

REPORT NO.: 214D-MGA-99-05

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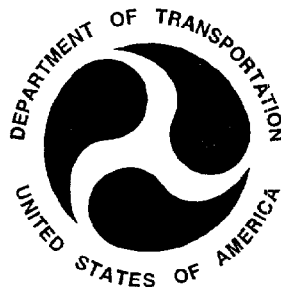
NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TESTING
PASSENGER CARS

GENERAL MOTORS CORPORATION

1999 CHEVROLET BLAZER
4 DOOR SUV

NHTSA NO: MX0102

MGA PROVING GROUNDS
5000 WARREN ROAD
BURLINGTON, WI 53105



Test Date: November 23, 1998

Report Date: December 2, 1998

FINAL REPORT

Prepared For:

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY PERFORMANCE STANDARDS
OFFICE OF CRASHWORTHINESS STANDARDS
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16. Abstract A 90° Moving Deformable Barrier NCAP side impact was conducted on the subject 1999 Chevrolet Blazer 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 23, 1998. The impact velocity of the Moving Deformable Barrier (MDB) was 61.3 kph, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 21°C. The target vehicle post test maximum crush was 325 mm at level 3. The test vehicle's performance follows: <table border="1"> <thead> <tr> <th></th><th><u>DRIVER</u></th><th><u>PASS</u></th></tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td><td>43</td><td>27</td></tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td><td>54</td><td>37</td></tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td><td>56</td><td>50</td></tr> <tr> <td>Thoracic Trauma Index (TTI)</td><td>55</td><td>43</td></tr> <tr> <td>Pelvis (PEV) Accel., g</td><td>56</td><td>61</td></tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					<u>DRIVER</u>	<u>PASS</u>	Left Upper Rib (LUR) Accel., g	43	27	Left Lower Rib (LLR) Accel., g	54	37	Lower Spine (T ₁₂) Accel., g	56	50	Thoracic Trauma Index (TTI)	55	43	Pelvis (PEV) Accel., g	56	61
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17. Key Words New Car Assessment Program (NCAP) FMVSS No. 214D Side Impact Dummy (SID) Occupant Side Impact Protection		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, Room 5108 (NAD-52) 400 Seventh Street, S.W. Washington, D.C. 20590																			
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SECTION 1
PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY99 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 1999 Chevrolet Blazer 4 Door SUV.

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 1999 Chevrolet Blazer 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 38.1 mph (61.3 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 23, 1998. Pre- and post-test photographs of the test vehicle, the MDB and the side impact dummies (SIDs) are included in Appendix A.

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

The SIDs were instrumented with the following accelerometers.

1. Left Upper Rib (LUR) uniaxial accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial accelerometer (Y-direction)
5. Head Center of Gravity triaxial accelerometers (X, Y, and Z-direction)

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

The following table summarizes the results of the test:

Injury Criteria	Front SID	Rear SID
TTI (g)	55	43
Pelvis (g)	57	61

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

DATA SHEET NO. 1
GENERAL VEHICLE TEST PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

Vehicle NHTSA No.: MX0102 VIN: 1GNDT13W0X2108056

Vehicle Body Color: Green Build Date: 10/98

Engine Data: 6 Cylinders; CID; 4.3 Liter; cc

Placement X Longitudinal; Lateral

Transmission: 4 Speed; Manual; X Automatic; Overdrive

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

Odometer Reading 38 miles

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

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

DATA FROM TIRE PLACARD:

Tire Pressure (at capacity): 32 Psi FRONT

32 Psi REAR

Recommended Tire Size: P235/70R15

Tires on Test Vehicle: P235/70R15 Manufacturer: Uniroyal

Vehicle Capacity Data:

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

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

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

Vehicle Maximum Capacity Loading = 483.1 kg (A)

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

Cargo Capacity (A-B) = 142.9 kg*

* Test cargo capacity was 136.1 kg. (300 lb.).

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

Right Front	=	<u>503.5</u> kg	Right Rear	=	<u>421.8</u> kg
Left Front	=	<u>558.8</u> kg	Left Rear	=	<u>422.7</u> kg
TOTAL FRONT	=	<u>1062.3</u> kg	TOTAL REAR	=	<u>844.5</u> kg
% of Total Vehicle Weight =		<u>55.7</u> %;	% of Total Weight =		<u>44.3</u> %
TOTAL WEIGHT = <u>1906.8</u> kg					

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUVVehicle NHTSA No.: MX0102 Test Date: November 23, 1998CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Maximum Fluids	=	<u>1906.8</u> kg
Cargo Carrying Capacity of Test Vehicle	=	<u>136.1</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>2204.4</u> kg

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

Right Front	=	<u>510.3</u> kg	Right Rear	=	<u>525.3</u> kg
Left Front	=	<u>609.6</u> kg	Left Rear	=	<u>557.9</u> kg
TOTAL FRONT	=	<u>1119.9</u> kg	TOTAL REAR	=	<u>1083.2</u> kg
% of Total Weight	=	<u>50.8</u> %	% of Total Weight	=	<u>49.2</u> %
TOTAL TEST WEIGHT	=	<u>2203.1</u> kg			

TEST VEHICLE ATTITUDE:

CURB WEIGHT ATTITUDE:

Right Front 804 mm Left Front 799 mm Right Rear 855 mm Left Rear 838 mm

FULLY LOADED WEIGHT ATTITUDE:

Right Front 794 mm Left Front 782 mm Right Rear 820 mm Left Rear 794 mm

TEST ATTITUDE:

Right Front 795 mm Left Front 790 mm Right Rear 820 mm Left Rear 803 mm* Light trucks and MPVs RCW is 136 kgs. or manufacturer's value, whichever is less

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Test Vehicle Wheelbase: 2722 mm

C.G. = 1314 mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 4360 mm

Centerline = 4716 mm

Left Side = 4360 mm

GENERAL VEHICLE TEST PARAMETER DATA (Cont'd)

Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel: 198 mm

Test Position: Mid position

FRONT SEAT BACK ADJUSTMENT POSITION:

Seat Back Angle = 23.2°

SECOND POSITION SEAT:

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

Seat Back Adjustment Position: 23.0°

ADJUSTABLE STEERING COLUMN POSITION: Mid position

WINDOW POSITIONS: Left Front Closed Left Rear Closed
Right Front Open Right Rear Open

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel system usable capacity = 18.3 gallons

Test Volume: 17.0 gallons 93 % of capacity

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

Wheelbase: = 2722 mm

Impact Point is 421 mm rearward of front axle centerline

DATA SHEET NO. 2
TEST VEHICLE SUMMARY OF RESULTS

Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998

Overall Length = 4716 mm; Overall Width = 1688 mm

TEST WEIGHT:

Right Front = 546.1 kg Right Rear = 525.7 kg

Left Front = 591.9 kg Left Rear = 536.1 kg

TOTAL FRONT = 1138.0 kg TOTAL REAR = 1061.8 kg

% of Total Weight = 51.7 % % of Total Weight = 48.3 %

TOTAL VEHICLE WEIGHT = 2199.8 kg

Wheelbase = 2722 mm

Longitudinal C.G. from Center of Front Axle = 1314 mm

Impact Angle with Respect to Impactor = 90° degrees

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (360 mm above ground) = 291 mm

2. LEVEL 2 (698 mm above ground) = 323 mm

3. LEVEL 3 (730 mm above ground) = 325 mm

4. LEVEL 4 (1050 mm above ground) = 265 mm

5. LEVEL 5 (1544 mm above ground) = 57 mm

Maximum Post-Test Intrusion = 325 mm

OCCUPANTS:

	<u>Driver</u>	<u>Left Rear Passenger</u>
Type of Dummy	<u>SID</u>	<u>SID</u>
Restraints Used	<u>Type II belt with</u> <u>frontal airbag</u>	<u>Type II belt</u>

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

Number of Vehicle Data Channels:		=	<u>26</u>
Number of Cameras:	Onboard Vehicle	=	<u>3</u>
	Offboard Vehicle	=	<u>4</u>
	Deformable Barrier	=	<u>2</u>
	TOTAL	=	<u>9</u>

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTSYear/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUVVehicle NHTSA No.: MX0102 Test Date: November 23, 1998POSITION 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>1098 mm</u>
C.G. Location From Center Line	=	<u>-15 mm</u>
C.G. Location Above Ground Level	=	<u>485 mm</u>

MDB WEIGHT:

Left Front	=	<u>457.7 kg</u>	Left Rear	=	<u>235.1 kg</u>
Right Front	=	<u>328.1 kg</u>	Right Rear	=	<u>342.6 kg</u>
TOTAL FRONT	=	<u>785.8 kg</u>	TOTAL REAR	=	<u>577.7 kg</u>
TOTAL MDB WEIGHT = <u>1363.5 kg</u>					

Impact Angle (MDB C/L to Target Vehicle C/L) = 90° degreesImpact Speed = Primary: 38.1 mph (61.3 kph) Secondary: 38.4 mph (61.8 kph)

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

- | | | | |
|----|---------------------------------|---|---------------|
| 1. | Row A Top of Stack (813 mm) | = | <u>197</u> mm |
| 2. | Row B Mid Stack (686 mm) | = | <u>149</u> mm |
| 3. | Row C Top of Bumper (533 mm) | = | <u>153</u> mm |
| 4. | Row D Center of Bumper (432 mm) | = | <u>242</u> mm |

INSTRUMENTATION:

Number of MDB Data Channels = 7

DATA SHEET NO. 4
POST-TEST OBSERVATIONS

Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998

VISIBLE DUMMY CONTACT POINTS:

	<u>DRIVER</u>	<u>LEFT REAR SID</u>
Head	<u>Headrest/seatbelt D-ring</u>	<u>C-post/seatbelt D-ring</u>
Arm	<u>Armrest/rear of door above armrest</u>	<u>Rear of door above armrest</u>
Pelvis	<u>Mid-door below armrest</u>	<u>Armrest</u>
Left Knee	<u>Mid-door below armrest</u>	<u>Mid-door below armrest</u>
Right Knee	<u>Left knee</u>	<u>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: 2 mm forward Vertical: 4 mm high

ARM REST LOCATIONS:

Front: 198 mm from bottom of window

Rear: 187 mm from bottom of window

POST-TEST OBSERVATIONS (Cont'd)

SEAT CRUSH:

<u>Front Seat Back:</u>	<u>75 mm</u>	<u>Front Seat Cushion:</u>	<u>13 mm</u>
<u>Left Rear Seat Back:</u>	<u>50 mm</u>	<u>Rear Seat Cushion:</u>	<u>76 mm</u>

GLAZING DAMAGE:

Windshield cracked; left front window broke

PILLAR PERFORMANCE:

No failure noted

SILL SEPARATION:

No separation noted

OTHER NOTABLE IMPACT EFFECTS:

Right rear tire lost pressure

AIRBAG DEPLOYMENT STATUS:

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

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

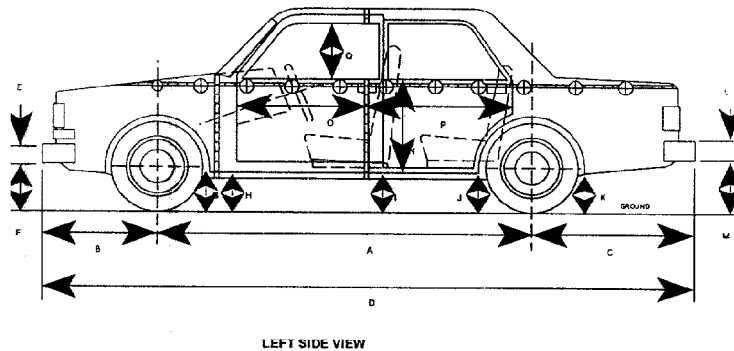
DATA SHEET NO. 5
SIDE IMPACT DUMMY (SID) INSTRUMENTATION DATA

Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV
Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998

	Driver SID ID # 269			Left Passenger SID ID # 270		
	Pos. Direct.		Neg. Direct	Pos. Direct.		Neg. Direct
	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
RIB ACCELERATIONS						
Left Upper Rib (LUR) Y	43.2	33	-19.6	46	27.2	59
Left Lower Rib (LLR) Y	53.6	31	-6.3	96	36.8	49
SPINE ACCELERATIONS						
Lower Lateral Y	56.4	36	-13.3	66	50.1	44
PELVIS ACCELERATIONS						
Lateral Y	56.2	34	-9.1	75	60.8	39
					-19.8	82

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

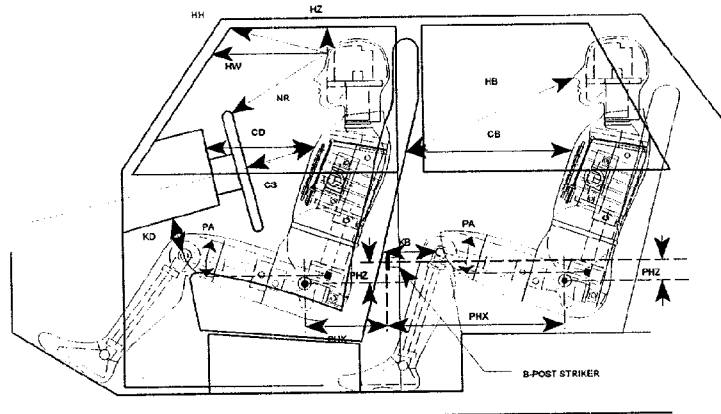
J1 = To Pinch Weld

J2 = To Sill

ALL MEASUREMENTS IN (mm)

	PRE-TEST	POST-TEST	Δ CHANGE
A	2722	2703	19
B	910	900	10
C	1020	1004	16
D	4716	4607	119
E	115	115	0
F	499	516	17
G	332	350	18
H	232	224	8
I	348	368	20
J1/J2	339/205	352/191	13/14
K	350	352	2
L	130	130	0
M	470	440	30
N	732	723	9
O	799	794	5
P	1398	1215	183
Q	493	493	0
R	4360	4276	84
S	4360	4312	48
T	1688	1435	253

DATA SHEET NO. 7

SIDE IMPACT DUMMY (SID) LONGITUDINAL CLEARANCE DIMENSIONSYear/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUVNHTSA NO.: MX0102 Test Date: November 23, 1998

LEFT SIDE VIEW

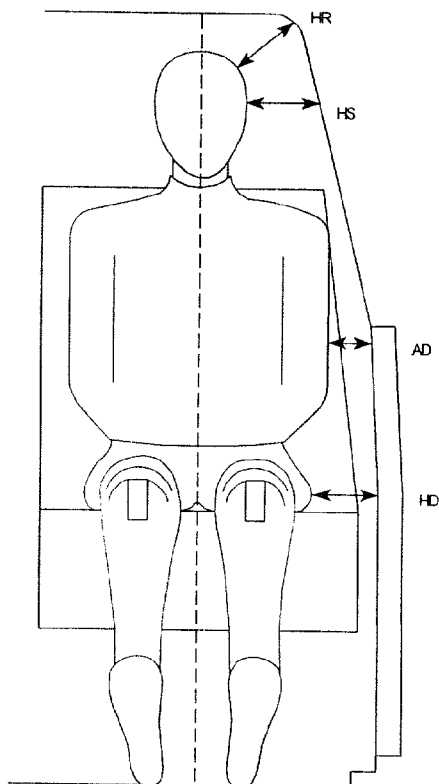
NOTE: 2-DOOR VEHICLE SHOWN.
 REAR DUMMY PHX & PHZ
 MEASUREMENTS FOR A 4-DOOR
 VEHICLE WOULD USE THE C-POST
 STRIKER AS A REFERENCE POINT

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

	DRIVER SID ID # 269		LEFT REAR PASSENGER SID ID # 270
HH	502	HZ	178
HW	678	NB	660
HZ	196	CB	595
NR	403	KBL (KBA)	235 @ 0.0°
CD	540	KBR (KBA)	256 @ 0.0°
CS	320	PA°	24.8°
KDL(KDA°)	202 @ 0.0°	PHX	226
KDR(KDA°)	207 @ 0.0°	PHZ	245
PA°	23.3°		
PHX	291		
PHZ	94		

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: 1999/Chevrolet/Blazer/4 Door SUVNHTSA NO.: MX0102Test Date: November 23, 1998

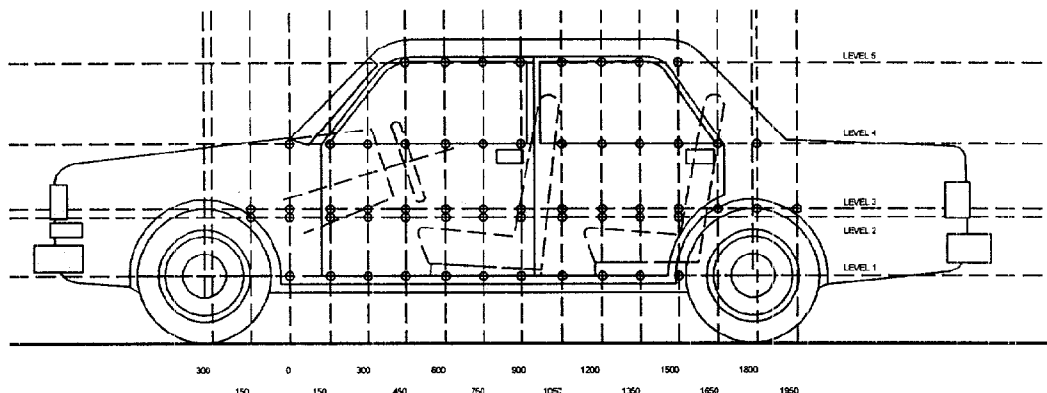
NOTE: All dimensions are in mm

	DRIVER SID ID # 269	LEFT REAR PASSENGER SID ID # 270
HR	253	215
HS	362	260
AD	61	44
HD	167	108

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

NHTSA NO.: MX0102 Test Date: November 23, 1998



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)

= 360 mm

Level 2 @ Occupant H-Point

= 698 mm

Level 3 @ Mid Door

= 730 mm

Level 4 @ Window Sill

= 1050 mm

Level 5 @ Window Top

= 1544 mm

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

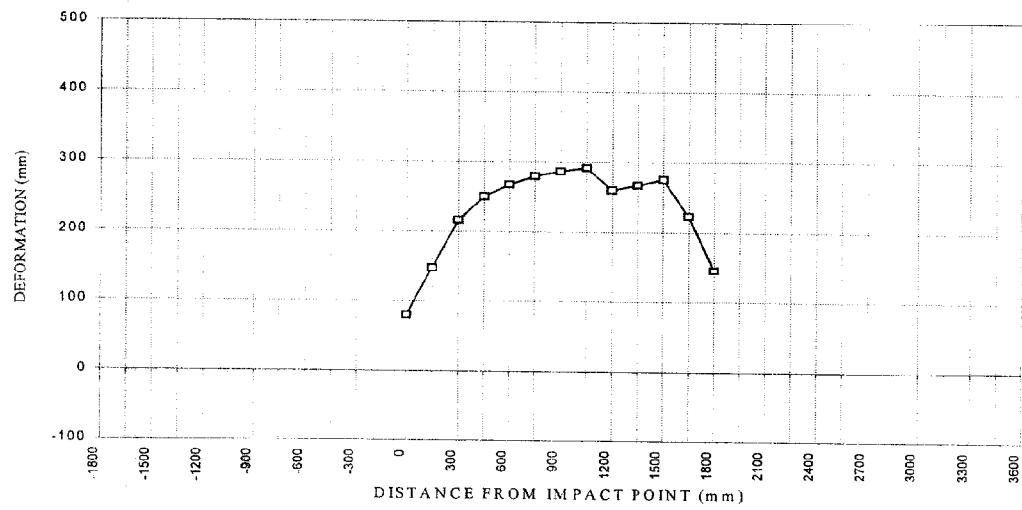
Longitudinal Distance (mm)	Level 1 - Axle Centerline		
	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)	782	862	80
150	781	929	148
300	778	994	216
450	778	1028	250
600	776	1043	267
750	775	1054	279
900	772	1058	286
1050	771	1062	291
1200	771	1031	260
1350	770	1037	267
1500	769	1044	275
1650	770	993	223
1800	770	916	146

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

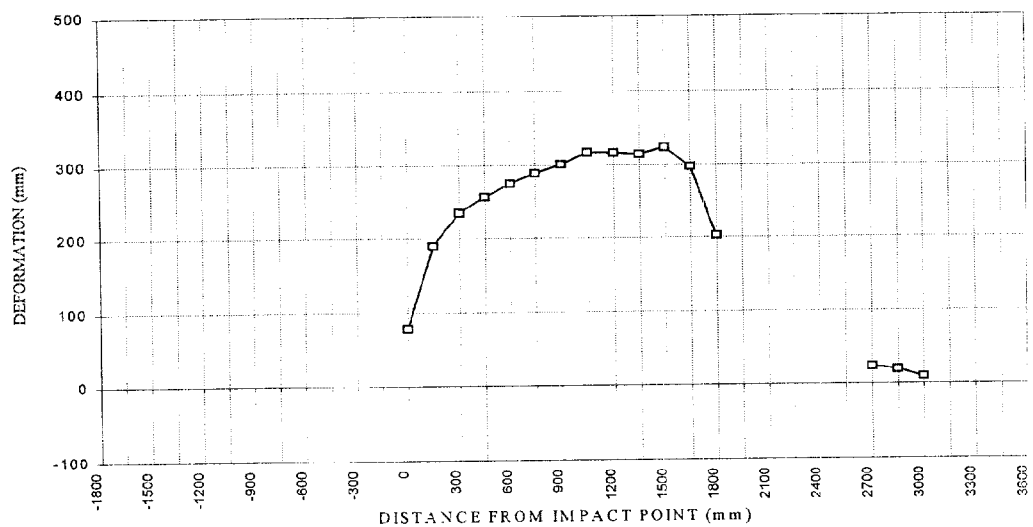
	Level 2 - Occupant H-Point		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)	710	789	79
150	710	900	190
300	707	944	237
450	705	962	257
600	703	978	275
750	702	991	289
900	700	1001	301
1050	699	1016	317
1200	699	1015	316
1350	699	1013	314
1500	699	1022	323
1650	700	997	297
1800	701	904	203

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 2 - Occupant H-Point		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
1950			
2100			
2250			
2400			
2550			
2700	721	744	23
2850	727	746	19
3000	738	747	9
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

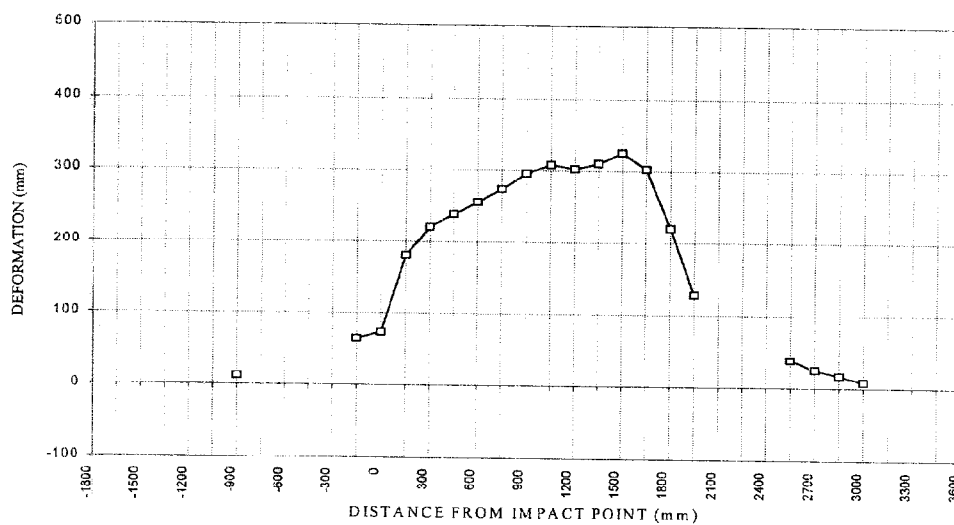
	Level 3 - Mid-Door		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900	739	751	12
-750			
-600			
-450			
-300			
-150	682	747	65
0 (impact point)	704	778	74
150	704	884	180
300	702	923	221
450	700	939	239
600	698	954	256
750	698	972	274
900	696	992	296
1050	694	1002	308
1200	694	997	303
1350	694	1004	310
1500	694	1019	325
1650	696	999	303
1800	696	917	221

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	669	797	128
2100			
2250			
2400			
2550	672	711	39
2700	714	739	25
2850	723	740	17
3000	734	742	8
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

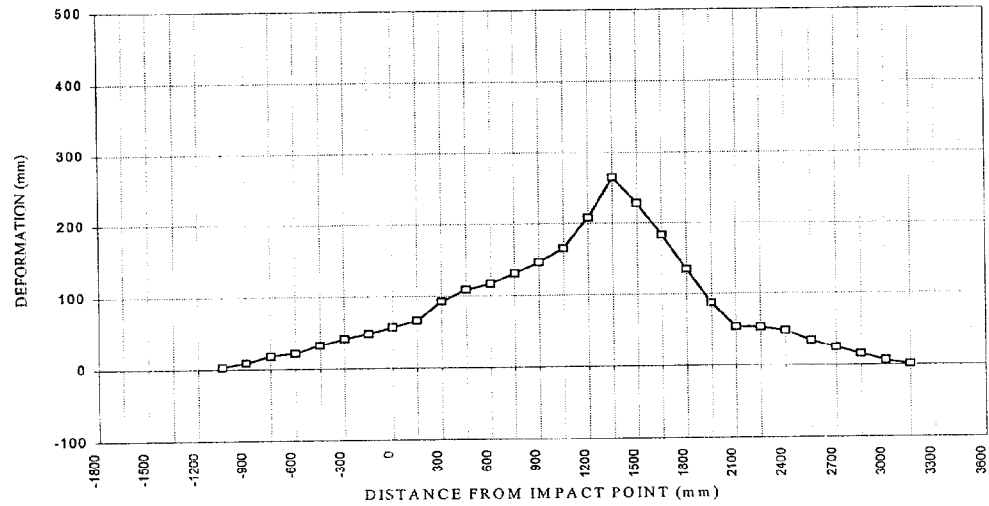
	Level 4 - Window Sill		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050	839	842	3
-900	807	816	9
-750	785	803	18
-600	769	791	22
-450	755	788	33
-300	744	786	42
-150	735	784	49
0 (impact point)	729	787	58
150	724	791	67
300	720	813	93
450	717	826	109
600	715	832	117
750	713	844	131
900	711	857	146
1050	709	874	165
1200	708	917	209
1350	706	971	265
1500	704	933	229
1650	704	887	183
1800	706	841	135

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	706	794	88
2100	706	761	55
2250	710	764	54
2400	715	764	49
2550	722	757	35
2700	729	754	25
2850	738	753	15
3000	748	754	6
3150	827	828	1
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

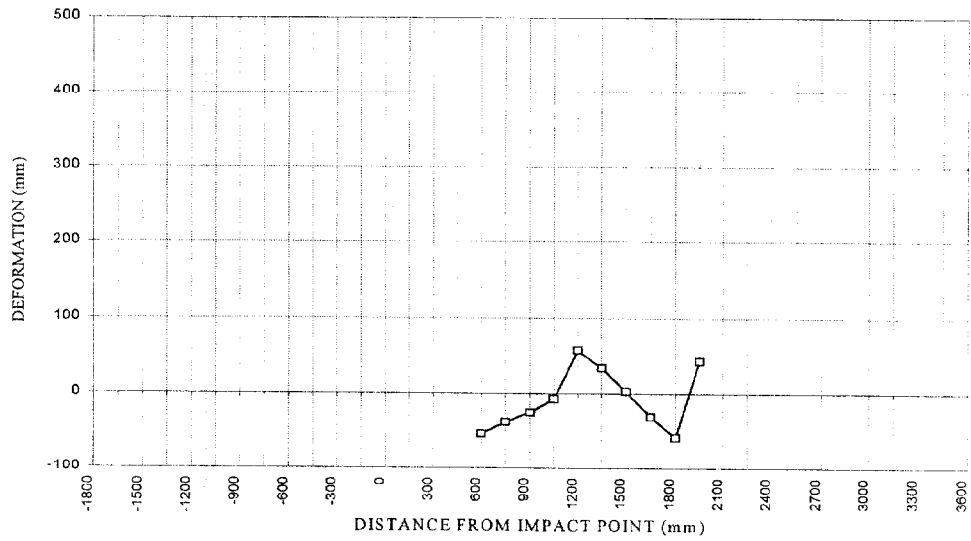
	Level 5 - Window Top		
Longitudinal Distance (mm)	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
-1800			
-1650			
-1500			
-1350			
-1200			
-1050			
-900			
-750			
-600			
-450			
-300			
-150			
0 (impact point)			
150			
300			
450			
600	911	857	-54
750	902	864	-38
900	902	877	-25
1050	901	894	-7
1200	901	958	57
1350	900	934	34
1500	900	903	3
1650	902	871	-31
1800	904	845	-59

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	904	947	43
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

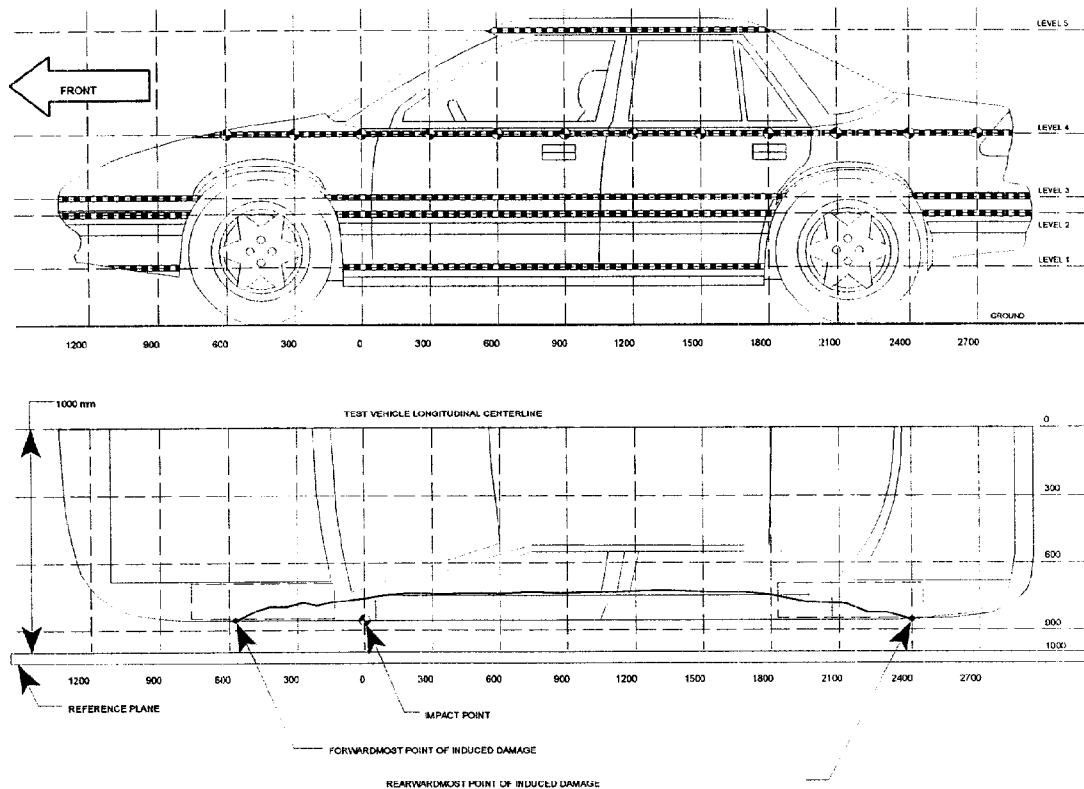
VEHICLE EXTERIOR STATIC CRUSH

LEVEL 5 - WINDOW TOP

DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

NHTSA NO.: MX0102 Test Date: November 23, 1998



NOTE: All measurements are in millimeters (mm)

DPD MEASUREMENTS	POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1. (LF = <u>-1050</u> mm)	842	839	3
2. <u>-259</u> mm	789	739	50
3. <u>505</u> mm	1039	740	299
4. <u>1345</u> mm	1052	735	317
5. <u>2014</u> mm	767	706	61
6. (LR = <u>3000</u> mm)	828	827	1

DATA SHEET NO. 12
EXTERIOR STATIC CRUSH FOR SIDE IMPACTOR

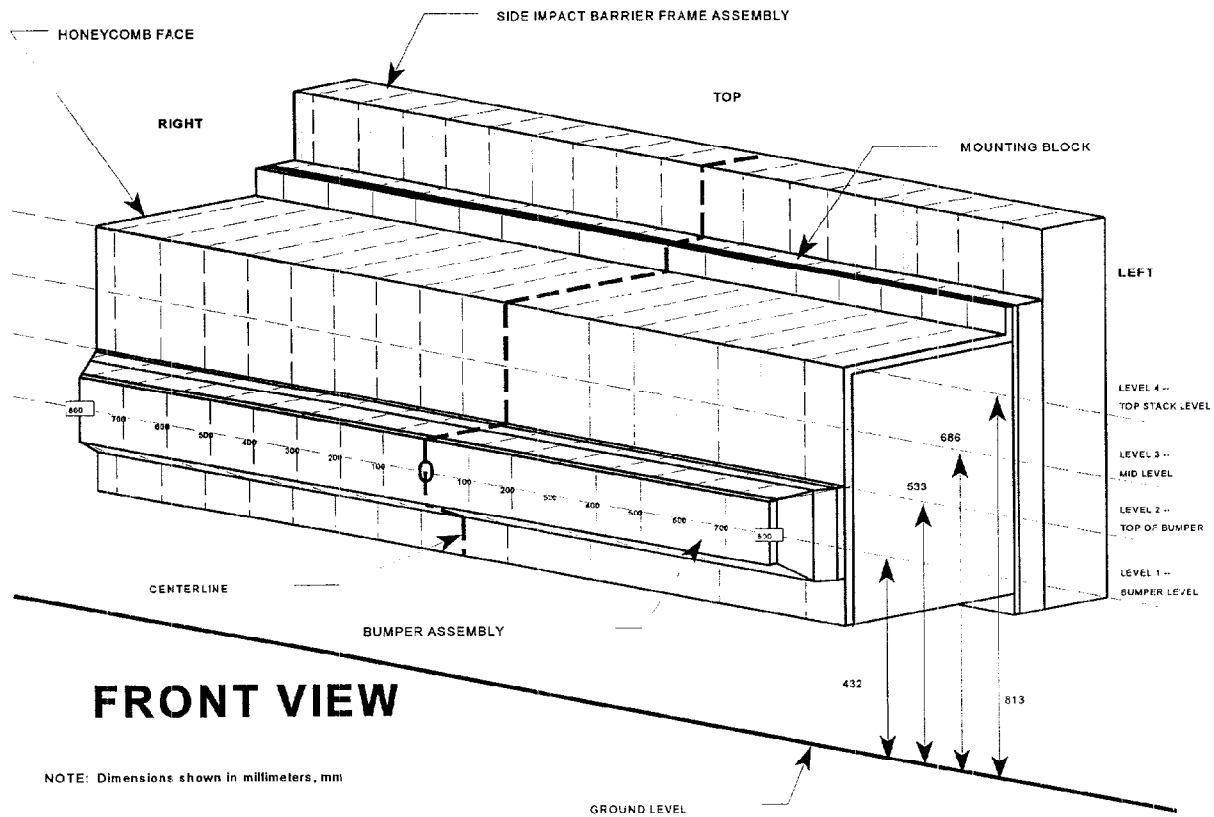
Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998

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	152	95	58	56	64	82	59	50	49	57	66	72	86	100	123	152	197
Mid Level Level 3	686 mm	149	71	36	22	22	25	17	16	17	18	21	26	31	38	53	73	129
Top Bumper Level 2	533 mm	153	83	51	72	74	68	53	41	37	44	47	55	70	74	87	120	150
Mid Bumper Level 1	432 mm	242	185	126	99	94	102	98	82	72	76	81	86	91	103	125	161	193

See next page for Barrier Face Graphic

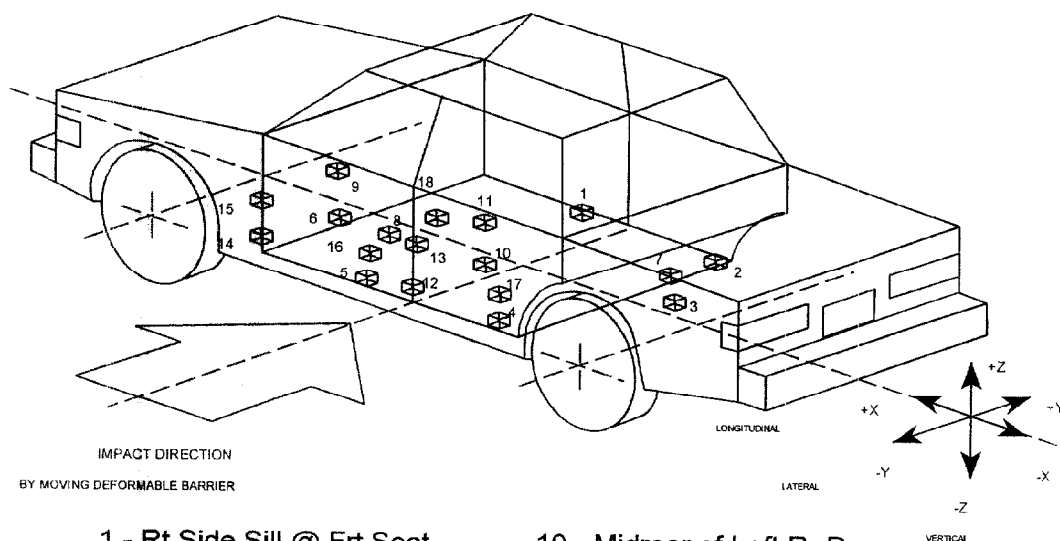
DATA SHEET NO. 12 (Cont'd)



DATA SHEET 13
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998



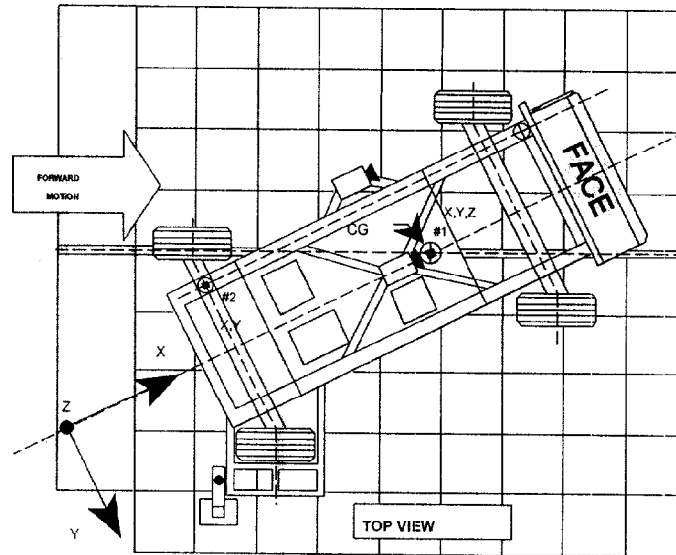
- | | |
|---------------------------------|------------------------------|
| 1 - Rt Side Sill @ Frt Seat | 10 - Midrear of Left Rr Door |
| 2 - Rt Side Sill @ Rr Seat | 11 - Left Rr Door Upr C/Line |
| 3 - Rr Floorpan Above Axle | 12 - Left Lwr B-Post |
| 4 - Left Side Sill @ Rr Seat | 13 - Left Middle B-Post |
| 5 - Left Side Sill @ Frt Seat | 14 - Left Lwr A-Post |
| 6 - Left Frt Door on Centerline | 15 - Left Middle A-Post |
| 7 - Rt Rr Occ Compartment | 16 - Frt Seat Track |
| 8 - Midrear of Left Frt Door | 17 - Rr Seat Track |
| 9 - Left Frt Door Upr C/Line | 18 - Vehicle C.G. |

DATA SHEET NO. 13
TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY
Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV
Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998

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	2575	725	410	4.8	-6.6	25.8	-4.5	5.0	-10.4	26.9
2	Rt. Side Sill @ Rear Seat	1812	725	400	5.2	-7.6	25.1	-5.1	4.7	-11.6	26.1
3	Rr. Floorpan Above Axle	1100	0	695	4.3	-7.3	18.1	-1.8	-10.2	-10.5	19.9
4	Left Side Sill @ Rr. Seat	1838	-728	385	----	----	**	**	----	----	----
5	Left Side Sill @ Frt. Seat	2640	-728	390	----	----	**	**	----	----	----
6	Left Front Door Centerline	2918	-862	790	----	----	327.7	-176.2	----	----	----
7	Right Rear Occupant Compartment	1790	280	395	----	----	19.8	-2.3	----	----	----
8	Mid Rear of Left Front Door	2203	-863	791	----	----	115.7	-62.5	----	----	----
9	Left Front Door Upper Centerline	2908	-812	1029	----	----	169.1	-171.0	----	----	----
10	Left Rear Door Mid Rear	1450	-871	822	----	----	153.7	-86.3	----	----	----
11	Left Rear Door Upper Centerline	1708	-813	1041	----	----	131.6	-112.7	----	----	----
12	Left Lower B-Post	2070	-706	520	----	----	255.1	-63.9	----	----	----
13	Left Mid B-Post	2070	-731	910	----	----	86.1	-30.8	----	----	----
14	Left Lower A-Post	3205	-675	495	----	----	92.5	-39.4	----	----	----
15	Left Mid A-Post	3210	-780	990	----	----	63.6	-14.5	----	----	----
16	Driver Left Seat Track	2362	-510	490	----	----	159.2	-119.1	----	----	----
17	Rear Seat Track	1812	-370	525	----	----	53.5	-13.3	----	----	----
18	Vehicle CG	2395	0	485	14.2	-8.7	30.9	-3.5	22.4	-21.6	34.7

*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: 1999/Chevrolet/Blazer/4 Door SUVVehicle NHTSA No.: MX0102 Test Date: November 23, 1998

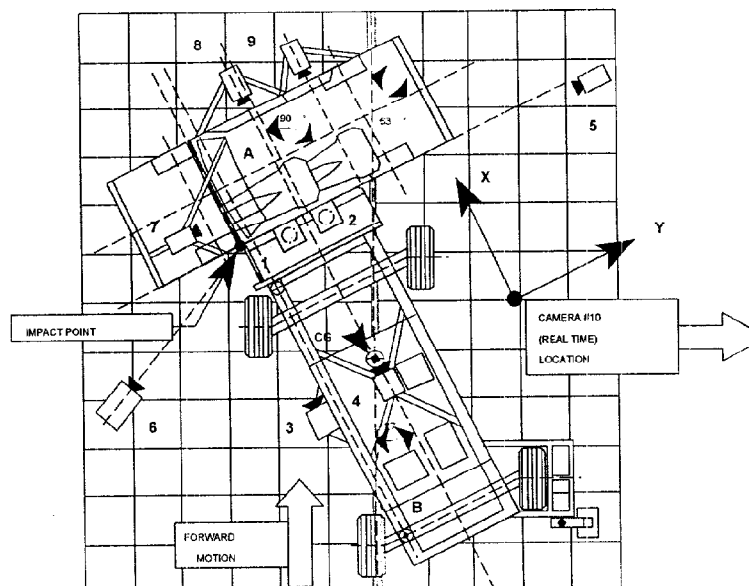
Accel. No.	Description	Coordinates (mm)*			(+) Positive		(-) Negative	
		X	Y	Z	Max. (g)	Time (msec)	Max. (g)	Time (msec)
1	MDB Center of Gravity	-1092	0	483				
	Longitudinal (X)	---	---	---	1.3	122	-21.4	41
	Lateral (Y)	---	---	---	0.8	79	-9.7	38
	Vertical (Z)	---	---	---	20.1	57	-19.0	51
	Resultant (R)	---	---	---	28.8	34	---	---
2	Rear Frame Member	-2501	-625	622				
	Longitudinal (X)	---	---	---	1.4	199	-25.8	36
	Lateral (Y)	---	---	---	6.7	37	-1.1	196

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

DATA SHEET NO. 15
HIGH SPEED CAMERA LOCATIONS AND DATA

Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998



Camera No.	View	Coordinates (mm)*			Lens (mm)	Film Speed (fps)
		X	Y	Z		
	Real Time					
1	Top Overall	-55	1230	5000	8	976
2	Top Impact	-230	30	5000	13	885
3	Cart Pointer				13	1015
4	Cart Overall				35	1005
5	Right Impact	-760	10320	1820	25	712
6	Left Impact	-380	-2724	1730	13	1005
7	Onboard Hood				13	1000
8	Onboard Driver				8	952
9	Onboard Passenger				8	917

* 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: 1999/Chevrolet/Blazer/4 Door SUV

Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998

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 38.1 mph (61.3 kph)

FUEL SPILLAGE MEASUREMENT:

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

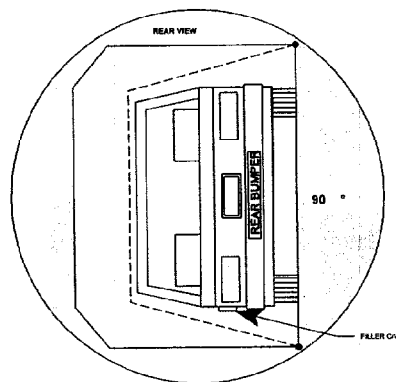
FUEL SPILLAGE LOCATION(S): None

DATA SHEET 16
FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998

TEST PHASE: 0° - 90°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 35 seconds
(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 35 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

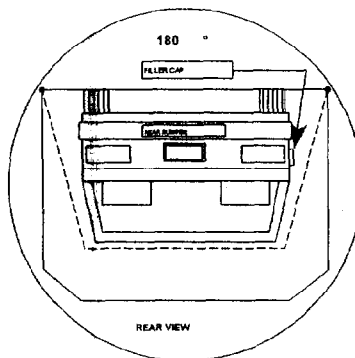
FUEL SPILLAGE LOCATIONS(S): None

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

Vehicle Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998

TEST PHASE: 90° - 180°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 17 seconds
 (Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 17 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

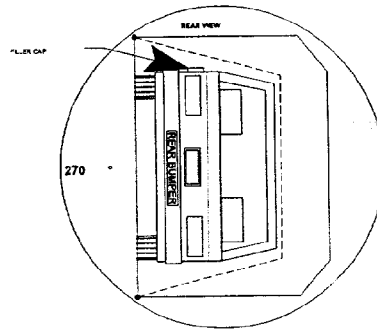
FUEL SPILLAGE LOCATIONS(S): None

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

Vehicle Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998

TEST PHASE: 180° - 270°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 33 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 33 seconds

Next Whole Minute Interval = 8 minutes

FUEL SPILLAGE MEASUREMENT:

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

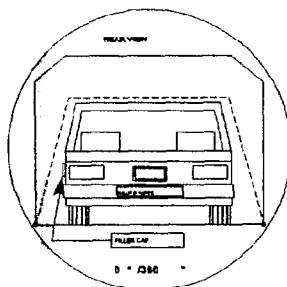
FUEL SPILLAGE LOCATIONS(S): None

DATA SHEET 16
FMVSS 301 STATIC ROLLOVER TEST DATA

Vehicle Year/Make/Model/Body Style: 1999/Chevrolet/Blazer/4 Door SUV

Vehicle NHTSA No.: MX0102 Test Date: November 23, 1998

TEST PHASE: 270° - 360°



DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time = 2 minutes 51 seconds

(Spec. Range = 1 to 3 minutes)

FMVSS 301 Position Hold Time = 5 minutes 0 seconds

TOTAL TIME = 7 minutes 51 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

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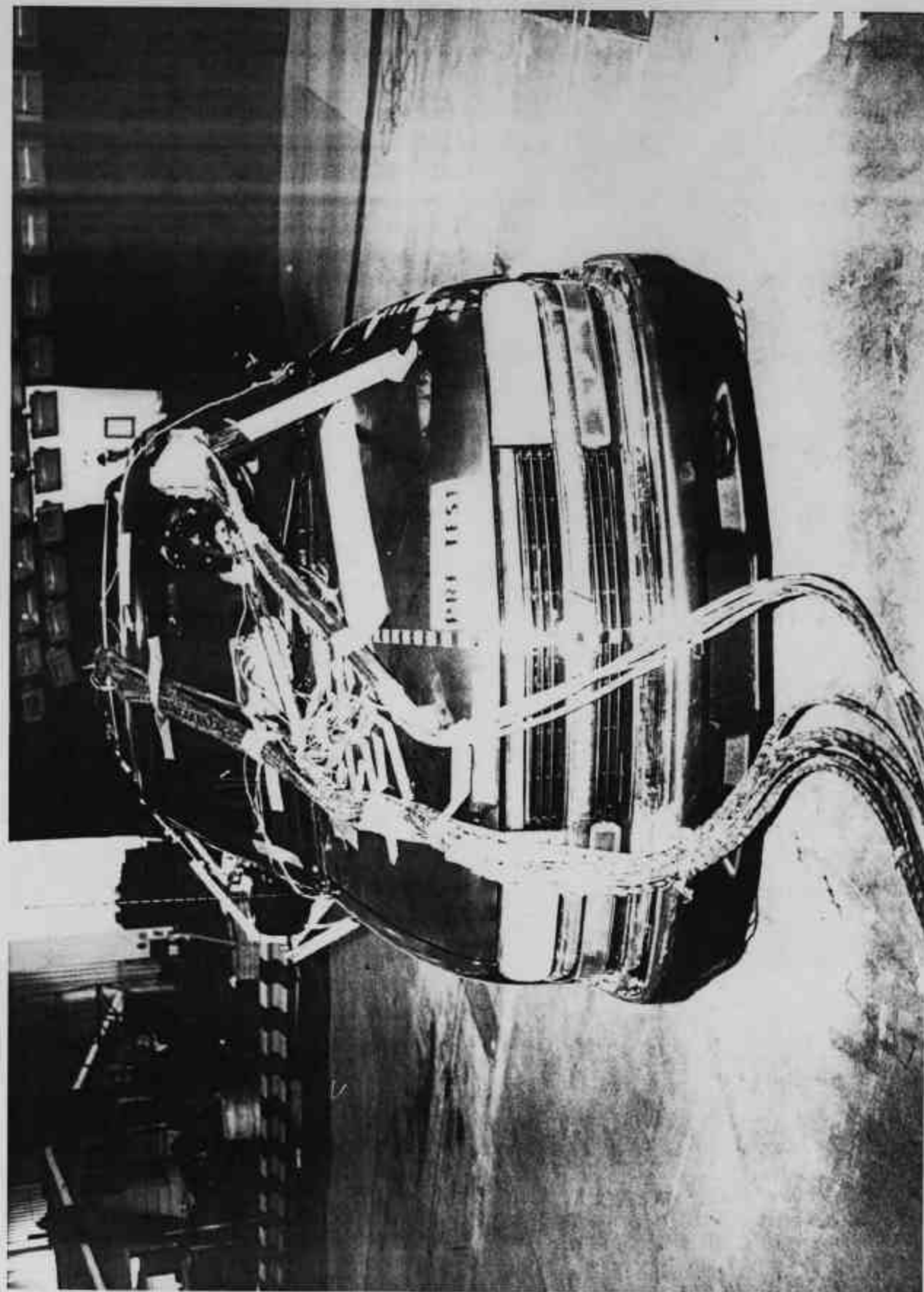


Photo No. A-1 - Pre-Test Front View of Test Vehicle

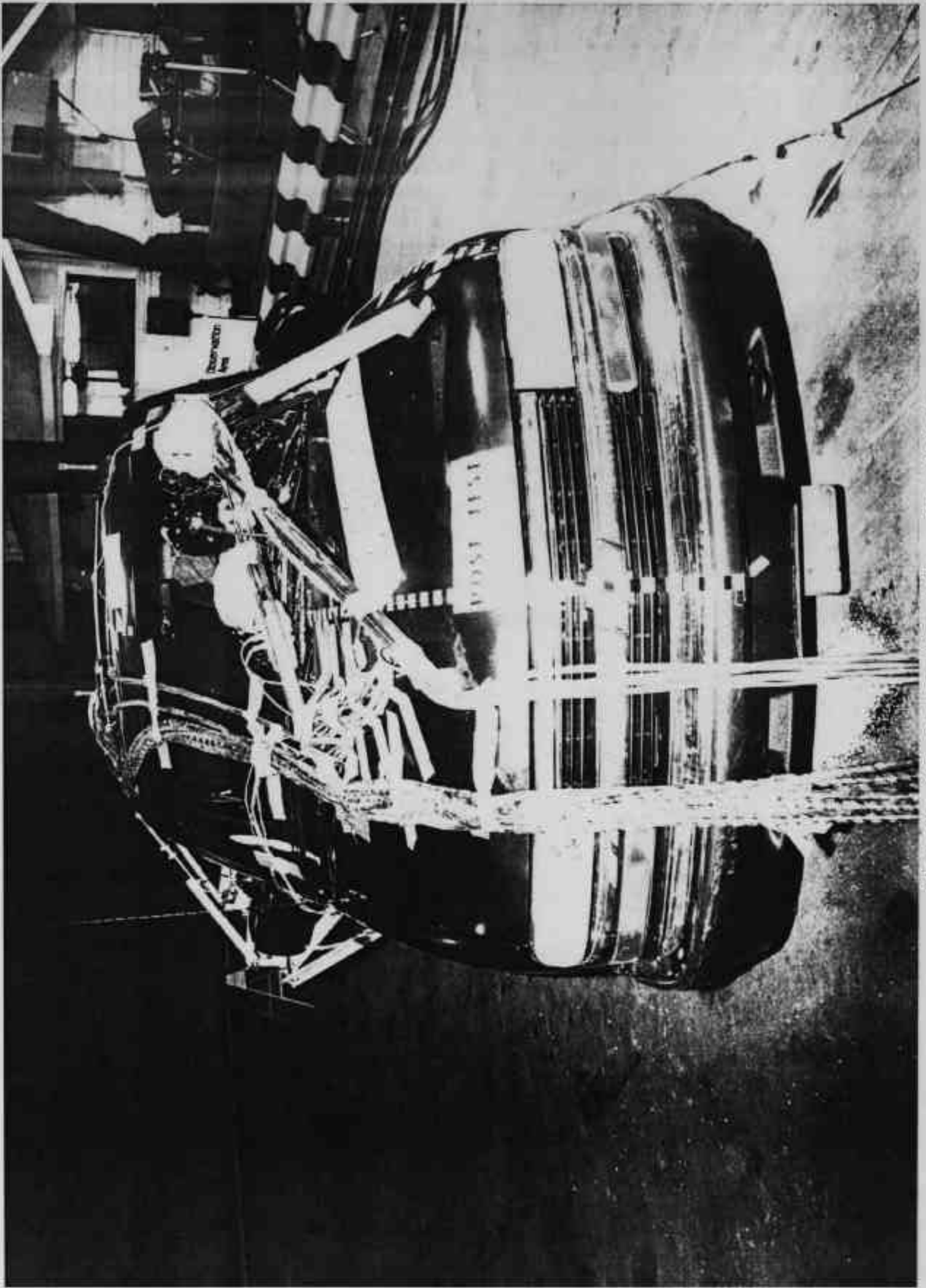


Photo No. A-2 - Post-Test Front View of Test Vehicle

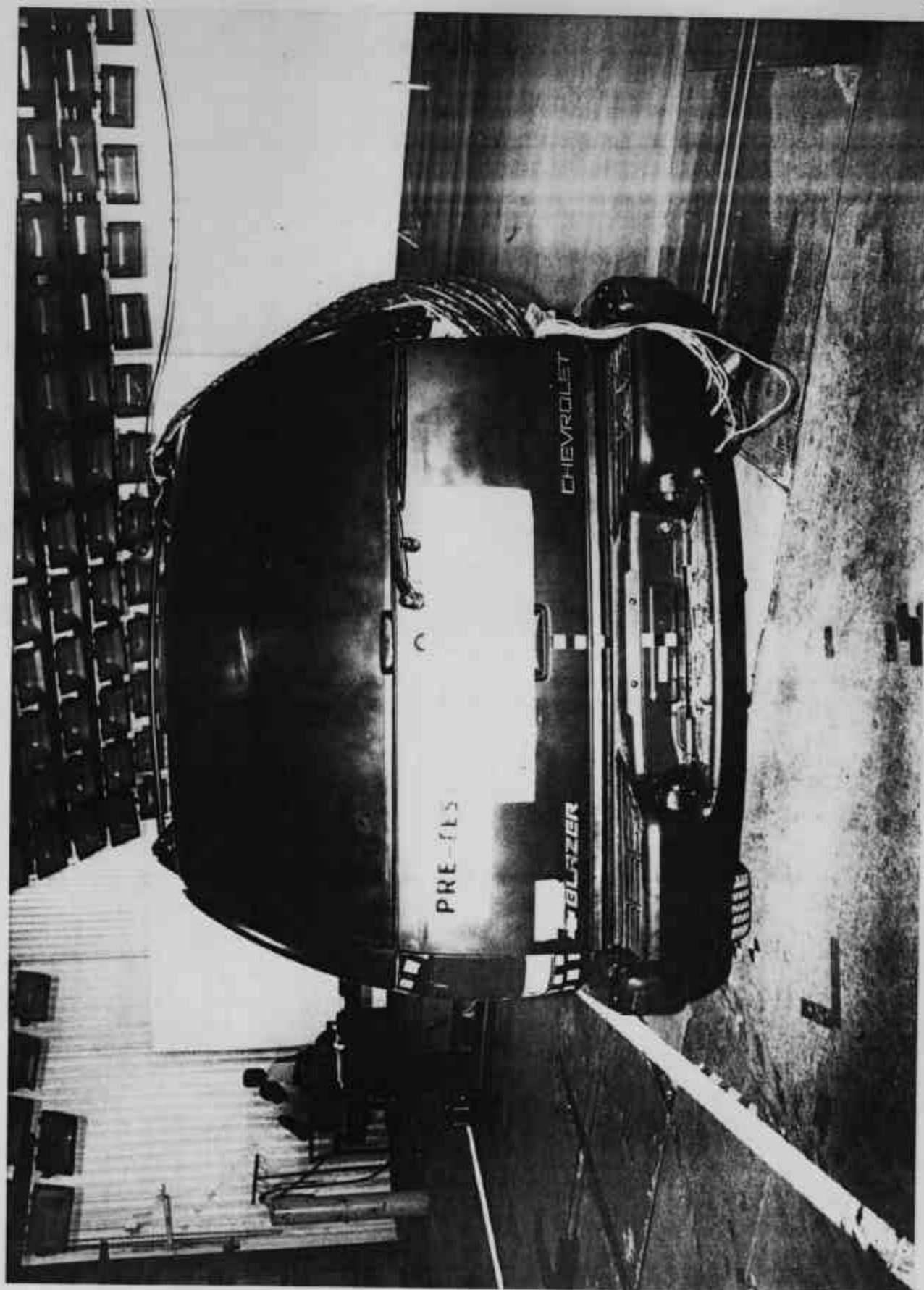


Photo No. A-3 - Pre-Test Rear View of Test Vehicle

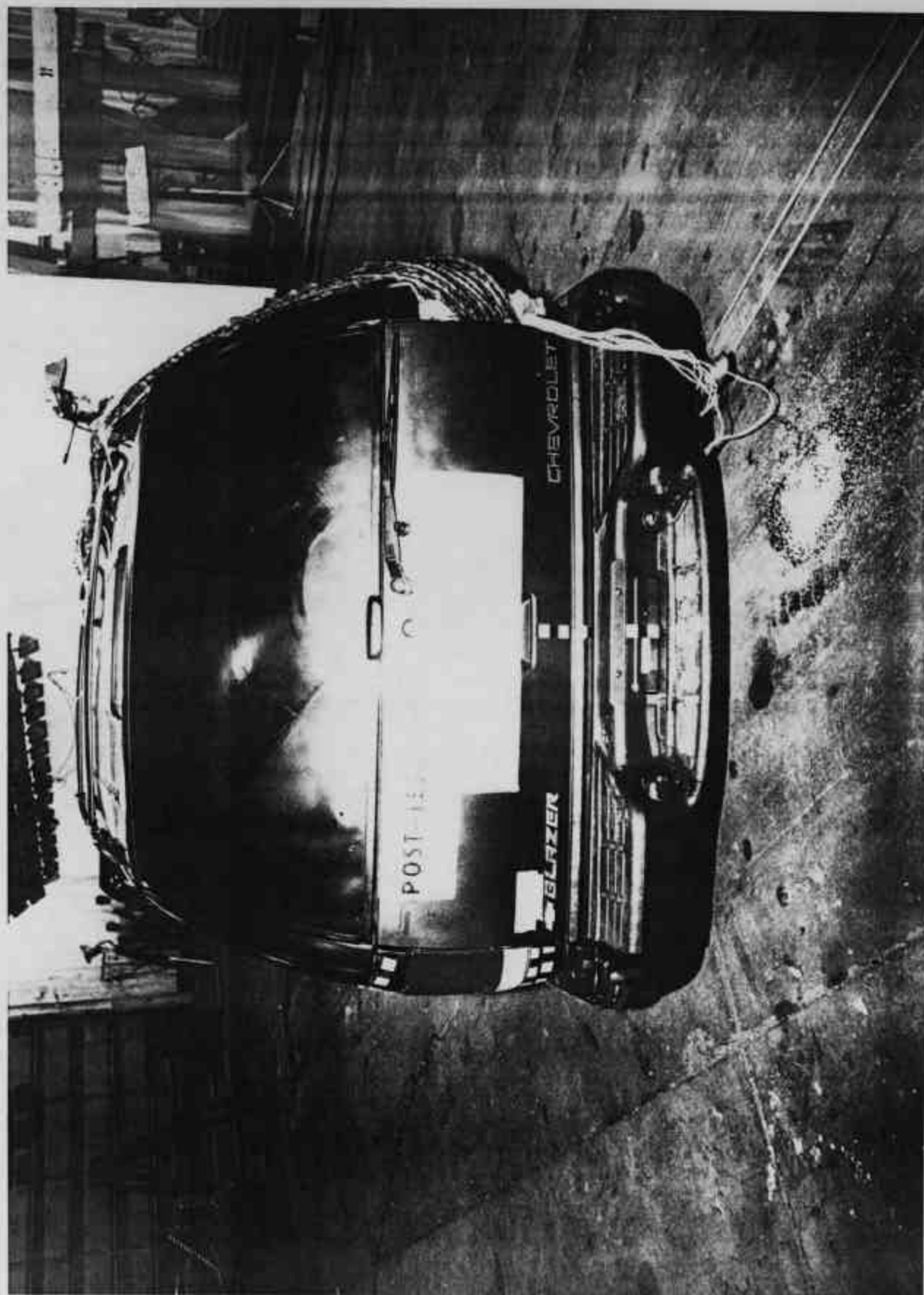


Photo No. A-4 - Post-Test Rear View of Test Vehicle

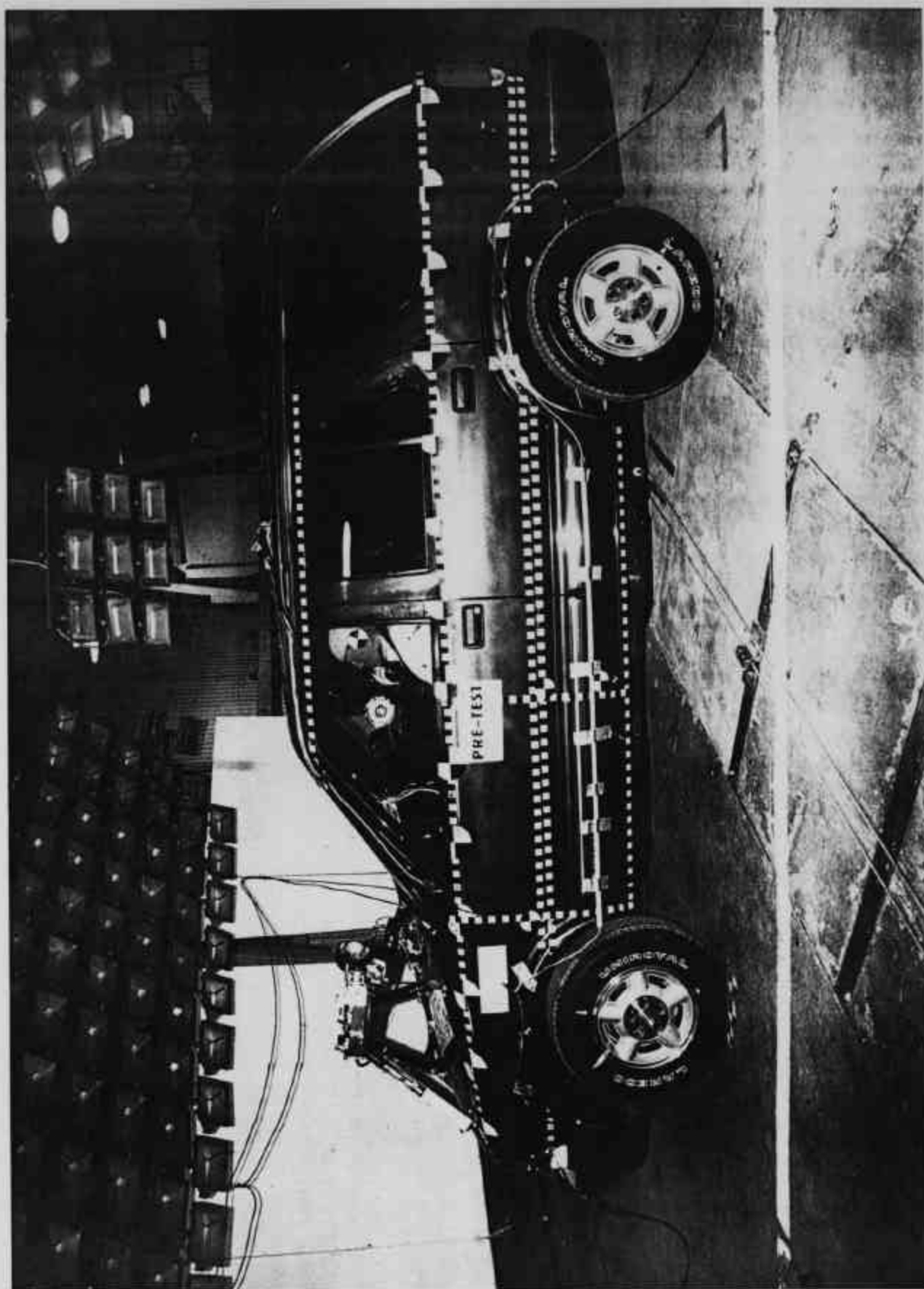


Photo No. A-5 - Pre-Test Left Side View of Test Vehicle



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

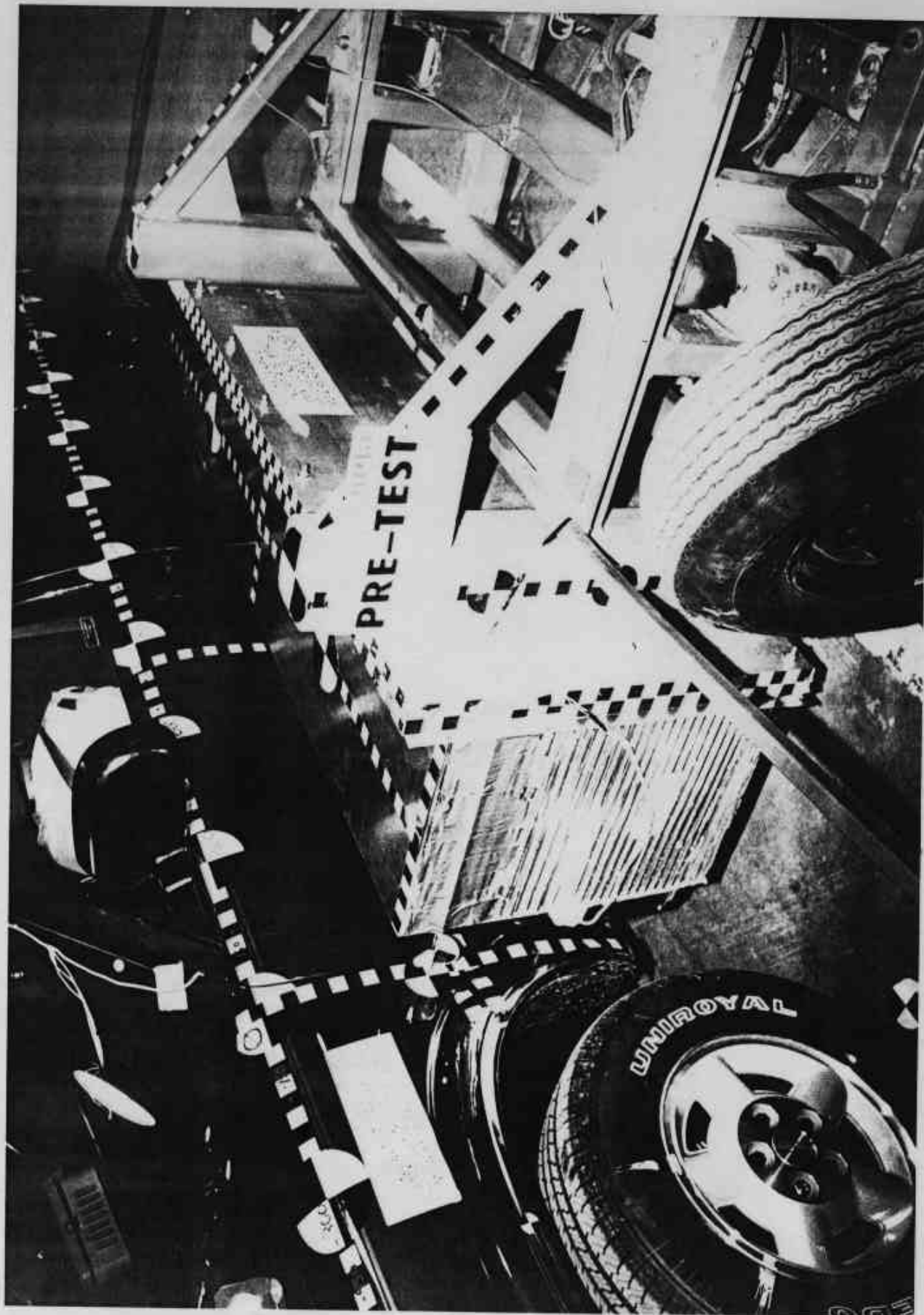


Photo No. A-7 - Pre-Test MDB Positioned Against Vehicle (left side)

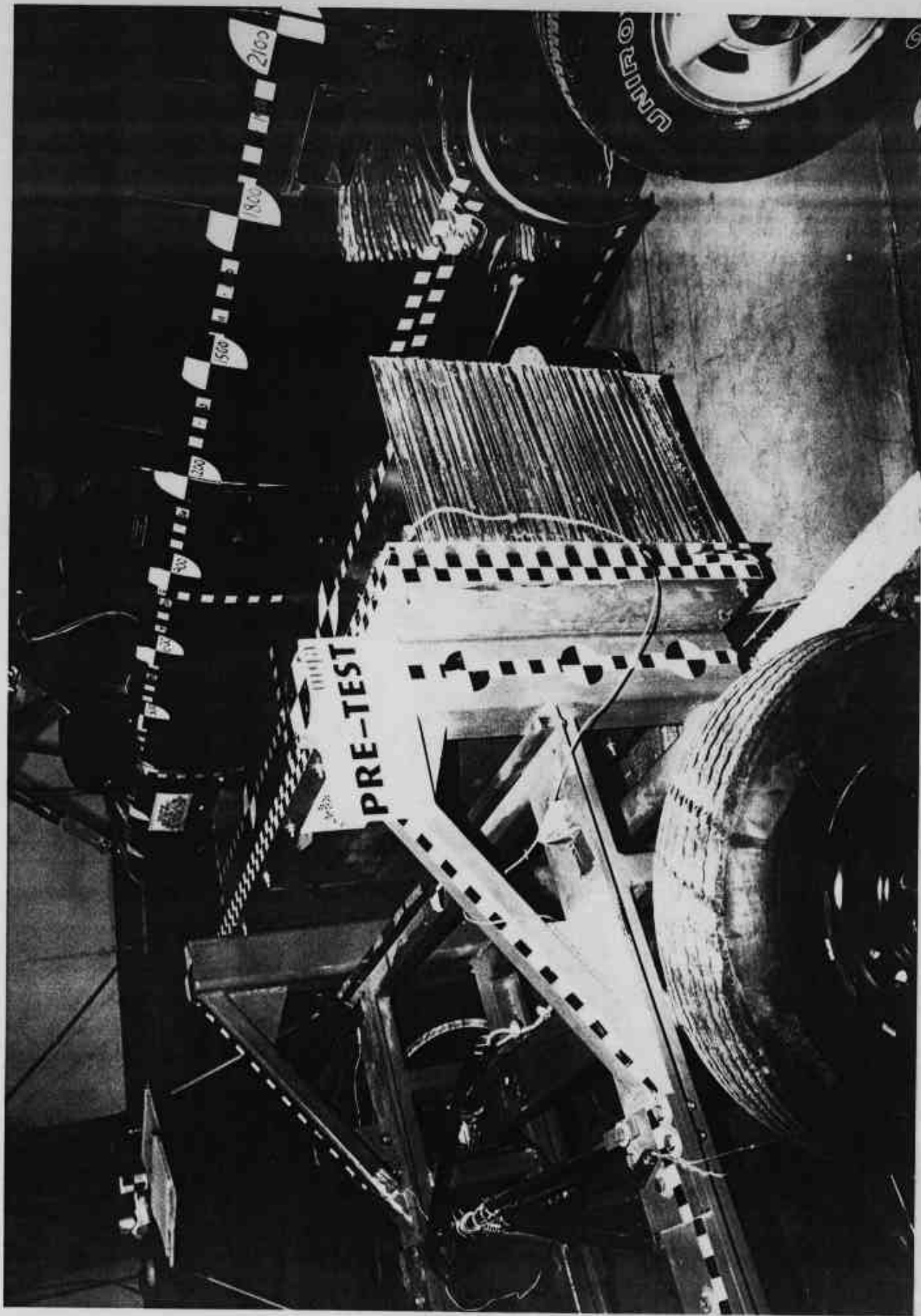


Photo No. A-8 - Pre-Test MDB Positioned Against Vehicle (right side)

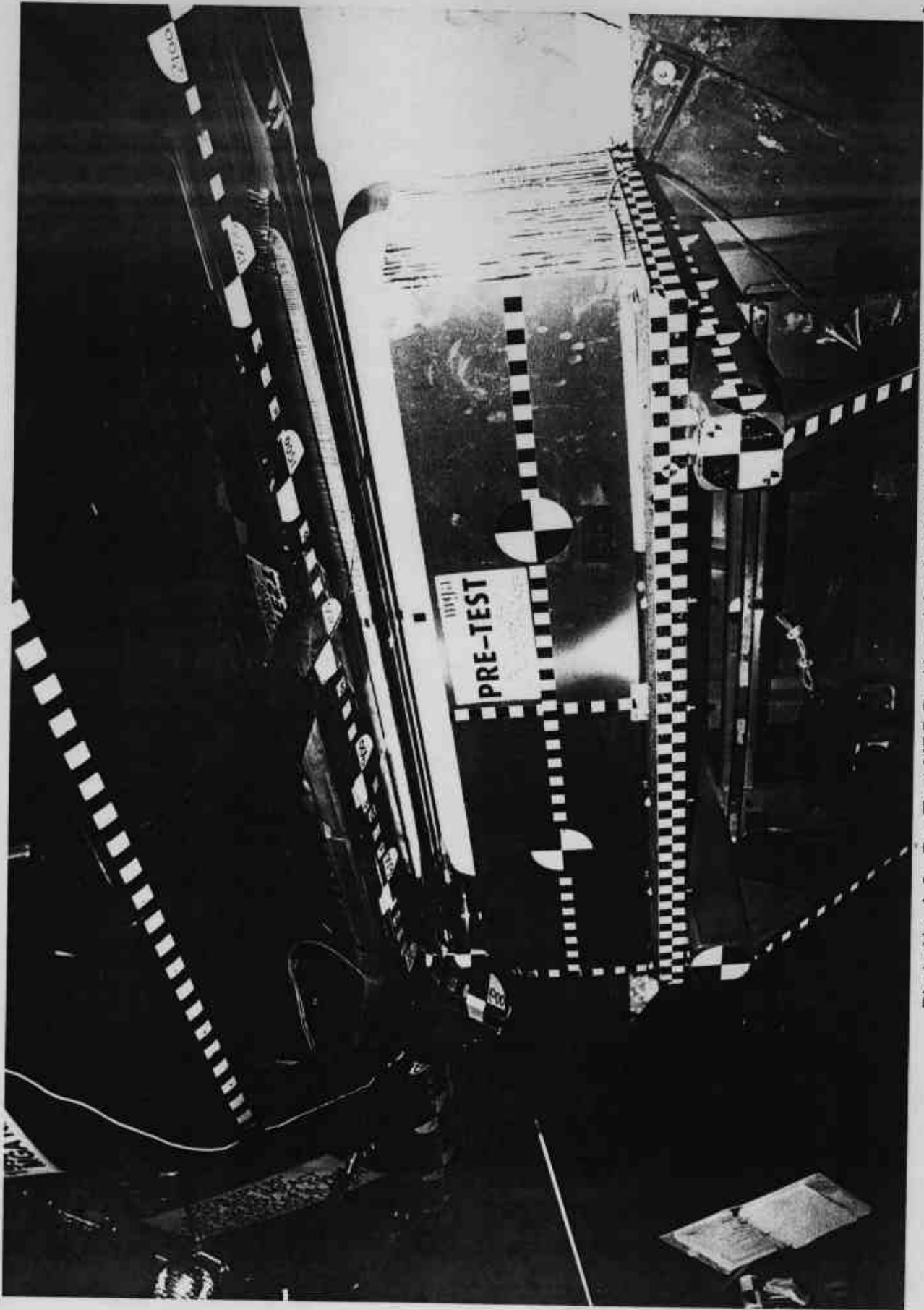


Photo No. A-9 - Pre-Test MDB Positioned Against Vehicle Overhead View

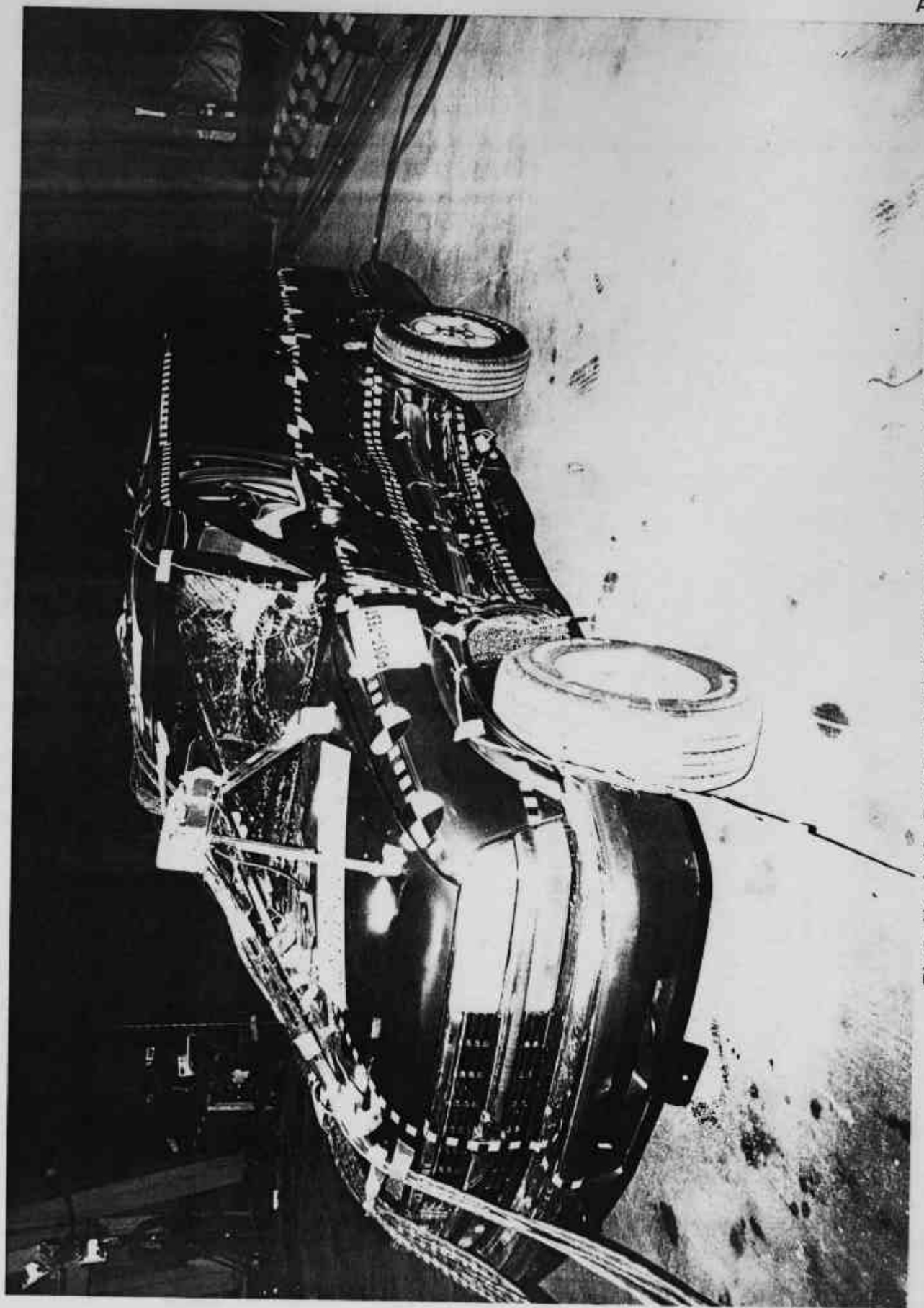


Photo No. A-10 - Post-Test MDB Positioned Against Vehicle (left side)



