

REPORT NO.: 214D-MGA-2000-01

Test no
3270

NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST

NISSAN MOTOR CORPORATION

2000 NISSAN MAXIMA
4 DOOR SEDAN

NHTSA NO: MY5202

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: November 15, 1999

Report Date: January 10, 2000

FINAL REPORT

Prepared For:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY PERFORMANCE STANDARDS
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				14. Sponsoring Agency Code NPS-10																			
15. Supplementary Notes																							
16. Abstract A 90° Moving Deformable Barrier NCAP side impact was conducted on the subject 2000 Nissan Maxima 4 Door to obtain new car assessment and research data indicant of FMVSS No. 214D performance. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on November 15, 1999. The impact velocity of the Moving Deformable Barrier (MDB) was 62.4 kph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 21.4 °C. The target vehicle post test maximum crush was 436 mm at level 2. The test vehicle's performance follows: <table border="1"> <thead> <tr> <th></th> <th>DRIVER</th> <th>PASS.</th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td>55</td> <td>54</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td>46</td> <td>63</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td>64</td> <td>53</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td>60</td> <td>58</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td>88</td> <td>78</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.							DRIVER	PASS.	Left Upper Rib (LUR) Accel., g	55	54	Left Lower Rib (LLR) Accel., g	46	63	Lower Spine (T ₁₂) Accel., g	64	53	Thoracic Trauma Index (TTI)	60	58	Pelvis (PEV) Accel., g	88	78
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SECTION 1
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY00 NCAP Side Impact Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-97-D-22001. The purpose of this test was to evaluate side impact protection of a 2000 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.

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A 2000 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 38.8 mph (62.4 kph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by MGA Research Corporation in Burlington, Wisconsin, on November 15, 1999. Pre- and post-test photographs of the test vehicle, the MDB and the side impact dummies (SIDs) are included in Appendix A.

A Side Impact Dummy with Hybrid III head and neck (SID/HIII) was placed in the driver designated seating position and a standard SID was placed in the left rear designated seating position 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 ten 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)
6. Upper Neck 6 channel load cell (X, Y, and Z force and moment) - SID/HIII only

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/HIII	Rear SID
TTI (g)	60	58
Pelvis (g)	88	78

It should be noted that the trunk lid and hood latches released on impact. It should also be noted that the MDB bumper caught on the left front fender and was torn off during the impact.

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

DATA SHEET NO. 1

GENERAL VEHICLE TEST PARAMETER DATATEST VEHICLE INFORMATION:Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 DoorVehicle NHTSA No.: MY5202 VIN: JN1CA31A4YT009509Vehicle Body Color: Tan Build Date: 9/99Engine Data: 6 Cylinders; CID; 3.0 Liter; ccPlacement Longitudinal; X LateralTransmission: 4 Speed; Manual; X Automatic; X OverdriveFinal Drive: Rear Wheel Drive; X Frt. Wheel Drive; Four Wheel DriveOdometer Reading 353 milesOptions: X A/C; X Pwr. Steering; X Pwr. Brakes; X Pwr. Windows; X Cruise Control; X Tilt Wheel; X Power Door Locks;DATA FROM TIRE PLACARD:Tire Pressure (at capacity): 32 Psi FRONT32 Psi REARRecommended Tire Size: P225 / 50 / R17Tires on Test Vehicle: P225 / 50 / R17 Manufacturer: Bridgestone

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; 3rd Seat, 5 TotalType of Front Seats: X Bucket; Bench; Split BenchType of Front Seat Back: Fixed; X Adjustable with Lever X PowerVehicle Maximum Capacity Loading = 400.1 kg (A)No. of Occupants x 68.04 kg. = 340.2 kg (B)Cargo Capacity (A-B) = 59.9 kg

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)WEIGHT OF TEST VEHICLE WITH MAXIMUM FLUIDS:

Right Front =	<u>478.1</u>	kg	Right Rear =	<u>279.9</u>	kg
Left Front =	<u>462.2</u>	kg	Left Rear =	<u>312.1</u>	kg
TOTAL FRONT =	<u>940.3</u>	kg	TOTAL REAR =	<u>592.0</u>	kg
% of Total Weight =	<u>61.4</u>	%	% of Total Weight =	<u>38.6</u>	%
TOTAL WEIGHT =	<u>1532.3</u>	kg			

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 DoorVehicle NHTSA No.: MY5202 Test Date: November 15, 1999CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	=	<u>1532.3</u> kg
Cargo Carrying Capacity of Test Vehicle*	=	<u>59.9</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>1753.6</u> kg

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

Right Front =	<u>487.6</u> kg	Right Rear =	<u>342.5</u> kg
Left Front =	<u>515.7</u> kg	Left Rear =	<u>407.8</u> kg
TOTAL FRONT =	<u>1003.3</u> kg	TOTAL REAR =	<u>750.3</u> kg
% of Total Weight =	<u>57.2</u> %	% of Total Weight =	<u>42.8</u> %
TOTAL WEIGHT =	<u>1753.6</u> kg		

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 716 mm Left Front 714 mm Right Rear 706 mm Left Rear 687 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 704 mm Left Front 695 mm Right Rear 678 mm Left Rear 651 mm

TEST ATTITUDE:

Right Front 704 mm Left Front 697 mm Right Rear 687 mm Left Rear 661 mm* light trucks and MPV's RCW is 136 kgs or manufacturer's value, whichever is less

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2752 mm

C.G. = 1149 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4134 mm

Centerline = 4836 mm

Left Side = 4139 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 236 mm

Test Position: mid position

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 13.4 degrees as measured on the headrest

SECOND POSITION SEAT:

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

Seat Back Adjustment Position: non-adjustable

ADJUSTABLE STEERING COLUMN POSITION: mid position

<u>WINDOW POSITIONS:</u>	Left Front	<u>Closed</u>	Left Rear	<u>Closed</u>
	Right Front	<u>Open</u>	Right Rear	<u>Open</u>

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel system usable capacity = 18.5 gallons

Test Volume: 17.39 gallons 94% of capacity

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

Wheelbase: = 2752 mm

Impact Point is 436 mm rearward of front axle centerline

DATA SHEET NO. 2
TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999

Overall Length = 4836 mm; Overall Width = 1756 mm

TEST WEIGHT:

Right Front =	<u>503.9</u> kg	Right Rear =	<u>335.2</u> kg
Left Front =	<u>513.5</u> kg	Left Rear =	<u>394.2</u> kg
TOTAL FRONT =	<u>1017.4</u> kg	TOTAL REAR =	<u>729.4</u> kg
% of Total Weight =	<u>58.2</u> %	% of Total Weight =	<u>41.8</u> %
TOTAL WEIGHT =	<u>1746.8</u> kg		

Wheelbase = 2752 mm

Longitudinal C.G. from Center of Front Axle = 1149 mm

Impact Angle with Respect to Impactor = 27 degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (272 mm above ground) = 289 mm
2. LEVEL 2 (500 mm above ground) = 436 mm
3. LEVEL 3 (613 mm above ground) = 384 mm
4. LEVEL 4 (880 mm above ground) = 345 mm
5. LEVEL 5 (1335 mm above ground) = 102 mm

Maximum Post-Test Intrusion = 436 mm

OCCUPANTS:

	<u>Driver</u>	<u>Left Rear Passenger</u>
Type of Dummy	<u>SID/HIII</u>	<u>SID</u>
Restraints Used	<u>Type II seatbelt with</u> <u>frontal and side airbags</u>	<u>Type II seatbelt</u>

TEST VEHICLE SUMMARY OF RESULTS (Cont'd)INSTRUMENTATION:

Number of Vehicle Data Channels:		=	<u>25</u>
Number of Cameras:	Onboard Vehicle	=	<u>3</u>
	Offboard Vehicle	=	<u>5</u>
	Deformable Barrier	=	<u>2</u>
	TOTAL	=	<u>10</u>

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTSYear/Make/Model/Body Style: 2000/Nissan/Maxima/4 DoorVehicle NHTSA No.: MY5202 Test Date: November 15, 1999POSITION OF IMPACT (MDB) ON MONORAIL:Crabbed 27° to leftMDB 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>1100 mm</u>
C.G. Location From Center Line	=	<u>-10 mm</u>
C.G. Location Above Ground Level	=	<u>477 mm</u>

MDB WEIGHT:

Left Front	=	<u>458.8 kg</u>	Left Rear	=	<u>230.3 kg</u>
Right Front	=	<u>324.4 kg</u>	Right Rear	=	<u>350.6 kg</u>
TOTAL FRONT	=	<u>783.2 kg</u>	TOTAL REAR	=	<u>580.9 kg</u>
TOTAL MDB WEIGHT = <u>1364.1 kg</u>					

Impact Angle (MDB C/L to Target Vehicle C/L) = 90° degreesImpact Speed = Primary: 38.8 mph (62.4 kph) Secondary: 38.9 mph (62.6 kph)

CRASH TEST SUMMARY FOR SIDE IMPACTOR (Cont'd)MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

- | | | | |
|----|---------------------------------|---|---------------|
| 1. | Row A Top of Stack (813 mm) | = | <u>189</u> mm |
| 2. | Row B Mid Stack (686 mm) | = | <u>146</u> mm |
| 3. | Row C Top of Bumper (533 mm) | = | <u>109</u> mm |
| 4. | Row D Center of Bumper (432 mm) | = | <u>132</u> mm |

INSTRUMENTATION:

Number of MDB Data Channels = 7

DATA SHEET NO. 4
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999

VISIBLE DUMMY CONTACT POINTS:

	<u>LEFT FRONT SID</u>	<u>LEFT REAR SID</u>
Head	<u>to airbag</u>	<u>to side header and</u> <u>C post</u>
Arm	<u>to airbag</u>	<u>to rear of door panel</u>
Pelvis	<u>to rear of armrest</u>	<u>to mid rear of door</u> <u>panel</u>
Left Knee	<u>to mid front of door</u> <u>panel</u>	<u>to mid front of door</u> <u>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: 18 mm forward Vertical: 12 mm up

ARM REST LOCATIONS:

Front: 232 mm from below window

Rear: 238 mm from below window

POST-TEST OBSERVATIONS (Cont'd)SEAT CRUSH:

Front Seat Back: 111 mm Front Seat Cushion: 113 mm
Left Rear Seat Back: 246 mm Rear Seat Cushion: 249 mm

GLAZING DAMAGE:

Windshield and sunroof cracked, front and rear left side door glass broken

PILLAR PERFORMANCE:

No failure noted

SILL SEPARATION:

120 mm vertical separation at 665 mm forward of the rear axle centerline

OTHER NOTABLE IMPACT EFFECTS:

The trunk lid and hood latches released on impact. The MDB bumper caught on the left front fender and was torn off during the impact.

AIRBAG DEPLOYMENT STATUS:

	<u>DRIVER</u>	<u>FRONT PASSENGER</u>	<u>REAR PASSENGER</u>
Frontal	<u>No</u>	<u>No</u>	<u>N/A</u>
Side	<u>Yes</u>	<u>No</u>	<u>N/A</u>

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

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

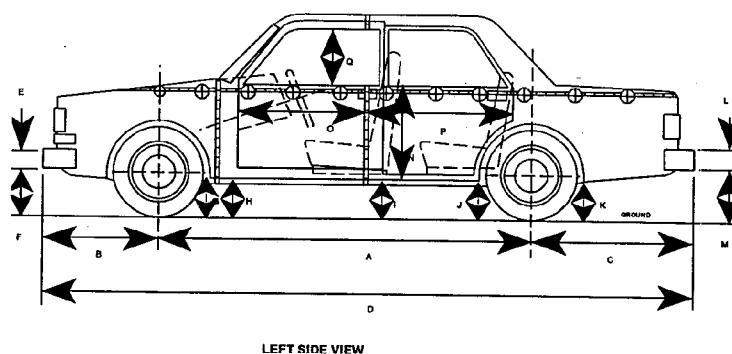
Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999

Driver SID ID # 270				Left Passenger SID ID # 269				
Pos. Direct.		Neg. Direct		Pos. Direct.		Neg. Direct		
Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	
HEAD ACCELERATIONS								
Longitudinal	44.3	181	-28.2	80	7.8	106	-20.2	75
Lateral	41.1	48	-34.4	181	97.5	58	-13.3	40
Vertical	42.7	53	-3.7	21	22.3	45	-48.6	67
Resultant	63.1	181	-----	-----	101.8	58	-----	-----
HIC	292	-----	-----	-----	787	-----	-----	-----
RIB ACCELERATIONS								
Left Upper Rib (LUR) Y	55.4	41	-15.0	166	54.3	52	-7.2	148
Left Lower Rib (LLR) Y	46.5	39	-14.9	100	62.8	42	-20.5	79
SPINE ACCELERATIONS								
Lower Lateral Y	64.0	31	-15.5	96	52.9	42	-36.2	73
PELVIS ACCELERATIONS								
Lateral Y	87.6	26	-28.2	51	78.2	34	-21.7	69

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

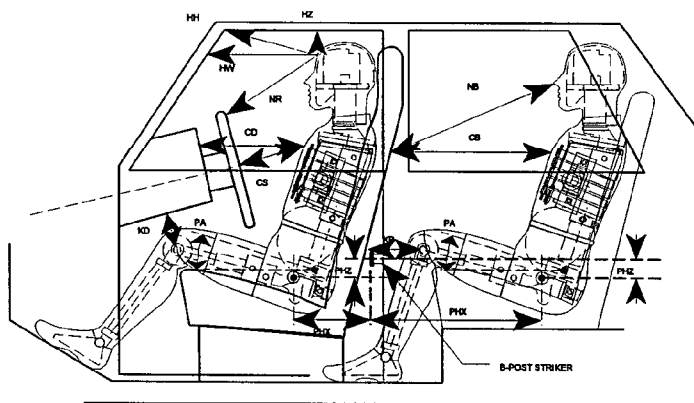
J1 = To Pinch Weld

J2 = To Sill

ALL MEASUREMENTS IN (mm)

	PRE-TEST	POST-TEST	Δ CHANGE
A	2752	2696	-156
B	980	984	4
C	1104	1074	-30
D	4836	4754	-82
E	130	130	0
F	423	443	20
G	195	203	8
H	197	216	19
I	194	244	50
J1/J2	176/175	170/166	-6/-9
K	230	241	11
L	205	205	0
M	378	410	32
N	650	511	-139
O	803	766	-37
P	1242	1118	-124
Q	451	433	-18
R	4134	4150	16
S	4139	4047	-92
T	1756	1427	-329

DATA SHEET NO. 7

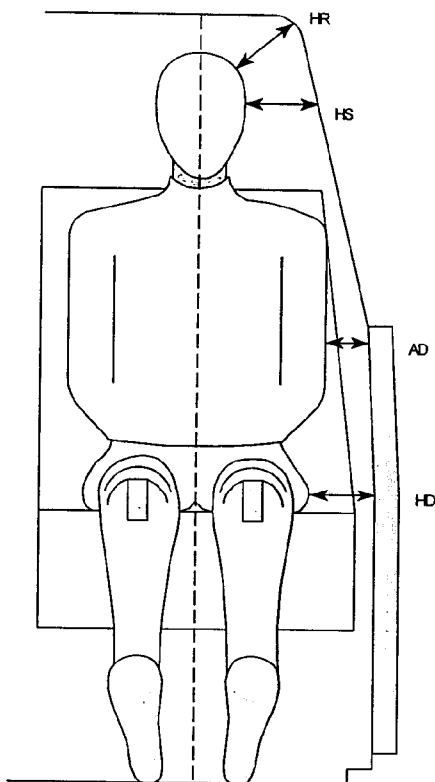
SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONSYear/Make/Model/Body Style: 2000/Nissan/Maxima/4 DoorNHTSA NO.: MY5202 Test Date: November 15, 1999NOTE: All dimensions are in mm with tolerance of ± 3 mm

	DRIVER SID ID # 270
HH	348
HW	563
HZ	137
NR	456
CD	557
CS	340
KDL(KDA°)	188 (27.1°)
KDR(KDA°)	210 (16.7°)
PA°	24.7°
PHX	212
PHZ	133

	LEFT REAR PASSENGER SID ID # 269
HZ	125
NB	697
CB	614
KBL (KBA°)	274 (0.0°)
KBR (KBA°)	280 (0.0°)
PA°	23.8°
PHX	244
PHZ	272

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 DIMENSIONSYear/Make/Model/Body Style: 2000/Nissan/Maxima/4 DoorNHTSA NO.: MY5202 Test Date: November 15, 1999

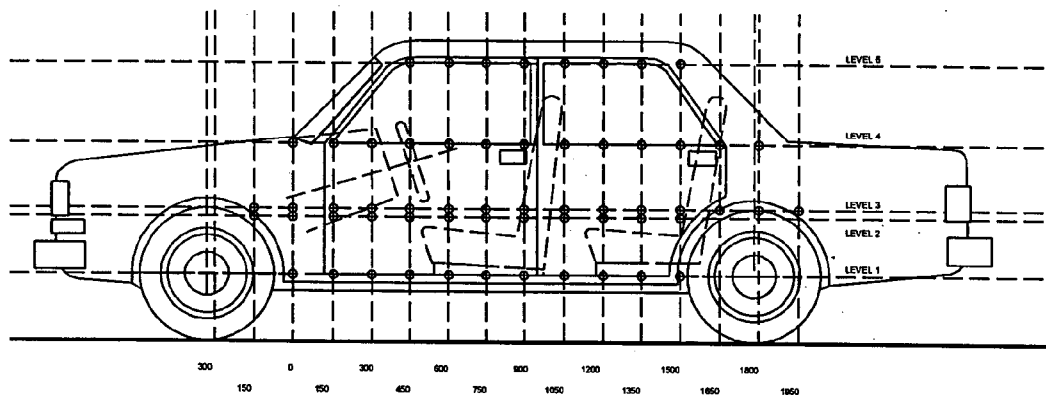
NOTE: All dimensions are in mm

	DRIVER SID ID # 270	LEFT REAR PASSENGER SID ID # 269
HR	197	215
HS	330	348
AD	113	130
HD	142	169

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

NHTSA NO.: MY5202 Test Date: November 15, 1999



LEFT SIDE VIEW

NOTE: All measurements are in millimeters (mm)

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

MEASUREMENTS 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)

= 272 mm

Level 2 @ Occupant H-Point

= 500 mm

Level 3 @ Mid Door

= 613 mm

Level 4 @ Window Sill

= 880 mm

Level 5 @ Window Top

= 1335 mm

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

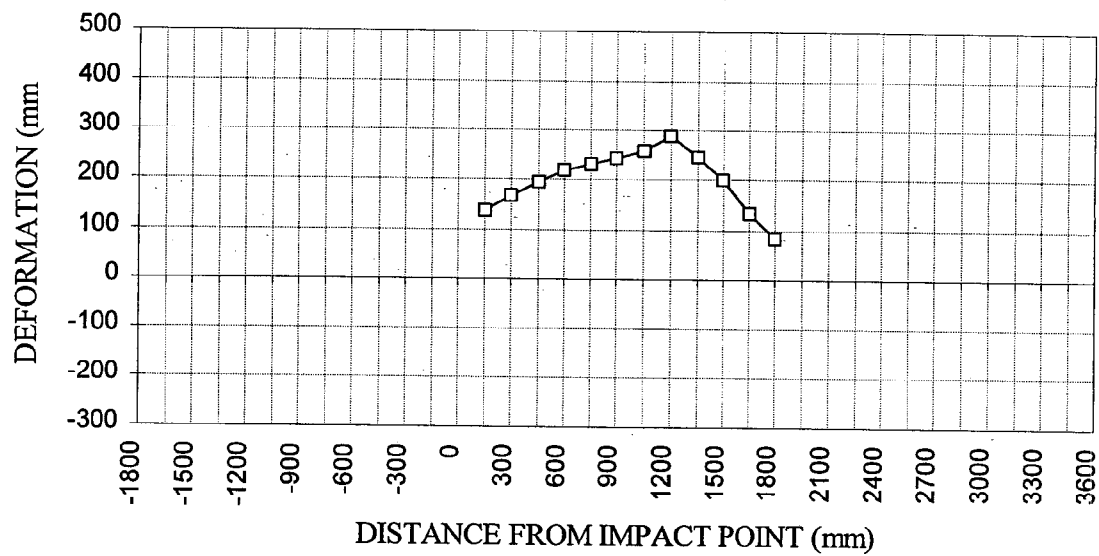
Longitudinal Distance (mm)	Level 1 - Axle Centerline		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150	868	1007	139
300	868	1035	167
450	868	1064	196
600	869	1087	218
750	870	1100	230
900	868	1112	244
1050	868	1125	257
1200	867	1156	289
1350	867	1112	245
1500	866	1067	201
1650	866	1001	135
1800	864	946	82

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

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

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

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

VEHICLE EXTERIOR STATIC CRUSH

LEVEL 1 - AXLE CENTERLINE

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

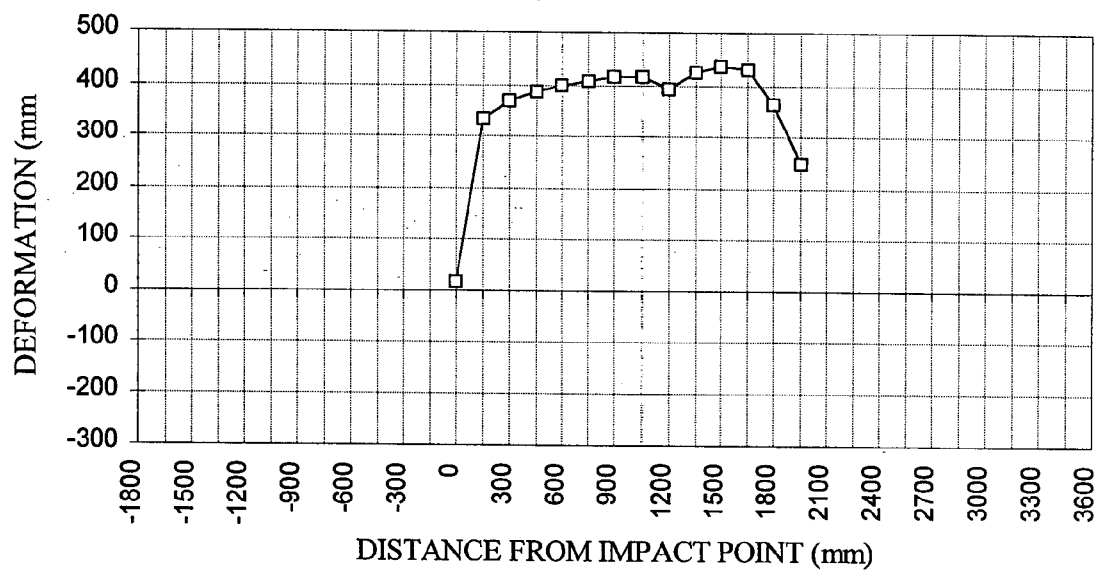
Longitudinal Distance (mm)	Level 2 - Occupant H-Point		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)	818	834	16
150	816	1151	335
300	816	1187	371
450	816	1203	387
600	815	1214	399
750	815	1222	407
900	815	1230	415
1050	813	1228	415
1200	813	1205	392
1350	813	1237	424
1500	814	1250	436
1650	814	1245	431
1800	815	1178	363

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

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Longitudinal Distance (mm)	Level 2 - Occupant H-Point		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950	805	1052	247
2100			
2250			
2400			
2550			
2700			
2850			
3000			
3150			
3300			
3450			
3600			

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

VEHICLE EXTERIOR STATIC CRUSH

LEVEL 2 - OCCUPANT H-POINT

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

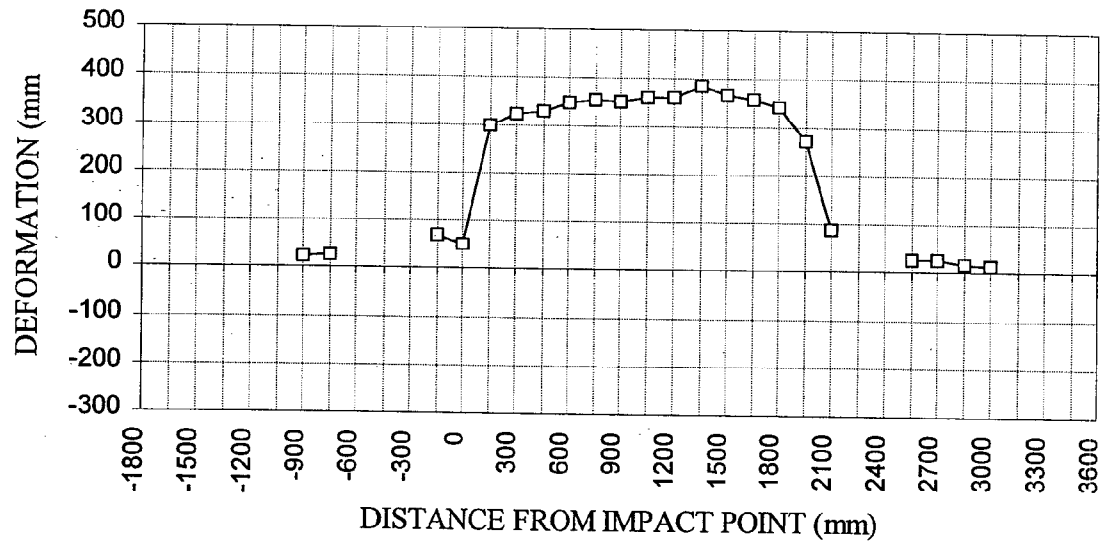
Longitudinal Distance (mm)	Level 3 - Mid-Door		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900	859	880	21
-750	814	839	25
-600			
-450			
-300			
-150	800	870	70
0 (impact point)	811	860	49
150	810	1108	298
300	808	1130	322
450	807	1136	329
600	806	1153	347
750	806	1159	353
900	805	1156	351
1050	805	1165	360
1200	806	1168	362
1350	805	1189	384
1500	805	1171	366
1650	805	1163	358
1800	805	1146	341

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

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 3 - Mid-Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950	806	1076	270
2100	790	877	87
2250			
2400			
2550	804	830	26
2700	825	850	25
2850	842	858	16
3000	860	872	12
3150			
3300			
3450			
3600			

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

VEHICLE EXTERIOR STATIC CRUSH

LEVEL 3 - MID-DOOR

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

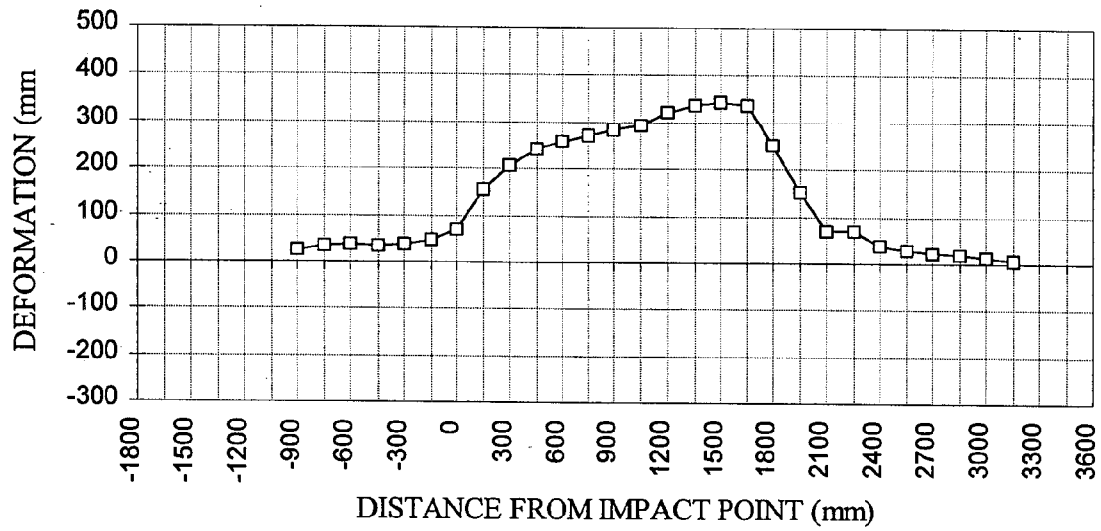
	Level 4 - Window Sill		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900	908	934	26
-750	888	922	34
-600	873	910	37
-450	864	900	36
-300	862	901	39
-150	858	906	48
0 (impact point)	855	924	69
150	853	1010	157
300	853	1059	206
450	853	1094	241
600	853	1110	257
750	853	1124	271
900	852	1134	282
1050	853	1146	293
1200	852	1172	320
1350	854	1192	338
1500	854	1199	345
1650	855	1194	339
1800	857	1109	252

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

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 4 - Window Sill		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950	859	1013	154
2100	859	928	69
2250	866	936	70
2400	874	913	39
2550	882	910	28
2700	895	918	23
2850	911	929	18
3000	930	942	12
3150	955	962	7
3300			
3450			
3600			

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

VEHICLE EXTERIOR STATIC CRUSH

LEVEL 4 - WINDOW SILL

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

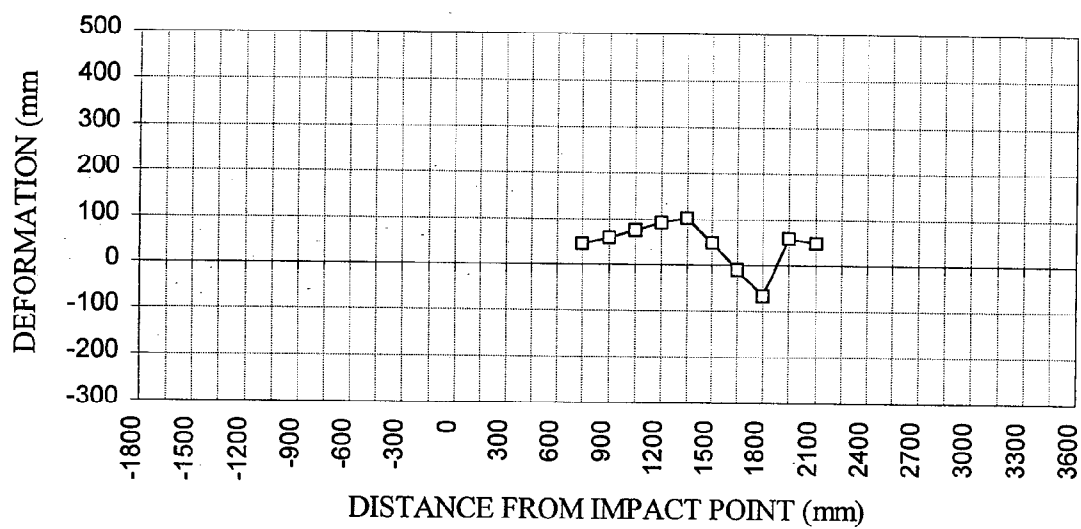
	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150			
300			
450			
600			
750	1070	1116	46
900	1068	1128	60
1050	1066	1142	76
1200	1066	1159	93
1350	1069	1171	102
1500	1069	1118	49
1650	1069	1060	-9
1800	1070	1003	-67

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

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950	1069	1128	59
2100	1085	1134	49
2250			
2400			
2550			
2700			
2850			
3000			
3150			
3300			
3450			
3600			

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

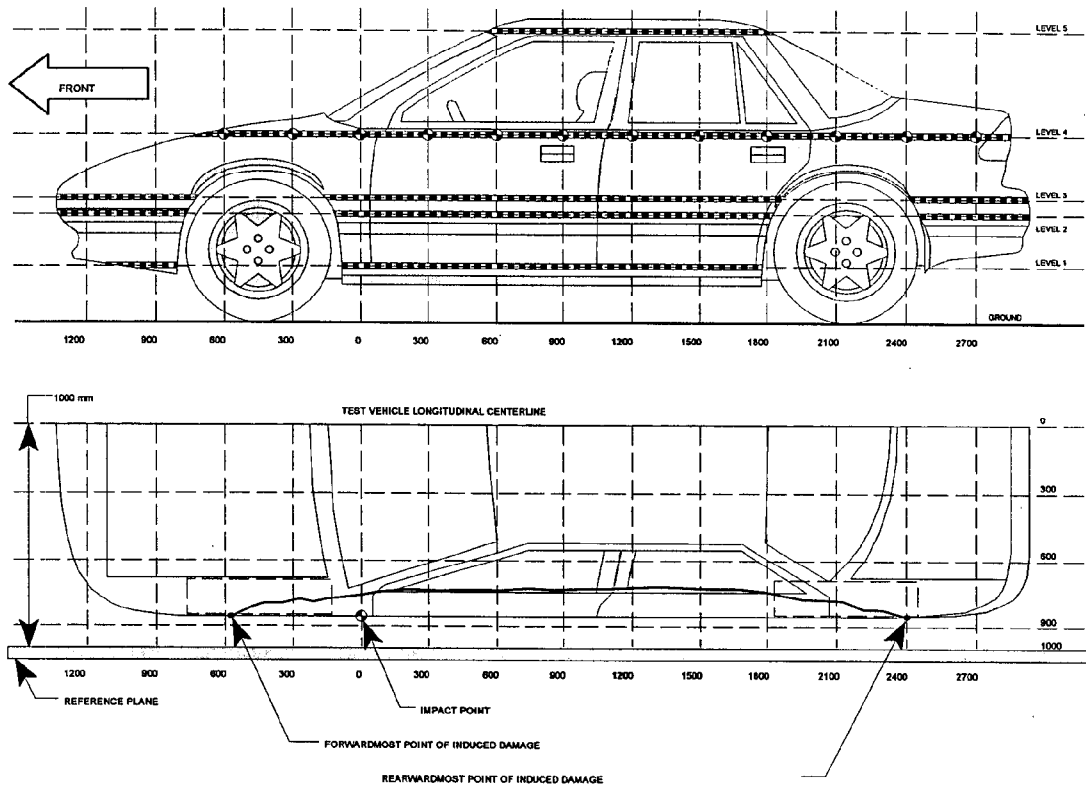
VEHICLE EXTERIOR STATIC CRUSH

LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

NHTSA NO.: MY5202 Test Date: November 15, 1999



NOTE: All measurements are in millimeters (mm)

DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (LR = <u>3150</u> mm)	962	955	7
2. 2350 mm	922	872	50
3. 1465 mm	1249	814	435
4. 684 mm	1216	815	401
5. -120 mm	901	853	48
6. (LF = <u>- 900</u> mm)	880	859	21

DATA SHEET NO. 12
EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

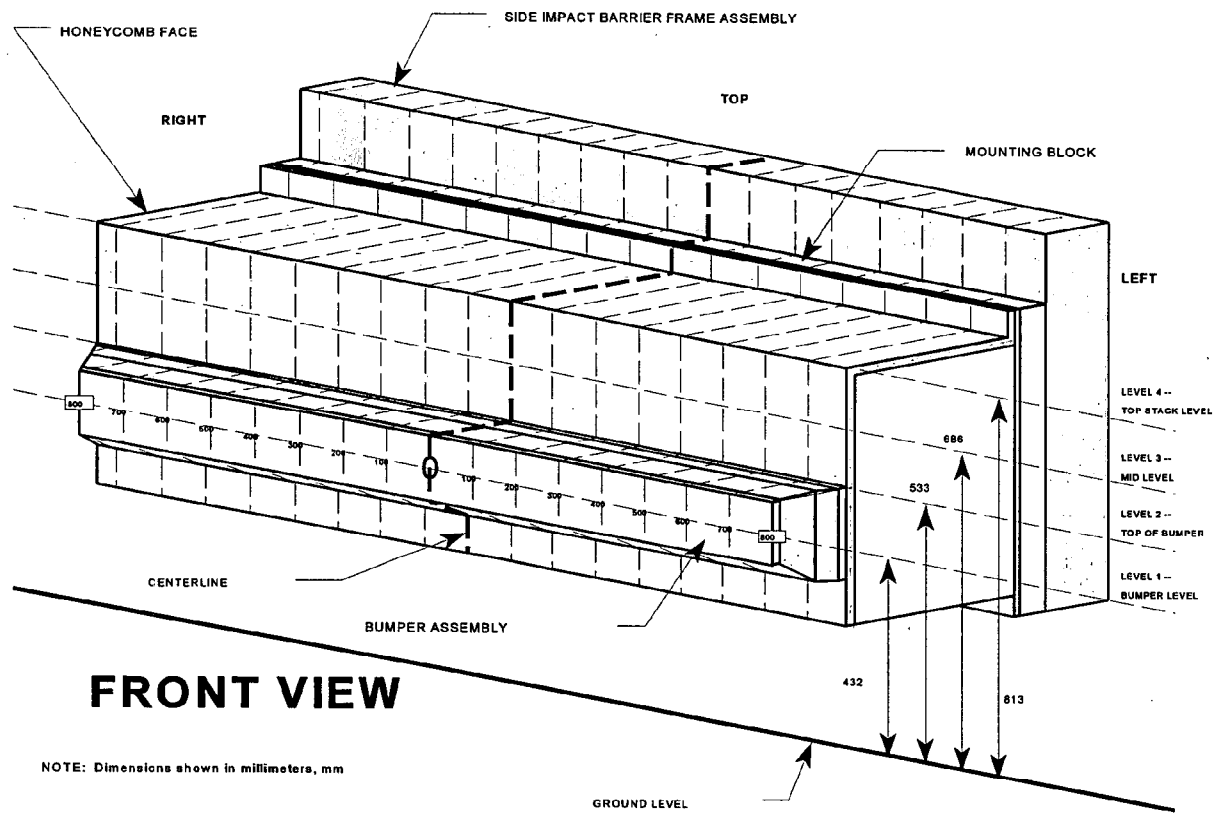
Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999

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	37	-3	-8	-6	3	21	29	22	20	25	30	40	53	71	104	133	189
Mid Level Level 3	686 mm	43	29	5	-2	2	19	35	28	14	10	14	20	29	41	60	86	146
Top Bumper Level 2	533 mm	33	29	32	34	41	48	45	40	36	43	49	57	60	68	76	92	109
Mid Bumper Level 1	432 mm	28	35	34	38	46	62	60	51	51	53	61	68	75	83	50	120	132

See next page for Barrier Face Graphic

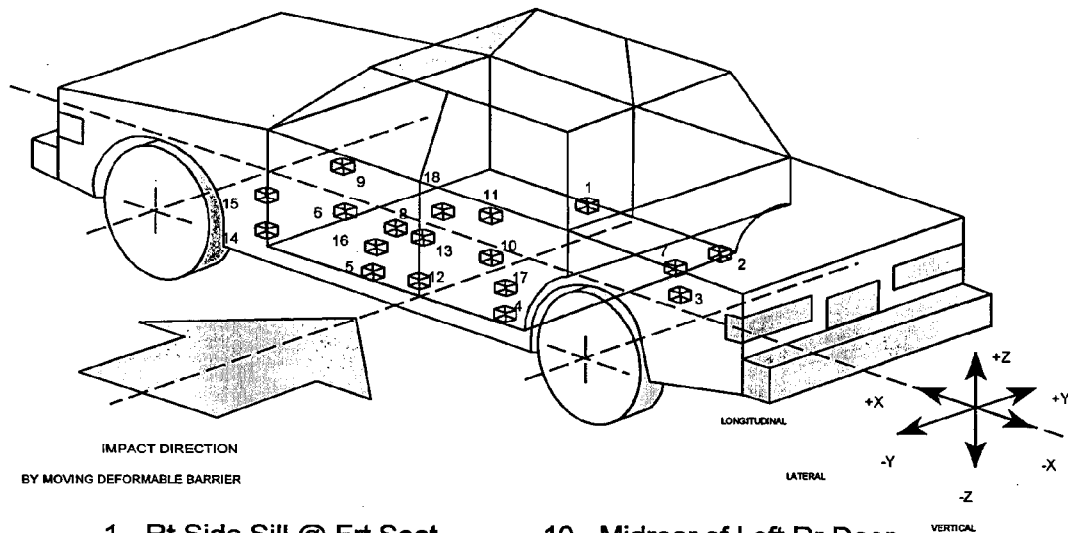
DATA SHEET NO. 12 (Cont'd)



DATA SHEET 13
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999



- 1 - Rt Side Sill @ Frt Seat
- 2 - Rt Side Sill @ Rr Seat
- 3 - Rr Floorpan Above Axle
- 4 - Left Side Sill @ Rr Seat
- 5 - Left Side Sill @ Frt Seat
- 6 - Left Frt Door on Centerline
- 7 - Rt Rr Occ Compartment
- 8 - Midrear of Left Frt Door
- 9 - Left Frt Door Uptr C/Line

- 10 - Midrear of Left Rr Door
- 11 - Left Rr Door Uptr C/Line
- 12 - Left Lwr B-Post
- 13 - Left Middle B-Post
- 14 - Left Lwr A-Post
- 15 - Left Middle A-Post
- 16 - Frt Seat Track
- 17 - Rr Seat Track
- 18 - Vehicle C.G.

DATA SHEET NO. 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

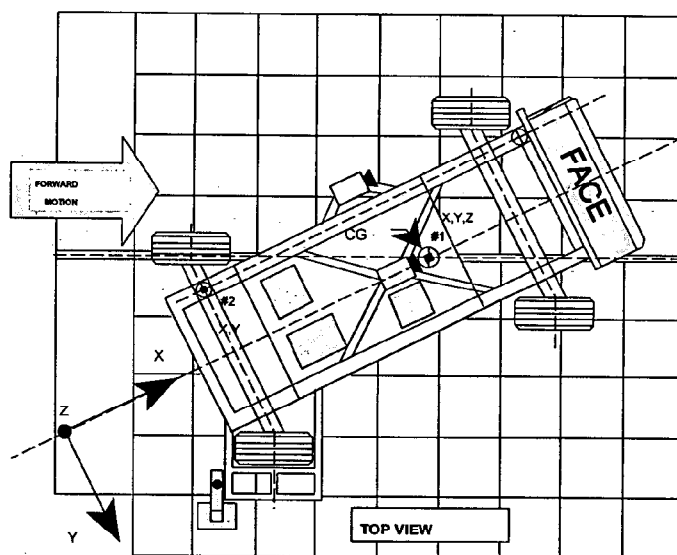
Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999

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	2677	699	217	2.9	-5.6	27.5	-6.2	6.8	-8.1	28.4
2	Rt. Side Sill @ Rear Seat	1597	703	221	4.4	-3.4	17.4	-2.5	8.2	-5.2	19.2
3	Rr. Floorpan Above Axle	1104	0	522	4.5	-2.8	23.4	-3.5	6.6	-4.7	23.7
4	Left Side Sill @ Rr. Seat	1594	-703	217	----	----	42.8	-9.7	----	----	----
5	Left Side Sill @ Frt. Seat	2688	-699	217	----	----	46.5	-6.5	----	----	----
6	Left Front Door Centerline	2741	-775	732	----	----	141.6	-103.5	----	----	----
7	Right Rear Occupant Compartment	1896	374	337	----	----	21.8	-2.6	----	----	----
8	Midrear of Left Front Door	2447	-763	658	----	----	207.4	-73.2	----	----	----
9	Left Front Door Upper Centerline	2720	-750	892	----	----	**	**	----	----	----
10	Left Rear Door Midrear	1589	-756	668	----	----	99.9	-85.8	----	----	----
11	Left Rear Door Upper Centerline	1769	-747	909	----	----	241.4	-108.4	----	----	----
12	Left Lower B-Post	2183	-675	340	----	----	90.1	-28.2	----	----	----
13	Left Mid B-Post	2180	-714	911	----	----	130.3	-21.2	----	----	----
14	Left Lower A-Post	3252	-692	328	----	----	35.0	-20.6	----	----	----
15	Left Mid A-Post	3323	-790	863	----	----	32.9	-22.9	----	----	----
16	Driver Left Seat Track	2393	-608	315	----	----	150.4	-177.5	----	----	----
18	Vehicle CG	2726	25	460	8.8	-11.2	51.4	-19.7	34.1	-31.7	60.6

*Reference: X - Rear Bumper (+ Forward) Y - Vehicle Centerline (+ To right) Z - Ground Level (+ Up) ** No valid data collected

DATA SHEET NO. 14

MOVING DEFORMABLE BARRIER (MDB) ACCELEROMETER LOCATIONS AND DATA SUMMARYYear/Make/Model/Body Style: 2000/Nissan/Maxima/4 DoorVehicle NHTSA No.: MY5202 Test Date: November 15, 1999

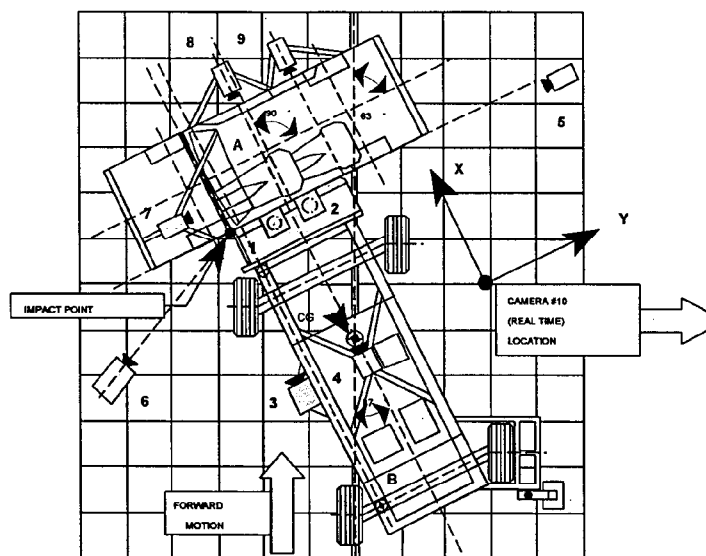
Accel. No.	Description	Coordinates (mm)*			(+) Positive		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	----	----	----	2.0	182	-17.7	43
	Lateral (Y)	----	----	----	0.9	142	-8.8	28
	Vertical (Z)	----	----	----	25.0	33	-20.6	26
	Resultant (R)	----	----	----	30.8	33	----	----
2	Rear Frame Member	-2501	-625	622				
	Longitudinal (X)	----	----	----	2.8	148	-22.3	32
	Lateral (Y)	----	----	----	4.3	27	-1.5	176

*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: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999



Camera No.	View	Coordinates (mm)*			Lens (mm)	Film Speed (fps)
		X	Y	Z		
	Real Time					
1	Top Overall	-230	1230	5000	8	909
2	Top Impact	-170	110	5000	13	1010
3	Cart Pointer				35	1015
4	Cart Overall				13	1010
5	Right Impact	4700	4200	1440	50	1020
6	Left Impact	-1630	-2400	1790	13	889
7	Onboard Hood				13	1020
8	Onboard Driver				8	1005
9	Onboard Rear Passenger				8	1005
10	Cable/Right Rear	11500	0	1190	50	1000

* 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: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999

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 38.8 mph (62.4 kph)

FUEL SPILLAGE MEASUREMENT:

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

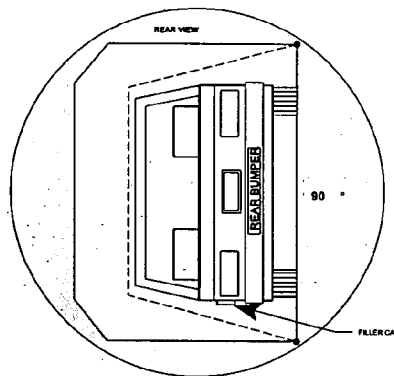
FUEL SPILLAGE LOCATION(S): None

DATA SHEET 16
FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 47 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 47 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

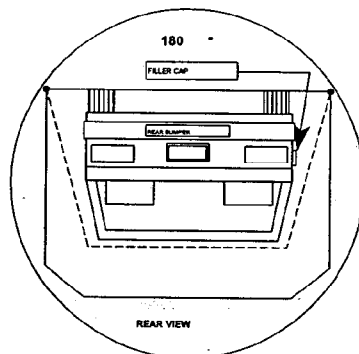
FUEL SPILLAGE LOCATIONS(S): None

DATA SHEET 16
FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 24 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 24 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

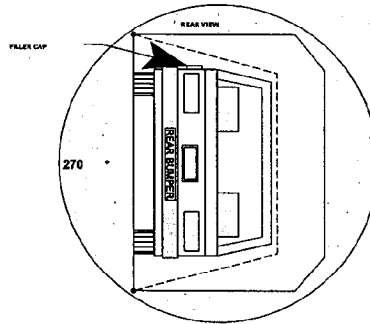
FUEL SPILLAGE LOCATIONS(S): None

DATA SHEET 16
FMVSS 301 STATIC ROLLOVER TEST DATA (Cont'd)

Vehicle Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999

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

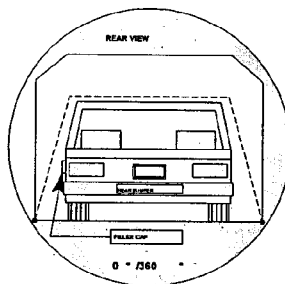
FUEL SPILLAGE LOCATIONS(S): None

DATA SHEET 16
FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 2000/Nissan/Maxima/4 Door

Vehicle NHTSA No.: MY5202 Test Date: November 15, 1999

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 25 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 25 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

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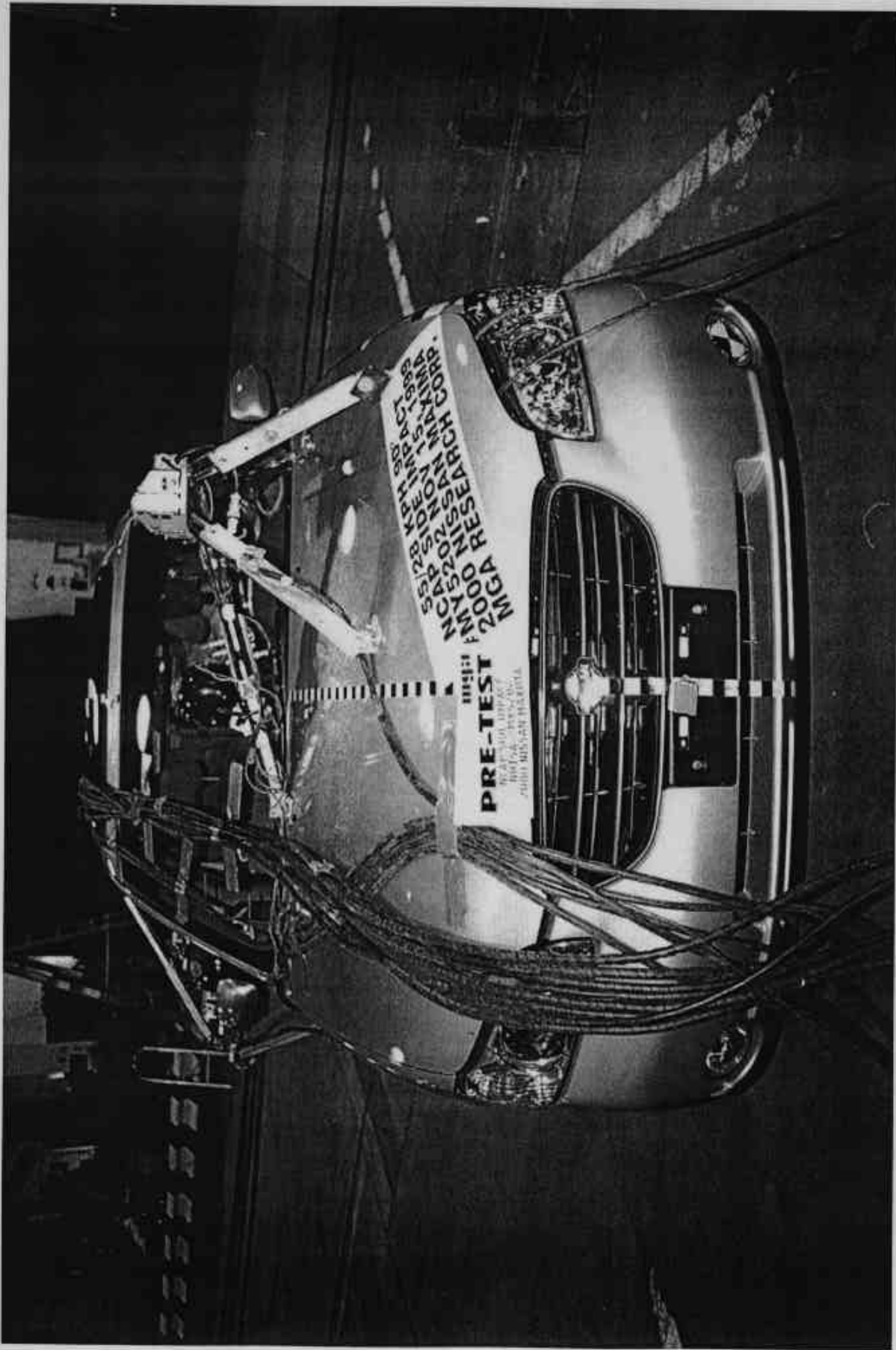


Photo No. A-1 - Pre-Test Front View of Test Vehicle

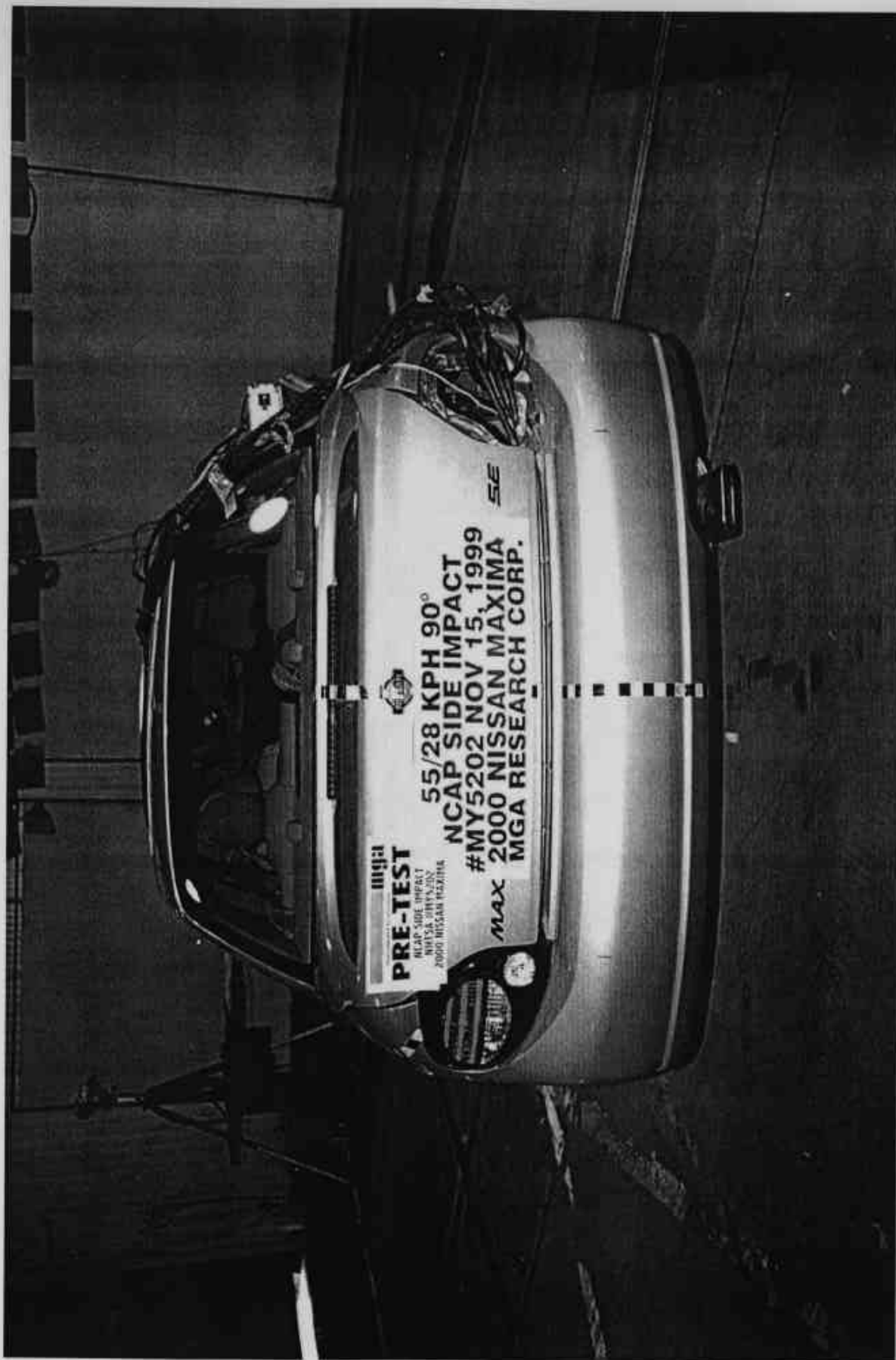


Photo No. A-3 - Pre-Test Rear View of Test Vehicle



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

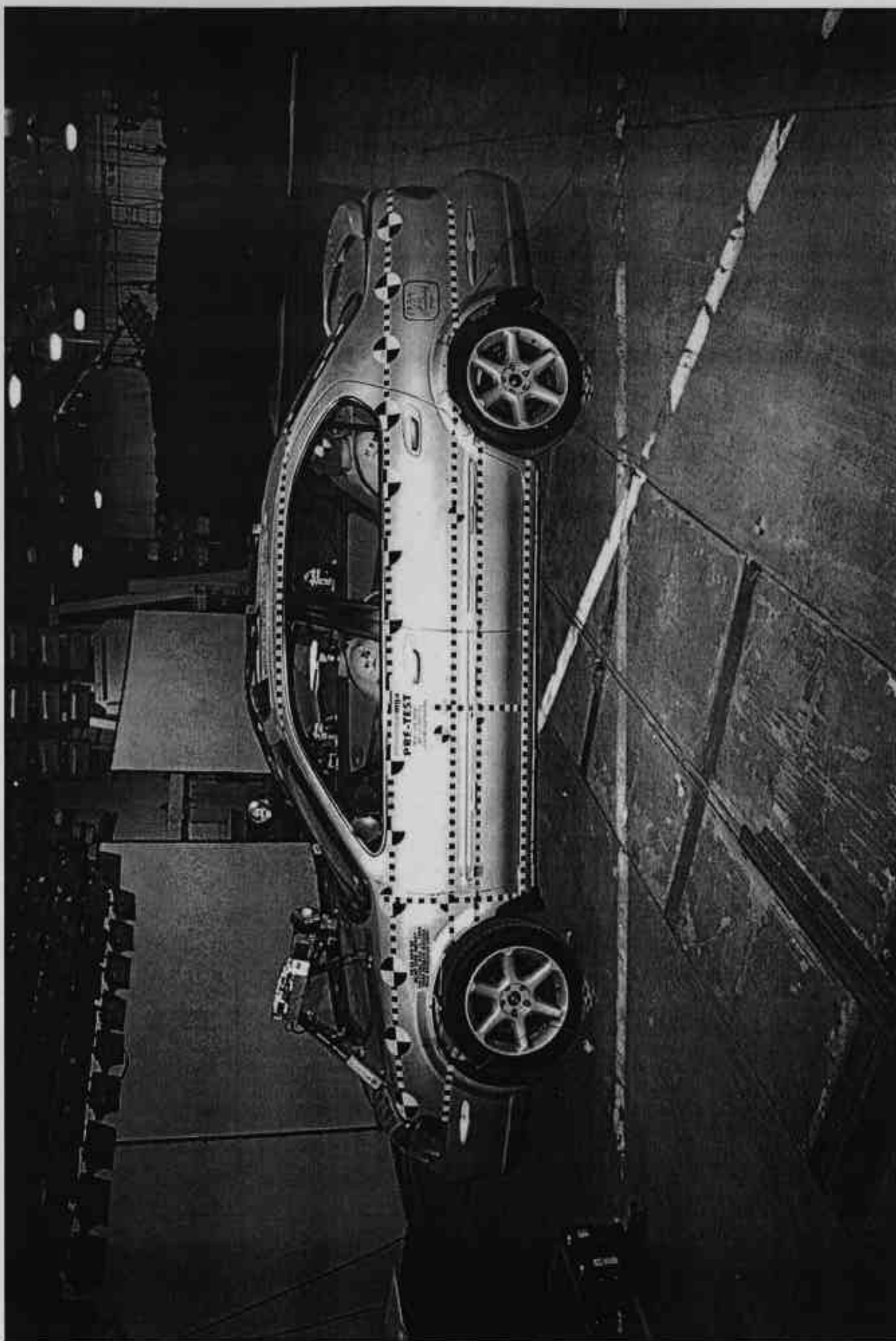


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle

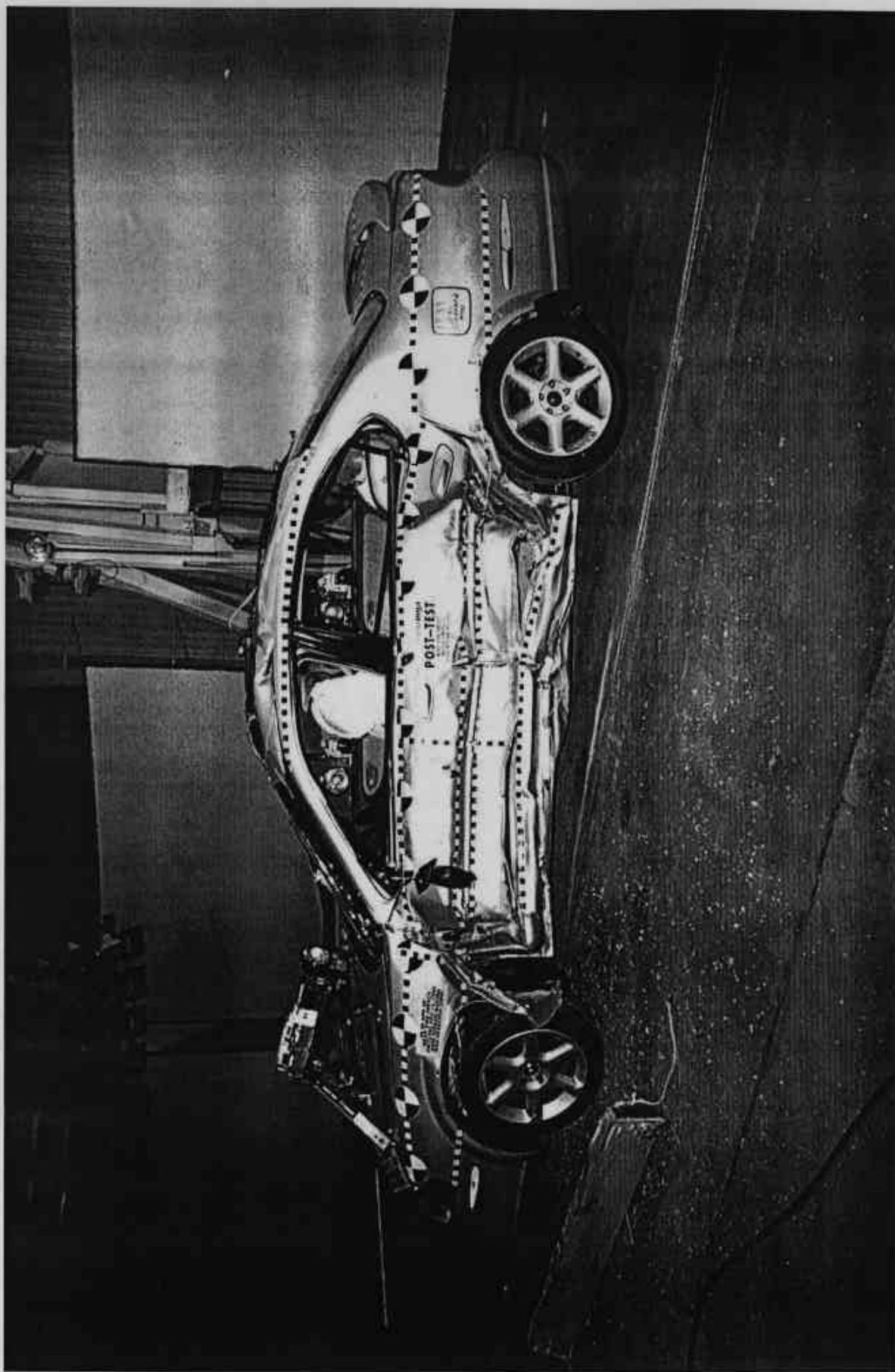


Photo No. A-6 - Post-Test Left Side View of Test Vehicle

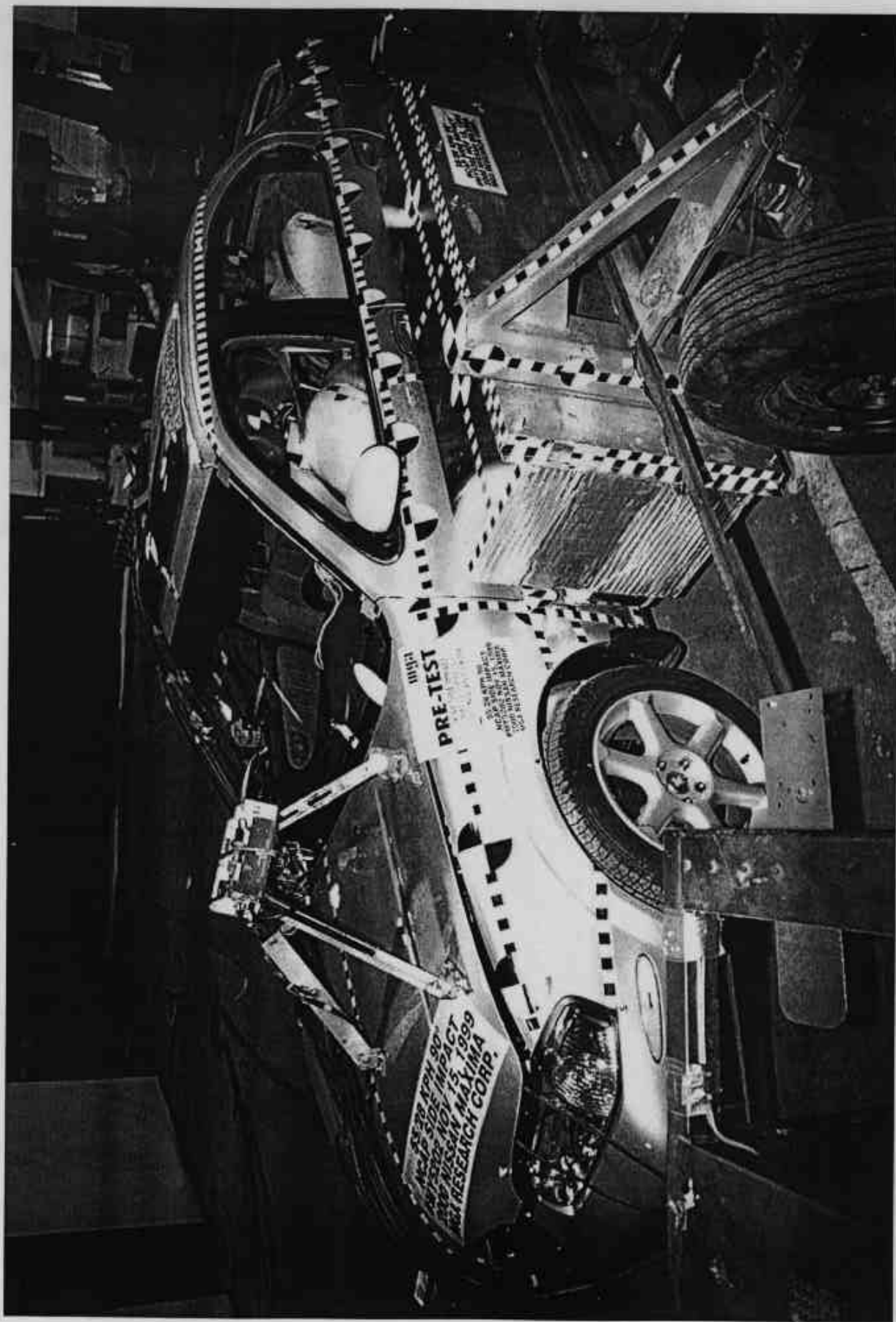


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)



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



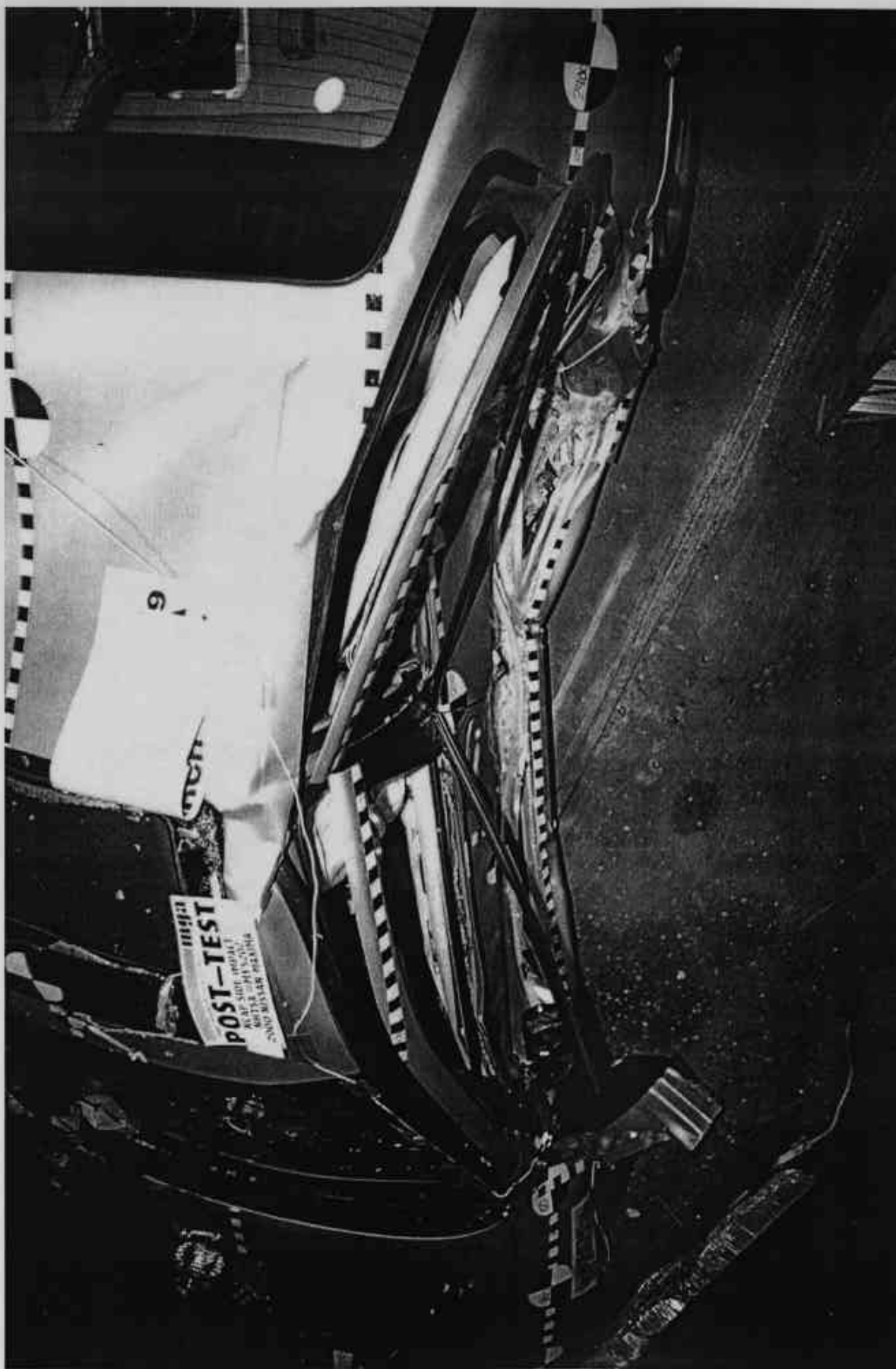
Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View



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

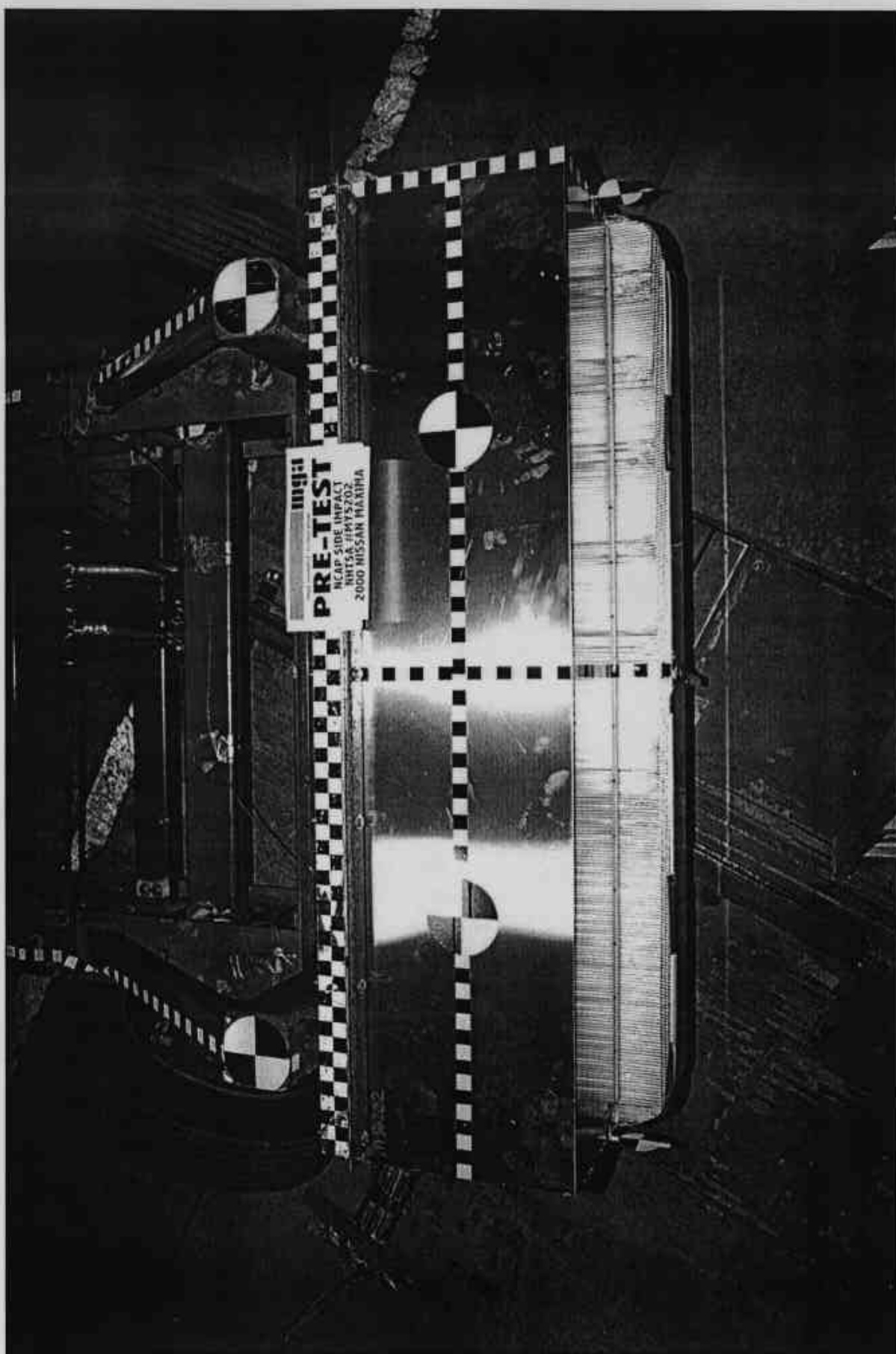


Photo No. A-11 - Post-Test MDB Positioned Against Vehicle (right side)



A-12

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



A-13

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

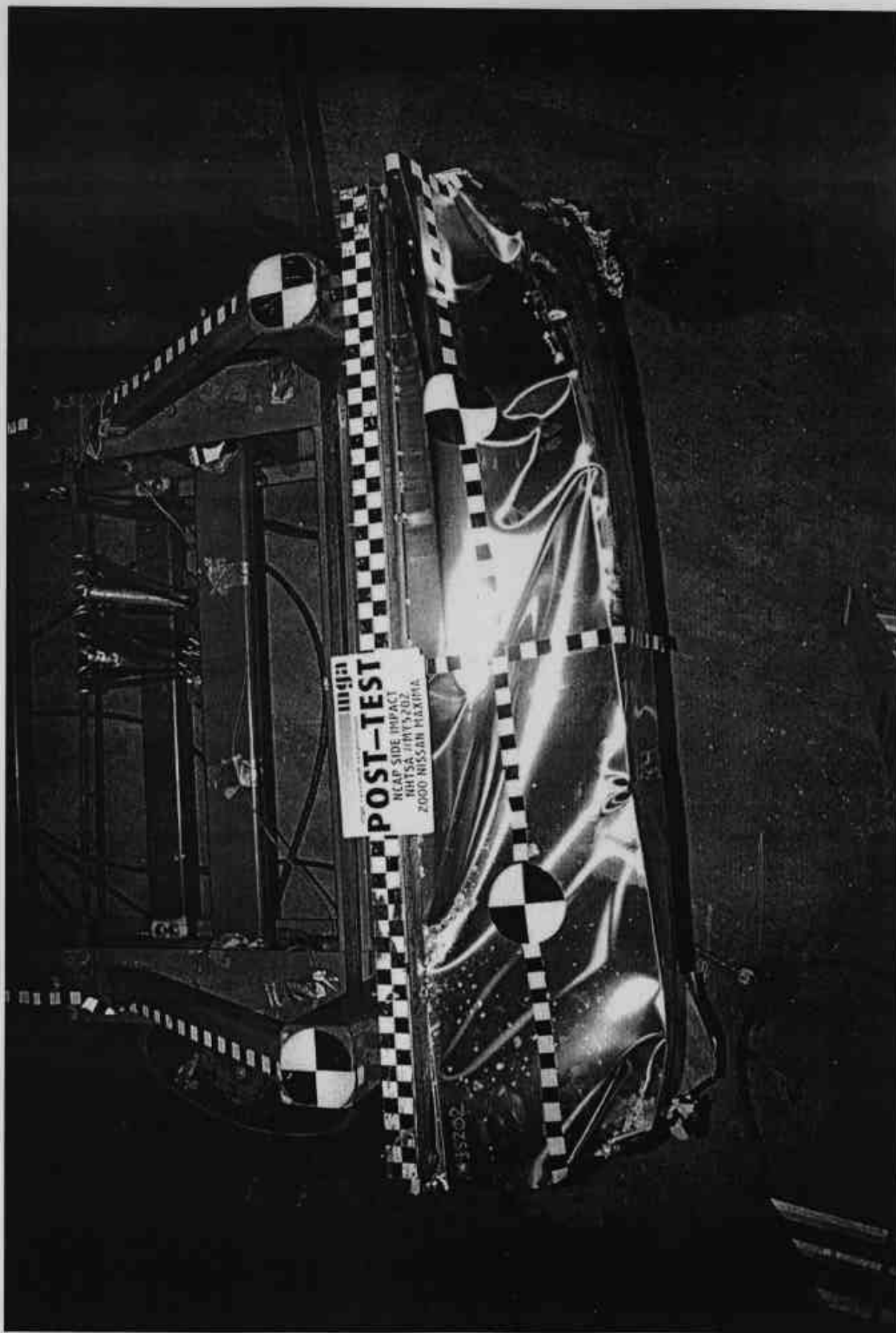


Photo No. A-14 - Post-Test MDB Top View

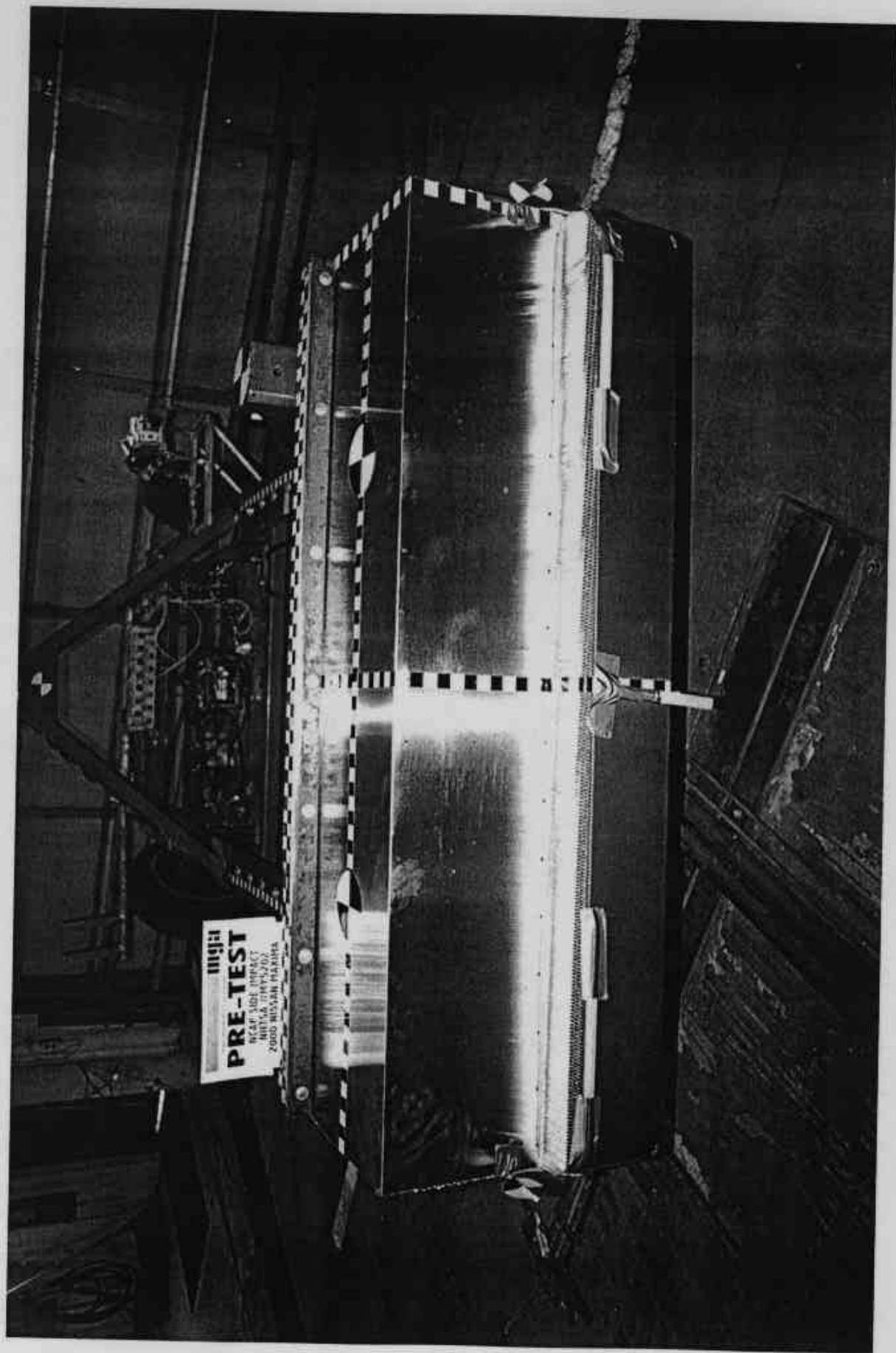


Photo No. A-15 - Pre-Test MDB Front View

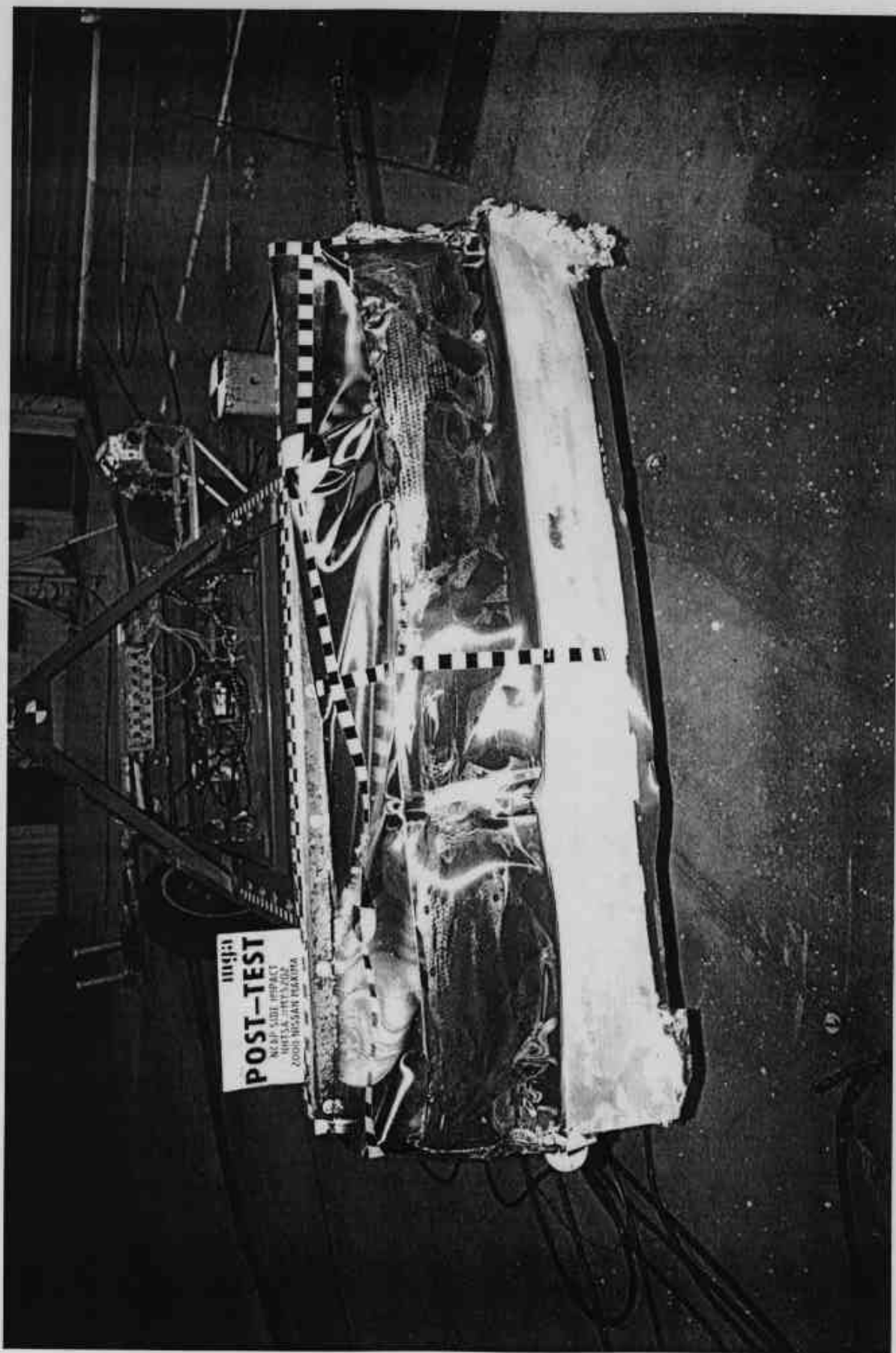


Photo No. A-16 - Post-Test MDB Front View

A-16

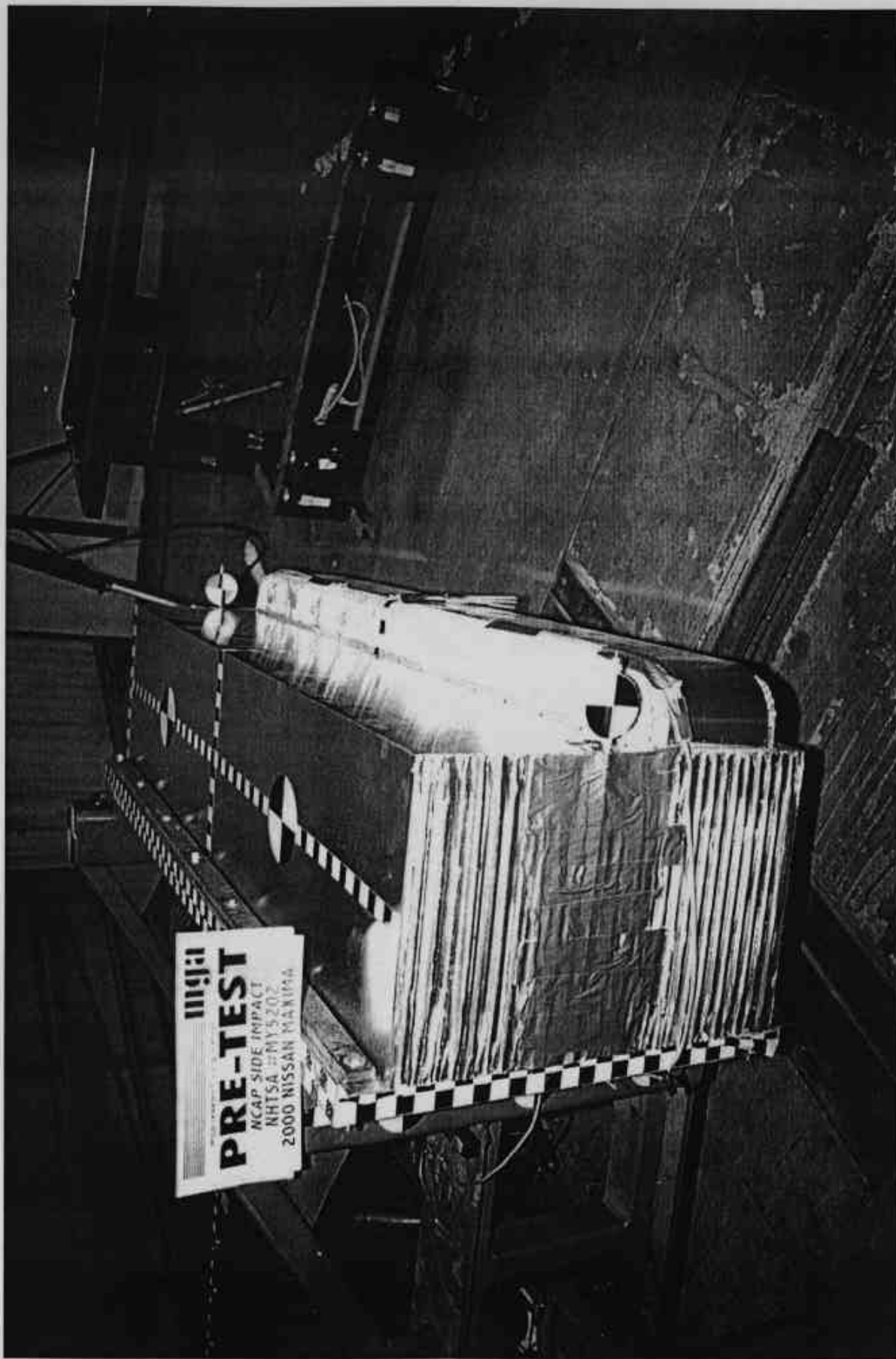


Photo No. A-17 - Pre-Test MDB Right Side View



A-18

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

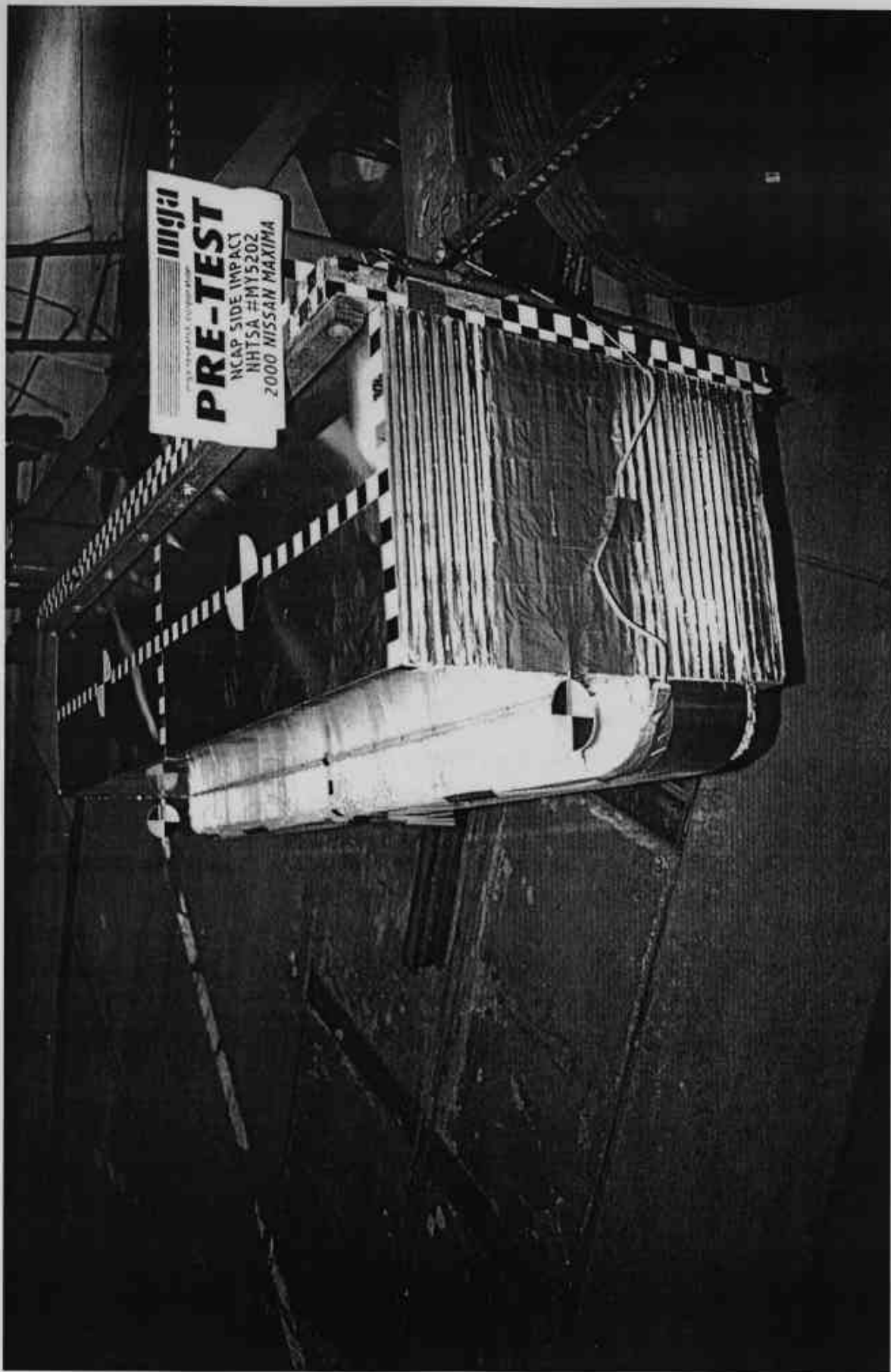


Photo No. A-19 - Pre-Test MDB Left Side View

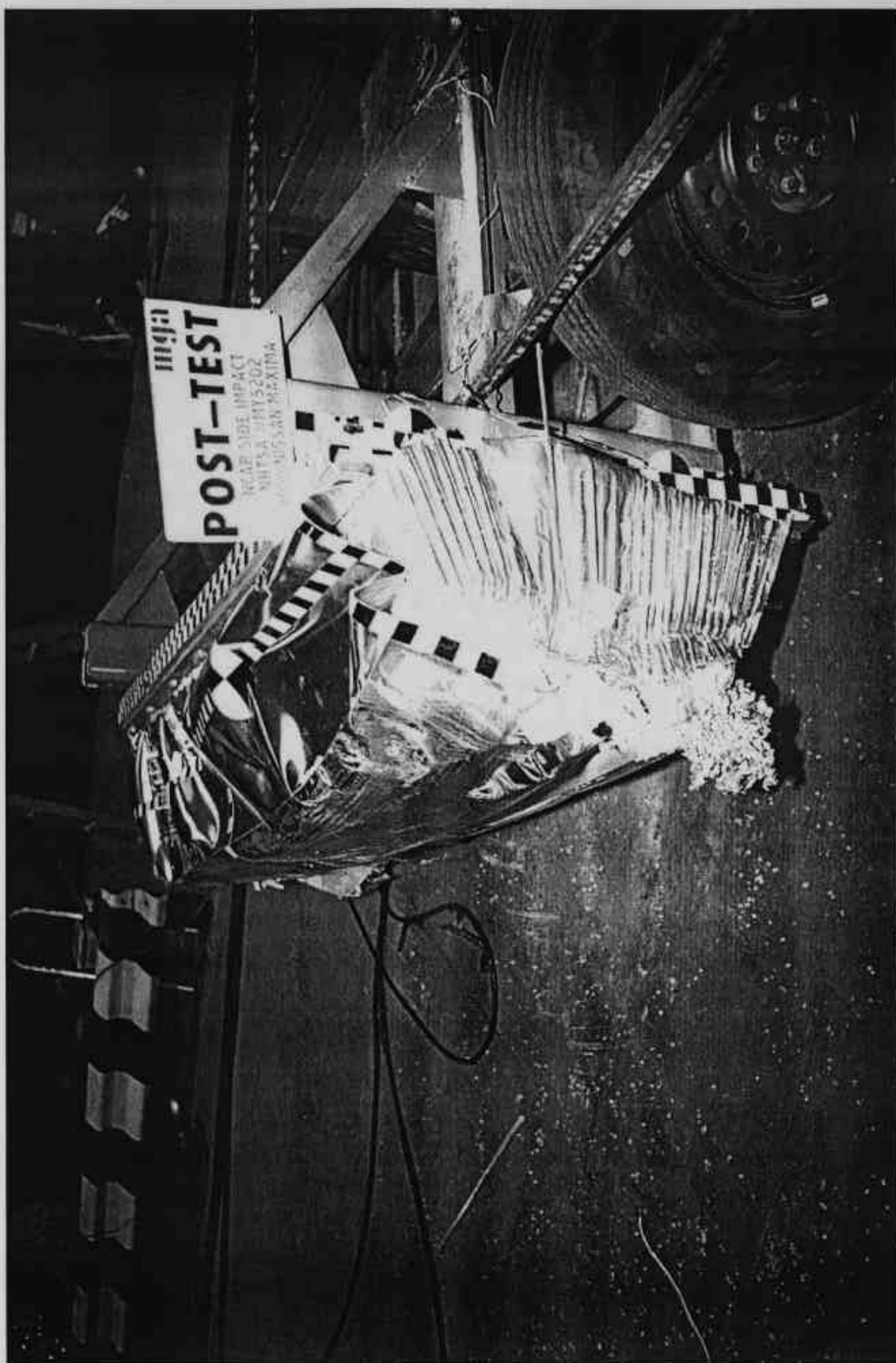


Photo No. A-20 - Post-Test MDB Left Side View



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

A-21



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

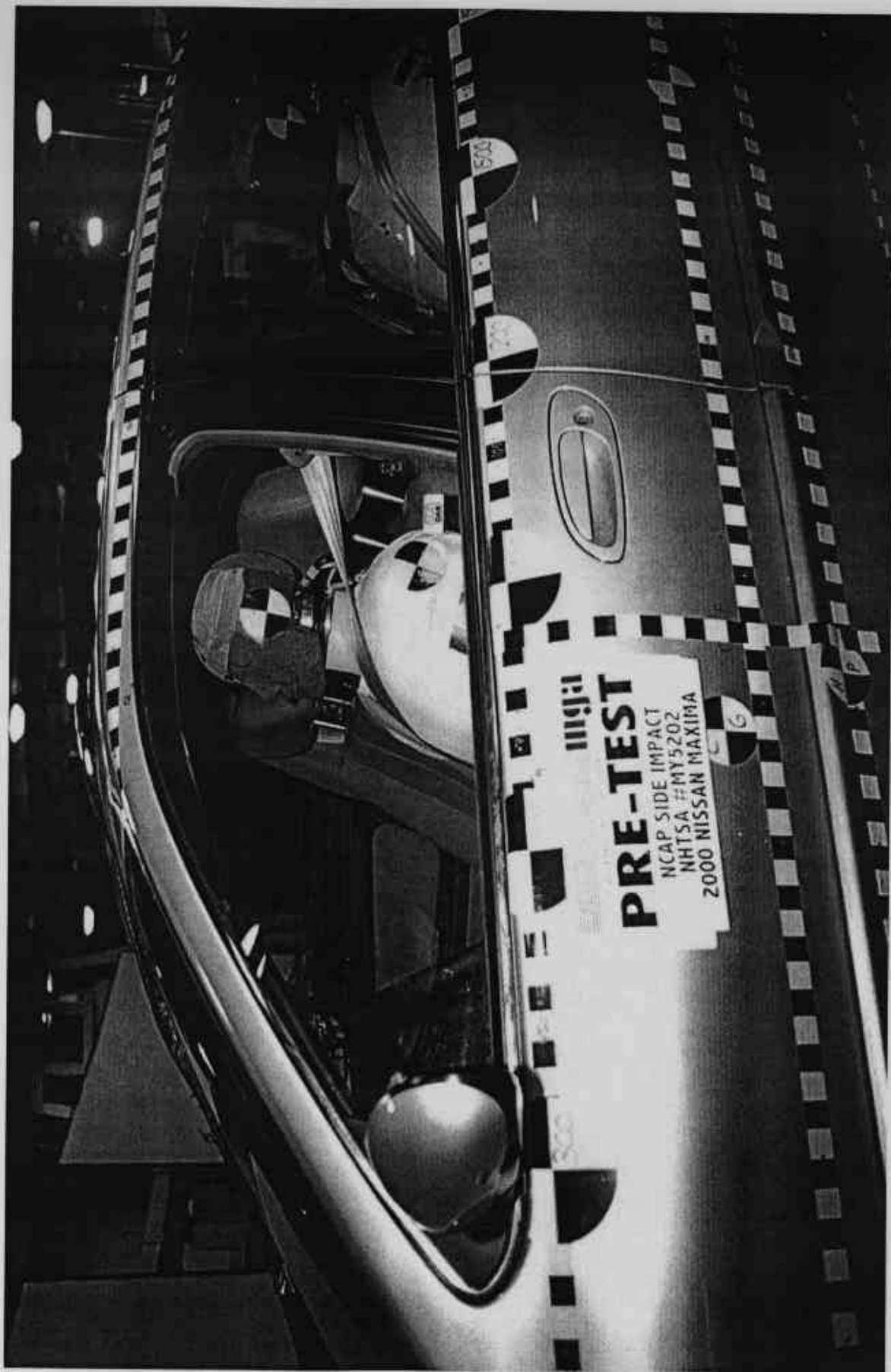


Photo No. A-23 - Pre-Test Driver Dummy Left Side View

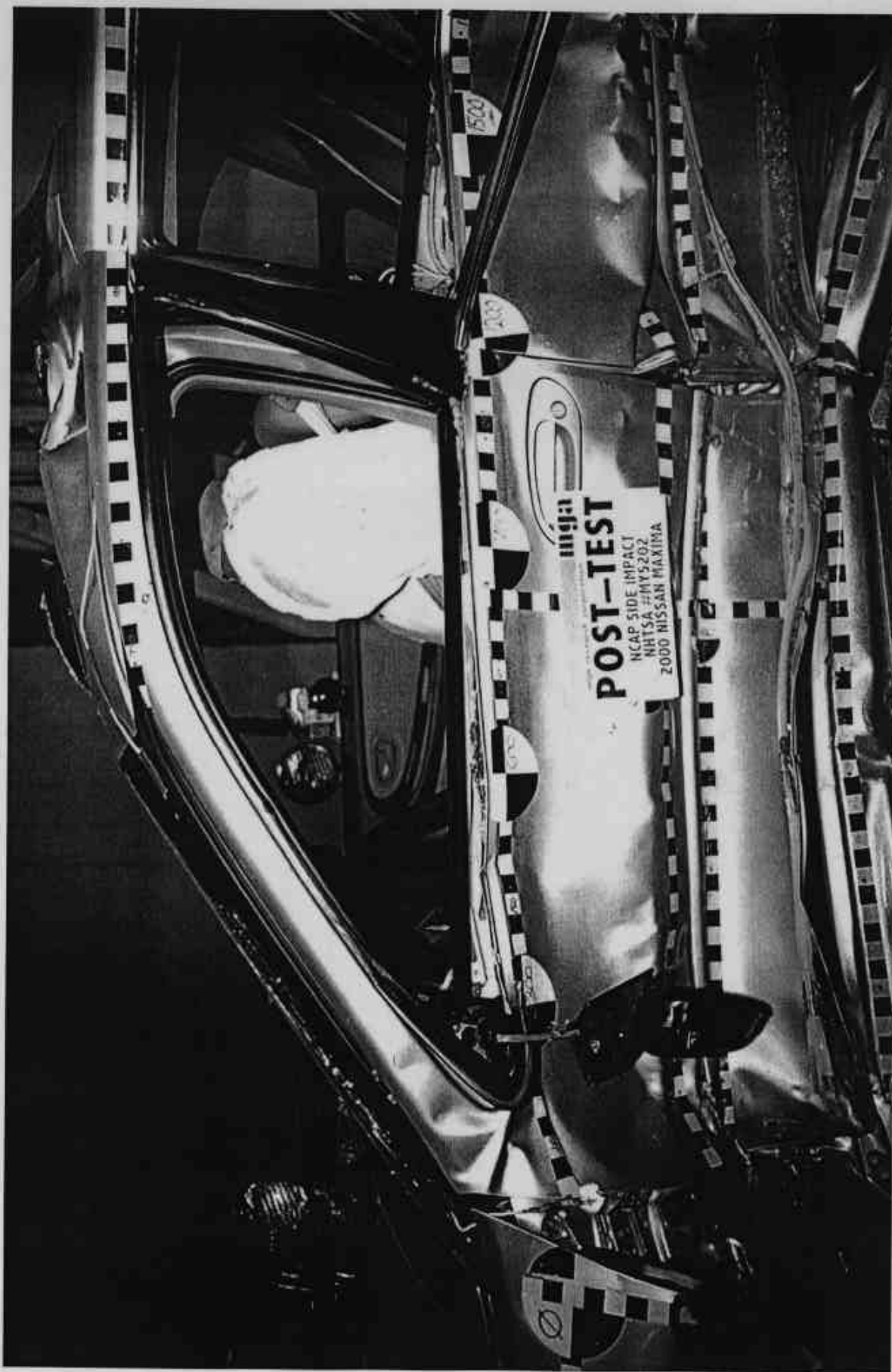


Photo No. A-24 - Post-Test Driver Dummy Left Side View

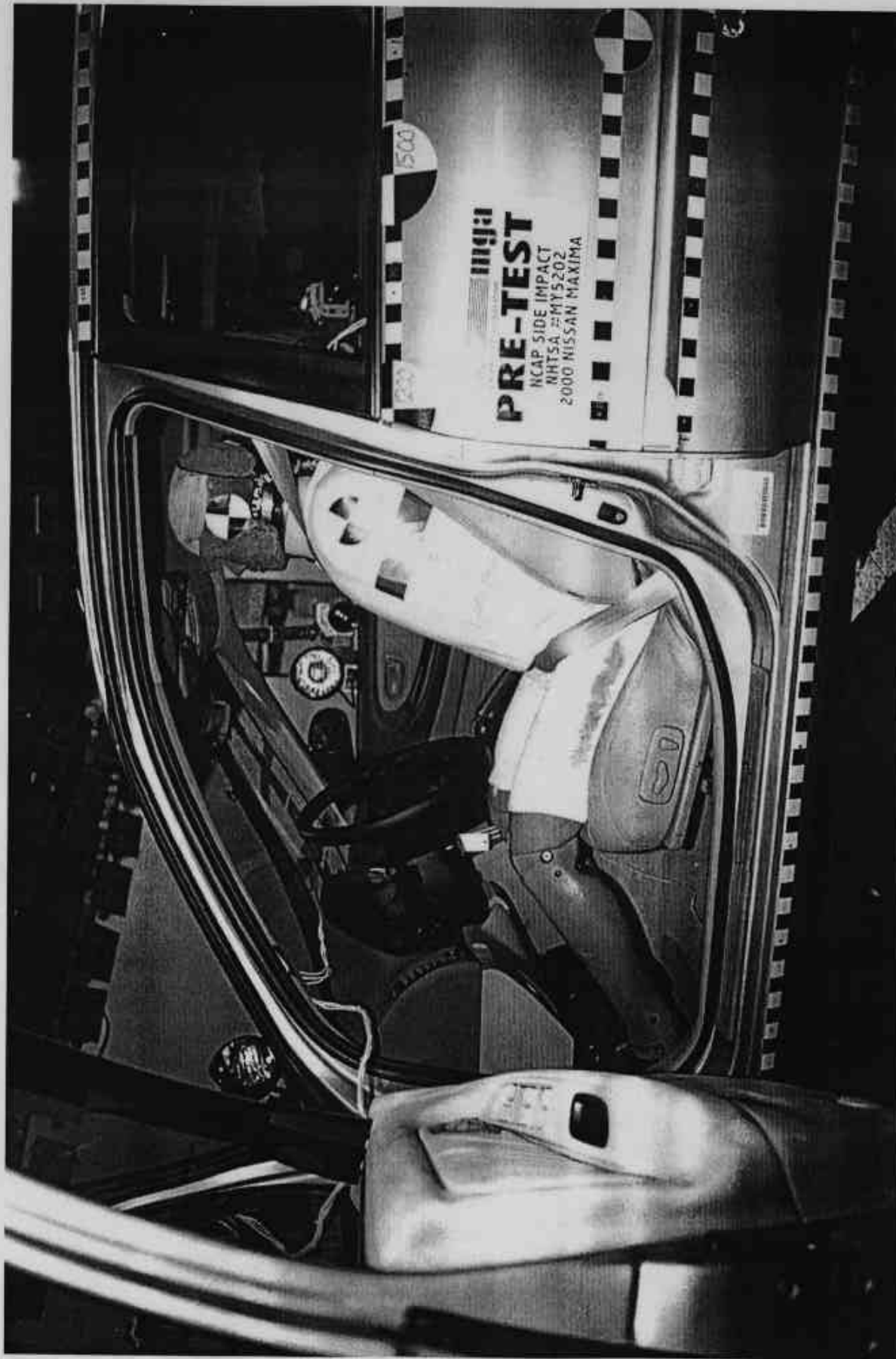
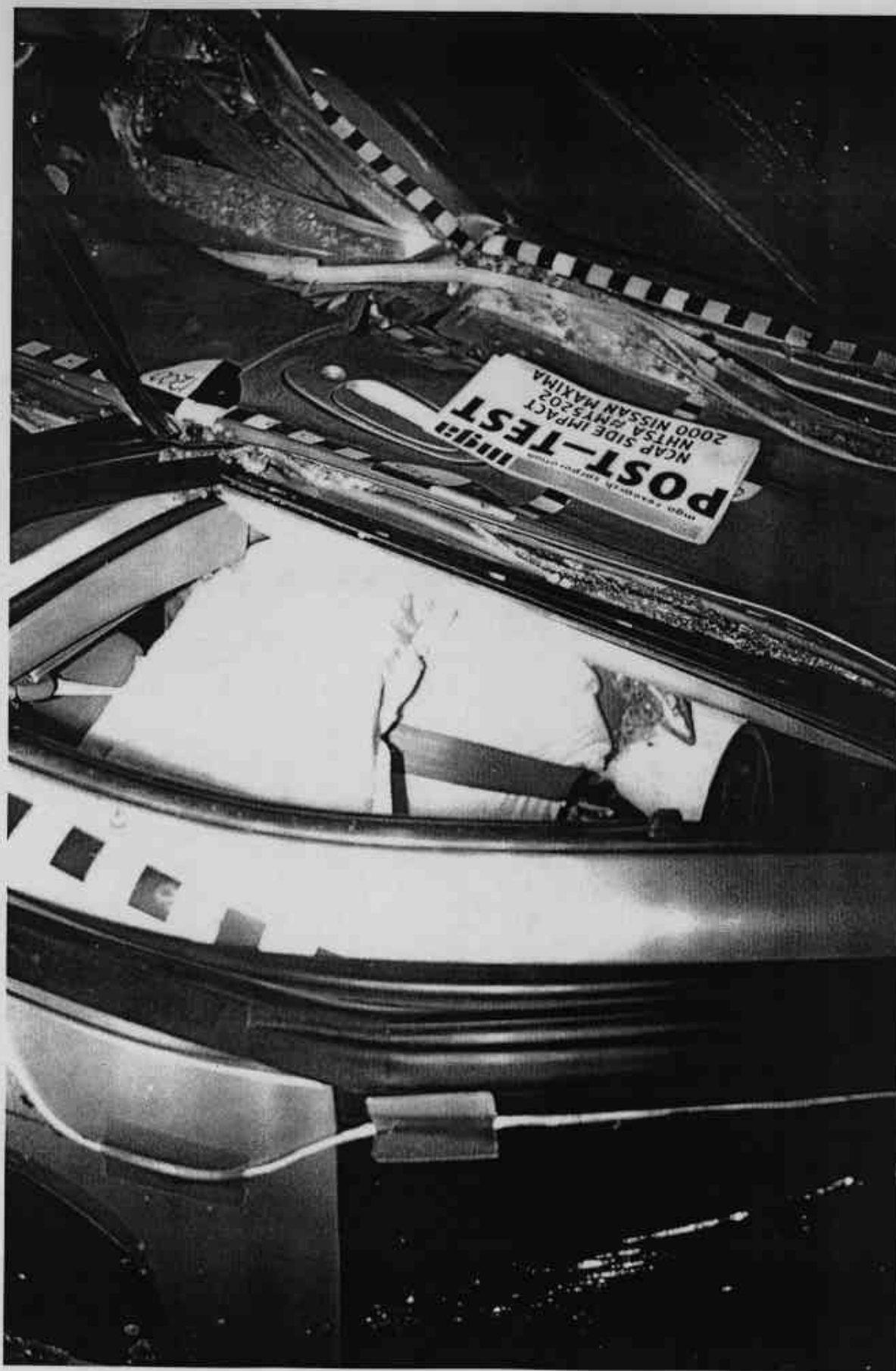


