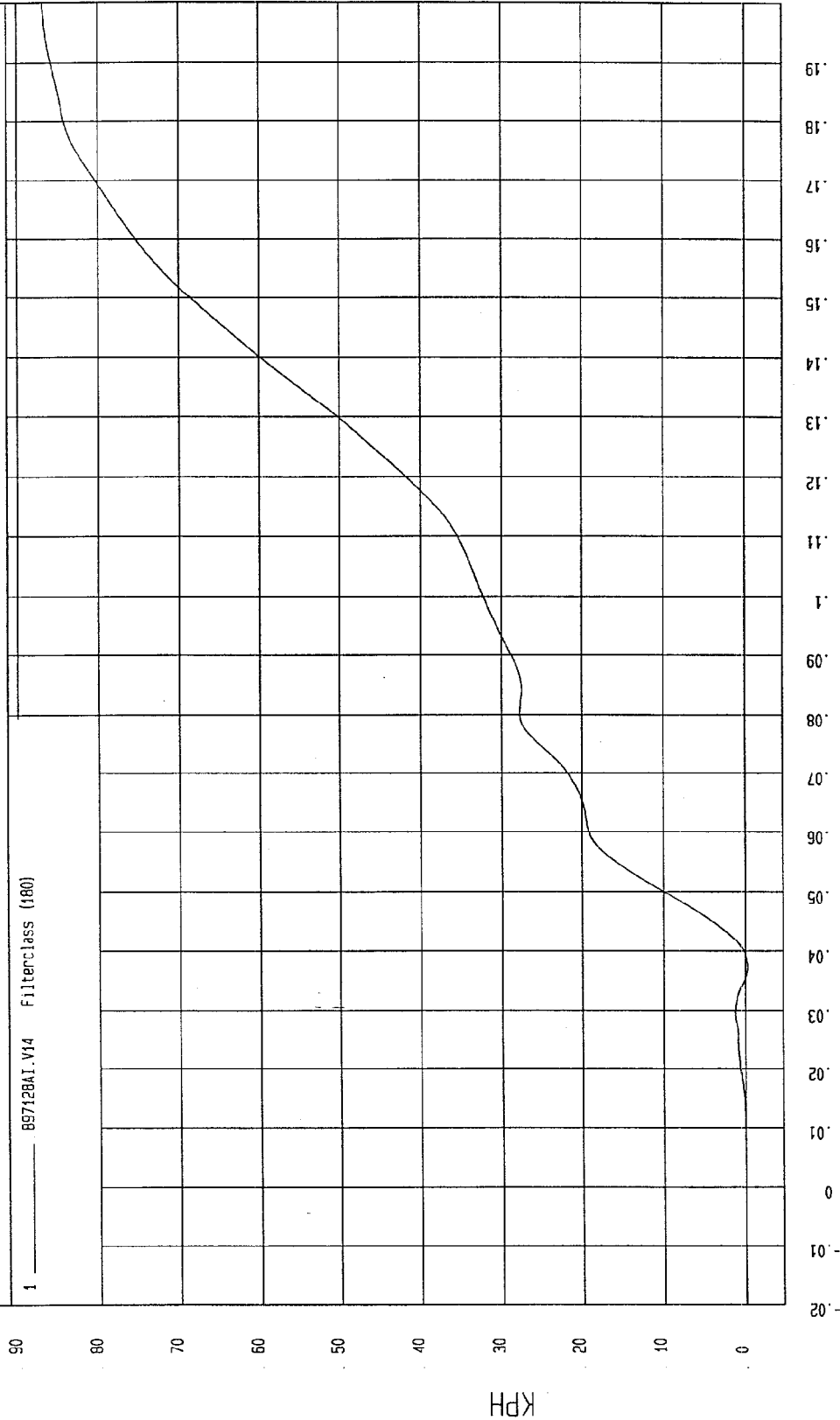
Speed: 38.2 MPH 61.5 KPH

COMPONENT: 1998 MAZDA 626 (MW5404)

Maximum = 86.89 KPH at 200 msec

Minimum = -.28 KPH at 37 msec

DRIVER HEAD Z VELOCITY



MEA Research  
12-03-1997 18:28

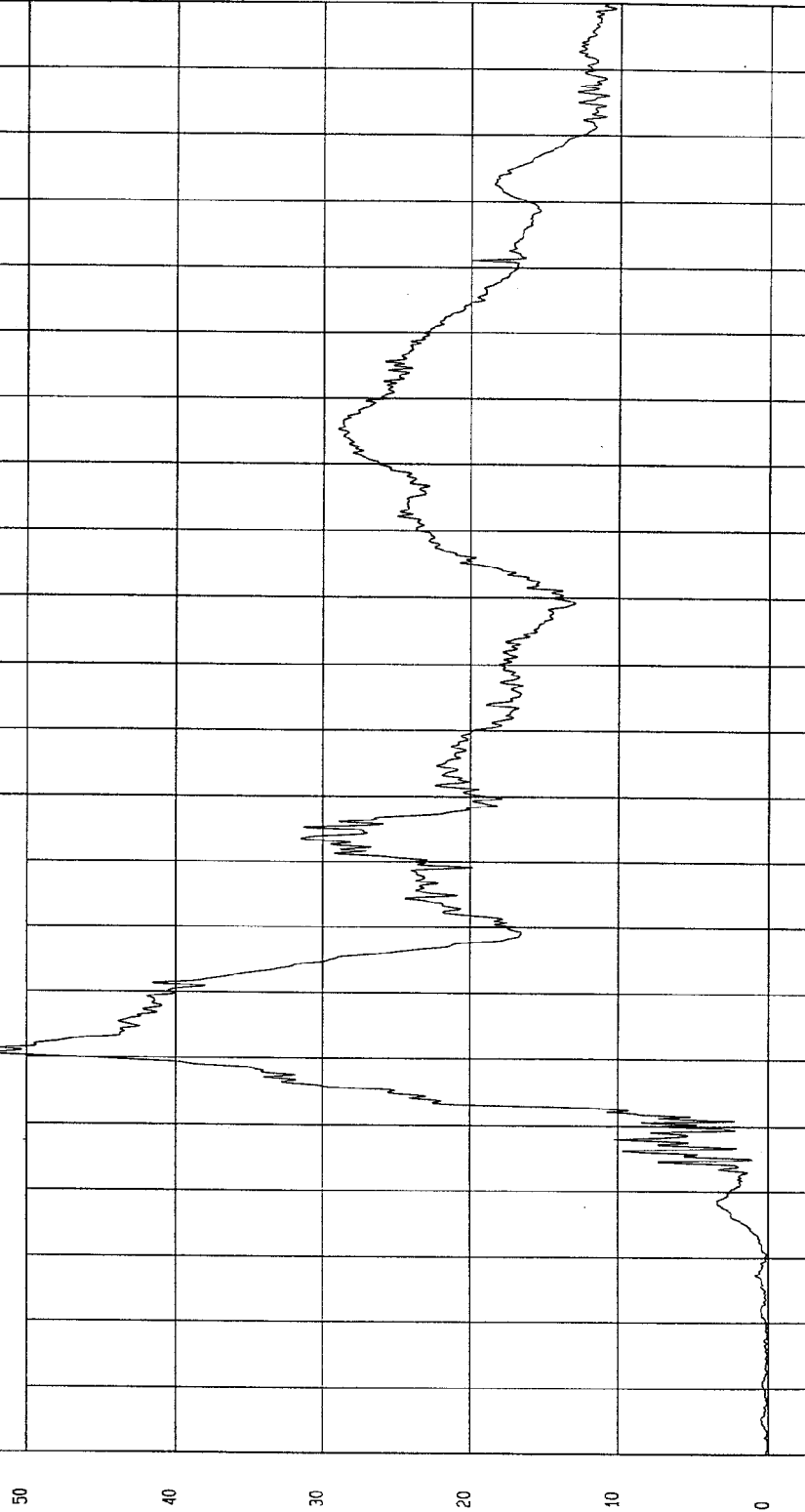
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = 1.65E-02 G'S at 0 msec Maximum = 52.54 G'S at 41 msec

DRIVER HEAD RESULTANT

1 ——— 897128AV.A12 Filterclass (1000)

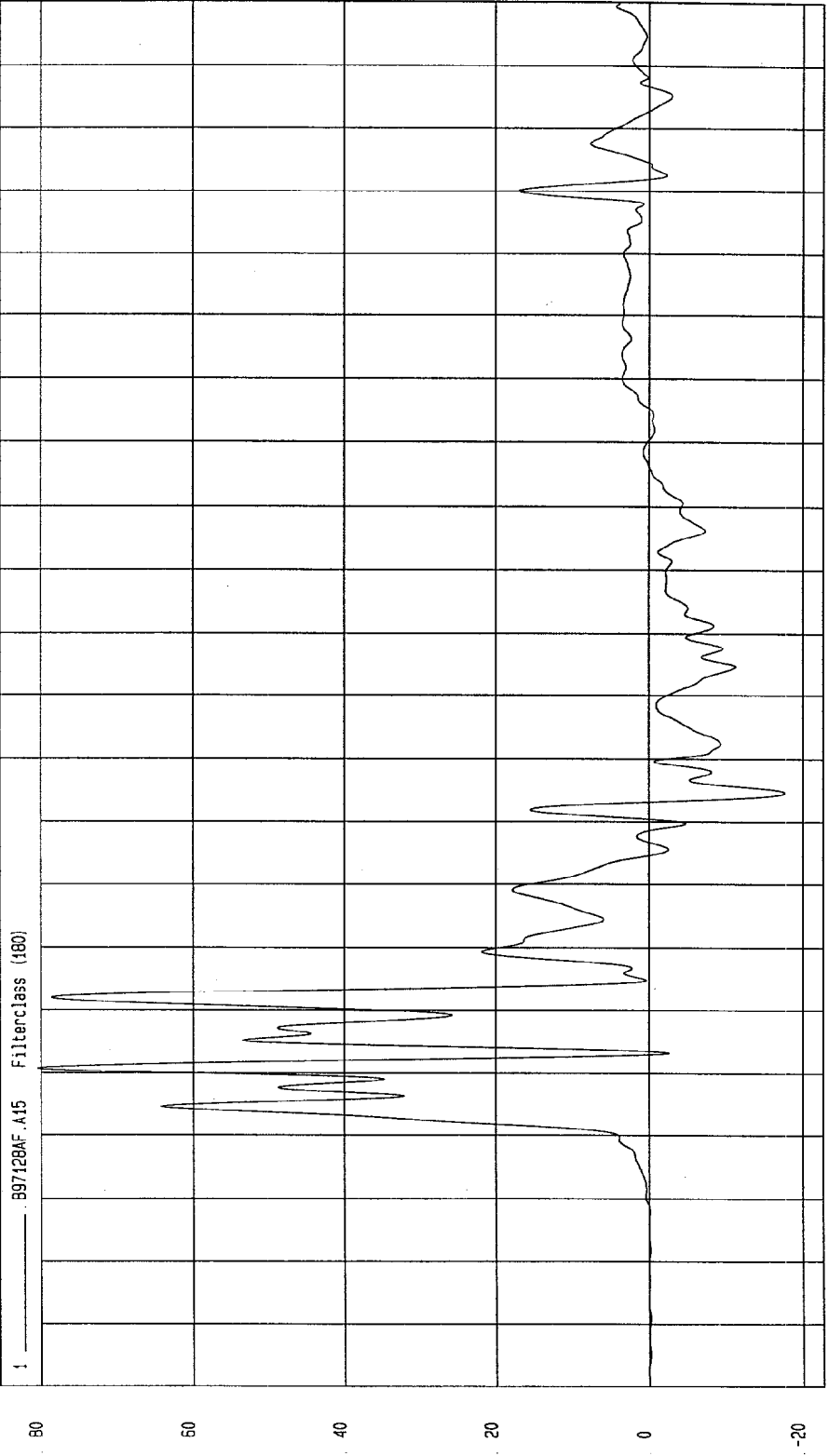


MCA Research  
12-03-1997 16.08

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -17.69 G'S at 75 msec  
Maximum = 80.48 G'S at 31 msec

DRIVER UPPER RIB Y ACCELERATION



TIME (SECONDS)

MCA Research  
12-03-1997 18:12

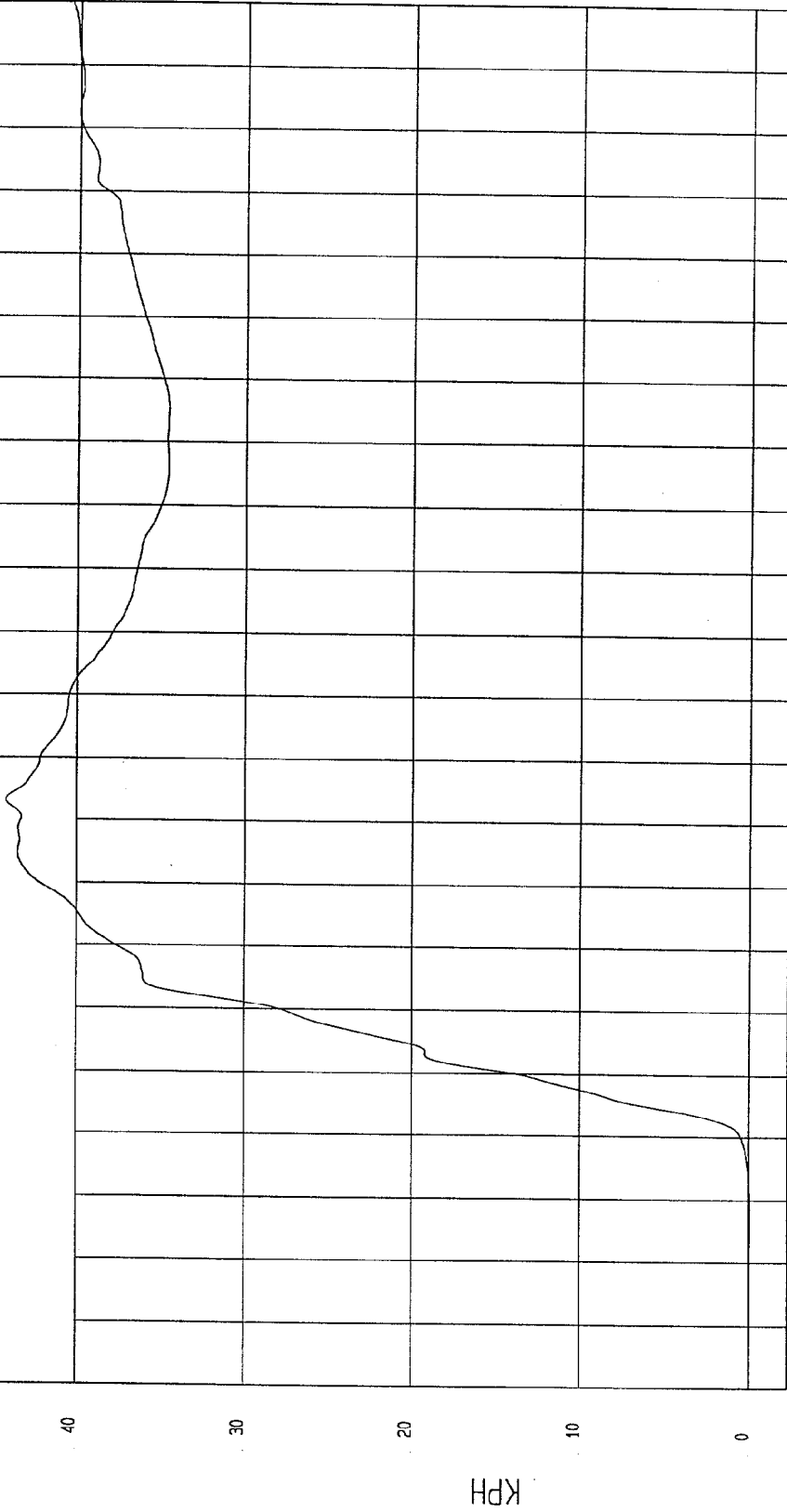
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -6.08E-02 KPH at 9 msec  
Maximum = 44.18 KPH at 73 msec

DRIVER UPPER RIB Y VELOCITY

1 — 897428A1.V15 Filterclass (180)



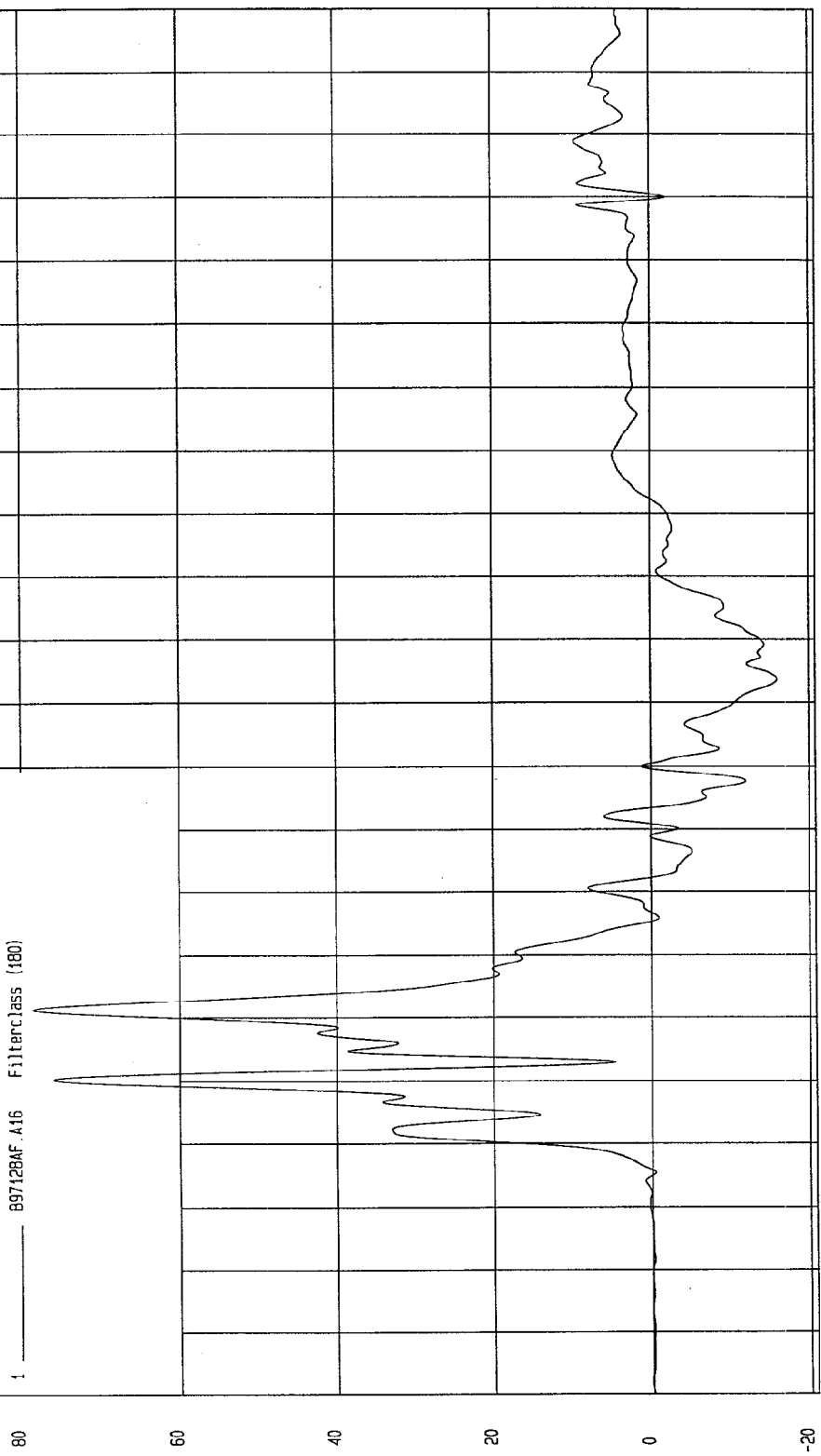
TIME Seconds  
MOA Research  
12-03-1997 16:28

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -16.04 G'S at 94 msec  
Maximum = 78.52 G'S at 41 msec

DRIVER LOWER RIB Y ACCELERATION

1 897128AF.416 Filterclass (180)



TIME (SECONDS)

MCA Research  
12-03-1997 18:12

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401)

Speed: 38.2 MPH 61.5 KPH

Minimum = -8.93E-02 KPH at 8 msec

Maximum = 42.25 KPH at 62 msec

DRIVER LOWER RIB Y VELOCITY

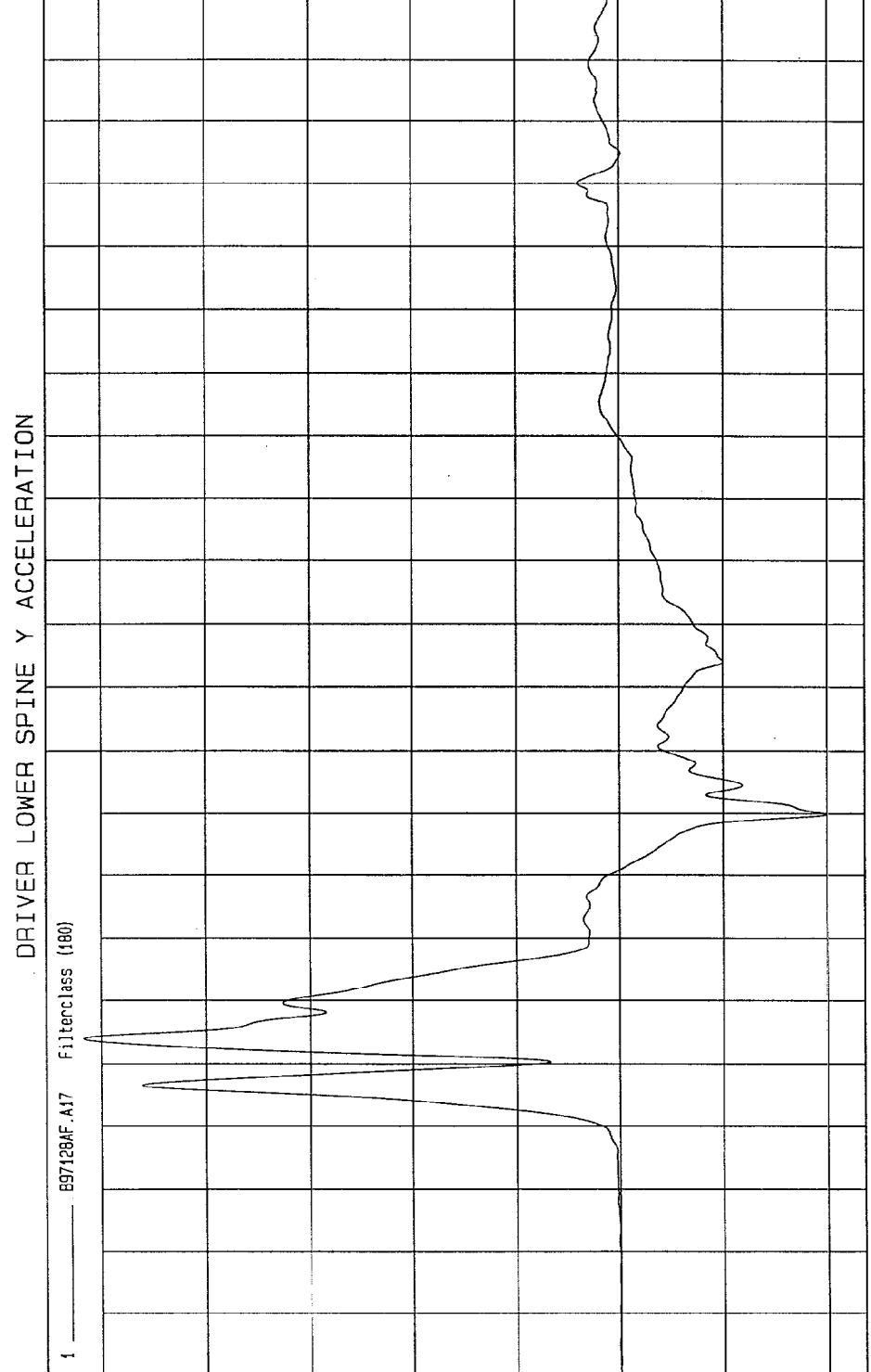
1 ——— B9712BA1.V16 FilterClass (180)



TIME Seconds  
MGA Research Co.  
12-03-1997 16:28

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
 COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -39.87 G'S at 70 msec Maximum = 103.42 G'S at 34 msec



TIME (SECONDS)

NSA Research  
 12-03-1997 18: 12

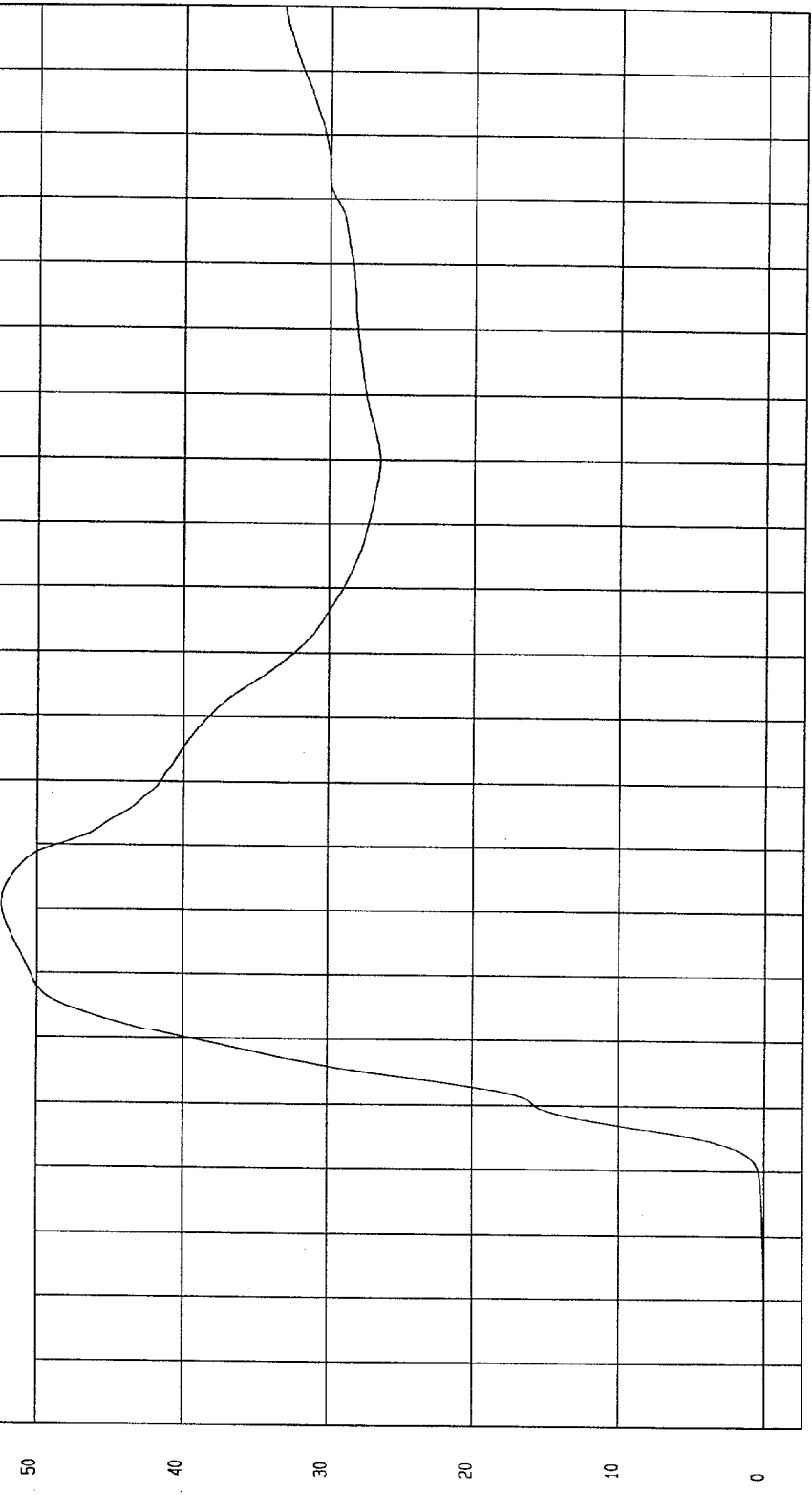
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -4.32E-03 KPH at -17 msec  
Maximum = 52.43 KPH at 61 msec

DRIVER LOWER SPINE Y VELOCITY

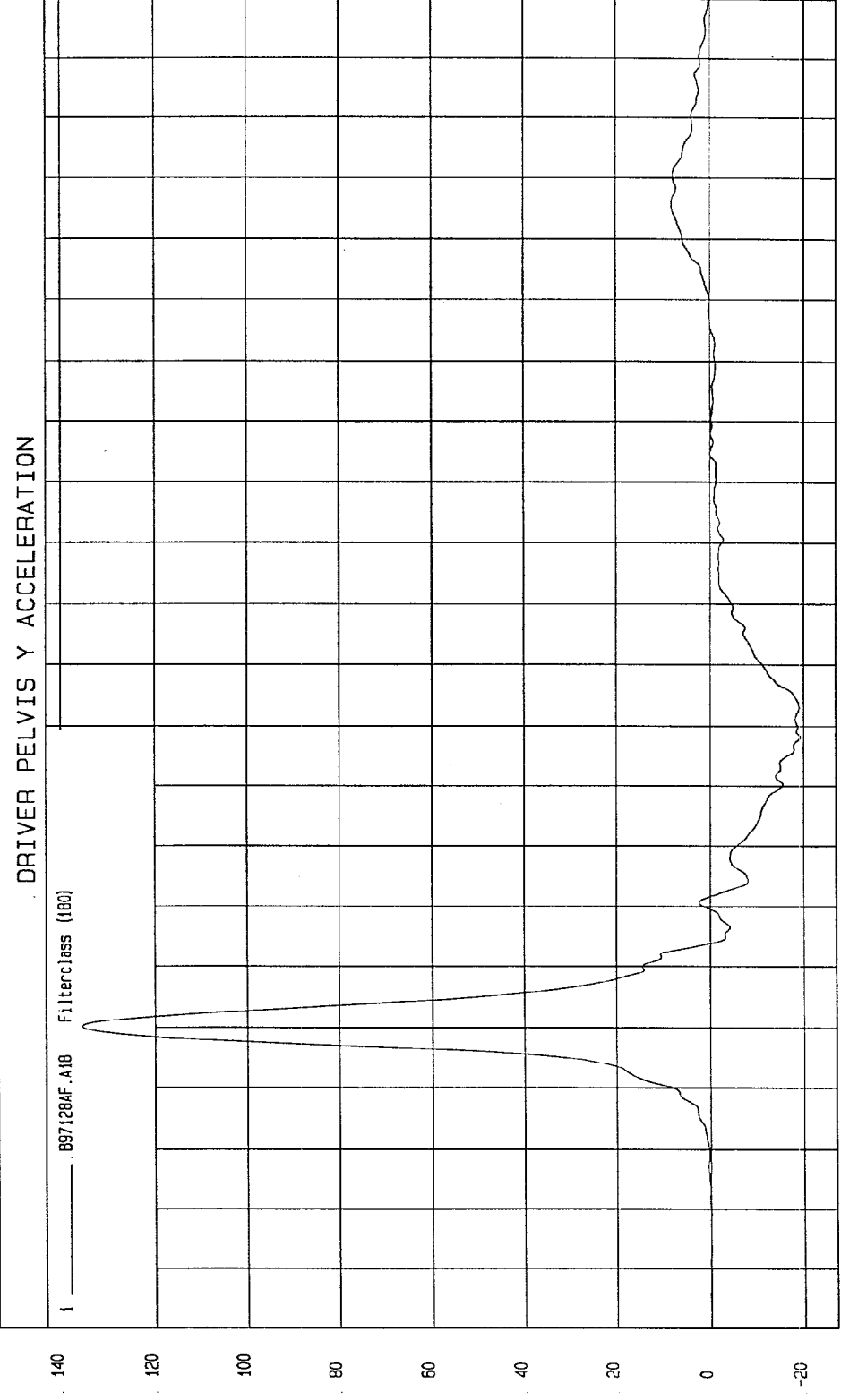
1 89712BA1.V17 Filterclass (180)



TIME Seconds  
MCA Research  
12-03-1997 18:28

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -19.23 G'S at 79 msec  
Maximum = 135.43 G'S at 30 msec



TIME (SECONDS)

MCA Research  
12-03-1997 18.12

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401)

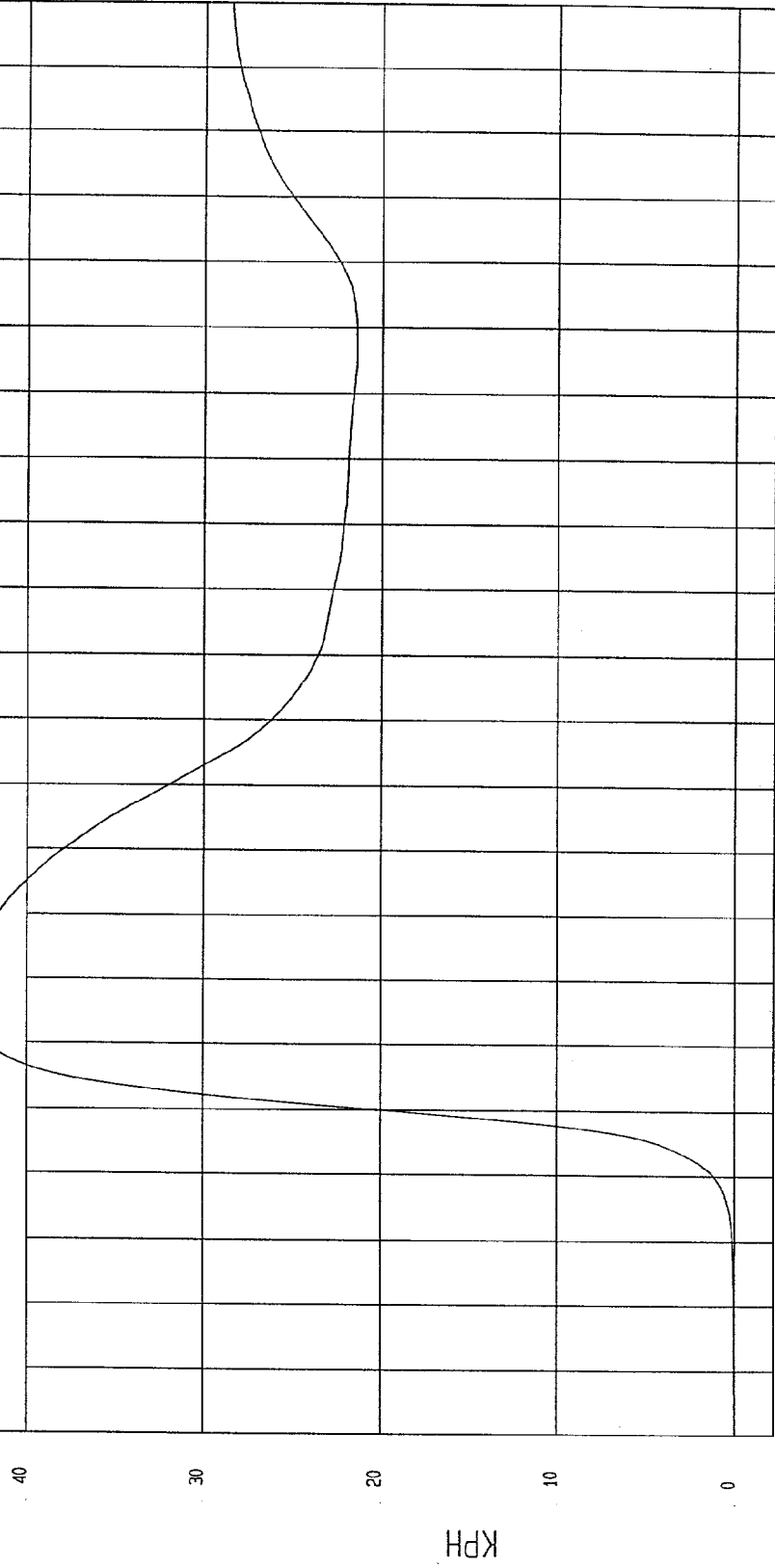
Speed: 38.2 MPH 61.5 KPH

Minimum = -2.81E-05 KPH at -17 msec

Maximum = 43.64 KPH at 44 msec

DRIVER PELVIS Y VELOCITY

1 ——— .B97126A1.V18 Filter:ciass (180)



MCA Research  
12-03-1997 18:28

TIME Seconds

TEST DATE: 11-06-1997

TEST: HIGH SPEED LATERAL IMPACT

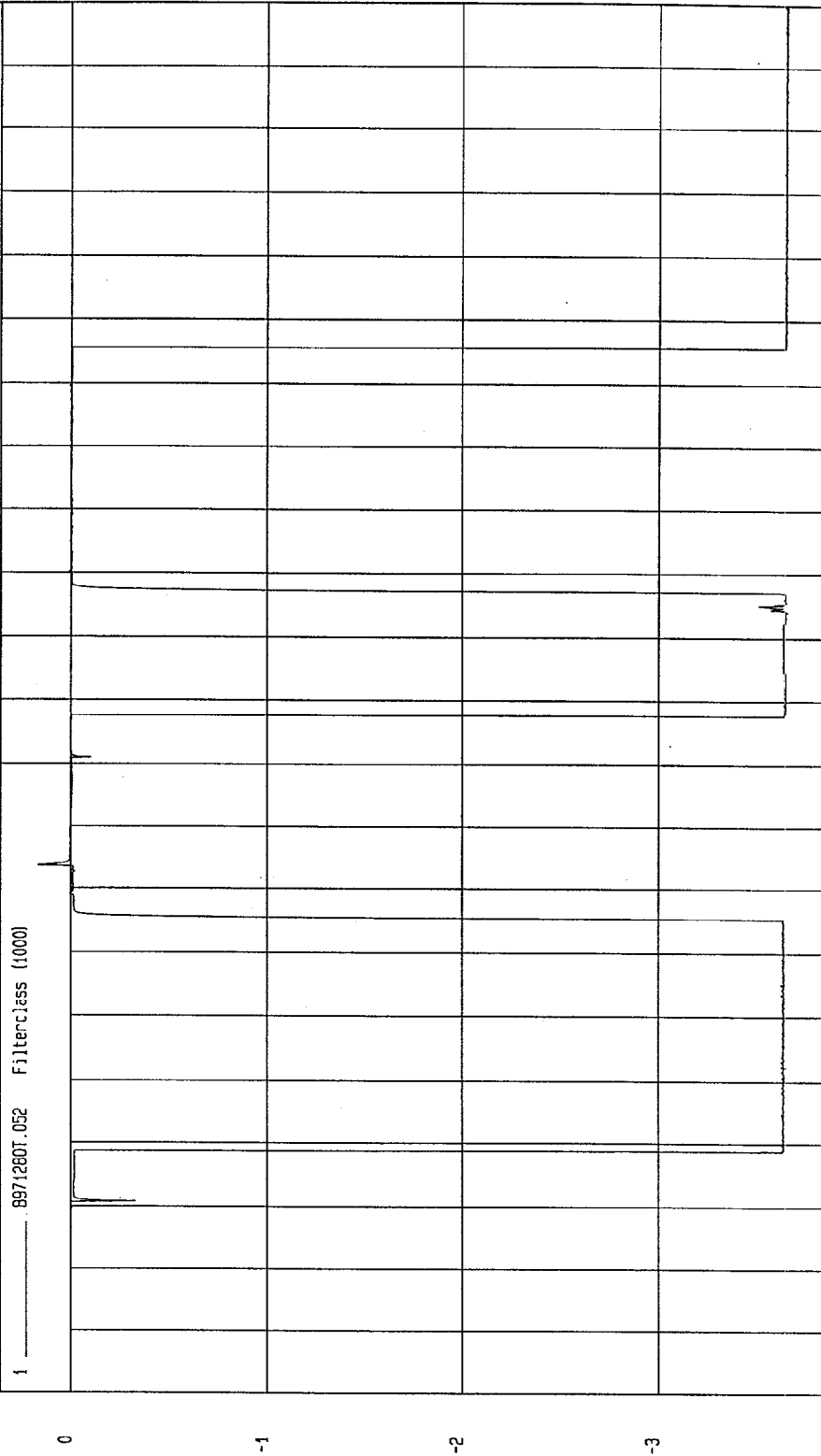
Speed: 38.2 MPH 61.5 KPH

COMPONENT: 1998 MAZDA 626 (MW5401)

Maximum = .16 VOLTS at 64 msec

Minimum = -3.65 VOLTS at 104 msec

DRIVER LEG CONTACT



MGA Research  
12-03-1997 18:11

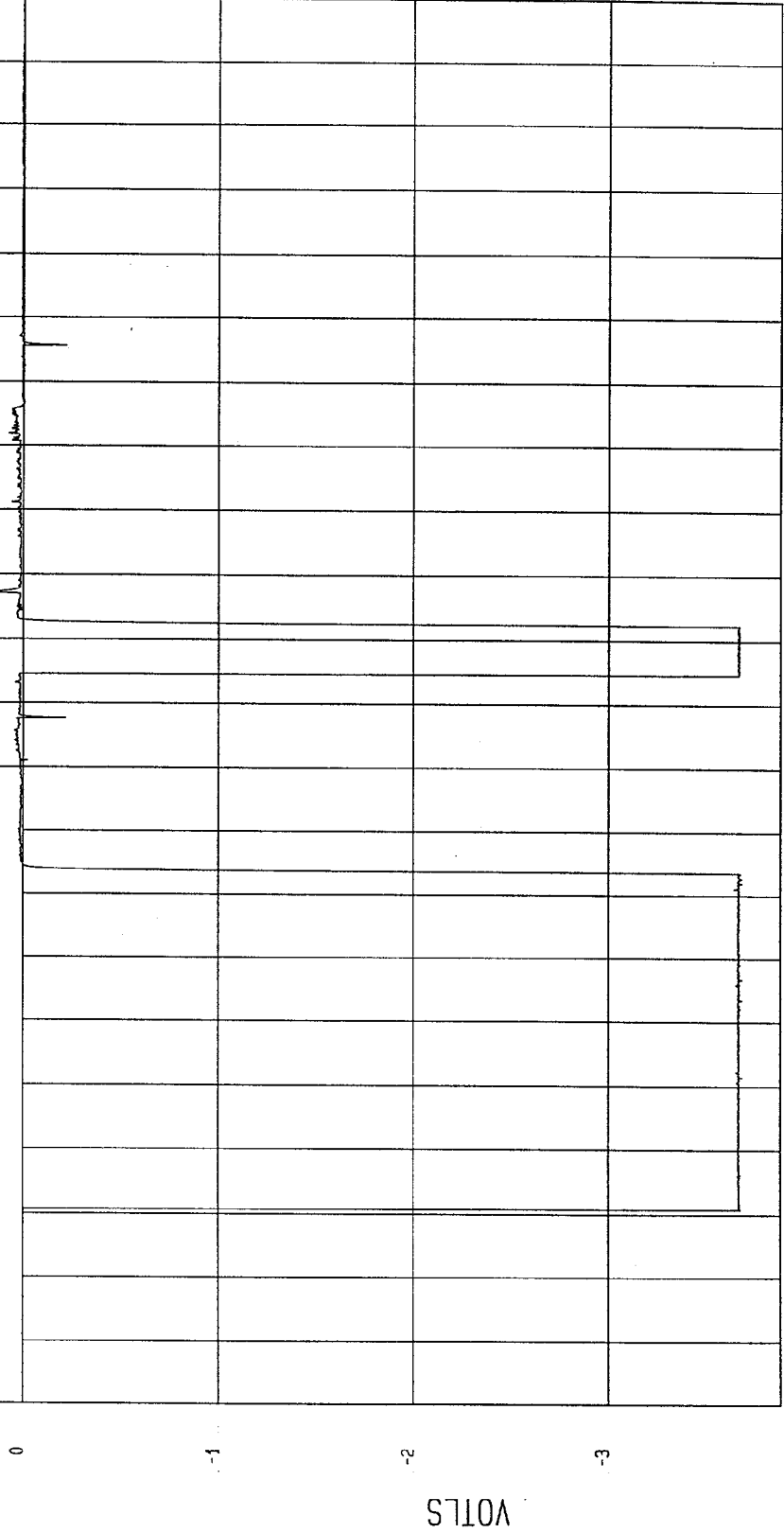
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -3.68 VOTLS at 31 msec  
Maximum = .20 VOTLS at 107 msec

DRIVER SHOULDER CONTACT

1 ——— 8971280T.051 Filterclass (1000)



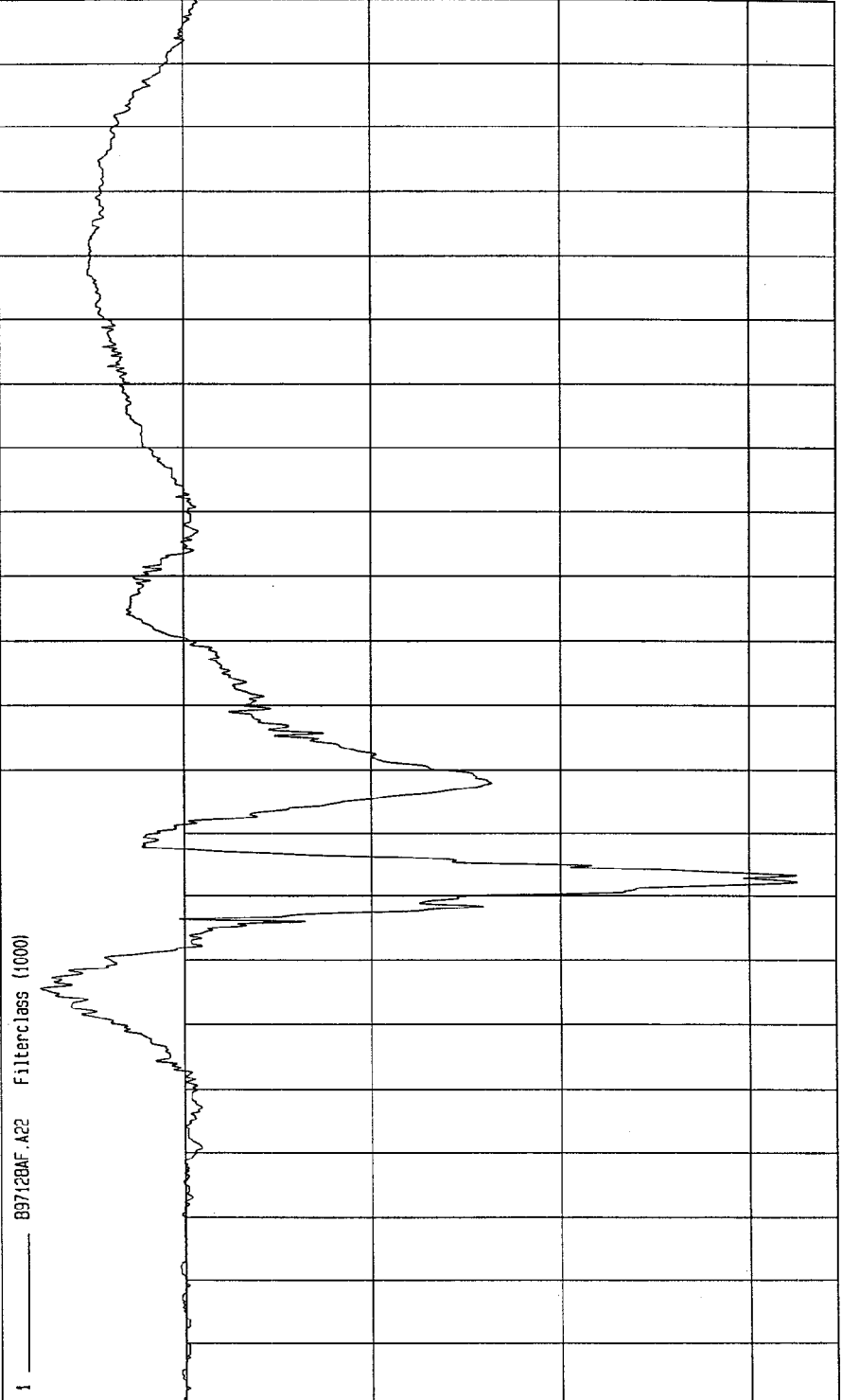
TIME (SECONDS) NGA Research 12-03-1997 18.11

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -32.55 G'S at 62 msec Maximum = 7.68 G'S at 46 msec

REAR PASSENGER HEAD X ACCELERATION



TIME (SECONDS)

MGA Research  
12-03-1997 16:08

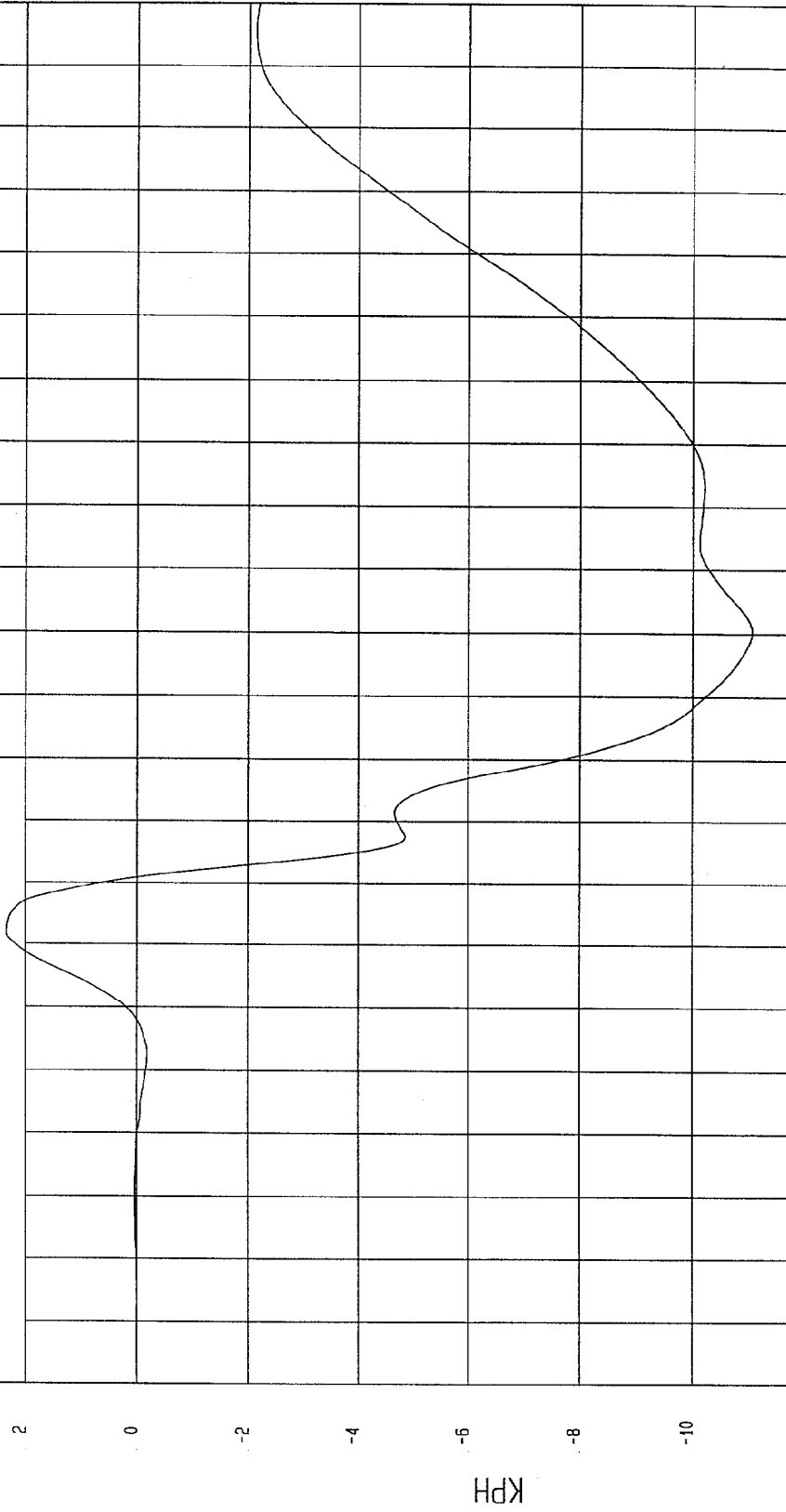
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -11.05 KPH at 100 msec Maximum = 2.33 KPH at 52 msec

REAR PASSENGER HEAD X VELOCITY

1 89712BA1.V22 Filterclass (160)



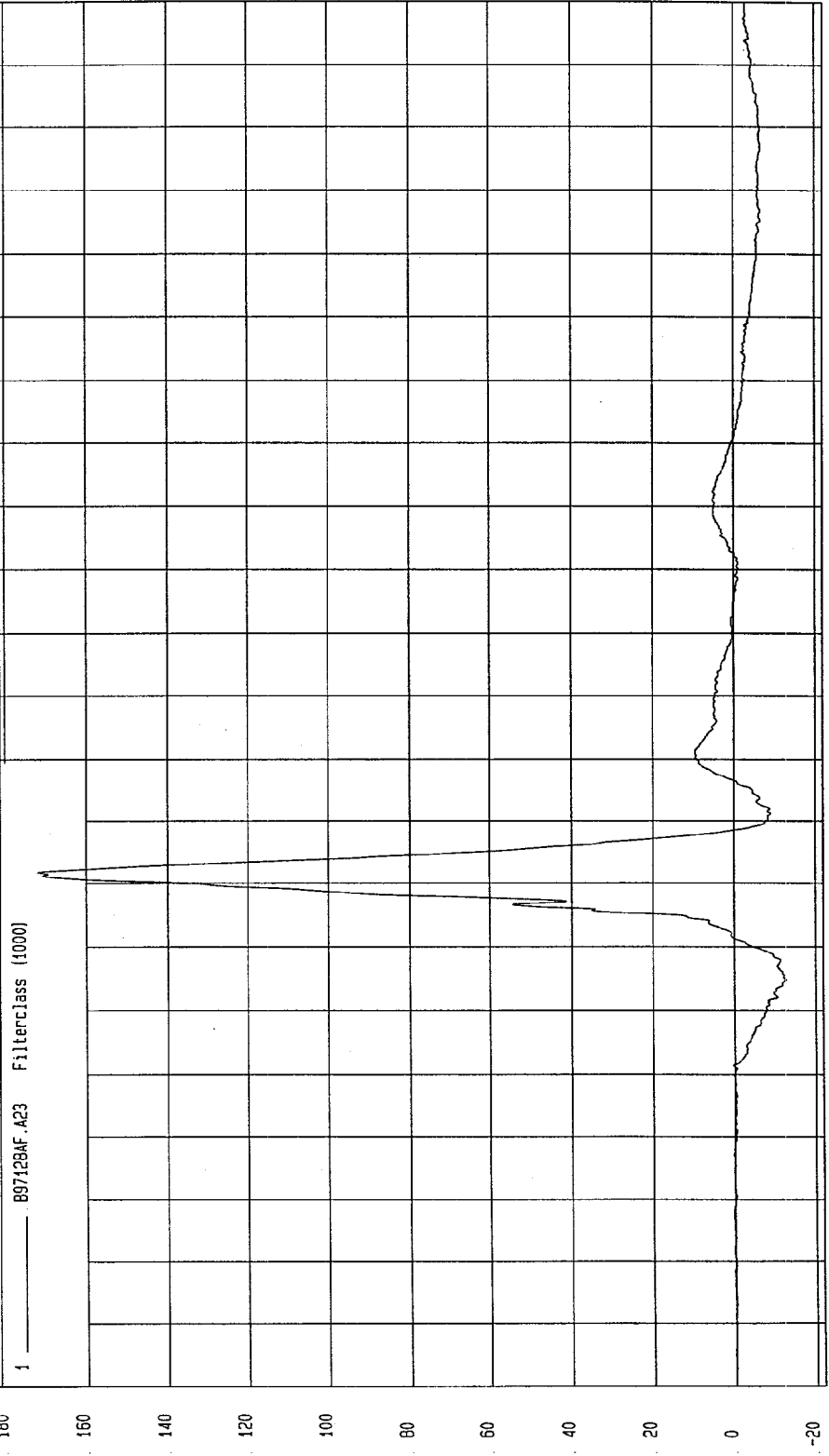
MCA Research  
12-03-1997 16:28

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -12.66 G'S at 45 msec Maximum = 172.01 G'S at 62 msec

REAR PASSENGER HEAD Y ACCELERATION



TIME (SECONDS)

MGA Research  
12-03-1997 18:08

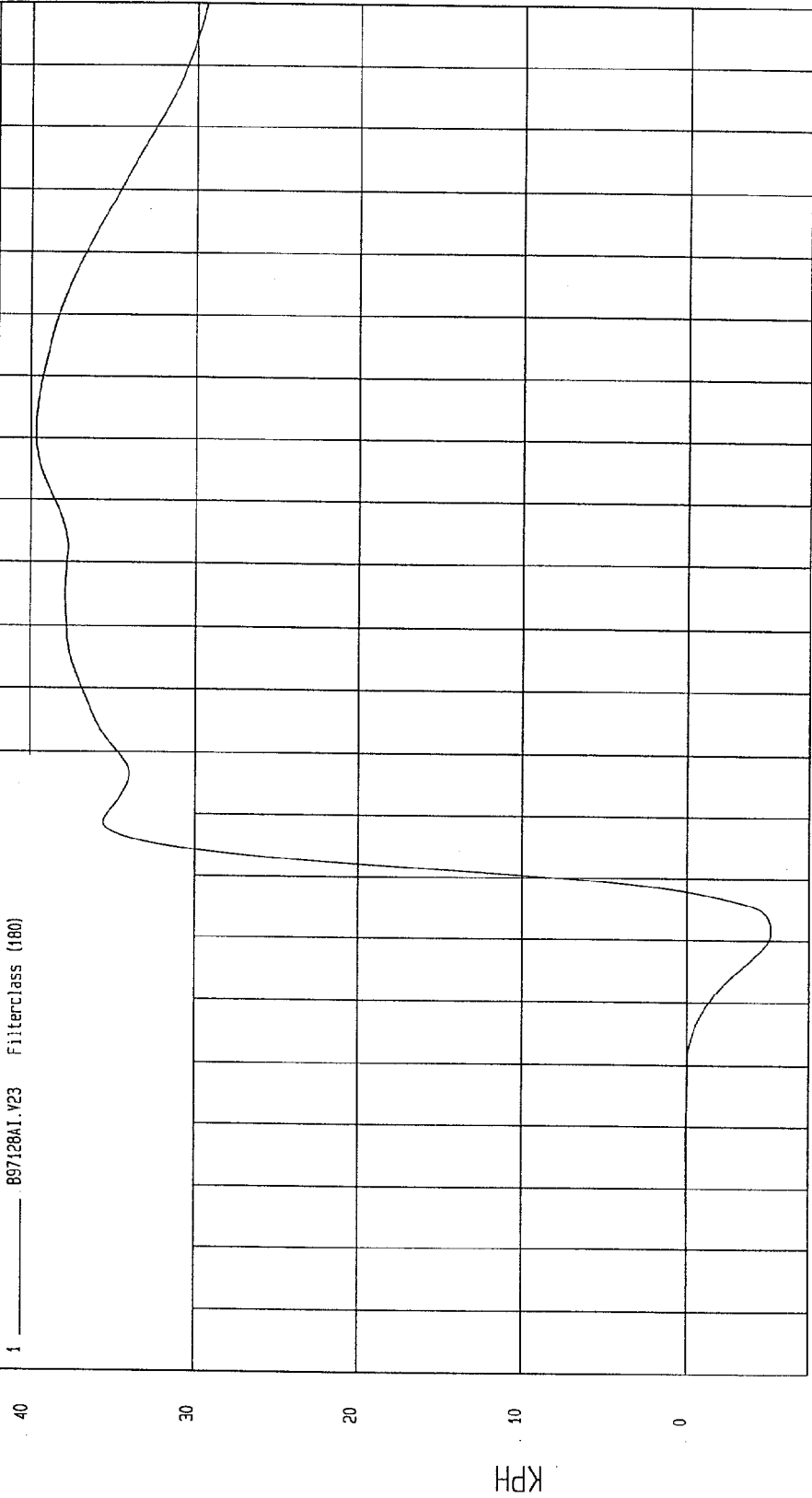
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -4.97 KPH at 52 msec  
Maximum = 39.71 KPH at 131 msec

REAR PASSENGER HEAD Y VELOCITY

1 897128A1.Y23 Filterclass (180)

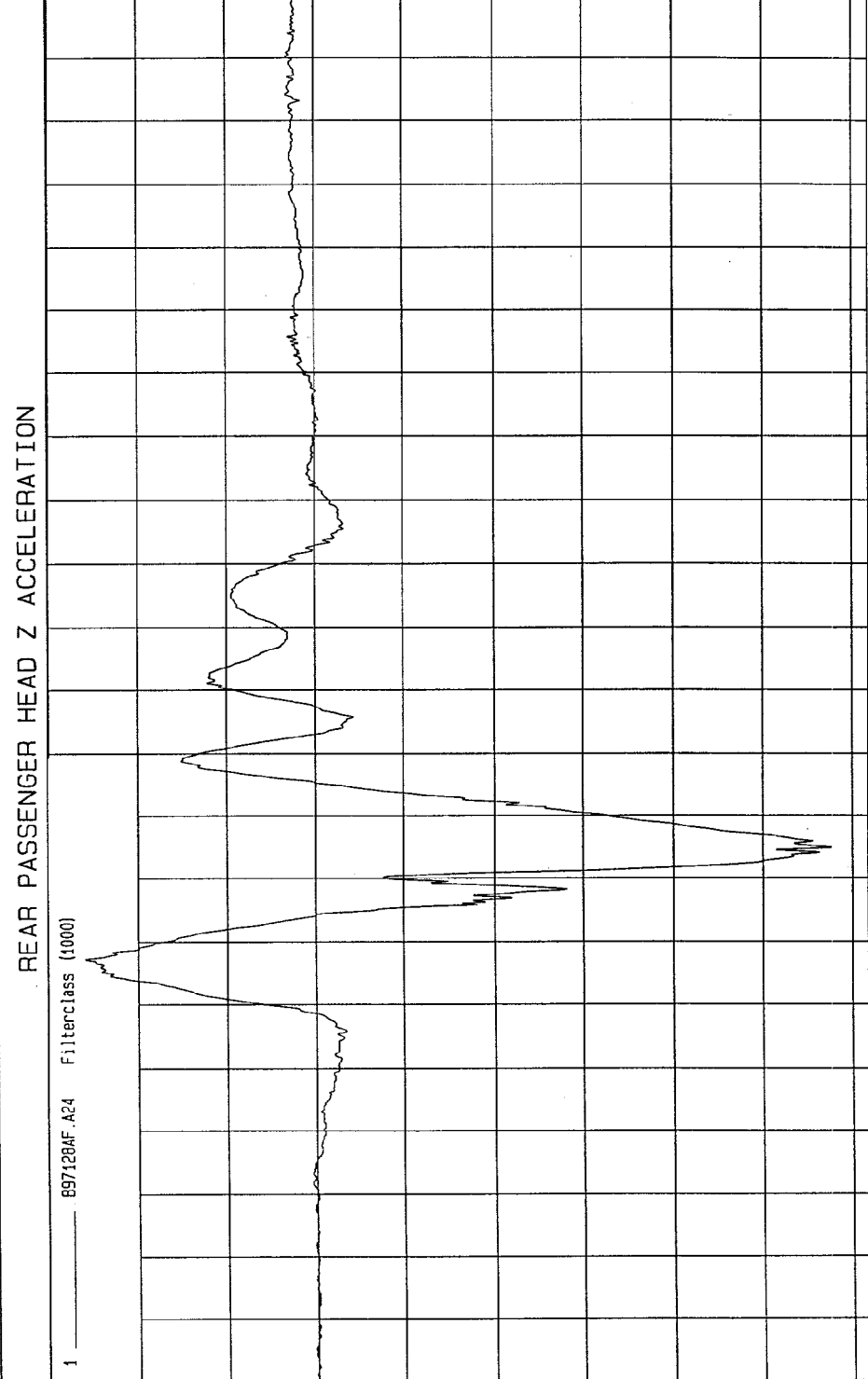


MGA Research  
12-03-1997 18: 28

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -57.61 G'S at 60 msec Maximum = 25.96 G'S at 47 msec



TIME (SECONDS)

MSA Research  
12-03-1997 18:08

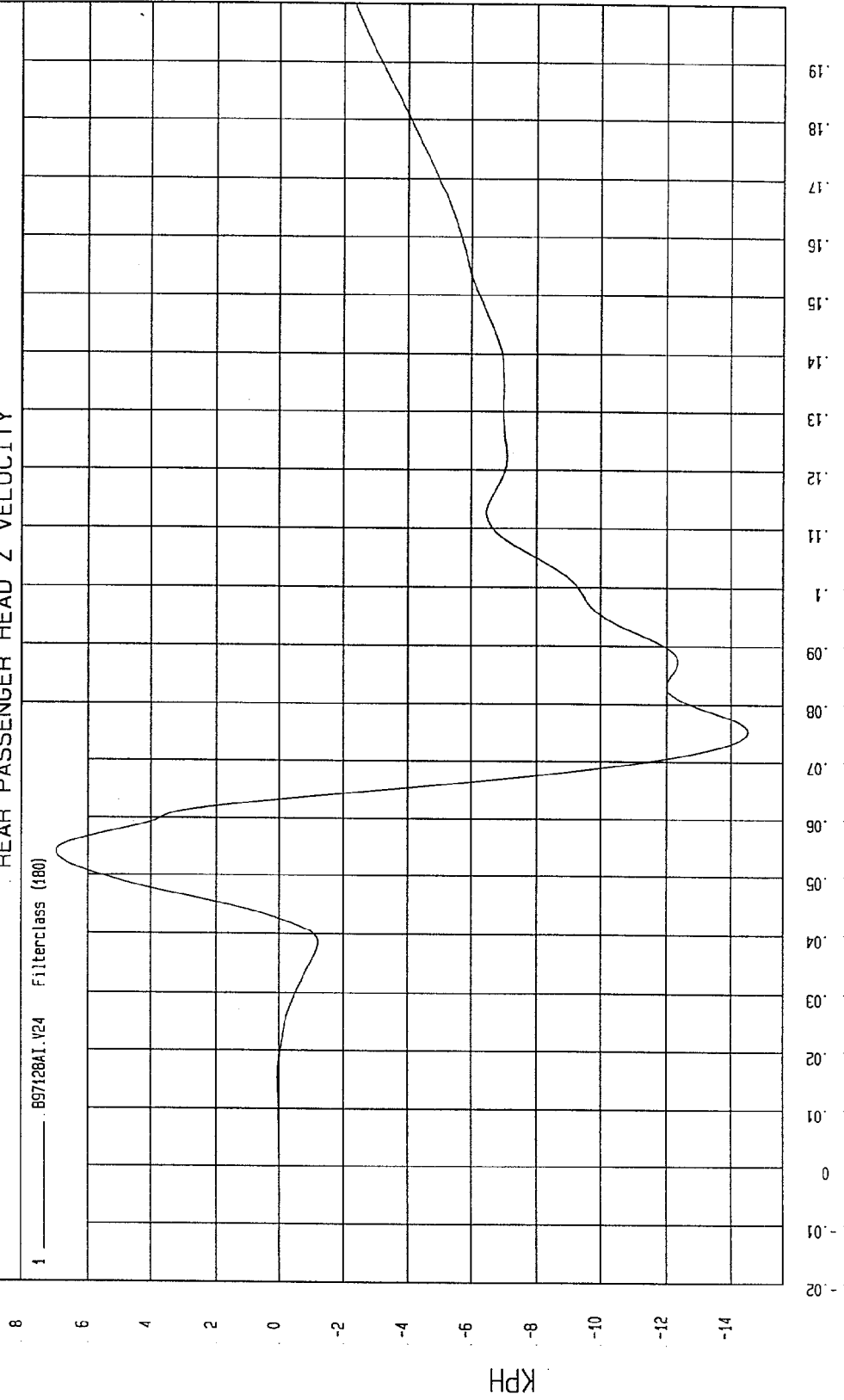
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -14.50 KPH at 75 msec  
Maximum = 6.94 KPH at 54 msec

REAR PASSENGER HEAD Z VELOCITY

1 ——— 897128A1.V24 Filterclass (180)



MSA Research  
12-03-1997 18:28

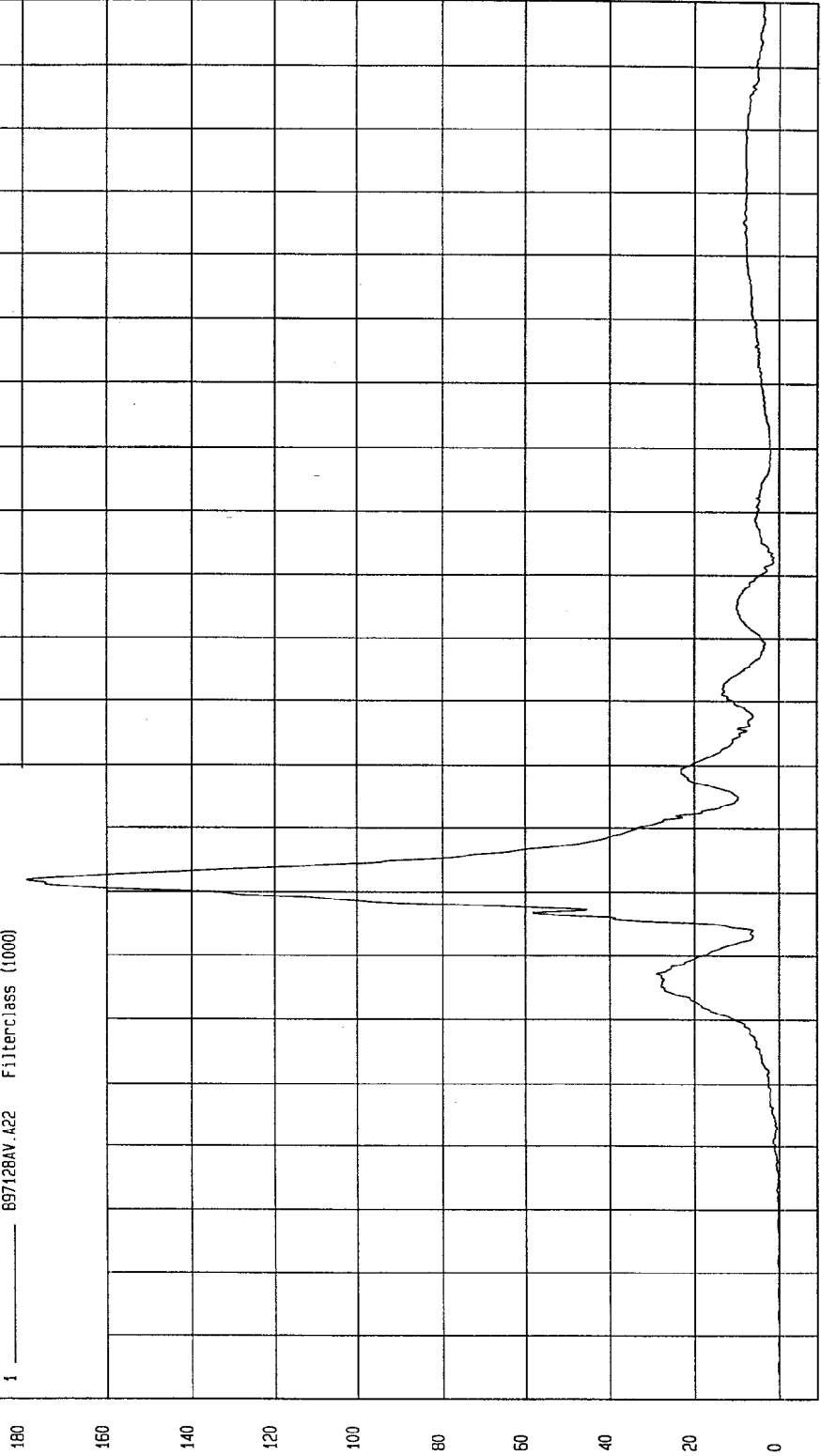
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = 3.42E-02 G'S at -5 msec  
Maximum = 178.88 G'S at 62 msec

REAR PASSENGER HEAD RESULTANT

1 ——— 897128AV.422 Filterclass (1000)