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

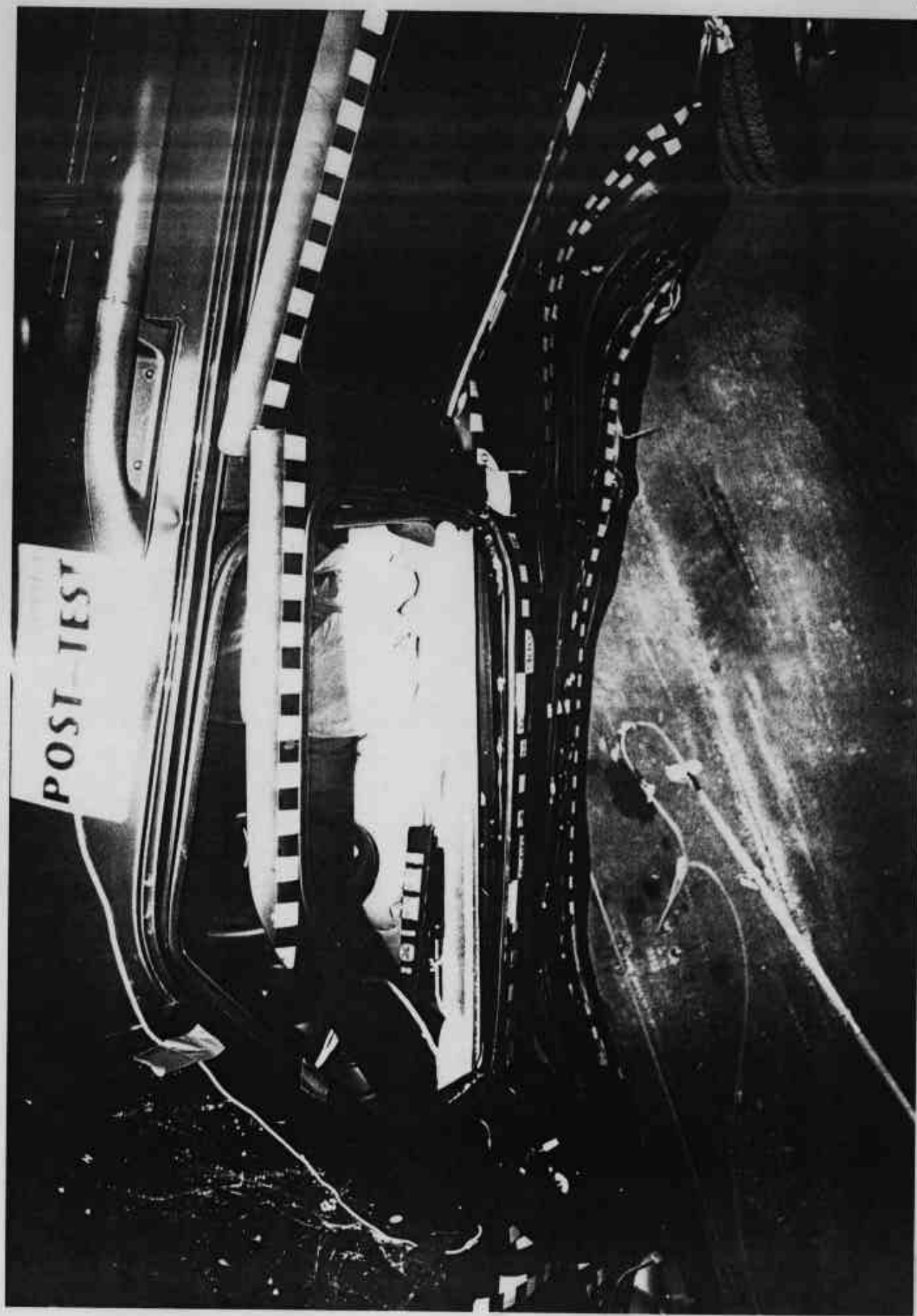


Photo No. A-12 - Post-Test MDB Positioned Against Vehicle Overhead View

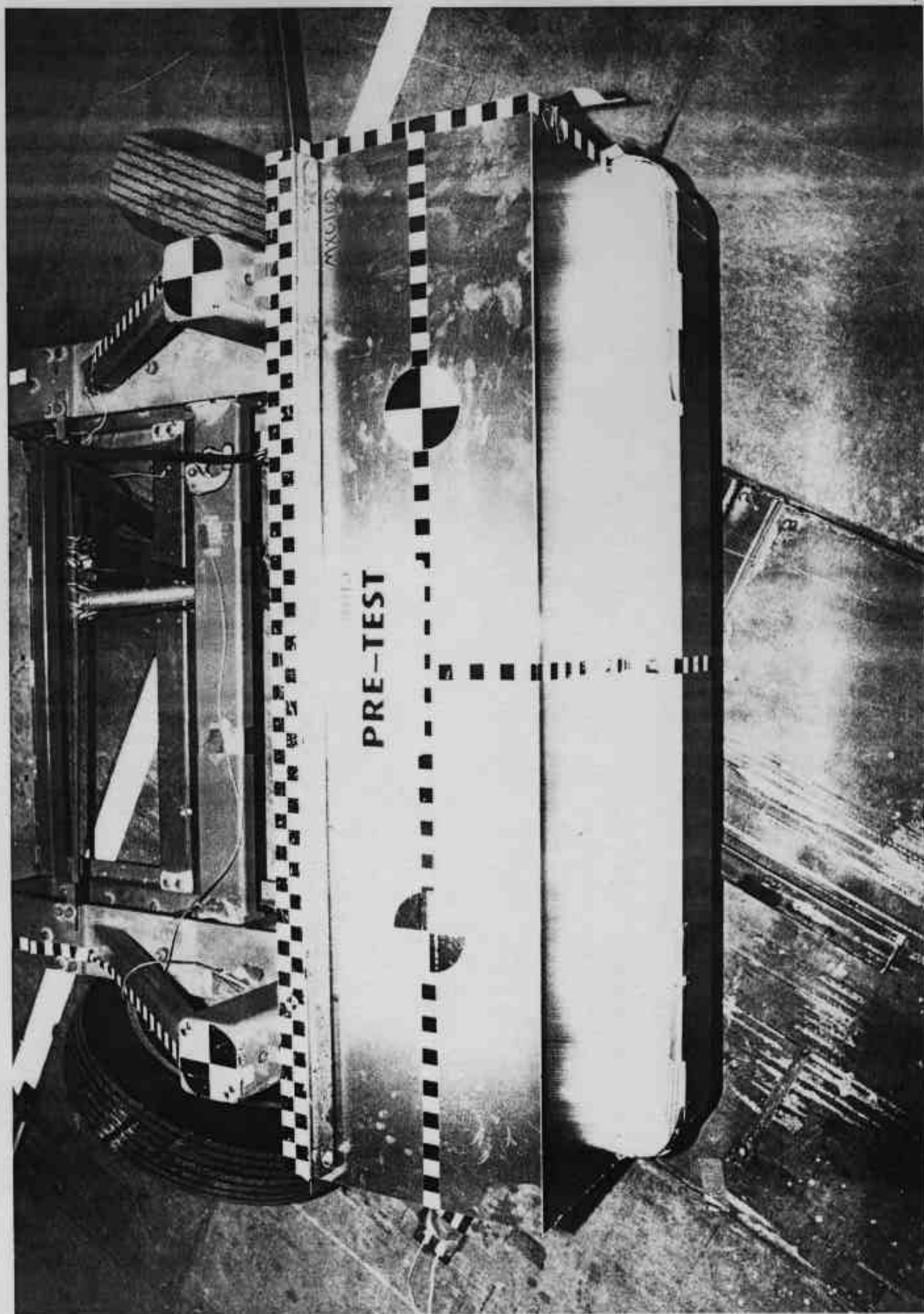


Photo No. A-13 - Pre-Test MDB Top View

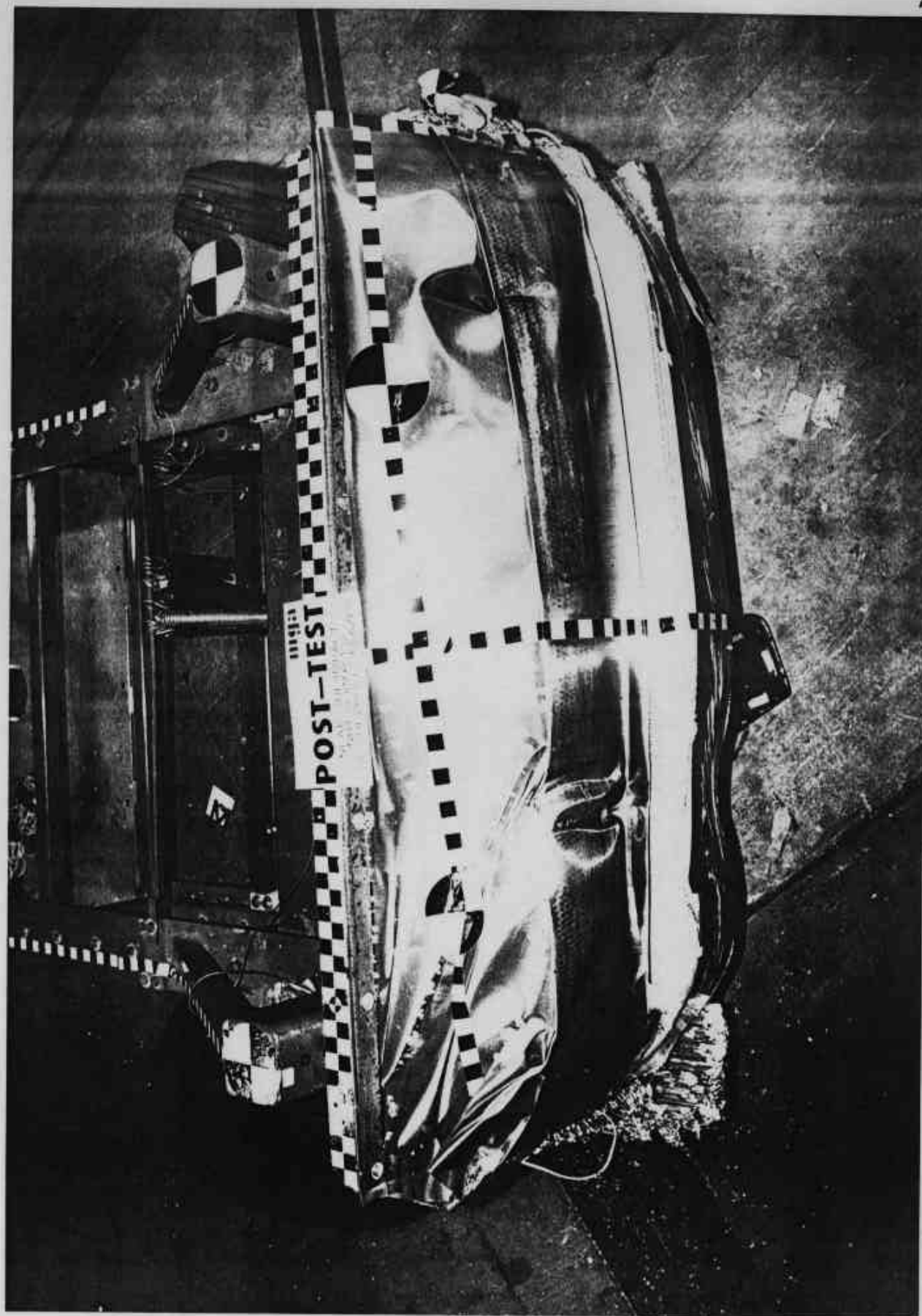


Photo No. A-14 - Post-Test MDB Top View

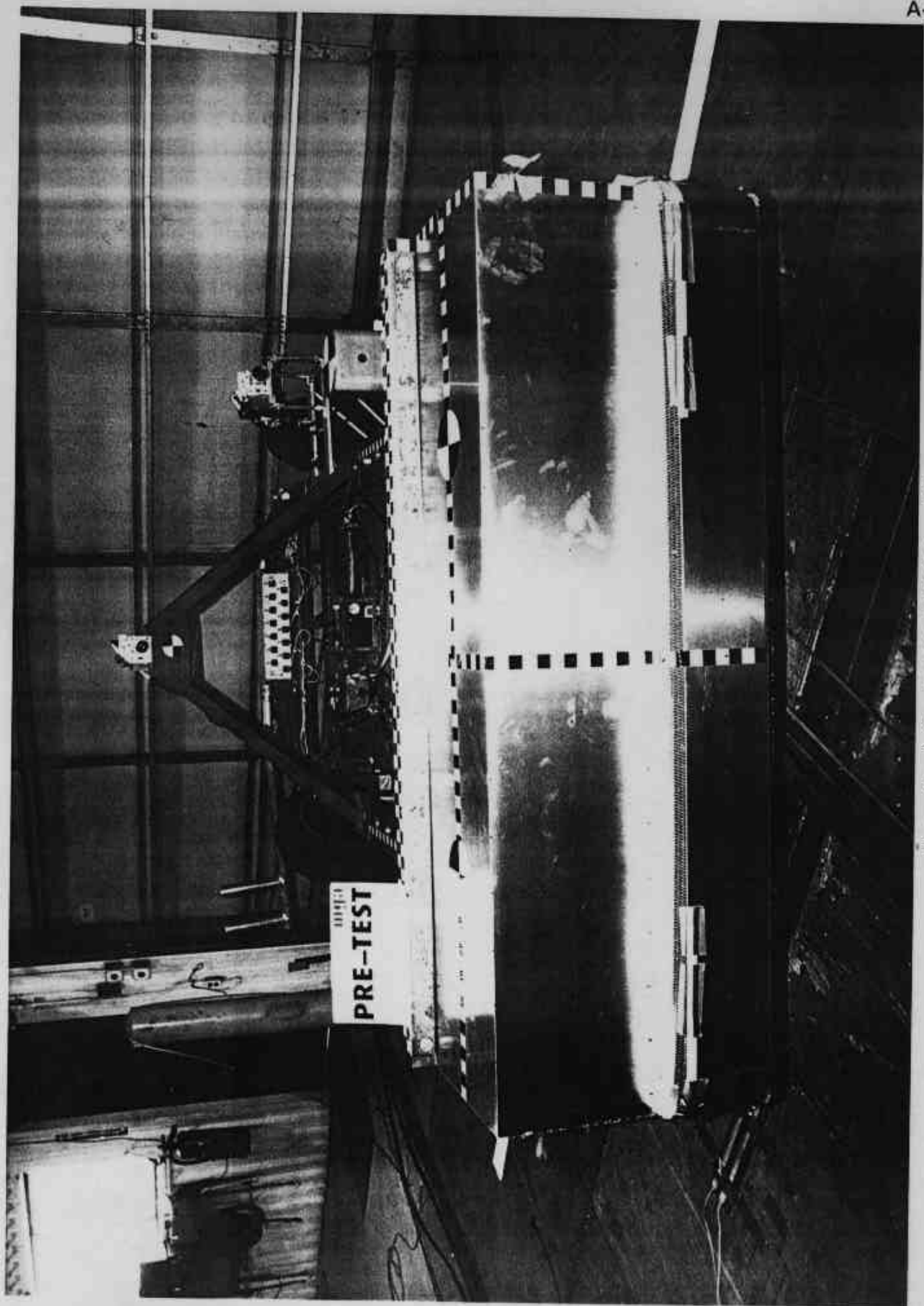


Photo No. A-15 - Pre-Test MDB Front View

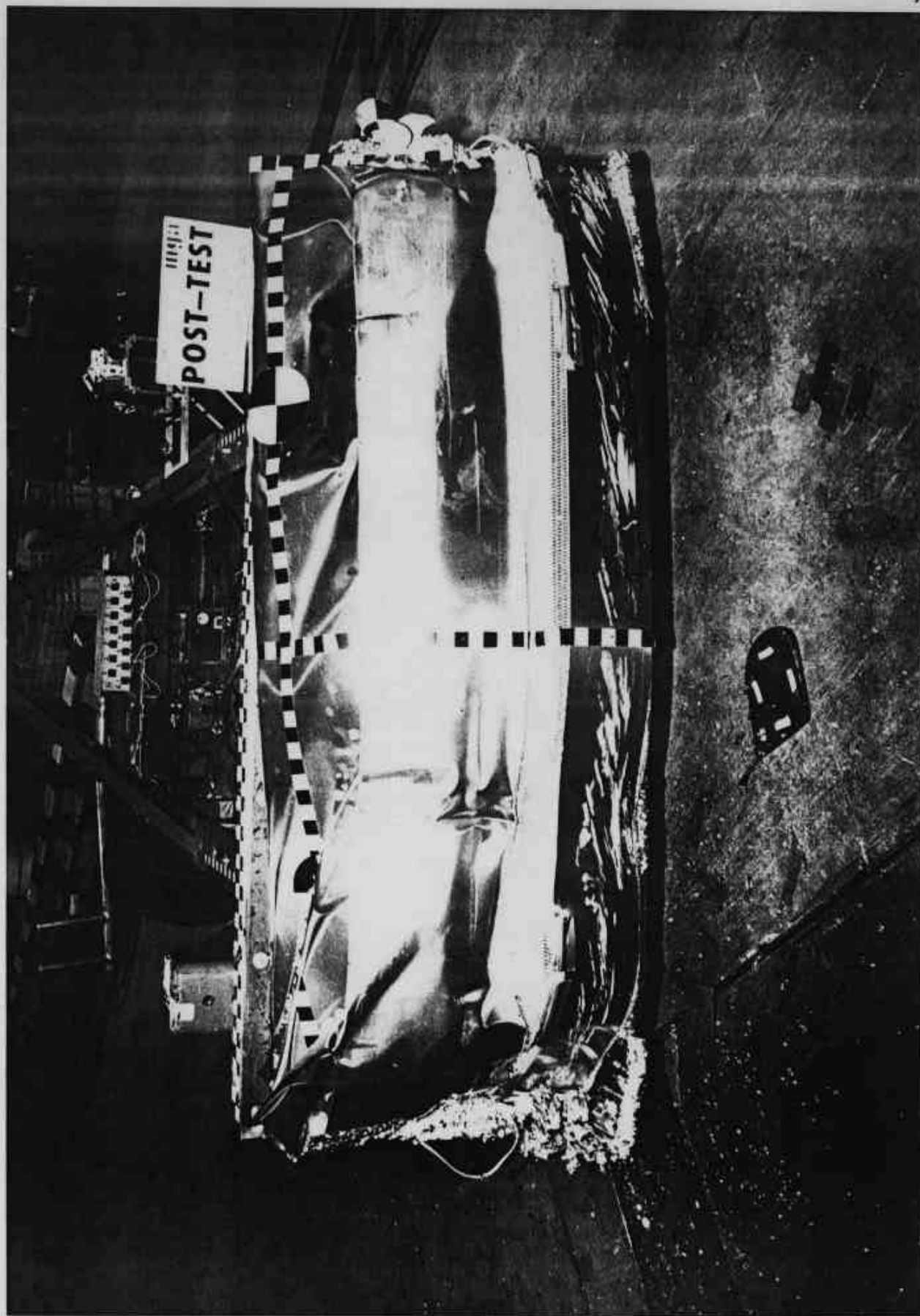


Photo No. A-16 - Post-Test MDB Front View

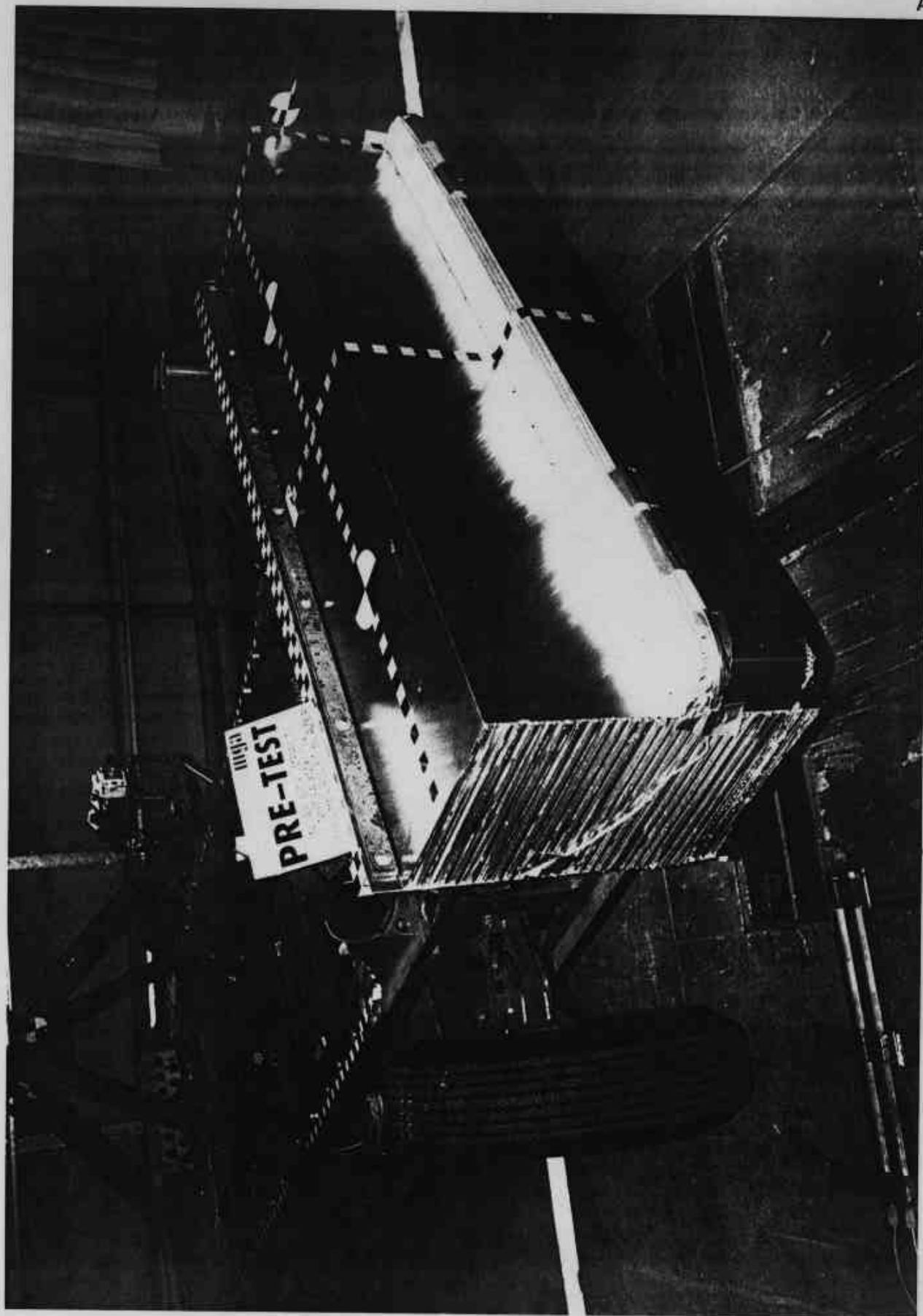


Photo No. A-17 - Pre-Test MDB Right Side View

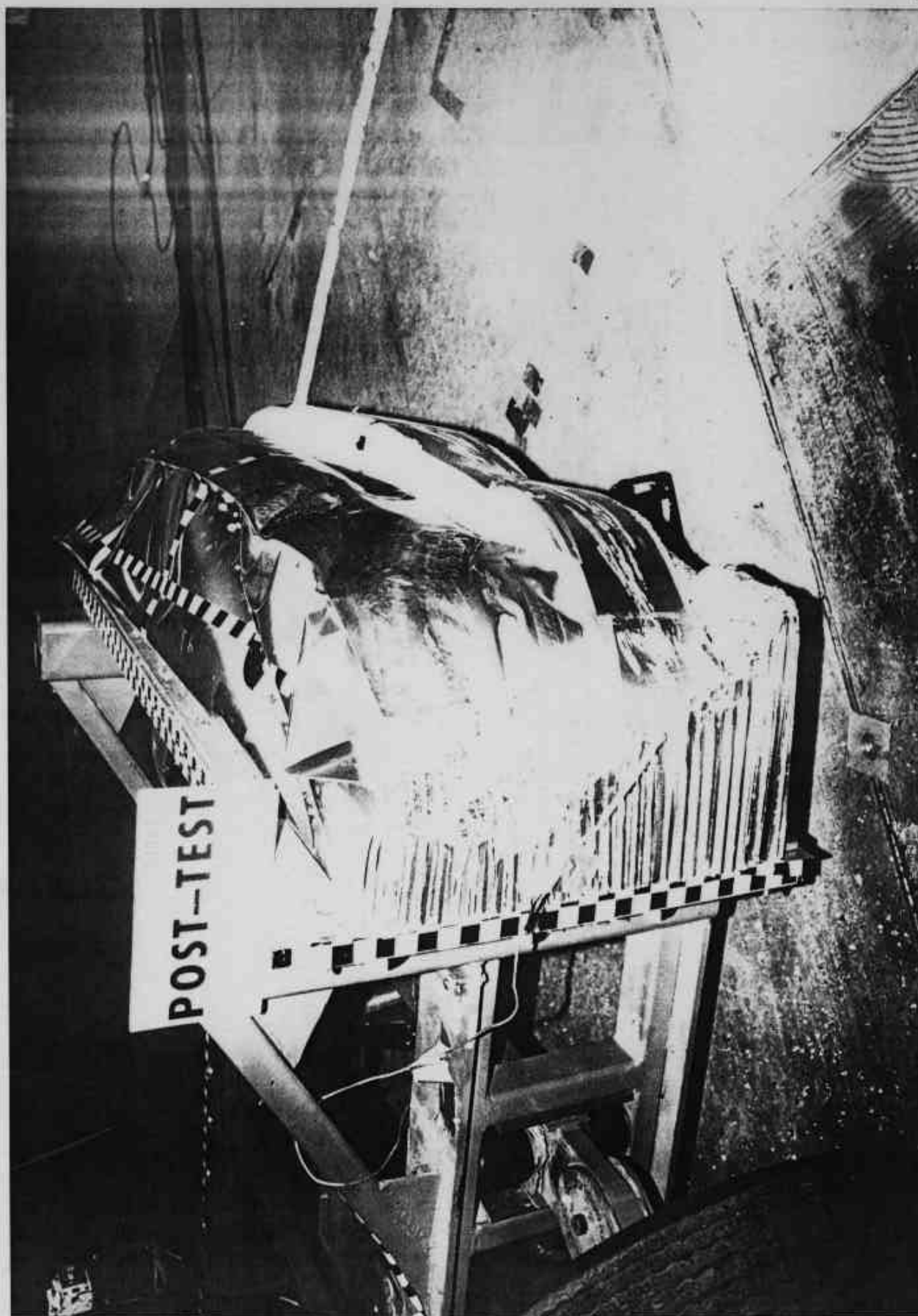


Photo No. A-18 - Post-Test MDB Right Side View

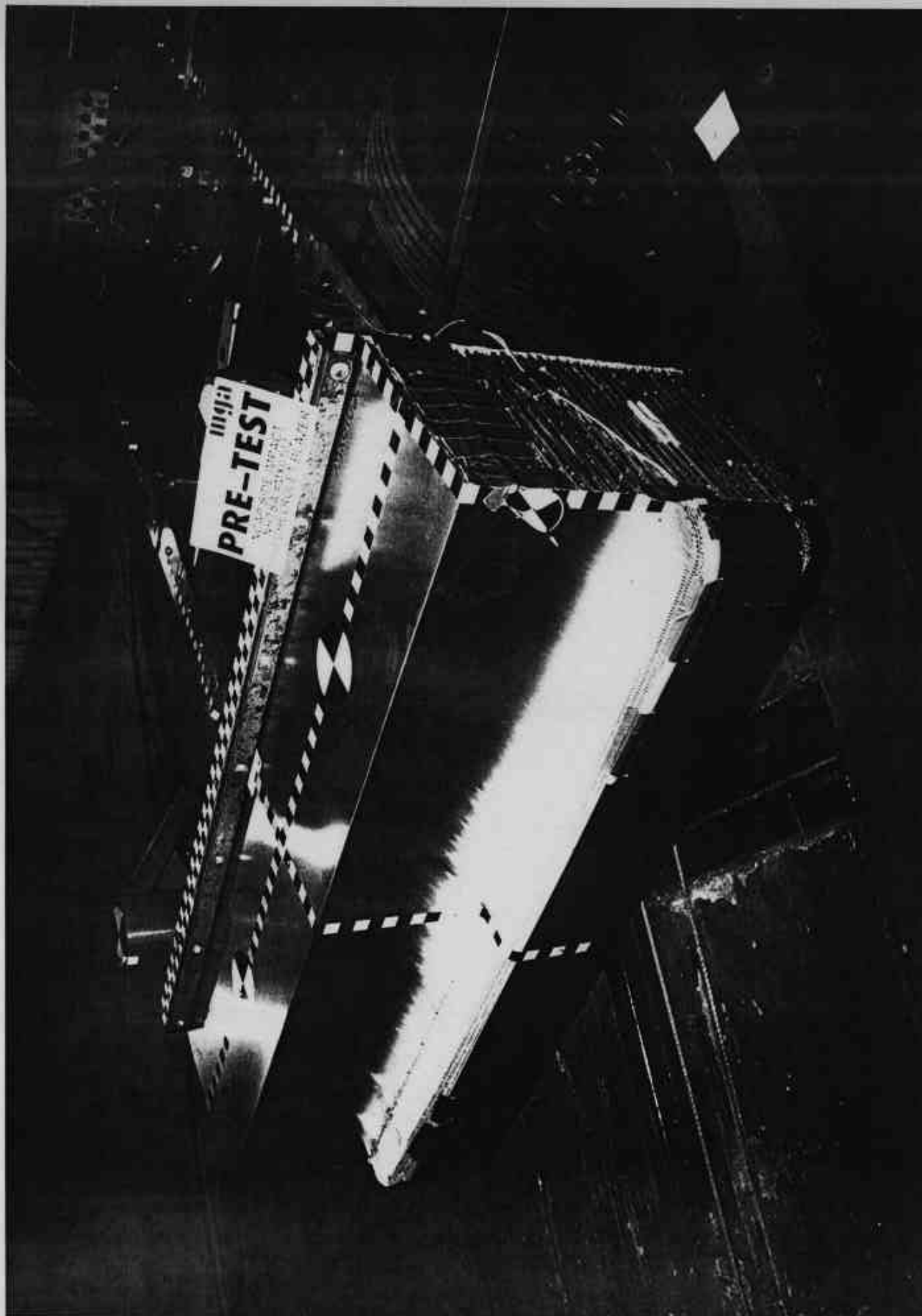


Photo No. A-19 - Pre-Test MDB Left Side View

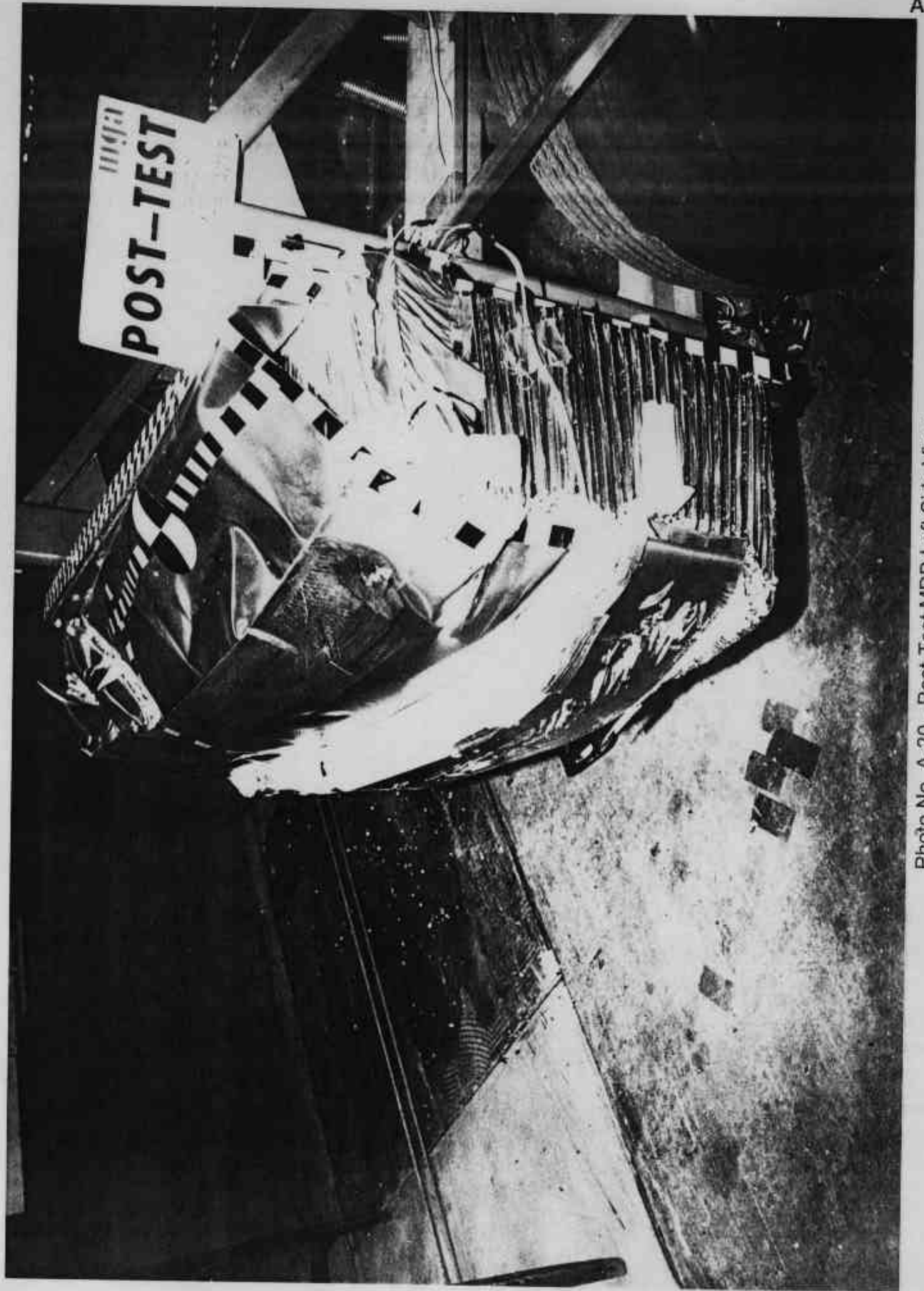


Photo No. A-20 - Post-Test MDB Left Side View



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



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

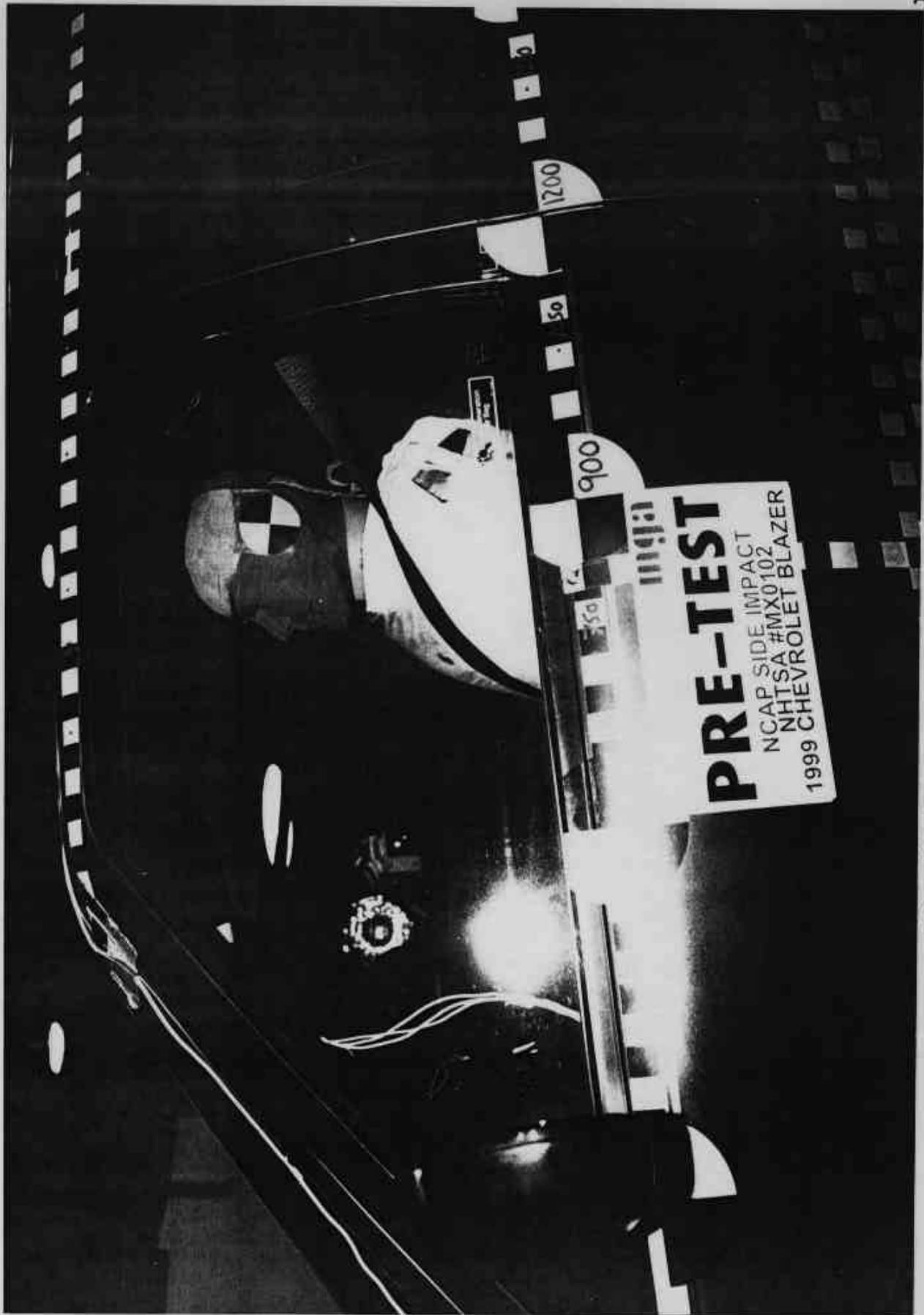


Photo No. A-23 - Pre-Test Driver Dummy Left Side View



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

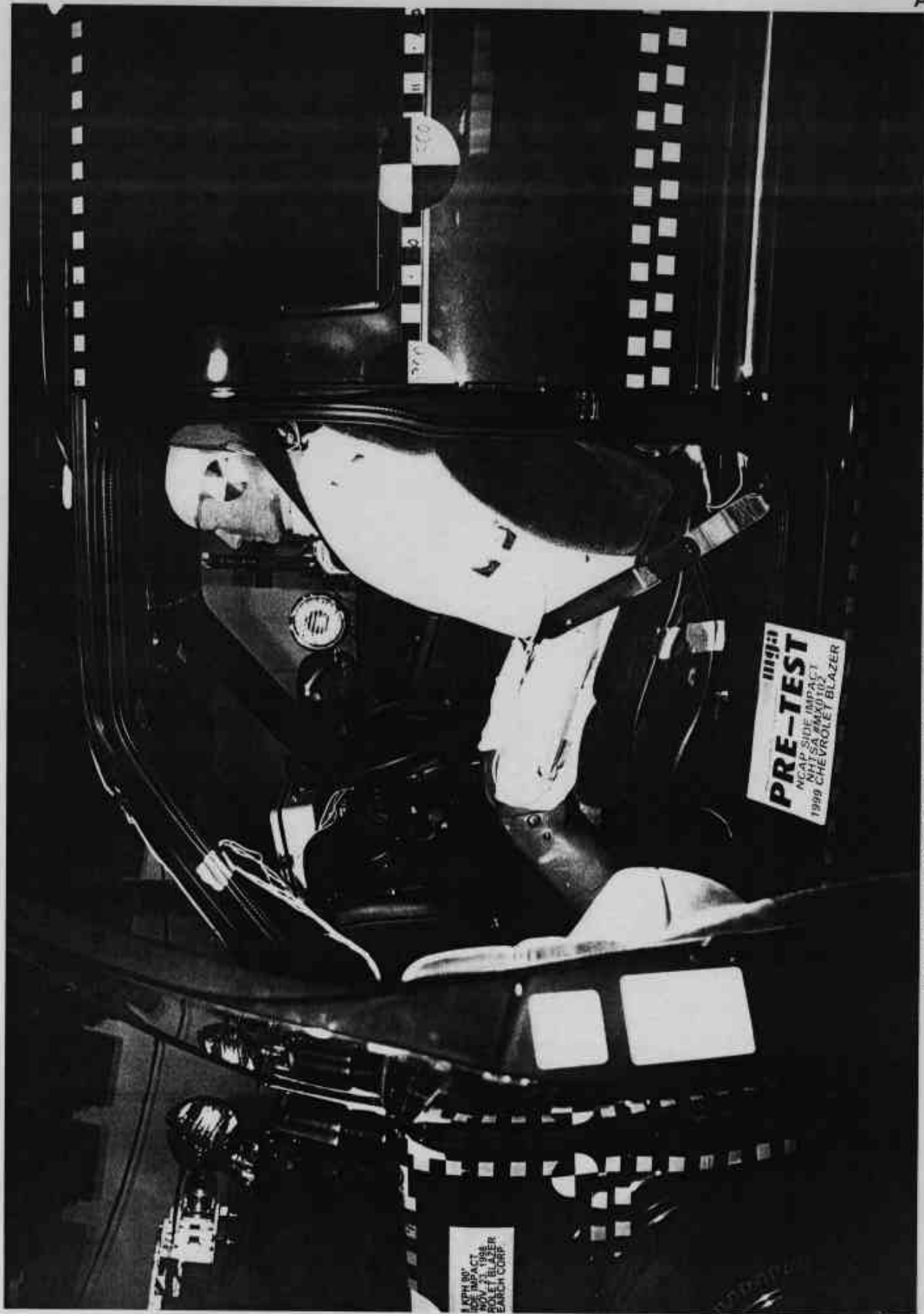


Photo No. A-25 - Pre-Test Driver Dummy Left Side View (Door Open)

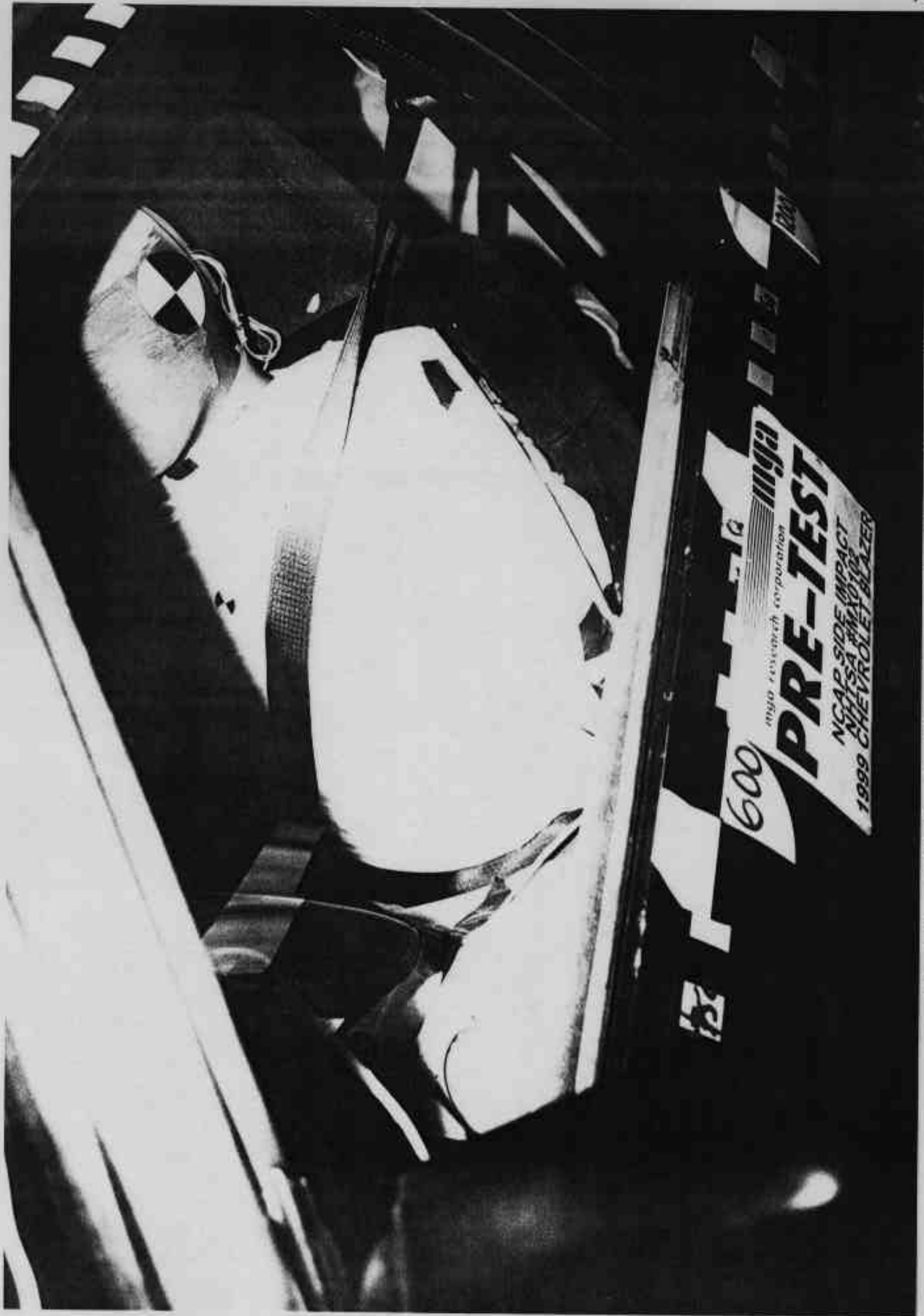


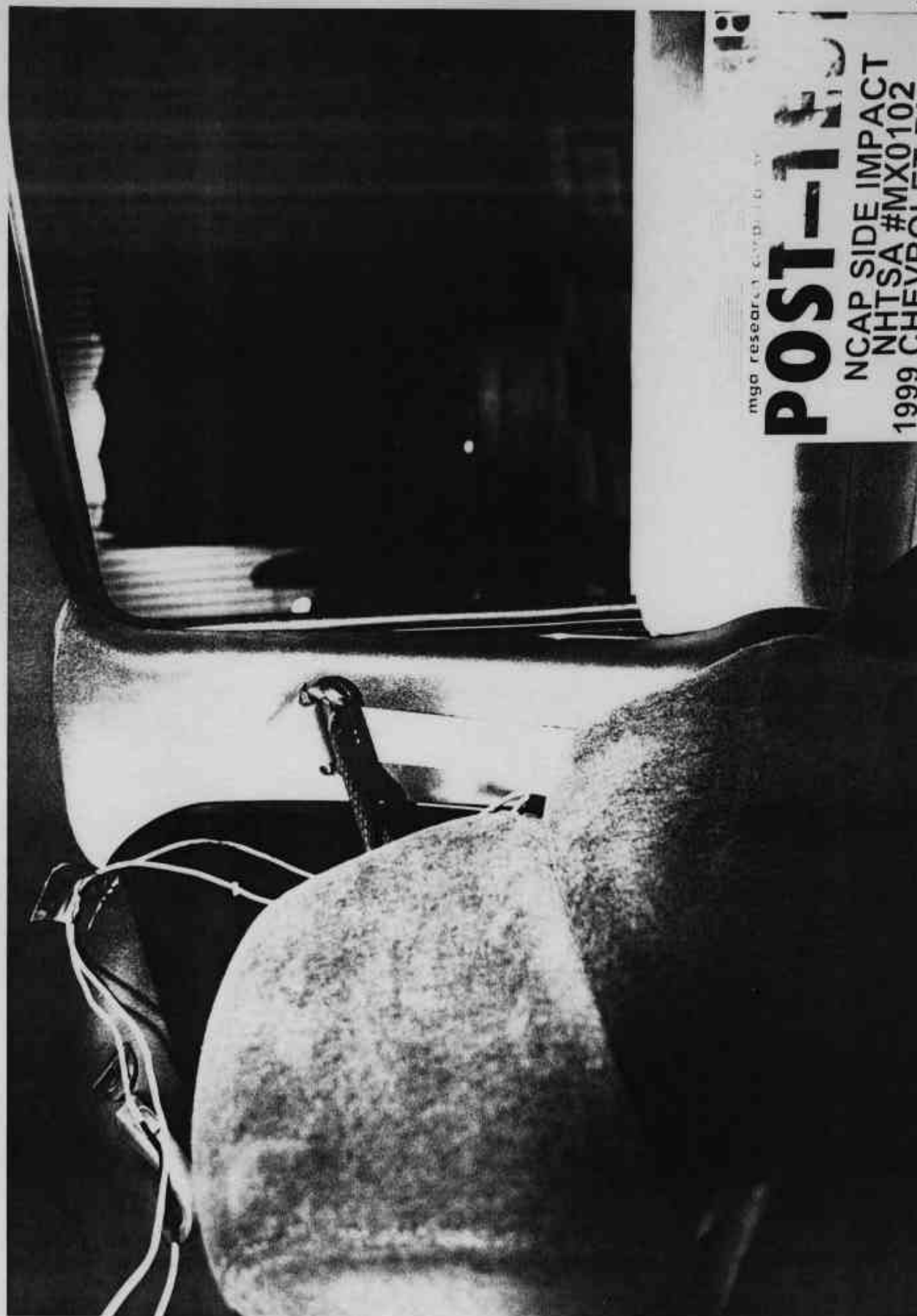
Photo No. A-26 - Pre-Test Driver Dummy Shoulder and Door Top View



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



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



mga research corp. 1000

POST-1

NCAP SIDE IMPACT
NHTSA #MX0102
1999 CHEVROLET

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

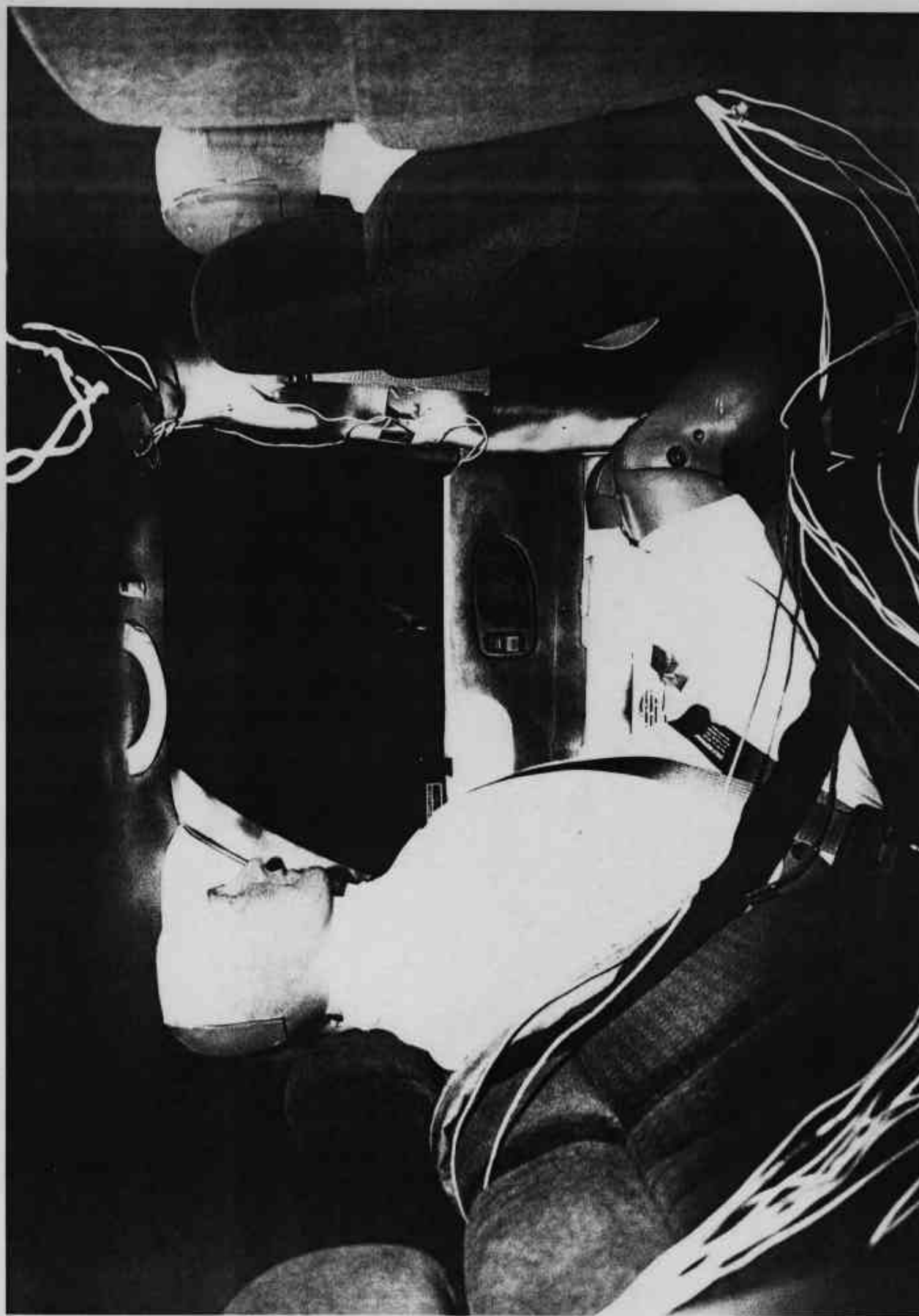


Photo No. A-30 - Pre-Test Passenger Dummy Right Side View

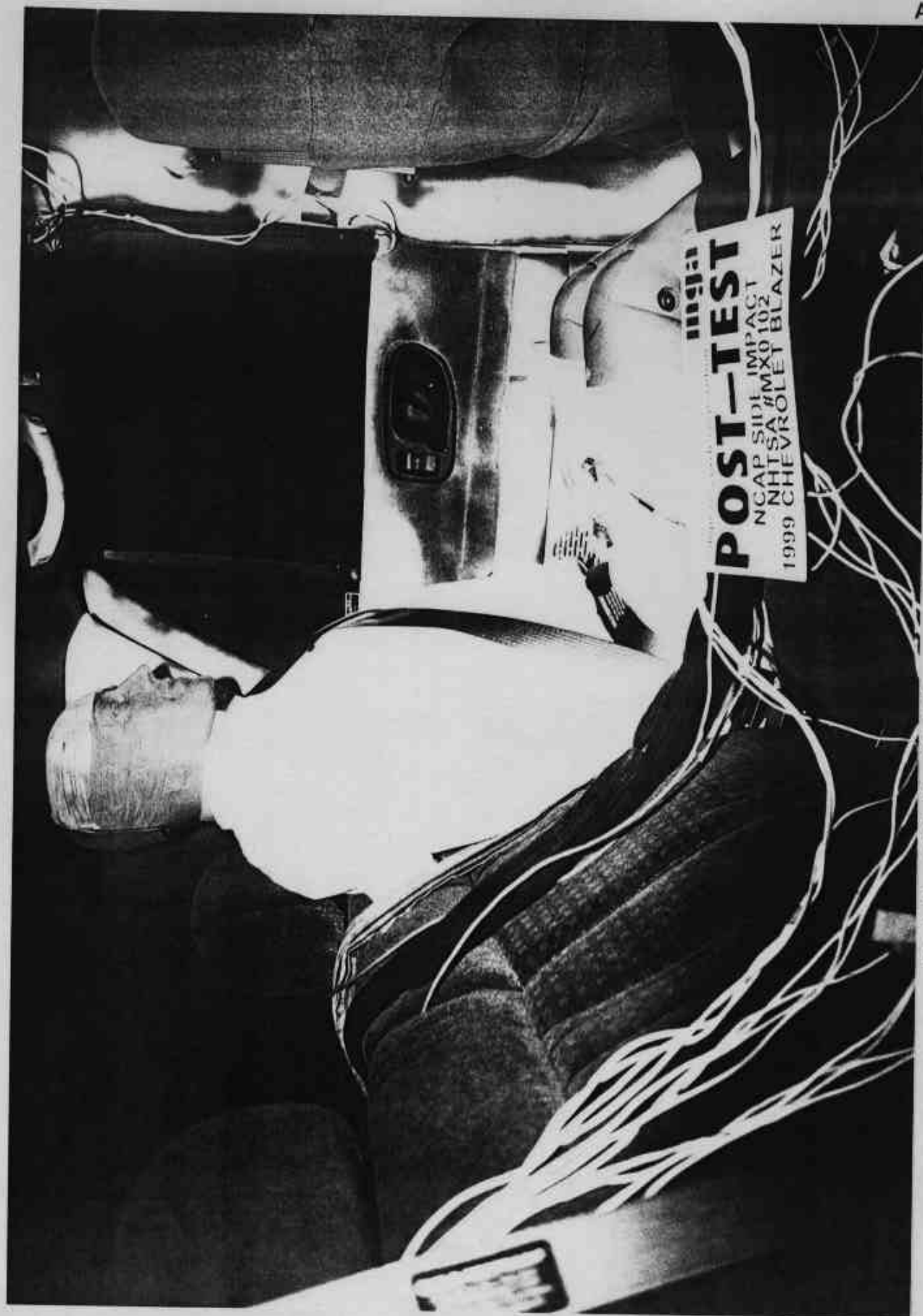


Photo No. A-31 - Post-Test Passenger Dummy Right Side View

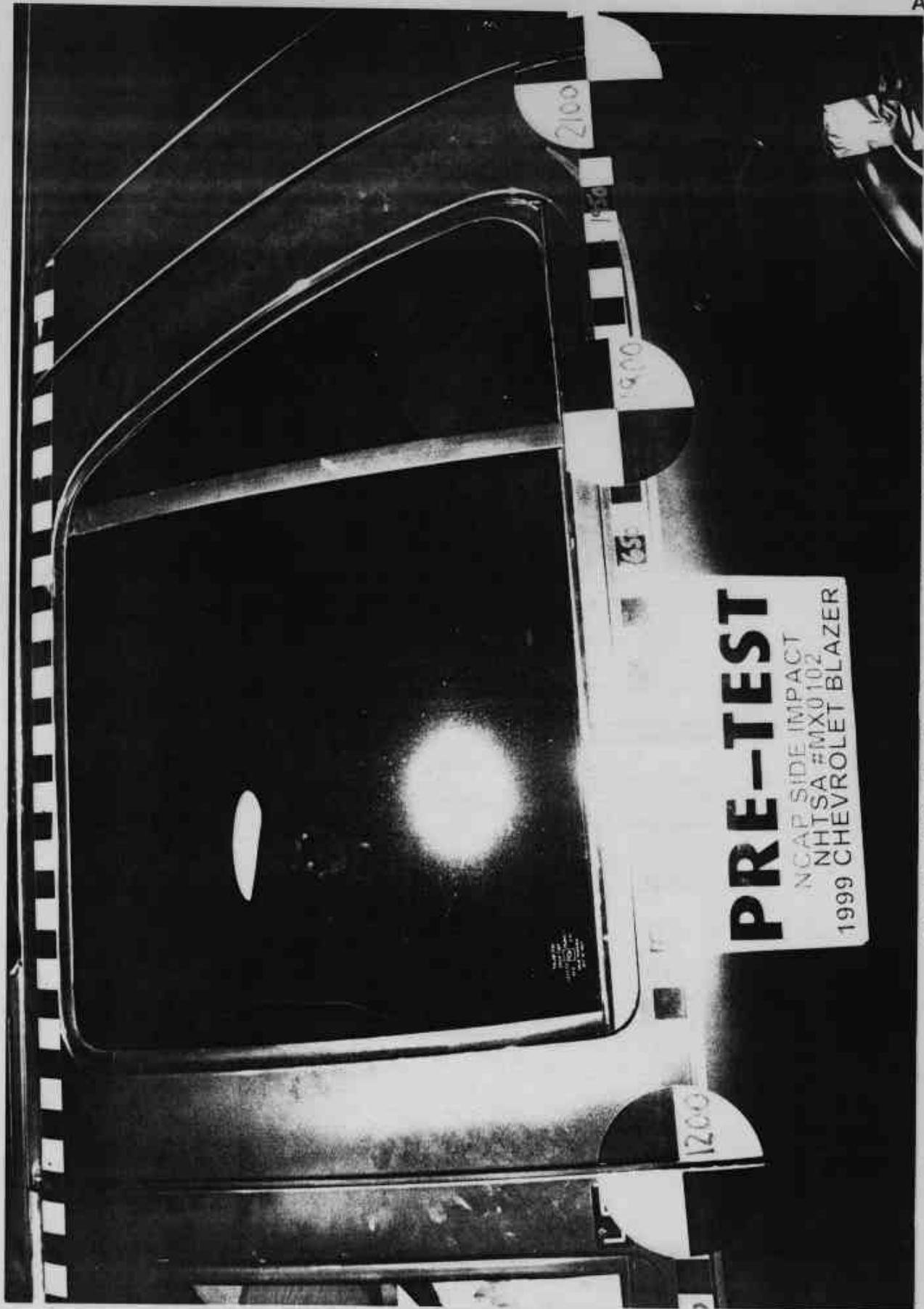


Photo No. A-32 - Pre-Test Passenger Dummy Left Side View

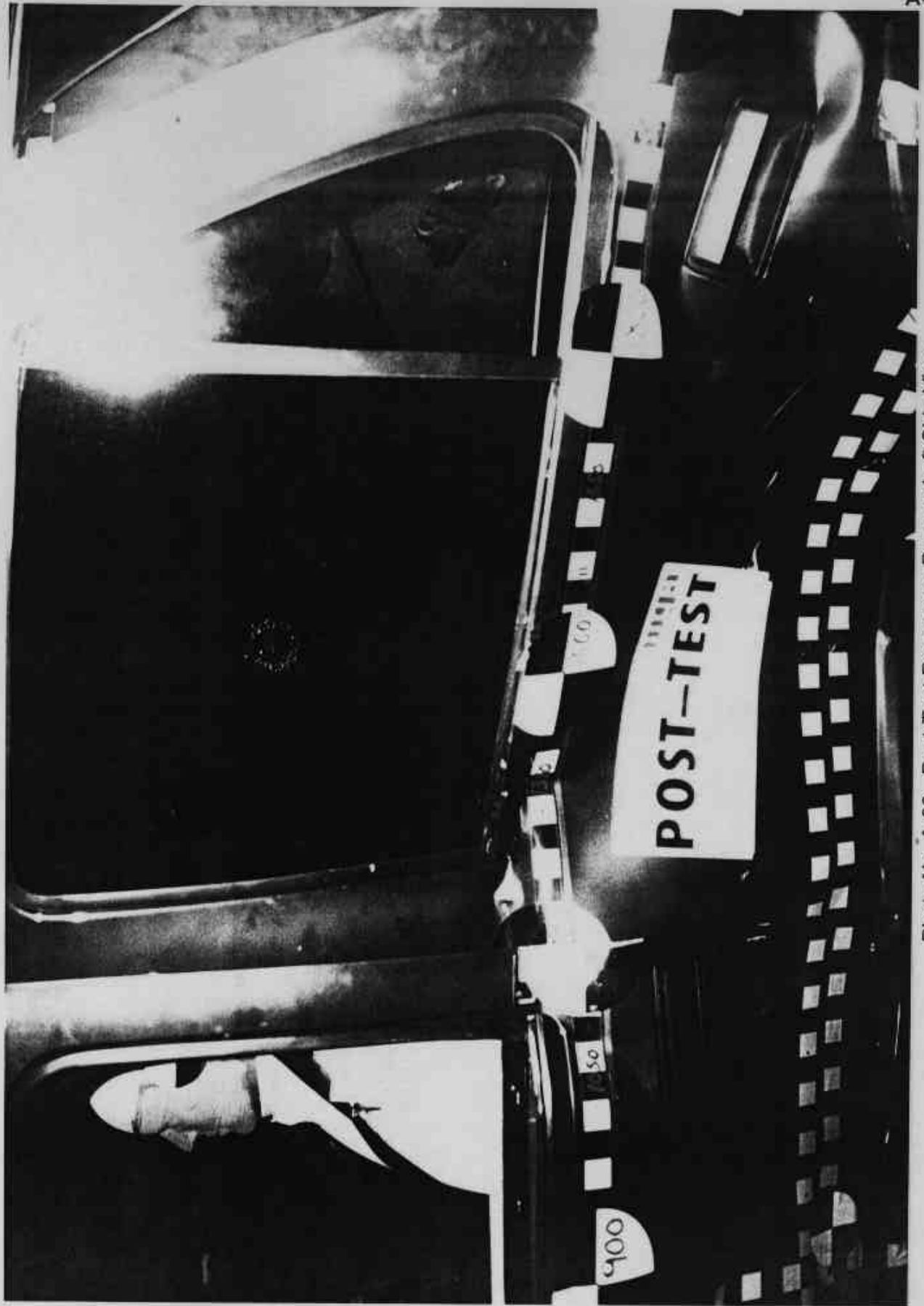


Photo No. A-33 - Post-Test Passenger Dummy Left Side View

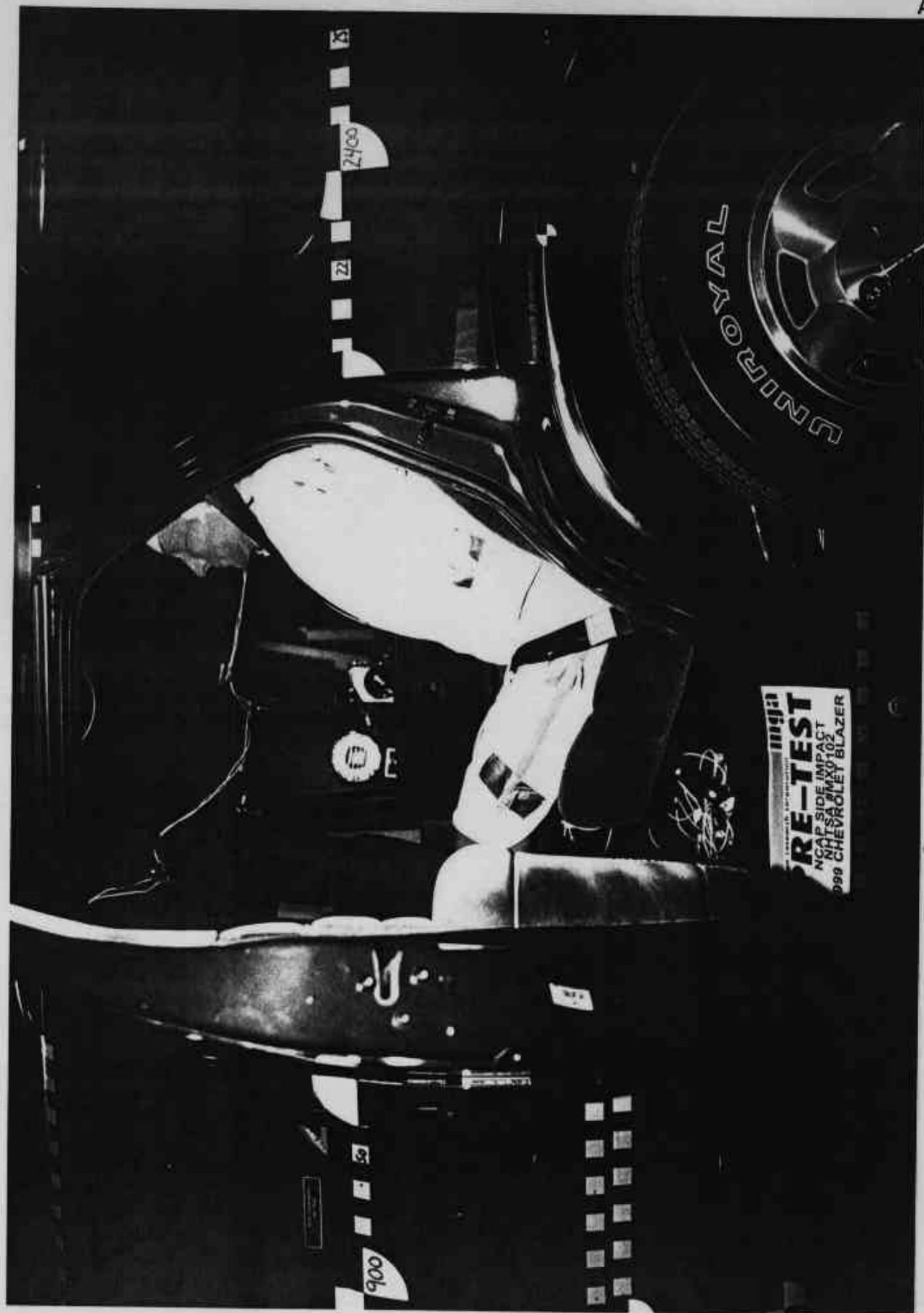


Photo No. A-34 - Pre-Test Passenger Dummy Left Side View (Door Open)



Photo No. A-35 - Pre-Test Passenger Dummy Shoulder and Door Top View



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



Photo No. A-37 - Post-Test Passenger Dummy Contact



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

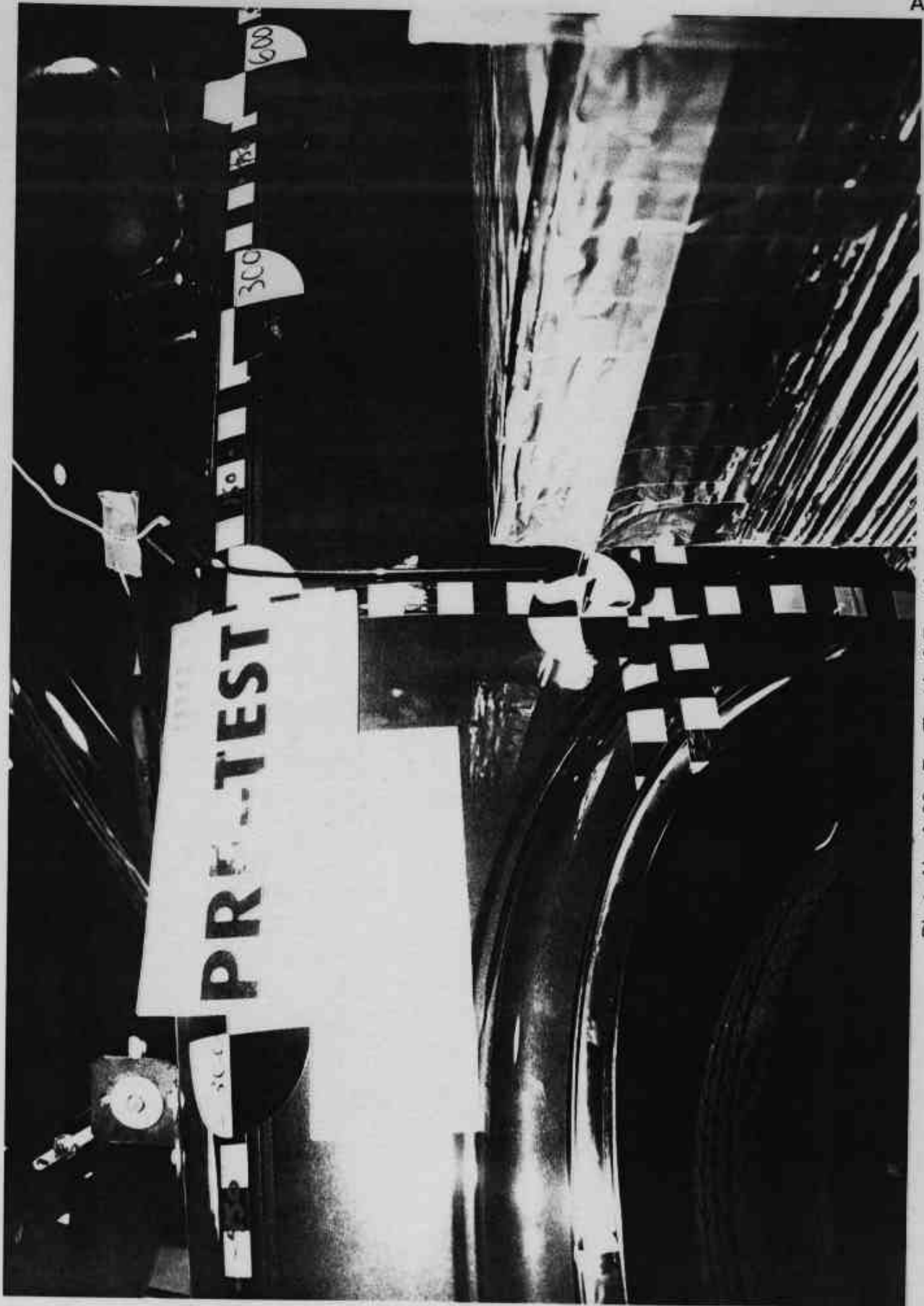


Photo No. A-39 - Pre-Test Left Front Impact Point on Vehicle

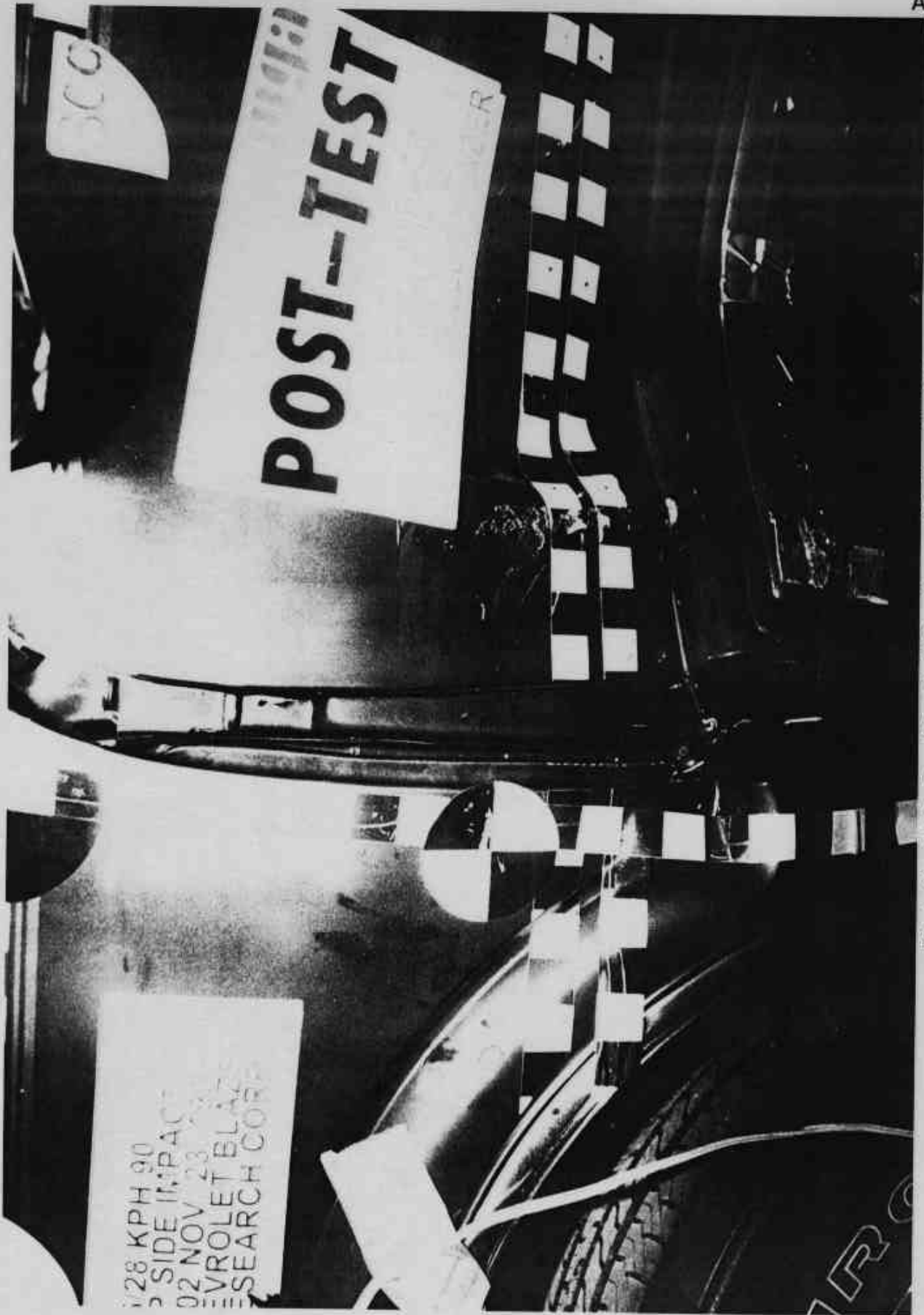


Photo No. A-40 - Post-Test Left Front Impact Point on Vehicle

A-41

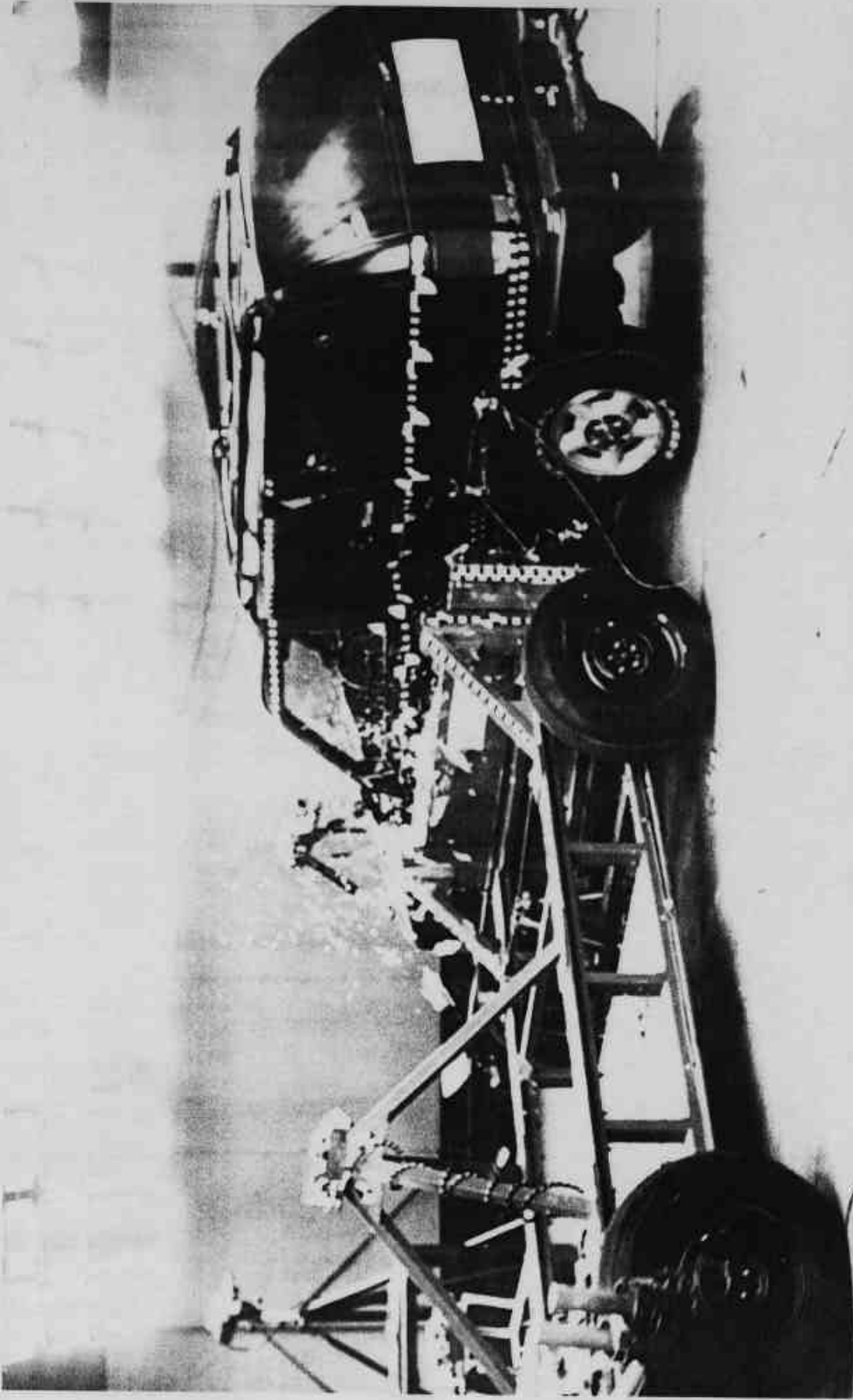


Photo No. A-41 - Impact



MFD BY GENERAL MOTORS CORP 10/98

GVWR

GAWR FRT

GAWR RR

2427KG(5350LB) 1270KG(2800LB) 1225KG(2700LB)

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR
VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF
MANUFACTURE SHOWN ABOVE.

1GNDT13W0X2108056

TYPE: M.P.V.

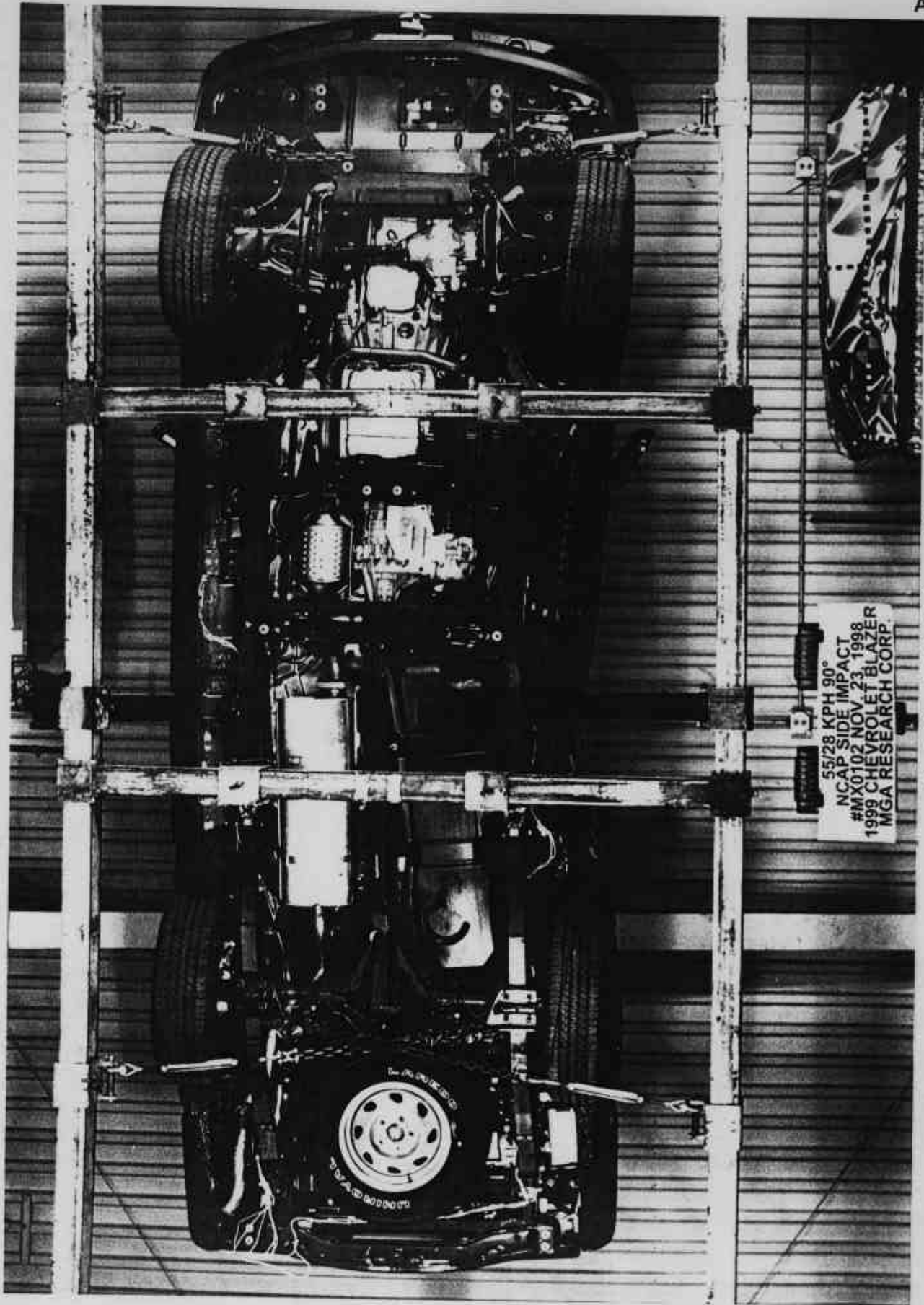
MODEL: T10506 PAYLOAD = 483KG(1065LB)

TPAB	TIRE SIZE	SPEED RTG	RIM	COLD TIRE PRESSURE
FRT	P235/70R15	S	15X7J	220KPA(32PSI)
RR	P235/70R15	S	15X7J	220KPA(32PSI)
SPA	P235/70R15	S	15X7J	240KPA(35PSI)

SEE OWNER'S MANUAL FOR MORE INFORMATION.



Photo No. A-42 - Vehicle Certification Label and Tire Placard



55/28 KPH 90°
NCAAP SIDE IMPACT
#MX0102 NOV. 23, 1998
1999 CHEVROLET BLAZER
MGA RESEARCH CORP.

Photo No. A-43 - Rollover 90°

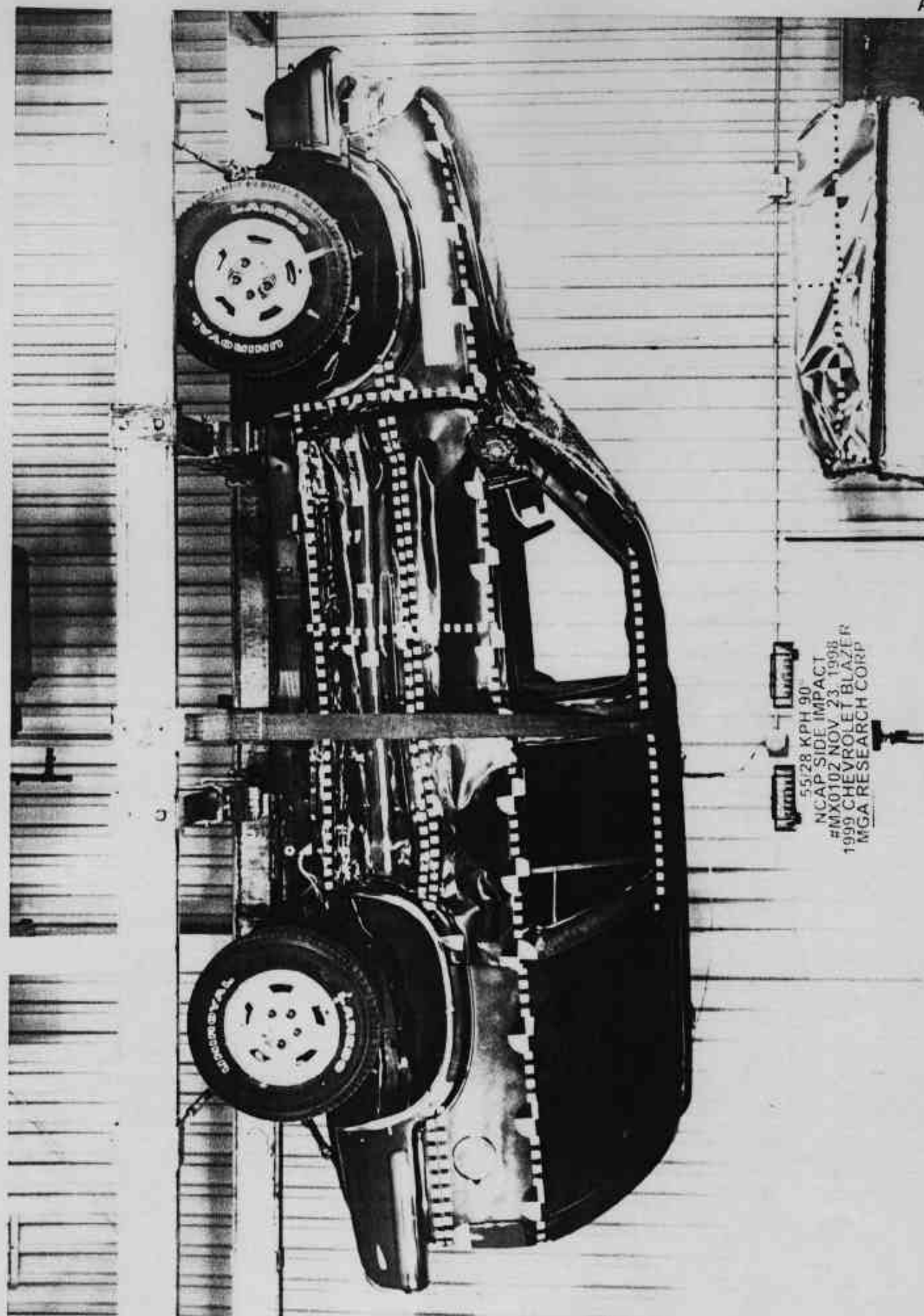
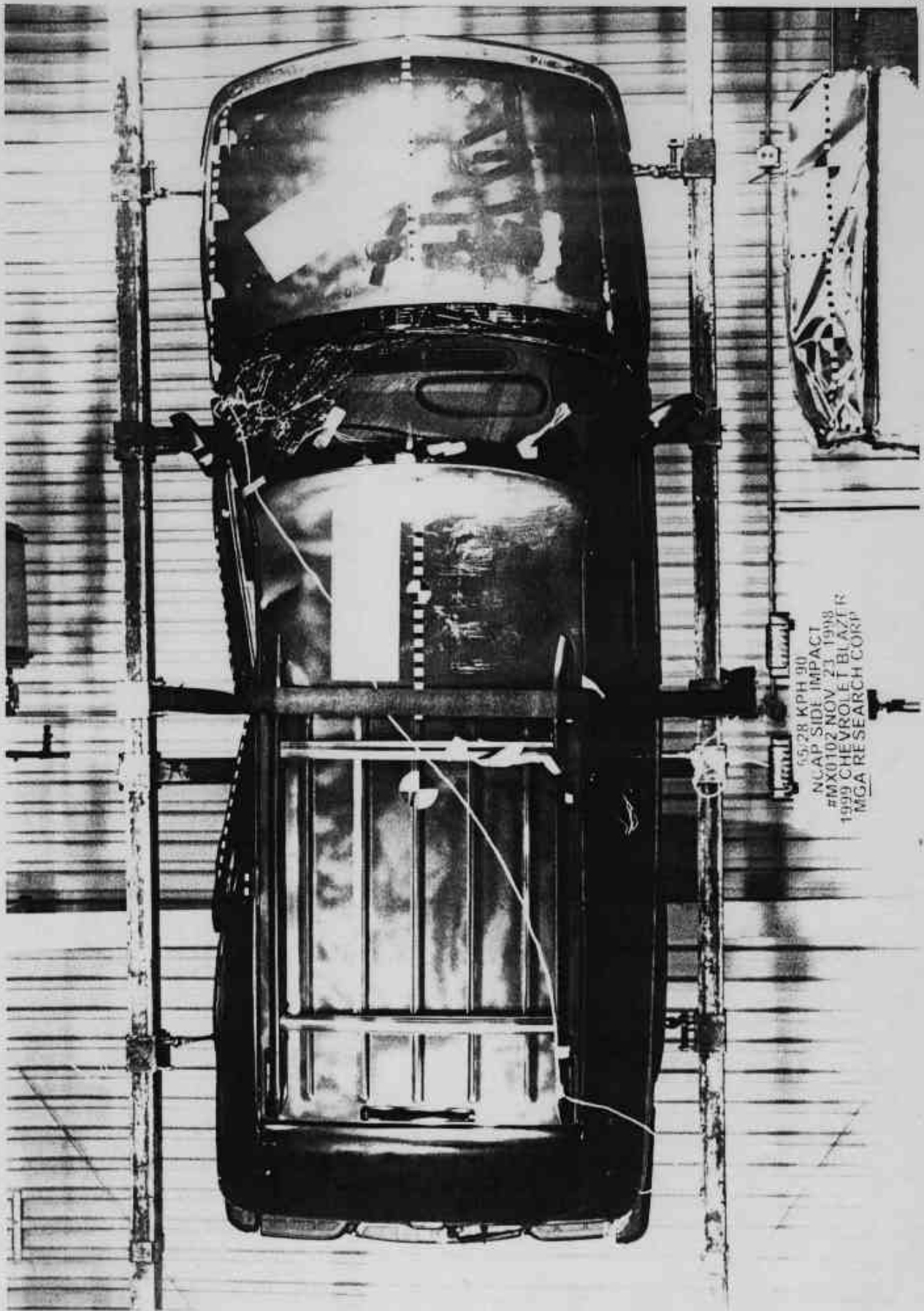
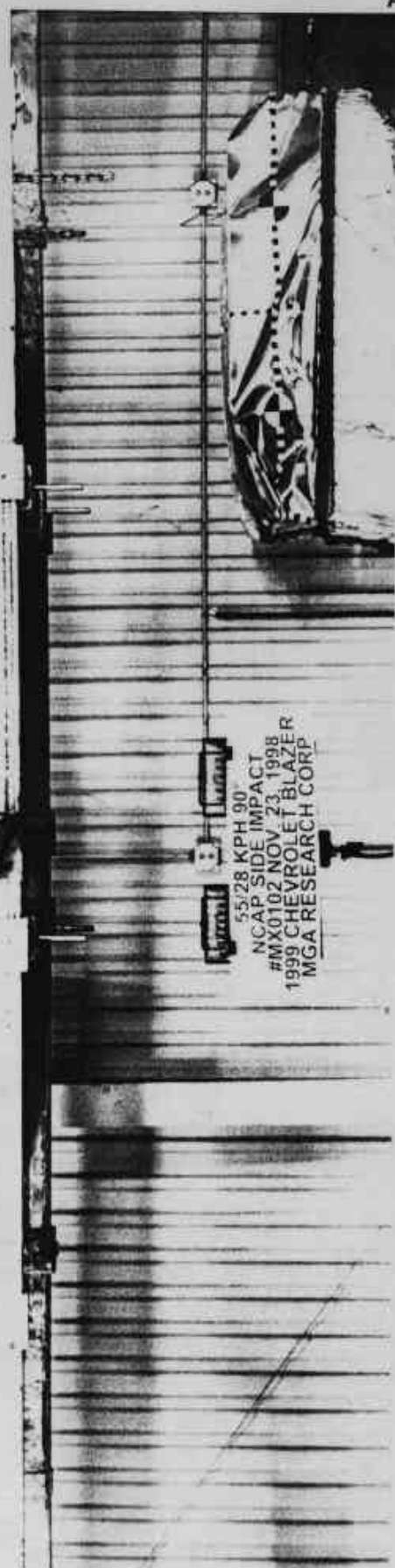
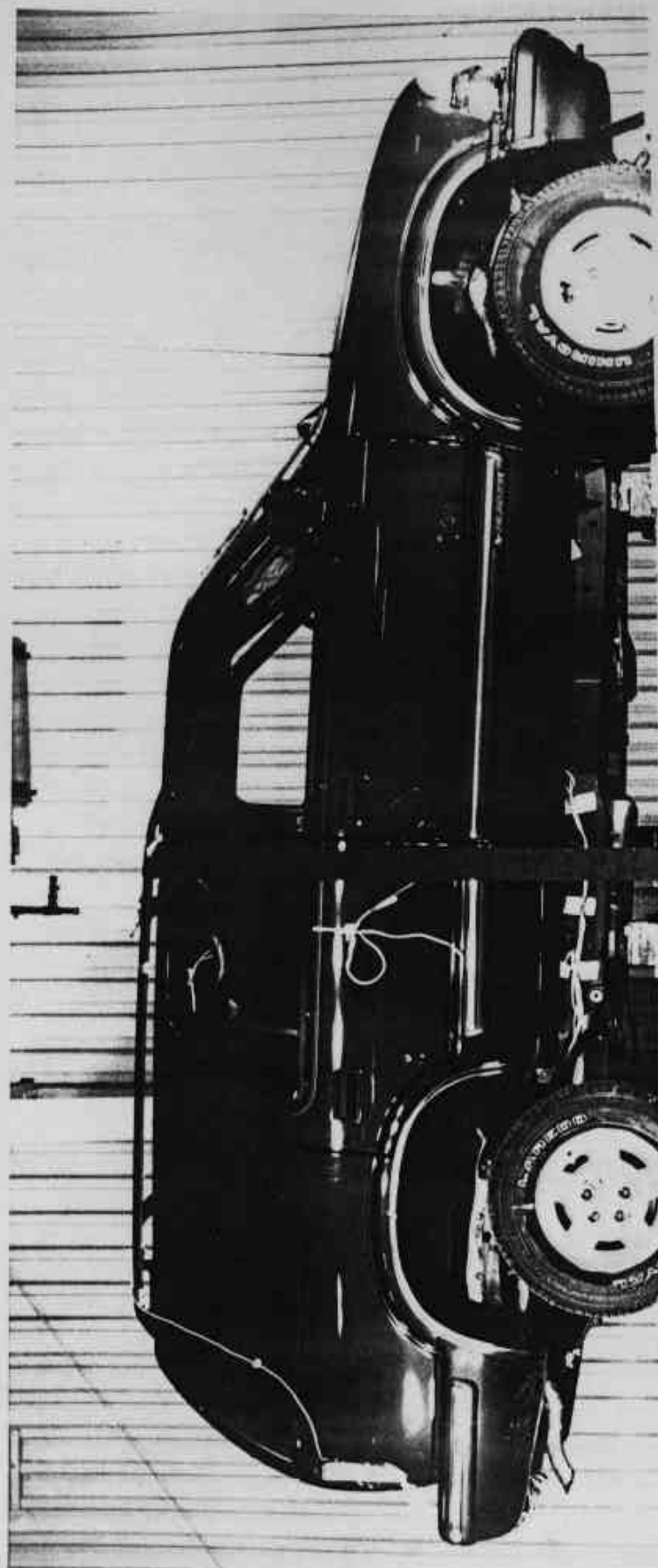


Photo No. A-44 - Rollover 180°



55.28 KPH 90°
NCAP SIDE IMPACT
#MX0102 NOV. 23, 1998
1999 CHEVROLET BLAZER
MGA RESEARCH CORP

Photo No. A-45 - Rollover 270°



55/28 KPH 90
NCAP SIDE IMPACT
#MX0102 NOV 23, 1998
1999 CHEVROLET BLAZER
MGA RESEARCH CORP

Photo No. A-46 - Rollover 360°

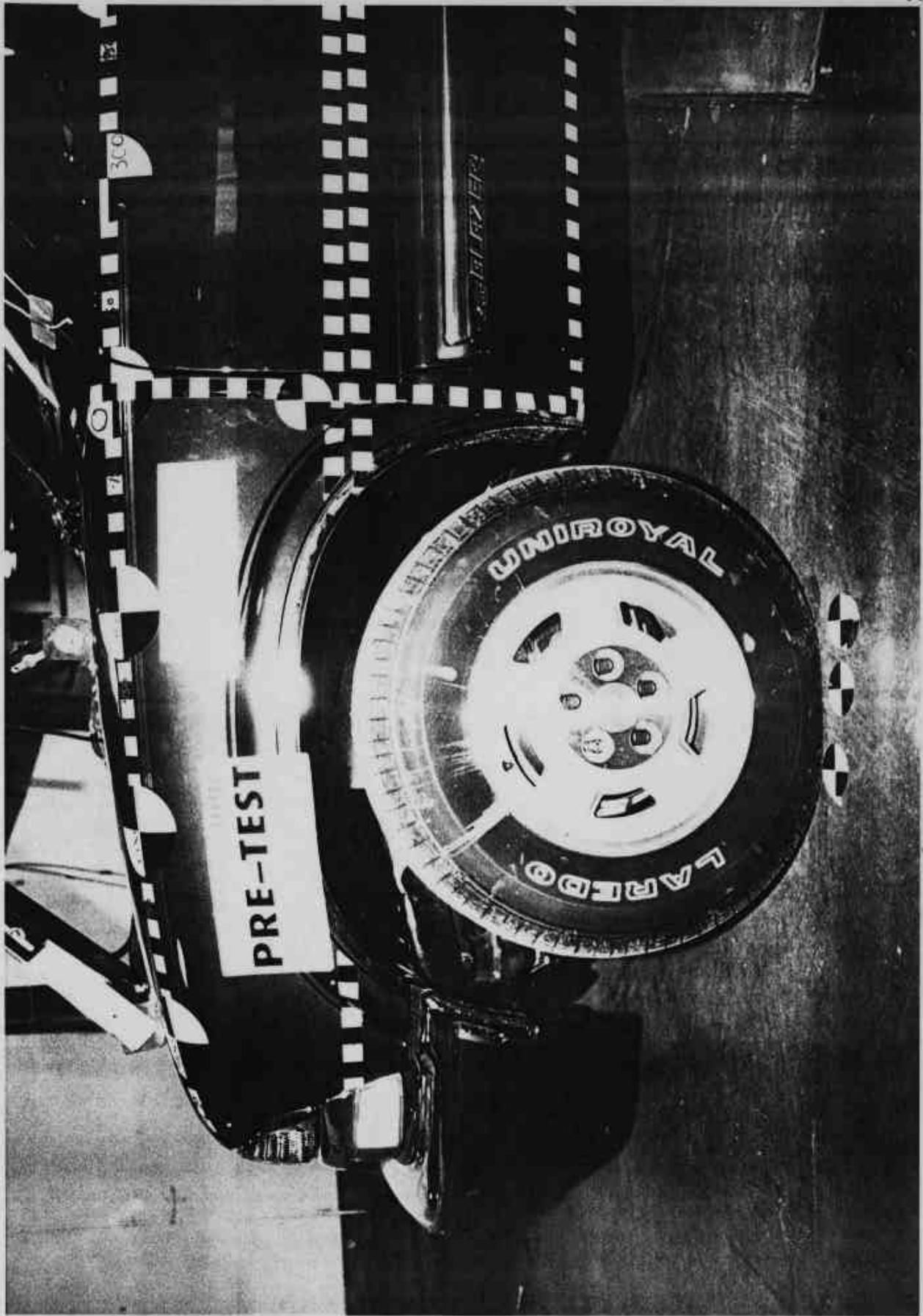


Photo No. A-47 - Left Front Attitude Point

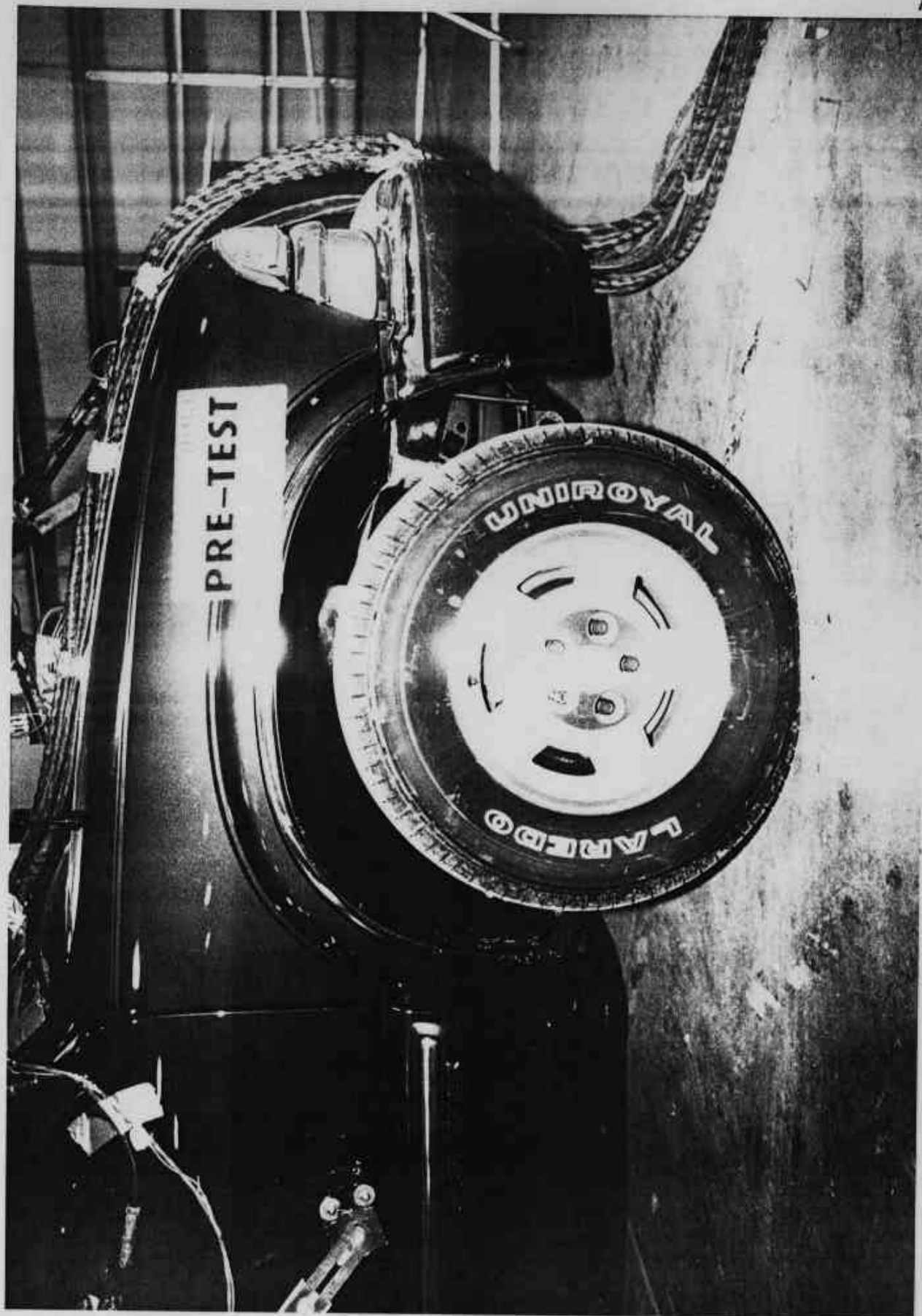


Photo No. A-48 - Right Front Attitude Point

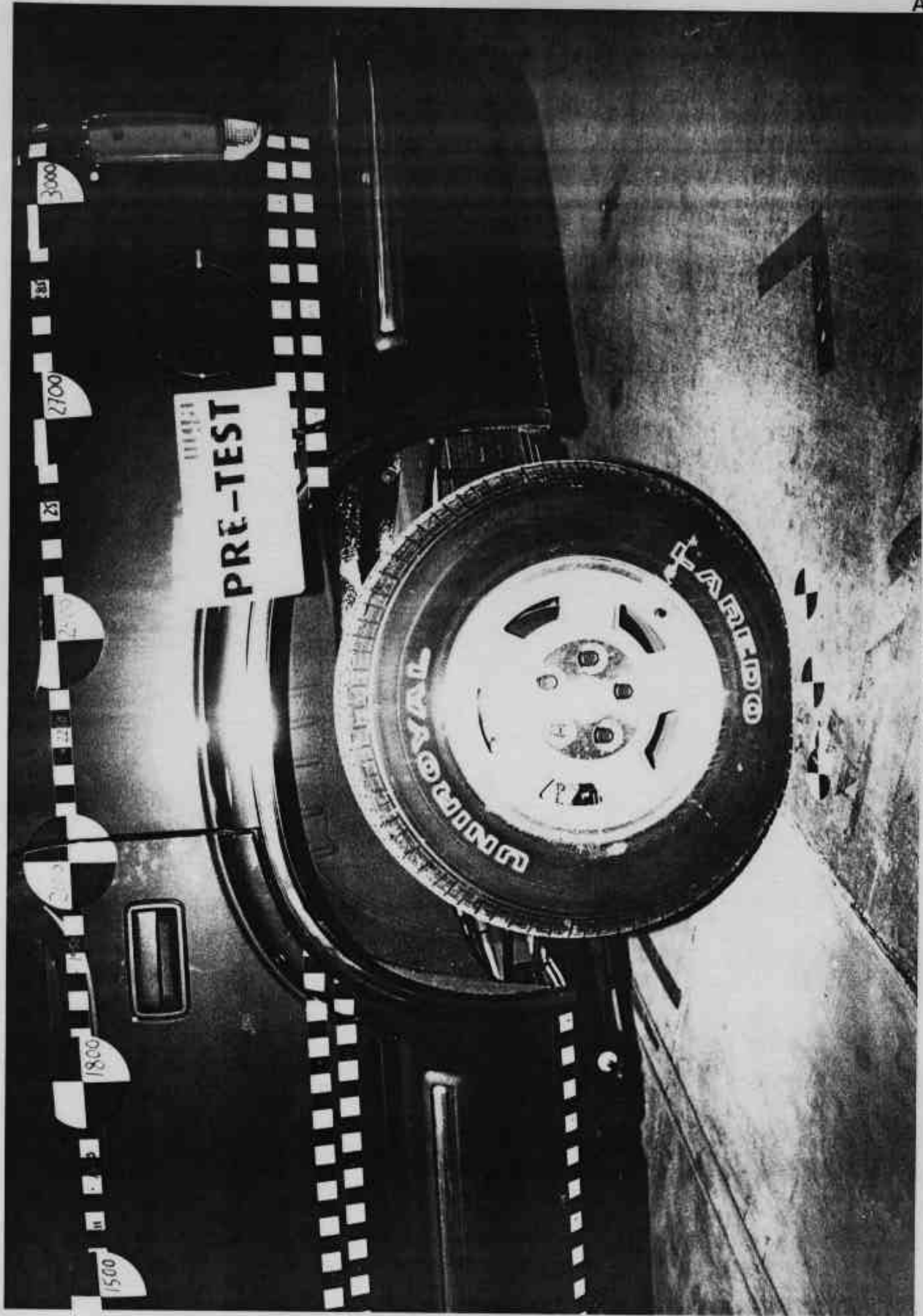


Photo No. A-49 - Left Rear Attitude Point

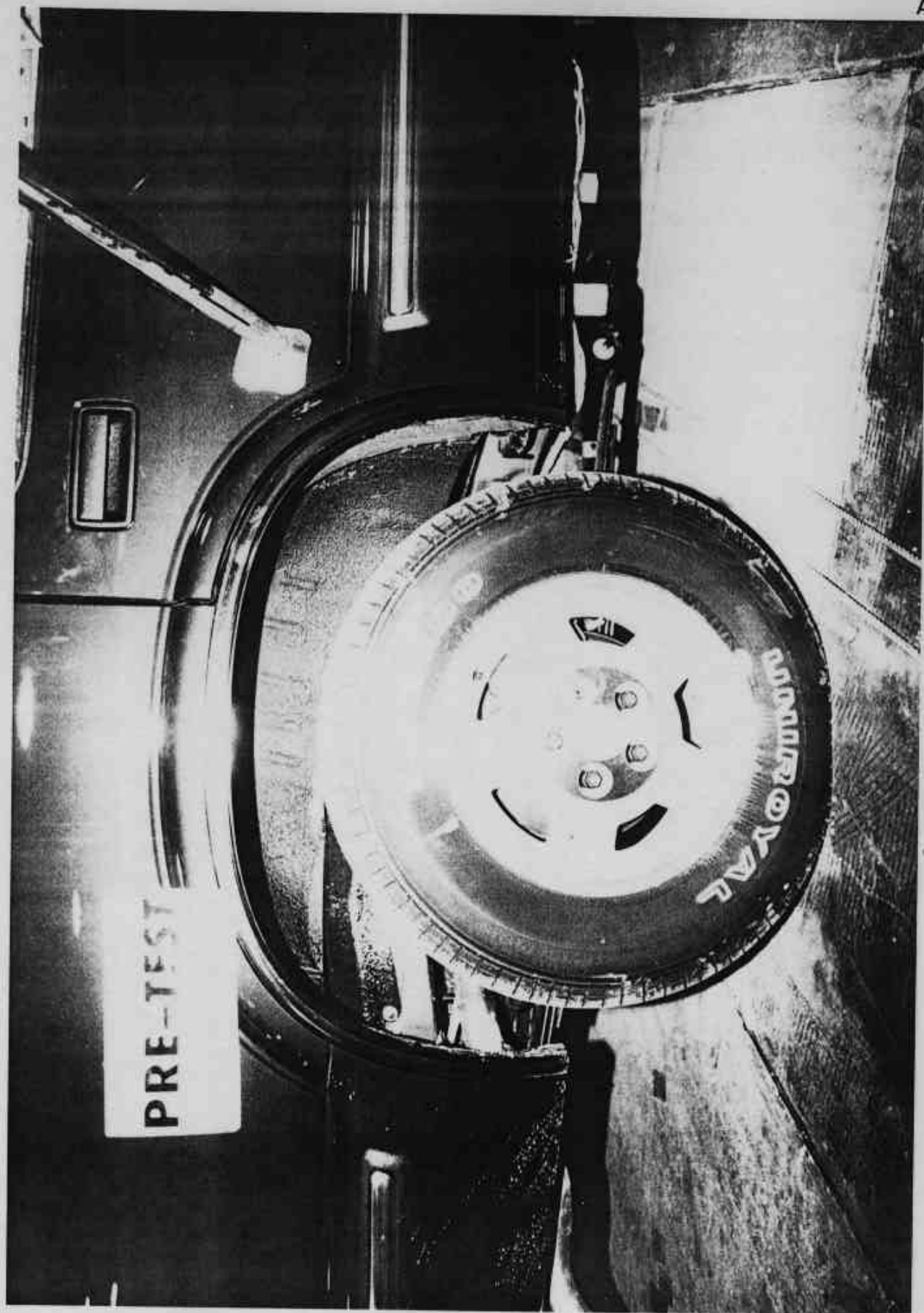


Photo No. A-50 - Right Rear Attitude Point

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* No valid data collected

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Redundant:

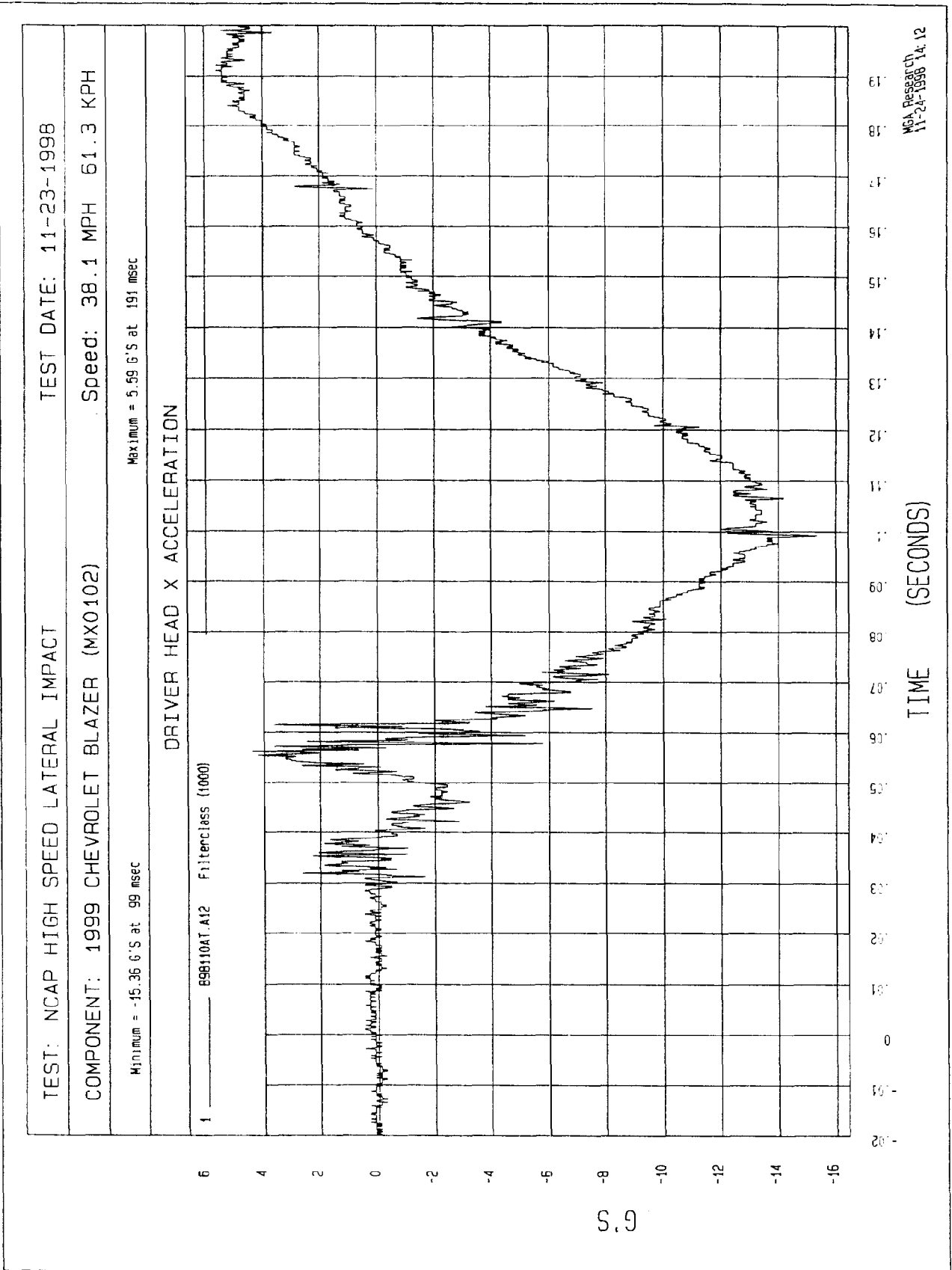
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* No valid data collected

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* No valid data collected.



