

NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TESTING
PASSENGER CARS

1997 NISSAN MAXIMA
4-DOOR SEDAN
NHTSA NO: MV5201

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: February 11, 1997

Report Date: March 6, 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: *March 13, 1997*

FINAL REPORT ACCEPTED BY (OCWS):

Accepted By: _____
Contract Technical Manager

Acceptance Date: _____

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 214D-MGA-97-18		2. Government Accession No.		3. Recipient's Catalog No.																			
4. Title and Subtitle New Car Assessment Program Side Impact Test of a 1997 Nissan Maxima 4-Door Sedan NHTSA No. MV5201				5. Report Date March 6, 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 February 11, 1997 to March 6, 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 1997 Nissan Maxima 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 February 11, 1997. The impact velocity of the Moving Deformable Barrier (MDB) was 61.6 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 456 mm at level 2. The test vehicle's performance follows: <table border="1" data-bbox="259 1113 1006 1323"> <thead> <tr> <th></th> <th><u>DRIVER</u></th> <th><u>PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td>66</td> <td>67</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td>63</td> <td>85</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td>74</td> <td>65</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td>70</td> <td>75</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td>95</td> <td>87</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	66	67	Left Lower Rib (LLR) Accel., g	63	85	Lower Spine (T ₁₂) Accel., g	74	65	Thoracic Trauma Index (TTI)	70	75	Pelvis (PEV) Accel., g	95	87
	<u>DRIVER</u>	<u>PASS.</u>																					
Left Upper Rib (LUR) Accel., g	66	67																					
Left Lower Rib (LLR) Accel., g	63	85																					
Lower Spine (T ₁₂) Accel., g	74	65																					
Thoracic Trauma Index (TTI)	70	75																					
Pelvis (PEV) Accel., g	95	87																					
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 Telephone No. 202-366-4946 Attn: Robert Hornickie																			
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 293																			
				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 FY97 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 1997 Nissan Maxima 4-Door.

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 1997 Nissan Maxima 4-Door 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 38.3 mph (61.6 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 February 11, 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 (T₁₂) 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)	70	75
Pelvis (g)	95	87

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: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 VIN: JN1CA21D8VT814803

Vehicle Body Color: Neptune Blue Build Date: 9/96

Engine Data: 6 Cylinders; CID; 3.0 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 75 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): 29 Psi FRONT

29 Psi REAR

Recommended Tire Size: P205/65R/15

Tires on Test Vehicle: P205/65R/15 Manufacturer: Toyo

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 Lever X Power

Vehicle Maximum Capacity Loading = 480.2 kg (A)

No. of Occupants x 68.04 kg. = 340.2 kg (B)

Cargo Capacity (A-B) = 68.0 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front	=	<u>431.0</u> kg	Right Rear	=	<u>263.5</u> kg
Left Front	=	<u>447.2</u> kg	Left Rear	=	<u>254.9</u> kg
TOTAL FRONT	=	<u>878.2</u> kg	TOTAL REAR	=	<u>518.4</u> kg
% of Total Vehicle Weight	=	<u>62.9</u> %;	% of Total Weight	=	<u>37.1</u> %
TOTAL WEIGHT	=	<u>1396.6</u> kg			

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 1997

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	=	<u>1396.6</u> kg
Cargo Carrying Capacity of Test Vehicle	=	<u>68.0</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>1626.0</u> kg

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

Right Front	=	<u>433.6</u> kg	Right Rear	=	<u>330.3</u> kg
Left Front	=	<u>499.4</u> kg	Left Rear	=	<u>361.5</u> kg
TOTAL FRONT	=	<u>933.0</u> kg	TOTAL REAR	=	<u>691.8</u> kg
% of Total Weight	=	<u>57.4</u> %	% of Total Weight	=	<u>42.6</u> %
TOTAL TEST WEIGHT	=	<u>1624.8</u> kg			

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 717 mm Left Front 716 mm Right Rear 723 mm Left Rear 712 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 712 mm Left Front 700 mm Right Rear 688 mm Left Rear 662 mm

TEST ATTITUDE:

Right Front 703 mm Left Front 703 mm Right Rear 691 mm Left Rear 672 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2700 mm

C.G. = 1105 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4512 mm

Centerline = 4794 mm

Left Side = 4512 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 1997

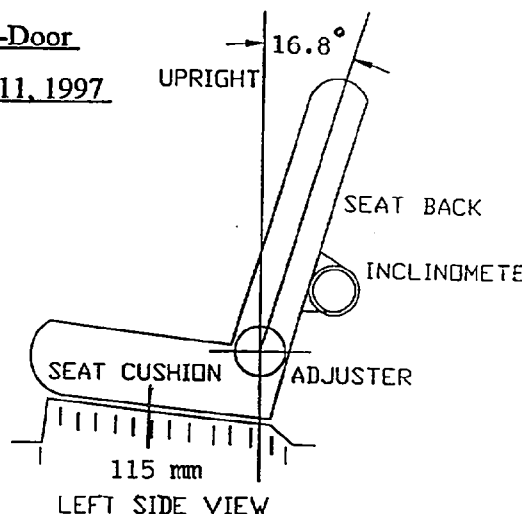
FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 230 mm

Test Position: Mid position—115 mm

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 16.8° measured at the headrest post



SECOND POSITION SEAT:

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

Seat Back Adjustment Position: Non-adjustable

ADJUSTABLE STEERING COLUMN POSITION: Mid position

WINDOW POSITIONS: Left Front Up Left Rear Up
Right Front Down Right Rear Removed

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel system usable capacity = 18.5 gallons

Test Volume: 17.2 gallons 93 % of capacity

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

Wheelbase: = 2700 mm

Impact Point is 410 mm rearward of front axle centerline

DATA SHEET NO. 2
TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door
Vehicle NHTSA No.: MV5201 Test Date: February 11, 1997
Overall Length = 4794 mm; Overall Width = 1756 mm

TEST WEIGHT:

Right Front = 460.4 kg Right Rear = 327.1 kg
Left Front = 495.3 kg Left Rear = 334.7 kg
TOTAL FRONT = 955.7 kg TOTAL REAR = 661.8 kg
% of Total Weight = 59.1 % % of Total Weight = 40.9 %
TOTAL VEHICLE WEIGHT = 1617.5 kg
Wheelbase = 2700 mm
Longitudinal C.G. from Center of Front Axle = 1105 mm
Impact Angle with Respect to Impactor = 90 ° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (263 mm above ground) = 278 mm
 2. LEVEL 2 (475 mm above ground) = 456 mm
 3. LEVEL 3 (595 mm above ground) = 413 mm
 4. LEVEL 4 (882 mm above ground) = 353 mm
 5. LEVEL 5 (1306 mm above ground) = 132 mm
- Maximum Post-Test Intrusion = 456 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>22</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: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 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>1102 mm</u>
C.G. Location From Center Line	=	<u>-23 mm</u>
C.G. Location Above Ground Level	=	<u>508 mm</u>

MDB WEIGHT:

Left Front	=	<u>396.1 kg</u>	Left Rear	=	<u>284.4 kg</u>
Right Front	=	<u>383.4 kg</u>	Right Rear	=	<u>293.8 kg</u>
TOTAL FRONT	=	<u>779.5 kg</u>	TOTAL REAR	=	<u>578.2 kg</u>
TOTAL MDB WEIGHT = <u>1357.7 kg</u>					

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

Impact Speed = Primary: 38.3 mph (61.6 kph) Secondary: 38.4 mph (61.8 kph)

CRASH TEST SUMMARY FOR SIDE IMPACTOR (Cont'd)

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

- | | | |
|----|---------------------------------|-----------------|
| 1. | Row A Top of Stack (813 mm) | = <u>195</u> mm |
| 2. | Row B Mid Stack (686 mm) | = <u>100</u> mm |
| 3. | Row C Top of Bumper (533 mm) | = <u>55</u> mm |
| 4. | Row D Center of Bumper (432 mm) | = <u>84</u> mm |

INSTRUMENTATION:

Number of MDB Data Channels = 7

DATA SHEET NO. 4
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 1997

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to B-post and passenger's seat</u>	<u>to C-post</u>
Arm	<u>to door panel</u>	<u>to door panel</u>
Pelvis	<u>to armrest</u>	<u>to armrest</u>
Left Knee	<u>to door panel</u>	<u>to 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: 5 mm forward Vertical: 12 mm high

ARM REST LOCATIONS:

Front: 245 mm from bottom of window
Rear: 240 mm from bottom of window

POST-TEST OBSERVATIONS (Cont'd)

SEAT CRUSH:

Front Seat Back: 154 mm Front Seat Cushion: 167 mm
Left Rear Seat Back: 68 mm Rear Seat Cushion: 303 mm

GLAZING DAMAGE:

Left side front and rear door glass broken, windshield cracked

PILLAR PERFORMANCE:

No failure noted

SILL SEPARATION:

100 mm of separation starting 1575 mm rearward of the impact line

OTHER NOTABLE IMPACT EFFECTS:

Both driver and passenger airbags deployed during impact.

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5

SIDE IMPACT DUMMY (SID) INSTRUMENTATION DATA

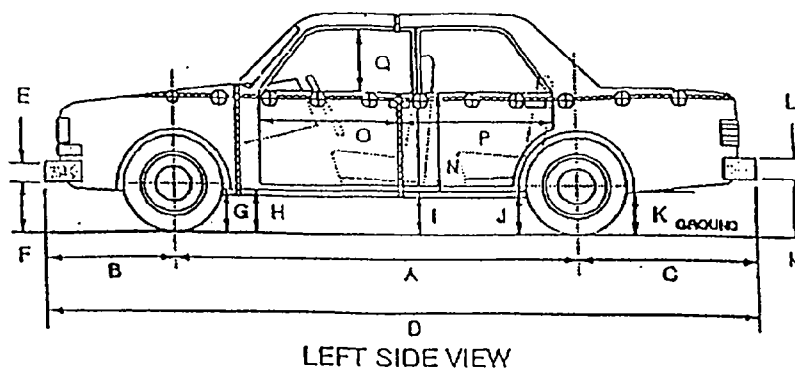
Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 1997

	Front Dummy ID # 269				Rear Dummy ID # 270			
	Pos. Direct.		Neg. Direct		Pos. Direct.		Neg. Direct	
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS								
Left Upper Rib (LUR) Y	66	24	-28	73	67	45	-6	126
Left Lower Rib (LLR) Y	63	26	-18	72	85	43	-19	71
SPINE ACCELERATIONS								
Lower Lateral Y	74	29	-37	62	65	41	-28	72
PELVIS ACCELERATIONS								
Lateral Y	95	29	-28	53	87	32	-20	61

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)

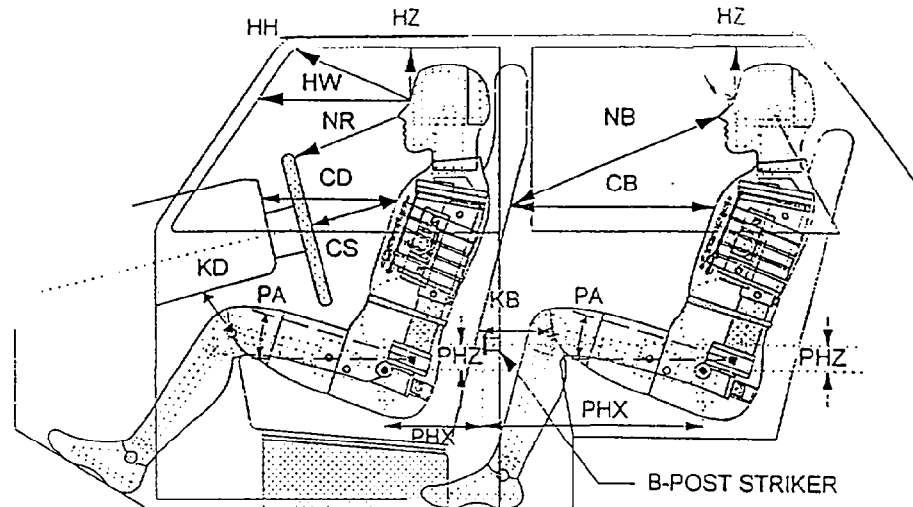
	PRE-TEST	POST-TEST	Δ CHANGE
A	2700	2650	50
B	1000	986	14
C	1094	1076	18
D	4794	4712	82
E	150	150	0
F	373	390	17
G	198	200	2
H	201	264	63
I	189	228	39
J1/J2	188/185	175/195	13/10
K	228	252	24
L	195	195	0
M	350	380	30
N	620	509	111
O	772	723	49
P	1136	1065	71
Q	397	384	13
R	4512	4524	12
S	4512	4440	72
T	1756	1472	284

DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONS

Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

NHTSA NO.: MV5201 Test Date: February 11, 1997



NOTE: All dimensions are in mm with tolerance of ± 3 mm

	DRIVER SID ID # 269
HH	410
HW	678
HZ	175
NR	547
CD	614
CS	410
KDL(KDA°)	194 (30.3°)
KDR(KDA°)	197 (31.6°)
PA°	23.7°
PHX	228
PHZ	126

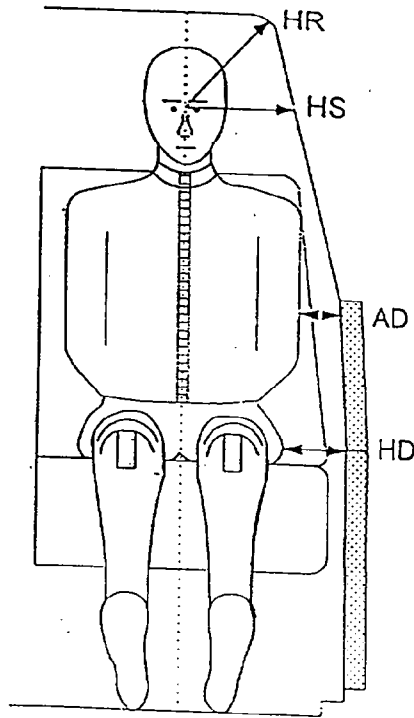
	LEFT REAR PASSENGER SID ID # 270
HZ	143
NB	615
CB	516
KBL (KBA)	219 (0°)
KBR (KBA)	223 (0°)
PA°	24.5°
PHX	297
PHZ	331

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: 1997/Nissan/Maxima/4-Door

NHTSA NO.: MV5201 Test Date: February 11, 1997



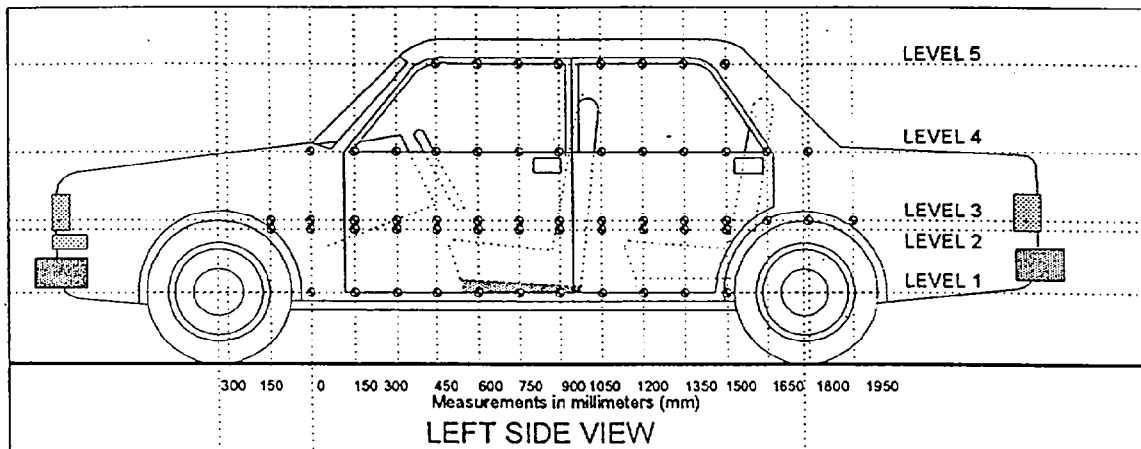
NOTE: All dimensions are in mm

	DRIVER SID ID # 269	LEFT REAR PASSENGER SID ID # 270
HR	177	203
HS	320	350
AD	102	132
HD	196	192

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

NHTSA NO.: MV5201 Test Date: February 11, 1997



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

MEASUREMENTS ALONG THE VERTICAL 750 mm. LINE SHOWN ABOVE

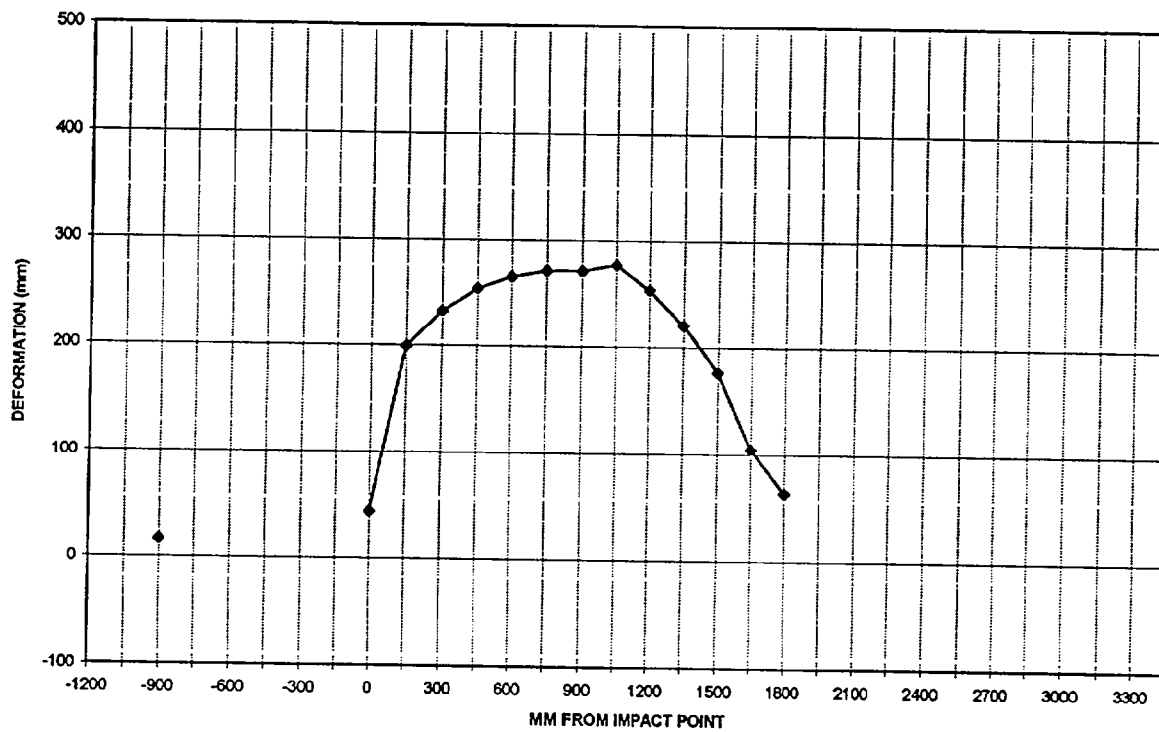
Level 1 @ Axle Centerline Height (or Sill Top Height)	= <u>263</u> mm
Level 2 @ Occupant H-Point	= <u>475</u> mm
Level 3 @ Mid Door	= <u>595</u> mm
Level 4 @ Window Sill	= <u>882</u> mm
Level 5 @ Window Top	= <u>1306</u> mm

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Longitudinal Distance (mm)	Level 1 - Axle Centerline		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050			
-900	801	818	17
-750			
-600			
-450			
-300			
-150			
0 (impact point)	780	824	44
150	784	983	199
300	783	1016	233
450	784	1039	255
600	784	1050	266
750	781	1053	272
900	783	1055	272
1050	783	1061	278
1200	786	1041	255
1350	783	1004	221
1500	782	959	177
1650	778	883	105
1800	777	841	64
1950			
2100			
2250			
2400			
2550			
2700			
2850			
3000			
3150			

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

VEHICLE EXTERIOR STATIC CRUSH



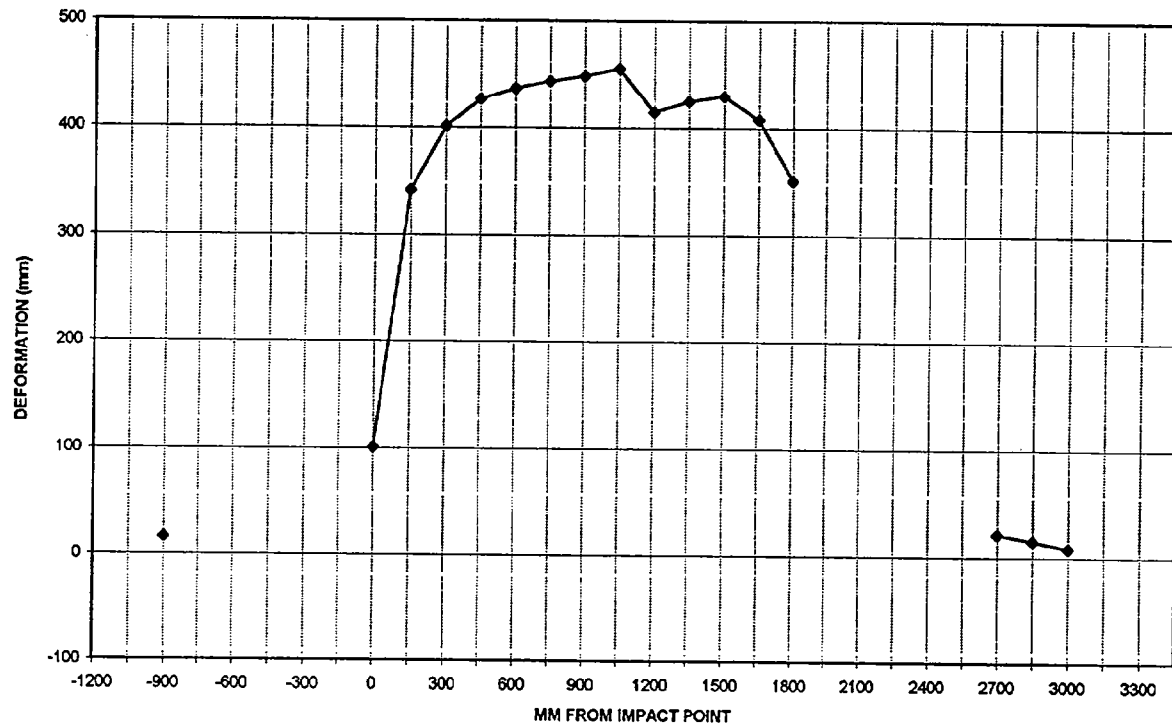
LEVEL 1 - AXLE CENTERLINE

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)
-1050			
-900	777	793	16
-750			
-600			
-450			
-300			
-150			
0 (impact point)	724	825	101
150	726	1068	342
300	727	1128	401
450	727	1154	427
600	727	1164	437
750	726	1170	444
900	724	1173	449
1050	723	1179	456
1200	723	1138	415
1350	723	1148	425
1500	723	1153	430
1650	723	1131	408
1800	723	1075	352
1950			
2100			
2250			
2400			
2550			
2700	737	758	21
2850	750	765	15
3000	767	775	8
3150			

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

VEHICLE EXTERIOR STATIC CRUSH



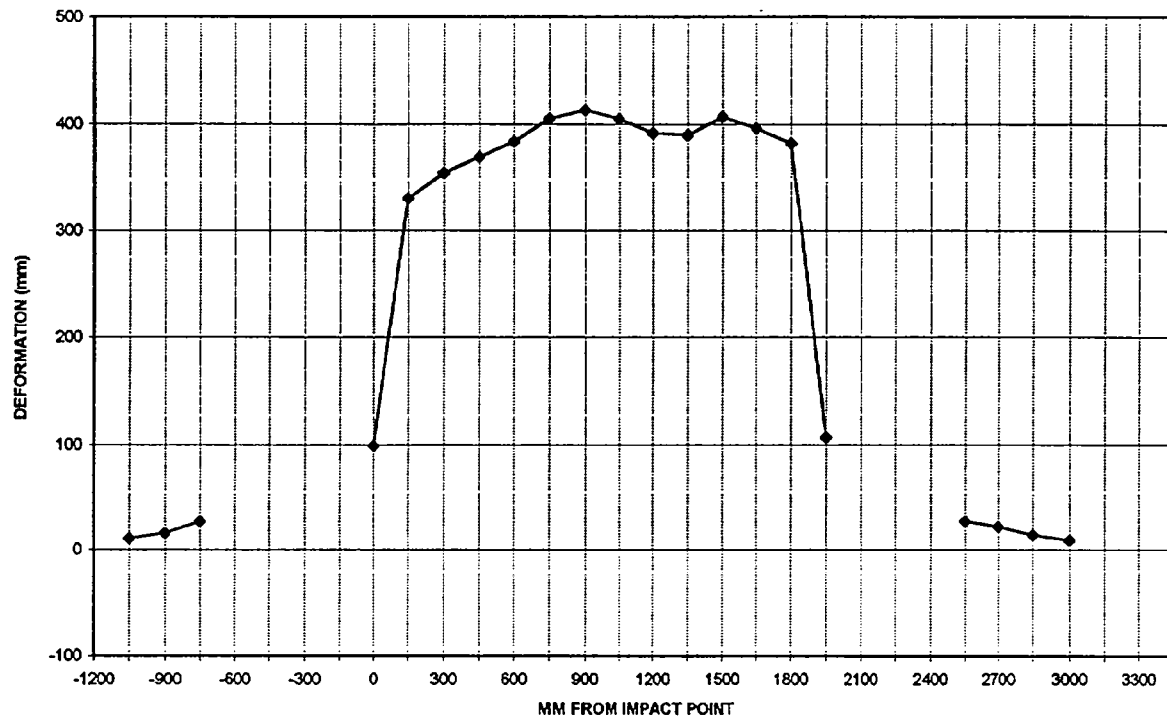
LEVEL 2 - OCCUPANT H-POINT

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Longitudinal Distance (mm)	Level 3 - Mid Door		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050	814	825	11
-900	777	793	16
-750	739	766	27
-600			
-450			
-300			
-150			
0 (impact point)	720	819	99
150	721	1052	331
300	720	1075	355
450	719	1089	370
600	719	1103	384
750	718	1123	405
900	718	1131	413
1050	717	1122	405
1200	716	1108	392
1350	716	1106	390
1500	714	1121	407
1650	714	1110	396
1800	715	1098	383
1950	715	822	107
2100			
2250			
2400			
2550	716	743	27
2700	735	757	22
2850	750	764	14
3000	769	778	9
3150			

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

VEHICLE EXTERIOR STATIC CRUSH



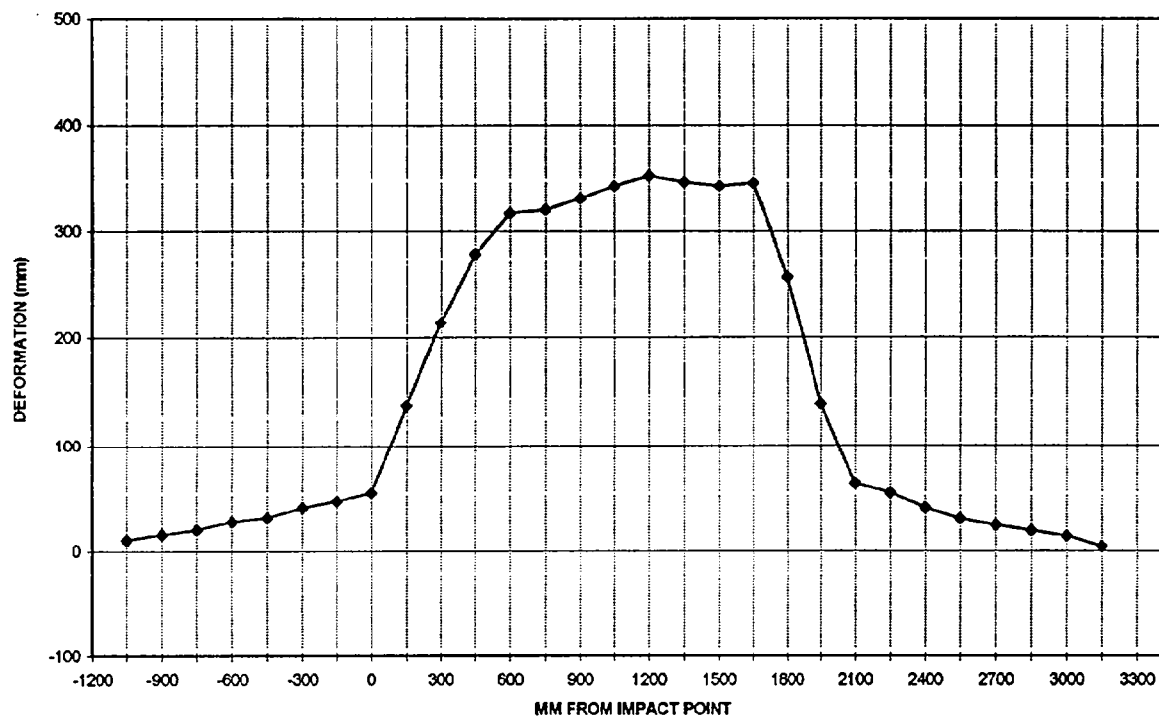
LEVEL 3 - MID DOOR

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Longitudinal Distance (mm)	Level 4 - Window Sill		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050	846	856	10
-900	816	831	15
-750	799	819	20
-600	787	814	27
-450	782	813	31
-300	771	811	40
-150	766	812	46
0 (impact point)	766	820	54
150	765	903	138
300	763	977	214
450	762	1041	279
600	764	1081	317
750	766	1086	320
900	763	1094	331
1050	758	1101	343
1200	762	1115	353
1350	764	1111	347
1500	763	1106	343
1650	765	1111	346
1800	764	1022	258
1950	768	907	139
2100	766	829	63
2250	767	821	54
2400	771	811	40
2550	787	817	30
2700	801	825	24
2850	826	845	19
3000	845	859	14
3150	875	879	4

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

VEHICLE EXTERIOR STATIC CRUSH



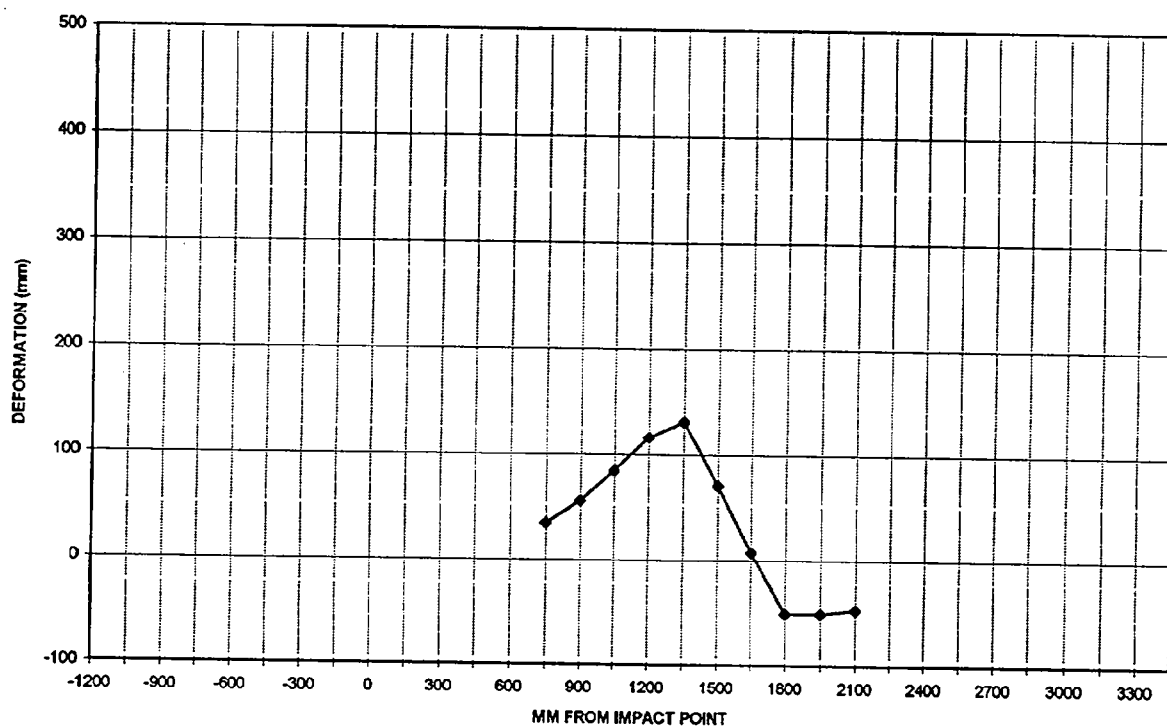
LEVEL 4 - WINDOW SILL

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Longitudinal Distance (mm)	Level 5 - Window Top		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150			
300			
450			
600			
750	995	1030	35
900	996	1052	56
1050	998	1083	85
1200	998	1115	117
1350	996	1128	132
1500	995	1066	71
1650	996	1004	8
1800	993	942	-51
1950	1001	1052	-51
2100	1003	1050	-47
2250			
2400			
2550			
2700			
2850			
3000			
3150			

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

VEHICLE EXTERIOR STATIC CRUSH



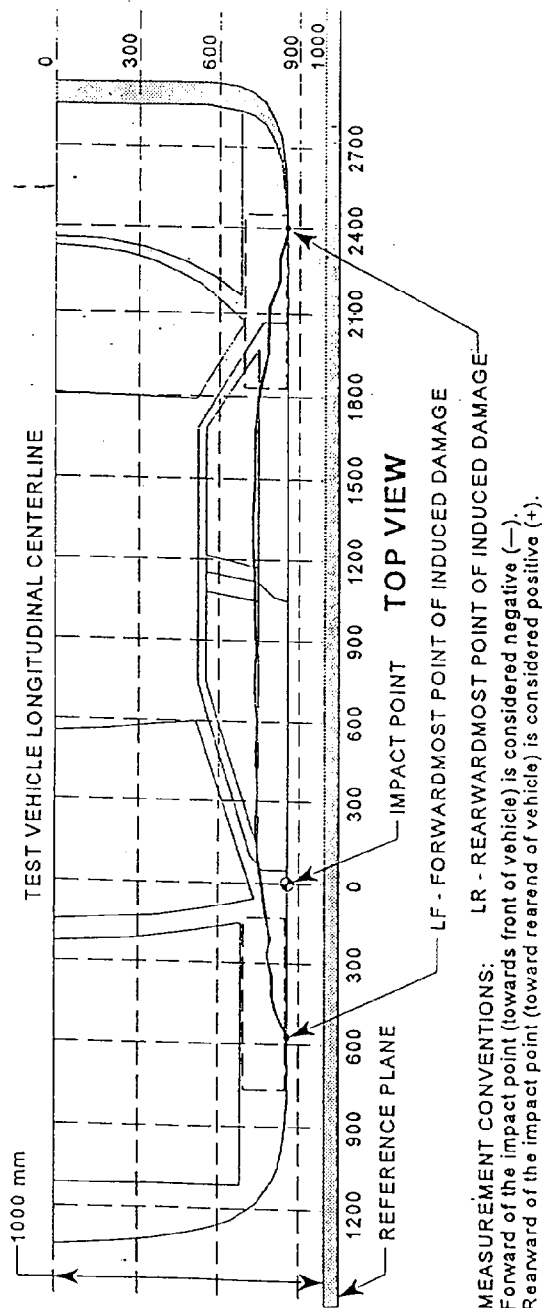
LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

NHTSA NO.: MV5201 Test Date: February 11, 1997



DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (LF = -1050 mm)	856	846	10
2. -200 mm	815	769	46
3. 615 mm	1170	727	443
4. 1428 mm	1163	723	440
5. 2331 mm	813	769	44
6. (LR = 3150 mm)	879	875	4

DATA SHEET NO. 12

EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

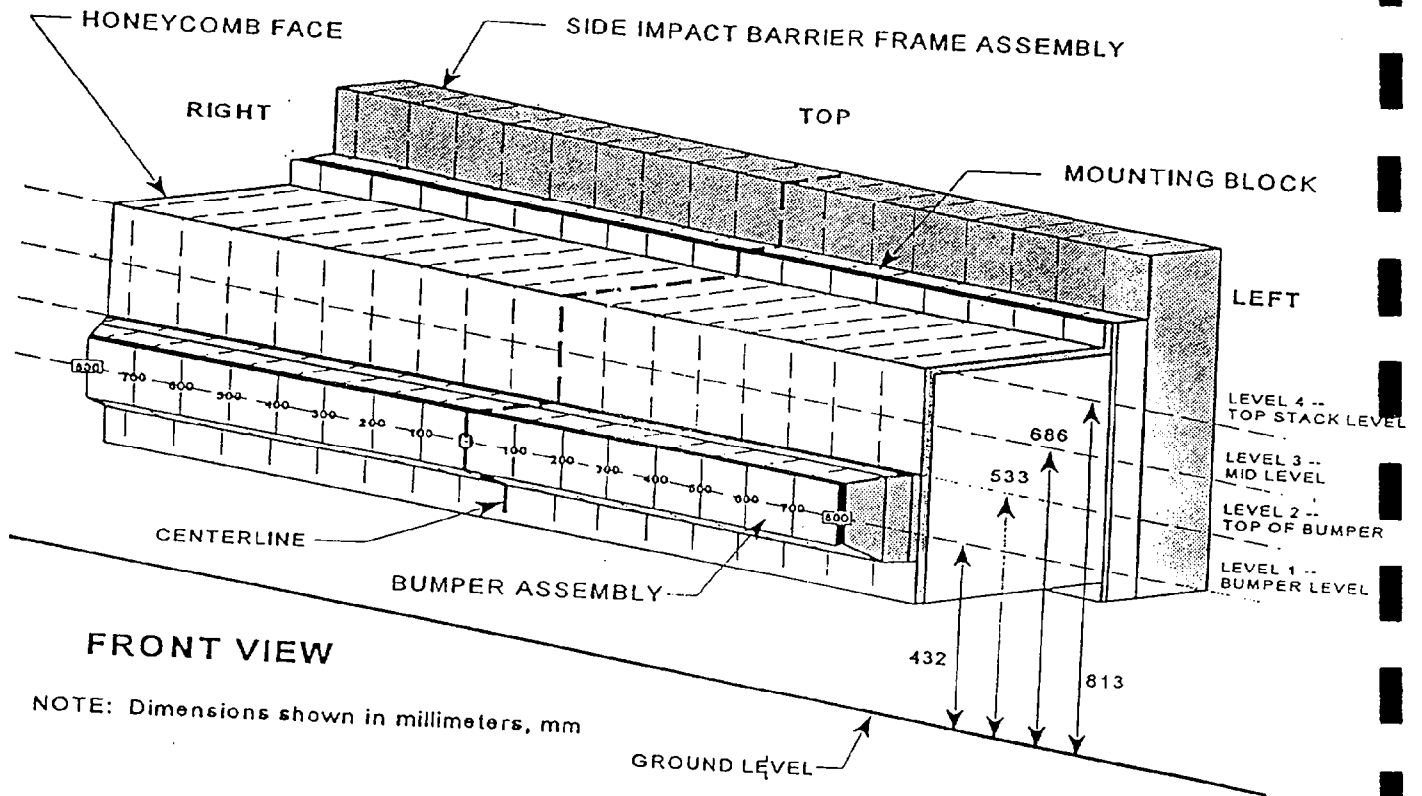
Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 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	77	16	1	2	1	3	5	7	7	10	11	13	21	61	97	142	195
Mid Level Level 3	686 mm	27	7	0	0	0	2	7	5	5	5	7	7	10	12	26	53	100
Top Bumper Level 2	533 mm	36	17	8	7	8	7	8	8	9	10	12	12	14	16	21	35	55
Mid Bumper Level 1	432 mm	80	49	41	39	43	40	36	36	34	34	35	34	35	37	44	65	84

See next page for Barrier Face Graphic

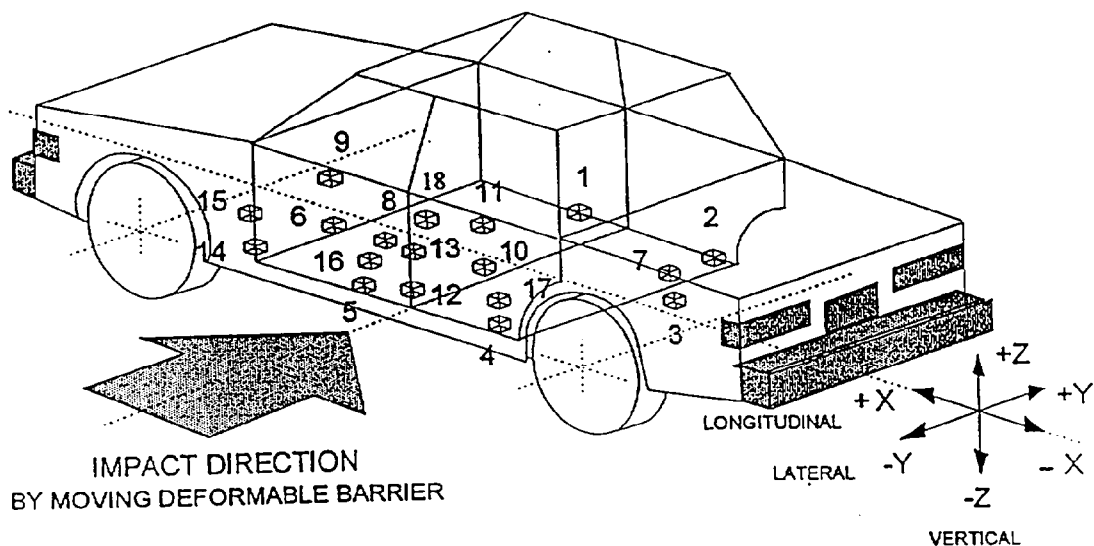
DATA SHEET NO. 12 (Cont'd)



DATA SHEET 13
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 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
 7-Rt. Rr. Occ Compartment
 9-Left Frt. Door Upper Ctrline

11-Left Rear door Upper Ctrline
 12-Left Lower B-Post
 13-Left Middle 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: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 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	2786	700	223	4	-4	21	-3	7	-10	23
2	Rt. Side Sill @ Rear Seat	1653	650	254	3	-4	21	-4	4	-6	21
3	Rr. Floorpan Above Axle	1130	0	416	3	-5	18	-4	8	-7	19
4	Left Side Sill @ Rr. Seat	1656	-670	256			27	-4			
5	Left Side Sill @ Frt. Seat	2771	-705	225			45	-10			
7	Right Rear Occupant Compartment	1913	312	376			21	-3			
9	Left Front Door Upper Centerline	2796	-758	870			296	-133			
11	Left Rear Door Upper Centerline	1864	-765	900			264	-97			
12	Left Lower B-Post	2115	-678	368			130	-73			
13	Left Mid B-Post	2173	-744	812			160	-133			
14	Left Lower A-Post	3291	-732	296			115	-94			
15	Left Mid A-Post**	3297	-784	864			36	-1			
16	Driver Left Seat Track	2380	-560	295			129	-78			
18	Vehicle CG	2683	-15	440	6	-12	41	-8	21	-19	47

*Reference: X - Rear Bumper (+ Forward) ** Data not valid after approximately 17 msec.

Y - Vehicle Centerline (+ To right)

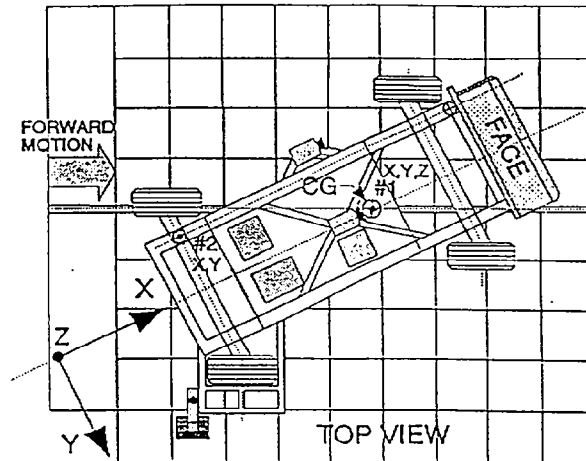
Z - Ground Level (+ Up)

DATA SHEET NO. 14

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 1997

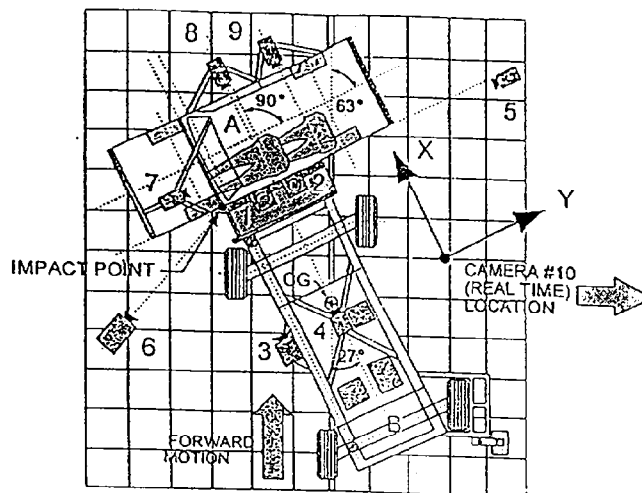


Accel. No.	Description	Coordinates (mm)*			(+) Positive		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	2	122	-16	31
	Lateral (Y)	---	---	---	1	79	-7	36
	Vertical (Z)	---	---	---	18	33	-26	20
	Resultant (R)	---	---	---	29	20	---	---
2	Rear Frame Member	-2591	-625	622				
	Longitudinal (X)	---	---	---	3	199	-21	35
	Lateral (Y)	---	---	---	4	35	-1	189

*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: 1997/Nissan/Maxima/4-Door
 Vehicle NHTSA No.: MV5201 Test Date: February 11, 1997



Camera No.	View	Coordinates (mm)*			Angle	Lens (mm)	Film Speed (fps)
		X	Y	Z			
	Real Time						
6	Left Impact	-880	-2230	1640		13	1015
8	Onboard Driver					8	885
9	Onboard Passenger					8	1053
7	Onboard Hood					13	1005
5	Right Impact	-360	10580	1980		25	971
1	Top Overall	-245	1250	5000		8	1053
2	Top Impact	-240	50	5000		13	800
4	Cart Overall					13	1020
3	Cart Pointer					35	1010

* 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: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 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 38.3 mph (61.6 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

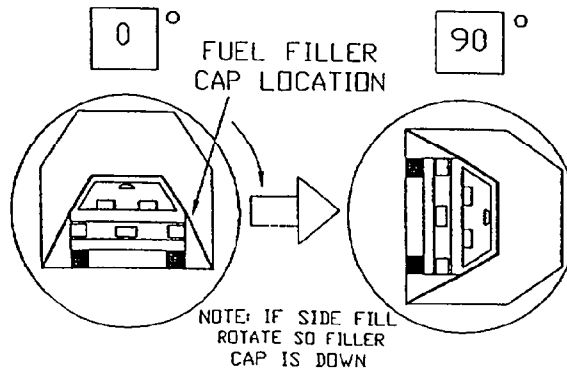
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 1997

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 52 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 52 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

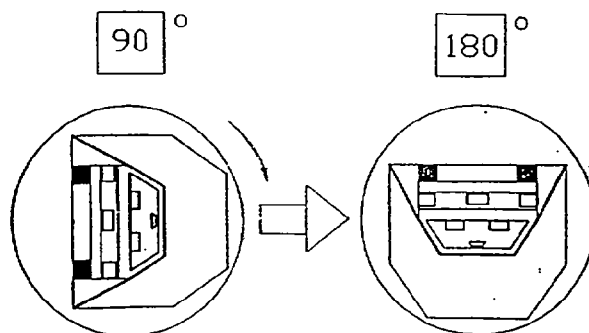
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 1997

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 33 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 33 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

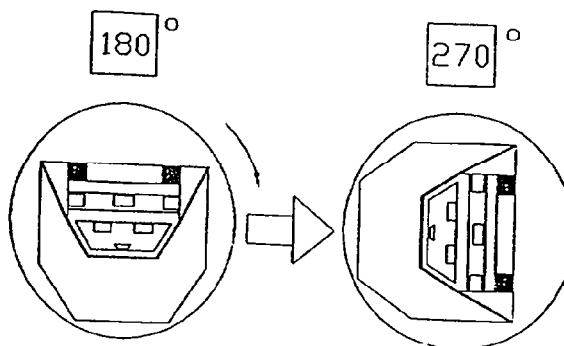
FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201

Test Date: February 11, 1997

TEST PHASE: 180° - 270°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 16 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 16 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

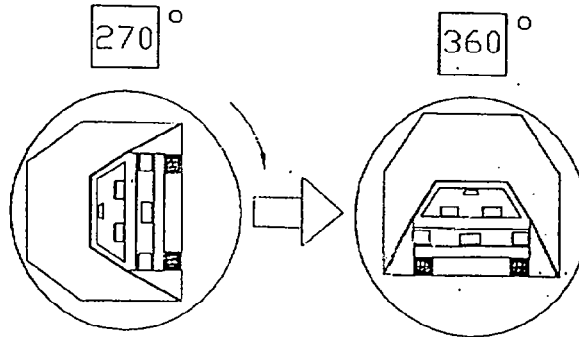
DATA SHEET 16

FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1997/Nissan/Maxima/4-Door

Vehicle NHTSA No.: MV5201 Test Date: February 11, 1997

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 40 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 40 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 - Pre-Test Driver Seat Position View	A-28
Photo No. A-29 - Post-Test Driver Dummy Contact	A-29

TABLE OF PHOTOGRAPHS

	<u>Page No.</u>
Photo No. A-30 - Post-Test Driver Dummy Contact	A-30
Photo No. A-31 - Post-Test Driver Dummy Head Contact	A-31
Photo No. A-32 - Post-Test Driver Dummy Head Contact	A-32
Photo No. A-33 - Pre-Test Passenger Dummy Right Side View	A-33
Photo No. A-34 - Post-Test Passenger Dummy Right Side View	A-34
Photo No. A-35 - Pre-Test Passenger Dummy Left Side View	A-35
Photo No. A-36 - Post-Test Passenger Dummy Left Side View	A-36
Photo No. A-37 - Pre-Test Passenger Dummy Left Side View (Door Open)	A-37
Photo No. A-38 - Pre-Test Passenger Dummy Shoulder and Door Top View	A-38
Photo No. A-39 - Post-Test Passenger Dummy Shoulder and Door Top View	A-39
Photo No. A-40 - Post-Test Passenger Dummy Contact	A-40
Photo No. A-41 - Post-Test Passenger Dummy Contact	A-41
Photo No. A-42 - Post-Test Passenger Dummy Head Contact	A-42
Photo No. A-43 - Pre-Test Left Front Impact Point on Vehicle	A-43
Photo No. A-44 - Post-Test Left Front Impact Point on Vehicle	A-44
Photo No. A-45 - Added Ballast Weight in Trunk	A-45
Photo No. A-46 - Impact	A-46
Photo No. A-47 - Area of Sill Separation	A-47
Photo No. A-48 - Vehicle Certification Label	A-48
Photo No. A-49 - Tire Placard	A-49
Photo No. A-50 - Rollover 90°	A-50
Photo No. A-51 - Rollover 180°	A-51
Photo No. A-52 - Rollover 270°	A-52
Photo No. A-53 - Rollover 360°	A-53
Photo No. A-54 - Left Front Attitude Point	A-54
Photo No. A-55 - Right Front Attitude Point	A-55
Photo No. A-56 - Left Rear Attitude Point	A-56
Photo No. A-57 - Right Rear Attitude Point	A-57



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

A-1

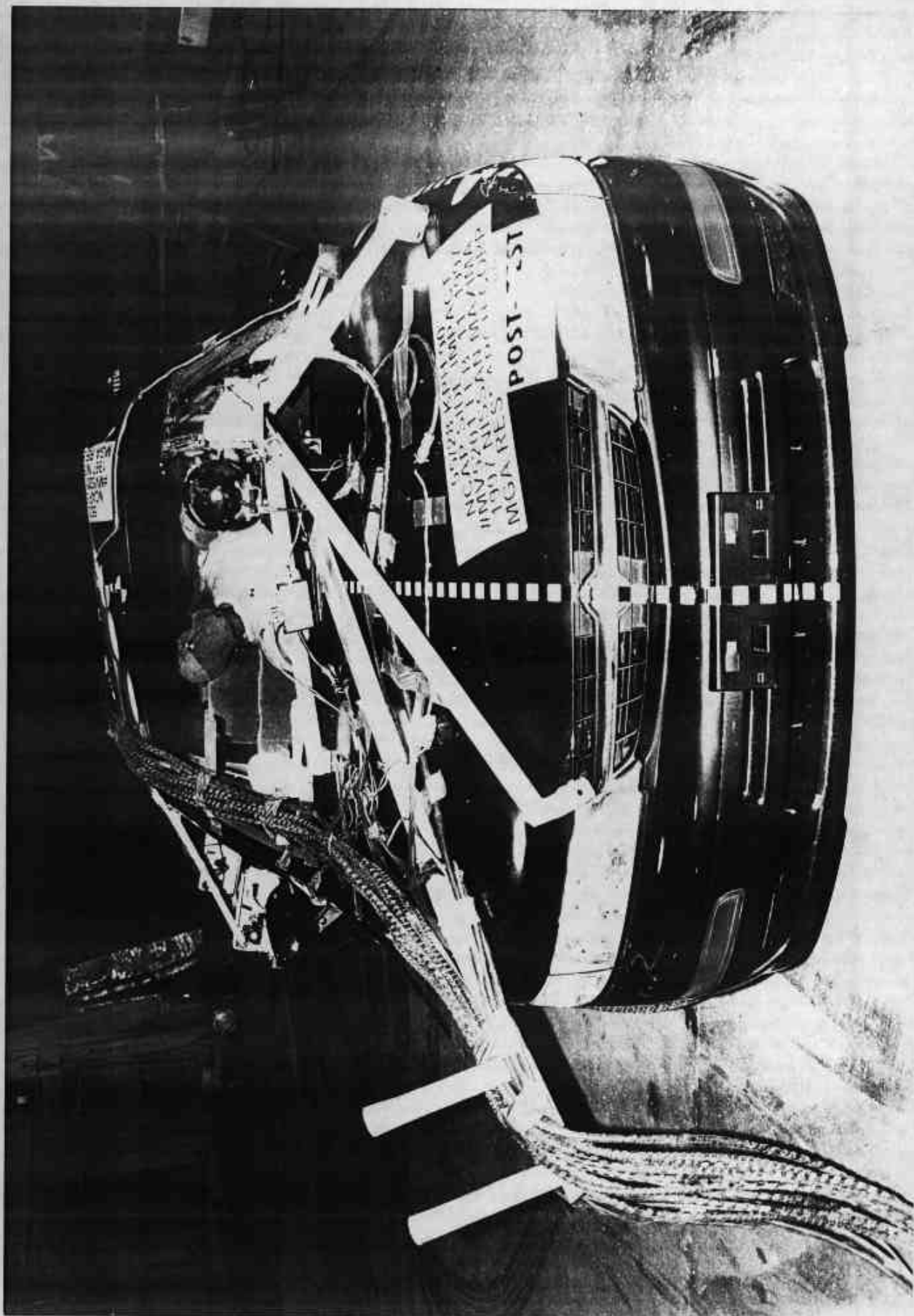
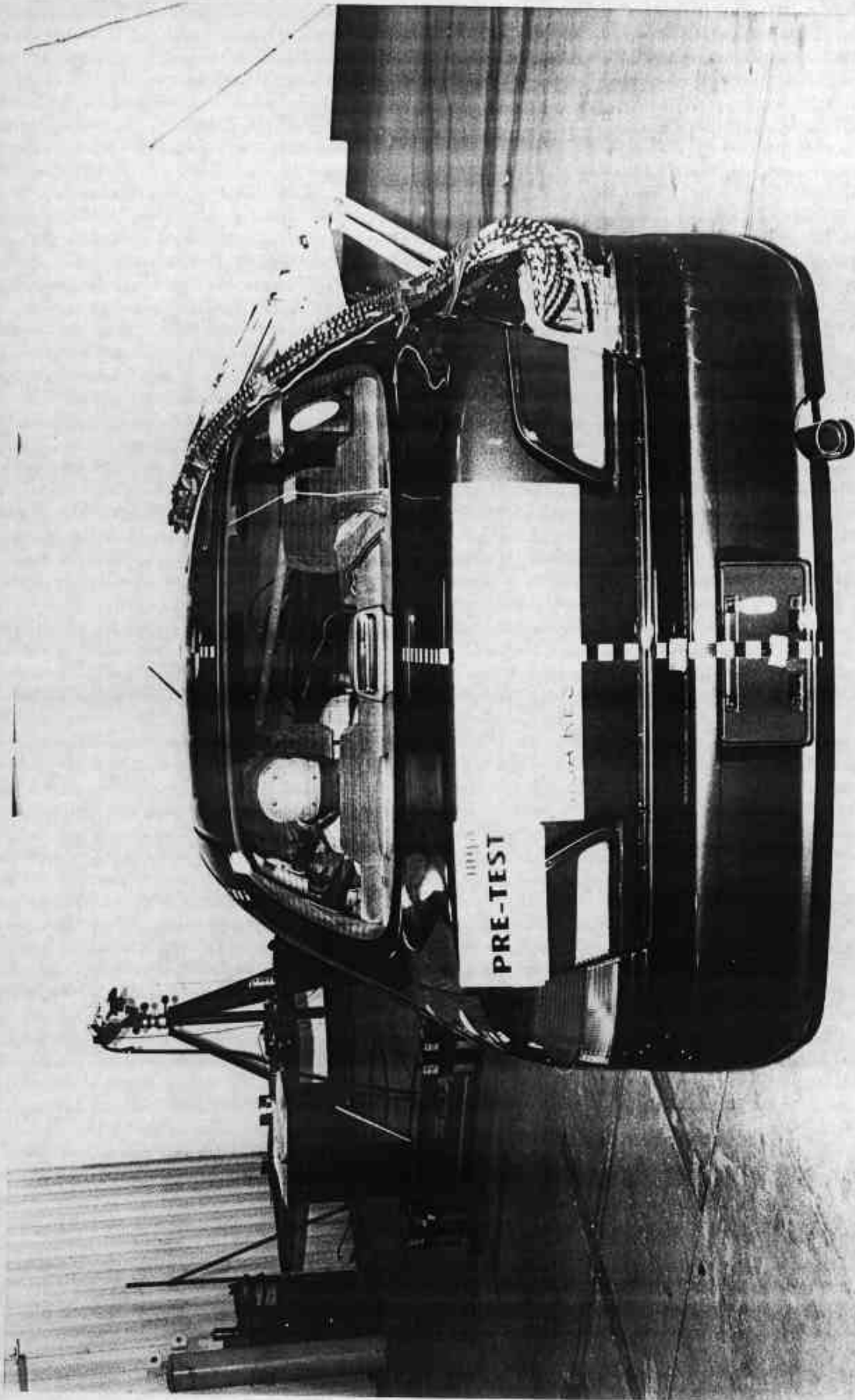


Photo No. A-2 - Post-Test Front View of Test Vehicle



A-3

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

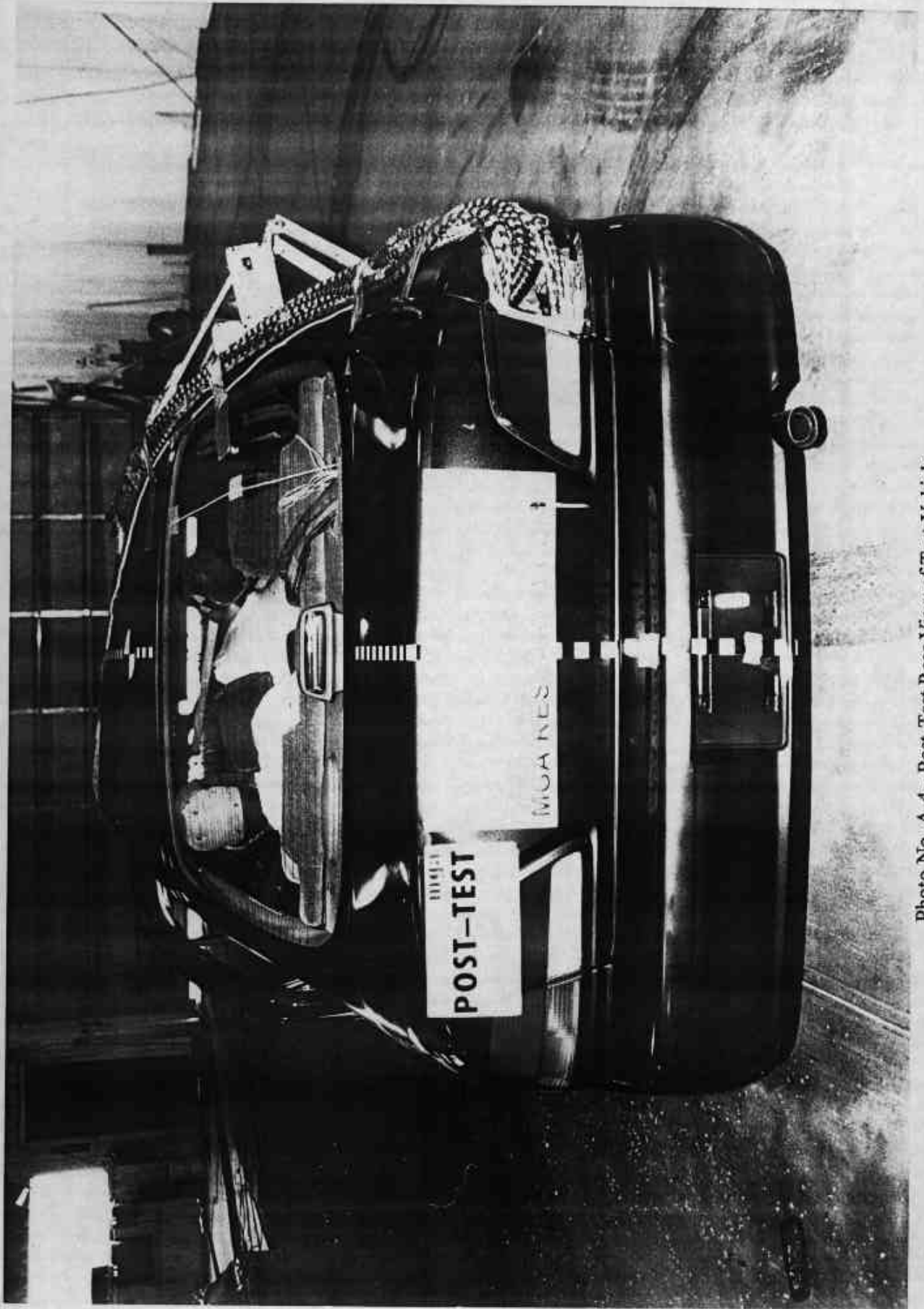


Photo No. A-4 - Post-Test Rear View of Test Vehicle

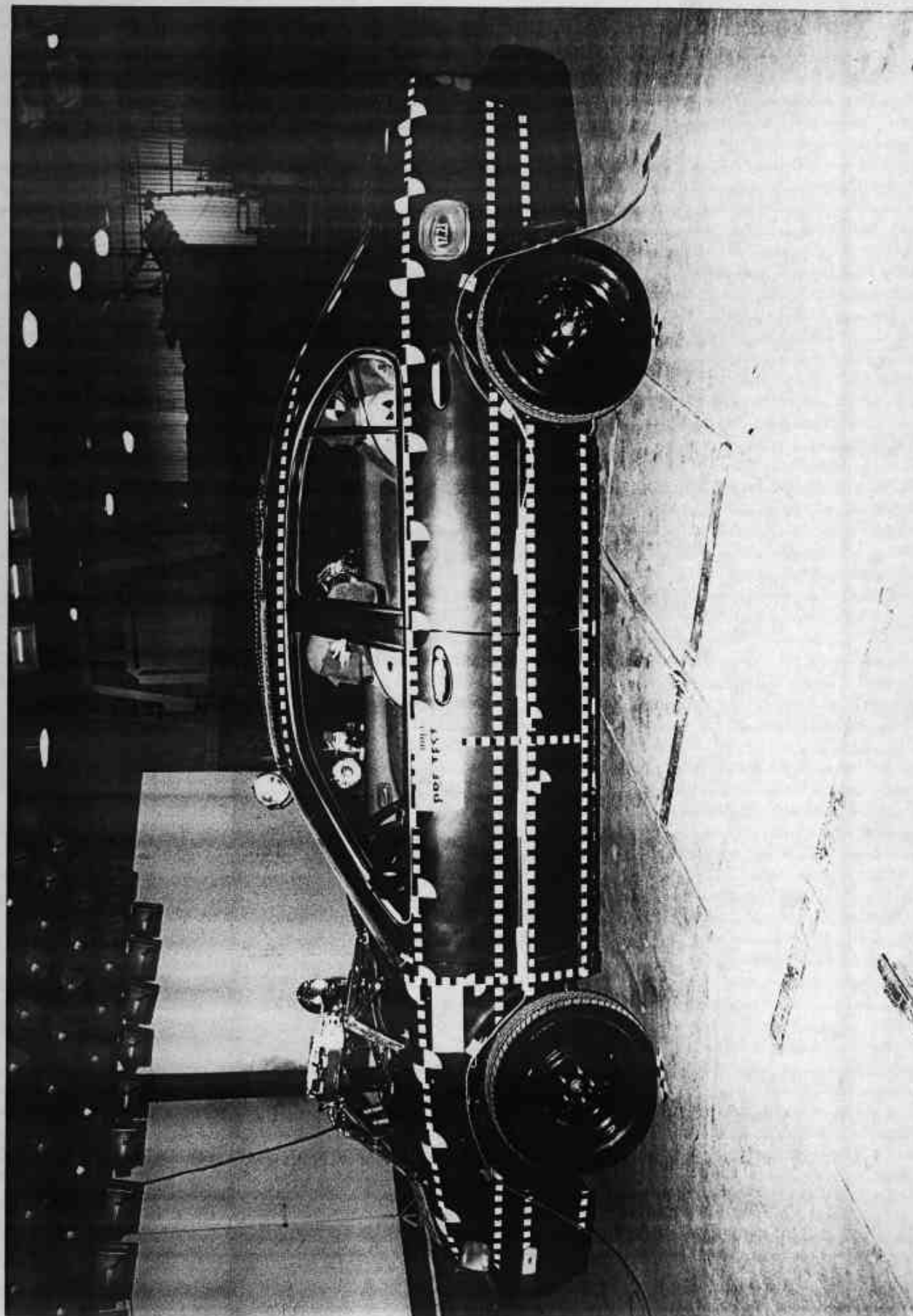


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

A-5

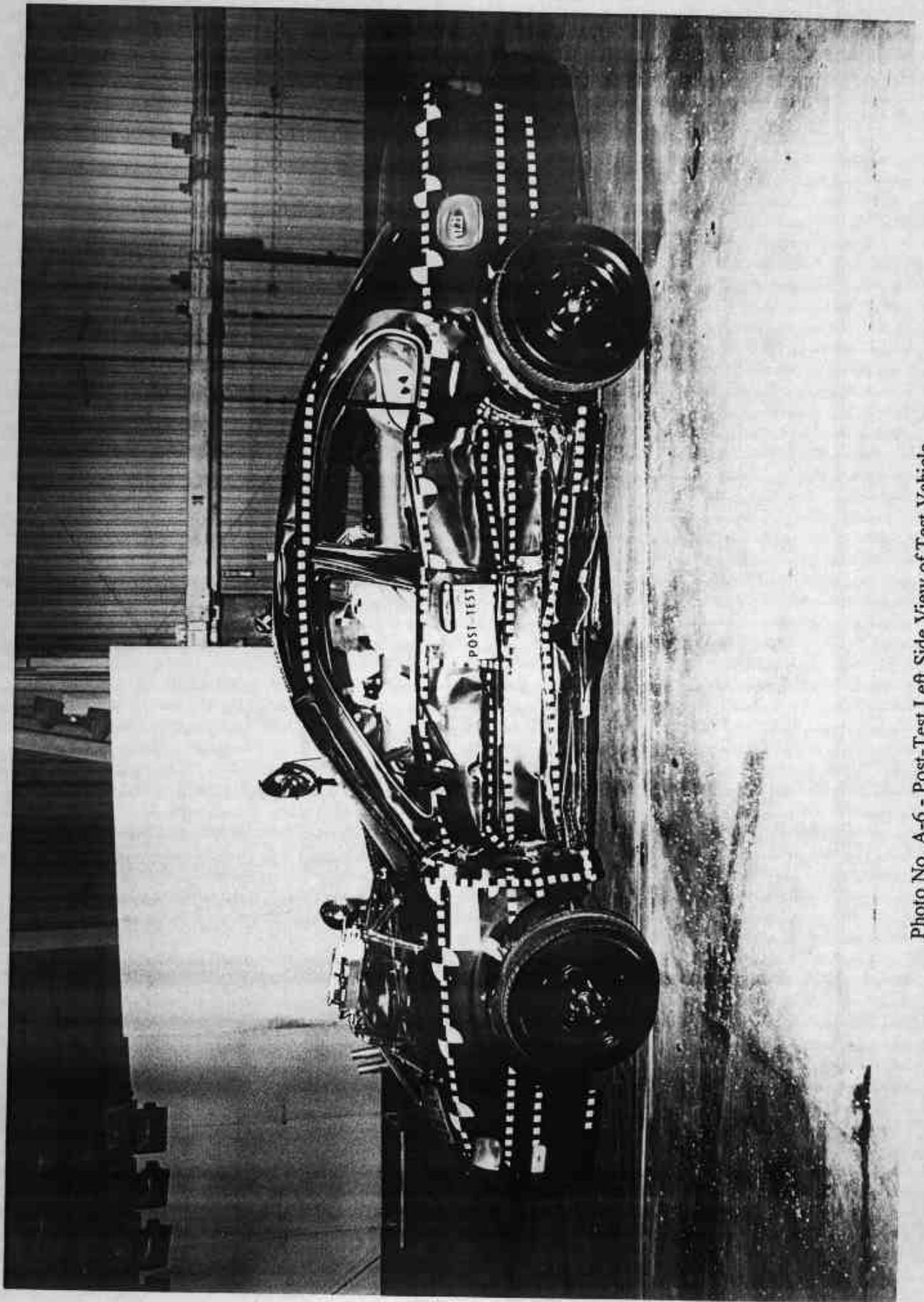


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

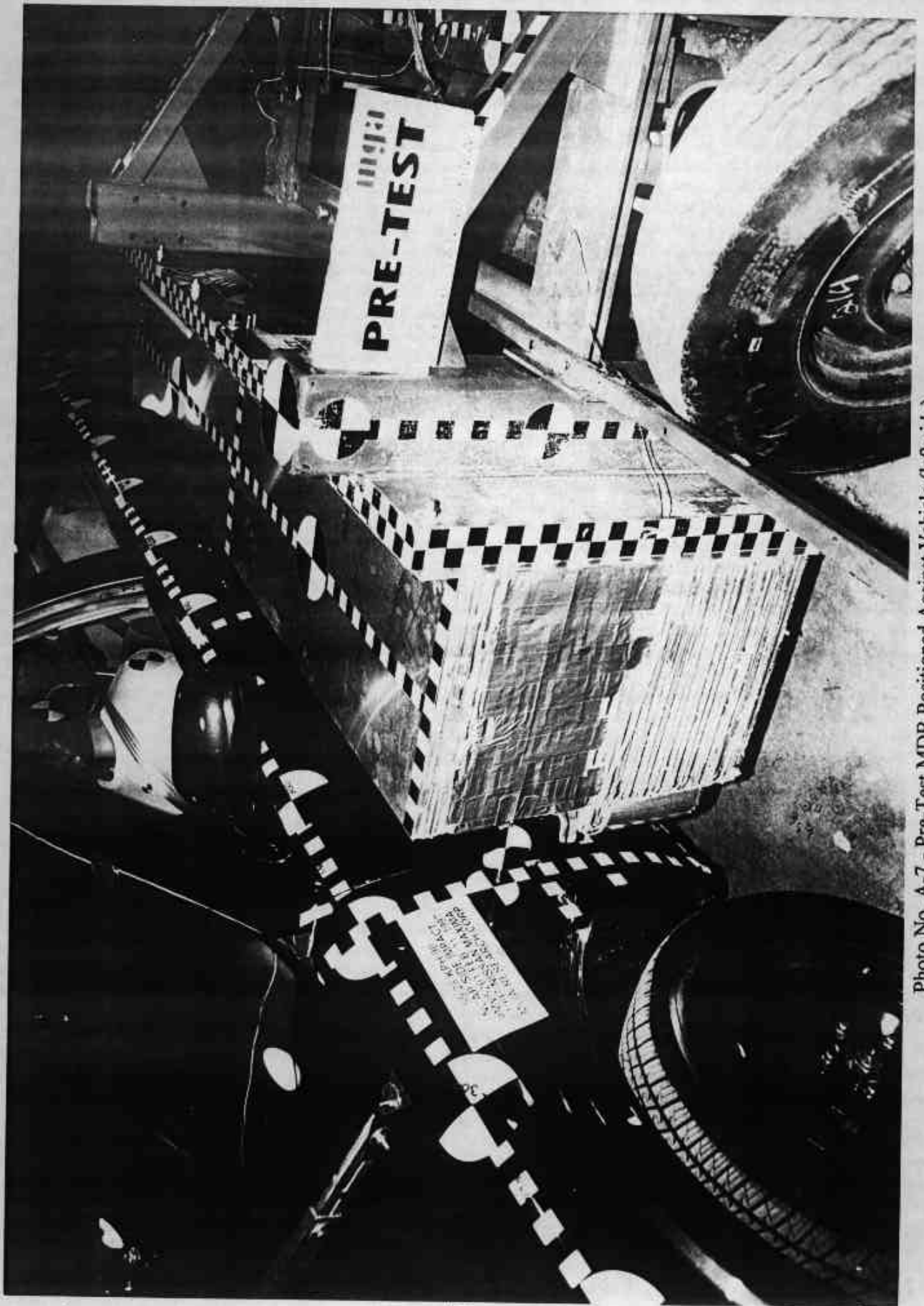


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)

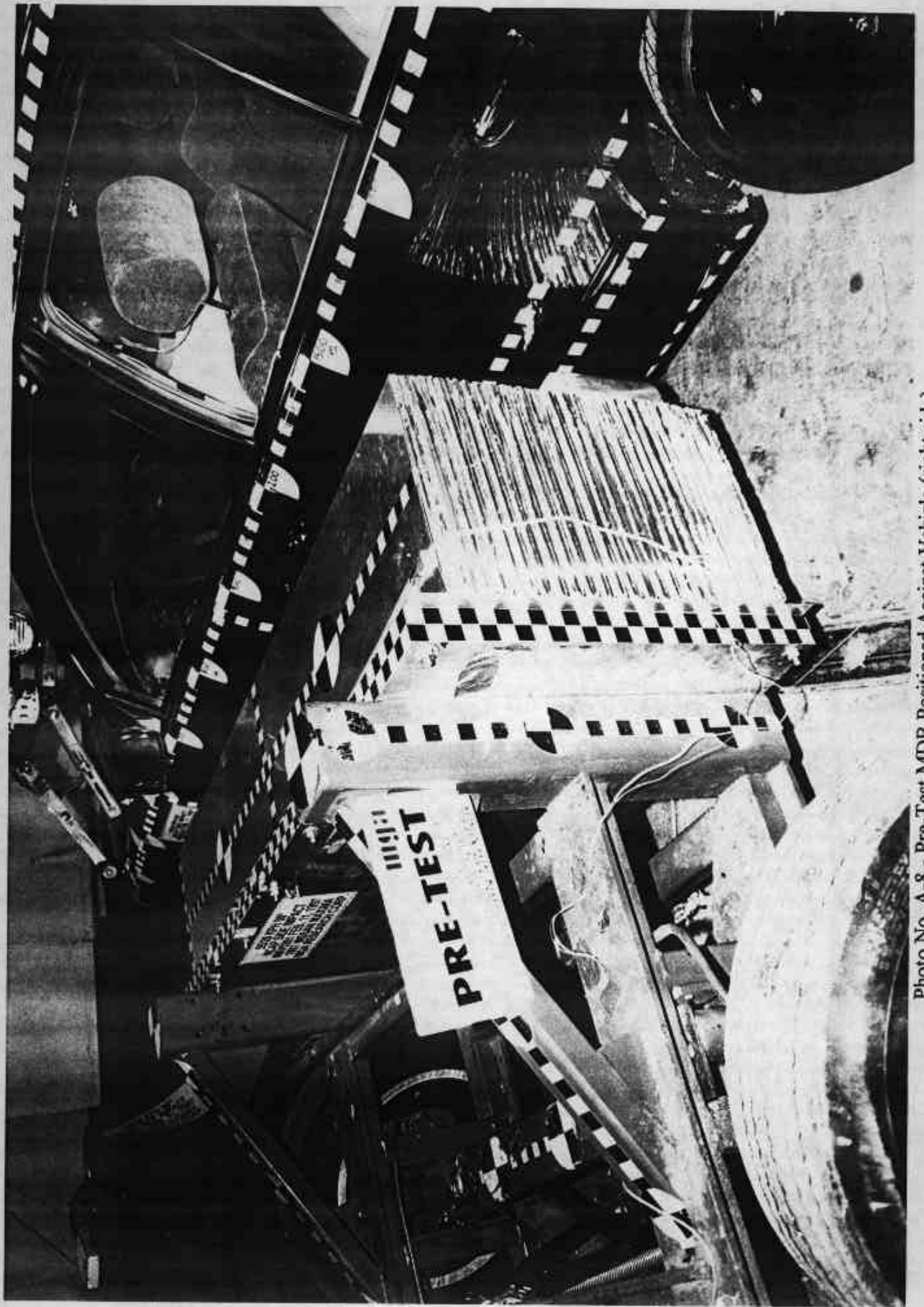


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)

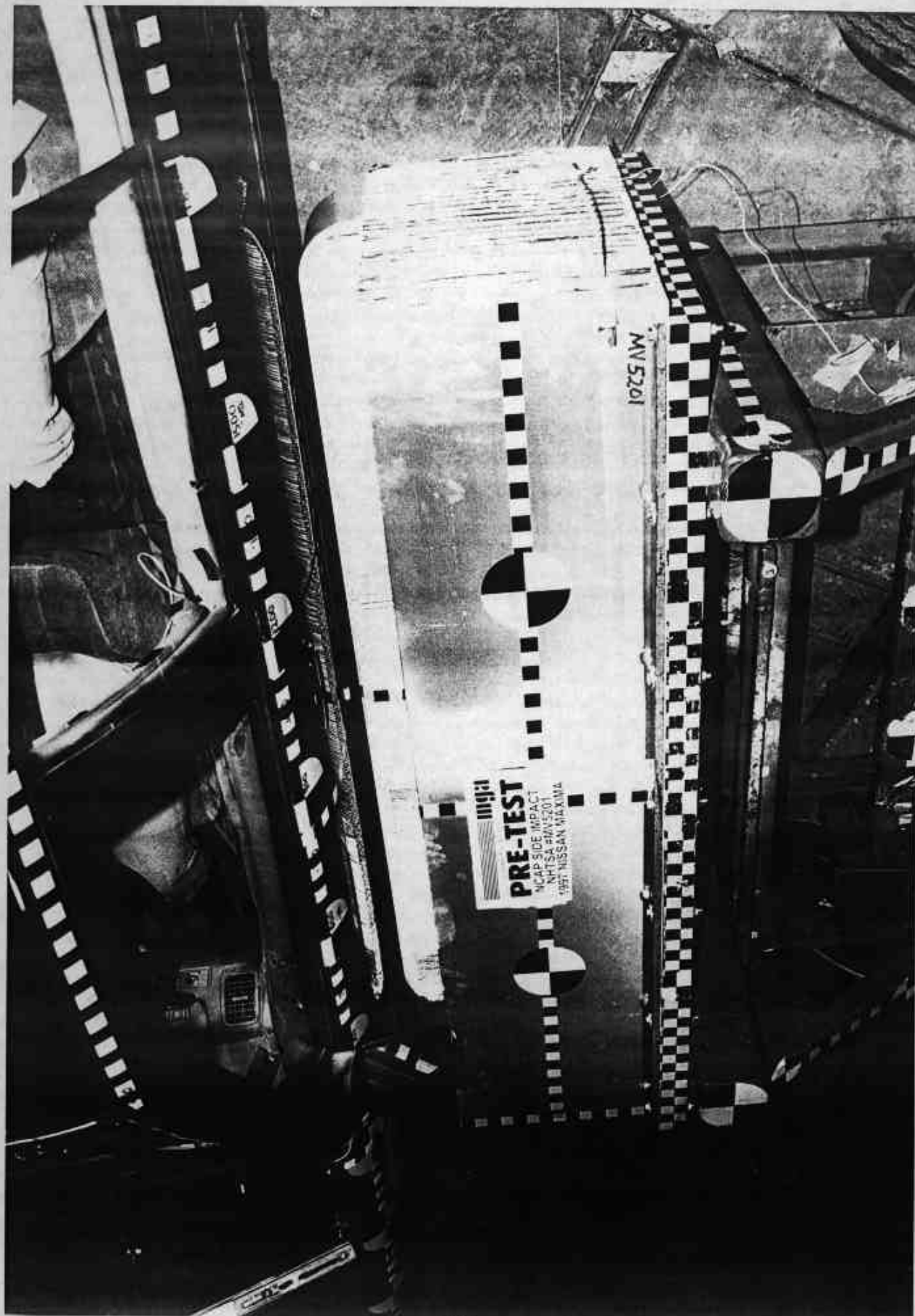


Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View

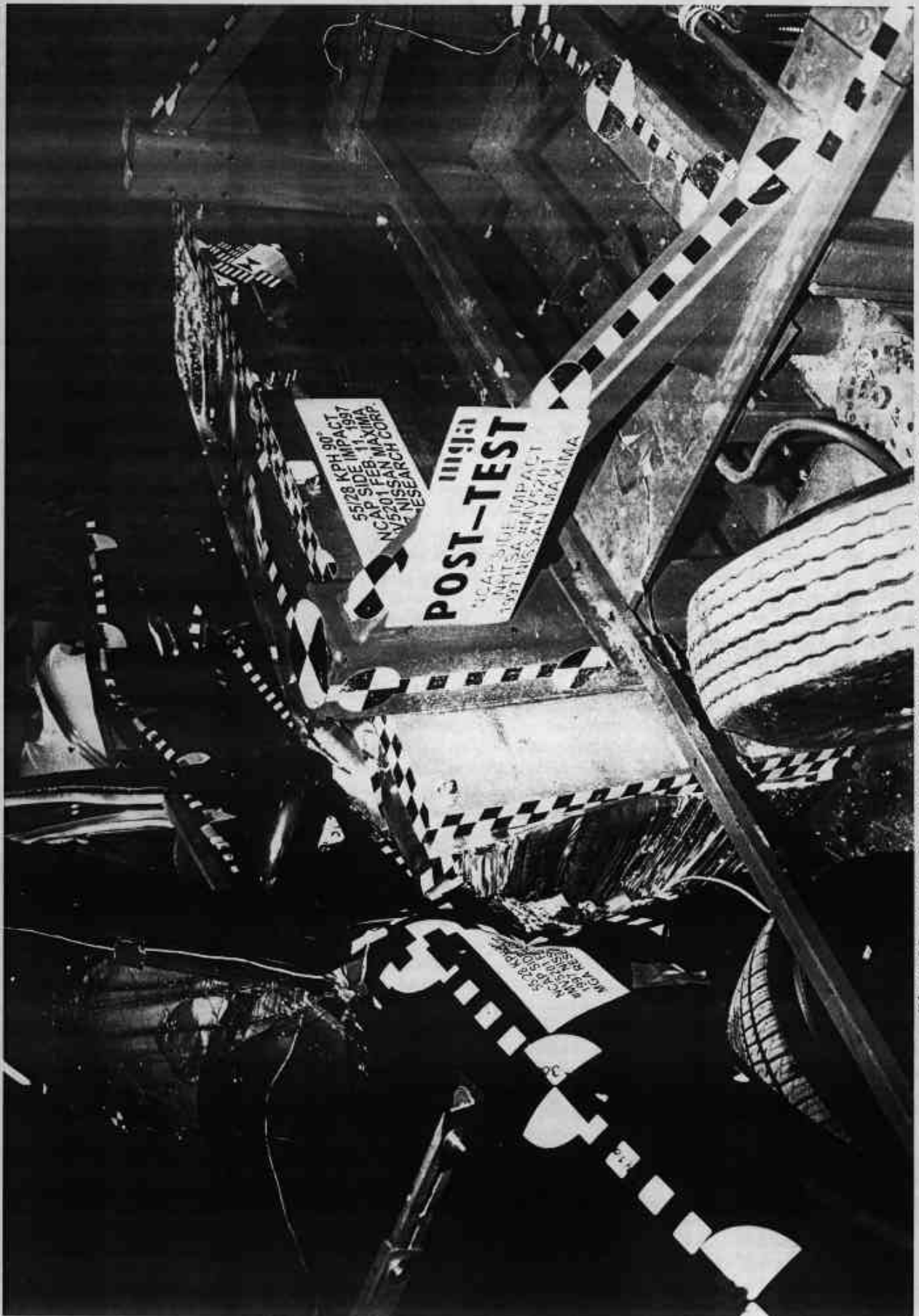


Photo No. A-10 - Post-Test MDB Positioned Against Vehicle (left side)