Photo No. A-25 - Pre-Test Driver Dummy Left Side View (Door Open)



A-26

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



A-27

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



A-28

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

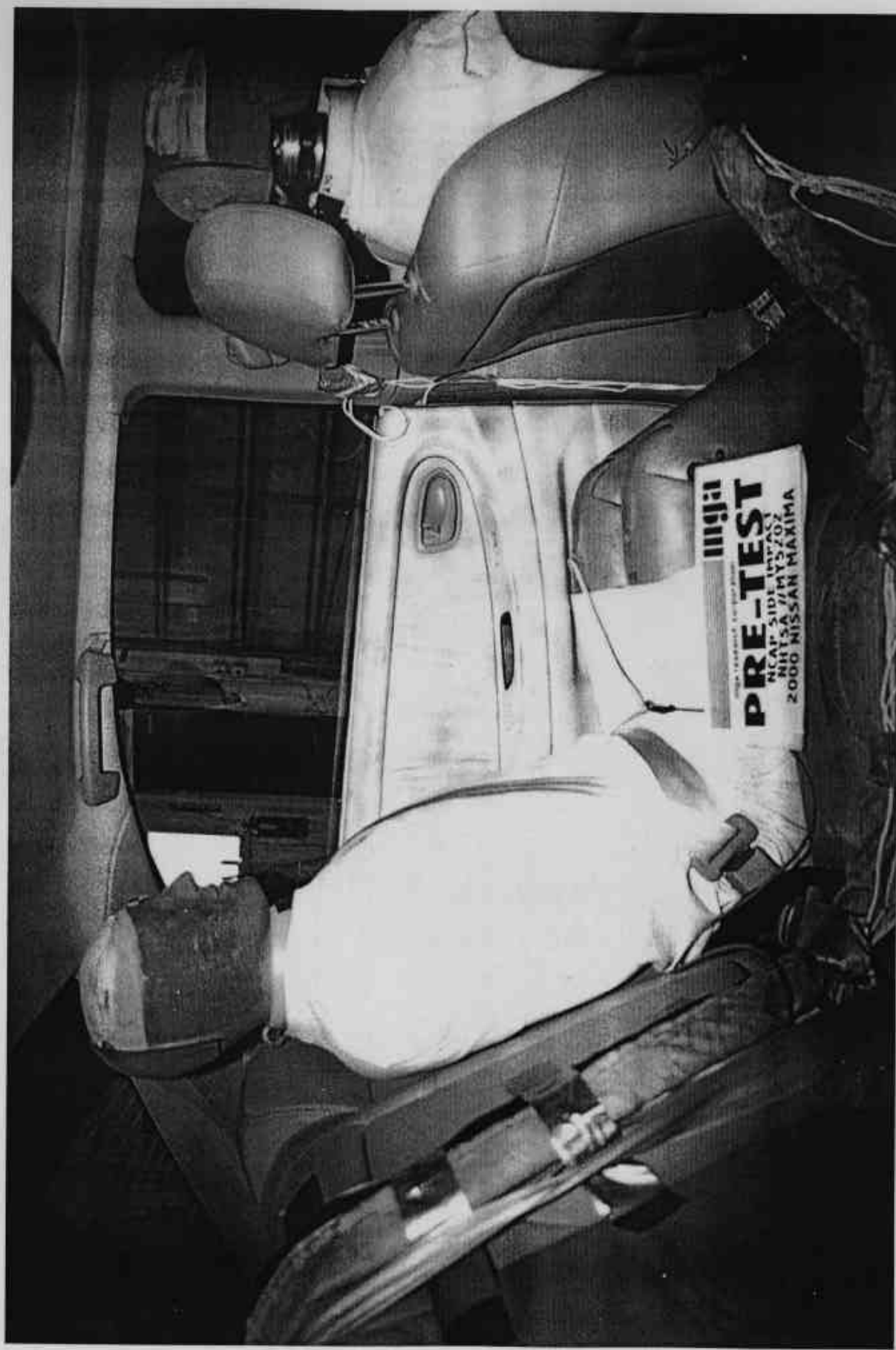


Photo No. A-29 - Post-Test Driver Dummy Head Contact



Photo No. A-30 - Post-Test Driver Dummy Right Side Airbag Contact

A-30



A-31

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



A-32

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

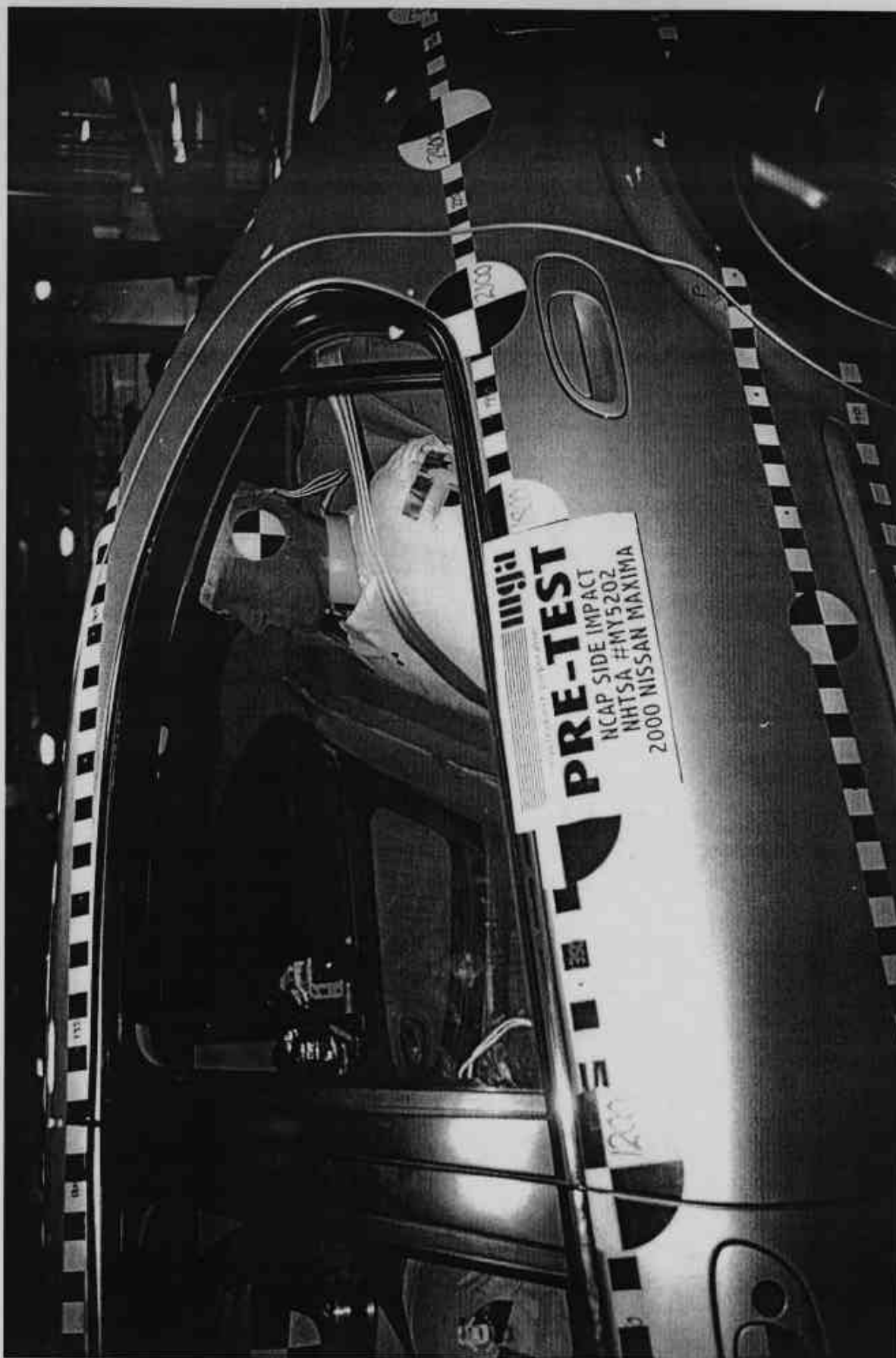


Photo No. A-33 - Pre-Test Passenger Dummy Left Side View



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

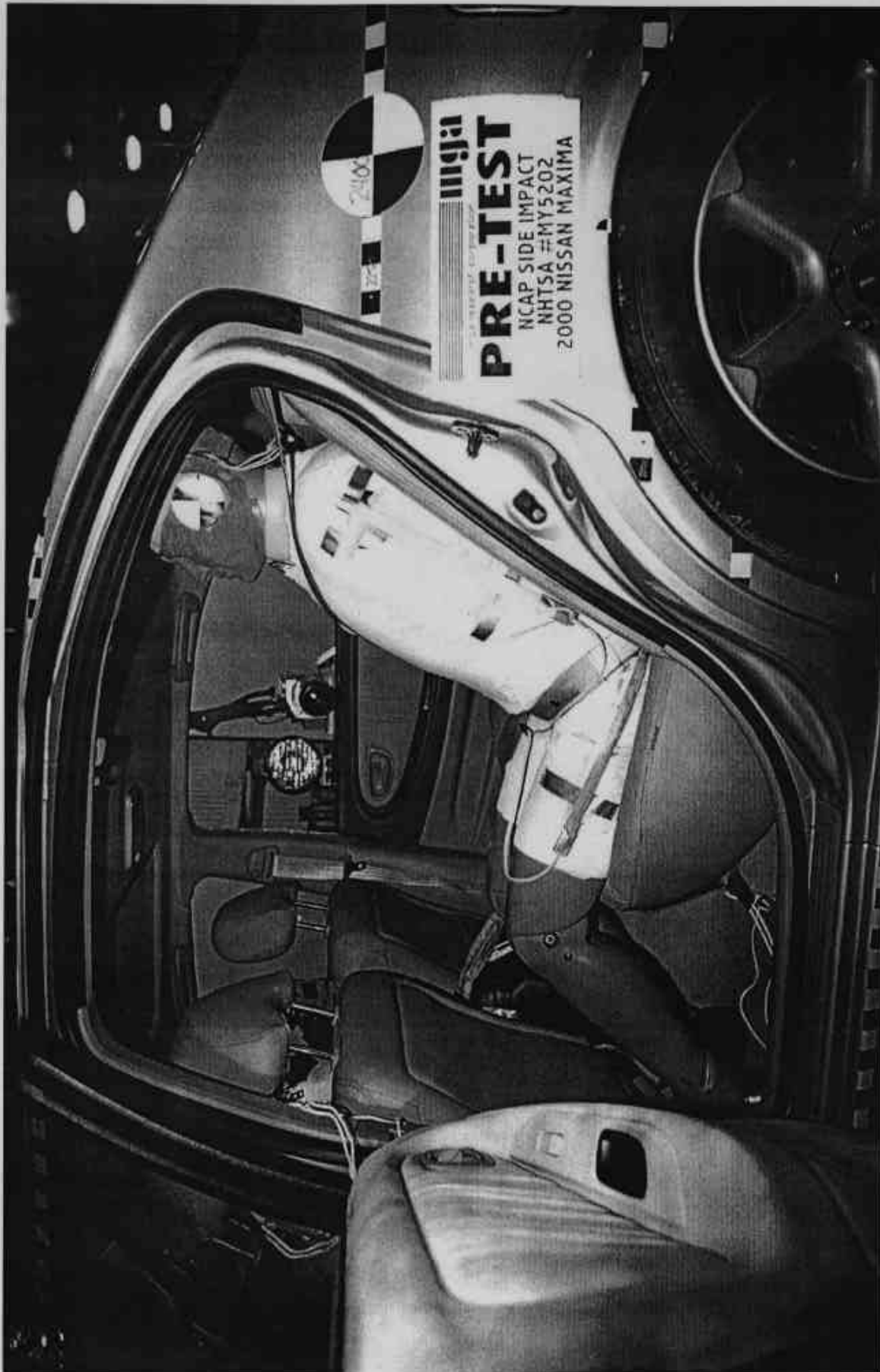


Photo No. A-35 - Pre-Test Passenger Dummy Left Side View (Door Open)



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

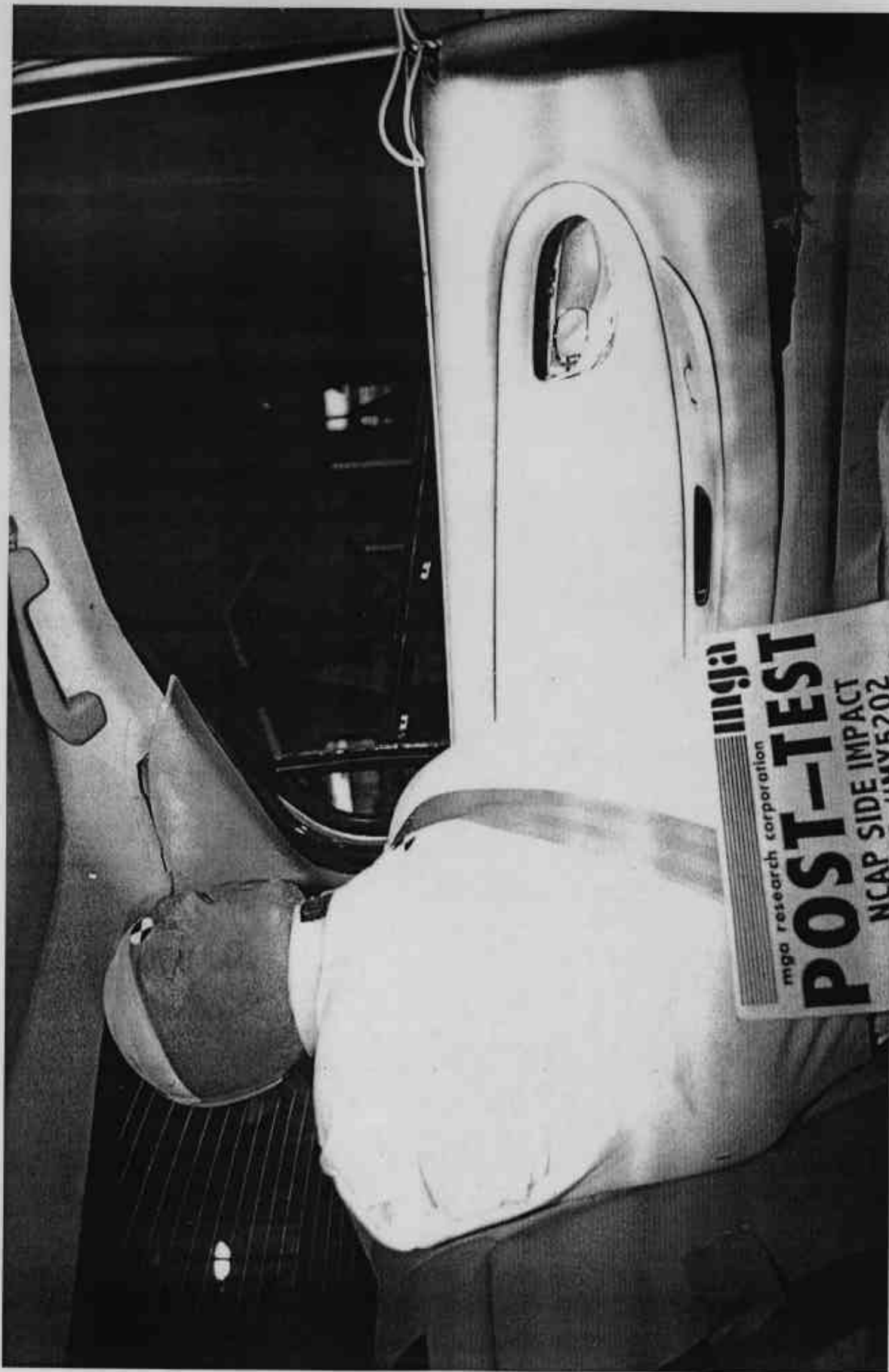


Photo No. A-37 - Post-Test Passenger Dummy Shoulder and Door Top View



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



A-39

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



Photo No. A-40 - Pre-Test Left Front Impact Point on Vehicle

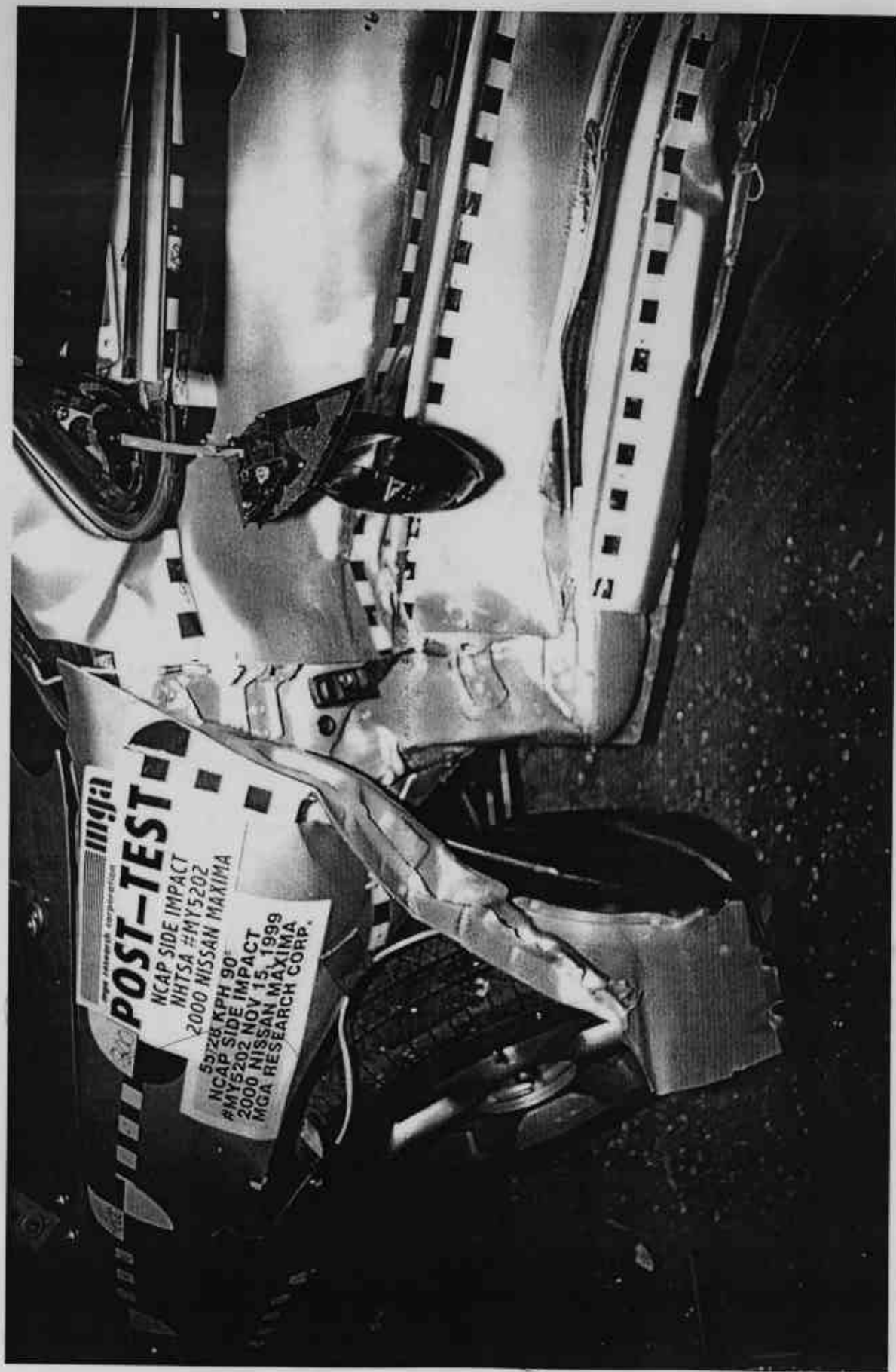


Photo No. A-41 - Post-Test Left Front Impact Point on Vehicle

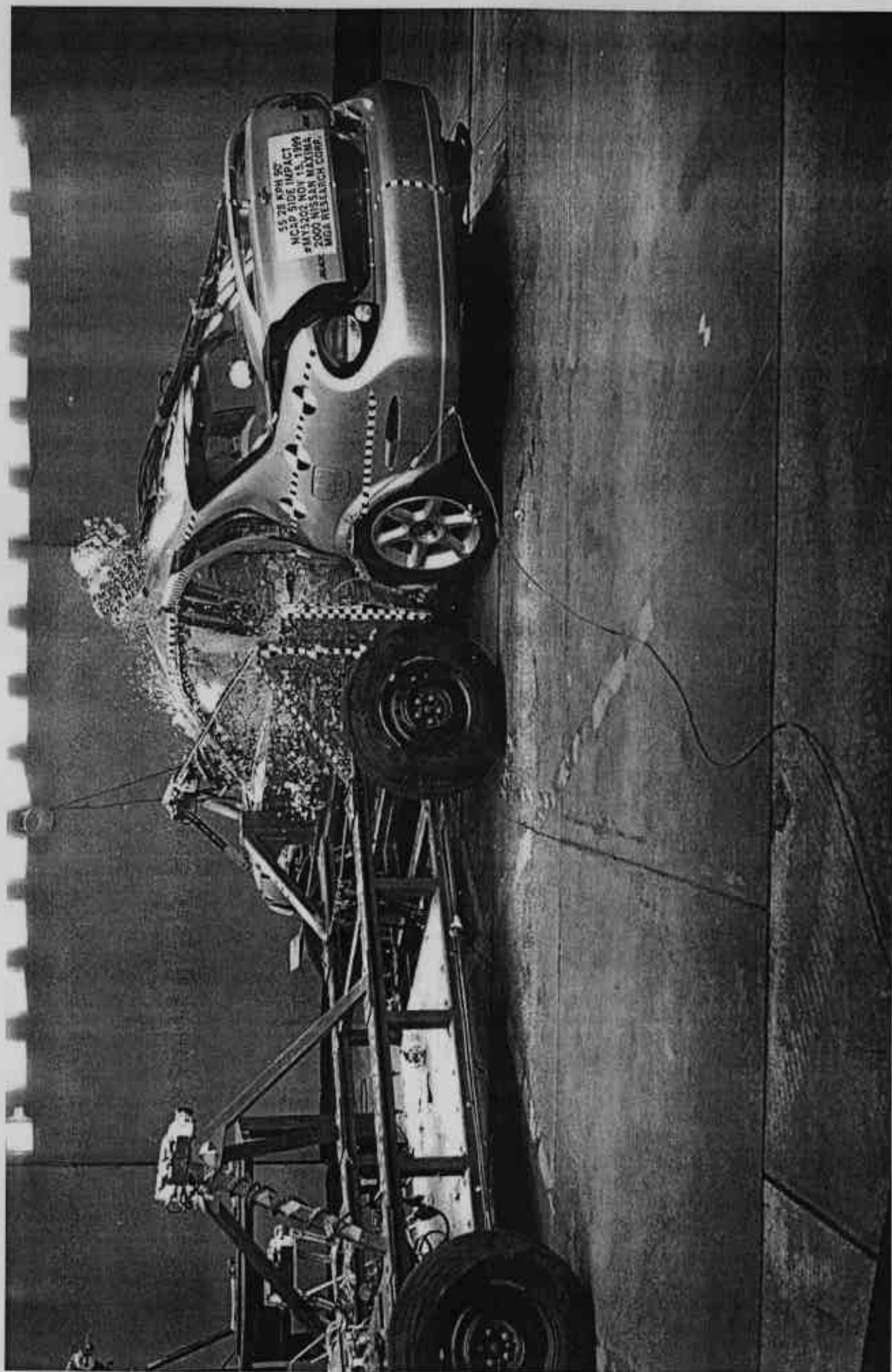


Photo No. A-42 - Impact

A-42



Photo No. A-43 - Vehicle Certification Label

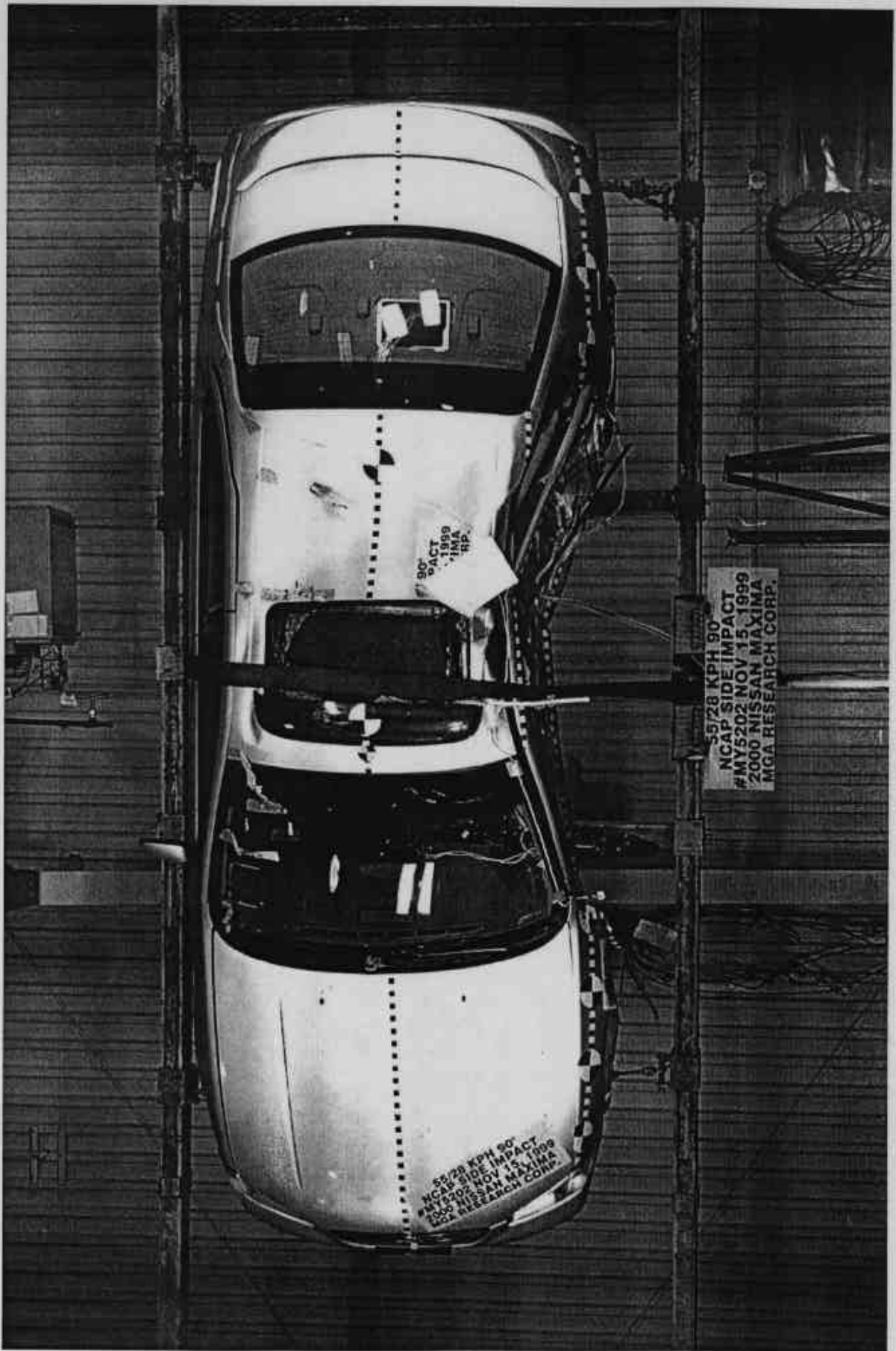
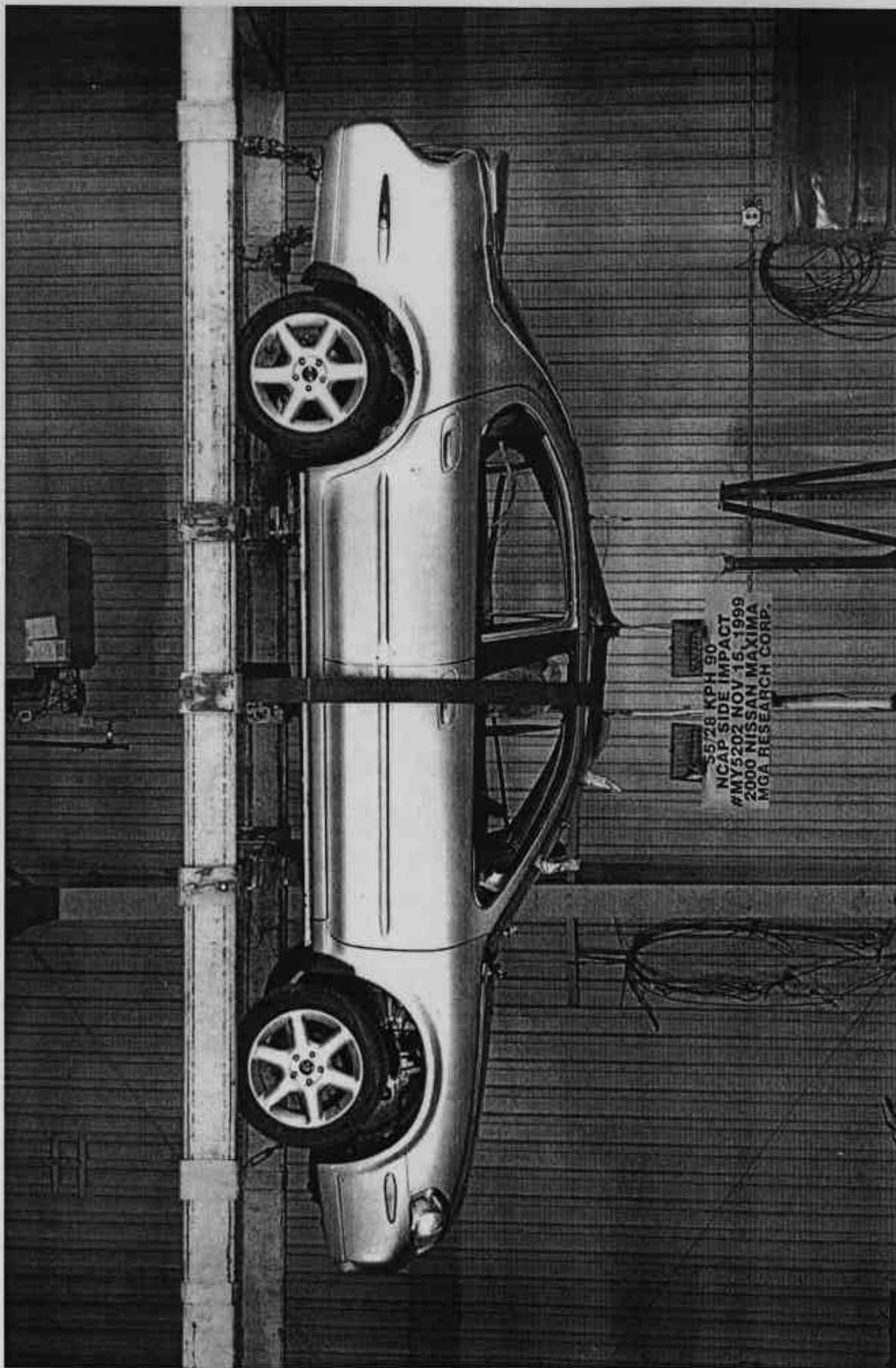
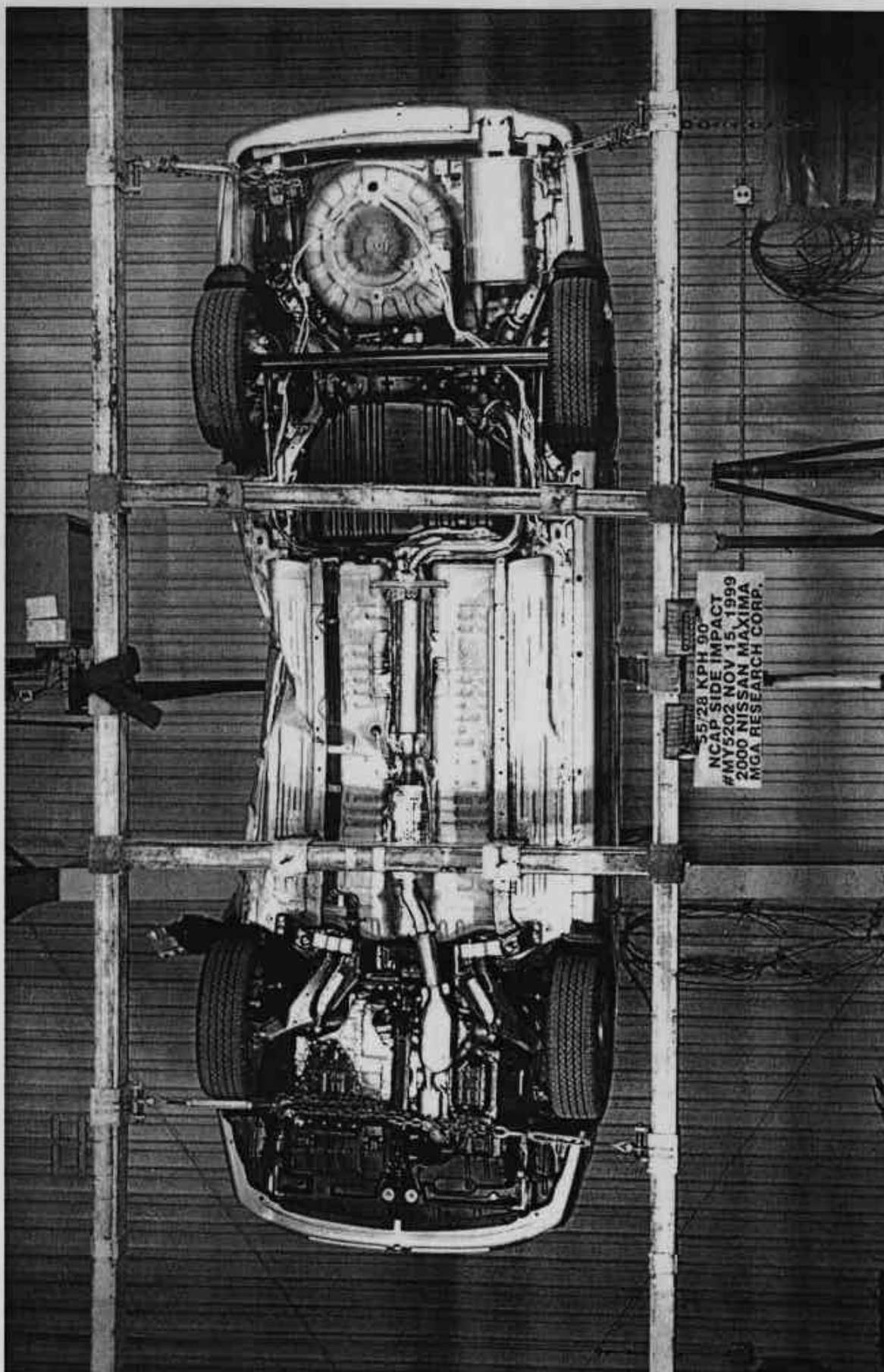


Photo No. A-44 - Rollover 90°



A-45

Photo No. A-45 - Rollover 180°



35/28 KPH 90°
NCAP SIDE IMPACT
#MY5202 NOV 15, 1999
2000 NISSAN MAXIMA
MGA RESEARCH CORP.

Photo No. A-46 - Rollover 270°

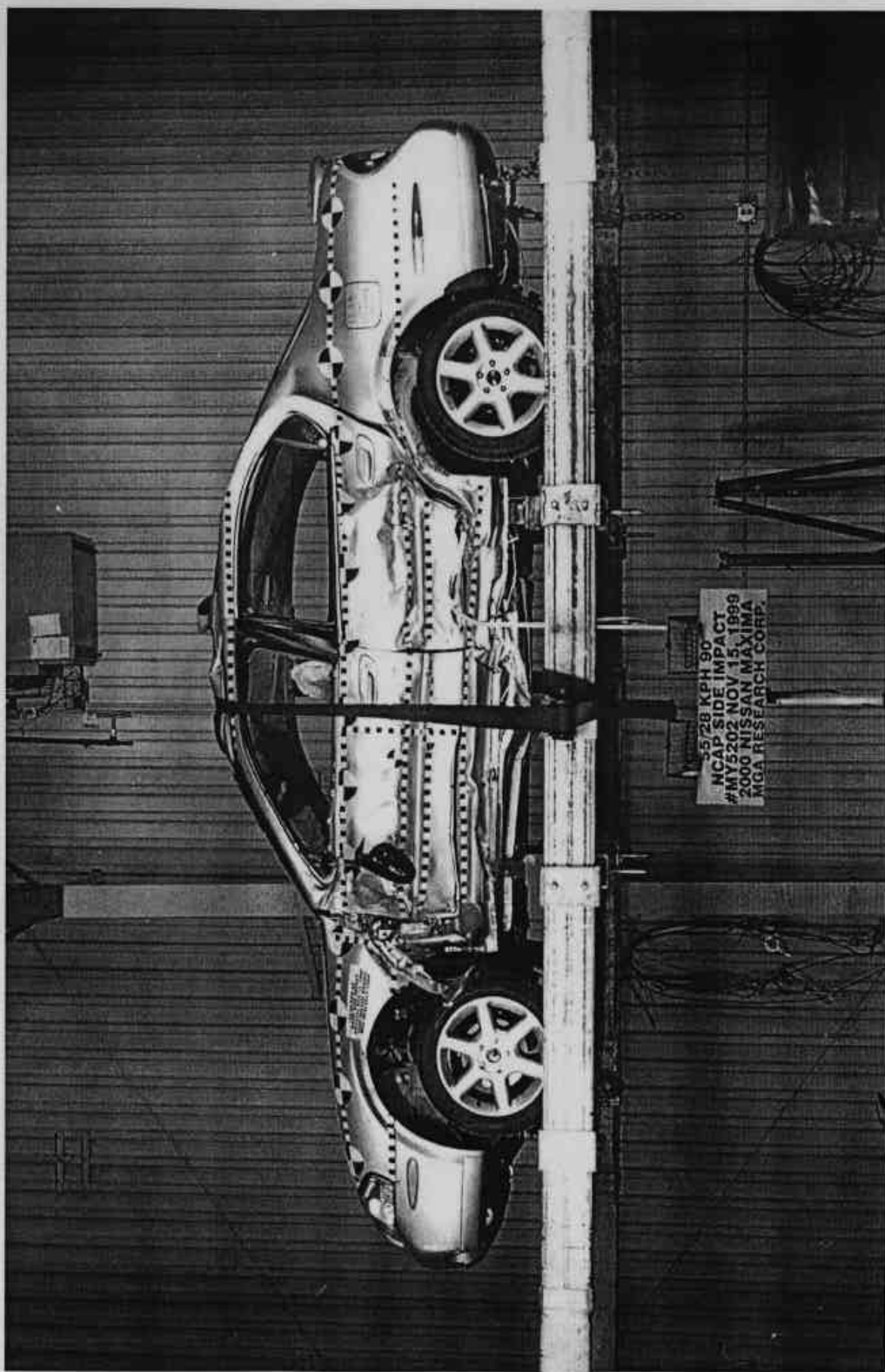


Photo No. A-47 - Rollover 360°

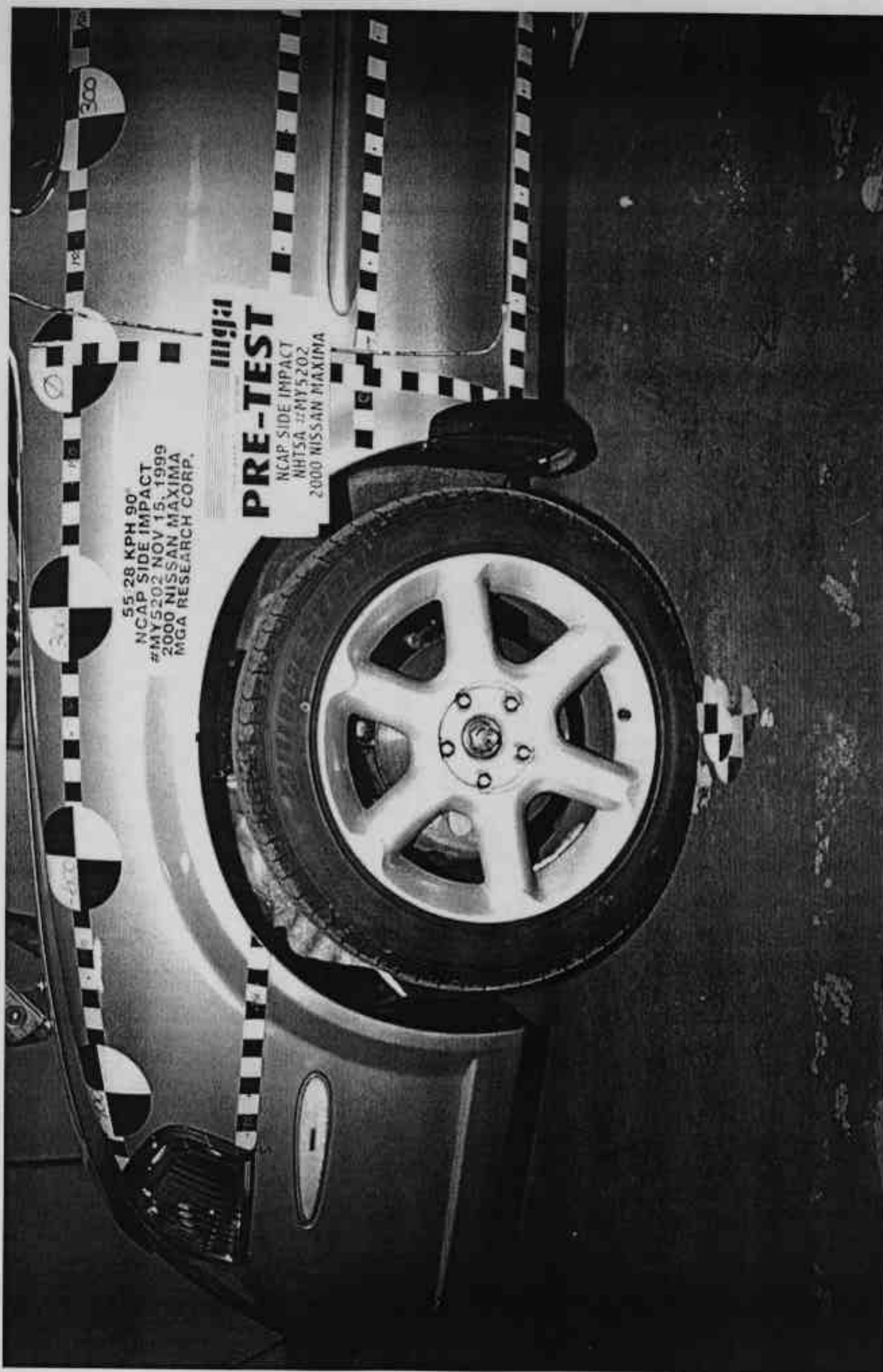


Photo No. A-48 - Left Front Attitude Point



Photo No. A-49 - Right Front Attitude Point



Photo No. A-50 - Left Rear Attitude Point

A-50



A-51

Photo No. A-51 - Right Rear Attitude Point

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*No valid data collected

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FIR Filtered

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TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

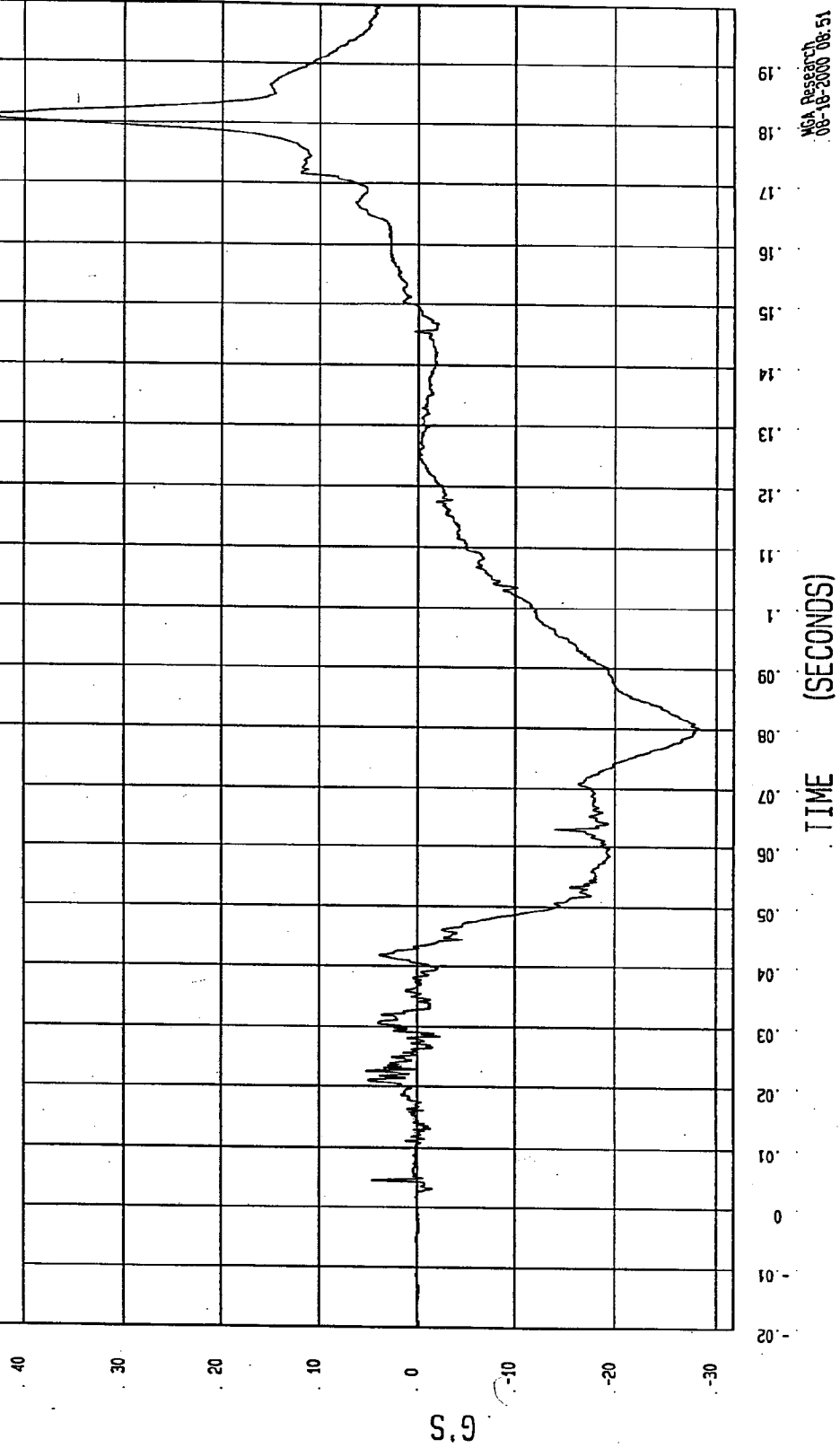
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 44.26 G'S at 181 msec

Minimum = -28.2 G'S at 80 msec

DRIVER HEAD X ACCELERATION

1 _____ B99073AT.A12 Filterclass (1000)



NSA Research
06-16-2000 06:51

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

SPEED: 38.8 MPH 62.4 KPH

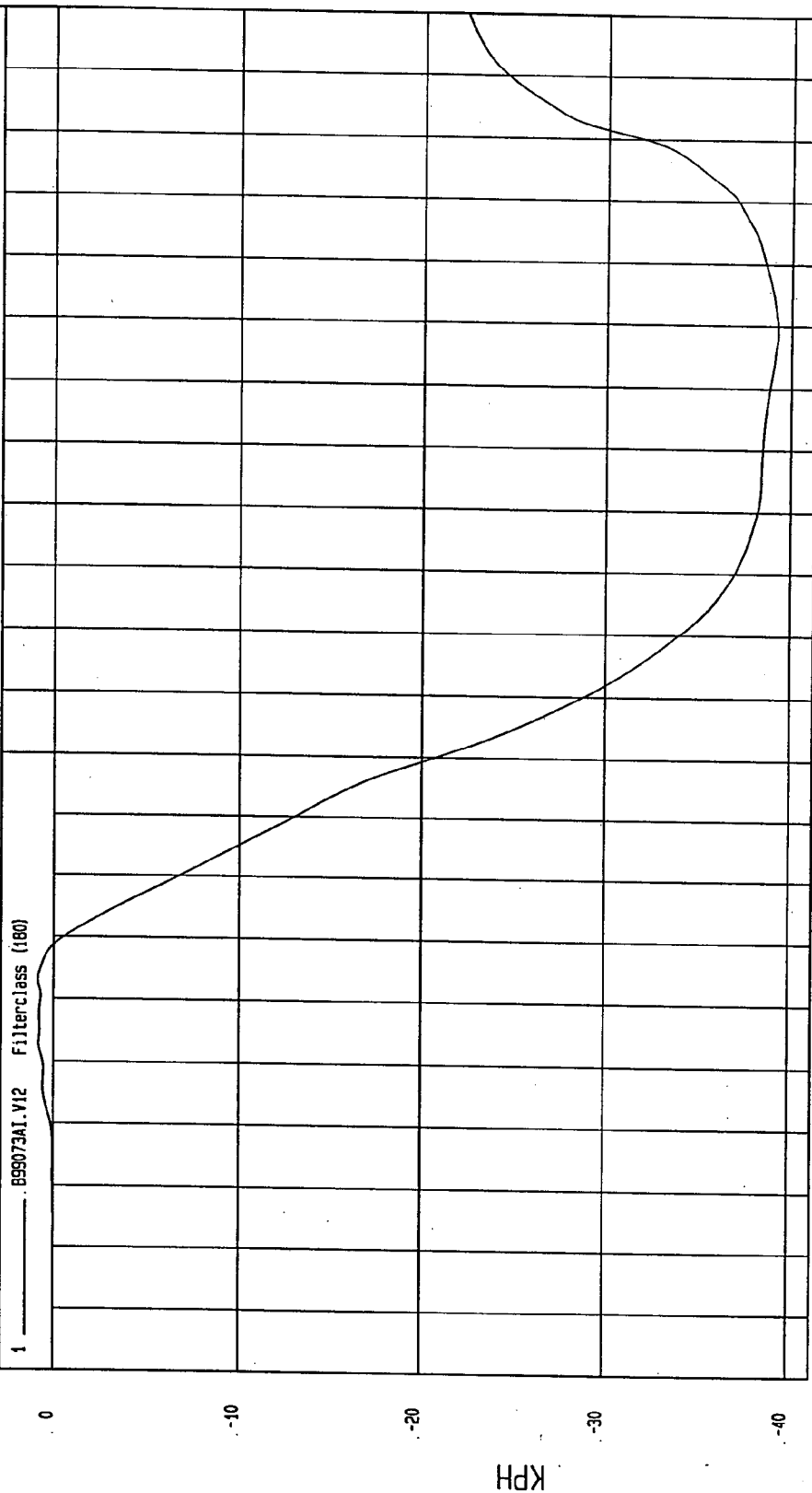
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Minimum = -39.26 KPH at 149 msec

Maximum = .85 KPH at 43 msec

DRIVER HEAD X VELOCITY

1 _____ .B99073A1.V12 Filterclass (180)



MEA Research
08-18-2000 08:50

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

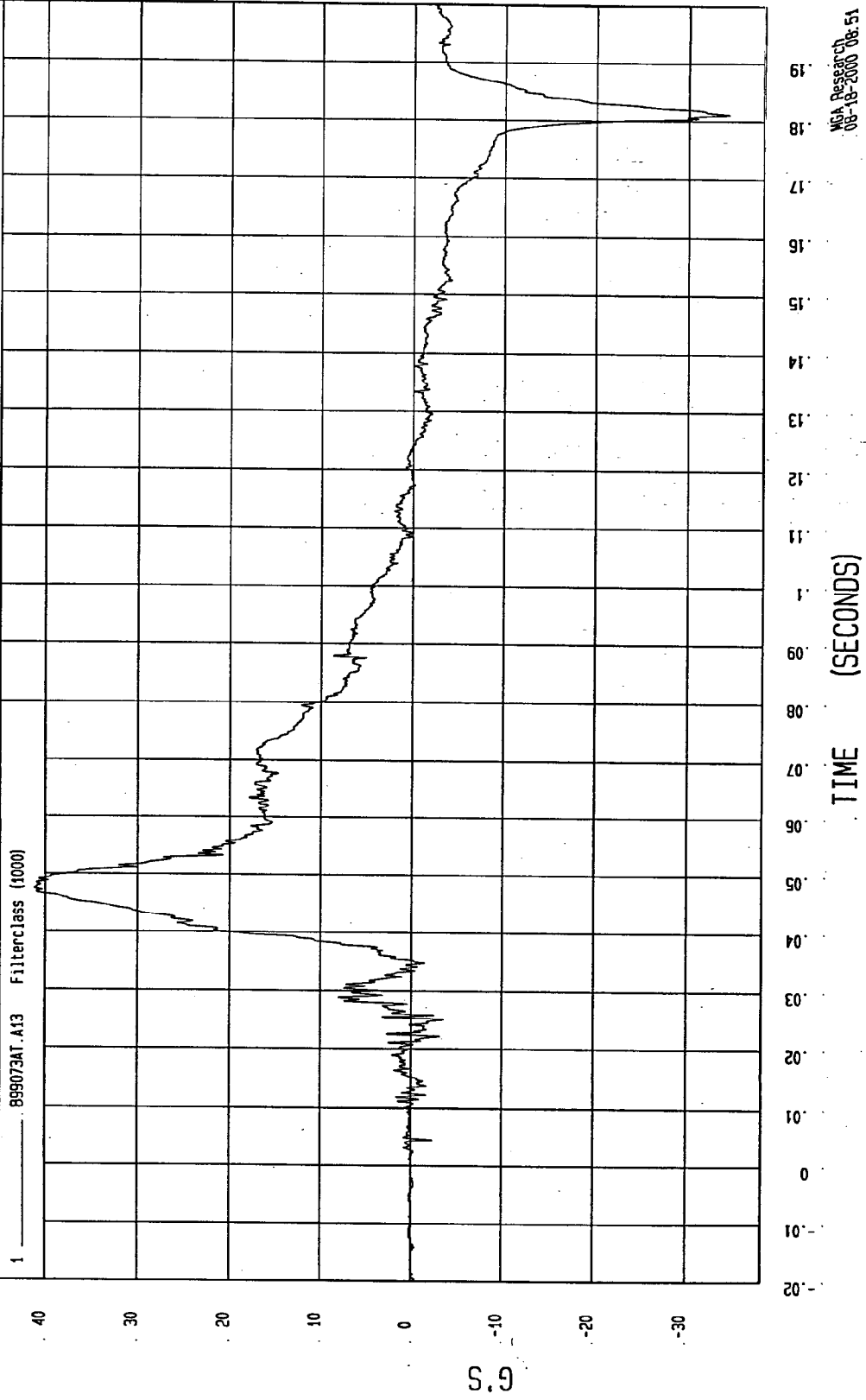
SPEED: 38.8 MPH 62.4 KPH

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 41.11 G'S at 48 msec

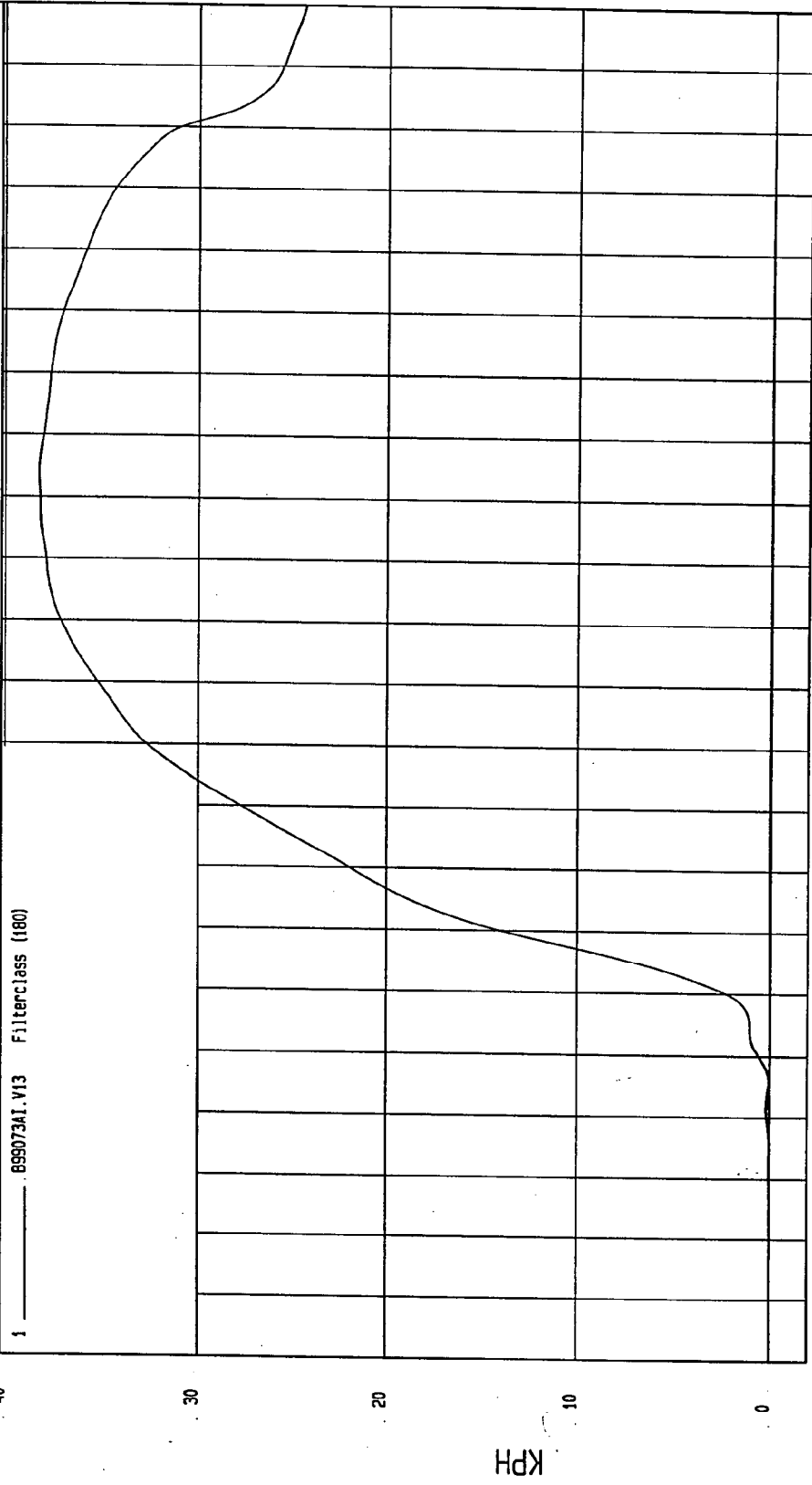
Minimum = -34.41 G'S at 181 msec

DRIVER HEAD Y ACCELERATION



TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH
Minimum = -.02 KPH at -.13 msec Maximum = 38.28 KPH at 124 msec

DRIVER HEAD Y VELOCITY



TIME Seconds
WCA Research
08-18-2000 08:50

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

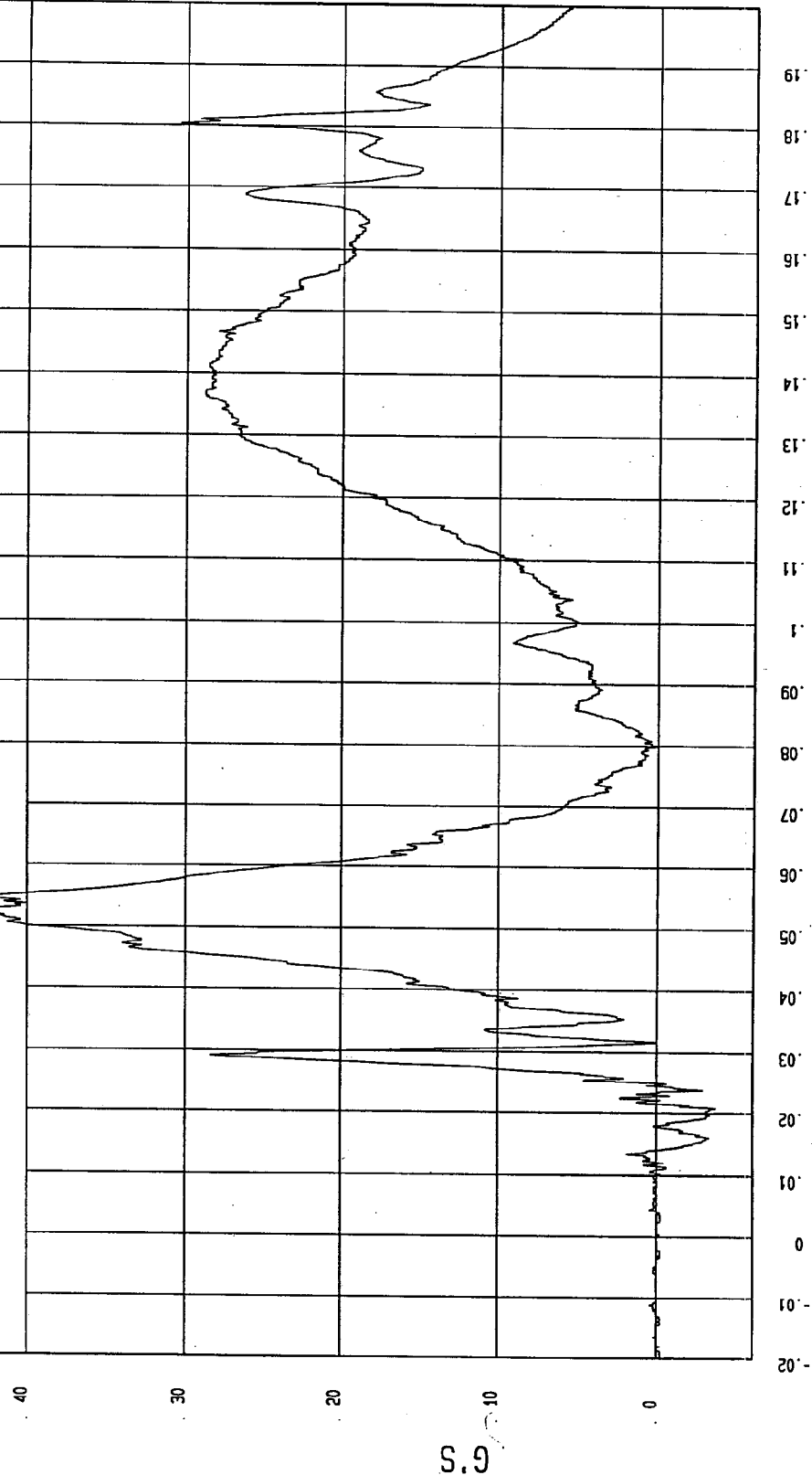
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 42.7 G'S at 53 msec

Minimum = -3.72 G'S at 21 msec

DRIVER HEAD Z ACCELERATION

1 — B95073AT.A14 Filterclass (1000)

NSA Research
08-16-2000 08:51

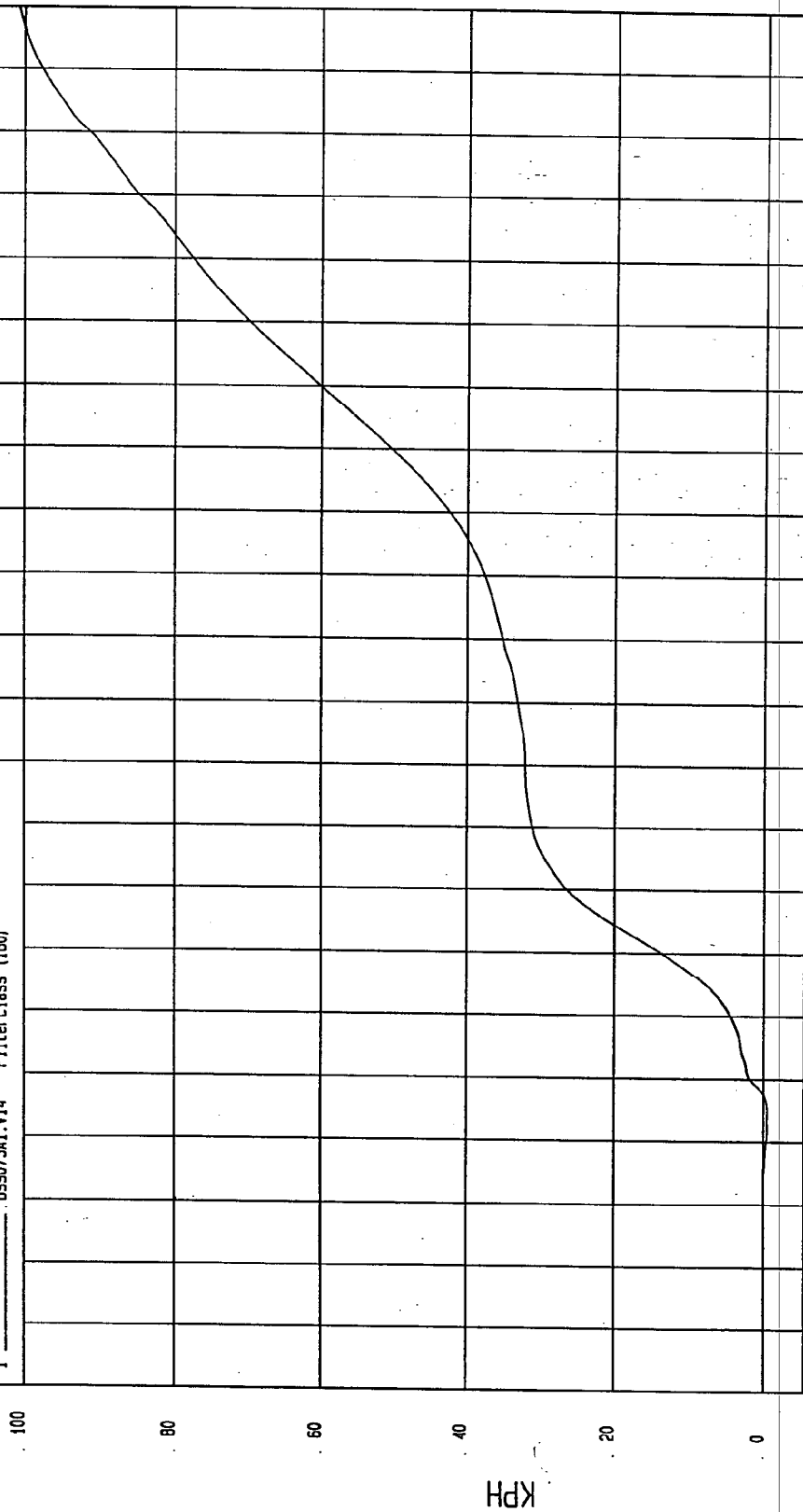
TIME (SECONDS)

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -.48 KPH at 25 msec Maximum = 100.73 KPH at 200 msec

DRIVER HEAD Z VELOCITY

1 899073A1.V14 Filterclass (180)



TIME Seconds
MGA Research
08-18-2000 08:50

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

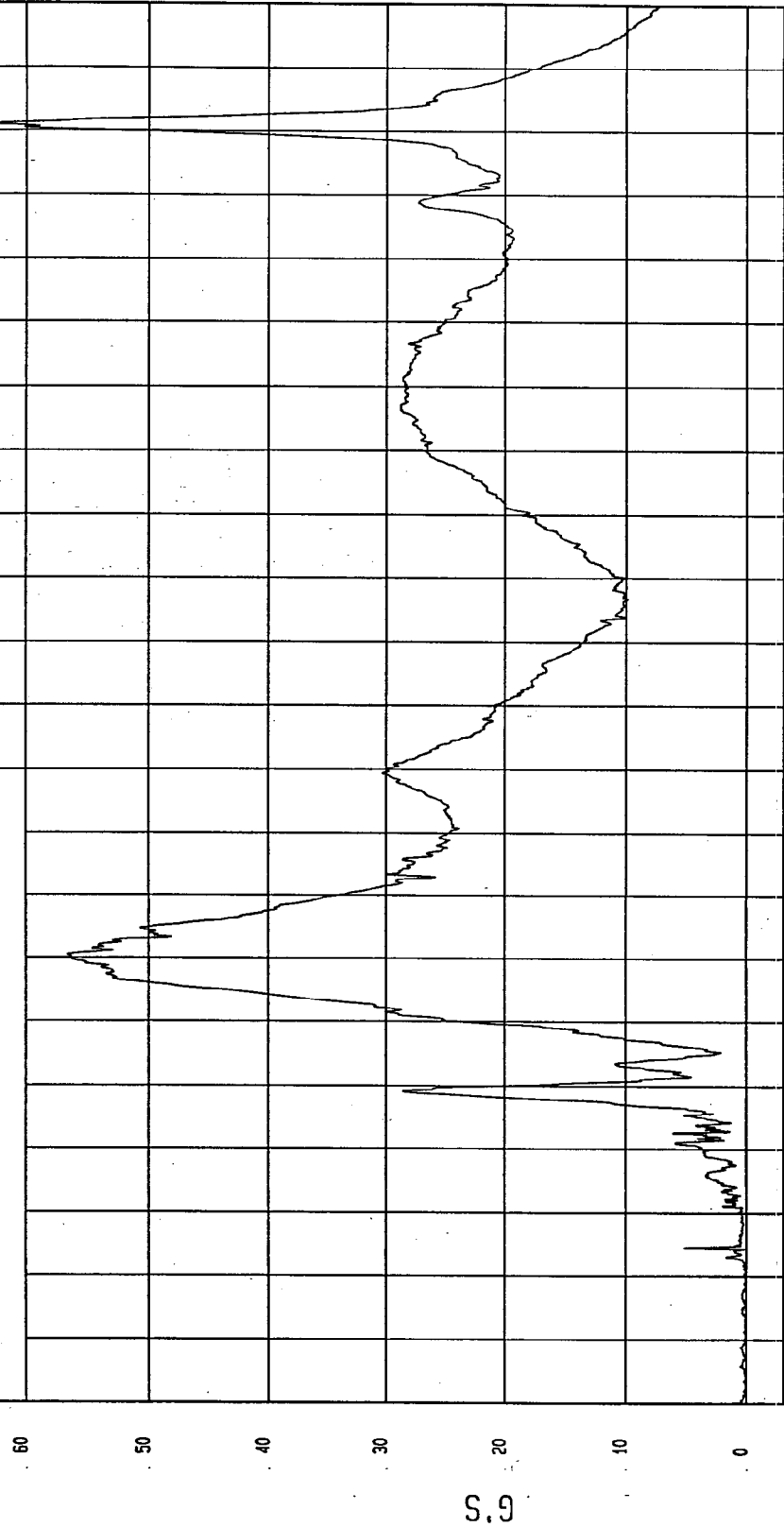
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 63.13 G'S at 181 msec

Minimum = 4.31E-02 G'S at -19 msec

DRIVER HEAD RESULTANT

1 ——— B99073AV.A12 Filterclass (1000)



MCA Research
08-18-2000 08:51

TIME (SECONDS)

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

SPEED: 38.8 MPH 62.4 KPH

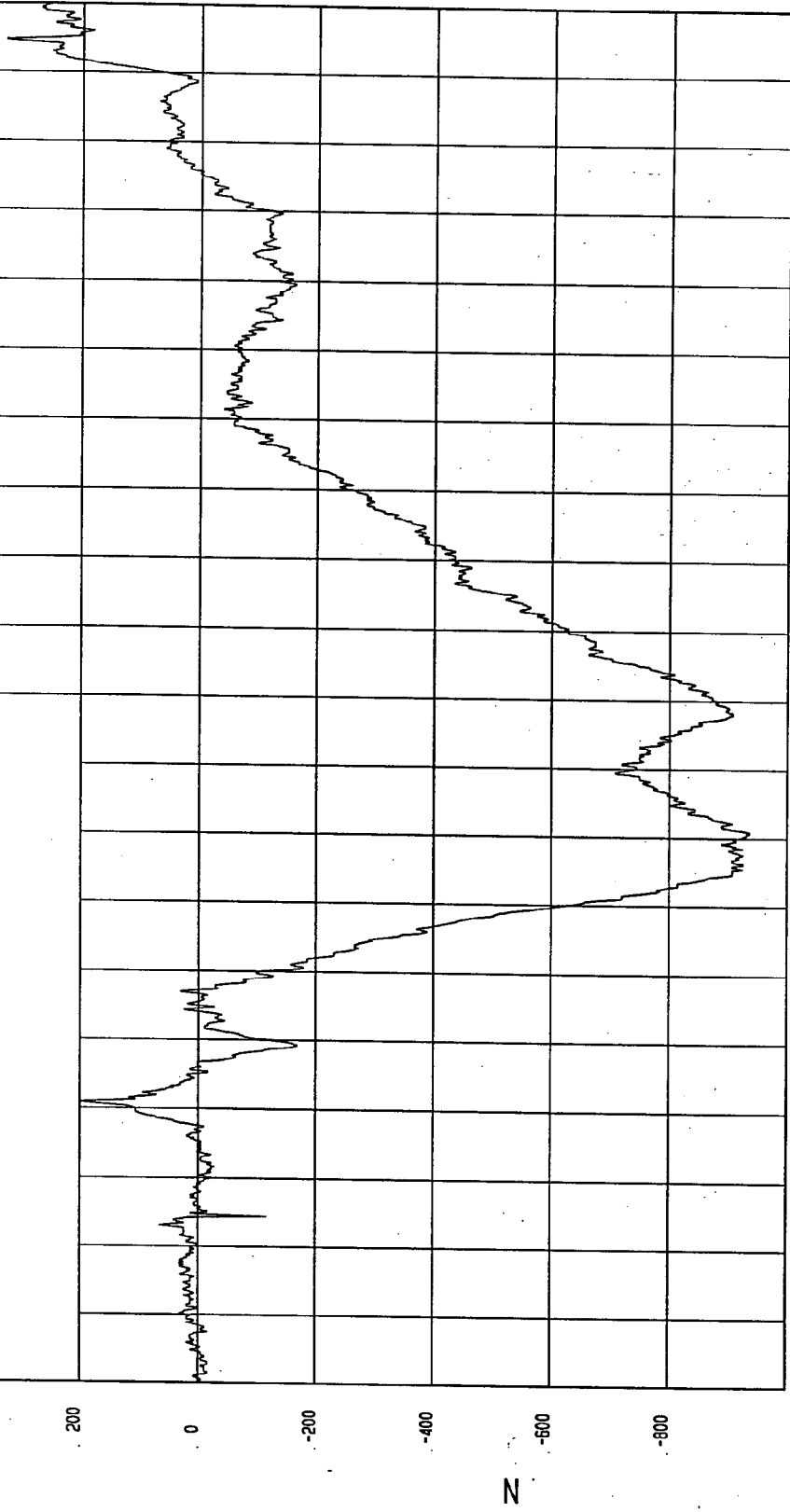
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 327.46 N at 175 msec

Minimum = -935.88 N at 61 msec

DRIVER NECK FORCE X

1 _____ B99073T.F02 Filterclass (1000)



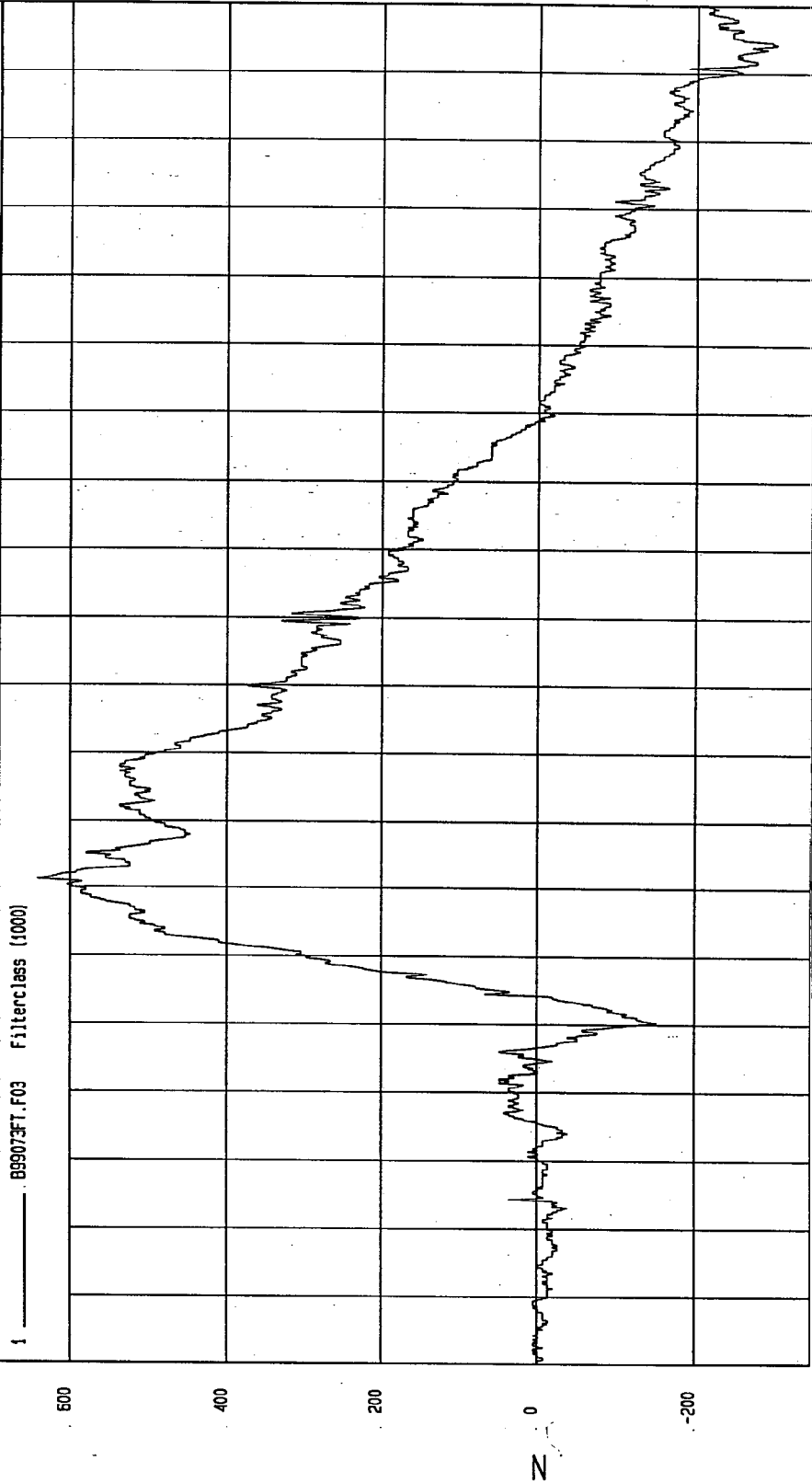
MECA Research
12-06-1999 09:56

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -300.92 N at .174 msec Maximum = 641.66 N at .51 msec

DRIVER NECK FORCE Y



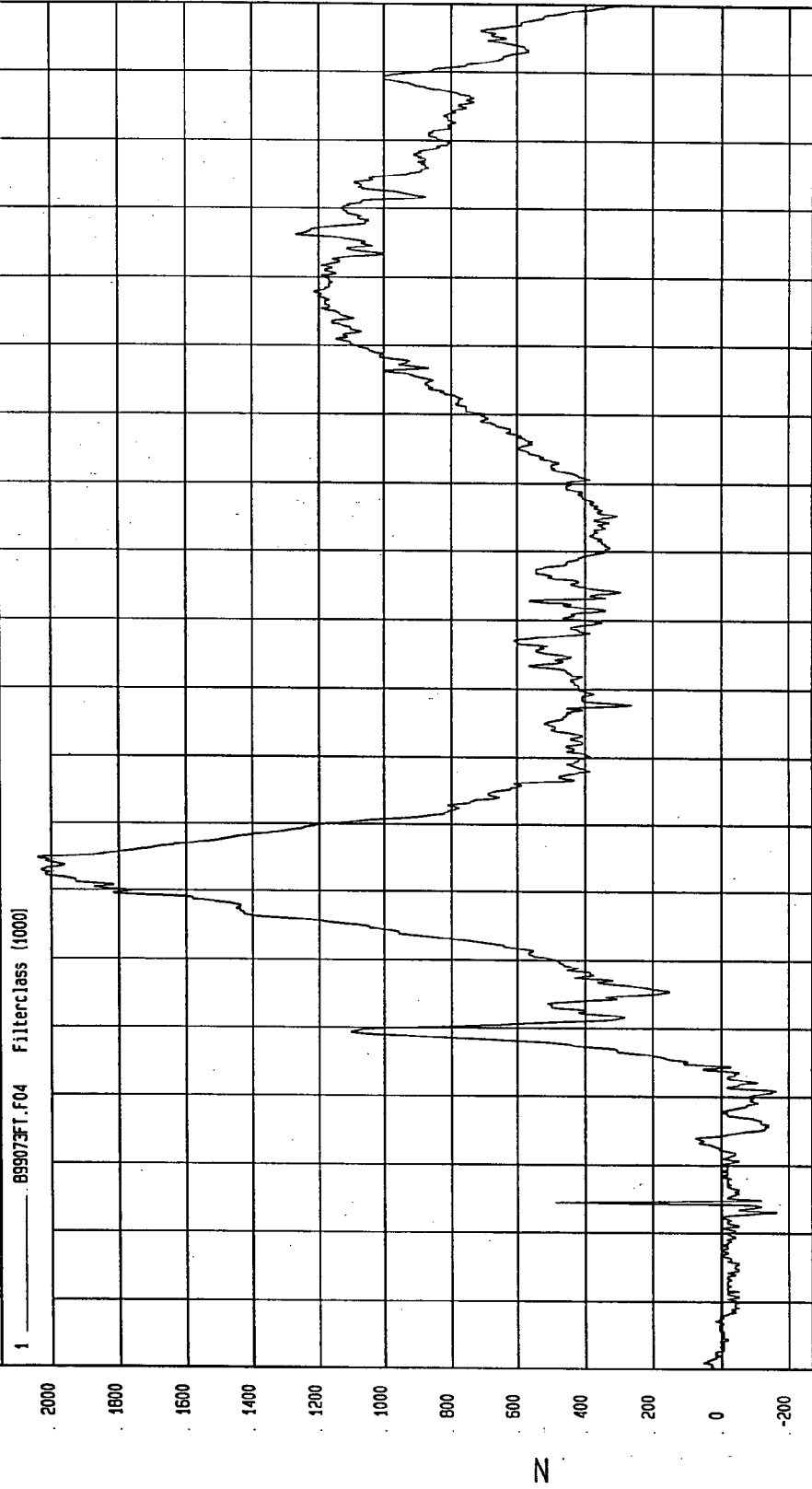
NSA Research
12-06-1999 09:56

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

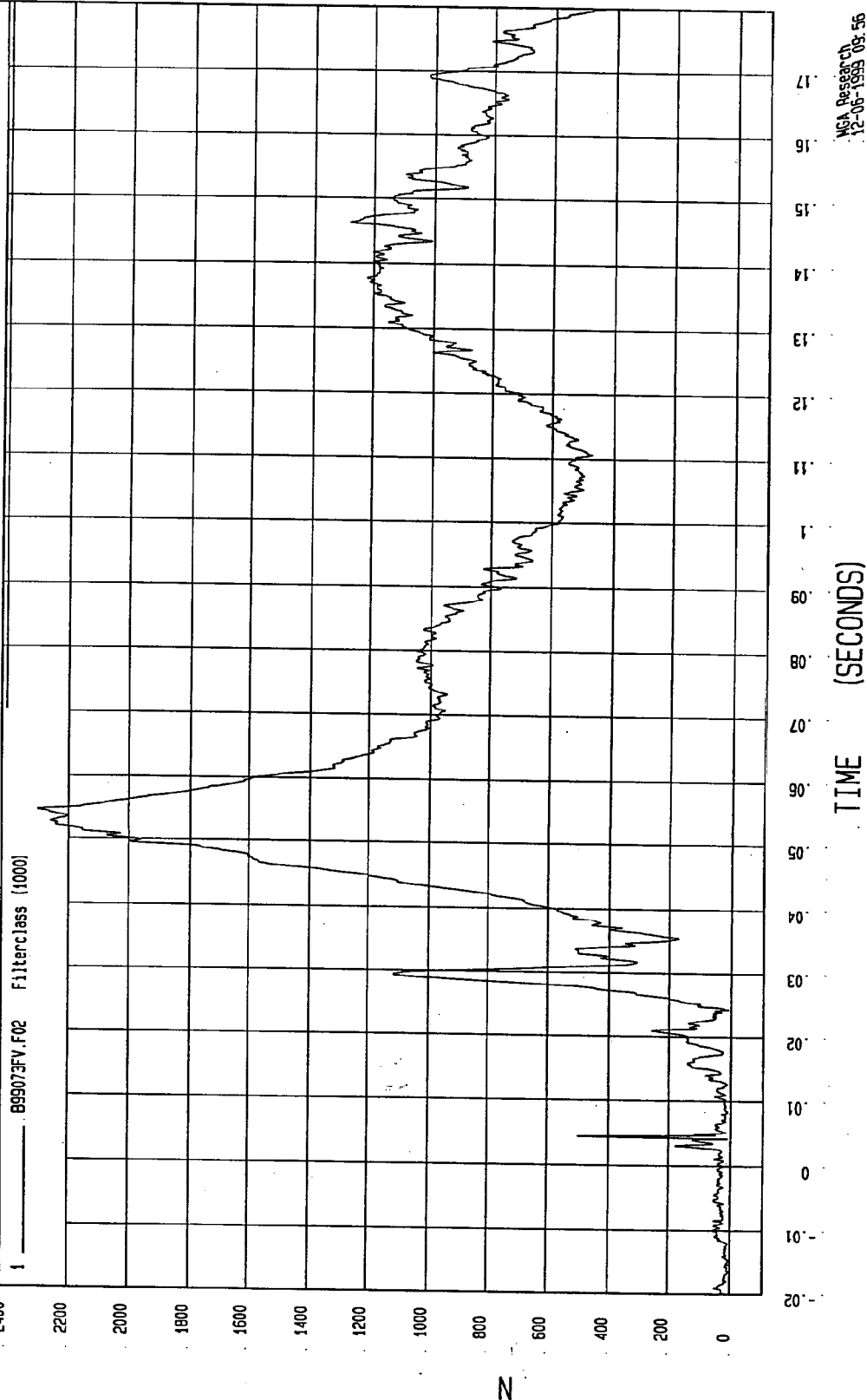
Minimum = -161.34 N at 3 msec Maximum = 2040.42 N at 55 msec

DRIVER NECK FORCE Z



TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH
Minimum = 5.24 N at -16 msec Maximum = 2300.6 N at 55 msec

DRIVER NECK FORCE RESULTANT



MCA Research
12-06-1999 09:56

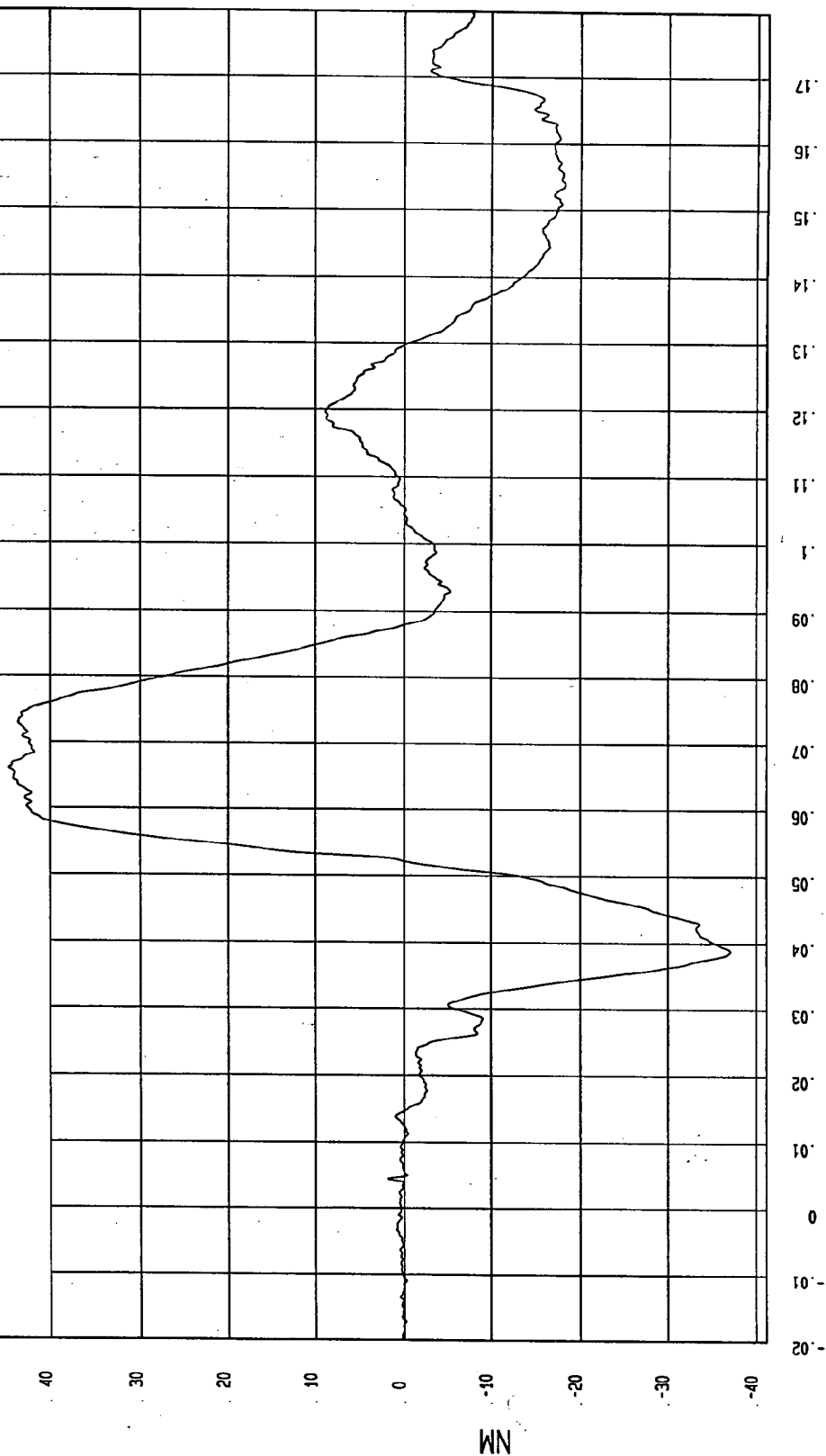
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -37.07 NM at 39 msec Maximum = 44.73 NM at 66 msec

DRIVER NECK MOMENT X

1 _____ B99073MF.M05 Filterclass (600)

MCA Research
12-06-1999 09:56

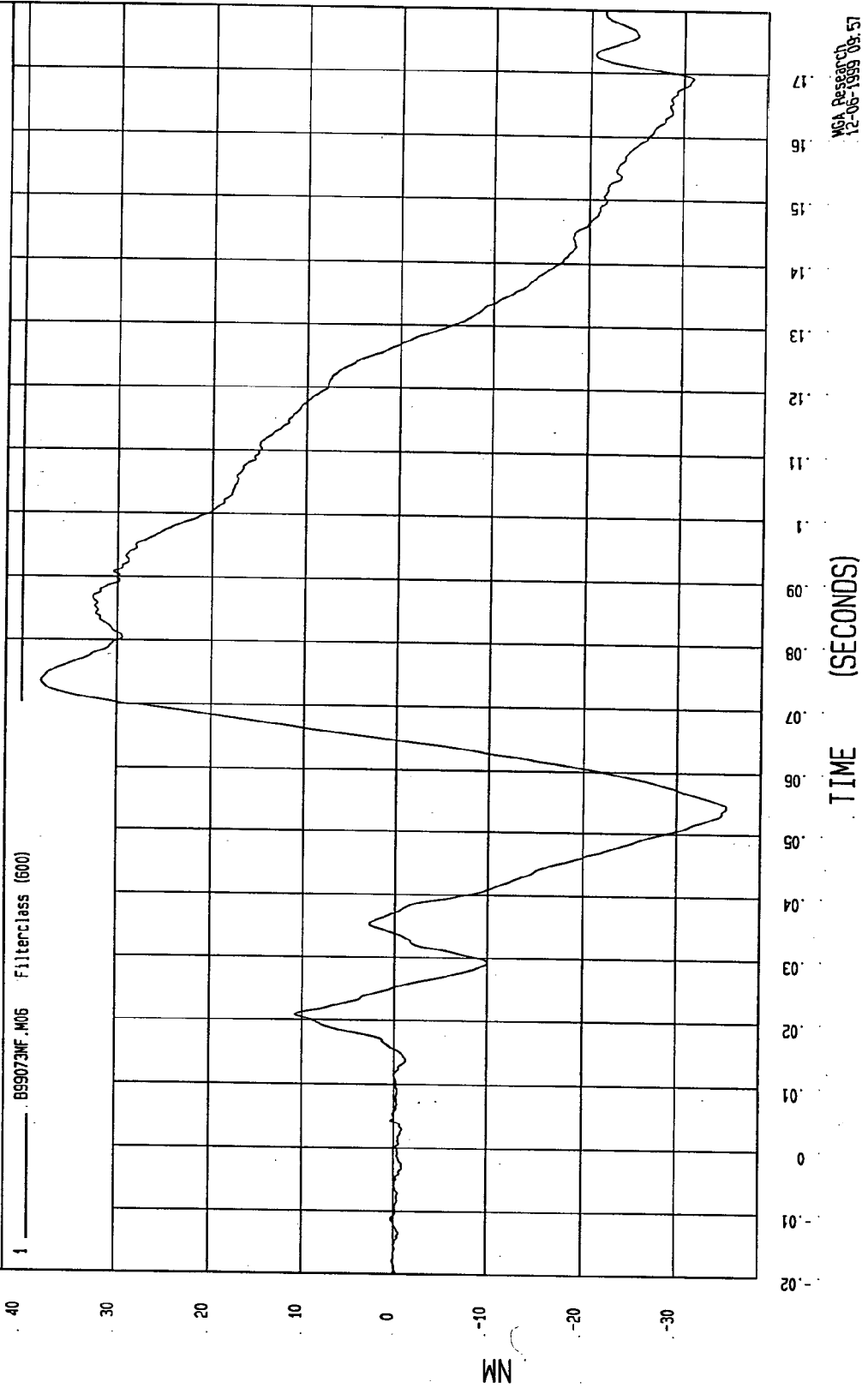
TIME (SECONDS)

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -35.29 NM at 55 msec Maximum = 38.01 NM at 74 msec

DRIVER NECK MOMENT Y



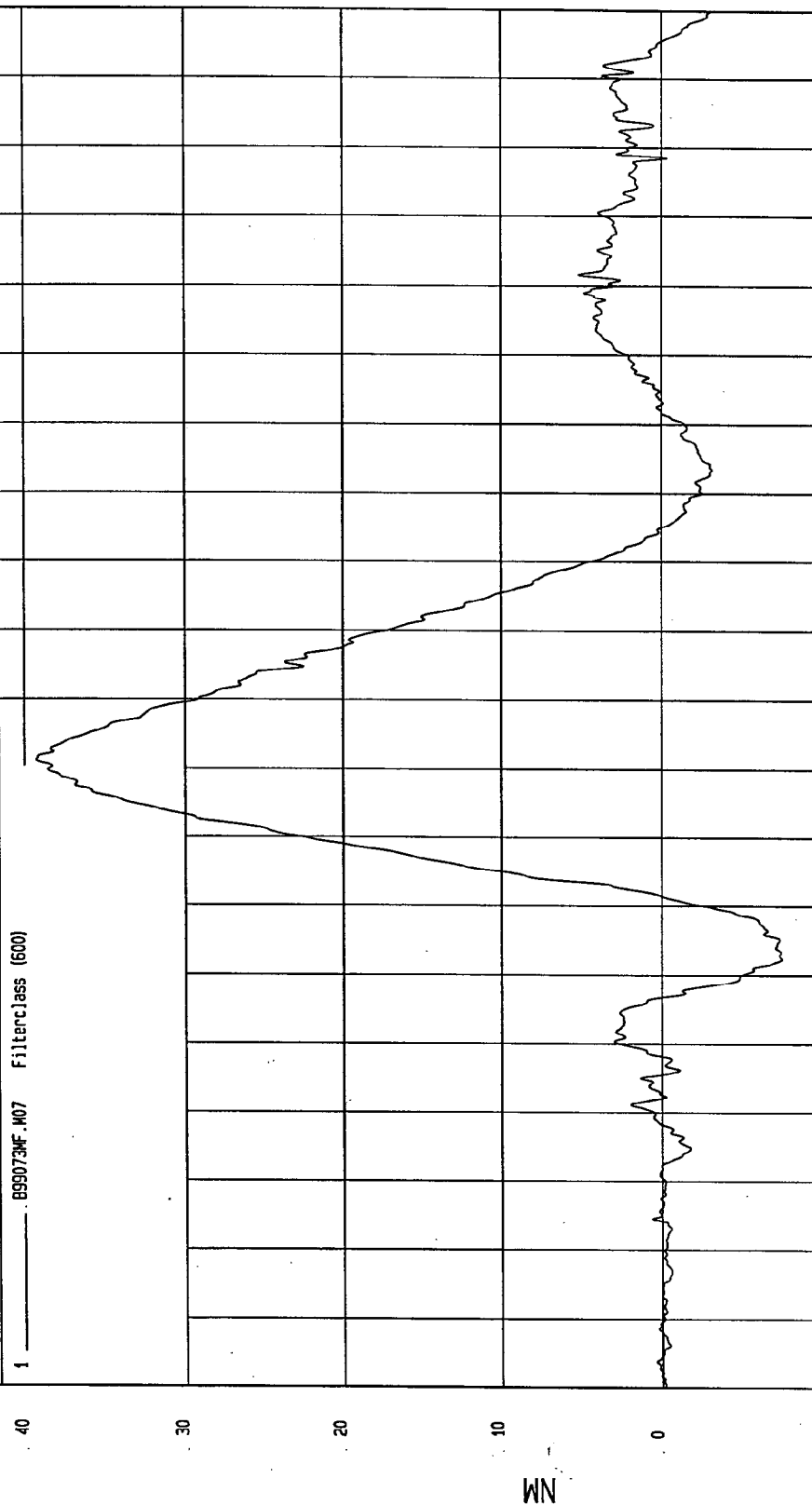
MCA Research
12-06-1999 09:57

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -7.53 NM at 42 msec Maximum = 39.28 NM at 71 msec

DRIVER NECK MOMENT Z



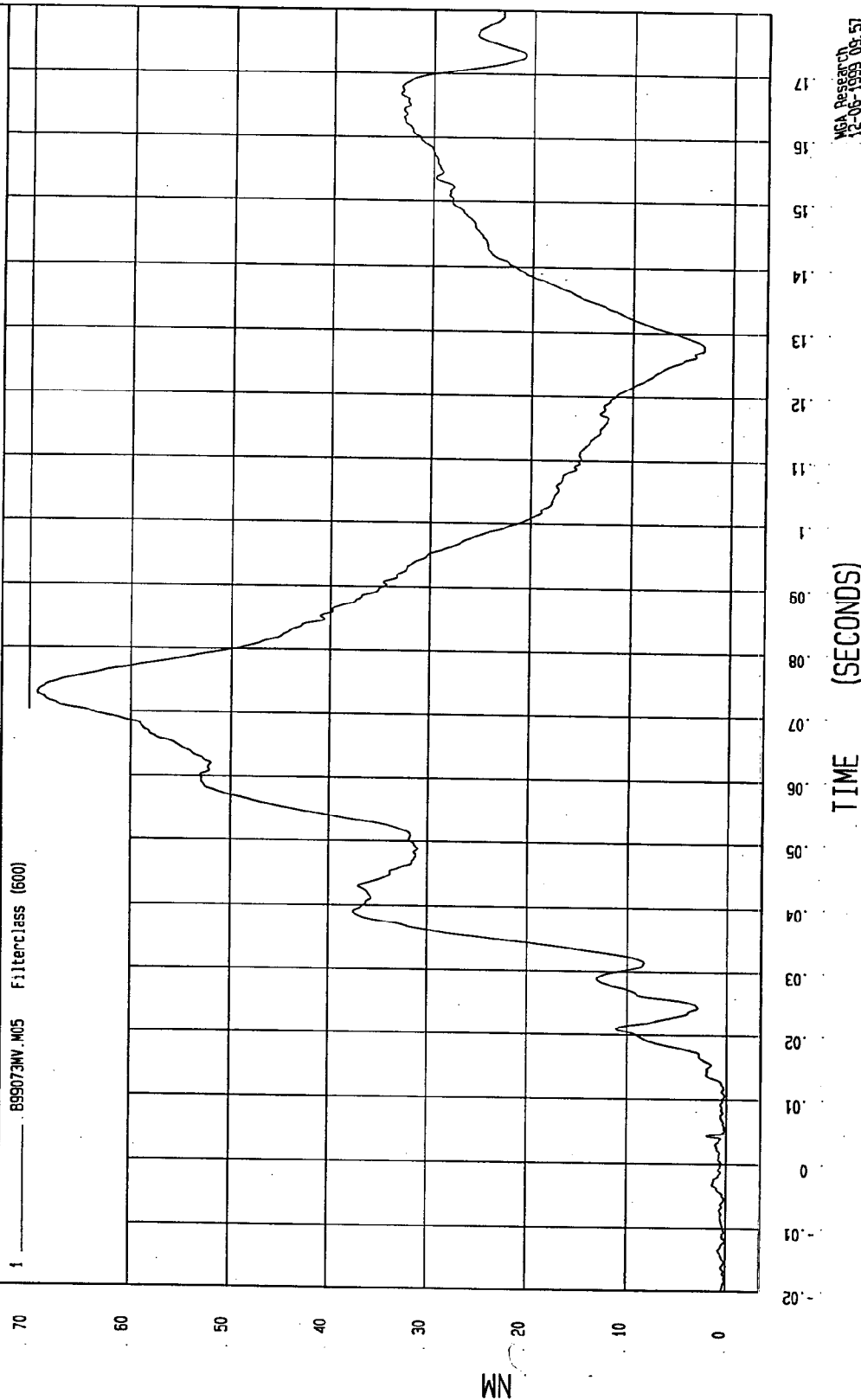
MCA Research
12-06-1999 09:57

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = 3.84E-02 NW at -18 msec Maximum = 69.25 NW at 73 msec

DRIVER NECK MOMENT RESULTANT



MCA Research
12-06-1999 08:57

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

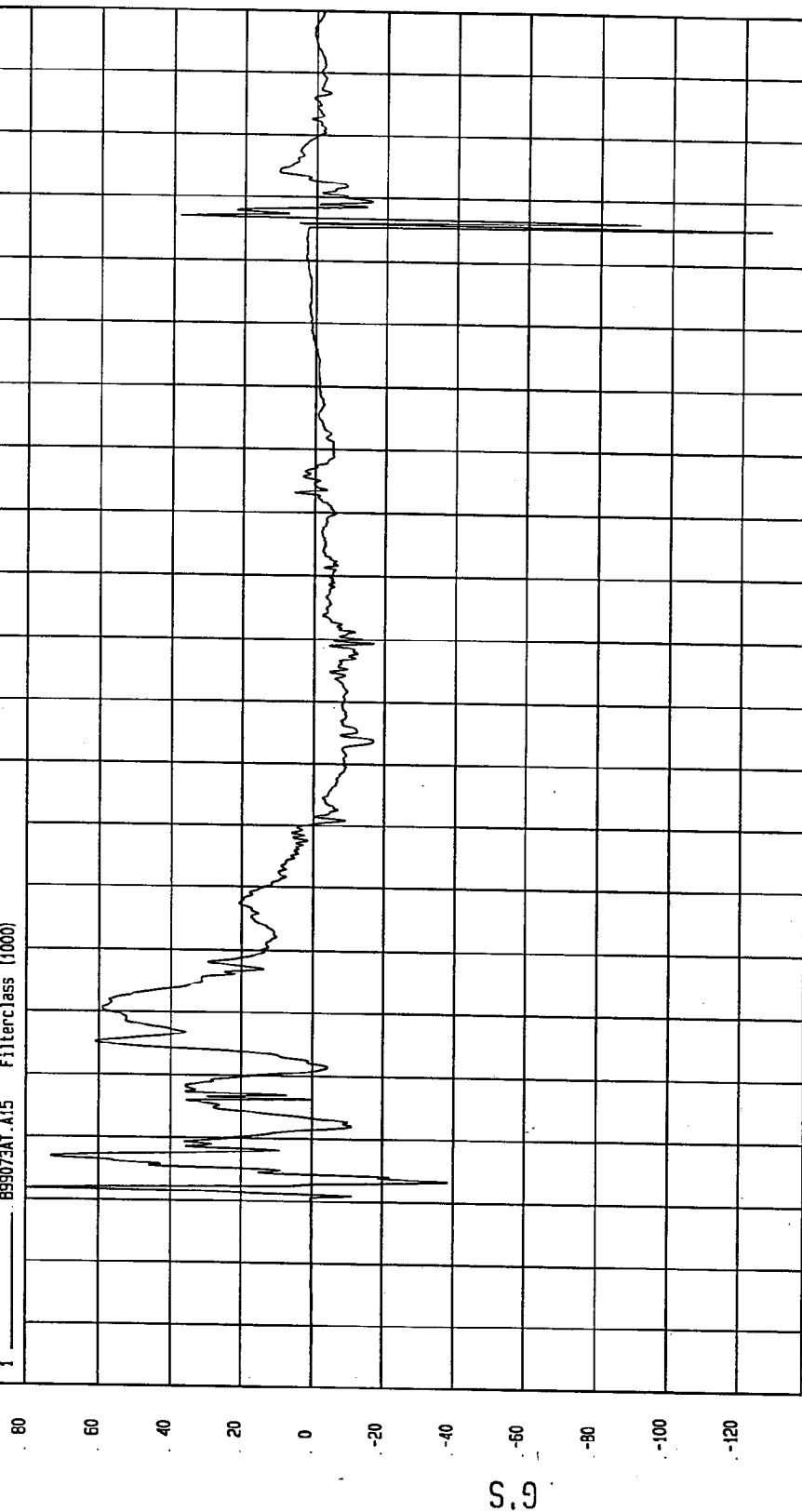
Speed: 38.8 MPH 62.4 KPH

Minimum = -127.67 G'S at 166 msec

Maximum = 80.21 G'S at 12 msec

DRIVER UPPER RIB Y ACCELERATION

1 899073AT.A15 FilterClass (1000)

MCA Research
08-18-2000 08:51

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

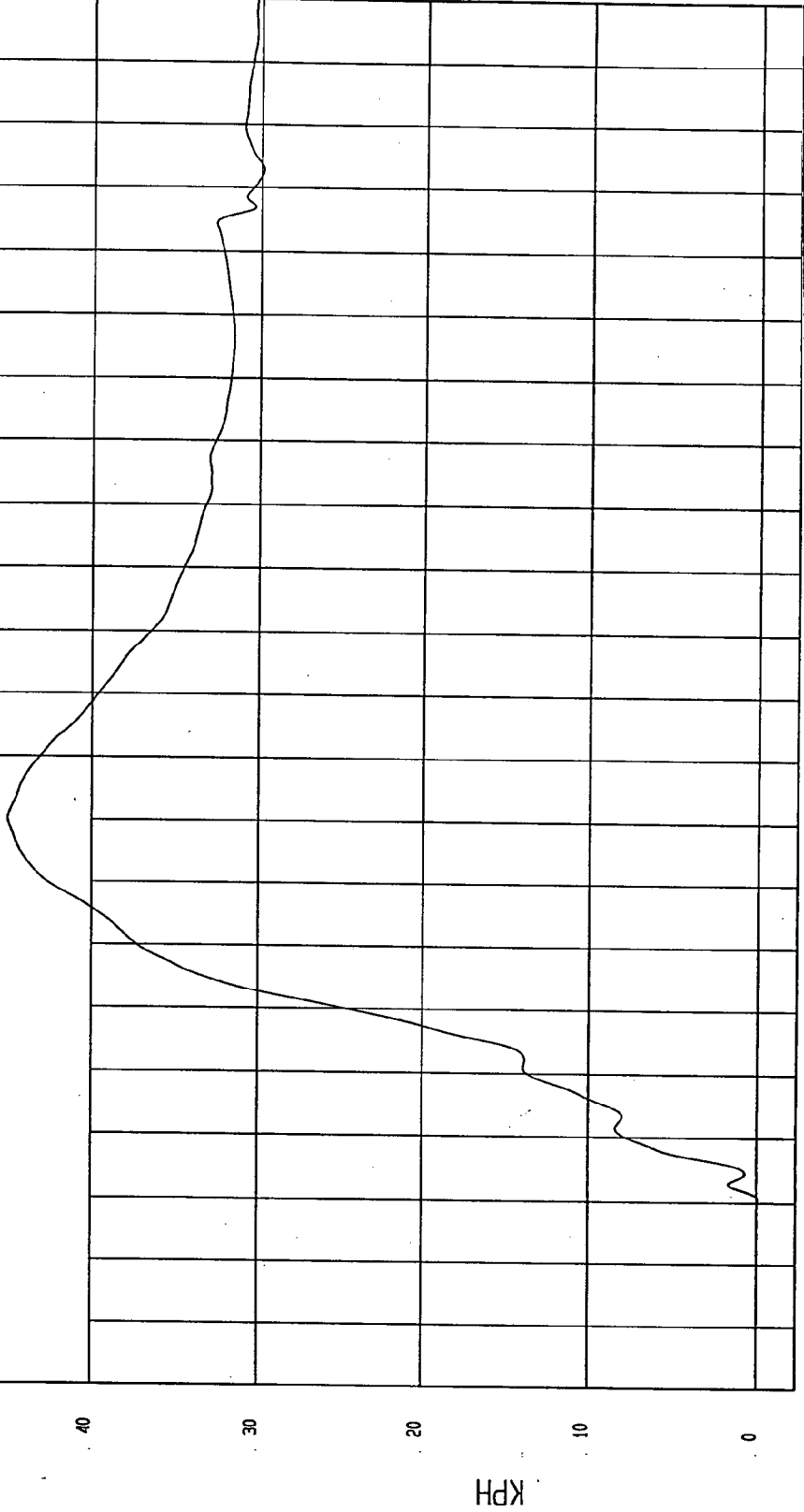
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 44.99 KPH at 70 msec

Minimum = -5.35E-02 KPH at 10 msec

DRIVER UPPER RIB Y VELOCITY

1 ——— .B99073A1.V15 FilterClass (180)