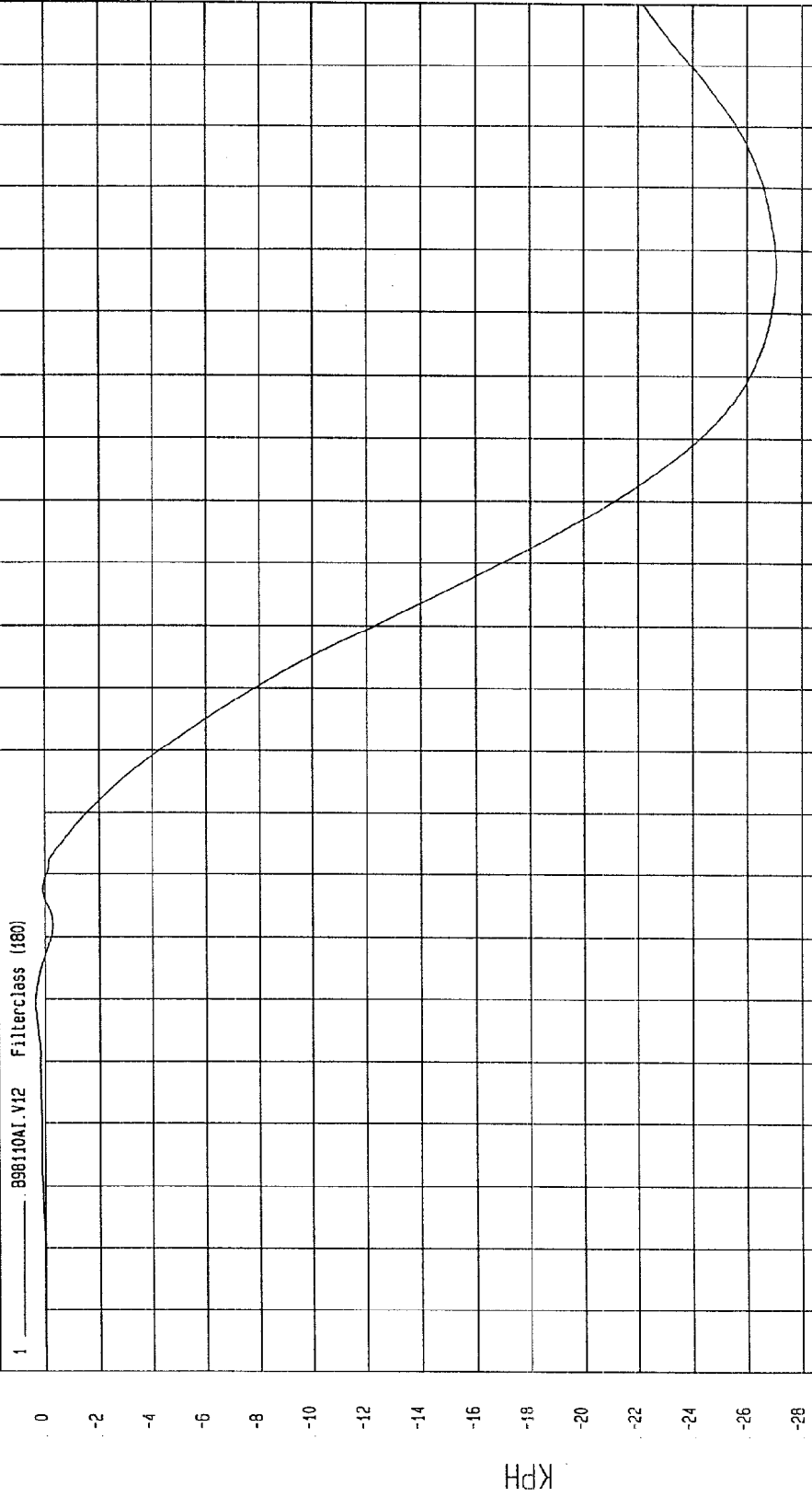
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -27.08 KPH at 157 msec

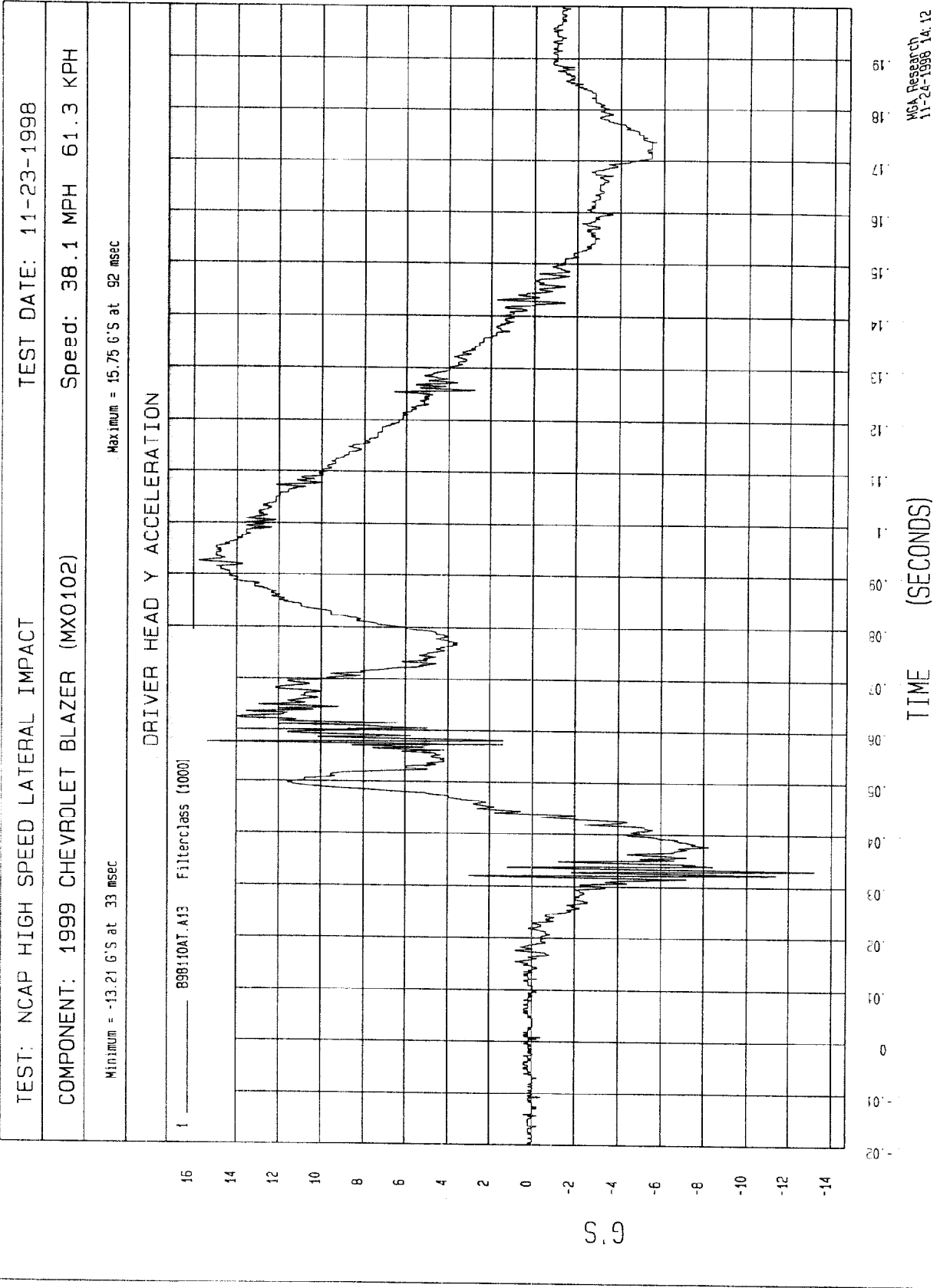
Maximum = .36 KPH at 39 msec

DRIVER HEAD X VELOCITY



NCA Research
11-24-1998 14:21

TIME Seconds



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

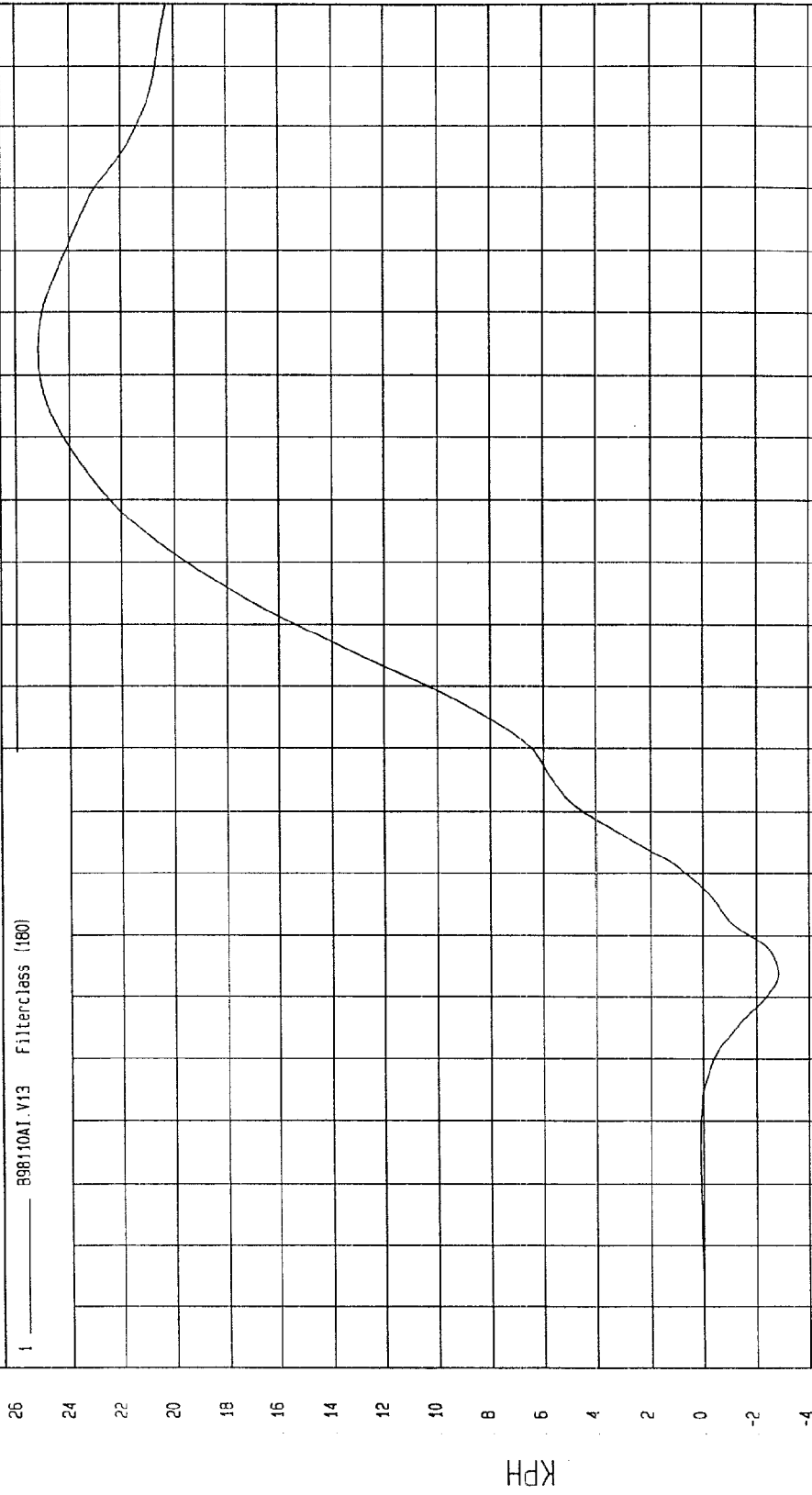
SPEED: 38.1 MPH 61.3 KPH

COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 25.17 KPH at 144 msec

Minimum = -2.83 KPH at 44 msec

DRIVER HEAD Y VELOCITY



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

Speed: 38.1 MPH 61.3 KPH

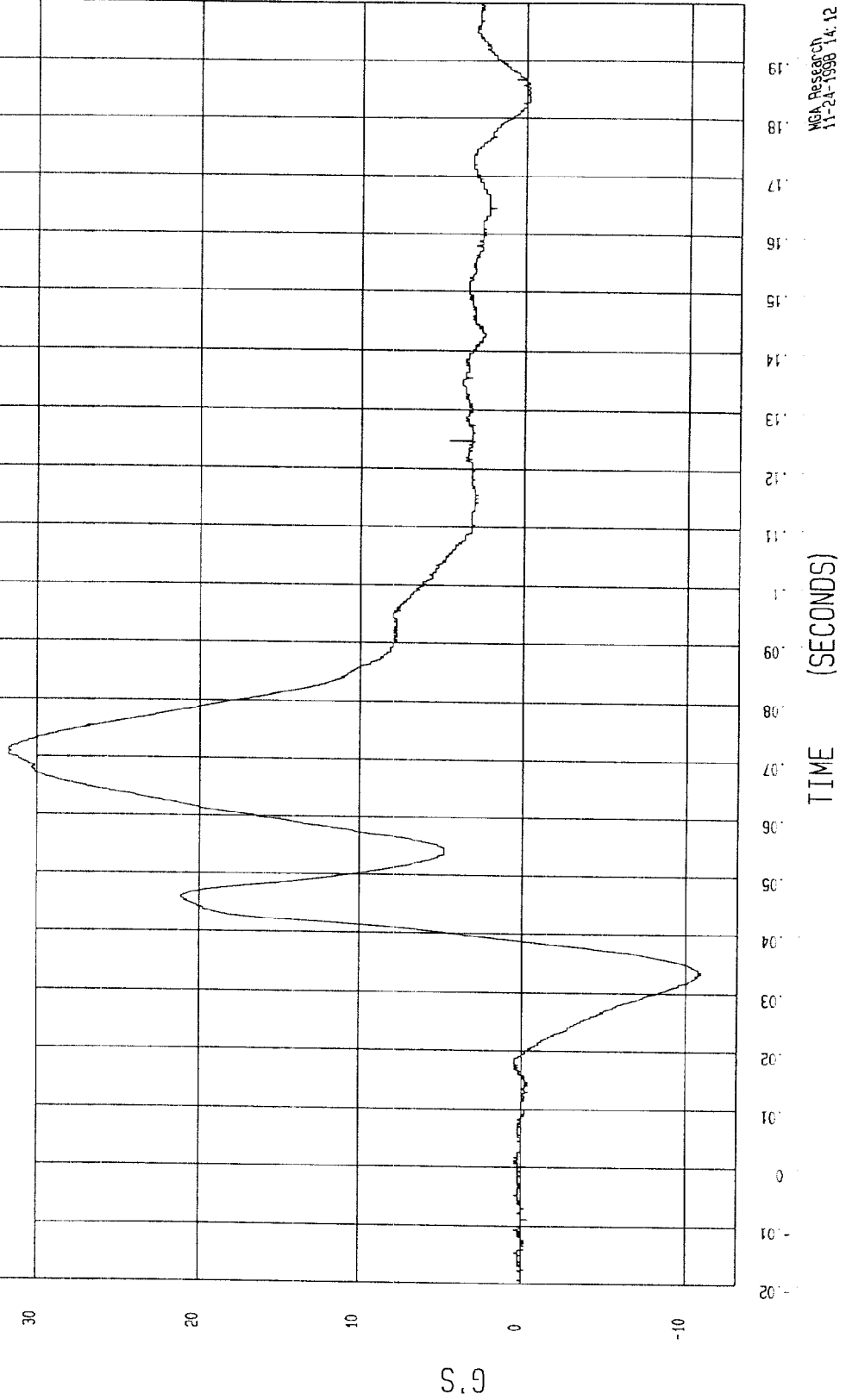
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Minimum = -10.95 G'S at 33 msec

Maximum = 31.72 G'S at 70 msec

DRIVER HEAD Z ACCELERATION

1 B96110A1.A14 FilterClass (4000)



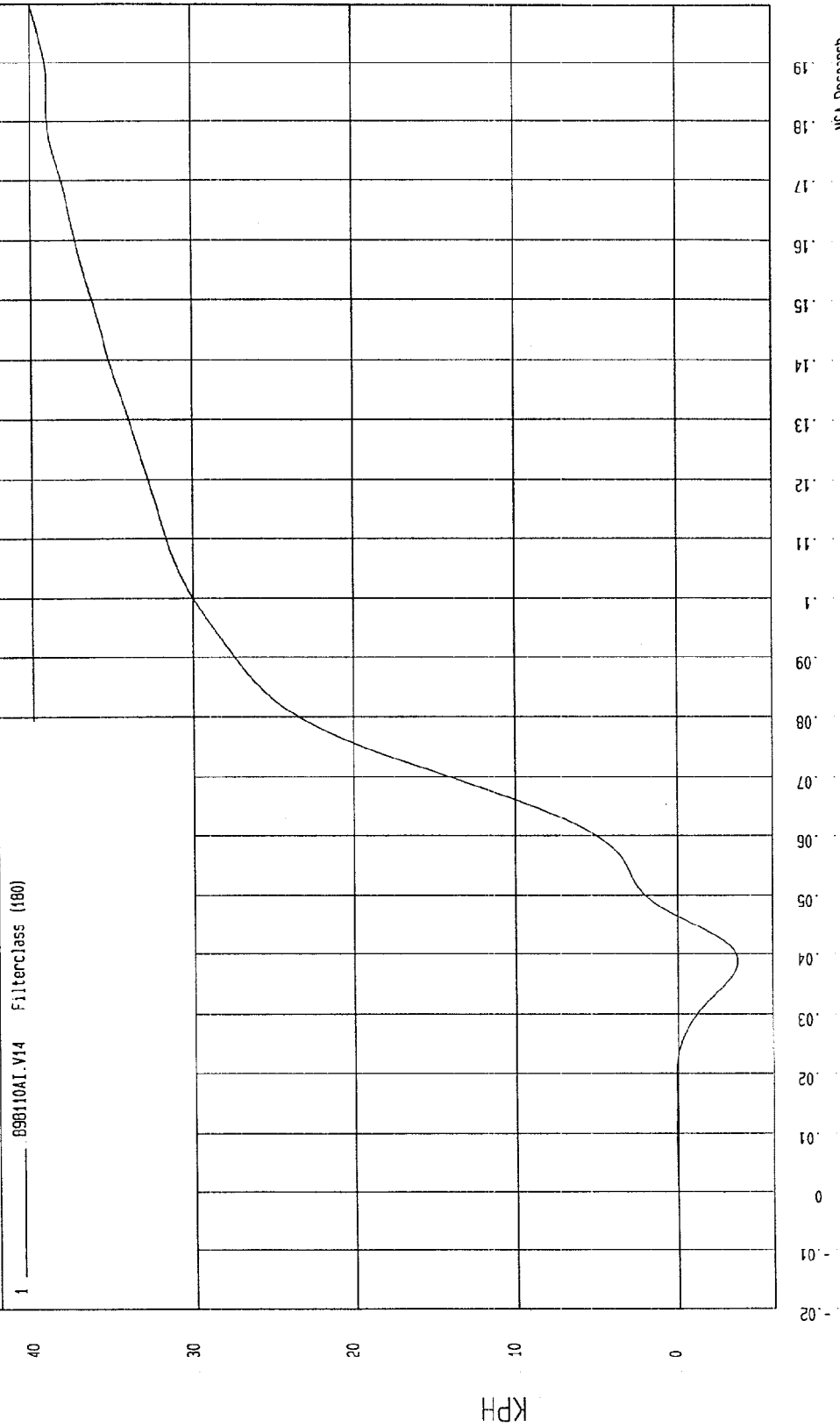
MCA Research
11-24-1998 14:12

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -3.72 KPH at 39 msec Maximum = 39.99 KPH at 200 msec

DRIVER HEAD Z VELOCITY



MOA Research
11-24-1998 14:21

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

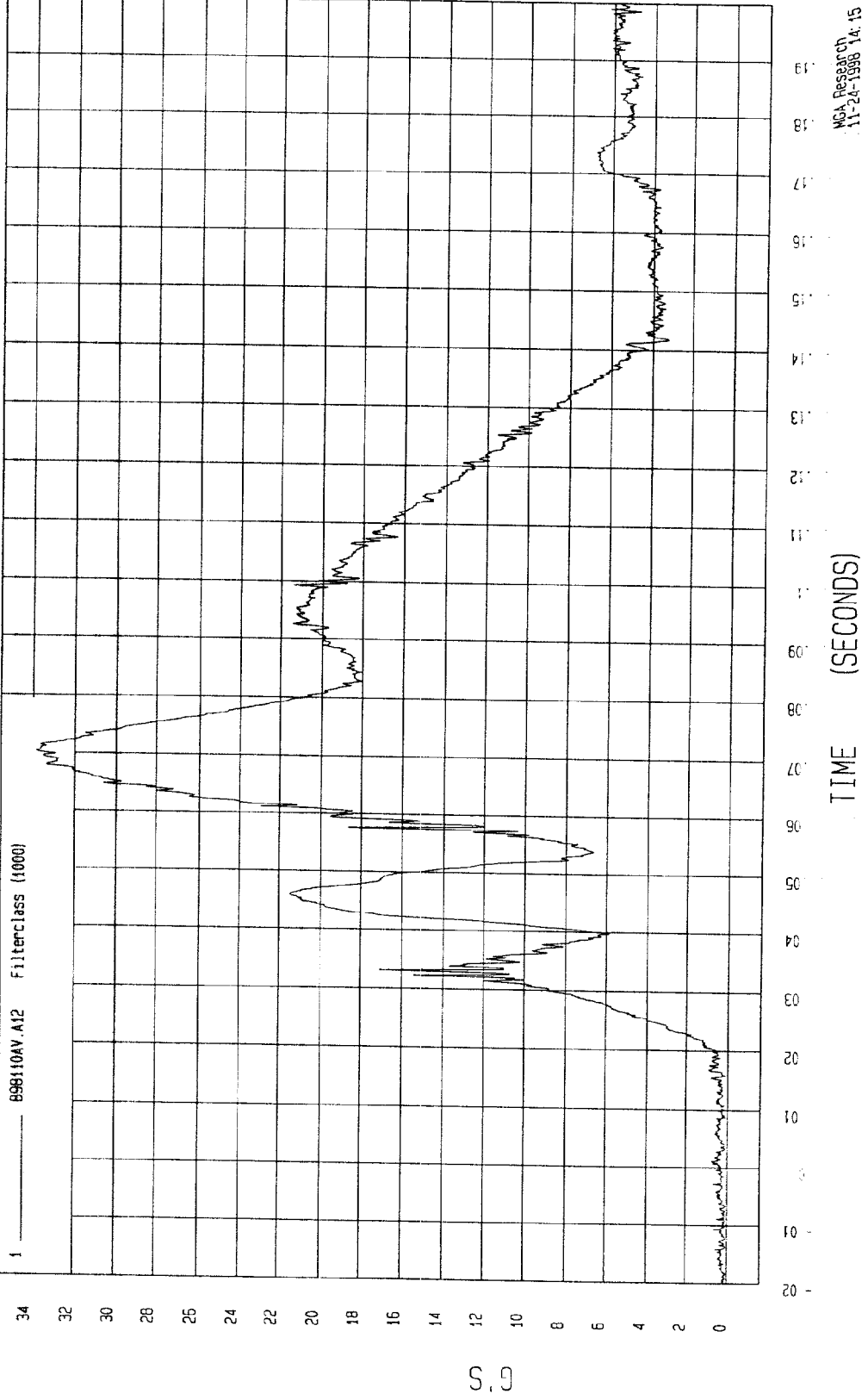
Speed: 38.1 MPH 61.3 KPH

COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Minimum = 9.30E-02 G'S at -20 msec

Maximum = 33.85 G'S at 70 msec

DRIVER HEAD RESULTANT ACCELERATION

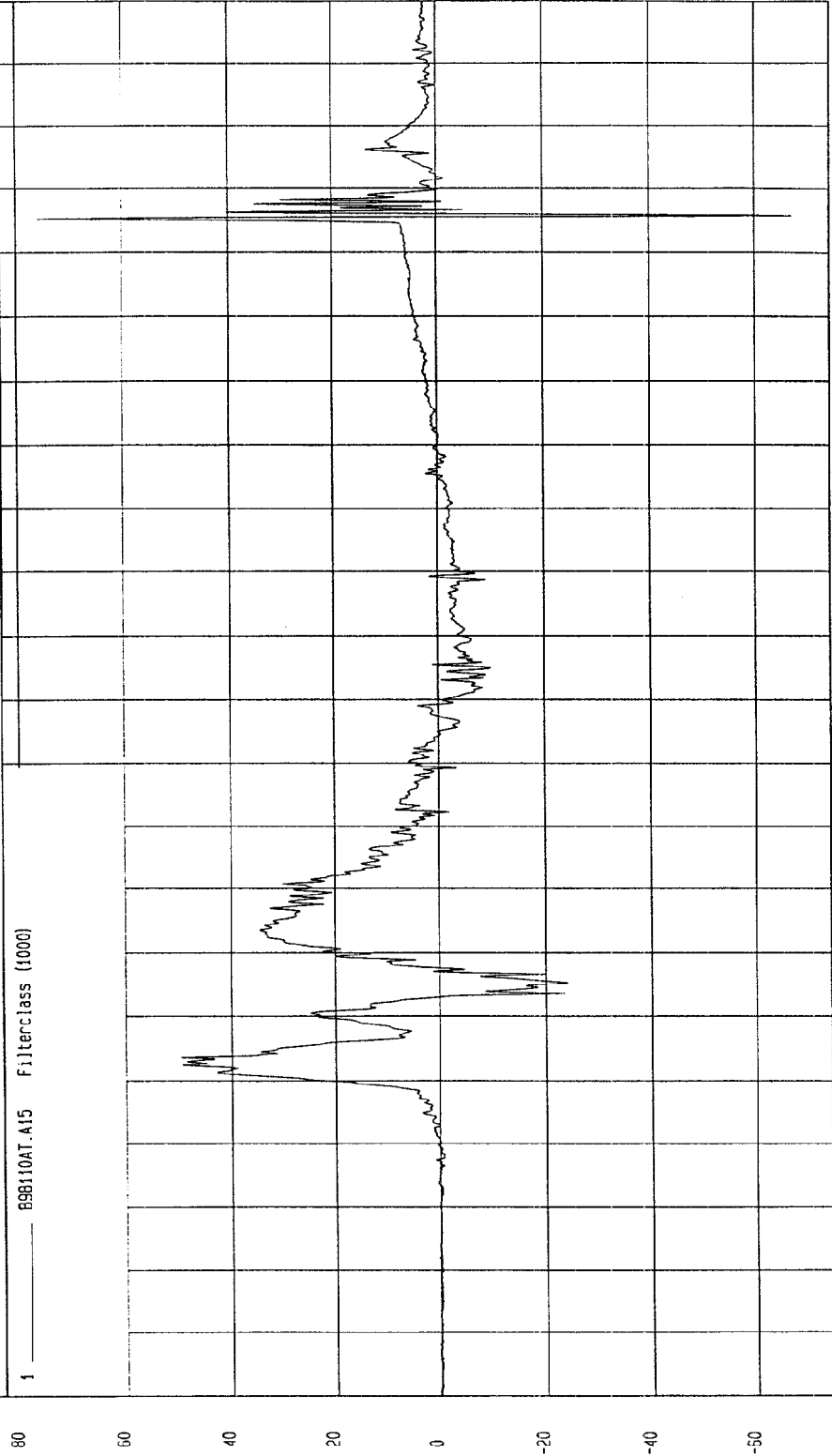


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -66.92 G'S at 165 msec Maximum = 75.95 G'S at 165 msec

DRIVER UPPER RIB Y ACCELERATION



MCA Research
11-24-1998 14:26

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

Speed: 38.1 MPH 61.3 KPH

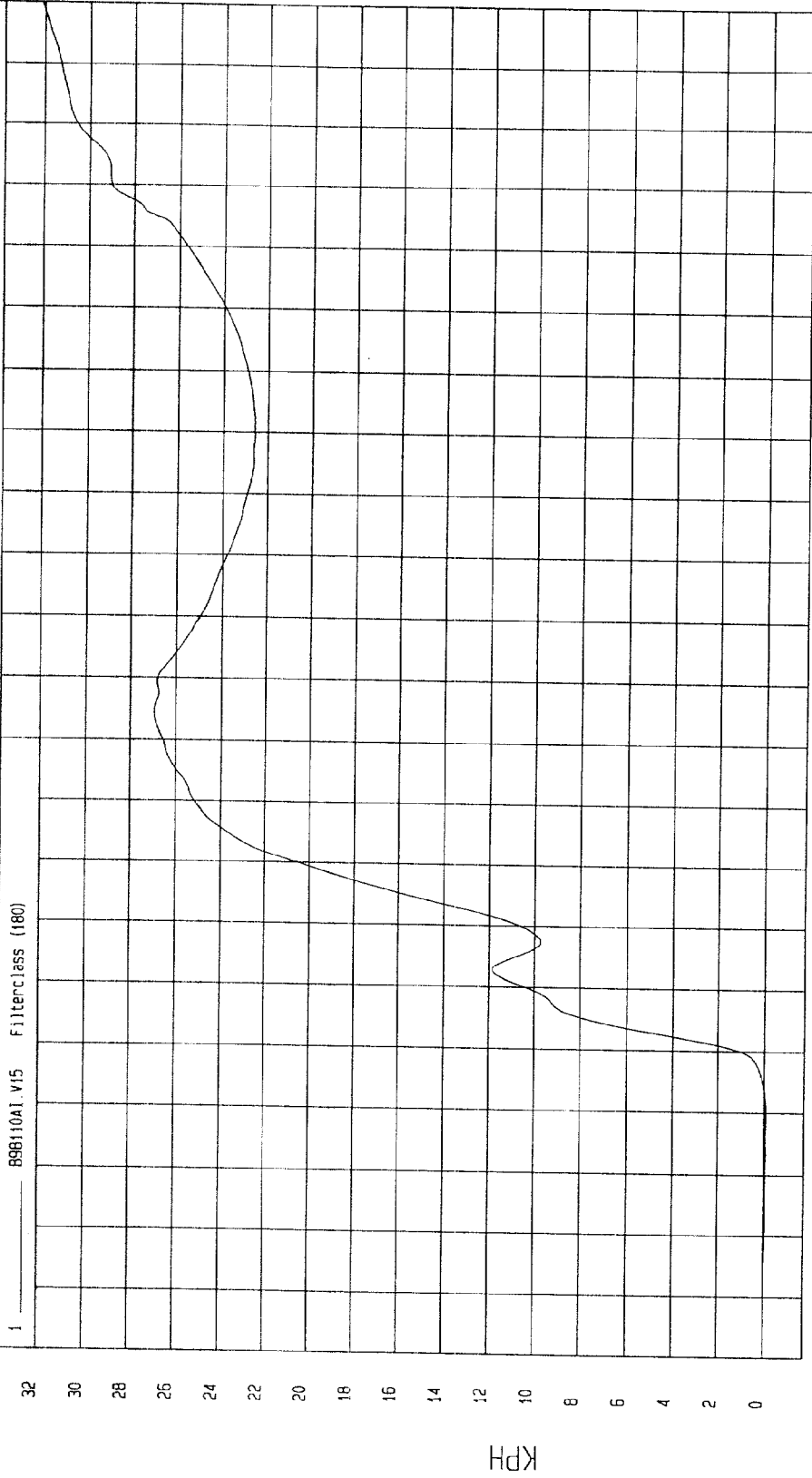
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 32.1 KPH at 200 msec

Minimum = -8.86E-02 KPH at 20 msec

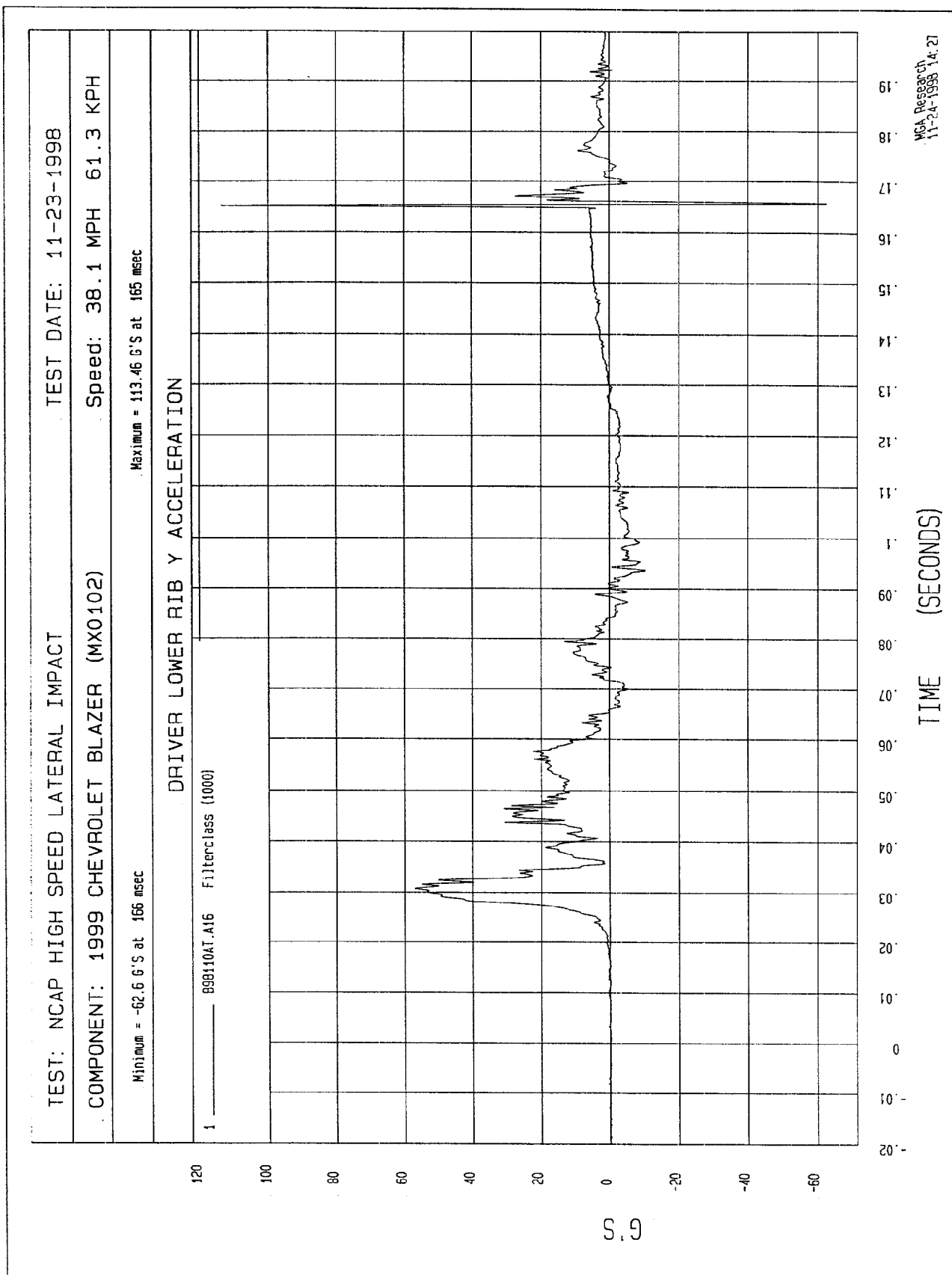
DRIVER UPPER RIB Y VELOCITY

1 898110A1.V15 Filterclass (180)



M&A Research
11-24-1998 14:33

TIME Seconds

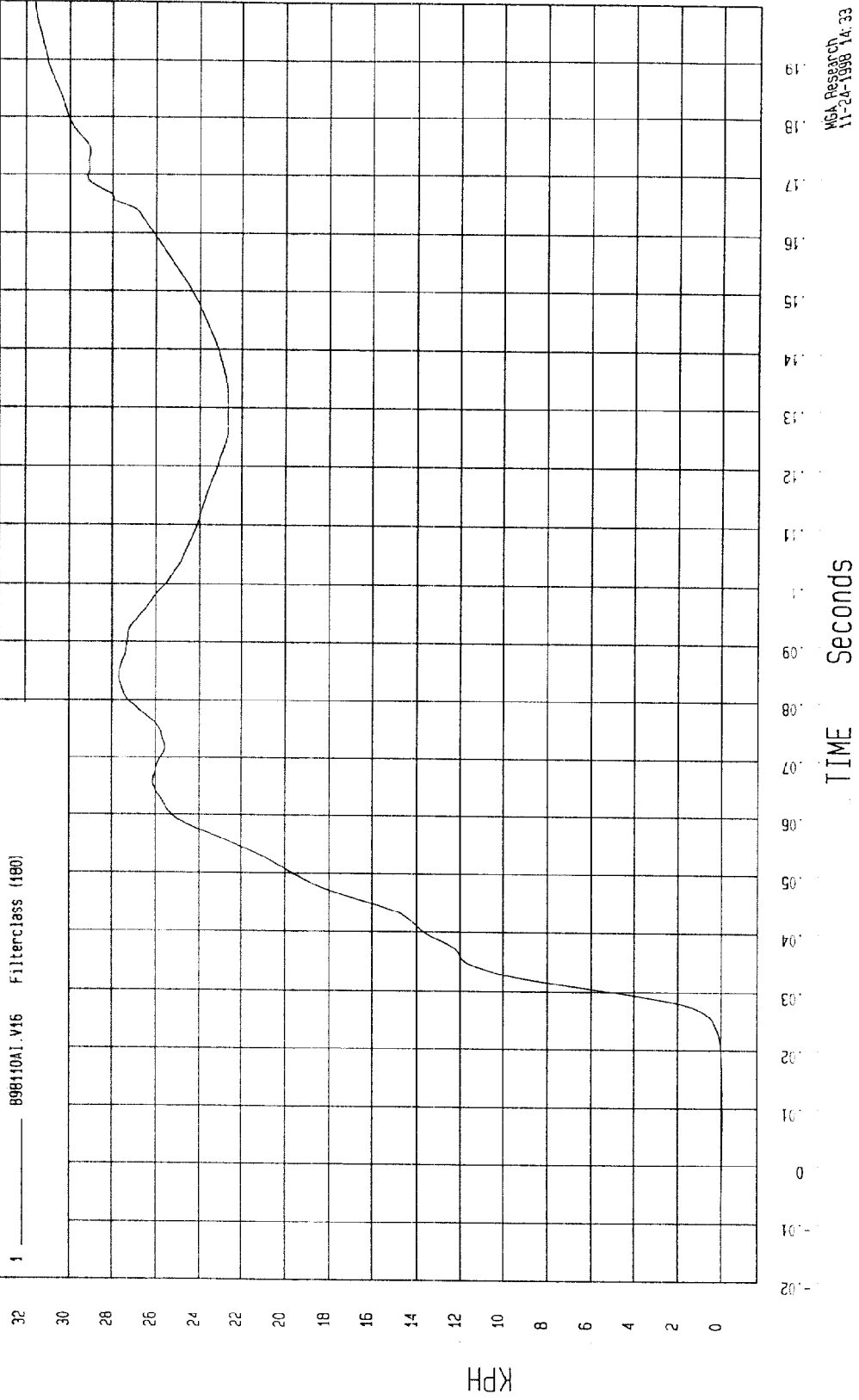


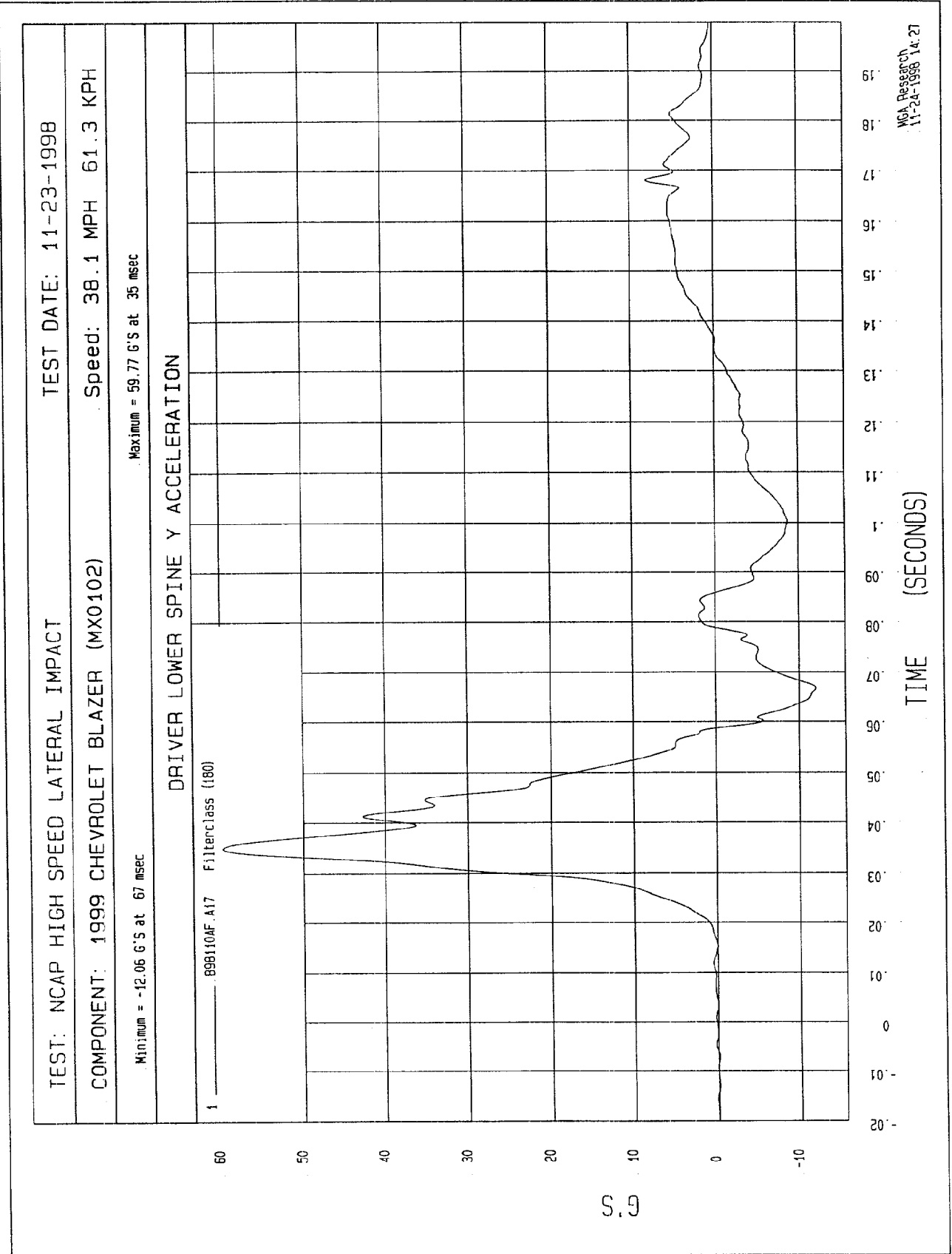
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -5.07E-02 KPH at 9 msec Maximum = 31.6 KPH at 200 msec

DRIVER LOWER RIB Y VELOCITY



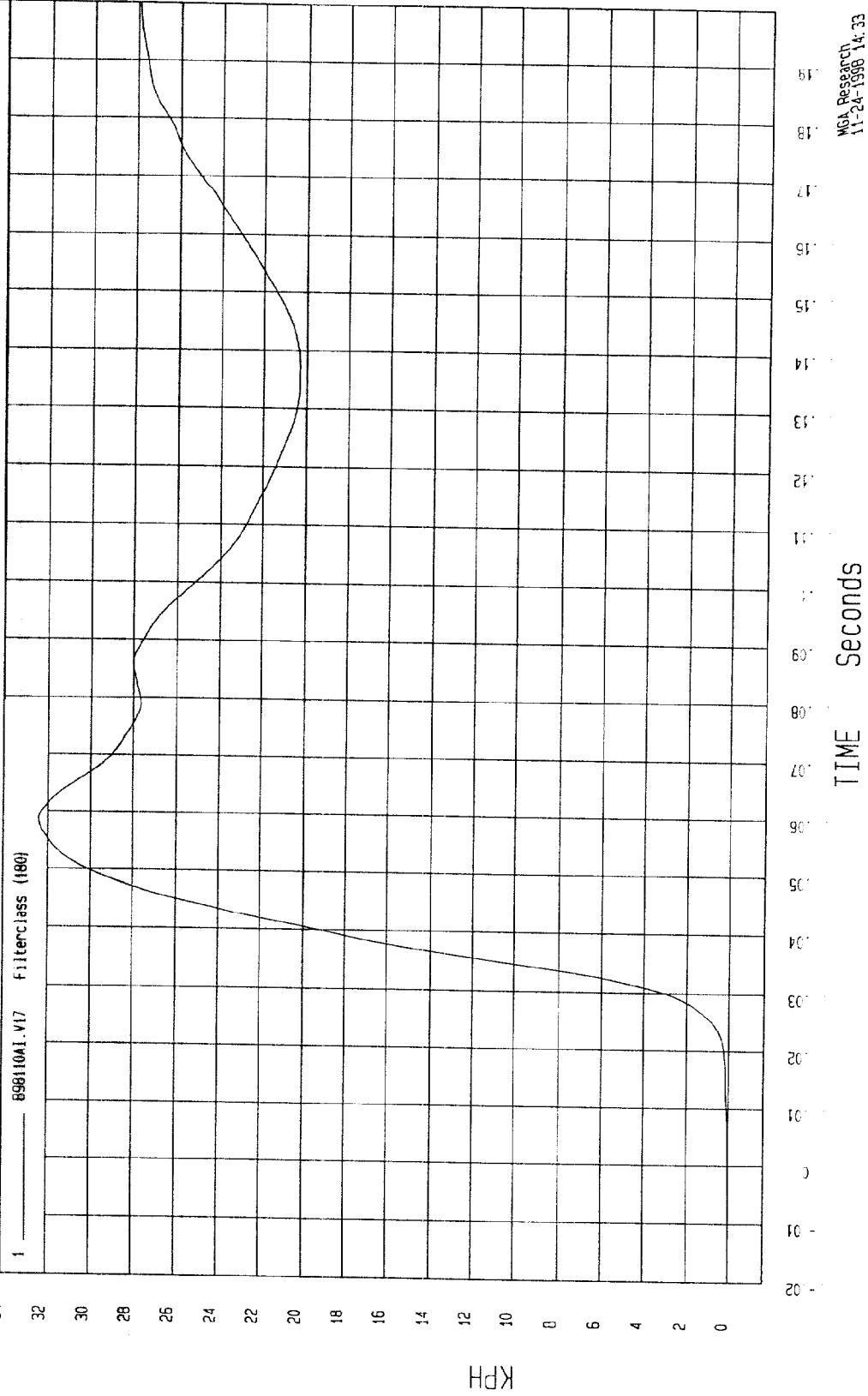


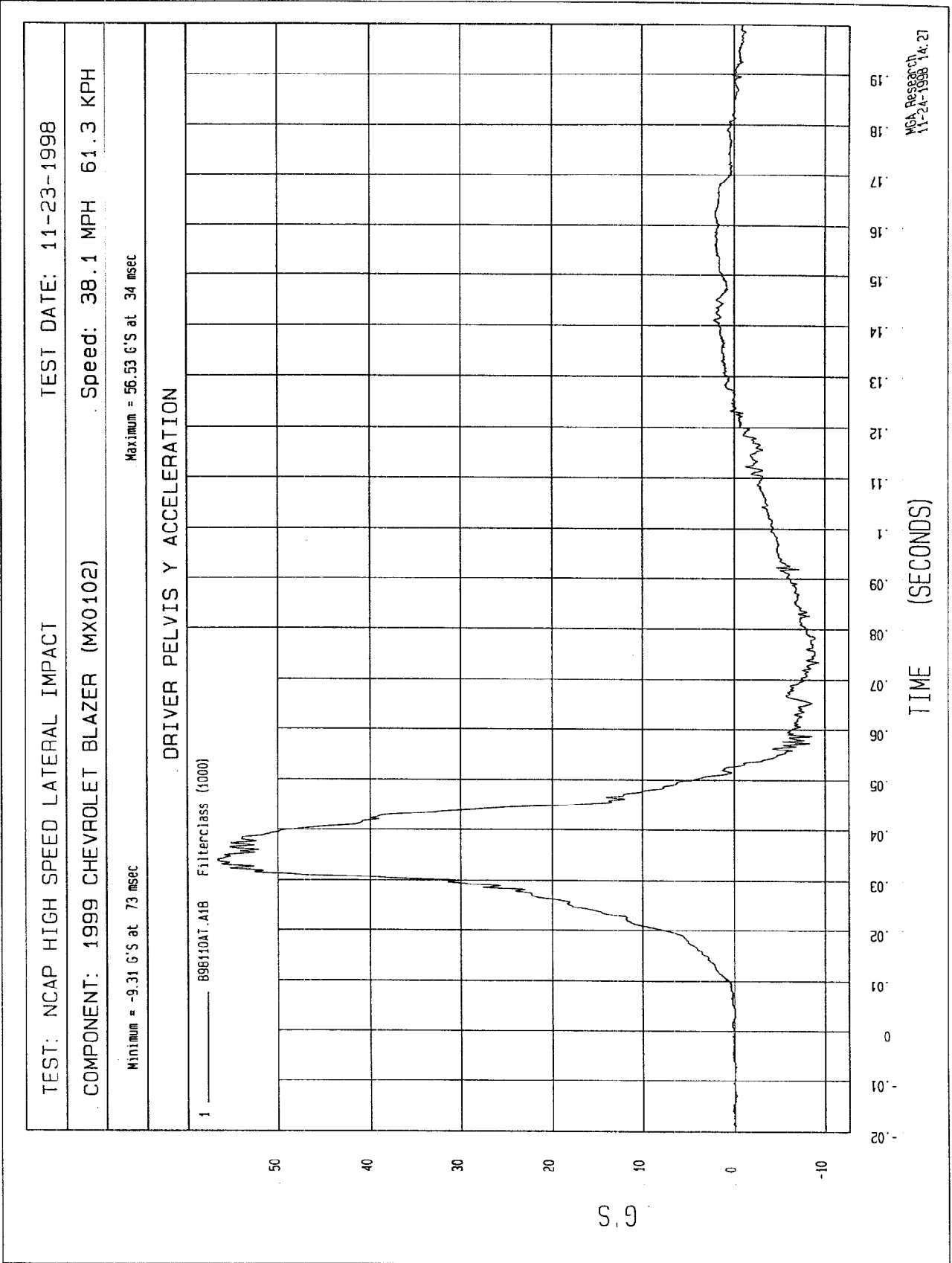
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = 0 KPH at -20 msec Maximum = 32.42 KPH at 59 msec

DRIVER LOWER SPINE Y VELOCITY





TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

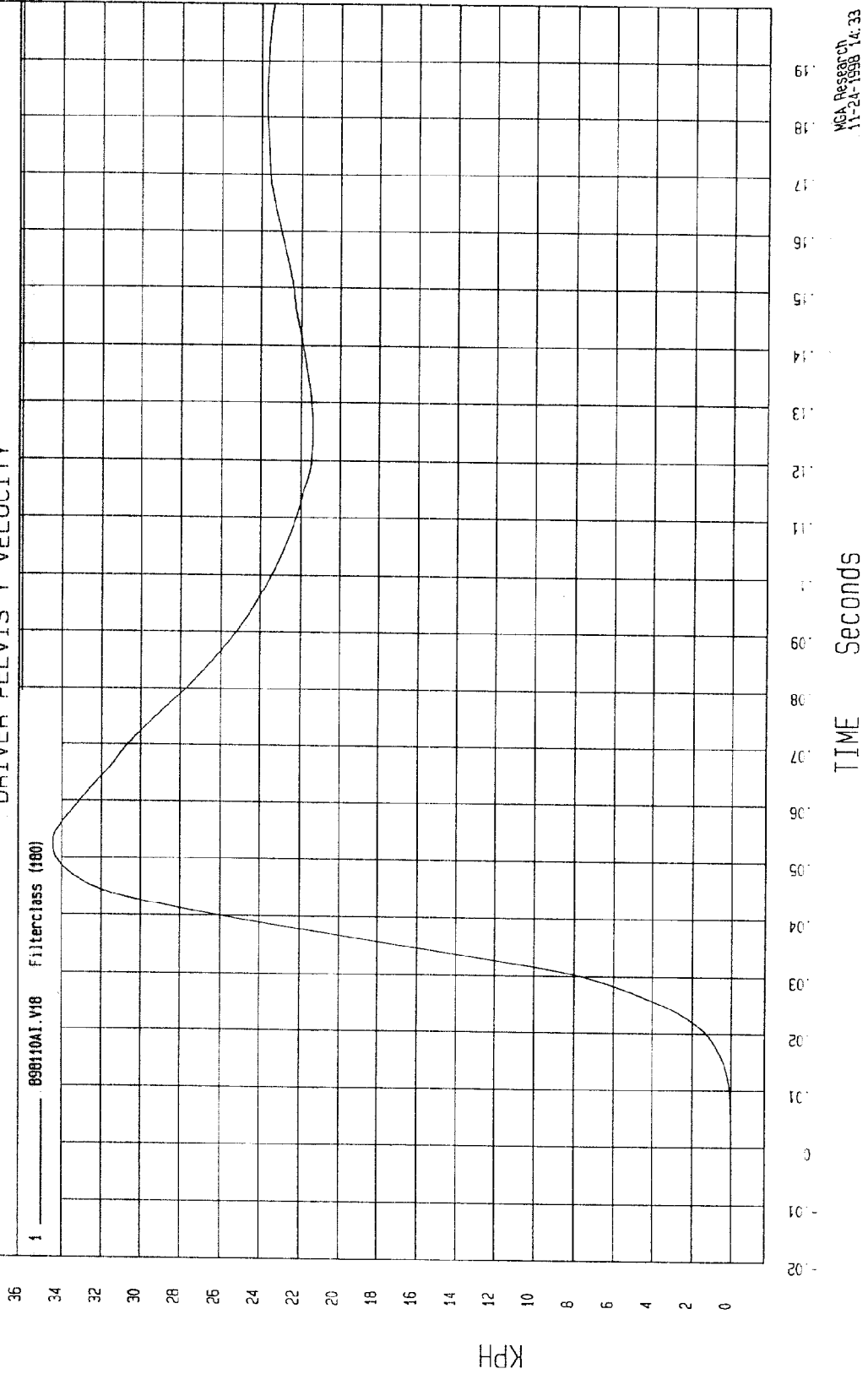
Speed: 38.1 MPH 61.3 KPH

COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 34.44 KPH at 53 msec

Minimum = -2.53E-03 KPH at -6 msec

DRIVER PELVIS Y VELOCITY



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

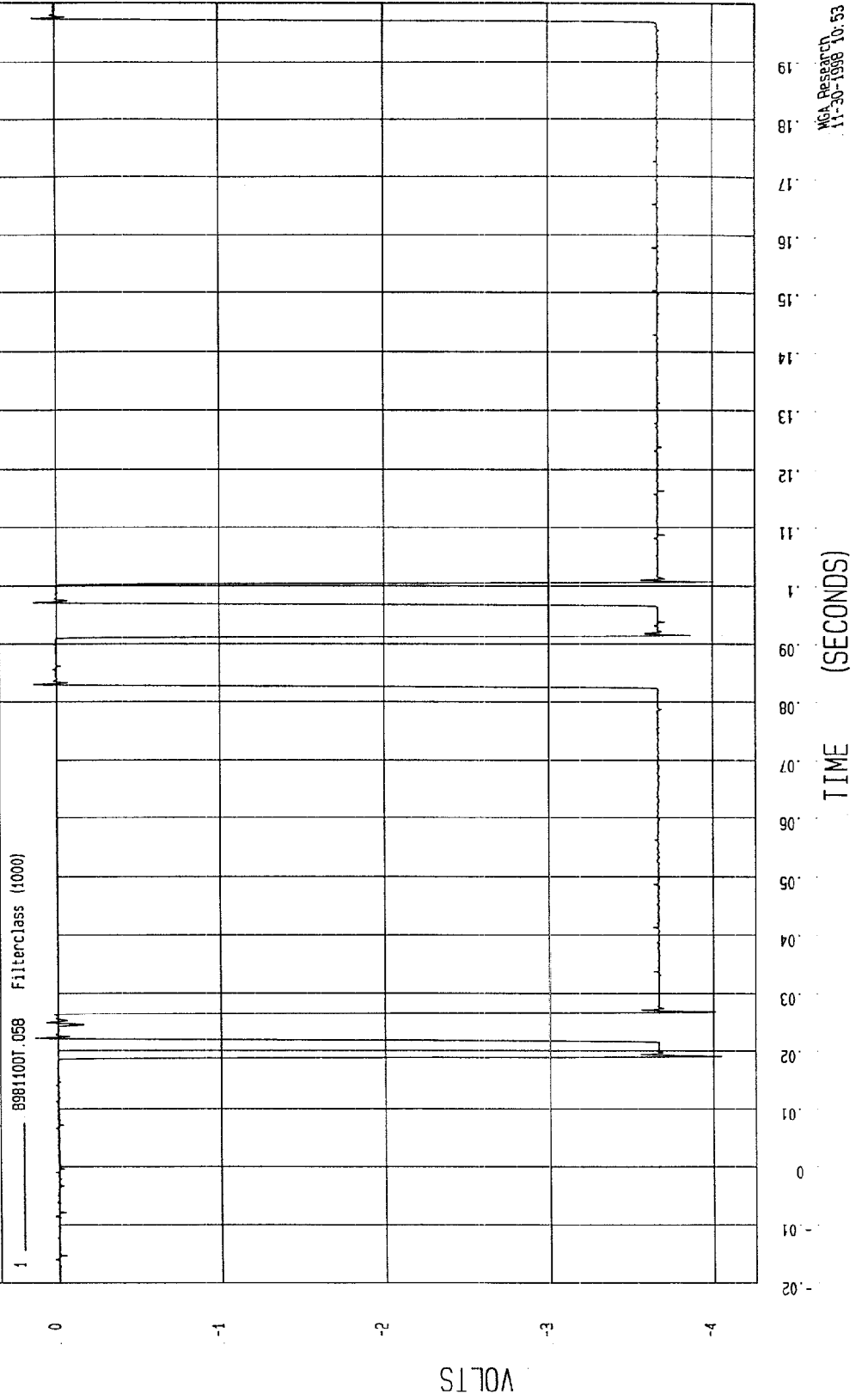
Speed: 38.1 MPH 61.3 KPH

COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = .14 VOLTS at 22 msec

Minimum = -4.05 VOLTS at 19 msec

DRIVER SHOULDER CONTACT



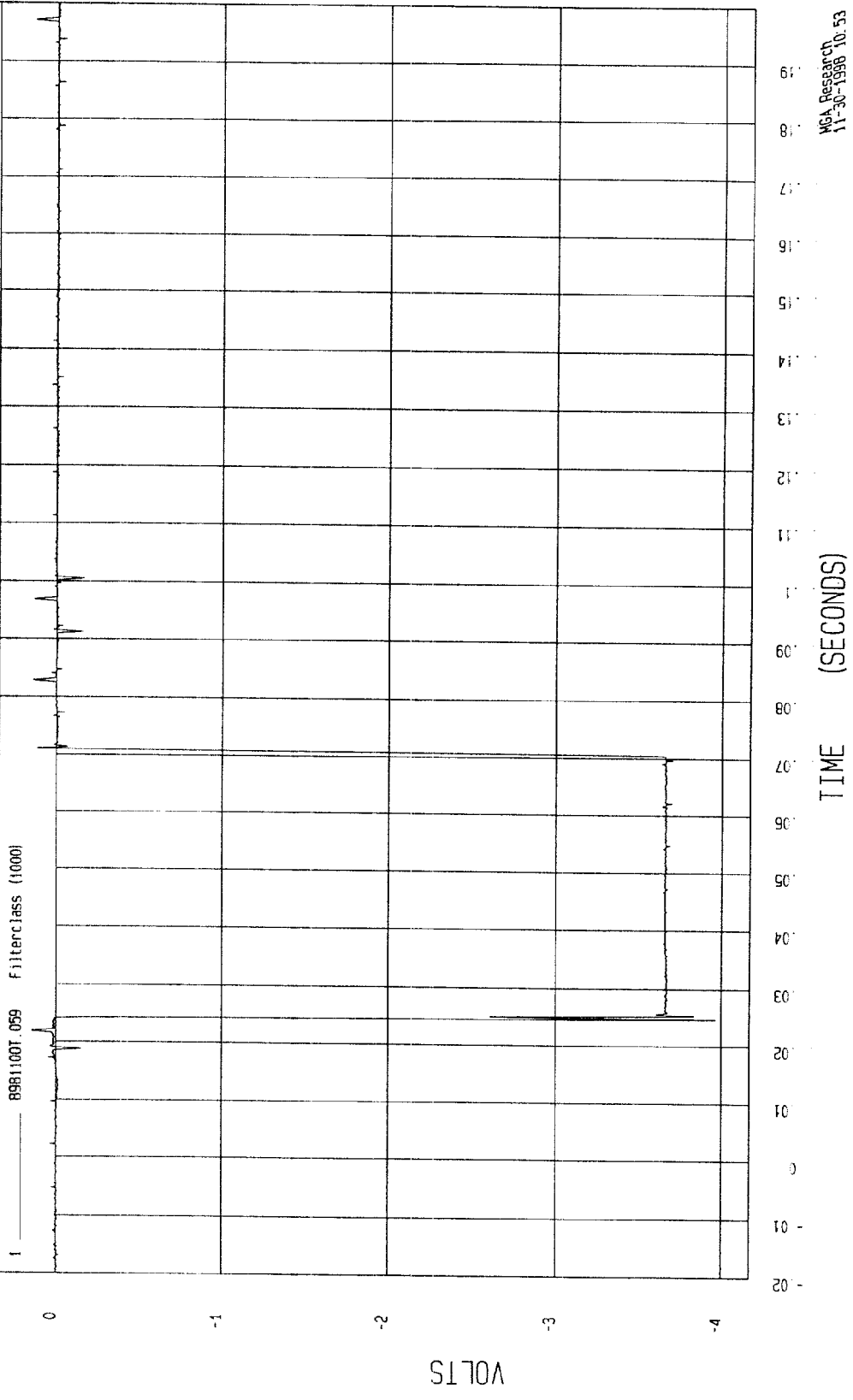
WCA Research
11-30-1998 10:53

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

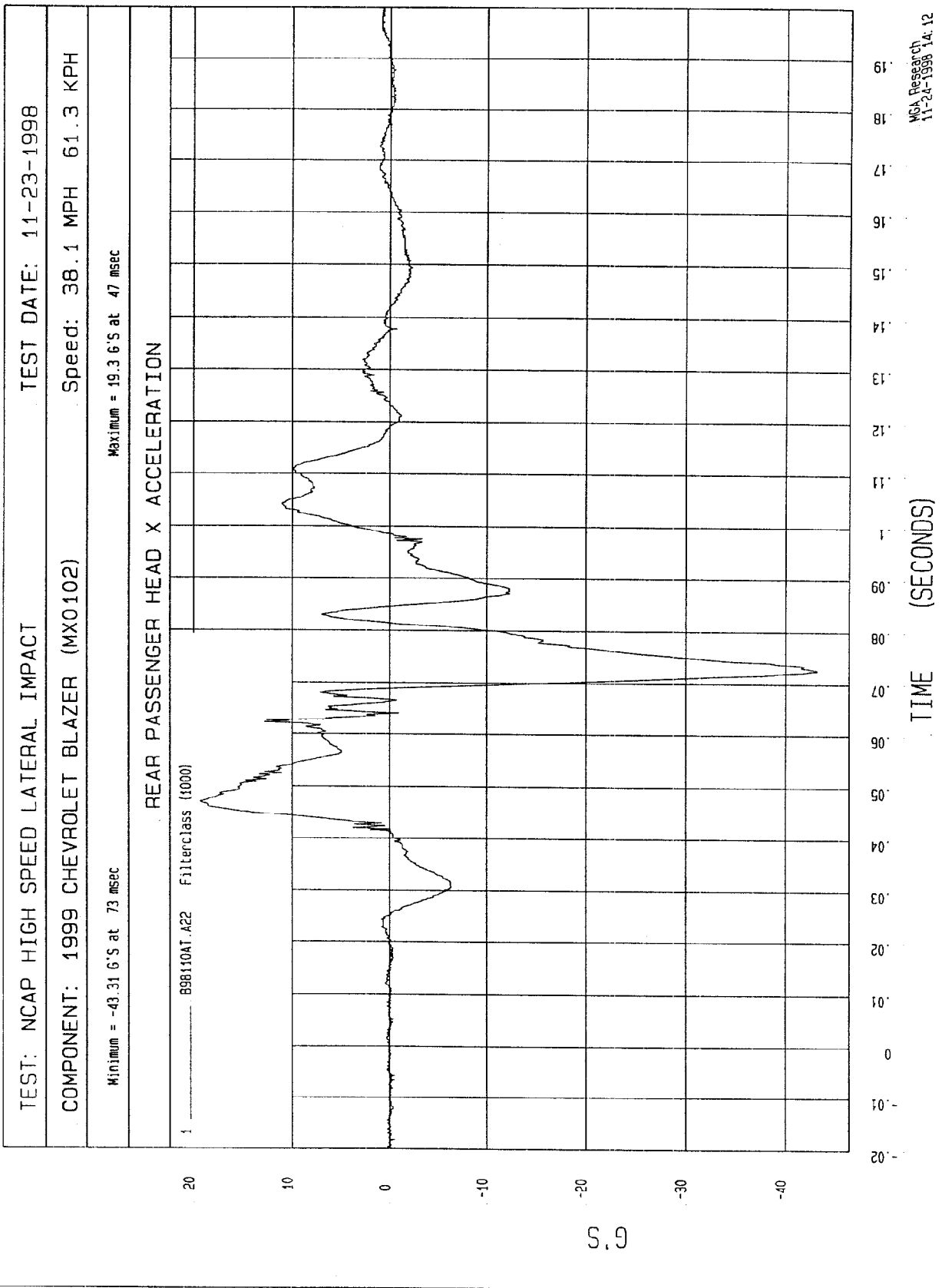
COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -3.96 VOLTS at 25 msec Maximum = 14 VOLTS at 22 msec

DRIVER PELVIS CONTACT



HGA Research
11-30-1998 10:53



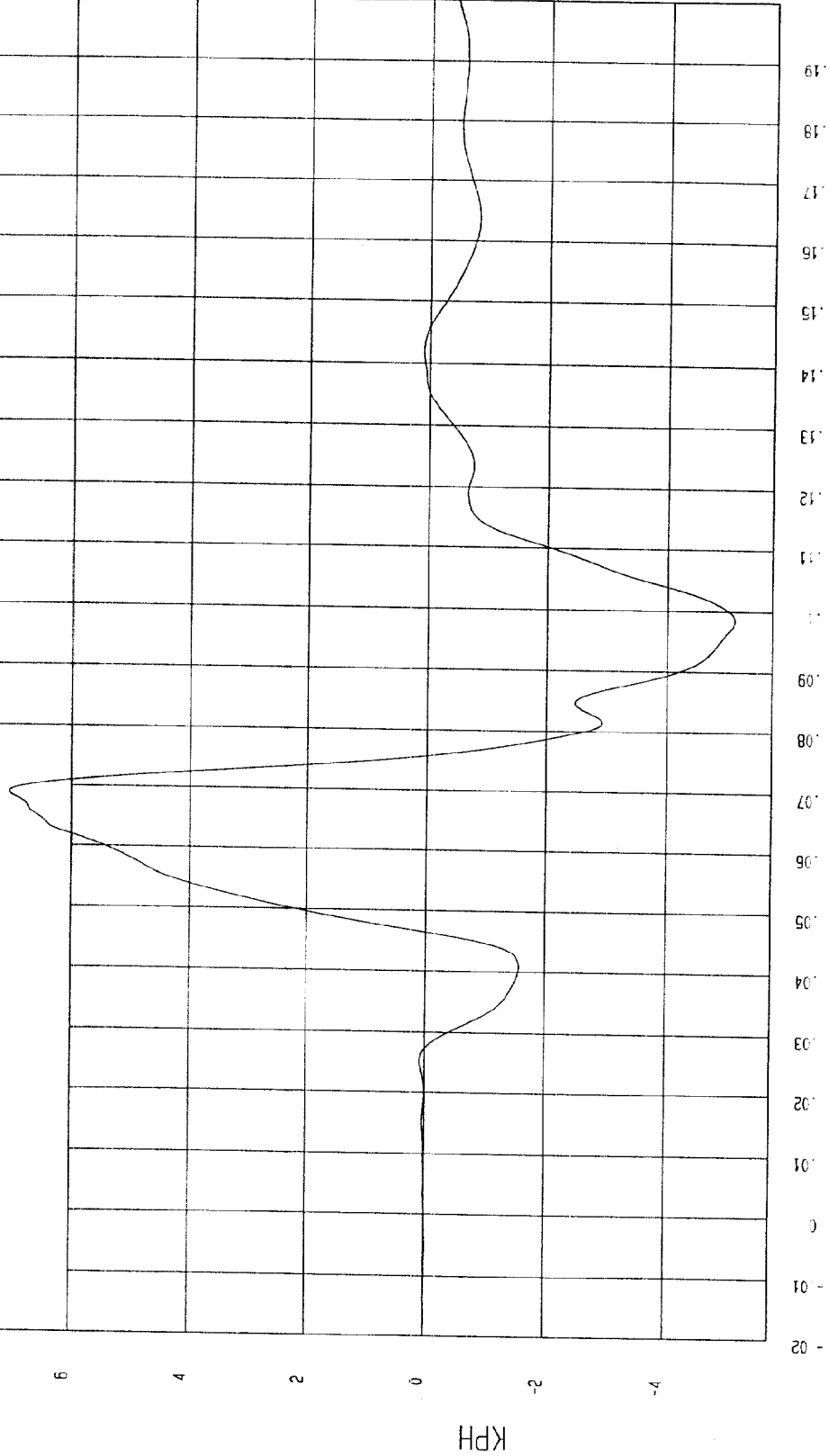
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

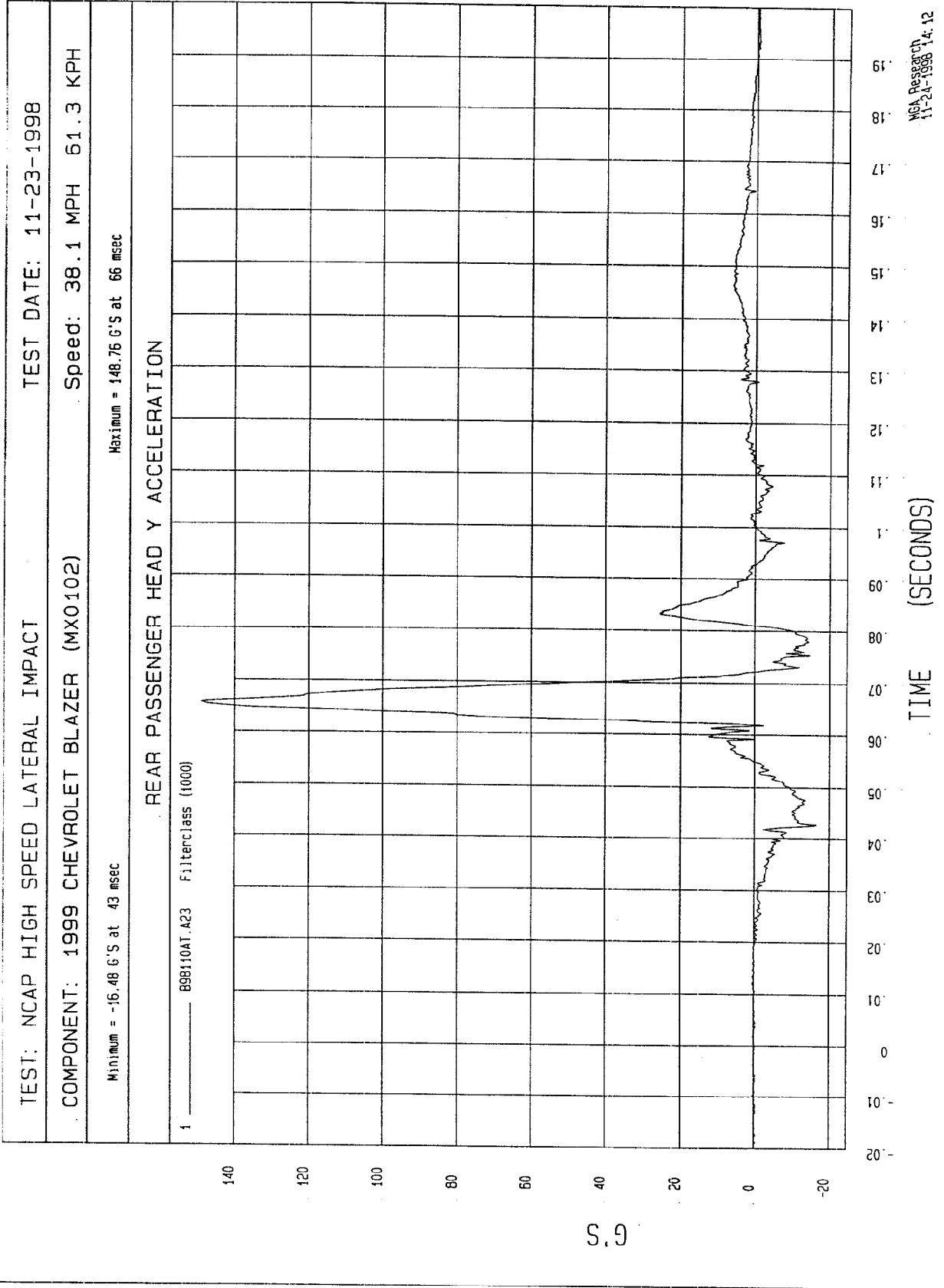
Minimum = -5.14 KPH at 98 msec
Maximum = 7.04 KPH at 69 msec

REAR PASSENGER HEAD X VELOCITY

1 ——— 898110A1.V22 Filterclass (180)



MCA Research
11-24-1998 14:21



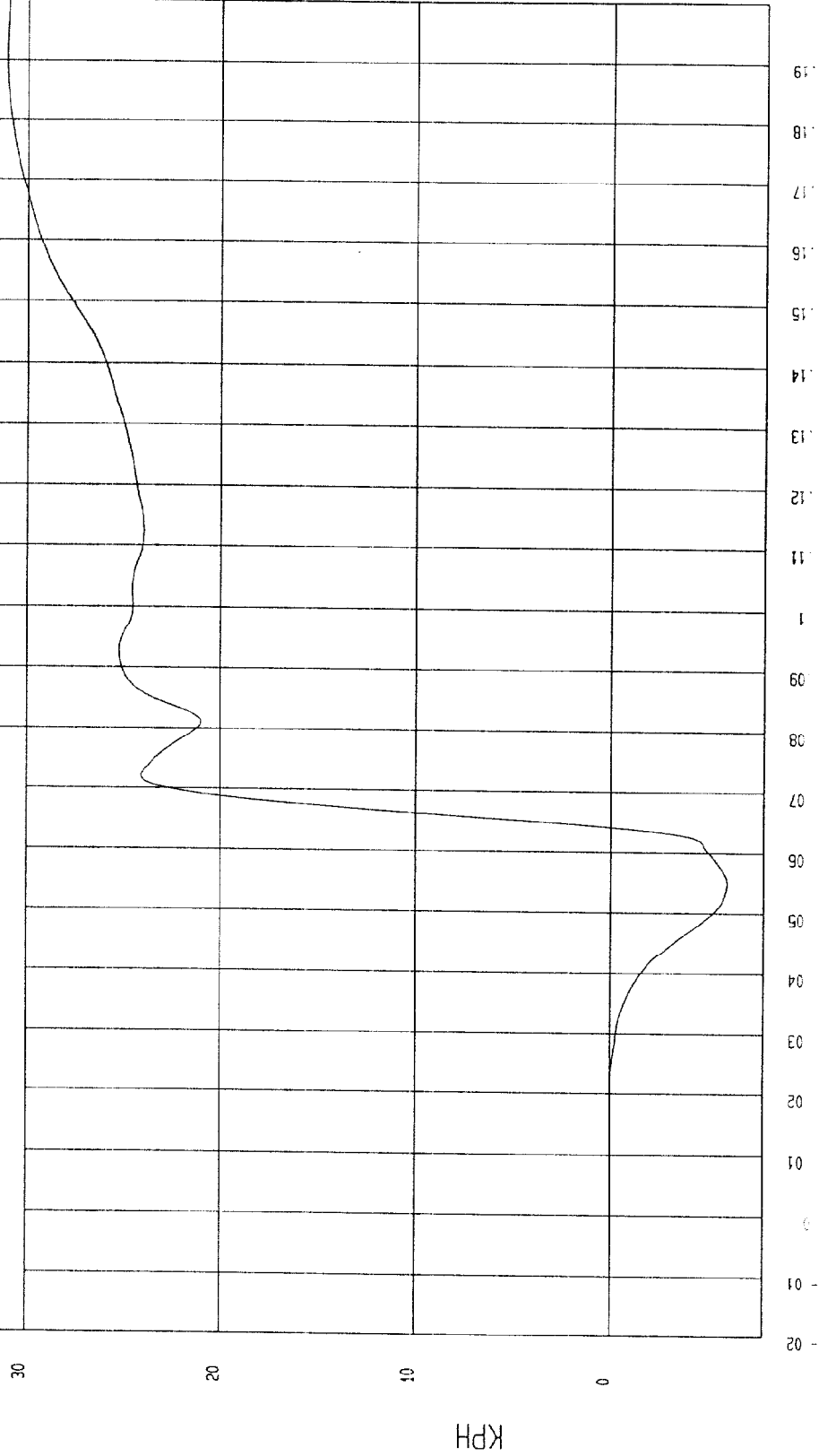
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -5.92 KPH at 55 msec
Maximum = 31.08 KPH at 190 msec

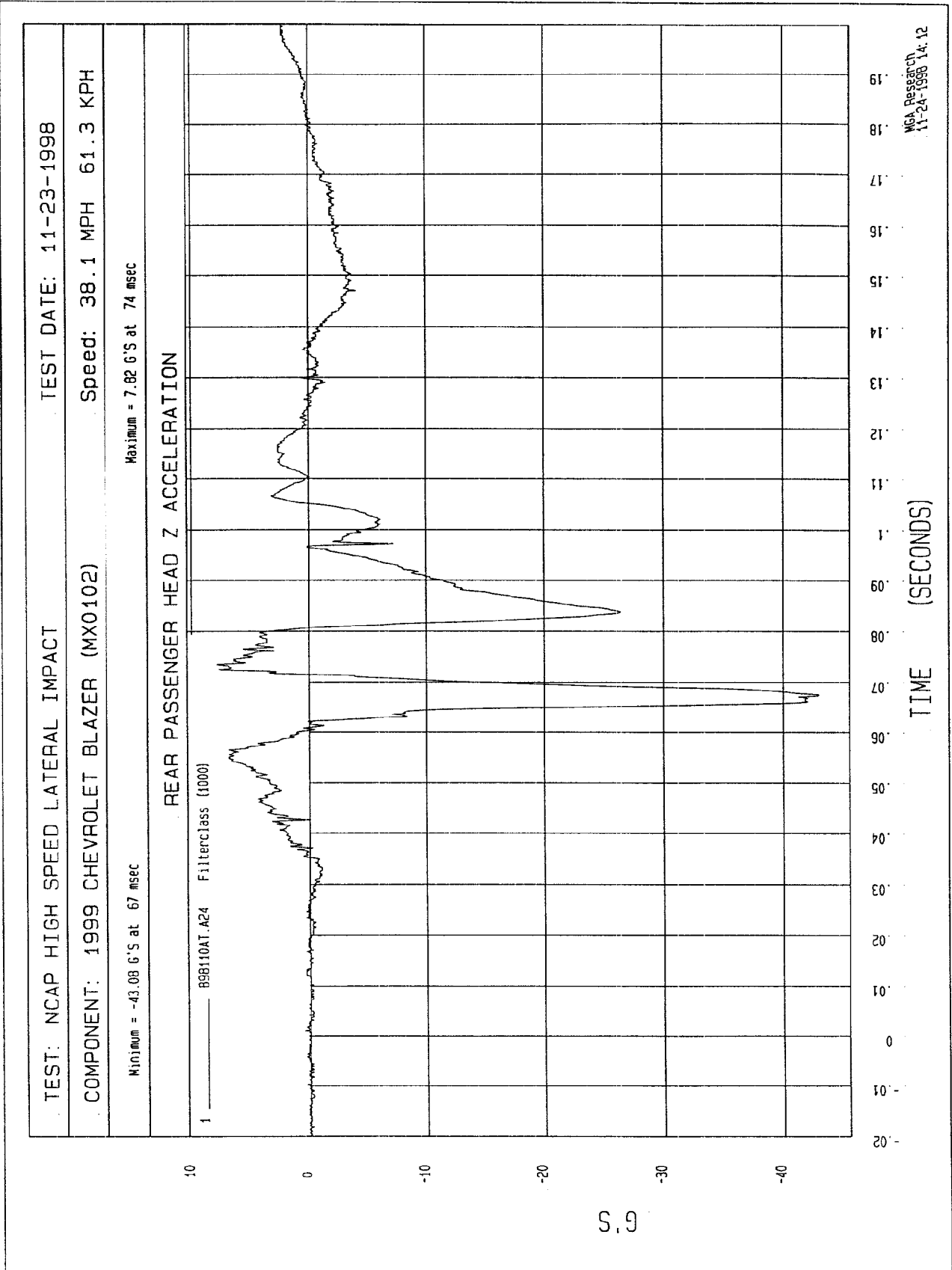
REAR PASSENGER HEAD Y VELOCITY

1 898110A1.V23 FilterClass (180)



MSA Research
11-24-1998 14.21

TIME Seconds



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

Speed: 38.1 MPH 61.3 KPH

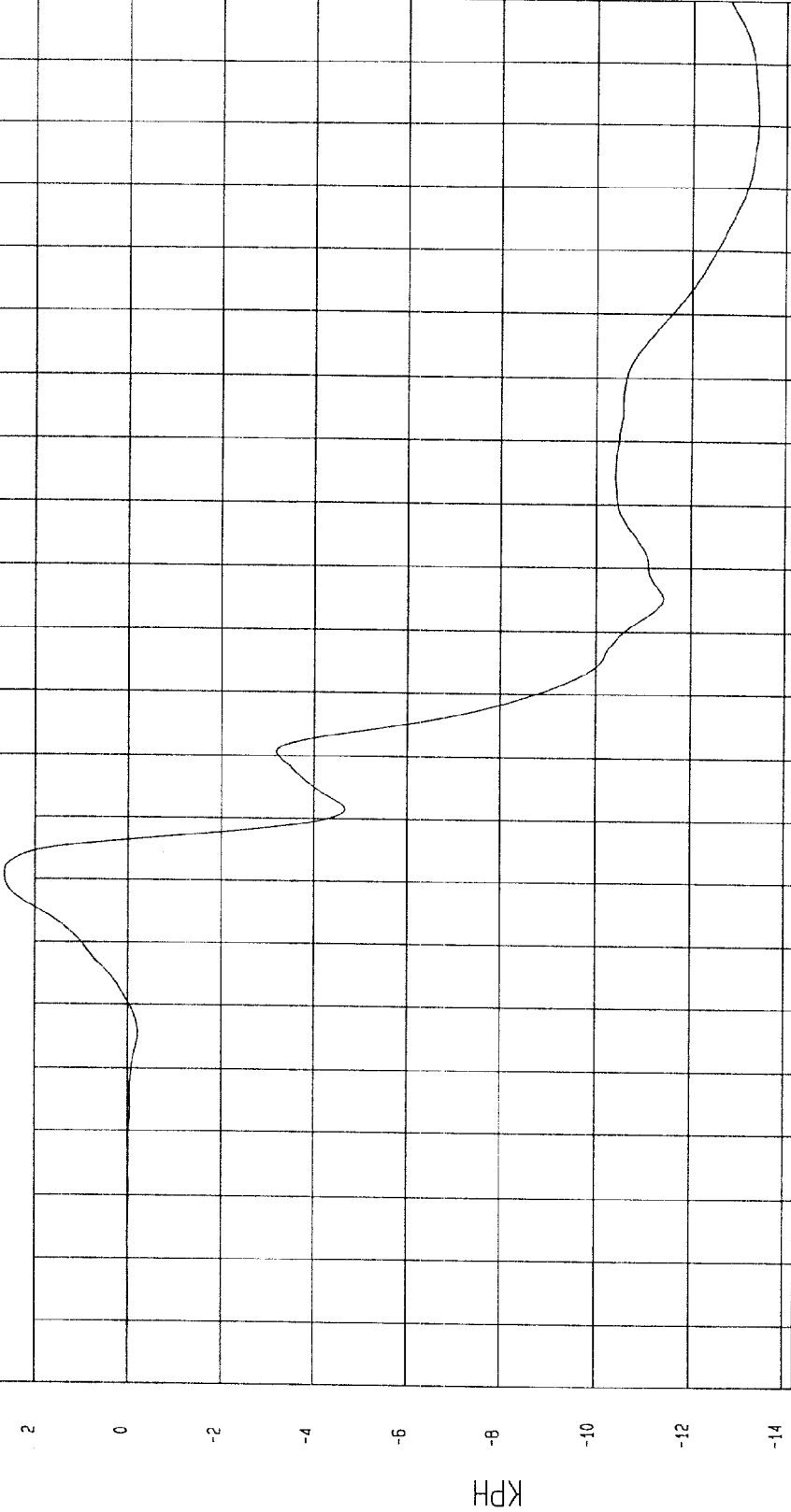
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 2.64 KPH at 61 msec

Minimum = -13.41 KPH at 181 msec

REAR PASSENGER HEAD Z VELOCITY

1 890110A1.Y24 Filterclass (180)



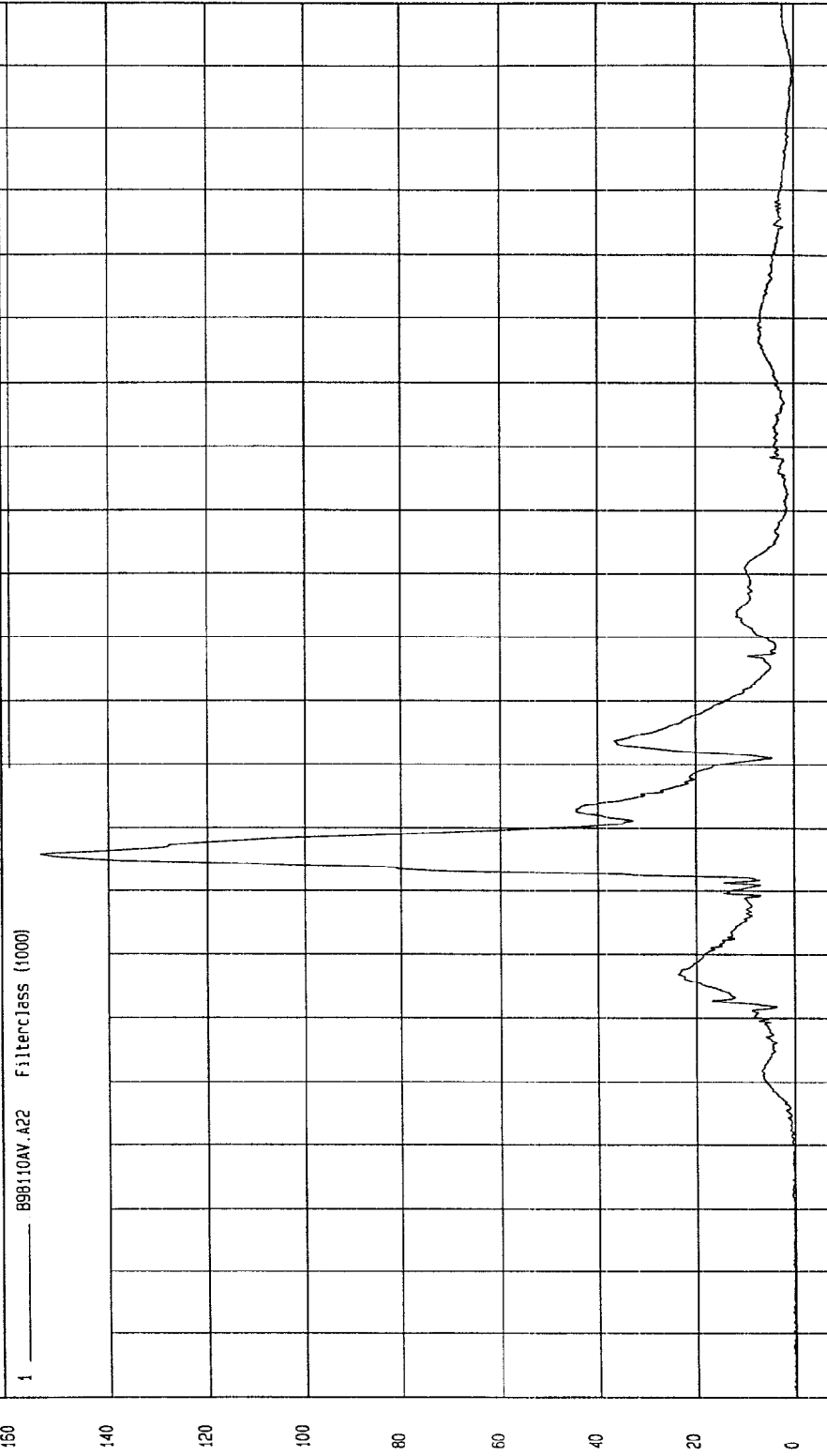
MGA Research
11-24-1998 14: 22

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = .13 G'S at -20 msec Maximum = 153.97 G'S at 66 msec

REAR PASSENGER HEAD RESULTANT ACCELERATION



TIME (SECONDS)

McA Research
11-24-1998 14:15

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

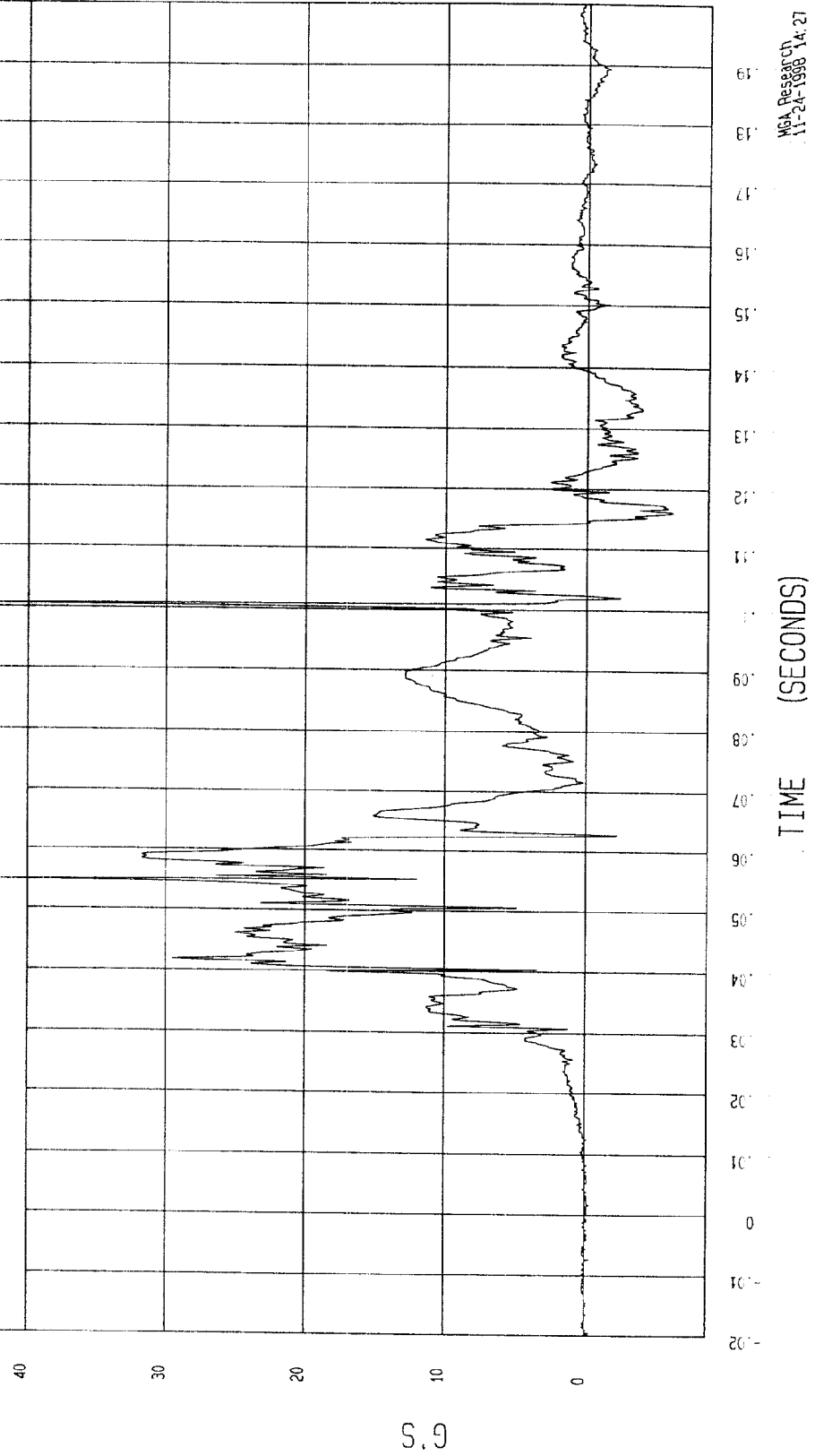
Speed: 38.1 MPH 61.3 KPH

Minimum = -6.12 G'S at 116 msec

Maximum = 45.4 G'S at 101 msec

REAR PASSENGER UPPER RIB Y ACCELERATION

1 — 898110AT.A25 Filterclass (1000)

MSA Research
11-24-1998 14:27

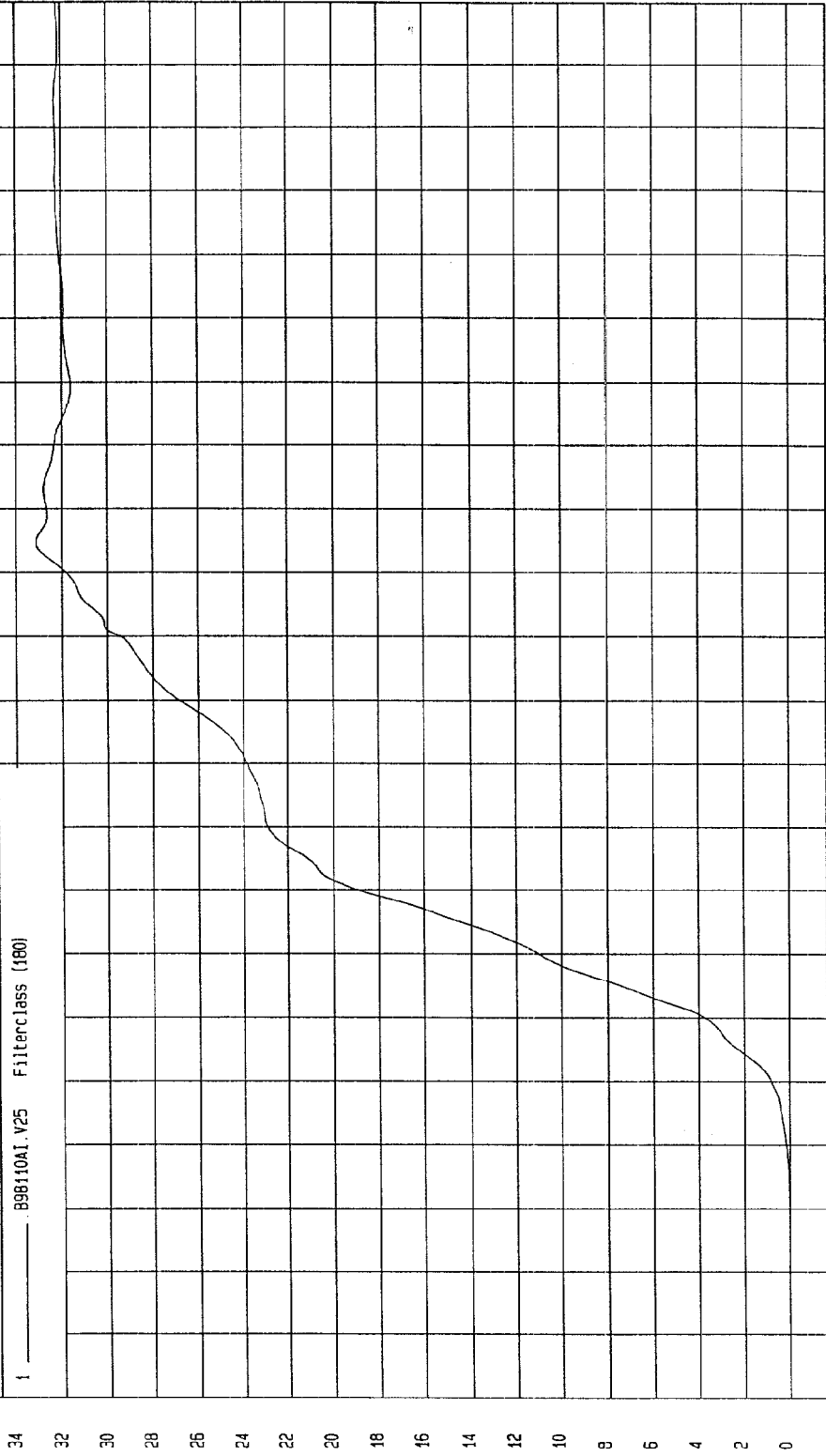
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -1.84E-03 KPH at -19 msec Maximum = 33.14 KPH at 115 msec

REAR PASSENGER UPPER RIB Y VELOCITY

1 898110A1.V25 Filterclass (160)