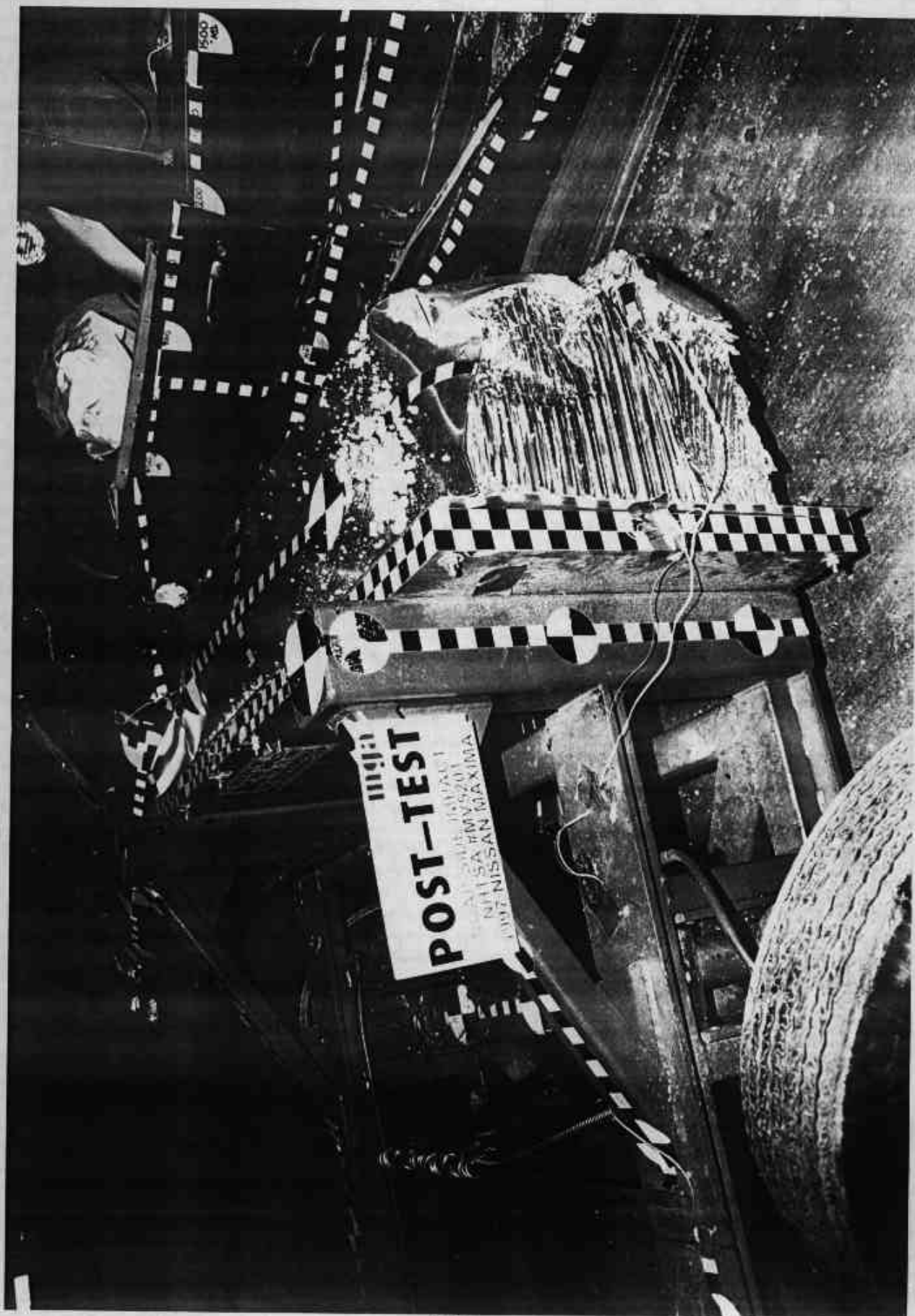


Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (right side)

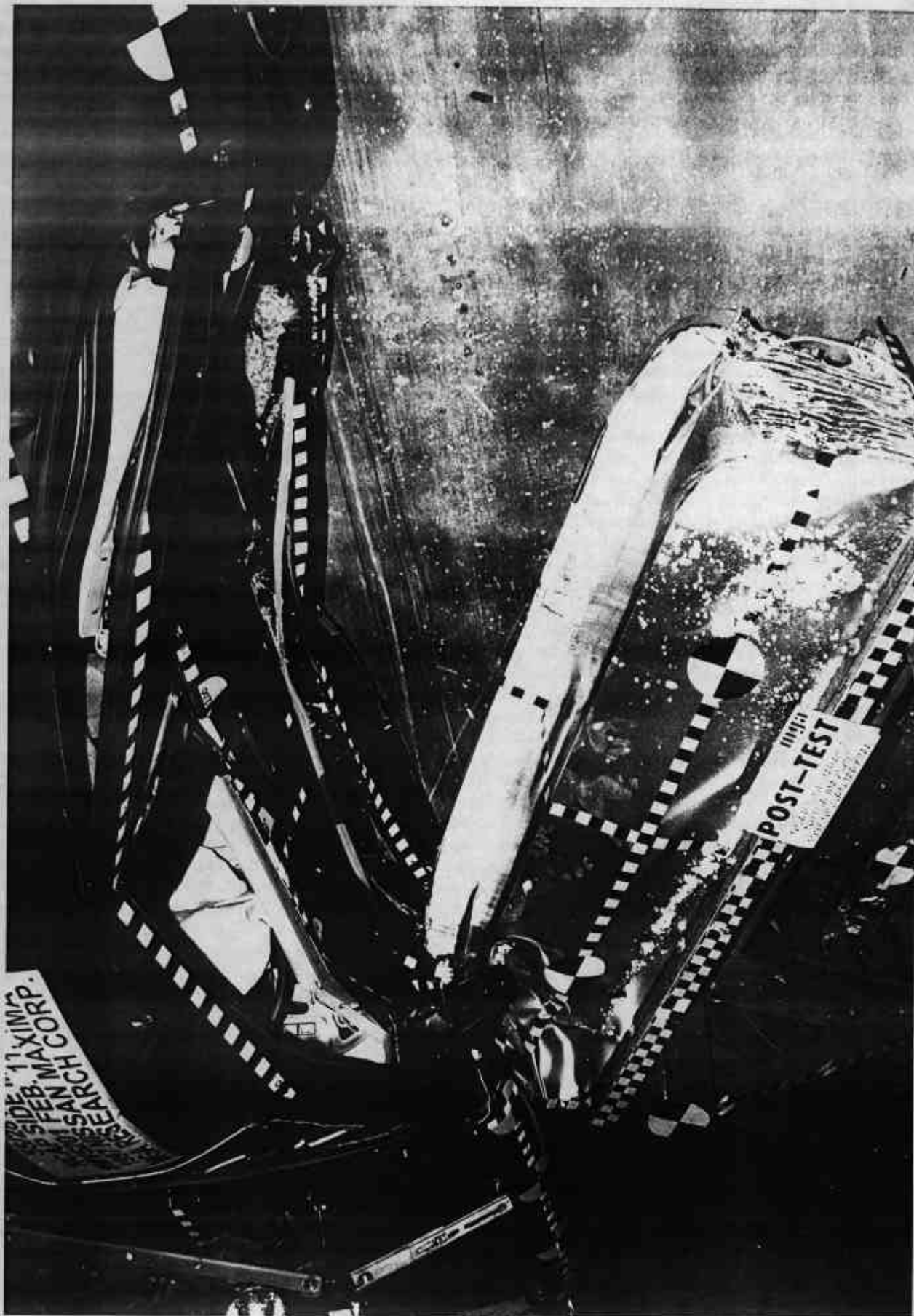


Photo No. A-12 - Post-Test MDB Positioned Against Vehicle Overhead View

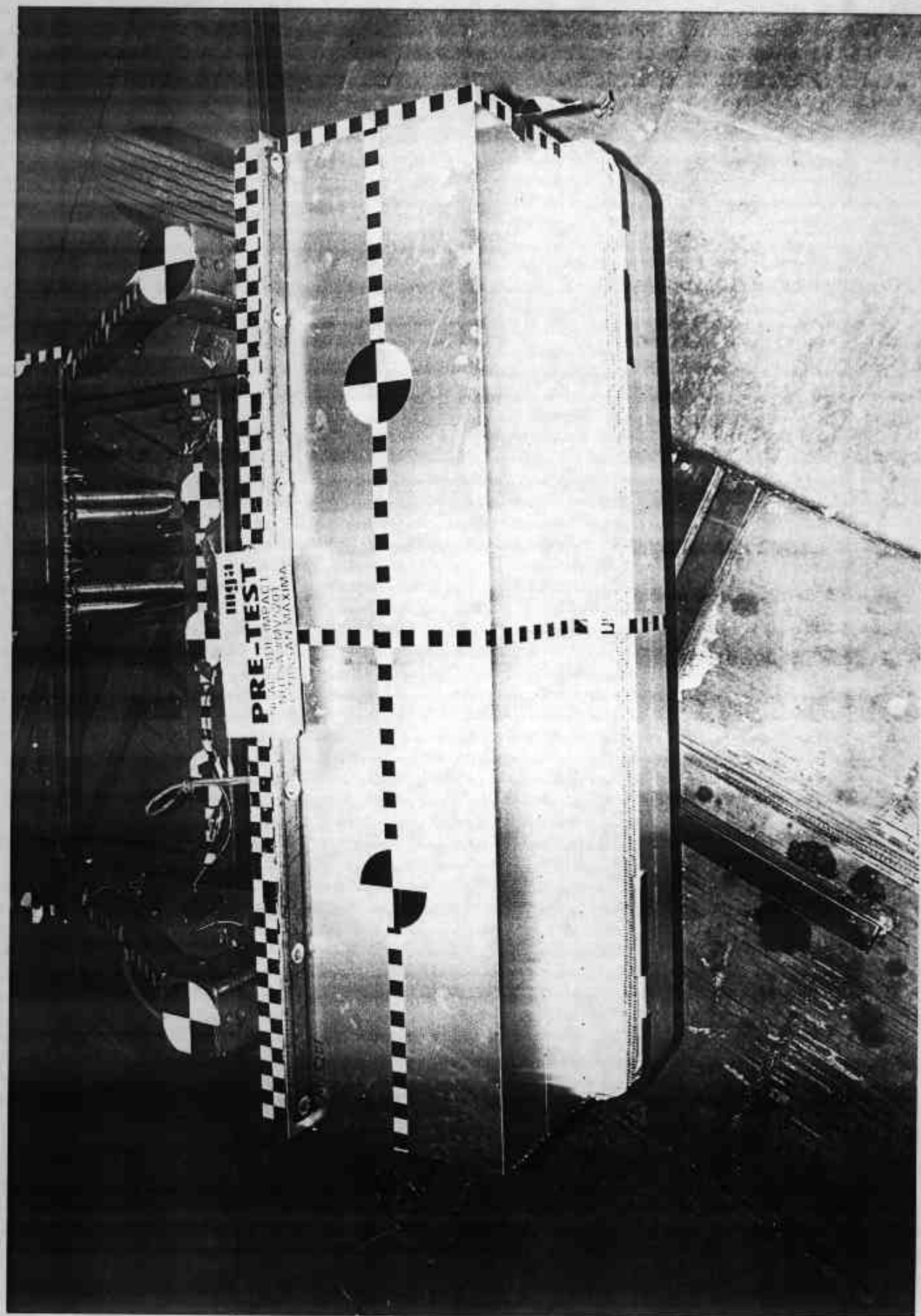


Photo No. A-13 - Pre-Test MDB Top View

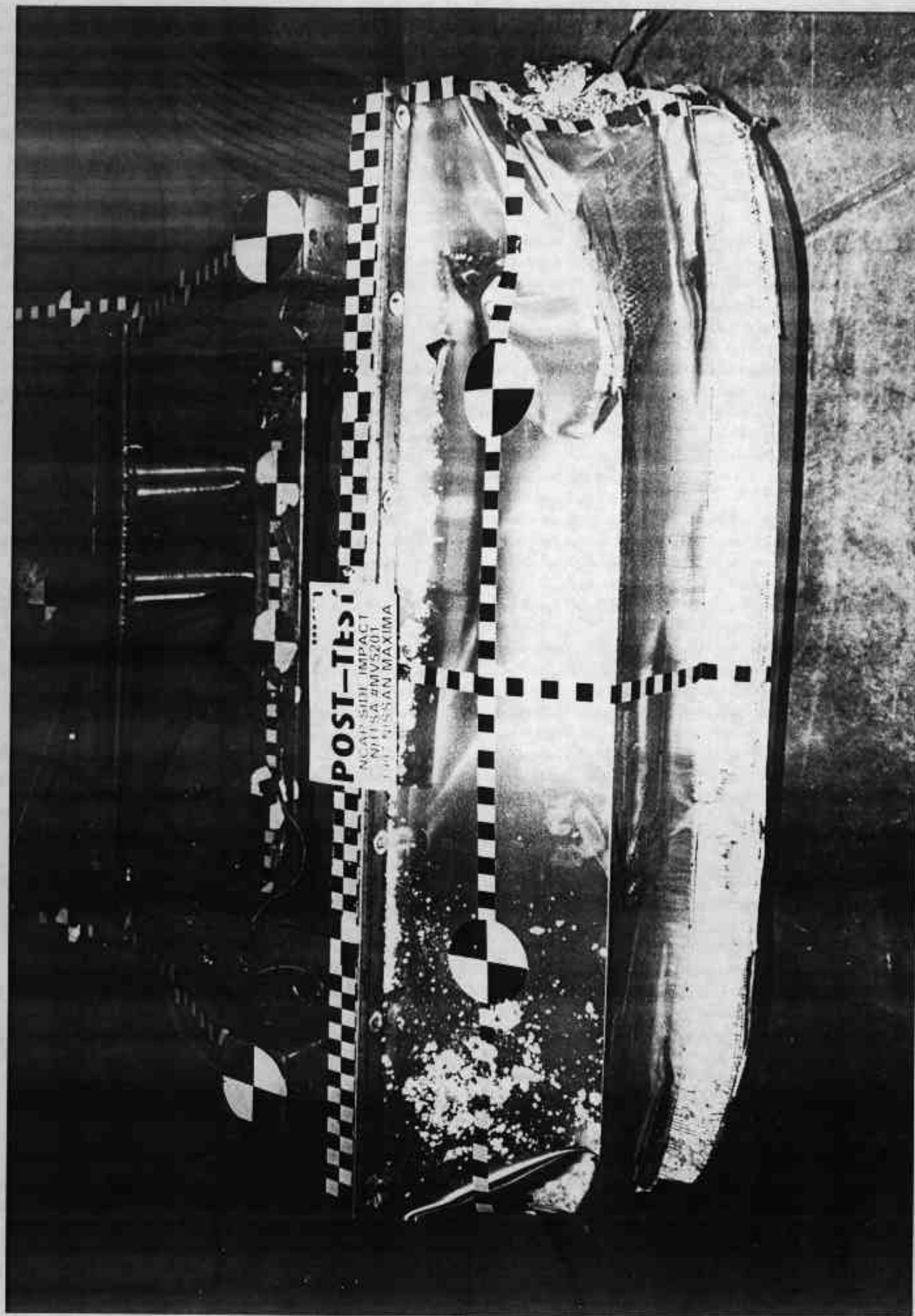


Photo No. A-14 - Post-Test MDB Top View

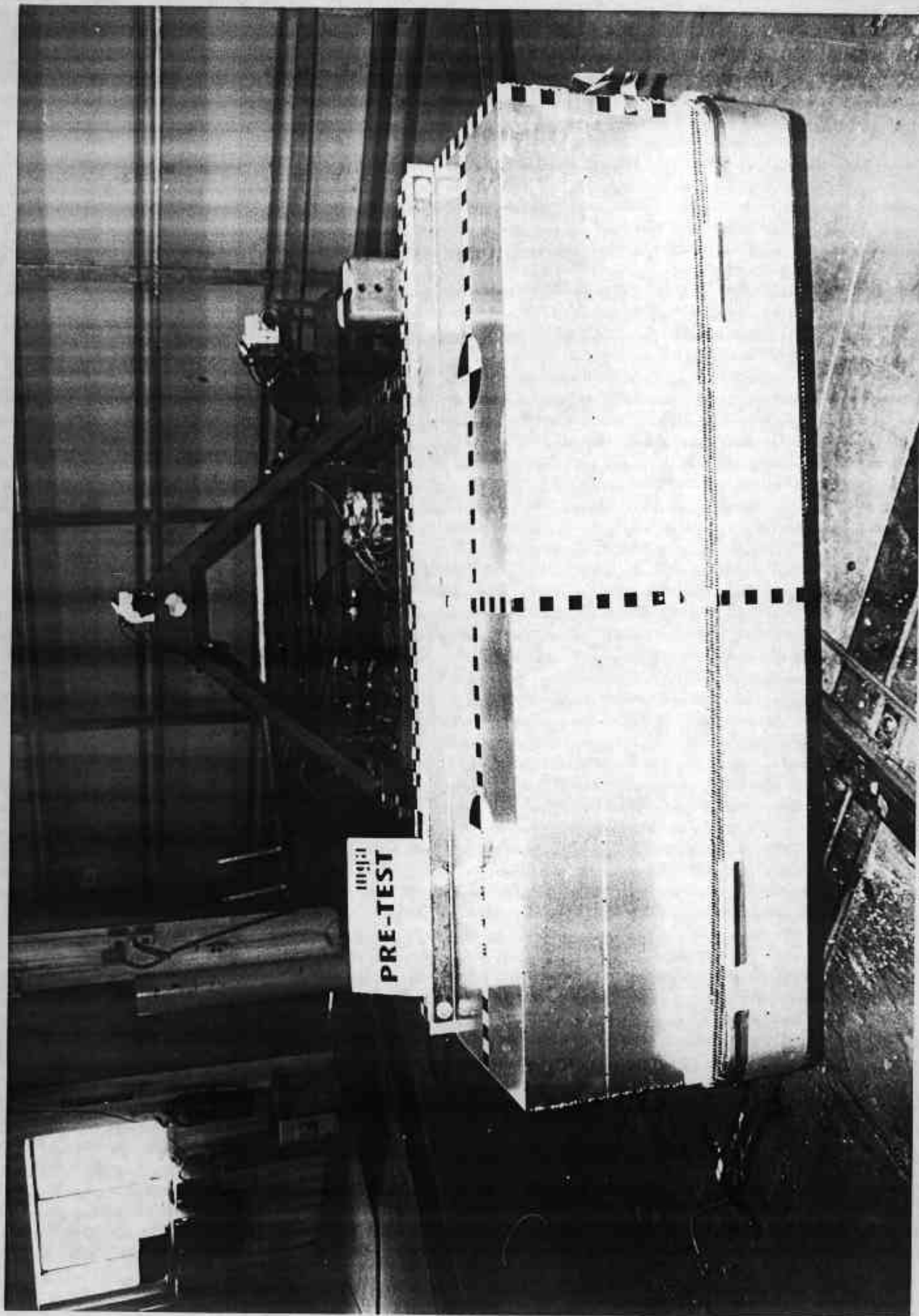


Photo No. A-15 - Pre-Test MDB Front View

A-15

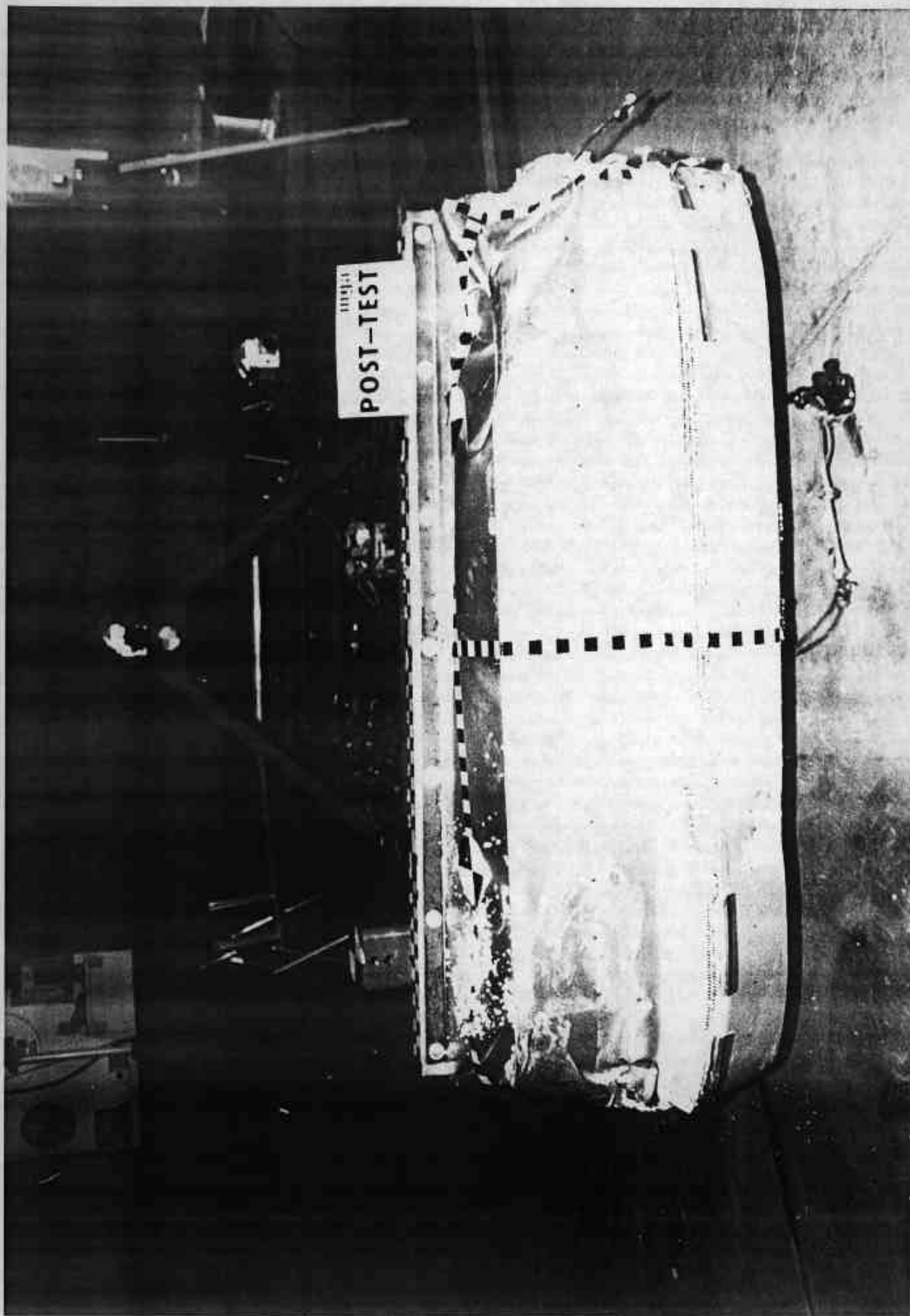


Photo No. A-16 - Post-Test MDB Front View

A-16

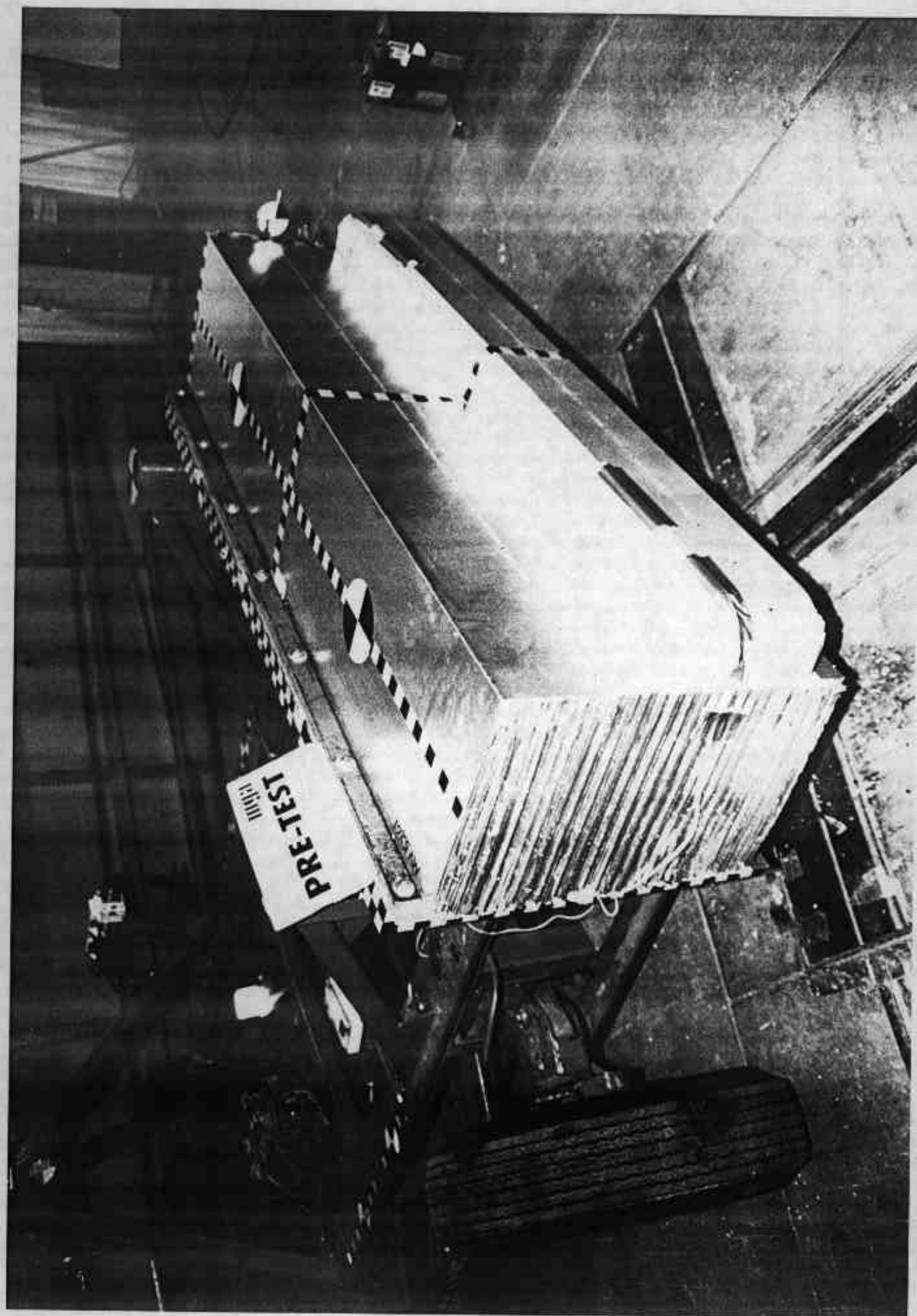


Photo No. A-17 - Pre-Test MDB Right Side View

A-17

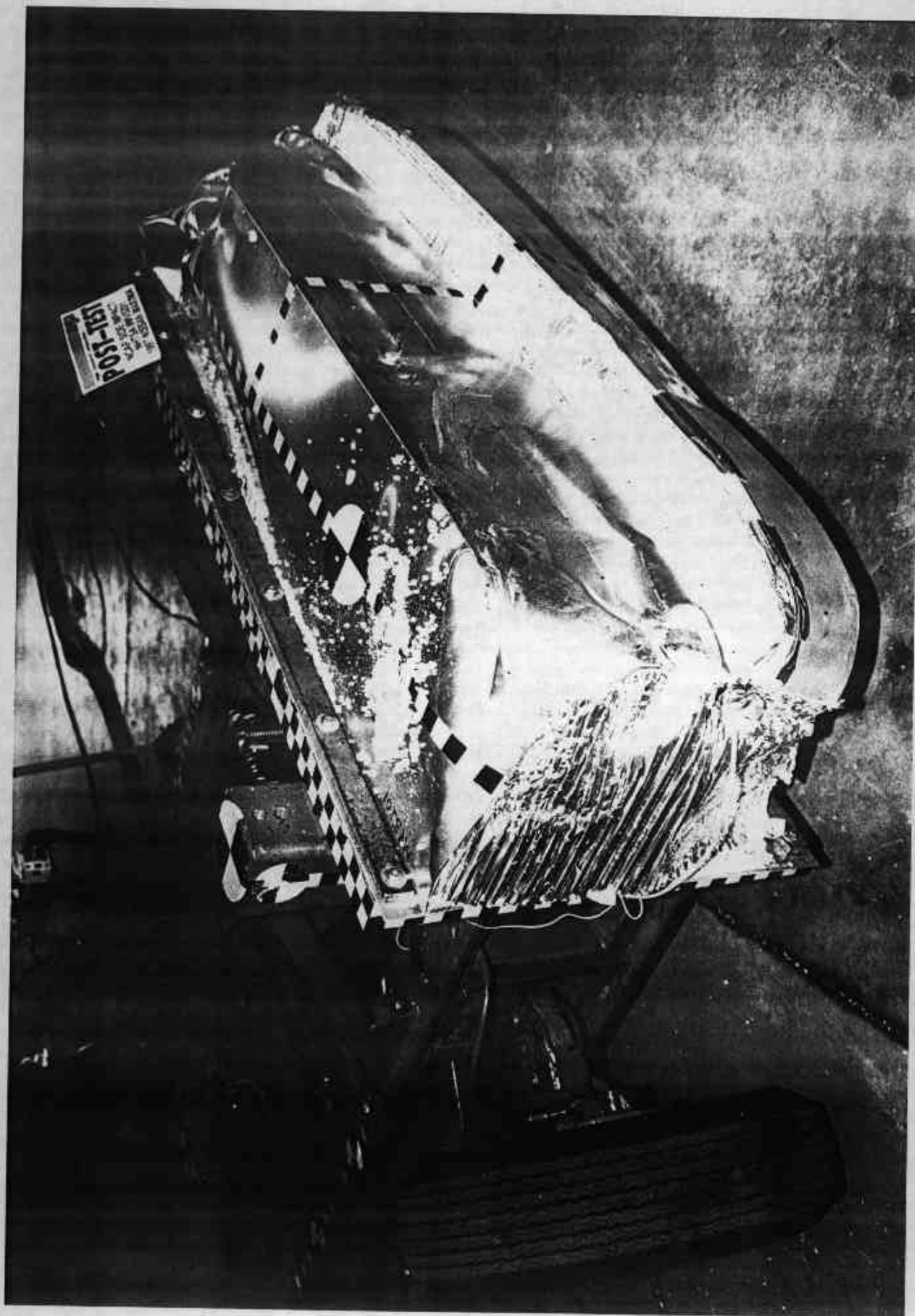


Photo No. A-18 - Post-Test MDB Right Side View

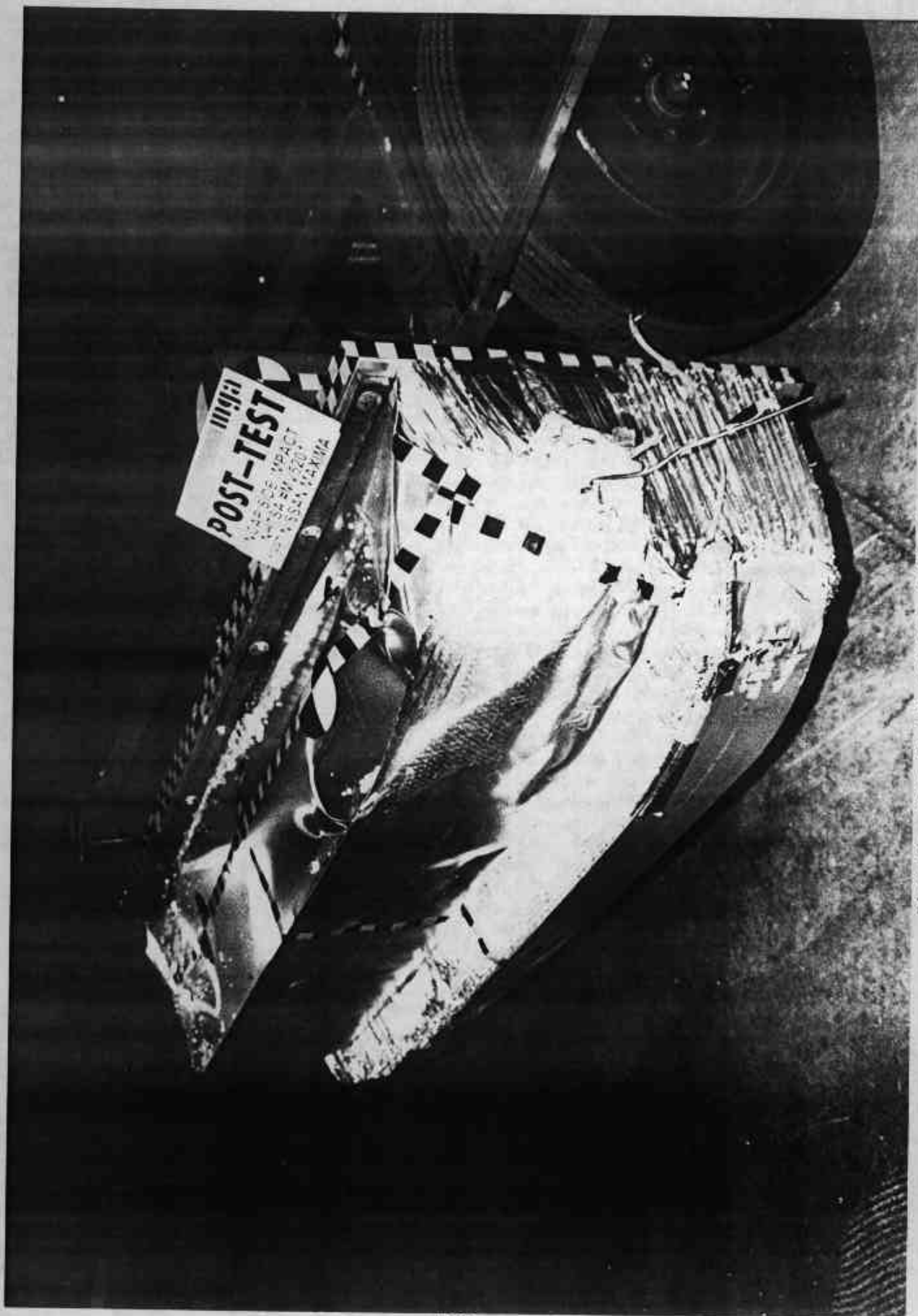


Photo No. A-20 - Post-Test MDB Left Side View



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



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

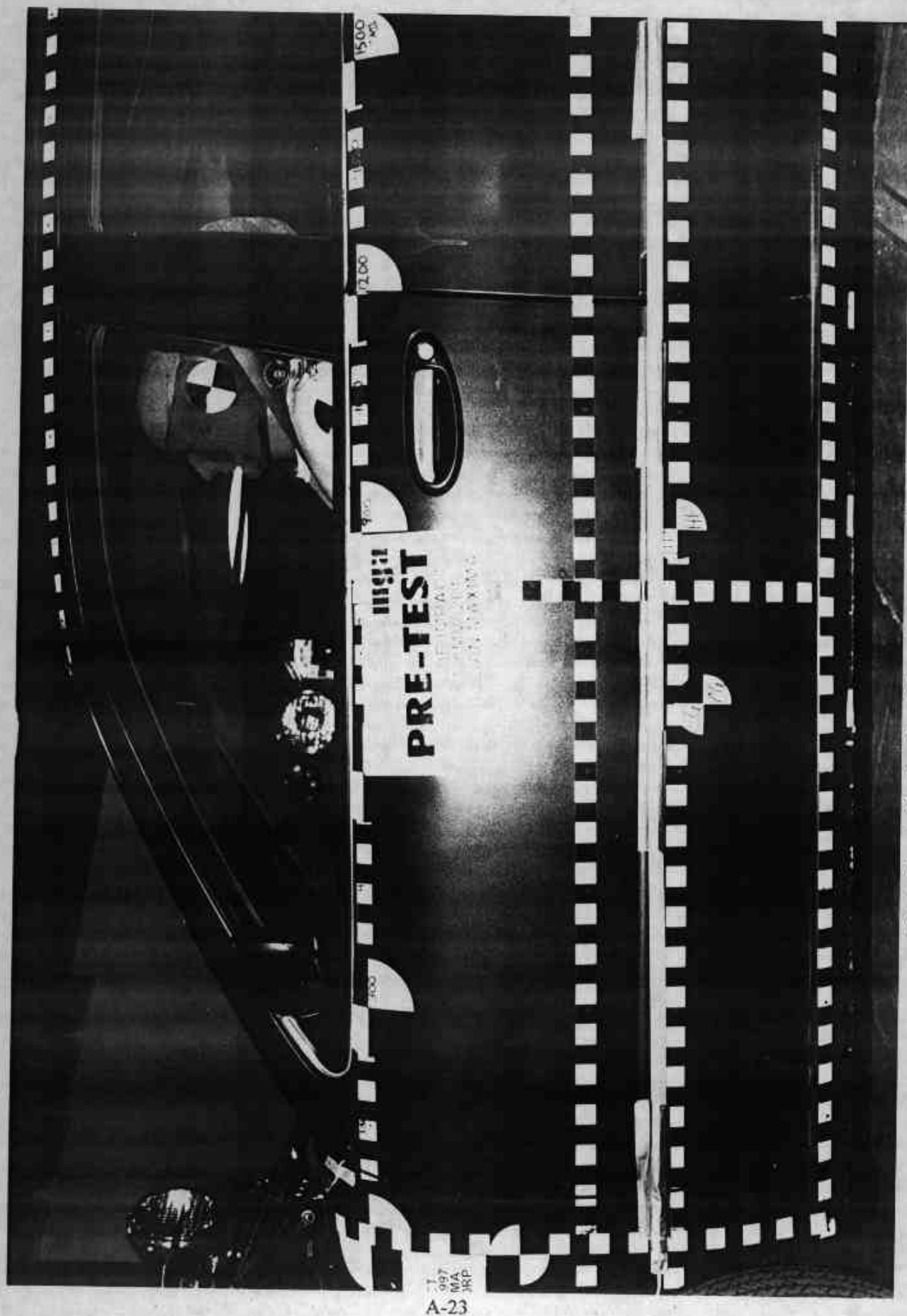


Photo No. A-23 - Pre-Test Driver Dummy Left Side View

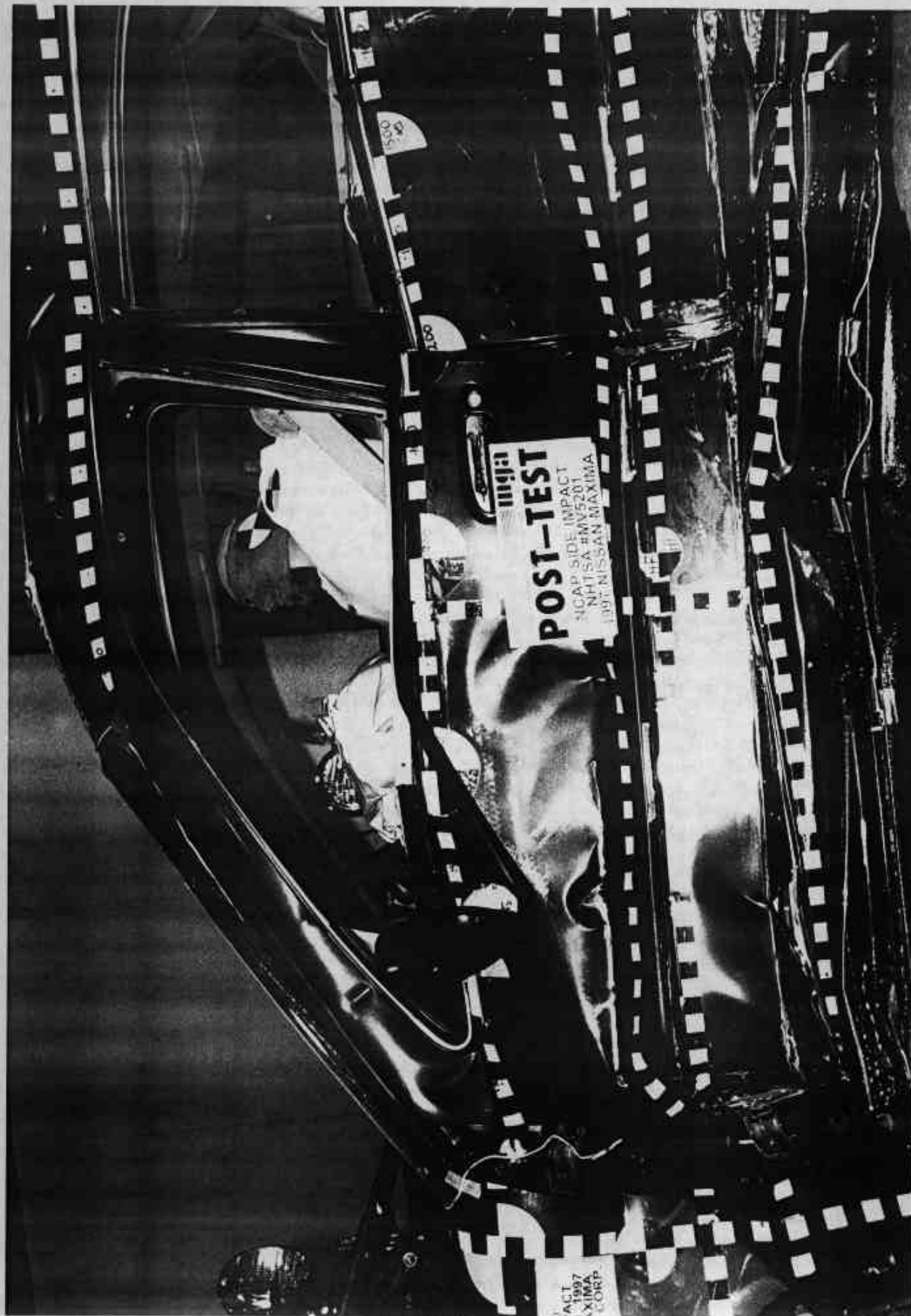


Photo No. A-24 - Post-Test Driver Dummy Left Side View

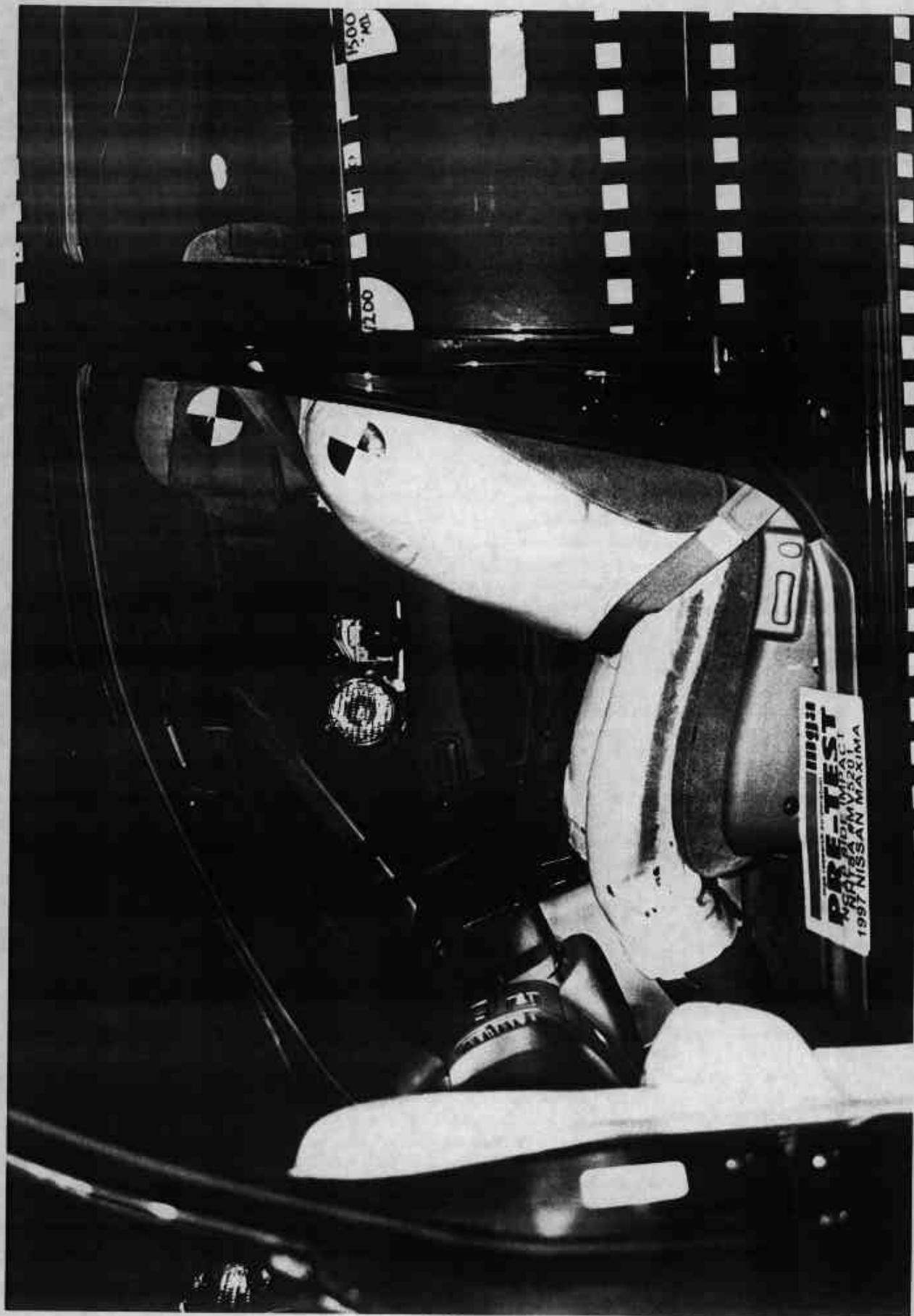


Photo No. A-25 - Pre-Test Driver Dummy Left Side View (Door Open)

A-25



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

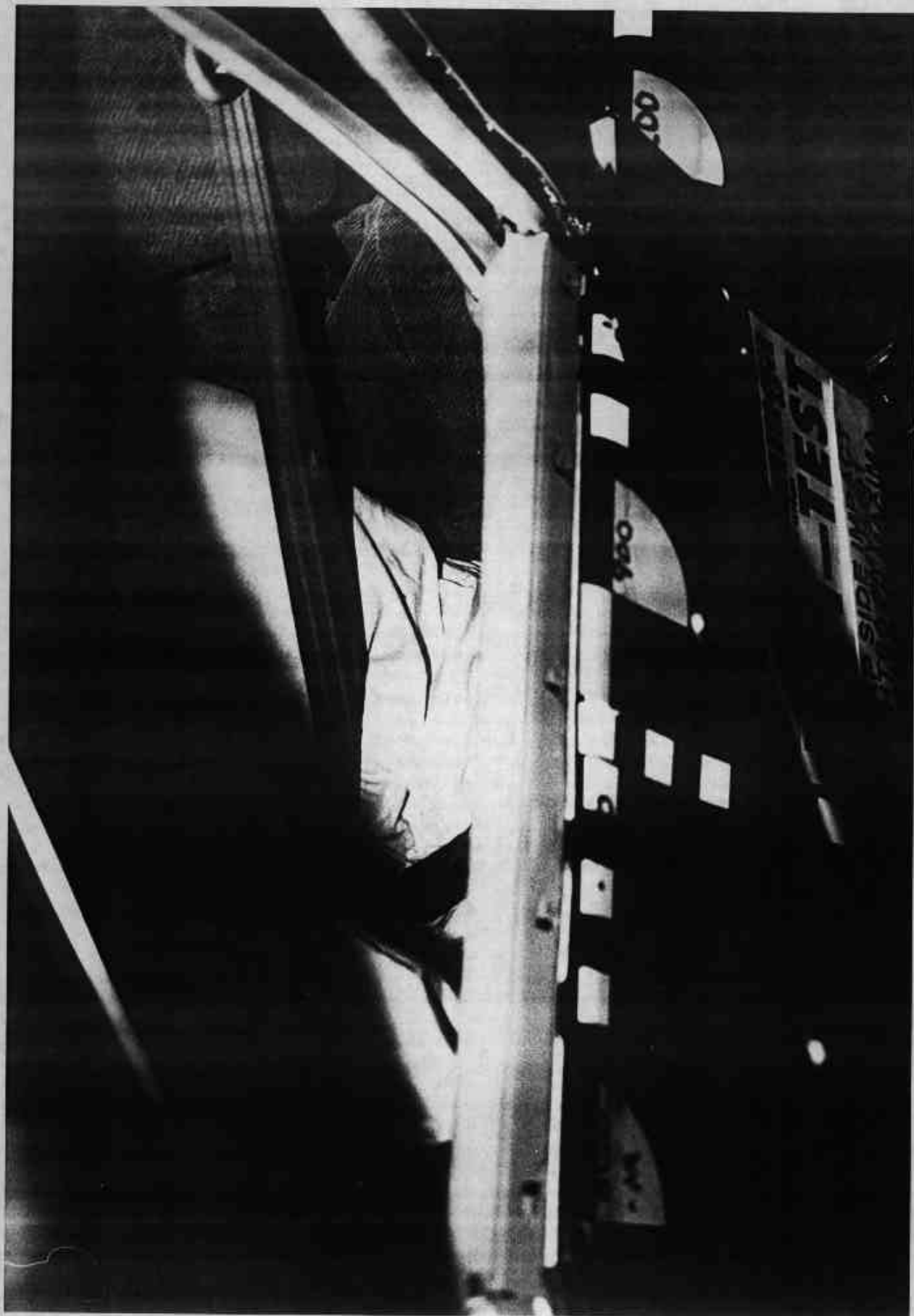


Photo No. A-27 - Post-Test Driver Dummy Shoulder and Door Top View



Photo No. A-28 - Pre-Test Driver Seat Position View

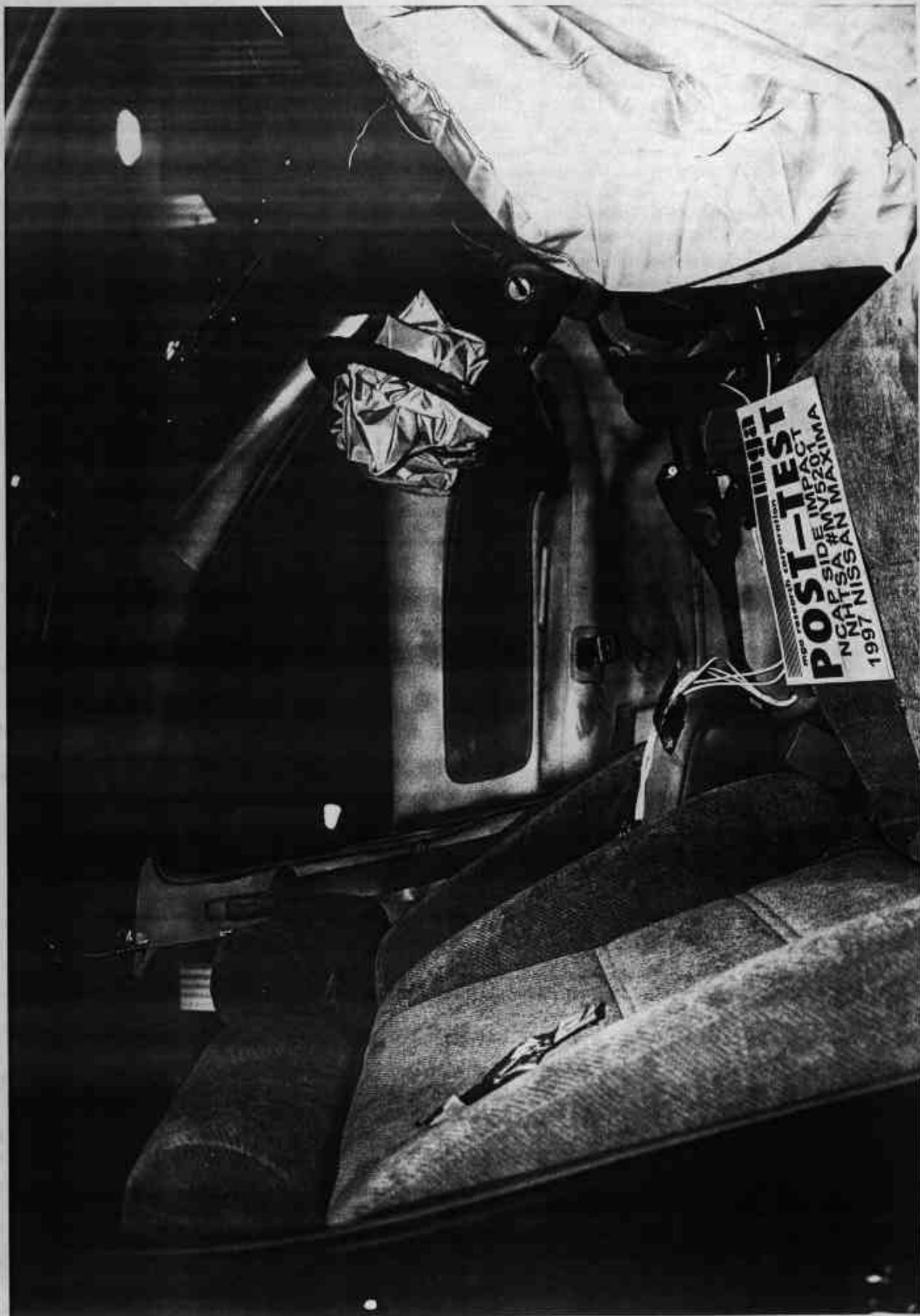


Photo No. A-29 - Post-Test Driver Dummy Contact



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



Photo No. A-31 - Post-Test Driver Dummy Head Contact

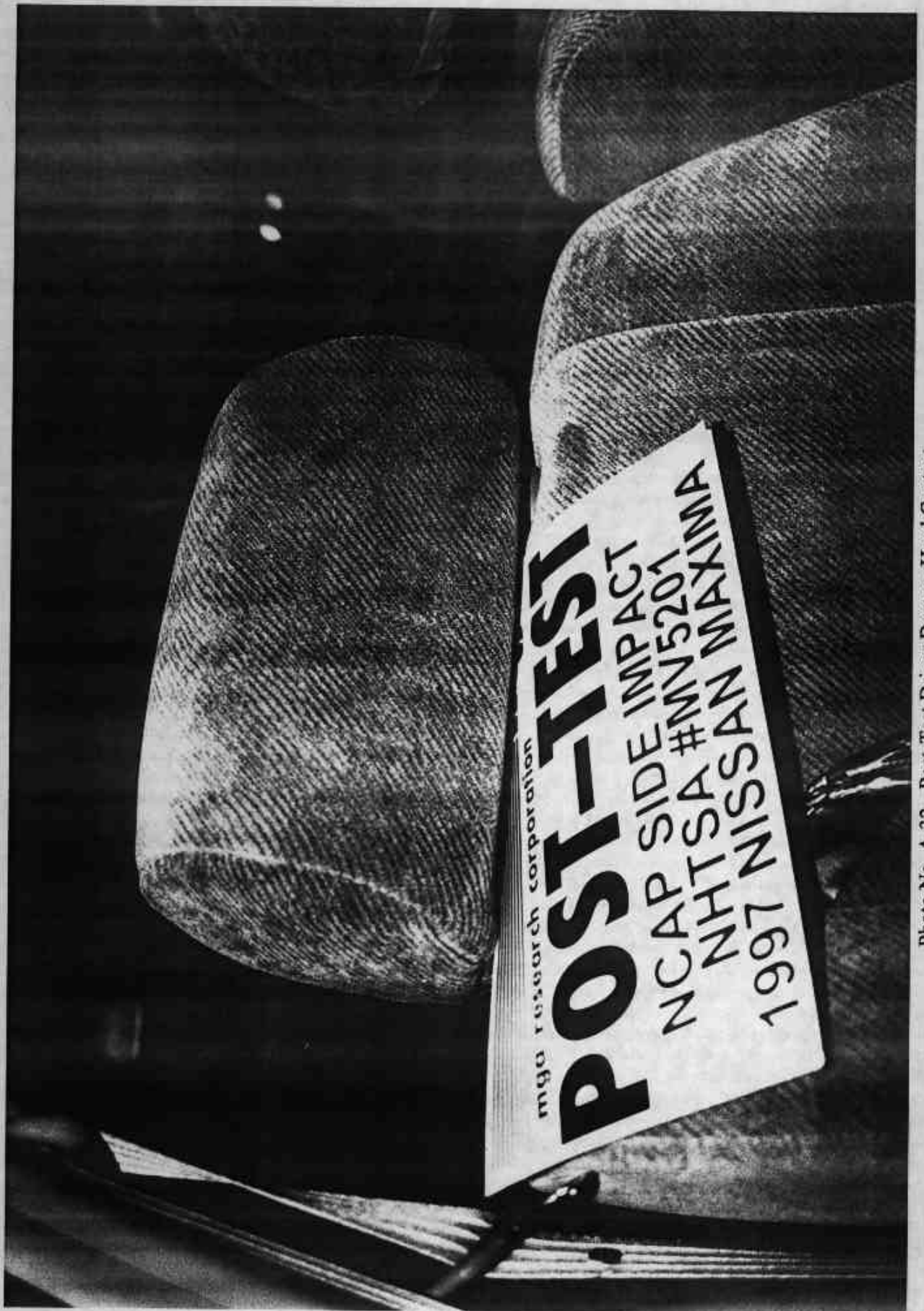


Photo No. A-32 - Post-Test Driver Dummy Head Contact

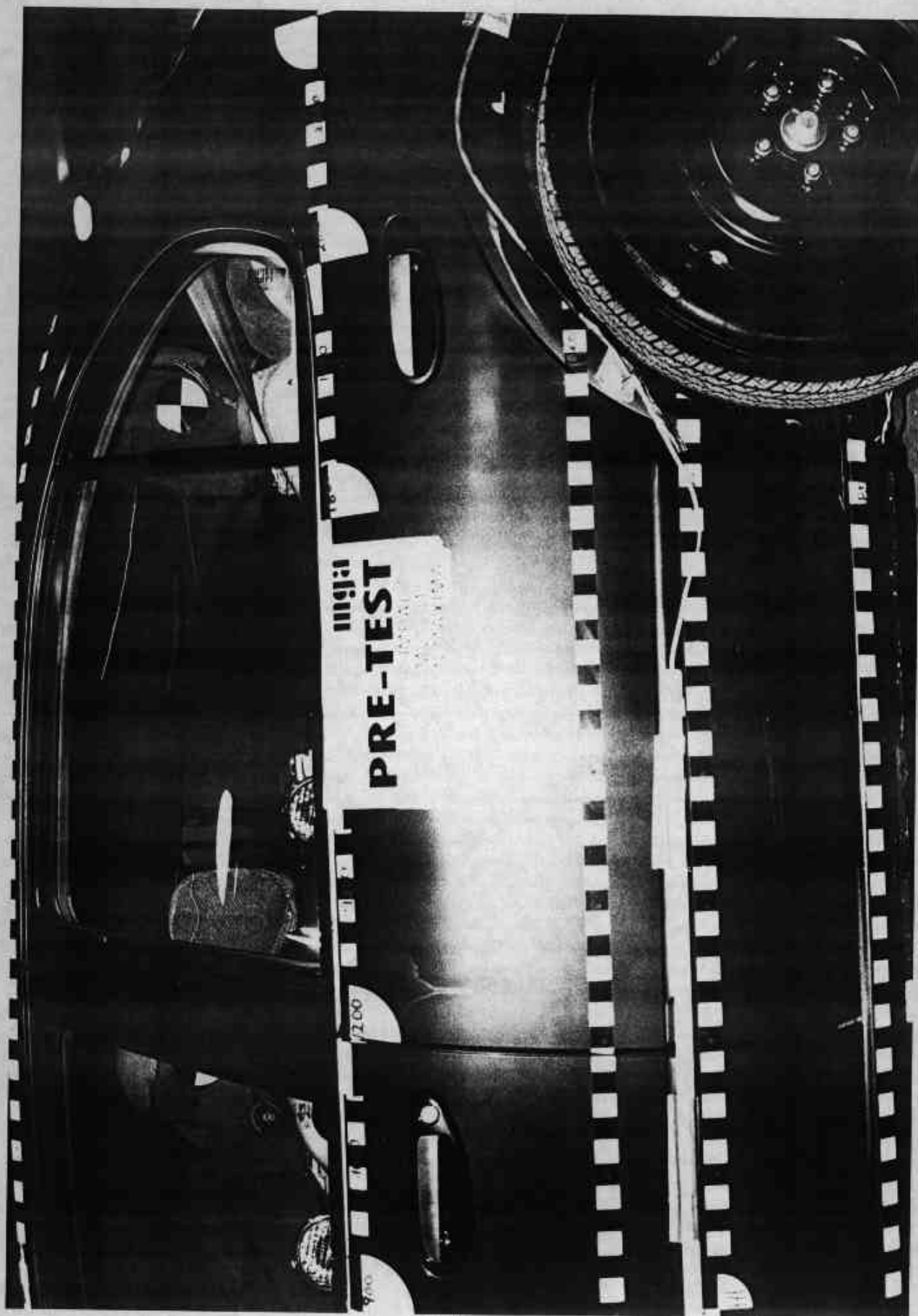


Photo No. A-33 - Pre-Test Passenger Dummy Right Side View



A-34

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



A-35

Photo No. A-35 - Pre-Test Passenger Dummy Left Side View

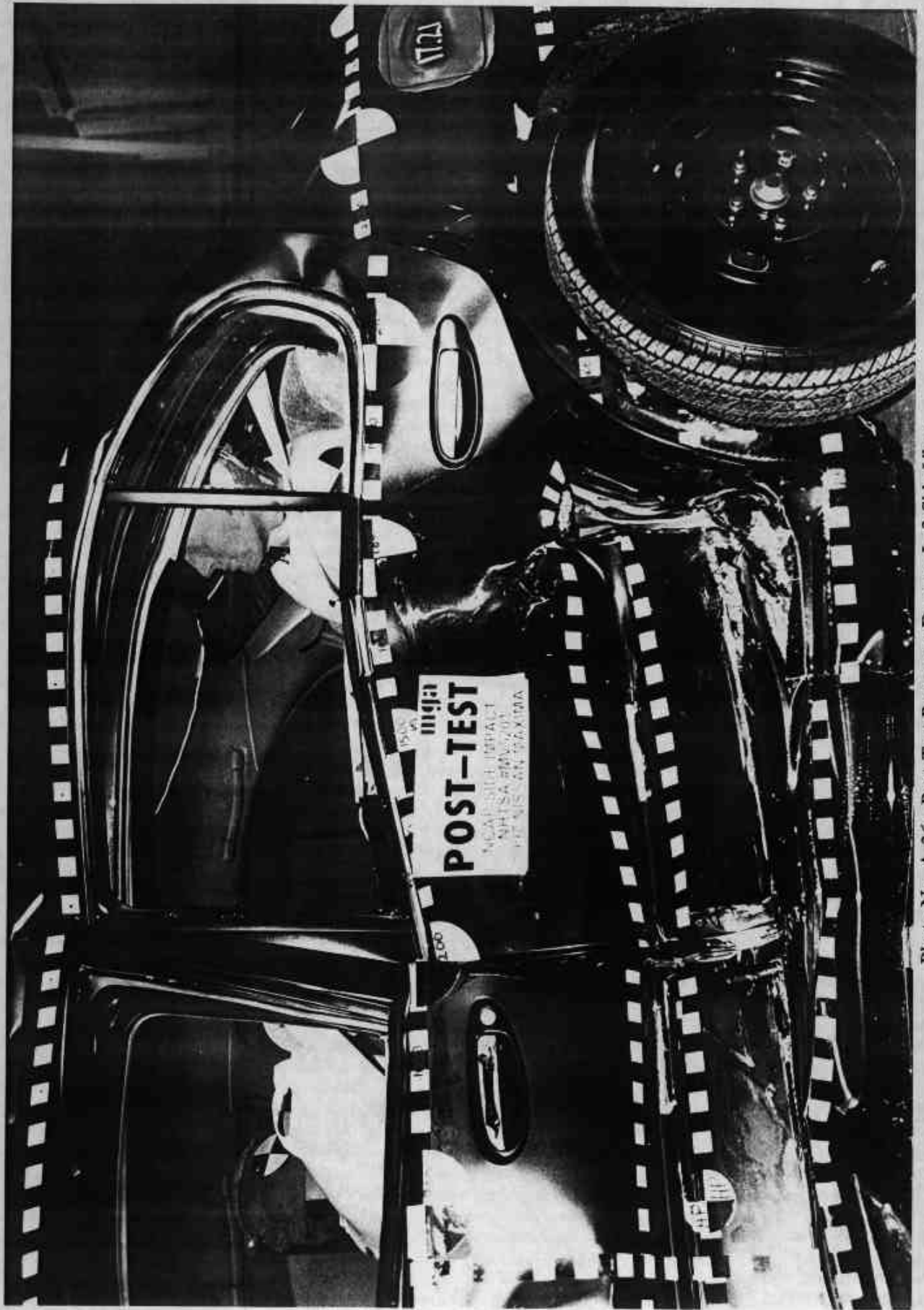
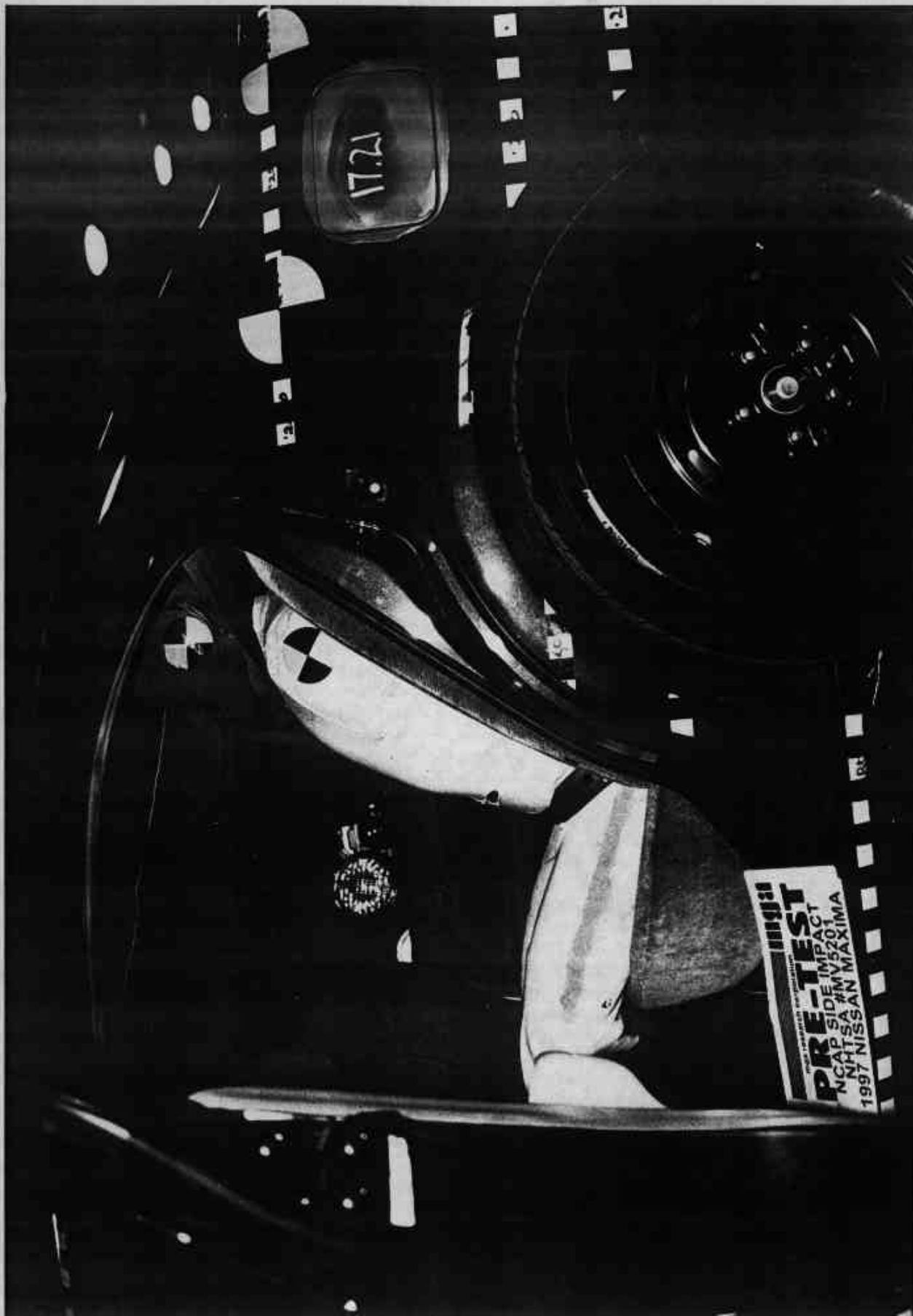


Photo No. A-36 - Post-Test Passenger Dummy Left Side View

A-36



A-37

Photo No. A-37 - Pre-Test Passenger Dummy Left Side View (Door Open)



A-38

Photo No. A-38 - Pre-Test Passenger Dummy Shoulder and Door Top View

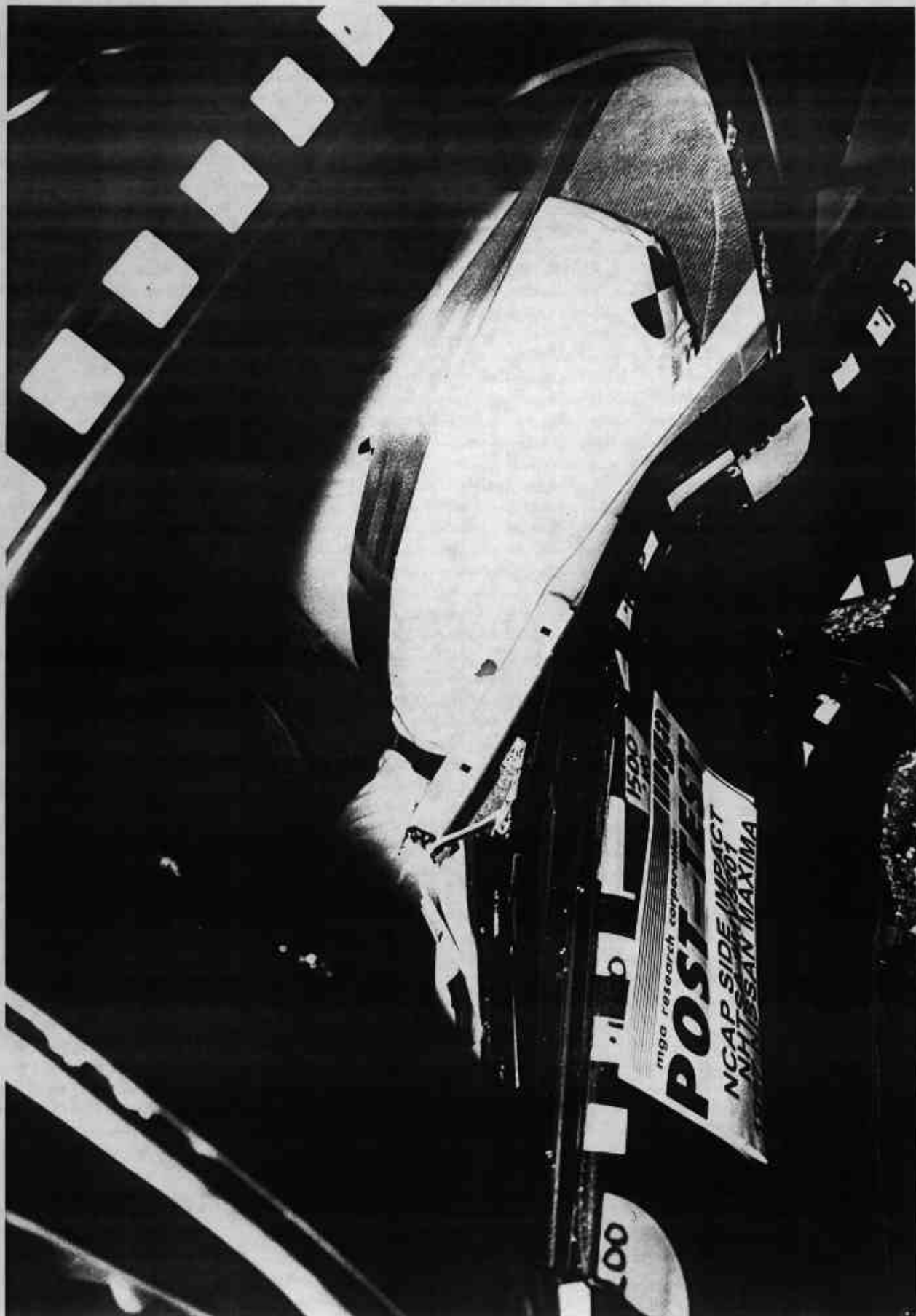


Photo No. A-39 - Post-Test Passenger Dummy Shoulder and Door Top View



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



Photo No. A-41 - Post-Test Passenger Dummy Contact



Photo No. A-42 - Post-Test Passenger Dummy Head Contact



Photo No. A-43 - Pre-Test Left Front Impact Point on Vehicle

55/28 KPH 90°
NCAP SIDE IMPACT
#MV5201 FEB. 11, 1997
1997 NISSAN MAXIMA
MGA RESEARCH CORP.


mga research corporation

POST-TEST

NCAP SIDE IMPACT
NHTSA #MV5201
1997 NISSAN MAXIMA

Photo No. A-44 - Post-Test Left Front Impact Point on Vehicle

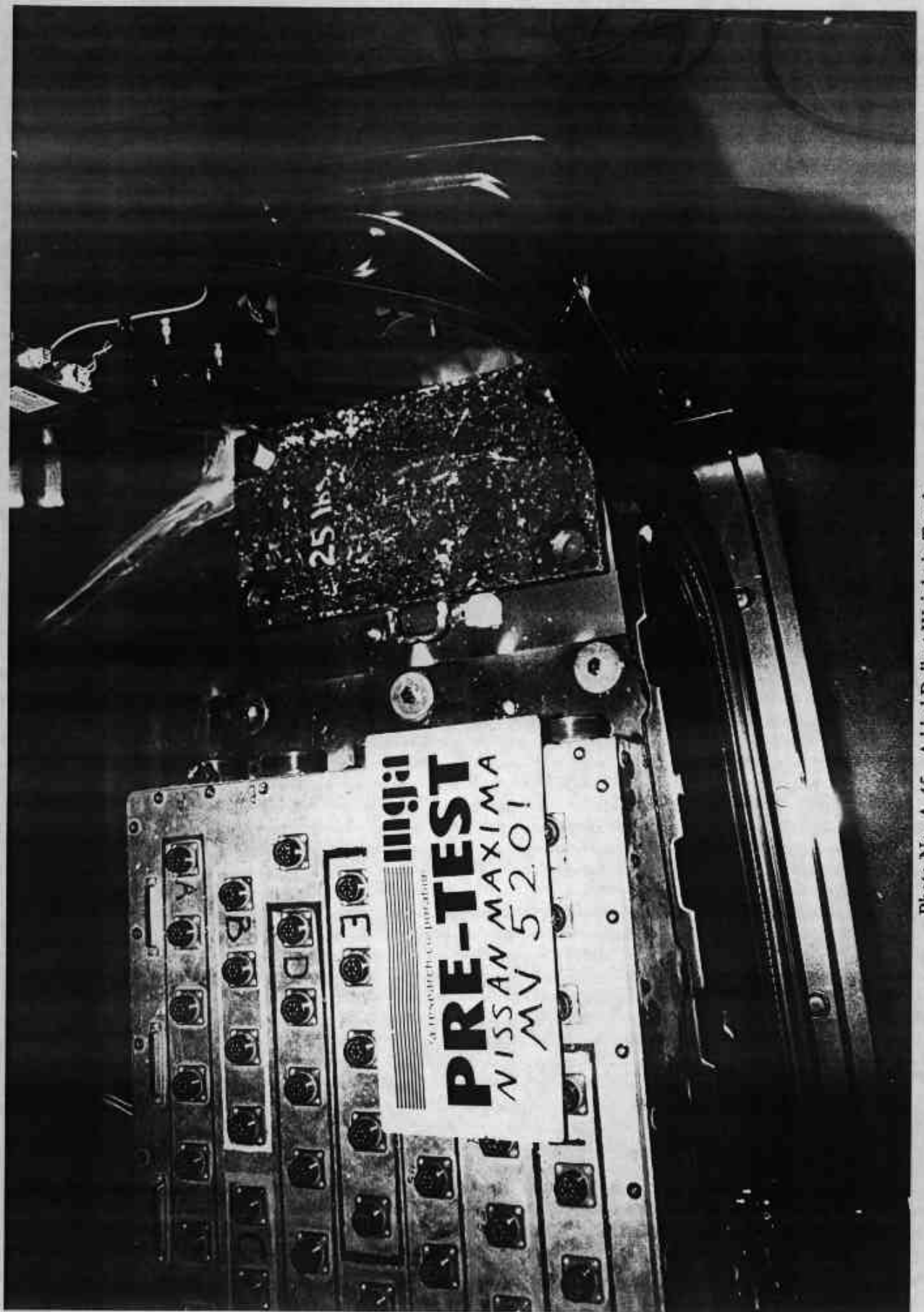


Photo No. A-45 - Added Ballast Weight in Trunk

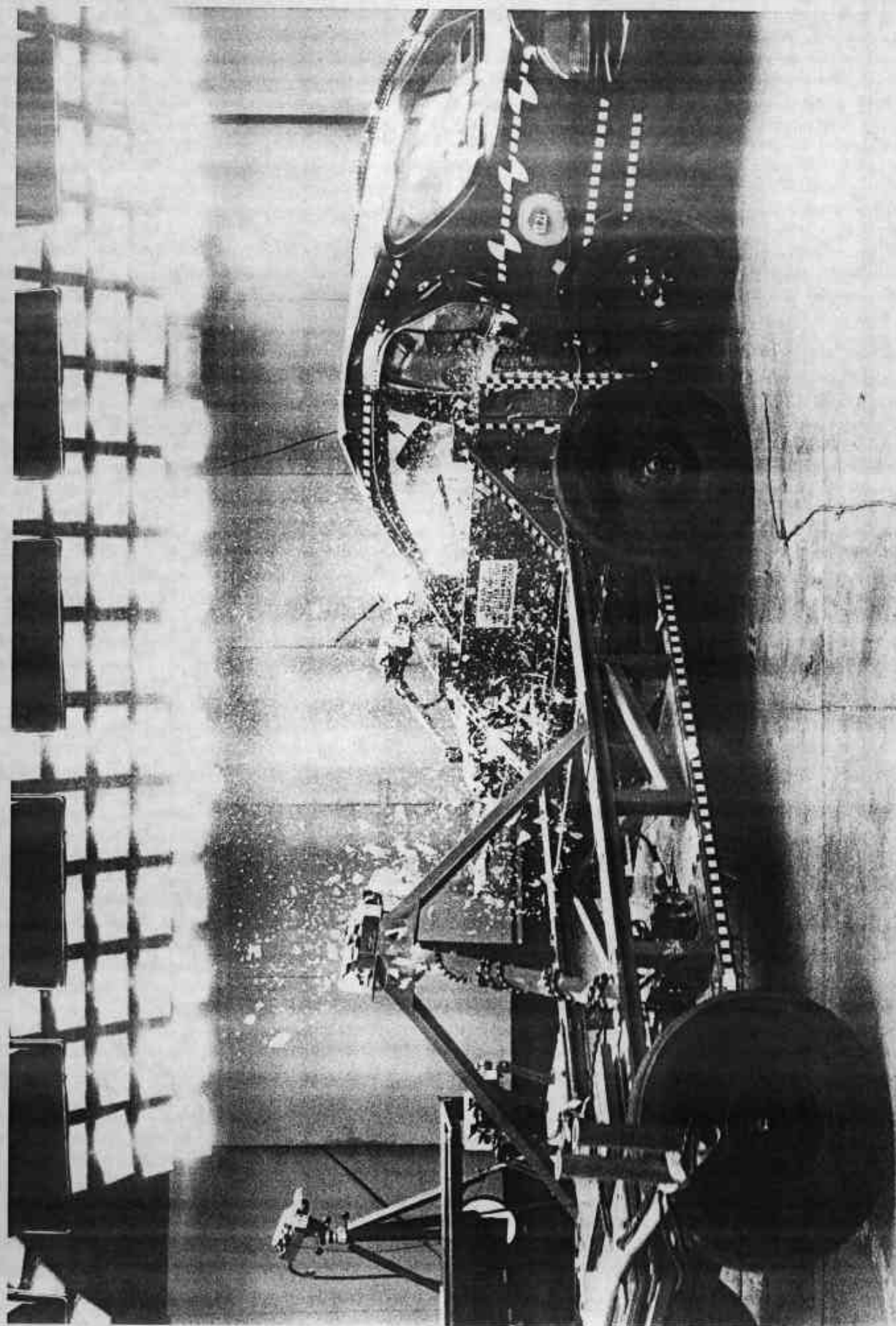


Photo No. A-46 - Impact

A-46



Photo No. A-47 - Area of Sill Separation

A-47

MFD.BY NISSAN MOTOR CO.,LTD

DATE

09/96

GVWR/PNBV

4273 LBS.

GAWR/PNBE FR.

2352 LBS.

RR. 1953 LBS.
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL
MOTOR VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION
STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE
SHOWN ABOVE.

JN1CA21D8VT814803

PASSENGER CAR/VOITURE DE TOURISME



JN1CA21D8VT814803

MFD.BY NISSAN MOTOR CO.,LTD

DATE

GVWR/PNBV

09/96

4273 LBS.

GAWR/PNBE FR.

2352 LBS.

RR. 1953 LBS.