NIA Research
08-18-2000 08:50

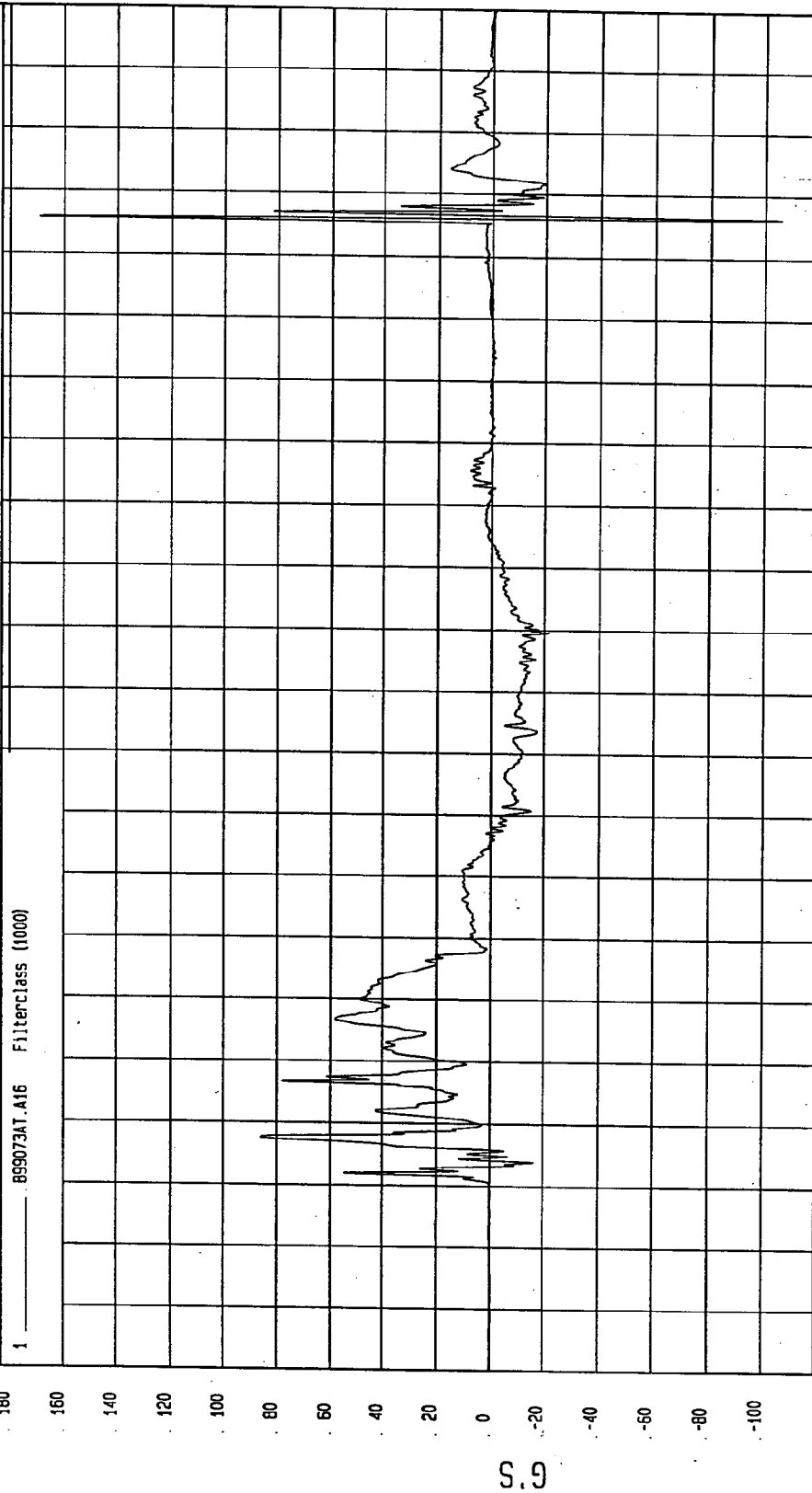
TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -105.05 G'S at 155 msec
Maximum = 159.28 G'S at 155 msec

DRIVER LOWER RIB Y ACCELERATION



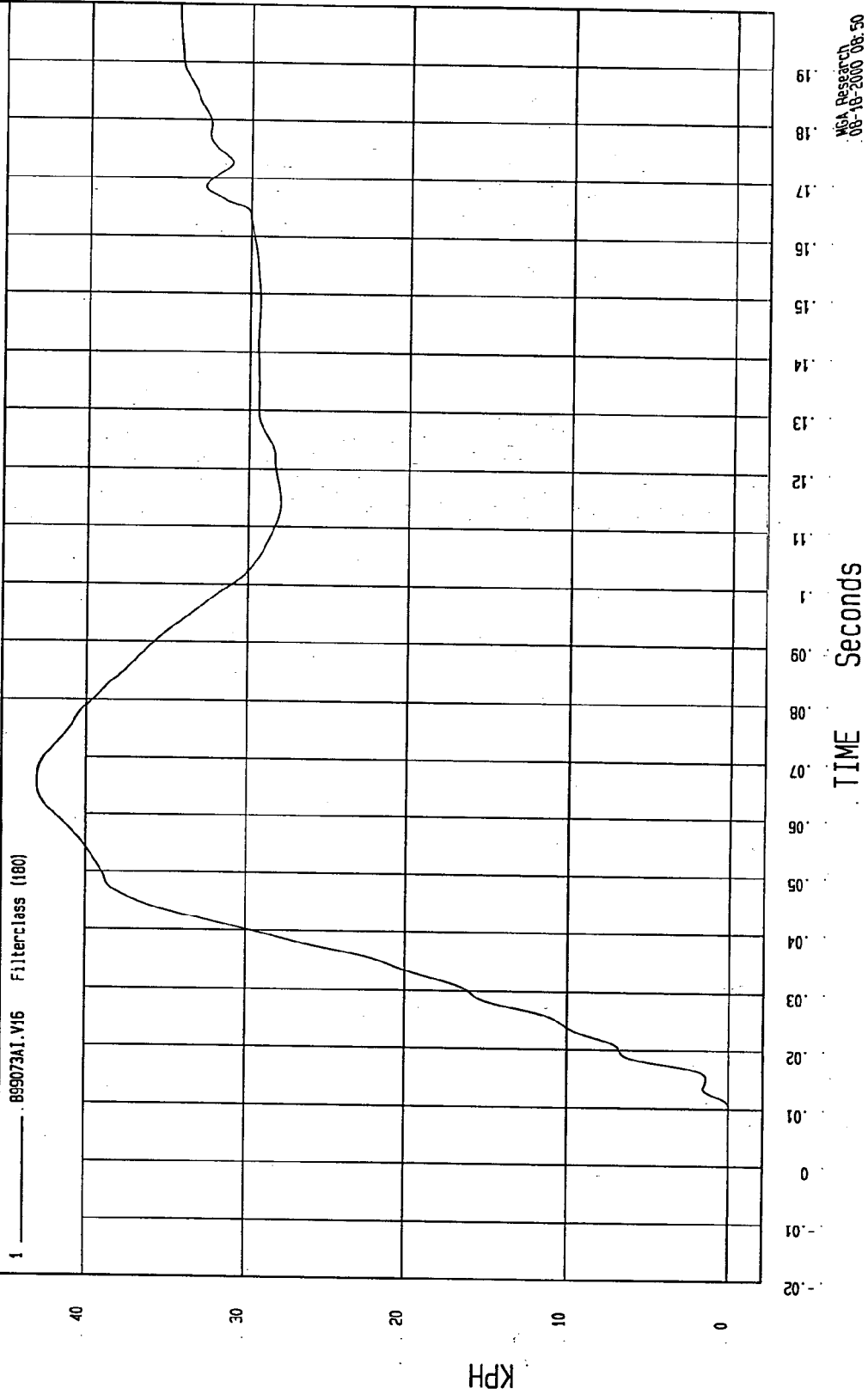
WGA Research
08-18-2000 08:51

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -2.50E-02 KPH at -4 msec Maximum = 43 KPH at 56 msec

DRIVER LOWER RIB Y VELOCITY



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

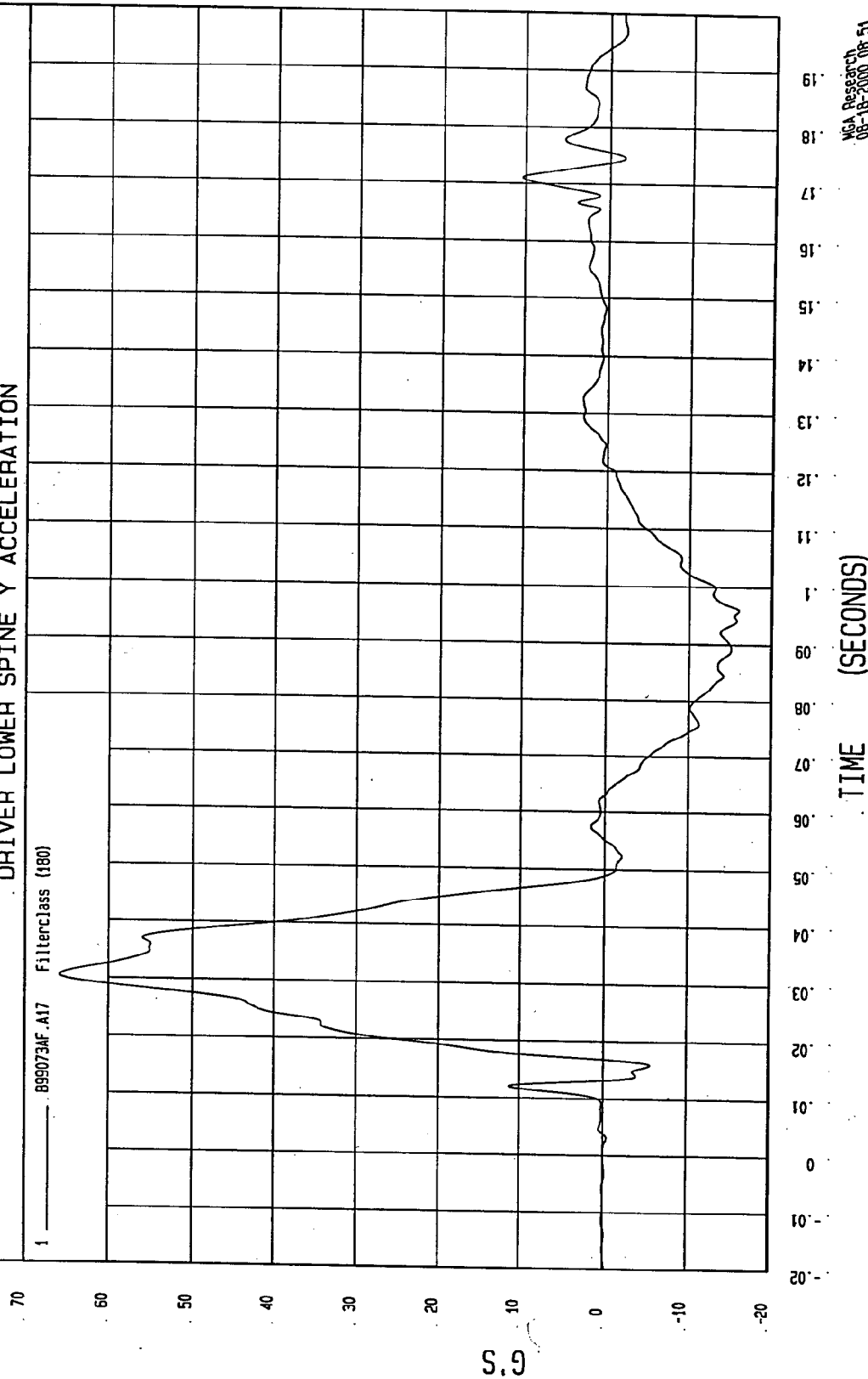
Speed: 38.8 MPH 62.4 KPH

Minimum = -16.02 G'S at 96 msec

Maximum = 65.95 G'S at 30 msec

DRIVER LOWER SPINE Y ACCELERATION

1 — 899073MF.A17 Filterclass (180)

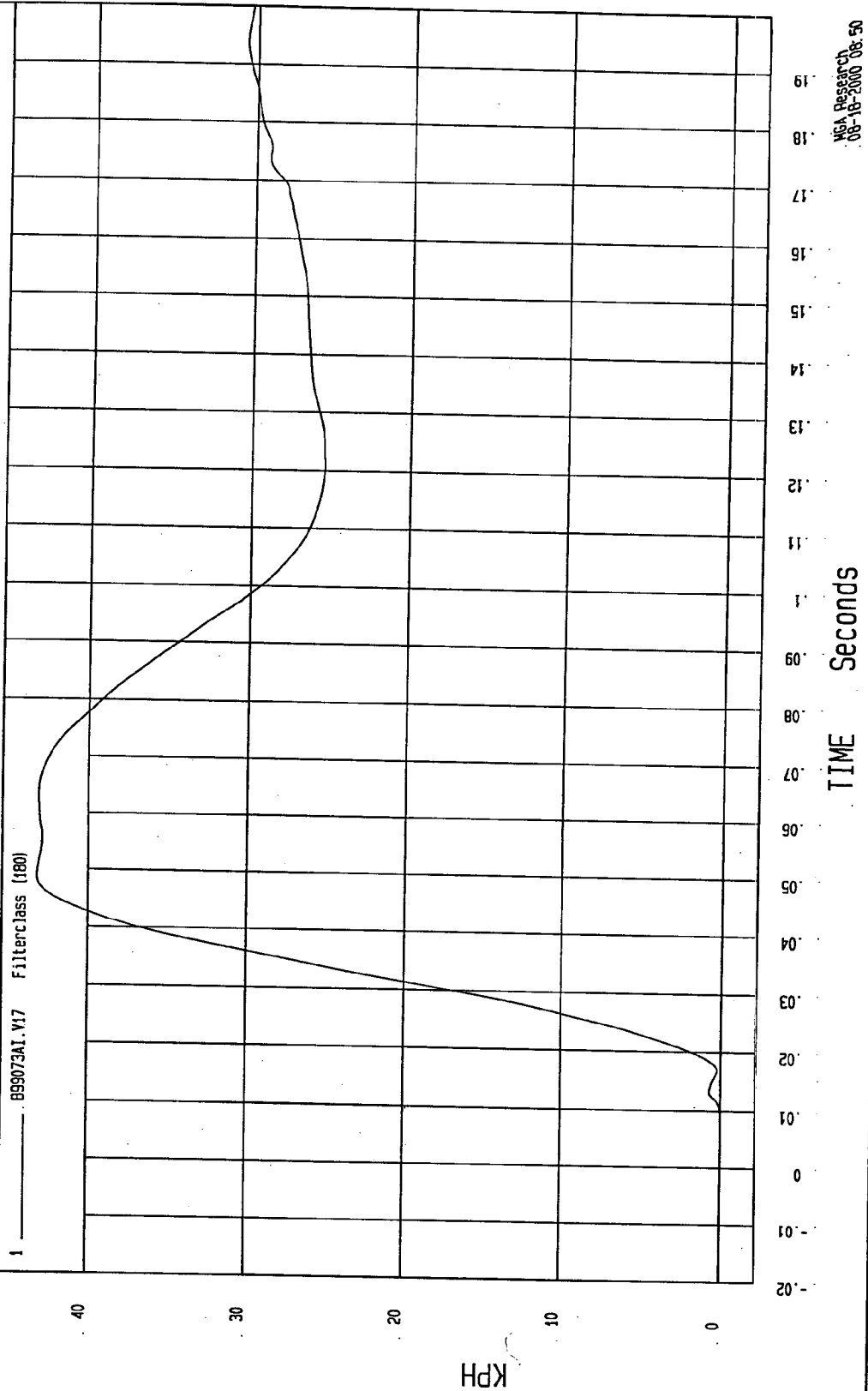


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -2.94E-02 KPH at 4 msec Maximum = 43.15 KPH at 49 msec

DRIVER LOWER SPINE Y VELOCITY



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

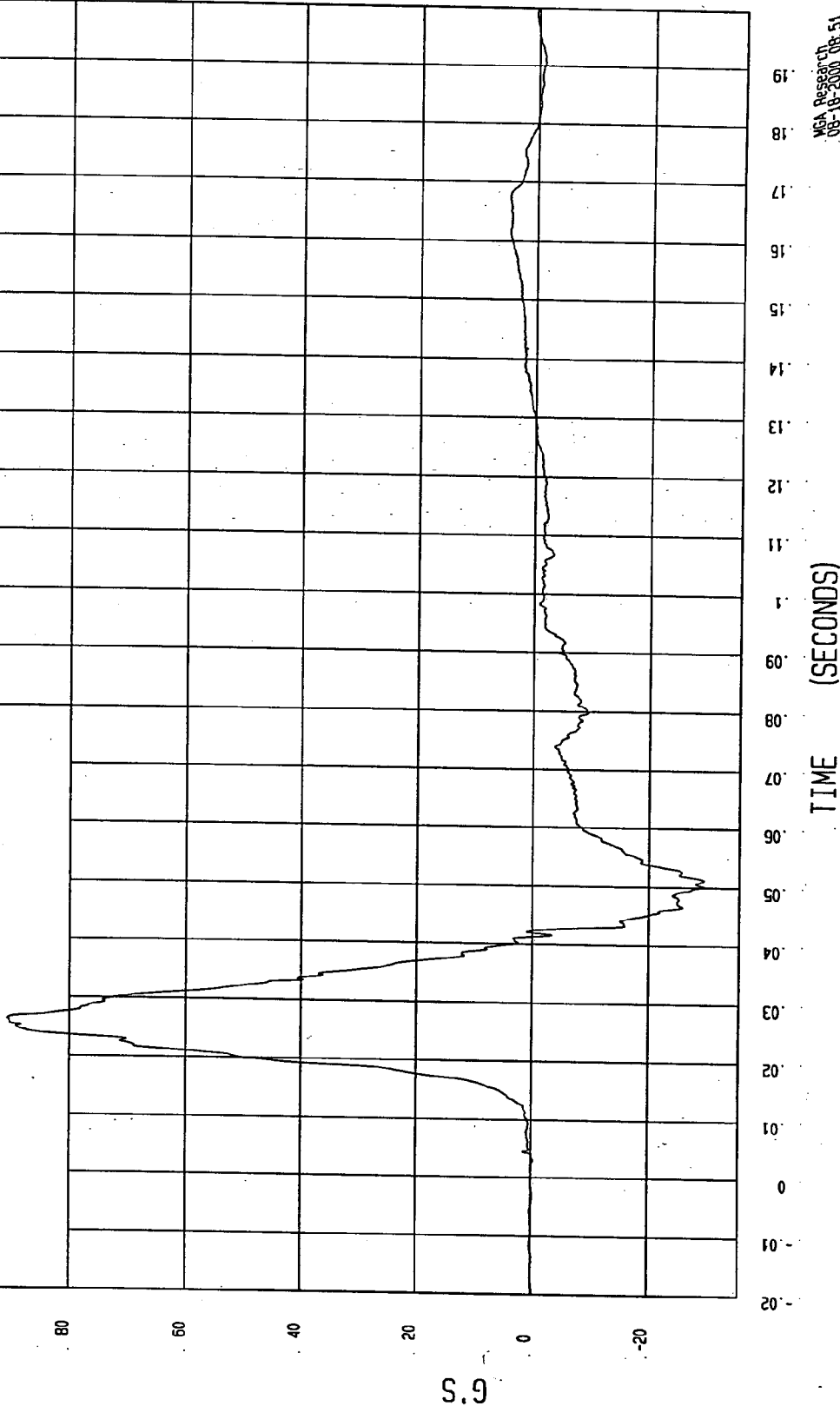
Speed: 38.8 MPH 62.4 KPH

Minimum = -29.64 G'S at 50 msec

Maximum = 90.68 G'S at 26 msec

DRIVER PELVIS Y ACCELERATION

1 899073AT.A18 Filterclass (1000)

MCA Research
08-18-2000 08:51

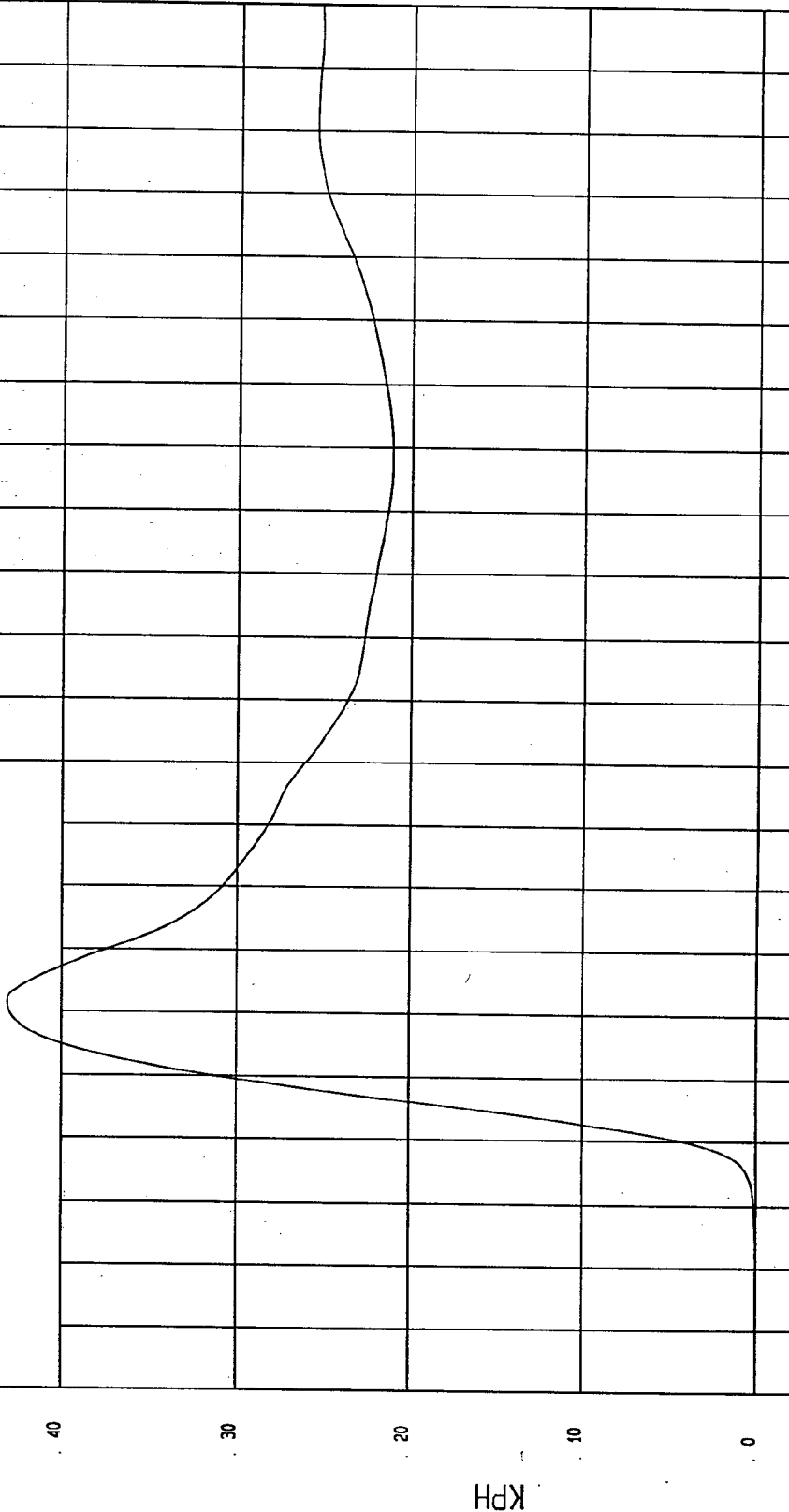
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -7.52E-03 KPH at -18 msec
Maximum = 43.12 KPH at 41 msec

DRIVER PELVIS Y VELOCITY

1 ——— 899073AL.V18 Filterclass (180)



MGA Research
08-18-2000 08:50

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

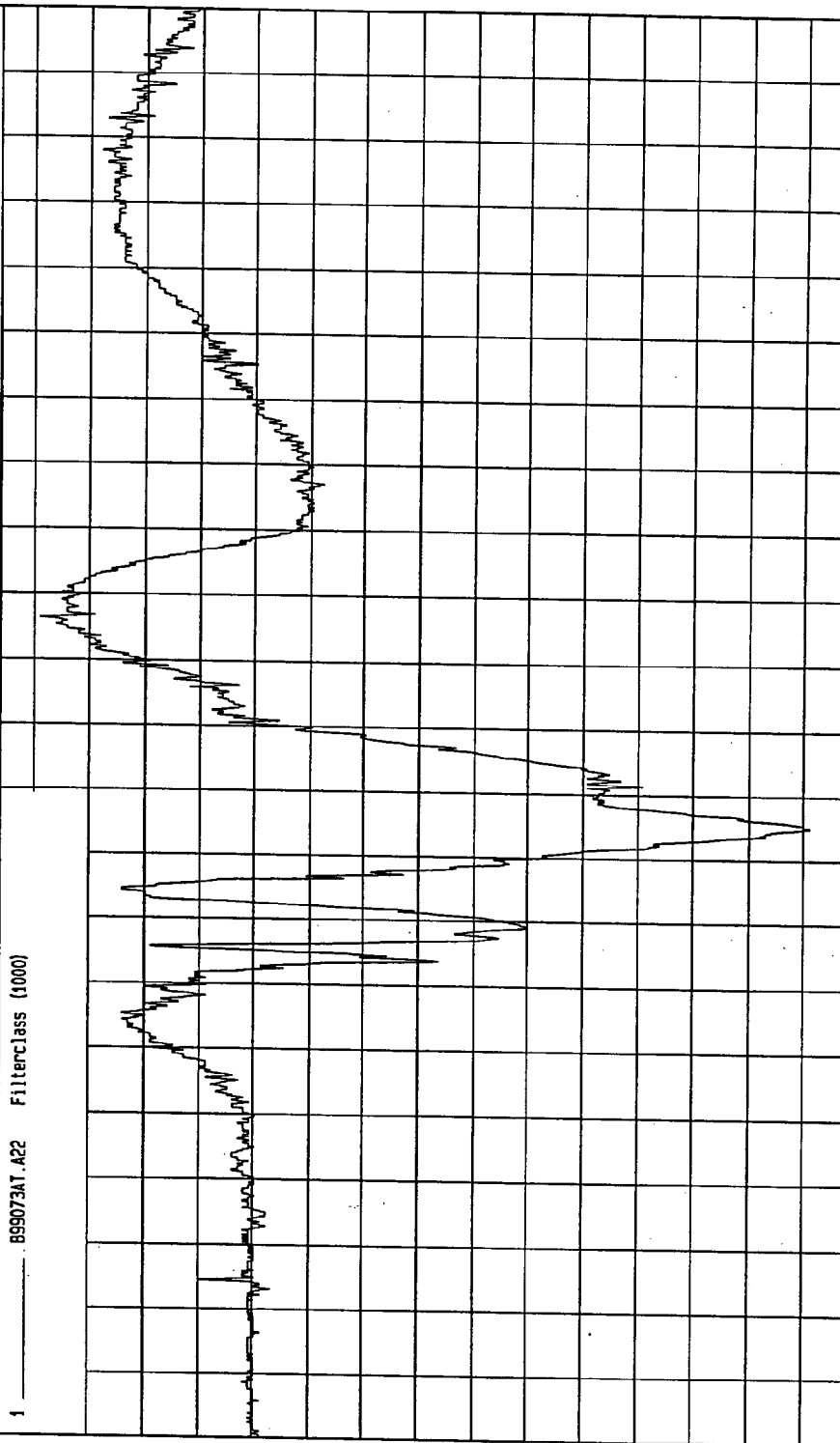
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 7.81 G'S at 105 msec

Minimum = -20.21 G'S at 75 msec

REAR PASSENGER HEAD X ACCELERATION

1 899073AT.A22 Filterclass (1000)



NCA Research
08-18-2000 08:51

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

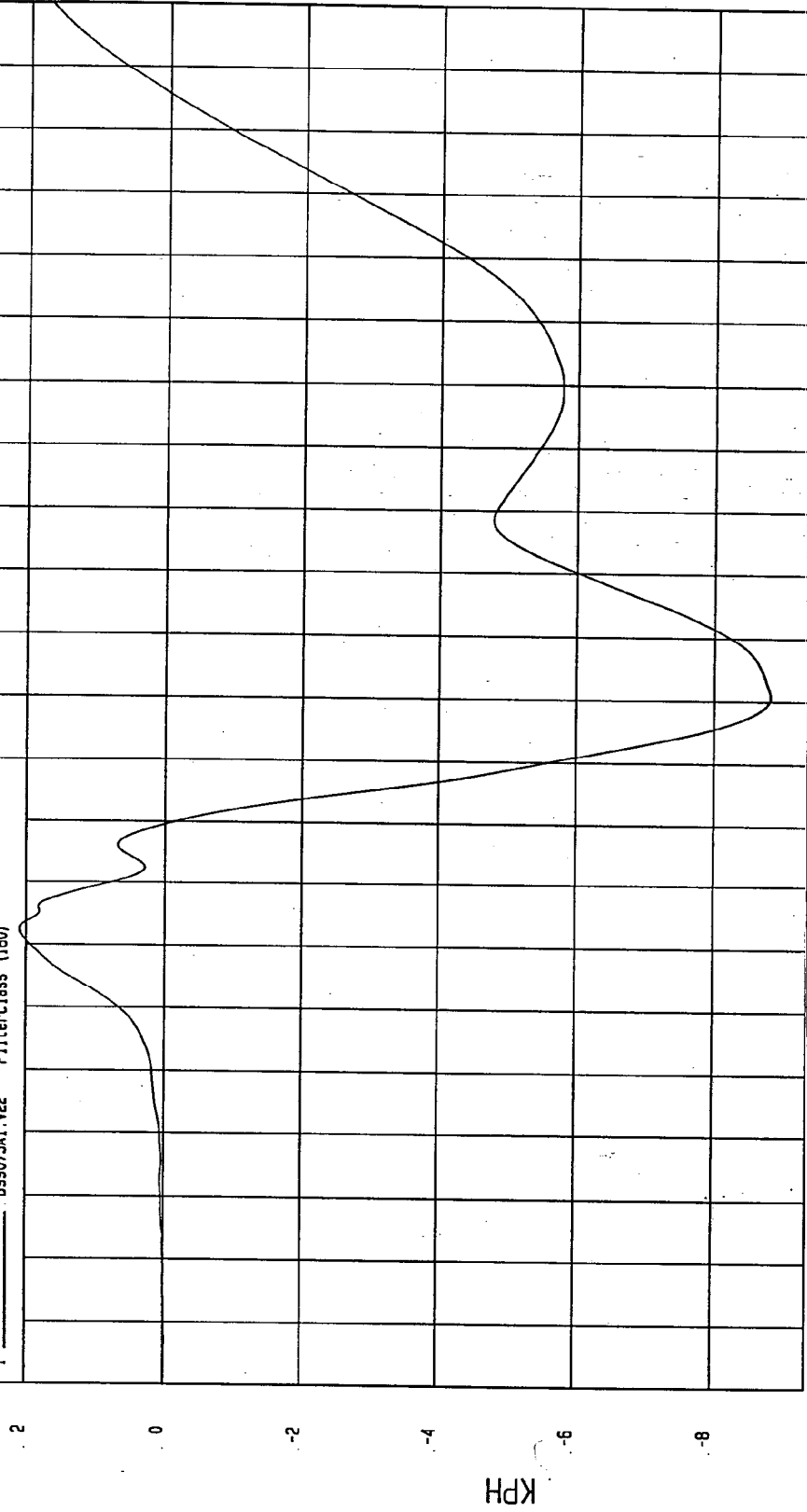
Speed: 38.8 MPH 62.4 KPH

Minimum = -8.82 KPH at 91 msec

Maximum = 2.1 KPH at 52 msec

REAR PASSENGER HEAD X VELOCITY

1 B99073A1.V22 Filterclass (180)



TIME Seconds

MCA Research
08-18-2000 08:50

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

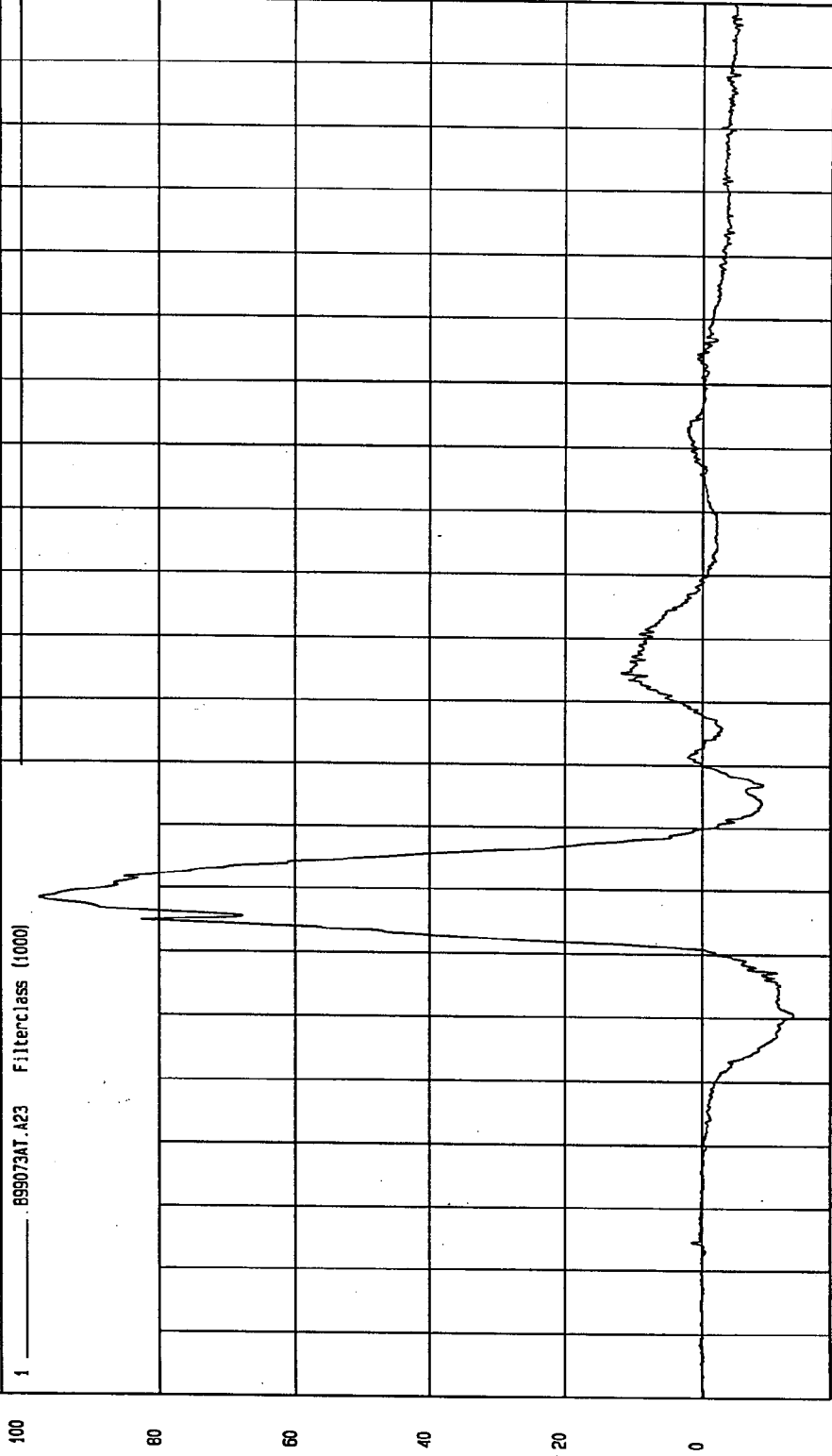
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 97.45 G'S at 58 msec

Minimum = -13.31 G'S at 40 msec

REAR PASSENGER HEAD Y ACCELERATION

1 899073AT.A23 Filterclass (1000)



MCA Research
08-10-2000 08:51

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

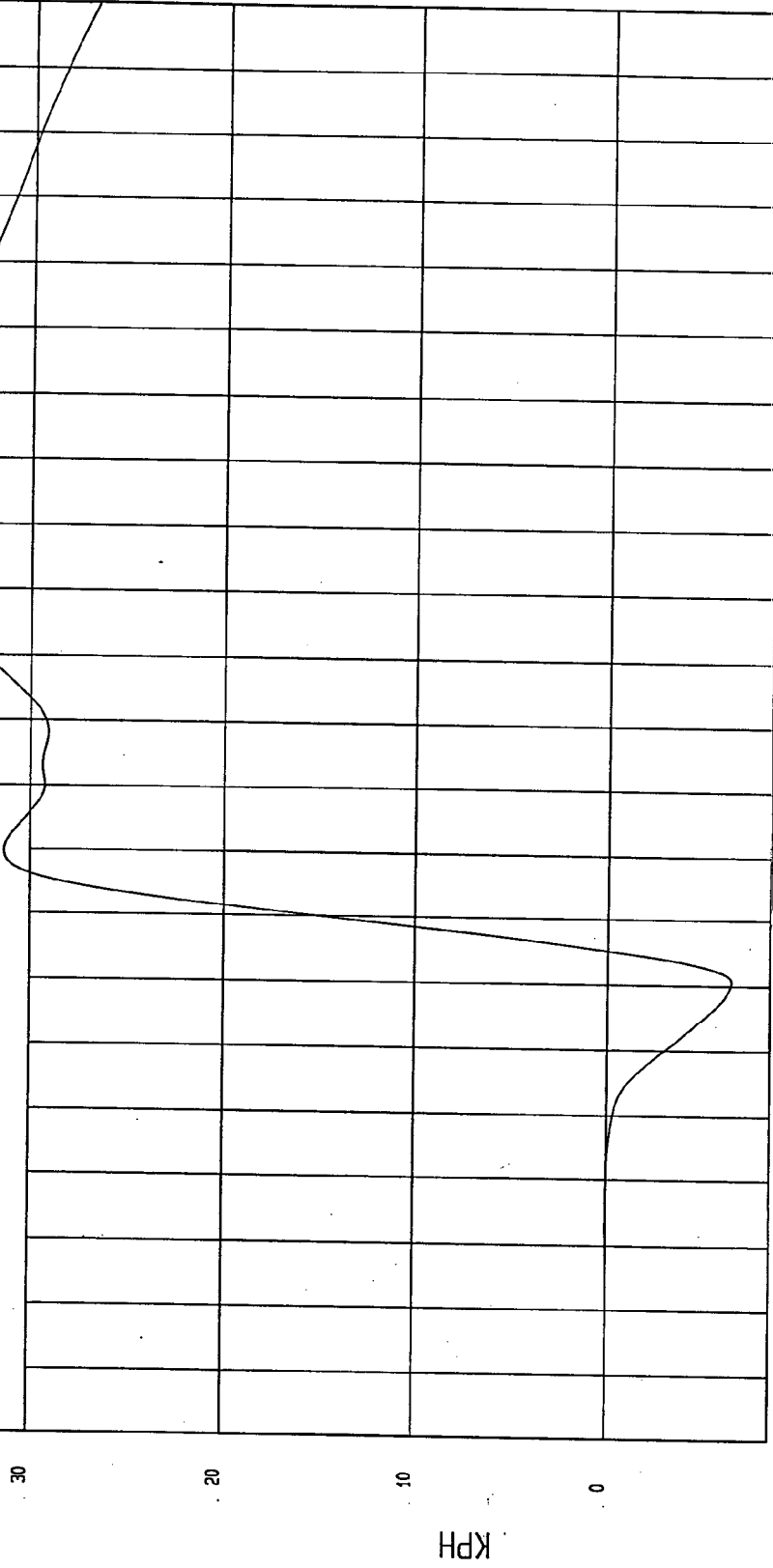
Speed: 38.8 MPH 62.4 KPH

Minimum = -6.39 KPH at 51 msec

Maximum = 33.63 KPH at 109 msec

REAR PASSENGER HEAD Y VELOCITY

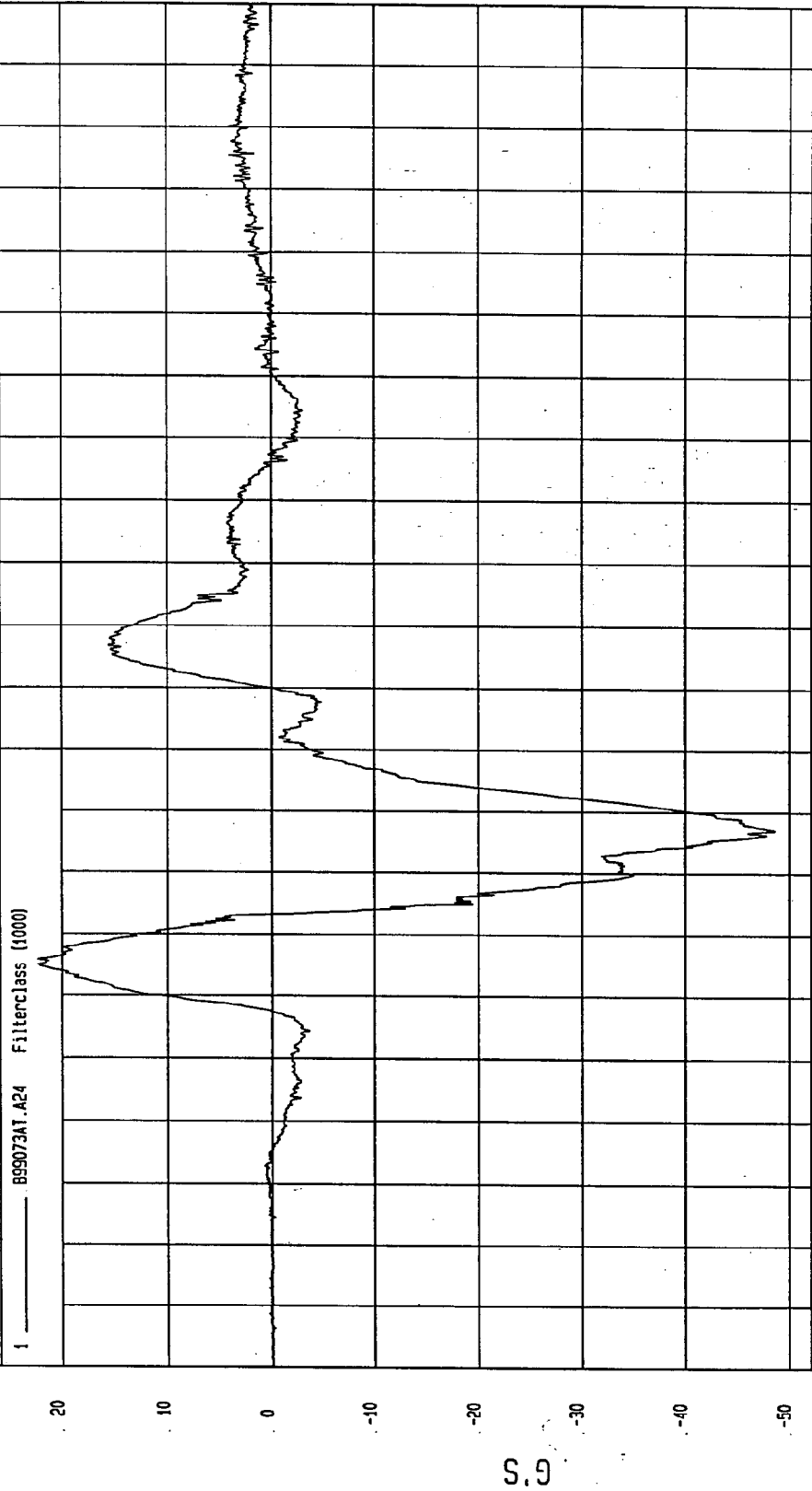
1 _____ B99073A1.V23 Filterclass (180)



McA Research
08-18-2000 08:50

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH
Minimum = -48.59 G'S at 67 msec Maximum = 22.32 G'S at 45 msec

REAR PASSENGER HEAD Z ACCELERATION



NCA Research
08-18-2000 08:51

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

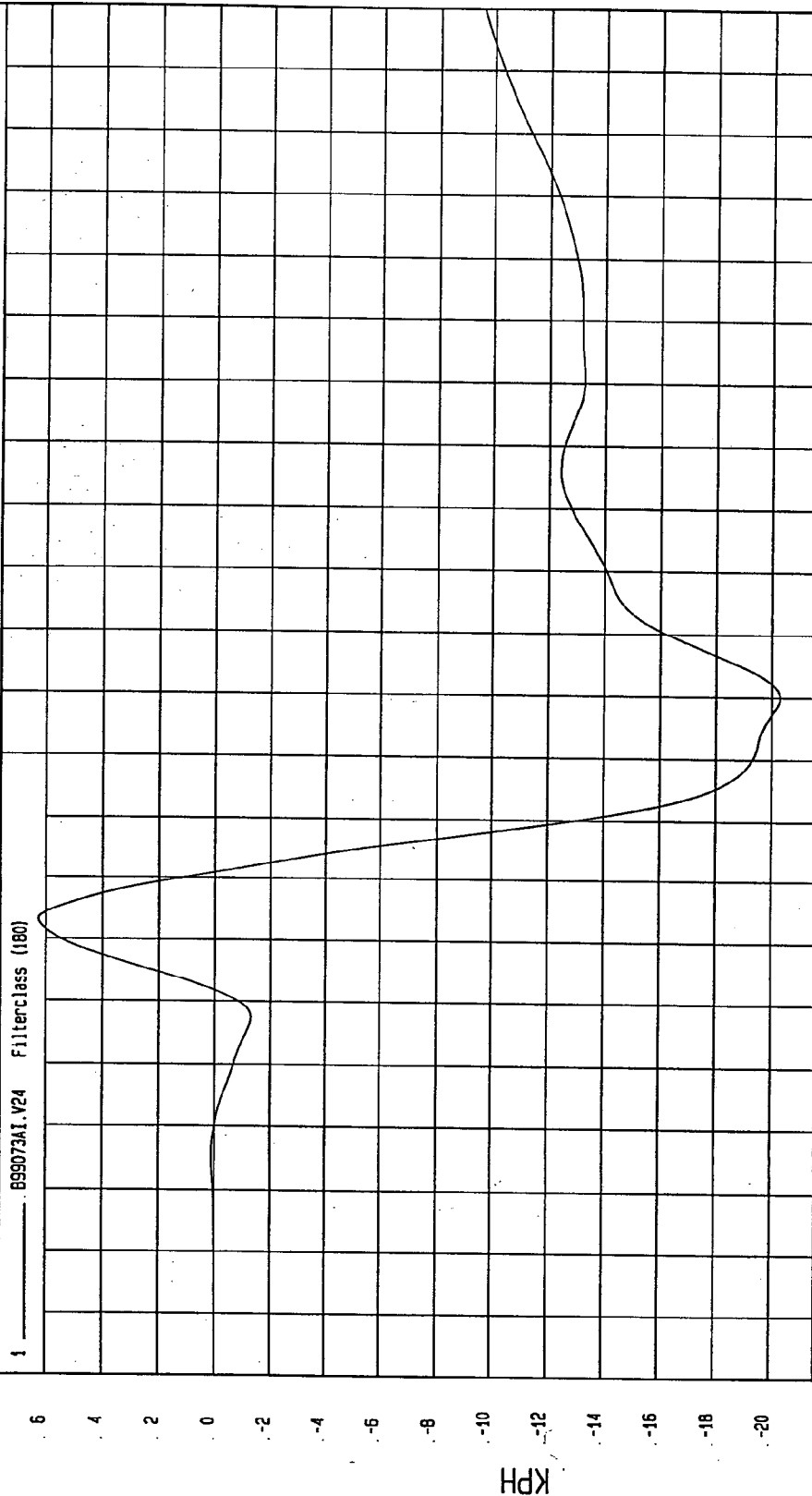
Speed: 38.8 MPH 62.4 KPH

Minimum = -20.29 KPH at 90 msec

Maximum = 6.26 KPH at 53 msec

REAR PASSENGER HEAD Z VELOCITY

1 _____ B99073A1.V24 Filterclass (180)



WCA Research
08-18-2000 08:50

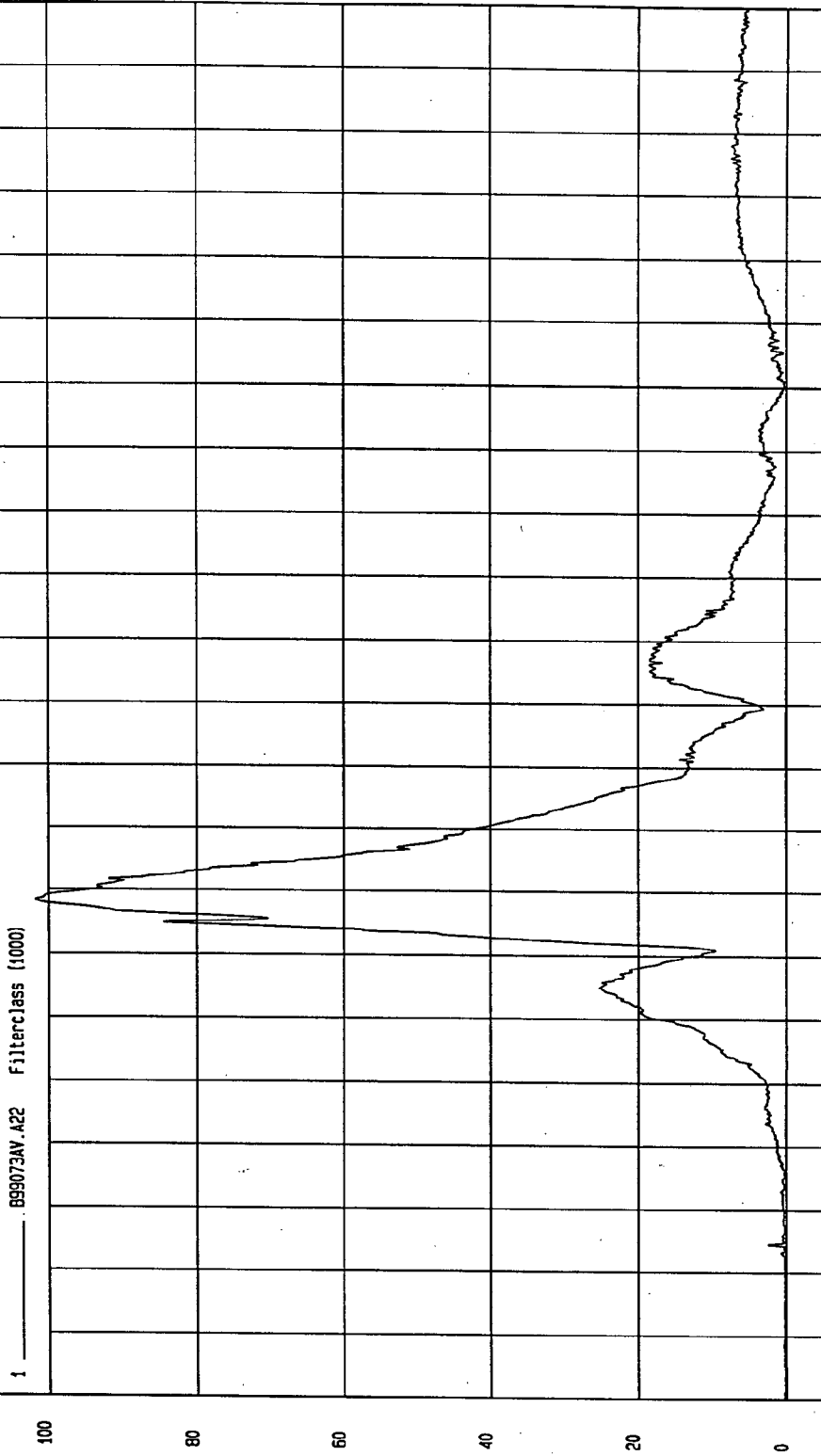
TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = .11 G'S at -20 msec Maximum = 101.83 G'S at 59 msec

REAR PASSENGER HEAD RESULTANT



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

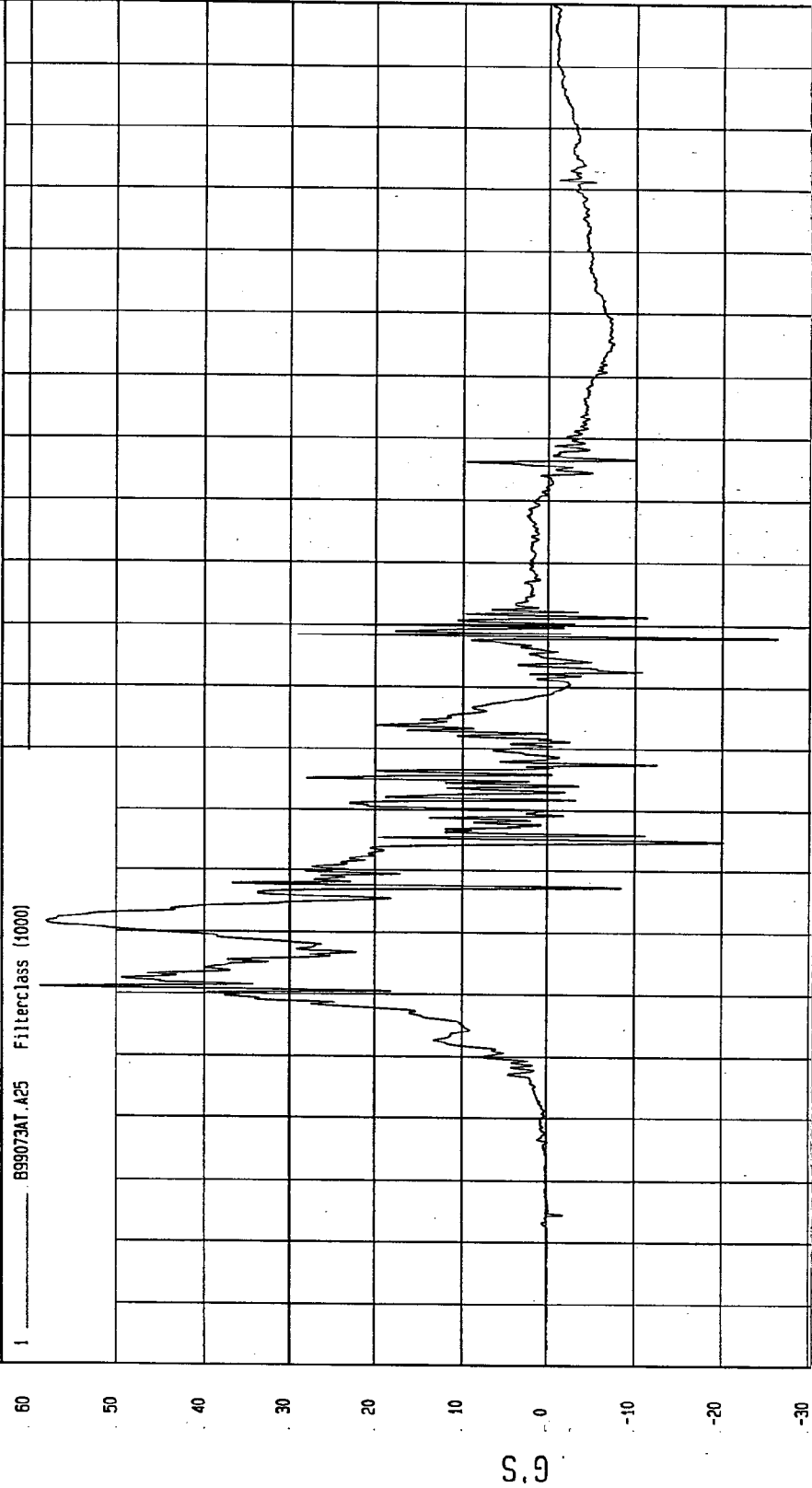
Speed: 38.8 MPH 62.4 KPH

Minimum = -26.26 G'S at 98 msec

Maximum = 58.76 G'S at 41 msec

REAR PASSENGER UPPER RIB Y ACCELERATION

1 B99073AT.A25 FilterClass (1000)



TIME (SECONDS)

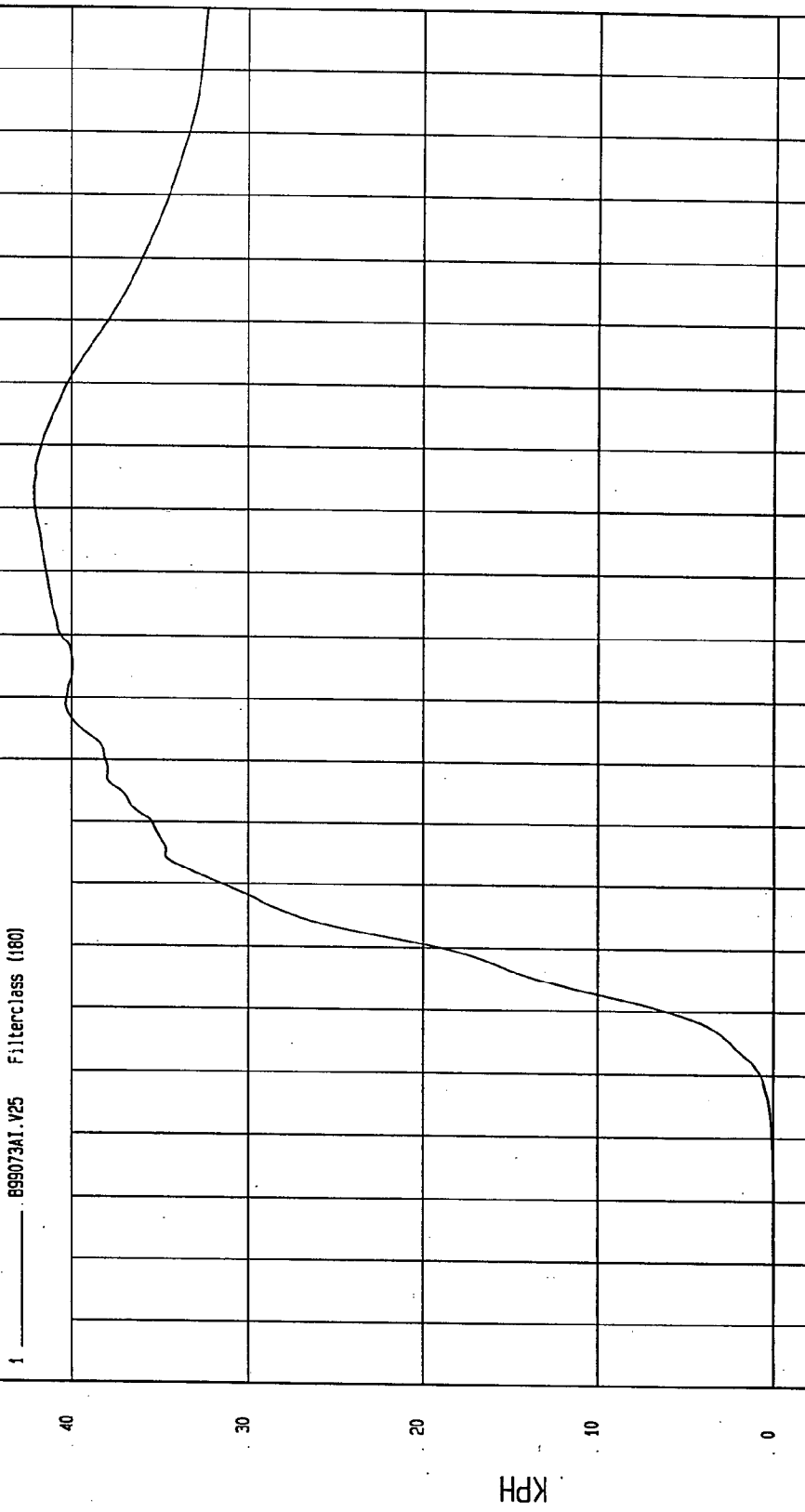
MGA Research
08-18-2000 08:51

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -2.80E-02 KPH at 7 msec Maximum = 42.1 KPH at 122 msec

REAR PASSENGER UPPER RIB Y VELOCITY



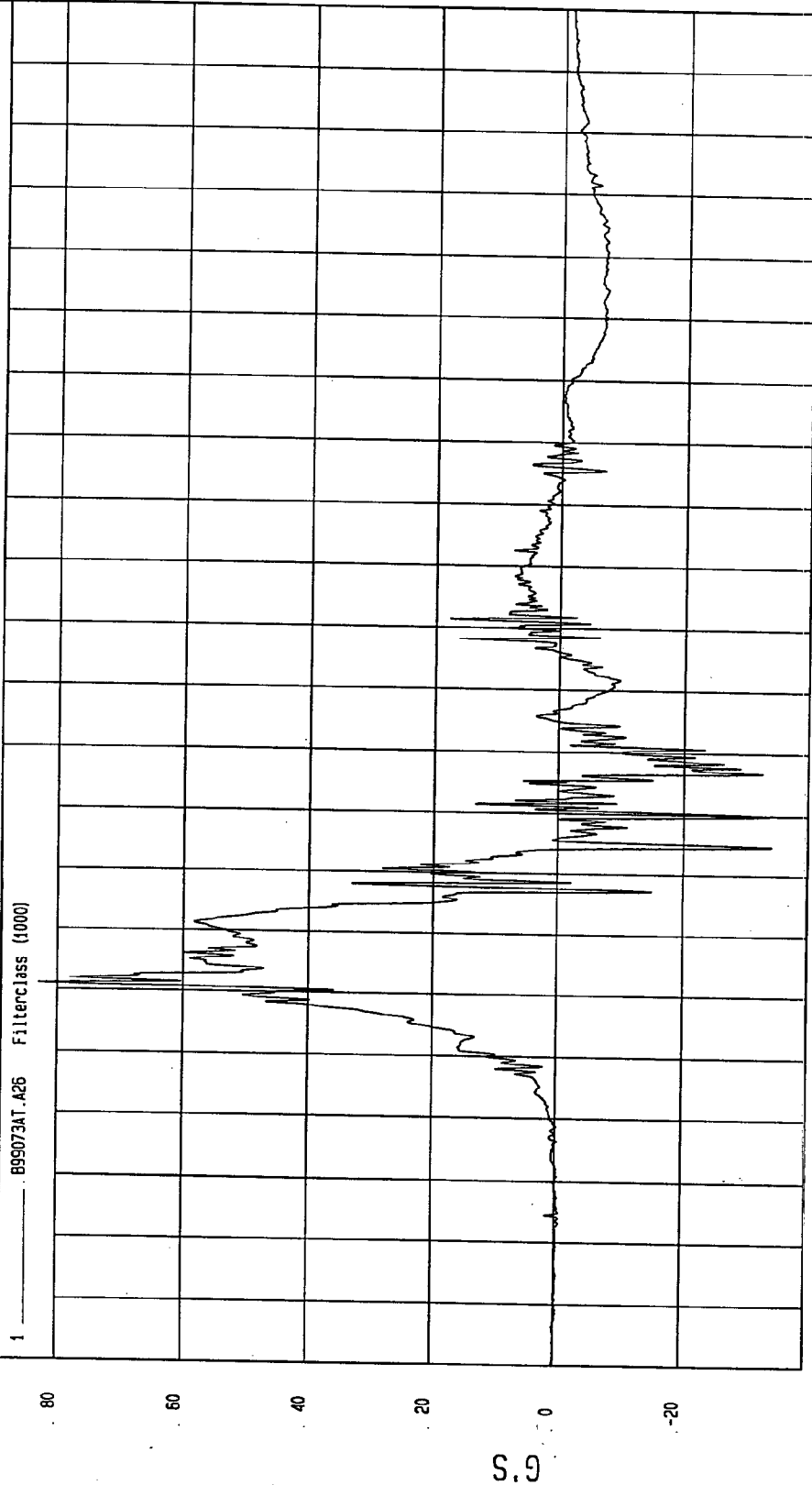
NSA Research
08-16-2000 08:50

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -34.03 G'S at 65 msec Maximum = 83 G'S at 41 msec

REAR PASSENGER LOWER RIB Y ACCELERATION



NCA Research
08-16-2000 08:51

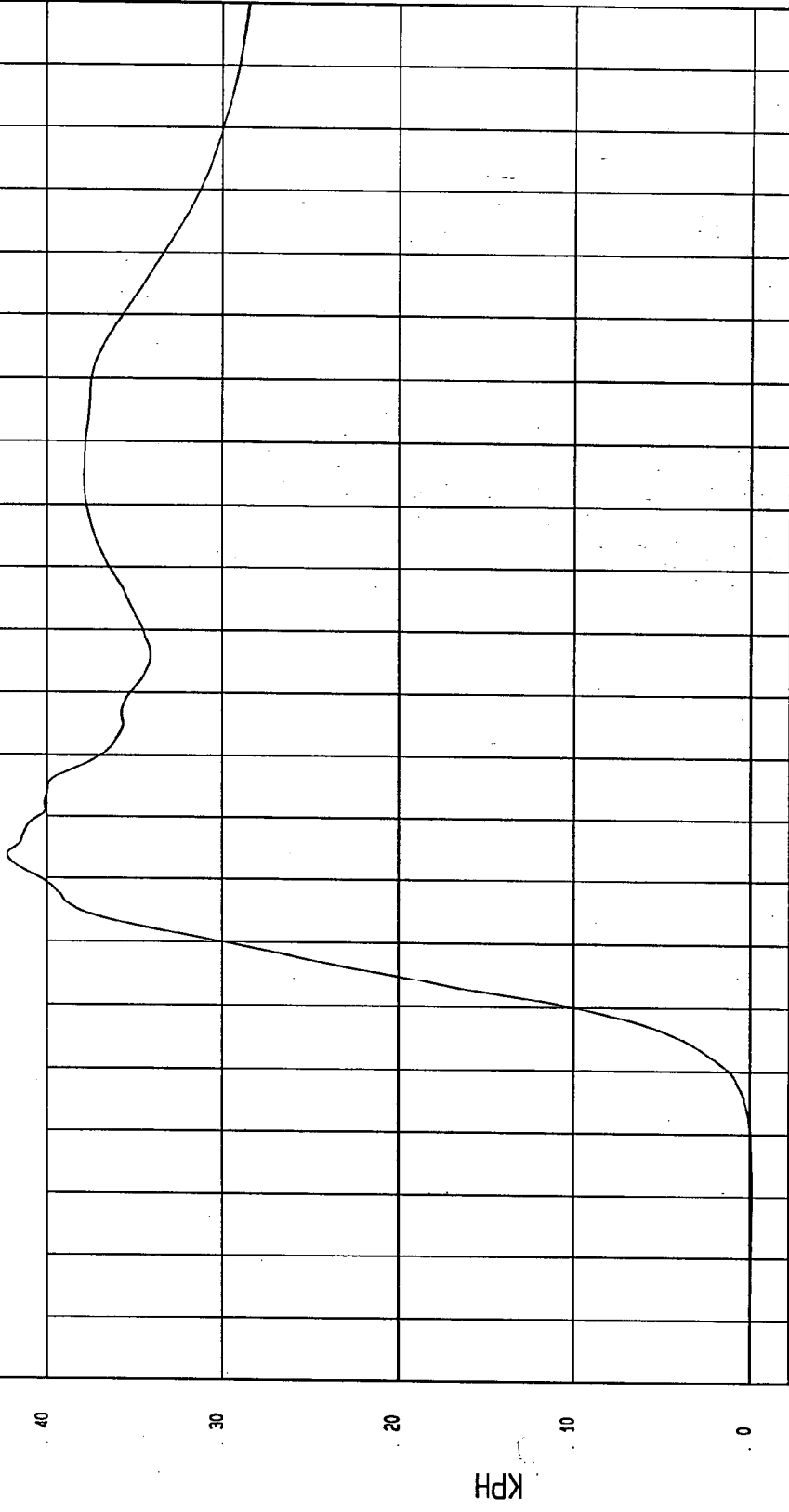
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -12 KPH at 12 msec Maximum = 42.3 KPH at 64 msec

REAR PASSENGER LOWER RIB Y VELOCITY

1 _____ 899073A1.V26 Filterclass (180)



TIME Seconds

MSA Research
08-18-2000 08:50

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

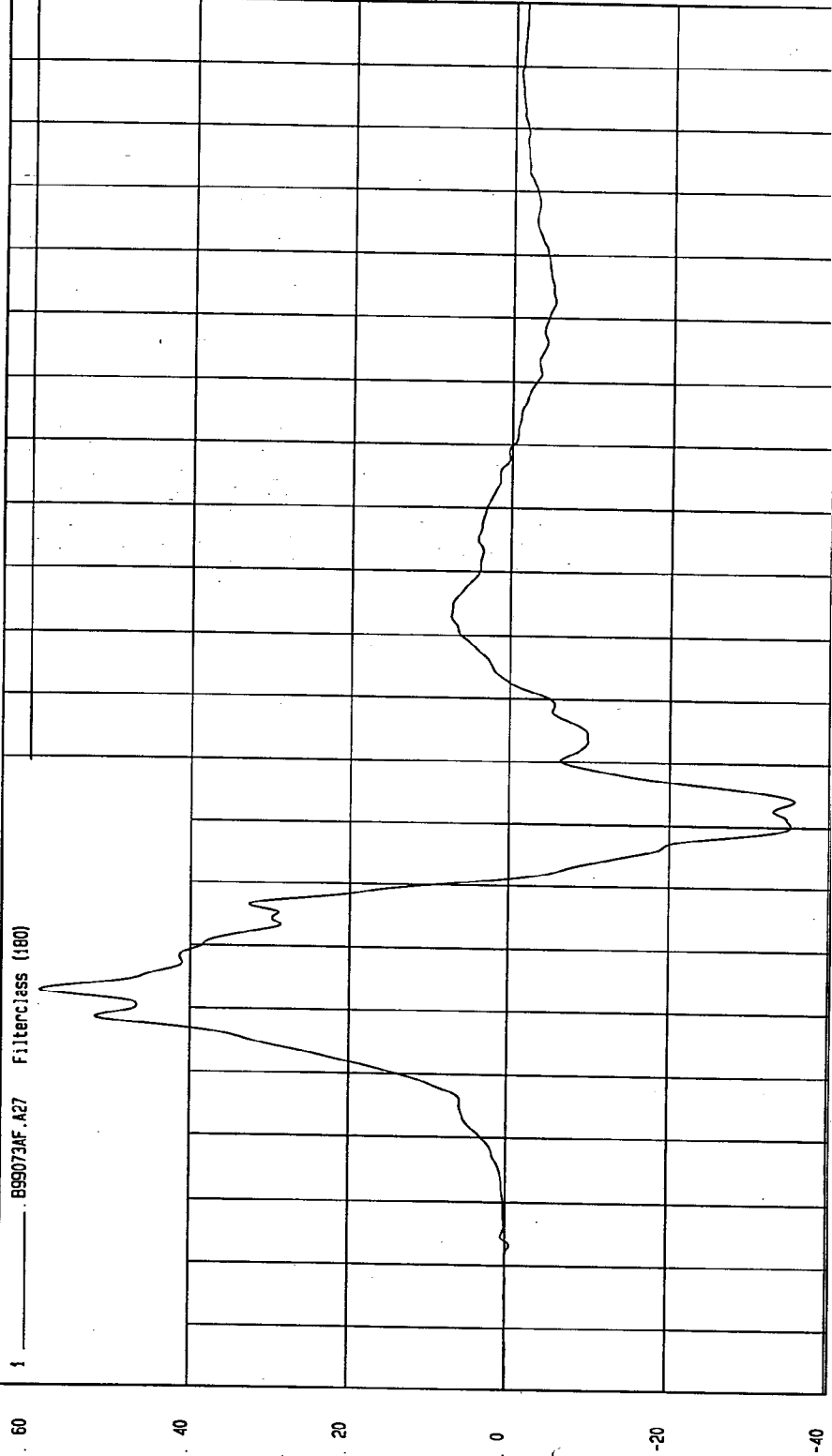
SPEED: 38.8 MPH 62.4 KPH

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Minimum = -35.64 G'S at 74 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION

1 B99073AF.A27 Filterclass (180)



MGA Research
08-18-2000 08:51

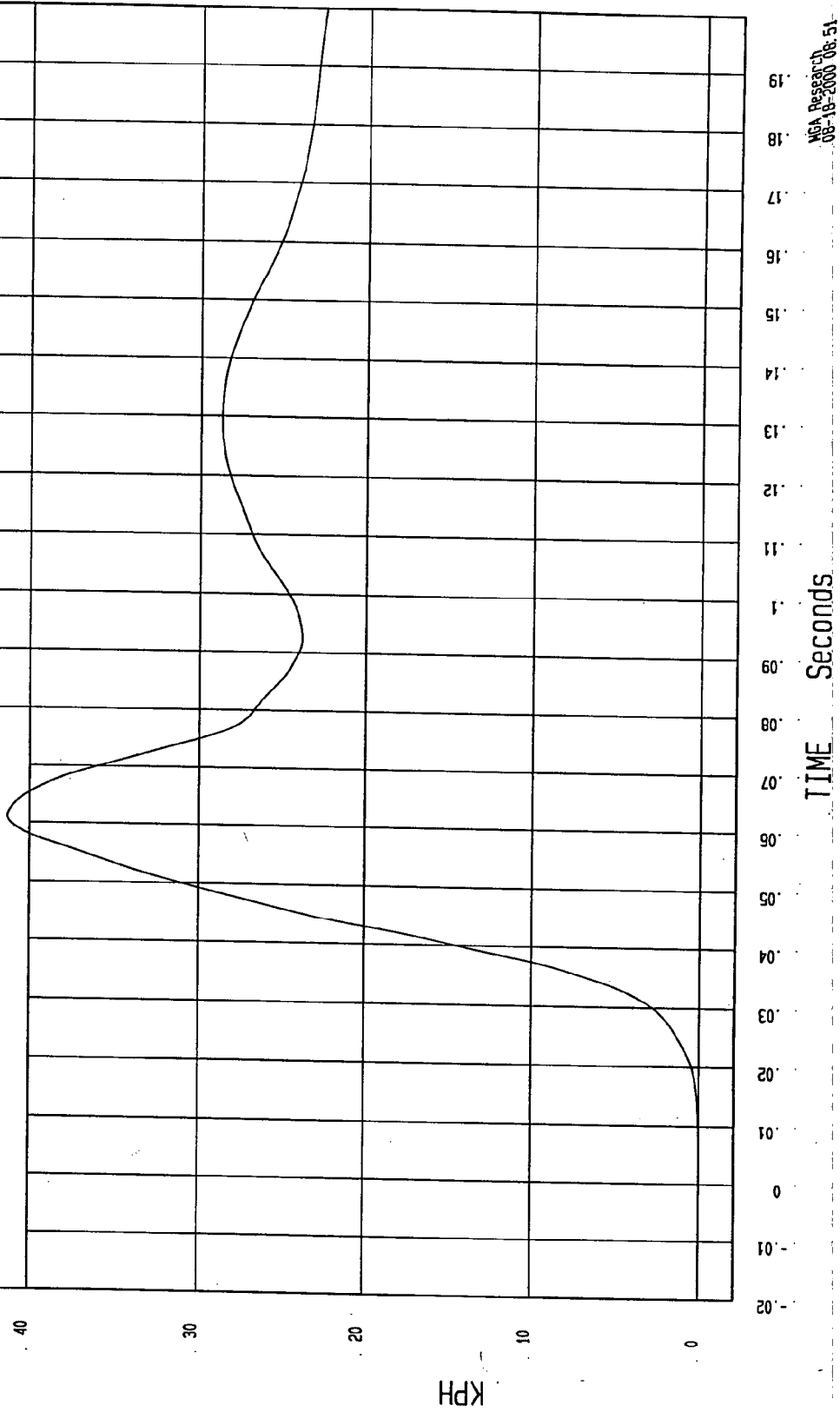
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -2.92E-02 KPH at 4 msec
Maximum = 41.29 KPH at 61 msec

REAR PASSENGER LOWER SPINE Y VELOCITY

1 899073A1.V27 FilterClass (180)



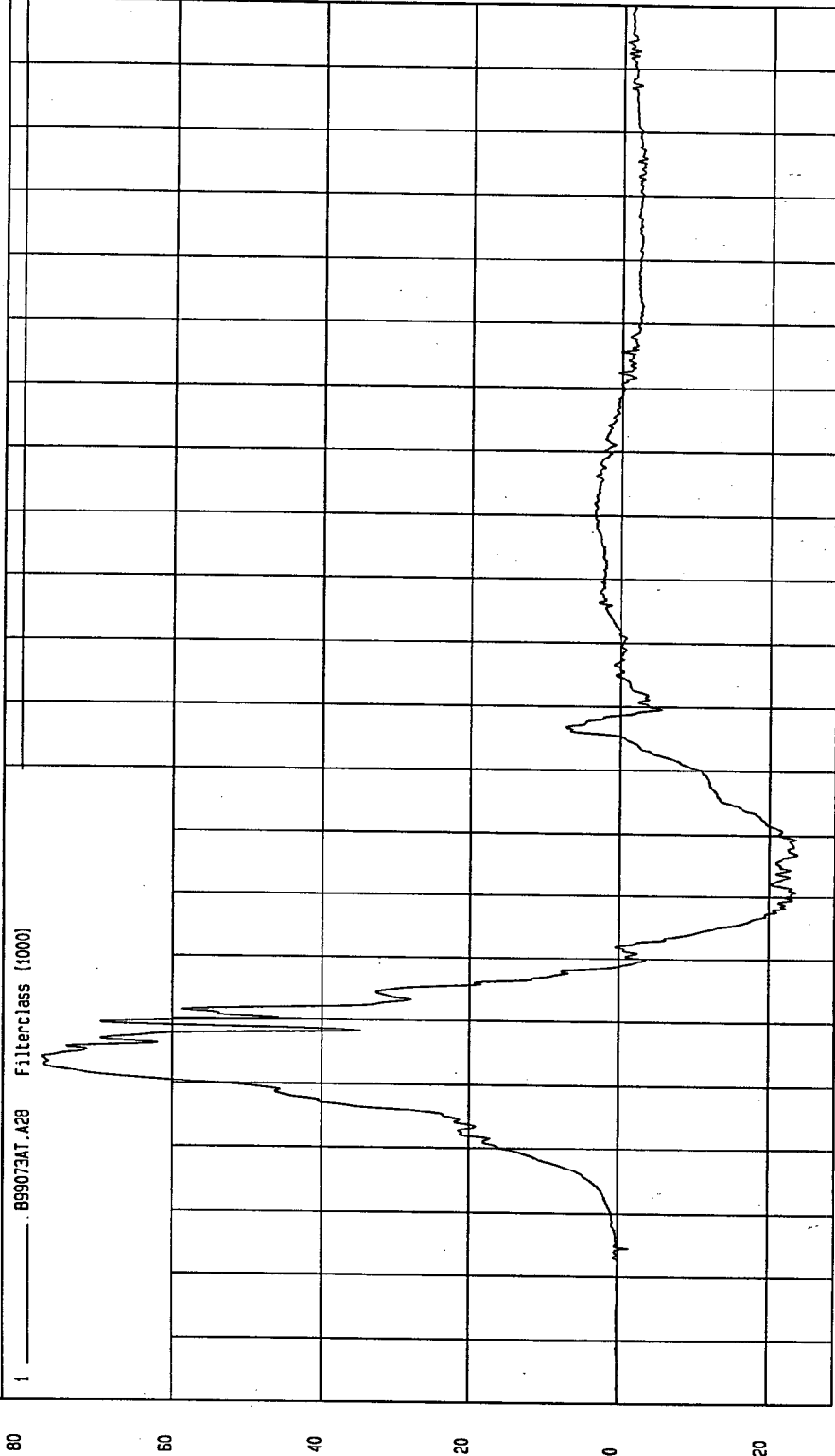
NEA Research
08-18-2000 08:51

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -23.91 G'S at 67 msec
Maximum = 77.34 G'S at 34 msec

REAR PASSENGER PELVIS Y ACCELERATION



TIME (SECONDS)

NCA Research
08-18-2000 08:52

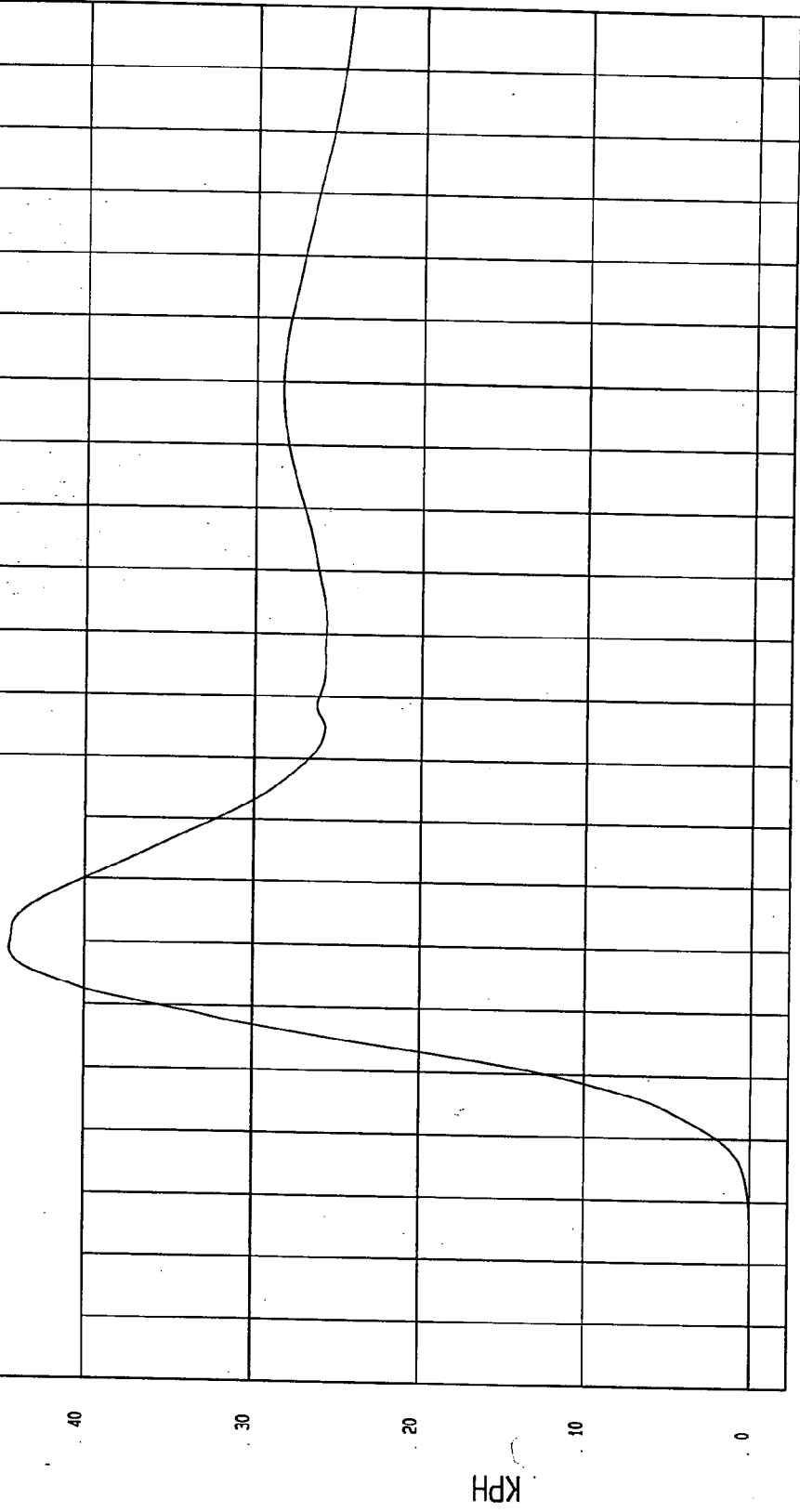
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -.01 KPH at -13 msec
Maximum = 41.51 KPH at 49 msec

REAR PASSENGER PELVIS Y VELOCITY

1 899073A1.V28 FilterClass (180)



TIME Seconds
19
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01
0
-01
-02

NSA Research
08-18-2000 08:51

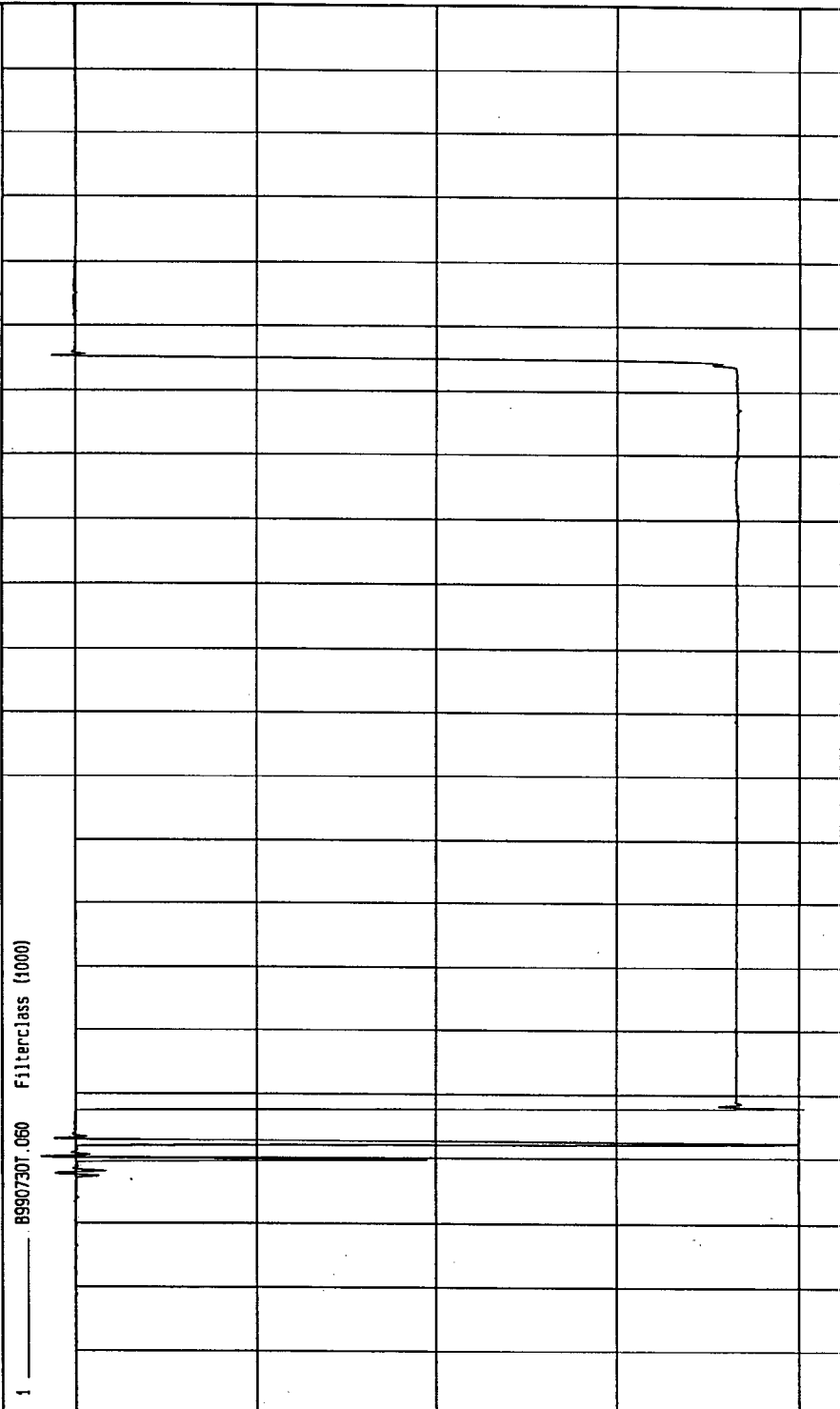
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -4.03 VOLTS at 28 msec

Maximum = .19 VOLTS at 20 msec

REAR PASSENGER SHOULDER CONTACT



TIME (SECONDS)

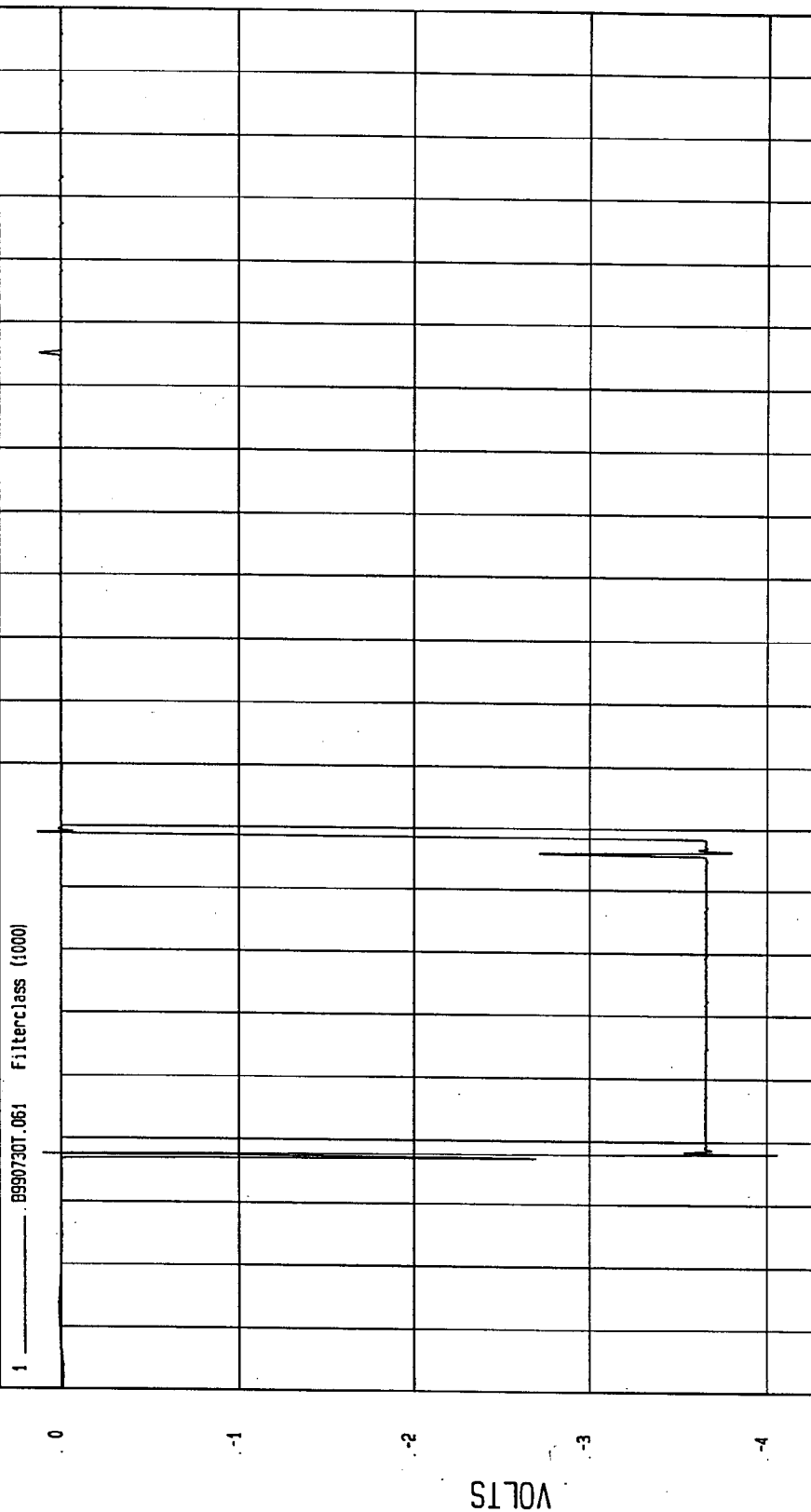
0.19
0.18
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0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
-0.01
-0.02

NGA Research
09-18-2000 08:52

VOLTS

TEST: HIGH SPEED LATERAL IMPACT
TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202)
Speed: 38.8 MPH 62.4 KPH
Minimum = -4.06 VOLTS at 18 msec
Maximum = .13 VOLTS at 69 msec

REAR PASSENGER PELVIS CONTACT

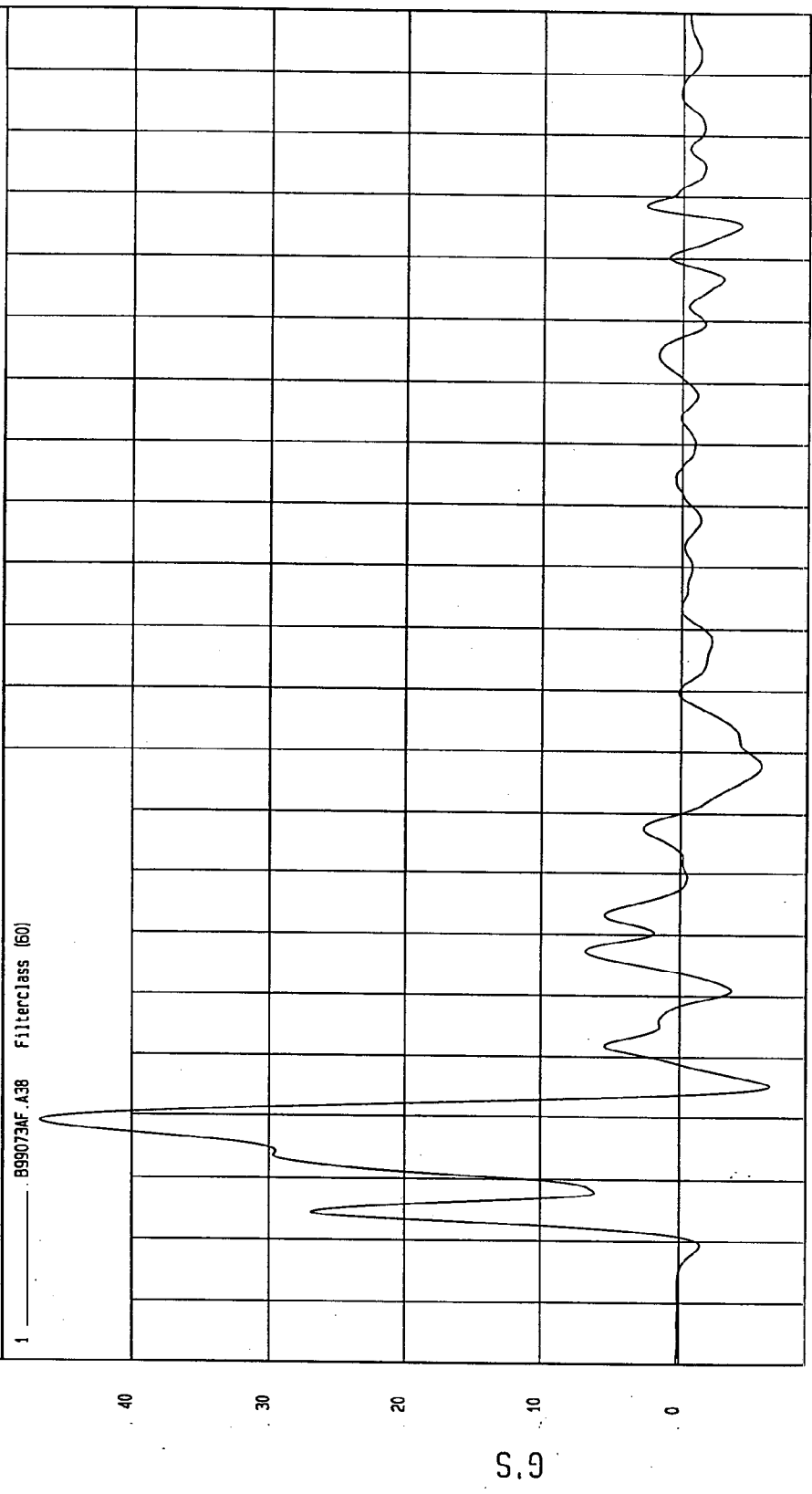


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -6.46 G's at 25 msec Maximum = 46.54 G's at 19 msec

LEFT SIDE SILL AT FRONT SEAT Y ACCELERATION



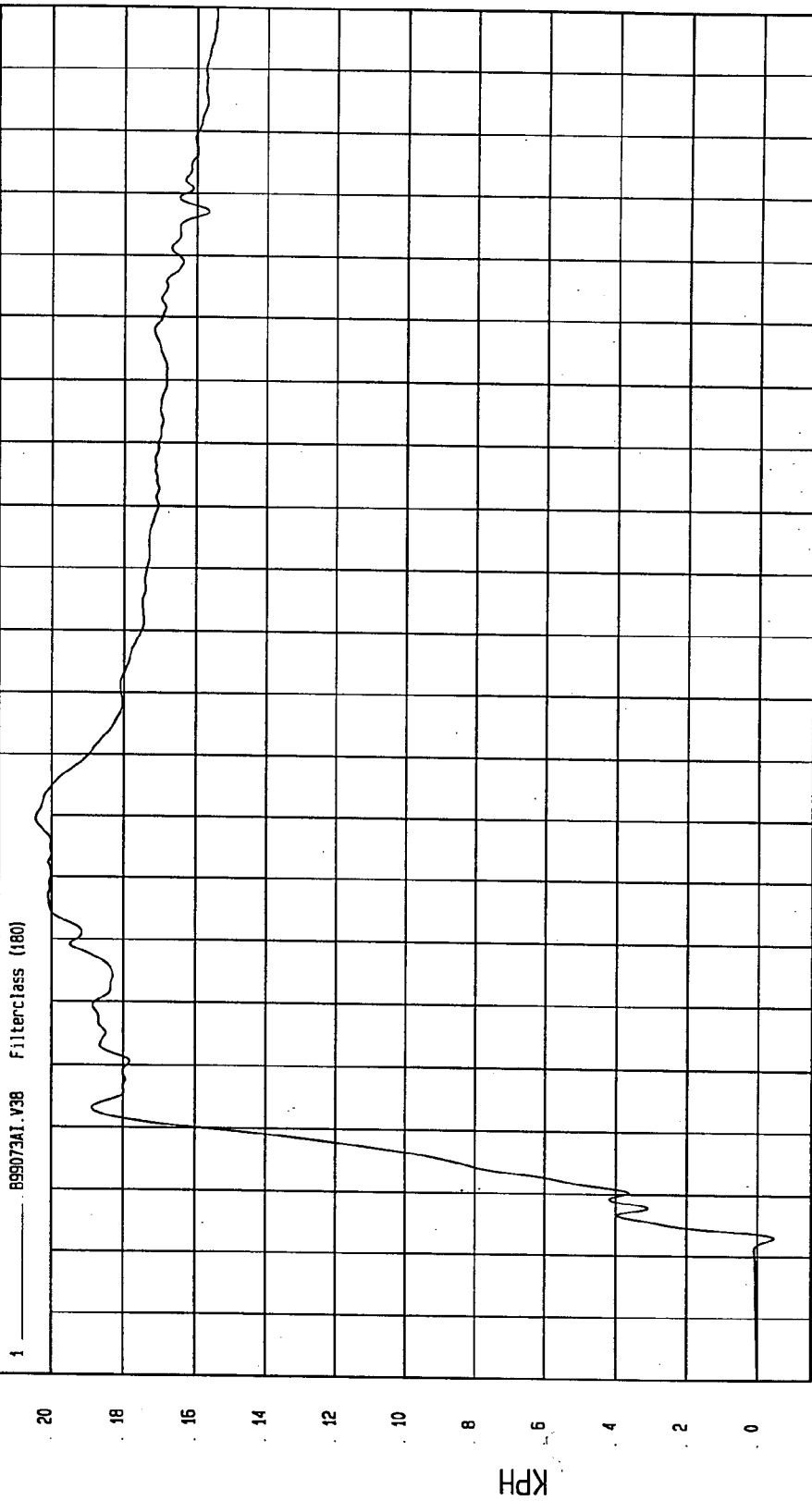
MGA Research
08-18-2000 08:17

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -48 KPH at 3 msec Maximum = 20.43 KPH at 70 msec

LEFT SIDE SILL AT FRONT SEAT Y VELOCITY



TIME Seconds

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NCA Research
08-16-2000 08:17

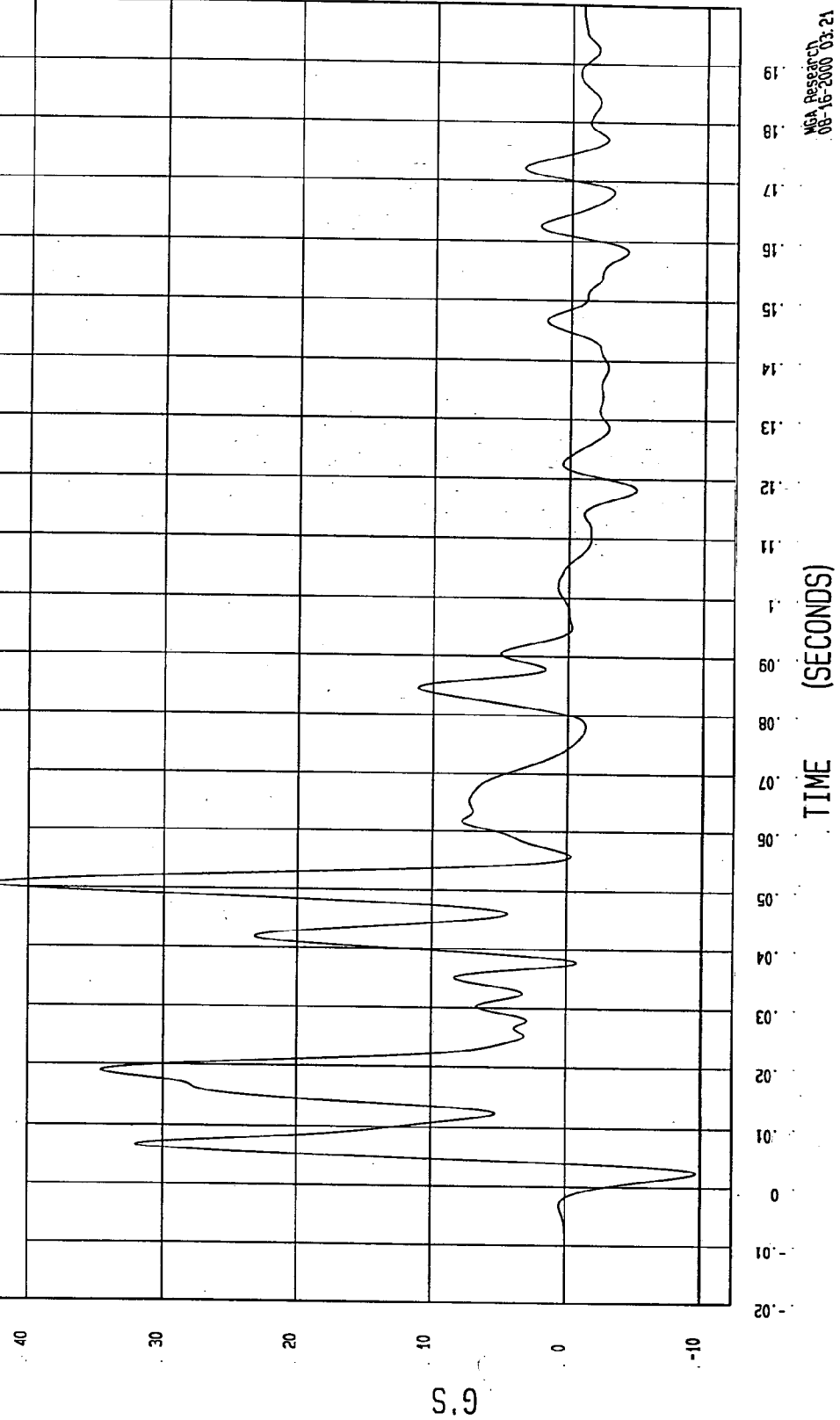
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -9.66 G'S at 2 msec Maximum = 42.78 G'S at 51 msec

LEFT SIDE SILL AT REAR SEAT Y ACCELERATION

1 ——— B99073AF.A39 Filterclass (60)

MCA Research
08-16-2000 03:21

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

SPEED: 38.8 MPH 62.4 KPH

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 30.6 KPH at 106 msec

Minimum = -1.86 KPH at 4 msec

LEFT SIDE SILL AT REAR SEAT Y VELOCITY

1 099073A1.V39 Filterclass (180)

32

30

28

26

24

22

20

18

16

14

12

10

8

6

4

2

0

-2

KPH

-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

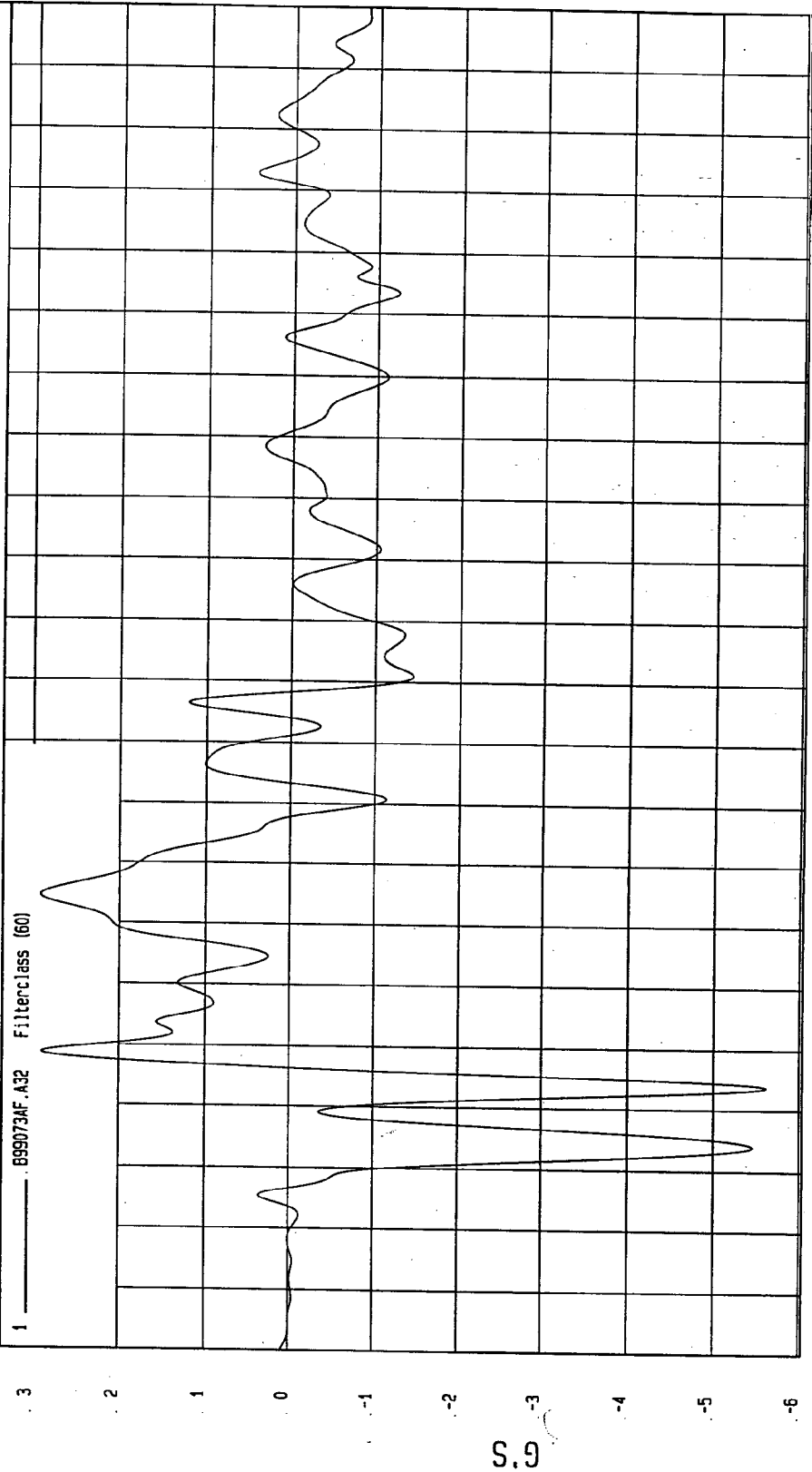
MCA Research
08-15-2000 03:21

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -5.61 G'S at 24 msec Maximum = 2.92 G'S at 54 msec

RIGHT SIDE SILL AT FRONT SEAT X ACCELERATION



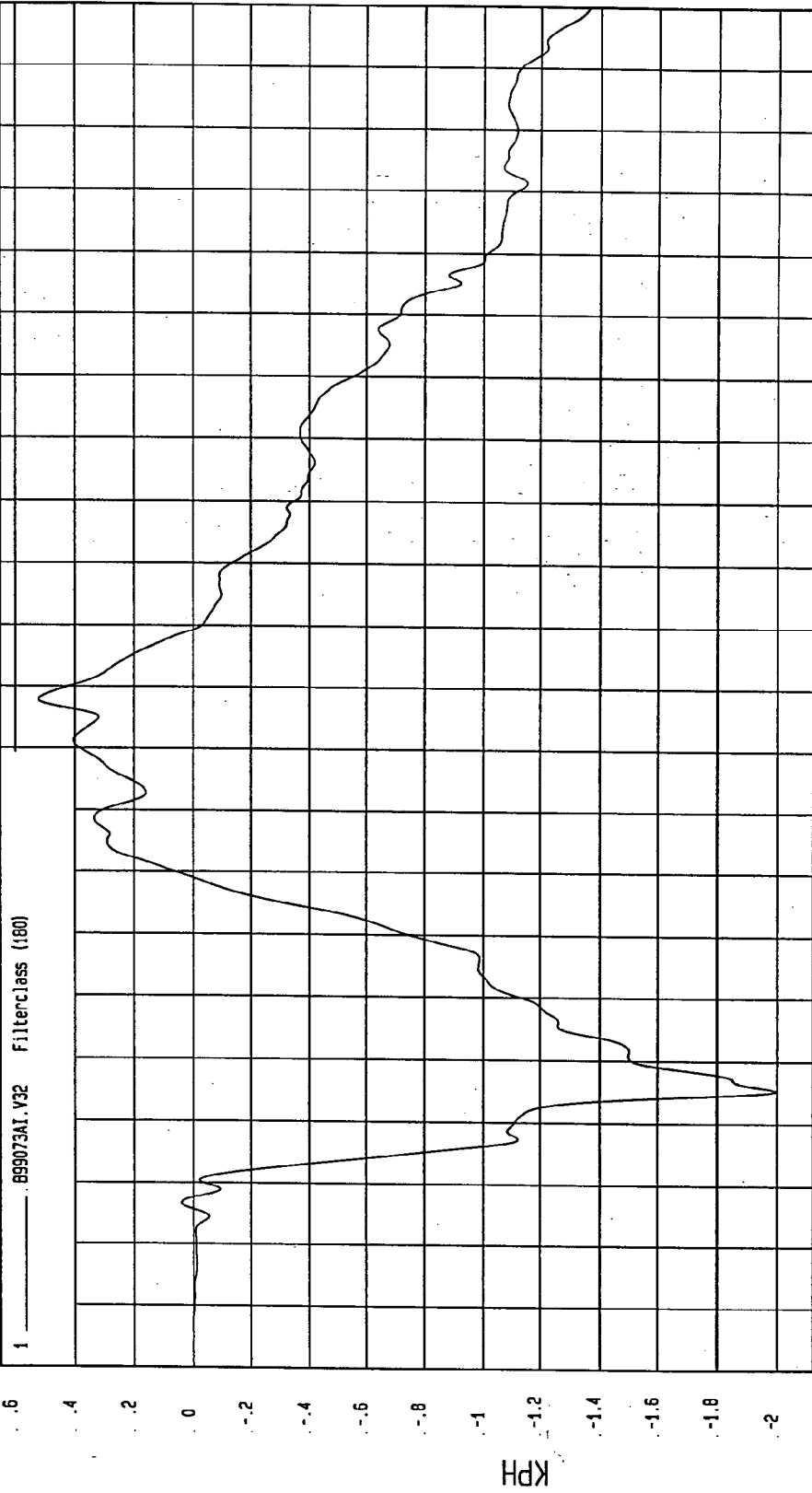
MGA Research
08-16-2000 03:21

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -2 KPH at 25 msec Maximum = .52 KPH at 88 msec

RIGHT SIDE SILL AT FRONT SEAT X VELOCITY



MCA Research
08-16-2000 03:21

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

SPEED: 38.8 MPH 62.4 KPH

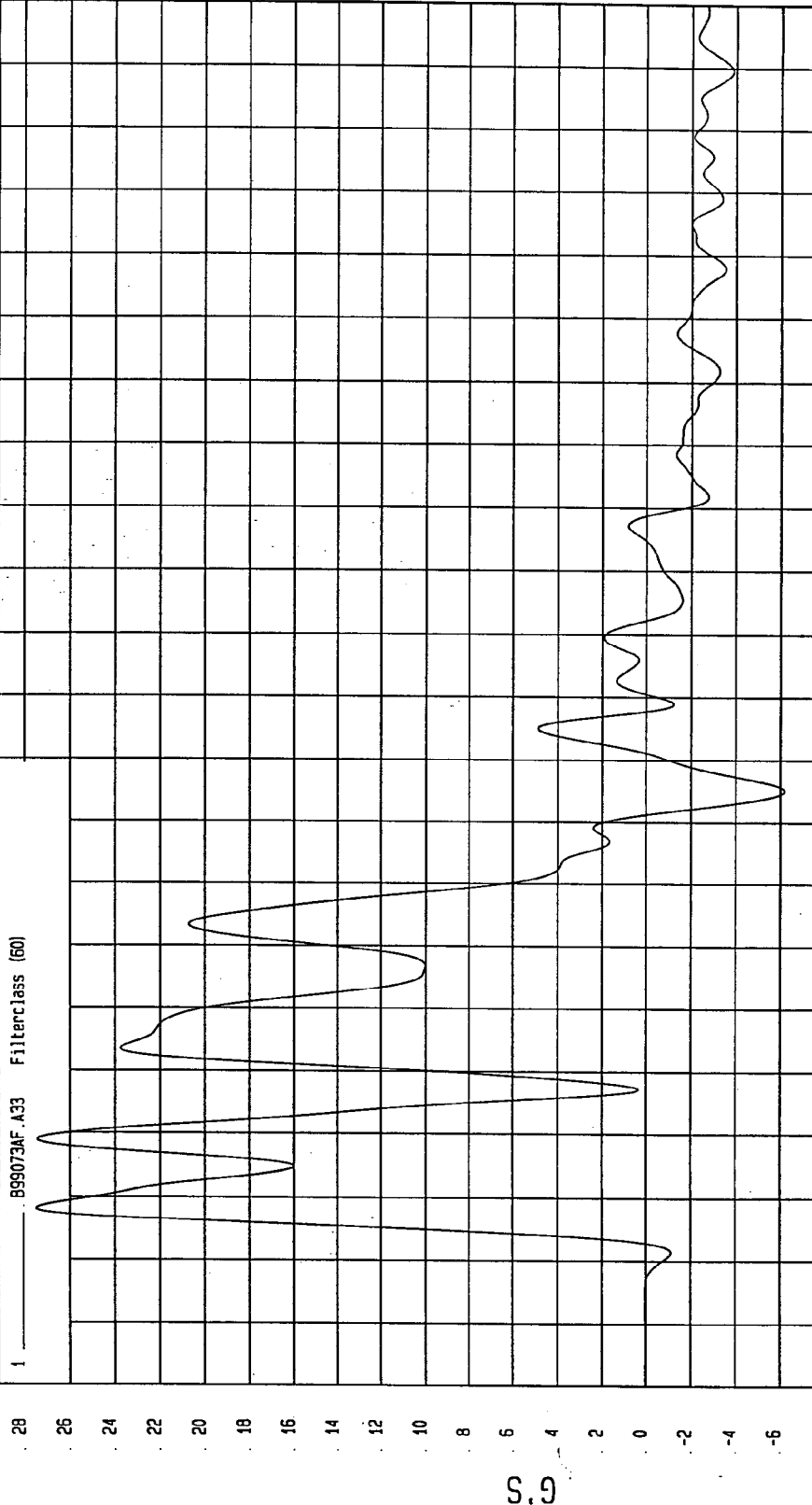
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 27.5 G'S at 8 msec