NSA Report of  
12-03-1997 18:09

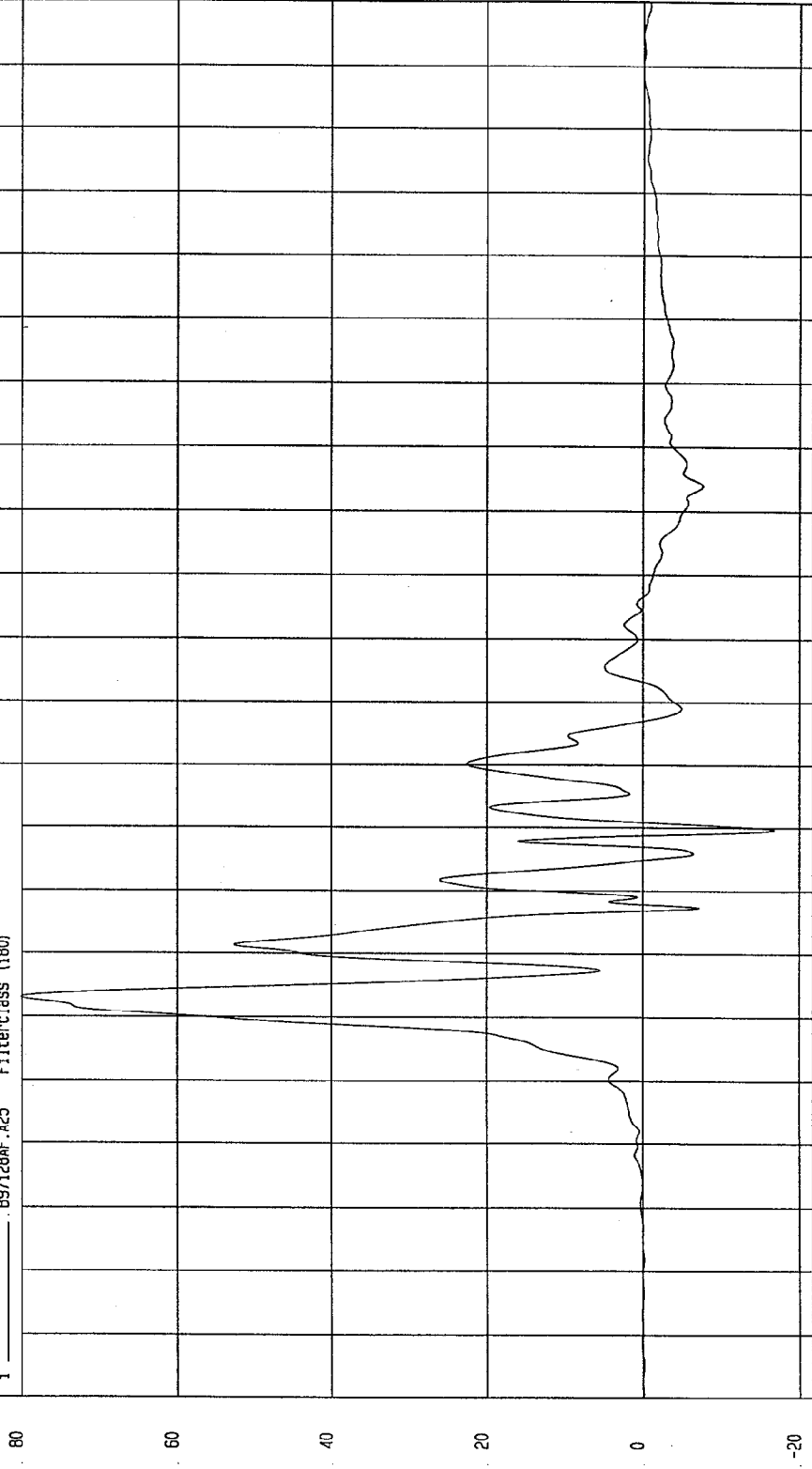
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -16.78 G'S at 70 msec Maximum = 80.14 G'S at 43 msec

REAR PASSENGER UPPER RIB Y ACCELERATION

1 ——— B97128AF.A25 Filterclass (180)



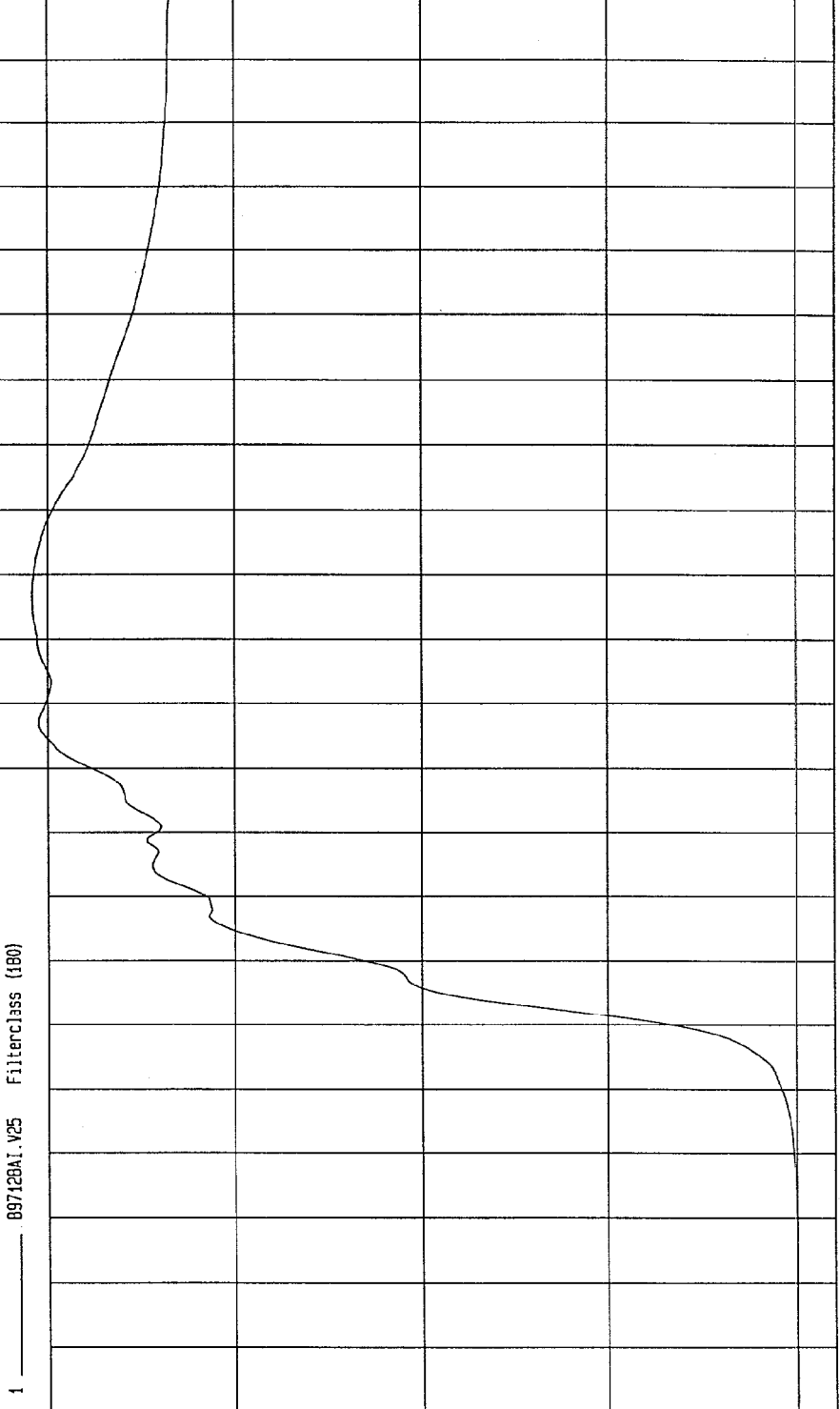
TIME (SECONDS)

MGA Research  
12-03-1997 18:12

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -.01 KPH at -13 msec Maximum = 40.85 KPH at 107 msec

REAR PASSENGER UPPER RIB Y VELOCITY



TIME Seconds

MGA Research  
12-03-1997 18:29

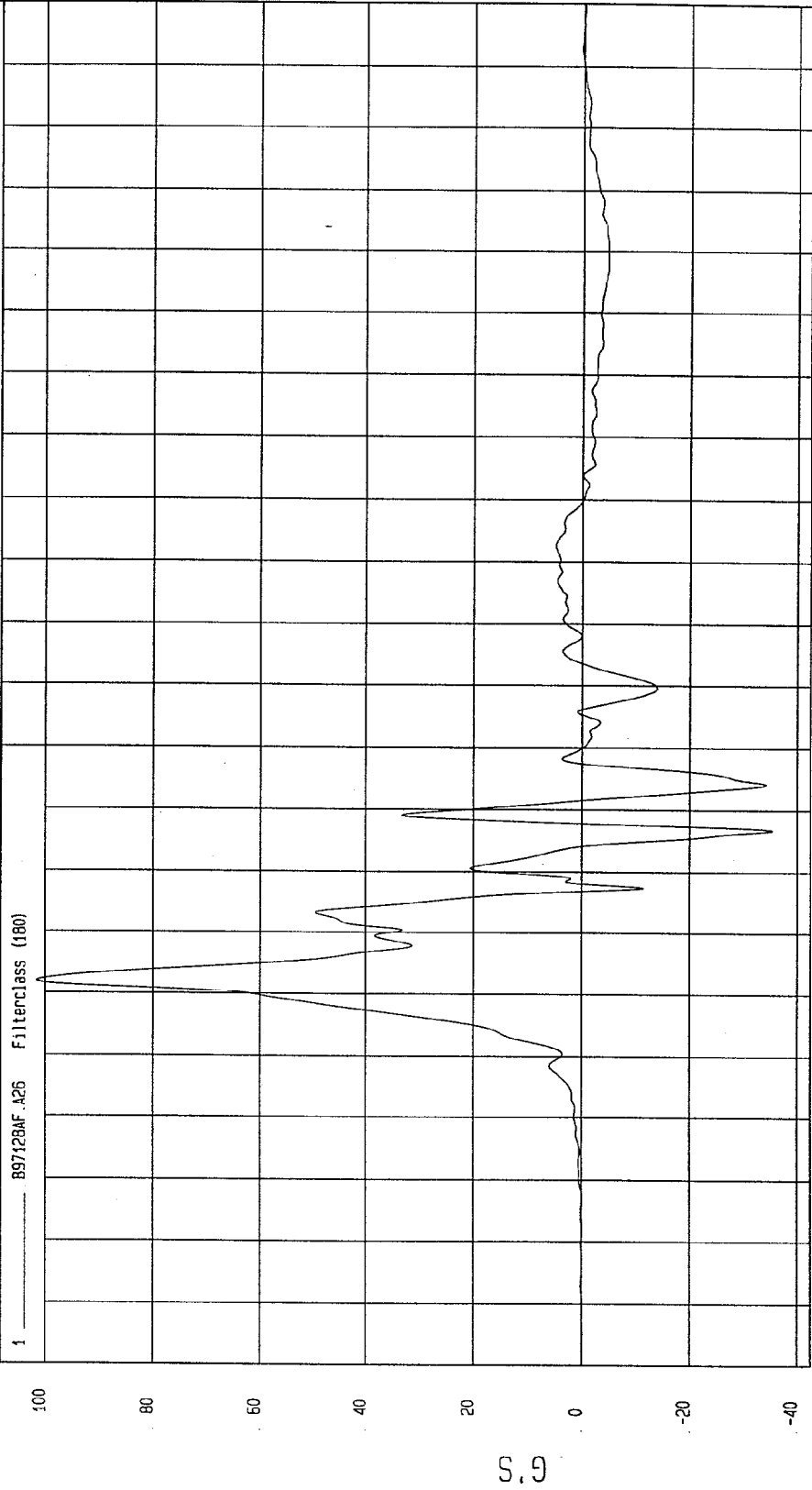
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -35.54 G'S at 67 msec  
Maximum = 101.58 G'S at 42 msec

REAR PASSENGER LOWER RIB Y ACCELERATION

1 897128AF.A25 Filterclass (180)



MGA Research  
12-03-1997 18:12

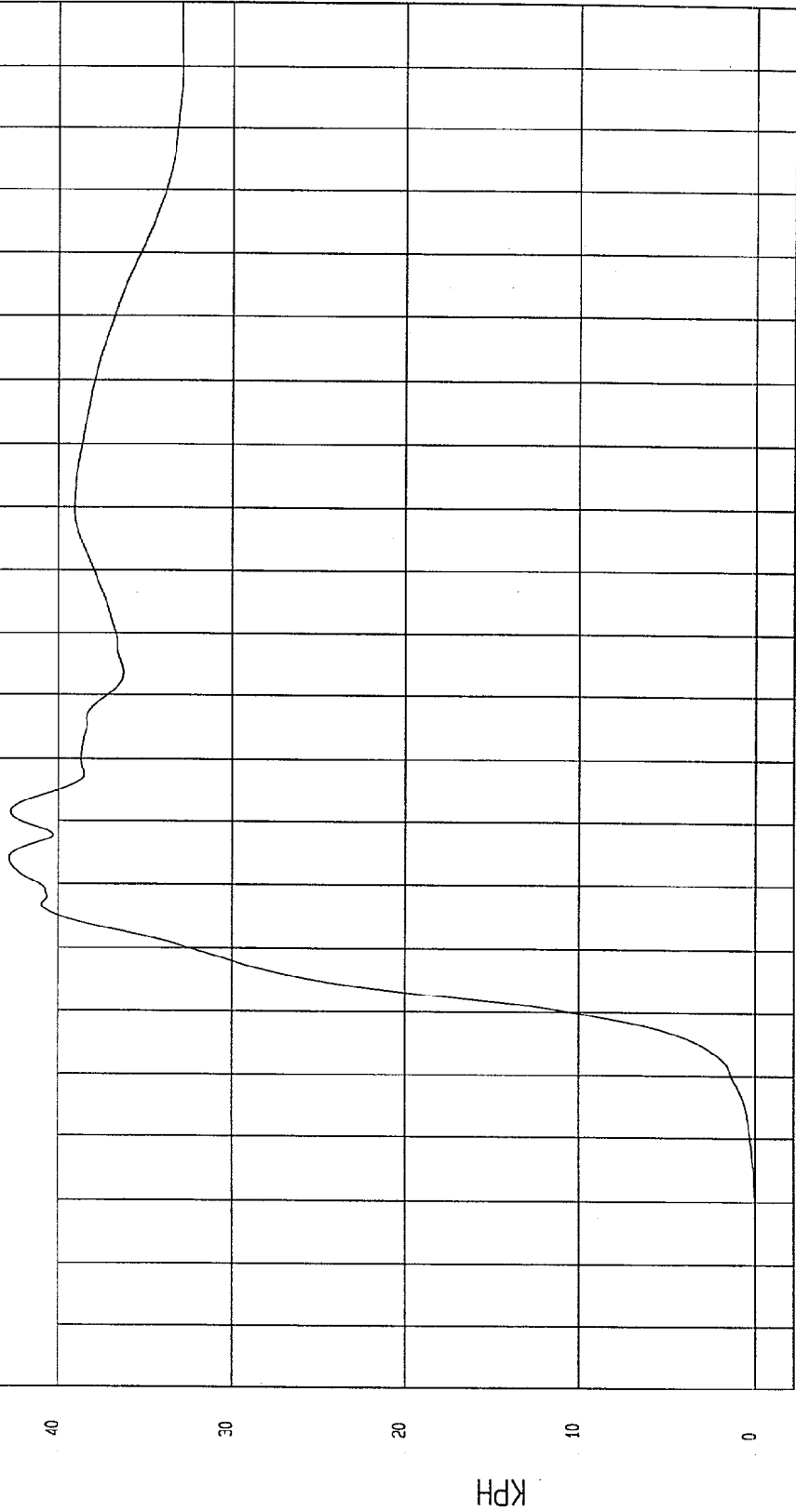
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -2.36E-02 KPH at -9 msec  
Maximum = 42.76 KPH at 64 msec

REAR PASSENGER LOWER RIB Y VELOCITY

1 ——— 897120A1.V26 Filterclass (180)

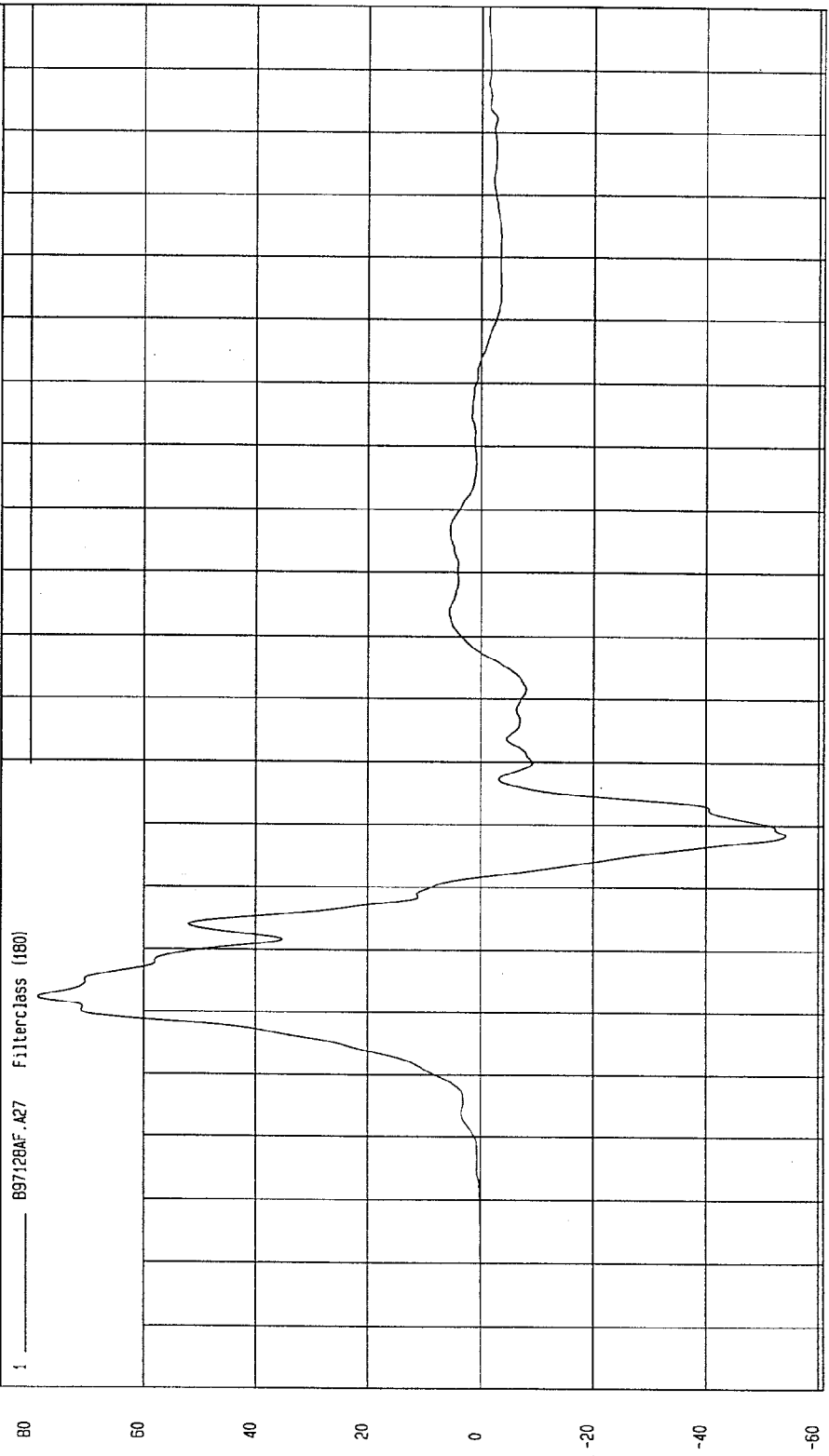


MCA Research  
12-03-1997 18:29

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -54.19 G'S at 68 msec Maximum = 78.68 G'S at 42 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION



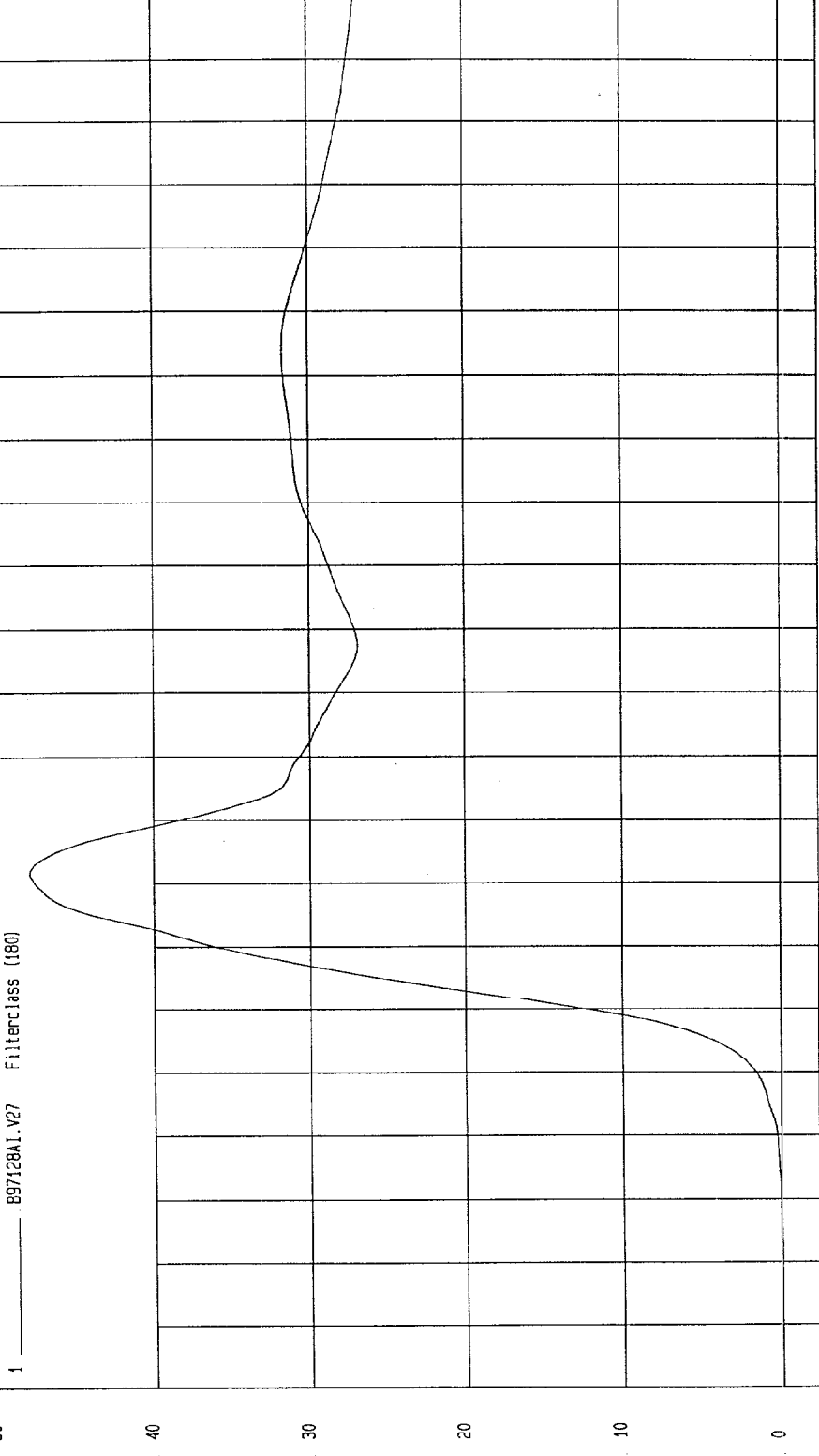
TIME (SECONDS)

MGA Research  
12-03-1997 18.12

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -.01 KPH at -6 msec Maximum = 47.89 KPH at 62 msec

REAR PASSENGER LOWER SPINE Y VELOCITY



TIME Seconds  
M&A Research  
12-03-1997 18:29

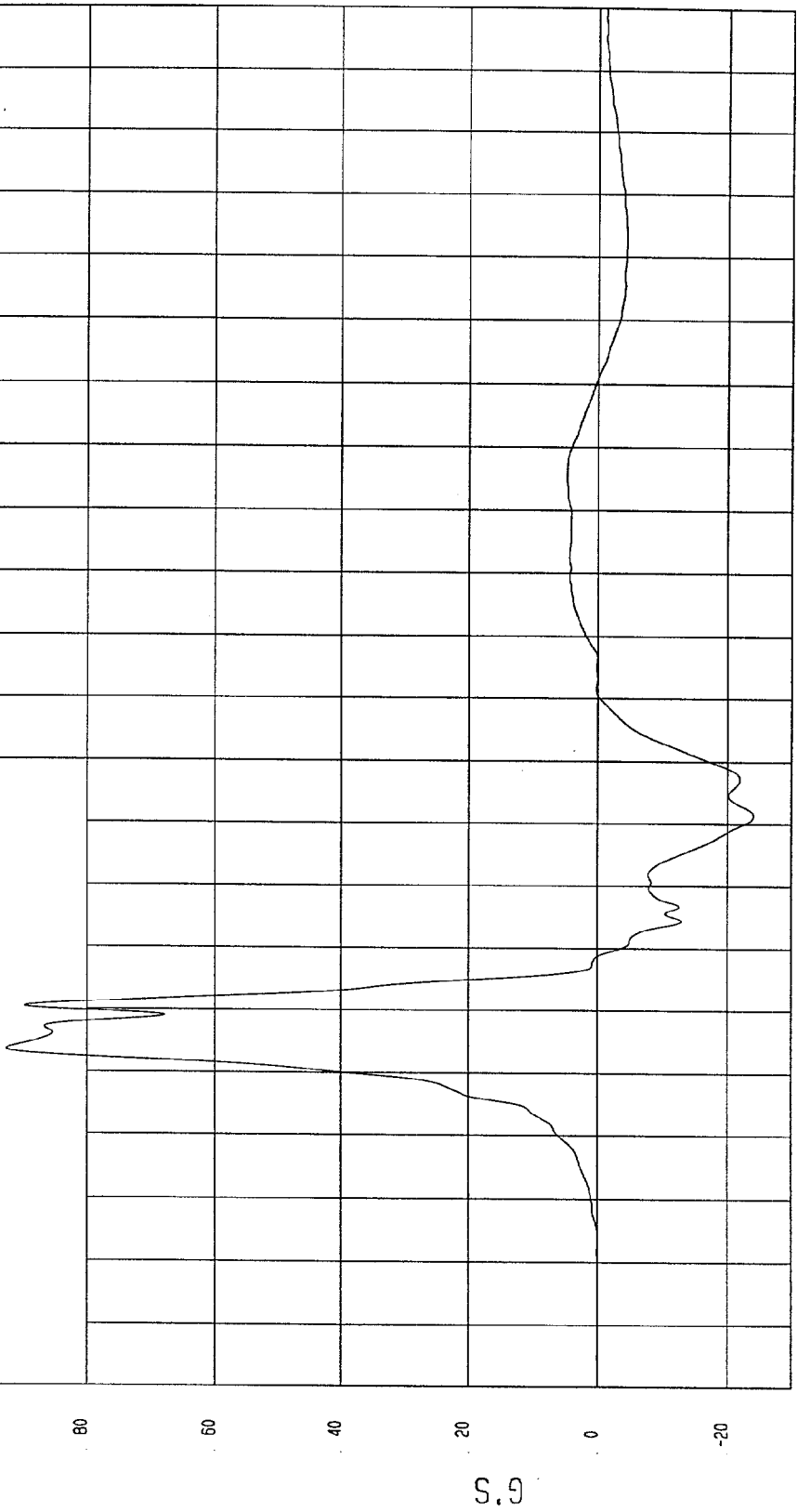
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -24.00 G'S at 71 msec Maximum = 92.24 G'S at 34 msec

REAR PASSENGER PELVIS Y ACCELERATION

1 B9712BAF.A28 Filterclass (180)



MCA Research  
A2-03-1997 18.13

TIME (SECONDS)

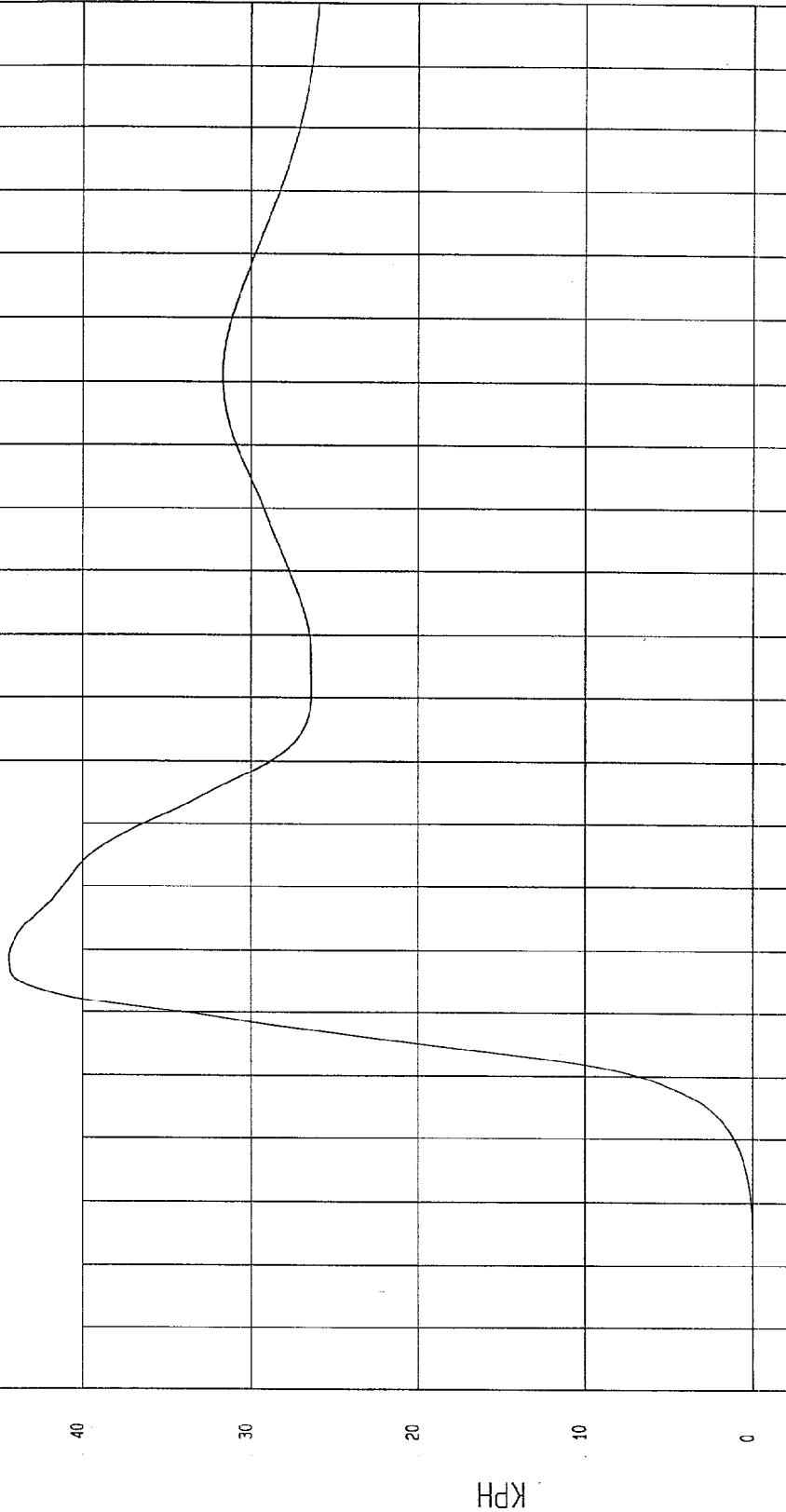
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -4.22E-03 KPH at 0 msec Maximum = 44.39 KPH at 49 msec

REAR PASSENGER PELVIS Y VELOCITY

1 ——— 897128A1.V28 Filterclass (180)



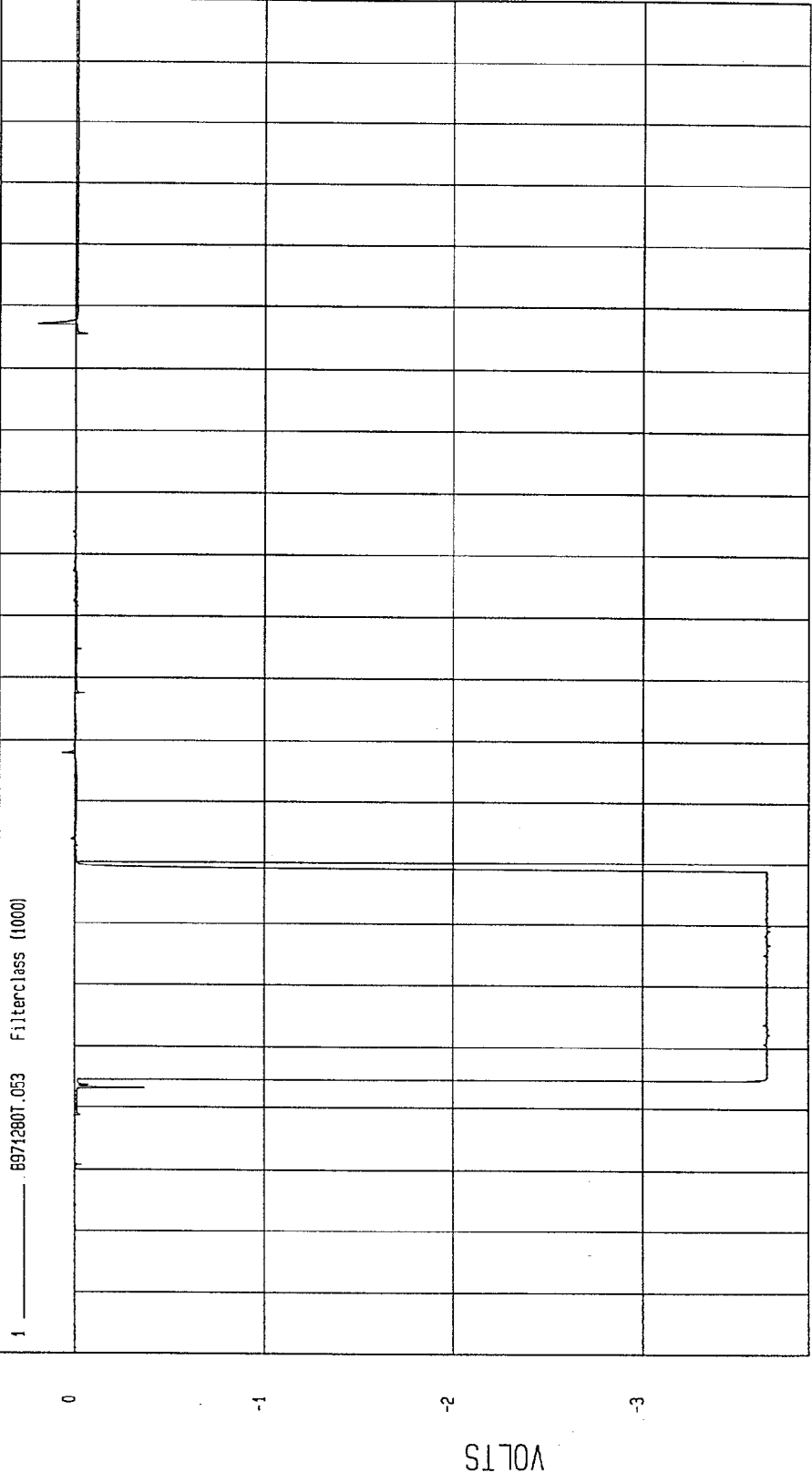
MGA Research  
12-03-1997 16:29

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -3.66 VOLTS at 47 msec Maximum = .19 VOLTS at 147 msec

REAR PASSENGER LEG CONTACT



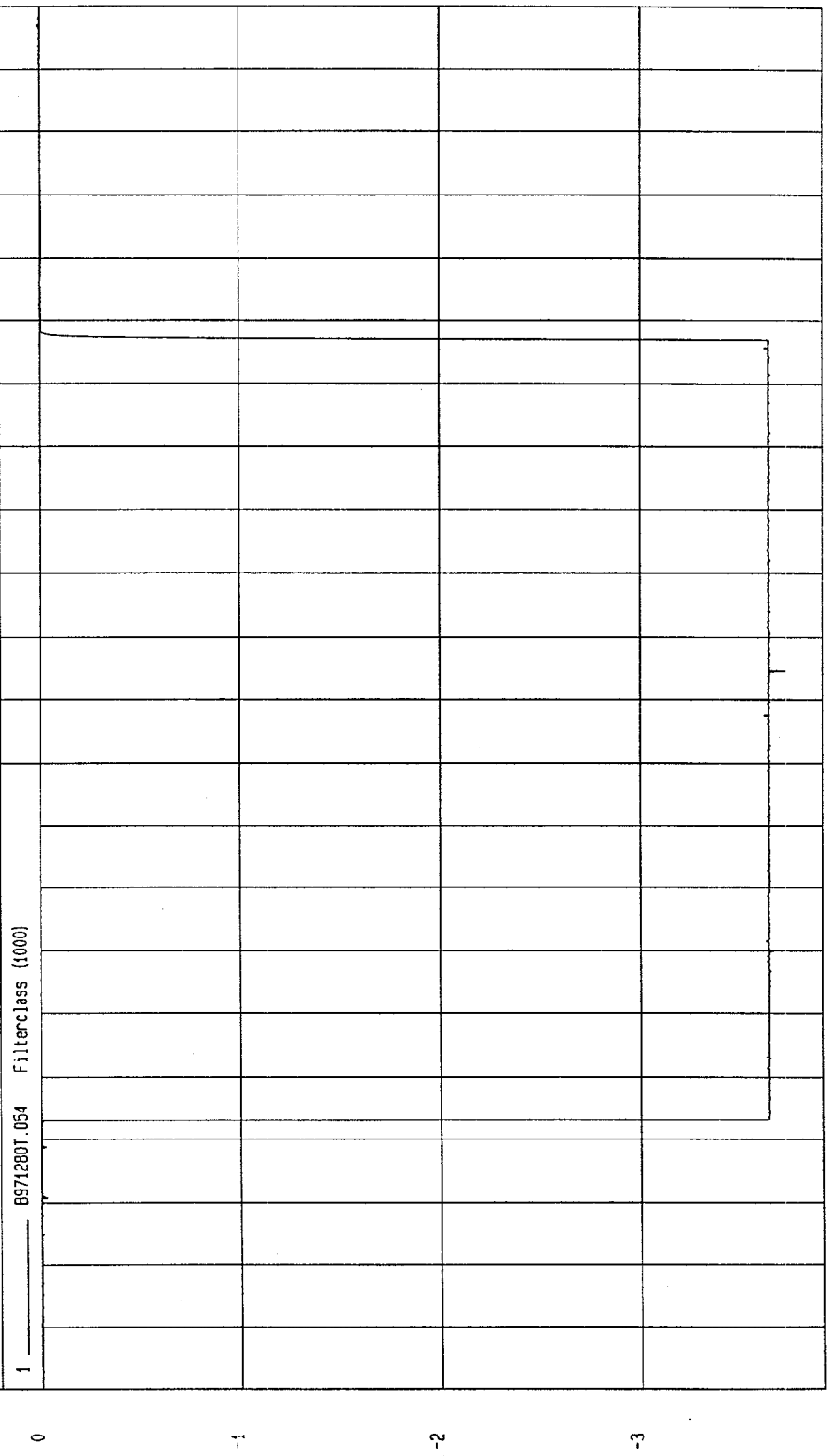
TIME (SECONDS) 0.19 0.18 0.17 0.16 0.15 0.14 0.13 0.12 0.11 0.1 0.09 0.08 0.07 0.06 0.05 0.04 0.03 0.02 0.01 0 -0.01 -0.02

MA Research  
12-03-1997 18:12

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -3.72 VOLTS at 94 msec  
Maximum = 1.12E-02 VOLTS at 197 msec

REAR PASSENGER SHOULDER CONTACT



TIME (SECONDS)

NSA Research  
12-03-1997 18:12

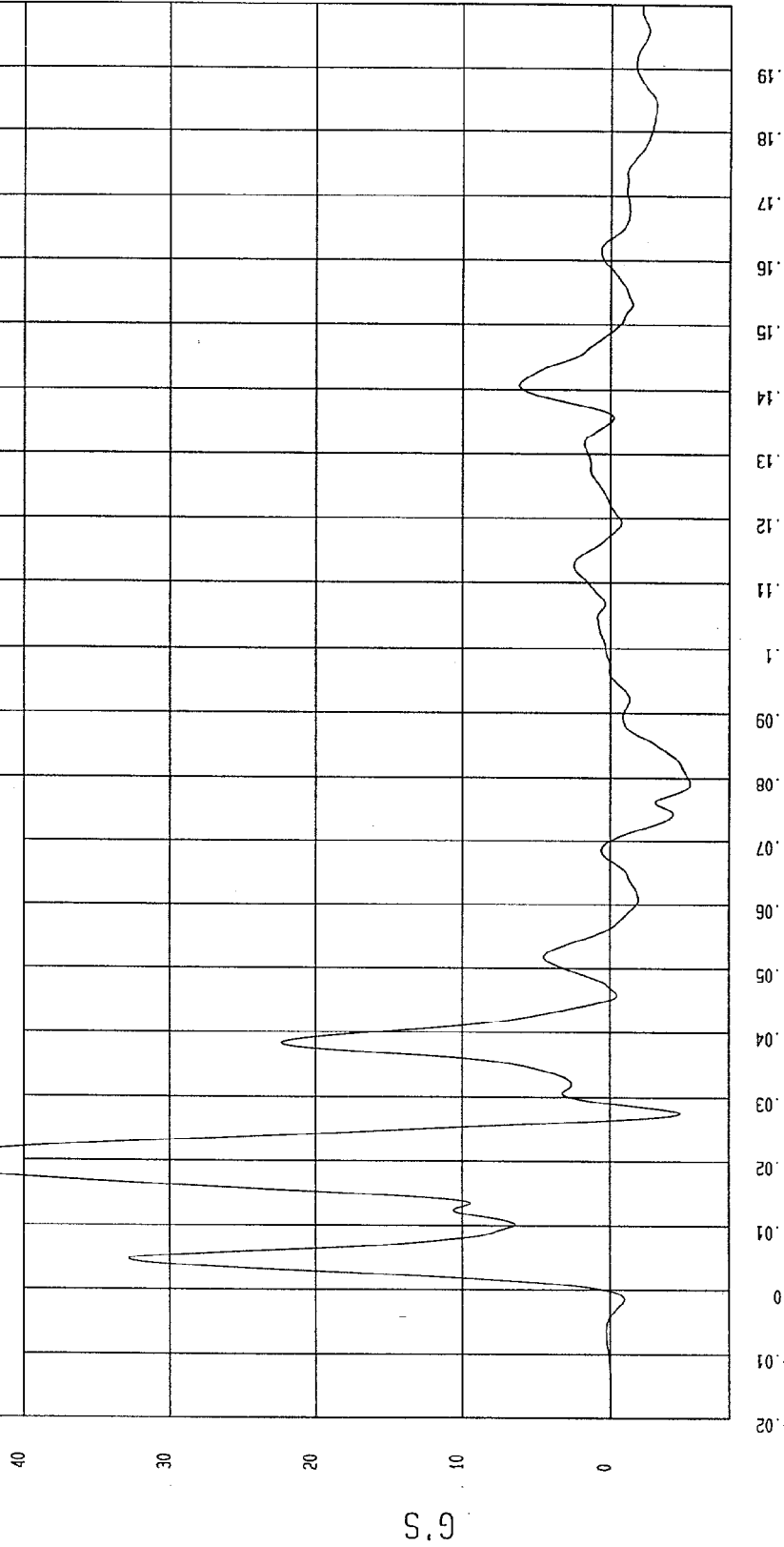
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -5.30 G'S at 79 msec  
Maximum = 46.68 G'S at 19 msec

LEFT SIDE SILL AT FRONT SEAT Y ACCELERATION

1 ——— B97128AF.A38 Filterclass (60)

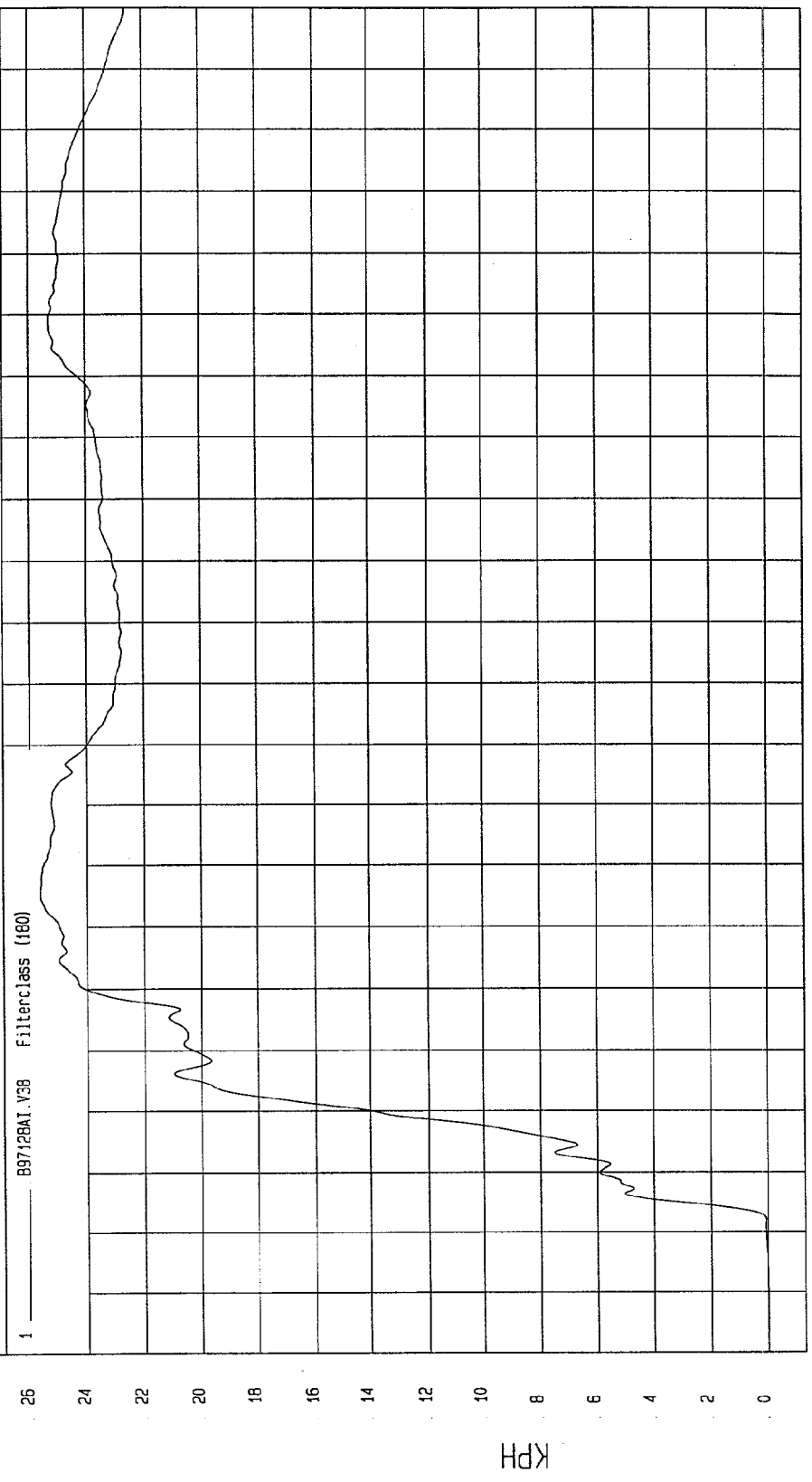


MEA Research  
12-03-1997 16:36

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
 COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -1.35E-02 KPH at -12 msec  
 Maximum = 25.64 KPH at 55 msec

LEFT SIDE SILL AT FRONT SEAT Y VELOCITY



1 B9712BA1.V39 Filterclass (160)

MECA Research  
 12-03-1997 16: 44

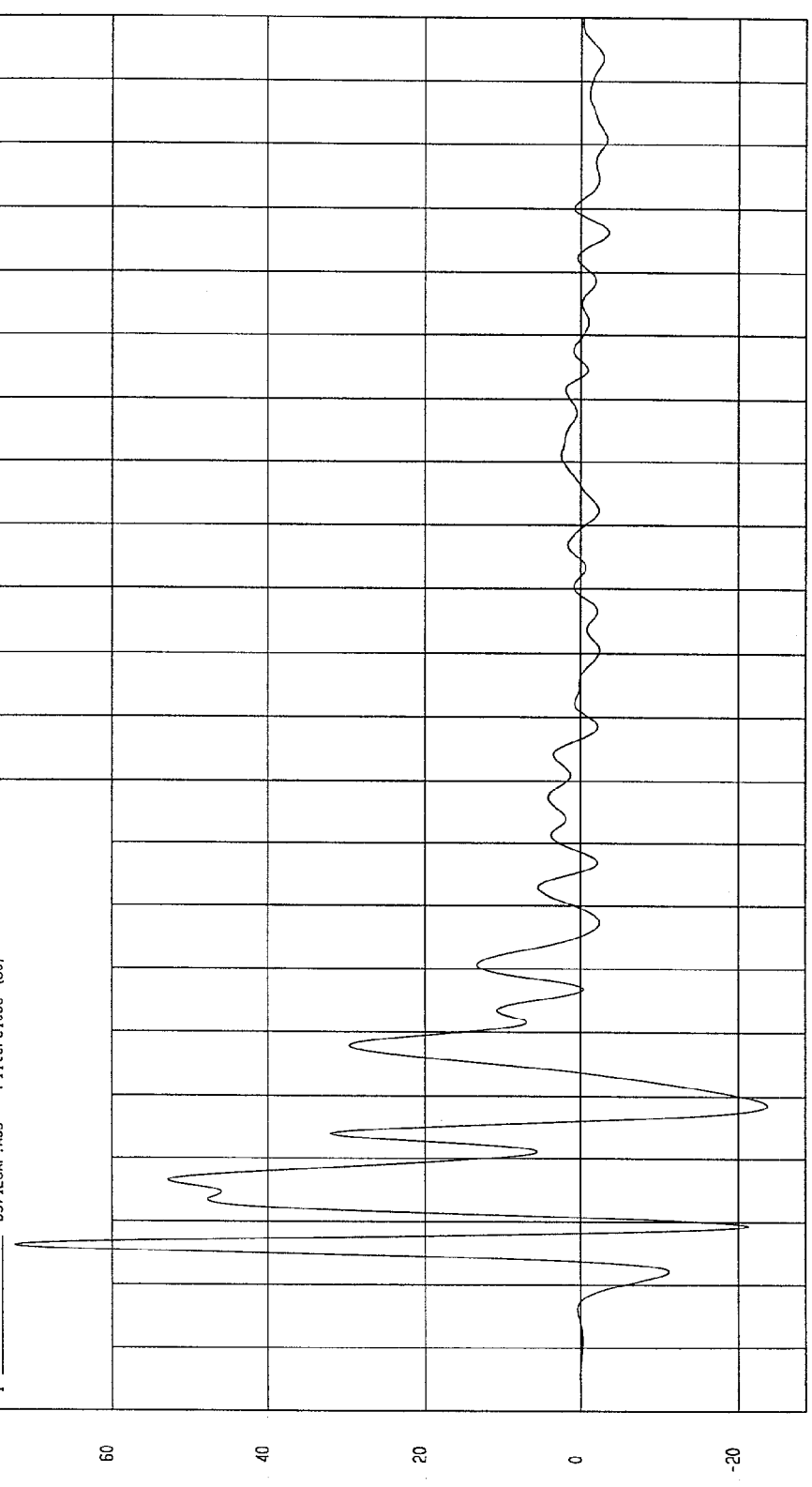
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -23.60 g's at 28 msec Maximum = 72.34 g's at 6 msec

LEFT SIDE SILL AT REAR SEAT Y ACCELERATION

1 — 897128AF.A39 Filterclass (60)



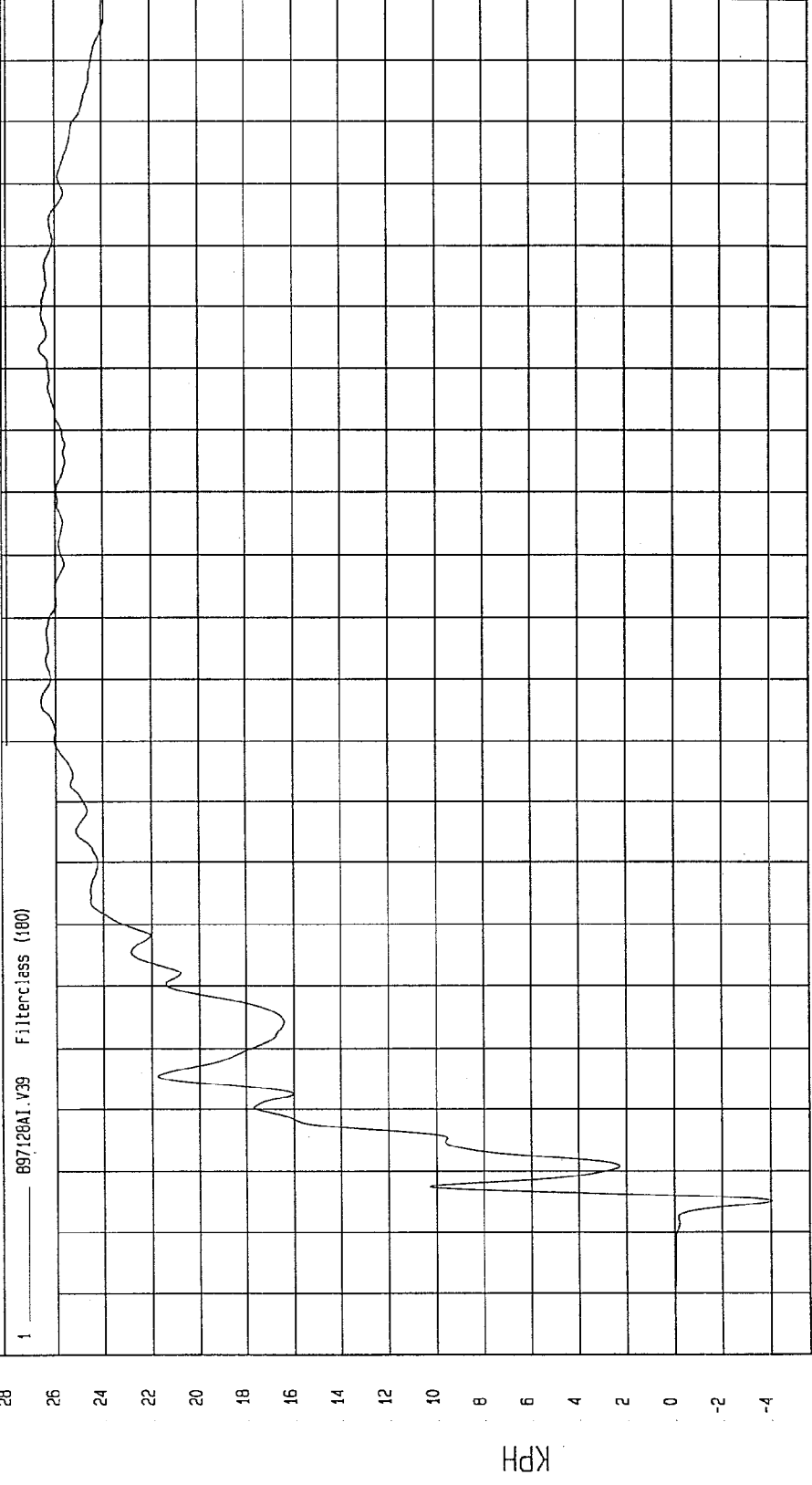
MGA Research  
12-03-1997 18:36

TIME (SECONDS)

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
 COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -4.06 KPH at 5 msec  
 Maximum = 26.66 KPH at 143 msec

LEFT SIDE SILL AT REAR SEAT Y VELOCITY



1 897128A1.V39 Filterclass (f80)

TIME Seconds

MGA Research  
 12-03-1997 16: 45

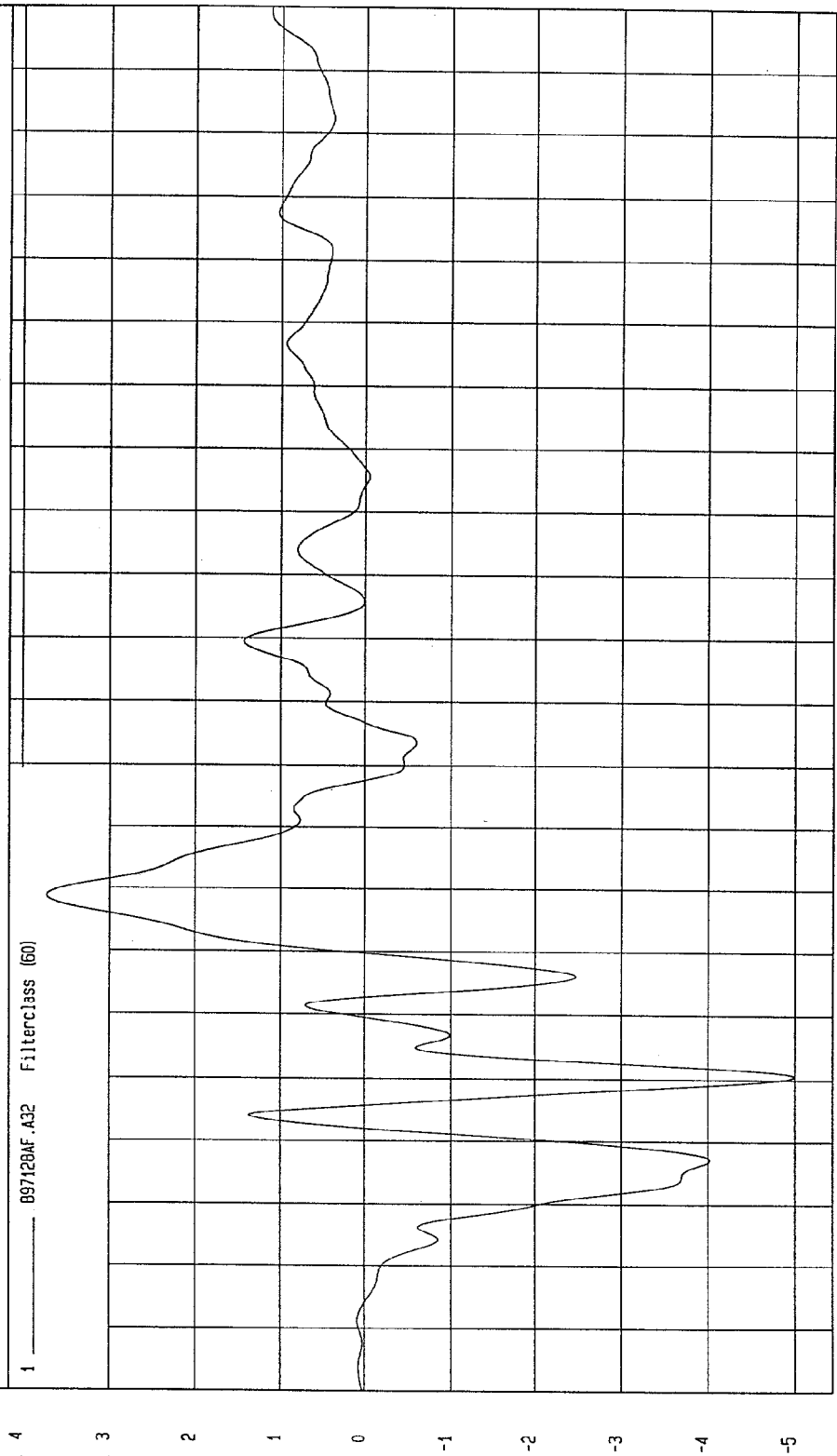
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -4.99 G'S at 30 msec  
Maximum = 3.71 G'S at 59 msec

RIGHT SIDE SILL AT FRONT SEAT X ACCELERATION

1 097120AF.A32 Filterclass (60)



MGA Research  
12-03-1997 18:36

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

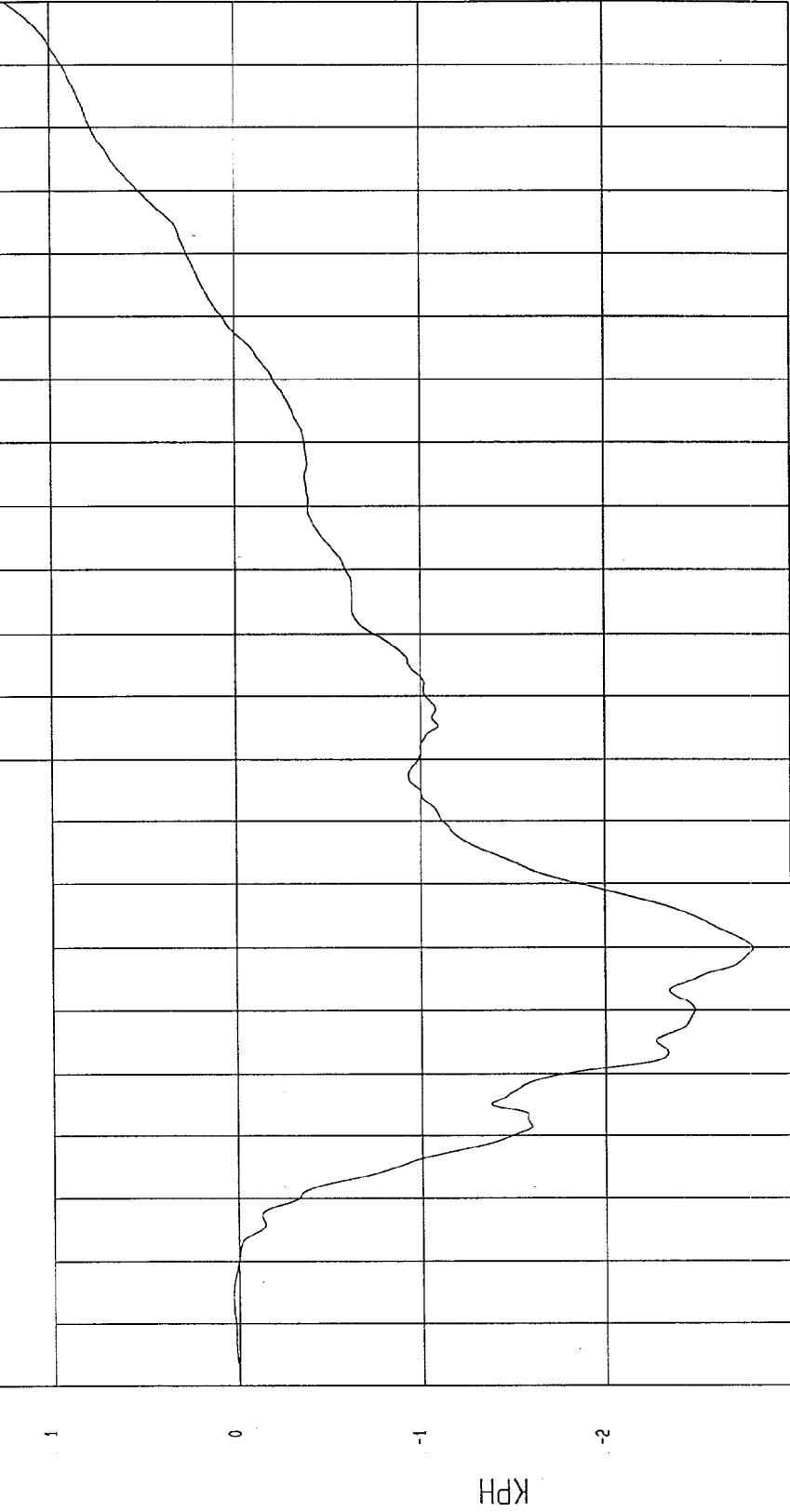
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -2.79 KPH at 50 msec

Maximum = 1.23 KPH at 200 msec

RIGHT SIDE SILL AT FRONT SEAT X VELOCITY

1 897128A1.V32 Filterclass (180)

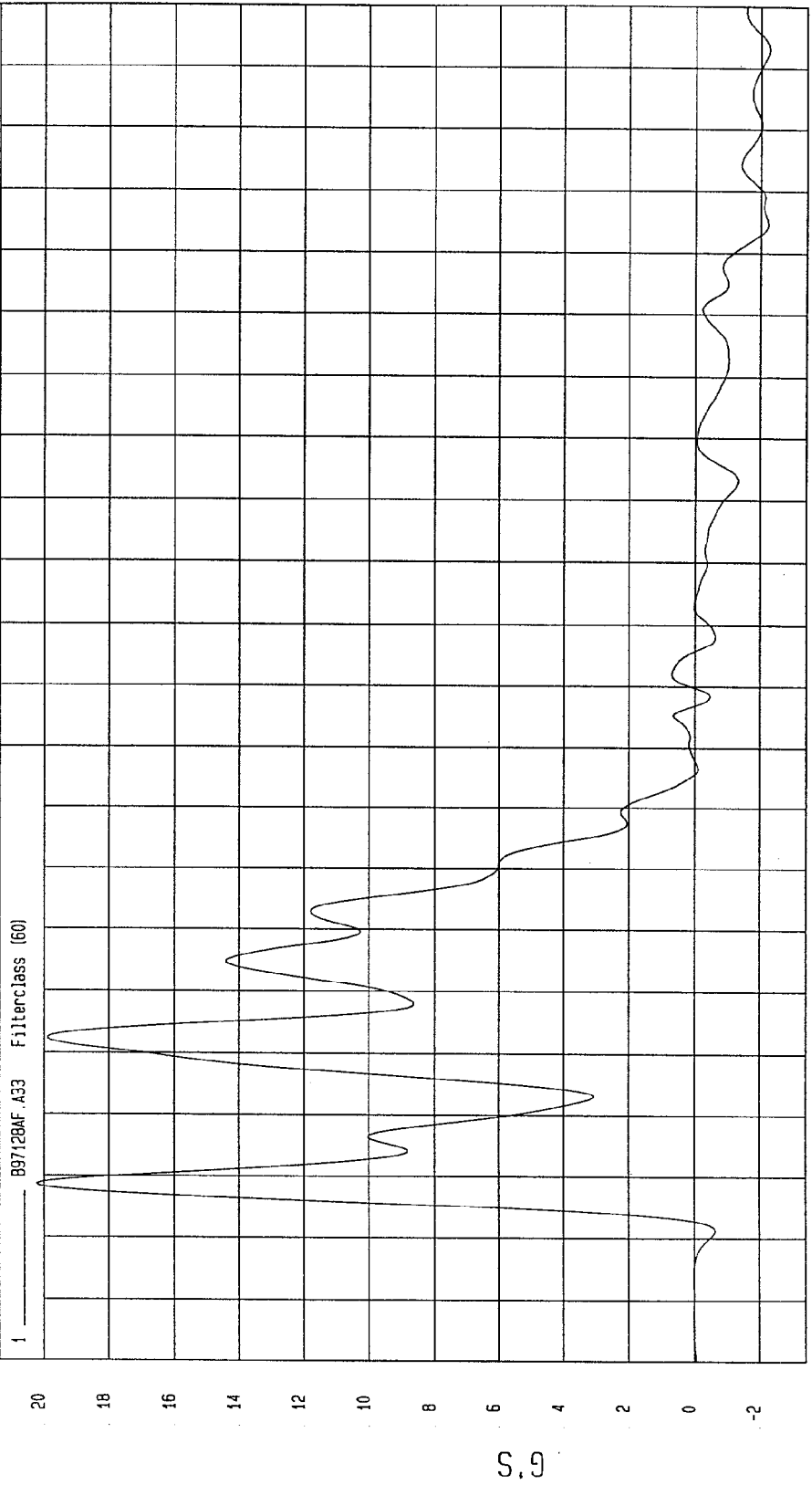


MGA Research  
12-03-1997 16:45

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -2.26 G'S at 193 msec Maximum = 20.21 G'S at 9 msec

RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION

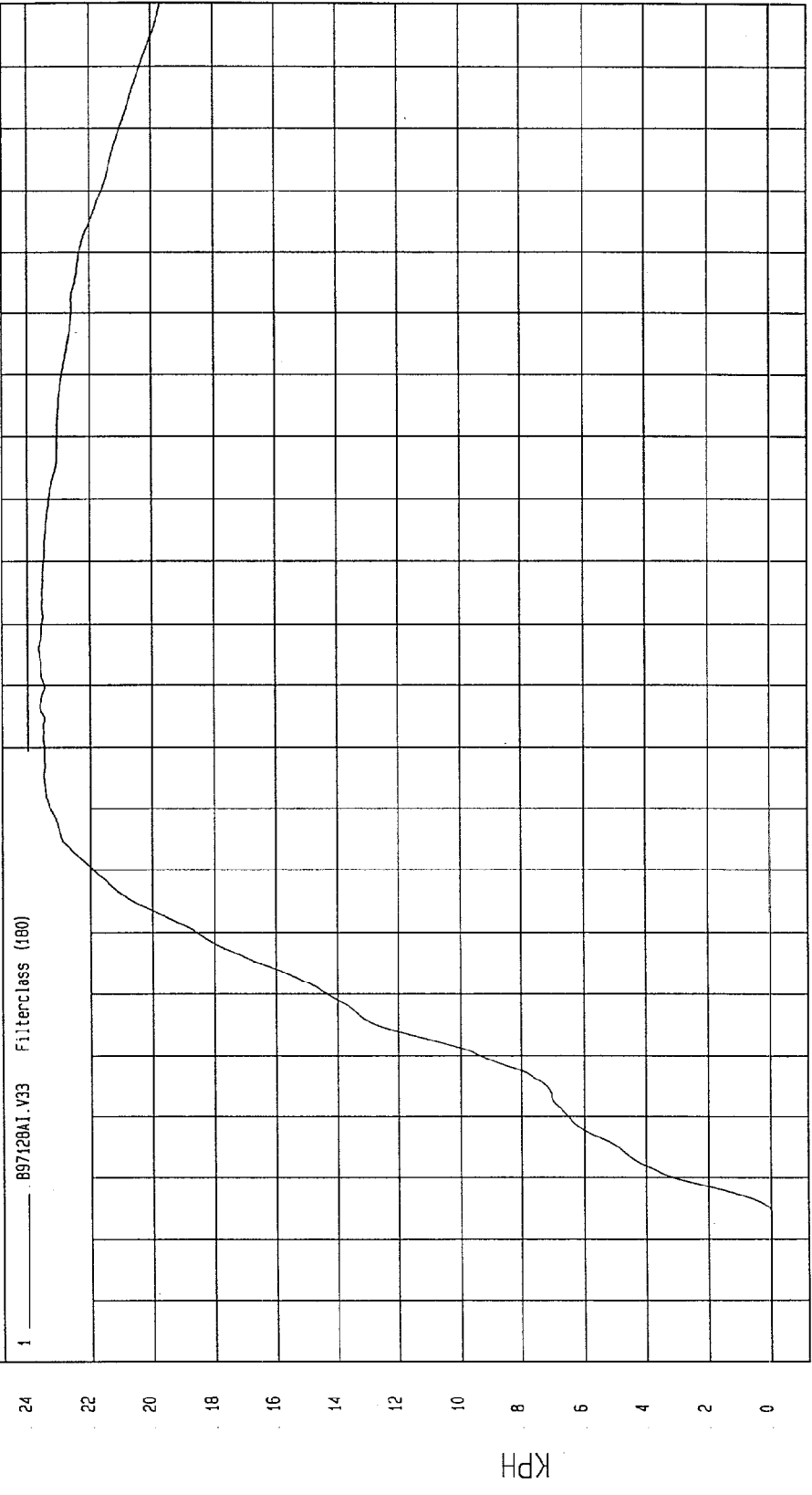


MGA Research  
12-03-1997 18:37

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
 COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -2.64E-02 KPH at 4 msec Maximum = 23.64 KPH at 96 msec

RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY



TIME Seconds  
 NGA Research  
 12-03-1997 18: 45

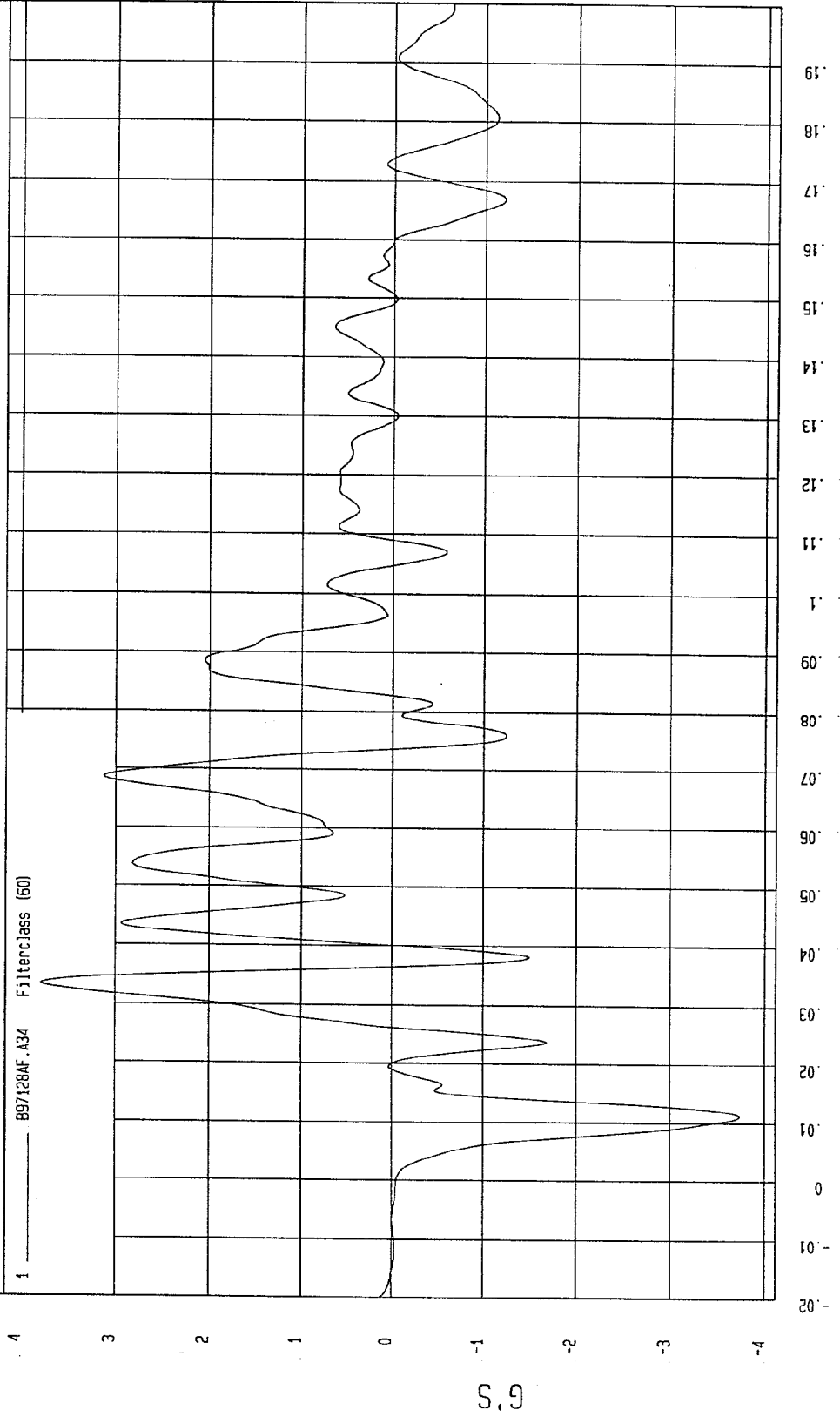
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -3.74 G'S at 11 msec Maximum = 3.79 G'S at 33 msec