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

JN1CA21D8VT814803

PASSENGER CAR/VOITURE DE TOURISME



JN1CA21D8VT814803

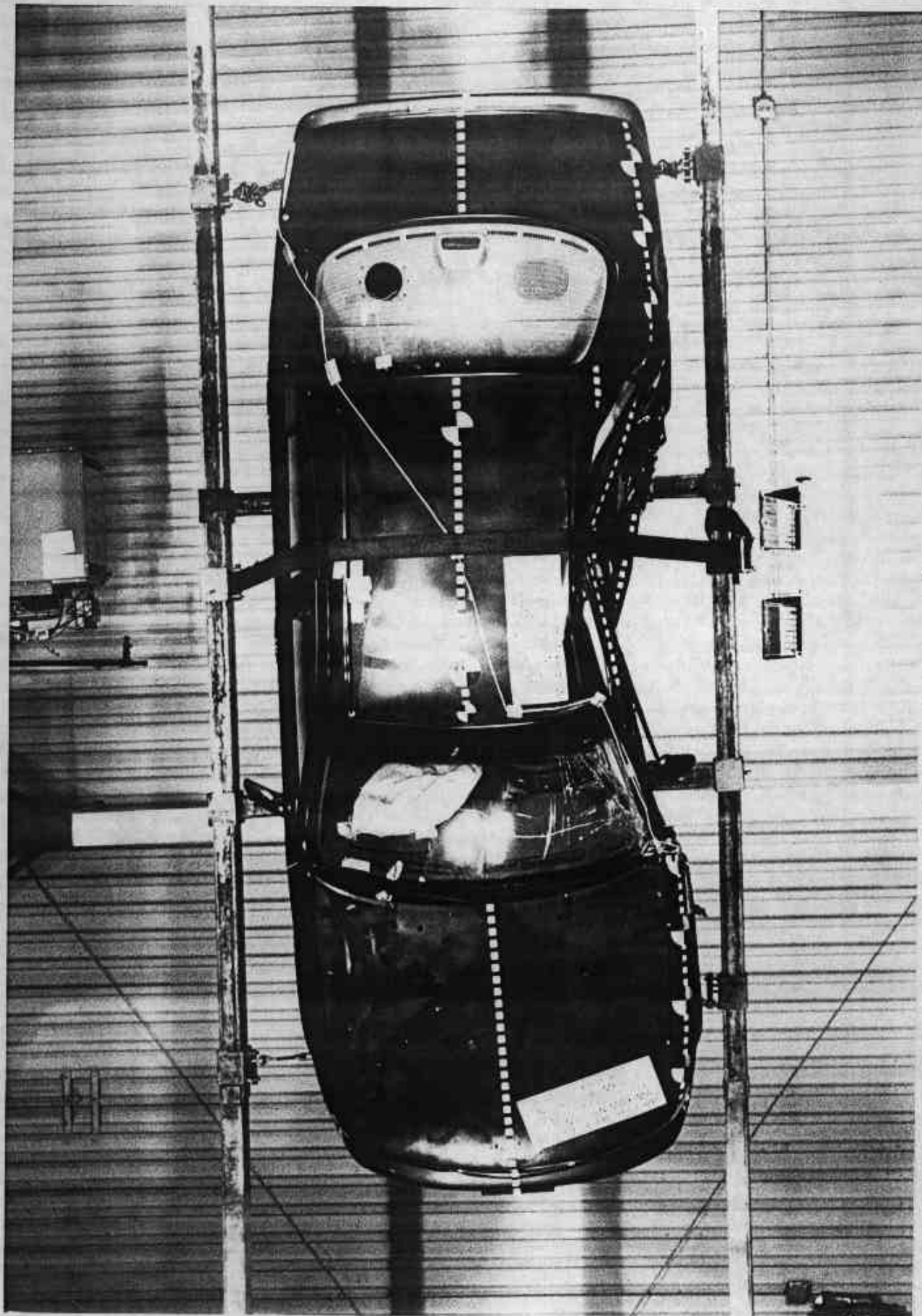
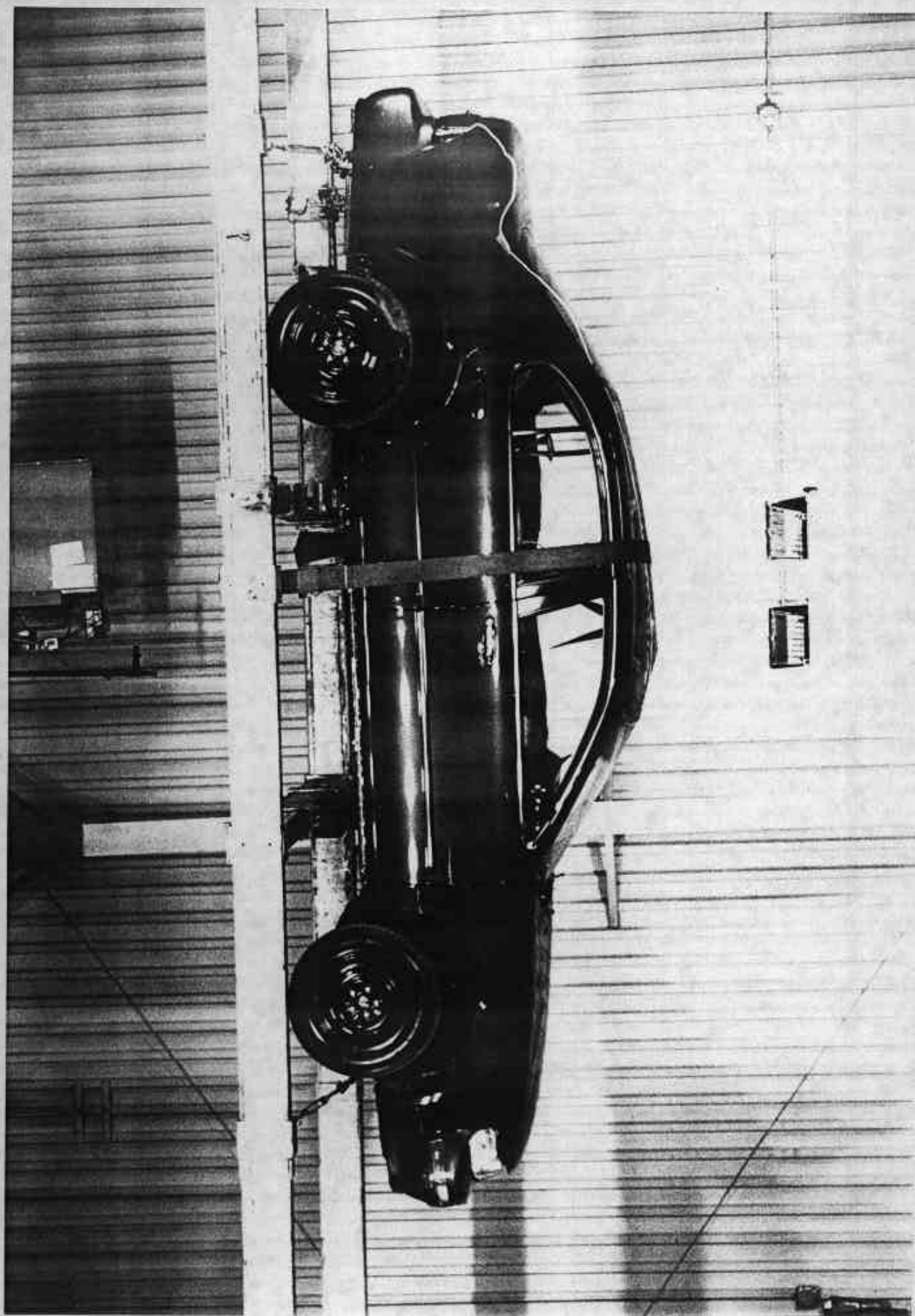


Photo No. A-50 - Rollover 90°

A-50



A-51

Photo No. A-51 - Rollover 180°

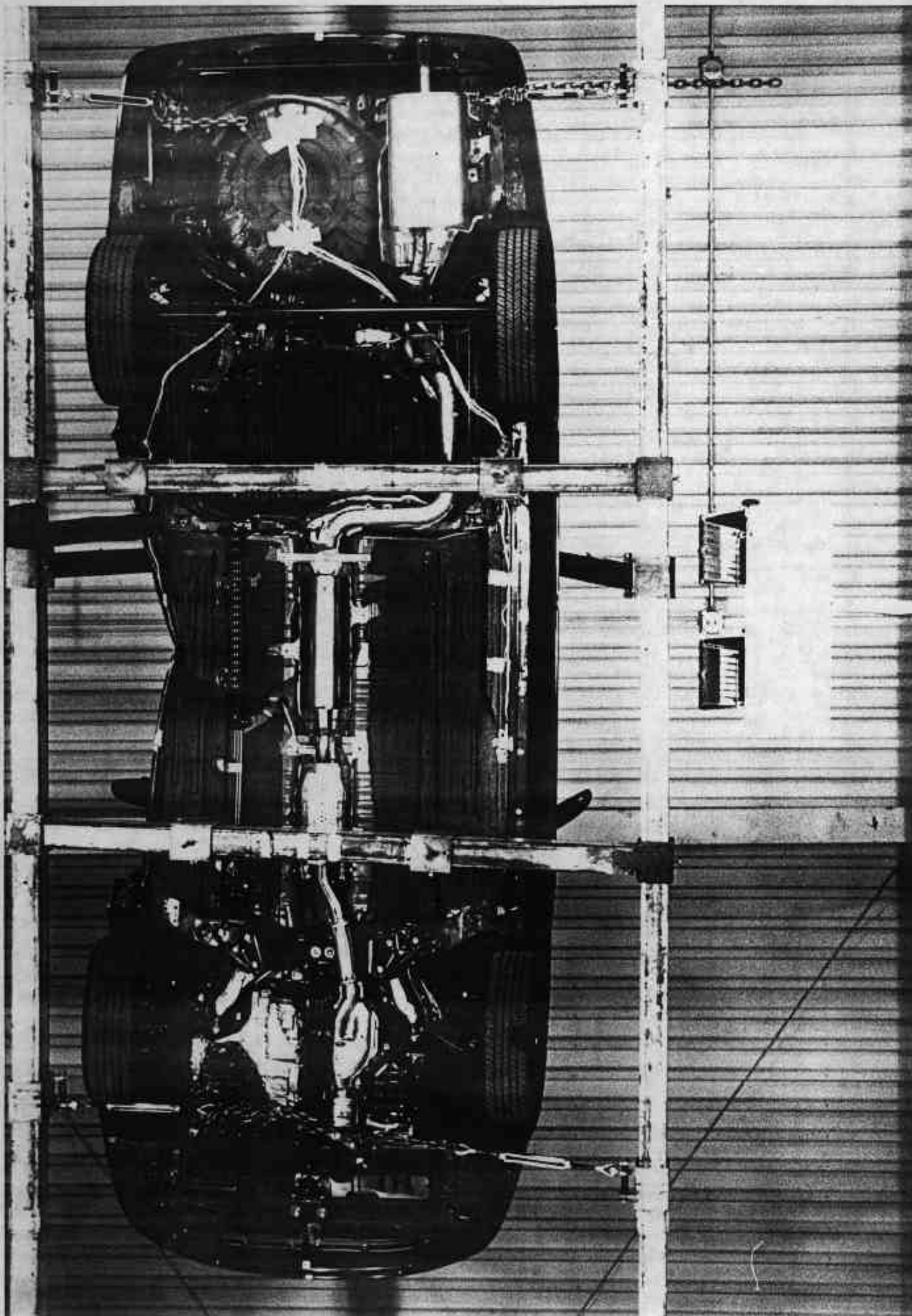


Photo No. A-52 - Rollover 270°

A-52

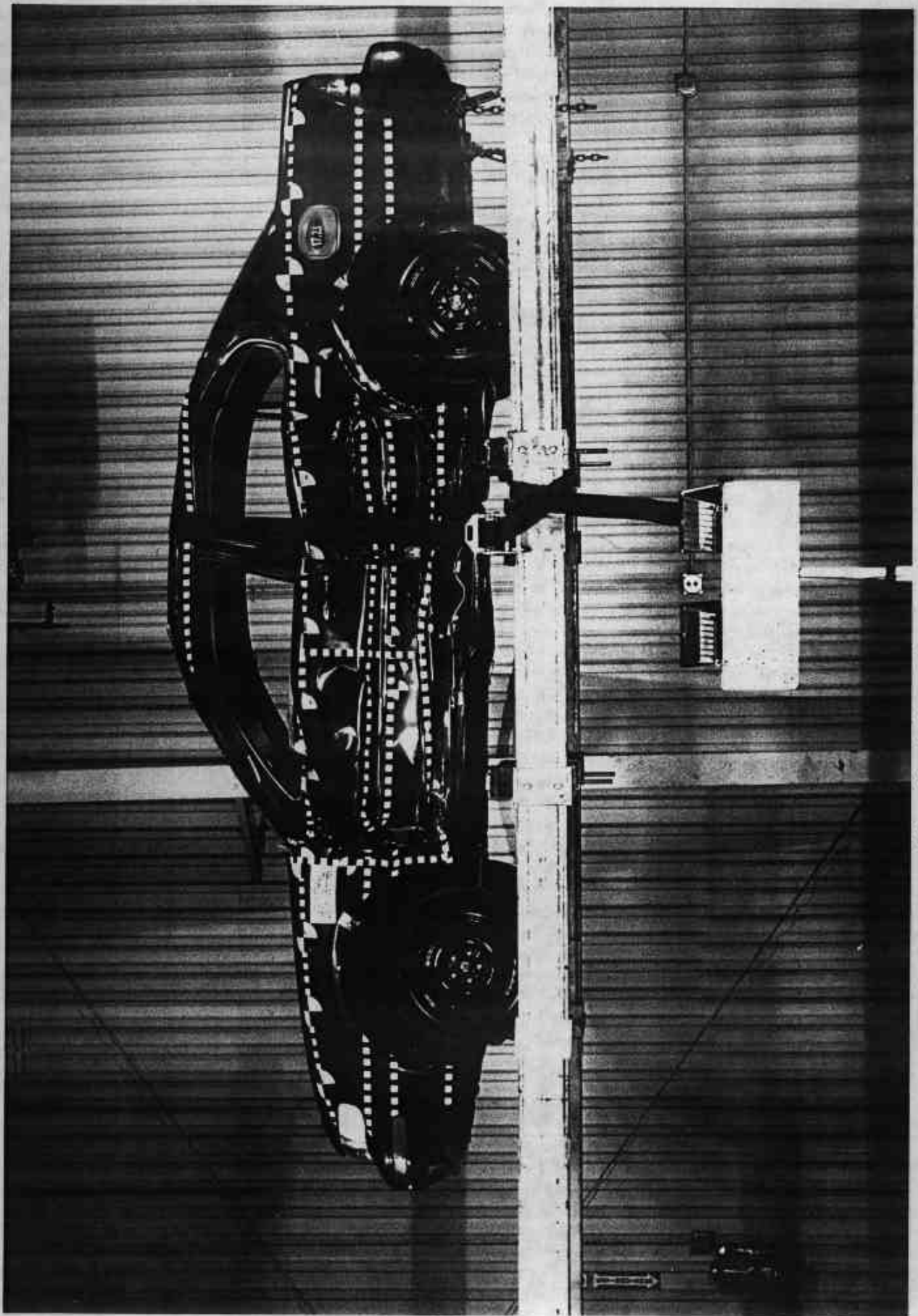


Photo No. A-53 - Rollover 360°

A-53

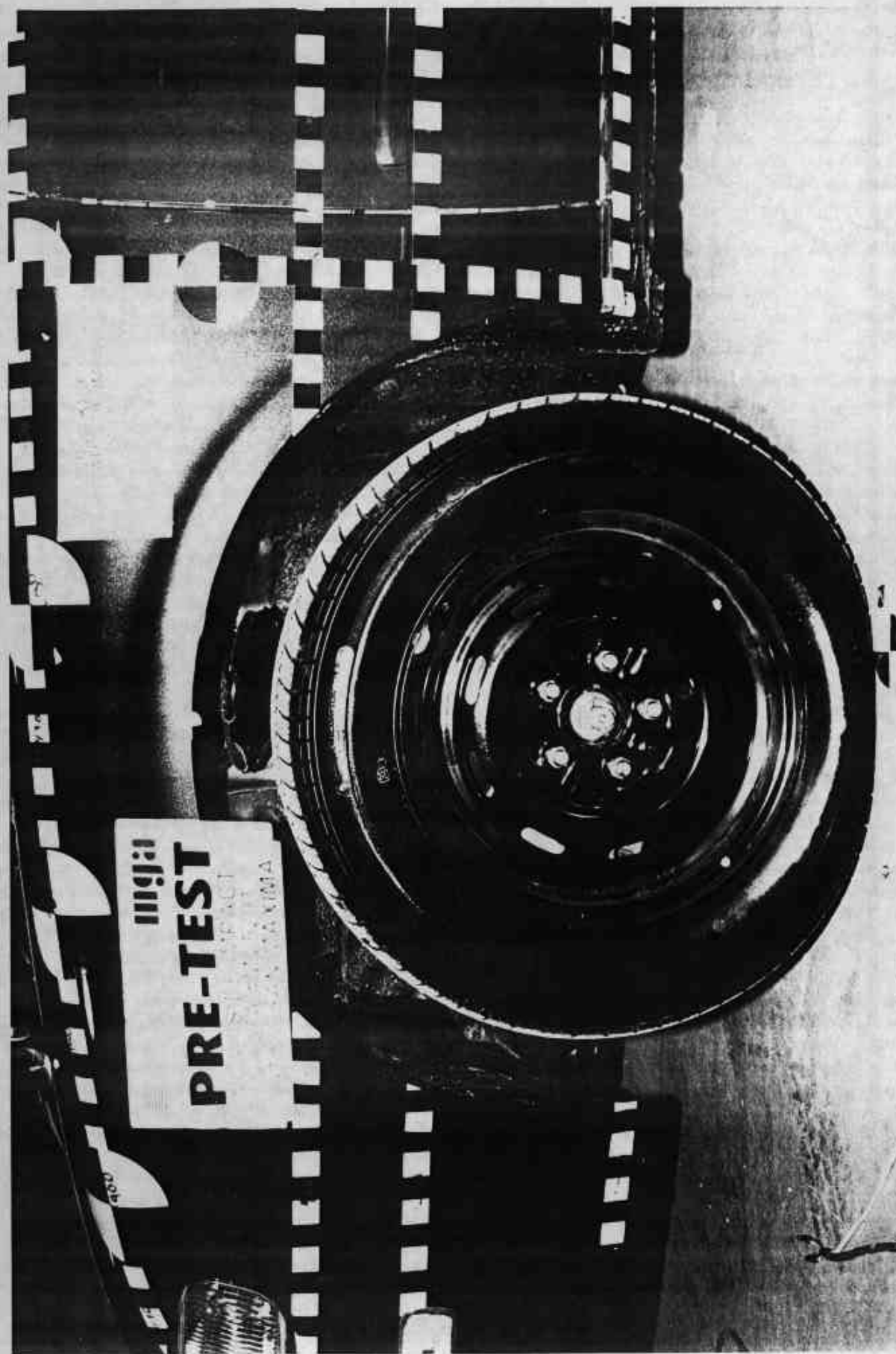


Photo No. A-54 - Left Front Attitude Point

A-54



Photo No. A-55 - Right Front Attitude Point

A-55

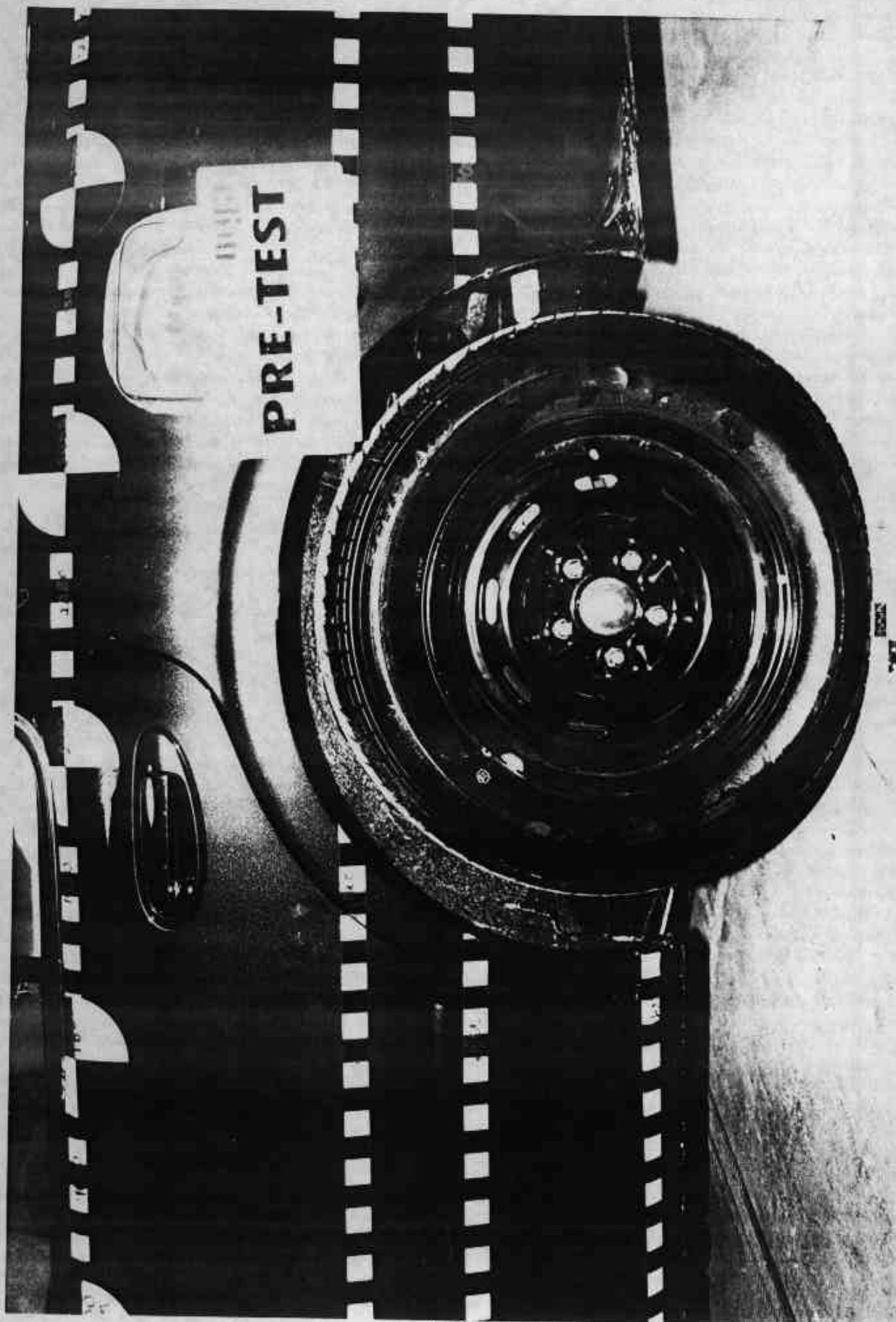


Photo No. A-56 - Left Rear Attitude Point

A-56



Photo No. A-57 - Right Rear Attitude Point

A-57

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 Y Acceleration vs. Time	B-2
Figure B-3 - Driver Head Z Acceleration vs. Time	B-3
Figure B-4 - Driver Head Resultant vs. Time	B-4
Figure B-5 - Driver Upper Rib Y Acceleration vs. Time	B-5
Figure B-6 - Driver Upper Rib Y Velocity vs. Time	B-6
Figure B-7 - Driver Lower Rib Y Acceleration vs. Time	B-7
Figure B-8 - Driver Lower Rib Y Velocity vs. Time	B-8
Figure B-9 - Driver Lower Spine Y Acceleration vs. Time	B-9
Figure B-10 - Driver Lower Spine Y Velocity vs. Time	B-10
Figure B-11 - Driver Pelvis Y Acceleration vs. Time	B-11
Figure B-12 - Driver Pelvis Y Velocity vs. Time	B-12
Figure B-13 - Rear Passenger Head X Acceleration vs. Time	B-13
Figure B-14 - Rear Passenger Head Y Acceleration vs. Time	B-14
Figure B-15 - Rear Passenger Head Z Acceleration vs. Time	B-15
Figure B-16 - Rear Passenger Head Resultant vs. Time	B-16
Figure B-17 - Rear Passenger Upper Rib Y Acceleration vs. Time	B-17
Figure B-18 - Rear Passenger Upper Rib Y Velocity vs. Time	B-18
Figure B-19 - Rear Passenger Lower Rib Y Acceleration vs. Time	B-19
Figure B-20 - Rear Passenger Lower Rib Y Velocity vs. Time	B-20
Figure B-21 - Rear Passenger Lower Spine Y Acceleration vs. Time	B-21
Figure B-22 - Rear Passenger Lower Spine Y Velocity vs. Time	B-22
Figure B-23 - Rear Passenger Pelvis Y Acceleration vs. Time	B-23
Figure B-24 - Rear Passenger Pelvis Y Velocity vs. Time	B-24
 <u>Vehicle:</u>	
Figure B-25 - Left Side Sill at Front Seat Y Acceleration vs. Time	B-25
Figure B-26 - Left Side Sill at Front Seat Y Velocity vs. Time	B-26

Table of Data Plots

<u>Vehicle (Cont'd):</u>	<u>Page No.</u>
Figure B-27 - Left Side Sill at Rear Seat Y Acceleration vs. Time	B-27
Figure B-28 - Left Side Sill at Rear Seat Y Velocity vs. Time	B-28
Figure B-29 - Right Side Sill at Front Seat X Acceleration vs. Time	B-29
Figure B-30 - Right Side Sill at Front Seat X Velocity vs. Time	B-30
Figure B-31 - Right Side Sill at Front Seat Y Acceleration vs. Time	B-31
Figure B-32 - Right Side Sill at Front Seat Y Velocity vs. Time	B-32
Figure B-33 - Right Side Sill at Front Seat Z Acceleration vs. Time	B-33
Figure B-34 - Right Side Sill at Front Seat Z Velocity vs. Time	B-34
Figure B-35 - Right Side Sill at Front Seat Resultant Acceleration vs. Time	B-35
Figure B-36 - Right Side Sill at Rear Seat X Acceleration vs. Time	B-36
Figure B-37 - Right Side Sill at Rear Seat X Velocity vs. Time	B-37
Figure B-38 - Right Side Sill at Rear Seat Y Acceleration vs. Time	B-38
Figure B-39 - Right Side Sill at Rear Seat Y Velocity vs. Time	B-39
Figure B-40 - Right Side Sill at Rear Seat Z Acceleration vs. Time	B-40
Figure B-41 - Right Side Sill at Rear Seat Z Velocity vs. Time	B-41
Figure B-42 - Right Side Sill at Rear Seat Resultant Acceleration vs. Time	B-42
Figure B-43 - Left Driver Seat Track Y Acceleration vs. Time	B-43
Figure B-44 - Left Driver Seat Track Y Velocity vs. Time	B-44
Figure B-45 - Rear Floorpan above Axle X Acceleration vs. Time	B-45
Figure B-46 - Rear Floorpan above Axle X Velocity vs. Time	B-46
Figure B-47 - Rear Floorpan above Axle Y Acceleration vs. Time	B-47
Figure B-48 - Rear Floorpan above Axle Y Velocity vs. Time	B-48
Figure B-49 - Rear Floorpan above Axle Z Acceleration vs. Time	B-49
Figure B-50 - Rear Floorpan above Axle Z Velocity vs. Time	B-50
Figure B-51 - Rear Floorpan above Axle Resultant Acceleration vs. Time	B-51
Figure B-52 - Right Rear Occupant Compartment Y Acceleration vs. Time	B-52
Figure B-53 - Right Rear Occupant Compartment Y Velocity vs. Time	B-53
Figure B-54 - Left Lower A-Post Y Acceleration vs. Time	B-54
Figure B-55 - Left Lower A-Post Y Velocity vs. Time	B-55

Table of Data Plots

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

* Data Not Valid after Approximately 17 msec.

Table of Data Plots

Barrier (Cont'd):

	<u>Page No.</u>
Figure B-81 - Moving Barrier Rear Axle X Velocity vs. Time	B-81
Figure B-82 - Moving Barrier Rear Axle Y Acceleration vs. Time	B-82
Figure B-83 - Moving Barrier Rear Axle Y Velocity vs. Time	B-83
Figure B-84 - Left Barrier Contact	B-84
Figure B-85 - Right Barrier Contact	B-85

Redundant:

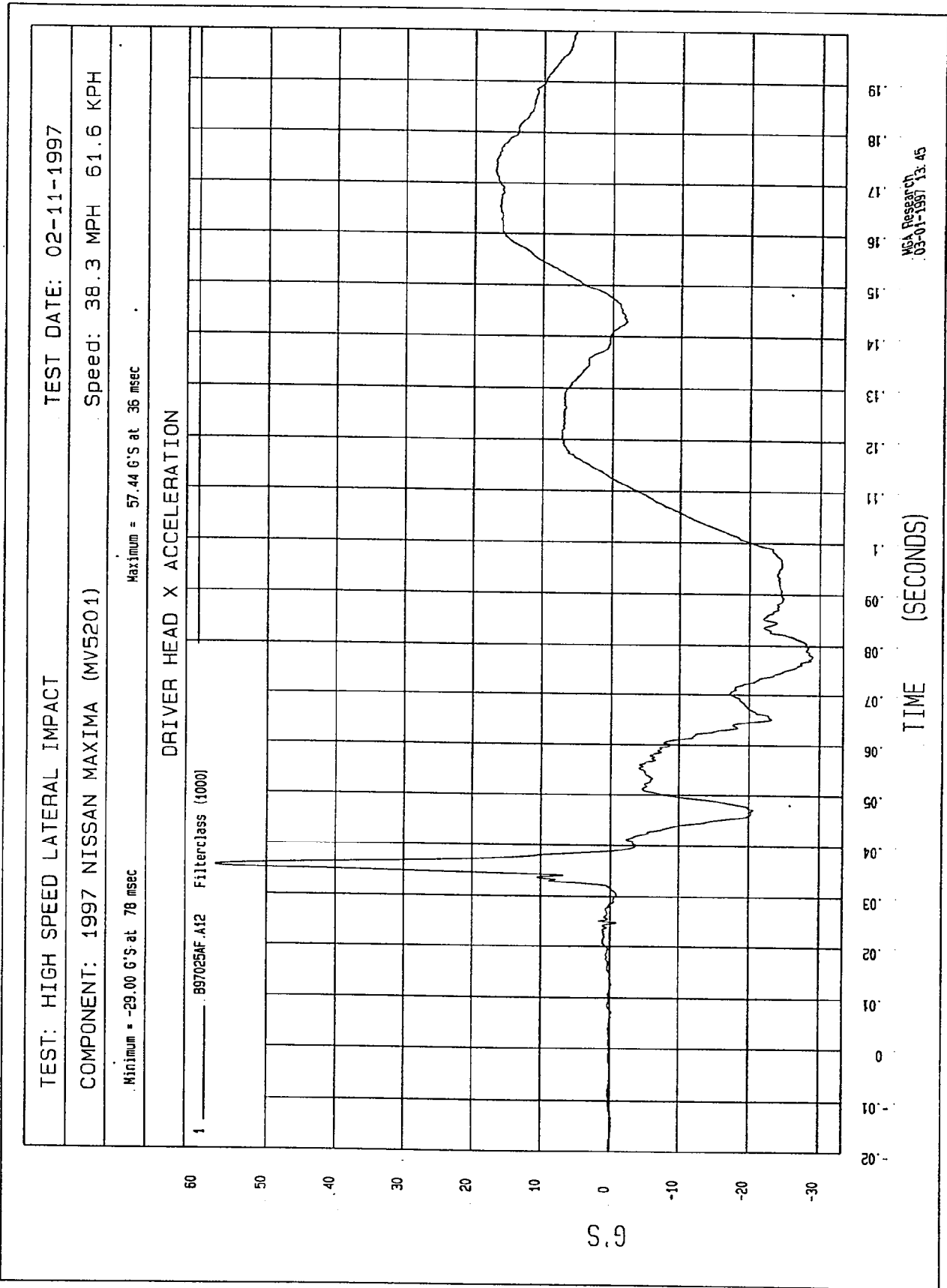
Figure B-86 - Driver Upper Rib Y Redundant Acceleration vs. Time	B-86
Figure B-87 - Driver Upper Rib Y Redundant Velocity vs. Time	B-87
Figure B-88 - Driver Lower Rib Y Redundant Acceleration vs. Time	B-88
Figure B-89 - Driver Lower Rib Y Redundant Velocity vs. Time	B-89
Figure B-90 - Driver Lower Spine Y Redundant Acceleration vs. Time	B-90
Figure B-91 - Driver Lower Spine Y Redundant Velocity vs. Time	B-91
Figure B-92 - Driver Pelvis Y Redundant Acceleration vs. Time	B-92
Figure B-93 - Driver Pelvis Y Redundant Velocity vs. Time	B-93
Figure B-94 - Rear Passenger Upper Rib Y Redundant Acceleration vs. Time	B-94
Figure B-95 - Rear Passenger Upper Rib Y Redundant Velocity vs. Time	B-95
Figure B-96 - Rear Passenger Lower Rib Y Redundant Acceleration vs. Time	B-96
Figure B-97 - Rear Passenger Lower Rib Y Redundant Velocity vs. Time	B-97
Figure B-98 - Rear Passenger Lower Spine Y Redundant Acceleration vs. Time	B-98
Figure B-99 - Rear Passenger Lower Spine Y Redundant Velocity vs. Time	B-99
Figure B-100 - Rear Passenger Pelvis Y Redundant Acceleration vs. Time	B-100
Figure B-101 - Rear Passenger Pelvis Y Redundant Velocity vs. Time	B-101

FIR Filtered

Figure B-102 - Driver Upper Rib Y Acceleration vs. Time	B-102
Figure B-103 - Driver Upper Rib Y Redundant Acceleration vs. Time	B-103

Table of Data Plots

<u>FIR Filtered (Cont'd):</u>	<u>Page No.</u>
Figure B-104 - Driver Lower Rib Y Acceleration vs. Time	B-104
Figure B-105 - Driver Lower Rib Y Redundant Acceleration vs. Time	B-105
Figure B-106 - Driver Lower Spine Y Acceleration vs. Time	B-106
Figure B-107 - Driver Lower Spine Y Redundant Acceleration vs. Time	B-107
Figure B-108 - Driver Pelvis Y Acceleration vs. Time	B-108
Figure B-109 - Driver Pelvis Y Redundant Acceleration vs. Time	B-109
Figure B-110 - Rear Passenger Upper Rib Y Acceleration vs. Time	B-110
Figure B-111 - Rear Passenger Upper Rib Y Redundant Acceleration vs. Time	B-111
Figure B-112 - Rear Passenger Lower Rib Y Acceleration vs. Time	B-112
Figure B-113 - Rear Passenger Lower Rib Y Redundant Acceleration vs. Time	B-113
Figure B-114 - Rear Passenger Lower Spine Y Acceleration vs. Time	B-114
Figure B-115 - Rear Passenger Lower Spine Y Redundant Acceleration vs. Time	B-115
Figure B-116 - Rear Passenger Pelvis Y Acceleration vs. Time	B-116
Figure B-117 - Rear Passenger Pelvis Y Redundant Acceleration vs. Time	B-117

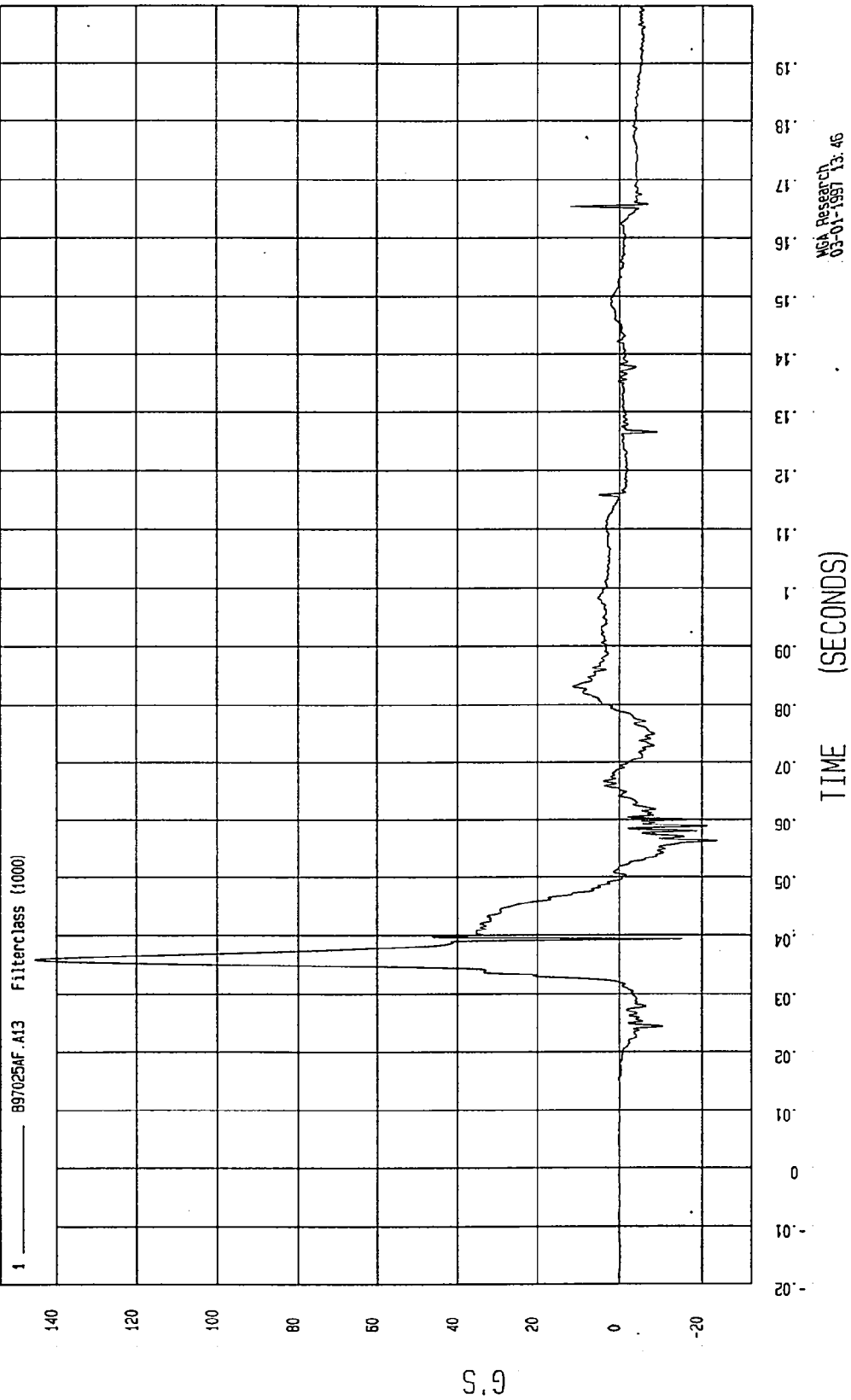


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -23.64 G'S at 56 msec Maximum = 145.27 G'S at 36 msec

DRIVER HEAD Y ACCELERATION

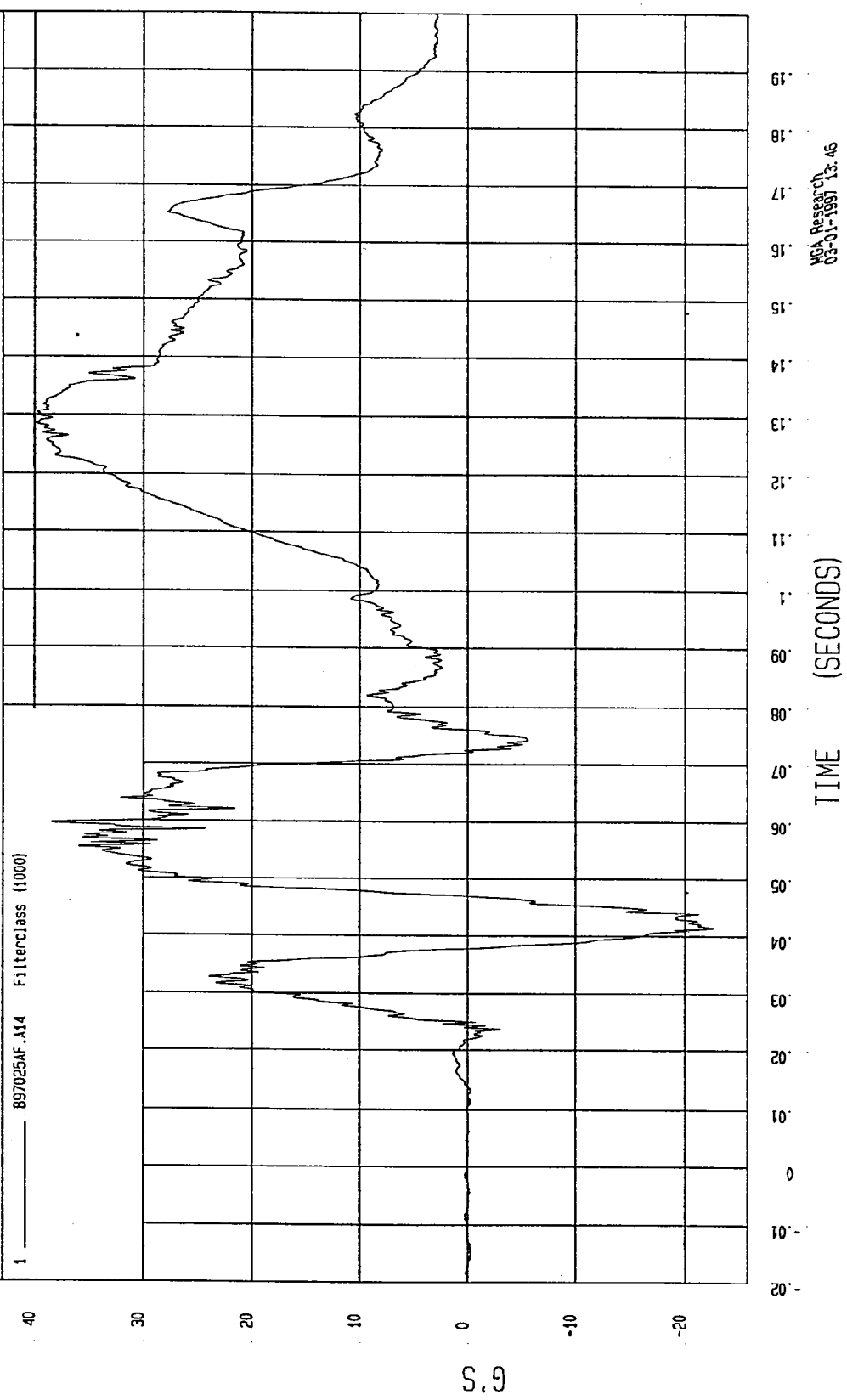


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -22.54 G'S at 42 msec Maximum = 39.80 G'S at 128 msec

DRIVER HEAD Z ACCELERATION

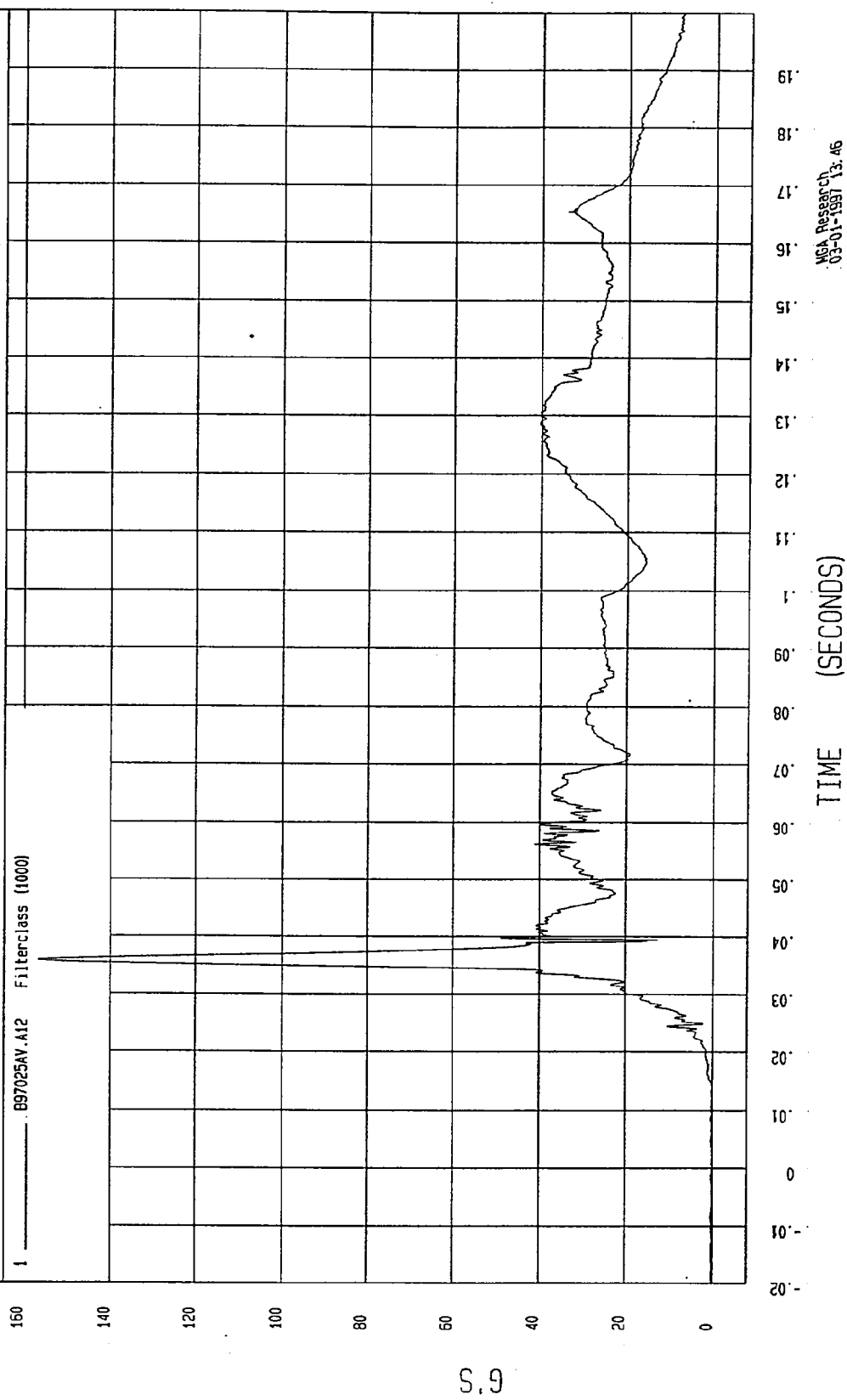


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = 3.67E-02 G'S at 0 msec Maximum = 156.63 G'S at 36 msec

DRIVER HEAD RESULTANT



TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -31.54 G'S at 71 msec Maximum = 78.34 G'S at 23 msec

DRIVER UPPER RIB Y ACCELERATION

1 897025AF.A15 Filterclass (180)

G.S

100
80
60
40
20
0
-20
-40
-60

TIME (SECONDS)

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

MGA Research
03-01-1997 13:54

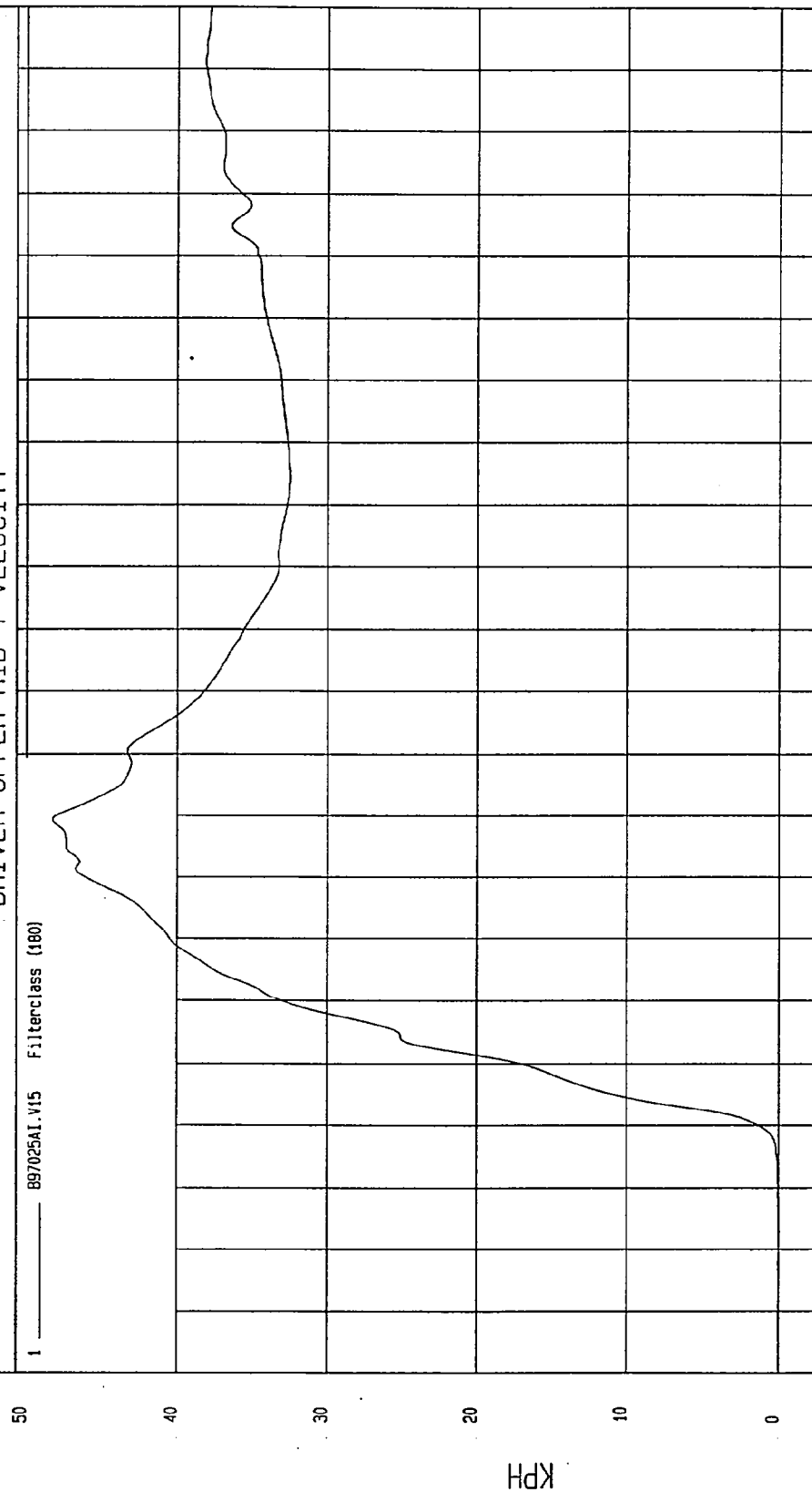
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -1.19E-02 KPH at -17 msec Maximum = 48.25 KPH at 69 msec

DRIVER UPPER RIB Y VELOCITY

1 ——— B97025A1.V15 Filterclass (180)



TIME Seconds

MSC Research
03-01-1997 13:52

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

Speed: 38.3 MPH 61.6 KPH

Minimum = -36.89 G's at 66 msec

Maximum = 79.05 G's at 38 msec

DRIVER LOWER RIB Y ACCELERATION

1 ——— B97025AF.A16 Filterclass (180)

100

80

60

40

20

0

-20

-40

-60

G

-02

-01

0

.01

.02

.03

.04

.05

.06

.07

.08

.09

.1

.11

.12

.13

.14

.15

.16

.17

.18

.19

TIME (SECONDS)

MCA Research
03-01-1997 13:54

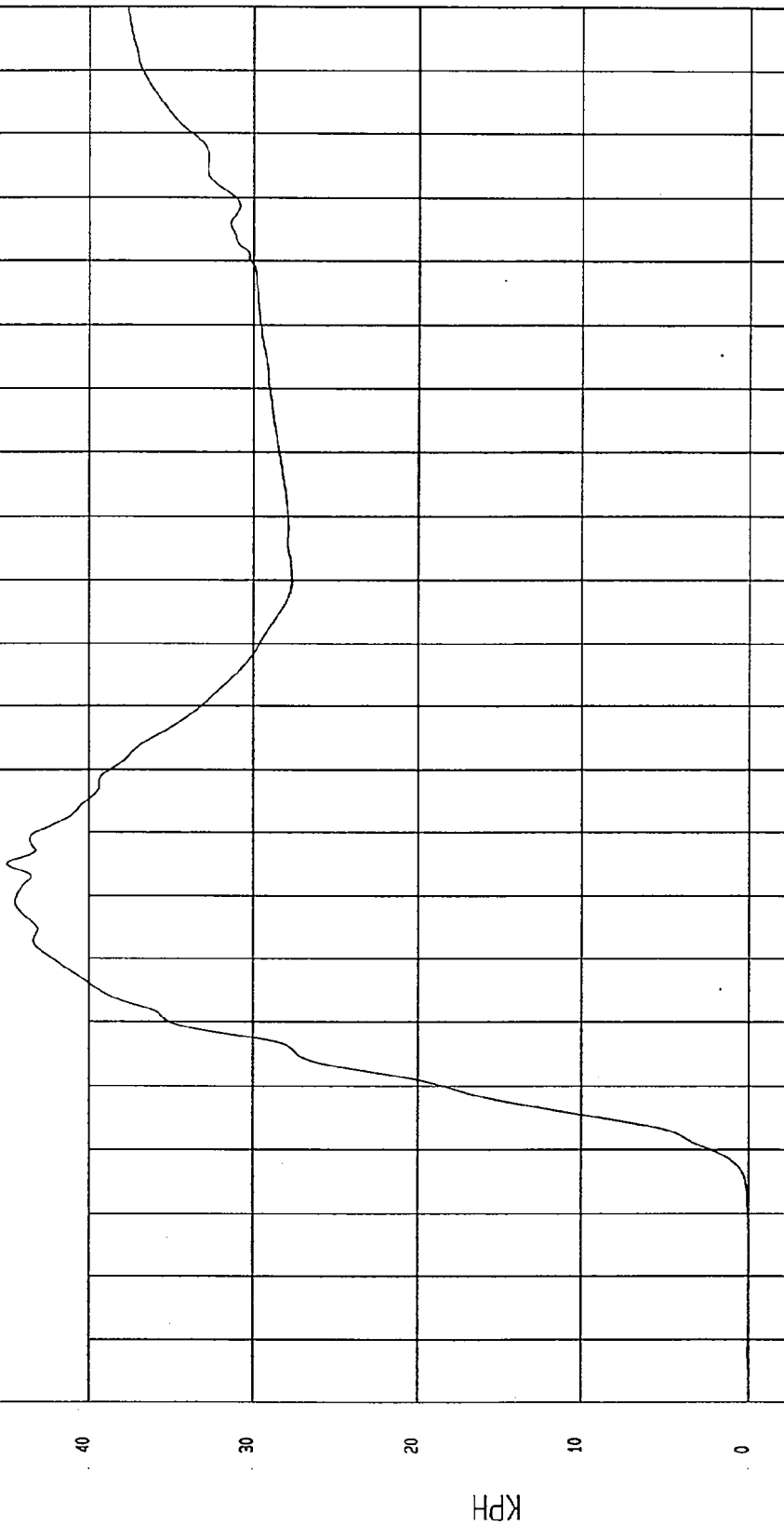
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -1.09E-02 KPH at -18 msec Maximum = 44.85 KPH at 65 msec

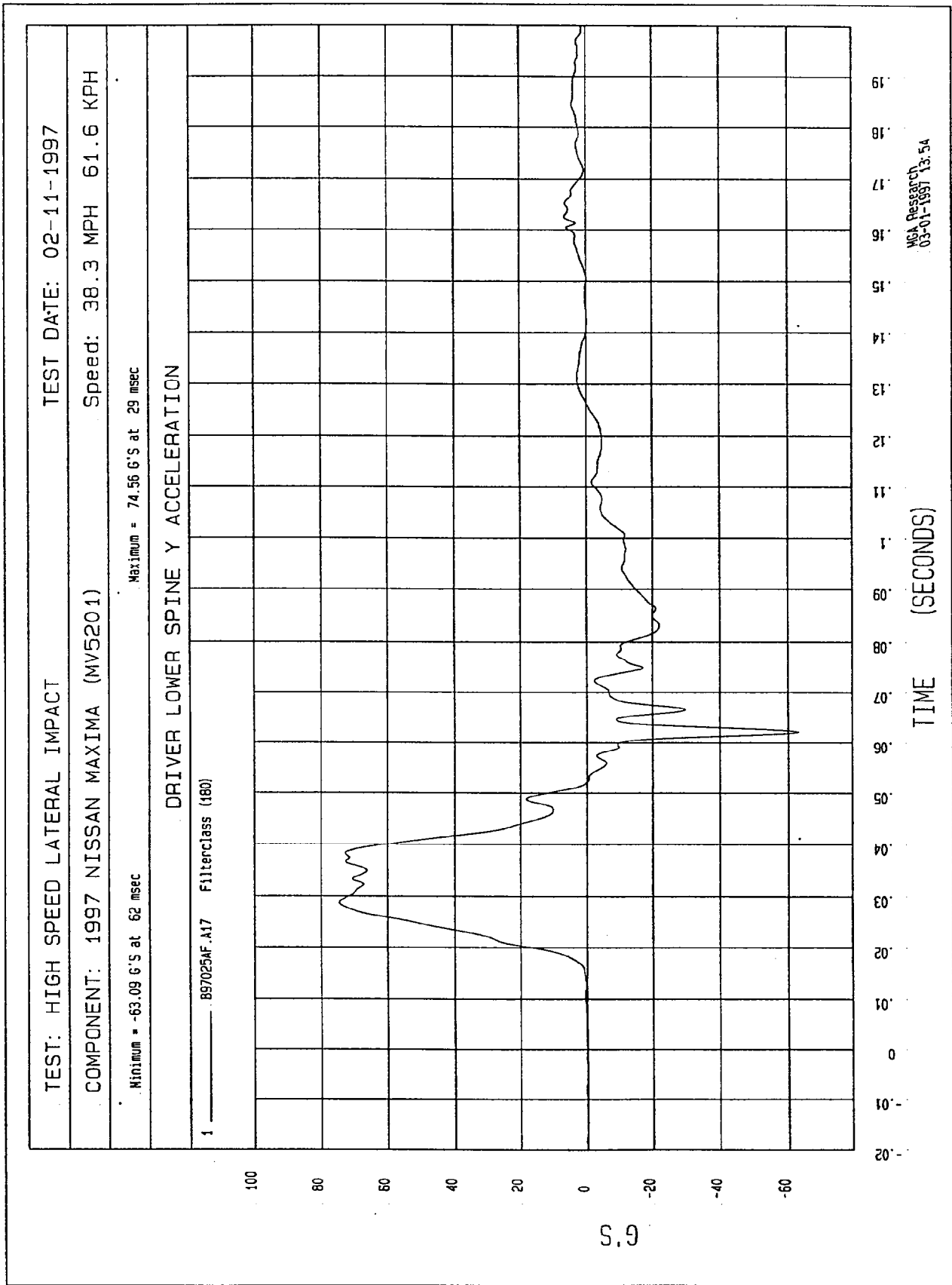
DRIVER LOWER RIB Y VELOCITY

1 ——— B97025A1.V16 Filterclass (180)



TIME Seconds

NGA Research
03-01-1997 13:52



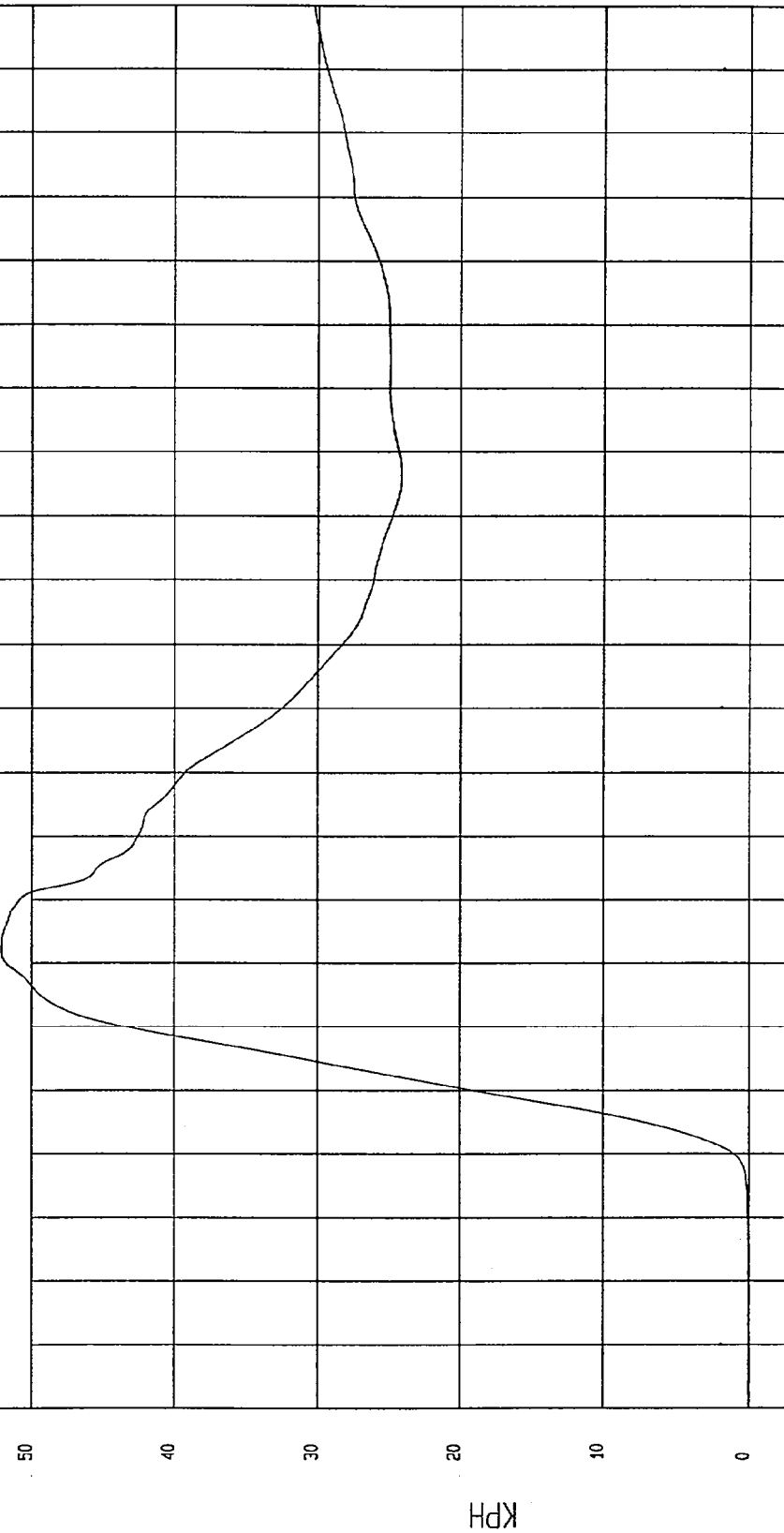
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

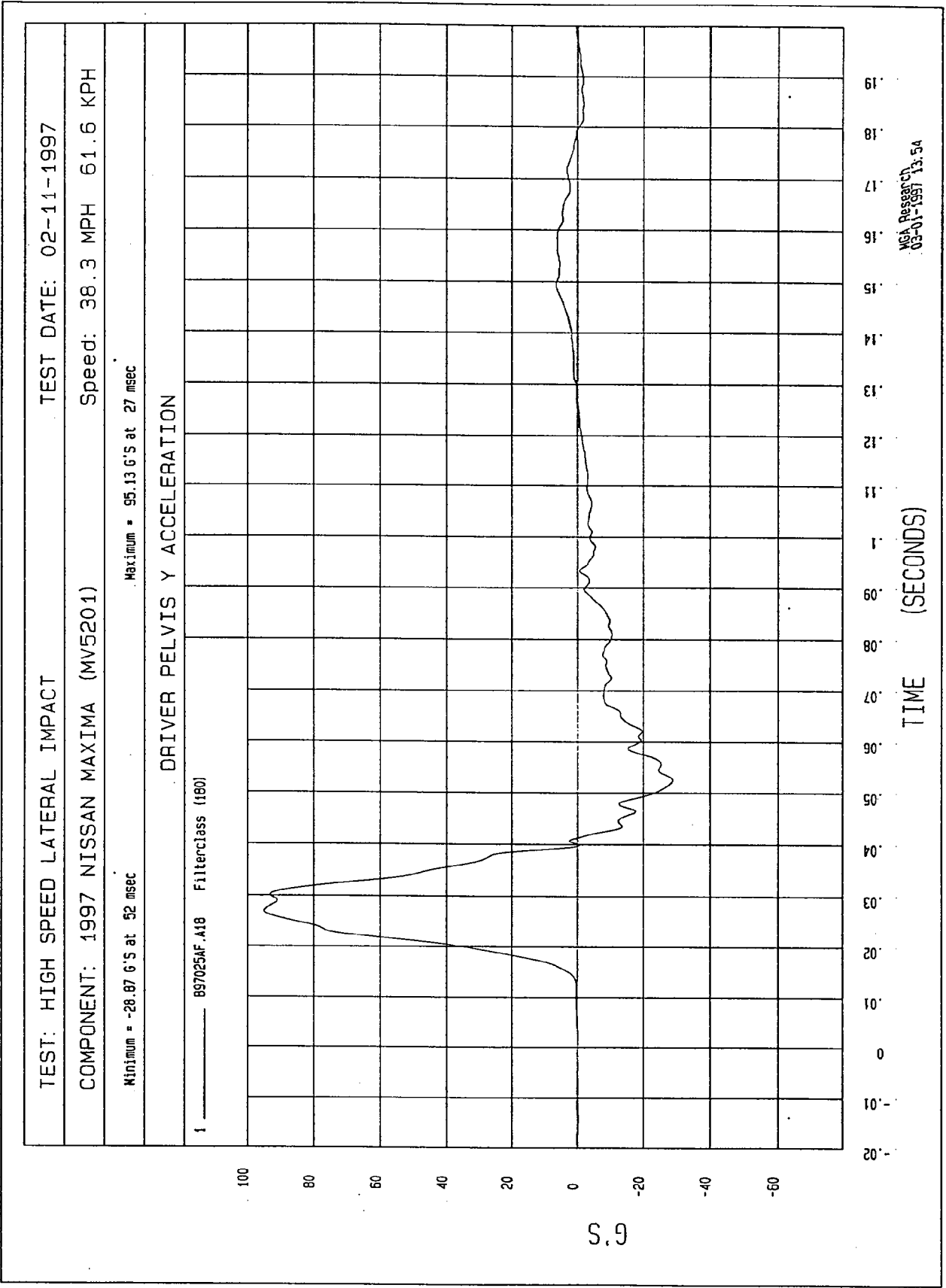
Minimum = -6.50E-03 KPH at -12 msec
Maximum = 52.13 KPH at 52 msec

DRIVER LOWER SPINE Y VELOCITY

1 ——— B97025A1.V17 FilterClass (180)



TIME Seconds
MCA Research
03-01-1997 13:52



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

Speed: 38.3 MPH 61.6 KPH

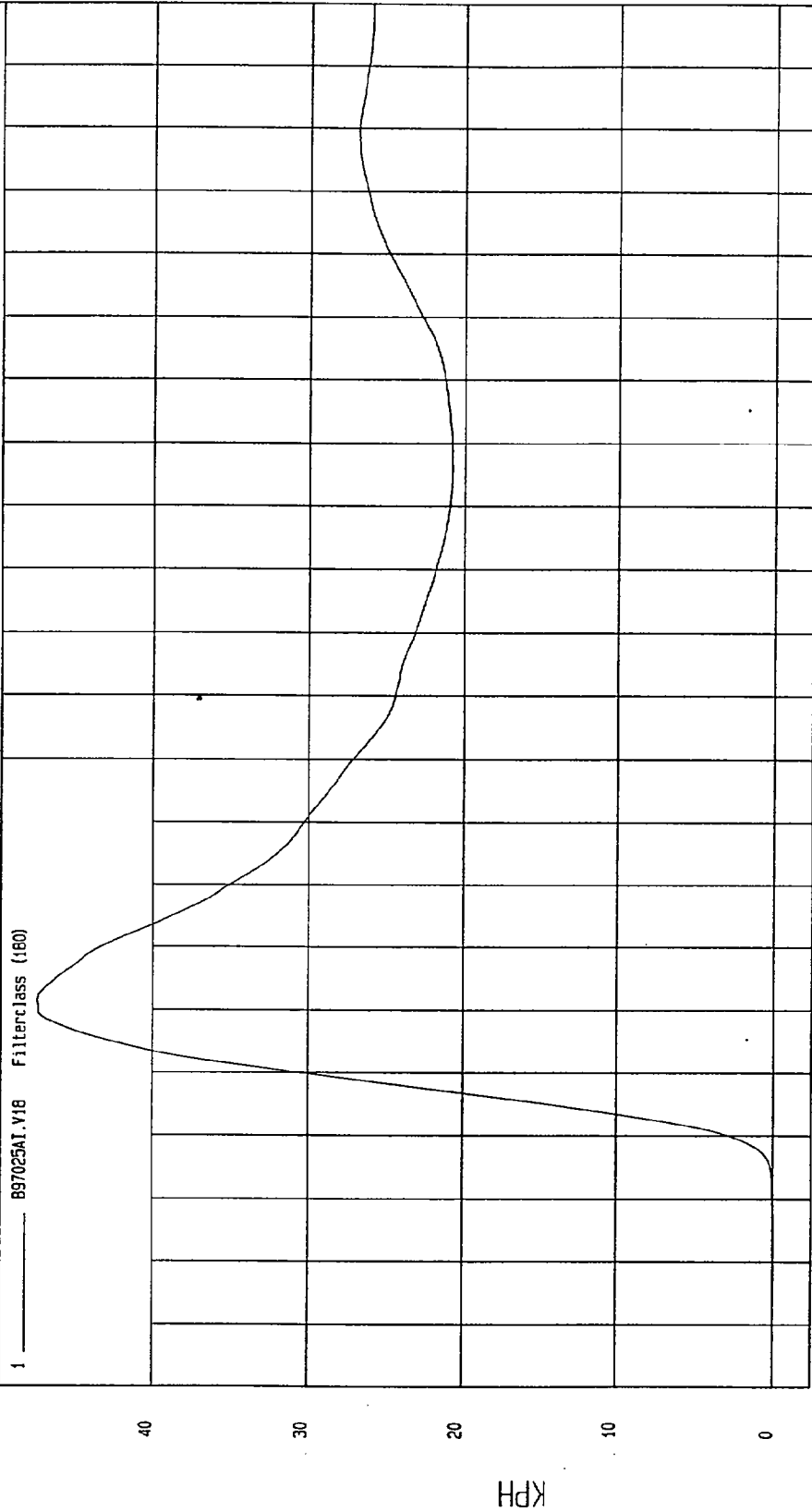
COMPONENT: 1997 NISSAN MAXIMA (MV5201)

Minimum = -3.36E-02 KPH at 4 msec

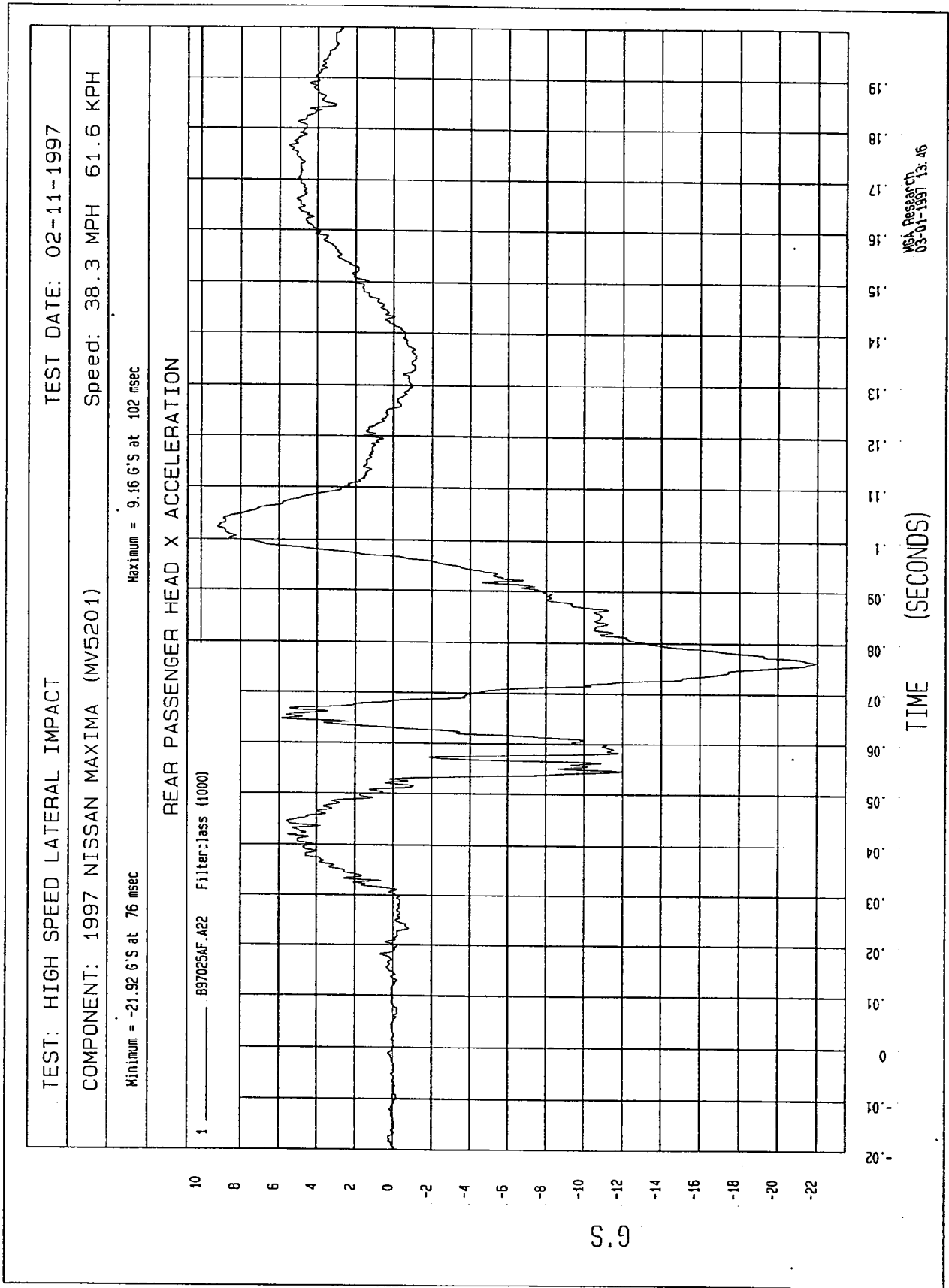
Maximum = 47.39 KPH at 41 msec

DRIVER PELVIS Y VELOCITY

1 B97025A1.V18 Filterclass (180)



NCA Research
03-01-1997 13:52



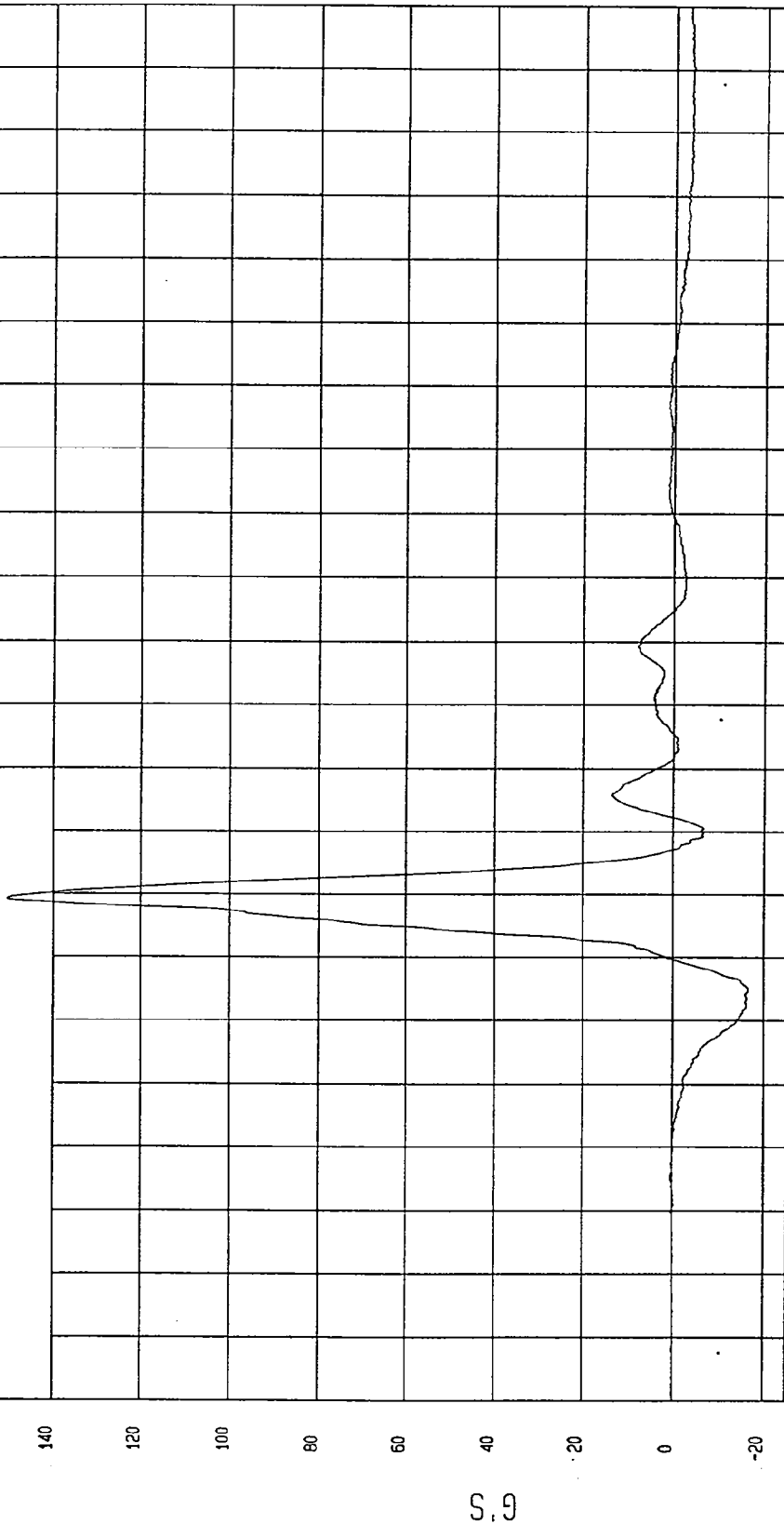
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

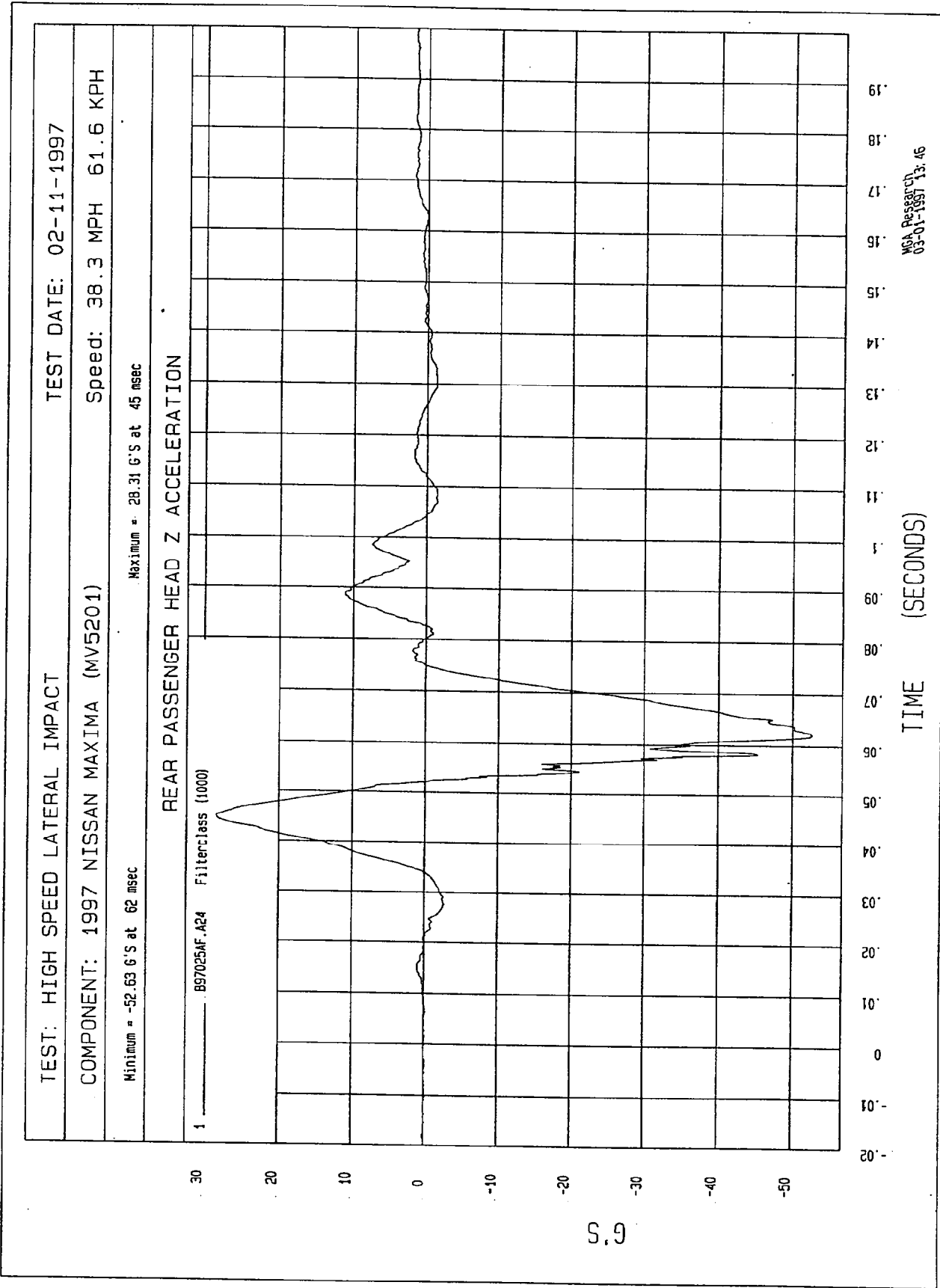
Minimum = -16.64 G'S at 45 msec Maximum = 150.27 G'S at 59 msec

REAR PASSENGER HEAD Y ACCELERATION

1 ——— B97025AF.A23 Filterclass (1000)



MGA Research
03-01-1997 13:46



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

Speed: 38.3 MPH 61.6 KPH

Minimum = 1.84E-02 G'S at -8 msec

Maximum = 153.81 G'S at 59 msec

REAR PASSENGER HEAD RESULTANT

150

1 ——— B97025AY.A22 Filterclass (1000)

140

120

100

80

60

40

20

0

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)

NSA Research
03-01-1997 13:46

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -6.23 G'S at 126 msec Maximum = 73.56 G'S at 45 msec

REAR PASSENGER UPPER RIB Y ACCELERATION

1 897025AF.A25 Filterclass (180)

100

80

60

40

20

0

-20

-40

-60

G.S

19

18

17

16

15

14

13

12

11

10

09

08

07

06

05

04

03

02

01

0

-01

-02

TIME (SECONDS)

MCA Research
03-01-1997 13:54

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -1.08E-02 KPH at -11 msec Maximum = 43.27 KPH at 98 msec

REAR PASSENGER UPPER RIB Y VELOCITY

1 — 897025A1.V25 Filterclass (180)

40

30

20

10

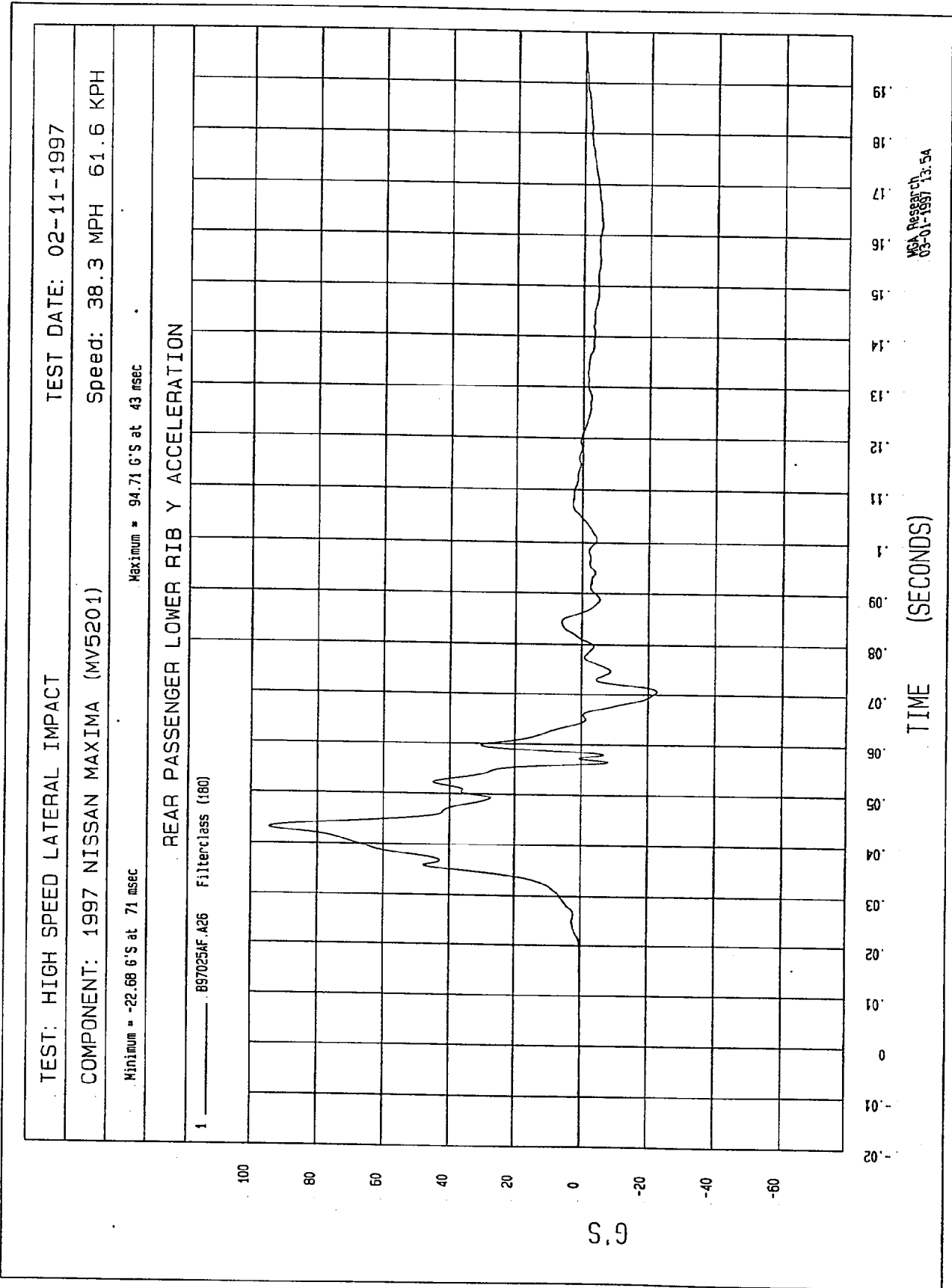
0

KPH

-0.02 -0.01 0 .01 .02 .03 .04 .05 .06 .07 .08 .09 .1 .11 .12 .13 .14 .15 .16 .17 .18 .19