NSA Research
11-24-1998 14:33

TIME Seconds

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

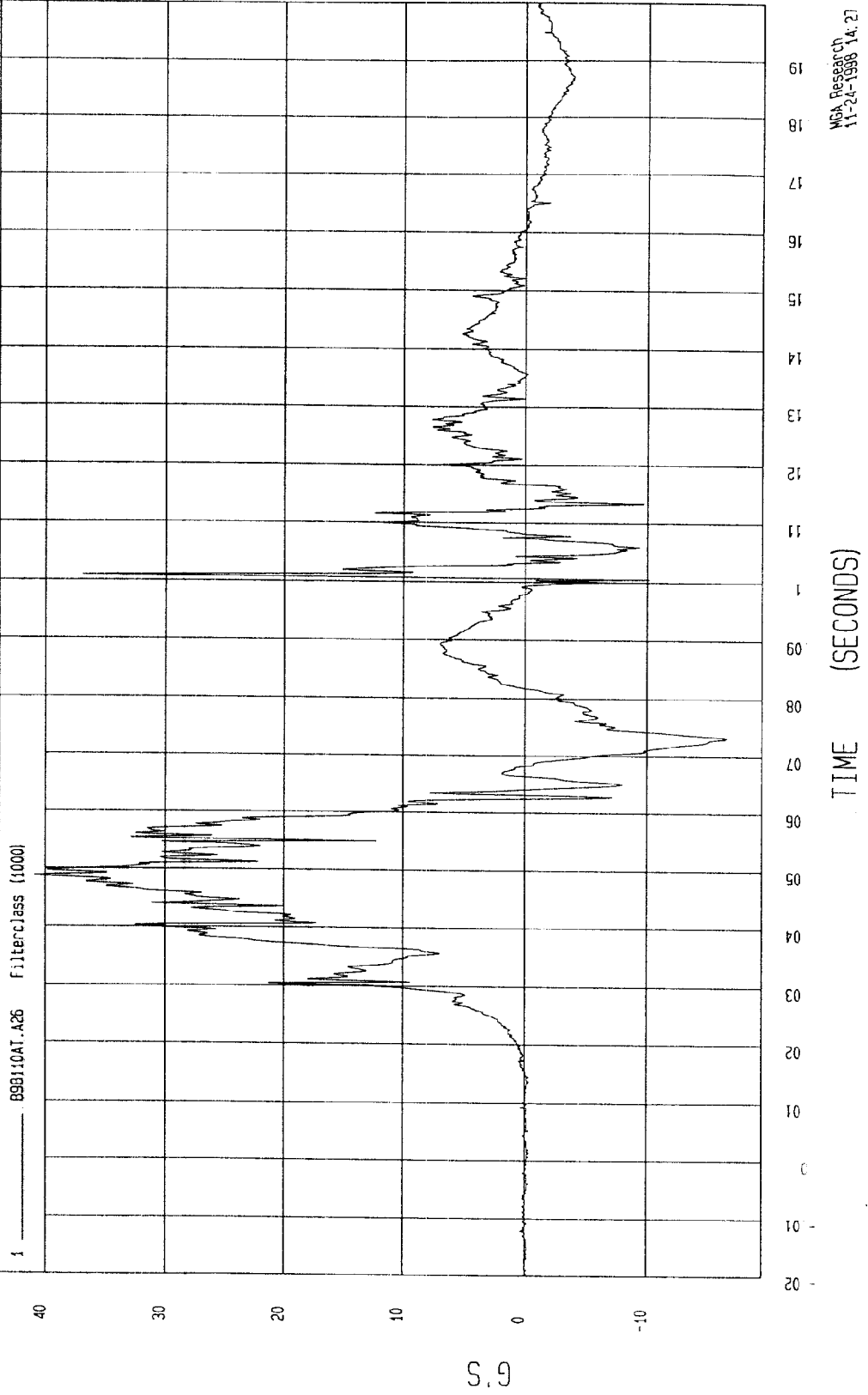
Speed: 38.1 MPH 61.3 KPH

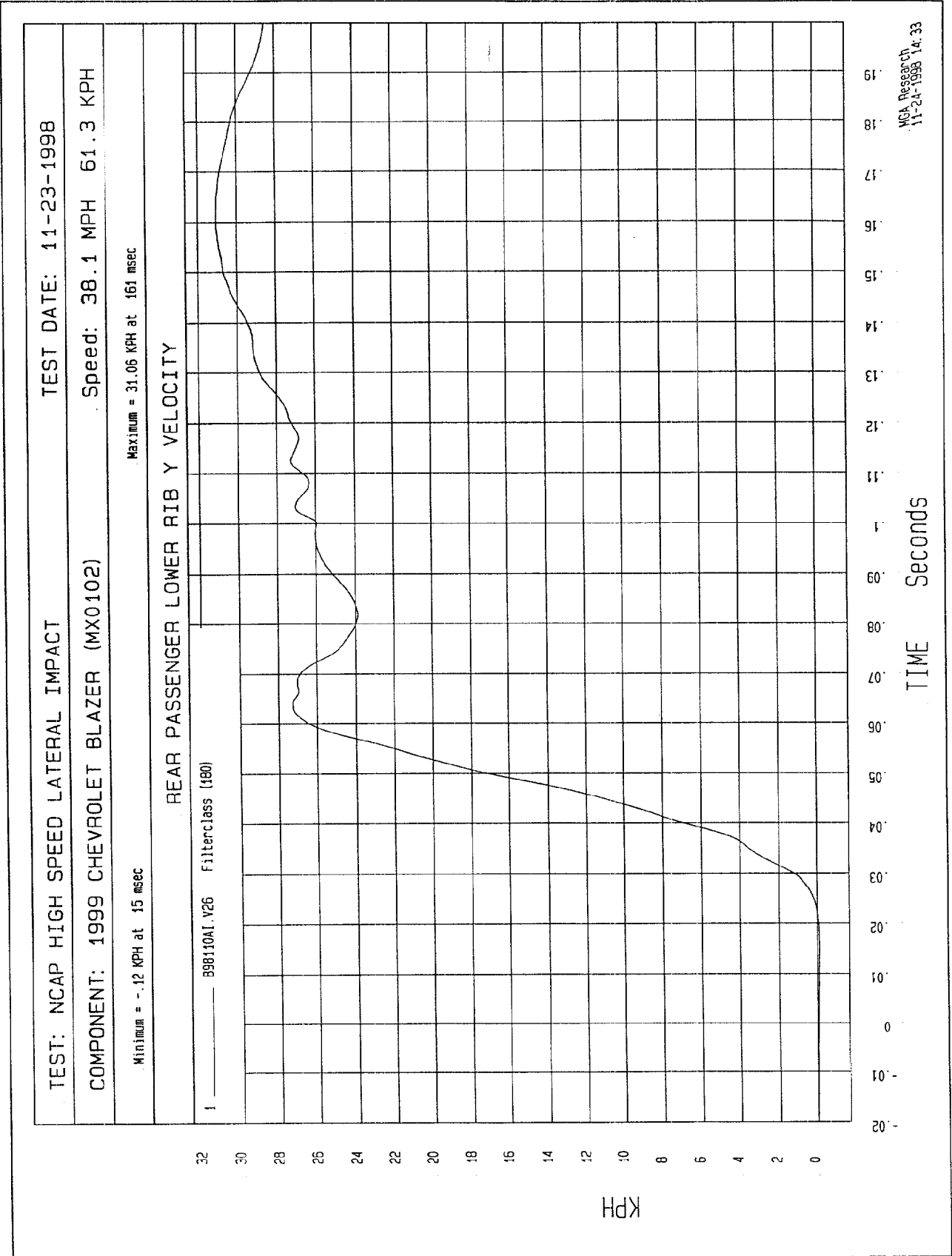
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 40.93 G'S at 49 msec

Minimum = -16.56 G'S at 73 msec

REAR PASSENGER LOWER RIB Y ACCELERATION



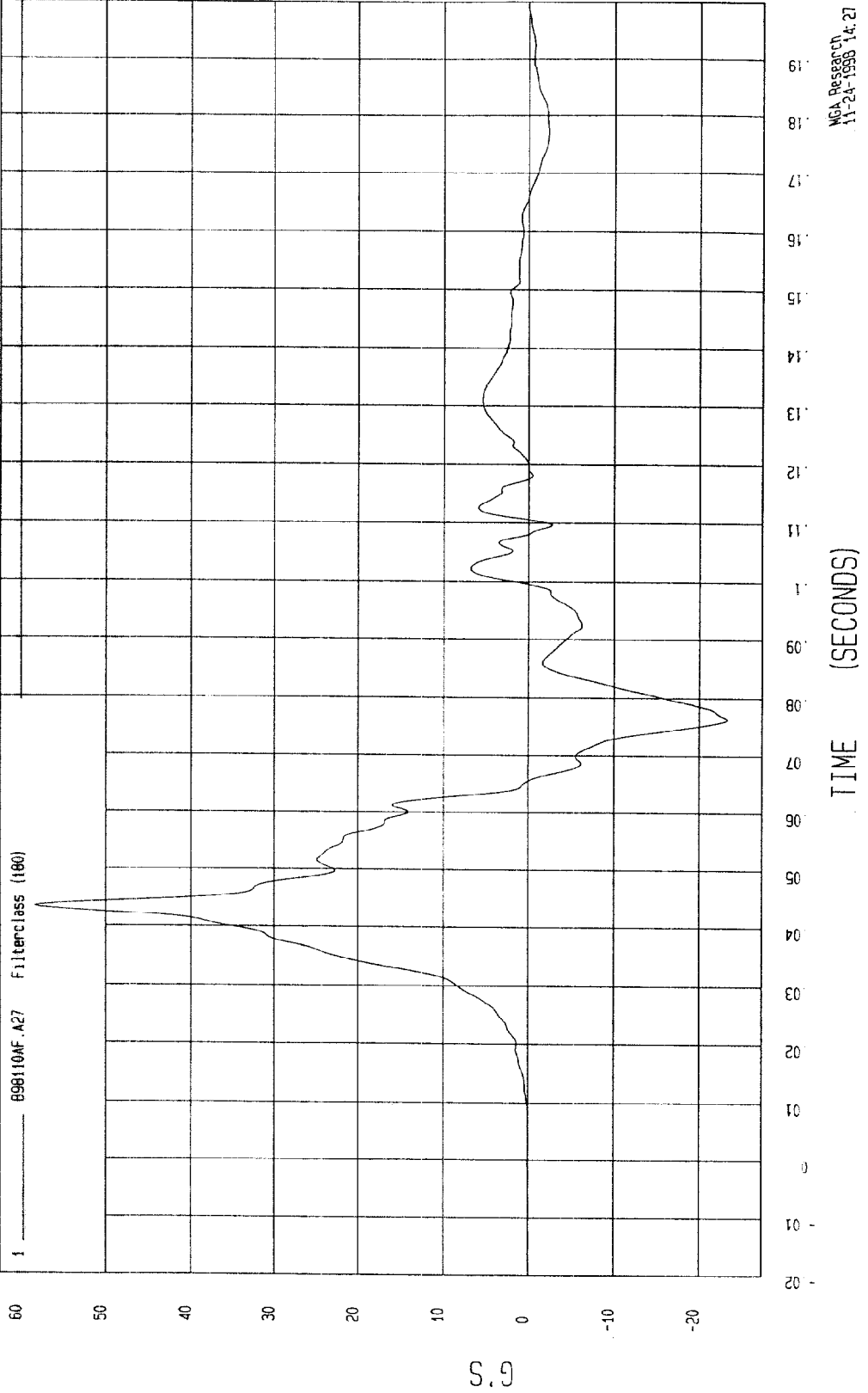


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -23.26 G'S at 76 msec Maximum = 58.38 G'S at 44 msec

REAR PASSENGER LOWER SPINE Y ACCELERATION

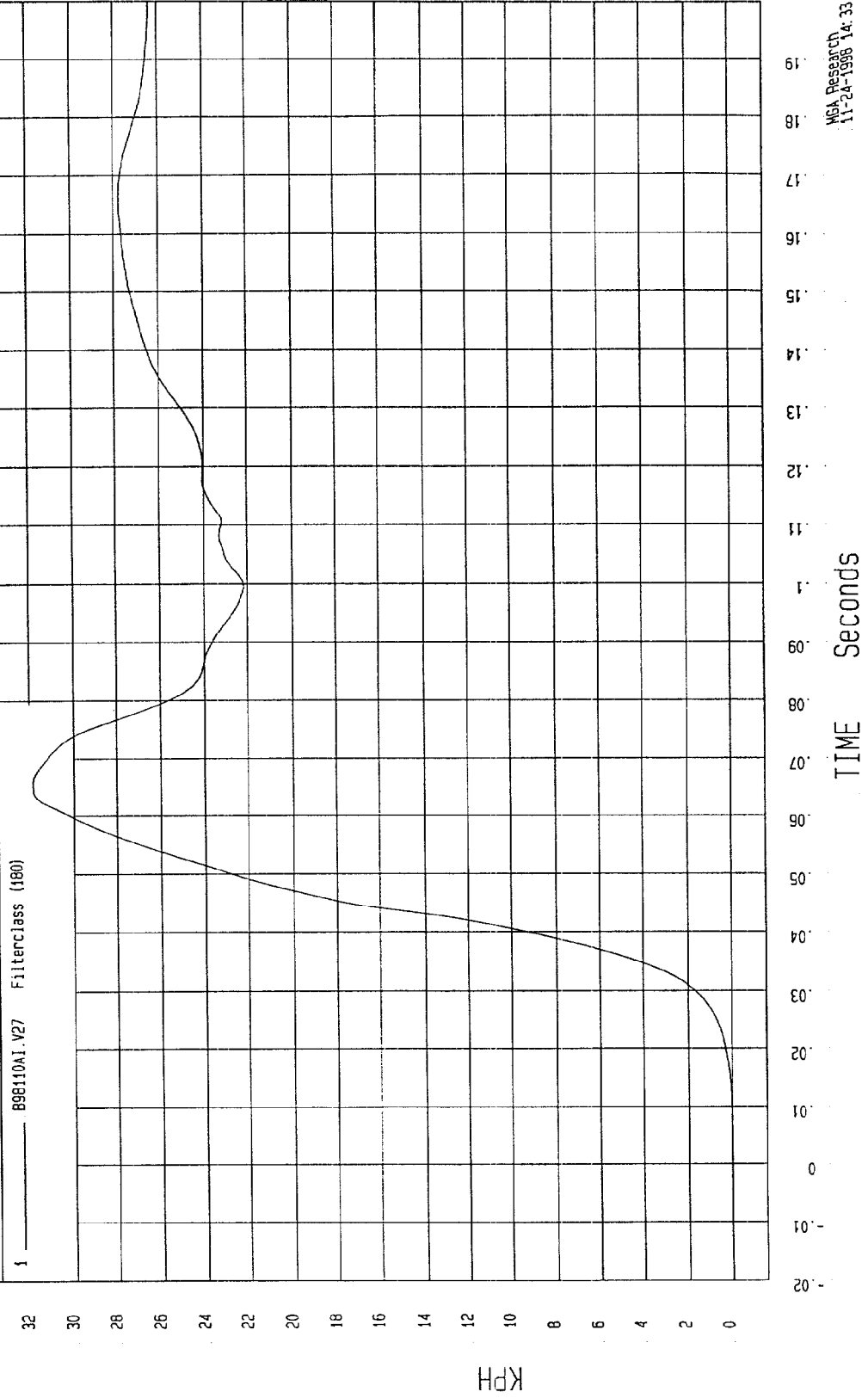


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -1.13E-03 KPH at -18 msec Maximum = 31.83 KPH at 66 msec

REAR PASSENGER LOWER SPINE Y VELOCITY



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

Speed: 38.1 MPH 61.3 KPH

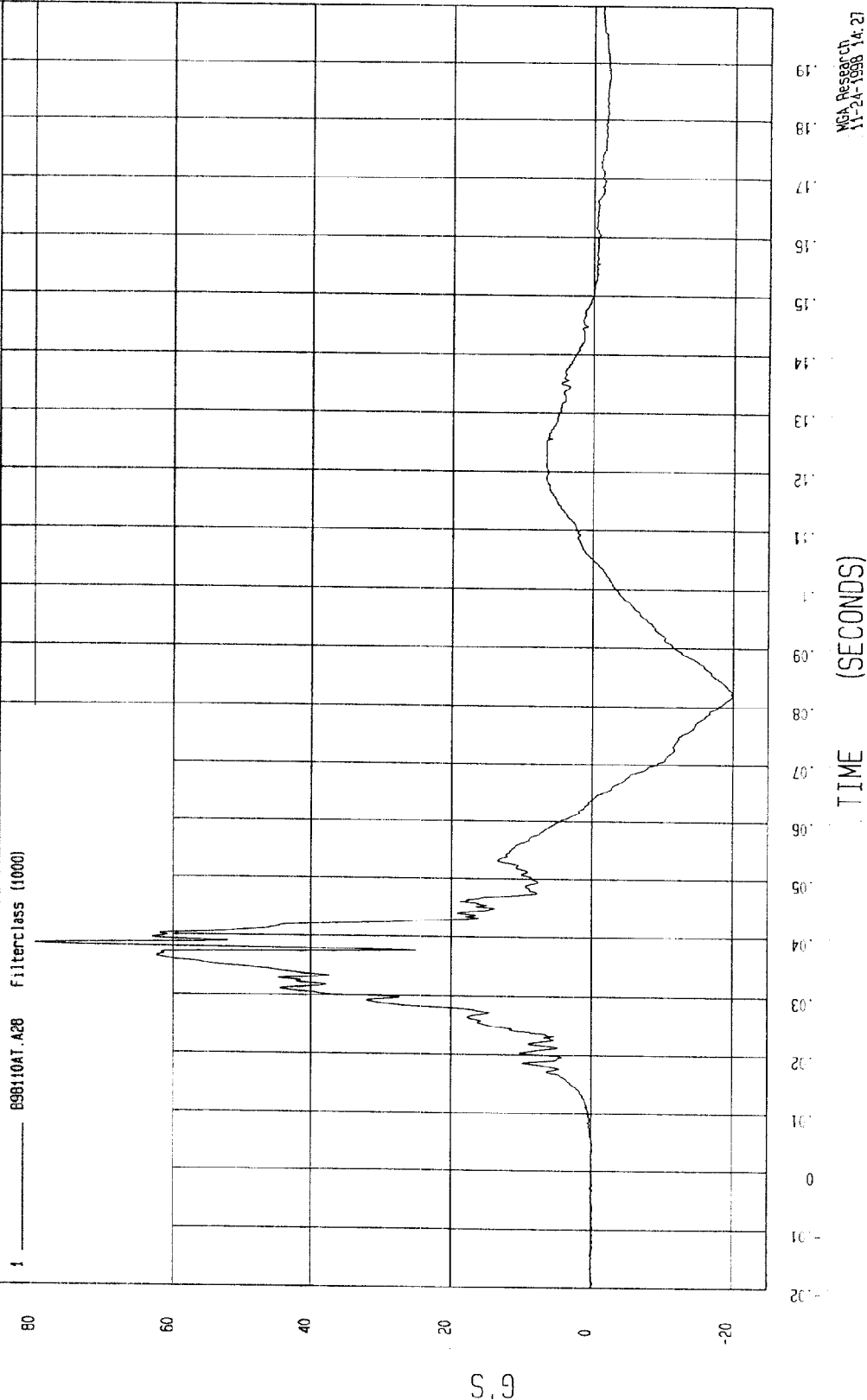
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 79.99 G'S at 38 msec

Minimum = -19.89 G'S at 82 msec

REAR PASSENGER PELVIS Y ACCELERATION

1 B98110AT.A28 Filterclass (1000)



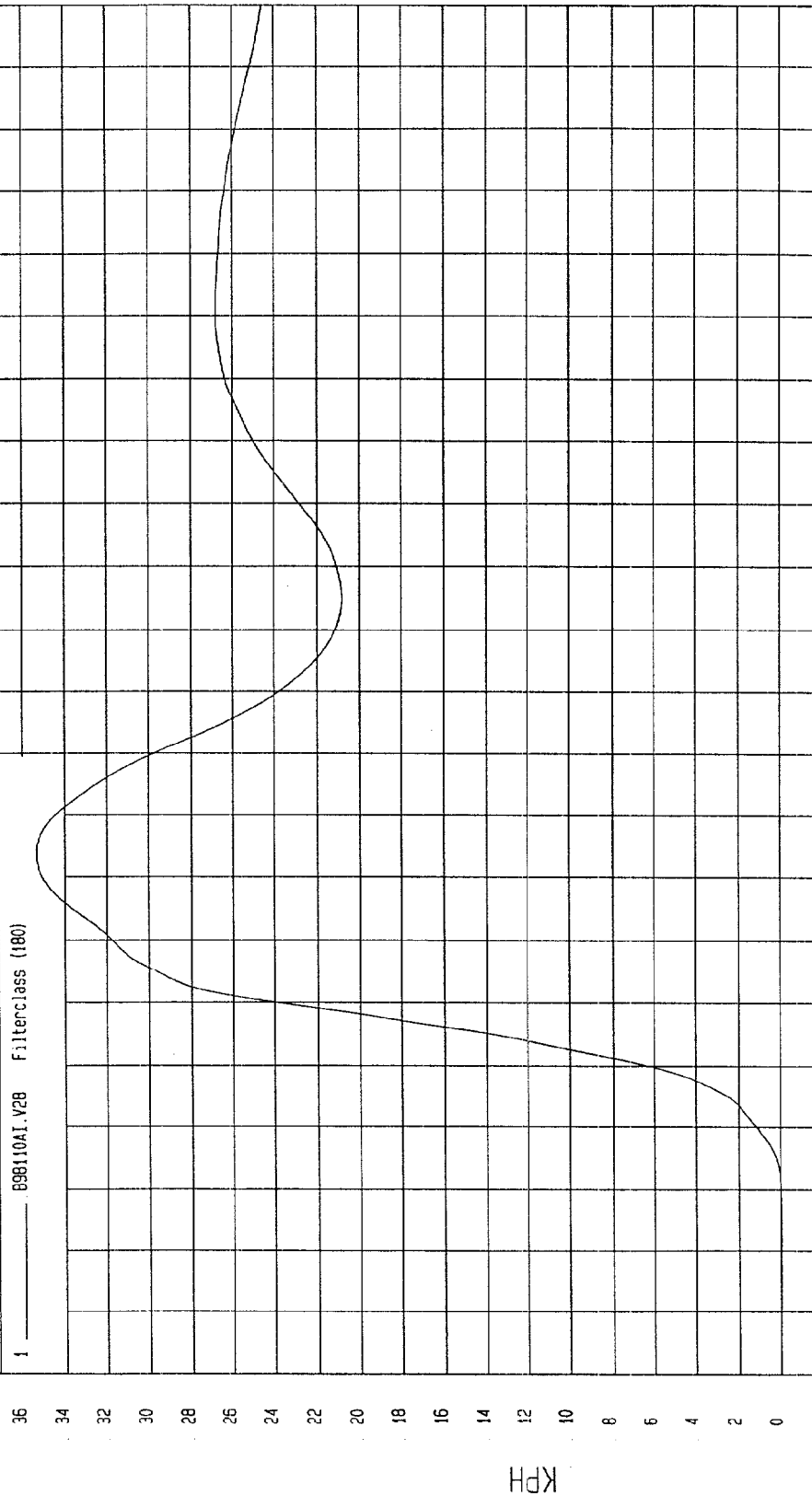
WCA Research
11-23-1998 14: 27

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -5.27E-02 KPH at 5 msec Maximum = 35.35 KPH at 64 msec

REAR PASSENGER PELVIS Y VELOCITY



TIME Seconds

MGA Research
11-24-1998 14:37

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

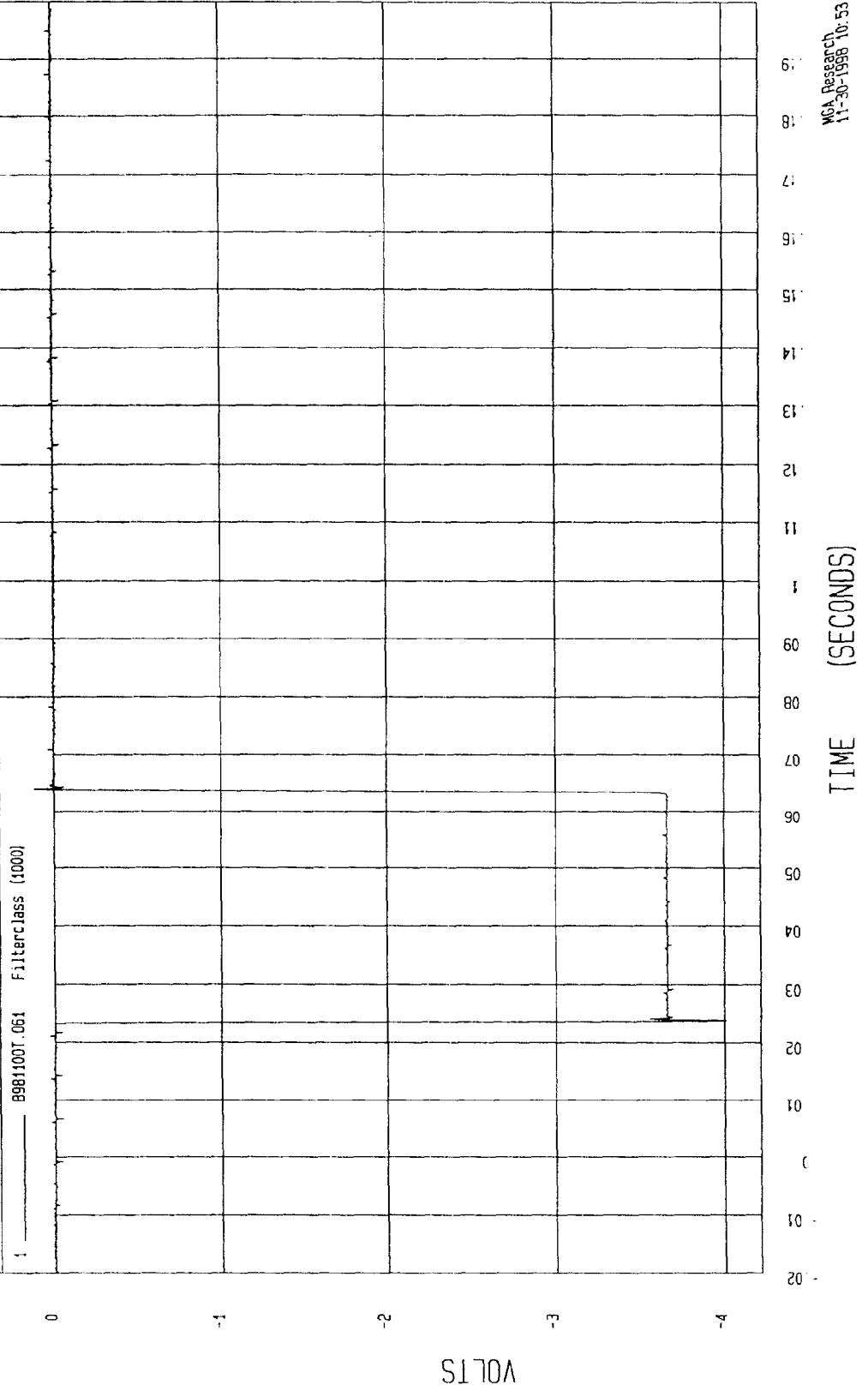
Speed: 38.1 MPH 61.3 KPH

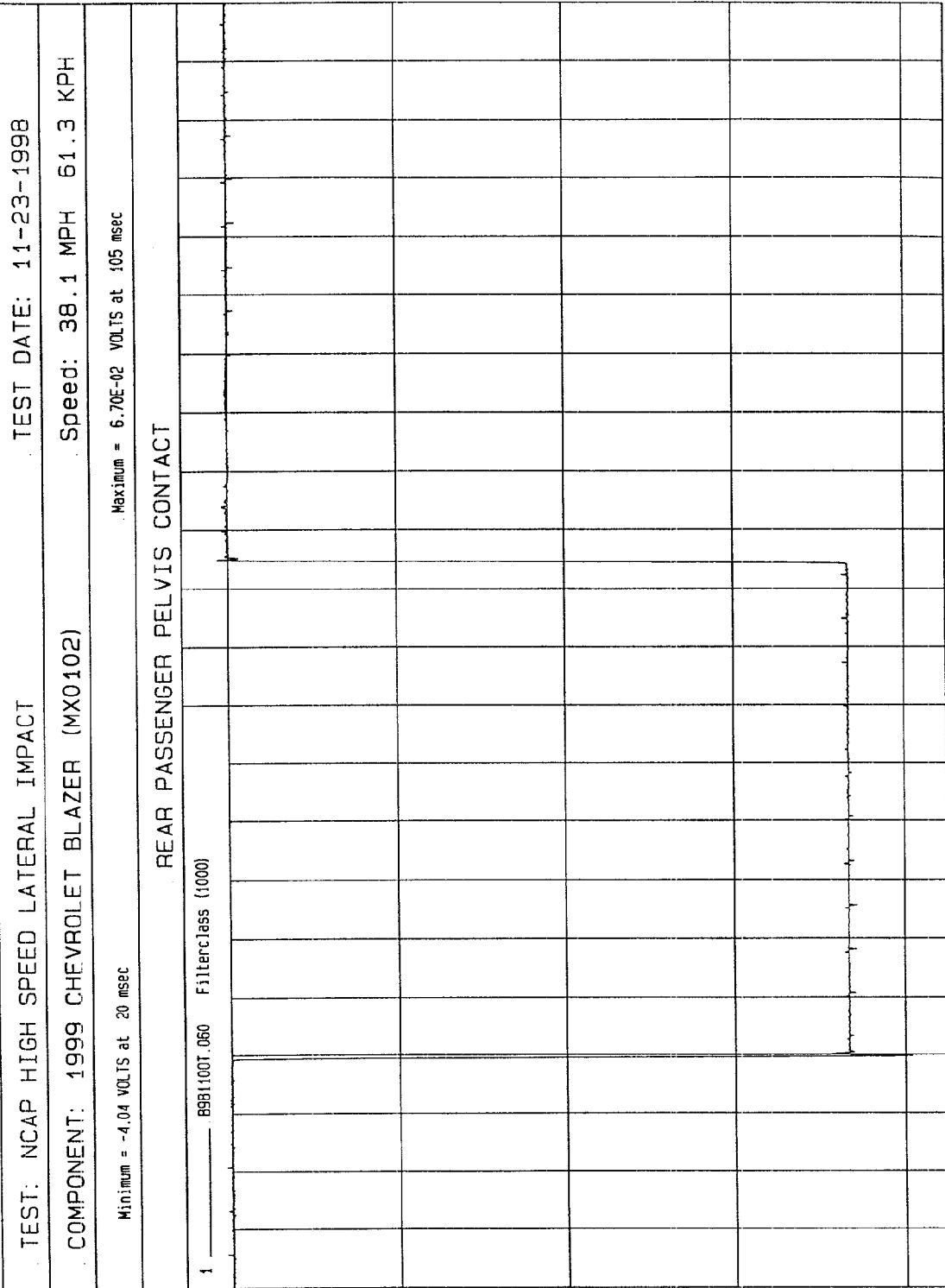
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = .12 VOLTS at 64 msec

Minimum = -4.01 VOLTS at 24 msec

REAR PASSENGER SHOULDER CONTACT





NCA Research
11-30-1998 10:53

LEFT SIDE SILL @ FRONT SEAT Y ACCELERATION VS. TIME

NO VALID DATA COLLECTED

LEFT SIDE SILL @ REAR SEAT Y ACCELERATION VS. TIME

NO VALID DATA COLLECTED

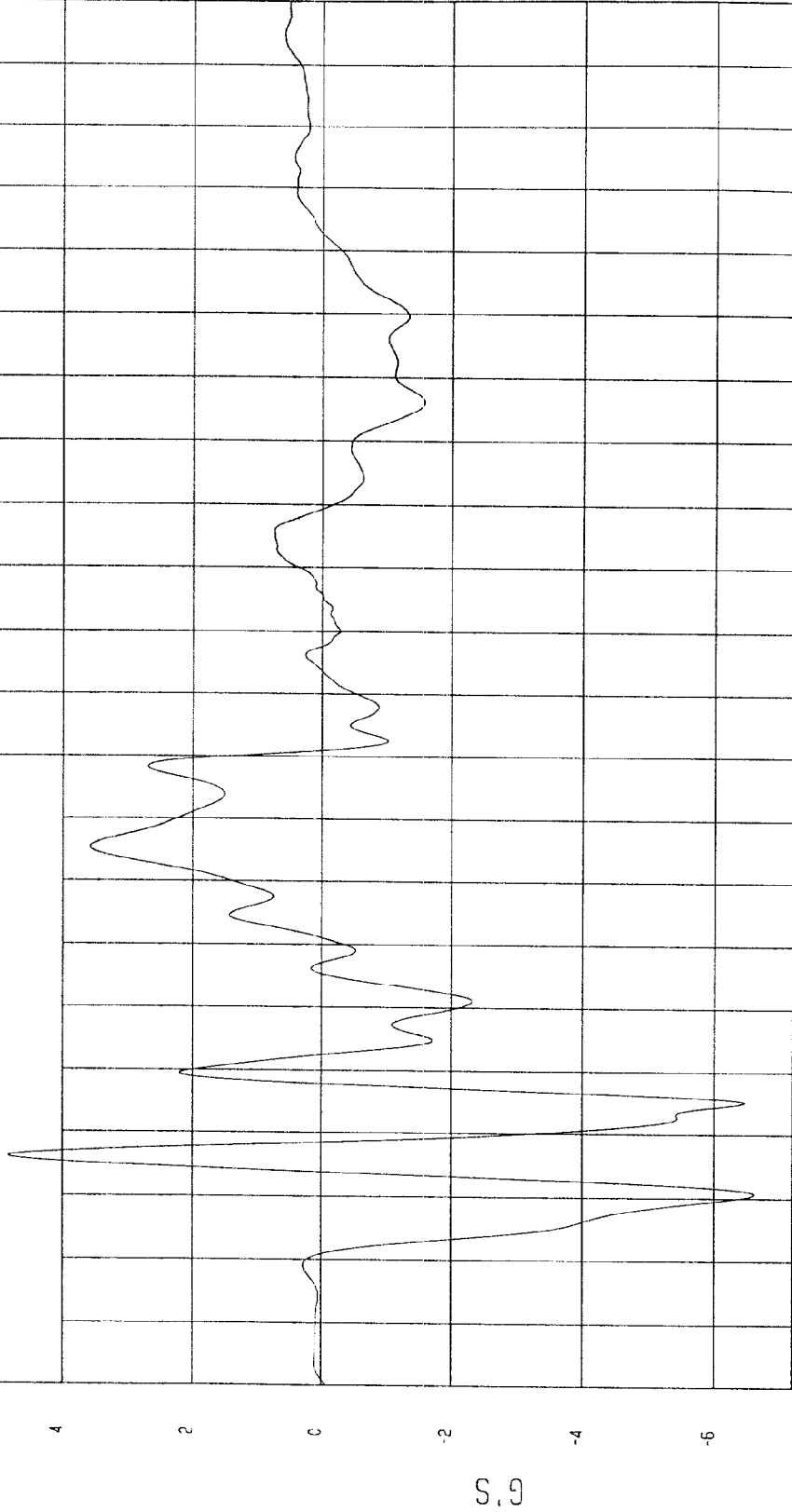
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -6.62 G'S at 11 msec Maximum = 4.82 G'S at 16 msec

RIGHT SIDE SILL AT FRONT SEAT X ACCELERATION

1 898110AF.A32 Filterclass (60)



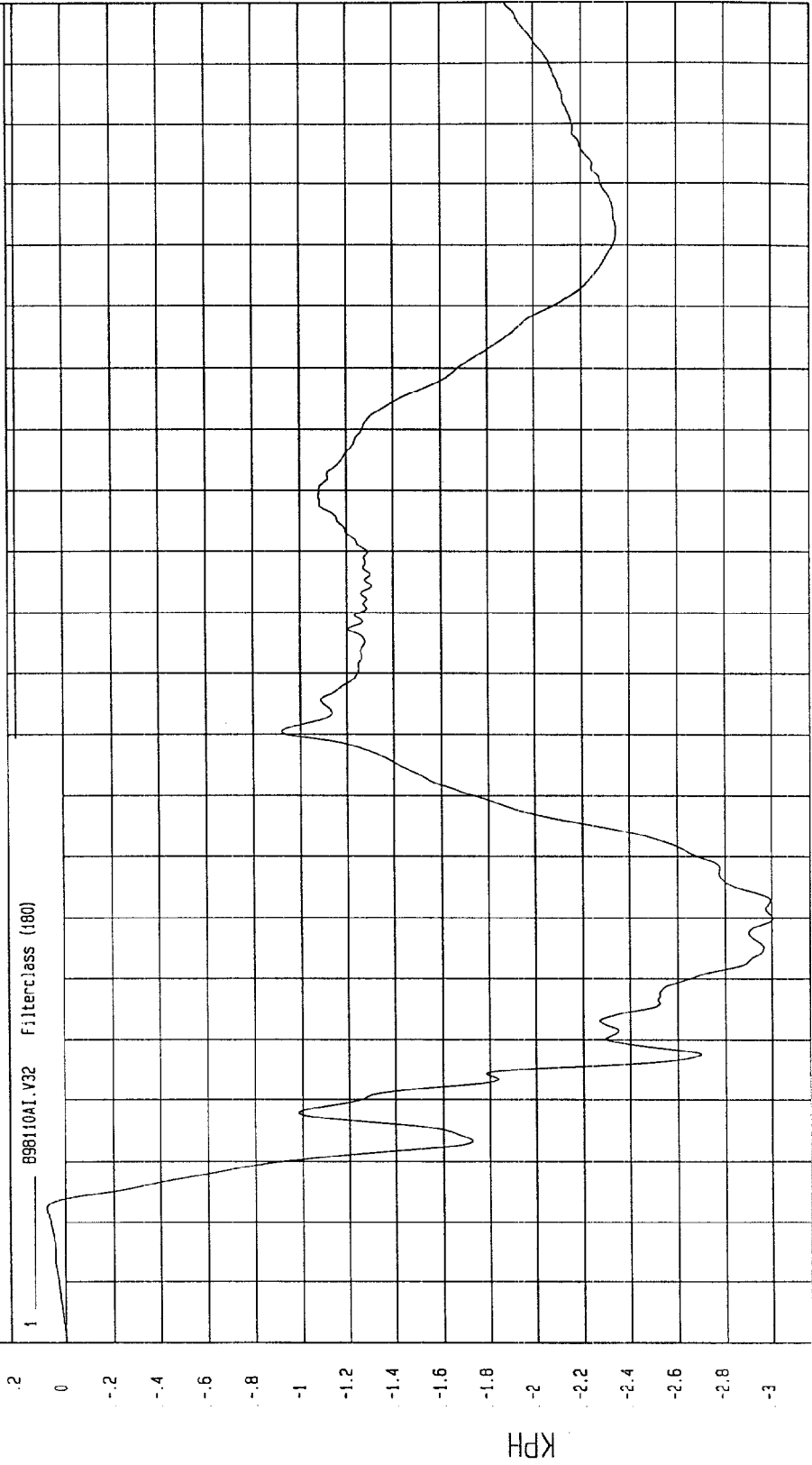
WGA Research
11-24-1998 14:57

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -3.01 KPH at 50 msec Maximum = 7.70E-02 KPH at 2 msec

RIGHT SIDE SILL AT FRONT SEAT X VELOCITY



TIME Seconds

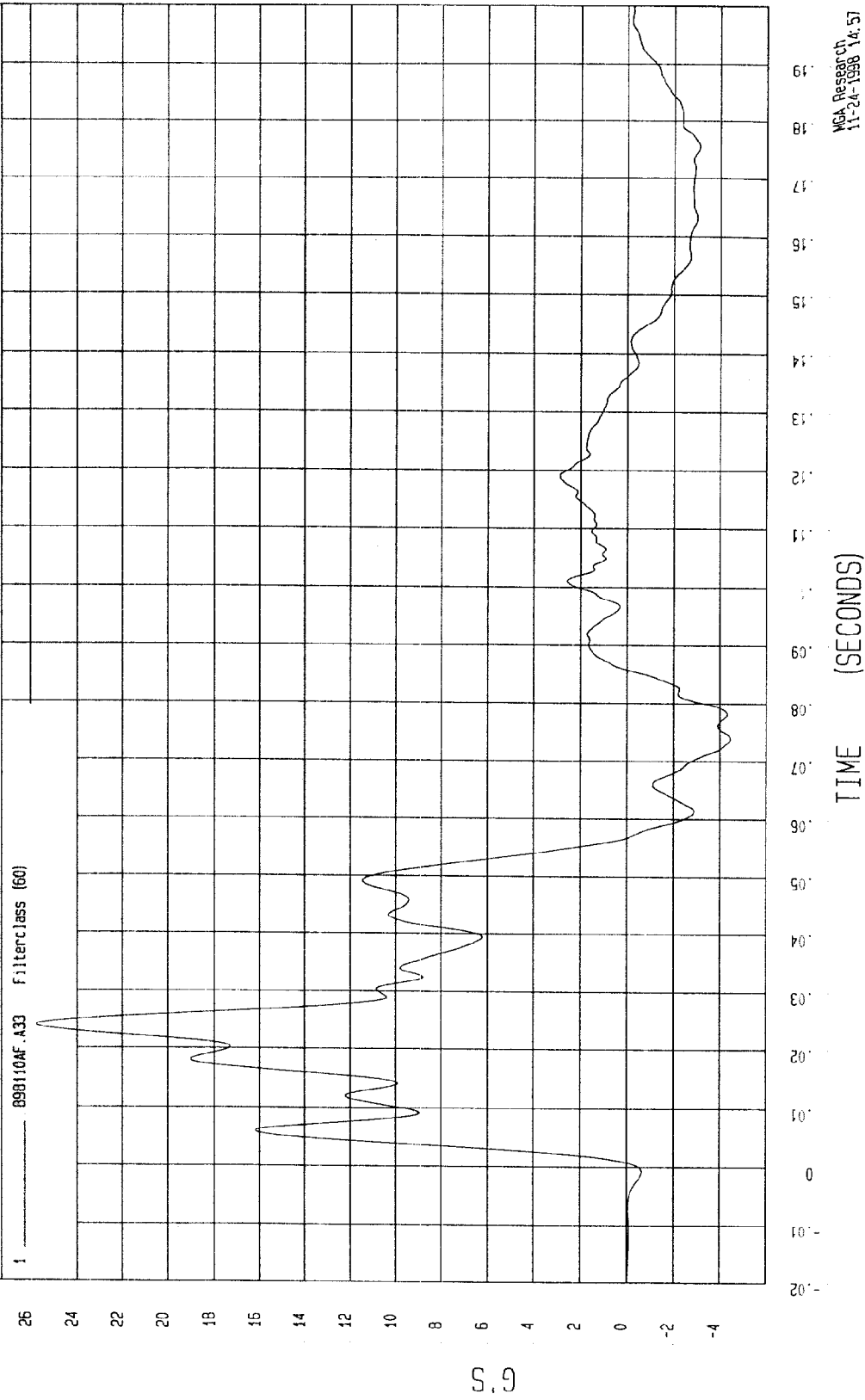
MSA Research
11-24-1998 15.13

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -4.47 G'S at 74 msec Maximum = 25.75 G'S at 24 msec

RIGHT SIDE SILL AT FRONT SEAT Y ACCELERATION



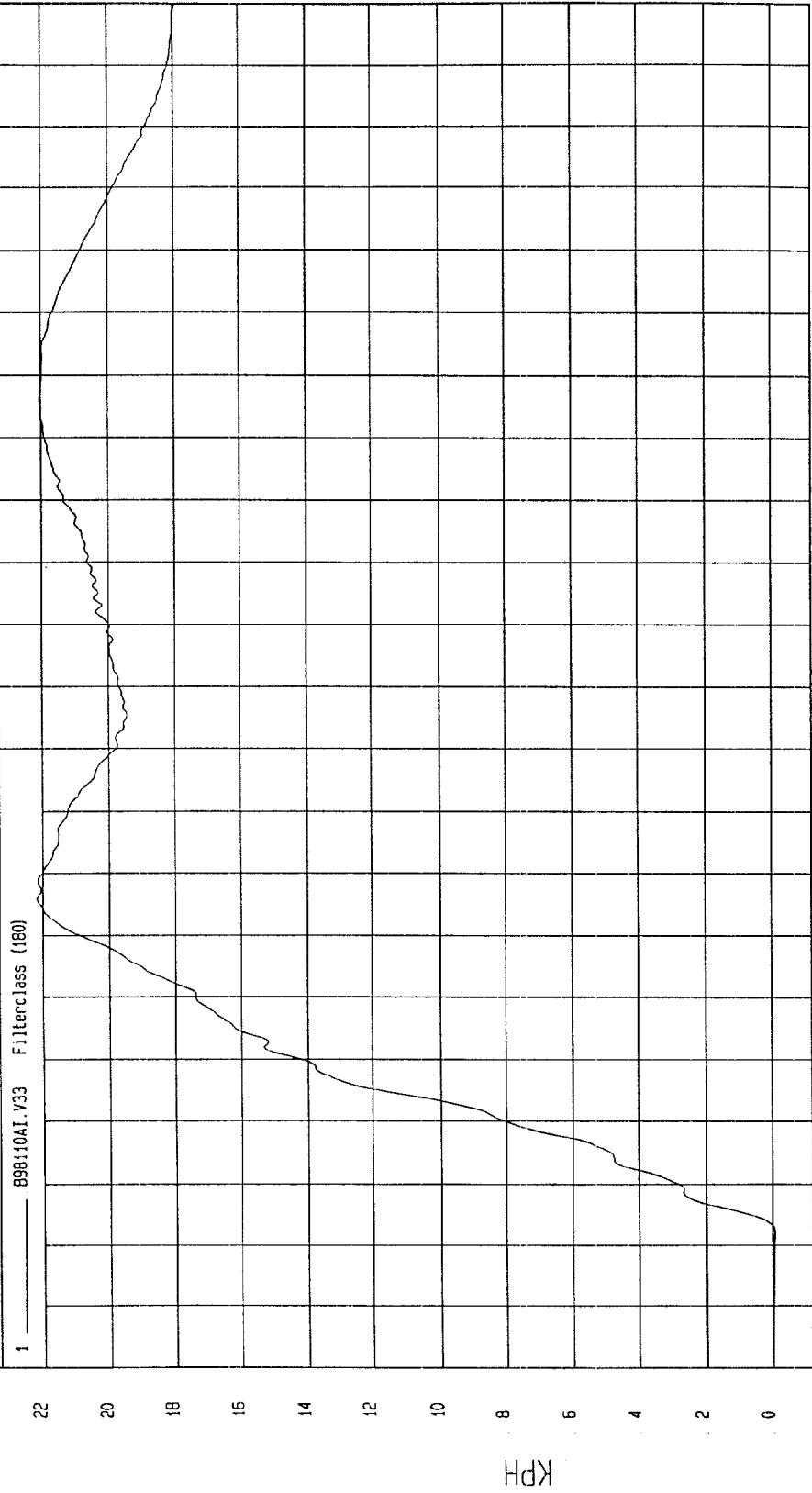
MCA Research
11-24-1998 14:57

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -7.08E-02 KPH at 2 msec Maximum = 22.18 KPH at 56 msec

RIGHT SIDE SILL AT FRONT SEAT Y VELOCITY



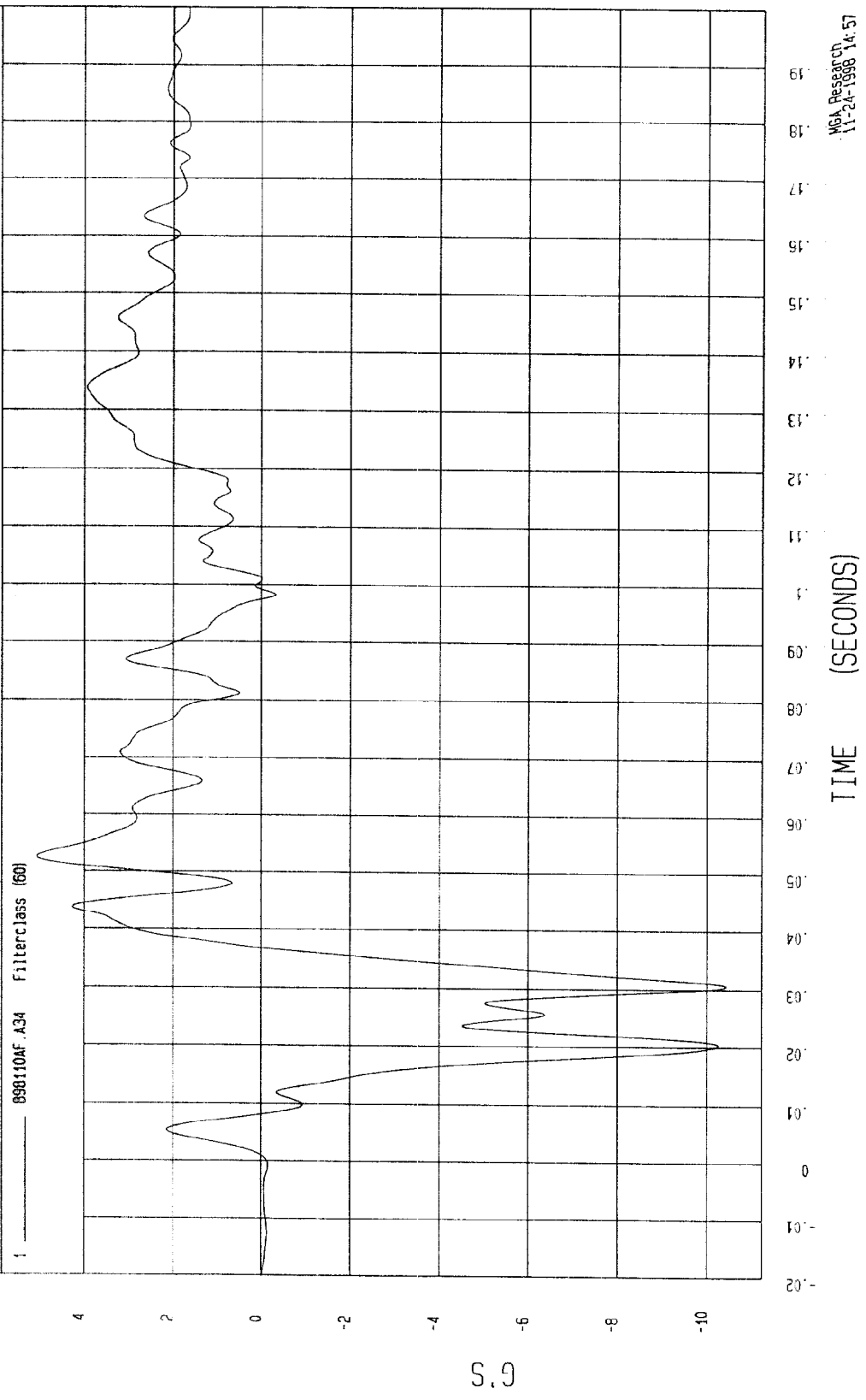
NCI Research
11-24-1998 15.13

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

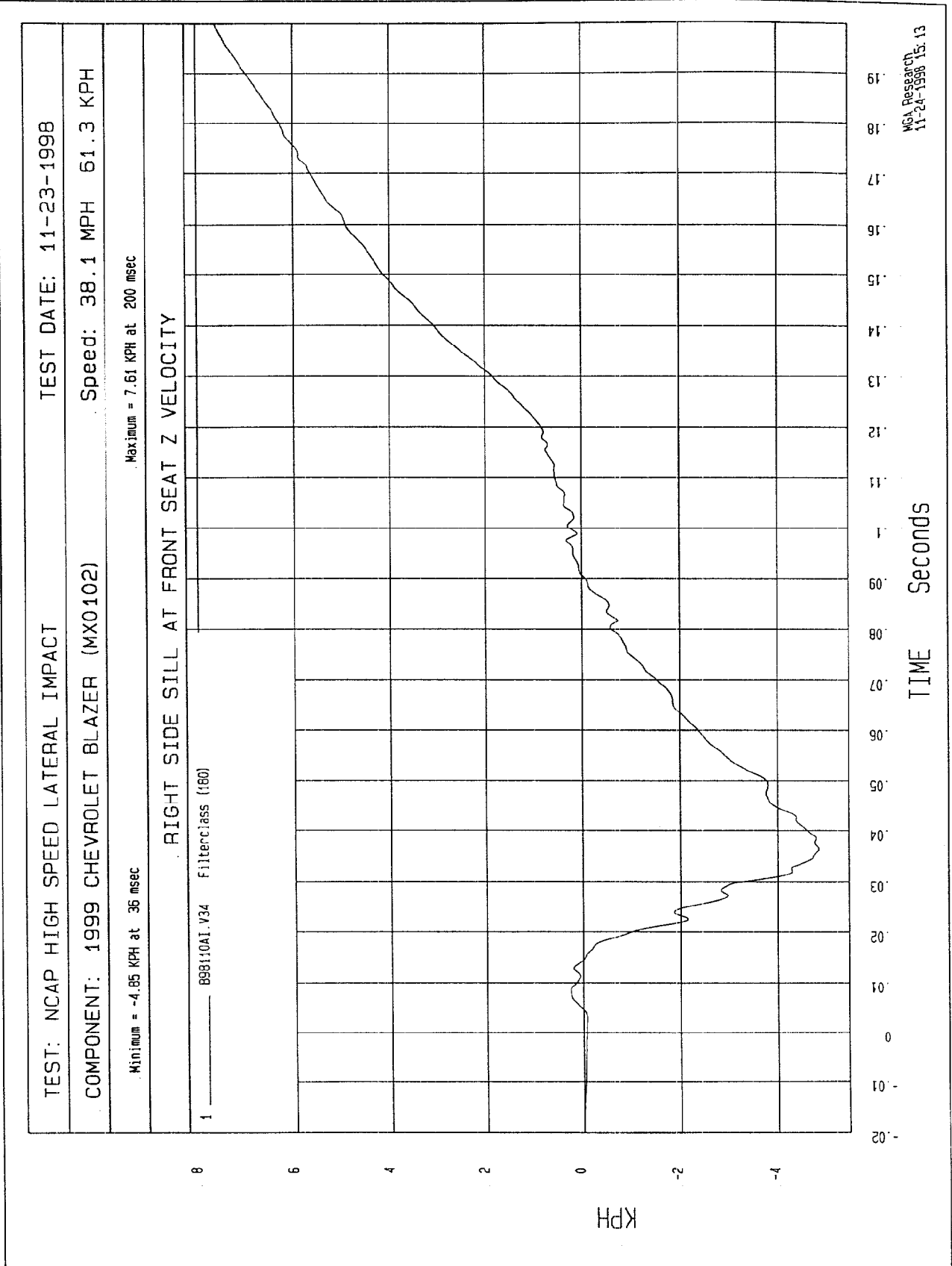
COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -10.43 G'S at 30 msec Maximum = 5.04 G'S at 52 msec

RIGHT SIDE SILL AT FRONT SEAT Z ACCELERATION



MOA Research
11-24-1998 14:57



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

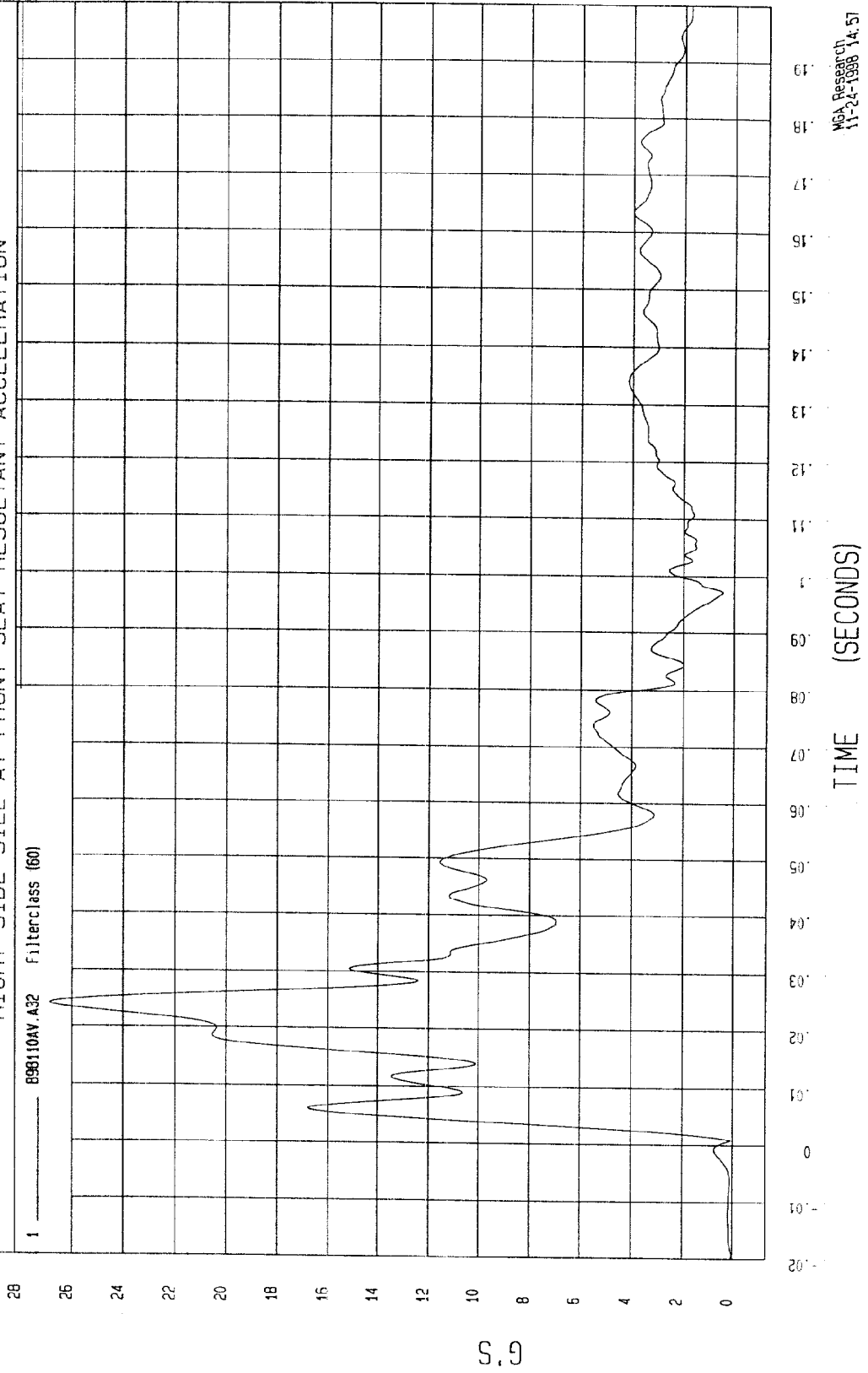
Speed: 38.1 MPH 61.3 KPH

COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 26.85 G'S at 24 msec

Minimum = 4.94E-02 G'S at -19 msec

RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION



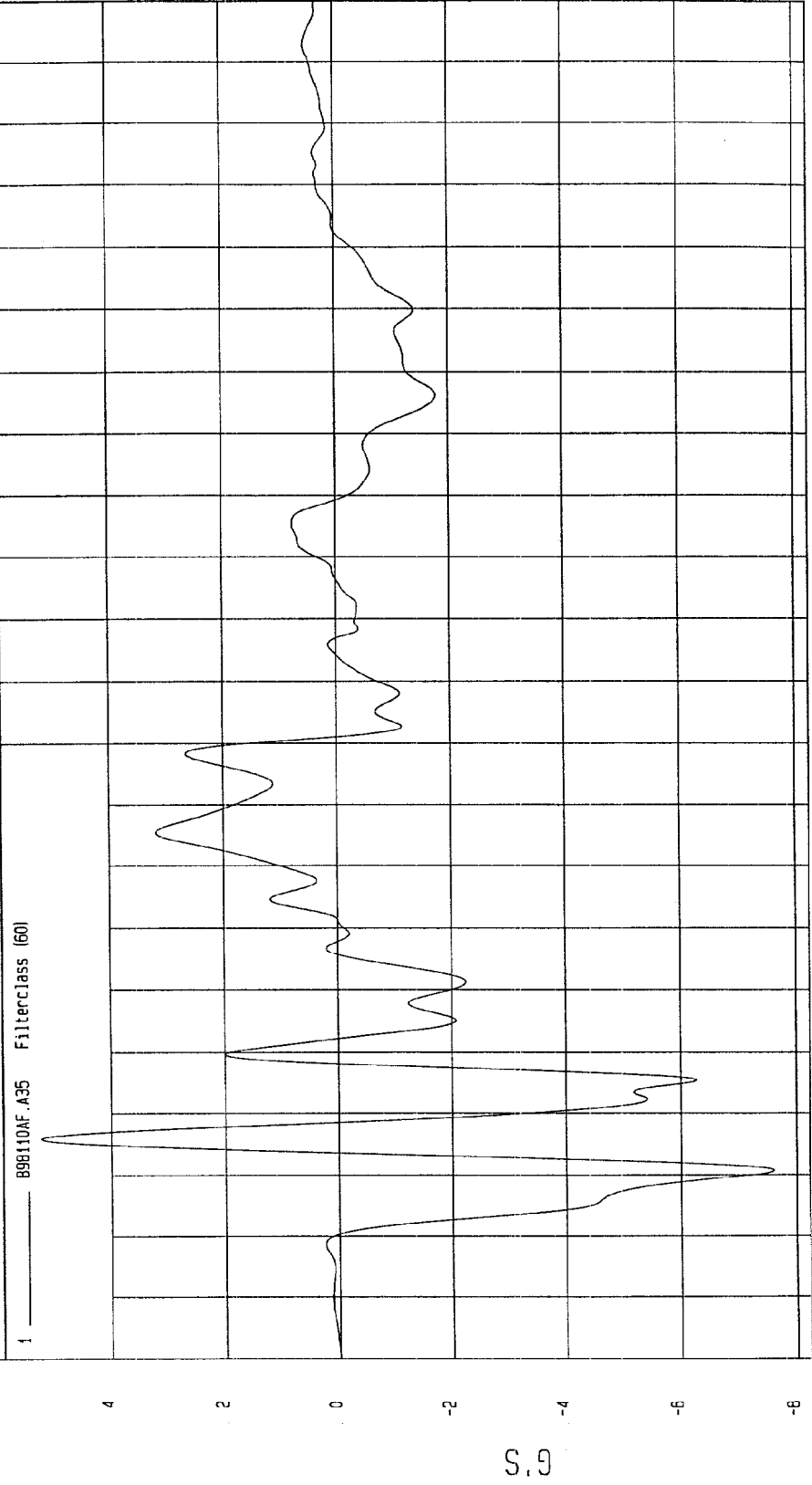
MGA Research
11-24-1998 14:57

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -7.6 G'S at 11 msec Maximum = 5.23 G'S at 16 msec

RIGHT SIDE SILL AT REAR SEAT X ACCELERATION



TIME (SECONDS)

MSA Research
11-24-1998 14:58

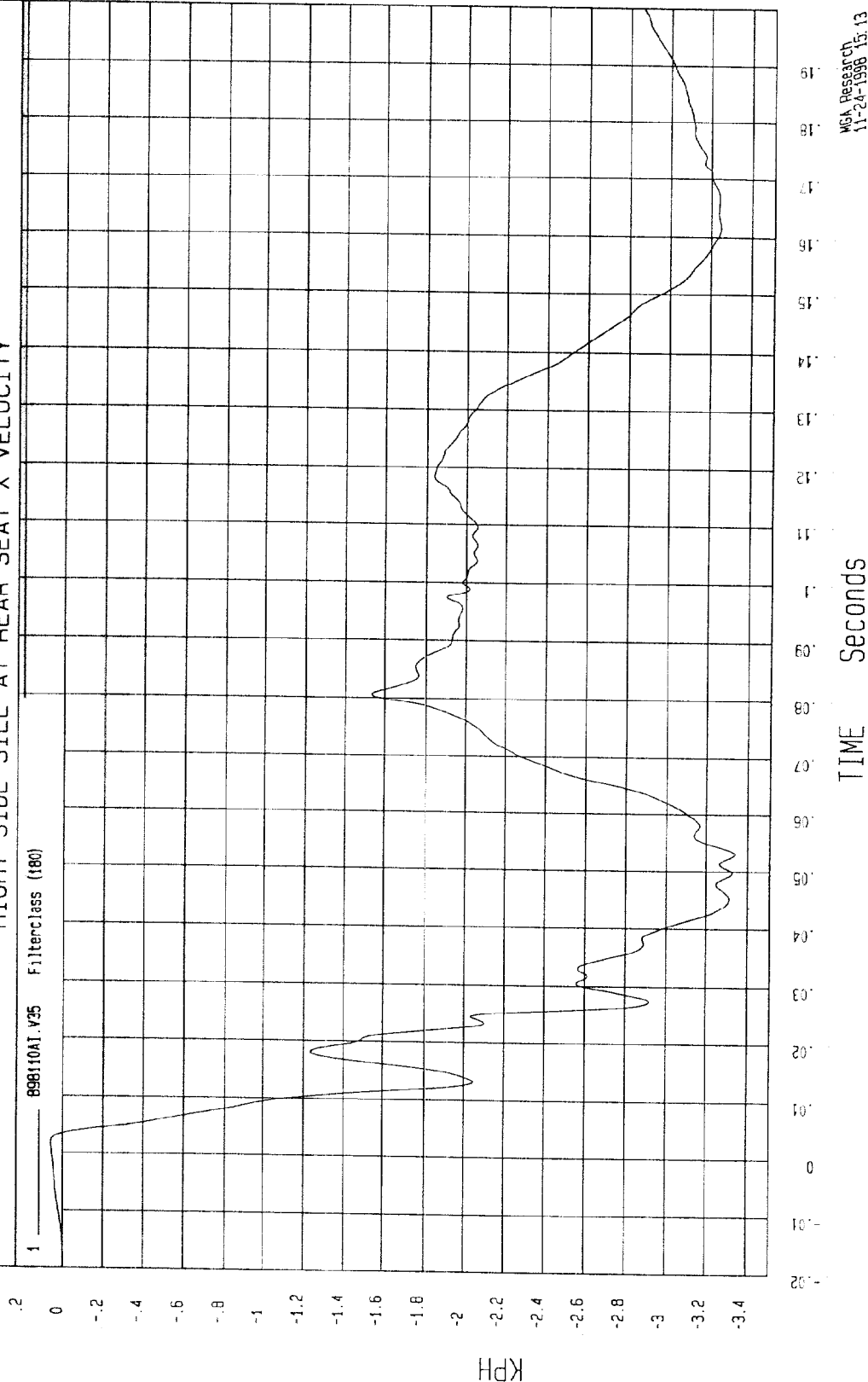
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -3.34 KPH at 53 msec Maximum = 5.97E-02 KPH at 2 msec

RIGHT SIDE SILL AT REAR SEAT X VELOCITY

1 898110A1.V35 Filterclass (f80)



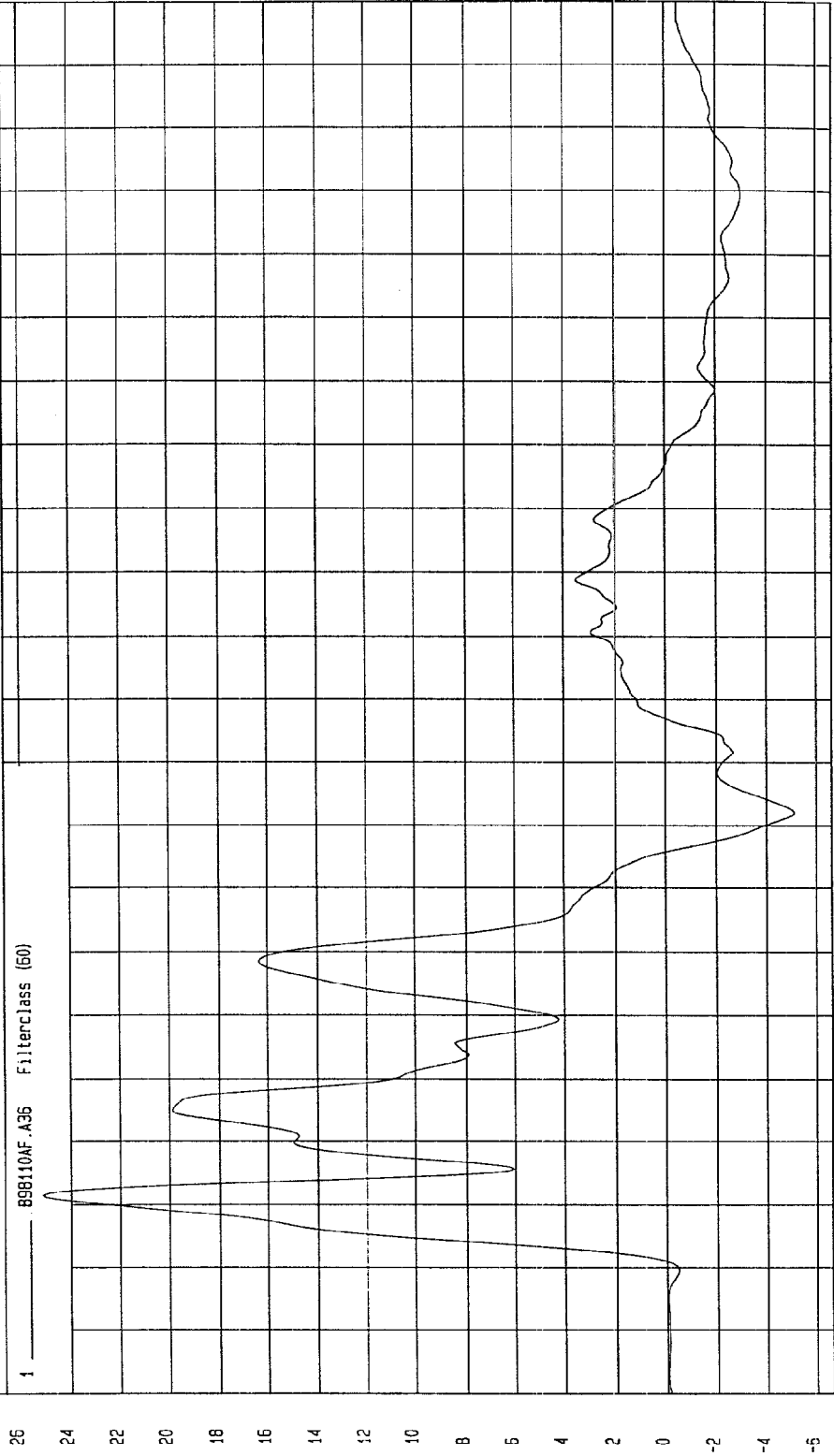
MSA Research
11-24-1998 15:13

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -5.12 G'S at 72 msec Maximum = 25.11 G'S at 11 msec

RIGHT SIDE SILL AT REAR SEAT Y ACCELERATION



NGA Research
11-24-1998 14:58

TIME (SECONDS)

G.G

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -5.87E-02 KPH at 2 msec
Maximum = 25.1 KPH at 125 msec

RIGHT SIDE SILL AT REAR SEAT Y VELOCITY

1 — 898140A1.V36 Filterclass (180)

26

24

22

20

18

16

14

12

10

8

6

4

2

0

KPH

6.1

5.8

5.7

5.5

5.4

5.3

5.2

5.1

5.0

4.9

4.8

4.7

4.6

4.5

4.4

4.3

4.2

4.1

4.0

3.9

3.8

3.7

3.6

3.5

3.4

3.3

3.2

3.1

TIME Seconds

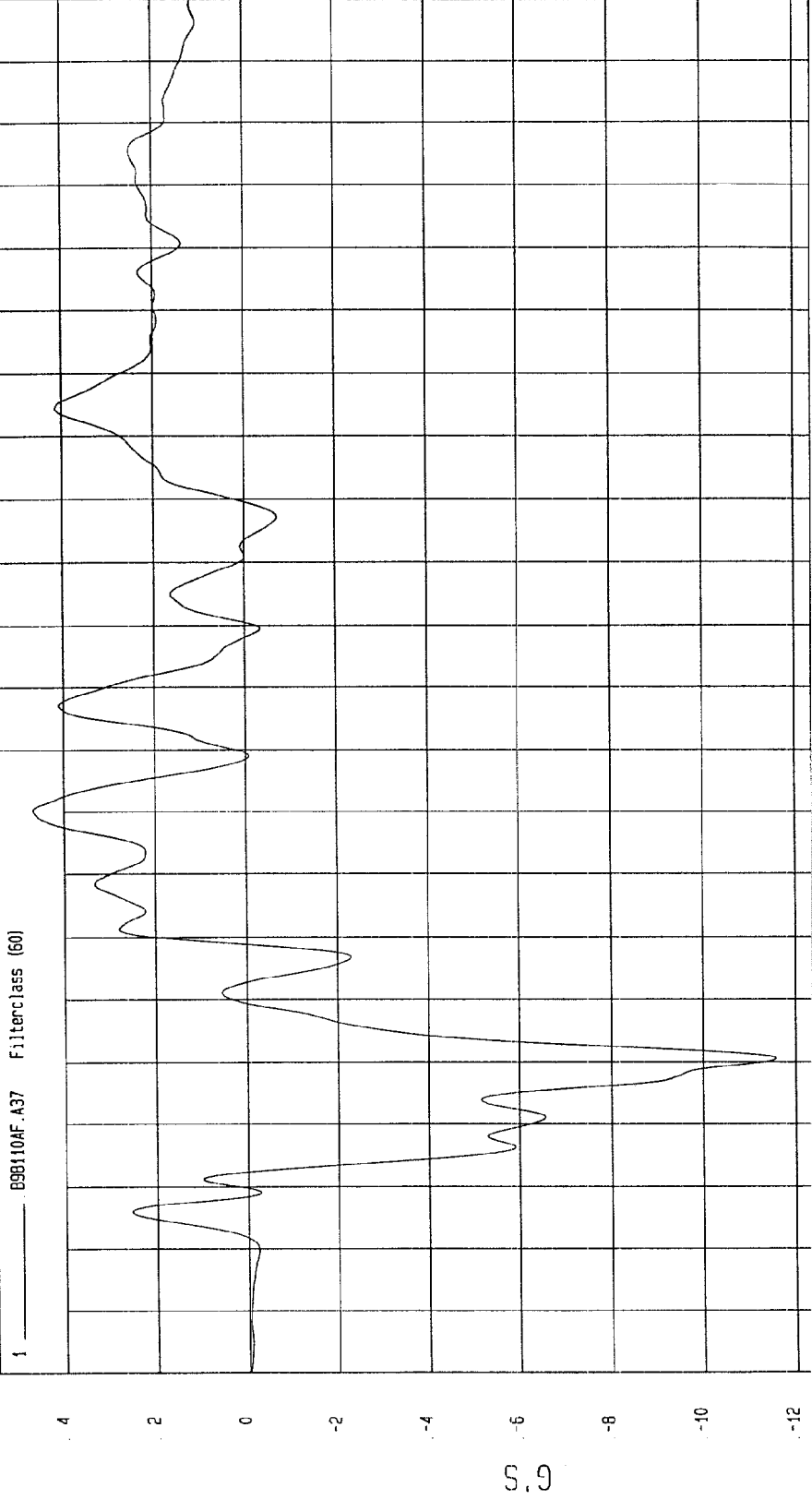
MCA Research
11-24-1998 15:13

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -11.57 G'S at 30 msec Maximum = 4.66 G'S at 70 msec

RIGHT SIDE SILL AT REAR SEAT Z ACCELERATION



MGA Research
11-24-1998 14:58

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

SPEED: 38.1 MPH 61.3 KPH

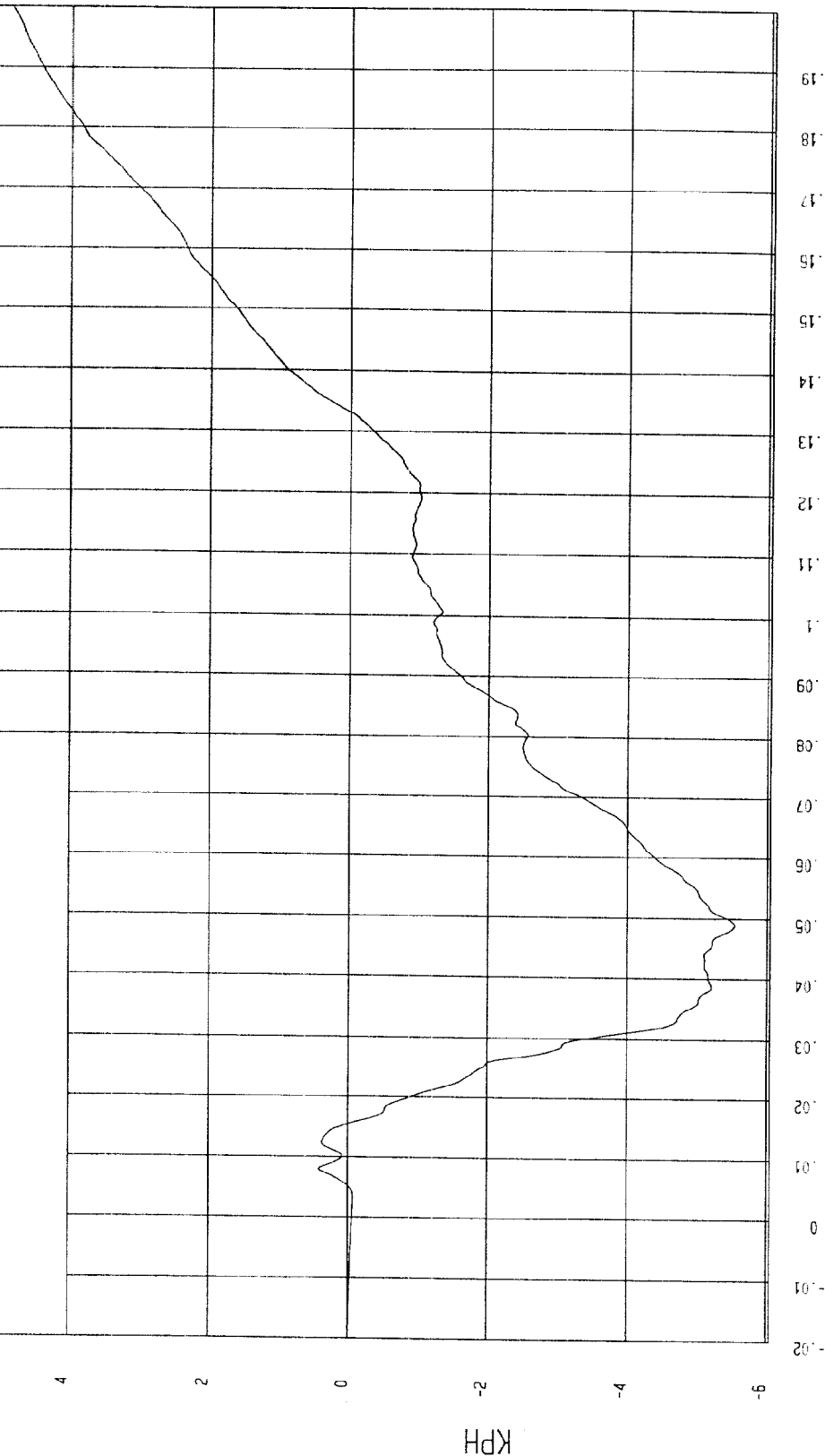
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Minimum = -5.53 KPH at 49 msec

Maximum = 4.84 KPH at 200 msec

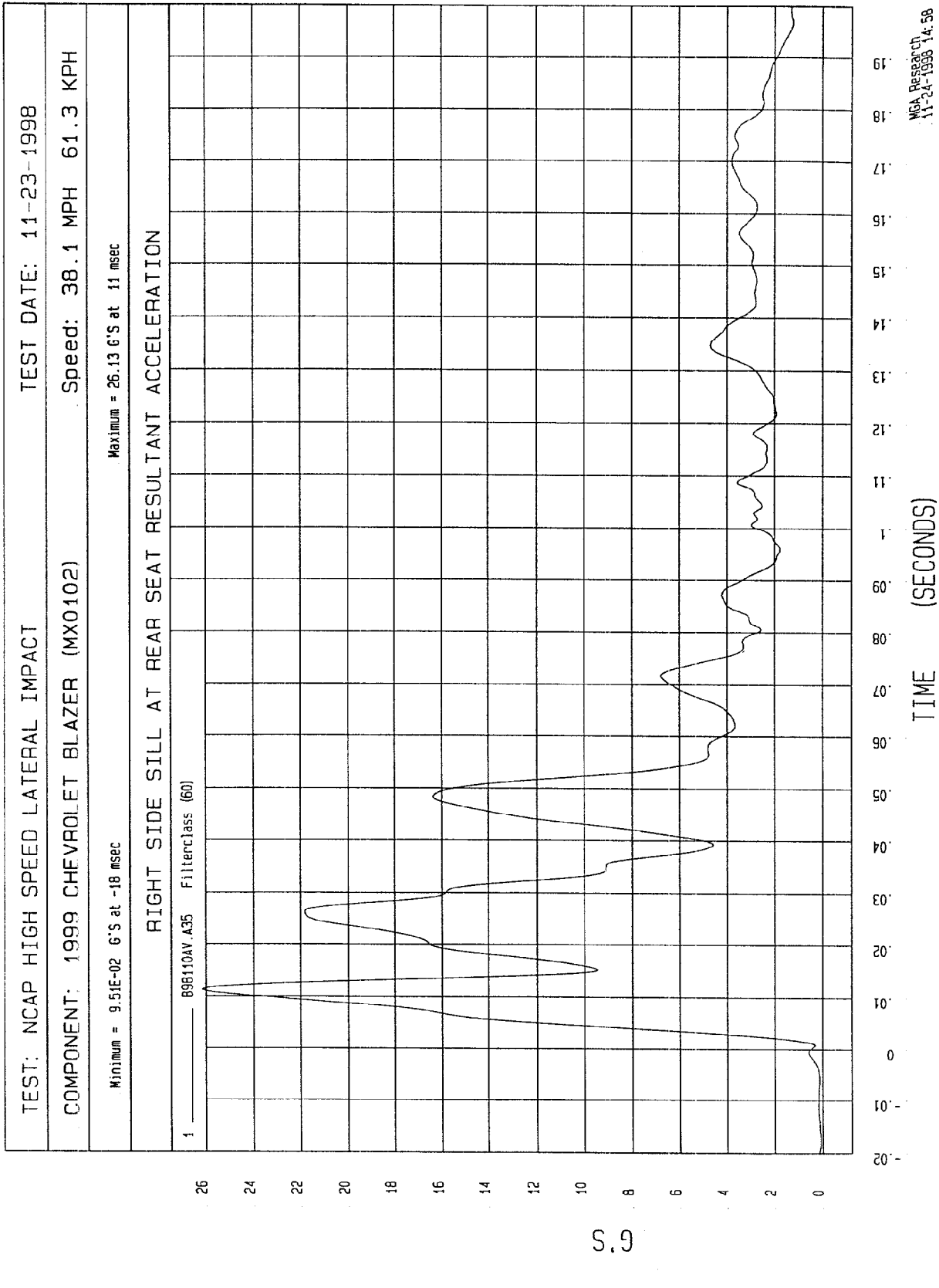
RIGHT SIDE SILL AT REAR SEAT Z VELOCITY

1 _____ B9810A1.V37 Filterclass (180)



MCA Research
11-24-1998 15.13

TIME Seconds



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

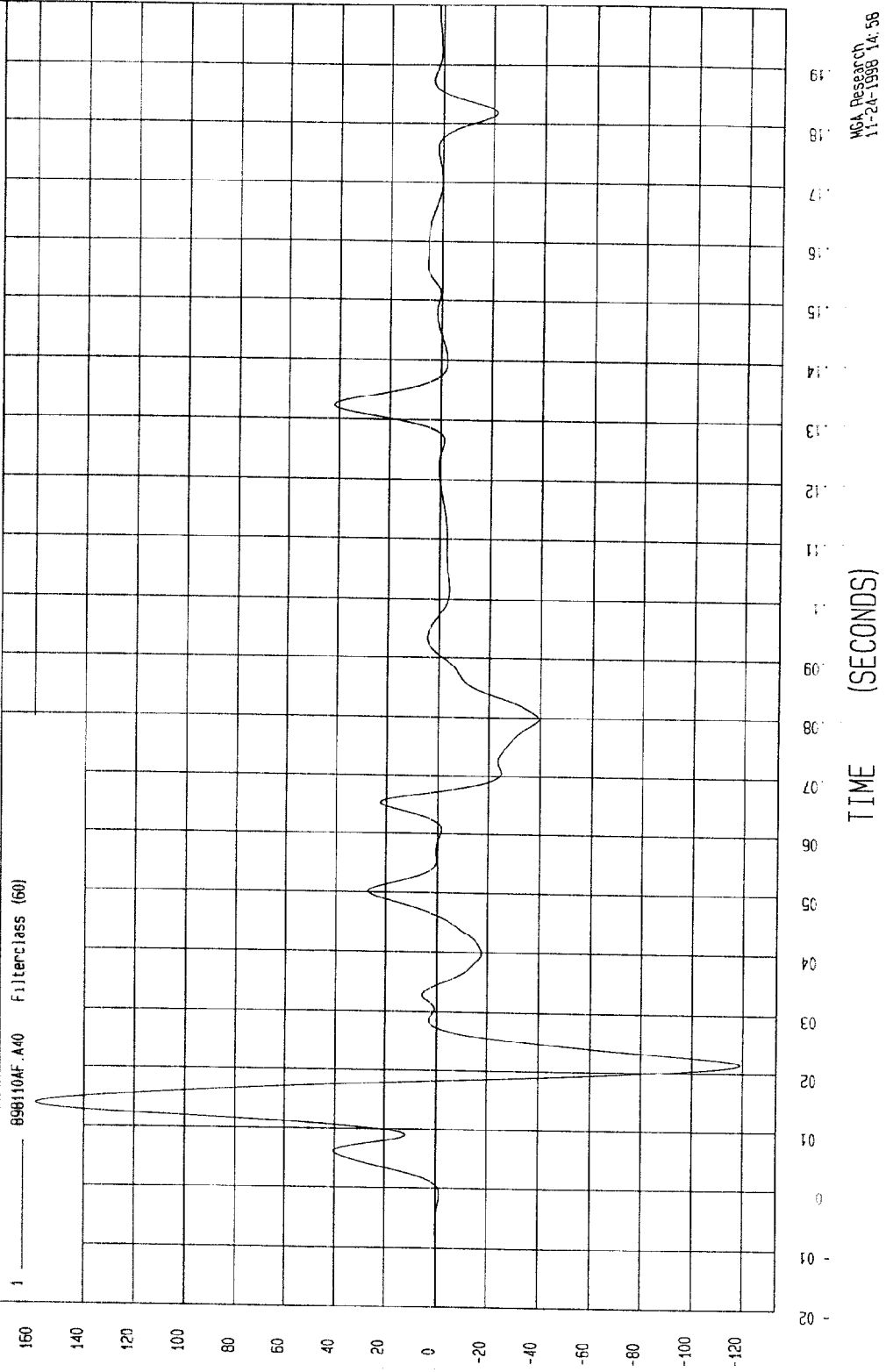
Speed: 38.1 MPH 61.3 KPH

COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 159.13 at 14 msec

Minimum = -119.08 at 22 msec

DRIVER SEAT TRACK Y ACCELERATION

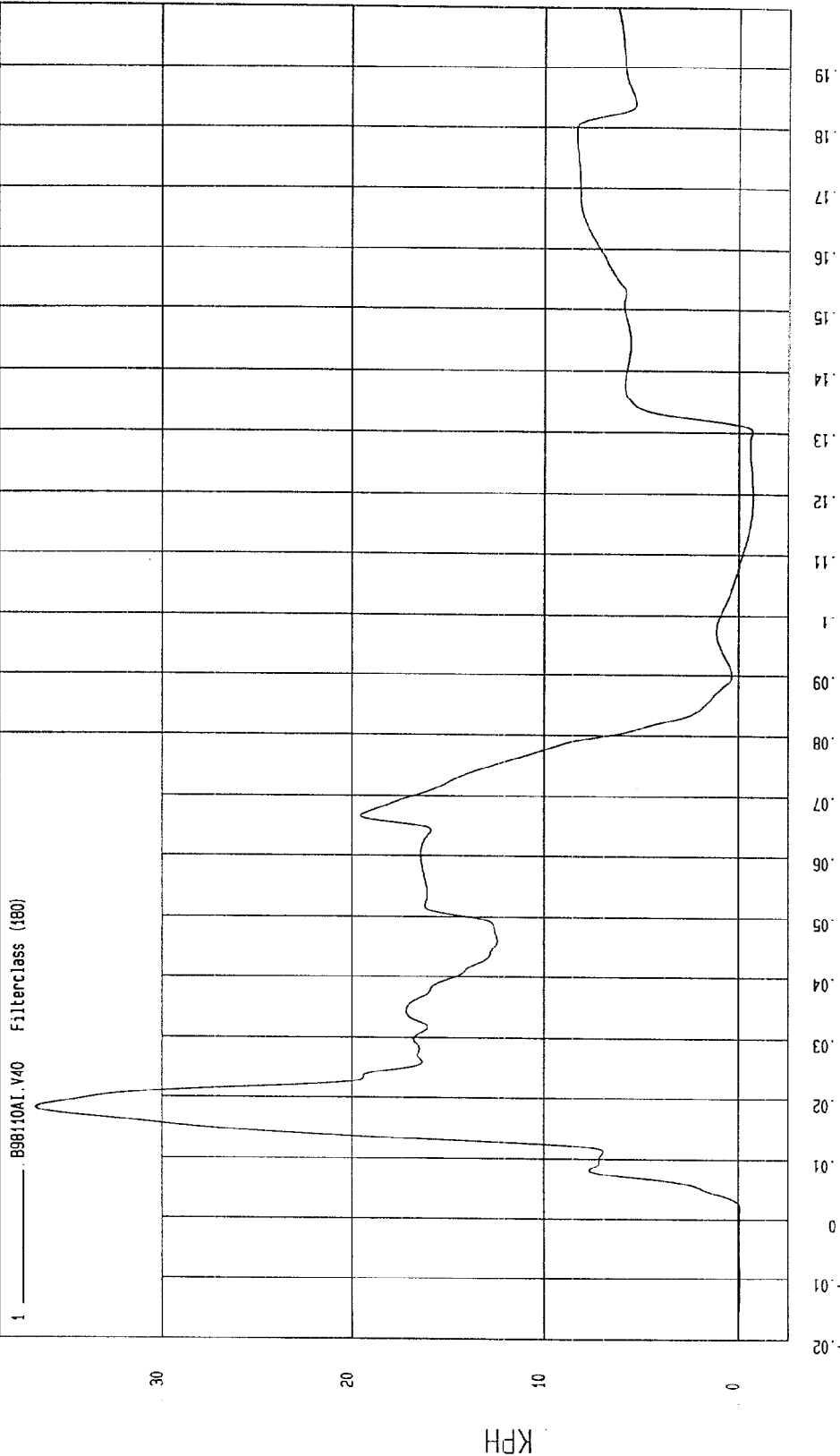


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -74 KPH at 120 msec Maximum = 36.59 KPH at 18 msec

DRIVER SEAT TRACK Y VELOCITY



MGA Research
11-24-1998 15.13

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

SPEED: 38.1 MPH 61.3 KPH

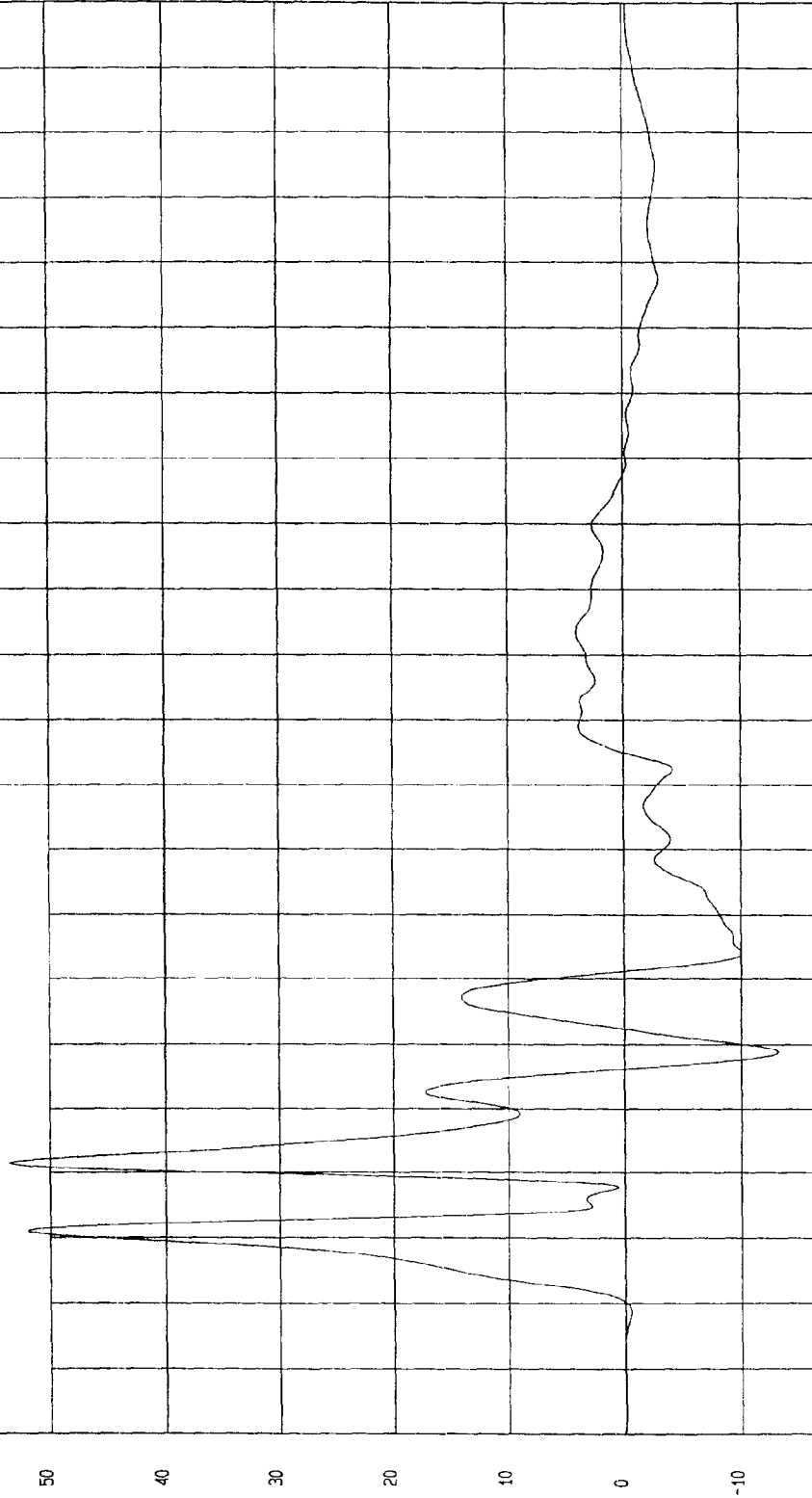
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 53.46 at 22 msec

Minimum = -13.28 at 39 msec

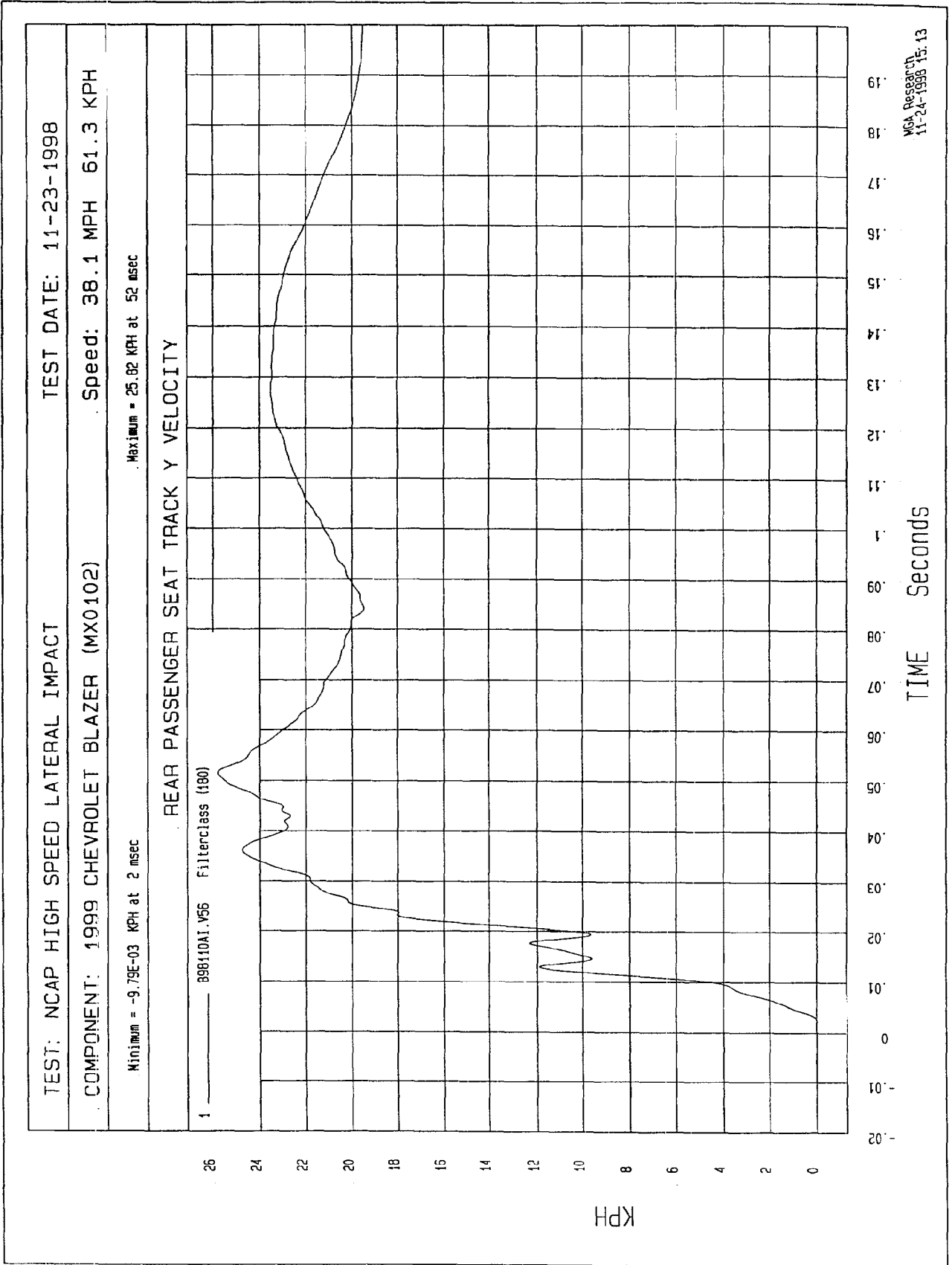
REAR PASSENGER SEAT TRACK Y ACCELERATION

1 898110AF A56 Filterclass (60)



WCA Research
11-24-1998 14:58

TIME (SECONDS)