RIGHT SIDE SILL AT FRONT SEAT Z ACCELERATION

1 B97128AF.A34 F11terclass (60)



MGA Research  
12-03-1997 18:37

TIME (SECONDS)

G.S

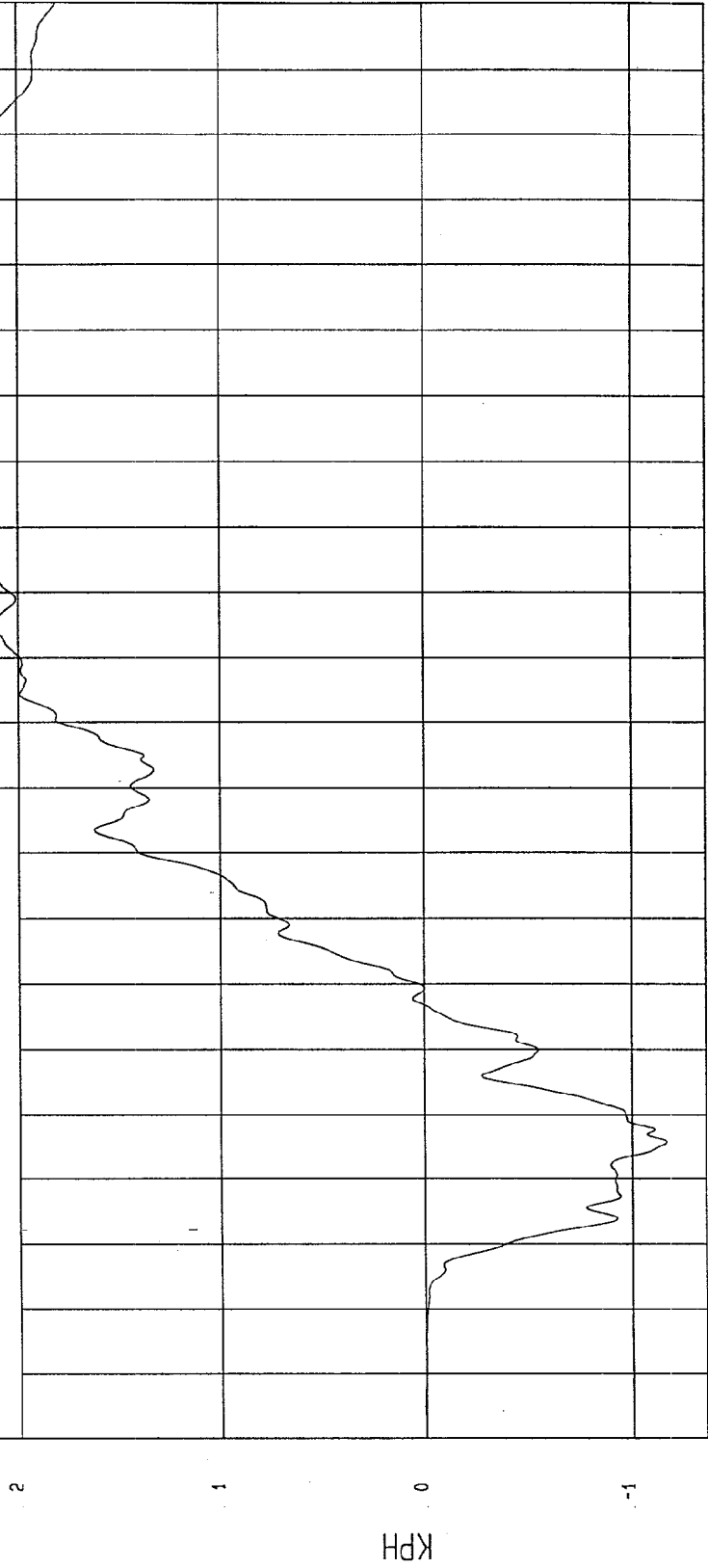
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -1.17 KPH at 26 msec  
Maximum = 2.60 KPH at 162 msec

RIGHT SIDE SILL AT FRONT SEAT Z VELOCITY

1 ——— .B97129A1.V34 Filterclass (180)



MEI Research  
12-03-1997 18.45

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = .01 G's at -6 msec Maximum = 20.47 G's at 9 msec

RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

1 B97126AV.A32 Filterclass (60)



MEA Research  
12-03-1997 18:40

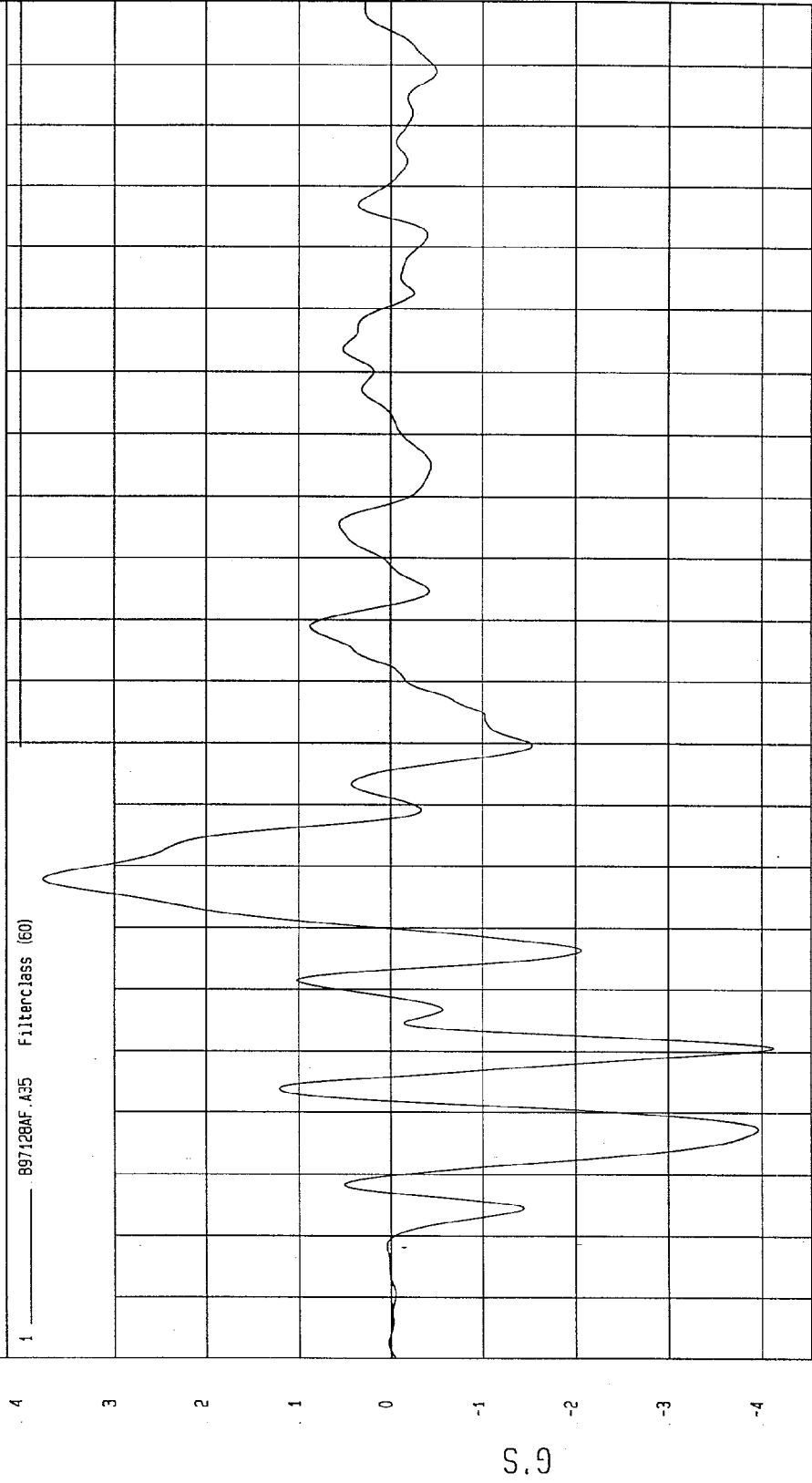
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -4.12 G'S at 31 msec Maximum = 3.76 G'S at 58 msec

RIGHT SIDE SILL AT REAR SEAT X ACCELERATION

1 \_\_\_\_\_ 897128AF.A35 Filterclass (60)



MSA Research  
12-03-1997 16: 37

TIME (SECONDS)

G.S

TEST DATE: 11-06-1997

TEST: HIGH SPEED LATERAL IMPACT

Speed: 38.2 MPH 61.5 KPH

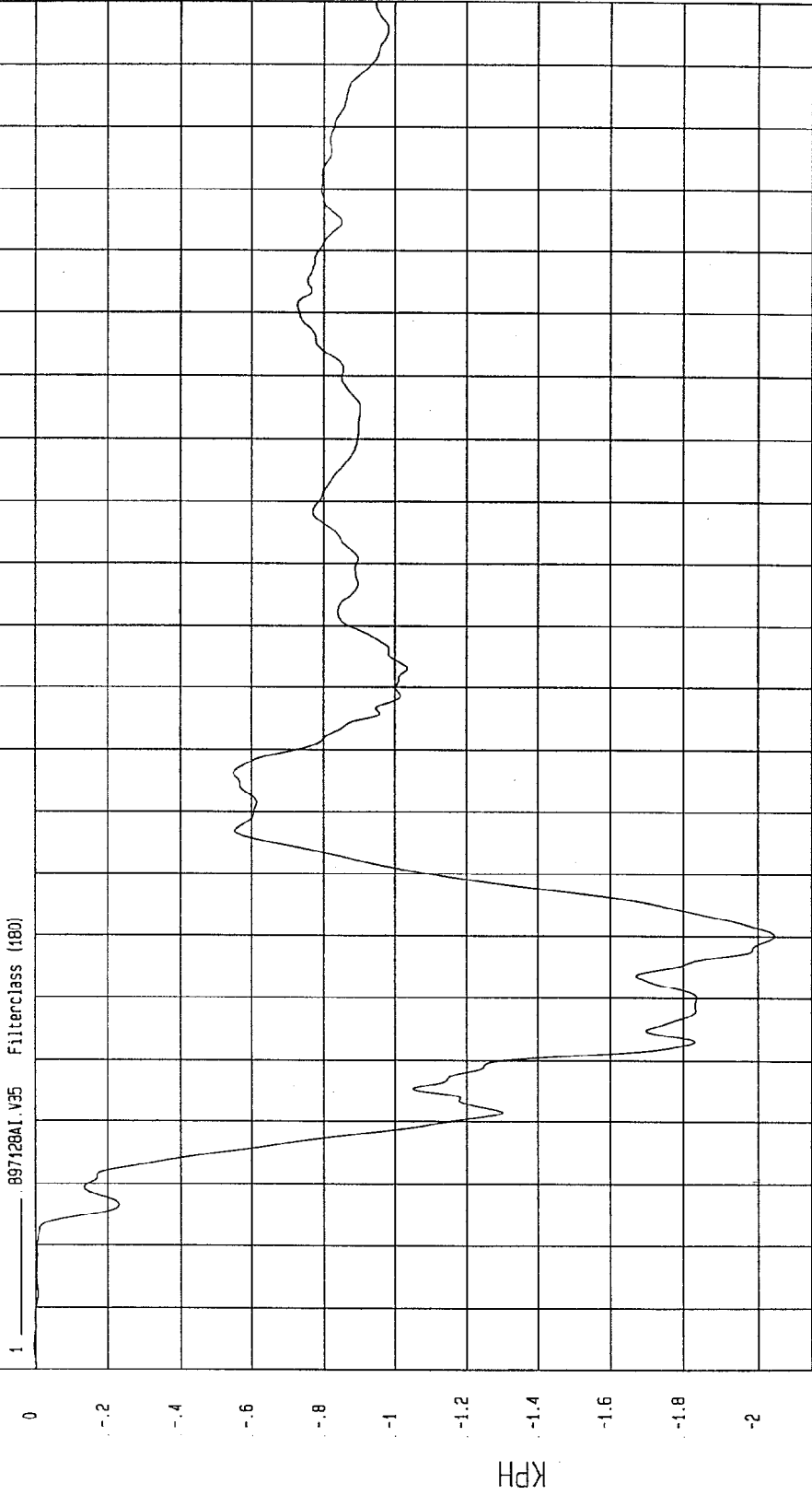
COMPONENT: 1998 MAZDA 626 (MW5401)

Maximum = 4.76E-03 KPH at -16 msec

Minimum = -2.04 KPH at 50 msec

RIGHT SIDE SILL AT REAR SEAT X VELOCITY

1 897128A1.V35 Filterclass (480)

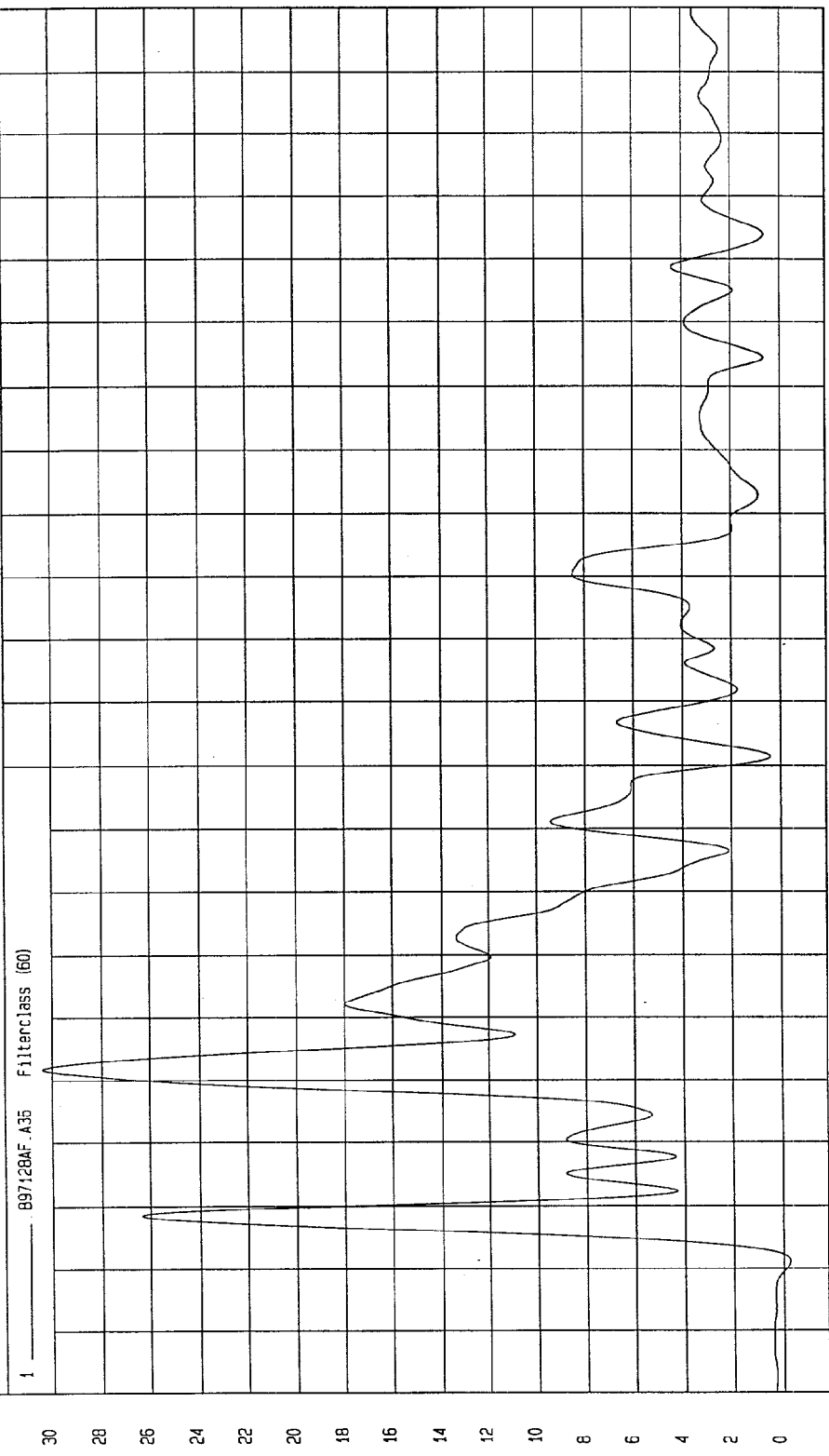


MCA Research  
12-03-1997 18:45

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -.28 G'S at 1 msec  
Maximum = 30.39 G'S at 32 msec

RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION



TIME (SECONDS)

MECA Research  
12-03-1997 18:37

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401)

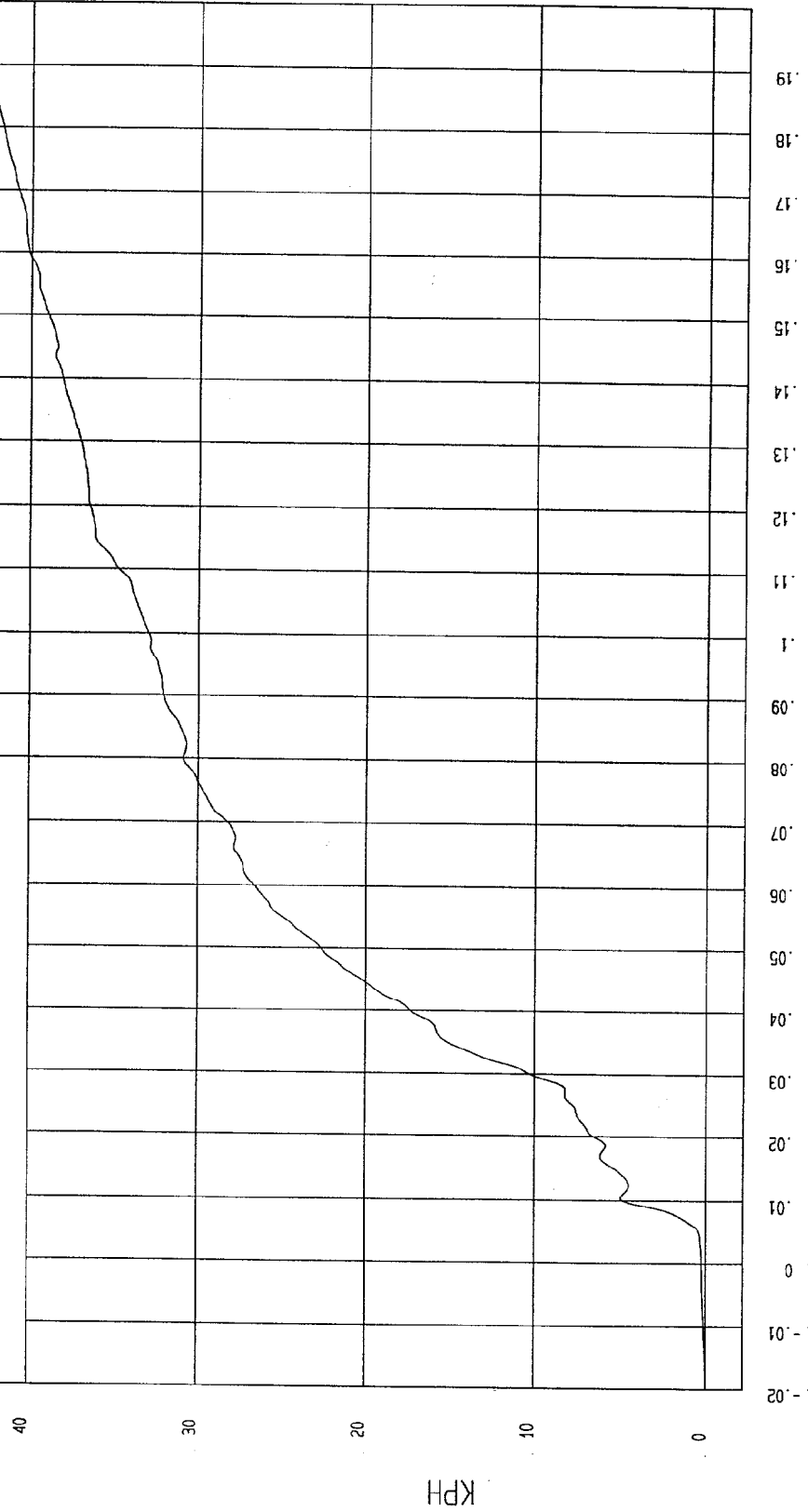
Speed: 38.2 MPH 61.5 KPH

Minimum = 0 KPH at -20 msec

Maximum = 43.81 KPH at 200 msec

RIGHT SIDE SILL AT REAR SEAT Y VELOCITY

1 ——— B97128AI.V36 Filterclass (180)

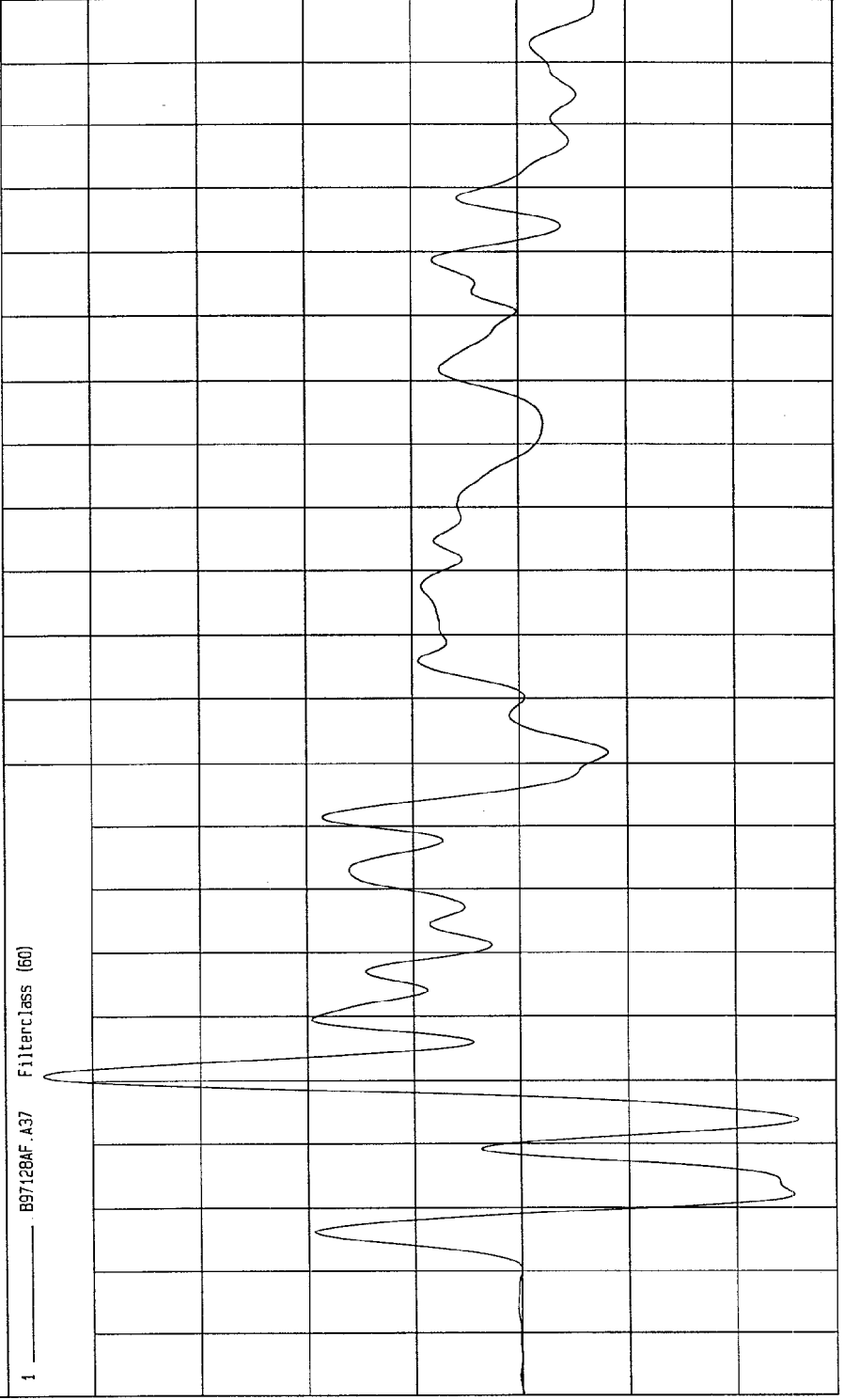


MGA Research  
12-05-1997 18.45

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -5.13 G'S at 24 msec Maximum = 8.91 G'S at 31 msec

RIGHT SIDE SILL AT REAR SEAT Z ACCELERATION



TIME (SECONDS)

MOA Research  
12-03-1997 16:37

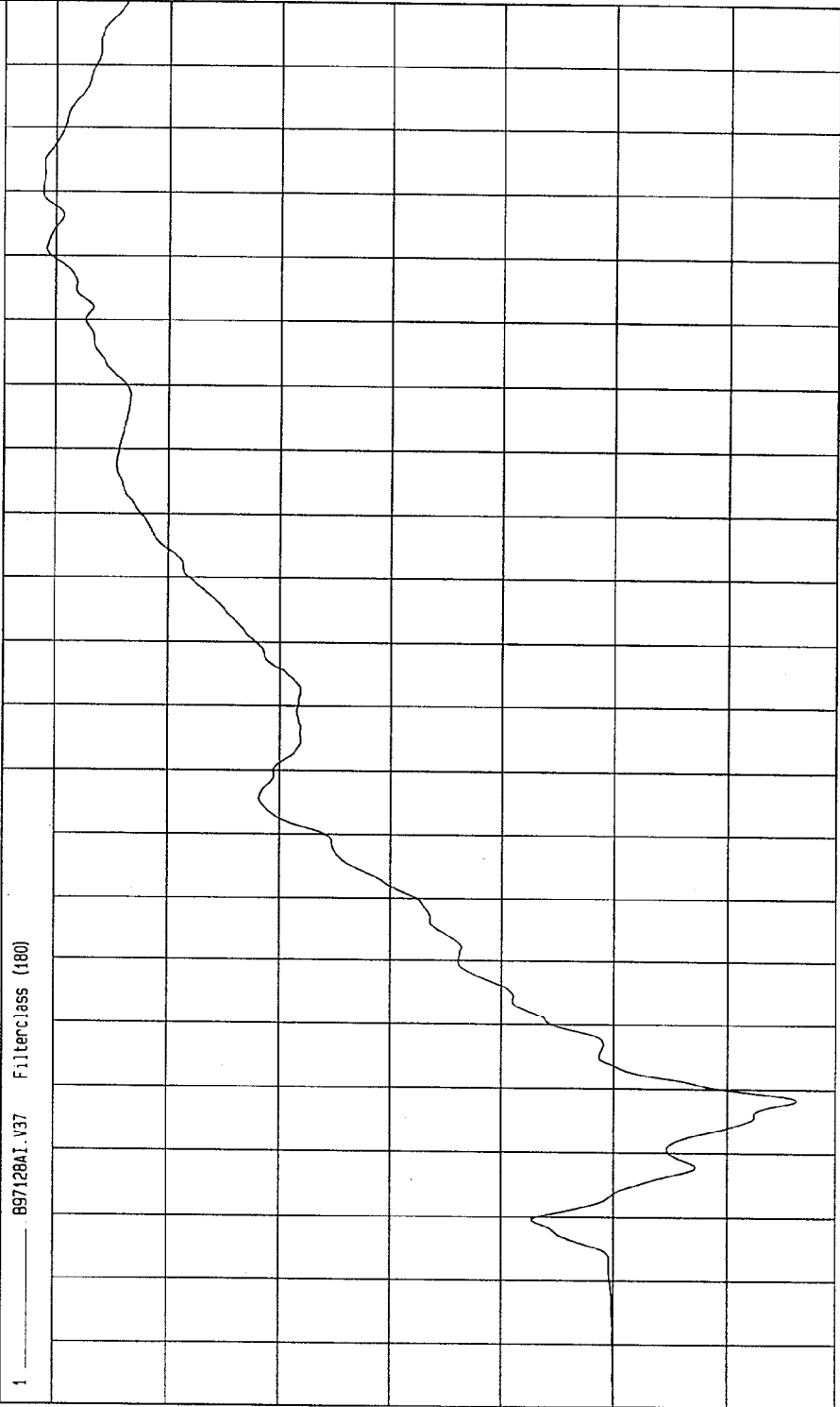
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -1.60 KPH at 28 msec  
Maximum = 5.11 KPH at 170 msec

FIGHT SIDE SILL AT REAR SEAT Z VELOCITY

1 897128A1.V37 Filterclass (180)



MSA Research  
12-03-1997 16:45

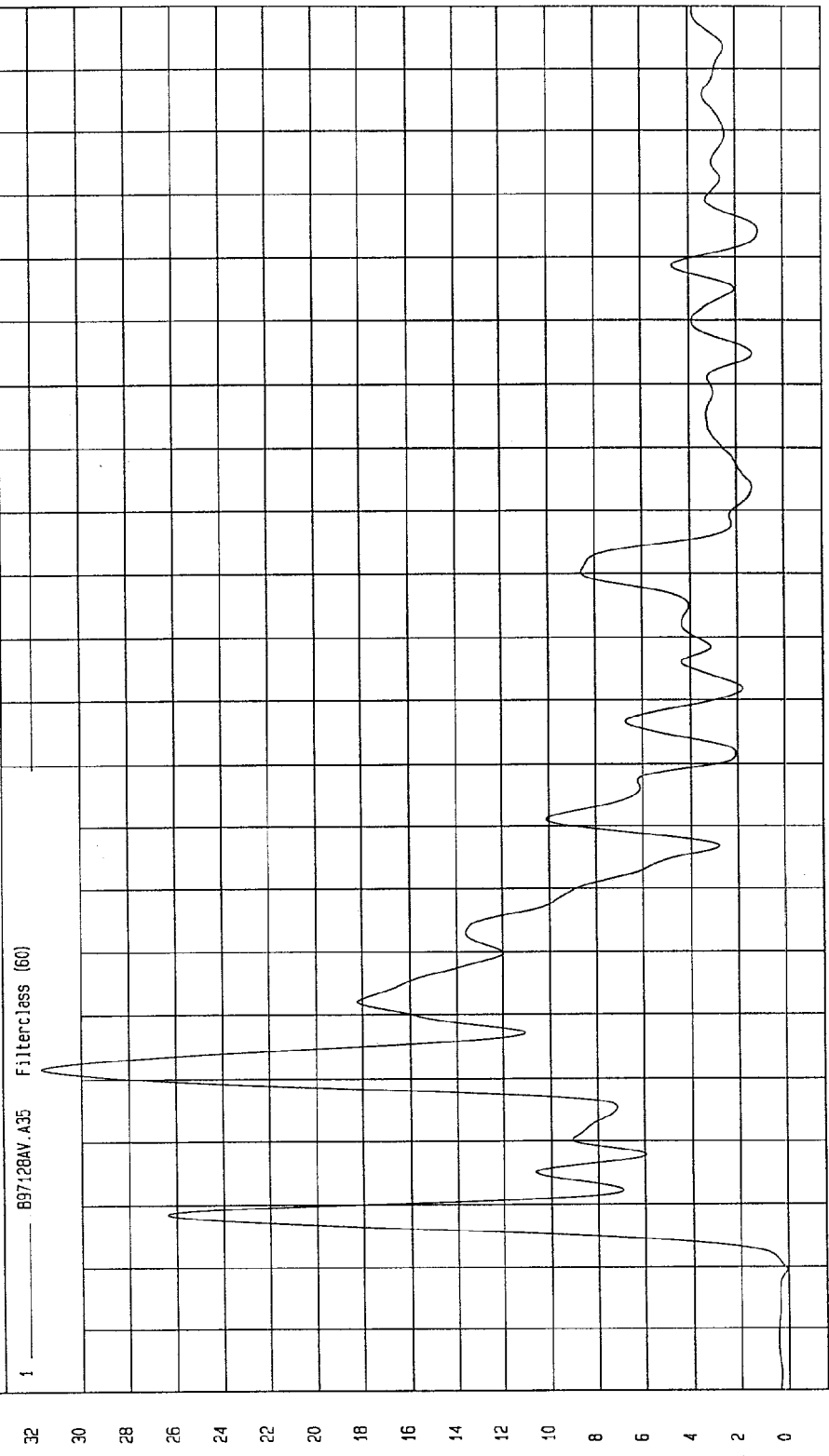
TIME Seconds

KPH

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = 1.25E-02 G'S at 0 msec Maximum = 31.68 G'S at 32 msec

RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION



NSA Research  
12-03-1997 18: 41

TIME (SECONDS)

G.S

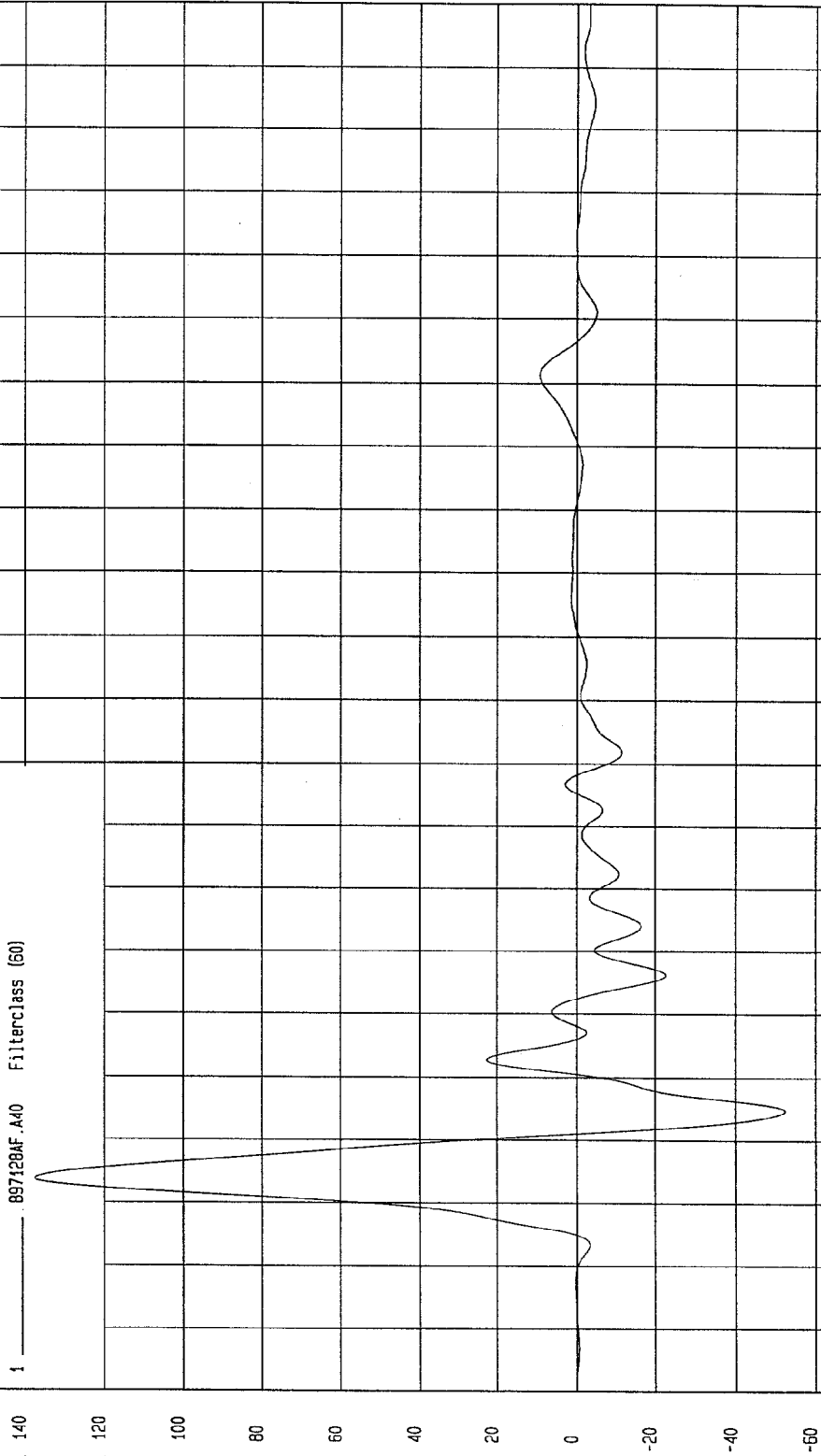
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -52.49 G'S at 25 msec Maximum = 137.42 G'S at 14 msec

LEFT FRONT SEAT TRACK Y ACCELERATION

1 897128AF.A40 Filterclass (50)



MCA Research  
12-03-1997 18.37

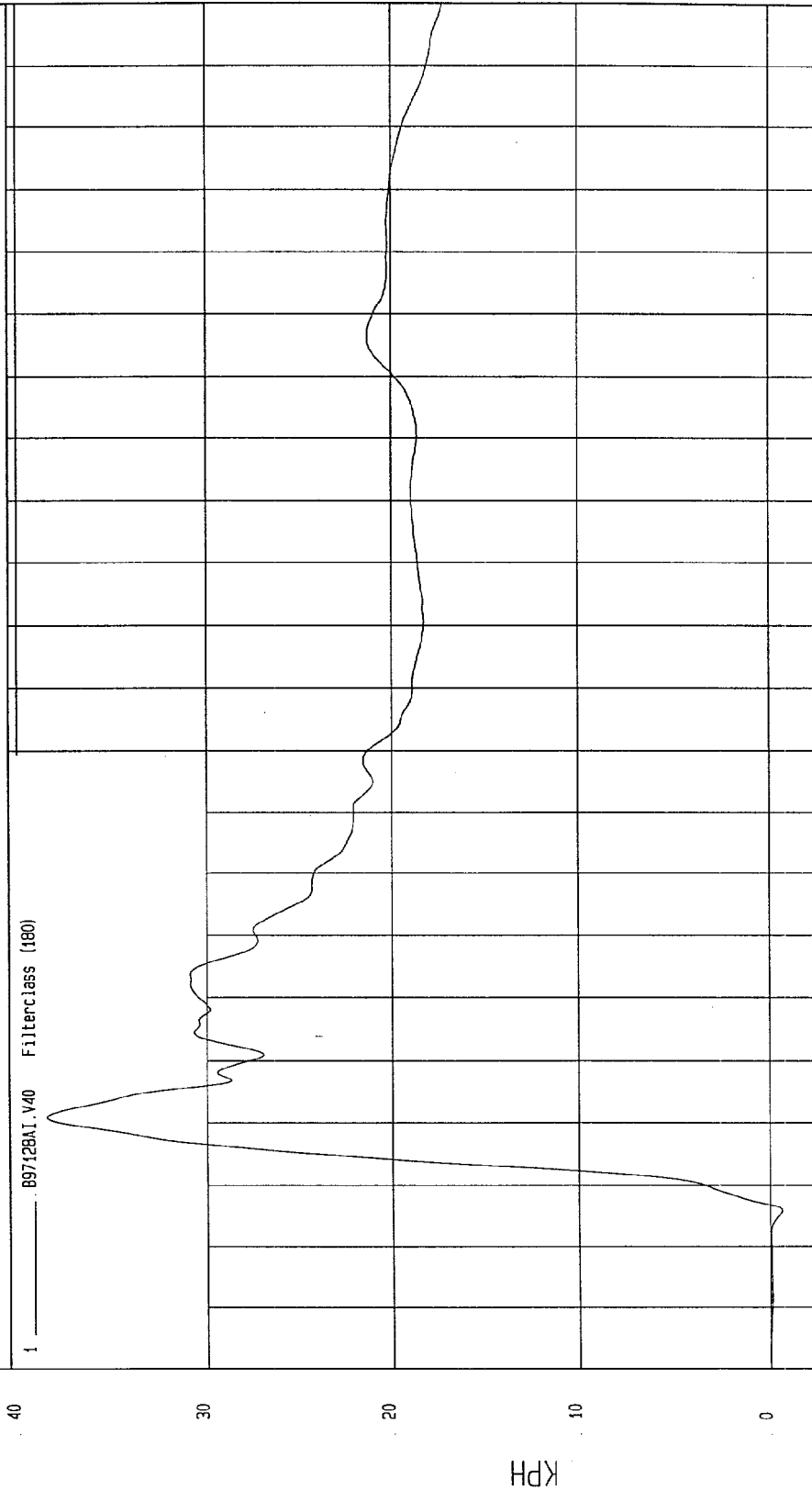
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -.65 KPH at 6 msec  
Maximum = 38.48 KPH at 21 msec

LEFT FRONT SEAT TRACK Y VELOCITY

1 \_\_\_\_\_ 897128AI.V40 Filterclass (180)



MCA Research  
12-03-1997 18.45

TIME Seconds

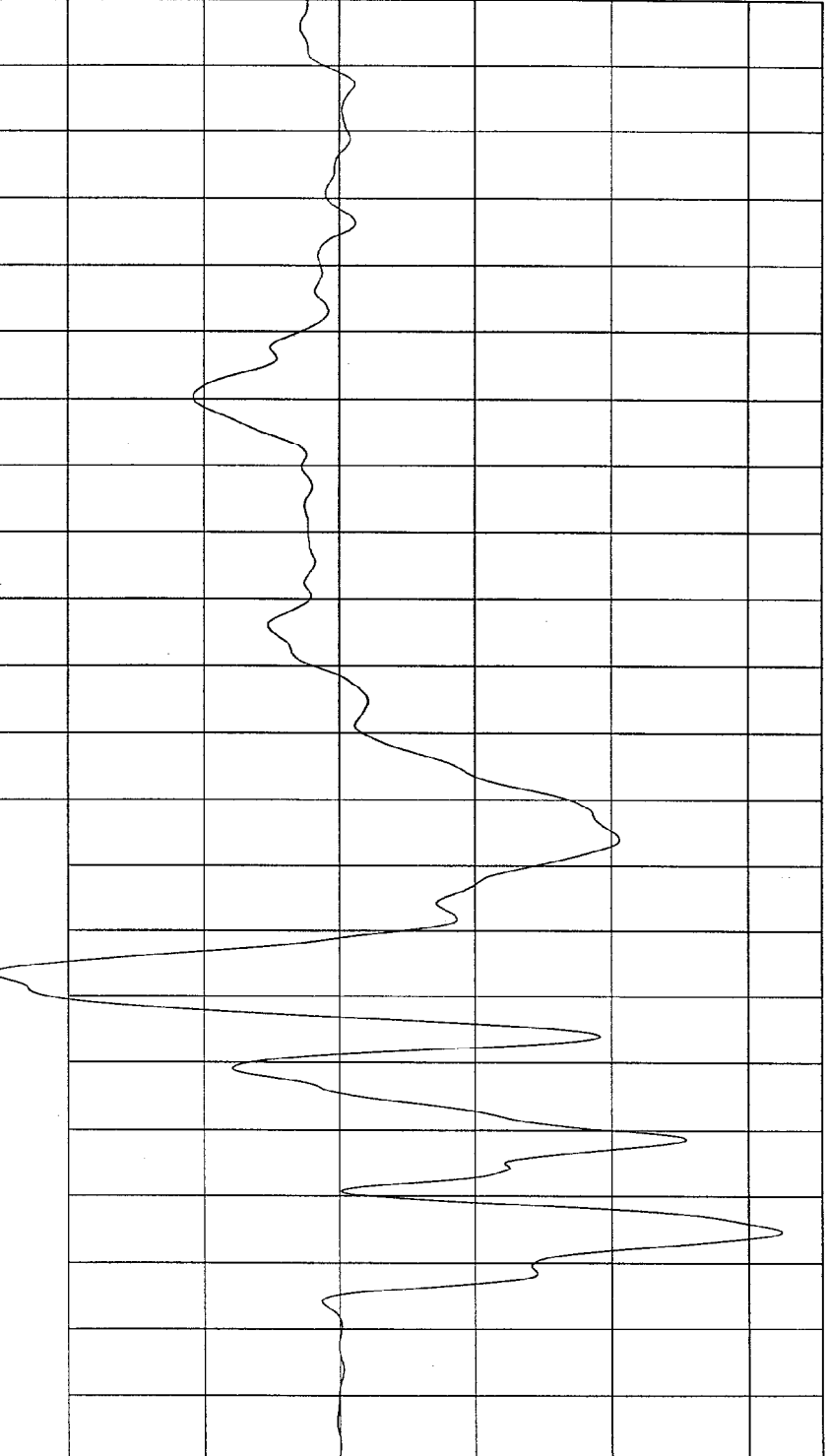
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -6.48 G'S at 15 msec Maximum = 5.10 G'S at 53 msec

REAR FLOORPAN ABOVE AXLE X ACCELERATION

1 ——— B97128AF.A08 Filterclass (60)

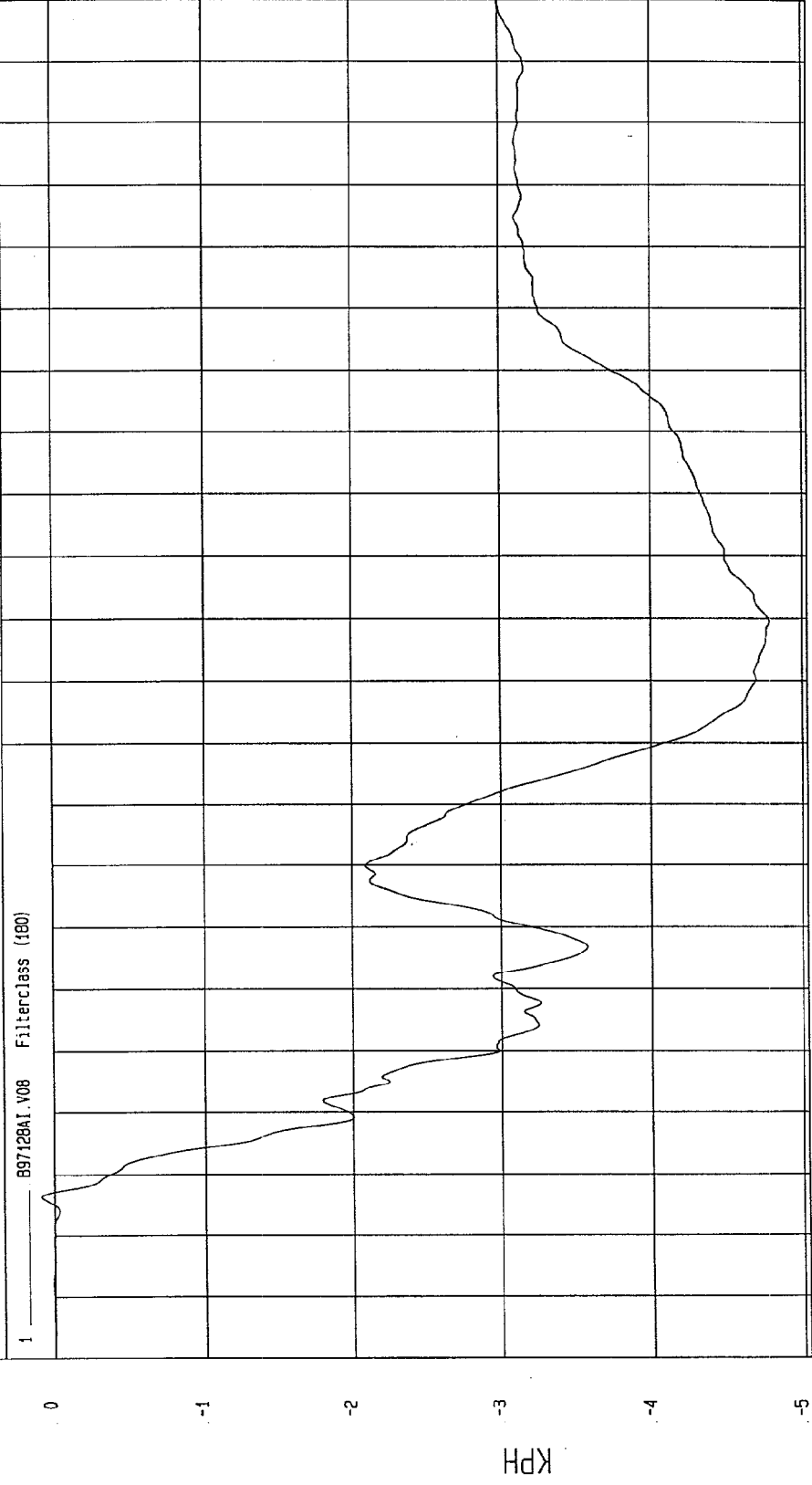


TIME (SECONDS) MGA Research 12-03-1997 18:37

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -4.78 KPH at 100 msec Maximum = 8.59E-02 KPH at 6 msec

REAR FLOORPAN ABOVE AXLE X VELOCITY



TIME Seconds  
MOA Research  
12-03-1997 18.45

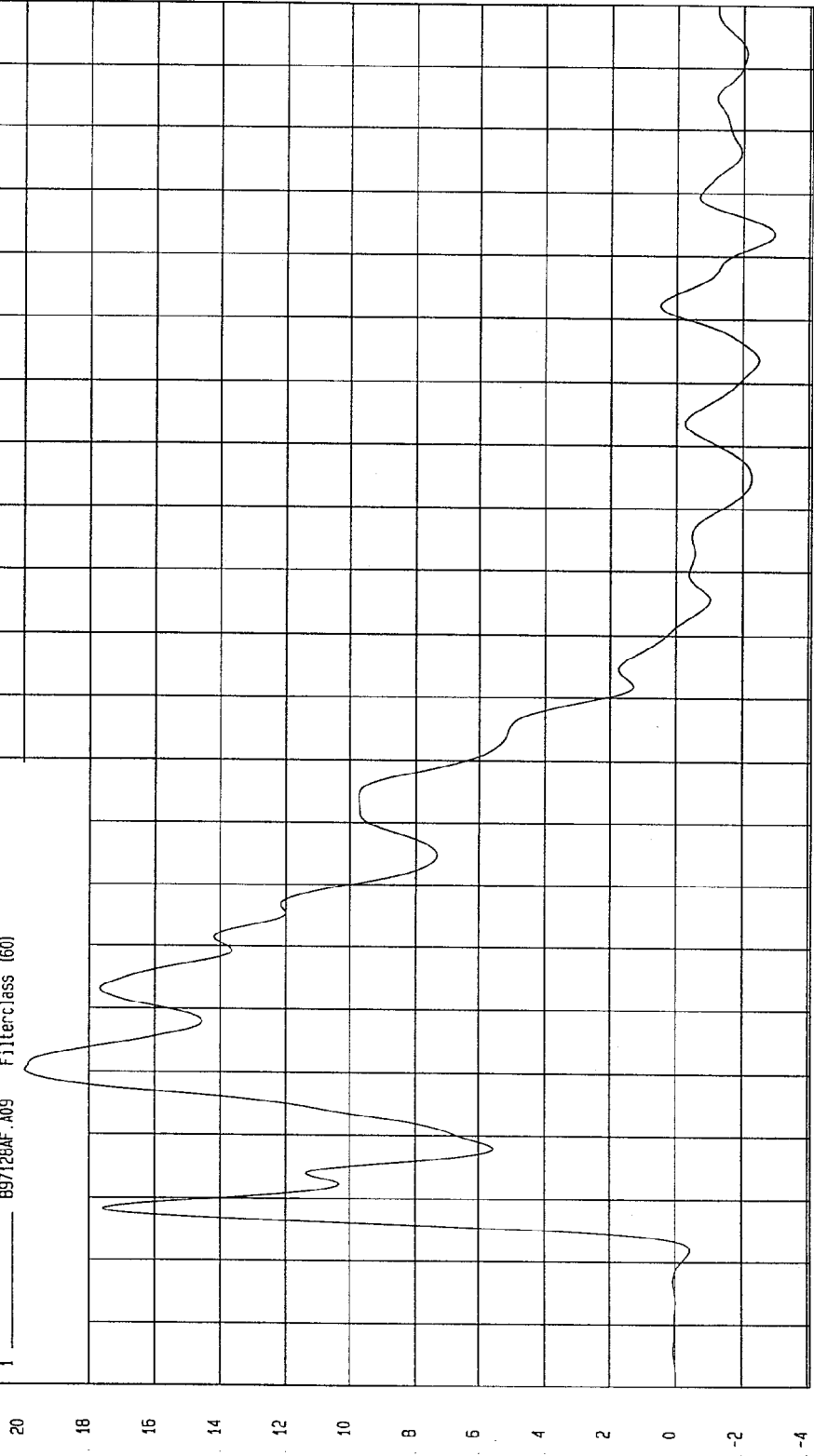
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -2.94 G'S at 164 msec

REAR FLOORPAN ABOVE AXLE Y ACCELERATION

1 897128AF.A09 Filterclass (60)



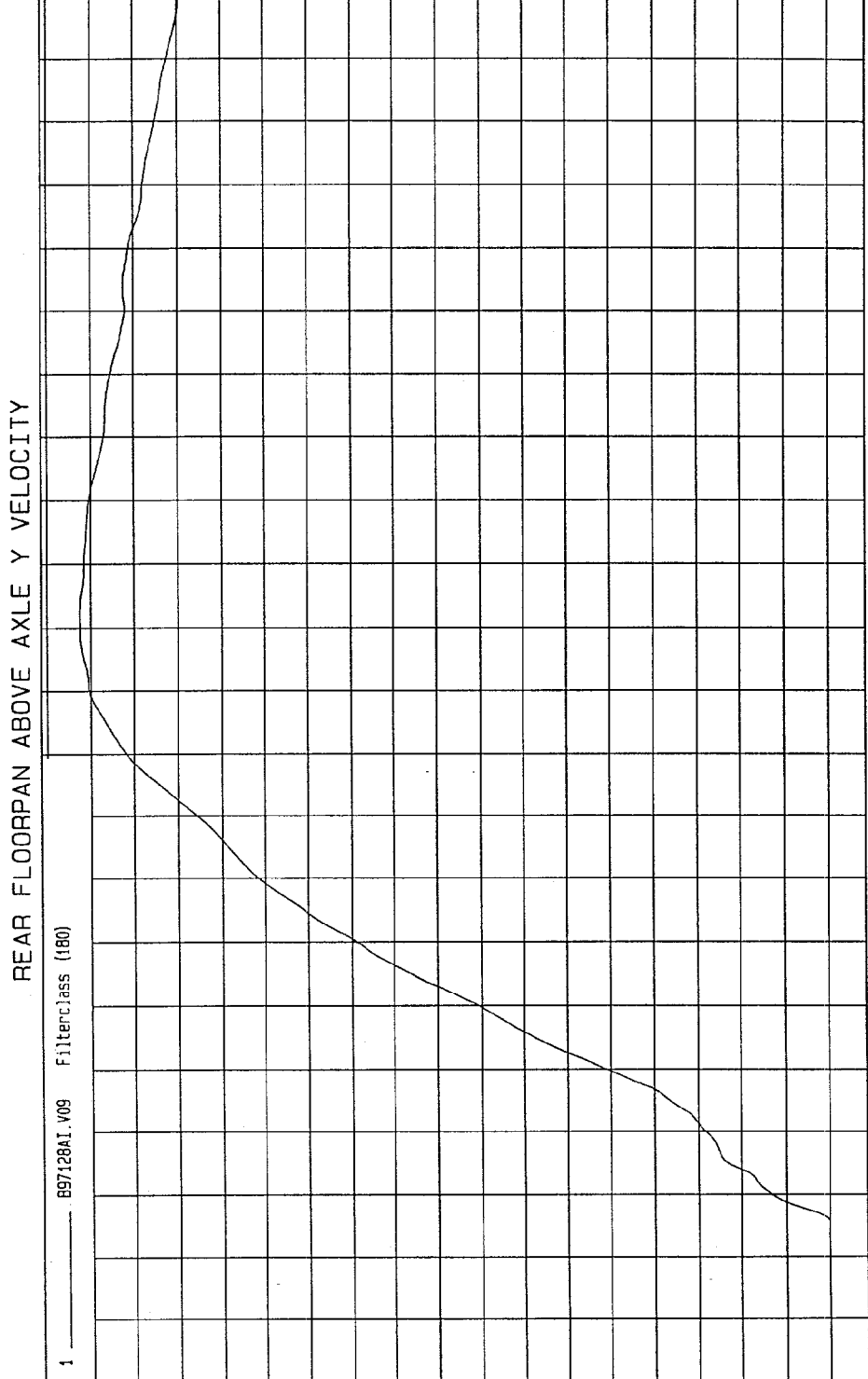
NSA Research  
12-03-1997 18: 37

TIME (SECONDS)

G.S

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
 COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -4.09E-03 KPH at -16 msec  
 Maximum = 34.52 KPH at 102 msec



1 897128A1.V09 Filterclass (180)

TIME Seconds

MCA Research  
12-03-1997 18:45

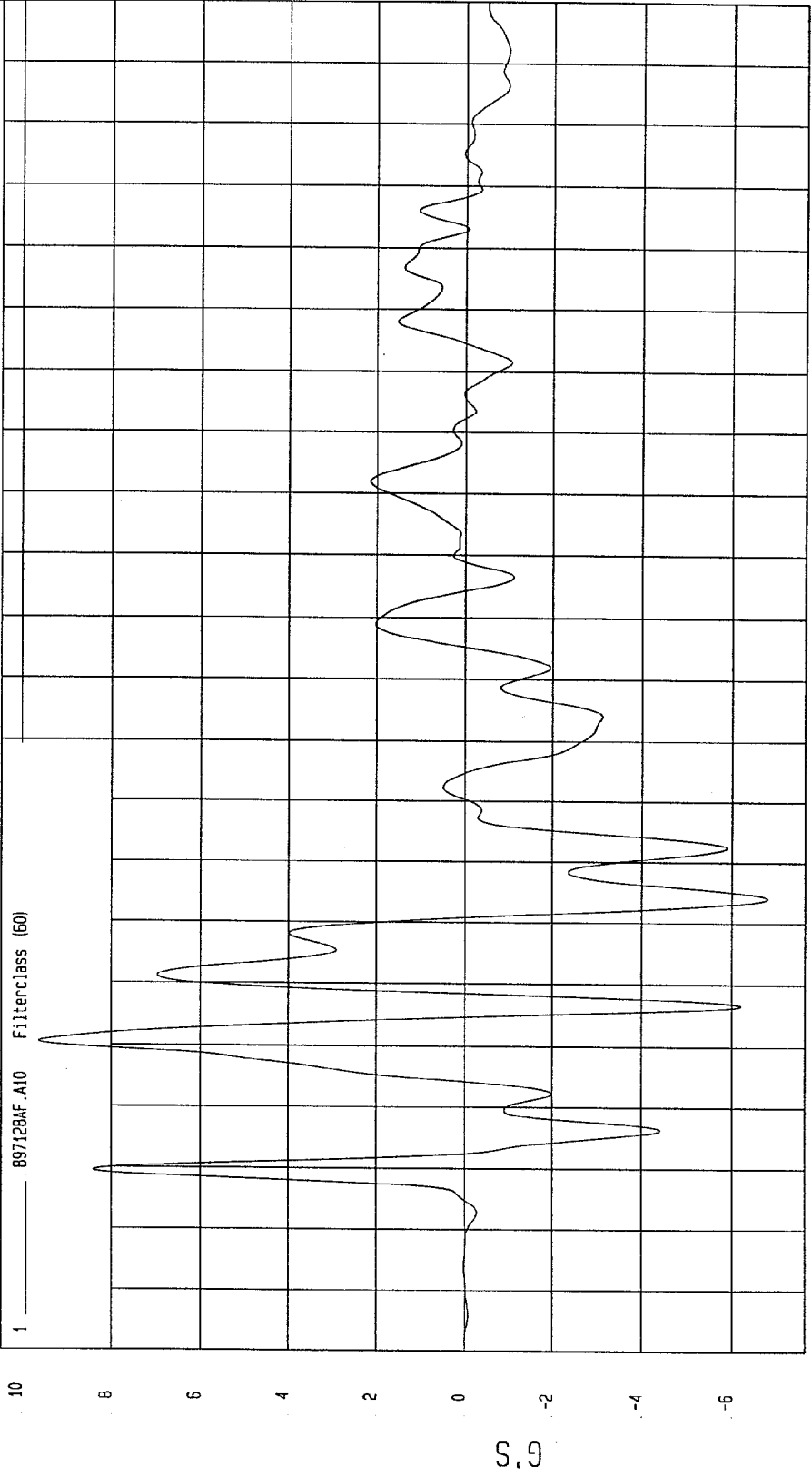
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -6.80 G'S at 54 msec  
Maximum = 9.63 G'S at 31 msec

REAR FLOORPAN ABOVE AXLE Z ACCELERATION

1 897128AF.A10 Filterclass (60)



MCA Research  
12-03-1997 18.38

TIME (SECONDS)

TEST DATE: 11-06-1997

TEST: HIGH SPEED LATERAL IMPACT

Speed: 38.2 MPH 61.5 KPH

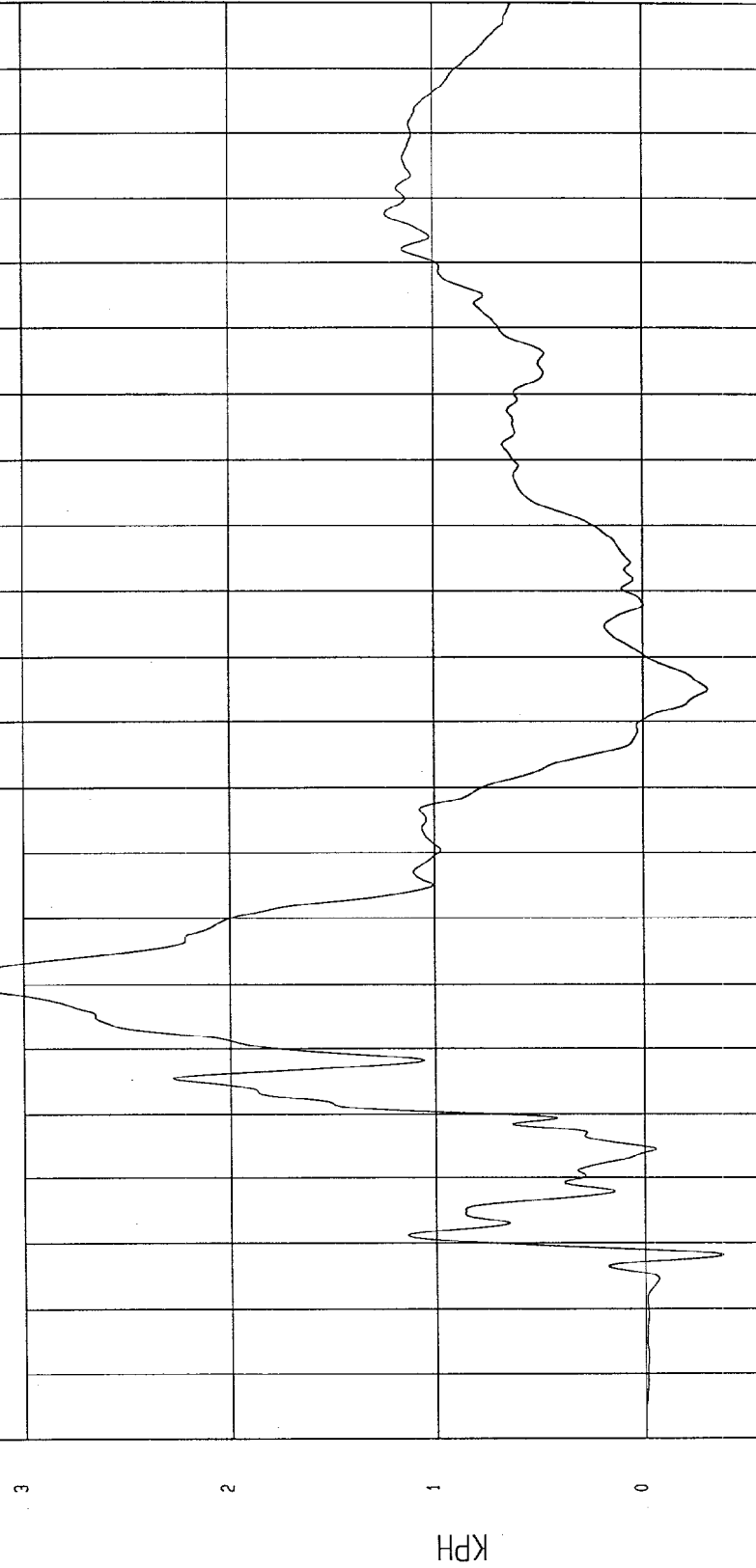
COMPONENT: 1998 MAZDA 626 (MW5401)

Maximum = 3.36 KPH at 51 msec

Minimum = -.37 KPH at 8 msec

REAR FLOORPAN ABOVE AXLE Z VELOCITY

1 \_\_\_\_\_ 897128A1.V10 Filterclass (180)



MSA Research  
12-03-1997 18:45

TIME Seconds

KPH

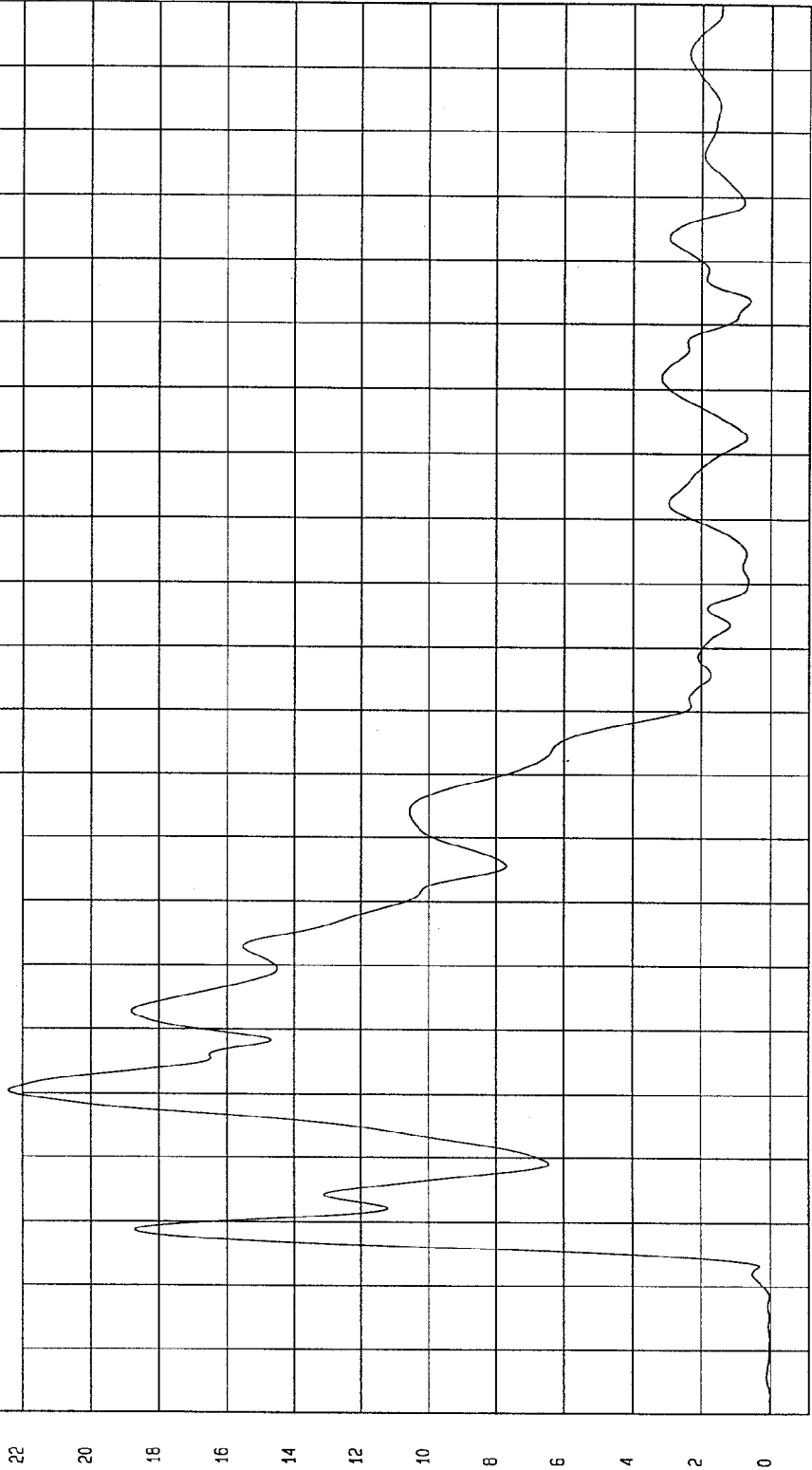
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = 1.22E-02 G'S at -17 msec  
Maximum = 22.40 G'S at 30 msec

REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

1 ——— .897128AV.A08 Filterclass (50)



MGA Research  
12-03-1997 18.41

TEST DATE: 11-06-1997

TEST: HIGH SPEED LATERAL IMPACT

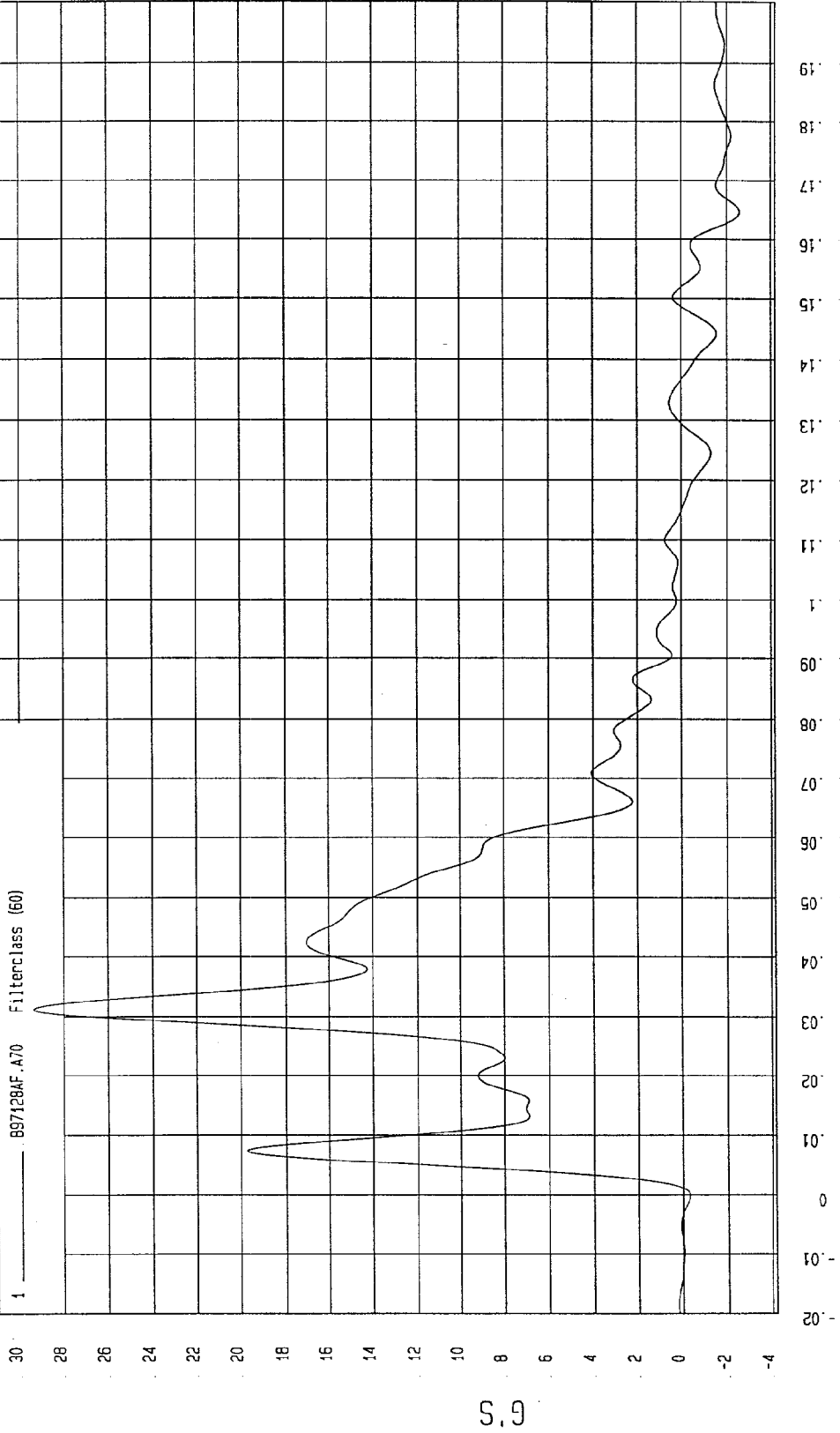
Speed: 38.2 MPH 61.5 KPH

COMPONENT: 1998 MAZDA 626 (MW5401)