TIME Seconds

MSA Research
03-01-1997 13:52



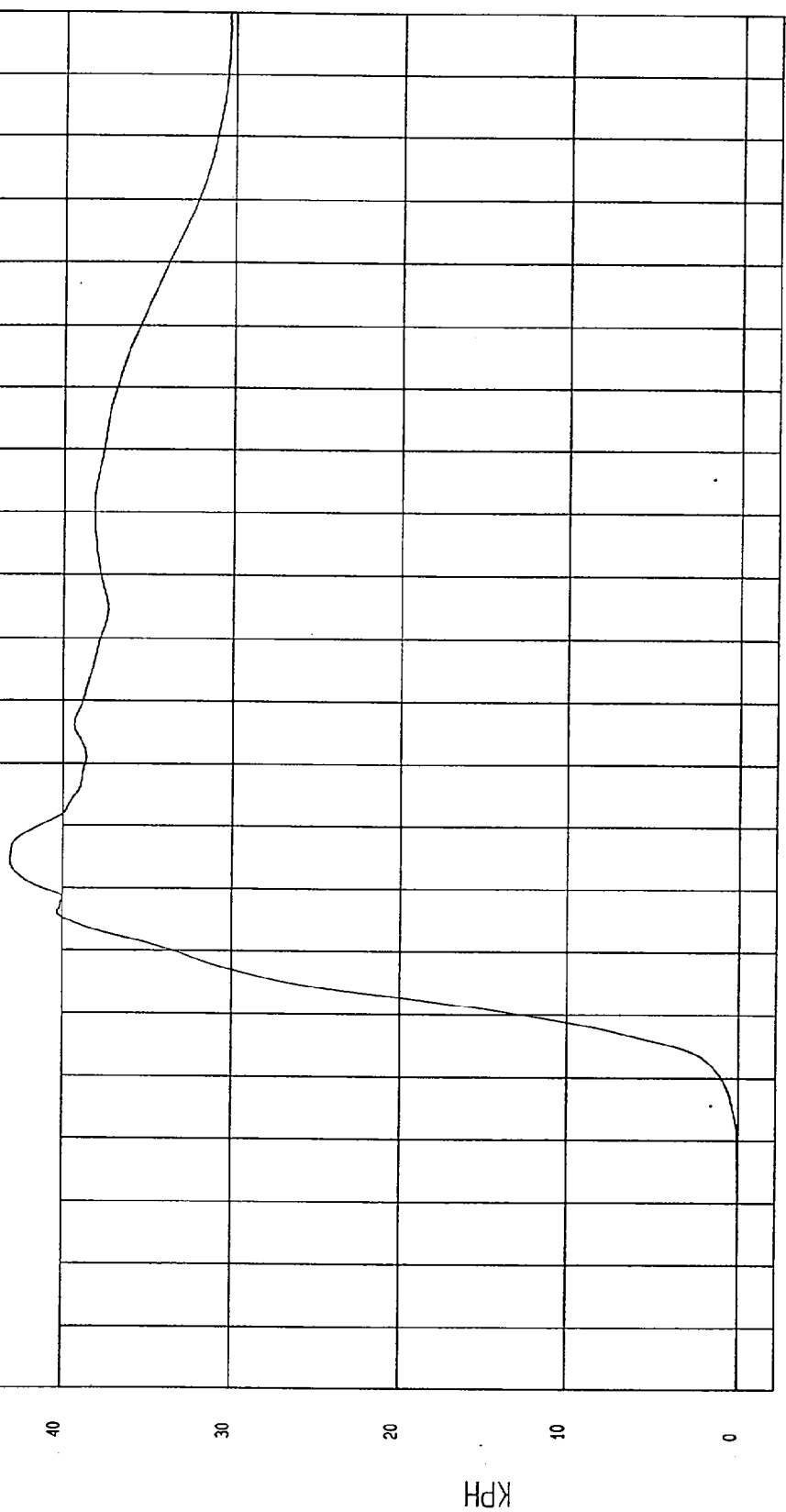
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -1.13E-02 KPH at -11 msec Maximum = 43.06 KPH at 64 msec

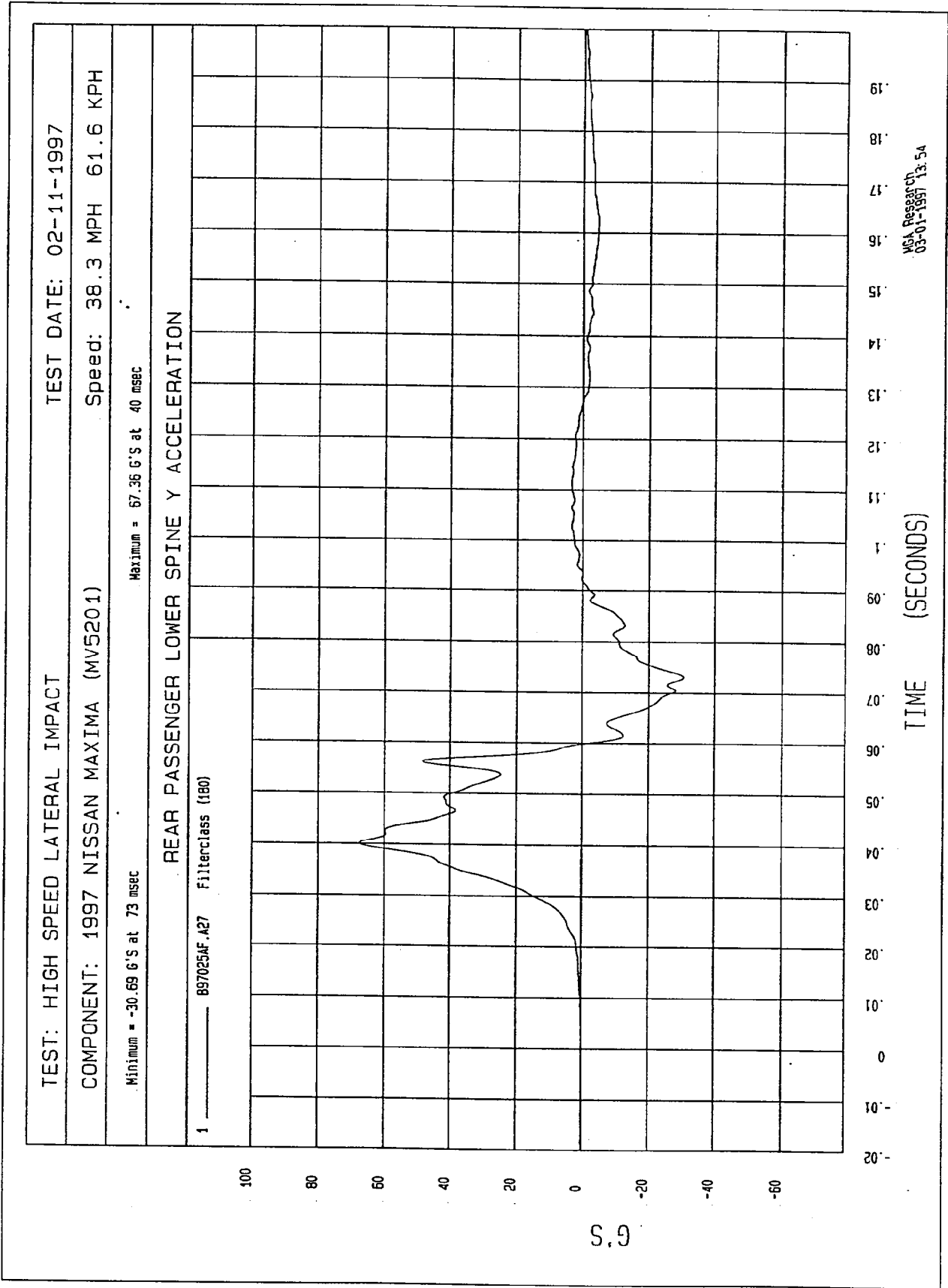
REAR PASSENGER LOWER RIB Y VELOCITY

1 _____ B97025A1.V26 Filterclass (180)



TIME Seconds

NSA Research
03-01-1997 13:52



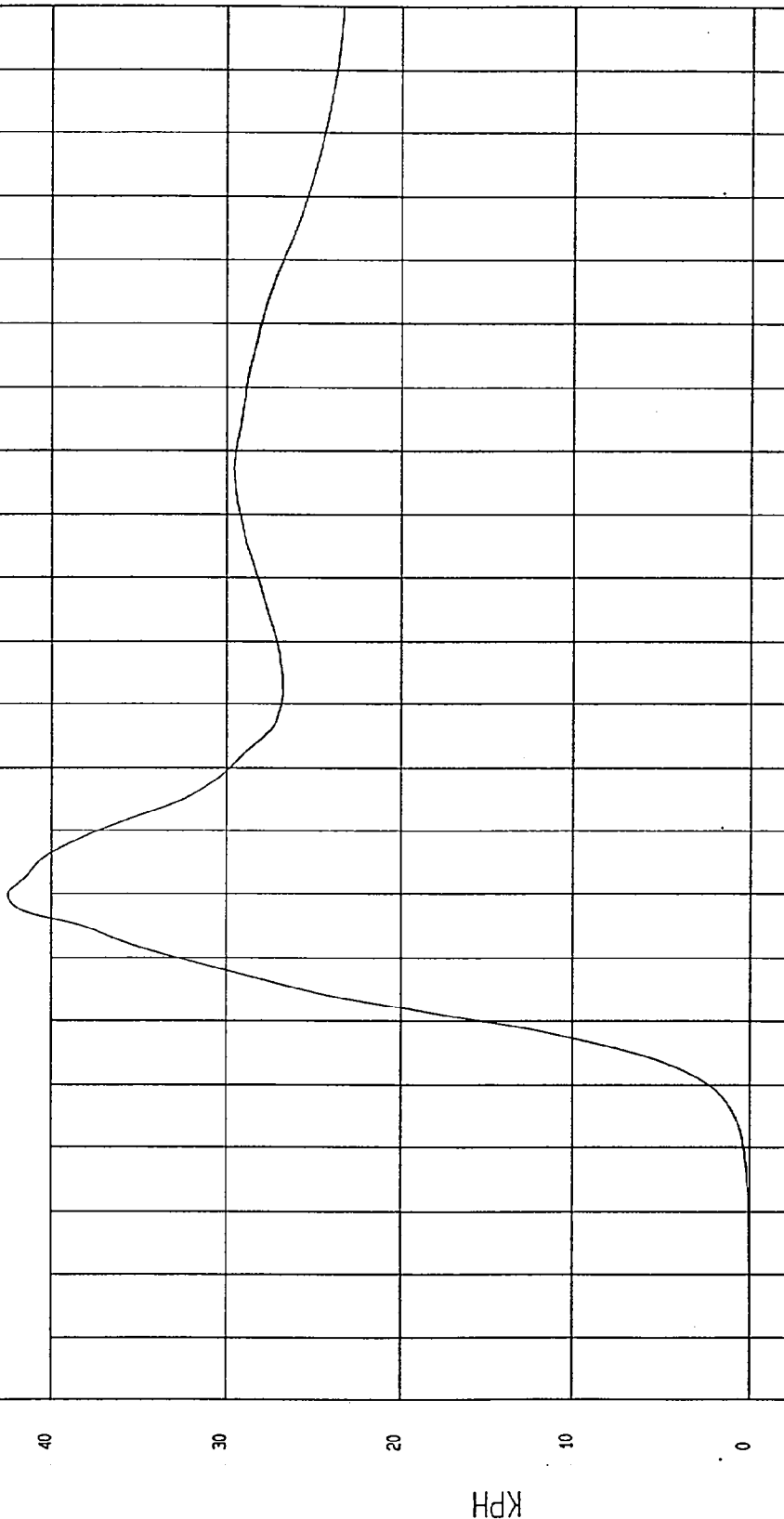
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -5.65E-04 KPH at -19 msec
Maximum = 42.46 KPH at 60 msec

REAR PASSENGER LOWER SPINE Y VELOCITY

897025A1.V27 Filterclass (180)



NCA Research
03-01-1997 13:53

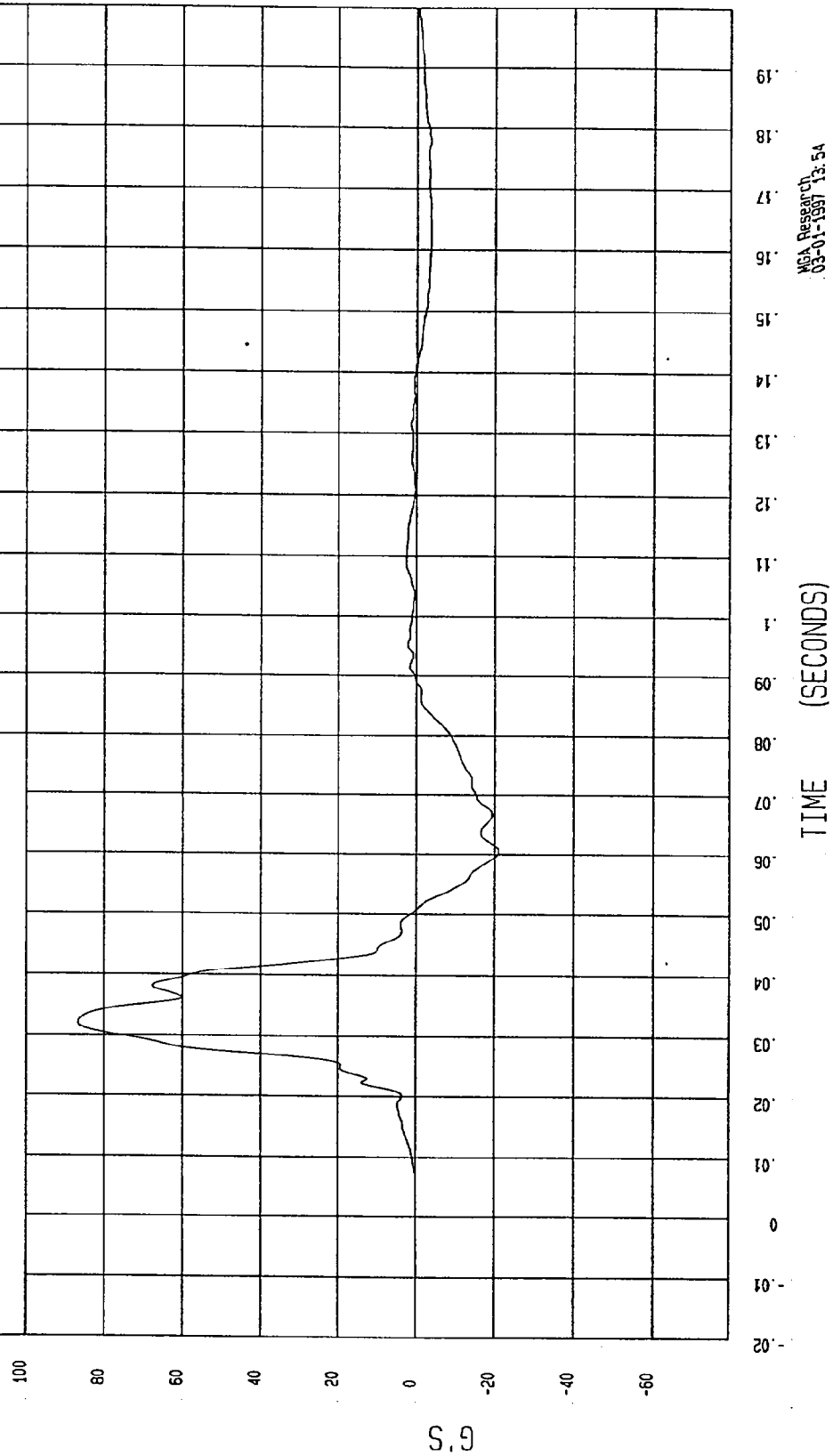
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -21.14 G'S at 60 msec Maximum = 86.73 G'S at 32 msec

REAR PASSENGER PELVIS Y ACCELERATION

1 ——— B97025AF.A28 Filterclass (180)



MCA Research
03-01-1997 13:54

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

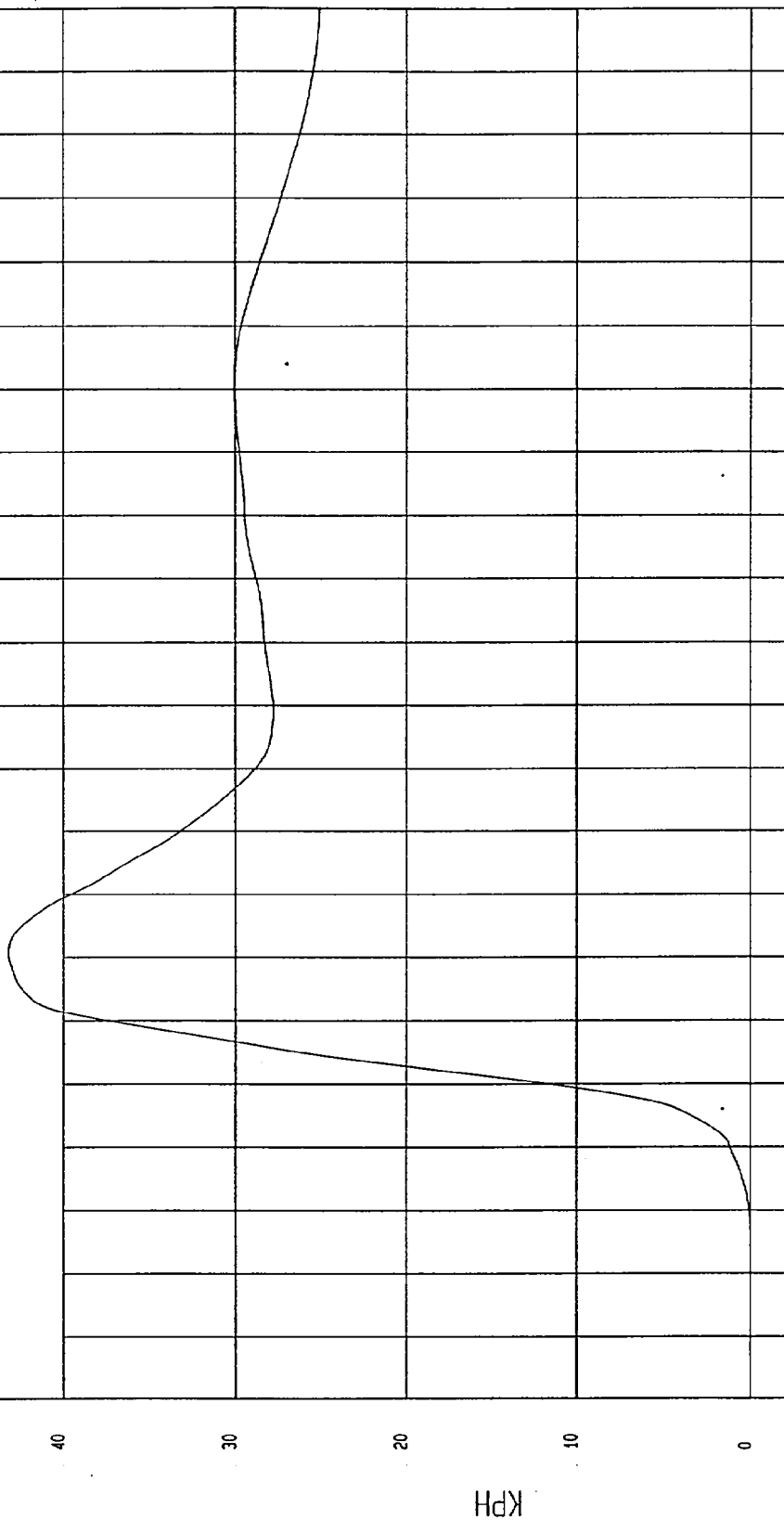
COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -9.96E-05 KPH at -20 msec

Maximum = 43.20 KPH at 51 msec

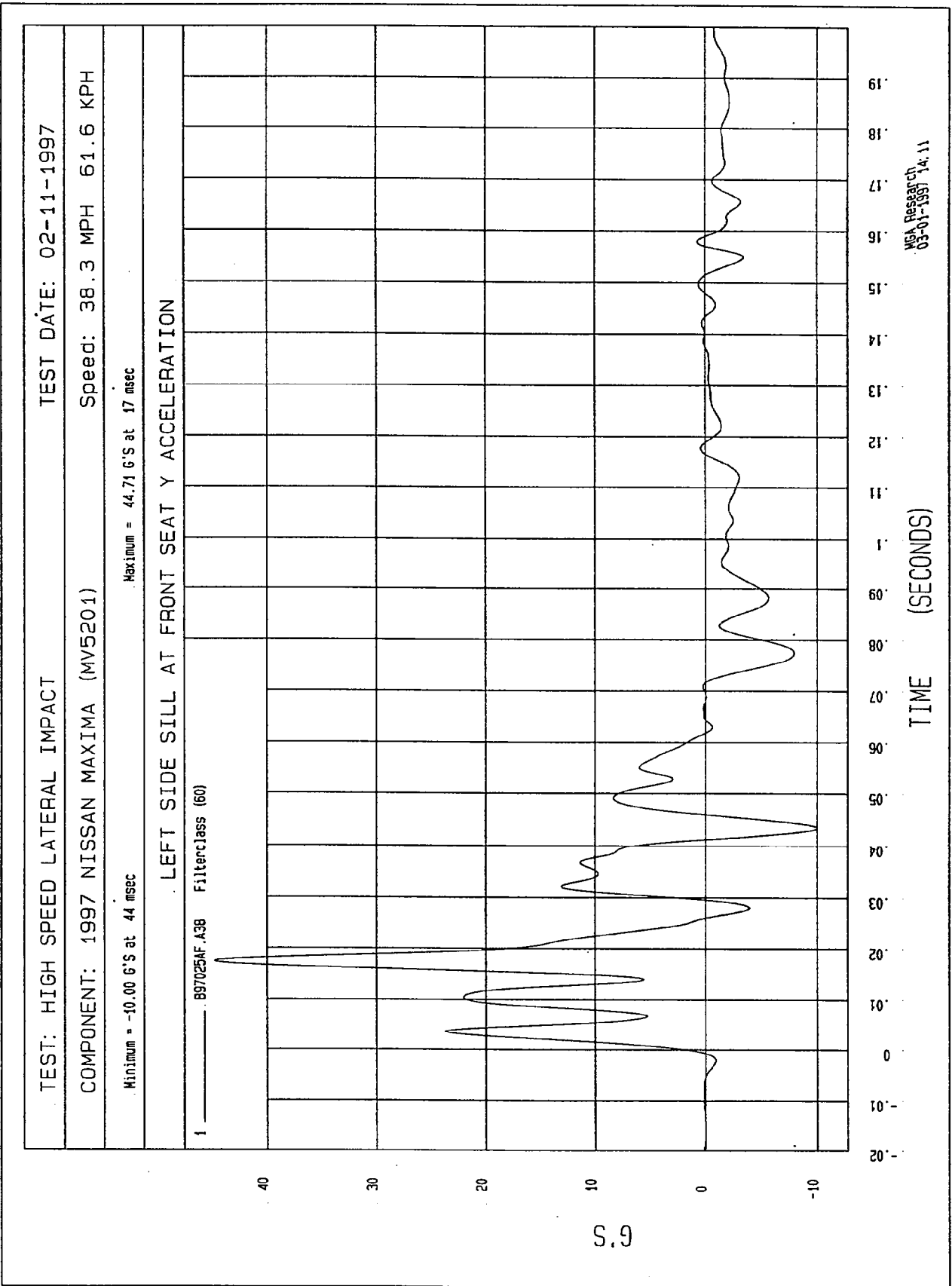
REAR PASSENGER PELVIS Y VELOCITY

1 ——— B97025A1.V28 Filterclass (180)



WCA Research
03-01-1997 13:53

TIME Seconds



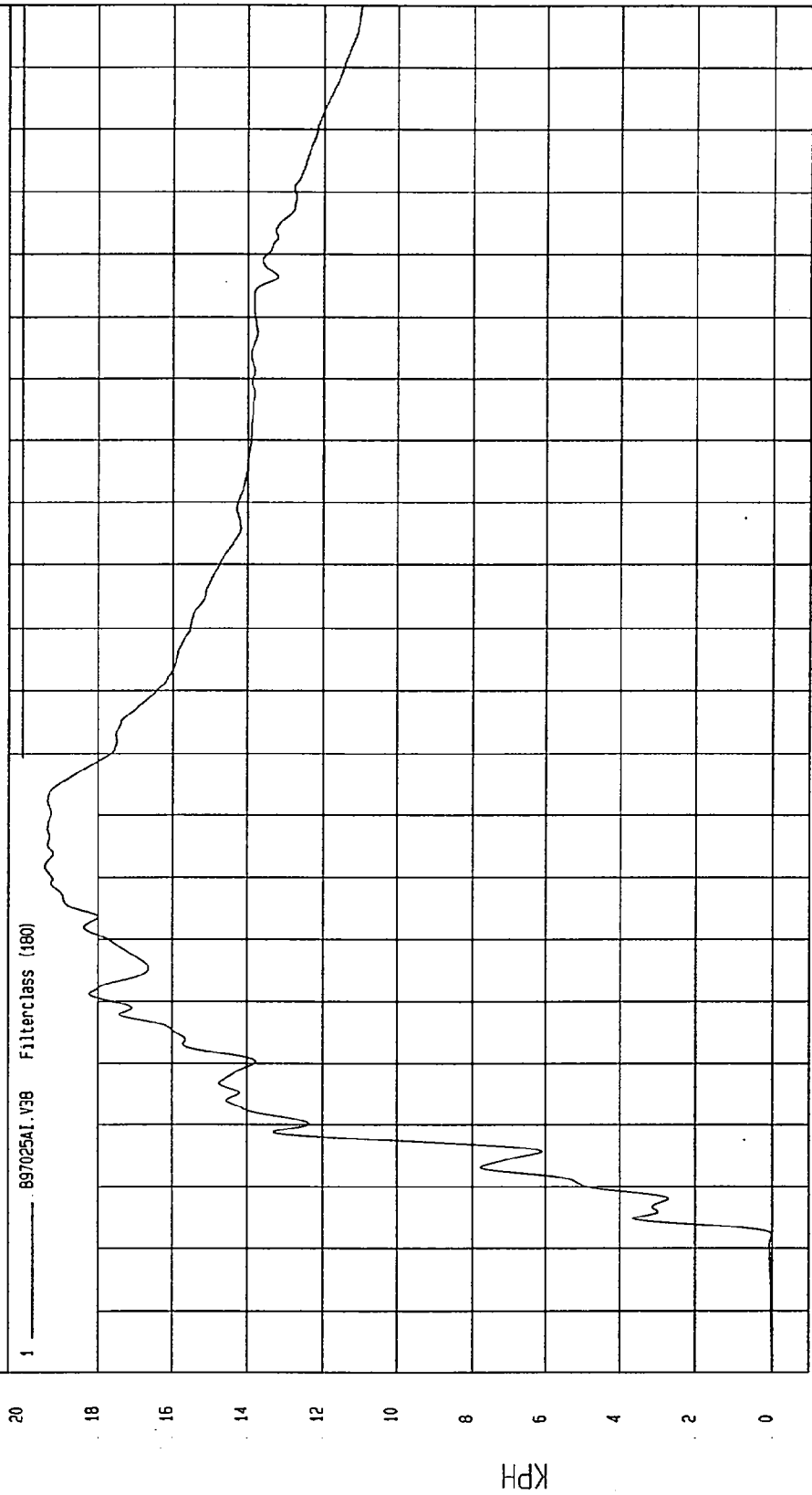
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = 0 KPH at -20 msec Maximum = 19.40 KPH at 62 msec

LEFT SIDE SILL AT FRONT SEAT Y VELOCITY

1 ——— 897025A1.V38 Filterclass (180)



TIME Seconds

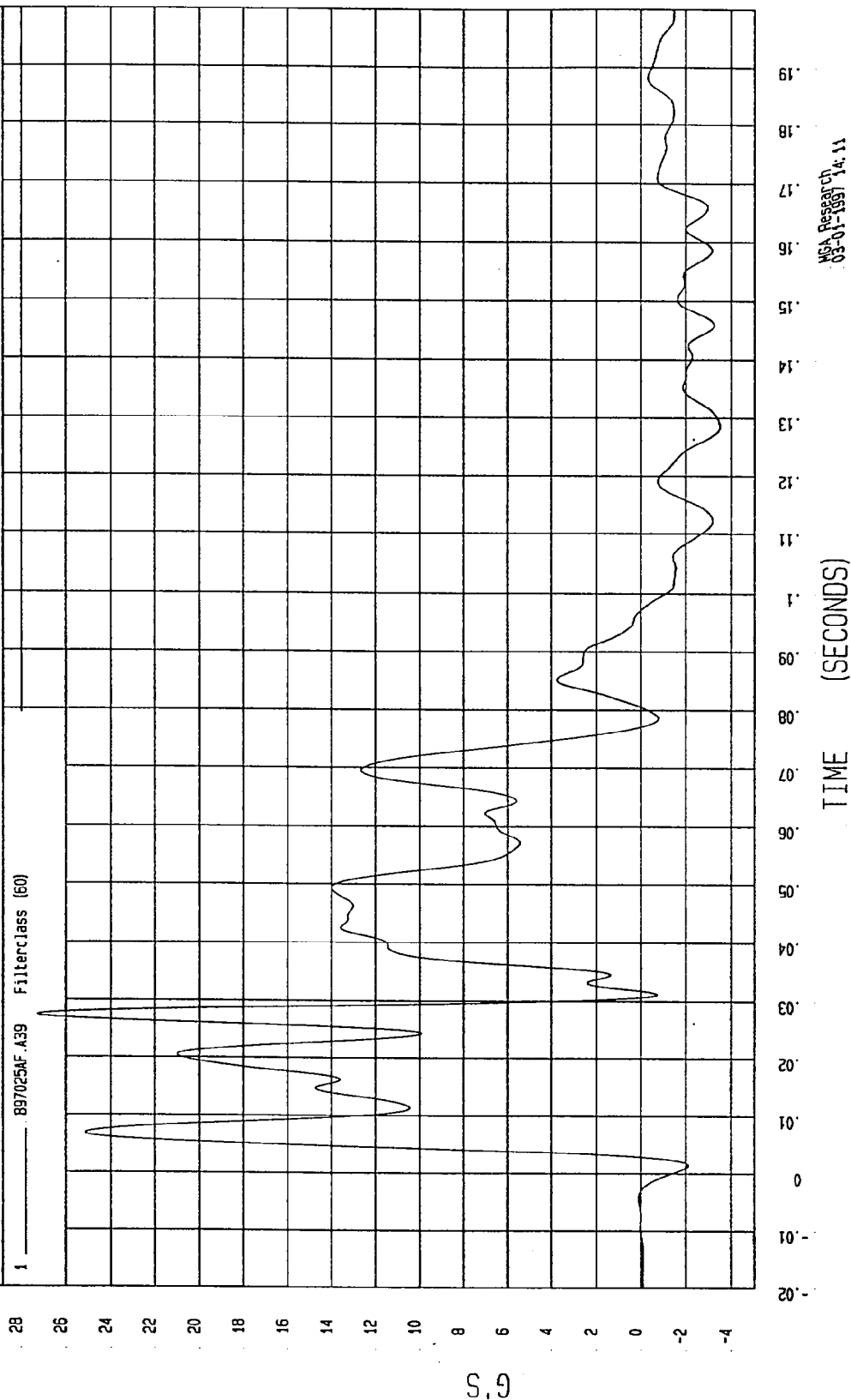
NGA Research
03-01-1997 14:08

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -3.50 G'S at 128 msec Maximum = 27.28 G'S at 28 msec

LEFT SIDE SILL AT REAR SEAT Y ACCELERATION

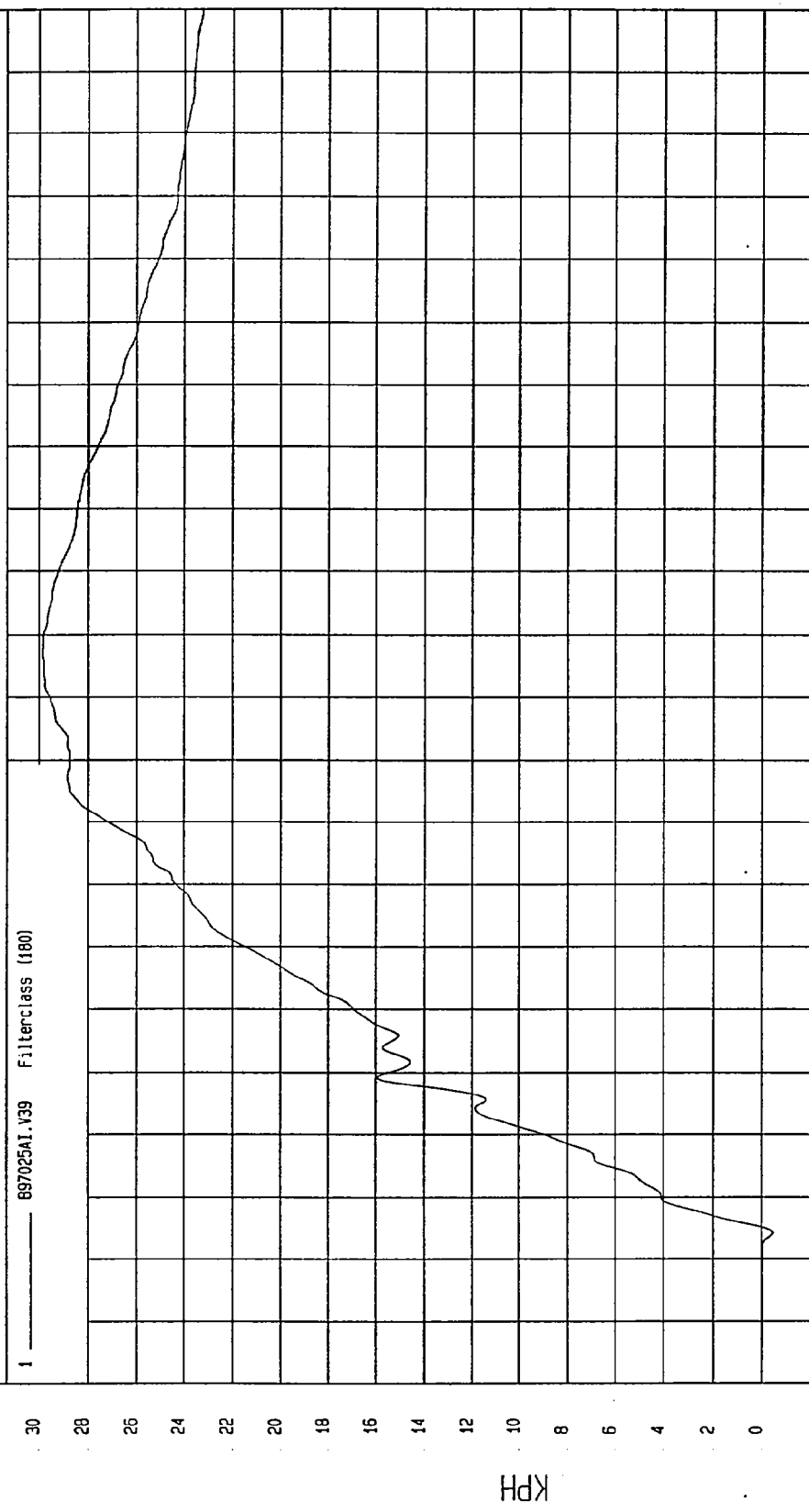


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -.45 KPH at 4 msec Maximum = 29.84 KPH at 97 msec

LEFT SIDE SILL AT REAR SEAT Y VELOCITY



TIME Seconds

MGA Research
03-01-1997 14:08

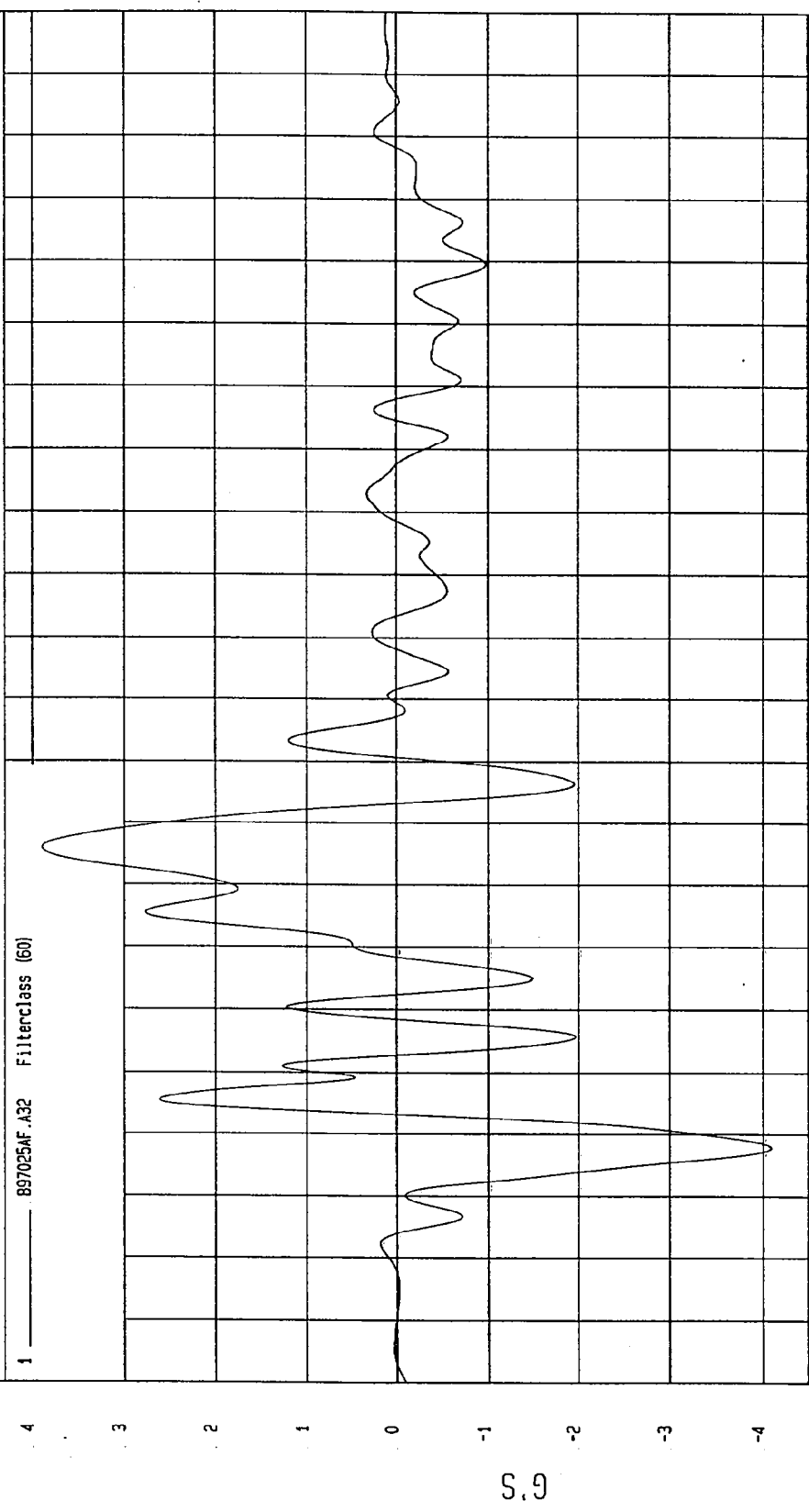
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -4.08 G'S at 18 msec Maximum = 3.89 G'S at 66 msec

RIGHT SIDE SILL AT FRONT SEAT X ACCELERATION

1 ——— 897025AF.A32 Filterclass (60)



NSA Research
03-01-1997 14:11

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

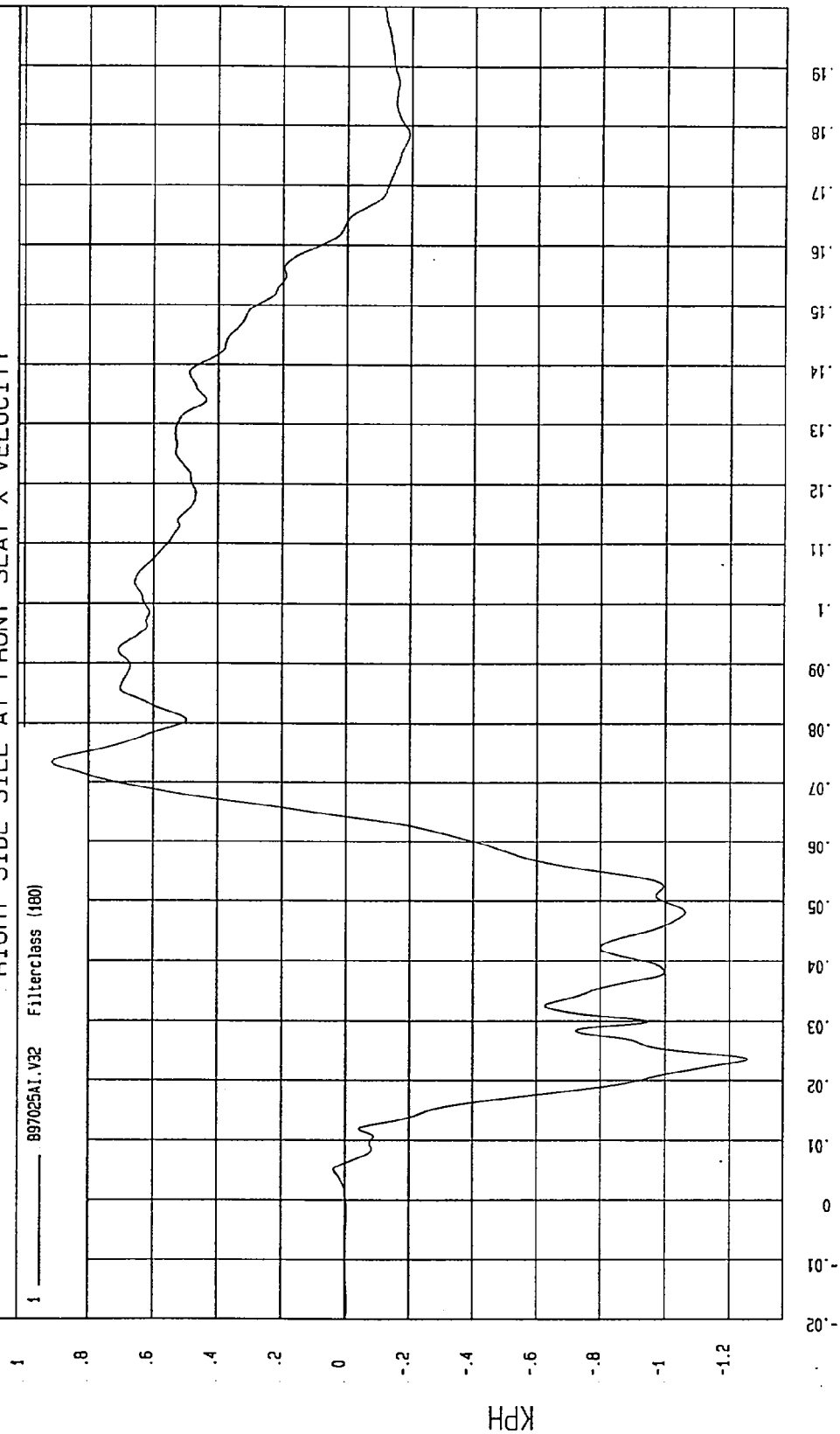
Speed: 38.3 MPH 61.6 KPH

Minimum = -1.25 KPH at 24 msec

Maximum = .91 KPH at 73 msec

RIGHT SIDE SILL AT FRONT SEAT X VELOCITY

1 ——— 897025A1.V32 Filterclass (180)



WCA Research
03-01-1997 14:08

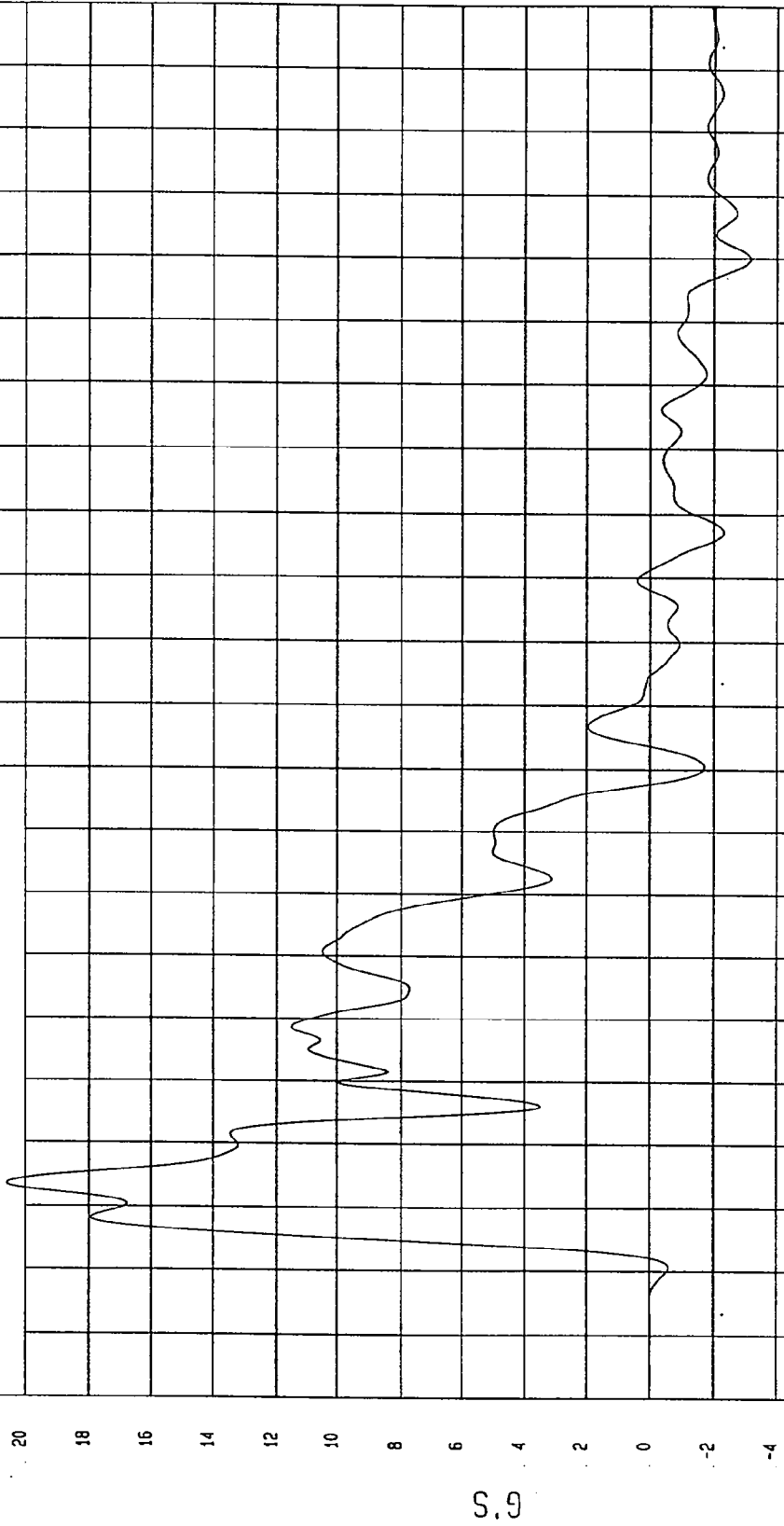
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -3.16 G'S at 160 msec Maximum = 20.60 G'S at 14 msec

RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION

1 B97025AF.A33 Filterclass (60)



VCA Research
03-01-1997 14.11

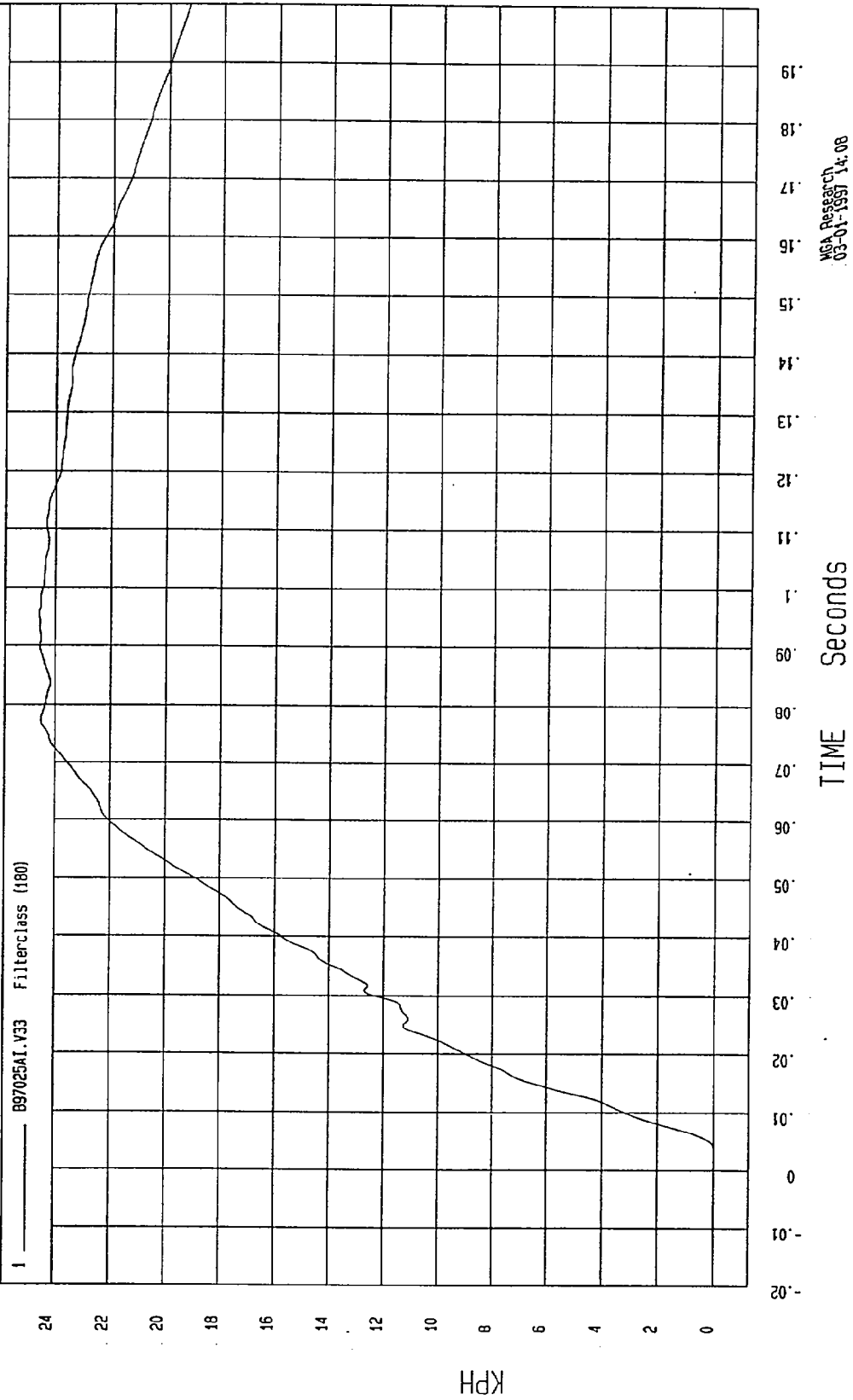
TIME (SECONDS)

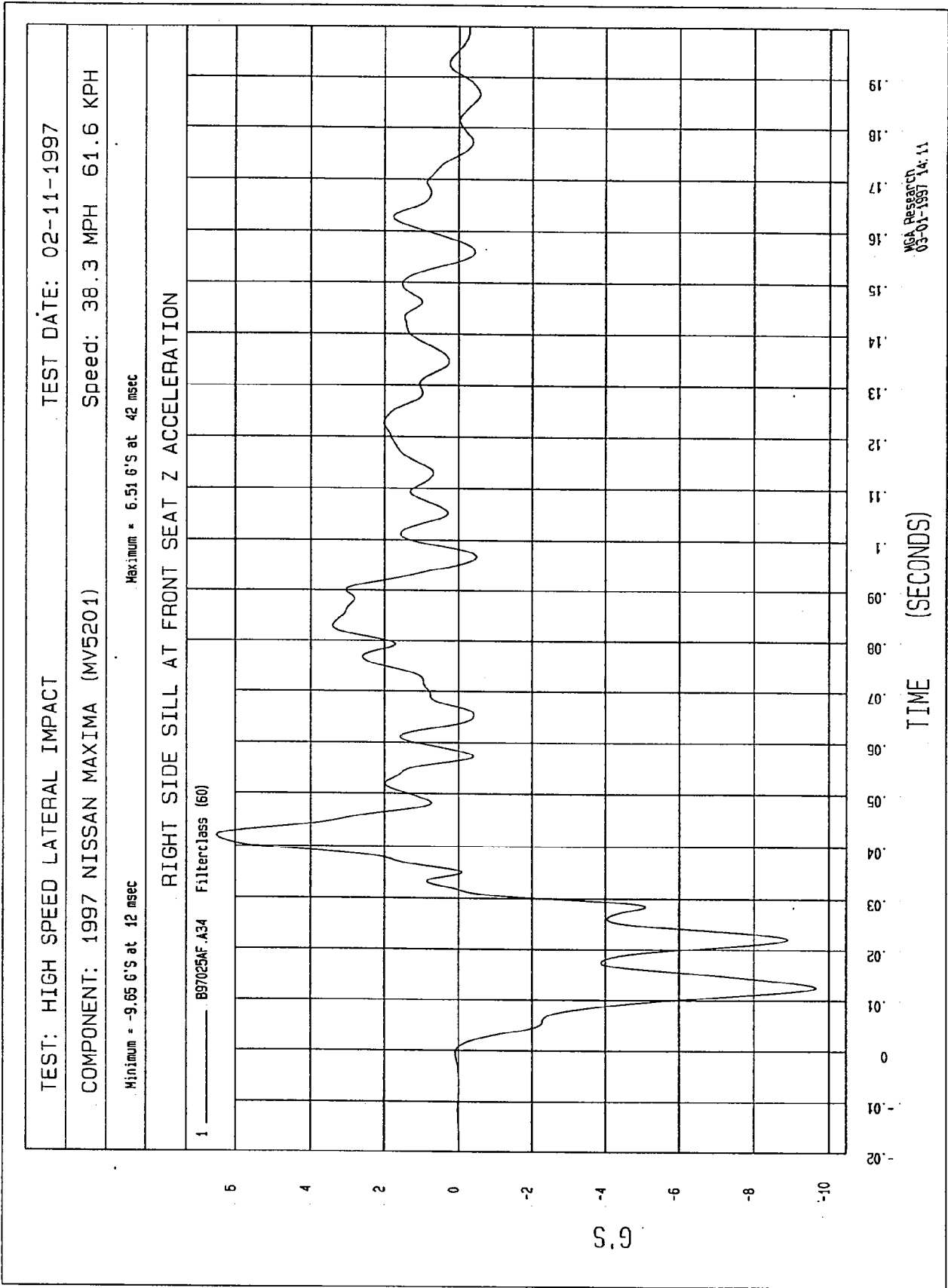
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -2.18E-02 KPH at 4 msec Maximum = 24.58 KPH at 95 msec

RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY





TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

Speed: 38.3 MPH 61.6 KPH

Minimum = -5.40 KPH at 30 msec

Maximum = 1.67 KPH at 174 msec

RIGHT SIDE SILL AT FRONT SEAT Z VELOCITY

1 897025A1.V34 Filterclass (180)

2

1

0

-1

-2

-3

-4

-5

KPH

-20

-10

0

10

20

30

40

50

60

70

80

90

100

110

120

130

140

150

160

170

180

190

TIME Seconds

MGA Research
03-01-1997 14:08

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

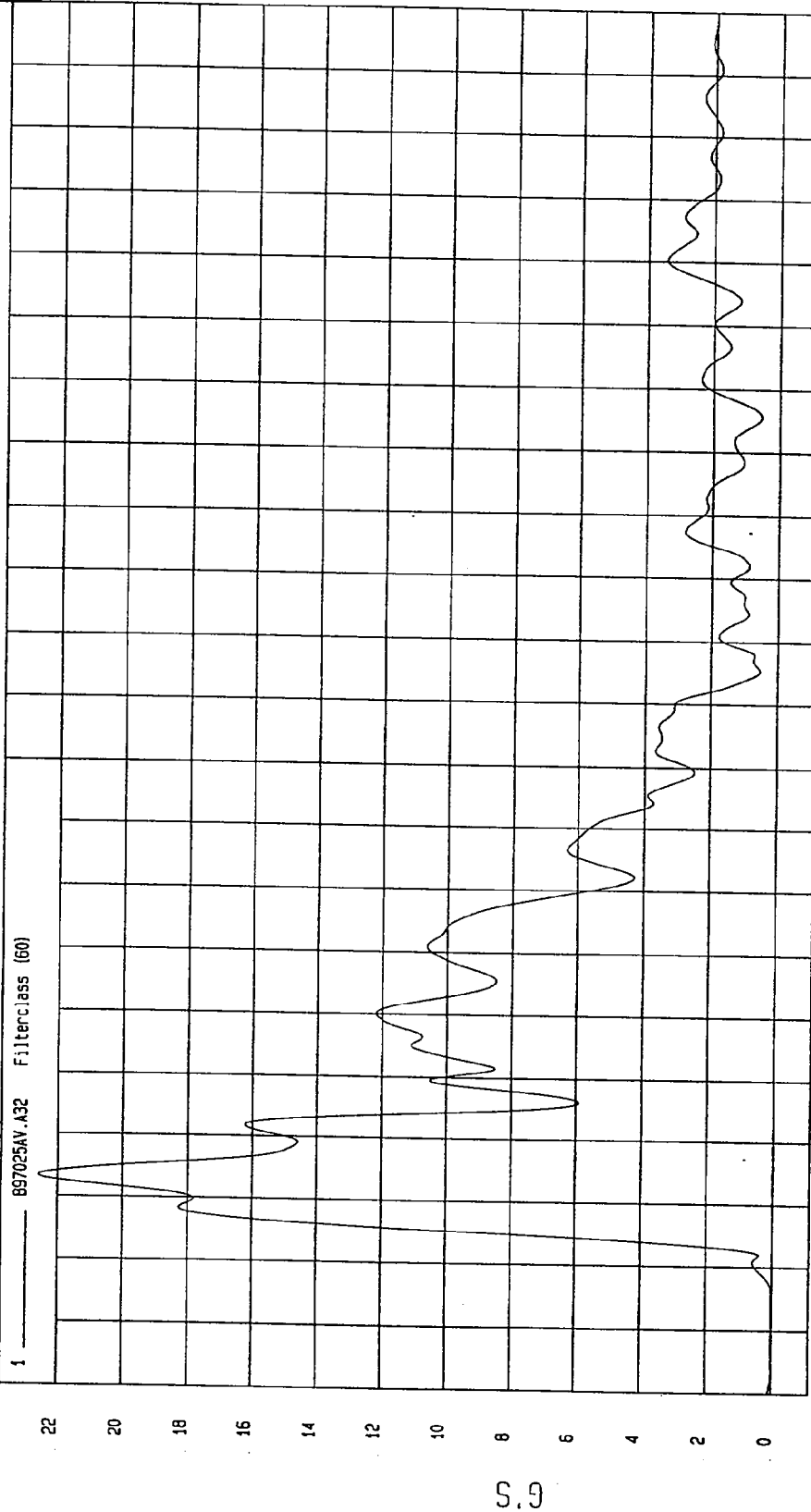
Speed: 38.3 MPH 61.6 KPH

Minimum = 1.16E-02 G'S at -17 msec

Maximum = 22.57 G'S at 13 msec

RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

1 — 897025AV.A32 Filterclass (60)



NCA Research
03-01-1997 14:14

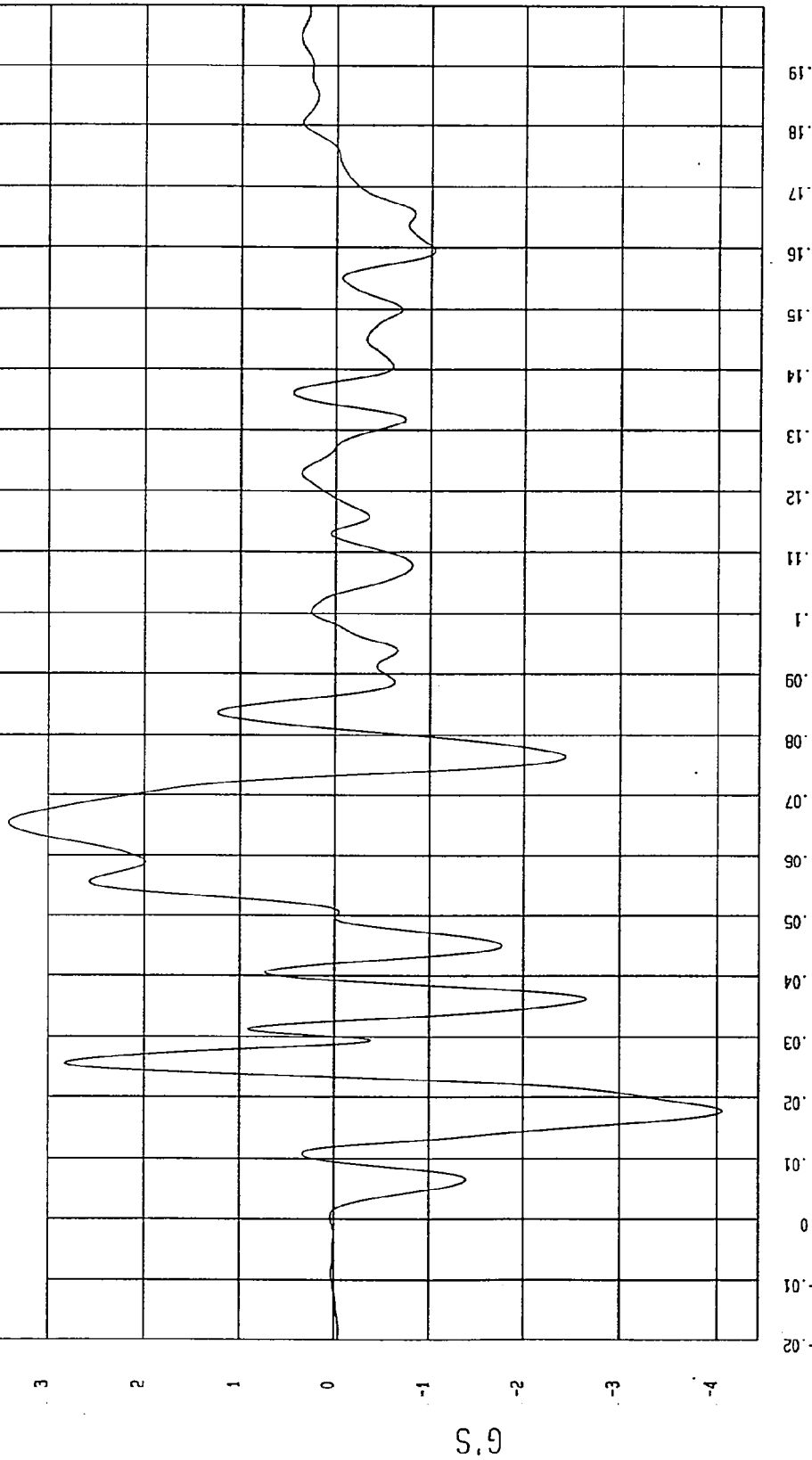
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -4.05 G'S at 18 msec Maximum = 3.40 G'S at 65 msec

RIGHT SIDE SILL AT REAR SEAT X ACCELERATION

1 _____ B97025AF.A35 Filter: class (60)



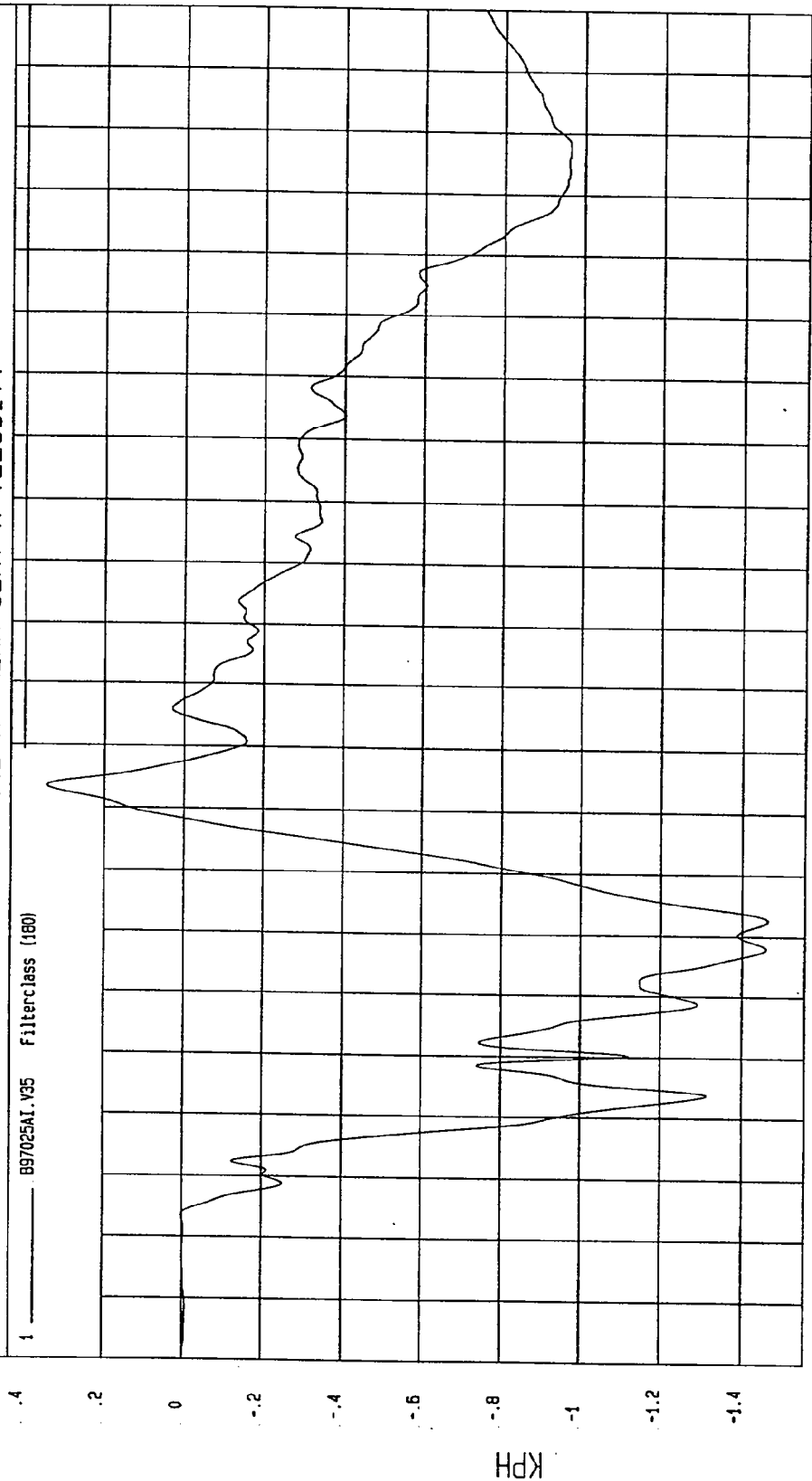
MCA Research
03-01-1997 14:11

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -1.46 KPH at 53 msec Maximum = .34 KPH at 74 msec

RIGHT SIDE SILL AT REAR SEAT X VELOCITY



TIME Seconds

VGA Research
03-01-1997 14.08

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

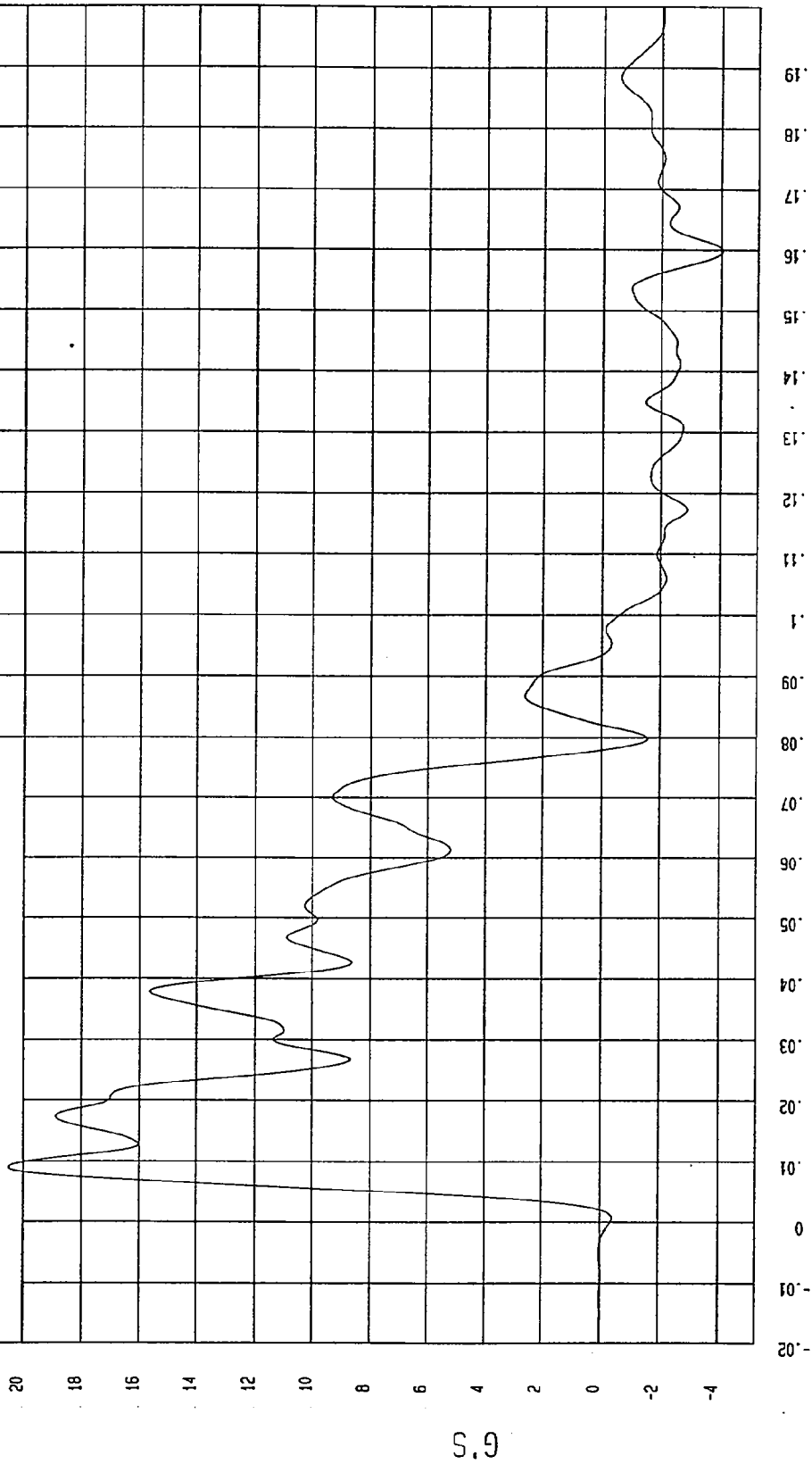
Speed: 38.3 MPH 61.6 KPH

Minimum = -4.04 G'S at 160 msec

Maximum = 20.50 G'S at 9 msec

RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION

1 — 897025AF.A36 Filterclass (60)



WCA Research
03-01-1997 14:12

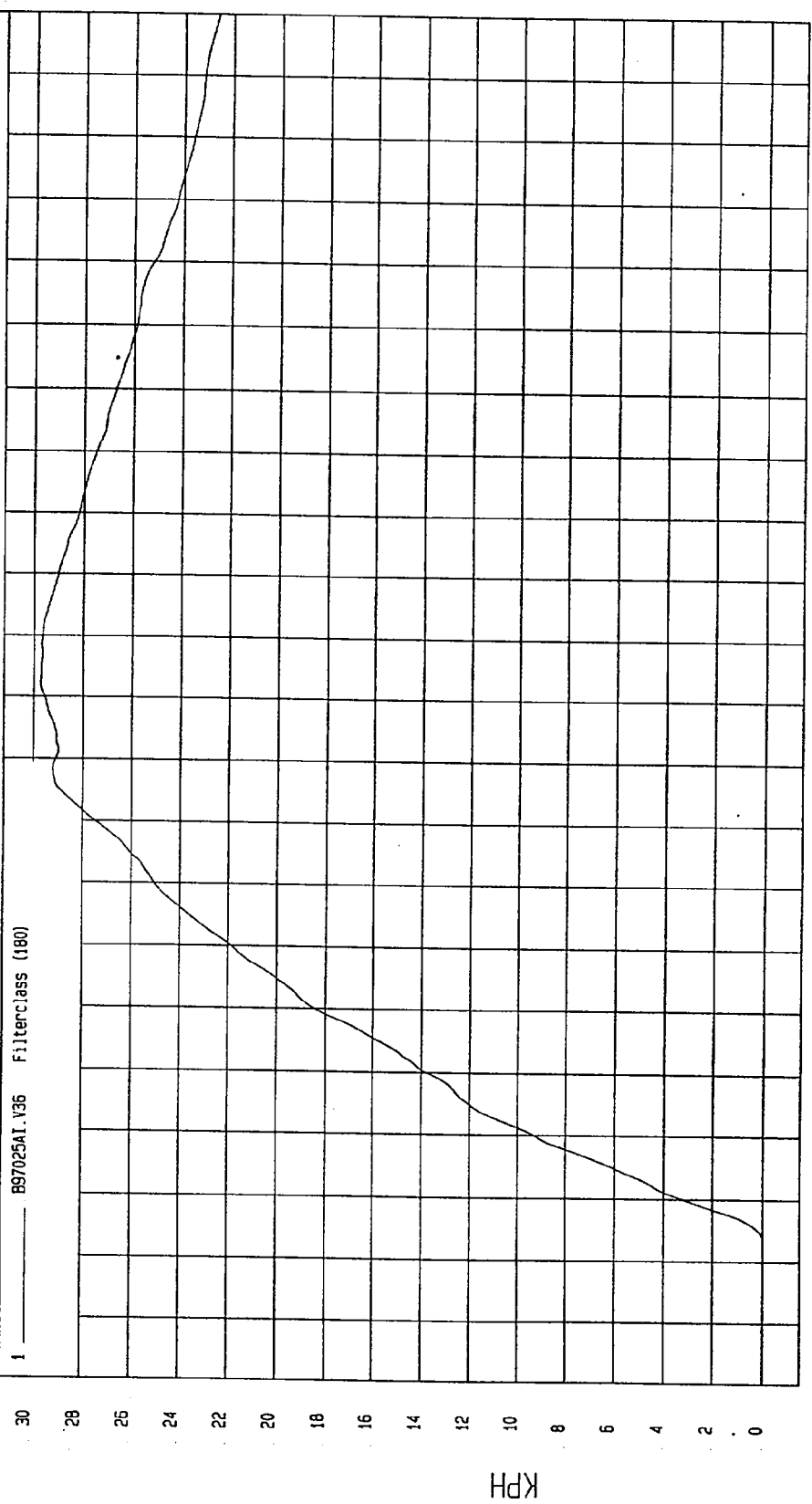
TIME (SECONDS)

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -3.97E-05 KPH at -19 msec Maximum = 29.73 KPH at 92 msec

RIGHT SIDE SILL AT REAR SEAT Y VELOCITY

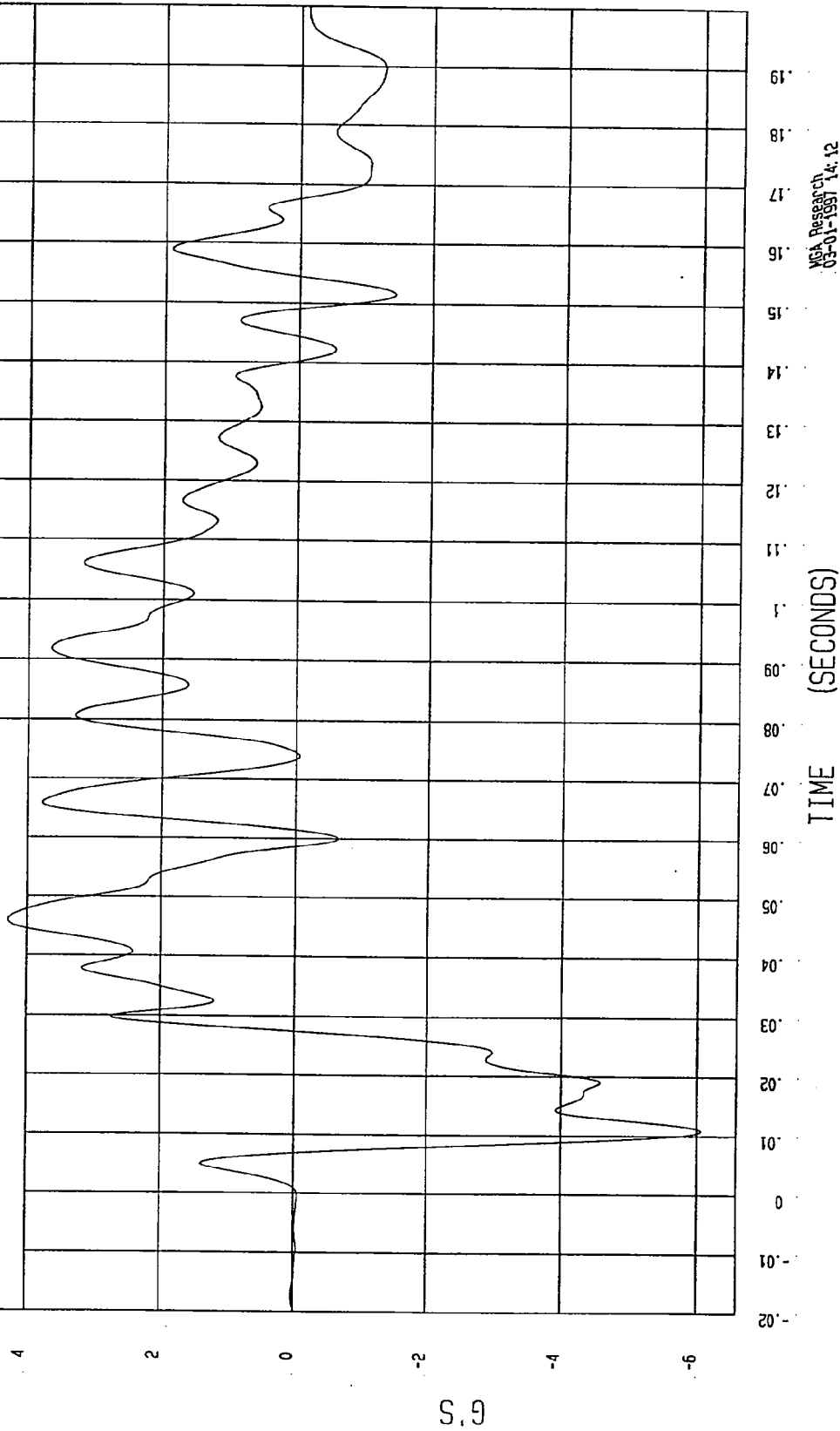


MCA Research
03-01-1997 14.08

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997
COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH
Minimum = -6.05 G'S at 11 msec Maximum = 4.27 G'S at 46 msec

RIGHT SIDE SILL AT REAR SEAT Z ACCELERATION

1 ——— B97025AF.A37 Filterclass (60)



WCA Research
03-01-1997 14:12

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

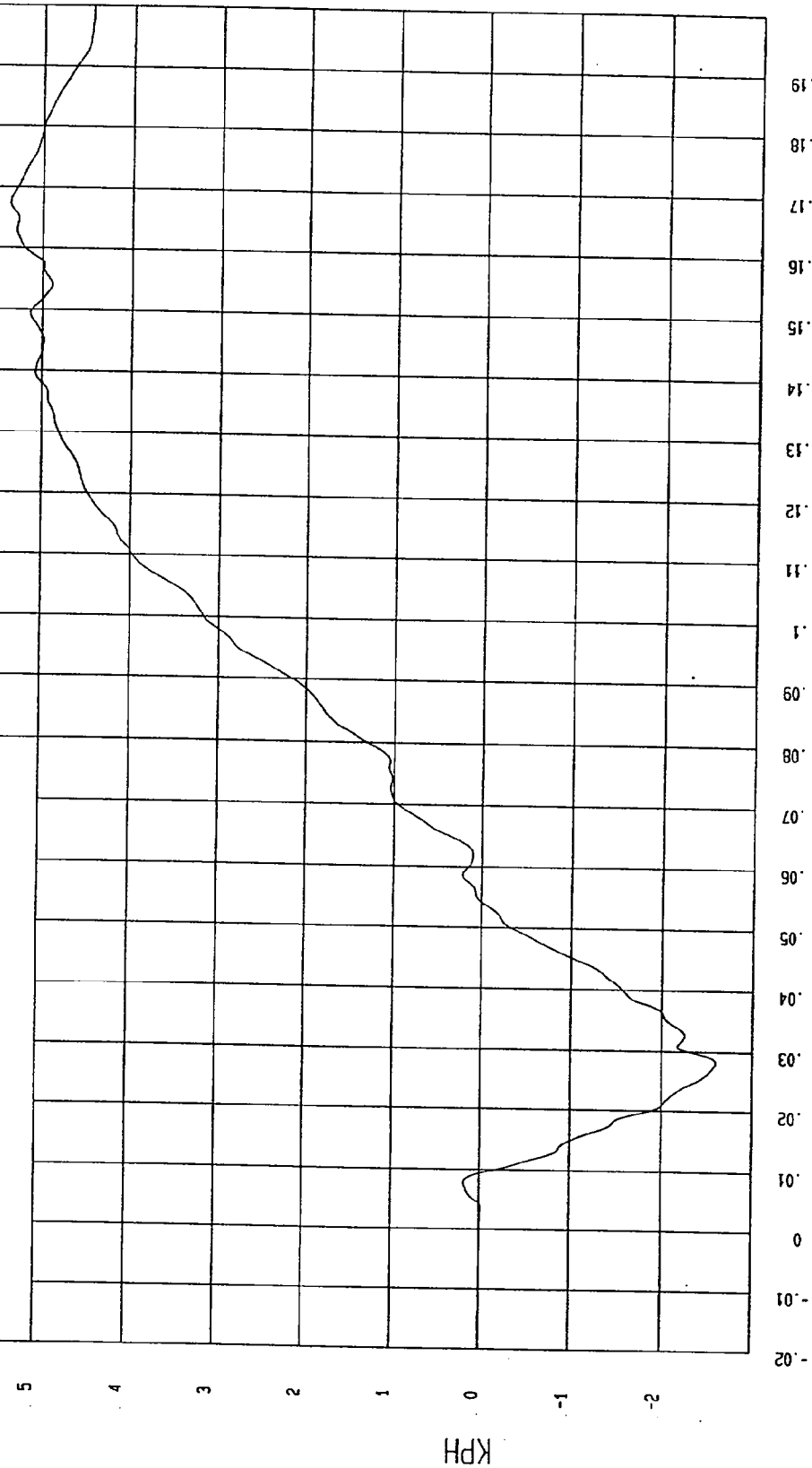
Speed: 38.3 MPH 61.6 KPH

Minimum = -2.59 KPH at 28 msec

Maximum = 5.35 KPH at 168 msec

RIGHT SIDE SILL AT REAR SEAT Z VELOCITY

1 ——— B97025A1.V37 Filterclass (180)



MEA Research
02-01-1997 14:09

TIME Seconds

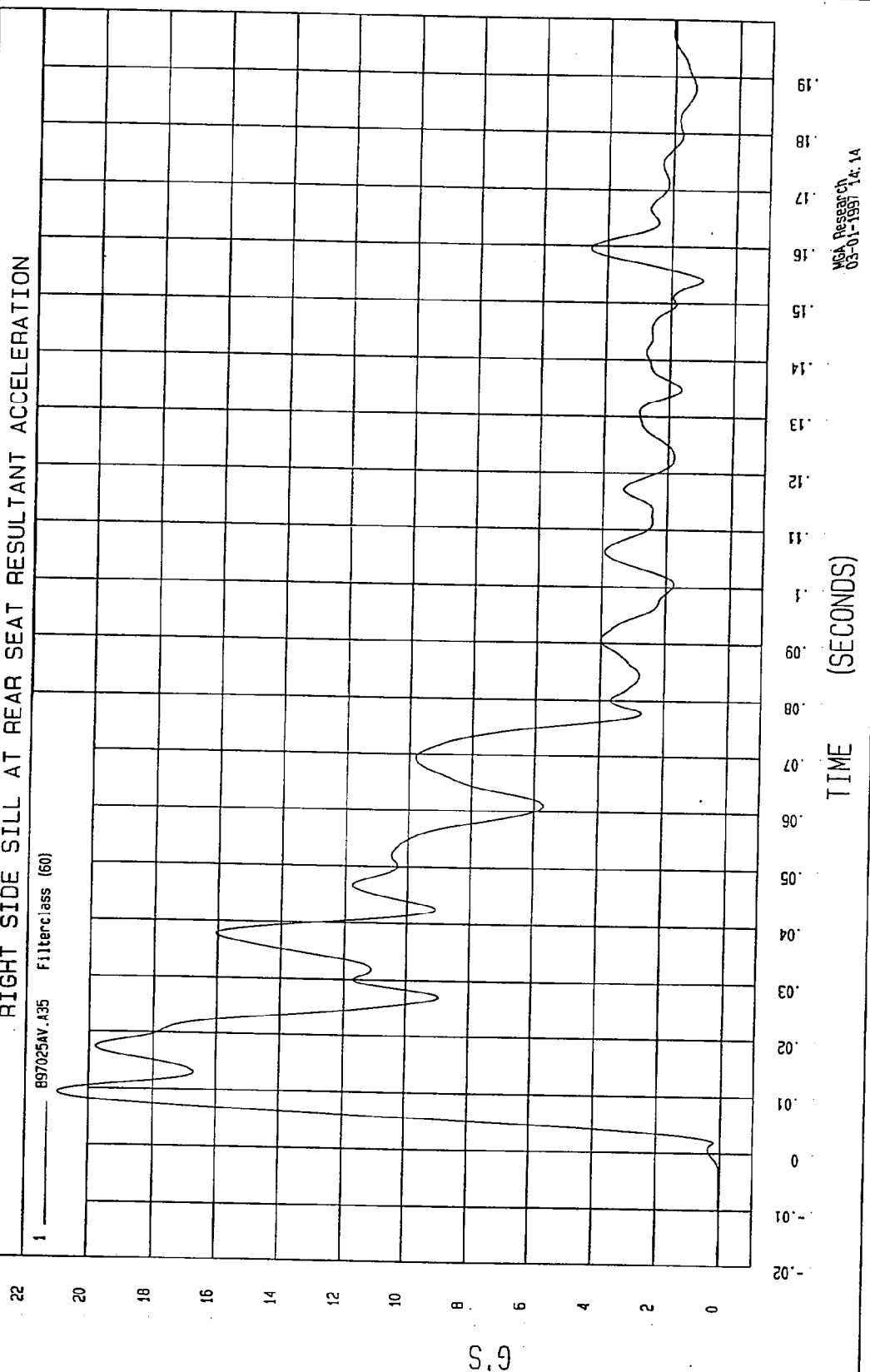
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = 1.54E-02 G'S at -14 msec Maximum = 20.99 G'S at 9 msec

RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION

1 — 897025AV.A35 Filterclass (60)



MCA Research
05-01-1997 14.14

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

Speed: 38.3 MPH 61.6 KPH

Minimum = -78.45 G'S at 20 msec

Maximum = 129.24 G'S at 13 msec

LEFT DRIVER SEAT TRACK Y ACCELERATION

1 — B97025AF.A40 Filterclass (60)

120
100
80
60
40
20
0
-20
-40
-60
-80

G'S

-.02 -.01 0 .01 .02 .03 .04 .05 .06 .07 .08 .09 .1 .11 .12 .13 .14 .15 .16 .17 .18 .19

TIME (SECONDS)

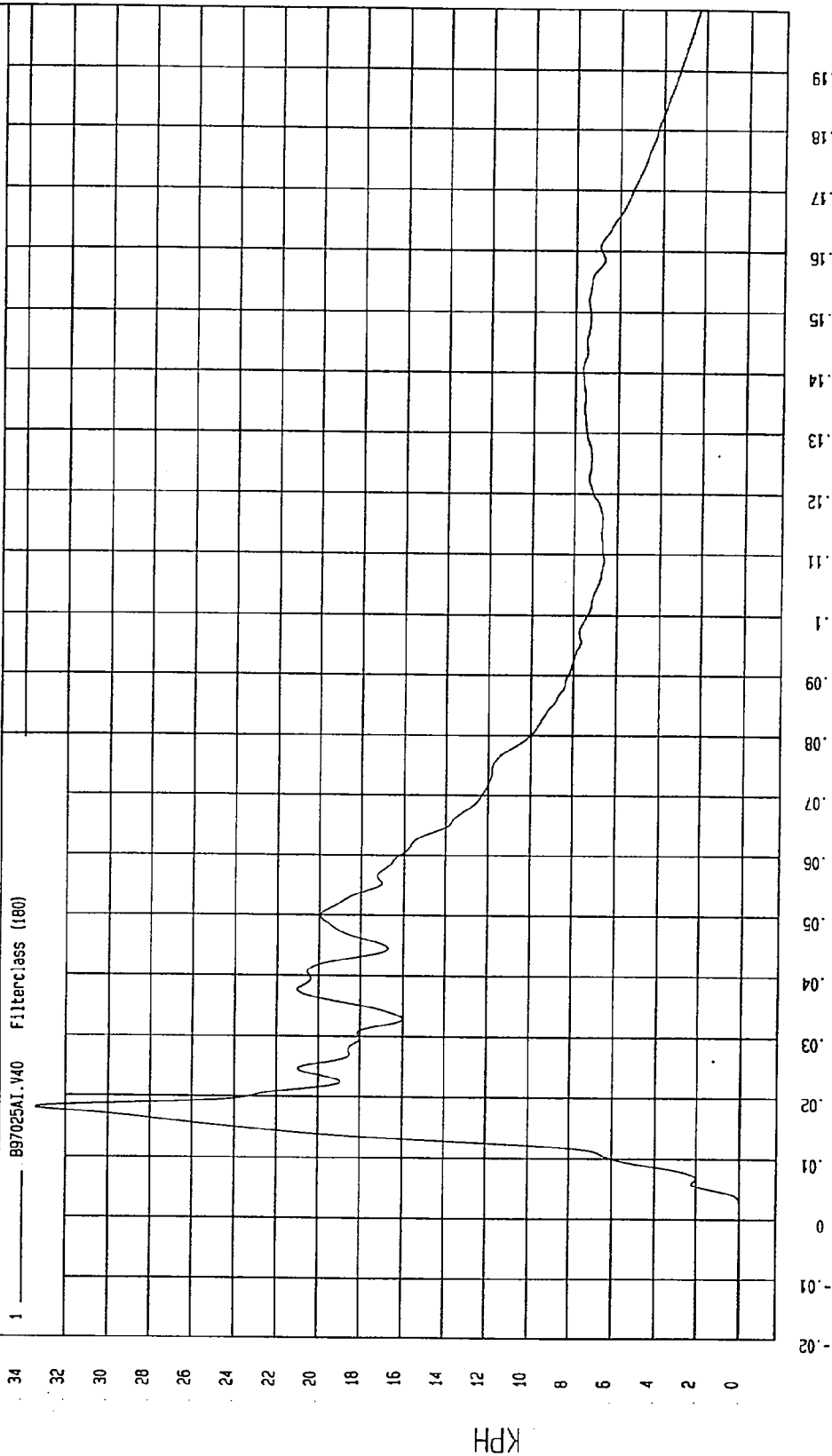
MGA Research
03-01-1997 14:12

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

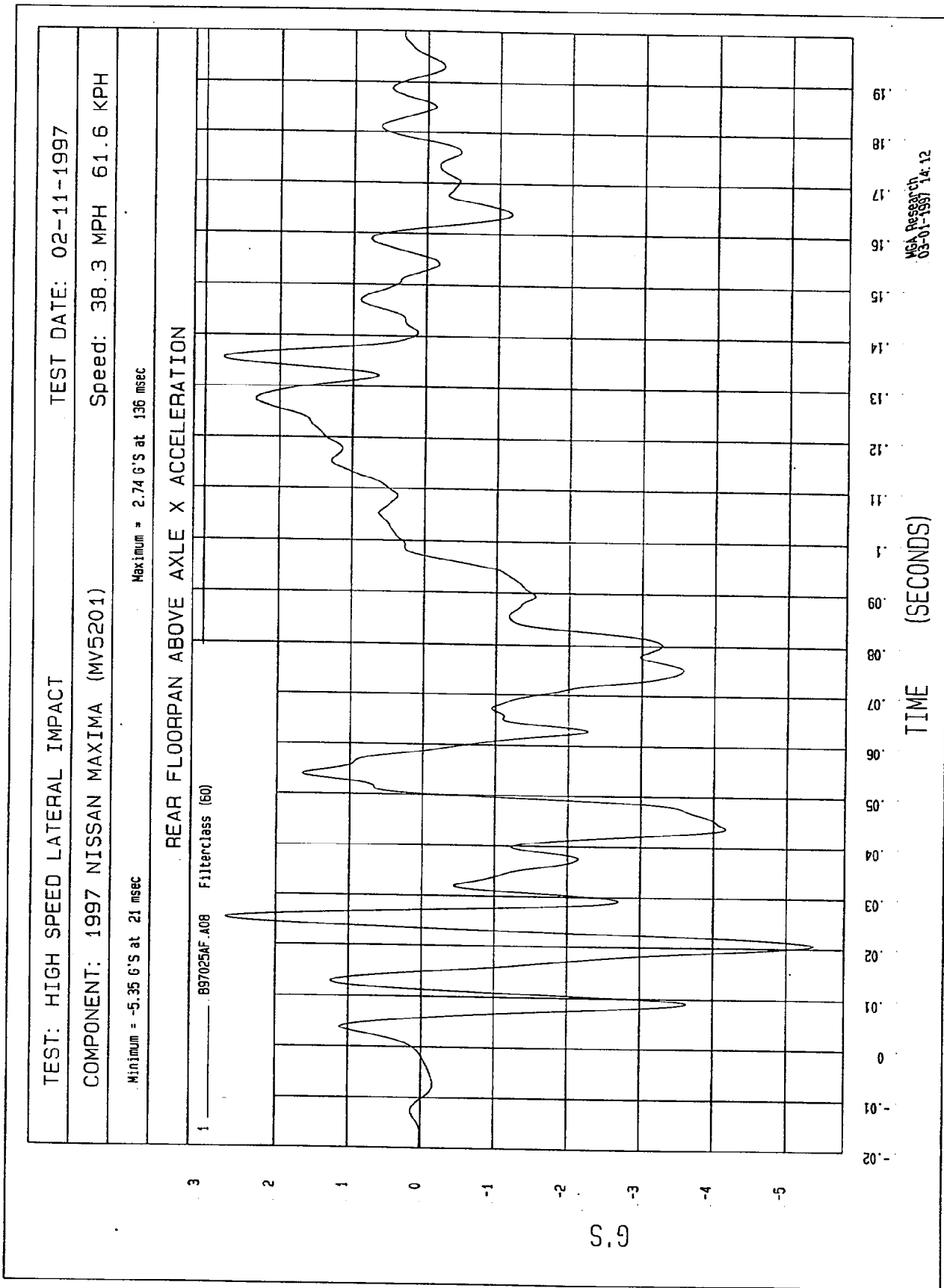
COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -1.22E-02 KPH at -10 msec Maximum = 33.45 KPH at 18 msec

LEFT DRIVER SEAT TRACK Y VELOCITY



MCA Research
03-01-1997 14:09



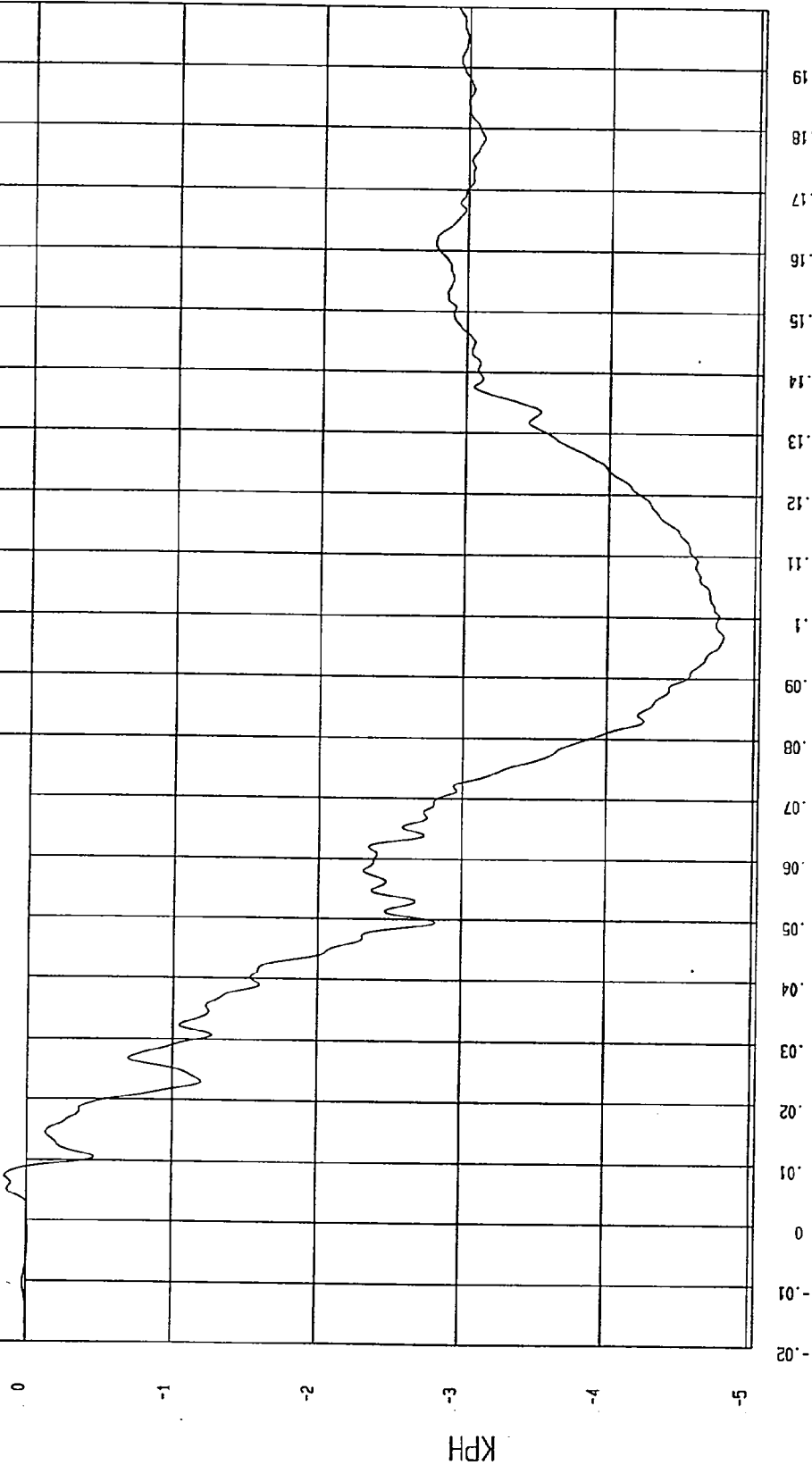
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -4.78 KPH at 97 msec Maximum = .15 KPH at 7 msec

REAR FLOORPAN ABOVE AXLE X VELOCITY

1 897025A1.V08 Filterclass (180)



MSA Research
03-01-1997 14:09

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

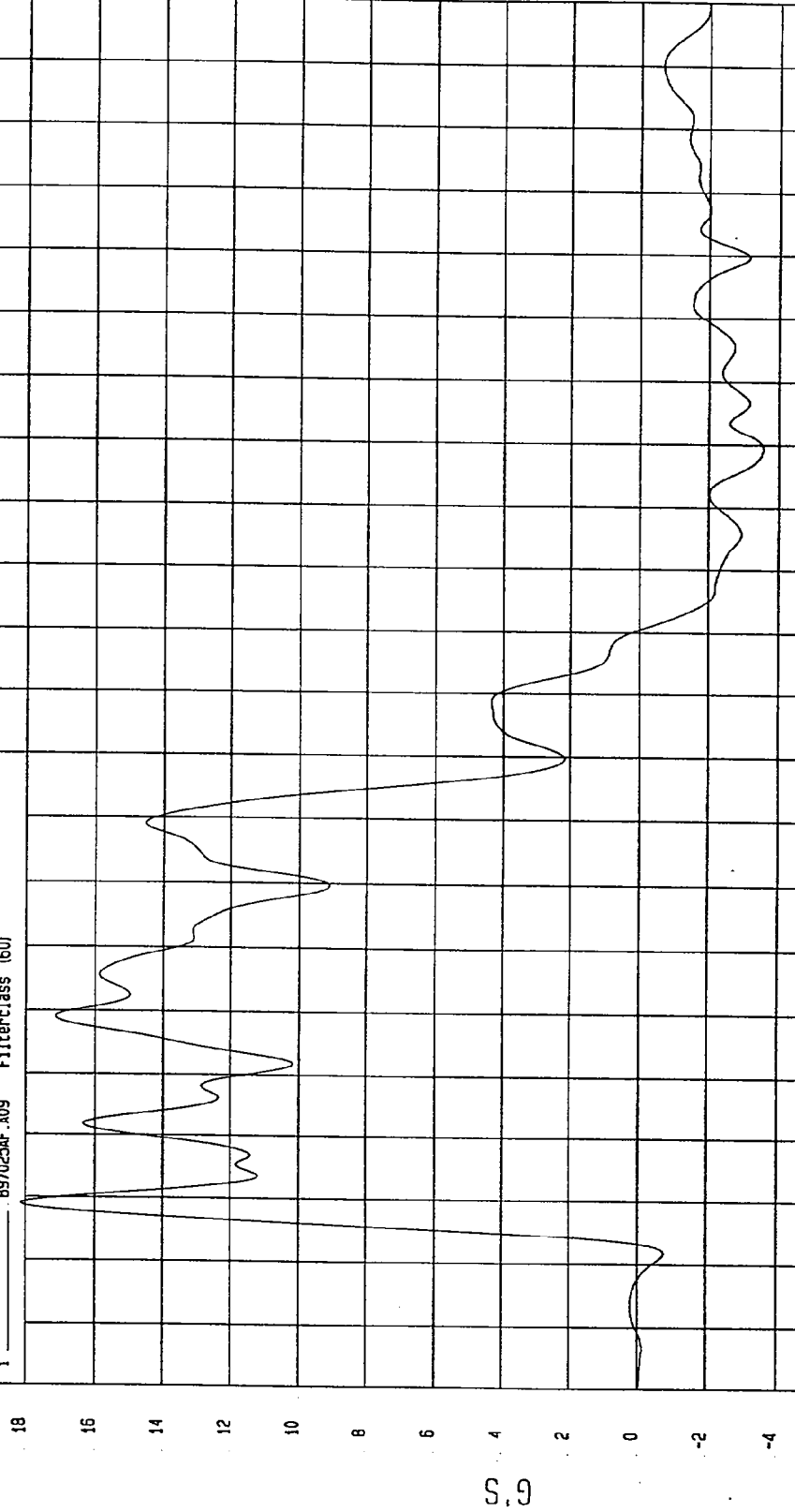
Speed: 38.3 MPH 61.6 KPH

Minimum = -3.55 G'S at 129 msec

Maximum = 18.13 G'S at 9 msec

REAR FLOORPAN ABOVE AXLE Y ACCELERATION

1 897025AF.A09 Filterclass (60)



TIME (SECONDS)

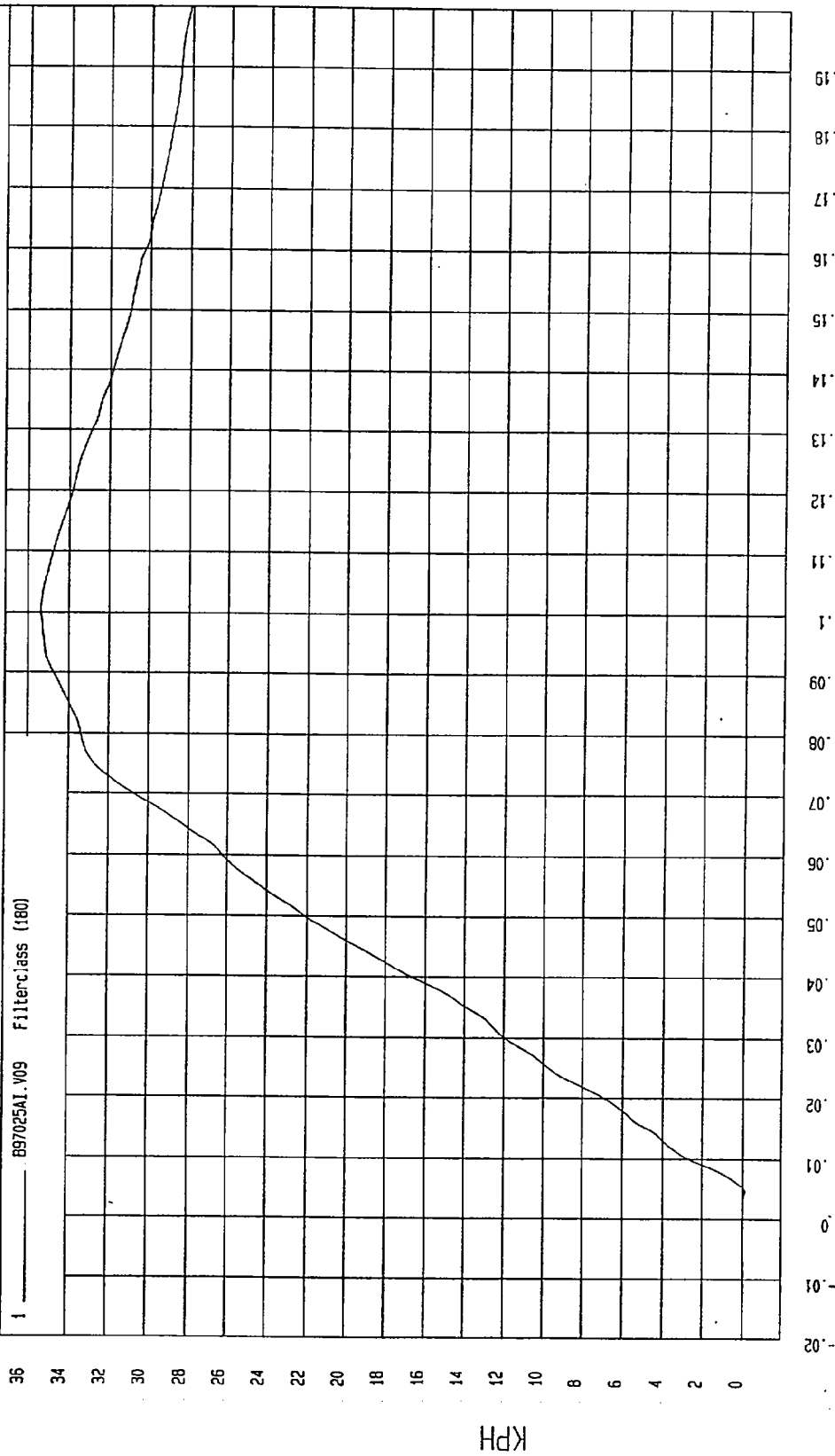
NSA Research
03-01-1997 14:12

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -9.08E-02 KPH at 4 msec Maximum = 35.37 KPH at 100 msec

REAR FLOORPAN ABOVE AXLE Y VELOCITY



MSA Research
05-01-1997 14:09

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -6.91 G'S at 57 msec
Maximum = 8.00 G'S at 33 msec

REAR FLOORPAN ABOVE AXLE Z ACCELERATION

1 B97025AF.A10 Filterclass (60)

8

6

4

2

0

-2

-4

-6

S.G

-20

-10

0

10

20

30

40

50

60

70

80

90

100

110

120

130

140

150

160

170

180

190

TIME (SECONDS)

MECA Research
03-01-1997 14:12

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

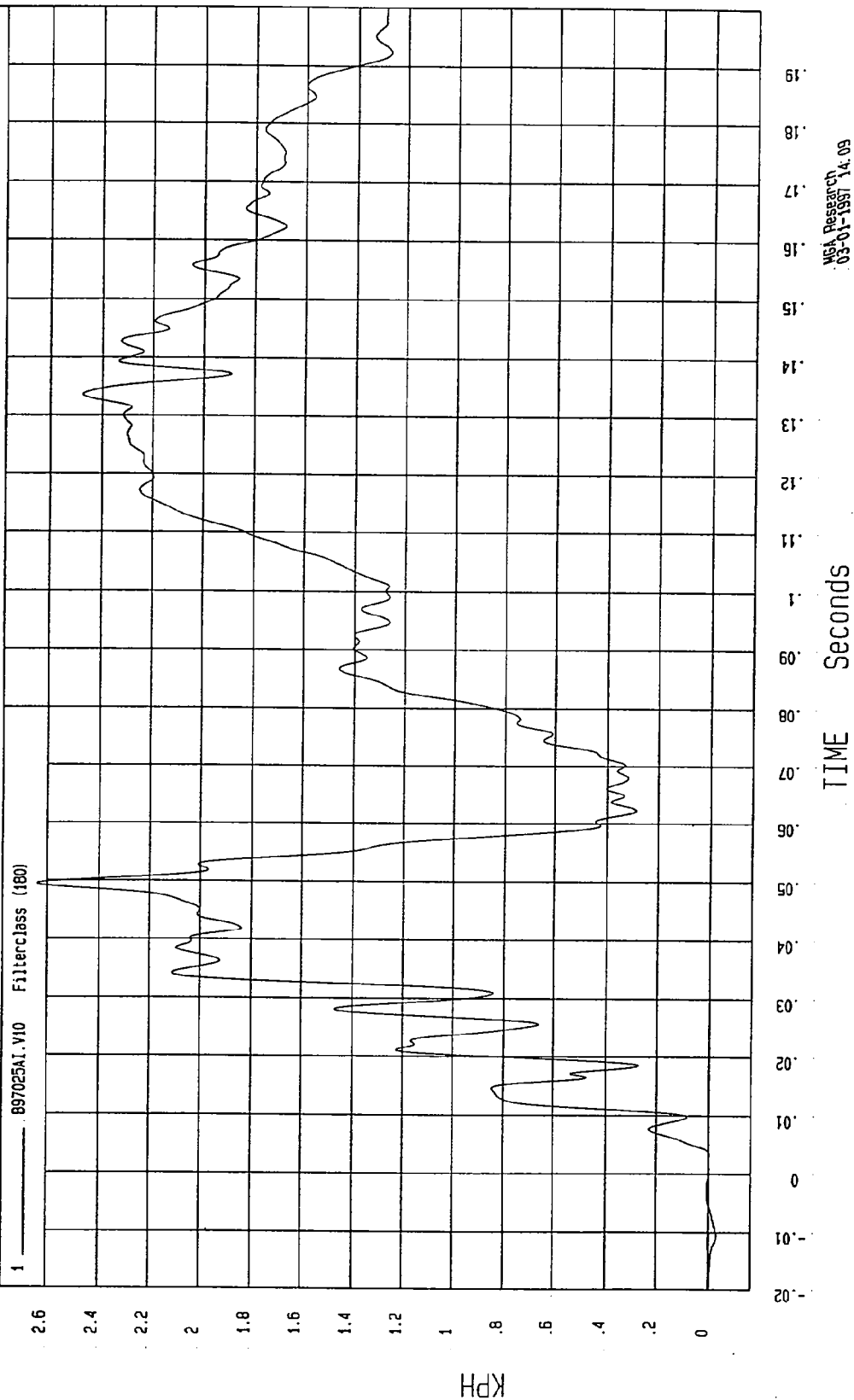
COMPONENT: 1997 NISSAN MAXIMA (MV5201)

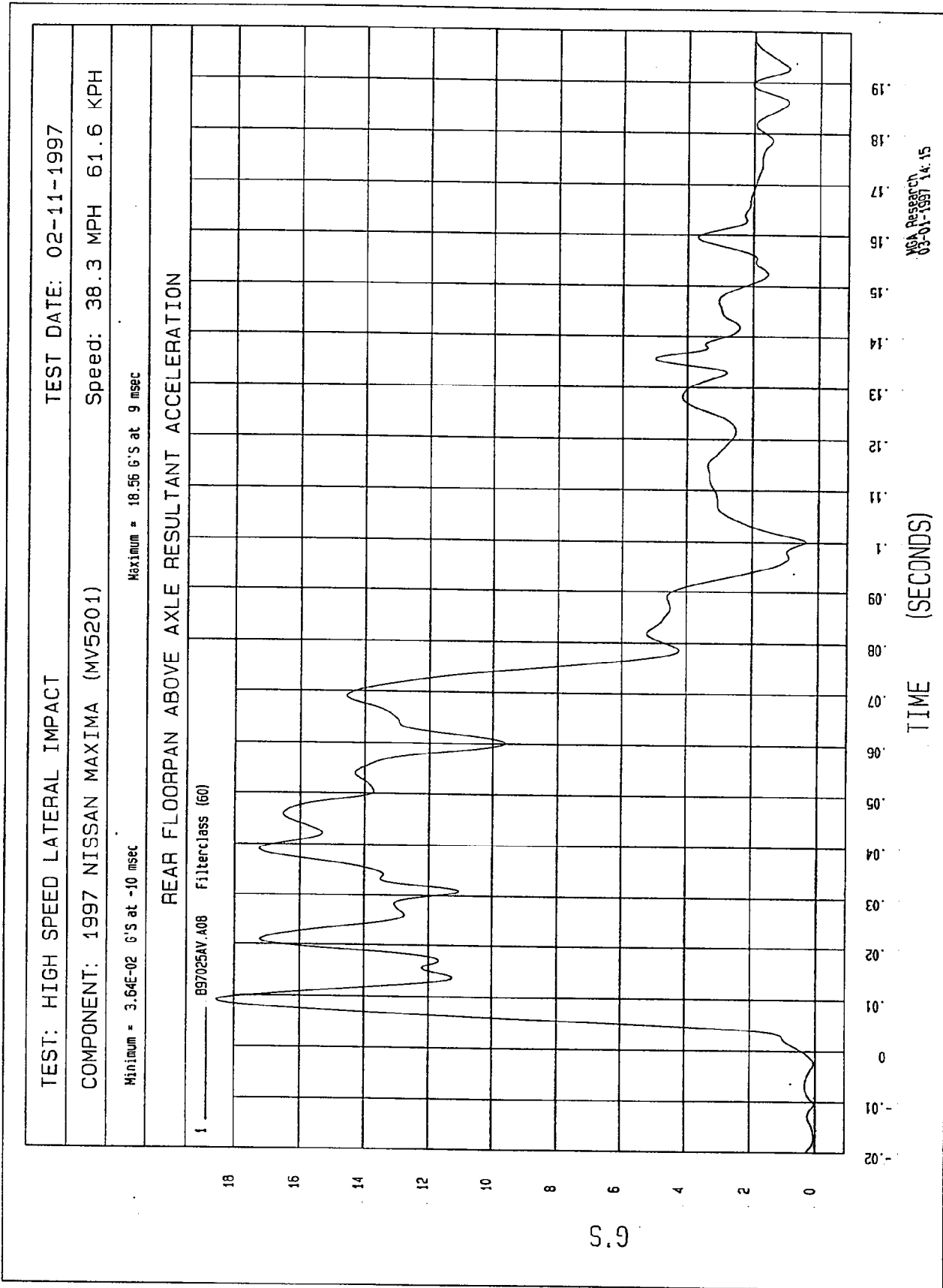
Speed: 38.3 MPH 61.6 KPH

Minimum = -3.05E-02 KPH at -11 msec

Maximum = 2.64 KPH at 50 msec

REAR FLOORPAN ABOVE AXLE Z VELOCITY





TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

Speed: 38.3 MPH 51.6 KPH

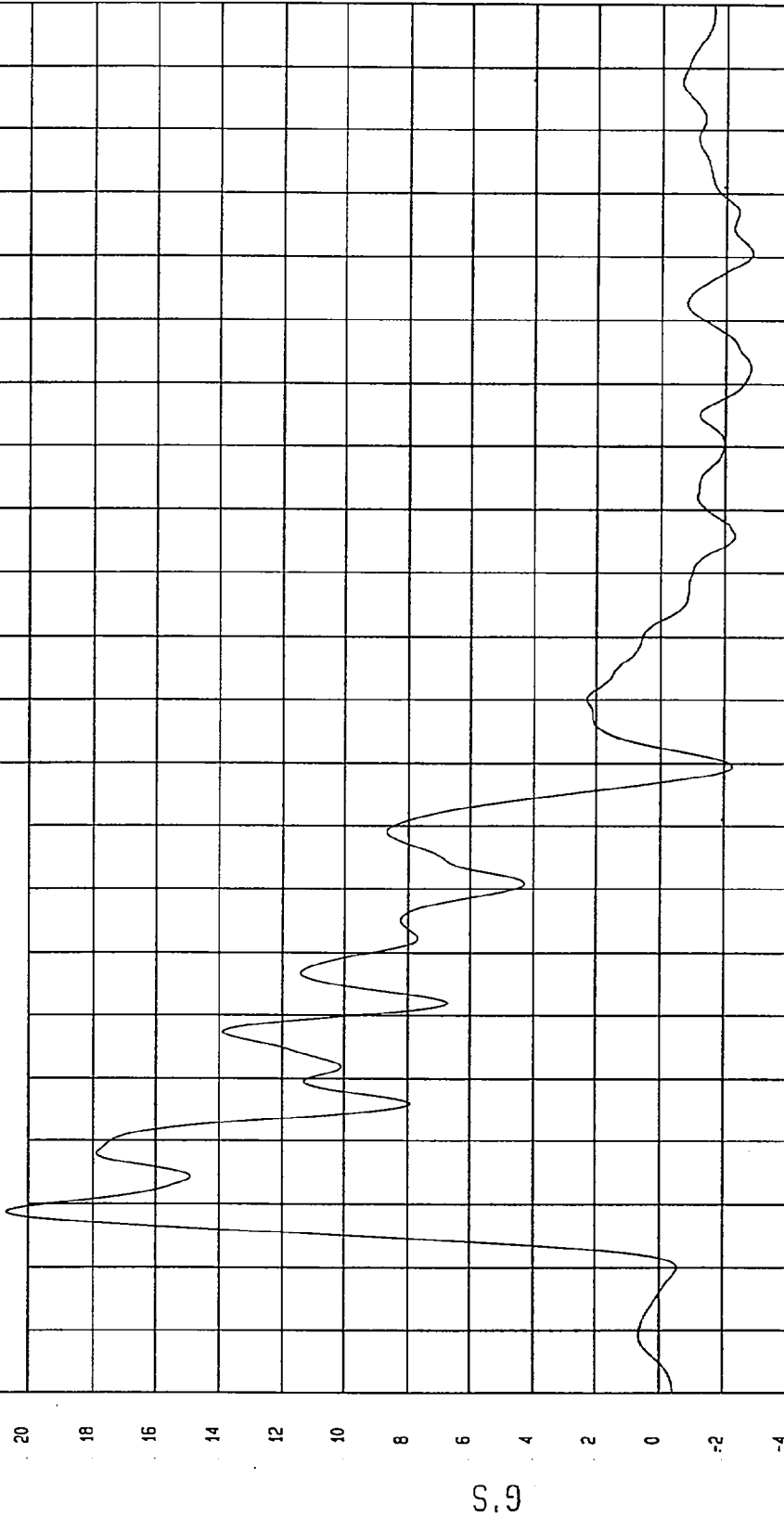
COMPONENT: 1997 NISSAN MAXIMA (MV5201)

Maximum = 20.68 G'S at 9 msec

Minimum = -2.82 G'S at 161 msec

RIGHT REAR OCCUPANT COMPARTMENT Y ACCELERATION

1 B97025AF.A70 Filterclass (60)



NSA Research
03-01-1997 14: 12

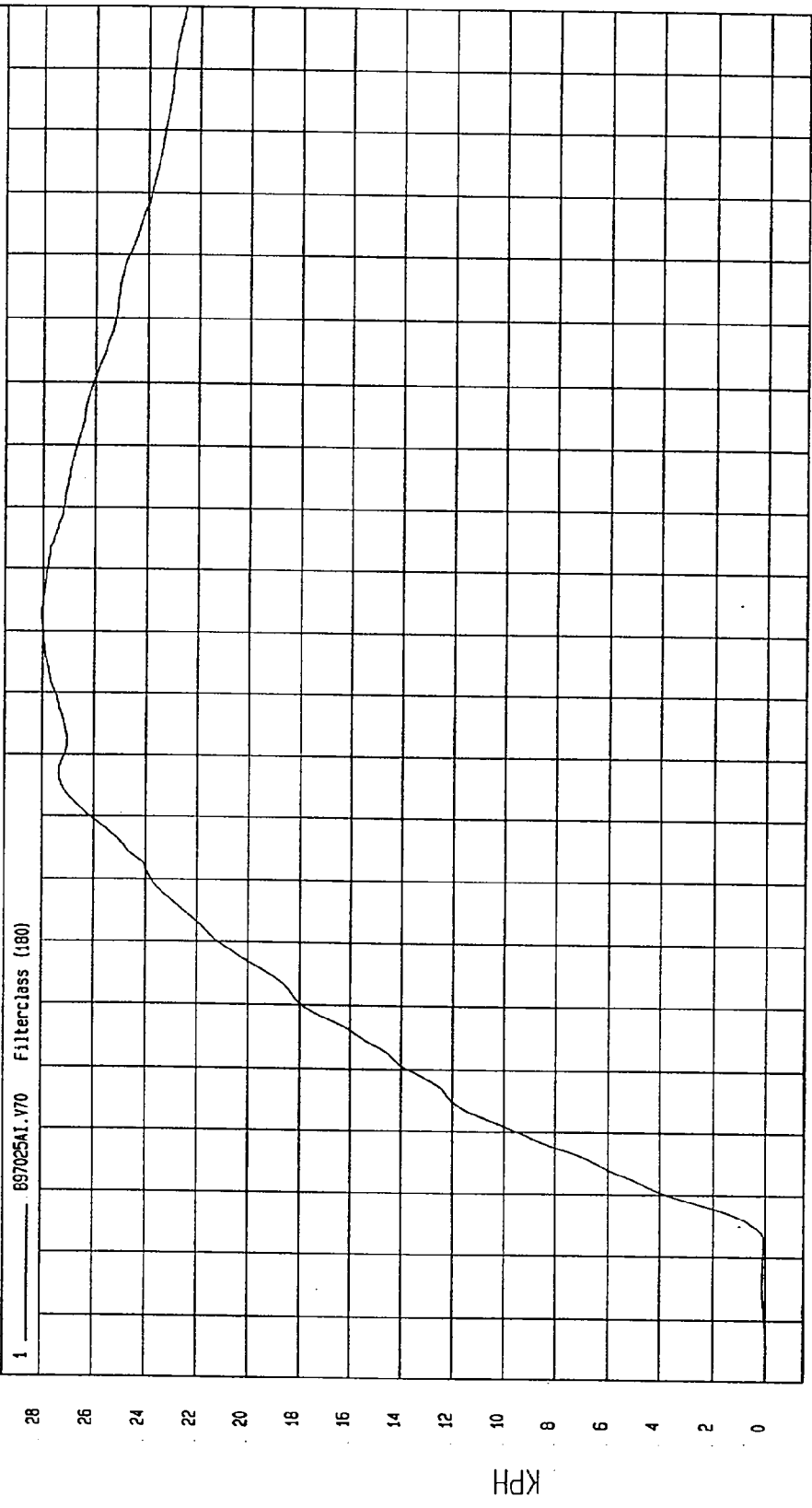
TIME (SECONDS)

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -5.47E-02 KPH at -15 msec Maximum = 28.04 KPH at 103 msec

RIGHT REAR OCCUPANT COMPARTMENT Y VELOCITY



TIME Seconds

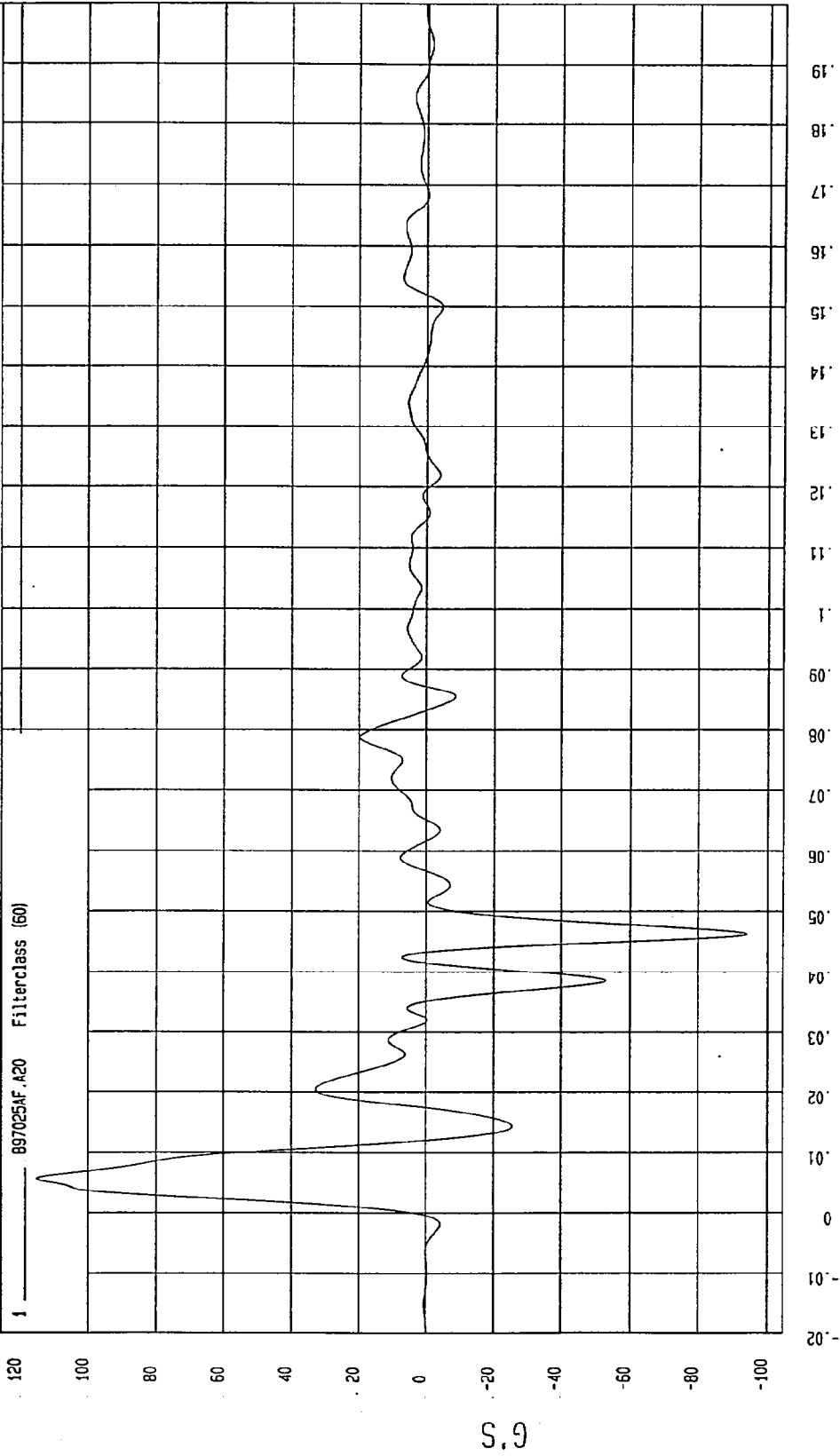
MSA Research
03-01-1997 14.09

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

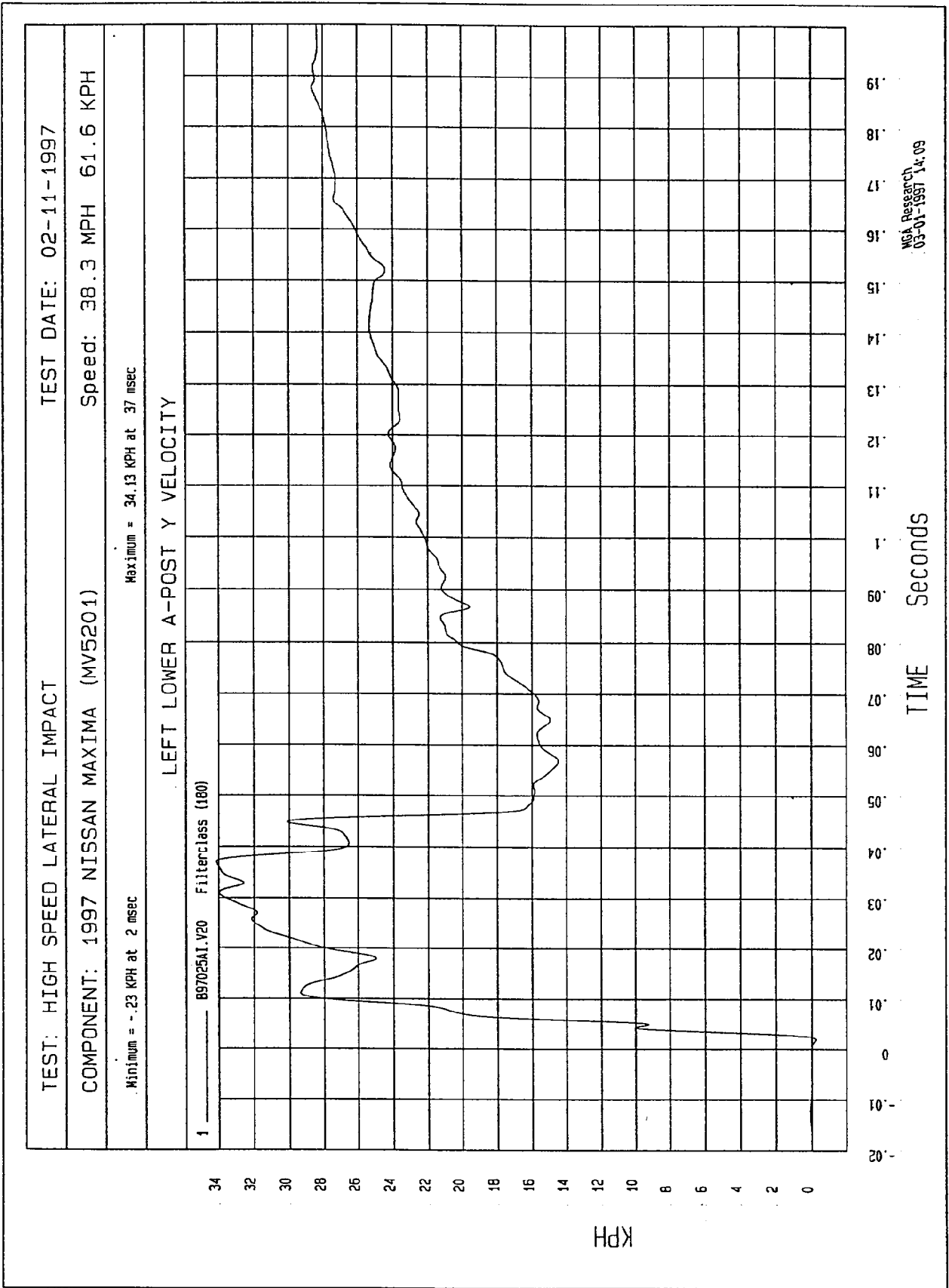
COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -94.06 G'S at 46 msec Maximum = 115.17 G'S at 6 msec

LEFT LOWER A-POST Y ACCELERATION



MCA Research
02-01-1997 14:12



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

Speed: 38.3 MPH 61.6 KPH

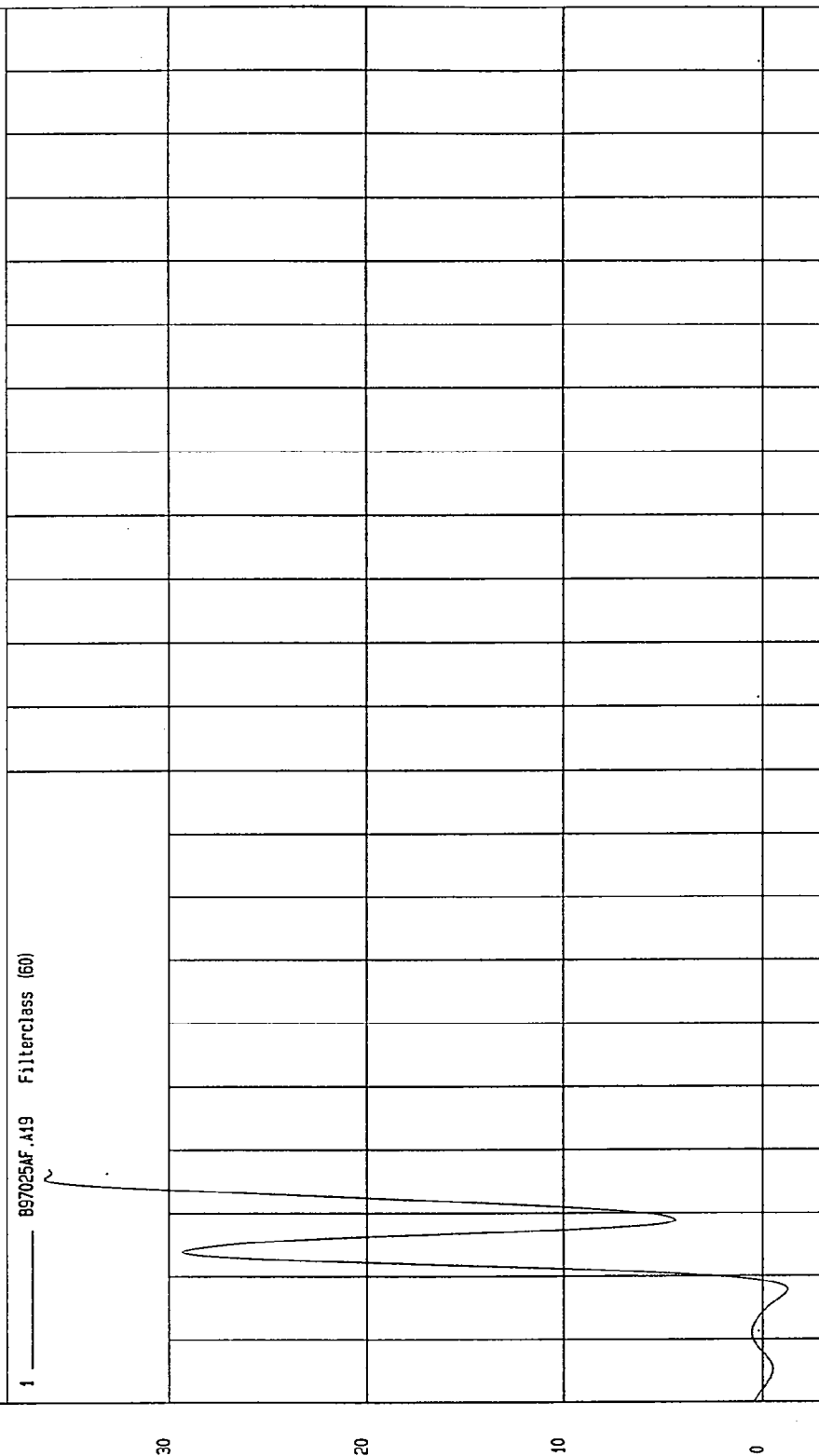
COMPONENT: 1997 NISSAN MAXIMA (MV5201)

Maximum = 36.30 G'S at 15 msec

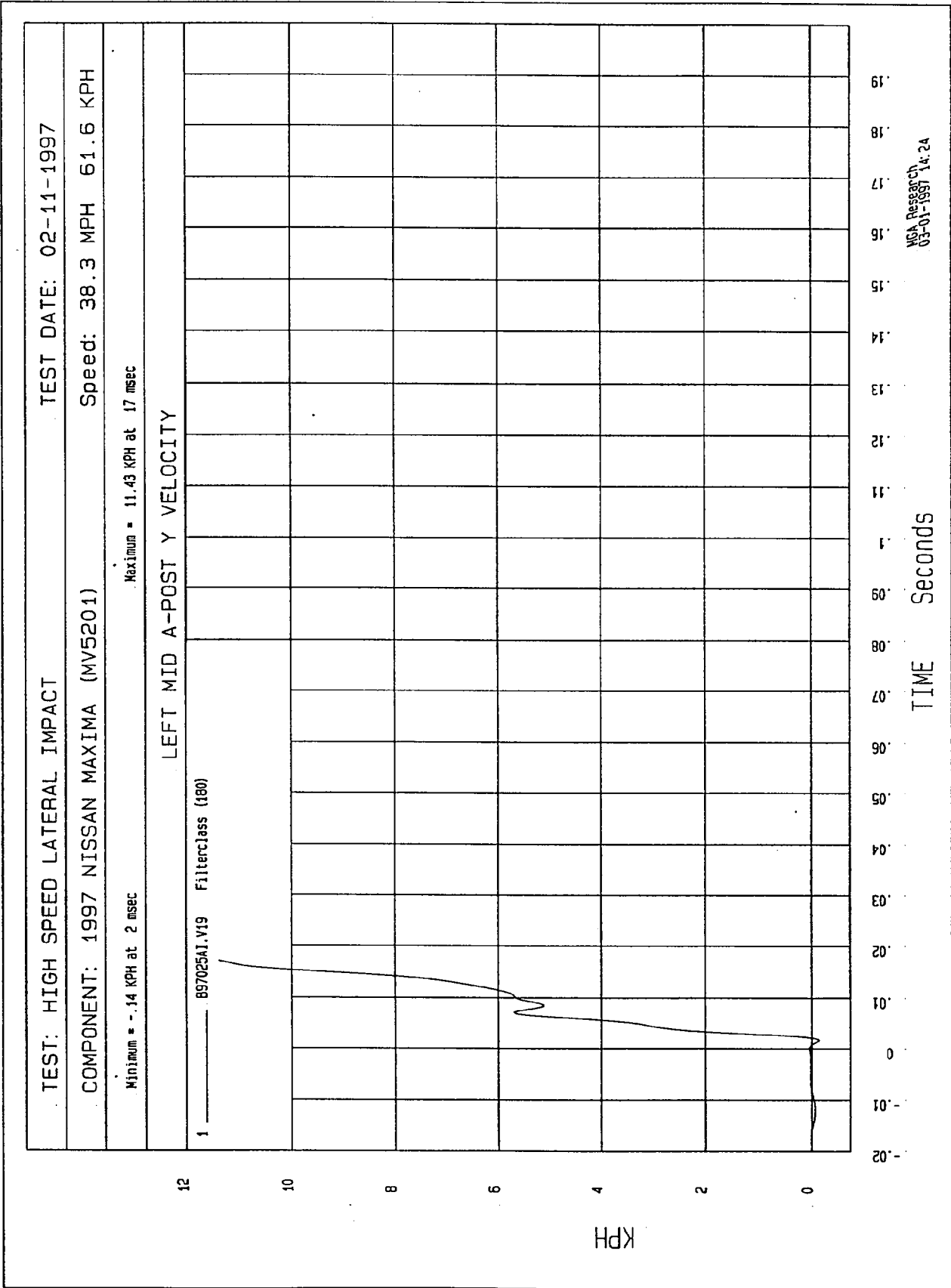
Minimum = -1.22 G'S at -2 msec

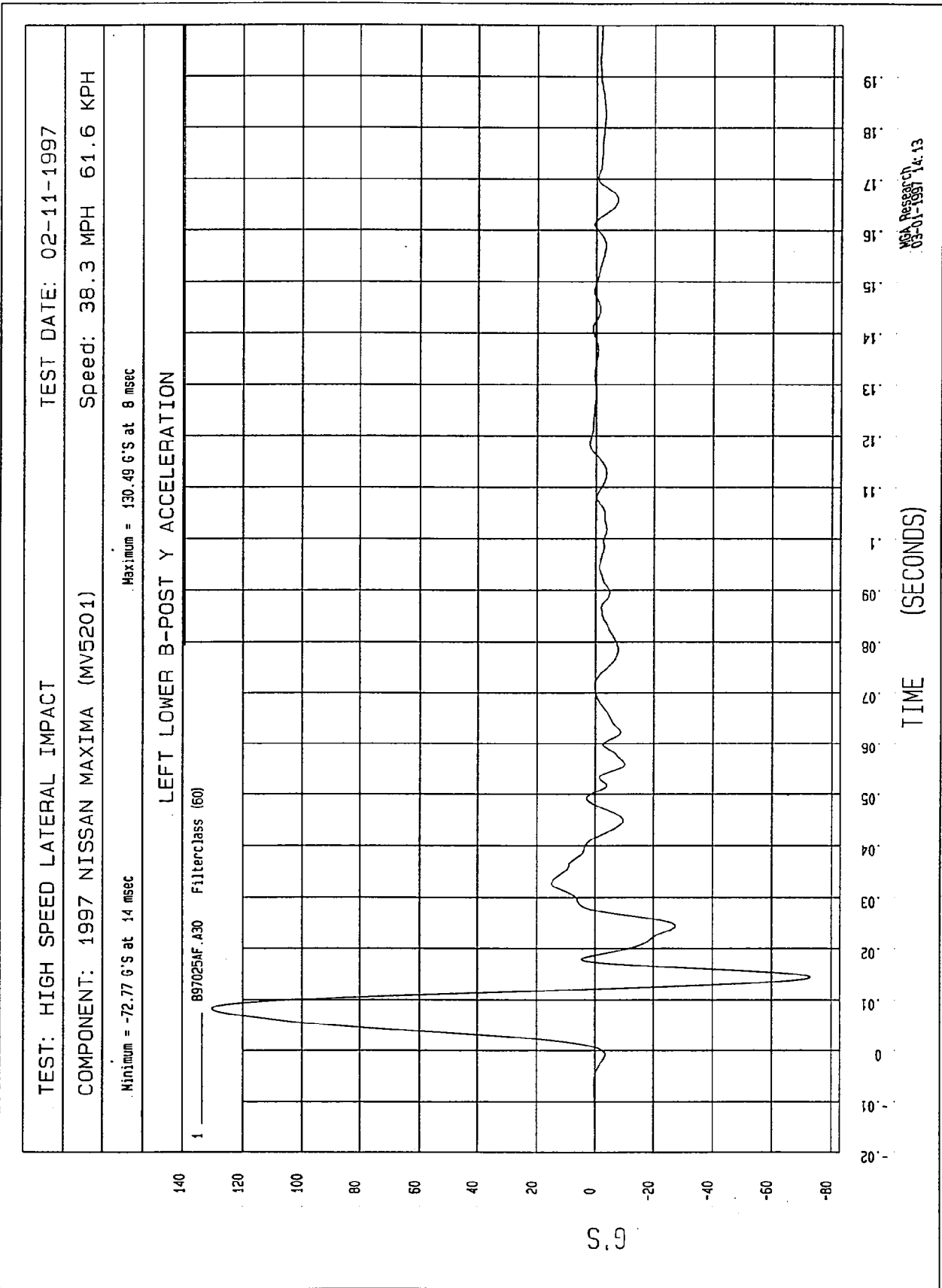
LEFT MID A-POST Y ACCELERATION

1 — 897025AF.A19 Filterclass (60)



MCA Research
03-01-1997 14:24



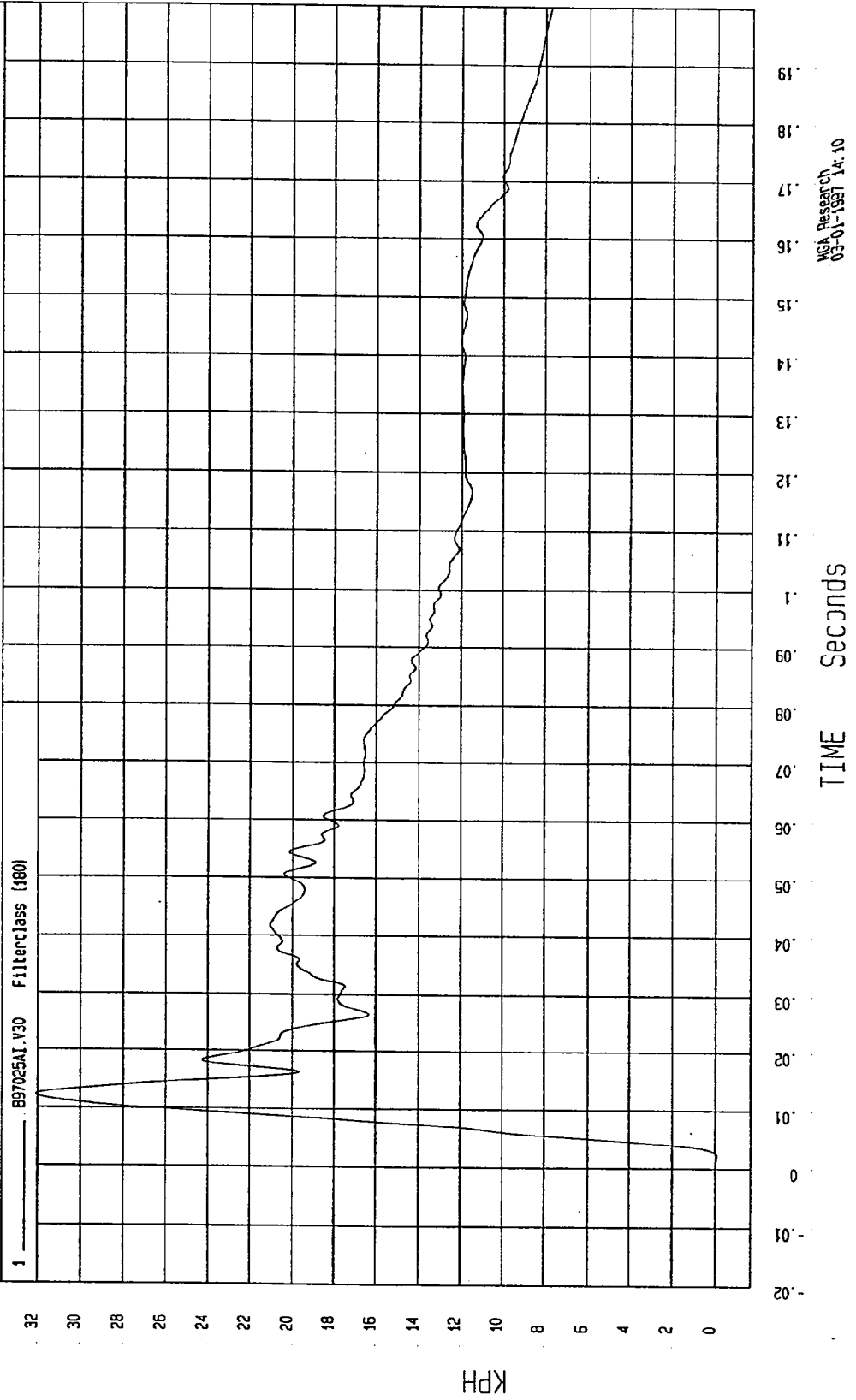


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -6.91E-02 KPH at 2 msec Maximum = 32.07 KPH at 12 msec

LEFT LOWER B-POST Y VELOCITY

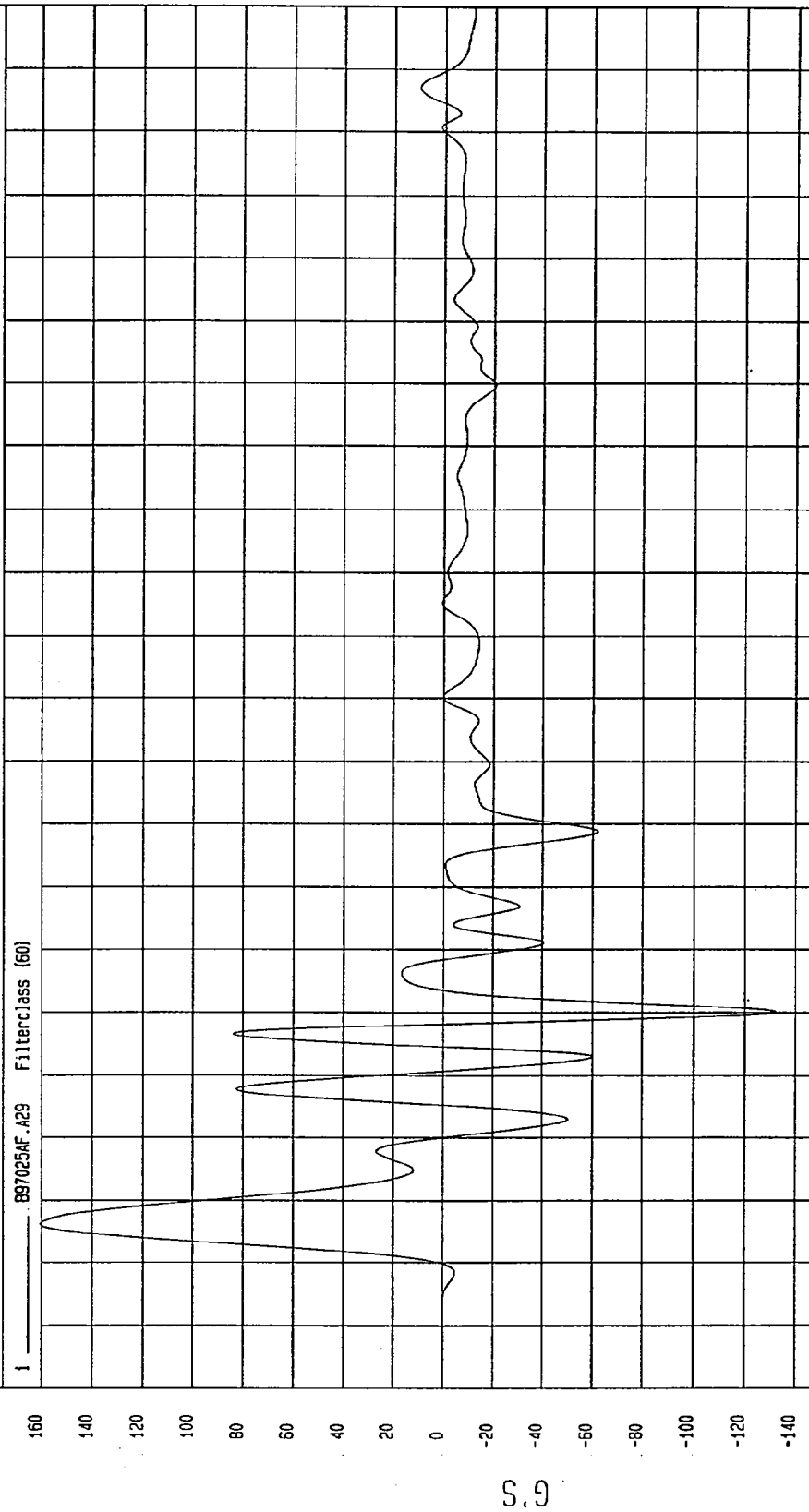


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -132.59 G's at 40 msec Maximum = 160.45 G's at 6 msec

LEFT MID B-POST Y ACCELERATION



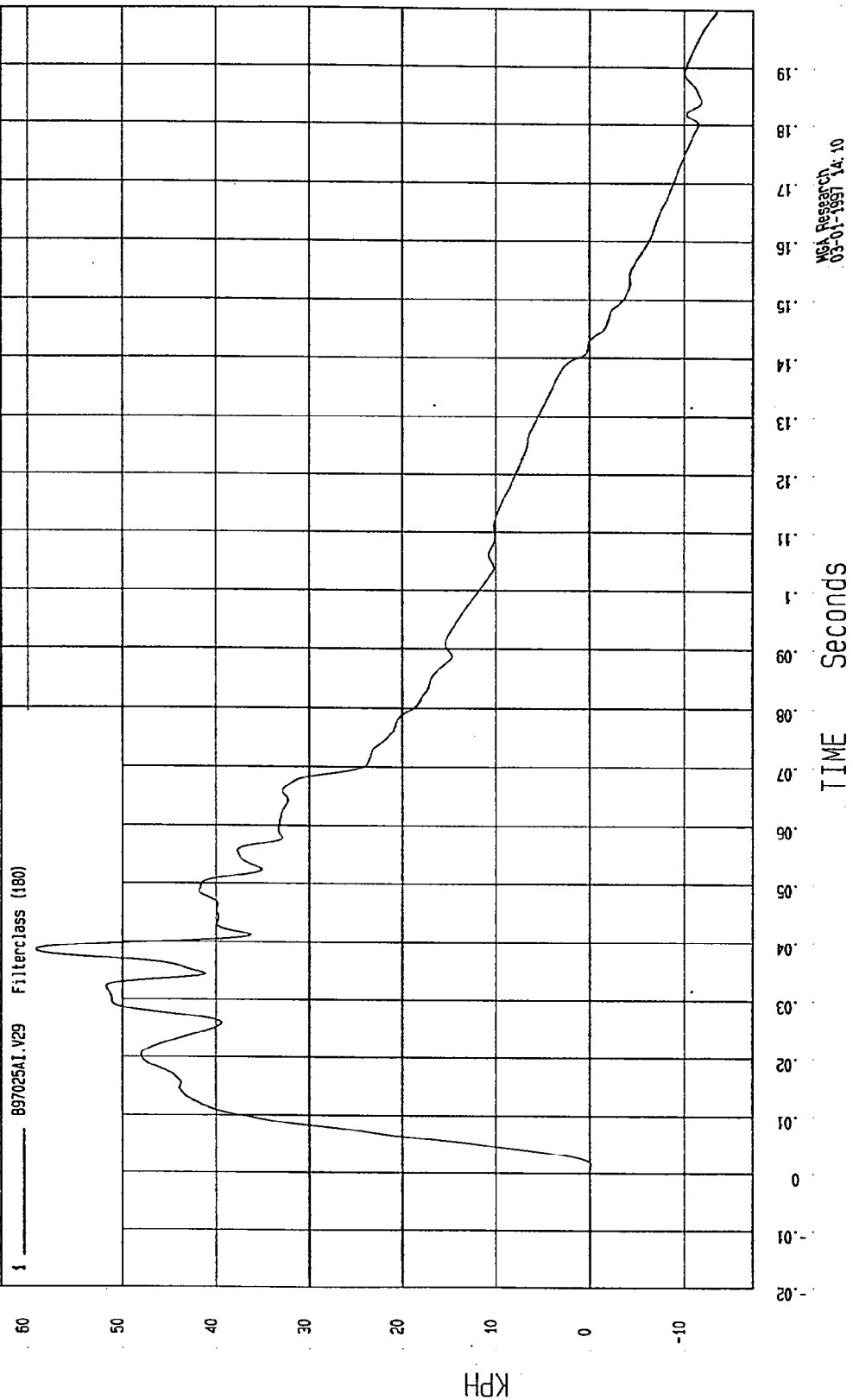
HGA Research
03-01-1997 14:13

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -13.50 KPH at 200 msec Maximum = 59.18 KPH at 38 msec

LEFT MID B-POST Y VELOCITY



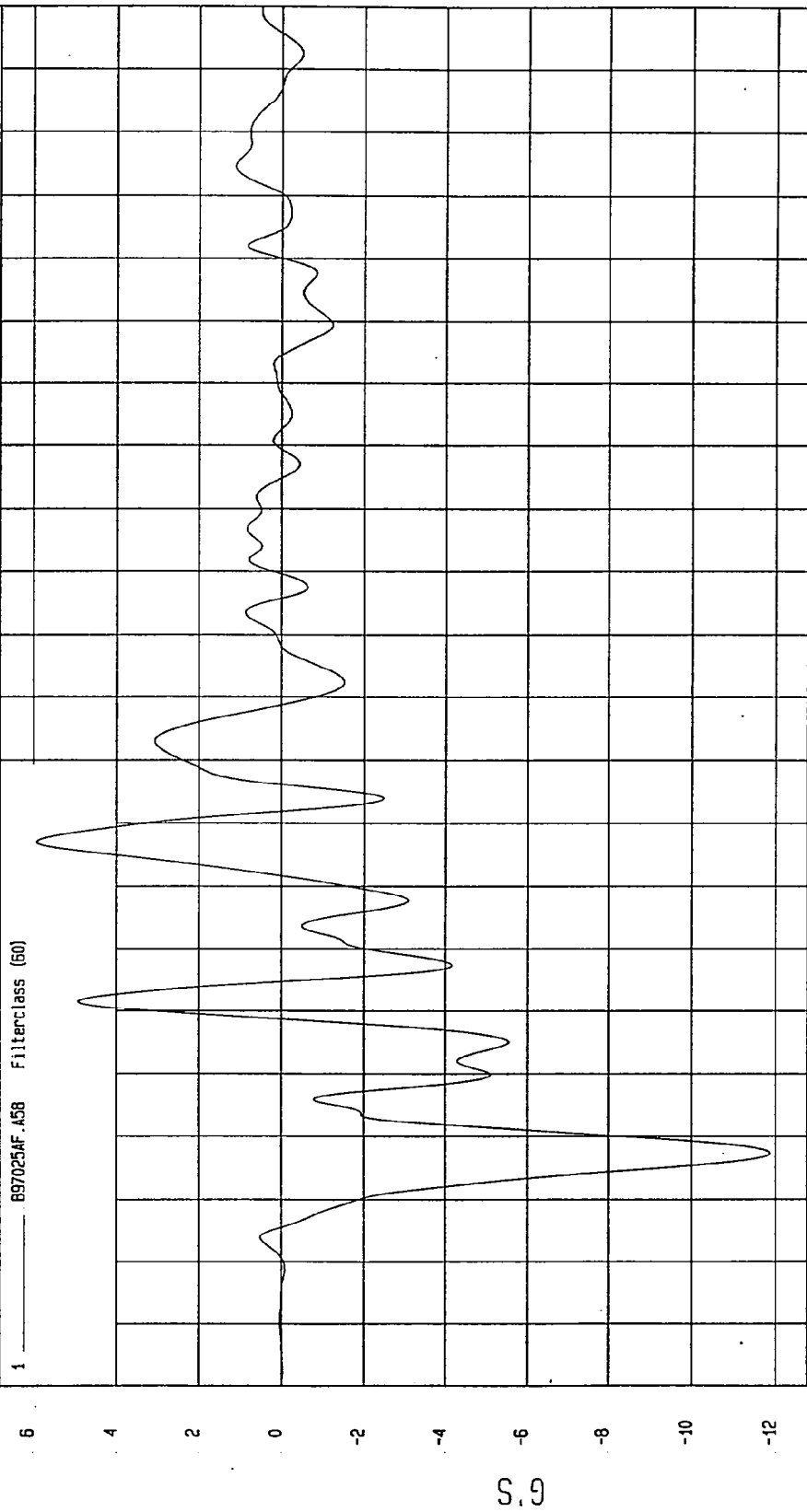
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -11.87 G'S at 17 msec Maximum = 5.92 G'S at 67 msec

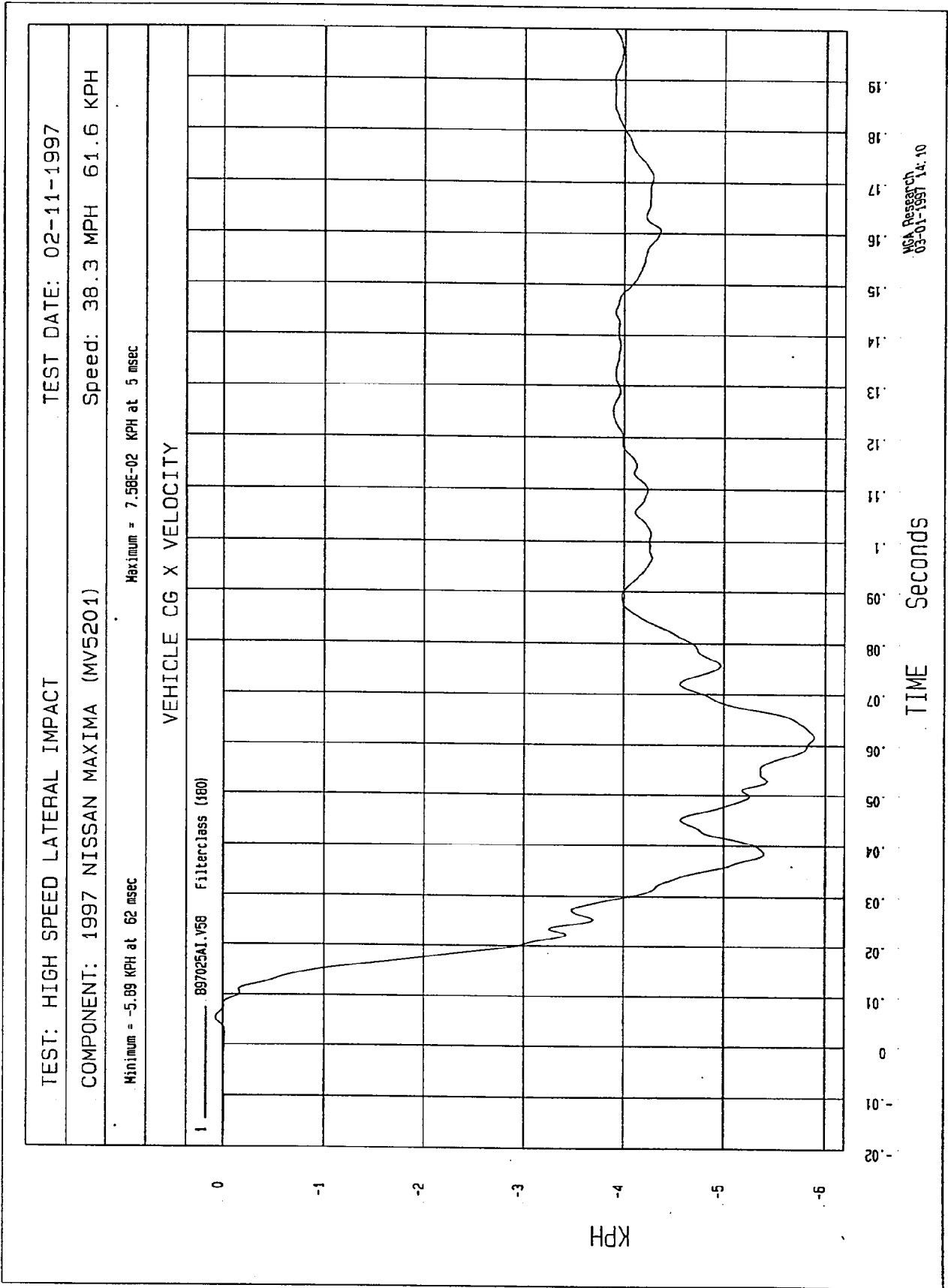
VEHICLE CG X ACCELERATION

1 ——— 897025AF.A58 Filterclass (50)



TIME (SECONDS)

MCA Research
03-01-1997 14.13



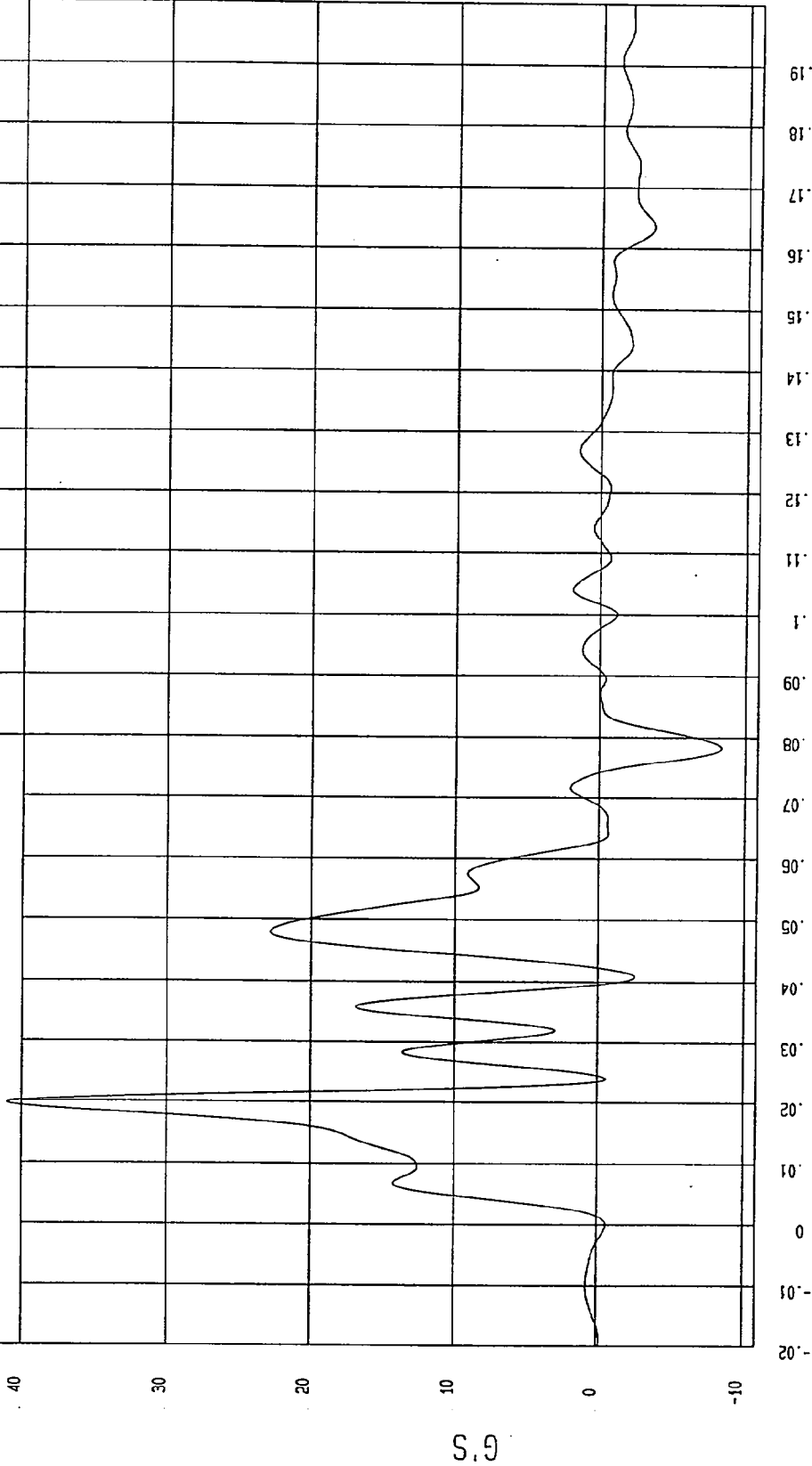
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -8.38 G'S at 78 msec Maximum = 41.02 G'S at 20 msec

VEHICLE CG Y ACCELERATION

1 B97025AF.A59 Filterclass (60)



MCA Research
03-01-1997 14:13

TIME (SECONDS)