Minimum = -6.2 G'S at 75 msec

RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION

1 B99073AF.A33 FilterClass (60)



MCA Research
08-16-2000 03:21

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

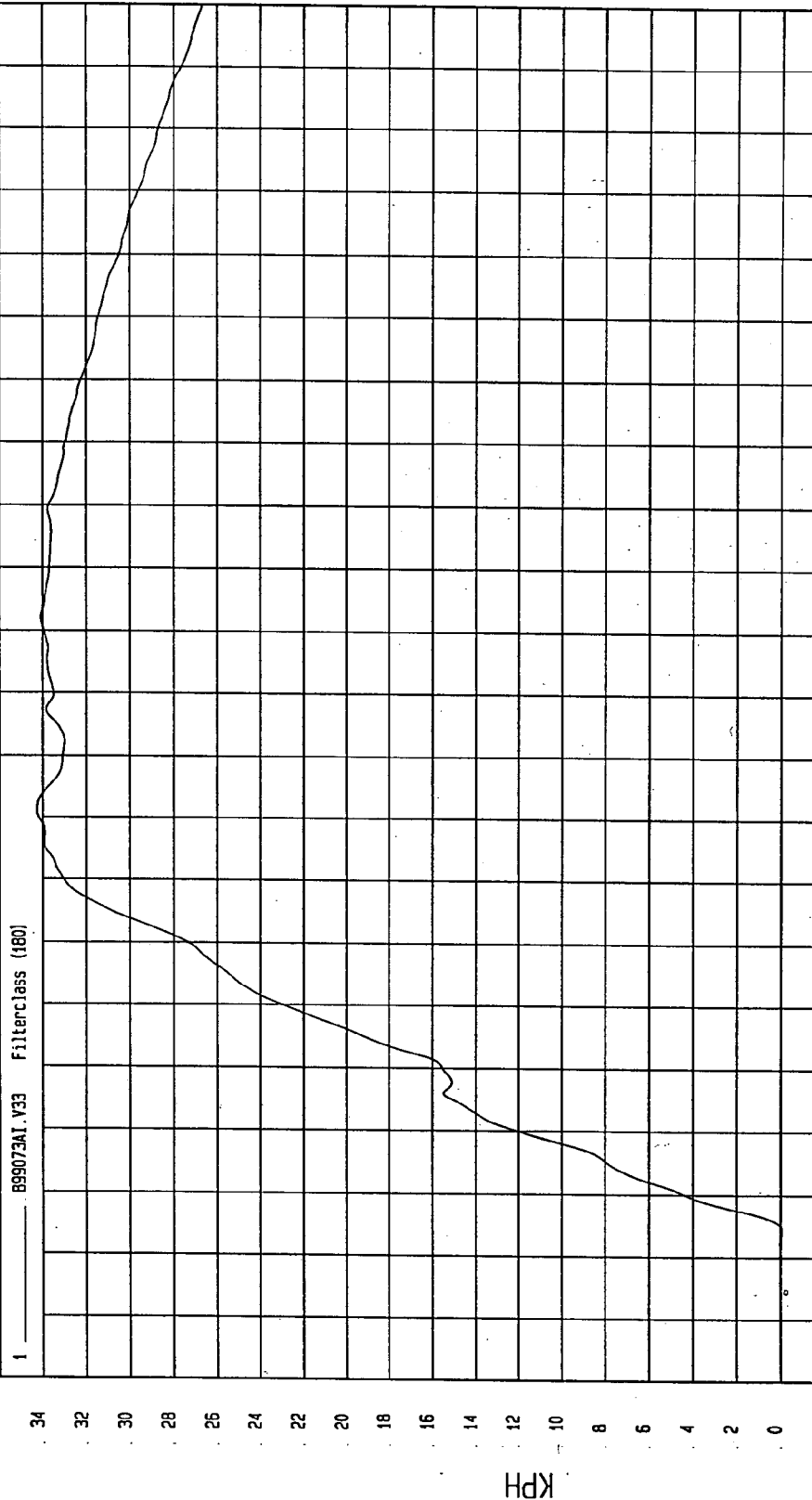
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Speed: 38.8 MPH 62.4 KPH

Minimum = -6.97E-02 KPH at 4 msec

Maximum = 34.26 KPH at 71 msec

RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY



NCA Research
08-16-2000 03:21

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

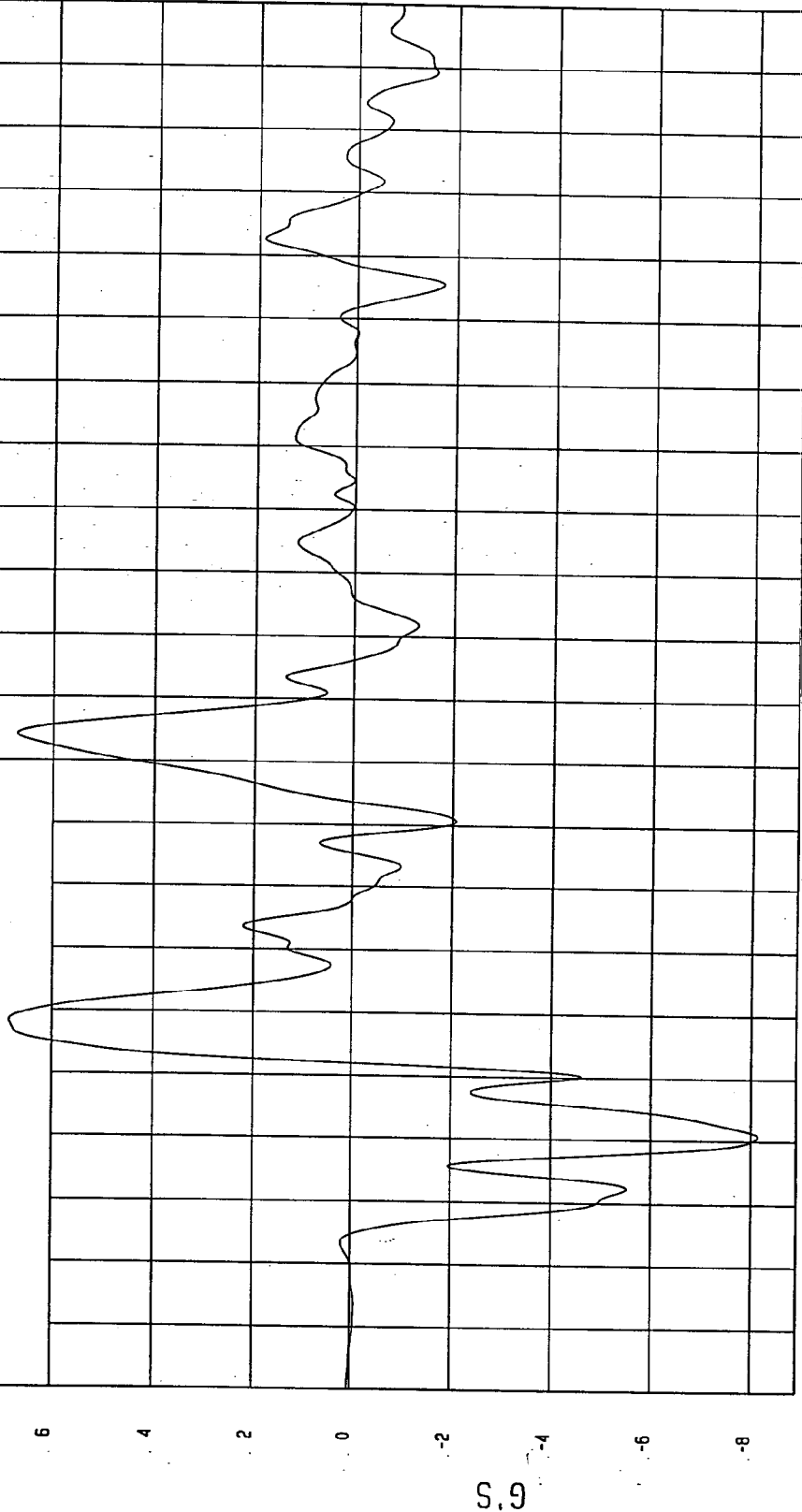
Speed: 38.8 MPH 62.4 KPH

Minimum = -8.14 G'S at 21 msec

Maximum = 6.84 G'S at 38 msec

RIGHT SIDE SILL AT FRONT SEAT Z ACCELERATION

1 899073AF.A34 Filterclass (50)



TIME (SECONDS)

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

6
4
2
0
-2
-4
-6
-8

G's

NGA Research
08-16-2000 03:21

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

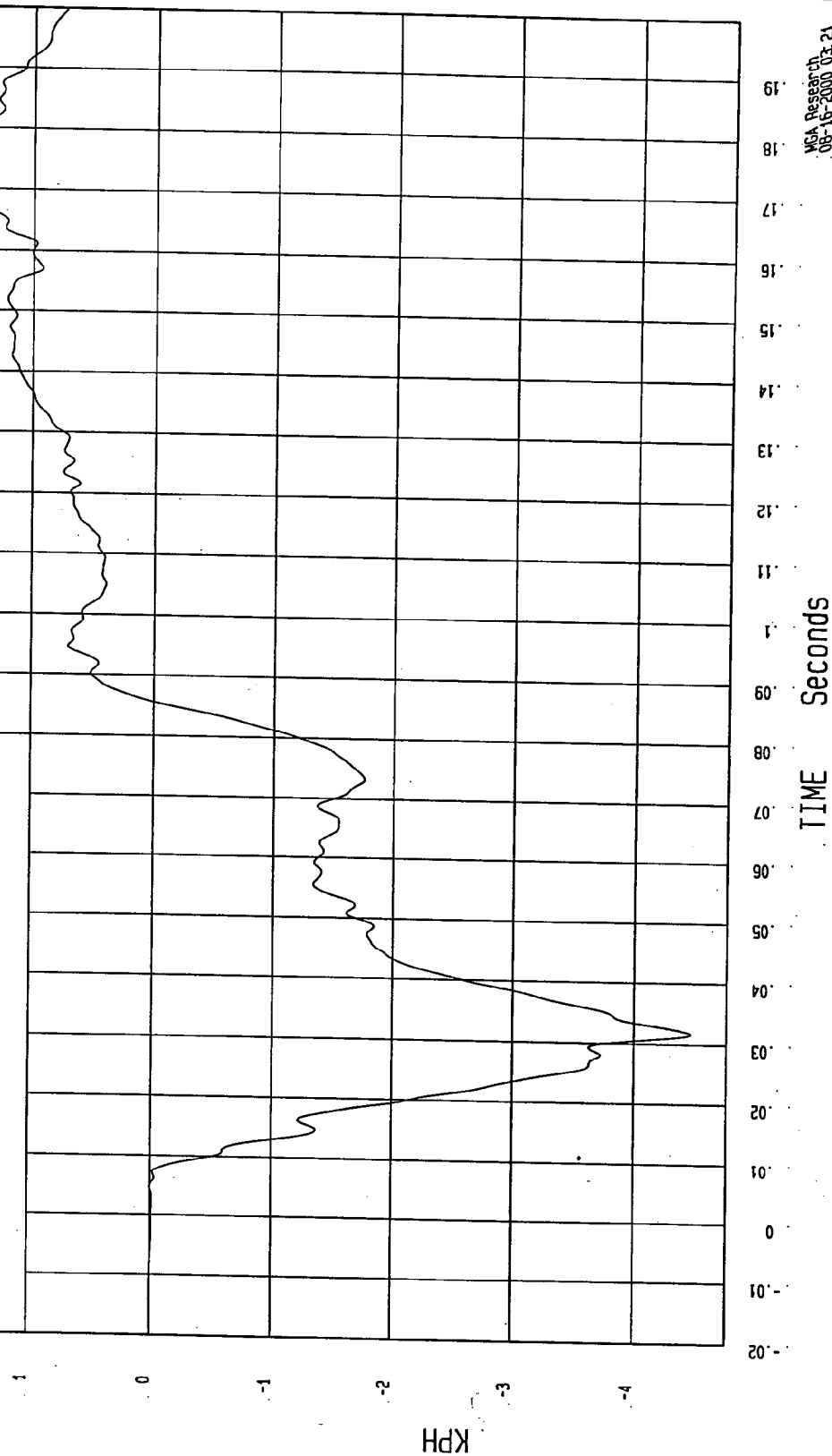
Speed: 38.8 MPH 62.4 KPH

Minimum = -4.47 KPH at 32 msec

Maximum = 1.4 KPH at 171 msec

RIGHT SIDE SILL AT FRONT SEAT Z VELOCITY

1 ——— 899073A1.V34 Filterclass (180)

MCA Research
08-16-2000 03:21

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

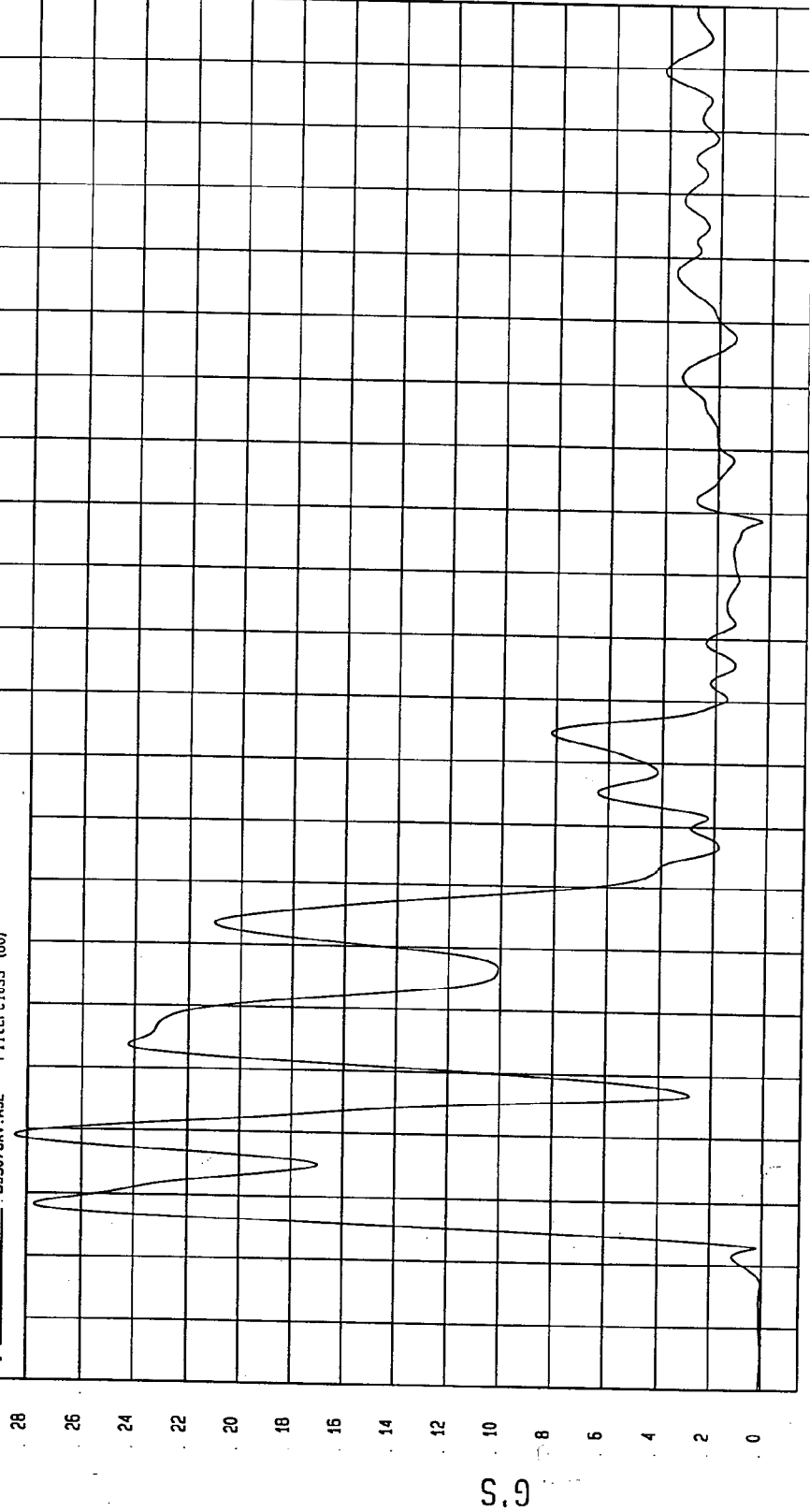
Speed: 38.8 MPH 62.4 KPH

Minimum = 1.62E-02 G'S at -14 msec

Maximum = 28.44 G'S at 19 msec

RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION

1 ——— B99073AV.A32 Filterclass (60)



NCA Research
08-16-2000 03:21

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 4.35 G'S at 14 msec

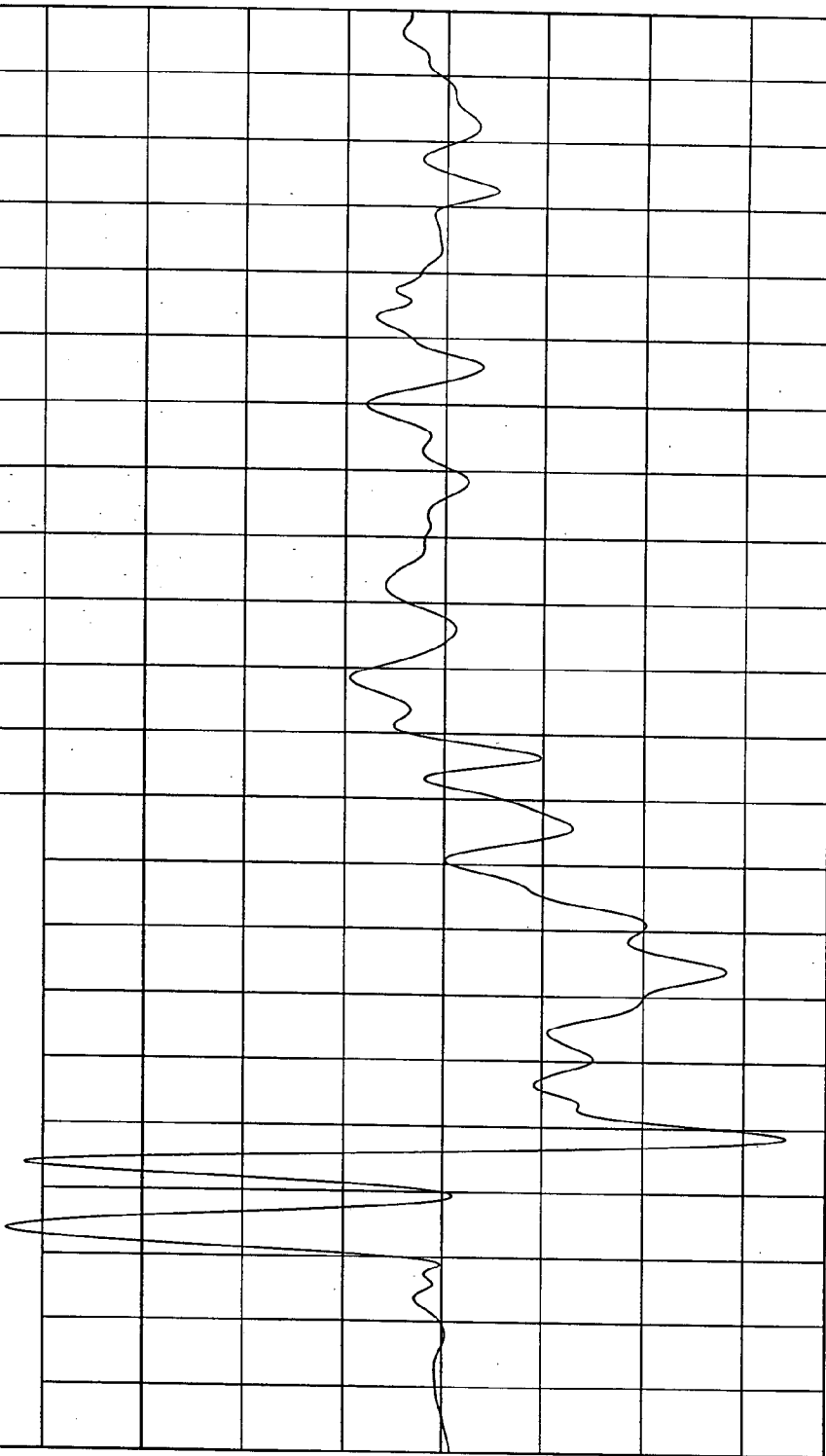
Minimum = -3.42 G'S at 29 msec

RIGHT SIDE SILL AT REAR SEAT X ACCELERATION

FilterClass (60)

899073AF.A35

1



WCA Research
06-16-2000 03:21

TIME (SECONDS)

G'S

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

SPEED: 38.8 MPH 62.4 KPH

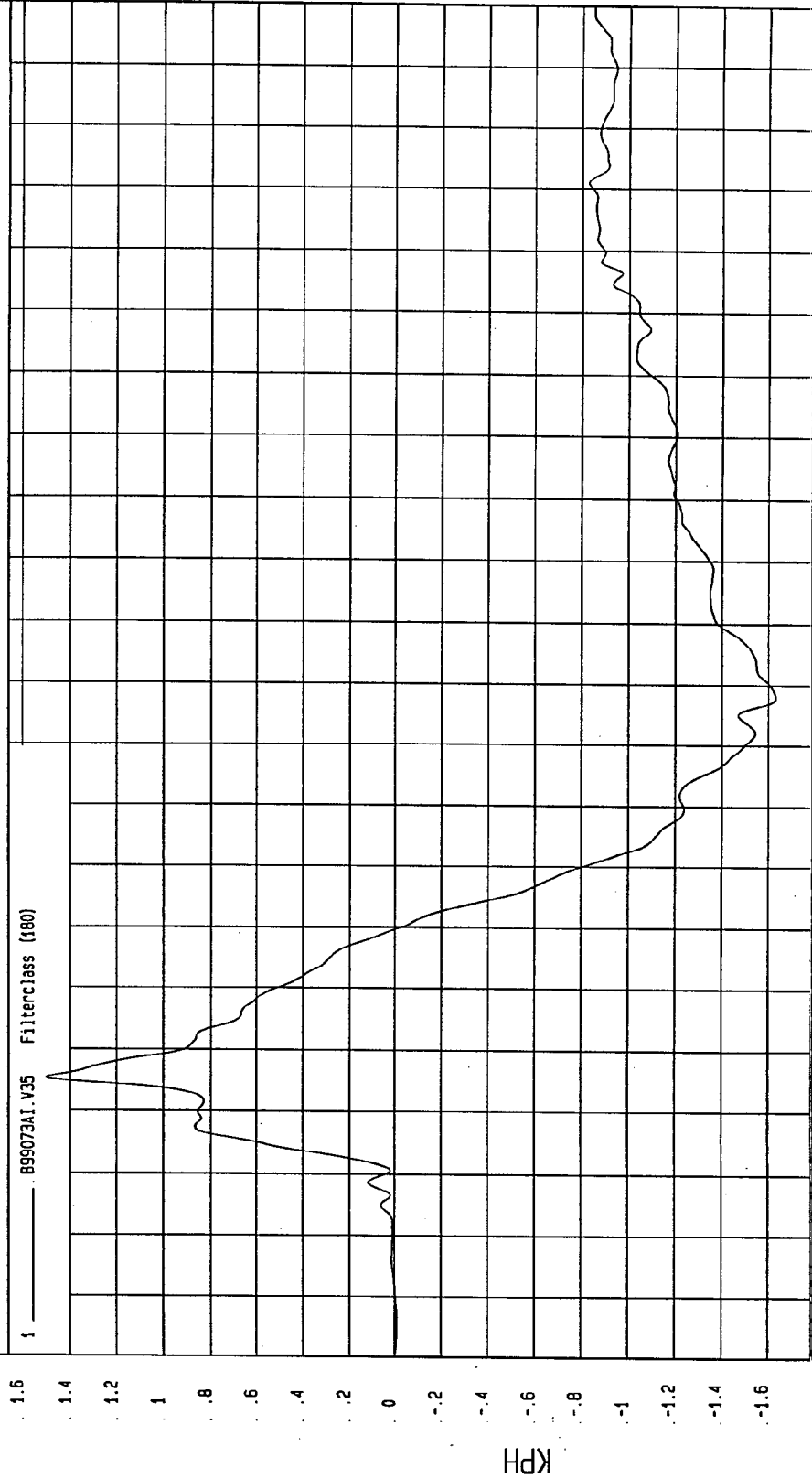
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 1.5 KPH at 25 msec

Minimum = -1.63 KPH at 88 msec

RIGHT SIDE SILL AT REAR SEAT X VELOCITY

1 899073A1.V35 Filterclass (180)



MGA Research
08-16-2000 03:21

TIME Seconds

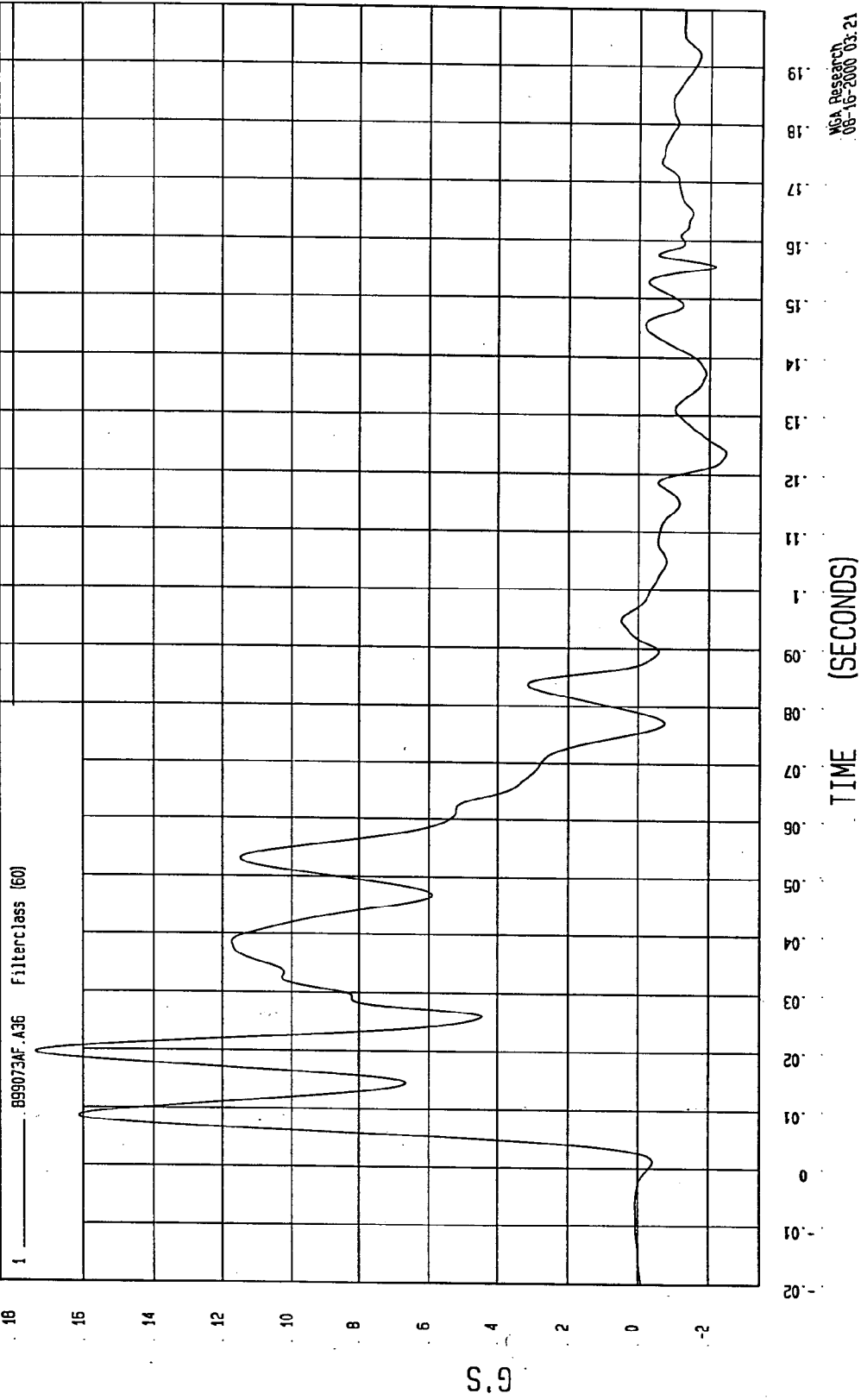
KPH

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -2.49 G'S at 124 msec Maximum = 17.39 G'S at 20 msec

RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

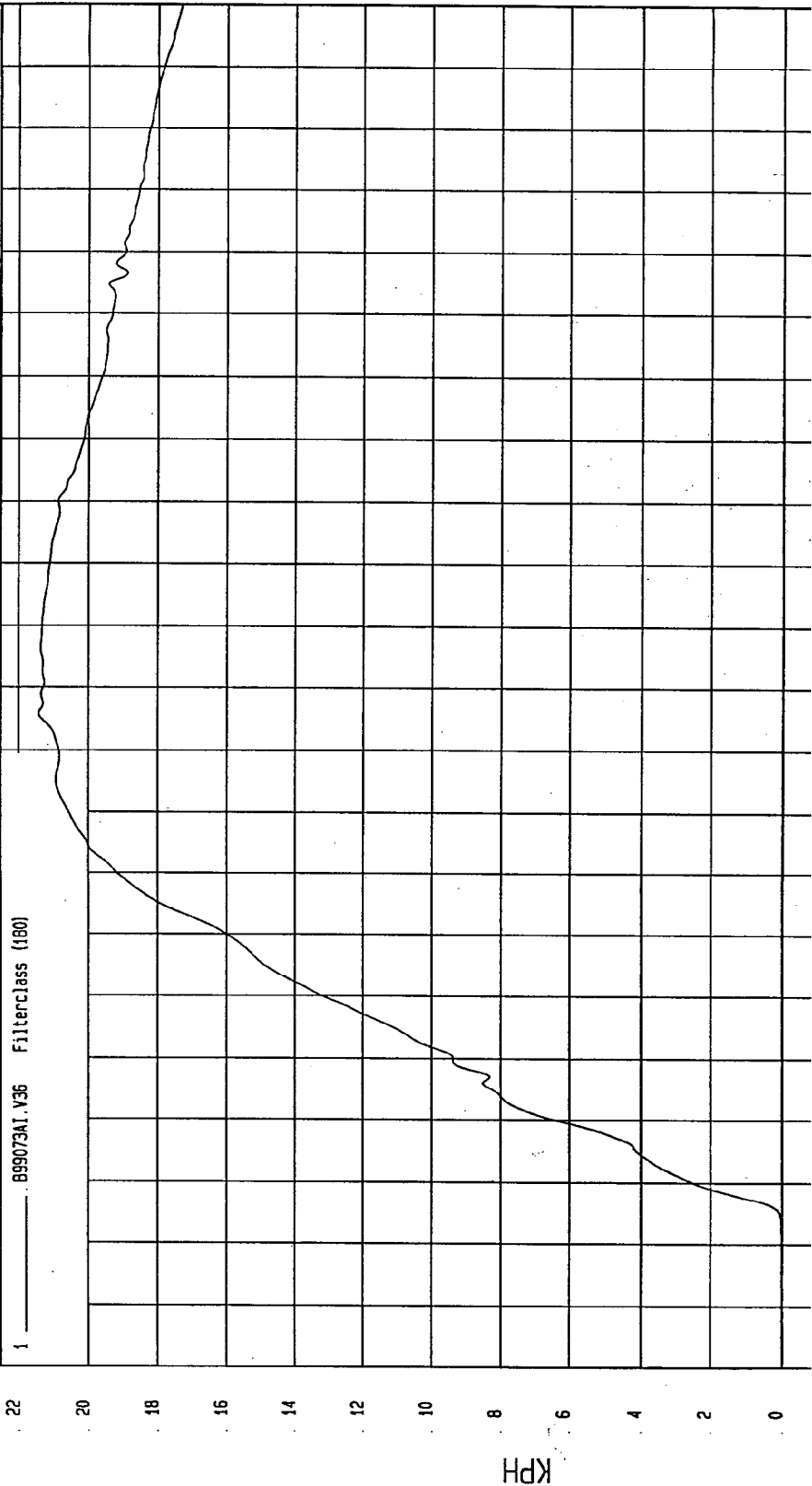
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 21.44 KPH at 86 msec

Minimum = -7.91E-03 KPH at -14 msec

RIGHT SIDE SILL AT REAR SEAT Y VELOCITY

1 B99073A1.V36 Filterclass (180)

MCA Research
08-15-2000 03:21

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

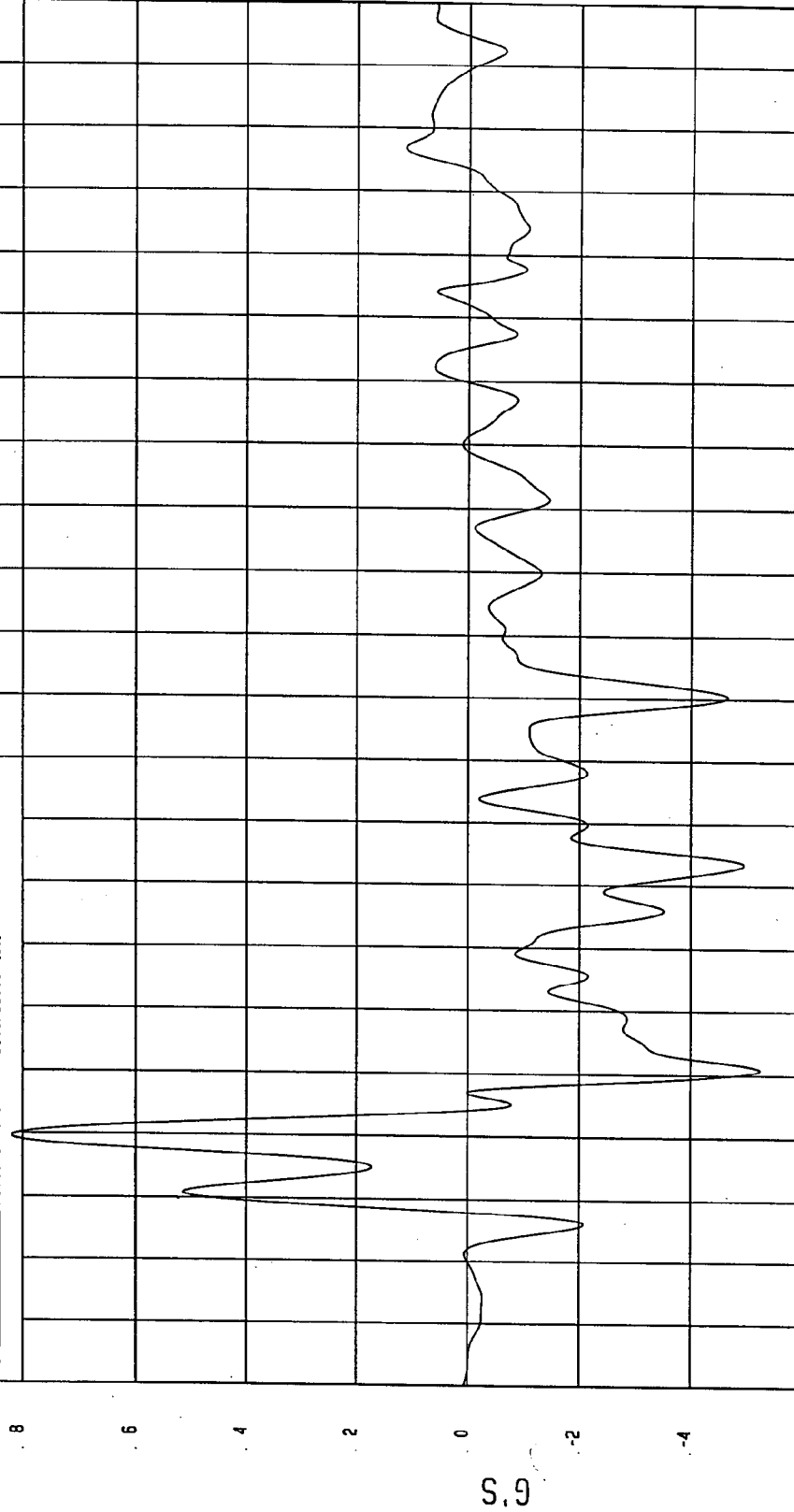
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 8.2 G's at 20 msec

Minimum = -5.23 G's at 31 msec

RIGHT SIDE SILL AT REAR SEAT Z ACCELERATION

1 899073AF.A37 Filterclass (60)

MGA Research
08-16-2000 03:21

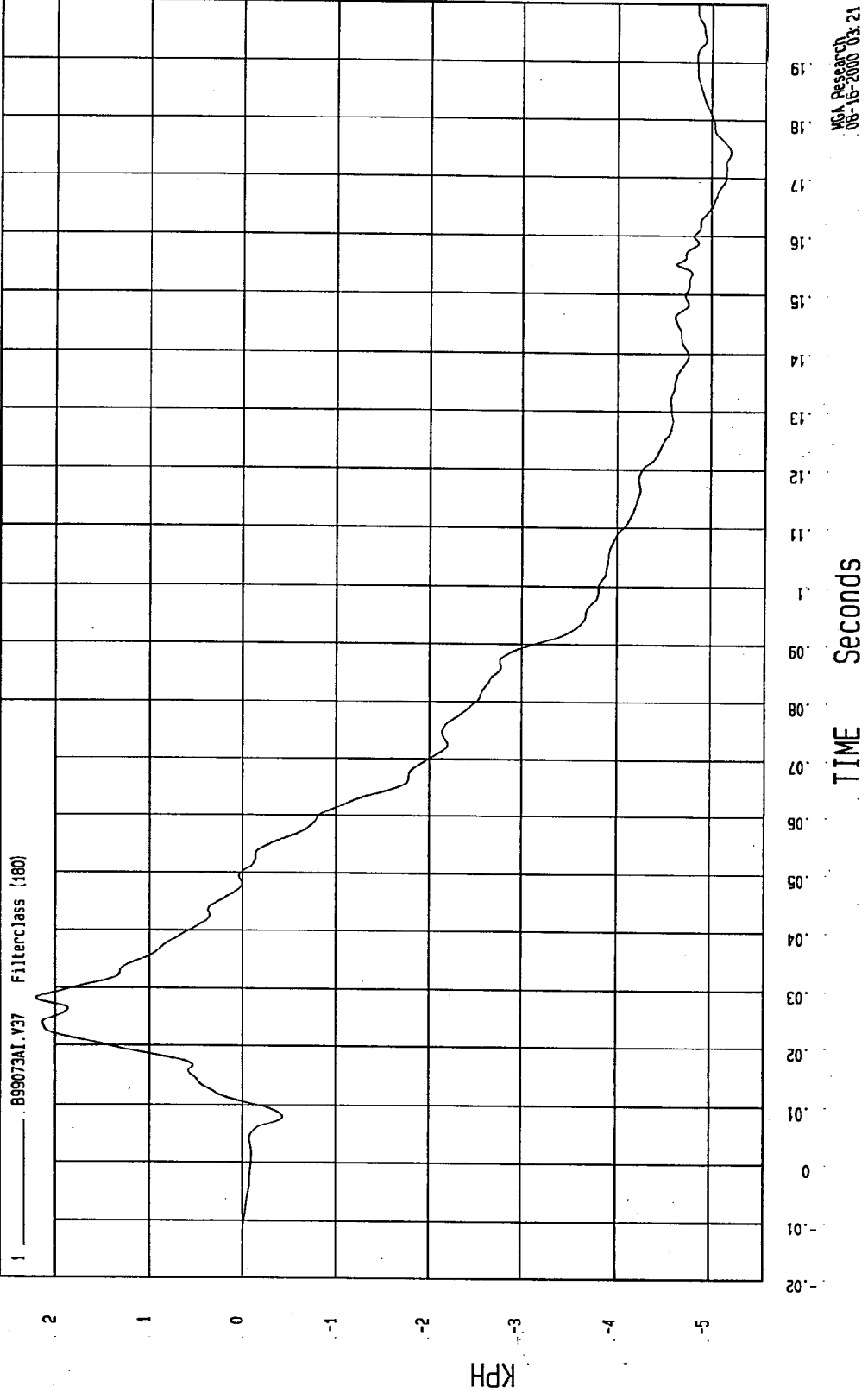
TIME (SECONDS)

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -5.21 KPH at 174 msec Maximum = 2.21 KPH at 28 msec

RIGHT SIDE SILL AT REAR SEAT Z VELOCITY



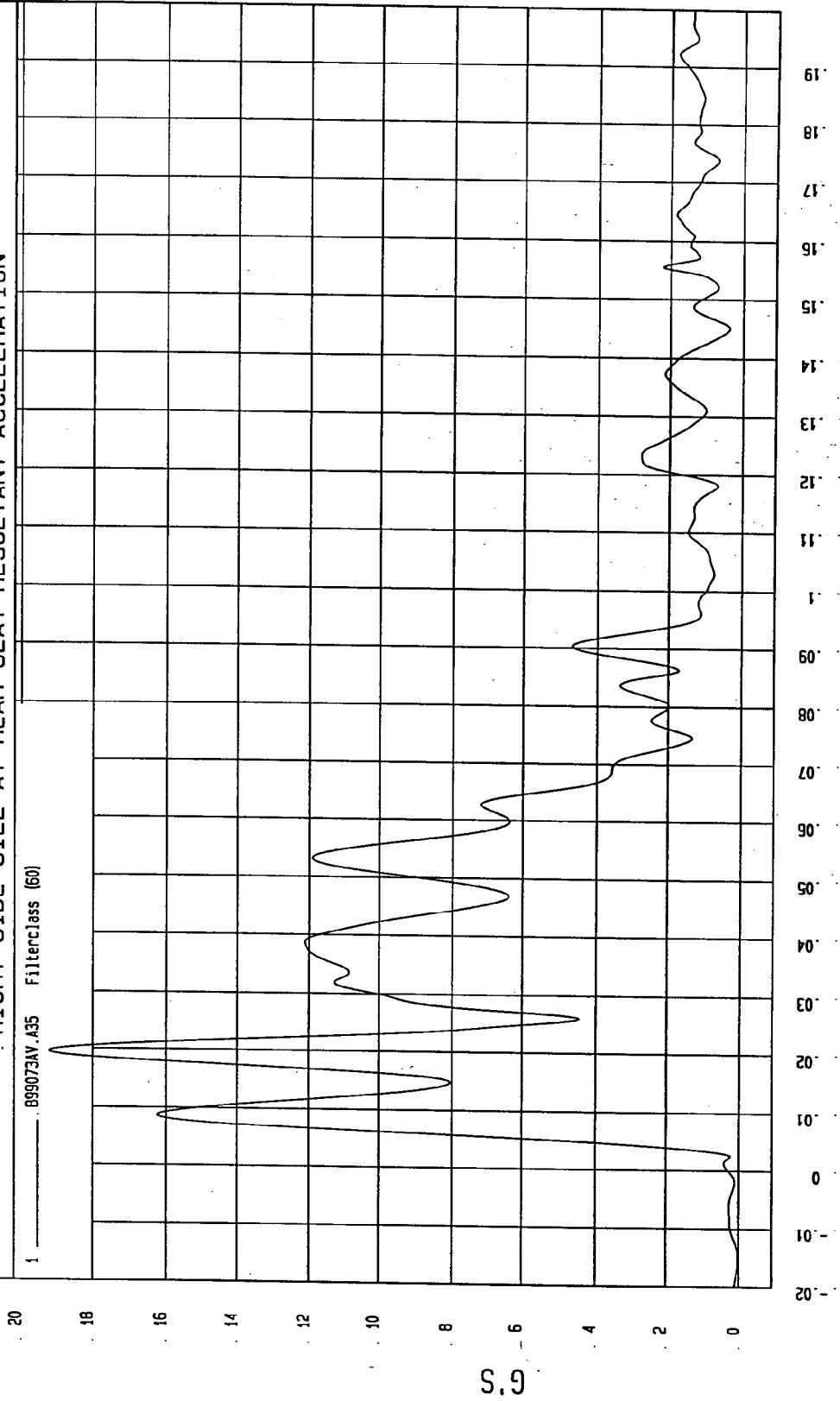
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = 1.98E-02 G'S at -15 msec
Maximum = 19.22 G'S at 20 msec

RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION

1 899073AV A35 FilterClass (60)



WCA Research
08-16-2000 03:21

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

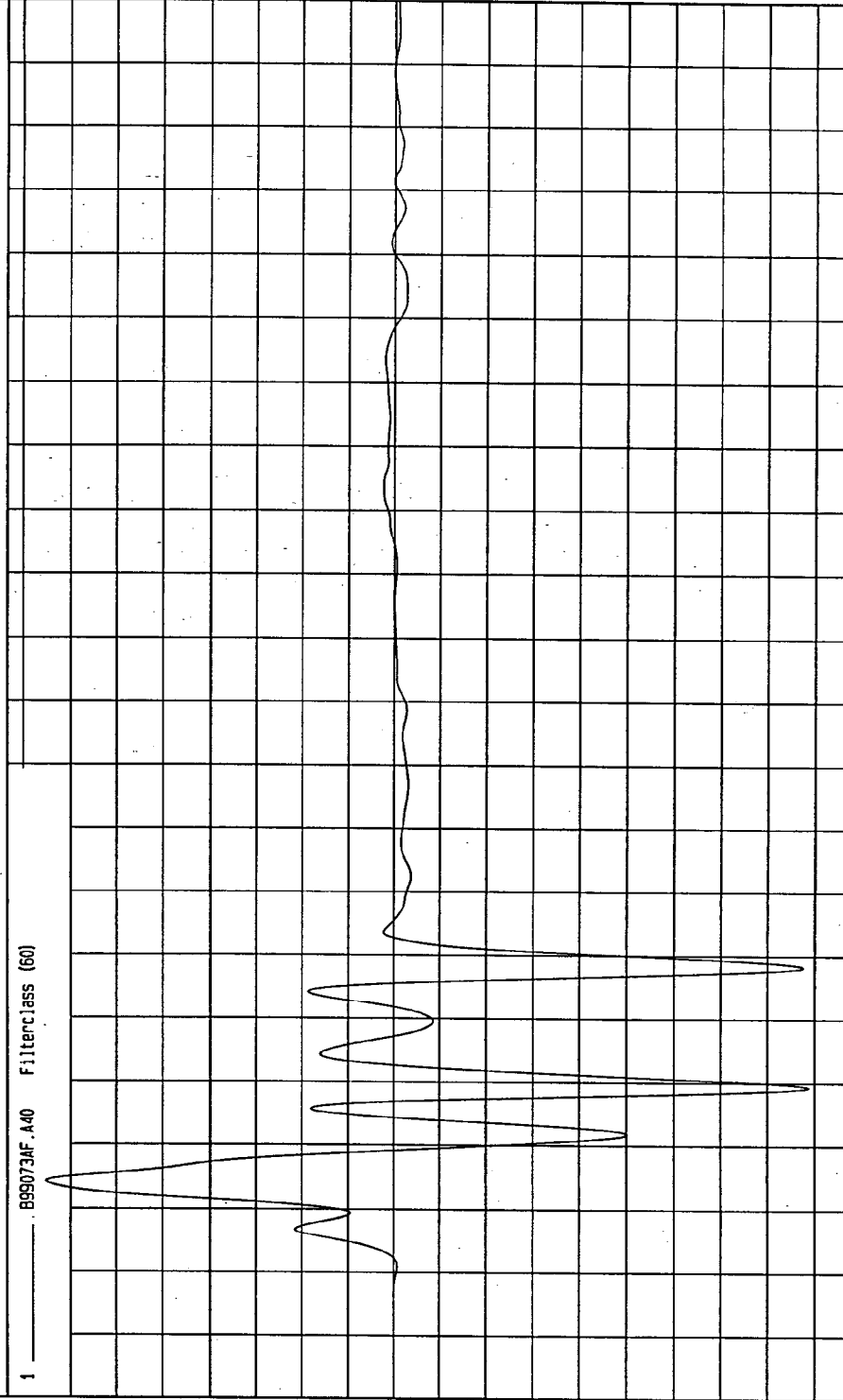
COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -177.47 G'S at 29 msec
Maximum = 150.41 G'S at 14 msec

DRIVER SEAT TRACK Y ACCELERATION

1 _____ B99073AF.A40 FilterClass (60)

G.S

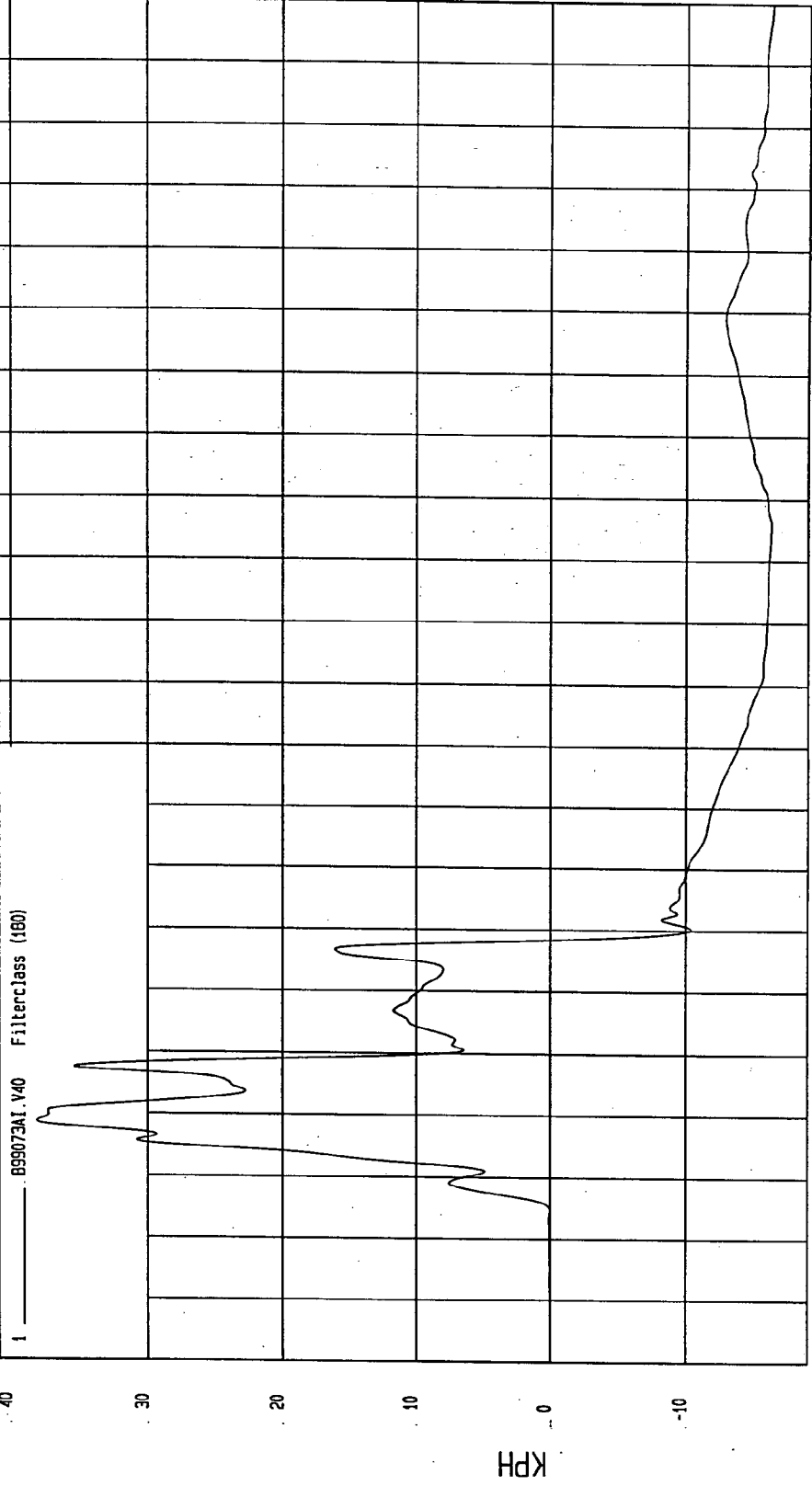


TIME (SECONDS)

WCA Research
08-16-2000 03:21

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH
Minimum = -16.36 KPH at 116 msec Maximum = 38.14 KPH at 19 msec

DRIVER SEAT TRACK Y VELOCITY



TIME Seconds

NSA Research
08-16-2000 03:21

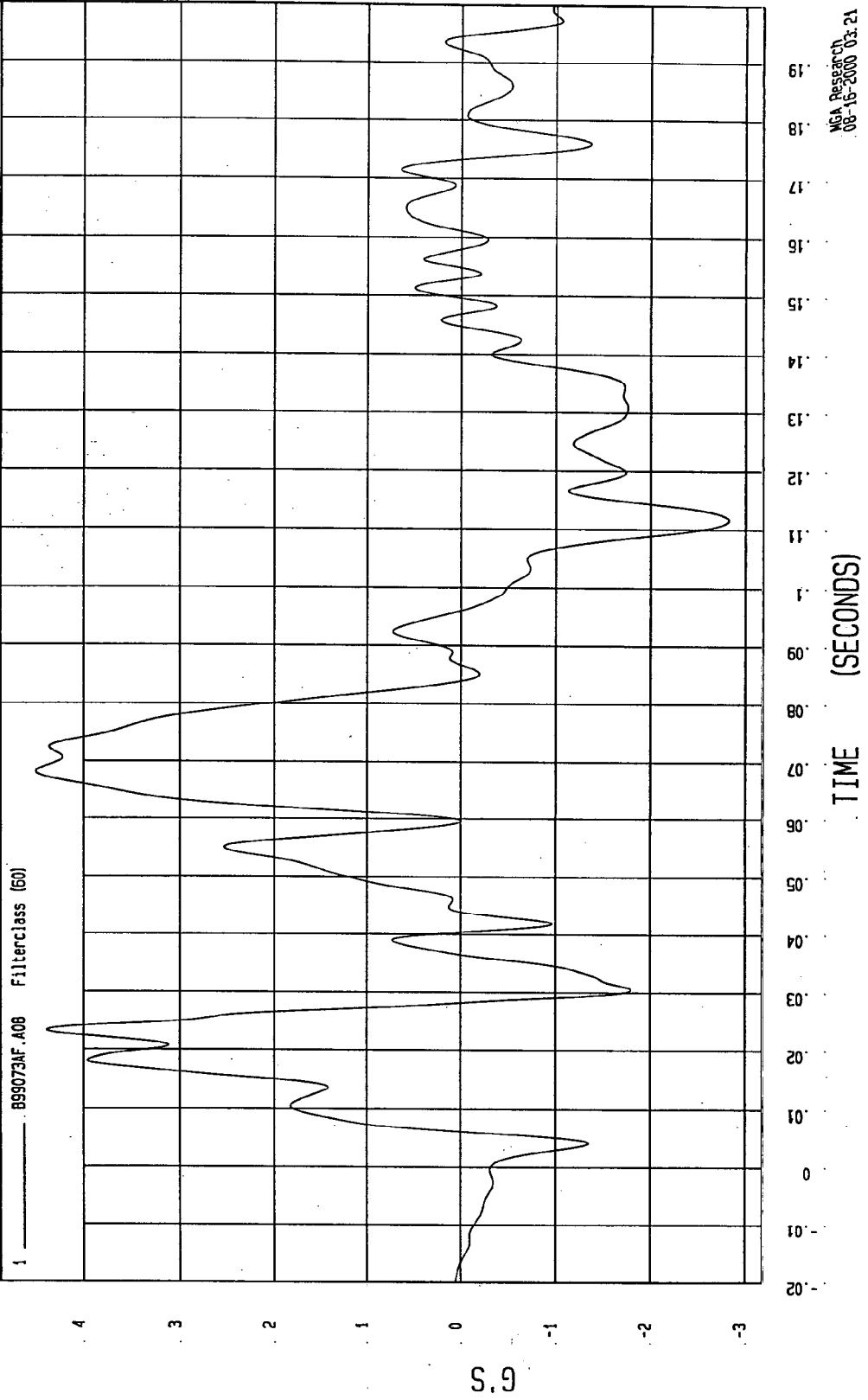
TEST: HIGH SPEED LATERAL IMPACT

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 4.51 G'S at 60 msec

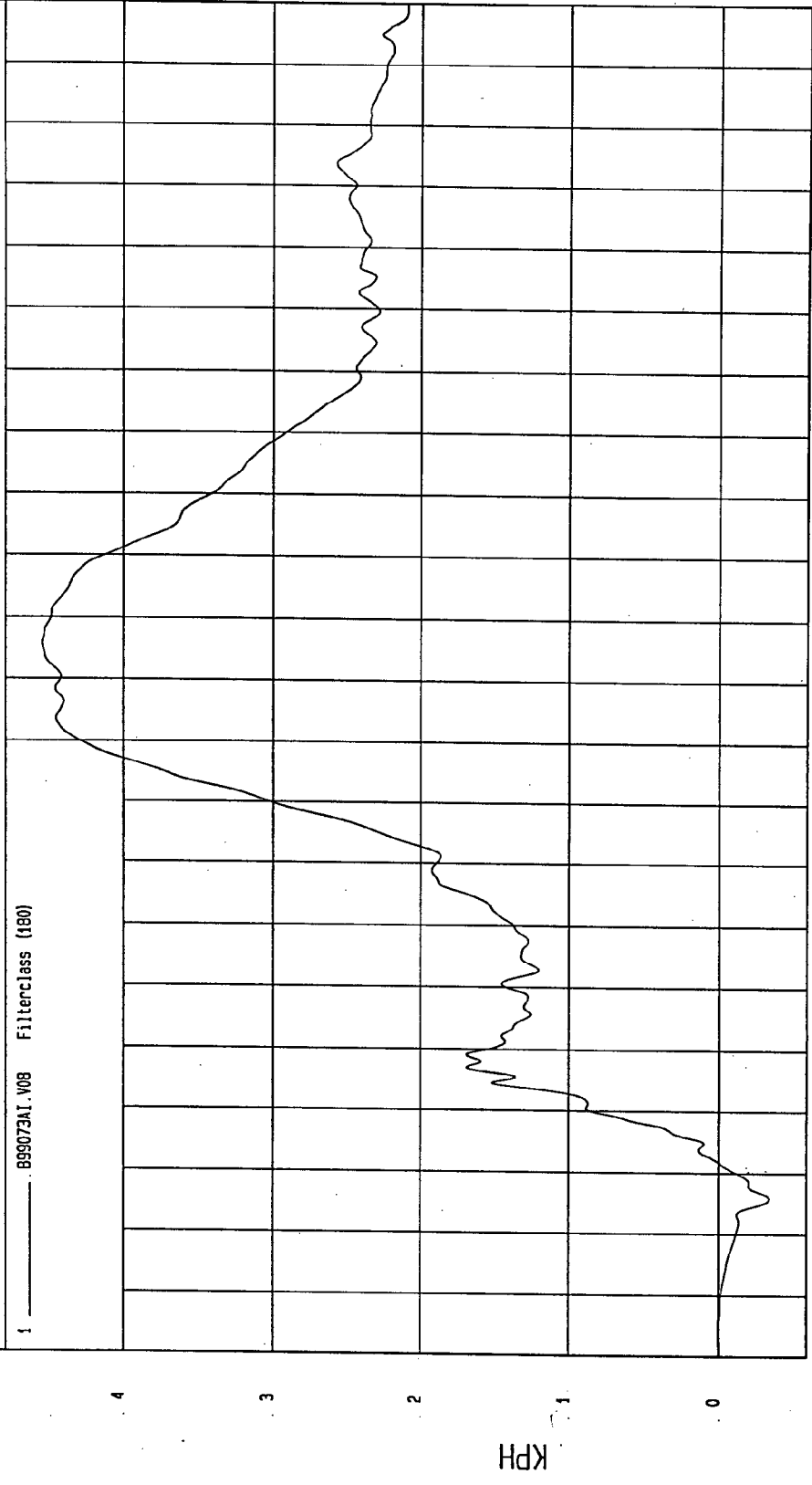
Minimum = -2.82 G'S at 112 msec

REAR FLOORPAN ABOVE AXLE X ACCELERATION



TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH
Minimum = -.35 KPH at 6 msec Maximum = 4.53 KPH at 96 msec

REAR FLOORPAN ABOVE AXLE X VELOCITY



TIME Seconds

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

KPH

4
3
2
1
0

MOA Research
06-16-2000 03:21

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

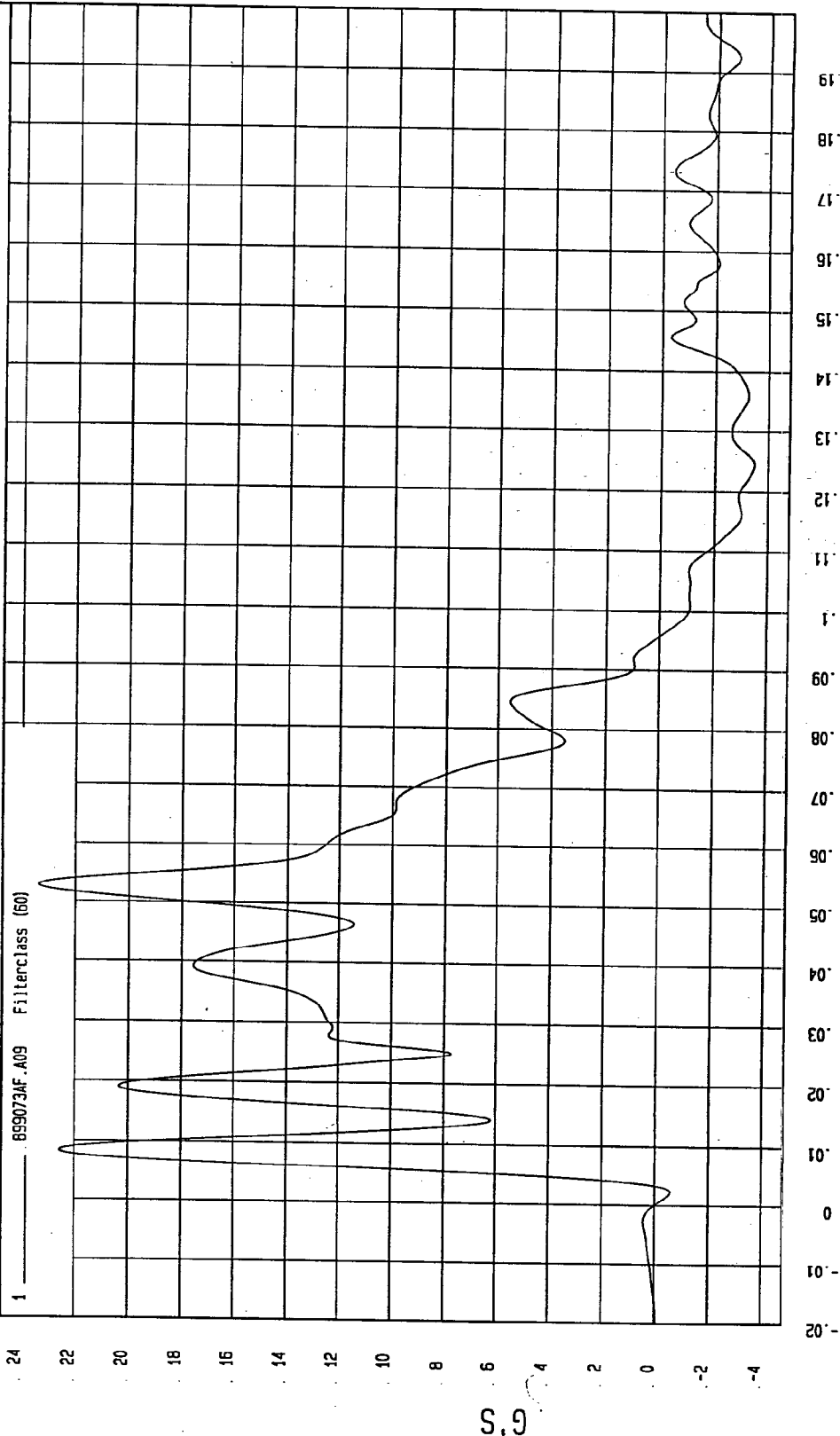
Speed: 38.8 MPH 62.4 KPH

Minimum = -3.48 G'S at 124 msec

Maximum = 23.38 G'S at 53 msec

REAR FLOORPAN ABOVE AXLE Y ACCELERATION

1 — 899073AF.A09 Filterclass (50)

MCA Research
08-18-2000 08:17

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

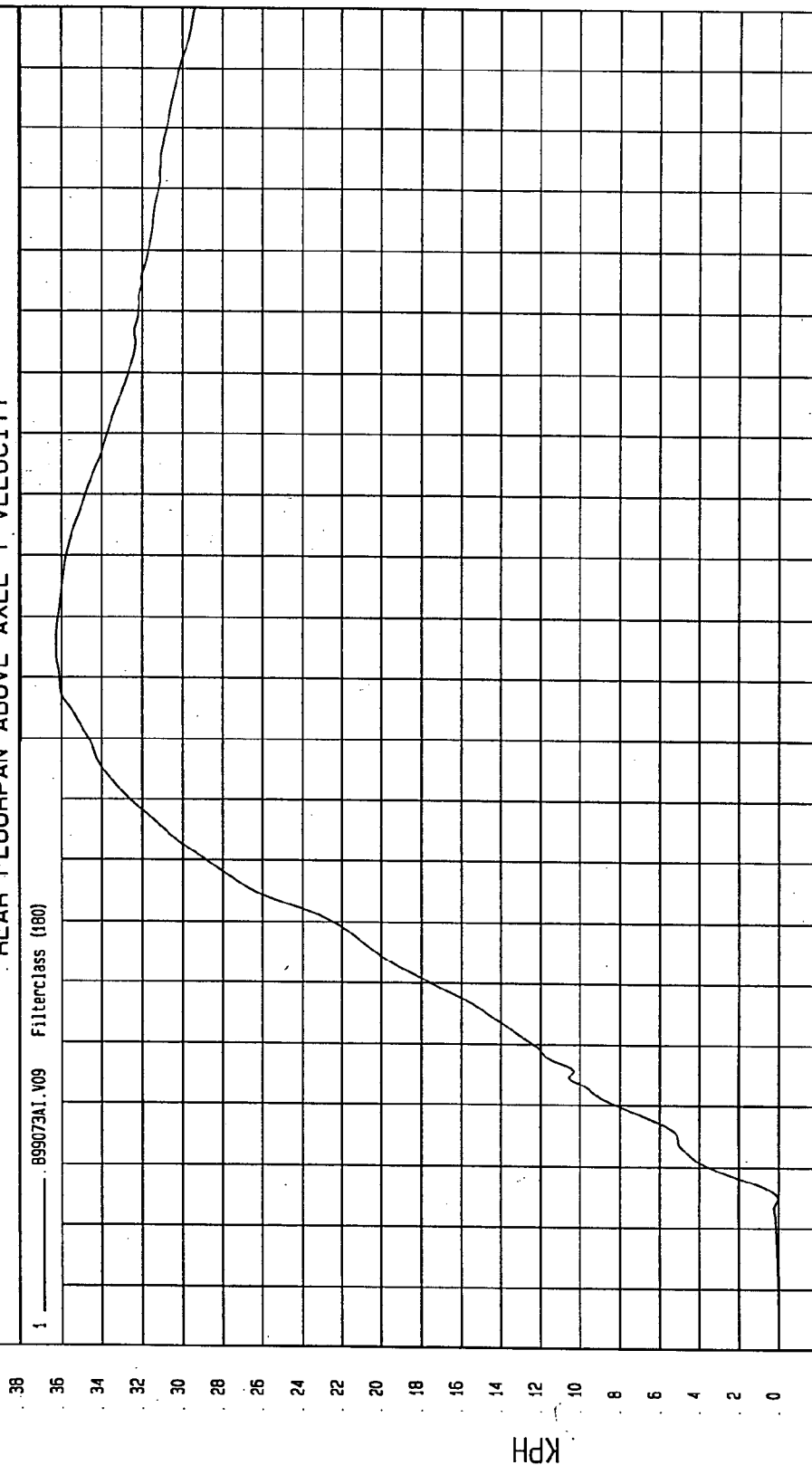
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 36.28 KPH at 96 msec

Minimum = -5.18E-03 KPH at -16 msec

REAR FLOORPAN ABOVE AXLE Y VELOCITY

1 899073A1.V09 Filterclass (180)

NCA Research
08-18-2000 08:17

TIME Seconds

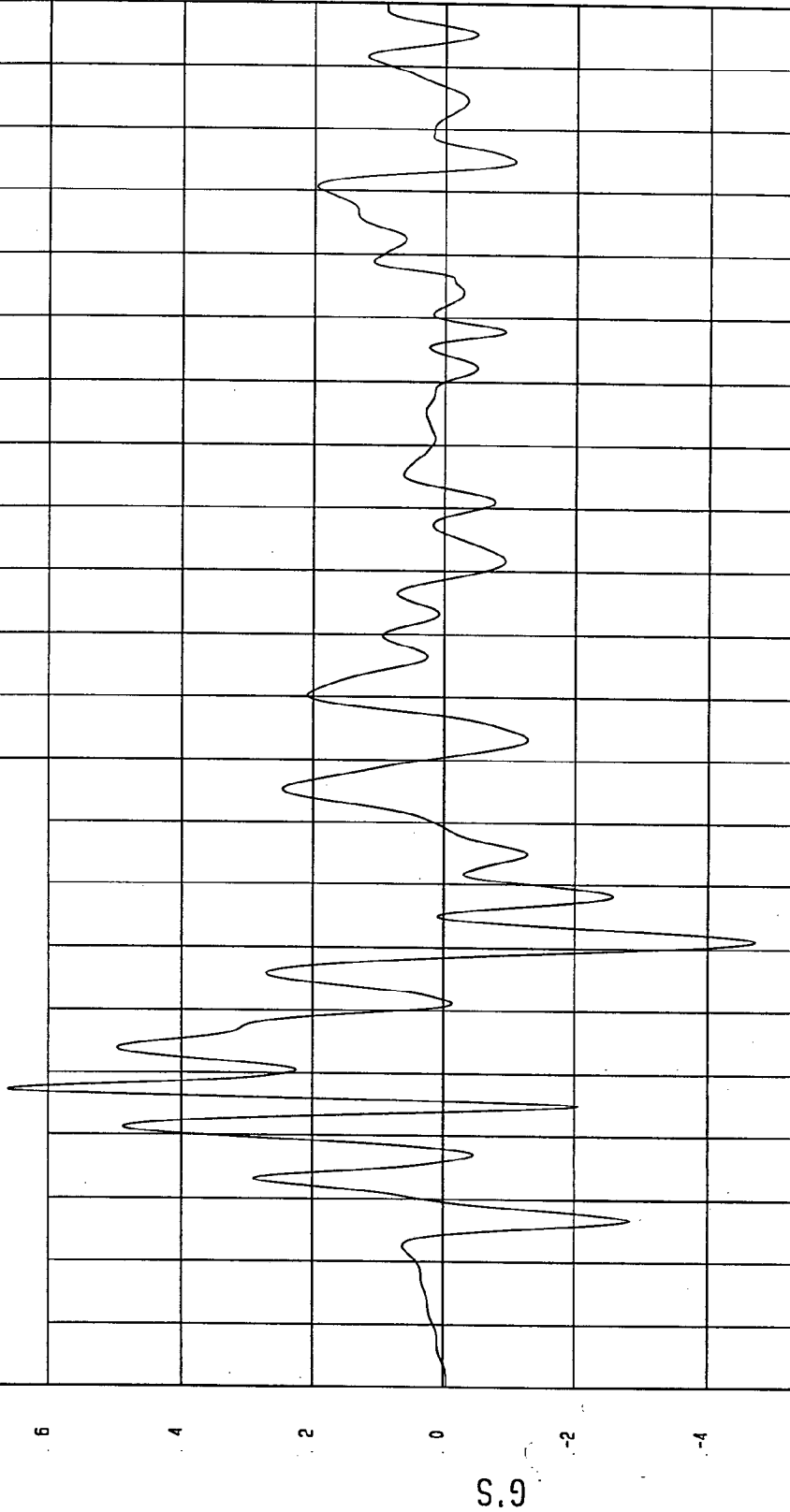
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -4.73 G'S at 51 msec Maximum = 6.61 G'S at 27 msec

REAR FLOORPAN ABOVE AXLE Z ACCELERATION

1 899073AF.A10 Filterclass (60)



TIME (SECONDS)

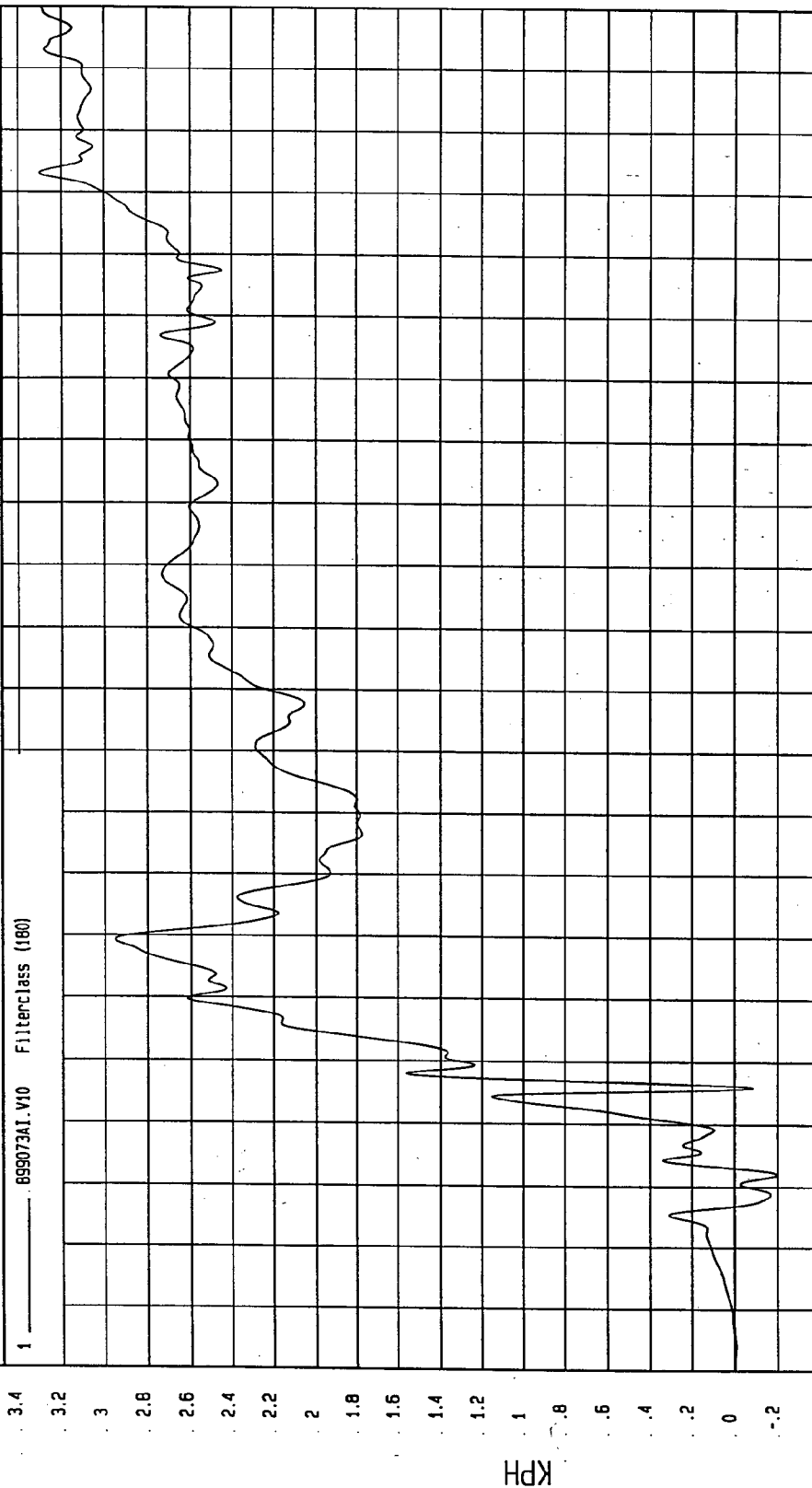
MOA Research
06-16-2000 03:22

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -2 KPH at 12 msec Maximum = 3.3 KPH at 173 msec

REAR FLOORPAN ABOVE AXLE Z VELOCITY



WCA Research
08-16-2000 03:22

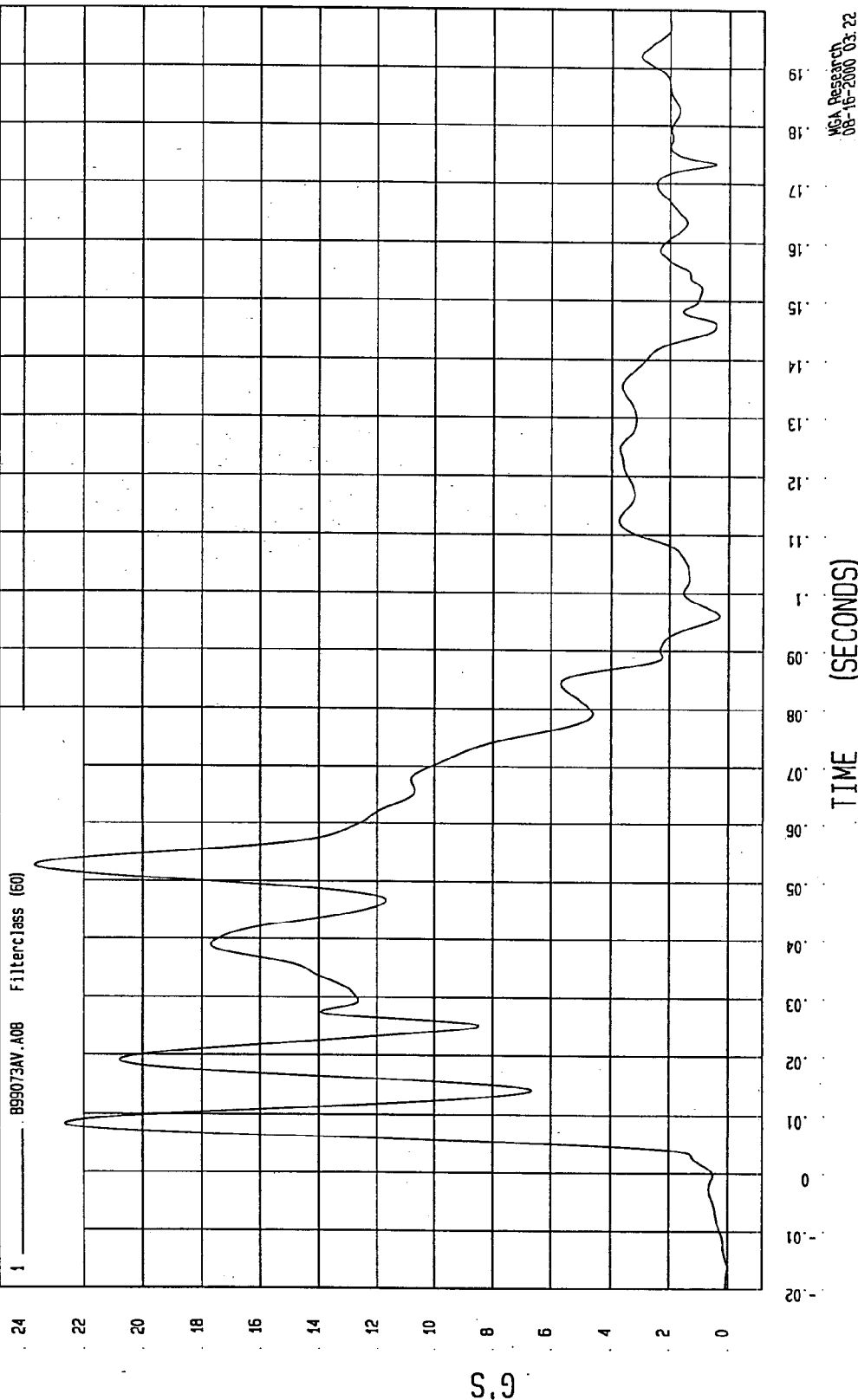
TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = 1.14E-02 G'S at -16 msec Maximum = 23.65 G'S at 53 msec

REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION



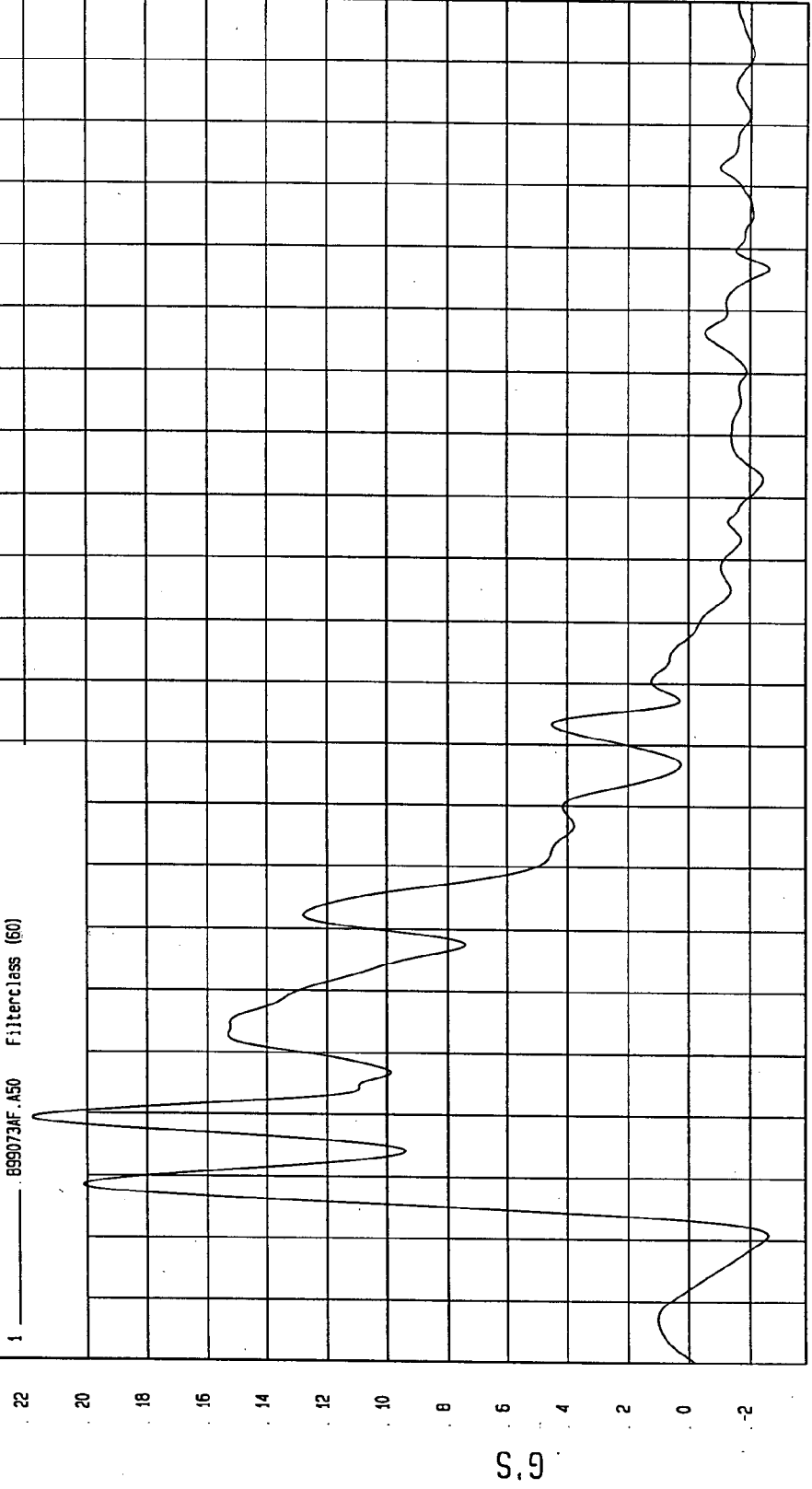
MCA Research
08-16-2000 03:22

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -2.63 G'S at 157 msec Maximum = 21.8 G'S at 19 msec

RIGHT REAR OCCUPANT COMPARTMENT Y ACCELERATION



TIME (SECONDS)

WCA Research
08-18-2000 08:17

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

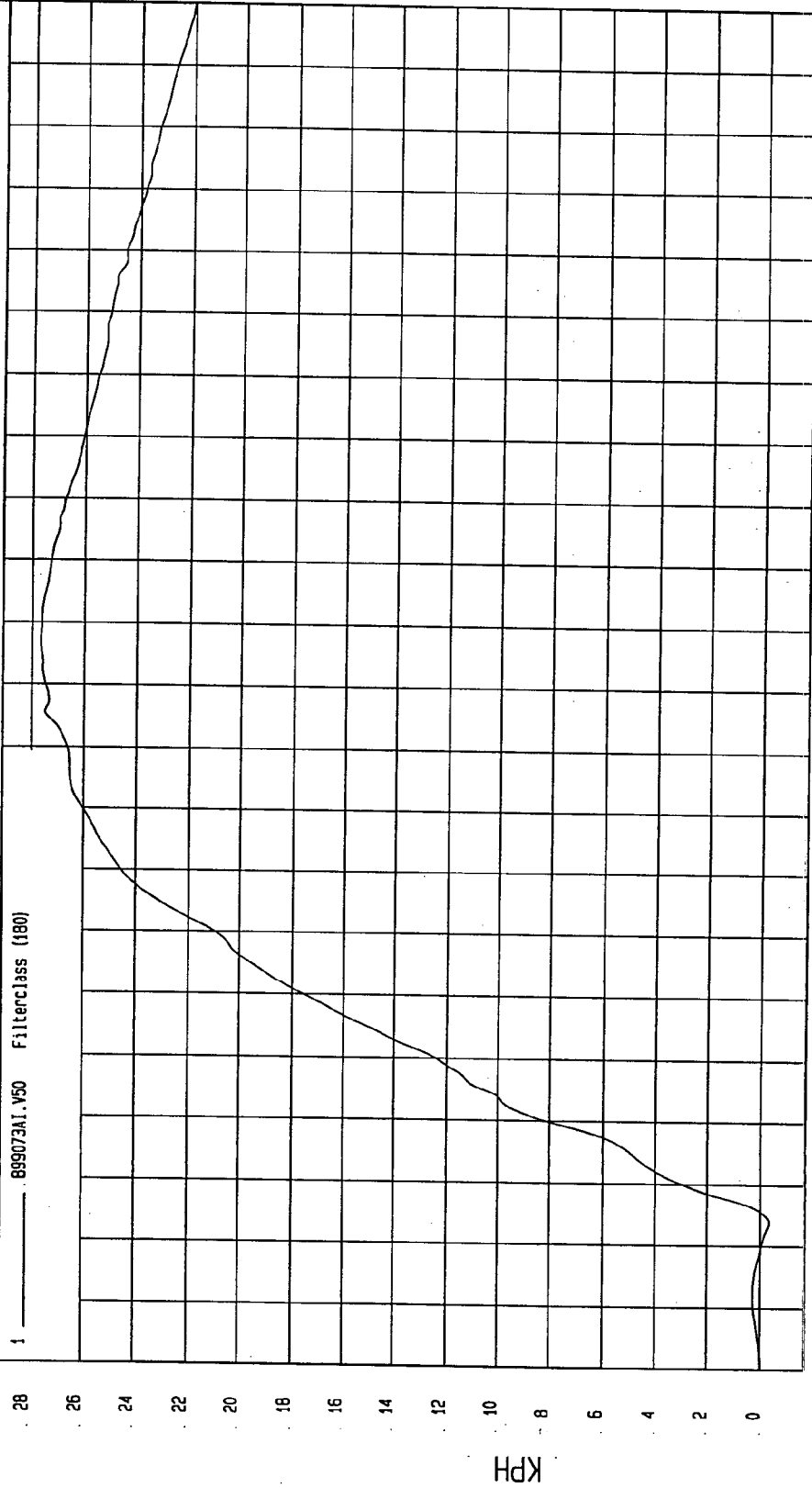
Speed: 38.8 MPH 62.4 KPH

Minimum = -.35 KPH at 4 msec

Maximum = 27.67 KPH at 97 msec

RIGHT REAR OCCUPANT COMPARTMENT Y VELOCITY

1 ——— B99073A1.V50 Filterclass (180)



NSA Research
08-16-2000 08:17

TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

SPEED: 38.8 MPH 62.4 KPH

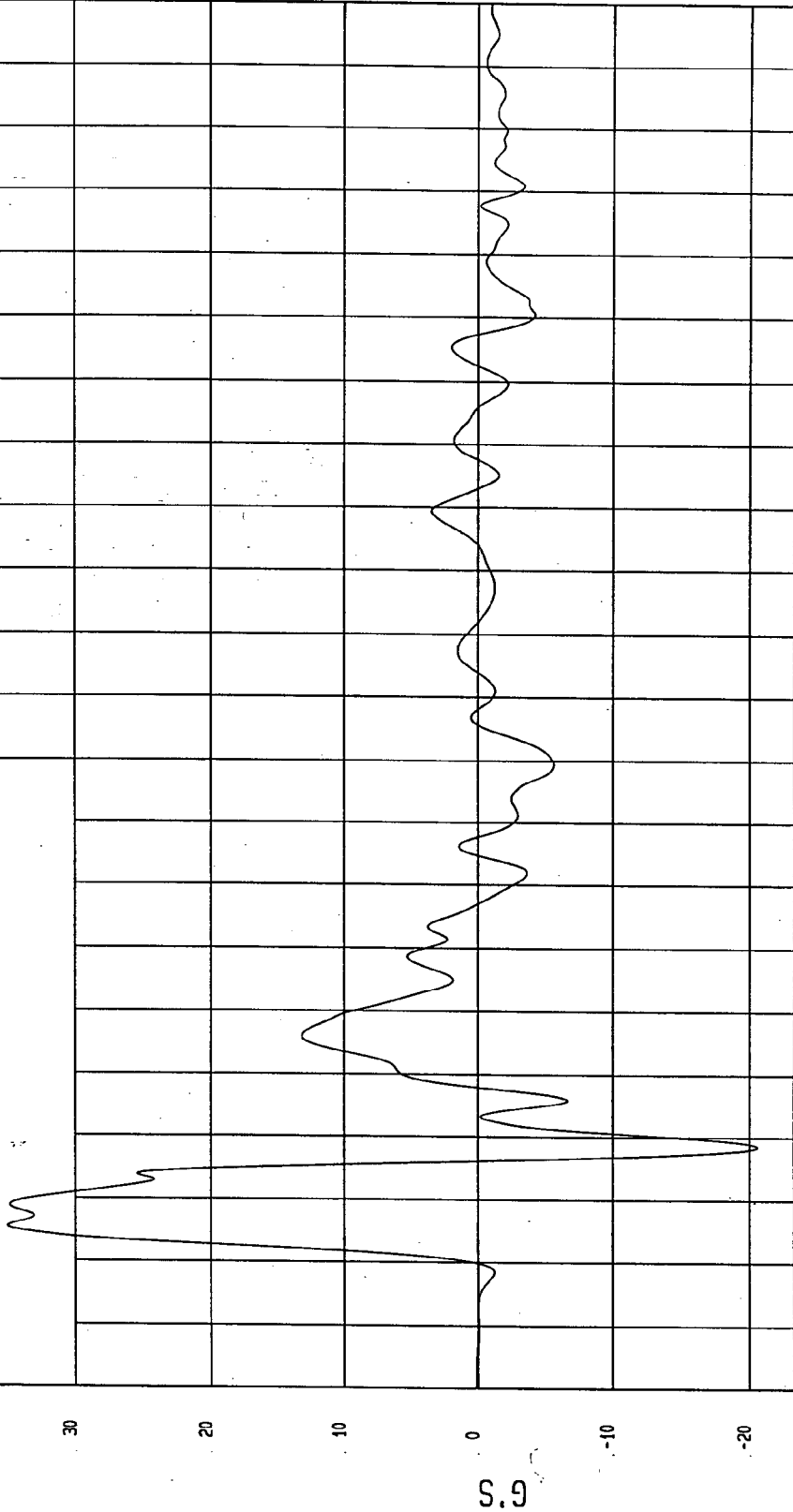
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 34.96 G's at 5 msec

Minimum = -20.57 G's at 18 msec

LEFT LOWER A-POST Y ACCELERATION

1 B99073AF.A20 Filterclass (60)



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

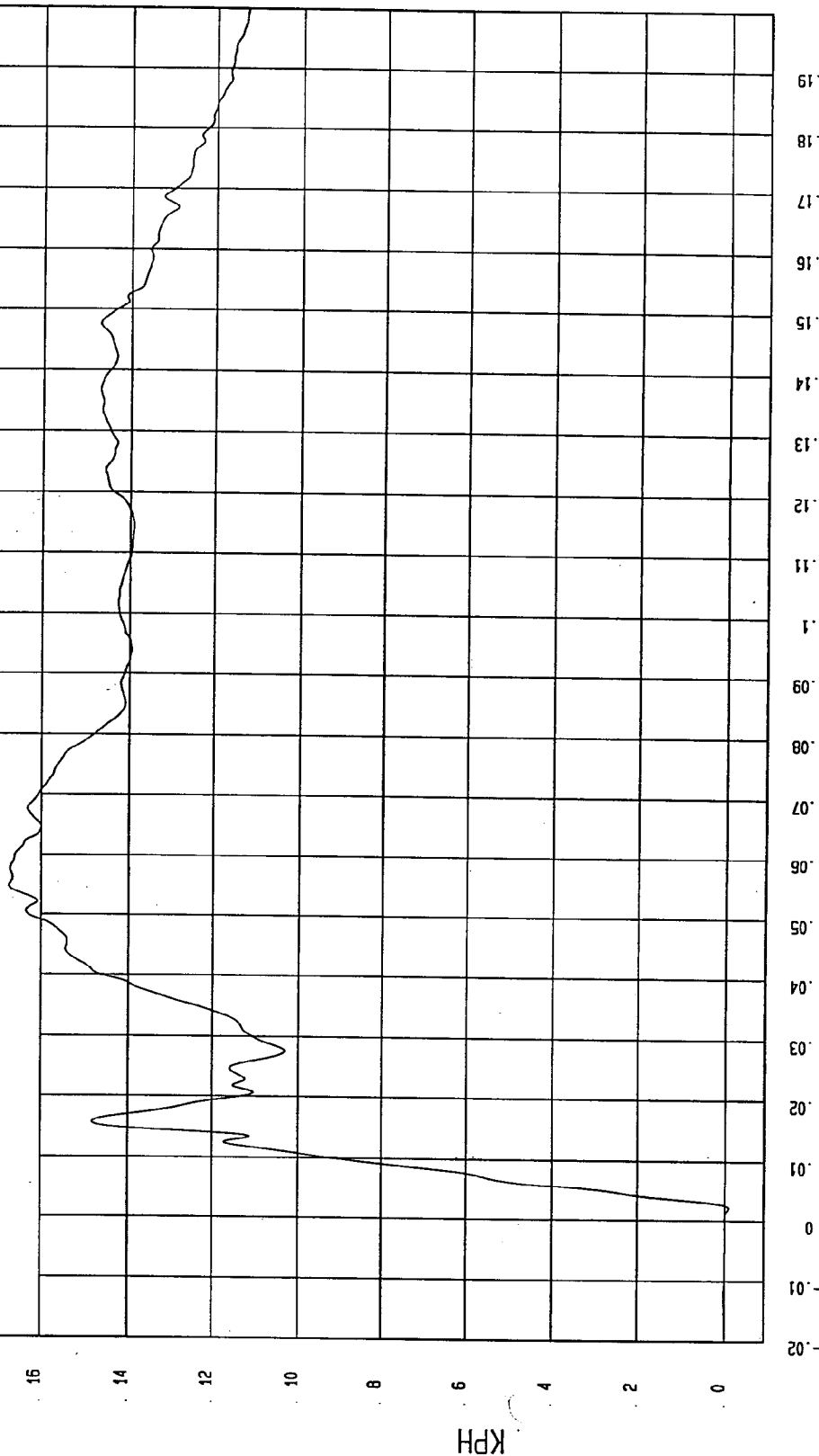
Speed: 38.8 MPH 62.4 KPH

Minimum = -.09 KPH at 2 msec

Maximum = 16.75 KPH at 55 msec

LEFT LOWER A-POST Y VELOCITY

1 ——— .B99073A1.V20 Filterclass (180)



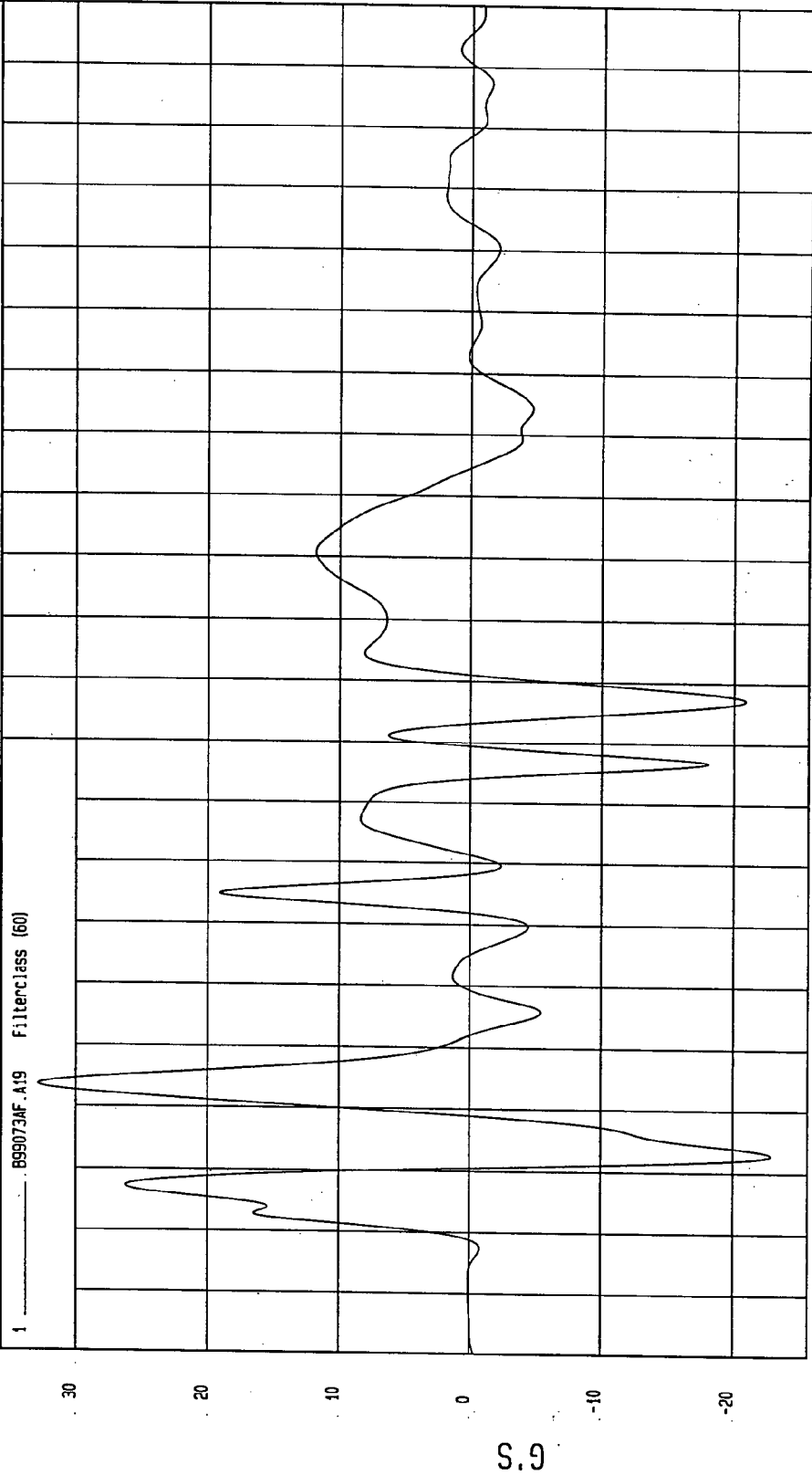
NCA Research
08-16-2000 03:22

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -22.91 G'S at 13 msec Maximum = 32.85 G'S at 24 msec

LEFT MID A-POST Y ACCELERATION



MGA Research
08-16-2000 03:22

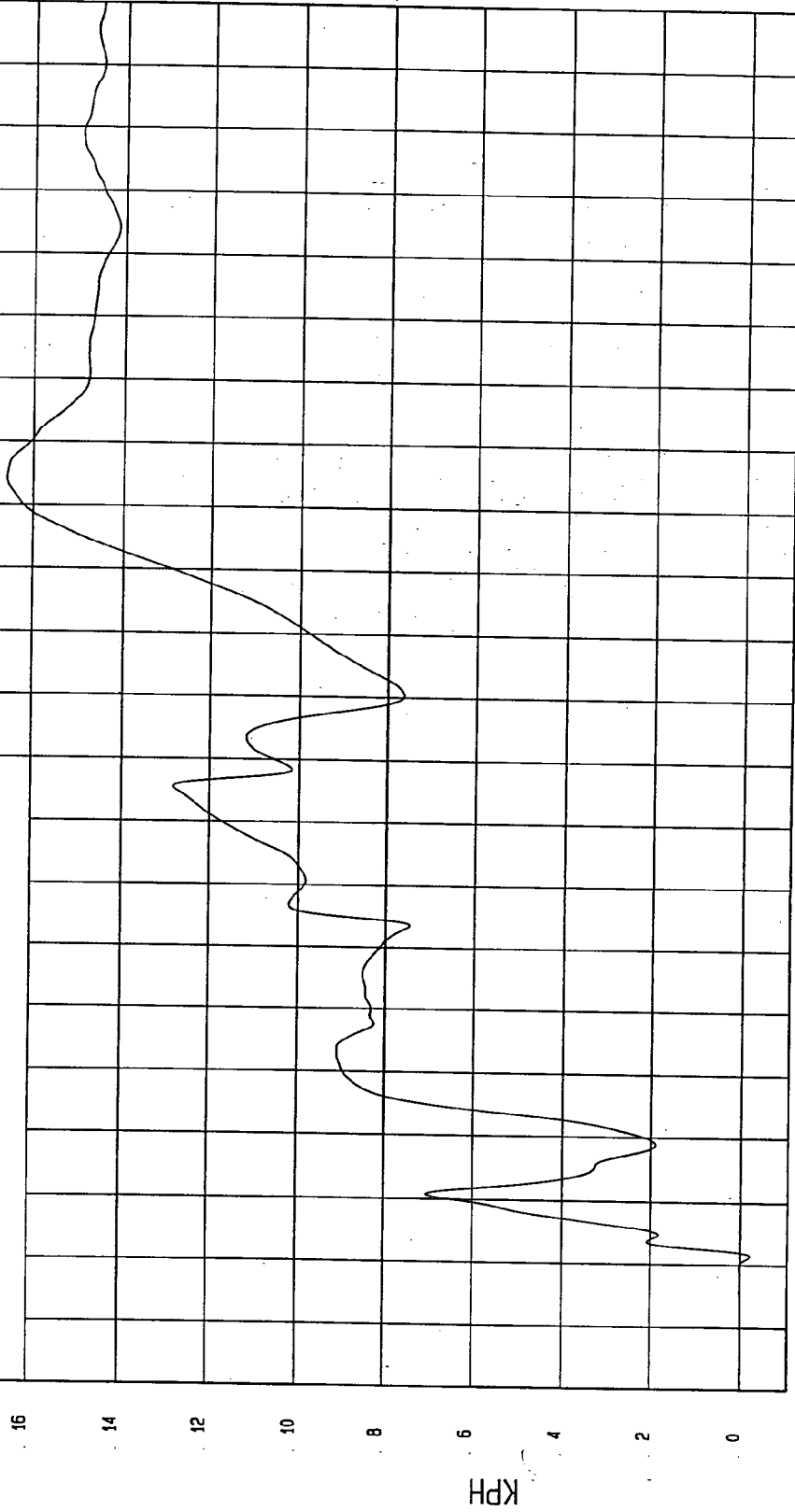
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -.22 KPH at 1 msec Maximum = 16.59 KPH at 124 msec

LEFT MID A-POST Y VELOCITY

1 ——— B99073AI.V19 Filter: class (180)



NSA Research
08-16-2000 03:22

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

SPEED: 38.8 MPH 62.4 KPH

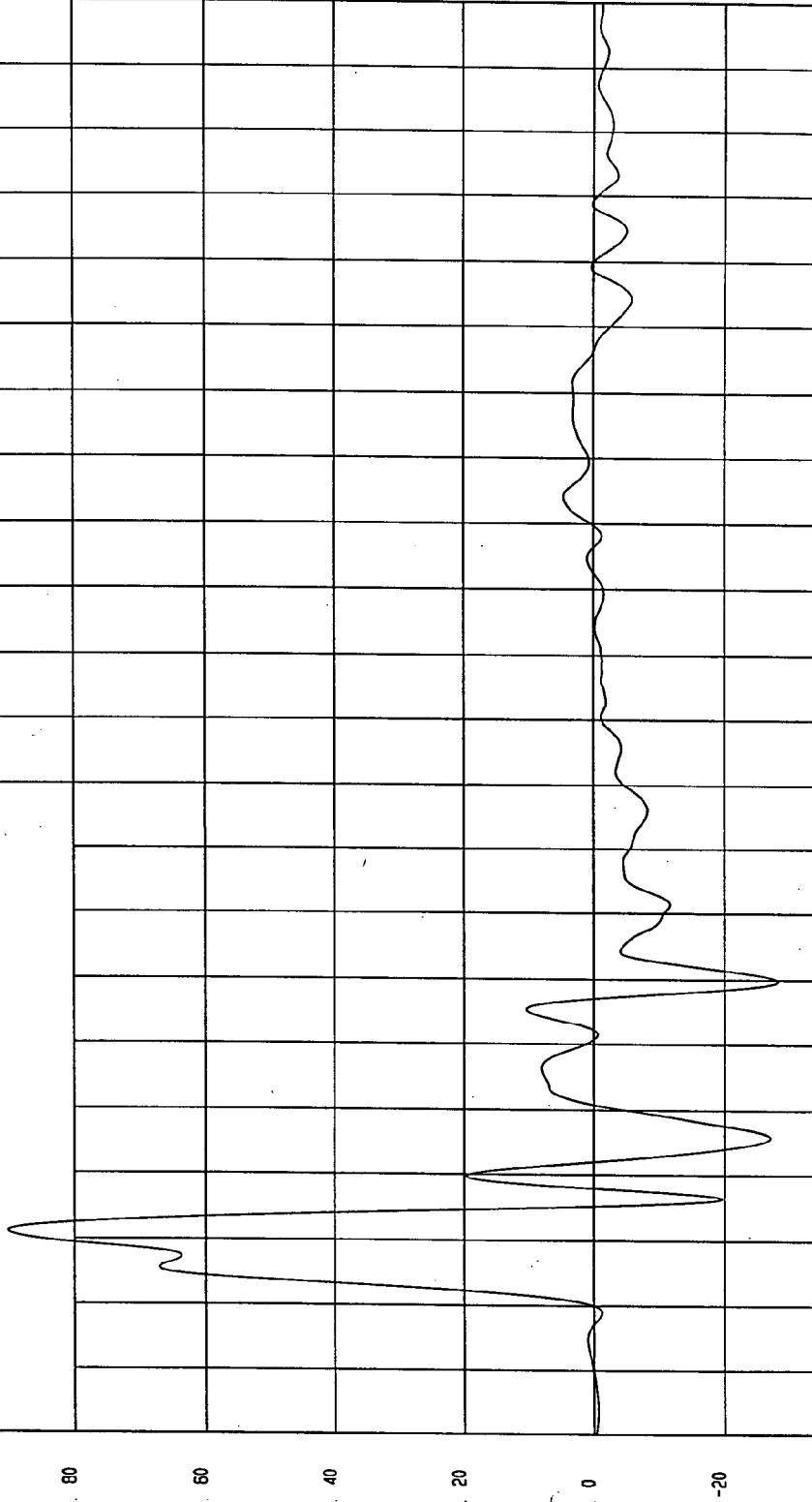
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 90.05 G'S at 11 msec

Minimum = -28.21 G'S at 50 msec

LEFT LOWER B-POST Y ACCELERATION

1 B99073AF.A30 Filterclass (60)

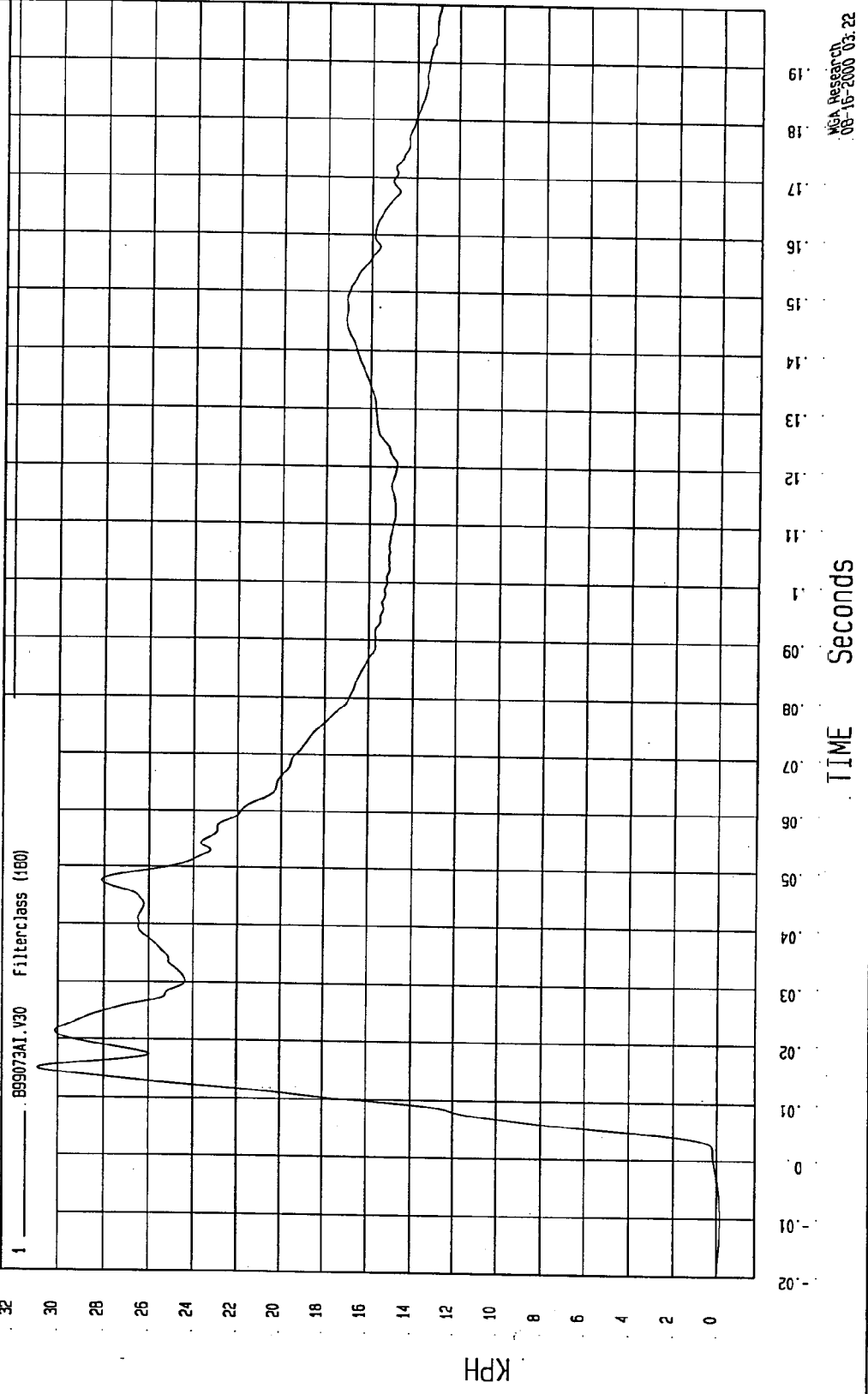


TIME (SECONDS)