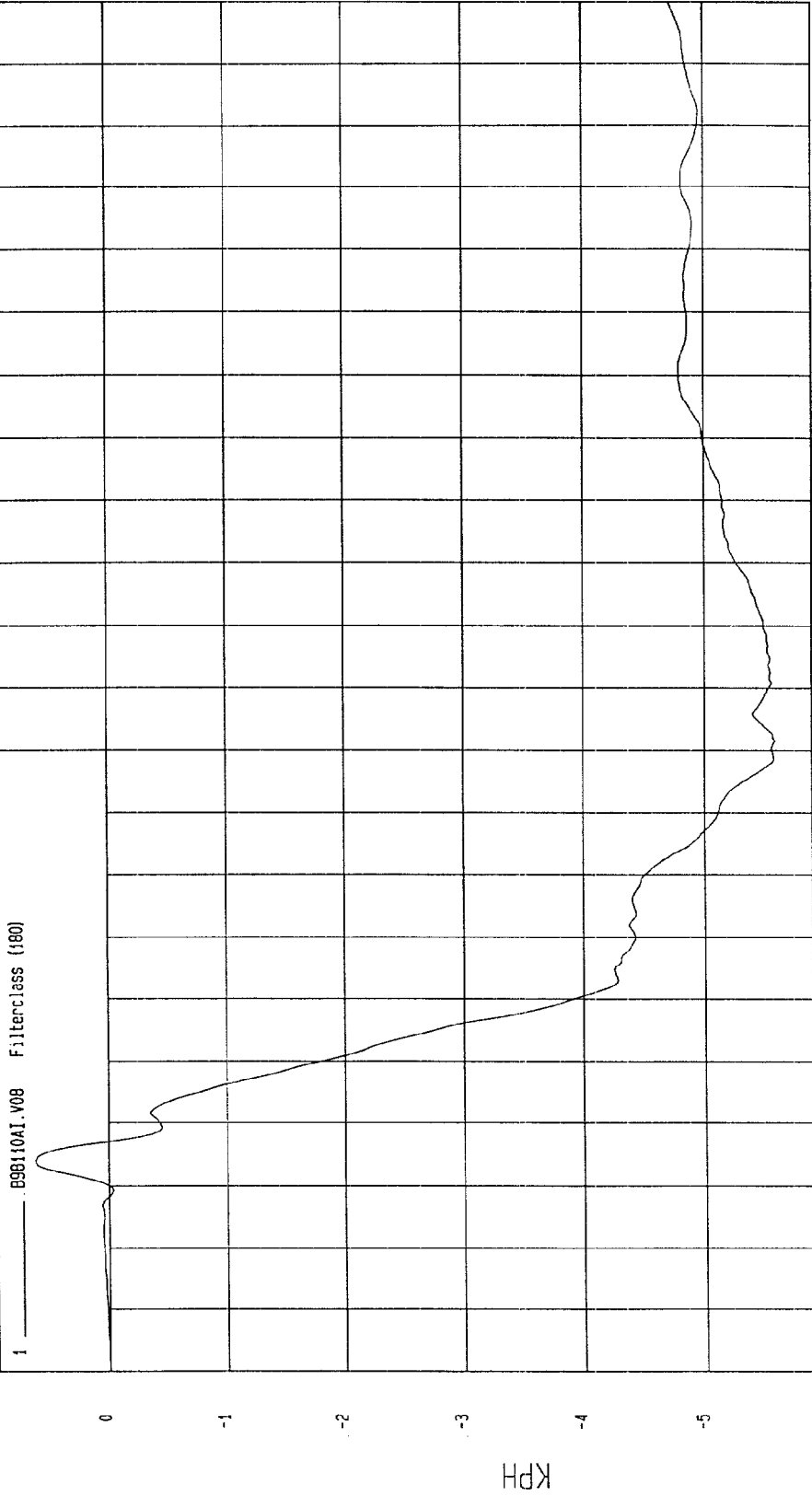


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -5.58 KPH at .02 msec Maximum = .61 KPH at 14 msec

REAR FLOORPAN ABOVE AXLE X VELOCITY



TIME Seconds

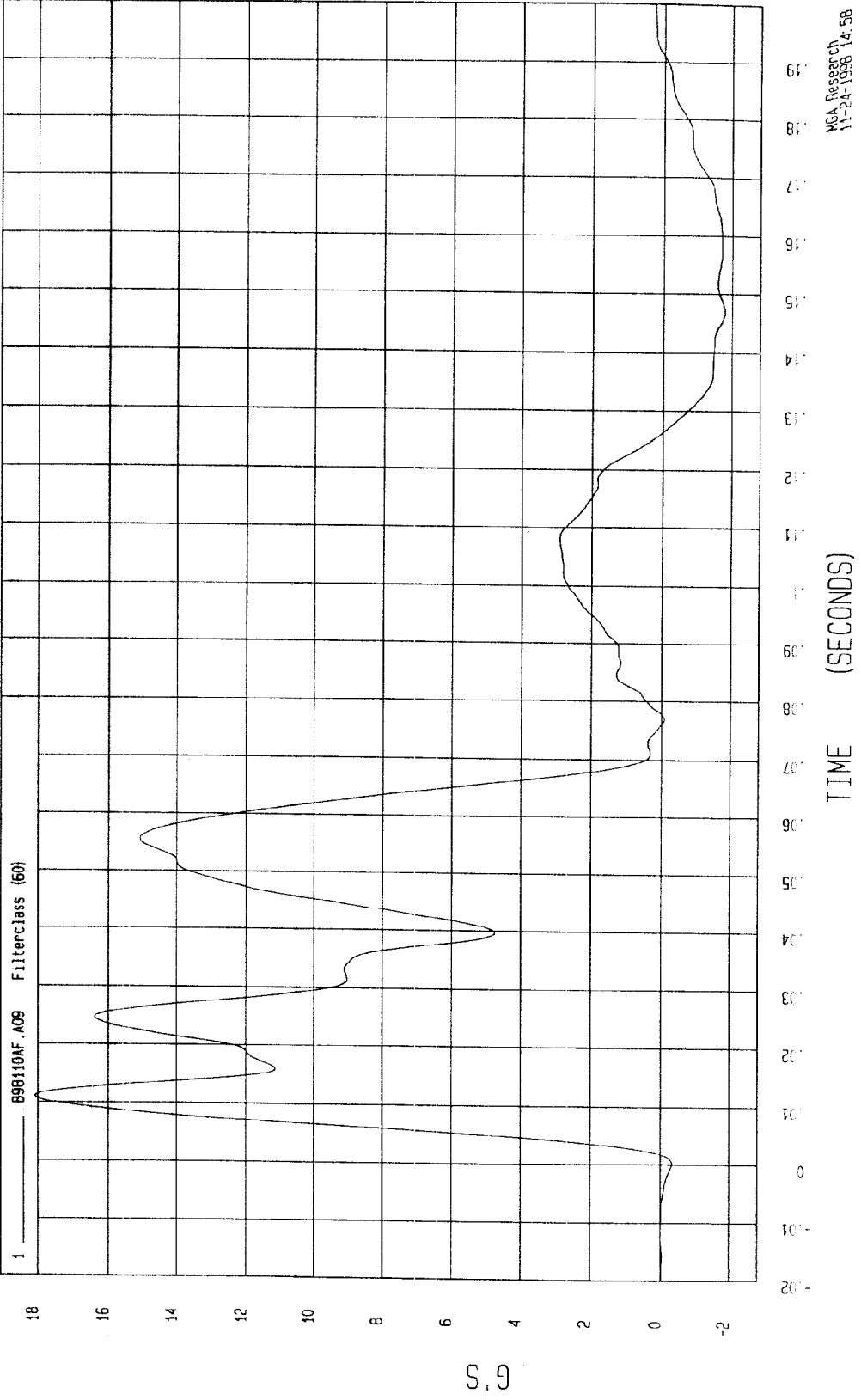
NSA Research
11-24-1998 15:13

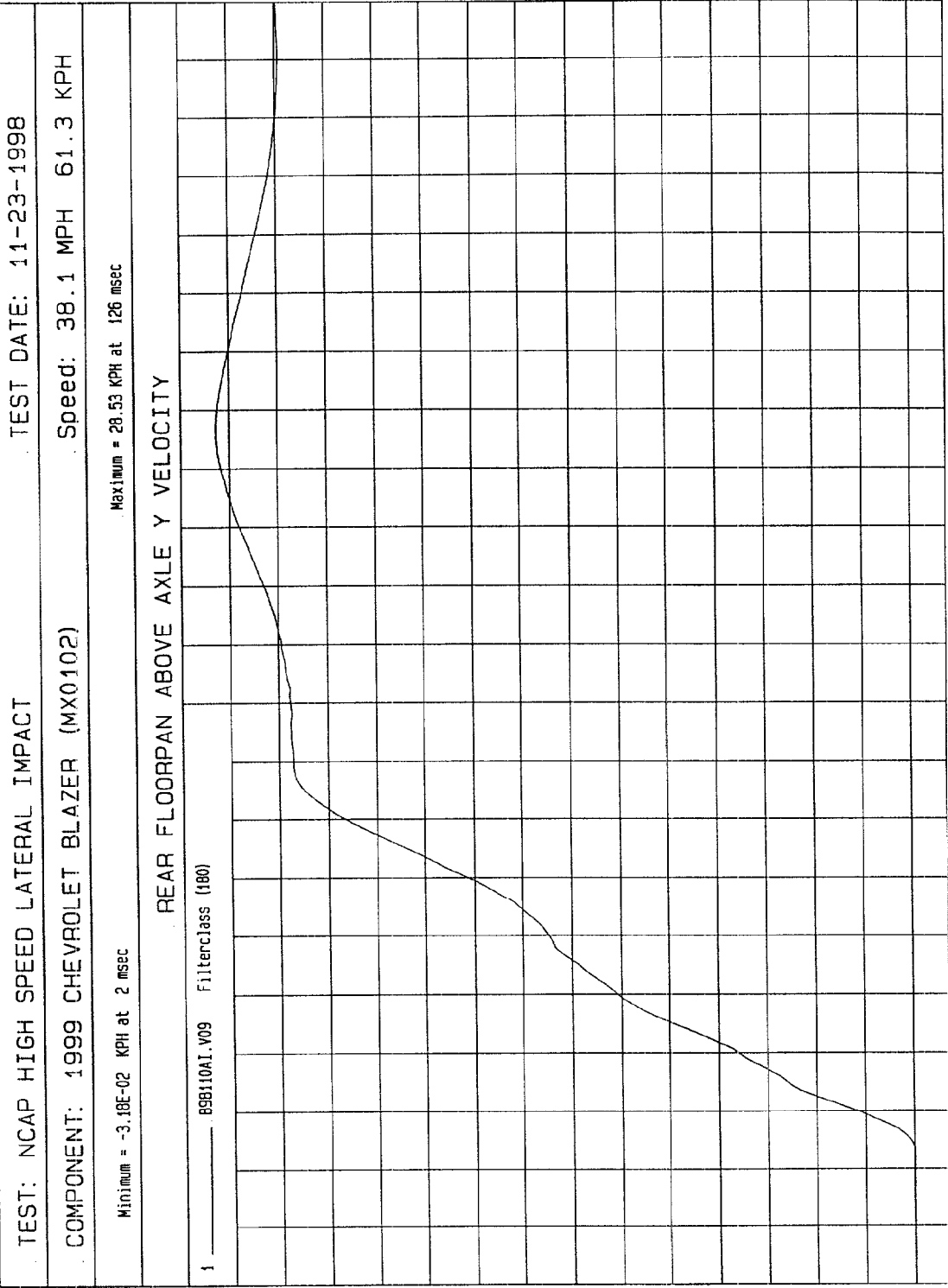
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -1.79 G'S at 147 msec Maximum = 18.08 G'S at 11 msec

REAR FLOORPAN ABOVE AXLE Y ACCELERATION





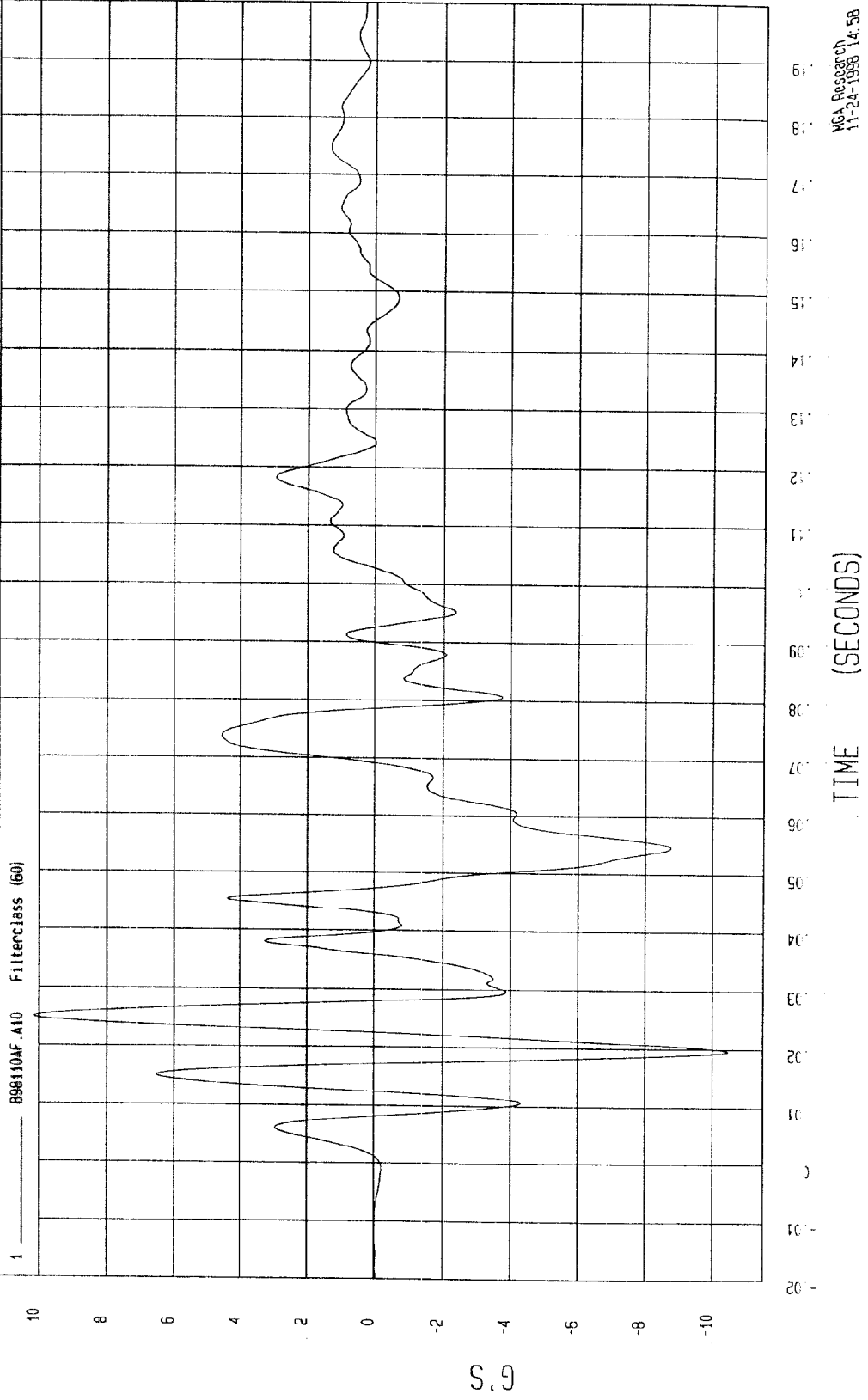
WGA Research
11-24-1998 15:13

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -10.46 G's at 20 msec Maximum = 10.16 G's at 25 msec

REAR FLOORPAN ABOVE AXLE Z ACCELERATION

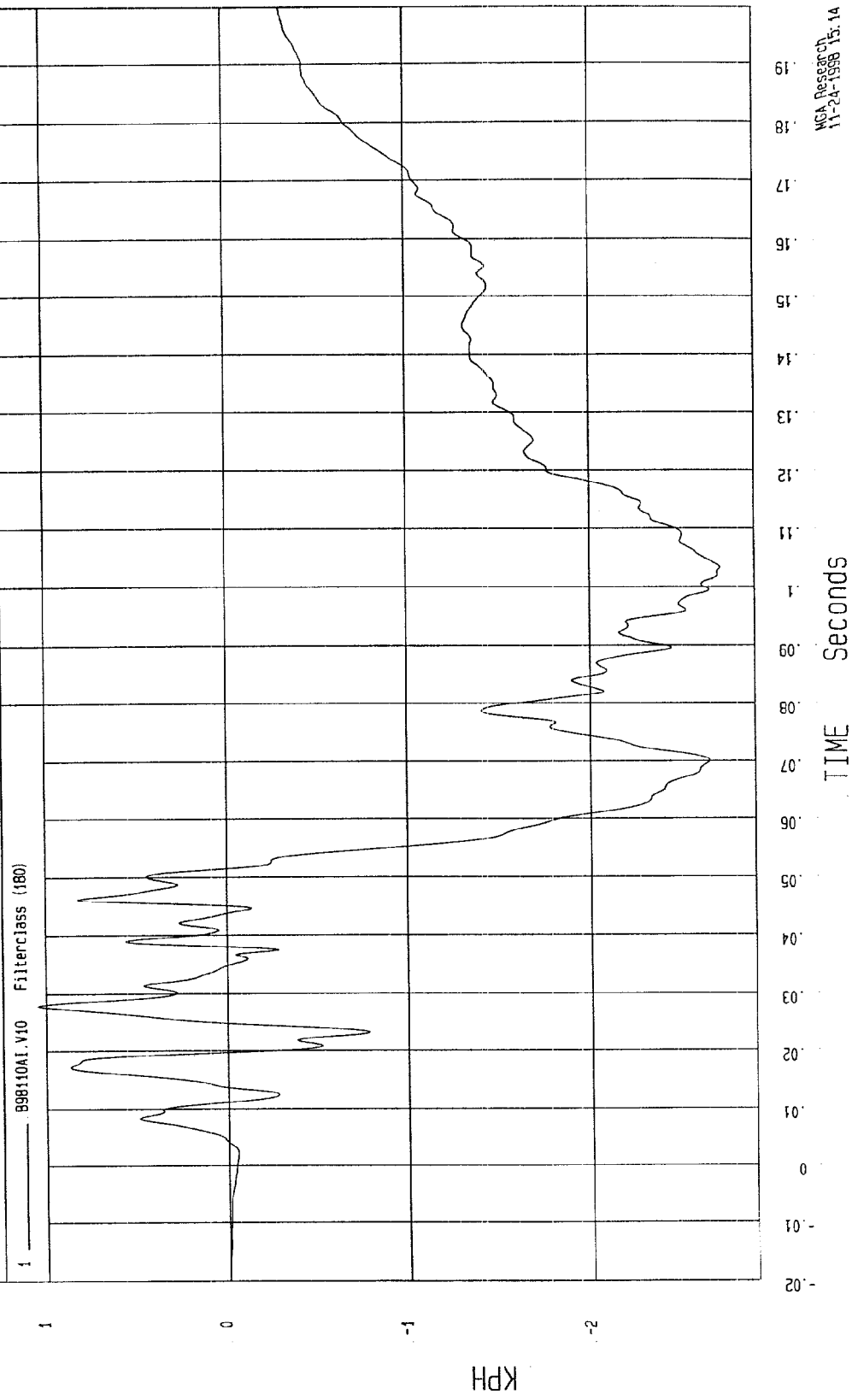


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -2.71 KPH at 103 msec Maximum = 1.05 KPH at 28 msec

REAR FLOORPAN ABOVE AXLE Z VELOCITY



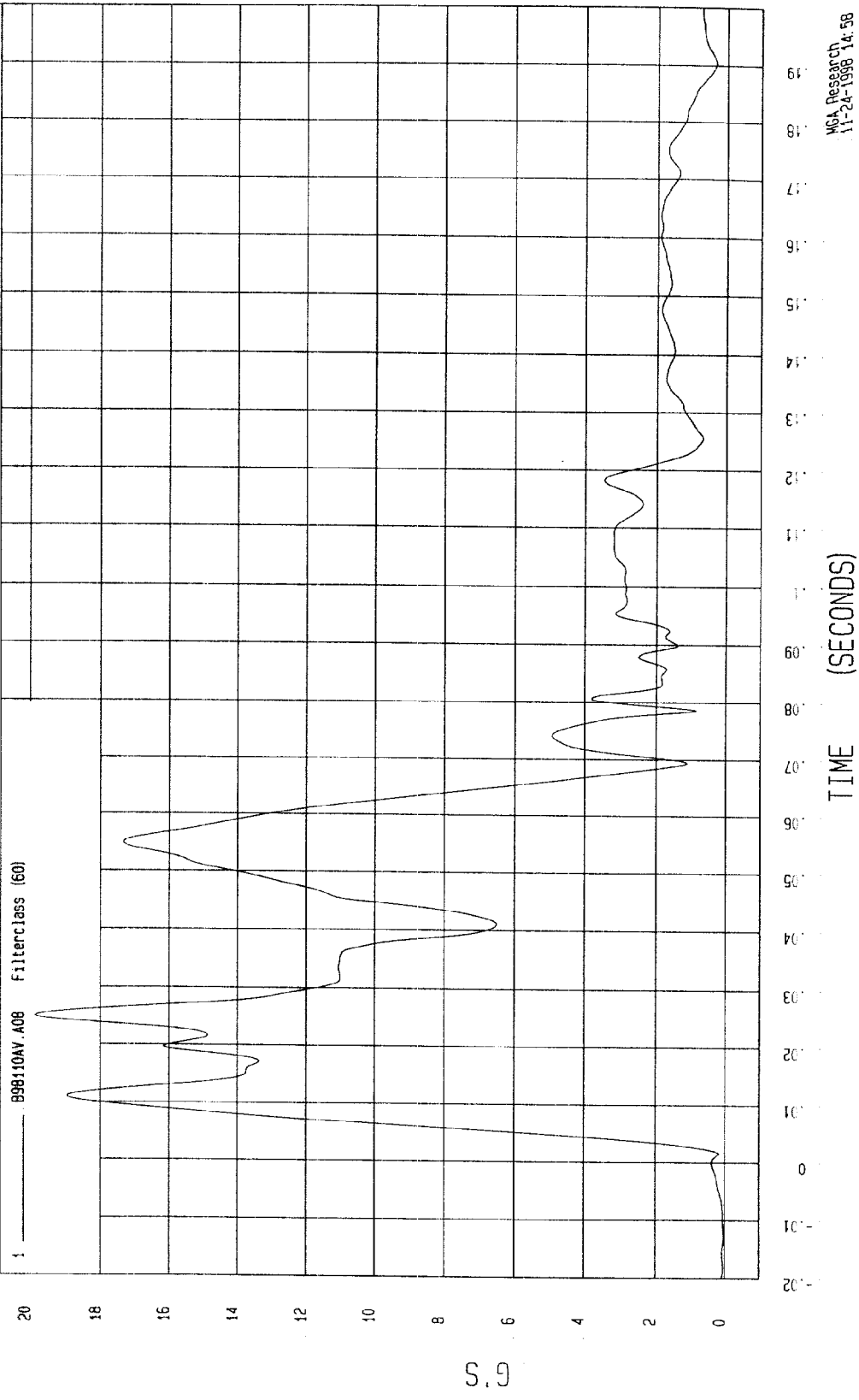
NCA Research
11-24-1998 15.14

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = 4.54E-02 G'S at -13 msec Maximum = 19.87 G'S at 25 msec

REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION

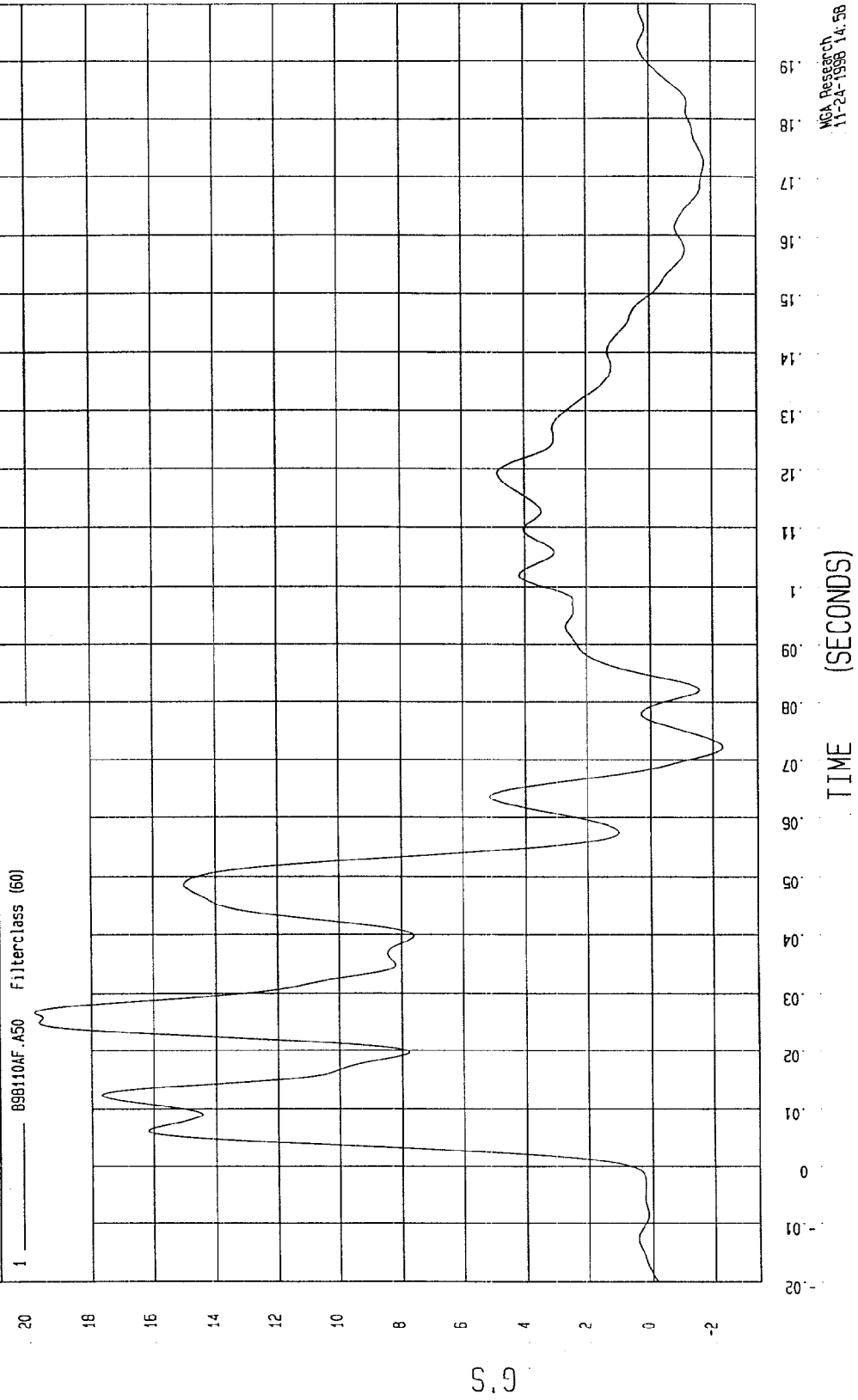


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -2.32 G'S at 72 msec Maximum = 19.8 G'S at 27 msec

RIGHT REAR OCCUPANT COMPARTMENT Y ACCELERATION



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

Speed: 38.1 MPH 61.3 KPH

COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 30.28 KPH at 149 msec

Minimum = 0 KPH at -19 msec

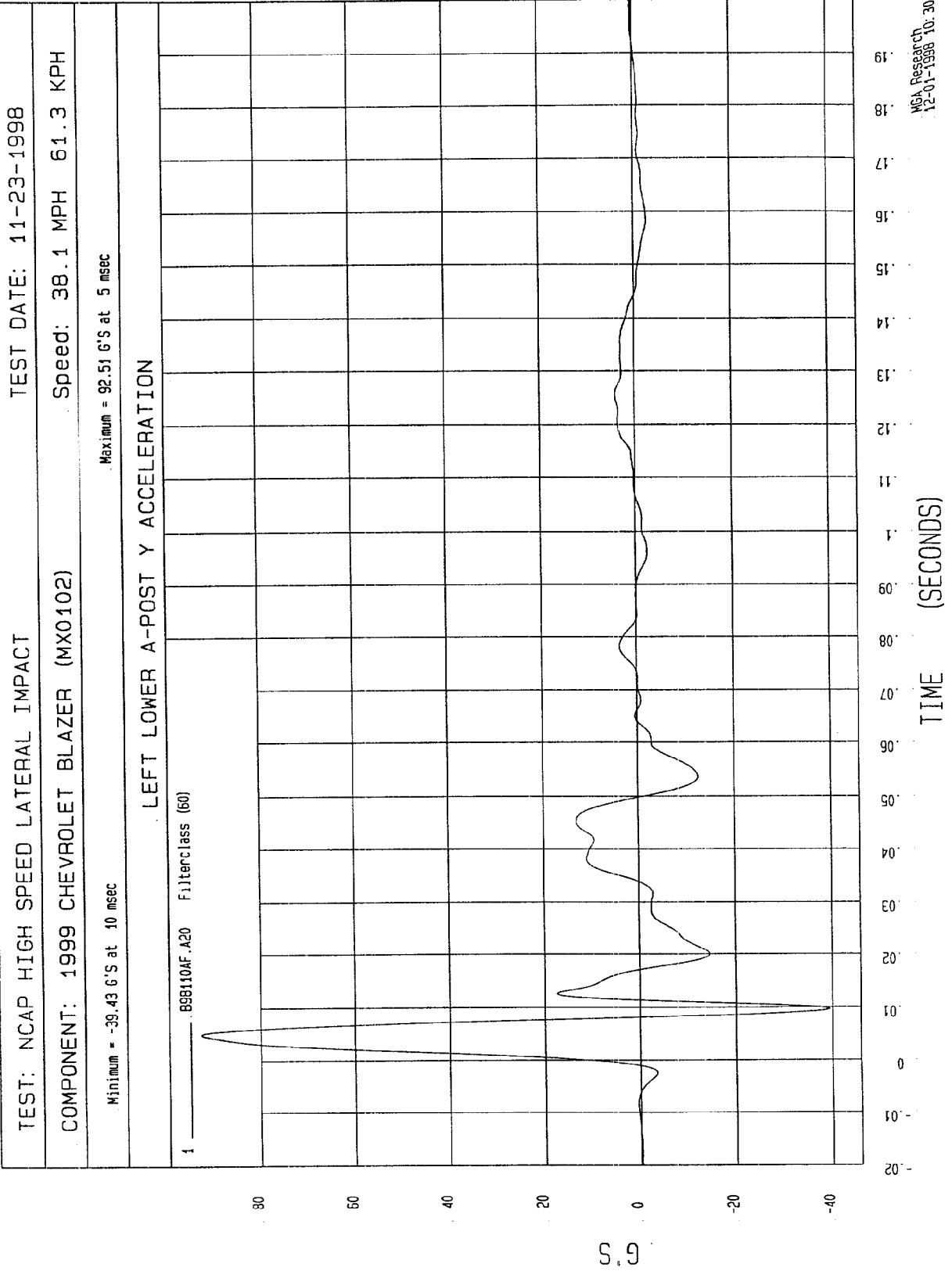
RIGHT REAR OCCUPANT COMPARTMENT Y VELOCITY

1 ——— B98110A1.Y50 Filterclass (180)



TIME Seconds

MCA Research
11-24-1998 15:14

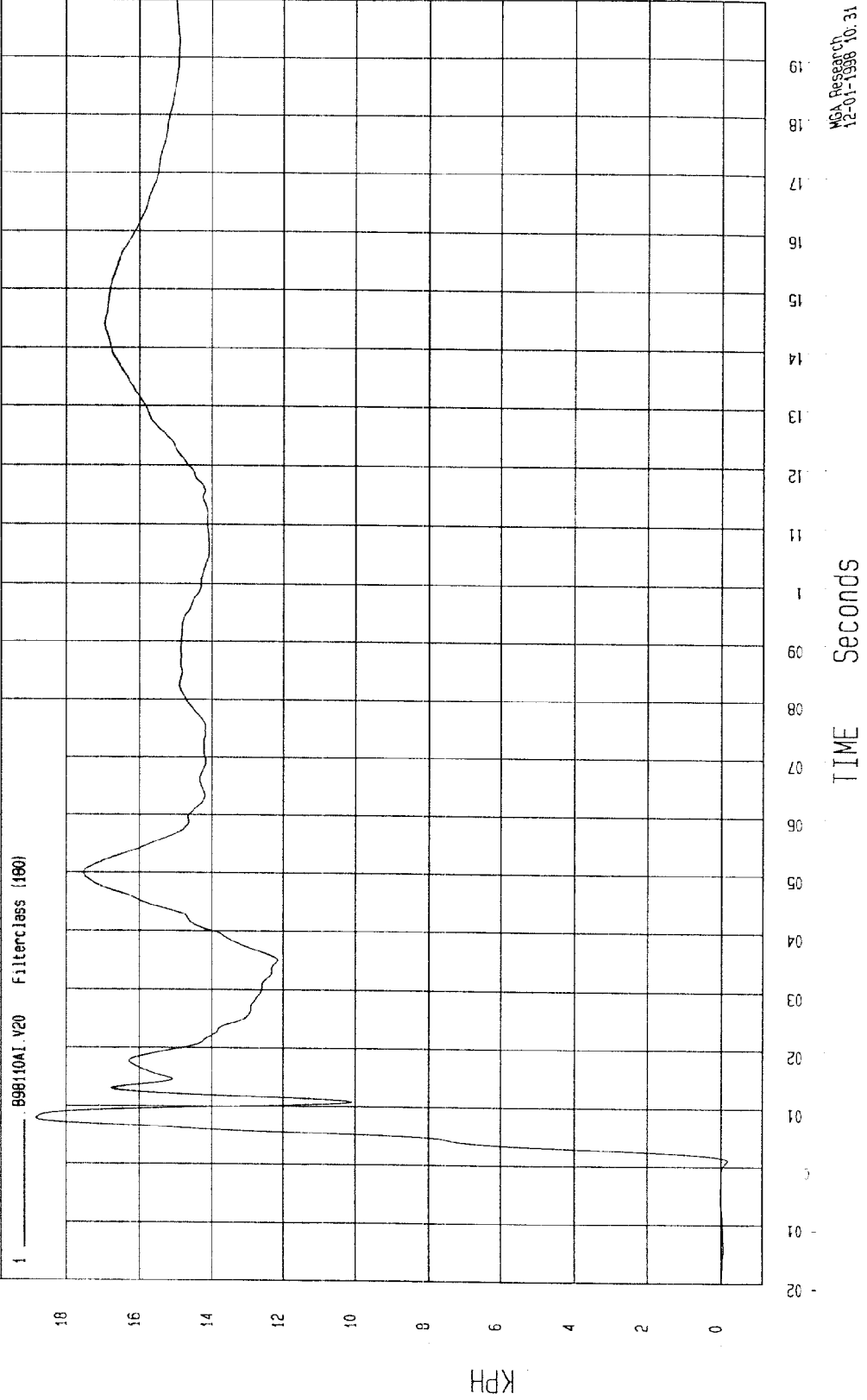


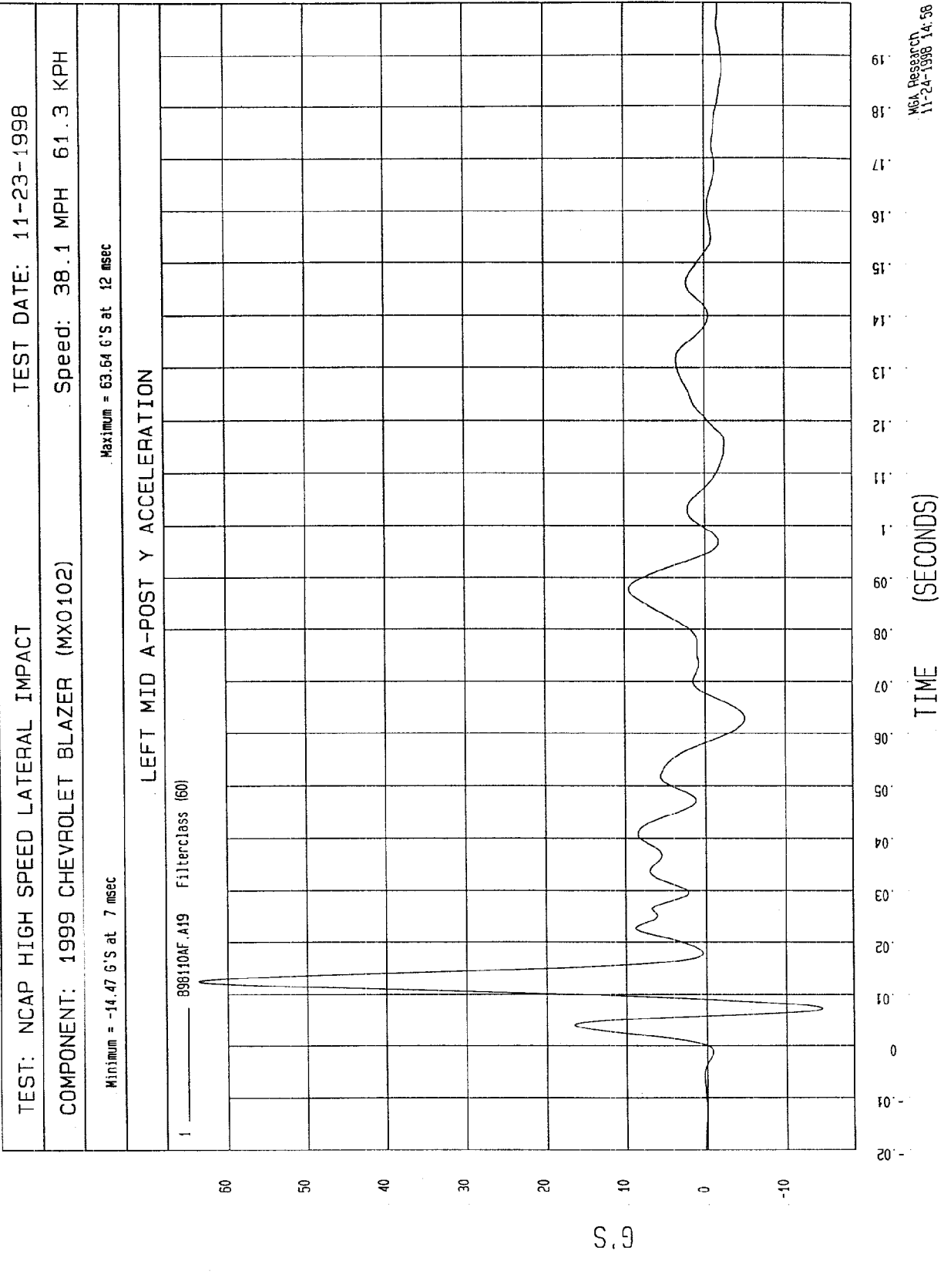
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -18 KPH at 1 msec Maximum = 18.82 KPH at 8 msec

LEFT LOWER A-POST Y VELOCITY



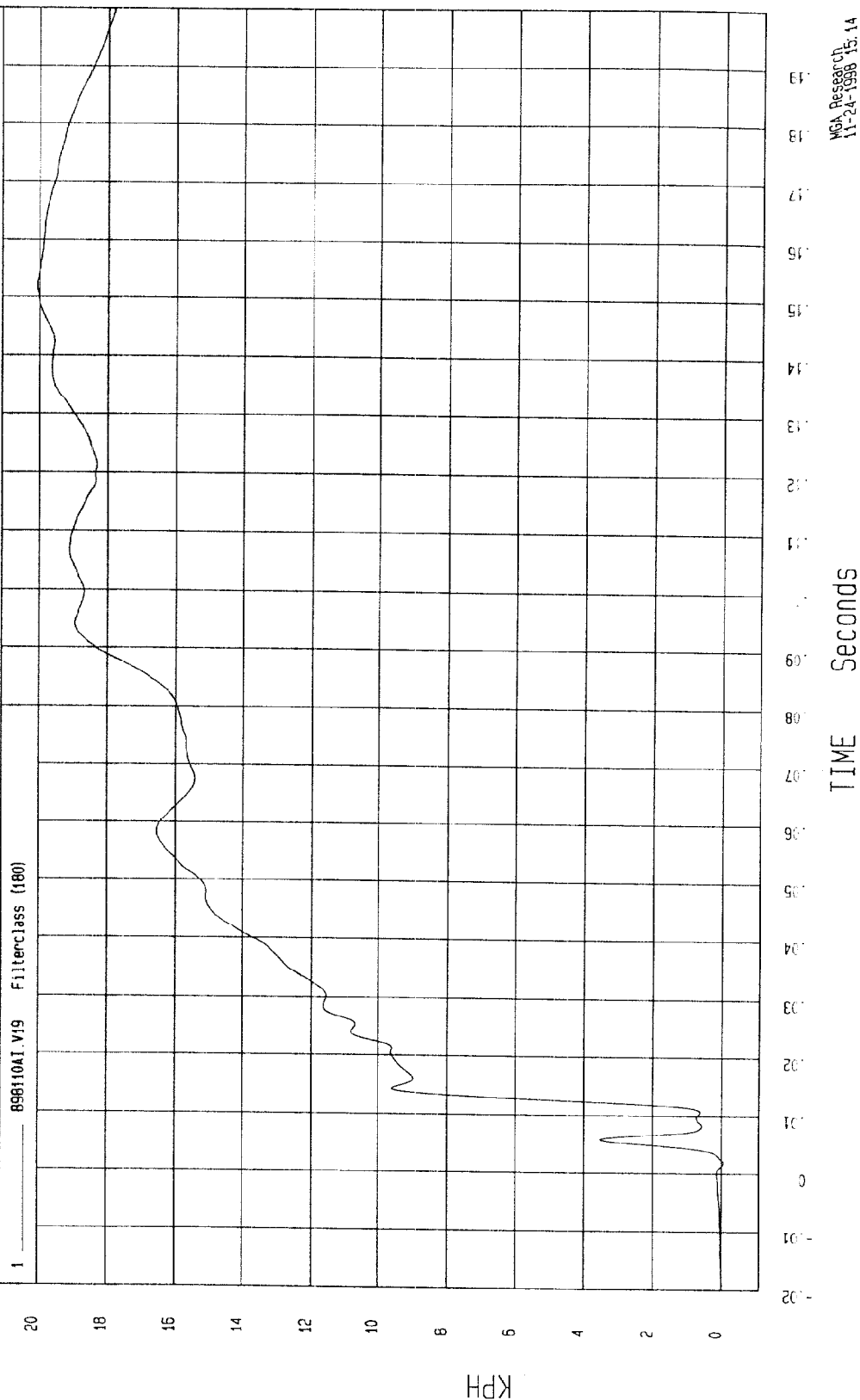


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -6.21E-02 KPH at 2 msec Maximum = 20.07 KPH at 152 msec

LEFT MID A-POST Y VELOCITY



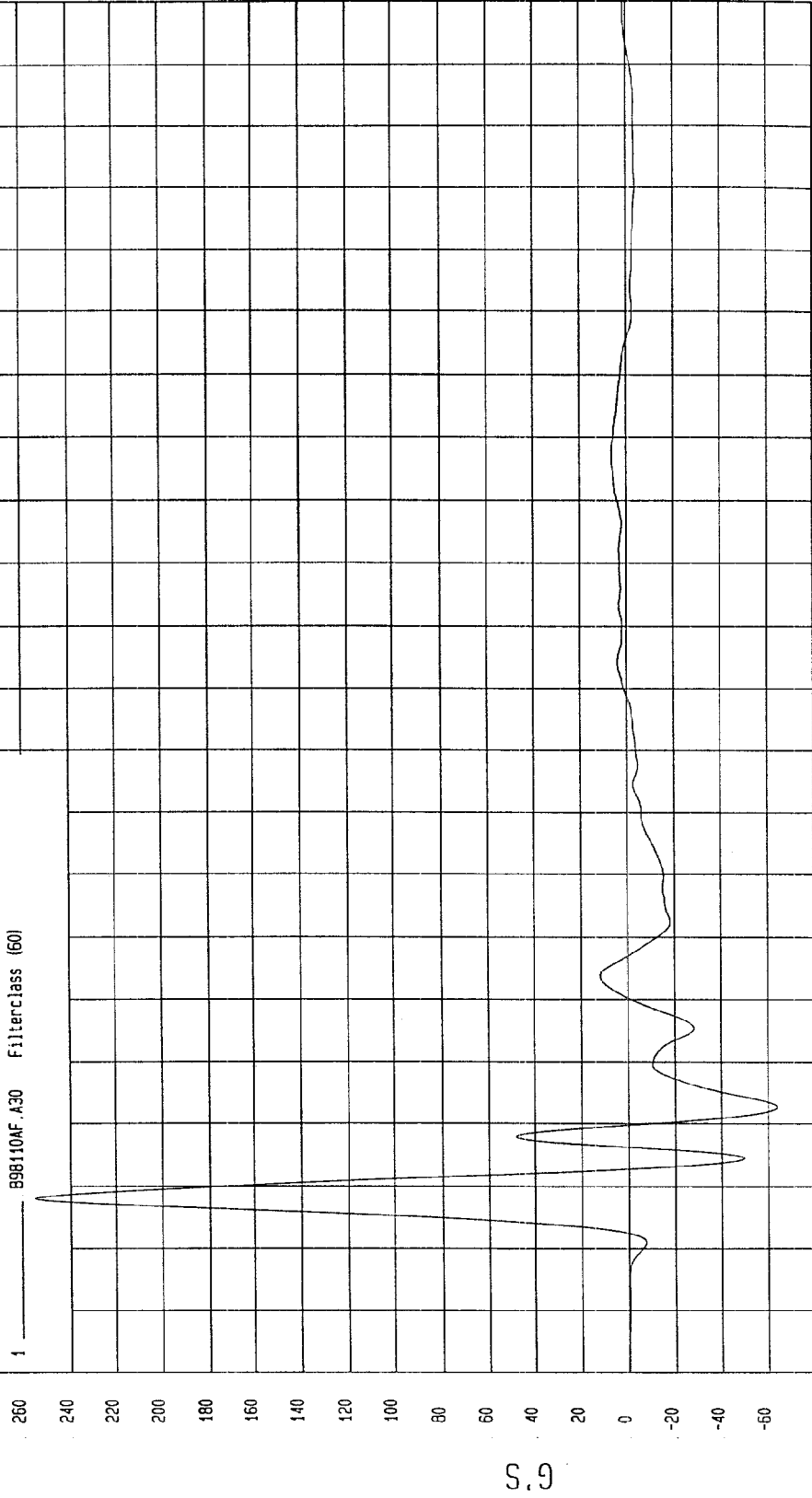
MGA Research
11-24-1998 15:14

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -63.86 G'S at 23 msec Maximum = 255.14 G'S at 8 msec

LEFT LOWER B-POST Y ACCELERATION



WCA Research
11-24-1998 14.58

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

SPEED: 38.1 MPH 61.3 KPH

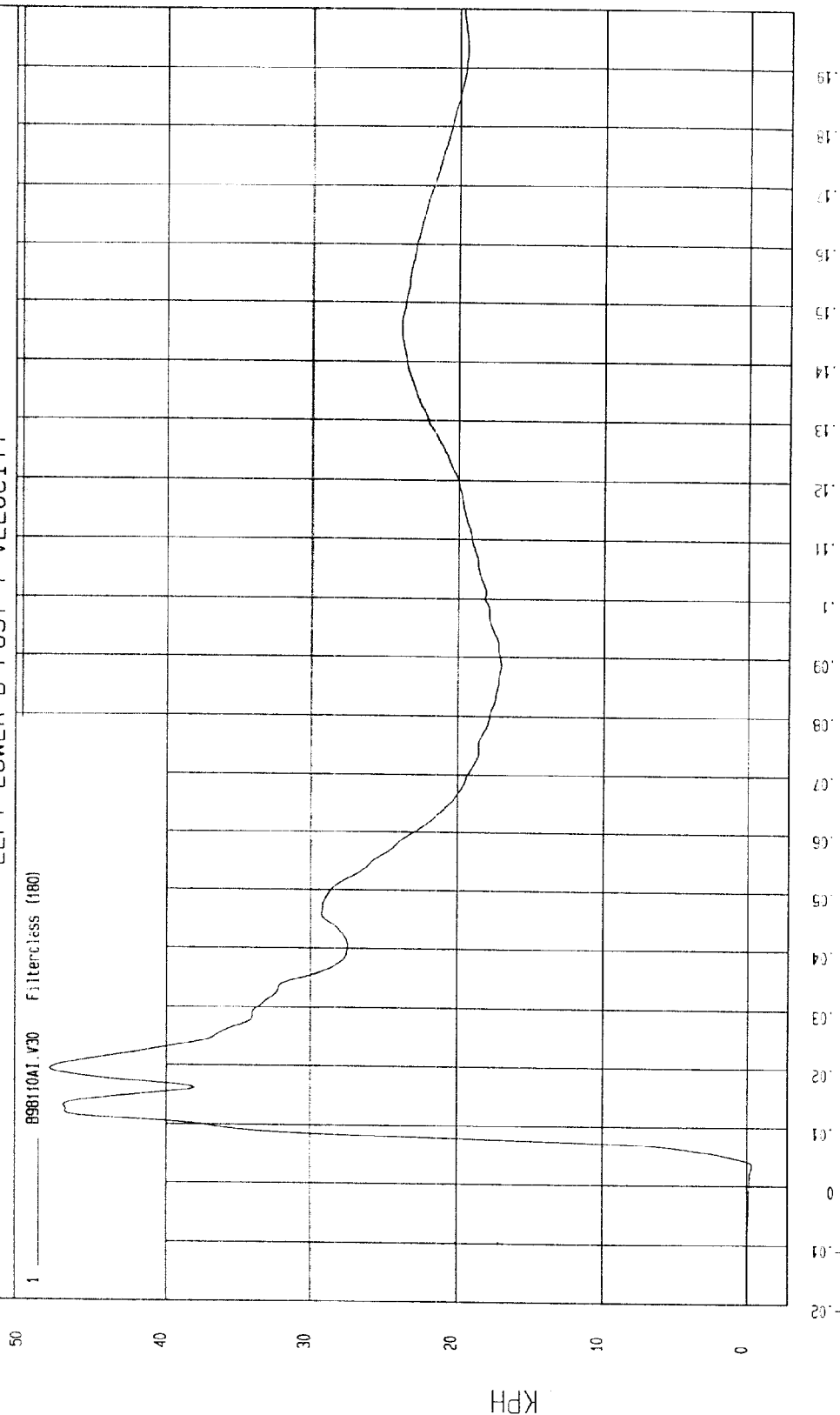
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 48.07 KPH at 19 msec

Minimum = -.35 KPH at 3 msec

LEFT LOWER B-POST Y VELOCITY

1 ——— 898110A1.V30 Filterclass (180)



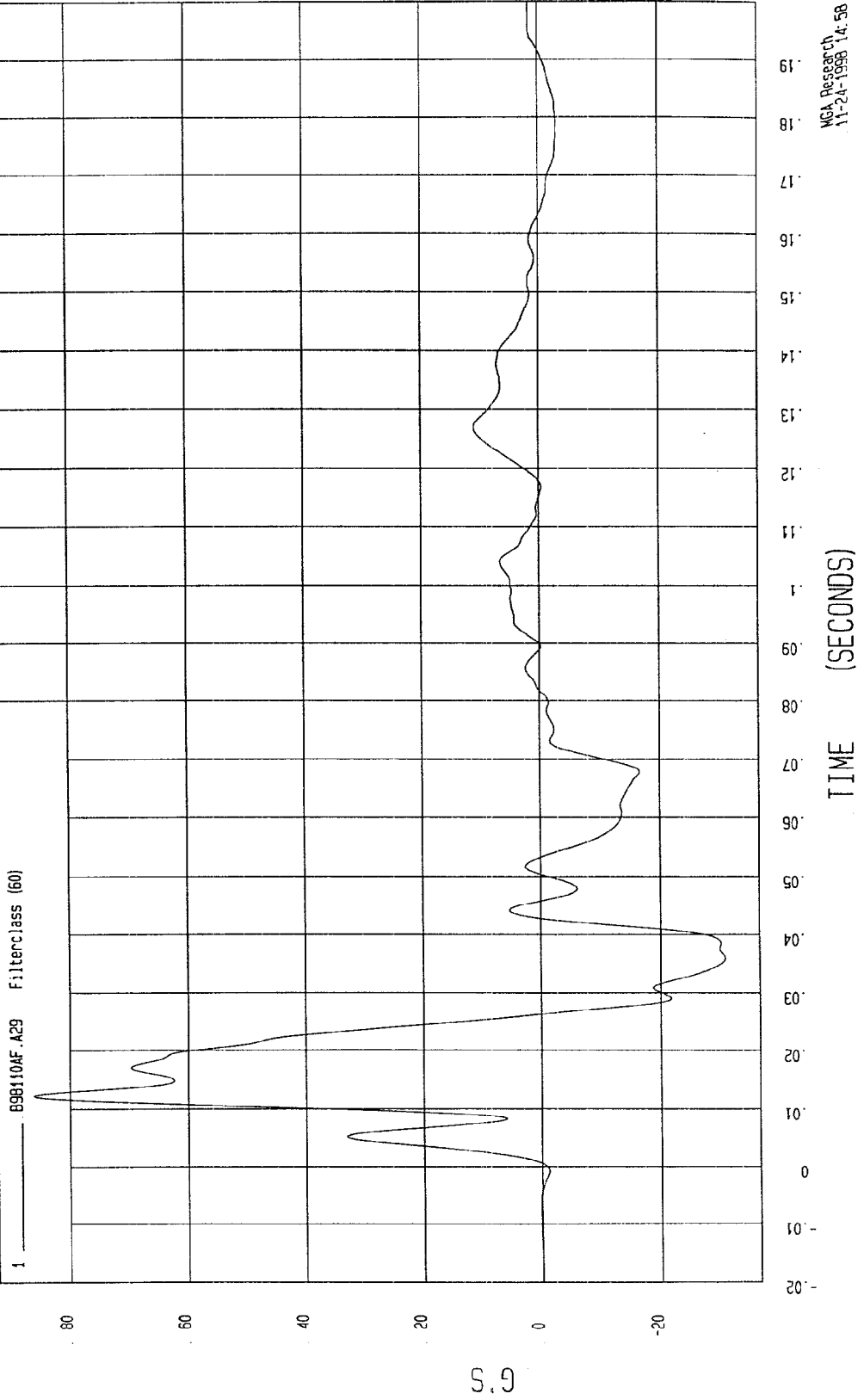
MGA Research
11-24-1998 15:14

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -30.75 G'S at 36 msec Maximum = 86.12 G'S at 12 msec

LEFT MID B-POST Y ACCELERATION

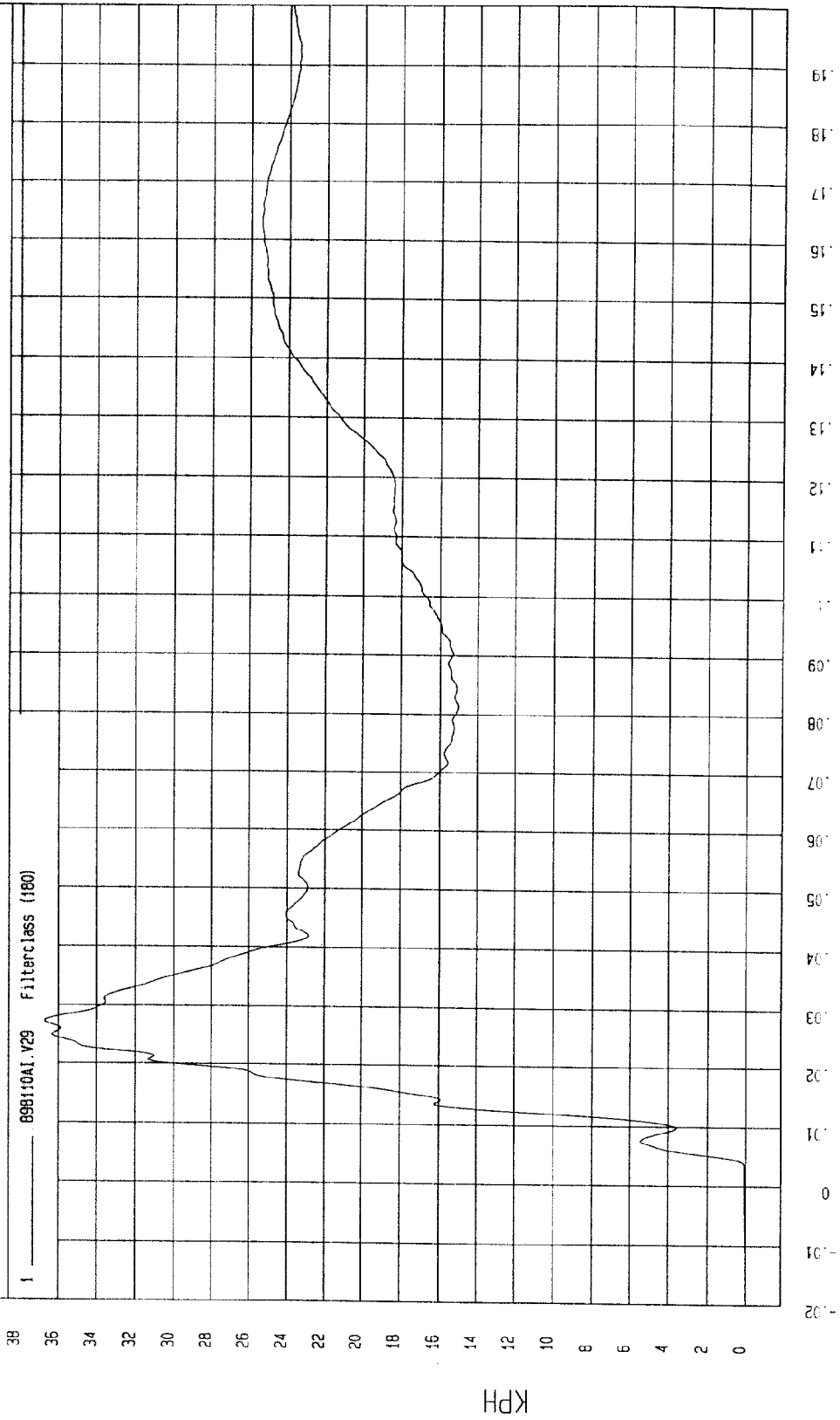


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -4.04E-03 KPH at -14 msec Maximum = 36.7 KPH at 27 msec

LEFT MID B-POST Y VELOCITY



TIME Seconds

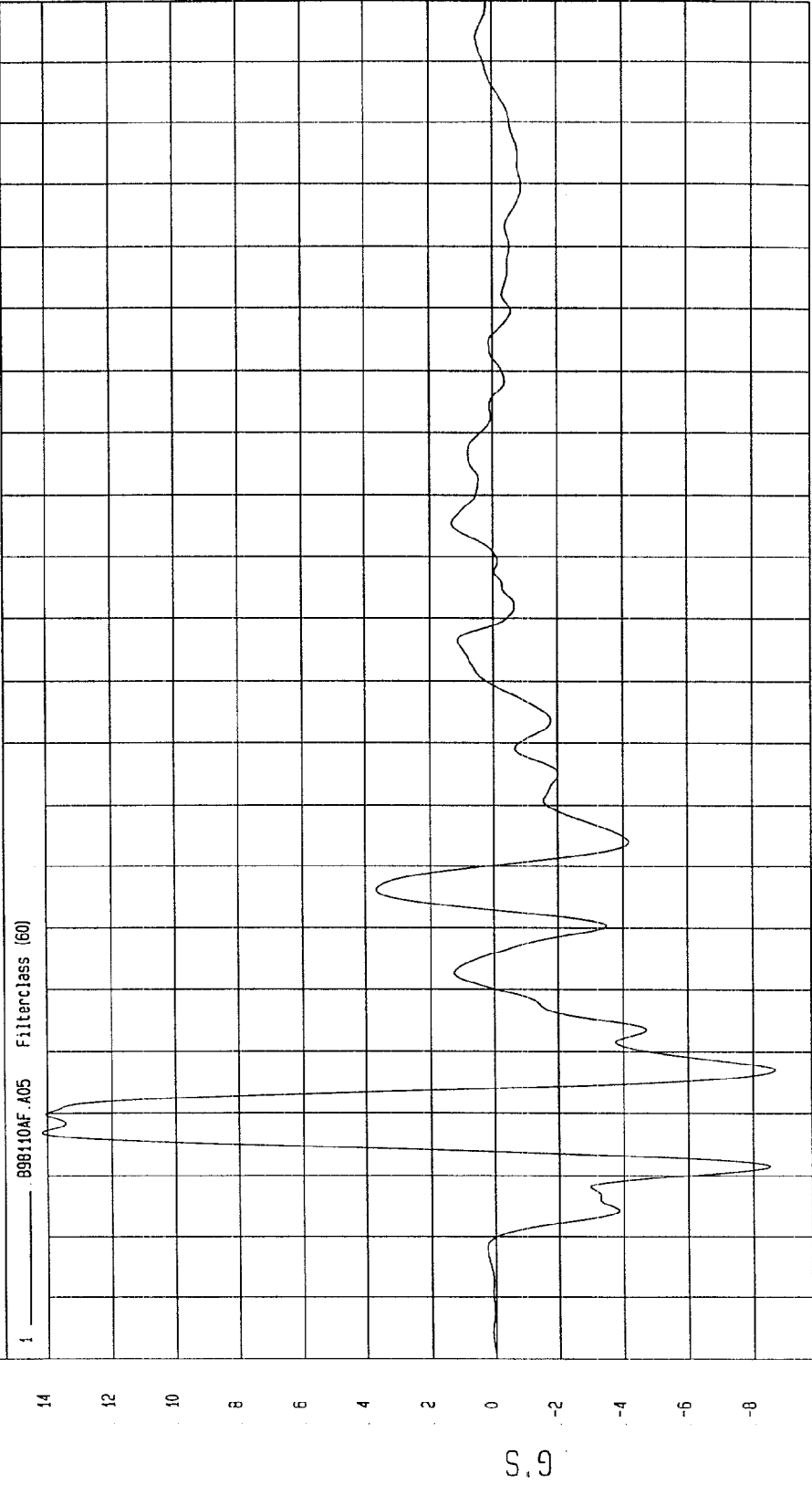
MOA Research
11-24-1998 15:14

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -8.69 G'S at 27 msec Maximum = 14.18 G'S at 17 msec

VEHICLE CG X ACCELERATION



TIME (SECONDS)

NSA Research
11-24-1998 14:58

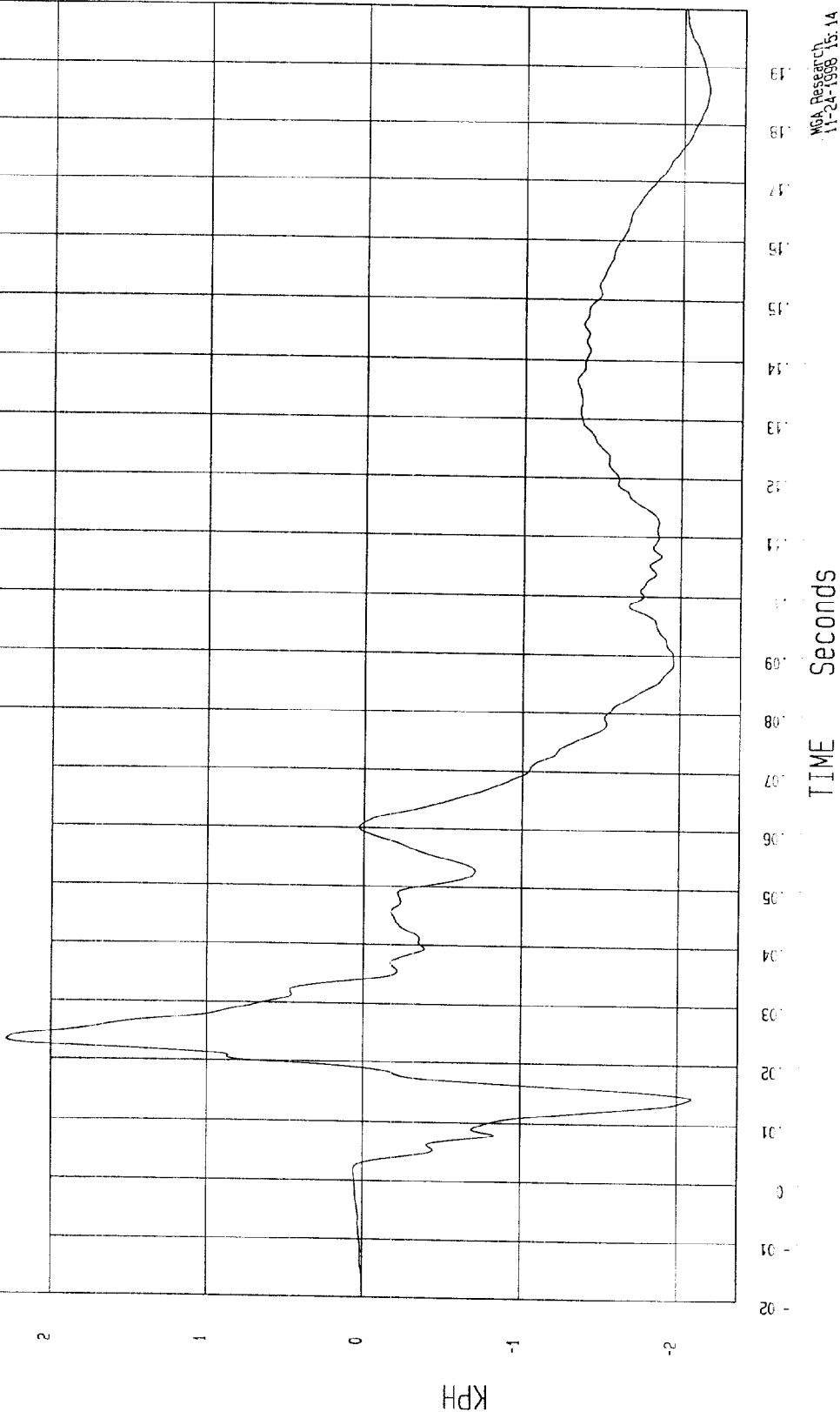
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -2.16 KPH at 186 msec Maximum = 2.28 KPH at 23 msec

VEHICLE CG X VELOCITY

1 898110A1.V05 Filterclass (180)



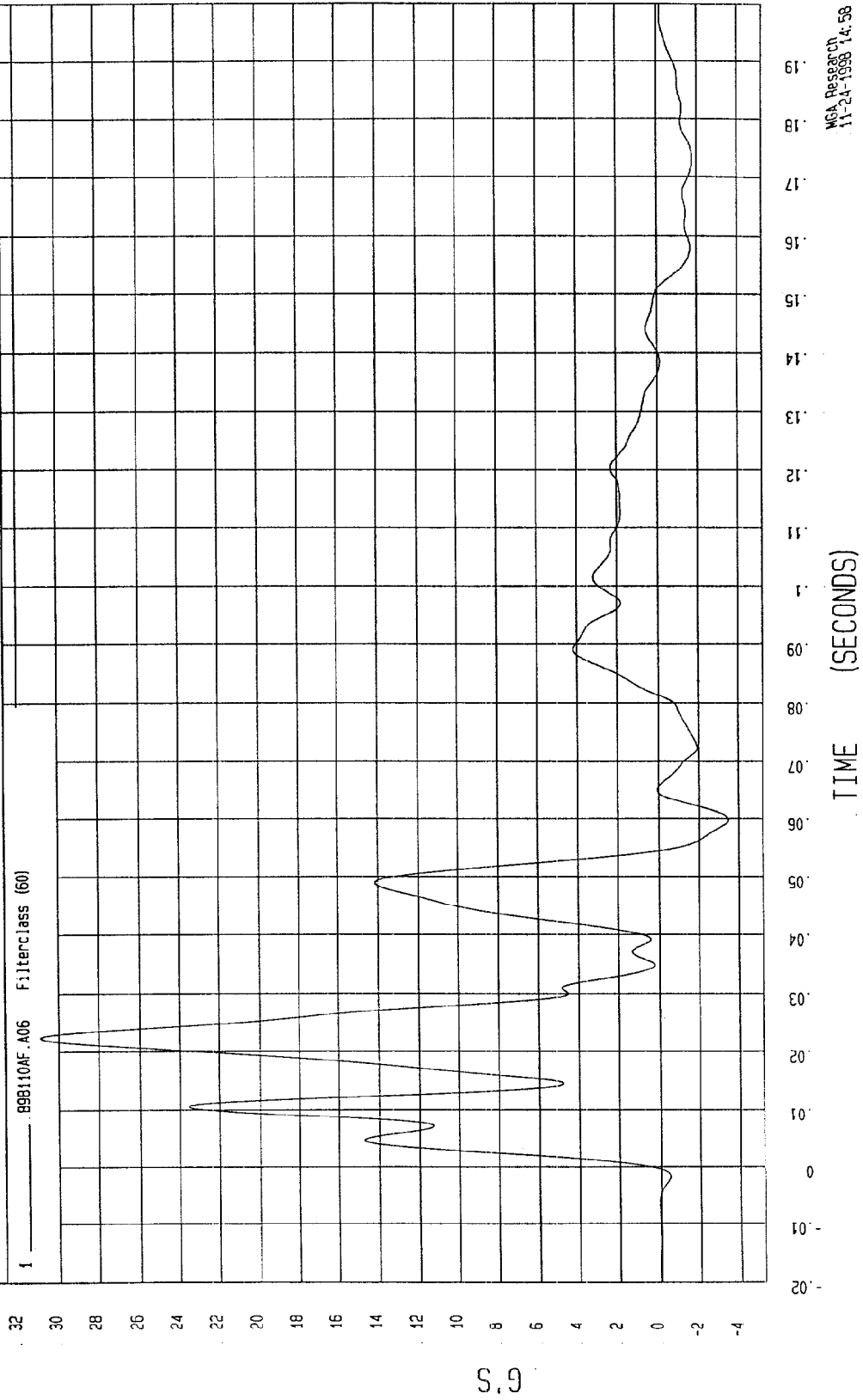
MGA Research
11-24-1998 15:14

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -3.47 G'S at 60 msec Maximum = 30.92 G'S at 22 msec

VEHICLE CG Y ACCELERATION



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

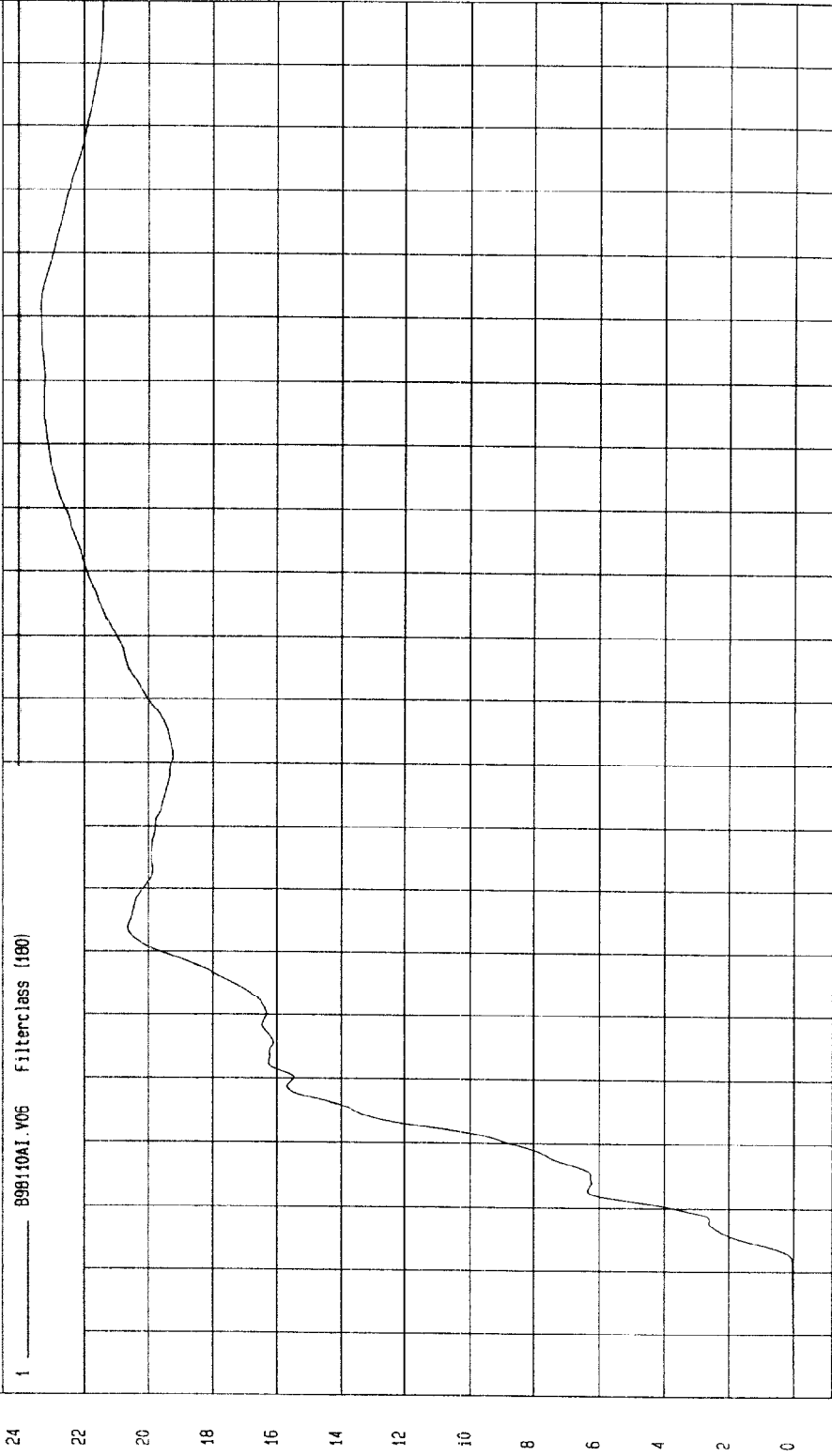
Speed: 38.1 MPH 51.3 KPH

COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 23.33 KPH at 152 msec

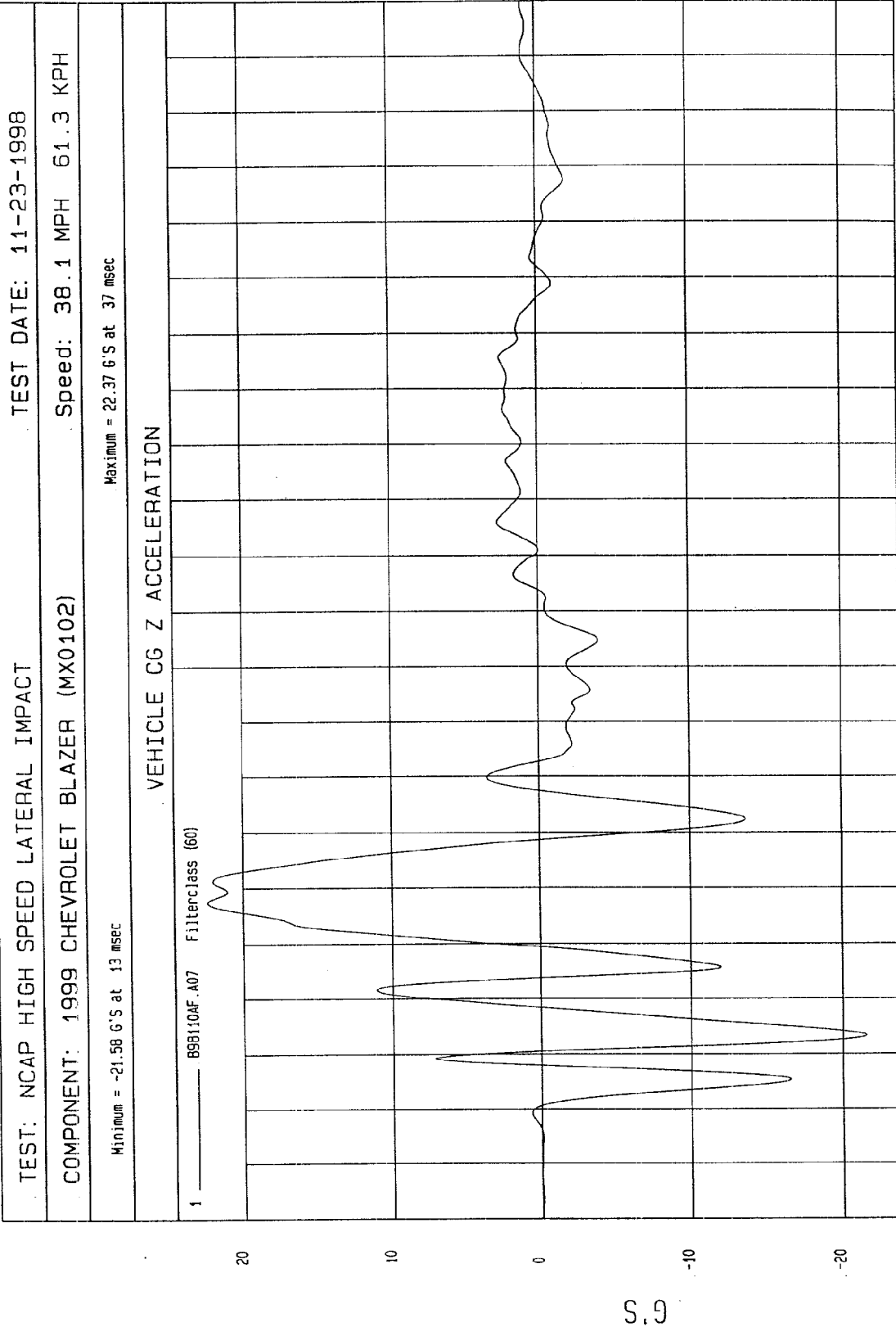
Minimum = 0 KPH at -20 msec

VEHICLE CG Y VELOCITY



WCA Research
11-24-1998 15:14

TIME Seconds



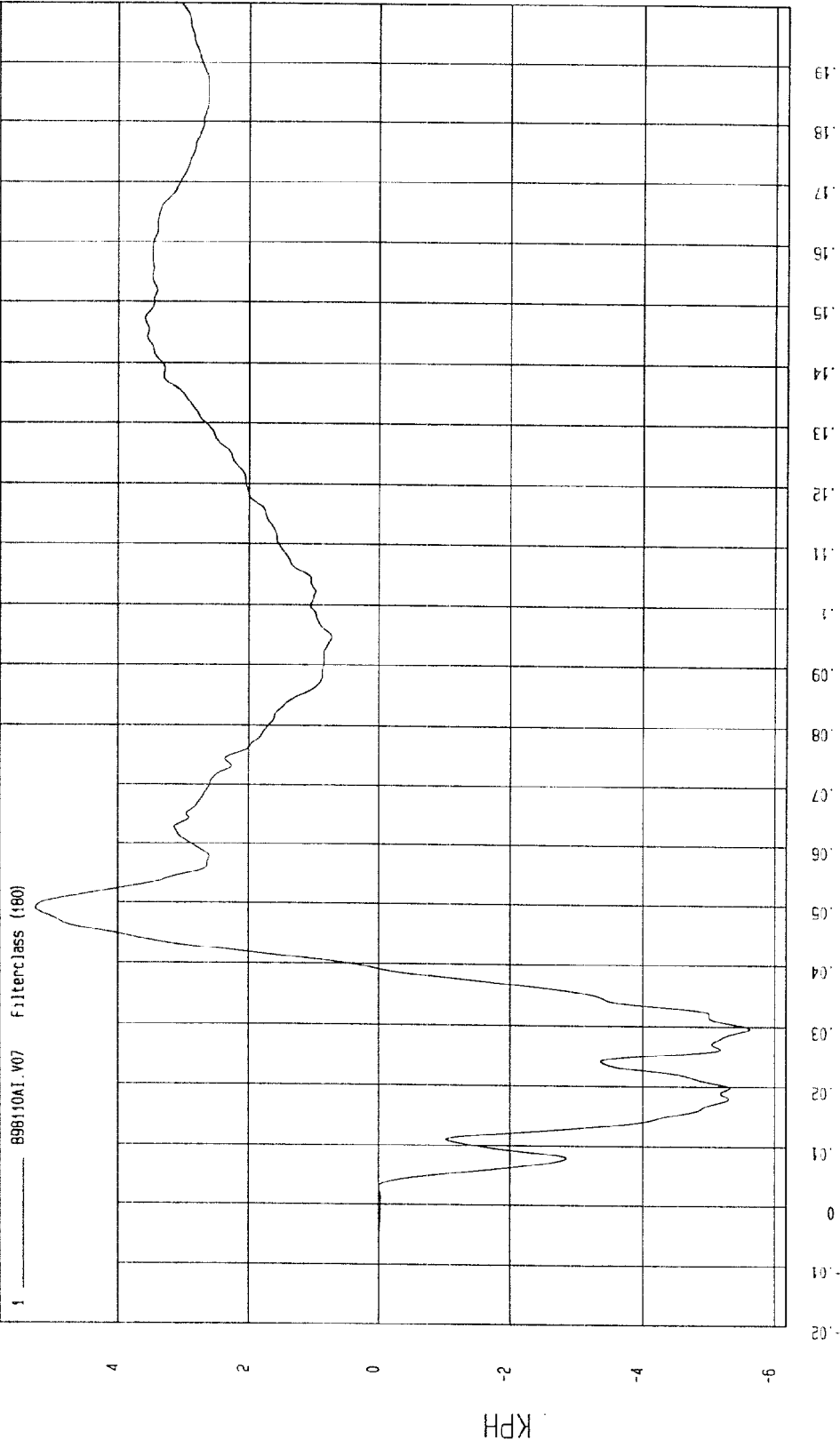
WCA Research
11-24-1998 14.59

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -5.63 KPH at 30 msec Maximum = 5.25 KPH at 49 msec

VEHICLE CG Z VELOCITY



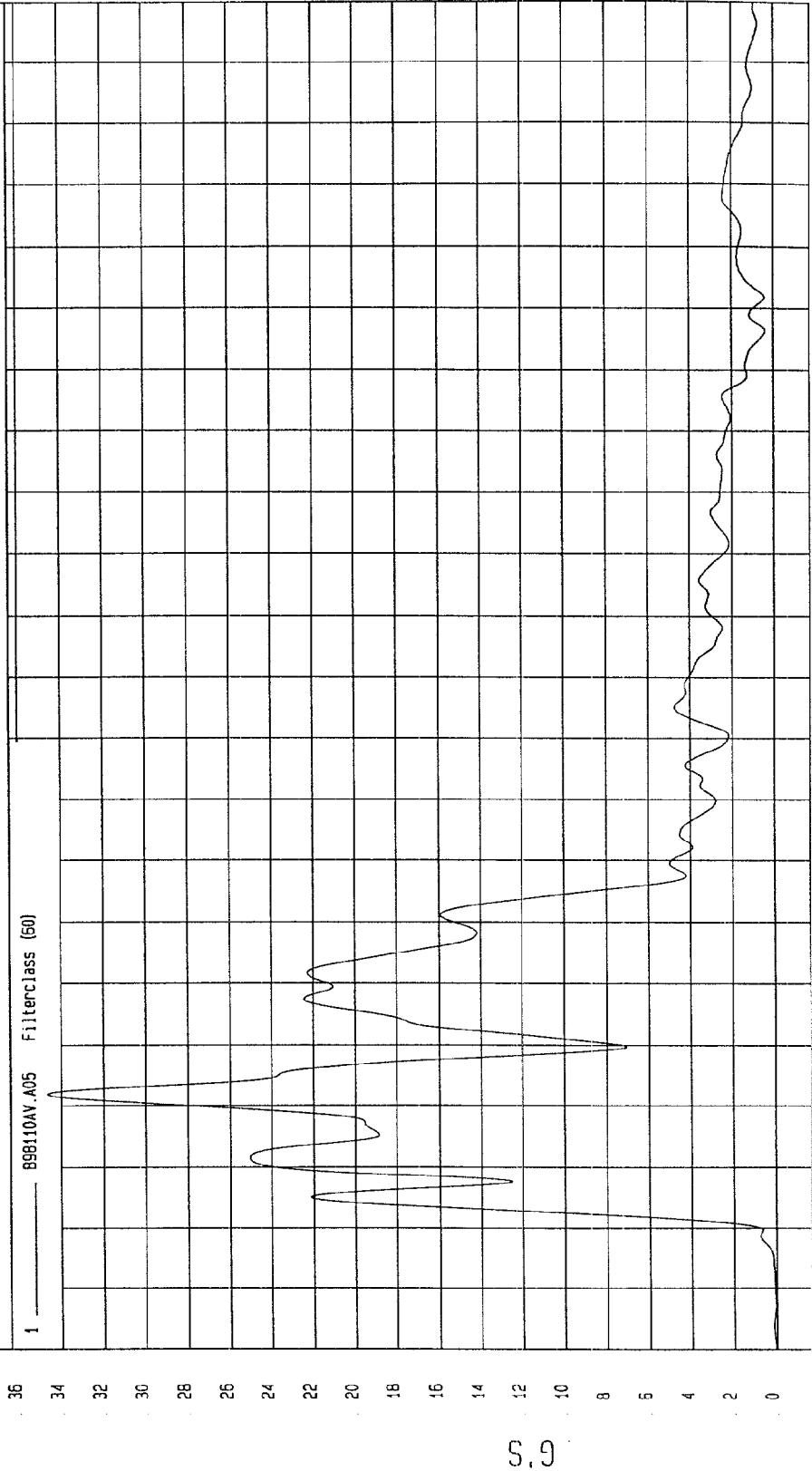
McA Research
11-24-1998 15:14

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = 3.84E-02 G's at -13 msec Maximum = 34.66 G's at 22 msec

VEHICLE CG RESULTANT ACCELERATION



MCA Research
11-24-1998 14:59

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

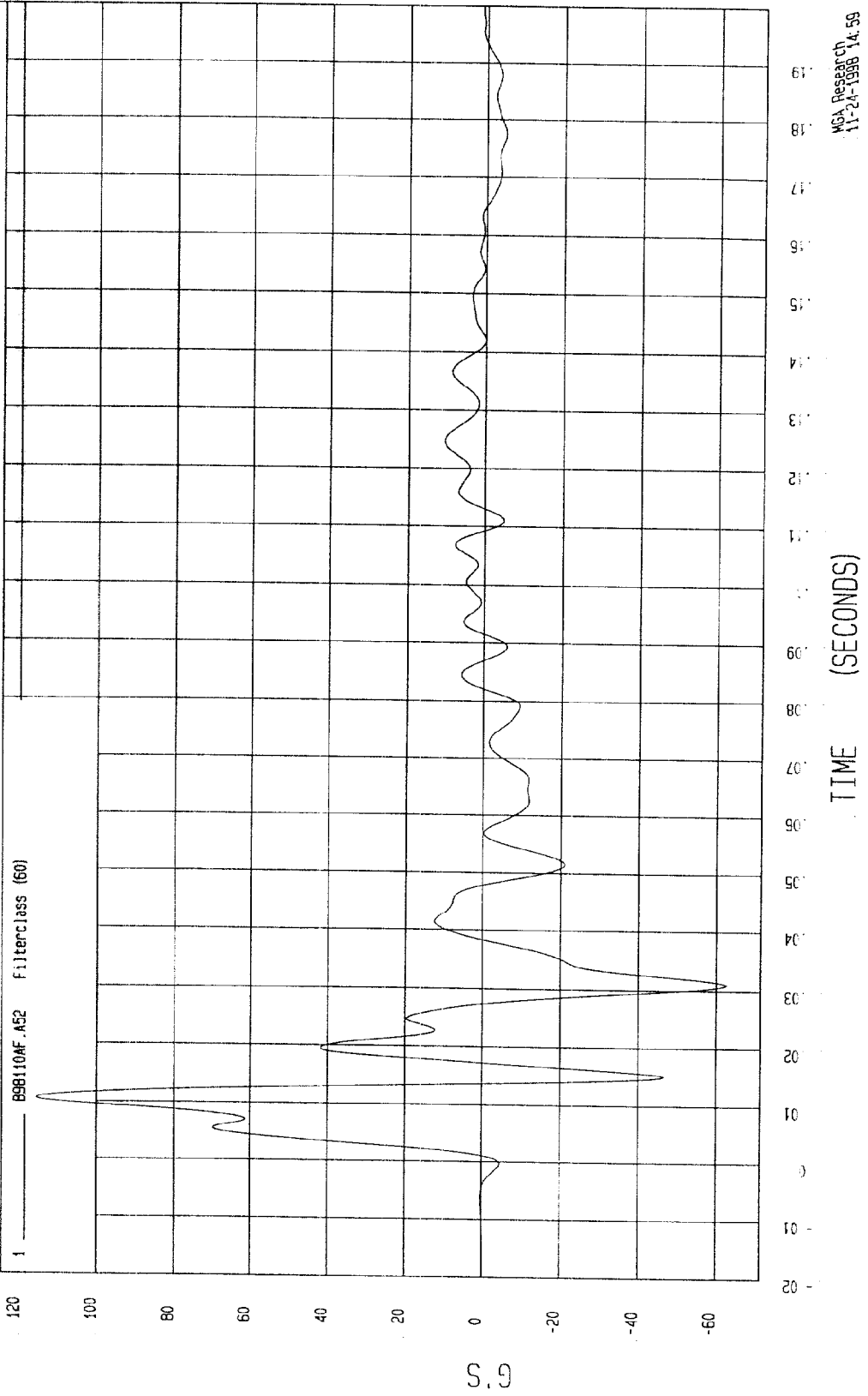
Speed: 38.1 MPH 61.3 KPH

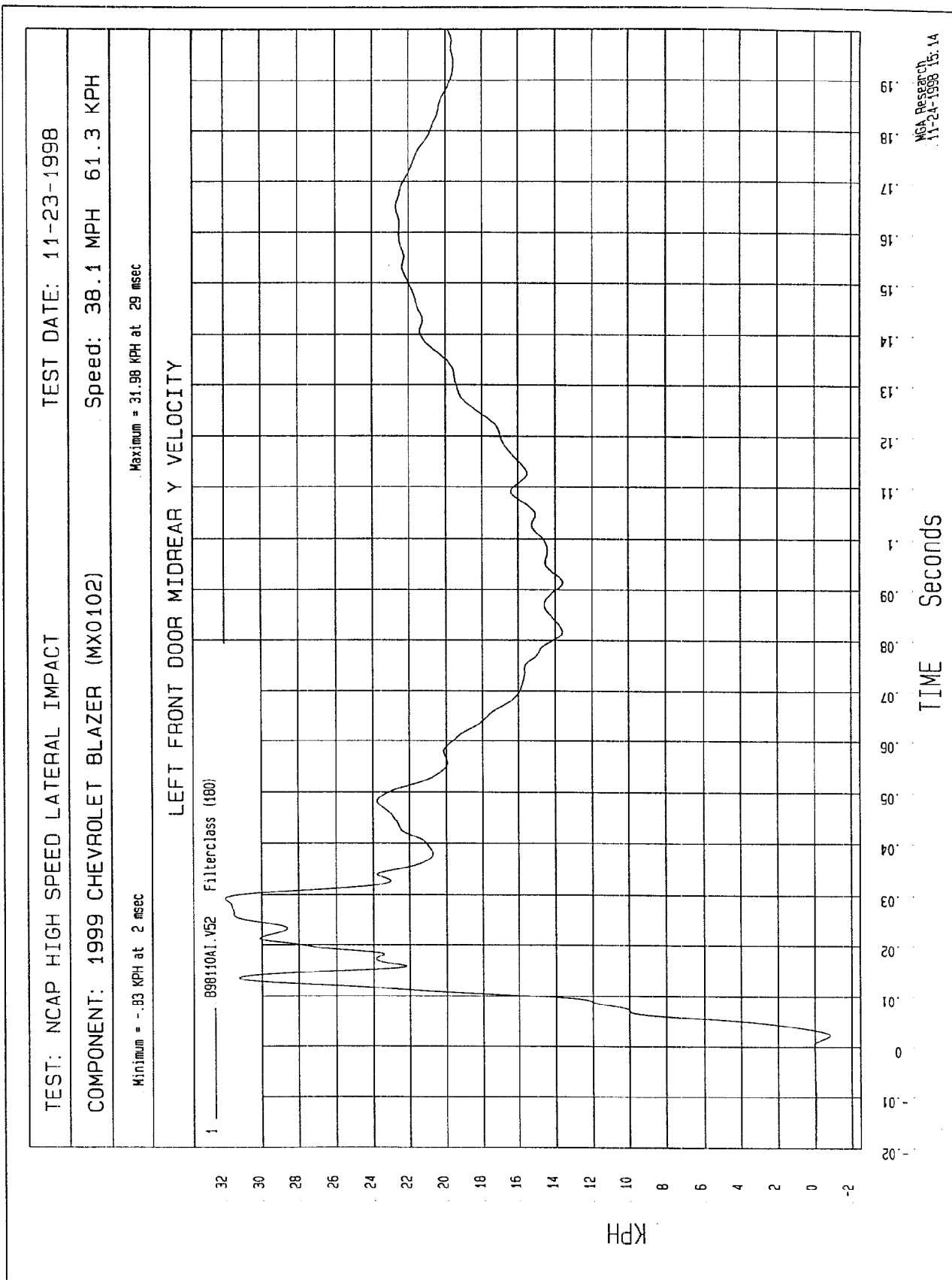
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 115.69 G'S at 11 msec

Minimum = -62.51 G'S at 31 msec

LEFT FRONT DOOR MIDREAR Y ACCELERATION





TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

Speed: 38.1 MPH 61.3 KPH

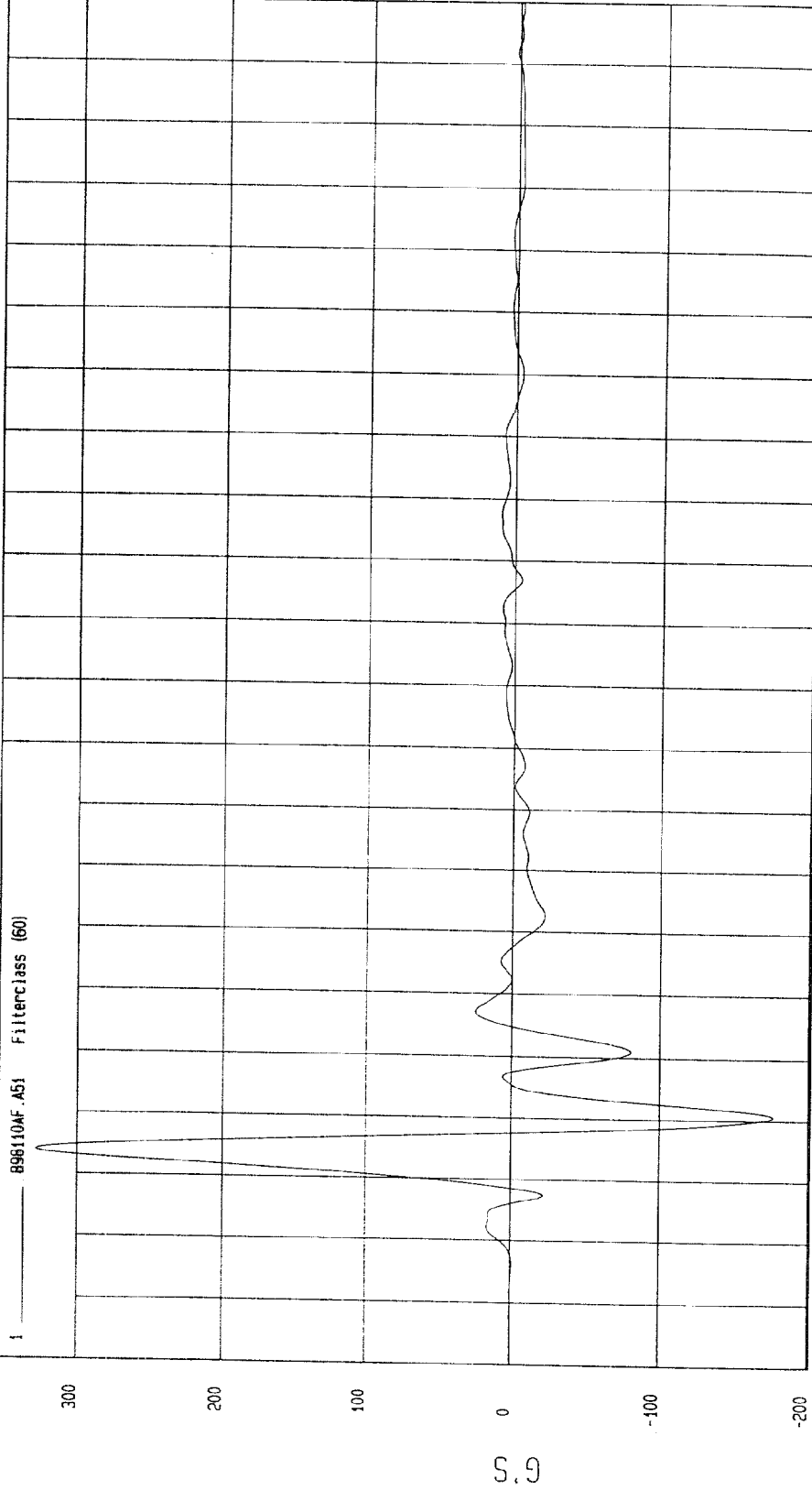
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 327.74 G'S at 14 msec

Minimum = -176.16 G'S at 21 msec

LEFT FRONT DOOR CENTERLINE Y ACCELERATION

1 896110AF.A51 Filterclass (60)



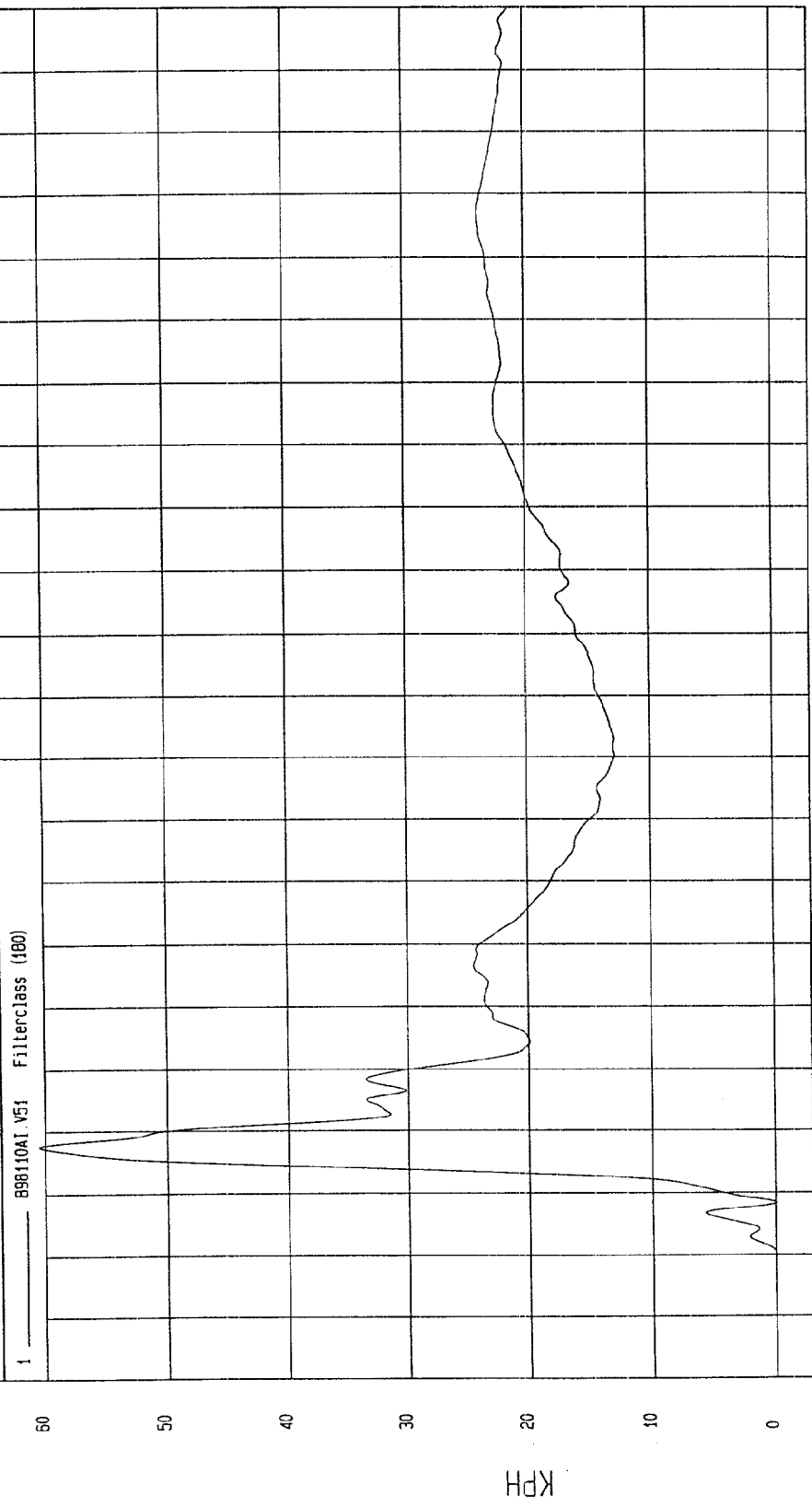
MGA Research
11-24-1998 14:59

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -9.09E-02 KPH at 8 msec Maximum = 60.49 KPH at 18 msec