TEST: HIGH SPEED LATERAL IMPACT

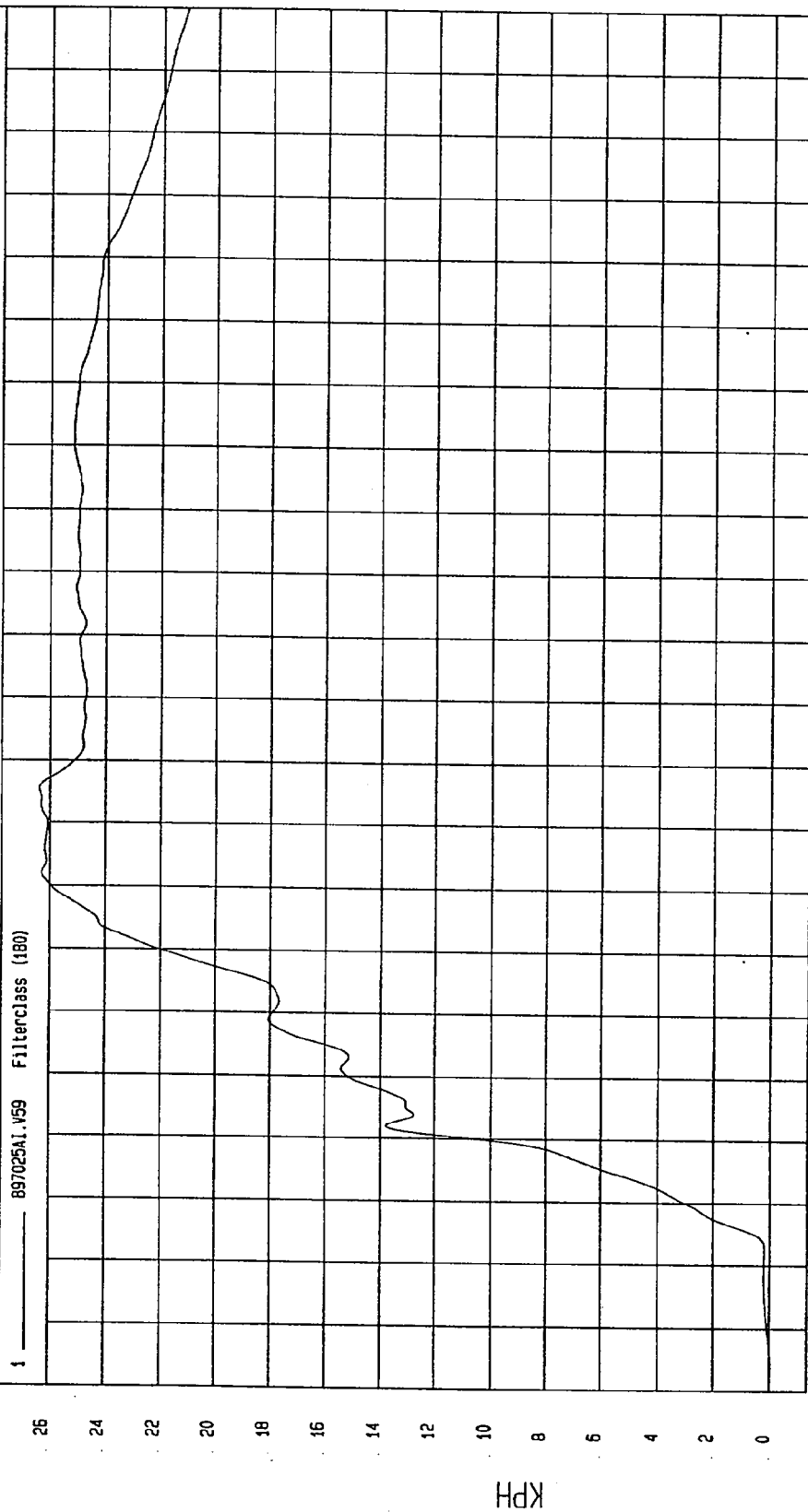
TEST DATE: 02-11-1997

Speed: 38.3 MPH 61.6 KPH

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

Minimum = -2.12E-02 KPH at -16 msec
Maximum = 26.37 KPH at 75 msec

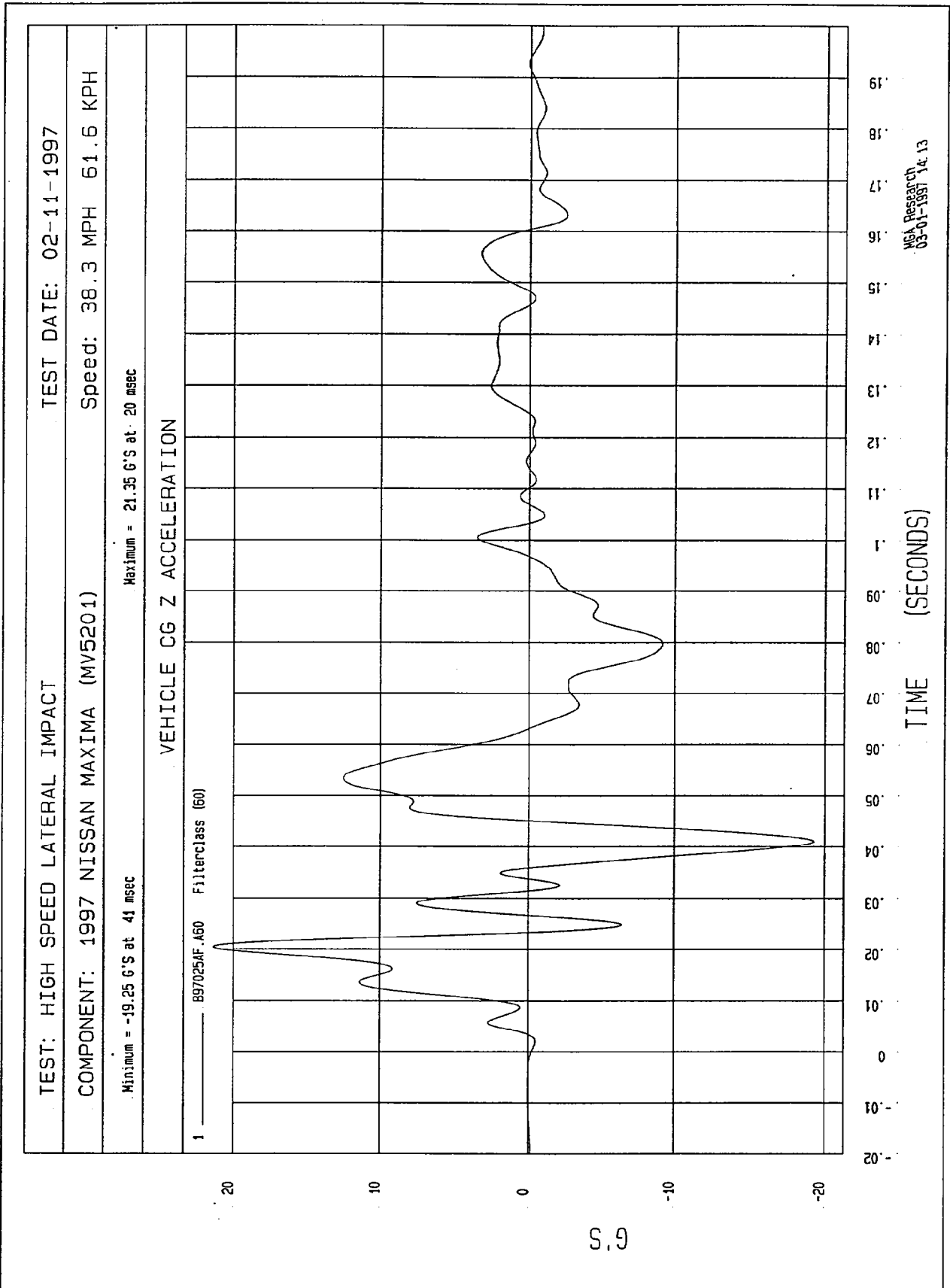
VEHICLE CG Y VELOCITY



KPH

TIME Seconds

NSA Research
03-01-1997 14:10



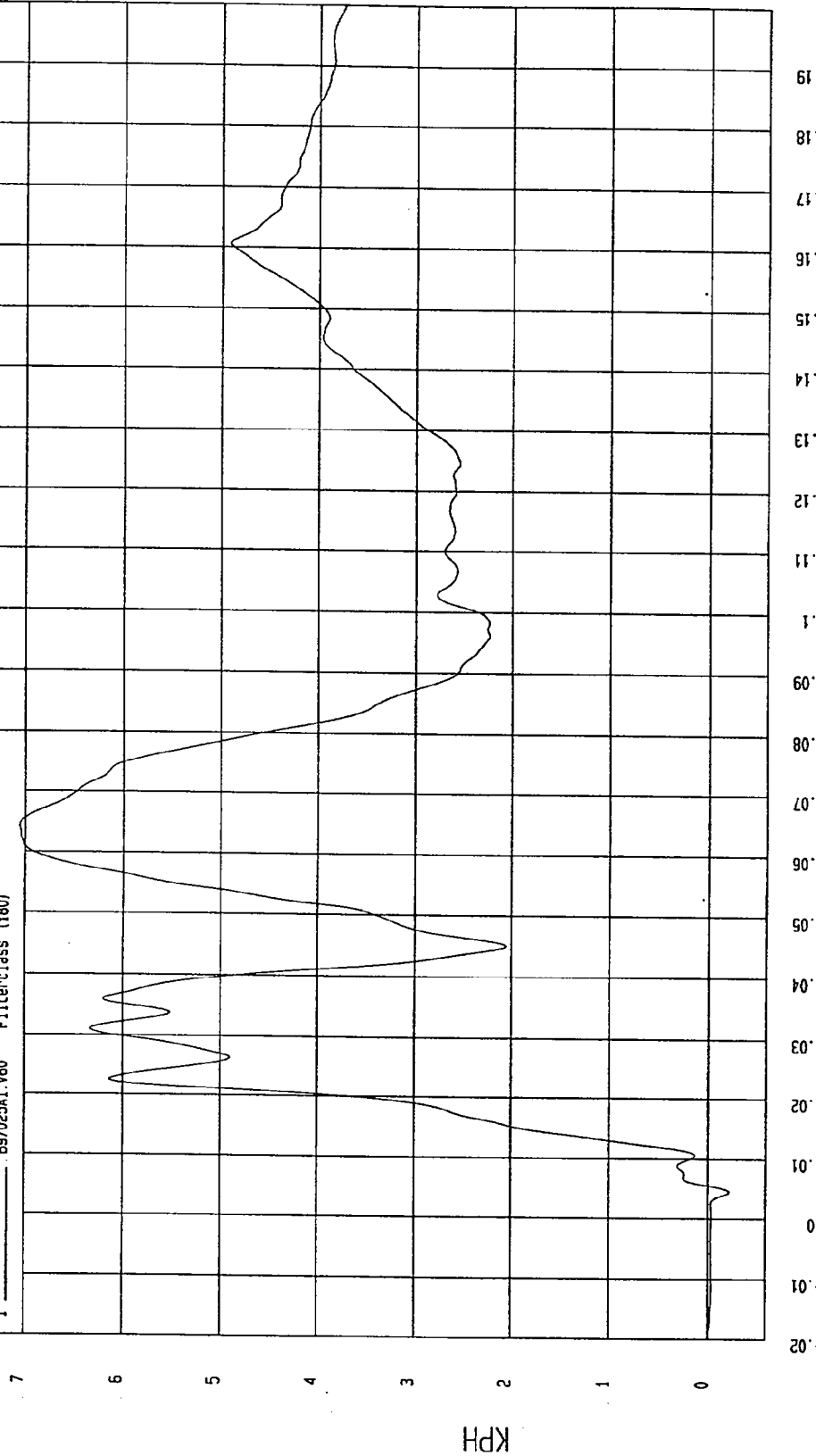
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -21 KPH at 4 msec
Maximum = 7.05 KPH at 64 msec

VEHICLE CG Z VELOCITY

1 ——— B97025A1.V60 Filterclass (180)



WGL Research
03-01-1997 14.10

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = 4.39E-02 G's at -3 msec Maximum = 46.55 G's at 20 msec

VEHICLE CG RESULTANT ACCELERATION

1 ——— 897025AV.A58 Filterclass (60)

40

30

20

10

0

G's

-0.02 -0.01 0 .01 .02 .03 .04 .05 .06 .07 .08 .09 .1 .11 .12 .13 .14 .15 .16 .17 .18 .19

TIME (SECONDS)

MSA Research
03-01-1997 14:15

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -132.88 G'S at 24 msec Maximum = 295.70 G'S at 15 msec

LEFT FRONT DOOR UPPER CENTERLINE Y ACCELERATION

1 897025AF.A76 Filterclass (60)

300

200

100

0

-100

G'S

19.18.17.16.15.14.13.12.11.10.09.08.07.06.05.04.03.02.01.00.-01.-02

TIME (SECONDS)

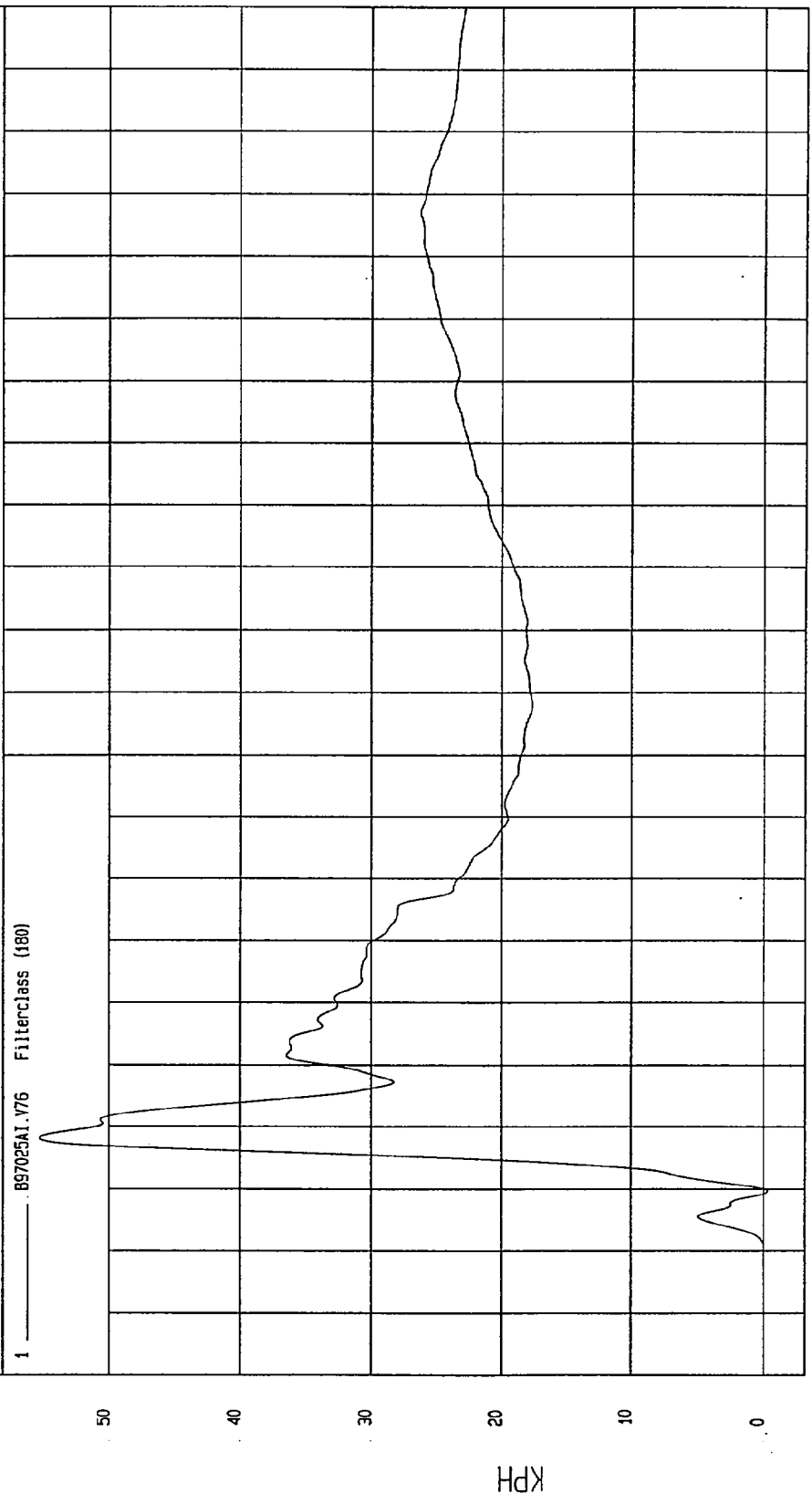
NSA Research
03-01-1997 14:14

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

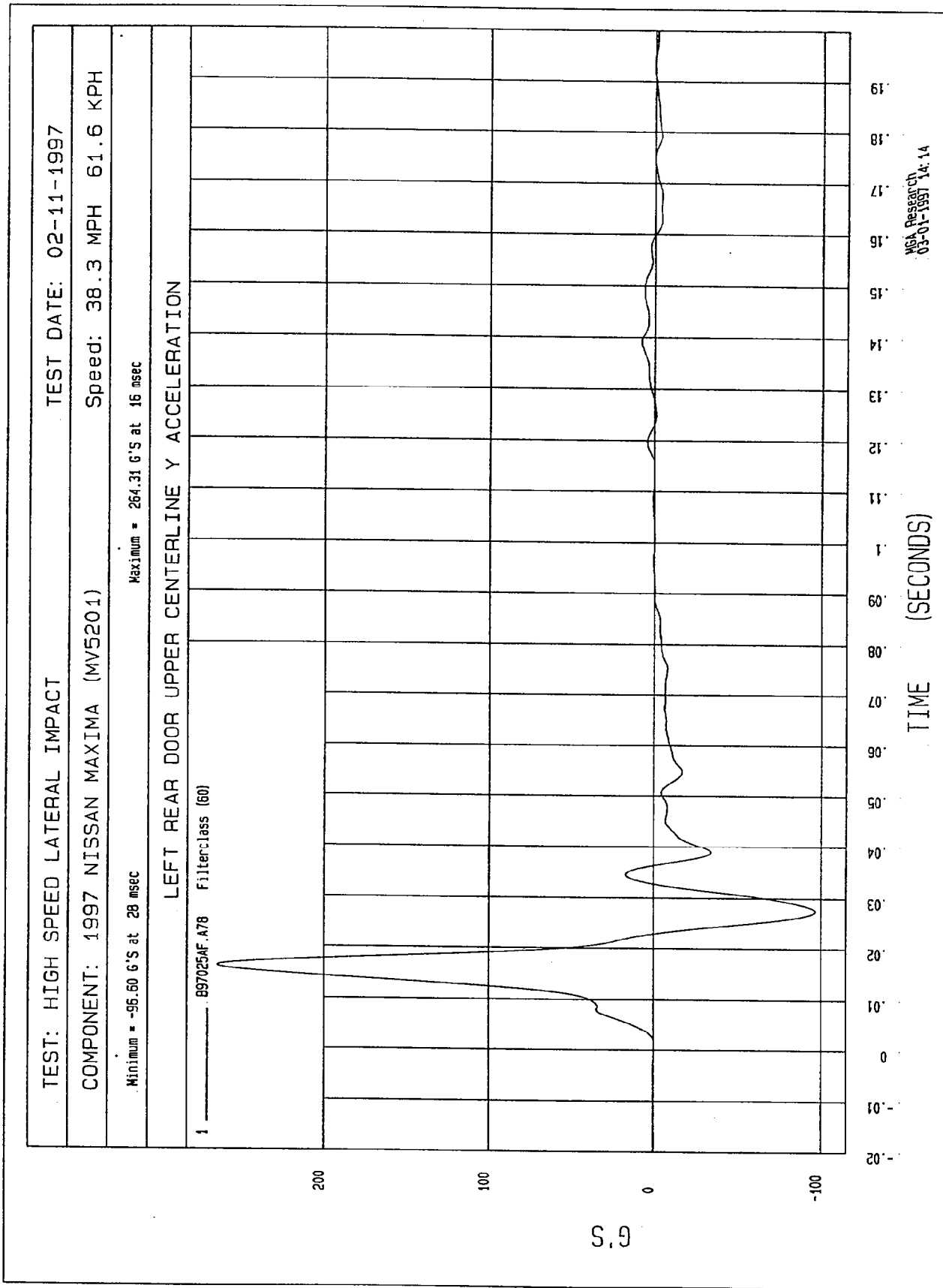
Minimum = -.34 KPH at 10 msec Maximum = 55.29 KPH at 18 msec

LEFT FRONT DOOR UPPER CENTERLINE Y VELOCITY



TIME Seconds

HCA Research
03-01-1997 14:10

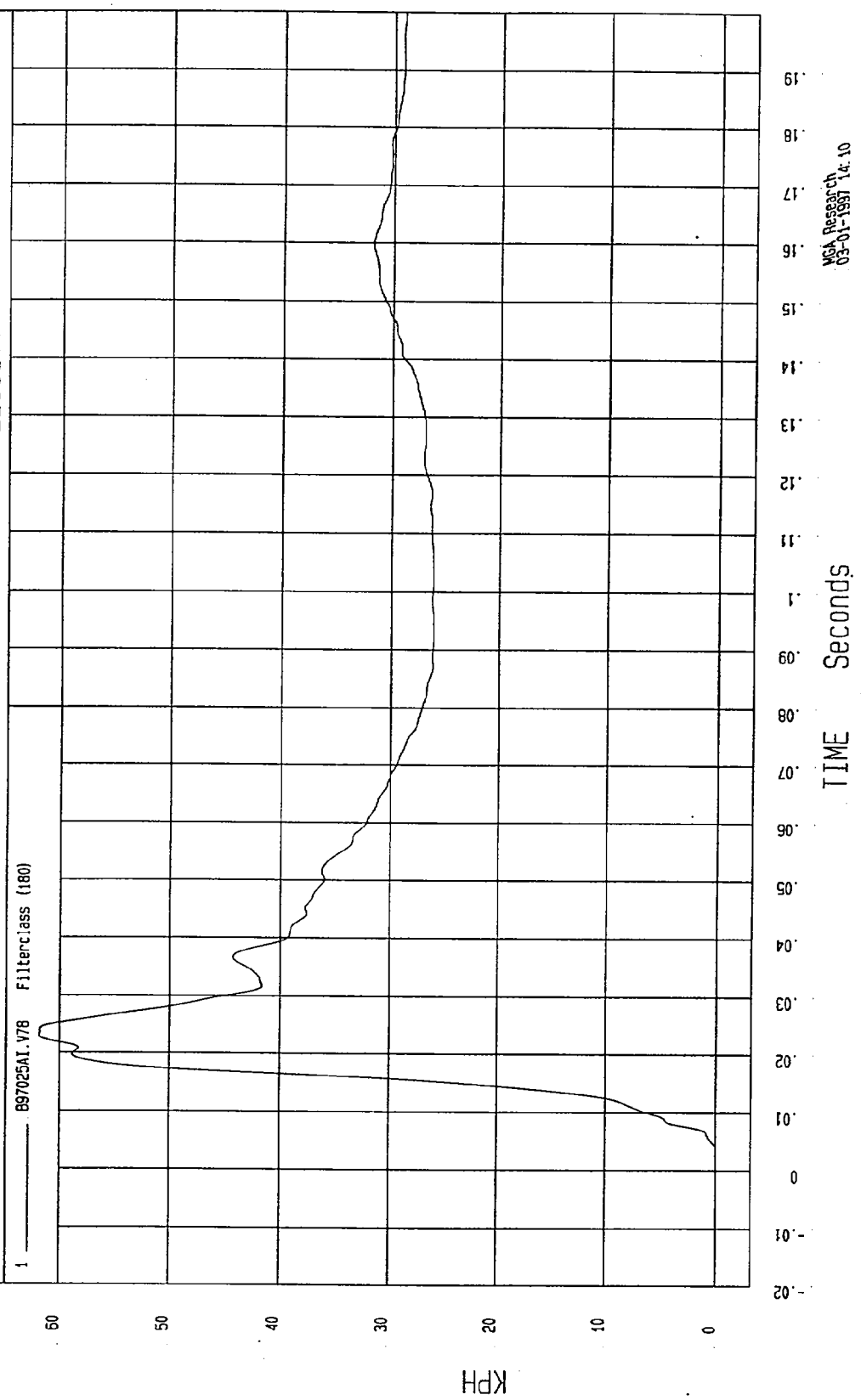


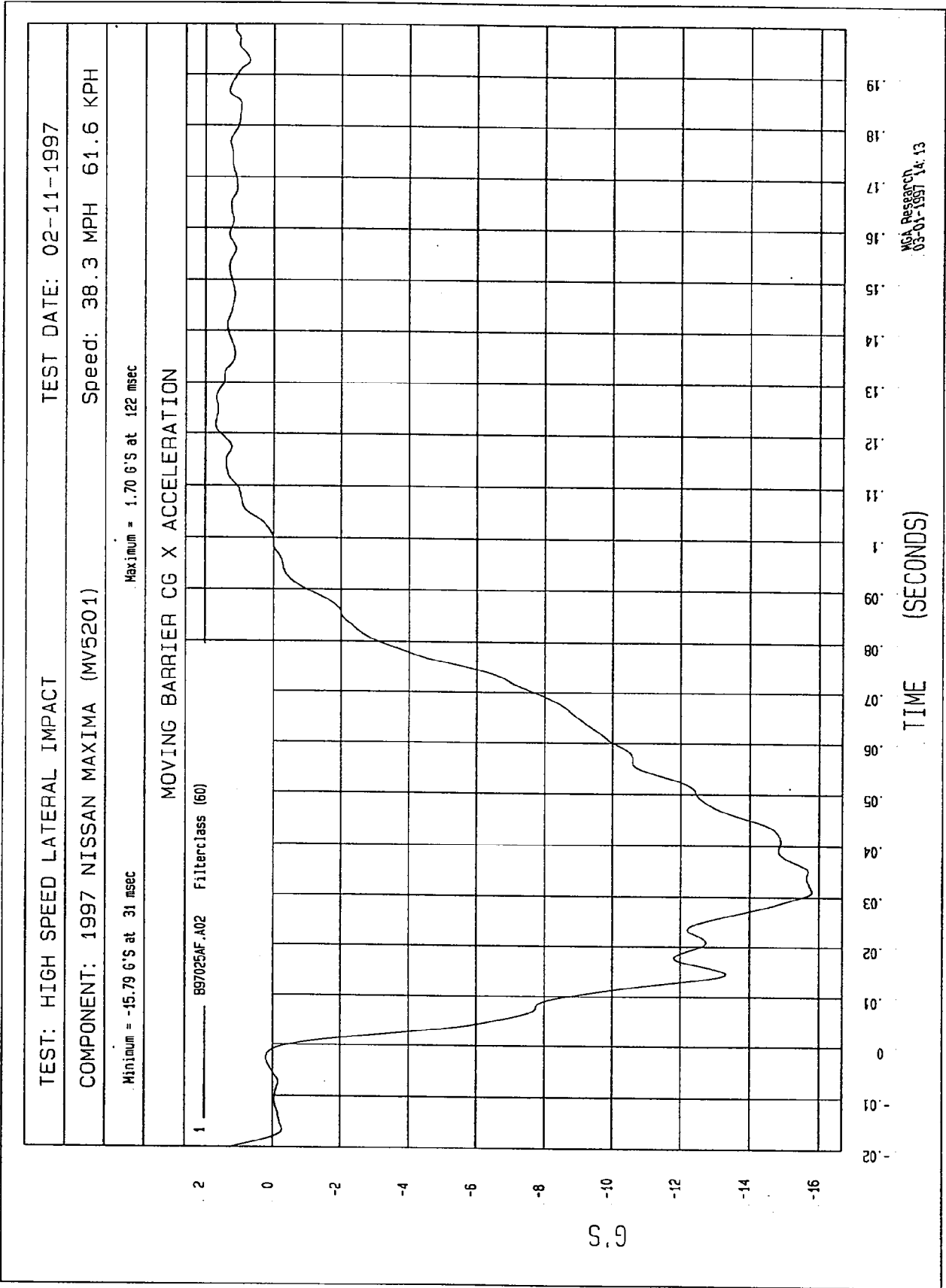
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -1.97E-02 KPH at -11 msec Maximum = 61.84 KPH at 23 msec

LEFT REAR DOOR UPPER CENTERLINE Y VELOCITY





TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

Speed: 38.3 MPH 61.6 KPH

Minimum = 23.79 KPH at 98 msec

Maximum = 54.92 KPH at -18 msec

MOVING BARRIER CG X VELOCITY

56

54

52

50

48

46

44

42

40

38

36

34

32

30

28

26

24

KPH

1 897025A1.V02 Filterclass (180)

-20

-10

0

10

20

30

40

50

60

70

80

90

100

110

120

130

140

150

160

170

180

190

TIME Seconds

NGA Research
02-01-1997 14:10

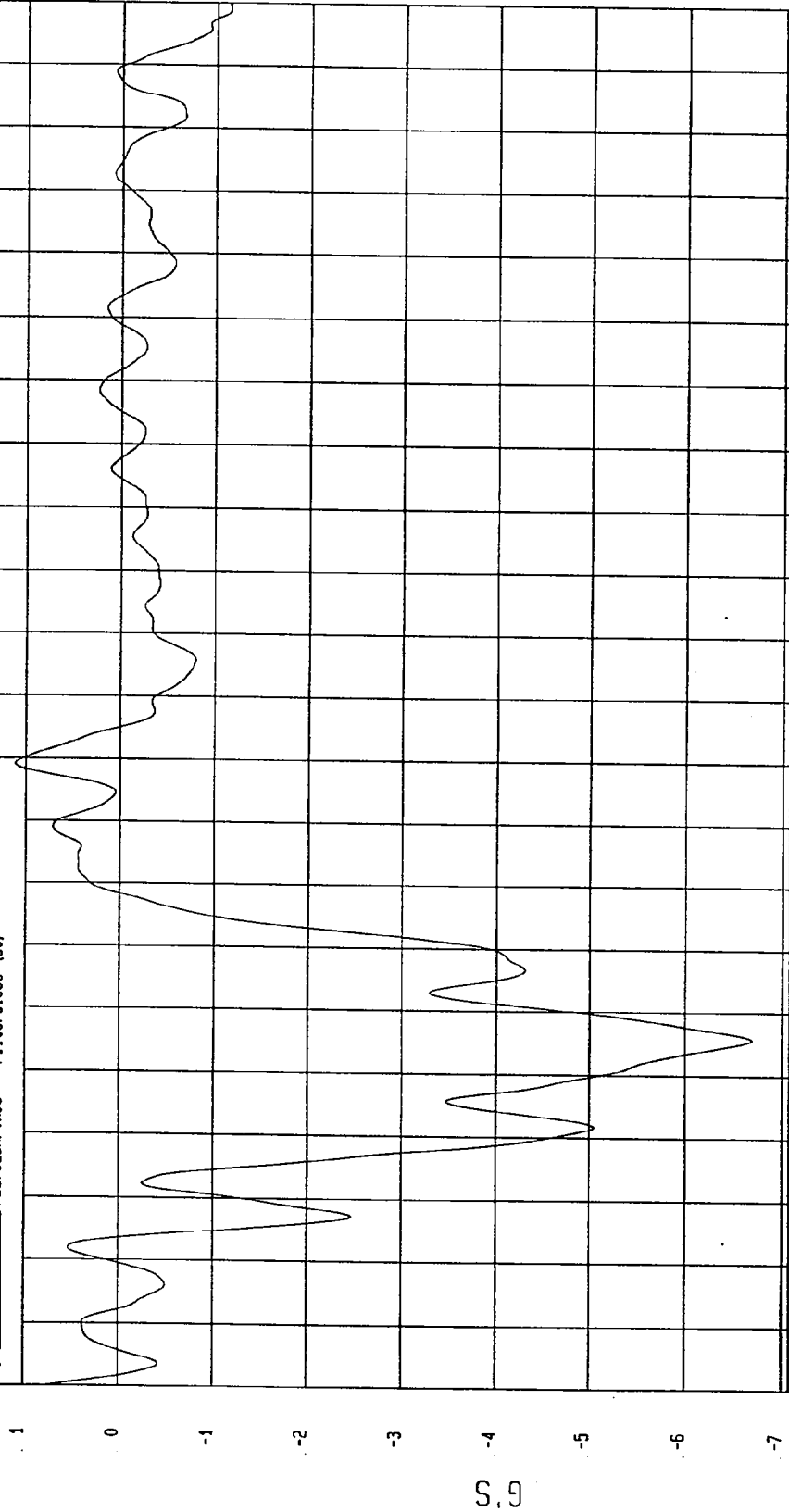
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -6.68 G'S at 35 msec Maximum = 1.10 G'S at 79 msec

MOVING BARRIER CG Y ACCELERATION

1 B97025AF.A03 Filterclass (60)



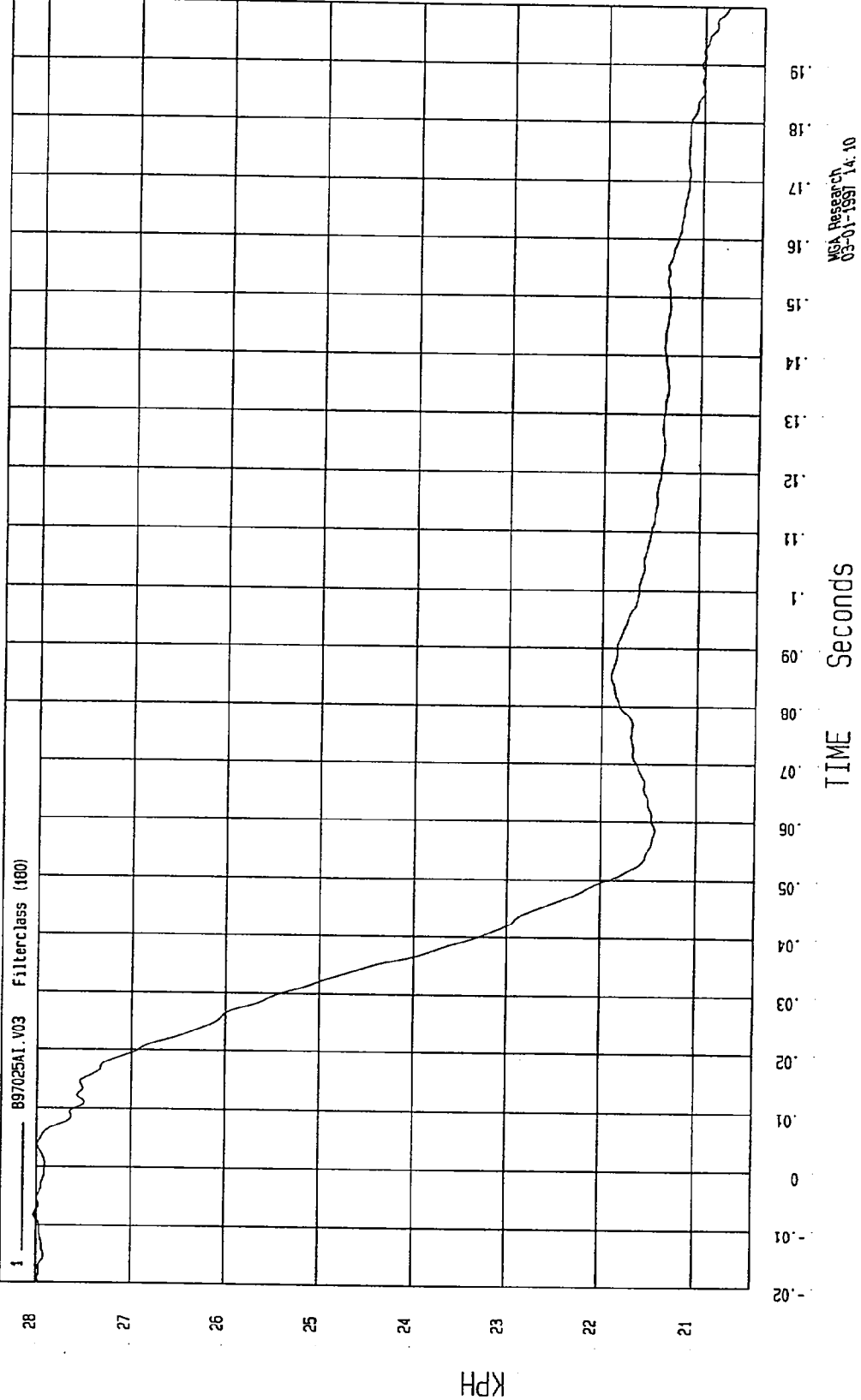
MGA Research
03-01-1997 14:13

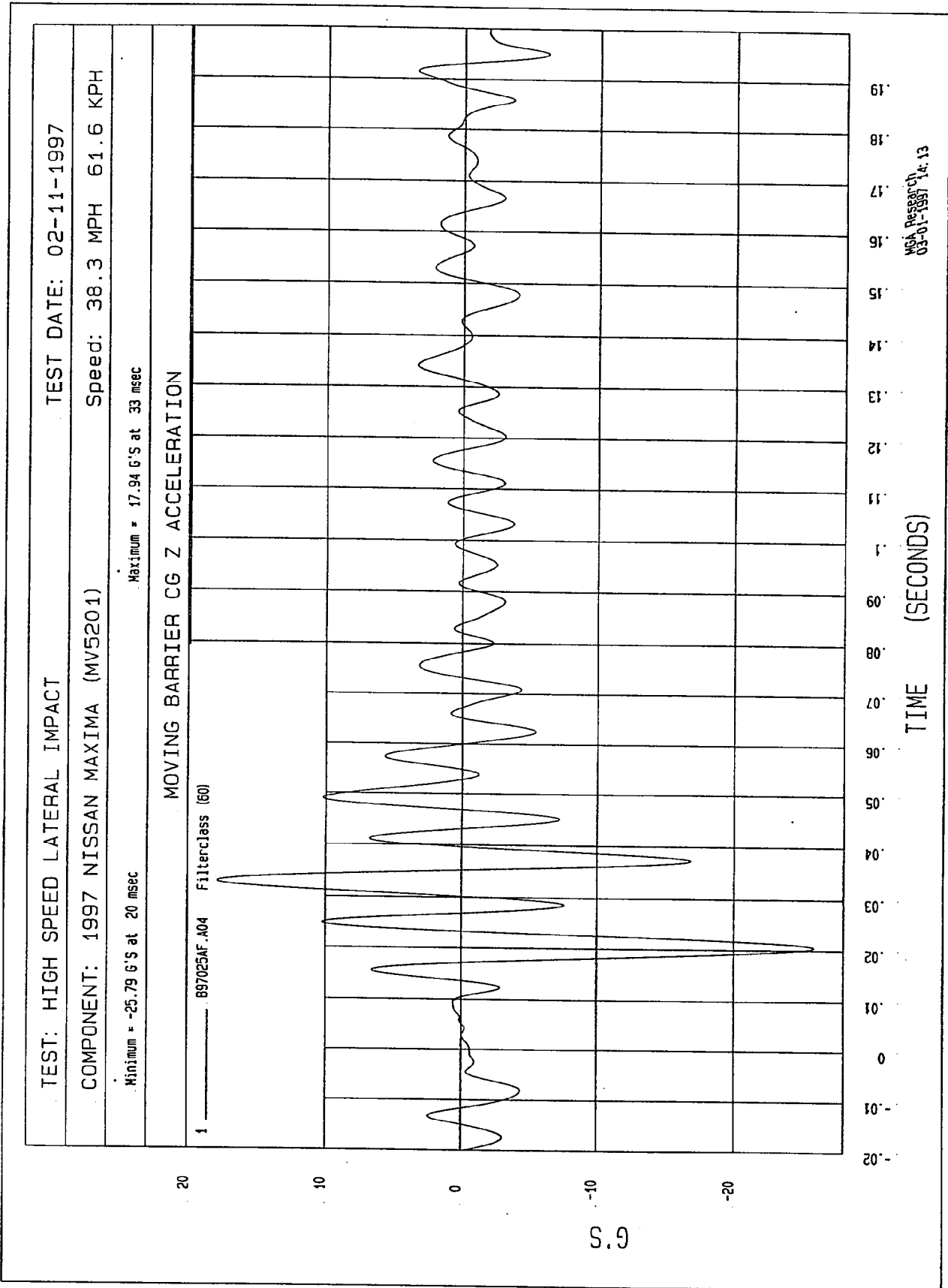
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = 20.73 KPH at 200 msec Maximum = 28.02 KPH at -8 msec

MOVING BARRIER CG Y VELOCITY



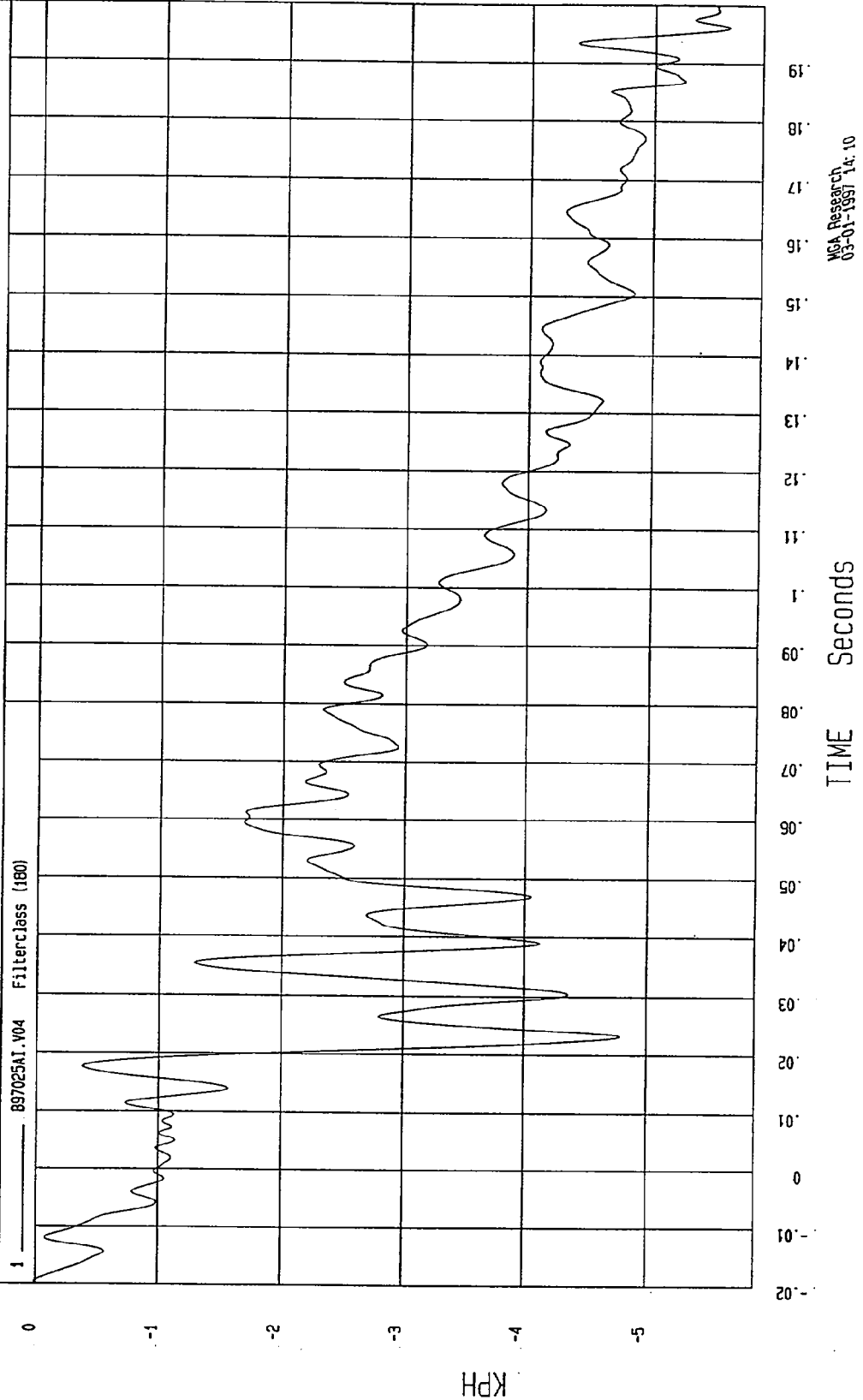


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -5.58 KPH at 196 msec Maximum = 1.14E-02 KPH at -20 msec

MOVING BARRIER CG Z VELOCITY

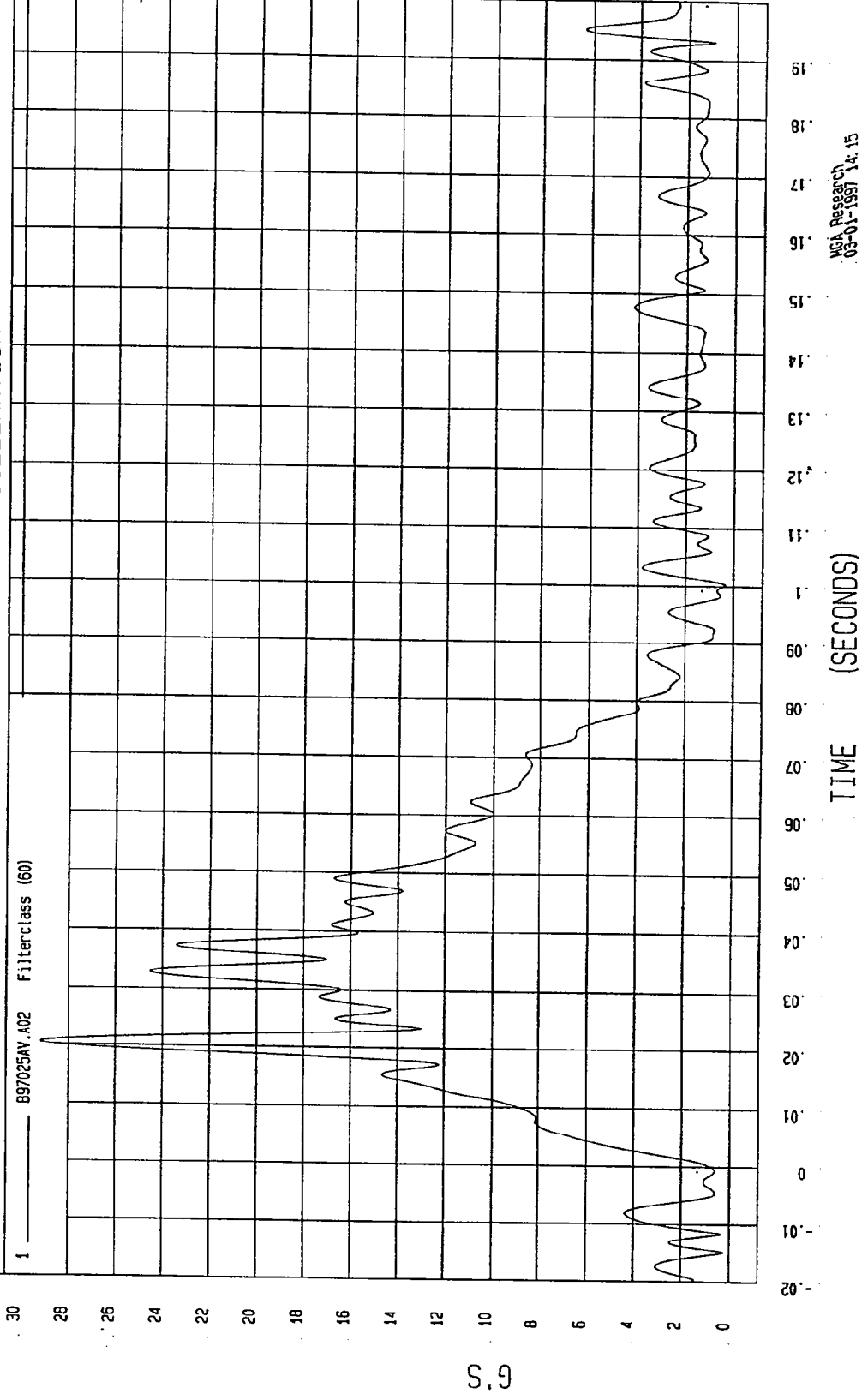


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = .24 G'S at -15 msec Maximum = 29.15 G'S at 20 msec

MOVING BARRIER CG RESULTANT ACCELERATION

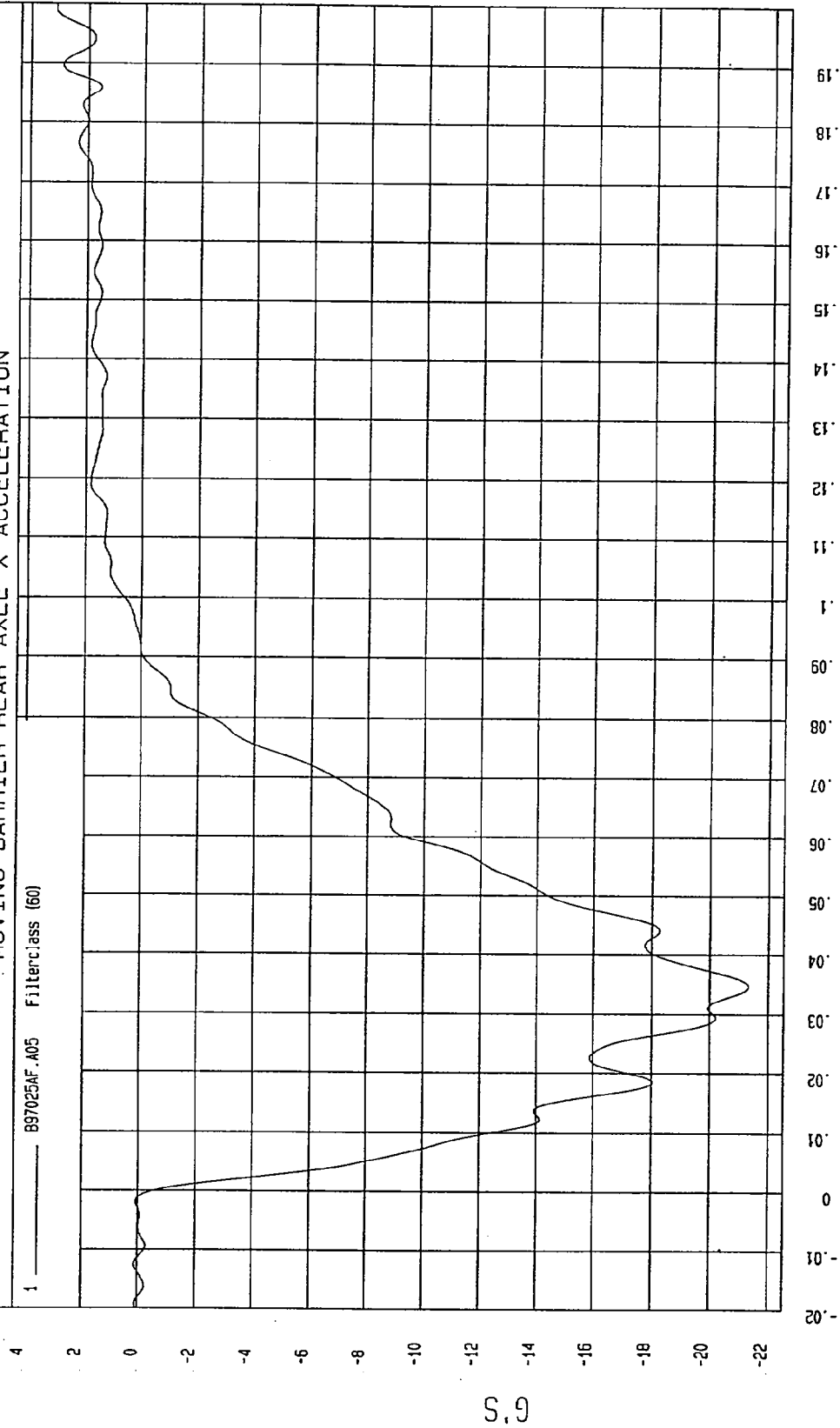


TEST: HIGH SPEED LATERAL IMPACT
TEST DATE: 02-11-1997
COMPONENT: 1997 NISSAN MAXIMA (MV5201)
Speed: 38.3 MPH 61.6 KPH

Minimum = -21.29 G'S at 35 msec
Maximum = 3.12 G'S at 199 msec

MOVING BARRIER REAR AXLE X ACCELERATION

1 _____ B97025AF.A05 Filterclass (60)



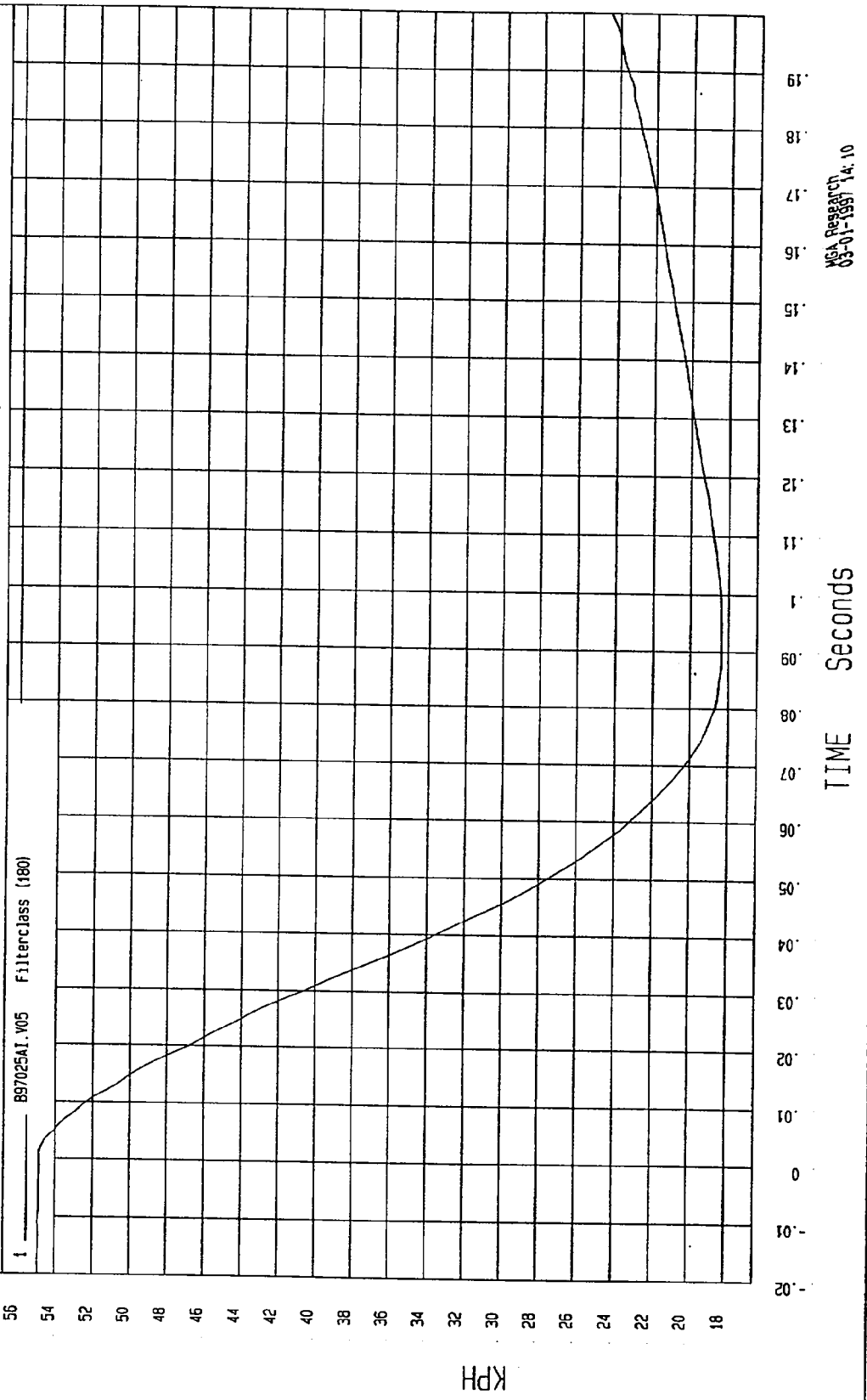
MCA Research
03-01-1997 14:14

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = 18.34 KPH at 90 msec Maximum = 54.92 KPH at -18 msec

MOVING BARRIER REAR AXLE X VELOCITY



MCA Research
03-01-1997 14:10

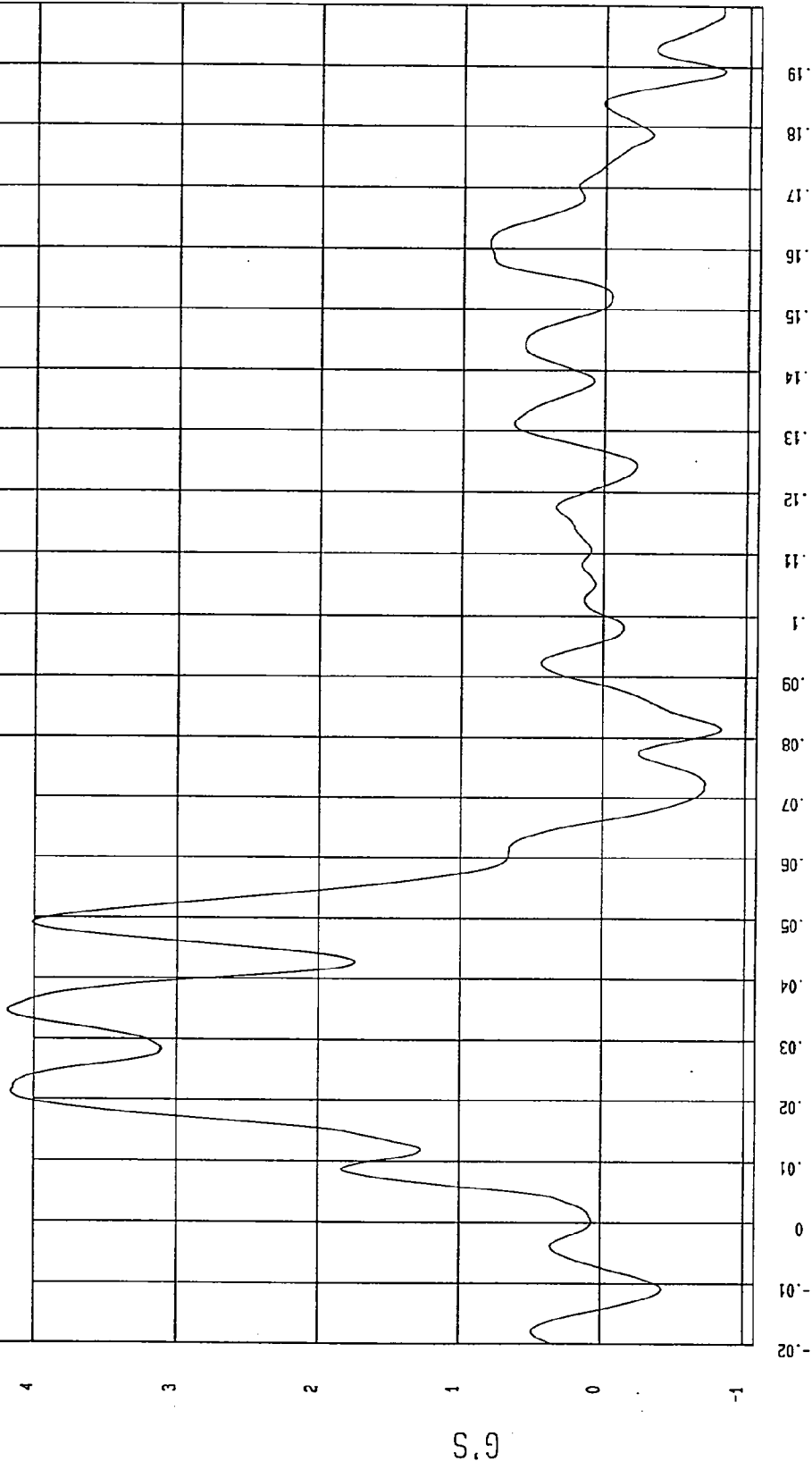
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

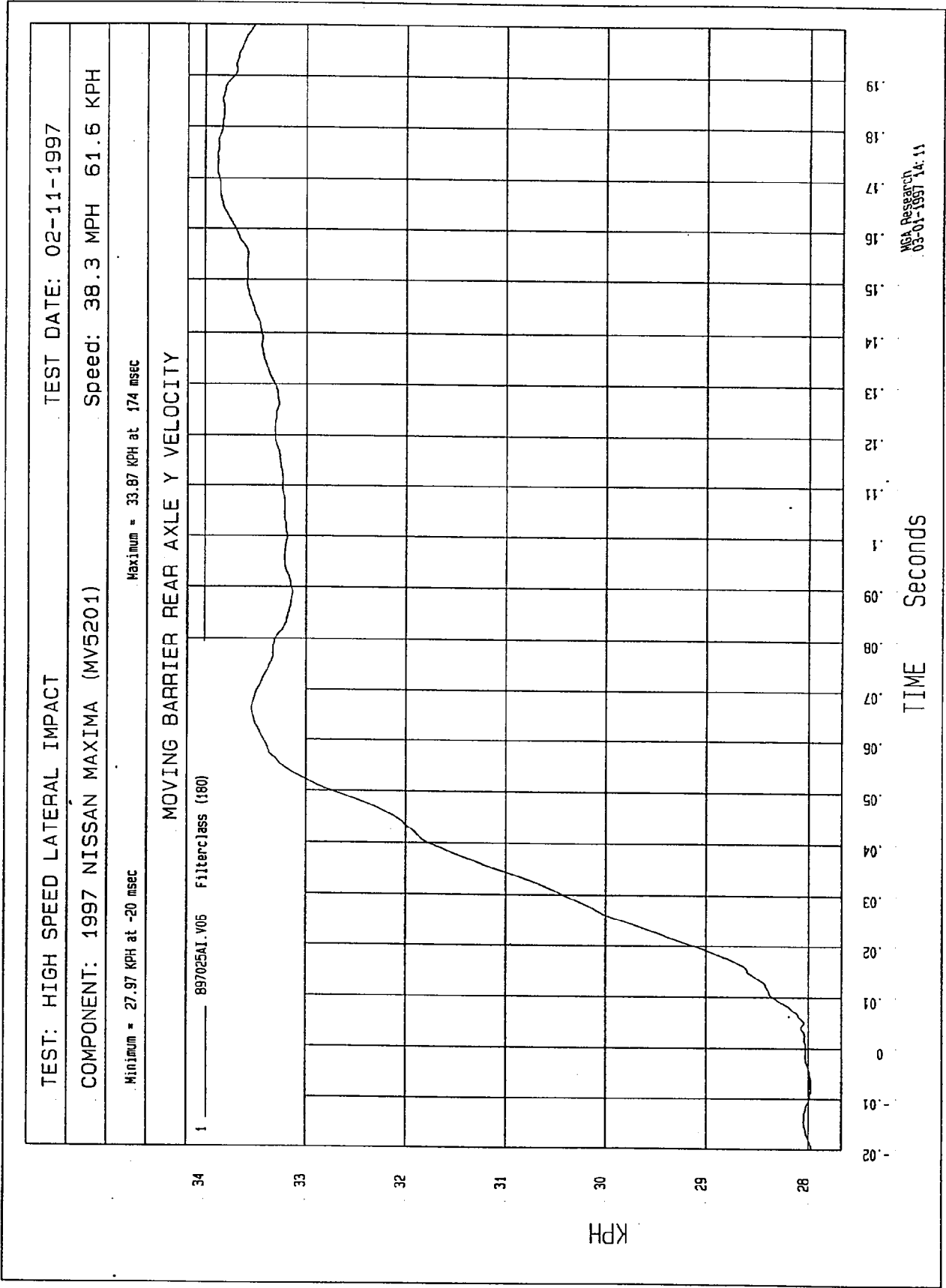
Minimum = -.82 G'S at 189 msec Maximum = 4.18 G'S at 35 msec

MOVING BARRIER REAR AXLE Y ACCELERATION

1 ——— B97025AF.A06 Filterclass (60)



NCA Research
03-01-1997 14:14



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

Speed: 38.3 MPH 61.6 KPH

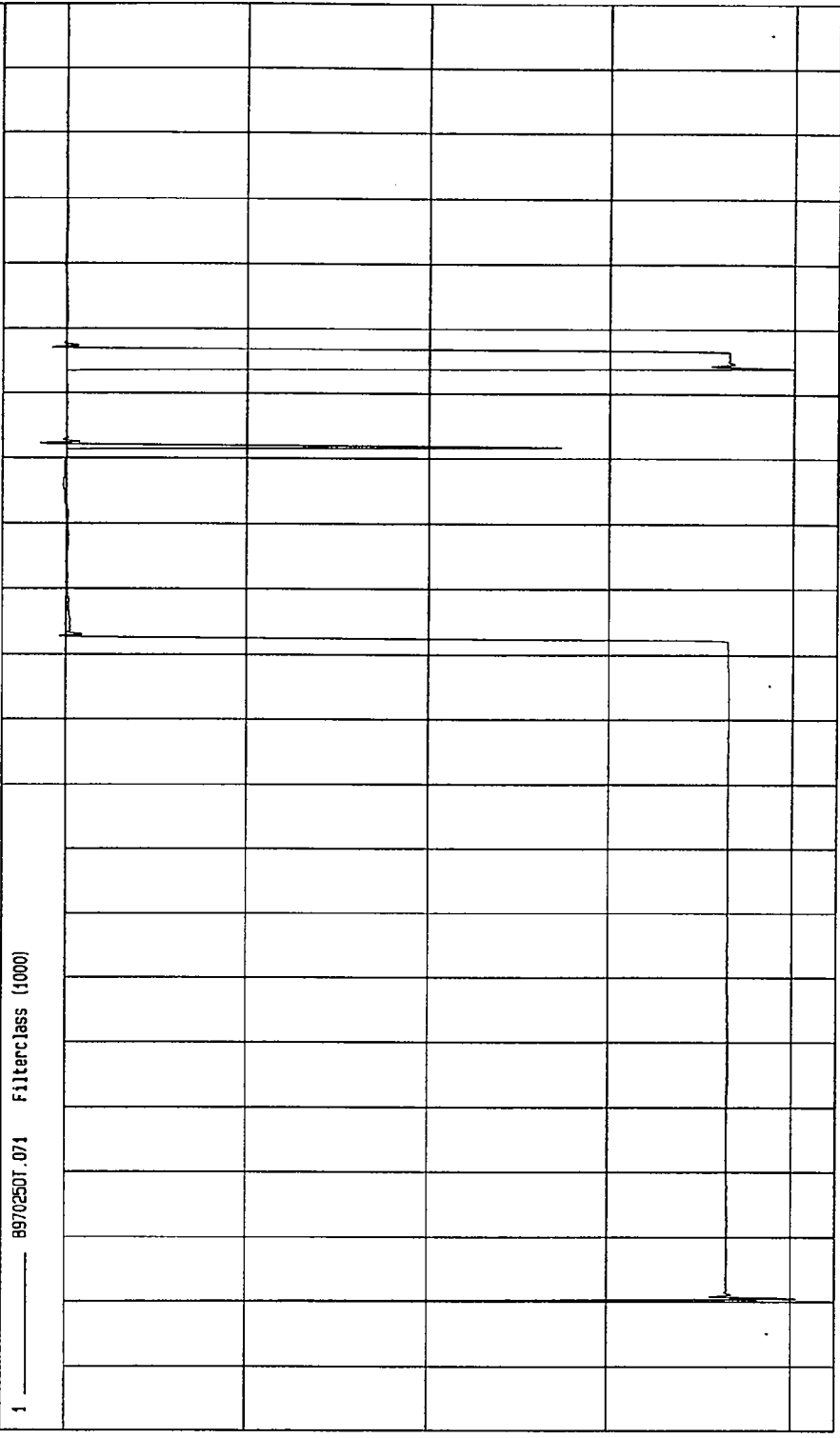
COMPONENT: 1997 NISSAN MAXIMA (MV5201)

Minimum = -4.03 VOLTS at 0 msec

Maximum = .14 VOLTS at 132 msec

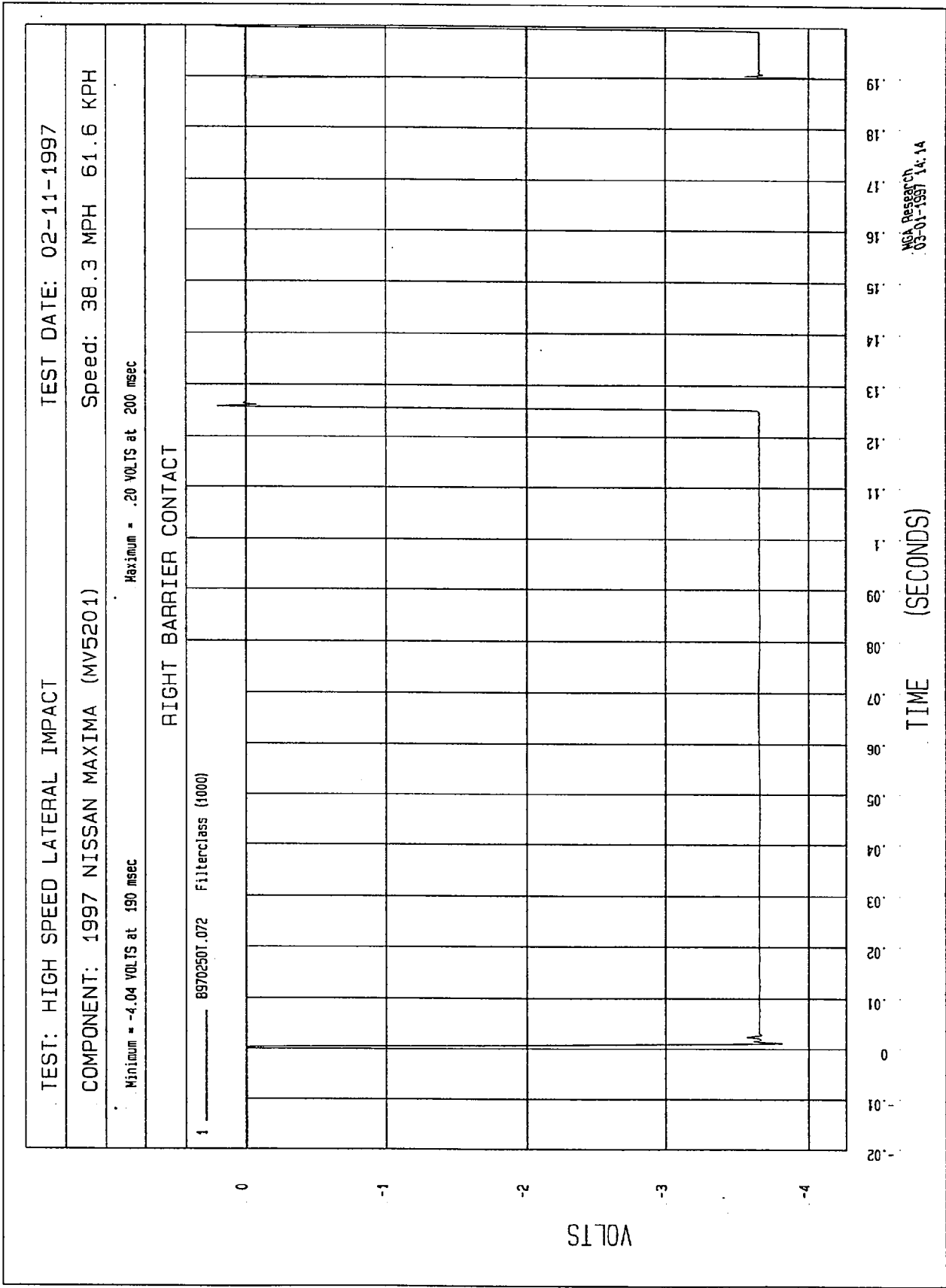
LEFT BARRIER CONTACT

1 8970250T.071 Filterclass (1000)



TIME (SECONDS)

WGL Research
03-01-1997 14:14



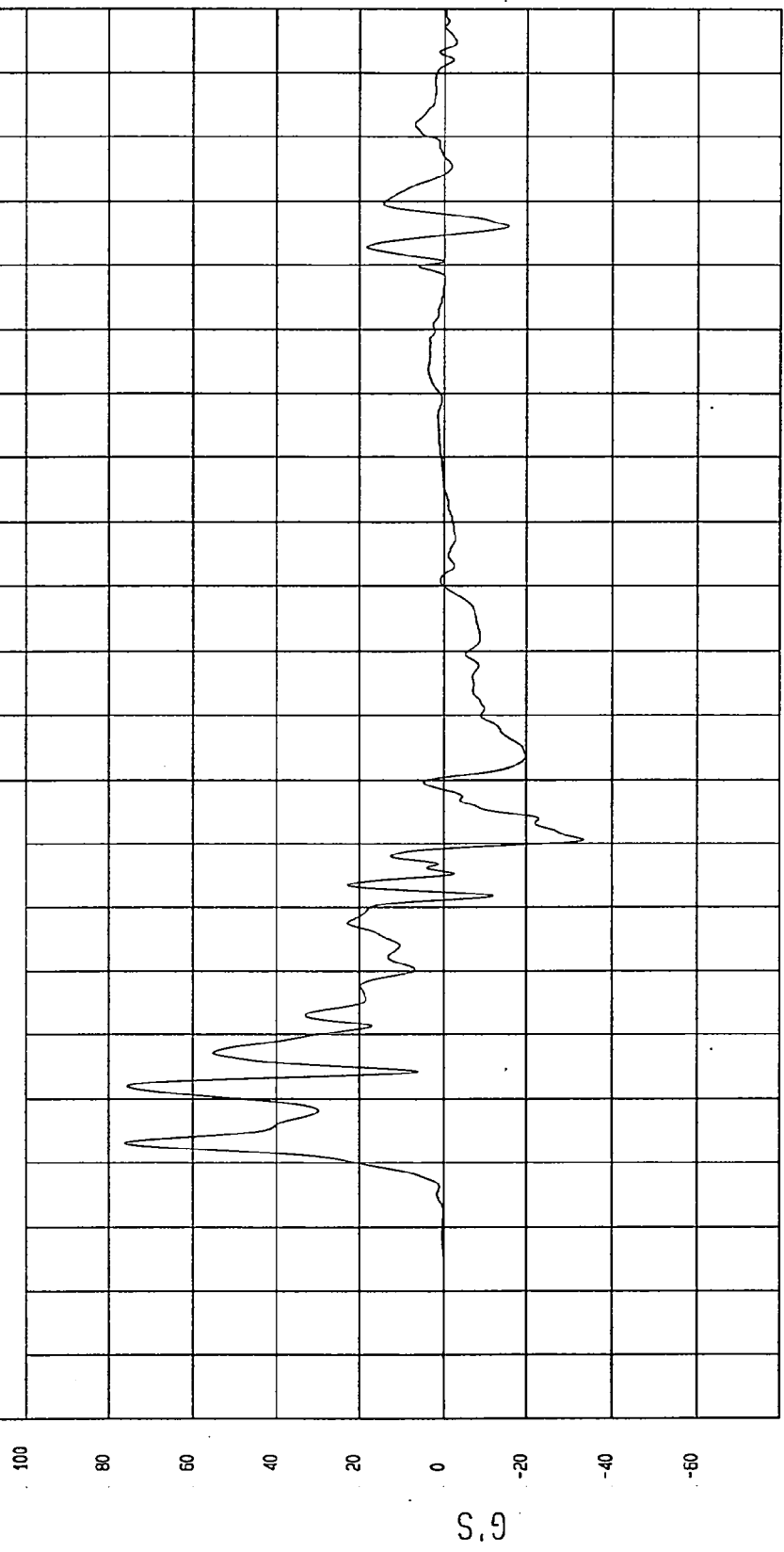
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

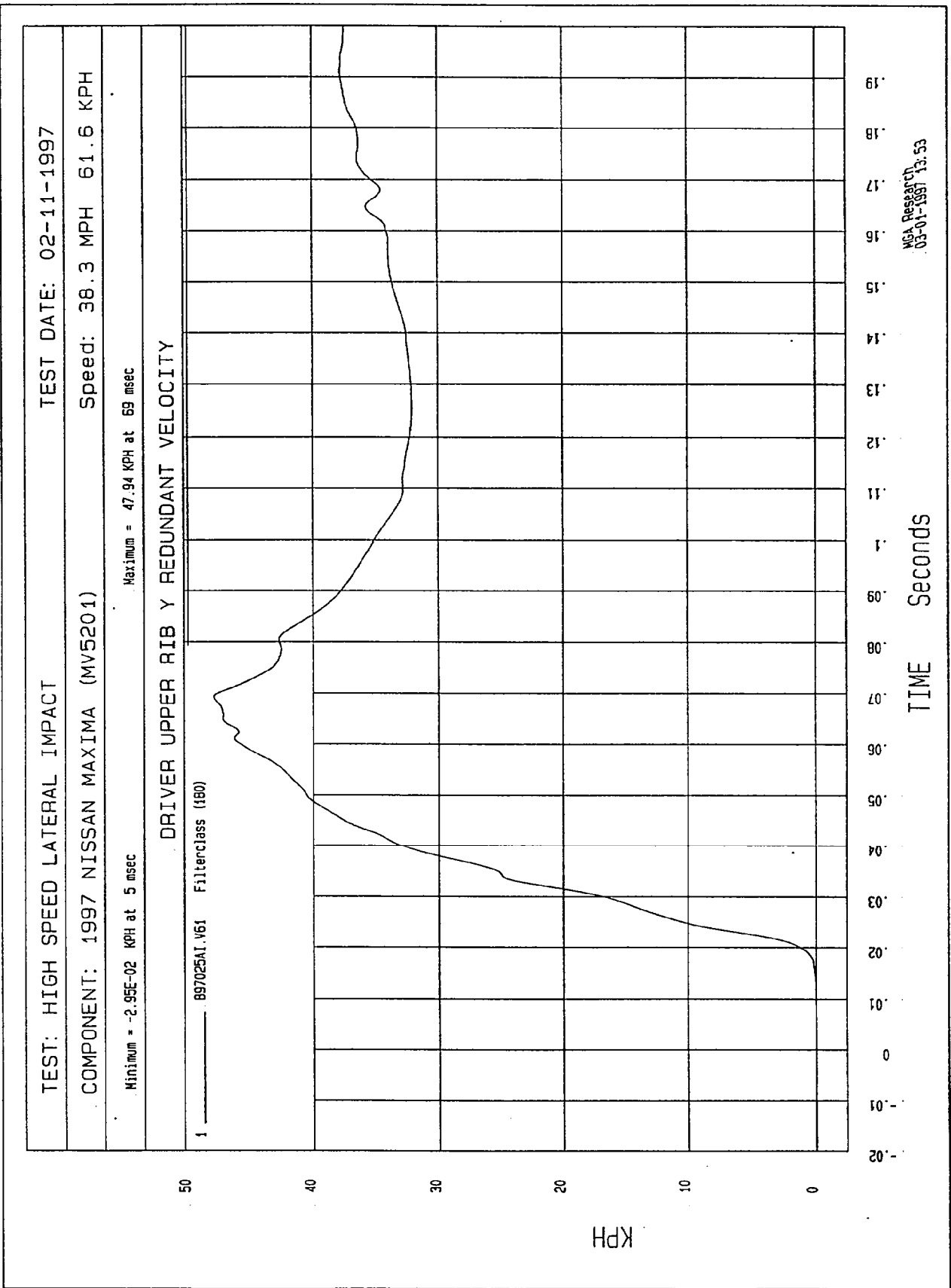
Minimum = -33.27 G'S at 70 msec Maximum = 76.23 G'S at 23 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION

1 _____ B97025AF.A61 Filterclass (180)



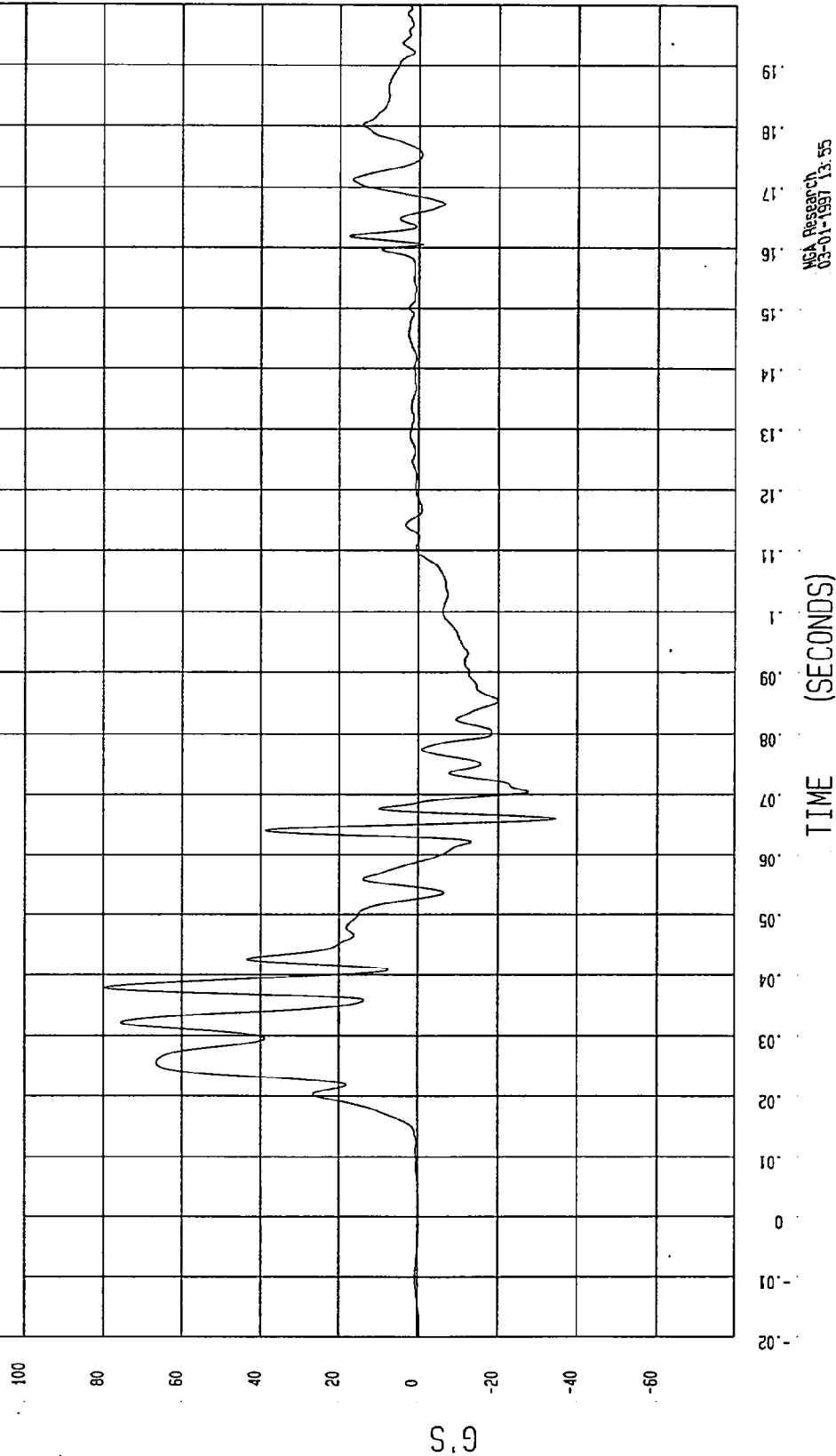
MCA Research
03-01-1997 13.54



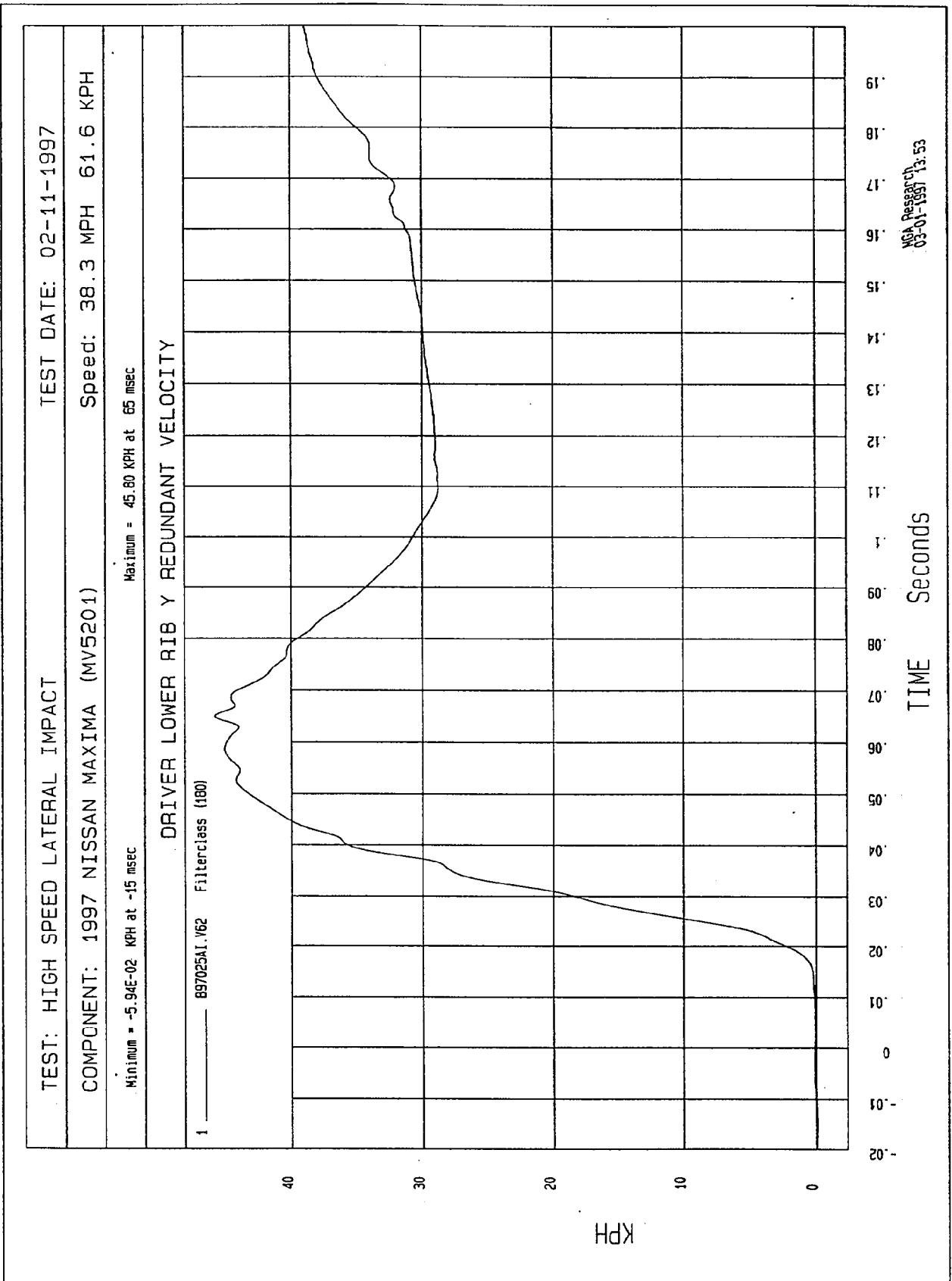
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997
COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH
Minimum = -34.66 G'S at 66 msec Maximum = 79.56 G'S at 38 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION

1 897025AF.A52 Filterclass (100)



MSA Research
03-01-1997 13:55



MCA Research
03-01-1997 13:53

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -64.23 G'S at 62 msec Maximum = 76.32 G'S at 38 msec

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION

1 897025AF.A63 Filterclass (180)

100

80

60

40

20

0

-20

-40

-60

G.S

19

18

17

16

15

14

13

12

11

10

09

08

07

06

05

04

03

02

01

0

-01

-02

TIME (SECONDS)