Maximum = 29.38 G'S at 31 msec

Minimum = -2.58 G'S at 165 msec

RIGHT REAR OCCUPANT COMPARTMENT Y ACCELERATION



NSA Research  
12-03-1997 18:38

TIME (SECONDS)

G.S

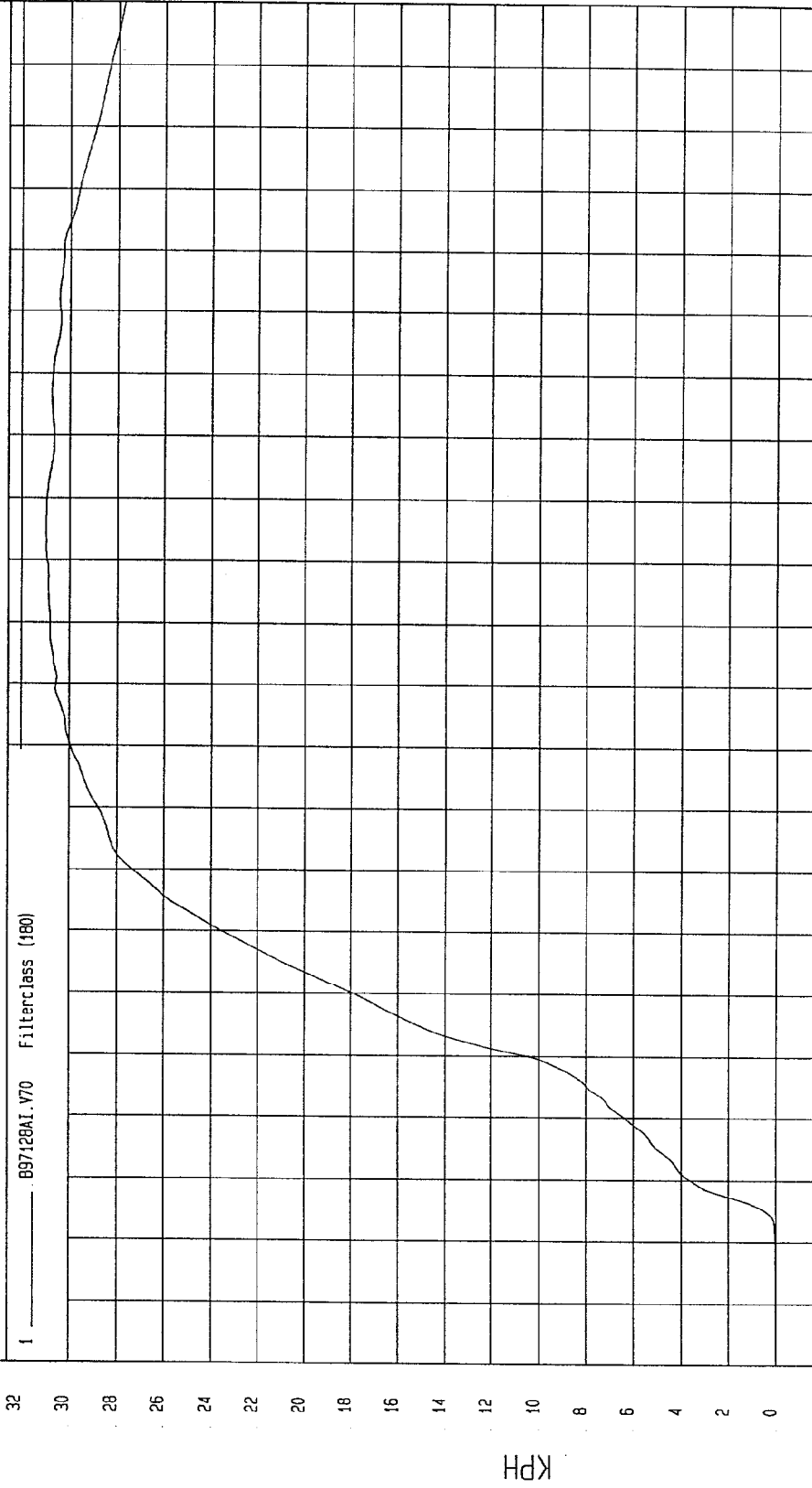
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = 0 KPH at -20 msec Maximum = 30.98 KPH at 115 msec

RIGHT REAR OCCUPANT COMPARTMENT Y VELOCITY

1 897128A1.V70 Filterclass (180)



NSA Research  
12-03-1997 18:46

TIME Seconds

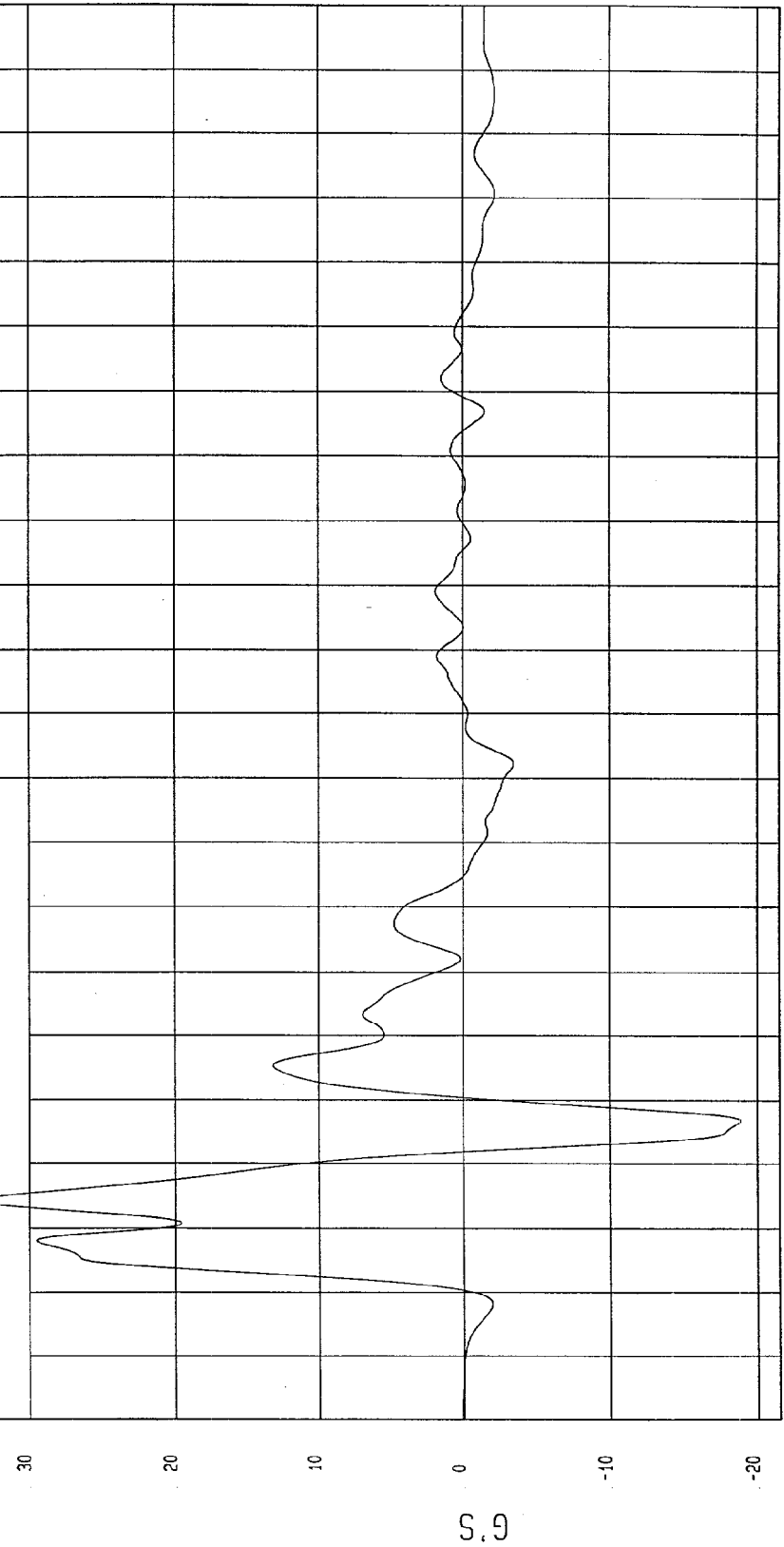
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -18.85 G'S at 27 msec  
Maximum = 33.36 G'S at 14 msec

LEFT LOWER A-POST Y ACCELERATION

1 ——— B97128AF.A20 FilterClass (60)



MGA Research  
12-03-1997 18:38

TIME (SECONDS)

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401)

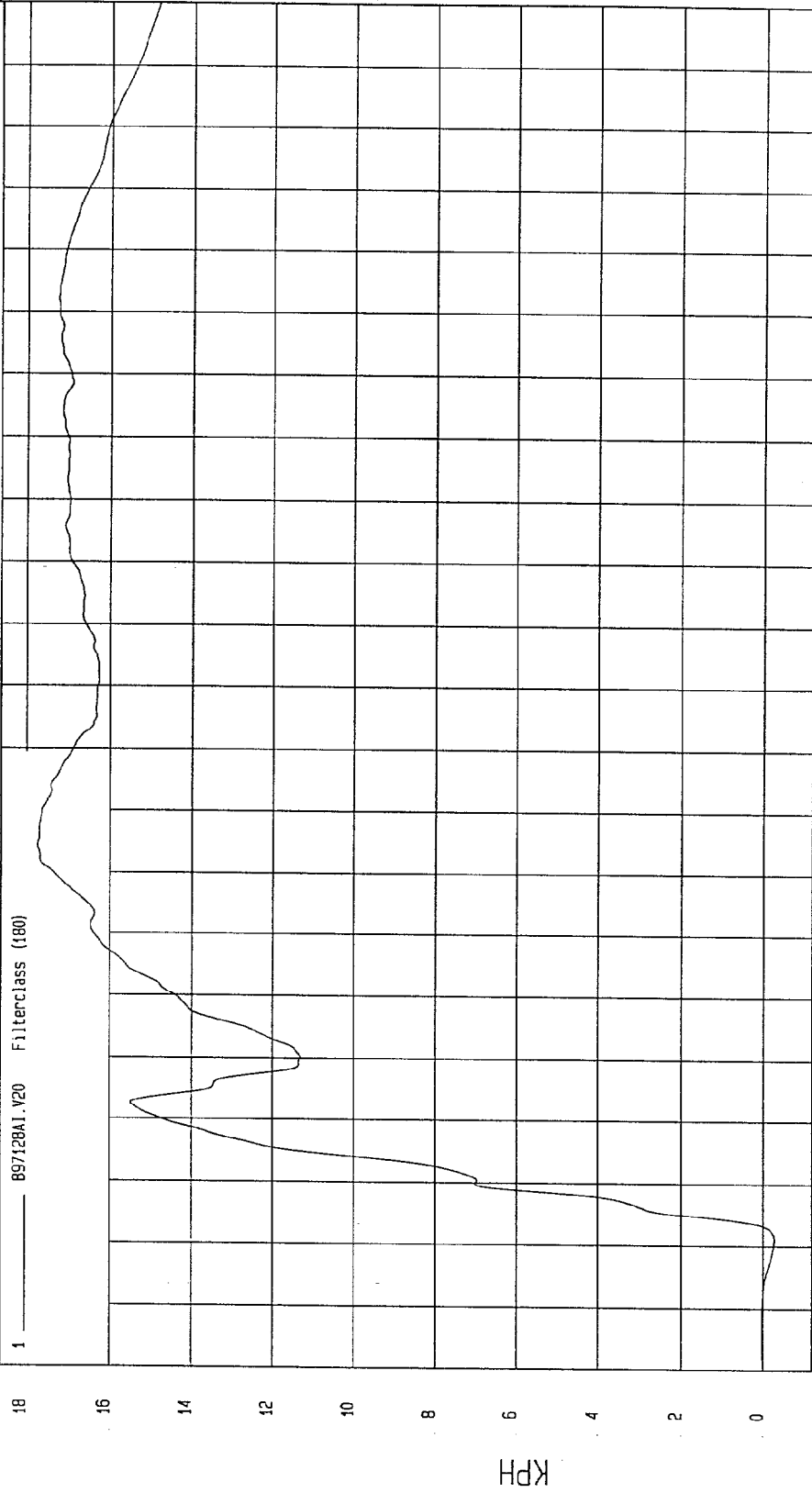
Speed: 38.2 MPH 61.5 KPH

Minimum = -27 KPH at 1 msec

Maximum = 17.73 KPH at 64 msec

LEFT LOWER A-POST Y VELOCITY

1 ——— 897128A1.V20 Filterclass (180)



MCA Research  
12-03-1997 18:46

TIME Seconds

KPH

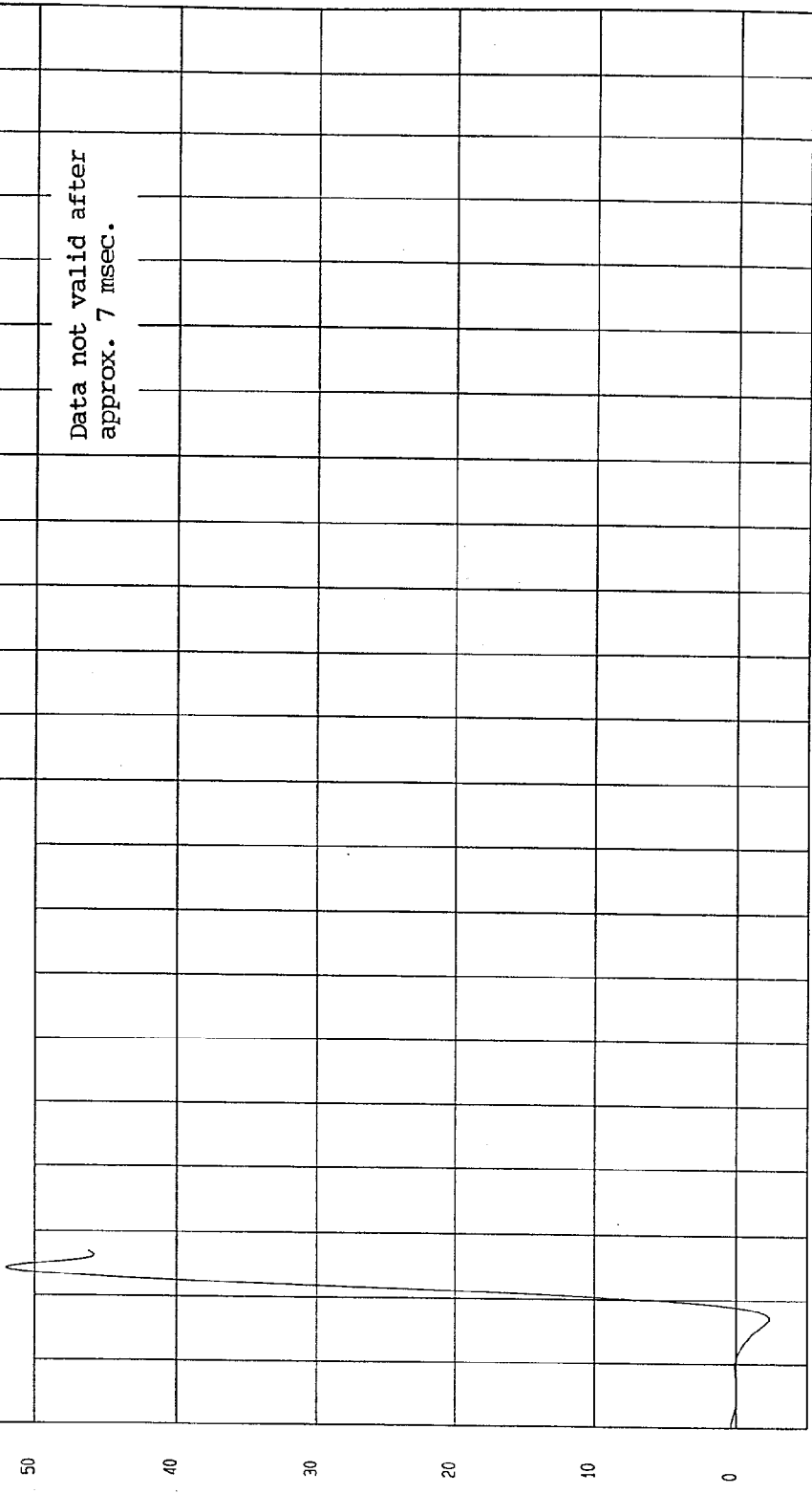
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -2.34 G'S at -3 msec  
Maximum = 52.01 G'S at 4 msec

LEFT MID A-POST Y ACCELERATION

1 89728AF.A19 Filterclass (50)



Data not valid after approx. 7 msec.

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-06-1997

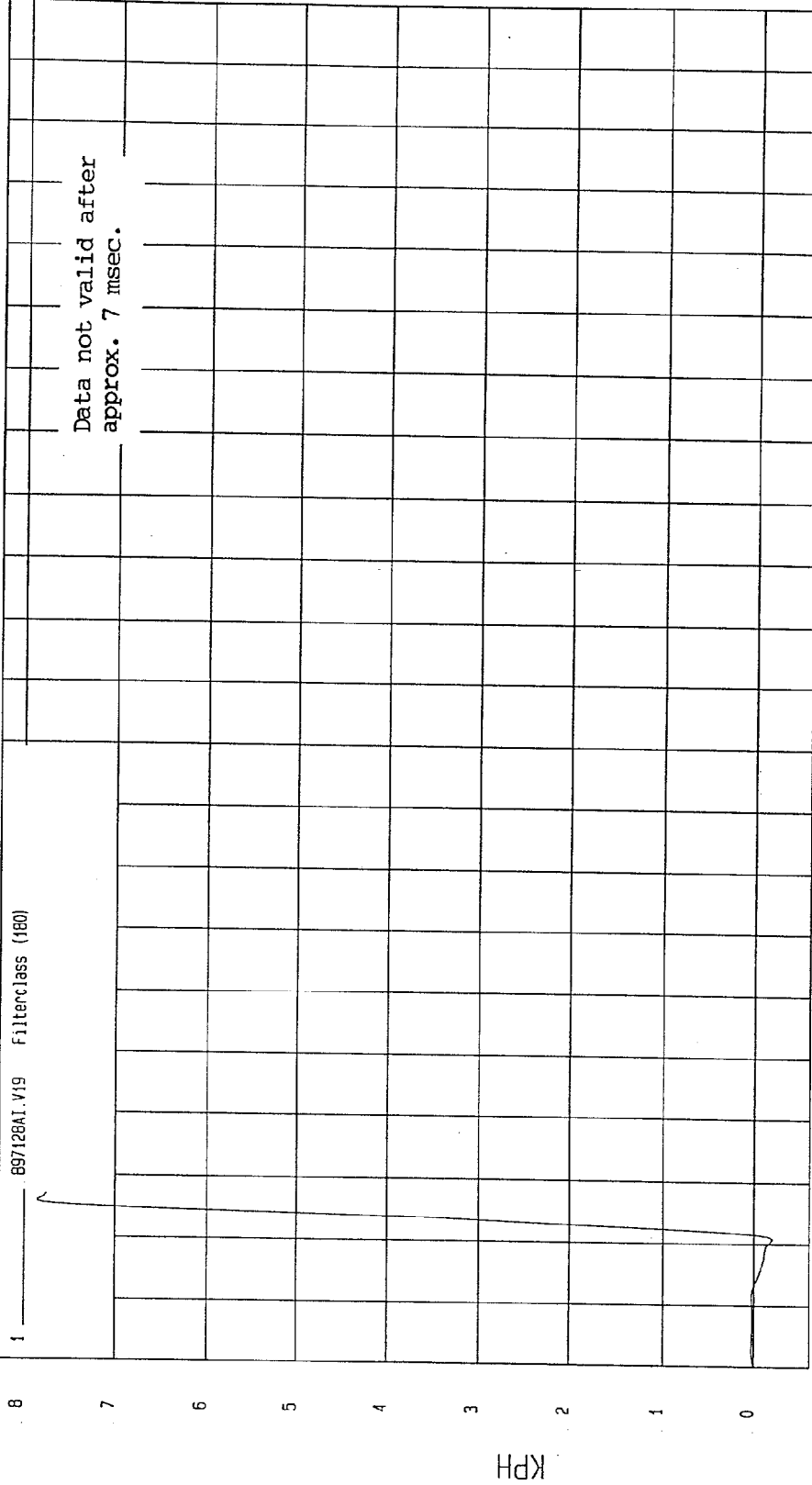
COMPONENT: 1998 MAZDA 626 (MW5401)

Speed: 38.2 MPH 61.5 KPH

Minimum = -.19 KPH at 1 msec

Maximum = 7.85 KPH at 6 msec

LEFT MID A-POST Y VELOCITY



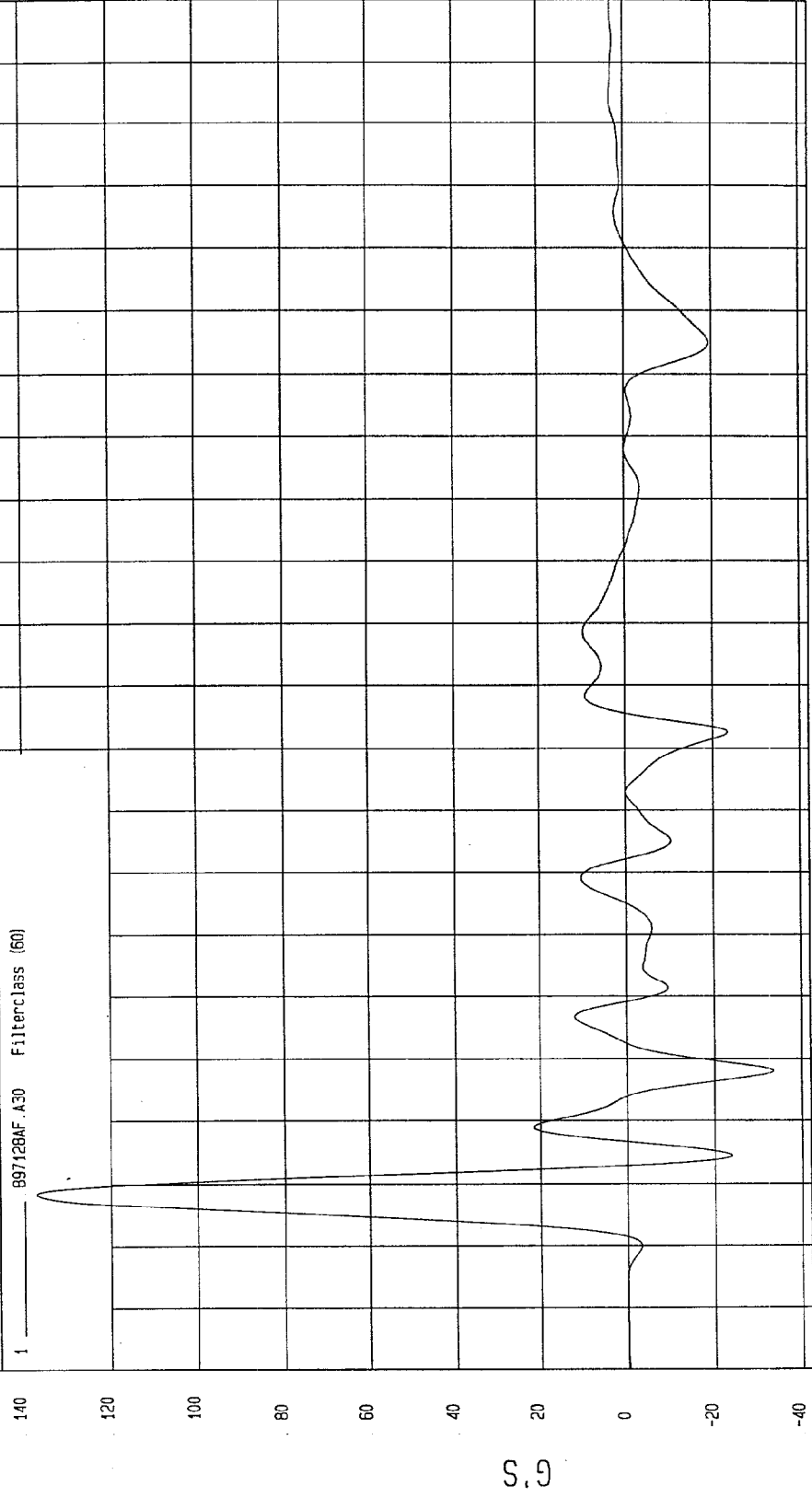
MCA Research  
12-03-1997 18:53

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -33.53 G'S at 28 msec Maximum = 136.88 G'S at 8 msec

LEFT LOWER B-POST Y ACCELERATION



TIME (SECONDS)

MGA Research  
12-03-1997 18:38

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-06-1997

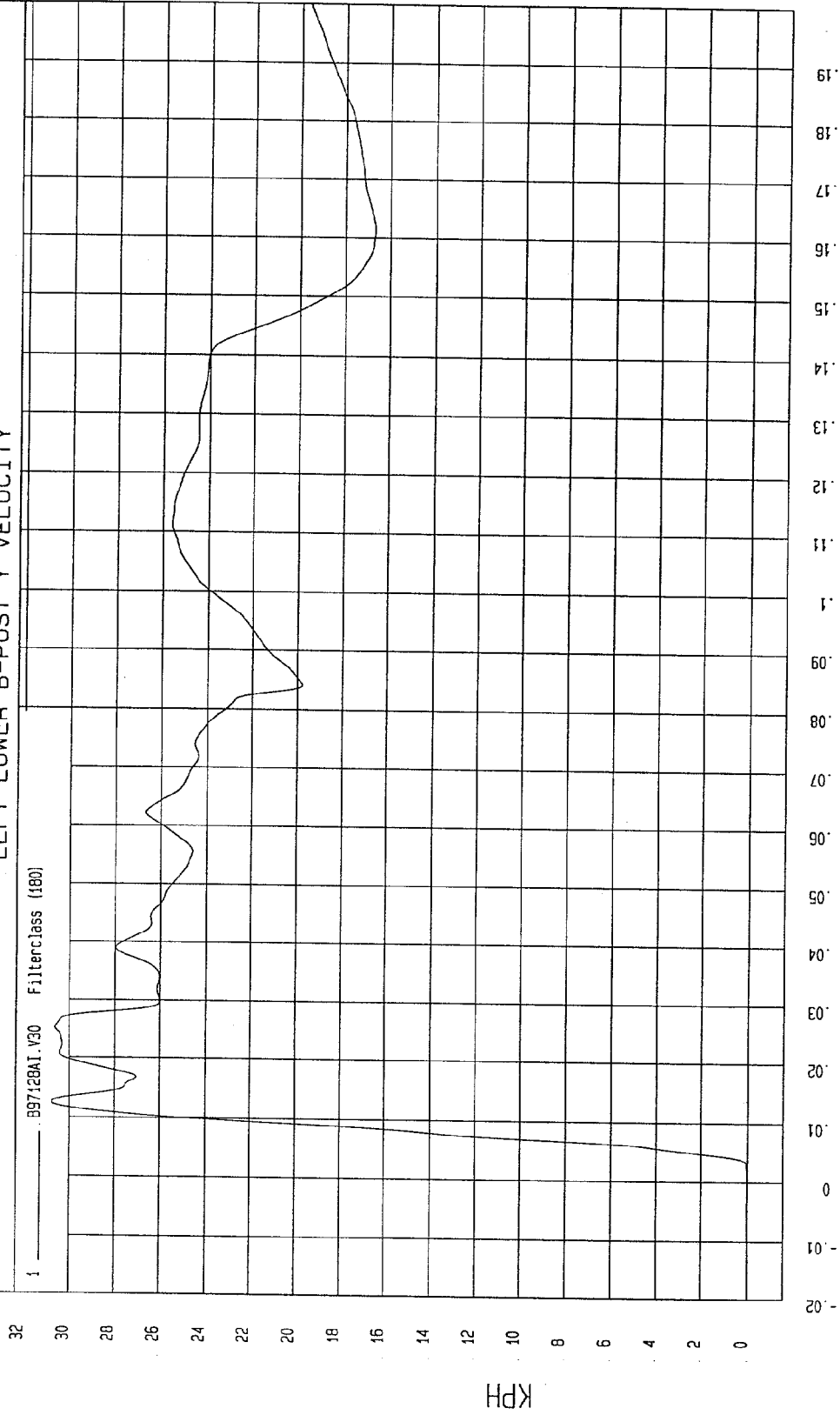
COMPONENT: 1998 MAZDA 626 (MW5401)

Speed: 38.2 MPH 61.5 KPH

Minimum = -1.35E-02 KPH at -14 msec

Maximum = 30.78 KPH at 12 msec

LEFT LOWER B-POST Y VELOCITY

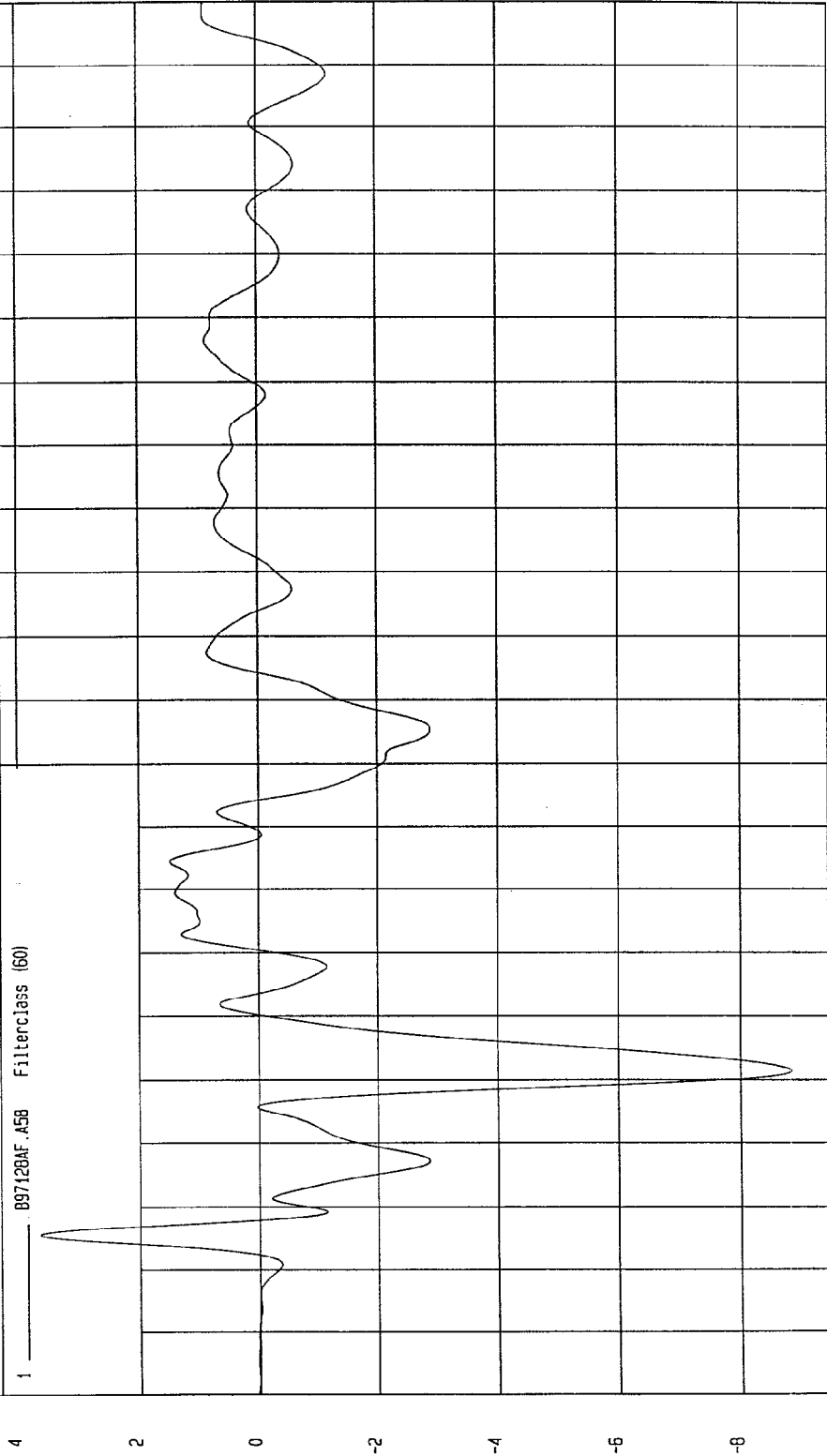


WGA Research  
12-03-1997 18:46

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -8.83 G'S at 31 msec Maximum = 3.65 G'S at 6 msec

VEHICLE CG X ACCELERATION



TIME (SECONDS)

MCA Research Co.  
12-03-1997 18:38

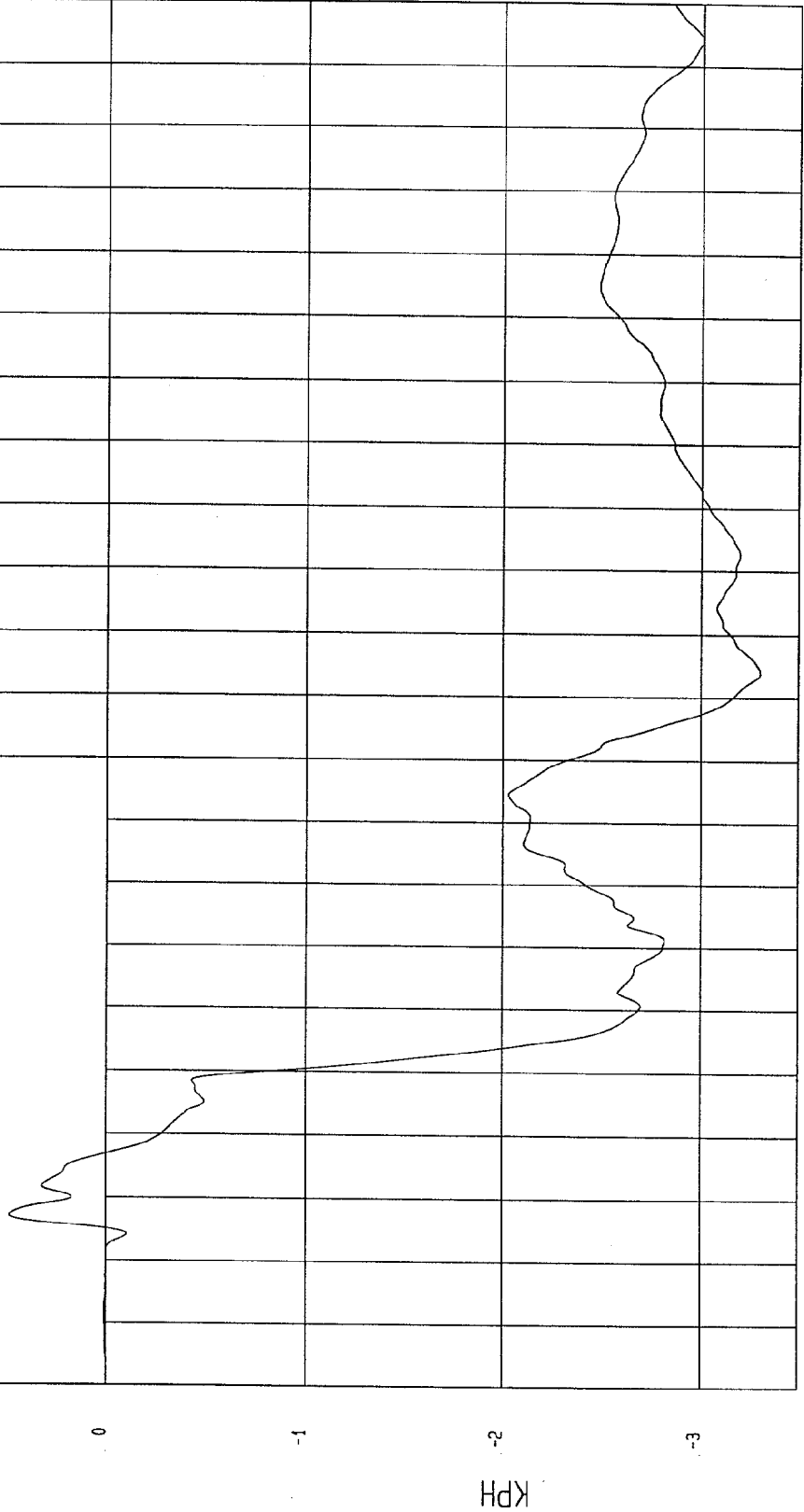
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -3.29 KPH at 94 msec  
Maximum = .48 KPH at 7 msec

VEHICLE CG X VELOCITY

1 897128A1.V58 Filterclass (180)



MOA Research  
12-03-1997 18:46

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -3.49 G'S at 82 msec  
Maximum = 31.47 G'S at 24 msec

VEHICLE CG Y ACCELERATION

1 897128AF.A59 Filterclass (50)

Data not valid after  
approx. 115 msec.

32  
30  
28  
26  
24  
22  
20  
18  
16  
14  
12  
10  
8  
6  
4  
2  
0  
-2  
-4

G.S

-0.02  
-0.01  
0  
0.01  
0.02  
0.03  
0.04  
0.05  
0.06  
0.07  
0.08  
0.09  
0.1  
0.11  
0.12  
0.13  
0.14  
0.15  
0.16  
0.17  
0.18  
0.19

TIME (SECONDS)

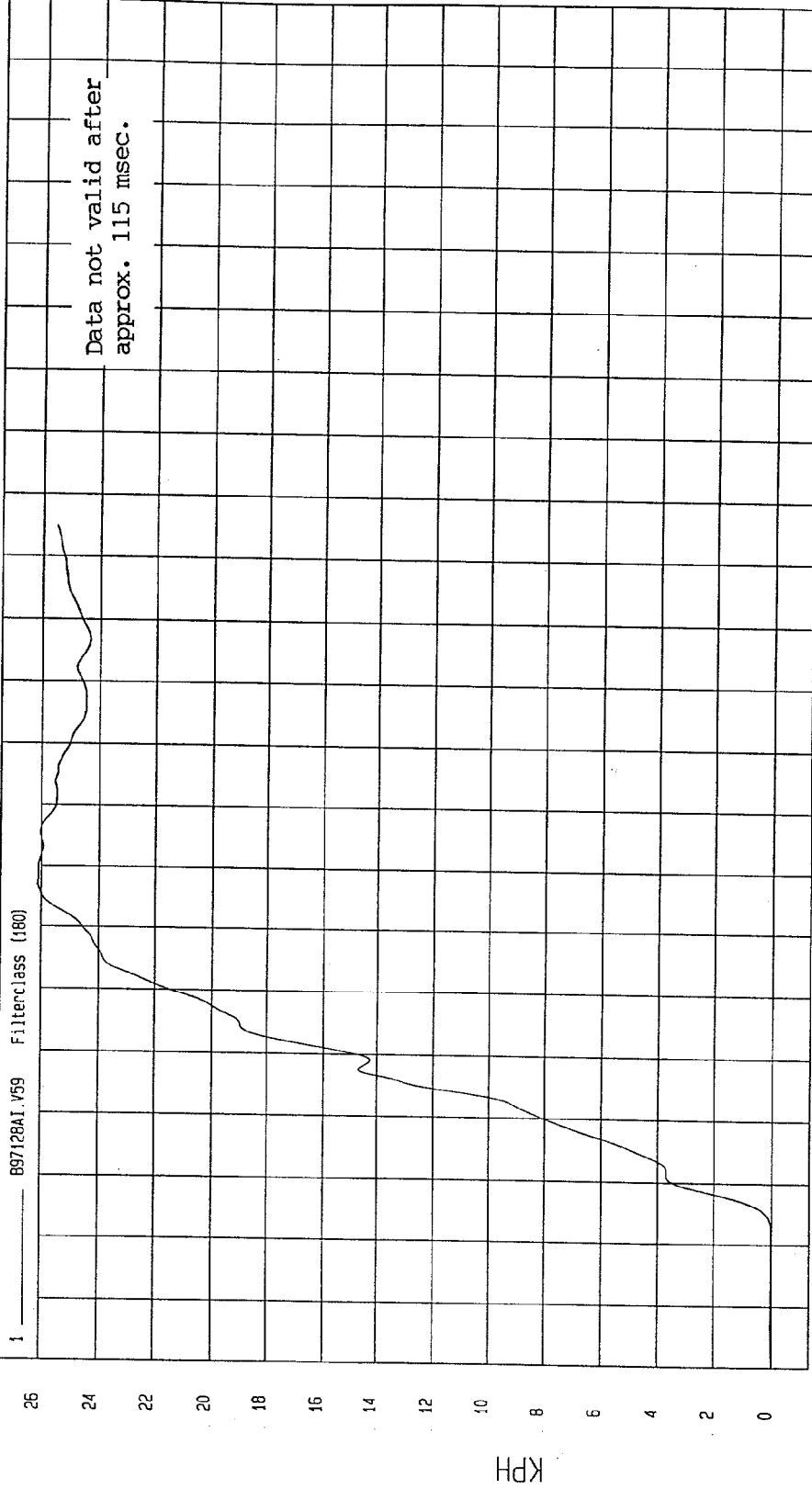
MEA Research  
12-03-1997 18:59

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = 0 KPH at -20 msec Maximum = 26.12 KPH at 57 msec

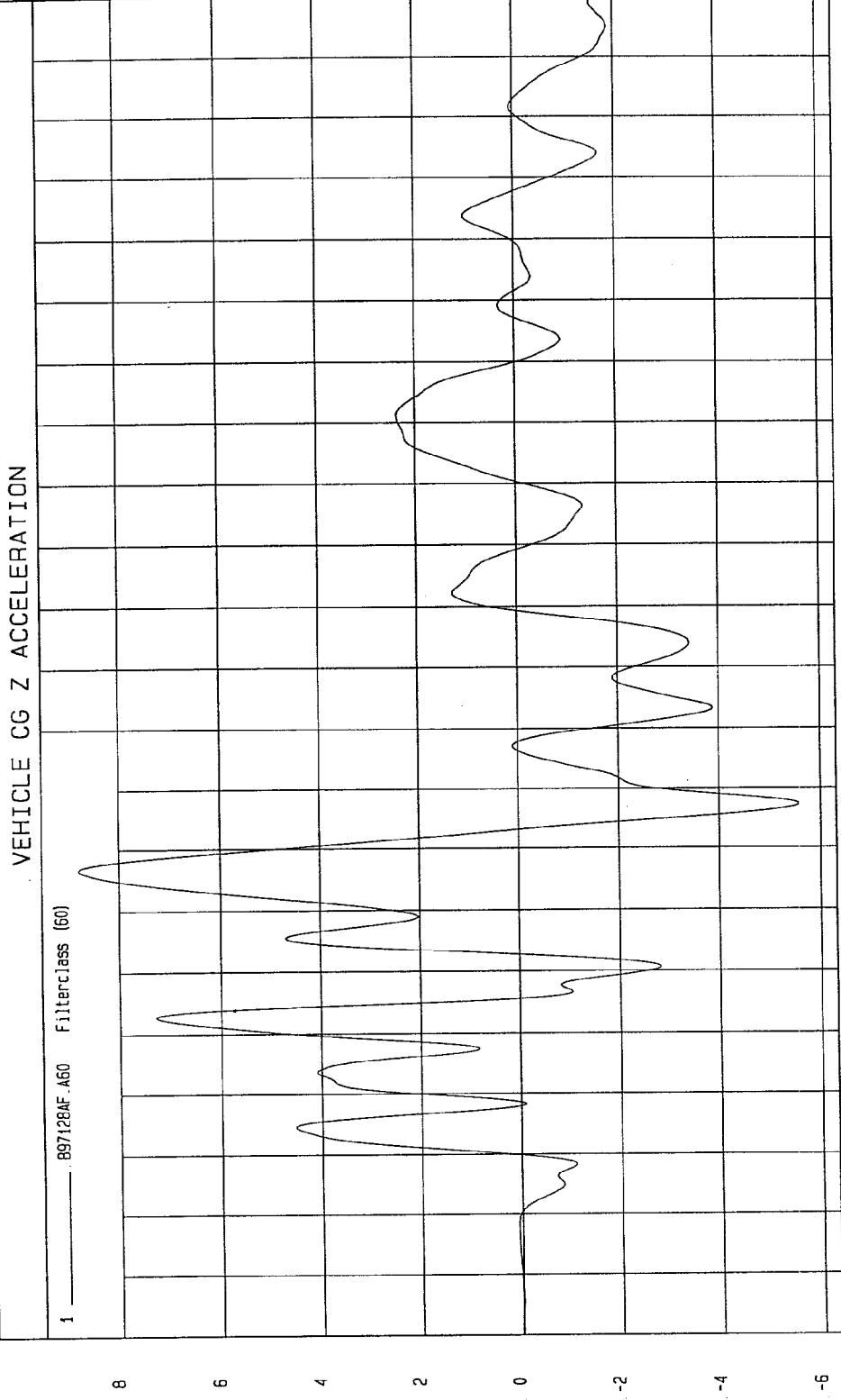
VEHICLE CG Y VELOCITY



MECA Research  
12-03-1997 18:59

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

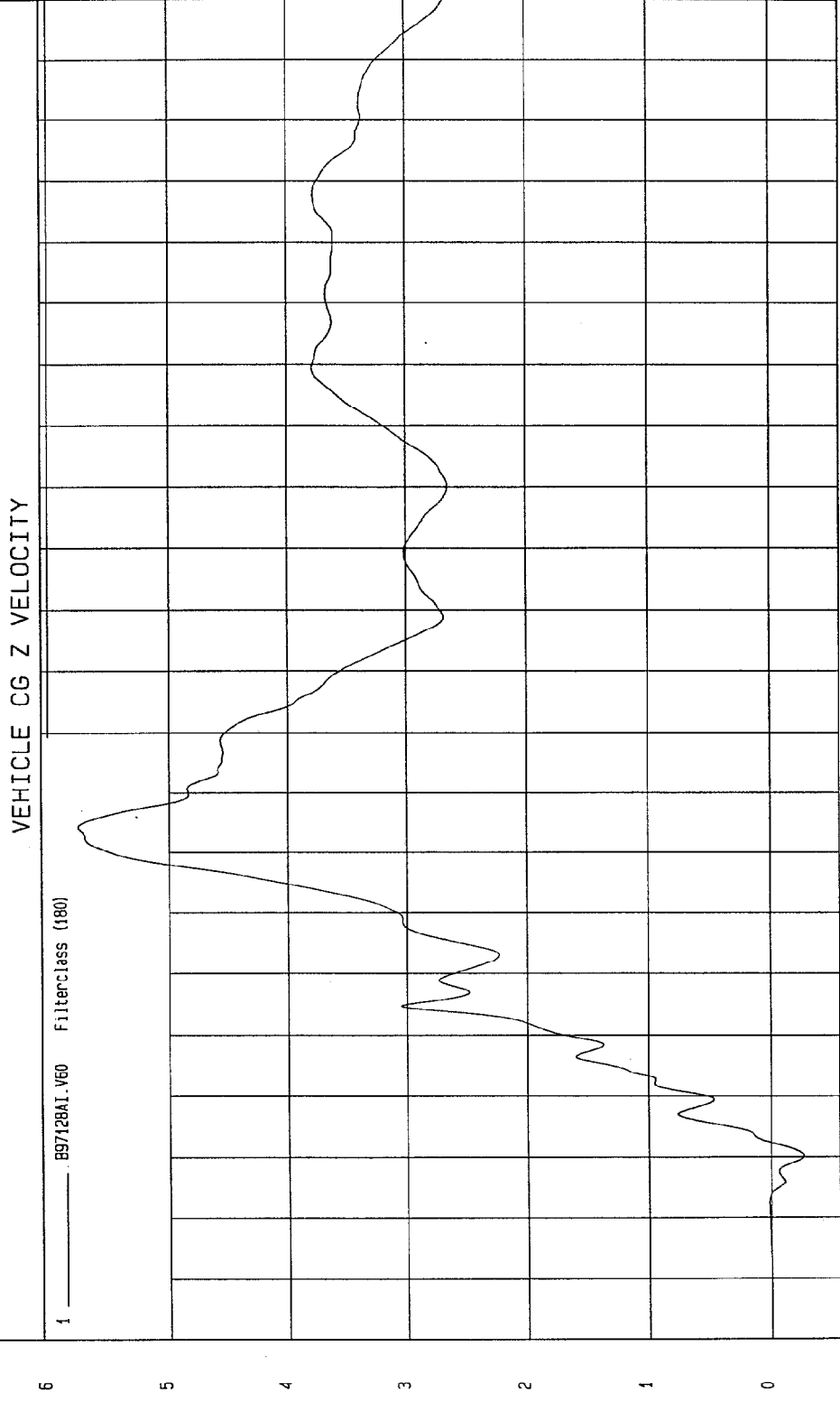
Minimum = -5.58 G'S at 67 msec Maximum = 8.80 G'S at 57 msec



MCA Research  
12-03-1997 18.39

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -.26 KPH at 10 msec Maximum = 5.75 KPH at 64 msec



TIME Seconds

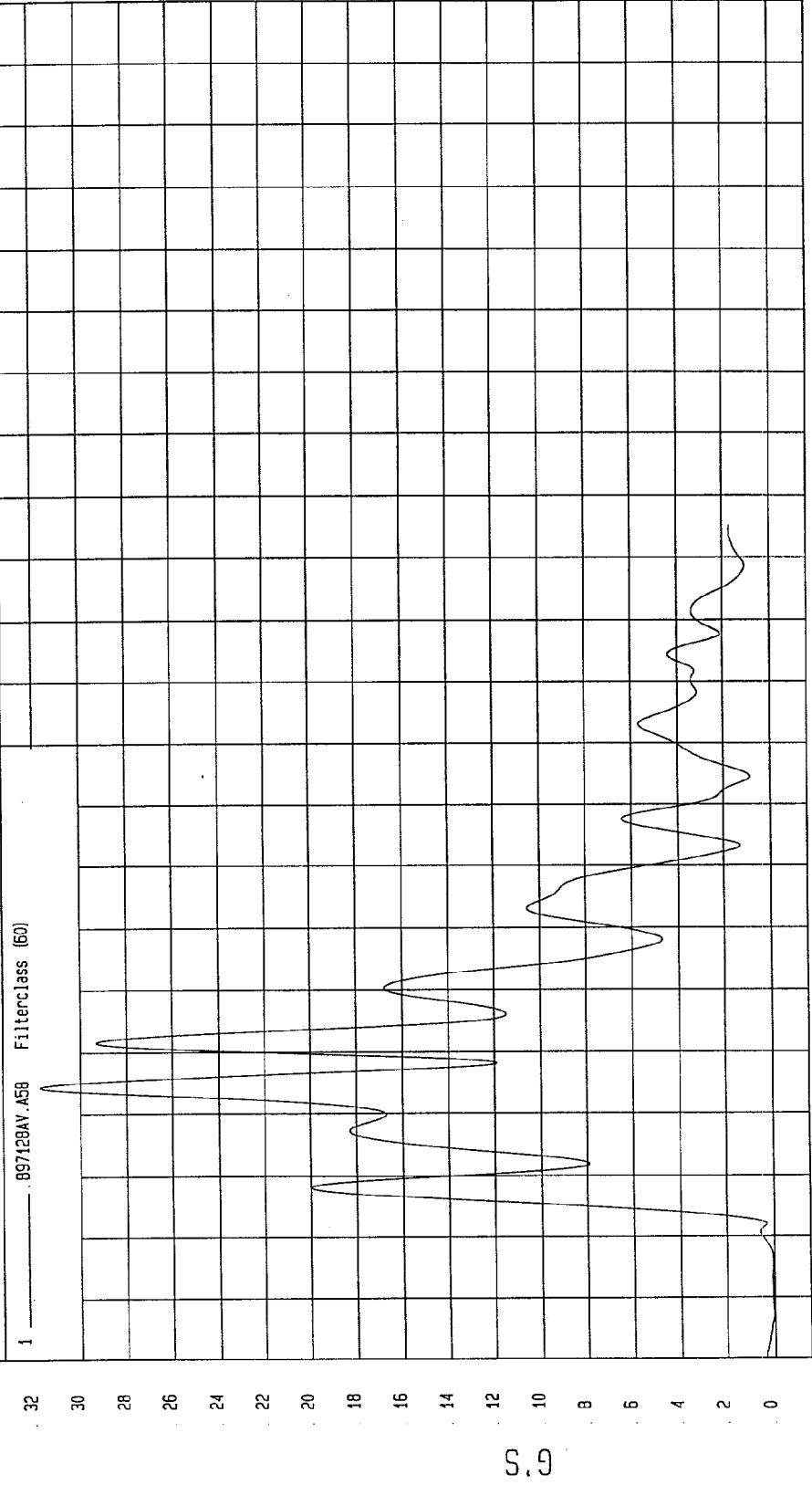
MCA Research  
12-03-1997 18:46

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = 1.92E-02 G'S at -13 msec  
Maximum = 31.72 G'S at 24 msec

VEHICLE CG RESULTANT ACCELERATION

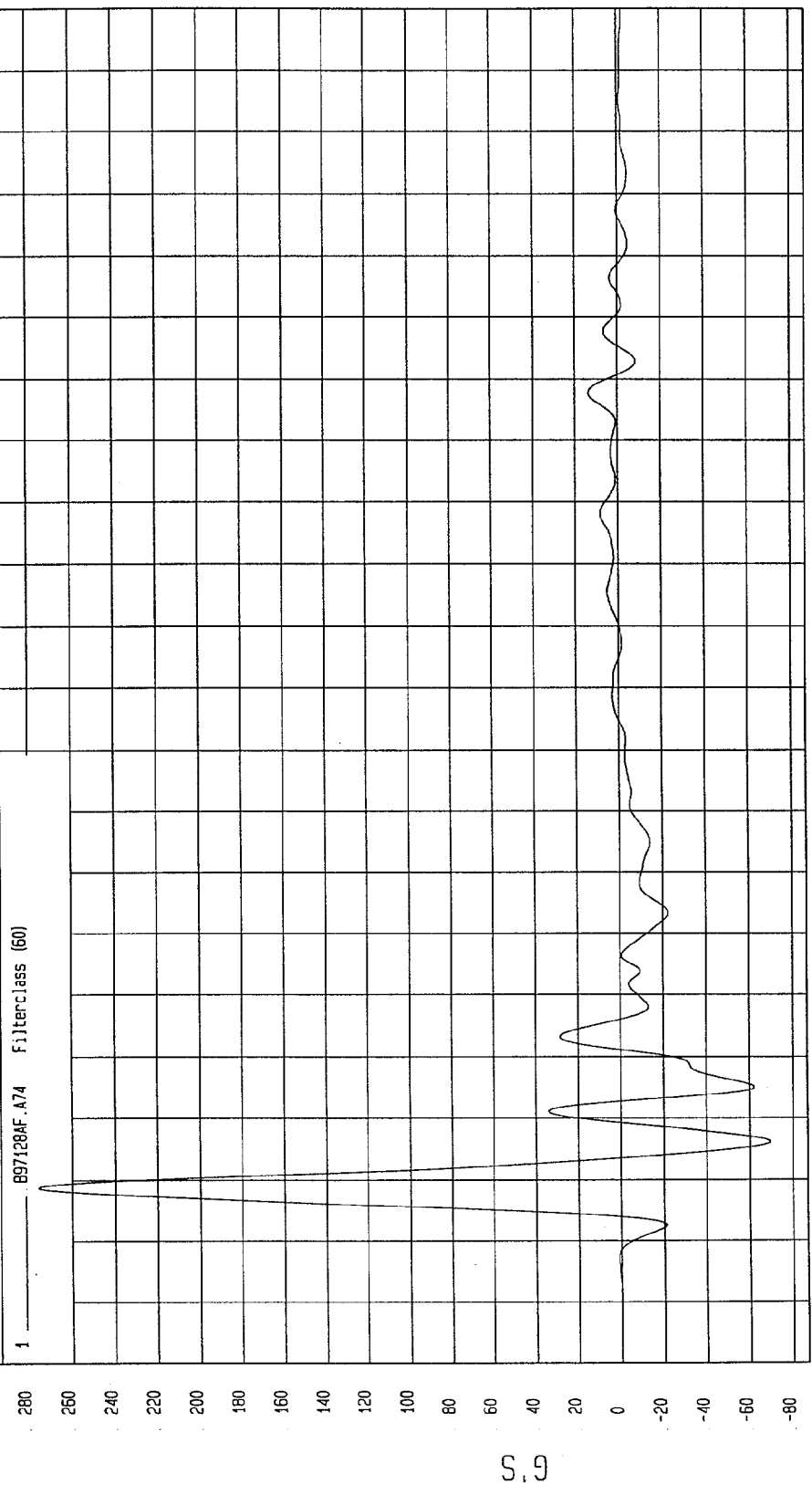


MCA Research  
12-03-1997 19.00

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -69.48 G'S at 15 msec Maximum = 275.54 G'S at 9 msec

LEFT FRONT DOOR ON CENTERLINE Y ACCELERATION



TIME (SECONDS)

MCA Research  
12-03-1997 16:39

TEST DATE: 11-06-1997

TEST: HIGH SPEED LATERAL IMPACT

Speed: 38.2 MPH 61.5 KPH

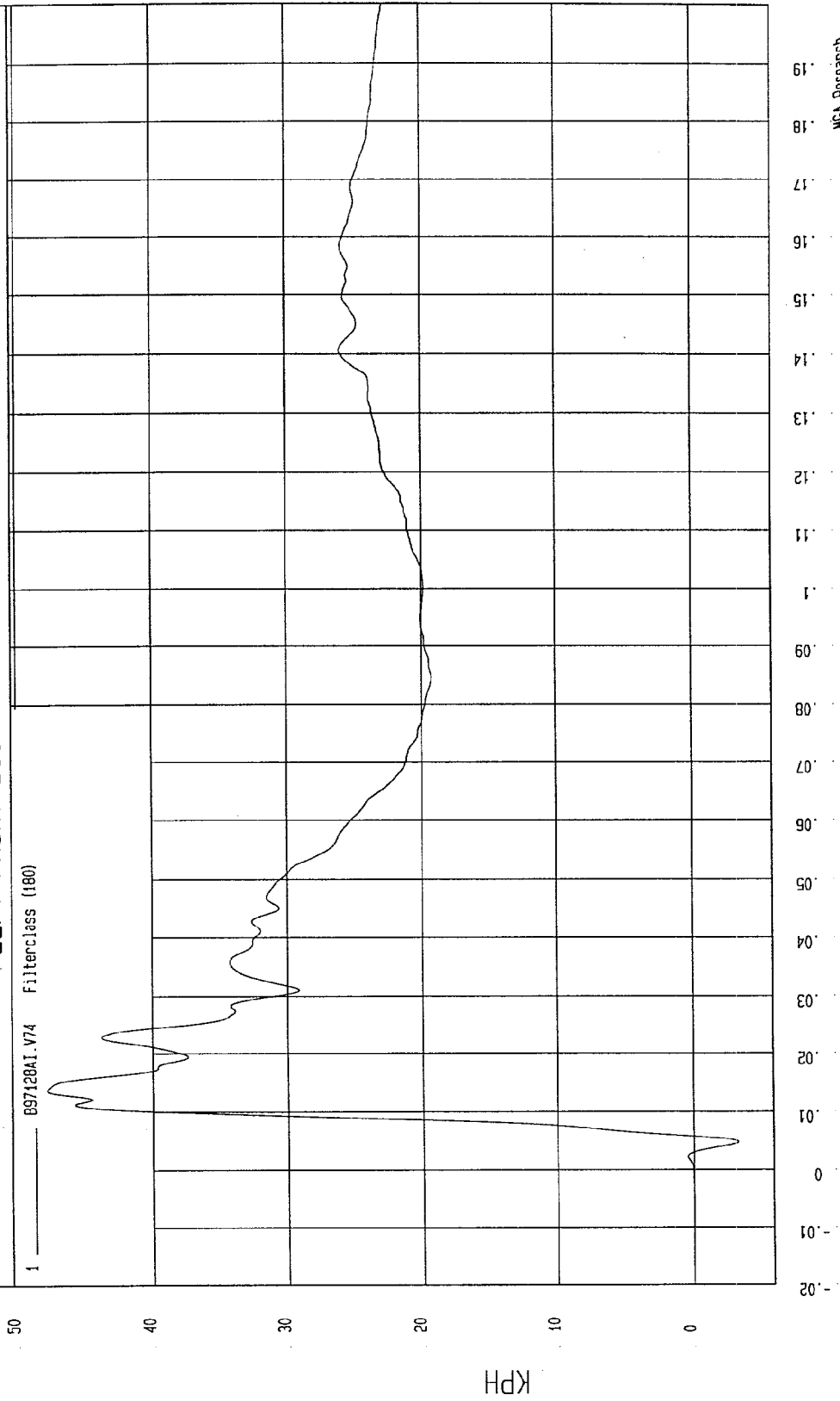
COMPONENT: 1998 MAZDA 626 (MW5401)

Maximum = 47.79 KPH at 14 msec

Minimum = -3.27 KPH at 5 msec

LEFT FRONT DOOR ON CENTERLINE Y VELOCITY

1 B97128A1.V74 Filterclass (180)



MCA Research  
12-03-1997 18:46

TIME Seconds

KPH

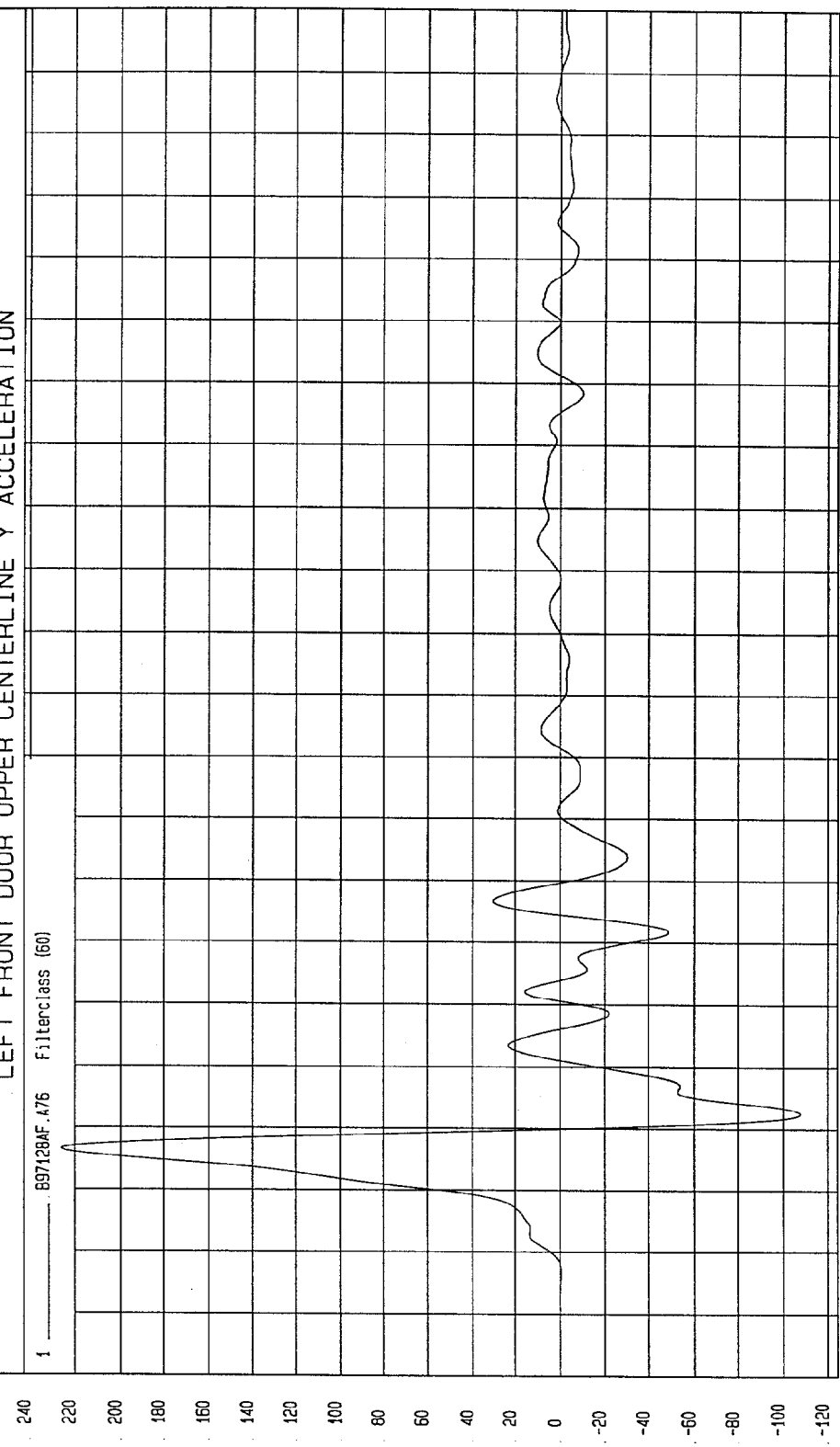
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 526 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -107.73 G'S at 22 msec Maximum = 226.04 G'S at 17 msec

LEFT FRONT DOOR UPPER CENTERLINE Y ACCELERATION

1 \_\_\_\_\_ B97128AF.K76 Filterclass (60)



MSA Research  
12-03-1997 18:39

TIME (SECONDS)

G.S

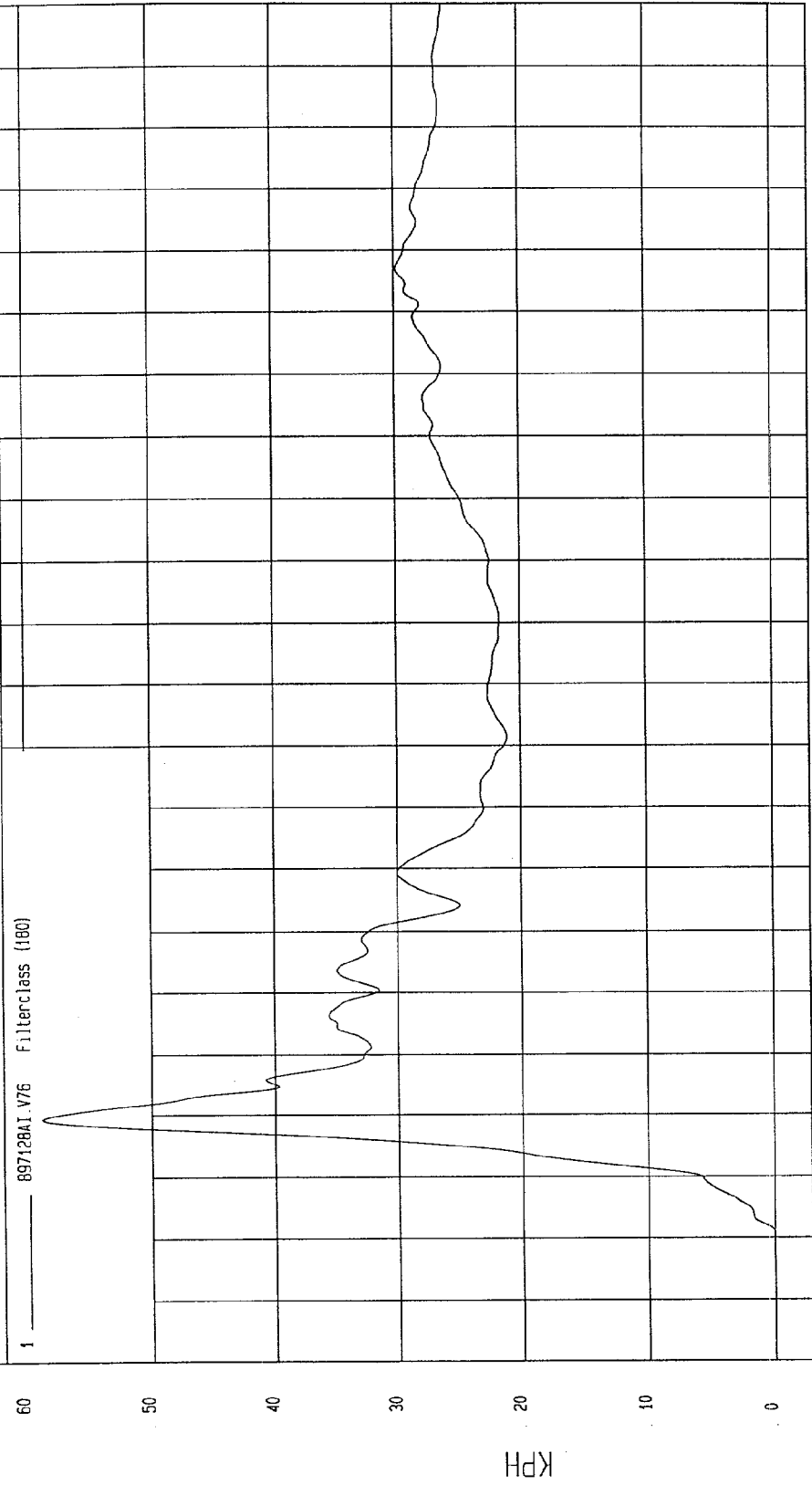
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (Mw5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -1.17E+03 KPH at -8 msec  
Maximum = 58.77 KPH at 19 msec

LEFT FRONT DOOR UPPER CENTERLINE Y VELOCITY

1 89712BA1.V76 Filterclass (180)

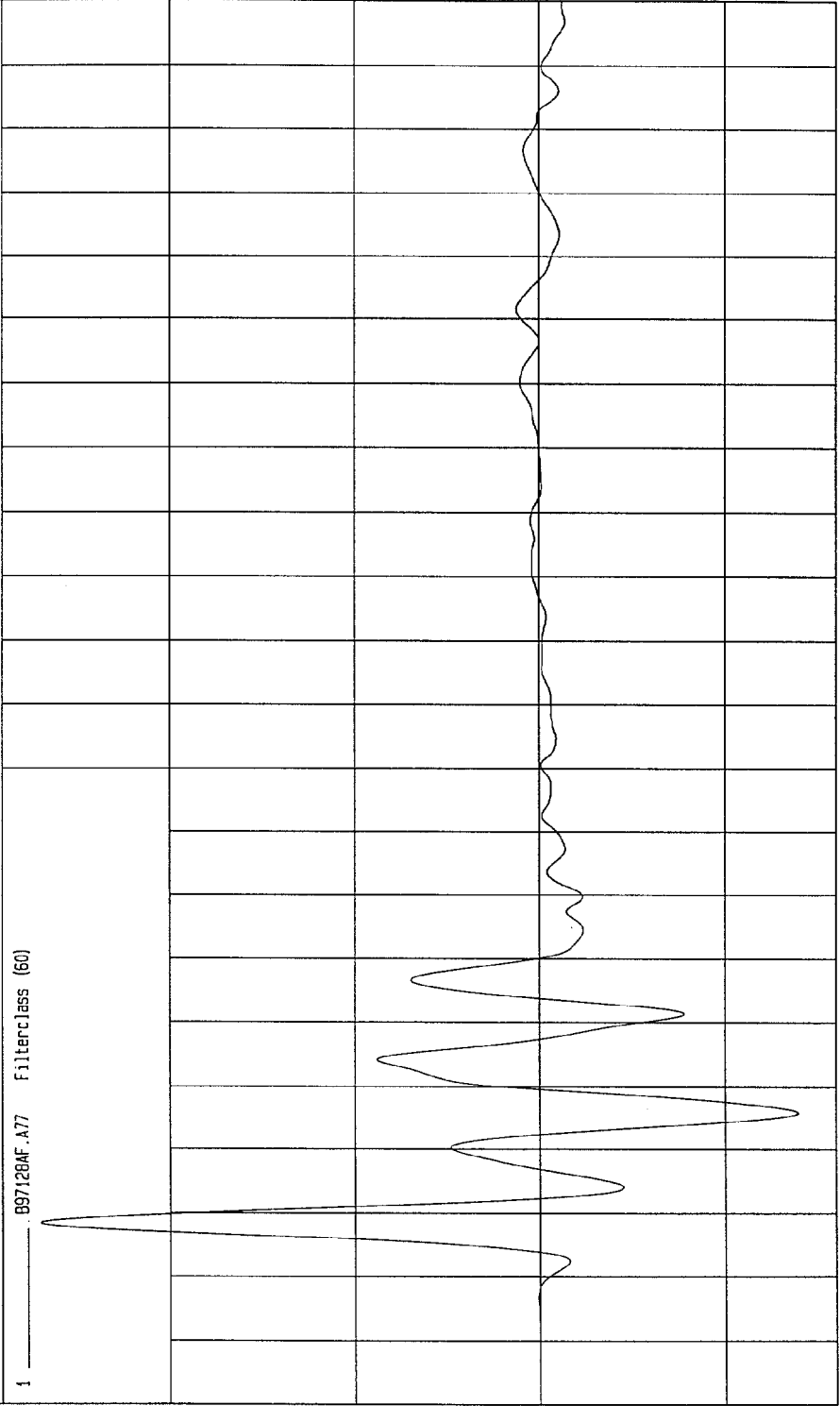


MGA Research  
12-03-1997 18:46

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
 COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -138.79 G'S at 26 msec  
 Maximum = 269.21 G'S at 8 msec