MCA Research
08-16-2000 03:22

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH
Minimum = -.15 KPH at -10 msec Maximum = 30.91 KPH at 15 msec

LEFT LOWER B-POST Y VELOCITY



WCA Research
08-15-2000 03:22

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

SPEED: 38.8 MPH 62.4 KPH

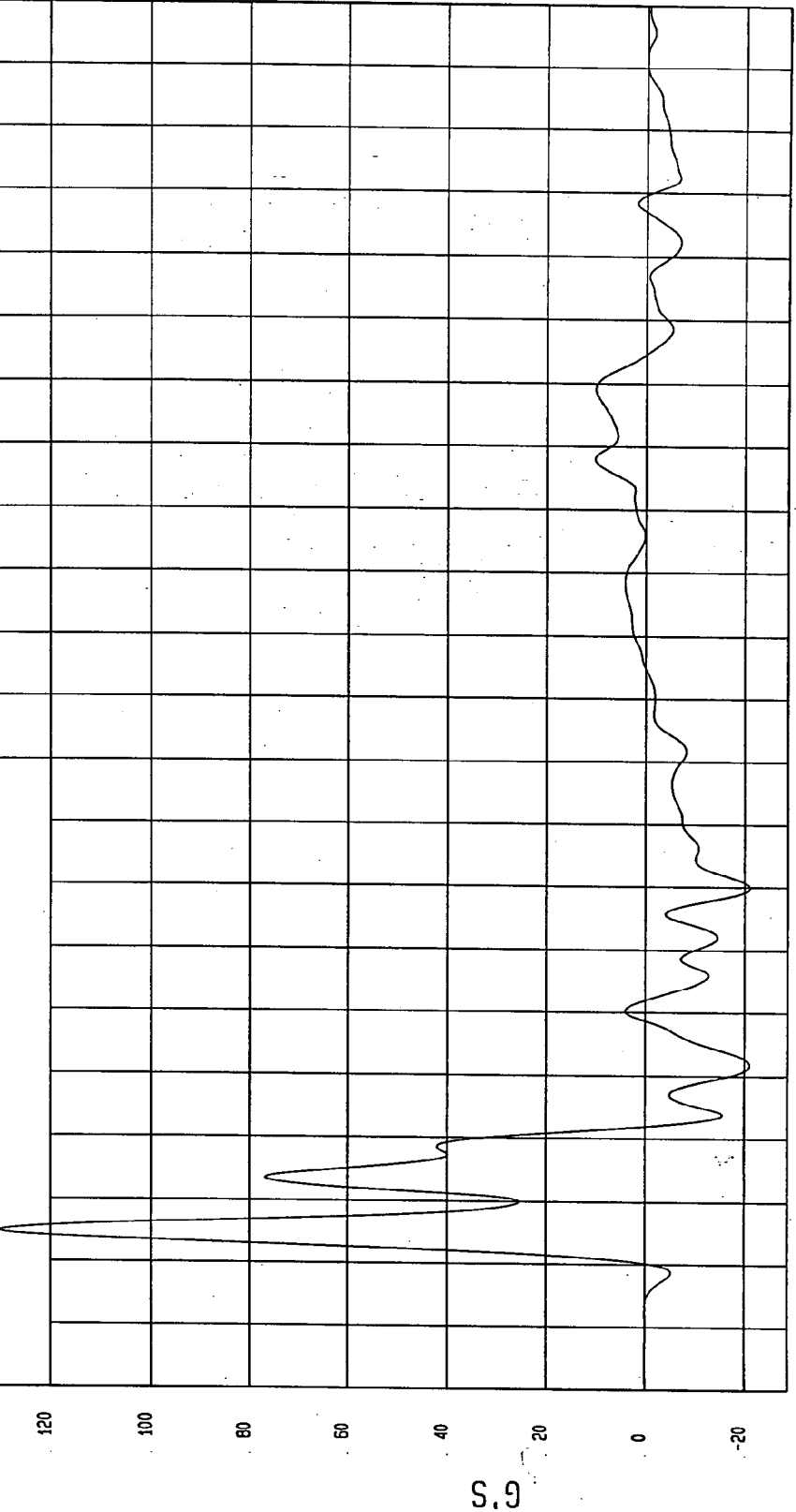
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 130.29 G'S at 5 msec

Minimum = -21.15 G'S at 60 msec

LEFT MID B-POST Y ACCELERATION

1 B99073AF.A29 Filterclass (60)



MCA Research
08-15-2000 03:22

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

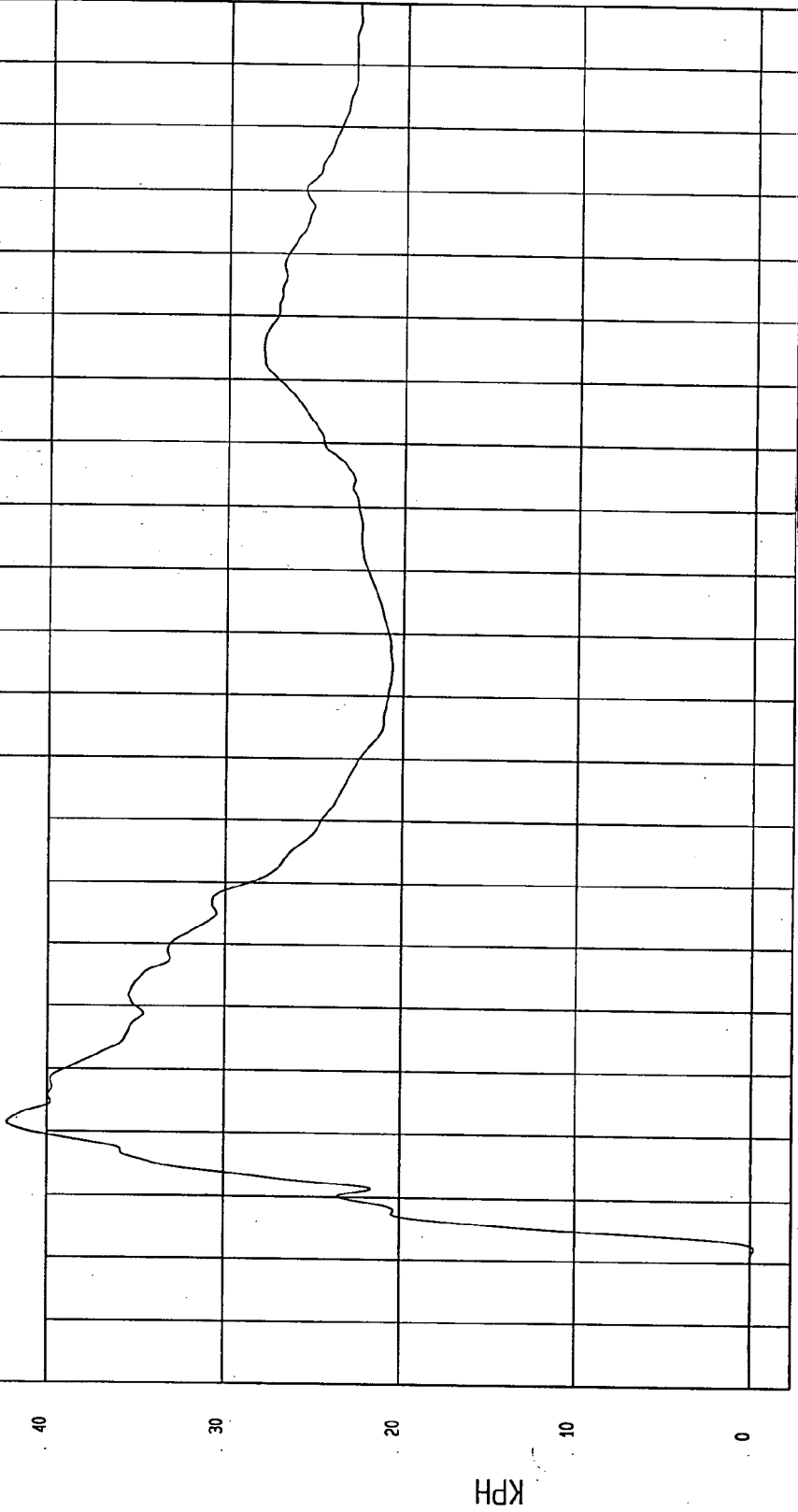
Speed: 38.8 MPH 62.4 KPH

Minimum = -.18 KPH at 2 msec

Maximum = 42.26 KPH at 21 msec

LEFT MID B-POST Y VELOCITY

1 ——— B99073A1.V29 Filterclass (180)



MCA Research
08-16-2000 03:22

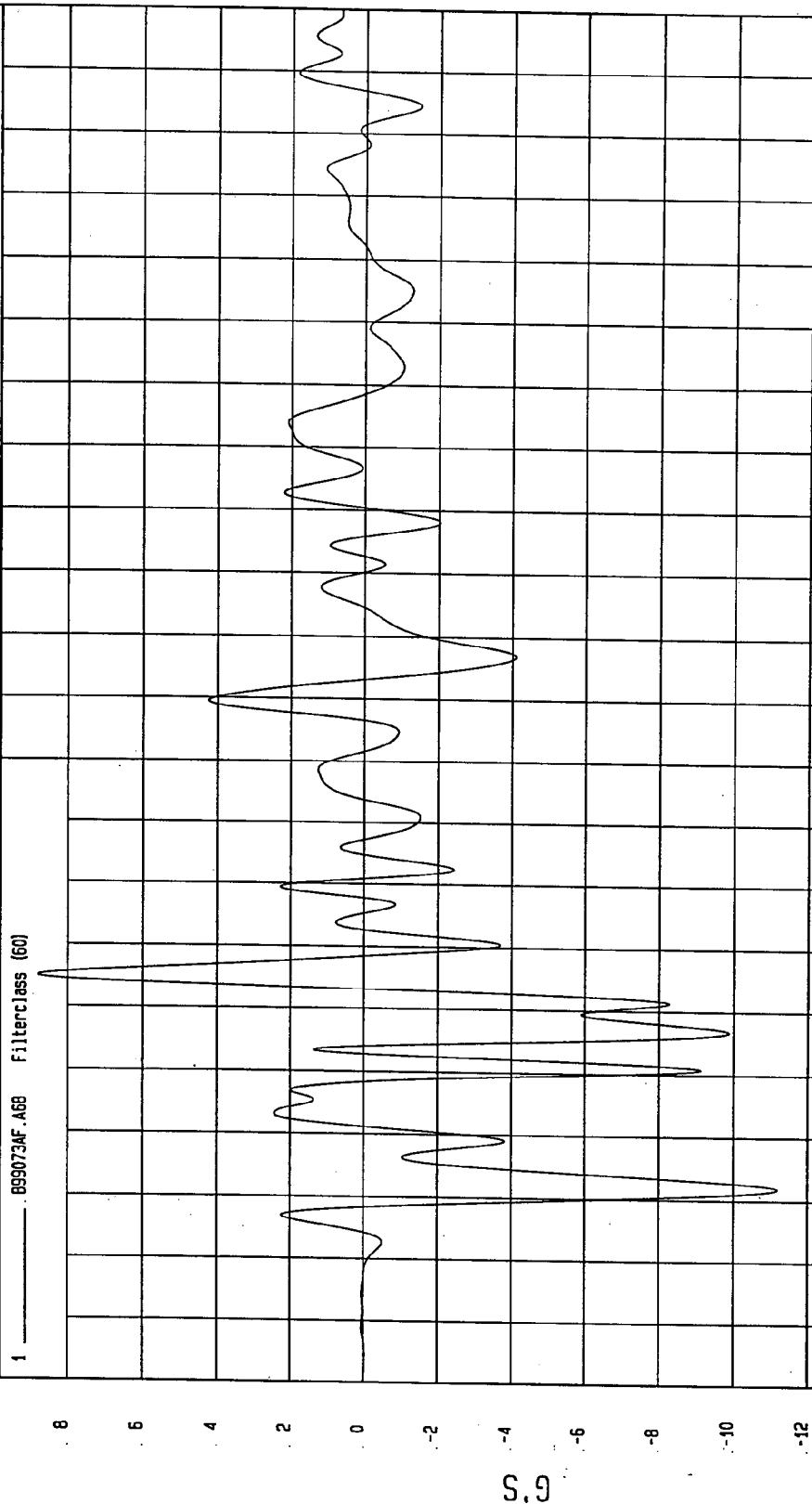
TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -11.19 G'S at 12 msec Maximum = 8.78 G'S at 45 msec

VEHICLE CG X ACCELERATION



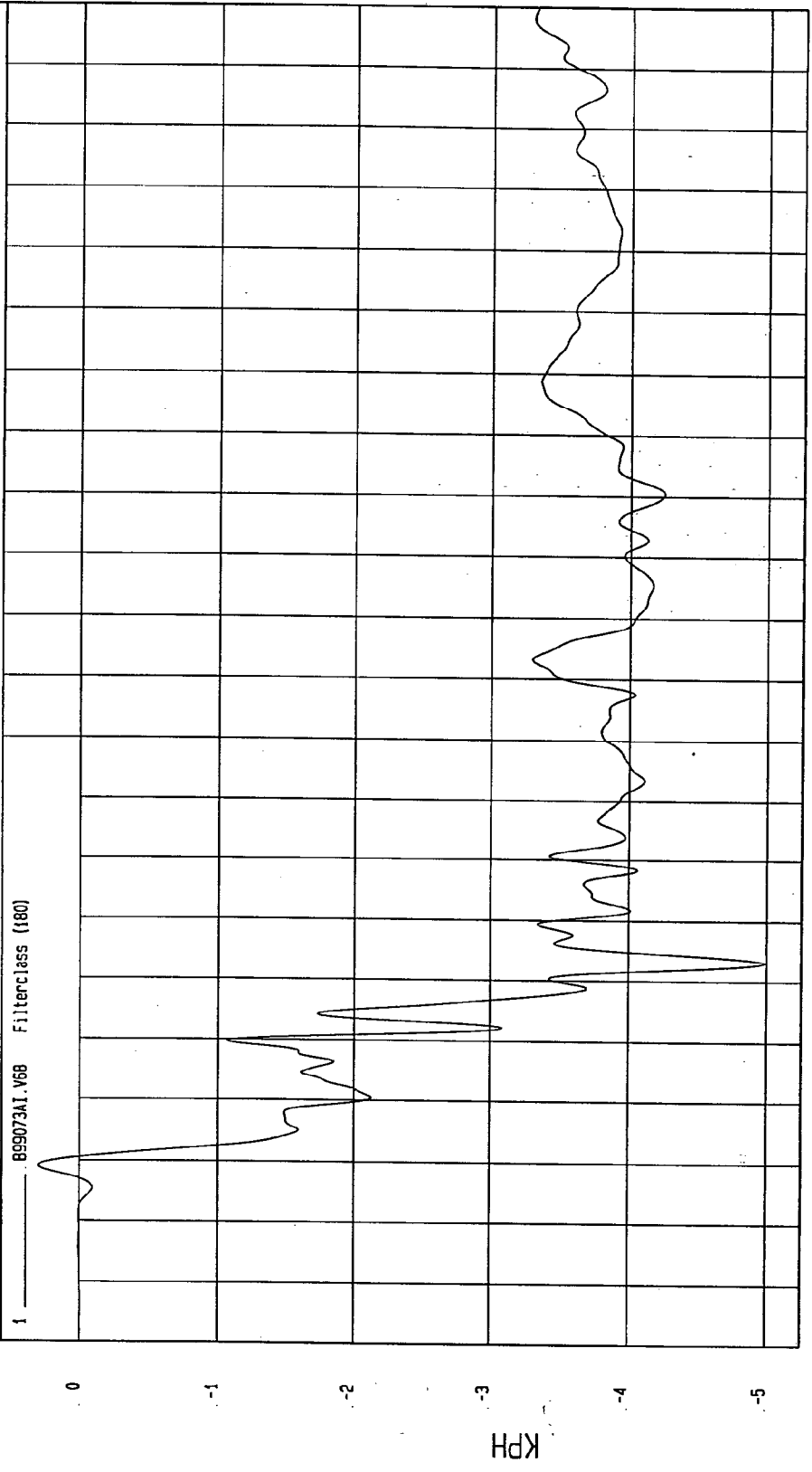
MGA Research
08-16-2000 03:22

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -4.99 KPH at 43 msec Maximum = .3 KPH at 9 msec

VEHICLE CG X VELOCITY



NSA Research
08-15-2000 03:22

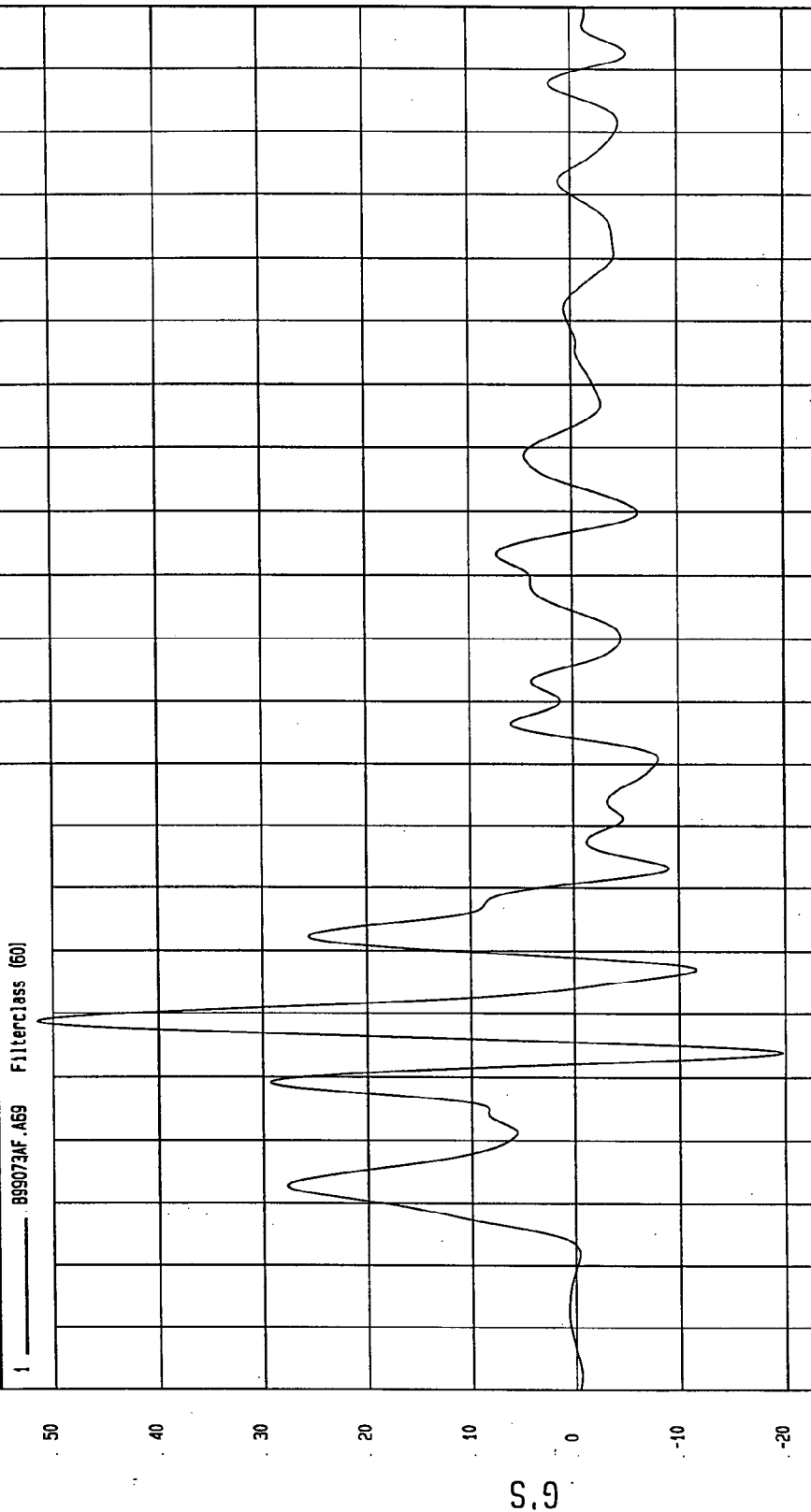
TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -19.71 G'S at 34 msec Maximum = 51.42 G'S at 39 msec

VEHICLE CG Y ACCELERATION



TIME (SECONDS)

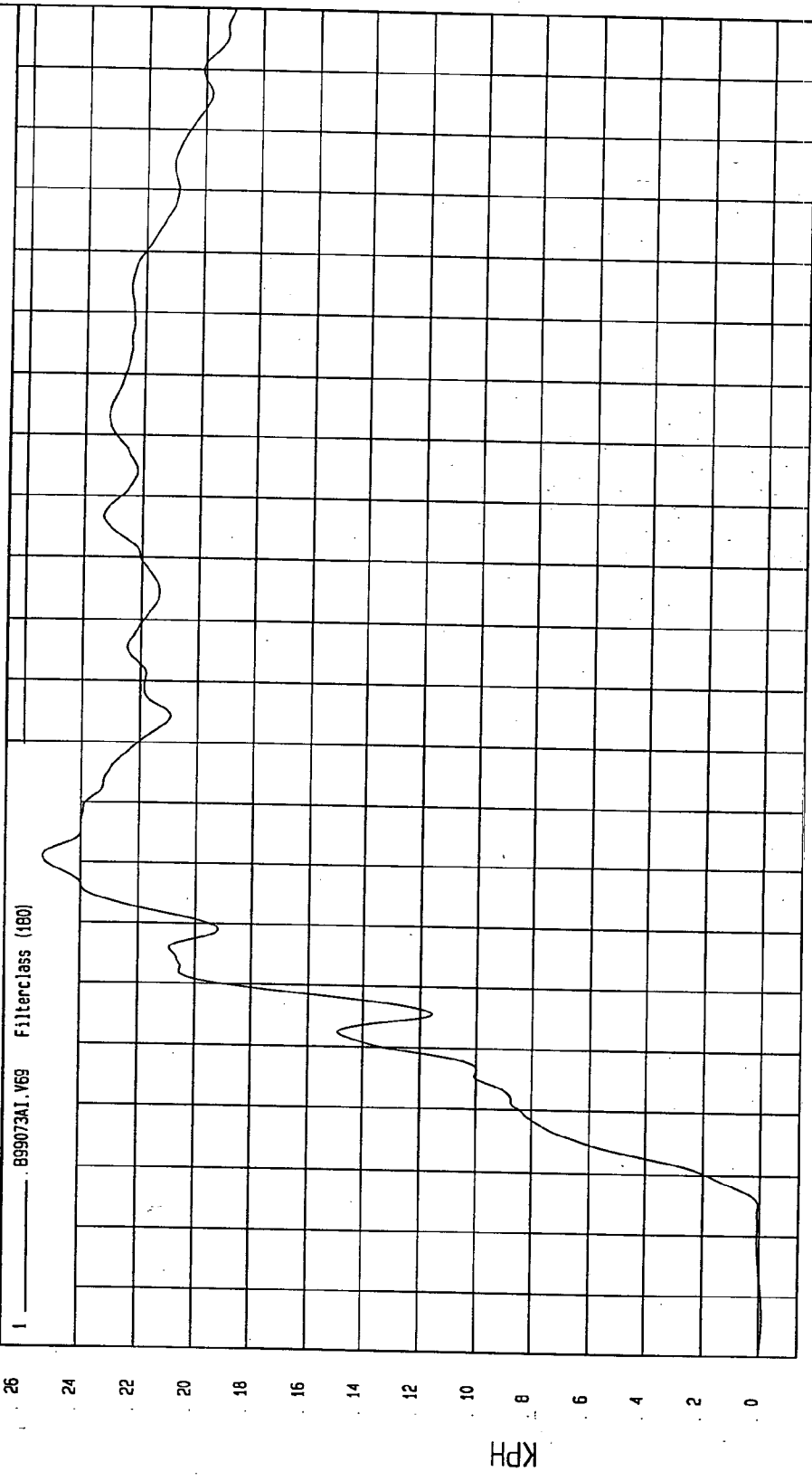
WCA Research
08-18-2008 08:17

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -9.35E-02 KPH at -14 msec Maximum = 25.33 KPH at 61 msec

VEHICLE CG Y VELOCITY



NSA Research
08-18-2000 08:17

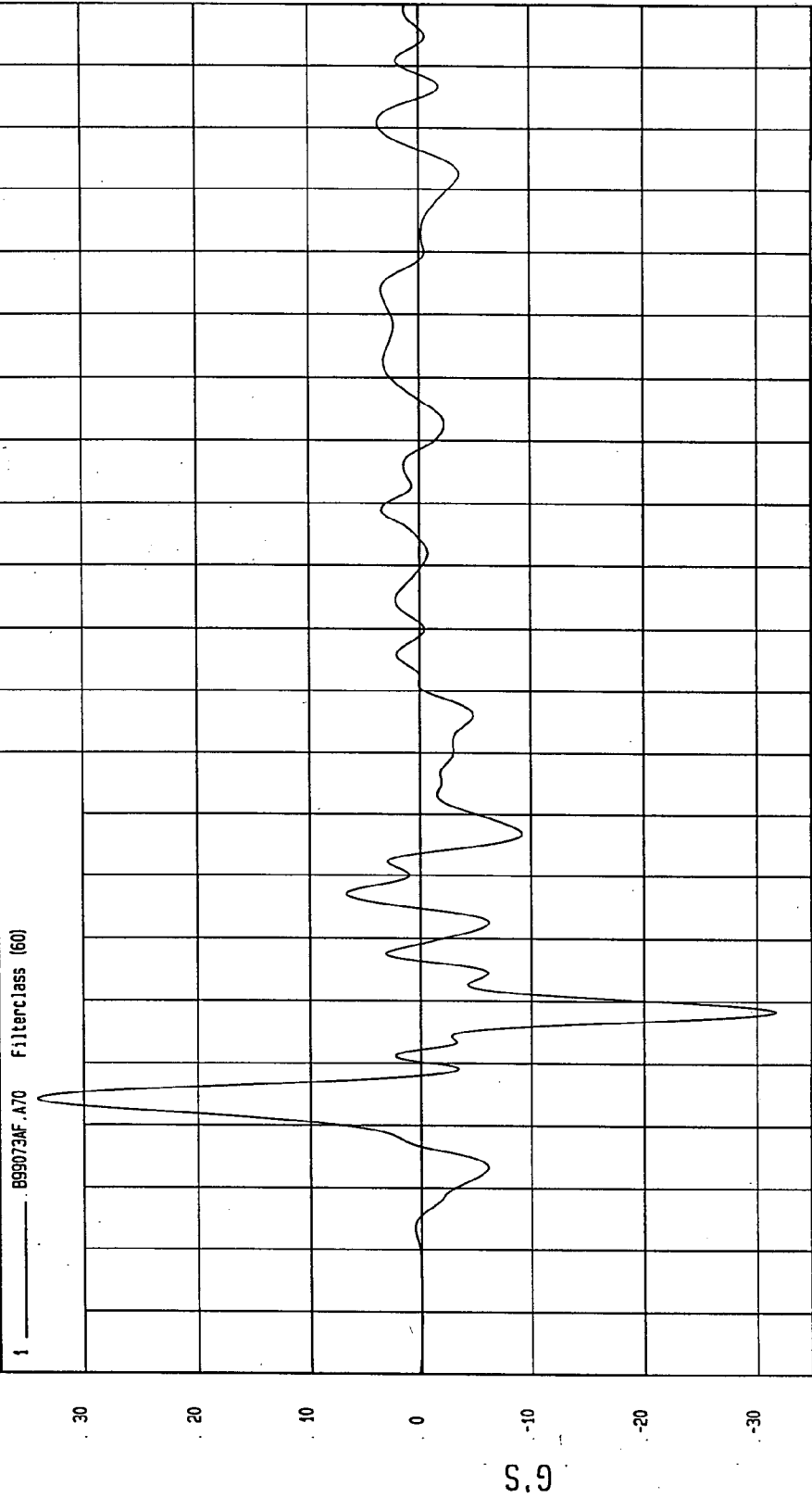
TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -31.68 G'S at 38 msec Maximum = 34.11 G'S at 24 msec

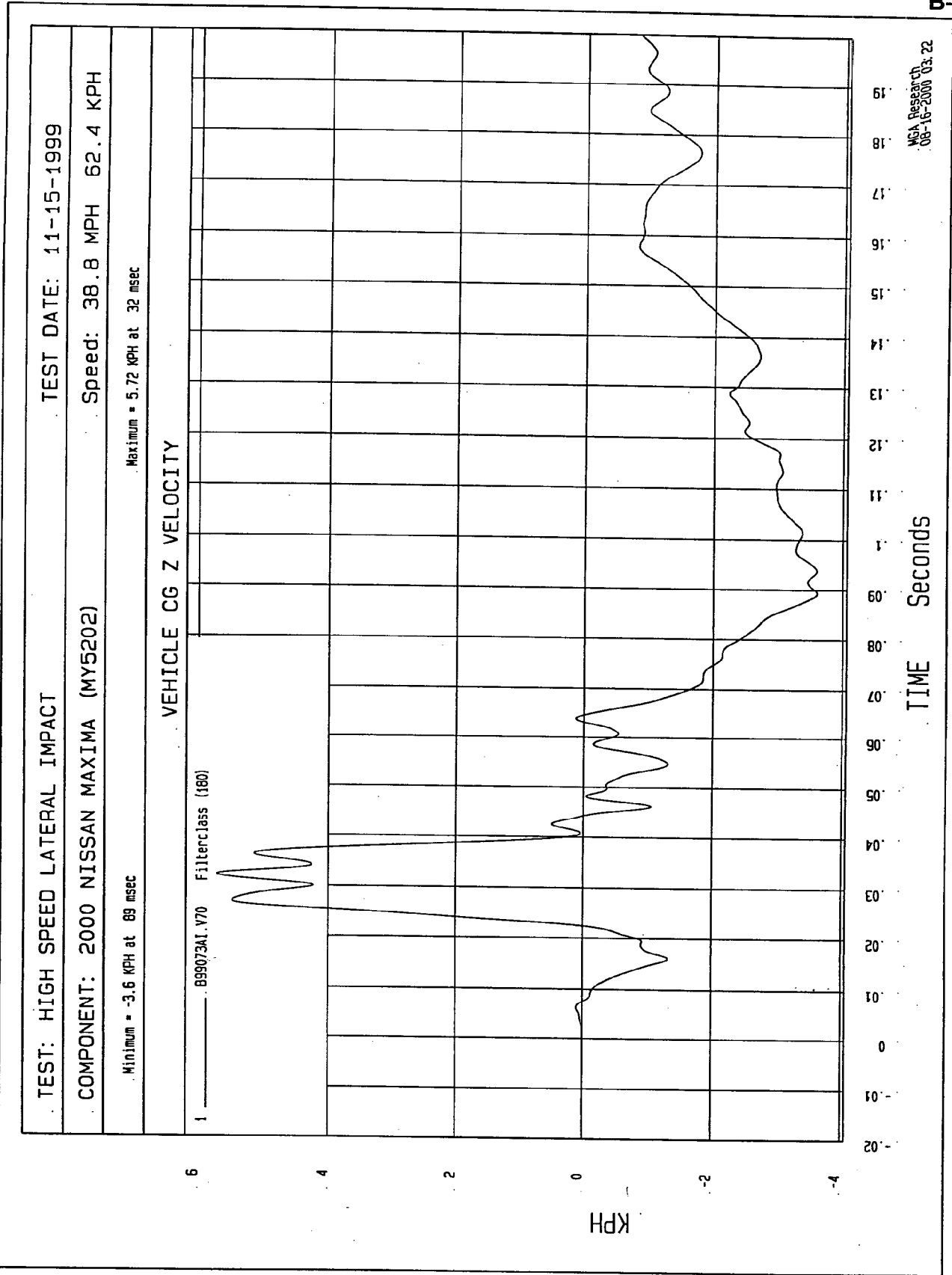
VEHICLE CG Z ACCELERATION



TIME (SECONDS)

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

WGA Research
08-16-2000 03:22

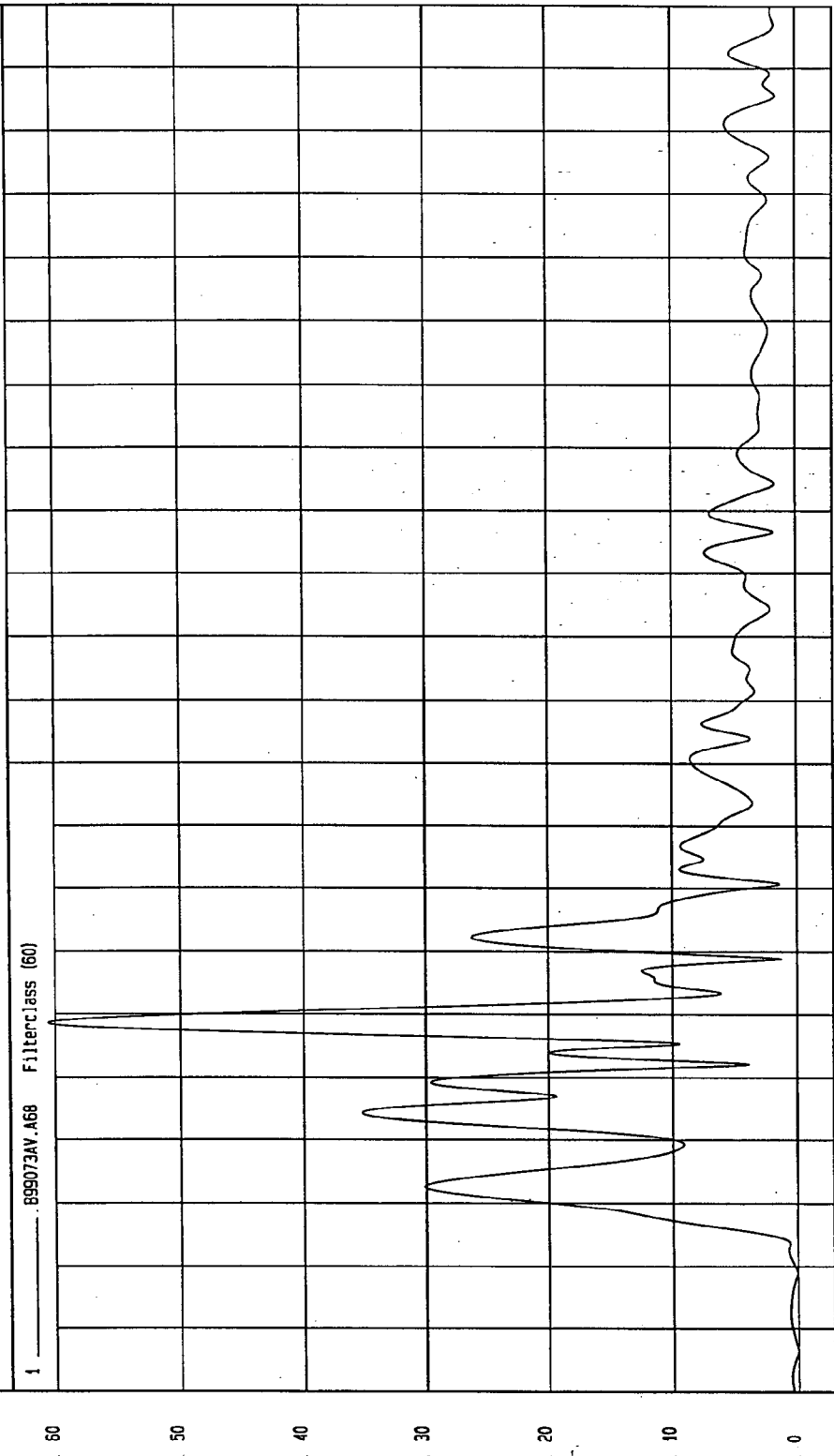


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = 1.73E-02 G'S at -14 msec Maximum = 60.58 G'S at 39 msec

VEHICLE CG RESULTANT ACCELERATION



TIME (SECONDS)

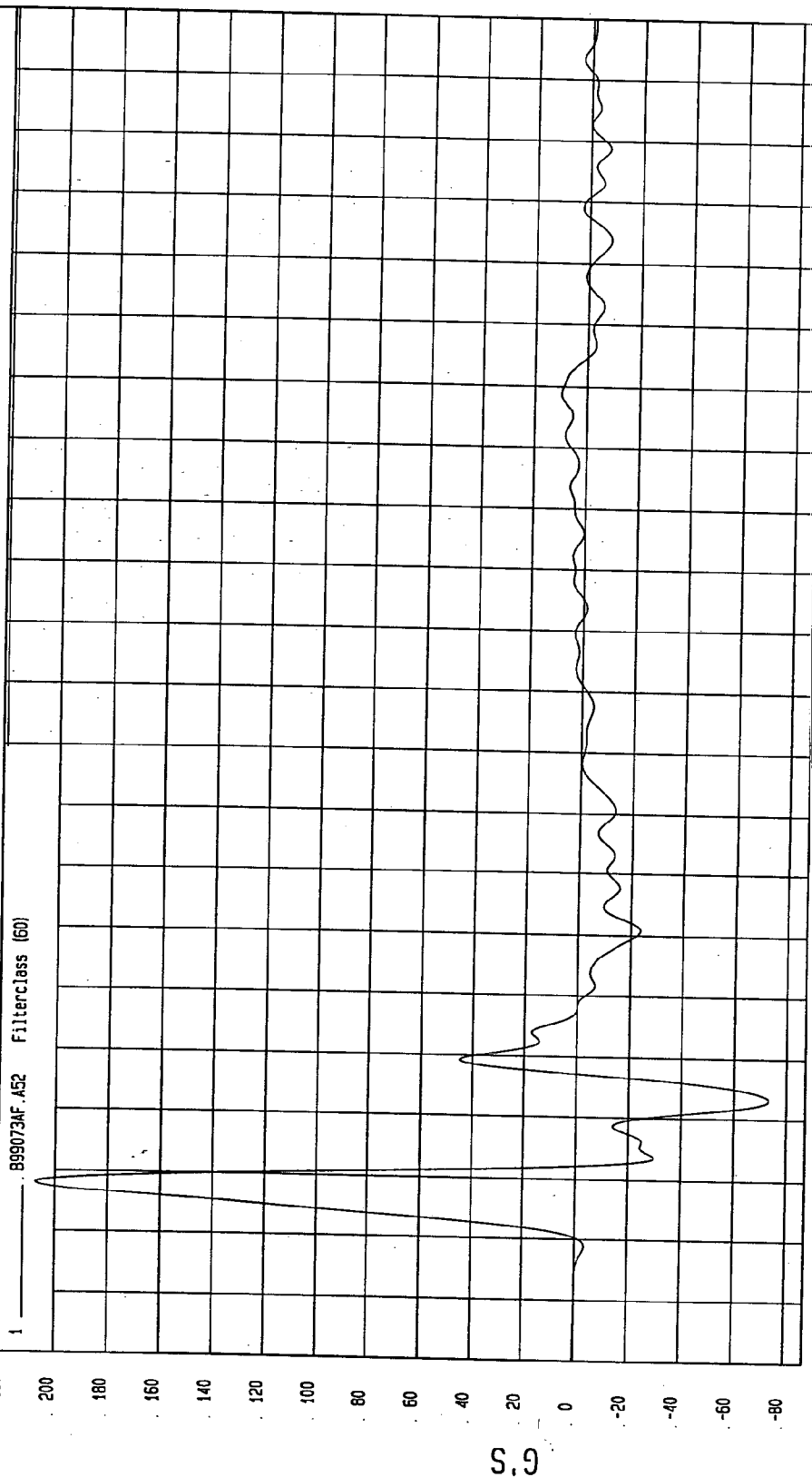
NSA Research
08-16-2000 03:22

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -73.23 G'S at 23 msec Maximum = 207.38 G'S at 8 msec

LEFT FRONT DOOR MIDREAR Y ACCELERATION



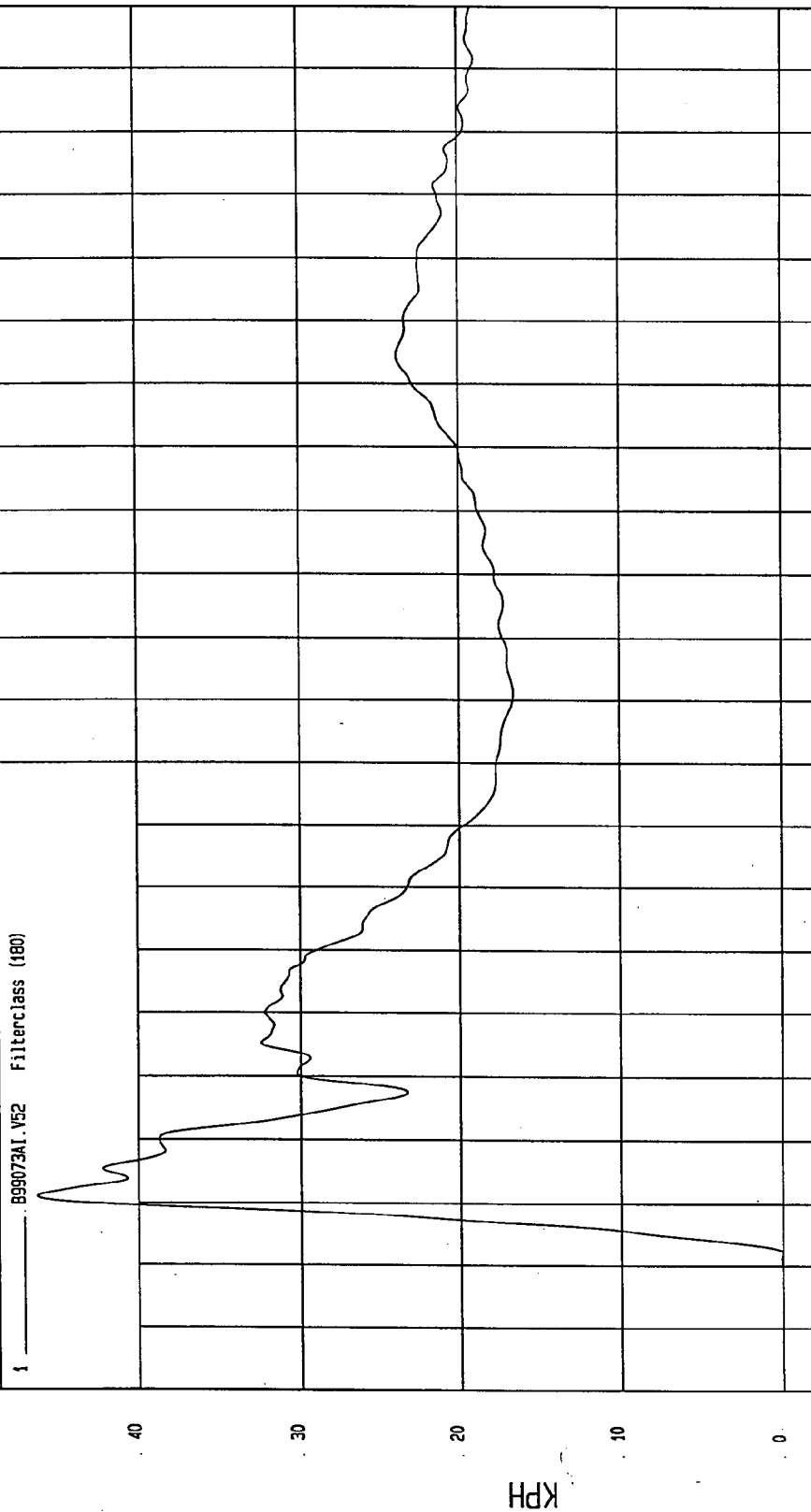
NCA Research
08-16-2000 03:22

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = 0 KPH at -20 msec Maximum = 46.16 KPH at 11 msec

LEFT FRONT DOOR MIDREAR Y VELOCITY



VGA Research
08-16-2000 03:22

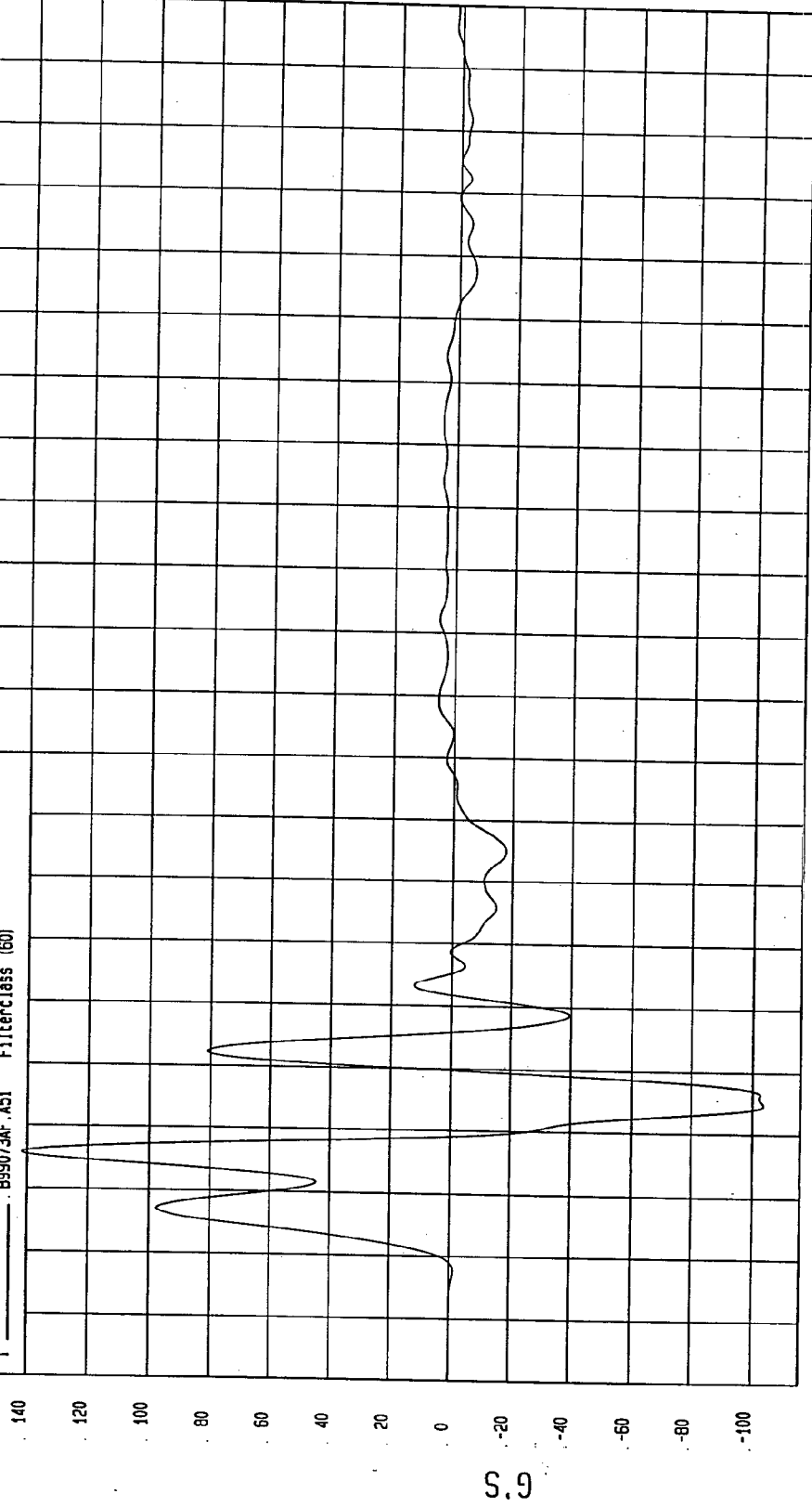
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -103.51 G'S at 25 msec Maximum = 141.6 G'S at 16 msec

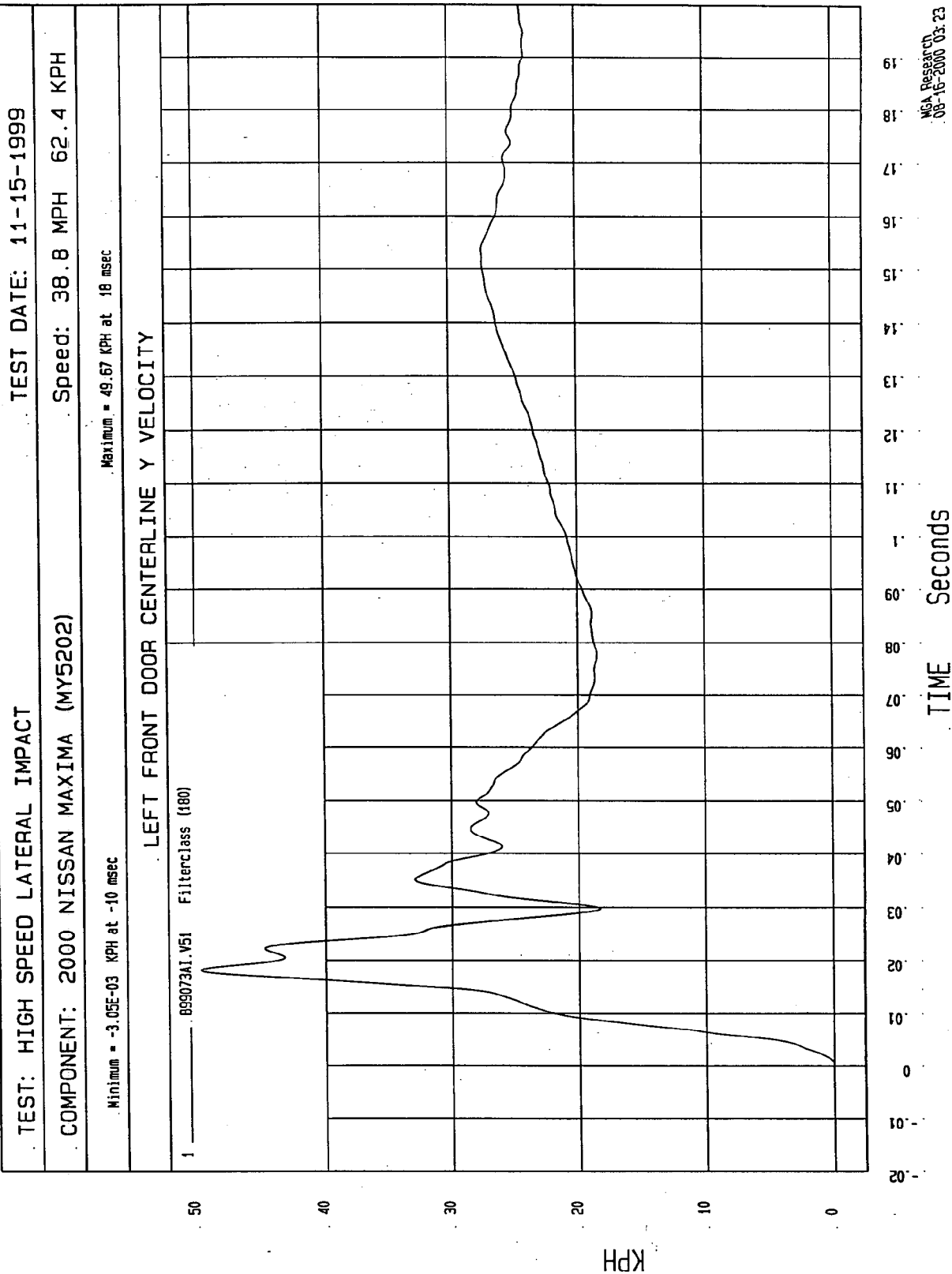
LEFT FRONT DOOR CENTERLINE Y ACCELERATION

899073AF.A51 Filterclass (60)



TIME (SECONDS)

NSA Research
08-15-2000 03:22



LEFT FRONT DOOR UPPER CENTERLINE Y ACCELERATION VS. TIME

NO VALID DATA COLLECTED

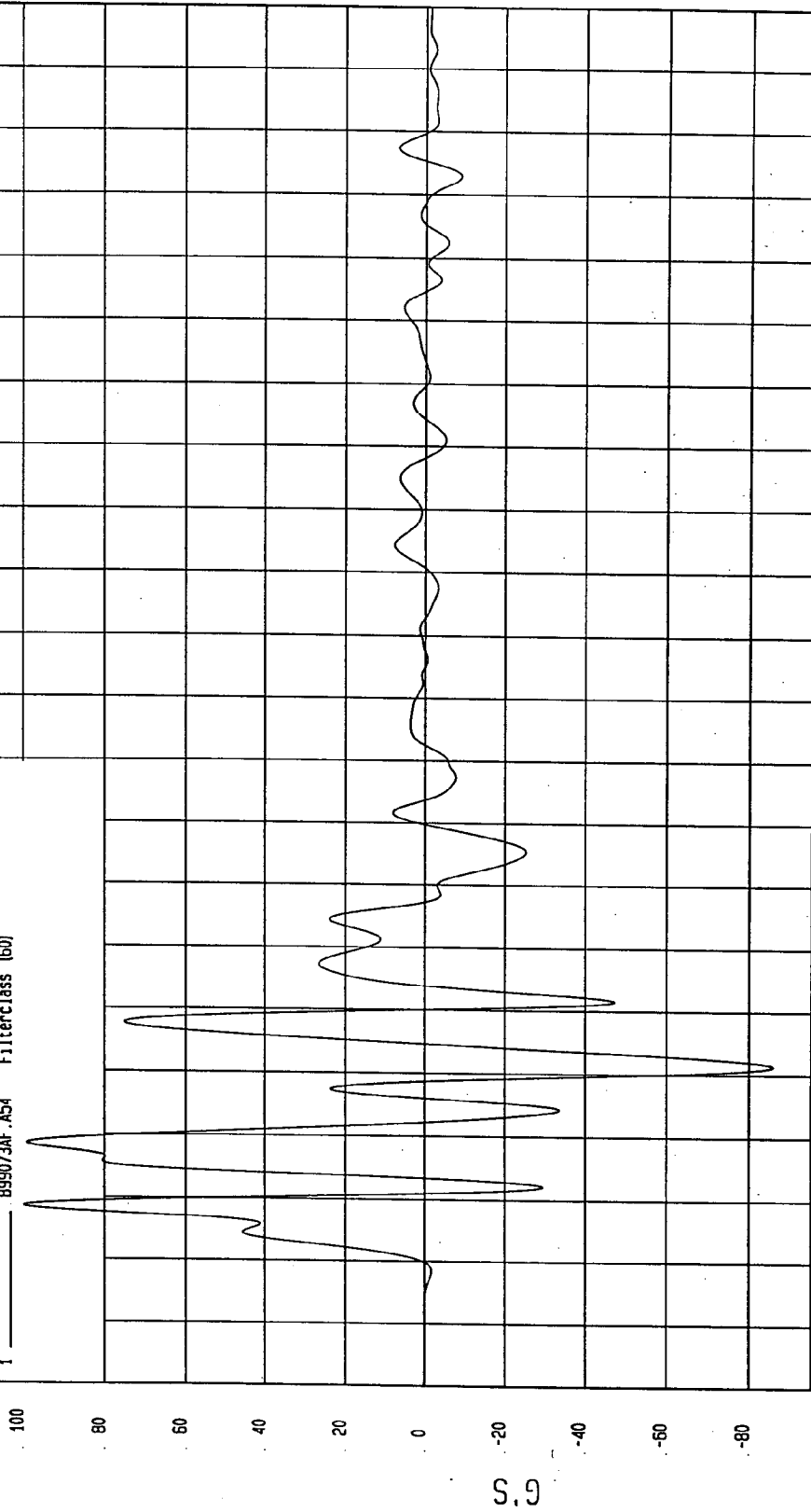
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -85.77 G's at 31 msec Maximum = 99.85 G's at 9 msec

LEFT REAR DOOR MIDREAR Y ACCELERATION

1 B99073AF.A54 Filterclass (60)



WGA Research
08-16-2000 03:23

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

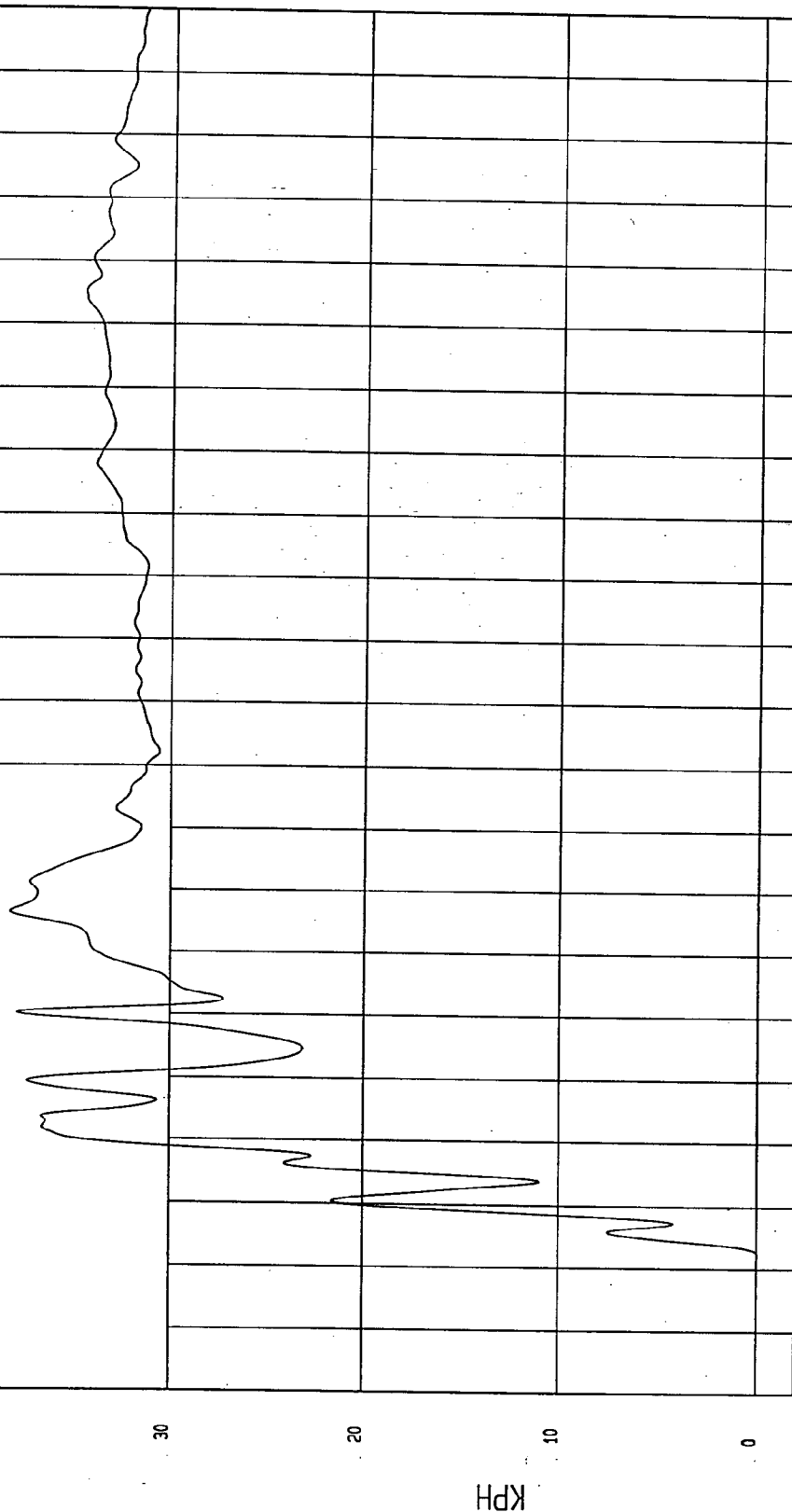
Speed: 38.8 MPH 62.4 KPH

Minimum = -2.61E-02 KPH at 2 msec

Maximum = 38.02 KPH at 56 msec

LEFT REAR DOOR MIDREAR Y VELOCITY

1 _____ B95073A1.V54 Filterclass (180)



TIME Seconds

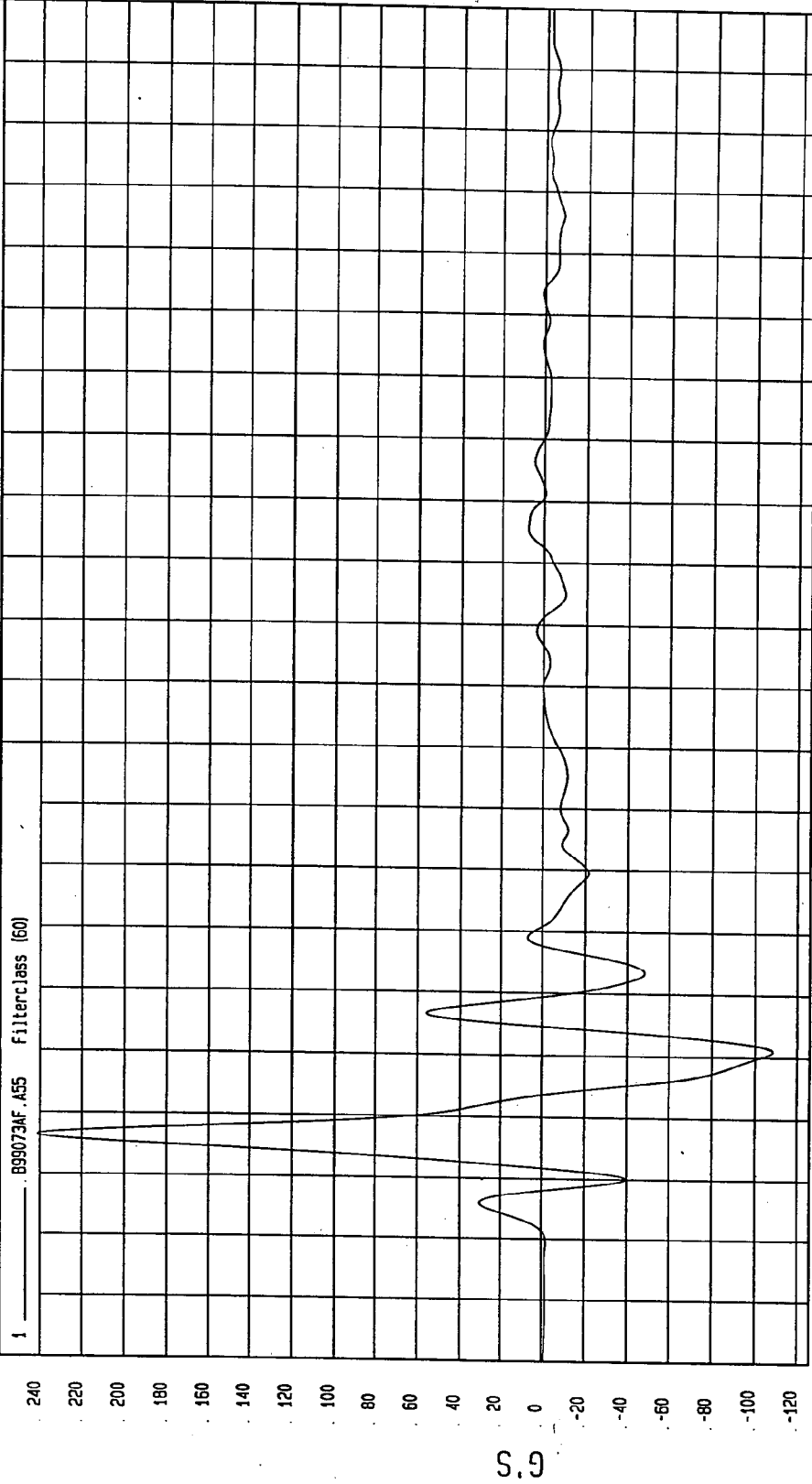
MCA Research
08-16-2000 03:23

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -108.43 G'S at 31 msec
Maximum = 241.38 G'S at 16 msec

LEFT REAR DOOR UPPER CENTERLINE Y ACCELERATION



WGA Research
08-16-2000 03:23

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

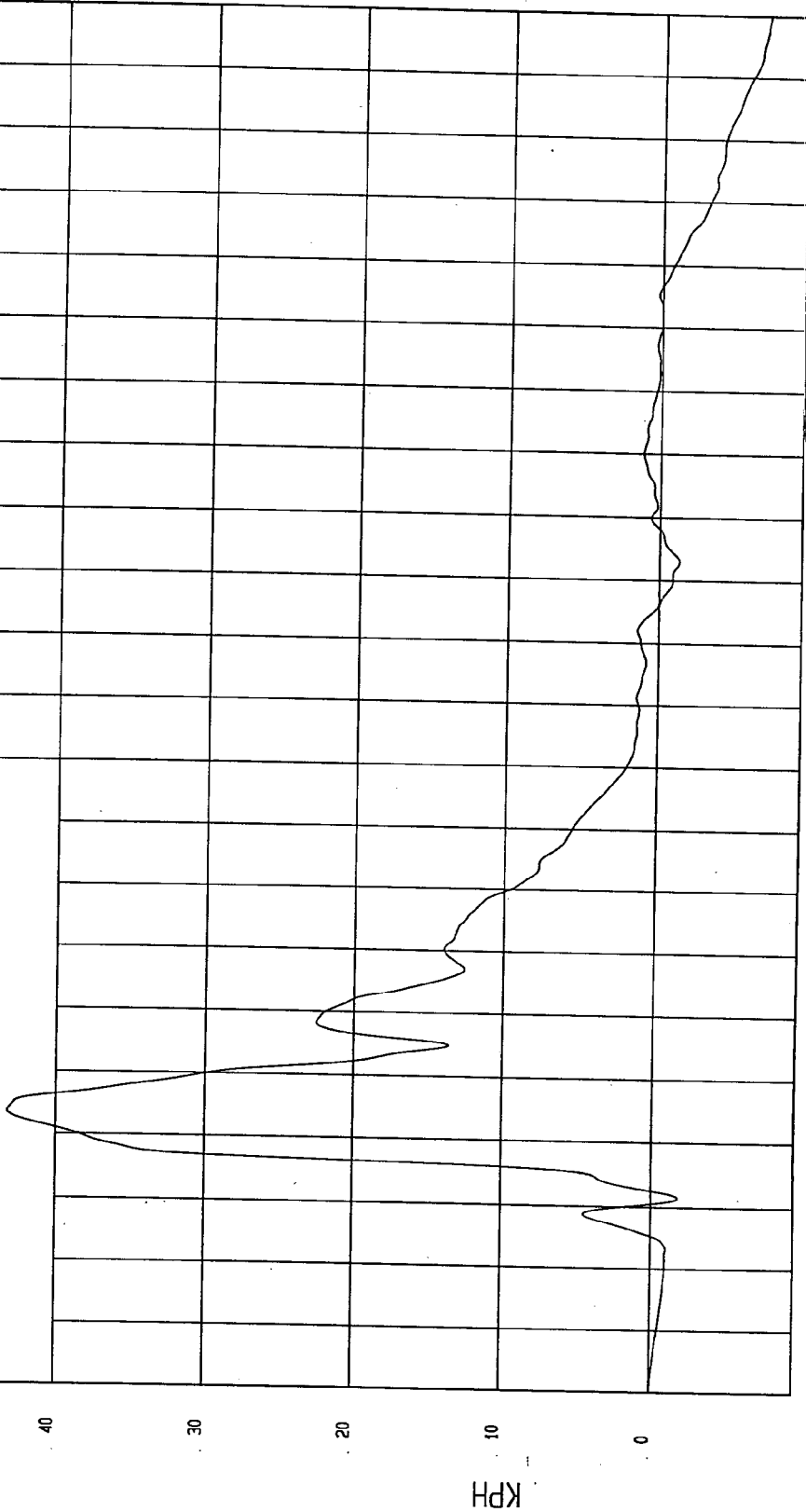
Speed: 38.8 MPH 62.4 KPH

Minimum = -6.94 KPH at 200 msec

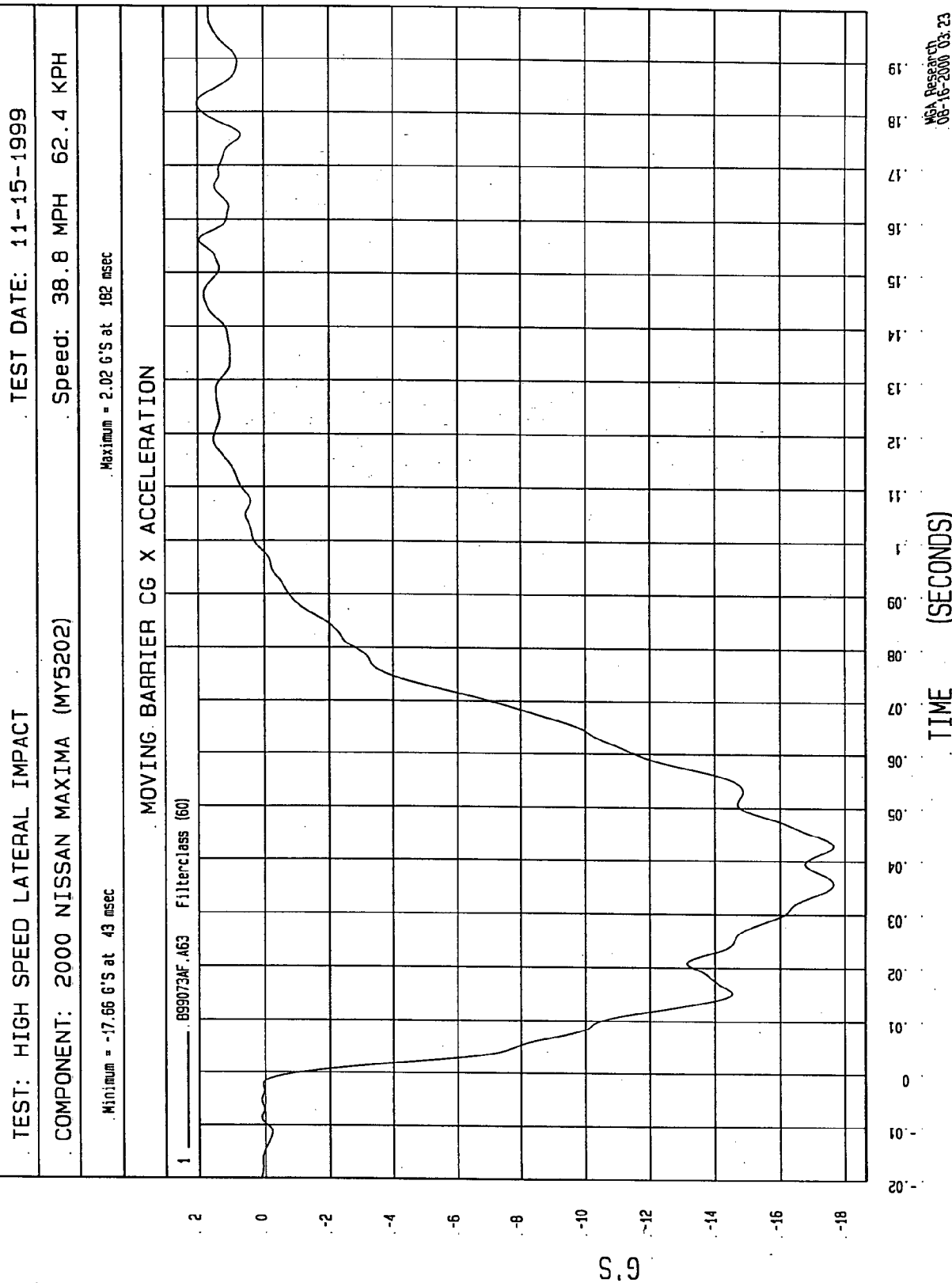
Maximum = 43.27 KPH at 24 msec

LEFT REAR DOOR UPPER CENTERLINE Y VELOCITY

1 ——— B99073A1.V55 Filterclass (180)



WCA Research
08-16-2000 03:23



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

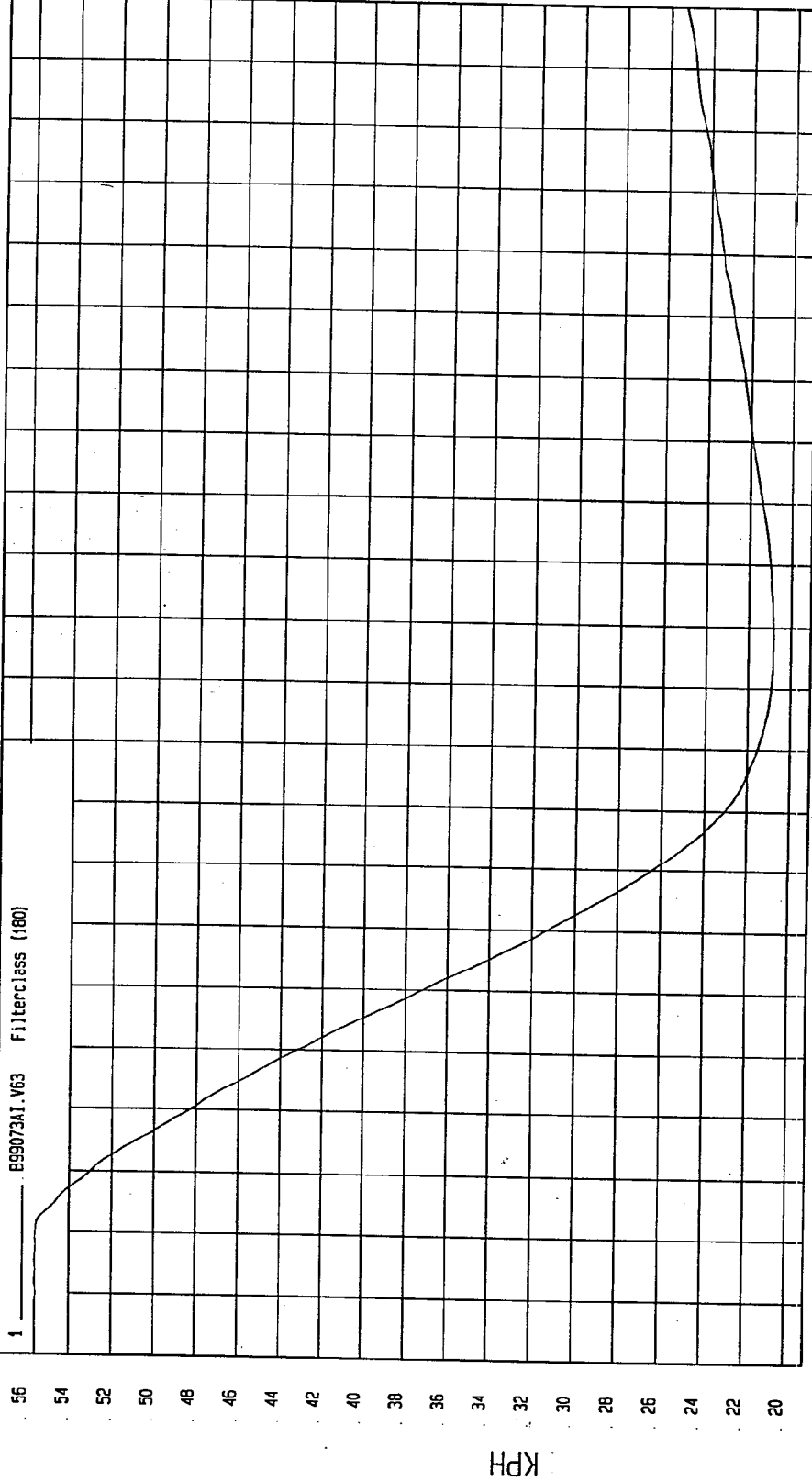
Speed: 38.8 MPH 62.4 KPH

Minimum = 20.81 KPH at 98 msec

Maximum = 55.62 KPH at -4 msec

MOVING BARRIER CG X VELOCITY

1 B99073A1.V63 Filterclass (180)



WCA Research
08-16-2008 03:23

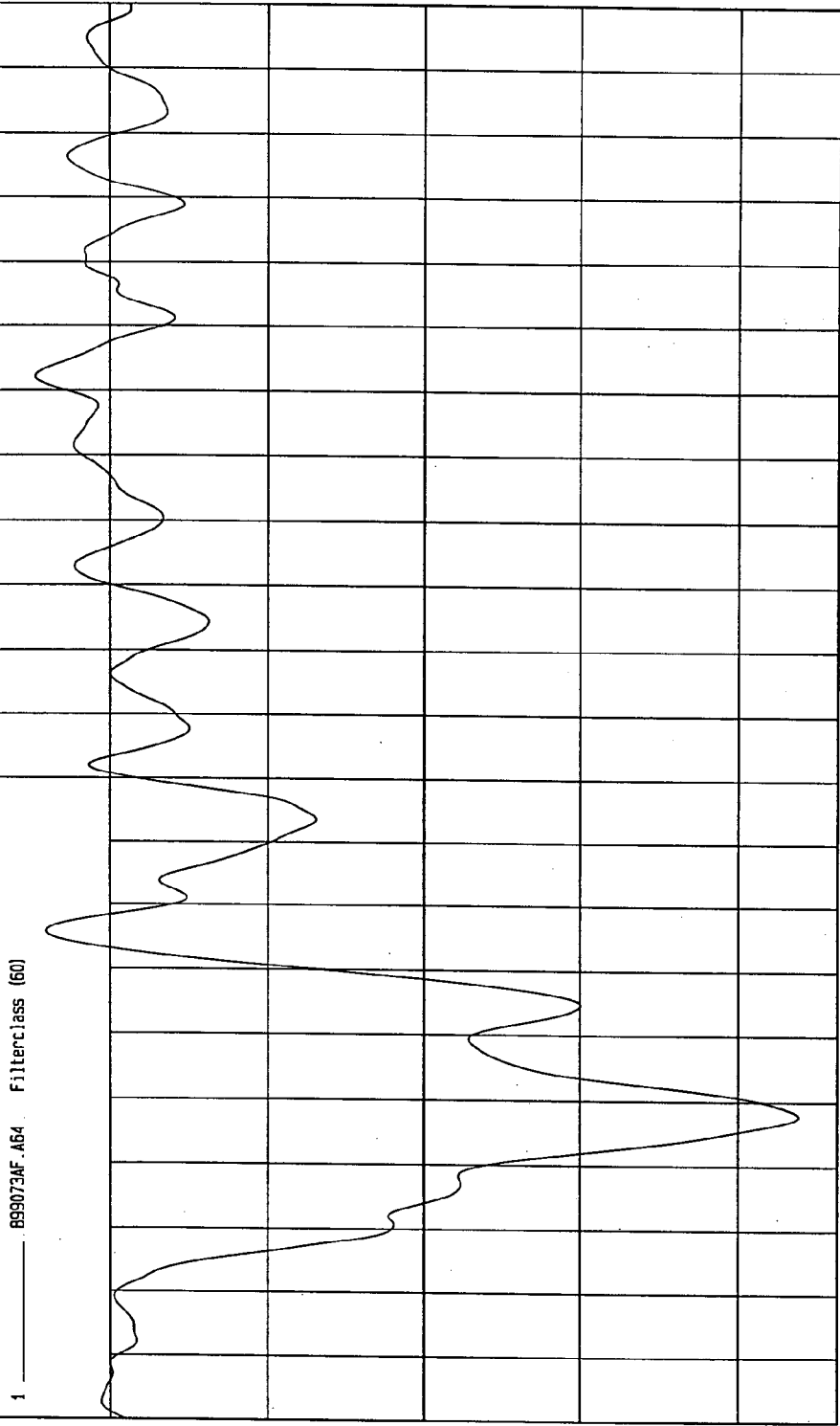
TIME Seconds

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -8.78 G'S at 28 msec Maximum = .93 G'S at 142 msec

MOVING BARRIER CG Y ACCELERATION



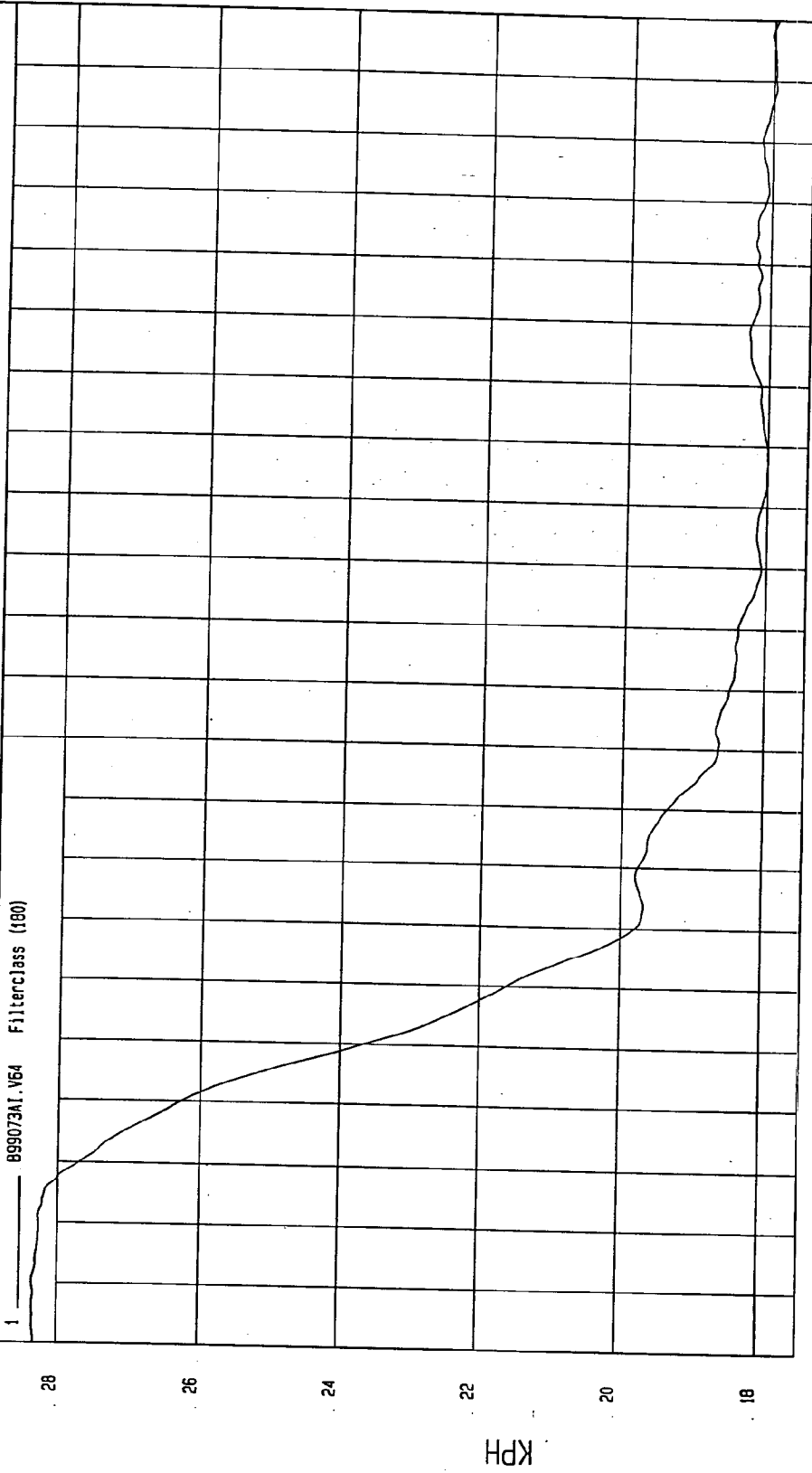
TIME (SECONDS)

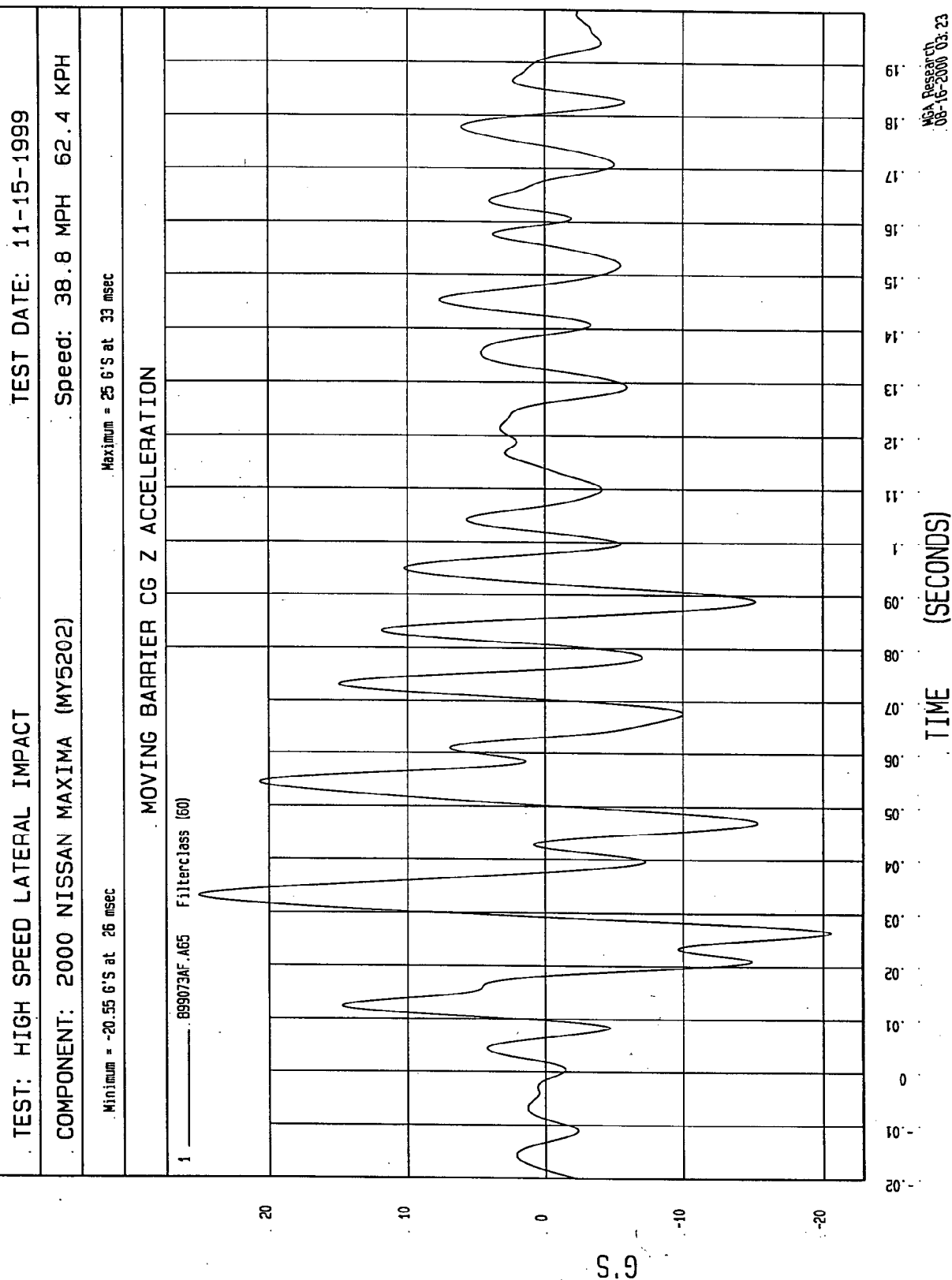
WGA Research
08-16-2000 03:23

G.S

TEST: HIGH SPEED LATERAL IMPACT
TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202)
Speed: 38.8 MPH 62.4 KPH
Minimum = 17.95 KPH at 200 msec
Maximum = 28.36 KPH at -10 msec

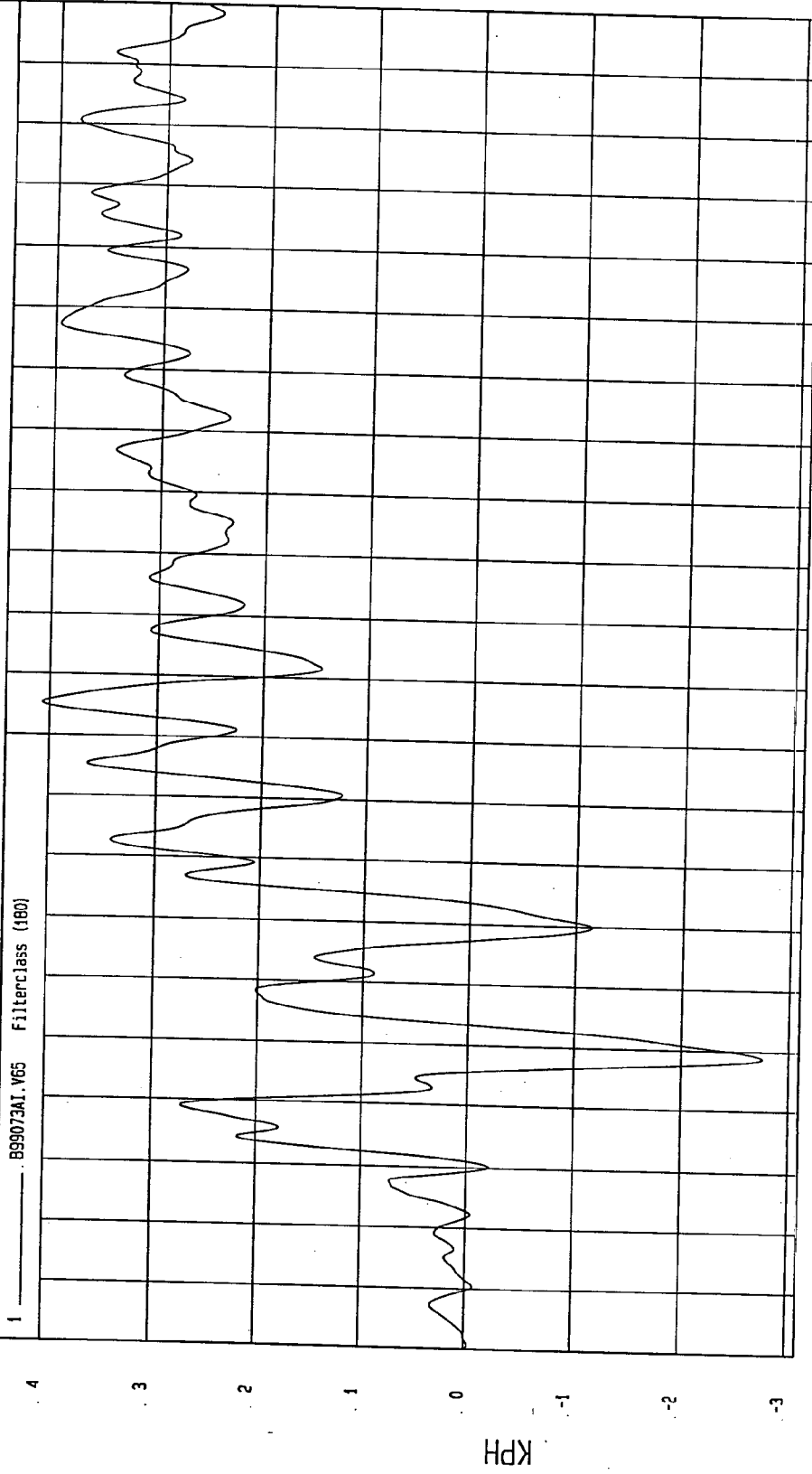
MOVING BARRIER CG Y VELOCITY

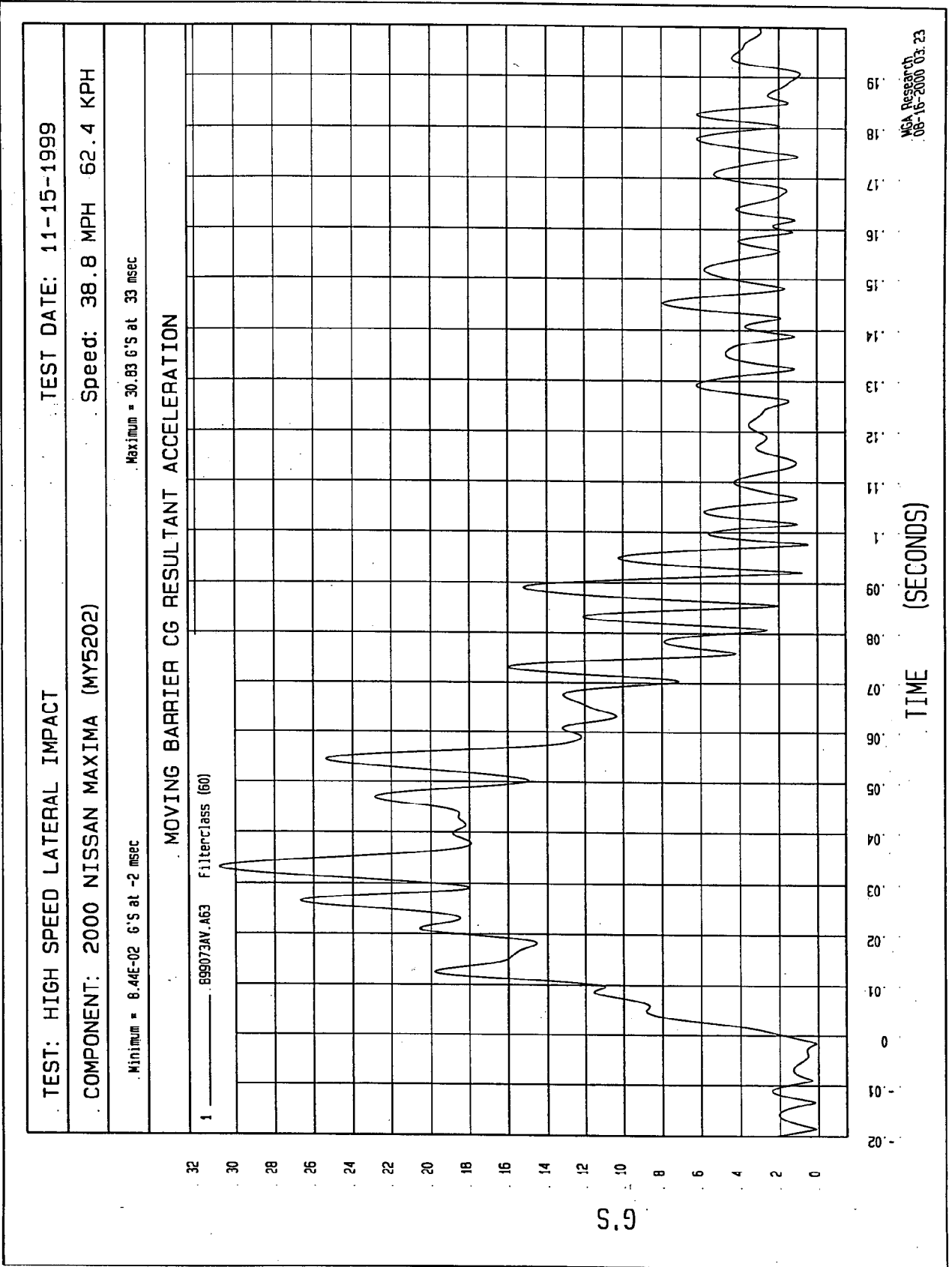




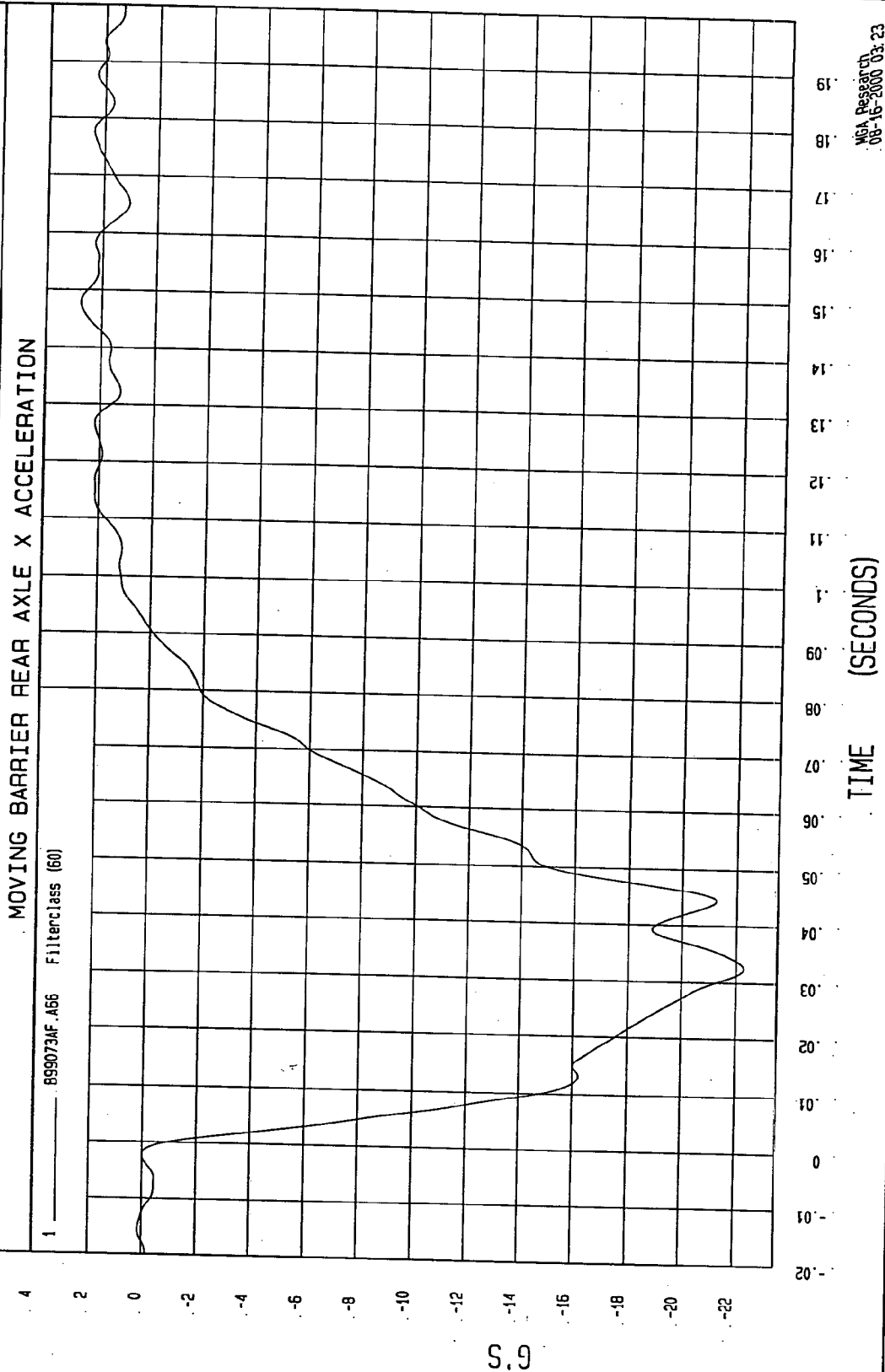
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH
Minimum = -2.75 KPH at 29 msec Maximum = 4.07 KPH at 85 msec

MOVING BARRIER CG Z VELOCITY





1



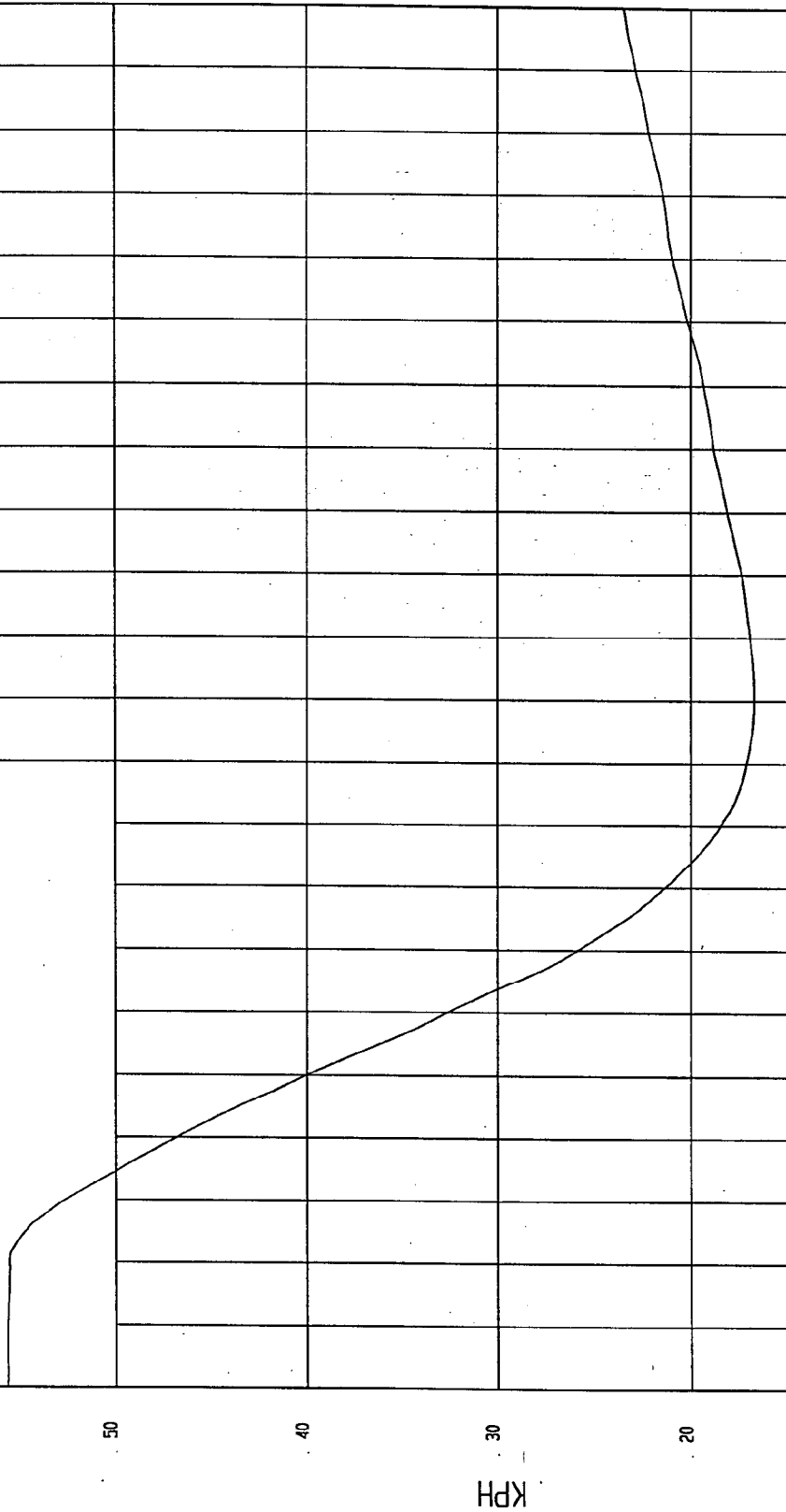
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = 16.73 KPH at 91 msec Maximum = 55.61 KPH at -11 msec

MOVING BARRIER REAR AXLE X VELOCITY

1 ——— B99073A1.V66 Filterclass (180)



TIME Seconds

WCA Research
08-16-2000 03:23

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

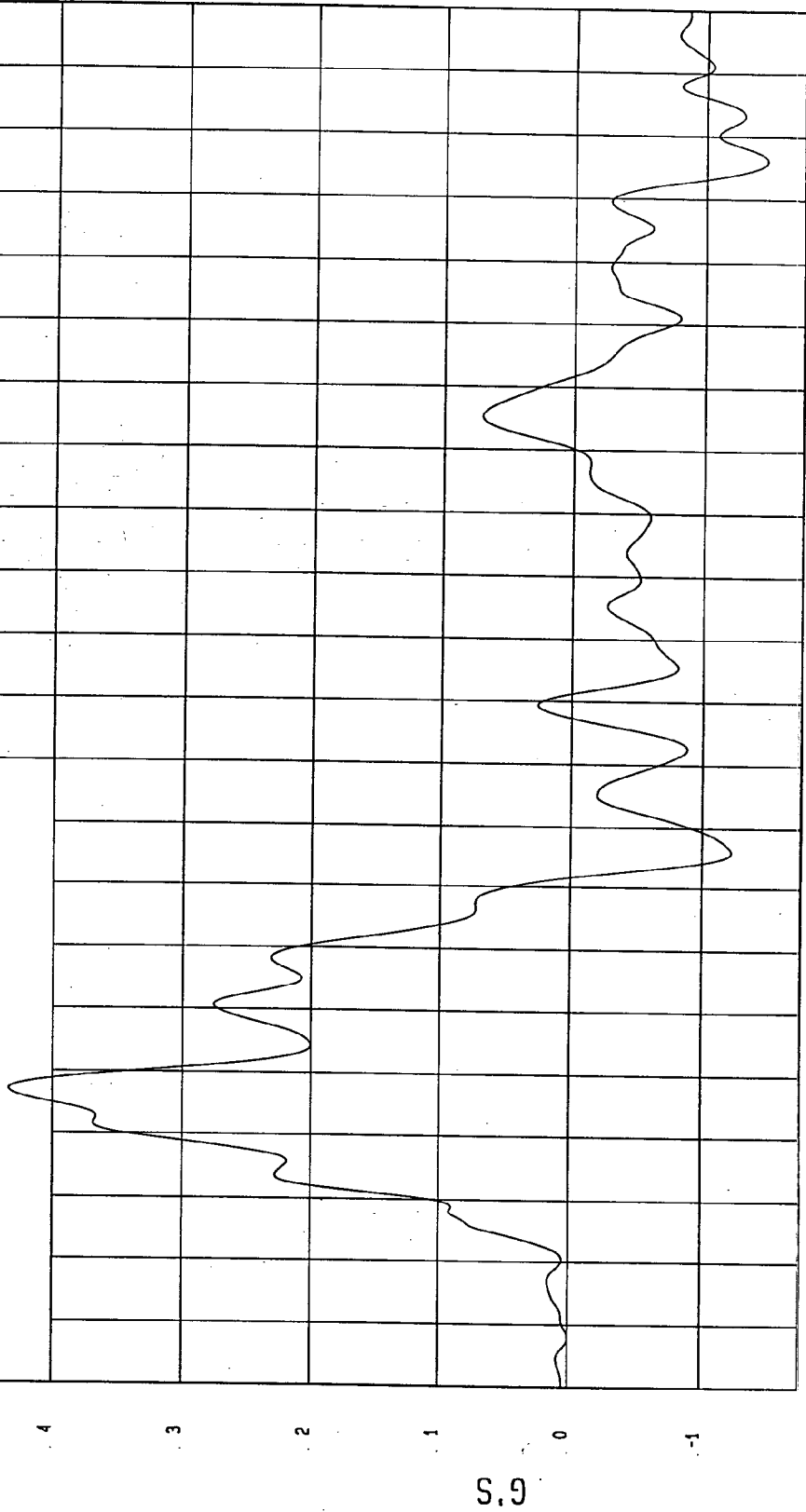
Speed: 38.8 MPH 62.4 KPH

Minimum = -1.46 G's at 176 msec

Maximum = 4.33 G's at 27 msec

MOVING BARRIER REAR AXLE Y ACCELERATION

1 B99073AF.A67 FilterClass (50)



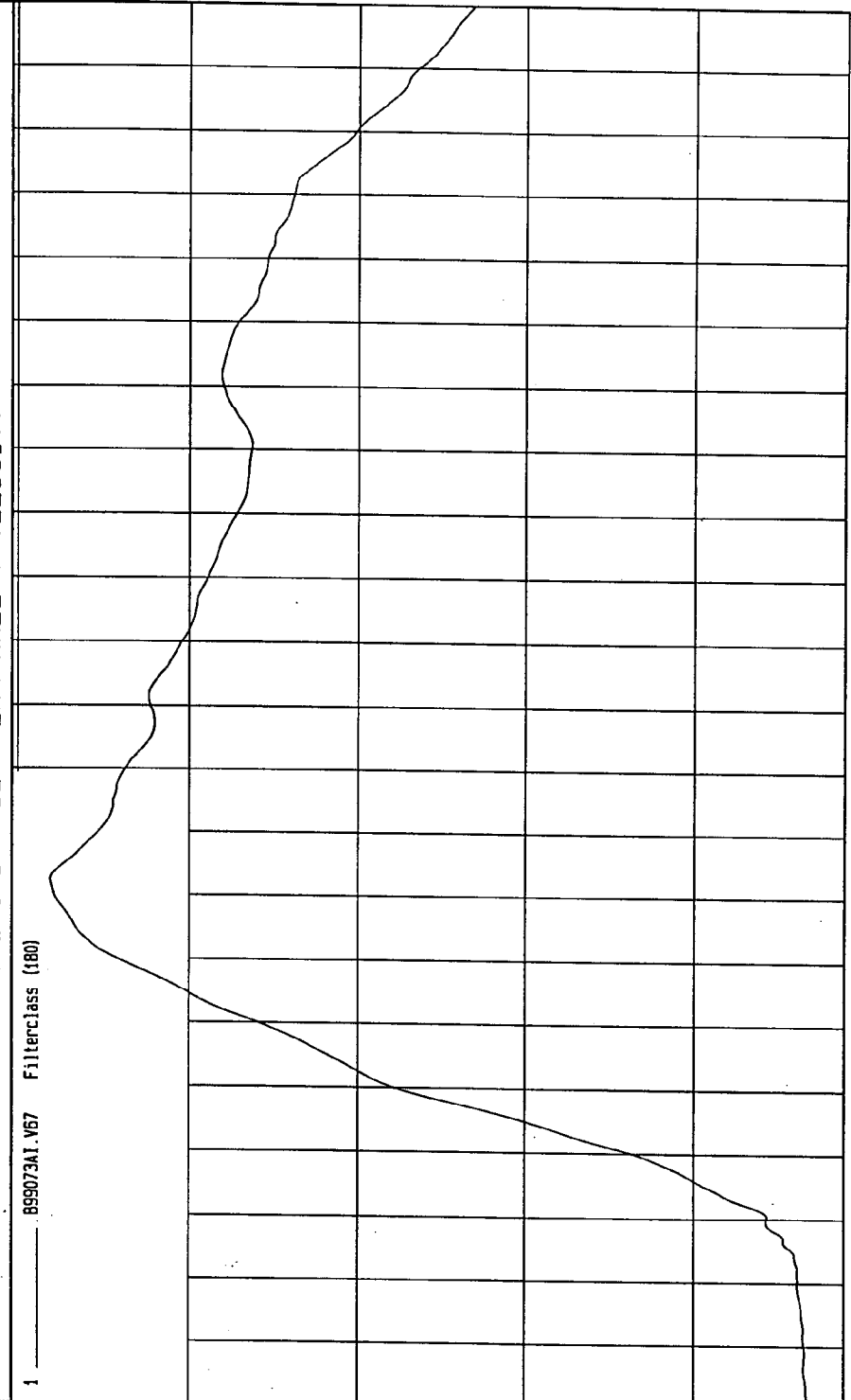
MCA Research
08-15-2000 03:23

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = 28.33 KPH at -20 msec Maximum = 32.81 KPH at 62 msec