MCA Research
03-01-1997 13:55

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

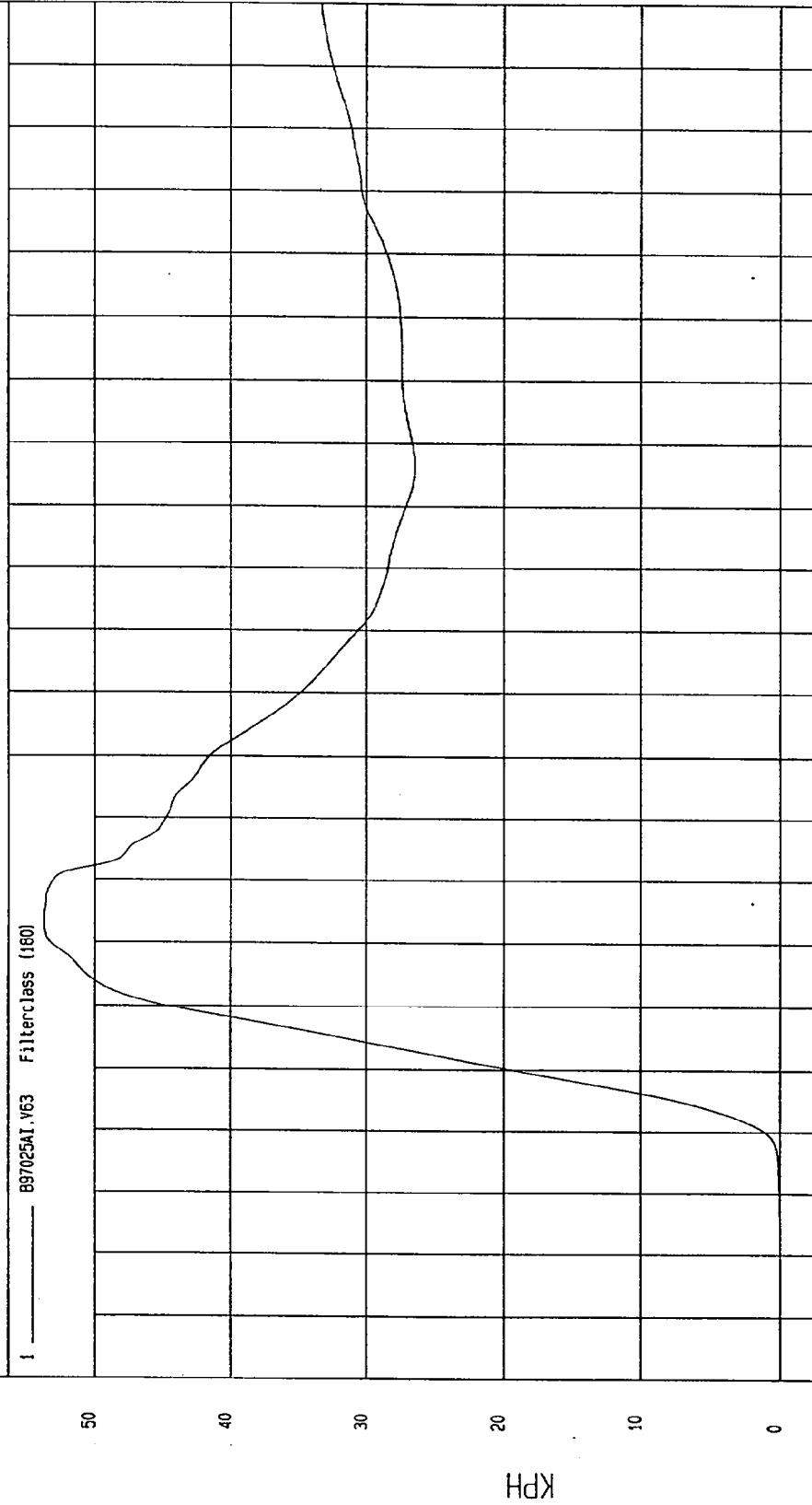
COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -8.01E-06 KPH at -20 msec

Maximum = 53.54 KPH at 54 msec

DRIVER LOWER SPINE Y REDUNDANT VELOCITY

1 ——— B97025A1.V63 FilterClass (160)



MGA Research
03-01-1997 13:53

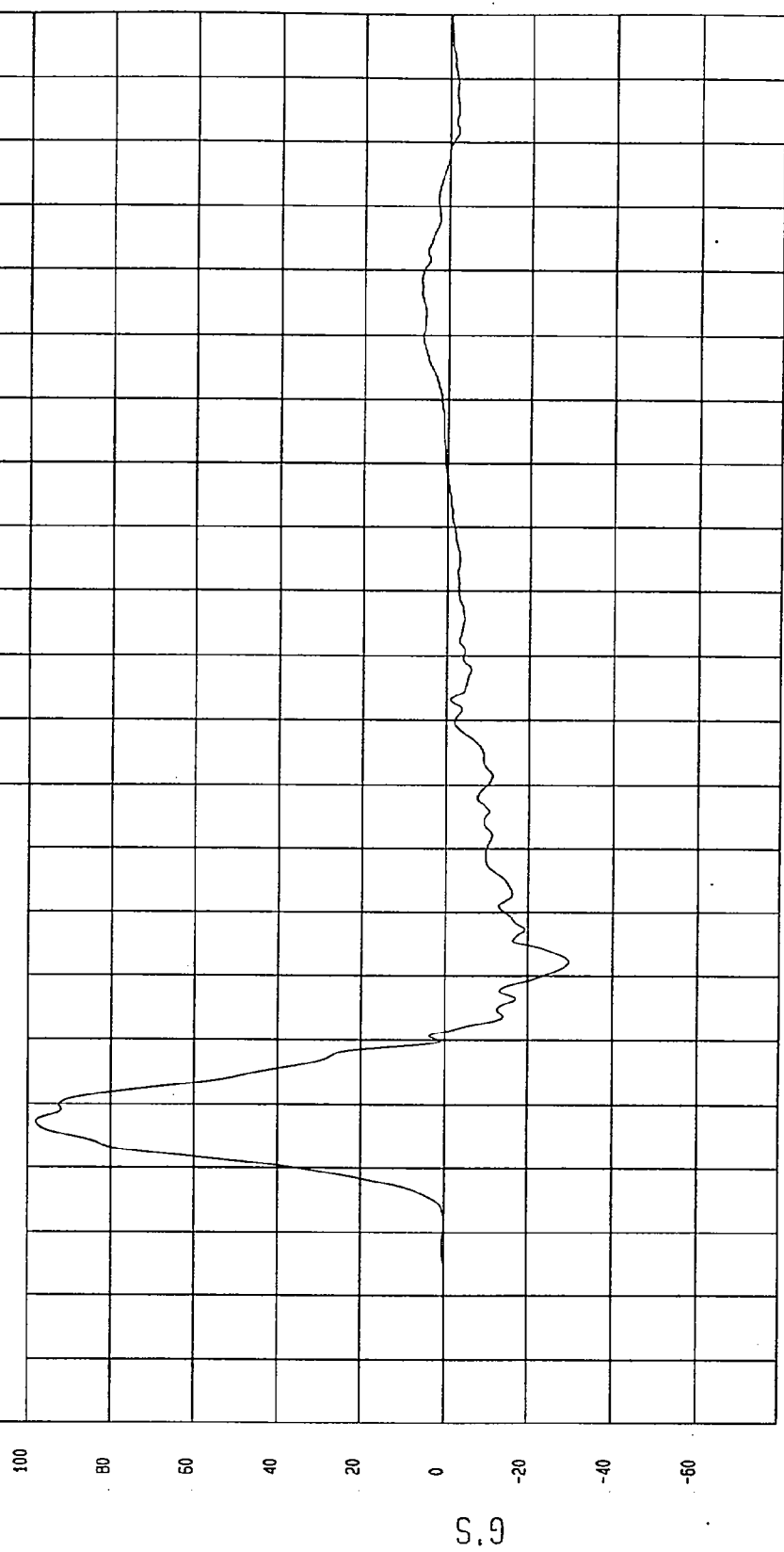
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -29.75 G'S at 52 msec Maximum = 98.08 G'S at 27 msec

DRIVER PELVIS Y REDUNDANT ACCELERATION

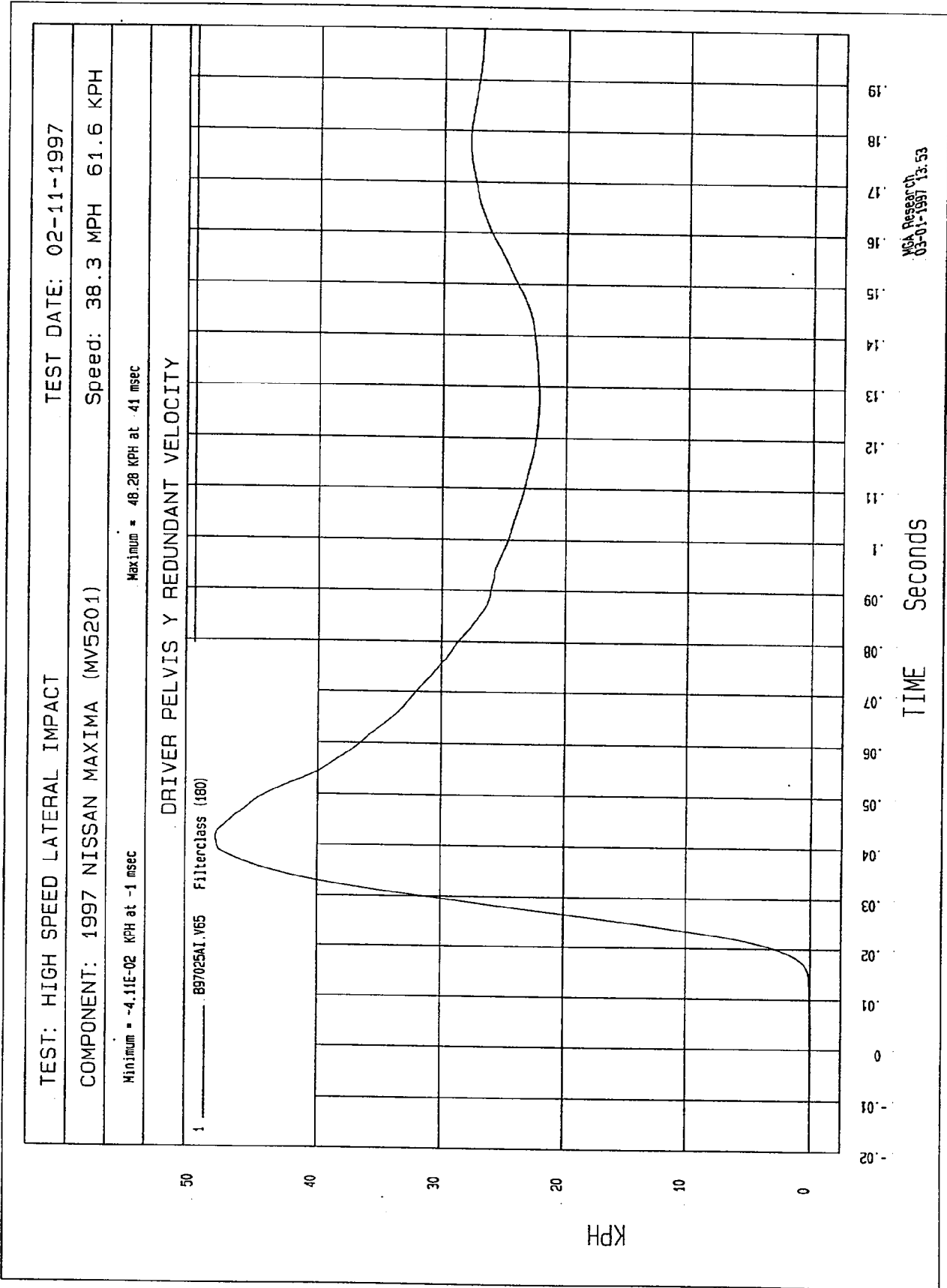
1 _____ BS7025AF.A65 Filterclass (180)



19
18
17
16
15
14
13
12
11
10
09
08
07
06
05
04
03
02
01
0
-01
-02

TIME (SECONDS)

WSA Research
03-01-1997 13:55



TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997
COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -6.73 G'S at 126 msec Maximum = 75.47 G'S at 45 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

1 — 897025MF.A56 Filterclass (180)

100

80

60

40

20

0

-20

-40

-60

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

0.10

0.11

0.12

0.13

0.14

0.15

0.16

0.17

0.18

0.19

TIME (SECONDS)

WCA Research
03-01-1997 13:55

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

Speed: 38.3 MPH 61.6 KPH

Minimum = -3.77E-03 KPH at -14 msec

Maximum = 43.00 KPH at 98 msec

REAR PASSENGER UPPER RIB Y REDUNDANT VELOCITY

1 ——— B97025A1.V66 Filterclass (180)

40

30

20

10

0

KPH

-02

-01

0

01

02

03

04

05

06

07

08

09

1

11

12

13

14

15

16

17

18

19

TIME Seconds

MGA Research
03-01-1997 13:53

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -21.22 G'S at 70 msec Maximum = 99.60 G'S at 43 msec

REAR PASSENGER LOWER RIB Y REDUNDANT ACCELERATION

1 ——— B97025AF.A67 Filterclass (180)

G'S

100
80
60
40
20
0
-20
-40
-60

TIME (SECONDS)

6.19
6.18
6.17
6.16
6.15
6.14
6.13
6.12
6.11
6.1
6.09
6.08
6.07
6.06
6.05
6.04
6.03
6.02
6.01
6.0
6.-01
6.-02

WCA Research
03-01-1997 13:55

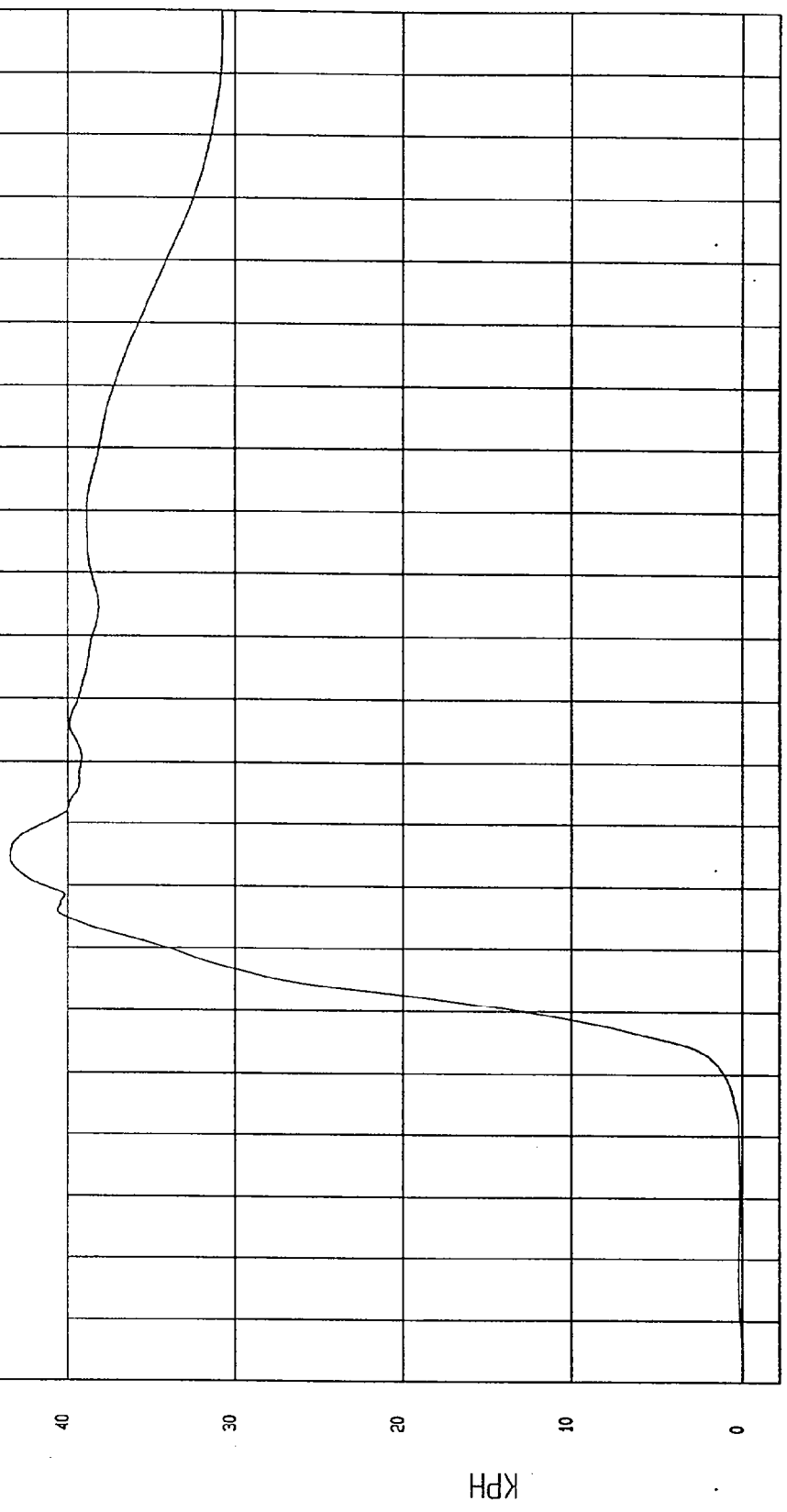
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -1.60E-02 KPH at -17 msec Maximum = 43.38 KPH at 64 msec

REAR PASSENGER LOWER RIB Y REDUNDANT VELOCITY

1 _____ 897025A1.V67 Filterclass (180)



TIME Seconds

MCA Research
03-01-1997 13:53

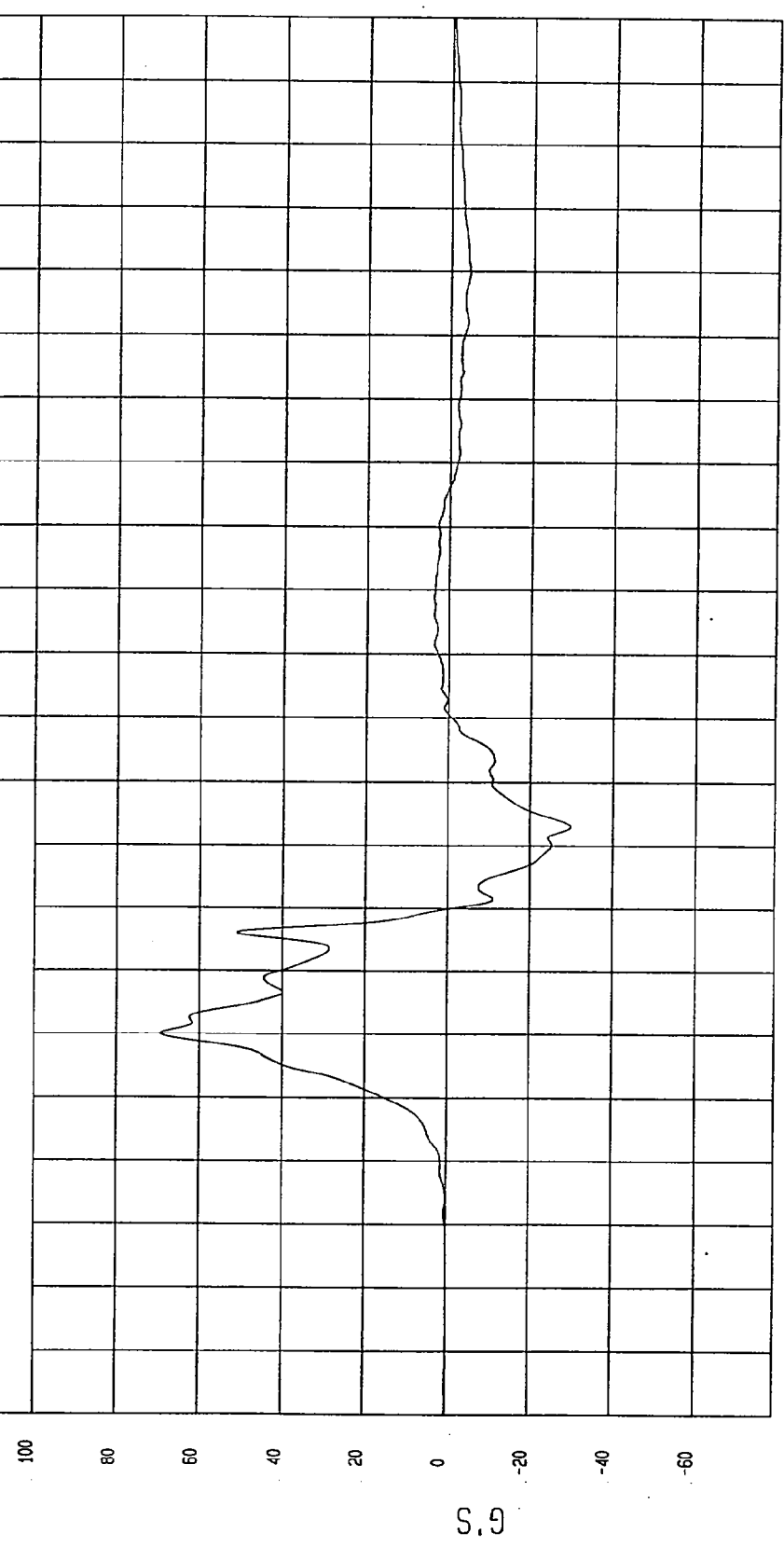
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -30.00 G's at 73 msec
Maximum = 69.38 G's at 40 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION

1 897025AF.A68 Filterclass (180)



TIME (SECONDS)

MSA Research
03-01-1997 13:55

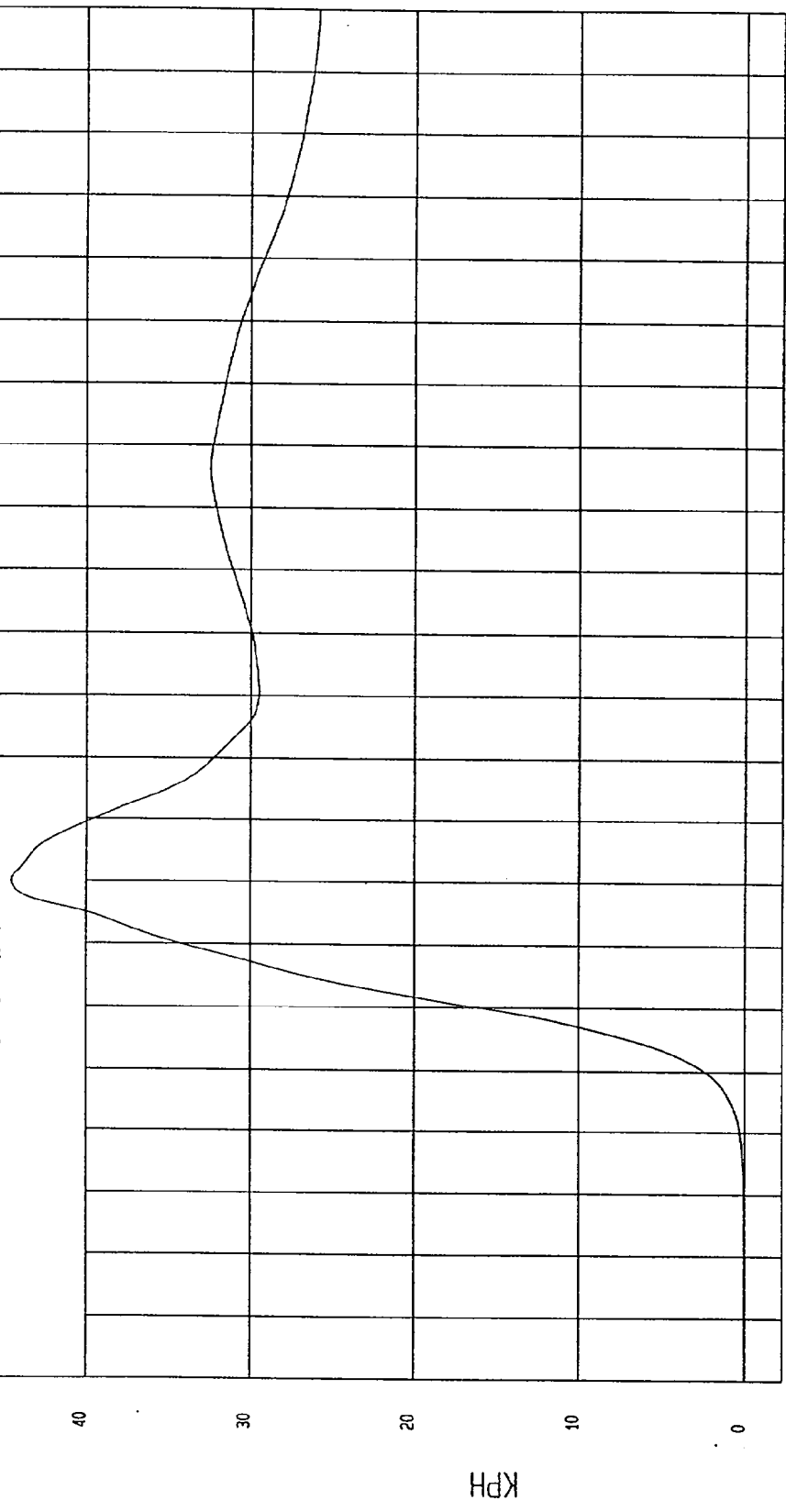
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = 0 KPH at -20 msec Maximum = 44.55 KPH at 60 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT VELOCITY

1 ——— B97025A1.V68 Filterclass (180)



0.19 0.18 0.17 0.16 0.15 0.14 0.13 0.12 0.11 0.10 0.09 0.08 0.07 0.06 0.05 0.04 0.03 0.02 0.01 0 -0.01 -0.02

MSA Research
03-01-1997 13:53

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -20.71 G'S at 60 msec Maximum = 87.76 G'S at 32 msec

REAR PASSENGER PELVIS Y REDUNDANT ACCELERATION

1 ——— B97025AF.A69 Filterclass (180)

100
80
60
40
20
0
-20
-40
-60

G'S

TIME (SECONDS)

0.02 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10 0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19

NGA Research
03-01-1997 13:55

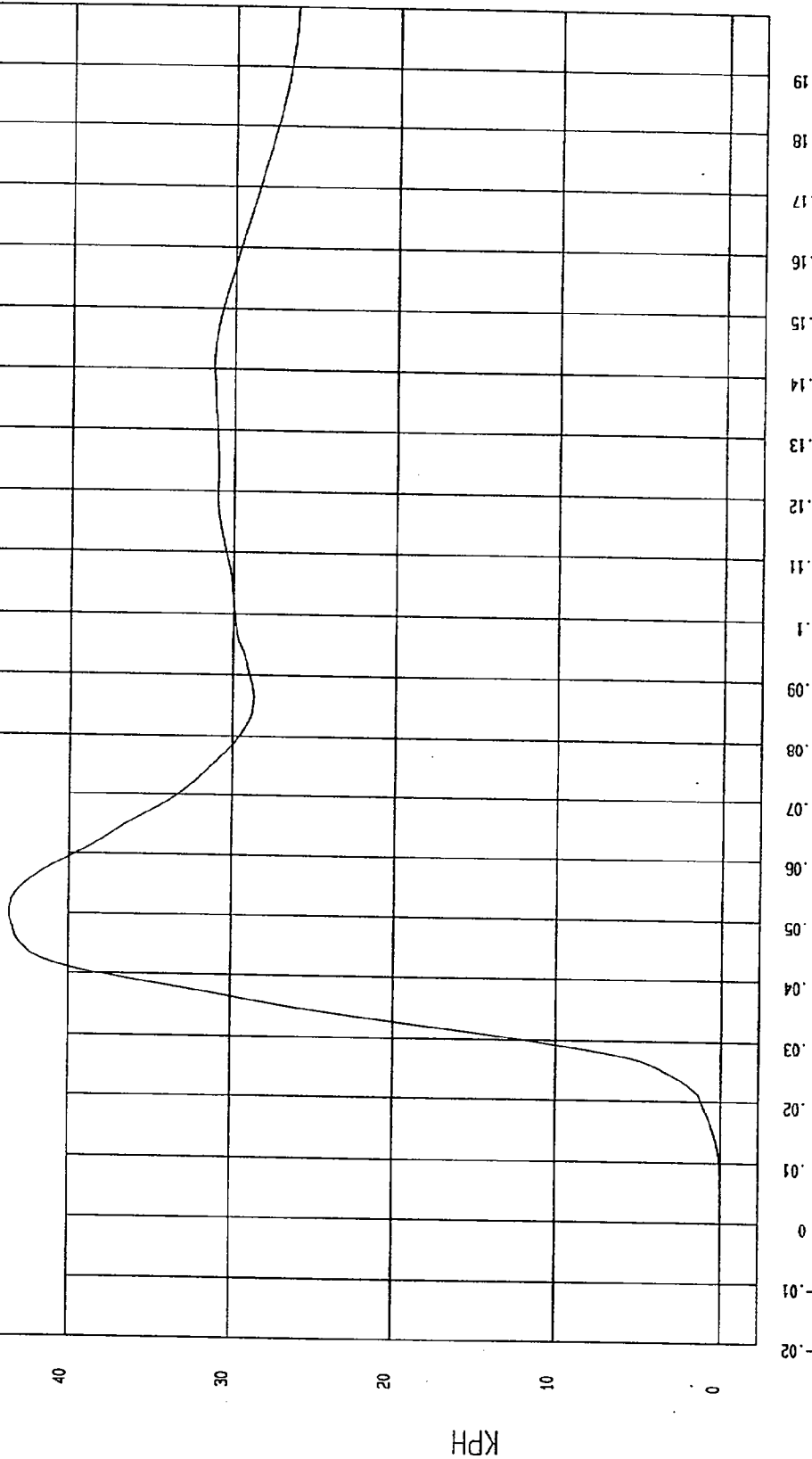
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -5.73E-03 KPH at -18 msec Maximum = 43.60 KPH at 50 msec

REAR PASSENGER PELVIS Y REDUNDANT VELOCITY

1 — B97025A1.V69 Filterclass (180)



NCA Research
03-01-1997 13:53

FINITE IMPULSE RESPONSE (FIR) FILTERED DATA

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997
COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH
Minimum = -27.60 G'S at 73 msec Maximum = 65.90 G'S at 24 msec

DRIVER UPPER RIB Y ACCELERATION

1 ——— 897025F1.R15 Filterclass (FIR Filtered)

120

100

80

60

40

20

0

-20

G'S

-0.20

-0.01

0

0.01

0.02

0.03

0.04

0.05

0.06

0.07

0.08

0.09

0.10

0.11

0.12

0.13

0.14

0.15

0.16

0.17

0.18

0.19

TIME (SECONDS)

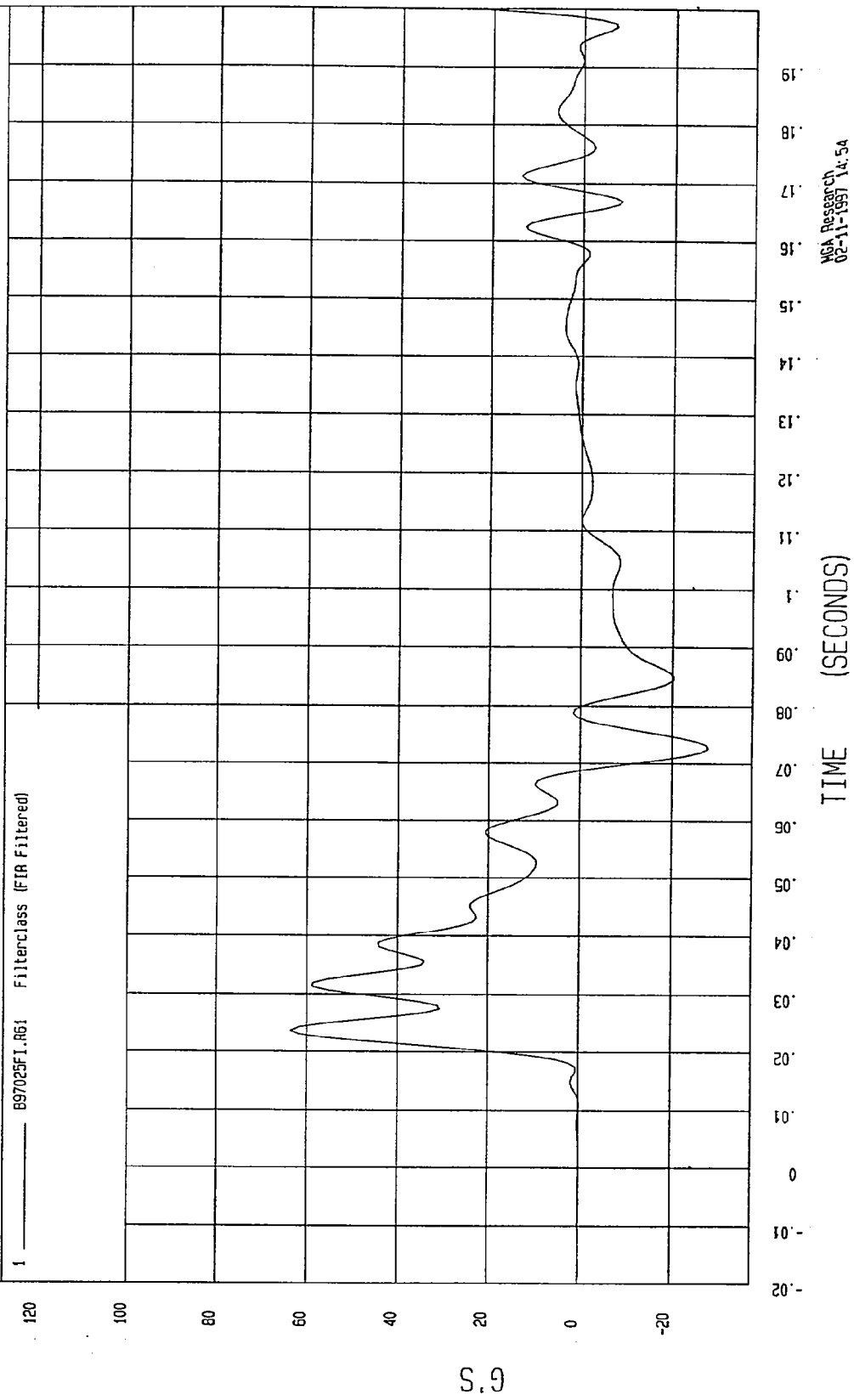
MCA Research
02-11-1997 14:54

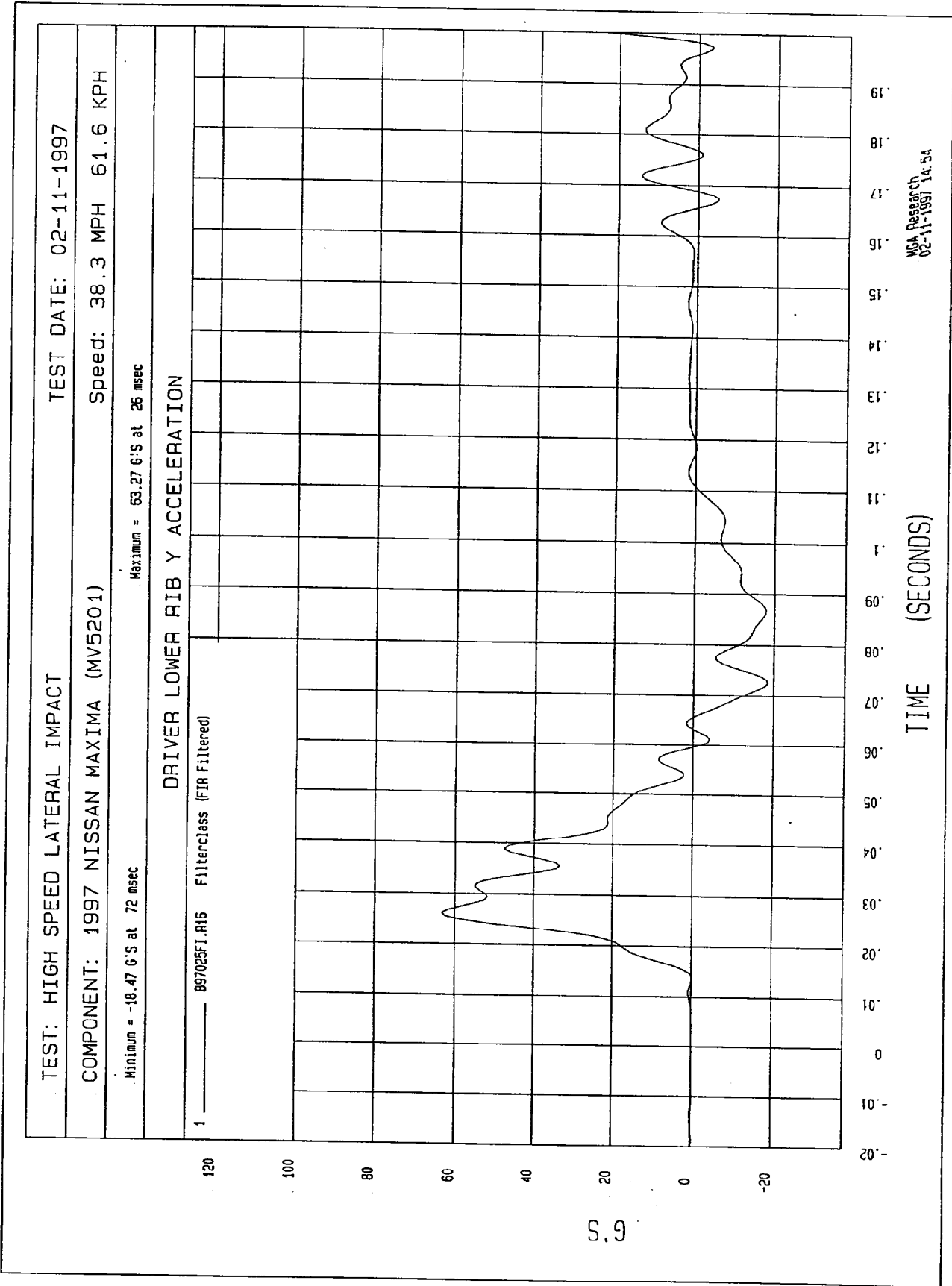
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -27.82 G'S at 72 msec Maximum = 63.68 G'S at 24 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION



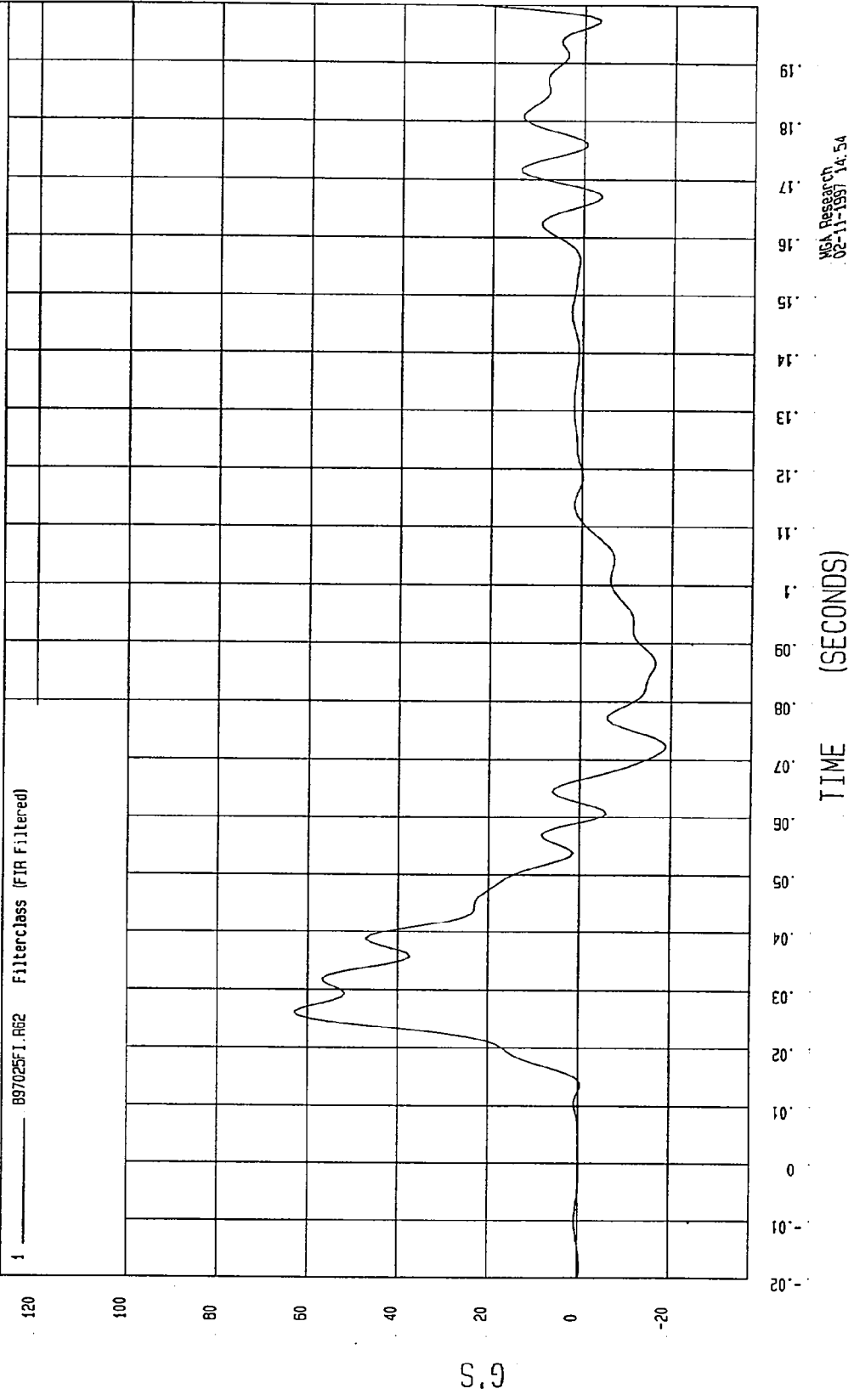


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -18.83 G'S at 72 msec Maximum = 62.99 G'S at 26 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION



MOA Research
02-11-1997 14:54

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

Speed: 38.3 MPH 61.6 KPH

Minimum = -36.53 G'S at 62 msec

Maximum = 73.70 G'S at 29 msec

DRIVER LOWER SPINE Y ACCELERATION

1 897025F1.R17 Filterclass (FIR Filtered)

120

100

80

60

40

20

0

-20

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)

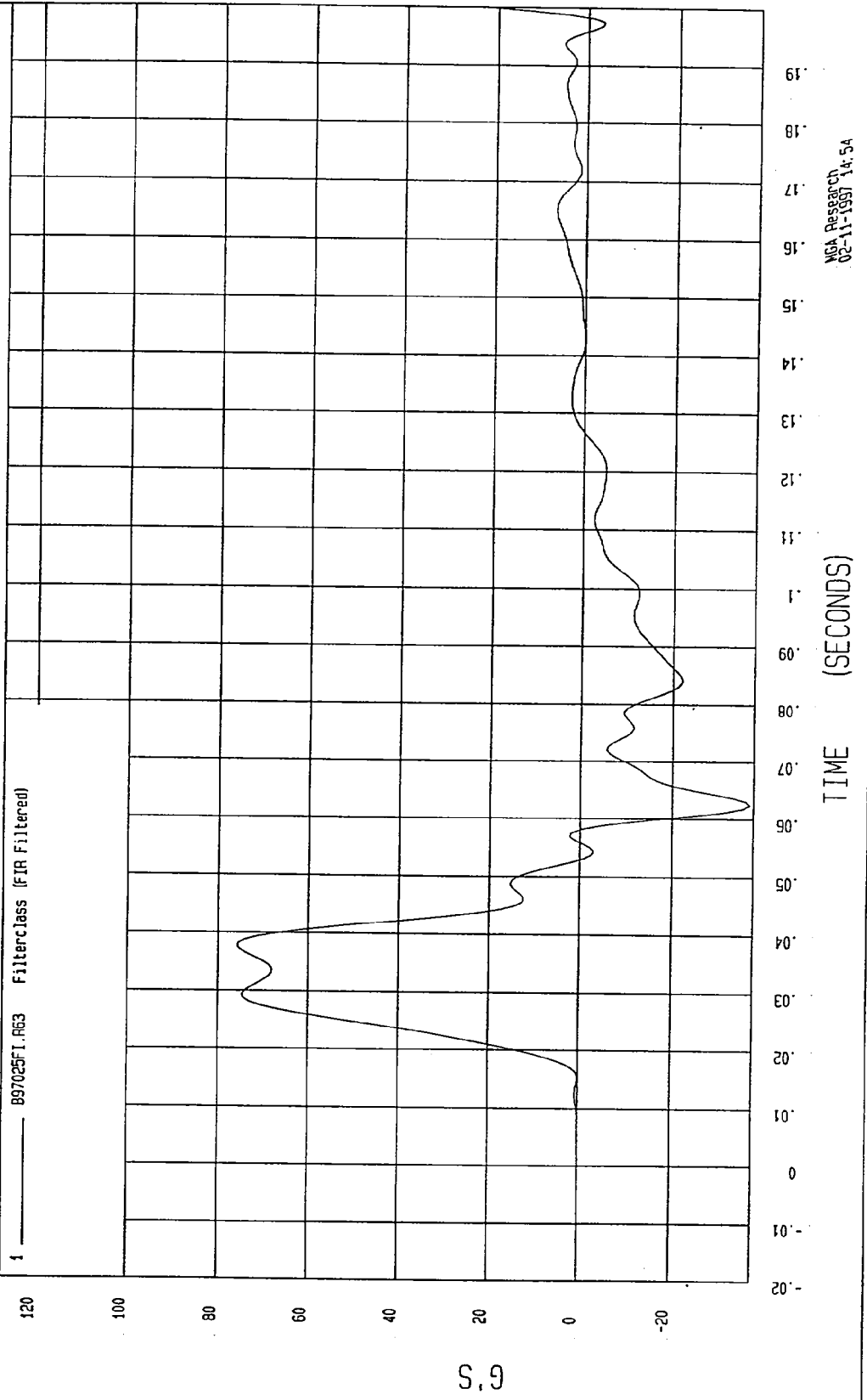
VCA Research
02-11-1997 14:54

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

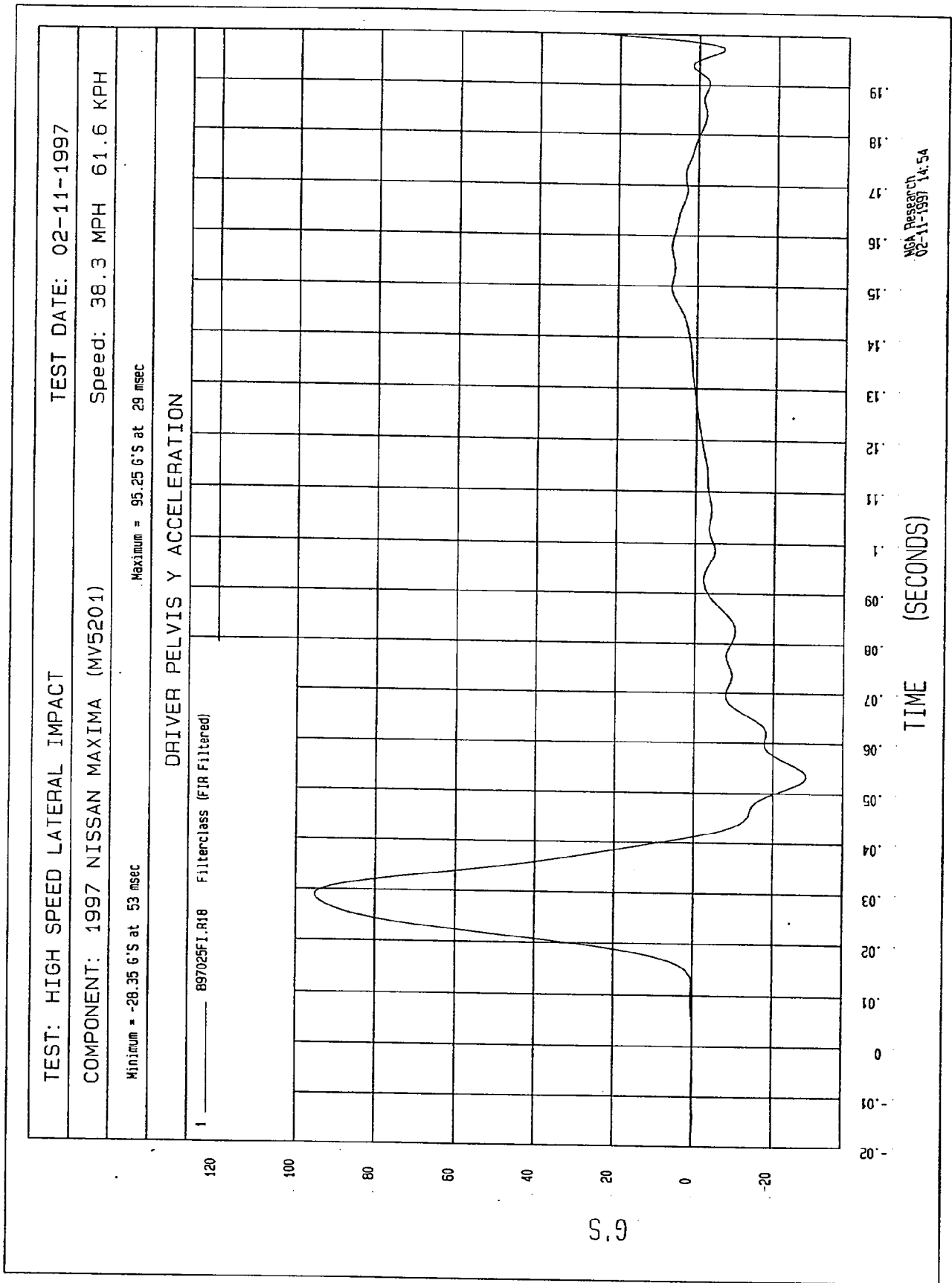
COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -36.71 G'S at 62 msec Maximum = 75.62 G'S at 38 msec

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION



MGA Research
02-11-1997 14:54



TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -28.22 G'S at 52 msec Maximum = 96.85 G'S at 28 msec

DRIVER PELVIS Y REDUNDANT ACCELERATION

1 ——— B97025F1.D65 Filterclass (FIR Filtered)

120

100

80

60

40

20

0

-20

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)

MSA Research
02-11-1997 14:54

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -5.15 G'S at 126 msec
Maximum = 66.95 G'S at 45 msec

REAR PASSENGER UPPER RIB Y ACCELERATION

1 897025F1.R25 Filterclass (FIR Filtered)

120

100

80

60

40

20

0

-20

G'S

TIME (SECONDS)

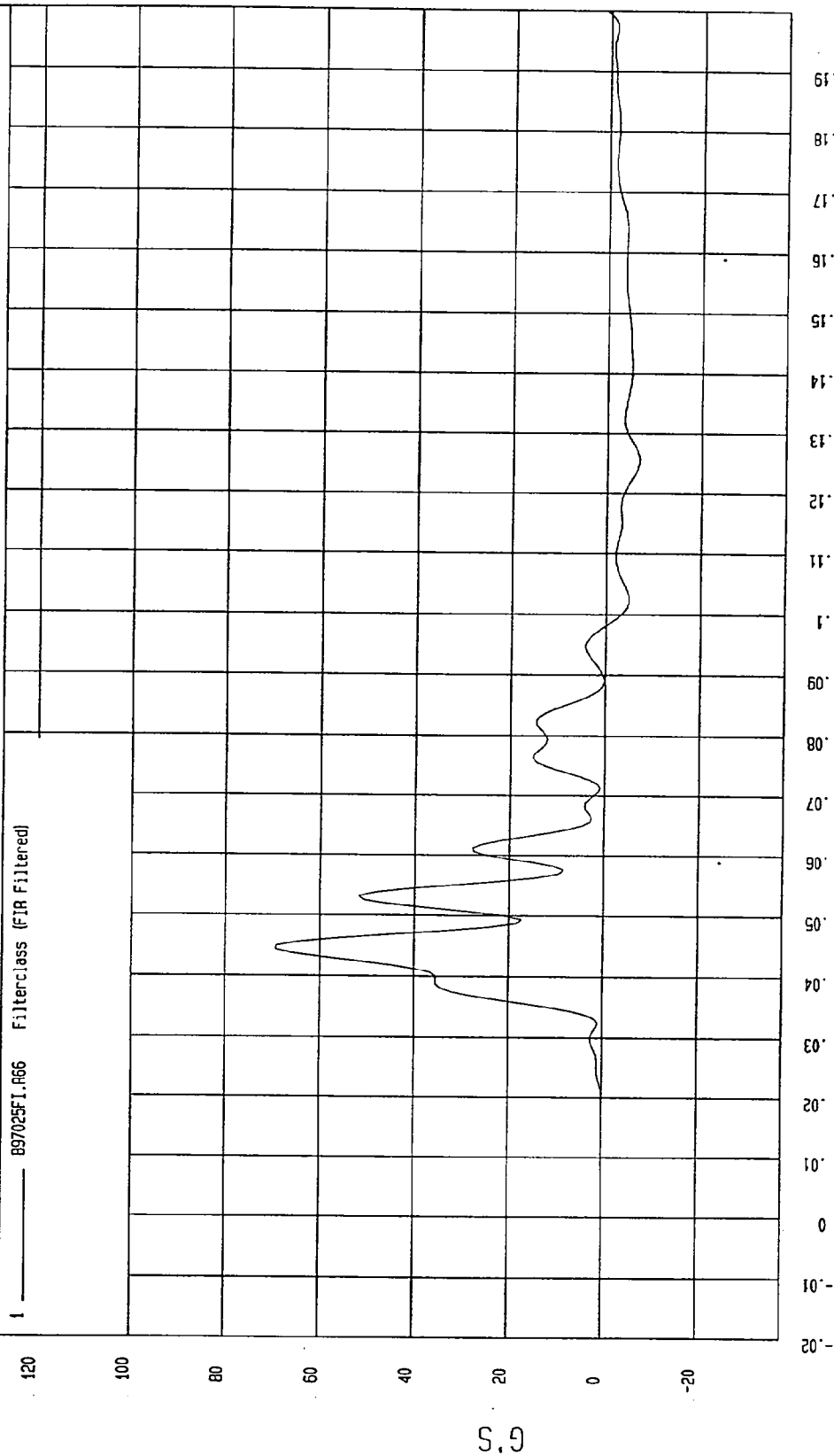
MCA Research
02-11-1997 14:54

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -6.71 G'S at 125 msec Maximum = 69.28 G'S at 44 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION



NBA Research
02-11-1997 14:55

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -18.93 G'S at 71 msec
Maximum = 84.59 G'S at 43 msec

REAR PASSENGER LOWER RIB Y ACCELERATION

1 ——— 897025F1.R26 Filterclass (FIR Filtered)

120

100

80

60

40

20

0

-20

G.S

-20

-10

0

10

20

30

40

50

60

70

80

90

100

110

120

130

140

150

160

170

180

190

TIME (SECONDS)

MOA Research
02-11-1997 14:55

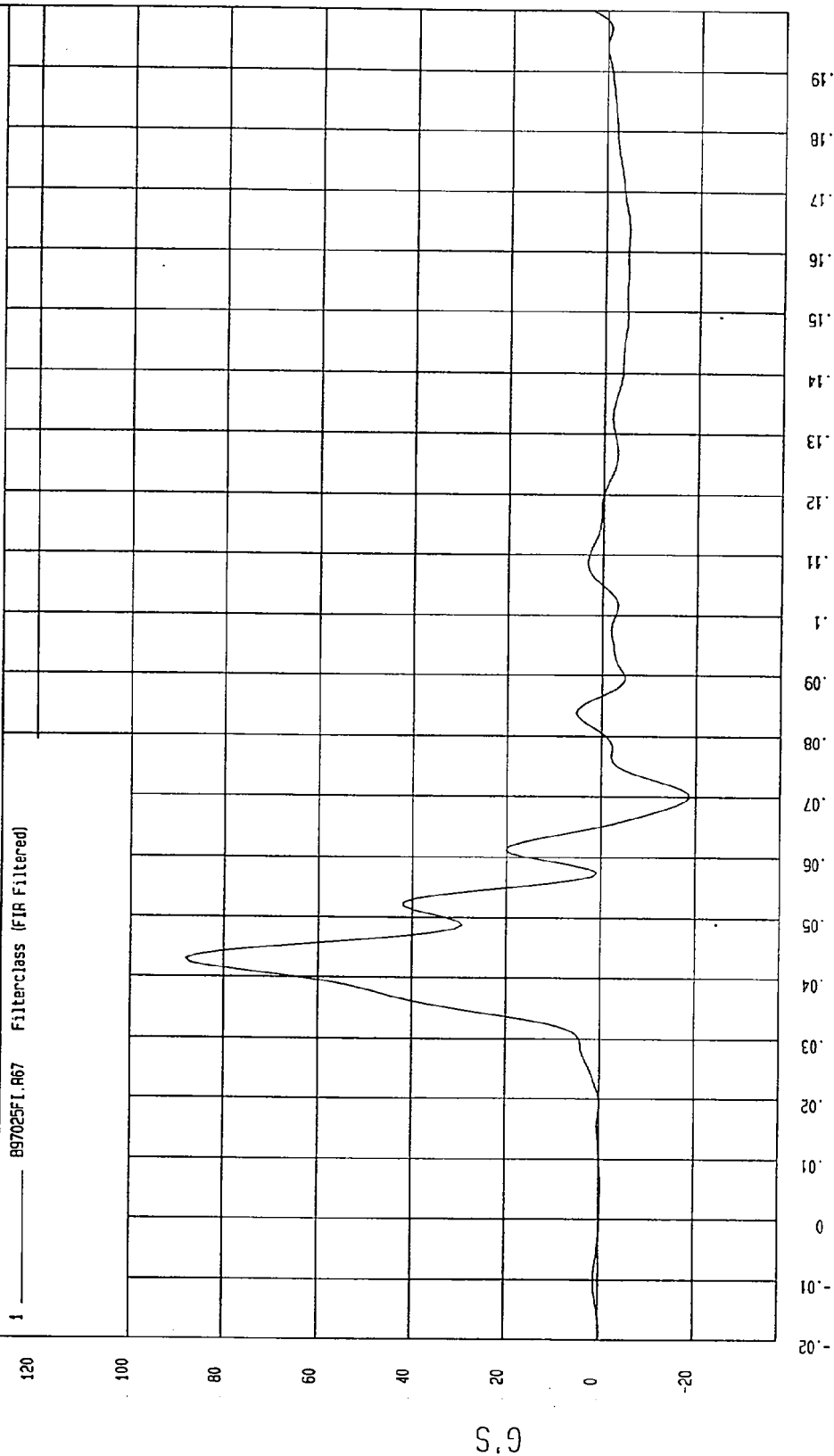
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH

Minimum = -18.68 G'S at 70 msec Maximum = 87.99 G'S at 43 msec

REAR PASSENGER LOWER RIB Y REDUNDANT ACCELERATION

1 ——— B97025F1.R67 Filterclass (FIR Filtered)



MECA Research
02-11-1997 14:55

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 02-11-1997

COMPONENT: 1997 NISSAN MAXIMA (MV5201)

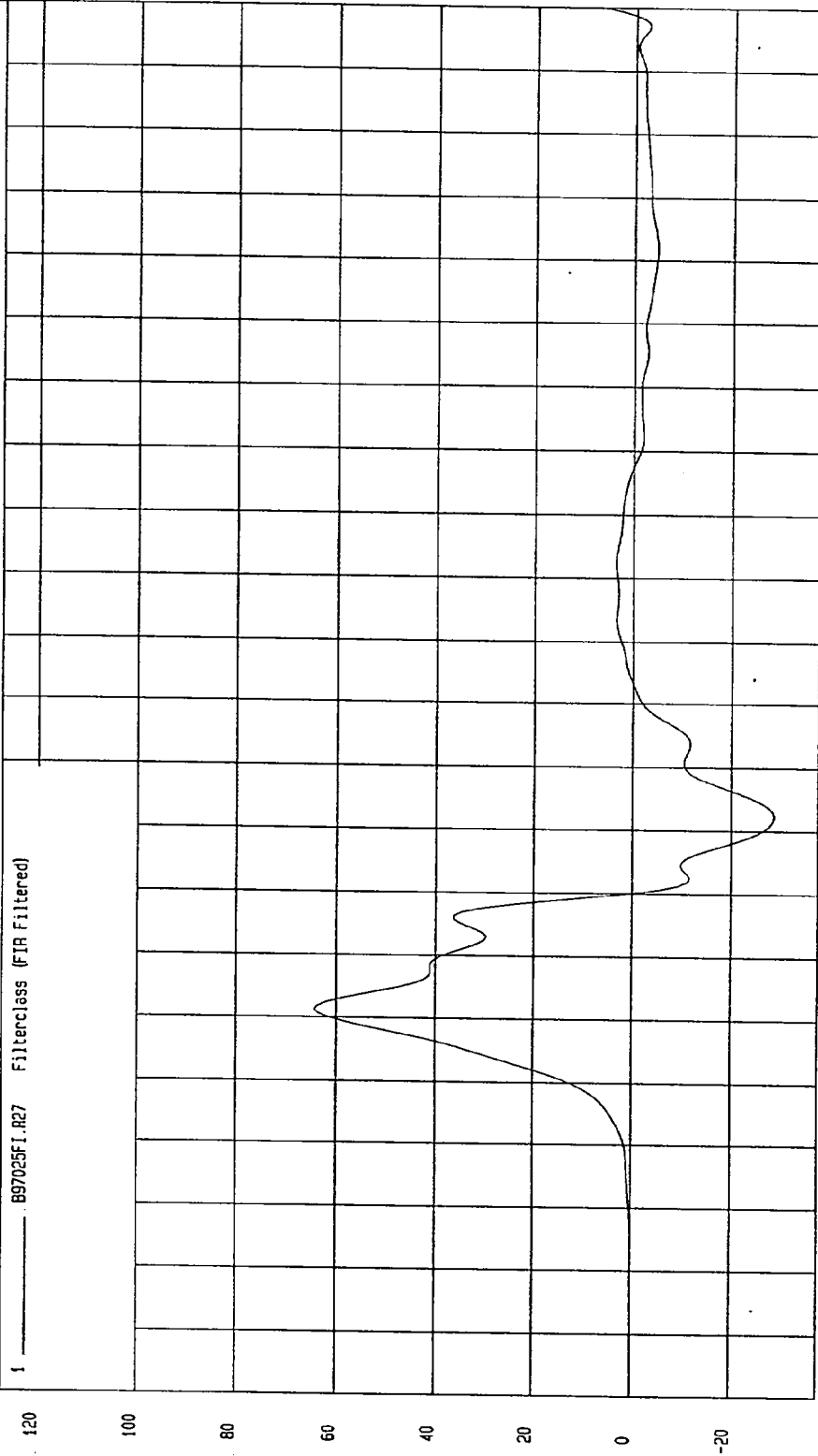
Speed: 38.3 MPH 61.6 KPH

Minimum = -28.47 G'S at 72 msec

Maximum = 64.59 G'S at 41 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION

1 ——— B97025FI.R27 Filterclass (FIR Filtered)



TIME (SECONDS)

MCA Research
02-11-1997 14:55

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 02-11-1997
COMPONENT: 1997 NISSAN MAXIMA (MV5201) Speed: 38.3 MPH 61.6 KPH
Minimum = -27.41 G'S at 72 msec Maximum = 66.71 G'S at 41 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION

1 ——— 897025F1.R68 Filterclass (FIR Filtered)

120

100

80

60

40

20

0

-20

G'S

-02

-01

0

01

02

03

04

05

06

07

08

09

10

11

12

13

14

15

16

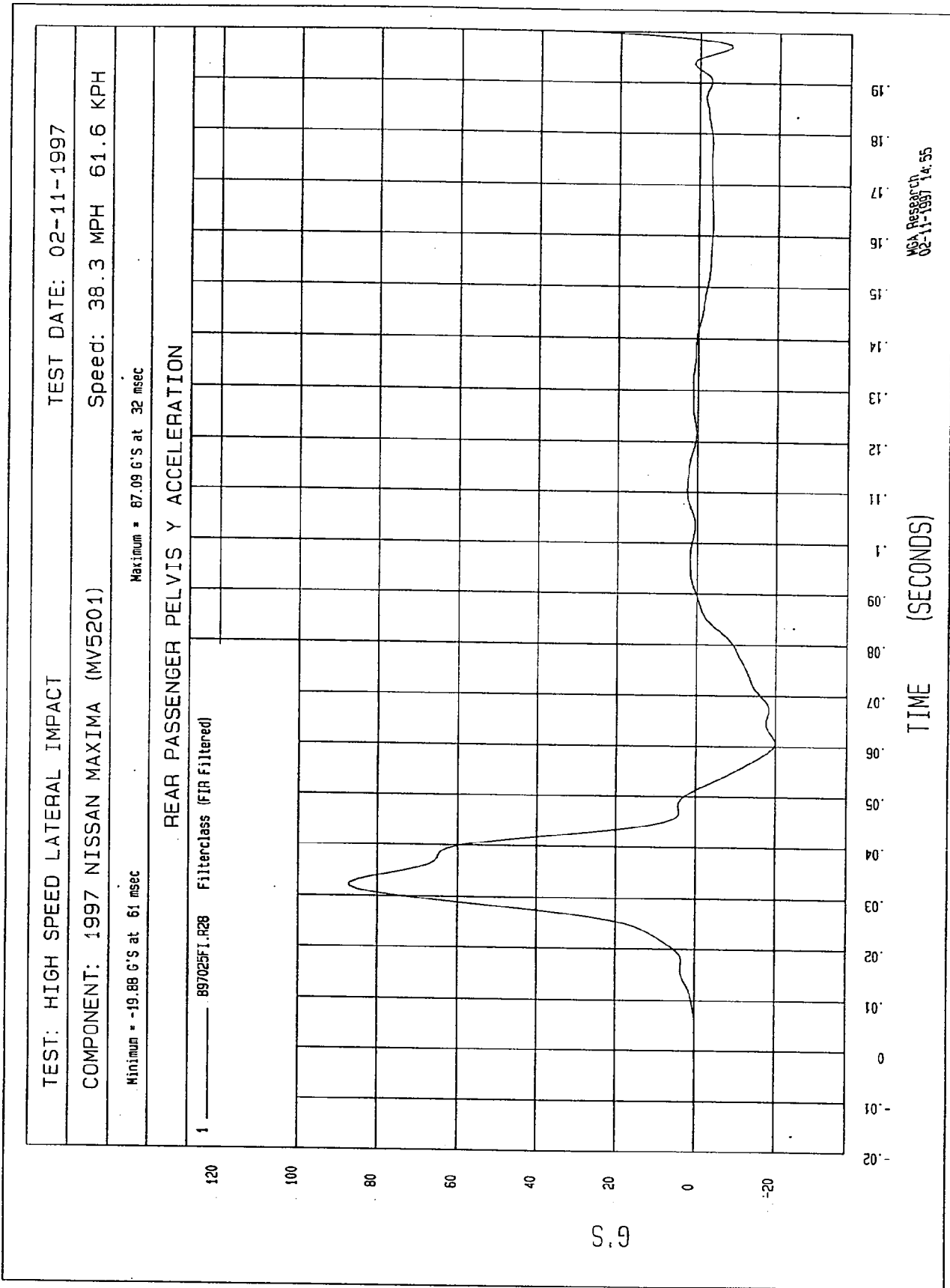
17

18

19

TIME (SECONDS)

WGL Research
02-11-1997 14:55

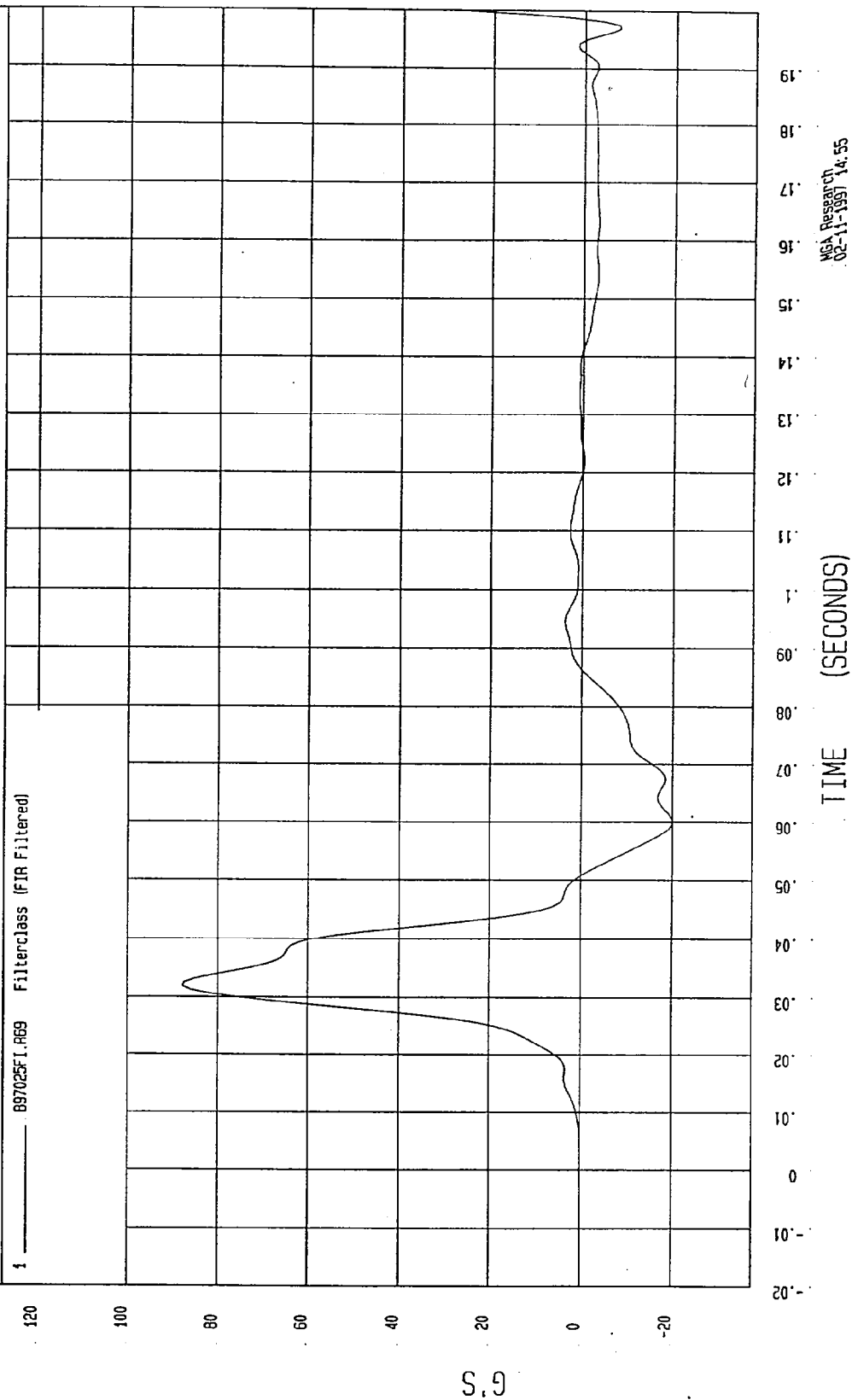


TEST DATE: 02-11-1997

Speed: 38.3 MPH 61.6 KPH

Maximum = 87.79 G'S at 32 msec

REAR PASSENGER PELVIS Y REDUNDANT ACCELERATION



APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION

REPORT NO. MGA-97-DC18

DUMMY PERFORMANCE CALIBRATIONS

NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST

1997 NISSAN MAXIMA 4-DOOR
NHTSA NO. MV5201

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: February 11, 1997

Report Date: March 6, 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: 269	PRE-TEST CERTIFICATION DATA	1-1
DUMMY S/N: 270	PRE-TEST CERTIFICATION DATA	2-1
DUMMY S/N: 269	POST-TEST CERTIFICATION DATA	3-1
DUMMY S/N: 270	POST-TEST CERTIFICATION DATA	4-1
DUMMY S/N: 269	POST-TEST INSPECTION CHECKLIST	5-1
DUMMY S/N: 270	POST-TEST INSPECTION CHECKLIST	6-1
	VEHICLE AND DUMMY TEMPERATURE	7-1

PRE-TEST CERTIFICATION DATA

Front 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.

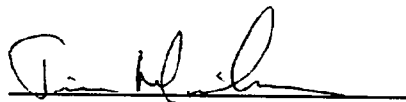
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY NO.: 269

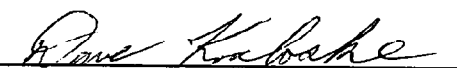
DATE OF VERIFICATION: February 10, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.1
RH - Rib Height	19.75" - 20.50"	20.00
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: February 10, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97392

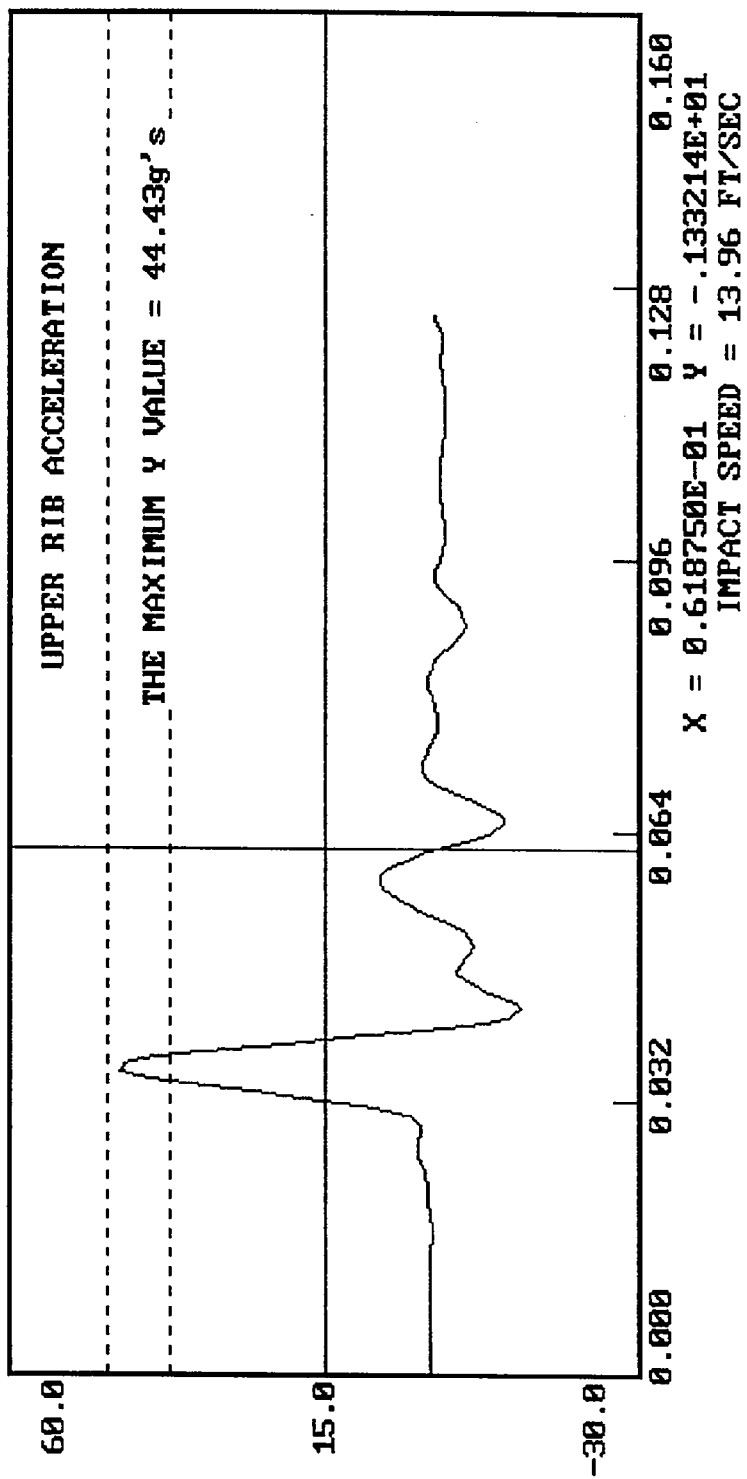
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	44
LOWER RIB	37 - 46 g's	41
LOWER SPINE	15 - 22 g's	20

TEST MEETS SPECIFICATIONS

TECHNICIAN Tim Mich

APPROVED BY Dave Korbach

DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 269
 02-10-1997 15:28
 ACCELERATION (G'S) VS. TIME ((SECONDS))

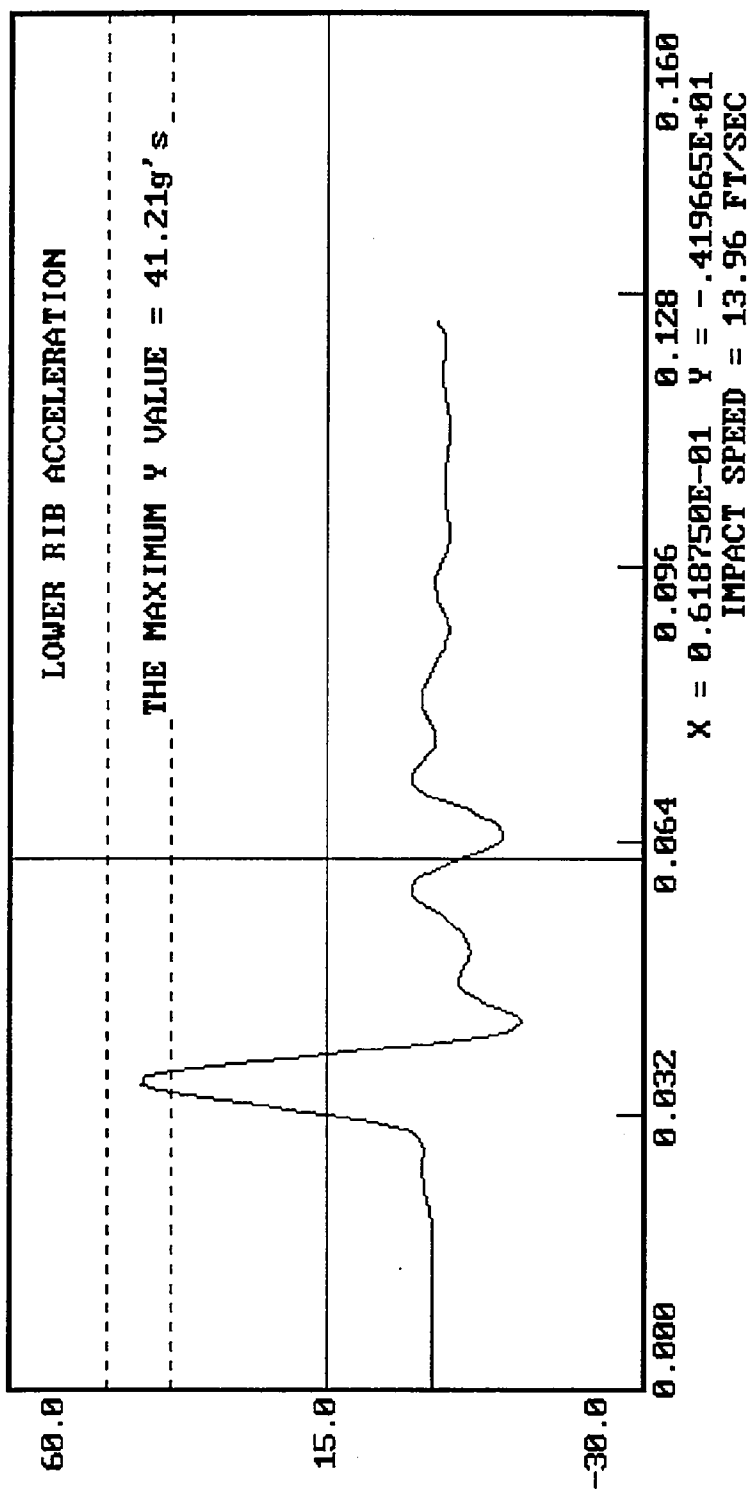


02-10-1997 15:28

DUMMY CALIBRATION - THORAX IMPACT

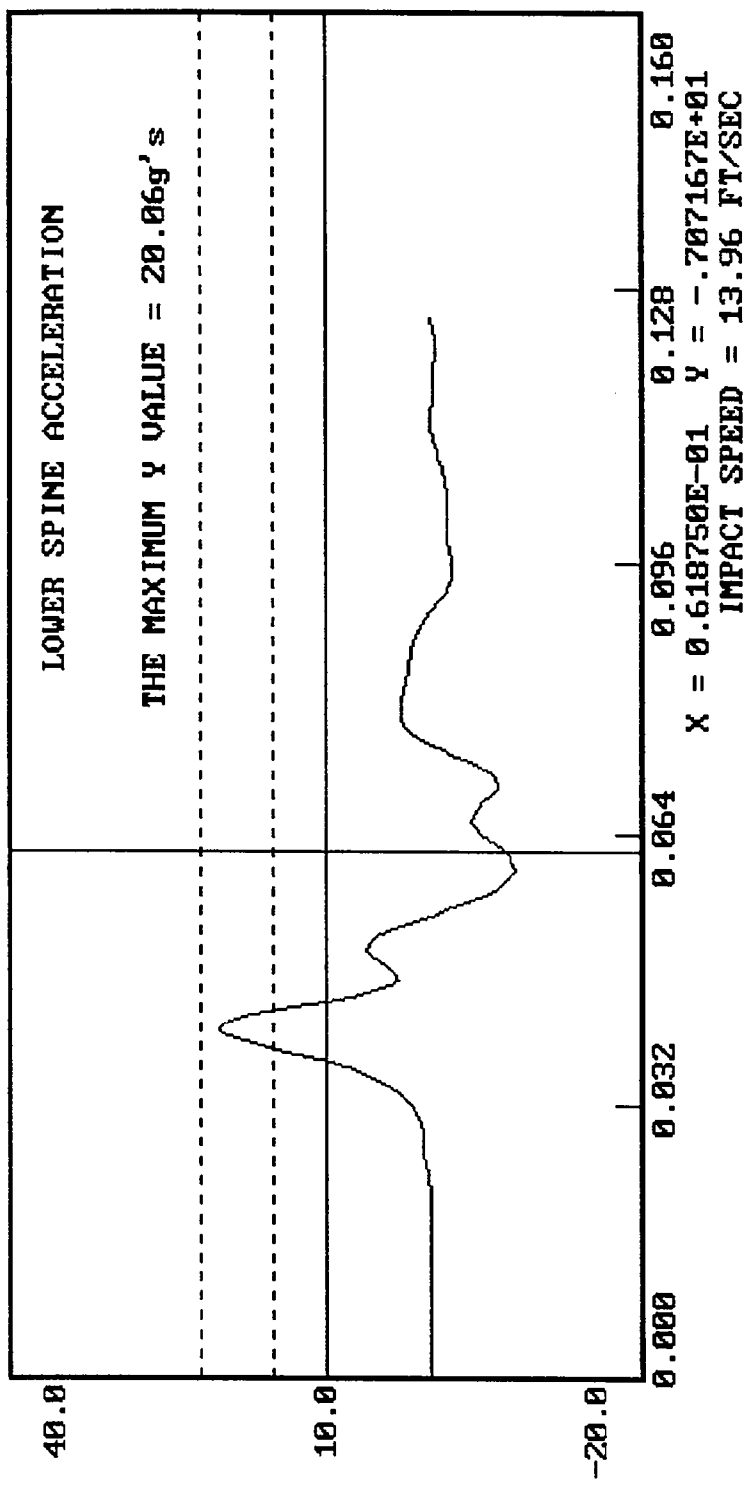
DUMMY # 269

ACCELERATION (G'S) VS. TIME ((SECONDS))



02-10-1997 15:31

DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 269
ACCELERATION (G'S) VS. TIME ((SECONDS))



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: February 10, 1997

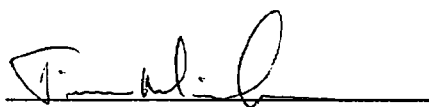
DUMMY NUMBER: 269

TEST NUMBER: D97393

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	57

TEST MEETS SPECIFICATIONS

TECHNICIAN

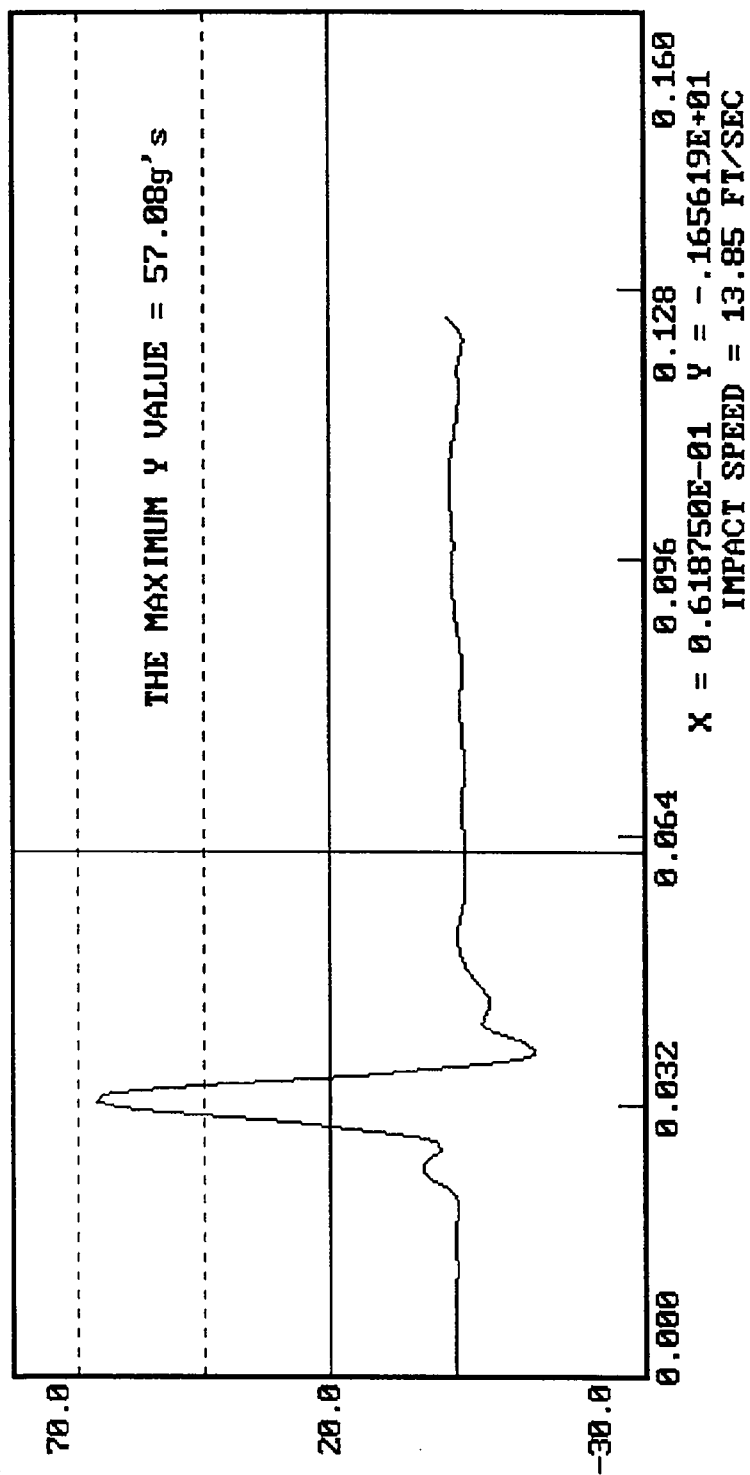


APPROVED BY



02-10-1997 15:41

DUMMY CALIBRATION - PELVIS IMPACT
DUMMY # 269
ACCELERATION (G'S) VS. TIME ((SECONDS))



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

DATE: February 10, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97394

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0.5 in	23.3 - 36.5 lbs	35.1
FORCE @ 0.75 in	36.7 - 49.8 lbs	47.7
FORCE @ 1.0 in	50 - 63 lbs	62
FORCE @ 1.3 in	73 - 88 lbs	83

TEST MEETS SPECIFICATIONS

TECHNICIAN Tim H. L.