LEFT FRONT DOOR CENTERLINE Y VELOCITY



TIME Seconds

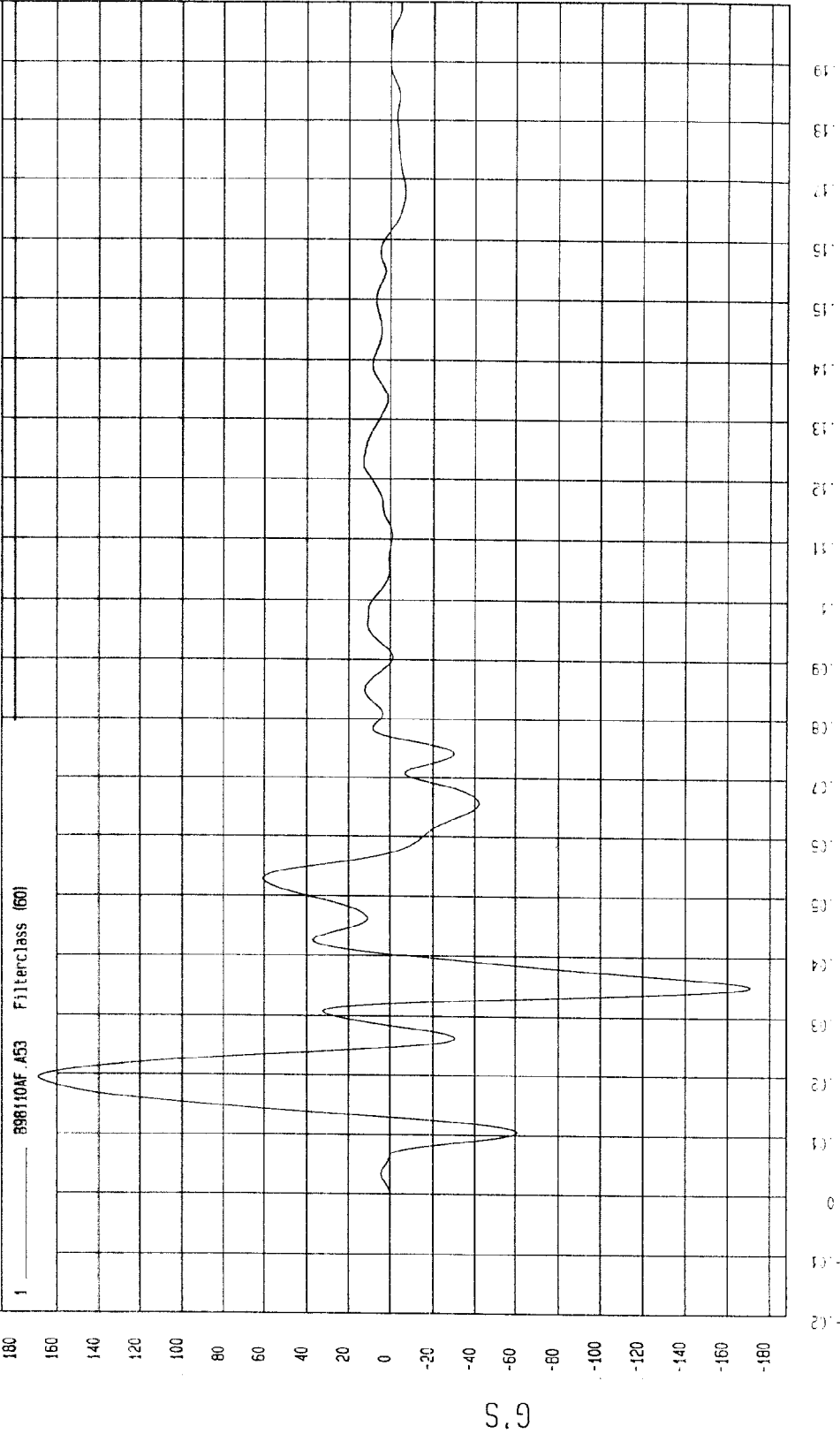
MCA Research
11-24-1998 15:14

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -170.98 G'S at 35 msec Maximum = 169.06 G'S at 19 msec

LEFT FRONT DOOR UPPER CENTERLINE Y ACCELERATION



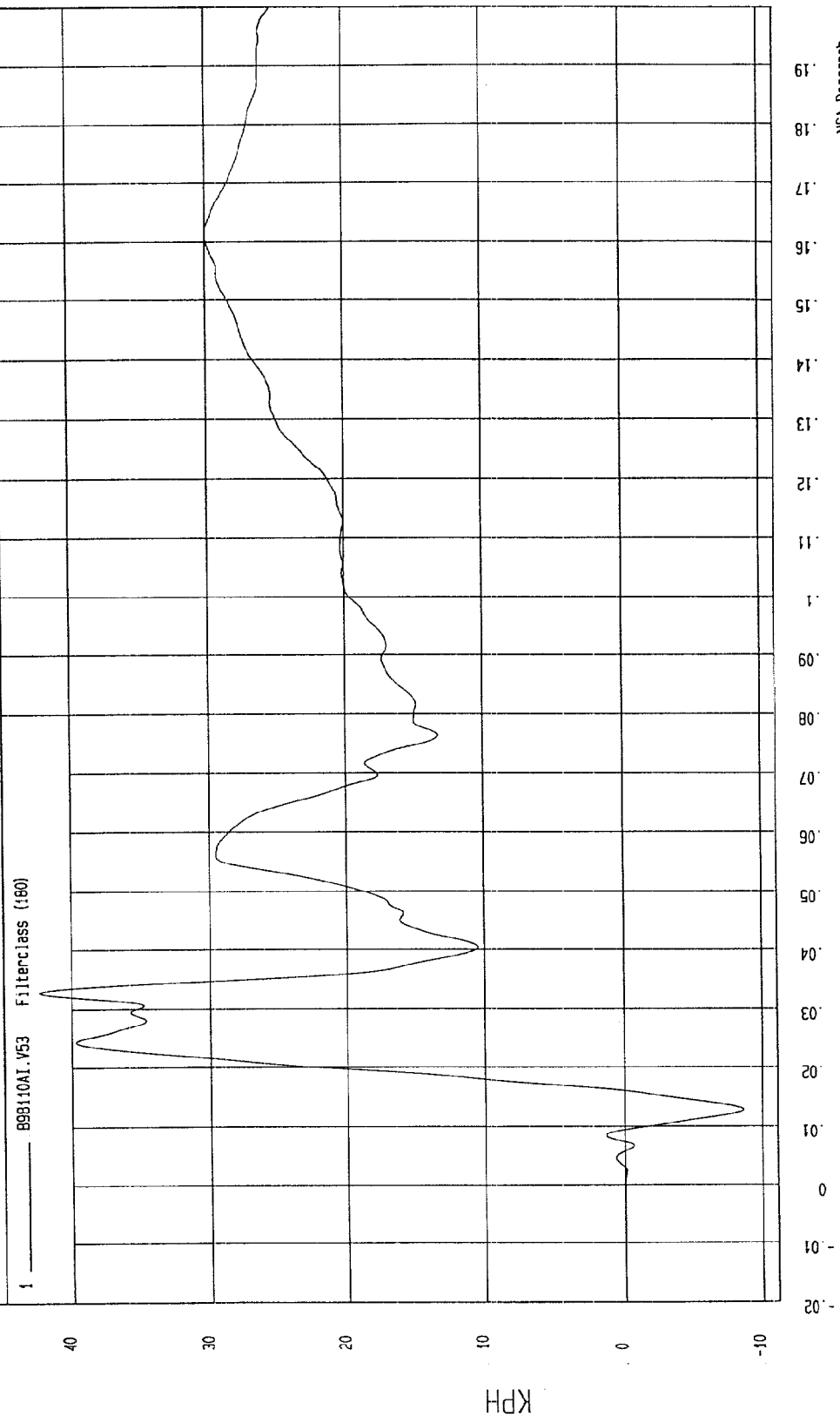
MGA Research
11-24-1998 14:59

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -8.5 KPH at 13 msec Maximum = 42.32 KPH at 33 msec

LEFT FRONT DOOR UPPER CENTERLINE Y VELOCITY



MGA Research
11-24-1998 15:14

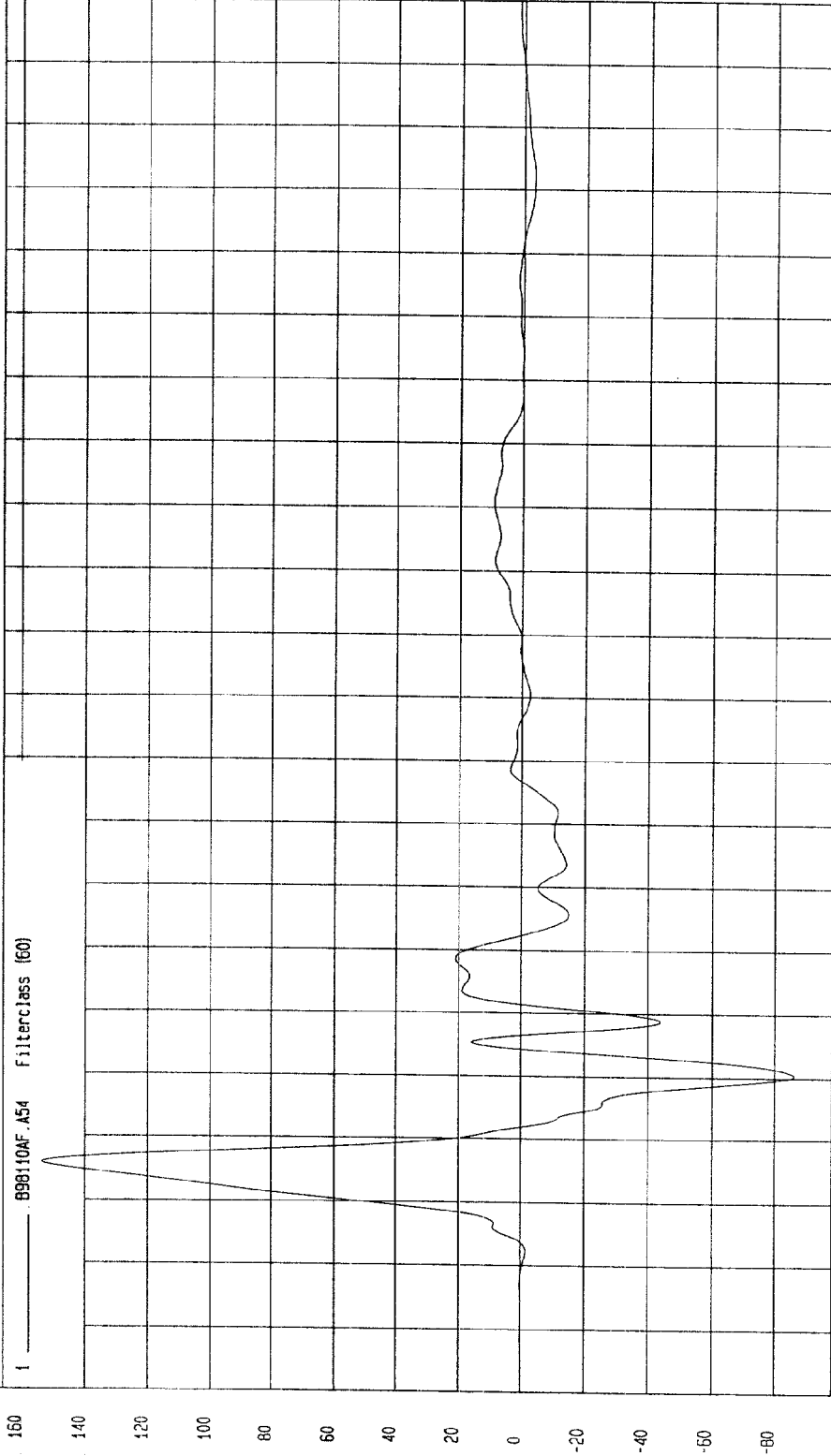
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -86.25 G'S at 30 msec Maximum = 153.7 G'S at 16 msec

LEFT REAR DOOR MIDREAR Y ACCELERATION

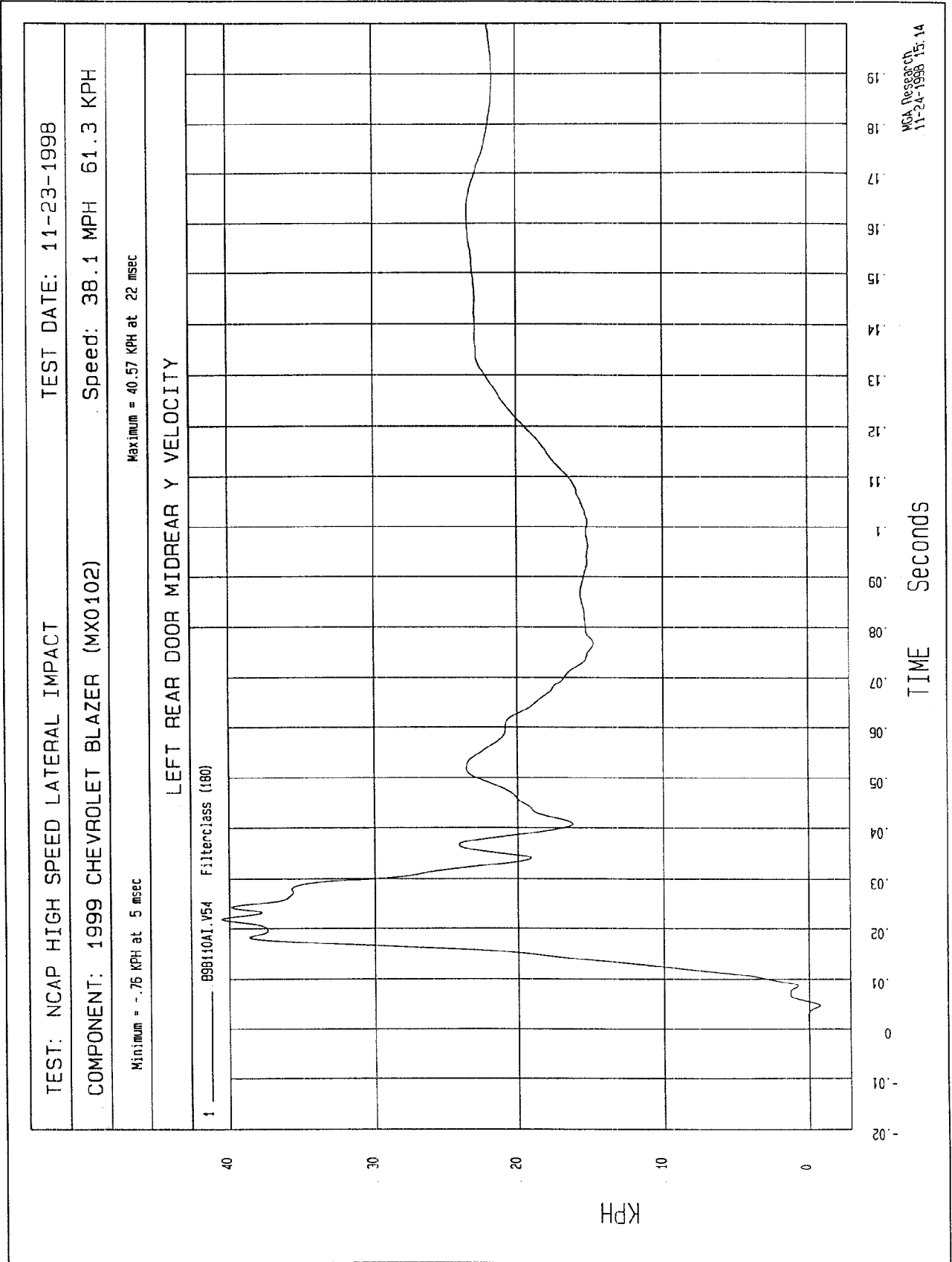
1 B98110AF.A54 Filterclass (60)



MOA Research
11-24-1998 14:59

TIME (SECONDS)

G



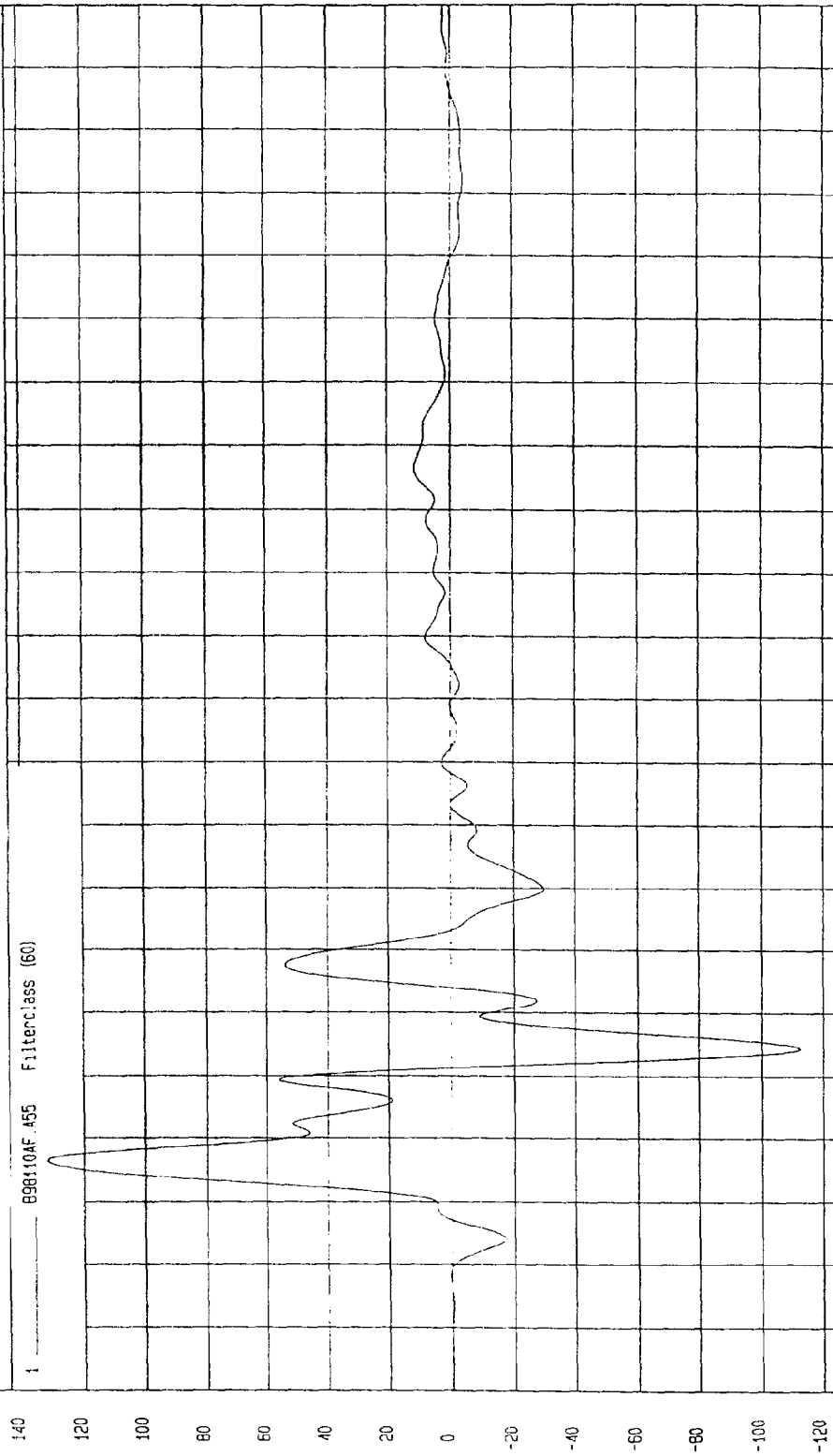
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

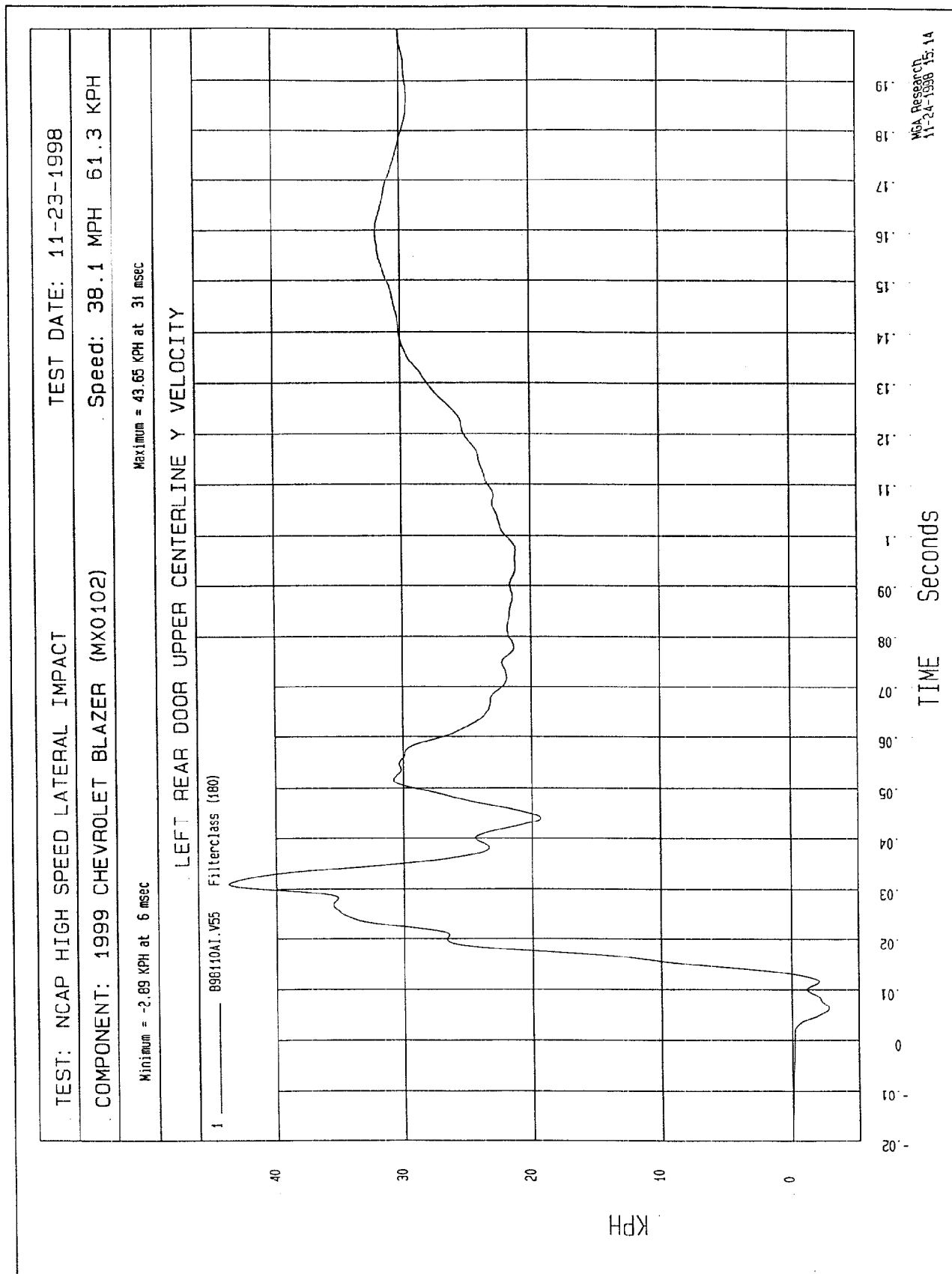
Minimum = -112 G's at 34 msec Maximum = 131.55 G's at 16 msec

LEFT REAR DOOR UPPER CENTERLINE Y ACCELERATION

1 B98110AF 455 Filterclass (60)



MCA Research
11-24-1998 14:59

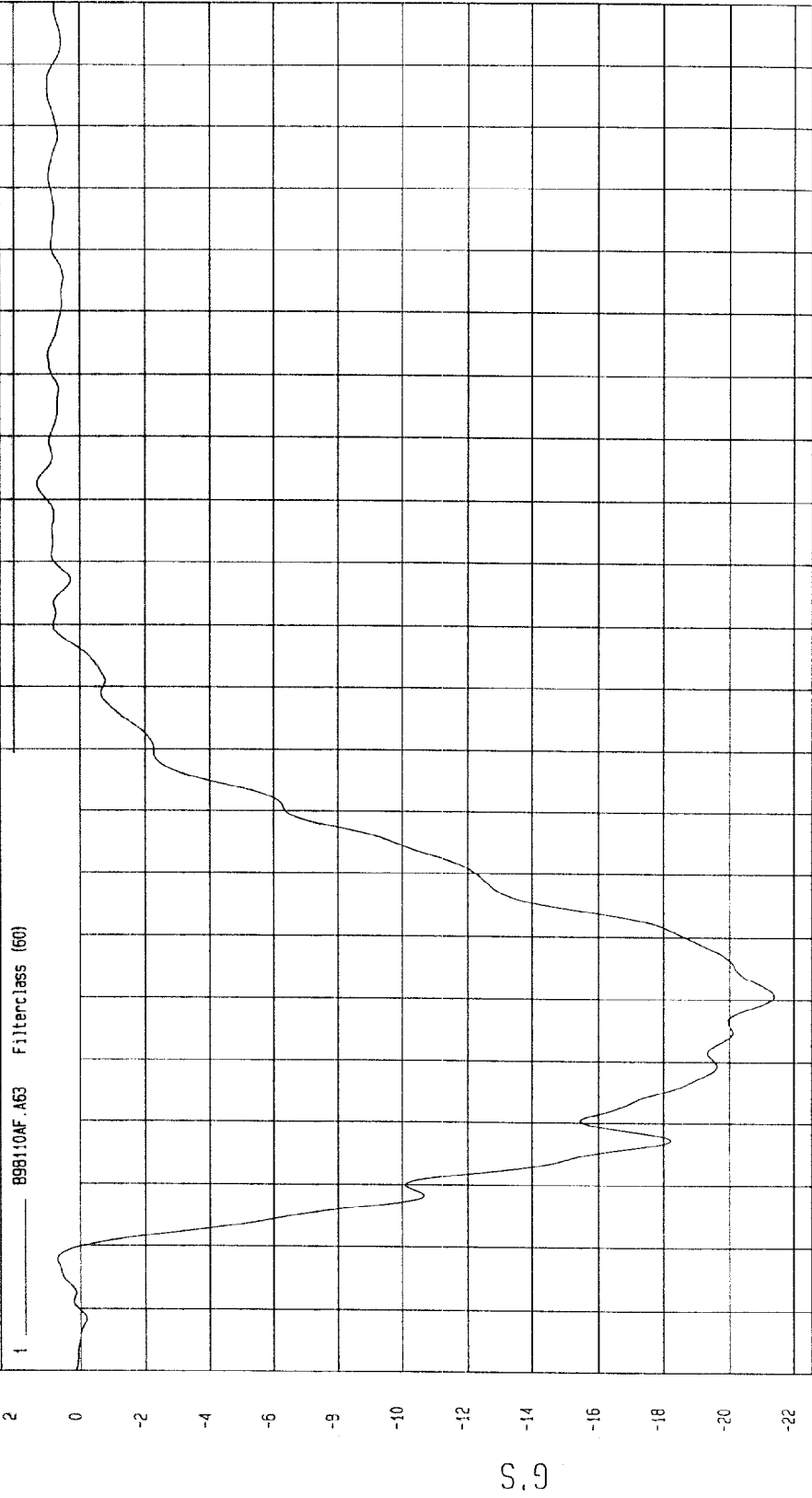


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -21.4 G'S at 41 msec Maximum = 1.3 G'S at 122 msec

MOVING BARRIER CG X ACCELERATION



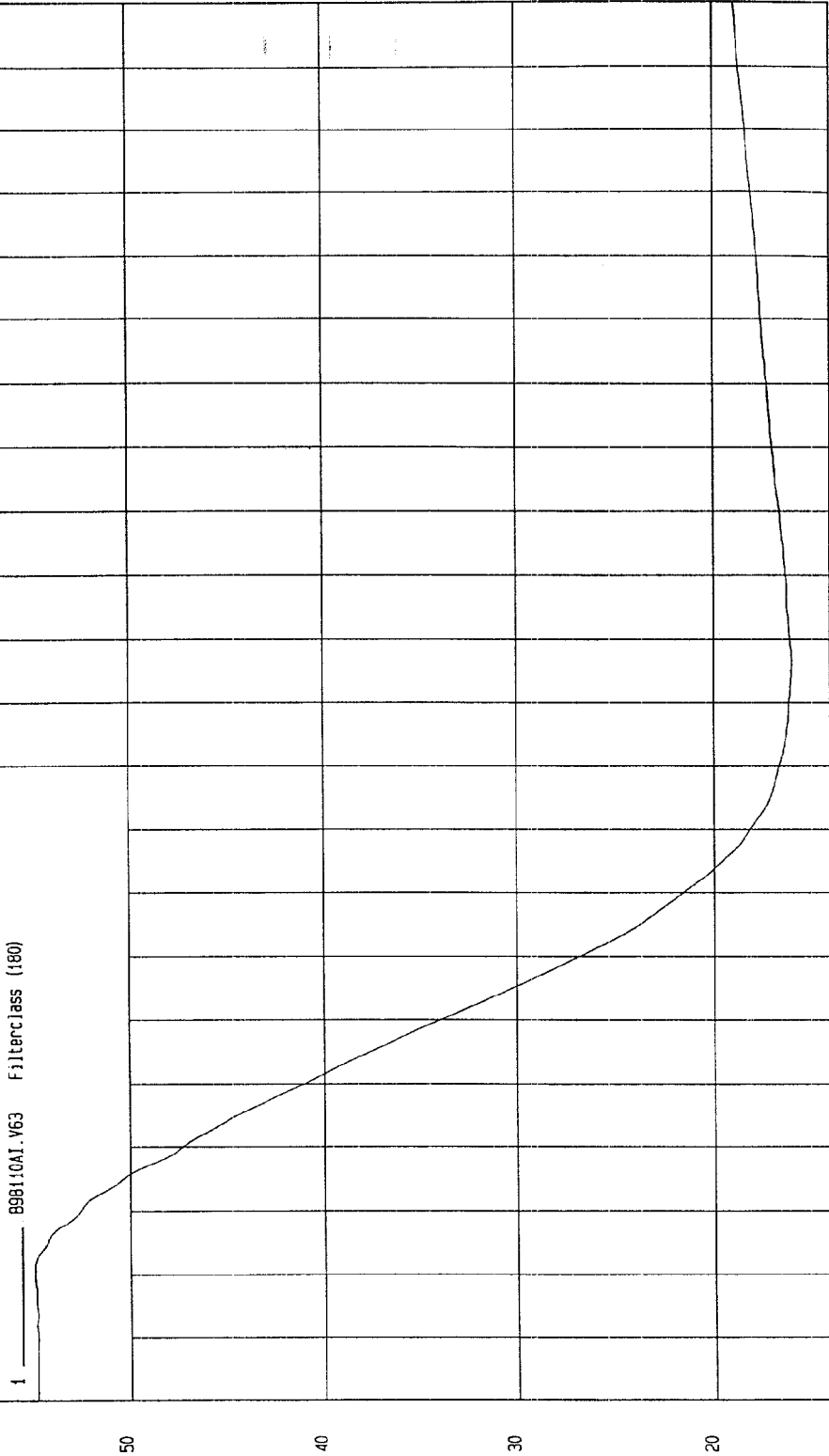
MSA Research
11-24-1998 15:04

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = 16.11 KPH at 96 msec Maximum = 54.93 KPH at 0 msec

MOVING BARRIER CG X VELOCITY



WCA Research
11-24-1998 15:14

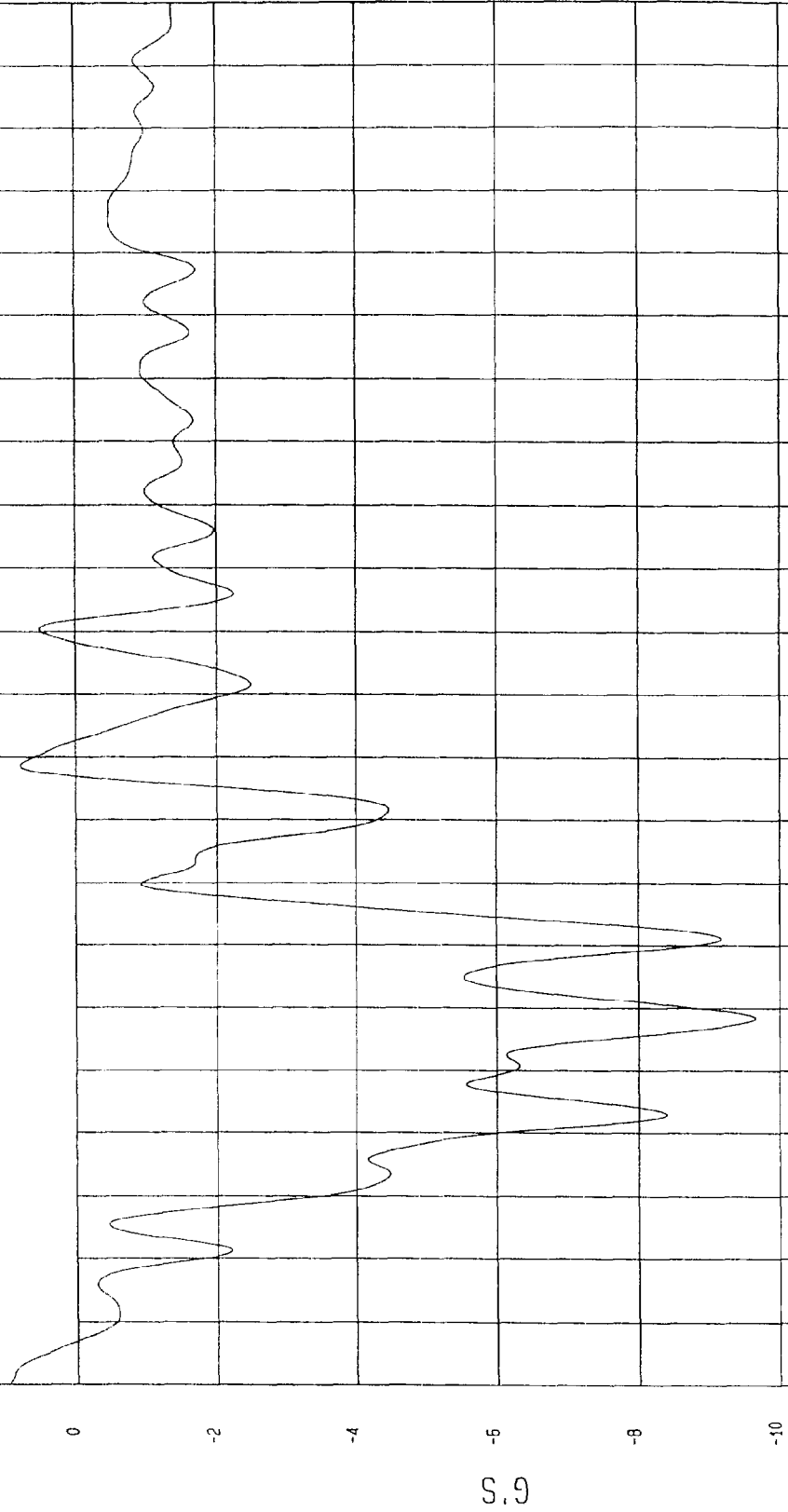
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -9.67 G'S at 30 msec
Maximum = .96 G'S at -20 msec

MOVING BARRIER CG Y ACCELERATION

1 ——— B98110AF .M64 Filterclass (60)



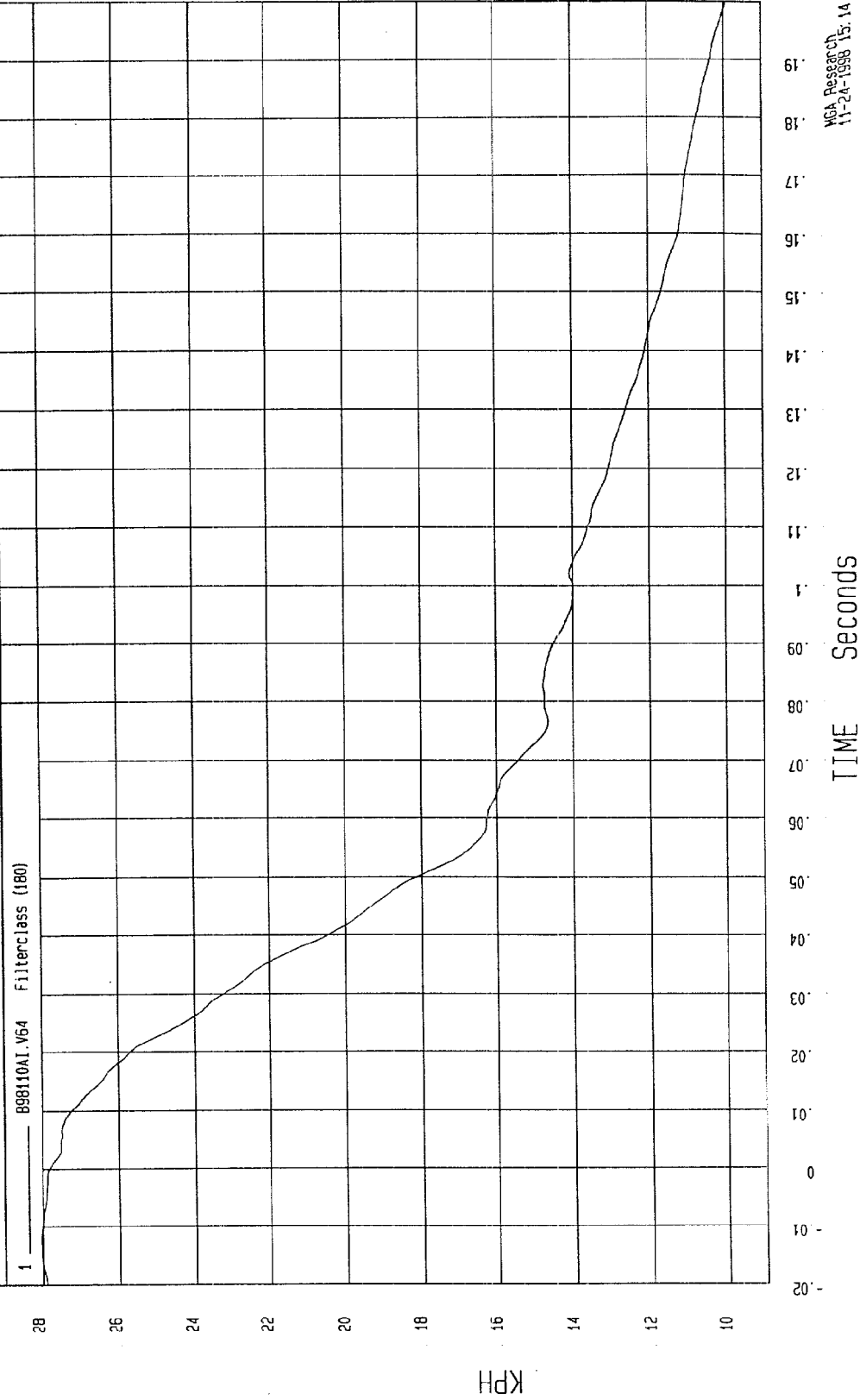
MECA Research
11-24-1998 15:04

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

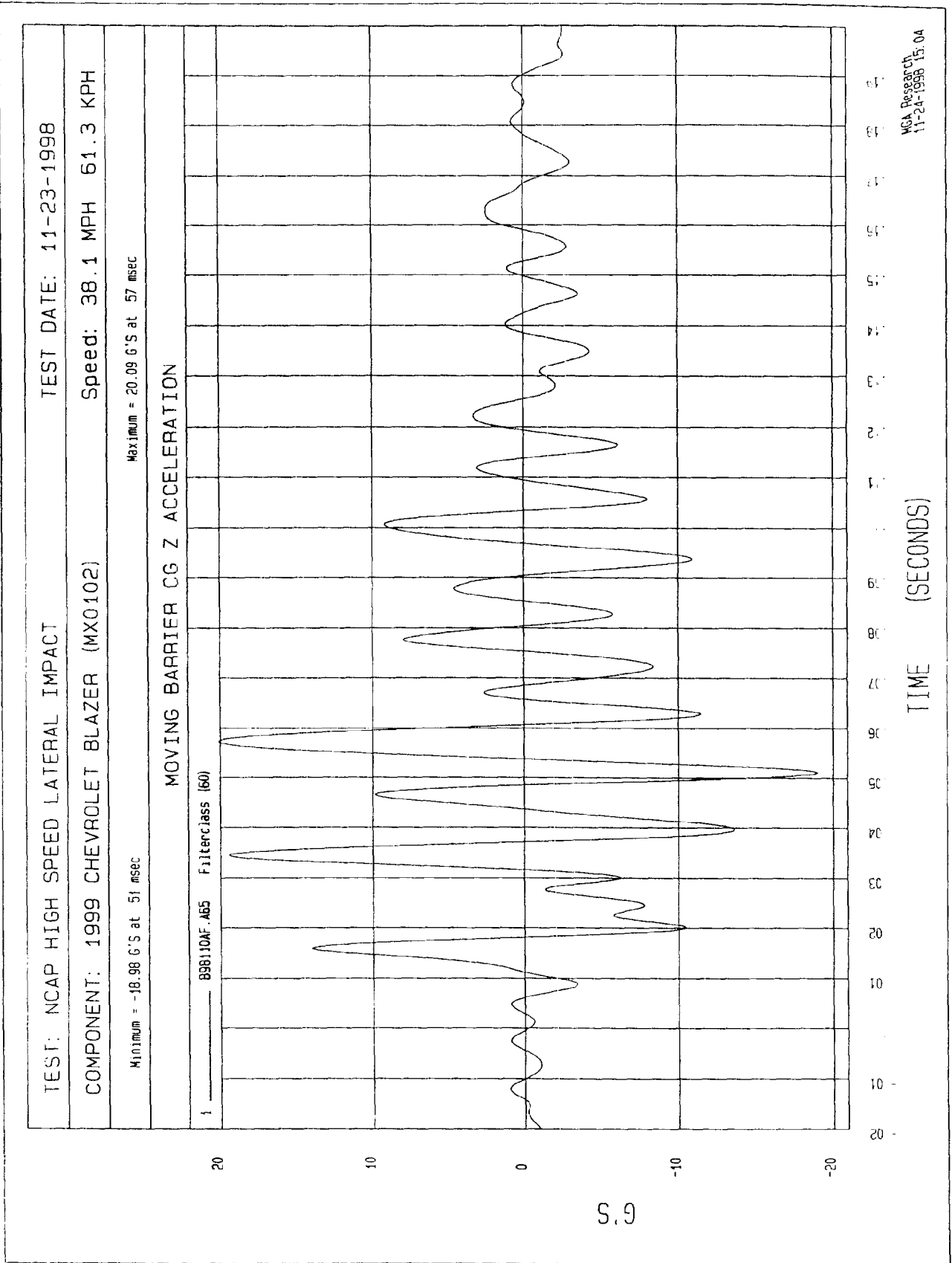
COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

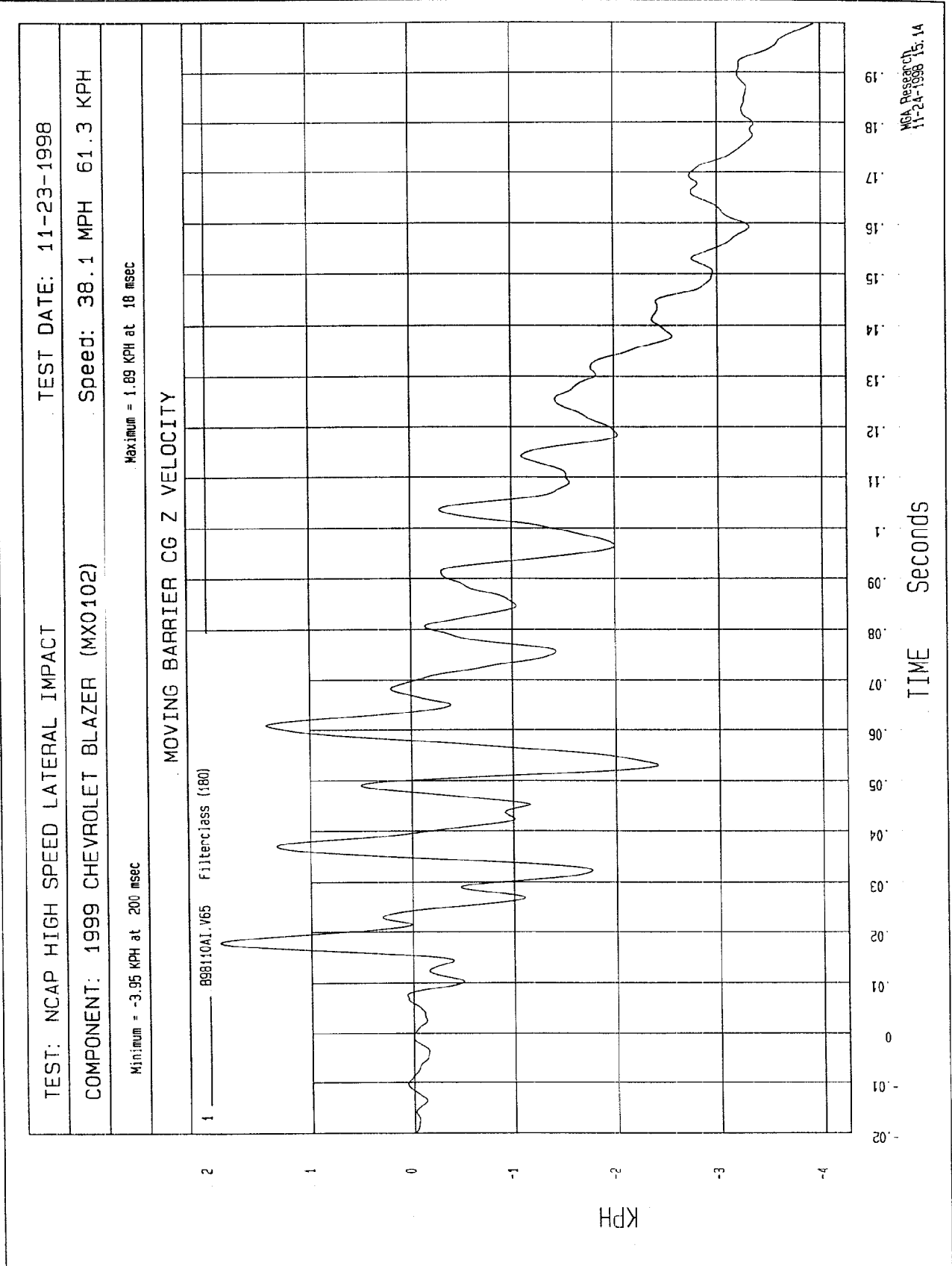
Minimum = 9.94 KPH at 200 msec Maximum = 28.05 KPH at -12 msec

MOVING BARRIER CG Y VELOCITY



WGA Research
11-24-1998 15.14



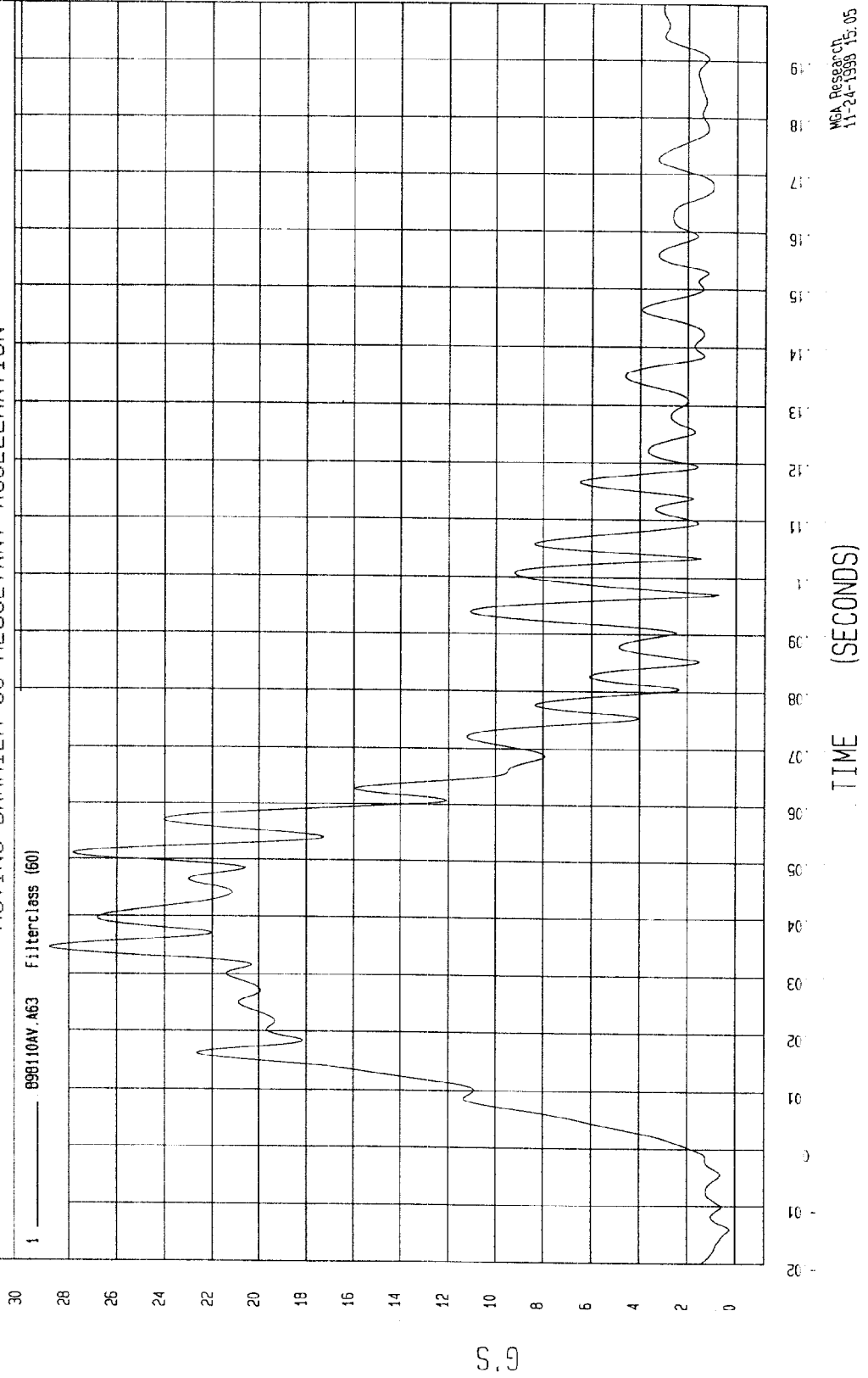


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = .23 G'S at -14 msec Maximum = 28.83 G'S at 34 msec

MOVING BARRIER CG RESULTANT ACCELERATION

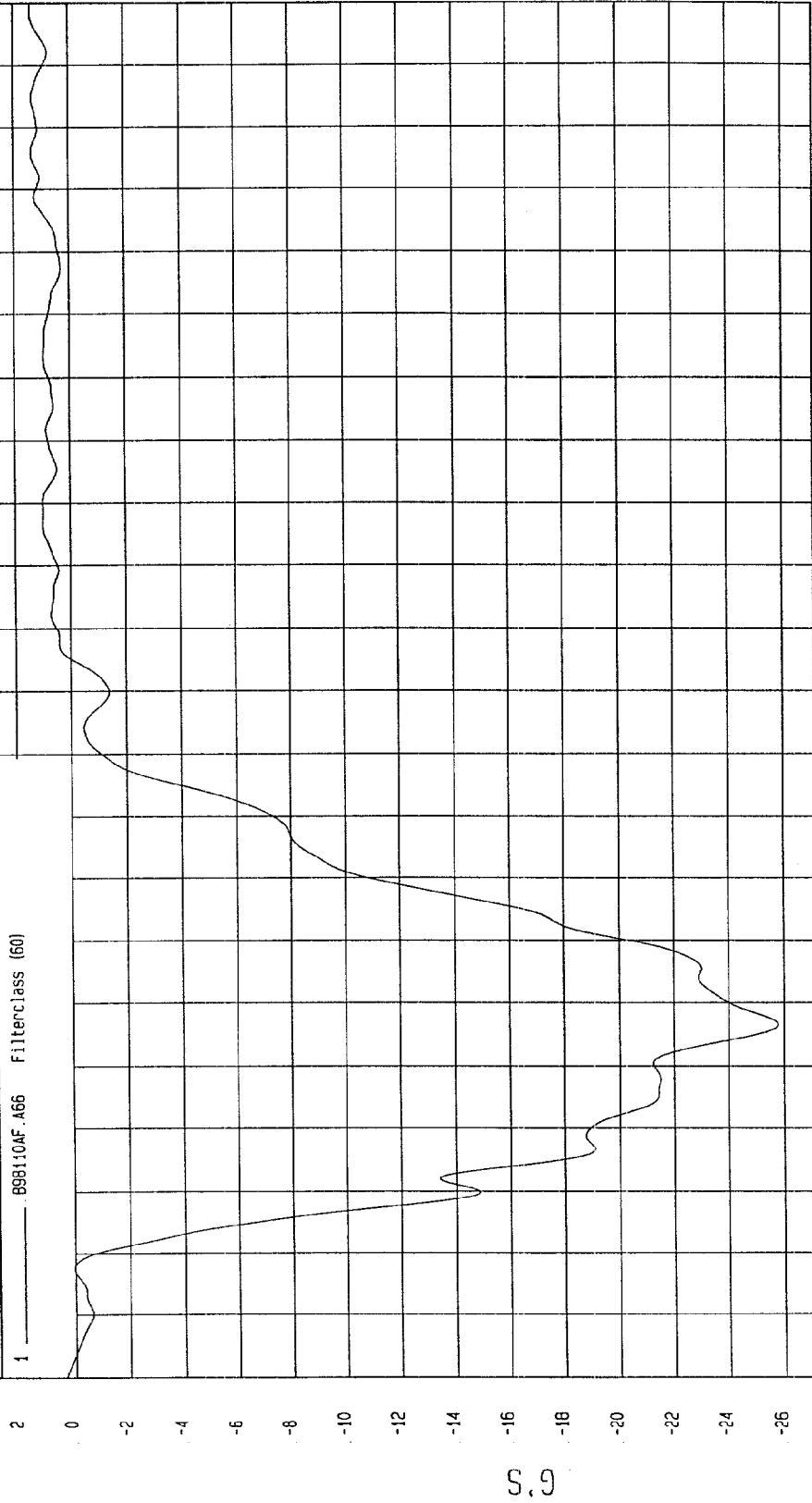


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -25.79 G'S at 36 msec Maximum = 1.39 G'S at 199 msec

MOVING BARRIER REAR AXLE X ACCELERATION



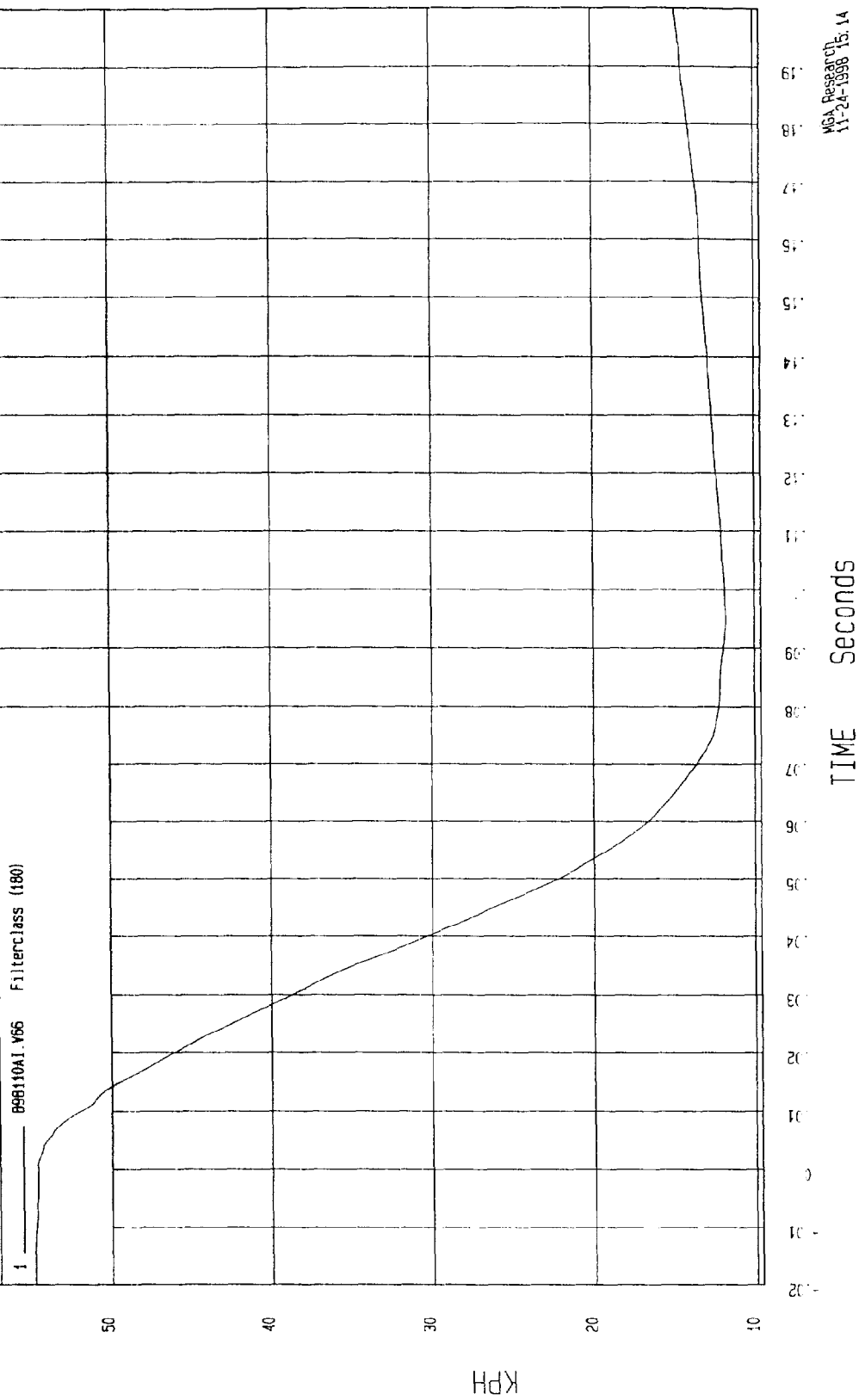
NGA Research
11-24-1998 15.04

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

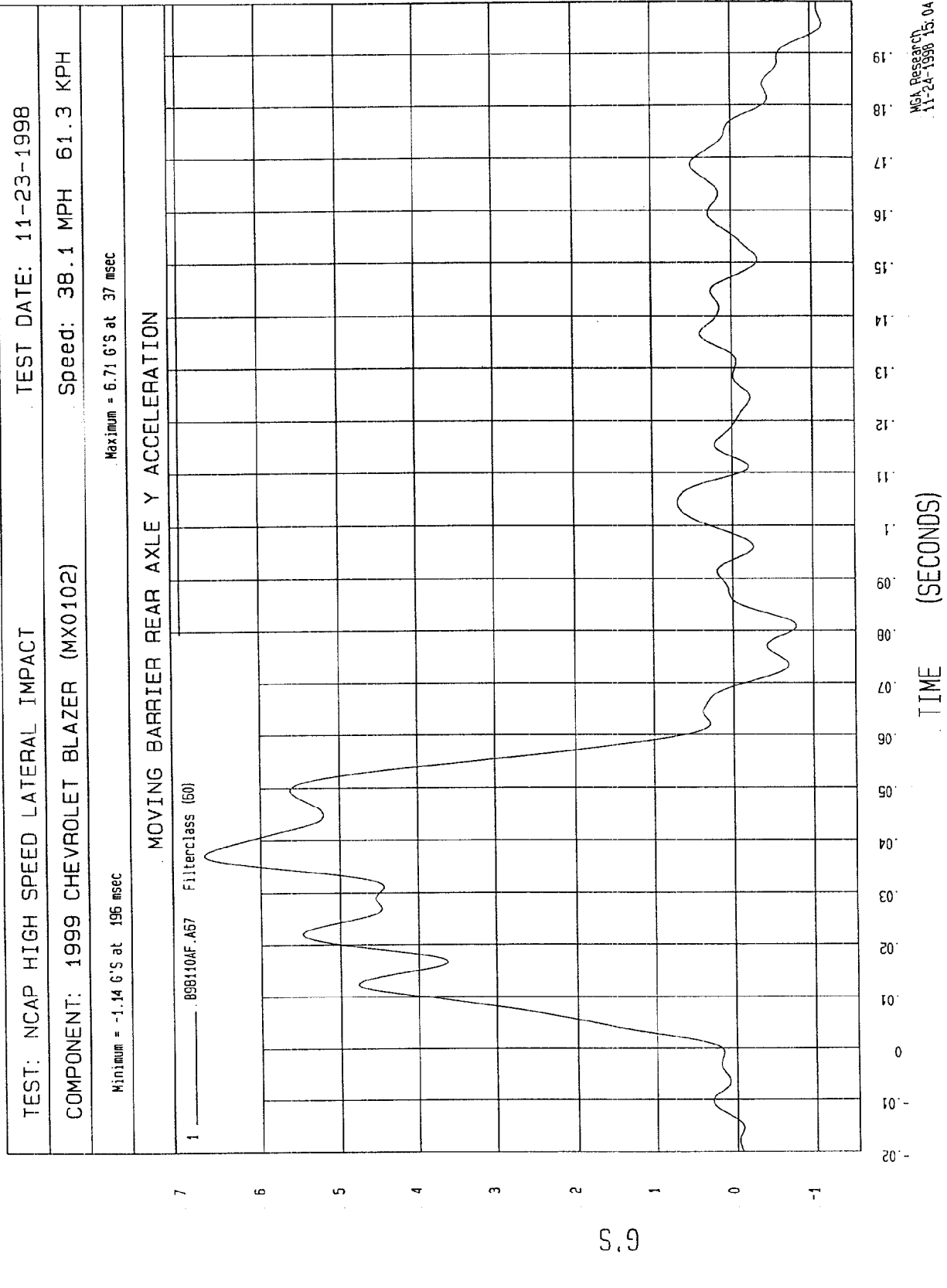
COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = 11.78 KPH at 95 msec Maximum = 54.82 KPH at -16 msec

MOVING BARRIER REAR AXLE X VELOCITY



MGA Research
11-24-1998 15:14



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

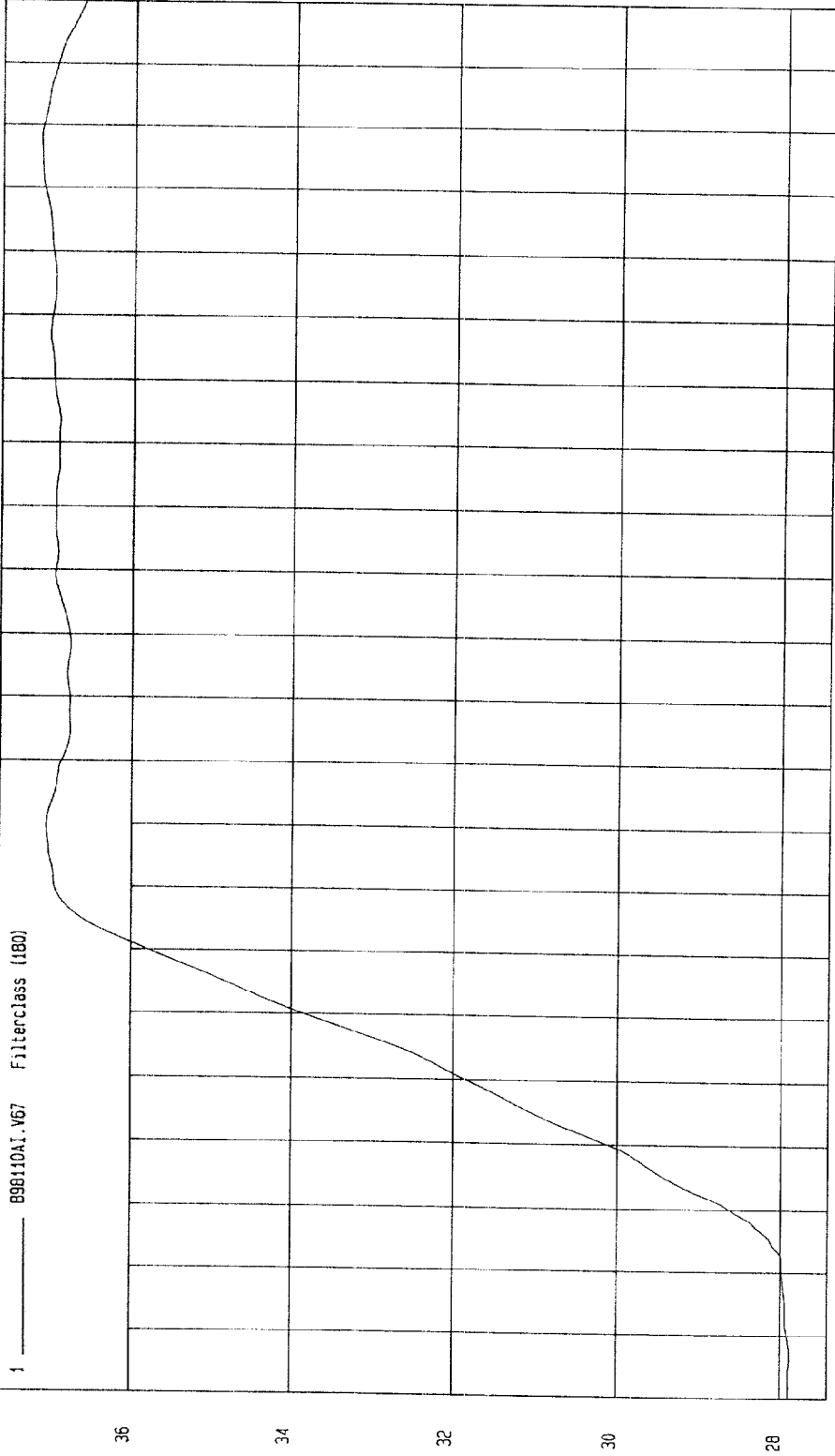
Speed: 38.1 MPH 61.3 KPH

Minimum = 27.89 KPH at -14 msec

Maximum = 37.15 KPH at 178 msec

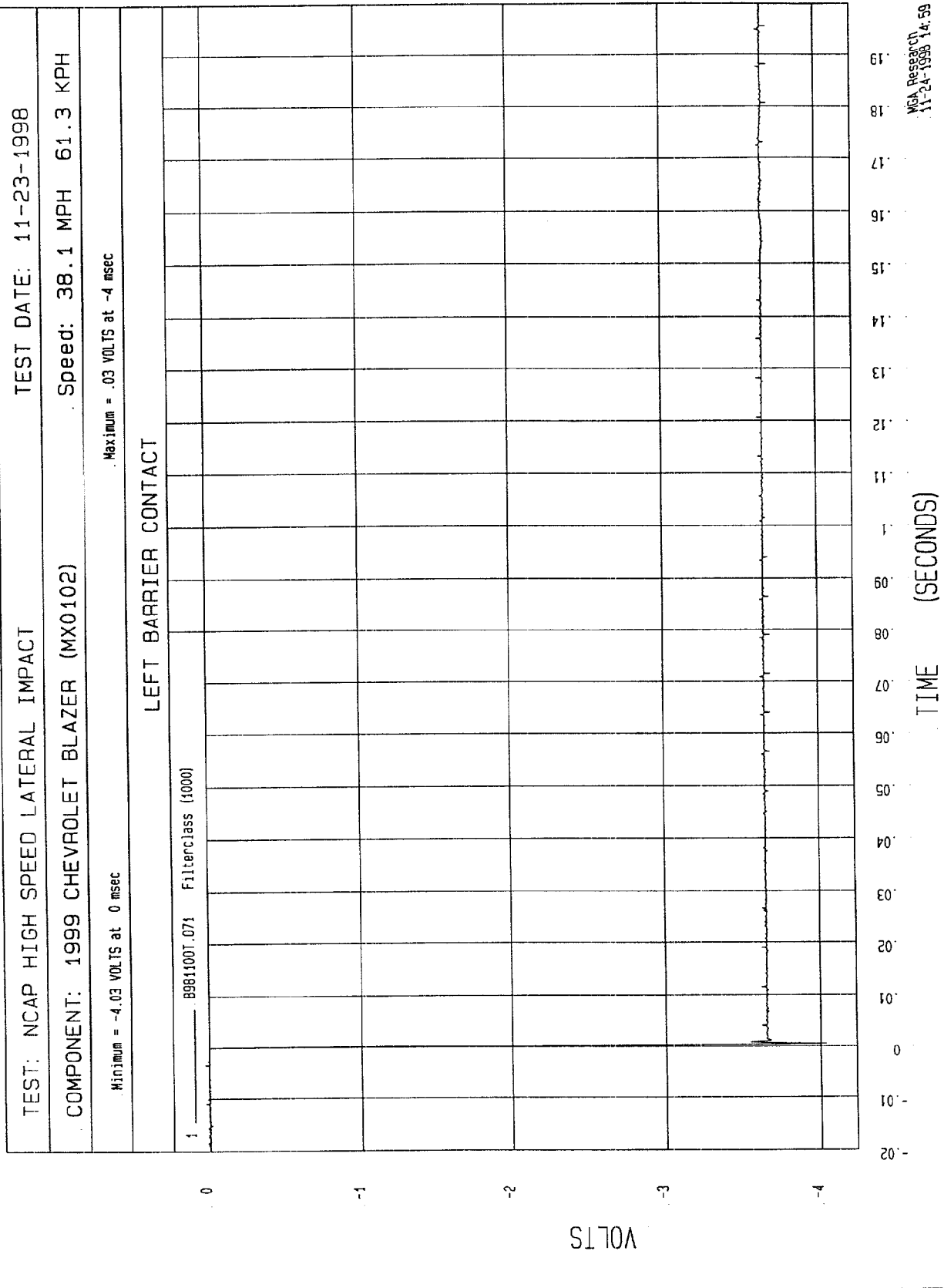
MOVING BARRIER REAR AXLE Y VELOCITY

1 ——— 898110A1.V67 Filterclass (180)



NGA Research
11-24-1998 15:14

TIME Seconds

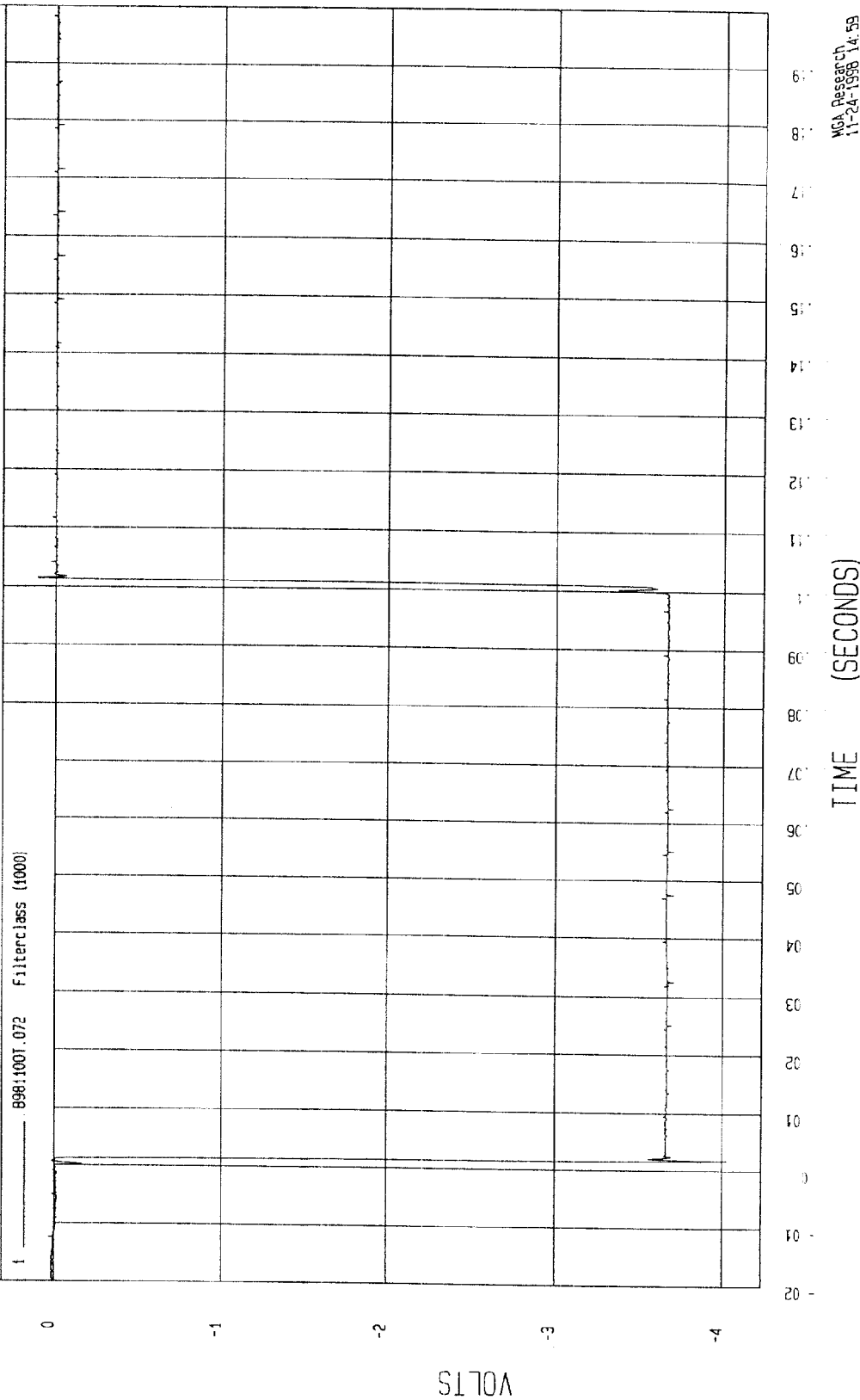


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -4.02 VOLTS at 2 msec Maximum = .11 VOLTS at 102 msec

RIGHT BARRIER CONTACT



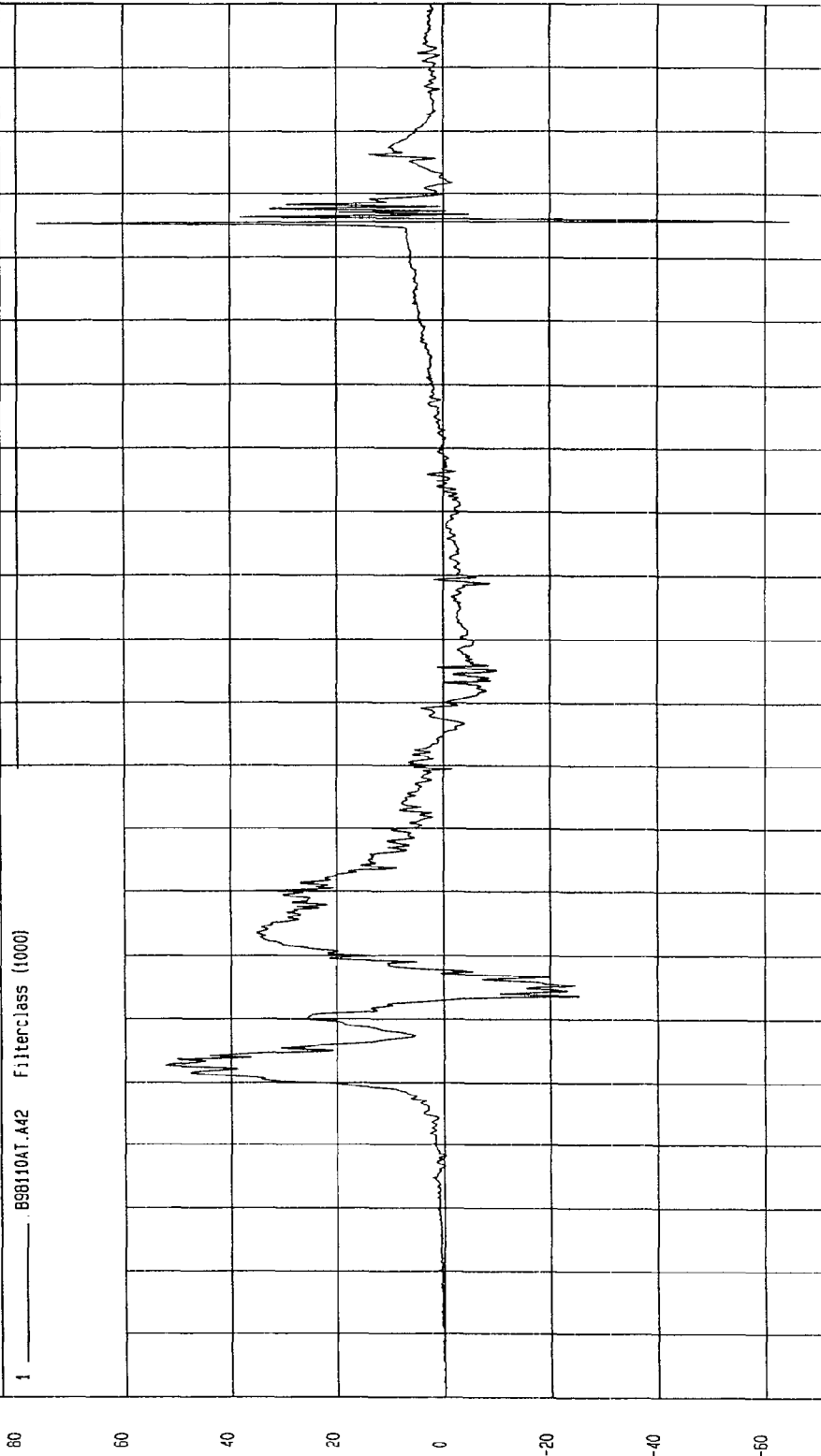
MCA Research
11-24-1998 14:59

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

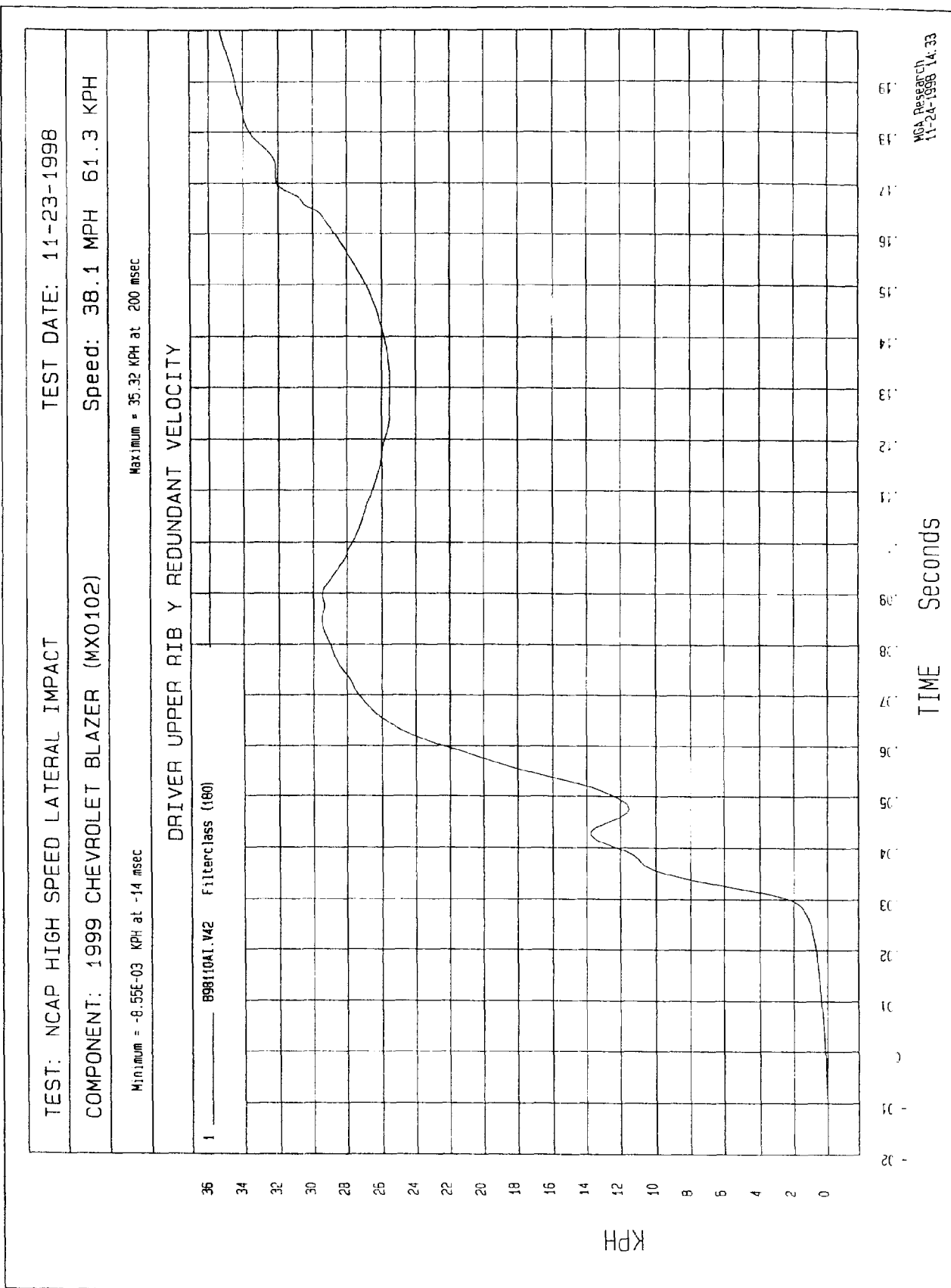
COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -64.53 G'S at 166 msec Maximum = 76.08 G'S at 165 msec

DRIVER UPPER RIB Y REDUNDANT ACCELERATION



MOA Research
11-24-1998 14:27



DRIVER LOWER RIB Y REDUNDANT ACCELERATION VS. TIME

NO VALID DATA COLLECTED

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

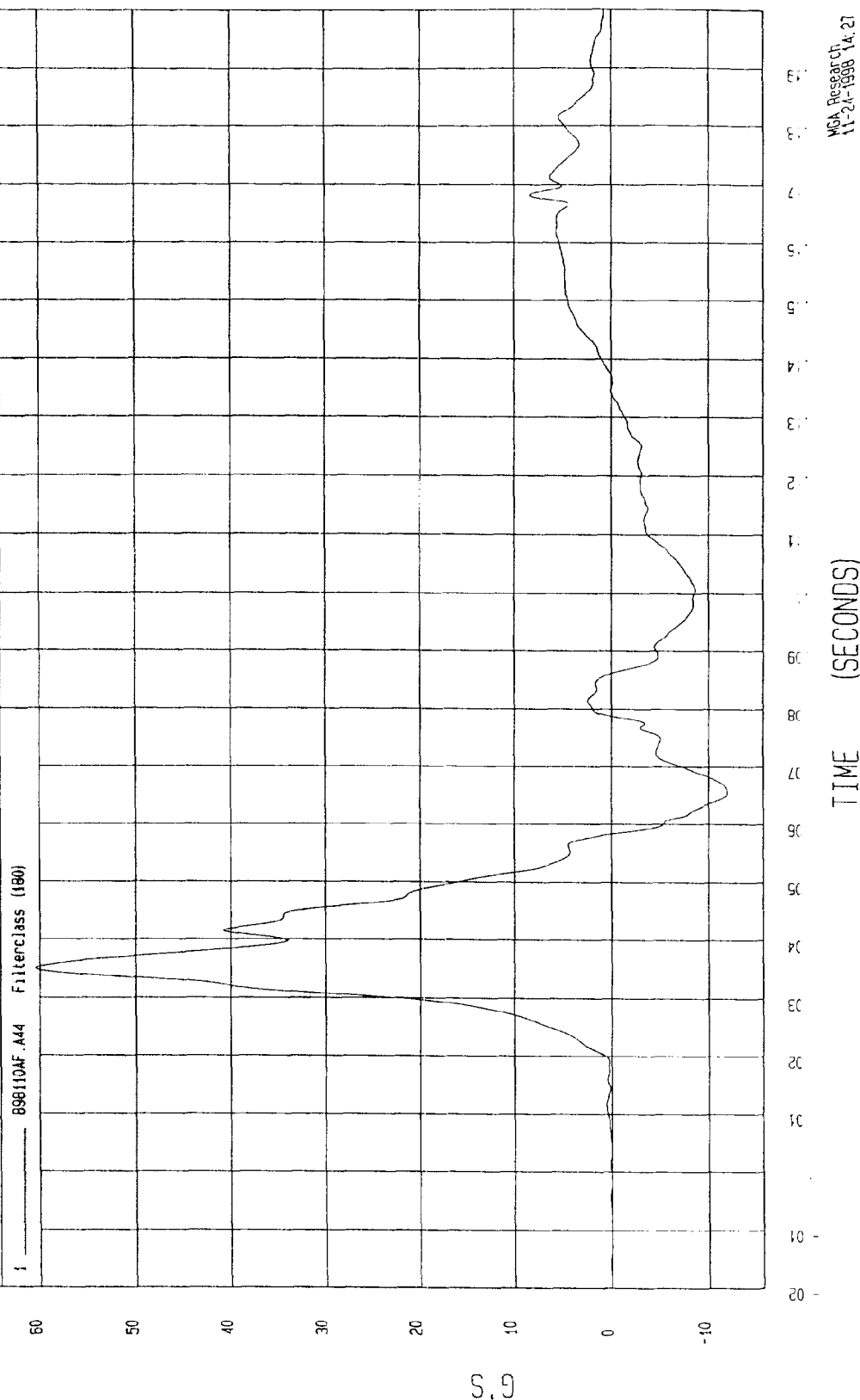
SPEED: 38.1 MPH 61.3 KPH

COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 60.46 G's at 35 msec

Minimum = -11.95 G's at 65 msec

DRIVER LOWER SPINE Y REDUNDANT ACCELERATION



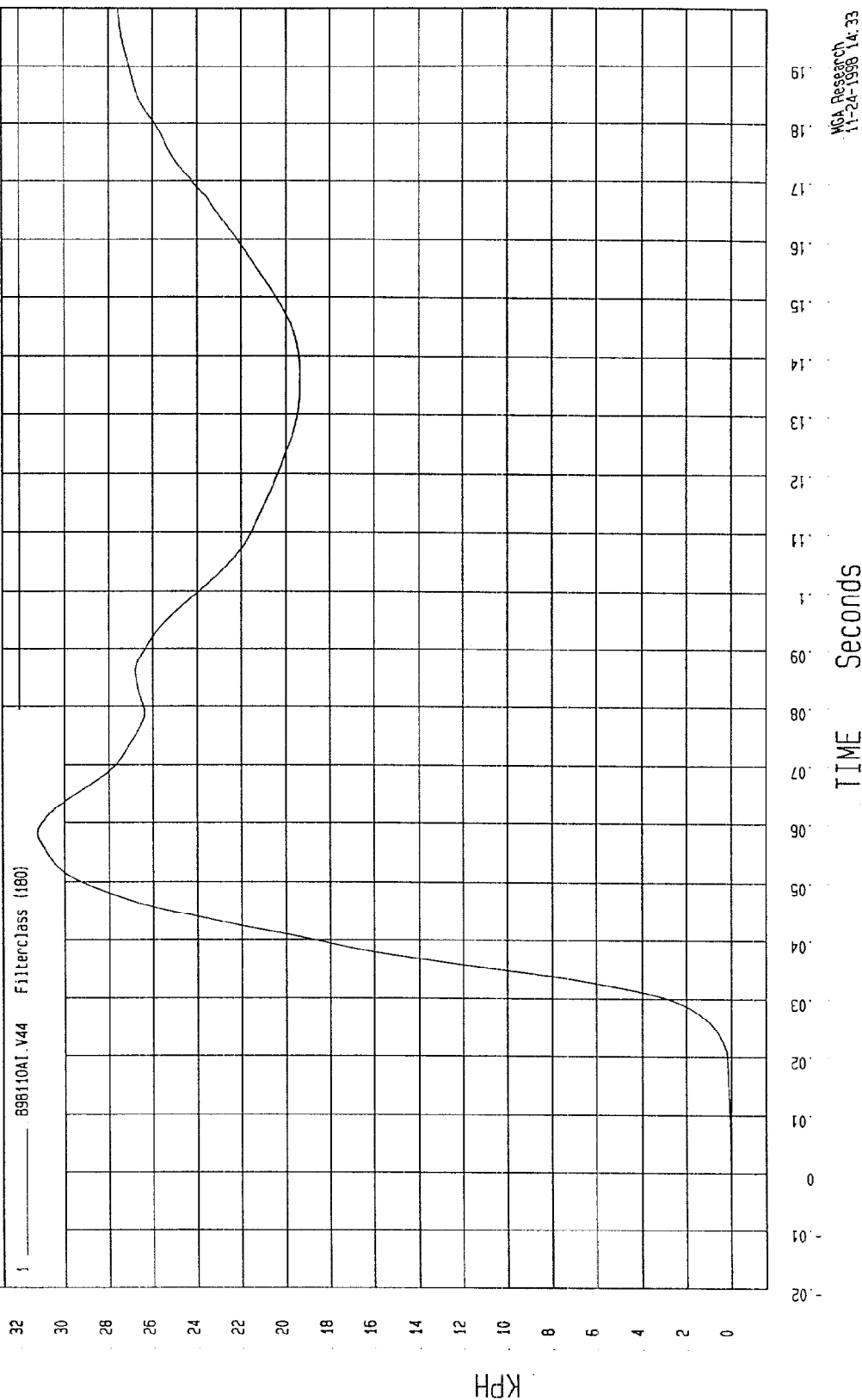
MCA Research
11-24-1998 14:27

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = 0 KPH at -20 msec Maximum = 31.21 KPH at 58 msec

DRIVER LOWER SPINE Y REDUNDANT VELOCITY

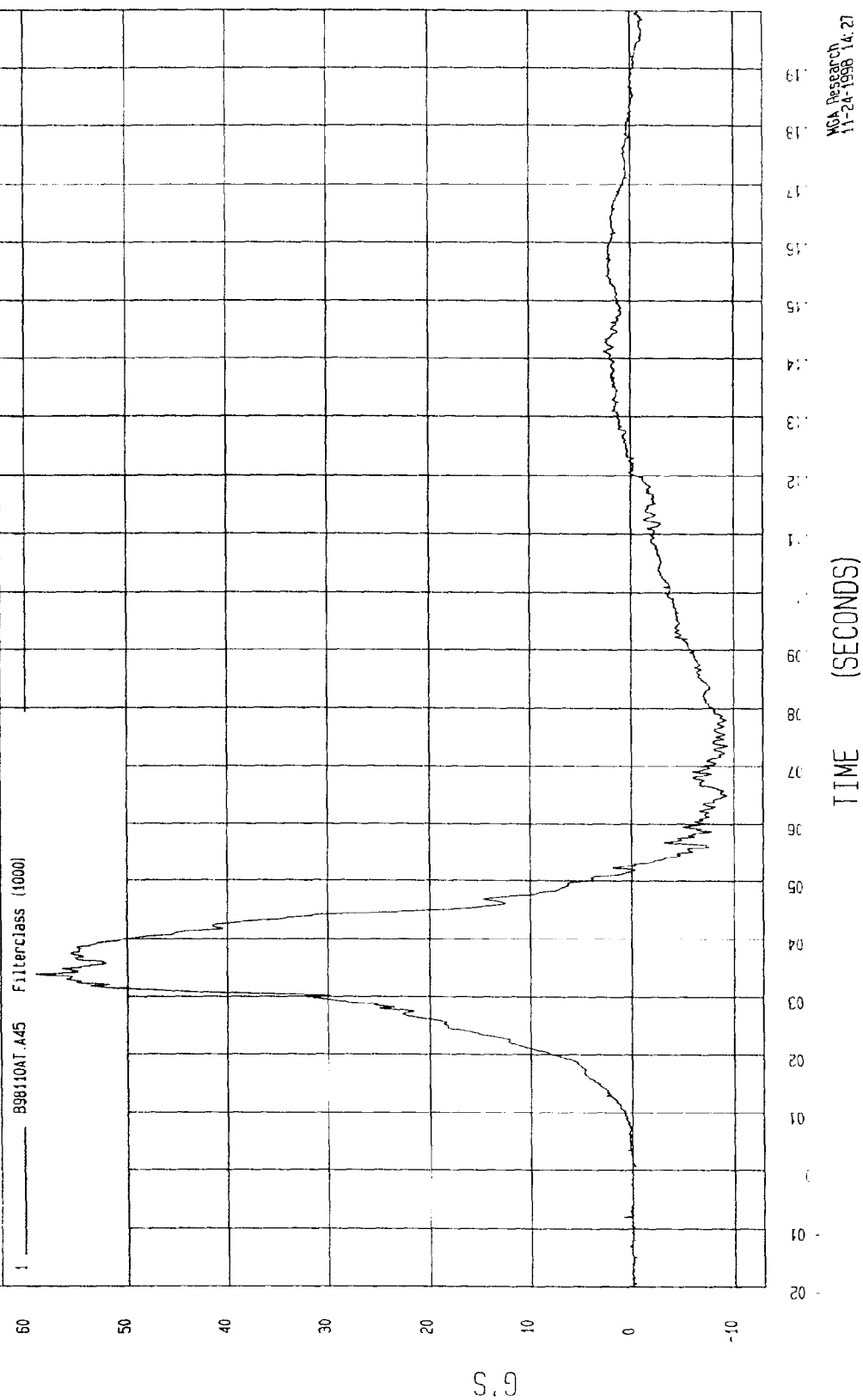


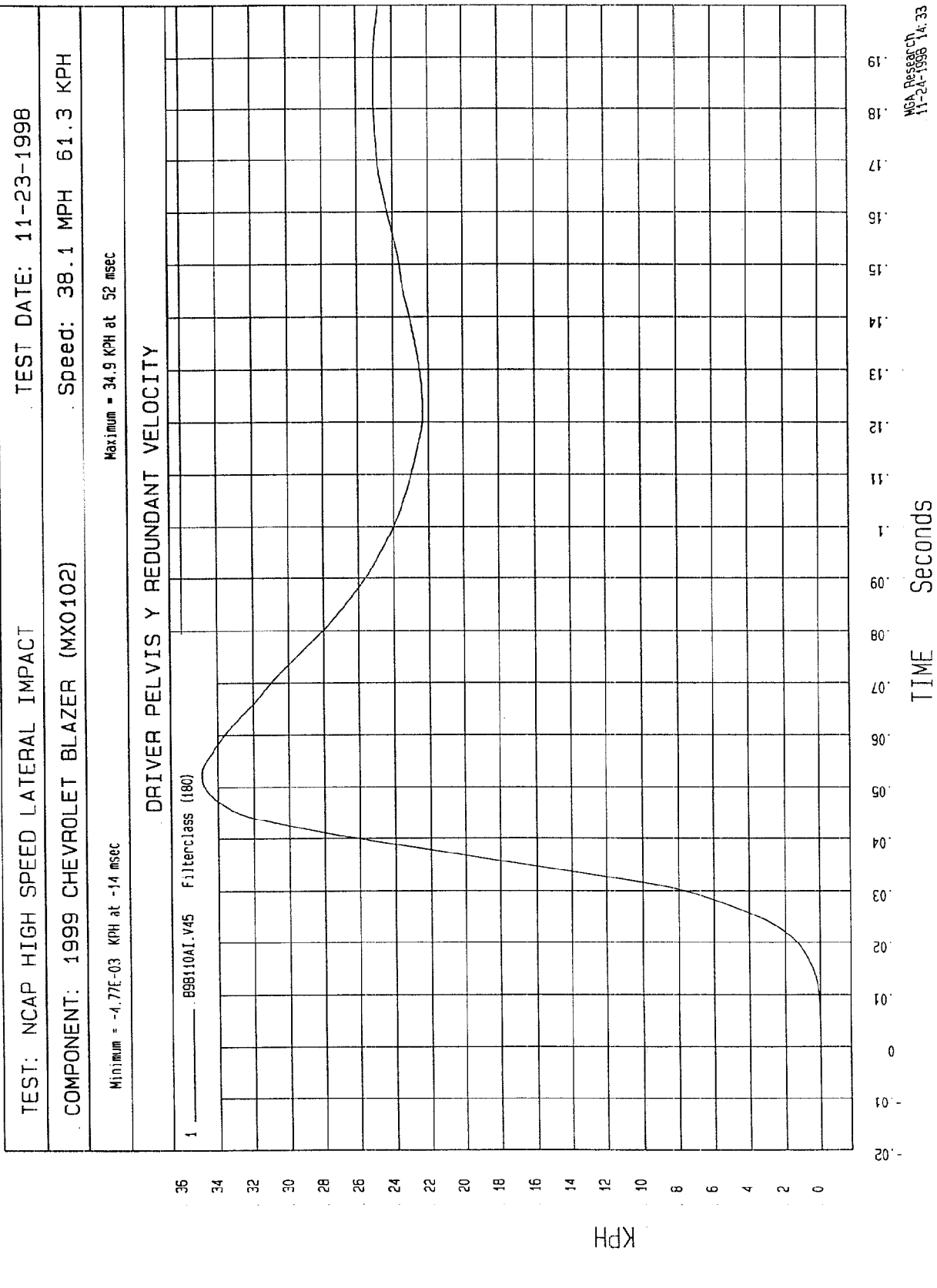
NCA Research
11-24-1998 14:33

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998
COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -9.4 G'S at 74 msec Maximum = 59.02 G'S at 34 msec