MOVING BARRIER REAR AXLE Y VELOCITY

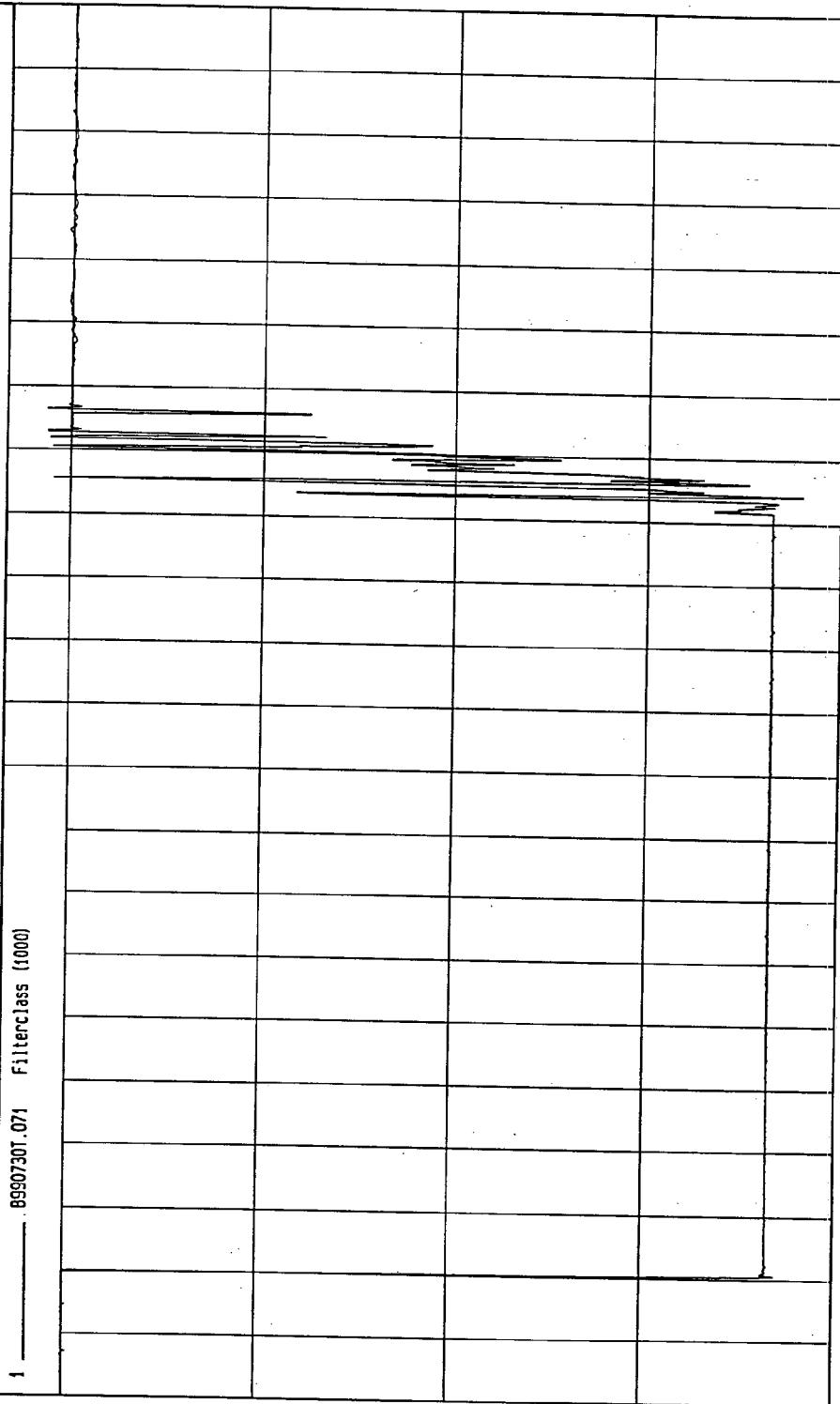


TIME Seconds

NSA Research
06-16-2000 03:23

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH
Minimum = -3.79 VOLTS at 124 msec Maximum = .13 VOLTS at 136 msec

LEFT BARRIER CONTACT



MGA Research
08-16-2000 03:23

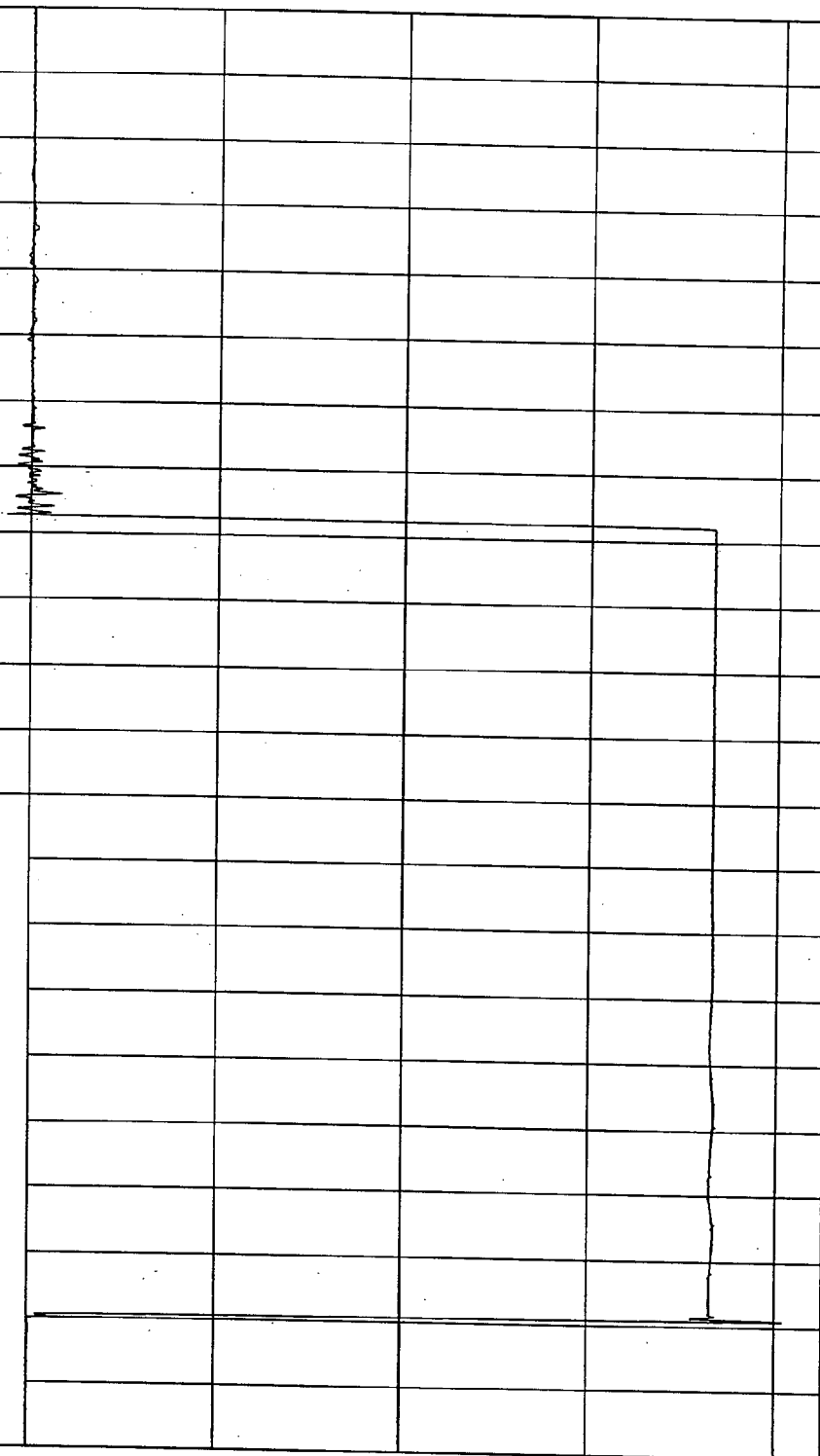
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -4.04 VOLTS at 1 msec
Maximum = .13 VOLTS at 123 msec

RIGHT BARRIER CONTACT

1 8990730T.072 FilterClass (1000)



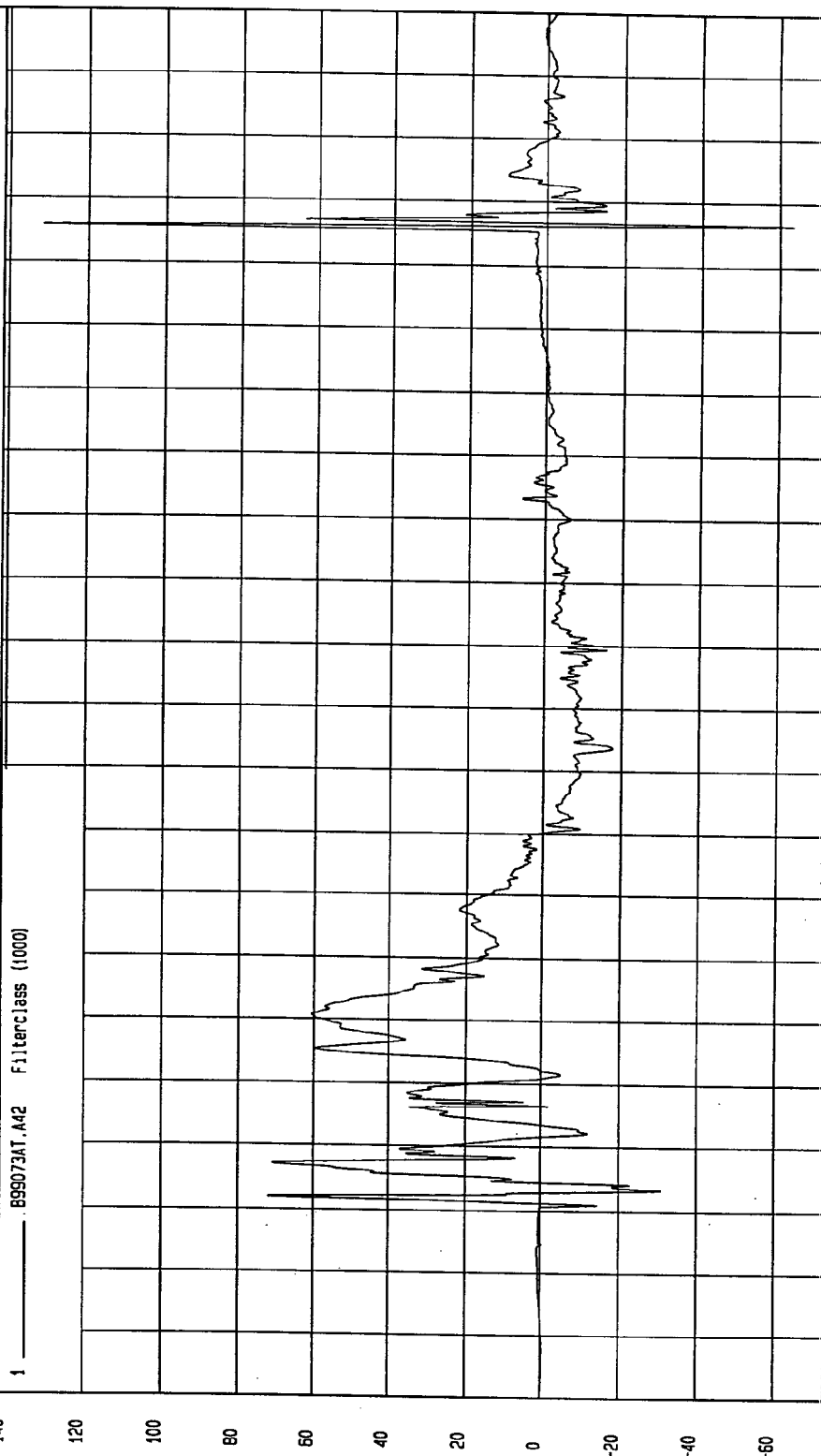
NGA Research
08-16-2000 03:23

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -63.43 G'S at 166 msec Maximum = 131.49 G'S at 166 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION



TIME (SECONDS)

WCA Research
08-18-2000 08:52

G.S

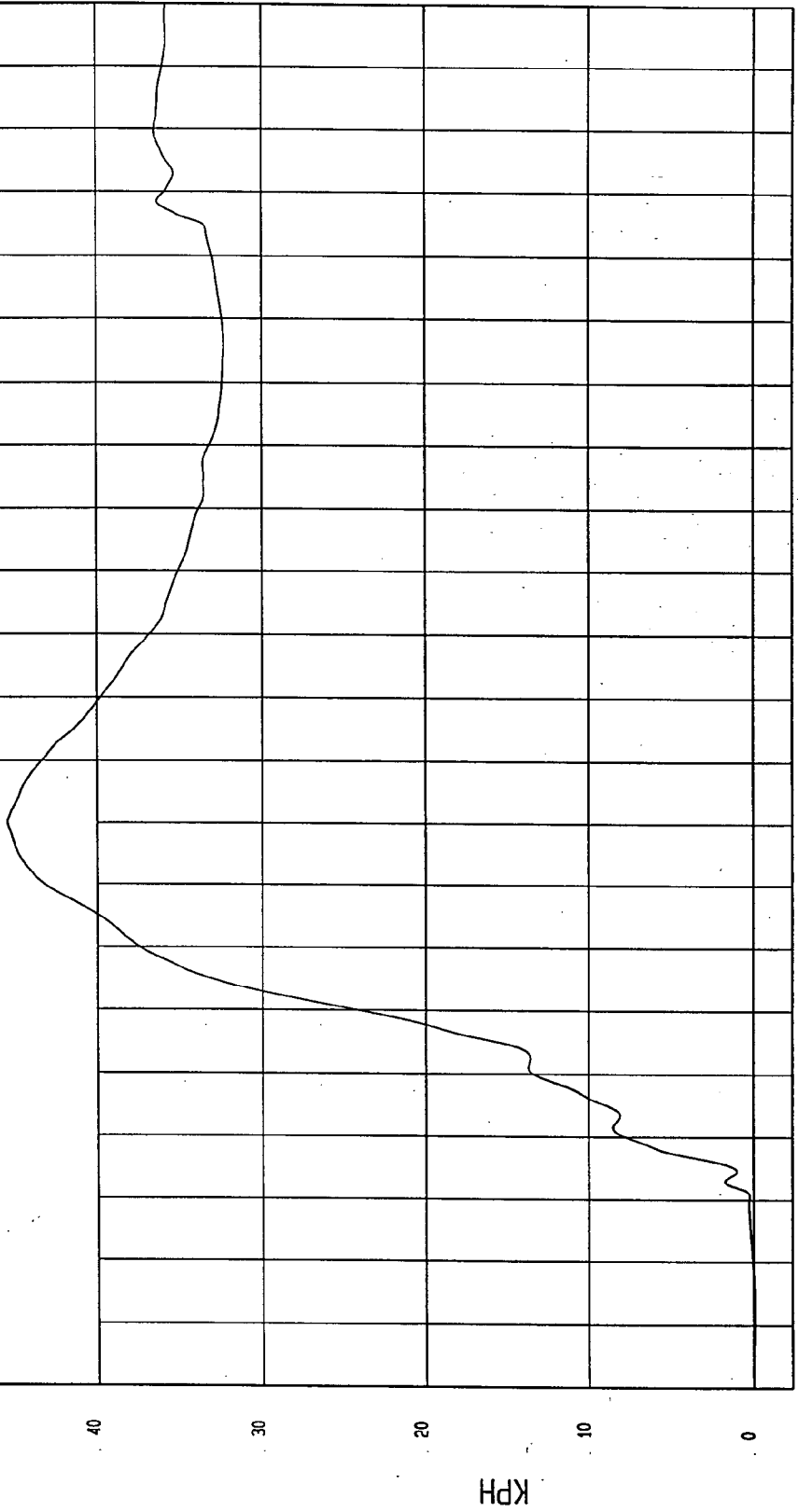
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -9.16E-02 KPH at -8 msec Maximum = 45.37 KPH at 70 msec

DRIVER UPPER RIB Y REDUNDANT VELOCITY

1 _____ 899073A1.V42 Filterclass (180)



TIME Seconds

NCA Research
08-18-2000 08:51

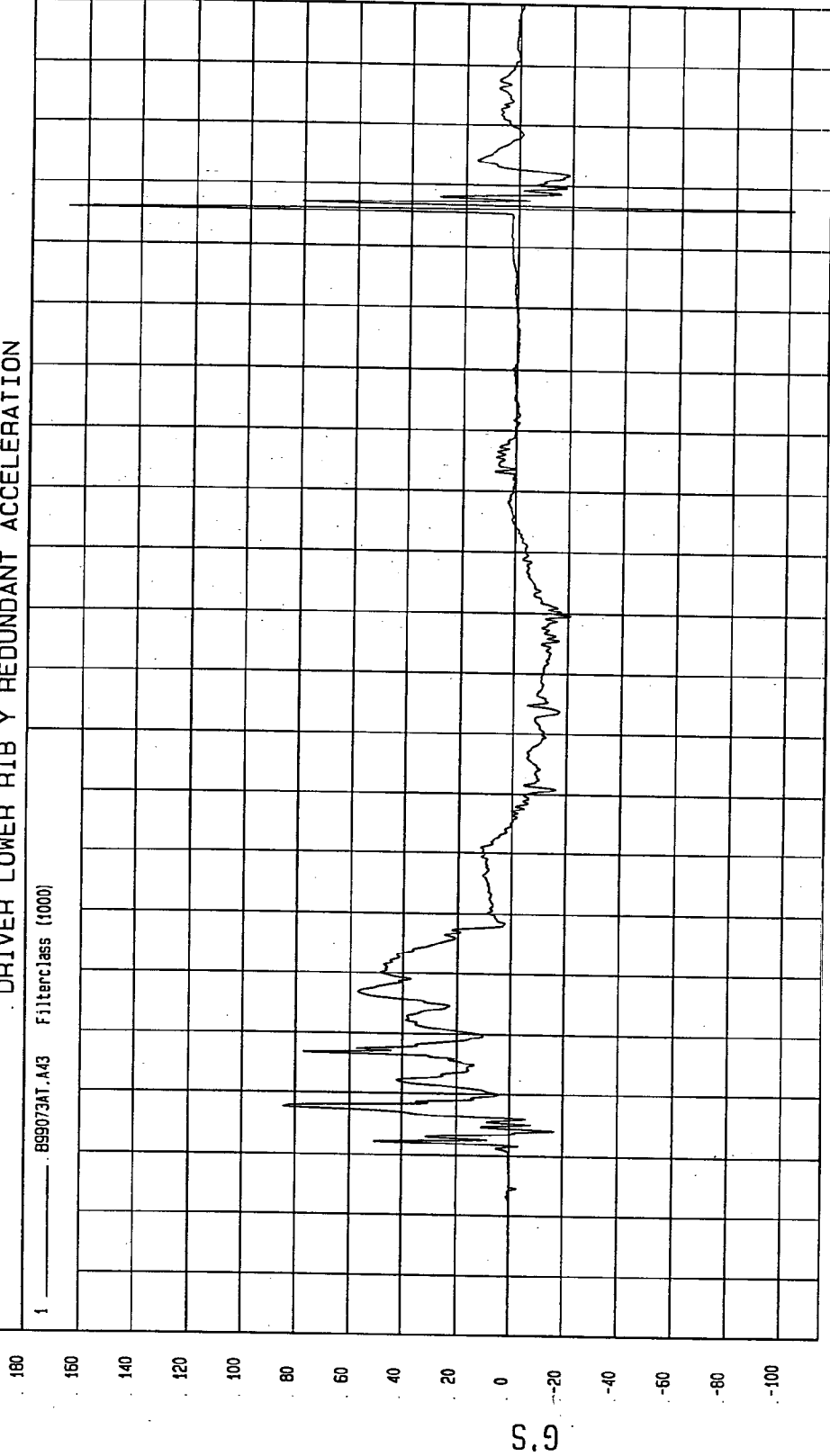
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -101.34 G'S at 166 msec
Maximum = 166.89 G'S at 166 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION

1 B99073AT.A43 Filterclass (1000)



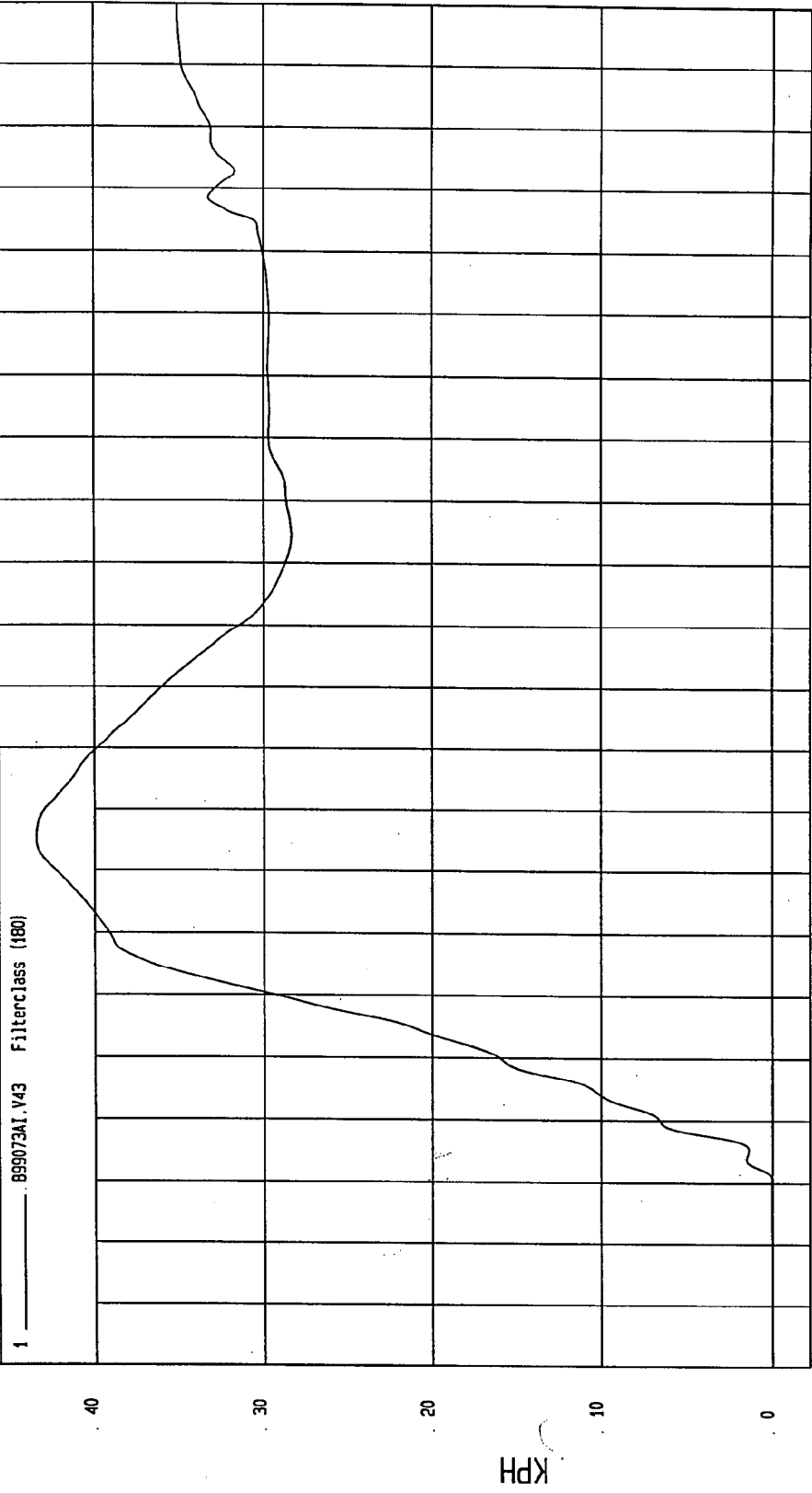
NGA Research
08-18-2000 08:52

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MYS202) Speed: 38.8 MPH 62.4 KPH

Minimum = -3.22E-05 KPH at -20 msec Maximum = 43.36 KPH at 65 msec

DRIVER LOWER RIB Y REDUNDANT VELOCITY



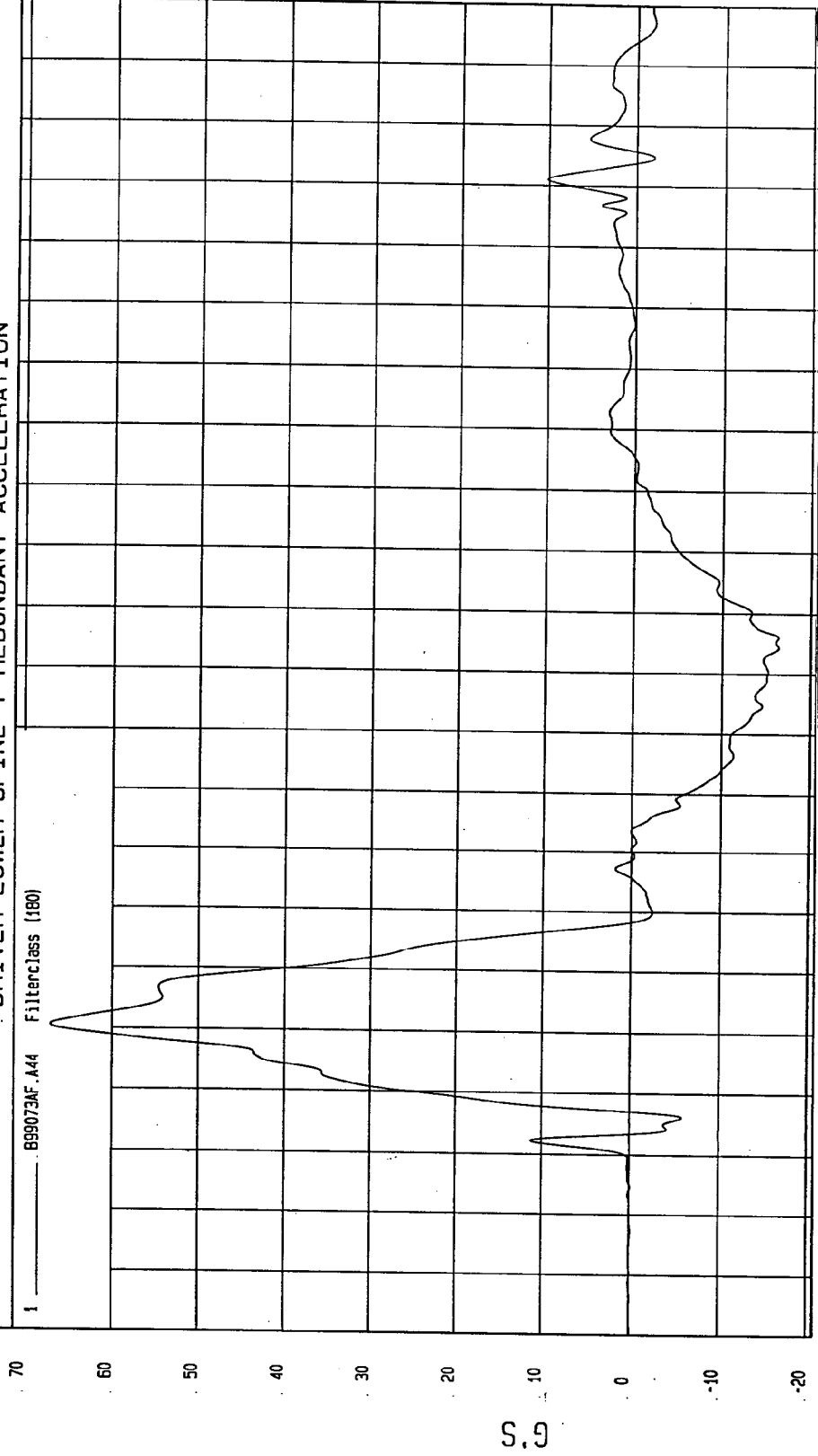
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -16.51 G'S at 94 msec Maximum = 66.98 G'S at 30 msec

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION

1 B99073AF.A44 FilterClass (180)



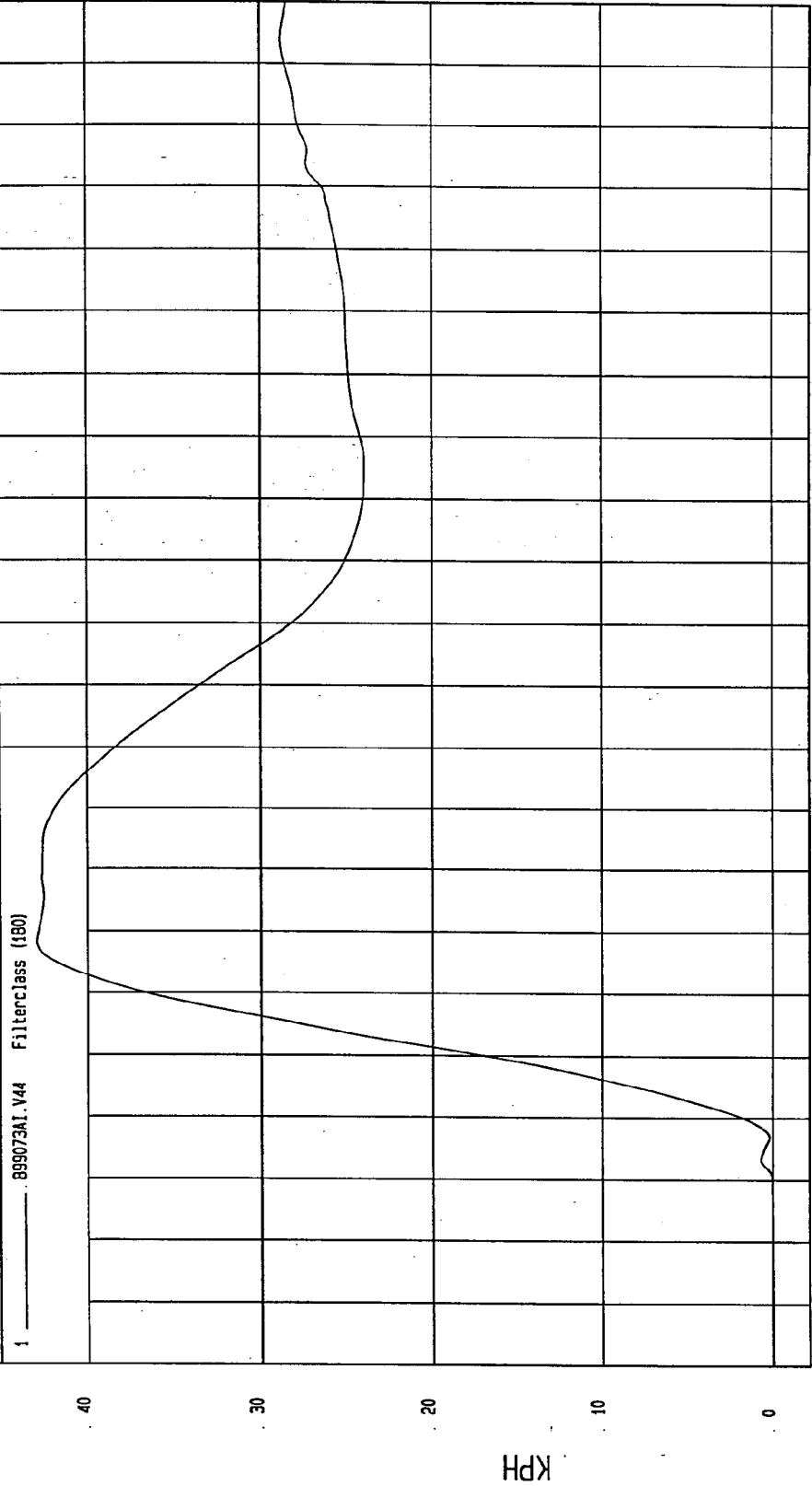
MCA Research
08-18-2000 08:52

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -1.00E-02 KPH at -1 msec Maximum = 42.93 KPH at 48 msec

DRIVER LOWER SPINE Y REDUNDANT VELOCITY



TIME Seconds

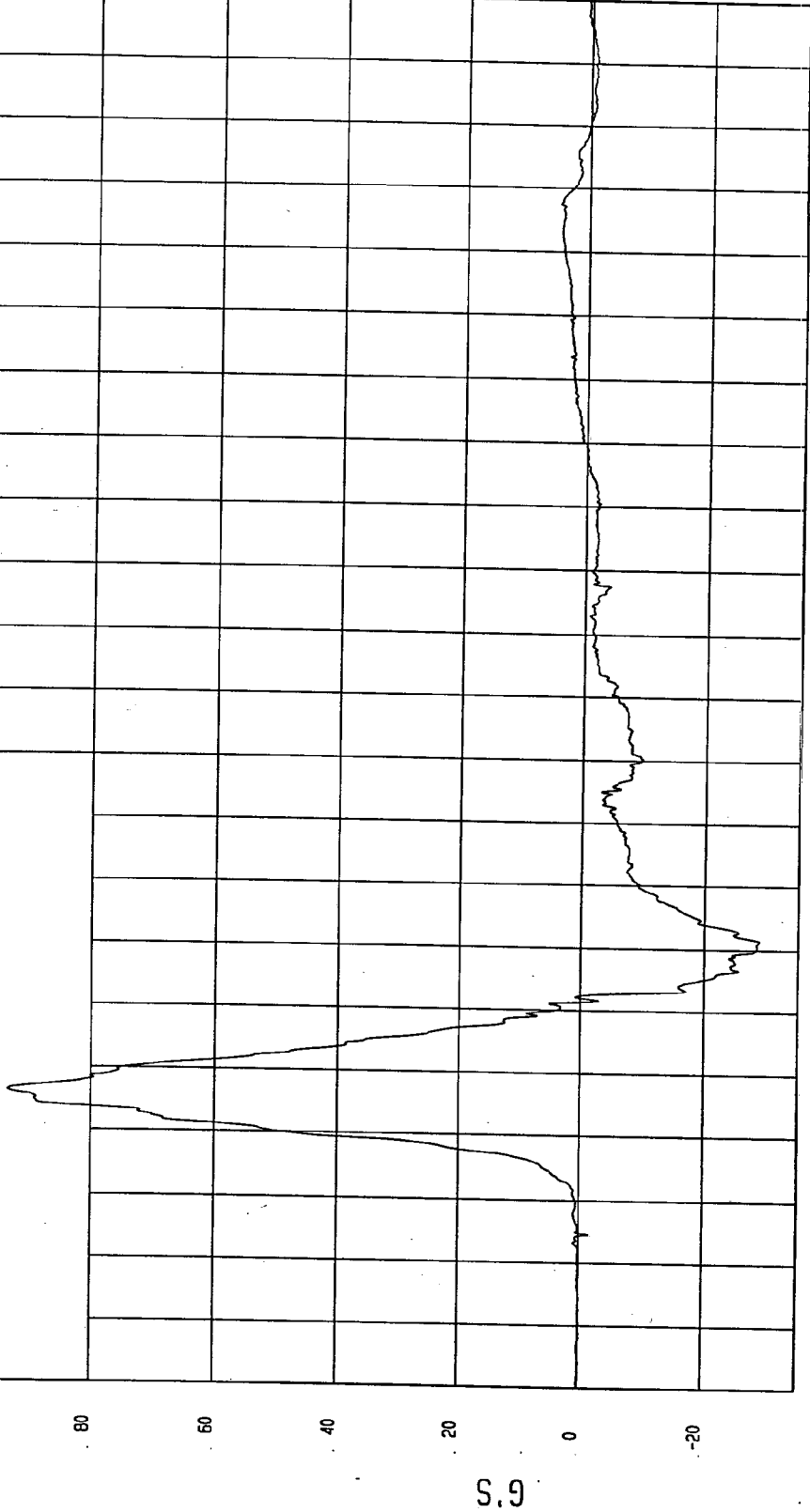
NCA Research
08-18-2000 08:51

TEST: HIGH SPEED LATERAL IMPACT
TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202)
Speed: 38.8 MPH 62.4 KPH

Minimum = -29.06 G's at 51 msec
Maximum = 93.42 G's at 26 msec

DRIVER PELVIS Y REDUNDANT ACCELERATION

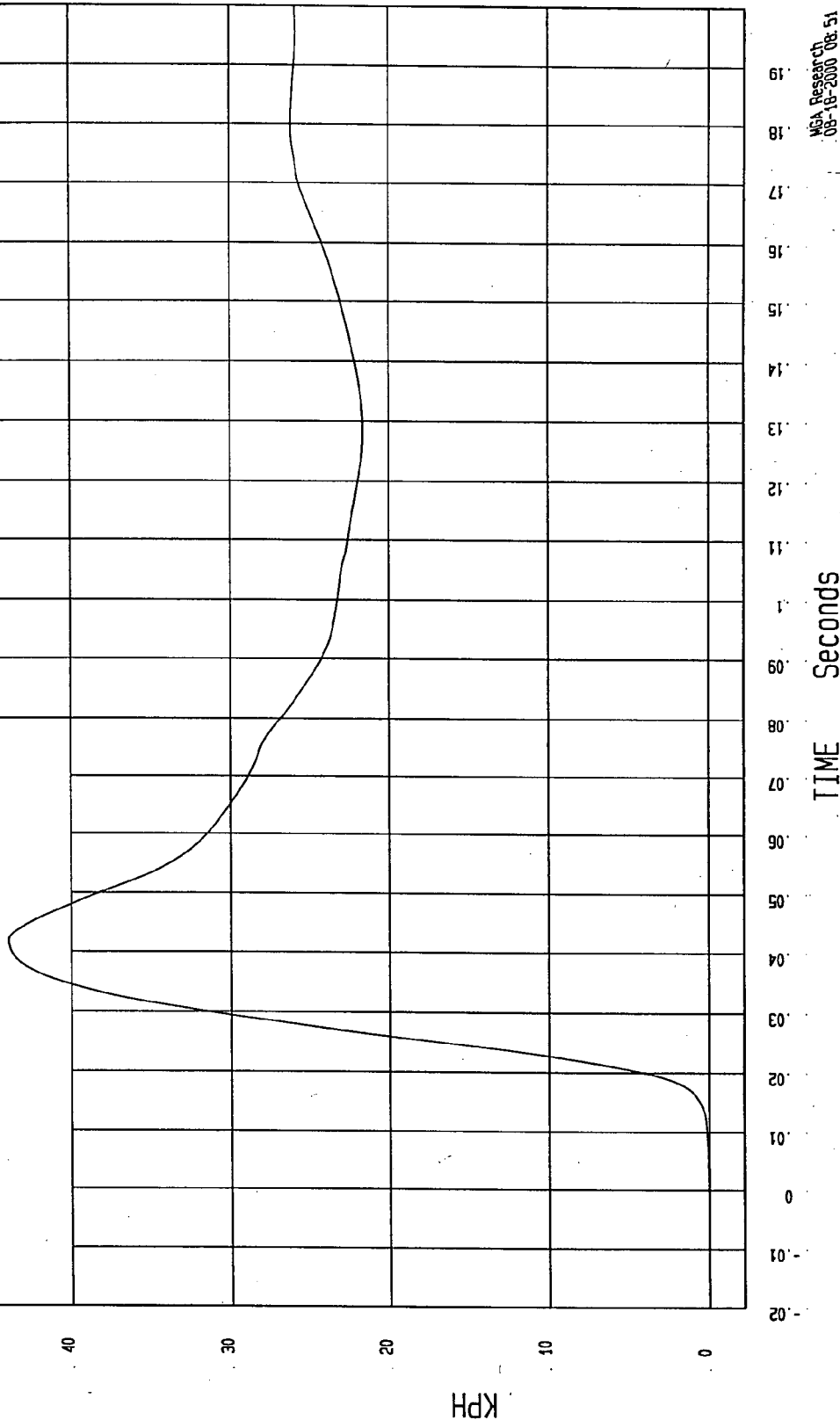
1 _____ 899073AT.A45 Filterclass (1000)



TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999
COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH
Minimum = -3.82E-03 KPH at -5 msec
Maximum = 43.82 KPH at 42 msec

DRIVER PELVIS Y REDUNDANT VELOCITY

1 _____ B99073A1.V45 FilterClass (180)

NSA Research
08-16-2000 08:51

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

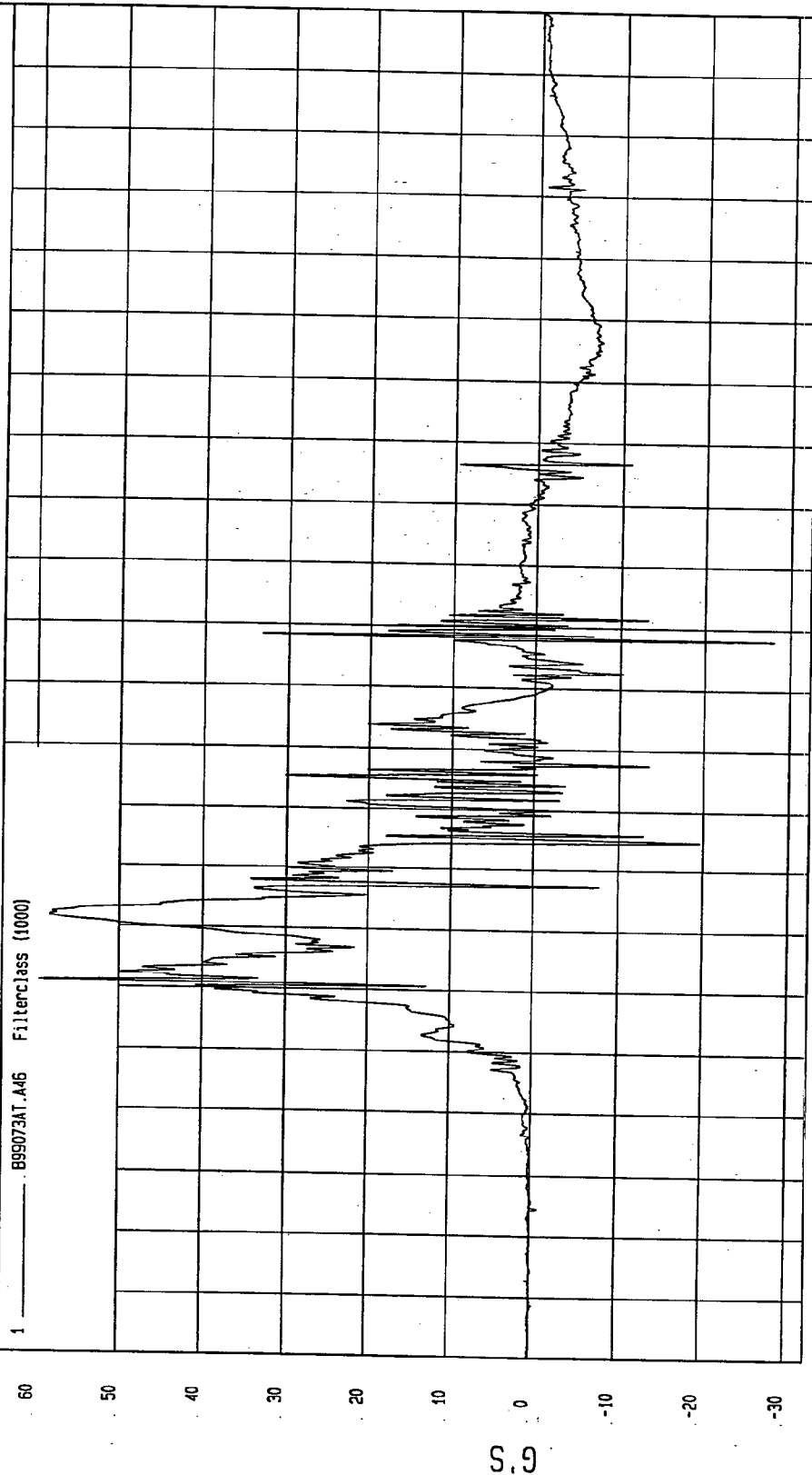
Speed: 38.8 MPH 62.4 KPH

Minimum = -28.05 G'S at 98 msec

Maximum = 59.58 G'S at 41 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

1 ——— B99073AT.A46 Filterclass (1000)

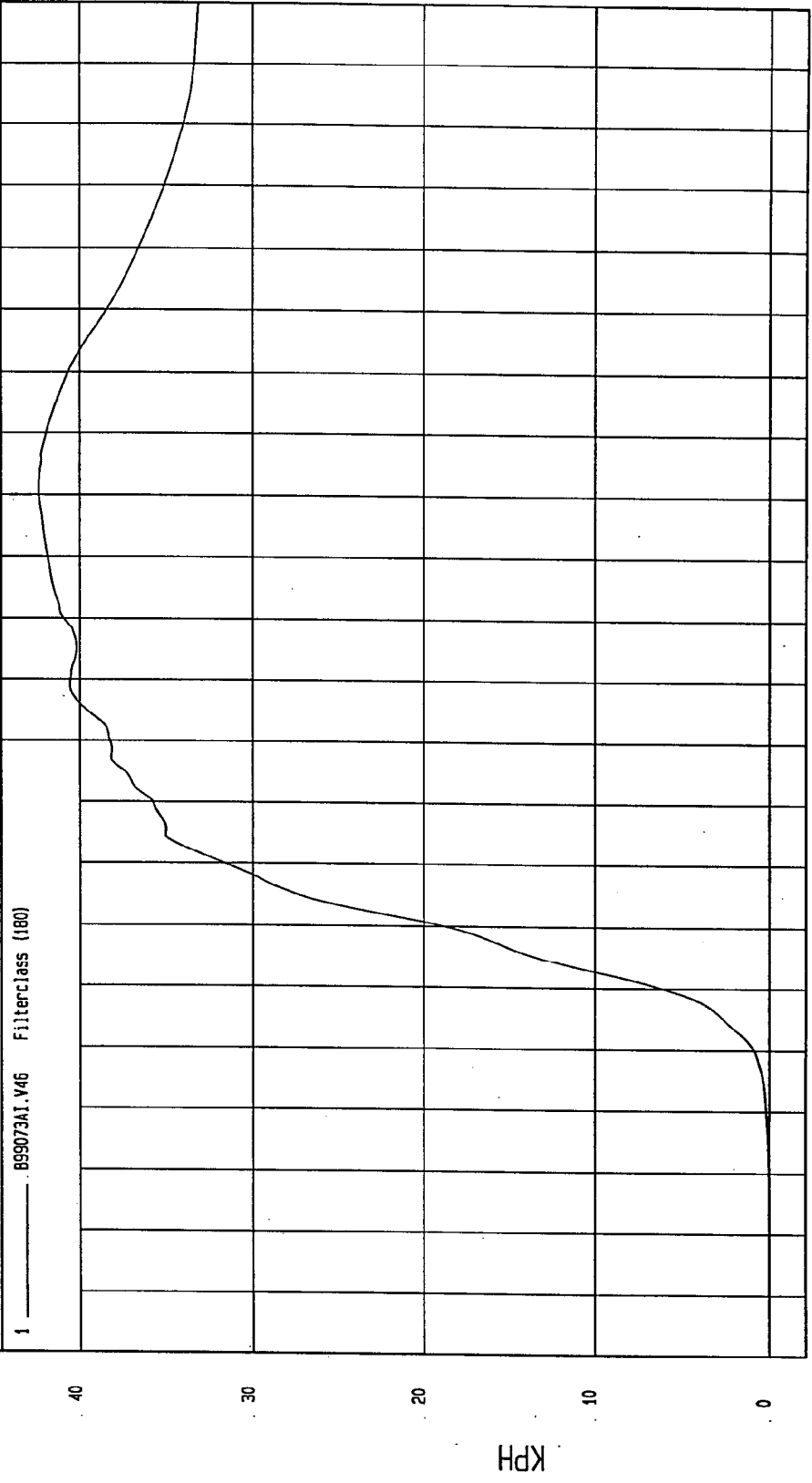
MGA Research
08-18-2000 08:52

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -3.90E-03 KPH at -5 msec Maximum = 42.36 KPH at 121 msec

REAR PASSENGER UPPER RIB Y REDUNDANT VELOCITY



TIME Seconds

NSA Research
08-10-2000 08:51

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

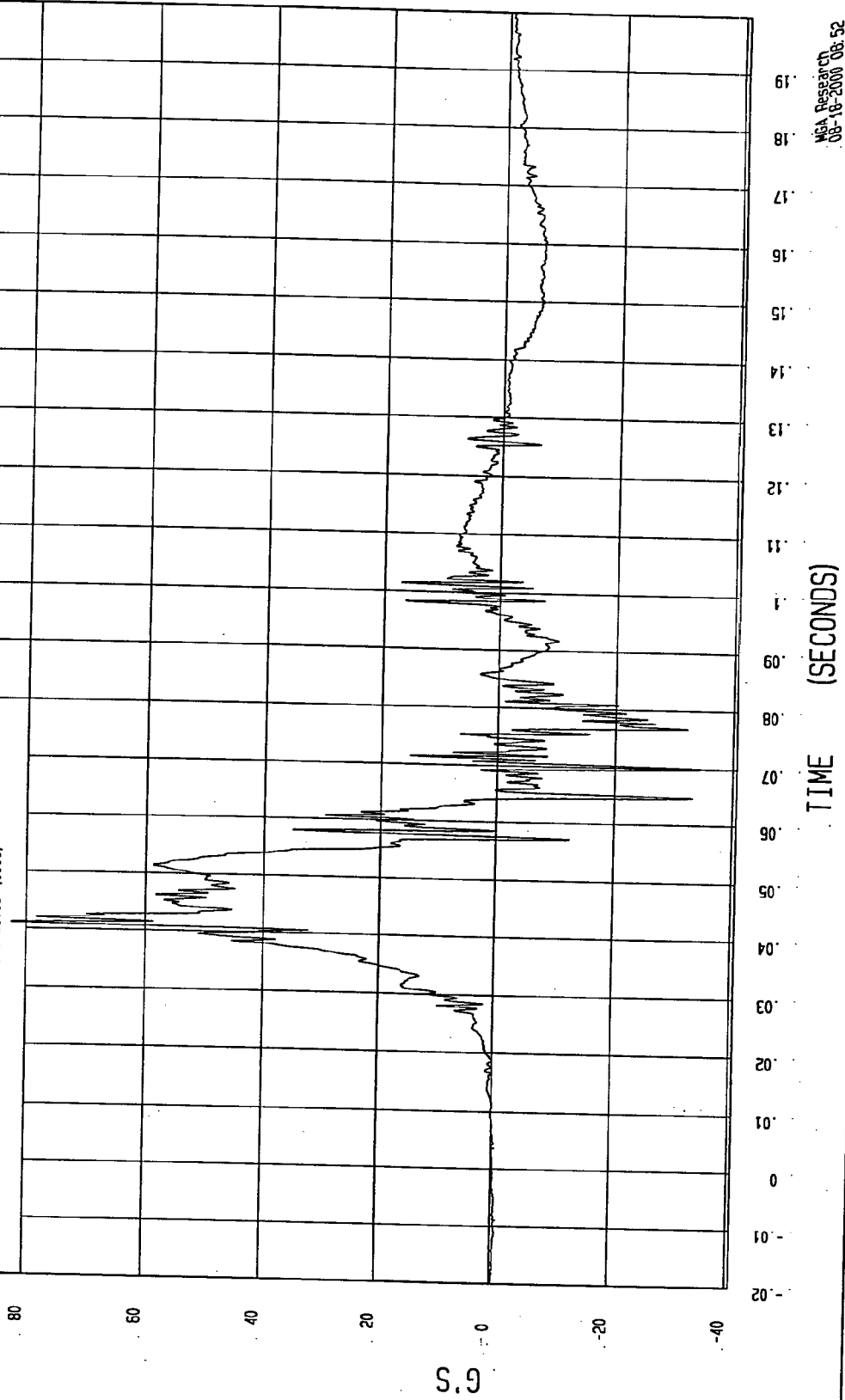
Speed: 38.8 MPH 62.4 KPH

Minimum = -34.81 G'S at 70 msec

Maximum = 82.57 G'S at 41 msec

REAR PASSENGER LOWER RIB Y REDUNDANT ACCELERATION

1 ——— B99073AT.A47 Filterclass (1000)



WCA Research
08-18-2000 08:52

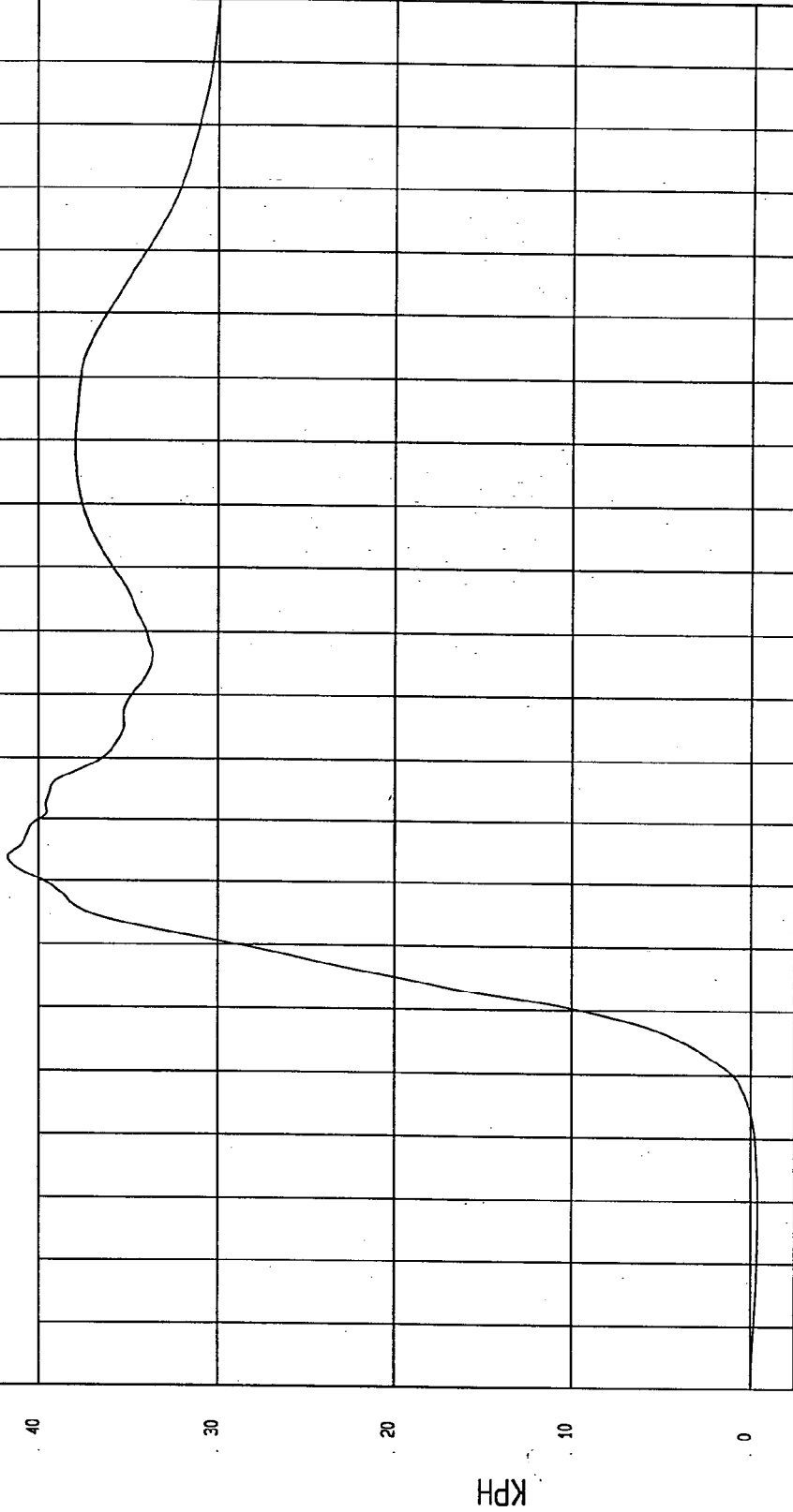
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = .38 KPH at 8 msec Maximum = 41.75 KPH at 64 msec

REAR PASSENGER LOWER RIB Y REDUNDANT VELOCITY

1 _____ B99073A1.V47 Filterclass (180)



TIME Seconds

MCA Research
08-18-2000 08:51

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

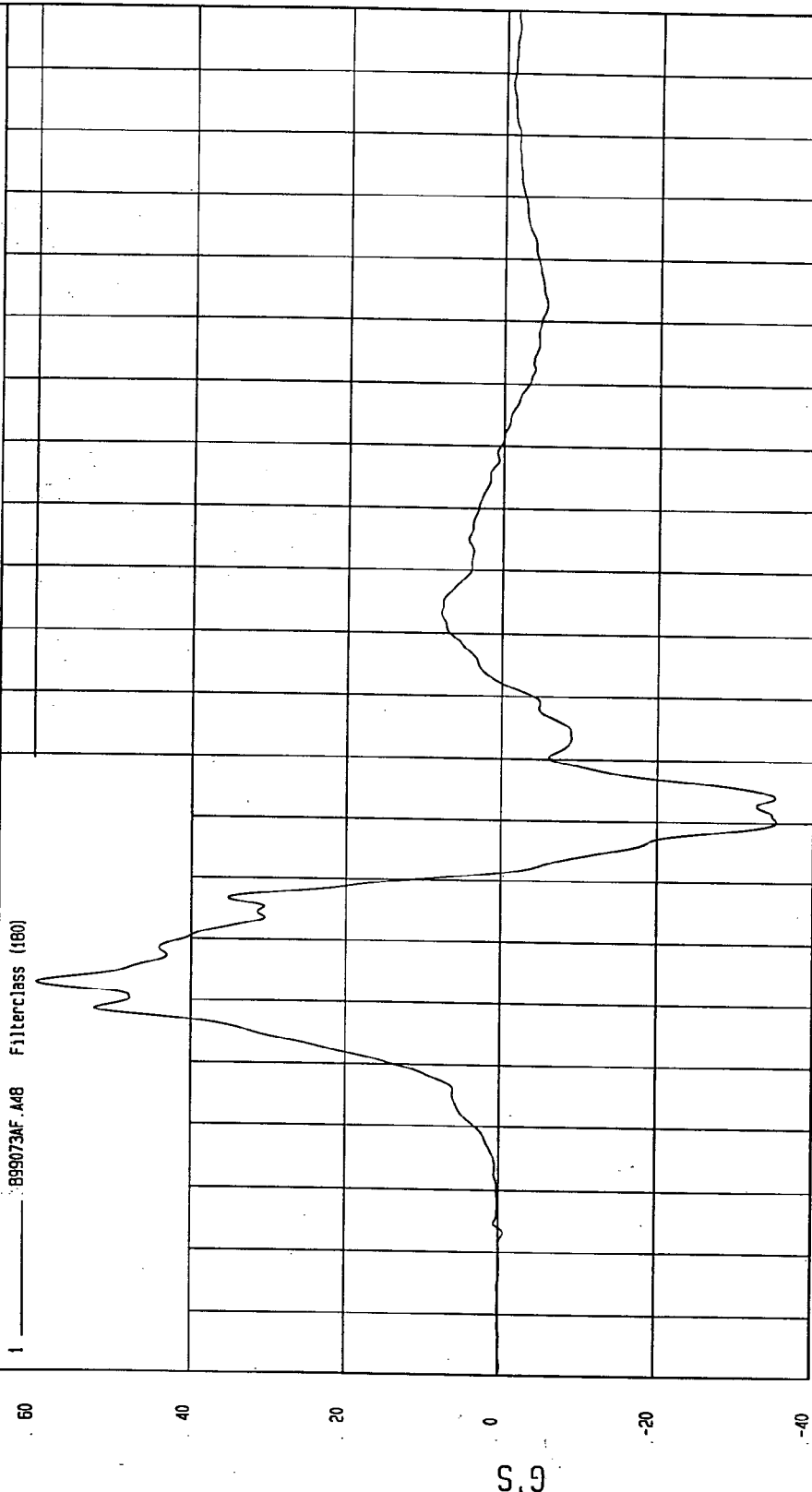
Speed: 38.8 MPH 62.4 KPH

Minimum = -35.35 G'S at 70 msec

Maximum = 59.69 G'S at 43 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION

1 B99073AF.A48 FilterClass (180)



WGA Research
08-18-2000 08:52

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

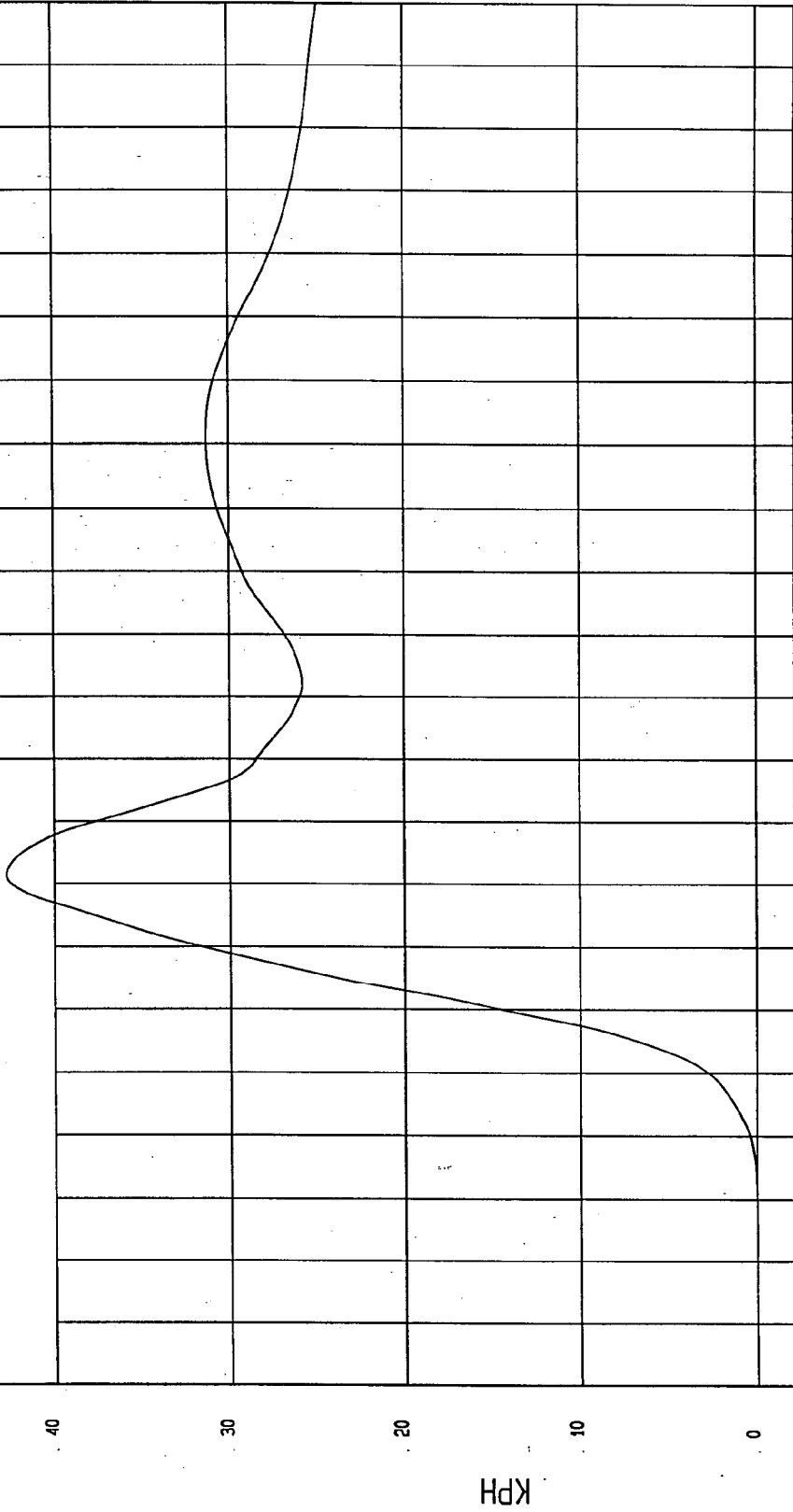
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 42.74 KPH at 61 msec

Minimum = -5.19E-02 KPH at 4 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT VELOCITY

1 899073A1.V4B Filterclass (160)



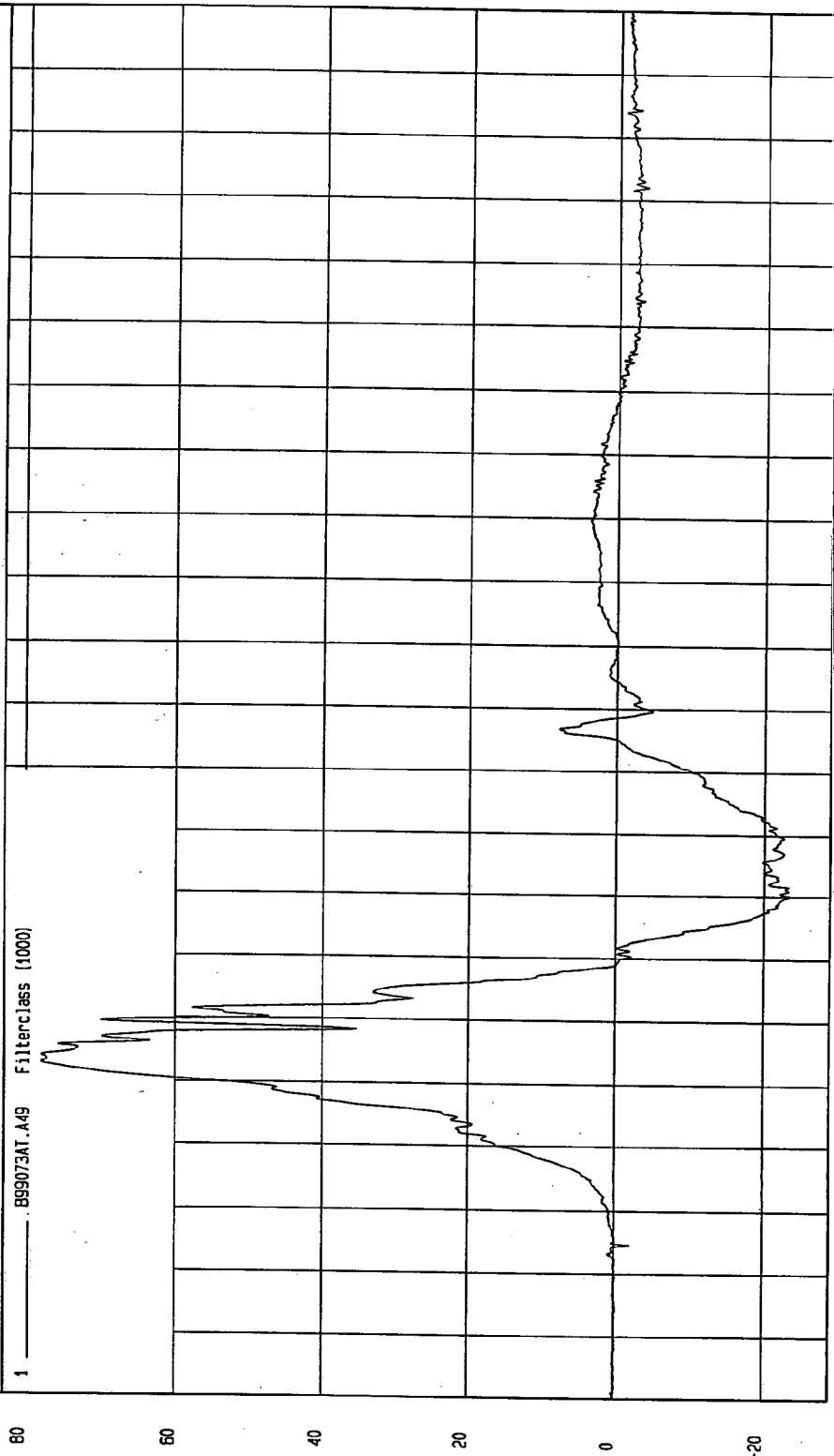
TIME Seconds
VGA Research
08-18-2000 08:51

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -23.86 G'S at 50 msec Maximum = 77.82 G'S at 33 msec

REAR PASSENGER PELVIS Y REDUNDANT ACCELERATION



MGA Research
08-18-2000 08:52

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

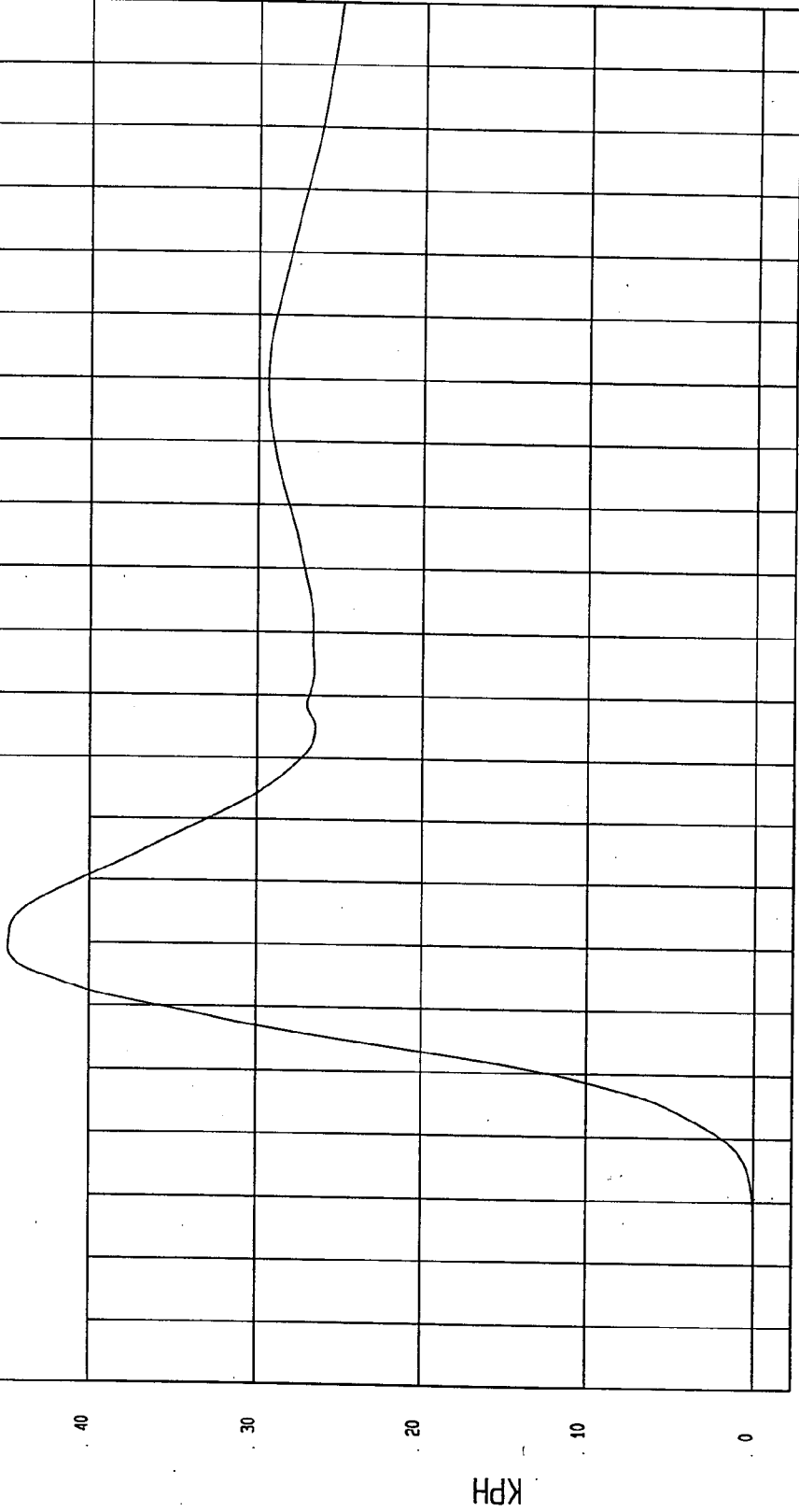
Speed: 38.8 MPH 62.4 KPH

Minimum = -1.61E-02 KPH at -4 msec

Maximum = 44.85 KPH at 49 msec

REAR PASSENGER PELVIS Y REDUNDANT VELOCITY

1 ——— 899073A1.V49 Filterclass (180)



WCA Research
08-18-2000 08:51

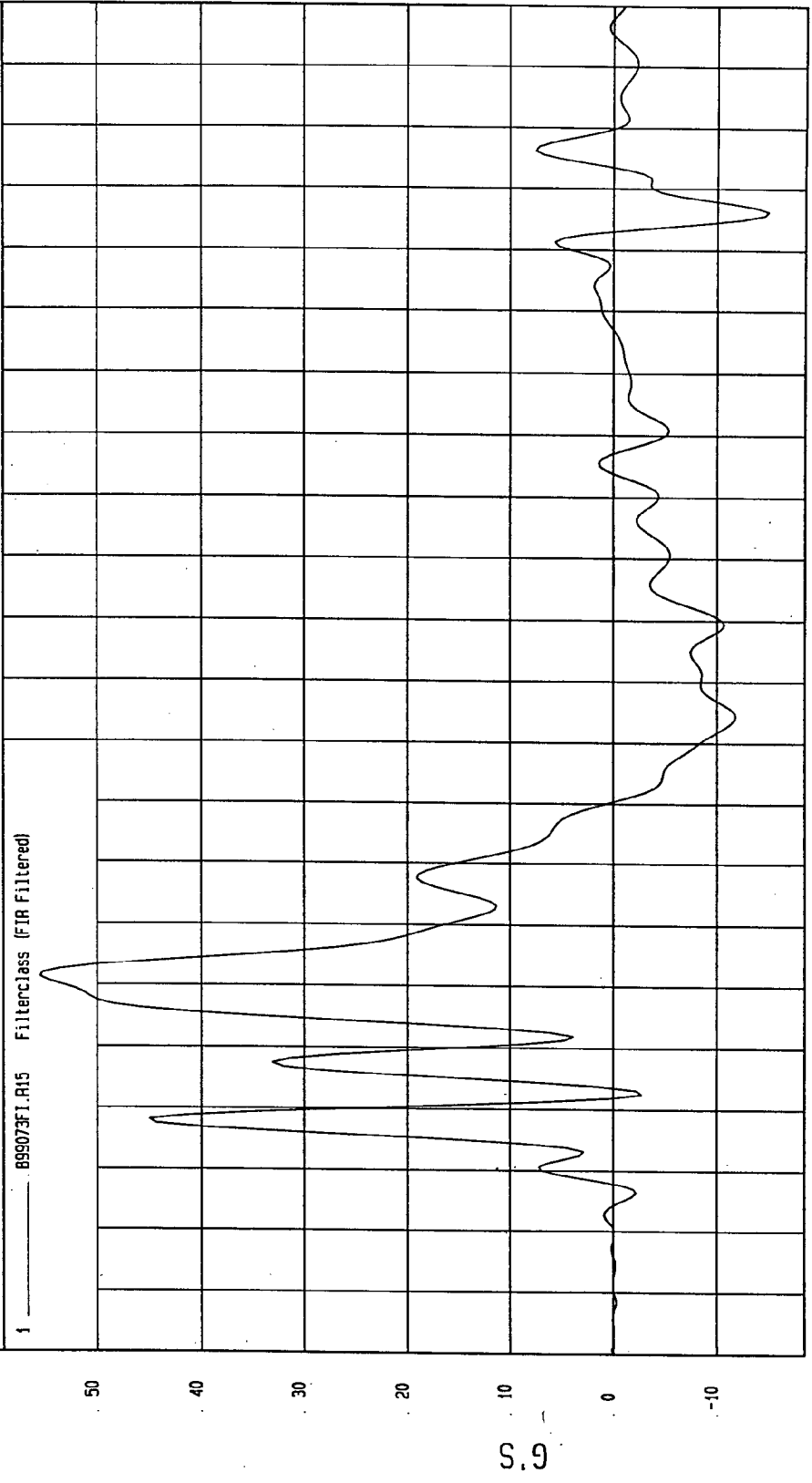
FINITE IMPULSE RESPONSE (FIR) FILTERED DATA

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -14.97 G'S at 166 msec Maximum = 55.38 G'S at 41 msec

DRIVER UPPER RIB Y ACCELERATION



TIME (SECONDS)

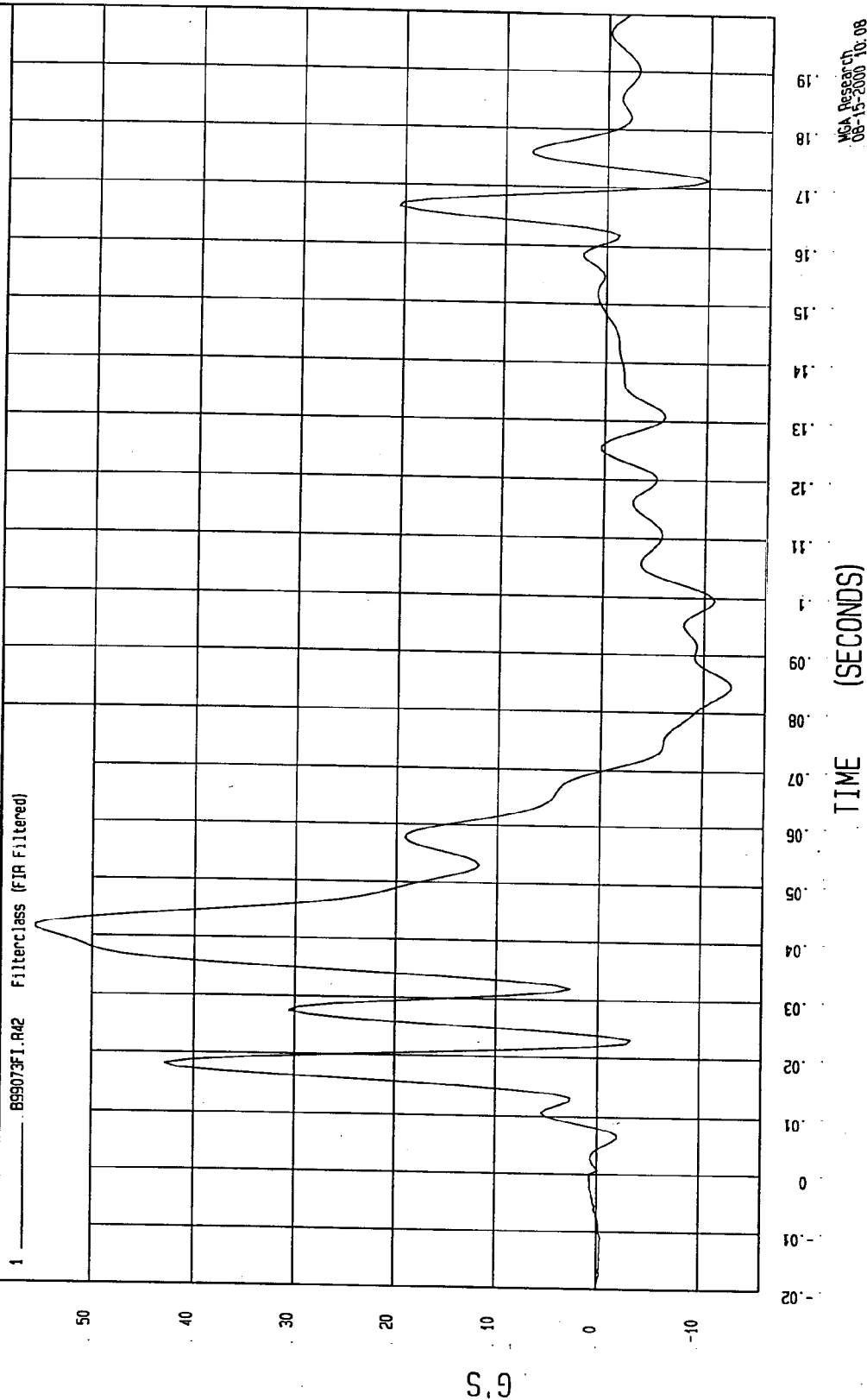
NCA Research
09-15-2000 10:08

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -12.75 G's at 85 msec Maximum = 55.56 G's at 41 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION



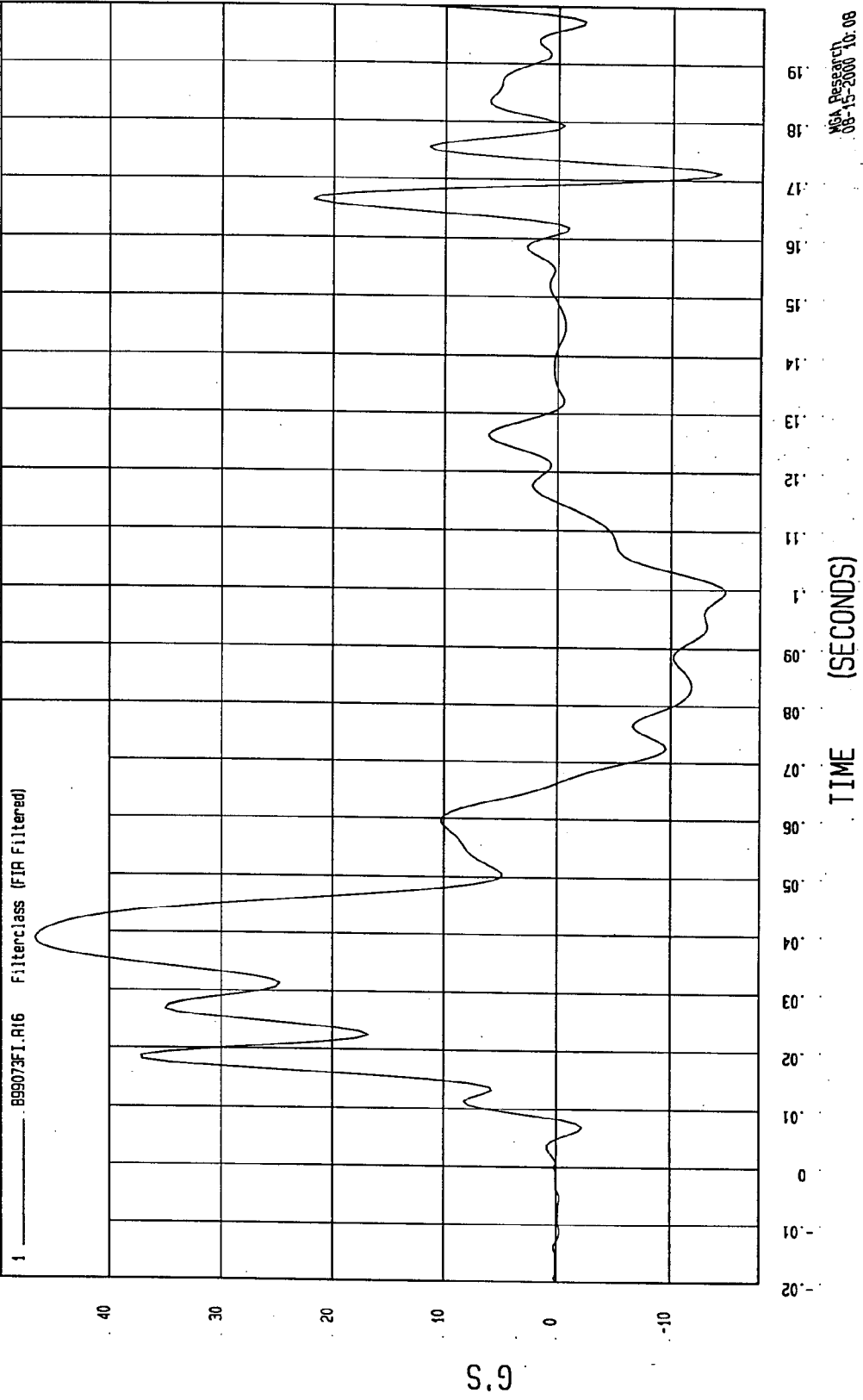
MCA Research
08-15-2000 10:08

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -14.9 G'S at 100 msec Maximum = 46.45 G'S at 39 msec

DRIVER LOWER RIB Y ACCELERATION

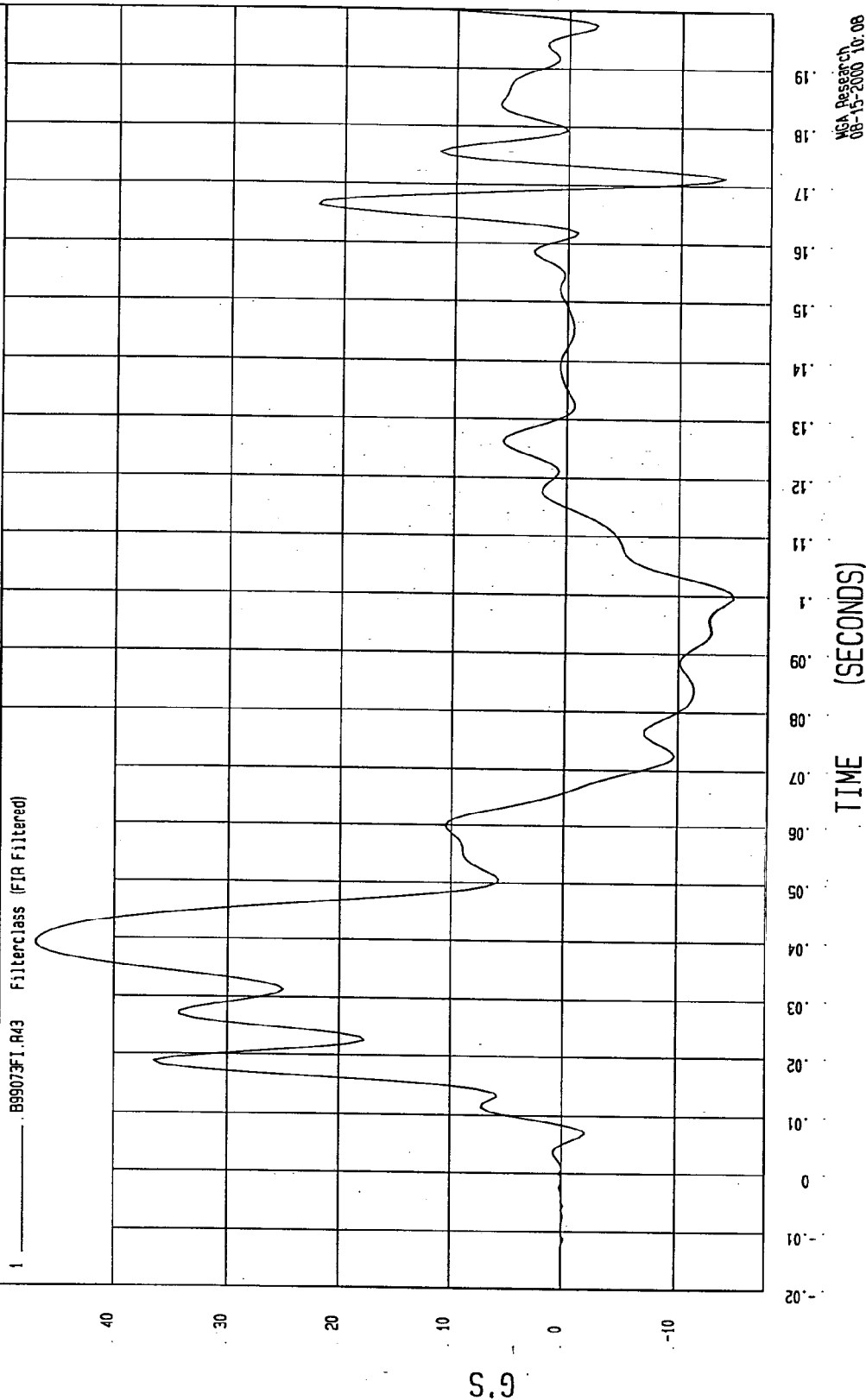


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -14.72 G'S at 100 msec Maximum = 46.83 G'S at 39 msec

DRIVER LOWER RIB Y REDUNDANT ACCELERATION



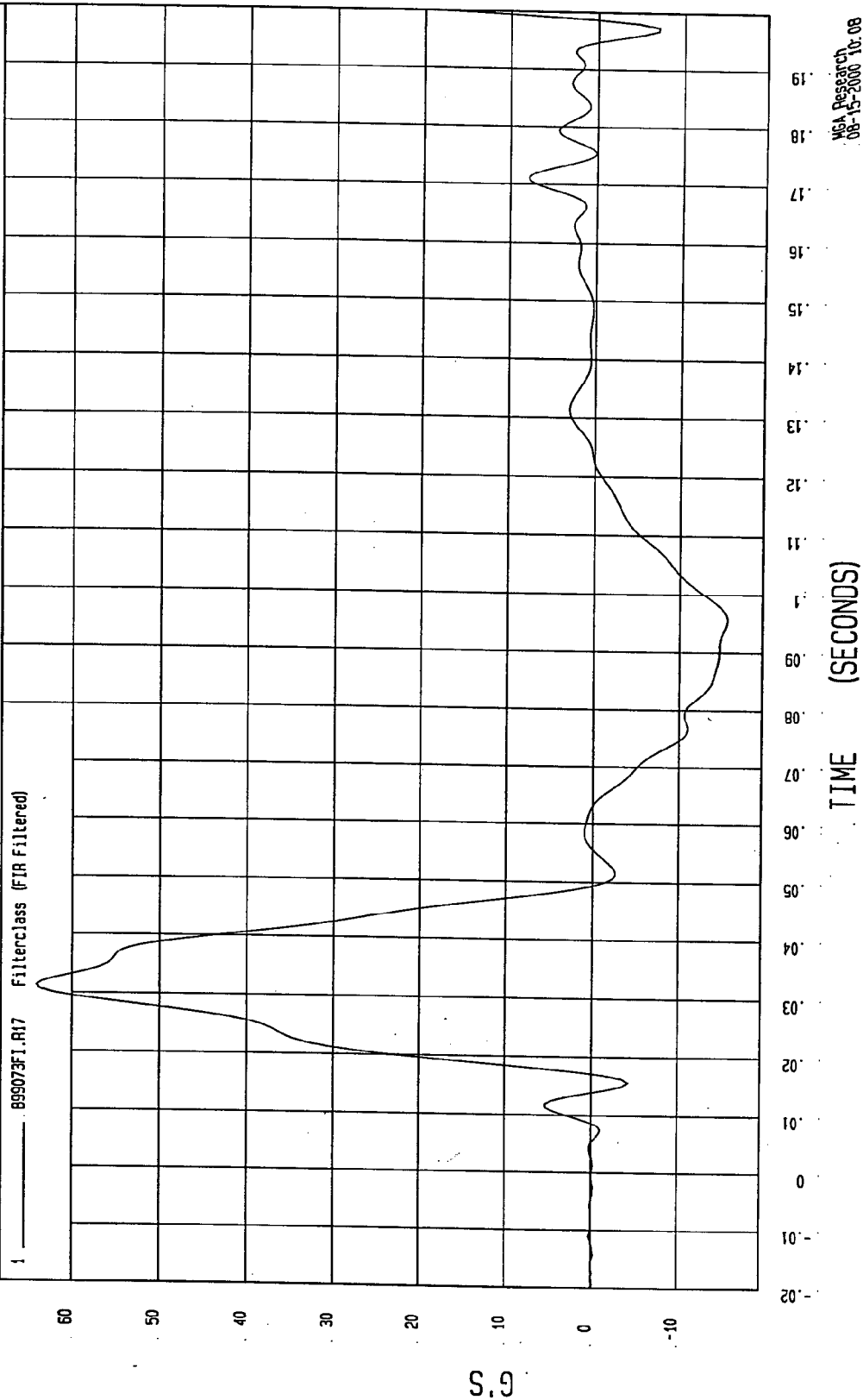
G.S

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -15.45 G's at 96 msec Maximum = 63.95 G's at 31 msec

DRIVER LOWER SPINE Y ACCELERATION



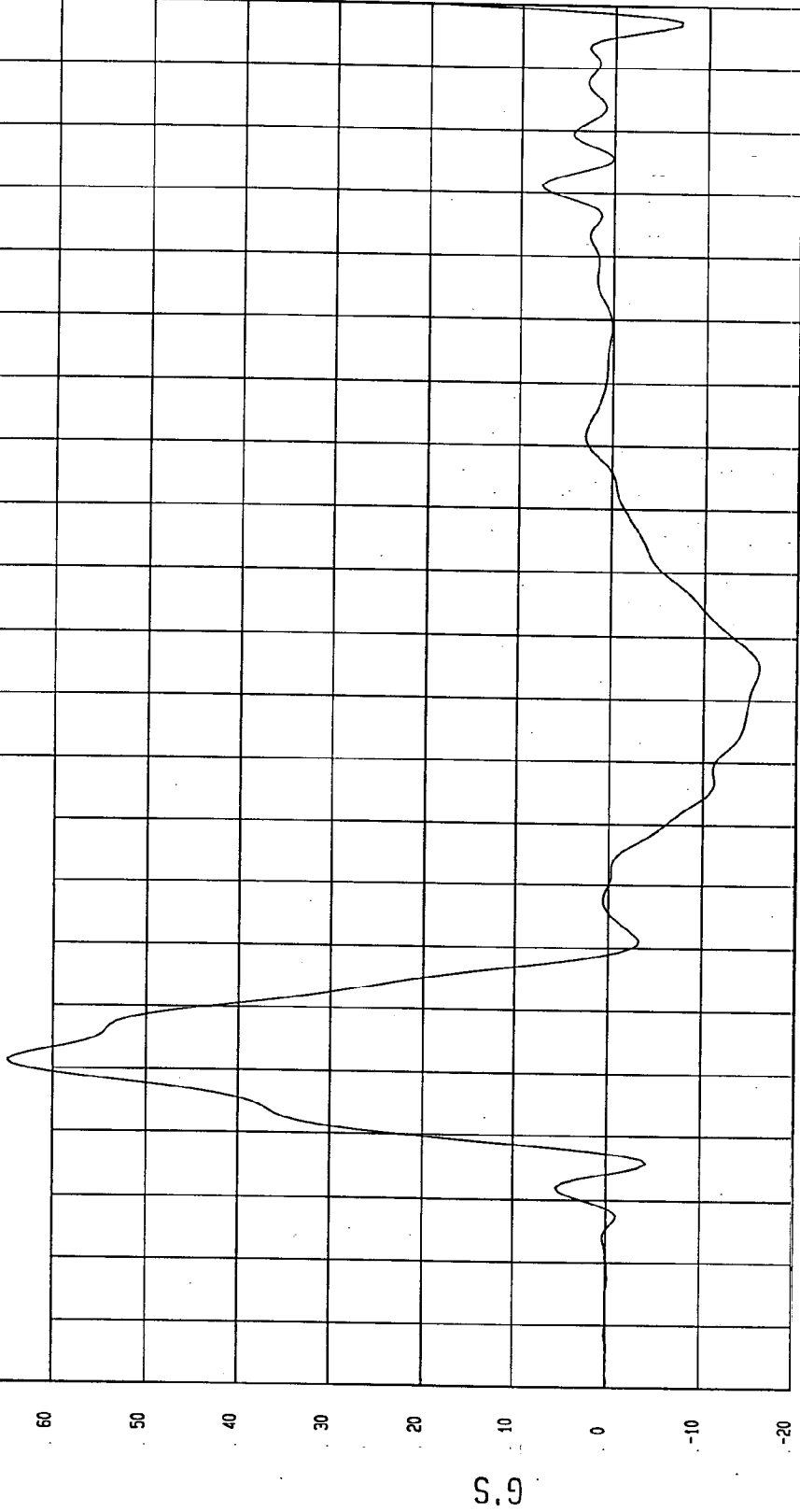
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -16.03 G'S at 95 msec
Maximum = 64.92 G'S at 31 msec

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION

1 ——— B99073F1.R44 Filterclass (FIR Filtered)



NCA Research
08-15-2000 10:08

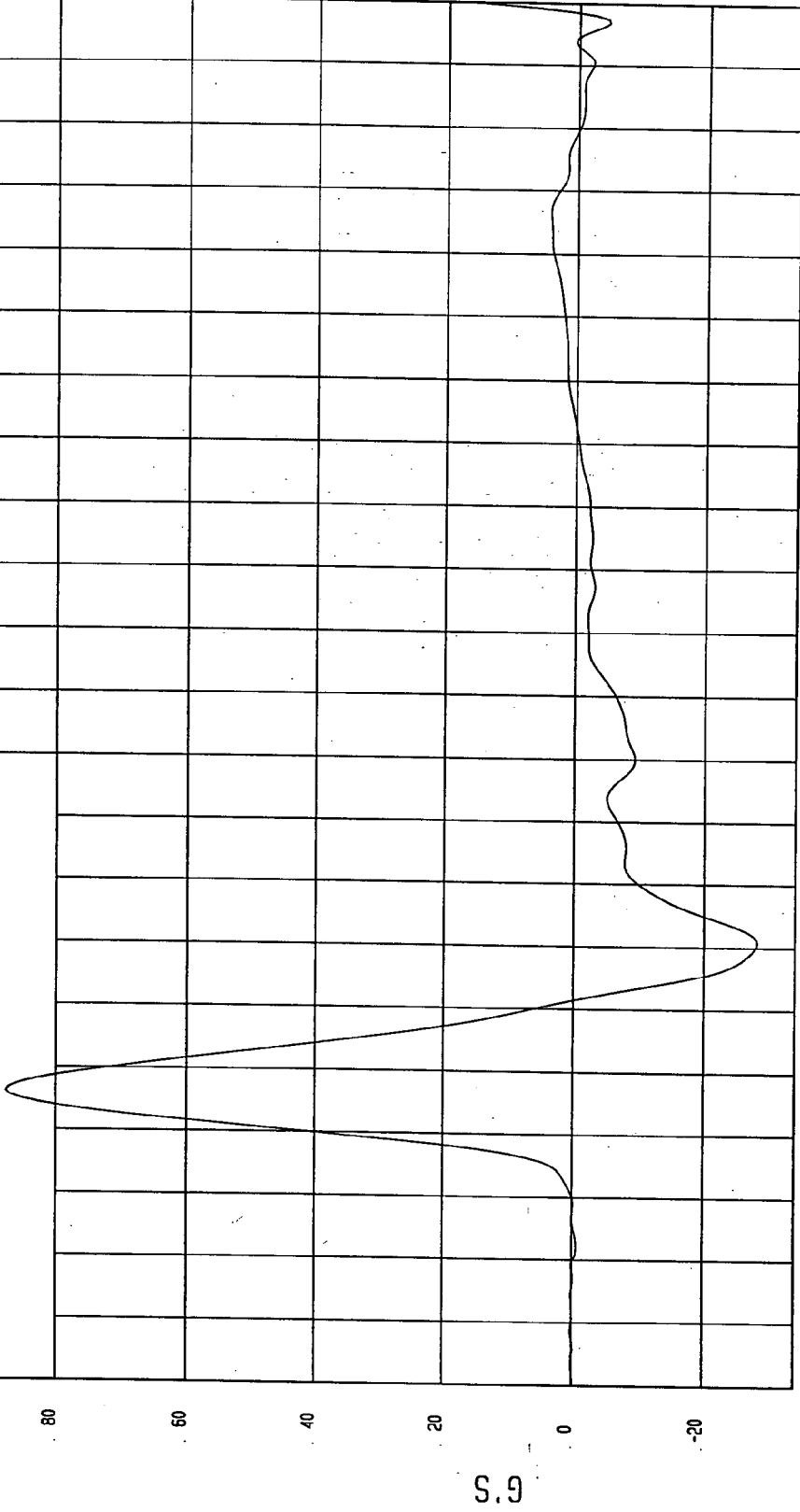
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -28.17 G'S at 51 msec
Maximum = 87.63 G'S at 26 msec

DRIVER PELVIS Y ACCELERATION

1 _____ B99073FI.R18 Filterclass (FIR Filtered)



TIME (SECONDS)

WGA Research
08-15-2000 10:08

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

SPEED: 38.8 MPH 62.4 KPH

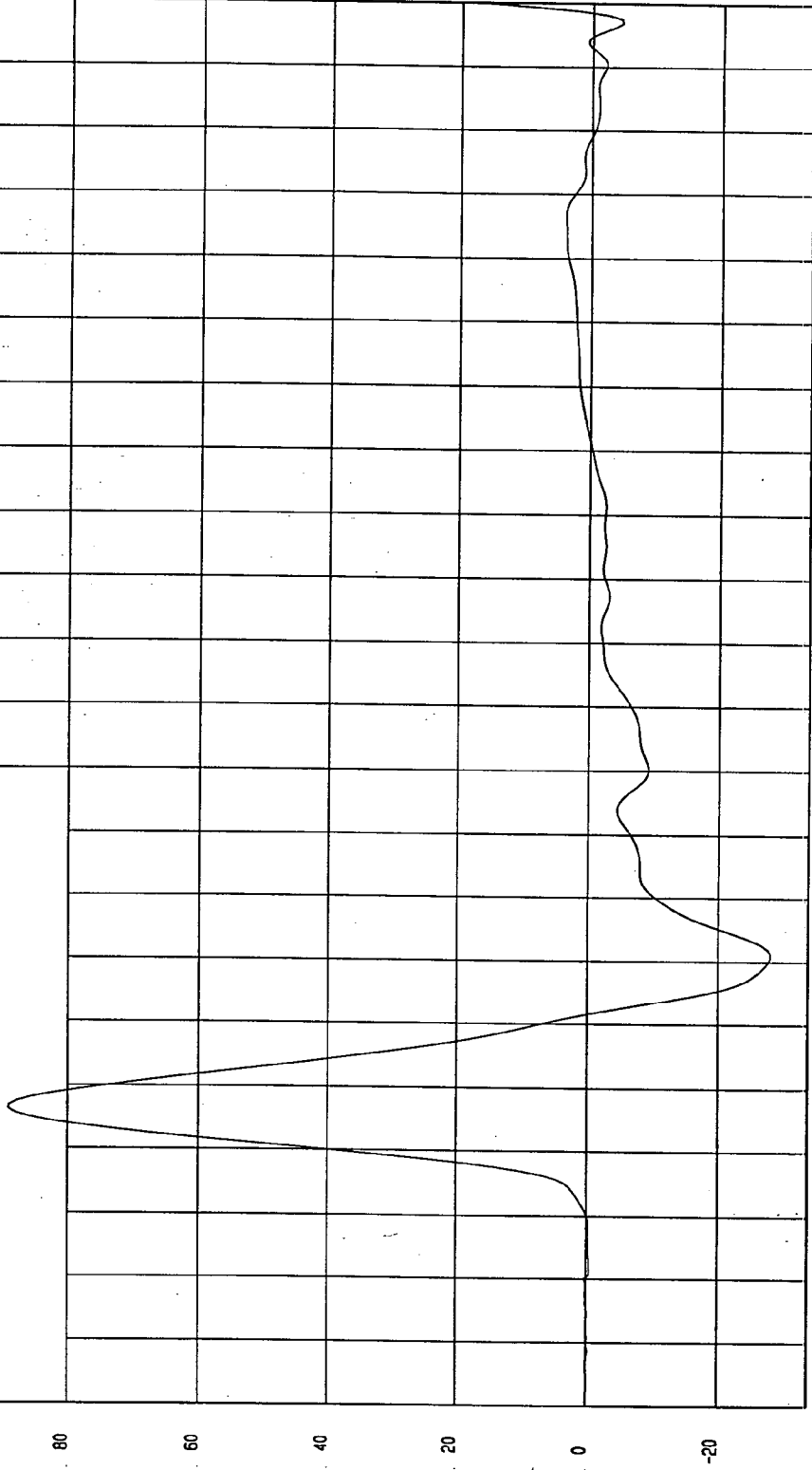
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 89.05 G'S at 25 msec

Minimum = -28.01 G'S at 51 msec

DRIVER PELVIS Y REDUNDANT ACCELERATION

1 B99073F1.R45 Filterclass (FIR Filtered)



MEA Research
08-15-2000 10.08

TIME (SECONDS)

G.S

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

SPEED: 38.8 MPH 62.4 KPH

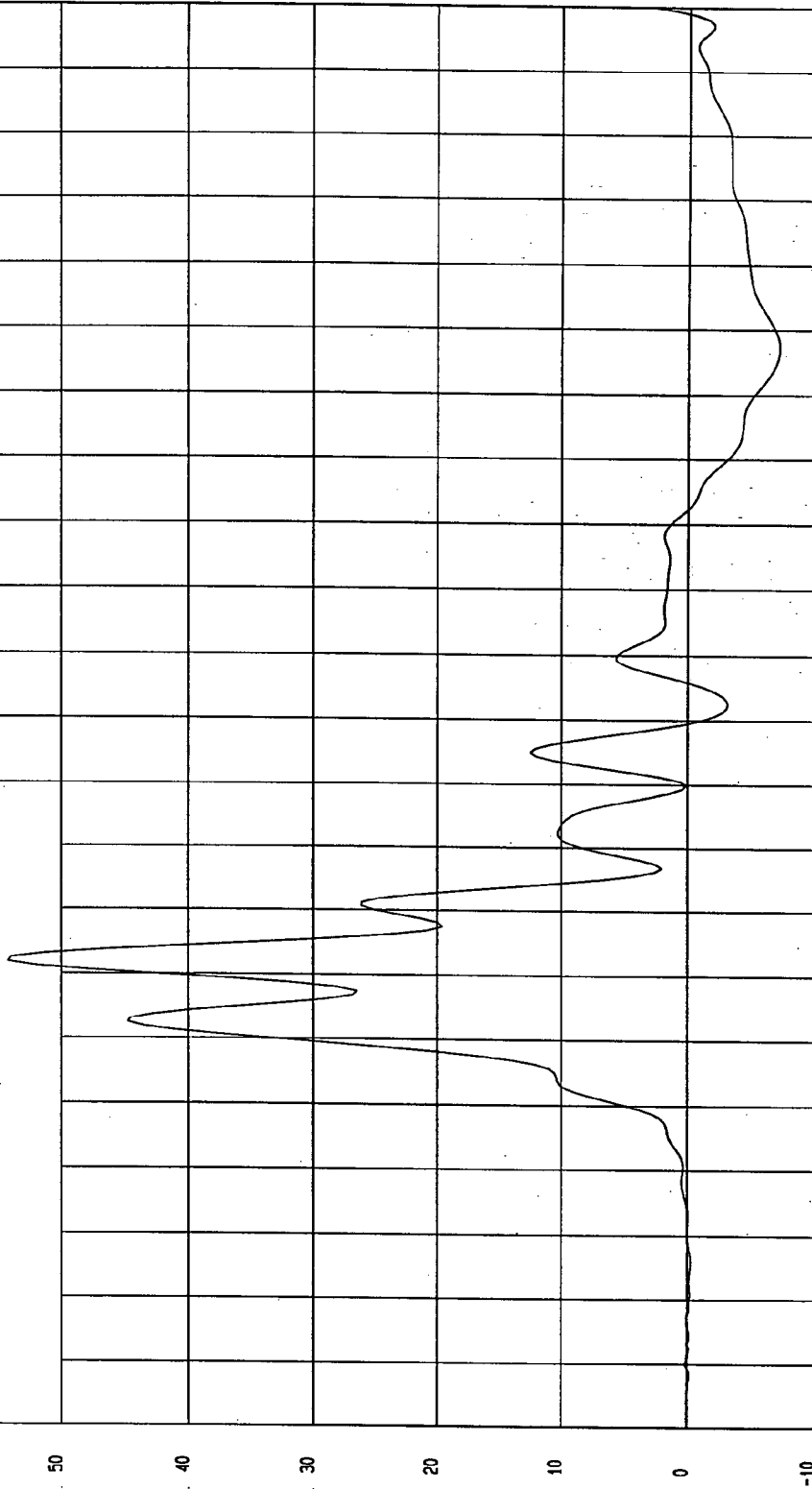
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 54.27 G'S at 52 msec

Minimum = -7.2 G'S at 148 msec

REAR PASSENGER UPPER RIB Y ACCELERATION

1 899073F1.R25 Filterclass (FIR Filtered)



MCA Research
08-15-2000 10:08

TIME (SECONDS)

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202)

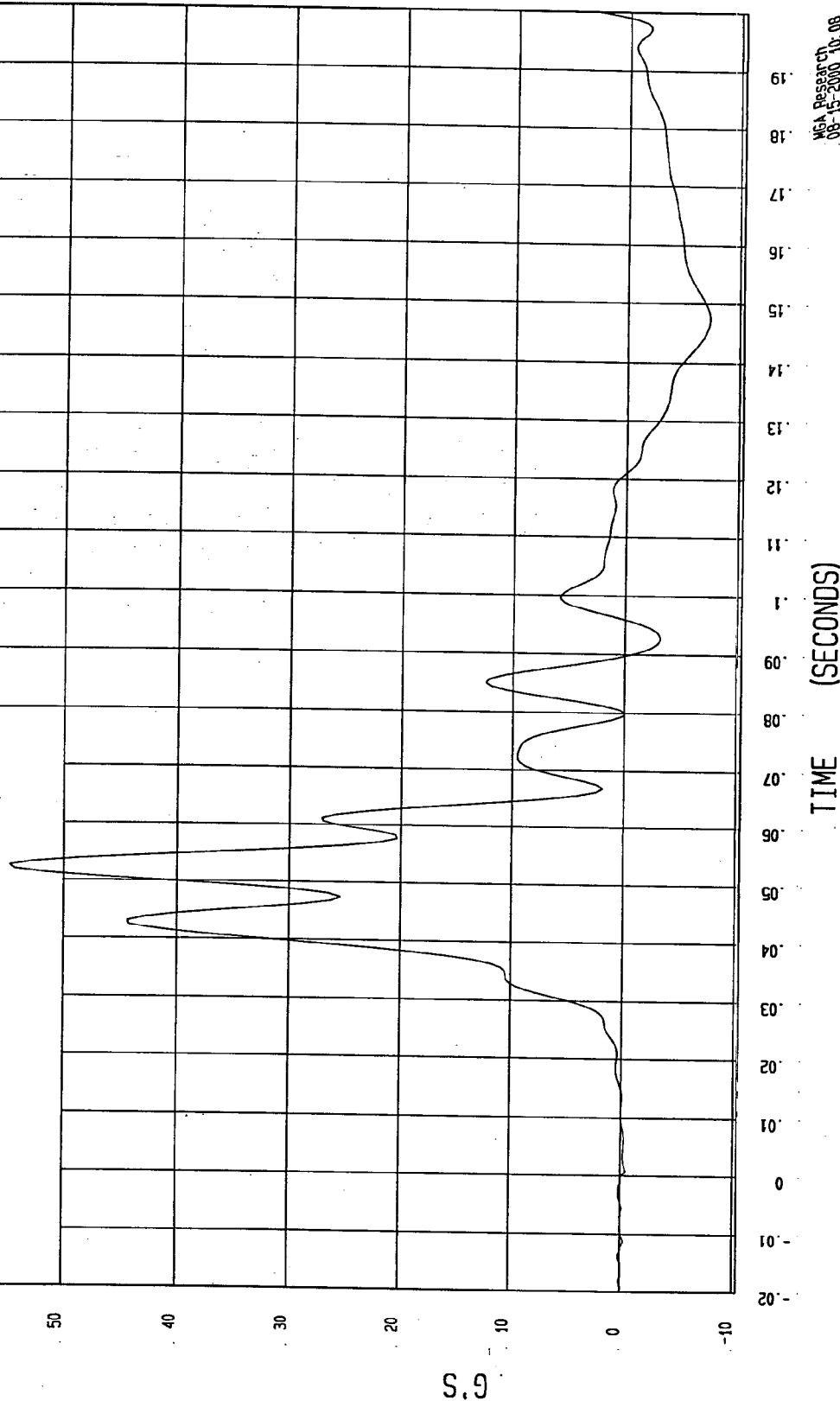
Speed: 38.8 MPH 62.4 KPH

Minimum = -7.28 G'S at 148 msec

Maximum = 54.63 G'S at 52 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

1 — 899073F1.R46 Filterclass (FIR Filtered)

M&A Research
08-15-2000 10:08

TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

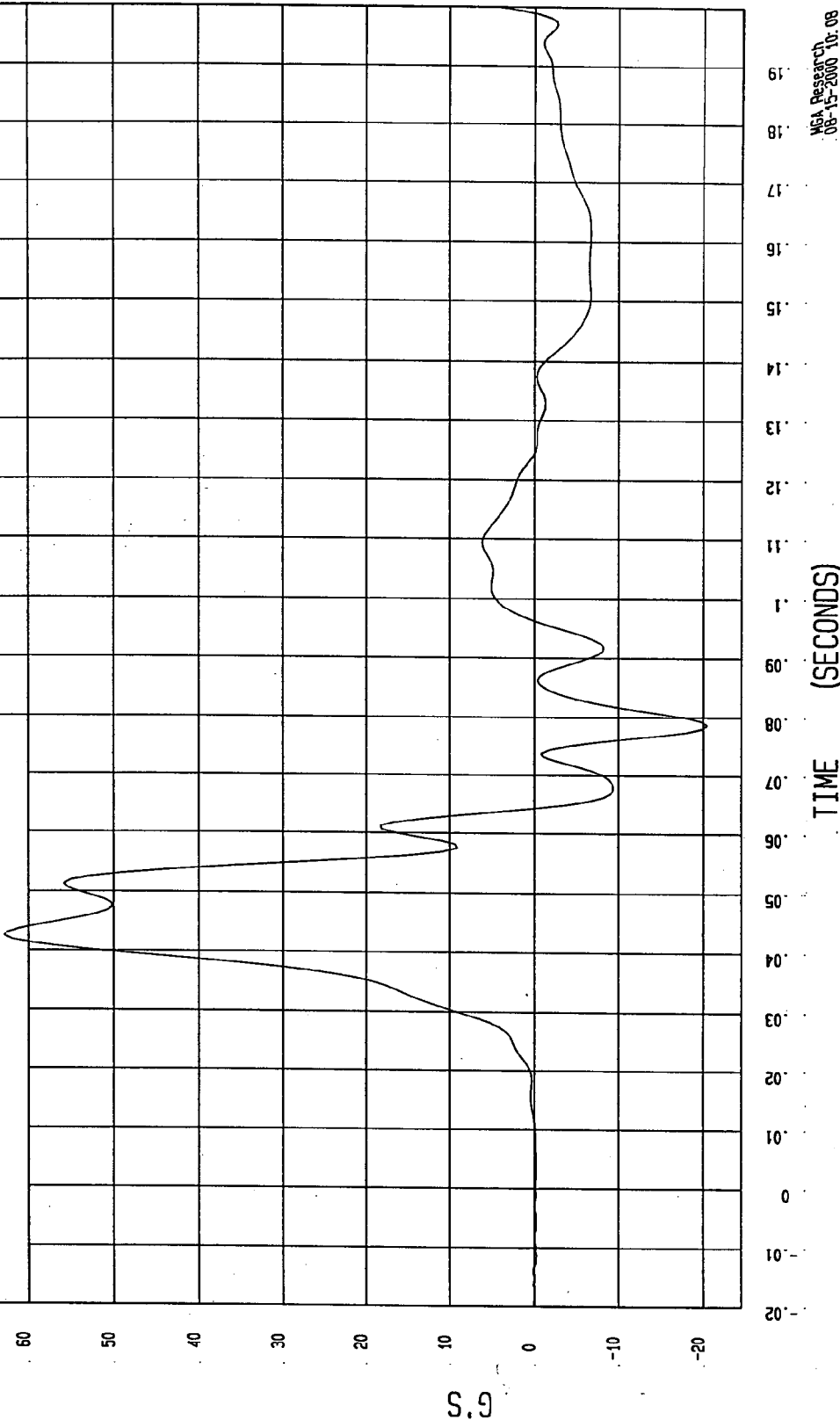
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 62.92 G'S at 42 msec