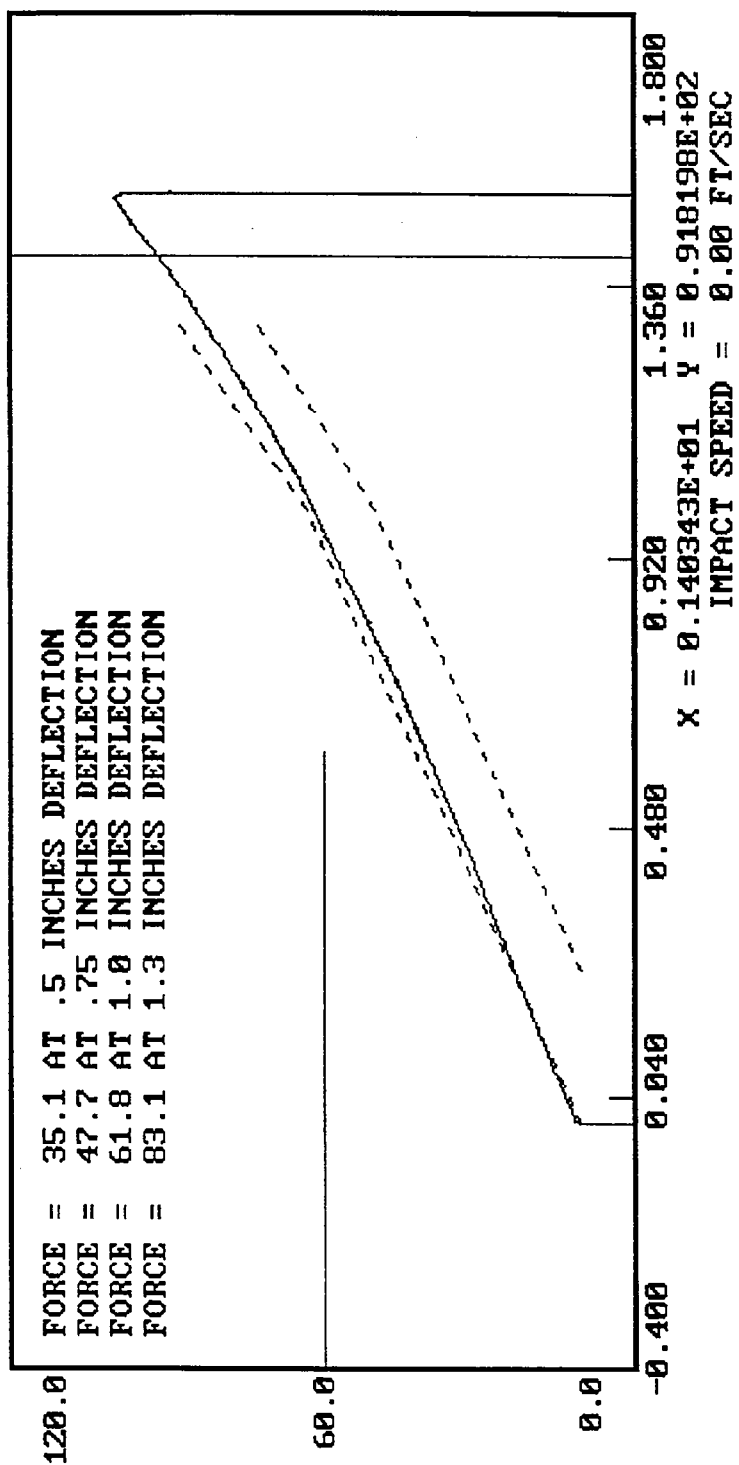
APPROVED BY Gene Kabeke

DUMMY CALIBRATION - ABDOMEN COMPRESSION

DUMMY # 269

02-10-1997 13:36

ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: February 10, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97395

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	30
FORCE @ 30°	34 - 46 lbs	37
FORCE @ 40°	46 - 58 lbs	48
RETURN ANGLE	12° maximum	2°

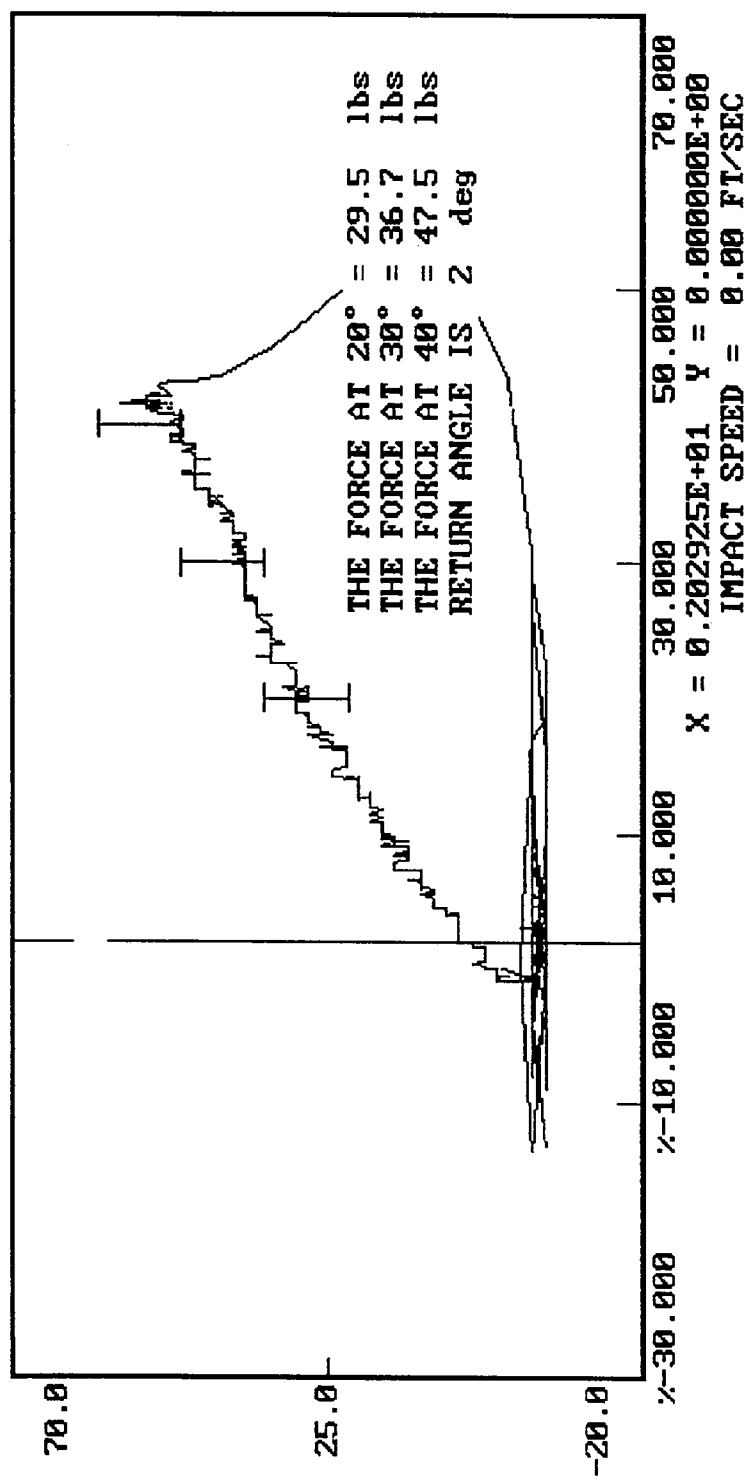
TEST MEETS SPECIFICATIONS

TECHNICIAN Jim White

APPROVED BY Dave Korleske

02-10-1997 14:32

DUMMY CALIBRATION - LUMBAR FLEXION
DUMMY # 269
FORCE (LBS) VS. TORSO ROTATION (DEGREES)



PRE-TEST CERTIFICATION DATA

Rear Dummy Serial Number: 270

Calibration Test Results Summary

Dummy Serial Number: 270

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.: 270

DATE OF VERIFICATION: February 10, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
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"	9.5
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: Jim White

APPROVED BY: Gene Koshake

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: February 10, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97402

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
PROBE SPEED	13.8 - 14.2 fps	14.1
UPPER RIB	37 - 46 g's	40
LOWER RIB	37 - 46 g's	38
LOWER SPINE	15 - 22 g's	21

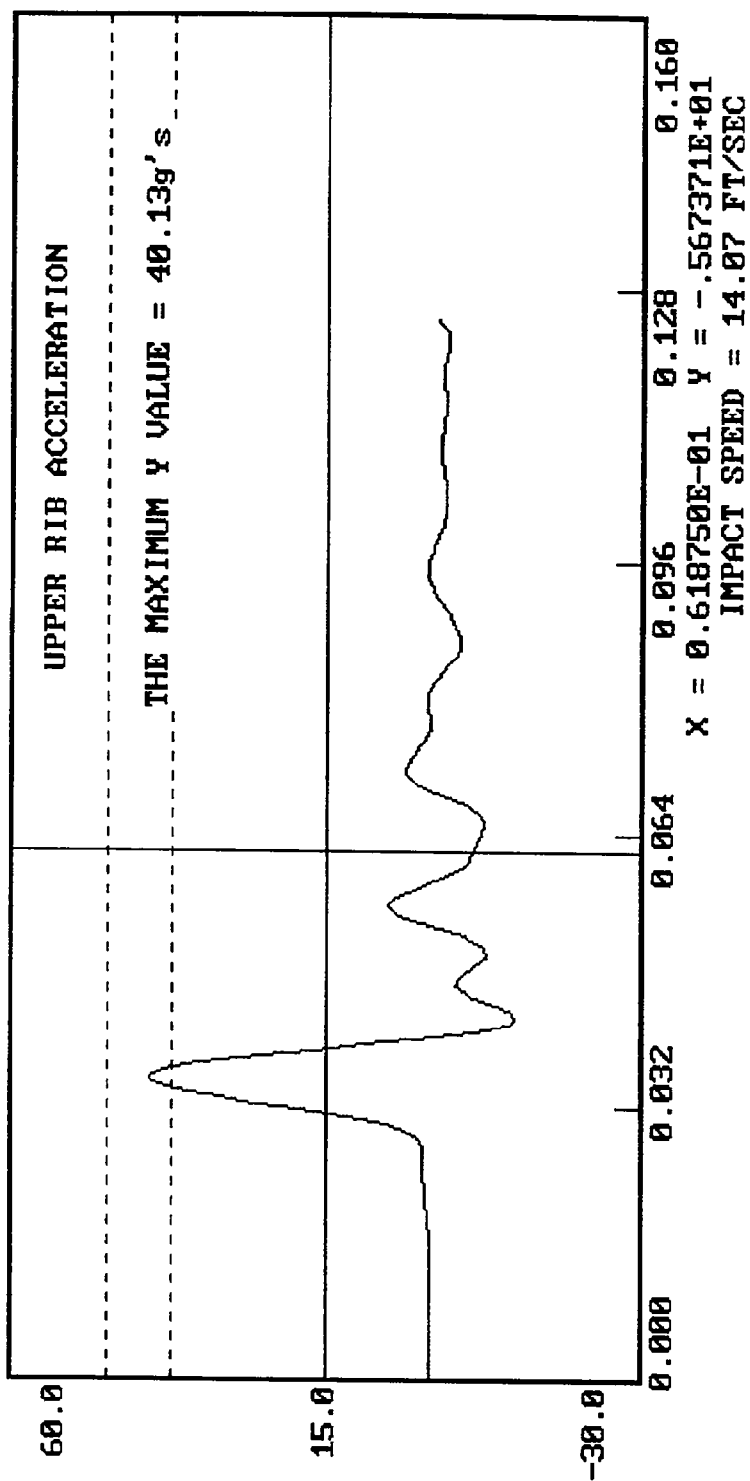
TEST MEETS SPECIFICATIONS

TECHNICIAN Jim White

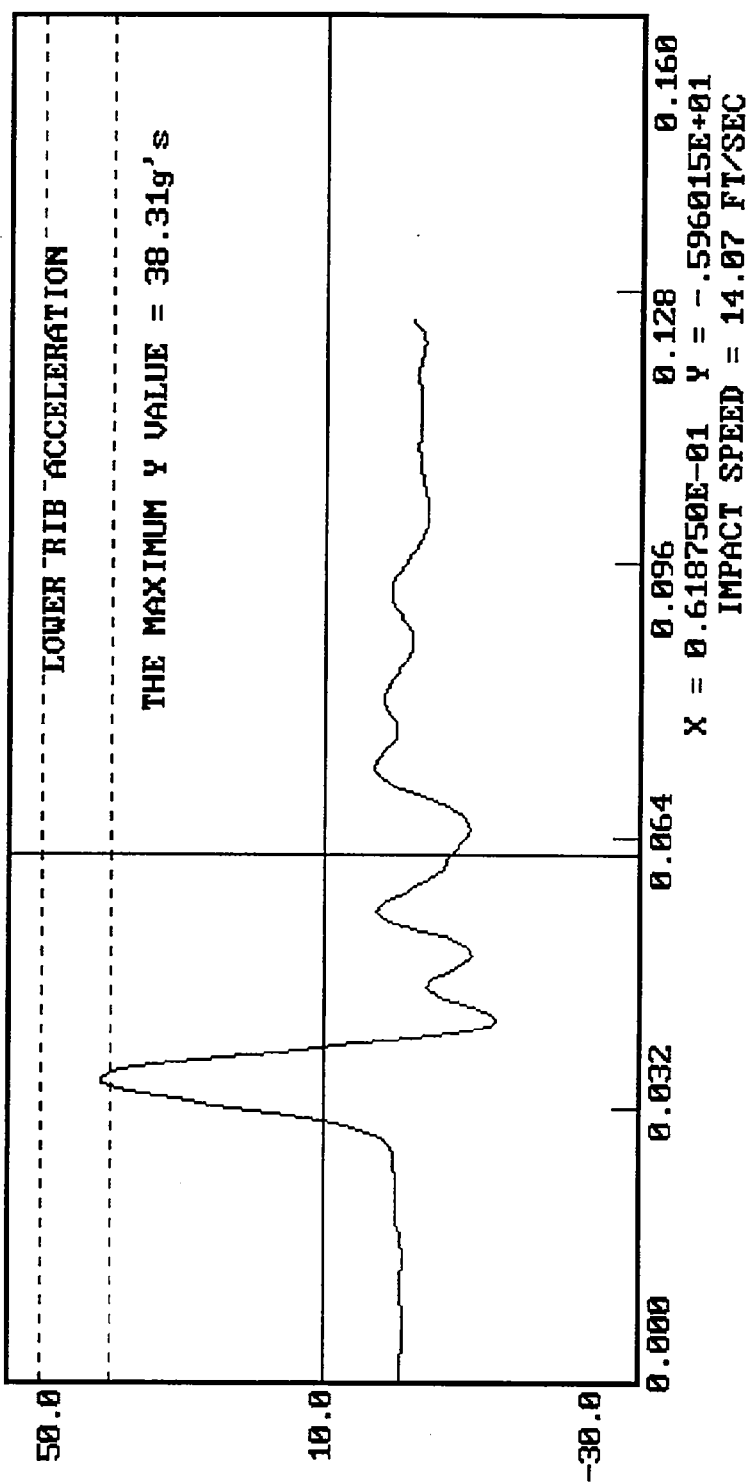
APPROVED BY Dave Kurbade

DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 270
 02-10-1997 16:12

ACCELERATION (G'S) VS. TIME ((SECONDS))

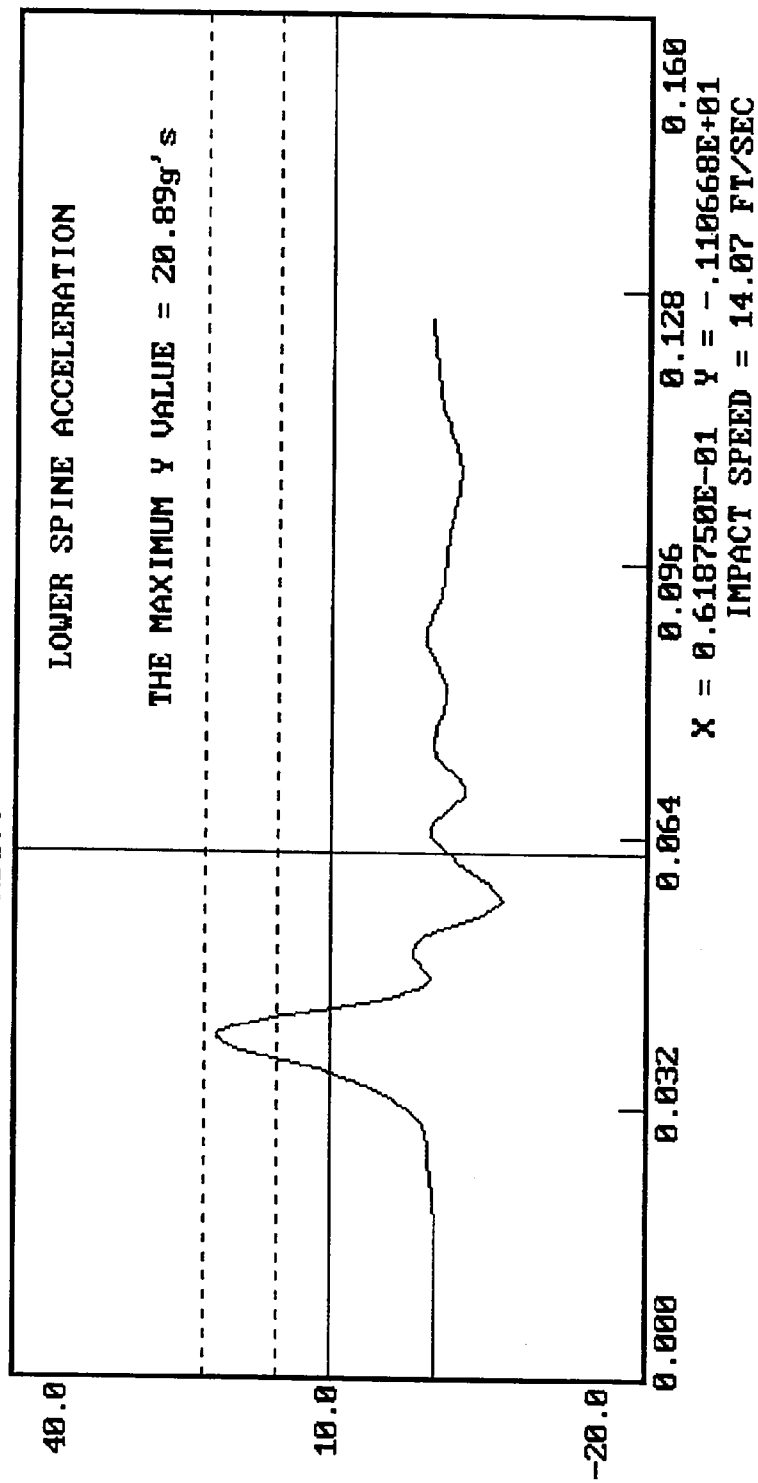


DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 270
 02-10-1997 16:12
 ACCELERATION (G'S) VS. TIME ((SECONDS))



DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 270
ACCELERATION (G'S) VS. TIME ((SECONDS))

02-10-1997 16:12



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: February 10, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97403

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
PROBE SPEED	13.8 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	59

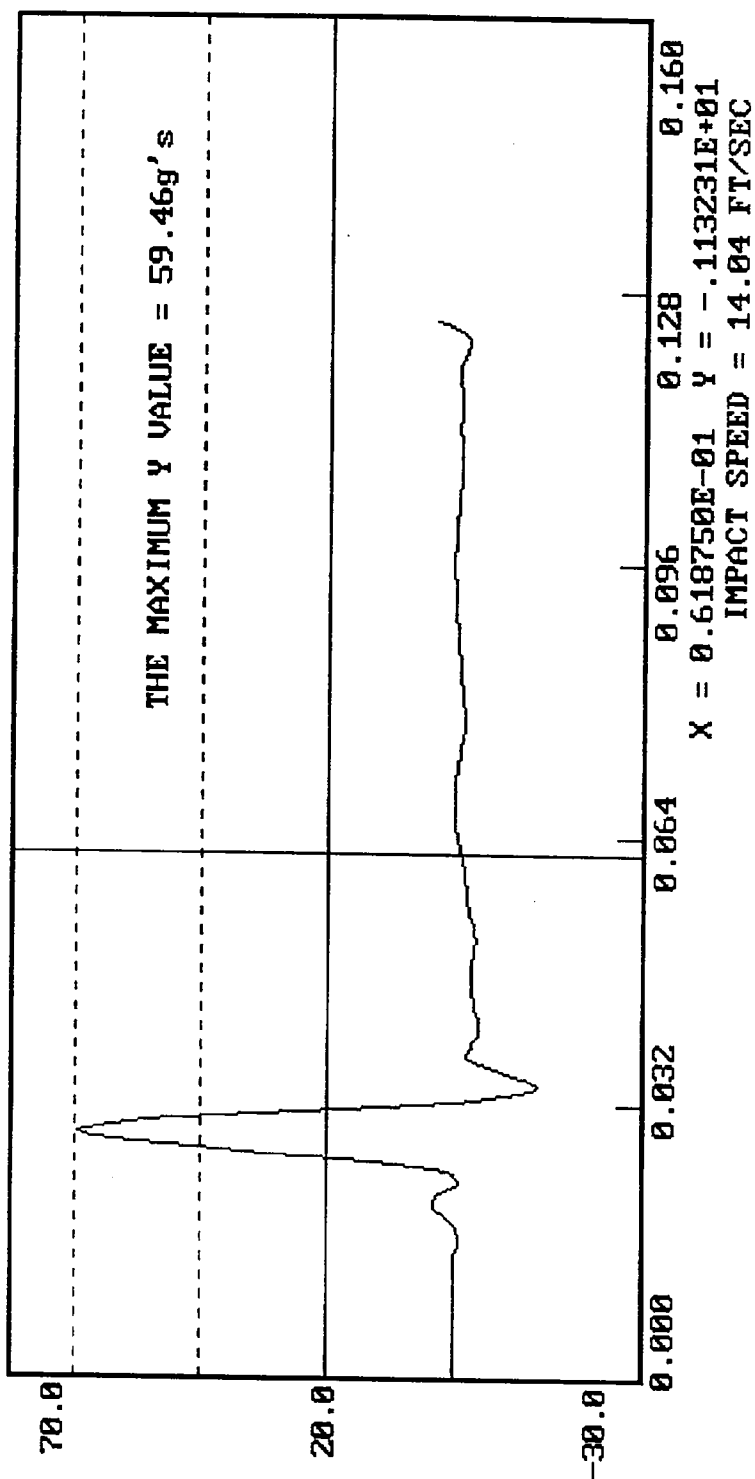
TEST MEETS SPECIFICATIONS

TECHNICIAN Jim Wilson

APPROVED BY Rene Kabaoka

DUMMY CALIBRATION - PELVIS IMPACT
 DUMMY # 270
 02-10-1997 16:23

ACCELERATION (G'S) VS. TIME ((SECONDS))



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

DATE: February 10, 1997

DUMMY NUMBER: 270

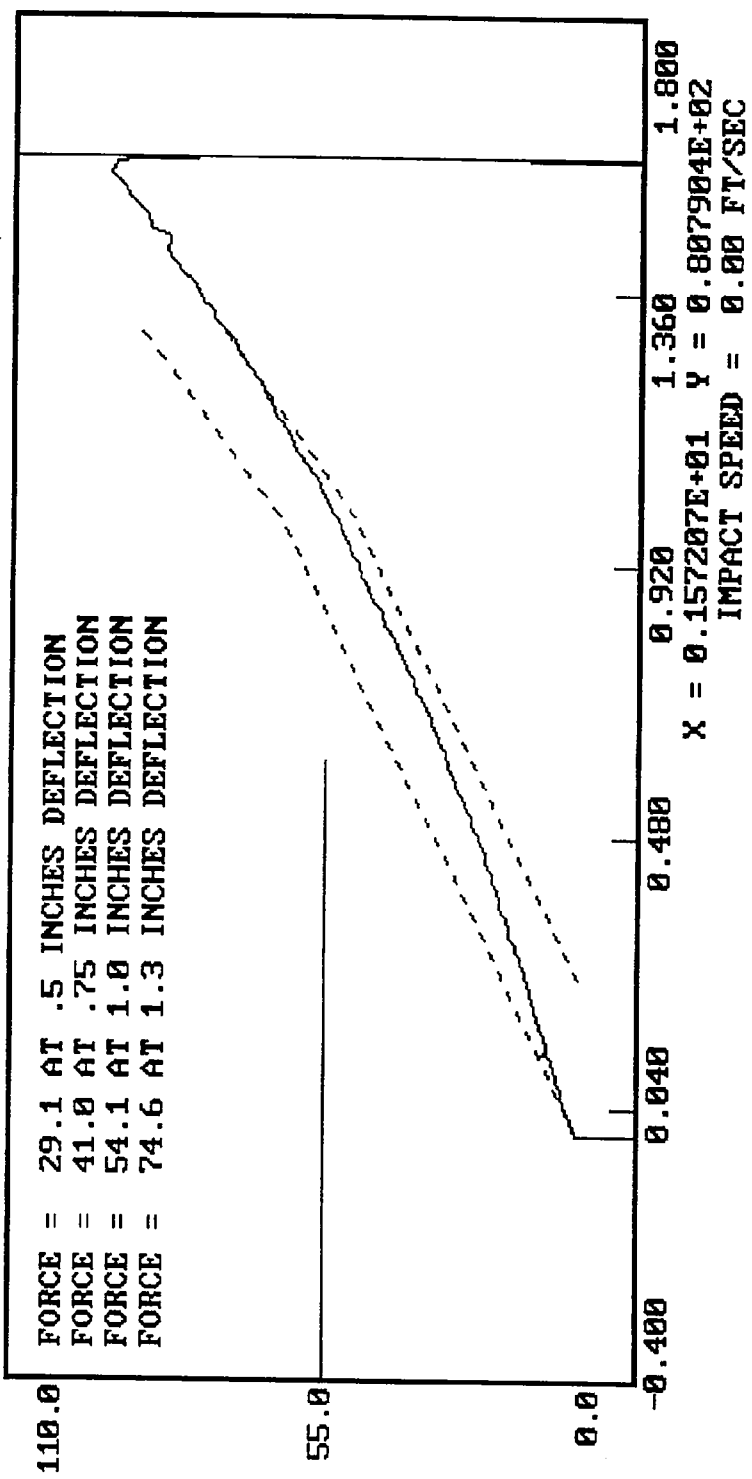
TEST NUMBER: D97404

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0.5 in	23.3 - 36.5 lbs	29.1
FORCE @ 0.75 in	36.7 - 49.8 lbs	41.0
FORCE @ 1.0 in	50 - 63 lbs	54
FORCE @ 1.3 in	73 - 88 lbs	75

TEST MEETS SPECIFICATIONS

TECHNICIAN Tim Hilborn

APPROVED BY Dave Kosloski



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: February 10, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97405

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	22
FORCE @ 30°	34 - 46 lbs	37
FORCE @ 40°	46 - 58 lbs	49
RETURN ANGLE	12° maximum	1°

TEST MEETS SPECIFICATIONS

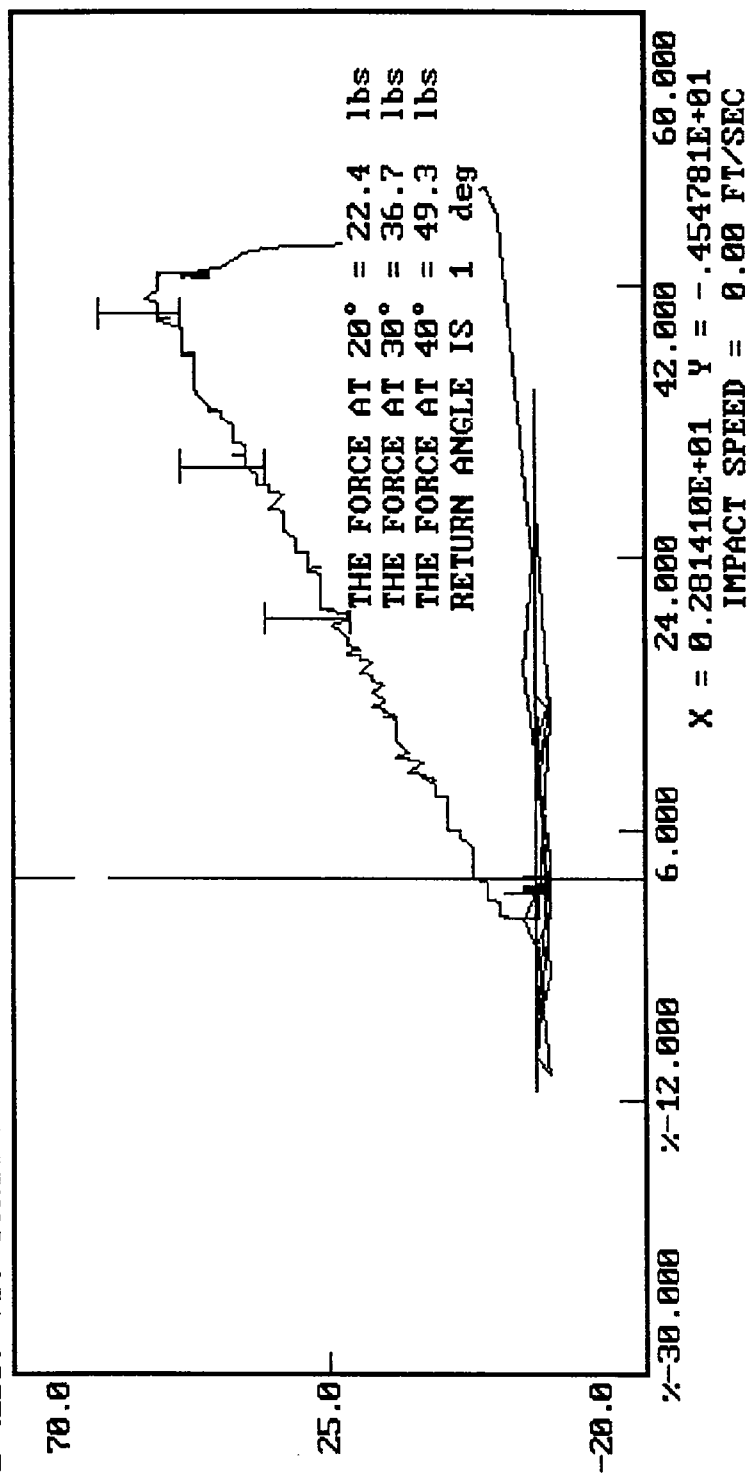
TECHNICIAN

Tim Hill

APPROVED BY

Paul Kosloski

DUMMY CALIBRATION - LUMBAR FLEXION
 DUMMY # 270
 02-10-1997 14:51
 FORCE (LBS) VS. TORSO ROTATION (DEGREES)



POST-TEST CERTIFICATION DATA

Front 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: February 17, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.1
RH - Rib Height	19.75" - 20.50"	20.00
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 K. L.

APPROVED BY: Rene K. L.

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: February 17, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97452

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	14%
PROBE SPEED	13.8 - 14.2 fps	14.0
UPPER RIB	37 - 46 g's	46
LOWER RIB	37 - 46 g's	43
LOWER SPINE	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN Tim H. L.

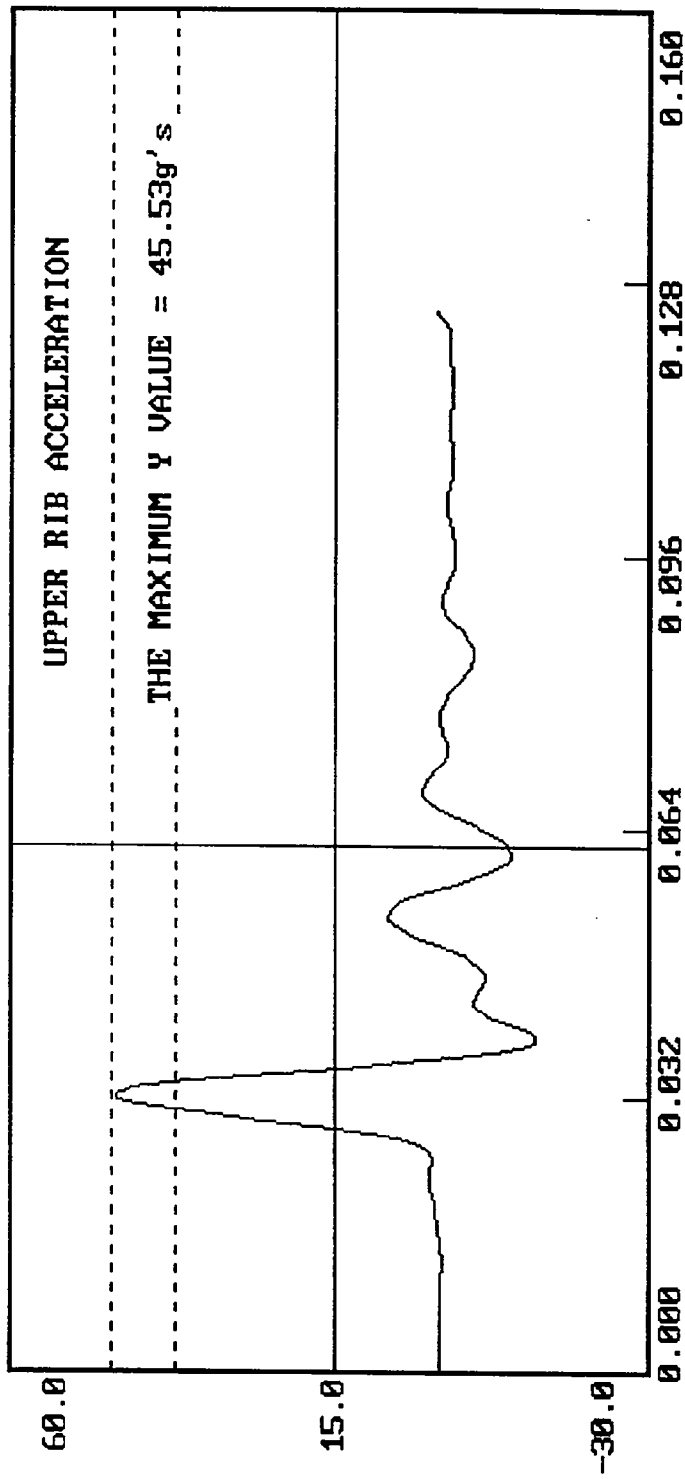
APPROVED BY Paul Koebke

02-17-1997 10:53

DUMMY CALIBRATION - THORAX IMPACT

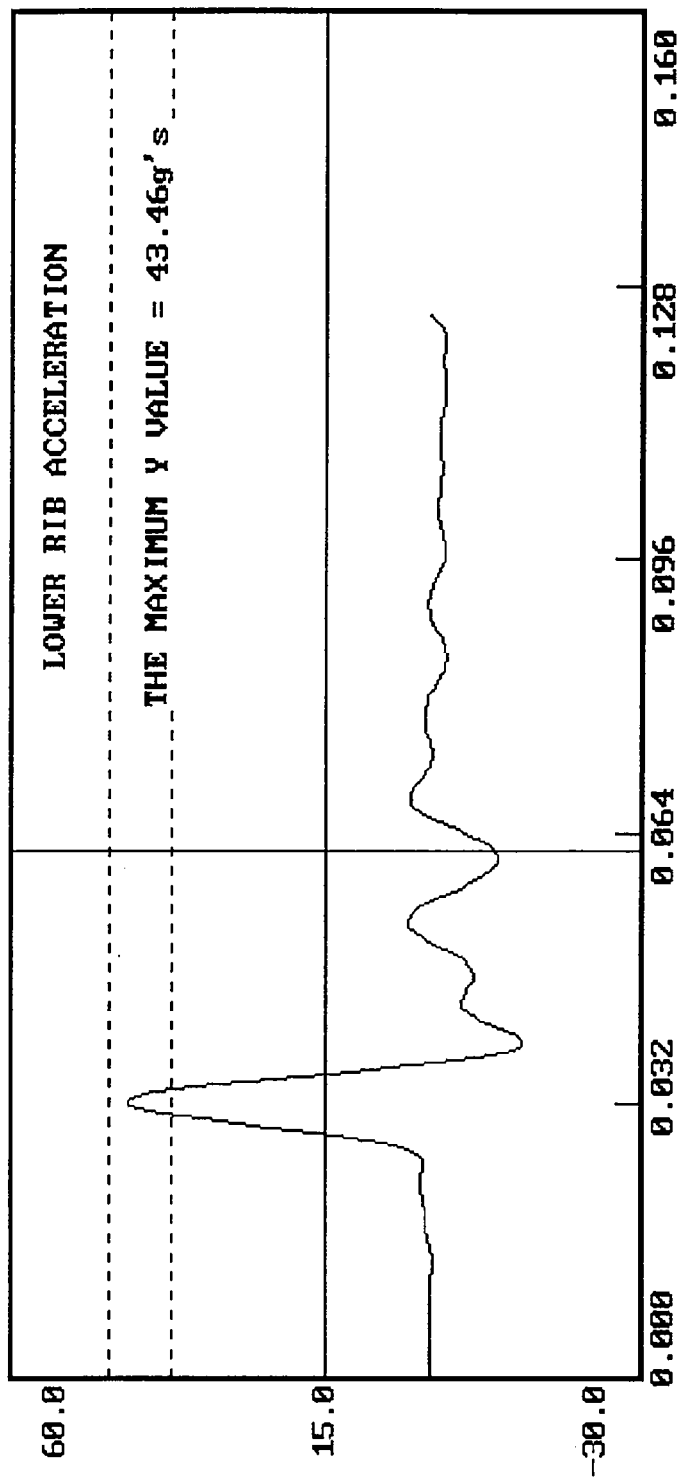
DUMMY # 269

ACCELERATION (G'S) VS. TIME ((SECONDS))



IMPACT SPEED = 14.01 FT/SEC

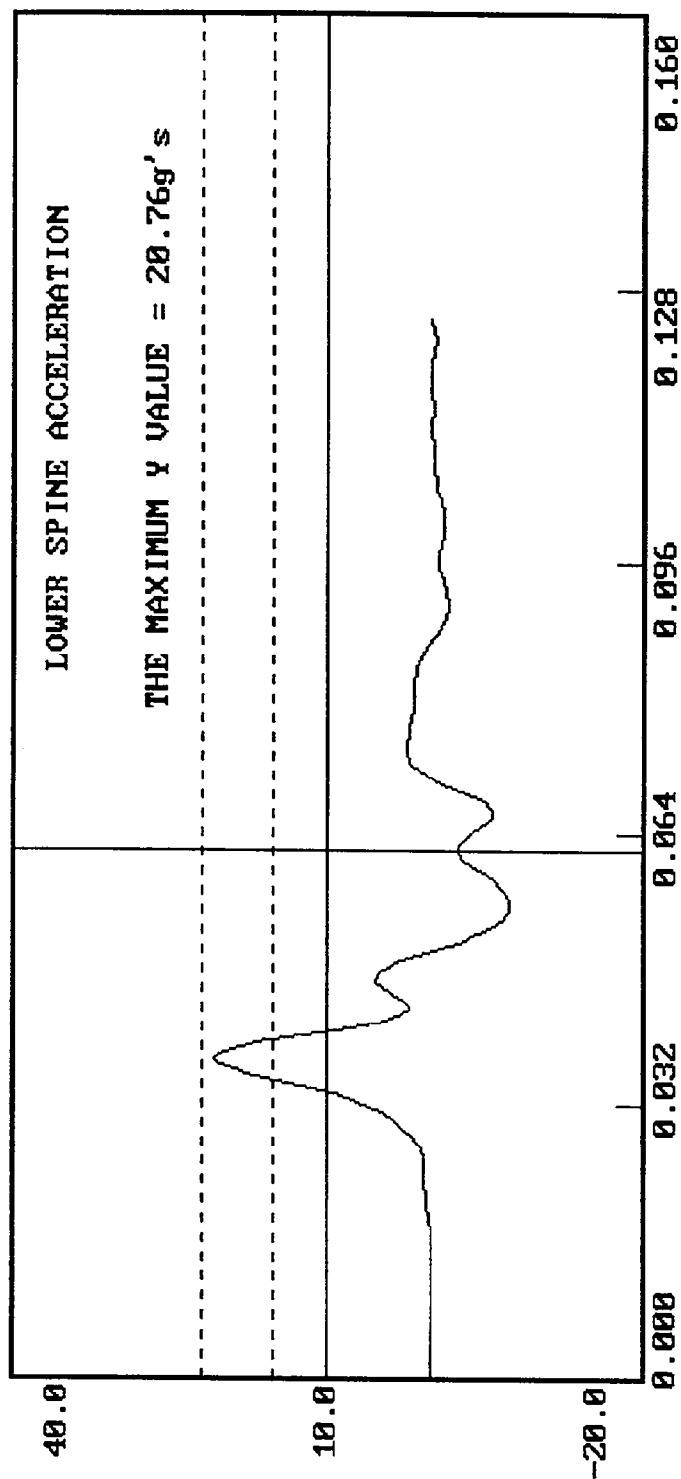
DUMMY CALIBRATION - THORAX IMPACT
 DUMMY # 269
 02-17-1997 10:53
 ACCELERATION (G'S) VS. TIME ((SECONDS))



IMPACT SPEED = 14.01 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 269
ACCELERATION (G'S) VS. TIME ((SECONDS))

02-17-1997 10:54



IMPACT SPEED = 14.01 FT/SEC

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: February 17, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97453

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	14%
PROBE SPEED	13.8 - 14.2 f/s	13.9
PELVIS ACCELERATION	40 - 60 g's	57

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim White

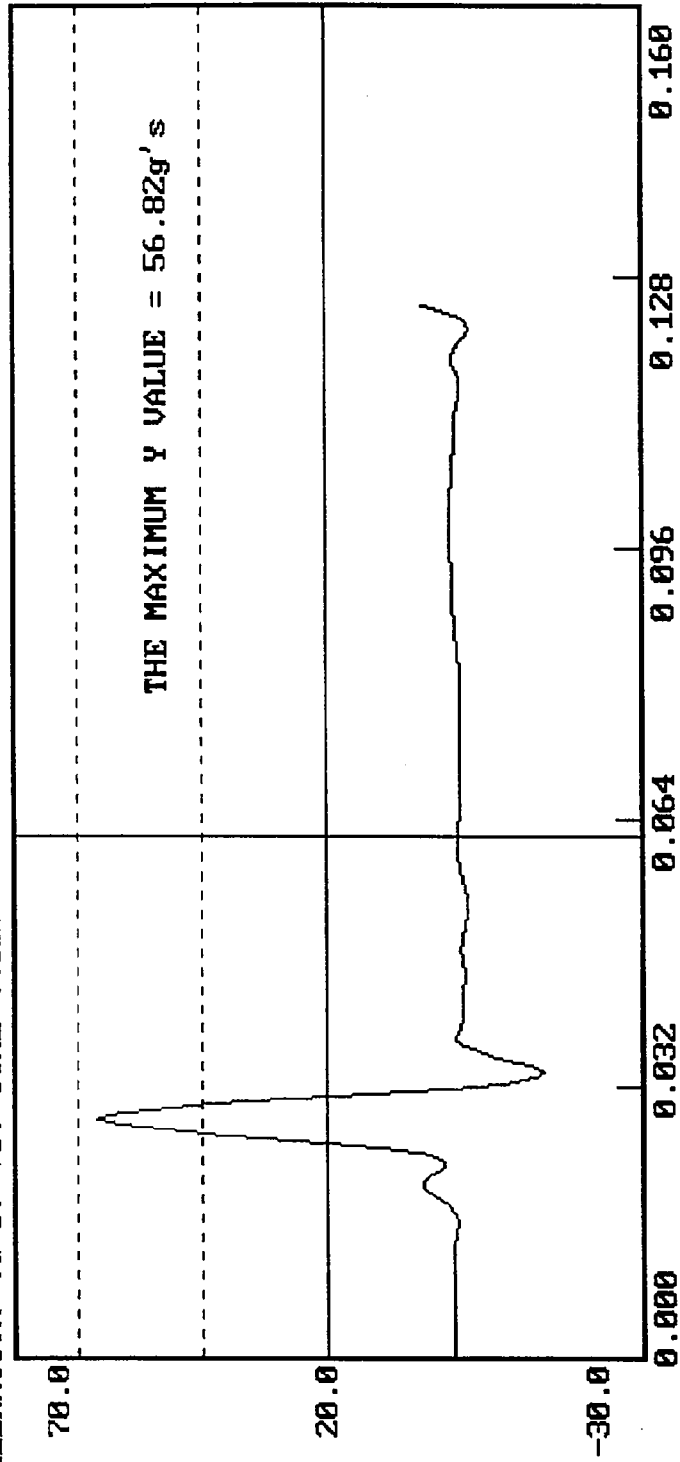
APPROVED BY Dave Korbake

02-17-1997 11:16

DUMMY CALIBRATION - PELVIS IMPACT

DUMMY # 269

ACCELERATION (G'S) VS. TIME ((SECONDS))



IMPACT SPEED = 13.94 FT/SEC

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

DATE: February 14, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97454

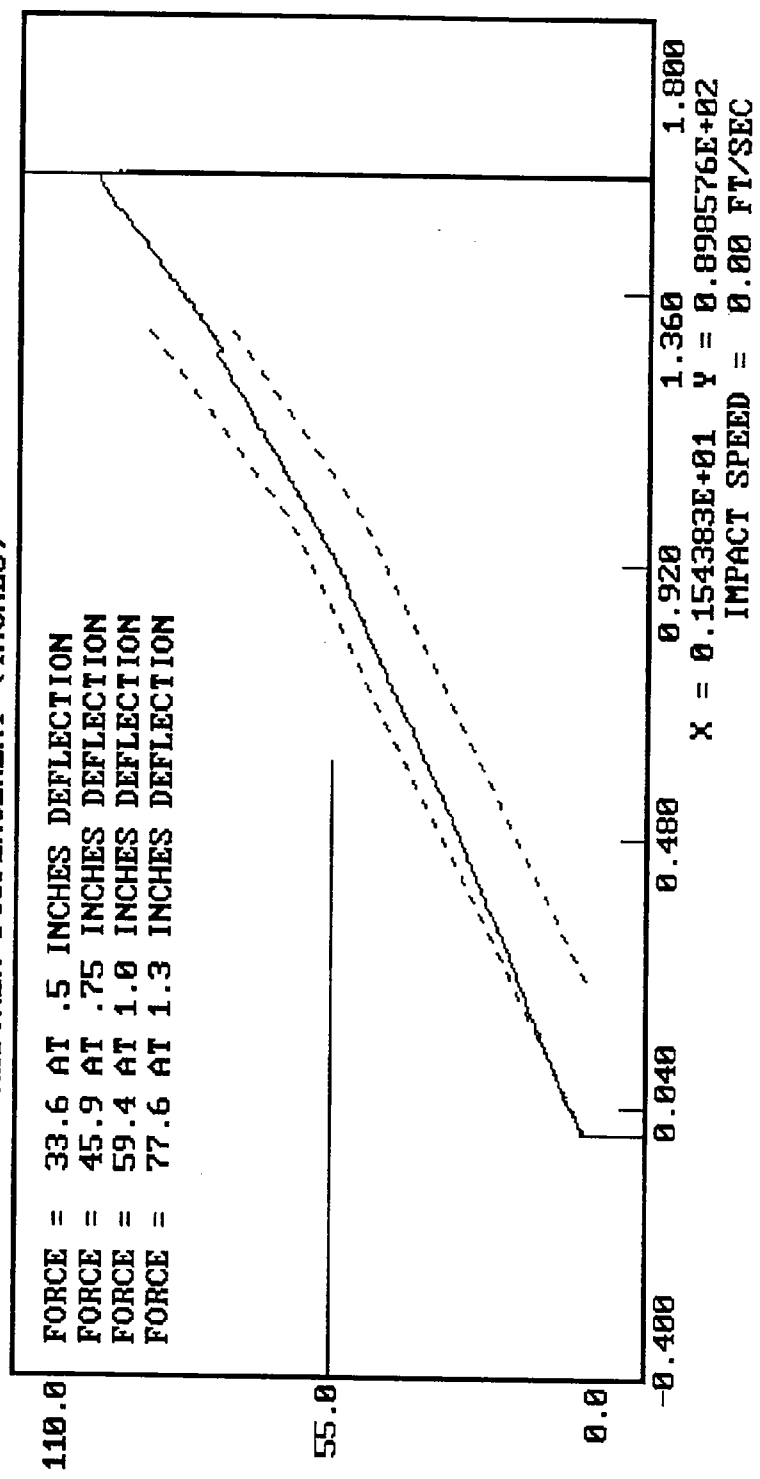
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0.5 in	23.3 - 36.5 lbs	33.6
FORCE @ 0.75 in	36.7 - 49.8 lbs	45.9
FORCE @ 1.0 in	50 - 63 lbs	59
FORCE @ 1.3 in	73 - 88 lbs	78

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim H. L.

APPROVED BY Dave Kelsake

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 269
 02-14-1997 10:28
 ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: February 14, 1997

DUMMY NUMBER: 269

TEST NUMBER: D97455

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	27
FORCE @ 30°	34 - 46 lbs	41
FORCE @ 40°	46 - 58 lbs	52
RETURN ANGLE	12° maximum	3°

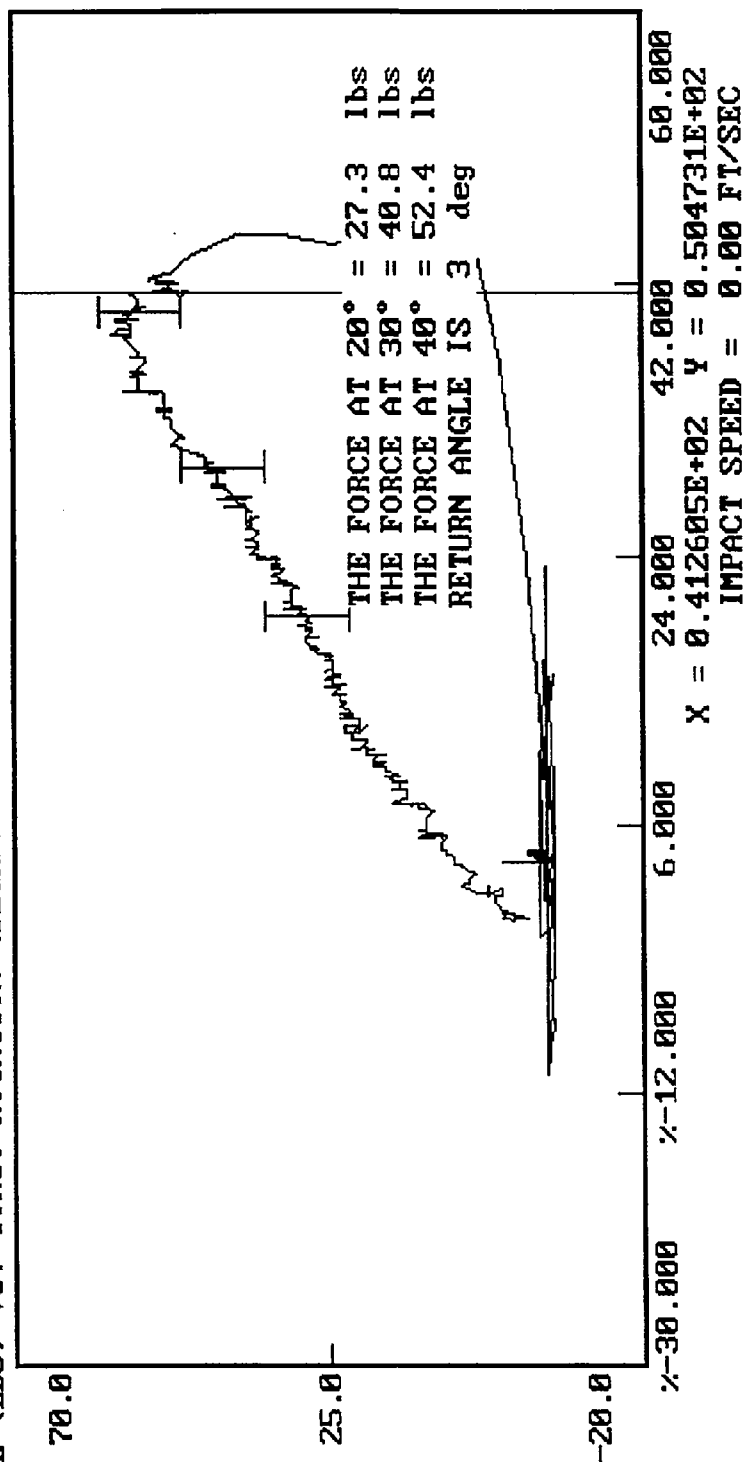
TEST MEETS SPECIFICATIONS

TECHNICIAN Tim Melan

APPROVED BY Paul Koschke

02-14-1997 12:54

DUMMY CALIBRATION - LUMBAR FLEXION
DUMMY # 269
FORCE (LBS) VS. TORSO ROTATION (DEGREES)



POST-TEST CERTIFICATION DATA

Rear 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: February 17, 1997

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height	35.0" - 35.8"	35.2
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"	9.5
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 Bilal

APPROVED BY:

Dave Koabaka

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: February 17, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97462

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	16%
PROBE SPEED	13.8 - 14.2 fps	14.2
UPPER RIB	37 - 46 g's	43
LOWER RIB	37 - 46 g's	41
LOWER SPINE	15 - 22 g's	22

TEST MEETS SPECIFICATIONS

TECHNICIAN

Jim Hill

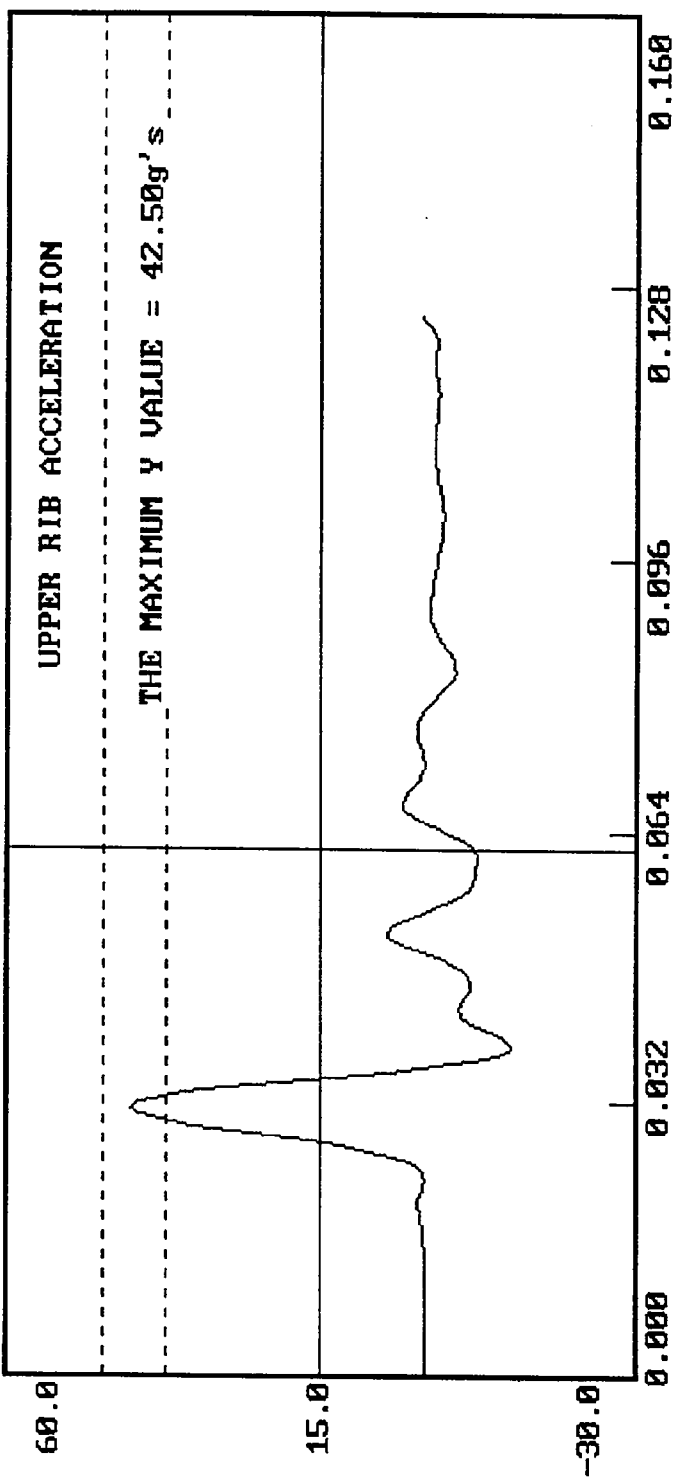
APPROVED BY

Gene Kosloske

DUMY CALIBRATION - THORAX IMPACT
DUMY # 270
ACCELERATION (G'S) VS. TIME ((SECONDS))

02-17-1997 13:34

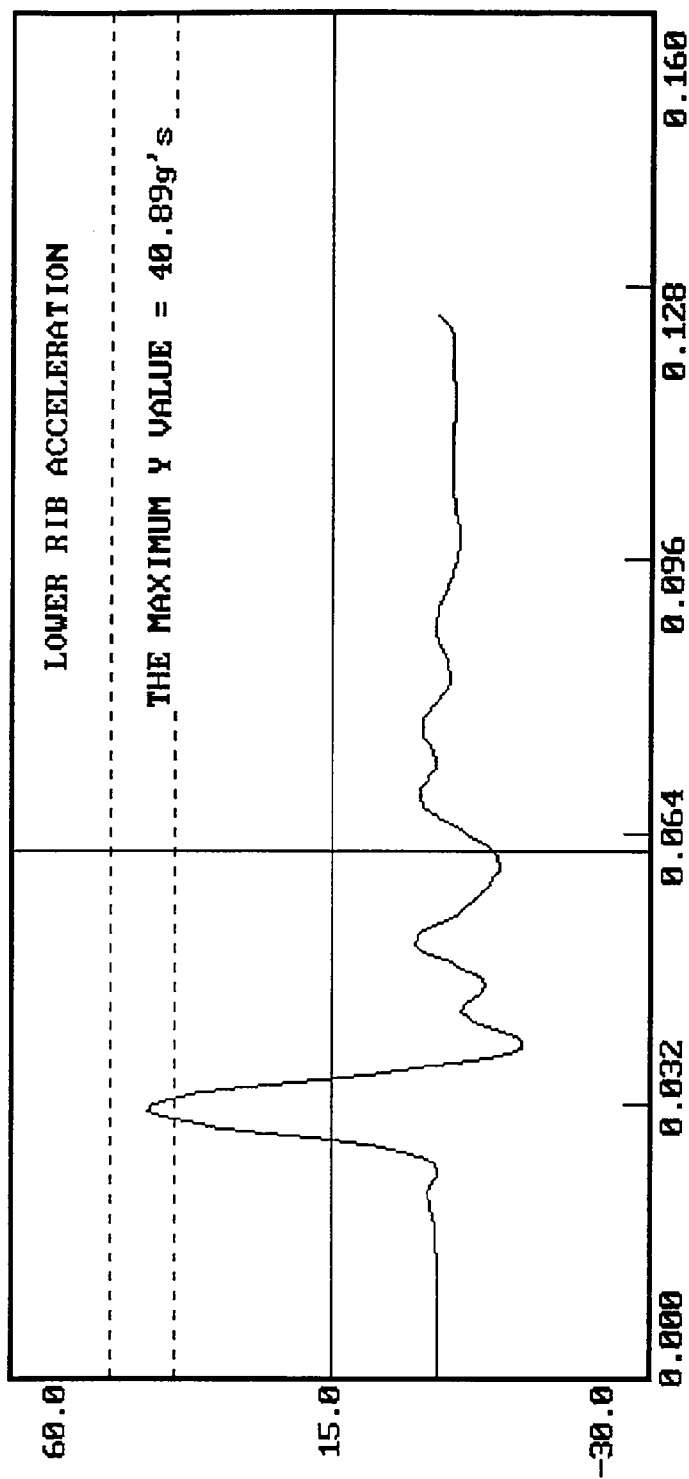
UPPER RIB ACCELERATION



IMPACT SPEED = 14.20 FT/SEC

DUMMY CALIBRATION - THORAX IMPACT
DUMMY # 270
ACCELERATION (G'S) VS. TIME ((SECONDS))

02-17-1997 13:34



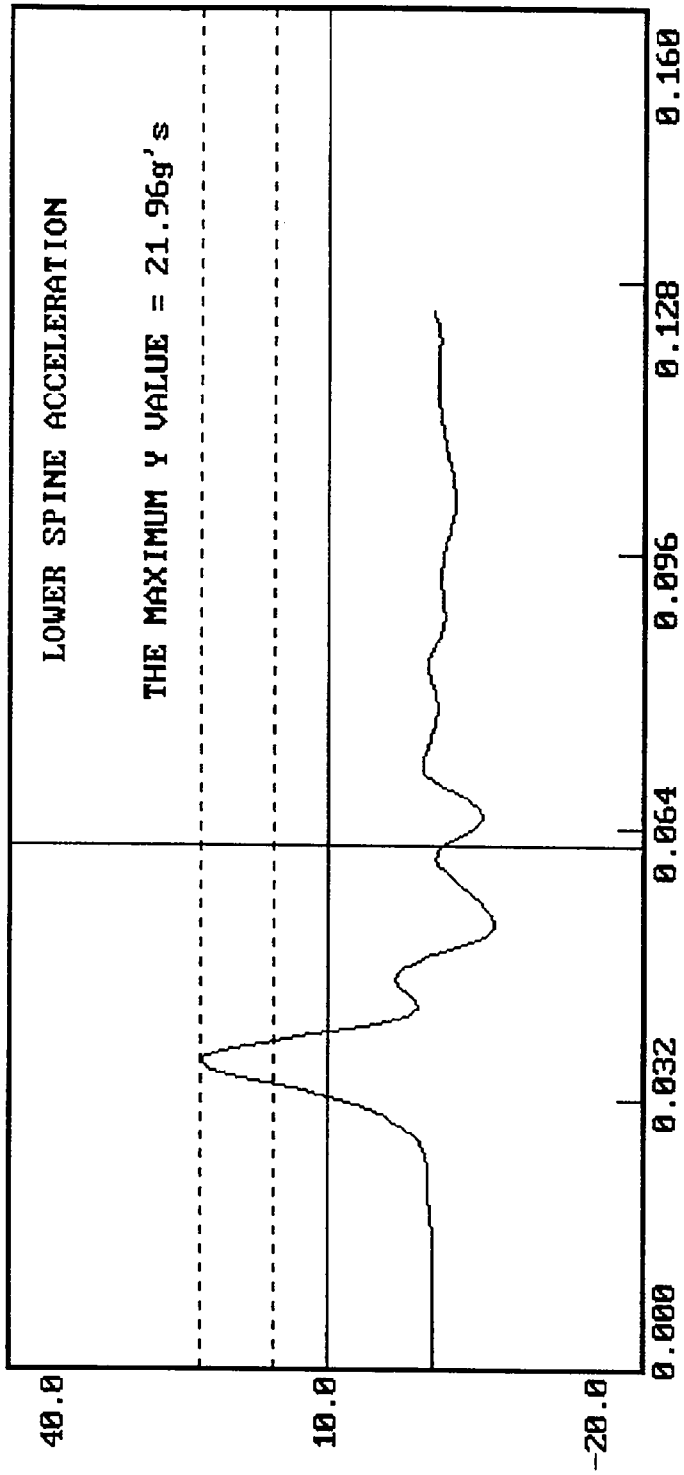
IMPACT SPEED = 14.20 FT/SEC

02-17-1997 13:34

DUMMY CALIBRATION - THORAX IMPACT

DUMMY # 270

ACCELERATION (G'S) VS. TIME ((SECONDS))



IMPACT SPEED = 14.20 FT/SEC

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: February 17, 1997

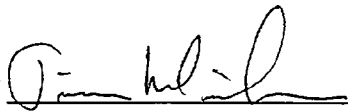
DUMMY NUMBER: 270

TEST NUMBER: D97463

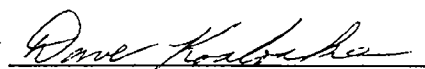
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	16%
PROBE SPEED	13.8 - 14.2 f/s	14.0
PELVIS ACCELERATION	40 - 60 g's	53

TEST MEETS SPECIFICATIONS

TECHNICIAN

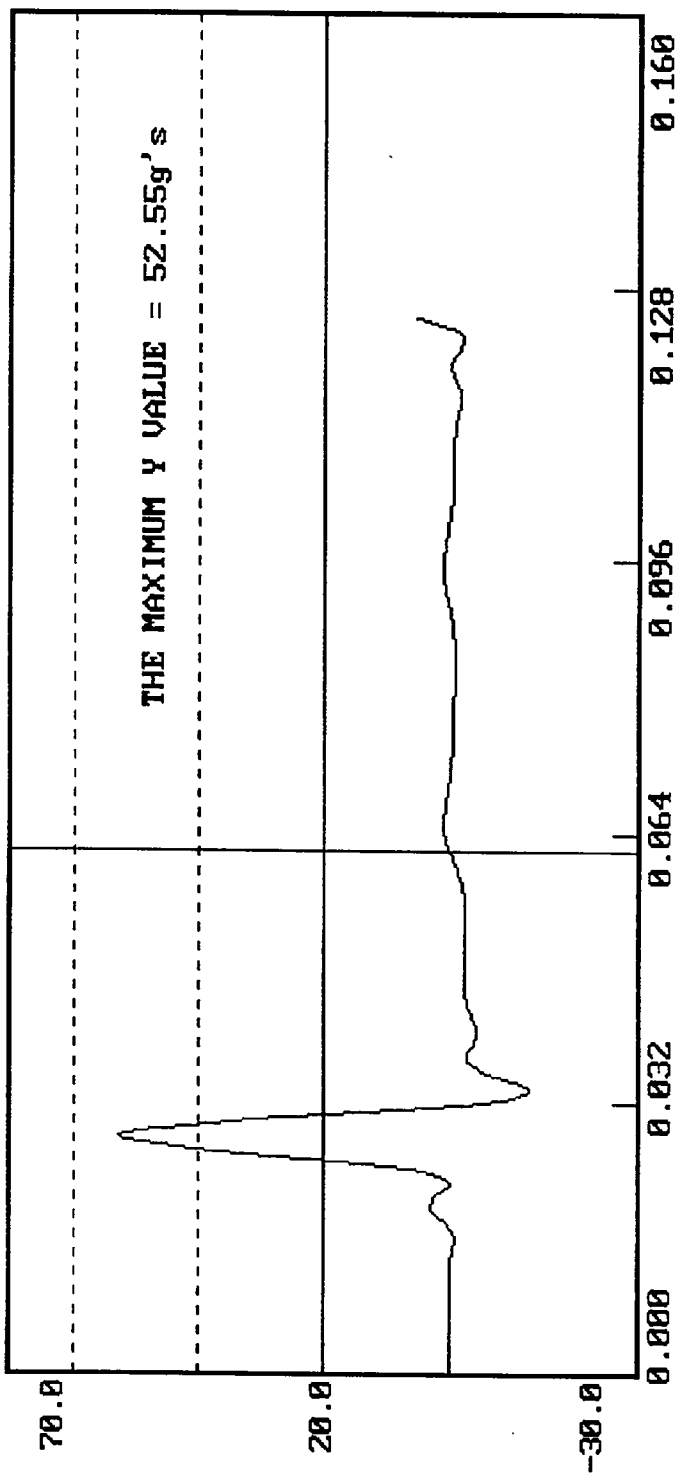


APPROVED BY



DUMMY CALIBRATION - PELVIS IMPACT
DUMMY # 270
02-17-1997 13:47

ACCELERATION (G'S) VS. TIME ((SECONDS))



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

DATE: February 14, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97464

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0.5 in	23.3 - 36.5 lbs	29.7
FORCE @ 0.75 in	36.7 - 49.8 lbs	41.8
FORCE @ 1.0 in	50 - 63 lbs	55
FORCE @ 1.3 in	73 - 88 lbs	75

TEST MEETS SPECIFICATIONS

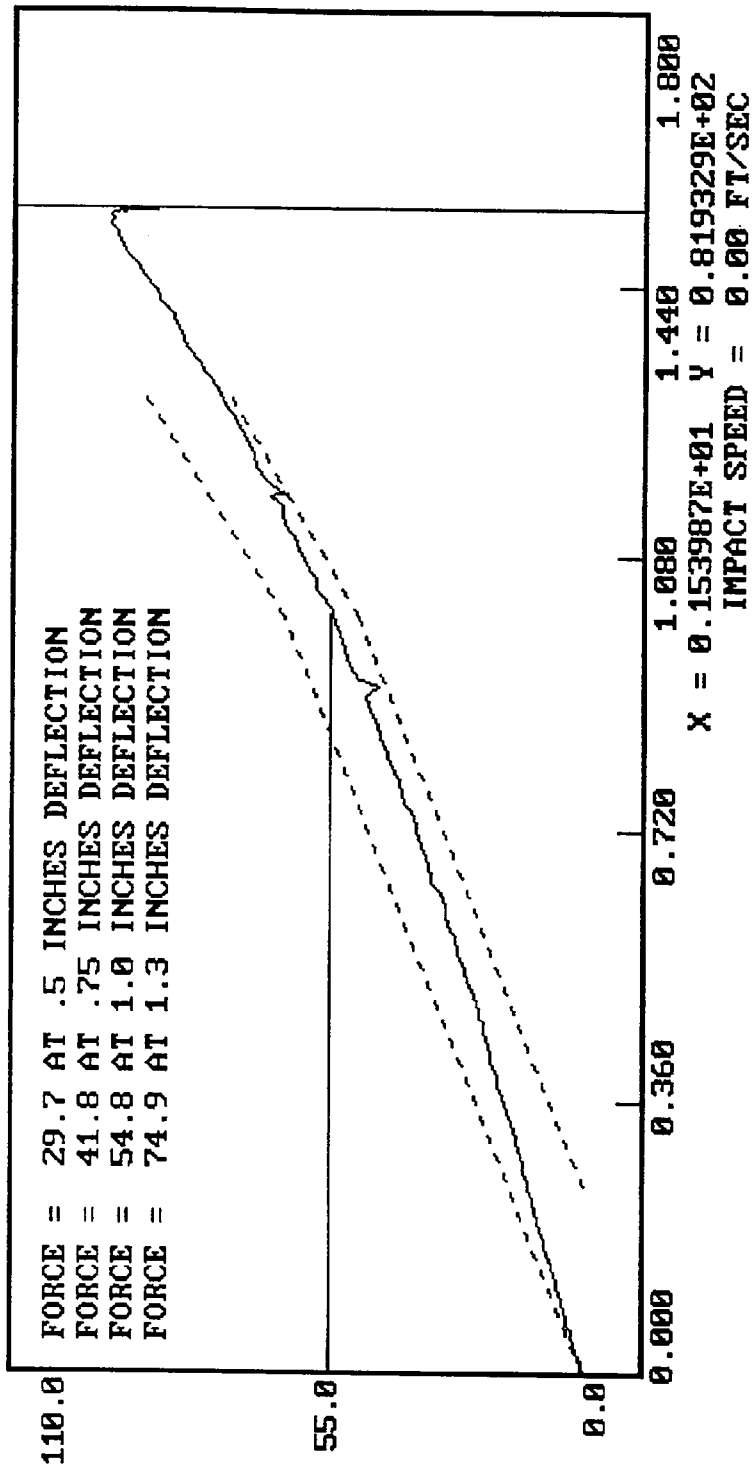
TECHNICIAN Tim White

APPROVED BY Dave Koobake

DUMMY CALIBRATION - ABDOMEN COMPRESSION
 DUMMY # 270

02-14-1997 10:32

ABDOMEN FORCE (LBS) VS. ABDOMEN DISPLACEMENT (INCHES)



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: February 14, 1997

DUMMY NUMBER: 270

TEST NUMBER: D97465

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	66 - 78° F	70°
RELATIVE HUMIDITY	10 - 70%	15%
FORCE @ 0°	0 - 6 lbs	0
FORCE @ 20°	22 - 34 lbs	24
FORCE @ 30°	34 - 46 lbs	39
FORCE @ 40°	46 - 58 lbs	51
RETURN ANGLE	12° maximum	1°

TEST MEETS SPECIFICATIONS

TECHNICIAN

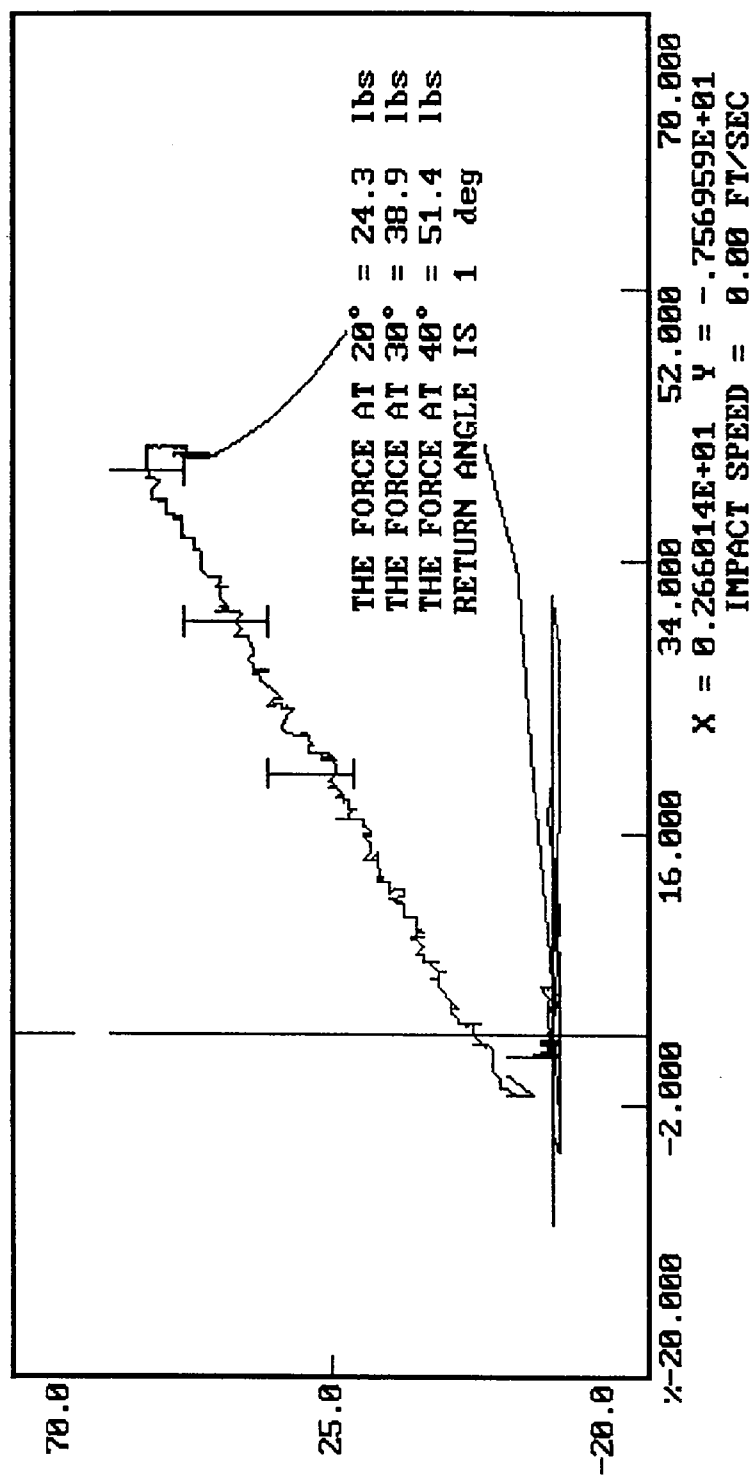
Jim Blum

APPROVED BY

Dave Koelcke

02-14-1997 13:57

DUMMY CALIBRATION - LUMBAR FLEXION
DUMMY # 270
FORCE (LBS) VS. TORSO ROTATION (DEGREES)



POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

Inspected By: Tim Michnay

Date: February 17, 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: 270

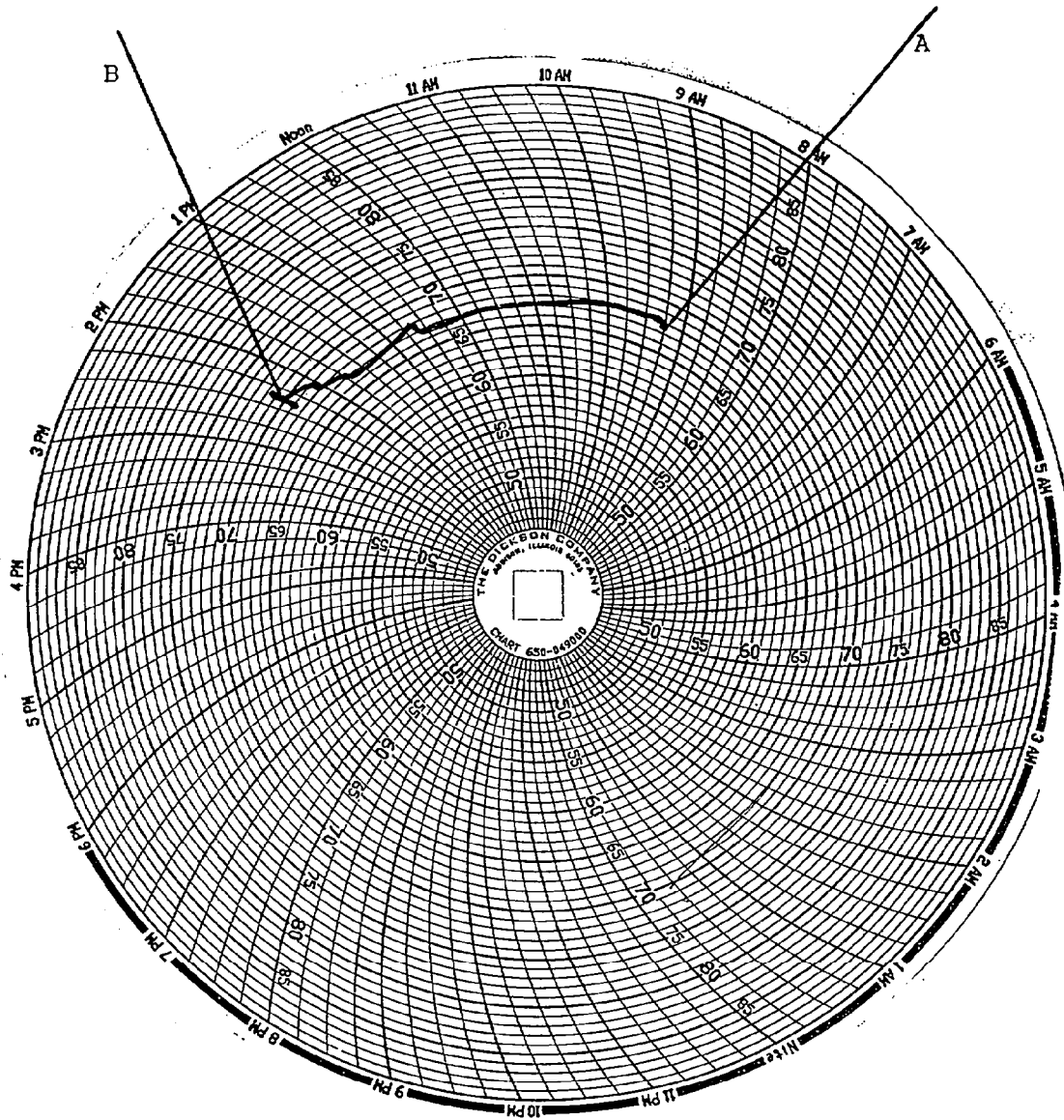
Inspected By: Tim Michnay

Date: February 17, 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. 269

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AGTM2	Endevco	9/10/96
Lower Rib Y	ALEC1	Endevco	9/16/96
Lower Spine Y	AH1G2	Endevco	9/11/96
Pelvis Y	ALCN9	Endevco	9/10/96
Upper Rib Redundant Y	AGTB5	Endevco	9/10/96
Lower Rib Redundant Y	J10411	Endevco	9/16/96
Lower Spine Redundant Y	AM751	Endevco	9/11/96
Pelvis Redundant Y	AKAF3	Endevco	9/10/96
Head Center of Gravity X	AH0C3	Endevco	9/11/96
Head Center of Gravity Y	AHTN3	Endevco	9/11/96
Head Center of Gravity Z	AHT12	Endevco	9/11/96

INSTRUMENTS FOR PASSENGER DUMMY NO. 270

	LEFT REAR PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AP1H2	Endevco	9/10/96
Lower Rib Y	AJ9C2	Endevco	9/09/96
Lower Spine Y	AP2D7	Endevco	9/10/96
Pelvis Y	ALCH7	Endevco	9/09/96
Upper Rib Redundant Y	AH0B0	Endevco	9/10/96
Lower Rib Redundant Y	AHTT2	Endevco	9/09/96
Lower Spine Redundant Y	AP1T8	Endevco	9/10/96
Pelvis Redundant Y	AJ420	Endevco	9/09/96
Head Center of Gravity X	AC9I3	Endevco	9/09/96
Head Center of Gravity Y	AH0M0	Endevco	9/09/96
Head Center of Gravity Z	AH0D1	Endevco	9/09/96

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	C25-A04	Entran	1/06/97
Moving Barrier CG Y	C25-A06	Entran	1/07/97
Moving Barrier CG Z	B13-Z02	Entran	7/11/96
Moving Barrier Rear Axle X	D05-R19	Entran	1/02/97
Moving Barrier Rear Axle Y	D05-R20	Entran	1/02/97
Left Mid A-Post Y	B14-R15	Entran	1/03/97
Left Lower A-Post Y	J10-E08	Entran	1/03/97
Left Mid B-Post Y	L14-D07	Entran	1/06/97
Left Lower B-Post Y	D05-R12	Entran	1/03/97
Rear Floorpan Above Axle X	L22-G05	Entran	1/02/97
Rear Floorpan Above Axle Y	B28-B03	Entran	1/02/97
Rear Floorpan Above Axle Z	D05-R05	Entran	1/07/97
Driver Seat Track Y	E25-G07	Entran	1/03/97
Right Side Sill at Front Seat X	F10-D04	Entran	1/07/97
Right Side Sill at Front Seat Y	L18-E13	Entran	1/03/97
Right Side Sill at Front Seat Z	L14-D16	Entran	12/03/96
Right Side Sill at Rear Seat X	D06-A09	Entran	1/02/97
Right Side Sill at Rear Seat Y	C20-J10	Entran	1/02/97
Right Side Sill at Rear Seat Z	MGA095	Entran	1/02/97
Left Side Sill at Front Seat Y	J10-E13	Entran	1/07/97

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO	MANUFACTURER	CALIBRATION DATE
Left Side Sill at Rear Seat Y	A10-G05	Entran	1/03/97
Right Rear Occupant Compartment Y	H07-A05	Entran	1/03/97
Vehicle CG X	J10-E03	Entran	1/07/97
Vehicle CG Y	L18-E02	Entran	1/03/97
Vehicle CG Z	A09-G05	Entran	12/03/96
Left Front Door Upper Centerline Y	L14-D14	Entran	1/06/97
Left Rear Door Upper Centerline Y	B14-R11	Entran	1/03/97

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