DRIVER PELVIS Y REDUNDANT ACCELERATION





TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

Speed: 38.1 MPH 61.3 KPH

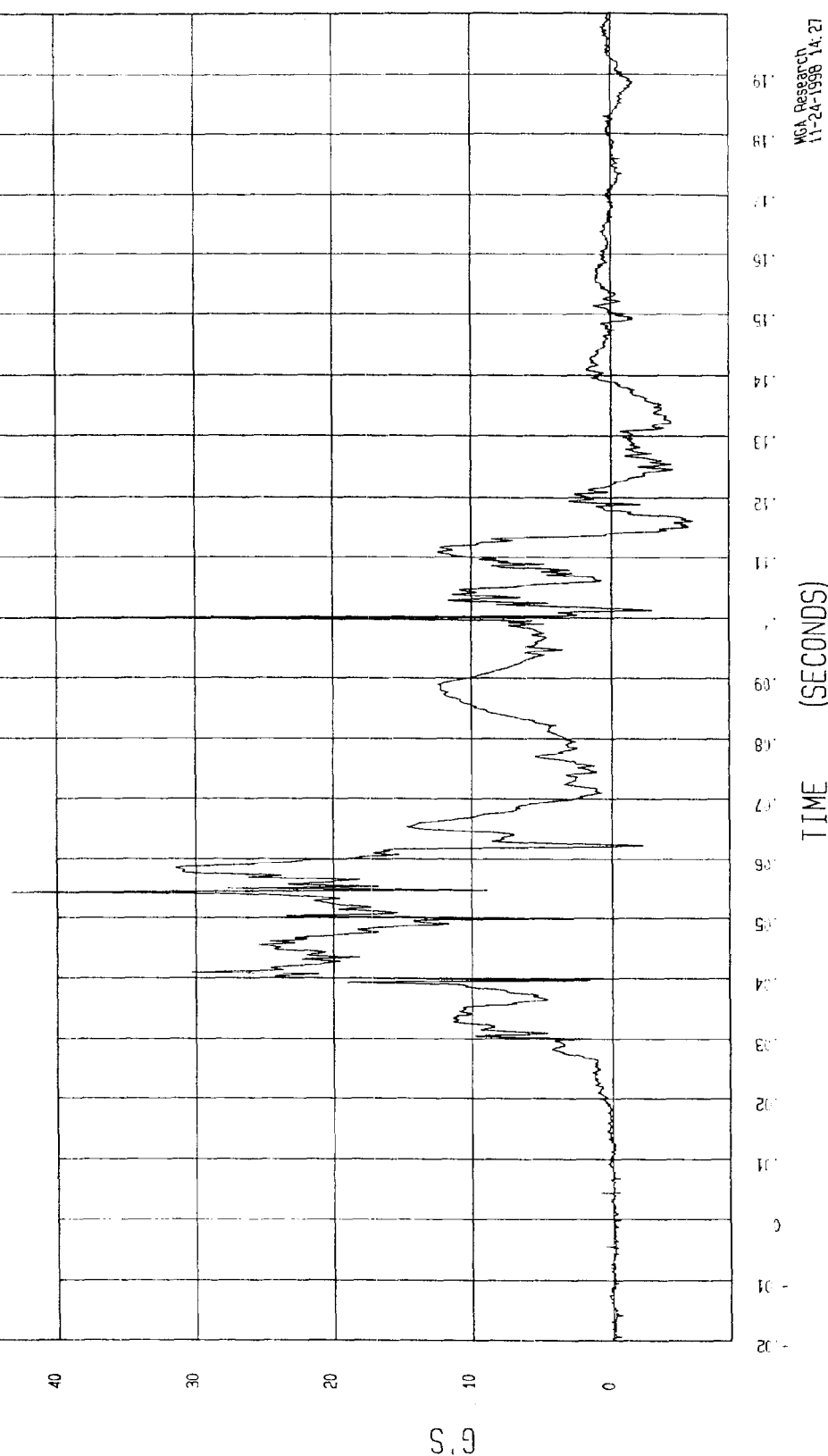
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 45.68 G'S at 100 msec

Minimum = -5.79 G'S at 116 msec

REAR PASSENGER UPPER RIB Y REDUNDANT ACCELERATION

1 ——— B98110AT.A46 Filterclass (1000)

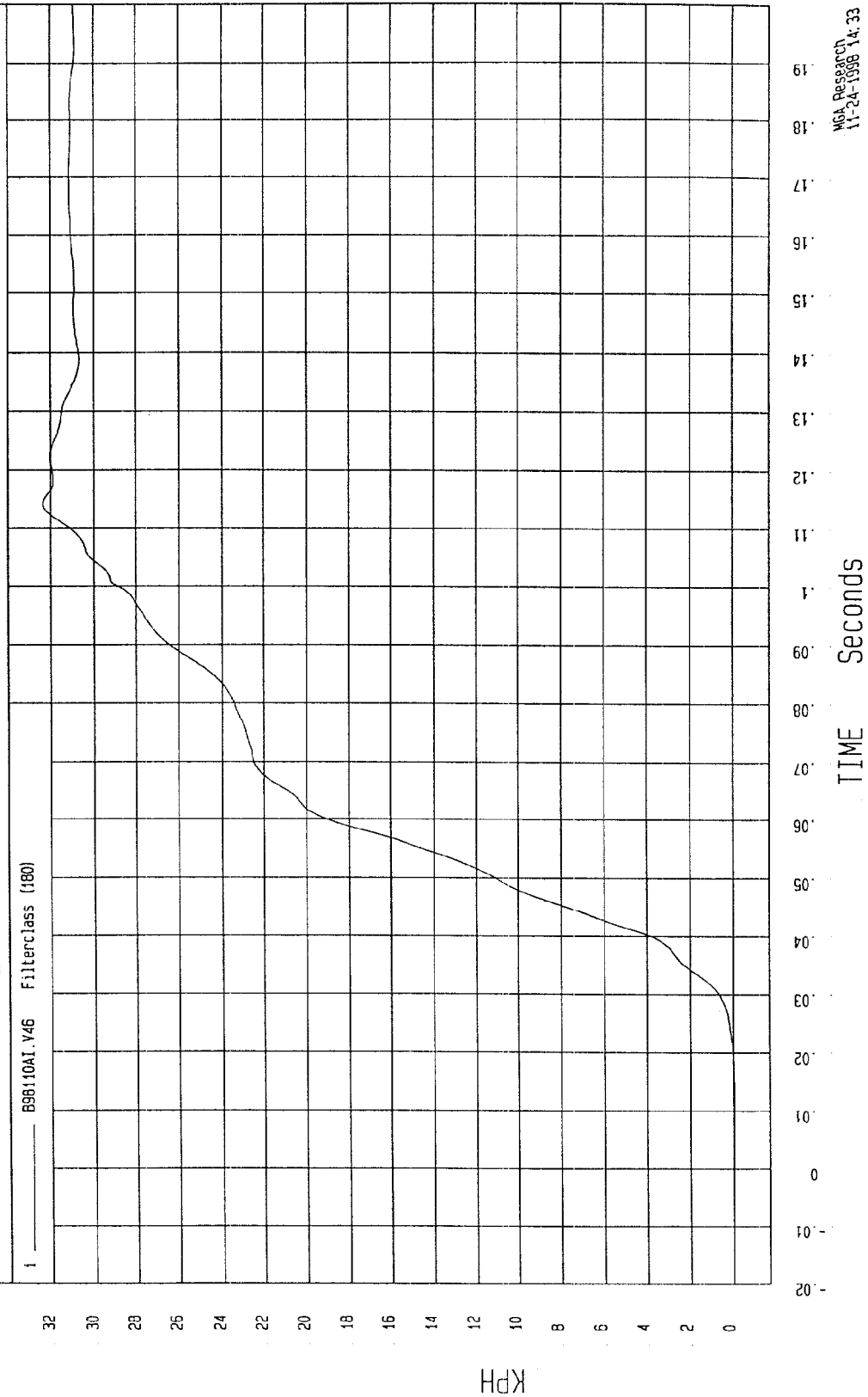
MCA Research
11-24-1998 14:27

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -5.46E-02 KPH at 8 msec Maximum = 32.36 KPH at 114 msec

REAR PASSENGER UPPER RIB Y REDUNDANT VELOCITY



MSA Research
11-24-1998 14:33

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

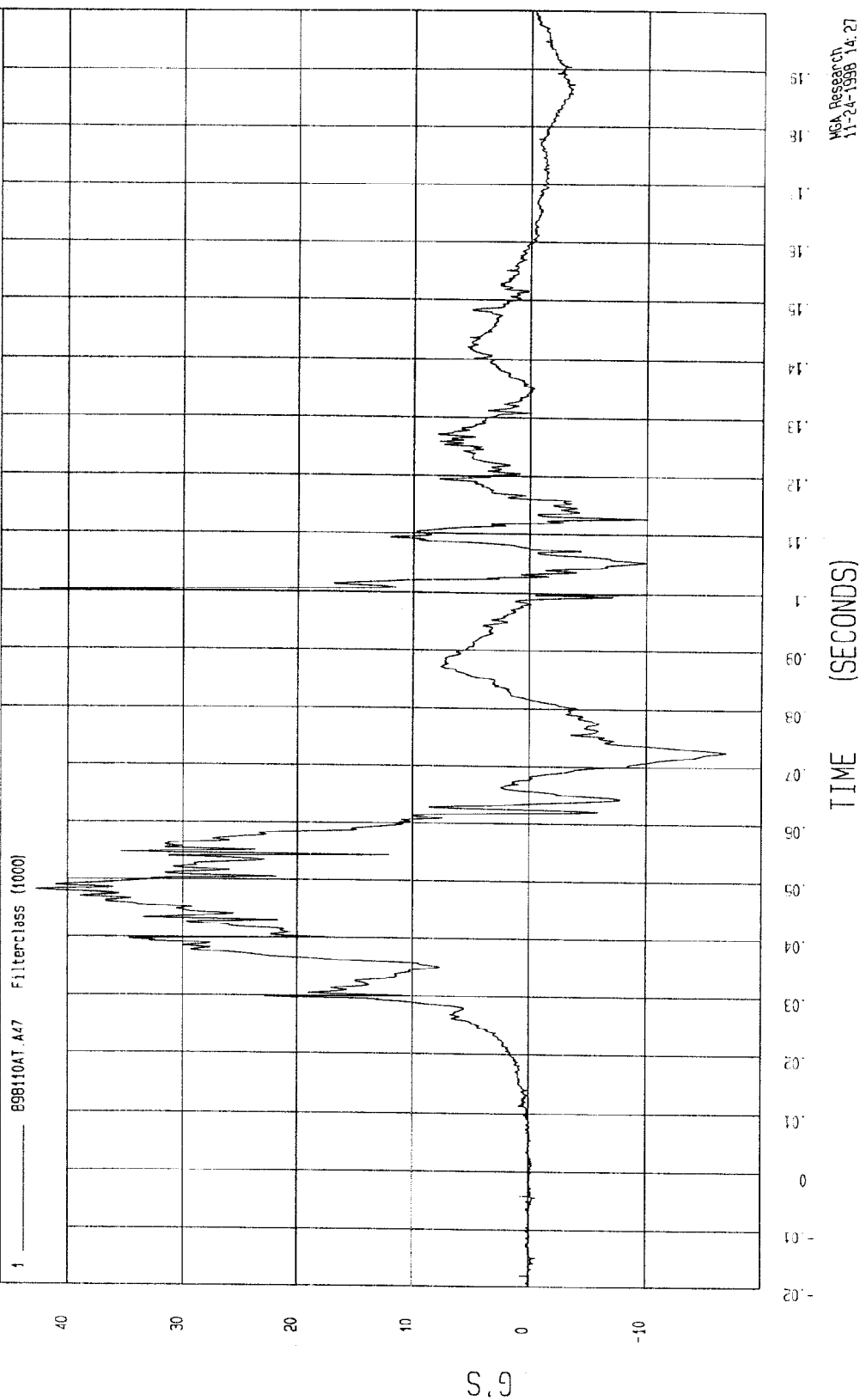
Speed: 38.1 MPH 61.3 KPH

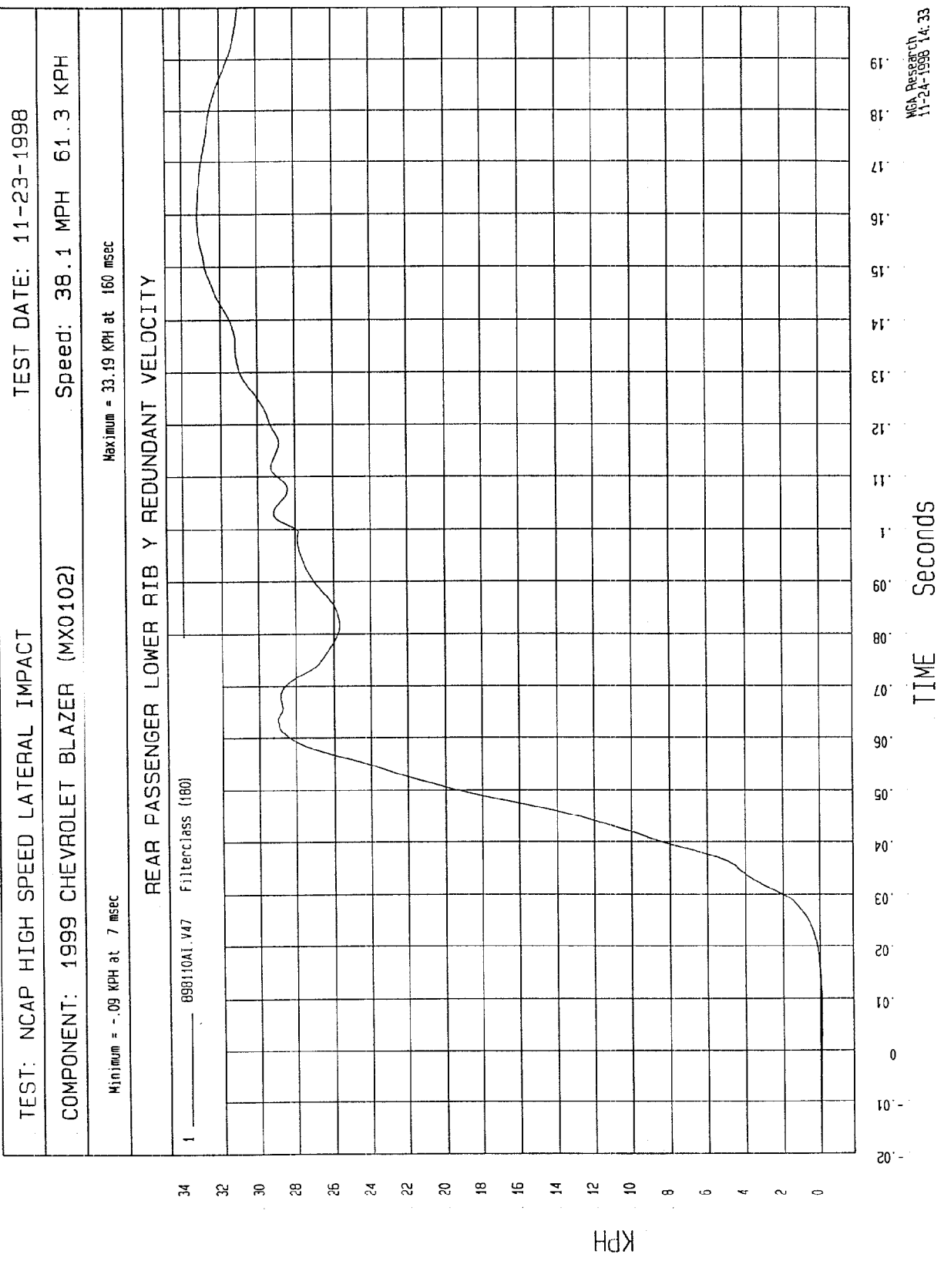
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 42.72 G'S at 48 msec

Minimum = -10.94 G'S at 72 msec

REAR PASSENGER LOWER RIB Y REDUNDANT ACCELERATION





MGA Research
11-24-1998 14:33

TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

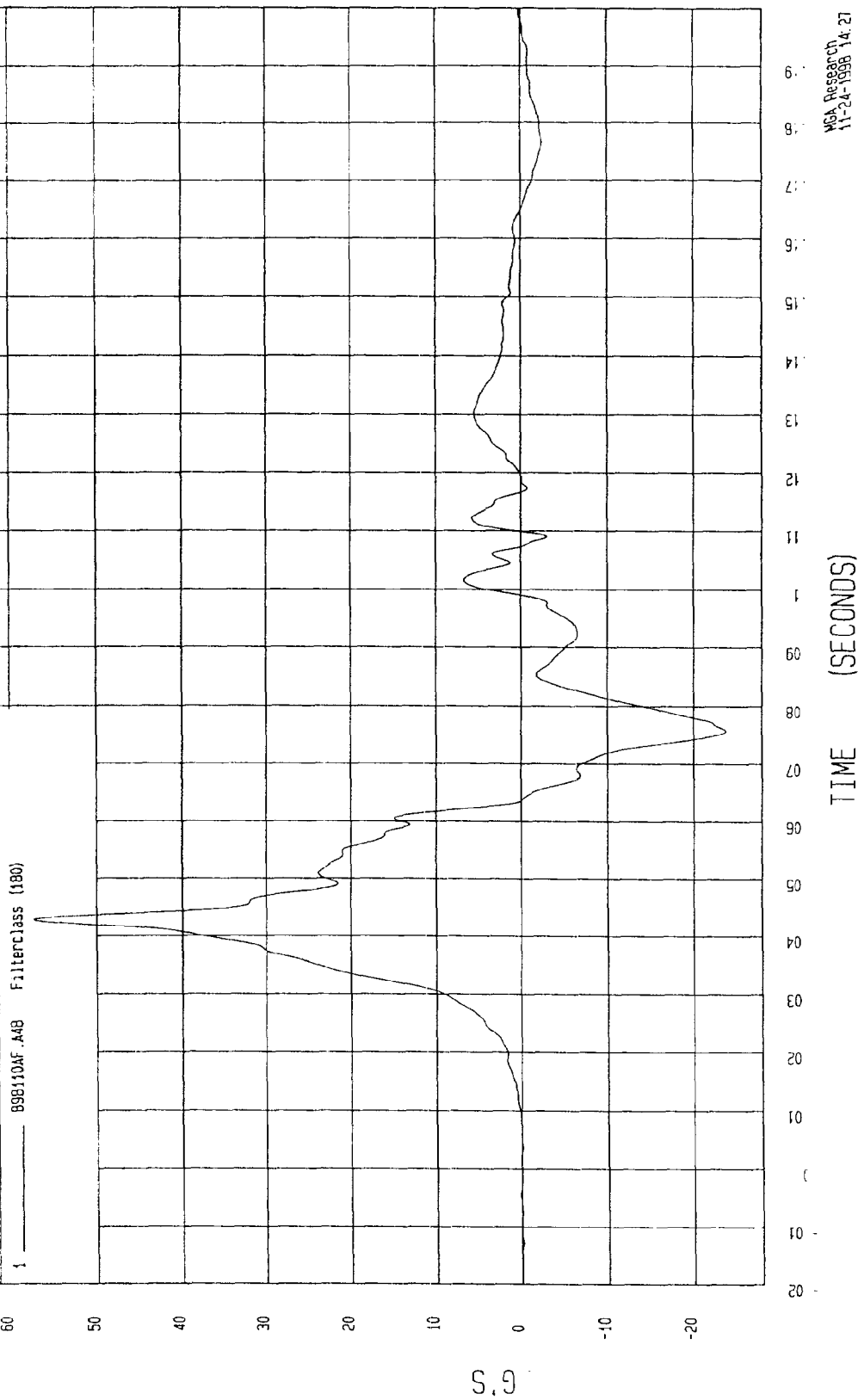
Speed: 38.1 MPH 61.3 KPH

COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 57.28 G'S at 43 msec

Minimum = -23.75 G'S at 76 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

SPEED: 38.1 MPH 61.3 KPH

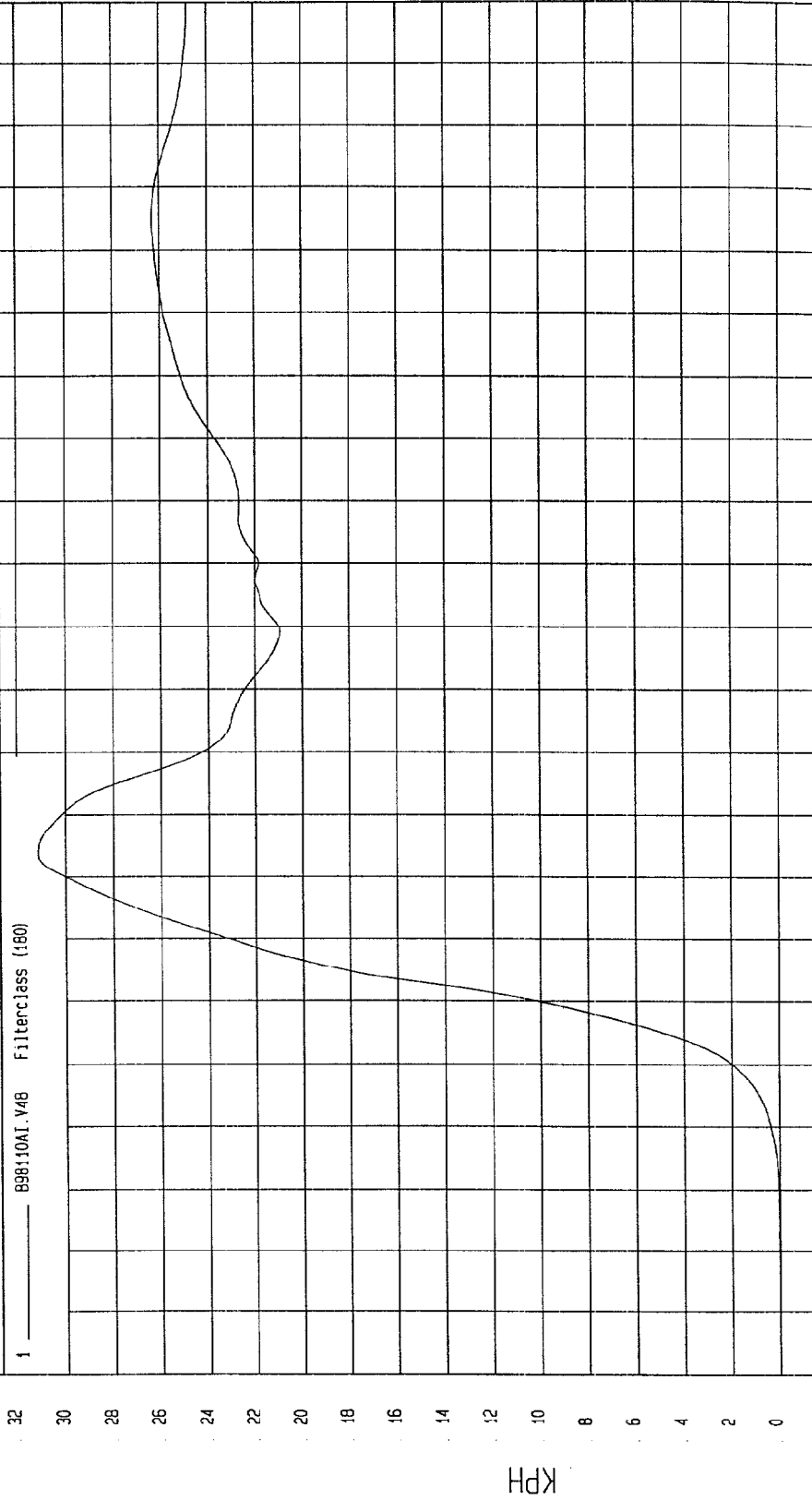
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Minimum = -3.76E-03 KPH at -12 msec

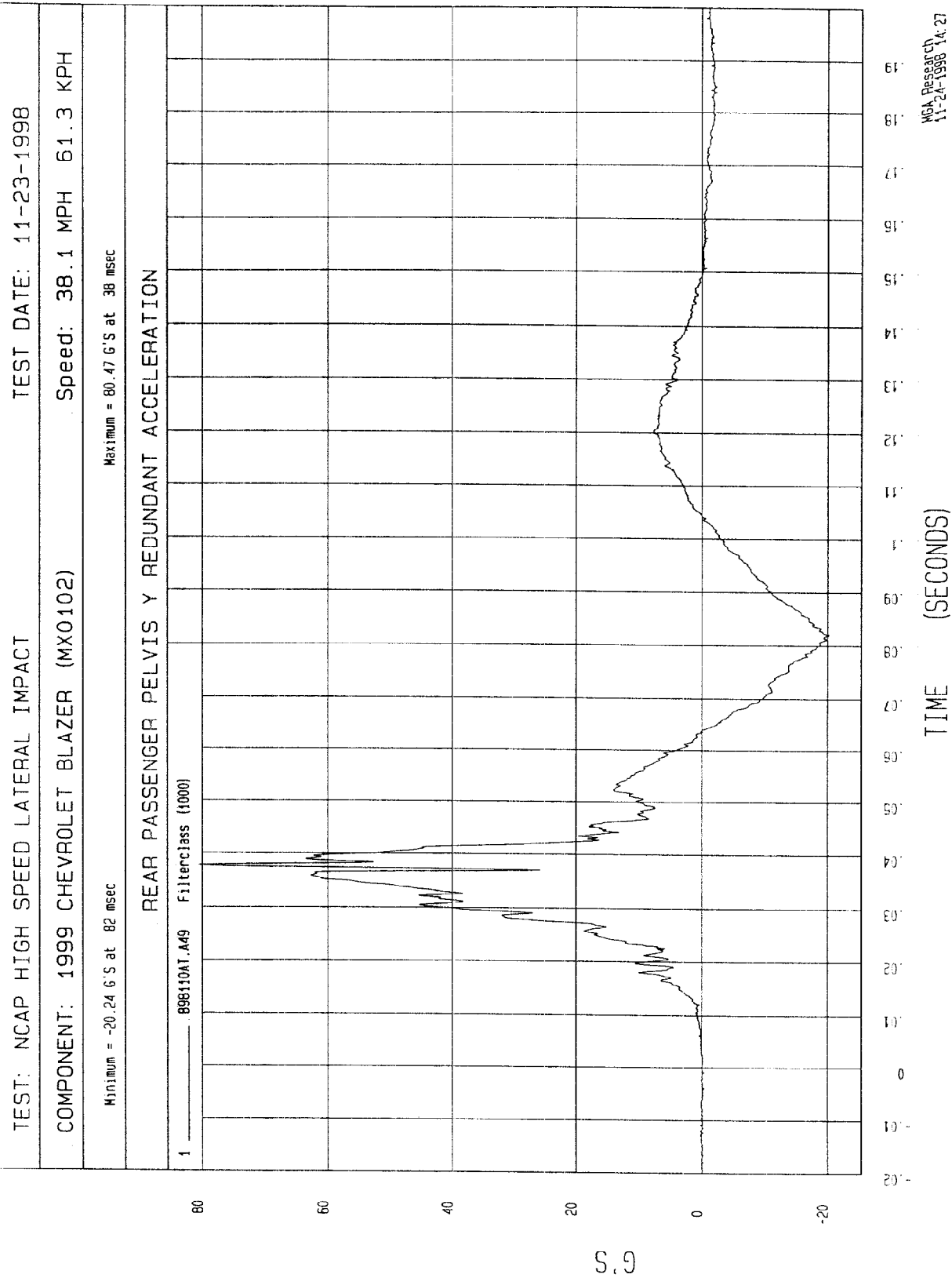
Maximum = 31.13 KPH at 64 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT VELOCITY

1 B9810A1.V48 Filterclass (160)



MSA Research
11-24-1998 14:33

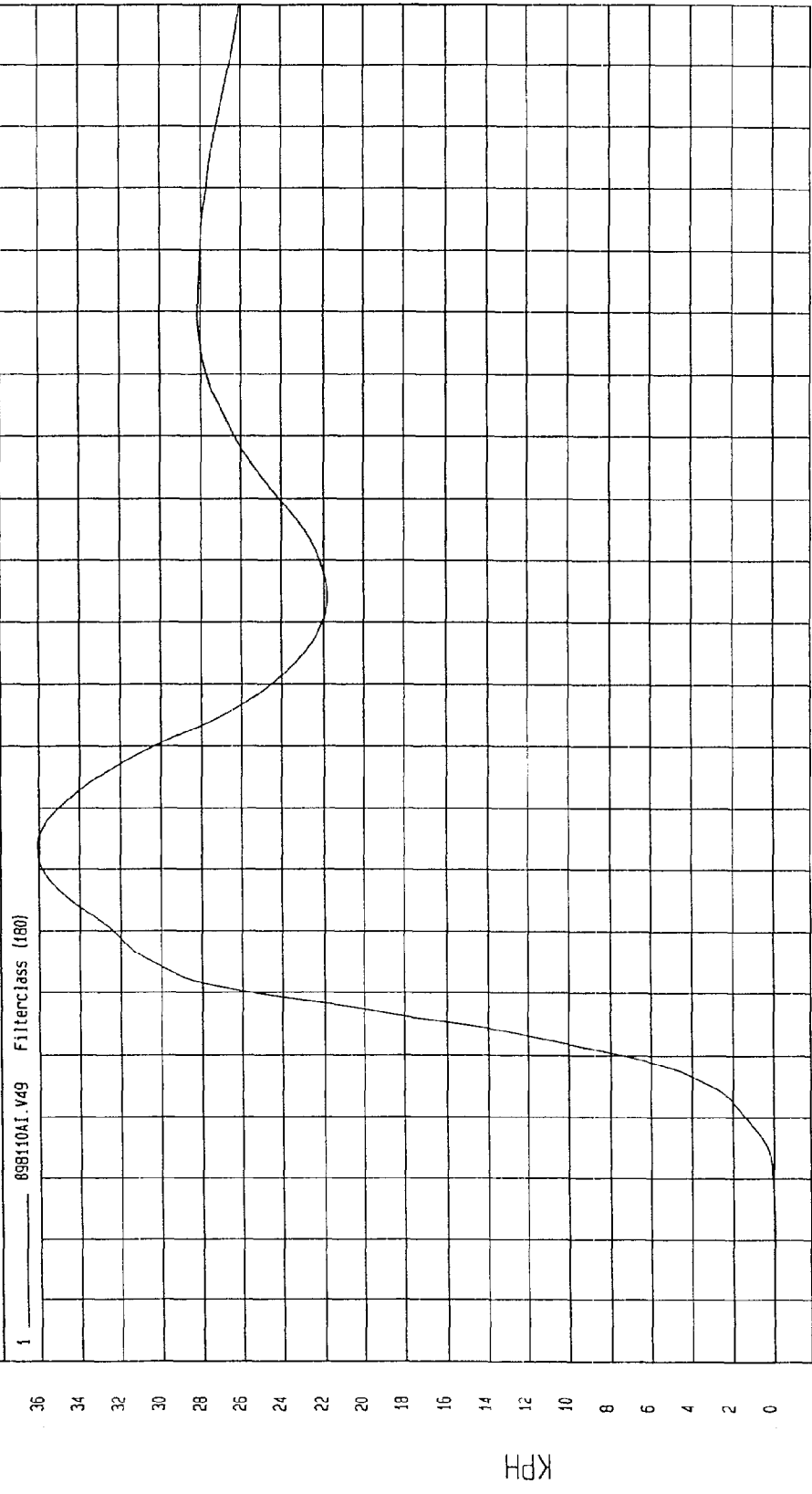


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -2.76E-02 KPH at 3 msec Maximum = 36.07 KPH at 64 msec

REAR PASSENGER PELVIS Y REDUNDANT VELOCITY



TIME Seconds

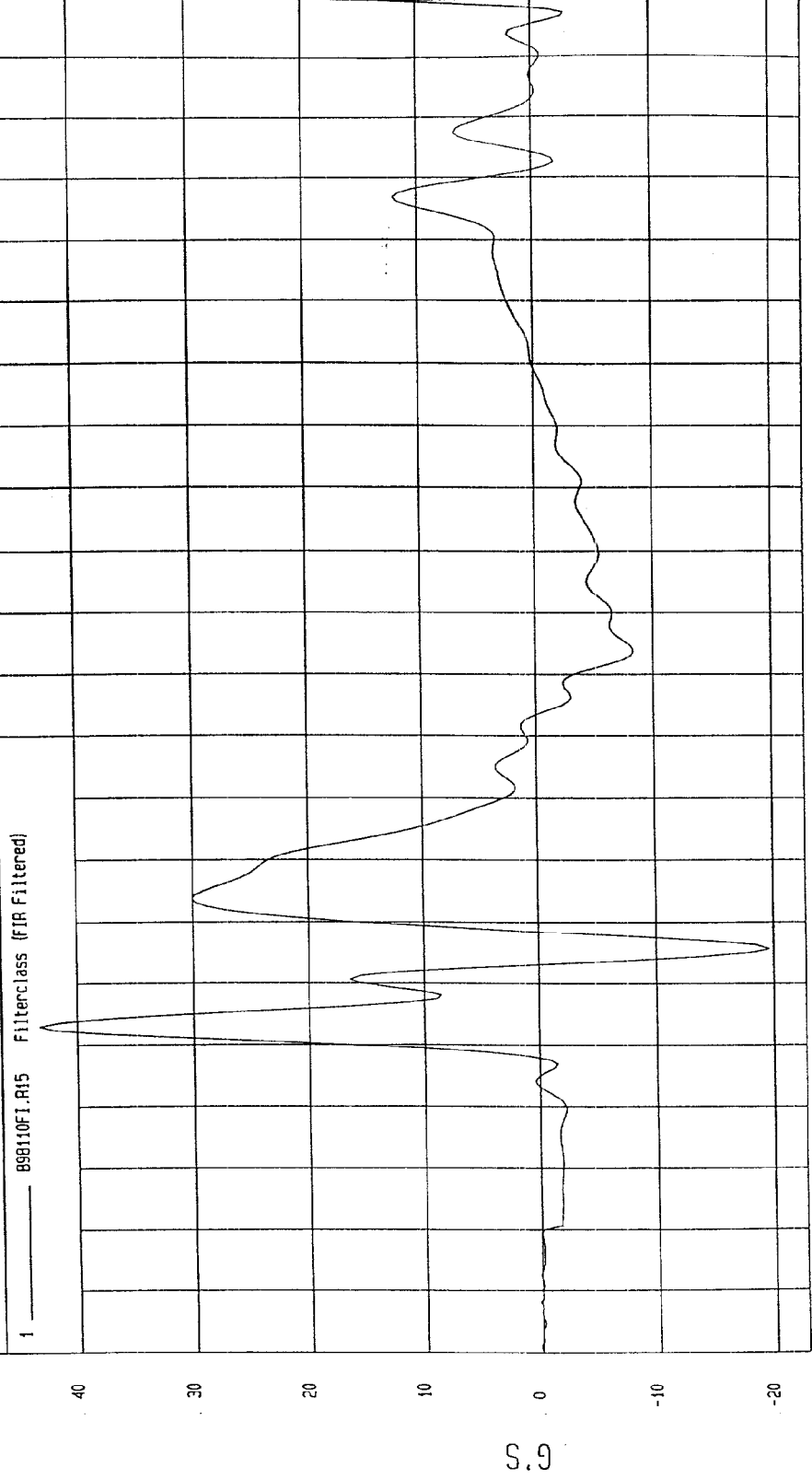
MCA Research
11-24-1998 14:33

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

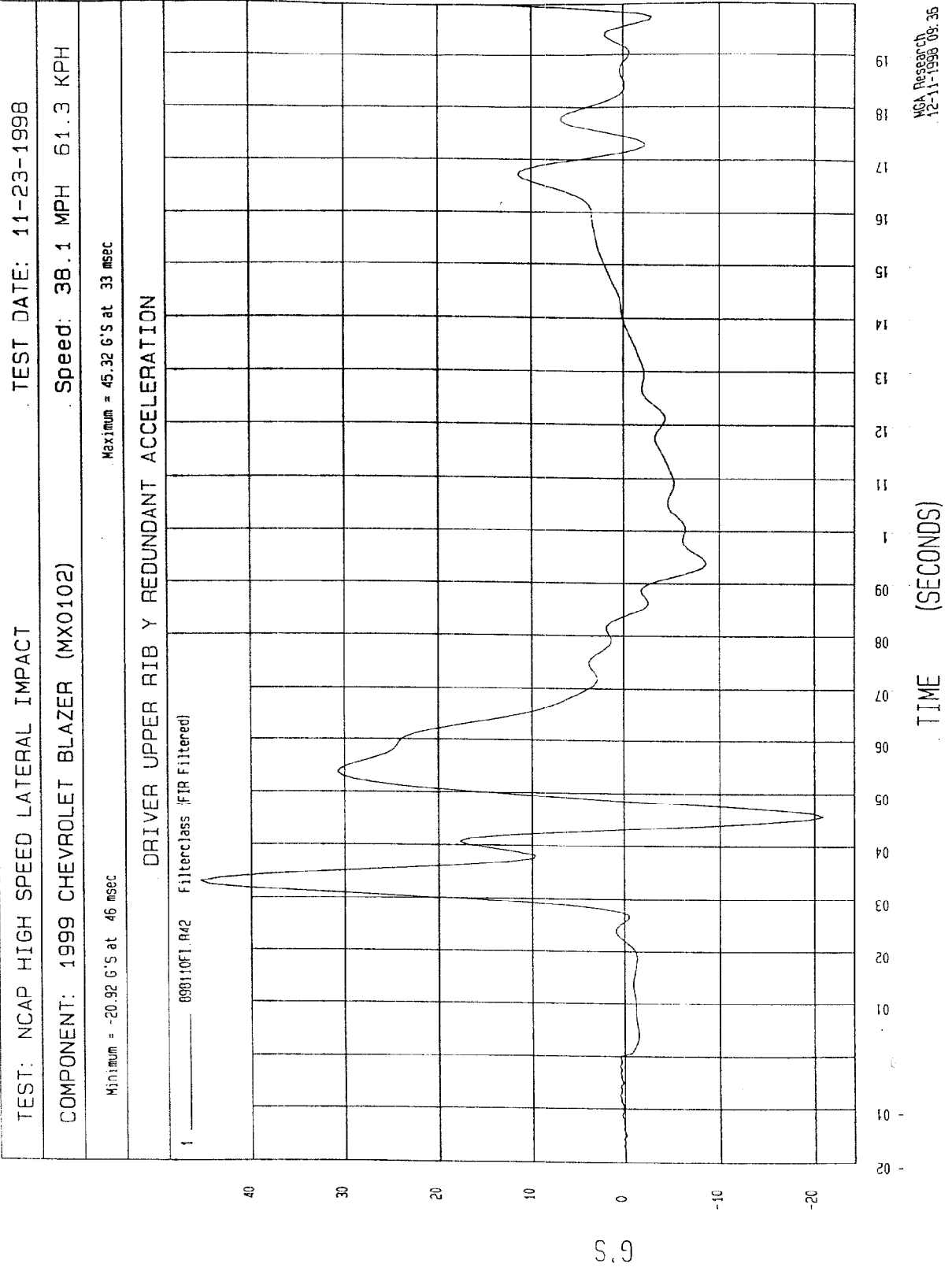
COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -19.62 G'S at 46 msec Maximum = 43.21 G'S at 33 msec

DRIVER UPPER RIB Y ACCELERATION



MOA Research
12-11-1998 09:35

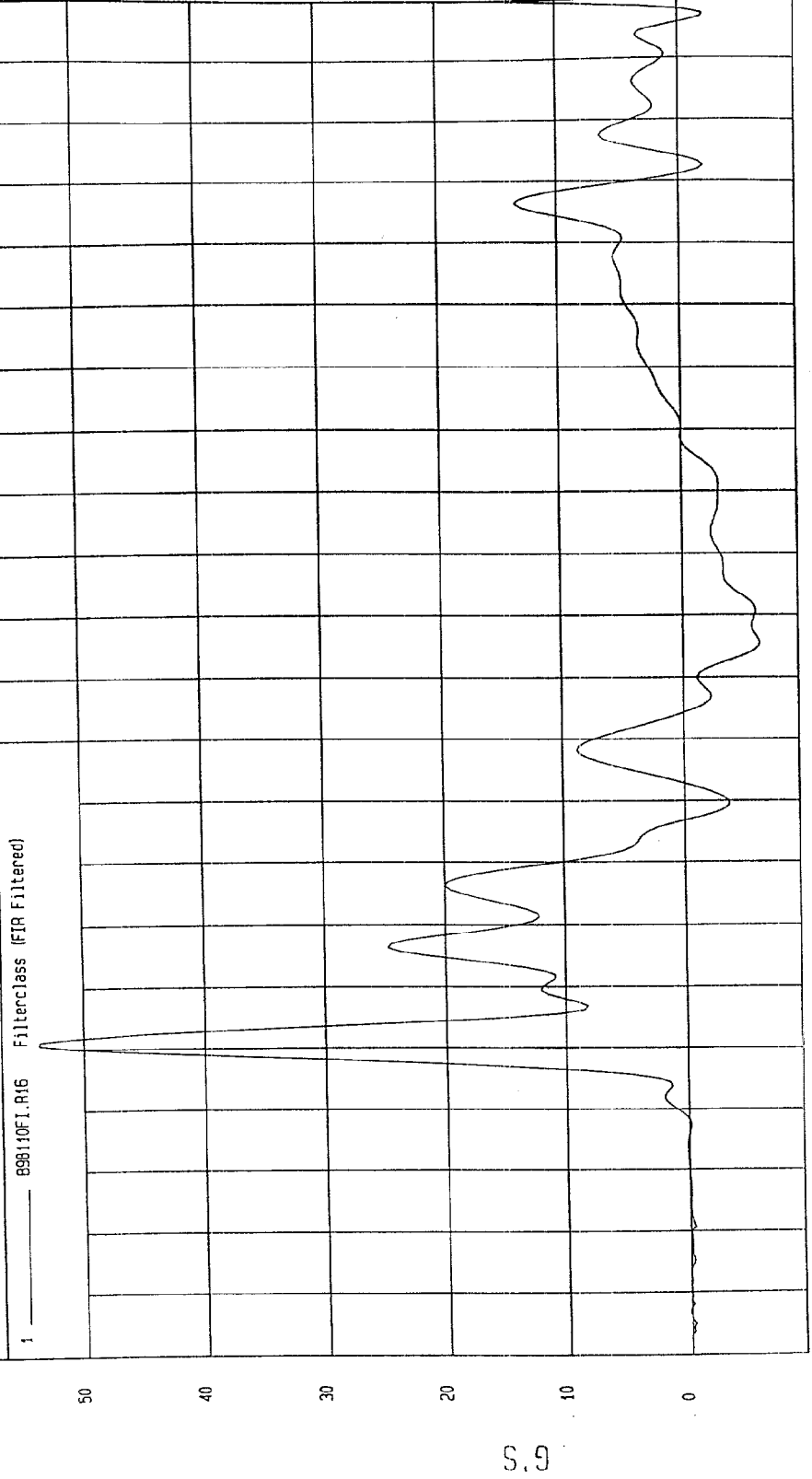


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -6.28 G'S at 96 msec Maximum = 53.62 G'S at 31 msec

DRIVER LOWER RIB Y ACCELERATION



NCA Research
12-11-1998 08:36

DRIVER LOWER RIB Y REDUNDANT ACCELERATION VS. TIME

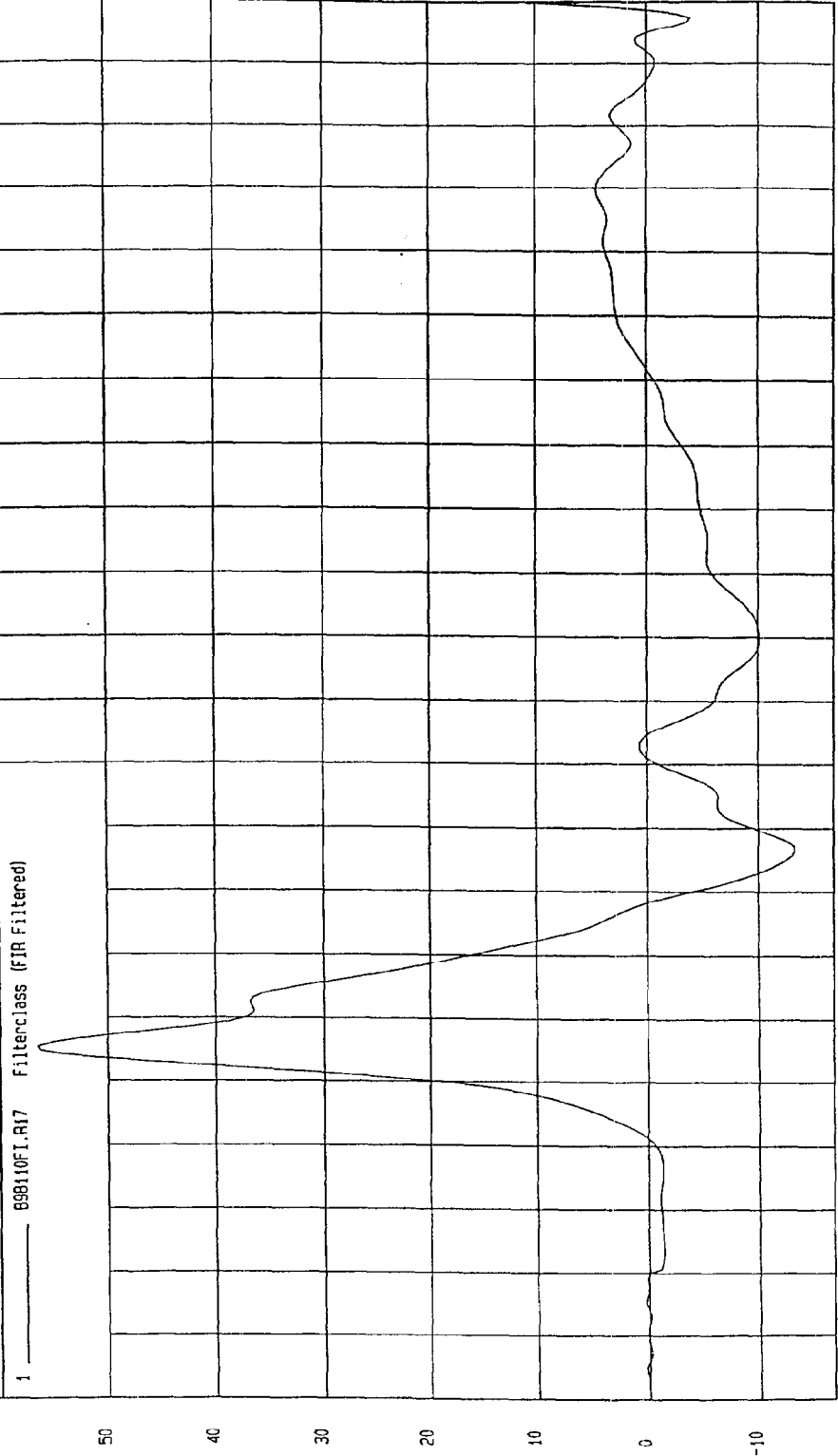
NO VALID DATA COLLECTED

TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

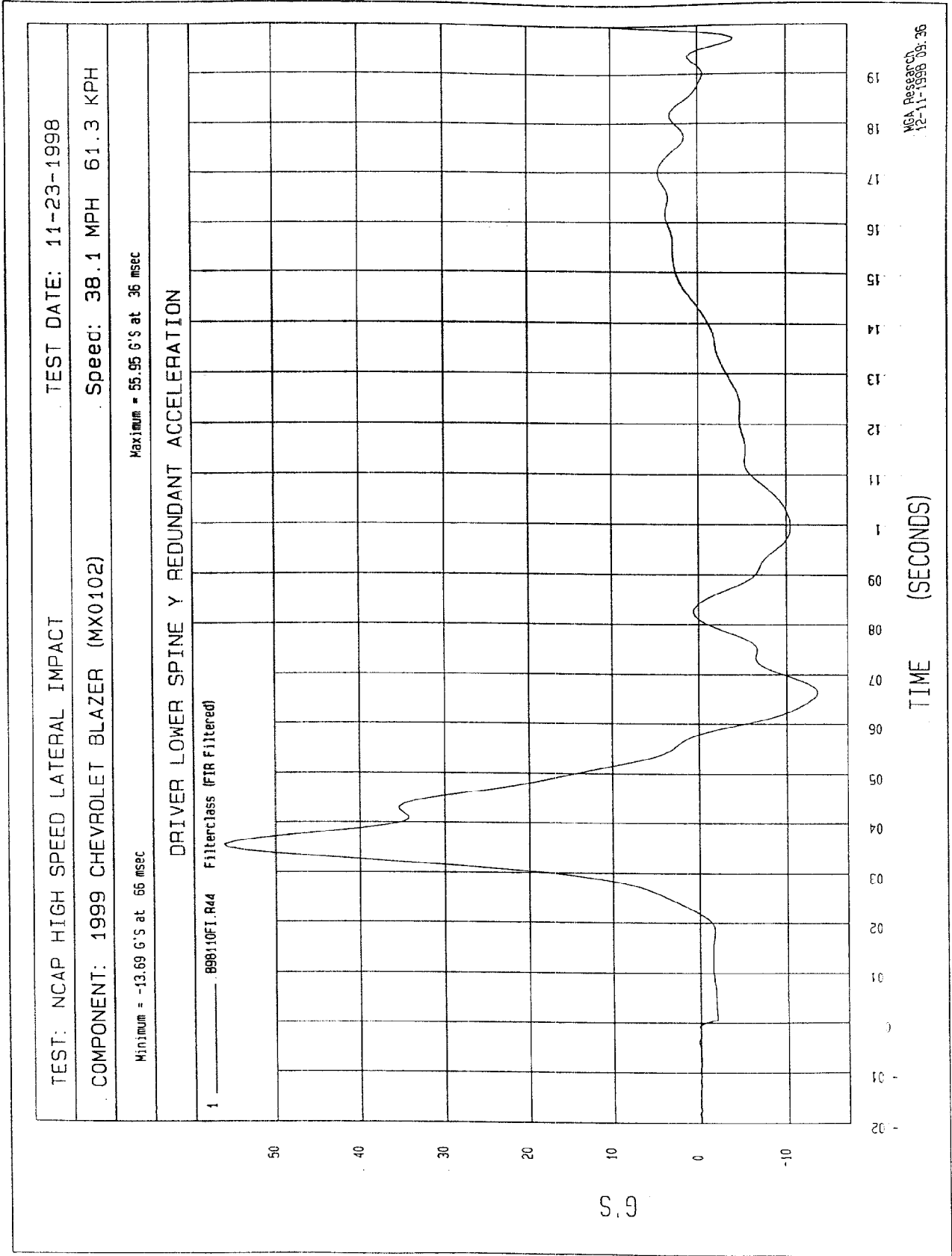
COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -13.34 G'S at 66 msec Maximum = 56.43 G'S at 36 msec

DRIVER LOWER SPINE Y ACCELERATION



MCA Research
12-11-1998 08:36

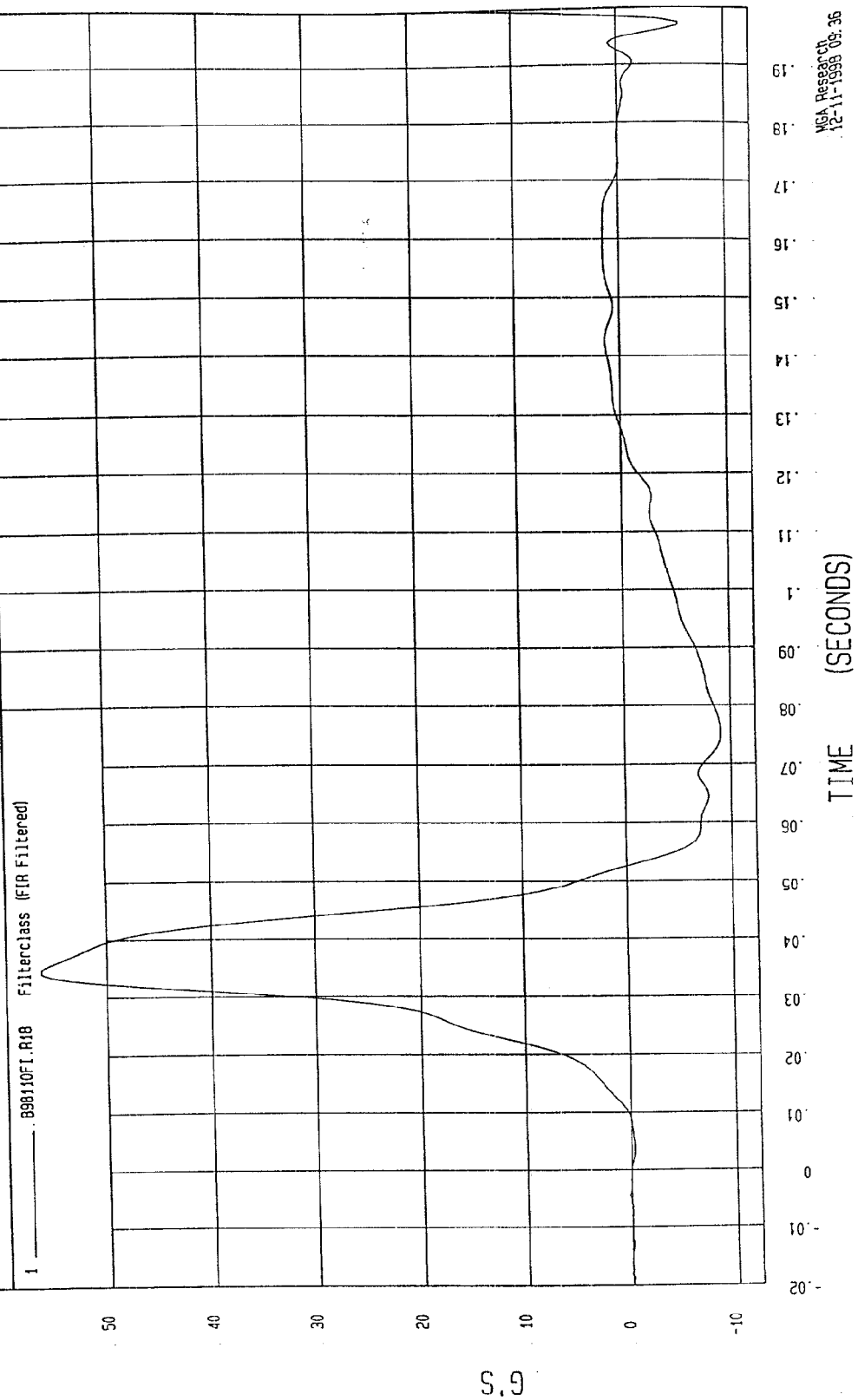


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

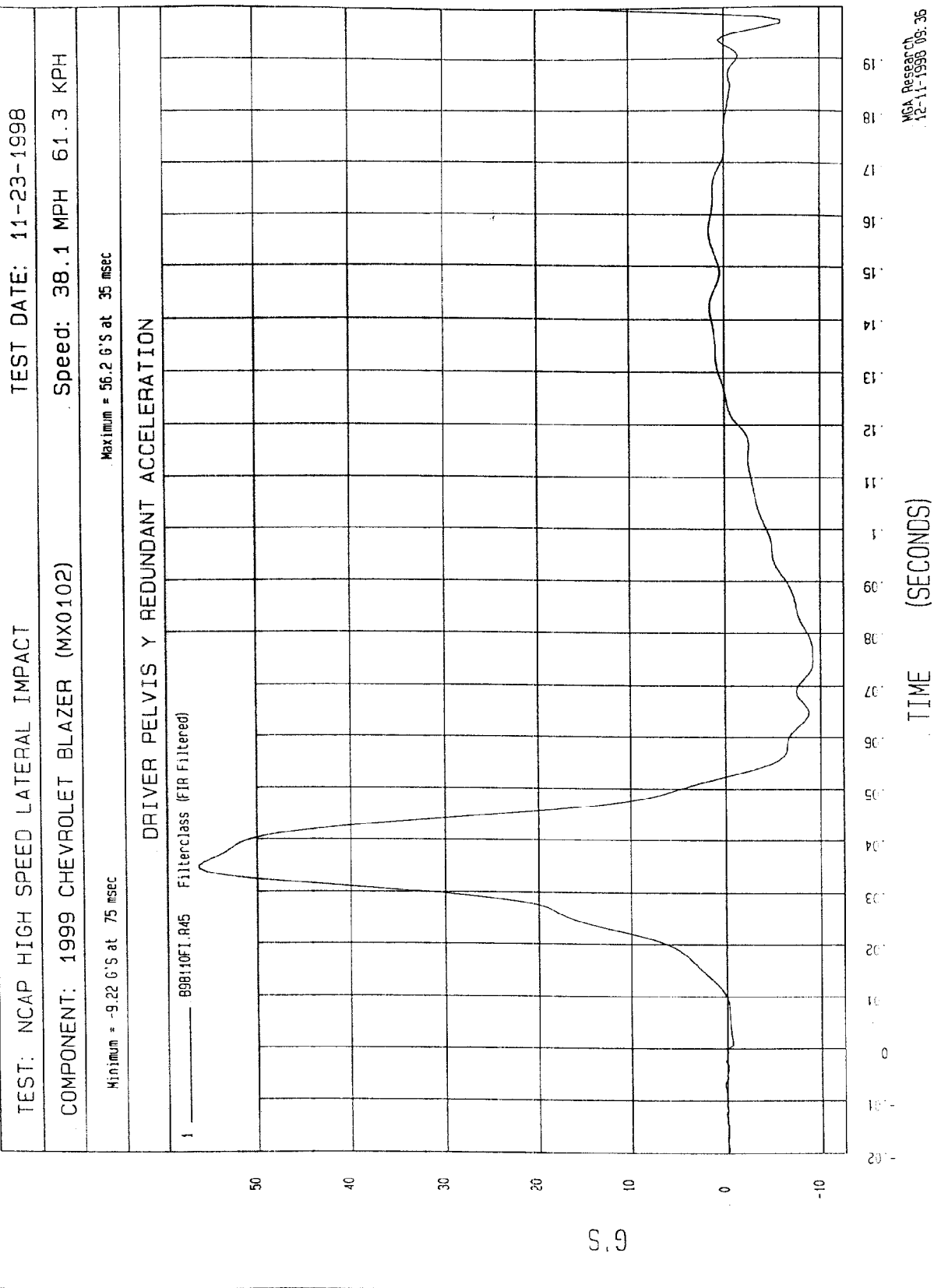
COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -9.05 G'S at 75 msec Maximum = 56.16 G'S at 34 msec

DRIVER PELVIS Y ACCELERATION



MCA Research
12-11-1998 09:36



TEST: NCAP HIGH SPEED LATERAL IMPACT

TEST DATE: 11-23-1998

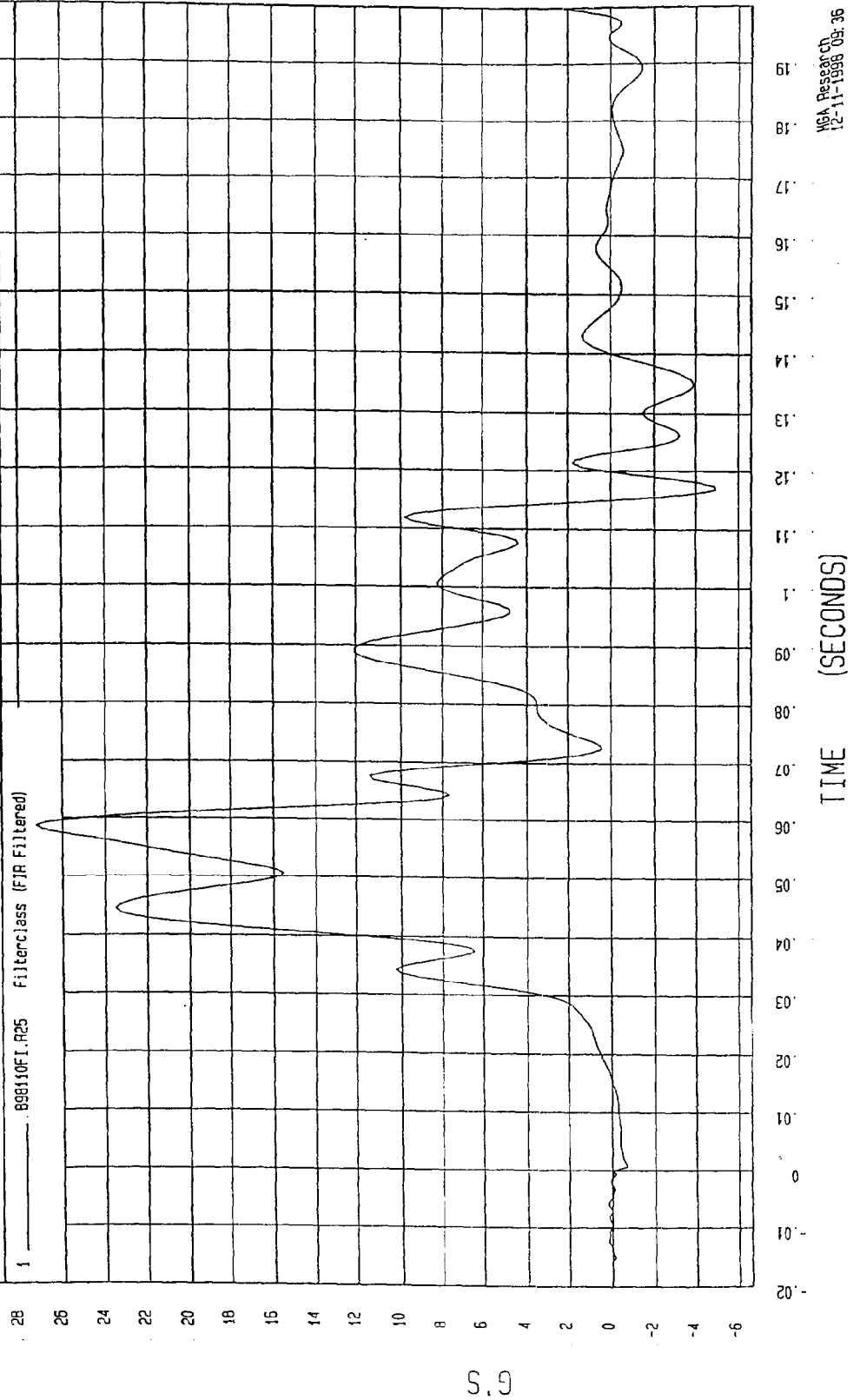
SPEED: 38.1 MPH 61.3 KPH

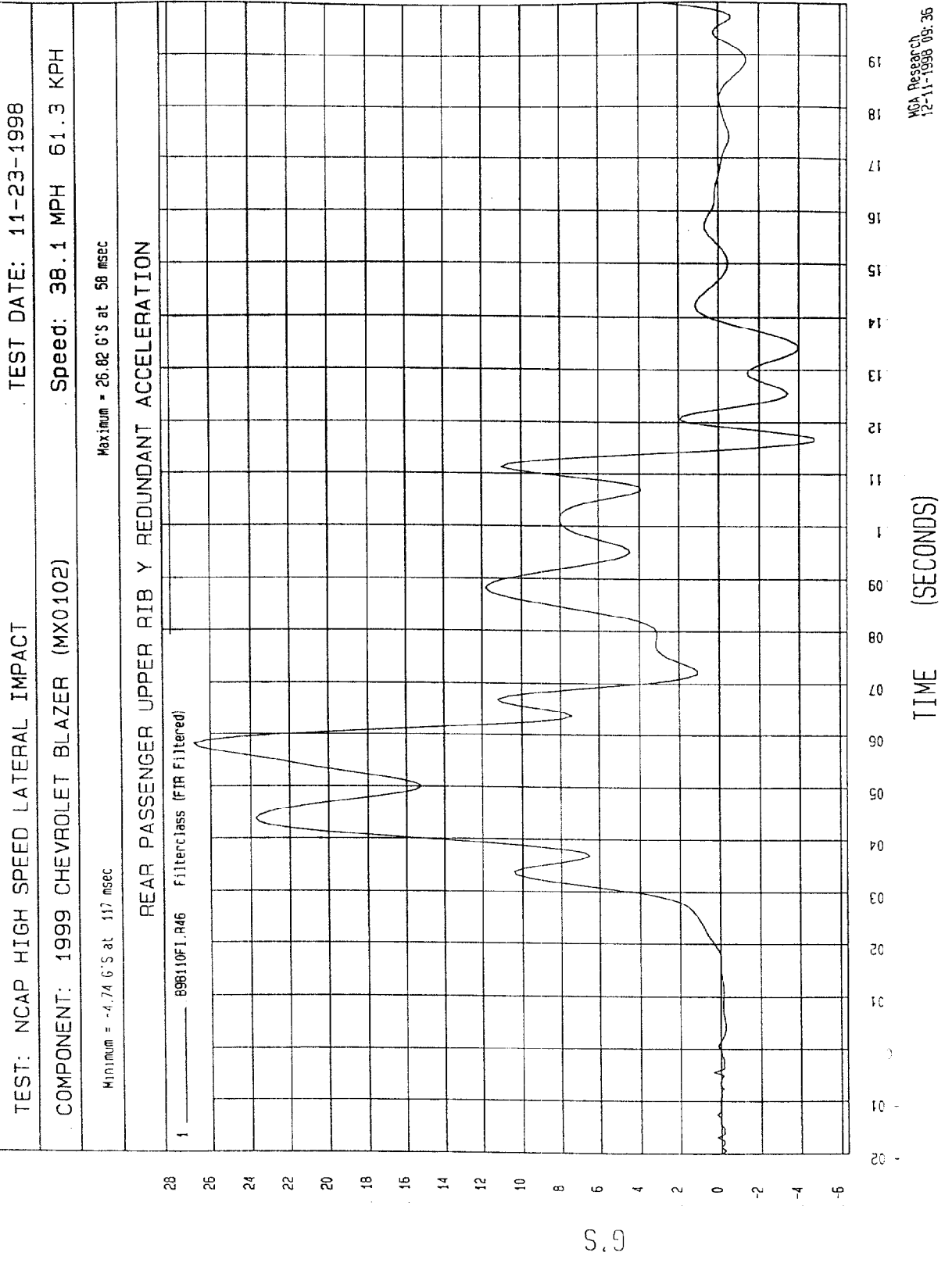
COMPONENT: 1999 CHEVROLET BLAZER (MX0102)

Maximum = 27.19 G'S at 59 msec

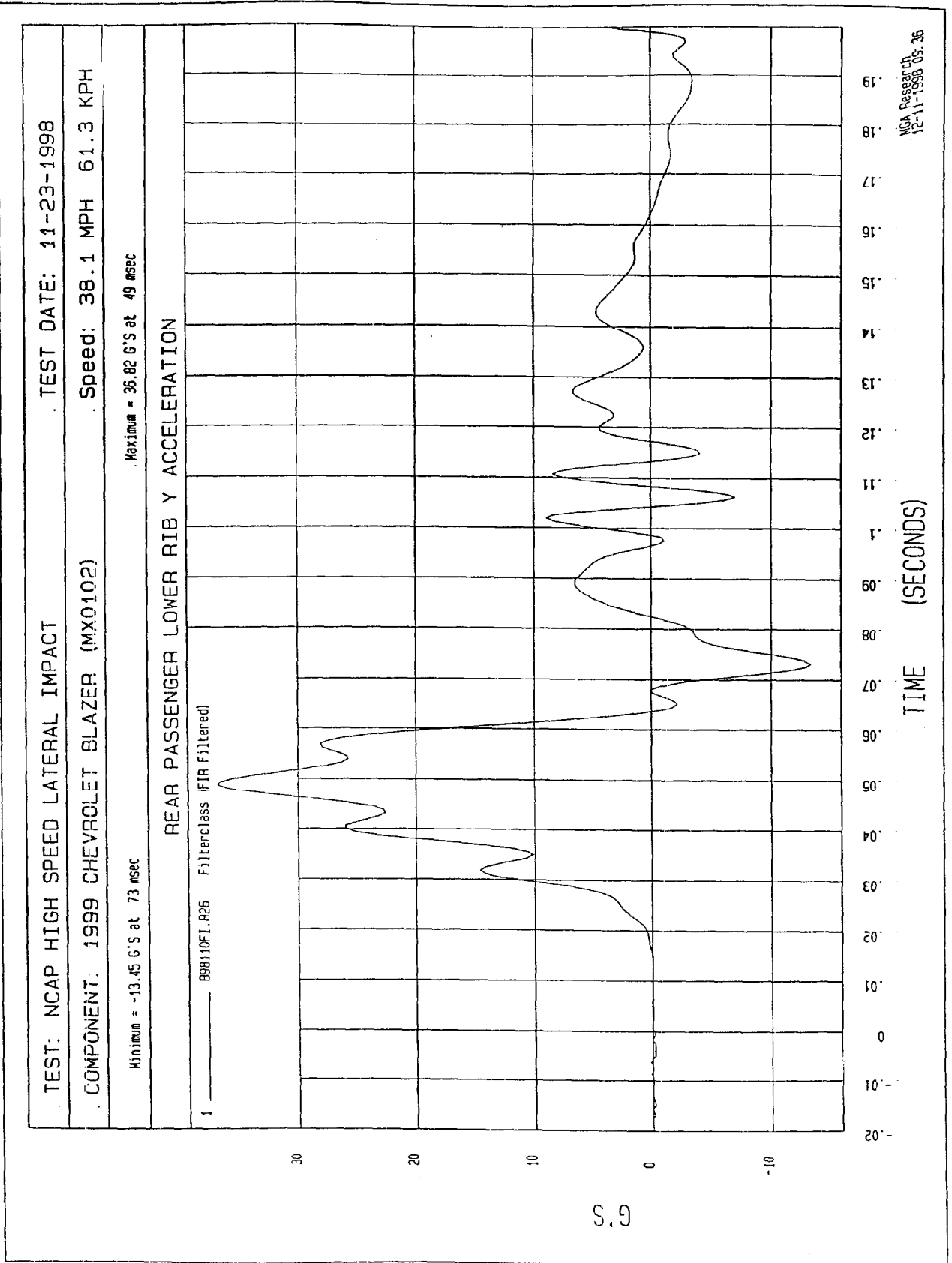
Minimum = -4.96 G'S at 117 msec

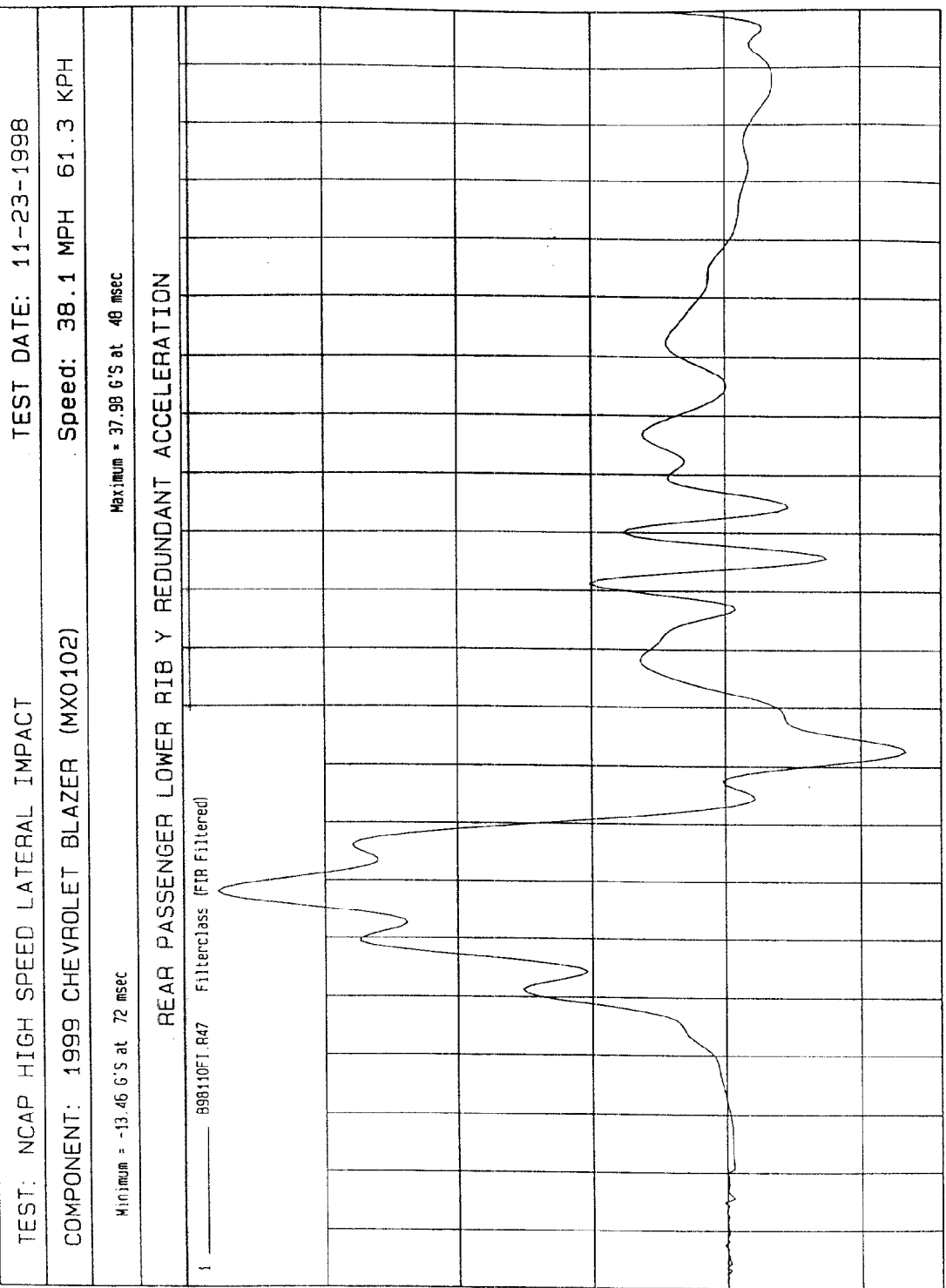
REAR PASSENGER UPPER RIB Y ACCELERATION





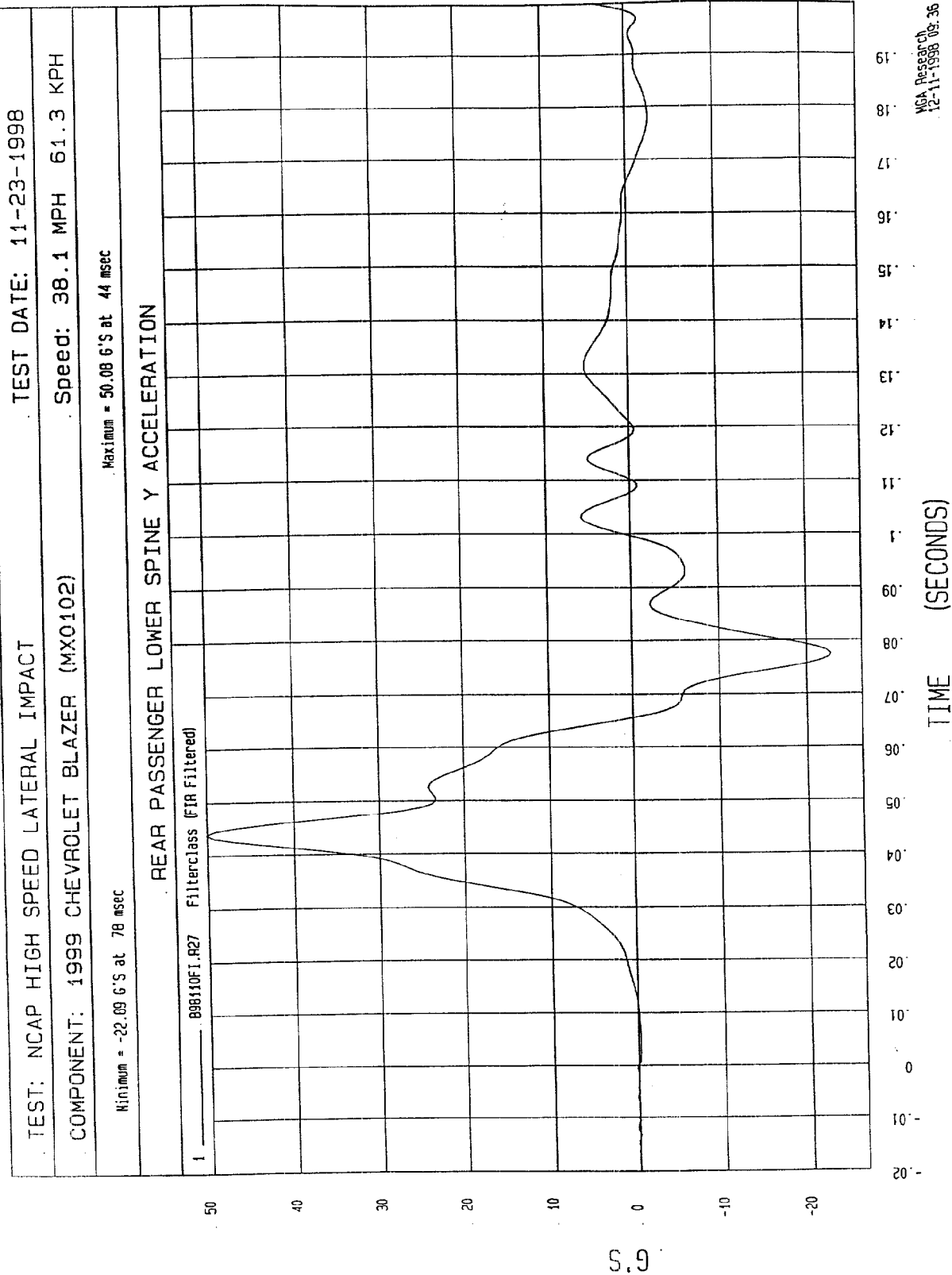
G'S





MCA Research
12-11-1998 09:36

TIME (SECONDS)

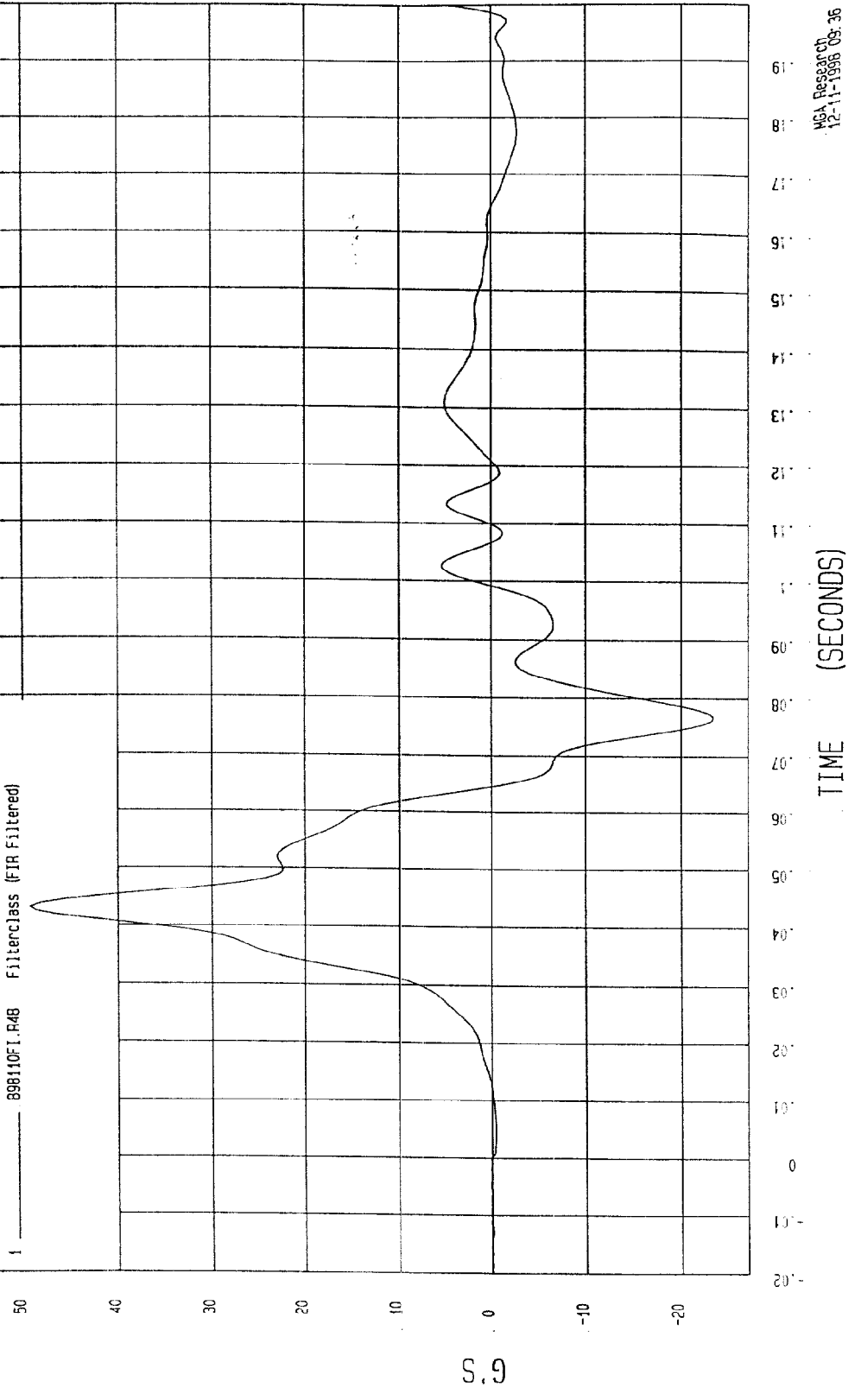


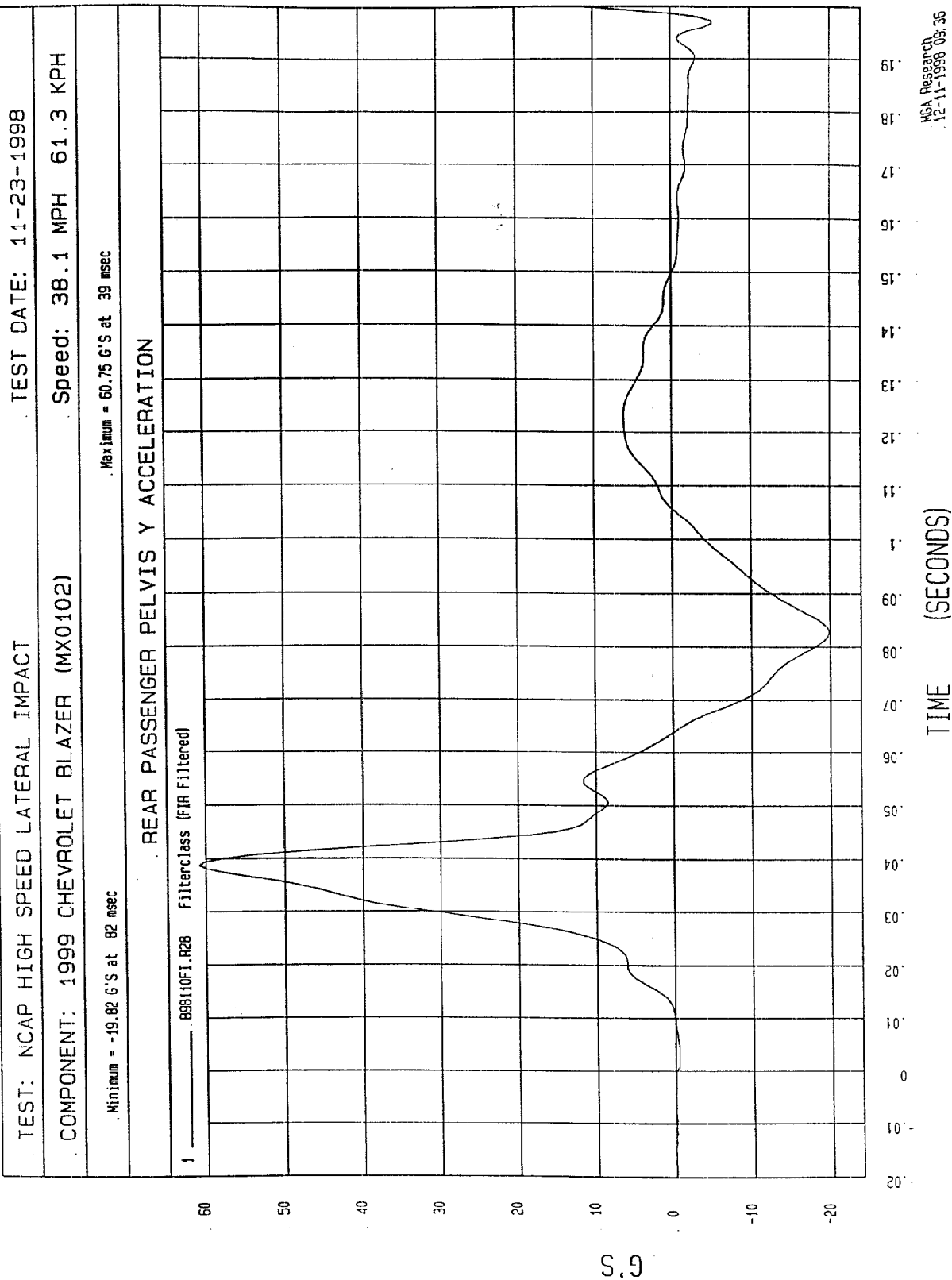
TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -23.4 G'S at 77 msec Maximum = 49.3 G'S at 43 msec

REAR PASSENGER LOWER SPINE Y REDUNDANT ACCELERATION



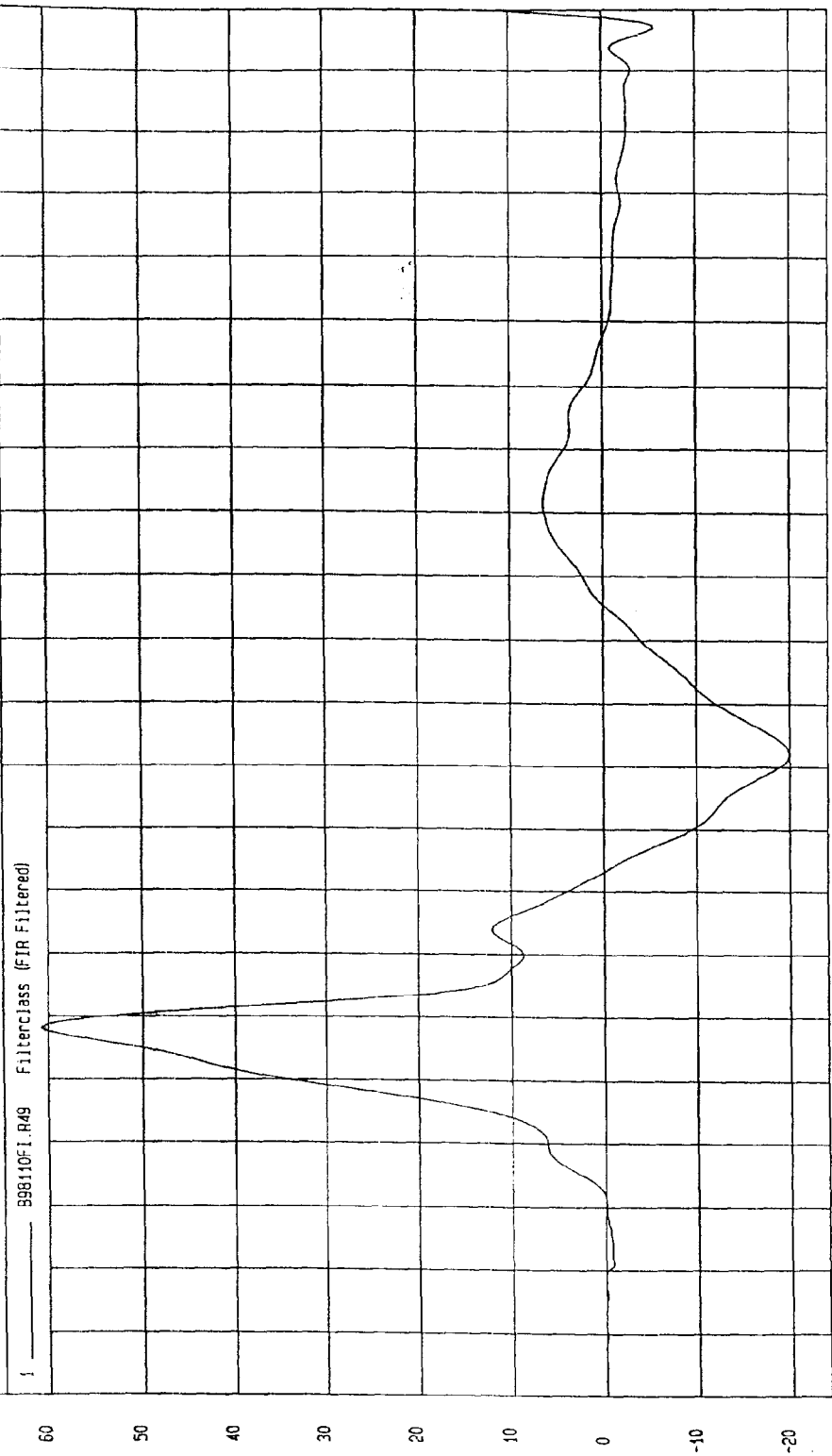


TEST: NCAP HIGH SPEED LATERAL IMPACT TEST DATE: 11-23-1998

COMPONENT: 1999 CHEVROLET BLAZER (MX0102) Speed: 38.1 MPH 61.3 KPH

Minimum = -19.99 G'S at 82 msec Maximum = 60.73 G'S at 38 msec

REAR PASSENGER PELVIS Y REDUNDANT ACCELERATION



TIME (SECONDS)

NCA Research
12-11-1998 09:36

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION

PRE-TEST CERTIFICATION DATA

Driver Dummy Serial Number: 269

Calibration Test Results Summary

Driver Dummy Serial Number: 269

Pre-Test Calibration

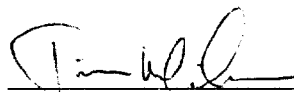
External Dimensions:	The dummy passed all external dimension requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY SERIAL NUMBER: 269DATE OF VERIFICATION: November 18, 1998

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	892
RH - Rib Height (mm)	501 - 521	508
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	232
KV - Knee Pivot From Back Line (mm)	511 - 526	523
SW - Knee Pivot to Floor (mm)	490 - 505	501
HW - Hip Width (mm)	356 - 391	382

MEASUREMENTS BY:



APPROVED BY:



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 17, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981422

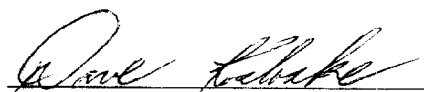
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	24%
PROBE SPEED (m/s)	4.27 - 4.33	4.28
UPPER RIB (g's)	37 - 46 g's	46
LOWER RIB (g's)	37 - 46 g's	45
LOWER SPINE (g's)	15 - 22 g's	21

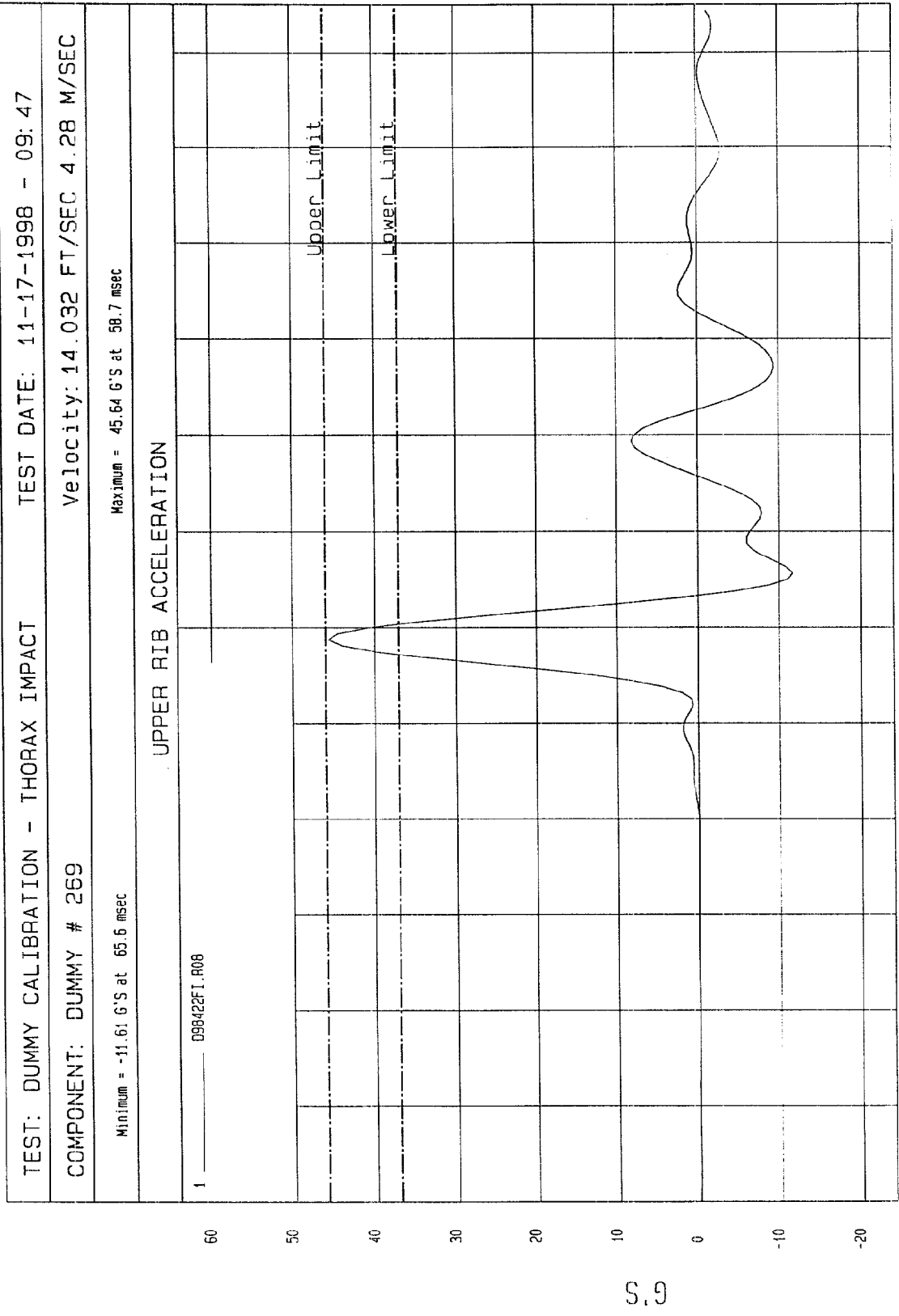
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY





NGA Research
11-17-1998 10:00

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-17-1998 - 09:47

COMPONENT: DUMMY # 269 Velocity: 14.032 FT/SEC 4.28 M/SEC

Minimum = -11.74 G'S at 65.6 msec Maximum = 45.45 G'S at 59.3 msec

LOWER RIB ACCELERATION

1 _____ 098422F1.R09

60

50

40

30

20

10

0

-10

-20

G'S

Upper Limit

Lower Limit

2.0

1.0

0.0

60

80

100

120

140

160

180

200

220

240

TIME (SECONDS)

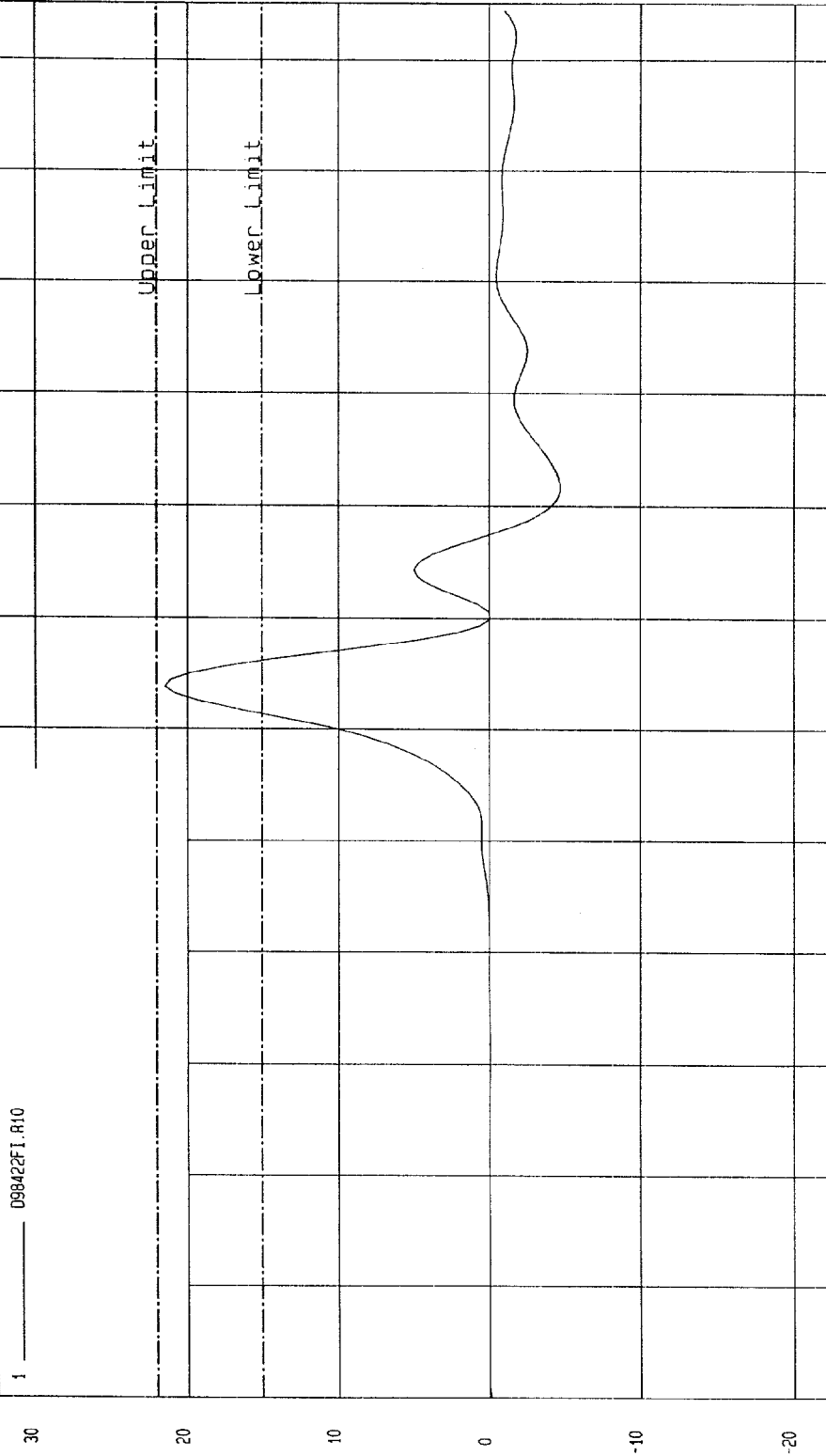
NOA Research
11-17-1998 10:00

TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-17-1998 - 09:47

COMPONENT: DUMMY # 269 Velocity: 14.032 FT/SEC 4.28 M/SEC

Minimum = -4.75 G'S at 81.8 msec Maximum = 21.43 G'S at 63.7 msec

LOWER SPINE ACCELERATION



WSA Research
11-17-1998 10:01

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

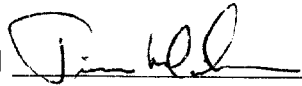
SIDE IMPACT DUMMY (SID)