Minimum = -20.5 G'S at 79 msec

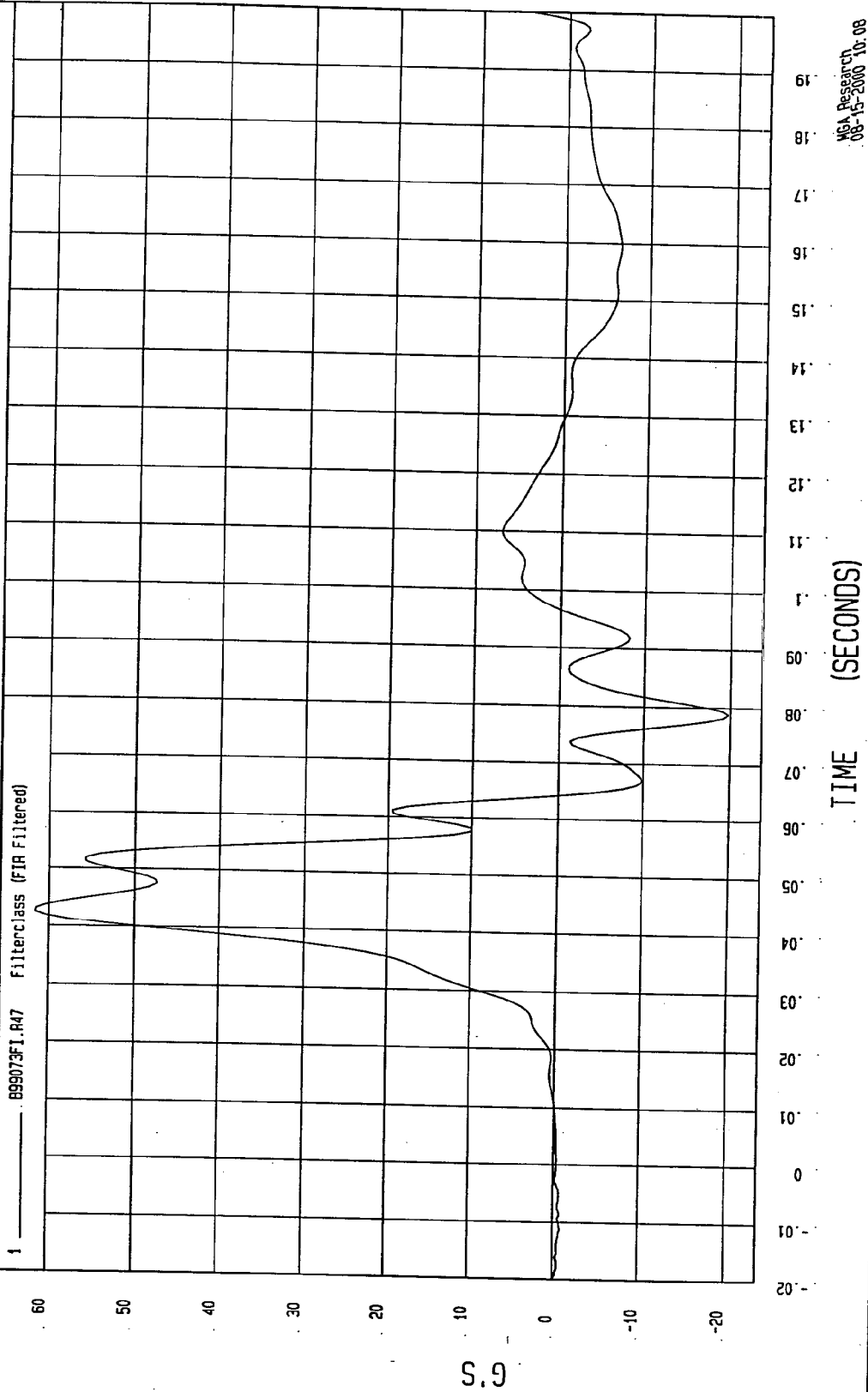
REAR PASSENGER LOWER RIB Y ACCELERATION

1 899073F1.R26 Filterclass (FIR Filtered)

M&A Research
08-15-2000 10:08

TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999
 COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH
 Minimum = -19.77 G's at 79 msec Maximum = 61.6 G's at 42 msec

REAR PASSENGER LOWER RIB Y REDUNDANT ACCELERATION

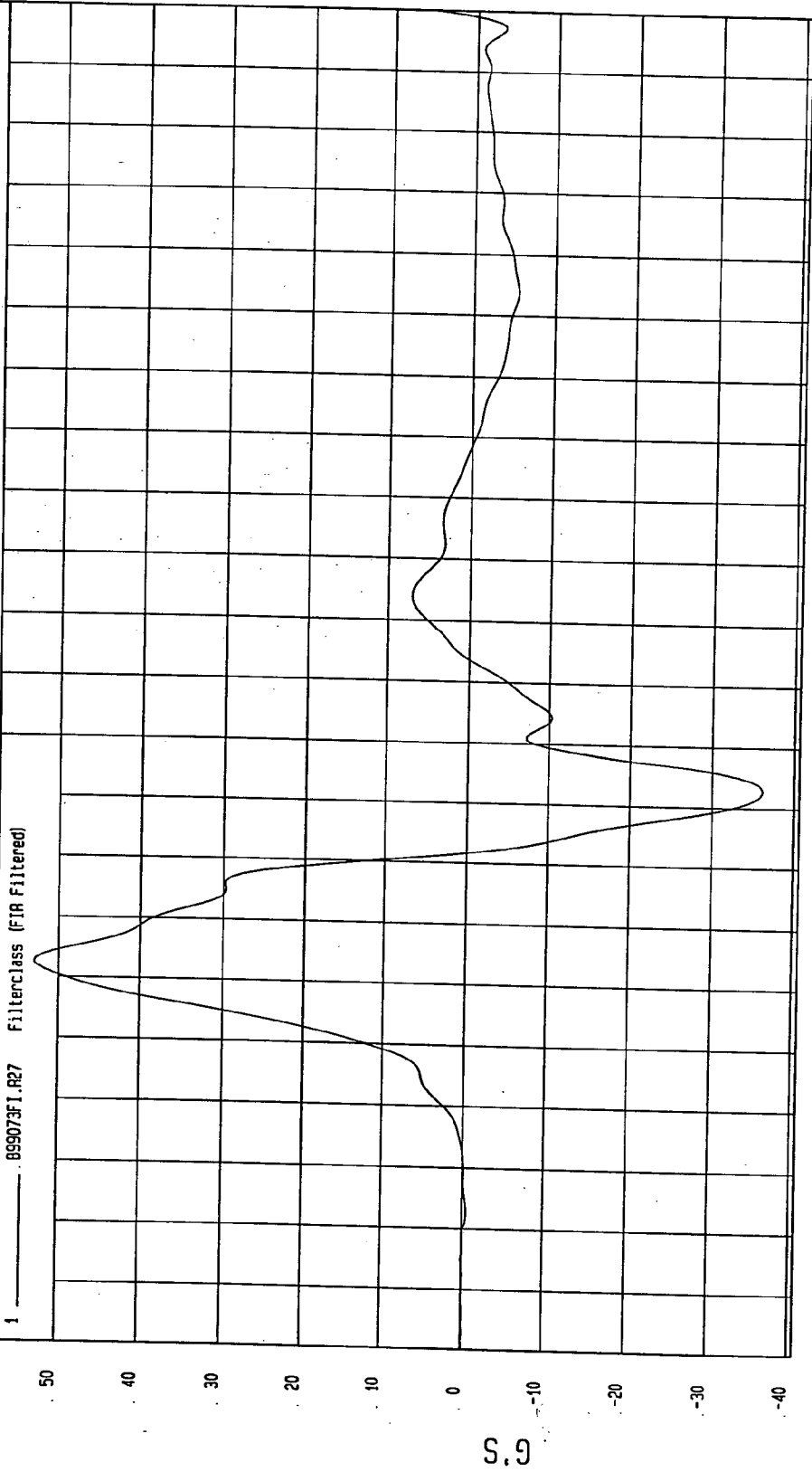


TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -36.22 G'S at 73 msec Maximum = 52.88 G'S at 42 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION



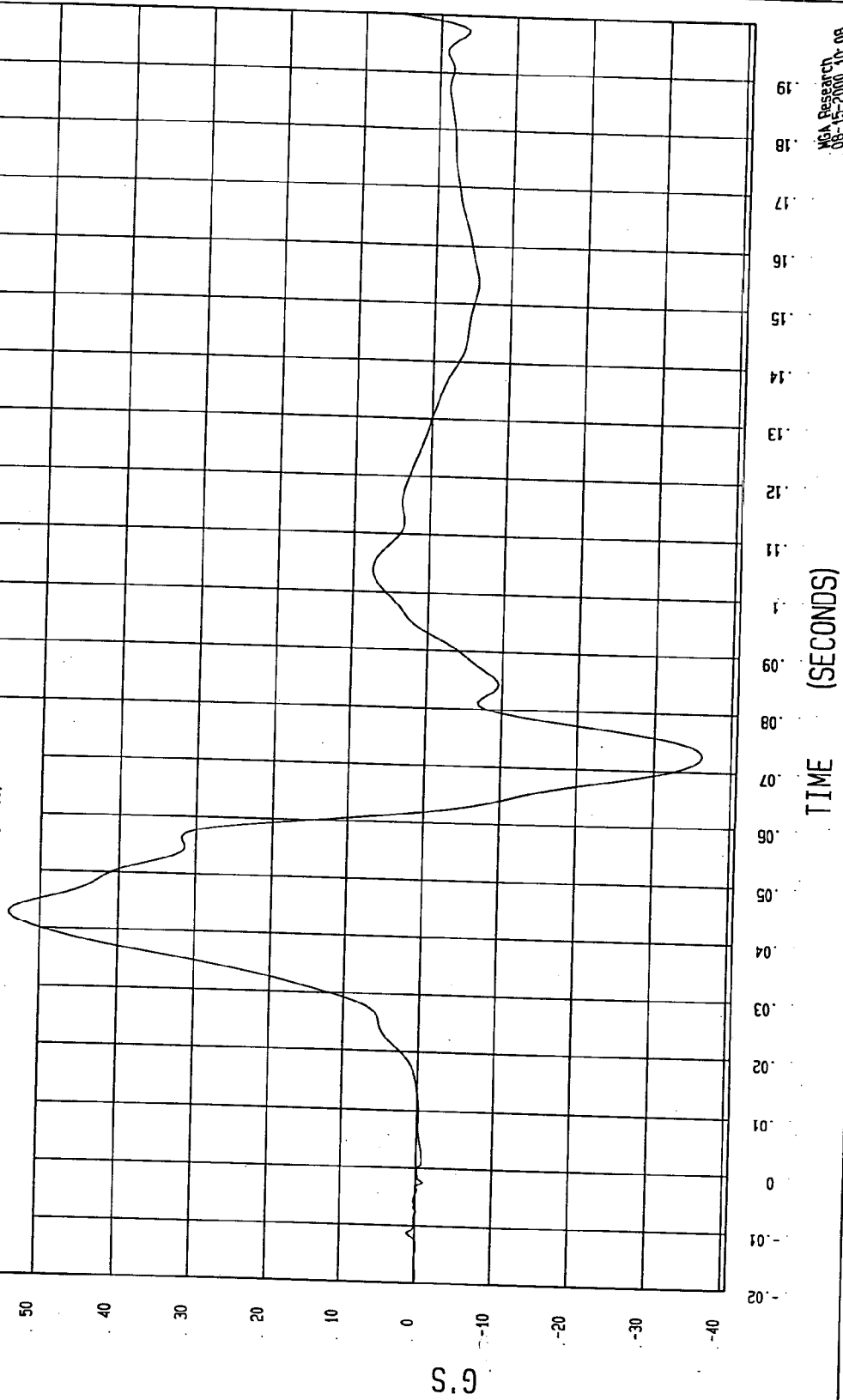
TIME (SECONDS)

WCA Research
08-15-2000 10:08

TEST: HIGH SPEED LATERAL IMPACT
 COMPONENT: 2000 NISSAN MAXIMA (MY5202)
 Minimum = -36.19 G'S at 72 msec
 Maximum = 54.06 G'S at 43 msec
 TEST DATE: 11-15-1999
 Speed: 38.8 MPH 62.4 KPH

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION

1 899073F1.R48 Filterclass (FIR Filtered)



NCA Research
 08-15-2000 10:08

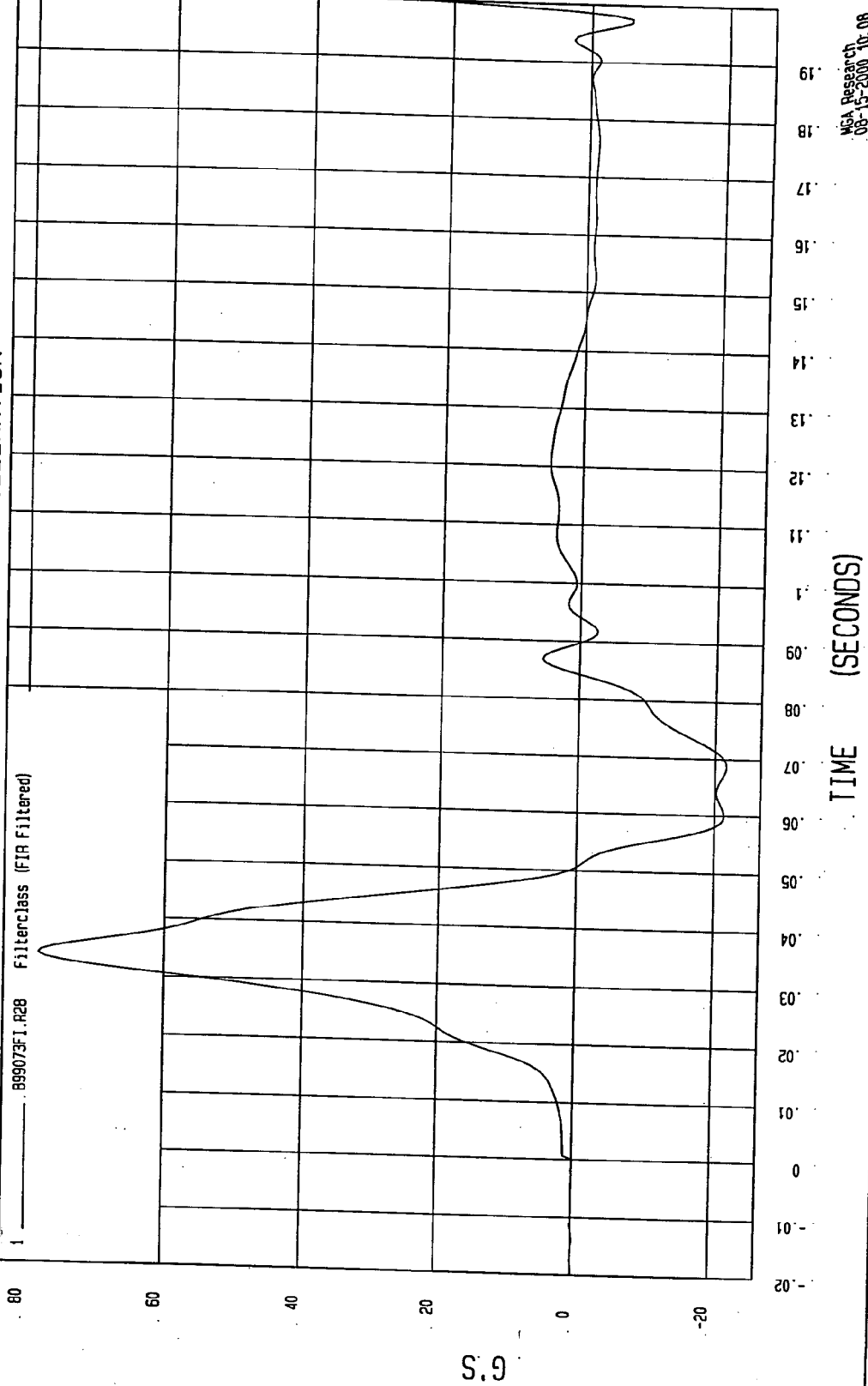
TEST: HIGH SPEED LATERAL IMPACT TEST DATE: 11-15-1999

COMPONENT: 2000 NISSAN MAXIMA (MY5202) Speed: 38.8 MPH 62.4 KPH

Minimum = -21.66 G'S at 69 msec
Maximum = 78.2 G'S at 34 msec

REAR PASSENGER PELVIS Y ACCELERATION

1 899073FI.R28 Filterclass (FIR Filtered)



TEST: HIGH SPEED LATERAL IMPACT

TEST DATE: 11-15-1999

Speed: 38.8 MPH 62.4 KPH

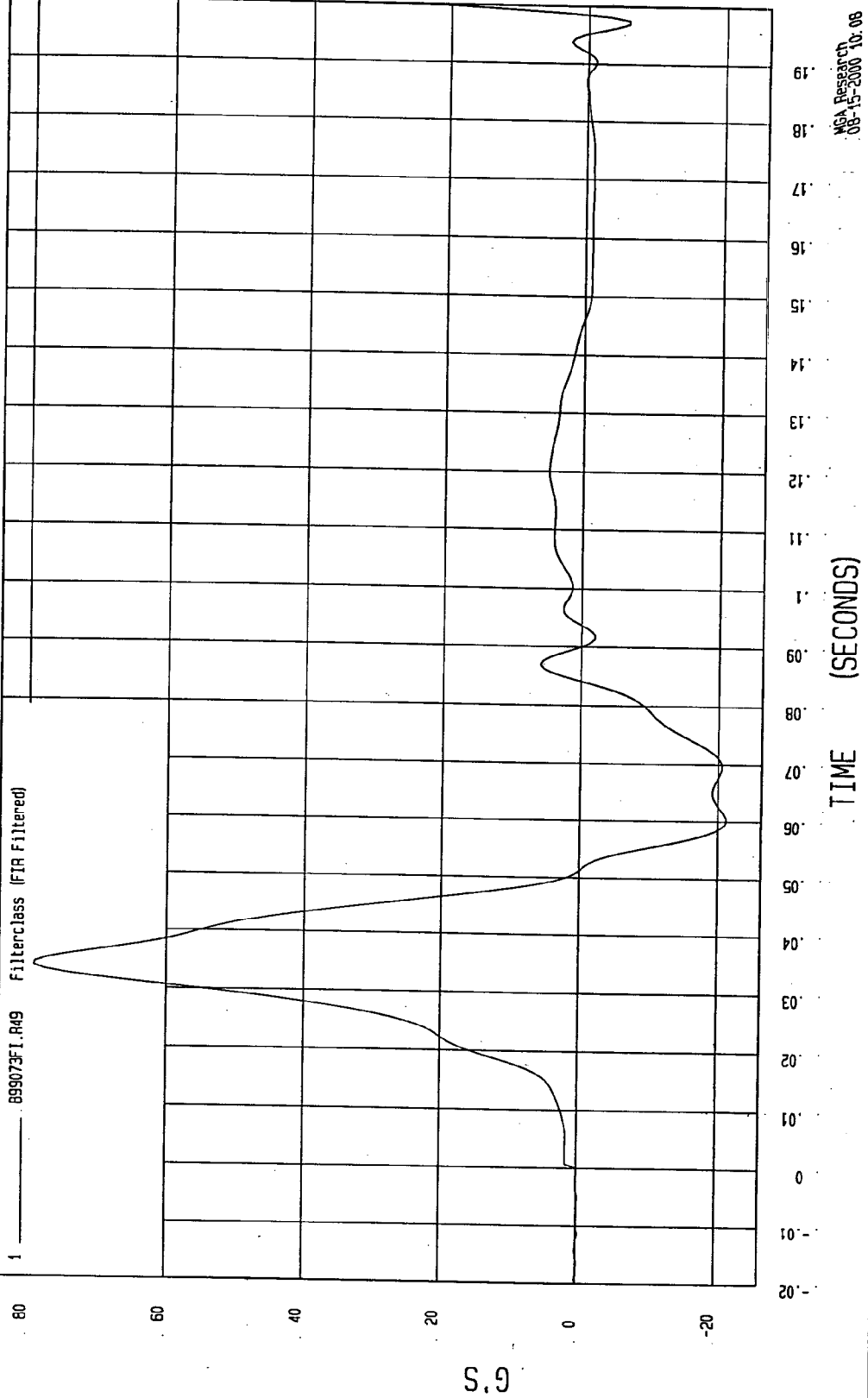
COMPONENT: 2000 NISSAN MAXIMA (MY5202)

Maximum = 79.12 G'S at 34 msec

Minimum = -21.2 G'S at 60 msec

REAR PASSENGER PELVIS Y REDUNDANT ACCELERATION

1 899073F1.R49 FilterClass (FIR Filtered)



WGA Research
08-15-2000 10:08

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION

PRE-TEST CERTIFICATION DATA

C-1

Driver Dummy Serial Number: 270

Calibration Test Results Summary

C-2

Driver Dummy Serial Number: 270

Pre-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop:	The head passed all drop test requirements.
Neck Bending:	The neck passed all bending 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 C-3

DUMMY SERIAL NUMBER: 270

DATE OF VERIFICATION: November 11, 1999

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	898
RH - Rib Height (mm)	501 - 521	503
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	230
KV - Knee Pivot From Back Line (mm)	511 - 526	525
SW - Knee Pivot to Floor (mm)	490 - 505	500
HW - Hip Width (mm)	356 - 391	368

MEASUREMENTS BY: Jim H. King

APPROVED BY: Paul K. Kibaki

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HEAD DROP TEST (LATERAL)

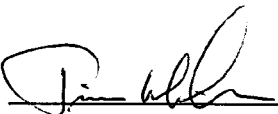
SIDE IMPACT DUMMY (SID)

DATE: November 11, 1999DUMMY NUMBER: 270TEST NUMBER: D991281

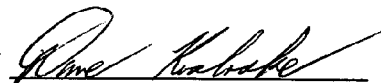
TEST PARAMETER	SPECIFICATION	TEST RESULTS
LABORATORY TEMPERATURE	66° - 78°	21.0°
LABORATORY RELATIVE HUMIDITY	10% - 70%	34%
PEAK RESULTANT ACCELERATION	120 - 150 G's	137
IS RESULTANT CURVE UNIMODAL	with 15% of peak	Yes
PEAK LONGITUDINAL ACCELERATION	+ 15 G max	-8

TEST MEETS SPECIFICATIONS

TECHNICIAN



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TEST: Dummy Calibration - Head Drop

TEST DATE: 11-11-1999 - 09:58:04

COMPONENT: Dummy #270

Minimum = 4.24E-02 G'S at .8 msec

Maximum = 137.40 G'S at 21.1 msec

PEAK RESULTANT ACCELERATION

1 ——— 099281AV.A01 Filterclass (1000)

180

160

140

120

100

80

60

40

20

0

G.S

0

10

20

30

40

50

TIME (sec.)

MGA Research
11-11-1999 09:58

TEST: Dummy Calibration - Head Drop TEST DATE: 11-11-1999 - 09:57:08

COMPONENT: Dummy #270

Minimum = -7.95 G'S at 22.3 msec

Maximum = 1.74 G'S at 20.8 msec

PEAK LONGITUDINAL ACCELERATION

1 _____ 099281AR.A01 Filter: Class (1000)

16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16

G.S

TIME (sec.)

0

10

20

30

40

50

MCA Research
11-11-1999 09:58

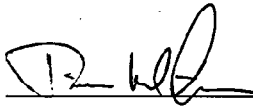
MGA RESEARCH CORPORATION

C-7

NECK PENDULUM TEST
SIDE IMPACT DUMMY (SID)DATE: November 11, 1999DUMMY NUMBER: 270TEST NUMBER: D991289

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)		18.9° - 25.5° C	21.0°
RELATIVE HUMIDITY (%)		10 - 70%	34%
IMPACT VELOCITY		6.89 - 7.13 MS	7.03
PENDULUM DECELERATION	10 MS	1.96 - 2.55 MS	2.37
	20 MS	4.12 - 5.10 MS	4.80
	30 MS	5.73 - 7.01 MS	6.77
	40 - 70 MS	6.27 - 7.64 MS	7.64
MIDSAGGITAL PLANE MAX ROTATION		64° - 78°	73°
HEAD ROTATION PEAK TO ZERO- DECAY TIME		50 - 70 MS	64
MAX. M _x AT OCCIPITAL CONDYLES		88.1 - 108.5 NM	88.7
M _x PEAK TO ZERO - DECAY TIME		40 - 60 MS	57
M _x PEAK TO MAX. HEAD ROTATION		0 - 20 MS	10

TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: Dummy Calibration - Neck Bending TEST DATE: 11-11-1999 - 11:17:06

COMPONENT: Dummy #270 Velocity: 23.07 FT/SEC 7.03 M/SEC

Minimum = 0 M/SEC at 0 msec Maximum = 9.49 M/SEC at 191. msec

PENDULUM DECELERATION

1 ——— D99282A1.A04 Filterclass (1000)

10

8

6

4

2

0

M/SEC

0

.01

.02

.03

.04

.05

.06

.07

.08

.09

TIME SEC

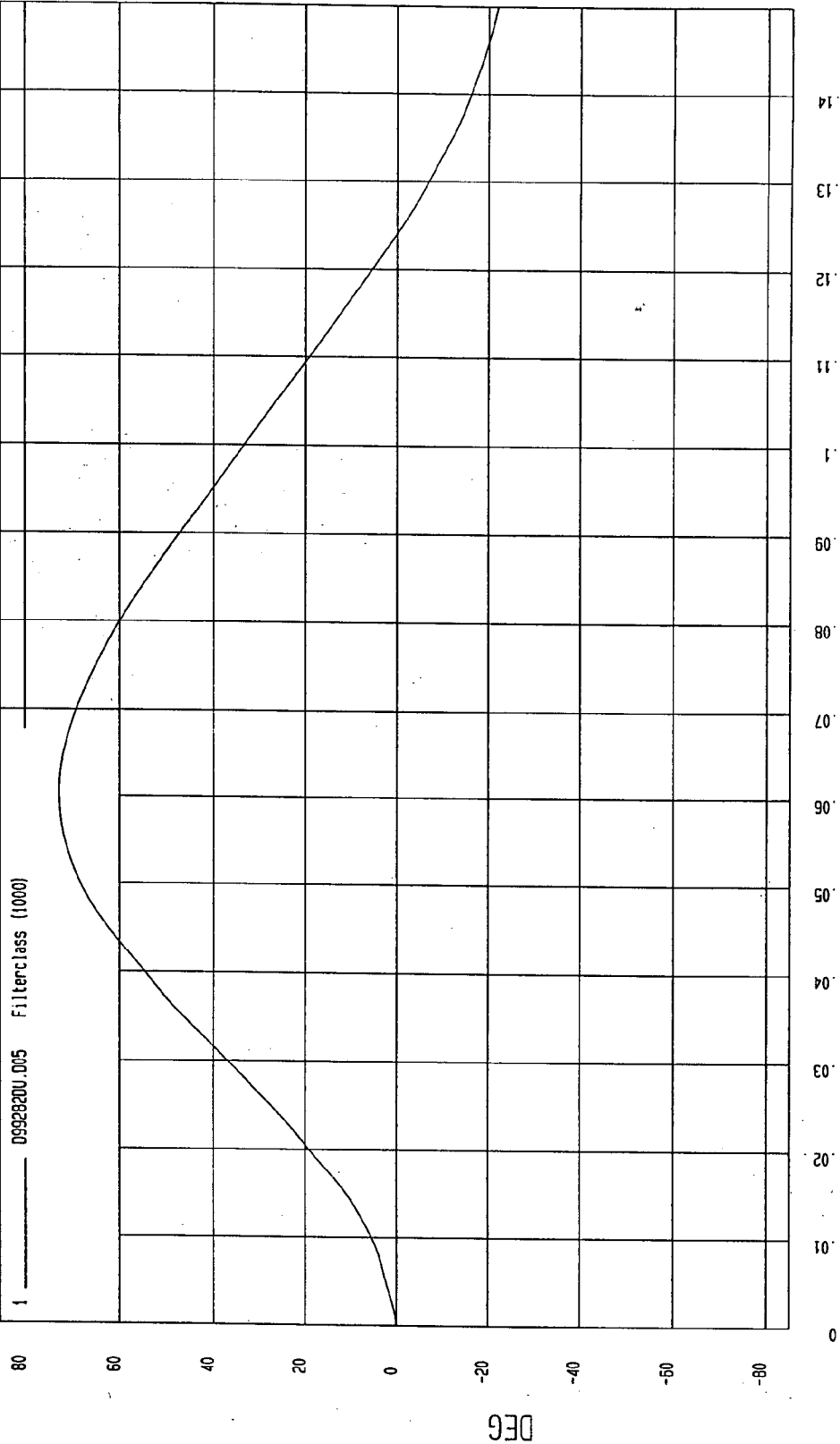
NCA Research
11-11-1999 11:32

TEST: Dummy Calibration - Neck Bending TEST DATE: 11-11-1999 - 11:26:39

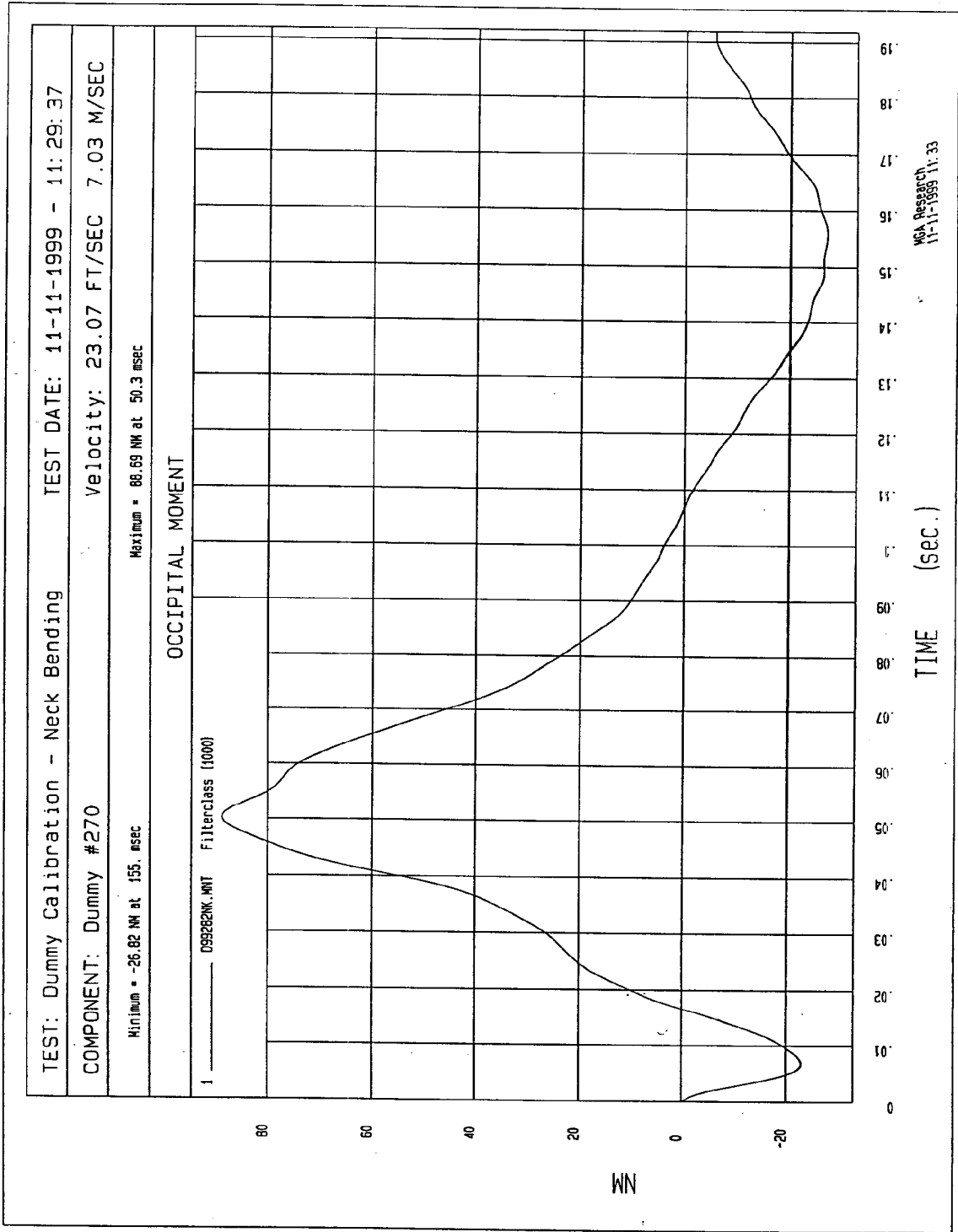
COMPONENT: Dummy #270 Velocity: 23.07 FT/SEC 7.03 M/SEC

Minimum = -24.11 DEG at 162. msec Maximum = 72.94 DEG at 60.6 msec

NECK ROTATION



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11-11-1999 11:33



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C-11

THORACIC SHOCK ABSORBER TEST

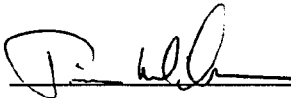
SIDE IMPACT DUMMY (SID)

DATE: November 10, 1999DUMMY SERIAL NUMBER: 270TEST NUMBER: D991286/7/8

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)		18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)		10 - 70	40%
VELOCITY 3.05 m/s	FORCE (N)	836 - 1125	880
	DISPLACEMENT (mm)	30 - 35	34
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099	2014
	DISPLACEMENT (mm)	32 - 37	37
VELOCITY 6.1 m/s	FORCE (N)	3741 - 4448	3782
	DISPLACEMENT (mm)	33 - 40	39

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY



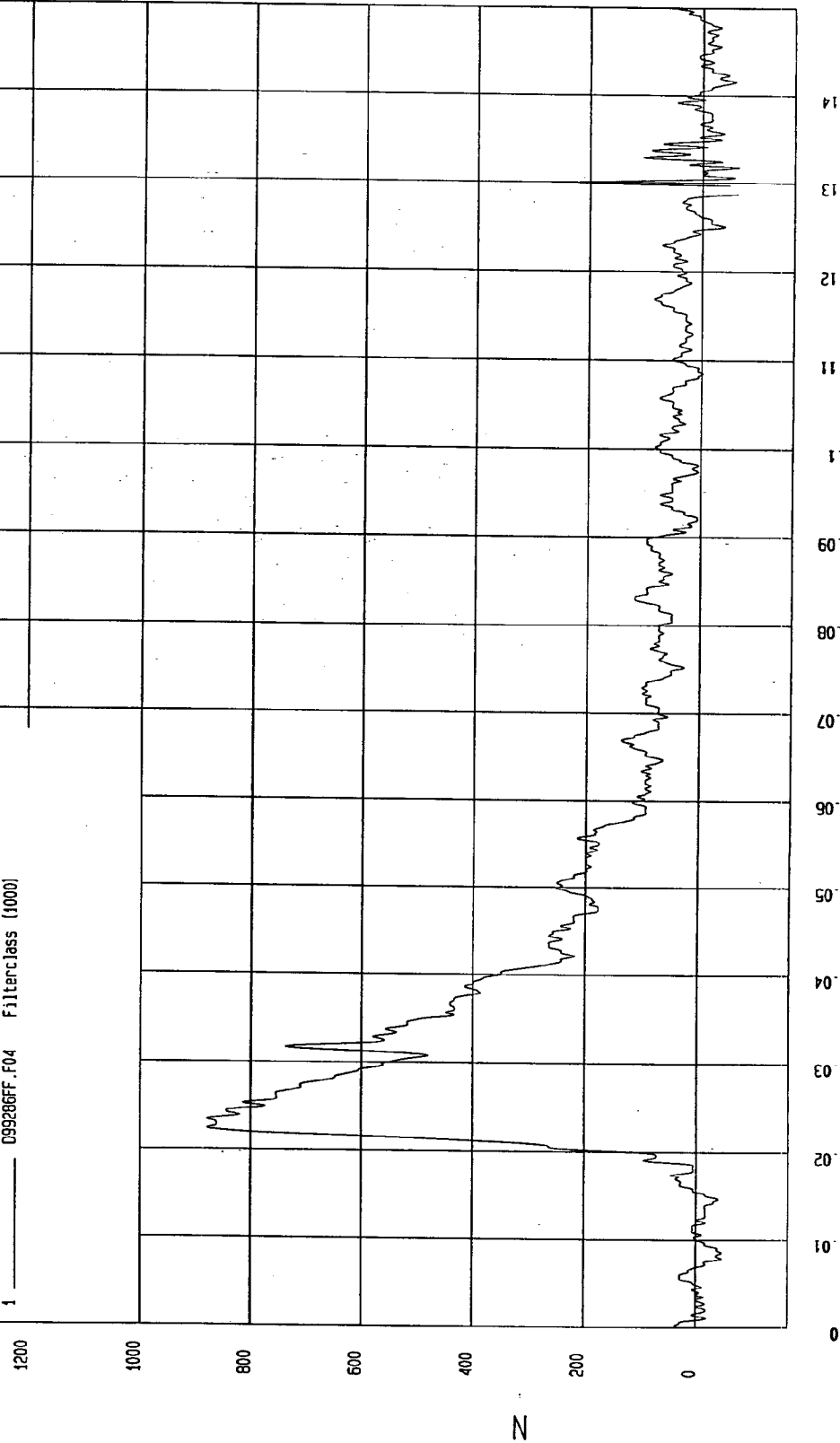
TEST: Dummy Calibration - Dampener Impact TEST DATE: 11-10-1999 - 14:05:03

COMPONENT: Dummy #270 Velocity: 10 FT/SEC 3.05 M/SEC

Minimum = -1877.12 N at 129. msec Maximum = 879.57 N at 23.4 msec

PEAK FORCE

1 — 099286FF.F04 Filterclass (1000)



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11-10-1999 14:14

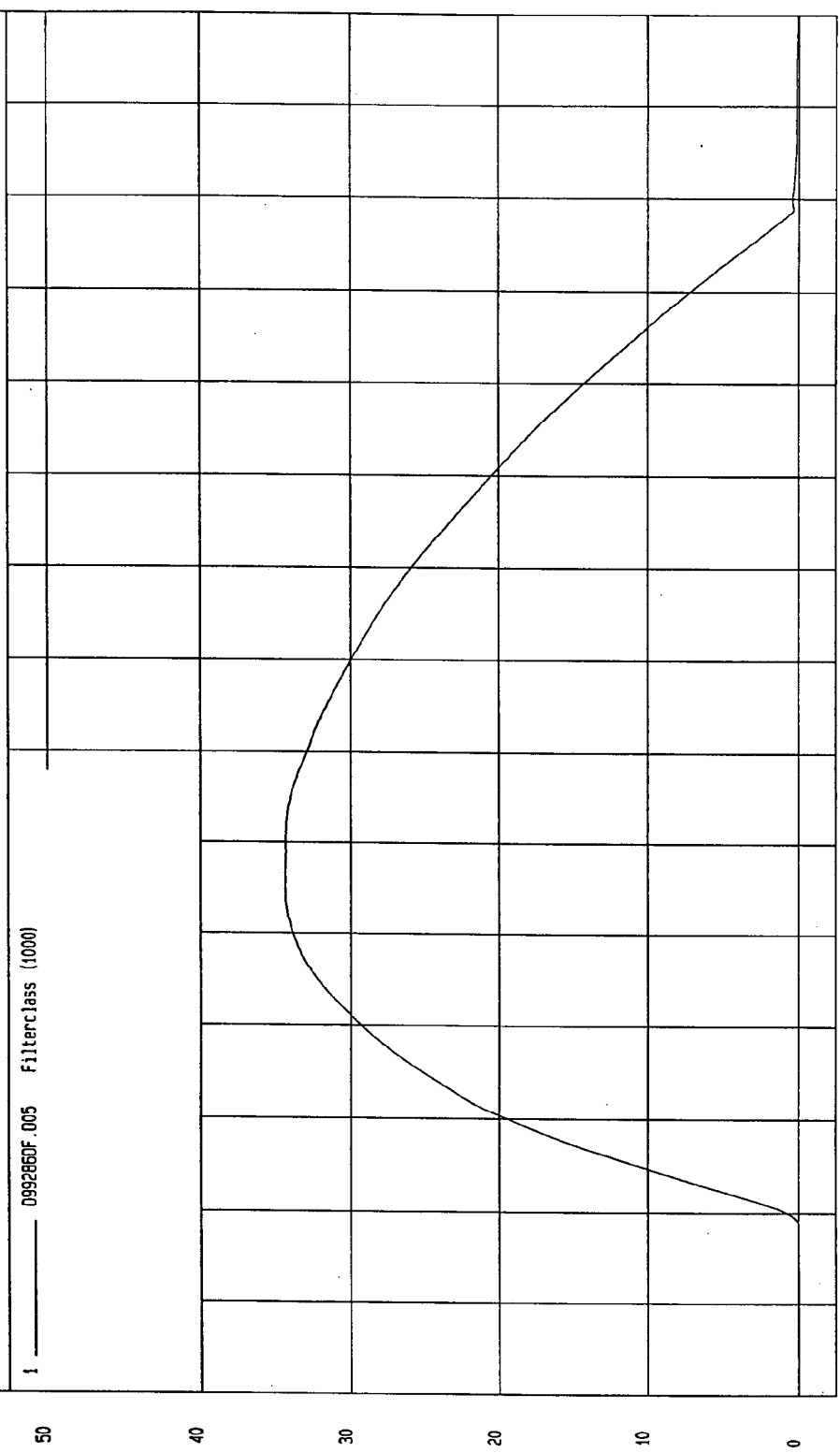
TEST: Dummy Calibration - Dampener Impact TEST DATE: 11-10-1999 - 14:05:03

COMPONENT: Dummy #270 Velocity: 10 FT/SEC 3.05 M/SEC

Minimum = -2.15E-02 mm at 14.5 msec Maximum = 34.25 mm at 56.5 msec

PEAK DISPLACEMENT

1 ——— D992860F.005 Filterclass (1000)



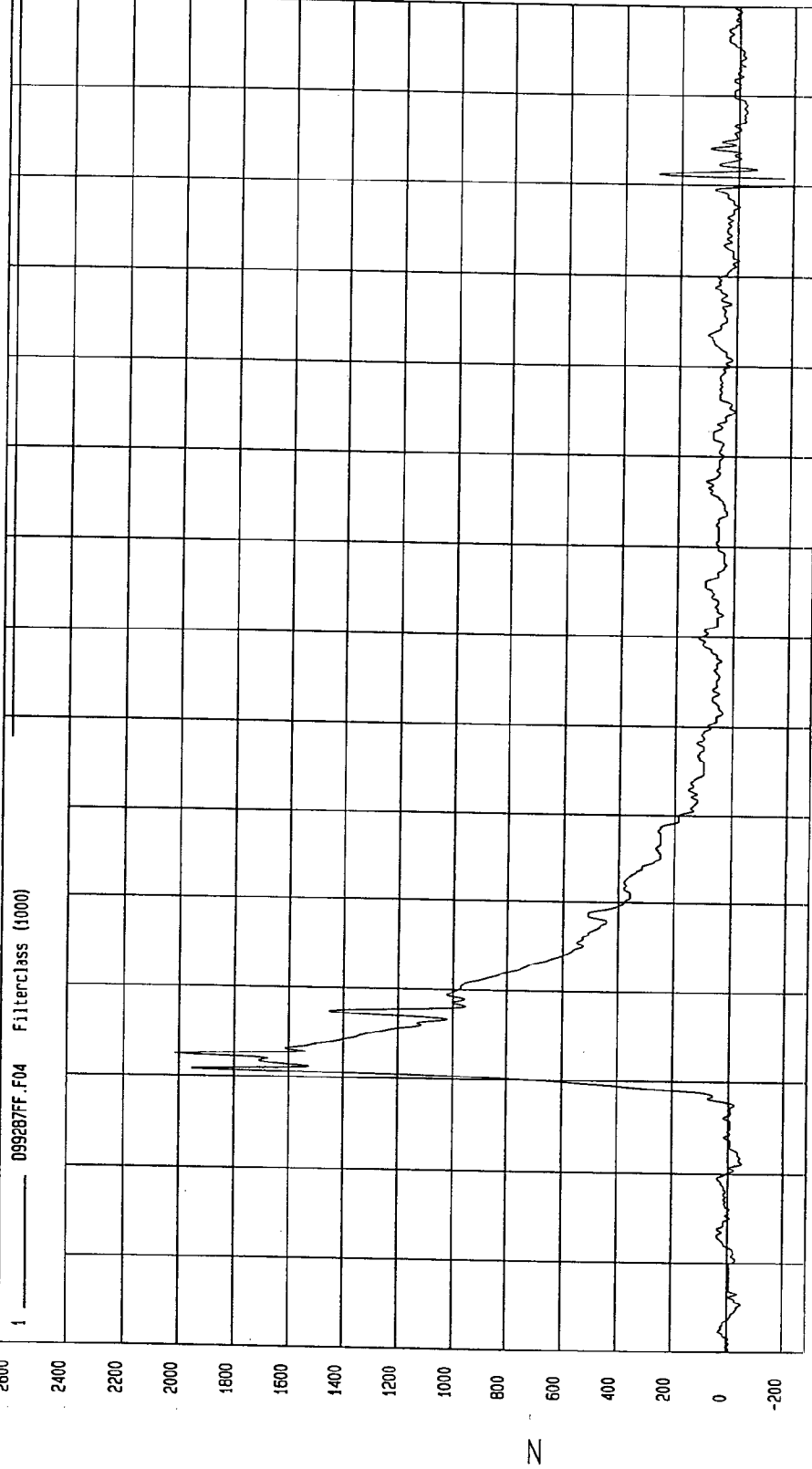
WCA Research
11-10-1999 14:14

TEST: Dummy Calibration - Dampener Impact TEST DATE: 11-10-1999 - 14:09:44

COMPONENT: Dummy #270 Velocity: 14 FT/SEC 4.27 M/SEC

Minimum = -932.30 N at 130. msec Maximum = 2014.25 N at 32.5 msec

PEAK FORCE



NGA Research
11-10-1999 14:14

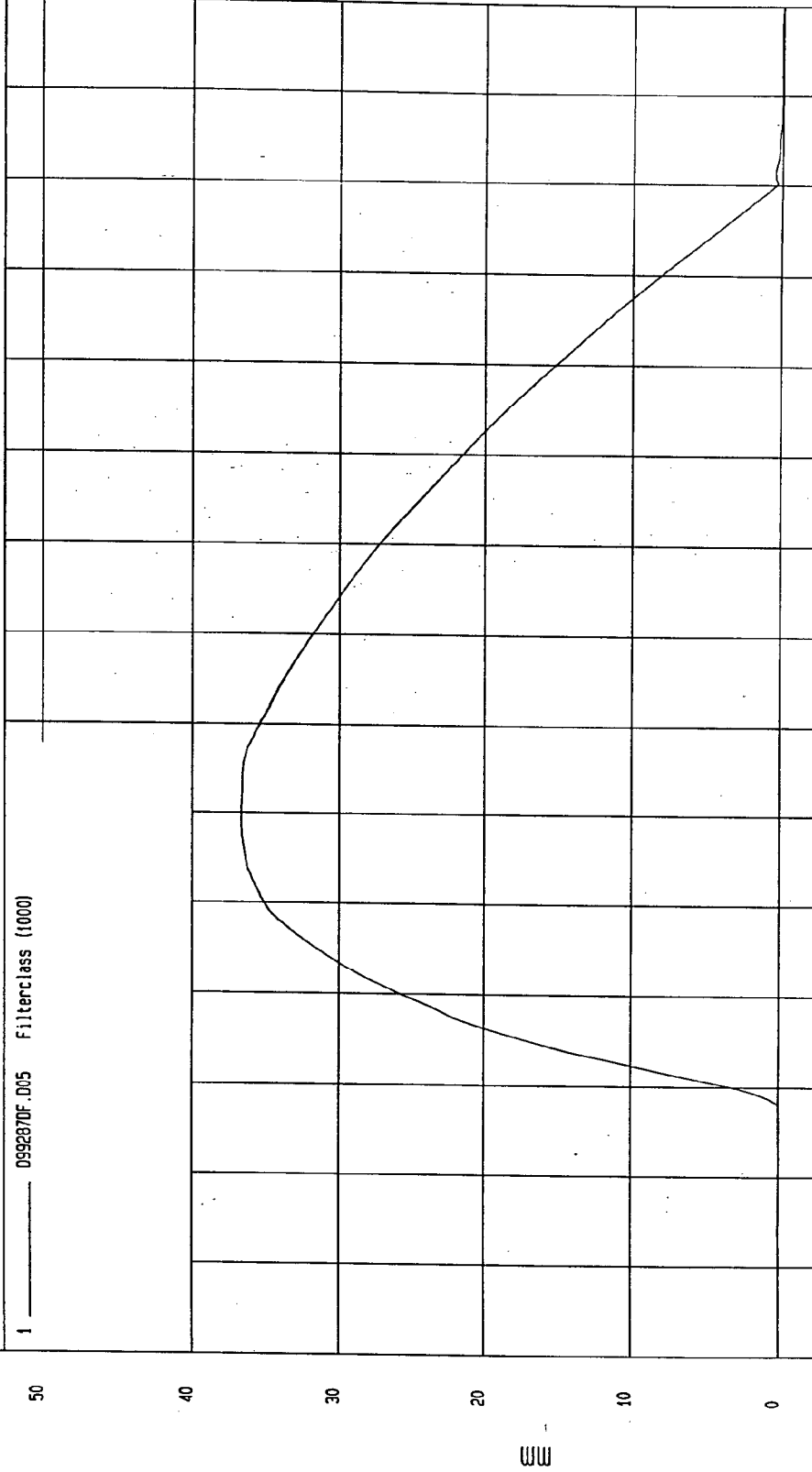
TEST: Dummy Calibration - Dampener Impact TEST DATE: 11-10-1999 - 14:09:44

COMPONENT: Dummy #270 Velocity: 14 FT/SEC 4.27 M/SEC

Minimum = -9.54E-02 mm at 188. msec Maximum = 36.57 mm at 50.7 msec

PEAK DISPLACEMENT

1 ——— 0992870F.D05 Filterclass (1000)



MGA Research
11-10-1999 14:15

TEST: Dummy Calibration - Dampener Impact TEST DATE: 11-10-1999 - 14:13:02

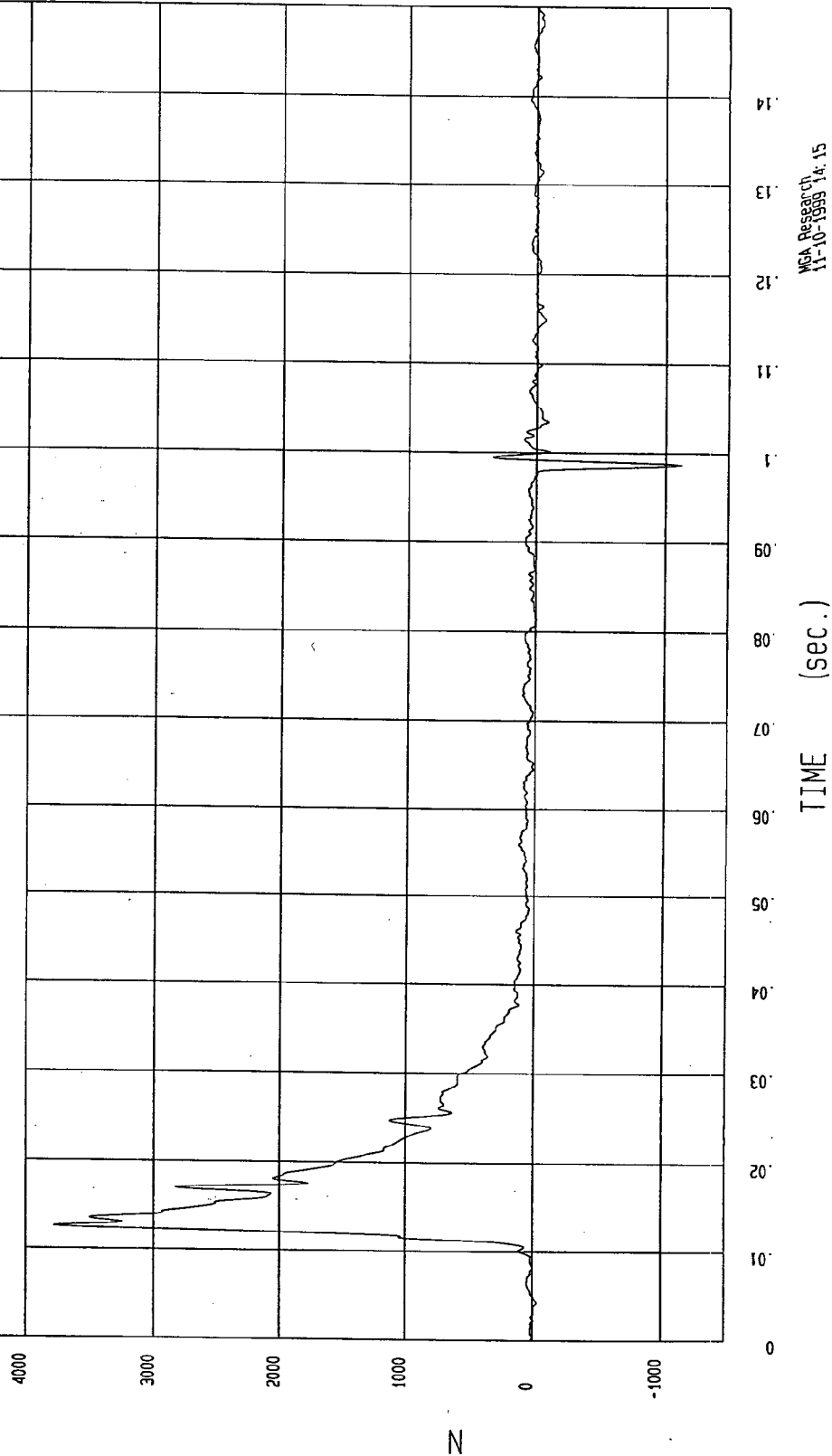
COMPONENT: Dummy #270 Velocity: 20 FT/SEC 6.1 M/SEC

Minimum = -1127.07 N at 98.7 msec

Maximum = 3781.81 N at 12.5 msec

PEAK FORCE

1 _____ 099288FF.F04 Filterclass (1000)



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11-10-1999 14:15

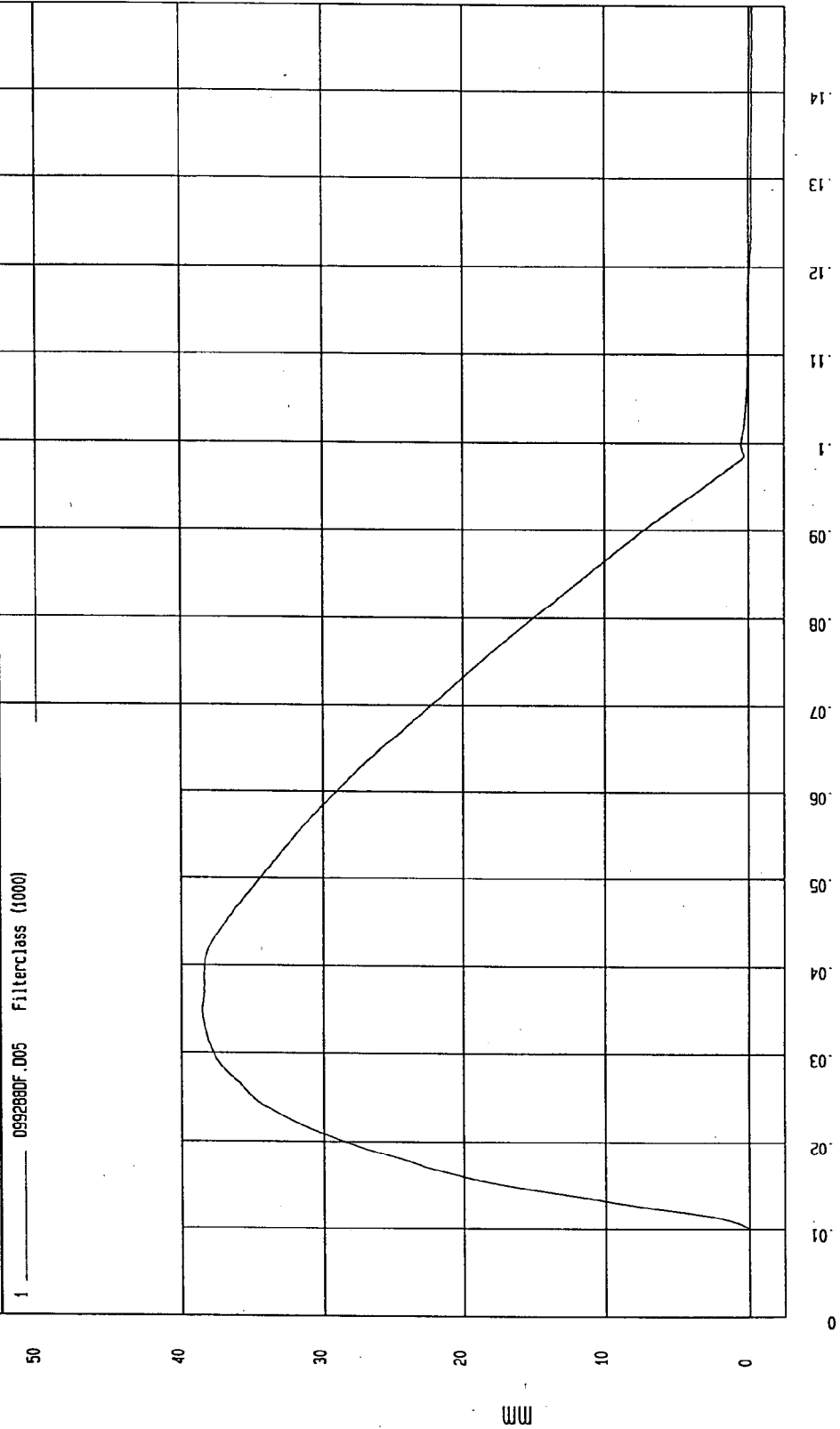
TEST: Dummy Calibration - Dampener Impact TEST DATE: 11-10-1999 - 14:13:02

COMPONENT: Dummy #270 Velocity: 20 FT/SEC 6.1 M/SEC

Minimum = -21 mm at 164. msec Maximum = 38.53 mm at 34.7 msec

PEAK DISPLACEMENT

1 — 0992880F.D05 Filterclass (1000)



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11-10-1999 14:15

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C-18

THORAX IMPACT TEST

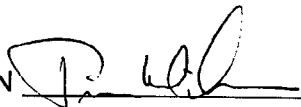
SIDE IMPACT DUMMY (SID)

DATE: November 11, 1999DUMMY SERIAL NUMBER: 270TEST NUMBER: D991282

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	33%
PROBE SPEED (m/s)	4.27 - 4.33	4.29
UPPER RIB (g's)	37 - 46 g's	38
LOWER RIB (g's)	37 - 46 g's	40
LOWER SPINE (g's)	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY



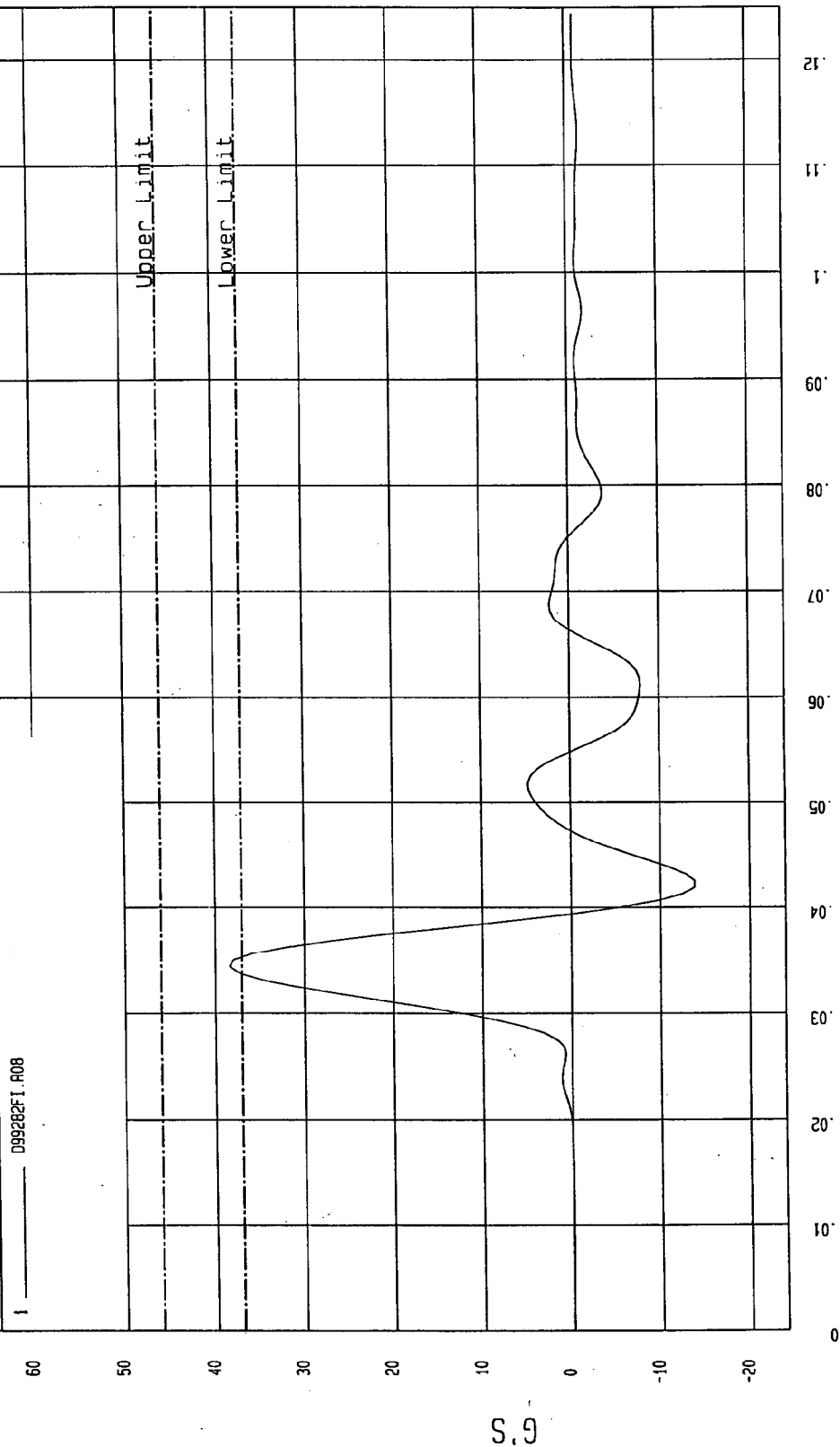
TEST: Dummy Calibration - Thorax Impact TEST DATE: 11-11-1999 - 16:20:34

COMPONENT: Dummy #270 Velocity: 14.065 FT/SEC 4.29 M/SEC

Minimum = -13.79 G'S at 42.5 msec

Maximum = 38.41 G'S at 34.3 msec

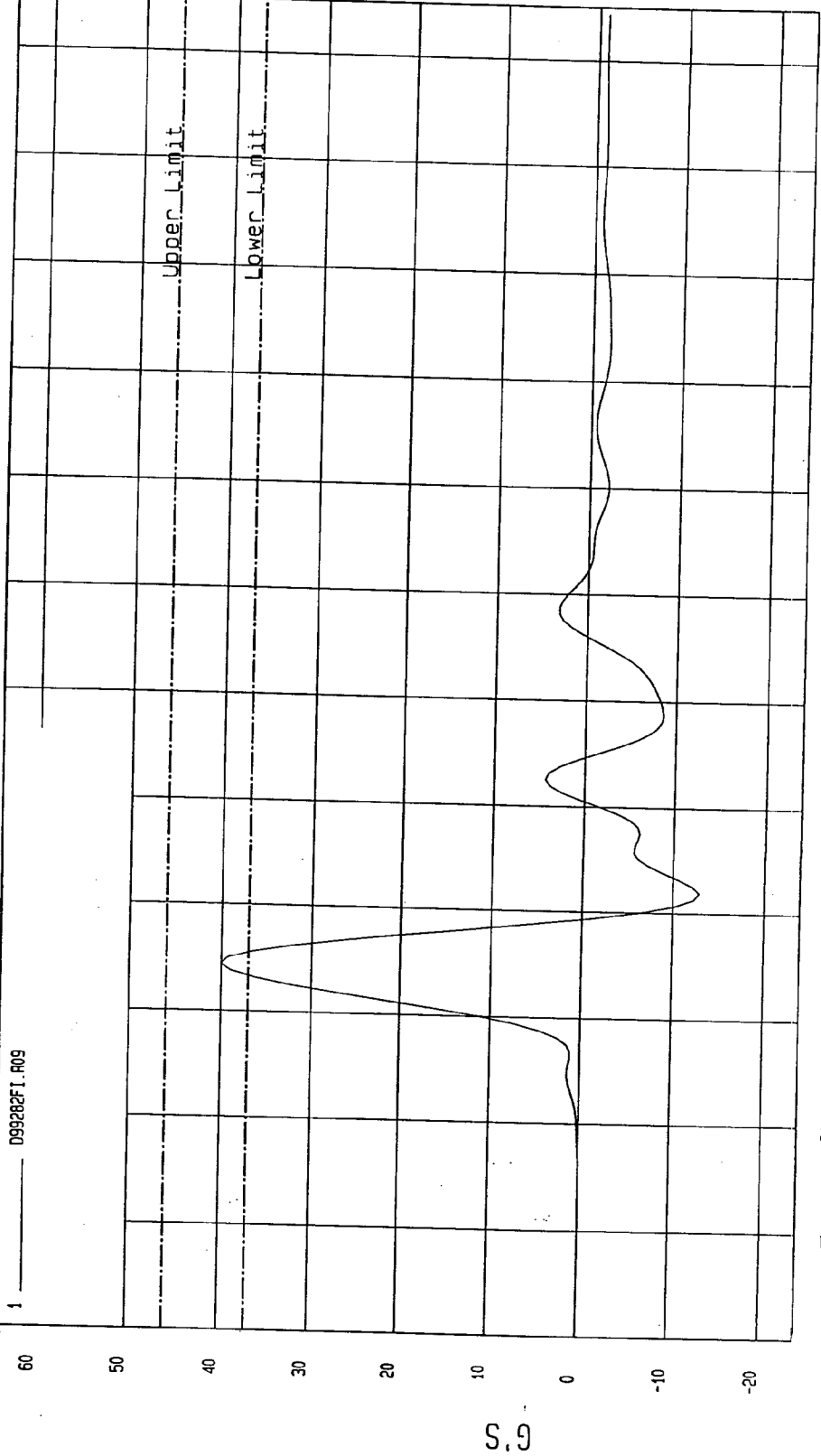
UPPER RIB ACCELERATION



MOA Research
11-11-1999 16:34

TEST: Dummy Calibration - Thorax Impact TEST DATE: 11-11-1999 - 16:20:34
 COMPONENT: Dummy #270 Velocity: 14.065 FT/SEC 4.29 M/SEC
 Minimum = -12.83 G'S at 41.8 msec Maximum = 40.07 G'S at 34.3 msec

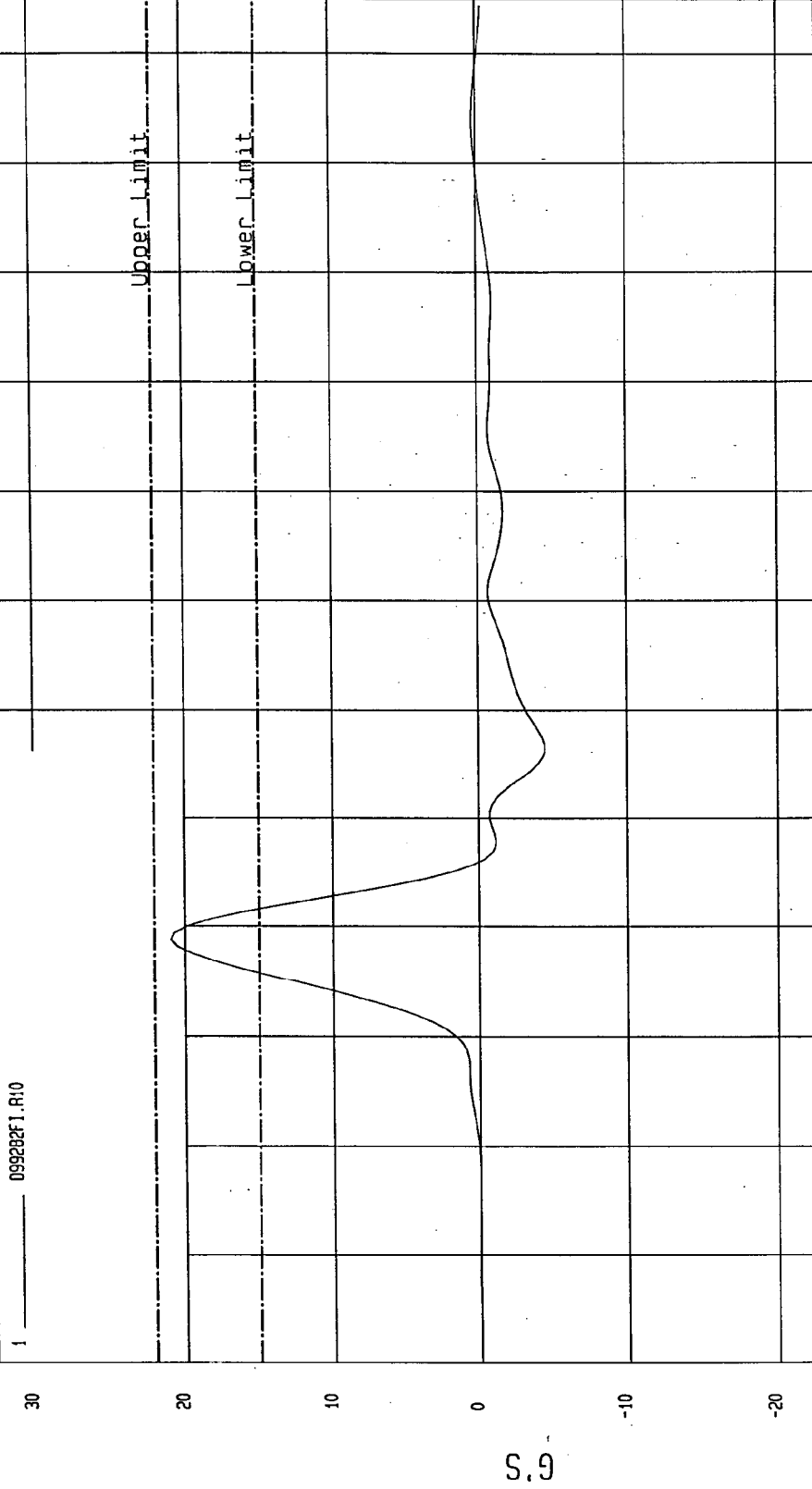
LOWER RIB ACCELERATION



MCA Research
 11-11-1999 16:34

TEST: Dummy Calibration - Thorax Impact TEST DATE: 11-11-1999 - 16:20:34
COMPONENT: Dummy #270 Velocity: 14.065 FT/SEC 4.29 M/SEC
Minimum = -4.48 G'S at 56.2 msec Maximum = 20.92 G'S at 38.7 msec

LOWER SPINE ACCELERATION



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11-11-1999 16:34

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C-22

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 11, 1999

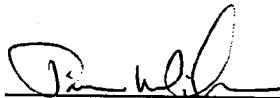
DUMMY SERIAL NUMBER: 270

TEST NUMBER: D991283

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	33%
PROBE SPEED (m/s)	4.27 - 4.33	4.27
PELVIS ACCELERATION (g's)	40 - 60	43

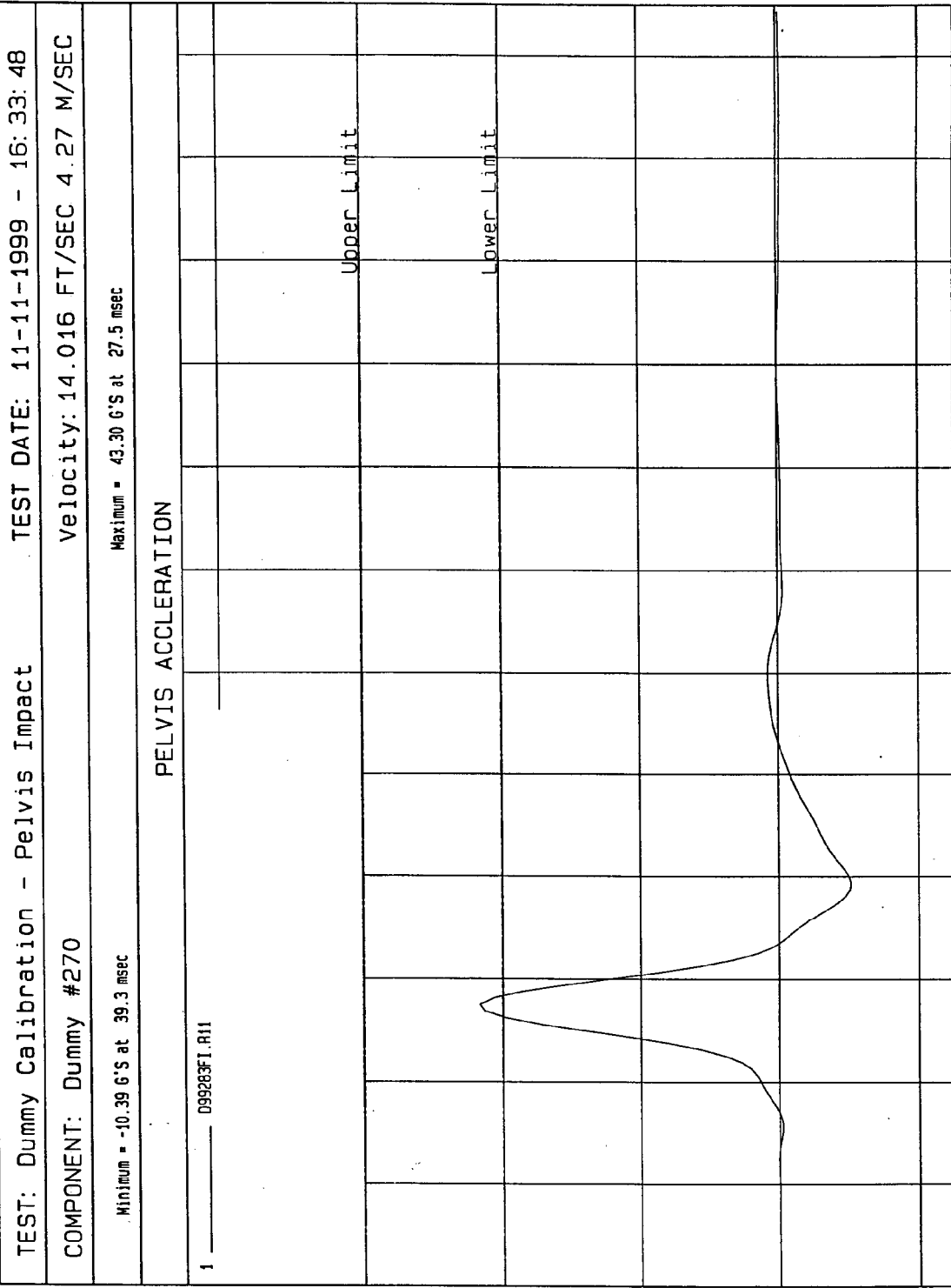
TEST MEETS SPECIFICATIONS

TECHNICIAN



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11-11-1999 16:35

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C-24

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: November 10, 1999

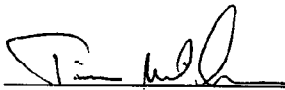
DUMMY SERIAL NUMBER: 270

TEST NUMBER: D991284

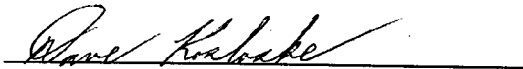
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	41%
FORCE @ 12.7 mm	104 - 162	139
FORCE @ 19.0 mm	163 - 222	192
FORCE @ 25.4 mm	222 - 280	256
FORCE @ 33 mm	325 - 391	347

TEST MEETS SPECIFICATIONS

TECHNICIAN



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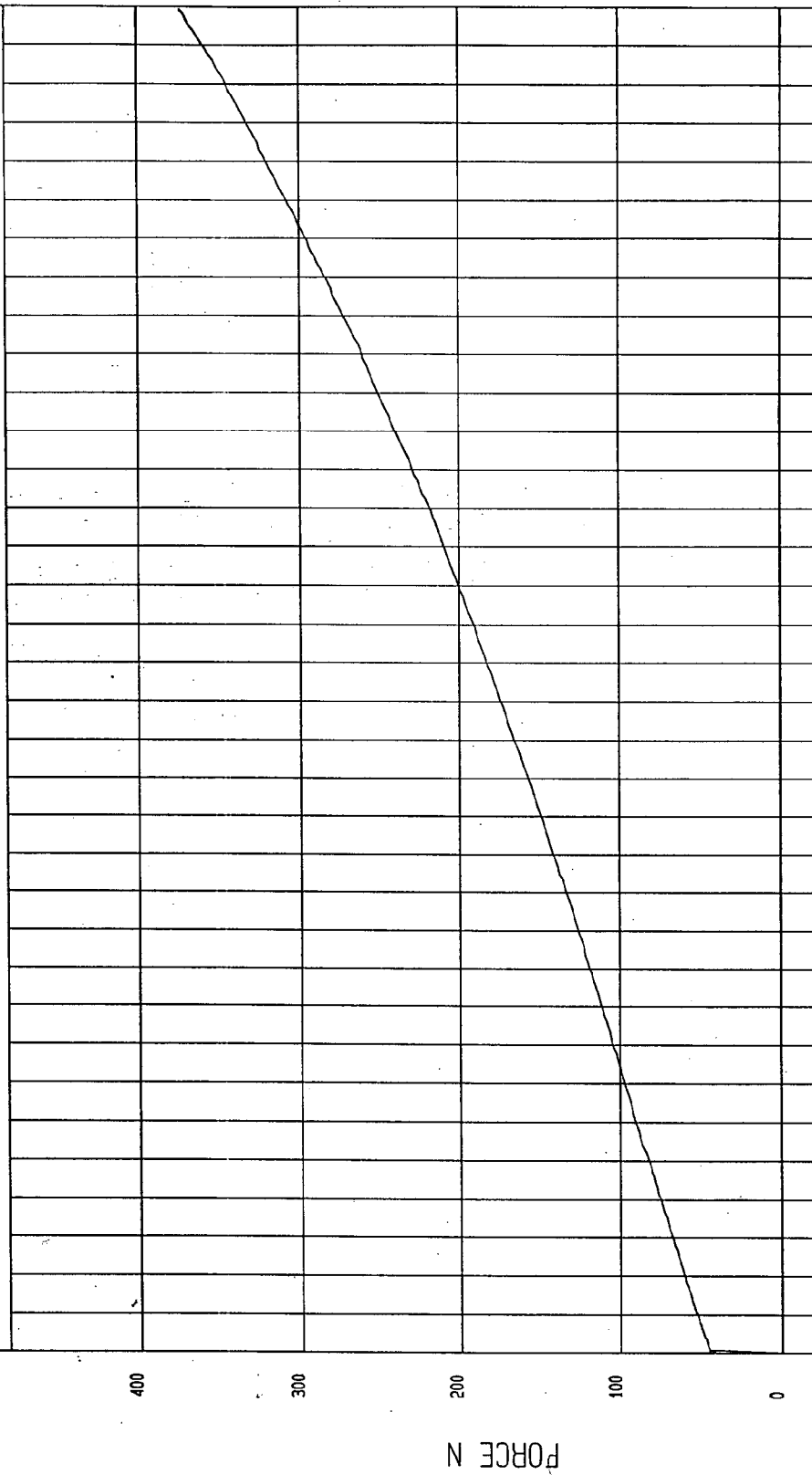
W&A Research
01-14-2000 09:51

DISPLACEMENT mm

FORCE as a function of DISPLACEMENT

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-10-2099 - 15:34:38

COMPONENT: DUMMY # 270



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C-26

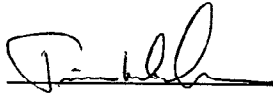
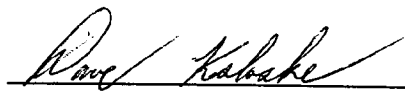
LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 10, 1999DUMMY SERIAL NUMBER: 270TEST NUMBER: D991285

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	41%
FORCE @ 0°	0 - 26.7	0
FORCE @ 20°	97.9 - 151.2	103.2
FORCE @ 30°	151.2 - 204.6	159.4
FORCE @ 40°	204.6 - 258.0	211.6
RETURN ANGLE	12° maximum	1°

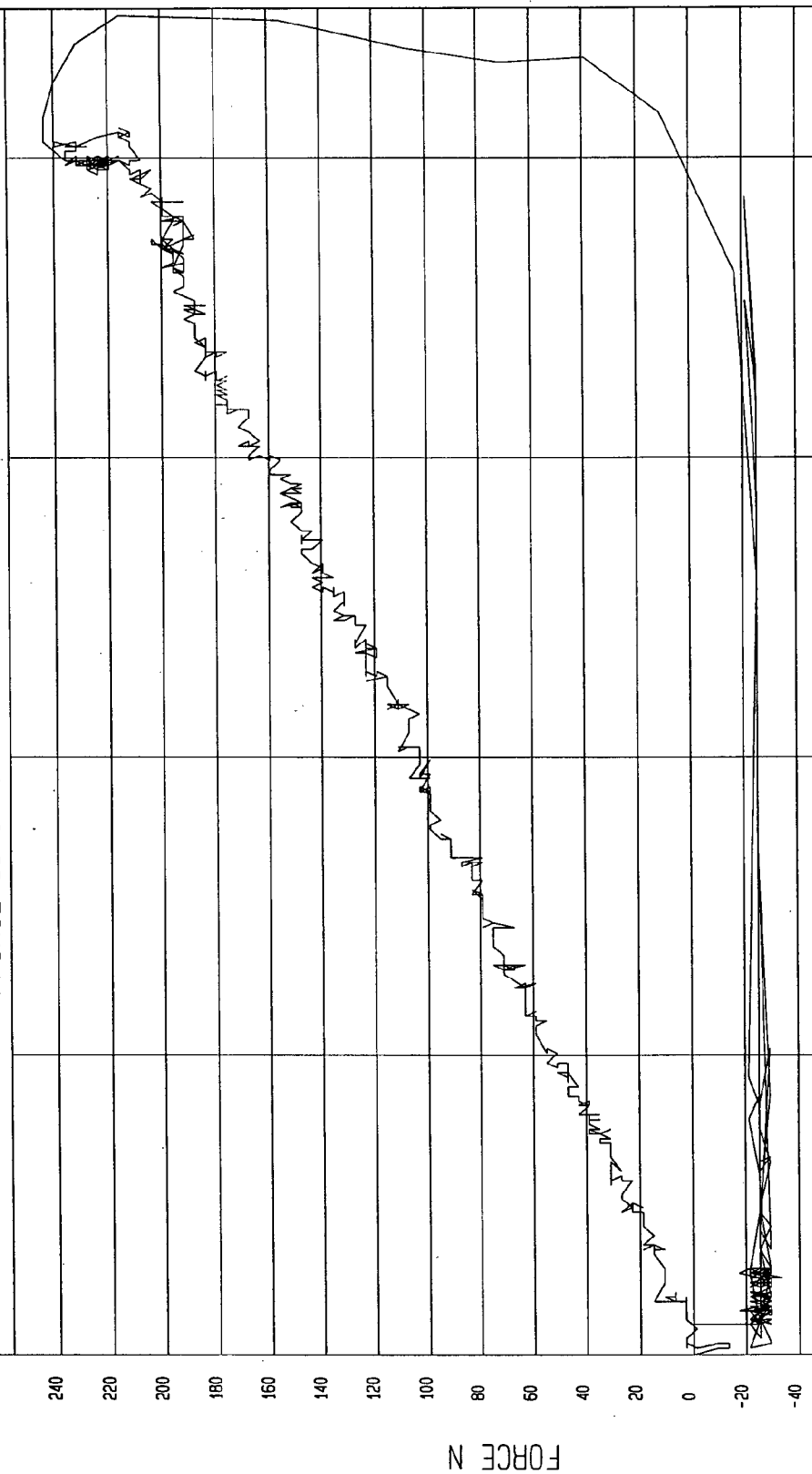
TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-10-2099 - 16:10:57

COMPONENT: DUMMY # 270

FORCE as a function of TORSO ROTATION



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01-14-2000 09:50

PRE-TEST CERTIFICATION DATA

C-28

Passenger Dummy Serial Number: 269

Passenger Dummy Serial Number: 269

Pre-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop:	The head passed all drop test 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 C-30

DUMMY SERIAL NUMBER: 269

DATE OF VERIFICATION: November 11, 1999

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	899
RH - Rib Height (mm)	501 - 521	518
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	231
KV - Knee Pivot From Back Line (mm)	511 - 526	520
SW - Knee Pivot to Floor (mm)	490 - 505	495
HW - Hip Width (mm)	356 - 391	371

MEASUREMENTS BY:

J. W. L.

APPROVED BY:

Rene Kaloske

MGA RESEARCH CORPORATION

C-31

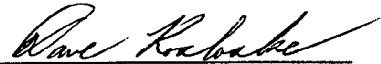
HEAD DROP TEST

SIDE IMPACT DUMMY (SID)

DATE: November 11, 1999DUMMY NUMBER: 269TEST NUMBER: D991271

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9° - 25.5° C	21.0°
RELATIVE HUMIDITY	10 - 70%	33%
PEAK RESULTANT ACCELERATION	210 - 260 g's	256
PEAK LATERAL ACCELERATION	< 10 g's	4
TIME ABOVE 100 G.	0.9 - 1.5 msec.	1.2

TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: Dummy Calibration - Head Drop TEST DATE: 11-11-1999 - 09:31:35

COMPONENT: Dummy #269

Minimum = 1.29E-02 G's at .2 msec

Maximum = 255.73 G's at 19.5 msec

PEAK RESULTANT ACCELERATION

1 ——— D99271AV.A01 Filterclass (1000)

G.S.

50

40

30

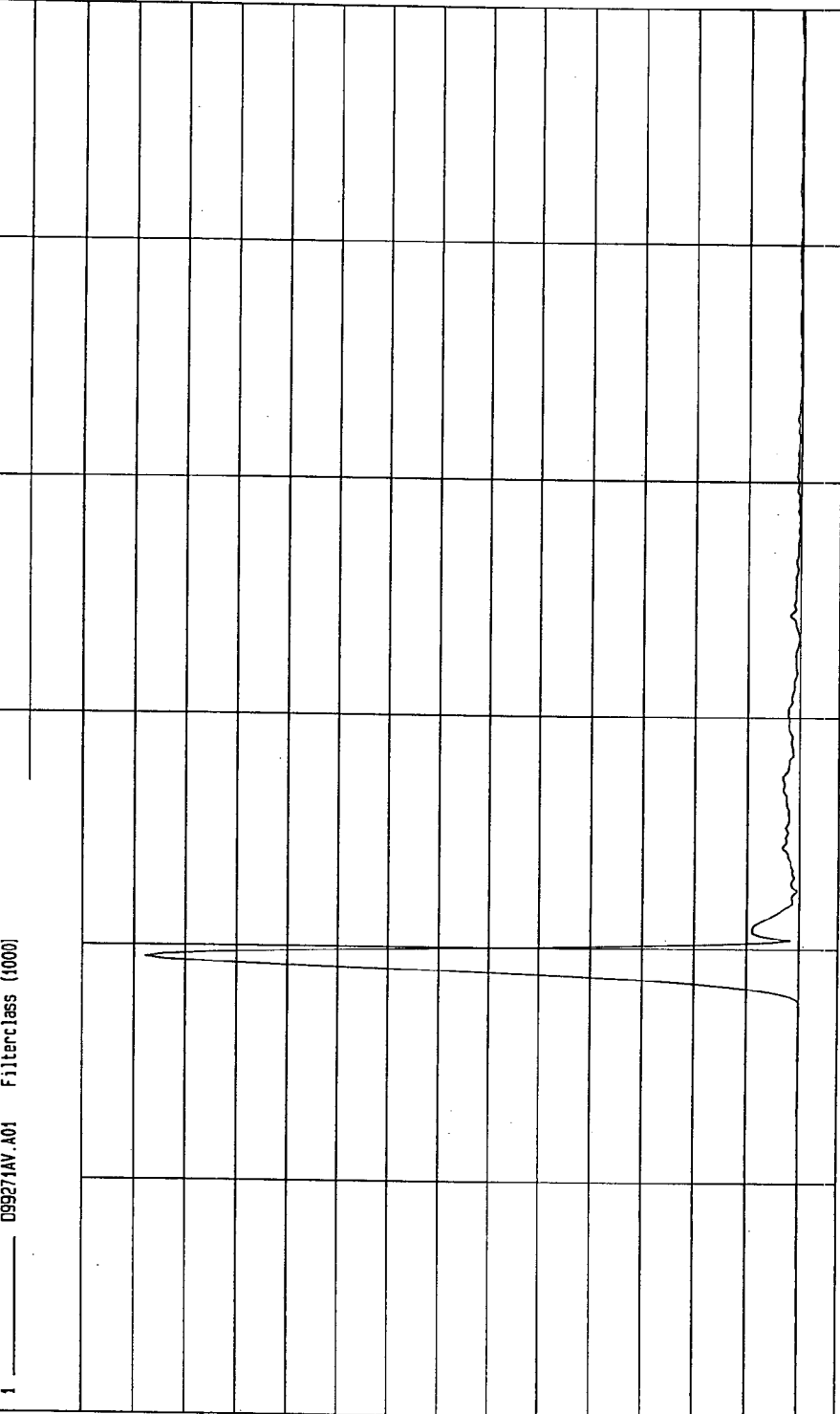
20

10

0

TIME (sec.)

MCA Research
11-11-1999 09:32

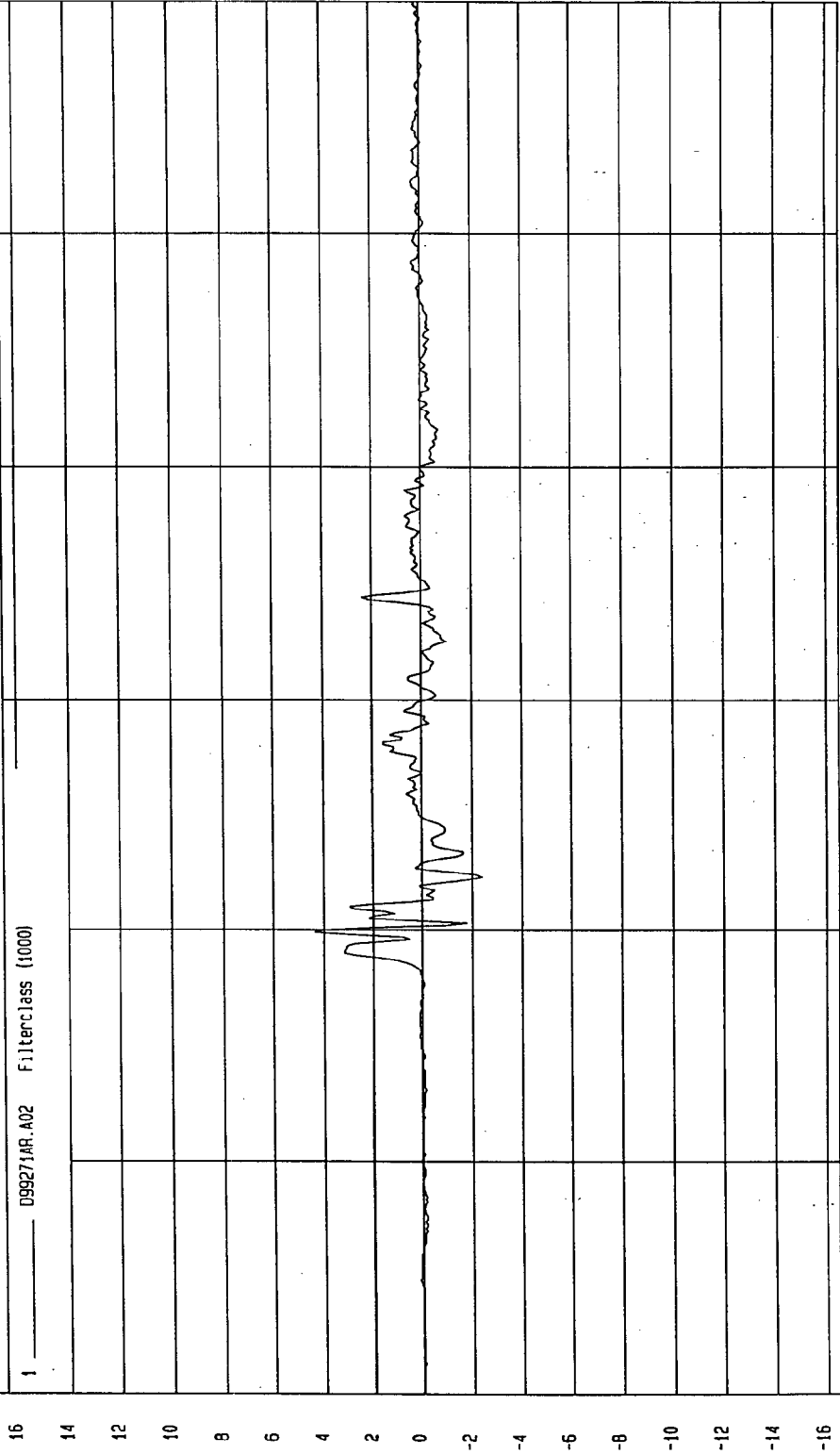


TEST: Dummy Calibration - Head Drop TEST DATE: 11-11-1999 - 09:31:35

COMPONENT: Dummy #269

Minimum = -2.40 G'S at 22.3 msec Maximum = 4.37 G'S at 19.9 msec

PEAK LATERAL ACCELERATION



MGA RESEARCH CORPORATION

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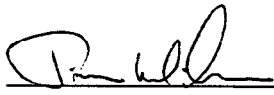
THORACIC SHOCK ABSORBER TEST

SIDE IMPACT DUMMY (SID)

DATE: November 10, 1999DUMMY SERIAL NUMBER: 269TEST NUMBER: D991276/7/8

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)		18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)		10 - 70	41%
VELOCITY 3.05 m/s	FORCE (N)	836 - 1125	910
	DISPLACEMENT (mm)	30 - 35	35
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099	1745
	DISPLACEMENT (mm)	32 - 37	36
VELOCITY 6.1 m/s	FORCE (N)	3741 - 4448	3814
	DISPLACEMENT (mm)	33 - 40	39

TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: Dummy Calibration - Dampener Impact TEST DATE: 11-10-1999 - 13:12:57

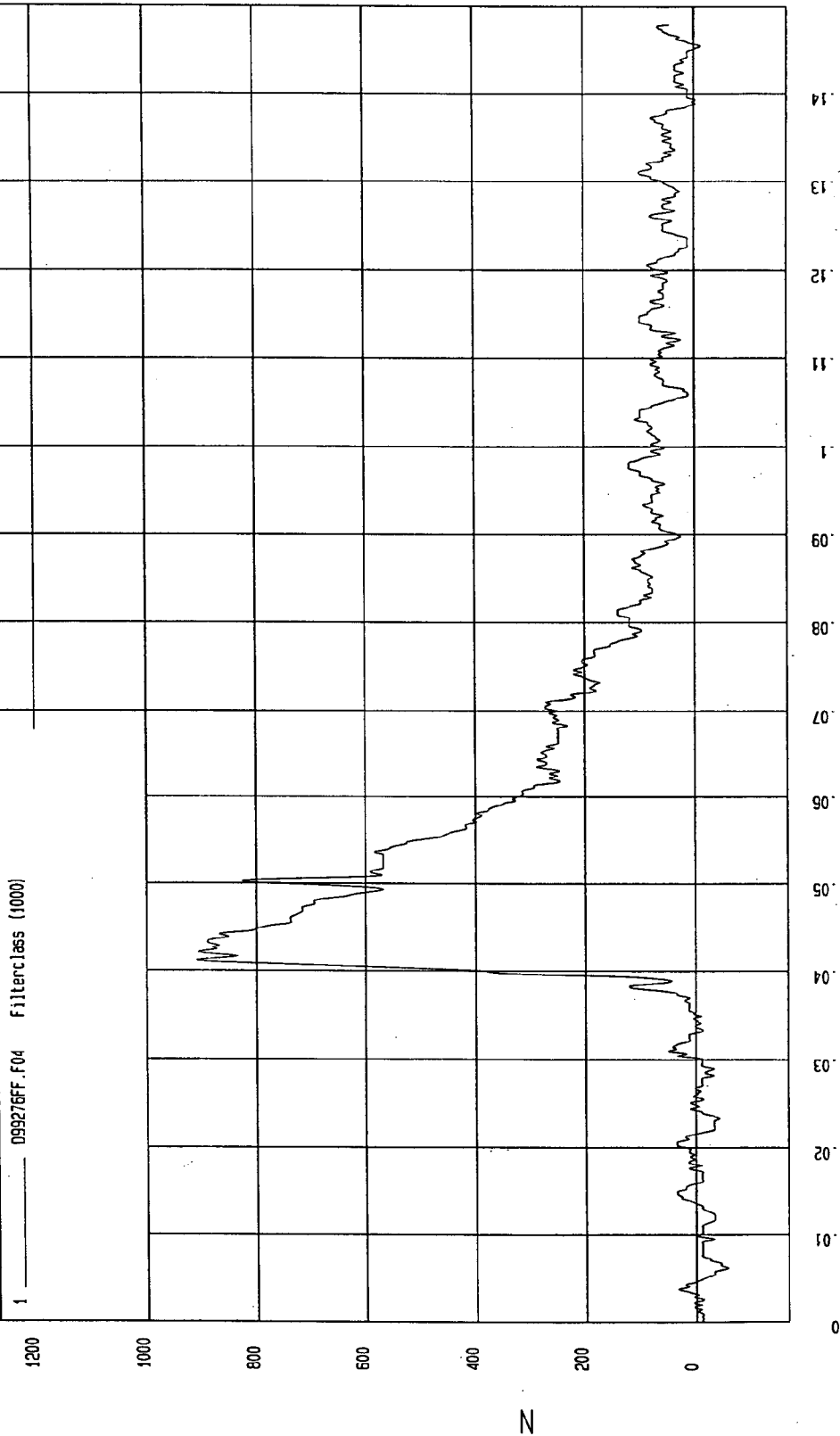
COMPONENT: Dummy #269 Velocity: 10 FT/SEC 3.05 M/SEC

Minimum = -55.22 N at 6.2 msec

Maximum = 909.65 N at 41.2 msec

PEAK FORCE

1 099276FF.F04 Filterclass (1000)



WCA Research
11-10-1999 13:04

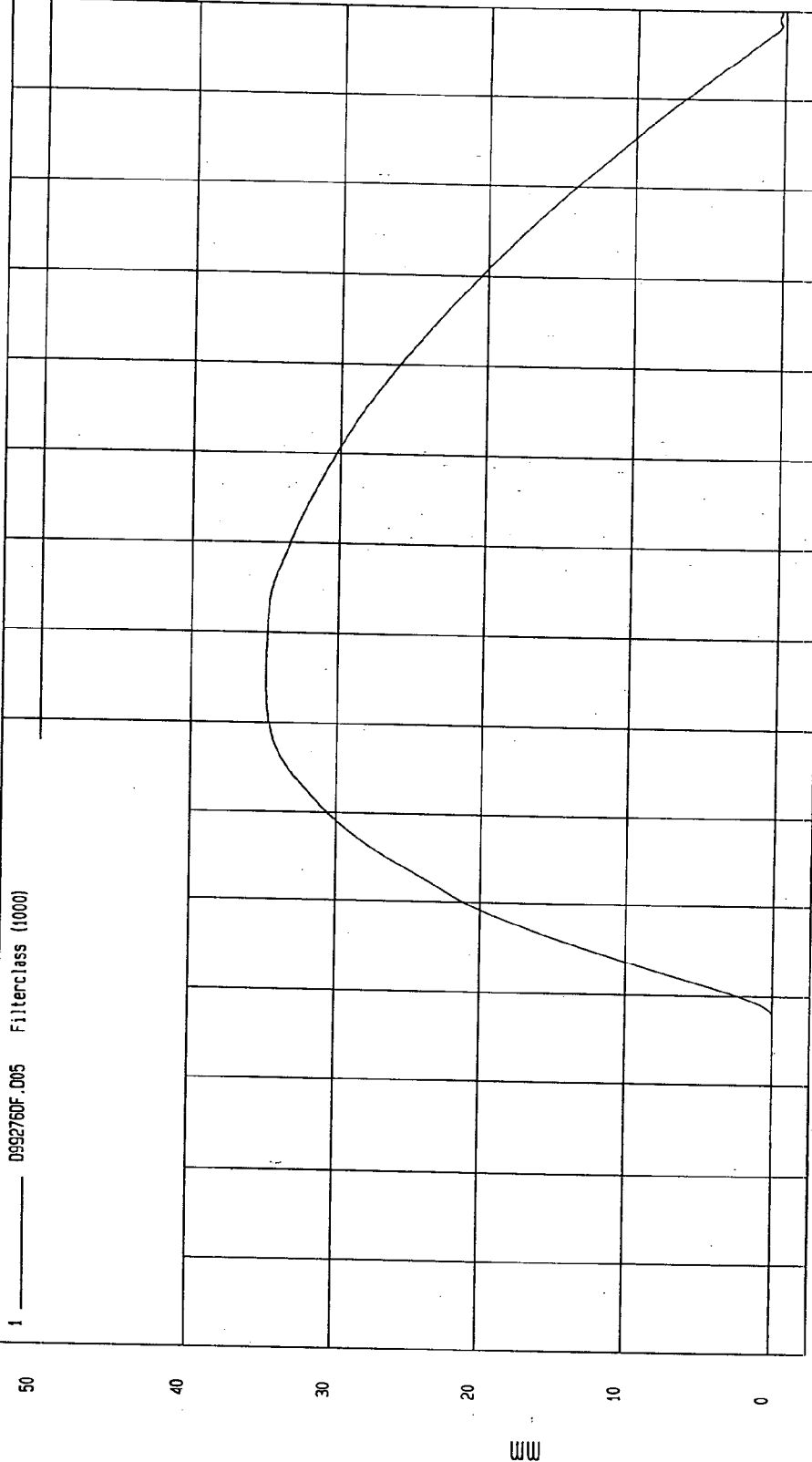
TEST: Dummy Calibration - Dampener Impact TEST DATE: 11-10-1999 - 13:14:35

COMPONENT: Dummy #269 Velocity: 10 FT/SEC 3.05 M/SEC

Minimum = -.06 mm at 173. msec Maximum = 34.87 mm at 73.7 msec

PEAK DISPLACEMENT

1 ——— D992760F.005 Filterclass (1000)



MCA Research
11-10-1999 15.04

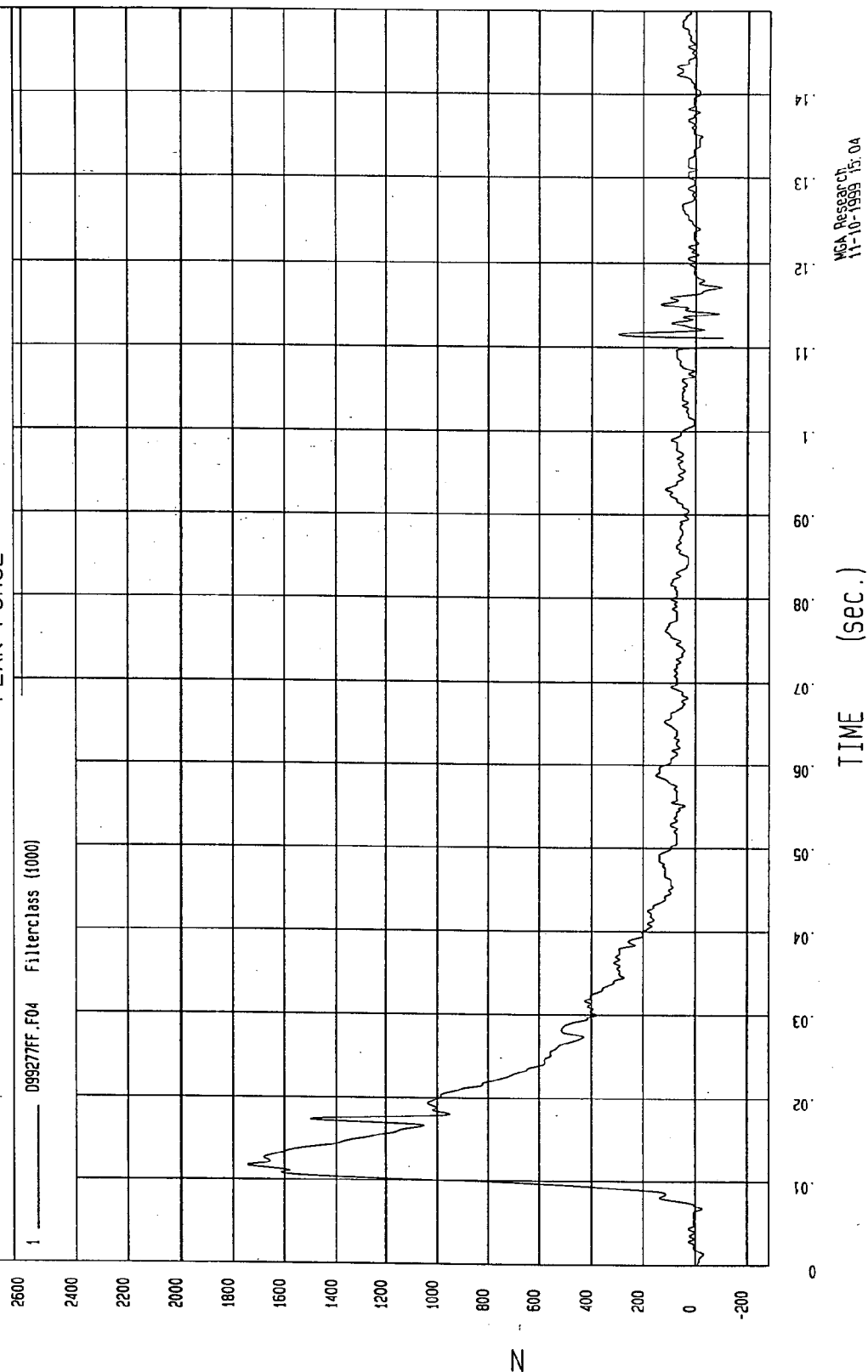
TEST: Dummy Calibration - Dampener Impact TEST DATE: 11-10-1999 - 13:27:38

COMPONENT: Dummy #269

Minimum = -1008.64 N at 110. msec

Maximum = 1744.50 N at 11.7 msec

PEAK FORCE



TEST: Dummy Calibration - Dampener Impact TEST DATE: 11-10-1999 - 13:24:44

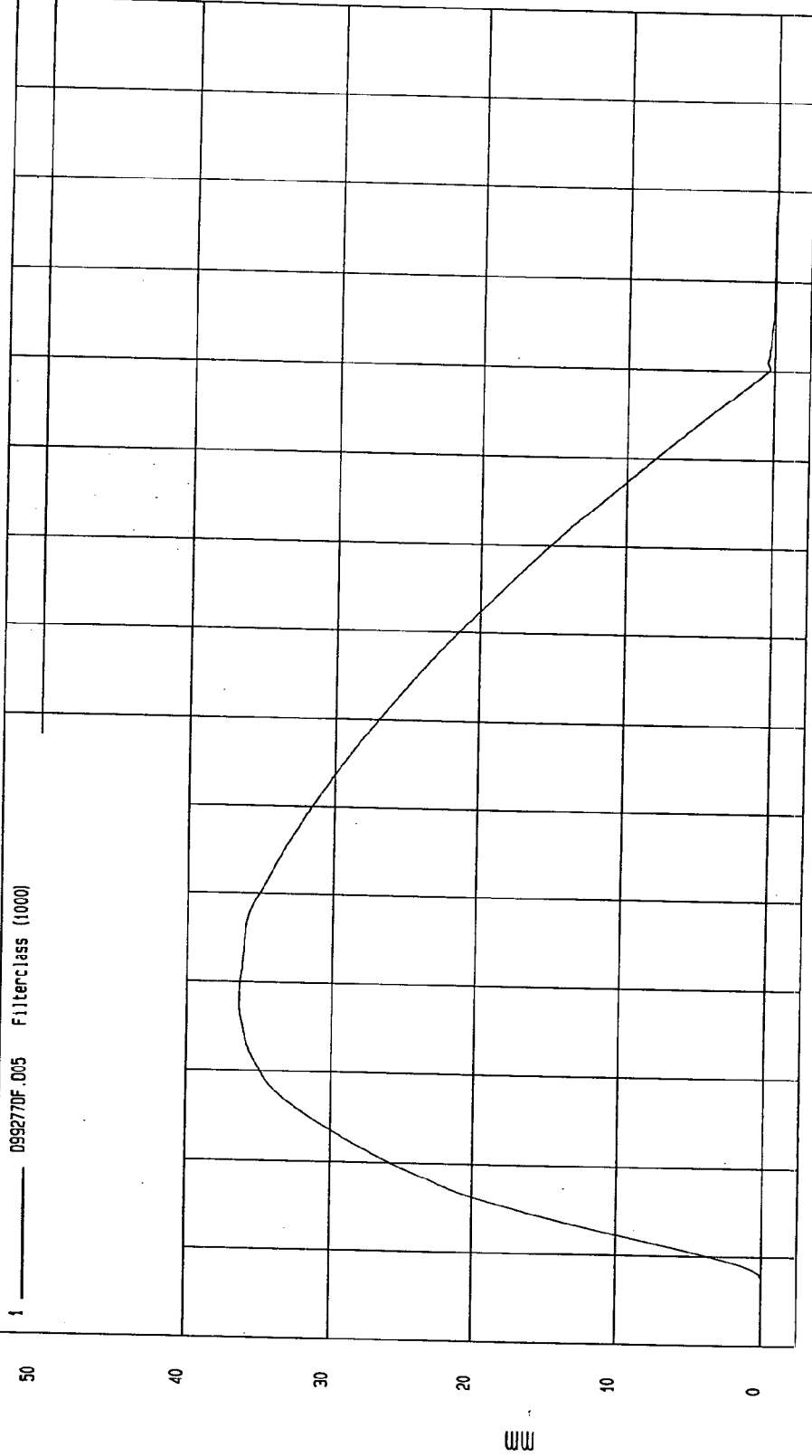
COMPONENT: Dummy #269

Minimum = -7.68E-02 mm at 136. msec

Maximum = 36.36 mm at 37.2 msec

PEAK DISPLACEMENT

1 — 0992770F.005 Filterclass (1000)