MIDREAR OF LEFT REAR DOOR Y ACCELERATION



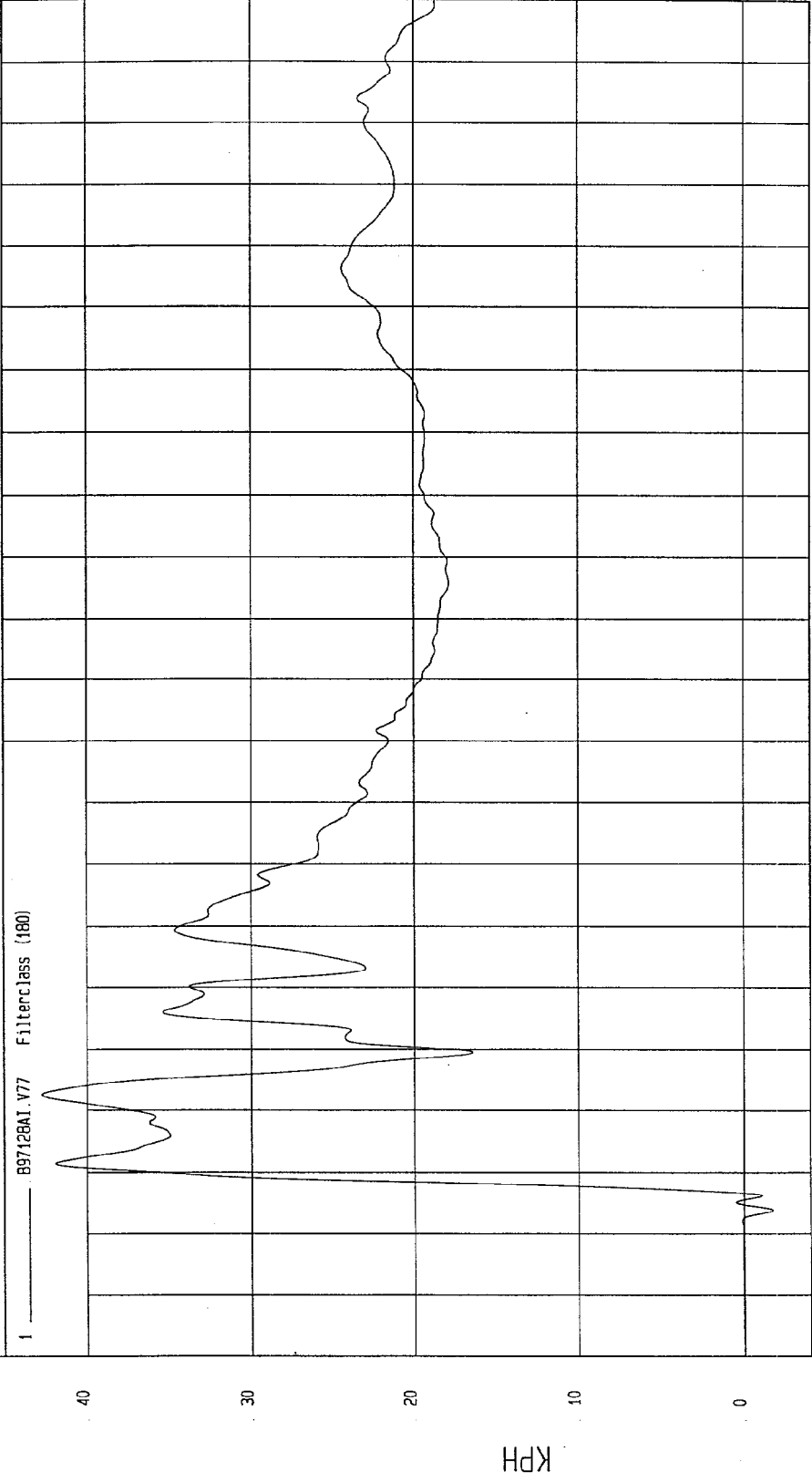
TIME (SECONDS)

MGA Research  
 12-03-1997 18:39

TEST: HIGH SPEED LATERAL IMPACT  
TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401)  
Speed: 38.2 MPH 61.5 KPH

Minimum = -1.71 KPH at 4 msec  
Maximum = 42.73 KPH at 22 msec

MIDREAR OF LEFT REAR DOOR Y VELOCITY



TIME Seconds  
19  
18  
17  
16  
15  
14  
13  
12  
11  
10  
9  
8  
7  
6  
5  
4  
3  
2  
1  
0  
-1  
-2

NSA Research  
12-03-1997 18.46

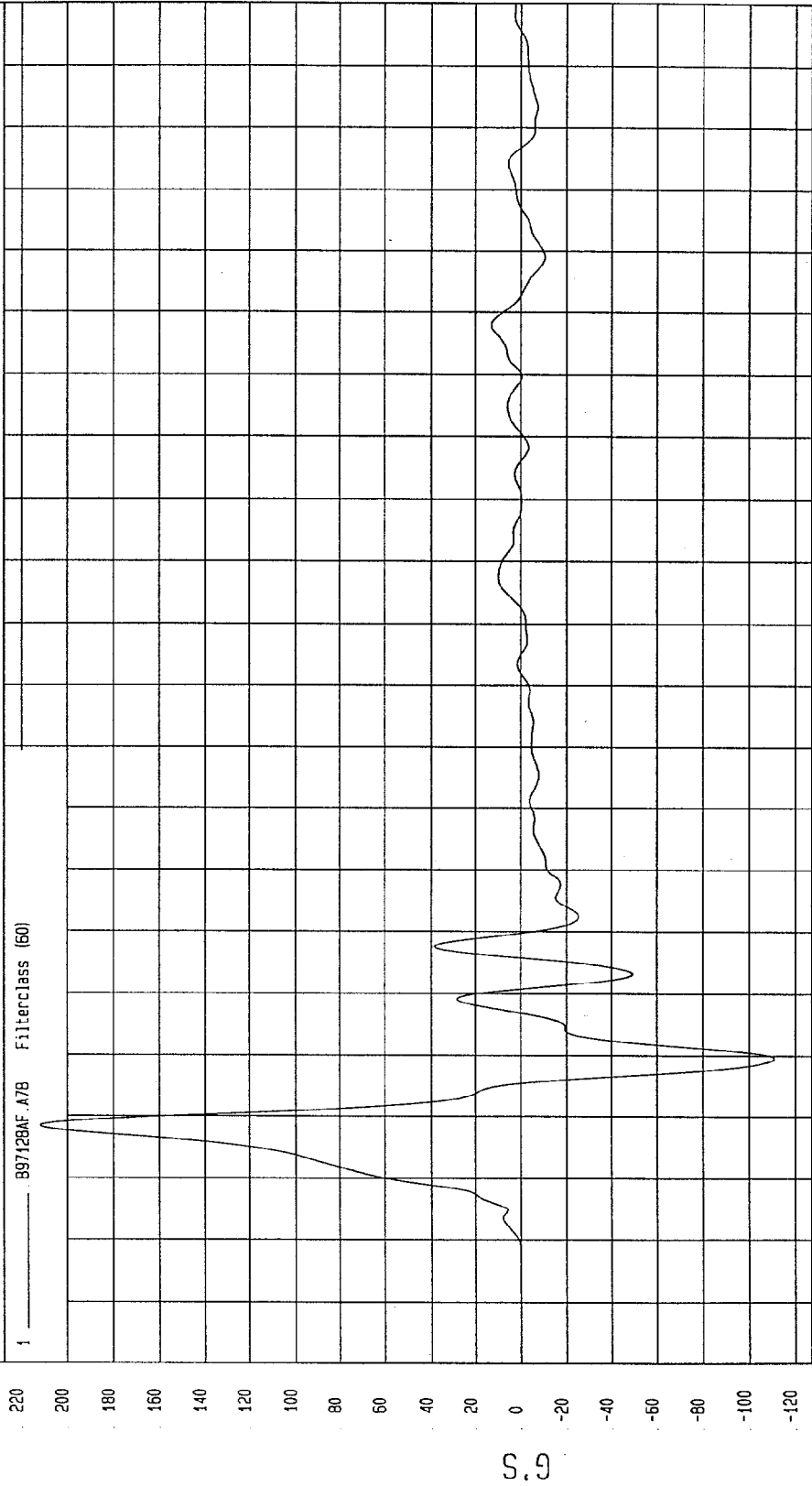
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -110.90 G'S at 30 msec Maximum = 211.74 G'S at 18 msec

LEFT REAR DOOR UPPER CENTERLINE Y ACCELERATION

1 997129AF.A78 Filterclass (60)



MCA Research  
12-03-1997 18:39

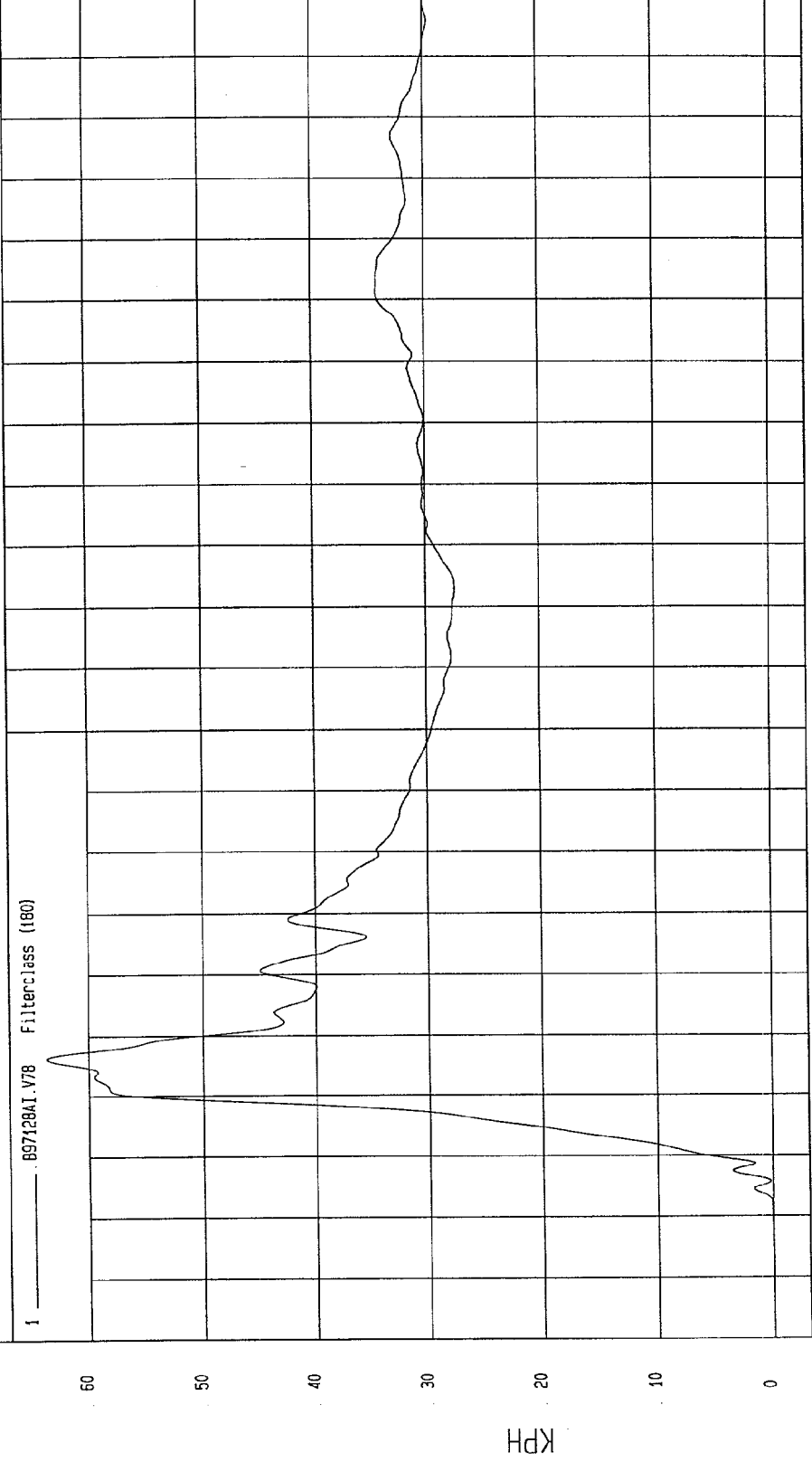
TIME (SECONDS)

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -6.52E-03 KPH at -8 msec Maximum = 63.67 KPH at 26 msec

LEFT REAR DOOR UPPER CENTERLINE Y VELOCITY



TIME Seconds

MECA Research  
12-03-1997 18:46

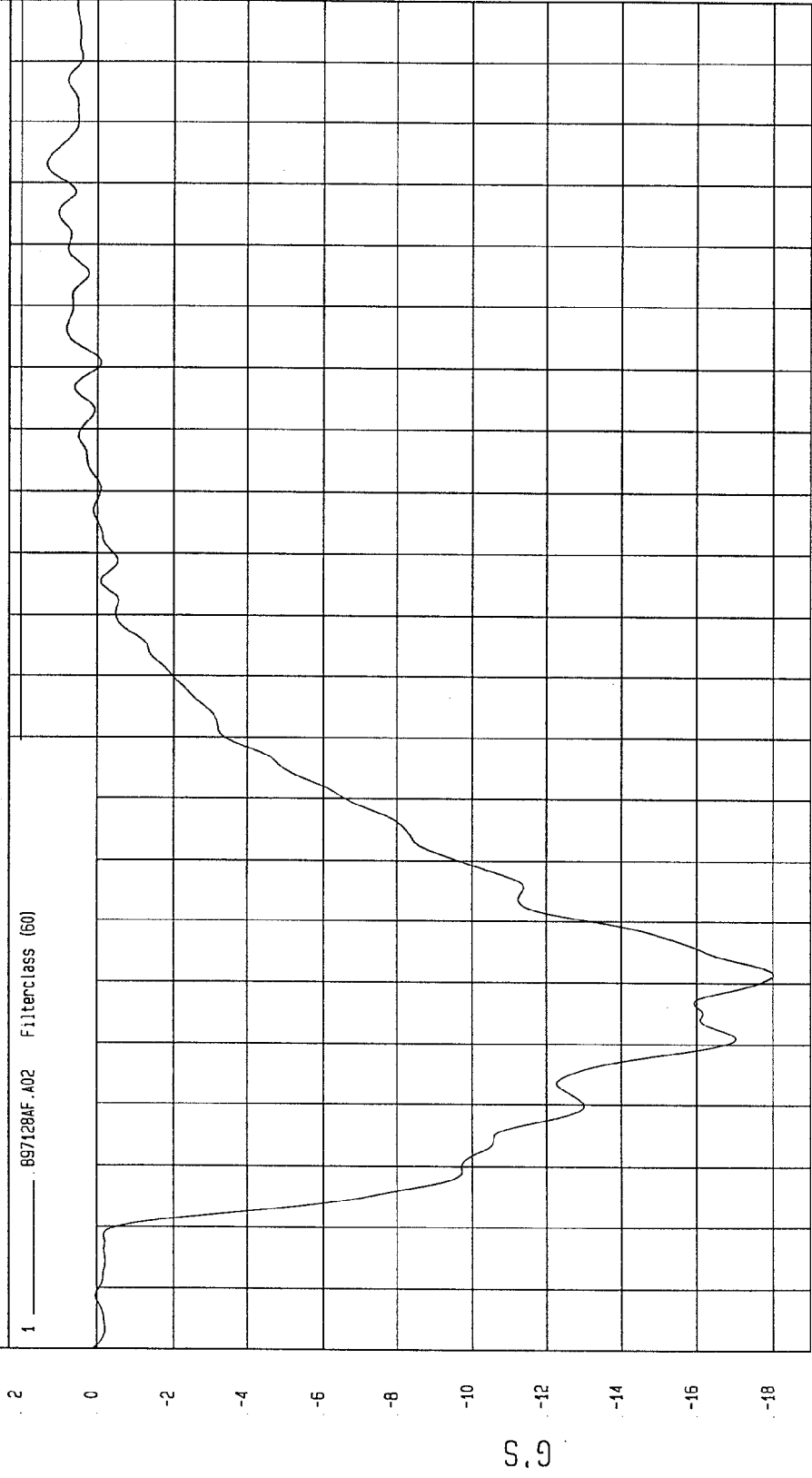
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -18.01 G'S at 41 msec  
Maximum = 1.34 G'S at 173 msec

MOVING BARRIER CG X ACCELERATION

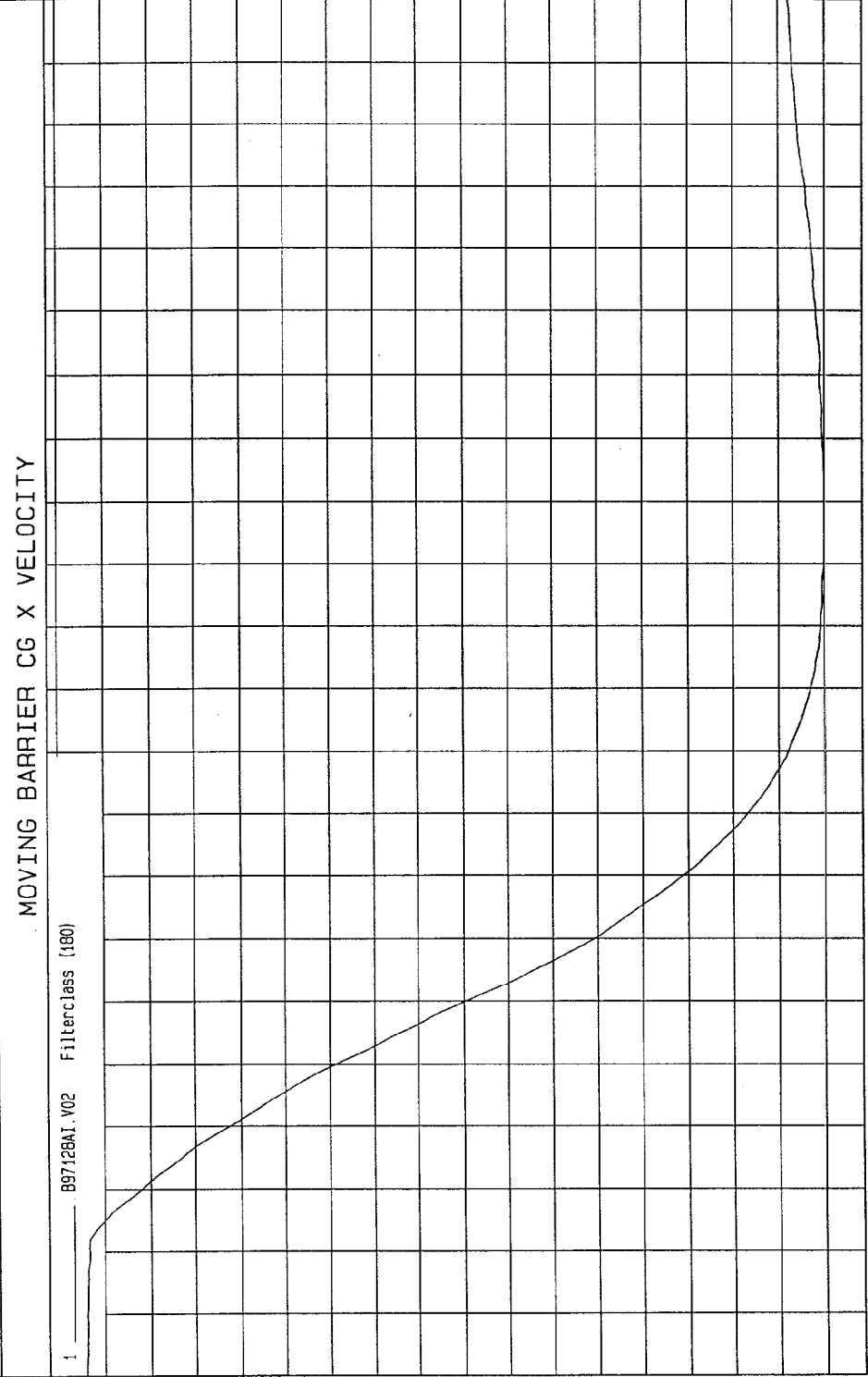
1 ——— .897128AF.A02 Filterclass (60)



M&A Research  
12-03-1997 18:39

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
 COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = 21.99 KPH at 122 msec Maximum = 54.80 KPH at -20 msec



1 897128A1.V02 Filterclass (180)

TIME Seconds

MGA Research  
12-03-1997 18: 47

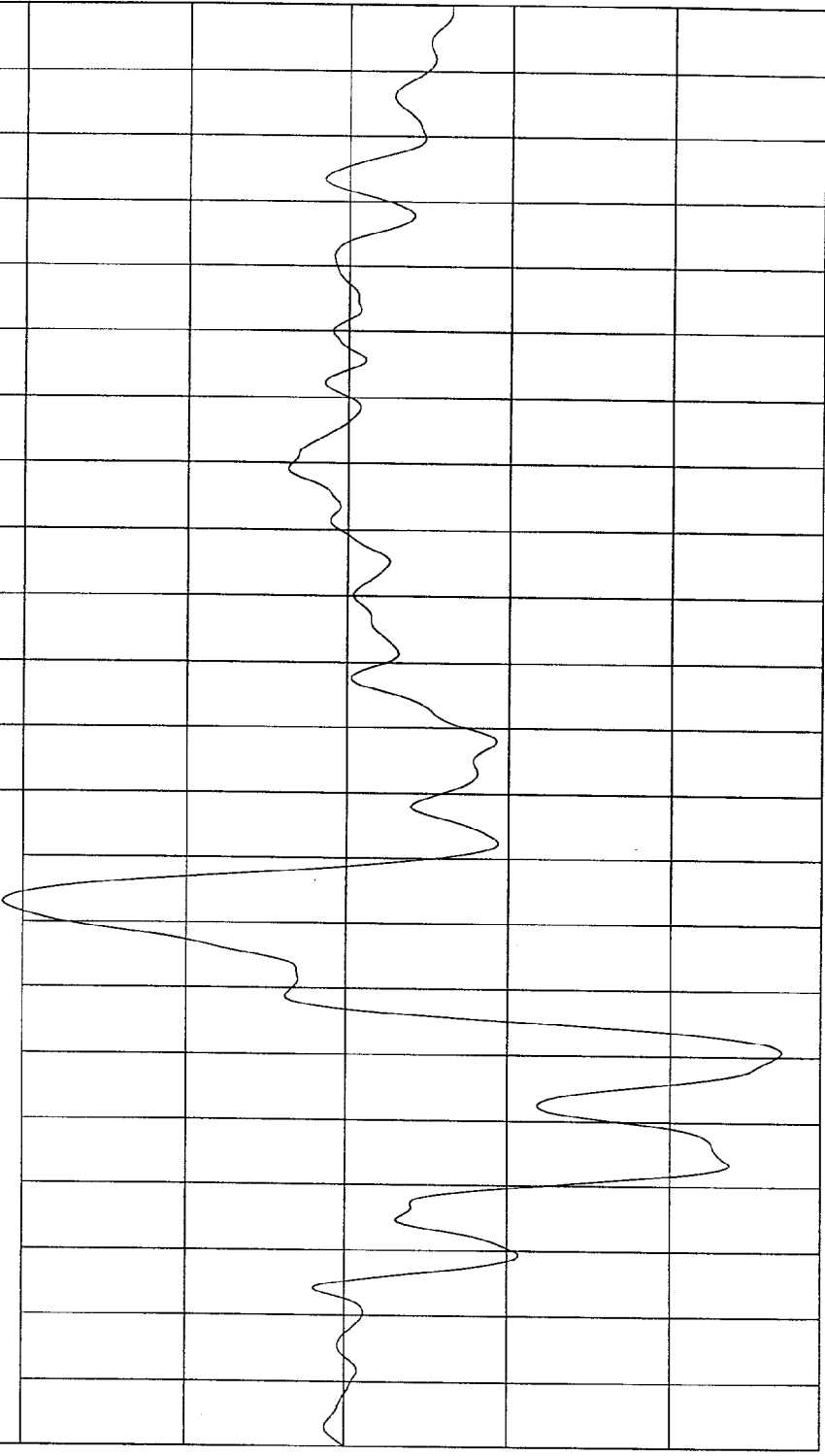
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -5.35 G'S at 41 msec  
Maximum = 4.23 G'S at 63 msec

MOVING BARRIER CG Y ACCELERATION

1 897120AF.A03 FilterClass (50)

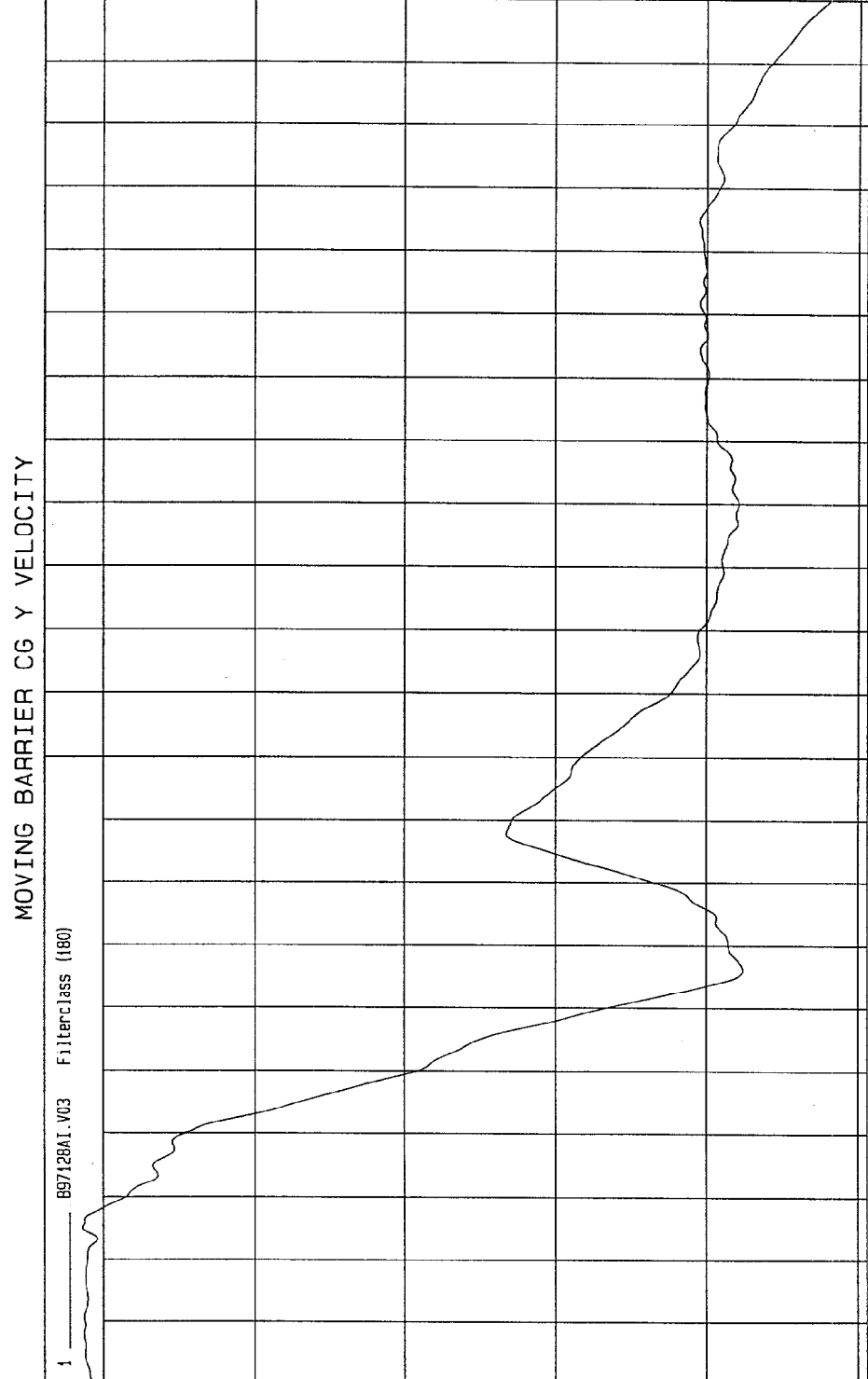


TIME (SECONDS)

MGA Research  
12-03-1997 18:39

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -32.80 KPH at 200 msec Maximum = -27.66 KPH at 5 msec



TIME Seconds

MGA Research  
12-03-1997 18.47

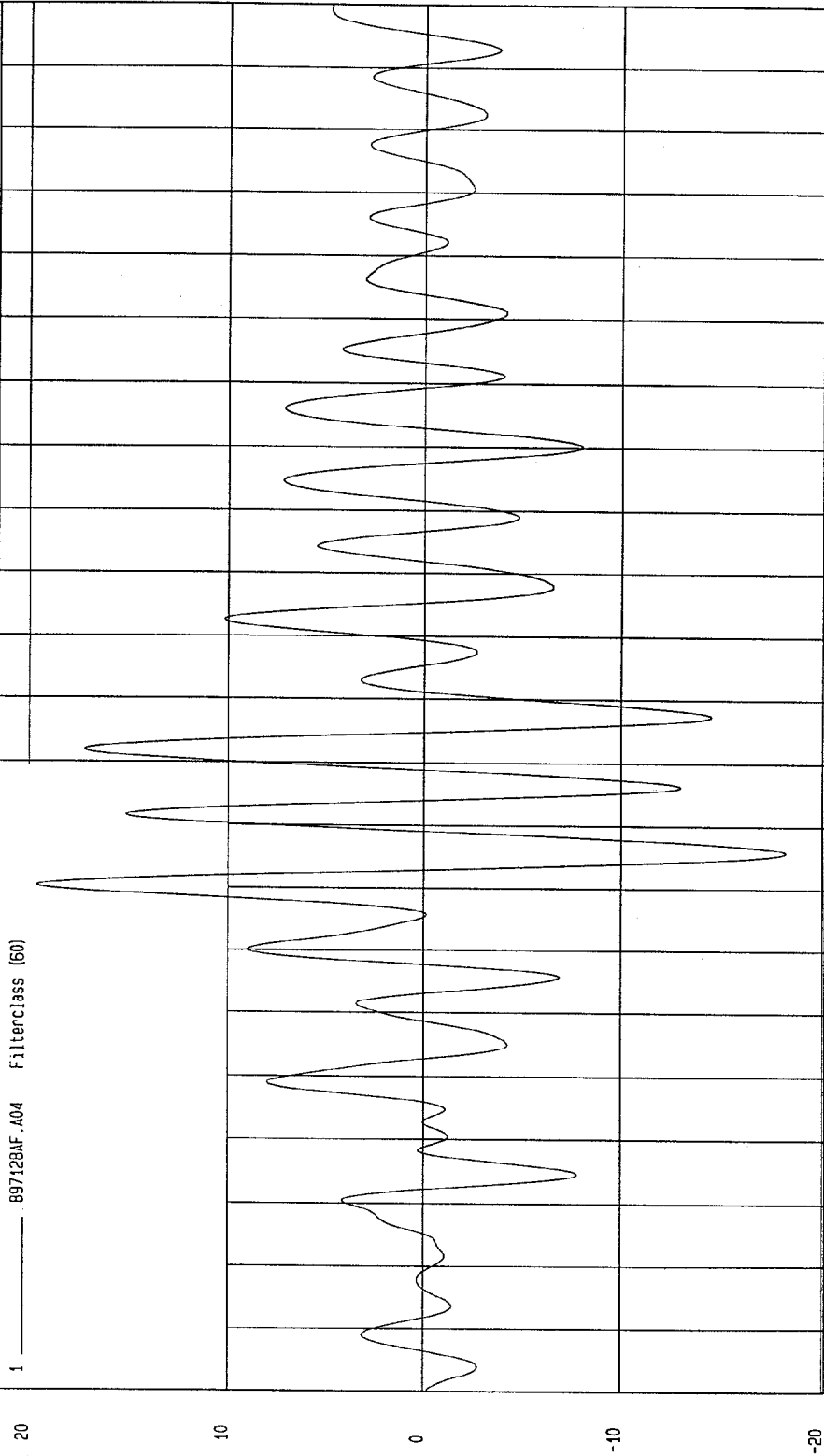
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -18.21 G'S at 66 msec Maximum = 19.63 G'S at 60 msec

MOVING BARRIER CG Z ACCELERATION

1 897128AF.A04 Filterclass (60)



Ms. Research  
12-03-1997 18:40

TIME (SECONDS)

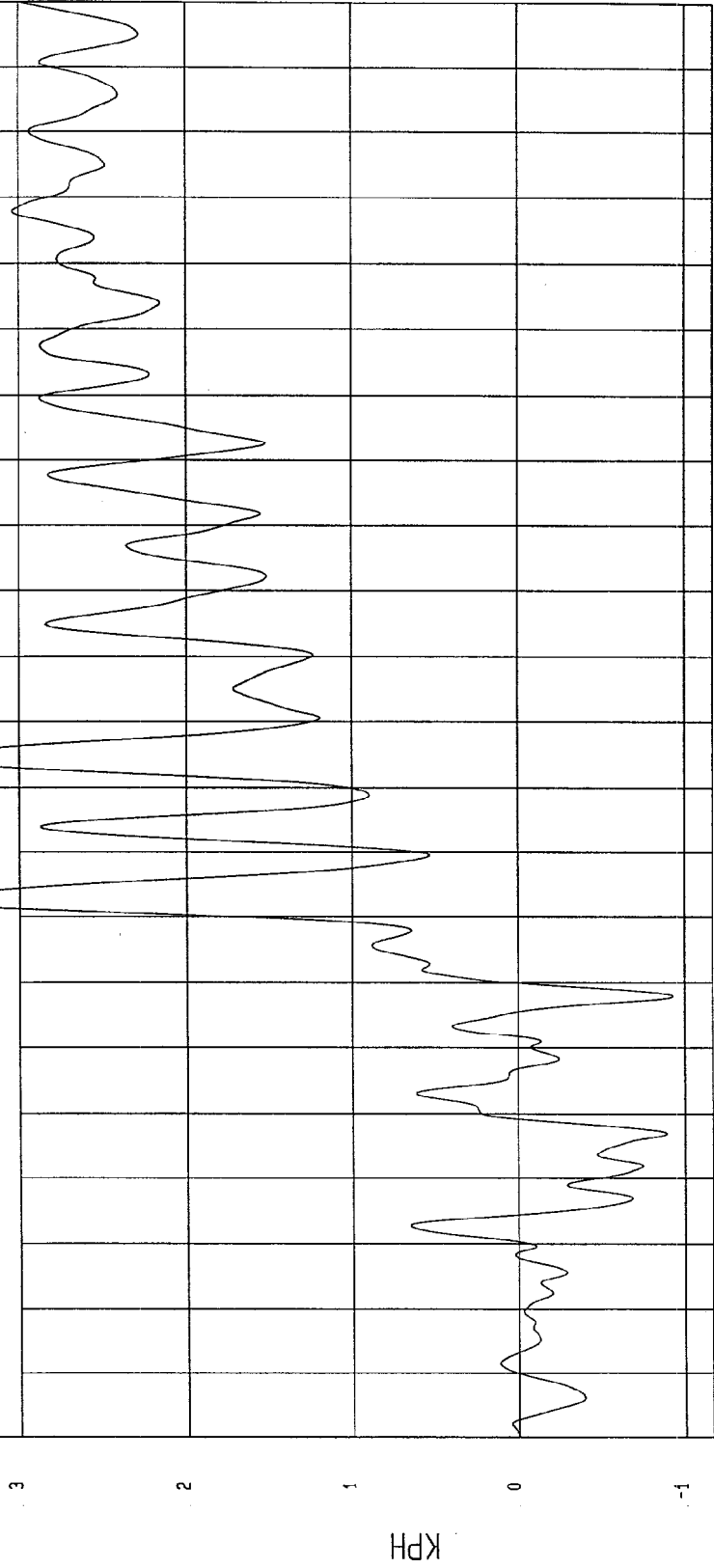
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -.93 KPH at 48 msec  
Maximum = 3.70 KPH at 63 msec

MOVING BARRIER CG Z VELOCITY

1 ——— .B97128A1.V04 Filter: class (180)



MCA Research  
12-03-1997 10: 47

TIME Seconds

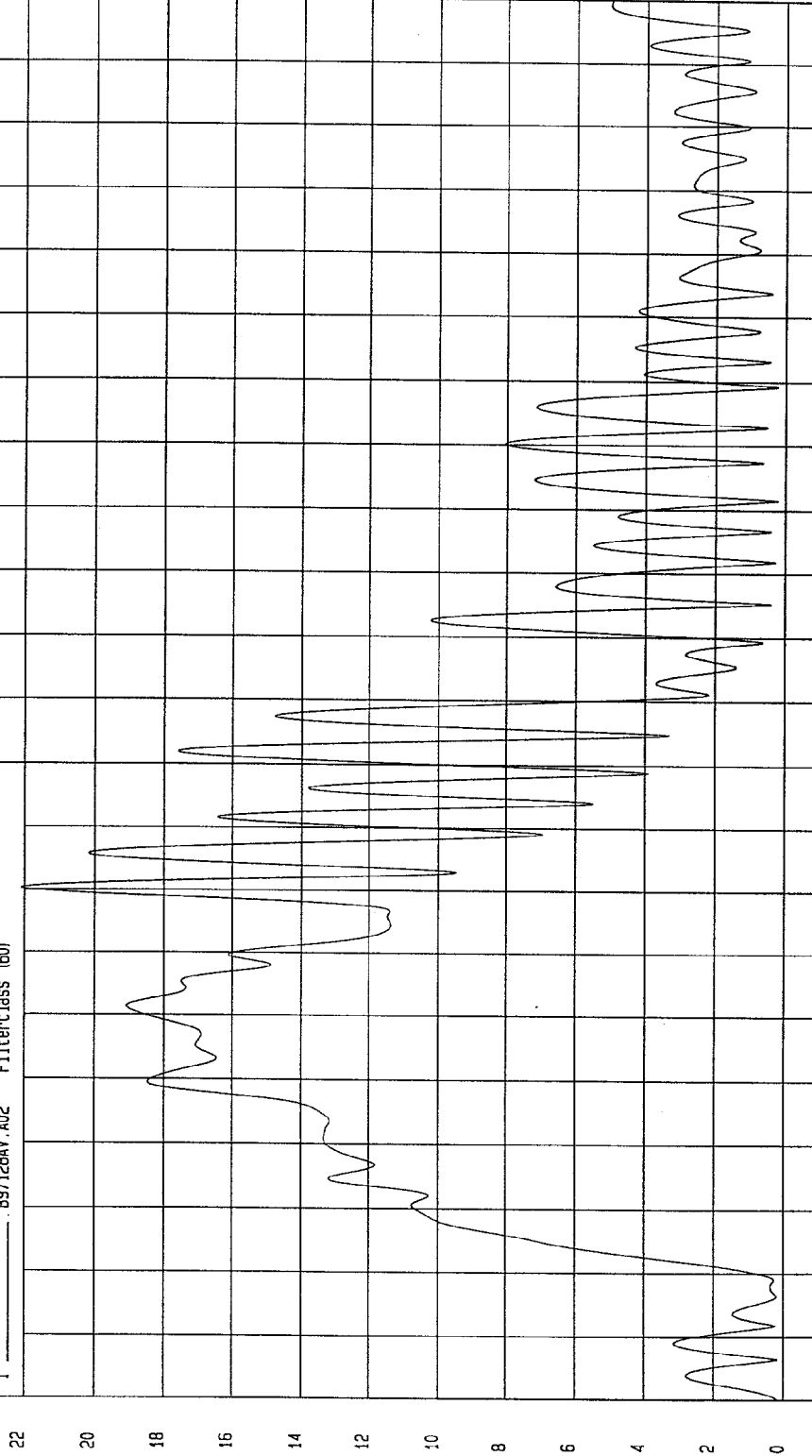
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = .18 G'S at -14 msec Maximum = 22.09 G'S at 60 msec

MOVING BARRIER CG RESULTANT ACCELERATION

1 897128AV.A02 Filterclass (60)



MGA Research  
12-03-1997 18:41

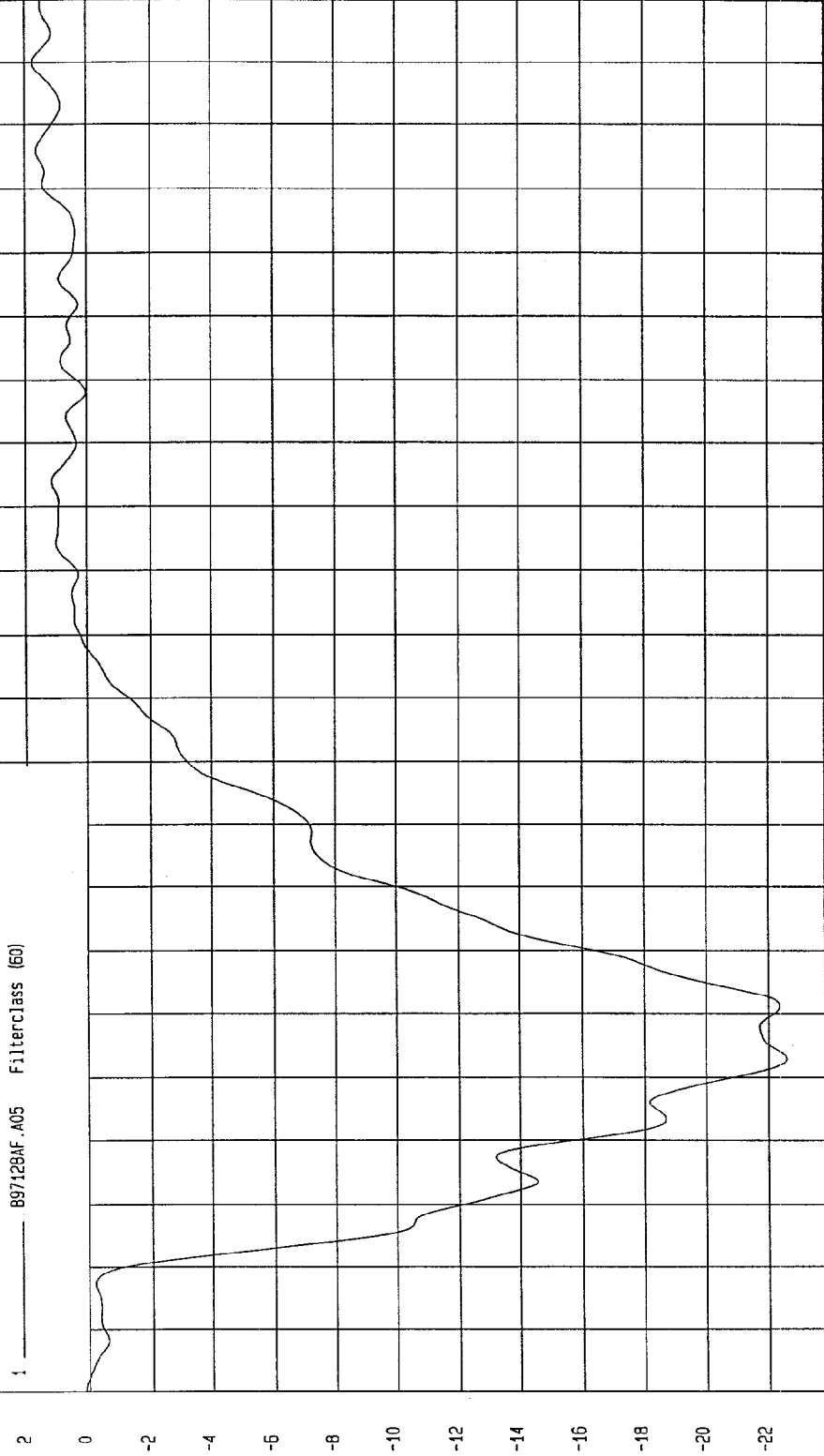
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -22.59 G'S at 33 msec  
Maximum = 1.76 G'S at 190 msec

MOVING BARRIER REAR AXLE X ACCELERATION

1 ——— 897128AF.A05 FilterClass (60)



MGA Research  
12-03-1997 18:40

TIME (SECONDS)

G.S

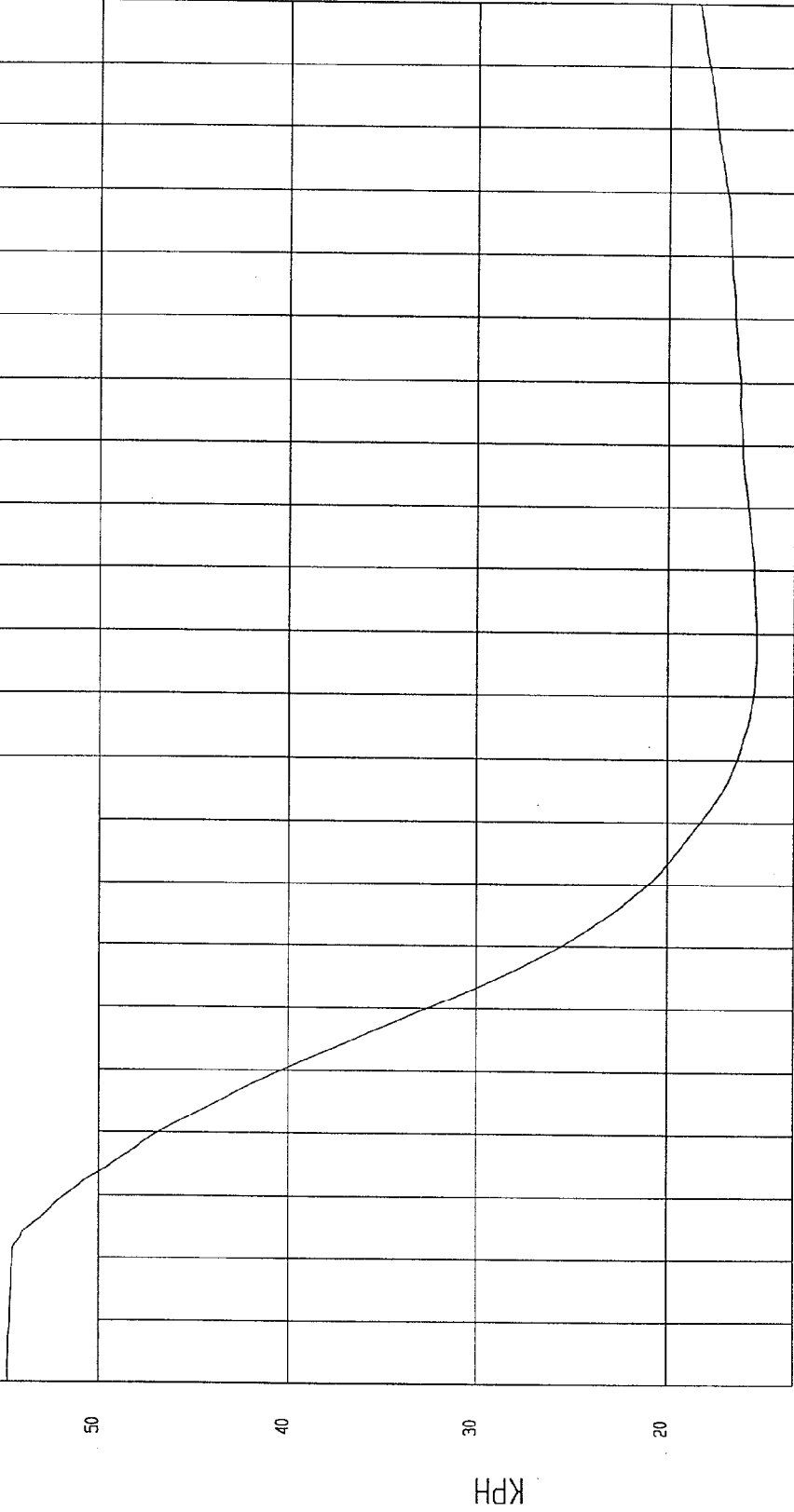
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = 15.43 KPH at 97 msec  
Maximum = 54.81 KPH at -18 msec

MOVING BARRIER REAR AXLE X VELOCITY

1 B97128A1.V05 Filterc:ass (180)



MSA Research  
12-03-1997 18:47

TIME Seconds

KPH

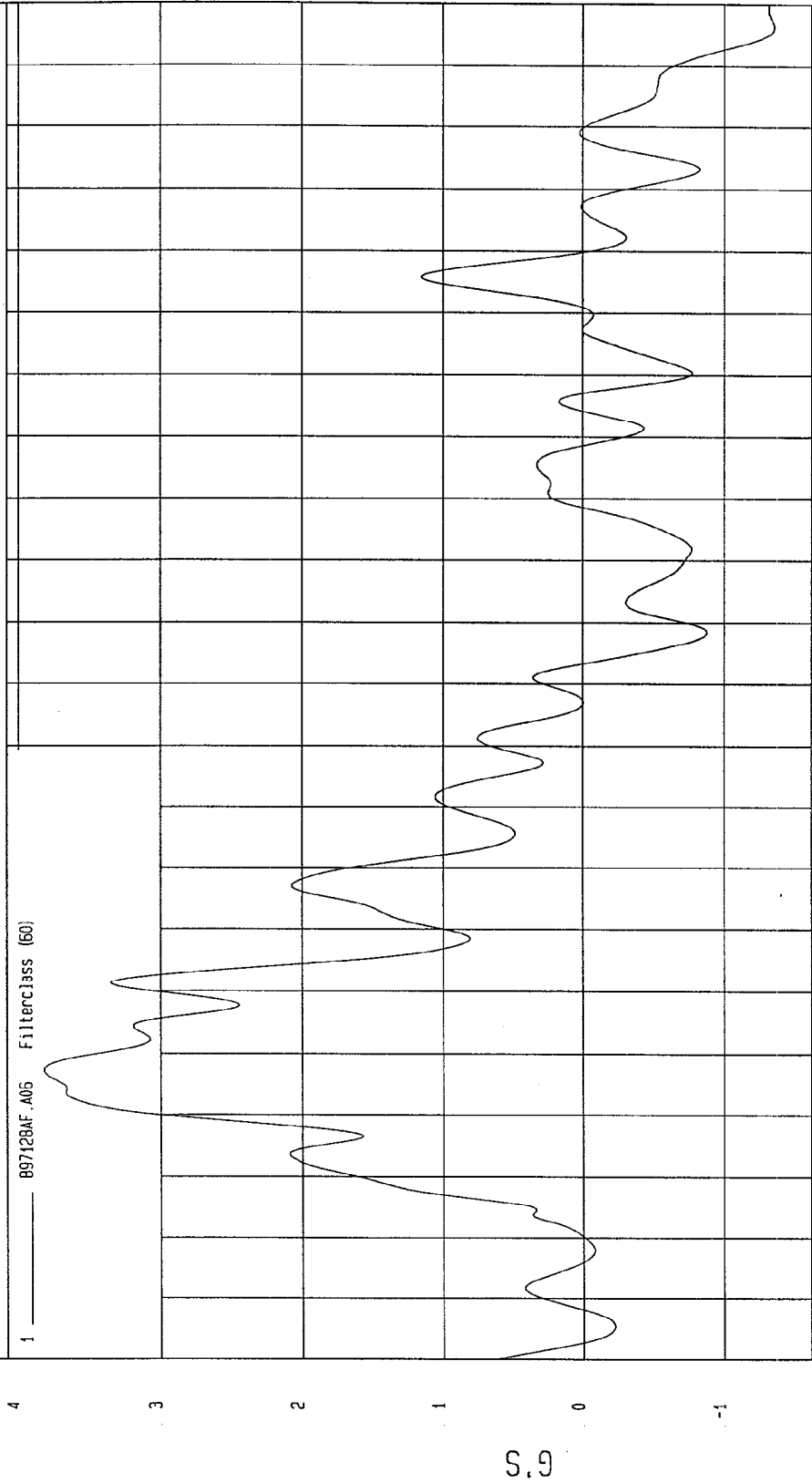
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -1.35 G'S at 196 msec  
Maximum = 3.82 G'S at 27 msec

MOVING BARRIER REAR AXLE Y ACCELERATION

1 ——— 897128AF.A06 Filterclass (60)



MGA Research  
12-03-1997 18:40

TIME (SECONDS)

G.S

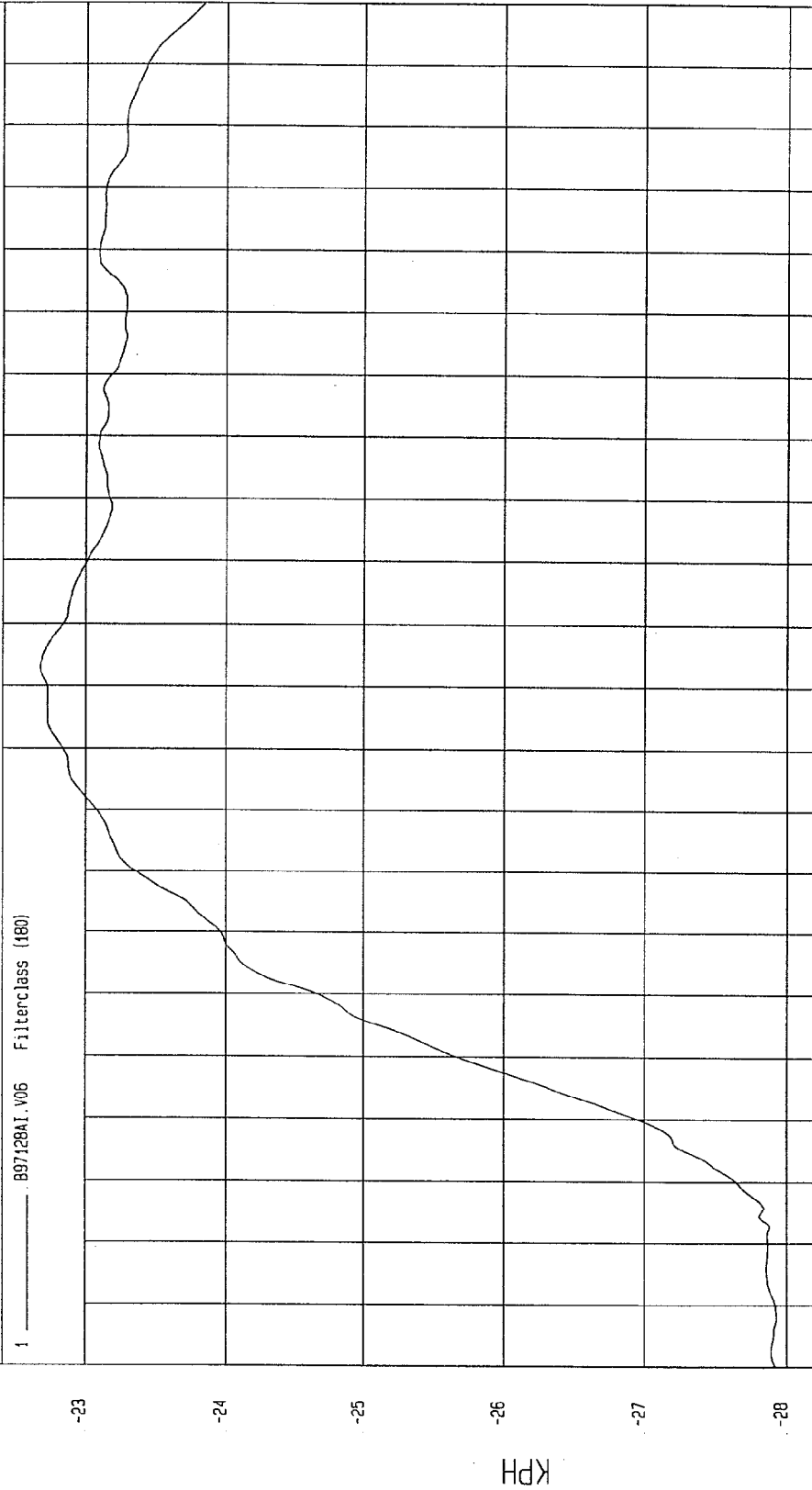
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -27.92 KPH at -12 msec  
Maximum = -22.68 KPH at 93 msec

MOVING BARRIER REAR AXLE Y VELOCITY

1 \_\_\_\_\_ 897128A1.V06 Filterclass (480)



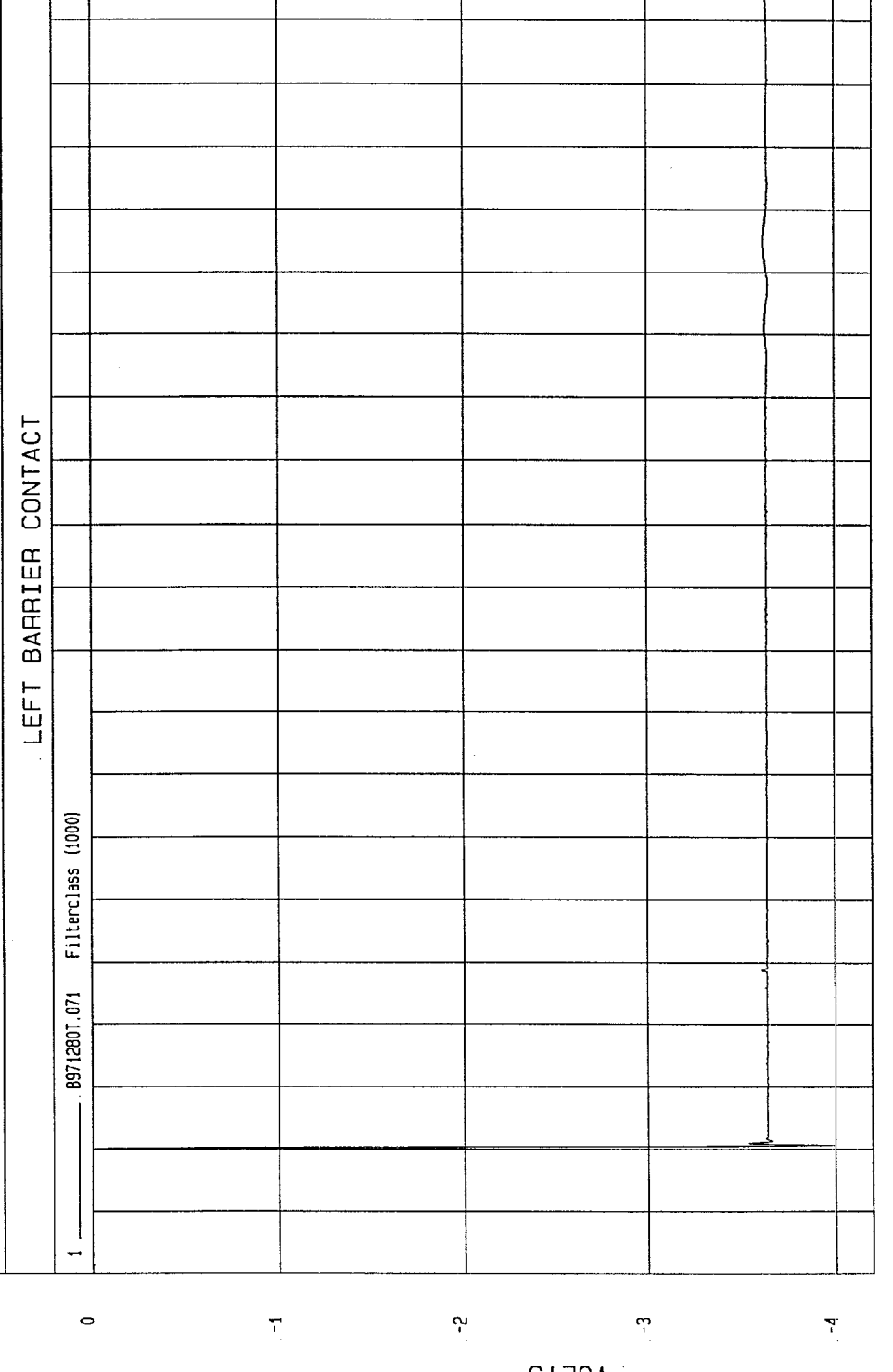
MGA Research  
12-03-1997 18.47

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT  
TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401)  
Speed: 38.2 MPH 61.5 KPH

Minimum = -3.99 VOLTS at 1 msec  
Maximum = 2.76E-03 VOLTS at -16 msec



MGA Research  
12-03-1997 16:40

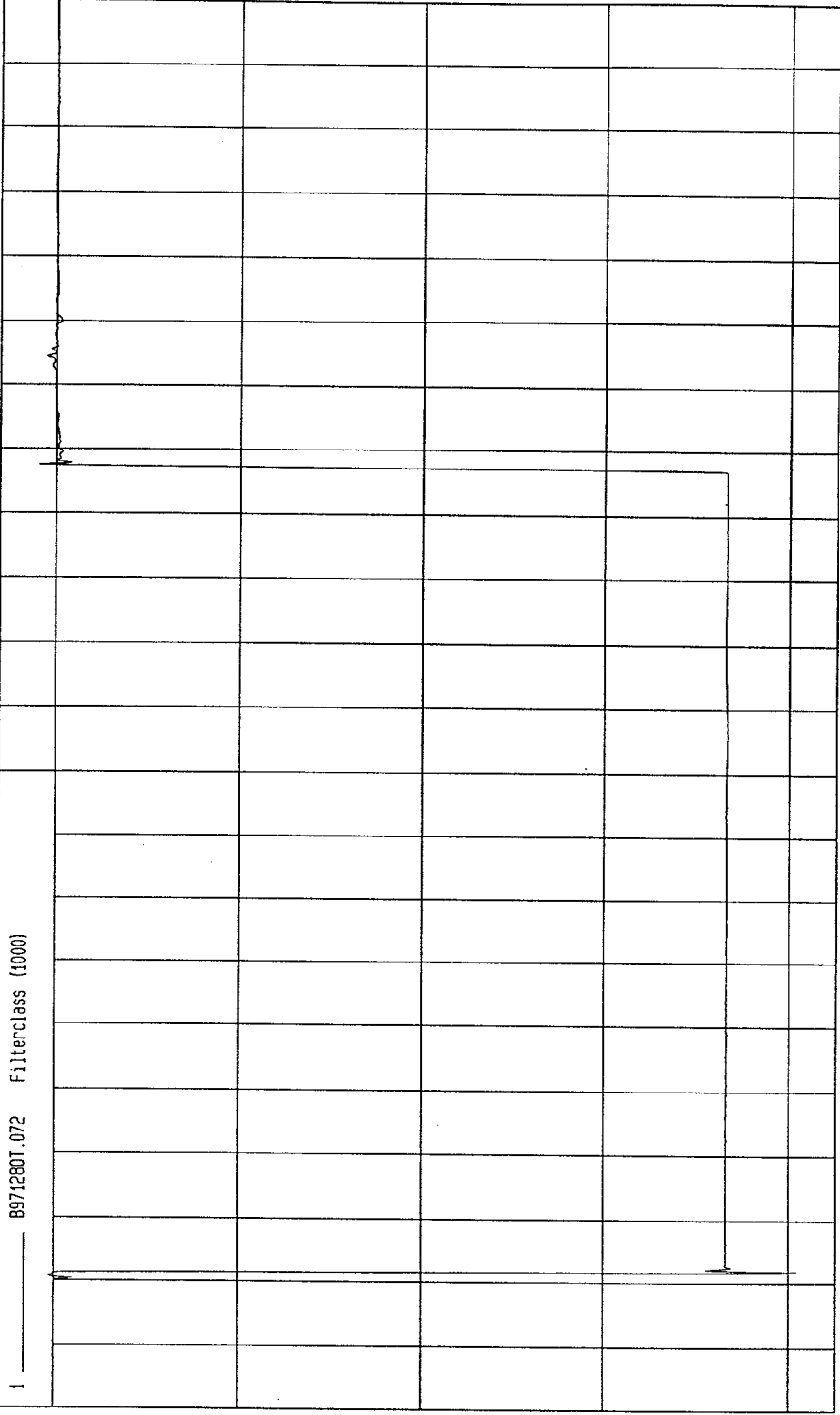
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -4.04 VOLTS at 2 msec Maximum = 9.01E-02 VOLTS at 128 msec

RIGHT BARRIER CONTACT

1 ——— 8971280T.072 Filterclass (1000)



MSA Research  
12-03-1997 18:40

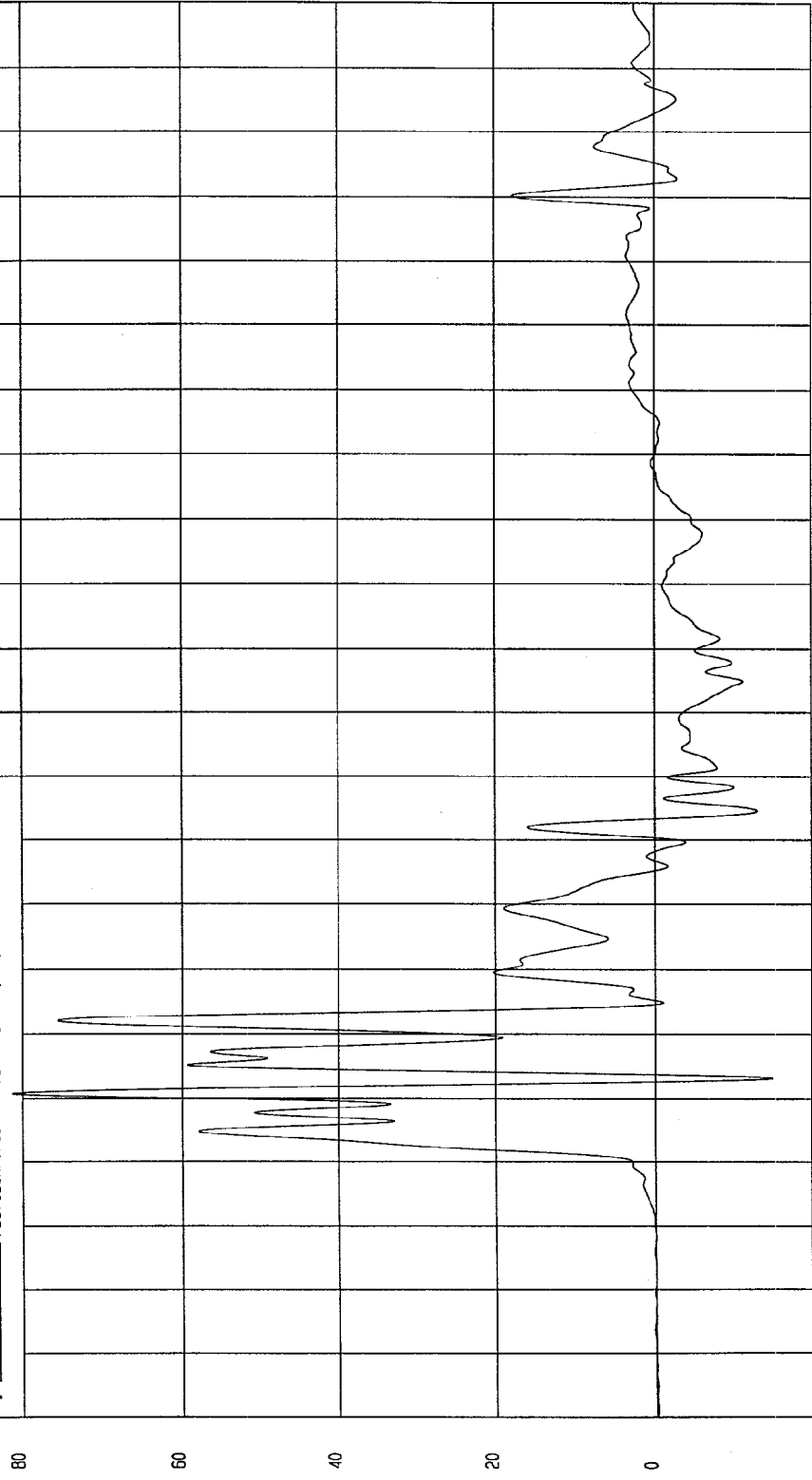
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -14.64 G'S at 33 msec  
Maximum = 81.28 G'S at 31 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION

1 ——— .B97128AF.A61 Filterclass (180)



MGA Research  
12-03-1997 18.13

TIME (SECONDS)

G.S

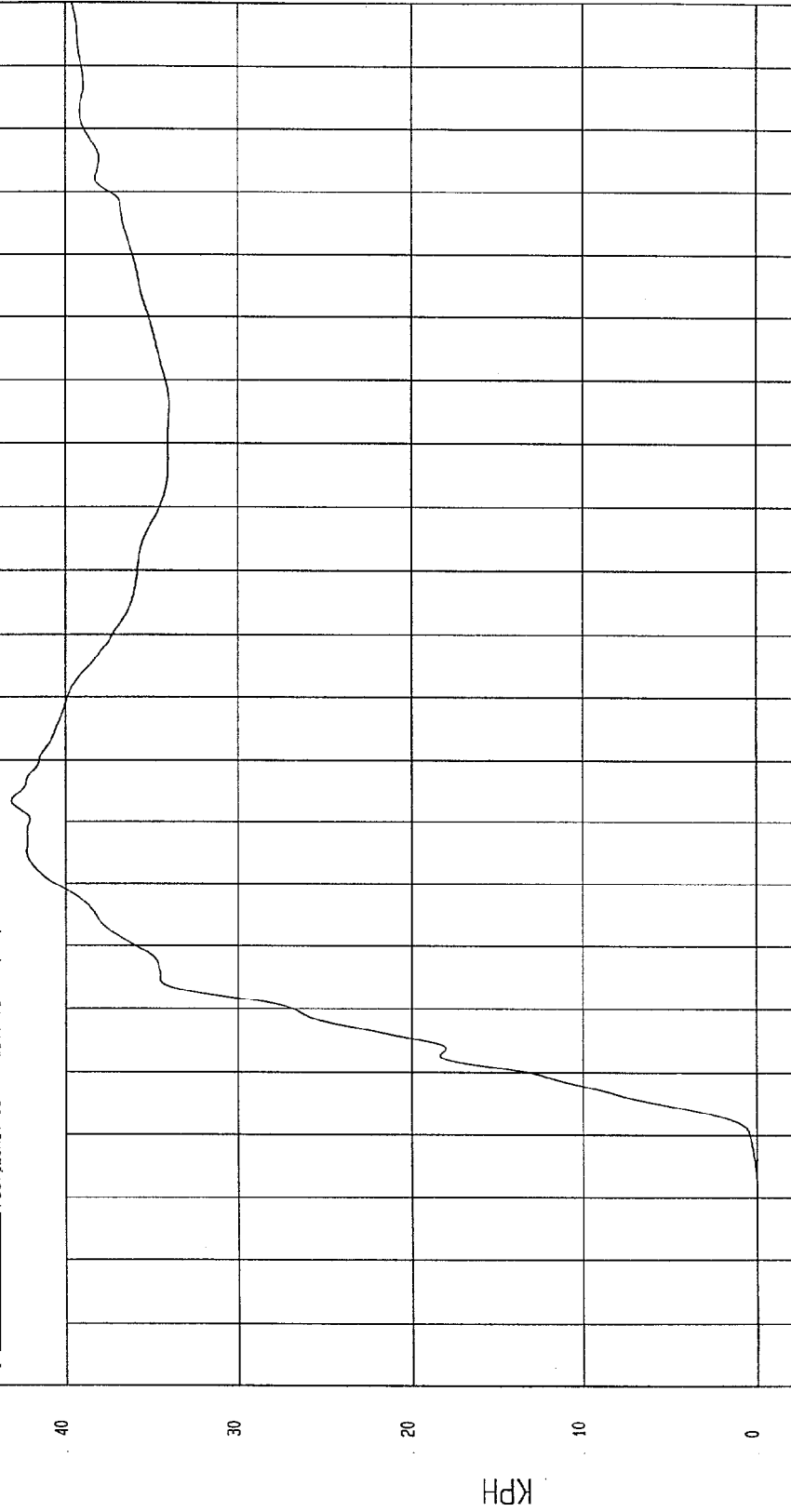
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -4.05E-02 KPH at -10 msec  
Maximum = 43.10 KPH at 73 msec

DRIVER UPPER RIB Y REDUNDANT VELOCITY

1 \_\_\_\_\_ B9712BA1.V61 Filterclass (480)



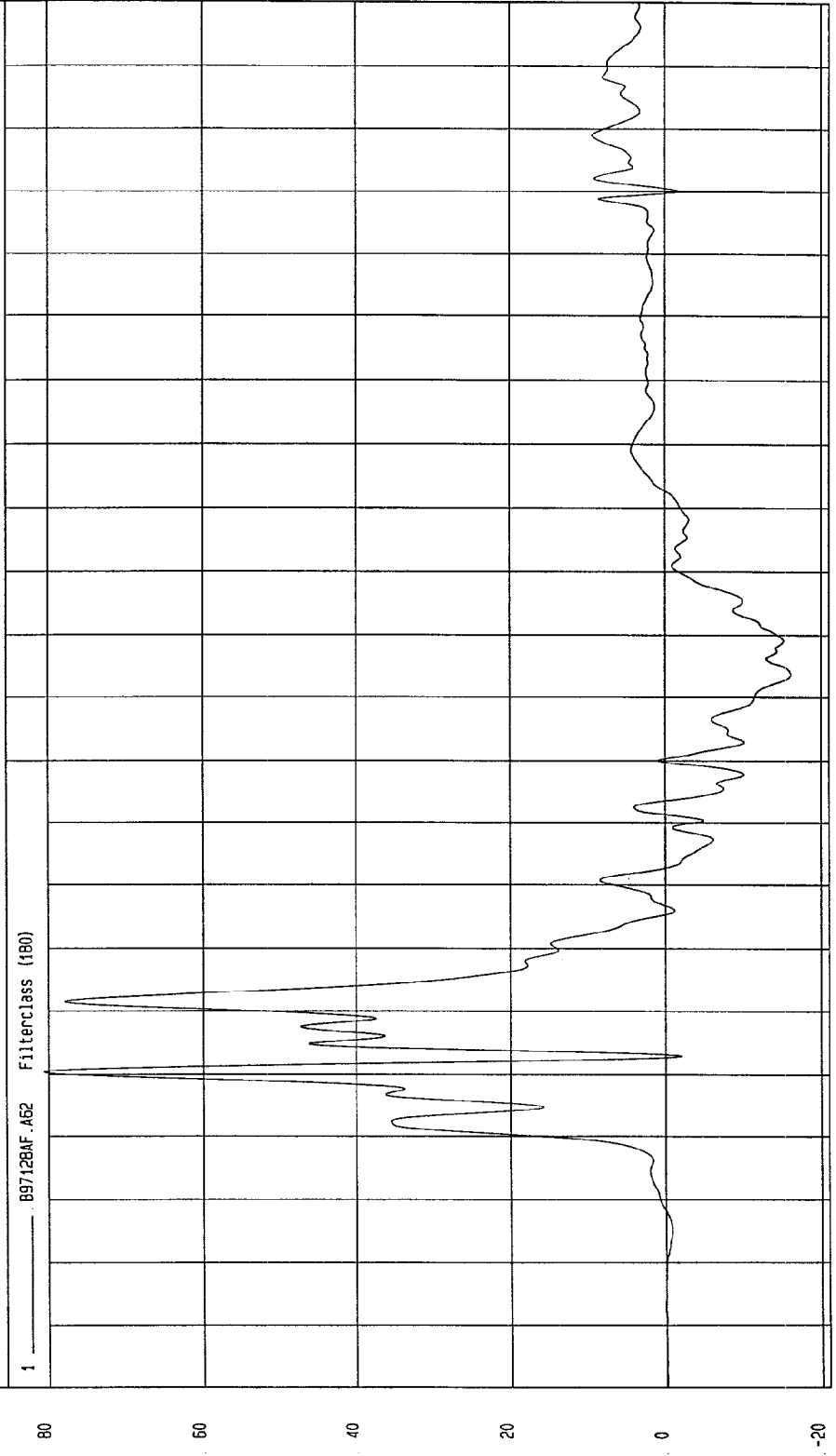
MOA Research  
12-03-1997 16:29

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -16.10 G'S at 94 msec Maximum = 80.56 G'S at 30 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION



TIME (SECONDS)

MCA Research  
12-03-1997 18:13

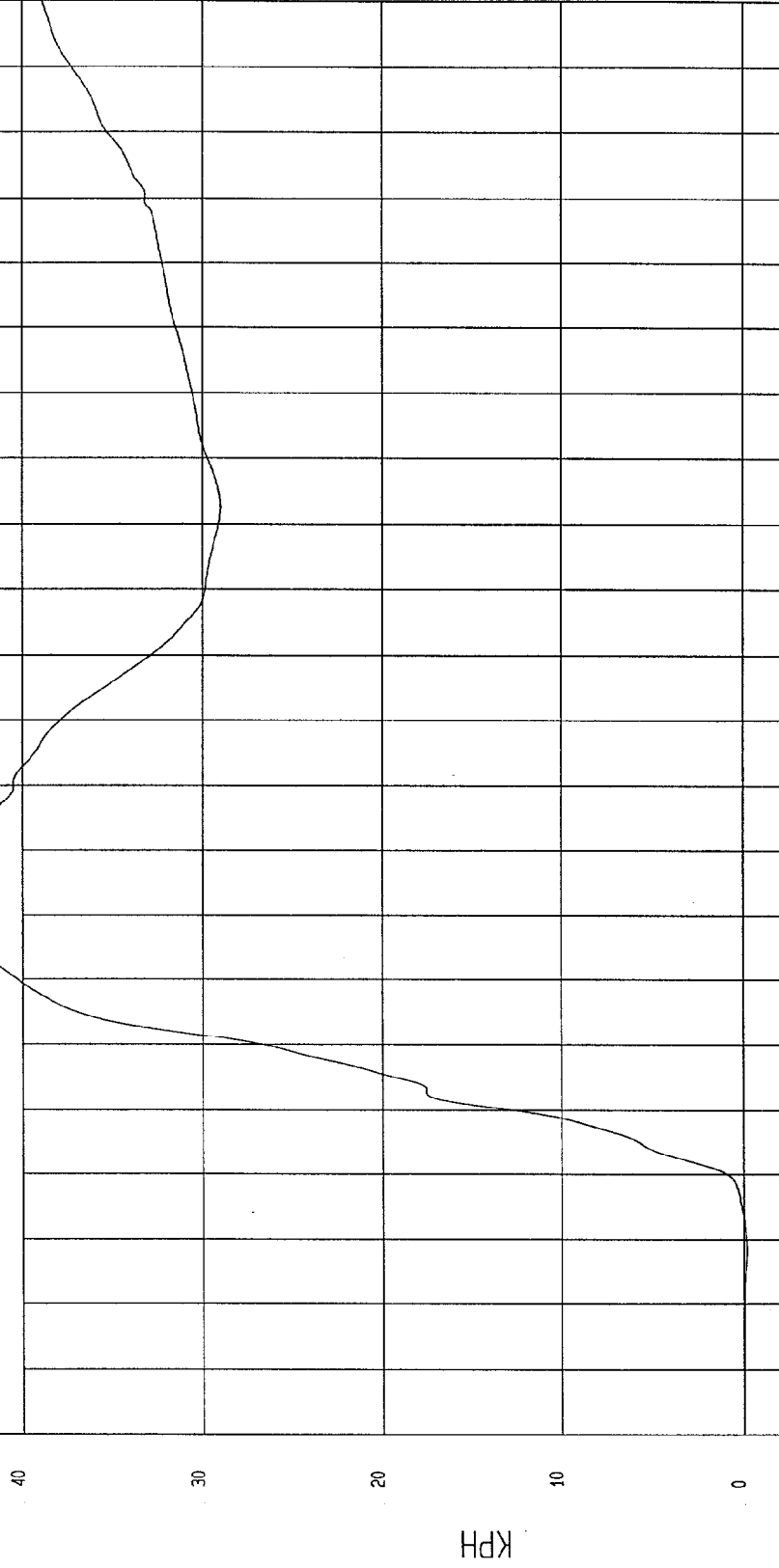
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -18 KPH at 8 msec Maximum = 42.73 KPH at 63 msec

DRIVER LOWER RIB Y REDUNDANT VELOCITY

1 \_\_\_\_\_ B97128AI.V62 Filterclass (180)



TIME Seconds  
MGA Research  
12-03-1997 16:29

TEST DATE: 11-06-1997

TEST: HIGH SPEED LATERAL IMPACT

Speed: 38.2 MPH 61.5 KPH

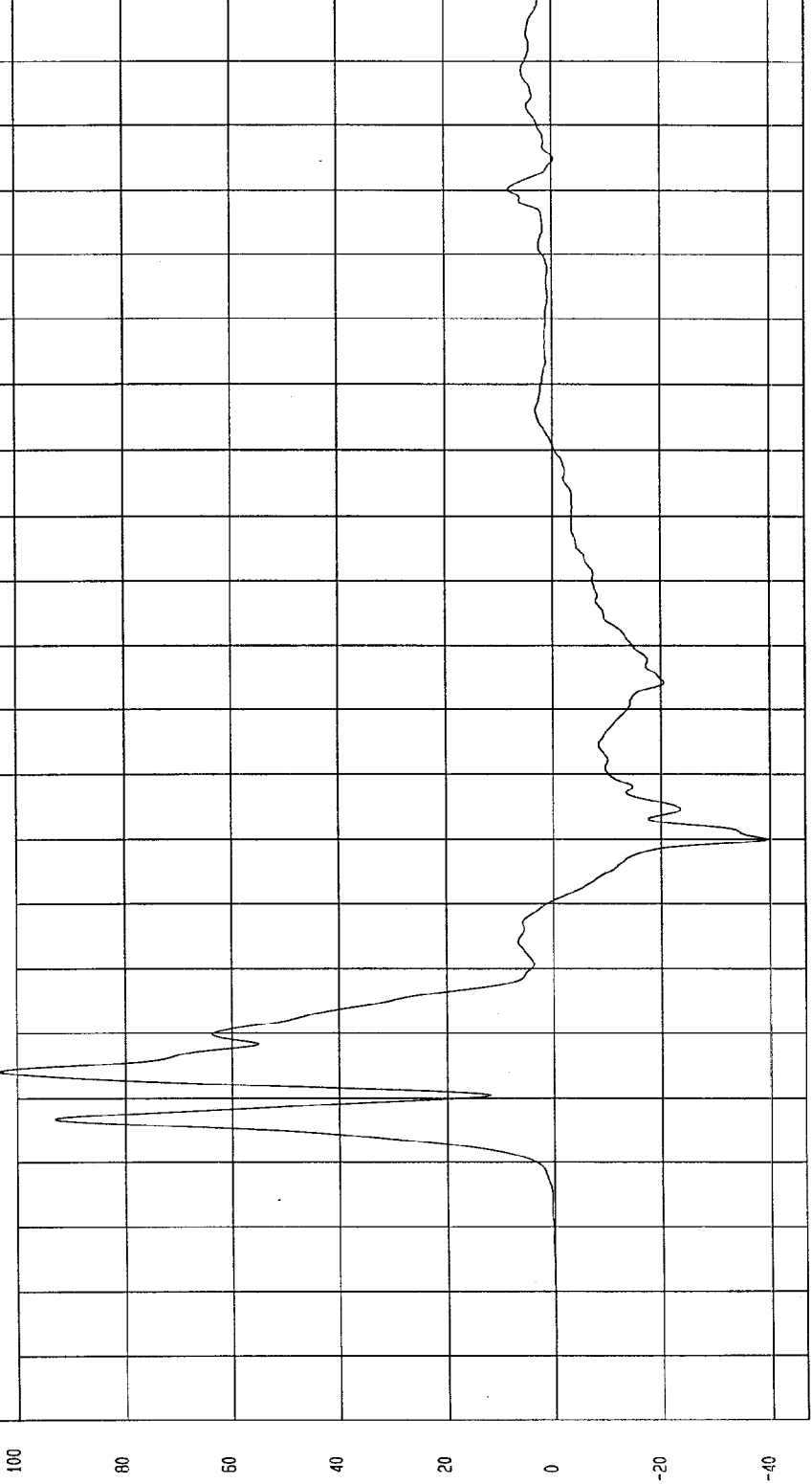
COMPONENT: 1998 MAZDA 626 (MW5401)

Maximum = 103.12 G'S at 34 msec

Minimum = -39.35 G'S at 70 msec

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION

1 89712BAF.A63 Filterclass (180)



W&A Research Corp  
12-03-1997 18:13

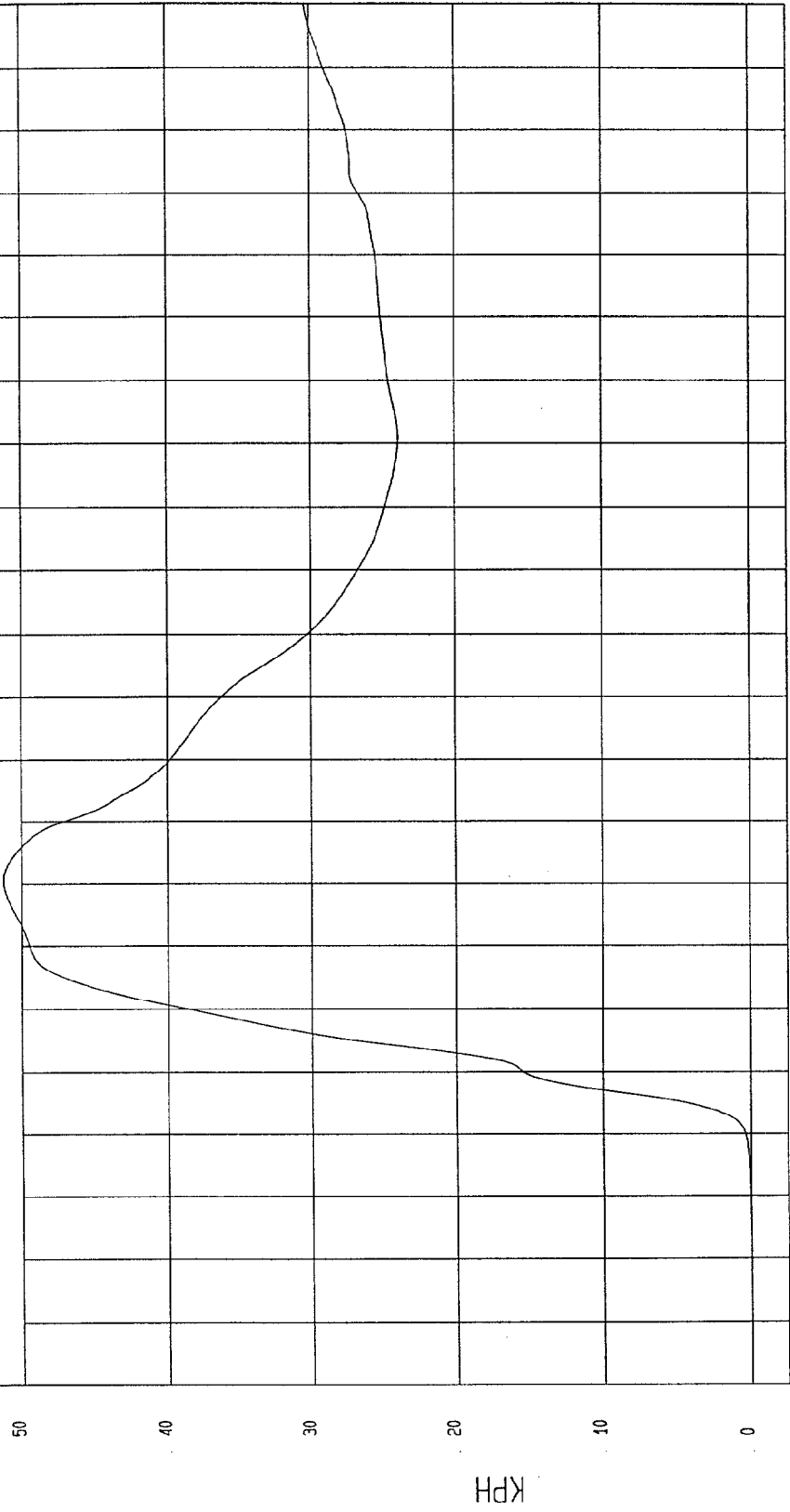
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -5.77E-04 KPH at -16 msec  
Maximum = 51.24 KPH at 61 msec

DRIVER LOWER SPINE Y REDUNDANT VELOCITY

1 \_\_\_\_\_ B9712BA1.V63 Filterclass (180)



M&A Research  
12-03-1997 18:29

TIME Seconds

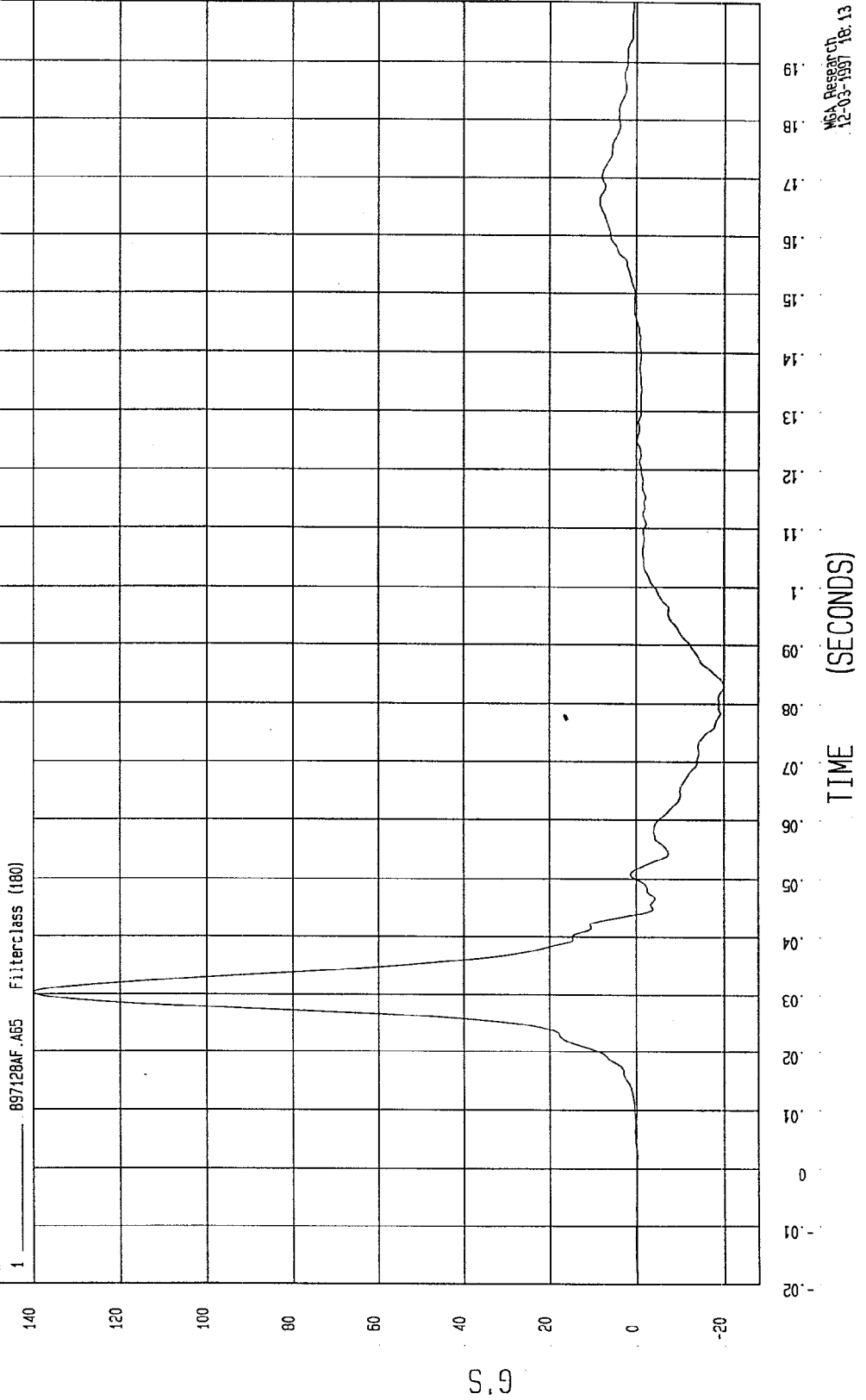
KPH

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -19.94 G'S at 83 msec  
Maximum = 140.09 G'S at 30 msec

DRIVER PELVIS Y REDUNDANT ACCELERATION



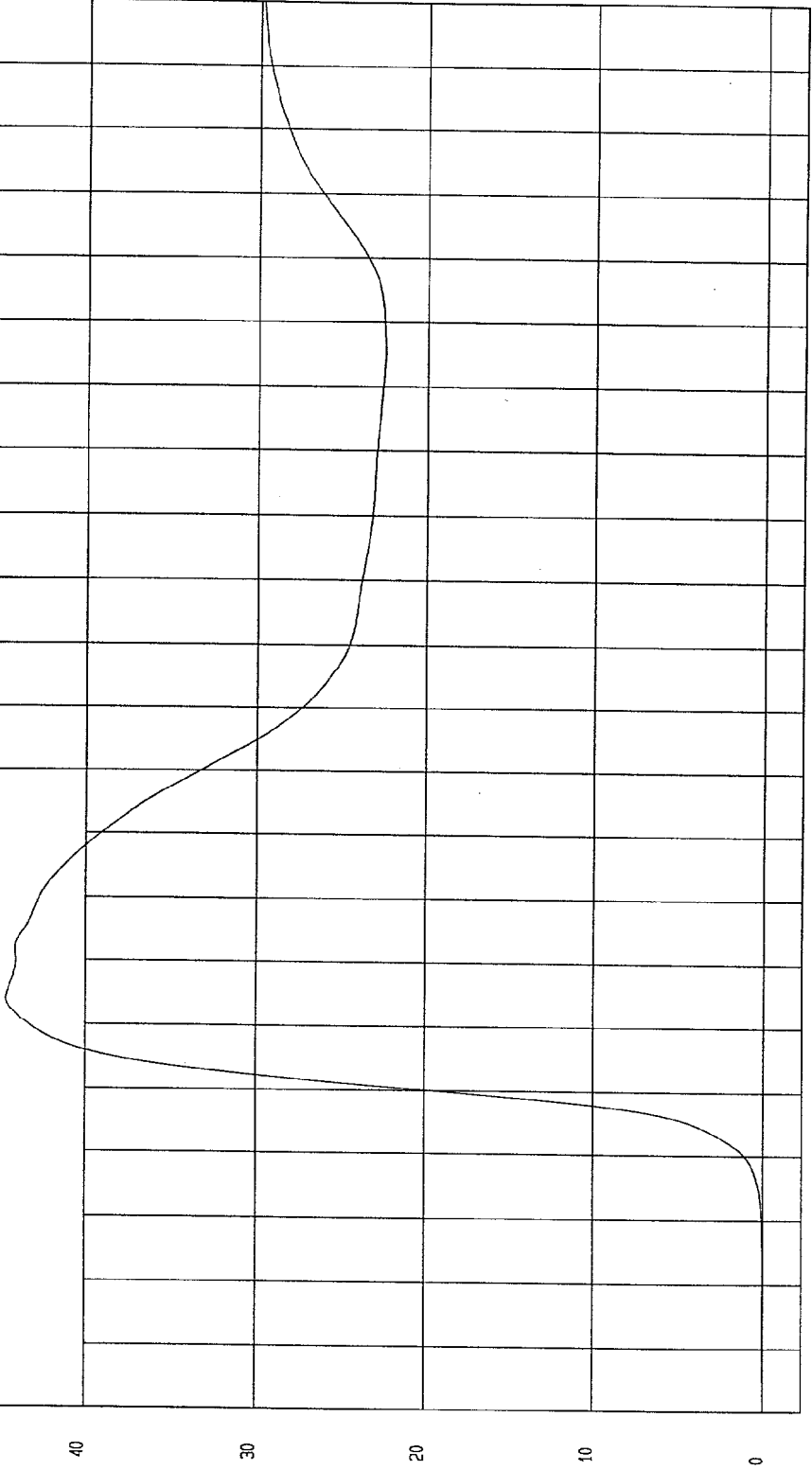
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -3.39E-04 KPH at -19 msec  
Maximum = 44.60 KPH at 44 msec

DRIVER PELVIS Y REDUNDANT VELOCITY

1 ——— B97128A1.V65 Filterclass (180)



MCA Research  
12-03-1997 18:29

TIME Seconds

KPH

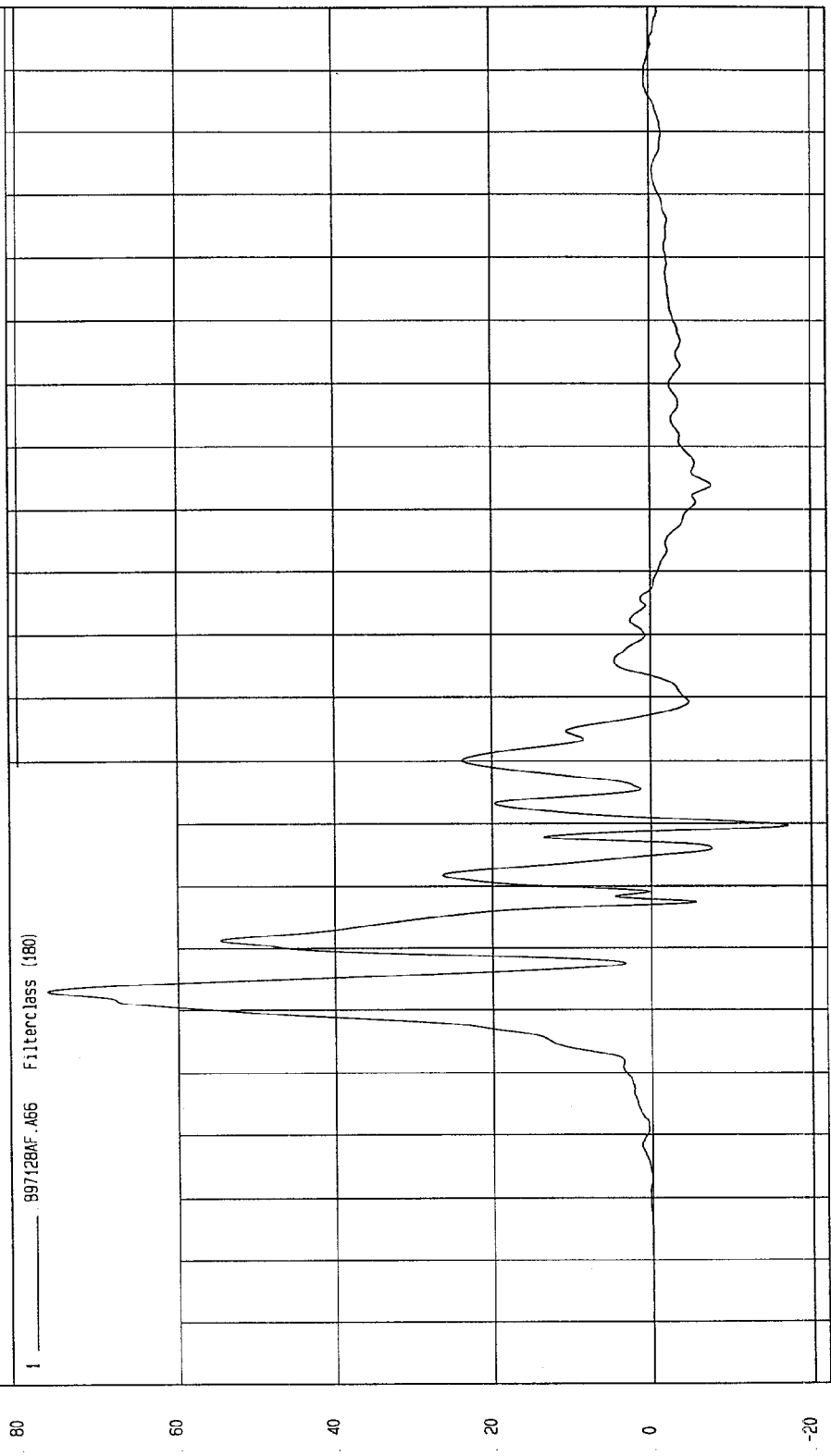
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -17.20 G'S at 70 msec  
Maximum = 76.39 G'S at 43 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

1 897128AF.AG6 Filterclass (180)



NGA Report CT  
12-03-1997 16.13

TIME (SECONDS)

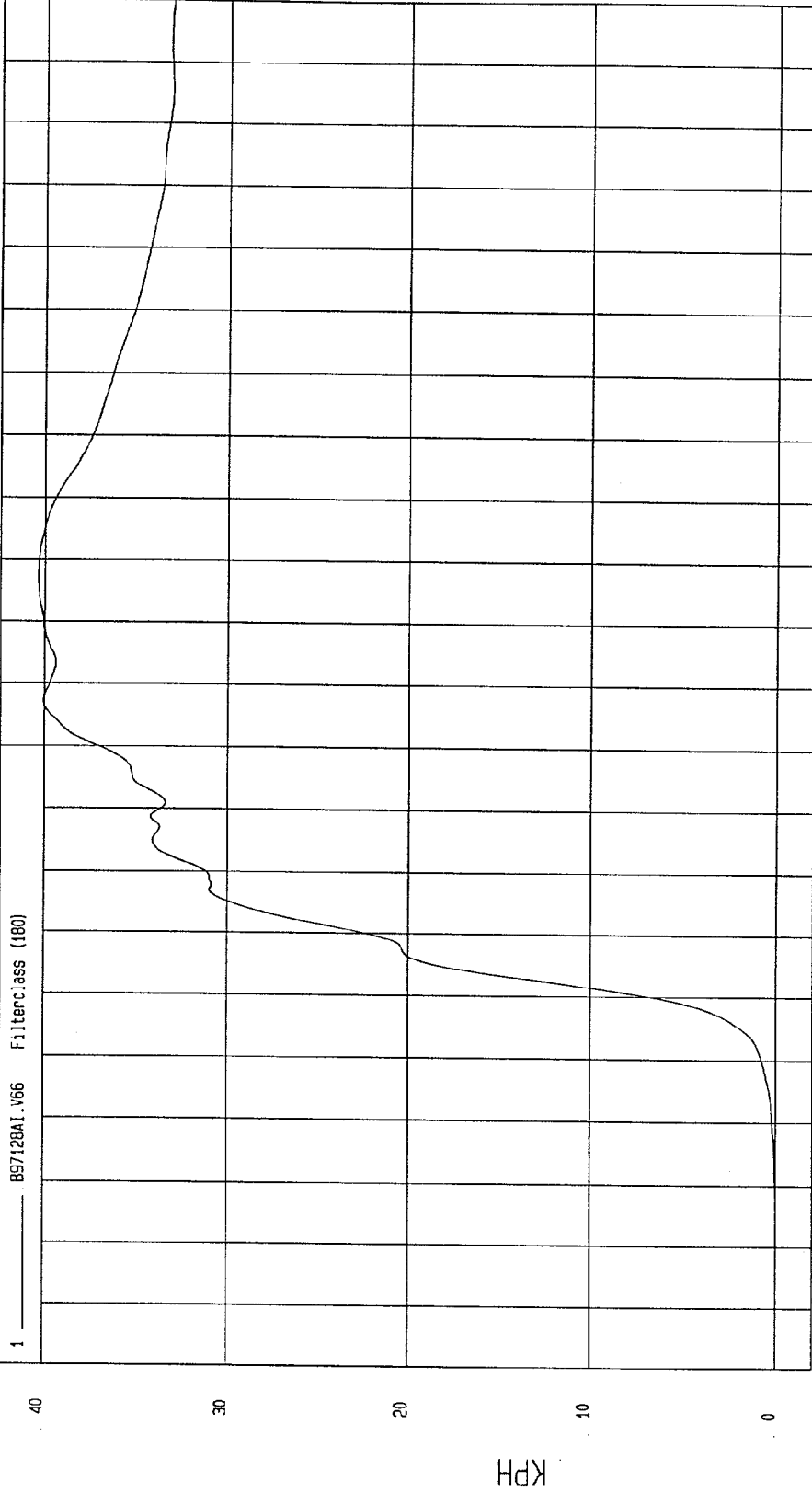
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -7.59E-03 KPH at -11 msec  
Maximum = 40.37 KPH at 107 msec

REAR PASSENGER UPPER RIB Y REDUNDANT VELOCITY

1 ——— BS7128A1.V66 Filterc.ass (180)

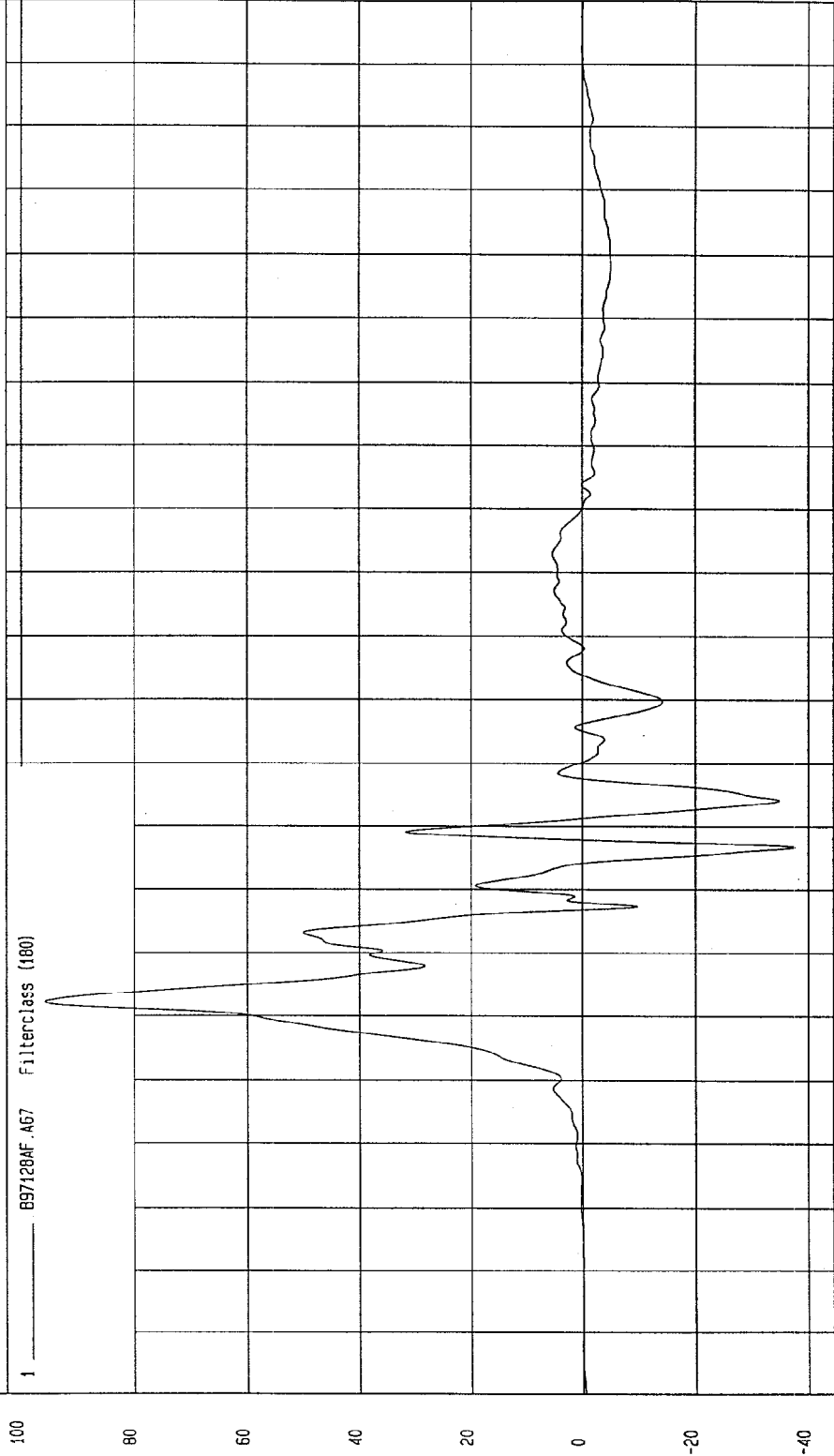


TIME Seconds  
NSA Research  
12-03-1997 16:29

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -37.67 G'S at 67 msec Maximum = 95.92 G'S at 42 msec

REAR PASSENGER LOWER RIB Y REDUNDANT ACCELERATION  
1 \_\_\_\_\_ 897128AF.A67 Filterclass (180)



MGA Research  
12-03-1997 18:13

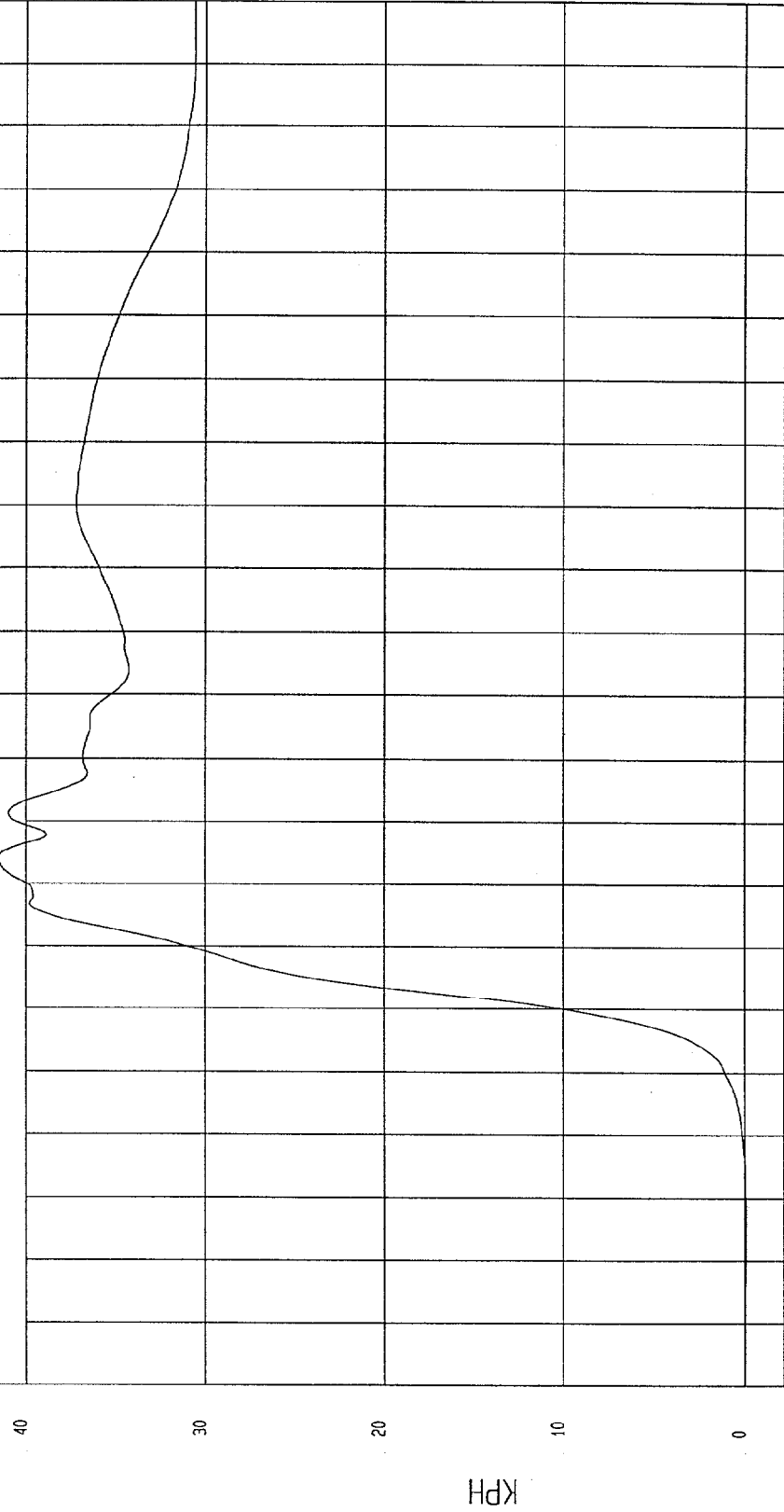
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -8.10E-02 KPH at 6 msec  
Maximum = 41.53 KPH at 64 msec

REAR PASSENGER LOWER RIB Y REDUNDANT VELOCITY

1 \_\_\_\_\_ B9712BA1.V67 Filterclass (180)



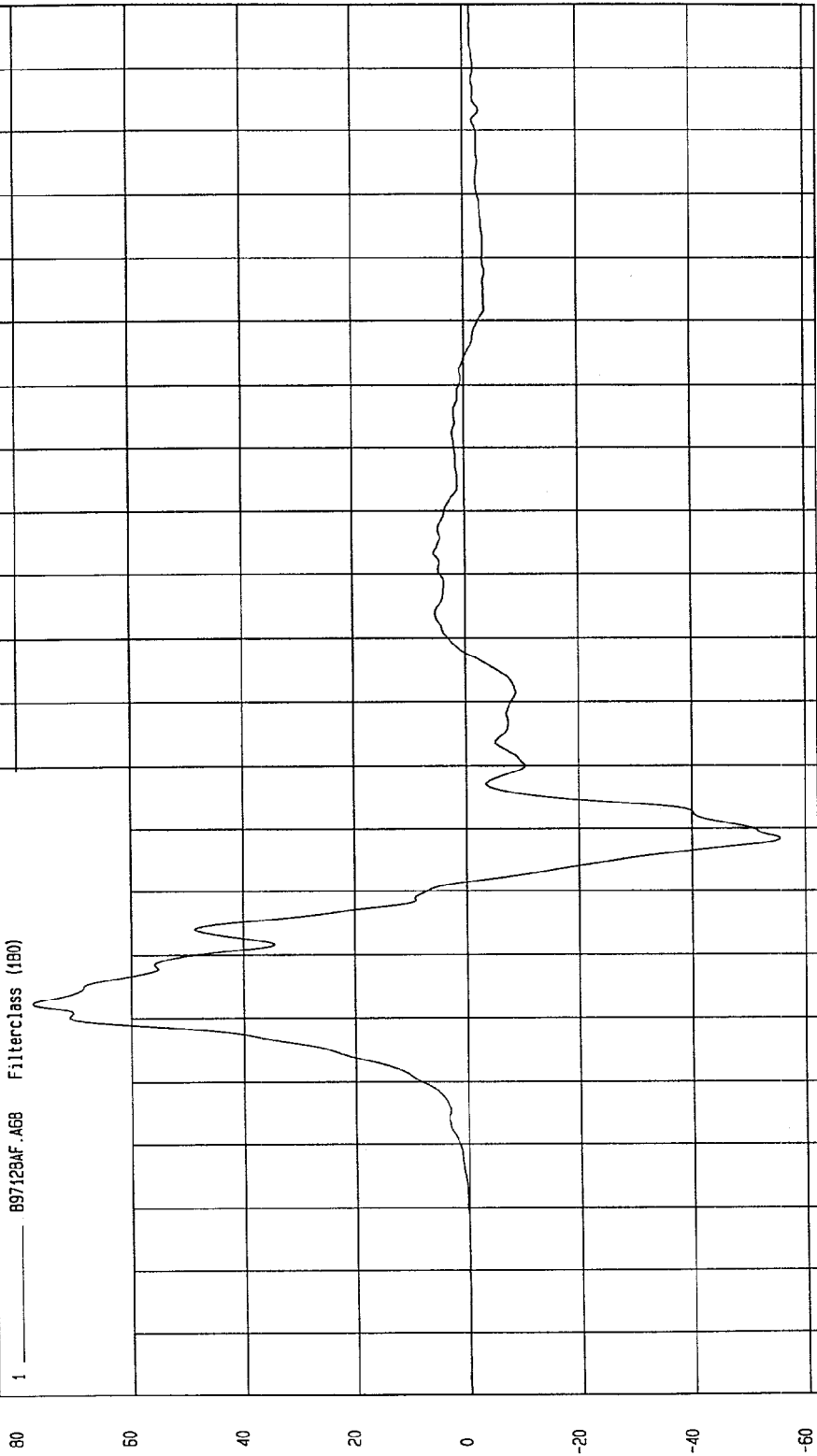
MECA Research  
12-03-1997 18:30

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -55.54 G'S at 68 msec Maximum = 77.40 G'S at 42 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION

1 897129AF.A68 Filterclass (180)



MGA Research  
12-03-1997 18.13

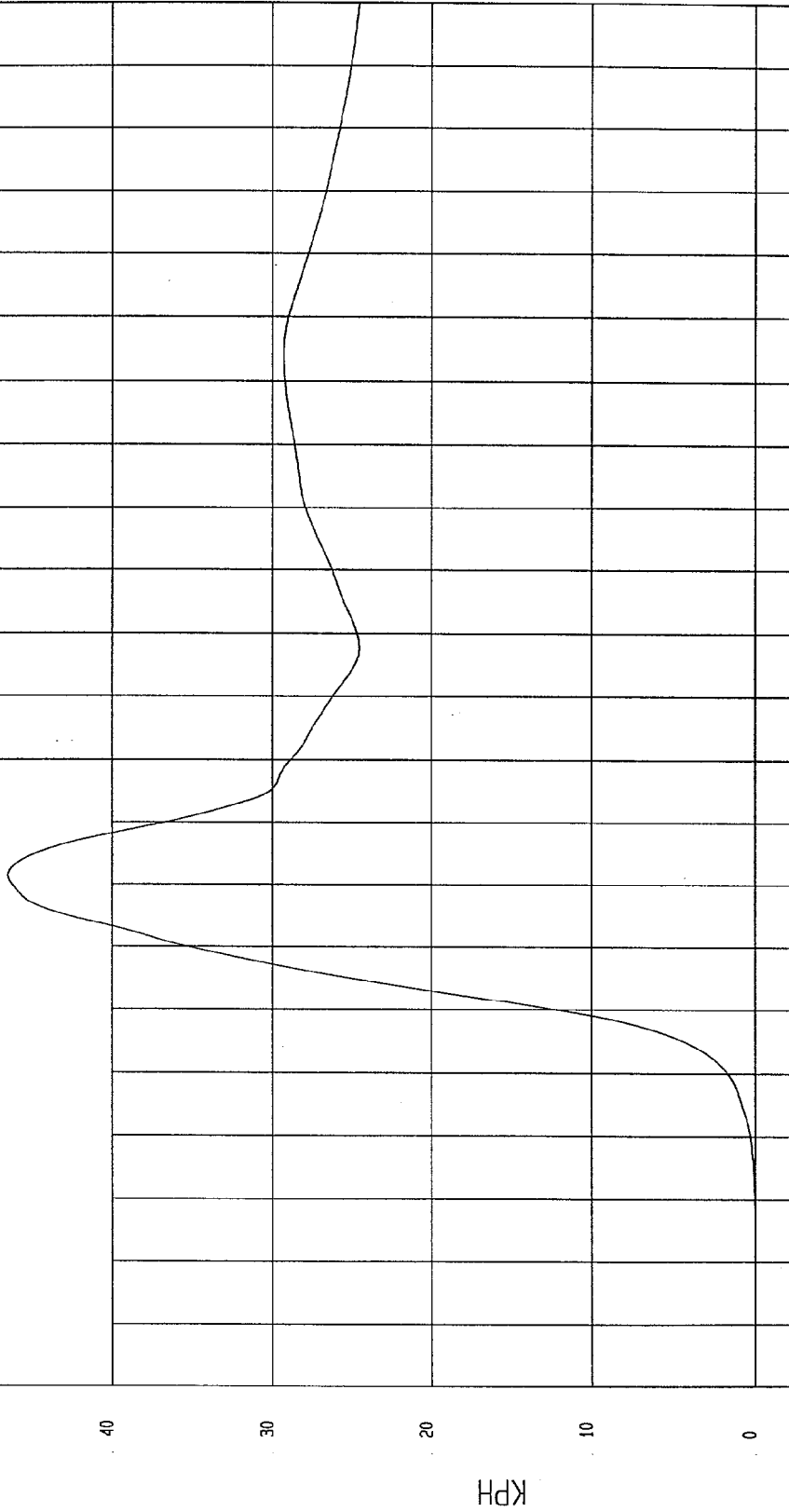
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -2.67E-03 KPH at -18 msec  
Maximum = 46.43 KPH at 62 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT VELOCITY

1 \_\_\_\_\_ .B97128A1.V58 Filterclass (180)



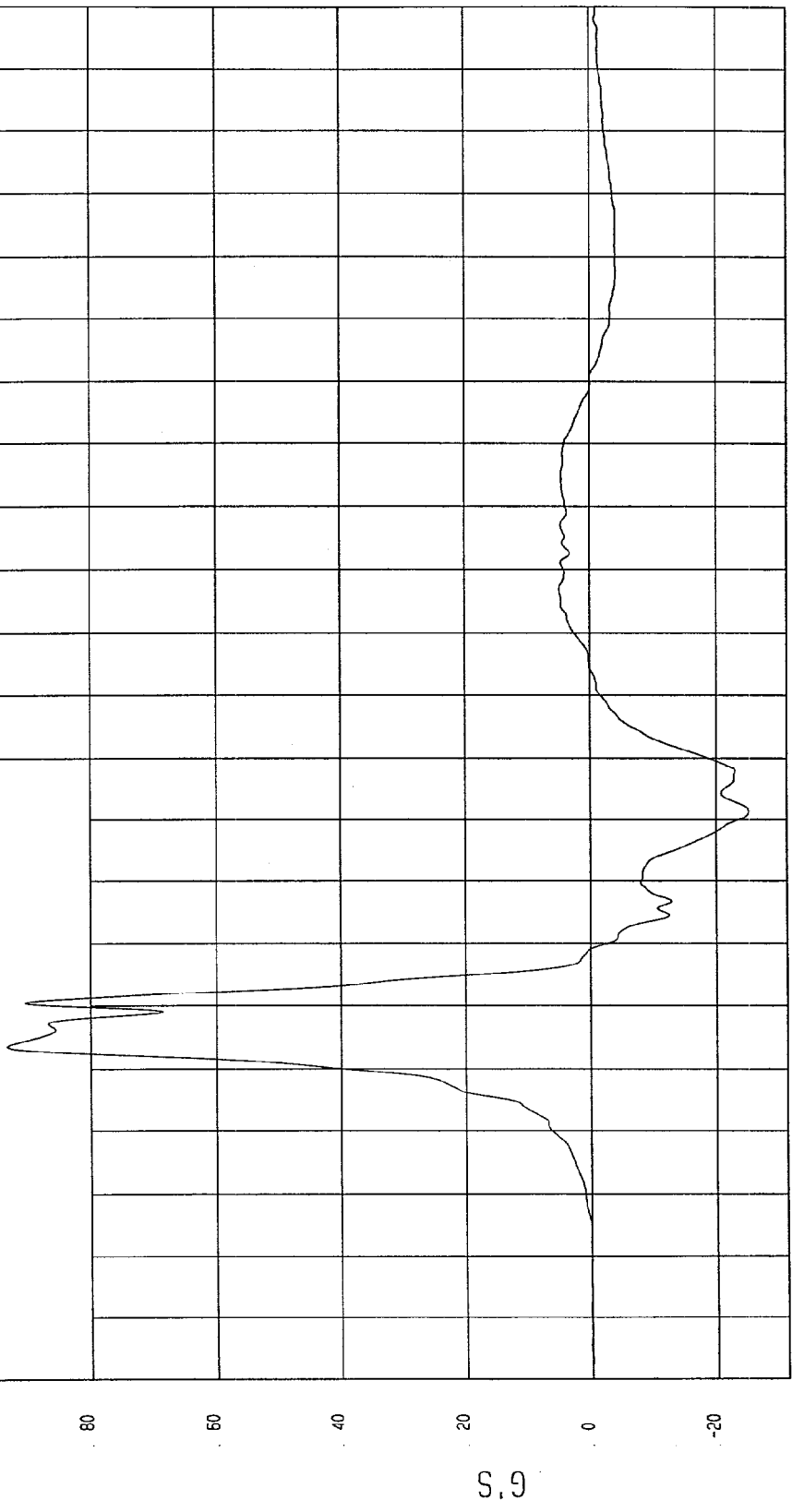
TIME Seconds  
NSA Research  
12-03-1997 16:30

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -25.09 G'S at 71 msec Maximum = 93.21 G'S at 34 msec

REAR PASSENGER PELVIS Y REDUNDANT ACCELERATION

1 \_\_\_\_\_ B97128AF.A69 Filterclass (180)



MSA Research  
12-03-1997 16: 14

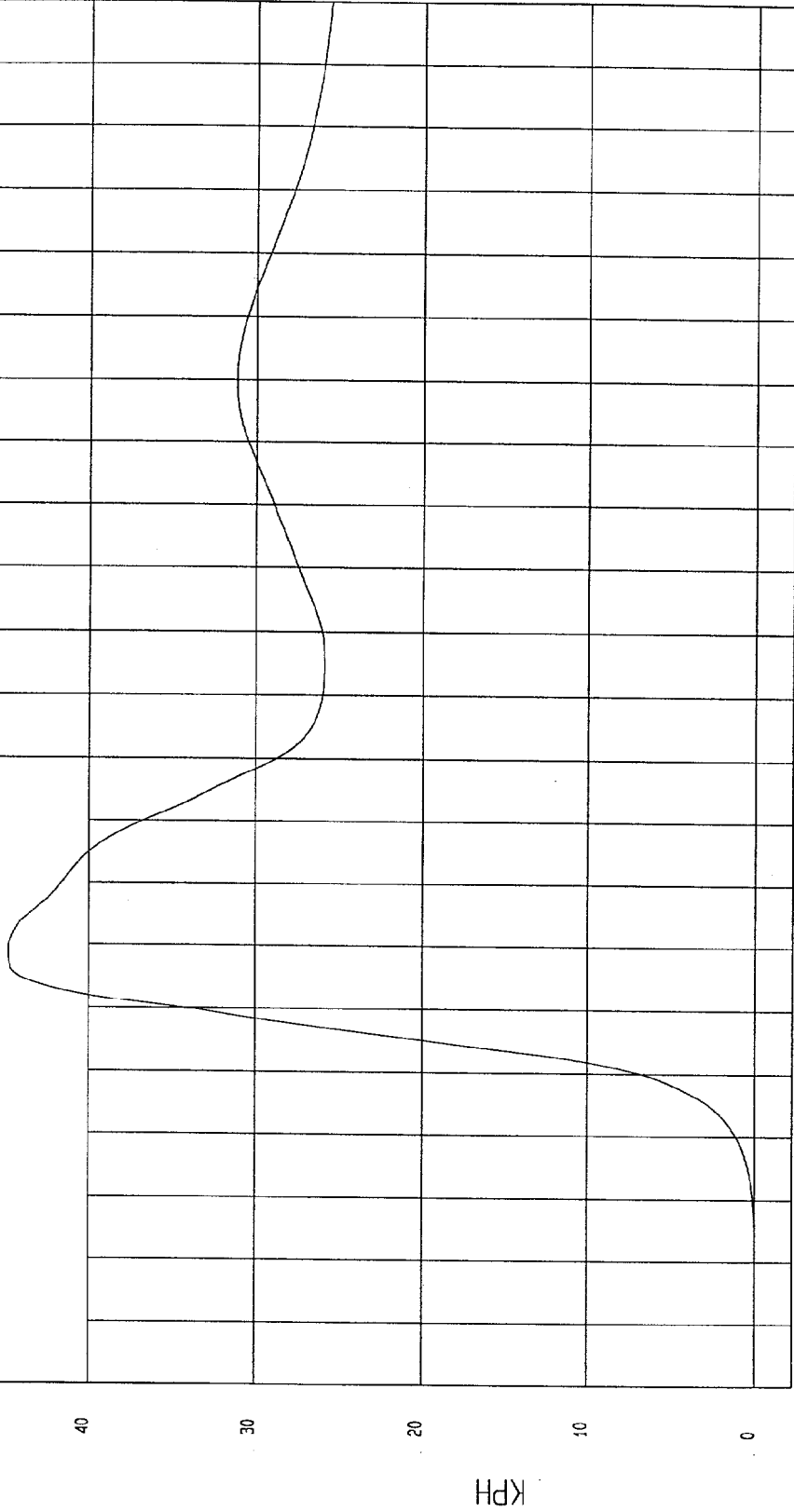
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -3.47E-03 KPH at -16 msec  
Maximum = 44.81 KPH at 49 msec

REAR PASSENGER PELVIS Y REDUNDANT VELOCITY

1 . . . . . B9712BA1.V69 Filterclass (180)



TIME Seconds  
NCA Research  
12-03-1997 18:30

**FINITE IMPULSE RESPONSE (FIR) FILTERED DATA**

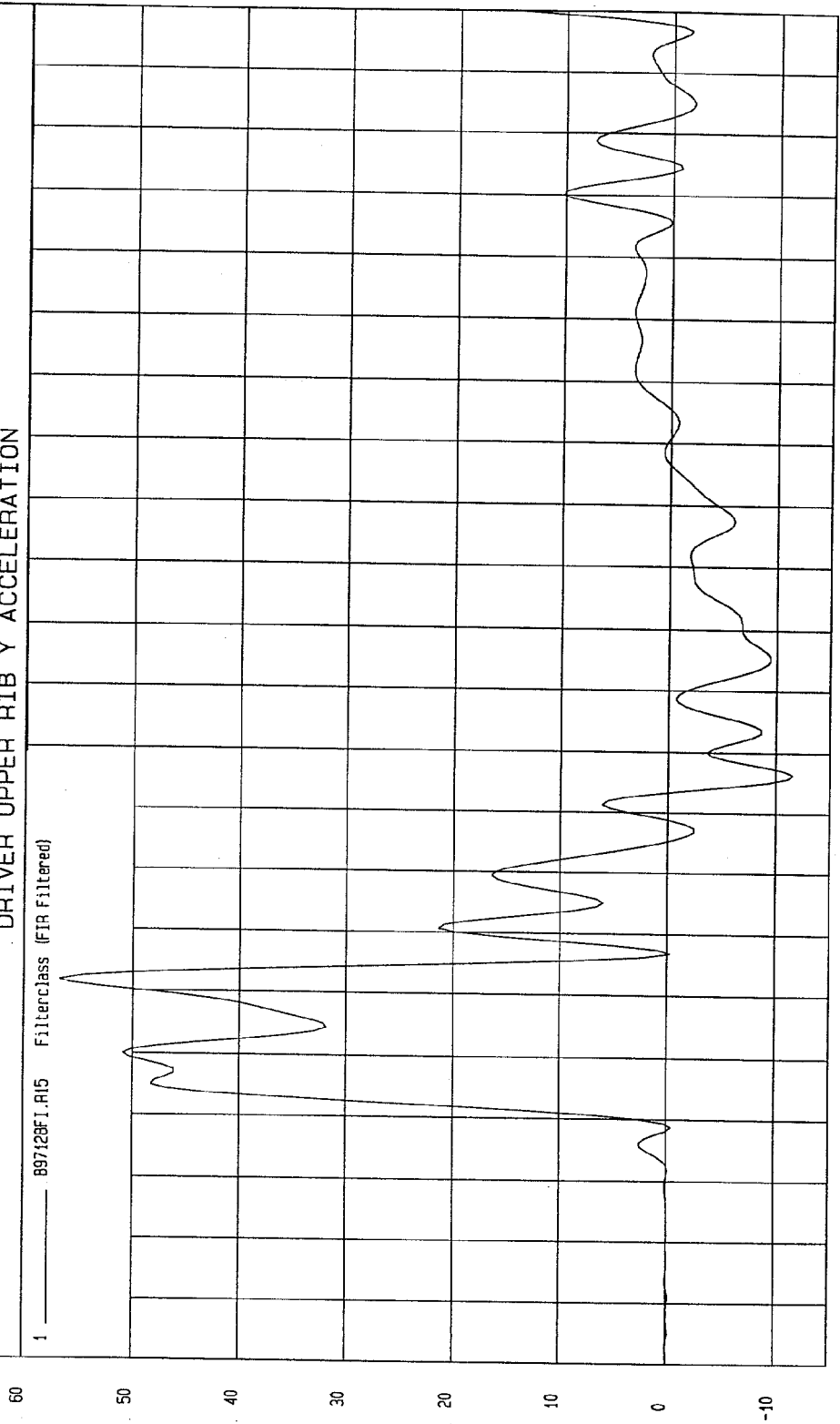
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -11.55 G'S at 76 msec  
Maximum = 56.68 G'S at 42 msec

DRIVER UPPER RIB Y ACCELERATION

1 ——— 897128F1.R15 Filterclass (FIR Filtered)



NSA Research  
12-03-1997 16:15

TIME (SECONDS)

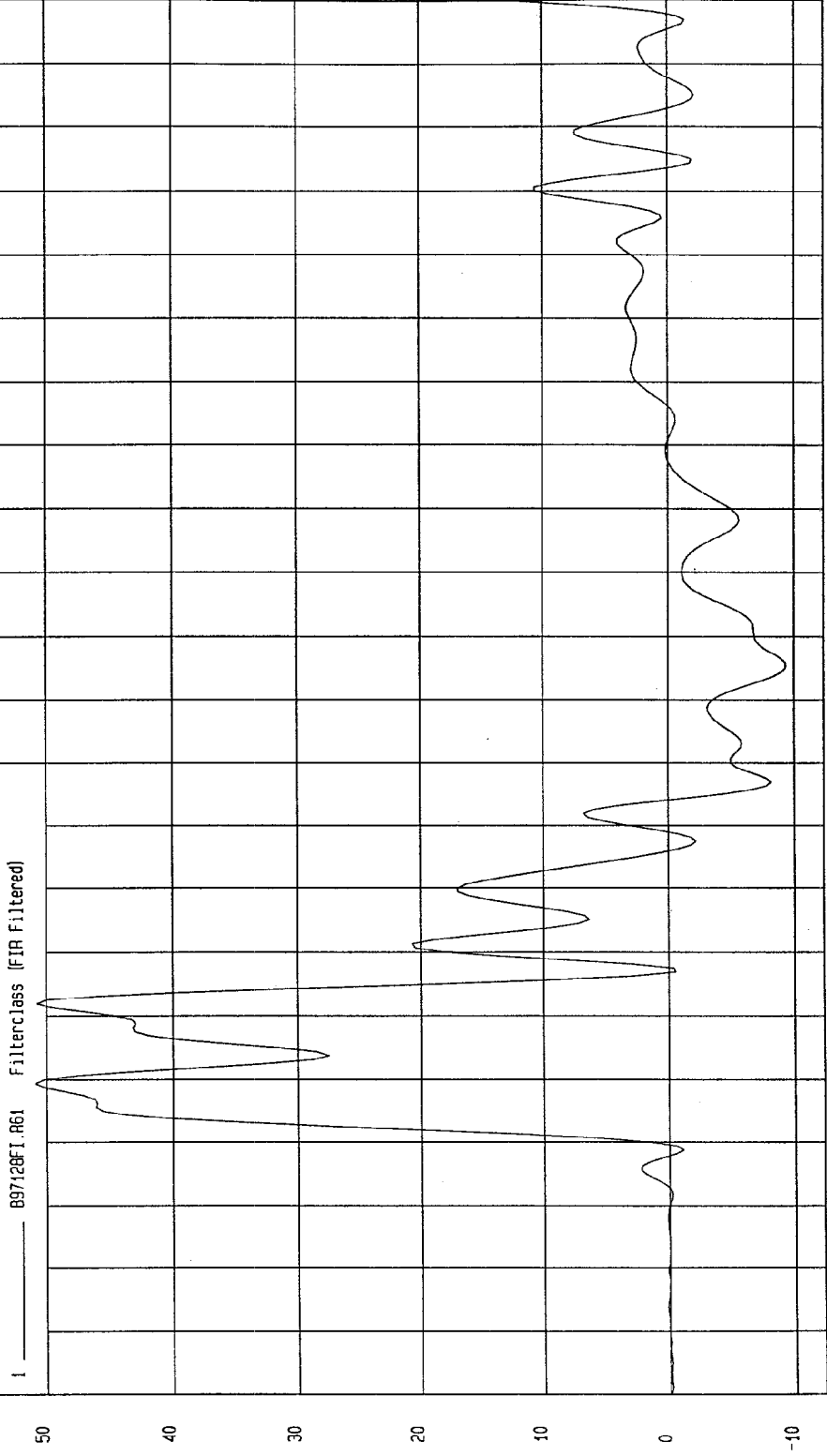
G.S

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -9.33 G'S at 95 msec Maximum = 50.94 G'S at 29 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION



TIME (SECONDS)

MOA Research  
11-06-1997 15.06

G.S

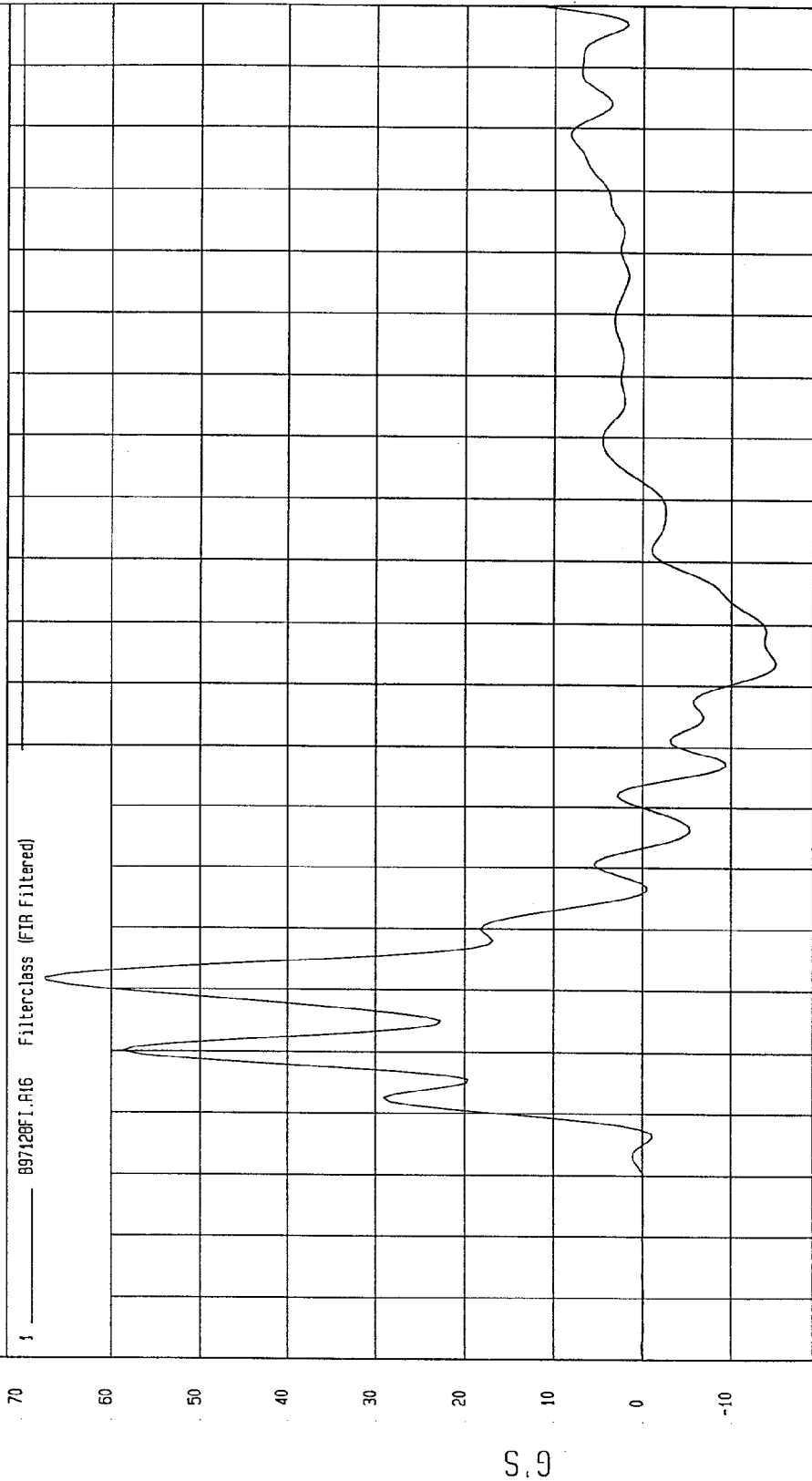
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -14.92 G'S at 94 msec  
Maximum = 67.51 G'S at 42 msec

DRIVER LOWER RIB Y ACCELERATION

1 897128FI.R16 Filterclass (FIR Filtered)



MGA Research  
12-03-1997 16.15

TIME (SECONDS)

G.S

TEST DATE: 11-06-1997

TEST: HIGH SPEED LATERAL IMPACT

Speed: 38.2 MPH 61.5 KPH

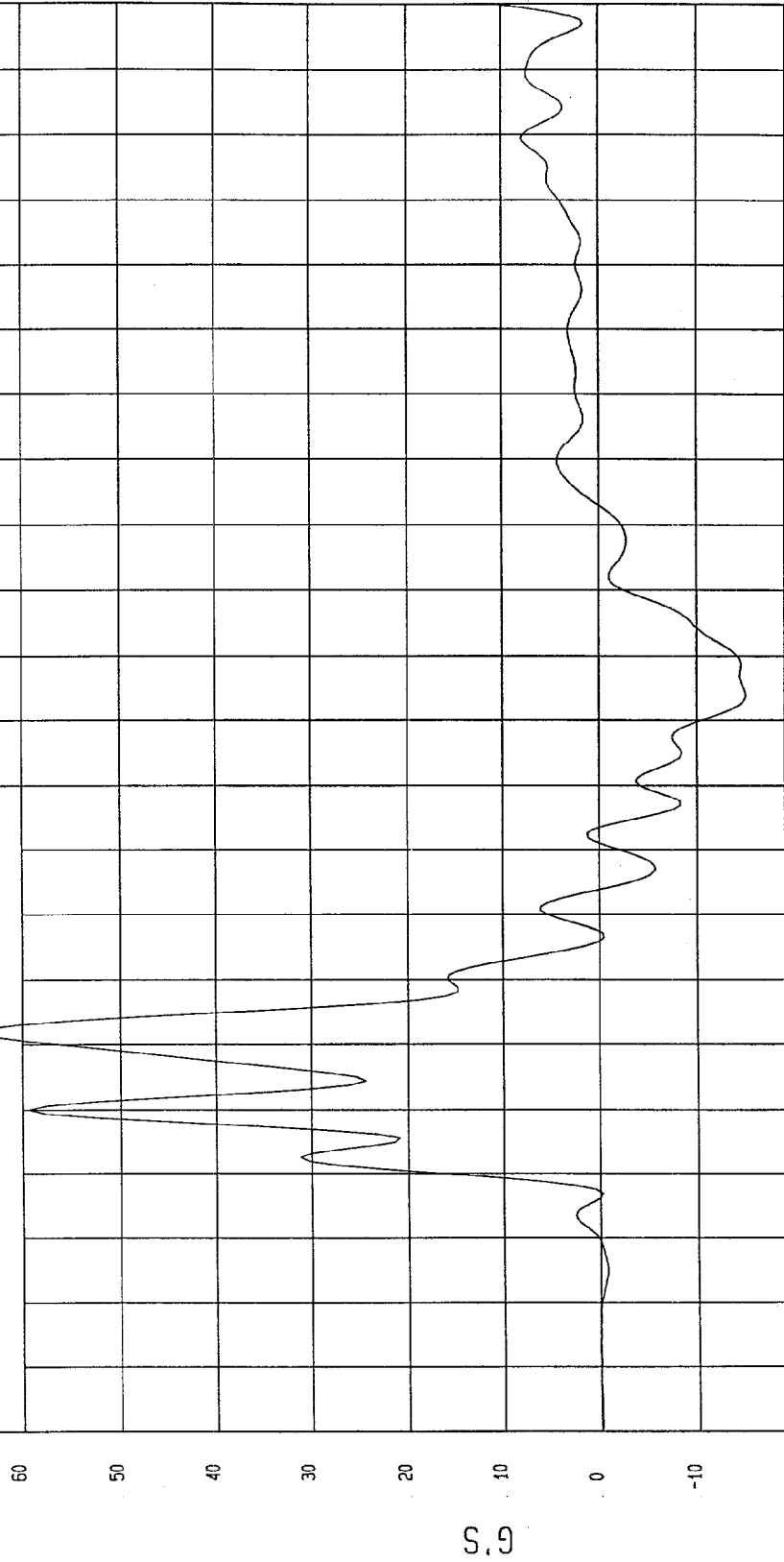
COMPONENT: 1998 MAZDA 626 (MW5401)

Maximum = 64.68 G'S at 42 msec

Minimum = -14.97 G'S at 94 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION

1 .897128F1.F62 FilterClass (FIR Filtered)



MGA Research  
11-06-1997 15:06

TIME (SECONDS)

G.S

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

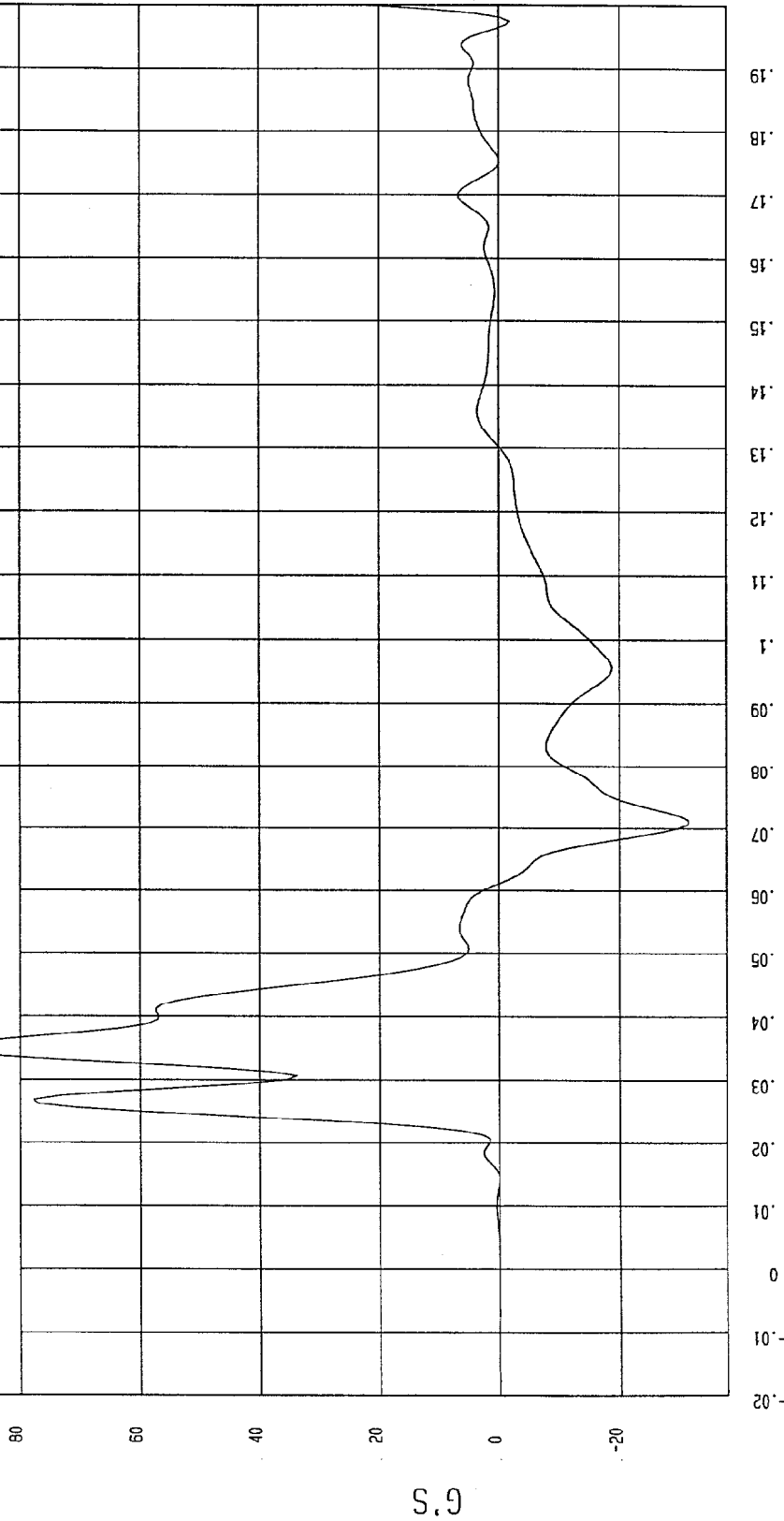
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -31.33 G'S at 71 msec