DATE: November 17, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981423

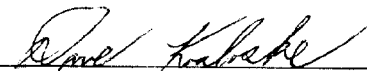
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	24%
PROBE SPEED (m/s)	4.27 - 4.33	4.30
PELVIS ACCELERATION (g's)	40 - 60	41

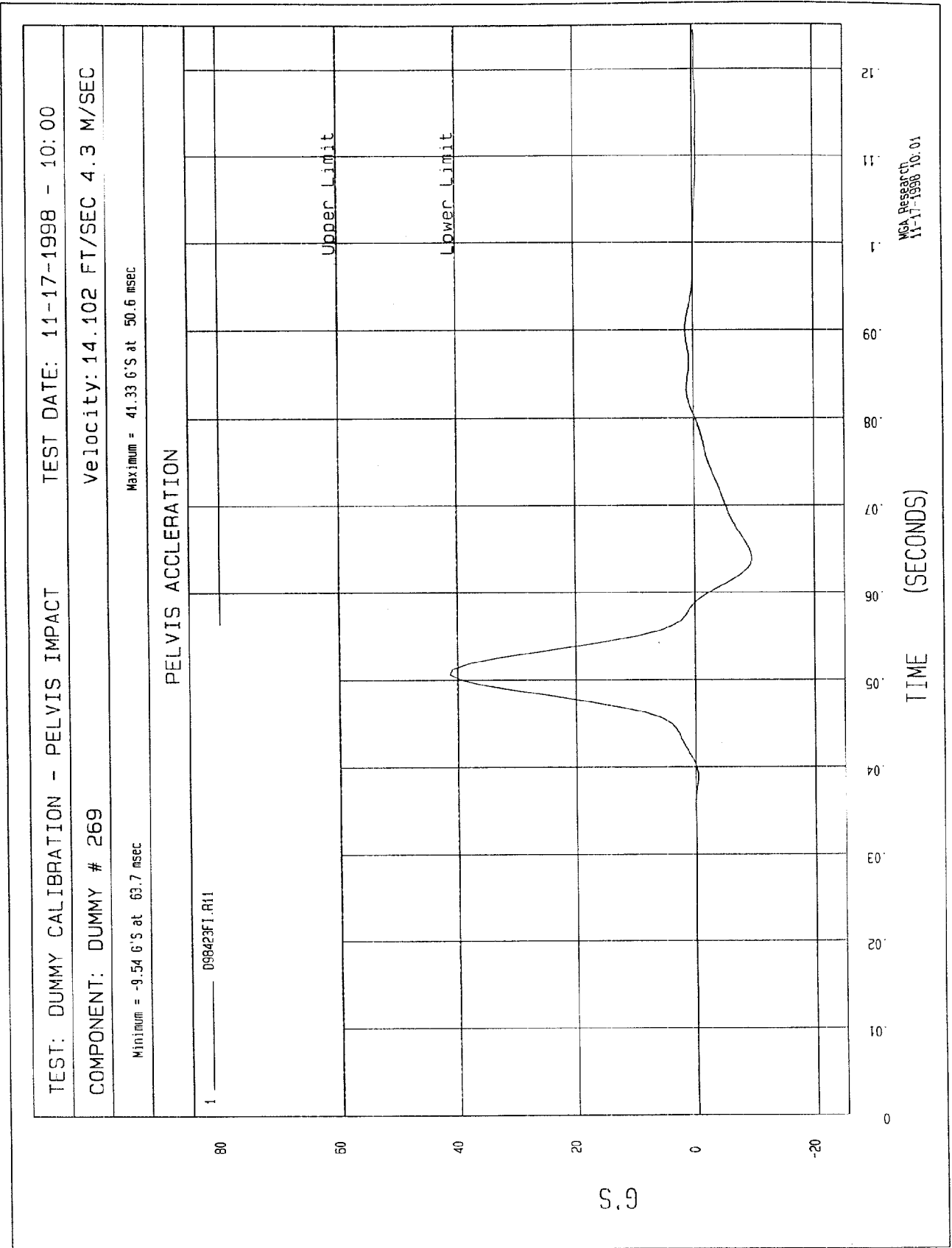
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY





MGA RESEARCH CORPORATION

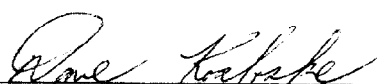
ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: November 18, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981424

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	25%
FORCE @ 12.7 mm	104 - 162	146
FORCE @ 19.0 mm	163 - 222	206
FORCE @ 25.4 mm	222 - 280	236
FORCE @ 33 mm	325 - 391	372

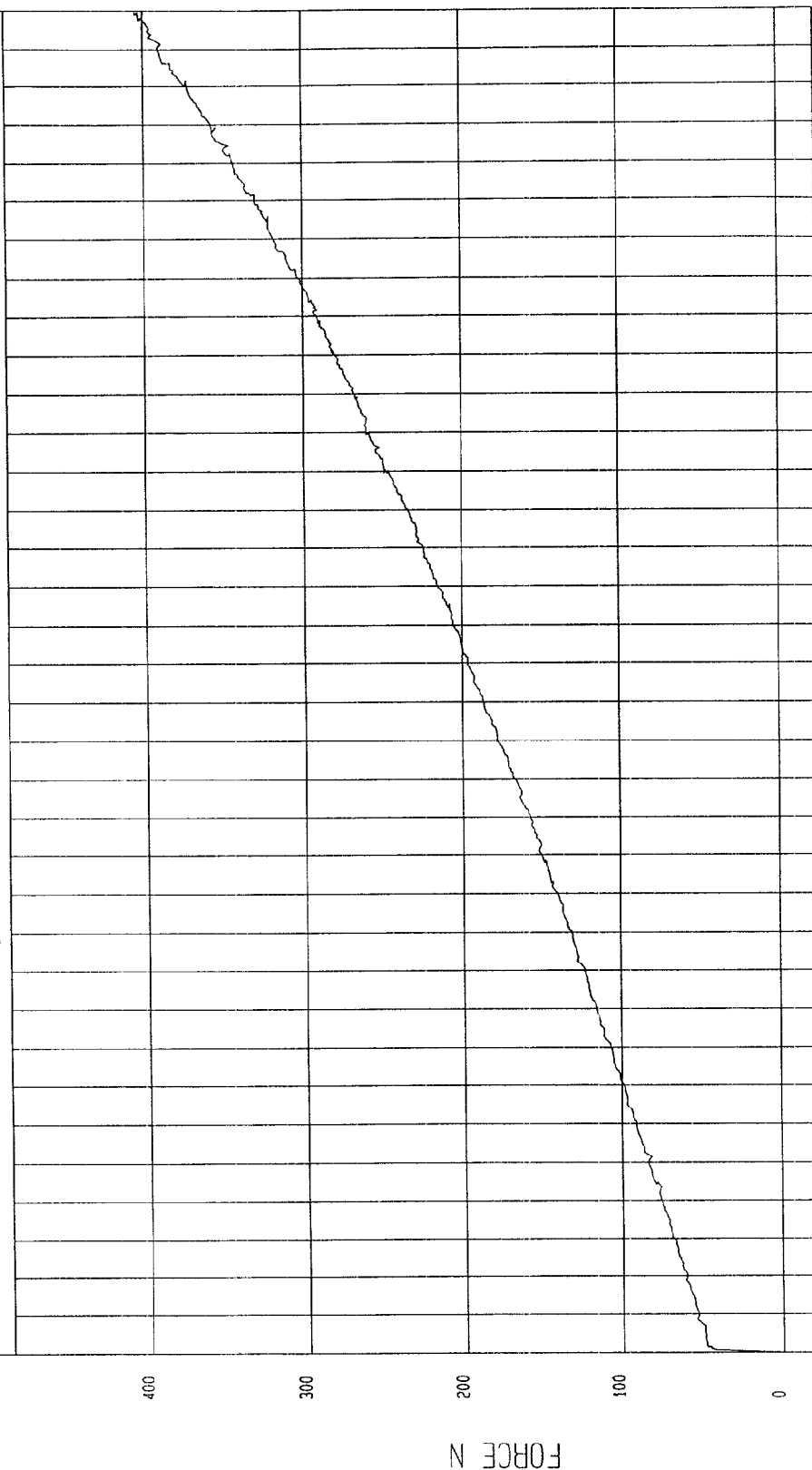
TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-18-1998 - 15:38:31

COMPONENT: DUMMY # 269

FORCE as a function of DISPLACEMENT



MCA Research
11-19-1998 08:50

DISPLACEMENT mm

FORCE N

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 18, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981425

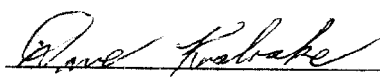
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	26%
FORCE @ 0°	0 - 26.7	0
FORCE @ 20°	97.9 - 151.2	130.4
FORCE @ 30°	151.2 - 204.6	162.5
FORCE @ 40°	204.6 - 258.0	222.7
RETURN ANGLE	12° maximum	4°

TEST MEETS SPECIFICATIONS

TECHNICIAN



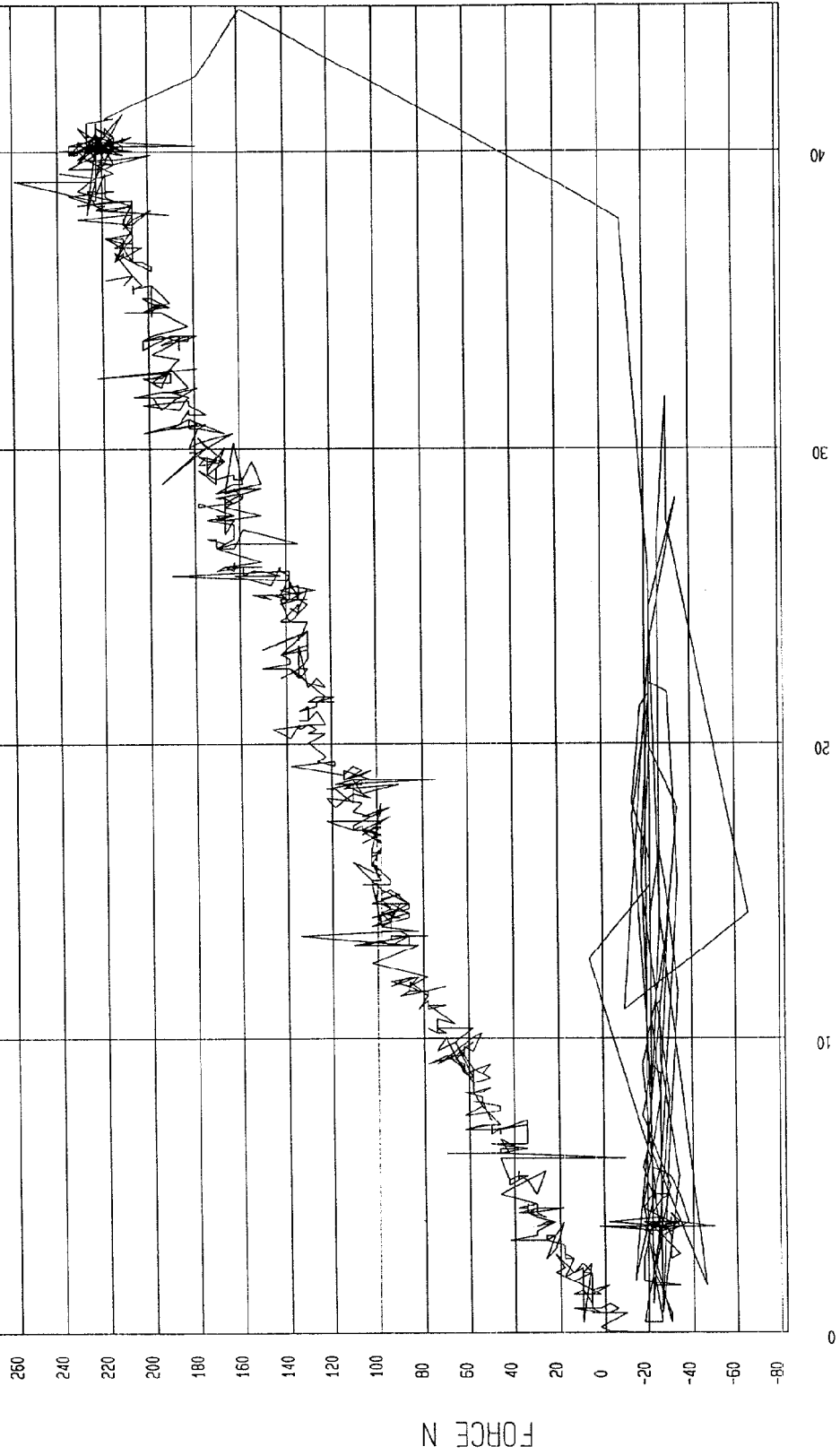
APPROVED BY



TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-18-1998 - 13:36:31

COMPONENT: DUMMY # 269

FORCE as a function of TORSO ROTATION



McA Research
11-18-1998 14:21

PRE-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 270

Calibration Test Results Summary

Passenger Dummy Serial Number: 270

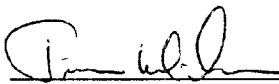
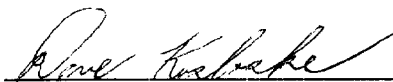
Pre-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY SERIAL NUMBER: 270DATE OF VERIFICATION: November 18, 1998

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	894
RH - Rib Height (mm)	501 - 521	514
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	238
KV - Knee Pivot From Back Line (mm)	511 - 526	519
SW - Knee Pivot to Floor (mm)	490 - 505	494
HW - Hip Width (mm)	356 - 391	371

MEASUREMENTS BY: APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

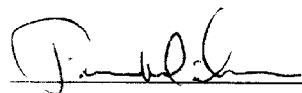
SIDE IMPACT DUMMY (SID)

DATE: November 17, 1998DUMMY SERIAL NUMBER: 270TEST NUMBER: D981432

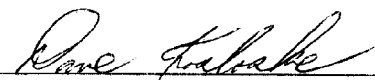
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	24%
PROBE SPEED (m/s)	4.27 - 4.33	4.28
UPPER RIB (g's)	37 - 46 g's	42
LOWER RIB (g's)	37 - 46 g's	39
LOWER SPINE (g's)	15 - 22 g's	18

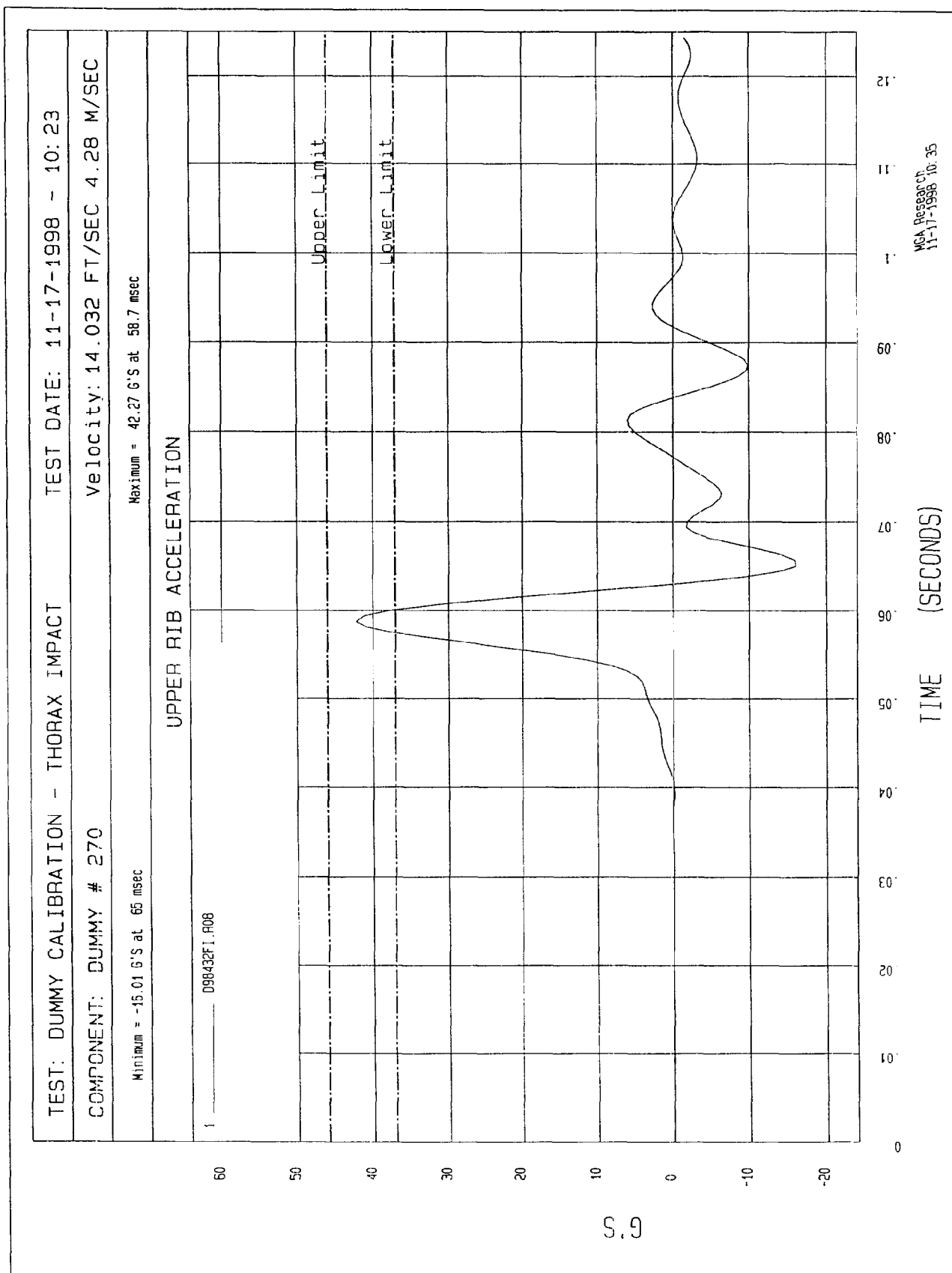
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY



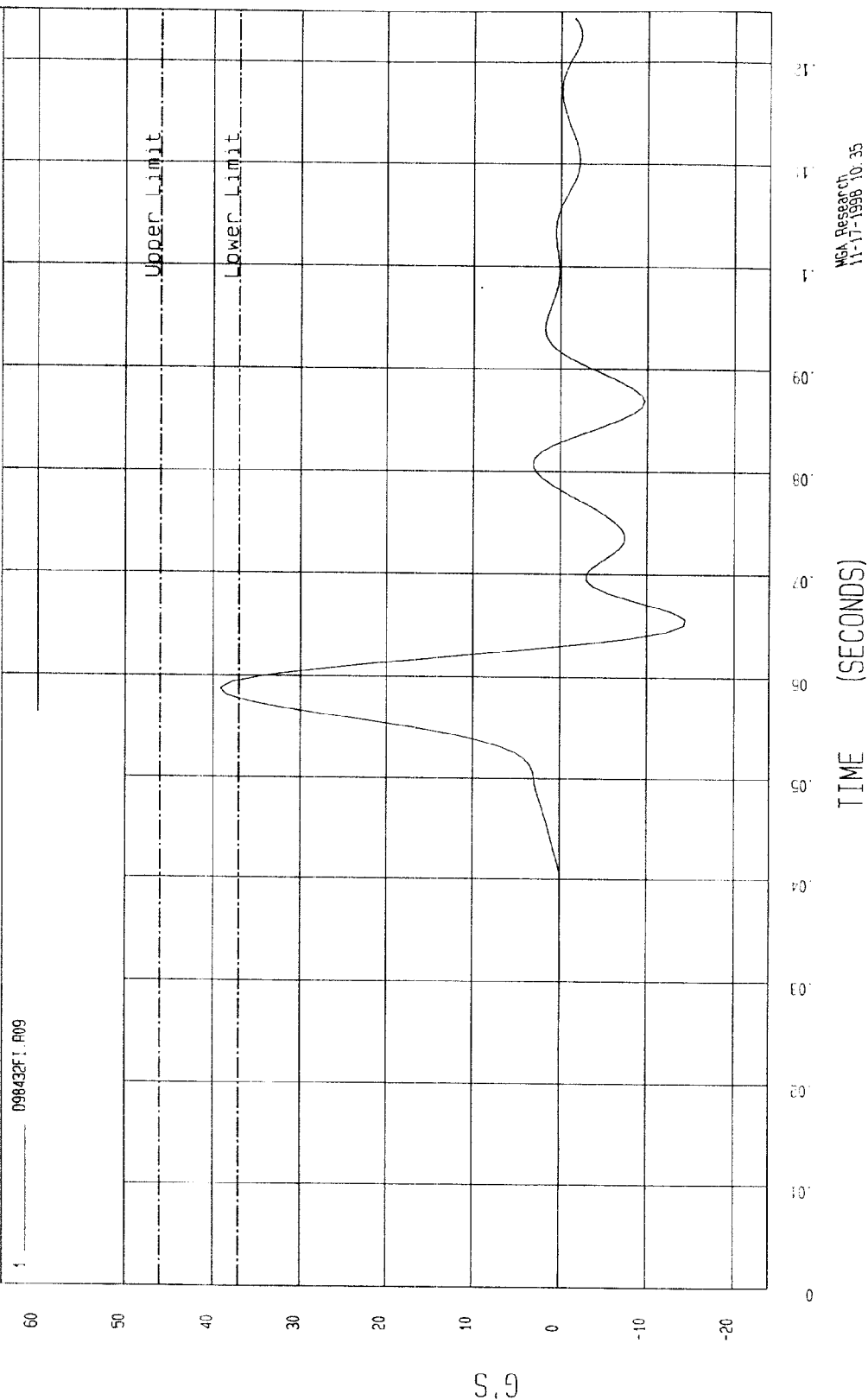


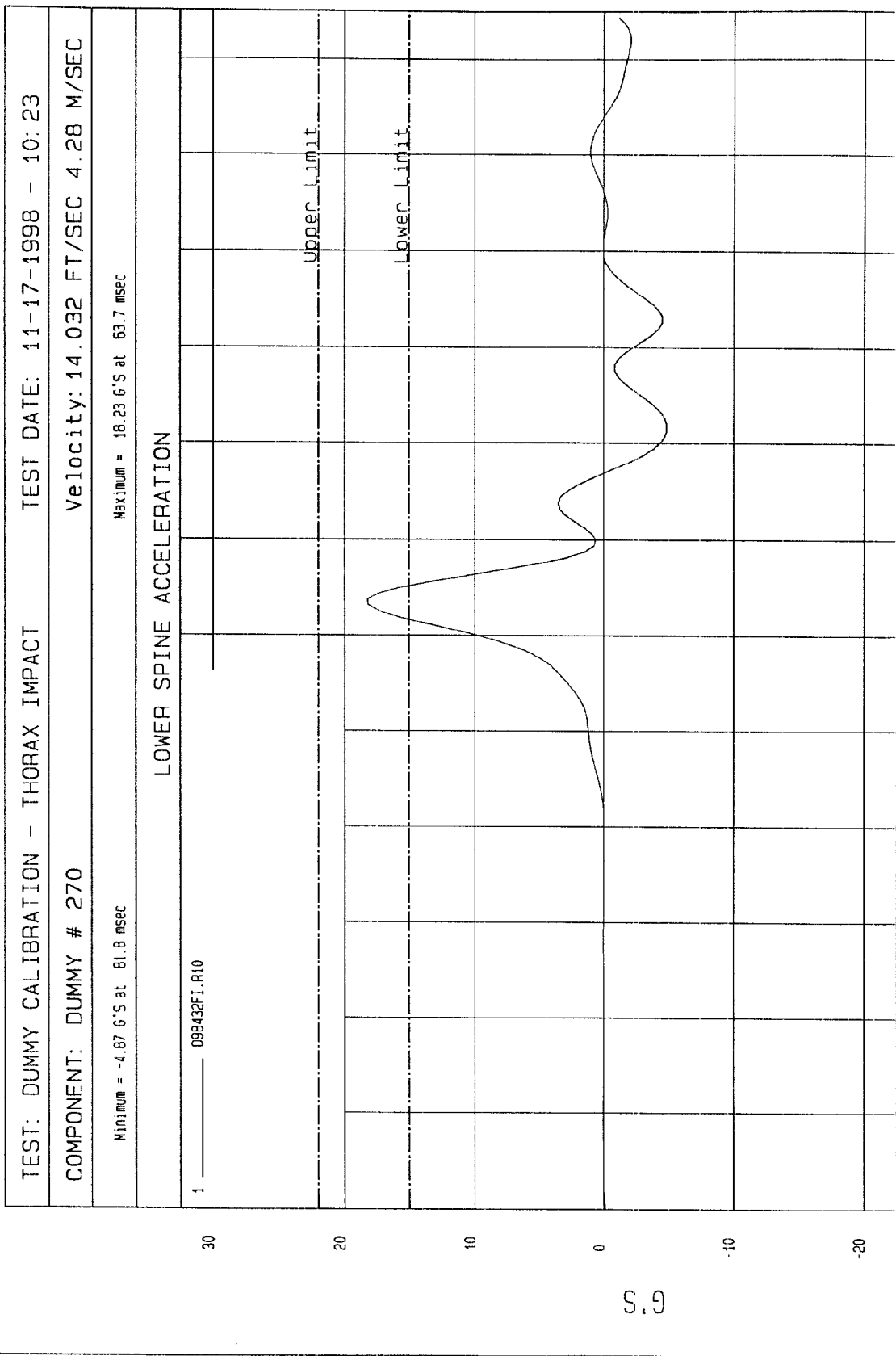
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-17-1998 - 10:23

COMPONENT: DUMMY # 270 Velocity: 14.032 FT/SEC 4.28 M/SEC

Minimum = -14.38 G'S at 65.6 msec
Maximum = 39.21 G'S at 58.7 msec

LOWER RIB ACCELERATION





NCA Research
11-17-1998 10: 36

TIME (SECONDS)

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 17, 1998DUMMY SERIAL NUMBER: 270TEST NUMBER: D981433

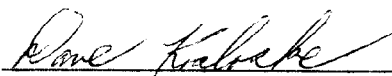
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	24%
PROBE SPEED (m/s)	4.27 - 4.33	4.28
PELVIS ACCELERATION (g's)	40 - 60	43

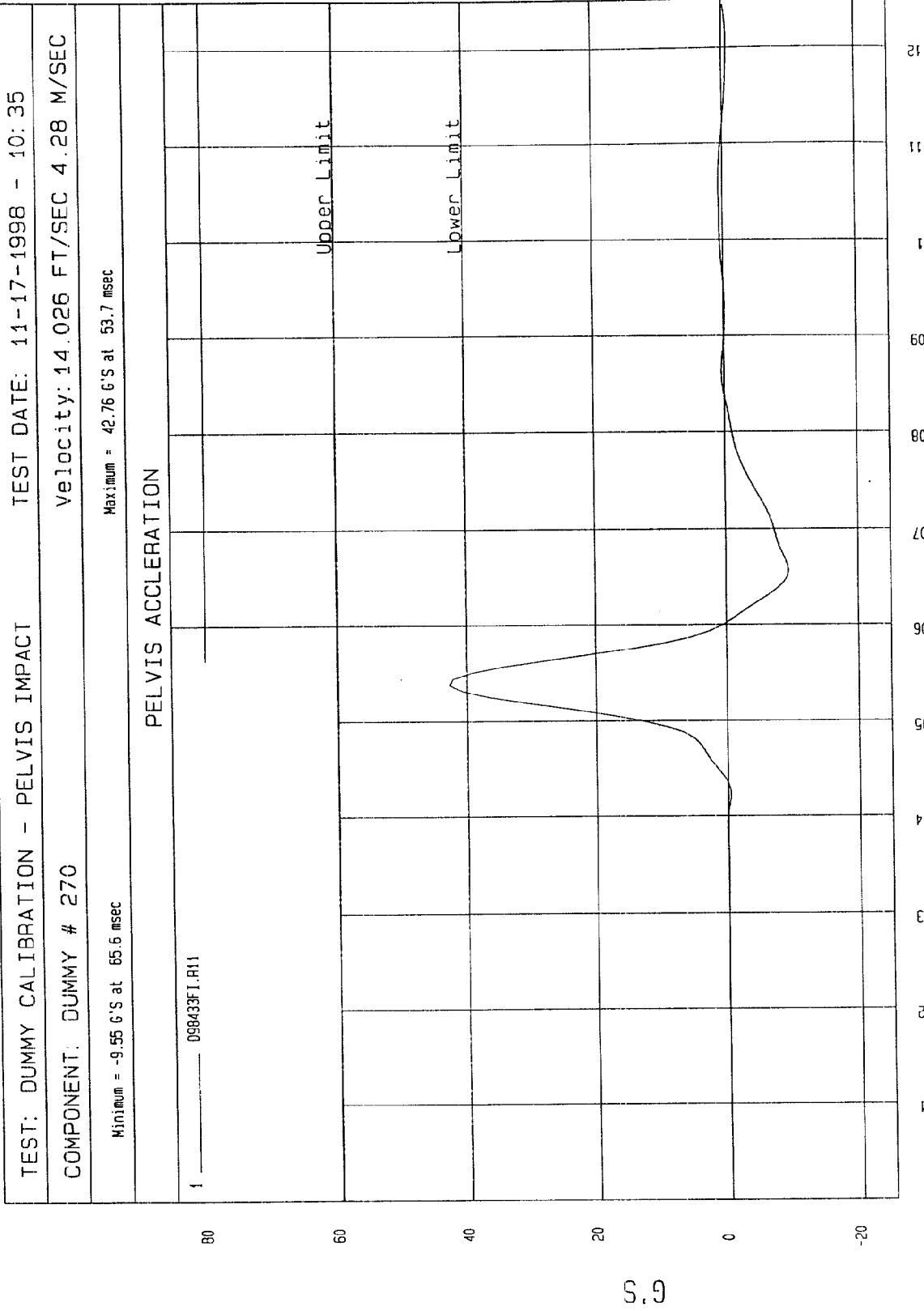
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY





NGA Research
11-17-1998 10:36

MGA RESEARCH CORPORATION

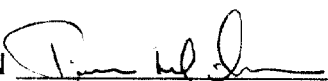
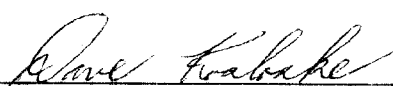
ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: November 18, 1998DUMMY SERIAL NUMBER: 270TEST NUMBER: D981434

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	25%
FORCE @ 12.7 mm	104 - 162	139
FORCE @ 19.0 mm	163 - 222	199
FORCE @ 25.4 mm	222 - 280	264
FORCE @ 33 mm	325 - 391	359

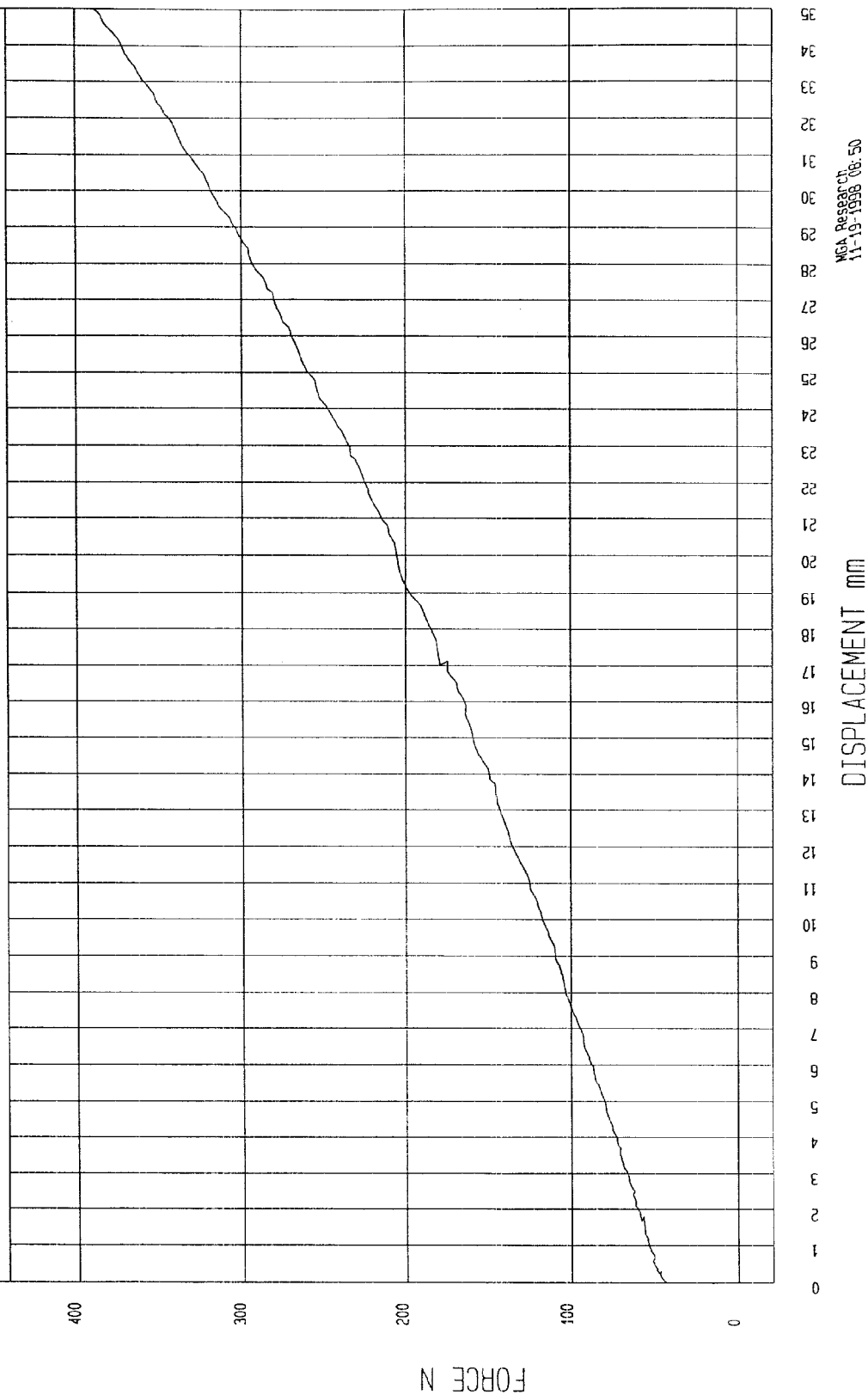
TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-18-1998 - 15:54:26

COMPONENT: DUMMY # 270

FORCE as a function of DISPLACEMENT



MGA Research
11-19-1998 08:50

MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

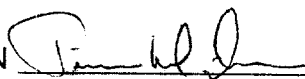
SIDE IMPACT DUMMY (SID)

DATE: November 18, 1998DUMMY SERIAL NUMBER: 270 TEST NUMBER: D981435

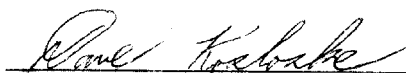
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	25%
FORCE @ 0°	0 - 26.7	0
FORCE @ 20°	97.9 - 151.2	118.5
FORCE @ 30°	151.2 - 204.6	158.6
FORCE @ 40°	204.6 - 258.0	210.7
RETURN ANGLE	12° maximum	1°

TEST MEETS SPECIFICATIONS

TECHNICIAN



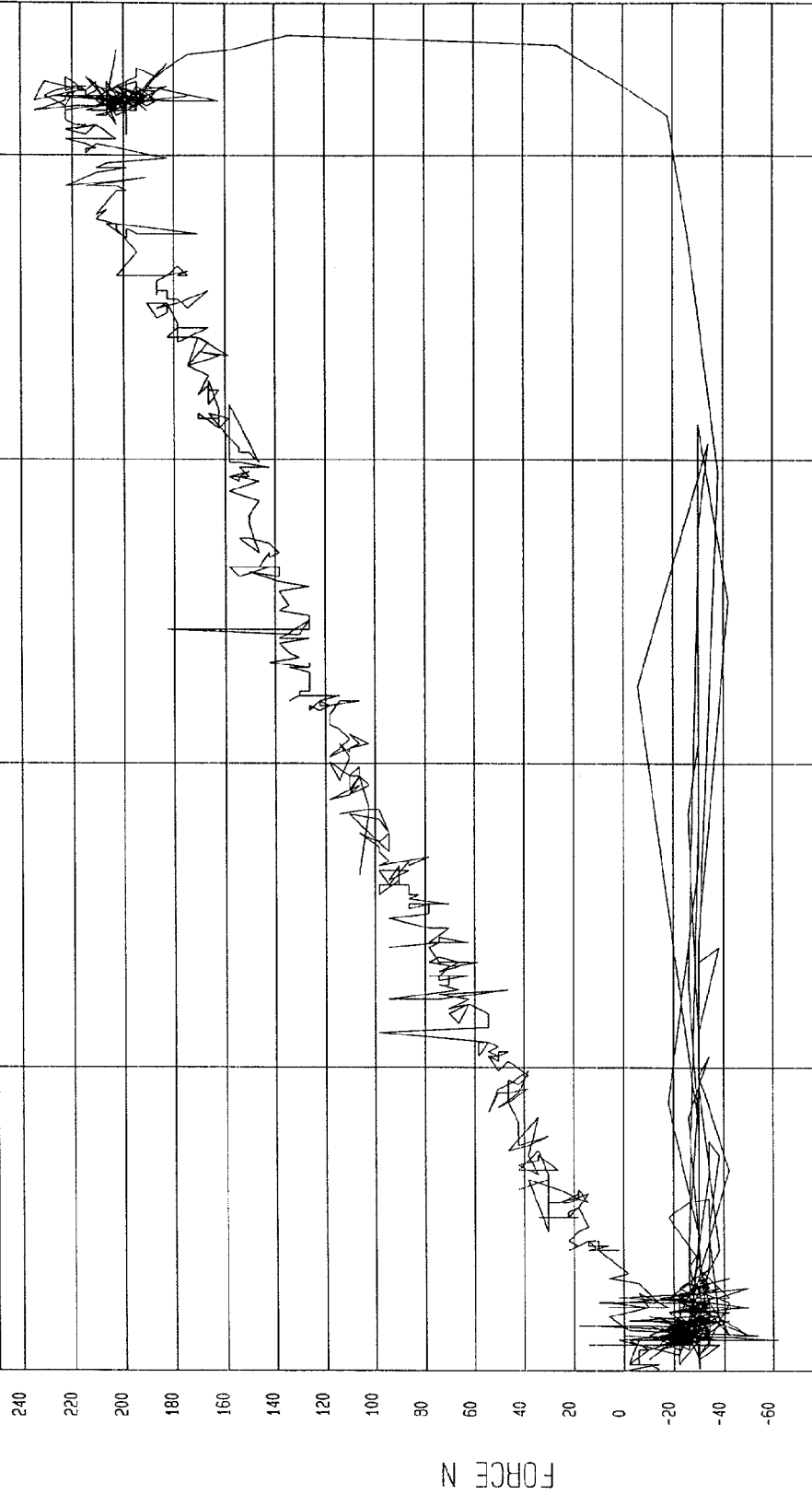
APPROVED BY



TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-18-1998 - 14:19:54

COMPONENT: DUMMY # 270

FORCE as a function of TORSO ROTATION



0 10 20 30 40
TORSO ROTATION DEGREES
MCA Research
11-18-1998 14:21

POST-TEST CERTIFICATION DATA

Driver Dummy Serial Number: 269

Calibration Test Results Summary

Driver Dummy Serial Number: 269

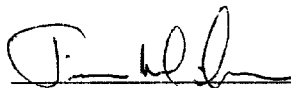
Post-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY SERIAL NUMBER: 269DATE OF VERIFICATION: November 29, 1998

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	892
RH - Rib Height (mm)	501 - 521	508
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	232
KV - Knee Pivot From Back Line (mm)	511 - 526	523
SW - Knee Pivot to Floor (mm)	490 - 505	501
HW - Hip Width (mm)	356 - 391	382

MEASUREMENTS BY: APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

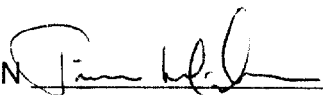
SIDE IMPACT DUMMY (SID)

DATE: November 29, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981472

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	40%
PROBE SPEED (m/s)	4.27 - 4.33	4.28
UPPER RIB (g's)	37 - 46 g's	45
LOWER RIB (g's)	37 - 46 g's	46
LOWER SPINE (g's)	15 - 22 g's	21

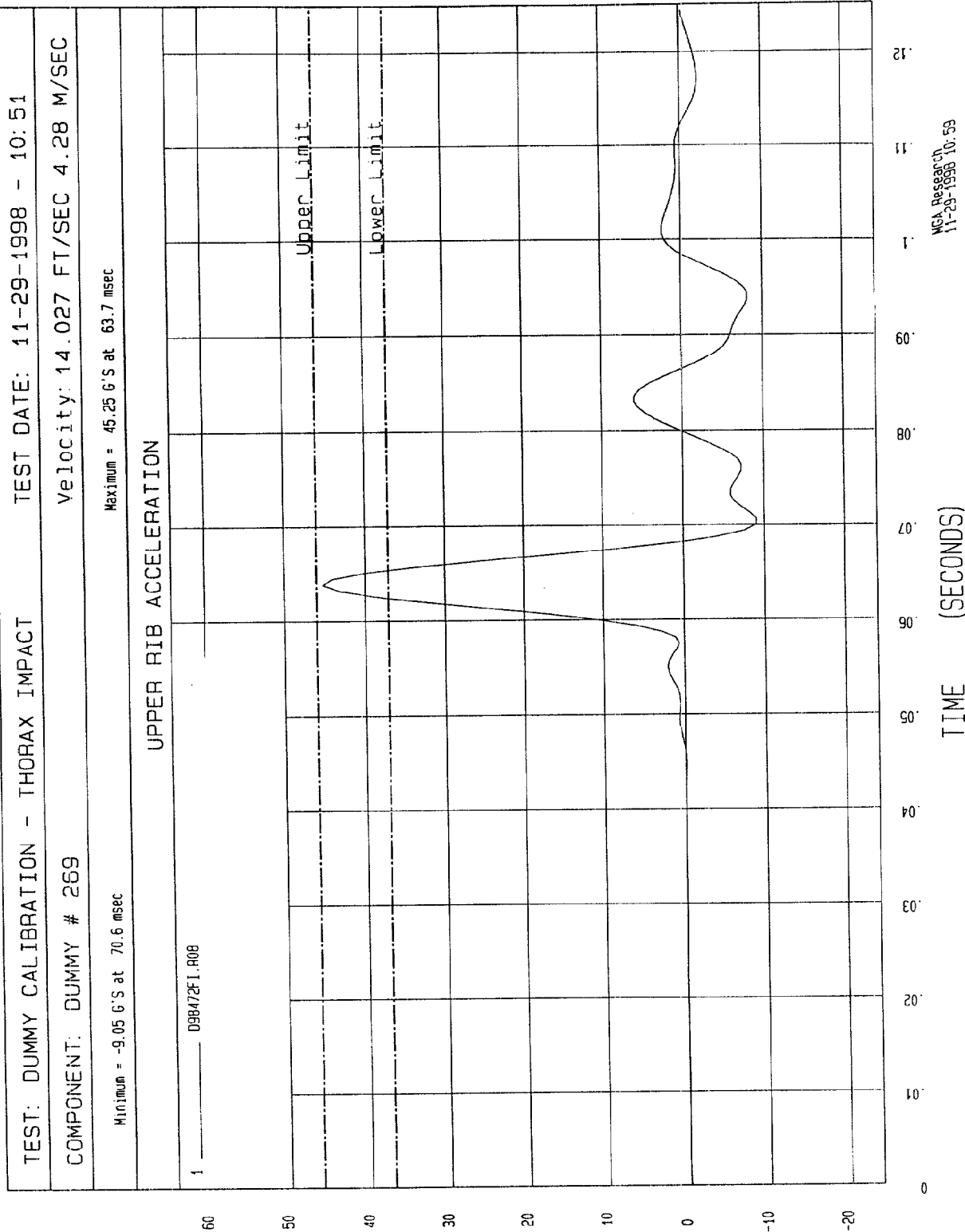
TEST MEETS SPECIFICATIONS

TECHNICIAN



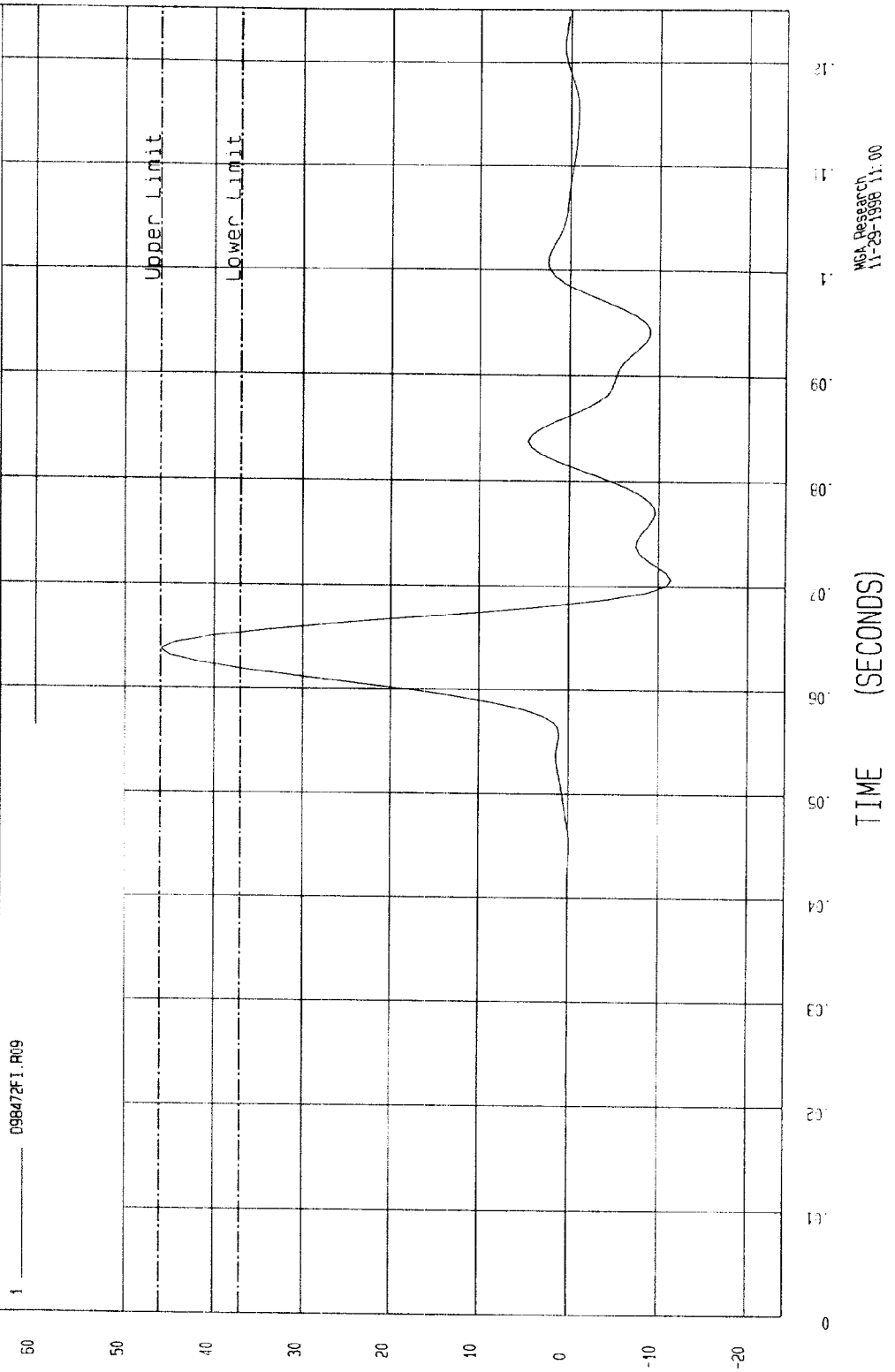
APPROVED BY



MCA Research
11-29-1998 10:59

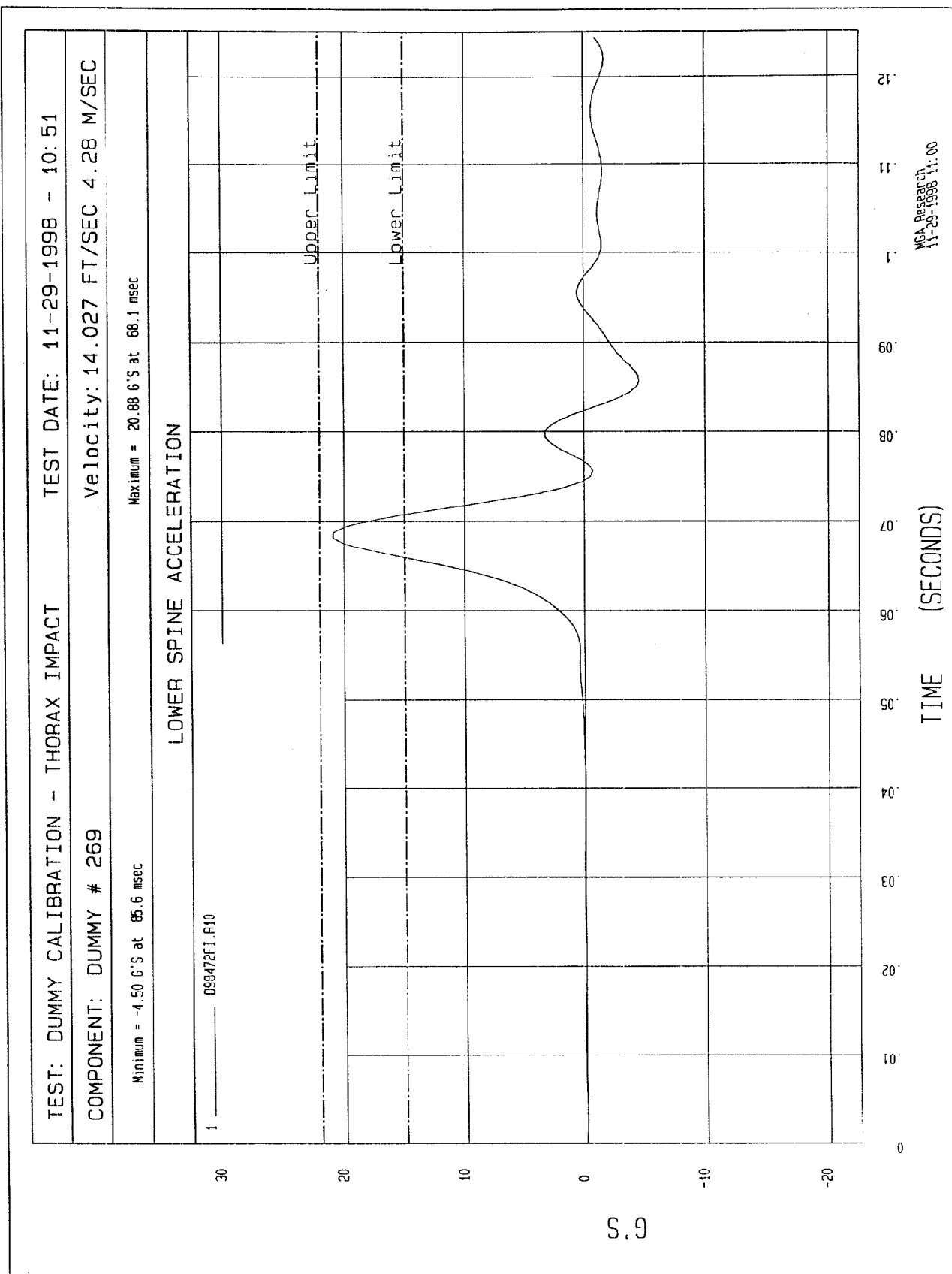
TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-29-1998 - 10:51
COMPONENT: DUMMY # 269 Velocity: 14.027 FT/SEC 4.28 M/SEC
Minimum = -11.32 G'S at 70.6 msec Maximum = 45.89 G'S at 63.7 msec

LOWER RIB ACCELERATION



MGA Research
11-29-1998 11:00

G.S



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 29, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981473

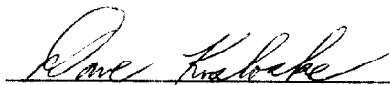
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	40%
PROBE SPEED (m/s)	4.27 - 4.33	4.29
PELVIS ACCELERATION (g's)	40 - 60	40

TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

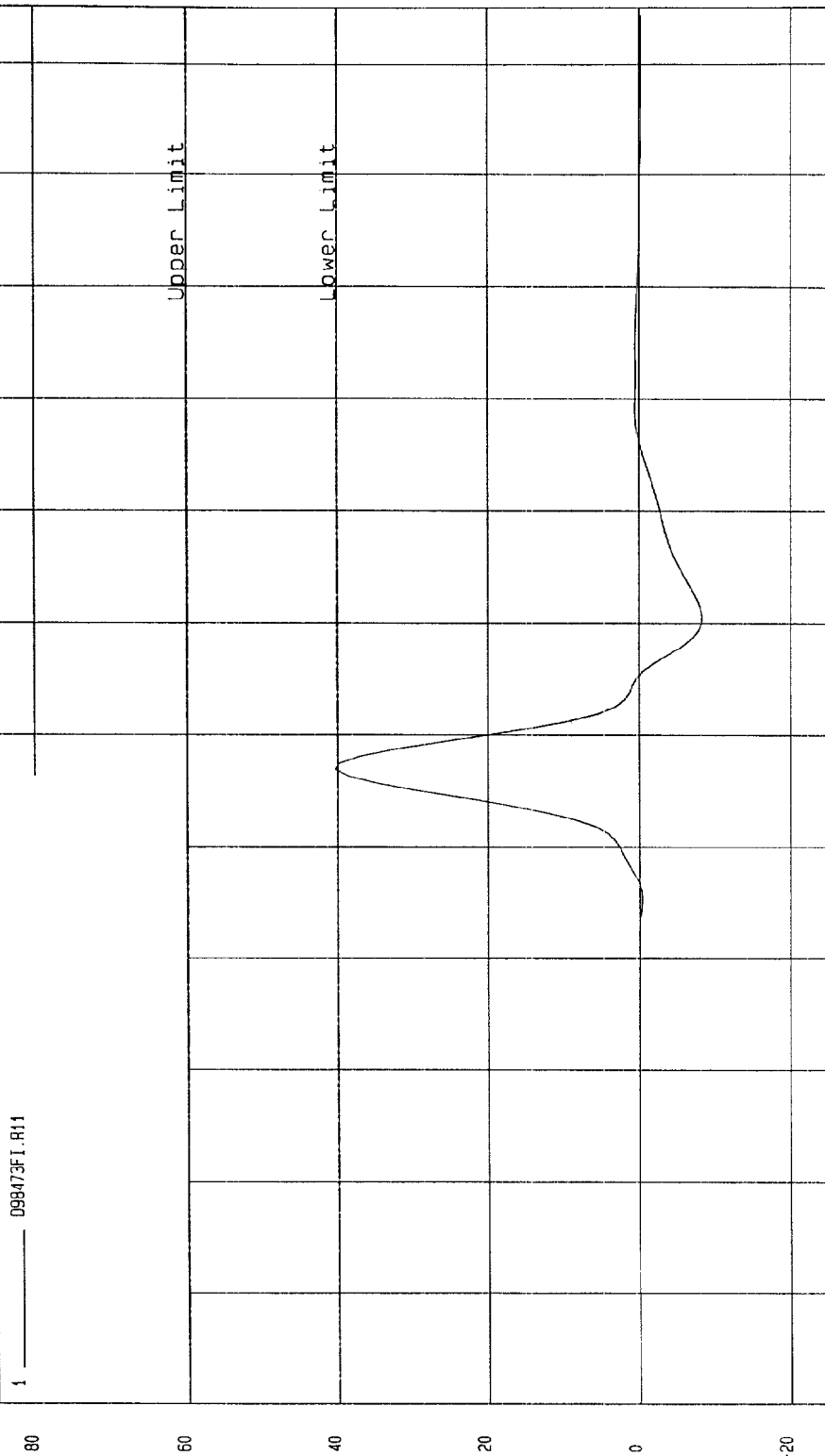


TEST: DUMMY CALIBRATION - PELVIS IMPACT TEST DATE: 11-29-1998 - 10:59

COMPONENT: DUMMY # 269 Velocity: 14.079 FT/SEC 4.29 M/SEC

Minimum = -8.28 G'S at 70.6 msec Maximum = 40.33 G'S at 56.8 msec

PELVIS ACCELERATION



TIME (SECONDS)

MSA Research
11-29-1998 11:00

S.9

MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST
(PRELOAD = 10 LBS)

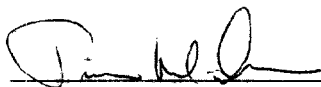
SIDE IMPACT DUMMY (SID)

DATE: November 29, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981474

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	40%
FORCE @ 12.7 mm	104 - 162	154
FORCE @ 19.0 mm	163 - 222	216
FORCE @ 25.4 mm	222 - 280	277
FORCE @ 33 mm	325 - 391	382

TEST MEETS SPECIFICATIONS

TECHNICIAN



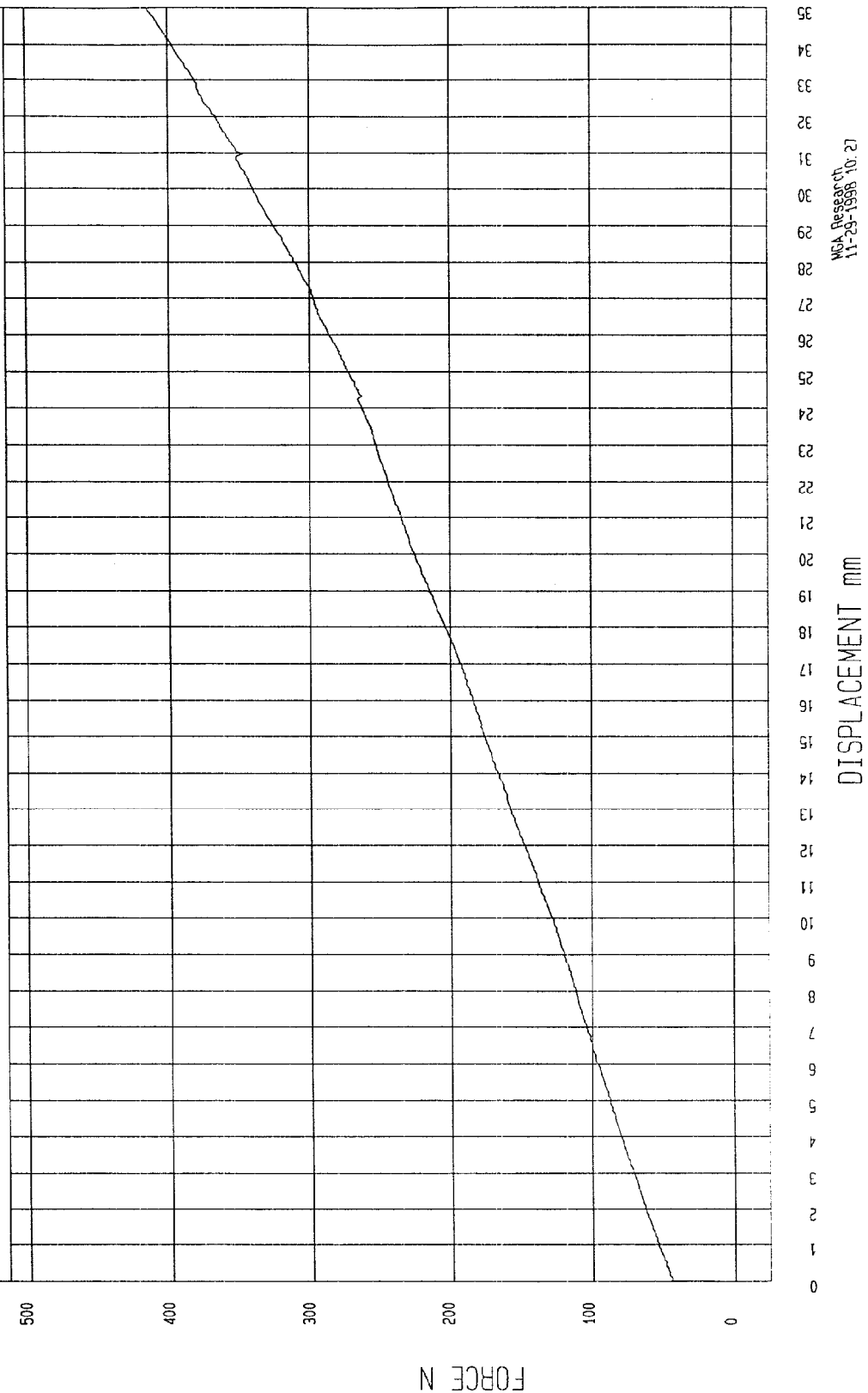
APPROVED BY



TEST: DUMMY CALIBRATION - ABDOMEN COMPRESSION TEST DATE: 11-29-1998 - 10:25:33

COMPONENT: DUMMY # 269

FORCE as a function of DISPLACEMENT



MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

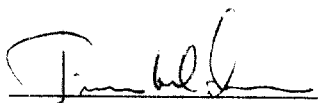
SIDE IMPACT DUMMY (SID)

DATE: November 29, 1998DUMMY SERIAL NUMBER: 269TEST NUMBER: D981475

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	137.6
FORCE @ 30°	151.2 - 204.6	177.8
FORCE @ 40°	204.6 - 258.0	221.9
RETURN ANGLE	12° maximum	6°

TEST MEETS SPECIFICATIONS

TECHNICIAN



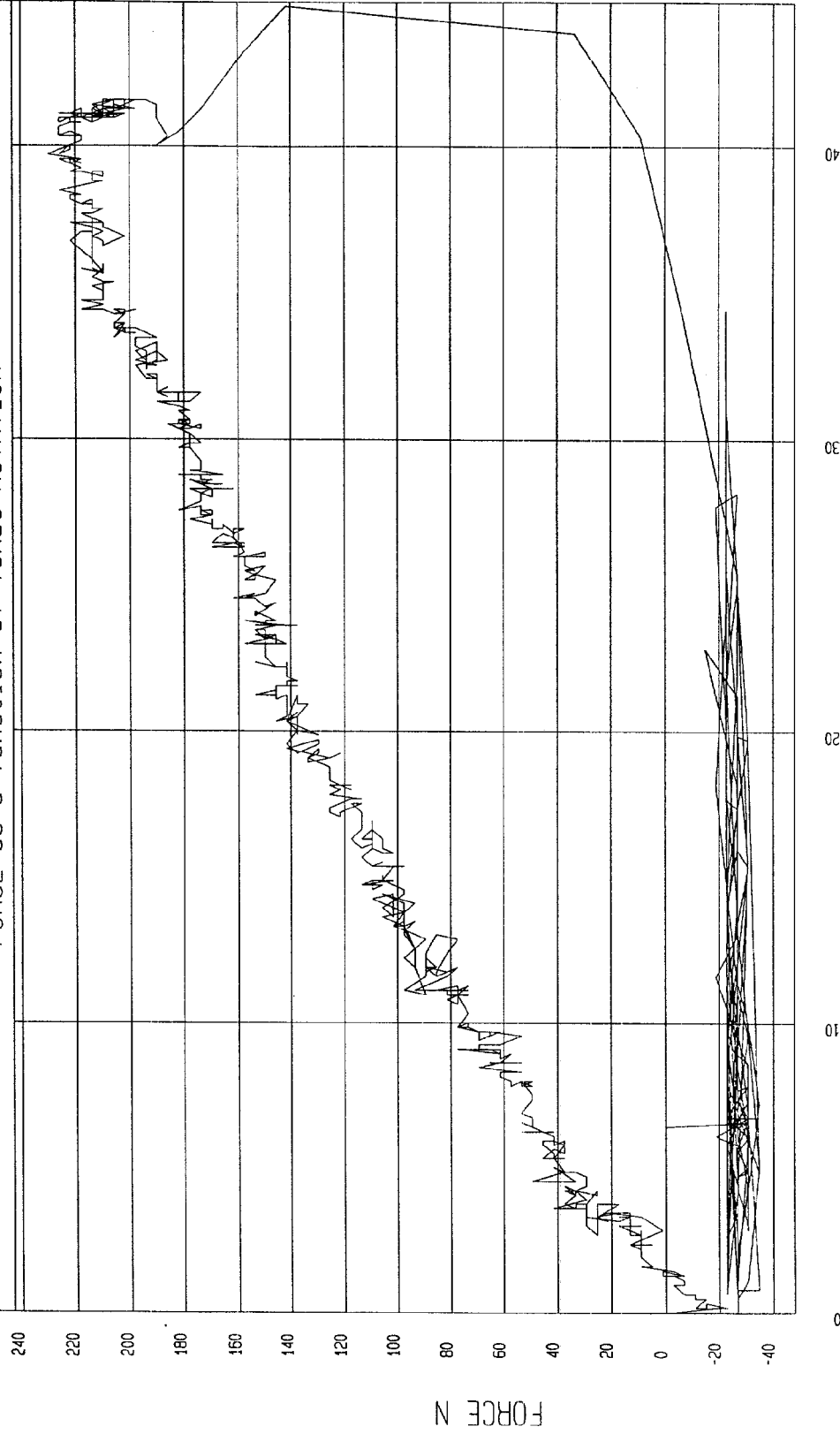
APPROVED BY



TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-29-1998 - 09:47:24

COMPONENT: DUMMY # 269

FORCE as a function of TORSO ROTATION



NCA Research
12-01-1998 21:18

POST-TEST CERTIFICATION DATA

Passenger Dummy Serial Number: 270

Calibration Test Results Summary

Passenger Dummy Serial Number: 270

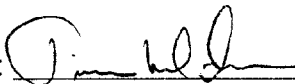
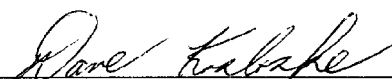
Post-Test Calibration

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

SIDE IMPACT DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

DUMMY SERIAL NUMBER: 270DATE OF VERIFICATION: November 29, 1998

DESCRIPTION	SPECIFICATION	TEST RESULTS
SH - Seated Height (mm)	889 - 909	894
RH - Rib Height (mm)	501 - 521	514
HP - Hip Pivot Height (mm)	99 ref.	99
RD - Rib From Back Line (mm)	229 - 241	238
KV - Knee Pivot From Back Line (mm)	511 - 526	519
SW - Knee Pivot to Floor (mm)	490 - 505	494
HW - Hip Width (mm)	356 - 391	371

MEASUREMENTS BY: APPROVED BY: 

MGA RESEARCH CORPORATION

THORAX IMPACT TEST

SIDE IMPACT DUMMY (SID)

DATE: November 29, 1998DUMMY SERIAL NUMBER: 270TEST NUMBER: D981482

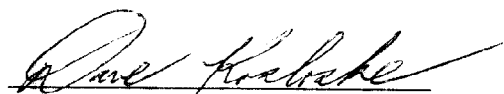
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	40%
PROBE SPEED (m/s)	4.27 - 4.33	4.29
UPPER RIB (g's)	37 - 46 g's	41
LOWER RIB (g's)	37 - 46 g's	39
LOWER SPINE (g's)	15 - 22 g's	20

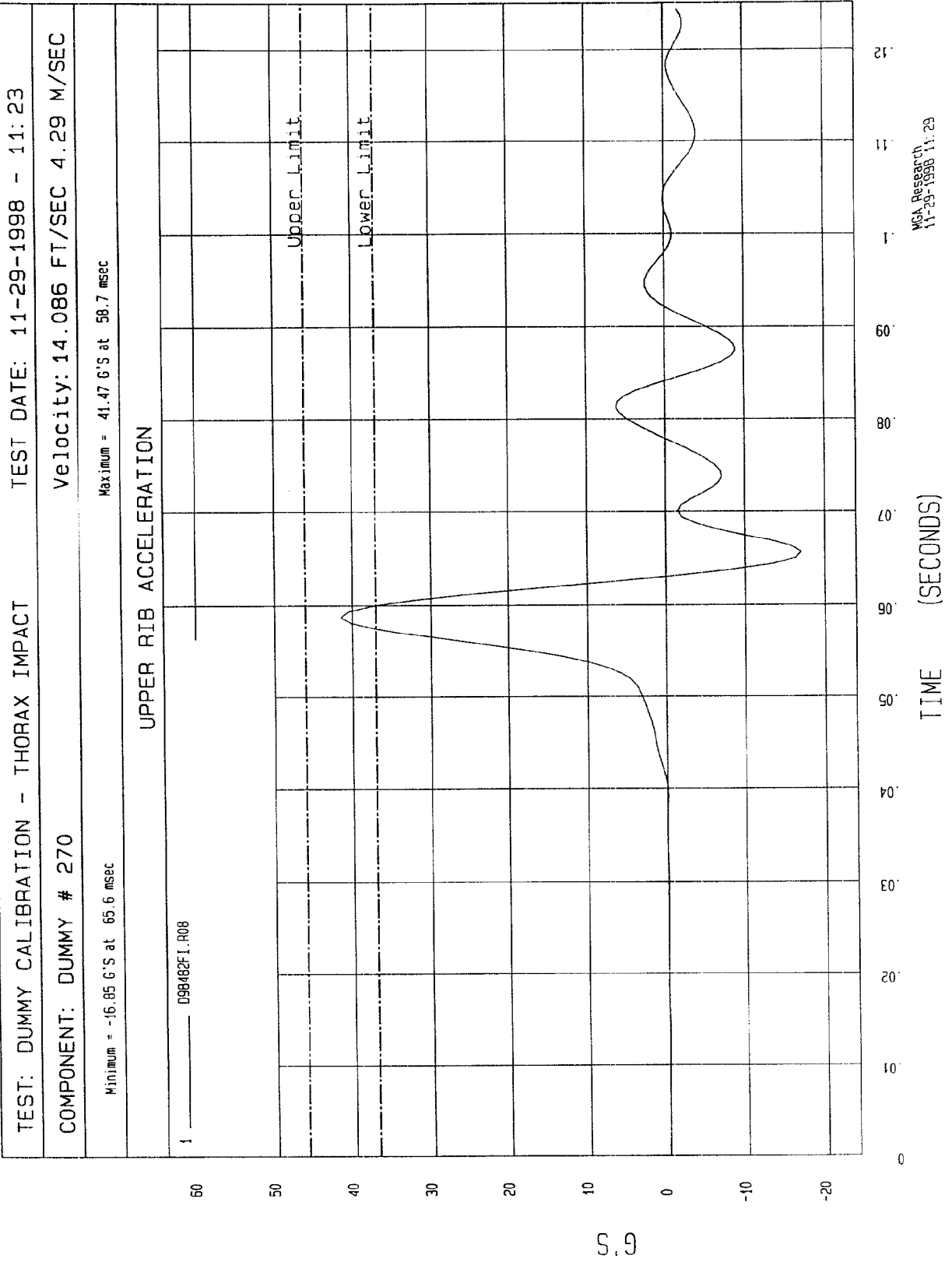
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY

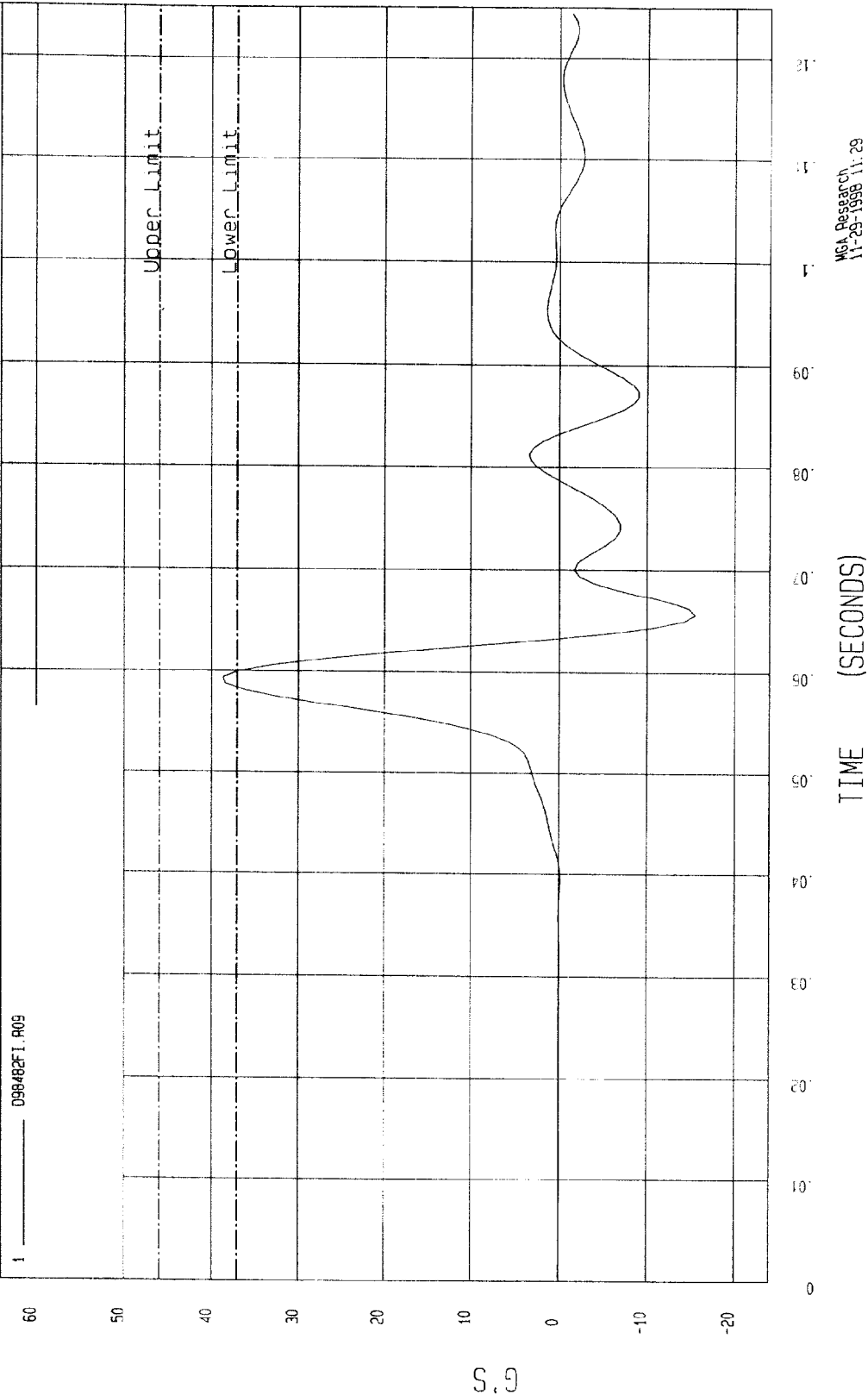


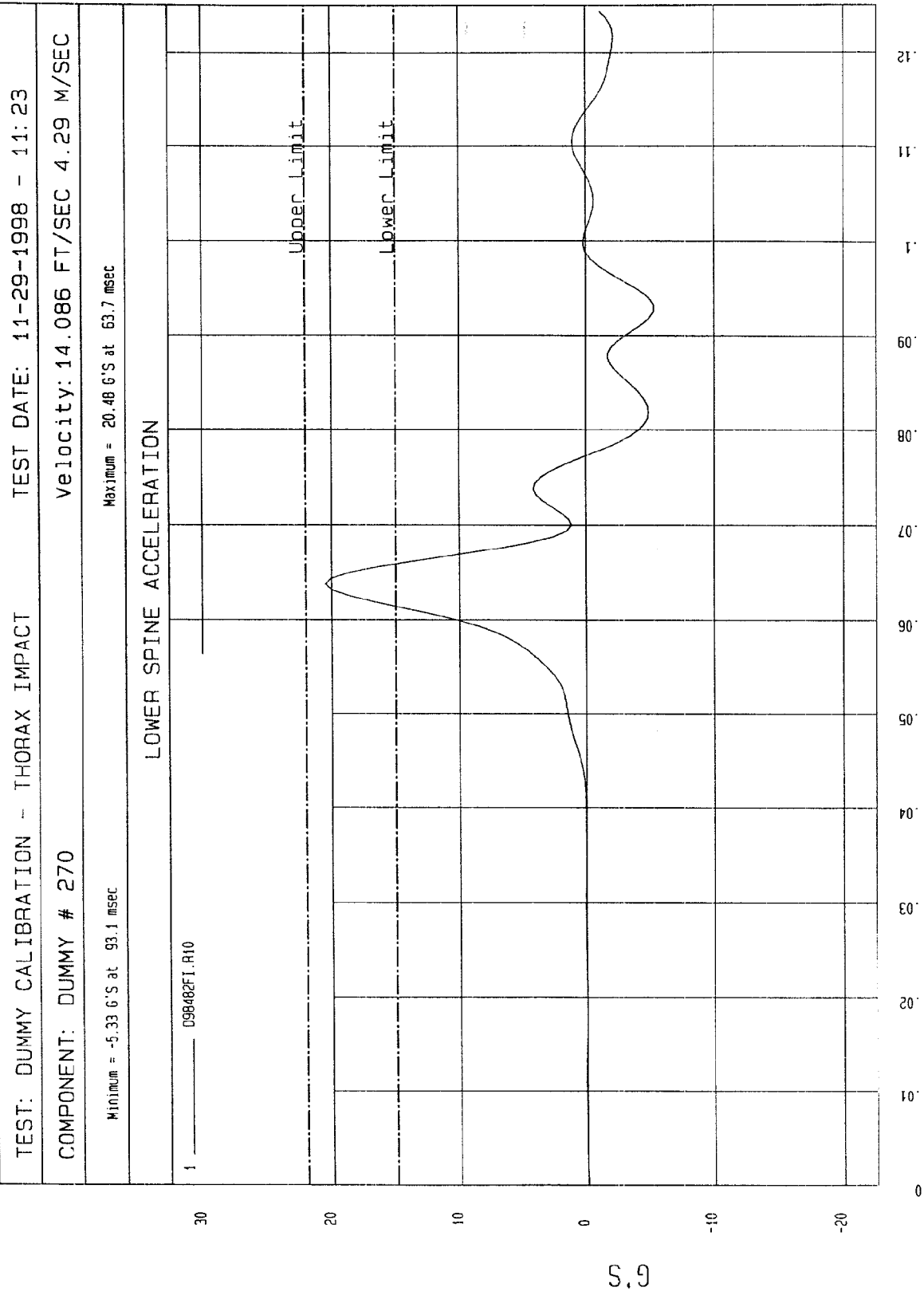


TEST: DUMMY CALIBRATION - THORAX IMPACT TEST DATE: 11-29-1998 - 11:23
COMPONENT: DUMMY # 270 Velocity: 14.086 FT/SEC 4.29 M/SEC

Minimum = -15.45 G'S at 65.6 msec Maximum = 38.67 G'S at 59.3 msec

LOWER RIB ACCELERATION





MGA Research
11-29-1998 11:29

MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

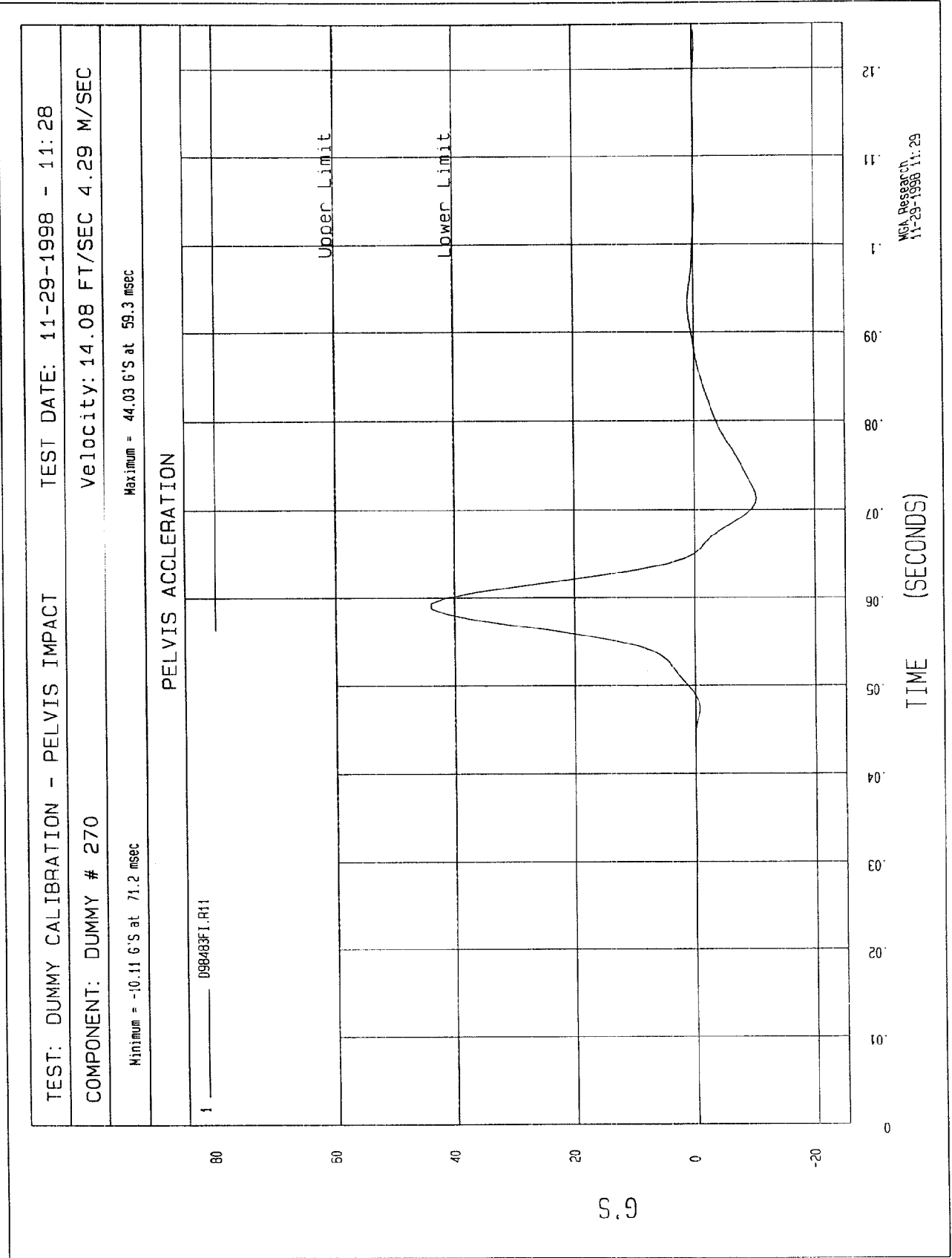
SIDE IMPACT DUMMY (SID)

DATE: November 29, 1998DUMMY SERIAL NUMBER: 270TEST NUMBER: D981483

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	40%
PROBE SPEED (m/s)	4.27 - 4.33	4.29
PELVIS ACCELERATION (g's)	40 - 60	44

TEST MEETS SPECIFICATIONS

TECHNICIAN Jim WAPPROVED BY Alme Korbabe



MGA RESEARCH CORPORATION

ABDOMINAL COMPRESSION TEST

(PRELOAD = 10 LBS)

SIDE IMPACT DUMMY (SID)

DATE: November 29, 1998DUMMY SERIAL NUMBER: 270TEST NUMBER: D981484

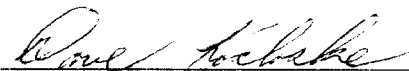
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.0°
RELATIVE HUMIDITY (%)	10 - 70	40%
FORCE @ 12.7 mm	104 - 162	138
FORCE @ 19.0 mm	163 - 222	198
FORCE @ 25.4 mm	222 - 280	264
FORCE @ 33 mm	325 - 391	366

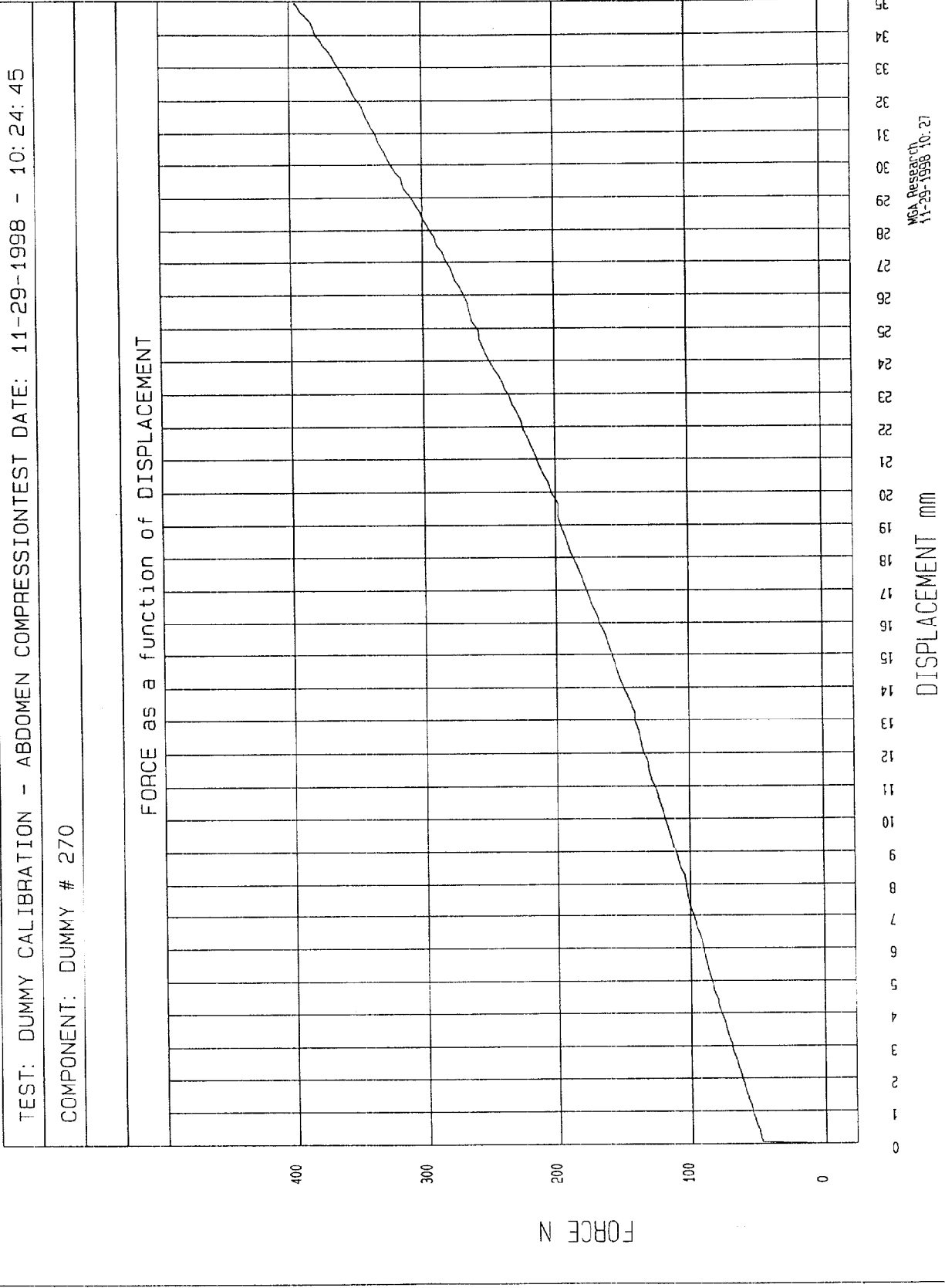
TEST MEETS SPECIFICATIONS

TECHNICIAN



APPROVED BY





MGA RESEARCH CORPORATION

LUMBAR FLEXION TEST

SIDE IMPACT DUMMY (SID)

DATE: November 29, 1998DUMMY SERIAL NUMBER: 270TEST NUMBER: D981485

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	122.8
FORCE @ 30°	151.2 - 204.6	183.0
FORCE @ 40°	204.6 - 258.0	215.1
RETURN ANGLE	12° maximum	4°

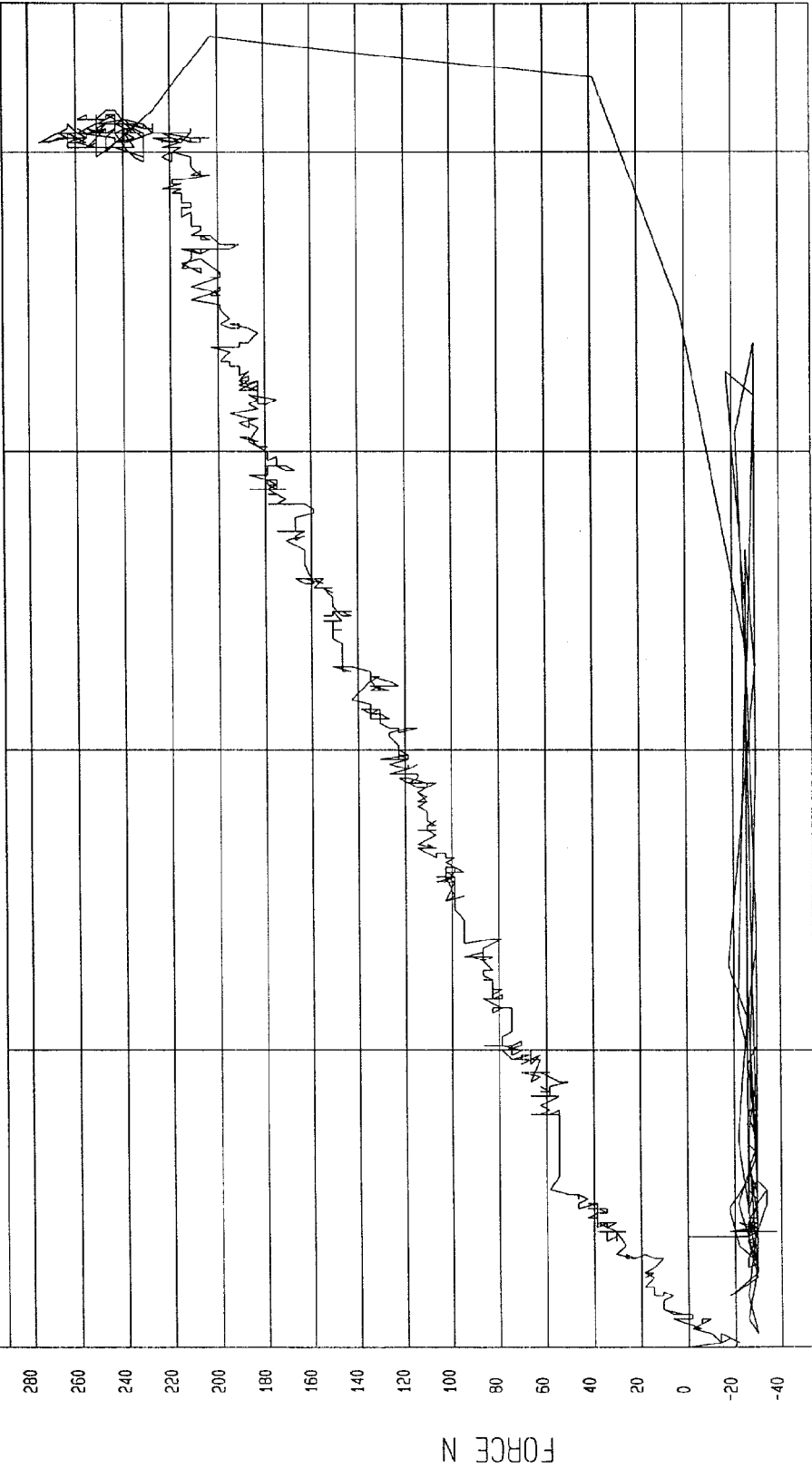
TEST MEETS SPECIFICATIONS

TECHNICIAN APPROVED BY 

TEST: DUMMY CALIBRATION - LUMBAR FLEXION TEST DATE: 11-29-1998 - 10:00:44

COMPONENT: DUMMY # 270

FORCE as a function of TORSO ROTATION



0 10 20 30 40
TORSO ROTATION DEGREES
MCA Research
11-29-1998 10:01

POST-TEST DRIVER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

Serial Number: 269

Inspected By: Tim Michnay

Date: November 29, 1998

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

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

POST-TEST PASSENGER DUMMY INSPECTION CHECKLIST

Type: Side Impact Dummy

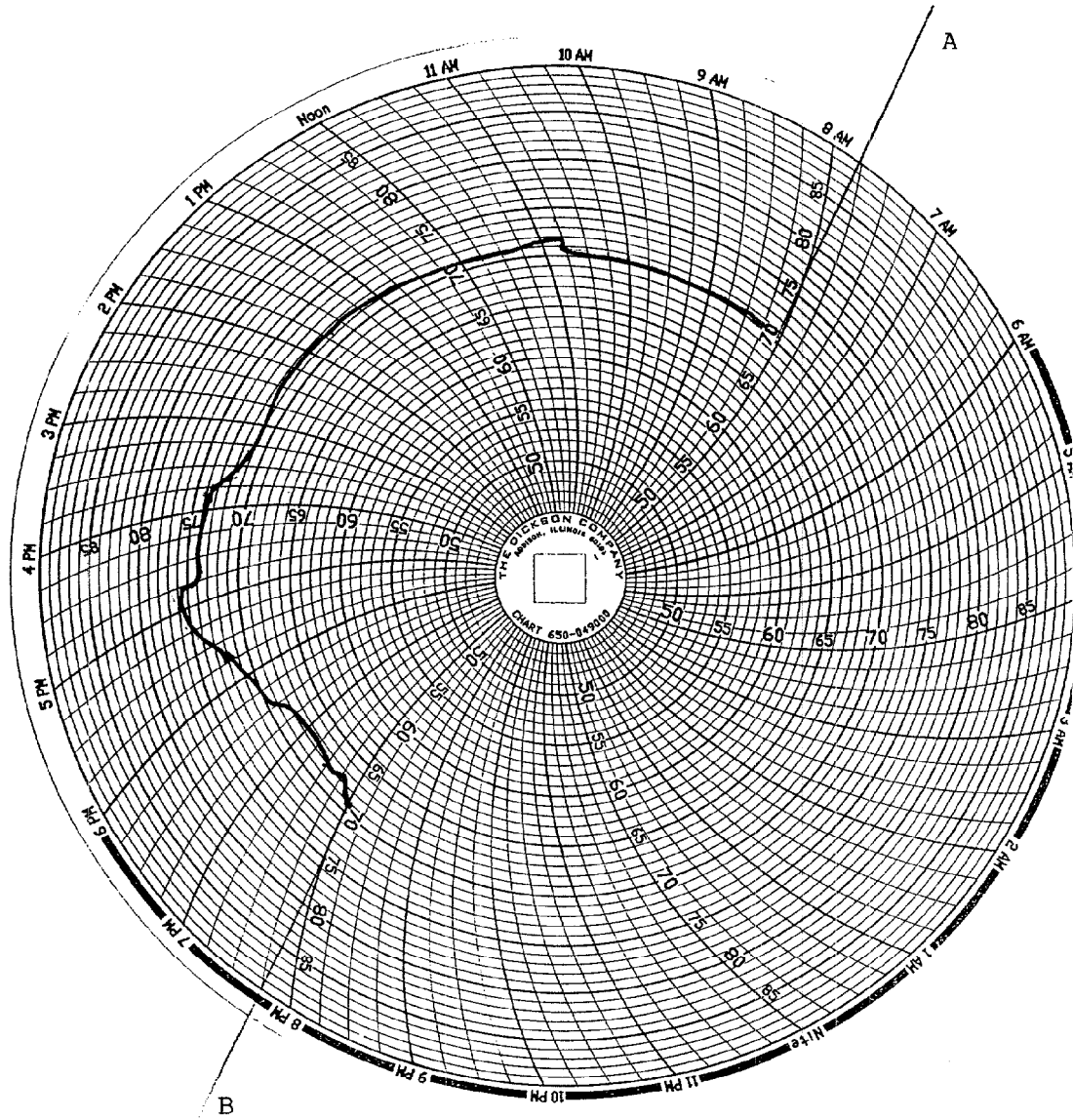
Serial Number: 270

Inspected By: Tim Michnay

Date: November 29, 1998

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

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

VEHICLE AND DUMMY TEMPERATURE

A = dummies installed in vehicle

B = test conducted

APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

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

LEFT REAR PASSENGER			
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Upper Rib Y	AP2D8	Endevco	October 20, 1998
Lower Rib Y	APY15	Endevco	October 20, 1998
Lower Spine Y	AGTP7	Endevco	October 20, 1998
Pelvis Y	ANBP7	Endevco	October 20, 1998
Upper Rib Redundant Y	AP2A4	Endevco	October 20, 1998
Lower Rib Redundant Y	APY16	Endevco	October 20, 1998
Lower Spine Redundant Y	AGT04	Endevco	October 20, 1998
Pelvis Redundant Y	AP1C6	Endevco	October 20, 1998
Head Center of Gravity X	AP179	Endevco	October 20, 1998
Head Center of Gravity Y	ALFP1	Endevco	October 20, 1998
Head Center of Gravity Z	AHTY4	Endevco	October 20, 1998

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Moving Barrier CG X	J06-D22	Entran	June 22, 1998
Moving Barrier CG Y	I18-E18	Entran	September 16, 1998
Moving Barrier CG Z	F12-G02	Entran	June 28, 1998
Moving Barrier Rear Axle X	J10-E14	Entran	June 16, 1998
Moving Barrier Rear Axle Y	F07-G02	Entran	June 16, 1998
Left Mid A-Post Y	F11-G02	Entran	May 15, 1998
Left Lower A-Post Y	A10-G05	Entran	June 16, 1998
Left Mid B-Post Y	K16-X03	Entran	August 27, 1998
Left Lower B-Post Y	C05-Z10	Entran	June 16, 1998
Rear Floorpan Above Axle X	J10-E03	Entran	June 16, 1998
Rear Floorpan Above Axle Y	J10-E16	Entran	June 22, 1998
Rear Floorpan Above Axle Z	F11-G09	Entran	June 28, 1998
Driver Seat Track Y	G01-J12	Entran	June 16, 1998
Right Side Sill at Front Seat X	F20-G05	Entran	August 27, 1998
Right Side Sill at Front Seat Y	G08-B07	Entran	May 20, 1998
Right Side Sill at Front Seat Z	F20-G07	Entran	September 24, 1998
Right Side Sill at Rear Seat X	B14-R14	Entran	August 26, 1998
Right Side Sill at Rear Seat Y	C25-A17	Entran	June 16, 1998
Right Side Sill at Rear Seat Z	K16-X06	Entran	September 15, 1998

VEHICLE INSTRUMENT CALIBRATION

	VEHICLE ACCELEROMETERS		
	SERIAL NO	MANUFACTURER	CALIBRATION DATE
Left Side Sill at Front Seat Y	J10-E06	Entran	June 18, 1998
Left Side Sill at Rear Seat Y	G08-B03	Entran	June 25, 1998
Right Rear Occupant Compartment Y	H07-A25	Entran	March 25, 1998
Vehicle CG X	F20-G10	Entran	September 15, 1998
Vehicle CG Y	F18-G07	Entran	September 15, 1998
Vehicle CG Z	F18-G13	Entran	September 15, 1998
Left Front Door on Centerline	E10-F13	Entran	June 22, 1998
Midrear of Left Front Door	I26-D17	Entran	June 17, 1998
Left Front Door Upper Centerline	G01-J14	Entran	August 26, 1998
Midrear of Left Rear Door	C06-G08	Entran	August 26, 1998
Left Rear Door Upper Centerline	G08-B04	Entran	June 17, 1998

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