MCA Research
11-10-1999 15:04

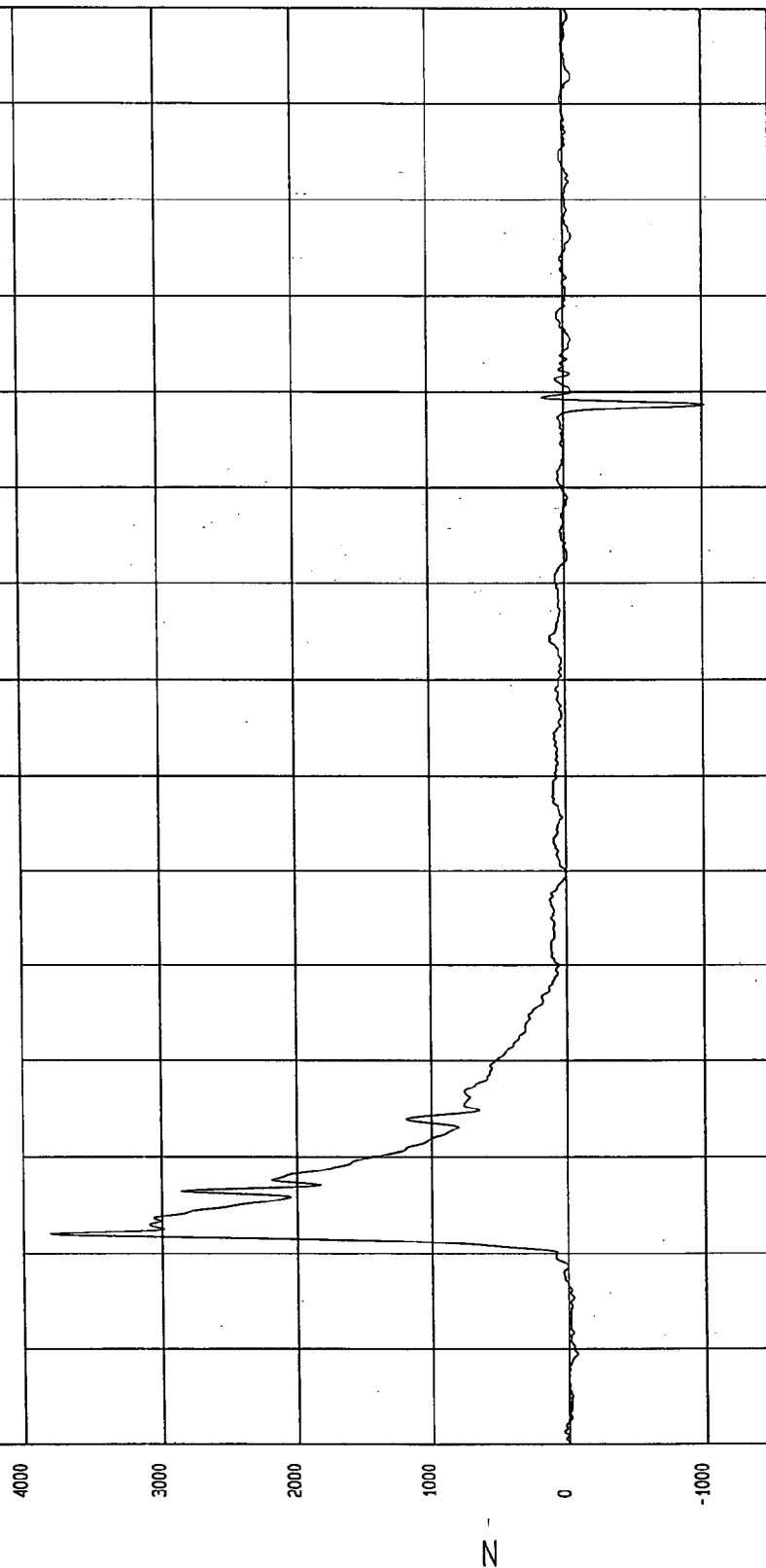
TEST: Dummy Calibration - Dampener Impact TEST DATE: 11-10-1999 - 13:41:06

COMPONENT: Dummy #269 Velocity: 20 FT/SEC 6.1 M/SEC

Minimum = -1022.89 N at 108. msec Maximum = 3814.13 N at 22 msec

PEAK FORCE

1 ——— 099278FF.F04 Filterclass (1000)



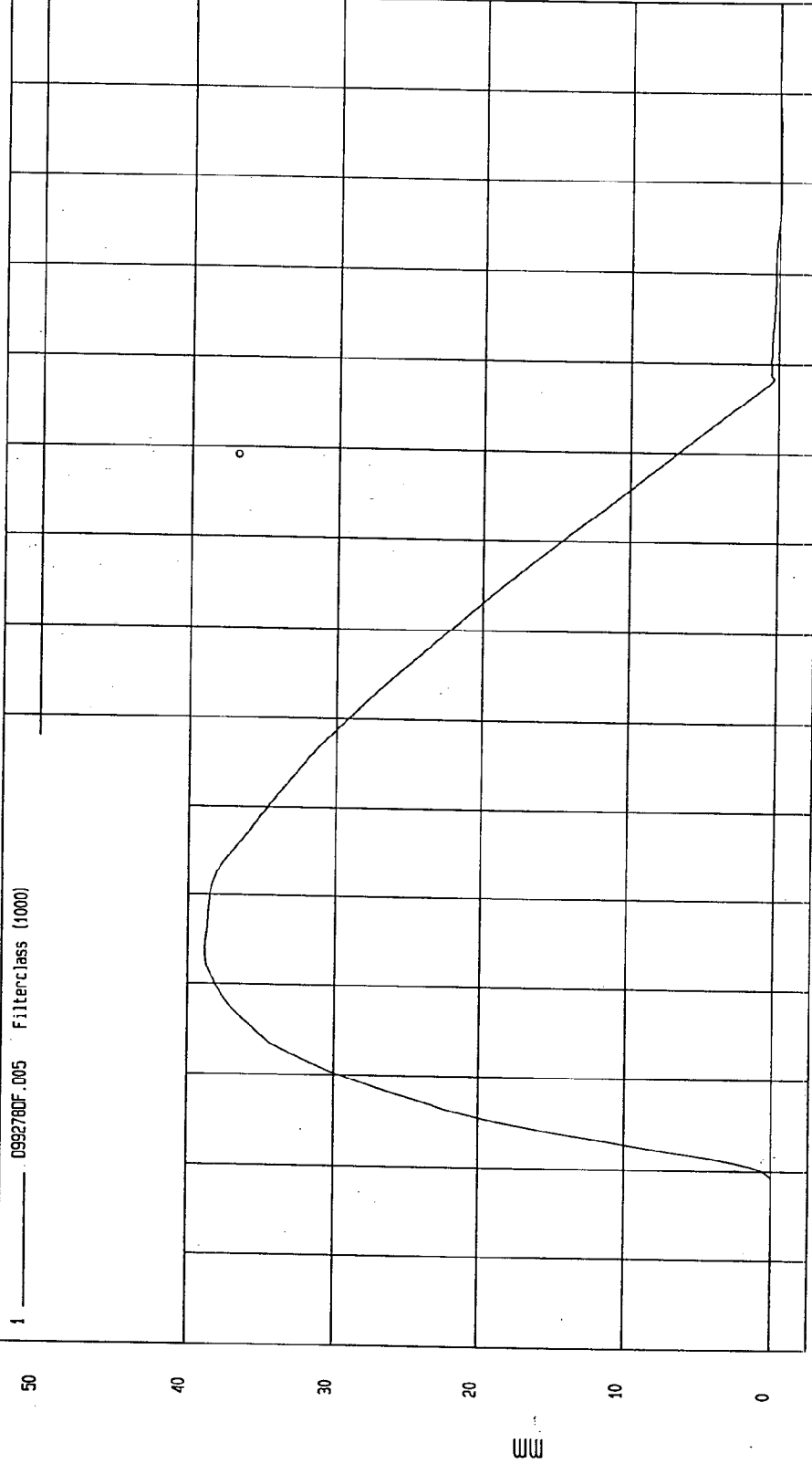
TEST: Dummy Calibration - Dampener Impact TEST DATE: 11-10-1999 - 13:41:06

COMPONENT: Dummy #269 Velocity: 20 FT/SEC 6.1 M/SEC

Minimum = -.12 mm at 129. msec Maximum = 38.85 mm at 44.1 msec

PEAK DISPLACEMENT

1 ——— 0992780F.005 Filterclass (1000)



MCA Research
11-10-1999 15.04

MGA RESEARCH CORPORATION

C-41

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

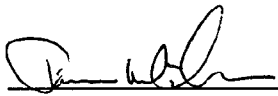
DATE: November 11, 1999

DUMMY SERIAL NUMBER: 269

TEST NUMBER: D991272

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	33%
PROBE SPEED (m/s)	4.27 - 4.33	4.27
UPPER RIB (g's)	37 - 46 g's	41
LOWER RIB (g's)	37 - 46 g's	37
LOWER SPINE (g's)	15 - 22 g's	18

TEST MEETS SPECIFICATIONS

TECHNICIAN 

APPROVED BY 

TEST: Dummy Calibration - Thorax Impact TEST DATE: 11-11-1999 - 15:56:57

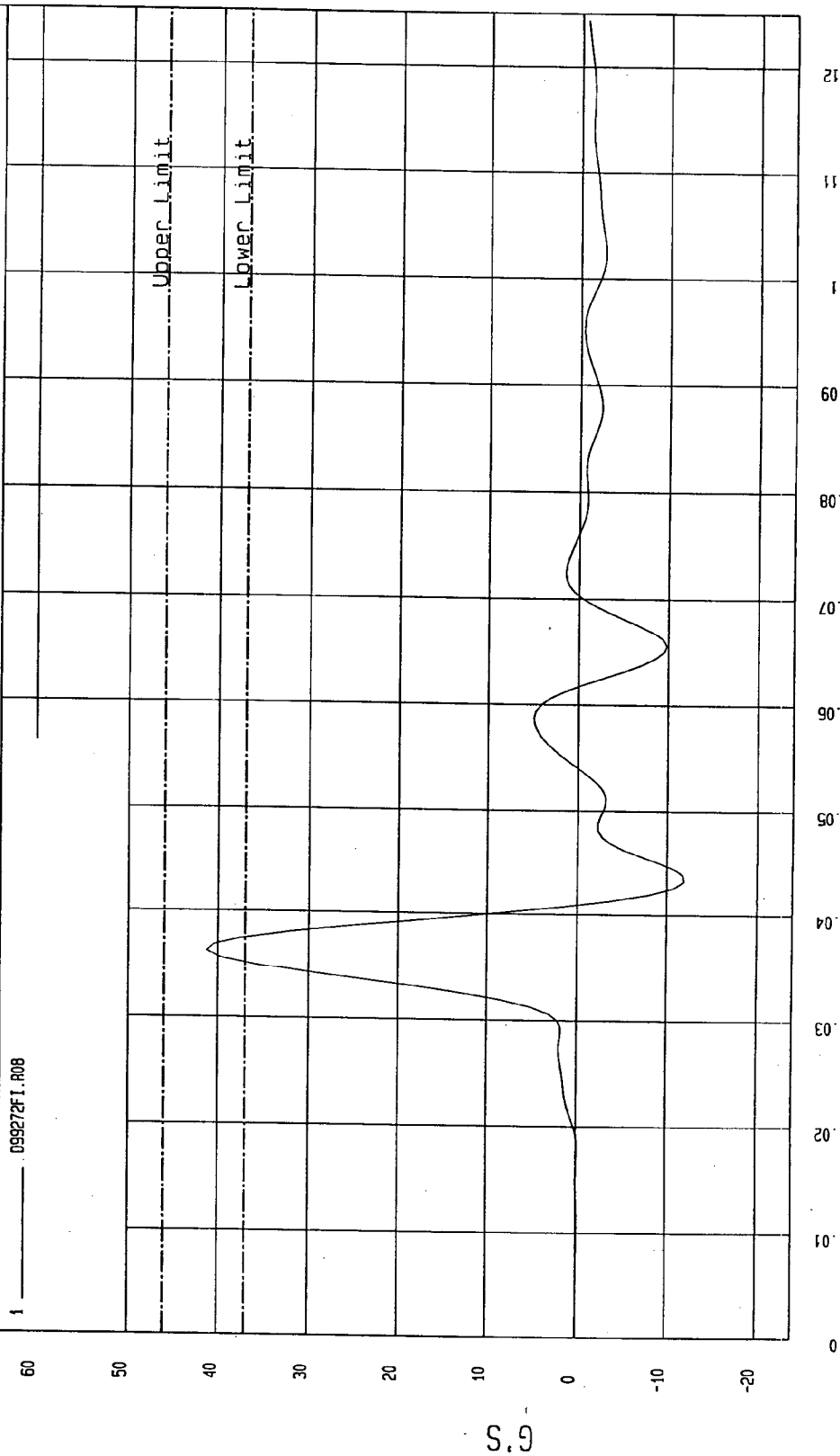
COMPONENT: Dummy #269 Velocity: 14.013 FT/SEC 4.27 M/SEC

Minimum = -11.87 G'S at 43.1 msec

Maximum = 41.23 G'S at 36.2 msec

UPPER RIB ACCELERATION

1 099272F1.R08



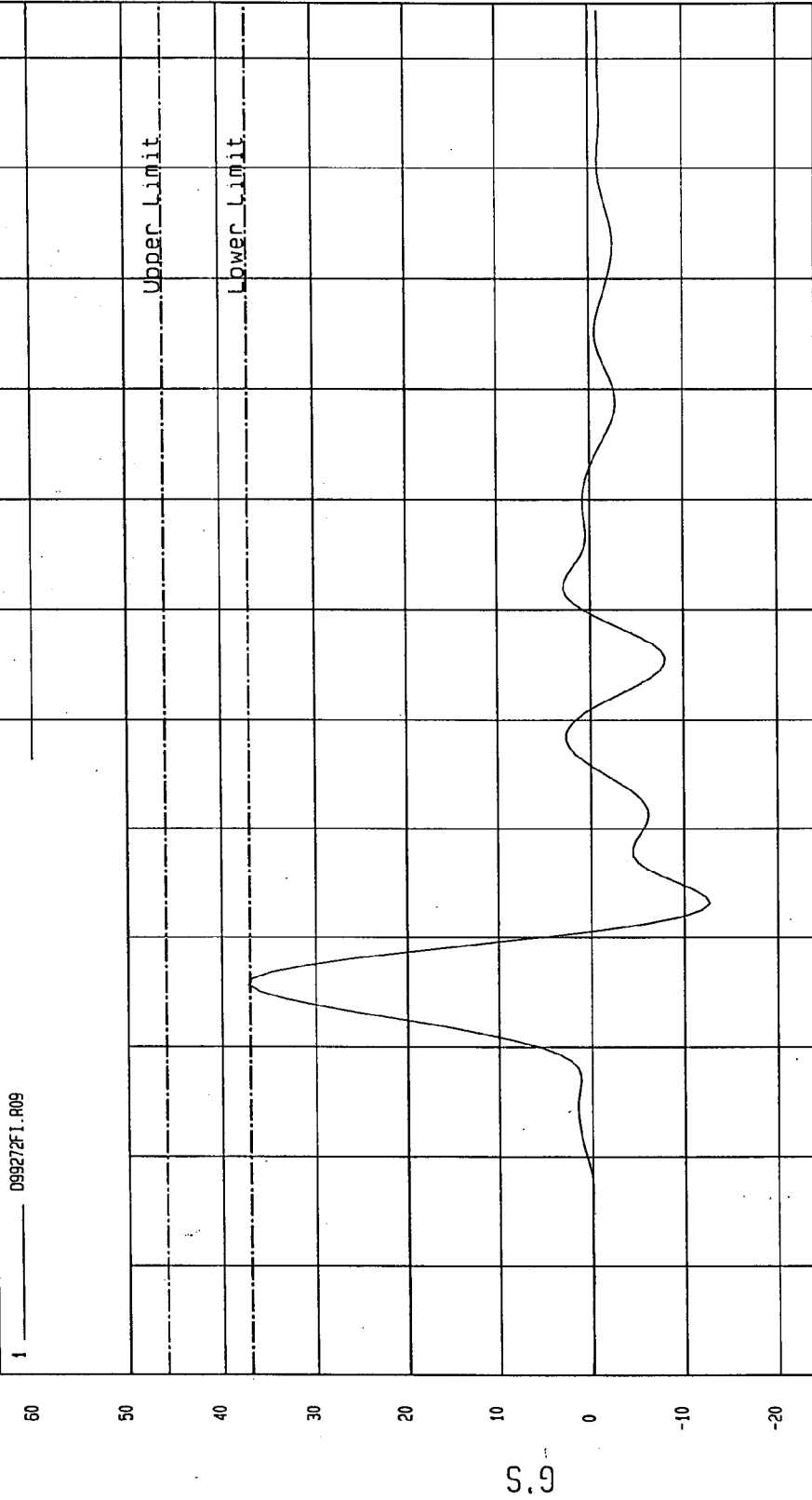
NCA Research
11-11-1999 16:04

TEST: Dummy Calibration - Thorax Impact TEST DATE: 11-11-1999 - 15:56:57

COMPONENT: Dummy #269 Velocity: 14.013 FT/SEC 4.27 M/SEC

Minimum = -12.62 G'S at 43.1 msec Maximum = 37.21 G'S at 35.6 msec

LOWER RIB ACCELERATION



MSA Research
11-11-1999 15:05

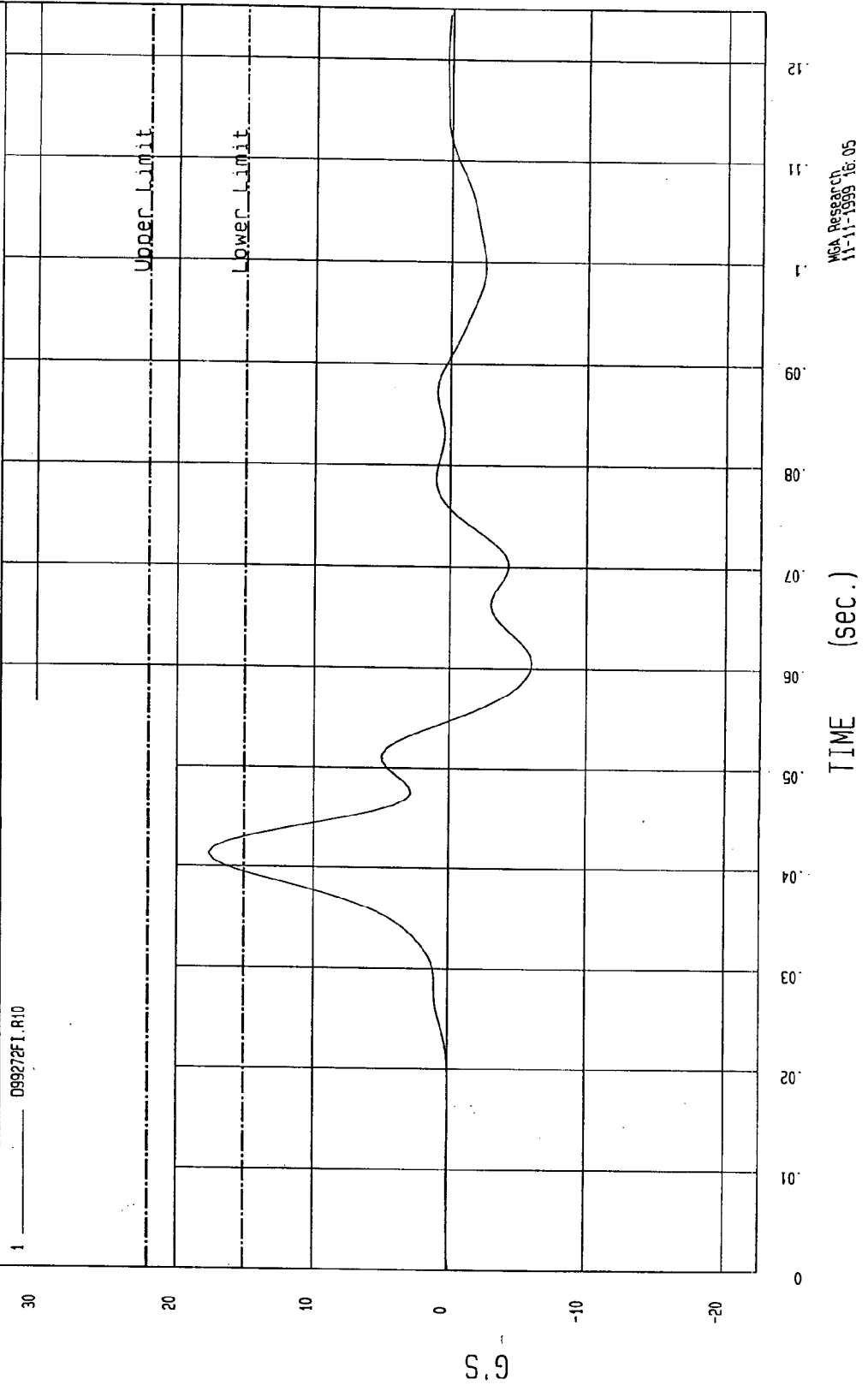
TEST: Dummy Calibration - Thorax Impact TEST DATE: 11-11-1999 - 15:56:57

COMPONENT: Dummy #269 Velocity: 14.013 FT/SEC 4.27 M/SEC

Minimum = -6.05 G'S at 60.6 msec

Maximum = 17.65 G'S at 41.2 msec

LOWER SPINE ACCELERATION



MGA RESEARCH CORPORATION

C-45

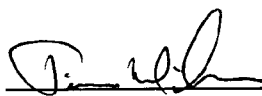
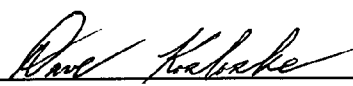
PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 11, 1999DUMMY SERIAL NUMBER: 269TEST NUMBER: D991273

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	33%
PROBE SPEED (m/s)	4.27 - 4.33	4.27
PELVIS ACCELERATION (g's)	40 - 60	42

TEST MEETS SPECIFICATIONS

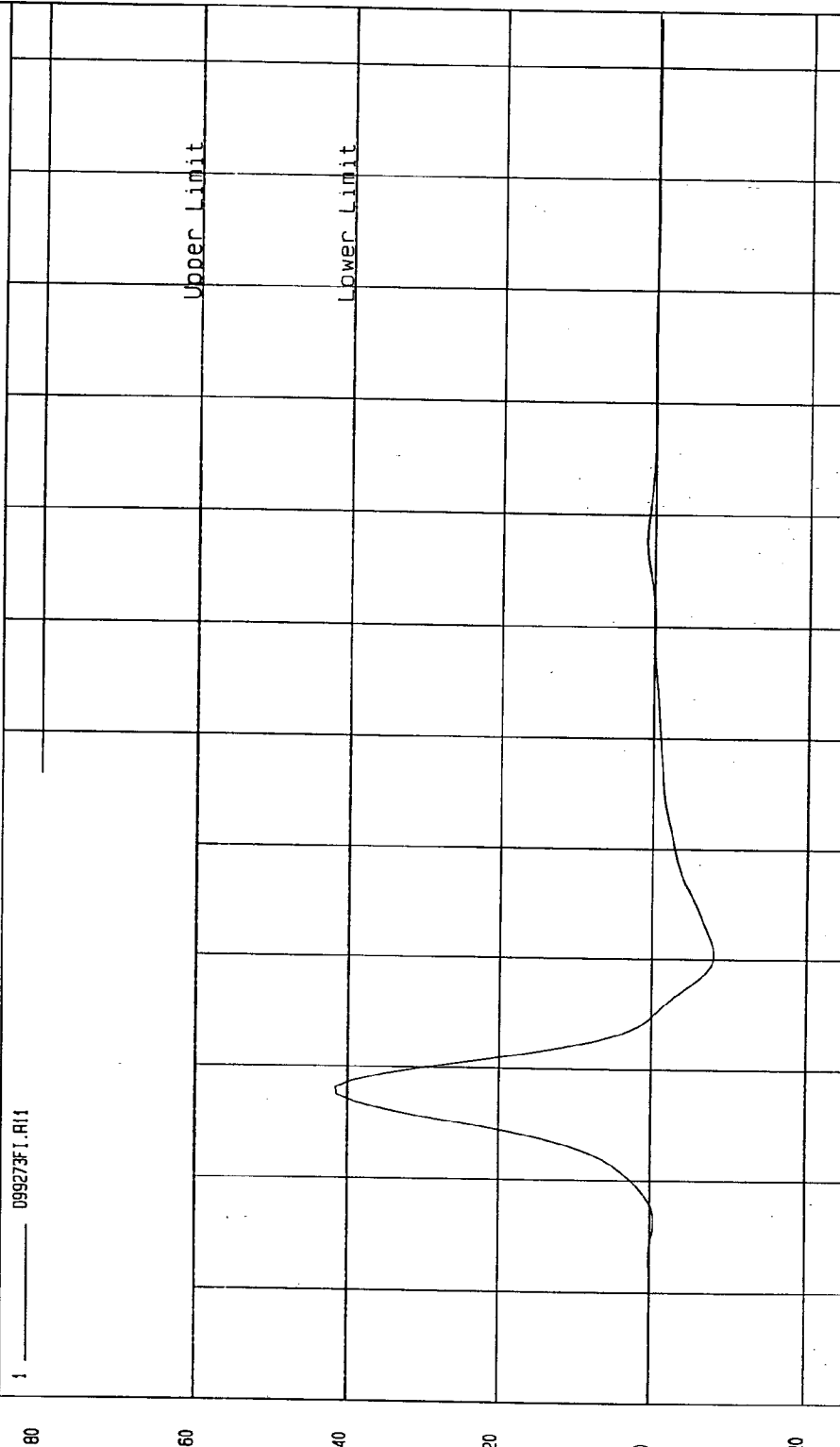
TECHNICIAN APPROVED BY 

TEST: Dummy Calibration - Pelvis Impact TEST DATE: 11-11-1999 - 16:03:56

COMPONENT: Dummy #269 Velocity: 14.008 FT/SEC 4.27 M/SEC

Minimum = -8.23 G'S at 40.6 msec Maximum = 41.56 G'S at 28.1 msec

PELVIS ACCELERATION



MCA Research
11-11-1999 16:05

MGA RESEARCH CORPORATION

C-47

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: November 10, 1999DUMMY SERIAL NUMBER: 269TEST NUMBER: D991264

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	41%
FORCE @ 12.7 mm	104 - 162	141
FORCE @ 19.0 mm	163 - 222	195
FORCE @ 25.4 mm	222 - 280	259
FORCE @ 33 mm	325 - 391	354

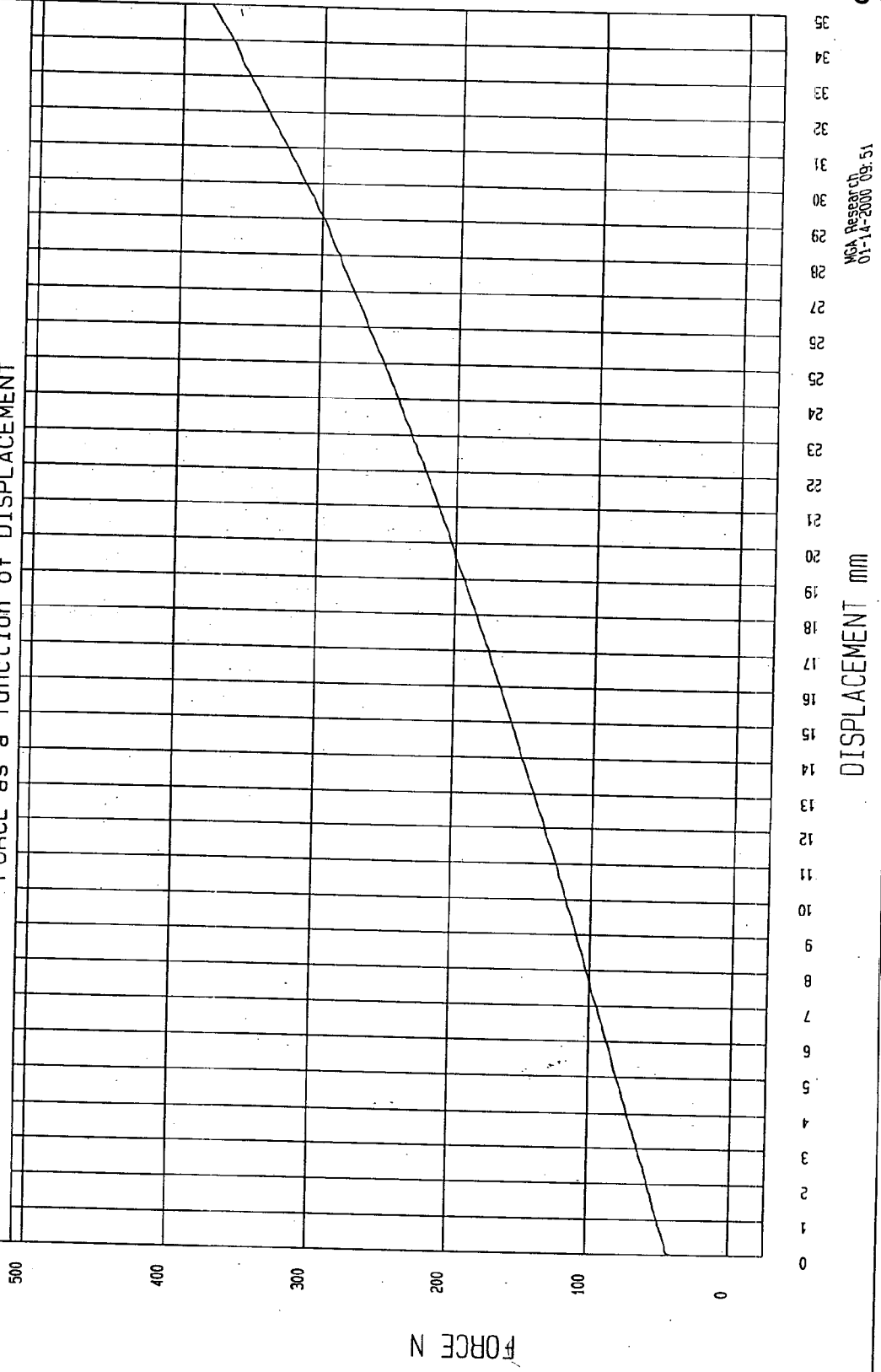
TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

NGA Research
01-14-2000 09:51

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-10-2099 - 15:07:45
COMPONENT: DUMMY # 269

FORCE as a function of DISPLACEMENT



MGA RESEARCH CORPORATION

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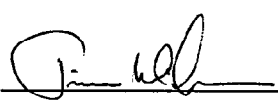
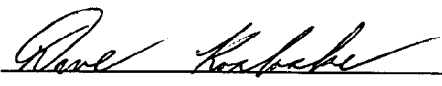
LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 10, 1999DUMMY SERIAL NUMBER: 269TEST NUMBER: D991275

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	40%
FORCE @ 0°	0 - 26.7	0
FORCE @ 20°	97.9 - 151.2	114.6
FORCE @ 30°	151.2 - 204.6	162.8
FORCE @ 40°	204.6 - 258.0	227.1
RETURN ANGLE	12° maximum	3°

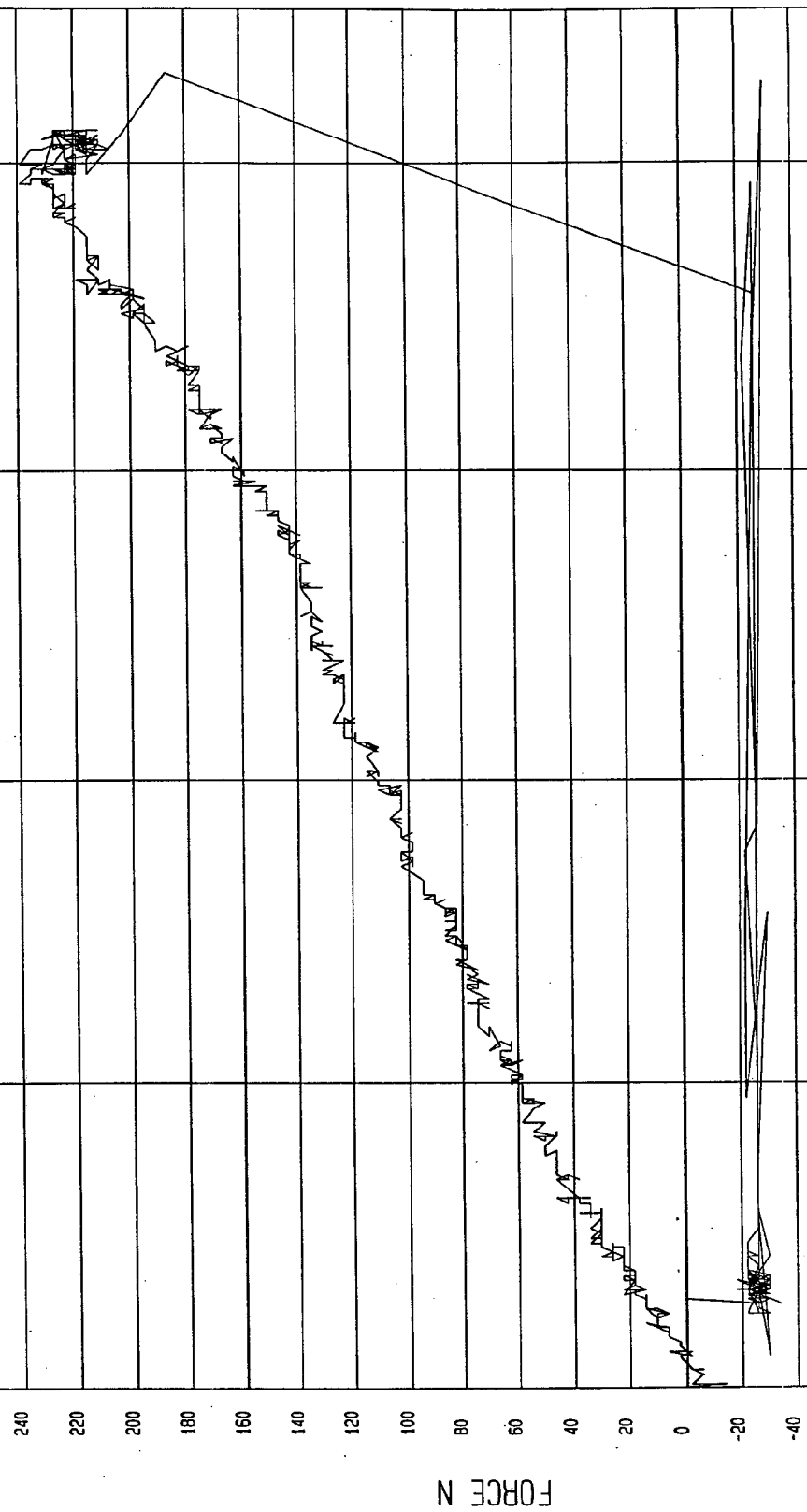
TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-10-2099 - 16:00:26

COMPONENT: DUMMY # 269

FORCE as a function of TORSO ROTATION



POST-TEST CERTIFICATION DATA

C-51

Driver Dummy Serial Number: 270

Calibration Test Results Summary

Driver Dummy Serial Number: 270

Post-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop:	The head passed all drop test requirements.
Neck Bending:	The neck did not pass all bending 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^{C-53}

DUMMY SERIAL NUMBER: 270

DATE OF VERIFICATION: November 22, 1999

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	898
RH - Rib Height (mm)	501 - 521	503
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	230
KV - Knee Pivot From Back Line (mm)	511 - 526	525
SW - Knee Pivot to Floor (mm)	490 - 505	500
HW - Hip Width (mm)	356 - 391	368

MEASUREMENTS BY:

Jim Allen

APPROVED BY:

Steve Kelske

MGA RESEARCH CORPORATION

C-54

HEAD DROP TEST (LATERAL)

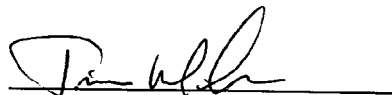
SIDE IMPACT DUMMY (SID)

DATE: November 19, 1999DUMMY NUMBER: 270TEST NUMBER: D991342

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LABORATORY TEMPERATURE	66° - 78°	21.0°
LABORATORY RELATIVE HUMIDITY	10% - 70%	37%
PEAK RESULTANT ACCELERATION	120 - 150 G's	140
IS RESULTANT CURVE UNIMODEL	with 15% of peak	Yes
PEAK LONGITUDINAL ACCELERATION	<u>±</u> 15 G max	8

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY



TEST: Dummy Calibration - Head Drop

TEST DATE: 11-19-1999 - 11:52:22

COMPONENT: Dummy # 270

Minimum = .08 G'S at 0 msec

Maximum = 140.10 G'S at 39.6 msec

PEAK RESULTANT ACCELERATION

1 ——— D99341AV A01 Filterclass (1000)

180
160
140
120
100
80
60
40
20
0

G

50

40

30

20

10

0

TIME (sec.)

MGA Research
11-19-1999 11:55

TEST: Dummy Calibration - Head Drop TEST DATE: 11-19-1999 - 11:55:10

COMPONENT: Dummy # 270

Minimum = -6.07 G'S at 41.3 msec

Maximum = 7.59 G'S at 39.4 msec

PEAK LONGITUDINAL ACCELERATION

1 _____ D99341AR.A01 Filterclass (1000)

16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16

G'S

TIME (sec.)

0.01

0.02

0.03

0.04

0.05

MCA Research
11-19-1999 11:55

MGA RESEARCH CORPORATION

C-57

NECK PENDULUM TEST

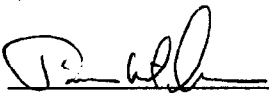
SIDE IMPACT DUMMY (SID)

DATE: November 22, 1999DUMMY NUMBER: 270TEST NUMBER: D99349

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)		18.9° - 25.5° C	21.0°
RELATIVE HUMIDITY (%)		10 - 70%	38%
IMPACT VELOCITY		6.89 - 7.13 MS	7.04
PENDULUM DECELERATION	10 MS	1.96 - 2.55 MS	2.24
	20 MS	4.12 - 5.10 MS	4.50
	30 MS	5.73 - 7.01 MS	6.27
	40 - 70 MS	6.27 - 7.64 MS	6.83
MIDSAGGITAL PLANE MAX ROTATION		64° - 78°	72°
HEAD ROTATION PEAK TO ZERO- DECAY TIME		50 - 70 MS	62
MAX. M _x AT OCCIPITAL CONDYLES		88.1 - 108.5 NM	86.7*
M _x PEAK TO ZERO - DECAY TIME		40 - 60 MS	54
M _x PEAK TO MAX. HEAD ROTATION		0 - 20 MS	8

* Failure - Test does not meet specification

TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: Dummy Calibration - Neck Bending TEST DATE: 11-22-1999 - 09:02:02

COMPONENT: Dummy # 270 Velocity: 23.08 FT/SEC 7.04 M/SEC

Minimum = 0 M/S at 0 msec Maximum = 8.61 M/S at 188. msec

PENDULUM DECELERATION

1 ——— D99349AT.A04 Filterclass (1000)

10

8

6

4

2

0

M/S

60

80

100

120

140

160

180

200

220

240

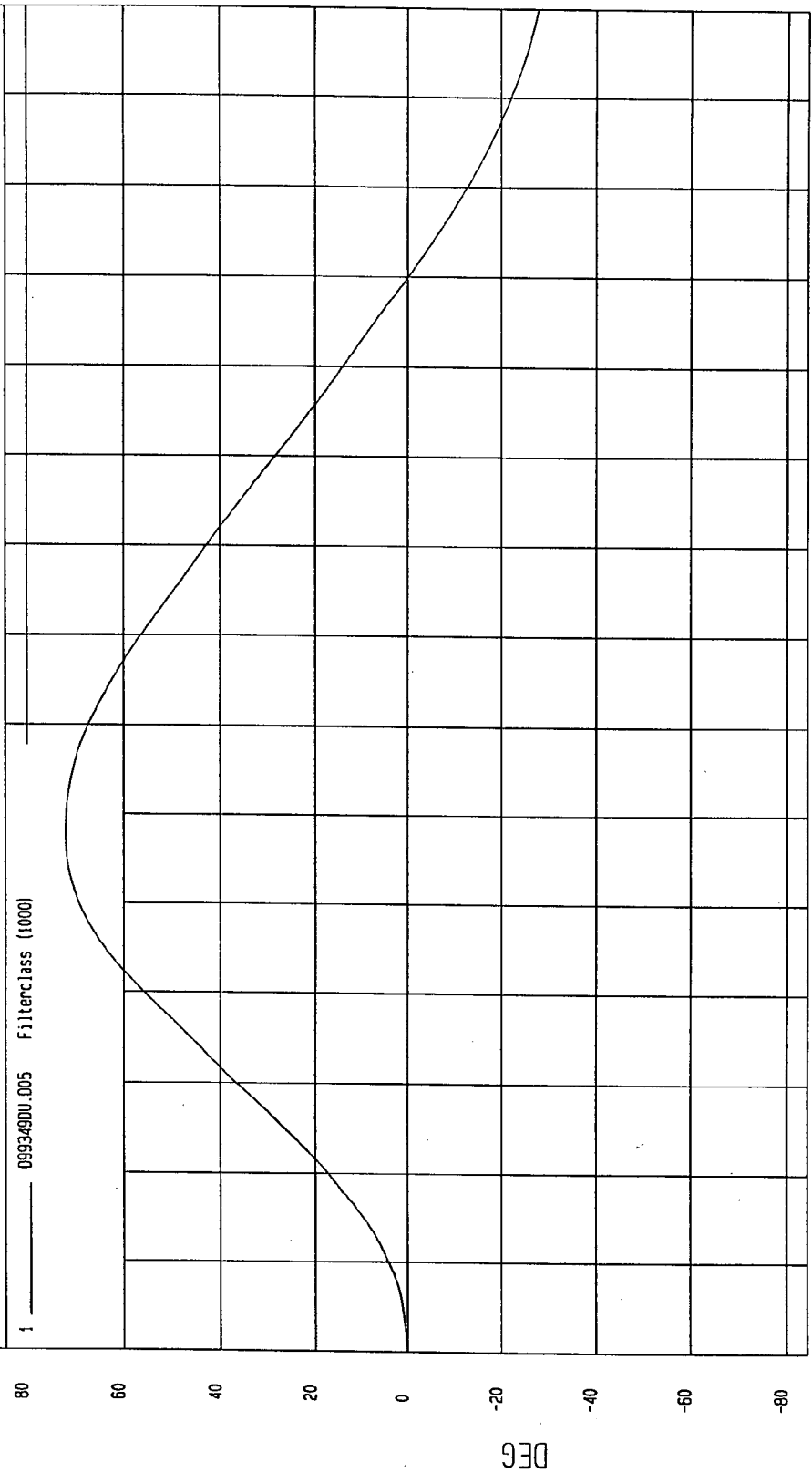
MSA Research
11-22-1999 09:21

TIME SEC

TEST: Dummy Calibration - Neck Bending TEST DATE: 11-22-1999 - 09:03:52
COMPONENT: Dummy # 270 Velocity: 23.08 FT/SEC 7.04 M/SEC

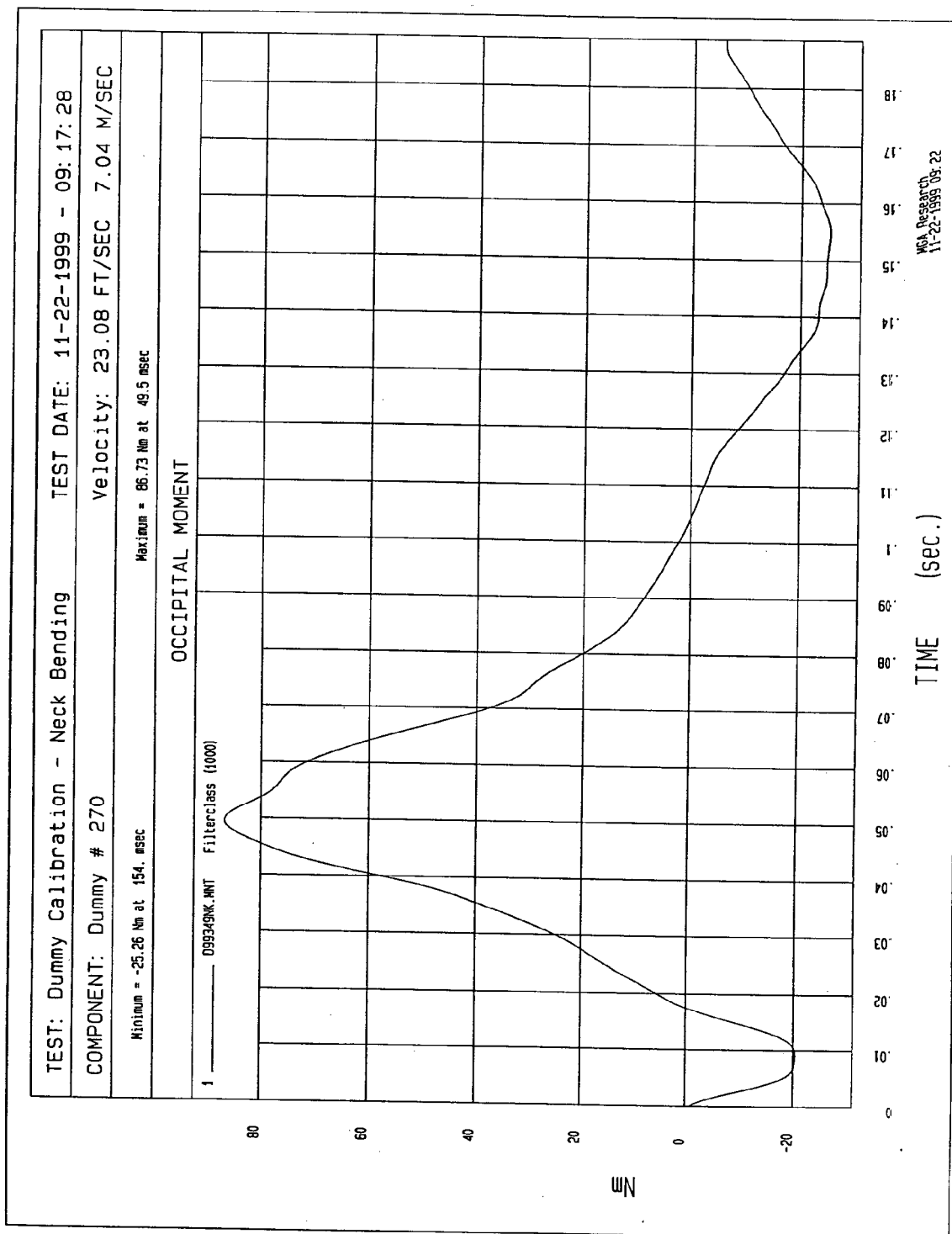
Minimum = -30.04 DEG at 161. msec Maximum = 72.03 DEG at 57.9 msec

NECK ROTATION



TIME (sec.)

WGA Research
11-22-1999 09:21



MGA RESEARCH CORPORATION

C-61

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 19, 1999DUMMY SERIAL NUMBER: 270TEST NUMBER: D991342

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	22.0°
RELATIVE HUMIDITY (%)	10 - 70	37%
PROBE SPEED (m/s)	4.27 - 4.33	4.29
UPPER RIB (g's)	37 - 46 g's	42
LOWER RIB (g's)	37 - 46 g's	41
LOWER SPINE (g's)	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

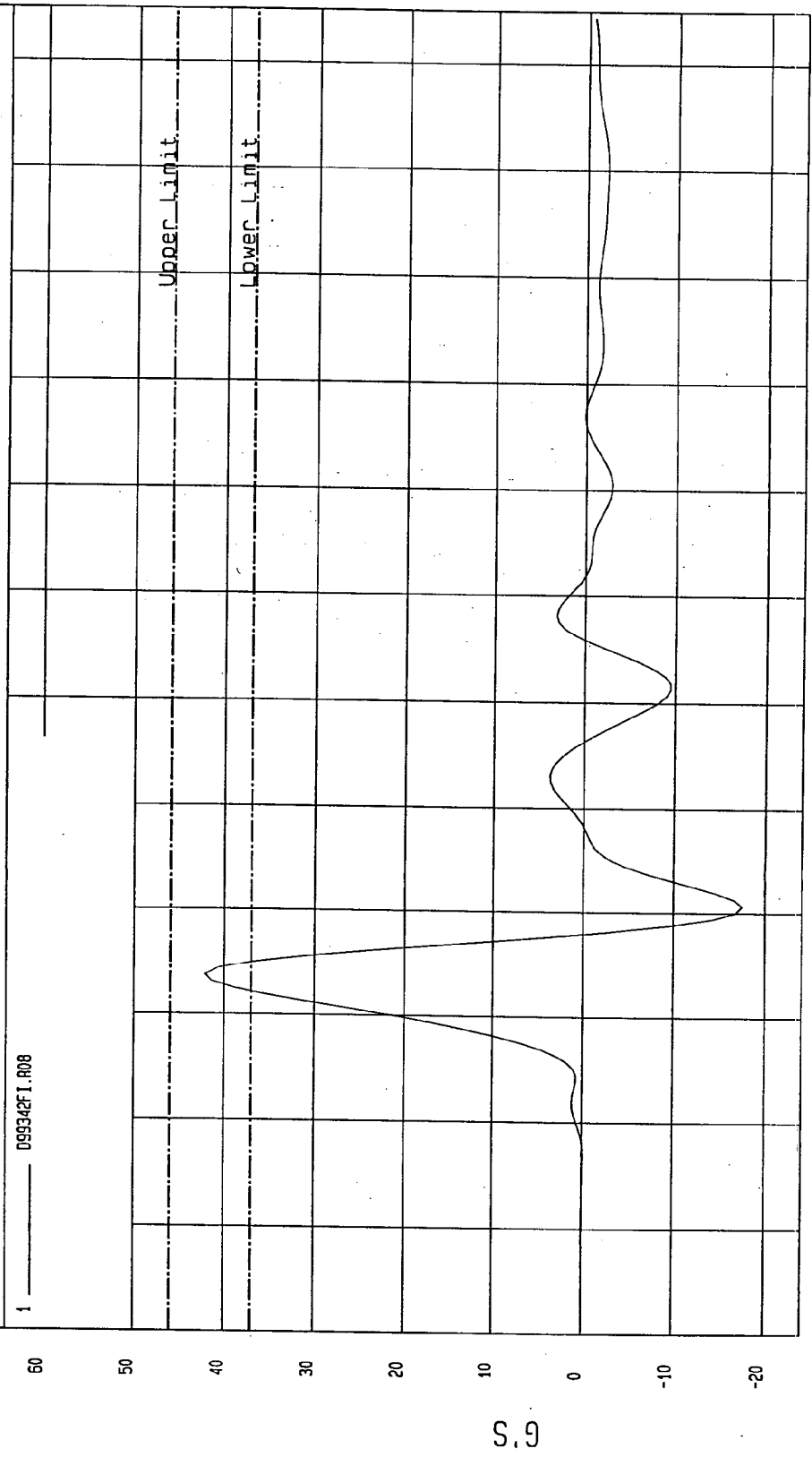
TECHNICIAN Jim UllAPPROVED BY Rene Kabele

TEST: Dummy Calibration - Thorax Impact TEST DATE: 11-19-1999 - 10:49:00

COMPONENT: Dummy # 270 Velocity: 14.083 FT/SEC 4.29 M/SEC

Minimum = -17.45 G's at 40.6 msec Maximum = 42.13 G's at 33.7 msec

UPPER RIB ACCELERATION



NGA Research
11-19-1999 10:50

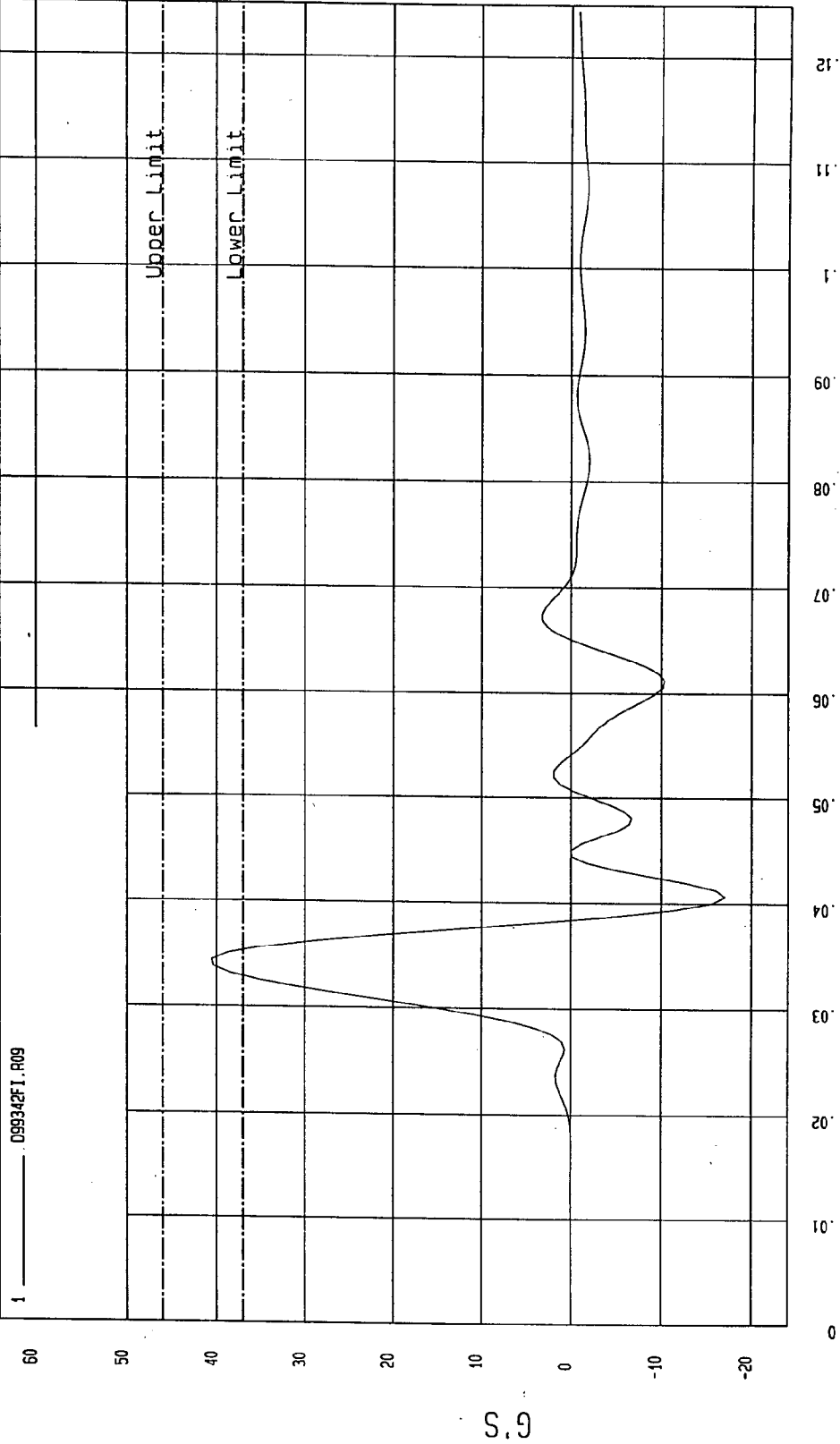
TEST: Dummy Calibration - Thorax Impact TEST DATE: 11-19-1999 - 10:49:00

COMPONENT: Dummy # 270 Velocity: 14.083 FT/SEC 4.29 M/SEC

Minimum = -17.04 G's at 40.6 msec

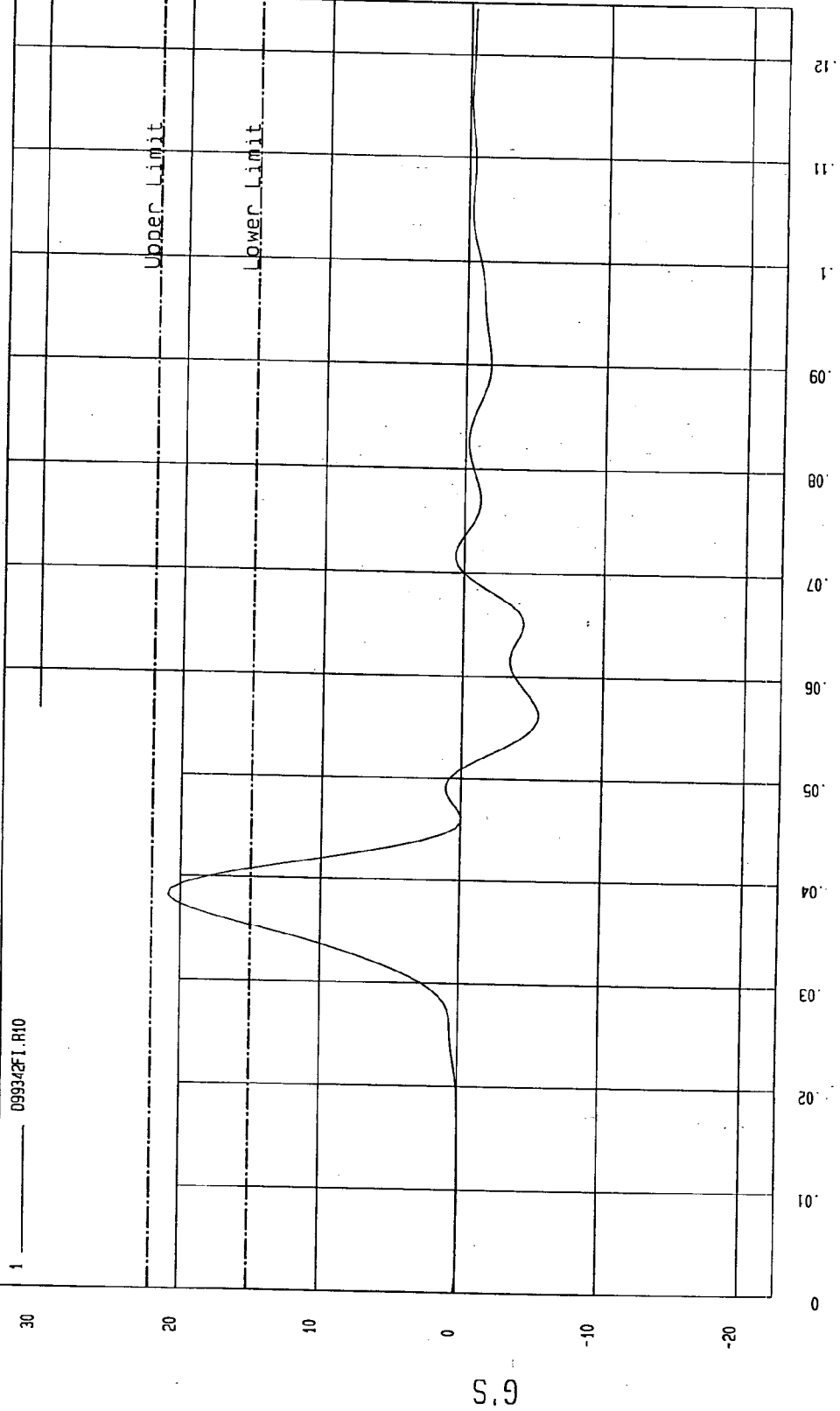
Maximum = 40.53 G's at 34.3 msec

LOWER RIB ACCELERATION



TEST: Dummy Calibration - Thorax Impact TEST DATE: 11-19-1999 - 10:49:00
COMPONENT: Dummy # 270 Velocity: 14.083 FT/SEC 4.29 M/SEC
Minimum = -5.49 G'S at 56.2 msec Maximum = 20.88 G'S at 38.1 msec

LOWER SPINE ACCELERATION



MGA RESEARCH CORPORATION

C-65

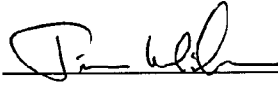
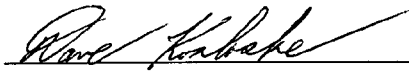
PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 19, 1999DUMMY SERIAL NUMBER: 270TEST NUMBER: D991343

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	22.0°
RELATIVE HUMIDITY (%)	10 - 70	37%
PROBE SPEED (m/s)	4.27 - 4.33	4.31
PELVIS ACCELERATION (g's)	40 - 60	41

TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: Dummy Calibration - Pelvis Impact TEST DATE: 11-19-1999 - 10:57:52

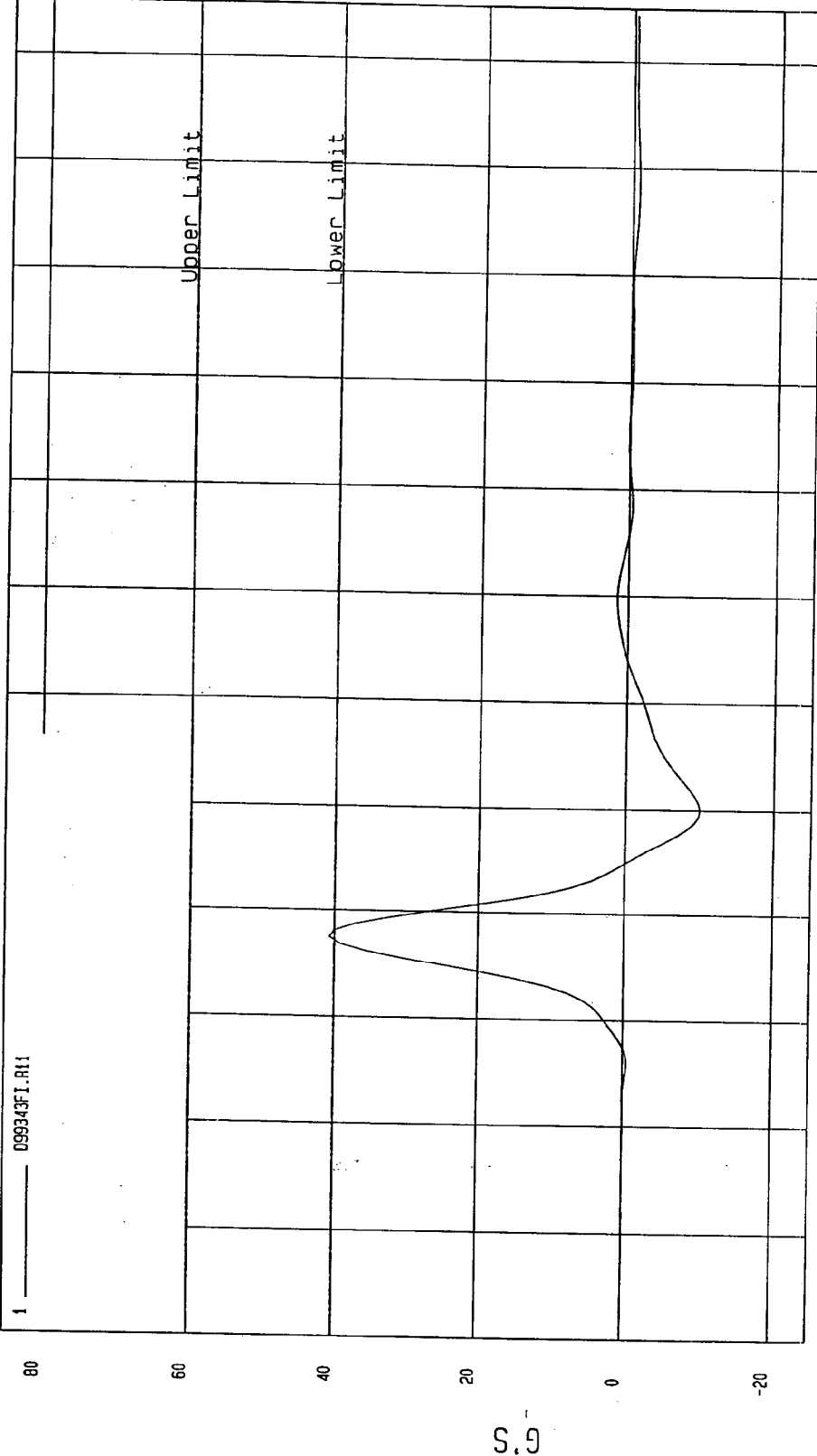
COMPONENT: Dummy # 270 Velocity: 14.152 FT/SEC 4.31 M/SEC

Minimum = -10.07 G'S at 50 msec

Maximum = 40.72 G'S at 37.5 msec

PELVIS ACCELERATION

1 — 099343FI.R11



MGA RESEARCH CORPORATION

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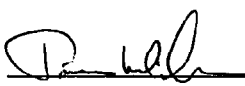
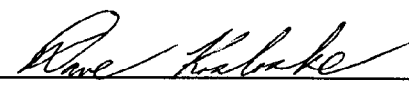
ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: November 22, 1999DUMMY SERIAL NUMBER: 270TEST NUMBER: D991344

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	37%
FORCE @ 12.7 mm	104 - 162	140
FORCE @ 19.0 mm	163 - 222	193
FORCE @ 25.4 mm	222 - 280	251
FORCE @ 33 mm	325 - 391	351

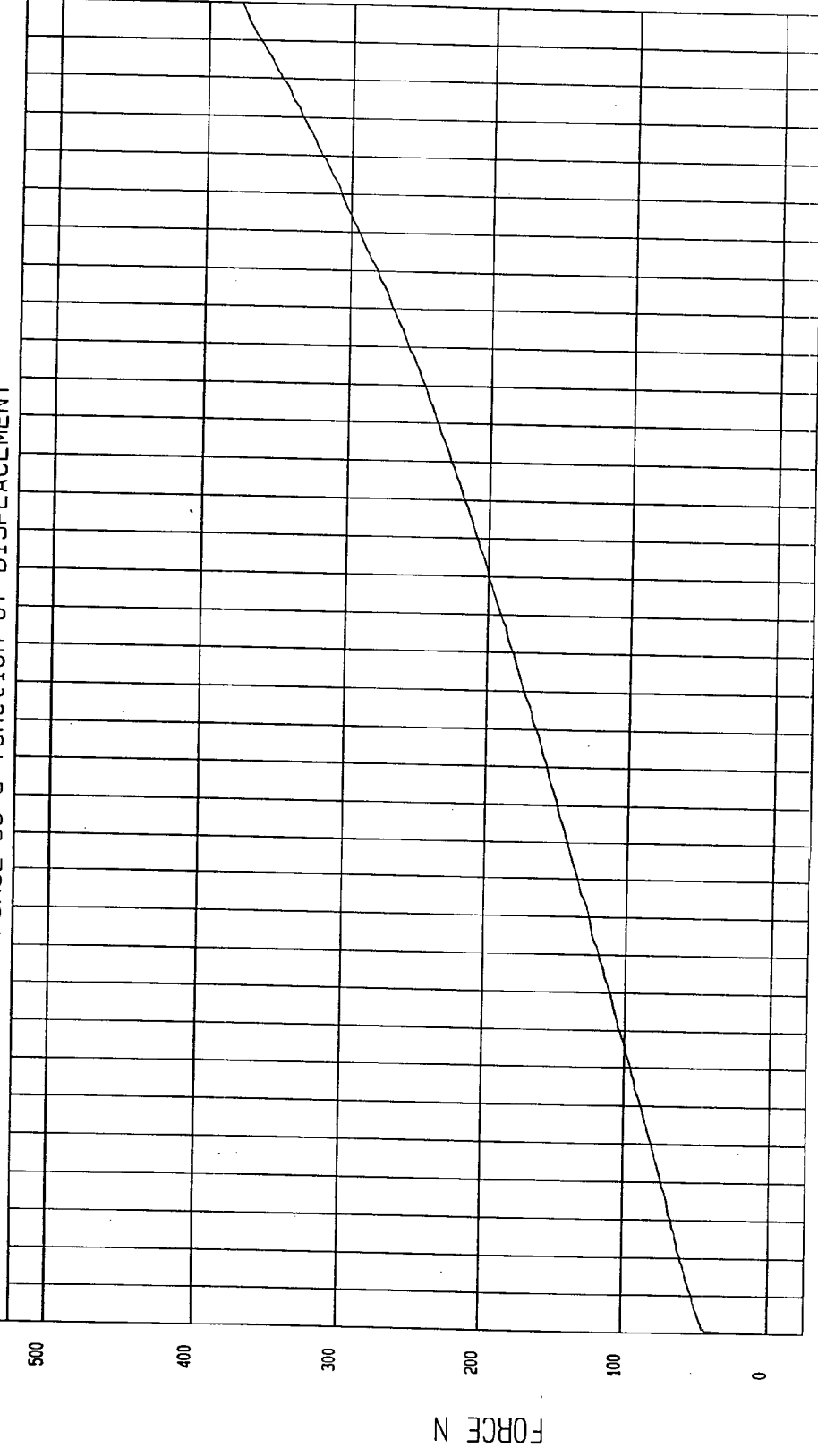
TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-22-1999 - 11:26:08

COMPONENT: DUMMY # 270

FORCE as a function of DISPLACEMENT



NCA Research
11-24-1999 10:43

DISPLACEMENT mm

FORCE N

MGA RESEARCH CORPORATION

C-69

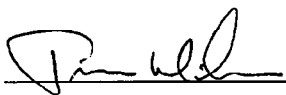
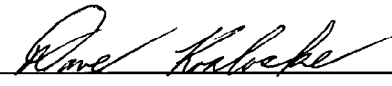
LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 22, 1999DUMMY SERIAL NUMBER: 270TEST NUMBER: D991345

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	38%
FORCE @ 0°	0 - 26.7	0
FORCE @ 20°	97.9 - 151.2	110.2
FORCE @ 30°	151.2 - 204.6	154.0
FORCE @ 40°	204.6 - 258.0	209.9
RETURN ANGLE	12° maximum	1°

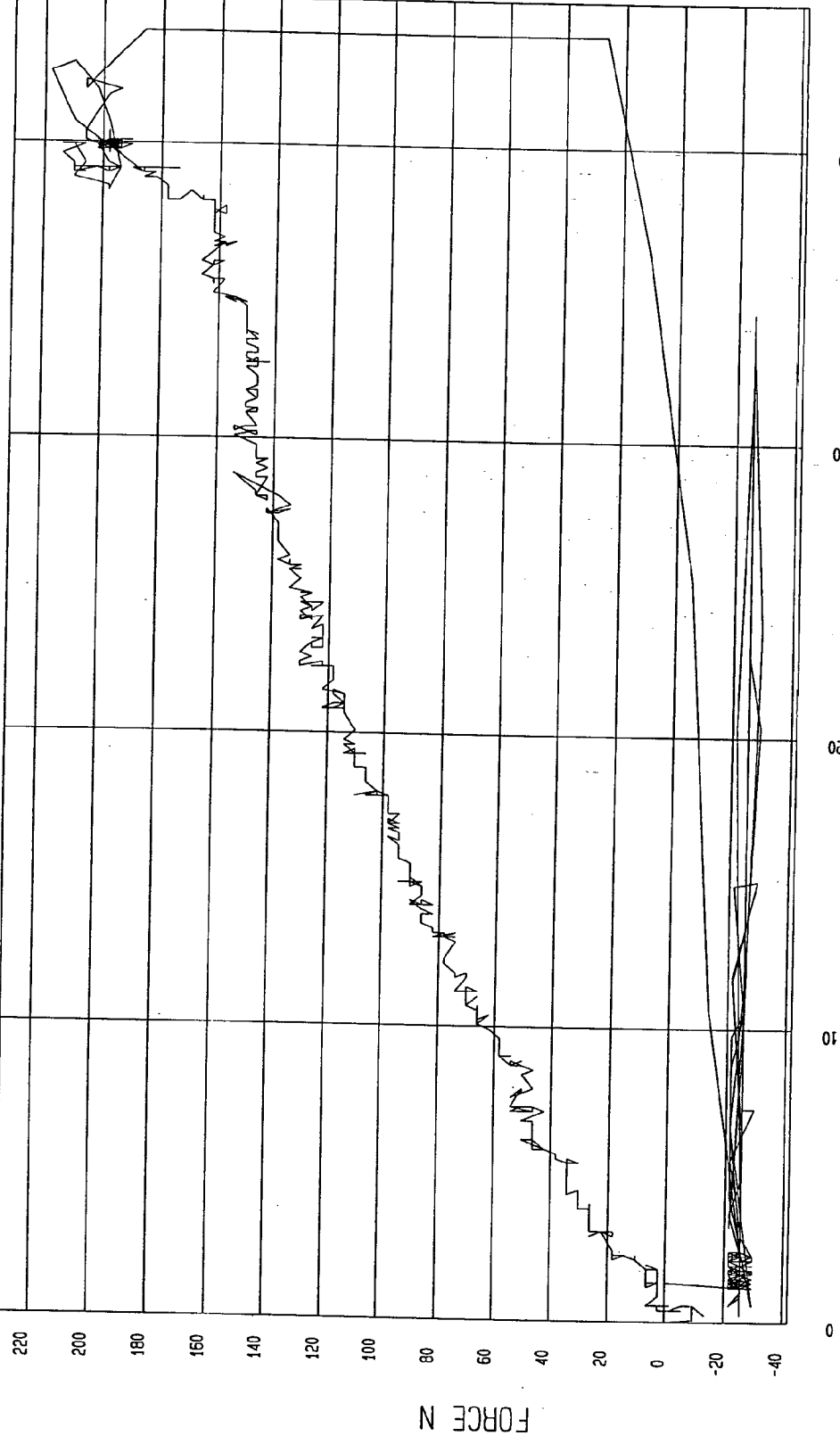
TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-22-1999 - 10:44:17

COMPONENT: DUMMY # 270

FORCE as a function of TORSO ROTATION



MGA Research
11-24-1999 10:18

POST-TEST CERTIFICATION DATA

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Passenger Dummy Serial Number: 269

Calibration Test Results Summary

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Passenger Dummy Serial Number: 269

Post-Test Calibration

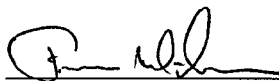
External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The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

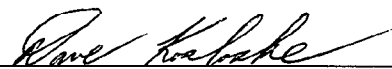
SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA^{C-73}

DUMMY SERIAL NUMBER: 269

DATE OF VERIFICATION: November 22, 1999

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	899
RH - Rib Height (mm)	501 - 521	518
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	231
KV - Knee Pivot From Back Line (mm)	511 - 526	520
SW - Knee Pivot to Floor (mm)	490 - 505	495
HW - Hip Width (mm)	356 - 391	371

MEASUREMENTS BY: 

APPROVED BY: 

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HEAD DROP TEST

SIDE IMPACT DUMMY (SID)

DATE: November 19, 1999DUMMY NUMBER: 269TEST NUMBER: D991331

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9° - 25.5° C	21.0°
RELATIVE HUMIDITY	10 - 70%	37%
PEAK RESULTANT ACCELERATION	210 - 260 g's	258
PEAK LATERAL ACCELERATION	< 10 g's	-7
TIME ABOVE 100 G.	0.9 - 1.5 msec.	1.1

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY



TEST: Dummy Calibration - Head Drop TEST DATE: 11-19-1999 - 15:17:18

COMPONENT: Dummy # 269

Minimum = 7.21E-02 G'S at .6 msec Maximum = 258.31 G'S at 25.3 msec

PEAK RESULTANT ACCELERATION

1 _____ 099331AV.A01 Filterclass (1000)

300

280

260

240

220

200

180

160

140

120

100

80

60

40

20

0

G

0

10

20

30

40

50

TIME (sec.)

MCA Research
11-19-1999 15:19

TEST: Dummy Calibration - Head Drop TEST DATE: 11-19-1999 - 15:17:18

COMPONENT: Dummy # 269

Minimum = -7.45 G'S at 25.4 msec

Maximum = 2.64 G'S at 26.1 msec

PEAK LATERAL ACCELERATION

1 _____ 090331AR.A02 Filterclass (1000)

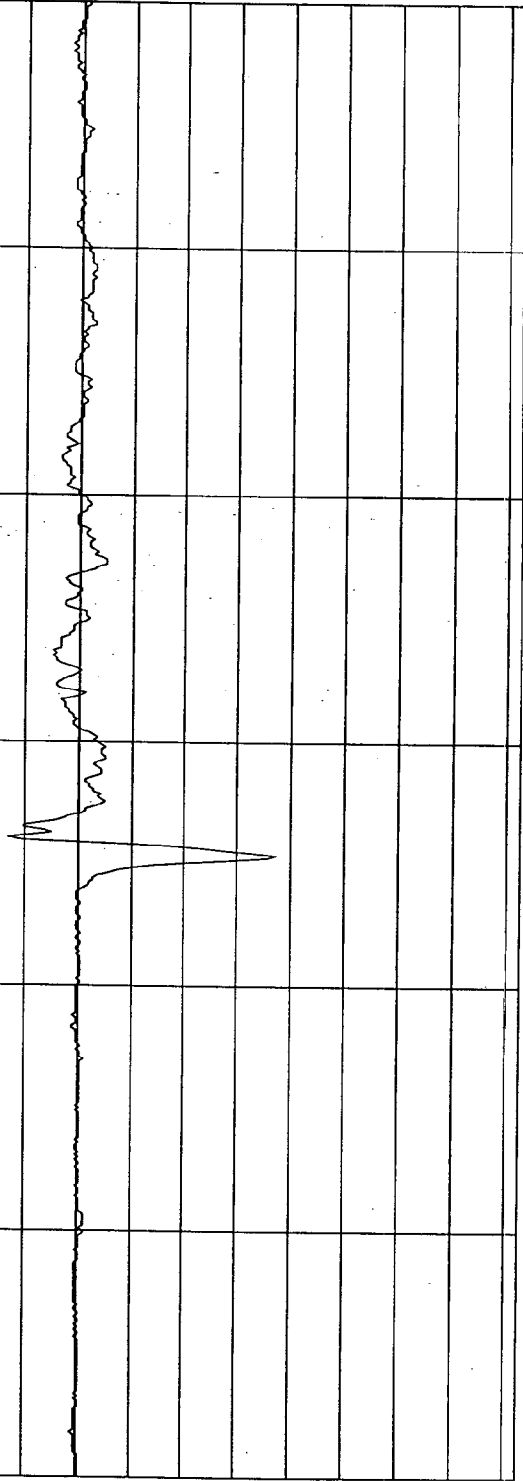
G.S.

16
14
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16

TIME (sec.)

0 10 20 30 40 50

MGA Research
11-19-1999 15:19



MGA RESEARCH CORPORATION

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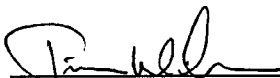
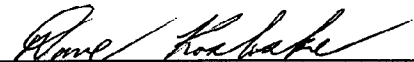
THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 19, 1999DUMMY SERIAL NUMBER: 269TEST NUMBER: D991332

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	22.0
RELATIVE HUMIDITY (%)	10 - 70	37%
PROBE SPEED (m/s)	4.27 - 4.33	4.28
UPPER RIB (g's)	37 - 46 g's	42
LOWER RIB (g's)	37 - 46 g's	44
LOWER SPINE (g's)	15 - 22 g's	21

TEST MEETS SPECIFICATIONS

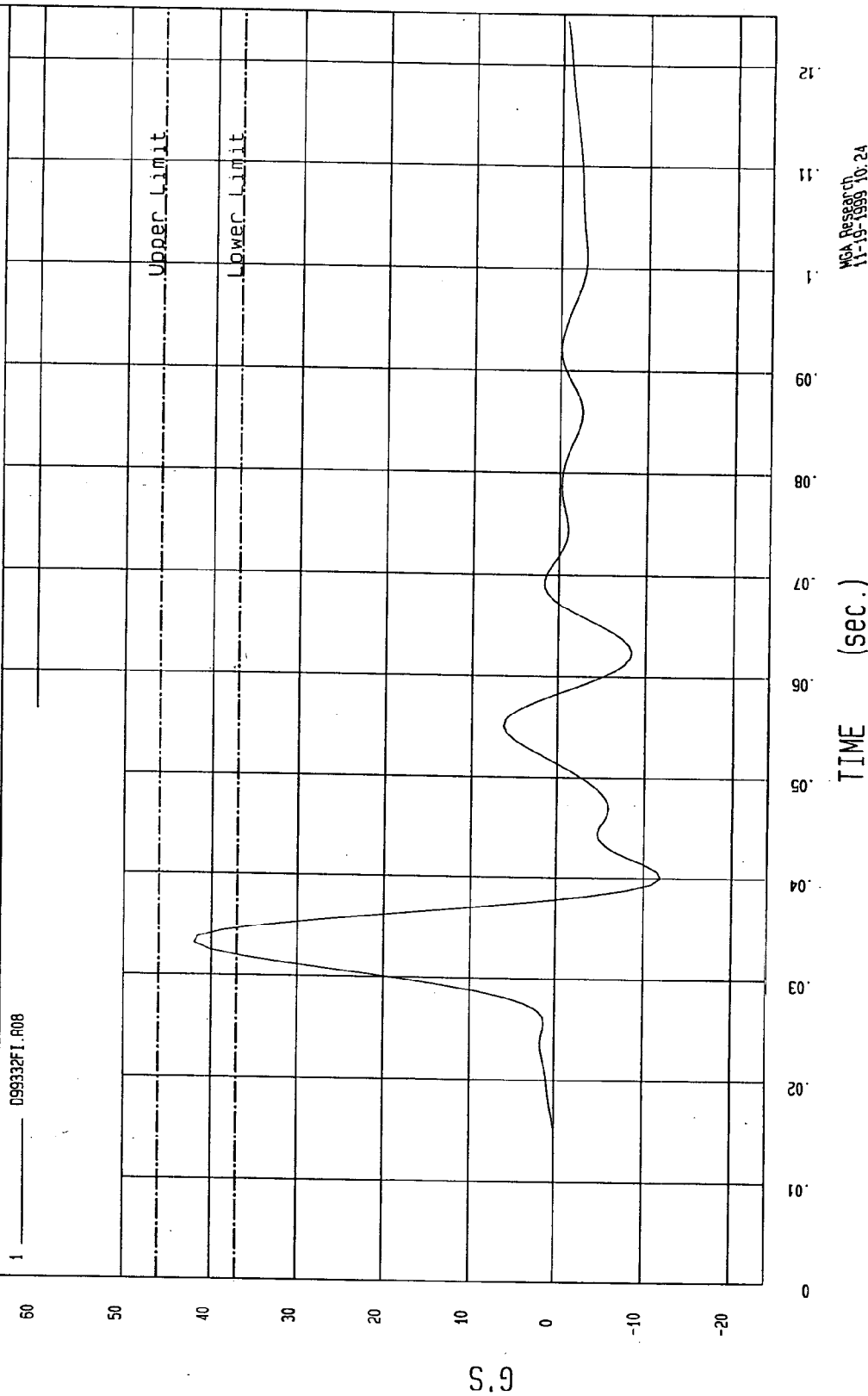
TECHNICIAN APPROVED BY 

TEST: Dummy Calibration - Thorax Impact TEST DATE: 11-19-1999 - 10:13:31
COMPONENT: Dummy # 269 Velocity: 14.045 FT/SEC 4.28 M/SEC

Minimum = -11.90 G'S at 40 msec

Maximum = 42.01 G'S at 33.1 msec

UPPER RIB ACCELERATION



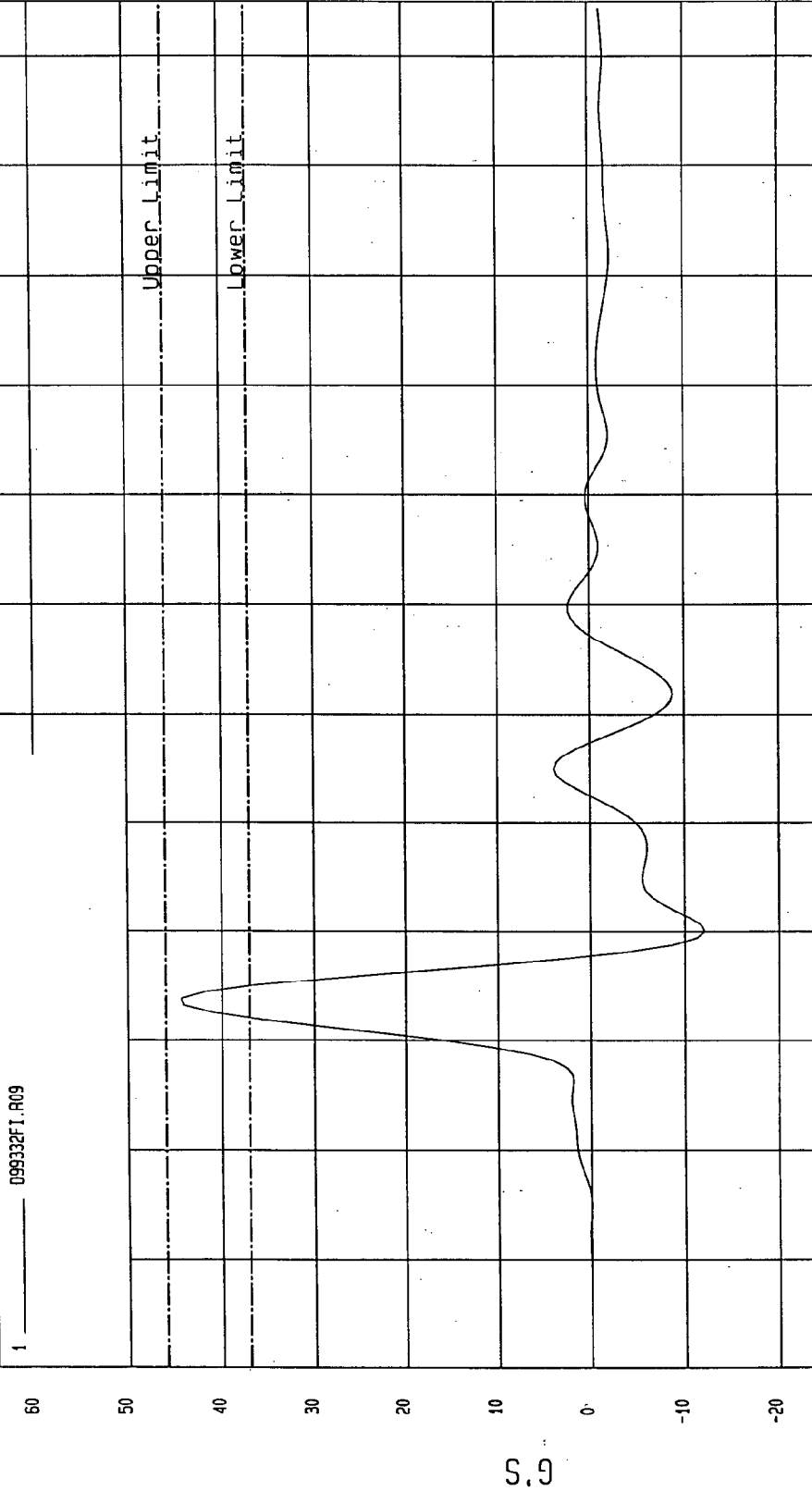
TEST: Dummy Calibration - Thorax Impact TEST DATE: 11-19-1999 - 10:13:31

COMPONENT: Dummy # 269 Velocity: 14.045 FT/SEC 4.28 M/SEC

Minimum = -12.14 G'S at 40 msec

Maximum = 44.40 G'S at 33.7 msec

LOWER RIB ACCELERATION



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11-19-1999 10:24

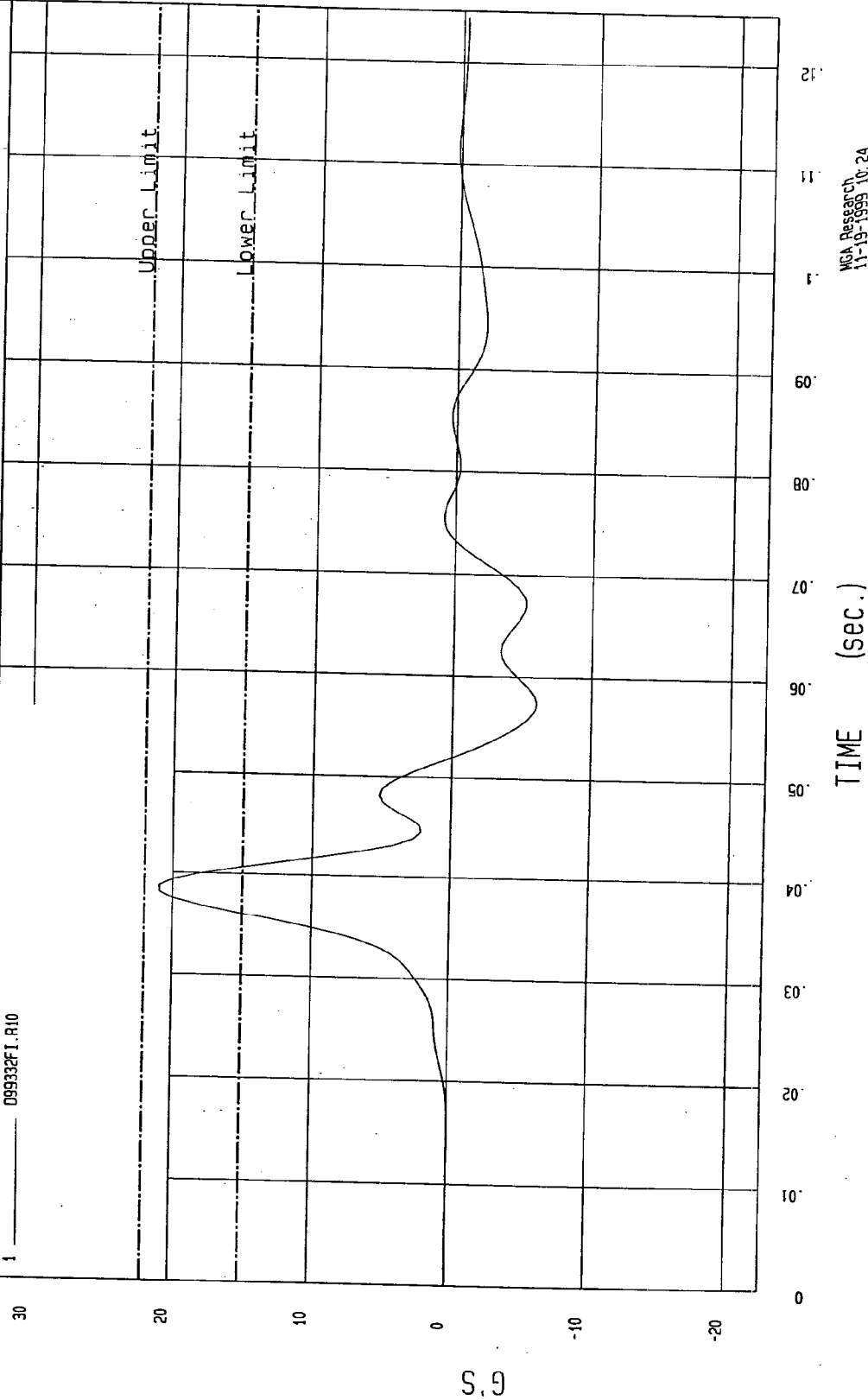
TEST: Dummy Calibration - Thorax Impact TEST DATE: 11-19-1999 - 10:14:45
COMPONENT: Dummy # 269 Velocity: 14.045 FT/SEC 4.28 M/SEC

Minimum = -6.11 G'S at 57.5 msec

Maximum = 20.97 G'S at 38.7 msec

LOWER SPINE ACCELERATION

1 ——— D99332FI.R10



NGA Research
11-19-1999 10:24

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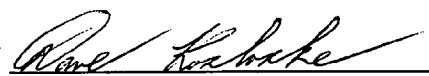
PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 19, 1999DUMMY SERIAL NUMBER: 269TEST NUMBER: D991333

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	27.0°
RELATIVE HUMIDITY (%)	10 - 70	37%
PROBE SPEED (m/s)	4.27 - 4.33	4.28
PELVIS ACCELERATION (g's)	40 - 60	44

TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

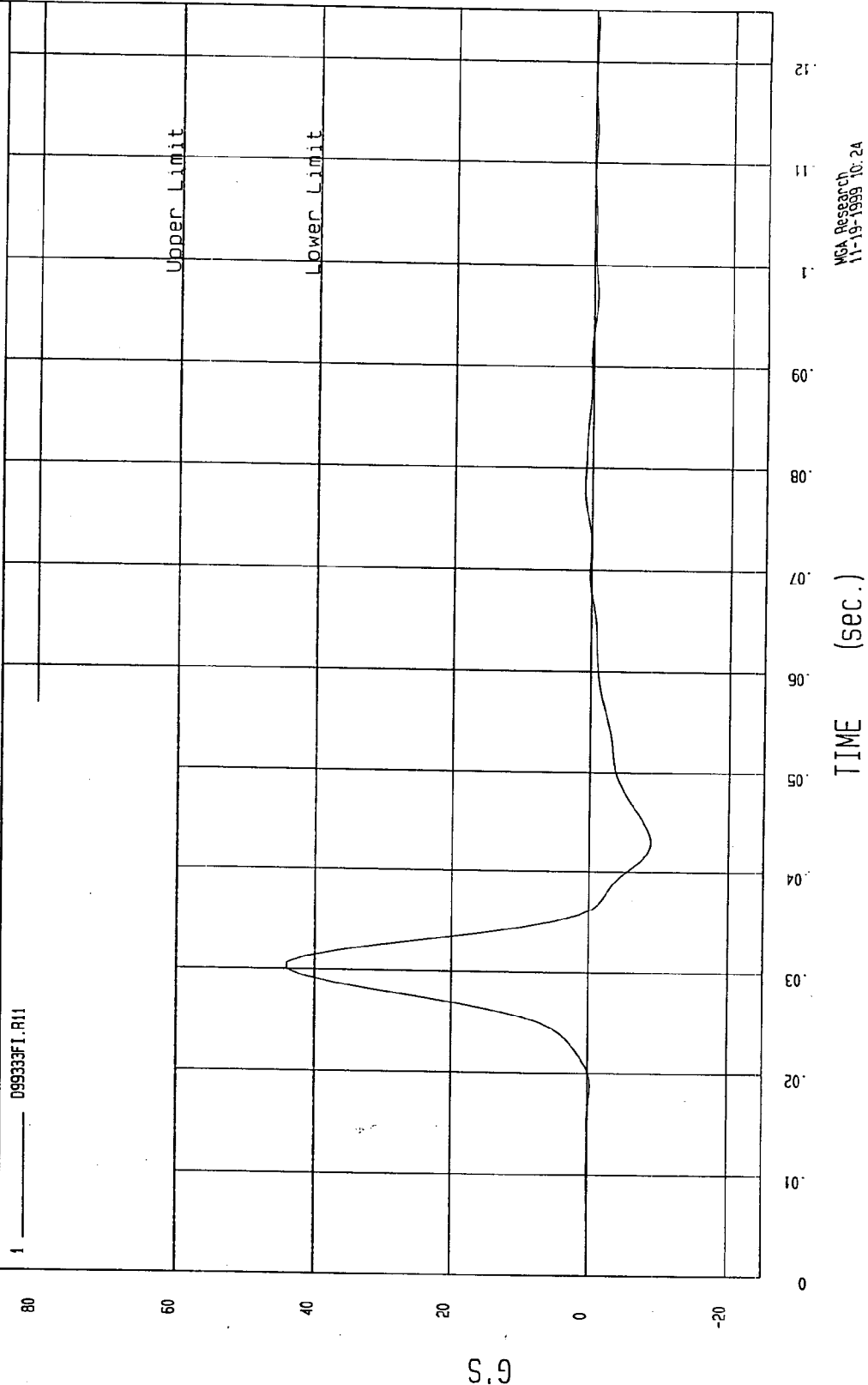
TEST: Dummy Calibration - Pelvis Impact TEST DATE: 11-19-1999 - 10:20:10

COMPONENT: Dummy # 269 Velocity: 14.046 FT/SEC 4.28 M/SEC

Minimum = -8.85 G'S at 43.1 msec

Maximum = 44.09 G'S at 30 msec

PELVIS ACCELERATION



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ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: November 22, 1999

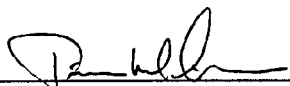
DUMMY SERIAL NUMBER: 269

TEST NUMBER: D991334

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	37%
FORCE @ 12.7 mm	104 - 162	138
FORCE @ 19.0 mm	163 - 222	193
FORCE @ 25.4 mm	222 - 280	257
FORCE @ 33 mm	325 - 391	348

TEST MEETS SPECIFICATIONS

TECHNICIAN



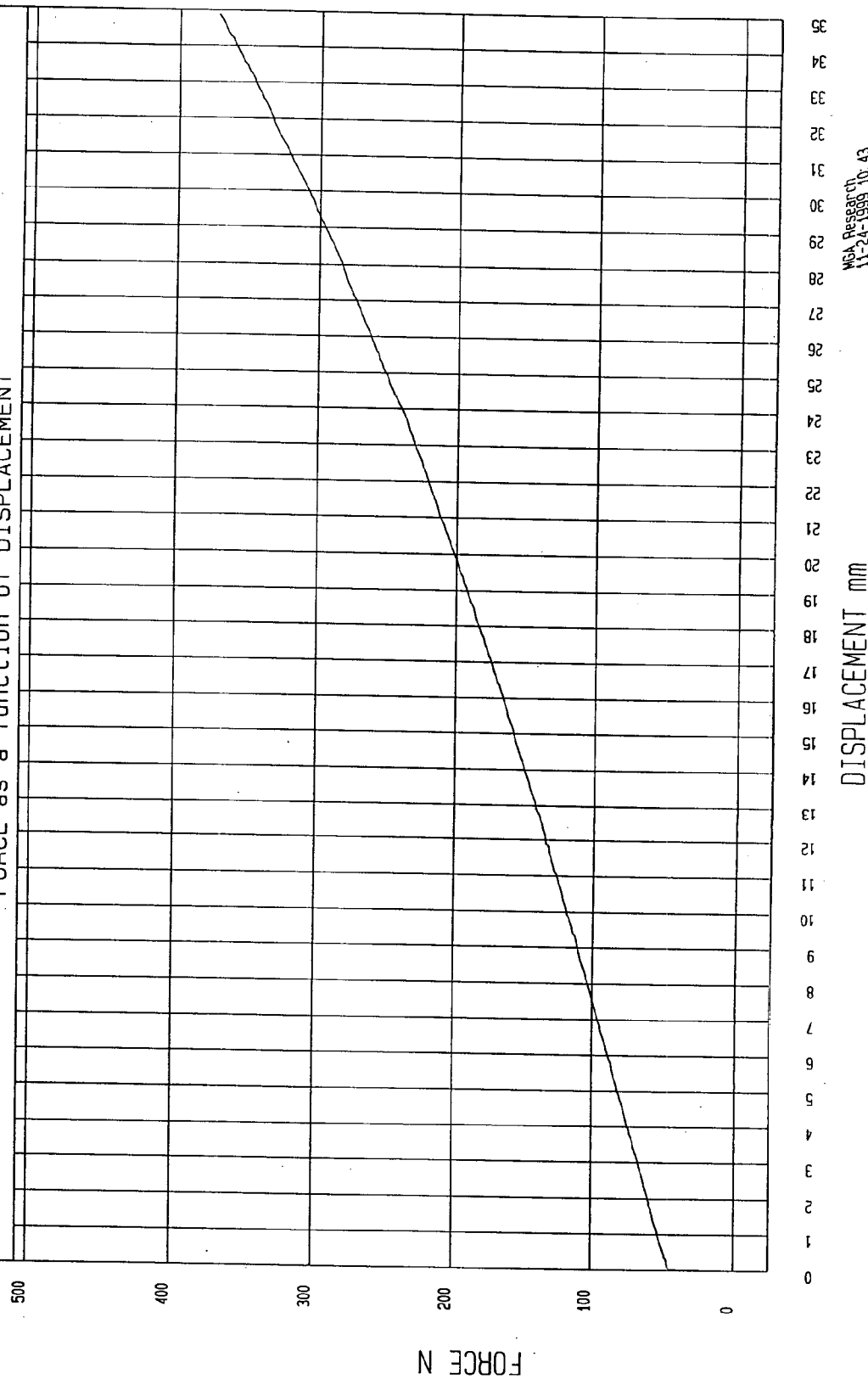
APPROVED BY



TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-22-1999 - 11:15:40

COMPONENT: DUMMY # 269

FORCE as a function of DISPLACEMENT



MGA RESEARCH CORPORATION

C-85

LUMBAR FLEXION TEST

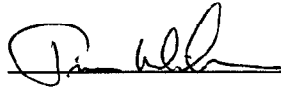
SIDE IMPACT DUMMY (SID)

DATE: November 22, 1999DUMMY SERIAL NUMBER: 269TEST NUMBER: D991335

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	38%
FORCE @ 0°	0 - 26.7	0
FORCE @ 20°	97.9 - 151.2	118.7
FORCE @ 30°	151.2 - 204.6	154.6
FORCE @ 40°	204.6 - 258.0	206.4
RETURN ANGLE	12° maximum	2°

TEST MEETS SPECIFICATIONS

TECHNICIAN



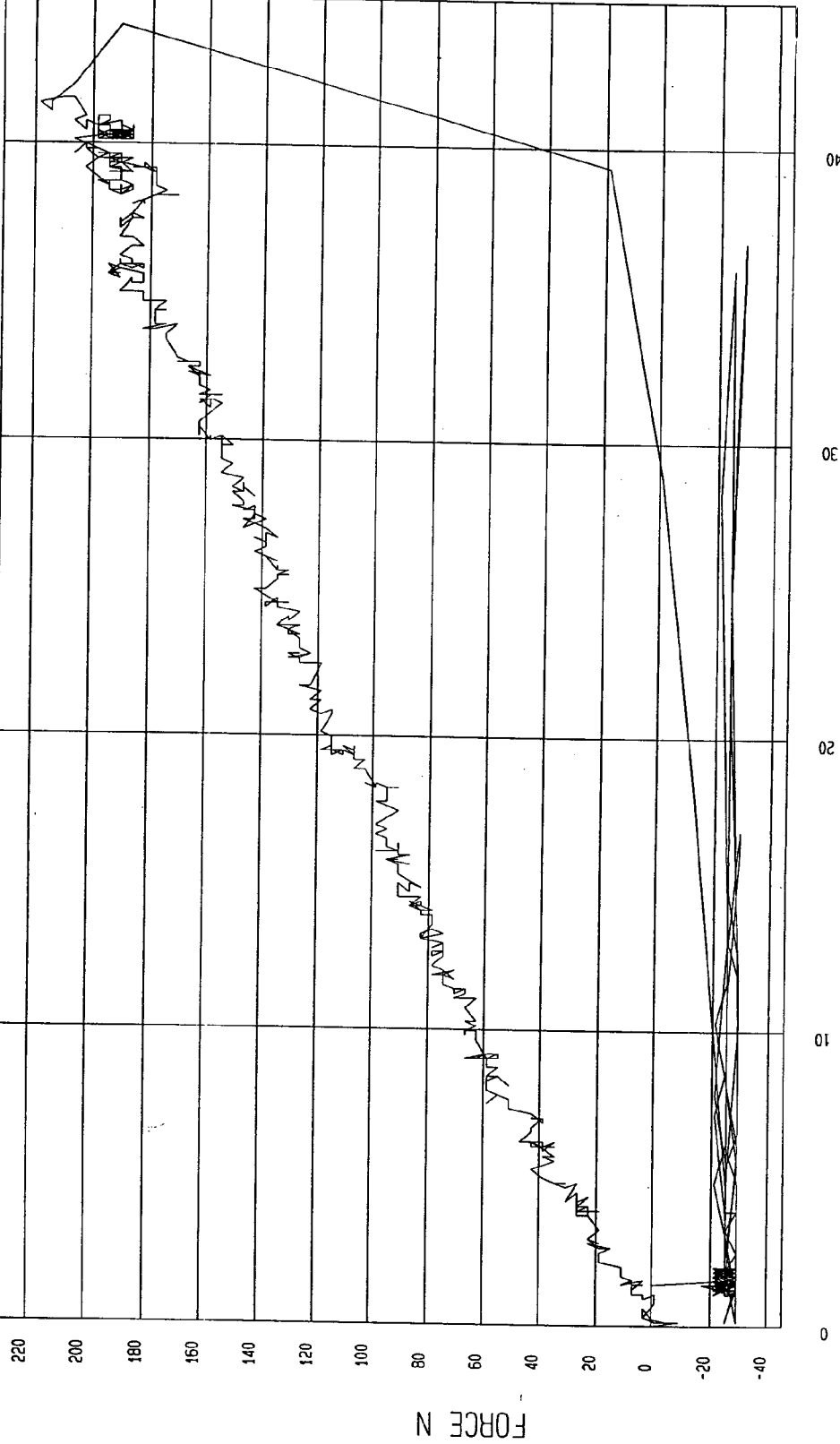
APPROVED BY



TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-22-1999 - 10:19:35

COMPONENT: DUMMY # 269

FORCE as a function of TORSO ROTATION



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11-24-1999 10:19

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POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

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Type: Side Impact Dummy

Serial Number: 270

Inspected By: Tim Michnay

Date: November 22, 1999

<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):
Neck did not pass post-test calibration.

POST-TEST PASSENGER DUMMY INSPECTION CHECKLIST

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Type: Side Impact Dummy

Serial Number: 269

Inspected By: Tim Michnay

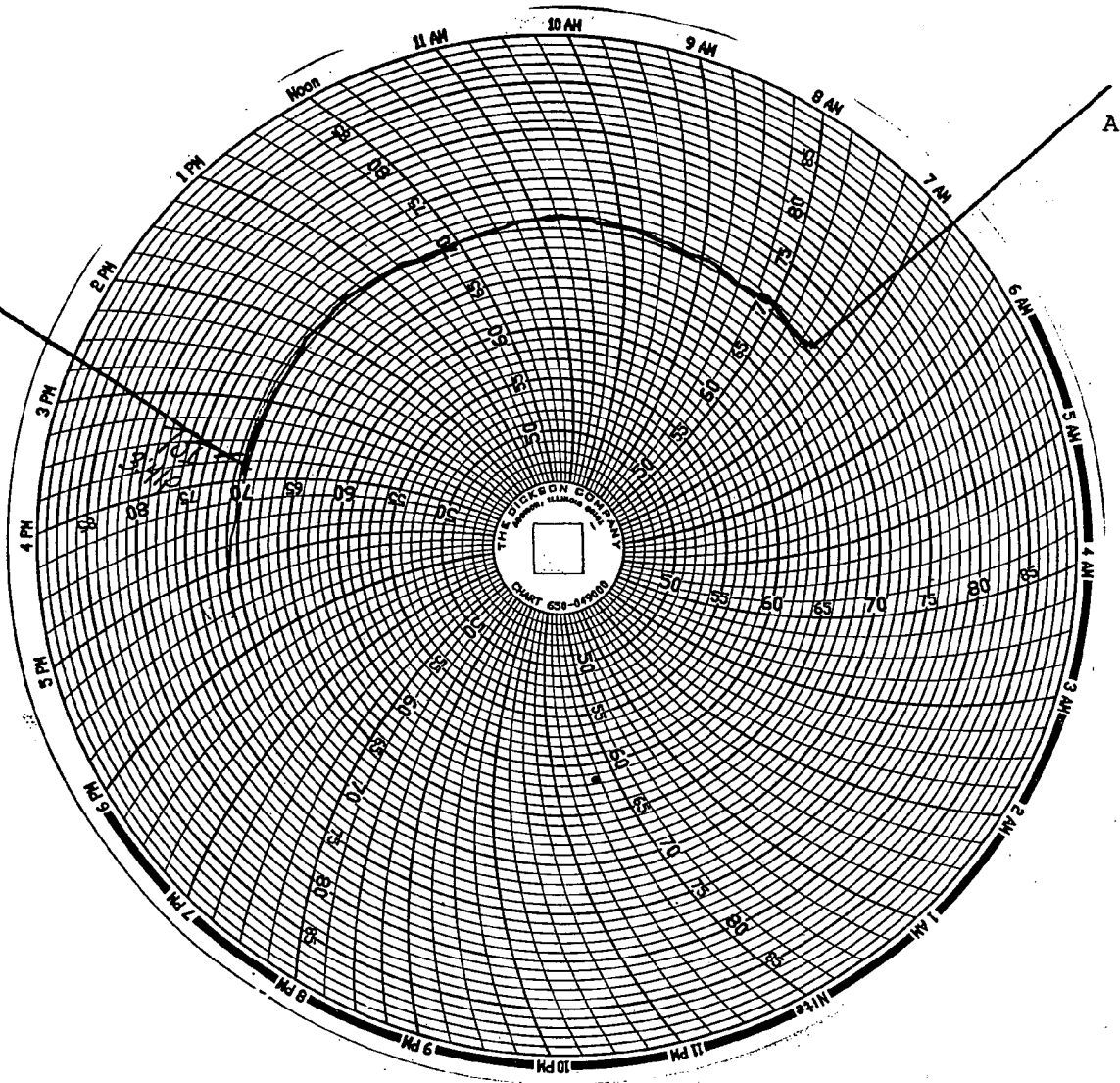
Date: November 22, 1999

<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

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A = dummies installed in vehicle
B = test conducted

APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

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

	DRIVER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	J10195	Endevco	11/8/99
Lower Rib Y	AP170	Endevco	11/8/99
Lower Spine Y	ANAP1	Endevco	11/8/99
Pelvis Y	AP1T8	Endevco	11/8/99
Upper Rib Redundant Y	J13942	Endevco	11/8/99
Lower Rib Redundant Y	AP2G9	Endevco	11/8/99
Lower Spine Redundant Y	ANAT6	Endevco	11/8/99
Pelvis Redundant Y	AP2D7	Endevco	11/8/99
Head Center of Gravity X	AP120	Endevco	11/8/99
Head Center of Gravity Y	ALEK9	Endevco	11/8/99
Head Center of Gravity Z	AP042	Endevco	11/8/99

DUMMY AND VEHICLE CALIBRATION DATA
INSTRUMENTS FOR PASSENGER DUMMY NO. 269

	LEFT REAR PASSENGER		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AP2D8	Endevco	11/8/99
Lower Rib Y	AJ411	Endevco	11/8/99
Lower Spine Y	AGTP7	Endevco	11/8/99
Pelvis Y	AJ8T5	Endevco	11/8/99
Upper Rib Redundant Y	AP2A4	Endevco	11/8/99
Lower Rib Redundant Y	AGTM8	Endevco	11/8/99
Lower Spine Redundant Y	AGT04	Endevco	11/8/99
Pelvis Redundant Y	AGP28	Endevco	11/8/99
Head Center of Gravity X	AJ9H0	Endevco	11/8/99
Head Center of Gravity Y	ANAN3	Endevco	11/8/99
Head Center of Gravity Z	ANAN6	Endevco	11/8/99

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	J10-E05	Entran	8/6/99
Moving Barrier CG Y	J04-F10	Entran	8/16/99
Moving Barrier CG Z	I18-E18	Entran	8/17/99
Moving Barrier Rear Axle X	C25-A17	Entran	8/6/99
Moving Barrier Rear Axle Y	I25-J12	Entran	8/6/99
Left Mid B-Post Y	K16-X04	Entran	10/22/99
Left Lower B-Post Y	D05-R09	Entran	8/17/99
Left Mid A-Post Y	C25-A06	Entran	8/17/99
Left Lower A-Post Y	C05-Z13	Entran	10/22/99
Rear Floorpan Above Axle X	I26-D11	Entran	8/6/99
Rear Floorpan Above Axle Y	J10-E14	Entran	8/6/99
Rear Floorpan Above Axle Z	G13-B01	Entran	8/6/99
Driver Seat Track Y	D05-R09	Entran	8/17/99
Right Side Sill at Front Seat X	F18-G03	Entran	8/16/99
Right Side Sill at Front Seat Y	J13-F18	Entran	8/16/99
Right Side Sill at Front Seat Z	G01-J05	Entran	5/5/99
Right Side Sill at Rear Seat X	C25-A09	Entran	8/17/99
Right Side Sill at Rear Seat Y	E24-G07	Entran	8/17/99
Right Side Sill at Rear Seat Z	I26-D15	Entran	8/17/99

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO	MANUFACTURER	CALIBRATION DATE
Left Side Sill at Front Seat Y	F11-G08	Entran	8/6/99
Left Side Sill at Rear Seat Y	J10-E12	Entran	8/17/99
Right Rear Occupant Compartment Y	F11-G08	Entran	8/6/99
Vehicle CG X	E10-F03	Entran	8/6/99
Vehicle CG Y	I25-J07	Entran	8/17/99
Vehicle CG Z	I25-J05	Entran	8/6/99
Left Front Door on Centerline	I18-G01	Entran	8/16/99
Midrear of Left Front Door	E23-R06	Entran	8/17/99
Left Front Door Upper Centerline	G13-B15	Entran	9/24/99
Midrear of Left Rear Door	E13-D18	Entran	8/17/99
Left Rear Door Upper Centerline	F07-A24	Entran	8/16/99

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