Maximum = 93.33 G'S at 35 msec

DRIVER LOWER SPINE Y ACCELERATION

1 897128F1.R17 FilterClass (FIR Filtered)



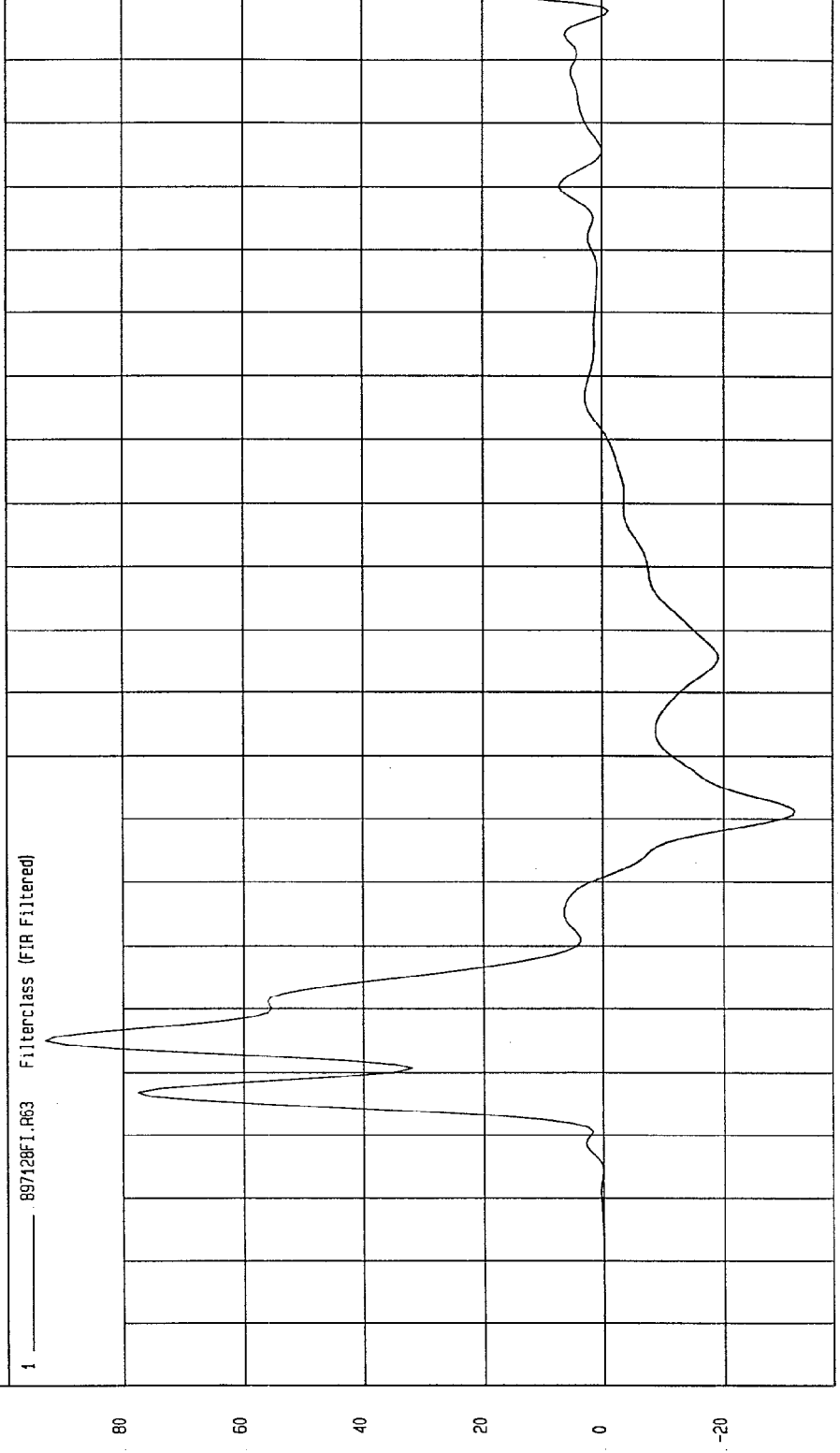
MGA Research  
12-03-1997 16:15

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -31.70 G'S at 71 msec Maximum = 92.91 G'S at 35 msec

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION



TIME (SECONDS)

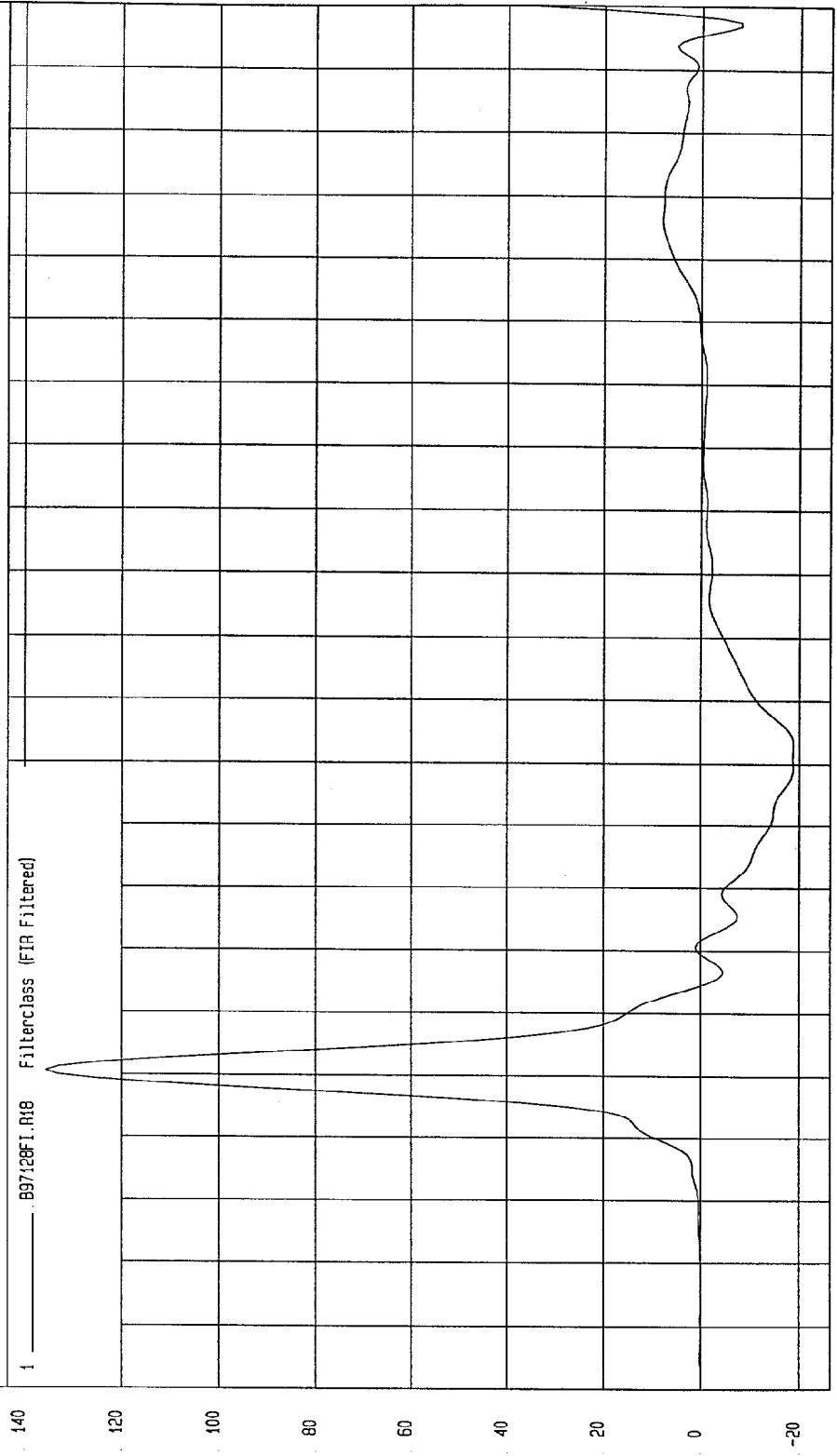
MCA Research  
11-06-1997 15:07

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -18.81 G'S at 83 msec  
Maximum = 135.70 G'S at 31 msec

DRIVER PELVIS Y ACCELERATION



NCA Research  
12-03-1997 18.15

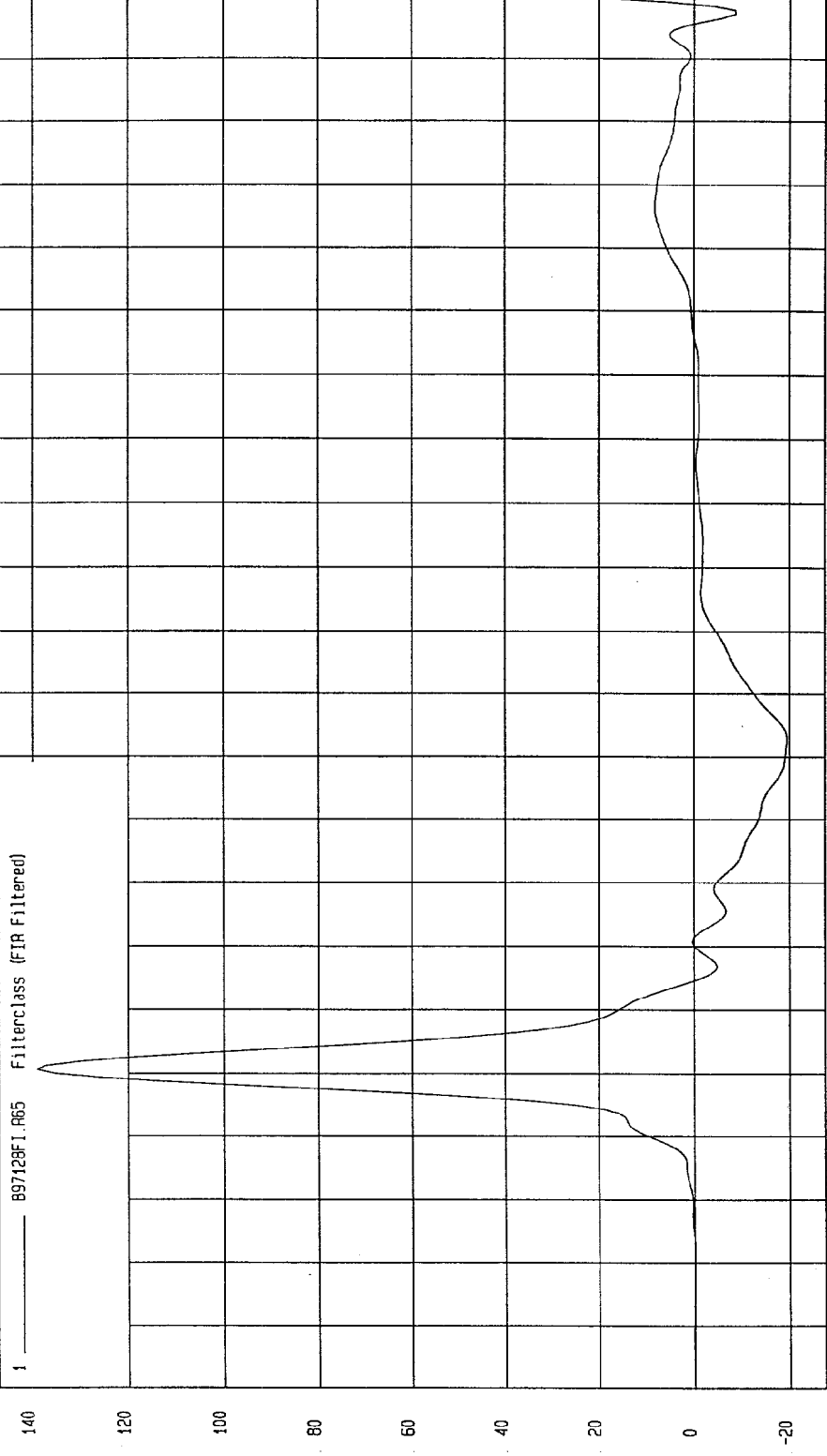
TIME (SECONDS)

G.S

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997  
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -19.40 G'S at 82 msec Maximum = 139.20 G'S at 31 msec

DRIVER PELVIS Y REDUNDANT ACCELERATION



MECA Research  
11-06-1997 15:07

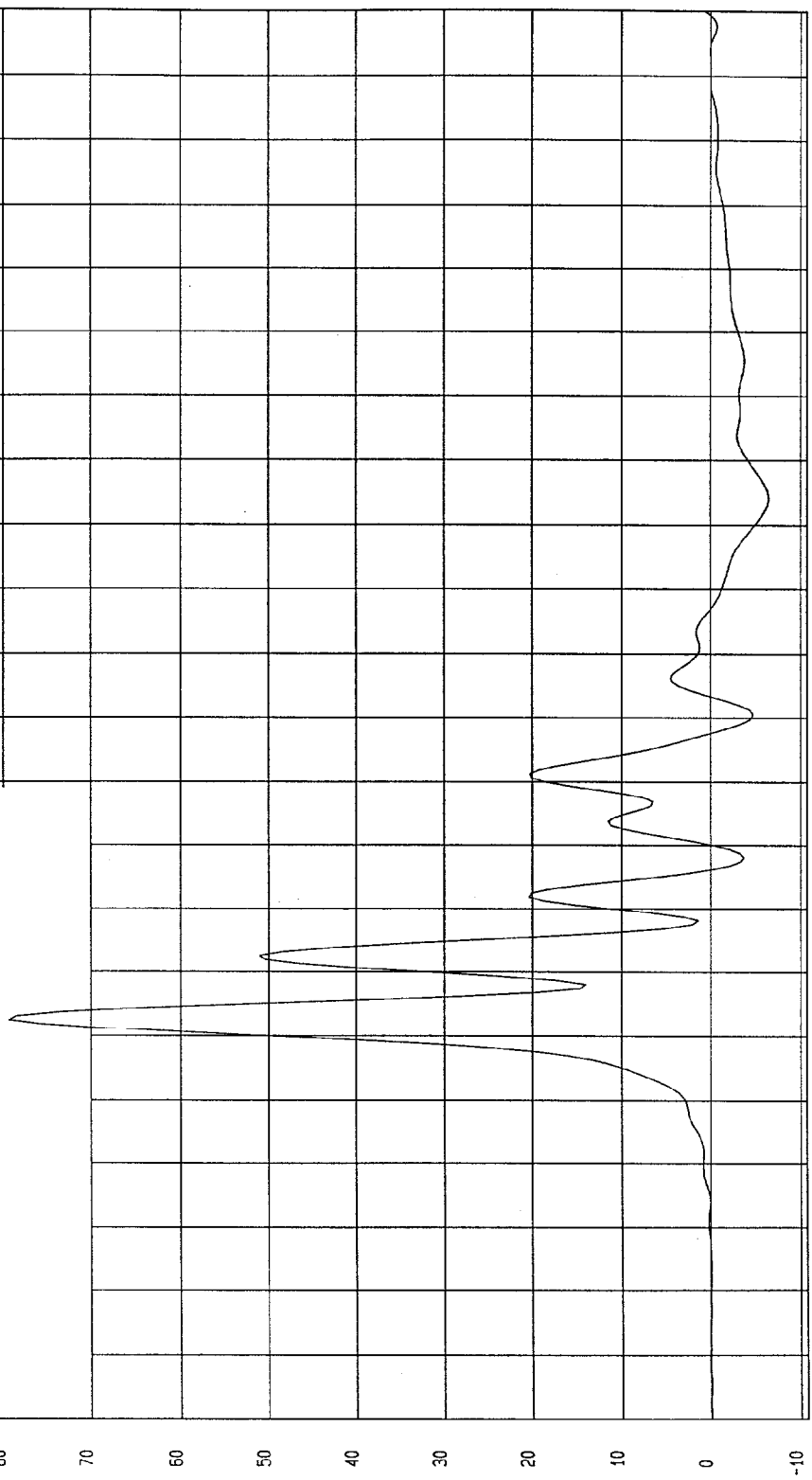
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -6.40 G'S at 124 msec  
Maximum = 79.45 G'S at 42 msec

REAR PASSENGER UPPER RIB Y ACCELERATION

1 897128FI.R25 Filterclass (FIR Filtered)



M&A Research  
12-03-1997 18:15

TIME (SECONDS)

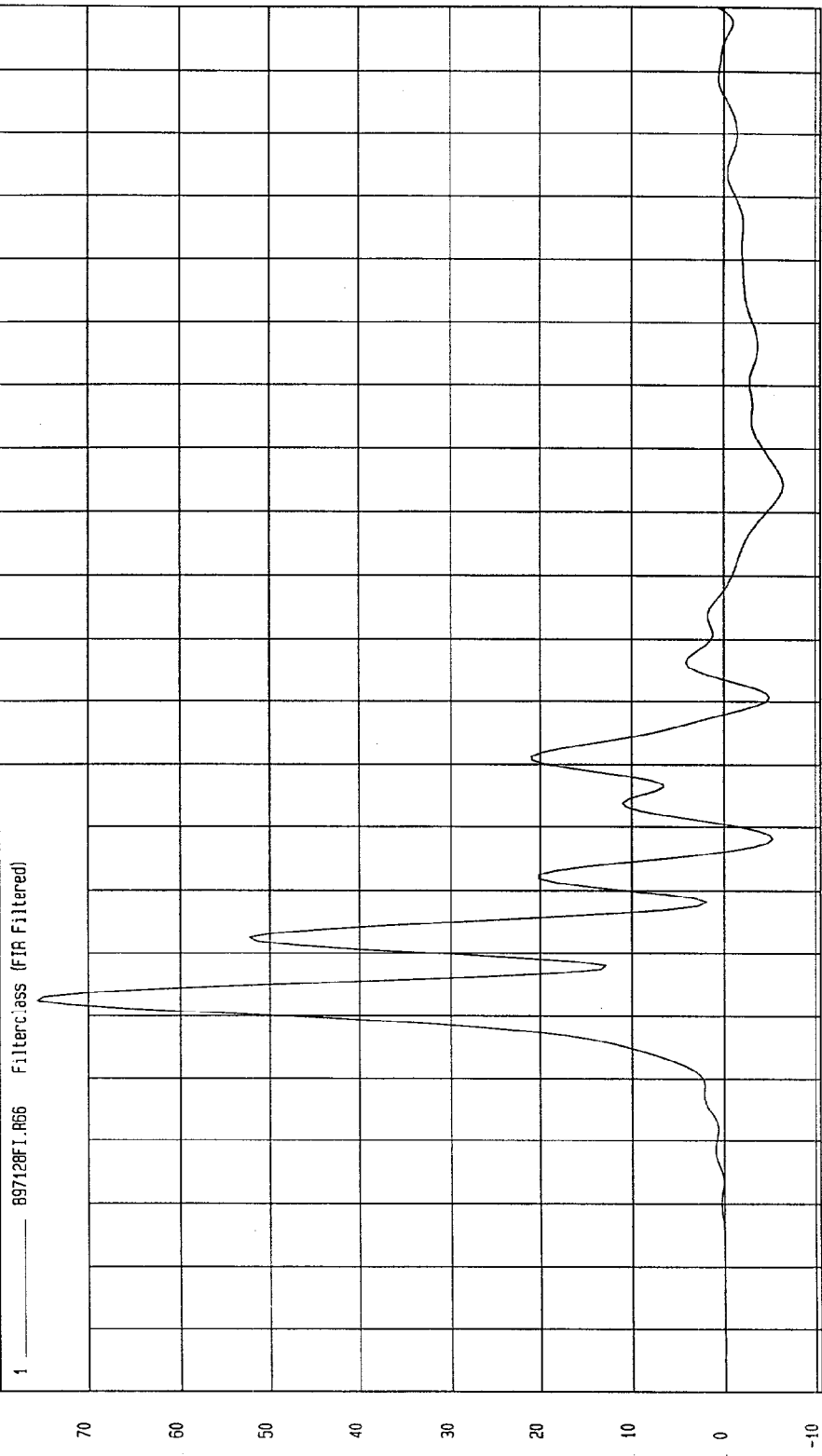
G.S

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -6.42 G'S at 124 msec Maximum = 75.53 G'S at 42 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION



MGA Report of  
11-06-1997 15:07

TIME (SECONDS)

G.S

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

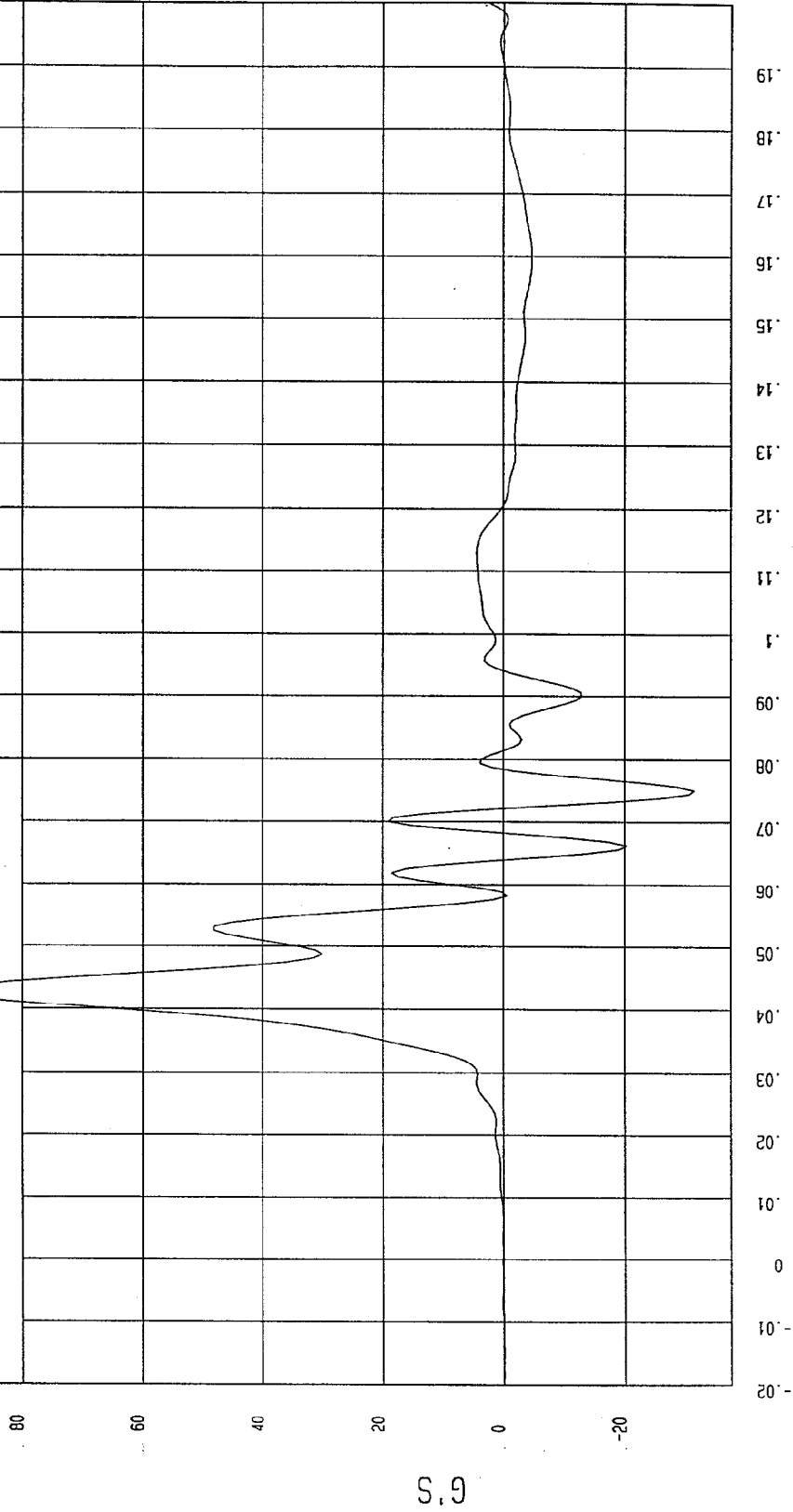
COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -31.31 G'S at 75 msec

Maximum = 92.22 G'S at 42 msec

REAR PASSENGER LOWER RIB Y ACCELERATION

1 B97128F1.R26 Filterclass (FIR Filtered)



MCA Research  
12-03-1997 18:15

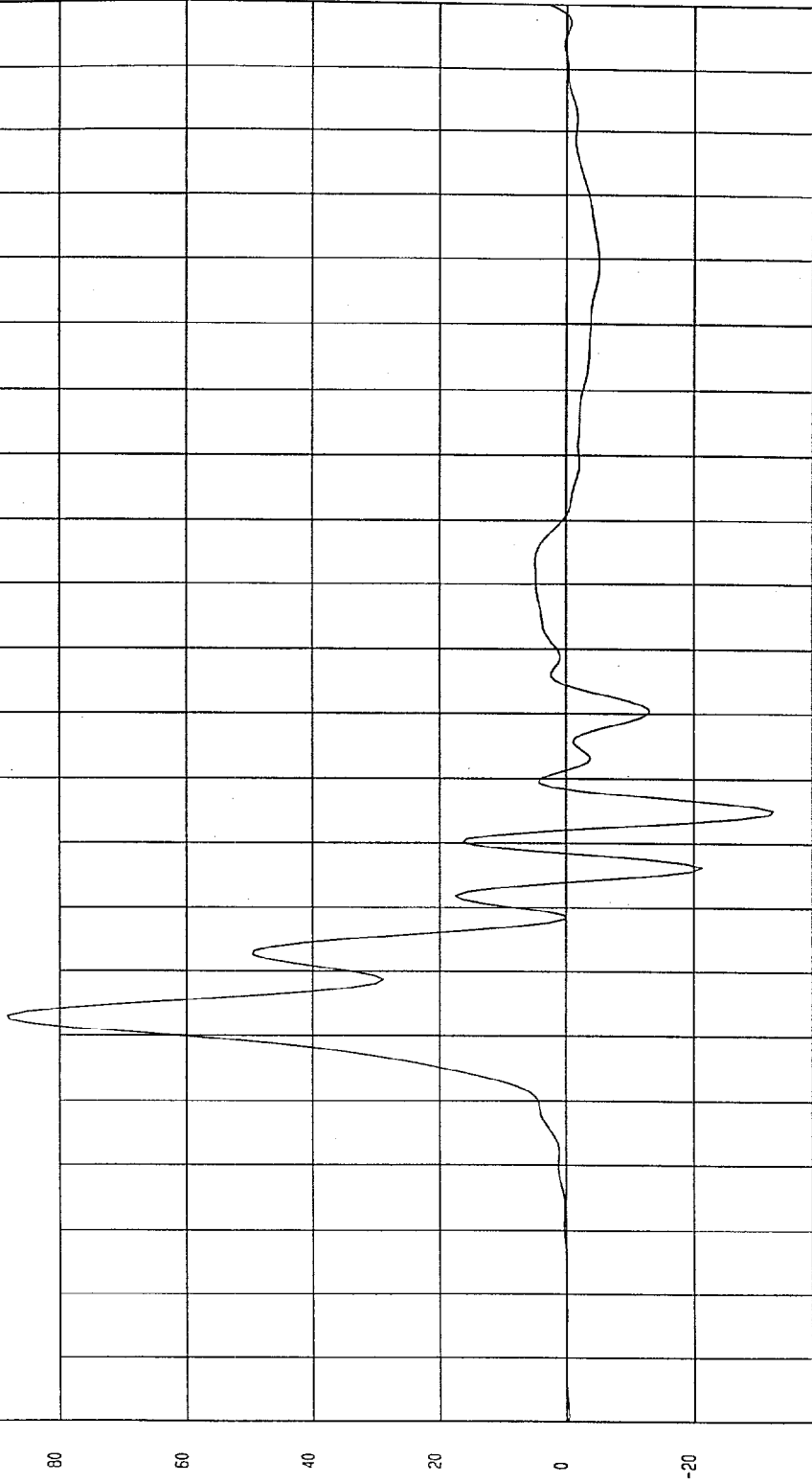
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -32.29 G'S at 75 msec  
Maximum = 88.06 G'S at 43 msec

REAR PASSENGER LOWER RIB Y REDUNDANT ACCELERATION

1 \_\_\_\_\_ 897128FI.067 Filterclass (FIR Filtered)



MPA Research  
11-06-1997 15.07

TIME (SECONDS)

G.S

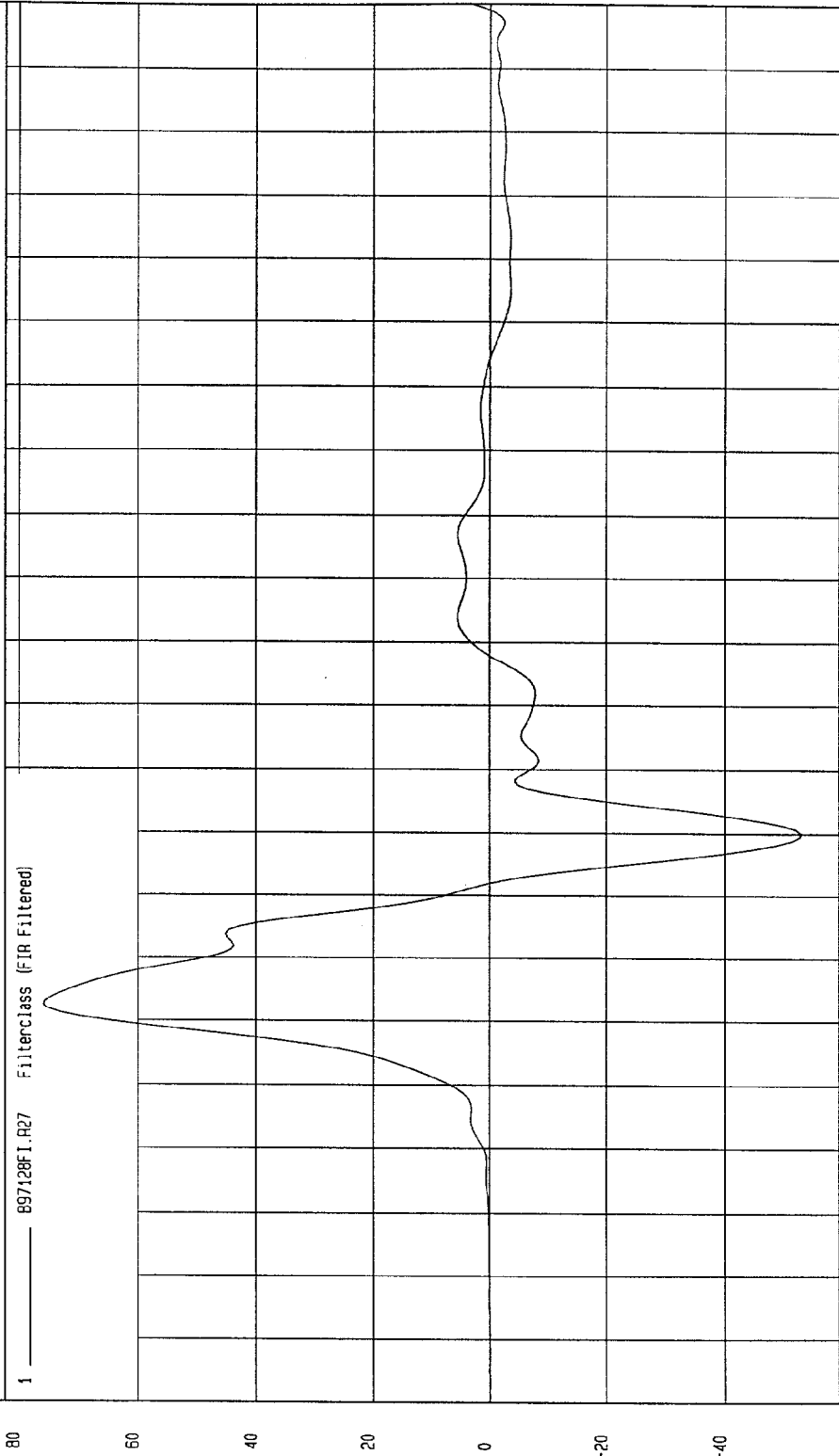
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -52.65 G'S at 70 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION

1 897128F1.R27 FilterClass (FIR Filtered)



MGA Research  
12-05-1997 18:15

TIME (SECONDS)

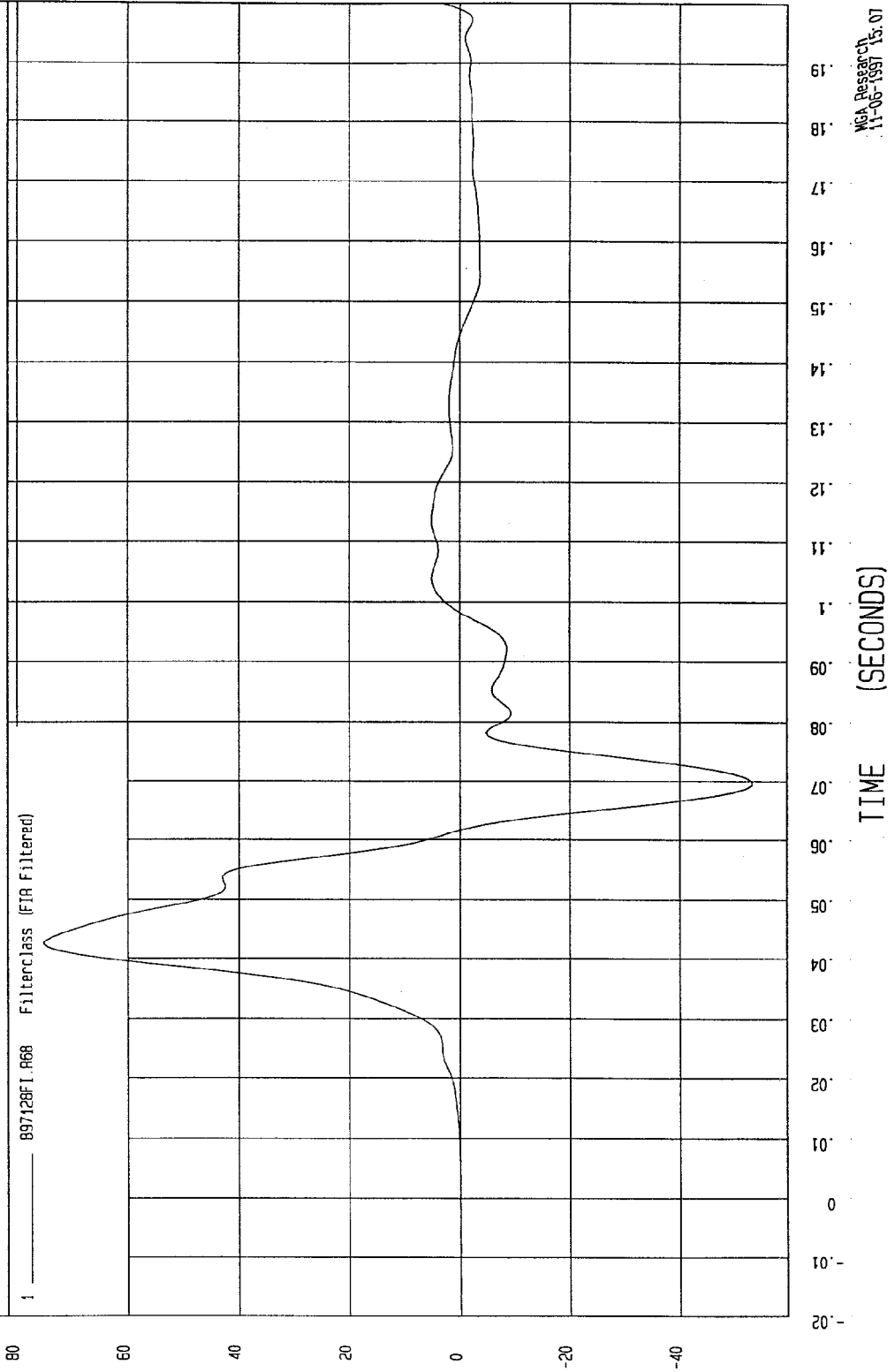
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -52.75 G's at 69 msec  
Maximum = 75.28 G's at 42 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION

1 \_\_\_\_\_ B97128F1.R68 FilterClass (FIR Filtered)



MCA Research  
11-06-1997 15:07

G.S

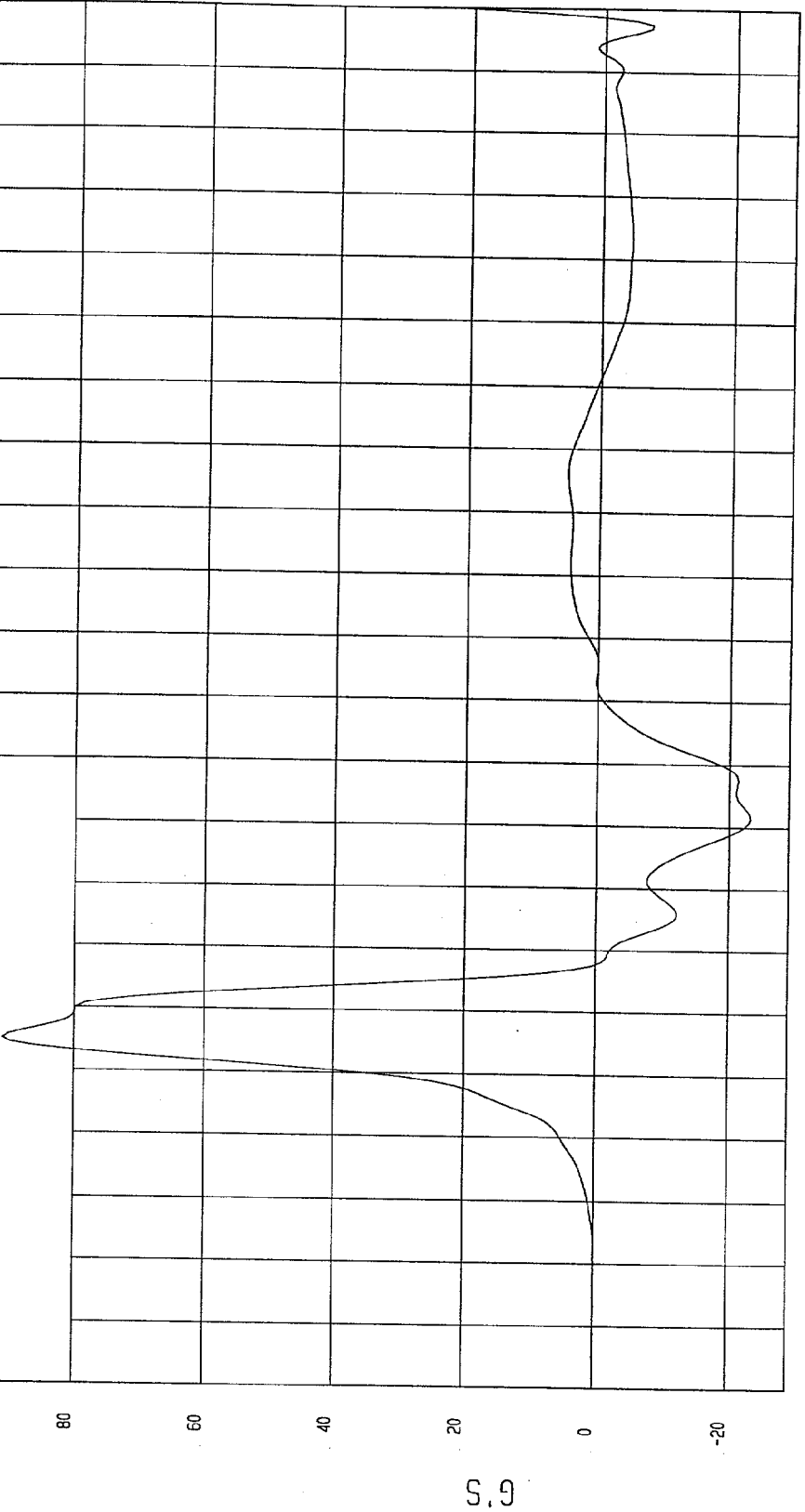
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -23.13 G'S at 71 msec  
Maximum = 90.70 G'S at 35 msec

REAR PASSENGER PELVIS Y ACCELERATION

1 \_\_\_\_\_ B97128F1.R28 Filterclass (FIR Filtered)



MGA Research  
12-03-1997 18:15

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-06-1997

COMPONENT: 1998 MAZDA 626 (MW5401) Speed: 38.2 MPH 61.5 KPH

Minimum = -24.04 G'S at 71 msec Maximum = 91.34 G'S at 35 msec

REAR PASSENGER PELVIS Y REDUNDANT ACCELERATION

1 897128FI.R69 Filterclass (FIR Filtered)



MCA Research  
11-06-1997 13.07

TIME (SECONDS)

G'S

**APPENDIX C**  
**SID CONFIGURATION AND PERFORMANCE VERIFICATION**

REPORT NO. MGA-97-DC09

DUMMY PERFORMANCE CALIBRATIONS

NEW CAR ASSESSMENT PROGRAM  
SIDE IMPACT TEST

1998 MAZDA 626 4 DOOR  
NHTSA NO. MW5401

MGA PROVING GROUNDS  
5000 WARREN ROAD  
BURLINGTON, WI 53105



Test Date: November 6, 1997

Report Date: December 18, 1997

FINAL REPORT

Prepared For:

U. S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION  
OFFICE OF CRASHWORTHINESS STANDARDS  
ROOM 5313, NPS-10  
400 SEVENTH STREET, S.W.  
Washington, D.C. 20590

## TABLE OF CONTENTS

		<u>Page No.</u>
DUMMY S/N: 270	PRE-TEST CERTIFICATION DATA	1-1
DUMMY S/N: 269	PRE-TEST CERTIFICATION DATA	2-1
DUMMY S/N: 270	POST-TEST CERTIFICATION DATA	3-1
DUMMY S/N: 269	POST-TEST CERTIFICATION DATA	4-1
DUMMY S/N: 270	POST-TEST INSPECTION CHECKLIST	5-1
DUMMY S/N: 269	POST-TEST INSPECTION CHECKLIST	6-1
	VEHICLE AND DUMMY TEMPERATURE	7-1

**PRE-TEST CERTIFICATION DATA**

Front Dummy Serial Number: 270

## Calibration Test Results Summary

Dummy Serial Number: 270

### **Pre-Test Calibration**

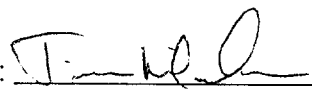
<b>External Dimensions:</b>	<b>The dummy passed all external dimension requirements.</b>
<b>Thorax Impact Test:</b>	<b>The thorax passed all impact test requirements.</b>
<b>Pelvic Impact Test:</b>	<b>The pelvis passed all impact test requirements.</b>
<b>Abdominal Compression Test:</b>	<b>The abdomen passed all compression test requirements.</b>
<b>Lumbar Flexion Test:</b>	<b>The lumbar passed all flexion test requirements.</b>

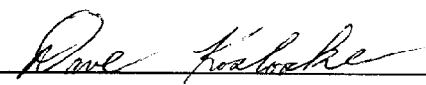
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 270

DATE OF VERIFICATION: November 5, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.4
RH - Rib Height	19.75" - 20.50"	20.50
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.4
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.6
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: 

APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 5, 1997

DUMMY NUMBER: 270

TEST NUMBER: D972002

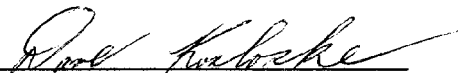
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	23%
PROBE SPEED	14.0 - 14.2 fps	14.1
UPPER RIB	37 - 46 g's	39
LOWER RIB	37 - 46 g's	37
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY



TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-05-1997 - 15:11

COMPONENT: DUMMY # 270 Velocity: 14.106 FT/SEC 4.3 M/SEC

Minimum = -13.55 G'S at 71.8 msec  
Maximum = 39.24 G'S at 64.3 msec

UPPER RIB ACCELERATION

1 \_\_\_\_\_ 097002FL.R08

60  
50  
40  
30  
20  
10  
0  
-10  
-20

Upper Limit

Lower Limit

G.S

0 .01 .02 .03 .04 .05 .06 .07 .08 .09 .10 .11 .12

TIME (SECONDS)

M&A Research Co.  
11-05-1997 15:19

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-05-1997 - 15:11

COMPONENT: DUMMY # 270 Velocity: 14.106 FT/SEC 4.3 M/SEC

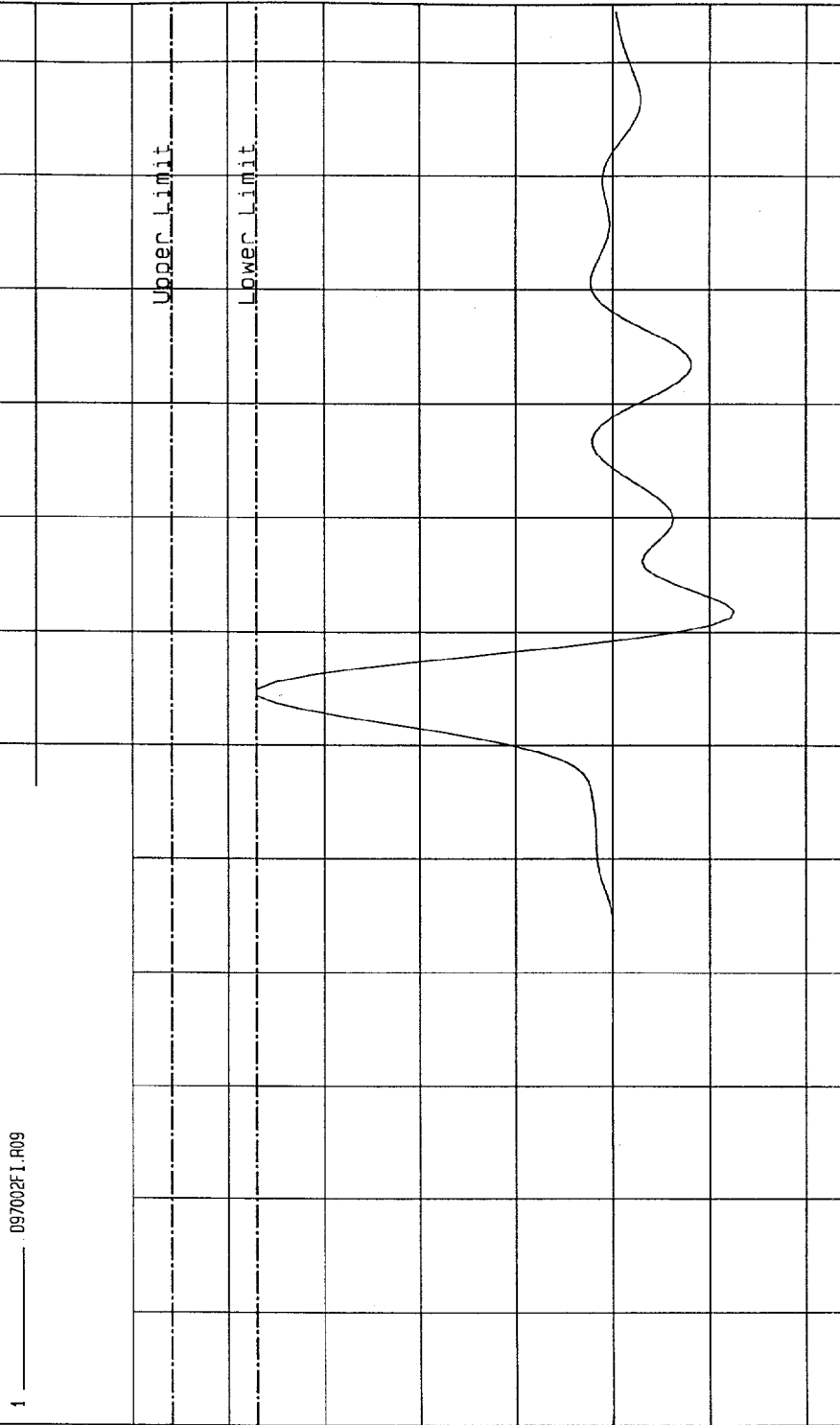
Minimum = -12.51 G'S at 71.8 msec

Maximum = 37.03 G'S at 64.3 msec

### LOWER RIB ACCELERATION

1 ——— 097002FI.R09

60  
50  
40  
30  
20  
10  
0  
-10  
-20



TIME (SECONDS)

MGA Research  
11-05-1997 15:19

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-05-1997 - 15:11

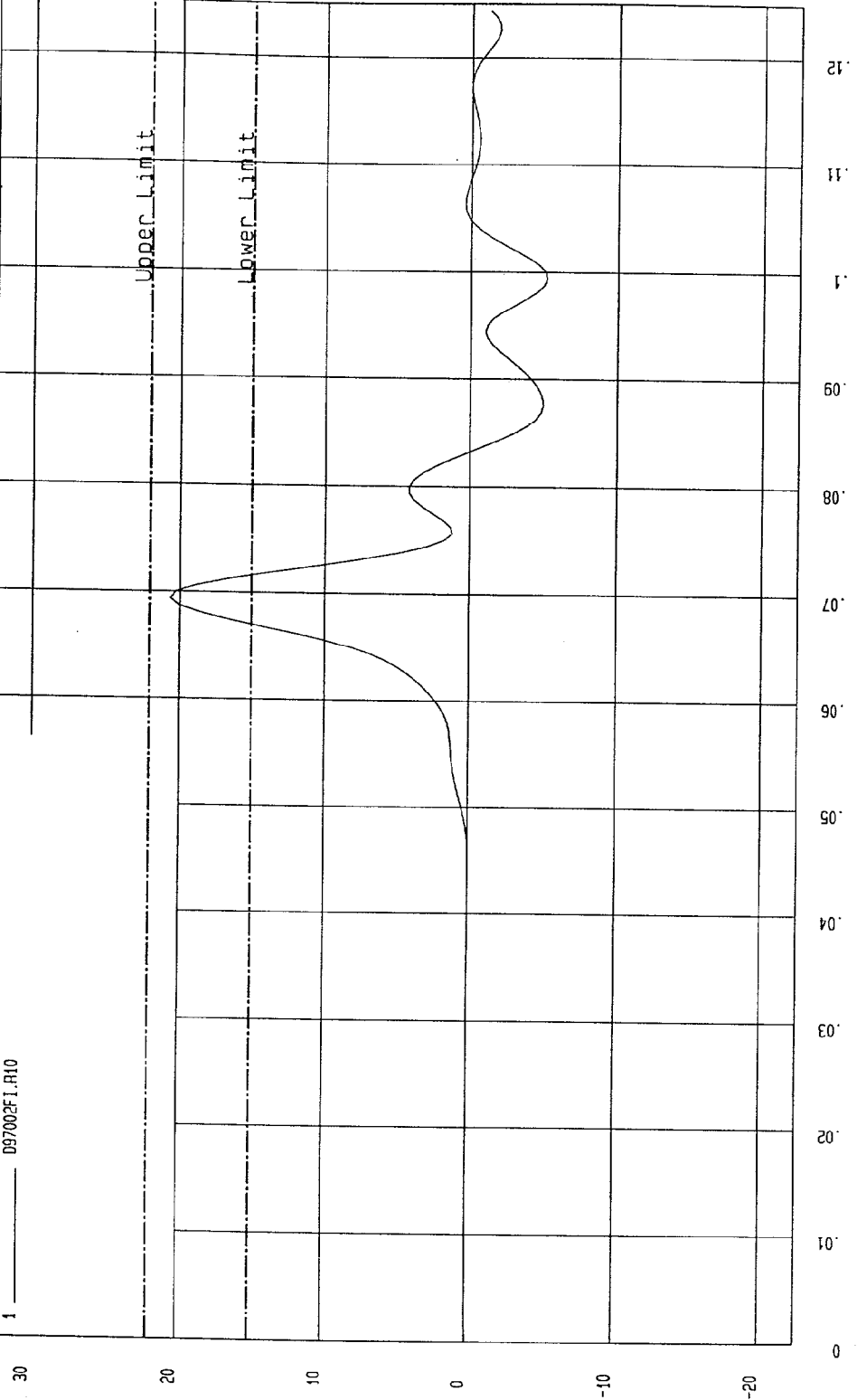
COMPONENT: DUMMY # 270 Velocity: 14.106 FT/SEC 4.3 M/SEC

Minimum = -5.16 G'S at 99.3 msec

Maximum = 20.64 G'S at 69.3 msec

### LOWER SPINE ACCELERATION

1 \_\_\_\_\_ DS7002FI.R10



MPA Research  
11-05-1997 15:20

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 5, 1997

DUMMY NUMBER: 270

TEST NUMBER: D972003

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	23%
PROBE SPEED	14.0 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	43

TEST MEETS SPECIFICATIONS

TECHNICIAN

Tim Hill

APPROVED BY

Paul Kuchake

TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 11-05-1997 - 15:19

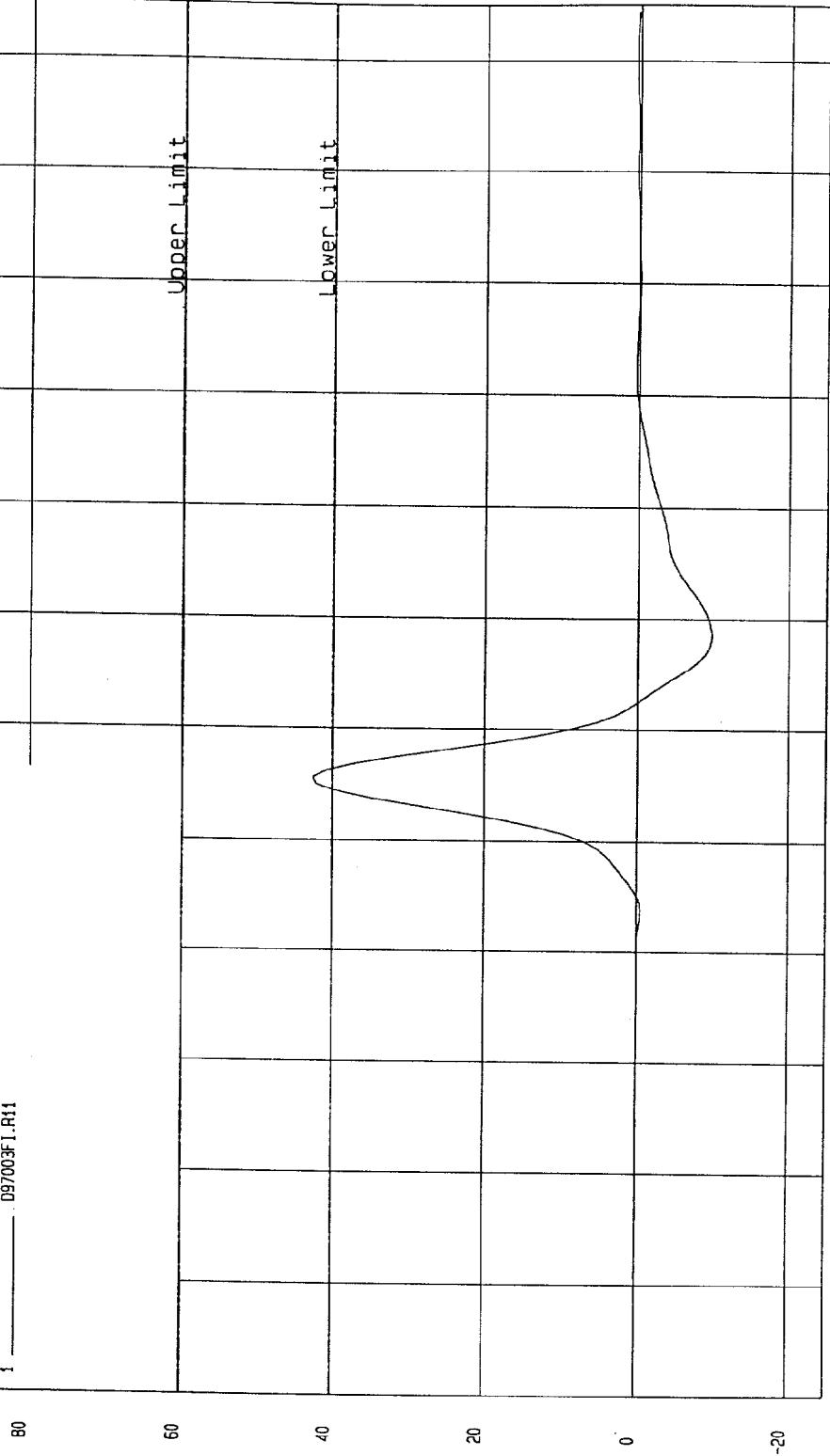
COMPONENT: DUMMY # 270 Velocity: 14.104 FT/SEC 4.3 M/SEC

Minimum = -9.79 G'S at 68.7 msec

Maximum = 42.67 G'S at 55.6 msec

PELVIS ACCELERATION

1 \_\_\_\_\_ D97003FT.R11



MCA Research  
11-05-1997 15:20

MGA RESEARCH CORPORATION  
ABDOMINAL COMPRESSION TEST  
(PRELOAD = 10 LBS)  
SIDE IMPACT DUMMY (SID)

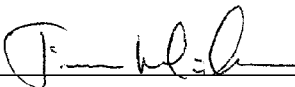
DATE: November 5, 1997

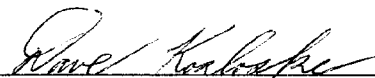
DUMMY NUMBER: 270

TEST NUMBER: D972004

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	23%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.6
FORCE @ 0.75 in	36.7 - 49.8 lbs	44.7
FORCE @ 1.0 in	50 - 63 lbs	60
FORCE @ 1.3 in	73 - 88 lbs	83

TEST MEETS SPECIFICATIONS

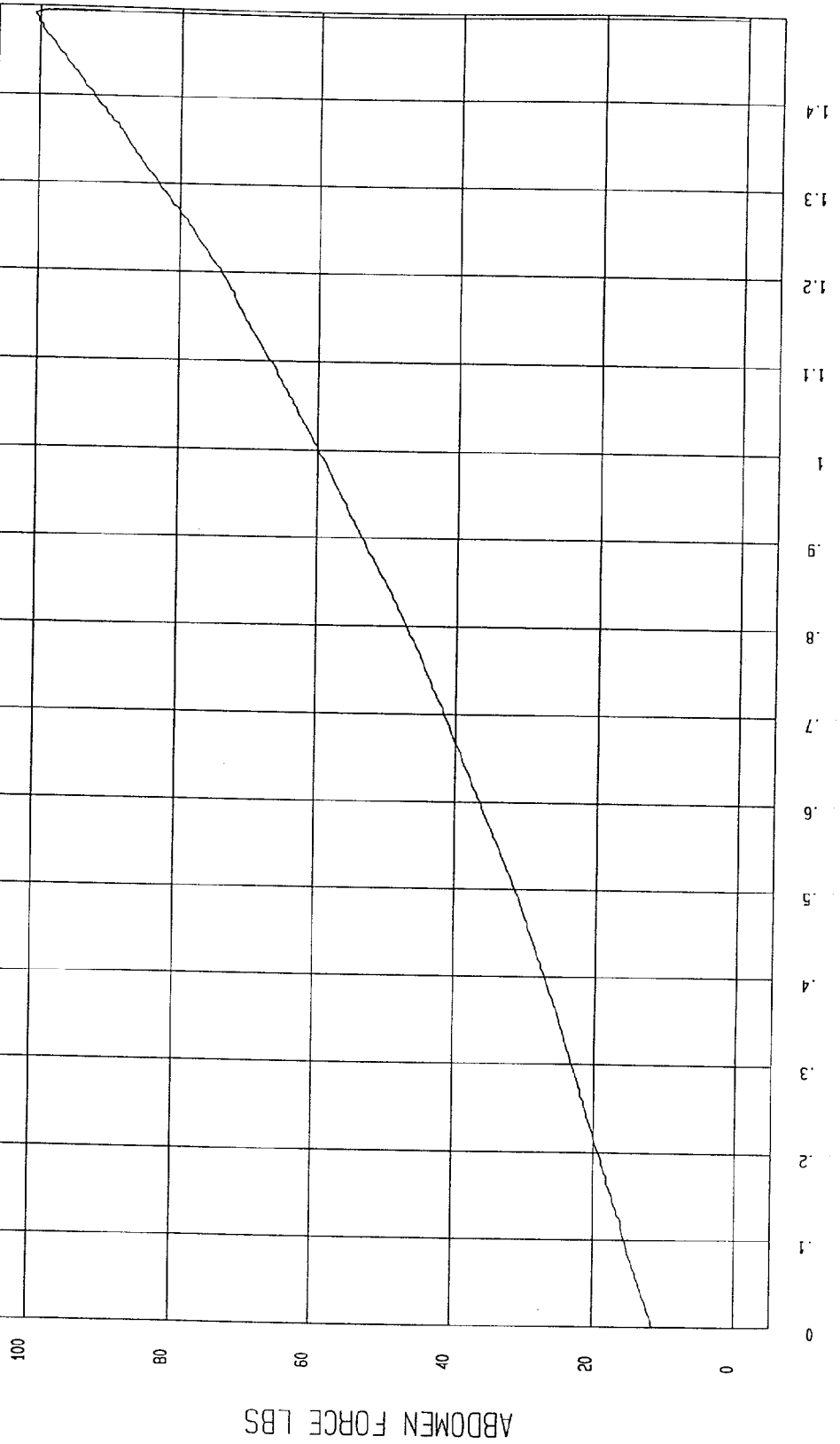
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-05-1997 - 15:43

COMPONENT: DUMMY # 270

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



NSA Research  
11-05-1997 16:18

ABDOMEN DISPLACEMENT INCHES

ABDOMEN FORCE LBS

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 5, 1997

DUMMY NUMBER: 270

TEST NUMBER: D972005

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	23%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	25
FORCE @ 30°	34 - 46 lbs	34
FORCE @ 40°	46 - 58 lbs	57
RETURN ANGLE	12° maximum	3°

TEST MEETS SPECIFICATIONS

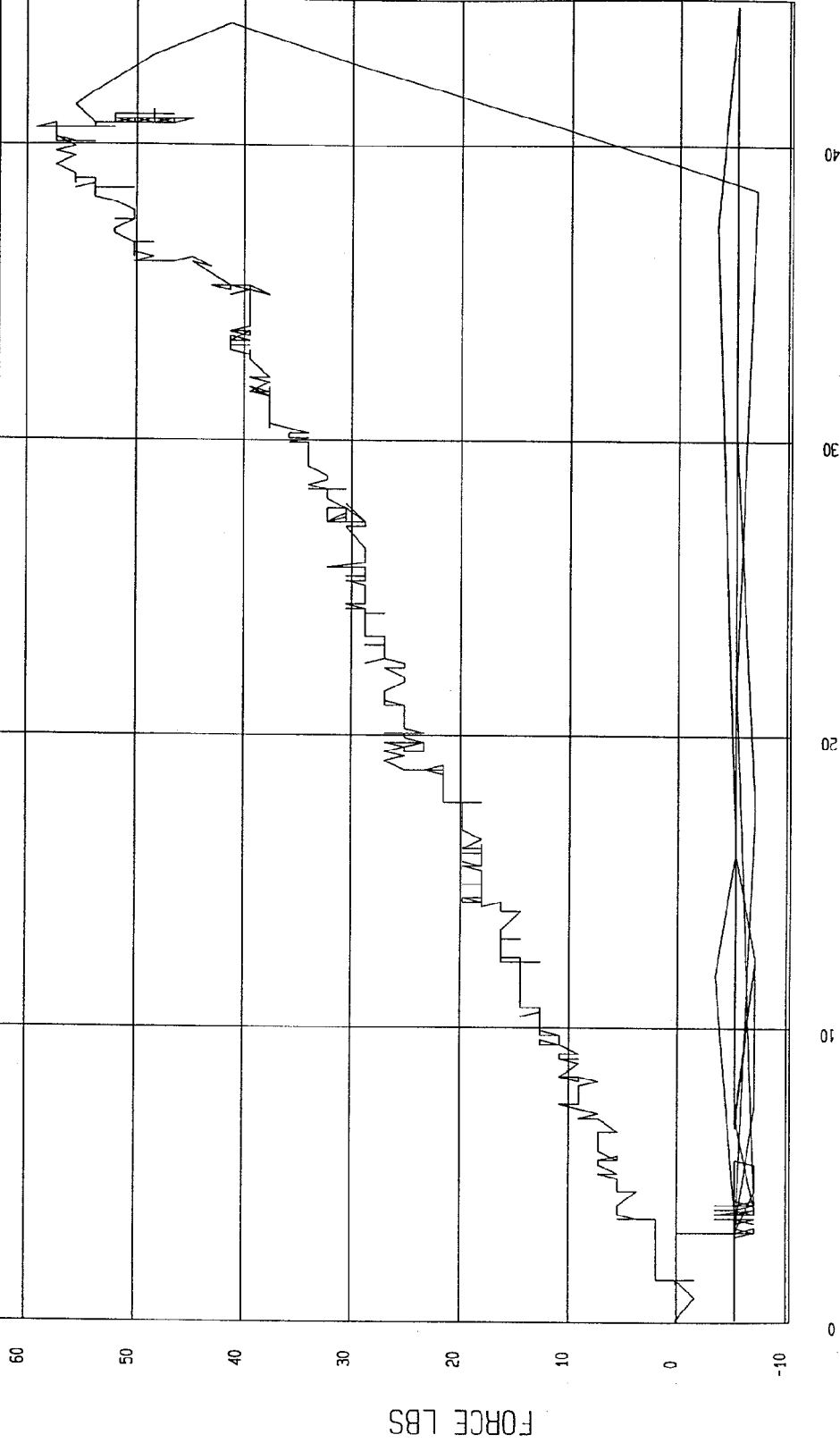
TECHNICIAN Tim White

APPROVED BY Rene Koschke

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-05-1997 - 16:17

COMPONENT: DUMMY # 270

FORCE as a function of TORSO ROTATION



NCA Research  
11-05-1997 16.19

PRE-TEST CERTIFICATION DATA

Rear Dummy Serial Number: 269

## Calibration Test Results Summary

Dummy Serial Number: 269

### Pre-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: November 5, 1996

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
RH - Rib Height	19.75" - 20.50"	20.20
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.4
HW - Hip Width	14.0" - 15.4"	15.1

MEASUREMENTS BY: Tim Wil-Il

APPROVED BY: Rene Korbake

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

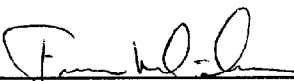
DATE: November 5, 1997

DUMMY NUMBER: 269

TEST NUMBER: D971992

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	23%
PROBE SPEED	14.0 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	43
LOWER RIB	37 - 46 g's	39
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

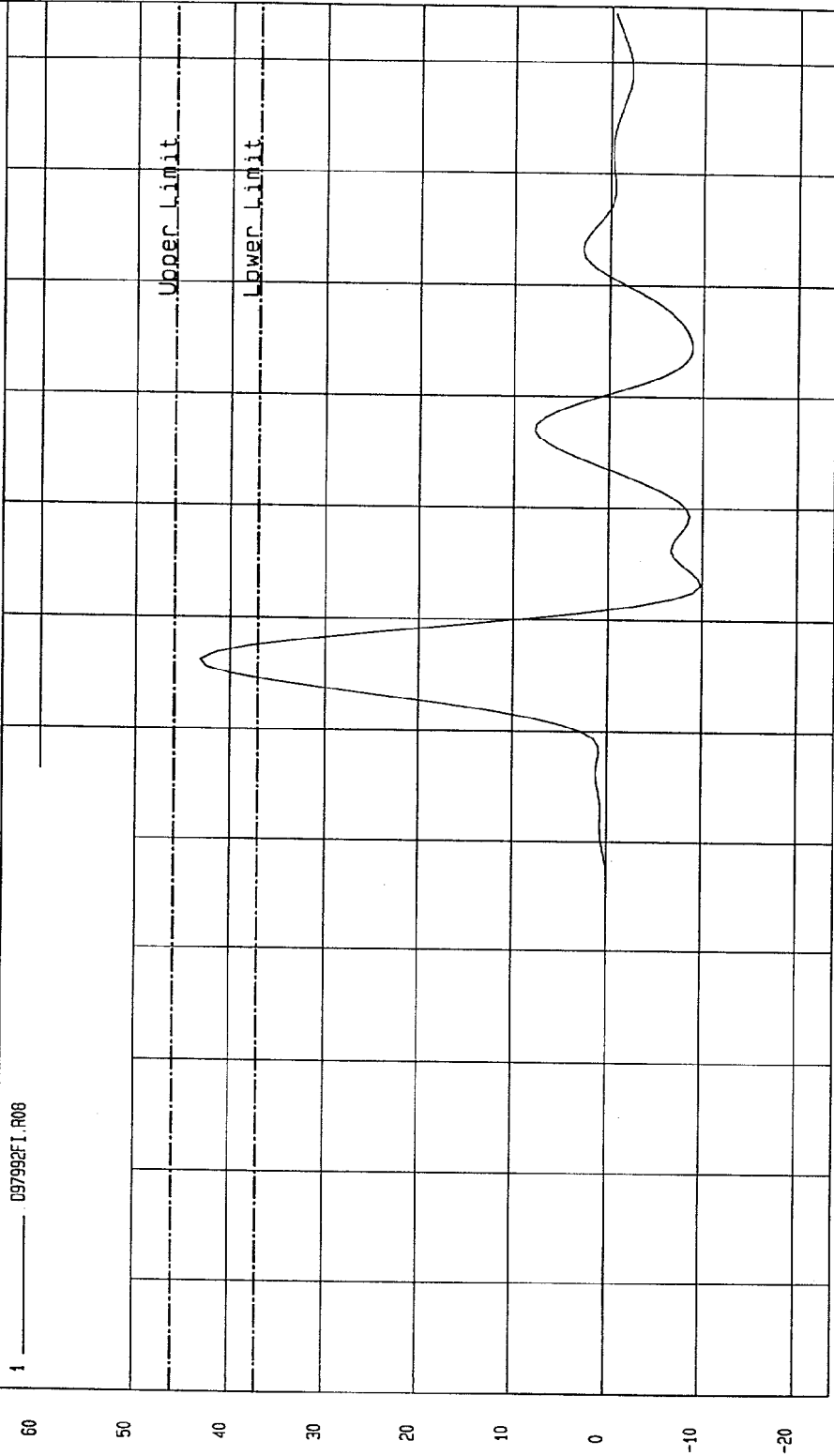
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-05-1997 - 14:18

COMPONENT: DUMMY # 269 Velocity: 14.006 FT/SEC 4.27 M/SEC

Minimum = -9.83 G'S at 73.1 msec  
Maximum = 43.28 G'S at 66.2 msec

UPPER RIB ACCELERATION

1 097992FI.R08



MGA Research  
11-05-1997 14:24

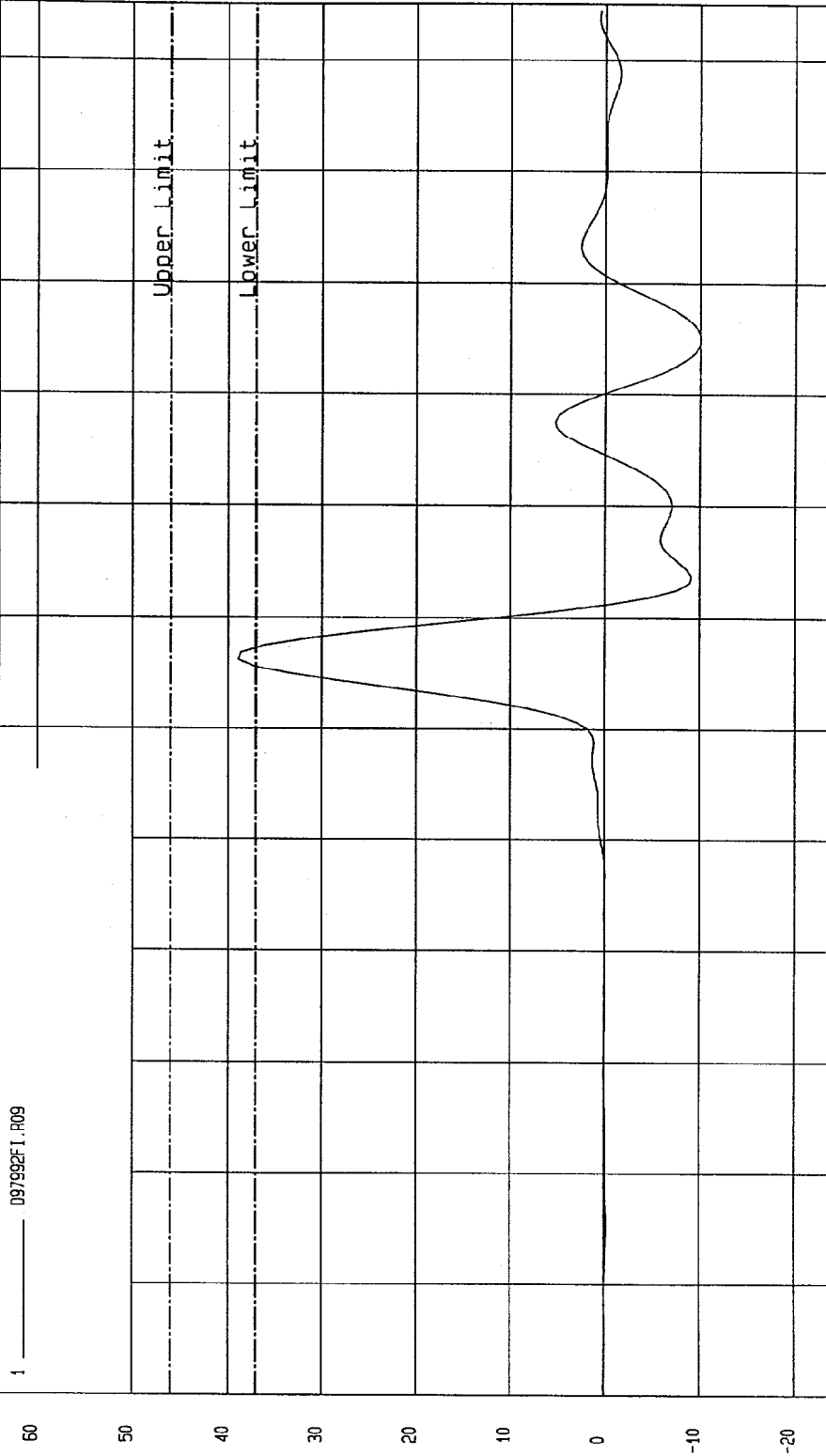
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-05-1997 - 14:18

COMPONENT: DUMMY # 269 Velocity: 14.006 FT/SEC 4.27 M/SEC

Minimum = -10.09 G'S at 95 msec

Maximum = 38.93 G'S at 66.2 msec

### LOWER RIB ACCELERATION



WEA Pressure  
11-05-1997 14:28

TIME (SECONDS)

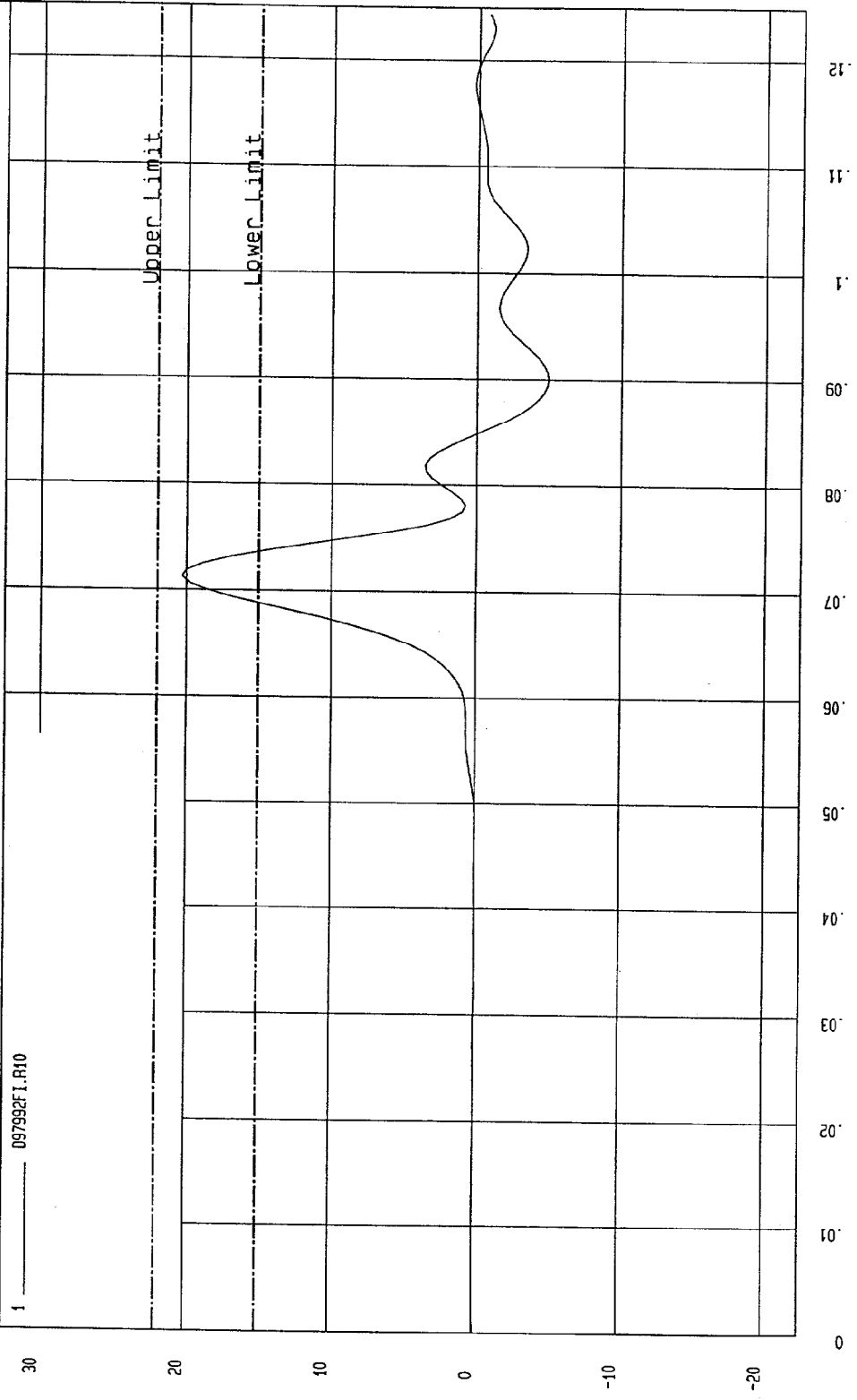
G.S.

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-05-1997 - 14: 18  
COMPONENT: DUMMY # 269 Velocity: 14.006 FT/SEC 4.27 M/SEC

Minimum = -4.91 G'S at 90 msec Maximum = 20.31 G'S at 71.2 msec

LOWER SPINE ACCELERATION

1 \_\_\_\_\_ 097992FI.R10



MEA Research  
11-05-1997 14: 28

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 5, 1997

DUMMY NUMBER: 269

TEST NUMBER: D971993

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	23%
PROBE SPEED	14.0 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	46

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 11-05-1997 - 14:24:05

COMPONENT: DUMMY # 269 Velocity: 14.036 FT/SEC 4.28 M/SEC

Minimum = -8.09 G'S at 70 msec Maximum = 46.09 G'S at 56.8 msec

PELVIS ACCELERATION

1 097993FI.RH1

80  
60  
40  
20  
0  
-20

G.S

TIME (SECONDS)  
0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10 0.11 0.12  
MCA Research  
11-05-1997 14:28

MGA RESEARCH CORPORATION  
ABDOMINAL COMPRESSION TEST  
(PRELOAD = 10 LBS)  
SIDE IMPACT DUMMY (SID)

DATE: November 5, 1997


DUMMY NUMBER: 269

TEST NUMBER: D971994

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	23%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.7
FORCE @ 0.75 in	36.7 - 49.8 lbs	44.0
FORCE @ 1.0 in	50 - 63 lbs	58
FORCE @ 1.3 in	73 - 88 lbs	78

TEST MEETS SPECIFICATIONS

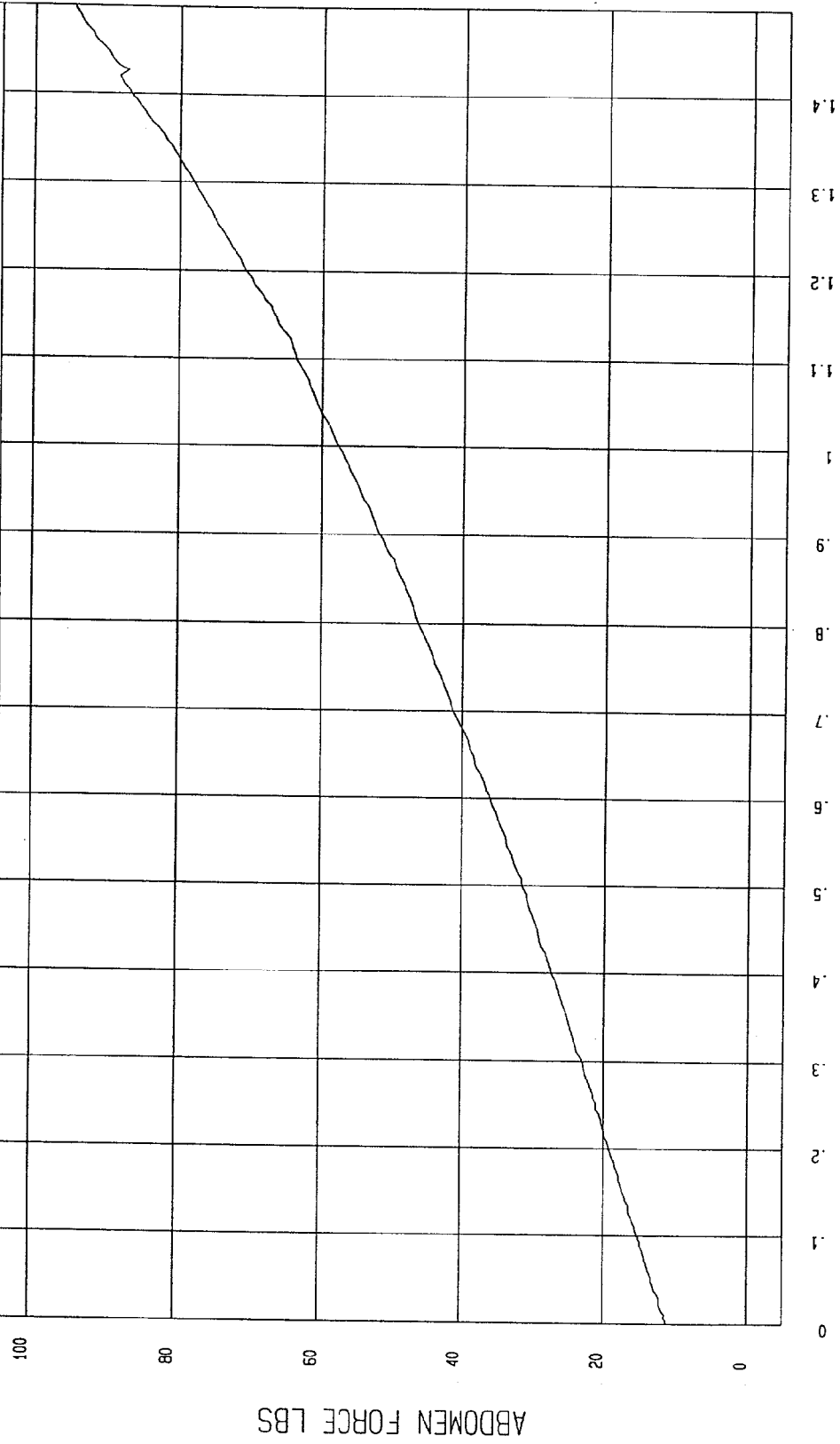
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-05-1997 - 15:41

COMPONENT: DUMMY # 269

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



WCA Research  
11-05-1997 15:41

ABDOMEN DISPLACEMENT INCHES

ABDOMEN FORCE LBS

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 5, 1997

DUMMY NUMBER: 269

TEST NUMBER: D971995

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	23%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	23
FORCE @ 30°	34 - 46 lbs	37
FORCE @ 40°	46 - 58 lbs	53
RETURN ANGLE	12° maximum	5°

TEST MEETS SPECIFICATIONS

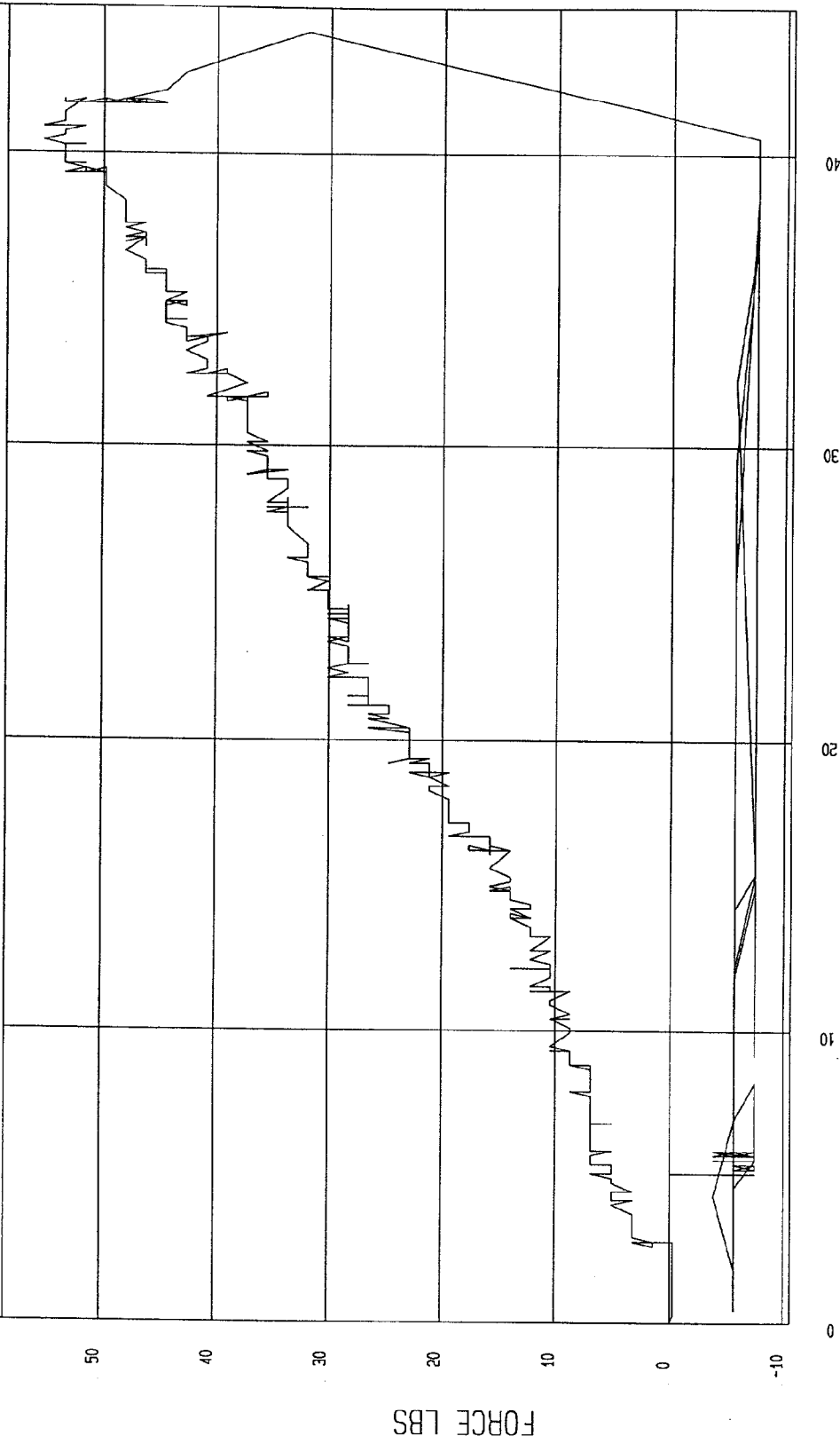
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-05-1997 - 16:04

COMPONENT: DUMMY # 269

FORCE as a function of TORSO ROTATION



NSA Research  
11-05-1997 16:19

**POST-TEST CERTIFICATION DATA**

Front Dummy Serial Number: 270

## Calibration Test Results Summary

Dummy Serial Number: 270

### Post-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 270

DATE OF VERIFICATION: November 14, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.4
RH - Rib Height	19.75" - 20.50"	20.50
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.4
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.6
SW - Knee Pivot to Floor	19.3" - 19.9"	19.5
HW - Hip Width	14.0" - 15.4"	15.0

MEASUREMENTS BY: Tim W. Q.

APPROVED BY: Gene Kabeke

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 14, 1997

DUMMY NUMBER: 270

TEST NUMBER: D972122

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	22%
PROBE SPEED	14.0 - 14.2 fps	14.1
UPPER RIB	37 - 46 g's	39
LOWER RIB	37 - 46 g's	37
LOWER SPINE	15 - 22 g's	19

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

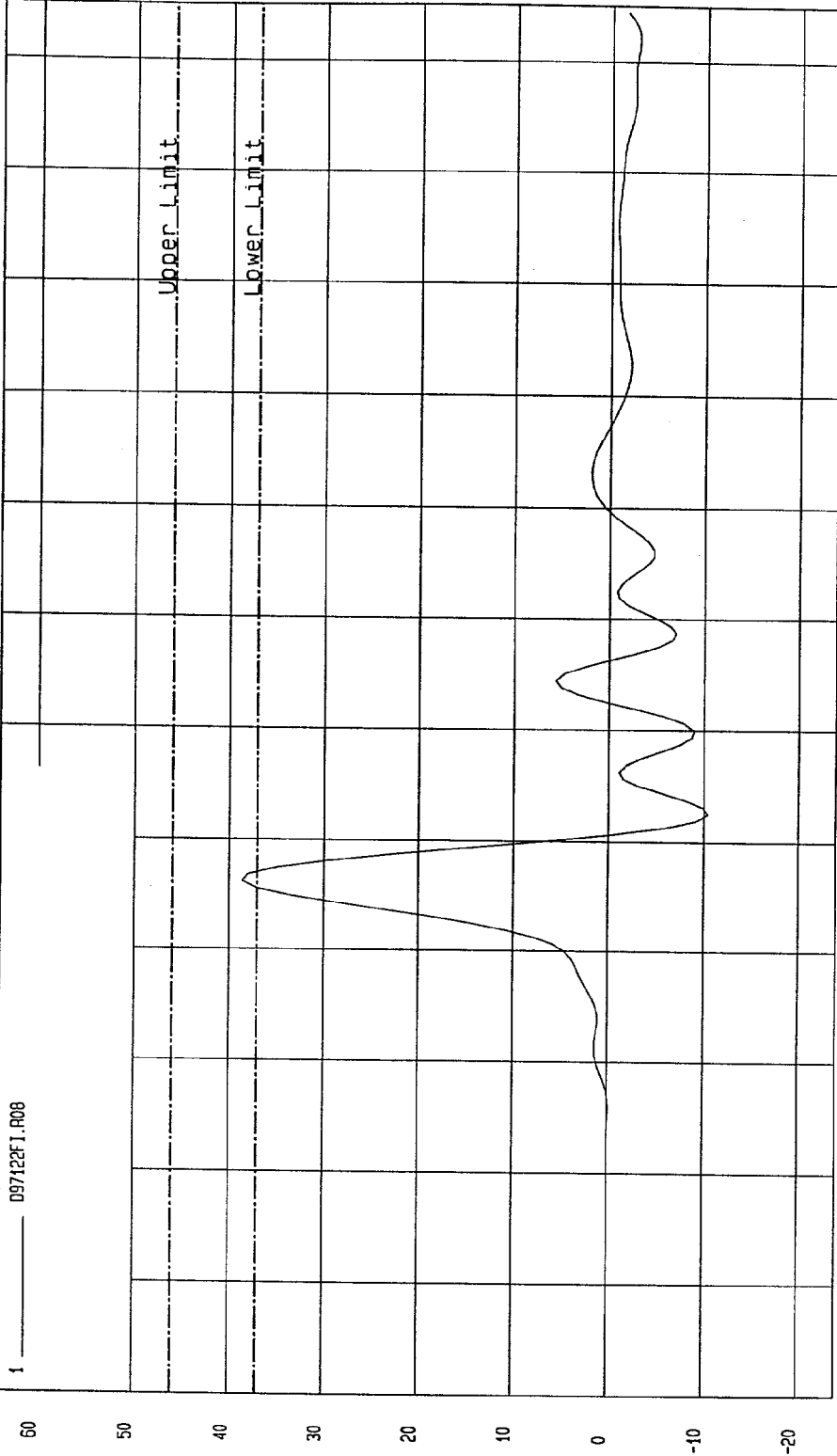
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-14-1997 - 10:36

COMPONENT: DUMMY # 270 Velocity: 14.052 FT/SEC 4.28 M/SEC

Minimum = -10.42 G'S at 52.5 msec Maximum = 38.64 G'S at 46.2 msec

UPPER RIB ACCELERATION

1 ——— 097122F1.R08



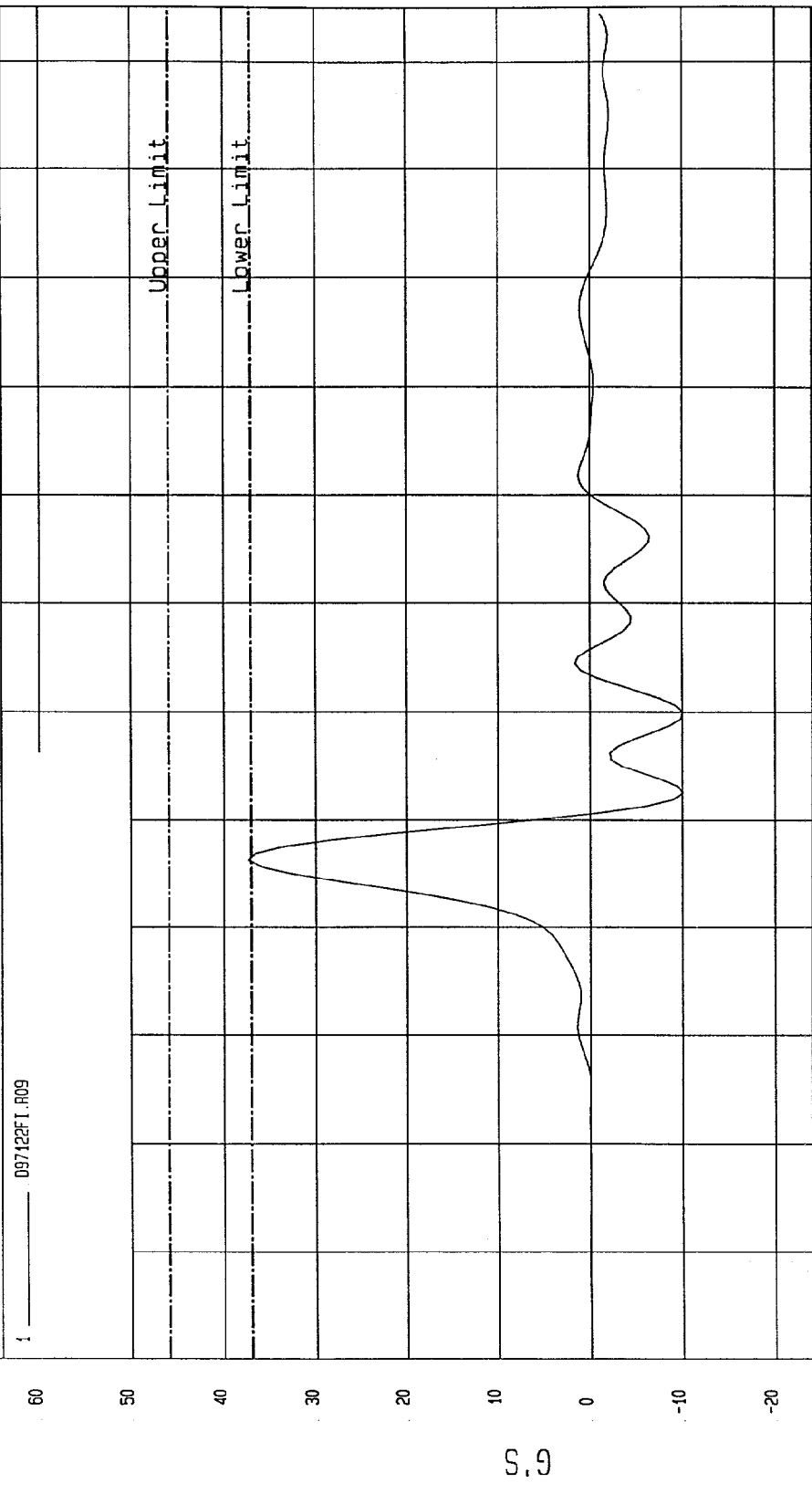
MEA Research  
11-14-1997 10:41

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-14-1997 - 10:36

COMPONENT: DUMMY # 270 Velocity: 14.052 FT/SEC 4.28 M/SEC

Minimum = -10.08 G'S at 52.5 msec Maximum = 37.26 G'S at 46.2 msec

LOWER RIB ACCELERATION



TIME (SECONDS)

NSA Research Co.  
11-14-1997 10:44

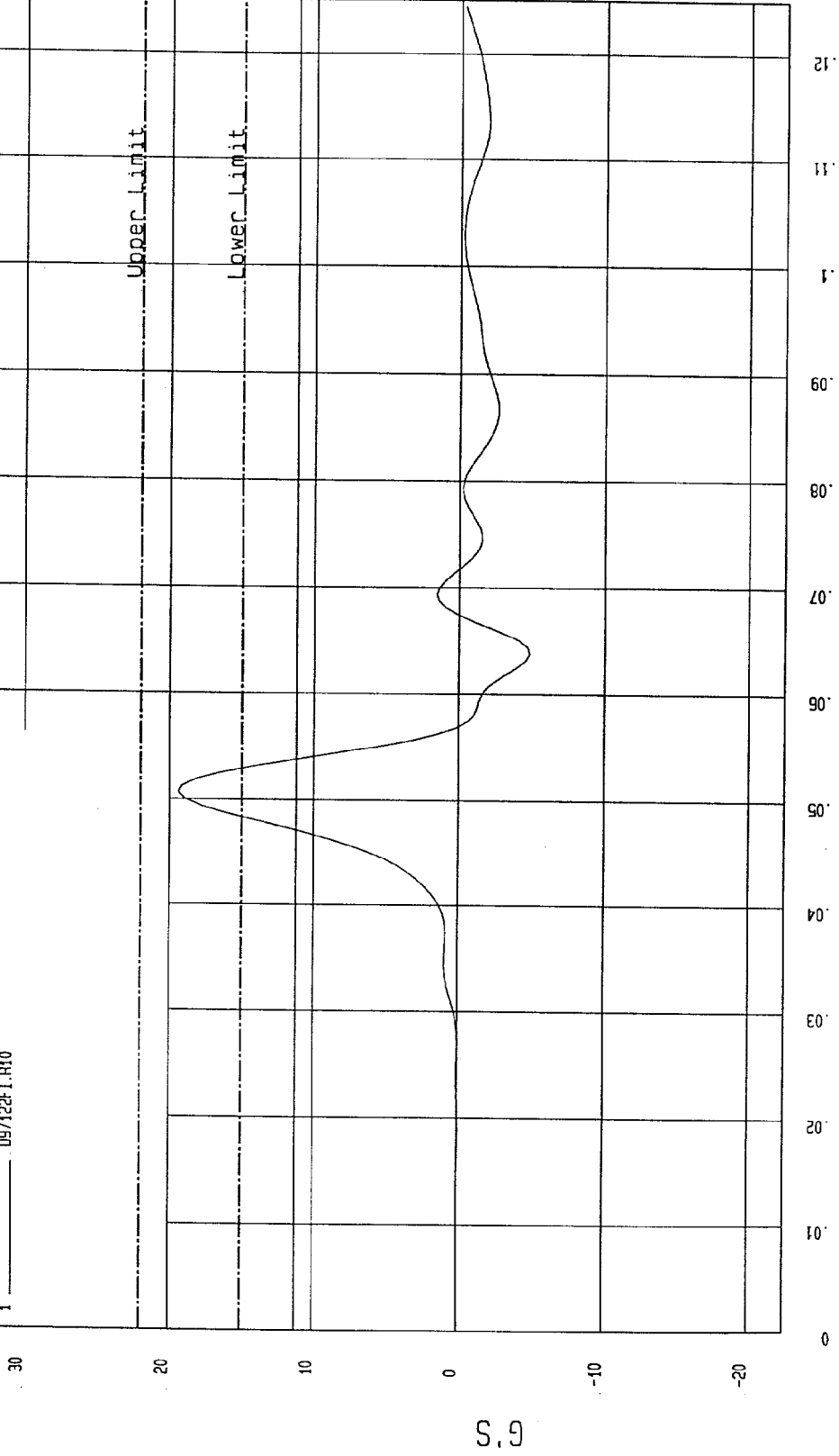
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-14-1997 - 10:36

COMPONENT: DUMMY # 270 Velocity: 14.052 FT/SEC 4.28 M/SEC

Minimum = -4.82 G'S at 63.7 msec  
Maximum = 19.39 G'S at 50.6 msec

LOWER SPINE ACCELERATION

1 ——— 097122F1.R10



MECA Research  
11-14-1997 10:43

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 14, 1997

DUMMY NUMBER: 270

TEST NUMBER: D972123

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	22%
PROBE SPEED	14.0 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	44

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim W.D.

APPROVED BY Rene Kobake

TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 11-14-1997 - 10:41

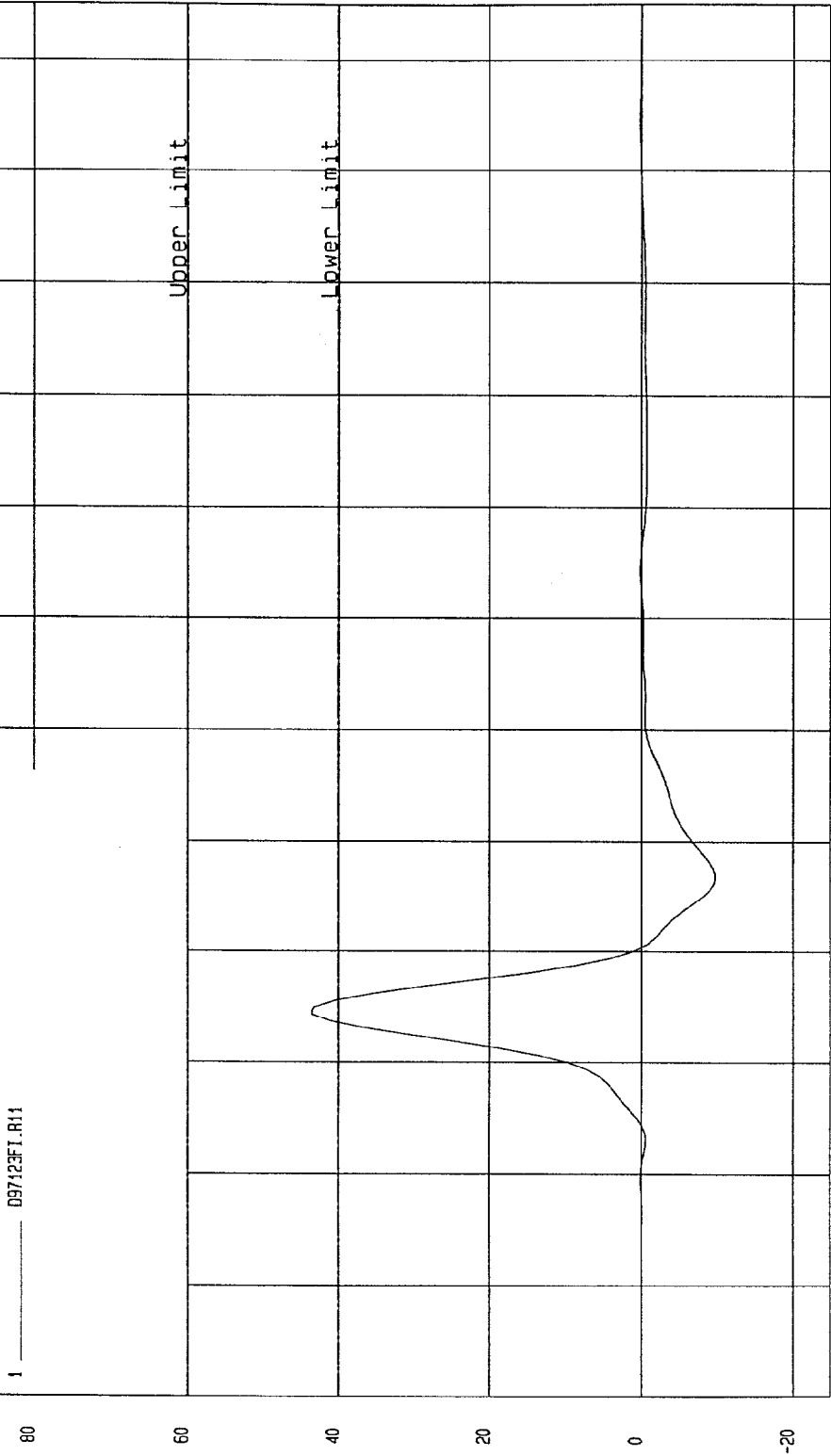
COMPONENT: DUMMY # 270 Velocity: 14.089 FT/SEC 4.29 M/SEC

Minimum = -9.93 G'S at 46.8 msec

Maximum = 43.58 G'S at 34.3 msec

PELVIS ACCELERATION

1 ——— D97123FT.R11



1.2

1.1

1

0.60

0.80

0.70

0.96

0.98

0.94

0.90

0.20

0.10

0

WCA Research  
11-14-1997 10:43

TIME (SECONDS)

S.G

MGA RESEARCH CORPORATION  
ABDOMINAL COMPRESSION TEST  
(PRELOAD = 10 LBS)  
SIDE IMPACT DUMMY (SID)

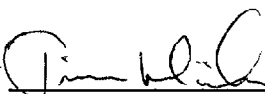
DATE: November 14, 1997

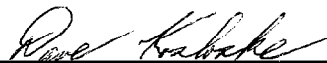
DUMMY NUMBER: 270

TEST NUMBER: D972124

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0.5 in	23.3 - 36.5 lbs	31.5
FORCE @ 0.75 in	36.7 - 49.8 lbs	44.0
FORCE @ 1.0 in	50 - 63 lbs	58
FORCE @ 1.3 in	73 - 88 lbs	80

TEST MEETS SPECIFICATIONS

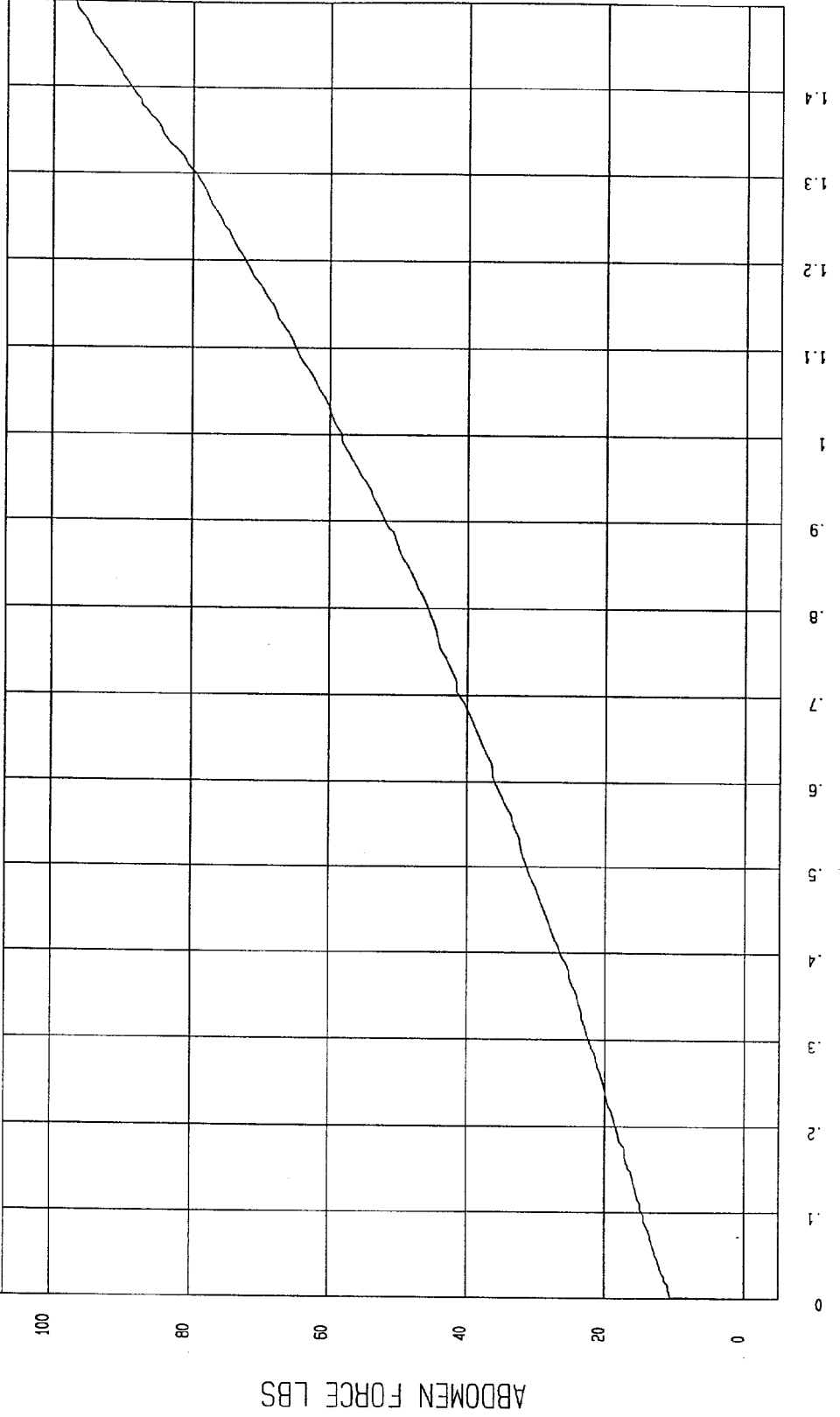
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-14-1997 - 16:23

COMPONENT: DUMMY # 270

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



MCA Research  
11-14-1997 16:35

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 14, 1997

DUMMY NUMBER: 270

TEST NUMBER: D972125

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	27
FORCE @ 30°	34 - 46 lbs	40
FORCE @ 40°	46 - 58 lbs	52
RETURN ANGLE	12° maximum	1°

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-14-1997 - 17:16

COMPONENT: DUMMY # 270

FORCE as a function of TORSO ROTATION

50  
40  
30  
20  
10  
0  
-10

FORCE LBS



40  
30  
20  
10  
0

TORSO ROTATION DEGREES

MOA Research  
11-14-1997 17:16

**POST-TEST CERTIFICATION DATA**

Rear Dummy Serial Number: 269

## Calibration Test Results Summary

Dummy Serial Number: 269

### Post-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

DATE OF VERIFICATION: November 14, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
RH - Rib Height	19.75" - 20.50"	20.20
HP - Hip Pivot Height	3.9" ref.	3.9
RD - Rib From Back Line	9.0" to 9.5"	9.3
KV - Knee Pivot From Back Line	20.1" - 20.7"	20.4
SW - Knee Pivot to Floor	19.3" - 19.9"	19.4
HW - Hip Width	14.0" - 15.4"	15.1

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 14, 1997

DUMMY NUMBER: 269

TEST NUMBER: D972112

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	18%
PROBE SPEED	14.0 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	46
LOWER RIB	37 - 46 g's	45
LOWER SPINE	15 - 22 g's	22

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-14-1997 - 09:44

COMPONENT: DUMMY # 269

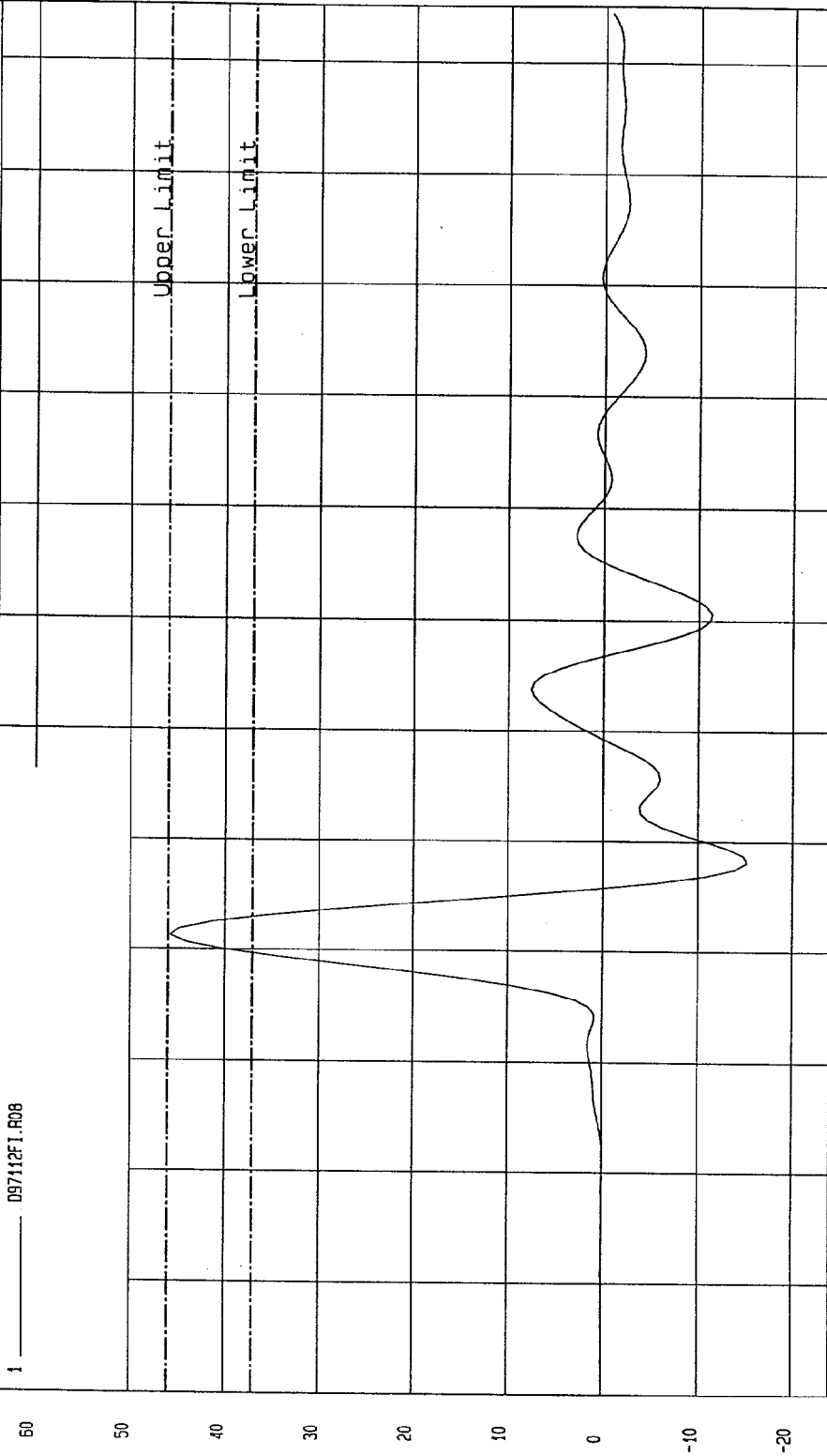
Velocity: 14.002 FT/SEC 4.27 M/SEC

Minimum = -15.20 G'S at 48.1 msec

Maximum = 45.76 G'S at 41.2 msec

UPPER RIB ACCELERATION

1 \_\_\_\_\_ 097112F1.R08



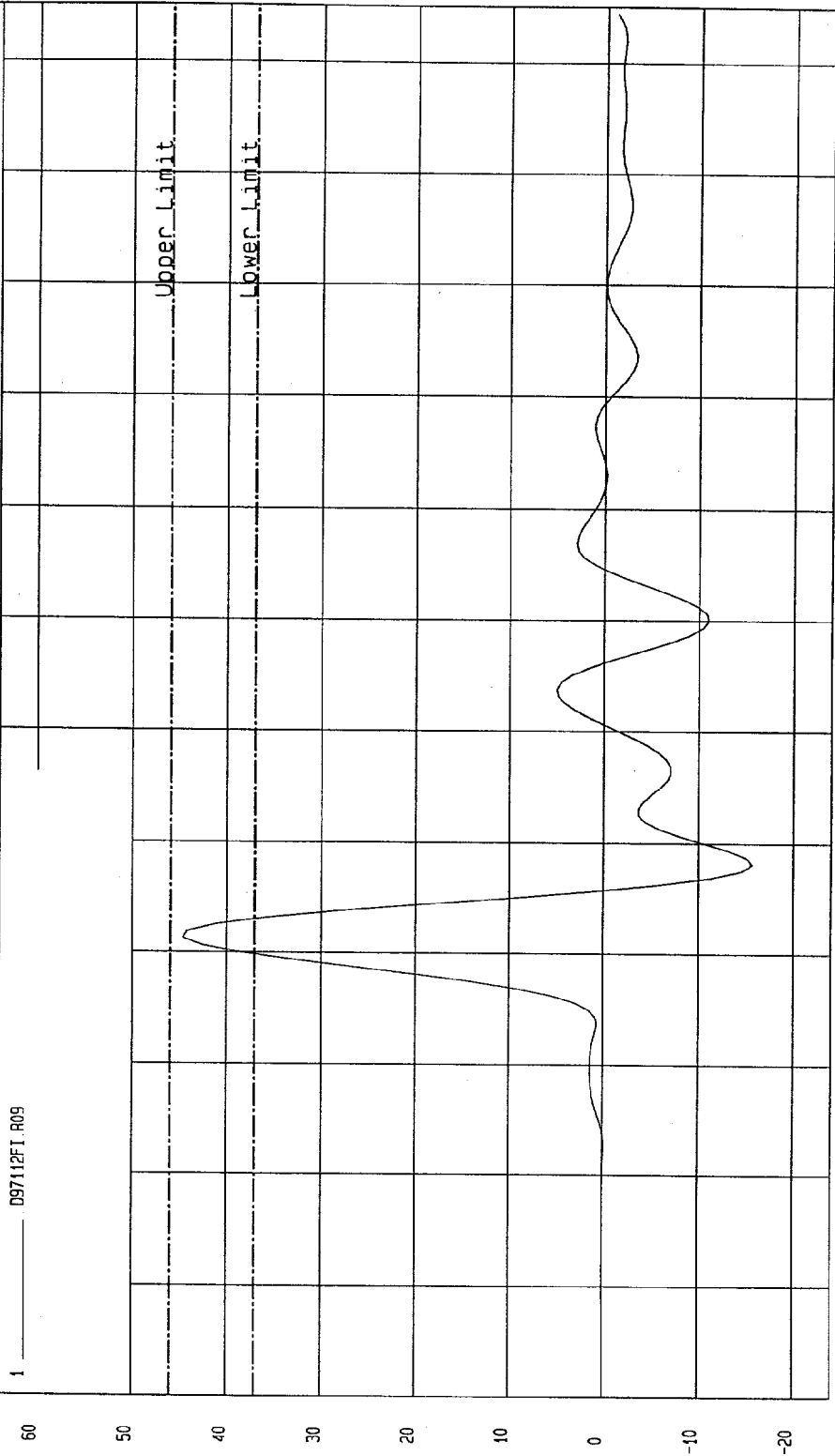
MGA Research  
11-14-1997 09:49

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-14-1997 - 09:44

COMPONENT: DUMMY # 269 Velocity: 14.002 FT/SEC 4.27 M/SEC

Minimum = -15.63 G'S at 48.1 msec Maximum = 44.66 G'S at 41.2 msec

LOWER RIB ACCELERATION



TIME (SECONDS)

MCA Research  
11-14-1997 09:49

G.S

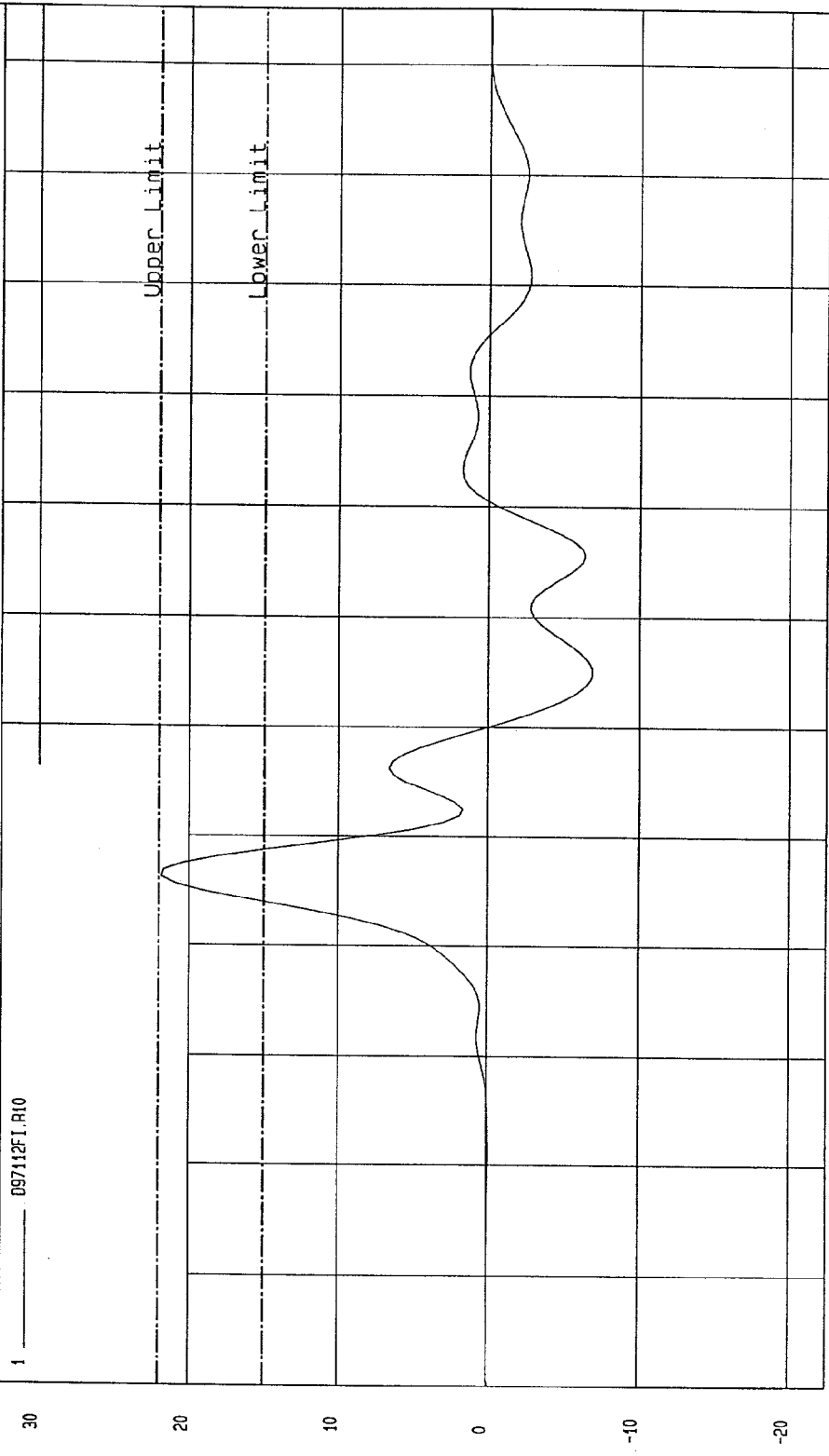
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-14-1997 - 09:44

COMPONENT: DUMMY # 269 Velocity: 14.002 FT/SEC 4.27 M/SEC

Minimum = -6.92 G'S at 65 msec Maximum = 21.85 G'S at 46.2 msec

LOWER SPINE ACCELERATION

1 097112F1.R10



MECA Research  
11-14-1997 09:49

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 14, 1997

DUMMY NUMBER: 269

TEST NUMBER: D972113

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	18%
PROBE SPEED	14.0 - 14.2 f/s	14.1
PELVIS ACCELERATION	40 - 60 g's	48

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

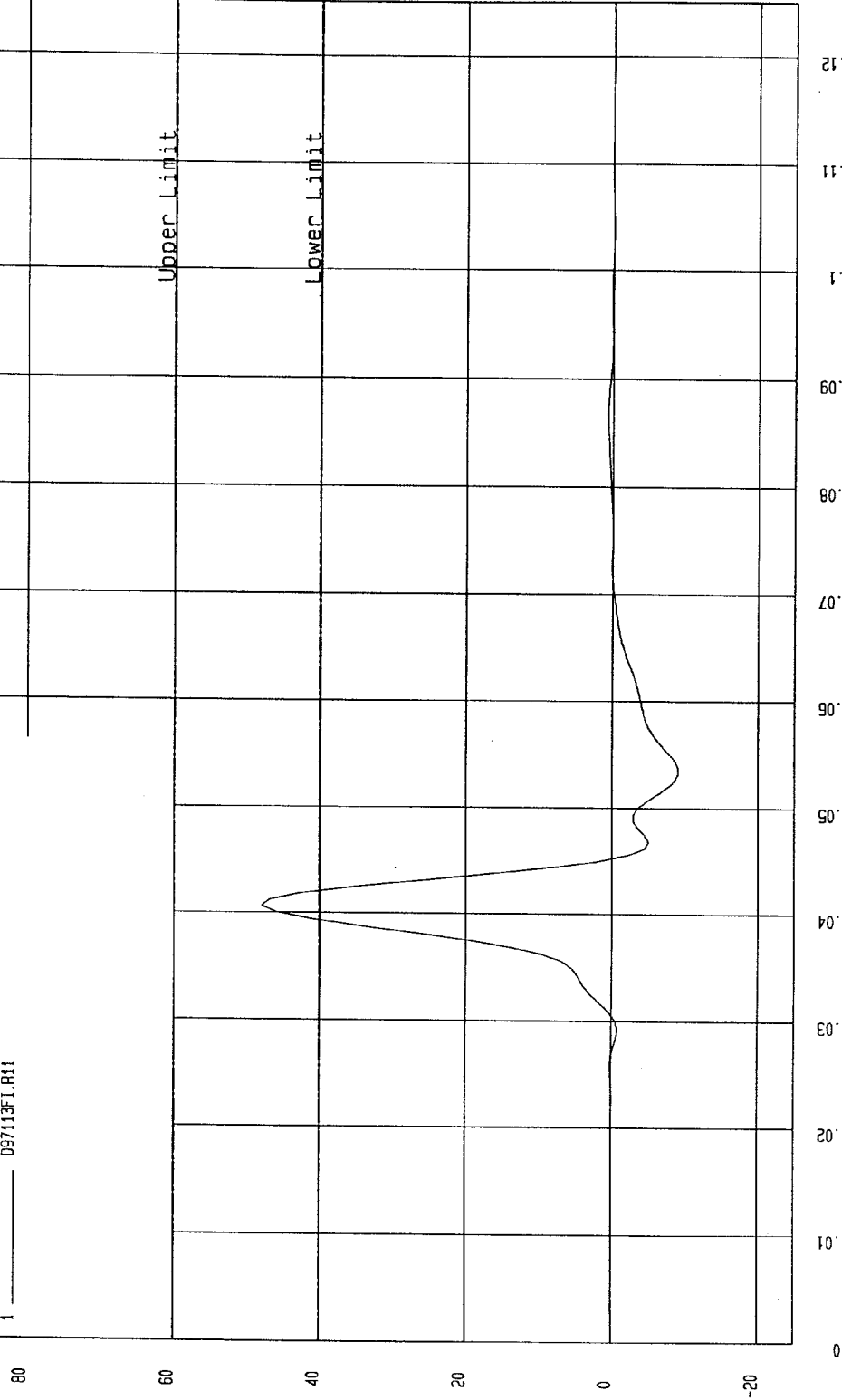
TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 11-14-1997 - 09:48:31

COMPONENT: DUMMY # 269 Velocity: 14.093 FT/SEC 4.3 M/SEC

Minimum = -9.09 G'S at 53.1 msec Maximum = 47.89 G'S at 40.6 msec

PELVIS ACCELERATION

1 ——— D97113FI.R11



NSA Research  
11-14-1997 09:49

MGA RESEARCH CORPORATION  
ABDOMINAL COMPRESSION TEST  
(PRELOAD = 10 LBS)  
SIDE IMPACT DUMMY (SID)


DATE: November 14, 1997

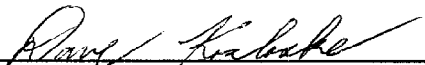
DUMMY NUMBER: 269

TEST NUMBER: D972114

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0.5 in	23.3 - 36.5 lbs	34.5
FORCE @ 0.75 in	36.7 - 49.8 lbs	47.6
FORCE @ 1.0 in	50 - 63 lbs	62
FORCE @ 1.3 in	73 - 88 lbs	83

TEST MEETS SPECIFICATIONS

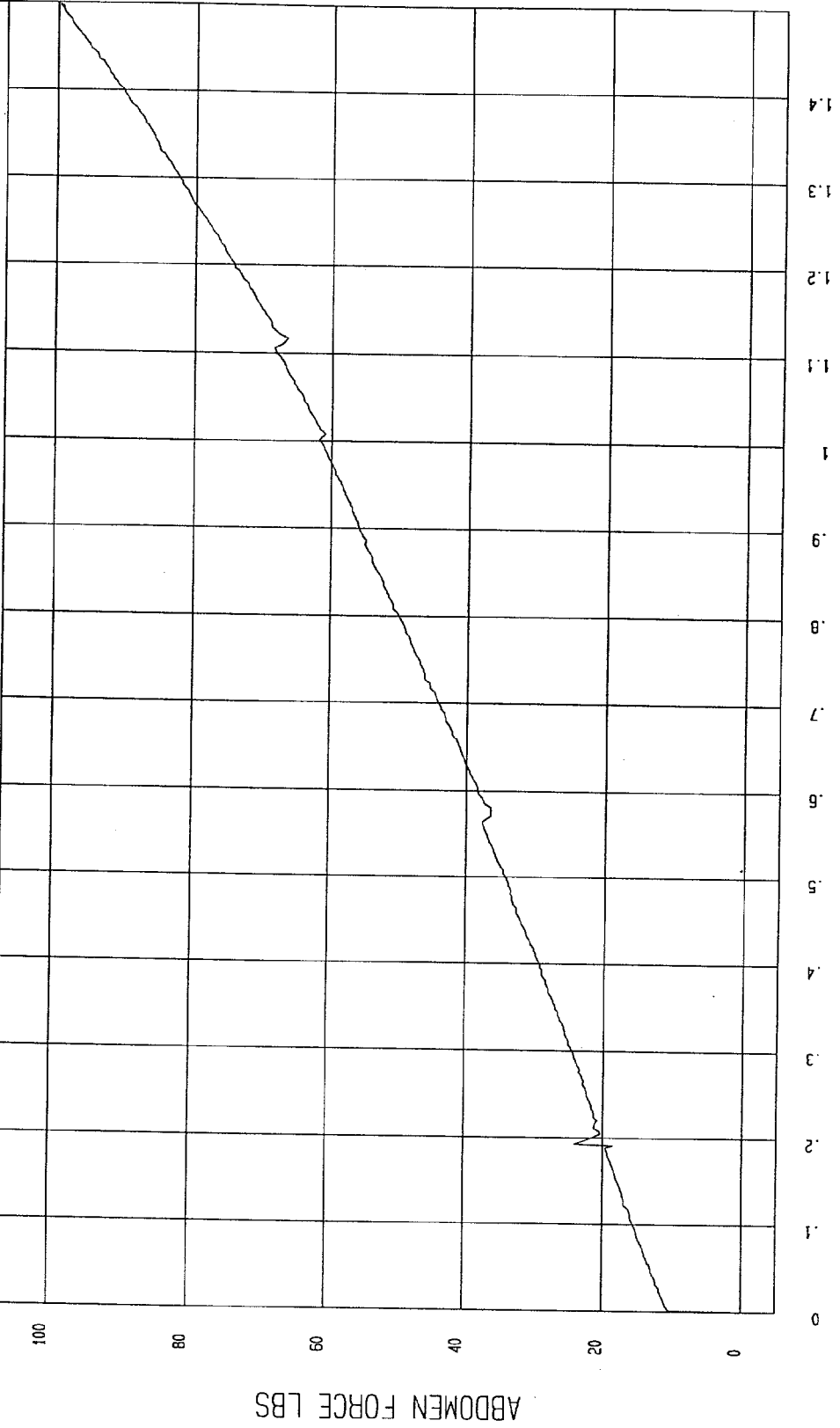
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-14-1997 - 16:20

COMPONENT: DUMMY # 269

ABDOMEN FORCE as a function of ABDOMEN DISPLACEMENT



NCA Research  
11-14-1997 16:35

ABDOMEN DISPLACEMENT INCHES

ABDOMEN FORCE LBS

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 14, 1997

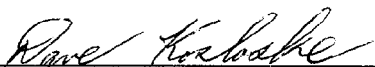
DUMMY NUMBER: 269

TEST NUMBER: D972115

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	30%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	32
FORCE @ 30°	34 - 46 lbs	43
FORCE @ 40°	46 - 58 lbs	55
RETURN ANGLE	12° maximum	4°

TEST MEETS SPECIFICATIONS

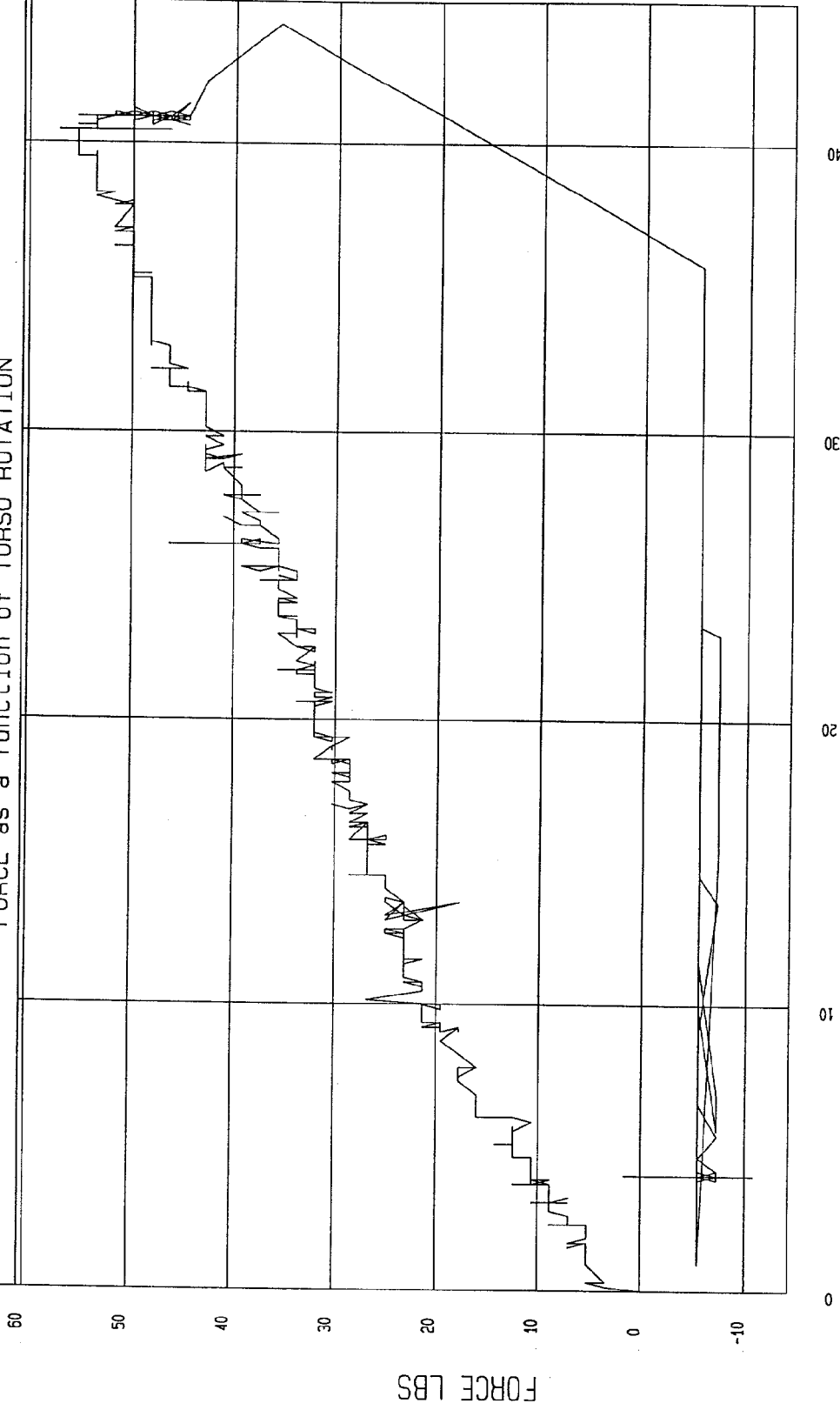
TECHNICIAN 

APPROVED BY 

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-14-1997 - 16:51

COMPONENT: DUMMY # 269

FORCE as a function of TORSO ROTATION



MEA Research  
11-14-1997 17:18

## POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 270

Inspected By: Tim Michnay

Date: November 14, 1997

<u>Part</u>	<u>Items Checked</u>	<u>Comments</u>
Skin	visual inspection	OK
Head	visual, ballast, accelerometer mount	OK
Neck	visual	OK
Spine box	visual, ballast, weldment, accelerometer mount	OK
Rib cage	visual, measure	OK
Sternum	visual	OK
Lumbar spine	visual	OK
Abdomen	visual	OK
Pelvis	visual, palpate, accelerometer mount	OK
Upper legs	visual	OK
Knees	visual	OK
Lower legs	visual, range of motion	OK
Ankles	visual, range of motion	OK
Feet	visual, range of motion	OK
Joints	1 to 2 g range	OK
Other		

NOTES: (include component/problem/action/reason):

POST-TEST PASSENGER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

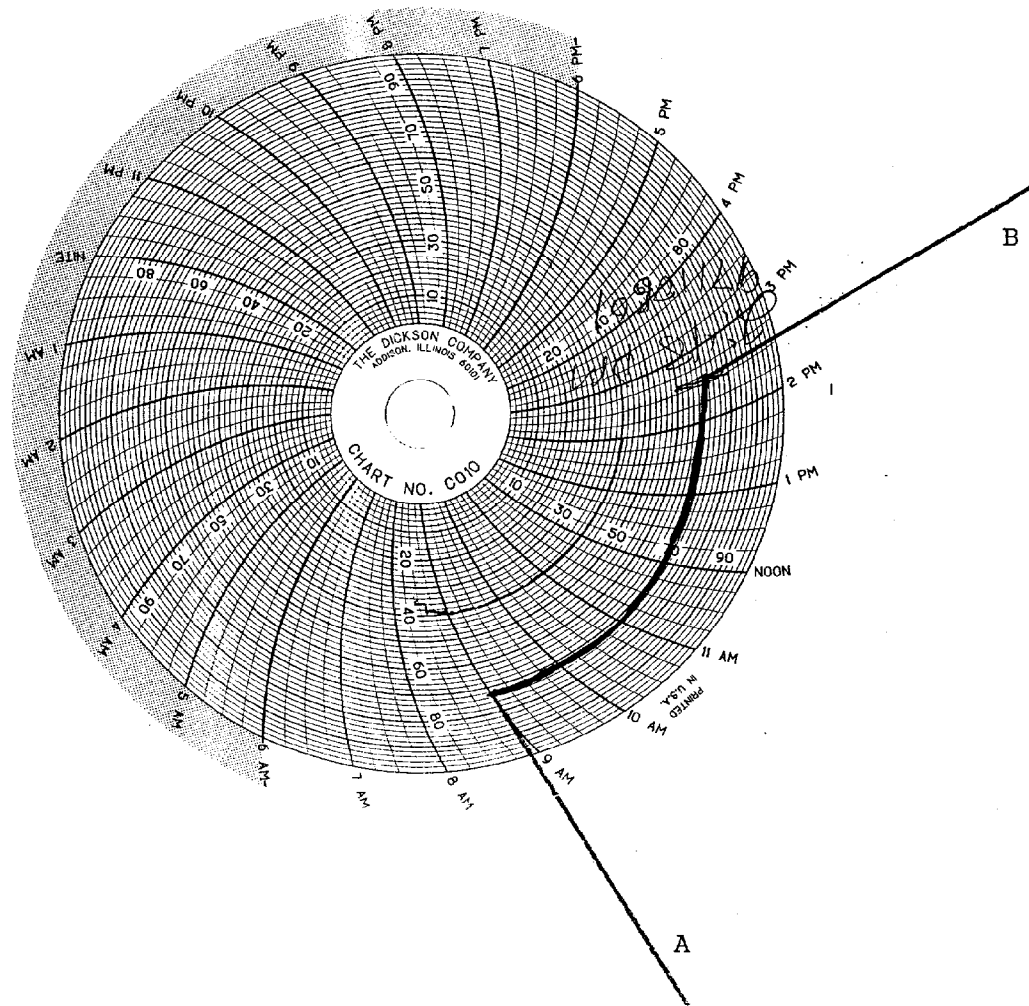
Inspected By: Tim Michnay

Date: November 14, 1997

<u>Part</u>	<u>Items Checked</u>	<u>Comments</u>
Skin	visual inspection	OK
Head	visual, ballast, accelerometer mount	OK
Neck	visual	OK
Spine box	visual, ballast, weldment, accelerometer mount	OK
Rib cage	visual, measure	OK
Sternum	visual	OK
Lumbar spine	visual	OK
Abdomen	visual	OK
Pelvis	visual, palpate, accelerometer mount	OK
Upper legs	visual	OK
Knees	visual	OK
Lower legs	visual, range of motion	OK
Ankles	visual, range of motion	OK
Feet	visual, range of motion	OK
Joints	1 to 2 g range	OK
Other		

NOTES: (include component/problem/action/reason):

# VEHICLE AND DUMMY TEMPERATURE



A = dummies installed in vehicle  
B = test conducted

**APPENDIX D**  
**TEST EQUIPMENT LIST AND CALIBRATION INFORMATION**

DUMMY AND VEHICLE CALIBRATION DATA  
INSTRUMENTS FOR DRIVER DUMMY NO. 270

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AKAF3	Endevco	September 16, 1997
Lower Rib Y	ALECI	Endevco	September 15, 1997
Lower Spine Y	ALCH7	Endevco	September 16, 1997
Pelvis Y	AKAD6	Endevco	September 11, 1997
Upper Rib Redundant Y	ALCN9	Endevco	September 16, 1997
Lower Rib Redundant Y	J10411	Endevco	September 15, 1997
Lower Spine Redundant Y	AJ420	Endevco	September 16, 1997
Pelvis Redundant Y	AJ9A7	Endevco	September 11, 1997
Head Center of Gravity X	AN8R0	Endevco	September 11, 1997
Head Center of Gravity Y	AN8P8	Endevco	September 11, 1997
Head Center of Gravity Z	AN8M5	Endevco	September 11, 1997

INSTRUMENTS FOR PASSENGER DUMMY NO. 269

LEFT REAR PASSENGER			
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AKAC4	Endevco	August 6, 1997
Lower Rib Y	J10431	Endevco	August 5, 1997
Lower Spine Y	AGP28	Endevco	September 15, 1997
Pelvis Y	AJ9P7	Endevco	August 6, 1997
Upper Rib Redundant Y	J13642	Endevco	August 6, 1997
Lower Rib Redundant Y	AN9E3	Endevco	August 5, 1997
Lower Spine Redundant Y	AJ8T5	Endevco	September 15, 1997
Pelvis Redundant Y	AJ462	Endevco	August 6, 1997
Head Center of Gravity X	AJ9E5	Endevco	August 5, 1997
Head Center of Gravity Y	ALFA7	Endevco	August 5, 1997
Head Center of Gravity Z	AHTT3	Endevco	August 5, 1997

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	J04-F10	Entran	August 7, 1997
Moving Barrier CG Y	F11-G04	Entran	August 7, 1997
Moving Barrier CG Z	J04-F12	Entran	August 7, 1997
Moving Barrier Rear Axle X	G13-B07	Entran	August 6, 1997
Moving Barrier Rear Axle Y	L14-D04	Entran	August 4, 1997
Left Mid A-Post Y	J10-E06	Entran	August 1, 1997
Left Lower A-Post Y	F10-D04	Entran	August 4, 1997
Left Lower B-Post Y	F13-B12	Entran	August 7, 1997
Rear Floorpan Above Axle X	G13-B03	Entran	August 7, 1997
Rear Floorpan Above Axle Y	G08-B01	Entran	August 7, 1997
Rear Floorpan Above Axle Z	F12-G09	Entran	August 7, 1997
Driver Seat Track Y	J23-E06	Entran	August 1, 1997
Right Side Sill at Front Seat X	J04-F13	Entran	August 7, 1997
Right Side Sill at Front Seat Y	J04-F16	Entran	August 7, 1997
Right Side Sill at Front Seat Z	I25-J20	Entran	August 7, 1997
Right Side Sill at Rear Seat X	F12-G03	Entran	July 11, 1997
Right Side Sill at Rear Seat Y	D05-R16	Entran	July 7, 1997
Right Side Sill at Rear Seat Z	D05-R20	Entran	July 7, 1997
Left Side Sill at Front Seat Y	E10-F10	Entran	August 7, 1997

VEHICLE INSTRUMENT CALIBRATION

VEHICLE ACCELEROMETERS			
	SERIAL NO	MANUFACTURER	CALIBRATION DATE
Left Side Sill at Rear Seat Y	B14-R15	Entran	July 14, 1997
Right Rear Occupant Compartment Y	F12-G04	Entran	July 14, 1997
Vehicle CG X	I25-J16	Entran	August 7, 1997
Vehicle CG Y	F20-G09	Entran	August 7, 1997
Vehicle CG Z	L14-D04	Entran	August 4, 1997
Left Front Door on Centerline	I25-J09	Entran	August 7, 1997
Left Front Door Upper Centerline	F20-G05	Entran	August 7, 1997
Midrear of Left Rear Door	F20-G07	Entran	August 7, 1997
Left Rear Door Upper Centerline	I14-D13	Entran	August 1, 1997

Note: All Endevco accelerometers are Model No. 7264-2000 All Entran accelerometers are Model No. EGE-72